City Council Meeting
Monday, July 27, 2026 at 5:30 PM
Council Chambers - 331 First Street East
Agenda

Rules of Procedure
Meeting is live-streamed on the Indytel Local Access Channel, YouTube, and Facebook. Per the Rules of Procedure for Conduct of City Council Business, the length of any meeting shall be limited to three (3) hours. This limitation may be extended for any particular meeting by a super majority (two-thirds (5 out of 7)) vote to suspend the rules and extend the meeting by the time required. The Mayor shall be responsible for enforcing this rule.

Meeting Opening

1. Pledge of Allegiance
2. Roll Call
3. Approve the Agenda
   The agenda may be amended to remove items during this time, but no items may be added to the agenda.
4. Public Comment
   Welcome to Visitors: 5-minute time limitation for speaking, no profanity will be tolerated, and no personal attacks against Council Members or City Staff will be allowed. ***The Council is unable to respond or take any action at this time.*** *Please state your name and address before addressing the Council for the official record.*
5. Hope Wesleyan Church Presentation

Consent Agenda

6. Accept and Approve Consent Agenda
   All items listed under the Consent Agenda will be enacted by one motion. There will be no separate discussion of these items unless a request is made prior to the time the Council Votes on the motion.

   a. The minutes of the July 13, 2026, regular meeting.

Financials

7. Approve the Claims
8. Revenues and Expenses to date – Information Only
9. Transfers – Information Only
10. Fiscal Year 2026 Outstanding Debt Obligation Report

Hearings / Ordinances

11. Third and Final Reading of an Ordinance Amendment to Chapter 70 - Traffic Code Enforcement Procedures
12. Public Hearing to Amend Code Section 1.15 — Fines and Fee Schedule

13. First Reading of an Ordinance Amendment to Code Section 1.15 — Fines and Fees Schedule

14. Public Hearing for the Proposed Rezoning Request of R-2 Residential to M-2 Heavy Manufacturing (LARD LLC)

15. First Reading of an Ordinance Amendment to Chapter 170 — Zoning Regulations (LARD LLC)

16. Public Hearing for the Proposed Rezoning Request of R-2 Residential to M-2 Heavy Manufacturing (Pries Enterprises, INC)

17. First Reading of an Ordinance Amendment to Chapter 170 — Zoning Regulations (Pries Enterprises, INC.)

18. First Reading of an Ordinance Amendment to Code Section 70.02 — Scheduled Violations

Resolutions

19. Resolution approving contract and performance and/or payment bonds for the Wastewater Treatment Plant Modifications Project

20. Resolution to fix a date for a public hearing on proposal to enter into a Sewer Revenue Loan and Disbursement Agreement and to borrow money thereunder in a principal amount not to exceed $56,658,000

Other Business

Reports

Reminder to Council that reports is not for group discussion on items not on the agenda. This is the time to give shout-outs to people or groups. If you would like to talk about an item for a future meeting, you can ask for it here but there can not be further discussion on the item as it could lead to an open meeting law violation.

21. Council Members

22. Staff/Other

    a. City Manager

    b. Mayor

    c. Other Department Heads / Staff

Adjournment

This agenda is subject to change.

City Council

Memorandum

To:	City Council Members
From:	Matthew R. Schmitz, MPA, City Manager
Date of Meeting:	July 27, 2026
Item Title:	Hope Wesleyan Church Presentation

Background:

Hope Wesleyan Church is currently celebrating 100 years of ministry within our community. In recognition of this milestone, Senior Pastor Bob Solon submitted a request for approximately five minutes on the July 23rd agenda to address the Mayor and City Council.

The purpose of the presentation is twofold:

- To recognize and celebrate the church's centennial anniversary.
- To express gratitude for the City Council's ongoing public service, leadership, and dedication to the community.

As part of this recognition, the church intends to present each council member with a commemorative Bible. The church noted this gesture is meant to symbolize their foundational values, including love for their neighbors, compassion, justice, integrity, and hope. It also serves as an expression of their continued commitment to partnering with others for the overall well-being of our city.

The City Attorney has reviewed the details of this request and the proposed presentation. Following this review, the City Attorney found no issues with the item proceeding as planned.

Discussion:

N/A

Results:

The City has established priorities during strategic planning sessions. This item supports the vision from that session of **promoting and encouraging community involvement and engagement**. This item helps achieve that vision by allowing a community member to have a few moments to address the Council.

Financial Consideration:

N/A

Recommendation:

As this item is just a presentation, no recommendation is needed.

Attachments:

None

CITY COUNCIL CONSENT
ITEM A

The Independence City Council met in regular session in the council chambers at 5:30 p.m. on Monday, July 13, 2026.

OPENING/ROLL CALL

Mayor Bleichner opened the meeting by calling the meeting to order with Council Members Weber, Hanna, Moore, Prusator, Mayner, O'Loughlin, and Appleby in attendance.

This meeting was available for public attendance. The meeting was also broadcast on the local access channel, YouTube, and Facebook.

APPROVE THE AGENDA

Motion by Council Member O'Loughlin, second by Council Member Moore to approve the agenda as presented for the regular meeting held July 13, 2026. Ayes: All.

CONSENT AGENDA

Motion by Council Member Mayner, second by Council Member Weber to accept and approve the consent agenda that approves the following: a) The minutes of the June 22, 2026, Regular Meeting. b) Independence RAGBRAI Special Class C Retail Alcohol License application that includes outdoor service with a tentative effective date of July 20, 2026, through July 24, 2026. c) Sip N Zip Retail Tobacco Permit application for Fiscal Year 2027. Ayes: All.

FINANCIALS

Motion by Council Member O'Loughlin, second by Council Member Mayner to approve the following bills for payment. Ayes: All.

ACCESS SYSTEMS LEASING	EQUIP LEASE-ALL	$1,746.98
ACCO	MISC EXP-PR	$10,814.91
ADESSA BRANDENBURG	UMPIRE-PR	$435.00
ADP	PAYROLL SERVICES	$271,212.94
AIR SERVICES INC	BLDG MAINT-CH,F	$721.00
AMAZON CAPITAL SERVICES	SUPPLIES-A,PR,F,PD,W,CH	$7,874.21
ANGELA KILER	PHONE ALLOW	$50.00
ARMOR EQUIPMENT	EQUIP-W	$594,980.00
ASSURITY LIFE INSURANCE CO	ASSUR CRIT ILL	$527.22
BANK IOWA	MISC EXP-B,CH	$68,090.51
BEAM INSURANCE ADMIN LLC	VISION BENEFIT	$527.62
BILL COLWELL FORD	TRUCK-F	$49,516.00
BLAKE HAYWARD	PHONE ALLOW	$50.00
BLEICHNER, BRAD	PHONE ALLOW	$100.00
BODENSTEINER IMPLEMENT	VEH REPAIR-A	$164.37
BOLTON & MENK, INC.	SERVICES-A	$10,437.12
BRAD ESCH	PHONE ALLOW	$50.00
BRENT RECK	PHONE ALLOW	$50.00
BRIAN LAU	PHONE ALLOW	$50.00
BRUENING ROCK	MATERIALS-PR,SW,W	$5,273.22
BUCHANAN COUNTY AUDITOR	DISPATCH SVC-PD	$104,379.50
BUCHANAN COUNTY LANDFILL COMMI	DUES-G	$6,064.00
BUCHANAN COUNTY HEALTH CENTER	SERVICES-F,ST	$121.06
BUCHANAN COUNTY ECONOMIC DEVEL	DUES-CH	$17,585.60
CARD SERVICES-VISA	MISC EXP-PR,CH	$15,537.46
CARTER HOMAN	UMPIRE-PR	$75.00
CITY LAUNDERING CO. INC	BLDG MAINT-PD	$195.12
CITY OF JESUP	TRAINING-PD	$6,731.43
CIVICPLUS	MISC EXP-B,CH,ST,W	$22,128.75
CLARK CORKERY	REIMBURSE-PR	$31.03
CLERK OF DISTRICT COURT	COURT FEES-PD	$15.00
COLE'S ACE HARDWARE	SUPPLIES-PR,ST,CH,F,W,A	$1,266.12

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CONSOLIDATED ENERGY CO	FUEL-A,PR,ST	$4,117.12
CY & CHARLEY'S FIRESTONE INC	VEH REPAIR-PD,PR	$311.66
DAX YOUNGBLUT	UMPIRE-PR	$955.00
DEIKE IMPLEMENT COMPANY	VEH REPAIR-PR	$166.14
DELL MARKETING, LP	DUES-CH	$1,489.60
DELTA DENTAL OF IOWA	DENTAL BENEFIT	$4,072.70
D & K PRODUCTS	SUPPLIES-PR	$620.00
LANGE, CHARLOTTE	REIMBURSE-PR	$25.00
DUNLAP MOTORS INC	VEH REPAIR-PR	$69.94
ELITE LAND IMPROVEMENT, LLC	SERVICES-W	$21,060.70
EMPLOYEE BENEFIT SYSTEMS	HEALTH BENEFIT	$6,165.84
ENVIRONMENTAL SYSTEMS RESEARCH	FEES-SW,W	$1,529.66
ESCHEN'S CLOTHING	SAFETY SUPPLIES-PR	$113.50
EUROFINS ENVIRONMENT TESTING	LAB ANALYSIS-W	$2,457.12
FAHR BEVERAGE, INC.	SUPPLIES-PR	$478.90
FAREWAY STORES INC	SUPPLIES-PR	$6,586.51
FEHR-GRAHAM & ASSOCIATES LLC	SERVICES-B,SW	$3,149.75
FREED CONSTRUCTION	BLDG MAINT-PD	$42,889.75
GAGE, KAYDEN	UMPIRE-PR	$220.00
GALLS, LLC	UNIFORM-PD	$73.50
GCS ELECTRICAL SERVICES	SERVICES-F	$135.00
GENTRY ROGER	RV HOST-PR	$300.00
GUARDIAN	LIFE-LTD-AD&D	$1,335.11
HAUSERS WATER SYSTEMS INC	SOLAR SALT-ST	$24.40
HAWKINS, INC.	CHEMICALS-W	$1,875.50
HEISHMAN, BRETT	REFUND-PR	$450.00
HILLTOP MOTORS INC	VEH REPAIR-W	$425.00
HOG SLAT	SUPPLIES-PR	$1,587.82
HYDRITE CHEMICAL CO.	SUPPLIES-W	$1,789.29
IA LEAGUE OF CITIES	DUES-CH	$3,701.00
INDEPENDENCE LIGHT & POWER	UTILITIES-W,ST,PR,PD,CH,F	$106,527.45
INDEPENDENCE NAPA	SUPPLIES-W,PR,ST	$643.17
IOWA DEPARTMENT OF REVENUE	SALES TAX-PR	$3,132.42
IOWA DNR	DUES-W	$652.75
IOWA LAW ENFORCEMENT ACADEMY	SERVICES-PD	$150.00
IPERS	RETIRE BENEFIT	$34,614.37
JOHN BUTLER	PHONE ALLOW	$50.00
JOHN DEERE FINANCIAL	SUPPLIES-PR,W,CH,A	$3,027.49
J & R SUPPLY INC	SUPPLIES-W	$100.00
KAY PARK REC CORP	EQUIP-PR	$1,362.00
KENNEDY, JAY	UMPIRE-PR	$750.00
KILER, CHASE	UMPIRE-PR	$705.00
KLUESNER CONSTRUCTION INC	SERVICES-ST	$50,240.00
KLUESNER SANITATION, LLC	GARBAGE-G	$97,119.32
KNUDSON, MILES	REIMBURSE-PR	$25.00
KREMER, KADEN	UMPIRE-PR	$815.00
LANDEN SCHANTZ	UMPIRE-PR	$530.00
LEGALSHIELD	LEGAL/ID BENEFIT	$174.55
LISA LORENZEN	REIMBURSE-CH	$857.03
LL PELLING COMPANY	PREMIX-ST	$1,470.18
MANATTS, INC.	CEMENT-SW	$360.25
MARCUS BEATTY	UMPIRE-PR	$1,190.00
MARTIN GARDNER ARCHITECTURE	SERVICES-F	$13,217.77
MATTHEW SCHMITZ	PHONE ALLOW	$100.00
MCCOY WINN	UMPIRE-PR	$530.00
MCGRAW'S CARPETS	FLOORING-CH	$5,043.60
MIDAMERICAN ENERGY COMPANY	UTILITIES-CH,PD,PR	$3,196.29
MORRIS, LANDON	UMPIRE-PR	$120.00

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MSA PROFESSIONAL SERVICES INC	SERVICES-B,W	$781.50
MYERS-COX CO	SUPPLIES-PR	$3,648.63
MYERS POLARIS	VEH REPAIR-W	$748.46
NEJDL, MICHELLE	MISC EXP	$218.20
NICHOLAS, BRYSON	UMPIRE-PR	$40.00
NIMS, MITCHELL	REFUND-PR	$900.00
NORTH CENTRAL LABORATORIES	LAB ANALYSIS-W	$29.20
NORTHEAST IOWA RC&D	FY27 REQ-SW	$4,000.00
OELWEIN PUBLISHING COMPANY	PUBLICAT-CH	$618.36
OFFICE TOWNE INC.	SUPPLIES-PD,B,PR	$393.73
PEAK PROPERTY SOLUTIONS LLC	PROPERTY-CH	$87,378.29
PEPSI-COLA GEN. BOT. IN	SUPPLIES-PR	$3,719.94
PORTZEN CONSTRUCTION, INC	EQUIP REPAIR-PR	$4,046.18
PRECISION PLUMBING, HEATING,	EQUIP-PR	$4,836.50
RANGER REED	UMPIRE-PR	$85.00
RETROFIT ENVIRONMENTAL	SERVICES-G	$3,224.00
RJS WELDING LLC	SERVICES-ST	$125.00
ROBERT BEATTY	PHONE ALLOW	$50.00
SCHIMBERG CO.	SUPPLIES-PR	$366.42
SENNE, NYLES	UMPIRE-PR	$30.00
SIGNS & MORE LLC	SUPPLIES-PD,PR	$345.06
SITE ONE LANDSCAPE SUPPLY	SUPPLIES-PR	$73.72
S&K COLLECTIBLES	SHIPPING-PD	$14.96
SOBIESKI, LANE	PHONE ALLOW	$50.00
SOUKUP, BRETT	PHONE ALLOW	$50.00
SPAHN & ROSE LUMBER COMPANY	SUPPLIES-ST,PR,W	$217.23
STANARD & ASSOCIATES, INC	SUPPLIES-PD	$66.50
STATE STREET BANK & TRUST CO	RETIRE BENEFIT	$13,547.49
STATE FARM	BENEFITS-CH,ST,W	$32.72
STRAND ASSOCIATES	SERVICES-W	$20,740.00
SUPERB CLEANING SERVICES	BLDG MAINT-PR	$2,565.00
TASC	FLEX MED BENEFIT	$2,994.56
THOMAS NEJDL	REIMBURSE-W	$150.00
T-MOBILE	UTILITY-B,CH,PR,PD,W,F	$1,051.96
TRAVIS FOLEY	PHONE ALLOW	$50.00
TRENTON CABELL	PHONE ALLOW	$50.00
TREYTON WEBER	UMPIRE-PR	$890.00
TROTT TROPHIES	MEDALS-PR	$660.00
UMB BANK NA	BOND FEE-CH	$600.00
UNITED STATES TREASURY	PCORI FEE-CH	$145.92
UNITYPOINT HEALTH AT WORK	SERVICES-F,PD	$391.00
USA BLUE BOOK	SUPPLIES-W	$992.25
UTILITY EQUIPMENT COMPANY	SUPPLIES-W	$8,001.58
VERIZON WIRELESS	UTILITY-F,PD	$45.49
VERN'S TRUE VALUE	SUPPLIES-PR,F,ST	$910.89
WBC MECHANICAL INC	MISC EXP-PR,W	$8,231.95
WELLMARK BCBS	HEALTH BENEFIT	$46,559.43
WES HOOKEM	VOLUNTEER-F	$311.09
WEX BANK	FUEL-A,B,F,PD,PR,W	$5,630.90
WRUCKE, KRISTIN	REFUND-PR	$30.00

CLAIMS TOTAL $1,862,319.43; General Fund $548,943.28; Library $24,708.92; Hotel-Motel $17,585.60; Streets Dept-Road Use $40,187.99; Employee Benefits $72,741.08; Debt Service $600.00; Cap Outlay Savings/LOST $317,417.25; Water Fund $299,947.98; Sewer Utility Fund $503,910.39; WWTP Rehab Project $20,740.00; Storm Water $9,371.10; Self Insurance $6,107.33; Self Insurance-Enterprise $58.51.

REVENUES MONTH TO DATE TOTAL $437,285.64 General Fund $137,893.62; Library $203.85; Cap Project-Airport $100,000.00; Cap Outlay Savings/LOST $74,375.69; Water Fund $44,052.49; Sewer Utility $74,305.34; Storm Water $6,140.00; Self Insurance $278,69; Self Insurance-Enterprise $35.96.

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The June 2026 bank reconciliation and the revenues and expenses by department to date were available for council review and discussion.

HEARINGS & ORDINANCES

Council Member Weber made a motion to approve the second reading of an ordinance that amends provisions pertaining to Chapter 70 – Traffic Code Enforcement Procedures, seconded by Council Member Hanna. The roll being called, the following Council Members voted: Ayes: Hanna, Moore, Prusator, Mayner, O'Loughlin, Appleby, and Weber.

Council Member Moore made a motion to set a public hearing on July 27, 2026, at 5:30 pm for consideration of an ordinance amending charges within Section 1.15-Fines and Fees Schedule of the Code of Ordinances of the City of Independence, Iowa, seconded by Council Member Mayner. The roll being called, the following Council Members voted: Ayes: Mayner, O'Loughlin, Appleby, Weber, Hanna, Moore, and Prusator.

Council Member Mayner made a motion to approve the first reading of an ordinance to repeal Chapter 71 – Automated Traffic Enforcement, seconded by Council Member Weber. The roll being called, the following Council Members voted: Ayes: O'Loughlin, Appleby, Weber, Hanna, Moore, Prusator, and Mayner. Council Member O'Loughlin made a motion that the statutory rule requiring an ordinance to be considered and voted on for passage at two Council meetings prior to the meeting at which it is to be finally passed be suspended, seconded by Council Member Weber. The roll being called, the following Council Members voted: Ayes: Weber, Hanna, Moore, Prusator, Mayner, and O'Loughlin. Nays: Appleby. Council Member Moore made a motion to have this ordinance which repeals Chapter 71 – Automated Traffic Enforcement, be placed on its final passage for adoption pursuant to Iowa Code Section 380.3 and to authorize the Mayor to sign the ordinance, seconded by Council Member Prusator. The roll being called, the following Council Members voted: Ayes: Weber, Hanna, Moore, Prusator, Mayner, O'Loughlin, and Appleby.

Ordinance adopted and upon approval by Mayor assigned No. 2026-636 in the Official Book of Ordinances.

WASTEWATER TREATMENT PLANT MODIFICATIONS PROJECT

Mayor Bleichner stated this was the time for further discussion on the proposed plans, specifications, form of contract and estimate of cost for the proposed Wastewater Treatment Plant Modifications Project. Council Member Hanna asked if Woodruff had ever done work at the plant before. City Manager Schmitz stated he did not believe they had done work there before, but they are qualified as they have worked at other plants. Council Member Appleby asked if there were certain segments that could be cut in order to lower the project cost. Mayor Bleichner responded this was not the time for that or the City would have to rebid the entire project.

Council Member Hanna made a motion to approve and authorize the Mayor to sign the resolution awarding the contract for the Wastewater Treatment Plant Modifications Project to Woodruff Construction of Waterloo, Iowa, in the amount of $58,176,300.00, seconded by Council Member Mayner. The roll being called, the following Council Members voted: Ayes: Hanna, Moore, Prusator, Mayner, O'Loughlin, and Weber. Nays: Appleby.

Resolution adopted and upon approval by Mayor assigned No. 2026-59 in the Official Book of Resolutions.

RESOLUTIONS

Council Member Mayner made a motion to approve and authorize the Mayor to sign the resolution approving the preliminary plat of survey for the Pines Fourth Addition to the City of Independence, seconded by Council Member Weber. Mayor Bleichner stated the area was rezoned in April 2026. Fehr Graham had already reviewed the preliminary plat prior to the July 7, 2026, Planning and Zoning Commission meeting. Council Member Hanna asked if all the Planning and Zoning Commission members voted yes on the item. Building Official Chesmore stated there were six yes votes and one person was absent for the meeting. The roll being called, the following Council Members voted: Ayes: Moore, Prusator, Mayner, O'Loughlin, Appleby, Weber, and Hanna.

Resolution adopted and upon approval by Mayor assigned No. 2026-60 in the Official Book of Resolutions.

Council Member Hanna made a motion to approve and authorize the Mayor to sign the resolution that approves the plat of survey, seconded by Council Member Mayner. Mayor BleichNer stated the plat of survey was for a parcel of land owned by LARD LLC, which will be used by Pries for an expansion project. This parcel of land is being broken out of a bigger parcel. The roll being called, the following Council Members voted: Ayes: Prusator, Mayner, O'Loughlin, Appleby, Weber, Hanna, and Moore.

Resolution adopted and upon approval by Mayor assigned No. 2026-61 in the Official Book of Resolutions.

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Council Member Moore made a motion to approve and authorize the Mayor to sign a resolution establishing a time and place for a public hearing on July 27, 2026, at 5:30 p.m. for consideration of a rezoning request from R-2 Residential to M-2 Heavy Manufacturing within the City of Independence, Buchanan County, Iowa, seconded by Council Member Weber. Mayor Bleichner stated this rezoning request is for land owned by LARD LLC. The roll being called, the following Council Members voted: Ayes: Mayner, O'Loughlin, Appleby, Weber, Hanna, Moore, and Prusator.

Resolution adopted and upon approval by Mayor assigned No. 2026-62 in the Official Book of Resolutions.

Council Member Weber made a motion to approve and authorize the Mayor to sign a resolution establishing a time and place for a public hearing on July 27, 2026, at 5:30 p.m. for consideration of a rezoning request from R-2 Residential to M-2 Heavy Manufacturing within the City of Independence, Buchanan County, Iowa, seconded by Council Member Prusator. Mayor Bleichner stated this rezoning request is for land owned by Pries Enterprises. The roll being called, the following Council Members voted: Ayes: O'Loughlin, Appleby, Weber, Hanna, Moore, Prusator, and Mayner.

Resolution adopted and upon approval by Mayor assigned No. 2026-63 in the Official Book of Resolutions.

Council Member Mayner made a motion to approve and authorize the Mayor to sign the resolution to call the election on the proposal to enter into the general obligation loan agreement, seconded by Council Member O'Loughlin. City Manager Schmitz stated this was discussed at the July 6, 2026, Work Session and is now before Council to decide if this gets put on the ballot this November. He stated the ballot language would be "Shall the City of Independence, in Buchanan County, State of Iowa, enter into a loan agreement and issue general obligation bonds in an amount not exceeding $14,500,000 for the purpose of paying the cost, to that extent, of undertaking fire protection facilities improvements, including the expansion, renovation, furnishing and equipping of existing facilities and the acquisition and improvement of real estate for the development of additional facilities?" He reminded Council Members this just sets the maximum amount being borrowed, but the City will only borrow what is needed for the project if it moves forward. Council Member Hanna asked the percentage this would impact property taxes. Council Member O'Loughlin stated the $14,500,000 was above the examples shown at the work session which showed the impact to property taxes. City Manager Schmitz said the examples provided by Speer Financial were to show Council and residents the different levels of impact. For a house with a taxable valuation of $100,000, it would be $159.97 per year annually for the project. The roll being called, the following Council Members voted: Ayes: Appleby, Weber, Hanna, Moore, Prusator, Mayner, and O'Loughlin.

Resolution adopted and upon approval by Mayor assigned No. 2026-64 in the Official Book of Resolutions.

Council Member Mayner made a motion to approve and authorize the Mayor to sign the resolution designating the official locations for posting public meetings notices within the City of Independence, seconded by Council Member Prusator. Mayor Bleichner stated that recent legislation changed Iowa Code 21.4 which now states that cities must now annually designate where agendas are posted. The roll being called, the following Council Members voted: Ayes: Weber, Hanna, Moore, Prusator, Mayner, O'Loughlin, and Appleby.

Resolution adopted and upon approval by Mayor assigned No. 2026-65 in the Official Book of Resolutions.

REPORTS

The following comments were heard from Council and Staff: Police Monthly Report – Council Member Moore asked if there could be a category to identify e-bikes/scooters to see the number of interactions. City Manager Schmitz said he would ask and see if a category could be created. Building Department Monthly Report – Council Member Hanna asked a question regarding fences and where fences could be in relation to the property lines. Building Official Chesmore said he was aware of the property she was talking about and said he had spoken to them. Hanna – The downtown mural is done, and she has heard lots of positive comments. Prusator – Stated volunteers are still needed for RAGBRAI. O'Loughlin – Agreed that more volunteers are needed. Irish Fest in Waterloo is the first week of August and he encouraged people to attend. He asked if the City was still a part of the Landfill Commission. City Manager – People interested in volunteering for RAGBRAI may sign up at independenceragbrai.com and select the different items they wish to assist with. He will be out of the office this Wednesday through Friday for the Iowa City/County Management Association conference in Okoboji. Mayor – The Independence Public Library summer reading program has read 526,602 minutes as of July 6th. There is also a moving story time every Thursday in a different city park. He will be attending the Iowa Mayors Association meeting on July 23rd to hear about consolidating services with other entities. He will be attending the July 21st Buchanan County Landfill Commission. On July 31st, from 10:00 a.m. to 1:30 p.m., there will be a blood drive at the Falcon Civic Center.

ADJOURNMENT

Motion by Council Member Mayner, second by Council Member Weber to adjourn. Ayes: All.

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Whereupon Mayor Bleichner declared the meeting adjourned at 6:06 p.m.

_____
Brad Bleichner, Mayor of the City of Independence, Iowa

ATTEST:

_____
Susi Lampe, CMC, IaCMC, IaCFO,
Assistant City Manager/City Clerk/Treasurer of the City of Independence, Iowa

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City Council

Memorandum

To: City Council Members

From: Susi Lampe, CMC, IaCMC, IaCFO, Assistant City Manager/City Clerk/Treasurer

Date of Meeting: July 27, 2026

Item Title: Approve the Claims

Background:
Presentation of claims for payment for the prior period as shown attached.

Discussion:
This is an opportunity for the Council to ask any questions about any claims presented for payment. The listing of the claims is attached for review.

Results:
The City has established priorities during strategic planning sessions. This item supports the Vision from that session of **efficient and effective planning and prioritizing of all available resources**. This item helps achieve that vision by ensuring that the City's bills are paid in a timely manner.

Financial Consideration:
Items vary in where they are budgeted from, but all expenditures are either budgeted or have been approved by previous Council Actions

Recommendation:
Staff recommend a motion to approve the claims for payment.

Attachments:
1. PO_Listing_By_Vendor_Name-1784908332

Ranges	Item Status	Purchase Types	Misc
Range: *First to Last* ***Rcvd Batch Id Range:*** *First to Last* ***Received Date Range:*** *07/15/26 to 07/28/26*	***Open:*** *N* ***Void:*** *N* ***Paid:*** *Y* ***Held:*** *N* ***Aprv:*** *Y* ***Rcvd:*** *Y*	***Bid:*** *Y* ***State:*** *Y* ***Other:*** *Y* ***Exempt:*** *Y*	***P.O. Type:*** *All* ***Format:*** *Condensed* ***Include Non-Budgeted:*** *Y* ***Prior Year Only:*** *N* ***Vendors:*** *All*

Vendor #		*Name*					
P.O. #	PO Date	Description	Status	Amount	Void Amount	Contract	PO Type
ACCES005		ACCESS SYSTEMS LEASING					
27-00559	07/11/26	EQUIP LEASE-ALL	Open	$1,746.98	$0.00		
ACCO0005		ACCO					
27-00517	07/09/26	CHEMICALS-PR	Open	$1,994.40	$0.00		
27-00518	07/09/26	CHEMICALS-PR	Open	$26.14	$0.00		
			Vendor Total:	**$2,020.54**			
ADP00005		ADP					
27-00516	07/10/26	PAYROLL SVCS	Open	$507.75	$0.00		
27-00668	07/21/26	FED/FICA/STATE	Open	$33,272.91	$0.00		
27-00669	07/21/26	PAYROLL CHECKS	Open	$106,083.63	$0.00		
27-00678	07/17/26	PAYROLL SVCS	Open	$1,300.76	$0.00		
			Vendor Total:	**$141,165.05**			
ALEXS005		ALEX SATTIZAHN					
27-00588	07/15/26	VOLUNTEER-F	Open	$39.81	$0.00		
AMAZO005		AMAZON CAPITAL SERVICES					
27-00407	07/05/26	SUPPLIES-L	Open	$19.95	$0.00		
27-00408	07/06/26	SUPPLIES-L	Open	$36.98	$0.00		
27-00409	07/06/26	SUPPLIES-L	Open	$34.18	$0.00		
27-00410	07/08/26	SUPPLIES-L	Open	$33.55	$0.00		
27-00411	07/01/26	SUPPLIES-L	Open	$12.00	$0.00		
27-00412	07/01/26	SUPPLIES-L	Open	$9.99	$0.00		
27-00413	07/01/26	SUPPLIES-L	Open	$9.21	$0.00		
27-00414	07/01/26	SUPPLIES-L	Open	$202.96	$0.00		
27-00415	07/01/26	SUPPLIES-L	Open	$217.23	$0.00		
27-00416	07/01/26	SUPPLIES-L	Open	$15.58	$0.00		
27-00417	07/01/26	SUPPLIES-L	Open	$129.00	$0.00		
27-00418	07/01/26	SUPPLIES-L	Open	$39.74	$0.00		
27-00419	07/01/26	SUPPLIES-L	Open	$43.83	$0.00		
27-00420	07/01/26	SUPPLIES-L	Open	$15.99	$0.00		
27-00421	07/04/26	SUPPLIES-L	Open	$30.10	$0.00		
27-00422	07/01/26	SUPPLIES-L	Open	$56.88	$0.00		
27-00423	07/01/26	SUPPLIES-L	Open	$12.20	$0.00		
27-00424	07/01/26	SUPPLIES-L	Open	$18.99	$0.00		
			Vendor Total:	**$938.36**			
ANDRE035		ANDREW ROMAN					
27-00587	07/15/26	VOLUNTEER-F	Open	$1,074.87	$0.00		
ANTHO020		ANTHONY SCHULER					
27-00589	07/15/26	VOLUNTEER-F	Open	$132.70	$0.00		
ASCAP005		ASCAP					

Vendor # / P.O. #	PO Date	*Name* / Description	Status	Amount	Void Amount	Contract	PO Type
ASCAP005		ASCAP	*Account Continued*				
27-00607	07/20/26	FEES-CH	Open	$466.13	$0.00		
BEAMI005		BEAM INSURANCE ADMIN LLC					
27-00674	07/21/26	VISION BENEFIT	Open	$527.62	$0.00		
BLACK015		BLACKSTONE PUBLISHING					
27-00425	07/01/26	AUDIO REC-L	Open	$71.98	$0.00		
27-00426	07/02/26	AUDIO REC-L	Open	$125.97	$0.00		
			Vendor Total:	**$197.95**			
BMCAG005		BMC AGGREGATES L.C.					
27-00519	07/01/26	MATERIALS-PR	Open	$290.16	$0.00		
BOOKF005		BOOK FARM LLC					
27-00427	07/01/26	BOOKS-L	Open	$53.93	$0.00		
BRODA005		BRODART CO					
27-00428	07/04/26	BOOKS-L	Open	$546.83	$0.00		
27-00429	07/04/26	BOOKS-L	Open	$6.36	$0.00		
27-00430	07/04/26	BOOKS-L	Open	$283.64	$0.00		
27-00431	07/04/26	BOOKS-L	Open	$27.81	$0.00		
27-00432	07/04/26	BOOKS-L	Open	$27.81	$0.00		
27-00433	07/04/26	BOOKS-L	Open	$16.42	$0.00		
27-00434	07/04/26	BOOKS-L	Open	$25.01	$0.00		
27-00435	07/04/26		Open	$24.27	$0.00		
27-00436	07/04/26	BOOKS-L	Open	$12.47	$0.00		
27-00437	07/04/26	BOOKS-L	Open	$35.58	$0.00		
27-00438	07/04/26	BOOKS-L	Open	$254.43	$0.00		
27-00439	07/04/26	BOOKS-L	Open	$6.36	$0.00		
27-00440	07/04/26	BOOKS-L	Open	$54.18	$0.00		
27-00441	07/04/26	BOOKS-L	Open	$11.86	$0.00		
27-00442	07/04/26	BOOKS-L	Open	$21.83	$0.00		
27-00443	07/04/26	BOOKS-L	Open	$11.68	$0.00		
			Vendor Total:	**$1,366.54**			
BRODY005		BRODY TILL					
27-00592	07/15/26	VOLUNTEER-F	Open	$106.16	$0.00		
BRUEN005		BRUENING ROCK					
27-00520	07/01/26	ROAD ROCK-W	Open	$651.70	$0.00		
27-00521	07/01/26	ROAD ROCK-W	Open	$2,589.78	$0.00		
27-00522	07/09/26	ROAD ROCK-W	Open	$1,529.22	$0.00		
27-00618	07/15/26	ROAD ROCK-W	Open	$1,227.09	$0.00		
			Vendor Total:	**$5,997.79**			
BUCHA030		BUCHANAN COUNTY ABSTRACT					
27-00523	07/15/26	SERVICES-B	Open	$500.00	$0.00		
27-00524	07/15/26	SERVICES-B	Open	$500.00	$0.00		
			Vendor Total:	**$1,000.00**			

Vendor # / P.O. #	PO Date	*Name* / Description	Status	Amount	Void Amount	Contract	PO Type
BUHRM005		BUHR, MICHELE					
27-00382	07/15/26	REFUND-PR	Open	$60.00	$0.00		
CARDS005		CARD SERVICES-LIBRARY					
27-00404	07/03/26	MISC EXP-L	Open	$148.84	$0.00		
27-00405	07/03/26	MISC EXP-L	Open	$565.09	$0.00		
27-00406	07/03/26	MISC EXP-L	Open	$43.38	$0.00		
			Vendor Total:	**$757.31**			
CARDS010		CARD SERVICES-VISA					
27-00627	07/03/26	MISC EXP-PD,F,CH,W	Open	$372.80	$0.00		
27-00628	07/03/26	MISC EXP-PD,F,CH,W	Open	$7,418.51	$0.00		
27-00629	07/03/26	MISC EXP-PD,F,CH,W	Open	$65.93	$0.00		
27-00630	07/03/26	MISC EXP-PD,F,CH,W	Open	$7,891.60	$0.00		
			Vendor Total:	**$15,748.84**			
CARSO015		CARSON, LINDA					
27-00383	07/15/26	REFUNDS-PR	Open	$20.00	$0.00		
CARTE015		CARTER HOMAN					
27-00598	07/17/26	UMPIRE-PR	Open	$45.00	$0.00		
CEDAR025		CEDAR BEND HUMANE SOCIETY					
27-00384	07/07/26	SERVICES-AC	Open	$64.00	$0.00		
CENGA005		CENGAGE LEARNING					
27-00444	07/01/26	BOOKS-L	Open	$479.19	$0.00		
27-00445	07/01/26	BOOKS-L	Open	$89.25	$0.00		
27-00446	07/01/26	BOOKS-L	Open	$26.25	$0.00		
27-00447	07/01/26	BOOKS-L	Open	$60.35	$0.00		
27-00448	07/01/26	BOOKS-L	Open	$28.90	$0.00		
			Vendor Total:	**$683.94**			
CENTE010		CENTER POINT LARGE PRINT					
27-00449	07/01/26	BOOKS-L	Open	$58.74	$0.00		
CHILD005		CHILDREN'S NEBRASKA					
27-00385	07/01/26	SERVICES-F	Open	$30.00	$0.00		
CHRIS040		CHRISTIAN BLAD					
27-00575	07/15/26	VOLUNTEER-F	Open	$716.58	$0.00		
CITYL005		CITY LAUNDERING CO. INC					
27-00601	07/21/26	BLDG MAINT-PD	Open	$97.56	$0.00		
COLES005		COLE'S ACE HARDWARE					
27-00450	07/01/26	SUPPLIES-L,W	Open	$1.88	$0.00		
27-00525	07/01/26	SUPPLIES-L,W	Open	$4.59	$0.00		
			Vendor Total:	**$6.47**			
CONNI015		CONNIE MCDONALD					

Vendor # / P.O. #	PO Date	*Name* / Description	Status	Amount	Void Amount	Contract	PO Type
CONNI015		CONNIE MCDONALD	*Account Continued*				
27-00602	07/05/26	UNIFORM-PD	Open	$7.00	$0.00		
CREIG005		CREIGHTON MORONEY					
27-00526	07/15/26	SERVICES-G	Open	$2,400.00	$0.00		
CUSTO010		CUSTOM CONCRETE LLC					
27-00386	07/02/26	SERVICES-ST	Open	$5,740.00	$0.00		
DKPRO005		D & K PRODUCTS					
27-00603	07/13/26	CHEMICALS-PR	Open	$949.50	$0.00		
DSPOR005		D & S PORTABLES INC					
27-00527	07/02/26	SERVICES-PR	Open	$2,150.00	$0.00		
27-00528	07/02/26	SERVICES-PR	Open	$1,975.00	$0.00		
			Vendor Total:	**$4,125.00**			
DELTA005		DELTA DENTAL OF IOWA					
27-00676	07/21/26	DENTAL BENEFIT	Open	$4,358.36	$0.00		
DREWR005		DREW REICKS					
27-00586	07/15/26	VOLUNTEER-F	Open	$219.94	$0.00		
DUFFY005		DUFFY, LEVI					
27-00578	07/15/26	VOLUNTEER-F	Open	$145.97	$0.00		
EASTC005		EAST-CENTRAL IOWA R.E.C.					
27-00388	07/10/26	UTILITIES-A,PR,ST,CH,W	Open	$2,021.97	$0.00		
27-00389	07/10/26	UTILITIES-A,PR,ST,CH,W	Open	$483.26	$0.00		
			Vendor Total:	**$2,505.23**			
EASTE005		EASTERN IOWA EXCAVATING					
27-00529	07/16/26	SERVICES-SW	Open	$1,500.00	$0.00		
ELECT005		ELECTRIC PUMP INC					
27-00530	07/10/26	EQUIP REPAIR-W	Open	$2,385.00	$0.00		
27-00531	07/10/26	EQUIP REPAIR-W	Open	$2,643.75	$0.00		
			Vendor Total:	**$5,028.75**			
ELITE010		ELITE LAND IMPROVEMENT, LLC					
27-00532	07/13/26	SERVICES-W	Open	$18,169.95	$0.00		
EMPLO015		EMPLOYEE BENEFIT SYSTEMS					
27-00390	07/15/26	SAFETFUND07152026	Open	$9,828.67	$0.00		
ESCHE005		ESCHEN'S CLOTHING					
27-00621	07/22/26	UNIFORM-W	Open	$423.00	$0.00		
FAREW005		FAREWAY STORES INC					
27-00626	07/01/26	SUPPLIES-PR	Open	$3,874.02	$0.00		
FUTUR005		FUTURE LINE LLC					

Vendor # / P.O. #	PO Date	*Name* / Description	Status	Amount	Void Amount	Contract	PO Type
FUTUR005		FUTURE LINE LLC	*Account Continued*				
27-00401	07/01/26	VEH MAINT-ST	Open	$722.33	$0.00		
GAGEK005		GAGE, KAYDEN					
27-00599	07/17/26	UMPIRE-PR	Open	$60.00	$0.00		
GORDY005		GORDY FENNER					
27-00581	07/15/26	VOLUNTEER-F	Open	$212.32	$0.00		
HAGER005		HAGER, LANDEN					
27-00582	07/15/26	VOLUNTEER-F	Open	$345.02	$0.00		
HARTM005		HARTMAN, CORY					
27-00680	07/01/26	REFUND-PR	Open	$30.00	$0.00		
HAWKI005		HAWKINS, INC.					
27-00533	07/15/26	CHEMICALS-W	Open	$90.00	$0.00		
27-00534	07/15/26	CHEMICALS-W	Open	$2,069.00	$0.00		
			Vendor Total:	**$2,159.00**			
HOGSL005		HOG SLAT					
27-00605	07/20/26	SUPPLIES-PR	Open	$15.75	$0.00		
HYVEE005		HY-VEE ACCOUNTS RECEIVABLE					
27-00391	07/01/26	SUPPLIES-PR	Open	$43.78	$0.00		
IAPRI005		IA PRISON INDUSTRIES					
27-00606	07/15/26	SIGNS-ST	Open	$543.48	$0.00		
INDEP005		INDEPENDENCE LIGHT & POWER					
27-00402	07/07/26	UTILITIES-L	Open	$1,610.71	$0.00		
27-00535	07/16/26	SERVICES-ALL	Open	$2,435.00	$0.00		
			Vendor Total:	**$4,045.71**			
INDEP045		INDEPENDENCE PLUMBING, HEATING					
27-00536	07/01/26	BLDG MAINT-W,PR	Open	$364.49	$0.00		
27-00537	07/06/26	BLDG MAINT-W,PR	Open	$755.75	$0.00		
			Vendor Total:	**$1,120.24**			
INDEP100		INDEPENDENCE ROTARY CLUB					
27-00560	07/01/26	DUES-CH	Open	$157.00	$0.00		
INGRA005		INGRAM LIBRARY SERVICES					
27-00451	07/01/26	BOOKS-L	Open	$11.39	$0.00		
27-00452	07/01/26	BOOKS-L	Open	$24.98	$0.00		
27-00453	07/01/26	BOOKS-L	Open	$18.00	$0.00		
27-00454	07/01/26	BOOKS-L	Open	$18.00	$0.00		
27-00455	07/01/26	BOOKS-L	Open	$36.00	$0.00		
27-00456	07/01/26	BOOKS-L	Open	$18.00	$0.00		
27-00457	07/01/26	BOOKS-L	Open	$16.80	$0.00		
27-00458	07/01/26	BOOKS-L	Open	$17.40	$0.00		
27-00459	07/01/26	BOOKS-L	Open	$17.37	$0.00		

Vendor # / P.O. #	PO Date	*Name* / Description	Status	Amount	Void Amount	Contract	PO Type
INGRA005		INGRAM LIBRARY SERVICES	*Account Continued*				
27-00460	07/01/26	BOOKS-L	Open	$16.79	$0.00		
27-00461	07/01/26	BOOKS-L	Open	$21.00	$0.00		
27-00462	07/01/26	BOOKS-L	Open	$40.78	$0.00		
27-00463	07/01/26	BOOKS-L	Open	$70.15	$0.00		
27-00464	07/01/26	BOOKS-L	Open	$18.00	$0.00		
27-00465	07/01/26	BOOKS-L	Open	$18.00	$0.00		
27-00466	07/01/26	BOOKS-L	Open	$102.56	$0.00		
27-00467	07/01/26	BOOKS-L	Open	$18.60	$0.00		
27-00468	07/01/26	BOOKS-L	Open	$18.00	$0.00		
27-00469	07/01/26	BOOKS-L	Open	$11.39	$0.00		
27-00470	07/01/26	BOOKS-L	Open	$18.00	$0.00		
27-00471	07/01/26	BOOKS-L	Open	$11.99	$0.00		
27-00472	07/01/26	BOOKS-L	Open	$34.80	$0.00		
27-00473	07/01/26	BOOKS-L	Open	$11.99	$0.00		
27-00474	07/01/26	BOOKS-L	Open	$18.60	$0.00		
27-00475	07/01/26	BOOKS-L	Open	$11.40	$0.00		
27-00476	07/01/26	BOOKS-L	Open	$11.39	$0.00		
27-00477	07/01/26	BOOKS-L	Open	$18.00	$0.00		
27-00478	07/02/26	BOOKS-L	Open	$17.40	$0.00		
27-00479	07/02/26	BOOKS-L	Open	$49.76	$0.00		
27-00480	07/02/26	BOOKS-L	Open	$18.00	$0.00		
27-00481	07/01/26	BOOKS-L	Open	$17.11	$0.00		
27-00482	07/01/26	BOOKS-L	Open	$20.61	$0.00		
27-00483	07/01/26	BOOKS-L	Open	$39.44	$0.00		
27-00484	07/01/26	BOOKS-L	Open	$37.14	$0.00		
27-00485	07/01/26	BOOKS-L	Open	$36.54	$0.00		
27-00486	07/01/26	BOOKS-L	Open	$17.40	$0.00		
27-00487	07/01/26	BOOKS-L	Open	$20.32	$0.00		
27-00488	07/01/26	BOOKS-L	Open	$23.93	$0.00		
27-00489	07/01/26	BOOKS-L	Open	$23.68	$0.00		
27-00490	07/01/26	BOOKS-L	Open	$24.51	$0.00		
27-00491	07/01/26	BOOKS-L	Open	$22.78	$0.00		
27-00492	07/01/26	BOOKS-L	Open	$22.18	$0.00		
27-00493	07/02/26	BOOKS-L	Open	$23.93	$0.00		
27-00494	07/05/26	BOOKS-L	Open	$23.93	$0.00		
27-00513	07/01/26	BOOKS-L	Open	$18.00	$0.00		
27-00514	07/01/26	BOOKS-L	Open	$11.39	$0.00		
			Vendor Total:	**$1,117.43**			
IOWAD005		IOWA DEPARTMENT OF REVENUE					
27-00515	07/15/26	SALES TAX-W	Open	$9,203.94	$0.00		
JRSUP005		J & R SUPPLY INC					
27-00538	07/14/26	EQUIP-W,ST	Open	$1,010.00	$0.00		
27-00539	07/15/26	EQUIP-W,ST	Open	$400.00	$0.00		
27-00616	07/21/26	SUPPLIES-W	Open	$990.00	$0.00		
			Vendor Total:	**$2,400.00**			
JACOB020		JACOBS, MORGAN					

Vendor # / P.O. #	PO Date	*Name* / Description	Status	Amount	Void Amount	Contract	PO Type
JACOB020		JACOBS, MORGAN	*Account Continued*				
27-00584	07/15/26	VOLUNTEER-F	Open	$291.94	$0.00		
JASON020		JASON DECKER					
27-00576	07/15/26	VOLUNTEER-F	Open	$119.43	$0.00		
JENNI020		JENNIFER SIMMONS					
27-00590	07/15/26	VOLUNTEER-F	Open	$278.67	$0.00		
JOHND005		JOHN DEERE FINANCIAL					
27-00632	07/01/26	SUPPLIES-PR,W,ST,A	Open	$50.00	$0.00		
27-00633	07/01/26	SUPPLIES-PR,W,ST,A	Open	$9.99	$0.00		
27-00634	07/01/26	SUPPLIES-PR,W,ST,A	Open	$15.98	$0.00		
27-00635	07/01/26	SUPPLIES-PR,W,ST,A	Open	$22.76	$0.00		
27-00636	07/01/26	SUPPLIES-PR,W,ST,A	Open	$36.38	$0.00		
27-00637	07/01/26	SUPPLIES-PR,W,ST,A	Open	$76.11	$0.00		
27-00638	07/01/26	SUPPLIES-PR,W,ST,A	Open	$19.56	$0.00		
27-00639	07/01/26	SUPPLIES-PR,W,ST,A	Open	$20.97	$0.00		
27-00640	07/01/26	SUPPLIES-PR,W,ST,A	Open	$49.99	$0.00		
27-00641	07/01/26	SUPPLIES-PR,W,ST,A	Open	$1.44	$0.00		
27-00642	07/01/26	SUPPLIES-PR,W,ST,A	Open	$39.04	$0.00		
27-00643	07/01/26	SUPPLIES-PR,W,ST,A	Open	$9.99	$0.00		
27-00644	07/01/26	SUPPLIES-PR,W,ST,A	Open	$11.68	$0.00		
27-00645	07/01/26	SUPPLIES-PR,W,ST,A	Open	$79.80	$0.00		
27-00646	07/01/26	SUPPLIES-PR,W,ST,A	Open	$0.96	$0.00		
27-00647	07/01/26	SUPPLIES-PR,W,ST,A	Open	$71.38	$0.00		
27-00648	07/06/26	SUPPLIES-PR,W,ST,A	Open	$17.98	$0.00		
27-00649	07/06/26	SUPPLIES-PR,W,ST,A	Open	$30.06	$0.00		
27-00650	07/07/26	SUPPLIES-PR,W,ST,A	Open	$5.99	$0.00		
27-00651	07/14/26	SUPPLIES-PR,W,ST,A	Open	$27.87	$0.00		
27-00652	07/14/26	SUPPLIES-PR,W,ST,A	Open	$38.25	$0.00		
27-00653	07/14/26	SUPPLIES-PR,W,ST,A	Open	$49.47	$0.00		
27-00654	07/14/26	SUPPLIES-PR,W,ST,A	Open	$128.00	$0.00		
27-00655	07/15/26	SUPPLIES-PR,W,ST,A	Open	$28.97	$0.00		
27-00656	07/15/26	SUPPLIES-PR,W,ST,A	Open	$37.54	$0.00		
27-00657	07/16/26	SUPPLIES-PR,W,ST,A	Open	$97.44	$0.00		
27-00659	07/17/26	SUPPLIES-PR,W,ST,A	Open	$37.98	$0.00		
27-00660	07/20/26	SUPPLIES-PR,W,ST,A	Open	13.99-	$0.00		
27-00661	07/20/26	SUPPLIES-PR,W,ST,A	Open	$14.99	$0.00		
27-00662	07/20/26	SUPPLIES-PR,W,ST,A	Open	$19.99	$0.00		
27-00663	07/20/26	SUPPLIES-PR,W,ST,A	Open	$35.97	$0.00		
27-00664	07/20/26	SUPPLIES-PR,W,ST,A	Open	$41.98	$0.00		
27-00665	07/20/26	SUPPLIES-PR,W,ST,A	Open	$49.96	$0.00		
			Vendor Total:	**$1,164.48**			
JORDO005		JORDON WULFEKUHLE					
27-00593	07/15/26	VOLUNTEER-F	Open	$199.05	$0.00		
JUNIO005		JUNIOR LIBRARY GUILD					
27-00495	07/01/26	BOOKS-L	Open	$2.00	$0.00		

Vendor # / P.O. #	PO Date	*Name* / Description	Status	Amount	Void Amount	Contract	PO Type
JUNIO005		JUNIOR LIBRARY GUILD	*Account Continued*				
KQSPO005		KQ SPORTS					
27-00666	07/22/26	EQUIP-PR	Open	$1,381.00	$0.00		
LEGAL005		LEGALSHIELD					
27-00677	07/21/26	LEGAL/ID BENEFIT	Open	$174.55	$0.00		
LIBRA005		LIBRARY IDEAS LLC					
27-00496	07/01/26	BOOKS-L	Open	$392.16	$0.00		
27-00497	07/01/26	BOOKS-L	Open	$62.96	$0.00		
			Vendor Total:	**$455.12**			
LINOH005		LINOH20, LLC					
27-00540	07/01/26	LAB ANALYSIS-W	Open	$299.00	$0.00		
LLPEL005		LL PELLING COMPANY					
27-00392	07/07/26	PREMIX-ST	Open	$776.82	$0.00		
LYNCH005		LYNCH DALLAS, PC					
27-00561	07/16/26	SERVICES-CH	Open	$1,580.00	$0.00		
27-00562	07/16/26	SERVICES-CH	Open	$1,455.64	$0.00		
27-00563	07/16/26	SERVICES-CH	Open	$337.00	$0.00		
27-00564	07/16/26	SERVICES-CH	Open	$2,021.17	$0.00		
27-00565	07/16/26	SERVICES-CH	Open	$830.00	$0.00		
27-00566	07/16/26	SERVICES-CH	Open	$1,340.26	$0.00		
27-00567	07/16/26	SERVICES-CH	Open	$60.00	$0.00		
			Vendor Total:	**$7,624.07**			
MACQU005		MACQUEEN EQUIPMENT					
27-00393	07/06/26	VEH REPAIR-ST	Open	$329.21	$0.00		
MANAT005		MANATTS, INC.					
27-00541	07/16/26	SERVICES-W	Open	$1,468.50	$0.00		
27-00608	07/02/26	CEMENT-PR	Open	$641.00	$0.00		
27-00617	07/01/26	CEMENT-PR.W	Open	$419.00	$0.00		
			Vendor Total:	**$2,528.50**			
MARCU005		MARCUS BEATTY					
27-00600	07/17/26	UMPIRE-PR	Open	$135.00	$0.00		
MCCUR005		MCCURDY-SAVAGO, COOPER					
27-00585	07/15/26	VOLUNTEER-F	Open	$729.85	$0.00		
MICRO005		MICROBAC LABORATORIES, INC					
27-00542	07/01/26	LAB ANALYSIS-W	Open	$469.25	$0.00		
MIDAM005		MIDAMERICAN ENERGY COMPANY					
27-00498	07/13/26	UTILITIES-L	Open	$14.66	$0.00		
27-00568	07/13/26	UTILITY-ST,W,CH,PD,PR	Open	$2,187.00	$0.00		
27-00569	07/13/26	UTILITY-ST,W,CH,PD,PR	Open	$78.52	$0.00		

Vendor # / P.O. #	PO Date	*Name* / Description	Status	Amount	Void Amount	Contract	PO Type
MIDAM005		MIDAMERICAN ENERGY COMPANY	*Account Continued*				
27-00570	07/13/26	UTILITY-ST,W,CH,PD,PR	Open	$66.02	$0.00		
27-00571	07/13/26	UTILITY-ST,W,CH,PD,PR	Open	$3,332.20	$0.00		
27-00572	07/13/26	UTILITY-ST,W,CH,PD,PR	Open	$33.66	$0.00		
27-00609	07/13/26	UTILITY-ST,W,CH,PD,PR	Open	$75.13	$0.00		
			Vendor Total:	**$5,787.19**			
MIDWE075		MIDWEST JANITORIAL SERVICE					
27-00499	07/07/26	BLDG MAINT-L	Open	$1,635.00	$0.00		
MIDWE040		MIDWEST SAFETY COUNSELORS INC					
27-00543	07/01/26	LAB ANALYSIS-W	Open	$150.00	$0.00		
MIKEZ010		MIKE ZIMMERLY					
27-00594	07/15/26	VOLUNTEER-F	Open	$26.54	$0.00		
MILLE035		MILLER'S ROOFING AND CONSTRUCT					
27-00544	07/02/26	BLDG MAINT-PD	Open	$6,450.00	$0.00		
MORRI015		MORRIS, LANDON					
27-00596	07/17/26	UMPIRE-PR	Open	$110.00	$0.00		
MUELL005		MUELLER CO., LLC					
27-00545	07/02/26	EQUIP REPAIR-W	Open	$150.38	$0.00		
MYERS005		MYERS-COX CO					
27-00394	07/09/26	SUPPLIES-PR	Open	$355.63	$0.00		
27-00395	07/09/26	SUPPLIES-PR	Open	$1,310.85	$0.00		
27-00610	07/16/26	SUPPLIES-PR	Open	$1,489.68	$0.00		
27-00611	07/16/26	SUPPLIES-PR	Open	$770.70	$0.00		
			Vendor Total:	**$3,926.86**			
NATHA020		NATHAN BEENBLOSSOM					
27-00574	07/15/26	VOLUNTEER-F	Open	$278.67	$0.00		
NEIAN005		NE IA NUISANCE ANIMAL CONTROL					
27-00396	07/05/26	SERVICES-PR	Open	$760.00	$0.00		
NICHO015		NICHOLAS, BRYSON					
27-00597	07/17/26	UMPIRE-PR	Open	$40.00	$0.00		
NORTH020		NORTH CENTRAL LABORATORIES					
27-00546	07/01/26	LAB ANALYSIS-W	Open	$76.49	$0.00		
27-00547	07/06/26	LAB ANALYSIS-W	Open	$74.20	$0.00		
			Vendor Total:	**$150.69**			
OFFIC010		OFFICE TOWNE INC.					
27-00613	07/07/26	SUPPLIES-PR,ST	Open	$503.16	$0.00		
27-00614	07/17/26	SUPPLIES-PR,ST	Open	$61.60	$0.00		
27-00679	07/01/26	SUPPLIES-PR,ST	Open	$144.05	$0.00		
			Vendor Total:	**$708.81**			

Vendor # / P.O. #	PO Date	*Name* / Description	Status	Amount	Void Amount	Contract	PO Type
OVERD005		OVERDRIVE INC.					
27-00500	07/01/26	E-BOOKS-L	Open	$2,058.56	$0.00		
PENWO005		PENWORTHY COMPANY, THE					
27-00501	07/01/26	BOOKS-L	Open	$299.69	$0.00		
PEPSI005		PEPSI-COLA GEN. BOT. IN					
27-00615	07/17/26	SUPPLIES-PR	Open	$1,135.70	$0.00		
PERMA005		PERMA-BOUND					
27-00502	07/08/26	BOOKS-L	Open	23.15-	$0.00		
27-00503	07/01/26	BOOKS-L	Open	22.91-	$0.00		
27-00504	07/01/26	BOOKS-L	Open	$51.97	$0.00		
27-00505	07/01/26	BOOKS-L	Open	$52.73	$0.00		
27-00506	07/01/26	BOOKS-L	Open	$172.09	$0.00		
			Vendor Total:	**$230.73**			
PIZZA010		PIZZA RANCH					
27-00548	07/10/26	SUPPLIES-PR	Open	$4,681.00	$0.00		
PRECI010		PRECISION PLUMBING, HEATING,					
27-00549	07/01/26	BLDG REPAIR-PR	Open	$312.50	$0.00		
PURCH005		PURCHASE POWER					
27-00550	07/14/26	POSTAGE-ALL	Open	$264.99	$0.00		
QTPOD005		QTPOD					
27-00551	07/14/26	SERVICES-A	Open	$1,195.00	$0.00		
RANGE005		RANGER REED					
27-00507	07/01/26	SERVICES-PR	Open	$60.00	$0.00		
27-00595	07/17/26	UMPIRE-PR	Open	$160.00	$0.00		
			Vendor Total:	**$220.00**			
RICKR005		RICK RATCHFORD, INC.					
27-00552	07/04/26	SERVICES-E	Open	$2,875.00	$0.00		
SENSO005		SENSOURCE					
27-00508	07/01/26	COMP EXP-L	Open	$240.00	$0.00		
SIGNS005		SIGNS & MORE LLC					
27-00398	07/13/26	SUPPLIES-A	Open	$144.48	$0.00		
27-00553	07/06/26	SUPPLIES-PD	Open	$377.00	$0.00		
27-00554	07/01/26	SUPPLIES-PD	Open	$215.34	$0.00		
27-00622	07/21/26	UNIFORM-PD	Open	$15.25	$0.00		
			Vendor Total:	**$752.07**			
STANE005		STANEK, BETH					
27-00397	07/01/26	REFUND-PR	Open	$40.00	$0.00		
STATE025		STATE FARM					

Vendor # / P.O. #	PO Date	*Name* / Description	Status	Amount	Void Amount	Contract	PO Type
STATE025		STATE FARM	*Account Continued*				
27-00573	07/10/26	BENEFIT-CH,ST,W	Open	$32.72	$0.00		
STATE015		STATE HYGIENIC LABORATORY					
27-00555	07/01/26	LAB ANALYSIS-PR	Open	$15.50	$0.00		
STATE020		STATE STREET BANK & TRUST CO					
27-00670	07/21/26	RETIRE BENEFIT	Open	$5,649.92	$0.00		
27-00671	07/21/26	RETIRE BENEFIT	Open	$1,041.74	$0.00		
			Vendor Total:	**$6,691.66**			
STORE005		STOREY KENWORTHY - MATT PARROT					
27-00509	07/01/26	SUPPLIES-L	Open	$241.07	$0.00		
27-00510	07/01/26	SUPPLIES-L	Open	$97.40	$0.00		
27-00620	07/08/26	SUPPLIES-A,CH,PD	Open	$981.54	$0.00		
			Vendor Total:	**$1,320.01**			
TANNE005		TANNER ERICKSON-DALE					
27-00579	07/15/26	VOLUNTEER-F	Open	$119.43	$0.00		
TASC0005		TASC					
27-00672	07/21/26	FLEX MED BENEFIT	Open	$1,497.28	$0.00		
TAYLO015		TAYLOR SIMMONS					
27-00591	07/15/26	VOLUNTEER-F	Open	$119.43	$0.00		
TONYD005		TONY DELGADO-CONNOR					
27-00577	07/15/26	VOLUNTEER-F	Open	$159.24	$0.00		
TYFAN005		TY FANGMAN					
27-00580	07/15/26	VOLUNTEER-F	Open	$583.88	$0.00		
UNITY010		UNITYPOINT HEALTH					
27-00667	07/21/26	SERVICES-A,F	Open	$132.00	$0.00		
USCEL005		US CELLULAR					
27-00511	07/01/26	COMP EXP-L	Open	$208.53	$0.00		
USABL005		USA BLUE BOOK					
27-00556	07/09/26	SUPPLIES-W	Open	$61.57	$0.00		
27-00619	07/20/26	SUPPLIES-W	Open	$667.80	$0.00		
			Vendor Total:	**$729.37**			
UTILI005		UTILITY EQUIPMENT COMPANY					
27-00557	07/02/26	EQUIP-W	Open	$8,300.00	$0.00		
VERNS005		VERN'S TRUE VALUE					
27-00512	07/01/26	SUPPLIES-L	Open	$0.27	$0.00		
27-00623	07/13/26	SUPPLIES-L,PR,A	Open	$518.99	$0.00		
27-00624	07/20/26	SUPPLIES-L,PR,A	Open	$61.47	$0.00		
27-00625	07/20/26	SUPPLIES-L,PR,A	Open	$11.98	$0.00		
			Vendor Total:	**$592.71**			

Vendor # / P.O. #	PO Date	*Name* / Description	Status	Amount	Void Amount	Contract	PO Type
VERNS005		VERN'S TRUE VALUE	*Account Continued*				
WATER010		WATER ENVIRONMENT FEDERATION C					
27-00558	07/17/26	DUES-W	Open	$109.00	$0.00		
WELLM005		WELLMARK BCBS					
27-00400	07/13/26	INSURE-CH	Open	$271.80	$0.00		
27-00673	07/21/26	HEALTH BENEFIT	Open	$45,108.63	$0.00		
			Vendor Total:	**$45,380.43**			
WESHO005		WES HOOKEM					
27-00583	07/15/26	VOLUNTEER-F	Open	$278.67	$0.00		

Total Purchase Orders: 291 Total P.O. Line Items: 0 Total List Amount: $374,571.60 Total Void Amount: $0.00

Totals by Year-Fund

Fund Description	Fund	Expend Total	Revenue Total	G/L Total	Total
GENERAL FUND	7-001	$77,695.75	$0.00	$89,375.91	$167,071.66
LIBRARY	7-003	$12,408.32	$0.00	$11,533.83	$23,942.15
HOTEL-MOTEL TAX	7-005	$466.13	$0.00	$0.00	$466.13
STREETS DEPT - ROAI	7-110	$10,588.69	$0.00	$13,281.38	$23,870.07
EMPLOYEE BENEFITS	7-112	$46,590.10	$0.00	$0.00	$46,590.10
CAP OUTLAY SAVINGS	7-323	$4,004.39	$0.00	$0.00	$4,004.39
WATER FUND	7-600	$49,398.59	$0.00	$8,411.03	$57,809.62
SEWER UTILITY FUND	7-610	$21,886.24	$0.00	$17,602.57	$39,488.81
STORM WATER PROJE	7-741	$1,500.00	$0.00	$0.00	$1,500.00
SELF INSURANCE	7-820	$9,828.67	$0.00	$0.00	$9,828.67
Total Of All Funds:		$234,366.88	$0.00	$140,204.72	$374,571.60

Totals by Fund

Fund Description	Fund	Expend Total	Revenue Total	G/L Total	Total
GENERAL FUND	001	$77,695.75	$0.00	$89,375.91	$167,071.66
LIBRARY	003	$12,408.32	$0.00	$11,533.83	$23,942.15
HOTEL-MOTEL TAX	005	$466.13	$0.00	$0.00	$466.13
STREETS DEPT - ROAI	110	$10,588.69	$0.00	$13,281.38	$23,870.07
EMPLOYEE BENEFITS	112	$46,590.10	$0.00	$0.00	$46,590.10
CAP OUTLAY SAVINGS	323	$4,004.39	$0.00	$0.00	$4,004.39
WATER FUND	600	$49,398.59	$0.00	$8,411.03	$57,809.62
SEWER UTILITY FUND	610	$21,886.24	$0.00	$17,602.57	$39,488.81
STORM WATER PROJE	741	$1,500.00	$0.00	$0.00	$1,500.00
SELF INSURANCE	820	$9,828.67	$0.00	$0.00	$9,828.67
Total Of All Funds:		$234,366.88	$0.00	$140,204.72	$374,571.60

Independence City
Breakdown of Expenditure Account Current/Prior Received/Prior Open

Fund Description	Fund	Current	Prior Rcvd	Prior Open	Paid Prior	Fund Total
GENERAL FUND	7-001	$77,695.75	$0.00	$0.00	$0.00	$77,695.75
LIBRARY	7-003	$12,408.32	$0.00	$0.00	$0.00	$12,408.32
HOTEL-MOTEL TAX	7-005	$466.13	$0.00	$0.00	$0.00	$466.13
STREETS DEPT - ROAI	7-110	$10,588.69	$0.00	$0.00	$0.00	$10,588.69
EMPLOYEE BENEFITS	7-112	$46,590.10	$0.00	$0.00	$0.00	$46,590.10
CAP OUTLAY SAVINGS	7-323	$4,004.39	$0.00	$0.00	$0.00	$4,004.39
WATER FUND	7-600	$49,398.59	$0.00	$0.00	$0.00	$49,398.59
SEWER UTILITY FUND	7-610	$21,886.24	$0.00	$0.00	$0.00	$21,886.24
STORM WATER PROJE	7-741	$1,500.00	$0.00	$0.00	$0.00	$1,500.00
SELF INSURANCE	7-820	$9,828.67	$0.00	$0.00	$0.00	$9,828.67
Total Of All Funds:		$234,366.88	$0.00	$0.00	$0.00	$234,366.88

City Council

Memorandum

To:	City Council Members
From:	Susi Lampe, CMC, IaCMC, IaCFO, Assistant City Manager/City Clerk/Treasurer
Date of Meeting:	July 27, 2026
Item Title:	Revenues and Expenses to date – Information Only

Background:

Attached is documentation showing the Revenues and Expenses to date – for Council Information only.

Discussion:

This is for information only; no discussion is necessary.

Results:

The City has established priorities during strategic planning sessions. This item supports the Vision from that session of **promoting and encouraging community involvement and engagement**. This item helps achieve that vision by being transparent and sharing the City's financials.

Financial Consideration:

N/A

Recommendation:

This item is for informational purposes only, no motion is needed or recommended.

Attachments:

1. Airport 7-23-26
2. Animal Control 7-23-26
3. Building 7-23-26
4. City Admin 7-23-26
5. Fire 7-23-26
6. Garbage 7-23-26
7. Library 7-23-26
8. Parks 7-23-26
9. Police 7-23-26
10. Storm Water 7-23-26

Attachments:

11. Streets 7-23-26
12. Utilities 7-23-26

Airport Budget

City of Independence

Budget Report

Airport as of 7/23/26

Percent of Fiscal YTD 8.33 %

2026 REVENUE REPORT

	Budget Estimate	MTD Balance	YTD Balance	% Rcvd	Balance
001 - GENERAL FUND	***$196,375.00***	***$16,027.05***	***$191,218.34***	***97.4%***	***$5,156.66***
43 - USE OF MONEY & PROPERTY					
001-280-4310 - HANGAR RENT	$28,280.00	$6,000.00	$48,636.53	172.0%	($20,356.53)
001-280-4311 - FARM LEASE	$18,998.00	$0.00	$18,998.40	100.0%	($0.40)
001-280-4312 - FIXED BASED OPERATOR LEASE	$12,300.00	$1,478.00	$3,078.00	25.0%	$9,222.00
47 - MISCELLANEOUS REVENUE					
001-280-4710 - REIMBURSEMENTS	$1,797.00	$0.00	$1,796.73	100.0%	$0.27
001-280-4750 - MERCHANDISE SALES	$135,000.00	$8,549.05	$118,608.68	87.9%	$16,391.32
001-280-4755 - CONCESSIONS - AIRPORT	$0.00	$0.00	$100.00	0.0%	$100.00
018 - AIRPORT REPLACEMENT FUND	***$0.00***	***$2.17***	***$23.24***	***0.0%***	***$23.24***
43 - USE OF MONEY & PROPERTY					
018-280-4300 - INTEREST	$0.00	$2.17	$23.24	0.0%	$23.24
323 - CAP OUTLAY SAVINGS/LOST	***$451,250.00***	***$0.00***	***$0.00***	***0.0%***	***$451,250.00***
44 - INTERGOVERNMENTAL					
323-280-4400 - FEDERAL GRANTS	$451,250.00	$0.00	$0.00	0.0%	$451,250.00
TOTAL REVENUE	**$647,625.00**	**$16,029.22**	**$191,241.58**	**29.5%**	**$456,383.42**



City of Independence

Budget Report

Airport as of 7/23/26

Percent of Fiscal YTD 8.33 %

2026 EXPENSE REPORT

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
001 - GENERAL FUND	***$341,028.00***	***$27,590.23***	***$259,706.67***	***76.2%***	***$81,321.33***
280 - AIRPORT	***$341,028.00***	***$27,590.23***	***$259,706.67***	***76.2%***	***$81,321.33***
60 - SALARIES AND WAGES	***$81,048.00***	***$5,893.48***	***$76,898.33***	***94.9%***	***$4,149.67***
001-280-6010 - SALARIES - FULL-TIME	$68,328.00	$4,934.40	$64,411.25	94.3%	$3,916.75
001-280-6020 - SALARIES - PART-TIME	$10,720.00	$959.08	$9,953.98	92.9%	$766.02
001-280-6030 - HOURLY WAGES - TEMPORARY	$0.00	$0.00	$890.64	890.6%	$890.64
001-280-6040 - WAGES - OVERTIME	$2,000.00	$0.00	$1,642.46	82.1%	$357.54
61 - EMPLOYEE BENEFITS & COSTS	***$1,900.00***	***$126.94***	***$1,643.96***	***86.5%***	***$256.04***
001-280-6143 - ICMA RC - CITY SHARE	$1,000.00	$76.94	$1,000.00	100.0%	$0.00
001-280-6181 - UNIFORM ALLOWANCE	$300.00	$0.00	$43.96	14.7%	$256.04
001-280-6184 - CELL PHONE ALLOWANCES	$600.00	$50.00	$600.00	100.0%	$0.00
62 - STAFF DEVELOPMENT	***$2,500.00***	***$0.00***	***$1,912.29***	***76.5%***	***$587.71***
001-280-6230 - TRAINING	$2,100.00	$0.00	$1,912.29	91.1%	$187.71
001-280-6240 - MTGS/CONFERENCES/MILES	$400.00	$0.00	$0.00	0.0%	$400.00
63 - REPAIR, MAINT & UTILITIES	***$58,500.00***	***$1,806.82***	***$46,265.50***	***79.1%***	***$12,234.50***
001-280-6310 - BUILDING MAINT & REPAIR	$5,000.00	$0.00	$2,884.21	57.7%	$2,115.79
001-280-6320 - GROUNDS/RUNWAY MAINT & ...	$10,000.00	$434.48	$9,364.29	93.6%	$635.71

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
001-280-6331 - VEHICLE OPERATIONS	$7,000.00	$85.18	$6,864.45	98.1%	$135.55
001-280-6332 - VEHICLE REPAIRS	$7,000.00	$104.70	$8,316.15	118.8%	($1,316.15)
001-280-6371 - ELECTRIC/GAS UTILITIES	$21,000.00	$658.47	$15,223.88	72.5%	$5,776.12
001-280-6372 - GARBAGE/RECYCLING	$3,750.00	$309.81	$318.70	8.5%	$3,431.30
001-280-6373 - COMMUNICATIONS ...	$2,250.00	$214.18	$2,180.39	96.9%	$69.61
001-280-6399 - OTHER MAINTENANCE/REPAIR	$2,500.00	$0.00	$1,113.43	44.5%	$1,386.57
64 - CONTRACTUAL SERVICES	***$70,980.00***	***$1,124.72***	***$41,492.15***	***58.5%***	***$29,487.85***
001-280-6407 - ENGINEERING	$5,000.00	$0.00	$0.00	0.0%	$5,000.00
001-280-6408 - PROPERTY & CASUALTY ...	$49,930.00	$0.00	$28,518.44	57.1%	$21,411.56
001-280-6409 - JANITORIAL	$1,500.00	$0.00	$277.39	18.5%	$1,222.61
001-280-6412 - MEDICAL EXPENSE - DOCTOR	$50.00	$0.00	$0.00	0.0%	$50.00
001-280-6413 - PAYMENTS TO OTHER AGENCIES	$600.00	$0.00	$139.00	23.2%	$461.00
001-280-6498 - REFUNDS	$1,400.00	$0.00	$1,400.00	100.0%	$0.00
001-280-6499 - OTHER CONTRACTUAL SERV	$12,500.00	$1,124.72	$11,157.32	89.3%	$1,342.68
65 - COMMODITIES	***$126,100.00***	***$18,638.27***	***$91,494.44***	***72.6%***	***$34,605.56***
001-280-6503 - MERCHANDISE FOR RE-SALE	$120,000.00	$17,879.41	$86,038.96	71.7%	$33,961.04
001-280-6506 - OFFICE SUPPLIES	$2,500.00	$37.99	$2,001.13	80.0%	$498.87
001-280-6507 - OPERATING SUPPLIES	$3,000.00	$720.87	$3,091.35	103.0%	($91.35)
001-280-6510 - SPECIAL & SAFETY EQUIPMENT	$600.00	$0.00	$363.00	60.5%	$237.00

City of Independence

Budget Report

Airport as of 7/23/26

Percent of Fiscal YTD 8.33 %

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
112 - EMPLOYEE BENEFITS	***$44,242.00***	***$2,885.67***	***$40,251.59***	***91.0%***	***$3,990.41***
280 - AIRPORT	***$44,242.00***	***$2,885.67***	***$40,251.59***	***91.0%***	***$3,990.41***
61 - EMPLOYEE BENEFITS & COSTS	***$44,242.00***	***$2,885.67***	***$40,251.59***	***91.0%***	***$3,990.41***
112-280-6110 - FICA - CITY/AIRPORT	$6,201.00	$438.78	$5,734.75	92.5%	$466.25
112-280-6130 - IPERS - CITY/AIRPORT	$7,652.00	$1,071.30	$7,690.16	100.5%	($38.16)
112-280-6131 - WORKERS COMP/AIRPORT	$1,289.00	$0.00	$1,264.43	98.1%	$24.57
112-280-6150 - GROUP INSURANCE/AIRPORT	$20,100.00	$1,352.61	$17,118.31	85.2%	$2,981.69
112-280-6154 - EMPLOYEE SELF-FUNDING INS/AIR	$9,000.00	$22.98	$8,443.94	93.8%	$556.06
323 - CAP OUTLAY SAVINGS/LOST	***$475,000.00***	***$0.00***	***$34,523.94***	***7.3%***	***$440,476.06***
280 - AIRPORT	***$475,000.00***	***$0.00***	***$34,523.94***	***7.3%***	***$440,476.06***
67 - CAPITAL OUTLAY	***$475,000.00***	***$0.00***	***$34,523.94***	***7.3%***	***$440,476.06***
323-280-6727 - AIRPORT-CAP OUTLAY/EQUIPMENT	$475,000.00	$0.00	$34,523.94	7.3%	$440,476.06
TOTAL EXPENSE	**$860,270.00**	**$30,475.90**	**$334,482.20**	**38.9%**	**$525,787.80**

	Net Budget	Net MTD Balance	Net YTD Balance	Net %	Net Balance
001 - GENERAL FUND	($144,653.00)	($11,563.18)	($68,488.33)	83.9%	($76,164.67)
018 - AIRPORT REPLACEMENT FUND	$0.00	$2.17	$23.24		($23.24)
112 - EMPLOYEE BENEFITS	($44,242.00)	($2,885.67)	($40,251.59)	91.0%	($3,990.41)

City of Independence

Budget Report

Airport as of 7/23/26

Percent of Fiscal YTD 8.33 %

	Net Budget	Net MTD Balance	Net YTD Balance	Net %	Net Balance
323 - CAP OUTLAY SAVINGS/LOST	($23,750.00)	$0.00	($34,523.94)	3.7%	$10,773.94
TOTAL (REV LESS EXP)	($212,645.00)	($14,446.68)	($143,240.62)	34.9%	($69,404.38)

Animal Control Budget

City of Independence

Budget Report

Animal Control as of 7/23/26

Percent of Fiscal YTD 8.33 %

2026 REVENUE REPORT

	Budget Estimate	MTD Balance	YTD Balance	% Rcvd	Balance
001 - GENERAL FUND	***$834.00***	***$158.00***	***$1,065.00***	***127.7%***	***($231.00)***
45 - CHARGES/FEES					
001-190-4530 - PENALTIES	$834.00	$158.00	$1,065.00	127.7%	($231.00)
TOTAL REVENUE	**$834.00**	**$158.00**	**$1,065.00**	**127.7%**	**($231.00)**

2026 EXPENSE REPORT

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
001 - GENERAL FUND	***$658.00***	***$0.00***	***$2,476.49***	***376.4%***	***($1,818.49)***
190 - ANIMAL CONTROL	***$658.00***	***$0.00***	***$2,476.49***	***376.4%***	***($1,818.49)***
64 - CONTRACTUAL SERVICES	***$558.00***	***$0.00***	***$2,401.49***	***430.4%***	***($1,843.49)***
001-190-6499 - ANIMAL CONTROL	$558.00	$0.00	$2,401.49	430.4%	($1,843.49)
65 - COMMODITIES	***$100.00***	***$0.00***	***$75.00***	***75.0%***	***$25.00***
001-190-6504 - MINOR EQUIPMENT	$50.00	$0.00	$0.00	0.0%	$50.00
001-190-6507 - OPERATING SUPPLIES	$50.00	$0.00	$75.00	150.0%	($25.00)
TOTAL EXPENSE	**$658.00**	**$0.00**	**$2,476.49**	**376.4%**	**($1,818.49)**

City of Independence

Budget Report

Animal Control as of 7/23/26

Percent of Fiscal YTD 8.33 %

	Net Budget	Net MTD Balance	Net YTD Balance	Net %	Net Balance
001 - GENERAL FUND	$176.00	$158.00	($1,411.49)	237.4%	$1,587.49
TOTAL (REV LESS EXP)	$176.00	$158.00	($1,411.49)	237.4%	$1,587.49

Building Budget

City of Independence

Budget Report

Building Department as of 7/23/26

Percent of Fiscal YTD 8.33 %

2026 REVENUE REPORT

	Budget Estimate	MTD Balance	YTD Balance	% Rcvd	Balance
001 - GENERAL FUND	***$54,403.00***	***$3,703.60***	***$39,868.04***	***73.3%***	***$14,534.96***
41 - LICENSES & PERMITS					
001-170-4120 - BUILDING PERMITS	$45,000.00	$2,176.00	$28,817.00	64.0%	$16,183.00
001-170-4128 - PLUMBING & MECHANICAL PERMITS	$6,000.00	$508.00	$7,180.00	119.7%	($1,180.00)
001-170-4132 - MOVING PERMIT	$100.00	$0.00	$0.00	0.0%	$100.00
001-170-4167 - HOME OCCUPATION PERMITS	$400.00	$0.00	$300.00	75.0%	$100.00
45 - CHARGES/FEES					
001-170-4500 - PLANNING & ZONING FEES	$1,640.00	$250.00	$1,840.00	112.2%	($200.00)
001-170-4550 - BOARD OF ADJUSTMENT FEES	$100.00	$0.00	$0.00	0.0%	$100.00
47 - MISCELLANEOUS REVENUE					
001-170-4710 - REIMBURSEMENTS CODE ENFORCE	$1,163.00	$769.60	$1,731.04	148.8%	($568.04)
323 - CAP OUTLAY SAVINGS/LOST	***$65,000.00***	***$65,031.22***	***$65,479.99***	***100.7%***	***($479.99)***
43 - USE OF MONEY & PROPERTY					
323-170-4300 - INTEREST	$0.00	$31.22	$479.99	0.0%	$479.99
48 - OTHER FINANCING SOURCES					
323-170-4820 - PROCEEDS FROM DEBT/LOAN	$65,000.00	$65,000.00	$65,000.00	100.0%	$0.00

City of Independence

Budget Report

Building Department as of 7/23/26

Percent of Fiscal YTD 8.33 %

	Budget Estimate	MTD Balance	YTD Balance	% Rcvd	Balance
TOTAL REVENUE	**$119,403.00**	**$68,734.82**	**$105,348.03**	**88.2%**	**$14,054.97**

2026 EXPENSE REPORT

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
001 - GENERAL FUND	***$110,981.00***	***$17,813.87***	***$100,456.63***	***90.5%***	***$10,524.37***
170 - BUILDING INSPECTIONS	***$110,981.00***	***$17,813.87***	***$100,456.63***	***90.5%***	***$10,524.37***
60 - SALARIES AND WAGES	***$75,432.00***	***$5,644.49***	***$71,740.76***	***95.1%***	***$3,691.24***
001-170-6010 - SALARIES - FULL-TIME	$70,737.00	$5,416.00	$70,407.91	99.5%	$329.09
001-170-6020 - SALARIES - PART-TIME	$1,124.00	$0.00	$0.00	0.0%	$1,124.00
001-170-6040 - WAGES - OVERTIME	$3,571.00	$228.49	$1,332.85	37.3%	$2,238.15
61 - EMPLOYEE BENEFITS & COSTS	***$1,300.00***	***$0.00***	***$0.00***	***0.0%***	***$1,300.00***
001-170-6143 - ICMA RC - CITY SHARE	$1,000.00	$0.00	$0.00	0.0%	$1,000.00
001-170-6181 - ALLOWANCES - UNIFORM	$300.00	$0.00	$0.00	0.0%	$300.00
62 - STAFF DEVELOPMENT	***$3,384.00***	***$0.00***	***$2,203.16***	***65.1%***	***$1,180.84***
001-170-6210 - DUES & MEMBERSHIPS	$1,884.00	$0.00	$1,929.58	102.4%	($45.58)
001-170-6220 - EDUCATIONAL MATERIAL	$150.00	$0.00	$0.00	0.0%	$150.00
001-170-6230 - TRAINING IN HOUSE	$350.00	$0.00	$193.58	55.3%	$156.42

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
001-170-6240 - MTGS/CONFERENCES/MILES	$1,000.00	$0.00	$80.00	8.0%	$920.00
63 - REPAIR, MAINT & UTILITIES	***$2,300.00***	***$56.39***	***$1,183.15***	***51.4%***	***$1,116.85***
001-170-6331 - VEHICLE OPERATIONS	$1,500.00	$0.00	$504.51	33.6%	$995.49
001-170-6373 - COMMUNICATIONS ...	$800.00	$56.39	$678.64	84.8%	$121.36
64 - CONTRACTUAL SERVICES	***$25,565.00***	***$12,075.00***	***$25,231.58***	***98.7%***	***$333.42***
001-170-6408 - PROPERTY & CASUALTY ...	$2,890.00	$0.00	$2,889.33	100.0%	$0.67
001-170-6412 - MEDICAL EXPENSE - DOCTOR	$75.00	$0.00	$0.00	0.0%	$75.00
001-170-6499 - OTHER CONTRACTUAL SERV	$22,600.00	$12,075.00	$22,342.25	98.9%	$257.75
65 - COMMODITIES	***$3,000.00***	***$37.99***	***$97.98***	***3.3%***	***$2,902.02***
001-170-6504 - OFFICE EQUIPMENT	$500.00	$0.00	$0.00	0.0%	$500.00
001-170-6506 - OFFICE SUPPLIES	$500.00	$37.99	$97.98	19.6%	$402.02
001-170-6507 - OPERATING SUPPLIES	$500.00	$0.00	$0.00	0.0%	$500.00
001-170-6508 - POSTAGE	$750.00	$0.00	$0.00	0.0%	$750.00
001-170-6510 - SPECIAL & SAFETY EQUIPMENT	$750.00	$0.00	$0.00	0.0%	$750.00
112 - EMPLOYEE BENEFITS	***$40,089.00***	***$2,817.55***	***$31,353.71***	***78.2%***	***$8,735.29***
170 - BUILDING INSPECTIONS	***$40,089.00***	***$2,817.55***	***$31,353.71***	***78.2%***	***$8,735.29***
61 - EMPLOYEE BENEFITS & COSTS	***$40,089.00***	***$2,817.55***	***$31,353.71***	***78.2%***	***$8,735.29***
112-170-6110 - FICA - CITY/BLDG	$5,771.00	$419.97	$5,263.59	91.2%	$507.41
112-170-6130 - IPERS - CITY/BUILDING	$7,121.00	$1,026.74	$7,266.33	102.0%	($145.33)

City of Independence

Budget Report

Building Department as of 7/23/26

Percent of Fiscal YTD 8.33 %

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
112-170-6131 - WORK COMP/BUILDING	$653.00	$0.00	$542.52	83.1%	$110.48
112-170-6150 - GROUP INSURANCE BEN/BLDG	$16,879.00	$1,293.86	$16,406.92	97.2%	$472.08
112-170-6154 - EMPLOYEE SELF-FUND INS ...	$9,665.00	$76.98	$1,874.35	19.4%	$7,790.65
323 - CAP OUTLAY SAVINGS/LOST	***$69,500.00***	***$0.00***	***$0.00***	***0.0%***	***$69,500.00***
170 - BUILDING INSPECTIONS	***$69,500.00***	***$0.00***	***$0.00***	***0.0%***	***$69,500.00***
67 - CAPITAL OUTLAY	***$69,500.00***	***$0.00***	***$0.00***	***0.0%***	***$69,500.00***
323-170-6710 - CAP OUTLAY - VEHICLES	$1,500.00	$0.00	$0.00	0.0%	$1,500.00
323-170-6725 - BLDG-CIP CAP OFFICE EQUIP	$68,000.00	$0.00	$0.00	0.0%	$68,000.00
TOTAL EXPENSE	**$220,570.00**	**$20,631.42**	**$131,810.34**	**59.8%**	**$88,759.66**

	Net Budget	Net MTD Balance	Net YTD Balance	Net %	Net Balance
001 - GENERAL FUND	($56,578.00)	($14,110.27)	($60,588.59)	84.8%	$4,010.59
112 - EMPLOYEE BENEFITS	($40,089.00)	($2,817.55)	($31,353.71)	78.2%	($8,735.29)
323 - CAP OUTLAY SAVINGS/LOST	($4,500.00)	$65,031.22	$65,479.99	48.7%	($69,979.99)
TOTAL (REV LESS EXP)	($101,167.00)	$48,103.40	($26,462.31)	69.8%	($74,704.69)

City Administration Budget

City of Independence

Budget Report

City Administration as of 7/23/26

Percent of Fiscal YTD 8.33 %

2026 REVENUE REPORT

	Budget Estimate	MTD Balance	YTD Balance	% Rcvd	Balance
001 - GENERAL FUND	***$1,375.00***	***$0.00***	***$1,375.00***	***100.0%***	***$0.00***
47 - MISCELLANEOUS REVENUE					
001-620-4715 - REFUNDS/REBATES	$125.00	$0.00	$125.00	100.0%	$0.00
001-699-4715 - REFUNDS/REBATES	$1,250.00	$0.00	$1,250.00	100.0%	$0.00
323 - CAP OUTLAY SAVINGS/LOST	***$248,285.00***	***$248,404.70***	***$249,859.14***	***100.6%***	***($1,574.14)***
43 - USE OF MONEY & PROPERTY					
323-650-4300 - INTEREST	$0.00	$119.35	$1,573.79	0.0%	$1,573.79
48 - OTHER FINANCING SOURCES					
323-650-4820 - PROCEEDS FROM DEBT/LOAN	$248,285.00	$248,285.35	$248,285.35	100.0%	($0.35)
TOTAL REVENUE	**$249,660.00**	**$248,404.70**	**$251,234.14**	**100.6%**	**($1,574.14)**

2026 EXPENSE REPORT

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
001 - GENERAL FUND	***$649,516.00***	***$36,928.37***	***$528,475.25***	***81.4%***	***$121,040.75***
610 - MAYOR/COUNCIL/CITY MGR	***$79,971.00***	***$4,999.36***	***$81,427.46***	***101.8%***	***($1,456.46)***

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
60 - SALARIES AND WAGES	***$57,321.00***	***$3,298.78***	***$56,959.14***	***99.4%***	***$361.86***
001-610-6010 - SALARIES - FULL-TIME	$34,971.00	$2,683.40	$34,809.20	99.5%	$161.80
001-610-6020 - SALARY - MAYOR PART-TIME	$8,000.00	$615.38	$7,999.94	100.0%	$0.06
001-610-6050 - SALARIES - COUNCIL FEE-BASED	$14,350.00	$0.00	$14,150.00	98.6%	$200.00
61 - EMPLOYEE BENEFITS & COSTS	***$3,650.00***	***$242.00***	***$3,565.56***	***97.7%***	***$84.44***
001-610-6143 - ICMA RC - CITY SHARE	$1,500.00	$117.00	$1,494.78	99.7%	$5.22
001-610-6181 - UNIFORM ALLOWANCE	$650.00	$100.00	$670.78	103.2%	($20.78)
001-610-6184 - CELL PHONE ALLOWANCES	$1,500.00	$25.00	$1,400.00	93.3%	$100.00
62 - STAFF DEVELOPMENT	***$17,000.00***	***$1,440.00***	***$18,720.13***	***110.1%***	***($1,720.13)***
001-610-6210 - DUES & MEMBERSHIPS	$5,000.00	$0.00	$4,640.65	92.8%	$359.35
001-610-6240 - MTGS/CONFERENCES/MILES	$12,000.00	$1,440.00	$14,079.48	117.3%	($2,079.48)
64 - CONTRACTUAL SERVICES	***$1,500.00***	***$0.00***	***$104.92***	***7.0%***	***$1,395.08***
001-610-6488 - MAYOR'S DISCRETIONARY FUND	$500.00	$0.00	$0.00	0.0%	$500.00
001-610-6489 - COUNCIL'S DISCRETIONARY FUND	$500.00	$0.00	$104.92	21.0%	$395.08
001-610-6491 - OTHER COUNCIL ITEMS	$500.00	$0.00	$0.00	0.0%	$500.00
65 - COMMODITIES	***$500.00***	***$18.58***	***$2,077.71***	***415.5%***	***($1,577.71)***
001-610-6506 - OFFICE SUPPLIES	$500.00	$18.58	$2,077.71	415.5%	($1,577.71)
620 - CLERK/TREASURER/ADM	***$71,989.00***	***$7,389.10***	***$64,980.90***	***90.3%***	***$7,008.10***
60 - SALARIES AND WAGES	***$48,439.00***	***$3,616.40***	***$47,937.26***	***99.0%***	***$501.74***

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
001-620-6010 - SALARIES - FULL-TIME	$46,639.00	$3,505.51	$45,810.54	98.2%	$828.46
001-620-6040 - WAGES - OVERTIME	$1,800.00	$110.89	$2,126.72	118.2%	($326.72)
61 - EMPLOYEE BENEFITS & COSTS	***$1,700.00***	***$37.51***	***$840.69***	***49.5%***	***$859.31***
001-620-6143 - ICMA RC - CITY SHARE	$500.00	$25.01	$500.11	100.0%	($0.11)
001-620-6181 - UNIFORM ALLOWANCE	$900.00	$0.00	$190.58	21.2%	$709.42
001-620-6184 - CELL PHONE ALLOWANCES	$300.00	$12.50	$150.00	50.0%	$150.00
62 - STAFF DEVELOPMENT	***$21,850.00***	***$3,735.19***	***$16,202.95***	***74.2%***	***$5,647.05***
001-620-6210 - DUES & MEMBERSHIPS	$11,250.00	$3,274.56	$6,907.81	61.4%	$4,342.19
001-620-6220 - EDUCATIONAL MATERIAL	$100.00	$0.00	$0.00	0.0%	$100.00
001-620-6230 - TRAINING IN HOUSE	$1,500.00	$185.00	$3,242.42	216.2%	($1,742.42)
001-620-6240 - MTGS/CONFERENCES/MILES	$9,000.00	$275.63	$6,052.72	67.3%	$2,947.28
630 - ELECTIONS	***$4,007.00***	***$0.00***	***$4,006.58***	***100.0%***	***$0.42***
64 - CONTRACTUAL SERVICES	***$4,007.00***	***$0.00***	***$4,006.58***	***100.0%***	***$0.42***
001-630-6413 - ELECTION EXPENSE	$4,007.00	$0.00	$4,006.58	100.0%	$0.42
640 - LEGAL SERVICES/ATTORNEY	***$145,050.00***	***$4,032.92***	***$116,500.89***	***80.3%***	***$28,549.11***
64 - CONTRACTUAL SERVICES	***$145,050.00***	***$4,032.92***	***$116,500.89***	***80.3%***	***$28,549.11***
001-640-6401 - AUDIT FEES	$27,800.00	$0.00	$27,800.00	100.0%	$0.00
001-640-6405 - RECORDING FEES	$100.00	$0.00	$58.00	58.0%	$42.00
001-640-6411 - LEGAL EXPENSE	$100,900.00	$2,296.80	$74,645.13	74.0%	$26,254.87

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
001-640-6413 - PAYMENTS TO OTHER AGENCIES	$750.00	$0.00	$651.59	86.9%	$98.41
001-640-6414 - PRINTING & PUBLISHING	$9,500.00	$1,068.12	$8,736.17	92.0%	$763.83
001-640-6419 - FINANCIAL SERVICES	$600.00	$0.00	$0.00	0.0%	$600.00
001-640-6490 - PROFESSIONAL SERVICE FEES	$400.00	$0.00	$375.00	93.8%	$25.00
001-640-6499 - CODE BOOK CODIFICATION	$5,000.00	$668.00	$4,235.00	84.7%	$765.00
650 - CITY HALL/GENERAL BLDGS	***$137,547.00***	***$13,288.94***	***$98,218.56***	***71.4%***	***$39,328.44***
61 - EMPLOYEE BENEFITS & COSTS	***$4,250.00***	***$0.00***	***$3,383.85***	***79.6%***	***$866.15***
001-650-6199 - HR AGREEMENTS/FEES	$4,250.00	$0.00	$3,383.85	79.6%	$866.15
63 - REPAIR, MAINT & UTILITIES	***$38,650.00***	***$2,188.41***	***$29,874.66***	***77.3%***	***$8,775.34***
001-650-6310 - BUILDING MAINT & REPAIR	$8,000.00	$631.82	$4,813.93	60.2%	$3,186.07
001-650-6320 - GROUNDS MAINT & REPAIR	$250.00	$0.00	$0.00	0.0%	$250.00
001-650-6331 - VEHICLE OPERATIONS	$350.00	$49.15	$362.50	103.6%	($12.50)
001-650-6332 - VEHICLE REPAIRS	$200.00	$0.00	$0.00	0.0%	$200.00
001-650-6350 - OPERATIONAL EQUIPMENT REPAIR	$350.00	$0.00	$0.00	0.0%	$350.00
001-650-6371 - ELECTRIC/GAS UTILITIES	$24,000.00	$1,227.02	$20,865.83	86.9%	$3,134.17
001-650-6373 - COMMUNICATIONS ...	$3,500.00	$280.42	$3,832.40	109.5%	($332.40)
001-650-6399 - OTHER MAINTENANCE/REPAIR	$2,000.00	$0.00	$0.00	0.0%	$2,000.00
64 - CONTRACTUAL SERVICES	***$74,712.00***	***$1,875.49***	***$47,402.63***	***63.4%***	***$27,309.37***
001-650-6401 - BANK FEES	$100.00	$4.00	$24.00	24.0%	$76.00

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
001-650-6408 - PROPERTY & CASUALTY ...	$9,000.00	$0.00	$8,999.18	100.0%	$0.82
001-650-6409 - JANITORIAL	$2,000.00	$237.49	$660.68	33.0%	$1,339.32
001-650-6490 - STAFFING CONTRACT	$4,000.00	$0.00	$4,000.00	100.0%	$0.00
001-650-6498 - REFUNDS	$77.00	$0.00	$76.30	99.1%	$0.70
001-650-6499 - OTHER CONTRACTUAL SERV	$59,535.00	$1,634.00	$33,642.47	56.5%	$25,892.53
65 - COMMODITIES	***$14,825.00***	***$4,115.29***	***$12,447.67***	***84.0%***	***$2,377.33***
001-650-6506 - OFFICE SUPPLIES	$3,750.00	$1,398.54	$3,171.45	84.6%	$578.55
001-650-6507 - OPERATING SUPPLIES	$5,000.00	$423.58	$4,356.68	87.1%	$643.32
001-650-6508 - POSTAGE & SHIPPING	$6,000.00	$2,293.17	$4,919.54	82.0%	$1,080.46
001-650-6510 - SPECIAL & SAFETY EQUIPMENT	$75.00	$0.00	$0.00	0.0%	$75.00
67 - CAPITAL OUTLAY	***$5,110.00***	***$5,109.75***	***$5,109.75***	***100.0%***	***$0.25***
001-650-6727 - CAPITAL EQUIPMENT	$5,110.00	$5,109.75	$5,109.75	100.0%	$0.25
660 - TORT LIABILITY	***$11,167.00***	***$0.00***	***$8,737.15***	***78.2%***	***$2,429.85***
64 - CONTRACTUAL SERVICES	***$11,167.00***	***$0.00***	***$8,737.15***	***78.2%***	***$2,429.85***
001-660-6406 - DAMAGES / TORT CLAIMS	$5,000.00	$0.00	$0.00	0.0%	$5,000.00
001-660-6408 - PROPERTY & CASUALTY ...	$6,167.00	$0.00	$8,737.15	141.7%	($2,570.15)
699 - GENERAL GOVERNMENT-I.T.	***$199,785.00***	***$7,218.05***	***$154,603.71***	***77.4%***	***$45,181.29***
62 - STAFF DEVELOPMENT	***$22,500.00***	***$0.00***	***$24,038.05***	***106.8%***	***($1,538.05)***
001-699-6210 - DUES	$22,500.00	$0.00	$24,038.05	106.8%	($1,538.05)

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
64 - CONTRACTUAL SERVICES	***$156,285.00***	***$6,603.96***	***$110,386.10***	***70.6%***	***$45,898.90***
001-699-6401 - AUDITING/ACCOUNTING	$76,000.00	$0.00	$32,687.50	43.0%	$43,312.50
001-699-6419 - IT SERVICES	$35,035.00	$2,687.80	$34,887.17	99.6%	$147.83
001-699-6490 - OTHER PROFESSIONAL SERV	$45,250.00	$3,916.16	$42,811.43	94.6%	$2,438.57
65 - COMMODITIES	***$21,000.00***	***$614.09***	***$20,179.56***	***96.1%***	***$820.44***
001-699-6507 - OPERATING SUPPLIES	$21,000.00	$614.09	$20,179.56	96.1%	$820.44
112 - EMPLOYEE BENEFITS	***$84,397.00***	***$4,818.85***	***$62,565.08***	***74.1%***	***$21,831.92***
610 - MAYOR/COUNCIL/CITY MGR	***$29,705.00***	***$1,215.58***	***$27,050.55***	***91.1%***	***$2,654.45***
61 - EMPLOYEE BENEFITS & COSTS	***$29,705.00***	***$1,215.58***	***$27,050.55***	***91.1%***	***$2,654.45***
112-610-6110 - FICA - CITY/ADMIN	$4,386.00	$244.54	$4,075.38	92.9%	$310.62
112-610-6130 - IPERS - CITY/ADMIN	$388.00	$169.92	$731.60	188.6%	($343.60)
112-610-6131 - WORK COMP/ADMIN	$677.00	$0.00	$136.34	20.1%	$540.66
112-610-6142 - PENSION - CITY MANAGER	$3,302.00	$246.24	$3,201.12	96.9%	$100.88
112-610-6150 - GROUP INSURANCE BEN/MANAGER	$4,547.00	$349.96	$4,431.74	97.5%	$115.26
112-610-6154 - EMPLOYEE SELF-FUND INS ...	$16,405.00	$204.92	$14,474.37	88.2%	$1,930.63
620 - CLERK/TREASURER/ADM	***$47,346.00***	***$3,349.47***	***$32,342.93***	***68.3%***	***$15,003.07***
61 - EMPLOYEE BENEFITS & COSTS	***$47,346.00***	***$3,349.47***	***$32,342.93***	***68.3%***	***$15,003.07***
112-620-6110 - FICA - CITY/CLERK	$3,606.00	$265.77	$3,531.10	97.9%	$74.90
112-620-6130 - IPERS - CITY/CLERK	$4,449.00	$1,683.07	$5,909.25	132.8%	($1,460.25)

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
112-620-6131 - WORK COMP/CLERK	$427.00	$0.00	$328.78	77.0%	$98.22
112-620-6150 - GROUP INSURANCE BEN/CLERK	$13,254.00	$834.82	$12,280.31	92.7%	$973.69
112-620-6154 - EMPLOYEE SELF-FUND INS ...	$25,610.00	$565.81	$10,293.49	40.2%	$15,316.51
622 - RETIRED EMPLOYEES	***$7,046.00***	***$253.80***	***$3,171.60***	***45.0%***	***$3,874.40***
61 - EMPLOYEE BENEFITS & COSTS	***$7,046.00***	***$253.80***	***$3,171.60***	***45.0%***	***$3,874.40***
112-622-6150 - GROUP INSURANCE BEN/RETIREE	$3,046.00	$253.80	$3,171.60	104.1%	($125.60)
112-622-6154 - EMPLOYEE SELF-FUND INS ...	$4,000.00	$0.00	$0.00	0.0%	$4,000.00
640 - LEGAL SERVICES/ATTORNEY	***$300.00***	***$0.00***	***$0.00***	***0.0%***	***$300.00***
64 - CONTRACTUAL SERVICES	***$300.00***	***$0.00***	***$0.00***	***0.0%***	***$300.00***
112-640-6420 - ACA FEES	$300.00	$0.00	$0.00	0.0%	$300.00
323 - CAP OUTLAY SAVINGS/LOST	***$211,000.00***	***$26,925.00***	***$45,921.20***	***21.8%***	***$165,078.80***
650 - CITY HALL/GENERAL BLDGS	***$211,000.00***	***$26,925.00***	***$45,921.20***	***21.8%***	***$165,078.80***
64 - CONTRACTUAL SERVICES	***$0.00***	***$20.00***	***$20.00***	***20.0%***	***$20.00***
323-650-6401 - AUDITING/ACCOUNTING	$0.00	$20.00	$20.00	20.0%	$20.00
67 - CAPITAL OUTLAY	***$211,000.00***	***$26,905.00***	***$45,901.20***	***21.8%***	***$165,098.80***
323-650-6727 - CITY HALL-CAP ...	$2,000.00	$0.00	$0.00	0.0%	$2,000.00
323-650-6750 - CAP OUTLAY - BUILDINGS	$209,000.00	$26,905.00	$45,901.20	22.0%	$163,098.80
TOTAL EXPENSE	**$944,913.00**	**$68,672.22**	**$636,961.53**	**67.4%**	**$307,951.47**

City of Independence

Budget Report

City Administration as of 7/23/26

Percent of Fiscal YTD 8.33 %

	Net Budget	Net MTD Balance	Net YTD Balance	Net %	Net Balance
001 - GENERAL FUND	($648,141.00)	($36,928.37)	($527,100.25)	81.4%	($121,040.75)
112 - EMPLOYEE BENEFITS	($84,397.00)	($4,818.85)	($62,565.08)	74.1%	($21,831.92)
323 - CAP OUTLAY SAVINGS/LOST	$37,285.00	$221,479.70	$203,937.94	64.4%	($166,652.94)
TOTAL (REV LESS EXP)	($695,253.00)	$179,732.48	($385,727.39)	74.4%	($309,525.61)

Fire Department Budget

City of Independence

Budget Report

Fire Department as of 7/23/26

Percent of Fiscal YTD 8.33 %

2026 REVENUE REPORT

	Budget Estimate	MTD Balance	YTD Balance	% Rcvd	Balance
001 - GENERAL FUND	***$79,890.00***	***$0.00***	***$91,047.52***	***114.0%***	***($11,157.52)***
44 - INTERGOVERNMENTAL					
001-150-4475 - WASHINGTON/SUMNER TWPS FIRE	$75,000.00	$0.00	$84,007.52	112.0%	($9,007.52)
45 - CHARGES/FEES					
001-150-4500 - FIRE SERVICE FEES	$1,000.00	$0.00	$850.00	85.0%	$150.00
47 - MISCELLANEOUS REVENUE					
001-150-4705 - DONATIONS	$500.00	$0.00	$500.00	100.0%	$0.00
001-150-4710 - REIMBURSEMENTS	$1,890.00	$0.00	$5,690.00	301.1%	($3,800.00)
001-150-4715 - REFUNDS	$1,500.00	$0.00	$0.00	0.0%	$1,500.00
014 - FIRE DEPT REPLACEMENT FUN	***$0.00***	***$1.86***	***$19.88***	***0.0%***	***$19.88***
43 - USE OF MONEY & PROPERTY					
014-150-4300 - INTEREST	$0.00	$1.86	$19.88	0.0%	$19.88
323 - CAP OUTLAY SAVINGS/LOST	***$184,575.00***	***$110,052.95***	***$185,387.52***	***100.4%***	***($812.52)***
43 - USE OF MONEY & PROPERTY					
323-150-4300 - INTEREST	$0.00	$52.95	$812.55	0.0%	$812.55
44 - INTERGOVERNMENTAL					

	Budget Estimate	MTD Balance	YTD Balance	% Rcvd	Balance
323-150-4440 - STATE GRANTS	$7,860.00	$0.00	$7,860.25	100.0%	($0.25)
323-150-4480 - LOCAL GRANTS	$62,500.00	$0.00	$62,500.00	100.0%	$0.00
47 - MISCELLANEOUS REVENUE					
323-150-4710 - REIMBURSEMENTS	$4,215.00	$0.00	$4,214.72	100.0%	$0.28
48 - OTHER FINANCING SOURCES					
323-150-4820 - PROCEEDS FROM DEBT/LOAN	$110,000.00	$110,000.00	$110,000.00	100.0%	$0.00
TOTAL REVENUE	**$264,465.00**	**$110,054.81**	**$276,454.92**	**104.5%**	**($11,989.92)**

2026 EXPENSE REPORT

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
001 - GENERAL FUND	***$573,808.00***	***$28,712.76***	***$532,572.72***	***92.8%***	***$41,235.28***
150 - FIRE	***$573,808.00***	***$28,712.76***	***$532,572.72***	***92.8%***	***$41,235.28***
60 - SALARIES AND WAGES	***$387,026.00***	***$26,432.93***	***$366,560.07***	***94.7%***	***$20,465.93***
001-150-6010 - SALARIES - FULL-TIME	$300,046.00	$15,688.49	$294,060.77	98.0%	$5,985.23
001-150-6020 - SALARIES - PART-TIME	$61,950.00	$5,244.44	$46,090.30	74.4%	$15,859.70
001-150-6040 - WAGES - OVERTIME	$3,000.00	$0.00	$4,386.91	146.2%	($1,386.91)
001-150-6050 - VOLUNTEER FIREMEN	$22,030.00	$5,500.00	$22,022.09	100.0%	$7.91

City of Independence

Budget Report

Fire Department as of 7/23/26

Percent of Fiscal YTD 8.33 %

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
61 - EMPLOYEE BENEFITS & COSTS	***$5,700.00***	***$176.94***	***$4,832.90***	***84.8%***	***$867.10***
001-150-6143 - ICMA RC - CITY SHARE	$3,000.00	$76.94	$3,000.00	100.0%	$0.00
001-150-6181 - ALLOWANCES - UNIFORM	$1,500.00	$0.00	$632.90	42.2%	$867.10
001-150-6184 - CELL PHONE ALLOWANCES	$1,200.00	$100.00	$1,200.00	100.0%	$0.00
62 - STAFF DEVELOPMENT	***$9,750.00***	***$0.00***	***$12,437.30***	***127.6%***	***($2,687.30)***
001-150-6210 - DUES & MEMBERSHIPS	$1,000.00	$0.00	$450.19	45.0%	$549.81
001-150-6220 - EDUCATIONAL MATERIAL	$1,000.00	$0.00	$99.00	9.9%	$901.00
001-150-6230 - TRAINING IN HOUSE	$750.00	$0.00	$156.23	20.8%	$593.77
001-150-6240 - MTGS/CONFERENCES/MILES	$7,000.00	$0.00	$11,731.88	167.6%	($4,731.88)
63 - REPAIR, MAINT & UTILITIES	***$83,706.00***	***$1,912.82***	***$62,632.45***	***74.8%***	***$21,073.55***
001-150-6310 - BUILDING MAINT & REPAIR	$15,000.00	$325.13	$7,190.99	47.9%	$7,809.01
001-150-6320 - GROUNDS MAINT & REPAIR	$1,000.00	$21.99	$293.89	29.4%	$706.11
001-150-6331 - VEHICLE OPERATIONS	$25,000.00	$595.25	$16,261.39	65.0%	$8,738.61
001-150-6332 - VEHICLE REPAIRS	$21,706.00	$149.32	$23,647.98	108.9%	($1,941.98)
001-150-6350 - EQUIPMENT REPAIR/SIREN	$4,000.00	$0.00	$1,400.00	35.0%	$2,600.00
001-150-6371 - ELECTRIC/GAS UTILITIES	$4,500.00	$338.30	$3,905.58	86.8%	$594.42
001-150-6373 - COMMUNICATIONS ...	$6,000.00	$285.58	$3,389.21	56.5%	$2,610.79
001-150-6399 - OTHER MAINTENANCE/REPAIR	$6,500.00	$197.25	$6,543.41	100.7%	($43.41)
64 - CONTRACTUAL SERVICES	***$79,526.00***	***$62.02***	***$79,756.92***	***100.3%***	***($230.92)***

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
001-150-6408 - PROPERTY & CASUALTY ...	$41,026.00	$0.00	$41,025.65	100.0%	$0.35
001-150-6412 - MEDICAL/WELLNESS EXPENSE	$7,500.00	$62.02	$7,824.52	104.3%	($324.52)
001-150-6424 - PROFES SERVICES/GRANT WRITERS	$31,000.00	$0.00	$30,906.75	99.7%	$93.25
65 - COMMODITIES	***$8,100.00***	***$128.05***	***$6,353.08***	***78.4%***	***$1,746.92***
001-150-6504 - SPECIAL & SAFETY EQUIPMENT	$2,000.00	$0.00	$1,014.55	50.7%	$985.45
001-150-6506 - OFFICE SUPPLIES	$350.00	$0.00	$604.62	172.7%	($254.62)
001-150-6507 - OPERATING SUPPLIES	$5,000.00	$128.05	$4,680.79	93.6%	$319.21
001-150-6510 - SAFETY SUPPLIES	$750.00	$0.00	$53.12	7.1%	$696.88
112 - EMPLOYEE BENEFITS	***$210,816.00***	***$10,592.31***	***$149,834.56***	***71.1%***	***$60,981.44***
150 - FIRE	***$210,816.00***	***$10,592.31***	***$149,834.56***	***71.1%***	***$60,981.44***
61 - EMPLOYEE BENEFITS & COSTS	***$210,816.00***	***$10,592.31***	***$149,834.56***	***71.1%***	***$60,981.44***
112-150-6110 - FICA - CITY/FIRE	$27,841.00	$1,540.23	$25,557.44	91.8%	$2,283.56
112-150-6130 - IPERS - CITY/FIRE	$33,781.00	$3,644.84	$25,898.91	76.7%	$7,882.09
112-150-6131 - WORK COMP/FIRE	$73,091.00	$0.00	$43,789.43	59.9%	$29,301.57
112-150-6150 - GROUP INSURANCE BEN/FIRE	$51,420.00	$3,244.43	$41,093.22	79.9%	$10,326.78
112-150-6154 - EMPLOYEE SELF-FUND INS BEN/FIR	$24,683.00	$2,162.81	$13,495.56	54.7%	$11,187.44
323 - CAP OUTLAY SAVINGS/LOST	***$274,500.00***	***$3,108.54***	***$191,369.71***	***69.7%***	***$83,130.29***
150 - FIRE	***$274,500.00***	***$3,108.54***	***$191,369.71***	***69.7%***	***$83,130.29***
65 - COMMODITIES	***$195,000.00***	***$786.64***	***$167,227.41***	***85.8%***	***$27,772.59***



City of Independence
Budget Report
Fire Department as of 7/23/26

Percent of Fiscal YTD 8.33 %

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
323-150-6505 - FIRE-CIP CAP OTHER EQUIPMENT	$195,000.00	$786.64	$167,227.41	85.8%	$27,772.59
67 - CAPITAL OUTLAY	***$79,500.00***	***$2,321.90***	***$24,142.30***	***30.4%***	***$55,357.70***
323-150-6710 - FIRE-CIP CAP VEHICLES	$30,000.00	$0.00	$19,730.02	65.8%	$10,269.98
323-150-6725 - FIRE-CIP CAP OFFICE EQUIPMENT	$4,500.00	$2,321.90	$4,412.28	98.1%	$87.72
323-150-6727 - FIRE-CIP CAP OUTLAY/EQUIPMENT	$45,000.00	$0.00	$0.00	0.0%	$45,000.00
TOTAL EXPENSE	**$1,059,124.00**	**$42,413.61**	**$873,776.99**	**82.5%**	**$185,347.01**

	Net Budget	Net MTD Balance	Net YTD Balance	Net %	Net Balance
001 - GENERAL FUND	($493,918.00)	($28,712.76)	($441,525.20)	95.4%	($52,392.80)
014 - FIRE DEPT REPLACEMENT FUN	$0.00	$1.86	$19.88		($19.88)
112 - EMPLOYEE BENEFITS	($210,816.00)	($10,592.31)	($149,834.56)	71.1%	($60,981.44)
323 - CAP OUTLAY SAVINGS/LOST	($89,925.00)	$106,944.41	($5,982.19)	82.1%	($83,942.81)
TOTAL (REV LESS EXP)	($794,659.00)	$67,641.20	($597,322.07)	86.9%	($197,336.93)

Garbage Budget

City of Independence

Budget Report

Garbage as of 7/23/26

Percent of Fiscal YTD 8.33 %

2026 REVENUE REPORT

	Budget Estimate	MTD Balance	YTD Balance	% Rcvd	Balance
001 - GENERAL FUND	***$701,620.00***	***$58,466.40***	***$627,505.05***	***89.4%***	***$74,114.95***
41 - LICENSES & PERMITS					
001-290-4190 - GARBAGE COLLECTION PERMITS	$120.00	$0.00	$90.00	75.0%	$30.00
45 - CHARGES/FEES					
001-290-4500 - GARBAGE COLLECTION FEES	$600,000.00	$49,421.02	$526,574.50	87.8%	$73,425.50
001-290-4550 - ENVIRONMENTAL IMPACT FEE	$100,000.00	$9,045.38	$97,995.55	98.0%	$2,004.45
47 - MISCELLANEOUS REVENUE					
001-290-4745 - CITY-WIDE CLEANUP REV	$1,500.00	$0.00	$2,845.00	189.7%	($1,345.00)
TOTAL REVENUE	**$701,620.00**	**$58,466.40**	**$627,505.05**	**89.4%**	**$74,114.95**

2026 EXPENSE REPORT

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
001 - GENERAL FUND	***$690,064.00***	***$107,488.32***	***$654,130.84***	***94.8%***	***$35,933.16***
290 - GARBAGE	***$690,064.00***	***$107,488.32***	***$654,130.84***	***94.8%***	***$35,933.16***
64 - CONTRACTUAL SERVICES	***$690,064.00***	***$107,488.32***	***$654,130.84***	***94.8%***	***$35,933.16***

City of Independence

Budget Report

Garbage as of 7/23/26

Percent of Fiscal YTD 8.33 %

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
001-290-6413 - BUCH CO LANDFILL ASSESSMENT	$6,064.00	$0.00	$6,064.00	100.0%	$0.00
001-290-6497 - GARBAGE CONTRACT	$594,000.00	$94,821.77	$566,869.34	95.4%	$27,130.66
001-290-6499 - CONTRACTUAL SERVICES	$90,000.00	$12,666.55	$81,197.50	90.2%	$8,802.50
TOTAL EXPENSE	**$690,064.00**	**$107,488.32**	**$654,130.84**	**94.8%**	**$35,933.16**

	Net Budget	Net MTD Balance	Net YTD Balance	Net %	Net Balance
001 - GENERAL FUND	$11,556.00	($49,021.92)	($26,625.79)	92.1%	$38,181.79
TOTAL (REV LESS EXP)	$11,556.00	($49,021.92)	($26,625.79)	92.1%	$38,181.79

Library Budget

City of Independence

Budget Report

Library as of 7/23/26

Percent of Fiscal YTD 8.33 %

2026 REVENUE REPORT

	Budget Estimate	MTD Balance	YTD Balance	% Rcvd	Balance
003 - LIBRARY	***$59,475.00***	***$443.22***	***$62,430.38***	***105.0%***	***($2,955.38)***
44 - INTERGOVERNMENTAL					
003-410-4440 - DIRECT STATE AID (ENRICH IOWA)	$5,000.00	$0.00	$6,087.86	121.8%	($1,087.86)
003-410-4465 - COUNTY CONTRIBUTION	$42,500.00	$0.00	$43,768.97	103.0%	($1,268.97)
003-410-4470 - 28E FUNDS - OTHER CITIES	$6,600.00	$0.00	$6,646.46	100.7%	($46.46)
45 - CHARGES/FEES					
003-410-4500 - CHARGES/FEES FOR SERVICES	$3,500.00	$300.85	$4,278.69	122.2%	($778.69)
47 - MISCELLANEOUS REVENUE					
003-410-4705 - DONATIONS	$200.00	$0.00	$25.00	12.5%	$175.00
003-410-4715 - REFUNDS	$0.00	$0.00	$14.97	0.0%	$14.97
003-410-4755 - CONCESSIONS-RECREATION	$75.00	$0.00	$0.00	0.0%	$75.00
003-410-4765 - LIBRARY FINES & BOOK CHARGES	$1,600.00	$142.37	$1,608.43	100.5%	($8.43)
TOTAL REVENUE	**$59,475.00**	**$443.22**	**$62,430.38**	**105.0%**	**($2,955.38)**

2026 EXPENSE REPORT

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
003 - LIBRARY	***$474,789.00***	***$34,428.58***	***$454,455.96***	***95.7%***	***$20,333.04***
410 - LIBRARY	***$474,789.00***	***$34,428.58***	***$454,455.96***	***95.7%***	***$20,333.04***
60 - SALARIES AND WAGES	***$305,426.00***	***$23,430.32***	***$298,941.86***	***97.9%***	***$6,484.14***
003-410-6010 - SALARIES - FULL-TIME	$198,705.00	$15,249.60	$198,425.30	99.9%	$279.70
003-410-6020 - SALARIES - PART-TIME	$105,971.00	$8,154.34	$100,442.99	94.8%	$5,528.01
003-410-6040 - WAGES - OVERTIME	$750.00	$26.38	$73.57	9.8%	$676.43
61 - EMPLOYEE BENEFITS & COSTS	***$3,000.00***	***$157.00***	***$3,000.00***	***100.0%***	***$0.00***
003-410-6143 - ICMA RC - CITY SHARE	$3,000.00	$157.00	$3,000.00	100.0%	$0.00
62 - STAFF DEVELOPMENT	***$5,100.00***	***$272.99***	***$4,792.91***	***94.0%***	***$307.09***
003-410-6210 - DUES & MEMBERSHIPS	$3,400.00	$272.99	$3,053.98	89.8%	$346.02
003-410-6230 - TRAINING IN HOUSE	$300.00	$0.00	$999.95	333.3%	($699.95)
003-410-6240 - MTGS/CONFERENCES/MILES	$1,400.00	$0.00	$738.98	52.8%	$661.02
63 - REPAIR, MAINT & UTILITIES	***$33,664.00***	***$1,541.63***	***$30,597.80***	***90.9%***	***$3,066.20***
003-410-6310 - CONTRACT REPAIR/MAINT - BLDGS	$5,000.00	$0.00	$2,882.38	57.6%	$2,117.62
003-410-6320 - GROUNDS OPERATION, MAIN	$700.00	$0.00	$778.00	111.1%	($78.00)
003-410-6371 - ELECTRIC/GAS UTILITIES	$21,064.00	$1,293.98	$18,595.09	88.3%	$2,468.91
003-410-6373 - COMMUNICATIONS ...	$3,400.00	$247.65	$2,780.76	81.8%	$619.24

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
003-410-6399 - OTHER MAINTENANCE/REPAIR	$3,500.00	$0.00	$5,561.57	158.9%	($2,061.57)
64 - CONTRACTUAL SERVICES	***$58,324.00***	***$1,983.00***	***$47,014.27***	***80.6%***	***$11,309.73***
003-410-6408 - PROPERTY & CASUALTY ...	$28,749.00	$0.00	$14,340.52	49.9%	$14,408.48
003-410-6409 - JANITORIAL	$21,000.00	$1,400.00	$20,023.00	95.3%	$977.00
003-410-6414 - PRINTING & PUBLISHING	$1,000.00	$0.00	$813.74	81.4%	$186.26
003-410-6419 - COMPUTER EXPENSE	$7,500.00	$583.00	$11,822.01	157.6%	($4,322.01)
003-410-6490 - PROFESSIONAL SERVICES	$75.00	$0.00	$15.00	20.0%	$60.00
65 - COMMODITIES	***$69,275.00***	***$7,043.64***	***$70,109.12***	***101.2%***	***($834.12)***
003-410-6502 - LIBRARY BOOKS, FILMS, RECORDS	$34,000.00	$3,632.47	$35,228.09	103.6%	($1,228.09)
003-410-6504 - OFFICE EQUIPMENT	$250.00	$0.00	$291.00	116.4%	($41.00)
003-410-6506 - OFFICE SUPPLIES	$4,000.00	$367.16	$3,859.72	96.5%	$140.28
003-410-6507 - OPERATING SUPPLIES	$2,700.00	$287.50	$2,572.80	95.3%	$127.20
003-410-6508 - POSTAGE & SHIPPING	$500.00	$0.00	$594.82	119.0%	($94.82)
003-410-6510 - SAFETY SUPPLIES	$75.00	$0.00	$0.00	0.0%	$75.00
003-410-6530 - PROGRAMMING	$8,000.00	$61.65	$7,955.12	99.4%	$44.88
003-410-6531 - VIDEO RECORDINGS	$2,750.00	$509.53	$2,496.94	90.8%	$253.06
003-410-6532 - AUDIO RECORDINGS	$2,500.00	$429.97	$2,611.27	104.5%	($111.27)
003-410-6536 - EBOOKS	$5,500.00	$1,755.36	$5,499.36	100.0%	$0.64
003-410-6537 - AUDIOBOOKS	$7,000.00	$0.00	$7,000.00	100.0%	$0.00

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
003-410-6538 - VIDEO STREAMING	$2,000.00	$0.00	$2,000.00	100.0%	$0.00
112 - EMPLOYEE BENEFITS	***$99,282.00***	***$10,950.11***	***$125,174.62***	***126.1%***	***($25,892.62)***
410 - LIBRARY	***$99,282.00***	***$10,950.11***	***$125,174.62***	***126.1%***	***($25,892.62)***
61 - EMPLOYEE BENEFITS & COSTS	***$99,282.00***	***$10,950.11***	***$125,174.62***	***126.1%***	***($25,892.62)***
112-410-6110 - FICA - CITY/LIBRARY	$23,366.00	$1,727.65	$22,035.39	94.3%	$1,330.61
112-410-6130 - IPERS - CITY/LIBRARY	$28,833.00	$4,480.10	$30,488.34	105.7%	($1,655.34)
112-410-6131 - WORK COMP/LIBRARY	$458.00	$0.00	$203.17	44.4%	$254.83
112-410-6150 - GROUP INSURANCE BEN/LIBRARY	$34,625.00	$3,942.03	$50,304.12	145.3%	($15,679.12)
112-410-6154 - EMPLOYEE SELF-FUND INS BEN/LIB	$12,000.00	$800.33	$22,143.60	184.5%	($10,143.60)
323 - CAP OUTLAY SAVINGS/LOST	***$6,000.00***	***$0.00***	***$6,000.00***	***100.0%***	***$0.00***
410 - LIBRARY	***$6,000.00***	***$0.00***	***$6,000.00***	***100.0%***	***$0.00***
67 - CAPITAL OUTLAY	***$6,000.00***	***$0.00***	***$6,000.00***	***100.0%***	***$0.00***
323-410-6727 - LIBRARY-CAP OUTLAY/EQUIPMENT	$6,000.00	$0.00	$6,000.00	100.0%	$0.00
TOTAL EXPENSE	**$580,071.00**	**$45,378.69**	**$585,630.58**	**101.0%**	**($5,559.58)**

	Net Budget	Net MTD Balance	Net YTD Balance	Net %	Net Balance
003 - LIBRARY	($415,314.00)	($33,985.36)	($392,025.58)	96.7%	($23,288.42)
112 - EMPLOYEE BENEFITS	($99,282.00)	($10,950.11)	($125,174.62)	126.1%	$25,892.62

City of Independence

Budget Report

Library as of 7/23/26

Percent of Fiscal YTD 8.33 %

	Net Budget	Net MTD Balance	Net YTD Balance	Net %	Net Balance
323 - CAP OUTLAY SAVINGS/LOST	($6,000.00)	$0.00	($6,000.00)	100.0%	$0.00
TOTAL (REV LESS EXP)	($520,596.00)	($44,935.47)	($523,200.20)	101.3%	$2,604.20

Park & Recreation Budget

City of Independence

Budget Report

Parks & Recreation as of 7/23/26

Percent of Fiscal YTD 8.33 %

2026 REVENUE REPORT

	Budget Estimate	MTD Balance	YTD Balance	% Rcvd	Balance
001 - GENERAL FUND	***$695,762.00***	***$106,145.23***	***$806,404.57***	***115.9%***	***($110,642.57)***
41 - LICENSES & PERMITS					
001-432-4180 - ANIMAL LICENSES	$3,500.00	$25.00	$1,587.90	45.4%	$1,912.10
43 - USE OF MONEY & PROPERTY					
001-430-4310 - RENTS & LEASES	$200.00	$0.00	$0.00	0.0%	$200.00
001-441-4310 - BATTING CAGE RENTAL	$4,000.00	$14.00	$5,412.00	135.3%	($1,412.00)
001-441-4311 - ROOM RENTAL	$4,500.00	$0.00	$5,973.03	132.7%	($1,473.03)
001-441-4312 - GOLF RENTAL	$104.00	$0.00	$130.00	125.0%	($26.00)
001-443-4310 - RAQUET COURT RENTAL	$10.00	$0.00	$10.00	100.0%	$0.00
001-443-4311 - ROOM RENTAL	$6,250.00	$75.00	$6,667.25	106.7%	($417.25)
001-444-4310 - POOL RENTAL	$4,149.00	$1,630.29	$6,298.86	151.8%	($2,149.86)
001-445-4310 - CAMPSITE RENTALS	$80,000.00	$16,474.00	$82,167.79	102.7%	($2,167.79)
001-446-4310 - FACILITY RENT	$2,000.00	$0.00	$4,800.00	240.0%	($2,800.00)
44 - INTERGOVERNMENTAL					
001-432-4480 - LOCAL GRANTS	$1,000.00	$0.00	$0.00	0.0%	$1,000.00
45 - CHARGES/FEES					



City of Independence

Budget Report

Parks & Recreation as of 7/23/26

Percent of Fiscal YTD 8.33 %

	Budget Estimate	MTD Balance	YTD Balance	% Rcvd	Balance
001-441-4500 - FEES - DAILY ADMISSIONS	$4,500.00	$19.00	$5,014.60	111.4%	($514.60)
001-441-4501 - FEES - MEMBERSHIP PASSES	$62,000.00	$0.00	$62,183.94	100.3%	($183.94)
001-441-4503 - FEES - FITNESS CLASSES	$3,000.00	$388.00	$727.82	24.3%	$2,272.18
001-441-4550 - FEES - TAE KWON DO	$5,500.00	$0.00	$4,732.44	86.0%	$767.56
001-441-4551 - FEES - CLINICS	$1,750.00	$108.35	$153.78	8.8%	$1,596.22
001-441-4552 - FEES - LEAGUE	$80,000.00	$3,461.38	$123,388.97	154.2%	($43,388.97)
001-441-4554 - FEES - GAMES	$400.00	$0.00	$135.00	33.8%	$265.00
001-442-4502 - FEES - FOOTBALL	$13,276.00	$416.10	$13,276.44	100.0%	($0.44)
001-442-4503 - FEES - AEROBICS/ADULT FITNESS	$2,000.00	$290.00	$2,090.00	104.5%	($90.00)
001-442-4504 - FEES - INDOOR PROGRAMMING	$850.00	$0.00	$400.56	47.1%	$449.44
001-442-4552 - FEES - LITTLE LEAGUE	$28,000.00	$400.00	$25,278.25	90.3%	$2,721.75
001-442-4553 - FEES - MILLENNIUM CLASSES	$200.00	$0.00	$0.00	0.0%	$200.00
001-442-4555 - FEES - MARTIAL ARTS	$200.00	$0.00	$0.00	0.0%	$200.00
001-442-4556 - FEES - SOCCER	$1,500.00	$0.00	$586.36	39.1%	$913.64
001-442-4557 - FEES - BASKETBALL	$3,100.00	$0.00	$932.15	30.1%	$2,167.85
001-442-4559 - FEES - TENNIS LESSONS	$100.00	$0.00	$0.00	0.0%	$100.00
001-443-4500 - FEES - DAILY ADMISSIONS	$10,500.00	$668.70	$10,002.86	95.3%	$497.14
001-443-4501 - FEES - MEMBERSHIP PASSES	$42,500.00	$3,683.54	$49,872.44	117.3%	($7,372.44)
001-444-4500 - FEES - DAILY POOL ADMISSIONS	$35,000.00	$11,108.43	$35,033.95	100.1%	($33.95)

	Budget Estimate	MTD Balance	YTD Balance	% Rcvd	Balance
001-444-4501 - FEES - POOL SEASON PASSES	$35,000.00	$1,358.52	$40,166.31	114.8%	($5,166.31)
001-444-4507 - FEES - WATER AEROBICS	$150.00	$0.00	$0.00	0.0%	$150.00
001-444-4508 - FEES - TEAMS & LESSONS	$12,500.00	$383.25	$16,822.59	134.6%	($4,322.59)
001-446-4509 - FEES - TOURNAMENTS	$37,500.00	$5,753.00	$43,925.00	117.1%	($6,425.00)
001-446-4552 - LEAGUE FEES	$15,692.00	$1,560.00	$15,692.90	100.0%	($0.90)
47 - MISCELLANEOUS REVENUE					
001-430-4705 - DONATIONS	$64,620.00	$19,500.00	$61,463.95	95.1%	$3,156.05
001-430-4710 - REIMBURSEMENTS	$700.00	$0.00	$170.00	24.3%	$530.00
001-430-4755 - CONCESSIONS - PARKS	$50.00	$0.00	$0.00	0.0%	$50.00
001-431-4705 - PRIVATE SOURCE CONTRIB	$2,500.00	$0.00	$2,500.00	100.0%	$0.00
001-432-4706 - DONATIONS	$50.00	$0.00	$37.00	74.0%	$13.00
001-440-4705 - DONATIONS	$750.00	$0.00	$75.00	10.0%	$675.00
001-441-4705 - DONATIONS/OTHER	$1,350.00	$25.00	$4,415.53	327.1%	($3,065.53)
001-441-4755 - CONCESSIONS - RIVER'S EDGE	$3,135.00	$0.00	$3,135.99	100.0%	($0.99)
001-442-4705 - DONATIONS/OTHER	$150.00	$0.00	$375.00	250.0%	($225.00)
001-443-4705 - DONATIONS/OTHER	$250.00	$35.00	$50.00	20.0%	$200.00
001-443-4755 - CONCESSIONS - FALCON CIVIC CTR	$3,500.00	$11.00	$2,825.75	80.7%	$674.25
001-444-4705 - DONATIONS/OTHER	$500.00	$0.00	$0.00	0.0%	$500.00
001-444-4711 - REIMBURSEMENT	$426.00	$0.00	$426.17	100.0%	($0.17)

	Budget Estimate	MTD Balance	YTD Balance	% Rcvd	Balance
001-444-4760 - CONCESSIONS - POOL	$32,000.00	$10,408.28	$39,248.28	122.7%	($7,248.28)
001-445-4755 - CONCESSIONS - RV PARK	$100.00	$0.00	$0.00	0.0%	$100.00
001-446-4700 - PUBLIC SOURCE CONTRIB	$2,500.00	$0.00	$0.00	0.0%	$2,500.00
001-446-4705 - DONATIONS	$2,000.00	$0.00	$3,575.00	178.8%	($1,575.00)
001-446-4755 - CONCESSIONS - BALL COMPLEX	$75,000.00	$28,349.39	$119,294.01	159.1%	($44,294.01)
001-450-4705 - PRIVATE SOURCE CONTRIB	$5,250.00	$0.00	$5,349.70	101.9%	($99.70)
043 - PARKS REPLACEMENT FUND	***$0.00***	***$109.30***	***$1,176.52***	***0.0%***	***$1,176.52***
43 - USE OF MONEY & PROPERTY					
043-446-4300 - INTEREST	$0.00	$109.30	$1,176.52	0.0%	$1,176.52
304 - PARKS & REC PROJECTS	***$67,810.00***	***$0.00***	***$67,810.00***	***100.0%***	***$0.00***
47 - MISCELLANEOUS REVENUE					
304-446-4705 - DONATIONS-COMPLEX TURF	$67,810.00	$0.00	$67,810.00	100.0%	$0.00
323 - CAP OUTLAY SAVINGS/LOST	***$134,315.00***	***$133,378.82***	***$134,737.10***	***100.3%***	***($422.10)***
43 - USE OF MONEY & PROPERTY					
323-430-4300 - INTEREST	$0.00	$63.76	$422.04	0.0%	$422.04
47 - MISCELLANEOUS REVENUE					
323-446-4705 - PRIVATE DONATIONS	$1,000.00	$0.00	$1,000.00	100.0%	$0.00
48 - OTHER FINANCING SOURCES					
323-430-4820 - PROCEEDS FROM DEBT/LOAN	$132,500.00	$132,500.00	$132,500.00	100.0%	$0.00

	Budget Estimate	MTD Balance	YTD Balance	% Rcvd	Balance
323-441-4810 - SALE OF PERSONAL PROPERTY	$815.00	$815.06	$815.06	100.0%	($0.06)
TOTAL REVENUE	**$897,887.00**	**$239,633.35**	**$1,010,128.19**	**112.5%**	**($112,241.19)**

2026 EXPENSE REPORT

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
001 - GENERAL FUND	***$1,399,284.00***	***$228,613.24***	***$1,370,045.37***	***97.9%***	***$29,238.63***
430 - PARKS	***$346,936.00***	***$63,997.63***	***$360,189.52***	***103.8%***	***($13,253.52)***
60 - SALARIES AND WAGES	***$174,601.00***	***$19,020.35***	***$183,943.81***	***105.4%***	***($9,342.81)***
001-430-6010 - SALARIES - FULL-TIME	$124,749.00	$9,369.60	$121,571.00	97.5%	$3,178.00
001-430-6020 - SALARIES - PART-TIME	$30,000.00	$5,695.13	$37,575.23	125.3%	($7,575.23)
001-430-6030 - HOURLY WAGES - TEMPORARY	$16,500.00	$2,776.00	$19,278.89	116.8%	($2,778.89)
001-430-6040 - WAGES - OVERTIME	$3,352.00	$1,179.62	$5,518.69	164.6%	($2,166.69)
61 - EMPLOYEE BENEFITS & COSTS	***$2,600.00***	***$150.00***	***$2,550.24***	***98.1%***	***$49.76***
001-430-6143 - ICMA RC - CITY SHARE	$2,000.00	$100.00	$1,950.24	97.5%	$49.76
001-430-6184 - CELL PHONE ALLOWANCES	$600.00	$50.00	$600.00	100.0%	$0.00
63 - REPAIR, MAINT & UTILITIES	***$102,020.00***	***$41,199.68***	***$100,763.59***	***98.8%***	***$1,256.41***
001-430-6310 - BUILDING MAINT & REPAIR	$2,000.00	$732.16	$4,484.80	224.2%	($2,484.80)

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
001-430-6320 - GROUNDS MAINT/BEAUTIFICATION	$69,620.00	$38,361.07	$69,642.59	100.0%	($22.59)
001-430-6331 - VEHICLE OPERATIONS	$8,500.00	$840.51	$11,080.75	130.4%	($2,580.75)
001-430-6332 - VEHICLE REPAIRS	$12,500.00	$555.74	$6,852.54	54.8%	$5,647.46
001-430-6371 - ELECTRIC/GAS UTILITIES	$8,800.00	$680.49	$8,345.43	94.8%	$454.57
001-430-6373 - COMMUNICATIONS ...	$600.00	$29.71	$357.48	59.6%	$242.52
64 - CONTRACTUAL SERVICES	***$59,915.00***	***$1,750.00***	***$61,013.18***	***101.8%***	***($1,098.18)***
001-430-6408 - PROPERTY & CASUALTY ...	$52,415.00	$0.00	$52,414.43	100.0%	$0.57
001-430-6499 - CONTRACTUAL SERVICES	$7,500.00	$1,750.00	$8,598.75	114.7%	($1,098.75)
65 - COMMODITIES	***$7,800.00***	***$1,877.60***	***$11,918.70***	***152.8%***	***($4,118.70)***
001-430-6504 - MINOR EQUIPMENT PURCH	$5,000.00	$329.99	$5,965.80	119.3%	($965.80)
001-430-6507 - OPERATING SUPPLIES	$2,250.00	$1,095.35	$4,051.70	180.1%	($1,801.70)
001-430-6510 - SPECIAL & SAFETY SUPPLIES	$550.00	$452.26	$1,901.20	345.7%	($1,351.20)
431 - FORESTRY/GREENHOUSE	***$10,900.00***	***$2,444.06***	***$12,801.69***	***117.4%***	***($1,901.69)***
60 - SALARIES AND WAGES	***$8,000.00***	***$1,925.13***	***$8,357.34***	***104.5%***	***($357.34)***
001-431-6030 - HOURLY WAGES - TEMPORARY	$8,000.00	$1,925.13	$8,258.53	103.2%	($258.53)
001-431-6040 - WAGES - OVERTIME	$0.00	$0.00	$98.81	98.8%	$98.81
63 - REPAIR, MAINT & UTILITIES	***$2,500.00***	***$518.93***	***$4,346.09***	***173.8%***	***($1,846.09)***
001-431-6310 - BUILDING REPAIR/MAINT	$250.00	$0.00	$0.00	0.0%	$250.00
001-431-6320 - PARK GROUNDS DEVELOPMENT	$1,500.00	$435.00	$2,598.05	173.2%	($1,098.05)

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
001-431-6331 - VEHICLE OPERATIONS	$750.00	$83.93	$1,748.04	233.1%	($998.04)
65 - COMMODITIES	***$400.00***	***$0.00***	***$98.26***	***24.6%***	***$301.74***
001-431-6504 - MINOR EQUIPMENT	$300.00	$0.00	$59.98	20.0%	$240.02
001-431-6507 - OPERATING SUPPLIES	$100.00	$0.00	$38.28	38.3%	$61.72
432 - DOG PARK	***$2,250.00***	***$0.00***	***$1,119.58***	***49.8%***	***$1,130.42***
63 - REPAIR, MAINT & UTILITIES	***$1,500.00***	***$0.00***	***$688.78***	***45.9%***	***$811.22***
001-432-6320 - GROUNDS MAINT & REPAIR	$1,500.00	$0.00	$688.78	45.9%	$811.22
65 - COMMODITIES	***$750.00***	***$0.00***	***$430.80***	***57.4%***	***$319.20***
001-432-6507 - OPERATING SUPPLIES	$750.00	$0.00	$430.80	57.4%	$319.20
440 - RECREATION - OPERATING	***$317,826.00***	***$22,517.60***	***$283,735.82***	***89.3%***	***$34,090.18***
60 - SALARIES AND WAGES	***$283,551.00***	***$18,517.46***	***$250,864.16***	***88.5%***	***$32,686.84***
001-440-6010 - SALARIES - FULL-TIME	$256,551.00	$16,449.60	$231,251.20	90.1%	$25,299.80
001-440-6020 - SALARIES - PART-TIME	$22,000.00	$1,545.00	$16,148.25	73.4%	$5,851.75
001-440-6040 - WAGES - OVERTIME	$5,000.00	$522.86	$3,464.71	69.3%	$1,535.29
61 - EMPLOYEE BENEFITS & COSTS	***$6,400.00***	***$150.00***	***$5,900.00***	***92.2%***	***$500.00***
001-440-6143 - ICMA RC - CITY SHARE	$4,000.00	$0.00	$3,900.00	97.5%	$100.00
001-440-6184 - CELL PHONE ALLOWANCES	$2,400.00	$150.00	$2,000.00	83.3%	$400.00
62 - STAFF DEVELOPMENT	***$1,500.00***	***$0.00***	***$1,140.98***	***76.1%***	***$359.02***
001-440-6210 - DUES & MEMBERSHIPS	$900.00	$0.00	$895.00	99.4%	$5.00

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
001-440-6220 - EDUCATIONAL MATERIAL	$100.00	$0.00	$80.87	80.9%	$19.13
001-440-6230 - TRAINING IN HOUSE	$250.00	$0.00	$165.11	66.0%	$84.89
001-440-6240 - MTGS/CONFERENCES/MILES	$250.00	$0.00	$0.00	0.0%	$250.00
63 - REPAIR, MAINT & UTILITIES	***$6,500.00***	***$330.27***	***$1,530.28***	***23.5%***	***$4,969.72***
001-440-6331 - VEHICLE OPERATIONS	$6,500.00	$330.27	$1,530.28	23.5%	$4,969.72
64 - CONTRACTUAL SERVICES	***$16,575.00***	***$3,035.77***	***$19,852.29***	***119.8%***	***($3,277.29)***
001-440-6402 - ADVERTISING	$275.00	$0.00	$0.00	0.0%	$275.00
001-440-6412 - MEDICAL/WELLNESS EXPENSE	$250.00	$0.00	$273.00	109.2%	($23.00)
001-440-6414 - PRINTING & PUBLISHING	$2,500.00	$0.00	$2,442.00	97.7%	$58.00
001-440-6418 - SALES TAX	$13,500.00	$3,035.77	$17,137.29	126.9%	($3,637.29)
001-440-6499 - CONTRACTUAL SERVICES	$50.00	$0.00	$0.00	0.0%	$50.00
65 - COMMODITIES	***$3,300.00***	***$484.10***	***$4,448.11***	***134.8%***	***($1,148.11)***
001-440-6506 - OFFICE SUPPLIES	$1,900.00	$438.42	$2,347.48	123.6%	($447.48)
001-440-6508 - POSTAGE & SHIPPING	$1,400.00	$45.68	$2,100.63	150.0%	($700.63)
441 - RECREATION - RIVER'S EDGE	***$144,417.00***	***$4,277.25***	***$146,489.27***	***101.4%***	***($2,072.27)***
60 - SALARIES AND WAGES	***$23,467.00***	***$2,030.95***	***$22,161.54***	***94.4%***	***$1,305.46***
001-441-6020 - SALARIES - PART-TIME	$22,000.00	$1,494.44	$21,168.14	96.2%	$831.86
001-441-6030 - HOURLY WAGES - TEMPORARY	$1,250.00	$524.88	$776.64	62.1%	$473.36
001-441-6040 - WAGES - OVERTIME	$217.00	$11.63	$216.76	99.9%	$0.24

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
63 - REPAIR, MAINT & UTILITIES	***$27,400.00***	***$987.55***	***$24,841.52***	***90.7%***	***$2,558.48***
001-441-6310 - BUILDING MAINT & REPAIR	$8,500.00	$0.00	$9,859.17	116.0%	($1,359.17)
001-441-6320 - GROUNDS MAINT & REPAIR	$400.00	$0.00	-$61.64	-15.4%	$461.64
001-441-6350 - OPERATIONAL EQUIPMENT REPAIR	$1,500.00	$0.00	$0.00	0.0%	$1,500.00
001-441-6371 - ELECTRIC/GAS UTILITIES	$15,750.00	$892.10	$14,257.34	90.5%	$1,492.66
001-441-6373 - COMMUNICATIONS ...	$1,250.00	$95.45	$786.65	62.9%	$463.35
64 - CONTRACTUAL SERVICES	***$9,550.00***	***$1,258.75***	***$7,618.61***	***79.8%***	***$1,931.39***
001-441-6402 - ADVERTISING	$250.00	$0.00	$0.00	0.0%	$250.00
001-441-6409 - JANITORIAL	$2,500.00	$227.50	$2,257.50	90.3%	$242.50
001-441-6494 - CONTRACT-TAE KWON DO ...	$4,000.00	$1,031.25	$4,521.11	113.0%	($521.11)
001-441-6495 - CONTRACT-CAMP/CLINIC PAY	$1,250.00	$0.00	$840.00	67.2%	$410.00
001-441-6496 - CONTRACT-ADULT FITNESS ...	$1,500.00	$0.00	$0.00	0.0%	$1,500.00
001-441-6498 - REFUNDS	$50.00	$0.00	$0.00	0.0%	$50.00
65 - COMMODITIES	***$84,000.00***	***$0.00***	***$91,867.60***	***109.4%***	***($7,867.60)***
001-441-6503 - CONCESSIONS SUPPLIES	$2,250.00	$0.00	$1,472.02	65.4%	$777.98
001-441-6504 - MINOR EQUIPMENT	$1,750.00	$0.00	$2,794.97	159.7%	($1,044.97)
001-441-6507 - OPERATING SUPPLIES	$80,000.00	$0.00	$87,600.61	109.5%	($7,600.61)
442 - RECREATION - OUTDOOR	***$73,550.00***	***$17,682.35***	***$52,721.88***	***71.7%***	***$20,828.12***
64 - CONTRACTUAL SERVICES	***$17,000.00***	***$533.25***	***$2,088.00***	***12.3%***	***$14,912.00***

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
001-442-6493 - CONTRACT-LITTLE LEAGUE UMPIRE	$15,000.00	$0.00	$0.00	0.0%	$15,000.00
001-442-6496 - CONTRACT-ADULT FITNESS ...	$2,000.00	$533.25	$2,088.00	104.4%	($88.00)
65 - COMMODITIES	***$56,550.00***	***$17,149.10***	***$50,633.88***	***89.5%***	***$5,916.12***
001-442-6505 - RECREATIONAL EQUIPMENT	$7,500.00	$929.10	$8,231.47	109.8%	($731.47)
001-442-6507 - OPERATING SUPPLIES - LITTLE LE	$35,000.00	$14,998.00	$30,325.77	86.6%	$4,674.23
001-442-6512 - OPERATING SUPPLIES - BASKETBAL	$2,300.00	$0.00	$405.00	17.6%	$1,895.00
001-442-6514 - OPERATING SUPPLIES - FOOTBALL	$7,500.00	$0.00	$7,087.34	94.5%	$412.66
001-442-6515 - OPERATING SUPPLIES - SOCCER	$400.00	$0.00	$199.80	50.0%	$200.20
001-442-6516 - OPERATING SUPPLIES - ADULT EVE	$100.00	$0.00	$0.00	0.0%	$100.00
001-442-6598 - REFUNDS	$750.00	$0.00	$1,298.50	173.1%	($548.50)
001-442-6599 - AWARDS & TROPHIES	$3,000.00	$1,222.00	$3,086.00	102.9%	($86.00)
443 - RECREATION - FALCON CIVIC	***$122,585.00***	***$10,400.29***	***$122,043.23***	***99.6%***	***$541.77***
60 - SALARIES AND WAGES	***$40,935.00***	***$3,580.58***	***$42,748.44***	***104.4%***	***($1,813.44)***
001-443-6020 - SALARIES - PART-TIME	$40,000.00	$3,542.58	$40,650.35	101.6%	($650.35)
001-443-6030 - HOURLY WAGES - TEMPORARY	$935.00	$38.00	$1,962.15	209.9%	($1,027.15)
001-443-6040 - WAGES - OVERTIME	$0.00	$0.00	$135.94	135.9%	$135.94
63 - REPAIR, MAINT & UTILITIES	***$42,700.00***	***$4,105.32***	***$44,651.48***	***104.6%***	***($1,951.48)***
001-443-6310 - BUILDING MAINT & REPAIR	$6,500.00	$874.65	$8,047.90	123.8%	($1,547.90)
001-443-6320 - GROUNDS MAINT & REPAIR	$700.00	$12.99	$270.85	38.7%	$429.15

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
001-443-6350 - OPERATIONAL EQUIPMENT REPAIR	$8,000.00	$1,231.00	$8,076.93	101.0%	($76.93)
001-443-6371 - ELECTRIC/GAS UTILITIES	$25,500.00	$1,832.38	$26,447.57	103.7%	($947.57)
001-443-6373 - COMMUNICATIONS ...	$2,000.00	$154.30	$1,808.23	90.4%	$191.77
64 - CONTRACTUAL SERVICES	***$31,750.00***	***$2,250.00***	***$28,853.27***	***90.9%***	***$2,896.73***
001-443-6409 - JANITORIAL	$28,500.00	$2,250.00	$27,000.00	94.7%	$1,500.00
001-443-6499 - CONTRACTUAL SERVICES	$3,250.00	$0.00	$1,853.27	57.0%	$1,396.73
65 - COMMODITIES	***$7,200.00***	***$464.39***	***$5,790.04***	***80.4%***	***$1,409.96***
001-443-6503 - CONCESSIONS SUPPLIES	$2,200.00	$0.00	$1,075.99	48.9%	$1,124.01
001-443-6506 - OFFICE SUPPLIES	$1,000.00	$57.34	$519.82	52.0%	$480.18
001-443-6507 - OPERATING SUPPLIES	$3,250.00	$407.05	$3,820.23	117.5%	($570.23)
001-443-6510 - SAFETY SUPPLIES	$500.00	$0.00	$99.00	19.8%	$401.00
001-443-6598 - REFUNDS	$250.00	$0.00	$275.00	110.0%	($25.00)
444 - RECREATION - SWIMMING POO	***$185,050.00***	***$58,393.35***	***$182,671.03***	***98.7%***	***$2,378.97***
60 - SALARIES AND WAGES	***$85,000.00***	***$23,972.14***	***$81,642.53***	***96.1%***	***$3,357.47***
001-444-6030 - HOURLY WAGES - TEMPORARY	$85,000.00	$23,972.14	$81,642.53	96.1%	$3,357.47
62 - STAFF DEVELOPMENT	***$0.00***	***$0.00***	***$599.00***	***599.0%***	***$599.00***
001-444-6210 - SWIM TEAM MEMBERSHIP DUES	$0.00	$0.00	$599.00	599.0%	$599.00
63 - REPAIR, MAINT & UTILITIES	***$39,000.00***	***$10,603.33***	***$30,367.41***	***77.9%***	***$8,632.59***
001-444-6310 - BUILDING MAINT & REPAIR	$7,650.00	$1,123.21	$3,507.47	45.8%	$4,142.53

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
001-444-6320 - GROUNDS MAINT & REPAIR	$2,500.00	$0.00	$2,501.74	100.1%	($1.74)
001-444-6371 - ELECTRIC/GAS UTILITIES	$25,000.00	$9,032.95	$23,852.22	95.4%	$1,147.78
001-444-6372 - GARBAGE/RECYCLING	$3,750.00	$426.17	$462.18	12.3%	$3,287.82
001-444-6373 - COMMUNICATIONS ...	$100.00	$21.00	$43.80	43.8%	$56.20
64 - CONTRACTUAL SERVICES	***$4,850.00***	***$14.50***	***$4,184.00***	***86.3%***	***$666.00***
001-444-6413 - PAYMENTS TO OTHER AGENCIES	$600.00	$14.50	$584.00	97.3%	$16.00
001-444-6499 - CONTRACT-COACHES & ...	$4,250.00	$0.00	$3,600.00	84.7%	$650.00
65 - COMMODITIES	***$56,200.00***	***$23,803.38***	***$65,878.09***	***117.2%***	***($9,678.09)***
001-444-6501 - CHEMICALS	$20,000.00	$8,894.64	$21,648.29	108.2%	($1,648.29)
001-444-6503 - CONCESSIONS SUPPLIES	$30,000.00	$11,038.81	$29,035.88	96.8%	$964.12
001-444-6507 - OPERATING SUPPLIES	$5,250.00	$3,749.93	$14,978.92	285.3%	($9,728.92)
001-444-6598 - REFUNDS	$200.00	$120.00	$215.00	107.5%	($15.00)
001-444-6599 - AWARDS & TROPHIES	$750.00	$0.00	$0.00	0.0%	$750.00
445 - RECREATION - RV PARK	***$40,750.00***	***$3,519.81***	***$32,865.34***	***80.7%***	***$7,884.66***
63 - REPAIR, MAINT & UTILITIES	***$36,300.00***	***$3,136.82***	***$29,386.10***	***81.0%***	***$6,913.90***
001-445-6310 - BUILDING MAINT & REPAIR	$2,000.00	$157.50	$2,054.09	102.7%	($54.09)
001-445-6320 - GROUNDS MAINT & REPAIR	$5,250.00	$55.65	$7,342.07	139.8%	($2,092.07)
001-445-6371 - ELECTRIC/GAS UTILTIES	$27,500.00	$2,197.78	$17,976.94	65.4%	$9,523.06
001-445-6372 - GARBAGE/RECYCLING	$1,000.00	$596.23	$611.02	61.1%	$388.98

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
001-445-6373 - COMMUNICATIONS ...	$550.00	$129.66	$1,401.98	254.9%	($851.98)
64 - CONTRACTUAL SERVICES	***$3,000.00***	***$0.00***	***$2,700.00***	***90.0%***	***$300.00***
001-445-6499 - CONTRACT-RV HOST	$3,000.00	$0.00	$2,700.00	90.0%	$300.00
65 - COMMODITIES	***$1,450.00***	***$382.99***	***$779.24***	***53.7%***	***$670.76***
001-445-6503 - CONCESSIONS SUPPLIES	$50.00	$0.00	$0.00	0.0%	$50.00
001-445-6506 - OFFICE SUPPLIES	$1,200.00	$382.99	$779.24	64.9%	$420.76
001-445-6598 - REFUNDS	$200.00	$0.00	$0.00	0.0%	$200.00
446 - RECREATION - COMPLEX	***$142,000.00***	***$43,514.46***	***$164,829.67***	***116.1%***	***($22,829.67)***
60 - SALARIES AND WAGES	***$32,000.00***	***$5,853.38***	***$26,346.59***	***82.3%***	***$5,653.41***
001-446-6020 - SALARIES - PART-TIME	$17,500.00	$3,466.57	$11,721.46	67.0%	$5,778.54
001-446-6030 - HOURLY WAGES - TEMPORARY	$13,500.00	$1,956.31	$13,828.44	102.4%	($328.44)
001-446-6040 - WAGES - OVERTIME	$1,000.00	$430.50	$796.69	79.7%	$203.31
63 - REPAIR, MAINT & UTILITIES	***$18,700.00***	***$1,973.91***	***$21,528.99***	***115.1%***	***($2,828.99)***
001-446-6310 - BUILDING MAINT & REPAIR	$4,500.00	$396.53	$4,593.33	102.1%	($93.33)
001-446-6320 - GROUNDS MAINT & REPAIR	$8,000.00	$699.51	$11,383.91	142.3%	($3,383.91)
001-446-6331 - VEHICLE OPERATIONS	$950.00	$0.00	$127.90	13.5%	$822.10
001-446-6371 - ELECTRIC/GAS UTILITIES	$4,750.00	$471.10	$5,006.99	105.4%	($256.99)
001-446-6372 - GARBAGE/RECYCLING	$500.00	$406.77	$416.86	83.4%	$83.14
64 - CONTRACTUAL SERVICES	***$35,000.00***	***$19,505.00***	***$44,840.00***	***128.1%***	***($9,840.00)***

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
001-446-6499 - CONTRACT-TOURNAMENT ...	$35,000.00	$19,505.00	$44,840.00	128.1%	($9,840.00)
65 - COMMODITIES	***$56,300.00***	***$16,182.17***	***$72,114.09***	***128.1%***	***($15,814.09)***
001-446-6503 - MERCHANDISE FOR RESALE	$47,500.00	$15,179.54	$62,647.81	131.9%	($15,147.81)
001-446-6504 - MINOR EQUIPMENT	$2,000.00	$0.00	$7.99	0.4%	$1,992.01
001-446-6507 - OPERATING SUPPLIES	$3,800.00	$202.63	$4,468.29	117.6%	($668.29)
001-446-6511 - ADULT SOFTBALL	$500.00	$0.00	$500.00	100.0%	$0.00
001-446-6598 - REFUNDS	$2,500.00	$800.00	$4,490.00	179.6%	($1,990.00)
450 - CEMETERY	***$13,020.00***	***$1,866.44***	***$10,578.34***	***81.2%***	***$2,441.66***
60 - SALARIES AND WAGES	***$6,970.00***	***$1,782.51***	***$7,499.39***	***107.6%***	***($529.39)***
001-450-6030 - HOURLY WAGES - TEMPORARY	$6,970.00	$1,782.51	$7,499.39	107.6%	($529.39)
63 - REPAIR, MAINT & UTILITIES	***$2,700.00***	***$83.93***	***$2,711.45***	***100.4%***	***($11.45)***
001-450-6310 - BUILDING MAINT & REPAIR	$250.00	$0.00	$0.00	0.0%	$250.00
001-450-6320 - GROUNDS MAINT & REPAIR	$1,250.00	$0.00	$2,004.99	160.4%	($754.99)
001-450-6331 - VEHICLE OPERATIONS	$1,000.00	$83.93	$671.34	67.1%	$328.66
001-450-6371 - ELECTRIC/GAS UTILITIES	$200.00	$0.00	$35.12	17.6%	$164.88
64 - CONTRACTUAL SERVICES	***$1,750.00***	***$0.00***	***$350.00***	***20.0%***	***$1,400.00***
001-450-6499 - OTHER CONTRACTUAL SERV	$1,750.00	$0.00	$350.00	20.0%	$1,400.00
65 - COMMODITIES	***$1,600.00***	***$0.00***	***$17.50***	***1.1%***	***$1,582.50***
001-450-6504 - MINOR EQUIPMENT	$100.00	$0.00	$0.00	0.0%	$100.00

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
001-450-6507 - OPERATING SUPPLIES	$1,500.00	$0.00	$17.50	1.2%	$1,482.50
112 - EMPLOYEE BENEFITS	***$240,637.00***	***$19,679.13***	***$188,584.37***	***78.4%***	***$52,052.63***
430 - PARKS	***$87,615.00***	***$7,229.43***	***$71,708.74***	***81.8%***	***$15,906.26***
61 - EMPLOYEE BENEFITS & COSTS	***$87,615.00***	***$7,229.43***	***$71,708.74***	***81.8%***	***$15,906.26***
112-430-6110 - FICA - CITY CONTRIBUTION	$13,357.00	$1,433.81	$13,757.41	103.0%	($400.41)
112-430-6130 - IPERS - CITY/PAKRS	$16,483.00	$2,816.08	$17,250.19	104.7%	($767.19)
112-430-6131 - WORK COMP/PARKS	$6,768.00	$0.00	$5,188.66	76.7%	$1,579.34
112-430-6150 - GROUP INSURANCE BEN/PARKS	$35,269.00	$2,651.80	$33,455.23	94.9%	$1,813.77
112-430-6154 - EMPLOYEE SELF-FUND INS ...	$15,738.00	$327.74	$2,057.25	13.1%	$13,680.75
431 - FORESTRY/GREENHOUSE	***$684.00***	***$147.26***	***$756.56***	***110.6%***	***($72.56)***
61 - EMPLOYEE BENEFITS & COSTS	***$684.00***	***$147.26***	***$756.56***	***110.6%***	***($72.56)***
112-431-6110 - FICA - FORESTRY	$306.00	$147.26	$639.32	208.9%	($333.32)
112-431-6130 - IPERS - CITY/FORESTRY	$378.00	$0.00	$117.24	31.0%	$260.76
440 - RECREATION - OPERATING	***$129,656.00***	***$8,746.04***	***$95,960.92***	***74.0%***	***$33,695.08***
61 - EMPLOYEE BENEFITS & COSTS	***$129,656.00***	***$8,746.04***	***$95,960.92***	***74.0%***	***$33,695.08***
112-440-6110 - FICA - CITY/REC	$21,692.00	$1,367.67	$18,570.43	85.6%	$3,121.57
112-440-6130 - IPERS - CITY/REC	$26,768.00	$3,402.08	$25,335.67	94.6%	$1,432.33
112-440-6131 - WORK COMP/REC	$175.00	$0.00	$148.54	84.9%	$26.46
112-440-6150 - GROUP INSURANCE BEN/REC	$60,739.00	$3,302.02	$42,112.86	69.3%	$18,626.14

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
112-440-6154 - EMPLOYEE SELF-FUND INS ...	$20,282.00	$674.27	$9,793.42	48.3%	$10,488.58
441 - RECREATION - RIVER'S EDGE	***$2,515.00***	***$382.37***	***$2,966.95***	***118.0%***	***($451.95)***
61 - EMPLOYEE BENEFITS & COSTS	***$2,515.00***	***$382.37***	***$2,966.95***	***118.0%***	***($451.95)***
112-441-6110 - FICA - CITY/RIV EDGE	$1,126.00	$155.39	$1,695.39	150.6%	($569.39)
112-441-6130 - IPERS - CITY/RIV EDGE	$1,389.00	$226.98	$1,271.56	91.5%	$117.44
443 - RECREATION - FALCON CIVIC	***$4,861.00***	***$547.78***	***$5,679.40***	***116.8%***	***($818.40)***
61 - EMPLOYEE BENEFITS & COSTS	***$4,861.00***	***$547.78***	***$5,679.40***	***116.8%***	***($818.40)***
112-443-6110 - FICA - CITY/FCC	$2,176.00	$273.90	$3,270.32	150.3%	($1,094.32)
112-443-6130 - IPERS - CITY/FCC	$2,685.00	$273.88	$2,409.08	89.7%	$275.92
444 - RECREATION - SWIMMING POO	***$8,645.00***	***$1,836.86***	***$7,744.76***	***89.6%***	***$900.24***
61 - EMPLOYEE BENEFITS & COSTS	***$8,645.00***	***$1,836.86***	***$7,744.76***	***89.6%***	***$900.24***
112-444-6110 - FICA - CITY/POOL	$6,503.00	$1,833.84	$6,245.65	96.0%	$257.35
112-444-6130 - IPERS - CITY/POOL	$0.00	$3.02	$40.02	40.0%	$40.02
112-444-6131 - WORK COMP/POOL	$2,142.00	$0.00	$1,459.09	68.1%	$682.91
446 - RECREATION - COMPLEX	***$5,469.00***	***$653.02***	***$3,010.48***	***55.0%***	***$2,458.52***
61 - EMPLOYEE BENEFITS & COSTS	***$5,469.00***	***$653.02***	***$3,010.48***	***55.0%***	***$2,458.52***
112-446-6110 - FICA - CITY/COMPLEX	$2,448.00	$447.80	$2,015.40	82.3%	$432.60
112-446-6130 - IPERS - CITY/COMPLEX	$3,021.00	$205.22	$995.08	32.9%	$2,025.92
450 - CEMETERY	***$1,192.00***	***$136.37***	***$756.56***	***63.5%***	***$435.44***

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
61 - EMPLOYEE BENEFITS & COSTS	***$1,192.00***	***$136.37***	***$756.56***	***63.5%***	***$435.44***
112-450-6110 - FICA - CITY/CEMETERY	$534.00	$136.37	$573.70	107.4%	($39.70)
112-450-6130 - IPERS - CITY/CEMETERY	$658.00	$0.00	$182.86	27.8%	$475.14
304 - PARKS & REC PROJECTS	***$45,000.00***	***$0.00***	***$42,098.61***	***93.6%***	***$2,901.39***
446 - RECREATION - COMPLEX	***$45,000.00***	***$0.00***	***$42,098.61***	***93.6%***	***$2,901.39***
64 - CONTRACTUAL SERVICES	***$45,000.00***	***$0.00***	***$42,098.61***	***93.6%***	***$2,901.39***
304-446-6499 - CONTRACTUAL-COMPLEX TURF ...	$45,000.00	$0.00	$42,098.61	93.6%	$2,901.39
323 - CAP OUTLAY SAVINGS/LOST	***$250,562.00***	***$67,798.00***	***$201,847.51***	***80.6%***	***$48,714.49***
430 - PARKS	***$157,500.00***	***$62,698.00***	***$134,592.48***	***85.5%***	***$22,907.52***
67 - CAPITAL OUTLAY	***$157,500.00***	***$62,698.00***	***$134,592.48***	***85.5%***	***$22,907.52***
323-430-6727 - PARKS-CAP OUTLAY/EQUIPMENT	$157,500.00	$62,698.00	$134,592.48	85.5%	$22,907.52
441 - RECREATION - RIVER'S EDGE	***$7,962.00***	***$0.00***	***$8,942.68***	***112.3%***	***($980.68)***
67 - CAPITAL OUTLAY	***$7,962.00***	***$0.00***	***$8,942.68***	***112.3%***	***($980.68)***
323-441-6727 - RIVERS EDGE-CAP OUTLAY/EQUIP	$7,962.00	$0.00	$8,942.68	112.3%	($980.68)
443 - RECREATION - FALCON CIVIC	***$47,100.00***	***$5,100.00***	***$35,536.18***	***75.4%***	***$11,563.82***
67 - CAPITAL OUTLAY	***$47,100.00***	***$5,100.00***	***$35,536.18***	***75.4%***	***$11,563.82***
323-443-6727 - FCC-CAP OUTLAY/EQUIPMENT	$47,100.00	$5,100.00	$35,536.18	75.4%	$11,563.82
446 - RECREATION - COMPLEX	***$38,000.00***	***$0.00***	***$22,776.17***	***59.9%***	***$15,223.83***
67 - CAPITAL OUTLAY	***$38,000.00***	***$0.00***	***$22,776.17***	***59.9%***	***$15,223.83***

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
323-446-6727 - COMPLEX-CAP ...	$38,000.00	$0.00	$22,776.17	59.9%	$15,223.83
TOTAL EXPENSE	**$1,935,483.00**	**$316,090.37**	**$1,802,575.86**	**93.1%**	**$132,907.14**

	Net Budget	Net MTD Balance	Net YTD Balance	Net %	Net Balance
001 - GENERAL FUND	($703,522.00)	($122,468.01)	($563,640.80)	103.9%	($139,881.20)
043 - PARKS REPLACEMENT FUND	$0.00	$109.30	$1,176.52		($1,176.52)
112 - EMPLOYEE BENEFITS	($240,637.00)	($19,679.13)	($188,584.37)	78.4%	($52,052.63)
304 - PARKS & REC PROJECTS	$22,810.00	$0.00	$25,711.39	97.4%	($2,901.39)
323 - CAP OUTLAY SAVINGS/LOST	($116,247.00)	$65,580.82	($67,110.41)	87.5%	($49,136.59)
TOTAL (REV LESS EXP)	($1,037,596.00)	($76,457.02)	($792,447.67)	99.3%	($245,148.33)

Police Department Budget

City of Independence

Budget Report

Police Department as of 7/23/26

Percent of Fiscal YTD 8.33 %

2026 REVENUE REPORT

	Budget Estimate	MTD Balance	YTD Balance	% Rcvd	Balance
001 - GENERAL FUND	***$66,800.00***	***$4,491.31***	***$24,837.48***	***37.2%***	***$41,962.52***
41 - LICENSES & PERMITS					
001-110-4190 - MISC LICENSES & PERMITS	$950.00	$75.00	$1,375.00	144.7%	($425.00)
43 - USE OF MONEY & PROPERTY					
001-110-4300 - INTEREST	$0.00	$24.45	$262.28	0.0%	$262.28
44 - INTERGOVERNMENTAL					
001-110-4465 - SCHOOL CROSSING GUARDS	$52,002.00	$0.00	$0.00	0.0%	$52,002.00
45 - CHARGES/FEES					
001-110-4550 - ACCIDENT REPORTS - POLICE	$535.00	$120.00	$585.00	109.3%	($50.00)
001-110-4551 - POLICE SERVICE FEES	$100.00	$5.00	$40.00	40.0%	$60.00
47 - MISCELLANEOUS REVENUE					
001-110-4700 - PUBLIC SOURCE CONTRIB	$3,500.00	$950.00	$12,706.00	363.0%	($9,206.00)
001-110-4705 - DONATIONS K9 ONLY	$2,000.00	$2,000.00	$2,000.00	100.0%	$0.00
001-110-4711 - REIMBURSEMENT	$680.00	$0.00	$2,300.35	338.3%	($1,620.35)
001-110-4715 - REFUNDS	$2,033.00	$933.29	$2,033.29	100.0%	($0.29)
001-110-4770 - COURT FINES	$4,000.00	$183.57	$2,318.06	58.0%	$1,681.94

	Budget Estimate	MTD Balance	YTD Balance	% Rcvd	Balance
001-110-4775 - PARKING VIOLATION FEES	$1,000.00	$200.00	$1,217.50	121.8%	($217.50)
323 - CAP OUTLAY SAVINGS/LOST	***$224,086.00***	***$223,807.58***	***$224,289.34***	***100.1%***	***($203.34)***
43 - USE OF MONEY & PROPERTY					
323-110-4300 - INTEREST	$0.00	$107.58	$203.34	0.0%	$203.34
47 - MISCELLANEOUS REVENUE					
323-110-4710 - REIMBURSEMENTS	$386.00	$0.00	$386.00	100.0%	$0.00
48 - OTHER FINANCING SOURCES					
323-110-4820 - PROCEEDS FROM DEBT/LOAN	$223,700.00	$223,700.00	$223,700.00	100.0%	$0.00
TOTAL REVENUE	**$290,886.00**	**$228,298.89**	**$249,126.82**	**85.6%**	**$41,759.18**

2026 EXPENSE REPORT

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
001 - GENERAL FUND	***$1,402,516.00***	***$220,047.52***	***$1,304,861.67***	***93.0%***	***$97,654.33***
110 - POLICE	***$1,402,516.00***	***$220,047.52***	***$1,304,861.67***	***93.0%***	***$97,654.33***
60 - SALARIES AND WAGES	***$963,700.00***	***$68,676.79***	***$907,546.02***	***94.2%***	***$56,153.98***
001-110-6010 - SALARIES - FULL-TIME	$882,696.00	$61,304.10	$826,948.64	93.7%	$55,747.36
001-110-6020 - SALARIES - PART-TIME	$41,000.00	$624.91	$36,900.47	90.0%	$4,099.53

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
001-110-6040 - WAGES - OVERTIME	$34,000.00	$6,747.78	$43,224.53	127.1%	($9,224.53)
001-110-6042 - WAGES - OVERTIME SP EVENT	$6,000.00	$0.00	$470.38	7.8%	$5,529.62
001-110-6050 - WAGES - RESERVE OFFICERS	$4.00	$0.00	$2.00	50.0%	$2.00
61 - EMPLOYEE BENEFITS & COSTS	***$21,600.00***	***$1,013.65***	***$19,318.54***	***89.4%***	***$2,281.46***
001-110-6143 - ICMA RC - CITY SHARE	$12,000.00	$753.00	$11,846.02	98.7%	$153.98
001-110-6181 - ALLOWANCES - UNIFORM	$9,000.00	$210.65	$6,872.52	76.4%	$2,127.48
001-110-6184 - CELL PHONE ALLOWANCES	$600.00	$50.00	$600.00	100.0%	$0.00
62 - STAFF DEVELOPMENT	***$39,900.00***	***$3,365.00***	***$17,538.18***	***44.0%***	***$22,361.82***
001-110-6210 - DUES & MEMBERSHIPS	$2,200.00	$0.00	$795.00	36.1%	$1,405.00
001-110-6230 - TRAINING IN HOUSE	$8,200.00	$0.00	$8,092.16	98.7%	$107.84
001-110-6240 - MTNS/CONFERENCES/MILES	$9,500.00	$539.50	$5,475.52	57.6%	$4,024.48
001-110-6299 - OTHER STAFF DEVELOPMENT	$20,000.00	$2,825.50	$3,175.50	15.9%	$16,824.50
63 - REPAIR, MAINT & UTILITIES	***$74,750.00***	***$4,202.78***	***$67,413.78***	***90.2%***	***$7,336.22***
001-110-6310 - BUILDING MAINT & REPAIR	$2,000.00	$0.00	$2,634.91	131.7%	($634.91)
001-110-6320 - GROUNDS MAINT & REPAIR	$1,000.00	$0.00	$162.65	16.3%	$837.35
001-110-6331 - VEHICLE OPERATIONS	$28,000.00	$2,002.72	$22,937.57	81.9%	$5,062.43
001-110-6332 - VEHICLE REPAIRS	$18,000.00	$237.54	$18,314.38	101.7%	($314.38)
001-110-6350 - OPERATIONAL EQUIPMENT REPAIR	$1,000.00	$0.00	$692.00	69.2%	$308.00
001-110-6371 - ELECTRIC/GAS UTILITIES	$11,000.00	$1,050.70	$10,783.30	98.0%	$216.70

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
001-110-6373 - COMMUNICATIONS ...	$12,750.00	$911.82	$11,491.87	90.1%	$1,258.13
001-110-6399 - OTHER MAINTENANCE/REPAIR	$1,000.00	$0.00	$397.10	39.7%	$602.90
64 - CONTRACTUAL SERVICES	***$241,017.00***	***$103,867.76***	***$236,890.03***	***98.3%***	***$4,126.97***
001-110-6402 - ADVERTISING/CRIME PREVENTION	$1,000.00	$283.66	$1,313.58	131.4%	($313.58)
001-110-6408 - PROPERTY & CASUALTY ...	$25,367.00	$0.00	$25,366.53	100.0%	$0.47
001-110-6409 - JANITORIAL	$4,650.00	$357.60	$2,915.92	62.7%	$1,734.08
001-110-6412 - MEDICAL/WELLNESS EXPENSE	$1,000.00	$0.00	$366.00	36.6%	$634.00
001-110-6413 - DISPATCHING/COURT/SUBPOEN...	$209,000.00	$103,226.50	$206,928.00	99.0%	$2,072.00
65 - COMMODITIES	***$61,549.00***	***$38,921.54***	***$56,155.12***	***91.2%***	***$5,393.88***
001-110-6506 - OFFICE SUPPLIES	$3,000.00	$0.00	$317.20	10.6%	$2,682.80
001-110-6507 - OPERATING SUPPLIES	$46,999.00	$28,872.29	$44,304.40	94.3%	$2,694.60
001-110-6510 - SAFETY SUPPLIES	$1,500.00	$0.00	$1,484.27	99.0%	$15.73
001-110-6516 - POLICE CANINE PURCHASES	$10,050.00	$10,049.25	$10,049.25	100.0%	$0.75
112 - EMPLOYEE BENEFITS	***$491,601.00***	***$40,772.34***	***$405,694.37***	***82.5%***	***$85,906.63***
110 - POLICE	***$491,601.00***	***$40,772.34***	***$405,694.37***	***82.5%***	***$85,906.63***
61 - EMPLOYEE BENEFITS & COSTS	***$491,601.00***	***$40,772.34***	***$405,694.37***	***82.5%***	***$85,906.63***
112-110-6110 - FICA - CITY/POLICE	$79,420.00	$5,075.42	$67,318.81	84.8%	$12,101.19
112-110-6130 - IPERS - CITY/POLICE	$95,216.00	$12,262.68	$84,871.73	89.1%	$10,344.27
112-110-6131 - WORK COMP/POLICE	$14,995.00	$0.00	$8,892.33	59.3%	$6,102.67

City of Independence

Budget Report

Police Department as of 7/23/26

Percent of Fiscal YTD 8.33 %

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
112-110-6150 - GROUP INSURANCE BEN/POLICE	$190,787.00	$13,980.09	$167,105.12	87.6%	$23,681.88
112-110-6154 - EMPLOYEE SELF-FUND INS ...	$111,183.00	$9,454.15	$77,506.38	69.7%	$33,676.62
323 - CAP OUTLAY SAVINGS/LOST	***$253,086.00***	***$0.00***	***$240,469.07***	***95.0%***	***$12,616.93***
110 - POLICE	***$253,086.00***	***$0.00***	***$240,469.07***	***95.0%***	***$12,616.93***
67 - CAPITAL OUTLAY	***$253,086.00***	***$0.00***	***$240,469.07***	***95.0%***	***$12,616.93***
323-110-6710 - POLICE-CAP OUTLAY/VEHICLES	$52,000.00	$0.00	$48,754.50	93.8%	$3,245.50
323-110-6725 - POLICE-CAP OUTLAY/OFFICE EQUIP	$5,000.00	$0.00	$4,873.88	97.5%	$126.12
323-110-6727 - POLICE-CAP OUTLAY/EQUIPMENT	$196,086.00	$0.00	$186,840.69	95.3%	$9,245.31
TOTAL EXPENSE	**$2,147,203.00**	**$260,819.86**	**$1,951,025.11**	**90.9%**	**$196,177.89**

	Net Budget	Net MTD Balance	Net YTD Balance	Net %	Net Balance
001 - GENERAL FUND	($1,335,716.00)	($215,556.21)	($1,280,024.19)	90.5%	($55,691.81)
112 - EMPLOYEE BENEFITS	($491,601.00)	($40,772.34)	($405,694.37)	82.5%	($85,906.63)
323 - CAP OUTLAY SAVINGS/LOST	($29,000.00)	$223,807.58	($16,179.73)	97.4%	($12,820.27)
TOTAL (REV LESS EXP)	($1,856,317.00)	($32,520.97)	($1,701,898.29)	90.2%	($154,418.71)

Storm Water Budget

City of Independence

Budget Report

Storm Water as of 7/23/26

Percent of Fiscal YTD 8.33 %

2026 REVENUE REPORT

	Budget Estimate	MTD Balance	YTD Balance	% Rcvd	Balance
740 - STORM WATER DEPT	***$160,000.00***	***$14,251.78***	***$169,921.57***	***106.2%***	***($9,921.57)***
45 - CHARGES/FEES					
740-865-4550 - STORM WATER CHARGES	$160,000.00	$14,251.78	$169,921.57	106.2%	($9,921.57)
TOTAL REVENUE	**$160,000.00**	**$14,251.78**	**$169,921.57**	**106.2%**	**($9,921.57)**

2026 EXPENSE REPORT

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
740 - STORM WATER DEPT	***$353,318.00***	***$8,840.69***	***$247,362.77***	***70.0%***	***$105,955.23***
865 - STORM WATER	***$353,318.00***	***$8,840.69***	***$247,362.77***	***70.0%***	***$105,955.23***
60 - SALARIES AND WAGES	***$15,725.00***	***$0.00***	***$5,675.18***	***36.1%***	***$10,049.82***
740-865-6010 - SALARIES - FULL-TIME	$14,040.00	$0.00	$5,633.03	40.1%	$8,406.97
740-865-6040 - WAGES - OVERTIME	$1,685.00	$0.00	$42.15	2.5%	$1,642.85
61 - EMPLOYEE BENEFITS & COSTS	***$3,619.00***	***($170.25)***	***$3,251.70***	***89.9%***	***$367.30***
740-865-6110 - FICA-CITY/STORM WATER	$1,203.00	$0.00	$418.11	34.8%	$784.89
740-865-6130 - IPERS-CITY/STORM WATER	$1,485.00	$0.00	$535.73	36.1%	$949.27



City of Independence
Budget Report
Storm Water as of 7/23/26

Percent of Fiscal YTD 8.33 %

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
740-865-6131 - WORKERS COMP/STORM WATER	$381.00	$0.00	$425.67	111.7%	($44.67)
740-865-6143 - ICMA RC - CITY SHARE	$30.00	$0.00	$92.19	307.3%	($62.19)
740-865-6150 - GROUP INSURANCE/STORM WATER	$520.00	($170.25)	$1,780.00	342.3%	($1,260.00)
62 - STAFF DEVELOPMENT	***$974.00***	***$0.00***	***$0.00***	***0.0%***	***$974.00***
740-865-6240 - MTGS/CONFERENCES/MILES	$974.00	$0.00	$0.00	0.0%	$974.00
63 - REPAIR, MAINT & UTILITIES	***$50,000.00***	***$53.98***	***$16,172.31***	***32.3%***	***$33,827.69***
740-865-6320 - GROUNDS MAINT & REPAIR	$50,000.00	$53.98	$16,172.31	32.3%	$33,827.69
64 - CONTRACTUAL SERVICES	***$74,000.00***	***$4,000.00***	***$12,486.16***	***16.9%***	***$61,513.84***
740-865-6407 - ENGINEERING	$10,000.00	$0.00	$7,605.00	76.1%	$2,395.00
740-865-6413 - PAYMENTS - OTHER AGENCIES	$4,000.00	$4,000.00	$4,000.00	100.0%	$0.00
740-865-6499 - OTHER CONTRACTUAL SERV	$60,000.00	$0.00	$881.16	1.5%	$59,118.84
65 - COMMODITIES	***$0.00***	***$0.00***	***$2,131.81***	***2,131...***	***$2,131.81***
740-865-6507 - OPERATING SUPPLIES	$0.00	$0.00	$2,131.81	2,131...	$2,131.81
67 - CAPITAL OUTLAY	***$209,000.00***	***$4,956.96***	***$207,645.61***	***99.4%***	***$1,354.39***
740-865-6790 - NEW INSFRASTRUCTURE	$209,000.00	$4,956.96	$207,645.61	99.4%	$1,354.39
TOTAL EXPENSE	**$353,318.00**	**$8,840.69**	**$247,362.77**	**70.0%**	**$105,955.23**

City of Independence

Budget Report

Storm Water as of 7/23/26

Percent of Fiscal YTD 8.33 %

	Net Budget	Net MTD Balance	Net YTD Balance	Net %	Net Balance
740 - STORM WATER DEPT	($193,318.00)	$5,411.09	($77,441.20)	81.3%	($115,876.80)
TOTAL (REV LESS EXP)	($193,318.00)	$5,411.09	($77,441.20)	81.3%	($115,876.80)

Street Department Budget

City of Independence

Budget Report

Streets Department as of 7/23/26

Percent of Fiscal YTD 8.33 %

2026 REVENUE REPORT

	Budget Estimate	MTD Balance	YTD Balance	% Rcvd	Balance
001 - GENERAL FUND	***$14,711.00***	***$95.25***	***$14,979.31***	***101.8%***	***($268.31)***
44 - INTERGOVERNMENTAL					
001-210-4428 - IDOT HWY 150 MAINT CONTRACT	$8,321.00	$0.00	$8,321.30	100.0%	($0.30)
47 - MISCELLANEOUS REVENUE					
001-210-4710 - REIMBURSEMENTS	$220.00	$0.00	$220.69	100.3%	($0.69)
001-210-4720 - INSURANCE SETTLEMENTS	$5,110.00	$0.00	$5,210.32	102.0%	($100.32)
001-210-4745 - SALE OF SALVAGE	$1,060.00	$95.25	$1,227.00	115.8%	($167.00)
012 - STREET REPLACEMENT FUND	***$0.00***	***$0.31***	***$3.65***	***0.0%***	***$3.65***
43 - USE OF MONEY & PROPERTY					
012-210-4300 - INTEREST	$0.00	$0.31	$3.65	0.0%	$3.65
110 - STREETS DEPT - ROAD USE T	***$848,960.00***	***$66,245.82***	***$853,683.57***	***100.6%***	***($4,723.57)***
44 - INTERGOVERNMENTAL					
110-210-4430 - ROAD USE TAXES	$848,960.00	$66,245.82	$853,683.57	100.6%	($4,723.57)
323 - CAP OUTLAY SAVINGS/LOST	***$177,500.00***	***$163,002.18***	***$163,440.14***	***92.1%***	***$14,059.86***
43 - USE OF MONEY & PROPERTY					
323-210-4300 - INTEREST	$0.00	$102.18	$540.14	0.0%	$540.14

	Budget Estimate	MTD Balance	YTD Balance	% Rcvd	Balance
48 - OTHER FINANCING SOURCES					
323-210-4820 - PROCEEDS FROM DEBT/LOAN	$177,500.00	$162,900.00	$162,900.00	91.8%	$14,600.00
325 - CAP PROJ-1ST ST W RECON	***$425,000.00***	***$425,204.36***	***$428,139.16***	***100.7%***	***($3,139.16)***
43 - USE OF MONEY & PROPERTY					
325-210-4300 - INTEREST	$0.00	$204.36	$3,139.16	0.0%	$3,139.16
48 - OTHER FINANCING SOURCES					
325-210-4820 - PROCEEDS ST-1ST ST W RECON	$425,000.00	$425,000.00	$425,000.00	100.0%	$0.00
TOTAL REVENUE	**$1,466,171.00**	**$654,547.92**	**$1,460,245.83**	**99.6%**	**$5,925.17**

2026 EXPENSE REPORT

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
001 - GENERAL FUND	***$39,301.00***	***$0.00***	***$29,298.85***	***74.5%***	***$10,002.15***
210 - ROADS, BRIDGES, SIDEWALKS	***$39,301.00***	***$0.00***	***$29,298.85***	***74.5%***	***$10,002.15***
63 - REPAIR, MAINT & UTILITIES	***$4,961.00***	***$0.00***	***$4,960.32***	***100.0%***	***$0.68***
001-210-6350 - OPERATIONAL EQUIP REPAIR	$4,961.00	$0.00	$4,960.32	100.0%	$0.68
64 - CONTRACTUAL SERVICES	***$34,340.00***	***$0.00***	***$24,338.53***	***70.9%***	***$10,001.47***
001-210-6408 - PROPERTY/CASUALTY INS	$24,340.00	$0.00	$24,338.53	100.0%	$1.47

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
001-210-6499 - OTHER CONTRACTUAL SERV	$10,000.00	$0.00	$0.00	0.0%	$10,000.00
110 - STREETS DEPT - ROAD USE T	***$845,039.00***	***$42,711.83***	***$628,566.07***	***74.4%***	***$216,472.93***
210 - ROADS, BRIDGES, SIDEWALKS	***$695,690.00***	***$33,342.94***	***$488,257.97***	***70.2%***	***$207,432.03***
60 - SALARIES AND WAGES	***$363,142.00***	***$19,646.51***	***$292,853.08***	***80.6%***	***$70,288.92***
110-210-6010 - SALARIES - FULL TIME	$352,057.00	$18,450.07	$288,239.44	81.9%	$63,817.56
110-210-6030 - HOURLY WAGES - TEMPORARY	$3,259.00	$910.00	$2,191.00	67.2%	$1,068.00
110-210-6040 - WAGES - OVERTIME	$7,826.00	$286.44	$2,422.64	31.0%	$5,403.36
61 - EMPLOYEE BENEFITS & COSTS	***$10,400.00***	***$359.05***	***$7,175.44***	***69.0%***	***$3,224.56***
110-210-6143 - ICMA RC - CITY SHARE	$6,000.00	$290.30	$4,549.34	75.8%	$1,450.66
110-210-6181 - ALLOWANCES - UNIFORM	$3,500.00	$0.00	$1,801.10	51.5%	$1,698.90
110-210-6184 - CELL PHONE ALLOWANCES	$900.00	$68.75	$825.00	91.7%	$75.00
62 - STAFF DEVELOPMENT	***$2,900.00***	***$0.00***	***$650.88***	***22.4%***	***$2,249.12***
110-210-6210 - DUES & MEMBERSHIPS	$300.00	$0.00	$0.00	0.0%	$300.00
110-210-6220 - EDUCATIONAL MATERIAL	$100.00	$0.00	$15.84	15.8%	$84.16
110-210-6230 - TRAINING IN HOUSE	$1,000.00	$0.00	$40.04	4.0%	$959.96
110-210-6240 - MTGS/CONFERENCES/MILES	$1,500.00	$0.00	$595.00	39.7%	$905.00
63 - REPAIR, MAINT & UTILITIES	***$111,560.00***	***$7,463.80***	***$93,132.57***	***83.5%***	***$18,427.43***
110-210-6310 - BUILDING MAINT & REPAIR	$10,000.00	$9.99	$9,561.63	95.6%	$438.37
110-210-6320 - GROUNDS MAINT & REPAIR	$5,000.00	$1,354.93	$5,317.56	106.4%	($317.56)

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
110-210-6331 - VEHICLE OPERATIONS	$25,000.00	$1,770.13	$20,072.72	80.3%	$4,927.28
110-210-6332 - VEHICLE REPAIRS	$20,000.00	$896.62	$11,609.23	58.0%	$8,390.77
110-210-6371 - ELECTRIC/GAS UTILITIES	$45,000.00	$3,204.51	$42,624.57	94.7%	$2,375.43
110-210-6373 - COMMUNICATIONS ...	$1,560.00	$114.90	$1,045.95	67.0%	$514.05
110-210-6399 - OTHER MAINTENANCE/REPAIR	$5,000.00	$112.72	$2,900.91	58.0%	$2,099.09
64 - CONTRACTUAL SERVICES	***$30,188.00***	***$937.50***	***$10,295.54***	***34.1%***	***$19,892.46***
110-210-6412 - MEDICAL/WELLNESS EXPENSE	$500.00	$0.00	$365.08	73.0%	$134.92
110-210-6415 - RENTAL & LEASES ON EQUIPMENT	$2,500.00	$0.00	$1,530.37	61.2%	$969.63
110-210-6417 - STREET MAINT/DUST CONTROL	$7,500.00	$0.00	$3,679.24	49.1%	$3,820.76
110-210-6419 - TECHNOLOGY SERVICES	$938.00	$937.50	$937.50	99.9%	$0.50
110-210-6499 - CONTRACTUAL SERVICES	$18,750.00	$0.00	$3,783.35	20.2%	$14,966.65
65 - COMMODITIES	***$67,500.00***	***$3,551.03***	***$21,647.74***	***32.1%***	***$45,852.26***
110-210-6504 - MINOR EQUIPMENT	$47,500.00	$2,965.93	$7,736.41	16.3%	$39,763.59
110-210-6506 - OFFICE SUPPLIES	$2,500.00	$37.99	$101.15	4.0%	$2,398.85
110-210-6507 - OPERATING SUPPLIES	$12,000.00	$519.13	$8,256.06	68.8%	$3,743.94
110-210-6510 - SPECIAL & SAFETY EQUIPMENT	$2,500.00	$27.98	$2,148.66	85.9%	$351.34
110-210-6511 - IRON-STEEL-OTHER METAL GOODS	$3,000.00	$0.00	$3,405.46	113.5%	($405.46)
67 - CAPITAL OUTLAY	***$110,000.00***	***$1,385.05***	***$62,502.72***	***56.8%***	***$47,497.28***
110-210-6761 - STREETS - RESURFACING/REPAIR	$110,000.00	$1,385.05	$62,502.72	56.8%	$47,497.28

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
230 - STREET LIGHTING	***$47,425.00***	***$8,675.64***	***$39,246.15***	***82.8%***	***$8,178.85***
63 - REPAIR, MAINT & UTILITIES	***$44,925.00***	***$8,675.64***	***$39,194.71***	***87.2%***	***$5,730.29***
110-230-6350 - OPERATIONAL EQUIPMENT REPAIR	$11,650.00	$6,904.00	$15,559.44	133.6%	($3,909.44)
110-230-6371 - ELECTRIC/GAS UTILITIES	$33,275.00	$1,771.64	$23,635.27	71.0%	$9,639.73
64 - CONTRACTUAL SERVICES	***$2,500.00***	***$0.00***	***$51.44***	***2.1%***	***$2,448.56***
110-230-6499 - CONTRACT REPAIR-ELECTRIC	$2,500.00	$0.00	$51.44	2.1%	$2,448.56
240 - TRAFFIC CONTROL & SAFETY	***$16,500.00***	***$240.00***	***$10,331.57***	***62.6%***	***$6,168.43***
64 - CONTRACTUAL SERVICES	***$4,000.00***	***$240.00***	***$1,591.51***	***39.8%***	***$2,408.49***
110-240-6499 - CONTRACT REPAIR-ELECTRIC	$4,000.00	$240.00	$1,591.51	39.8%	$2,408.49
65 - COMMODITIES	***$12,500.00***	***$0.00***	***$8,740.06***	***69.9%***	***$3,759.94***
110-240-6509 - POSTS & SIGNS	$12,500.00	$0.00	$8,740.06	69.9%	$3,759.94
250 - SNOW REMOVAL	***$75,424.00***	***$0.00***	***$76,528.97***	***101.5%***	***($1,104.97)***
60 - SALARIES AND WAGES	***$8,424.00***	***$0.00***	***$21,783.22***	***258.6%***	***($13,359.22)***
110-250-6010 - SALARIES - FULL-TIME	$0.00	$0.00	$14,761.97	14,76…	$14,761.97
110-250-6040 - WAGES - OVERTIME	$8,424.00	$0.00	$7,021.25	83.3%	$1,402.75
61 - EMPLOYEE BENEFITS & COSTS	***$0.00***	***$0.00***	***$282.49***	***282.5%***	***$282.49***
110-250-6143 - ICMA RC - CITY SHARE	$0.00	$0.00	$282.49	282.5%	$282.49
63 - REPAIR, MAINT & UTILITIES	***$32,000.00***	***$0.00***	***$29,886.32***	***93.4%***	***$2,113.68***
110-250-6331 - VEHICLE OPERATIONS	$12,000.00	$0.00	$11,715.35	97.6%	$284.65

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
110-250-6332 - VEHICLE REPAIRS	$20,000.00	$0.00	$18,170.97	90.9%	$1,829.03
65 - COMMODITIES	***$35,000.00***	***$0.00***	***$24,576.94***	***70.2%***	***$10,423.06***
110-250-6510 - SNOW AND ICE CONTROL ...	$35,000.00	$0.00	$24,576.94	70.2%	$10,423.06
270 - STREET CLEANING	***$10,000.00***	***$453.25***	***$14,201.41***	***142.0%***	***($4,201.41)***
60 - SALARIES AND WAGES	***$0.00***	***$446.08***	***$8,824.02***	***8,824...***	***$8,824.02***
110-270-6010 - SALARIES - FULL-TIME	$0.00	$446.08	$8,824.02	8,824...	$8,824.02
61 - EMPLOYEE BENEFITS & COSTS	***$0.00***	***$7.17***	***$156.27***	***156.3%***	***$156.27***
110-270-6143 - ICMA RC - CITY SHARE	$0.00	$7.17	$156.27	156.3%	$156.27
63 - REPAIR, MAINT & UTILITIES	***$10,000.00***	***$0.00***	***$5,221.12***	***52.2%***	***$4,778.88***
110-270-6331 - VEHICLE OPERATIONS	$5,000.00	$0.00	$344.00	6.9%	$4,656.00
110-270-6332 - VEHICLE REPAIRS	$5,000.00	$0.00	$4,877.12	97.5%	$122.88
112 - EMPLOYEE BENEFITS	***$174,453.00***	***$9,620.15***	***$153,940.49***	***88.2%***	***$20,512.51***
210 - ROADS, BRIDGES, SIDEWALKS	***$172,666.00***	***$9,465.80***	***$144,592.97***	***83.7%***	***$28,073.03***
61 - EMPLOYEE BENEFITS & COSTS	***$172,666.00***	***$9,465.80***	***$144,592.97***	***83.7%***	***$28,073.03***
112-210-6110 - FICA - CITY/STREETS	$27,781.00	$1,450.75	$21,677.56	78.0%	$6,103.44
112-210-6130 - IPERS - CITY/STREETS	$32,631.00	$3,296.82	$27,444.10	84.1%	$5,186.90
112-210-6131 - WORK COMP/STREETS	$10,738.00	$0.00	$8,522.19	79.4%	$2,215.81
112-210-6142 - PENSION - CITY MANAGER	$1,651.00	$123.12	$1,600.56	96.9%	$50.44
112-210-6150 - GROUP INSURANCE BEN/STREETS	$84,865.00	$4,214.07	$69,403.28	81.8%	$15,461.72

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
112-210-6154 - EMPLOYEE SELF-FUND INS …	$15,000.00	$381.04	$15,945.28	106.3%	($945.28)
250 - SNOW REMOVAL	***$1,787.00***	***$0.00***	***$6,677.91***	***373.7%***	***($4,890.91)***
61 - EMPLOYEE BENEFITS & COSTS	***$1,787.00***	***$0.00***	***$6,677.91***	***373.7%***	***($4,890.91)***
112-250-6110 - FICA - CITY/SNOW	$645.00	$0.00	$1,608.49	249.4%	($963.49)
112-250-6130 - IPERS - CITY/SNOW	$796.00	$0.00	$2,056.34	258.3%	($1,260.34)
112-250-6131 - WORK COMP/SNOW	$346.00	$0.00	$284.99	82.4%	$61.01
112-250-6150 - GROUP INSURANCE BEN/SNOW	$0.00	$0.00	$2,728.09	2,728…	$2,728.09
270 - STREET CLEANING	***$0.00***	***$154.35***	***$2,669.61***	***2,669…***	***$2,669.61***
61 - EMPLOYEE BENEFITS & COSTS	***$0.00***	***$154.35***	***$2,669.61***	***2,669…***	***$2,669.61***
112-270-6110 - FICA - CITY/ST CLEAN	$0.00	$33.73	$666.95	667.0%	$666.95
112-270-6130 - IPERS - CITY/ST CLEAN	$0.00	$49.76	$840.65	840.7%	$840.65
112-270-6150 - GROUP INSURANCE/ST CLEAN	$0.00	$70.86	$1,162.01	1,162…	$1,162.01
323 - CAP OUTLAY SAVINGS/LOST	***$242,500.00***	***$0.00***	***$225,443.25***	***93.0%***	***$17,056.75***
210 - ROADS, BRIDGES, SIDEWALKS	***$242,500.00***	***$0.00***	***$225,443.25***	***93.0%***	***$17,056.75***
67 - CAPITAL OUTLAY	***$242,500.00***	***$0.00***	***$225,443.25***	***93.0%***	***$17,056.75***
323-210-6710 - STREET-CIP CAP OUTLAY/VEHICLES	$70,000.00	$0.00	$73,136.27	104.5%	($3,136.27)
323-210-6727 - STREET-CIP CAP …	$30,000.00	$0.00	$30,000.00	100.0%	$0.00
323-210-6799 - OTHER CAPITAL OUTLAY	$142,500.00	$0.00	$122,306.98	85.8%	$20,193.02
325 - CAP PROJ-1ST ST W RECON	***$429,000.00***	***$0.00***	***$33,410.25***	***7.8%***	***$395,589.75***

City of Independence

Budget Report

Streets Department as of 7/23/26

Percent of Fiscal YTD 8.33 %

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
210 - ROADS, BRIDGES, SIDEWALKS	***$429,000.00***	***$0.00***	***$33,410.25***	***7.8%***	***$395,589.75***
64 - CONTRACTUAL SERVICES	***$429,000.00***	***$0.00***	***$33,410.25***	***7.8%***	***$395,589.75***
325-210-6407 - ENGINEER ST-1ST ST W RECON	$80,000.00	$0.00	$0.00	0.0%	$80,000.00
325-210-6411 - LEGAL ST-1ST ST W RECON	$8,000.00	$0.00	$0.00	0.0%	$8,000.00
325-210-6414 - PUBLISH ST-1ST ST W RECON	$1,000.00	$0.00	$0.00	0.0%	$1,000.00
325-210-6490 - OTHER PROF SVC-1ST ST W RECON	$29,000.00	$0.00	$33,410.25	115.2%	($4,410.25)
325-210-6499 - CONTRACTOR ST-1ST ST W RECON	$311,000.00	$0.00	$0.00	0.0%	$311,000.00
TOTAL EXPENSE	**$1,730,293.00**	**$52,331.98**	**$1,070,658.91**	**61.9%**	**$659,634.09**

	Net Budget	Net MTD Balance	Net YTD Balance	Net %	Net Balance
001 - GENERAL FUND	($24,590.00)	$95.25	($14,319.54)	82.0%	($10,270.46)
012 - STREET REPLACEMENT FUND	$0.00	$0.31	$3.65		($3.65)
110 - STREETS DEPT - ROAD USE T	$3,921.00	$23,533.99	$225,117.50	87.5%	($221,196.50)
112 - EMPLOYEE BENEFITS	($174,453.00)	($9,620.15)	($153,940.49)	88.2%	($20,512.51)
323 - CAP OUTLAY SAVINGS/LOST	($65,000.00)	$163,002.18	($62,003.11)	92.6%	($2,996.89)
325 - CAP PROJ-1ST ST W RECON	($4,000.00)	$425,204.36	$394,728.91	54.0%	($398,728.91)
TOTAL (REV LESS EXP)	($264,122.00)	$602,215.94	$389,586.92	79.2%	($653,708.92)

Utilities Department Budget

City of Independence

Budget Report

Utilities Department as of 7/23/26

Percent of Fiscal YTD 8.33 %

2026 REVENUE REPORT

	Budget Estimate	MTD Balance	YTD Balance	% Rcvd	Balance
600 - WATER FUND	***$1,275,303.00***	***$110,150.03***	***$1,366,287.79***	***107.1%***	***($90,984.79)***
43 - USE OF MONEY & PROPERTY					
600-810-4300 - INTEREST	$0.00	$0.00	$38,619.30	0.0%	$38,619.30
45 - CHARGES/FEES					
600-810-4500 - METERED WATER SALES	$1,200,000.00	$109,789.63	$1,254,672.95	104.6%	($54,672.95)
600-810-4510 - BULK WATER SALES	$820.00	$360.40	$879.80	107.3%	($59.80)
600-810-4540 - TAPS (NEW INSTALLATIONS)	$2,000.00	$0.00	$0.00	0.0%	$2,000.00
47 - MISCELLANEOUS REVENUE					
600-810-4700 - MISCELLANEOUS INCOME	$72,483.00	$0.00	$72,115.74	99.5%	$367.26
602 - WATER CONSTRUCTION	***$0.00***	***$396.08***	***$66,349.42***	***0.0%***	***$66,349.42***
43 - USE OF MONEY & PROPERTY					
602-810-4300 - INTEREST	$0.00	$396.08	$66,349.42	0.0%	$66,349.42
604 - WATER RELACEMENT FUND	***$0.00***	***$142.26***	***$1,531.71***	***0.0%***	***$1,531.71***
43 - USE OF MONEY & PROPERTY					
604-810-4300 - INTEREST	$0.00	$142.26	$1,531.71	0.0%	$1,531.71
610 - SEWER UTILITY FUND	***$2,525,031.00***	***$297,574.28***	***$2,835,835.99***	***112.3%***	***($310,804.99)***

	Budget Estimate	MTD Balance	YTD Balance	% Rcvd	Balance
43 - USE OF MONEY & PROPERTY					
610-815-4310 - SEWER RENTAL	$1,600,000.00	$159,549.35	$2,011,050.29	125.7%	($411,050.29)
610-815-4311 - WWTP FARM LEASE	$6,440.00	$0.00	$6,440.00	100.0%	$0.00
45 - CHARGES/FEES					
610-815-4500 - SEWER - WAPSIE VALLEY CREAMERY	$700,000.00	$48,905.30	$565,725.70	80.8%	$134,274.30
610-815-4501 - SEWER - MENTAL HEALTH INSTITUT	$20,000.00	$129.63	$12,994.47	65.0%	$7,005.53
610-815-4502 - SEWER - INDEP FOODS LLC	$106,000.00	$0.00	$146,594.08	138.3%	($40,594.08)
610-815-4503 - SEWER - BUCH CTY LANDFILL	$1,465.00	$0.00	$1,465.28	100.0%	($0.28)
610-815-4504 - SEWER - GEATER MACHINING & MFG	$600.00	$40.00	$1,050.00	175.0%	($450.00)
610-815-4505 - SEWER - PRIES ALUMINUM & MFG	$500.00	$20.00	$490.00	98.0%	$10.00
47 - MISCELLANEOUS REVENUE					
610-815-4710 - REIMBURSEMENTS	$90,026.00	$88,930.00	$90,026.17	100.0%	($0.17)
615 - WWTP FUTURE PLANT FUND	***$0.00***	***$1,973.23***	***$21,243.15***	***0.0%***	***$21,243.15***
43 - USE OF MONEY & PROPERTY					
615-815-4300 - INTEREST	$0.00	$1,973.23	$21,243.15	0.0%	$21,243.15
619 - SEWER REPLACEMENT FUND	***$0.00***	***$81.41***	***$876.83***	***0.0%***	***$876.83***
43 - USE OF MONEY & PROPERTY					
619-815-4300 - INTEREST	$0.00	$81.41	$876.83	0.0%	$876.83
620 - WWTP REPLACEMENT FUND	***$0.00***	***$0.00***	***$14,405.16***	***0.0%***	***$14,405.16***

	Budget Estimate	MTD Balance	YTD Balance	% Rcvd	Balance
43 - USE OF MONEY & PROPERTY					
620-815-4300 - INTEREST	$0.00	$0.00	$14,405.16	0.0%	$14,405.16
TOTAL REVENUE	**$3,800,334.00**	**$410,317.29**	**$4,306,530.05**	**113.3%**	**($506,196.05)**

2026 EXPENSE REPORT

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
600 - WATER FUND	***$1,903,225.00***	***$433,920.74***	***$1,736,078.88***	***91.2%***	***$167,146.12***
810 - WATER	***$1,903,225.00***	***$433,920.74***	***$1,736,078.88***	***91.2%***	***$167,146.12***
60 - SALARIES AND WAGES	***$219,376.00***	***$24,163.50***	***$245,277.43***	***111.8%***	***($25,901.43)***
600-810-6010 - SALARIES - FULL-TIME	$207,156.00	$22,090.75	$235,473.29	113.7%	($28,317.29)
600-810-6020 - SALARIES - PART-TIME	$3,413.00	$0.00	$0.00	0.0%	$3,413.00
600-810-6030 - HOURLY WAGES - TEMPORARY	$0.00	$0.00	$418.11	418.1%	$418.11
600-810-6040 - WAGES - OVERTIME	$8,807.00	$2,072.75	$9,386.03	106.6%	($579.03)
61 - EMPLOYEE BENEFITS & COSTS	***$87,468.00***	***$9,443.60***	***$96,669.53***	***110.5%***	***($9,201.53)***
600-810-6110 - FICA - CITY/WATER	$16,783.00	$1,791.92	$18,118.48	108.0%	($1,335.48)
600-810-6130 - IPERS - CITY/WATER	$17,408.00	$3,314.84	$21,120.66	121.3%	($3,712.66)
600-810-6131 - WORK COMP/WATER	$2,000.00	$0.00	$2,440.43	122.0%	($440.43)

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
600-810-6142 - PENSION - CITY MANAGER	$3,302.00	$246.24	$3,201.12	96.9%	$100.88
600-810-6143 - ICMA RC - CITY SHARE	$2,667.00	$309.02	$4,437.68	166.4%	($1,770.68)
600-810-6150 - GROUP INSURANCE BEN/WATER	$39,008.00	$3,504.32	$45,133.02	115.7%	($6,125.02)
600-810-6154 - EMPLOYEE SELF-FUND INS ...	$4,000.00	$28.47	$716.23	17.9%	$3,283.77
600-810-6181 - UNIFORM ALLOWANCE	$1,500.00	$194.62	$851.87	56.8%	$648.13
600-810-6184 - ALLOWANCES - CELL PHONE	$800.00	$54.17	$650.04	81.3%	$149.96
62 - STAFF DEVELOPMENT	***$7,000.00***	***$783.80***	***$2,416.81***	***34.5%***	***$4,583.19***
600-810-6210 - DUES & MEMBERSHIPS	$3,000.00	$783.80	$2,091.80	69.7%	$908.20
600-810-6220 - EDUCATIONAL MATERIAL	$500.00	$0.00	$0.00	0.0%	$500.00
600-810-6230 - TRAINING IN HOUSE	$1,000.00	$0.00	$13.34	1.3%	$986.66
600-810-6240 - MTGS/CONFERENCES/MILES	$2,500.00	$0.00	$311.67	12.5%	$2,188.33
63 - REPAIR, MAINT & UTILITIES	***$119,000.00***	***$4,968.24***	***$121,403.96***	***102.0%***	***($2,403.96)***
600-810-6310 - BUILDING MAINT & REPAIR	$4,000.00	$0.00	$2,033.52	50.8%	$1,966.48
600-810-6320 - GROUNDS MAINT & REPAIR	$1,000.00	$39.45	$364.42	36.4%	$635.58
600-810-6331 - VEHICLE OPERATIONS	$5,000.00	$350.48	$3,444.44	68.9%	$1,555.56
600-810-6332 - VEHICLE REPAIRS	$3,000.00	$227.48	$5,304.60	176.8%	($2,304.60)
600-810-6350 - OPERATIONAL EQUIP REPAIR	$50,000.00	$0.00	$51,821.93	103.6%	($1,821.93)
600-810-6371 - ELECTRIC/GAS UTILITIES	$55,000.00	$4,324.91	$57,796.62	105.1%	($2,796.62)
600-810-6373 - COMMUNICATIONS ...	$1,000.00	$25.92	$638.43	63.8%	$361.57



City of Independence
Budget Report
Utilities Department as of 7/23/26

Percent of Fiscal YTD 8.33 %

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
64 - CONTRACTUAL SERVICES	***$405,246.00***	***$68,492.56***	***$310,541.24***	***76.6%***	***$94,704.76***
600-810-6407 - ENGINEERING	$75,000.00	$13,500.00	$72,675.00	96.9%	$2,325.00
600-810-6408 - PROPERTY & CASUALTY ...	$11,846.00	$0.00	$11,845.63	100.0%	$0.37
600-810-6409 - JANITORIAL	$1,000.00	$0.00	$127.61	12.8%	$872.39
600-810-6412 - MEDICAL/WELLNESS EXPENSE	$150.00	$0.00	$136.04	90.7%	$13.96
600-810-6418 - SALES TAX	$80,000.00	$6,360.23	$73,213.55	91.5%	$6,786.45
600-810-6419 - TECHNOLOGY SERVICES	$3,500.00	$1,875.00	$2,962.40	84.6%	$537.60
600-810-6490 - BILLING & METER READ CONTRACT	$50,000.00	$37,183.01	$37,183.01	74.4%	$12,816.99
600-810-6499 - CONTRACTUAL REPAIRS	$183,750.00	$9,574.32	$112,398.00	61.2%	$71,352.00
65 - COMMODITIES	***$72,000.00***	***$8,408.18***	***$44,935.35***	***62.4%***	***$27,064.65***
600-810-6501 - LAB ANALYSIS & CHEMICALS	$20,000.00	$3,889.43	$19,940.50	99.7%	$59.50
600-810-6504 - MINOR EQUIPMENT	$5,000.00	$550.00	$2,810.79	56.2%	$2,189.21
600-810-6505 - METERS	$5,000.00	$193.04	$248.01	5.0%	$4,751.99
600-810-6506 - OFFICE SUPPLIES	$500.00	$12.66	$49.77	10.0%	$450.23
600-810-6507 - OPERATING SUPPLIES	$40,000.00	$3,586.85	$21,211.08	53.0%	$18,788.92
600-810-6508 - POSTAGE & SHIPPING	$1,000.00	$26.20	$248.70	24.9%	$751.30
600-810-6510 - SPECIAL & SAFETY EQUIPMENT	$500.00	$150.00	$426.50	85.3%	$73.50
67 - CAPITAL OUTLAY	***$993,135.00***	***$317,660.86***	***$914,834.56***	***92.1%***	***$78,300.44***
600-810-6710 - CAPITAL VEHICLES	$31,893.00	$0.00	$31,892.50	100.0%	$0.50

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
600-810-6727 - CAPITAL EQUIPMENT	$395,000.00	$291,666.50	$298,815.50	75.6%	$96,184.50
600-810-6790 - NEW INFRASTRUCTURE	$566,242.00	$25,994.36	$584,126.56	103.2%	($17,884.56)
610 - SEWER UTILITY FUND	***$1,931,454.00***	***$164,985.76***	***$1,609,363.30***	***83.3%***	***$322,090.70***
815 - SEWER/SEWAGE DISPOSAL	***$1,111,056.00***	***$88,380.79***	***$871,813.44***	***78.5%***	***$239,242.56***
60 - SALARIES AND WAGES	***$216,030.00***	***$17,317.96***	***$181,205.48***	***83.9%***	***$34,824.52***
610-815-6010 - SALARIES - FULL-TIME	$204,367.00	$17,003.05	$178,171.81	87.2%	$26,195.19
610-815-6020 - SALARIES - PART-TIME	$3,415.00	$0.00	$0.00	0.0%	$3,415.00
610-815-6030 - WAGES-TEMP/SEASONAL	$0.00	$0.00	$418.28	418.3%	$418.28
610-815-6040 - WAGES - OVERTIME	$8,248.00	$314.91	$2,615.39	31.7%	$5,632.61
61 - EMPLOYEE BENEFITS & COSTS	***$86,422.00***	***$6,281.37***	***$53,473.45***	***61.9%***	***$32,948.55***
610-815-6110 - FICA - CITY/WW	$16,527.00	$1,307.87	$13,646.41	82.6%	$2,880.59
610-815-6130 - IPERS - CITY/WW	$18,744.00	$2,775.47	$16,031.13	85.5%	$2,712.87
610-815-6131 - WORK COMP/WW	$4,563.00	$0.00	$2,339.43	51.3%	$2,223.57
610-815-6142 - PENSION - CITY MANAGER	$1,651.00	$123.12	$1,600.56	96.9%	$50.44
610-815-6143 - ICMA RC - CITY SHARE	$3,667.00	$224.29	$3,589.11	97.9%	$77.89
610-815-6150 - GROUP INSURANCE BEN/WW	$39,520.00	$1,620.58	$15,313.52	38.7%	$24,206.48
610-815-6181 - ALLOWANCES - UNIFORM	$1,250.00	$194.63	$528.28	42.3%	$721.72
610-815-6184 - ALLOWANCES - CELL PHONE	$500.00	$35.41	$425.01	85.0%	$74.99
62 - STAFF DEVELOPMENT	***$10,000.00***	***$247.54***	***$4,487.90***	***44.9%***	***$5,512.10***

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
610-815-6210 - DUES & MEMBERSHIPS	$4,000.00	$247.54	$2,099.54	52.5%	$1,900.46
610-815-6220 - EDUCATIONAL MATERIAL	$500.00	$0.00	$0.00	0.0%	$500.00
610-815-6230 - TRAINING IN HOUSE	$500.00	$0.00	$13.34	2.7%	$486.66
610-815-6240 - MTGS/CONFERENCES/MILES	$5,000.00	$0.00	$2,375.02	47.5%	$2,624.98
63 - REPAIR, MAINT & UTILITIES	***$224,724.00***	***$15,774.48***	***$227,234.79***	***101.1%***	***($2,510.79)***
610-815-6310 - BUILDING MAINT & REPAIR	$4,000.00	$37.98	$1,104.93	27.6%	$2,895.07
610-815-6320 - GROUNDS MAINT & REPAIR	$2,000.00	$61.95	$750.60	37.5%	$1,249.40
610-815-6331 - VEHICLE OPERATIONS	$3,500.00	$152.16	$2,934.84	83.9%	$565.16
610-815-6332 - VEHICLE REPAIRS	$1,000.00	$0.00	$0.00	0.0%	$1,000.00
610-815-6350 - OPERATIONAL EQUIPMENT REPAIR	$80,000.00	$2,625.09	$96,362.70	120.5%	($16,362.70)
610-815-6371 - ELECTRIC/GAS UTILITIES	$130,000.00	$12,712.48	$123,836.71	95.3%	$6,163.29
610-815-6372 - GARBAGE/RECYCLING	$2,000.00	$0.00	$444.07	22.2%	$1,555.93
610-815-6373 - COMMUNICATIONS ...	$2,224.00	$184.82	$1,800.94	81.0%	$423.06
64 - CONTRACTUAL SERVICES	***$307,880.00***	***$43,776.10***	***$166,703.13***	***54.1%***	***$141,176.87***
610-815-6408 - PROPERTY & CASUALTY ...	$70,570.00	$0.00	$70,568.61	100.0%	$1.39
610-815-6409 - JANITORIAL	$1,000.00	$102.90	$245.75	24.6%	$754.25
610-815-6412 - MEDICAL/WELLNESS EXPENSE	$200.00	$0.00	$0.00	0.0%	$200.00
610-815-6418 - PROPERTY & SALES TAX	$30,000.00	$2,800.70	$32,406.93	108.0%	($2,406.93)
610-815-6419 - TECHNOLOGY SERVICES	$1,735.00	$937.50	$1,734.90	100.0%	$0.10

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
610-815-6441 - METER READERS	$45,000.00	$37,183.00	$37,183.00	82.6%	$7,817.00
610-815-6490 - PROFESSIONAL SERVICES	$100,000.00	$700.00	$5,974.44	6.0%	$94,025.56
610-815-6499 - CONTRACTUAL SERVICES	$59,375.00	$2,052.00	$18,589.50	31.3%	$40,785.50
65 - COMMODITIES	***$136,000.00***	***$4,983.34***	***$71,884.19***	***52.9%***	***$64,115.81***
610-815-6501 - LAB ANALYSIS & CHEMICALS	$100,000.00	$4,240.10	$56,303.81	56.3%	$43,696.19
610-815-6504 - MINOR EQUIPMENT	$5,000.00	$0.00	$4,327.65	86.6%	$672.35
610-815-6506 - OFFICE SUPPLIES	$1,000.00	$163.79	$655.27	65.5%	$344.73
610-815-6507 - OPERATING SUPPLIES	$25,000.00	$282.88	$6,587.83	26.4%	$18,412.17
610-815-6508 - POSTAGE	$1,000.00	$0.00	$1,065.02	106.5%	($65.02)
610-815-6510 - SPECIAL & SAFETY EQUIPMENT	$4,000.00	$296.57	$2,944.61	73.6%	$1,055.39
67 - CAPITAL OUTLAY	***$130,000.00***	***$0.00***	***$166,824.50***	***128.3%***	***($36,824.50)***
610-815-6727 - CAPITAL EQUIPMENT	$30,000.00	$0.00	$0.00	0.0%	$30,000.00
610-815-6790 - SLIP LINING SEWER LINE	$100,000.00	$0.00	$166,824.50	166.8%	($66,824.50)
816 - SEWER COLLECTION	***$820,398.00***	***$76,604.97***	***$737,549.86***	***89.9%***	***$82,848.14***
60 - SALARIES AND WAGES	***$197,533.00***	***$19,428.71***	***$213,343.10***	***108.0%***	***($15,810.10)***
610-816-6010 - SALARIES - FULL-TIME	$187,313.00	$17,238.83	$206,958.20	110.5%	($19,645.20)
610-816-6020 - SALARIES - PART-TIME	$3,413.00	$0.00	$0.00	0.0%	$3,413.00
610-816-6030 - SEWER COLLECTION	$0.00	$0.00	$418.11	418.1%	$418.11
610-816-6040 - WAGES - OVERTIME	$6,807.00	$2,189.88	$5,966.79	87.7%	$840.21



City of Independence
Budget Report
Utilities Department as of 7/23/26

Percent of Fiscal YTD 8.33 %

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
61 - EMPLOYEE BENEFITS & COSTS	***$99,222.00***	***$9,213.88***	***$85,972.54***	***86.6%***	***$13,249.46***
610-816-6110 - FICA - CITY/	$15,112.00	$1,441.18	$15,778.34	104.4%	($666.34)
610-816-6130 - IPERS - CITY/	$15,346.00	$2,533.58	$17,639.09	114.9%	($2,293.09)
610-816-6142 - PENSION - CITY MANAGER	$3,302.00	$246.24	$3,201.12	96.9%	$100.88
610-816-6143 - ICMA RC - CITY SHARE	$3,667.00	$300.15	$4,486.28	122.3%	($819.28)
610-816-6150 - GROUP INSURANCE BEN/SEWER	$39,744.00	$4,373.51	$41,219.07	103.7%	($1,475.07)
610-816-6154 - EMPLOYEE SELF-FUND INS BEN/	$20,000.00	$70.42	$2,470.41	12.4%	$17,529.59
610-816-6181 - ALLOWANCES - UNIFORM	$1,250.00	$194.63	$528.28	42.3%	$721.72
610-816-6184 - ALLOWANCES - CELL PHONE	$801.00	$54.17	$649.95	81.1%	$151.05
62 - STAFF DEVELOPMENT	***$2,000.00***	***$0.00***	***$204.60***	***10.2%***	***$1,795.40***
610-816-6220 - EDUCATIONAL MATERIAL	$500.00	$0.00	$0.00	0.0%	$500.00
610-816-6230 - TRAINING IN HOUSE	$500.00	$0.00	$13.35	2.7%	$486.65
610-816-6240 - MTGS/CONFERENCES/MILES	$1,000.00	$0.00	$191.25	19.1%	$808.75
63 - REPAIR, MAINT & UTILITIES	***$115,824.00***	***$2,173.06***	***$57,016.35***	***49.2%***	***$58,807.65***
610-816-6310 - BUILDING MAINT & REPAIR	$2,000.00	$24.98	$280.97	14.0%	$1,719.03
610-816-6320 - GROUNDS MAINT & REPAIR	$500.00	$117.90	$179.15	35.8%	$320.85
610-816-6331 - VEHICLE OPERATIONS	$5,500.00	$325.62	$3,724.40	67.7%	$1,775.60
610-816-6332 - VEHICLE REPAIRS	$2,100.00	$0.00	$2,093.49	99.7%	$6.51
610-816-6350 - OPERATIONAL EQUIPMENT REPAIR	$60,000.00	$0.00	$16,861.27	28.1%	$43,138.73

	Budget Estimate	MTD Balance	YTD Balance	% Expd	Unexpended
610-816-6371 - ELECTRIC/GAS UTILITIES	$45,000.00	$1,648.75	$33,042.43	73.4%	$11,957.57
610-816-6373 - COMMUNICATIONS ...	$724.00	$55.81	$834.64	115.3%	($110.64)
64 - CONTRACTUAL SERVICES	***$141,987.00***	***$11,208.44***	***$126,302.86***	***89.0%***	***$15,684.14***
610-816-6407 - CONSULTING & ENGINEERING FEES	$1,500.00	$0.00	$0.00	0.0%	$1,500.00
610-816-6409 - JANITORIAL	$1,000.00	$0.00	$33.64	3.4%	$966.36
610-816-6412 - MEDICAL/WELLNESS EXPENSE	$250.00	$0.00	$68.02	27.2%	$181.98
610-816-6419 - TECHNOLOGY SERVICES	$3,849.00	$1,875.00	$3,848.40	100.0%	$0.60
610-816-6499 - CONTRACTUAL SERVICES	$135,388.00	$9,333.44	$122,352.80	90.4%	$13,035.20
65 - COMMODITIES	***$18,500.00***	***$2,401.42***	***$13,222.61***	***71.5%***	***$5,277.39***
610-816-6504 - MINOR EQUIPMENT	$2,000.00	$1,788.70	$2,272.70	113.6%	($272.70)
610-816-6506 - OFFICE SUPPLIES	$500.00	$12.66	$56.76	11.4%	$443.24
610-816-6507 - OPERATING SUPPLIES	$15,000.00	$600.06	$6,900.65	46.0%	$8,099.35
610-816-6510 - SPECIAL & SAFETY EQUIPMENT	$1,000.00	$0.00	$3,992.50	399.3%	($2,992.50)
67 - CAPITAL OUTLAY	***$245,332.00***	***$32,179.46***	***$241,487.80***	***98.4%***	***$3,844.20***
610-816-6727 - CAPITAL EQUIPMENT	$90,332.00	$27,222.50	$90,331.93	100.0%	$0.07
610-816-6790 - NEW INFRANSTRUCTURE	$155,000.00	$4,956.96	$151,155.87	97.5%	$3,844.13
TOTAL EXPENSE	**$3,834,679.00**	**$598,906.50**	**$3,345,442.18**	**87.2%**	**$489,236.82**

City of Independence

Budget Report

Utilities Department as of 7/23/26

Percent of Fiscal YTD 8.33 %

	Net Budget	Net MTD Balance	Net YTD Balance	Net %	Net Balance
600 - WATER FUND	($627,922.00)	($323,770.71)	($369,791.09)	97.6%	($258,130.91)
602 - WATER CONSTRUCTION	$0.00	$396.08	$66,349.42		($66,349.42)
604 - WATER RELACEMENT FUND	$0.00	$142.26	$1,531.71		($1,531.71)
610 - SEWER UTILITY FUND	$593,577.00	$132,588.52	$1,226,472.69	99.7%	($632,895.69)
615 - WWTP FUTURE PLANT FUND	$0.00	$1,973.23	$21,243.15		($21,243.15)
619 - SEWER REPLACEMENT FUND	$0.00	$81.41	$876.83		($876.83)
620 - WWTP REPLACEMENT FUND	$0.00	$0.00	$14,405.16		($14,405.16)
TOTAL (REV LESS EXP)	($34,345.00)	($188,589.21)	$961,087.87	100.2%	($995,432.87)

City Council

Memorandum

To:	City Council Members
From:	Susi Lampe, CMC, IaCMC, IaCFO, Assistant City Manager/City Clerk/Treasurer
Date of Meeting:	July 27, 2026
Item Title:	Transfers – Information Only

Background:

Attached is documentation showing the Transfers – for Council Information only.

Discussion:

This is for information only; no discussion is necessary.

Results:

The City has established priorities during strategic planning sessions. This item supports the Vision from that session of **promoting and encouraging community involvement and engagement**. This item helps achieve that vision by being transparent and sharing the City's financials.

Financial Consideration:

N/A

Recommendation:

This item is for informational purposes only; no motion is needed or recommended.

Attachments:

1. 7-2026 Prop Tax
2. 7-2026 Monthly Transfer

Batch Id: PROP TAX Batch Type: Recurring

Account No. / Account Description	Type	Debit	Credit	Description	Date	Journal Num	Tracking Id	Seq
001-950-4000 PROPERTY TAXES-GENERAL G/L: 001-999-9996 REVENUE CONTROL	Revenue		10,838.84	7/2026 BUCH CO TAX APPORT	07/15/26			1
001-950-4013 LIABILITY, PROPERTY INSURANCE G/L: 001-999-9996 REVENUE CONTROL	Revenue		2,012.81	7/2026 BUCH CO TAX APPORT	07/15/26			2
001-950-4080 MOBILE HOME TAXES G/L: 001-999-9996 REVENUE CONTROL	Revenue		63.87	7/2026 BUCH CO TAX APPORT	07/15/26			7
001-000-1110 CASH GENERAL FUND	General Ledger	12,915.52		7/2026 BUCH CO TAX APPORT	07/15/26			13
112-950-4000 PROPERTY TAXES-EMPLOYEE BENEFI G/L: 112-999-9996 REVENUE CONTROL	Revenue		6,709.95	7/2026 BUCH CO TAX APPORT	07/15/26			14
112-950-4080 MOBILE HOME TAXES G/L: 112-999-9996 REVENUE CONTROL	Revenue		39.54	7/2026 BUCH CO TAX APPORT	07/15/26			19
112-000-1110 CASH EMPLOYEE BENEFITS	General Ledger	6,749.49		7/2026 BUCH CO TAX APPORT	07/15/26			24
200-950-4000 DEBT SERVICE-TIF TAXES PRPTY G/L: 200-999-9996 REVENUE CONTROL	Revenue		7,990.57	7/2026 BUCH CO TAX APPORT	07/15/26			25
200-950-4080 MOBILE HOME TAXES G/L: 200-999-9996 REVENUE CONTROL	Revenue		38.20	7/2026 BUCH CO TAX APPORT	07/15/26			27
200-000-1110 CASH DEBT SERVICE	General Ledger	8,028.77		7/2026 BUCH CO TAX APPORT	07/15/26			30

Account No. Account Description	Type	Debit	Credit	Description	Date	Journal Num	Tracking Id	Seq
001-950-4003 AGRICULTURAL LAND TAXES G/L: 001-999-9996 REVENUE CONTROL	Revenue		26.03	7/2026 BUCH CO TAX APPORT	07/15/26			33
001-000-1110 CASH GENERAL FUND	General Ledger	26.03		7/2026 BUCH CO TAX APPORT	07/15/26			34
125-520-4050 TAXES ON TIF-URBAN RENEWAL ARE G/L: 125-999-9996 REVENUE CONTROL	Revenue		10,269.80	7/2026 BUCH CO TAX APPORT	07/15/26			35
125-000-1110 CASH TAX INCREMENT FINANCING	General Ledger	10,269.80		7/2026 BUCH CO TAX APPORT	07/15/26			36
210-950-4600 STREET ASSESSMENTS G/L: 210-999-9996 REVENUE CONTROL	Revenue		4,518.80	7/2026 BUCH CO TAX APPORT	07/15/26			37
210-000-1110 CASH DEBT SPECIAL ASSESSMENT	General Ledger	4,518.80		7/2026 BUCH CO TAX APPORT	07/15/26			38

Entries: 16 Debits: 42,508.41 Credits: 42,508.41

There are NO errors in this listing.

INDEPENDENCE PROPERTY TAX DISBURSEMENT

		Enter this column only	
County Disbursement Date		6/30/2026	
GENERAL			**10,902.71**
Bus. Prop Tax Credit/**Tier 1 Credit**	001-950-4463	0.00	
Current Gas Elect	001-950-4060	0.00	
Current Grain	001-950-4000	0.00	
Homestead/Military/DSC	001-950-4000	1,639.35	
current & delinquent mobile home	001-950-4080	63.87	
Current & Delinquent Real Estate	001-950-4000	9,199.49	
Rollback Replacement	001-950-4464	0.00	
Current Utility	001-950-4060	0.00	
OTHER EMPLOYEE & EMPLOYEE BENEFITS			**6,749.49**
Bus. Prop Tax Credit/**Tier 1 Credit**	112-950-4463	0.00	
Current Gas Elect	112-950-4060	0.00	
Current Grain	112-950-4000	0.00	
Homestead/Military/DSC	112-950-4000	1,014.87	
current & delinquent mobile home	112-950-4080	39.54	
Current & Delinquent Real Estate	112-950-4000	5,695.08	
Rollback Replacement	112-950-4464	0.00	
Current Utility	112-950-4060	0.00	
DEBT SERVICE			**8,028.77**
Bus. Prop Tax Credit/**Tier 1 Credit**	200-950-4463	0.00	
Current Gas Elect	200-950-4060	0.00	
Current Grain	200-950-4000	0.00	
Homestead/Military/DSC	200-950-4000	1,086.86	
current & delinquent mobile home	200-950-4080	38.20	
Current & Delinquent Real Estate	200-950-4000	6,903.71	
Rollback Replacement	200-950-4464	0.00	
Current Utility	200-950-4060	0.00	
INSURANCE			**2,012.81**
Bus. Prop Tax Credit/**Tier 1 Credit**	001-950-4013	0.00	
Current Gas Elect	001-950-4013	0.00	
Current Grain	001-950-4013	0.00	
Homestead/Military/DSC	001-950-4013	302.65	
current & delinquent mobile home	001-950-4013	11.79	
Current & Delinquent Real Estate	001-950-4013	1,698.37	
Rollback Replacement	001-950-4013	0.00	
Current Utility	001-950-4013	0.00	
		27,693.78	

AGLAND	001-950-4003	**26.03**	
TIF			
Bus. Prop Tax Credit/**Tier 1 Credit**	125-520-4463	0.00	
Current Taxes	125-520-4050	9,544.99	
Homestead/Military/DSC	125-520-4050	724.81	
		10,269.80	10,269.80
DEBT - TIF			
Bus. Prop Tax Credit/**Tier 1 Credit**	200-950-4463	0.00	
Current Taxes	200-950-4000	0.00	
Homestead/Military	200-950-4000	0.00	
		0.00	0.00
SPECIAL ASSESS			
INDEP PAVING	210-950-4600	4,518.80	
INDEP SIDEWALKS	210-950-4601	0.00	
		4,518.80	4,518.80
	TOTAL:	**42,508.41**	

GENERAL PROPERTY TAXES			
001-950-4000	PROP TX	10,838.84	C
001-950-4013	INSURANCE	2,012.81	C
001-950-4060	UTIL/EXCISE	0.00	C
001-950-4080	MOBILE HOME	63.87	C
001-950-4463	Bus. Prop Tax Credit/**Tier 1 Credit**	0.00	C
001-950-4464	GEN COMM/IN	0.00	C
001-000-1110	CASH-GENERAL	12,915.52	D
112-950-4000	EMPLOYEE BEN	6,709.95	C
112-950-4060	UTIL/EXCISE	0.00	C
112-950-4080	EMP MOB HOME	39.54	C
112-950-4463	Bus. Prop Tax Credit/**Tier 1 Credit**	0.00	C
112-950-4464	EMP COMM/IN	0.00	C
112-000-1110	CASH-GENERAL	6,749.49	D
200-950-4000	DEBT SERVICE	7,990.57	C
200-950-4060	UTIL/EXCISE	0.00	C
200-950-4080	DEBT MOB HME	38.20	C
200-950-4463	Bus. Prop Tax Credit/**Tier 1 Credit**	0.00	C
200-950-4464	DEBT COMM/IN	0.00	C
200-000-1110	CASH-GENERAL	8,028.77	D
		27,693.78	

AG LAND PROPERTY TAX (TAX AGLAND)			
001-950-4003	AG LAND	26.03	C
001-000-1110	CASH-GENERAL	26.03	D

TIF PROPERTY TAX (TIF TAXES)			
125-520-4463	Bus. Prop Tax Credit/**Tier 1 Credit**	0.00	
125-520-4050	TIF TAXES	10,269.80	C
125-000-1110	CASH-GENERAL	10,269.80	D

DEBT SERVICE PROPERTY TAX - TIF			
125-520-4051	DEBT SERVICE	0.00	C
125-000-1110	CASH-GENERAL	0.00	D

SPECIAL ASSESSMENTS PROPERTY TAX (TAX STR ASSESS)			
210-950-4600	SPEC ASSES/PAVING	4,518.80	C
210-950-4601	SPEC ASSES/SIDEWALKS	0.00	C
210-000-1110	CASH-GENERAL	4,518.80	D

TOTAL:	**42,508.41**
PROOF:	**0.00**

Buchanan County, IA
210 5th Ave. NE
PO Box 319
Independence, IA 50644

Disbursement Statement

6/1/2026 - 6/30/2026

INDEPENDENCE CITY
SUSI LAMPE, CITY CLERK
331 1ST ST E
INDEPENDENCE IA 50644

Disbursement Date: 6/30/2026
Post Date: 7/15/2026

Fund	Levy Rate	Year	Collection Type	Total
INDEPENDENCE AG LAND				
AGRICULTURAL LEVY	3.003750	2024	FAMILYFARM Credit	$26.03
Total For INDEPENDENCE AG LAND	**3.003750**			**$26.03**
INDEPENDENCE AG LAND Year To Date Total: $5,560.86				
INDEPENDENCE CITY				
GENERAL	8.174740	2024	DSC Credit 4000	$1,639.35
	8.174740	2024	Current Mobile Home	$10.45
	8.174740	2024	MOBILE HOME DSC Credit	$53.42
	8.174740	2024	Current Real Estate	$9,199.49
GENERAL Total:				**$10,902.71**
DEBT SERVICE	4.888770	2024	DSC Credit 4000	$1,086.86
	4.888770	2024	Current Mobile Home	$6.25
	4.888770	2024	MOBILE HOME DSC Credit	$31.95
	4.888770	2024	Current Real Estate	$6,903.71
DEBT SERVICE Total:				**$8,028.77**
OTHER EMPLOYEE BENEFITS	3.129280	2024	DSC Credit 4000	$627.54
	3.129280	2024	Current Mobile Home	$4.00
	3.129280	2024	MOBILE HOME DSC Credit	$20.45
	3.129280	2024	Current Real Estate	$3,521.55
OTHER EMPLOYEE BENEFITS Total:				**$4,173.54**
EMPLOYEES BENEFITS	1.931420	2024	DSC Credit 4000	$387.33
	1.931420	2024	Current Mobile Home	$2.47
	1.931420	2024	MOBILE HOME DSC Credit	$12.62
	1.931420	2024	Current Real Estate	$2,173.53
EMPLOYEES BENEFITS Total:				**$2,575.95**
INSURANCE	1.509190	2024	DSC Credit 4000	$302.65
	1.509190	2024	Current Mobile Home	$1.93

add together

$4,173.54 + $2,575.95 = $6,749.49

Buchanan County, IA
210 5th Ave. NE
PO Box 319
Independence, IA 50644

Disbursement Statement

6/1/2026 - 6/30/2026

Fund	Levy Rate	Year	Collection Type	Total
	1.509190	2024	MOBILE HOME DSC Credit 4000	$9.86
	1.509190	2024	Current Real Estate	$1,698.37
INSURANCE Total:				**$2,012.81**
Total For INDEPENDENCE CITY	**19.633400**			**$27,693.78**
INDEPENDENCE CITY Year To Date Total: $5,219,398.86				
INDEPENDENCE CITY TIF				
INDEPENDENCE TIF	1.000000	2024	DSC Credit 4060	$724.81
	1.000000	2024	Current Real Estate	$9,544.99
INDEPENDENCE TIF Total:				**$10,269.80**
Total For INDEPENDENCE CITY TIF	**1.000000**			**$10,269.80**
INDEPENDENCE CITY TIF Year To Date Total: $1,036,138.43				
INDEPENDENCE SPECIALS				
INDEP PAVING	1.000000	2032	Special	$198.00
	1.000000	2031	Special	$198.00
	1.000000	2030	Special	$198.00
	1.000000	2029	Special	$198.00
	1.000000	2028	Special	$198.00
	1.000000	2027	Special	$198.00
	1.000000	2026	Special	$198.00
	1.000000	2025	Special	$261.00
	1.000000	2024	Special	$2,871.80
INDEP PAVING Total:				**$4,518.80**
Total For INDEPENDENCE SPECIALS	**1.000000**			**$4,518.80**
INDEPENDENCE SPECIALS Year To Date Total: $82,550.81				
Total Disbursement				**$42,508.41**

Deposit Information

Account (Last 4)	Account Type	Amount
3991	Checking	$42,508.41
	Total:	**$42,508.41**

Special Assessments Paid

Buchanan County, IA

Tax Year 2024

Tax District / Project / Parcel Number	Owner	Certificate	Paid Date	Principal Amount	Interest	Amortized Interest	Penalty	Total Payment
INDSP - INDEPENDENCE SPEC ASSESS		2020 St Rehab						
20200309 INDSP STREET ASSESSMENT 2ND ST SW - 20200309 INDSP STREET ASSESSMENT 2ND ST SW								
1004252005 410 2ND ST SW	ROMAN, ANDREW MICHAEL &...		6/15/2026	198.00	33.00	48.00	0.00	279.00
Total For 20200309 INDSP STREET ASSESSMENT 2ND ST SW - 20200309 INDSP STREET ASSESSMENT 2ND ST SW				**198.00**	**33.00**	**48.00**	**0.00**	**279.00**
20220110 INDSP ASSESSESSMENT 8TH AVE SW - 20220110 INDSP ASSESSMENT 8TH AVE SW		2021 St Rehab						
1004178001 719 1ST ST W	IOWA INVESTMENT LLC		6/15/2026	396.00	68.00	111.00	0.00	575.00
1004183004 303 8TH AVE SW	SLIFE, LAIN & ANGELA		6/15/2026	216.00	37.00	60.00	0.00	313.00
1004183005 307 8TH AVE SW	SCHMIT, JEREMY A		6/15/2026	180.00	31.00	50.00	0.00	261.00
1004187007 409 8TH AVE SW	KAMAUS, CODY LEIGH		6/15/2026	138.80	24.00	39.00	0.00	201.80
Total For 20220110 INDSP ASSESSESSMENT 8TH AVE SW - 20220110 INDSP ASSESSMENT 8TH AVE SW				**930.80**	**160.00**	**260.00**	**0.00**	**1,350.80**
20231204 INDSP, 5TH AVE SW STREET - 20231204 INDSP, 5TH AVE SW STREET		2023 St Rehab						
1004401005 505 5TH AVE SW	WALKER, ASHLEY L		6/16/2026	1,584.00	0.00	63.00	0.00	1,647.00
1004405005 603 5TH AVE SW	GREEN, ANDREW T		6/15/2026	198.00	37.00	71.00	0.00	306.00
Total For 20231204 INDSP, 5TH AVE SW STREET - 20231204 INDSP, 5TH AVE SW				**1,782.00**	**37.00**	**134.00**	**0.00**	**1,953.00**
20240122 INDSP 11TH AVE NW - 20240122 INDSP 11TH AVE NW		2024 St Rehab						
0633479001 414 11TH AVE NW	PAYNE, JENLYNN J		6/10/2026	239.00	56.00	177.00	0.00	472.00
0633479004 400 11TH AVE NW	CORKERY, ADAM S		6/15/2026	235.00	55.00	174.00	0.00	464.00
Total For 20240122 INDSP 11TH AVE NW - 20240122 INDSP 11TH AVE NW				**474.00**	**111.00**	**351.00**	**0.00**	**936.00**
Totals for INDSP - INDEPENDENCE SPEC ASSESS				**3,384.80**	**341.00**	**793.00**	**0.00**	**4,518.80**

Batch: PROP TAX	Valid Entries:	16	Valid Debits:	42,508.41	Valid Credits:	42,508.41	Ref Num:	441

Batch Id: MONTHTXR Batch Type: Recurring

Account No. / Account Description	Type	Debit	Credit	Description	Date	Journal Num	Tracking Id	Seq
001-910-6910 TRANSFER OUT - GENERAL FUND G/L: 001-999-9998 EXPENSE CONTROL	Expenditure	34,805.25		TRANSFER OUT-GEN FUND	07/15/26			1
001-000-1110 CASH GENERAL FUND	General Ledger		34,805.25	GEN FUND CASH	07/15/26			2
003-910-4830 TRANSFER IN - LIBRARY G/L: 003-999-9996 REVENUE CONTROL	Revenue		34,805.25	TRANSFER IN-LIBRARY	07/15/26			3
003-000-1110 CASH LIBRARY	General Ledger	34,805.25		LIBRARY CASH	07/15/26			4
600-910-6910 TRANSFER OUT - WATER G/L: 600-999-9998 EXPENSE CONTROL	Expenditure	7,671.25		TRANSFER OUT-WATER	07/15/26			9
600-000-1110 CASH WATER	General Ledger		7,671.25	WATER CASH	07/15/26			10
605-910-4830 TRANSFER IN G/L: 605-999-9996 REVENUE CONTROL	Revenue		7,671.25	WATER REV BOND	07/15/26			11
605-000-1110 CASH 2021 WATER REV BOND	General Ledger	7,671.25		WATER REV BOND CASH	07/15/26			12
610-910-6910 TRANSFER OUT - SEWER G/L: 610-999-9998 EXPENSE CONTROL	Expenditure	7,975.08		TRANSFER OUT-SEWER	07/15/26			13
610-000-1110 CASH SEWER	General Ledger		7,975.08	SEWER CASH	07/15/26			14
611-910-4830 TRANSFER IN - SRF SINKING	Revenue		7,975.08	TRANSFER IN-SRF SINKING	07/15/26			15

Account No. / Account Description	Type	Debit	Credit	Description	Date	Journal Num	Tracking Id	Seq
G/L: 611-999-9996 REVENUE CONTROL								
611-000-1110 CHECKING - SRF SINKING FUND	General Ledger	7,975.08		SRF SINKING CASH	07/15/26			16
610-910-6910 TRANSFER OUT - SEWER G/L: 610-999-9998 EXPENSE CONTROL	Expenditure	20,620.83		TRANSFER OUT-SEWER	07/15/26			17
610-000-1110 CASH SEWER	General Ledger		20,620.83	SEWER CASH	07/15/26			18
200-910-4830 TRANSFER IN - DEBT SERVICE G/L: 200-999-9996 REVENUE CONTROL	Revenue		20,620.83	TRANSFER IN-DEBT SVC	07/15/26			19
200-000-1110 CASH DEBT SERVICE	General Ledger	20,620.83		DEBT SVC CASH	07/15/26			20
740-910-6910 TRANSFER OUT G/L: 740-999-9998 EXPENSE CONTROL	Expenditure	4,166.67		TRANSFER OUT-STORM WATER	07/15/26			21
740-000-1110 CASH STORM WATER	General Ledger		4,166.67	STORM WATER CASH	07/15/26			22
200-910-4830 TRANSFER IN - DEBT SERVICE G/L: 200-999-9996 REVENUE CONTROL	Revenue		4,166.67	TRANSFER IN-DEBT SVC	07/15/26			23
200-000-1110 CASH DEBT SERVICE	General Ledger	4,166.67		DEBT SVC CASH	07/15/26			24

Entries: 20 Debits: 150,478.16 Credits: 150,478.16

There are NO errors in this listing.

MONTHLY TRANSFERS

Library				Water Rev		2019 REV Bond SRF		2025 REV Bond SRF		2021 GO Sewer		2023 GO	
Jul-26	34,805.25	Jul-26	-	Jul-26	7,671.25	Jul-26	7,975.08	Jul-26	141,623.00	Jul-26	20,620.83	Jul-26	4,166.67
Aug-26	34,805.25	Aug-26	-	Aug-26	7,671.25	Aug-26	7,975.08	Aug-26	141,623.00	Aug-26	20,620.83	Aug-26	4,166.67
Sep-26	34,805.25	Sep-26	-	Sep-26	7,671.25	Sep-26	7,975.08	Sep-26	141,623.00	Sep-26	20,620.83	Sep-26	4,166.67
Oct-26	34,805.25	Oct-26	-	Oct-26	7,671.25	Oct-26	7,975.08	Oct-26	141,623.00	Oct-26	20,620.83	Oct-26	4,166.67
Nov-26	34,805.25	Nov-26	-	Nov-26	7,671.25	Nov-26	7,975.08	Nov-26	141,623.00	Nov-26	20,620.83	Nov-26	4,166.67
Dec-26	34,805.25	Dec-26	-	Dec-26	7,671.25	Dec-26	7,975.08	Dec-26	141,623.00	Dec-26	20,620.83	Dec-26	4,166.67
Jan-27	34,805.25	Jan-27	-	Jan-27	7,671.25	Jan-27	7,975.08	Jan-27	141,623.00	Jan-27	20,620.83	Jan-27	4,166.67
Feb-27	34,805.25	Feb-27	-	Feb-27	7,671.25	Feb-27	7,975.08	Feb-27	141,623.00	Feb-27	20,620.83	Feb-27	4,166.67
Mar-27	34,805.25	Mar-27	-	Mar-27	7,671.25	Mar-27	7,975.09	Mar-27	141,623.00	Mar-27	**20,620.84**	Mar-27	**4,166.66**
Apr-27	34,805.25	Apr-27	-	Apr-27	7,671.25	Apr-27	7,975.09	Apr-27	141,623.00	Apr-27	**20,620.84**	Apr-27	**4,166.66**
May-27	34,805.25	May-27	-	May-27	7,671.25	May-27	7,975.09	May-27	141,623.00	May-27	**20,620.84**	May-27	**4,166.66**
Jun-27	34,805.25	Jun-27	-	Jun-27	7,671.25	Jun-27	7,975.09	Jun-27	141,623.00	Jun-27	**20,620.84**	Jun-27	**4,166.66**
	417,663.00		-		92,055.00		95,701.00		1,699,476.00		247,450.00		50,000.00
	417,663.00				92,055.00		95,701.00		1,699,476.00		247,450.00		50,000.00
	001 to 003		### to ###		600 to 605		610 to 611		610 to 611		610 to 200		740 to 200

THIS WAS FOR PLANNING FOR THE BUDGET. WAIT TO DO THIS MONTHLY TRANSFER UNTIL GET ACTUAL SCHEDULE

THIS FOR ALL TRANSFERS		
216,862.08	2	433,724.16
216,862.08	2	433,724.16
216,862.08	2	433,724.16
216,862.08	2	433,724.16
216,862.08	2	433,724.16
216,862.08	2	433,724.16
216,862.08	2	433,724.16
216,862.08	2	433,724.16
216,862.09	**2**	**433,724.18**
216,862.09	**2**	**433,724.18**
216,862.09	**2**	**433,724.18**
216,862.09	**2**	**433,724.18**

THIS EXCLUDES 2025 SRF		
75,239.08	2	150,478.16
75,239.08	2	150,478.16
75,239.08	2	150,478.16
75,239.08	2	150,478.16
75,239.08	2	150,478.16
75,239.08	2	150,478.16
75,239.08	2	150,478.16
75,239.08	2	150,478.16
75,239.09	**2**	**150,478.18**
75,239.09	**2**	**150,478.18**
75,239.09	**2**	**150,478.18**
75,239.09	**2**	**150,478.18**

DONE

TO DO

Batch: MONTHTXR	Valid Entries:	20	Valid Debits:	150,478.16	Valid Credits:	150,478.16	Ref Num:	442

City Council

Memorandum

To:	Matthew R. Schmitz, MPA - City Manager
From:	Susi Lampe, CMC, IaCMC, IaCFO, Assistant City Manager/City Clerk/Treasurer
Date of Meeting:	July 27, 2026
Item Title:	Fiscal Year 2026 Outstanding Debt Obligation Report

Background:

The City is required by Iowa Code Chapter 12.1 to report the outstanding debt annually for the previous fiscal year by the end of August to the State of Iowa, Treasurer of State office.

Discussion:

N/A

Results:

The City has established priorities during strategic planning sessions. This item supports the Vision from that session of **promoting and encouraging community involvement and engagement**. This item helps achieve that vision by being transparent and sharing the City's financials.

Financial Consideration:

There is no financial consideration other than staff's time to complete the report.

Recommendation:

No Council action is required. This is being provided for informational purposes.

Attachments:

1. 2026 Outstanding Obligations Report

Roby Smith
Treasurer of Iowa

Outstanding Obligations
Disclosure Statement
Report Year 2026

TABLE ONE

(Please type or print)

Federal ID Number: 426004793 City: Independence

Address: 331 1st Street East

City: Independence State: IA Zip Code: 50644

County: Buchanan County Phone: 319-334-2780

Contact Person: Susi Lampe

Issue Date	Maturity Date	Amount Issued	Amount Outstanding	Purpose	Security Classification
05/09/2023	06/01/2038	$3,075,000.00	$2,595,000.00	Other	General Obligation
07/08/2025	06/01/2035	$2,480,000.00	$2,265,000.00	Other	General Obligation
09/22/2016	06/01/2036	$4,810,000.00	$1,775,000.00	Parks/Recreation	General Obligation
08/10/2021	06/01/2031	$2,770,000.00	$1,385,000.00	Other	General Obligation
04/09/2018	06/01/2030	$2,700,000.00	$1,205,000.00	Other	General Obligation
10/29/2019	06/01/2030	$1,650,000.00	$555,000.00	Transportation	General Obligation
05/26/2015	06/01/2027	$2,200,000.00	$175,000.00	Transportation	General Obligation
08/10/2021	06/01/2035	$1,140,000.00	$745,000.00	Utilities/Sewers	Revenue Bonds
06/21/2024	06/21/2027	$2,164,600.00	$2,164,600.00	Utilities/Sewers	Loans
02/15/2019	06/01/2039	$1,557,175.00	$1,085,000.00	Utilities/Sewers	Loans
10/31/2022	06/01/2030	$600,000.00	$365,000.00	Public Safety	Loans
03/28/2022	06/01/2028	$700,000.00	$295,000.00	Other	Loans

City Council

Memorandum

To:	City Council Members
From:	Matthew R. Schmitz, MPA, City Manager
Date of Meeting:	July 27, 2026
Item Title:	Third and Final Reading of an Ordinance Amendment to Chapter 70 - Traffic Code Enforcement Procedures

Background:

This item was discussed at the June 1, 2026, Work Session. This ordinance amends Section 70.03 of the Code of Ordinances to ensure the written policy accurately reflects current operations.

The first reading was read and approved at the June 22, 2026, City Council Meeting. The second reading was read and approved at the July 13, 2026, City Council Meeting.

Discussion:

Currently, the Code of Ordinances states that uncontested parking violations are payable at the office of the City Clerk. In practice, however, residents and visitors already go to the Independence Police Department to handle and pay these citations. To eliminate any potential confusion and seamlessly align the written code with these established procedures, this amendment formally updates the designated payment location from the City Clerk to the Independence Police Department.

Our goal with this focused change is to maintain transparent and accurate guidance for the public while validating the workflows our team is already utilizing. This is strictly an administrative correction to fix the text. All other existing provisions within Section 70.03 remain exactly as currently adopted, including the established fee schedule, enforcement mechanisms, and due process appeal procedures.

Results:

The City has established priorities during strategic planning sessions. This item supports the Vision from that session of **supporting high-quality City services**. This item helps achieve that vision by aligning the code with our current work practices.

Financial Consideration:

Once the new supplement has been mailed to City Hall, fees will need to be paid to SimmeringCory Iowa Codification. Additional publication costs will also be incurred.

Recommendation:

Staff recommends a motion to approve the third and final reading of an ordinance that amends provisions pertaining to Chapter 70 – Traffic Code Enforcement Procedures, and to authorize the Mayor to sign the Ordinance. The changes will be effective upon the ordinance summary being published in the newspaper.

Attachments:

1. ORD 2026- Amend Ch 70.03 Parking Violations

ORDINANCE NO. 2026-

AN ORDINANCE AMENDING THE CODE OF ORDINANCES OF THE CITY OF INDEPENDENCE, IOWA, BY AMENDING PROVISIONS TO CHAPTER 70 TRAFFIC CODE ENFORCEMENT PROCEDURES

BE IT ENACTED by the City Council of the City of Independence, Iowa:

Section 1. SECTION MODIFIED. Section 70.03 of the Code of Ordinances of the City of Independence, Iowa is repealed and the following adopted in lieu thereof:

> **70.03 PARKING VIOLATIONS: ALTERNATE.** Uncontested violations of parking restrictions imposed by this Code of Ordinances shall be charged upon a simple notice of a fine payable at the Independence Police Department . The fines for violations under this section are shown on the Fines and Fees Schedule in Section 1.15 of this Code of Ordinances. Failure to pay the fine in a timely fashion shall cause the City to contact the Buchanan County Treasurer's office to allow them to refuse to renew motor vehicle registration for the violator. Any alleged violation of the parking restrictions imposed by this Code of Ordinances may be challenged by way of hearing before the Mayor. Within seven days of the citation issuance, the violator may apply in writing for a hearing and submit it to the City Clerk. Upon receiving the written notice of desired hearing, the City Clerk shall have two days to notify the Mayor. The City's burden is proof beyond a reasonable doubt. The officer issuing the ticket must appear at the time of the hearing and be subject to cross-examination. The alleged parking violator has a right to call witnesses on his own behalf. The Mayor shall have 10 calendar days upon receiving the hearing notice to hold the hearing and provide the decision within 10 calendar days of the hearing. The hearing shall be conducted in an informal basis and the violator shall be afforded all rights of due process. The Mayor shall prepare a written decision. If the violator wishes to challenge the decision of the Mayor, the violator must provide to the City written notice of appeal within 10 calendar days for the Mayor's decision. If the violator files said timely notice, by filing with the Clerk of Court within 10 calendar days of the decision, the City shall proceed to prosecute under *Code of Iowa* Sections 805.7 to 805.13, or as any other traffic violation as provided under Section 321.236(1)(b) of the *Code of Iowa*.
>
> *(Code of Iowa, Sec. 321.236[1b] and 321L.4[2])*

Section 2. REPEALER. All ordinances or parts of ordinances in conflict with the provisions of this ordinance are hereby repealed.

Section 3. SEVERABILITY CLAUSE. If any section, provision, or part of this ordinance shall be adjudged invalid or unconstitutional, such adjudication shall not affect the validity of the ordinance as a whole or any section, provision or part thereof not adjudged invalid or unconstitutional.

Section 4. WHEN EFFECTIVE. This ordinance shall be in effect following its final passage, approval and publication as provided by law.

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PASSED AND APPROVED by the City Council of Independence, Iowa, on this 27th day of July 2026.

_____
Brad Bleichner, Mayor of the City of Independence, IA

ATTEST:

_____
Susi Lampe, CMC, IaCMC, IaCFO,
Assistant City Manager/City Clerk/Treasurer of the City of Independence, IA

First Reading: June 22, 2026
Second Reading: July 13, 2026
Third Reading: July 27, 2026

I certify that the foregoing was published as Ordinance No. 2026-_____ on the _____ day of _____ 2026.

_____
Susi Lampe, CMC, IaCMC, IaCFO,
Assistant City Manager/City Clerk/Treasurer of the City of Independence, IA

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City Council

Memorandum

To:	City Council Members
From:	Matthew R. Schmitz, MPA, City Manager
Date of Meeting:	July 27, 2026
Item Title:	Public Hearing to Amend Code Section 1.15 — Fines and Fee Schedule

Background:

This public hearing allows the public to come and speak on behalf of or against the proposed modifications to the Fines and Fees Schedule.

Discussion:

No discussion is necessary as this item is for the Public to present comments and concerns about the proposed modifications.

Results:

The City has established priorities during strategic planning sessions. This item supports the Vision from that session of **promoting and encouraging community involvement and engagement**. This item helps achieve that vision by engaging the community to express their thoughts about this topic.

Financial Consideration:

There is no financial consideration in holding the public hearing for the proposed amendment to Section 1.15 – Fines and Fees Schedule of the Code of Ordinances of the City of Independence, Iowa.

Recommendation:

Staff recommends that the Mayor hold a public hearing by stating, “Pursuant to the agenda, I will now convene a public hearing on the proposed modifications to Section 1.15 - Fines and Fees Schedule.” After comments are heard, the Mayor must state, “I will now close the public hearing, and the City Clerk shall note all comments in the record.”

Attachments:

None

City Council

Memorandum

To: City Council Members

From: Matthew R. Schmitz, MPA, City Manager

Date of Meeting: July 27, 2026

Item Title: First Reading of an Ordinance Amendment to Code Section 1.15 — Fines and Fees Schedule

Background:

With recent changes to our Ordinances and the increased costs of the Wastewater Treatment Plant Project, we need to update our Fines and Fees Schedule. The attached ordinance introduces two major changes. First, it completely removes Section 70.02, which previously established scheduled traffic violations for the Automated Traffic Enforcement System. The State of Iowa passed legislation prohibiting municipalities of our size from using these systems. Second, the ordinance significantly modifies Section 99.05, establishing an updated, long-term schedule for wastewater usage rates for both residential and industrial contributors.

Discussion:

Due to changes in State Law, removing the Automated Traffic Enforcement System provisions is a recommended legal adjustment to our code.

Regarding the wastewater utility, this update establishes a structured rate increase schedule through October 1, 2032, for residential and industrial users, as well as for BOD, TSS, and ammonia discharges. Compared to the previous ordinance, Ord. 2024-595, which set defined increases only through 2028 before reverting to a flat 2% annual increase in 2029, the new schedule extends defined base and unit rate changes further into the future to comply with needed increases to meet the requirements of the SRF Loan to fund the WWTP project. For example, under both the old and new schedules, the residential base rate for October 1, 2025, remains set at $18.98, and the unit cost remains $9.91. However, the rates begin to diverge in later years; the old schedule set the defined 2028 residential base rate at $25.84, while the new schedule adjusts the 2028 base rate to $28.12. This is because the old schedule had that final year at a 2% increase, and the new schedule now starts with an 11% increase in 2028. The new ordinance then continues to map out specific step increases up to a base of $38.55 and a unit cost of $20.15 by October 1, 2032. A flat 2% annual increase will now take effect starting October 1, 2033. This strategy ensures we are planning efficiently and accurately for long-term operational and capital needs.

Results:

The City has established priorities during strategic planning sessions. This item supports the vision from that session of **supporting high-quality City services, supporting and enhancing City infrastructure, and efficient and effective planning and prioritizing of all available resources**. This item helps achieve that vision by setting our utility rates to adequately fund the necessary maintenance, operation, and debt retirement for our wastewater system, while maintaining compliance with state law regarding automated traffic enforcement devices.

Financial Consideration:

The updates to Section 99.05 provide a clear funding path for the wastewater utility. These rates are designed to cover the costs of operation, maintenance, replacement, and debt service for the new WWTP project. Once the new code supplement has been mailed to City Hall, fees will need to be paid to Simmering-Cory Iowa Codification. Additional publication costs will also be incurred.

Recommendation:

Staff recommends a motion to approve the first reading of an ordinance that amends provisions pertaining to Section 1.15 - Fines and Fees Schedule.

Staff recommends a motion to suspend the statutory rule requiring an ordinance to be considered and voted on for passage at two council meetings prior to the meeting at which it is to be finally passed.

Staff recommends a motion to have this ordinance, which amends provisions pertaining to Section 1.15 - Fines and Fees Schedule, be placed on its final passage for adoption pursuant to Iowa Code Section 380.3 and to authorize the Mayor to sign the Ordinance. The changes will be effective upon the ordinance summary being published in the newspaper.

Attachments:

1. ORD 2026- 1.15 Fines and Fees 7-2026

ORDINANCE NO. 2026-

AN ORDINANCE AMENDING THE CODE OF ORDINANCES OF THE CITY OF INDEPENDENCE, IOWA, BY AMENDING PROVISIONS PERTAINING TO FINES AND FEES SCHEDULES

Be It Enacted by the City Council of the City of Independence, Iowa:

SECTION 1. SECTION MODIFIED. Section 1.15 of the Code of Ordinances of the City of Independence, Iowa, is repealed and the following adopted in lieu thereof:

1.15 FINES AND FEES SCHEDULE.

Code Section	Code Title	Penalty
1.14	Standard Penalty	At least $65.00 but not to exceed $625.00
4.03	Penalties	Standard Civil Penalties: First offense - not to exceed $750.00 Each repeat offense - not to exceed $1,000.00 Special Civil Penalties: Noncompliance with a pretreatment standard or requirement - not to exceed $1,000.00 per day a violation exists or continues Environmental violation - not more than $1,000.00 for each occurrence
40.06	Excessive Noise from Motor Vehicle	First offense - $25.00 Second offense - $50.00 Third offense or more - $100.00
40.07	Disorderly House	First Offense - $750.00 Second and Subsequent Offenses - $1,000.00
41.14(5)	Fireworks Use	At least $250.00
55.06	Animals at Large	First offense - $25.00 Second offense - $75.00 Third offense - $125.00 Offenses thereafter - $175.00
55.12	Quarantine Requirements	Vicious Animal Impound Fee $150
55.13	At Large: Impoundment	Animal Impound Fee $79.00
70.03	Parking Violations: Alternative	Improper use of a persons with disabilities parking permit - $200.00 Other Parking Violations - $15.00, increased by $10.00 if not paid within 30 days
80.05	Fees for Impoundment	$20.00 for each day within the reclaiming period
90.06	Fee for Permit and Connection Charge	Schedule of Connection Charges: Service Line Size — Connection Charges 1¼ inch or less — $ 250.00 1½ inch — $ 265.00 2 inch — $ 475.00 3 inch — $ 1,000.00 4 inch and over — $ 1,500.00
91.06	Remote Meter Readers	Replacement prior to scheduled replacement - $25.00 Monthly administrative fee for non-compliance $50.00
91.09	Service Calls and Tests	$25.00 deposit for all water meter service calls and/or water meter calibration checks

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Code Section	Code Title	Penalty
92.01	Service Charge	Surcharge of $4.00 for every hookup
92.02	Rates for Service	Unit cost in the schedule below is the cost per 1,000 Gallons of water consumed. Annual cost increase schedule: Base Unit October 1, 2025 $11.69 $4.03 October 1, 2026 $12.03 $4.16 October 1, 2027 $12.40 $4.29 October 1, 2028 $12.78 $4.42 These rates, both Base and Unit, will then continue to increase at 3% per year, effective every October 1st beginning Oct. 1, 2029. Plus the following additional charges: Water Meter Tap Size Additional Charges 3/4 inch -5/8 inch $1.00 1 inch $4.00 1½ inch $5.00 2 inch $7.50 3 inch $12.00 4 inch $15.00 6 inch $25.00
92.02	Bulk Water Rates	Usage charge of $10.00 per thousand gallons. Water Excise Tax of six percent (6%) will also be applied
92.08	Temporary Vacancy	$30.00 disconnect fee at the time vacancy begins $30.00 reconnect fee at the time vacancy ends.
96.02	Connection Charge	$250.00 to cover the cover the cost of supervising, regulating, and inspecting the sewer connection work, and a Romac saddle and sleeve plus the labor cost to install and connect
99.05	Charges Based on Usage	Residential Contributors: Base rate is the minimum cost per month. Unit costs below are per 1,000 gallons of metered water. Annual cost increase schedule: Base Unit October 1, 2025 $18.98 $9.91 October 1, 2026 $21.83 $11.40 October 1, 2027 $25.33 $13.23 October 1, 2028 $28.12 $14.69 October 1, 2029 $31.22 $16.31 October 1, 2030 $34.55 $17.95 October 1, 2031 $37.79 $19.75 October 1, 2032 $38.55 $20.15

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Code Section	Code Title	Penalty
99.05 (cont.)	Charges Based on Usage (cont.)	Industrial Contributors: Base rate is the minimum cost per month. Unit costs below are per 1,000 gallons of metered wastewater. Annual cost increase schedule: Base Unit October 1, 2025 $18.98 $3.65 October 1, 2026 $21.83 $4.20 October 1, 2027 $25.33 $4.88 October 1, 2028 $28.12 $5.42 October 1, 2029 $31.22 $6.02 October 1, 2030 $34.35 $6.63 October 1, 2031 $37.79 $7.30 October 1, 2032 $38.55 $7.45 Annual cost increase schedule for BOD unit discharged: October 1, 2025 $0.357 October 1, 2026 $0.411 October 1, 2027 $0.477 October 1, 2028 $0.529 October 1, 2029 $0.587 October 1, 2030 $0.646 October 1, 2031 $0.711 October 1, 2032 $0.726 Annual cost increase schedule for TSS unit discharged: October 1, 2025 $0.663 October 1, 2026 $0.763 October 1, 2027 $0.886 October 1, 2028 $0.983 October 1, 2029 $1.091 October 1, 2030 $1.201 October 1, 2031 $1.322 October 1, 2032 $1.349 Costs below are per pound of ammonia – with a threshold of 25 mg/l. Annual cost increase per pound of ammonia discharged: October 1, 2025 $3.57 October 1, 2026 $4.11 October 1, 2027 $4.77 October 1, 2028 $5.29 October 1, 2029 $5.87 October 1, 2030 $6.46 October 1, 2031 $7.11 October 1, 2032 $7.26 The above rates include costs for operation and maintenance, including replacement, and the sum of $3.25 per contributor for debt retirement. The above rates will then increase at 2% per year, effective every October 1st beginning Oct. 1, 2033.

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Code Section	Code Title	Penalty
106.07	Collector's License	$30.00 license fee
110.14	Franchise Fee	Franchise fee upon the following revenue classes for the length of the agreement: Residential Customers - 5% Nonresidential Customers - 5%
121.04	Fees: Retail Cigarette or Tobacco Permit	For Permits Granted During — Fee July, August or September — $75.00 October, November or December — $56.25 January, February or March — $37.50 April, May or June — $18.75
121.07	Persons Under Legal Age	First violation - $300.00 Second violation - $1,500.00 or permit suspension for 30 days Third violation - $1,500.00 and permit suspension for 30 days Fourth violation -$1,500.00 and permit suspension for 60 days
122.04	Application for License	$25.00 application fee
122.05	License Fees	Fees for the issuance of a peddler or solicitor license: For one day - $25.00 For seven consecutive days - $50.00 For up to 30 consecutive days - $100.00 For six months - $200.00 For one year - $300.00
123.03	Application and Fee for Permit	$100.00 for a house movers permit fee
125.12	License Fees	Electrical Contractor - $75.00 annually Journeyman Electrician - $20.00 annually
126.08	License Fees	First taxicab license to any one owner, $50.00 Each additional license to the same owner, $25.00
126.10	Driver's License Fee	$25.00 for the issuance or renewal of a driver's license
136.03	Removal of Snow, Ice and Accumulations	Minimum charge of $50.00 per occurrence for removal by the City
143.02	Street Closures	$50.00 non-refundable application fee
147.40	Occupancy Permit	$50.00 application fee for the occupancy permit
175.11	Submission, Referral and Review of Preliminary Plat	$10.00 fee per lot
175.17	Submission and Referral of Final Plat	$10.00 fee per lot
175.49	Enforcement, Violations and Penalties	$50.00 for each lot and part of lot sold or disposed of, leased or offered for sale.

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SECTION 2. SEVERABILITY CLAUSE. If any section, provision, or part of this ordinance shall be adjudged invalid or unconstitutional, such adjudication shall not affect the validity of the ordinance as a whole or any section, provision or part thereof not adjudged invalid or unconstitutional.

SECTION 3. WHEN EFFECTIVE. This ordinance shall be in effect from and after its final passage, approval and publication as provided by law.

PASSED AND APPROVED by the City Council of Independence, Iowa, on this _____ day of _____ 2026.

_____
Brad Bleichner, Mayor of the City of Independence, IA

ATTEST:

_____
Susi Lampe, CMC, IaCMC, IaCFO,
Assistant City Manager/City Clerk/Treasurer of the City of Independence, IA

First Reading: _____
Second Reading: _____
Third Reading: _____

I certify that the foregoing was published as Ordinance No. 2026-_____ on the _____day of _____ 2026.

_____
Susi Lampe, CMC, IaCMC, IaCFO,
Assistant City Manager/City Clerk/Treasurer of the City of Independence, IA

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City Council

Memorandum

To:	City Council Members
From:	Susi Lampe, CMC, IaCMC, IaCFO, Assistant City Manager/City Clerk/Treasurer
Date of Meeting:	July 27, 2026
Item Title:	Public Hearing for the Proposed Rezoning Request of R-2 Residential to M-2 Heavy Manufacturing (LARD LLC)

Background:

This public hearing allows the public to come and speak on behalf of or against the proposed rezoning request.

Discussion:

No discussion is necessary as this item is for the Public to present comments and concerns about the proposed modifications.

Results:

The City has established priorities during strategic planning sessions. This item supports the Vision from that session of **promoting and encouraging community involvement and engagement**. This item helps achieve that vision by engaging the community to express their thoughts about this topic.

Financial Consideration:

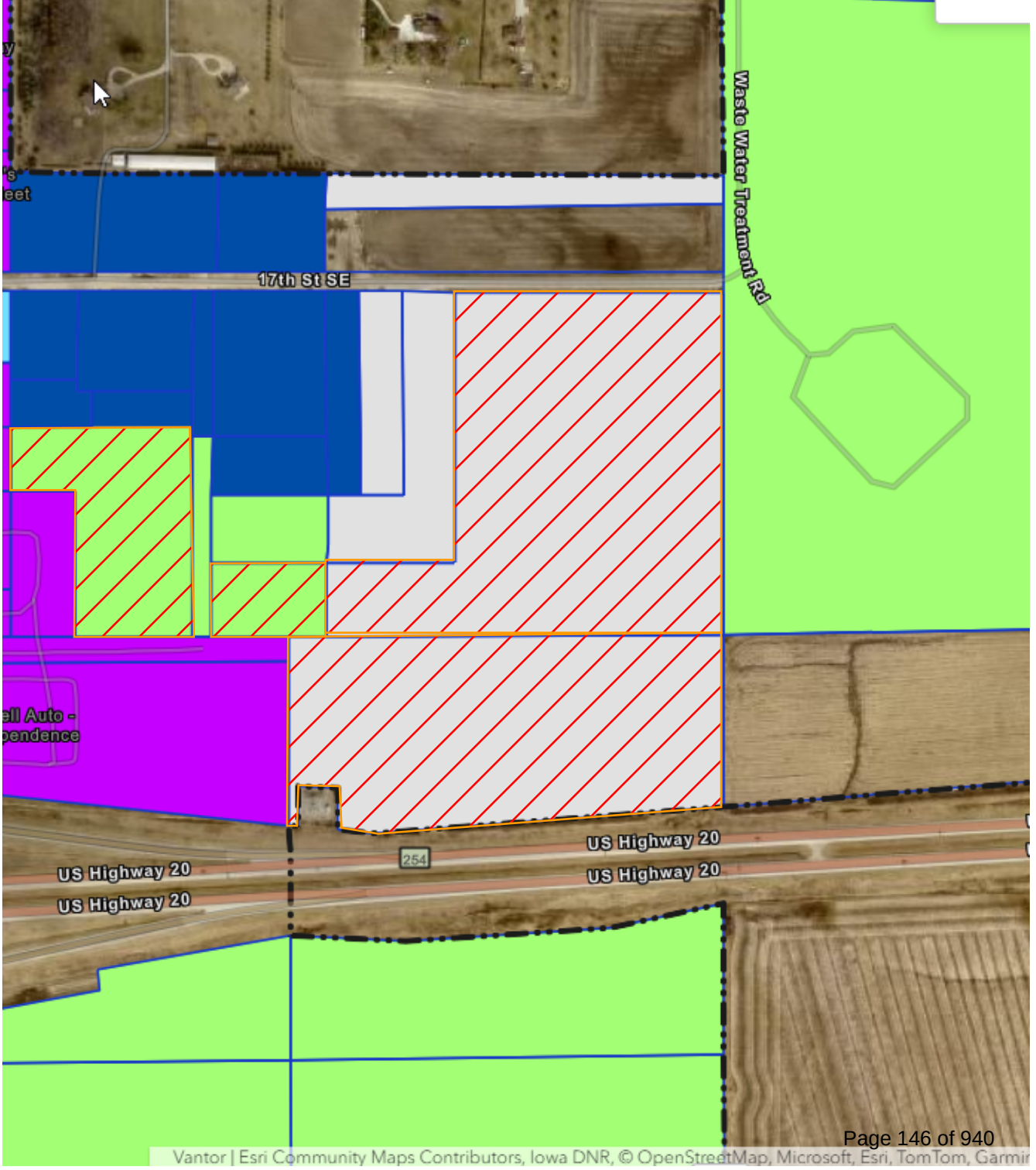
There is no financial consideration in holding the public hearing for the proposed rezoning request.

Recommendation:

Staff recommends that the Mayor hold a public hearing by stating, “Pursuant to the agenda, I will now convene a public hearing on the proposed rezoning request.” After comments are heard, the Mayor must state, “I will now close the public hearing, and the City Clerk shall note all comments in the record.”

Attachments:

1. Exhibit B - LARD LLC



Vantor | Esri Community Maps Contributors, Iowa DNR, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin

City Council

Memorandum

To:	City Council Members
From:	Matthew R. Schmitz, MPA, City Manager
Date of Meeting:	July 27, 2026
Item Title:	First Reading of an Ordinance Amendment to Chapter 170 — Zoning Regulations (LARD LLC)

Background:

Staff has requested to rezone parcels that LARD LLC currently owns from R-2 Residential to M-2 Heavy Manufacturing to correct the current zoning district for which the use is manufacturing.

Discussion:

On July 7, 2026, the Independence Planning and Zoning Commission moved to recommend that the City Council set a public hearing at the next Council meeting to discuss the rezoning request. This request is being made by City Staff to correct the miscategorized existing zoning district. Rezoning this land not only aligns the district with the use but may also decrease future development setup time by avoiding a timely rezoning process.

Staff will be present to discuss and clarify the attached map.

Results:

The City has established priorities during strategic planning sessions. This item supports the vision from that session of **encouraging a supportive environment for businesses, workforce, and economic development**. This item helps achieve that vision by rezoning the property to align with future growth opportunities for an expanding local business.

Financial Consideration:

Once the new code supplement has been mailed to City Hall, fees will need to be paid to Simmering-Cory Iowa Codification. Additional publication costs will also be incurred.

Recommendation:

Staff recommends a motion to approve the first reading of an ordinance that amends provisions pertaining to Chapter 170 - Zoning Regulations.

Staff recommends a motion to suspend the statutory rule requiring an ordinance to be considered and voted on for passage at two council meetings prior to the meeting at which it is to be finally passed.

Recommendation:

Staff recommends a motion to have this ordinance, which amends provisions pertaining to Chapter 170 - Zoning Regulations, be placed on its final passage for adoption pursuant to Iowa Code Section 380.3 and to authorize the Mayor to sign the Ordinance. The changes will be effective upon the ordinance summary being published in the newspaper.

Attachments:

1. ORD 2026- Rezone LARD LLC

ORDINANCE NO. 2026-

AN ORDINANCE AMENDING ORDINANCE 254-0898 OF THE CITY OF INDEPENDENCE, IOWA, BY REZONING CERTAIN PROPERTY MORE PARTICULARLY DESCRIBED IN SECTION 1 OF THIS ORDINANCE AND BY AMENDING THE OFFICIAL ZONING MAP.

BE IT ORDAINED by the City Council of Independence, Iowa:

SECTION 1. That in accordance with Ordinance 254-0898, being the "Independence Zoning Ordinance", the properties legally located at:

Parcel 1
Lot 4, block 1, Larson's commercial subdivision to Buchanan County, Iowa, except the East 340 feet thereof.

Parcel 7
The South 110 feet of the East 1,216.28 feet of the Northeast ¼ of the Northwest ¼ of section 10, Township 88 North, range 9 West of the 5th P.M. In Buchanan County, Iowa.

Parcel 8
The Northeast ¼ of the Northwest ¼ South of road in section 10, Township 88 North, range 9 West of the 5th P.M. In Buchanan County, Iowa, except the West 620 feet of the North 330 feet and except the South 110 feet, and except Parcel J as described in Plat of Survey recorded as File no. 2008R00828, in the office of the Buchanan County, Iowa Recorder.

Parcel 10
The West 60 feet of Lot 3, Larson’s Industrial Subdivision to Buchanan County, Iowa.

Parcel 12
Beginning at the Southwest corner of Lot 1, Larson’s Industrial Subdivision to Buchanan County, Iowa, thence East 558 feet, thence South 170 feet, thence East 400 feet, thence South 613.95 feet, thence West 958.06 feet, thence North 794.4 feet to point of beginning, being in section 10, Township 88 North, Range 9 West of the 5th P.M. In Buchanan county, Iowa, and except commencing at the Southwest corner of said Lot 1, thence East 558, thence South 35 feet, thence West 308 feet, thence South 115 feet, thence West 250 feet, thence North 150 feet to point of beginning for exception and further except Parcel D, as described in Plat of Survey recorded in File No. 1998R00758, in the office of the Buchanan county, Iowa Recorder, and except Parcel Q as described in Plat of Survey recorded as File No. 2019R02245, in the office of the Buchanan county, Iowa Recorder.

Parcel 13
The Southeast ¼ of the Northwest ¼ of section 10, Township 88 North, range 9 West of the 5th P.M. In Buchanan County, Iowa except the following 5 pieces:

a. Parcel F, as described in Plat of Survey recorded in File No. 2001R00209, in the office of the Buchanan County, Iowa Recorder.
b. Parcel D, as described in Plat of Survey recorded in File No.1998R00758, in the office of the Buchanan County, Iowa

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Recorder.

c. Commencing at the Northeast corner of Lot 3, Larson's industrial subdivision to Buchanan County, Iowa, thence North 360 feet, thence West 130 feet, thence South 360 feet, thence East 130 feet to point of beginning.
d. Commencing at the Southeast corner of Lot 3, Larson's Industrial Subdivision to Buchanan county, Iowa, thence South 180 feet to point of beginning, thence South 433.95 feet, to the South line of said Southeast ¼ of the Northwest ¼, thence West 116.4 feet, along the South line of said Southeast ¼ of the Northwest ¼ to West line of said Southeast ¼ Northwest ¼, thence North on said West line to a point 180 feet South of the South line of said Lot 3, thence East to point of beginning.
e. Parcel O, as described in Plat of Survey in File No. 2019R00112, in the office of the Buchanan County, Iowa Recorder.
f. Subject to easement for public road as described in File no. 2006R01330 recorded on March 10, 1998, in the office of the Buchanan County, Iowa Recorder.

Parcels 15 & 16
A parcel of land located in the East ½ of the Southwest ¼ of section 10, Township 88 North, Range 9 West of the 5th P.M., Buchanan County, Iowa, said parcel being described as follows: beginning at a point North 0° 25.75' East 33.0 feet, said point being the intersection of the present Northerly right of way line of the secondary road with the East line of the East ½ of the Southwest ¼ of section 10; thence West 50.0 feet along said present Northerly right of way line, thence North 0° 32.25' East 497.0 feet, thence West 1280.1 feet to a point on the West line of the East ½ of the Southwest ¼ of section 10; thence North 0° 41.75' East 1184.8 feet along said West line, thence South 88° 52' East 384.0 feet, thence North 86° 46' East 600.4 feet, thence North 78° 58' East 347.7 feet to a point on said East line, thence South 0° 25.75' West 1774.6 feet along said East line to point of beginning.

Parcel 17
The Northeast ¼ of the Southwest ¼, lying North of Hwy 20 right of way of section 10, Township 88 North, Range 9 West of the 5th P.M., in Buchanan County, Iowa, except Parcel A, as described in Plat of Survey recorded as File No. 1995R01591, in the office of the Buchanan County, Iowa Recorder.

As shown on the official zoning map, hereby be rezoned and changed to "M-2" Heavy Manufacturing.

SECTION 2. COMPLIANCE. That this Ordinance is in compliance with the updated Comprehensive Plan of the City of Independence, Iowa; adopted on December 30, 2014.

SECTION 3. WHEN EFFECTIVE. This ordinance shall be in effect from and after its final passage, approval and publication as provided by law.

SECTION 4. COSTS. That the petitioners shall be required to pay the City Clerk all costs connected with this Ordinance.

PASSED AND APPROVED by the City Council of Independence, Iowa, on this 26th day of May 2026.

_____
Brad Bleichner, Mayor of the City of Independence, IA

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ATTEST:

_____
Susi Lampe, CMC, IaCMC, IaCFO,
Assistant City Manager/City Clerk/Treasurer of the City of Independence, IA

First Reading: July 27, 2026
Second Reading: _____
Third Reading: _____

I certify that the foregoing was published as Ordinance No. 2026-_____ on the _____ day of _____ 2026.

_____
Susi Lampe, CMC, IaCMC, IaCFO,
Assistant City Manager/City Clerk/Treasurer of the City of Independence, IA

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City Council

Memorandum

To:	City Council Members
From:	Susi Lampe, CMC, IaCMC, IaCFO, Assistant City Manager/City Clerk/Treasurer
Date of Meeting:	July 27, 2026
Item Title:	Public Hearing for the Proposed Rezoning Request of R-2 Residential to M-2 Heavy Manufacturing (Pries Enterprises, INC)

Background:

This public hearing allows the public to come and speak on behalf of or against the proposed rezoning request.

Discussion:

No discussion is necessary as this item is for the Public to present comments and concerns about the proposed modifications.

Results:

The City has established priorities during strategic planning sessions. This item supports the Vision from that session of **promoting and encouraging community involvement and engagement**. This item helps achieve that vision by engaging the community to express their thoughts about this topic.

Financial Consideration:

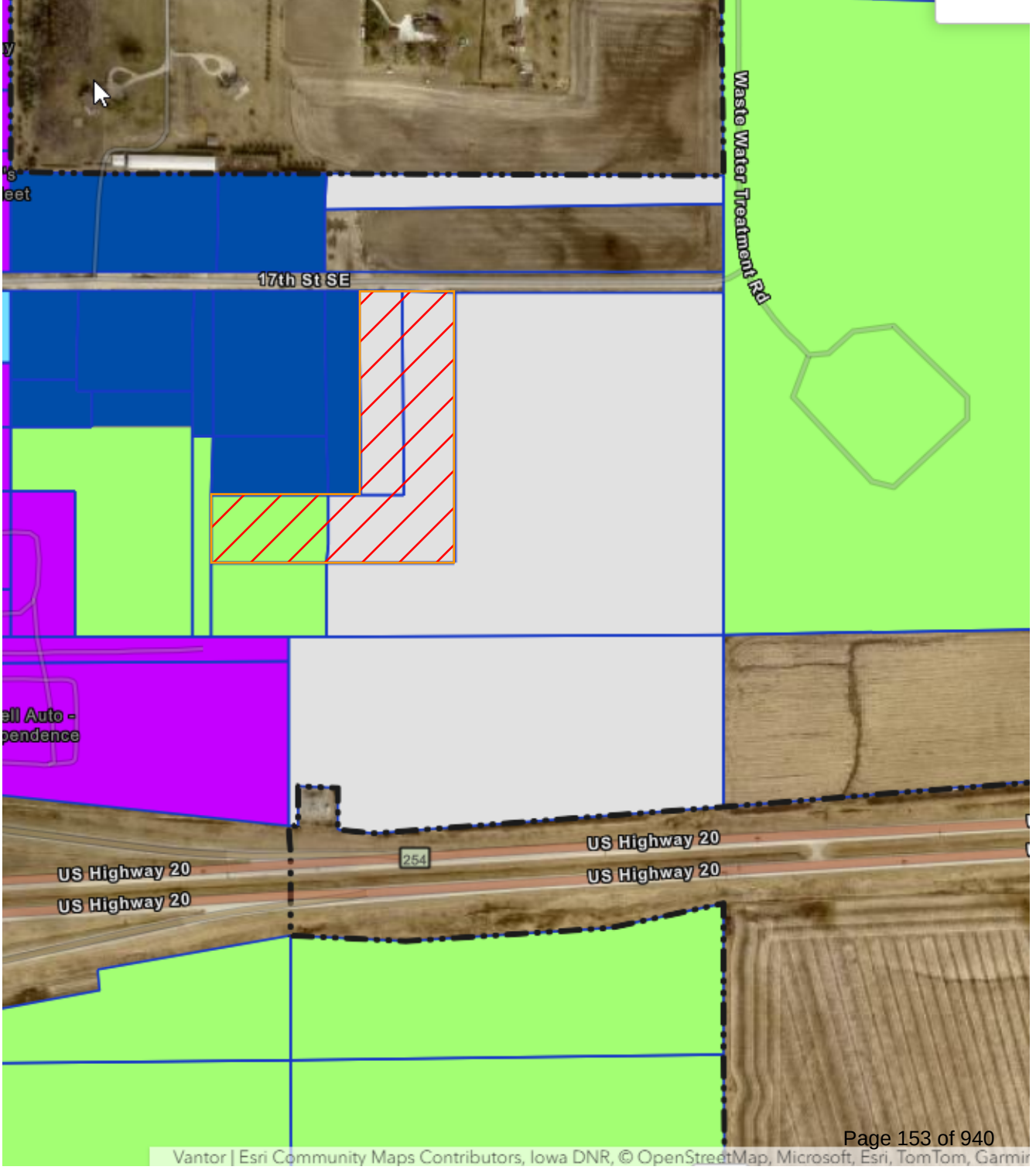
There is no financial consideration in holding the public hearing for the proposed rezoning request.

Recommendation:

Staff recommends that the Mayor hold a public hearing by stating, “Pursuant to the agenda, I will now convene a public hearing on the proposed rezoning request.” After comments are heard, the Mayor must state, “I will now close the public hearing, and the City Clerk shall note all comments in the record.”

Attachments:

1. Exhibit A - Pries



Vantor | Esri Community Maps Contributors, Iowa DNR, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin

City Council

Memorandum

To:	City Council Members
From:	Matthew R. Schmitz, MPA, City Manager
Date of Meeting:	July 27, 2026
Item Title:	First Reading of an Ordinance Amendment to Chapter 170 — Zoning Regulations (Pries Enterprises, INC.)

Background:

Staff has requested to rezone parcels that Pries Enterprises INC currently owns from R-2 residential to M-2 Heavy Manufacturing to correct the current zoning district for which the use is manufacturing.

Discussion:

On July 7, 2026, the Independence Planning and Zoning Commission moved to recommend that the City Council set a public hearing at the next Council meeting to discuss the rezoning request. This request is being made by City Staff to correct the miscategorized existing zoning district.

Results:

The City has established priorities during strategic planning sessions. This item supports the Vision from that session of **encouraging a supportive environment for businesses, workforce, and economic development**. This item helps achieve that vision by rezoning the property to align with future growth opportunities for an expanding local business.

Financial Consideration:

Once the new code supplement has been mailed to City Hall, fees will need to be paid to Simmering-Cory Iowa Codification. Additional publication costs will also be incurred.

Recommendation:

Staff recommends a motion to approve the first reading of an ordinance that amends provisions pertaining to Chapter 170 - Zoning Regulations.

Staff recommends a motion to suspend the statutory rule requiring an ordinance to be considered and voted on for passage at two council meetings prior to the meeting at which it is to be finally passed.

Recommendation:

Staff recommends a motion to have this ordinance, which amends provisions pertaining to Chapter 170 - Zoning Regulations, be placed on its final passage for adoption pursuant to Iowa Code Section 380.3 and to authorize the Mayor to sign the Ordinance. The changes will be effective upon the ordinance summary being published in the newspaper.

Attachments:

1. ORD 2026- Rezone Pries

ORDINANCE NO. 2026-

AN ORDINANCE AMENDING ORDINANCE 254-0898 OF THE CITY OF INDEPENDENCE, IOWA, BY REZONING CERTAIN PROPERTY MORE PARTICULARLY DESCRIBED IN SECTION 1 OF THIS ORDINANCE AND BY AMENDING THE OFFICIAL ZONING MAP.

BE IT ORDAINED by the City Council of Independence, Iowa:

SECTION 1. That in accordance with Ordinance 254-0898, being the "Independence Zoning Ordinance", the properties legally located at:

Parcel O
Commencing at the Southeast corner of Lot 1, Larson's Second Industrial Subdivision; thence North 89 "45'02" East (assumed bearing), 99.94 feet along the north line of 17th street Southeast; thence north 89 "45'02" east, 136.00 feet; Thence South 00 "14'55" East, 620.29 feet; thence South 89 "45'02" west, 136.00 feet to the Southeast corner of said Parcel F; thence North 00" 14'55" West, 620.29 feet along the East line of said Parcel F to the point of beginning; containing 1.937 acres, subject to easements of record.

AND

Parcel X
Commencing at the NW corner of Lot 3 of Larson's Industrial Subdivision in the West ½ of section 10, Township 88 North, Range 9 West of the 5th P.M., City of Independence, Buchanan County Iowa; thence N88’52’35”E along the North line of said Lot 3 , 636.00 feet to the NE corner of parcel ”0" as recorded in instrument 2019R00112 and the point of beginning; thence continuing N88‘52'35”E, 160.00 feet; thence S01‘07‘25"E, 830.00 feet; thence S88‘52'35”W, 735.94 feet; thence N01’07'39"W, 210.00 feet to the SW corner of parcel "D” as recorded in instrument #1998R00758 of the Buchanan County records; thence N88-54'14”E, 575.90 feet to the SE corner of parcel ”0”; thence N01’07‘07"W, 620.28 feet to the point of beginning. Described land contains 5.82 acres and is subject to easements and restrictions of record.

As shown on the official zoning map, hereby be rezoned and changed to “M-2” Heavy Manufacturing.

SECTION 2. COMPLIANCE. That this Ordinance is in compliance with the updated Comprehensive Plan of the City of Independence, Iowa; adopted on December 30, 2014.

SECTION 3. WHEN EFFECTIVE. This ordinance shall be in effect from and after its final passage, approval and publication as provided by law.

SECTION 4. COSTS. That the petitioners shall be required to pay the City Clerk all costs connected with this Ordinance.

PASSED AND APPROVED by the City Council of Independence, Iowa, on this _____ day of _____ 2026.

_____
Brad Bleichner, Mayor of the City of Independence, IA

DRAFT

ATTEST:

_____
Susi Lampe, CMC, IaCMC, IaCFO,
Assistant City Manager/City Clerk/Treasurer of the City of Independence, IA

First Reading: July 27, 2026
Second Reading: _____
Third Reading: _____

I certify that the foregoing was published as Ordinance No. 2026-_____ on the _____ day of _____ 2026.

_____
Susi Lampe, CMC, IaCMC, IaCFO,
Assistant City Manager/City Clerk/Treasurer of the City of Independence, IA

DRAFT

City Council

Memorandum

To:	City Council Members
From:	Matthew R. Schmitz, MPA, City Manager
Date of Meeting:	July 27, 2026
Item Title:	First Reading of an Ordinance Amendment to Code Section 70.02 — Scheduled Violations

Background:

This item was discussed at the July 6, 2026, Work Session.

Discussion:

Due to modifications made by the State of Iowa that disallow the use of Automated Traffic Enforcement devices (Cameras) for speed enforcement, Staff asked the City Attorney about the need for this section in our code. The City Attorney agreed that we no longer need this section because new laws now prohibit a city of our size from using these resources.

Results:

The City has established priorities during strategic planning sessions. This item supports the Vision from that session of **efficient and effective planning and prioritizing of all available resources**. This item helps achieve that vision by ensuring that our code is kept up to date with what State Law requires or allows of the City.

Financial Consideration:

Once the new code supplement has been mailed to City Hall, fees will need to be paid to Simmering-Cory Iowa Codification. Additional publication costs will also be incurred.

Recommendation:

Staff recommends a motion to approve the first reading of an ordinance amending Section 70.02 of the Code of Ordinances of the City of Independence.

Staff recommends a motion to suspend the statutory rule requiring an ordinance to be considered and voted on for passage at two council meetings prior to the meeting at which it is to be finally passed.

Recommendation:

Staff recommends a motion to have this ordinance, which amends Section 70.02 of the Code of Ordinances of the City of Independence, be placed on its final passage for adoption pursuant to Iowa Code Section 380.3 and to authorize the Mayor to sign the Ordinance. The changes will be effective upon the ordinance summary being published in the newspaper.

Attachments:

1. ORD 2026- Amend Ch 70.02 Scheduled Violations

ORDINANCE NO. 2026-

AN ORDINANCE AMENDING THE CODE OF ORDINANCES OF THE CITY OF INDEPENDENCE, IOWA, BY AMENDING PROVISIONS TO CHAPTER 70 TRAFFIC CODE ENFORCEMENT PROCEDURES

BE IT ENACTED by the City Council of the City of Independence, Iowa:

Section 1. SECTION MODIFIED. Section 70.02 of the Code of Ordinances of the City of Independence, Iowa is repealed and the following adopted in lieu thereof:

70.02 SCHEDULED VIOLATIONS.

For violations of the Traffic Code that are designated by Section 805.8A of the Code of Iowa to be scheduled violations, the scheduled fine for each of those violations shall be as specified in Section 805.8A of the Code of Iowa.

(Code of Iowa, Sec. 805.8 and 805.8A)

Section 2. REPEALER. All ordinances or parts of ordinances in conflict with the provisions of this ordinance are hereby repealed.

Section 3. SEVERABILITY CLAUSE. If any section, provision, or part of this ordinance shall be adjudged invalid or unconstitutional, such adjudication shall not affect the validity of the ordinance as a whole or any section, provision or part thereof not adjudged invalid or unconstitutional.

Section 4. WHEN EFFECTIVE. This ordinance shall be in effect following its final passage, approval and publication as provided by law.

PASSED AND APPROVED by the City Council of Independence, Iowa, on this _____ day of _____ 2026.

_____
Brad Bleichner, Mayor of the City of Independence, IA

ATTEST:

_____
Susi Lampe, CMC, IaCMC, IaCFO,
Assistant City Manager/City Clerk/Treasurer of the City of Independence, IA

First Reading: _____
Second Reading: _____
Third Reading: _____

I certify that the foregoing was published as Ordinance No. 2026-_____ on the _____ day of _____ 2026.

_____
Susi Lampe, CMC, IaCMC, IaCFO,
Assistant City Manager/City Clerk/Treasurer of the City of Independence, IA

DRAFT

City Council

Memorandum

To: City Council Members

From: Matthew R. Schmitz, MPA, City Manager

Date of Meeting: July 27, 2026

Item Title: Resolution approving contract and performance and/or payment bonds for the Wastewater Treatment Plant Modifications Project

Background:

This is the next step in the project process and allows for a pre-construction meeting to be scheduled.

Discussion:

N/A

Results:

The City has established priorities during strategic planning sessions. This item supports the Vision from that session of **supporting and enhancing City infrastructure**. This item helps achieve that vision by advancing the critical modifications to our aging Wastewater Treatment Plant, ensuring we are proactively managing our essential utility assets and protecting our community's water quality for the future.

Financial Consideration:

Funding for this project will be done primarily with a State Revolving Fund loan, as well as with cash reserves that have been building over time for this project.

Recommendation:

Staff recommends a motion to approve and authorize the Mayor to sign the resolution approving the contract and performance and/or payment bonds for the Wastewater Treatment Plant Modifications Project, and to authorize the City Manager to sign the contract.

Attachments:

1. RES 2026- Approve WWTP Mod Contract
2. Independence.1-2026.Contract.Vol1of2_1784582473
3. Bonds_1784582471
4. D-W Letting (App) (Independence 419440-108) 2026-v1

RESOLUTION NO. 2026-

RESOLUTION APPROVING CONTRACT AND PERFORMANCE AND/OR PAYMENT BONDS FOR THE WASTEWATER TREATMENT PLANT MODIFICATIONS PROJECT

WHEREAS, the City Council of the City of Independence, Iowa, has heretofore awarded a contract for the Wastewater Treatment Plant Modifications Project and fixed the amount of the performance and/or payment bonds to be furnished by such contractor, and instructed and authorized the City Manager and City Clerk to execute the said contract on behalf of the City, subject to the approval of the Council; and

WHEREAS, the said contract has been duly signed by the contractor and by the City Manager and City Clerk, and upon examination by this Council the same appears to be in proper form; and

WHEREAS, the contractor has filed satisfactory performance and/or payment bonds in the required amount;

NOW, THEREFORE, Be It Resolved by the City Council of the City of Independence, Iowa, as follows:

Section 1. The aforementioned contract and performance and/or payment bonds are hereby approved and declared to be binding upon the parties thereto.

Section 2. All resolutions or parts of resolutions in conflict herewith are hereby repealed to the extent of such conflict.

RESOLUTION NO. 2026- Passed and approved by a majority vote of the Independence City Council on the 27th day of July 2026.

Record of Voting:

Ayes:

Nays:

Absent:

RESOLUTION NO. 2026- declared passed and adopted by the Mayor on this 27th day of July 2026.

_____
Brad Bleichner, Mayor of the City of Independence, IA

ATTEST:

_____
Susi Lampe, CMC, IaCMC, IaCFO,
Assistant City Manager/City Clerk/Treasurer of the City of Independence, IA

DRAFT

Professional

Engineering

Services

Wastewater Treatment Plant Modifications

Contract 1-2026



Project Manual

Volume 1 of 2

City of Independence

Independence, Iowa

Issued for Bid

April 14, 2026

STRAND ASSOCIATES®

ACORD

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)
7/15/2026

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER
Holmes Murphy & Associates
2727 Grand Prairie Parkway
Waukee IA 50263

CONTACT NAME: Sara Slinker
PHONE (A/C, No, Ext): 515-974-4608 **FAX (A/C, No):**
E-MAIL ADDRESS: SSlinker@holmesmurphy.com

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A : Illinois Union Insurance Company	27960
INSURER B : Houston Casualty Company	42374
INSURER C : Cincinnati Insurance Company	10677
INSURER D :	
INSURER E :	
INSURER F :	

INSURED WOOCONPC
Woodruff Construction Inc.
1890 Kountry Lane
Fort Dodge, IA 50501

COVERAGES **CERTIFICATE NUMBER:** 107544633 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. *LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS. LIMITS SHOWN ARE INCLUSIVE OF AMOUNTS REQUESTED BY THE CERTIFICATE HOLDER AND MAY NOT REFLECT POLICY LIMIT AMOUNTS IN EXCESS OF THOSE REQUESTED. ***Not Applicable in WY**

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
C	X **COMMERCIAL GENERAL LIABILITY** CLAIMS-MADE X OCCUR X Includes XCU X Contractual Liab GEN'L AGGREGATE LIMIT APPLIES PER: POLICY X PRO-JECT X LOC X OTHER: Drone Liability			EPP0750529	7/1/2025	7/1/2027	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG Limit	$ 1,000,000 $ 500,000 $ 10,000 $ 1,000,000 $ 2,000,000 $ 2,000,000 $ 1,000,000
C	**AUTOMOBILE LIABILITY** X ANY AUTO OWNED AUTOS ONLY SCHEDULED AUTOS X HIRED AUTOS ONLY X NON-OWNED AUTOS ONLY			EBA0750529	7/1/2026	7/1/2027	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ 1,000,000 $ $ $
C	X **UMBRELLA LIAB** X OCCUR **EXCESS LIAB** CLAIMS-MADE DED RETENTION $			EPP0750529	7/1/2025	7/1/2027	EACH OCCURRENCE AGGREGATE	$ 10,000,000 $ 10,000,000 $
C	**WORKERS COMPENSATION AND EMPLOYERS' LIABILITY** Y / N ANYPROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? N **(Mandatory in NH)** If yes, describe under DESCRIPTION OF OPERATIONS below	N / A		EWC0750531	7/1/2026	7/1/2027	X PER STATUTE OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$ 1,000,000 $ 1,000,000 $ 1,000,000
A B	Pollution Liability Professional Liability			CPYG27644776006 HCC2672518	7/1/2025 7/1/2026	7/1/2027 7/1/2027	Per Condition/Agg. Limit	$5m/$5m 5,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
Re: Wastewater Treatment Plant Modifications, Contract 1-2026, City of Independence, IA
The City of Independence and Strand Associates, Inc. and their respective officers, directors, members, partners, employees, and consultants are an Additional Insured with respect to the General Liability, Auto Liability, Pollution Liability, and Umbrella Liability as required by written contract with the insured, per policy terms and conditions. Non-Waiver of Governmental Immunity per Iowa Code 670.4 is included. The General Liability, Auto Liability, Umbrella, and Pollution Liability includes a Waiver of Subrogation in favor of the Additional Insureds as required by written contract with the insured, per policy terms and conditions.

CERTIFICATE HOLDER

City of Independence
331 1st Street East
Independence IA 50644

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE
Kari Cooley

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ACORD

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)
7/15/2026

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PRODUCER
Holmes Murphy & Associates
2727 Grand Prairie Parkway
Waukee IA 50263

CONTACT NAME: Sara Slinker
PHONE (A/C, No, Ext): 515-974-4608 **FAX (A/C, No):**
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INSURER D :	
INSURER E :	
INSURER F :	

INSURED WOOCONPC
Woodruff Construction Inc.
1890 Kountry Lane
Fort Dodge, IA 50501

COVERAGES **CERTIFICATE NUMBER:** 1269038715 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. *LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS. LIMITS SHOWN ARE INCLUSIVE OF AMOUNTS REQUESTED BY THE CERTIFICATE HOLDER AND MAY NOT REFLECT POLICY LIMIT AMOUNTS IN EXCESS OF THOSE REQUESTED. ***Not Applicable in WY**

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
C	X **COMMERCIAL GENERAL LIABILITY** CLAIMS-MADE X OCCUR X Includes XCU X Contractual Liab GEN'L AGGREGATE LIMIT APPLIES PER: POLICY X PRO-JECT X LOC X OTHER: Drone Liability			EPP0750529	7/1/2025	7/1/2027	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG Limit	$ 1,000,000 $ 500,000 $ 10,000 $ 1,000,000 $ 2,000,000 $ 2,000,000 $ 1,000,000
C	**AUTOMOBILE LIABILITY** X ANY AUTO OWNED AUTOS ONLY SCHEDULED AUTOS X HIRED AUTOS ONLY X NON-OWNED AUTOS ONLY			EBA0750529	7/1/2026	7/1/2027	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ 1,000,000 $ $ $
C	X **UMBRELLA LIAB** X OCCUR **EXCESS LIAB** CLAIMS-MADE DED RETENTION $			EPP0750529	7/1/2025	7/1/2027	EACH OCCURRENCE AGGREGATE	$ 10,000,000 $ 10,000,000 $
C	**WORKERS COMPENSATION AND EMPLOYERS' LIABILITY** ANYPROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y / N: N **(Mandatory in NH)** If yes, describe under DESCRIPTION OF OPERATIONS below	N / A		EWC0750531	7/1/2026	7/1/2027	X PER STATUTE OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	 $ 1,000,000 $ 1,000,000 $ 1,000,000
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DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
Re: Wastewater Treatment Plant Modifications, Contract 1-2026, City of Independence, IA
The City of Independence and Strand Associates, Inc. and their respective officers, directors, members, partners, employees, and consultants are an Additional Insured with respect to the General Liability, Auto Liability, Pollution Liability, and Umbrella Liability as required by written contract with the insured, per policy terms and conditions. Non-Waiver of Governmental Immunity per Iowa Code 670.4 is included. The General Liability, Auto Liability, Umbrella, and Pollution Liability includes a Waiver of Subrogation in favor of the Additional Insureds as required by written contract with the insured, per policy terms and conditions.

CERTIFICATE HOLDER

Strand Associates, Inc.
910 W Wingra Dr
Madison WI 53715
USA

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE
Kari Cooley

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EVIDENCE OF PROPERTY INSURANCE

DATE (MM/DD/YYYY): 7/17/2026

THIS EVIDENCE OF PROPERTY INSURANCE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE ADDITIONAL INTEREST NAMED BELOW. THIS EVIDENCE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS EVIDENCE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE ADDITIONAL INTEREST.

AGENCY
Holmes Murphy & Associates
2727 Grand Prairie Parkway
Waukee, IA 50263

PHONE (A/C, No, Ext): 800-247-7756

FAX (A/C, No): 612-349-2490

E-MAIL ADDRESS: sslinker@holmesmurphy.com

CODE:

SUB CODE:

AGENCY CUSTOMER ID #:

COMPANY
Continental Casualty Company
333 South Wabash Avenue
CNA Plaza
Chicago, IL 60604

INSURED
Woodruff Construction Inc.
1890 Kountry Lane
Fort Dodge IA 50501

LOAN NUMBER

POLICY NUMBER
8047378826

EFFECTIVE DATE
08/25/2026

EXPIRATION DATE
12/31/2029

☐ CONTINUED UNTIL TERMINATED IF CHECKED

THIS REPLACES PRIOR EVIDENCE DATED:

PROPERTY INFORMATION

LOCATION/DESCRIPTION
218 THREE ELMS PARK ROAD, INDEPENDENCE, IOWA, 50644

THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS EVIDENCE OF PROPERTY INSURANCE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

COVERAGE INFORMATION

PERILS INSURED ☐ BASIC ☐ BROAD ☐ SPECIAL ☐

COVERAGE / PERILS / FORMS	AMOUNT OF INSURANCE	DEDUCTIBLE
Construction Limit	58,176,300	5,000
Soft Costs	500,000	72 hr waiting
Earthquake Limit	25,000,000	period
Flood Limit	25,000,000	500,000
		500,000

REMARKS (Including Special Conditions)

Re: Wastewater Treatment Plant Modifications, Contract 1-2026, City of Independence, IA

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

ADDITIONAL INTEREST

NAME AND ADDRESS
Strand Associates, Inc.
910 W Wingra Dr
Madison, WI 53715
USA

☐ ADDITIONAL INSURED ☐ LENDER'S LOSS PAYABLE ☐ LOSS PAYEE
☐ MORTGAGEE ☐

LOAN #

AUTHORIZED REPRESENTATIVE
Kari Cooley

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THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

ADDITIONAL INSURED - OWNERS, LESSEES OR CONTRACTORS - CG 20 10 10 01 - SCHEDULED PERSON OR ORGANIZATION

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

SCHEDULE

Name of Person or Organization:
CITY OF □NDEPENDENCE
AND STRAND ASSOCIATES, INC.

(If no entry appears above, information required to complete this endorsement will be shown in the Declarations as applicable to this endorsement.)

A. **Section II - Who Is An Insured** is amended to include as an insured the person or organization shown in the Schedule, but only with respect to liability arising out of your ongoing operations performed for that insured.

B. With respect to the insurance afforded to these additional insureds, the following exclusion is added:

2. Exclusions

This insurance does not apply to "bodily injury" or "property damage" occurring after:

(1) All work, including materials, parts or equipment furnished in connection with such work, on the project (other than service, maintenance or repairs) to be performed by or on behalf of the additional insured(s) at the site of the covered operations has been completed; or

(2) That portion of "your work" out of which the injury or damage arises has been put to its intended use by any person or organization other than another contractor or subcontractor engaged in performing operations for a principal as a part of the same project.

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ADDITIONAL INSURED - OWNERS, LESSEES OR CONTRACTORS - CG 20 37 10 01 - COMPLETED OPERATIONS

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

SCHEDULE

Name of Person or Organization:
C□□□□□□□□NDEPENDENCE□□ND□
□□□□ND□□□□□C□□□E□□□□NC□

Location And Description of Completed Operations:
ANY LOCATION AT WHICH WORK OR OPERATIONS WERE PERFORMED BY YOU OR ON YOUR BEHALF

Additional Premium:
INCL

(If no entry appears above, information required to complete this endorsement will be shown in the Declarations as applicable to this endorsement.)

Section II - Who Is An Insured is amended to include as an insured the person or organization shown in the Schedule, but only with respect to liability arising out of "your work" at the location designated and described in the schedule of this endorsement performed for that insured and included in the "products-completed operations hazard".

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BROAD FORM CONTRACTORS ADDITIONAL INSURED - AUTOMATIC STATUS AND AUTOMATIC WAIVER OF SUBROGATION WHEN REQUIRED IN WRITTEN CONTRACT, AGREEMENT, PERMIT OR AUTHORIZATION

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

A. Additional Insured - Owners, Lessees Or Contractors - Automatic Status For Other Parties When Required In Written Contract Or Agreement With You

1. Section II - Who Is An Insured is amended to include as an additional insured any person or organization you have agreed in writing in a contract or agreement to add as an additional insured on this Coverage Part. Such person(s) or organization(s) is an additional insured only with respect to liability for:

a. "Bodily injury", "property damage" or "personal and advertising injury" *caused, in whole or in part, by* the performance of your ongoing operations by you or on your behalf, under that written contract or written agreement. Ongoing operations does not apply to "bodily injury" or "property damage" occurring after:

(1) All work, including materials, parts or equipment furnished in connection with such work, on the project (other than service, maintenance or repairs) to be performed by or on behalf of the additional insured(s) at the location of the covered operations has been completed; or

(2) That portion of "your work" out of which the injury or damage arises has been put to its intended use by any person or organization other than another contractor or subcontractor engaged in performing operations for a principal as a part of the same project; and

b. "Bodily injury" or "property damage" *caused, in whole or in part, by* "your work" performed under that written contract or written agreement and included in the "products-completed operations hazard", but only if:

(1) The Coverage Part to which this endorsement is attached provides coverage for "bodily injury" or "property damage" included within the "products-completed operations hazard"; and

(2) The written contract or written agreement requires you to provide additional insured coverage included within the "products-completed operations hazard" for that person or organization.

If the written contract or written agreement requires you to provide additional insured coverage included within the "products-completed operations hazard" for a specified length of time for that person or organization, the "bodily injury" or "property damage" must occur prior to the expiration of that period of time in order for this insurance to apply.

If the written contract or written agreement requires you to provide additional insured coverage for a person or organization per only ISO additional insured endorsement form number **CG 20 10**, without specifying an edition date, and without specifically requiring additional insured coverage included within the "products-completed operations hazard", this Paragraph **b.** does not apply to that person or organization.

2. If the written contract or written agreement described in Paragraph **1.** above specifically requires you to provide additional insured coverage to that person or organization:

a. *Arising out of* your ongoing operations or *arising out of* "your work"; or

b. By way of an edition of an ISO additional insured endorsement that includes *arising out of* your ongoing

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operations or *arising out of* "your work";

then the phrase *caused, in whole or in part, by* in Paragraph **A.1.a.** and/or Paragraph **A.1.b.** above, whichever applies, is replaced by the phrase *arising out of*.

3. With respect to the insurance afforded to the additional insureds described in Paragraph **A.1.**, the following additional exclusion applies:

This insurance does not apply to "bodily injury", "property damage" or "personal and advertising injury" arising out of the rendering of, or the failure to render, any professional architectural, engineering or surveying services, including:

a. The preparing, approving or failing to prepare or approve, maps, shop drawings, opinions, reports, surveys, field orders, change orders or drawings and specifications; or

b. Supervisory, inspection, architectural or engineering activities.

This exclusion applies even if the claims against any insured allege negligence or other wrongdoing in the supervision, hiring, employment, training or monitoring of others by that insured, if the "occurrence" which caused the "bodily injury" or "property damage", or the offense which caused the "personal and advertising injury", involved the rendering of, or the failure to render, any professional architectural, engineering or surveying services.

4. This Paragraph **A.** does not apply to additional insureds described in Paragraph **B.**

B. Additional Insured - State Or Governmental Agency Or Subdivision Or Political Subdivision - Automatic Status When Required In Written Permits Or Authorizations

1. Section II - Who Is An Insured is amended to include as an additional insured any state or governmental agency or subdivision or political subdivision you have agreed in writing in a permit or authorization to add as an additional insured on this Coverage Part. Such state or governmental agency or subdivision or political subdivision is an additional insured only with respect to operations performed by you or on your behalf for which the state or governmental agency or subdivision or political subdivision has issued, in writing, a permit or authorization.

2. With respect to the insurance afforded to the additional insureds described in Paragraph **B.1.**, the following additional exclusions apply:

This insurance does not apply to:

a. "Bodily injury", "property damage" or "personal and advertising injury" arising out of operations performed for the federal government, state or municipality; or

b. "Bodily injury" or "property damage" included within the "products-completed operations hazard."

C. The insurance afforded to additional insureds described in Paragraphs **A.** and **B.**:

1. Only applies to the extent permitted by law; and

2. Will not be broader than that which you are required by the written contract, written agreement, written permit or written authorization to provide for such additional insured; and

3. Does not apply to any person, organization, state, governmental agency or subdivision or political subdivision specifically named as an additional insured for the same project in the schedule of an endorsement added to this Coverage Part.

However, Paragraphs **C.1.** and **C.2.** above do not apply if the applicable written contract, written agreement, written permit or written authorization requires an edition of an ISO additional insured endorsement that does not include these provisions.

D. With respect to the insurance afforded to the additional insureds described in Paragraphs **A.** and **B.**, the following is added to **Section III - Limits Of Insurance**:

1. The most we will pay on behalf of the additional insured is the amount of insurance:

a. Required by the written contract, written agreement, written permit or written authorization described in Paragraphs **A.** and **B.** For the purpose of determining the required amount of insurance only, we will include the minimum amount of any Umbrella Liability or Excess Liability coverage required for that additional insured in that written contract, written agreement, written permit or written authorization; or

b. Available under the applicable limits of insurance;

whichever is less.

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However, Paragraph **D.1.** does not apply if the applicable written contract, written agreement, written permit or written authorization requires an edition of an ISO additional insured endorsement that does not include these provisions.

2. This endorsement shall not increase the applicable limits of insurance.

E. Section IV - Commercial General Liability Conditions is amended to add the following:

Automatic Additional Insured Provision

This insurance applies only if the "bodily injury" or "property damage" occurs, or the "personal and advertising injury" offense is committed:

1. During the policy period; and

2. Subsequent to your execution of the written contract or written agreement, or the issuance of a written permit or written authorization, described in Paragraphs **A.** and **B.**

F. Except when **G.** below applies, the following is added to **Section IV - Commercial General Liability Conditions, Other Insurance,** and supersedes any provision to the contrary:

When Other Additional Insured Coverage Applies On An Excess Basis

This insurance is primary to other insurance available to the additional insured described in Paragraphs **A.** and **B.** except:

1. As otherwise provided in **Section IV - Commercial General Liability Conditions**, **Other Insurance**, **b. Excess Insurance**; or

2. For any other valid and collectible insurance available to the additional insured as an additional insured on another insurance policy that is written on an excess basis. In such case, this insurance is also excess.

G. The following is added to **Section IV - Commercial General Liability Conditions, Other Insurance,** and supersedes any provision to the contrary:

Primary Insurance When Required By Written Contract, Agreement, Permit Or Authorization

Except when wrap-up insurance applies to the claim or "suit" on behalf of the additional insured, this insurance is primary to any other insurance available to the additional insured described in Paragraphs **A.** and **B.** provided that:

1. The additional insured is a Named Insured under such other insurance; and

2. You have agreed in writing in a contract, agreement, permit or authorization described in Paragraph **A.** or **B.** that this insurance would be primary to any other insurance available to the additional insured.

As used in this endorsement, wrap-up insurance means a centralized insurance program under which one party has secured either insurance or self-insurance covering some or all of the contractors or subcontractors performing work on one or more specific project(s).

Primary And Noncontributory Insurance When Required By Written Contract, Agreement, Permit Or Authorization

Except when wrap-up insurance applies to the claim or "suit" on behalf of the additional insured, this insurance is primary to and will not seek contribution from any other insurance available to the additional insured described in Paragraphs **A.** and **B.** provided that:

1. The additional insured is a Named Insured under such other insurance; and

2. You have agreed in writing in a contract, agreement, permit or authorization described in Paragraph **A.** or **B.** that this insurance would be primary and would not seek contribution from any other insurance available to the additional insured.

As used in this endorsement, wrap-up insurance means a centralized insurance program under which one party has secured either insurance or self-insurance covering some or all of the contractors or subcontractors performing work on one or more specific project(s).

H. Section IV - Commercial General Liability Conditions, Transfer Of Rights Of Recovery Against Others To Us is amended by the addition of the following:

Waiver of Subrogation

We waive any right of recovery against any additional insured under this endorsement, because of any payment we make under this endorsement, to whom the insured has waived its right of recovery in a written contract, written agreement, written permit or written authorization. Such waiver by us applies only to the extent that the insured has waived its right of recovery against such additional insured prior to loss.

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PRIMARY AND NONCONTRIBUTORY - OTHER INSURANCE CONDITION

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART
LIQUOR LIABILITY COVERAGE PART
PRODUCTS/COMPLETED OPERATIONS LIABILITY COVERAGE PART

The following is added to the **Other Insurance** Condition and supersedes any provision to the contrary:

Primary And Noncontributory Insurance

This insurance is primary to and will not seek contribution from any other insurance available to an additional insured under your policy provided that:

(1) The additional insured is a Named Insured under such other insurance; and

(2) You have agreed in writing in a contract or agreement that this insurance would be primary and would not seek contribution from any other insurance available to the additional insured.

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GOVERNMENTAL IMMUNITY

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

SCHEDULE

Name of Organization:

CITY OF INDEPENDENCE
331 1ST ST E
INDEPENDENCE, IA 50644-2814

SECTION IV - COMMERCIAL GENERAL LIABILITY CONDITIONS is amended to add the following:

Nonwaiver of Government Immunity

The purchase of this policy and naming of the organization shown in the Schedule as an additional insured does not waive any of the defenses of governmental immunity available to the organization shown in the Schedule under Code of Iowa Section 670.4 as it now exists and as it may be amended from time to time.

Claims Coverage

This policy shall cover only those claims not subject to the defense of governmental immunity under the Code of Iowa Section 670.4 as it now exists and as it may be amended from time to time.

Assertion of Government Immunity

The organization shown in the Schedule shall be responsible for asserting any defense of governmental immunity, and may do so at any time and shall do so upon the timely written request of the insurance carrier.

Non-Denial of Coverage for Governmental Immunity

We shall not deny coverage or deny any of the rights and benefits accruing to the organization shown in the Schedule under this policy for reasons of governmental immunity unless and until a court of competent jurisdiction has ruled in Favor of the defense(s) of governmental immunity asserted by the organization shown in the Schedule.

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

CinciPlus®
BUSINESS AUTO XC+®
(EXPANDED COVERAGE PLUS)
ENDORSEMENT

This endorsement modifies insurance provided by the following:

BUSINESS AUTO COVERAGE FORM

With respect to the coverage provided by this endorsement, the provisions of the Coverage Form apply unless modified by this endorsement.

A. Blanket Waiver of Subrogation

SECTION IV - BUSINESS AUTO CONDITIONS, A. Loss Conditions, 5. Transfer of Rights of Recovery Against Others to Us is amended by the addition of the following:

We waive any right of recovery we may have against any person or organization because of payments we make for "bodily injury" or "property damage" arising out of the operation of a covered "auto" when you have assumed liability for such "bodily injury" or "property damage" under an "insured contract", provided the "bodily injury" or "property damage" occurs subsequent to the execution or the "insured contract".

B. Noncontributory Insurance

SECTION IV - BUSINESS AUTO CONDITIONS, B. General Conditions, 5. Other Insurance c. is deleted in its entirety and replaced by the following:

c. Regardless of the provisions of Paragraph **a.** above, this Coverage Form's Liability Coverage is primary and we will not seek contribution from any other insurance for any liability assumed under an "insured contract" that requires liability to be assumed on a primary noncontributory basis.

C. Additional Insured by Contract

SECTION II - COVERED AUTOS LIABILITY COVERAGE, A. Coverage, 1. Who is an Insured is amended to include as an insured any person or organization for whom you have agreed in a valid written contract to provide insurance as afforded by this policy.

This provision is limited to the scope of the valid written contract.

This provision does not apply unless the valid written contract has been:

1. Executed prior to the accident causing "bodily injury" or "property damage"; and

2. Is still in force at the time of the "accident" causing "bodily injury" or "property damage".

D. Employee Hired Auto

1. Changes in Liability Coverage

The following is added to the **SECTION II - COVERED AUTOS LIABILITY COVERAGE, A. Coverage, 1. Who is an Insured**:

An "employee" of yours is an "insured" while operating an "auto" hired or rented under a contract or agreement in that "employee's" name, with your permission, while performing duties related to the conduct of your business.

2. Changes in General Conditions

SECTION IV - BUSINESS AUTO CONDITIONS, B. General Conditions, 5. Other Insurance b. is deleted in its entirety and replaced by the following:

b. For Hired Auto Physical Damage Coverage the following are deemed to be covered "autos" you own:

(1) Any covered "auto" you lease, hire, rent or borrow; and

(2) Any covered "auto" hired or rented by your "employee" under a contract in that individual "employee's" name, with your permission, while performing duties related to the conduct of your business.

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However, any "auto" that is leased, hired, rented or borrowed with a driver is not a covered "auto".

E. Audio, Visual and Data Electronic Equipment

SECTION III - PHYSICAL DAMAGE COVERAGE, C. Limits of Insurance, 1.b. is deleted in its entirety and replaced by the following:

b. The most we will pay for all "loss" to audio, visual or data electronic equipment and any accessories used with this equipment as a result of any one "accident" is the lesser of:

(1) The actual cash value of the damaged or stolen property as of the time of the "accident";

(2) The cost of repairing or replacing the damaged or stolen property with other property of like kind and quality; or

(3) $2,500.

Provided the equipment, at the time of the "loss" is:

(1) Permanently installed in or upon the covered "auto" in a housing, opening or other location that is not normally used by the "auto" manufacturer for the installation of such equipment;

(2) Removable from a permanently installed housing unit as described in Paragraph **(1)** above; or

(3) An integral part of such equipment.

F. Who is an Insured - Amended

SECTION II - COVERED AUTOS LIABILITY COVERAGE, A. Coverage, 1. Who is an Insured is amended by adding the following:

The following are "insureds":

1. Any subsidiary which is a legally incorporated entity of which you own a financial interest of more than 50% of the voting stock on the effective date of this coverage form.

However, the insurance afforded by this provision does not apply to any subsidiary that is an "insured" under any other automobile liability policy or would be an "insured" under such policy but for termination of such policy or the exhaustion of such policy's limits of insurance.

2. Any organization that is newly acquired or formed by you and over which you maintain majority ownership. The insurance provided by this provision:

a. Is effective on the date of acquisition or formation, and is afforded for 180 days after such date;

b. Does not apply to "bodily injury" or "property damage" resulting from an "accident" that occurred before you acquired or formed the organization;

c. Does not apply to any newly acquired or formed organization that is a joint venture or partnership; and

d. Does not apply to an insured under any other automobile liability policy or would be an insured under such a policy but for the termination of such policy or the exhaustion of such policy's limits of insurance.

3. Any of your "employees" while using a covered "auto" in your business or your personal affairs, provided you do not own, hire or borrow that "auto".

G. Liability Coverage Extensions - Supplementary Payments - Higher Limits

SECTION II - COVERED AUTOS LIABILITY COVERAGE, A. Coverage, 2. Coverage Extensions, a. Supplementary Payments is amended by:

1. Replacing the $2,000 Limit of Insurance for bail bonds with $4,000 in **(2)**; and

2. Replacing the $250 Limit of Insurance for reasonable expenses with $500 in **(4)**.

H. Amended Fellow Employee Exclusion

SECTION II - COVERED AUTOS LIABILITY COVERAGE, B. Exclusions, 5. Fellow Employee is modified as follows:

Exclusion **5. Fellow Employee** is deleted.

I. Hired Auto - Physical Damage

If hired "autos" are covered "autos" for Liability Coverage, then Comprehensive and Collision Physical Damage Coverages as provided under **SECTION III - PHYSICAL DAMAGE COVERAGE** of this Coverage Part are extended to "autos" you hire, subject to the following:

1. The most we will pay for "loss" to any hired "auto" is $50,000 or the actual cash value or cost to repair or replace, whichever is the least, minus a deductible.

2. The deductible will be equal to the largest deductible applicable to any owned "auto" for that coverage, or $1,000, whichever is less.

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3. Hired Auto - Physical Damage coverage is excess over any other collectible insurance.

4. Subject to the above limit, deductible, and excess provisions we will provide coverage equal to the broadest coverage applicable to any covered "auto" you own insured under this policy.

Coverage includes loss of use of that hired auto, provided it results from an "accident" for which you are legally liable and as a result of which a monetary loss is sustained by the leasing or rental concern. The most we will pay for any one "accident" is $3,000.

If a limit for Hired Auto - Physical Damage is shown in the Schedule, then that limit replaces, and is not added to, the $50,000 limit indicated above and the deductibles shown in the Schedule are applicable.

J. Rental Reimbursement

SECTION III - PHYSICAL DAMAGE COVERAGE is amended by adding the following:

1. We will pay for rental reimbursement expenses incurred by you for the rental of an "auto" because of a "loss" to a covered "auto". Payment applies in addition to the otherwise applicable amount of each coverage you have on a covered "auto". No deductible applies to this coverage.

2. We will pay only for those expenses incurred during the policy period beginning 24 hours after the "loss" and ending, regardless of the policy's expiration, with the lesser of the following number of days:

a. The number of days reasonably required to repair the covered "auto". If "loss" is caused by theft, this number of days is added to the number of days it takes to locate the covered "auto" and return it to you; or

b. 30 days.

3. Our payment is limited to the lesser of the following amounts:

a. Necessary and actual expenses incurred; or

b. $50 per day.

4. This coverage does not apply while there are spare or reserve "autos" available to you for your operations.

5. We will pay under this coverage only that amount of your rental reimbursement expenses which is not already provided for under **SECTION III - PHYSICAL DAMAGE COVERAGE, A. Coverage, 4. Coverage Extensions**.

K. Transportation Expense - Higher Limits

SECTION III - PHYSICAL DAMAGE COVERAGE, A. Coverage, 4. Coverage Extensions is amended by replacing $30 per day with $50 per day, and $900 maximum with $1,500 maximum in **Extension a. Transportation Expenses**.

L. Airbag Coverage

SECTION III - PHYSICAL DAMAGE COVERAGE, B. Exclusions, 3.a. is amended by adding the following:

However, the mechanical and electrical breakdown portion of this exclusion does not apply to the accidental discharge of an airbag. This coverage for airbags is excess over any other collectible insurance or warranty.

M. Loan or Lease Gap Coverage

1. **SECTION III - PHYSICAL DAMAGE COVERAGE, C. Limits of Insurance** is deleted in its entirety and replaced by the following, but only for private passenger type "autos" with an original loan or lease, and only in the event of a "total loss" to such a private passenger type "auto":

a. The most we will pay for "loss" in any one "accident" is the greater of:

(1) The amount due under the terms of the lease or loan to which your covered private passenger type "auto" is subject, but will not include:

(a) Overdue lease or loan payments;

(b) Financial penalties imposed under the lease due to high mileage, excessive use or abnormal wear and tear;

(c) Security deposits not refunded by the lessor;

(d) Costs for extended warranties, Credit Life Insurance, Health, Accident or Disability Insurance purchased with the loan or lease; and

(e) Carry-over balances from previous loans or leases, or

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(2) Actual cash value of the stolen or damaged property.

b. An adjustment for depreciation and physical condition will be made in determining actual cash value at the time of "loss".

2. SECTION V - DEFINITIONS is amended by adding the following, but only for the purposes of this **Loan or Lease Gap Coverage**:

"Total loss" means a "loss" in which the cost of repairs plus the salvage value exceeds the actual cash value.

N. Glass Repair - Waiver of Deductible

SECTION III - PHYSICAL DAMAGE COVERAGE, D. Deductible is amended by adding the following:

No deductible applies to glass damage if the glass is repaired in a manner acceptable to us rather than replaced.

O. Duties in the Event of an Accident, Claim, Suit or Loss - Amended

SECTION IV - BUSINESS AUTO CONDITIONS, A. Loss Conditions, 2. Duties in the Event of Accident, Claim, Suit or Loss, a. is amended by adding the following:

This condition applies only when the "accident" or "loss" is known to:

1. You, if you are an individual;

2. A partner, if you are a partnership;

3. An executive officer or insurance manager, if you are a corporation; or

4. A member or manager, if you are a limited liability company.

P. Unintentional Failure to Disclose Hazards

SECTION IV - BUSINESS AUTO CONDITIONS, B. General Conditions, 2. Concealment, Misrepresentation or Fraud is amended by adding the following:

However, if you unintentionally fail to disclose any hazards existing on the effective date of this Coverage Form, we will not deny coverage under this Coverage Form because of such failure.

Q. Mental Anguish Resulting from Bodily Injury

SECTION V - DEFINITIONS, C. "Bodily injury" is deleted in its entirety and replaced by the following:

"Bodily injury" means bodily injury, sickness or disease sustained by a person, including mental anguish and death sustained by the same person that results from such bodily injury, sickness or disease. "Bodily injury" does not include mental anguish or death that does not result from bodily injury, sickness or disease.

R. Coverage for Certain Operations in Connection with Railroads

With respect to the use of a covered "auto" in operations for or affecting a railroad:

1. SECTION V - DEFINITIONS, H. "Insured contract", **3.** is deleted in its entirety and replaced by the following:

3. An easement or license agreement;

2. SECTION V - DEFINITIONS, H. "Insured contract", **6.a.** is deleted.

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PLAN HOLDER: _____ Set No.: _____

PROJECT MANUAL

CITY OF INDEPENDENCE
INDEPENDENCE, IOWA
WASTEWATER TREATMENT PLANT MODIFICATIONS
CONTRACT 1-2026

VOLUME 1 OF 2

Prepared by:

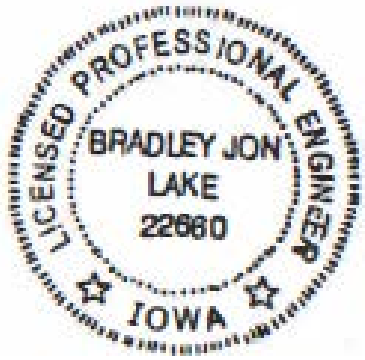
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CERTIFICATION PAGE

CITY OF INDEPENDENCE
INDEPENDENCE, IOWA
WASTEWATER TREATMENT PLANT MODIFICATIONS
CONTRACT 1-2026

	I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa. FOR STRAND ASSOCIATES, INC.® 04/14/2026 Bradley J. Lake, P.E. Date License Number P22660 My license renewal date is 12/31/2026 Specification sections covered by this seal: All except structural and electrical.

	I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa. FOR STRAND ASSOCIATES, INC.® 04/14/2026 Scott G. Herkert, P.E. Date License Number P24676 My license renewal date is 12/31/2027 Specification sections covered by this seal: All structural sections unless otherwise noted.

	I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa. FOR STRAND ASSOCIATES, INC.® 04/14/2026 Shane P. Zenz, P.E. Date License Number P21579 My license renewal date is 12/31/2026 Specification sections covered by this seal: All electrical sections unless otherwise noted.

SECTION 00 01 10

TABLE OF CONTENTS

CITY OF INDEPENDENCE
INDEPENDENCE, IOWA
WASTEWATER TREATMENT PLANT MODIFICATIONS
CONTRACT 1-2026

	Pages Through
VOLUME 1 OF 2	
DIVISION 00–BIDDING AND CONTRACTING REQUIREMENTS	
ADVERTISEMENT TO BID	01 11 13- 3
INSTRUCTIONS TO BIDDERS	00 21 13-14
BID	00 41 00-14
BID BOND	00 43 13- 2
BIDDER STATUS FORM	00 43 14- 2
SRF REQUIRED FRONT-END SPECIFICATIONS	21
QUALIFICATIONS STATEMENT	00 49 90-12
AGREEMENT	00 52 00-11
NOTICE TO PROCEED	00 55 00- 1
PERFORMANCE BOND	00 61 13.13- 4
WARRANTY BOND	00 61 13.15- 2
PAYMENT BOND	00 61 13.16- 4
OUT-OF-STATE CONTRACTOR BOND	00 61 13.19- 1
GENERAL CONDITIONS	00 72 00-70
SUPPLEMENTARY CONDITIONS	00 73 00-22
CERTIFICATE OF LIABILITY INSURANCE	1
SPECIFICATIONS	
DIVISION 01–GENERAL REQUIREMENTS	
SUMMARY OF WORK	01 11 00- 9
CONTRACT CONSIDERATIONS	01 29 00- 2
COORDINATION, FIELD ENGINEERING, AND MEETINGS	01 31 00- 4
SUBMITTALS	01 33 00-10
REGULATORY REQUIREMENTS	01 41 00- 3
REFERENCE STANDARDS AND DEFINITIONS	01 42 00- 6
QUALITY CONTROL	01 45 00- 2
TEMPORARY FACILITIES	01 50 00- 3
FIELD OFFICES AND SHEDS	01 52 13- 4
TEMPORARY CONTROLS	01 57 00- 3
MATERIALS AND EQUIPMENT	01 60 00- 4
CUTTING, PATCHING, AND ALTERATIONS	01 73 29- 6
CONTRACT CLOSEOUT	01 77 00- 3
STARTING OF SYSTEMS	01 91 00- 8

	Pages Through
PERMITS	29
FEDERAL WAGE RATES	17
AMERICAN IRON AND STEEL SAMPLE CERTIFICATION	1
DE MINIMIS WAIVER FOR AMERICAN IRON AND STEEL	3
DIVISION 02–EXISTING CONDITIONS	
DEMOLITION	02 41 00- 5
DIVISION 03–CONCRETE	
CONCRETE FORMWORK	03 11 00- 4
CONCRETE REINFORCEMENT	03 20 00- 5
CAST-IN-PLACE CONCRETE	03 30 00-17
PRECAST CONCRETE HOLLOW CORE PLANKS	03 41 13- 5
CONCRETE TOPPING	03 53 00- 1
DIVISION 04–MASONRY	
MORTAR AND MASONRY GROUT	04 05 13- 3
UNIT MASONRY SYSTEM	04 20 00- 8
CAST STONE	04 72 00- 5
DIVISION 05–METALS	
STRUCTURAL STEEL	05 12 00- 7
ALUMINUM FLAT PANEL COVER SYSTEM	05 31 33- 4
METAL FABRICATIONS	05 50 00- 8
HANDRAILS AND RAILINGS	05 52 00- 2
GRATING AND FLOOR PLATES	05 53 00- 3
ANCHOR BOLTS AND POST-INSTALLED ANCHORS	05 56 00- 4
DIVISION 06–WOOD, PLASTICS, AND COMPOSITES	
WOOD FRAMING AND SHEATHING	06 11 00- 3
WOOD BLOCKING AND CURBING	06 11 10- 2
PLATE CONNECTED WOOD TRUSSES	06 17 53- 4
ARCHITECTURAL WOODWORK	06 40 00- 6
FIBERGLASS FABRICATIONS	06 60 00- 2
FIBERGLASS GRATING	06 61 10- 2
FIBERGLASS WEIRS, BAFFLES, AND TROUGHS	06 61 14- 5
FIBERGLASS FLAT PANEL COVER SYSTEM	06 73 13- 6
DIVISION 07–THERMAL AND MOISTURE PROTECTION	
FLUID-APPLIED WATERPROOFING	07 14 00- 3
BOARD INSULATION	07 21 12- 2
BLOWN-IN INSULATION	07 21 13- 2
SPRAY FOAM INSULATION	07 21 29- 3

	Pages Through
VAPOR AND AIR BARRIER	07 26 00- 2
SHEET METAL ROOFING	07 61 00- 3
FLASHING AND SHEET METAL	07 62 00- 3
MANUFACTURED ROOF SPECIALTIES	07 71 00- 2
GUTTERS AND DOWNSPOUTS	07 71 23- 2
FIRESTOPPING	07 84 00- 3
CAULKING AND SEALANTS	07 90 00- 3
DIVISION 08–OPENINGS	
STANDARD STEEL FRAMES	08 12 13- 2
FLUSH WOOD DOORS	08 14 16- 4
ALUMINUM AND FIBERGLASS DOORS AND FRAMES	08 17 43- 2
ACCESS DOORS AND FRAMES	08 31 13- 2
OVERHEAD COILING DOORS	08 33 23- 3
SECTIONAL OVERHEAD DOORS	08 36 13- 3
ALUMINUM WINDOWS	08 51 13- 2
DOOR HARDWARE	08 71 00- 4
GLAZING	08 81 00- 2
DIVISION 09–FINISHES	
SUSPENDED ACOUSTICAL CEILINGS	09 51 00- 2
FLOOR COATING SYSTEMS	09 67 00- 4
CARPET TILE	09 68 13- 8
PAINTING	09 91 00-11
CHEMICAL-RESISTANT COATING	09 96 35- 2
DIVISION 10–SPECIALTIES	
MISCELLANEOUS SPECIALTIES	10 00 20- 2
PLASTIC AND METAL SIGNS	10 14 00- 3
METAL TOILET COMPARTMENTS	10 21 13 .13- 3
TOILET AND BATH ACCESSORIES	10 28 00- 3
FIRST AID KIT	10 43 16- 1
FIRE EXTINGUISHERS AND ACCESSORIES	10 44 43- 2
LOCKERS AND BENCHES	10 51 00- 1
DIVISION 11–EQUIPMENT	
LABORATORY FURNITURE AND EQUIPMENT	11 53 00-10
LABORATORY FUME HOOD	11 53 13- 7
DIVISION 12–FURNISHINGS	
WINDOW ROLLER SHADES	12 25 13- 7
FLOOR MATS	12 48 43- 1
OFFICE FURNITURE	12 51 00- 1

	Pages Through
DIVISION 13–SPECIAL CONSTRUCTION	
METAL BUILDINGS	13 34 19- 8
DIVISION 20–COMMON FIRE SUPPRESSION, PLUMBING, AND HVAC REQUIREMENTS	
IDENTIFICATION FOR PLUMBING AND HVAC PIPING AND EQUIPMENT	20 05 53- 4
DIVISION 22–PLUMBING	
GENERAL PLUMBING PIPING SPECIALTIES	22 05 19- 6
GENERAL DUTY VALVES FOR PLUMBING PIPING	22 05 23- 4
HANGERS AND SUPPORTS FOR PLUMBING PIPING AND EQUIPMENT	22 05 29- 5
EQUIPMENT INSULATION FOR PLUMBING	22 07 16- 5
PIPING INSULATION FOR PLUMBING	22 07 19- 7
FACILITY WATER DISTRIBUTION PIPING	22 11 00- 7
DOMESTIC WATER PUMPS	22 11 23- 3
SANITARY WASTE AND VENT PIPING	22 13 16- 5
SANITARY WASTE PIPING SPECIALTIES	22 13 19- 5
SANITARY WASTE INTERCEPTORS	22 13 23- 4
SUBMERSIBLE PUMPS	22 13 29- 4
PLUMBING EQUIPMENT	22 30 00- 4
COMMERCIAL PLUMBING FIXTURES	22 42 00- 4
DIVISION 23–HEATING, VENTILATING, AND AIR CONDITIONING	
GENERAL-DUTY VALVES FOR HVAC PIPING	23 05 23- 3
HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT	23 05 29- 4
TESTING, ADJUSTING, AND BALANCING	23 05 93- 4
DUCTWORK INSULATION FOR HEATING, VENTILATION, AND AIR CONDITIONING	23 07 13- 6
TEMPERATURE CONTROLS AND INSTRUMENTATION	23 09 13- 6
FACILITY FUEL GAS PIPING	23 11 23-10
REFRIGERANT PIPING	23 23 00- 4
DUCTWORK AND DUCTWORK SUPPORTS	23 31 00- 6
AIR DUCT ACCESSORIES	23 33 00- 3
CENTRIFUGAL HVAC FANS	23 34 16- 5
HIGH VOLUME-LOW-SPEED PROPELLER FANS	23 34 39- 5
LOUVERS AND VENTS	23 37 08- 3
DIFFUSERS, REGISTERS, AND GRILLES	23 37 13- 3
GAS-FIRED RADIANT HEATERS	23 55 23- 4
PACKAGED AIR-COOLED REFRIGERANT COMPRESSOR AND CONDENSER UNITS	23 62 13- 4
MODULAR INDOOR CENTRAL STATION AIR-HANDLING UNITS	23 73 13- 6
PACKAGED ROOFTOP AIR-CONDITIONING UNITS	23 74 16- 7
PACKAGED OUTDOOR HEATING ONLY MAKE-UP AIR UNITS	23 74 23- 7
SPLIT-SYSTEM AIR CONDITIONERS	23 81 26- 5
UNIT HEATERS	23 82 39- 4

Pages
Through

VOLUME 2 OF 2

DIVISION 26–ELECTRICAL

GENERAL ELECTRICAL REQUIREMENTS 26 05 00-10
WIRE 26 05 19-10
INSTRUMENT AND COMMUNICATION WIRE AND CABLE 26 05 23- 4
SECONDARY GROUNDING 26 05 26- 4
SUPPORTING DEVICES 26 05 29- 2
CONDUIT 26 05 33-10
SURFACE RACEWAY 26 05 34- 2
BOXES 26 05 35- 6
UNDERGROUND CONCRETE DUCT BANKS 26 05 43- 3
MANHOLES AND HANDHOLES 26 05 44- 6
ELECTRICAL IDENTIFICATION 26 05 53- 6
POWER SYSTEM STUDY AND THERMOGRAPHIC SURVEY 26 05 73- 8
CONTROLS AND INSTRUMENTATION 26 09 00-83
CONTROLS AND INSTRUMENTATION DRAWINGS 26 09 10- 4
SCADA SYSTEM IO LISTINGS 29 09 90-25
LOW-VOLTAGE DISTRIBUTION SWITCHBOARDS 26 14 15- 7
ELECTRICAL SERVICE SYSTEM 26 21 00- 2
DRY-TYPE TRANSFORMERS 26 22 13- 4
PANELBOARDS 26 24 16- 3
MOTOR CONTROL 26 24 19-15
WIRING DEVICES 26 27 26- 6
OVERCURRENT PROTECTIVE DEVICES 26 28 00- 3
DISCONNECT SWITCHES 26 28 16- 2
STANDBY POWER SYSTEM 26 32 13-12
HARMONIC FILTERS 26 35 26- 5
SERVICE ENTRANCE-RATED AUTOMATIC TRANSFER SWITCHES 26 36 24- 5
SURGE PROTECTIVE DEVICES (SPD) 26 43 13- 4
LIGHTING 26 51 13- 7
EXTERIOR LIGHTING 26 56 29- 4
SPARE PARTS 26 95 10- 2

DIVISION 27–COMMUNICATION

STRUCTURED CABLING 27 10 00-12

DIVISION 28–ELECTRONIC SAFETY AND SECURITY

ACCESS CONTROL SYSTEM 28 10 00- 7
VIDEO SURVEILLANCE SYSTEM 28 23 13- 5

DIVISION 31–EARTHWORK

CLEARING AND GRUBBING 31 10 00- 2
EXCAVATION, FILL, BACKFILL, AND GRADING 31 23 00-14
ROCK REMOVAL 31 23 16.26- 3

	Pages Through
DEWATERING	31 23 19- 3
SLOPE PROTECTION AND EROSION CONTROL	31 25 00- 6
GEOTEXTILES	31 32 19- 1
RIPRAP	31 37 00- 2
DIVISION 32–EXTERIOR IMPROVEMENTS	
AGGREGATE BASE COURSE	32 11 23- 2
CONCRETE CURB AND GUTTER, SIDEWALKS, DRIVEWAYS, AND DRIVEWAY APRONS.	32 16 13- 5
FENCE GATE OPERATOR	32 31 11- 5
CHAIN LINK FENCE	32 31 13- 6
DIVISION 33–UTILITIES	
BURIED PIPING AND APPURTENANCES	33 00 10- 23
FUEL GAS DISTRIBUTION UTILITIES	33 52 16- 8
DIVISION 40–PROCESS INTERCONNECTIONS	
PIPING AND APPURTENANCES	40 05 00-23
ACTUATORS FOR PROCESS VALVES AND GATES	40 05 57- 5
WATERTIGHT STOP LOGS (ALUMINUM)	40 05 59.16- 4
SLIDE GATES	40 05 59.23- 4
CONTROLS AND INSTRUMENTATION EQUIPMENT	40 70 00-13
DIVISION 41–MATERIAL PROCESSING AND HANDLING EQUIPMENT	
HOISTS AND CRANES	41 22 23- 5
DIVISION 43–PROCESS GAS AND LIQUID HANDLING, PURIFICATION, AND STORAGE EQUIPMENT	
LOW PRESSURE ROTARY LOBE BLOWERS	43 11 33- 8
SELF-PRIMING CENTRIFUGAL PUMP	43 23 13.19- 8
CENTRIFUGAL SLUDGE PUMPS	43 23 21- 8
GRIT PUMPS	43 23 22- 7
ROTARY LOBE PUMPS	43 23 58- 9
SUBMERSIBLE PUMPS	43 25 10- 9
DIVISION 46–WATER AND WASTEWATER EQUIPMENT	
SAMPLERS	46 09 00- 3
MECHANICALLY CLEANED SCREENS	46 21 11- 8
SCREENINGS WASH PRESS	46 21 73- 7
GRIT CLASSIFIER	46 23 63- 7
SUBMERSIBLE MIXERS	46 41 23- 6
FINAL CIRCULAR CLARIFIER EQUIPMENT	46 43 22-19
GRIT COLLECTORS	46 46 23- 5
MEMBRANE DIFFUSERS	46 51 46- 9
LOW SPEED SUBMERSIBLE MIXERS	46 51 47- 8

	Pages Through
OXIDATION DITCH NO. 1 AND NO. 2 SUBMERSIBLE MIXER CONTROL PANEL I/O LISTING	46 51 47.1- 1
OXIDATION DITCH AERATION AND MIXING SYSTEMS	46 53 61-15
ULTRAVIOLET DISINFECTION SYSTEM	46 66 56-14
SCC-UV I/O LISTING	46 66 56.1- 1

DRAWINGS

STANDARD DETAIL–JOINT TIES FOR CONCRETE PIPE	01-975- 31A
STANDARD DETAIL–STORM SEWER MANHOLES AND INLETS	01-975- 41A
STANDARD DETAIL–SANITARY SEWER APPURTENANCES	01-975- 43A
STANDARD DETAIL–STANDARD BURIED GATE VALVE BOX SETTING	01-975- 64A
STANDARD DETAIL–HYDRANT INSTALLATION	01-975- 65A
STANDARD DETAIL–RESIDENTIAL WATER SERVICE LATERAL	01-975- 66A
STANDARD DETAIL–SANITARY SEWER LATERALS	01-975- 75A
STANDARD DETAIL–STORM SEWER OUTFALL	01-975-149A

APPENDICES (NOT PART OF CONTRACT DOCUMENTS)

SAMPLE DRAWINGS	23
GEOTECHNICAL ENGINEERING REPORT	49
ASBESTOS INSPECTION OF HEADWORKS BUILDING (STRUCTURE 15)	3
LEAD/CHROMIUM INSPECTION OF GRIT CHANNELS, PRE-AERATION BASINS, SETTLING BASINS (STRUCTURES 20, 40, 50)	4
ASBESTOS INSPECTION OF CONTROL BUILDING (STRUCTURE 30)	9
LEAD/CHROMIUM INSPECTION OF PUMP BUILDING (STRUCTURE 60)	4
ASBESTOS INSPECTION OF PUMP BUILDING (STRUCTURE 60)	3
ASBESTOS INSPECTION OF ANAEROBIC DIGESTER COMPLEX (STRUCTURE 65) AND ELECTRICAL BUILDING	4
ASBESTOS INSPECTION OF SLUDGE STORAGE TANK/BUILDING (STRUCTURE 71)	3
ASBESTOS INSPECTION OF TRICKLING FILTERS, RECYCLE PUMP STATION (STRUCTURE 80)	5
ASBESTOS INSPECTION OF LAB, OFFICE, GARAGE BUILDING (STRUCTURE 95).	10

END OF SECTION

BIDDING AND CONTRACTING REQUIREMENTS

SECTION 00 11 13

ADVERTISEMENT TO BID

CITY OF INDEPENDENCE
INDEPENDENCE, IOWA
WASTEWATER TREATMENT PLANT MODIFICATIONS
CONTRACT 1-2026

City of Independence (OWNER) is requesting Bids for the construction of the following Project:

Wastewater Treatment Plant Modifications
Contract 1-2026
2018 Three Elms Park Road
Independence, IA 50644

Bids for the construction of the Project will be received at Independence City Hall, located at 331 1st Street East, Independence, IA 50644, until June 2, 2026, at 3 P.M., local time. At that time and place the Bids received will be publicly opened and read aloud.

The Project includes the following Work: Modifications to the wastewater treatment plant including replacement of fine screening and grit removal equipment; demolition of trickling filter biological treatment structures and equipment; construction of oxidation ditches, final clarifiers, and RAS/WAS Pump Building; conversion from chlorine disinfection to ultraviolet disinfection; construction of aerobic digesters and modifications to the pump building to house blowers; demolition of the egg-shaped anaerobic digesters; modifications to the existing sludge storage tank and construction of additional sludge storage; modifications to the Administration Building, construction of a storage building, electrical power distribution and standby power improvements; site utility and roadway improvements; construction of stormwater detention; and all necessary connections and appurtenances.

The Work will be substantially complete on or before September 30, 2029, and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before December 31, 2029.

Complete digital Project Bidding Documents are available at www.strand.com or at www.questcdn.com at no cost. Download the digital Bidding Documents by inputting Quest project number 9954085 on the website's project search page. Please contact QuestCDN.com at (952) 233-1632 or info@questcdn.com for assistance with free membership registration, downloading, and working with this digital Project information.

Paper copies may be obtained from the Issuing Office, which is Strand Associates, Inc.®, 910 West Wingra Drive, Madison, WI 53715. A refundable fee of $250 will be required (shipping and handling fees included). Overnight mailing of Bidding Documents will not be provided. The fee will be refunded if Bidding Documents are returned in a reusable condition within 14 days after the award of the Project.

All Bidders submitting a sealed Bid shall obtain the Bidding Documents from QuestCDN.com or from Strand Associates, Inc.®

Bidders who submit a Bid must be a Plan Holder of record at the Issuing Office. Bids from Bidders who are not on the Plan Holders List may be returned as not being responsive.

Plan Holders are requested to provide an e-mail address if they wish to receive addenda and other information electronically. Plan Holders are requested to designate whether they are a prime contractor, subcontractor, or supplier if they want this information posted on the Project Plan Holders List.

The Bid must be accompanied by Bid security made payable to OWNER in an amount of 10% of the Bidder's maximum Bid price.

By virtue of statutory authority, preference will be given to products and provisions grown and coal produced within the State of Iowa. In accordance with Iowa Statutes, a resident Bidder shall be allowed a preference as against a nonresident Bidder from a state or foreign country if that state or foreign country gives or requires any preference to Bidders from that state or foreign country, including but not limited to, any preference to Bidders, the imposition of any type of labor force preference, or any other form of preferential treatment to Bidders or laborers from that state or foreign country. The preference allowed shall be equal to the preference given or required by the state or foreign country in which the nonresident Bidder is a resident. In the instance of a resident labor force preference, a nonresident Bidder shall apply the same resident labor force preference to a public improvement in this state as would be required in the construction of a public improvement by the state or foreign country in which the nonresident Bidder is a resident.

OWNER reserves the right to reject any or all Bids, to waive any technicality, and to accept any Bid which it deems advantageous. All Bids shall remain subject to acceptance for 60 days after the time set for receiving Bids. The Contract Times will commence to run within 30 days after the Effective Date of the Contract or at the end of the bid acceptance period, whichever is earlier.

Contract award shall be made based on the lowest responsive and responsible Bidder. OWNER will first consider Bids and Contract award at the June 8, 2026, City Council meeting at 5:30 P.M. at City Hall.

Any Contract or Contracts to be awarded are expected to be funded in part by a loan from the Iowa Clean Water Fund (CWF). This procurement will be subject to applicable State and Federal laws and regulations. The Iowa CWF program strictly prohibits any contractor mobilization to the project site and/or commencement of any site activities prior to loan approval. The loan is expected to be approved no later than August 2026. CONTRACTOR may begin administrative activities such as subcontractor agreements, supplier purchase orders, shop drawings development, scheduling and schedule of values development, and other such paperwork prior to the loan being finalized. OWNER intends to pay for these CONTRACTOR administrative activities from their sewer fund until the loan has been finalized.

Disadvantaged Business Enterprises (DBEs), including Women's and Minority-owned businesses, are encouraged to submit Bids for this Project.

Bidders must demonstrate positive efforts to utilize DBEs. Failure to comply could result in disqualification of Bidder and termination of financial assistance or other sanctions. The successful Bidder will be required to conform to the wage requirements prescribed by the federal Davis-Bacon and Related Acts. All iron and steel products used on the Project shall be produced in the United States and comply with the American Iron and Steel requirements.

A pre-bid conference will be held at 1 P.M., local time, on May 4, 2026, at the City of Independence Wastewater Treatment Plant, 2018 Three Elms Park Road, Independence, IA 50644. Bidders are encouraged to attend and participate in the conference.

The Strand Associates, Inc.® project manager is Bradley Lake, P.E. and can be contacted at Strand Associates, Inc.®, 910 West Wingra Drive, Madison, WI 53715, (608) 251-4843, regarding the Project.

For all further requirements regarding Bid submittal, qualifications, procedures, and Contract Award, refer to the Instructions to Bidders that are included in the Bidding Documents.

Published by the authority of the City of Independence
Matthew Schmitz, City Manager

Dated at City of Independence, Iowa
April 14, 2026

END OF SECTION

SECTION 00 21 13

INSTRUCTIONS TO BIDDERS

A. These Instructions to Bidders establish requirements for Bidding and Award of Contract.

B. These articles are not necessarily numbered consecutively.

C. Table of Contents

ARTICLE 1–DEFINED TERMS 1
ARTICLE 2–BIDDING DOCUMENTS 2
ARTICLE 3–QUALIFICATIONS OF BIDDERS 2
ARTICLE 4–PRE-BID CONFERENCE 3
ARTICLE 5–SITE AND OTHER AREAS; EXISTING SITE CONDITIONS; EXAMINATION OF SITE; OWNER'S SAFETY PROGRAM; OTHER WORK AT THE SITE 3
ARTICLE 6–BIDDER'S REPRESENTATIONS AND CERTIFICATIONS 6
ARTICLE 7–INTERPRETATIONS AND ADDENDA 6
ARTICLE 8–BID SECURITY 6
ARTICLE 9–CONTRACT TIMES 7
ARTICLE 10–SUBSTITUTE OR "OR EQUAL" ITEMS 7
ARTICLE 11–SUBCONTRACTORS, SUPPLIERS, AND OTHERS 7
ARTICLE 12–PREPARATION OF BID 8
ARTICLE 13–BASIS OF BID 9
ARTICLE 14–SUBMITTAL OF BID 10
ARTICLE 15–MODIFICATION AND WITHDRAWAL OF BIDS 10
ARTICLE 16–OPENING OF BIDS 11
ARTICLE 17–BIDS TO REMAIN SUBJECT TO ACCEPTANCE 11
ARTICLE 18–EVALUATION OF BIDS AND AWARD OF CONTRACT 11
ARTICLE 19–BONDS AND INSURANCE 12
ARTICLE 20–SIGNING OF AGREEMENT 12
ARTICLE 21–RETAINAGE 12
ARTICLE 22–WAGE RATE DETERMINATION 13
ARTICLE 23–SALES AND USE TAXES 13
ARTICLE 24–LAWS, ORDINANCES, AND REGULATIONS 13
ARTICLE 25–FUNDING 13
ARTICLE 26—BIDDING PREFERENCE 13
ARTICLE 27–OPINION OF PROBABLE COST 14

ARTICLE 1–DEFINED TERMS

1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and the Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below which are applicable to both the singular and plural thereof:

A. Issuing Office–The office from which the Bidding Documents are to be issued and which registers planholders.

ARTICLE 2–BIDDING DOCUMENTS

2.01 Bidder shall obtain a complete set of Bidding Requirements and proposed Contract Documents (together, the Bidding Documents). See the Agreement for a list of the Contract Documents. It is Bidder's responsibility to determine that it is using a complete set of documents in the preparation of a Bid. Bidder assumes sole responsibility for errors or misinterpretations resulting from the use of incomplete documents, by Bidder itself or by its prospective Subcontractors and Suppliers.

2.02 Bidding Documents are made available for the sole purpose of obtaining Bids for completion of the Project and permission to download or distribution of the Bidding Documents does not confer a license or grant permission or authorization for any other use. Authorization to download documents, or other distribution, includes the right for plan holders to print documents solely for their use, and the use of their prospective Subcontractors and Suppliers, provided the plan holder pays all costs associated with printing or reproduction. Printed documents may not be re-sold under any circumstances.

2.03 Electronic Documents

A. When the Bidding Requirements indicate that electronic (digital) copies of the Bidding Documents are available, such documents will be made available to the Bidders as Electronic Documents in the manner specified.

1. Bidding Documents will be provided in Adobe PDF (Portable Document Format) (.pdf) that is readable by Adobe Acrobat Reader Version 6.0 or later. It is the intent of ENGINEER and OWNER that such Electronic Documents are to be exactly representative of the paper copies of the documents. However, because OWNER and ENGINEER cannot totally control the transmission and receipt of Electronic Documents nor CONTRACTOR's means of reproduction of such documents, OWNER and ENGINEER cannot and do not guarantee that Electronic Documents and reproductions prepared from those versions are identical in every manner to the paper copies.

B. Unless otherwise stated in the Bidding Documents, the Bidder may use and rely upon complete sets of Electronic Documents of the Bidding Documents, described in Paragraph 2.03.A. above. However, Bidder assumes all risks associated with differences arising from transmission/receipt of Electronic Documents versions of Bidding Documents and reproductions prepared from those versions and, further, assumes all risks, costs, and responsibility associated with use of the Electronic Documents versions to derive information that is not explicitly contained in printed paper versions of the documents, and for Bidder's reliance upon such derived information.

ARTICLE 3–QUALIFICATIONS OF BIDDERS

3.01 To demonstrate Bidder’s qualifications to perform the Work, within five days of OWNER’s request, Bidder shall submit the Qualifications Statement.

3.02 Bidder must be prepared to submit evidence of Bidder’s qualifications to do business in the state where the Project is located prior to award of the Contract.

3.03 A Bidder’s failure to submit required qualification information within the times indicated may disqualify Bidder from receiving an award of the Contract.

3.04 Bidders shall submit the documentation listed in Paragraph 7.01 of the Bid Form (Section 00 41 00).

A. Bidder shall complete and submit the Bidder Status Form with its Bid as required by Iowa Administrative Code 875, Chapter 156.

3.05 No requirement in this Article 3 to submit information will prejudice the right of OWNER to seek additional pertinent information regarding Bidder's qualifications.

3.06 Bidder is advised to carefully review those portions of the Bidding Documents requiring Bidder's representations and certifications.

ARTICLE 4–PRE-BID CONFERENCE

4.01 A pre-bid conference will be held at the time, date, and place indicated in the Advertisement or Invitation to Bid.

Representatives of OWNER and ENGINEER will be present to discuss the Project. Bidders are encouraged to attend and participate in the conference. ENGINEER will transmit to all prospective Bidders of record such Addenda as ENGINEER considers necessary in response to questions arising at the conference. Oral statements may not be relied upon and will not be binding or legally effective.

4.02 Information presented at the pre-bid conference does not alter the Contract Documents. OWNER will issue Addenda to make any changes to the Contract Documents that result from discussions at the pre-bid conference. Information presented, and statements made at the pre-bid conference will not be binding or legally effective unless incorporated in an Addendum.

ARTICLE 5–SITE AND OTHER AREAS; EXISTING SITE CONDITIONS; EXAMINATION OF SITE; OWNER'S SAFETY PROGRAM; OTHER WORK AT THE SITE

5.01 Site and Other Areas

A. The Site is identified in the Bidding Documents. By definition, the Site includes rights-of-way, easements, and other lands furnished by OWNER for the use of CONTRACTOR. Any additional lands required for temporary construction facilities, construction equipment, or storage of materials and equipment, and any access needed for such additional lands, are to be obtained and paid for by CONTRACTOR.

5.02 Existing Site Conditions

A. Subsurface and Physical Conditions; Hazardous Environmental Conditions

1. The Supplementary Conditions identify the following regarding existing conditions at or adjacent to the Site:

a. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data.

b. Those drawings known to OWNER of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data.

c. Reports and drawings known to OWNER relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site.

d. Technical Data contained in such reports and drawings.

2. OWNER will make copies of reports and drawings referenced above available to any Bidder on request. These reports and drawings are not part of the Contract Documents, but the Technical Data contained therein upon whose accuracy Bidder is entitled to rely, as provided in the General Conditions, has been identified and established in the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any Technical Data or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.

3. If the Supplementary Conditions do not identify Technical Data, the default definition of Technical Data set forth in Article 1 of the General Conditions will apply.

B. Underground Facilities: Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05 of the General Conditions, and not in the drawings referred to in Paragraph 5.02.A. of these Instructions to Bidders. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.

5.03 Other Site-Related Documents

A. In addition to the documents regarding existing Site conditions referred to in Paragraph 5.02.A., the following other documents relating to conditions at or adjacent to the Site are known to OWNER and made available to Bidders for reference:

1. Sewerage Improvements–Contract A–Treatment Plant, 1978.

2. Biosolids Facilities Improvements, 1997.

3. Waste Water Treatment Facility–Office Expansion, 2002.

4. Wastewater Treatment Plant Improvements, 2003.

5. Miscellaneous Wastewater Facility Improvements, 2018.

6. Wastewater Treatment Plant Nutrient Reduction Study, 2022.

7. Wastewater Facilities Plan, 2024.

OWNER will make copies of these other Site-related documents available to any Bidder on request.

B. OWNER has not verified the contents of these other Site-related documents, and Bidder may not rely on the accuracy of any data or information in such documents. Bidder is responsible for any interpretation or conclusion Bidder draws from the other Site-related documents.

C. The other Site-related documents are not part of the Contract Documents.

D. Bidders are encouraged to review the other Site-related documents, but Bidders will not be held accountable for any data or information in such documents. The requirement to review and take responsibility for documentary Site information is limited to information in (1) the Contract Documents and (2) the Technical Data.

5.04 Site Visit and Testing by Bidders

A. Bidder is required to visit the Site and conduct a thorough visual examination of the Site and adjacent areas. During the visit the Bidder must not disturb any ongoing operations at the Site.

B. A Site visit is scheduled following the pre-bid conference. Maps to the Site will be available at the pre-bid conference.

C. Bidders visiting the Site are required to arrange their own transportation to the Site.

D. All access to the Site other than during a regularly scheduled Site visit must be coordinated through the following OWNER contact for visiting the Site: Travis Foley, Utilities Director, (319) 334-3750. Bidder must conduct the required Site visit during normal working hours.

E. Bidder is not required to conduct any subsurface testing, or exhaustive investigations of Site conditions.

F. On request, and to the extent OWNER has control over the Site, and schedule permitting, OWNER will provide Bidder general access to the Site to conduct such additional examinations, investigations, explorations, tests, and studies as Bidder deems necessary for preparing and submitting a successful Bid. OWNER will not have any obligation to grant such access if doing so is not practical because of existing operations, security or safety concerns, or restraints on OWNER's authority regarding the Site. Bidder is responsible for establishing access needed to reach specific selected test sites.

G. Bidder must comply with all applicable Laws and Regulations regarding excavation and location of utilities, obtain all permits, and comply with all terms and conditions established by OWNER or by property owners or other entities controlling the Site with respect to schedule, access, existing operations, security, liability insurance, and applicable safety programs.

H. Bidder must fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.

5.05 OWNER’s Safety Program

A. Site visits and work at the Site may be governed by an OWNER safety program. If an OWNER safety program exists, it will be noted in the Supplementary Conditions.

5.06 Other Work at the Site

A. Reference is made to Article 8 of the Supplementary Conditions for the identification of the general nature of other work of which OWNER is aware (if any) that is to be performed at the Site by OWNER or others (such as utilities and other prime contractors) and relates to the Work contemplated by these Bidding Documents. If OWNER is party to a written contract for such other work, then on request, OWNER will provide to each Bidder access to examine such contracts (other than portions thereof related to price and other confidential matters), if any.

ARTICLE 6–BIDDER'S REPRESENTATIONS AND CERTIFICATIONS

6.01 Express Representations and Certifications in Bid Form, Agreement

A. The Bid Form that each Bidder will submit contains express representations regarding the Bidder's examination of Project documentation, Site visit, and preparation of the Bid, and certifications regarding lack of collusion or fraud in connection with the Bid. Bidder should review these representations and certifications, and assure that Bidder can make the representations and certifications in good faith, before executing and submitting its Bid.

B. If Bidder is awarded the Contract, Bidder (as CONTRACTOR) will make similar express representations and certifications when it executes the Agreement.

ARTICLE 7–INTERPRETATIONS AND ADDENDA

7.01 All questions about the meaning or intent of the Bidding Documents are to be submitted to ENGINEER in writing. Interpretations or clarifications considered necessary by ENGINEER in response to such questions will be issued by Addenda mailed or delivered to all parties recorded by Issuing Office as having received the Bidding Documents.

7.02 All requests for interpretation must be received at least five business days prior to the day set for receiving Bids. Addenda will be issued not later than three business days prior to the time and day set for receiving Bids. Failure of any Bidder to receive any such Addendum or interpretation shall not relieve such Bidder from any obligations under the Bid as submitted. All Addenda so issued shall become part of the Contract Documents.

7.03 Only responses set forth in an Addendum will be binding. Oral and other interpretations or clarifications will be without legal effect. Responses to questions are not part of the Contract Documents unless set forth in an Addendum that expressly modifies or supplements the Contract Documents.

7.04 Receipt of all addenda must be acknowledged in space provided in the Bid.

ARTICLE 8–BID SECURITY

8.01 A Bid must be accompanied by Bid security made payable to OWNER in an amount of 10% of the Bidder's maximum Bid price and in the form of a certified check, bank money order, or a Bid Bond (on form attached) issued by a surety meeting the requirements of Paragraph 6.01 of the General Conditions.

8.02 The Bid security of the apparent Successful Bidder will be retained until OWNER awards the contract to such Bidder, and such Bidder has executed the Contract, furnished the required Contract security, and met the other conditions of the Notice of Award, whereupon the Bid security will be released. If the Successful Bidder fails to execute and deliver the Contract and furnish the required Contract security within 15 days after the Notice of Award, OWNER may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited, in whole in the case of a Penal Sum Bid Bond, and to the extent of OWNER's damages in the case of a damages-form bond. Such forfeiture will be OWNER's exclusive remedy if Bidder defaults.

8.03 The Bid security of other Bidders that OWNER believes to have a reasonable chance of receiving the award may be retained by OWNER until the earlier of 7 days after the Effective Date of the Contract or 61 days after the Bid opening, whereupon Bid security furnished by such Bidders will be released.

8.04 Bid security of other Bidders that OWNER believes do not have a reasonable chance of receiving the award will be released within 7 days after the Bid opening.

ARTICLE 9–CONTRACT TIMES

9.01 The number of days within which, or the dates by which, the Work is to be (a) substantially completed and (b) ready for final payment, and (c) Milestones (if any) are to be achieved, are set forth in the Agreement.

9.02 Provisions for liquidated damages, if any, for failure to timely attain a Milestone, Substantial Completion, or completion of the Work in readiness for final payment, are set forth in the Agreement.

ARTICLE 10–SUBSTITUTE OR "OR EQUAL" ITEMS

10.01 The Contract, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without evaluation of Alternative Equipment Manufacturers listed in the Lump Sum Base Bid, if any, and without evaluation of possible substitute or "or equal" items. Whenever it is specified or described in the Bidding Documents that an Alternative Equipment Manufacturers listed in the Lump Sum Base Bid or that a substitute or "or equal" item of material or equipment may be furnished or used by CONTRACTOR if acceptable to ENGINEER, application for such acceptance will not be evaluated by ENGINEER until after the Effective Date of the Contract.

10.02 All prices that Bidder sets forth in its Bid shall be based on the presumption that CONTRACTOR will furnish the materials and equipment specified or described in the Bidding Documents, as supplemented by Addenda. Any assumptions regarding the possibility of post-Bid approvals of "or-equal" or substitution requests are made at Bidder's sole risk.

ARTICLE 11–SUBCONTRACTORS, SUPPLIERS, AND OTHERS

11.01 A Bidder must be prepared to retain specific Subcontractors and Suppliers for the performance of the Work if required to do so by the Bidding Documents or in the Specifications. If a prospective Bidder objects to retaining any such Subcontractor or Supplier and the concern is not relieved by an Addendum, then the prospective Bidder should refrain from submitting a Bid.

11.02 Subsequent to the submittal of the Bid, OWNER may not require the Successful Bidder or CONTRACTOR to retain any Subcontractor, Supplier, or other individual or entity against which CONTRACTOR has reasonable objection.

11.03 The apparent Successful Bidder, and any other Bidder so requested, shall within five days after Bid opening, submit to OWNER a list of the Subcontractors or Suppliers proposed for the Work. If requested by OWNER, such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, or other individual or entity. If OWNER or ENGINEER, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, OWNER may, before the Notice of Award is given, request apparent Successful Bidder to submit an acceptable substitute, in which case apparent Successful Bidder shall submit a substitute, Bidder's Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution, and OWNER may consider such price adjustment in evaluating Bids and making the Contract award.

11.04 If apparent Successful Bidder declines to make any such substitution, OWNER may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers, or other individuals or entities. Declining to make requested substitutions will constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against

which OWNER or ENGINEER makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to OWNER and ENGINEER subject to subsequent revocation of such acceptance as provided in Paragraph 7.07 of the General Conditions.

ARTICLE 12–PREPARATION OF BID

12.01 The Bid Form is included with the Bidding Documents.

A. All blanks on the Bid Form shall be completed in ink and the Bid Forms shall be signed in ink. Erasures or alterations shall be initialed in ink by the person signing the Bid Form. A Bid price shall be indicated for each section, Bid item, Alternate, adjustment Unit Price item, and Unit Price item listed therein.

B. If the Bid Form expressly indicates that submitting pricing on a specific Alternate item is optional, and Bidder elects to not furnish pricing for such optional Alternate item, then Bidder may enter the words “No Bid” or “Not Applicable.”

12.02 A Bid by a corporation shall be executed in the corporate name by a corporate officer (whose title must appear under the signature), accompanied by evidence of authority to sign. The corporate address and state of incorporation shall be shown.

12.03 A Bid by a partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address and state of incorporation shall be shown.

12.04 A Bid by a limited liability company shall be executed in the name of the firm by a member, if the LLC is member-managed, or by a manager, if manager-managed, and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm shall be shown.

12.05 A Bid by an individual shall show the Bidder’s name and official address.

12.06 A Bid by a joint venture must be executed by an authorized representative of each joint venturer in the manner indicated on the Bid Form. The joint venture must have been formally established prior to submittal of a Bid, and the official address of the joint venture must be shown.

12.07 All names shall be printed below the signatures.

12.08 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which must be filled in on the Bid Form.

12.09 Postal and e-mail addresses and telephone number for communications regarding the Bid shall be shown.

12.10 The Bid must contain evidence of Bidder's authority to do business in the state where the Project is located, or Bidder must certify in writing that it will obtain such authority within the time for acceptance of Bids and attach such certification to the Bid.

12.11 If Bidder is required to be licensed to submit a Bid or perform the Work in the state where the Project is located, the Bid must contain evidence of Bidder's licensure, or Bidder must certify in writing that it will obtain such licensure within the time for acceptance of Bids and attach such certification to the Bid. Bidder's state contractor license number, if any, must also be shown on the Bid Form.

12.12 All Bids shall be signed in the presence of and be notarized by a Notary Public or other Officer authorized to administer oaths.

ARTICLE 13–BASIS OF BID

13.01 Lump Sum Base Bid with Equipment Alternatives

A. Bidders shall submit a Bid on a Lump Sum Base Bid basis. The price for the Base Bid equipment for each alternative equipment item shall be included in the Lump Sum Base Bid.

B. The name of the Base Bid Equipment Manufacturer, which Bidder shall include in the Lump Sum Base Bid, is listed for each equipment item. When more the one Base Bid Equipment Manufacturer name is listed for an item, Bidder shall circle the name of the equipment manufacturer selected for the Lump Sum Base Bid and write in the price for the selected equipment.

C. Where a Requested Alternative Equipment Manufacturer is listed in the Bid Form, Bidder shall include an add or deduct to the price of the Base Bid equipment that Bidder included in the Lump Sum Base Bid. The add or deduct price shall include the cost of any changes, including engineering changes, necessary to accommodate the alternative equipment including, but not limited to, process, structural, mechanical, and electrical work.

D. Where spaces are provided, Bidder may write in Other Alternative Equipment Manufacturers into the blank(s) provided on the Bid Form and include an add or deduct to the price of the Base Bid equipment that Bidder included in the Lump Sum Base Bid. The add or deduct price shall include the cost of the engineering services required for review of the alternative equipment in comparison to the Base Bid equipment and shall include the cost of any changes, including engineering changes, necessary to accommodate the alternative equipment including, but not limited to, process, structural, mechanical, and electrical work.

E. Whether or not an Alternative Equipment Manufacturer is offered to one or more Base Bid Equipment Manufacturers provided in the Bid Form, Bidder shall write (in numbers) the price for providing the Base Bid Equipment Manufacturer, as included in the Lump Sum Base Bid.

F. Failure to provide a separate price for each Base Bid equipment item may result in OWNER declaring Bid nonresponsive. Consideration of Alternative Equipment Manufacturers will be made by OWNER within 60 days after the Effective Date of the Contract.

13.02 Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. For Bids submitted on a Lump Sum basis, discrepancies between words and figures will be resolved in favor of the words.

13.03 For Cash Allowances the Contract Price shall include such amounts as the Bidder deems proper for Contractor's overhead, costs, profit, and other expenses on account of Cash Allowances, if any, named in the Contract Documents as provided for in Paragraph 13.02.B. of the General Conditions. The final Contract Price will be adjusted to reflect actual costs on account of Cash Allowances.

13.04 The following Cash Allowances shall be included in the Bid for Contract(s).

Laboratory Equipment	Section 11 53 00–Laboratory Funiture and Equipment
Office Furniture	Seciton 12 51 00–Office Furniture
SCADA Computer	Section 26 09 00–Controls and Instrumentation
Electrical Service	Section 26 21 00–Electrical Service System
Unsuitable Foundation Material for Structures and Roads	Section 31 23 00–Excavation, Fill, Backfill, and Grading
Unsuitable Foundation Material for Utility Trenches	Section 31 23 00–Excavation, Fill, Backfill, and Grading
Rock Excavation for Structures and Roads	Section 31 23 16.26–Rock Removal
Rock Excavation for Utility Trenches	Section 31 23 16.26–Rock Removal
Natural Gas Service	Section 33 52 16–Fuel Gas Distribution Utilities

ARTICLE 14–SUBMITTAL OF BID

14.01 Bids will be received for all divisions of the Specifications and all other provisions of the Bidding Documents.

14.02 Bidder is furnished one copy of the Bidding Documents with one separate unbound copy of the Bid Forms and the Bid Bond form. The Bidding Documents may be retained by Bidder. The unbound copy of the Bid Forms is to be completed and submitted with the Bid security along with any data required by the Bidding Documents to be attached to and made a condition of the Bid. Additional copies may be obtained from the Issuing Office.

14.03 A Bid shall be submitted no later than the date and time prescribed and at the place indicated in the Advertisement or Invitation to Bid and shall be enclosed in an opaque sealed envelope, plainly marked with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted), the name and address of Bidder, and shall be accompanied by the Bid security and other required documents. If the Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate envelope plainly marked on the outside with the notation “BID ENCLOSED.” A mailed Bid shall be addressed to place indicated in the Advertisement or Invitation to Bid. No relief will be provided for a mailed Bid not being received by the prescribed time.

14.04 Bids received after the date and time prescribed for the opening of Bids, or not submitted at the correct location or in the designated manner, will not be accepted and will be returned to the Bidder unopened.

ARTICLE 15–MODIFICATION AND WITHDRAWAL OF BIDS

15.01 An unopened Bid may be withdrawn by an appropriate document duly executed in the same manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to that date and time for the opening of Bids. Upon receipt of such notice, the unopened Bid will be returned to the Bidder.

15.02 If a Bidder wishes to modify its Bid prior to Bid opening, Bidder must withdraw its initial Bid in the manner specified in Paragraph 15.01 and submit a new Bid prior to the date and time for the opening of Bids.

15.03 If within 24 hours after Bids are opened any Bidder files a duly signed written notice with OWNER and promptly thereafter demonstrates to the reasonable satisfaction of OWNER that there was a material and substantial mistake in the preparation of its Bid, the Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, the Bidder will be disqualified from further Bidding on the Work.

ARTICLE 16–OPENING OF BIDS

16.01 Bids will be opened at the time and place indicated in the Advertisement or Invitation to Bid and, unless obviously nonresponsive, read aloud publicly. An abstract of the amounts of the Base Bids and major alternatives and components, if any, will be made available to Bidders after the opening of Bids.

ARTICLE 17–BIDS TO REMAIN SUBJECT TO ACCEPTANCE

17.01 All Bids will remain subject to acceptance for the period of time stated in the Bid Form, but OWNER may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

ARTICLE 18–EVALUATION OF BIDS AND AWARD OF CONTRACT

18.01 OWNER reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. OWNER also reserves the right to waive all minor Bid informalities not involving price, time, or changes in the Work.

18.02 OWNER will reject the Bid of any Bidder that OWNER finds, after reasonable inquiry and evaluation, to not be responsible.

18.03 If Bidder purports to add terms or conditions to its Bid, takes exception to any provision of the Bidding Documents, or attempts to alter the contents of the Contract Documents for purposes of the Bid, whether in the Bid itself or in a separate communication to OWNER or ENGINEER, then OWNER will reject the Bid as nonresponsive.

18.04 In evaluating Bids, OWNER will consider whether or not the Bids comply with the prescribed requirements, and such alternatives, unit prices, and other data as may be requested in the Bid Form or prior to the Notice of Award.

18.05 In evaluating Bids, OWNER will consider the qualifications of Bidders and may consider the qualifications and experience of Subcontractors, Suppliers, and other individuals or entities proposed for those portions of the Work for which the identity of Subcontractors, Suppliers, and other individuals or entities must be submitted as provided in the Supplementary Conditions. OWNER also may consider the operating costs, maintenance requirements, performance data, and guarantees of major items of materials and equipment proposed for incorporation in the work when such data is required to be submitted prior to the Notice of Award.

18.06.1 OWNER may conduct such investigations as OWNER deems necessary to assist in the evaluation of any Bid and to establish the responsibility, qualifications, and financial ability of Bidders, proposed Subcontractors, Suppliers, individuals or entities to perform the Work in

accordance with the Contract Documents to OWNER's satisfaction within the prescribed time. Bidder shall furnish to OWNER all such information and data for this purpose as OWNER may request. OWNER reserves the right to reject any Bid if the evidence submitted by, or investigation of, such Bidder fails to satisfy OWNER that such Bidder is properly qualified to carry out the obligations of the Contract Documents and to complete the work contemplated therein.

18.06.2 OWNER shall be satisfied that Bidder involved (1) maintains a permanent place of business, (2) has adequate plant and equipment to do the work properly and expeditiously, (3) has a suitable financial status to meet obligations incident to the work, (4) has appropriate technical experience, and (5) can submit a satisfactory performance record.

18.07.1 If a Contract is to be awarded, it will be awarded to the responsible Bidder with the lowest responsive Lump Sum Base Bid whose evaluation indicates to OWNER that the award will be in the best interest of the Project.

18.07.2 OWNER reserves the right to accept or reject any Alternative Equipment Manufacturers to the Lump Sum Base Bid. Consideration of Alternative Equipment Manufacturers of the selected Bidder will be made by OWNER within 60 days after the Effective Date of the Contract.

18.08 If a Contract is to be awarded, OWNER will give the successful Bidder a Notice of Award within 60 days after the time set for opening Bids.

ARTICLE 19–BONDS AND INSURANCE

19.01 Article 6 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth OWNER's requirements as to performance and payment bonds, other required bonds (if any), and insurance. When the Successful Bidder delivers the executed Agreement to OWNER, it must be accompanied by required bonds and insurance documentation.

19.02 Article 8, Bid Security, of these Instructions, addresses any requirements for providing Bid Bonds as part of the Bidding process.

19.03 Out-of-State Contractors may also need to file a Surety Bond with the State. See Section 00 61 13.19 for additional details.

ARTICLE 20–SIGNING OF AGREEMENT

20.01 When OWNER gives a Notice of Award to the Successful Bidder, it shall be accompanied by the required number of unexecuted counterparts of the Agreement along with all other Contract Documents which are identified in the Agreement as attached thereto. Within 15 days thereafter, Successful Bidder shall execute and deliver the required number of counterparts of the Agreement and attached documents to ENGINEER with the required Bonds and insurances. Within 15 days after receipt of properly executed documents and Bonds and insurances which meet all requirements of the Contract Documents, ENGINEER will deliver one fully signed counterpart to Successful Bidder.

ARTICLE 21–RETAINAGE

21.01 Provisions concerning retainage are set forth in the Agreement.

ARTICLE 22–WAGE RATE DETERMINATION

22.01 Davis-Bacon federal wage rate determination will be inserted as a part of the Bidding Documents and/or will be on file at the office of OWNER. Bidder shall inspect the wage rate determination and shall incorporate its requirements into its Bid.

22.02 See Section 01 41 00 of the General Requirements for additional information.

ARTICLE 23–SALES AND USE TAXES

23.01 OWNER is exempt from Iowa state sales and use taxes on materials and equipment to be incorporated in the Work. Said taxes must not be included in the Bid. Refer to Paragraph SC-7.10 of the Supplementary Conditions for additional information.

ARTICLE 24–LAWS, ORDINANCES, AND REGULATIONS

24.01 Bidder must familiarize itself with all laws, ordinances, and regulations by federal, state, city, or other governmental agency, which by reason of being neglected or violated may affect the Work contemplated and must secure and pay the fee required for any permits which may be necessary unless such fees are otherwise indicated to be paid in the Bidding Documents.

ARTICLE 25–FUNDING

25.01 The Bidder agrees that he/she shall make a “good faith effort” to subcontract with DBEs for the project. Documentation of this “good faith effort” is required to be submitted with the Bid.

25.02 Failure to demonstrate a good faith effort to do so may lead to rejection of Bids. For the purpose of this program, the term “subcontract” includes all construction, modification, and service work contracted for by the Bidder in the execution of the work under this Contract.

25.03 See the section labeled “Laws and Regulations” in the Supplementary Conditions for further details regarding these regulations.

25.04 Each Bidder must fully comply with the Disadvantaged Business Enterprises, and Affirmative Action requirements, as identified in the SRF required front-end specifications attached to the end of the Bid section. Bidder shall submit all forms from this packet with the Bid but is only required to complete and sign Attachments 2, 3, 4, 5, and 10 as applicable.

25.05 Bidders shall certify to its Bid that all iron and steel products used on the project be produced in the United States and comply with the American Iron and Steel requirement. Refer to Section 01 41 00–Regulatory Requirements for additional information.

ARTICLE 26—BIDDING PREFERENCE

26.01 The State of Iowa, its agencies, and its political subdivisions, including cities, school districts and public utilities are required by Iowa Code Section 8A.311B to require a reciprocal resident Bidder and resident labor force preference.

26.02 Nonresident Bidders are advised that when a contract for a public improvement is to be awarded to the lowest responsible Bidder that per Iowa law a resident Bidder shall be allowed a preference over a nonresident Bidder from a state or foreign country if that state or foreign country gives or requires any preference to Bidders from that state or foreign country. Preferences include but not limited to any preference to Bidders, the imposition of any type of labor force preference, or any other form of

preferential treatment to Bidders or laborers from that state or foreign country. The preference allowed shall be equal to the preference given or required by the state or foreign country in which the nonresident Bidder resides. In the instance of a resident labor force preference, a nonresident Bidder shall apply the same resident labor force preference to a public improvement in this state as would be required in the construction of a public improvement by the state or foreign country in which the nonresident Bidder is a resident.

26.03 Nonresident Bidder is defined as a person or entity authorized to transact business and having a business address for transacting business outside the State of Iowa at which it is conducting and has conducted business.

26.04 Resident Bidder is defined as a person or entity authorized to transact business and having a business address for transacting business within the State of Iowa at which it is conducting and has conducted business for a minimum of three years prior to the date of the first advertisement for the public improvement. If the nonresident Bidder's state or foreign country defines resident Bidder more stringently than the State of Iowa then the more stringent definition shall apply to the nonresident Bidder's Bid.

ARTICLE 27–OPINION OF PROBABLE COST

27.01 The opinion of probable cost for the Project as of April 14, 2026 is $50,000,000.

END OF SECTION

SECTION 00 41 00

BID

CITY OF INDEPENDENCE
INDEPENDENCE, IOWA
WASTEWATER TREATMENT PLANT MODIFICATIONS
CONTRACT 1-2026

A. Table of Contents

ARTICLE 1. BID RECIPIENT
ARTICLE 2. BIDDER'S ACKNOWLEDGEMENTS: ACCEPTANCE PERIOD, INSTRUCTIONS, AND RECEIPT OF ADDENDA
ARTICLE 3. BIDDER'S REPRESENTATIONS
ARTICLE 4. BIDDER'S CERTIFICATIONS
ARTICLE 5. BASIS OF BID
ARTICLE 6. TIME OF COMPLETION
ARTICLE 7. ATTACHMENTS TO THIS BID
ARTICLE 8. DEFINED TERMS
ARTICLE 9. COMMUNICATIONS
ARTICLE 10. BID SUBMITTAL

ARTICLE 1--BID RECIPIENT

1.01 Bids to be received until 3 P.M. local time, June 2, 2026.

1.02 This Bid is submitted to: City of Independence City Hall
331 1st Street East
Independence, IA 50644

1.03 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with OWNER in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2--BIDDER'S ACKNOWLEDGEMENTS: ACCEPTANCE PERIOD, INSTRUCTIONS, AND RECEIPT OF ADDENDA

2.01 Bid Acceptance Period

A. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of OWNER.

2.02 Instructions to Bidders

A. Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security.

2.03 In submitting this Bid, Bidder represents the following:

A. Bidder has examined and carefully studied the Bidding Documents, and any data and reference items identified in the Bidding Documents, and hereby acknowledges receipt of the following addenda:

Date:	Addendum Number:
5/11/2026	1
5/19/2026	2
5/29/2026	3

2.04 Bidder will sign and deliver the required number of counterparts of the Agreement with the bonds, insurance certificates, and other documents required by the Bidding Requirements within 15 days after the date of OWNER's Notice of Award.

ARTICLE 3–BIDDER'S REPRESENTATIONS

3.01 Bidder's Representations

A. In submitting this Bid, Bidder represents the following:

1. Bidder has examined and carefully studied the Bidding Documents, including Addenda.

2. Bidder has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

3. Bidder is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.

4. Bidder has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.

5. Bidder has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.

6. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, if selected as CONTRACTOR; and (c) Bidder's (CONTRACTOR's) safety precautions and programs.

7. Based on the information and observations referred to in the preceding paragraph, Bidder agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.

8. Bidder is aware of the general nature of work to be performed by OWNER and others at the Site that relates to the Work as indicated in the Bidding Documents.

9. Bidder has given ENGINEER written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR.

10. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

11. The submission of this Bid constitutes an incontrovertible representation by Bidder that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

ARTICLE 4–BIDDER'S CERTIFICATIONS

4.01 Bidder certifies the following:

A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation.

B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid.

C. Bidder has not solicited or induced any individual or entity to refrain from Bidding.

D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:

1. Corrupt practice means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the Bidding process.

2. Fraudulent practice means an intentional misrepresentation of facts made (a) to influence the Bidding process to the detriment of OWNER, (b) to establish Bid prices at artificial non-competitive levels, or (c) to deprive OWNER of the benefits of free and open competition.

3. Collusive practice means a scheme or arrangement between two or more Bidders, with or without the knowledge of OWNER, a purpose of which is to establish Bid prices at artificial, non-competitive levels.

4. Coercive practice means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the Bidding process or affect the execution of the Contract.

ARTICLE 5–BASIS OF BID

5.01 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

The following abbreviations may be used in this Bid:

CIP	-	Complete in Place	LS	-	Lump Sum
CY	-	Cubic Yard	LT	-	Left
DI	-	Ductile Iron	MBF	-	Thousand Board Feet
DIA	-	Diameter	MFOB	-	Thousand Freight-On-Board
EA	-	Each	MH	-	Manhole
EST	-	Estimate(d)	RCP	-	Reinforced Concrete Pipe
EXCL	-	Excluding	RT	-	Right
FT	-	Feet	SF	-	Square Foot
GAL	-	Gallon	STA	-	Station
HERCP	-	Horizontal Elliptical RCP	SY	-	Square Yard
HRS	-	Hours	T	-	Ton
IN	-	Inch	VLF	-	Vertical Linear Foot
INCL	-	Including	W/	-	With
LBS	-	Pounds	W/O	-	Without
LF	-	Linear Foot			

BIDDERS SHOULD NOT ADD ANY CONDITIONS OR QUALIFYING STATEMENTS TO THIS BID OR THE BID MAY BE DECLARED IRREGULAR AS NOT BEING RESPONSIVE TO THE INSTRUCTIONS TO BIDDERS.

BID

CITY OF INDEPENDENCE
INDEPENDENCE, IOWA
WASTEWATER TREATMENT PLANT MODIFICATIONS
CONTRACT 1-2026

LUMP SUM BASE BID:

Fifty-eight million one hundred seventy-six thousand three hundred Dollars $ 58,176,300.00
(Words) (Numbers)

See Section 01 29 00–Contract Considerations for discussion of Cash Allowances to include in the Bid.

The price for all Base Bid Equipment items shall be included in the Lump Sum Base Bid.

OWNER reserves the right to accept or reject any Alternative Equipment Manufacturers to the Lump Sum Base Bid. Consideration of Alternative Equipment Manufacturers of the selected Bidder will be made by OWNER within 60 days after the Effective Date of the Contract.

EQUIPMENT ALTERNATIVES

CITY OF INDEPENDENCE
INDEPENDENCE, IOWA
WASTEWATER TREATMENT PLANT MODIFICATIONS
CONTRACT 1-2026

The name of the Base Bid Equipment Manufacturer, which Bidder shall include in the Lump Sum Base Bid, is listed for each equipment item. When more than the one Base Bid Equipment Manufacturer name is listed for an item, Bidder shall circle the name of the equipment manufacturer selected for the Lump Sum Base Bid and write in the price for the selected equipment.

Where a Requested Alternative Equipment Manufacturer is listed in the Bid Form, Bidder shall include an add or deduct to the price of the Base Bid equipment that Bidder included in the Lump Sum Base Bid. The add or deduct price shall include the cost of any changes, including engineering changes, necessary to accommodate the alternative equipment including, but not limited to, process, structural, mechanical, and electrical work.

Where spaces are provided, Bidder may write in Other Alternative Equipment Manufacturers into the blank(s) provided on the Bid Form and include an add or deduct to the price of the Base Bid equipment that Bidder included in the Lump Sum Base Bid. The add or deduct price shall include the cost of the engineering services required for review of the alternative equipment in comparison to the Base Bid equipment and shall include the cost of any changes, including engineering changes, necessary to accommodate the alternative equipment including, but not limited to, process, structural, mechanical, and electrical work.

Whether or not an Alternative Equipment Manufacturer is offered to one or more Base Bid Equipment Manufacturers provided in the Bid Form, Bidder shall write (in numbers) the price for providing the Base Bid Equipment Manufacturer, as included in the Lump Sum Base Bid.

EQUIPMENT ALTERNATIVES

	Item	Base Bid Equipment Manufacturer Included in the Lump Sum Base Bid (Circle One)	Cost of Equipment Included in the Lump Sum Base Bid	Alternative Equipment Manufacturer	Add to Base Bid for Alternative Equipment Manufacturer	Deduct From Base Bid for Alternative Equipment Manufacturer
A.	Controls and Instrumentation (Section 26 09 00)	Electric Pump	$4,223,115.00	_____	(+)_____	(-)_____
				_____	(+)_____	(-)_____
B.	Standby Power System (Section 26 32 13) and Automatic Transfer Switches (Section 26 36 24)	Caterpillar **OR** Kohler **OR** Cummins Power Generation	$ 480,000.00	_____	(+)_____	(-)_____
				_____	(+)_____	(-)_____
				_____	(+)_____	(-)_____
C.	Watertight Stop Logs (Aluminum) (Section 40 05 59.16)	Whipps, Inc. **OR** RW Gate **OR** Fontaine-Aquanox	$9,487.00	_____	(+)_____	(-)_____
				_____	(+)_____	(-)_____
				_____	(+)_____	(-)_____
D.	Slide Gates (Section 40 05 59.23)	Whipps, Inc. **OR** RW Gate **OR** Fontaine-Aquanox	$387,673.00	_____	(+)_____	(-)_____
				_____	(+)_____	(-)_____
				_____	(+)_____	(-)_____
E.	Hoists and Cranes (Section 41 22 23)	Robbins & Myers (R&M) **OR** Columbus McKinnon **OR** Yale **OR** Coffing	$22,207.00	_____	(+)_____	(-)_____
				_____	(+)_____	(-)_____
				_____	(+)_____	(-)_____
				_____	(+)_____	(-)_____
F.	Low Pressure Rotary Lobe Blowers (Section 43 11 33)	Kaeser **OR** Aerzen	$409,300.00	_____	(+)_____	(-)_____
				_____	(+)_____	(-)_____

	Item	Base Bid Equipment Manufacturer Included in the Lump Sum Base Bid (Circle One)	Cost of Equipment Included in the Lump Sum Base Bid	Alternative Equipment Manufacturer	Add to Base Bid for Alternative Equipment Manufacturer	Deduct From Base Bid for Alternative Equipment Manufacturer
G.	Self-Priming Centrifugal Pumps (Section 43 23 13.19)	Gorman Rupp	$ 39,250.00		(+)	(-)
H.	Centrifugal Sludge Pumps (Section 43 23 21)	WEMCO (Trillium) OR Hayward Gordon	$ 116,734.00		(+)	(-)
I.	Grit Pumps (Section 43 23 22)	Netzsch	$ 182,330.00	Watson-Marlow	(+) 6,807.00	(-)
J.	Rotary Lobe Pumps (Section 43 23 58)	Swaby Lobeline OR Boerger	$ 73,475.00		(+)	(-)
K.	Submersible Pumps (Section43 25 10)	Xylem-Flygt	$ 278,500.00		(+)	(-)
L.	Samplers (Section 46 09 00)	Teledyne ISCO OR Hach	$ 20,462.00		(+)	(-)
M.	Mechanically Cleaned Screens (Section 46 21 11)	Vulcan OR JWC Environmental	$ 229,050.00		(+)	(-)
N.	Screenings Wash Presses (Section 46 21 73)	Vulcan OR JWC Environmental	$ 114,000.00		(+)	(-)
O.	Grit Classifier (Section 46 23 63)	Vulcan OR Smith & Loveless	$ 60,700.00		(+)	(-)

	Item	Base Bid Equipment Manufacturer Included in the Lump Sum Base Bid (Circle One)	Cost of Equipment Included in the Lump Sum Base Bid	Alternative Equipment Manufacturer	Add to Base Bid for Alternative Equipment Manufacturer	Deduct From Base Bid for Alternative Equipment Manufacturer
P.	Submersible Mixers (Section 46 41 23)	Xylem-Flygt	$961,310.00	_____	(+)_____	(-)_____
				_____	(+)_____	(-)_____
Q.	Final Circular Clarifier Equipment (Section 46 43 22)	Evoqua OR Ovivo OR WesTech	$983,541.00	_____	(+)_____	(-)_____
				_____	(+)_____	(-)_____
				_____	(+)_____	(-)_____
R.	Grit Collectors (Section 46 46 23)	Smith & Loveless OR Lakeside Equipment	$187,071.00	_____	(+)_____	(-)_____
				_____	(+)_____	(-)_____
S.	Membrane Diffusers (Section 46 51 46)	Xylem-Sanitaire OR SSI OR Aquarius	$138,800.00	_____	(+)_____	(-)_____
				_____	(+)_____	(-)_____
				_____	(+)_____	(-)_____
T.	Oxidation Ditch Aeration and Mixing Systems (Section 46 53 61) and Low Speed Submersible Mixers (Section 46 51 47)	Ovivo	$2,309,517.00	WesTech	(+)_____	(-) 178,223.00
				_____	(+)_____	(-)_____
U.	Ultraviolet Disinfection System–Trojan (Section 46 66 56)	Trojan Technologies	$425,655.00	Wedeco	(+) NO BID	(-) NO BID
				_____	(+)_____	(-)_____

BID

CITY OF INDEPENDENCE
INDEPENDENCE, IOWA
WASTEWATER TREATMENT PLANT MODIFICATIONS
CONTRACT 1-2026

CASH ALLOWANCES

The following Cash Allowances shall be included in the Lump Sum Base Bid. The Cash Allowances for non-Lump Sum items shall be equal to the product of the quantity included in the Lump Sum Base Bid and the Unit Price. The Cash Allowances will be adjusted in the event that estimated quantities to be included in the Lump Sum Base Bid are different from final measured quantities. A single Unit Price shall be bid for each item. Failure to include one or more of the following Unit Price items may result in rejection of the entire Bid as nonconforming. For items with a quantity of 1, the Cash Allowance shall be adjusted based on actual final costs.

Item Number	Description	Estimated Quantity Included in the Lump Sum Base Bid	Unit	Bid Unit Price	Total Bid Price Included in the Lump Sum Base Bid
1.	Laboratory Equipment (Section 11 53 00–Laboratory Furniture and Equipment)	1	LS	$100,000.00	$100,000.00
2.	Office Furniture (Section 12 51 00–Office Furniture)	1	LS	$20,000.00	$20,000.00
3.	SCADA Computer (Section 26 09 00-Controls and Instrumentation)	1	LS	$110,000.00	$110,000.00
4.	Electrical Service (Section 26 21 00-Electrical Service System)	1	LS	$170,000.00	$170,000.00
5.	Unsuitable Foundation Material for Structures and Roads (Section 31 23 00–Excavation, Fill, Backfill, and Grading)	2,500	CY	$ 40.00	$ 100,000.00
6.	Unsuitable Foundation Material for Utility Trenches (Section 31 23 00–Excavation, Fill, Backfill, and Grading)	100	CY	$ 40.00	$ 4,000.00
7.	Rock Excavation for Structures and Road (Section 31 23 16.26–Rock Removal)	1,500	CY	$ 65.00	$ 97,500.00
8.	Rock Excavation for Utility Trenches (Section 31 23 16.26–Rock Removal)	100	CY	$ 65.00	$ 6,500.00
9.	Natural Gas Service (Section 33 52 16–Fuel Gas Distribution Utilities)	1	LS	$5,000.00	$5,000.00

ARTICLE 6–TIME OF COMPLETION

6.01 Bidder agrees that the Work will be substantially complete on or before September 30, 2029, and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before December 31, 2029.

6.02 Bidder accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work within the Contract Times.

ARTICLE 7–ATTACHMENTS TO THIS BID

7.01 The following documents are attached to and made a condition of this Bid:

A. Required Bid security in the form of Bid Bond (Certified Check, Bank Money Order, or Bond)

B. Bidder Status Form.

C. SRF Required Front-End Specifications (Attachments 1 through 10).

D. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such license, if applicable, within the time for acceptance of Bids.

E. Where applicable, Bidder shall provide CONTRACTOR's License Number for the state of the Project, where noted at end of Bid or Bidder shall provide evidence of Bidder's ability to obtain a State Contractor's License and a covenant by Bidder to obtain said license within the time for acceptance of Bids.

ARTICLE 8–DEFINED TERMS

8.01 The terms used in this Bid with initial or all capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 9–COMMUNICATIONS

9.01 Communications concerning this Bid shall be addressed to the address of Bidder indicated below:

Name: Woodruff Construction, Inc.

Street: 1717 Falls Avenue

City, State, Zip Code: Waterloo, IA 50701

Phone No.: 319-233-3349 ext 403 Fax No.: _____

E-mail address: johnm@woodruff.build

ARTICLE 10–BID SUBMITTAL

Submitted on 06/02/2026

State Contractor License Number C097864 (if applicable).

If Bidder is:

An Individual

By: _____
(Individual's signature)

Name (typed or printed): _____

Doing business as: _____
Business address: _____

Phone No.: _____ Fax No.: _____

E-mail address: _____

A Partnership

Partnership Name: _____
By: _____
(Signature of general partner -- attach evidence of authority to sign)

Name (typed or printed): _____
Business address: _____

Phone No.: _____ Fax No.: _____

E-mail address: _____

A Corporation

Corporation Name: Woodruff Construction
State of Incorporation: Iowa
Type (General Business, Professional, Service, Limited Liability): S-Corp
By: Jason Rechkemmer/MMC
(Signature -- attach evidence of authority to sign)

Name (typed or printed): Jason Rechkemmer

Title: CEO

Attest _____
(Signature of Corporate Secretary)

Business address: 1717 Falls Ave., Waterloo, IA 50701

Phone No.: 319-233-3349 Fax No.: 319-233-3369

E-mail address: johnm@woodruff.build

Date of Qualification to do business in (State where the Project is located) is 2/1/1956

Sworn and subscribed to before me this 2nd day of June, 2026
Kimberly Buck

Notary Public or Other Officer
Authorized to Administer Oaths.
My Commission expires: March 17, 2029

KIMBERLY BUCK
COMMISSION NO.783169
MY COMMISSION EXPIRES
MARCH 17, 2029

A Limited Liability Company (Note: If member-managed, an authorized member must sign; if manager-managed, the authorized manager must sign. Attach evidence of authority to sign on behalf of LLC).

_____

(Fill in complete name of LLC)

State of Formation: _____

By: _____

(Signature)

_____, [Member] [Manager]

(Print Name)

Business Address: _____

Telephone: _____

Email: _____

Fax: _____

A Joint Venture

Name of Joint Venture: _____

First Joint Venturer Name: _____

By: _____
(Signature of first joint venture partner -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Business address: _____

_____

Phone No.: _____ Fax No.: _____

E-mail address: _____

Second Joint Venturer Name: _____

By: _____
(Signature of second joint venture partner -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Business address: _____

_____

Phone No.: _____ Fax No.: _____

E-mail address: _____

Phone No., Fax No., and postal and E-mail address for receipt of official communications:

_____

_____

(Each joint venturer must sign. The manner of signing for each individual, partnership, and corporation that is a party to the joint venture should be in the manner indicated above.)

Sworn and subscribed to before me this
_____ day of_____, _____
_____

Notary Public or Other Officer
Authorized to Administer Oaths.
My Commission expires:_____

END OF SECTION

WOODRUFF CONSTRUCTION

EVIDENCE OF AUTHORITY TO SIGN

100% Employee Owned

AMES | FORT DODGE | IOWA CITY | WATERLOO | SPENCER

June 2, 2026

Re: Independence Wastewater Treatment Plant

To Whom It May Concern:

Jason Rechkemmer, being Chief Executive Officer of Woodruff Construction Inc., has authority to sign any and all documents for Woodruff Construction, Inc.

Woodruff Construction Signatory Authority Policy

Below is the signatory authority granted by Woodruff Construction. Except as provided in this Policy, no other individual has signatory authority to bind Woodruff with respect to the documents described in this Policy, and any signature on such document by a person without signatory authority shall be null and void.

Region Senior Vice President (SVP) or Vice President (VP) Authority:

- Region SVP and VP have signatory authority only as follows:
    - Initial subcontractor subcontracts or supplier purchase orders whose subcontract/purchase order price is $500,000 or less.
    - For subcontract/purchase order Change Orders; Any individual subcontract/purchase order Change Order whose amount is $50,000 or less.

- Region SVP and VP do NOT have signatory authority for any other documents, including but not limited to the following documents:
    - Owner/Woodruff Contract Documents
    - Owner/Woodruff Change Orders and Construction Change Directives
    - Performance and Payment Bonds
    - Bids, Bid Forms, Bid Bonds

- The following is the list of the current SVP and VPs at Woodruff Construction
    1. Northwest Region – Kevin Larsen (VP)
    2. East Region – Matt Rechkemmer (VP)

Region President Authority:

- Region President has signatory authority only as follows:
    - Owner/Woodruff Contract Documents whose initial contract price is $10,000,000 or less.
    - Owner/Woodruff Change Orders and Construction Change Directives whose amounts are $500,000 or less.
    - Performance and Payment Bonds whose penal sum is $10,000,000 or less.
    - Bids, Bid Forms, and Bid Bonds whose amount or penal sum is $10,000,000 or less.
    - Initial subcontractor subcontracts or supplier purchase orders whose subcontract/purchase order price is $1,000,000 or less or change orders up to $200,000, or when contracts exceed $2,000,000, 10% of the contract, whichever is more.

- Region Presidents do NOT have signatory authority for any other documents.

- The following is a list of the current Region Presidents at Woodruff Construction
    1. NE Region – John Mallen
    2. West Region – Chad Lennon
    3. Central Region – Grant Reimers

Chief Operating Officer (COO) & President Authority:

- The COO & President have signatory authority for all documents regardless of value.
- The following is the current COO at Woodruff Construction: Jason Rechkemmer
- The following is the current President at Woodruff Construction: Donald Woodruff

10% BID BOND

Any singular reference to Bidder, Surety, Owner or other party shall be considered plural where applicable.

Bidder	**Surety**
Name: **Woodruff Construction, Inc.**	Name: **Liberty Mutual Insurance Company**
Address *(principal place of business)*:	Address *(principal place of business)*:
1890 Kountry Lane **Fort Dodge, IA 50501**	**175 Berkeley Street** **Boston, MA 02116**
Owner	**Bid**
Name: **City of Independence**	Project *(name and location)*:
Address *(principal place of business)*:	**Wastewater Treatment Plant Modifications Contract 1-2026, Independence, IA**
331 1st Street East **Independence, IA 50644**	Bid Due Date: **June 2, 2026**

Bond

Penal Sum: **Ten Percent of the Total Amount Bid (10%)**

Date of Bond: **April 23, 2026**

Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth in this Bid Bond, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.

Bidder	Surety
Woodruff Construction, Inc.	**Liberty Mutual Insurance Company**
(Full formal name of Bidder)	*(Full formal name of Surety) (corporate seal)*
By: Jason Rechkemmer	By:
(Signature)	*(Signature) (Attach Power of*
Name: Jason Rechkemmer	Name: **Sara Huston**
(Printed or typed)	*(Printed or typed)*
Title: CEO	Title: **Attorney-in-Fact**
Attest: Kimberly Buck	Attest: Kate Zanders
(Signature)	*(Signature)*
Name: Kimberly Buck	Name: **Kate Zanders**
(Printed or typed)	*(Printed or typed)*
Title: Administrative Assistant	Title: Witness as to Surety

Notes: (1) Note: Addresses are to be used for giving any required notice. (2) Provide execution by any additional parties, such as joint venturers, if necessary.

EJCDC® C-430, Bid Bond (Penal Sum Form).
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1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Bidder's and Surety's liability. Recovery of such penal sum under the terms of this Bond will be Owner's sole and exclusive remedy upon default of Bidder.
2. Default of Bidder occurs upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
3. This obligation will be null and void if:
   3.1. Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
   3.2. All Bids are rejected by Owner, or
   3.3. Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions does not in the aggregate exceed 120 days from the Bid due date without Surety's written consent.
6. No suit or action will be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety, and in no case later than one year after the Bid due date.
7. Any suit or action under this Bond will be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder must be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Postal Service registered or certified mail, return receipt requested, postage pre-paid, and will be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond will be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute governs and the remainder of this Bond that is not in conflict therewith continues in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

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POWER OF ATTORNEY

Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company
West American Insurance Company

Certificate No: **8213828-190056**

KNOWN ALL PERSONS BY THESE PRESENTS: That The Ohio Casualty Insurance Company is a corporation duly organized under the laws of the State of New Hampshire, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts, and West American Insurance Company is a corporation duly organized under the laws of the State of Indiana (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Anne Crowner; Brian M. Deimerly; Craig E. Hansen; Dione R. Young; Grace Dickinson; Jamie Gifford; Jay D. Freiermuth; John Cord; Kate Zanders; Sara Huston; Seth D. Rooker; Tim McCulloh; Zachary R. Fuller

all of the city of Waukee state of IA each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 16th day of April, 2025.

Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company
West American Insurance Company

By: _____
Nathan J. Zangerle, Assistant Secretary

State of PENNSYLVANIA
County of MONTGOMERY ss

On this 16th day of April, 2025 before me personally appeared Nathan J. Zangerle, who acknowledged himself to be the Assistant Secretary of Liberty Mutual Insurance Company, The Ohio Casualty Company, and West American Insurance Company, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at Plymouth Meeting, Pennsylvania, on the day and year first above written.

Commonwealth of Pennsylvania - Notary Seal
Teresa Pastella, Notary Public
Montgomery County
My commission expires March 28, 2029
Commission number 1126044
Member, Pennsylvania Association of Notaries

By: _____
Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and Authorizations of The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company which resolutions are now in full force and effect reading as follows:

ARTICLE IV – OFFICERS: Section 12. Power of Attorney.
Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and execution of any such instruments and to attach thereto the seal of the Corporation. When so executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

ARTICLE XIII – Execution of Contracts: Section 5. Surety Bonds and Undertakings.
Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

Certificate of Designation – The President of the Company, acting pursuant to the Bylaws of the Company, authorizes Nathan J. Zangerle, Assistant Secretary to appoint such attorneys-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

Authorization – By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Renee C. Llewellyn, the undersigned, Assistant Secretary, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this **23rd** day of **April**, **2026**.

By: _____
Renee C. Llewellyn, Assistant Secretary

Not valid for mortgage, note, loan, letter of credit, currency rate, interest rate or residual value guarantees.

For bond and/or Power of Attorney (POA) verification inquiries, please call 610-832-8240 or email HOSUR@libertymutual.com.

LMS-12873 LMIC OCIC WAIC Multi Co 02/24

Bidder Status Form

To be completed by all bidders — Part A

Please answer "Yes" or "No" for each of the following:

- [X] Yes [ ] No — My company is authorized to transact business in Iowa. *(To help you determine if your company is authorized, please review the worksheet on the next page).*
- [X] Yes [ ] No — My company has an office to transact business in Iowa.
- [X] Yes [ ] No — My company's office in Iowa is suitable for more than receiving mail, telephone calls, and e-mail.
- [X] Yes [ ] No — My company has been conducting business in Iowa for at least 3 years prior to the first request for bids on this project.
- [X] Yes [ ] No — My company is not a subsidiary of another business entity or my company is a subsidiary of another business entity that would qualify as a resident bidder in Iowa.

If you answered "Yes" for each question above, your company qualifies as a resident bidder. Please complete Parts B and D of this form.

If you answered "No" to one or more questions above, your company is a nonresident bidder. Please complete Parts C and D of this form.

To be completed by resident bidders — Part B

My company has maintained offices in Iowa during the past 3 years at the following addresses:

Dates: 8 / 1 / 1990 to Present / / Address: 1890 Kountry Lane
City, State, Zip: Fort Dodge, IA 50501

Dates: 5 / 25 / 1996 to Present / / Address: 2521 Bailey Avenue
City, State, Zip: Ames, IA 50010

Dates: 2 / 8 / 2016 to Present / / Address: 501 Greenfield Drive
City, State, Zip: Tiffin, IA 52340

You may attach additional sheet(s) if needed.

To be completed by non-resident bidders — Part C

1. Name of home state or foreign country reported to the Iowa Secretary of State:

2. Does your company's home state or foreign country offer preferences to resident bidders, resident labor force preferences or any other type of preference to bidders or laborers? [ ] Yes [ ] No

3. If you answered "Yes" to question 2, identify each preference offered by your company's home state or foreign country and the appropriate legal citation.

You may attach additional sheet(s) if needed.

To be completed by all bidders — Part D

I certify that the statements made on this document are true and complete to the best of my knowledge and I know that my failure to provide accurate and truthful information may be a reason to reject my bid.

Firm Name: Woodruff Construction, Inc

Signature: Jason Rechkemmer

Jason Rechkemmer CEO

Date: June 2, 2026

You must submit the completed form to the governmental body requesting bids per 875 Iowa Administrative Code Chapter 156. This form has been approved by the Iowa Labor Commissioner.

Additional Sheet for Bidder Status Form
(continued)

My company has maintained offices in Iowa during the past 3 years at the following addresses:

Dates: 7 / 17 / 2017 to Present / / Address: 1717 Falls Avenue

City, State, Zip: Waterloo, IA 50701

My company has maintained offices in Iowa during the past 3 years at the following addresses:

Dates: 9 / 30 / 2022 to Present / / Address: 520 S Grand Ave

City, State, Zip: Spencer, IA 51301

Worksheet: Authorization to Transact Business

This worksheet may be used to help complete Part A of the Resident Bidder Status form. If at least one of the following describes your business, you are authorized to transact business in Iowa.

[X] Yes [ ] No	My business is currently registered as a contractor with the Iowa Division of Labor.
[ ] Yes [ ] No	My business is a sole proprietorship and I am an Iowa resident for Iowa income tax purposes.
[ ] Yes [ ] No	My business is a general partnership or joint venture. More than 50 percent of the general partners or joint venture parties are residents of Iowa for Iowa income tax purposes.
[ ] Yes [ ] No	My business is an active corporation with the Iowa Secretary of State and has paid all fees required by the Secretary of State, has filed its most recent biennial report, and has not filed articles of dissolution.
[ ] Yes [ ] No	My business is a corporation whose articles of incorporation are filed in a state other than Iowa, the corporation has received a certificate of authority from the Iowa secretary of state, has filed its most recent biennial report with the secretary of state, and has neither received a certificate of withdrawal from the secretary of state nor had its authority revoked.
[ ] Yes [ ] No	My business is a limited liability partnership which has filed a statement of qualification in this state and the statement has not been canceled.
[ ] Yes [ ] No	My business is a limited liability partnership which has filed a statement of qualification in a state other than Iowa, has filed a statement of foreign qualification in Iowa and a statement of cancellation has not been filed.
[ ] Yes [ ] No	My business is a limited partnership or limited liability limited partnership which has filed a certificate of limited partnership in this state, and has not filed a statement of termination.
[ ] Yes [ ] No	My business is a limited partnership or a limited liability limited partnership whose certificate of limited partnership is filed in a state other than Iowa, the limited partnership or limited liability limited partnership has received notification from the Iowa secretary of state that the application for certificate of authority has been approved and no notice of cancellation has been filed by the limited partnership or the limited liability limited partnership.
[ ] Yes [ ] No	My business is a limited liability company whose certificate of organization is filed in Iowa and has not filed a statement of termination.
[ ] Yes [ ] No	My business is a limited liability company whose certificate of organization is filed in a state other than Iowa, has received a certificate of authority to transact business in Iowa and the certificate has not been revoked or canceled.

SRF REQUIRED FRONT-END SPECIFICATIONS

SRF Required Front-End Specifications

Attachment 1: -RESERVED-

Attachment 2: Statement in Advertisement for Bids on Debarment and Suspension/Certification Regarding Debarment and Suspension Form *(to be completed and signed by Prime Contractor and submitted with the bid)*

Attachment 3: Disadvantaged Business Enterprise Certification Form (to be completed and signed by Prime Contractor and submitted with the bid)

Attachment 4: DBE Program Subcontractor Performance Form (to be completed and signed by Prime and DBE Subcontractor for each subcontract and submitted with the bid)

***If no DBE was chosen by the Prime Contractor to be utilized for this project, then this form is** not required **to be submitted.**

Attachment 5: DBE Program Subcontractor Utilization Form *(to be completed and signed by Prime and DBE Subcontractor for each subcontract and submitted with the bid)*

***If no DBE was chosen by the Prime Contractor to be utilized for this project, then this form is** not required **to be submitted.**

Attachment 6: -RESERVED-

Attachment 7: Other Federal Requirements Language

A. -RESERVED-
B. Federal Labor Standards Provisions (including Davis-Bacon prevailing wage rates**)
C. -RESERVED
D. Historical and Archeological Finds
E. Prohibitions on Procurement from Violating Facilities

Attachment 8: Right of Entry and Records Retention

Attachment 9: American Iron & Steel Requirement

Attachment 10: Prohibition on Certain Telecommunications and Video Surveillance Services or Equipment *(to be completed and signed by Prime Contractor and submitted with the bid)*

-Attachment 1: RESERVED-

Attachment 2: SRF Required Front-End Specifications
Debarments and Suspensions
*This form to be completed by the Prime Contractor and submitted with the bid.

Any bidder or equipment supplier whose firm or affiliate is listed in on the U.S. General Services Administration Excluded Parties List will be prohibited from the bidding process. The excluded parties records search engine is located at the System for Award Management (SAM) website: https://sam.gov. Pursuant to 2 CFR Part 180, as supplemented by 2 CFR 1532, any entity submitting a bid while the SAM website lists that entity as having an active exclusion will be determined by the DNR to be a non-responsive bidder and will not be able to receive SRF funding.

United States Environmental Protection Agency Washington, DC 20460

Certification Regarding Debarment, Suspension, and Other Responsibility Matters

The prospective participant certifies to the best of its knowledge and belief that it and the principals:

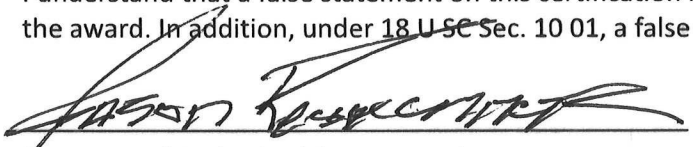
(a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

(b) Have not within a three year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction: violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(c) Are not presently indicted or otherwise criminally or civilly charged by a government entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph (1) (b) of this certification; and

(d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State, or local) terminated for cause or default.

I understand that a false statement on this certification may be grounds for rejection of this proposal or termination of the award. In addition, under 18 U SC Sec. 10 01, a false statement may result in a fine or imprisonment, or both.



Signature of Authorized Representative

6/2/2026
Date

Jason Rechkemmer
Printed Name

CEO
Title

☐ I am unable to certify to the above statements. My explanation is attached.

Attachment 3: SRF Required Front-End Specifications
Disadvantaged Business Enterprise (DBE) Solicitation

*This form to be completed by Prime Contractor and submitted with the bid.

In Iowa, DBEs must be certified through the Iowa Department of Transportation (IDOT). Information on certification requirements and a list of certified DBEs is on the IDOT website at https://secure.iowadot.gov/DBE/Home/Index/.

Prime contractors' DBE requirements for SRF projects include:

- Taking affirmative steps for DBE participation
- Documenting the efforts and the proposed utilization of certified DBEs

PROJECT INFORMATION

SRF Applicant: _____ Bidder: Woodruff Construction, Inc.

Address: 1717 Falls Avenue

City: Waterloo State: Iowa Zip: 50701

Contact Person: John Mallen NE Region President

Phone Number: 319-233-3349 Email: johnm@woodruff.build

1. At this point in time, has the prime contractor begun to solicit work opportunities to subcontractors for this project?
   [X] Yes [ ] No [ ] N/A

2. Do you agree to use the good faith efforts checklist to ensure the DBEs have the opportunity to compete for procurements funded by EPA financial assistance funds?
   [X] Yes [ ] No

3. If yes, was a DBE chosen by the prime contractor to be utilized for this project?
   [ ] Yes [X] No

Signature: _____
Jason Rechkemmer CEO

GOOD FAITH EFFORTS CHECKLIST

Please complete the checklist to determine if you have complied with the requirement to make good faith efforts to ensure that certified DBEs have the opportunity to compete for procurements funded by EPA financial assistance funds. Bidders/offerers must make good faith efforts prior to submission of bids/proposals.

1. Did you ensure that DBEs are made aware of contracting opportunities to the fullest extent practicable through outreach and recruitment activities?
   [X] Yes [ ] No

2. Did you make information on forthcoming opportunities available to DBEs and arrange time frames for contracts and establish delivery schedules, where the requirements permit, in a way that encourages and facilitates participation by DBEs in the competitive process? This includes, whenever possible, posting solicitation for bids or proposals for a minimum of 30 calendar days before the bid or proposal closing date.
   [X] Yes [ ] No

3. Did you consider in the contracting process whether firms competing for large contracts could subcontract with DBEs? This will include dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by DBEs in the competitive process.
   [X] Yes [ ] No

4. Did you encourage contracting with a consortium of DBEs when a contract is too large for one of these firms to handle individually?
   [X] Yes [ ] No

5. Did you use the services of the Small Business Administration and the Minority Business Development Agency of the Department of Commerce to identify potential subcontractors?
   [X] Yes [ ] No

6. List the potential DBE subcontractors that were contacted. Only list those that are certified through the Iowa Department of Transportation.

Name	**How Contacted** (e.g. letter, phone call, fax, e-mail)	**Response** (e.g. did not respond, not interested, not competitive)
Bonnie's Barricades	email	not interested
OEL Construction Services	email	not competitive
Marcstone	email	not interested
B.T. Construction	email	no response
Royale Concrete	email	not interested
Parking Lot Specialties	email	not competitive

CONTRACT ADMINISTRATION PROVISIONS

Several contract provisions are required to prevent unfair practices that adversely affect DBEs. These include:

1. Prime Contractor must pay its Subcontractor for satisfactory performance no more than 30 days from the Prime Contractor's receipt of payment from the SRF loan recipient.
2. Prime Contractor must notify the SRF loan recipient in writing prior to termination of a DBE subcontractor for convenience.
3. Prime Contractor must employ the six Good Faith Efforts to solicit a replacement subcontractor if a DBE subcontractor fails to complete work under a subcontract for any reason.

Attachment 4: SRF Required Front-End Specifications
Disadvantaged Business Enterprise (DBE) Subcontractor Performance Form

*This form to be completed by Prime and DBE Subcontractor for each subcontract and submitted with the bid.
*If a DBE has NOT yet been selected by the Prime Contractor or if no DBEs are needed, then this form is not required to be submitted at this time.

This form is intended to capture the DBE[1] subcontractor's[2] description of work to be performed and the price of the work submitted to the prime contractor. An EPA Financial Assistance Agreement recipient must require its prime contractor to have its DBE subcontractors complete this form and include all completed forms in the prime contractor's bid or proposal package.

Subcontractor Name: _____

Project Name: _____

Bid/Proposal No.: _____ Assistance Agreement ID No. (if known): _____

Point of Contact: _____

Address: _____

Telephone No.: _____ Email: _____

Prime Contractor Name: _____

Issuing/Funding Entity: _____

Contract Item Number	Description of Work Submitted to the Prime Contractor Involving Construction, Services, Equipment or Supplies	Price of Work Submitted to the Prime Contractor

I certify under penalty of perjury that the forgoing statements are true and correct. Signing this form does not signify a commitment to utilize the subcontractors above.

Prime Contractor Signature _____ Print Name _____

Title _____ Date _____

Subcontractor Signature	Print Name
Title	Date

[1]A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certification as described in 40 CFR 33.204-33.205. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.

[2]Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an EPA award of financial assistance.

Attachment 5: SRF Required Front-End Specifications
Disadvantaged Business Enterprise (DBE) Subcontractor Utilization Form

*This form to be completed by Prime and DBE Subcontractor for each subcontract and submitted with the bid.
*If a DBE has NOT yet been selected by the Prime Contractor or if no DBEs are needed, then this form is not required to be submitted at this time.

This form is intended to capture the prime contractor's actual and/or intended use of identified certified DBE[1] subcontractors[2] and the estimated dollar amount of each subcontract. An EPA Financial Assistance Agreement Recipient must require its prime contractors to complete this form and include it in the bid or proposal package. Prime contractors should also maintain a copy of this form on file.

Prime Contractor Name: _____

Project Name: _____

Bid/Proposal No.: _____ Assistance Agreement ID No. (if known): _____

Point of Contact: _____

Address: _____

Telephone No.: _____ Email: _____

Issuing/Funding Entity: _____

I have identified potential DBE certified subcontractors ☐ Yes ☐ No

If yes, complete the table below. If no, explain: _____

Subcontractor Name/ Company Name	Company Address/Phone/Email	Estimated Dollar Amount	Currently DBE Certified?
			☐ Yes ☐ No
			☐ Yes ☐ No
			☐ Yes ☐ No
			☐ Yes ☐ No
			☐ Yes ☐ No

I certify under penalty of perjury that the forgoing statements are true and correct. Signing this form does not signify a commitment to utilize the subcontractors above.

_____ _____
Prime Contractor Signature Print Name

_____ _____
Title Date

[1]A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certification as described in 40 CFR 33.204-33.205 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.
[2]Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an EPA award of financial assistance.

-Attachment 6: RESERVED-

Attachment 7: SRF Required Front-End Specifications
Other Federal Requirements Language

A. -RESERVED-

B. Federal Labor Standards Provisions (including Davis-Bacon prevailing wage rates)

The Project or Program to which the construction work covered by this contract pertains is being assisted by the United States of America and the following Federal Labor Standards Provisions are included in this Contract pursuant to the provisions applicable to such Federal assistance.

(1) Minimum wages.

(i) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (a)(1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in Sec. 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph (a)(1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(ii) (A) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(C) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting

officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs (a)(1)(ii) (B) or (C) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, provided that the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

(2) Withholding. The EPA shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the EPA may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

(3) Payrolls and basic records.

(i) Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii) (A) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the (write in name of appropriate federal agency) if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant, sponsor, or owner, as the case may be, for transmission to the (write in name of agency). The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at http://www.dol.gov/whd/programs/dbra/forms.htm or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and

subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the (write in name of appropriate federal agency) if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit them to the applicant, sponsor, or owner, as the case may be, for transmission to the (write in name of agency), the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the sponsoring government agency (or the applicant, sponsor, or owner).

(B) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under Sec. 5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under Sec. 5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (a)(3)(ii)(B) of this section.

(D) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under paragraph (a)(3)(i) of this section available for inspection, copying, or transcription by authorized representatives of the EPA or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the Federal agency may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

(4) Apprentices and trainees

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate)

specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with, 29 CFR part 30.

(5) Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

(6) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the (write in the name of the Federal agency) may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

(7) Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

(8) Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

(9) Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (and any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

(10) Certification of eligibility.

(i) By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

(b) Contract Work Hours and Safety Standards Act. The Agency Head shall cause or require the contracting officer to insert the following clauses set forth in paragraphs (b)(1), (2), (3), and (4) of this section in full in any contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by Sec. 5.5(a) or 4.6 of part 4 of this title. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (b)(1) of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (b)(1) of this section, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (b)(1) of this section.

(3) Withholding for unpaid wages and liquidated damages. The loan recipient shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (b)(2) of this section.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (b)(1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (b)(1) through (4) of this section.

(c) In addition to the clauses contained in paragraph (b), in any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other statutes cited in Sec. 5.1, the Agency Head shall cause or require the contracting officer to insert a clause requiring that the contractor or subcontractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three years from the completion of the contract for all laborers and mechanics, including guards and watchmen, working on the contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. Further, the Agency Head shall cause or require the contracting officer to insert in any such contract a clause providing that the records to be maintained under this paragraph shall be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the EPA and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview employees during working hours on the job.

C. -RESERVED-

D. Historical and Archeological Finds

Should any cultural, historical, or paleontological resources including but not limited to deposits of charcoal or ash, animal bones, pottery sherds, or stone tools be exposed as part of proposed project activities, the owner shall stop ground-disturbing activities within 100 feet of the discovery and immediately notify the State Revolving Fund Environmental Review Specialist (SRF). No further disturbance of the deposits shall ensue until the SRF determines that the project activities in that area may proceed.

If human remains are accidentally discovered, Iowa burial law [[Iowa Code Sections 263B, 523I.316(6), and 716.5; 685 IAC 11.1] requires that all work in the vicinity of the finding be halted, the remains left in place and protected, local law enforcement officials notified, and the bioarchaeology director at the Office of the State Archaeologist (OSA) contacted immediately (319-384-0740). Photographs are only to be taken at the direction of the bioarchaeology director and must not be shared publicly.

In all cases of inadvertent discovery, the SRF shall determine the applicability of the Protection of Historic Properties regulations of the Advisory Council on Historic Preservation [36 CFR Part 800.13(b)] and, when applicable, shall notify the State Historic Preservation Office (SHPO) and consult with the SHPO, OSA, and other interested parties to determine the proper course of action regarding the discovery.

Compensation to the contractor, if any, for lost time or changes in construction to avoid the find, shall be determined in accordance with changed conditions or change order provisions of the specifications.

E. Prohibitions on Procurement from Violating Facilities (Section 306, Clean Air Act; Section 508, Clean Water Act; Executive Order 11738)

Both the Clean Water Act and the Clean Air Act prohibit federal agencies from extending assistance by way of loans or contracts to persons who have been convicted of violations of either law. Executive Order 11738 was issued to coordinate enforcement by the U.S. Environmental Protection Agency, which shall designate facilities which have given rise to a conviction for an offense under the criminal provisions of the Clean Air Act and the Clean Water Act.

The Executive Order also prohibits agencies from extending assistance to facilities that are not in compliance with either Act.

SRF assistance recipients may not procure goods, services, or materials from suppliers listed by the EPA as violators.

The Excluded Parties Listing search engine is located at the System for Award Management (SAM) website: https://sam.gov.

Attachment 8: SRF Required Front-End Specifications
Right of Entry and Records Retention

The recipient shall provide access at all times for the Department of Natural Resources, the Iowa Finance Authority, the state auditor, and the U.S. EPA Office of the Inspector General to all project records and documents for inspection and audit purposes for a period of three years after the date of last loan payment. The same access to the project site(s) shall be provided for inspection purposes.

567 Iowa Administrative Code paragraph 92.8 (2).e. State inspections. Personnel of the department shall have the right to examine all construction aspects of the project, including materials and equipment delivered and stored on site for use on the project.

Attachment 9: SRF Required Front-End Specifications
American Iron and Steel Requirements

H.R. 3547, the "Consolidated Appropriations Act, 2014," enacted January 17, 2014 by the U.S. Congress, includes "American Iron and Steel" provisions that require Clean Water and Drinking Water State Revolving Fund assistance recipients of these funds to use iron and steel produced in the United States.

H.R. 3547 includes the following language in Division G, Title IV, under the heading, "Use of American Iron and Steel":

> Sec. 436. (a)(1) None of the funds made available by a State water pollution control revolving fund as authorized by title VI of the Federal Water Pollution Control Act (33 U.S.C. 1381 et seq.) or made available by a drinking water treatment revolving loan fund as authorized by section 1452 of the Safe Drinking Water Act (42 U.S.C. 300j-12) shall be used for a project for the construction, alteration, maintenance, or repair of a public water system or treatment works unless all of the iron and steel products used in the project are produced in the United States.
>
> (2) In this section, the term "iron and steel products" means the following products made primarily of iron and steel: lined or unlined pipes and fittings, manhole covers and other municipal castings, hydrants, tanks, flanges, pipe clamps and restraints, valves, structural steel, reinforced precast concrete, and construction materials.
>
> (b) Subsection (a) shall not apply in any case or category of cases in which the Administrator of the Environmental Protection Agency (in this section referred to as the "Administrator") find that—
>
> 1. Applying subsection (a) would be inconsistent with the public interest;
> 2. Iron and steel products are not produced in the United States in sufficient and reasonably available quantities and of a satisfactory quantity; or
> 3. Inclusion of iron and steel products produced in the United States will increase the cost of the overall project by more than 25 percent.
>
> (c) If the Administrator receives a request for a waiver under this section, the Administrator shall make available to the public on an informal basis a copy of the request and information available to the Administrator concerning the request, and shall allow for informal public input on the request for at least 15 days prior to making a finding based on the request. The Administrator shall make the request and accompanying information available by electronic means, including on the official public Internet Web site of the Environmental Protection Agency.

The final guidance and any published waivers are found at: https://www.epa.gov/cwsrf/state-revolving-fund-american-iron-and-steel-ais-requirement. In particular the contractor should pay attention to the guidance for documentation of compliance. There is also a waiver for incidental items; in order to qualify for this waiver the total materials and costs for the project must be tracked and incidental items identified.

Sample "American Iron and Steel" Contract Language

In order to fulfill the requirements, the assistance recipient must in good faith design the project and solicit bids for construction with U.S.-made iron and steel. The following information will be included in any contracts resulting from this request for bids:

The Contractor acknowledges to and for the benefit of the City of _____ ("Purchaser") and the State of Iowa (the "State") that it understands the goods and services under this Agreement are being funded with monies made available by the Clean Water State Revolving Fund and/or Drinking Water State Revolving Fund and such law contains provisions commonly known as "American Iron and Steel;" that requires all of the iron and steel products

used in the project to be produced in the United States ("American Iron and Steel Requirement") including iron and steel products provided by the Contactor pursuant to this Agreement.

The Contractor hereby represents and warrants to and for the benefit of the Purchaser and the State that (a) the Contractor has reviewed and understands the American Iron and Steel Requirement, (b) all of the iron and steel products used in the project will be and/or have been produced in the United States in a manner that complies with the American Iron and Steel Requirement, unless a waiver of the requirement is approved, and (c) the Contractor will provide any further verified information, certification or assurance of compliance with this paragraph, or information necessary to support a waiver of the American Iron and Steel Requirement, as may be requested by the Purchaser or the State.

Notwithstanding any other provision of this Agreement, any failure to comply with this paragraph by the Contractor shall permit the Purchaser or State to recover as damages against the Contractor any loss, expense, or cost (including without limitation attorney's fees) incurred by the Purchaser or State resulting from any such failure (including without limitation any impairment or loss of funding, whether in whole or in part, from the State or any damages owed to the State by the Purchaser). While the Contractor has no direct contractual privity with the State, as a lender to the Purchaser for the funding of its project, the Purchaser and the Contractor agree that the State is a third-party beneficiary and neither this paragraph (nor any other provision of this Agreement necessary to give this paragraph force or effect) shall be amended or waived without the prior written consent of the State.

Sample Certifications

As indicated in the contract language, it will be the responsibility of the Contractor to obtain certifications that the products and materials used in the project are U.S.-made. EPA recommends the use of a step certification process for documenting compliance with AIS requirements, similar to one used by the Federal Highway Administration. Step certification creates a paper trail which documents the location of the manufacturing process involved with the production of steel and iron materials. Each handler (supplier, fabricator, manufacturer, processor, coater, etc.) of the iron and steel products certifies that their step in the process was domestically performed. Alternatively, the final manufacturer that delivers the iron or steel product to the worksite, vendor, or contractor, may provide a certification asserting that all manufacturing processes occurred in the US and providing detailed information on the steps involved.

The following information is provided as a sample letter of certification for AIS compliance. Documentation must be provided on company letterhead. In this example, there may be multiple letters from different manufacturers if one manufacturer did not perform all of the steps.

Date Company Letterhead

Company Name
Company Address
City, State Zip

Subject: American Iron and Steel Step Certification for Project (XXXXXXXXXX)

I, (company representative), certify that the (melting, bending, coating, galvanizing, cutting, etc.) process for (manufacturing or fabricating) the following products and/or materials shipped or provided for the subject project is in full compliance with the American Iron and Steel requirement as mandated in EPA's State Revolving Fund Programs.

Item, Products and/or Materials:

1. Xxxx

2. Xxxx

3. Xxxx

Such process took place at the following location:

_____

If any of the above compliance statements change while providing material to this project we will immediately notify the prime contractor and the engineer.

Signed by company representative

Covered and Non-Covered Items

The EPA issued a waiver for De Minimus incidental components of eligible water and wastewater infrastructure projects. Funds used for such De Minimus incidental components cumulatively may comprise no more than a total of 5% of the total cost of the materials used in and incorporated into a project. The cost of an individual incidental item may not exceed 1% of the total cost of the materials used in and incorporated into a project.

De Minimus incidental items include miscellaneous, generally low-cost components that are essential for, but incidental to, the construction and are incorporated into the physical structure of the project. For many of these incidental components, the country of manufacture and the availability of alternatives are not readily or reasonably identifiable prior to procurement in the normal course of business. For others, the country of manufacture may be known but the miscellaneous character in conjunction with the low cost, individually and (in total) as typically procured in bulk, mark them as properly incidental.

Examples of incidental components could include small washers, screws, fasteners (i.e., nuts and bolts), miscellaneous wire, corner bead, ancillary tube, etc. Examples of items that are clearly not incidental include significant process fittings (i.e., tees, elbows, flanges, and brackets), distribution system fittings and valves, force main valves, pipes, treatment and storage tanks, large structural supports, etc.

In consultation with their contractors, assistance recipients should determine the items to be covered by this waiver, and must retain relevant documentation (i.e. invoices) as to those items. Assistance recipients must summarize in the AIS De minimis Product List the types and/or categories of items to which this waiver is applied, the total cost of incidental components for each type or category, and the calculations by which they determined the total cost of materials used in and incorporated into the project.

The successful bidder will fill out the AIS Procurement List and submit it to the assistance recipient to indicate iron and steel items proposed to be procured for the project.

Assistance recipients will complete the AIS De Minimis Waiver Products List for the entire project to demonstrate compliance with the De Minimis Waiver cost requirements outlined above.

Related forms and resources can be found at https://opportunityiowa.gov/community/water-quality/srf-resources/documents-and-guides.

IOWA State Revolving Fund

Attachment 10: SRF Required Front-End Specifications

*This form to be completed by Prime Contractor and submitted with the bid.

PROHIBITION ON CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT

This term and condition implements 2 CFR 200.216 and is effective for obligations and expenditures of EPA financial assistance funding on or after 8/13/2020. EPA recipients and subrecipients, including borrowers under EPA funded revolving loan fund programs, are prohibited from obligating or expending loan or grant funds to:

(a) Procure or obtain, extend or renew a contract to procure or obtain;
(b) Enter into a contract (or extend or renew a contract) to procure; or
(c) Obtain the equipment, services, or systems that use "covered telecommunications equipment or services"

identified in the regulation as a substantial or essential component of any system, or as critical technology as part of any system.

Certain equipment, systems, or services, including equipment, systems, or services produced or provided by entities subject to the prohibition are recorded in the System for Award Management exclusion list, website: https://sam.gov.

(1) As described in Public Law 115-232, section 889, covered telecommunications equipment or services includes:
   (i) Telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities).
   (ii) For the purpose of public safety, security of government facilities, physical security surveillance of critical infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities).
   (iii) Telecommunications or video surveillance services provided by such entities or using such equipment.
   (iv) Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of the National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country.

(2) Consistent with 2 CFR 200.471, costs incurred for telecommunications and video surveillance services or equipment such as phones, internet, video surveillance, and cloud servers are allowable except for the following circumstances:
   (i) Obligating or expending EPA funds for covered telecommunications and video surveillance services or equipment or services to procure (enter into, renew or extend contracts) or obtain the equipment, services, or systems as described in 2 CFR 200.216.

I understand the above prohibitions and certify that the project will be in compliance with all the requirements.

Signature	June 2, 2026 Date
Jason Rechkemmer Printed Name	CEO Title

QUALIFICATIONS STATEMENT

THE INFORMATION SUPPLIED IN THIS DOCUMENT IS CONFIDENTIAL TO THE EXTENT PERMITTED BY LAWS AND REGULATIONS

ARTICLE 1—GENERAL INFORMATION

1.01 Provide contact information for the Business:

Legal Name of Business:			
Corporate Office			
Name:		Phone number:	
Title:		Email address:	
Business address of corporate office:			
Local Office			
Name:		Phone number:	
Title:		Email address:	
Business address of local office:			

1.02 Provide information on the Business's organizational structure:

Form of Business:	☐ Sole Proprietorship ☐ Partnership ☐ Corporation		
☐ Limited Liability Company ☐ Joint Venture comprised of the following companies:			
	1.		
	2.		
	3.		
Provide a separate Qualification Statement for each Joint Venturer.			
Date Business was formed:		State in which Business was formed:	
Is this Business authorized to operate in the Project location?	☐ Yes ☐ No ☐ Pending		

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1.03 Identify all businesses that own Business in whole or in part (25% or greater), or that are wholly or partly (25% or greater) owned by Business:

Name of business:		Affiliation:	
Address:			
Name of business:		Affiliation:	
Address:			
Name of business:		Affiliation:	
Address:			

1.04 Provide information regarding the Business's officers, partners, and limits of authority.

Name:		Title:	
Authorized to sign contracts: ☐ Yes ☐ No		Limit of Authority:	$
Name:		Title:	
Authorized to sign contracts: ☐ Yes ☐ No		Limit of Authority:	$
Name:		Title:	
Authorized to sign contracts: ☐ Yes ☐ No		Limit of Authority:	$
Name:		Title:	

ARTICLE 2—LICENSING

2.01 Provide information regarding licensure for Business:

Name of License:			
Licensing Agency:			
License No:		Expiration Date:	
Name of License:			
Licensing Agency:			
License No:		Expiration Date:	

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ARTICLE 3—DIVERSE BUSINESS CERTIFICATIONS

3.01 Provide information regarding Business's Diverse Business Certification, if any. Provide evidence of current certification.

Certification	Certifying Agency	Certification Date
☐ Disadvantaged Business Enterprise		
☐ Minority Business Enterprise		
☐ Woman-Owned Business Enterprise		
☐ Small Business Enterprise		
☐ Disabled Business Enterprise		
☐ Veteran-Owned Business Enterprise		
☐ Service-Disabled Veteran-Owned Business		
☐ HUBZone Business (Historically Underutilized) Business		
☐ Other		
☐ None		

ARTICLE 4—SAFETY

4.01 Provide information regarding Business's safety organization and safety performance.

Name of Business's Safety Officer:		
Safety Certifications		
Certification Name	Issuing Agency	Expiration

4.02 Provide Worker's Compensation Insurance Experience Modification Rate (EMR), Total Recordable Frequency Rate (TRFR) for incidents, and Total Number of Recorded Manhours (MH) for the last 3 years and the EMR, TRFR, and MH history for the last 3 years of any proposed Subcontractor(s) that will provide Work valued at 10% or more of the Contract Price. Provide documentation of the EMR history for Business and Subcontractor(s).

Year									
Company	EMR	TRFR	MH	EMR	TRFR	MH	EMR	TRFR	MH

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ARTICLE 5—FINANCIAL

5.01 Provide information regarding the Business's financial stability. Provide the most recent audited financial statement, and if such audited financial statement is not current, also provide the most current financial statement.

Financial Institution:		
Business address:		
Date of Business's most recent financial statement:		☐ Attached
Date of Business's most recent audited financial statement:		☐ Attached
Financial indicators from the most recent financial statement		
Contractor's Current Ratio (Current Assets ÷ Current Liabilities)		
Contractor's Quick Ratio ((Cash and Cash Equivalents + Accounts Receivable + Short Term Investments) ÷ Current Liabilities)		

ARTICLE 6—SURETY INFORMATION

6.01 Provide information regarding the surety company that will issue required bonds on behalf of the Business, including but not limited to performance and payment bonds.

Surety Name:			
Surety is a corporation organized and existing under the laws of the state of:			
Is surety authorized to provide surety bonds in the Project location?	☐ Yes ☐ No		
Is surety listed in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" published in Department Circular 570 (as amended) by the Bureau of the Fiscal Service, U.S. Department of the Treasury? ☐ Yes ☐ No			
Mailing Address (principal place of business):			
Physical Address (principal place of business):			
Phone (main):		Phone (claims):	

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ARTICLE 7—INSURANCE

7.01 Provide information regarding Business's insurance company(s), including but not limited to its Commercial General Liability carrier. Provide information for each provider.

Name of insurance provider, and type of policy (CLE, auto, etc.):	
Insurance Provider	Type of Policy (Coverage Provided)
Are providers licensed or authorized to issue policies in the Project location?	☐ Yes ☐ No
Does provider have an A.M. Best Rating of A-VII or better?	☐ Yes ☐ No
Mailing Address (principal place of business):	
Physical Address (principal place of business):	

Phone (main):		Phone (claims):	

ARTICLE 8—CONSTRUCTION EXPERIENCE

8.01 Provide information that will identify the overall size and capacity of the Business.

Average number of current full-time employees:	
Estimate of revenue for the current year:	
Estimate of revenue for the previous year:	

8.02 Provide information regarding the Business's previous contracting experience.

Years of experience with projects like the proposed project:				
As a general contractor:		As a joint venturer:		
Has Business, or a predecessor in interest, or an affiliate identified in Paragraph 1.03:				
Been disqualified as a bidder by any local, state, or federal agency within the last 5 years? ☐ Yes ☐ No				
Been barred from contracting by any local, state, or federal agency within the last 5 years? ☐ Yes ☐ No				
Been released from a bid in the past 5 years? ☐ Yes ☐ No				
Defaulted on a project or failed to complete any contract awarded to it? ☐ Yes ☐ No				
Refused to construct or refused to provide materials defined in the contract documents or in a change order? ☐ Yes ☐ No				
Been a party to any currently pending litigation or arbitration? ☐ Yes ☐ No				
Provide full details in a separate attachment if the response to any of these questions is Yes.				

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8.03 List all projects currently under contract in Schedule A and provide indicated information.

8.04 List a minimum of three and a maximum of six projects completed in the last 5 years in Schedule B and provide indicated information to demonstrate the Business's experience with projects similar in type and cost of construction.

8.05 In Schedule C, provide information on key individuals whom Business intends to assign to the Project. Provide resumes for those individuals included in Schedule C. Key individuals include the Project Manager, Project Superintendent, Quality Manager, and Safety Manager. Resumes may be provided for Business's key leaders as well.

ARTICLE 9—REQUIRED ATTACHMENTS

9.01 Provide the following information with the Statement of Qualifications:

A. If Business is a Joint Venture, separate Qualifications Statements for each Joint Venturer, as required in Paragraph 1.02.

B. Diverse Business Certifications if required by Paragraph 3.01.

C. Certification of Business's safety performance if required by Paragraph 4.02.

D. Financial statements as required by Paragraph 5.01.

E. Attachments providing additional information as required by Paragraph 8.02.

F. Schedule A (Current Projects) as required by Paragraph 8.03.

G. Schedule B (Previous Experience with Similar Projects) as required by Paragraph 8.04.

H. Schedule C (Key Individuals) and resumes for the key individuals listed, as required by Paragraph 8.05.

I. Additional items as pertinent.

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This Statement of Qualifications is offered by:

Business: _____
(typed or printed name of organization)

By: _____
(individual's signature)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Date: _____
(date signed)

(If Business is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest: _____
(individual's signature)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Address for giving notices:

_____

_____

_____

Designated Representative:

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Address:

_____

_____

_____

Phone: _____

Email: _____

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Schedule A—Current Projects

Name of Organization					
Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

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Schedule B—Previous Experience with Similar Projects

Name of Organization				
Project Owner		Project Name		
General Description of Project				
Project Cost		Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager
Name				

Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)

	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner		Project Name		
General Description of Project				
Project Cost		Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager
Name				

Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)

	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner		Project Name		
General Description of Project				
Project Cost		Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager
Name				

Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)

	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

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Schedule B—Previous Experience with Similar Projects

Name of Organization				
Project Owner		Project Name		
General Description of Project				
Project Cost		Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager
Name				

Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)

	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner		Project Name		
General Description of Project				
Project Cost		Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager
Name				

Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)

	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner		Project Name		
General Description of Project				
Project Cost		Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager
Name				

Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)

	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

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Schedule C—Key Individuals

Project Manager			
Name of individual			
Years of experience as project manager			
Years of experience with this organization			
Number of similar projects as project manager			
Number of similar projects in other positions			
Current Project Assignments			
Name of assignment		Percent of time used for this project	Estimated project completion date
Reference Contact Information (listing names indicates approval to contact named individuals as a reference)			
Name		Name	
Title/Position		Title/Position	
Organization		Organization	
Telephone		Telephone	
Email		Email	
Project		Project	
Candidate's role on project		Candidate's role on project	
Project Superintendent			
Name of individual			
Years of experience as project superintendent			
Years of experience with this organization			
Number of similar projects as project superintendent			
Number of similar projects in other positions			
Current Project Assignments			
Name of assignment		Percent of time used for this project	Estimated project completion date
Reference Contact Information (listing names indicates approval to contact named individuals as a reference)			
Name		Name	
Title/Position		Title/Position	
Organization		Organization	
Telephone		Telephone	
Email		Email	
Project		Project	
Candidate's role on project		Candidate's role on project	

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Safety Manager			
Name of individual			
Years of experience as project manager			
Years of experience with this organization			
Number of similar projects as project manager			
Number of similar projects in other positions			
Current Project Assignments			
Name of assignment		Percent of time used for this project	Estimated project completion date
Reference Contact Information (listing names indicates approval to contact named individuals as a reference)			
Name		Name	
Title/Position		Title/Position	
Organization		Organization	
Telephone		Telephone	
Email		Email	
Project		Project	
Candidate's role on project		Candidate's role on project	
Quality Control Manager			
Name of individual			
Years of experience as project superintendent			
Years of experience with this organization			
Number of similar projects as project superintendent			
Number of similar projects in other positions			
Current Project Assignments			
Name of assignment		Percent of time used for this project	Estimated project completion date
Reference Contact Information (listing names indicates approval to contact named individuals as a reference)			
Name		Name	
Title/Position		Title/Position	
Organization		Organization	
Telephone		Telephone	
Email		Email	
Project		Project	
Candidate's role on project		Candidate's role on project	

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SECTION 00 52 00

AGREEMENT

THIS AGREEMENT is by and between ***CITY OF INDEPENDENCE, IOWA***

(hereinafter called OWNER) and ***WOODRUFF CONSTRUCTION, INC.***

(hereinafter called CONTRACTOR).

Terms used in this Agreement have the meanings stated in the General Conditions and the Supplementary Conditions.

OWNER and CONTRACTOR, in consideration of the mutual covenants set forth herein, agree as follows:

Article 1. WORK

1.01 CONTRACTOR shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

WASTEWATER TREATMENT PLANT MODIFICATIONS

Article 2. THE PROJECT

2.01 The Project for which the Work under the Contract Documents may be the whole or only a part is generally described as follows:

CONTRACT 1-2026

Article 3. ENGINEER

3.01 OWNER has retained Strand Associates, Inc.® ("ENGINEER") to act as OWNER's representative, assume all duties and responsibilities of ENGINEER, and have the rights and authority assigned to ENGINEER in the Contract.

3.02 The part of the Project that pertains to the Work has been designed by ENGINEER.

Article 4. CONTRACT TIMES

4.01 Time of the Essence

A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

4.02 Time of Completion

A. The Work will be substantially complete on or before September 30, 2029, and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before December 31, 2029.

4.03 Liquidated Damages

A. CONTRACTOR and OWNER recognize that time is of the essence as stated in Paragraph 4.01 above and that OWNER will suffer financial and other losses if the Work is not completed and Milestones not achieved within the Contract Times, as duly modified. The parties also recognize the delays, expense, and difficulties involved in proving, in a legal or arbitration proceeding, the actual loss suffered by OWNER if the Work is not completed on time. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty):

1. Substantial Completion: CONTRACTOR shall pay OWNER $3,500 for each day that expires after the time (as duly adjusted pursuant to the Contract) specified in Paragraph 4.02.A above for Substantial Completion until the Work is substantially complete. This amount is comprised of $3,000 per day for engineering, construction administration services, and construction observation services, and $500 per day for administration, labor, expenses, and other costs that will be incurred by OWNER.

2. Completion of Remaining Work: After Substantial Completion, if CONTRACTOR shall neglect, refuse, or fail to complete the remaining Work within the Contract Time (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, CONTRACTOR shall pay OWNER $3,500 for each day that expires after such time until the Work is completed and ready for final payment. This amount is comprised of $3,000 per day for engineering, construction administration services, and construction observation services, and $500 per day for administration, labor, expenses, and other costs that will be incurred by OWNER.

3. Liquidated damages for failing to timely attain Substantial Completion and final completion are not additive, and will not be imposed concurrently.

Article 5. CONTRACT PRICE

5.01 OWNER shall pay CONTRACTOR for completion of the Work in accordance with the Contract Documents an amount in current funds as follows, subject to adjustment under the Contract:

FIFTY-EIGHT MILLION, ONE HUNDRED SEVENTY-SIX THOUSAND, THREE HUNDRED DOLLARS AND NO/100 ($58,176,300.00)

A. For all Work, at the prices stated in CONTRACTOR's Bid, attached hereto as an exhibit.

B. All specific Cash Allowances are included in the Contract Price and have been computed in accordance with Paragraph 13.02 of the General Conditions.

Article 6. PAYMENT PROCEDURES

6.01 Submittal and Processing of Payments

A. CONTRACTOR shall submit Applications for Payment in accordance with Article 15 of the General Conditions. Applications for Payment will be processed by ENGINEER as provided in the General Conditions.

6.02 Progress Payments; Retainage

A. OWNER shall make progress payments on account of the Contract Price on the basis of CONTRACTOR's Applications for Payment as established at the preconstruction conference during performance of the Work as provided in Paragraphs 6.02.A.1 and 6.02.A.2 below. All such payments will be measured by the schedule of values established in Paragraph 2.05.A of the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no schedule of values, as provided in the General Requirements:

B. Retainage: OWNER shall retain an amount equal to 5% of each progress payment application. The 5% retainage shall be withheld from all applications for progress payments until 100% of the work is complete. All punchlist items shall be finished before the work shall be deemed 100% complete. CONTRACTOR shall not submit an application for progress payment that indicates a work item as being 100% complete based on a claim that the retainage withholding amount covers the cost of the outstanding work included on the punchlist.

1. Retained funds shall be retained by OWNER for a period of 30 calendar days after the completion and final acceptance of the improvements by OWNER. If at the end of the 30 calendar day period claims are on file as provided in Iowa Code Ch. 573, OWNER shall also continue to retain from the unpaid funds, a sum equal to double the total amount of all claims on file. The remaining balance of the unpaid fund, or if no claims are on file and the Work is complete, the entire unpaid fund shall be released and paid to CONTRACTOR.

2. Upon Substantial Completion of all Work, however, and in accordance with Iowa Code 573.28, CONTRACTOR may request the release of all or part of the retained funds owed. The request shall be accompanied by a sworn statement of CONTRACTOR that, ten calendar days prior to filing the request, notice was given as required to all known subcontractors, sub-subcontractors, and suppliers.

a. Prior to applying for release of retained funds, CONTRACTOR shall send a notice to all subcontractors, sub-subcontractors, and suppliers that provided labor or materials for the public improvement project. The notice shall be substantially similar to the following:

"NOTICE OF CONTRACTOR'S REQUEST FOR EARLY RELEASE OF RETAINED FUNDS

You are hereby notified that [name of CONTRACTOR] will be requesting an early release of funds on a public improvement project designated as Wastewater Treatment Plant Modifications for which you have or may have provided labor or materials. The request will be made pursuant to Iowa Code Section 573.28. The request may be filed with the City of Independence, Iowa after ten calendar days from the date of this notice. The purpose of the request is to have the City of Independence, Iowa release and pay funds for all work

that has been performed and charged to the City of Independence, Iowa as of the date of this notice. This notice is provided in accordance with Iowa Code section 573.28."

b. If at the time of the request for the release of the retained funds labor or material are yet to be provided, an amount equal to two hundred percent of the value of the labor or materials yet to be provided, as determined by ENGINEER, may be withheld until such labor or materials are provided.

3. CONTRACTOR shall release retained funds to subcontractor or subcontractors in the same manner as retained funds are released to CONTRACTOR by OWNER. Each subcontractor shall pass through each lower tier subcontractor all retained fund payments from CONTRACTOR.

6.03 Final Payment

A. Upon final completion and acceptance of the Work in accordance with Paragraph 15.06 of the General Conditions, OWNER shall pay the remainder of the Contract Price as recommended by ENGINEER as provided in said Paragraph 15.06.

6.04 Consent of Surety

A. OWNER will not make final payment unless CONTRACTOR submits written consent of the surety to such payment.

Article 7. HIERARCHY

7.01 In resolving inconsistencies among two or more sections of the Contract Documents, precedence shall be given in the following order:

First:	WRITTEN AMENDMENTS
Second:	CHANGE ORDERS/FIELD ORDERS/WORK CHANGE DIRECTIVES
Third:	ADDENDA
Fourth:	AGREEMENT
Fifth:	SUPPLEMENTARY CONDITIONS
Sixth:	GENERAL CONDITIONS
Seventh:	SPECIFICATIONS
Eighth:	DRAWINGS

For categories that have the same order of precedence, the document that includes the latest date shall control. Figure dimensions (numerical) on Drawings shall take precedence over dimensions measured utilizing a scale.

Article 8. REPRESENTATIONS, CERTIFICATIONS, AND STIPULATIONS

8.01 CONTRACTOR's Representations

A. In order to induce OWNER to enter into this Contract, CONTRACTOR makes the following representations:

1. CONTRACTOR has examined and carefully studied the Contract Documents, including Addenda.

2. CONTRACTOR has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

3. CONTRACTOR is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.

4. CONTRACTOR has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site, if any, that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.

5. CONTRACTOR has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.

6. CONTRACTOR has considered the information known to CONTRACTOR itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by CONTRACTOR; and (c) CONTRACTOR's safety precautions and programs.

7. Based on the information and observations referred to in the preceding paragraph, CONTRACTOR agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.

8. CONTRACTOR is aware of the general nature of work to be performed by OWNER and others at the Site that relates to the Work as indicated in the Contract Documents.

9. CONTRACTOR has given ENGINEER written notice of all conflicts, errors, ambiguities, or discrepancies that CONTRACTOR has discovered in the Contract Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR.

10. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

11. CONTRACTOR's entry into this Contract constitutes an incontrovertible representation by CONTRACTOR that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

8.02 CONTRACTOR’s Certifications

A. CONTRACTOR certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 8.02:

1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process or in the Contract execution;

2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of OWNER, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive OWNER of the benefits of free and open competition;

3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of OWNER, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and

4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

Article 9. CONTRACT DOCUMENTS

9.01 Contents

A. The Contract Documents consist of the following:

1. This Agreement (pages 00 52 00-1 through 00 52 00-***11***, inclusive);

2. Performance bond (pages 00 61 13.13-1 through 00 61 13.13-4, inclusive);

3. Payment bond (pages 00 61 13.16-1 through 00 61 13.16-4, inclusive);

4. Other bonds

a. ***NA*** (pages ***NA*** to ***NA*** , inclusive);

b. ***NA*** (pages ***NA*** to ***NA*** , inclusive);

c. ***NA*** (pages ***NA*** to ***NA*** , inclusive);

5. General Conditions (pages 00 72 00-1 through 00 72 00-***70***, inclusive);

6. Supplementary Conditions (pages 00 73 00-1 through 00 73 00-***22***, inclusive);

7. Specifications as listed in the table of contents of the Project Manual;

8. Drawings–Sheets No. ***1*** through No. ***184***

inclusive incorporated herein by reference with each sheet bearing the following general title:

WASTEWATER TREATMENT PLANT MODIFICATIONS, CONTRACT 1-2026,

CITY OF INDEPENDENCE, IOWA

as well as drawings listed in the table of contents that are bound at the back of these specifications.

9. Addenda (***NO. 1, DATED MAY 8, 2026; NO. 2, DATED MAY 20, 2026; AND NO. 3, DATED MAY 29, 2026 (ON FLASH DRIVE)***);

10. Exhibits to this Agreement (enumerated as follows:)

a. CONTRACTOR's Bid (pages ***00 41 00-1*** to ***00 41 00-14***);

b. Documentation submitted by CONTRACTOR prior to Notice of Award

(***NA***);

c. (***NA***);

11. The following may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:

a. Notice to Proceed (page ***00 55 00-1***, inclusive);

b. Work Change Directives (not attached to this Agreement);

c. Change Order(s) (not attached to this Agreement);

d. Warranty Bond, if any.

B. The Contract Documents listed in Paragraph 9.01.A are attached to this Agreement (except as expressly noted otherwise above).

C. There are no Contract Documents other than those listed above in this Article 9.

D. The Contract Documents may only be amended, modified, or supplemented as provided in Paragraph 11.01 of the General Conditions.

Article 10. MISCELLANEOUS

10.01 Severability

A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon OWNER and CONTRACTOR, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

10.02 Integration

A. The parties' entire agreement is contained in the Contract Documents, and the provisions of the Contract Documents supersede all prior discussions or writings between the parties.

IN WITNESS WHEREOF, OWNER and CONTRACTOR have signed this Agreement in duplicate. One counterpart each has been delivered to OWNER and CONTRACTOR. All portions of the Contract Documents have been signed or identified by OWNER and CONTRACTOR or identified by ENGINEER on their behalf.

This Agreement will be effective on July 15th, 2026 (which is the Effective Date of the Contract).

OWNER ***CITY OF INDEPENDENCE, IOWA***

_____
Signature and Title

ATTEST:

By: _____
Signature and Title

Address for Giving Notices:

Name: _____

Street: _____

City, State, Zip Code: _____

Phone: _____

Facsimile: _____

E-mail: _____

Designated Representative: _____

CONTRACTOR ***WOODRUFF CONSTRUCTION, INC.***

Jason Rechkemmer CEO

Signature and Title

ATTEST:

By: Project Coordinator

Signature and Title

Address for Giving Notices:

Name: Woodruff Construction

Street: 2521 Bailey Ave

City, State, Zip Code: Ames, IA, 50010

Phone: 515-232-4535

Facsimile: 515-232-4538

E-mail: jasonr@woodruff.build

Designated Representative: Jason Rechkemmer

License No.: C0978264

(Where applicable)

(If CONTRACTOR is a corporation, limited liability company, or a partnership, attach evidence of authority to sign.)

Approved as to form:

OWNER's Attorney _____ Date _____

Provision has been made to pay the liability that will accrue under this Agreement:

Countersigned:

OWNER's Clerk/Treasurer _____ Date _____

INSTRUCTIONS FOR EXECUTING CONTRACT

The full name and business address of CONTRACTOR should be inserted and the Agreement should be signed with CONTRACTOR's official signature. Please have the name of the signing party printed under all signatures to the Agreement.

If CONTRACTOR is operating as a partnership, each partner should sign the Agreement. If the Agreement is not signed by each partner, there should be attached to the Agreement a duly authenticated power of attorney evidencing the signer's (signers') authority to sign such Agreement for and on behalf of the partnership.

If CONTRACTOR is an individual, the trade name (if CONTRACTOR is operating under a trade name) should be indicated in the Agreement and the Agreement should be signed by such individual. If signed by other than CONTRACTOR, there should be attached to the Agreement a duly authenticated power of attorney evidencing the signer's authority to execute such Agreement for and on behalf of CONTRACTOR.

If CONTRACTOR is operating as a limited liability company, and it is member-managed, each member should sign the Agreement, or an authorized member should sign. If the LLC is manager-managed, an authorized manager should sign. If the Agreement is not signed by each member, there should be attached to the Agreement a duly authenticated power of attorney evidencing the signer's (signers') authority to sign such Agreement for and on behalf of the LLC.

If CONTRACTOR is a corporation, the Secretary of the corporation should sign the certificate below. If the Agreement itself is signed by the Secretary of the corporation, the certificate below should be executed by some other officer of the corporation. In lieu of the following certificate, there may be attached to the Agreement copies of so much of the records of the corporation which will show the official character and authority of the officers signing, duly certified by the Secretary or Assistant Secretary to be true copies.

I, John Mallen, certify that I am the NE Region President

(Print Name) *(Title of Individual Signing this Certificate)*

of the corporation named as CONTRACTOR herein above; that Jason Rechkemmer,

(Print Name of Officer Signing Agreement)

who signed the foregoing Agreement on behalf of CONTRACTOR was then

CEO of said corporation; that said Agreement was duly signed

(Title of Officer Signing Agreement)

for and on behalf of said Corporation by authority of its governing body, and is within the scope of its corporate powers.

_____

(Individual Signature)

END OF SECTION

SECTION 00 55 00

NOTICE TO PROCEED

Dated: _____

TO: ***WOODRUFF CONSTRUCTION, INC.***
(CONTRACTOR)

ADDRESS: ***2521 BAILEY AVENUE***
AMES, IA 50010

PROJECT: ***WASTEWATER TREATMENT PLANT MODIFICATIONS***

OWNER'S CONTRACT NO.: ***1-2026***

CONTRACT FOR: ***CITY OF INDEPENDENCE, IOWA***
WASTEWATER TREATMENT PLANT MODIFICATIONS, CONTRACT 1-2026
(Insert name of Contract as it appears in the Bidding Documents)

You are notified that the Contract Time under the above Contract will commence to run on _____ day of _____, 20___. On that date, you are to start performing your obligations under the Contract Documents.

Before you may start any work at the site, Paragraph 2.01.B of the General Conditions provides that you must deliver to OWNER (with copies to ENGINEER and other identified additional insureds) certificates of insurance, copies of endorsements, and other evidence of insurance which you are required to purchase and maintain in accordance with the Contract Documents.

Also before you may start any work at the site, you must _____

_____

_____

_____

(Add Other Requirements)

CITY OF INDEPENDENCE, IOWA
(OWNER)

By: _____
(Authorized Signature)

_____
(Title)

END OF SECTION

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

PERFORMANCE BOND

Bond No. 190058693

Contractor	Surety
Name: **Woodruff Construction, Inc.** Address *(principal place of business)*: **1890 Kountry Lane** **Fort Dodge, IA 50501**	Name: **Liberty Mutual Insurance Company** Address *(principal place of business)*: **175 Berkeley Street** **Boston, MA 02116**
Owner	**Contract**
Name: **City of Independence** Mailing address *(principal place of business)*: **331 1st Street East** **Independence, IA 50644**	Description *(name and location)*: **Wastewater Treatment Plant Modifications Contract 1-2026, Independence, IA** Contract Price: **$58,176,300.00** Effective Date of Contract: 7/15/26

Bond

Bond Amount: **$58,176,300.00**

Date of Bond: 7/15/26

(Date of Bond cannot be earlier than Effective Date of Contract)

Modifications to this Bond form:

☒ None ☐ See Paragraph 16

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Performance Bond, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

Contractor as Principal	Surety
Woodruff Construction, Inc. *(Full formal name of Contractor)*	**Liberty Mutual Insurance Company** *(Full formal name of Surety) (corporate seal)*
By: Jason Rechkemmer *(Signature)*	By: *(Signature)(Attach Power of Attorney)*
Name: Jason Rechkemmer *(Printed or typed)*	Name: **Sara Huston** *(Printed or typed)*
Title: CEO	Title: **Attorney-in-Fact**
Attest: *(Signature)*	Attest: Jamie Gifford *(Signature)*
Name: Adam Harris *(Printed or typed)*	Name: **Jamie Gifford**
Title: Project Coordinator	Title: **Witness to Surety**

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.

LIBERTY MUTUAL INSURANCE COMPANY INCORPORATED 1912 MASSACHUSETTS

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1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.

3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond will arise after:

   3.1. The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice may indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 will be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement does not waive the Owner's right, if any, subsequently to declare a Contractor Default;

   3.2. The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and

   3.3. The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 does not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

   5.1. Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

   5.2. Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

   5.3. Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

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5.4. Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:

5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or

5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment, or the Surety has denied liability, in whole or in part, without further notice, the Owner shall be entitled to enforce any remedy available to the Owner.

7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner will not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety will not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:

   7.1. the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

   7.2. additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and

   7.3. liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.

9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price will not be reduced or set off on account of any such unrelated obligations. No right of action will accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.

10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

11. Any proceeding, legal or equitable, under this Bond must be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and must be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit will be applicable.

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12. Notice to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown on the page on which their signature appears.

13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement will be deemed deleted therefrom and provisions conforming to such statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.

14. Definitions

    14.1. *Balance of the Contract Price*—The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

    14.2. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

    14.3. *Contractor Default*—Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

    14.4. *Owner Default*—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

    14.5. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.

15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.

~~16. Modifications to this Bond are as follows: **[Describe modification]**~~

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WARRANTY BOND

Contractor	Surety
Name: [Full formal name of Contractor] Address *(principal place of business)*: [Address of Contractor's principal place of business]	Name: [Full formal name of Surety] Address *(principal place of business)*: [Insert address of Surety's principal place of business]
Owner	**Construction Contract**
Name: [Full formal name of Owner] Address *(principal place of business)*: [Address of Owner's principal place of business]	Description *(name and location)*: [Owner's project/contract name, and location of the project] Contract Price: [Amount from Contract] Effective Date of Contract: [Date from Contract] Contract's Date of Substantial Completion: [Date from Contract]

Bond

Bond Amount: [Amount]

Date of Bond: [Date]

Bond Period: Commencing 364 days after Substantial Completion of the Work under the Construction Contract, and continuing until 2 years after such Substantial Completion.

Modifications to this Bond form:

☐ None ☐ See Paragraph 9

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth herein, do each cause this Warranty Bond to be duly executed by an authorized officer, agent, or representative.

Contractor as Principal	Surety
(Full formal name of Contractor)	*(Full formal name of Surety) (corporate seal)*
By: _____ *(Signature)*	By: _____ *(Signature) (Attach Power of Attorney)*
Name: _____ *(Printed or typed)*	Name: _____ *(Printed or typed)*
Title: _____	Title: _____
Attest: _____ *(Signature)*	Attest: _____ *(Signature)*
Name: _____ *(Printed or typed)*	Name: _____ *(Printed or typed)*
Title:	Title:

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.

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1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract's Correction Period Obligations. The Construction Contract is incorporated herein by reference.
2. If the Contractor performs the Correction Period Obligations, the Surety and the Contractor shall have no obligation under this Warranty Bond.
3. If Owner gives written notice to Contractor and Surety during the Bond Period of Contractor's obligation under the Correction Period Obligations, and Contractor does not fulfill such obligation, then Surety shall be responsible for fulfillment of such Correction Period Obligations. Surety shall either fulfill the Correction Period Obligations itself, through its agents or contractors, or, in the alternative, Surety may waive the right to fulfill the Correction Period Obligations itself, and reimburse the Owner for all resulting costs incurred by Owner in performing Contractor's Correction Period Obligations, including but not limited to correction, removal, replacement, and repair costs.
4. The Surety's liability is limited to the amount of this Warranty Bond. Renewal or continuation of the Warranty Bond will not modify such amount, unless expressly agreed to by Surety in writing.
5. The Surety shall have no liability under this Warranty Bond for obligations of the Contractor that are unrelated to the Construction Contract. No right of action will accrue on this Warranty Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.
6. Any proceeding, legal or equitable, under this Warranty Bond may be instituted in any court of competent jurisdiction in the location in which the Work or part of the Work is located and must be instituted within two years after the Surety refuses or fails to perform its obligations under this Warranty Bond.
7. Written notice to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown in this Warranty Bond.
8. Definitions

    8.1. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page of this Warranty Bond, including all Contract Documents and changes made to the agreement and the Contract Documents.

    8.2. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.

    8.3. *Correction Period Obligations*—The duties, responsibilities, commitments, and obligations of the Contractor with respect to correction or replacement of defective Work, as set forth in the Construction Contract's Correction Period clause, EJCDC® C-700, Standard General Conditions of the Construction Contract (2018), Paragraph 15.08, as duly modified.

    8.4. *Substantial Completion*—As defined in the Construction Contract.

    8.5. *Work*—As defined in the Construction Contract.

~~9. Modifications to this Bond are as follows: [Describe modification]~~

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PAYMENT BOND

Bond No. 190058693

Contractor	Surety
Name: Woodruff Construction, Inc. Address *(principal place of business)*: 1890 Kountry Lane Fort Dodge, IA 50501	Name: Liberty Mutual Insurance Company Address *(principal place of business)*: 175 Berkeley Street Boston, MA 02116
Owner	**Contract**
Name: City of Independence Mailing address *(principal place of business)*: 331 1st Street East Independence, IA 50644	Description *(name and location)*: Wastewater Treatment Plant Modifications Contract 1-2026, Independence, IA Contract Price: $58,176,300.00 Effective Date of Contract: 7/15/26

Bond

Bond Amount: $58,176,300.00

Date of Bond: 7/15/26

(Date of Bond cannot be earlier than Effective Date of Contract)

Modifications to this Bond form:

☒ None ☐ See Paragraph 18

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Payment Bond, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

Contractor as Principal	Surety
Woodruff Construction, Inc. *(Full formal name of Contractor)*	Liberty Mutual Insurance Company *(Full formal name of Surety) (corporate seal)*
By: *(Signature)*	By: *(Signature)(Attach Power of Attorney)*
Name: Jason Rechkemmer *(Printed or typed)*	Name: Sara Huston *(Printed or typed)*
Title: CEO	Title: Attorney-in-Fact
Attest: *(Signature)*	Attest: *(Signature)*
Name: Adam Harris *(Printed or typed)*	Name: Jamie Gifford
Title: Project Coordinator	Title: Witness to Surety

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.

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1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.
2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond will arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.
4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.
5. The Surety's obligations to a Claimant under this Bond will arise after the following:

    5.1. Claimants who do not have a direct contract with the Contractor

        5.1.1. have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and

        5.1.2. have sent a Claim to the Surety (at the address described in Paragraph 13).

    5.2. Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).
6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.
7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:

    7.1. Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and

    7.2. Pay or arrange for payment of any undisputed amounts.

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7.3. The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 will not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

8. The Surety's total obligation will not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond will be credited for any payments made in good faith by the Surety.

9. Amounts owed by the Owner to the Contractor under the Construction Contract will be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfying obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.

11. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

12. No suit or action will be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit will be applicable.

13. Notice and Claims to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, will be sufficient compliance as of the date received.

14. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement will be deemed deleted here from and provisions conforming to such statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.

15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

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16. Definitions

16.1. *Claim*—A written statement by the Claimant including at a minimum:

16.1.1. The name of the Claimant;

16.1.2. The name of the person for whom the labor was done, or materials or equipment furnished;

16.1.3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;

16.1.4. A brief description of the labor, materials, or equipment furnished;

16.1.5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;

16.1.6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;

16.1.7. The total amount of previous payments received by the Claimant; and

16.1.8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.

16.2. *Claimant*—An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond is to include without limitation in the terms of "labor, materials, or equipment" that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.

16.3. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

16.4. *Owner Default*—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

16.5. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.

17. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.

~~18. Modifications to this Bond are as follows: **[Describe modification]**~~

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POWER OF ATTORNEY

Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company
West American Insurance Company

Certificate No: **8213828-190056**

KNOWN ALL PERSONS BY THESE PRESENTS: That The Ohio Casualty Insurance Company is a corporation duly organized under the laws of the State of New Hampshire, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts, and West American Insurance Company is a corporation duly organized under the laws of the State of Indiana (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Anne Crowner; Brian M. Deimerly; Craig E. Hansen; Dione R. Young; Grace Dickinson; Jamie Gifford; Jay D. Freiermuth; John Cord; Kate Zanders; Sara Huston; Seth D. Rooker; Tim McCulloh; Zachary R. Fuller

all of the city of Waukee state of IA each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 16th day of April, 2025.

Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company
West American Insurance Company

By: _____
Nathan J. Zangerle, Assistant Secretary

State of PENNSYLVANIA
County of MONTGOMERY ss

On this 16th day of April, 2025 before me personally appeared Nathan J. Zangerle, who acknowledged himself to be the Assistant Secretary of Liberty Mutual Insurance Company, The Ohio Casualty Company, and West American Insurance Company, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at Plymouth Meeting, Pennsylvania, on the day and year first above written.

Commonwealth of Pennsylvania - Notary Seal
Teresa Pastella, Notary Public
Montgomery County
My commission expires March 28, 2029
Commission number 1126044
Member, Pennsylvania Association of Notaries

By: _____
Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and Authorizations of The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company which resolutions are now in full force and effect reading as follows:

ARTICLE IV – OFFICERS: Section 12. Power of Attorney.
Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and execution of any such instruments and to attach thereto the seal of the Corporation. When so executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

ARTICLE XIII – Execution of Contracts: Section 5. Surety Bonds and Undertakings.
Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

Certificate of Designation – The President of the Company, acting pursuant to the Bylaws of the Company, authorizes Nathan J. Zangerle, Assistant Secretary to appoint such attorneys-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

Authorization – By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Renee C. Llewellyn, the undersigned, Assistant Secretary, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this _____ day of _____, **2026**.

By: _____
Renee C. Llewellyn, Assistant Secretary

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For bond and/or Power of Attorney (POA) verification inquiries, please call 610-832-8240 or email HOSUR@libertymutual.com.

SECTION 00 61 13.19

OUT-OF-STATE CONTRACTOR BOND

An out-of-state Contractor must either file a surety Bond, as provided in Iowa Code section 91C.7, with the Iowa Division of Labor Services in the amount of twenty-five thousand dollars ($25,000) for a one (1) year period or must provide a statement to the Iowa Division of Labor Services that the contractor is prequalified to Bid on projects for the Iowa Department of Transportation pursuant to Iowa Code Section 314.1

An out-of-state Contractor, before commencing a contract in excess of five thousand dollars ($5,000) in value of Iowa, must file a Bond with the Iowa Division of Labor Services of the Iowa Department of Workforce Development. A Surety Bond filed pursuant to Iowa Code section 91C.2 must be executed by a surety company authorized to do business in this state, and the Bond must be continuous in nature until canceled by the Surety with not less than thirty (30) days; written notice to the contractor and to the Division of Labor Services of the Iowa Department of Workforce Development in dictating the surety's desire to cancel the Bond. The Surety company is liable under the Bond for any contract commenced after the cancellation of the Bond. The Bond must be in the sum of the greater of the following:

(1) One thousand dollars ($1,000.00); or

(2) Five percent (5%) of the contract price

An out-of-state Contractor may file a blanket Bond in an amount at least equal to fifty thousand dollars ($50,000) for a two (2) year period in lieu of filing an individual Bond for each Contract. The Division of Labor Services of the Iowa Department of Workforce Development may increase the Bond amount after a hearing.

END OF SECTION

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared By

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ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

TABLE OF CONTENTS

Page

Article 1—Definitions and Terminology 1
1.01 Defined Terms 1
1.02 Terminology 6
Article 2—Preliminary Matters 7
2.01 Delivery of Performance and Payment Bonds; Evidence of Insurance 7
2.02 Copies of Documents 7
2.03 Before Starting Construction 7
2.04 Preconstruction Conference; Designation of Authorized Representatives 8
2.05 Acceptance of Schedules 8
2.06 Electronic Transmittals 8
Article 3—Contract Documents: Intent, Requirements, Reuse 9
3.01 Intent 9
3.02 Reference Standards 9
3.03 Reporting and Resolving Discrepancies 10
3.04 Requirements of the Contract Documents 10
3.05 Reuse of Documents 11
Article 4—Commencement and Progress of the Work 11
4.01 Commencement of Contract Times; Notice to Proceed 11
4.02 Starting the Work 11
4.03 Reference Points 11
4.04 Progress Schedule 12
4.05 Delays in Contractor's Progress 12
Article 5—Site; Subsurface and Physical Conditions; Hazardous Environmental Conditions 13
5.01 Availability of Lands 13
5.02 Use of Site and Other Areas 14
5.03 Subsurface and Physical Conditions 15
5.04 Differing Subsurface or Physical Conditions 16

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5.05 Underground Facilities 17
5.06 Hazardous Environmental Conditions at Site 19
Article 6—Bonds and Insurance 21
6.01 Performance, Payment, and Other Bonds 21
6.02 Insurance—General Provisions 22
6.03 Contractor's Insurance 24
6.04 Builder's Risk and Other Property Insurance 25
6.05 Property Losses; Subrogation 25
6.06 Receipt and Application of Property Insurance Proceeds 27
Article 7—Contractor's Responsibilities 27
7.01 Contractor's Means and Methods of Construction 27
7.02 Supervision and Superintendence 27
7.03 Labor; Working Hours 27
7.04 Services, Materials, and Equipment 28
7.05 "Or Equals" 28
7.06 Substitutes 29
7.07 Concerning Subcontractors and Suppliers 31
7.08 Patent Fees and Royalties 32
7.09 Permits 33
7.10 Taxes 33
7.11 Laws and Regulations 33
7.12 Record Documents 33
7.13 Safety and Protection 34
7.14 Hazard Communication Programs 35
7.15 Emergencies 35
7.16 Submittals 35
7.17 Contractor's General Warranty and Guarantee 38
7.18 Indemnification 39
7.19 Delegation of Professional Design Services 39
Article 8—Other Work at the Site 40
8.01 Other Work 40
8.02 Coordination 41
8.03 Legal Relationships 41

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Article 9—Owner's Responsibilities 42
9.01 Communications to Contractor 42
9.02 Replacement of Engineer 42
9.03 Furnish Data 42
9.04 Pay When Due 42
9.05 Lands and Easements; Reports, Tests, and Drawings 43
9.06 Insurance 43
9.07 Change Orders 43
9.08 Inspections, Tests, and Approvals 43
9.09 Limitations on Owner's Responsibilities 43
9.10 Undisclosed Hazardous Environmental Condition 43
9.11 Evidence of Financial Arrangements 43
9.12 Safety Programs 43
Article 10—Engineer's Status During Construction 44
10.01 Owner's Representative 44
10.02 Visits to Site 44
10.03 Resident Project Representative 44
10.04 Engineer's Authority 44
10.05 Determinations for Unit Price Work 45
10.06 Decisions on Requirements of Contract Documents and Acceptability of Work 45
10.07 Limitations on Engineer's Authority and Responsibilities 45
10.08 Compliance with Safety Program 45
Article 11—Changes to the Contract 46
11.01 Amending and Supplementing the Contract 46
11.02 Change Orders 46
11.03 Work Change Directives 46
11.04 Field Orders 47
11.05 Owner-Authorized Changes in the Work 47
11.06 Unauthorized Changes in the Work 47
11.07 Change of Contract Price 47
11.08 Change of Contract Times 49
11.09 Change Proposals 49
11.10 Notification to Surety 50

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Article 12—Claims 50
12.01 Claims 50
Article 13—Cost of the Work; Allowances; Unit Price Work 51
13.01 Cost of the Work 51
13.02 Allowances 55
13.03 Unit Price Work 55
Article 14—Tests and Inspections; Correction, Removal, or Acceptance of Defective Work 56
14.01 Access to Work 56
14.02 Tests, Inspections, and Approvals 56
14.03 Defective Work 57
14.04 Acceptance of Defective Work 58
14.05 Uncovering Work 58
14.06 Owner May Stop the Work 58
14.07 Owner May Correct Defective Work 59
Article 15—Payments to Contractor; Set-Offs; Completion; Correction Period 59
15.01 Progress Payments 59
15.02 Contractor's Warranty of Title 62
15.03 Substantial Completion 62
15.04 Partial Use or Occupancy 63
15.05 Final Inspection 64
15.06 Final Payment 64
15.07 Waiver of Claims 65
15.08 Correction Period 66
Article 16—Suspension of Work and Termination 67
16.01 Owner May Suspend Work 67
16.02 Owner May Terminate for Cause 67
16.03 Owner May Terminate for Convenience 68
16.04 Contractor May Stop Work or Terminate 68
Article 17—Final Resolution of Disputes 69
17.01 Methods and Procedures 69
Article 18—Miscellaneous 69
18.01 Giving Notice 69
18.02 Computation of Times 69

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18.03 Cumulative Remedies 70
18.04 Limitation of Damages 70
18.05 No Waiver 70
18.06 Survival of Obligations 70
18.07 Controlling Law 70
18.08 Assignment of Contract 70
18.09 Successors and Assigns 70
18.10 Headings 70

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

ARTICLE 1—DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.

2. *Agreement*—The written instrument, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.

3. *Application for Payment*—The document prepared by Contractor, in a form acceptable to Engineer, to request progress or final payments, and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

5. *Bidder*—An individual or entity that submits a Bid to Owner.

6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.

7. *Bidding Requirements*—The Advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.

8. *Change Order*—A document which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Contract.

9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.

10. *Claim*

a. A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment of Contract Price or Contract Times; contesting an initial decision by Engineer concerning the

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requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract.

b. A demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal, or seeking resolution of a contractual issue that Engineer has declined to address.

c. A demand or assertion by Owner or Contractor, duly submitted in compliance with the procedural requirements set forth herein, made pursuant to Paragraph 12.01.A.4, concerning disputes arising after Engineer has issued a recommendation of final payment.

d. A demand for money or services by a third party is not a Claim.

11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), lead-based paint (as defined by the HUD/EPA standard), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to Laws and Regulations regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.

12. *Contract*—The entire and integrated written contract between Owner and Contractor concerning the Work.

13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.

14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents.

15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.

16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.

17. *Cost of the Work*—See Paragraph 13.01 for definition.

18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.

19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.

20. *Electronic Document*—Any Project-related correspondence, attachments to correspondence, data, documents, drawings, information, or graphics, including but not limited to Shop Drawings and other Submittals, that are in an electronic or digital format.

21. *Electronic Means*—Electronic mail (email), upload/download from a secure Project website, or other communications methods that allow: (a) the transmission or communication of Electronic Documents; (b) the documentation of transmissions, including sending and receipt; (c) printing of the transmitted Electronic Document by the

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recipient; (d) the storage and archiving of the Electronic Document by sender and recipient; and (e) the use by recipient of the Electronic Document for purposes permitted by this Contract. Electronic Means does not include the use of text messaging, or of Facebook, Twitter, Instagram, or similar social media services for transmission of Electronic Documents.

22. *Engineer*—The individual or entity named as such in the Agreement.

23. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.

24. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto.

    a. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated into the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, is not a Hazardous Environmental Condition.

    b. The presence of Constituents of Concern that are to be removed or remediated as part of the Work is not a Hazardous Environmental Condition.

    c. The presence of Constituents of Concern as part of the routine, anticipated, and obvious working conditions at the Site, is not a Hazardous Environmental Condition.

25. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and binding decrees, resolutions, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

26. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.

27. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date, or by a time prior to Substantial Completion of all the Work.

28. *Notice of Award*—The written notice by Owner to a Bidder of Owner's acceptance of the Bid.

29. *Notice to Proceed*—A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.

30. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.

31. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising Contractor's plan to accomplish the Work within the Contract Times.

32. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.

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33. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative (RPR) includes any assistants or field staff of Resident Project Representative.

34. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.

35. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer's review of the submittals.

36. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

37. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.

38. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands or areas furnished by Owner which are designated for the use of Contractor.

39. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.

40. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.

41. *Submittal*—A written or graphic document, prepared by or for Contractor, which the Contract Documents require Contractor to submit to Engineer, or that is indicated as a Submittal in the Schedule of Submittals accepted by Engineer. Submittals may include Shop Drawings and Samples; schedules; product data; Owner-delegated designs; sustainable design information; information on special procedures; testing plans; results of tests and evaluations, source quality-control testing and inspections, and field or Site quality-control testing and inspections; warranties and certifications; Suppliers' instructions and reports; records of delivery of spare parts and tools; operations and maintenance data; Project photographic documentation; record documents; and other such documents required by the Contract Documents. Submittals, whether or not approved or accepted by Engineer, are not Contract Documents. Change Proposals, Change Orders, Claims, notices, Applications for Payment, and requests for interpretation or clarification are not Submittals.

42. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion of such Work.

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43. *Successful Bidder*—The Bidder to which the Owner makes an award of contract.

44. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.

45. *Supplier*—A manufacturer, fabricator, supplier, distributor, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.

46. *Technical Data*

    a. Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (1) existing subsurface conditions at or adjacent to the Site, or existing physical conditions at or adjacent to the Site including existing surface or subsurface structures (except Underground Facilities) or (2) Hazardous Environmental Conditions at the Site.

    b. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then Technical Data is defined, with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06, as the data contained in boring logs, recorded measurements of subsurface water levels, assessments of the condition of subsurface facilities, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical, environmental, or other Site or facilities conditions report prepared for the Project and made available to Contractor.

    c. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data, and instead Underground Facilities are shown or indicated on the Drawings.

47. *Underground Facilities*—All active or not-in-service underground lines, pipelines, conduits, ducts, encasements, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or systems at the Site, including but not limited to those facilities or systems that produce, transmit, distribute, or convey telephone or other communications, cable television, fiber optic transmissions, power, electricity, light, heat, gases, oil, crude oil products, liquid petroleum products, water, steam, waste, wastewater, storm water, other liquids or chemicals, or traffic or other control systems. An abandoned facility or system is not an Underground Facility.

48. *Unit Price Work*—Work to be paid for on the basis of unit prices.

49. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.

50. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

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1.02 *Terminology*

A. The words and terms discussed in Paragraphs 1.02.B, C, D, and E are not defined terms that require initial capital letters, but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

B. *Intent of Certain Terms or Adjectives*: The Contract Documents include the terms "as allowed," "as approved," "as ordered," "as directed" or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.

C. *Day*: The word "day" means a calendar day of 24 hours measured from midnight to the next midnight.

D. *Defective*: The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it:

1. does not conform to the Contract Documents;

2. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or

3. has been damaged prior to Engineer's recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or Paragraph 15.04).

E. *Furnish, Install, Perform, Provide*

1. The word "furnish," when used in connection with services, materials, or equipment, means to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.

2. The word "install," when used in connection with services, materials, or equipment, means to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words "perform" or "provide," when used in connection with services, materials, or equipment, means to furnish and install said services, materials, or equipment complete and ready for intended use.

4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words "furnish," "install," "perform," or "provide," then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.

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F. *Contract Price or Contract Times*: References to a change in "Contract Price or Contract Times" or "Contract Times or Contract Price" or similar, indicate that such change applies to (1) Contract Price, (2) Contract Times, or (3) both Contract Price and Contract Times, as warranted, even if the term "or both" is not expressed.

G. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2—PRELIMINARY MATTERS

2.01 *Delivery of Performance and Payment Bonds; Evidence of Insurance*

A. *Performance and Payment Bonds*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner the performance bond and payment bond (if the Contract requires Contractor to furnish such bonds).

B. *Evidence of Contractor's Insurance*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each additional insured (as identified in the Contract), the certificates, endorsements, and other evidence of insurance required to be provided by Contractor in accordance with Article 6, except to the extent the Supplementary Conditions expressly establish other dates for delivery of specific insurance policies.

C. *Evidence of Owner's Insurance*: After receipt of the signed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each additional insured (as identified in the Contract), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.02 *Copies of Documents*

A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully signed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.

B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

2.03 *Before Starting Construction*

A. *Preliminary Schedules*: Within 10 days after the Effective Date of the Contract (or as otherwise required by the Contract Documents), Contractor shall submit to Engineer for timely review:

1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;

2. a preliminary Schedule of Submittals; and

3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work

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into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work, and to discuss the schedules referred to in Paragraph 2.03.A, procedures for handling Shop Drawings, Samples, and other Submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.

B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 *Acceptance of Schedules*

A. At least 10 days before submission of the first Application for Payment a conference, attended by Contractor, Engineer, and others as appropriate, will be held to review the schedules submitted in accordance with Paragraph 2.03.A. No progress payment will be made to Contractor until acceptable schedules are submitted to Engineer.

1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.

3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to the component parts of the Work.

4. If a schedule is not acceptable, Contractor will have an additional 10 days to revise and resubmit the schedule.

2.06 *Electronic Transmittals*

A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may send, and shall accept, Electronic Documents transmitted by Electronic Means.

B. If the Contract does not establish protocols for Electronic Means, then Owner, Engineer, and Contractor shall jointly develop such protocols.

C. Subject to any governing protocols for Electronic Means, when transmitting Electronic Documents by Electronic Means, the transmitting party makes no representations as to long-term compatibility, usability, or readability of the Electronic Documents resulting from the recipient's use of software application packages, operating systems, or computer hardware differing from those used in the drafting or transmittal of the Electronic Documents.

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ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

A. The Contract Documents are complementary; what is required by one Contract Document is as binding as if required by all.

B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents.

C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic versions of the Contract Documents (including any printed copies derived from such electronic versions) and the printed record version, the printed record version will govern.

D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.

E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.

F. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation will be deemed stricken, and all remaining provisions will continue to be valid and binding upon Owner and Contractor, which agree that the Contract Documents will be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

G. Nothing in the Contract Documents creates:

1. any contractual relationship between Owner or Engineer and any Subcontractor, Supplier, or other individual or entity performing or furnishing any of the Work, for the benefit of such Subcontractor, Supplier, or other individual or entity; or

2. any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity, except as may otherwise be required by Laws and Regulations.

3.02 *Reference Standards*

A. *Standards Specifications, Codes, Laws and Regulations*

1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, means the standard specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

2. No provision of any such standard specification, manual, reference standard, or code, and no instruction of a Supplier, will be effective to change the duties or responsibilities of Owner, Contractor, or Engineer from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner or Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility

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inconsistent with the provisions of the part of the Contract Documents prepared by or for Engineer.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies*

1. *Contractor's Verification of Figures and Field Measurements*: Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict, error, ambiguity, or discrepancy is resolved by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.

2. *Contractor's Review of Contract Documents*: If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.

3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:

a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); or

b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Requirements of the Contract Documents*

A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer in writing all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work.

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B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.

C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly notify Owner and Contractor in writing that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

A. Contractor and its Subcontractors and Suppliers shall not:

1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media versions, or reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer; or

2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.

B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein precludes Contractor from retaining copies of the Contract Documents for record purposes.

ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

A. The Contract Times will commence to run on the 30th day after the Effective Date of the Contract or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Contract. In no event will the Contract Times commence to run later than the 60th day after the day of Bid opening or the 30th day after the Effective Date of the Contract, whichever date is earlier.

4.02 *Starting the Work*

A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work may be done at the Site prior to such date.

4.03 *Reference Points*

A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the

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established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.04 *Progress Schedule*

A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.

1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times must be submitted in accordance with the requirements of Article 11.

B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work will be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 *Delays in Contractor's Progress*

A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times.

B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.

C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Such an adjustment will be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:

1. Severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;

2. Abnormal weather conditions;

3. Acts or failures to act of third-party utility owners or other third-party entities (other than those third-party utility owners or other third-party entities performing other work at or adjacent to the Site as arranged by or under contract with Owner, as contemplated in Article 8); and

4. Acts of war or terrorism.

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D. Contractor's entitlement to an adjustment of Contract Times or Contract Price is limited as follows:

1. Contractor's entitlement to an adjustment of the Contract Times is conditioned on the delay, disruption, or interference adversely affecting an activity on the critical path to completion of the Work, as of the time of the delay, disruption, or interference.

2. Contractor shall not be entitled to an adjustment in Contract Price for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor. Such a concurrent delay by Contractor shall not preclude an adjustment of Contract Times to which Contractor is otherwise entitled.

3. Adjustments of Contract Times or Contract Price are subject to the provisions of Article 11.

E. Each Contractor request or Change Proposal seeking an increase in Contract Times or Contract Price must be supplemented by supporting data that sets forth in detail the following:

1. The circumstances that form the basis for the requested adjustment;

2. The date upon which each cause of delay, disruption, or interference began to affect the progress of the Work;

3. The date upon which each cause of delay, disruption, or interference ceased to affect the progress of the Work;

4. The number of days' increase in Contract Times claimed as a consequence of each such cause of delay, disruption, or interference; and

5. The impact on Contract Price, in accordance with the provisions of Paragraph 11.07.

Contractor shall also furnish such additional supporting documentation as Owner or Engineer may require including, where appropriate, a revised progress schedule indicating all the activities affected by the delay, disruption, or interference, and an explanation of the effect of the delay, disruption, or interference on the critical path to completion of the Work.

F. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5, together with the provisions of Paragraphs 4.05.D and 4.05.E.

G. Paragraph 8.03 addresses delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.

ARTICLE 5—SITE; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 *Availability of Lands*

A. Owner shall furnish the Site. Owner shall notify Contractor in writing of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.

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B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which permanent improvements are to be made and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

5.02 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas*

1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas, or to improvements, structures, utilities, or similar facilities located at such adjacent lands or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.

2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.13, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or in a court of competent jurisdiction; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.

B. *Removal of Debris During Performance of the Work*: During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris will conform to applicable Laws and Regulations.

C. *Cleaning*: Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment

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and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

D. *Loading of Structures*: Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them.

5.03 *Subsurface and Physical Conditions*

A. *Reports and Drawings*: The Supplementary Conditions identify:

1. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data;

2. Those drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data; and

3. Technical Data contained in such reports and drawings.

B. *Underground Facilities*: Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05, and not in the drawings referred to in Paragraph 5.03.A. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.

C. *Reliance by Contractor on Technical Data*: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b.

D. *Limitations of Other Data and Documents*: Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto;

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings;

3. the contents of other Site-related documents made available to Contractor, such as record drawings from other projects at or adjacent to the Site, or Owner's archival documents concerning the Site; or

4. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

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5.04 *Differing Subsurface or Physical Conditions*

A. *Notice by Contractor*: If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site:

1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate;

2. is of such a nature as to require a change in the Drawings or Specifications;

3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

B. *Engineer's Review*: After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine whether it is necessary for Owner to obtain additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.

C. *Owner's Statement to Contractor Regarding Site Condition*: After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.

D. *Early Resumption of Work*: If at any time Engineer determines that Work in connection with the subsurface or physical condition in question may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the condition in question has been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.

E. *Possible Price and Times Adjustments*

1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in

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Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

a. Such condition must fall within any one or more of the categories described in Paragraph 5.04.A;

b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and,

c. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:

a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise;

b. The existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or

c. Contractor failed to give the written notice required by Paragraph 5.04.A.

3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.

4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.

F. *Underground Facilities; Hazardous Environmental Conditions*: Paragraph 5.05 governs rights and responsibilities regarding the presence or location of Underground Facilities. Paragraph 5.06 governs rights and responsibilities regarding Hazardous Environmental Conditions. The provisions of Paragraphs 5.03 and 5.04 are not applicable to the presence or location of Underground Facilities, or to Hazardous Environmental Conditions.

5.05 *Underground Facilities*

A. *Contractor's Responsibilities*: Unless it is otherwise expressly provided in the Supplementary Conditions, the cost of all of the following are included in the Contract Price, and Contractor shall have full responsibility for:

1. reviewing and checking all information and data regarding existing Underground Facilities at the Site;

2. complying with applicable state and local utility damage prevention Laws and Regulations;

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3. verifying the actual location of those Underground Facilities shown or indicated in the Contract Documents as being within the area affected by the Work, by exposing such Underground Facilities during the course of construction;

4. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and

5. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.

B. *Notice by Contractor*: If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated on the Drawings, or was not shown or indicated on the Drawings with reasonable accuracy, then Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing regarding such Underground Facility.

C. *Engineer's Review*: Engineer will:

1. promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy;

2. identify and communicate with the owner of the Underground Facility; prepare recommendations to Owner (and if necessary issue any preliminary instructions to Contractor) regarding the Contractor's resumption of Work in connection with the Underground Facility in question;

3. obtain any pertinent cost or schedule information from Contractor; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and

4. advise Owner in writing of Engineer's findings, conclusions, and recommendations.

During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

D. *Owner's Statement to Contractor Regarding Underground Facility*: After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.

E. *Early Resumption of Work*: If at any time Engineer determines that Work in connection with the Underground Facility may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the Underground Facility in question and conditions affected by its presence have been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.

F. *Possible Price and Times Adjustments*

1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, to the extent that any existing Underground Facility at the Site that was not shown

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or indicated on the Drawings, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

a. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;

b. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E; and

c. Contractor gave the notice required in Paragraph 5.05.B.

2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.

3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.

4. The information and data shown or indicated on the Drawings with respect to existing Underground Facilities at the Site is based on information and data (a) furnished by the owners of such Underground Facilities, or by others, (b) obtained from available records, or (c) gathered in an investigation conducted in accordance with the current edition of ASCE 38, Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data, by the American Society of Civil Engineers. If such information or data is incorrect or incomplete, Contractor's remedies are limited to those set forth in this Paragraph 5.05.F.

5.06 *Hazardous Environmental Conditions at Site*

A. *Reports and Drawings*: The Supplementary Conditions identify:

1. those reports known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site;

2. drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and

3. Technical Data contained in such reports and drawings.

B. *Reliance by Contractor on Technical Data Authorized*: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures

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of construction to be employed by Contractor, and safety precautions and programs incident thereto;

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.

C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.

D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.

E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.

F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.

G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, as a result of such Work stoppage, such special conditions under which Work is agreed to be resumed by Contractor, or any costs or expenses incurred in response to the Hazardous Environmental Condition, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off. Entitlement to any such adjustment is subject to the provisions of Paragraphs 4.05.D, 4.05.E, 11.07, and 11.08.

H. If, after receipt of such written notice, Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special

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conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.

I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court, arbitration, or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.I obligates Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J obligates Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 6—BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of Contractor's obligations under the Contract. These bonds must remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the terms of a prescribed bond form, the Supplementary Conditions, or other provisions of the Contract.

B. Contractor shall also furnish such other bonds (if any) as are required by the Supplementary Conditions or other provisions of the Contract.

C. All bonds must be in the form included in the Bidding Documents or otherwise specified by Owner prior to execution of the Contract, except as provided otherwise by Laws or

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Regulations, and must be issued and signed by a surety named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Department Circular 570 (as amended and supplemented) by the Bureau of the Fiscal Service, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority must show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.

D. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue bonds in the required amounts.

E. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer in writing and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which must comply with the bond and surety requirements above.

F. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner's termination rights under Article 16.

G. Upon request to Owner from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Owner shall provide a copy of the payment bond to such person or entity.

H. Upon request to Contractor from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Contractor shall provide a copy of the payment bond to such person or entity.

6.02 *Insurance—General Provisions*

A. Owner and Contractor shall obtain and maintain insurance as required in this article and in the Supplementary Conditions.

B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized in the state or jurisdiction in which the Project is located to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.

C. Alternative forms of insurance coverage, including but not limited to self-insurance and "Occupational Accident and Excess Employer's Indemnity Policies," are not sufficient to meet the insurance requirements of this Contract, unless expressly allowed in the Supplementary Conditions.

D. Contractor shall deliver to Owner, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Contractor has obtained and is maintaining the policies and coverages required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, full disclosure of all relevant exclusions, and evidence of insurance required to be purchased and maintained by

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Subcontractors or Suppliers. In any documentation furnished under this provision, Contractor, Subcontractors, and Suppliers may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those applicable to this Contract.

E. Owner shall deliver to Contractor, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Owner has obtained and is maintaining the policies and coverages required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, and full disclosure of all relevant exclusions. In any documentation furnished under this provision, Owner may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those relevant to this Contract.

F. Failure of Owner or Contractor to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, will not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.

G. In addition to the liability insurance required to be provided by Contractor, the Owner, at Owner's option, may purchase and maintain Owner's own liability insurance. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.

H. Contractor shall require:

1. Subcontractors to purchase and maintain worker's compensation, commercial general liability, and other insurance that is appropriate for their participation in the Project, and to name as additional insureds Owner and Engineer (and any other individuals or entities identified in the Supplementary Conditions as additional insureds on Contractor's liability policies) on each Subcontractor's commercial general liability insurance policy; and

2. Suppliers to purchase and maintain insurance that is appropriate for their participation in the Project.

I. If either party does not purchase or maintain the insurance required of such party by the Contract, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.

J. If Contractor has failed to obtain and maintain required insurance, Contractor's entitlement to enter or remain at the Site will end immediately, and Owner may impose an appropriate set-off against payment for any associated costs (including but not limited to the cost of purchasing necessary insurance coverage), and exercise Owner's termination rights under Article 16.

K. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect (but is in no way obligated) to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price will be adjusted accordingly.

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L. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests. Contractor is responsible for determining whether such coverage and limits are adequate to protect its interests, and for obtaining and maintaining any additional insurance that Contractor deems necessary.

M. The insurance and insurance limits required herein will not be deemed as a limitation on Contractor's liability, or that of its Subcontractors or Suppliers, under the indemnities granted to Owner and other individuals and entities in the Contract or otherwise.

N. All the policies of insurance required to be purchased and maintained under this Contract will contain a provision or endorsement that the coverage afforded will not be canceled, or renewal refused, until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured and Engineer.

6.03 *Contractor's Insurance*

A. *Required Insurance*: Contractor shall purchase and maintain Worker's Compensation, Commercial General Liability, and other insurance pursuant to the specific requirements of the Supplementary Conditions.

B. *General Provisions*: The policies of insurance required by this Paragraph 6.03 as supplemented must:

1. include at least the specific coverages required;

2. be written for not less than the limits provided, or those required by Laws or Regulations, whichever is greater;

3. remain in effect at least until the Work is complete (as set forth in Paragraph 15.06.D), and longer if expressly required elsewhere in this Contract, and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract;

4. apply with respect to the performance of the Work, whether such performance is by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable; and

5. include all necessary endorsements to support the stated requirements.

C. *Additional Insureds*: The Contractor's commercial general liability, automobile liability, employer's liability, umbrella or excess, pollution liability, and unmanned aerial vehicle liability policies, if required by this Contract, must:

1. include and list as additional insureds Owner and Engineer, and any individuals or entities identified as additional insureds in the Supplementary Conditions;

2. include coverage for the respective officers, directors, members, partners, employees, and consultants of all such additional insureds;

3. afford primary coverage to these additional insureds for all claims covered thereby (including as applicable those arising from both ongoing and completed operations);

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4. not seek contribution from insurance maintained by the additional insured; and

5. as to commercial general liability insurance, apply to additional insureds with respect to liability caused in whole or in part by Contractor's acts or omissions, or the acts and omissions of those working on Contractor's behalf, in the performance of Contractor's operations.

6.04 *Builder's Risk and Other Property Insurance*

A. *Builder's Risk*: Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the Work's full insurable replacement cost (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). The specific requirements applicable to the builder's risk insurance are set forth in the Supplementary Conditions.

B. *Property Insurance for Facilities of Owner Where Work Will Occur*: Owner is responsible for obtaining and maintaining property insurance covering each existing structure, building, or facility in which any part of the Work will occur, or to which any part of the Work will attach or be adjoined. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, providing coverage consistent with that required for the builder's risk insurance, and will be maintained until the Work is complete, as set forth in Paragraph 15.06.D.

C. *Property Insurance for Substantially Complete Facilities*: Promptly after Substantial Completion, and before actual occupancy or use of the substantially completed Work, Owner will obtain property insurance for such substantially completed Work, and maintain such property insurance at least until the Work is complete, as set forth in Paragraph 15.06.D. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, and provide coverage consistent with that required for the builder's risk insurance. The builder's risk insurance may terminate upon written confirmation of Owner's procurement of such property insurance.

D. *Partial Occupancy or Use by Owner*: If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work, as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide advance notice of such occupancy or use to the builder's risk insurer, and obtain an endorsement consenting to the continuation of coverage prior to commencing such partial occupancy or use.

E. *Insurance of Other Property; Additional Insurance*: If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, then the entity or individual owning such property item will be responsible for insuring it. If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.04, it may do so at Contractor's expense.

6.05 *Property Losses; Subrogation*

A. The builder's risk insurance policy purchased and maintained in accordance with Paragraph 6.04 (or an installation floater policy if authorized by the Supplementary Conditions), will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against

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Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors.

1. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils, risks, or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all individuals or entities identified in the Supplementary Conditions as builder's risk or installation floater insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused.
2. None of the above waivers extends to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.

B. Any property insurance policy maintained by Owner covering any loss, damage, or consequential loss to Owner's existing structures, buildings, or facilities in which any part of the Work will occur, or to which any part of the Work will attach or adjoin; to adjacent structures, buildings, or facilities of Owner; or to part or all of the completed or substantially completed Work, during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06, will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them, and that the insured is allowed to waive the insurer's rights of subrogation in a written contract executed prior to the loss, damage, or consequential loss.

1. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from fire or any of the perils, risks, or causes of loss covered by such policies.

C. The waivers in this Paragraph 6.05 include the waiver of rights due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other insured peril, risk, or cause of loss.

D. Contractor shall be responsible for assuring that each Subcontract contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from fire or other peril, risk, or cause of loss covered by builder's risk insurance, installation floater, and any other property insurance applicable to the Work.

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6.06 *Receipt and Application of Property Insurance Proceeds*

A. Any insured loss under the builder's risk and other policies of property insurance required by Paragraph 6.04 will be adjusted and settled with the named insured that purchased the policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.

B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.04 shall maintain such proceeds in a segregated account, and distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.

C. If no other special agreement is reached, Contractor shall repair or replace the damaged Work, using allocated insurance proceeds.

ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES

7.01 *Contractor's Means and Methods of Construction*

A. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.

B. If the Contract Documents note, or Contractor determines, that professional engineering or other design services are needed to carry out Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures, or for Site safety, then Contractor shall cause such services to be provided by a properly licensed design professional, at Contractor's expense. Such services are not Owner-delegated professional design services under this Contract, and neither Owner nor Engineer has any responsibility with respect to (1) Contractor's determination of the need for such services, (2) the qualifications or licensing of the design professionals retained or employed by Contractor, (3) the performance of such services, or (4) any errors, omissions, or defects in such services.

7.02 *Supervision and Superintendence*

A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents.

B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who will not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.03 *Labor; Working Hours*

A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall maintain good discipline and order at the Site.

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B. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of Contractor's employees; of Suppliers and Subcontractors, and their employees; and of any other individuals or entities performing or furnishing any of the Work, just as Contractor is responsible for Contractor's own acts and omissions.

C. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site will be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.

7.04 *Services, Materials, and Equipment*

A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.

B. All materials and equipment incorporated into the Work must be new and of good quality, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications will expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

C. All materials and equipment must be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

7.05 *"Or Equals"*

A. *Contractor's Request; Governing Criteria*: Whenever an item of equipment or material is specified or described in the Contract Documents by using the names of one or more proprietary items or specific Suppliers, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or equal" item is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material, or items from other proposed Suppliers, under the circumstances described below.

1. If Engineer in its sole discretion determines that an item of equipment or material proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer will deem it an "or equal" item. For the purposes of this paragraph, a proposed item of equipment or material will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment Engineer determines that the proposed item:

1) is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

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2) will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;

3) has a proven record of performance and availability of responsive service; and

4) is not objectionable to Owner.

b. Contractor certifies that, if the proposed item is approved and incorporated into the Work:

1) there will be no increase in cost to the Owner or increase in Contract Times; and

2) the item will conform substantially to the detailed requirements of the item named in the Contract Documents.

B. *Contractor's Expense*: Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.

C. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal," which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.

D. *Effect of Engineer's Determination*: Neither approval nor denial of an "or-equal" request will result in any change in Contract Price. The Engineer's denial of an "or-equal" request will be final and binding, and may not be reversed through an appeal under any provision of the Contract.

E. *Treatment as a Substitution Request*: If Engineer determines that an item of equipment or material proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer consider the item a proposed substitute pursuant to Paragraph 7.06.

7.06 *Substitutes*

A. *Contractor's Request; Governing Criteria*: Unless the specification or description of an item of equipment or material required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material under the circumstances described below. To the extent possible such requests must be made before commencement of related construction at the Site.

1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of equipment or material from anyone other than Contractor.

2. The requirements for review by Engineer will be as set forth in Paragraph 7.06.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.

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3. Contractor shall make written application to Engineer for review of a proposed substitute item of equipment or material that Contractor seeks to furnish or use. The application:

    a. will certify that the proposed substitute item will:

        1) perform adequately the functions and achieve the results called for by the general design;

        2) be similar in substance to the item specified; and

        3) be suited to the same use as the item specified.

    b. will state:

        1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times;

        2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item; and

        3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.

    c. will identify:

        1) all variations of the proposed substitute item from the item specified; and

        2) available engineering, sales, maintenance, repair, and replacement services.

    d. will contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.

B. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.

C. *Special Guarantee*: Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

D. *Reimbursement of Engineer's Cost*: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

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E. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute at Contractor's expense.

F. *Effect of Engineer's Determination*: If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request will be final and binding, and may not be reversed through an appeal under any provision of the Contract. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.06.D, by timely submittal of a Change Proposal.

7.07 *Concerning Subcontractors and Suppliers*

A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner. The Contractor's retention of a Subcontractor or Supplier for the performance of parts of the Work will not relieve Contractor's obligation to Owner to perform and complete the Work in accordance with the Contract Documents.

B. Contractor shall retain specific Subcontractors and Suppliers for the performance of designated parts of the Work if required by the Contract to do so.

C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor or Supplier to furnish or perform any of the Work against which Contractor has reasonable objection.

D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within 5 days.

E. Owner may require the replacement of any Subcontractor or Supplier. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors or Suppliers for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor or Supplier so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor or Supplier.

F. If Owner requires the replacement of any Subcontractor or Supplier retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.

G. No acceptance by Owner of any such Subcontractor or Supplier, whether initially or as a replacement, will constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.

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H. On a monthly basis, Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.

I. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors and Suppliers.

J. The divisions and sections of the Specifications and the identifications of any Drawings do not control Contractor in dividing the Work among Subcontractors or Suppliers, or in delineating the Work to be performed by any specific trade.

K. All Work performed for Contractor by a Subcontractor or Supplier must be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract for the benefit of Owner and Engineer.

L. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor for Work performed for Contractor by the Subcontractor or Supplier.

M. Contractor shall restrict all Subcontractors and Suppliers from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed in this Contract.

7.08 *Patent Fees and Royalties*

A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If an invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights will be disclosed in the Contract Documents.

B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.

C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

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7.09 *Permits*

A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits, licenses, and certificates of occupancy. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

7.10 *Taxes*

A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

7.11 *Laws and Regulations*

A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.

B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work or other action. It is not Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this does not relieve Contractor of its obligations under Paragraph 3.03.

C. Owner or Contractor may give written notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such written notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.12 *Record Documents*

A. Contractor shall maintain in a safe place at the Site one printed record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, and approved Shop Drawings. Contractor shall keep such record documents in good order and annotate them to show changes made during construction. These record documents, together with all approved Samples, will be available to Engineer for reference. Upon completion of the Work, Contractor shall deliver these record documents to Engineer.

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7.13 *Safety and Protection*

A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations.

B. Contractor shall designate a qualified and experienced safety representative whose duties and responsibilities are the prevention of Work-related accidents and the maintenance and supervision of safety precautions and programs.

C. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:

1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and

3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

D. All damage, injury, or loss to any property referred to in Paragraph 7.13.C.2 or 7.13.C.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

E. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection.

F. Contractor shall notify Owner; the owners of adjacent property; the owners of Underground Facilities and other utilities (if the identity of such owners is known to Contractor); and other contractors and utility owners performing work at or adjacent to the Site, in writing, when Contractor knows that prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.

G. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. Any Owner's safety programs that are applicable to the Work are identified or included in the Supplementary Conditions or Specifications.

H. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.

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I. Contractor's duties and responsibilities for safety and protection will continue until all the Work is completed, Engineer has issued a written notice to Owner and Contractor in accordance with Paragraph 15.06.C that the Work is acceptable, and Contractor has left the Site (except as otherwise expressly provided in connection with Substantial Completion).

J. Contractor's duties and responsibilities for safety and protection will resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.14 *Hazard Communication Programs*

A. Contractor shall be responsible for coordinating any exchange of safety data sheets (formerly known as material safety data sheets) or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

7.15 *Emergencies*

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused by an emergency, or are required as a result of Contractor's response to an emergency. If Engineer determines that a change in the Contract Documents is required because of an emergency or Contractor's response, a Work Change Directive or Change Order will be issued.

7.16 *Submittals*

A. *Shop Drawing and Sample Requirements*

1. Before submitting a Shop Drawing or Sample, Contractor shall:

a. review and coordinate the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;

b. determine and verify:

1) all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect to the Submittal;

2) the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and

3) all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto;

c. confirm that the Submittal is complete with respect to all related data included in the Submittal.

2. Each Shop Drawing or Sample must bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that Submittal, and that Contractor approves the Submittal.

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3. With each Shop Drawing or Sample, Contractor shall give Engineer specific written notice of any variations that the Submittal may have from the requirements of the Contract Documents. This notice must be set forth in a written communication separate from the Submittal; and, in addition, in the case of a Shop Drawing by a specific notation made on the Shop Drawing itself.

B. *Submittal Procedures for Shop Drawings and Samples*: Contractor shall label and submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals.

1. *Shop Drawings*

a. Contractor shall submit the number of copies required in the Specifications.

b. Data shown on the Shop Drawings must be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide, and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.C.

2. *Samples*

a. Contractor shall submit the number of Samples required in the Specifications.

b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the Submittal for the limited purposes required by Paragraph 7.16.C.

3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. *Engineer's Review of Shop Drawings and Samples*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the accepted Schedule of Submittals. Engineer's review and approval will be only to determine if the items covered by the Submittals will, after installation or incorporation in the Work, comply with the requirements of the Contract Documents, and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction, or to safety precautions or programs incident thereto.

3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

4. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will

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document any such approved variation from the requirements of the Contract Documents in a Field Order or other appropriate Contract modification.

5. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for complying with the requirements of Paragraphs 7.16.A and B.

6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, will not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.

7. Neither Engineer's receipt, review, acceptance, or approval of a Shop Drawing or Sample will result in such item becoming a Contract Document.

8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.C.4.

D. *Resubmittal Procedures for Shop Drawings and Samples*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous Submittals.

2. Contractor shall furnish required Shop Drawing and Sample submittals with sufficient information and accuracy to obtain required approval of an item with no more than two resubmittals. Engineer will record Engineer's time for reviewing a third or subsequent resubmittal of a Shop Drawing or Sample, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges.

3. If Contractor requests a change of a previously approved Shop Drawing or Sample, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

E. *Submittals Other than Shop Drawings, Samples, and Owner-Delegated Designs*

1. The following provisions apply to all Submittals other than Shop Drawings, Samples, and Owner-delegated designs:

   a. Contractor shall submit all such Submittals to the Engineer in accordance with the Schedule of Submittals and pursuant to the applicable terms of the Contract Documents.

   b. Engineer will provide timely review of all such Submittals in accordance with the Schedule of Submittals and return such Submittals with a notation of either Accepted or Not Accepted. Any such Submittal that is not returned within the time established in the Schedule of Submittals will be deemed accepted.

   c. Engineer's review will be only to determine if the Submittal is acceptable under the requirements of the Contract Documents as to general form and content of the Submittal.

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d. If any such Submittal is not accepted, Contractor shall confer with Engineer regarding the reason for the non-acceptance, and resubmit an acceptable document.

2. Procedures for the submittal and acceptance of the Progress Schedule, the Schedule of Submittals, and the Schedule of Values are set forth in Paragraphs 2.03. 2.04, and 2.05.

F. Owner-delegated Designs: Submittals pursuant to Owner-delegated designs are governed by the provisions of Paragraph 7.19.

7.17 *Contractor's General Warranty and Guarantee*

A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer is entitled to rely on Contractor's warranty and guarantee.

B. Owner's rights under this warranty and guarantee are in addition to, and are not limited by, Owner's rights under the correction period provisions of Paragraph 15.08. The time in which Owner may enforce its warranty and guarantee rights under this Paragraph 7.17 is limited only by applicable Laws and Regulations restricting actions to enforce such rights; provided, however, that after the end of the correction period under Paragraph 15.08:

1. Owner shall give Contractor written notice of any defective Work within 60 days of the discovery that such Work is defective; and

2. Such notice will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the notice.

C. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, or improper modification, maintenance, or operation, by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or

2. normal wear and tear under normal usage.

D. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents is absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents, a release of Contractor's obligation to perform the Work in accordance with the Contract Documents, or a release of Owner's warranty and guarantee rights under this Paragraph 7.17:

1. Observations by Engineer;

2. Recommendation by Engineer or payment by Owner of any progress or final payment;

3. The issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;

4. Use or occupancy of the Work or any part thereof by Owner;

5. Any review and approval of a Shop Drawing or Sample submittal;

6. The issuance of a notice of acceptability by Engineer;

7. The end of the correction period established in Paragraph 15.08;

8. Any inspection, test, or approval by others; or

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9. Any correction of defective Work by Owner.

E. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract will govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 *Indemnification*

A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from losses, damages, costs, and judgments (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising from third-party claims or actions relating to or resulting from the performance or furnishing of the Work, provided that any such claim, action, loss, cost, judgment or damage is attributable to bodily injury, sickness, disease, or death, or to damage to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom, but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable.

B. In any and all claims against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A will not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

7.19 *Delegation of Professional Design Services*

A. Owner may require Contractor to provide professional design services for a portion of the Work by express delegation in the Contract Documents. Such delegation will specify the performance and design criteria that such services must satisfy, and the Submittals that Contractor must furnish to Engineer with respect to the Owner-delegated design.

B. Contractor shall cause such Owner-delegated professional design services to be provided pursuant to the professional standard of care by a properly licensed design professional, whose signature and seal must appear on all drawings, calculations, specifications, certifications, and Submittals prepared by such design professional. Such design professional must issue all certifications of design required by Laws and Regulations.

C. If a Shop Drawing or other Submittal related to the Owner-delegated design is prepared by Contractor, a Subcontractor, or others for submittal to Engineer, then such Shop Drawing or other Submittal must bear the written approval of Contractor's design professional when submitted by Contractor to Engineer.

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D. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, and approvals performed or provided by the design professionals retained or employed by Contractor under an Owner-delegated design, subject to the professional standard of care and the performance and design criteria stated in the Contract Documents.

E. Pursuant to this Paragraph 7.19, Engineer's review, approval, and other determinations regarding design drawings, calculations, specifications, certifications, and other Submittals furnished by Contractor pursuant to an Owner-delegated design will be only for the following limited purposes:

1. Checking for conformance with the requirements of this Paragraph 7.19;

2. Confirming that Contractor (through its design professionals) has used the performance and design criteria specified in the Contract Documents; and

3. Establishing that the design furnished by Contractor is consistent with the design concept expressed in the Contract Documents.

F. Contractor shall not be responsible for the adequacy of performance or design criteria specified by Owner or Engineer.

G. Contractor is not required to provide professional services in violation of applicable Laws and Regulations.

ARTICLE 8—OTHER WORK AT THE SITE

8.01 *Other Work*

A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.

B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any third-party utility work that Owner has arranged to take place at or adjacent to the Site, Owner shall provide such information to Contractor.

C. Contractor shall afford proper and safe access to the Site to each contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work.

D. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.

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E. If the proper execution or results of any part of Contractor's Work depends upon work performed by others, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

F. The provisions of this article are not applicable to work that is performed by third-party utilities or other third-party entities without a contract with Owner, or that is performed without having been arranged by Owner. If such work occurs, then any related delay, disruption, or interference incurred by Contractor is governed by the provisions of Paragraph 4.05.C.3.

8.02 *Coordination*

A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:

1. The identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;

2. An itemization of the specific matters to be covered by such authority and responsibility; and

3. The extent of such authority and responsibilities.

B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

8.03 *Legal Relationships*

A. If, in the course of performing other work for Owner at or adjacent to the Site, the Owner's employees, any other contractor working for Owner, or any utility owner that Owner has arranged to perform work, causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment will take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract, and any remedies available to Contractor under Laws or Regulations concerning utility action or inaction. When applicable, any such equitable adjustment in Contract Price will be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times or Contract Price is subject to the provisions of Paragraphs 4.05.D and 4.05.E.

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B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site.

1. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this Paragraph 8.03.B.

2. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due Contractor.

C. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

ARTICLE 9—OWNER'S RESPONSIBILITIES

9.01 *Communications to Contractor*

A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

9.02 *Replacement of Engineer*

A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer's status under the Contract Documents will be that of the former Engineer.

9.03 *Furnish Data*

A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

9.04 *Pay When Due*

A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

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9.05 *Lands and Easements; Reports, Tests, and Drawings*

A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.

B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.

C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

9.06 *Insurance*

A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.

9.07 *Change Orders*

A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.

9.08 *Inspections, Tests, and Approvals*

A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.09 *Limitations on Owner's Responsibilities*

A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

9.10 *Undisclosed Hazardous Environmental Condition*

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

9.11 *Evidence of Financial Arrangements*

A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract (including obligations under proposed changes in the Work).

9.12 *Safety Programs*

A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.

B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

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ARTICLE 10—ENGINEER'S STATUS DURING CONSTRUCTION

10.01 *Owner's Representative*

A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract.

10.02 *Visits to Site*

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe, as an experienced and qualified design professional, the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 10.07. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

10.03 *Resident Project Representative*

A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in the Supplementary Conditions and in Paragraph 10.07.

B. If Owner designates an individual or entity who is not Engineer's consultant, agent, or employee to represent Owner at the Site, then the responsibilities and authority of such individual or entity will be as provided in the Supplementary Conditions.

10.04 *Engineer's Authority*

A. Engineer has the authority to reject Work in accordance with Article 14.

B. Engineer's authority as to Submittals is set forth in Paragraph 7.16.

C. Engineer's authority as to design drawings, calculations, specifications, certifications and other Submittals from Contractor in response to Owner's delegation (if any) to Contractor of professional design services, is set forth in Paragraph 7.19.

D. Engineer's authority as to changes in the Work is set forth in Article 11.

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E. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.05 *Determinations for Unit Price Work*

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

10.06 *Decisions on Requirements of Contract Documents and Acceptability of Work*

A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.07 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer, will create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. Engineer's review of the final Application for Payment and accompanying documentation, and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Contractor under Paragraph 15.06.A, will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.

E. The limitations upon authority and responsibility set forth in this Paragraph 10.07 also apply to the Resident Project Representative, if any.

10.08 *Compliance with Safety Program*

A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs of which Engineer has been informed.

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ARTICLE 11—CHANGES TO THE CONTRACT

11.01 *Amending and Supplementing the Contract*

A. The Contract may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.

B. If an amendment or supplement to the Contract includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order.

C. All changes to the Contract that involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, must be supported by Engineer's recommendation. Owner and Contractor may amend other terms and conditions of the Contract without the recommendation of the Engineer.

11.02 *Change Orders*

A. Owner and Contractor shall execute appropriate Change Orders covering:

1. Changes in Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;

2. Changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;

3. Changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.05, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters; and

4. Changes that embody the substance of any final and binding results under: Paragraph 11.03.B, resolving the impact of a Work Change Directive; Paragraph 11.09, concerning Change Proposals; Article 12, Claims; Paragraph 13.02.D, final adjustments resulting from allowances; Paragraph 13.03.D, final adjustments relating to determination of quantities for Unit Price Work; and similar provisions.

B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of Paragraph 11.02.A, it will be deemed to be of full force and effect, as if fully executed.

11.03 *Work Change Directives*

A. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.07 regarding change of Contract Price.

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B. If Owner has issued a Work Change Directive and:

1. Contractor believes that an adjustment in Contract Times or Contract Price is necessary, then Contractor shall submit any Change Proposal seeking such an adjustment no later than 30 days after the completion of the Work set out in the Work Change Directive.

2. Owner believes that an adjustment in Contract Times or Contract Price is necessary, then Owner shall submit any Claim seeking such an adjustment no later than 60 days after issuance of the Work Change Directive.

11.04 *Field Orders*

A. Engineer may authorize minor changes in the Work if the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly.

B. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.05 *Owner-Authorized Changes in the Work*

A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work. Changes involving the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters will be supported by Engineer's recommendation.

B. Such changes in the Work may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work must be performed under the applicable conditions of the Contract Documents.

C. Nothing in this Paragraph 11.05 obligates Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

11.06 *Unauthorized Changes in the Work*

A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents, as amended, modified, or supplemented, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.C.2.

11.07 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment of Contract Price must comply with the provisions of Article 12.

B. An adjustment in the Contract Price will be determined as follows:

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1. Where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03);

2. Where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.07.C.2); or

3. Where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.07.C).

C. *Contractor's Fee*: When applicable, the Contractor's fee for overhead and profit will be determined as follows:

1. A mutually acceptable fixed fee; or

2. If a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:

a. For costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee will be 15 percent;

b. For costs incurred under Paragraph 13.01.B.3, the Contractor's fee will be 5 percent;

c. Where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.07.C.2.a and 11.07.C.2.b is that the Contractor's fee will be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of 5 percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted Work the maximum total fee to be paid by Owner will be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the Work;

d. No fee will be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;

e. The amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in Cost of the Work will be the amount of the actual net decrease in Cost of the Work and a deduction of an additional amount equal to 5 percent of such actual net decrease in Cost of the Work; and

f. When both additions and credits are involved in any one change or Change Proposal, the adjustment in Contractor's fee will be computed by determining the sum of the costs in each of the cost categories in Paragraph 13.01.B (specifically, payroll costs, Paragraph 13.01.B.1; incorporated materials and equipment costs, Paragraph 13.01.B.2; Subcontract costs, Paragraph 13.01.B.3; special consultants costs, Paragraph 13.01.B.4; and other costs, Paragraph 13.01.B.5) and applying to each such cost category sum the appropriate fee from Paragraphs 11.07.C.2.a through 11.07.C.2.e, inclusive.

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11.08 *Change of Contract Times*

A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment in the Contract Times must comply with the provisions of Article 12.

B. Delay, disruption, and interference in the Work, and any related changes in Contract Times, are addressed in and governed by Paragraph 4.05.

11.09 *Change Proposals*

A. *Purpose and Content*: Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; contest an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; challenge a set-off against payment due; or seek other relief under the Contract. The Change Proposal will specify any proposed change in Contract Times or Contract Price, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents. Each Change Proposal will address only one issue, or a set of closely related issues.

B. *Change Proposal Procedures*

1. *Submittal*: Contractor shall submit each Change Proposal to Engineer within 30 days after the start of the event giving rise thereto, or after such initial decision.

2. *Supporting Data*: The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal.

    a. Change Proposals based on or related to delay, interruption, or interference must comply with the provisions of Paragraphs 4.05.D and 4.05.E.

    b. Change proposals related to a change of Contract Price must include full and detailed accounts of materials incorporated into the Work and labor and equipment used for the subject Work.

    The supporting data must be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event.

3. *Engineer's Initial Review*: Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal. If in its discretion Engineer concludes that additional supporting data is needed before conducting a full review and making a decision regarding the Change Proposal, then Engineer may request that Contractor submit such additional supporting data by a date specified by Engineer, prior to Engineer beginning its full review of the Change Proposal.

4. *Engineer's Full Review and Action on the Change Proposal*: Upon receipt of Contractor's supporting data (including any additional data requested by Engineer), Engineer will conduct a full review of each Change Proposal and, within 30 days after such receipt of the Contractor's supporting data, either approve the Change Proposal in whole, deny it in whole, or approve it in part and deny it in part. Such actions must be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change

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Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.

5. *Binding Decision*: Engineer's decision is final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.

C. *Resolution of Certain Change Proposals*: If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties in writing that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice will be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.

D. *Post-Completion*: Contractor shall not submit any Change Proposals after Engineer issues a written recommendation of final payment pursuant to Paragraph 15.06.B.

11.10 *Notification to Surety*

A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

ARTICLE 12—CLAIMS

12.01 *Claims*

A. *Claims Process*: The following disputes between Owner and Contractor are subject to the Claims process set forth in this article:

1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;

2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents;

3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters; and

4. Subject to the waiver provisions of Paragraph 15.07, any dispute arising after Engineer has issued a written recommendation of final payment pursuant to Paragraph 15.06.B.

B. *Submittal of Claim*: The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim rests with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge

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and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.

C. *Review and Resolution*: The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim will be stated in writing and submitted to the other party, with a copy to Engineer.

D. *Mediation*

1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate will stay the Claim submittal and response process.

2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process will resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim submittal and decision process will resume as of the date of the conclusion of the mediation, as determined by the mediator.

3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.

E. *Partial Approval*: If the party receiving a Claim approves the Claim in part and denies it in part, such action will be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.

F. *Denial of Claim*: If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim will be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.

G. *Final and Binding Results*: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim will be incorporated in a Change Order or other written document to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

ARTICLE 13—COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

13.01 *Cost of the Work*

A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:

1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or

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2. When needed to determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.

B. *Costs Included*: Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work will be in amounts no higher than those commonly incurred in the locality of the Project, will not include any of the costs itemized in Paragraph 13.01.C, and will include only the following items:

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor in advance of the subject Work. Such employees include, without limitation, superintendents, foremen, safety managers, safety representatives, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work will be apportioned on the basis of their time spent on the Work. Payroll costs include, but are not limited to, salaries and wages plus the cost of fringe benefits, which include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, sick leave, and vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, will be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts will accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment will accrue to Owner, and Contractor shall make provisions so that they may be obtained.

3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, which will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee will be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.

4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed or retained for services specifically related to the Work.

5. Other costs consisting of the following:

a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.

b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, which are

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consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

1) In establishing included costs for materials such as scaffolding, plating, or sheeting, consideration will be given to the actual or the estimated life of the material for use on other projects; or rental rates may be established on the basis of purchase or salvage value of such items, whichever is less. Contractor will not be eligible for compensation for such items in an amount that exceeds the purchase cost of such item.

c. *Construction Equipment Rental*

1) Rentals of all construction equipment and machinery, and the parts thereof, in accordance with rental agreements approved by Owner as to price (including any surcharge or special rates applicable to overtime use of the construction equipment or machinery), and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs will be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts must cease when the use thereof is no longer necessary for the Work.

2) Costs for equipment and machinery owned by Contractor or a Contractor-related entity will be paid at a rate shown for such equipment in the equipment rental rate book specified in the Supplementary Conditions. An hourly rate will be computed by dividing the monthly rates by 176. These computed rates will include all operating costs.

3) With respect to Work that is the result of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price ("changed Work"), included costs will be based on the time the equipment or machinery is in use on the changed Work and the costs of transportation, loading, unloading, assembly, dismantling, and removal when directly attributable to the changed Work. The cost of any such equipment or machinery, or parts thereof, must cease to accrue when the use thereof is no longer necessary for the changed Work.

d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.

e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of builder's risk or other property insurance established in accordance with Paragraph 6.04), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses will be included in the Cost of the Work for the purpose of determining Contractor's fee.

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g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.

i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.

C. *Costs Excluded*: The term Cost of the Work does not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals, general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expediters, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.

2. The cost of purchasing, renting, or furnishing small tools and hand tools.

3. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.

4. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.

5. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

6. Expenses incurred in preparing and advancing Claims.

7. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.

D. *Contractor's Fee*

1. When the Work as a whole is performed on the basis of cost-plus-a-fee, then:

a. Contractor's fee for the Work set forth in the Contract Documents as of the Effective Date of the Contract will be determined as set forth in the Agreement.

b. for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work, Contractor's fee will be determined as follows:

1) When the fee for the Work as a whole is a percentage of the Cost of the Work, the fee will automatically adjust as the Cost of the Work changes.

2) When the fee for the Work as a whole is a fixed fee, the fee for any additions or deletions will be determined in accordance with Paragraph 11.07.C.2.

2. When the Work as a whole is performed on the basis of a stipulated sum, or any other basis other than cost-plus-a-fee, then Contractor's fee for any Work covered by a Change

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Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work will be determined in accordance with Paragraph 11.07.C.2.

E. *Documentation and Audit*: Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor and pertinent Subcontractors will establish and maintain records of the costs in accordance with generally accepted accounting practices. Subject to prior written notice, Owner will be afforded reasonable access, during normal business hours, to all Contractor's accounts, records, books, correspondence, instructions, drawings, receipts, vouchers, memoranda, and similar data relating to the Cost of the Work and Contractor's fee. Contractor shall preserve all such documents for a period of three years after the final payment by Owner. Pertinent Subcontractors will afford such access to Owner, and preserve such documents, to the same extent required of Contractor.

13.02 *Allowances*

A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

B. *Cash Allowances*: Contractor agrees that:

1. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

2. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment for any of the foregoing will be valid.

C. *Owner's Contingency Allowance*: Contractor agrees that an Owner's contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor for Work covered by allowances, and the Contract Price will be correspondingly adjusted.

13.03 *Unit Price Work*

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.

C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision

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thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, and the final adjustment of Contract Price will be set forth in a Change Order, subject to the provisions of the following paragraph.

E. *Adjustments in Unit Price*

1. Contractor or Owner shall be entitled to an adjustment in the unit price with respect to an item of Unit Price Work if:

a. the quantity of the item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and

b. Contractor's unit costs to perform the item of Unit Price Work have changed materially and significantly as a result of the quantity change.

2. The adjustment in unit price will account for and be coordinated with any related changes in quantities of other items of Work, and in Contractor's costs to perform such other Work, such that the resulting overall change in Contract Price is equitable to Owner and Contractor.

3. Adjusted unit prices will apply to all units of that item.

ARTICLE 14—TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK

14.01 *Access to Work*

A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply with such procedures and programs as applicable.

14.02 *Tests, Inspections, and Approvals*

A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.

B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work will be governed by the provisions of Paragraph 14.05.

C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

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D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:

1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;

2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;

3. by manufacturers of equipment furnished under the Contract Documents;

4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and

5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests will be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.

F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering will be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 *Defective Work*

A. *Contractor's Obligation*: It is Contractor's obligation to assure that the Work is not defective.

B. *Engineer's Authority*: Engineer has the authority to determine whether Work is defective, and to reject defective Work.

C. *Notice of Defects*: Prompt written notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.

D. *Correction, or Removal and Replacement*: Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.

E. *Preservation of Warranties*: When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

F. *Costs and Damages*: In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs,

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losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 *Acceptance of Defective Work*

A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness), and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work will be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.05 *Uncovering Work*

A. Engineer has the authority to require additional inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.

B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.

C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, and provide all necessary labor, material, and equipment.

1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.

2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

14.06 *Owner May Stop the Work*

A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then Owner may order Contractor to stop the Work,

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or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work will not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

14.07 *Owner May Correct Defective Work*

A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace defective Work as required by Engineer, then Owner may, after 7 days' written notice to Contractor, correct or remedy any such deficiency.

B. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.

C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

ARTICLE 15—PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

15.01 *Progress Payments*

A. *Basis for Progress Payments*: The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments for Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.

B. *Applications for Payments*

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents.

2. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment must also be accompanied by: (a) a bill of sale, invoice, copies of subcontract or purchase order payments, or other documentation

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establishing full payment by Contractor for the materials and equipment; (b) at Owner's request, documentation warranting that Owner has received the materials and equipment free and clear of all Liens; and (c) evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

3. Beginning with the second Application for Payment, each Application must include an affidavit of Contractor stating that all previous progress payments received by Contractor have been applied to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

4. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

C. *Review of Applications*

1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.

2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

   a. the Work has progressed to the point indicated;

   b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and

   c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.

3. By recommending any such payment Engineer will not thereby be deemed to have represented that:

   a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or

   b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

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4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:

    a. to supervise, direct, or control the Work;

    b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto;

    c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work;

    d. to make any examination to ascertain how or for what purposes Contractor has used the money paid by Owner; or

    e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.

5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.

6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:

    a. the Work is defective, requiring correction or replacement;

    b. the Contract Price has been reduced by Change Orders;

    c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;

    d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or

    e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. *Payment Becomes Due*

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended (subject to any Owner set-offs) will become due, and when due will be paid by Owner to Contractor.

E. *Reductions in Payment by Owner*

1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:

    a. Claims have been made against Owner based on Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages resulting from Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;

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b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;

c. Contractor has failed to provide and maintain required bonds or insurance;

d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;

e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;

f. The Work is defective, requiring correction or replacement;

g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;

h. The Contract Price has been reduced by Change Orders;

i. An event has occurred that would constitute a default by Contractor and therefore justify a termination for cause;

j. Liquidated or other damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;

k. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens; or

l. Other items entitle Owner to a set-off against the amount recommended.

2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed will be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.

3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld will be treated as an amount due as determined by Paragraph 15.01.D.1 and subject to interest as provided in the Agreement.

15.02 *Contractor's Warranty of Title*

A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than 7 days after the time of payment by Owner.

15.03 *Substantial Completion*

A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time

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submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.

B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.

C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which will fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have 7 days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.

D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.

E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.

F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

15.04 *Partial Use or Occupancy*

A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without

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significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:

1. At any time, Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through 15.03.E for that part of the Work.

2. At any time, Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.04 regarding builder's risk or other property insurance.

15.05 *Final Inspection*

A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.06 *Final Payment*

A. *Application for Payment*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, annotated record documents (as provided in Paragraph 7.12), and other documents, Contractor may make application for final payment.

2. The final Application for Payment must be accompanied (except as previously delivered) by:

   a. all documentation called for in the Contract Documents;

   b. consent of the surety, if any, to final payment;

   c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.

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d. a list of all duly pending Change Proposals and Claims; and

e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.

B. *Engineer's Review of Final Application and Recommendation of Payment*: If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within 10 days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the final Application for Payment to Owner for payment. Such recommendation will account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. *Notice of Acceptability*: In support of its recommendation of payment of the final Application for Payment, Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to stated limitations in the notice and to the provisions of Paragraph 15.07.

D. *Completion of Work*: The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment and issuance of notice of the acceptability of the Work.

E. *Final Payment Becomes Due*: Upon receipt from Engineer of the final Application for Payment and accompanying documentation, Owner shall set off against the amount recommended by Engineer for final payment any further sum to which Owner is entitled, including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions of this Contract with respect to progress payments. Owner shall pay the resulting balance due to Contractor within 30 days of Owner's receipt of the final Application for Payment from Engineer.

15.07 *Waiver of Claims*

A. By making final payment, Owner waives its claim or right to liquidated damages or other damages for late completion by Contractor, except as set forth in an outstanding Claim,

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appeal under the provisions of Article 17, set-off, or express reservation of rights by Owner. Owner reserves all other claims or rights after final payment.

B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted as a Claim, or appealed under the provisions of Article 17.

15.08 *Correction Period*

A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the Supplementary Conditions or the terms of any applicable special guarantee required by the Contract Documents), Owner gives Contractor written notice that any Work has been found to be defective, or that Contractor's repair of any damages to the Site or adjacent areas has been found to be defective, then after receipt of such notice of defect Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

1. correct the defective repairs to the Site or such adjacent areas;
2. correct such defective Work;
3. remove the defective Work from the Project and replace it with Work that is not defective, if the defective Work has been rejected by Owner, and
4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting from the corrective measures.

B. Owner shall give any such notice of defect within 60 days of the discovery that such Work or repairs is defective. If such notice is given within such 60 days but after the end of the correction period, the notice will be deemed a notice of defective Work under Paragraph 7.17.B.

C. If, after receipt of a notice of defect within 60 days and within the correction period, Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others). Contractor's failure to pay such costs, losses, and damages within 10 days of invoice from Owner will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the failure to pay.

D. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.

E. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

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F. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph are not to be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 16—SUSPENSION OF WORK AND TERMINATION

16.01 *Owner May Suspend Work*

A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times directly attributable to any such suspension. Any Change Proposal seeking such adjustments must be submitted no later than 30 days after the date fixed for resumption of Work.

16.02 *Owner May Terminate for Cause*

A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:

1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment, or failure to adhere to the Progress Schedule);

2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;

3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or

4. Contractor's repeated disregard of the authority of Owner or Engineer.

B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) 10 days' written notice that Owner is considering a declaration that Contractor is in default and termination of the Contract, Owner may proceed to:

1. declare Contractor to be in default, and give Contractor (and any surety) written notice that the Contract is terminated; and

2. enforce the rights available to Owner under any applicable performance bond.

C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.

D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within 7 days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.

E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects,

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attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses, and damages exceeds such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

F. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.

G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond will govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.03 *Owner May Terminate for Convenience*

A. Upon 7 days' written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):

1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and

3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.

B. Contractor shall not be paid for any loss of anticipated profits or revenue, post-termination overhead costs, or other economic loss arising out of or resulting from such termination.

16.04 *Contractor May Stop Work or Terminate*

A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon 7 days' written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 16.03.

B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, 7 days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The

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provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

ARTICLE 17—FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

A. *Disputes Subject to Final Resolution*: The following disputed matters are subject to final resolution under the provisions of this article:

1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full, pursuant to Article 12; and

2. Disputes between Owner and Contractor concerning the Work, or obligations under the Contract Documents, that arise after final payment has been made.

B. *Final Resolution of Disputes*: For any dispute subject to resolution under this article, Owner or Contractor may:

1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions;

2. agree with the other party to submit the dispute to another dispute resolution process; or

3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

ARTICLE 18—MISCELLANEOUS

18.01 *Giving Notice*

A. Whenever any provision of the Contract requires the giving of written notice to Owner, Engineer, or Contractor, it will be deemed to have been validly given only if delivered:

1. in person, by a commercial courier service or otherwise, to the recipient's place of business;

2. by registered or certified mail, postage prepaid, to the recipient's place of business; or

3. by e-mail to the recipient, with the words "Formal Notice" or similar in the e-mail's subject line.

18.02 *Computation of Times*

A. When any period of time is referred to in the Contract by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

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18.03 *Cumulative Remedies*

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract. The provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

18.04 *Limitation of Damages*

A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 *No Waiver*

A. A party's non-enforcement of any provision will not constitute a waiver of that provision, nor will it affect the enforceability of that provision or of the remainder of this Contract.

18.06 *Survival of Obligations*

A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract, as well as all continuing obligations indicated in the Contract, will survive final payment, completion, and acceptance of the Work or termination of the Contract or of the services of Contractor.

18.07 *Controlling Law*

A. This Contract is to be governed by the law of the state in which the Project is located.

18.08 *Assignment of Contract*

A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party to this Contract of any rights under or interests in the Contract will be binding on the other party without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract.

18.09 *Successors and Assigns*

A. Owner and Contractor each binds itself, its successors, assigns, and legal representatives to the other party hereto, its successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

18.10 *Headings*

A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

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SECTION 00 73 00

SUPPLEMENTARY CONDITIONS

A. These Supplementary Conditions amend or supplement EJCDC© C-700, Standard General Conditions of the Construction Contract (2018). The General Conditions remain in full force and effect except as amended.

B. The terms used in these Supplementary Conditions have the meanings stated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings stated below, which are applicable to both the singular and plural thereof.

C. The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added thereto.

D. Table of Contents

SC-1.01.A Defined Terms 2
SC-1.01.A.8 Change Order 2
SC-1.01.A.18 Drawings 2
SC-1.01.A.50 Work Change Directive 2
SC-1.01.A.51 Request for Information 3
SC-1.01.A.52 Geotechnical Engineer 3
SC-1.01.A.53 Testing Firm 3
SC-1.01.A.54 Special Inspector 3
SC-2.01 Delivery of Bonds and Evidence of Insurance 3
SC-2.02 Copies of Documents 4
SC-2.03 Before Starting Construction 4
SC-2.05 Acceptance of Schedules 4
SC-3.03 Reporting Discrepancies 4
SC-3.04 Requirements of the Contract Documents 5
SC-4.03 Reference Points 5
SC-5.03 Subsurface and Physical Conditions 5
SC-5.05 Underground Facilities 6
SC-5.06 Hazardous Environmental Conditions at the Site 6
SC-6.01 Performance, Payment and Other Bonds 7
SC-6.03 CONTRACTOR's Insurance 7
SC-6.04 Builder's Risk and Other Property Insurance 12
SC-7.03.C Labor; Working Hours 13
SC-7.04.B Services, Materials, and Equipment Warranty 13
SC-7.05 and 7.06 "Or Equals" and Substitutes 14
SC-7.09 Permits 14
SC-7.10 Taxes 14
SC-7.11 Laws and Regulations 15
SC-7.12 Record Documents 15
SC-7.13 Safety and Protection 15
SC-7.18 Indemnification 15
SC-7.19 Delegation of Professional Design Services 16
SC-10.03 Resident Project Representative 16
SC-11.01 Amending and Supplementing the Contract 18

SC-11.07 Change of Contract Price 18
SC-11.09.C Change Proposals 19
SC-11.10 Notification to Surety 19
SC-12.01.A Claims Process 19
SC-14.02.A Tests and Inspections 19
SC-15.01.B Applications for Progress Payment 19
SC-15.01.D Payment Becomes Due 21
SC-15.01.E.1.k Reductions in Payment by OWNER 21
SC-15.02 CONTRACTOR's Warranty of Title 21
SC-15.03 Substantial Completion 21
SC-15.06 Final Payment 21
SC-15.08 Correction Period 22
SC-16.02 OWNER May Terminate for Cause 22
SC-16.03 OWNER May Terminate for Convenience 22

SC-1.01.A Defined Terms

Insert in the first sentence after the phrase "printed with initial capital letters" the following phrase:

"or with all capital letters"

SC-1.01.A.8 Change Order

Insert a comma and the word "ENGINEER" immediately after the word "CONTRACTOR" in this definition.

SC-1.01.A.18 Drawings

Add the following to the end of Paragraph 1.01.A.18:

The following Drawings are part of the Contract Documents:

Drawings titled "Wastewater Treatment Plant Modifications, Contract 1-2026, City of Independence, Iowa," Sheets No. 1 through No. 184, prepared by Strand Associates, Inc.® and Drawings listed in the table of contents that are bound at the back of these Specifications.

Electronic files were provided for the convenience of CONTRACTOR. The data on which CONTRACTOR may rely is limited to the paper copy.

SC-1.01.A.50 Work Change Directive

Amend the phrase "signed by OWNER" in the first sentence of Paragraph 1.01.A.50 to read as follows:

"signed by OWNER and CONTRACTOR."

Add the following language to the end of Paragraph 1.01.A.50:

A Work Change Directive cannot change Contract Price or Contract Times without a subsequent Change Order.

SC-1.01.A.51 Request for Information

Add the following new paragraph immediately after Paragraph 1.01.A.50:

51. Request for Information

Written request submitted by CONTRACTOR to ENGINEER on a form supplied by ENGINEER requesting clarification, interpretation, or additional information pertaining to Contract Documents.

SC-1.01.A.52 Geotechnical Engineer

Add the following new paragraph immediately after Paragraph 1.01.A.51:

52. Geotechnical Engineer

The individual or entity that prepared the geotechnical report that is referenced in the Supplementary Conditions and that provides geotechnical engineering services, if any, during construction of the Project.

SC-1.01.A.53 Testing Firm

Add the following new paragraph immediately after Paragraph 1.01.A.52:

53. Testing Firm

The individual or entity that performs materials testing during construction of the Project.

SC-1.01.A.54 Special Inspector

Add the following new paragraph after Paragraph 1.01.A.53:

54. Special Inspector

The individual(s) or entity(ies) that perform special inspection testing during construction of the Project as defined in the IBC Chapter 17 and as shown on the Drawings.

SC-2.01 Delivery of Bonds and Evidence of Insurance

Delete Paragraphs 2.01.B and 2.01.C in their entirety and insert the following in their place:

B. Evidence of CONTRACTOR's Insurance: When CONTRACTOR delivers the signed counterparts of the Agreement to OWNER, CONTRACTOR shall also deliver to OWNER copies of the policies (including all endorsements, and identification of applicable self-insured retentions and deductibles) of insurance required to be provided by CONTRACTOR in this Contract. CONTRACTOR may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

SC-2.02 Copies of Documents

Add the following new language to the end of Paragraph 2.02.A:

Paper copies of the Contract Documents obtained during bidding and kept by CONTRACTOR shall count towards the number of printed copies required to be furnished by OWNER.

SC-2.03 Before Starting Construction

Add the following subparagraph to Paragraph 2.03:

4. a proposed listing of subcontractors and major material and equipment suppliers. The list shall include any proposed substitutions in accordance with Paragraph 7.06.

SC-2.05 Acceptance of Schedules

Add the following language to the end of Paragraph 2.05.A.2:

The schedule for submittals shall show all submittals complete before 50% of completion of the Work and the schedule for maintenance manuals shall show all submittals complete before 75% of completion of the Work.

Add the following new paragraph immediately after Paragraph 2.05.A:

B. The times included in this paragraph apply to the preliminary schedules. See Division 01 for other submittal and time requirements for the construction progress schedule and submittal schedule.

SC-3.03 Reporting Discrepancies

Add the following language at the end of Paragraph 3.03.A:

4. CONTRACTOR shall report apparent discrepancies to ENGINEER using a Request for Information form on a form supplied by ENGINEER. The Request for Information form shall:

a. be submitted by CONTRACTOR only;

b. be legible and complete;

c. not be used for the purposes of only confirming or verifying issues; and,

d. be prioritized by CONTRACTOR in the event that multiple Requests for Information are outstanding.

Requests for Information that are not in conformance with the requirements above shall be returned to CONTRACTOR without response.

5. CONTRACTOR shall not be relieved of its responsibility to coordinate the Work to prevent adverse impacts to CONTRACTOR's Project Schedule while submitting Requests for Information.

6. If CONTRACTOR believes the Scope of Work included in the Request for Information has a cost and/or time impact, CONTRACTOR should submit a Change Proposal in accordance with Article 11 of these General Conditions.

7. If CONTRACTOR proceeds with work when CONTRACTOR had actual knowledge or should have known that a conflict, error, ambiguity, or discrepancy existed as indicated above, correction of work constructed without such notification to ENGINEER shall be at CONTRACTOR's expense, (except in an emergency as authorized by Paragraph 7.15.A).

SC-3.04 Requirements of the Contract Documents

Delete Paragraph 3.04.C in its entirety.

SC-4.03 Reference Points

Add the following new paragraph immediately after Paragraph 4.03.A:

B. CONTRACTOR is referred to the General Requirements for additional requirements for laying out the work.

SC-5.03 Subsurface and Physical Conditions

Add the following new paragraphs immediately after Paragraph 5.03.D:

E. The following table lists the reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data, and specifically identifies the Technical Data in the report upon which CONTRACTOR may rely:

Report Title	Date of Report	Technical Data
Geotechnical Engineering Report, WWTP Modifications, Independence, Iowa, TEAM Project No. 1-5351, prepared by TEAM Services, Inc.	May 31, 2024	Boring methods, level of subsurface water, boring logs, laboratory test methods and results, and boring locations

ENGINEER accepts no responsibility for accuracy of the soil data or water level information. Soil information, included with these Contract Documents, was not obtained for the purposes of designing excavations and trenches. Soil information was used by ENGINEER for design purposes only. CONTRACTOR shall assure itself by personal examination as to subsurface conditions and shall provide its own investigations and make its own assumptions to comply with OSHA and any other applicable laws and regulations regarding excavation and trenching requirements.

F. No drawings of physical conditions relating to existing surface or subsurface structures at the Site containing technical data, are known to OWNER. CONTRACTOR shall conduct its own personal investigation to determine conditions at the site which may affect the Work, including compliance with OSHA excavation and trenching requirements.

SC-5.05 Underground Facilities

Add the following new paragraph immediately after Paragraph 5.05.A.5:

6. Generally, service connection locations are intentionally not indicated on the Drawings. CONTRACTOR shall have full responsibility for discovery of these existing Underground Facilities prior to excavating or trenching by contacting all local utilities and by prospecting. The cost for performing this work shall be included in the Contract Price.

Add the following paragraph immediately after Paragraph 5.05.F:

G. CONTRACTOR is referred to the General Requirements for requirements for keeping records of Underground Facilities and allowing facility owners to inspect.

SC-5.06 Hazardous Environmental Conditions at the Site

Add the following new subparagraphs immediately after Paragraph 5.06.A.3:

4. The following table lists the reports known to OWNER relating to Hazardous Environmental Conditions at or adjacent to the Site, and the Technical Data (if any) upon which CONTRACTOR may rely:

Report Title	Date of Report	Technical Data
Asbestos Inspection of Headworks Building (Structure 15) Wastewater Treatment Plant, prepared by Blohm Inspection Environmental Services LLC.	February 23, 2026	Sample Analysis and Results
Lead/Chromium Inspection of Grit Channels, Pre-Aeration Basins, Settling Basins (Structures 20, 40, 50) Wastewater Treatment Plant, prepared by Blohm Inspection Environmental Services LLC.	February 23, 2026	Sample Analysis and Results
Asbestos Inspection of Control Building (Structure 30) Wastewater Treatment Plant, prepared by Blohm Inspection Environmental Services LLC.	February 23, 2026	Sample Analysis and Results
Lead/Chromium Inspection of Pump Building (Structure 60) Wastewater Treatment Plant, prepared by Blohm Inspection Environmental Services LLC.	February 23, 2026	Sample Analysis and Results
Asbestos Inspection of Pump Building (Structure 60) Wastewater Treatment Plant, prepared by Blohm Inspection Environmental Services LLC.	March 3, 2026	Sample Analysis and Results
Asbestos Inspection of Anaerobic Digester Complex (Structure 65) & Electrical Building Wastewater Treatment Plant, prepared by Blohm Inspection Environmental Services LLC.	February 23, 2026	Sample Analysis and Results

Report Title	Date of Report	Technical Data
Asbestos Inspection of Sludge Storage Tank/Building (Structure 71) Wastewater Treatment Plant, prepared by Blohm Inspection Environmental Services LLC.	February 23, 2026	Sample Analysis and Results
Asbestos Inspection of Trickling Filters, Recycle Pump Station (Structure 80) Wastewater Treatment Plant, prepared by Blohm Inspection Environmental Services LLC.	February 23, 2026	Sample Analysis and Results
Asbestos Inspection of Lab, Office, Garage Building (Structure 95) Wastewater Treatment Plant, prepared by Blohm Inspection Environmental Services LLC.	February 23, 2026	Sample Analysis and Results

SC-6.01 Performance, Payment and Other Bonds

Add the following paragraphs immediately after Paragraph 6.01.B:

1. The correction period specified as one year after the date of Substantial Completion in Paragraph 15.08.A of the General Conditions is hereby revised to be 2 years after Substantial Completion.

2. After Substantial Completion, CONTRACTOR shall furnish a warranty bond issued in the form of EJCDC® C-612, Warranty Bond (2018). The warranty bond must be in a bond amount of 100 percent of the final contract price. The warranty bond period will extend to a date 2 years after Substantial Completion of the work. CONTRACTOR shall deliver the fully executed warranty bond to OWNER prior to or with the final application for payment, and in any event no later than 11 months after Substantial Completion.

3. The warranty bond must be issued by the same surety that issues the performance bond required under Paragraph 6.01.A of the general conditions.

Add the following new paragraphs immediately after Paragraph 6.01.H:

I. The forms of the performance and payment or other Bonds attached hereto shall be used for the Contract. Note instructions thereon as to the form applicable. Each form contemplates one corporate surety only. In case co-sureties or individual sureties will be furnished, proper forms therefore shall be obtained. Besides the stipulations of Paragraphs 6.01 through 6.03, the surety on the Bonds shall provide a certificate indicating surety is licensed to underwrite contracts in the jurisdiction of the project location which shall be attached to the Bonds.

J. Bonds shall be placed with surety with a Best's rating of no less than A-VII.

SC-6.03 CONTRACTOR's Insurance

Add the following new language to the end of Paragraph 6.03.C.3:

CONTRACTOR shall provide an executed endorsement form CG 20 01 04 13, or equal, supporting this requirement.

Add the following new paragraphs under Paragraphs 6.03.C:

D. Other Additional Insureds: As a supplement to the provisions of Paragraph 6.03.C. of the General Conditions, the commercial general liability, automobile liability, umbrella or excess, pollution liability, and unmanned aerial vehicle liability policies must include as additional insureds (in addition to OWNER and ENGINEER) the following: None.

E. Worker's Compensation and Employer's Liability: CONTRACTOR shall purchase and maintain workers' compensation and employer's liability insurance, including, as applicable, United States Longshoreman and Harbor Workers' Compensation Act, Jones Act, stop-gap employer's liability coverage for monopolistic states, and foreign voluntary workers' compensation (from available sources, notwithstanding the jurisdictional requirement of Paragraph 6.02.B. of the General Conditions).

Workers' Compensation and Related Policies	**Policy limits of not less than:**
Workers' Compensation	
State	Statutory
Applicable Federal (e.g., Longshoreman's)	Statutory
Foreign voluntary workers' compensation (employer's responsibility coverage), if applicable	Statutory
Employer's Liability	
Each accident	$1,000,000
Each employee	$1,000,000
Policy limit	$1,000,000

F. *Commercial General Liability—Claims Covered:* CONTRACTOR shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of CONTRACTOR, on an occurrence basis, against claims for:

1. damages because of bodily injury, sickness or disease, or death of any person other than CONTRACTOR's employees,

2. damages insured by reasonably available personal injury liability coverage, and

3. damages because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.

G. *Commercial General Liability—Form and Content:* CONTRACTOR's commercial liability policy must be written on a 1996 (or later) Insurance Services Organization, Inc. (ISO) commercial general liability form (occurrence form) and include the following coverages and endorsements:

1. Products and completed operations coverage.

   a. Such insurance must be maintained for three years after final payment.

   b. CONTRACTOR shall furnish OWNER and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter.

2. Blanket contractual liability coverage, including but not limited to coverage of CONTRACTOR's contractual indemnity obligations in Paragraph 7.18.

3. Severability of interests and no insured-versus-insured or cross-liability exclusions.

4. Underground, explosion, and collapse coverage.

5. Personal injury coverage.

6. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together), or equal, for each required additional insured. If CONTRACTOR demonstrates to OWNER that the specified ISO endorsements are not commercially available, then CONTRACTOR may satisfy this requirement by providing equivalent endorsements.

7. Insurance certificates for commercial general, automobile, and umbrella shall specifically indicate by name the additional insureds which are to include OWNER and ENGINEER as well as other persons or entities so identified. Certificates shall be Acord 25-S or equivalent.

8. Endorsements or General Liability policy shall not exclude supervisory or inspection services.

H. *Commercial General Liability—Excluded Content:* The commercial general liability insurance policy, including its coverages, endorsements, and incorporated provisions, must not include any of the following:

1. Any modification of the standard definition of "insured contract" (except to delete the railroad protective liability exclusion if CONTRACTOR is required to indemnify a railroad or others with respect to Work within 50 feet of railroad property).

2. Any exclusion for water intrusion or water damage.

3. Any provisions resulting in the erosion of insurance limits by defense costs other than those already incorporated in ISO form CG 00 01.

4. Any exclusion of coverage relating to earth subsidence or movement.

5. Any exclusion for the insured's vicarious liability, strict liability, or statutory liability (other than worker's compensation).

6. Any limitation or exclusion based on the nature of CONTRACTOR's work.

7. Any professional liability exclusion broader in effect than the most recent edition of ISO form CG 22 79.

I. *Commercial General Liability—Minimum Policy Limits*

Commercial General Liability	**Policy limits of not less than:**
General Aggregate	$5,000,000
Products—Completed Operations Aggregate	$2,000,000
Personal and Advertising Injury	$2,000,000
Bodily Injury and Property Damage—Each Occurrence	$2,000,000

General Aggregate Limits specified above shall apply separately to this project by attachment of:

"Amendment of Limits of Insurance–Designated Location(s) General Aggregate Limit Endorsement (ISO Form No. CG 25 04 05 09) or "Designated Construction Project(s) General Aggregate Limit" Endorsement (ISO Form CG 25 03 05 09) or equivalent endorsement coverage.

J. *Automobile Liability:* CONTRACTOR shall purchase and maintain automobile liability insurance for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle. The automobile liability policy must be written on an occurrence basis.

Automobile Liability	**Policy limits of not less than:**
Combined Single Limit	
Combined Single Limit (Bodily Injury and Property Damage)	$1,000,000

CONTRACTOR shall also provide an Additional Insured Endorsement for the automobile policy. Endorsement form shall be CA 20 48, or equal.

K. *Umbrella or Excess Liability:* CONTRACTOR shall purchase and maintain umbrella or excess liability insurance written over the underlying employer's liability, commercial general liability, and automobile liability insurance described in the Paragraphs above. The coverage afforded must be at least as broad as that of each and every one of the underlying policies.

Excess or Umbrella Liability	**Policy limits of not less than:**
Each Occurrence	$2,000,000
General Aggregate	$5,000,000

L. *Using Umbrella or Excess Liability Insurance to Meet CGL and Other Policy Limit Requirements:* CONTRACTOR may meet the policy limits specified for employer's liability, commercial general liability, and automobile liability through the primary policies alone, or through combinations of the primary insurance policy's policy limits and partial attribution of the policy limits of an umbrella or excess liability policy that is at least as broad in coverage as that of the underlying policy, as specified herein. If such umbrella or excess liability policy was required under this Contract, at a specified minimum policy limit, such umbrella or excess policy must retain a minimum limit of $2,000,000 after accounting for partial attribution of its limits to underlying policies, as allowed above.

M. *Contractor's Pollution Liability Insurance:* CONTRACTOR shall purchase and maintain a policy covering third-party injury and property damage, including cleanup costs, as a result of pollution conditions arising from CONTRACTOR's operations and completed operations. This insurance must be maintained for no less than three years after final completion.

Contractor's Pollution Liability	**Policy limits of not less than:**
Each Occurrence/Claim	$1,000,000
General Aggregate	$2,000,000

☐ If box is checked, CONTRACTOR is not required to provide this insurance.

CONTRACTOR's Pollution Liability coverage shall include coverage for fungus, mold, and bacteria.

N. *Contractor's Professional Liability Insurance:* If CONTRACTOR will provide or furnish professional services under this *Contract*, through a delegation of professional design services or otherwise, then CONTRACTOR shall be responsible for purchasing and maintaining applicable professional liability insurance. This insurance must cover negligent acts, errors, or omissions in the performance of professional design or related services by the insured or others for whom the insured is legally liable. The insurance must be maintained throughout the duration of the Contract and for a minimum of two years after Substantial Completion. The retroactive date on the policy must pre-date the commencement of furnishing services on the Project.

CONTRACTOR's Professional Liability	**Policy limits of not less than:**
Each Claim	$1,000,000
Annual Aggregate	$2,000,000

☐ If box is checked, CONTRACTOR is not required to provide this insurance.

O. *Railroad Protective Liability Insurance:* Prior to commencing any Work within 50 feet of railroad-owned and controlled property, CONTRACTOR shall (1) endorse its commercial general liability policy with ISO CG 24 17, removing the contractual liability exclusion for work within 50 feet of a railroad, (2) purchase and maintain railroad protective liability insurance meeting the following requirements, (3) furnish a copy of the endorsement to OWNER, and (4) submit a copy of the railroad protective policy and other railroad-required documentation to the railroad, and notify OWNER of such submittal.

Railroad Protective Liability Insurance	**Policy limits of not less than:**
Each Claim	Not Applicable
Aggregate	Not Applicable

☒ If box is checked, CONTRACTOR is not required to provide this insurance.

P. *Unmanned Aerial Vehicle Liability Insurance:* If CONTRACTOR uses unmanned aerial vehicles (UAV–commonly *referred* to as drones) at the Site or in support of any aspect of the Work, CONTRACTOR shall obtain UAV liability insurance in the amounts stated; name OWNER, ENGINEER, and all individuals and entities identified in the Supplementary Conditions as additional insureds; and provide a certificate to OWNER confirming CONTRACTOR's compliance with this requirement. Such insurance will provide coverage for property damage, bodily injury or death, and invasion of privacy.

Unmanned Aerial Vehicle Liability Insurance	**Policy limits of not less than:**
Each Claim	$1,000,000
General Aggregate	$2,000,000

☐ If box is checked, CONTRACTOR is not required to provide this insurance.

Q. Waiver of Subrogation: CONTRACTOR's commercial general liability, automobile liability, umbrella or excess, and pollution liability policies shall provide a waiver of subrogation covering OWNER and ENGINEER, and any individuals or entities identified in the Supplementary Conditions. CONTRACTOR shall obtain all necessary endorsements to support these requirements. Endorsement shall be CG 24 04 05 09, or equal.

R. General Liability, Automobile Liability, and Umbrella Liability shall include coverage for mental anguish and punitive damages.

S. The specimen Insurance Certificate bound at the end of this section has been prepared as a guide to assist CONTRACTOR and CONTRACTOR's Insurance Agent when preparing the required insurance documentation. This specimen certificate is included as a representation of what acceptable documents will look like. Specific project information must be included when preparing the actual document.

T. CONTRACTOR shall also execute a Preservation of Governmental Immunities Endorsement, pursuant to Section 670.4 of the Iowa Code.

SC-6.04 Builder's Risk and Other Property Insurance

Supplement Paragraph 6.04 of the General Conditions with the following provisions:

F. *Builder's Risk Requirements:* The builder's risk insurance must:

1. be written on a builder's risk "all risk" policy form that at a minimum includes insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment stored and in transit, and must not exclude the coverage of the following risks: fire; windstorm; hail; flood; earthquake, volcanic activity, and other earth movement; lightning; riot; civil commotion; terrorism; vehicle impact; aircraft; smoke; theft; vandalism and malicious mischief; mechanical breakdown, boiler explosion, and artificially generated electric current; collapse; explosion; debris removal; demolition occasioned by enforcement of Laws and Regulations; and water damage (including that caused by flood and hydrostatic pressure).

a. Such policy will include an exception that results in coverage for ensuing losses from physical damage or loss with respect to any defective workmanship, methods, design, or materials exclusions.

b. If insurance against mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake, volcanic activity, and other earth movement; or flood, are not commercially available under builder's risk policies, by endorsement or otherwise, such insurance will be provided through other insurance policies acceptable to OWNER and CONTRACTOR.

2. cover, as insured property, at least the following: (a) the Work and all materials, supplies, machinery, apparatus, equipment, fixtures, and other property of a similar nature that are to be incorporated into or used in the preparation, fabrication, construction, erection, or completion of the Work, including OWNER-furnished or assigned property; (b) spare parts inventory required within the scope of the Contract; and (c) temporary works which are not intended to form part of the permanent constructed Work but which are intended to provide working access to the Site, or to the Work under construction, or which are intended to provide temporary support for the Work under construction, including scaffolding, form work, fences, shoring, falsework, and temporary structures.

3. cover expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of contractors, engineers, and architects).

4. extend to cover damage or loss to insured property while in temporary storage at the Site or in a storage location outside the Site (but not including property stored at the premises of a manufacturer or Supplier).

5. extend to cover damage or loss to insured property while in transit.

6. allow for the waiver of the insurer's subrogation rights, as set forth in this Contract.

7. allow for partial occupancy or use by OWNER by endorsement, and without cancellation or lapse of coverage.

8. be maintained in effect until the Work is complete, as set forth in Paragraph 15.06.D of the General Conditions, or until written confirmation of OWNER's procurement of property insurance following Substantial Completion, whichever occurs first.

9 include as named insureds OWNER, CONTRACTOR, Subcontractors (of every tier), and any other individuals or entities required by this Contract to be insured under such builder's risk policy. For purposes of Paragraphs 6.04, 6.05, and 6.06 of the General Conditions, and this and all other corresponding Supplementary Conditions, the parties required to be insured will be referred to collectively as "insureds."

H. *Builder's Risk and Other Property Insurance Deductibles:* The purchaser of any required builder's risk, installation floater, or other property insurance will be responsible for costs not covered because of the application of a policy deductible.

SC-7.03.C Labor; Working Hours

Add the following new subparagraphs immediately after Paragraph 7.03.C:

1. Regular working hours will be 7 A.M. to 3:30 P.M.

2. OWNER's legal holidays are New Year's Day, Presidents' Day, Good Friday, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving Day, Day after Thanksgiving, Christmas Eve, Christmas Day, and New Year's Eve.

Add the following new paragraph immediately after Paragraph 7.03.C:

D. CONTRACTOR shall be responsible for the cost of any overtime pay or other expense incurred by OWNER for ENGINEER's services (including those of the Resident Project Representative, if any), OWNER's representative, and construction observation services, occasioned by the performance of Work on Saturday, Sunday, any legal holiday, or as overtime on any regular work day. If CONTRACTOR is responsible but does not pay, or if the parties are unable to agree as to the amount owed, then OWNER may impose a reasonable set-off against payments due under Article 15.

SC-7.04.B Services, Materials, and Equipment Warranty

Add the following to the end of Paragraph 7.04.B:

Suppliers shall be deemed to impliedly warrant that their products and all component materials incorporated into them are suitable and fit for the intended use of such products and shall be free from defect in material, workmanship or design, such warranty to run to the benefit of OWNER and ENGINEER. The foregoing applies whether the products or their component materials are specified in the Contract Documents or are of Supplier's design.

SC-7.05 and 7.06 “Or Equals” and Substitutes

Add the following new paragraph immediately after Paragraph 7.05.E.:

F. All requirements of Paragraph 7.06 shall apply to review and acceptance of Other Alternative Equipment Manufacturers listed on the Equipment Alternatives form of the Lump Sum Base Bid. For Requested Alternative Equipment Manufacturers that were provided within the Bidding Documents, all requirements of Paragraph 7.06 shall apply, except for Paragraph 7.06.D–Reimbursement of ENGINEER's Cost.

SC-7.09 Permits

Delete last sentence of Paragraph 7.09.A and add the following in its place:

See General Requirements and technical specification sections for utility charge provisions.

Add Paragraph 7.09.B as follows:

B. See General Requirements for additional permit information.

SC-7.10 Taxes

Add the following new paragraph immediately after Paragraph 7.10.A:

B. OWNER is exempt from payment of sales and compensating use taxes of the State of Iowa, the City of Independence, and the County of Buchanan on all materials to be incorporated into the Work.

1. OWNER will furnish the required certificates of tax exemption to CONTRACTOR for use in the purchase of supplies and materials to be incorporated into the Work.

2. OWNER’s exemption also does not apply to construction tools, machinery, equipment, or other property purchased by or leased by CONTRACTOR, or to supplies or materials not incorporated into the Work.

C. CONTRACTOR shall provide a listing to the City identifying all appropriate subcontractors qualified for use of the tax exemption certificate. The listing shall include the Federal Employer Identification Number (FEIN) for CONTRACTOR and each Subcontractor.

D. OWNER will complete an on-line application to register this Contract with the Iowa Department of Revenue and Finance and will furnish CONTRACTOR and all listed subcontractors with an authorization letter and Tax Exemption Certificate for use in the purchase of supplies and materials to be incorporated into the Work. CONTRACTOR and subcontractors may make copies of the tax exemption certificates and authorization letters and provide a copy to each supplier providing construction materials to be incorporated into this project.

E. CONTRACTOR shall be responsible for complying with all applicable provisions of Iowa Code Section 422.

SC-7.11 Laws and Regulations

Add the following new paragraph immediately after Paragraph 7.11.C:

D. This project is being financed in whole or in part by the Iowa Department of Natural Resources State Revolving Fund (SRF). Municipalities constructing projects must comply with all applicable state laws, rules and regulations and must ensure that their contractor(s) also comply with these laws, rules and regulations. Federal laws can be found in the SRF Required Front-End Specifications attached to the Bid and through this becoming a part of the Contract Documents as referenced in the Agreement.

SC-7.12 Record Documents

In Paragraph 7.12.A delete last sentence and insert the following:

Upon completion of the Work, these record documents, samples, and shop drawings shall be delivered by CONTRACTOR to OWNER.

SC-7.13 Safety and Protection

Add the following language to the end of Paragraph 7.13.A:

If the Work includes excavation or trenches, CONTRACTOR shall keep at the Site at all times during the progress of the Work a competent person to comply with OSHA trenching and excavation requirements. The competent person shall be one who is capable of identifying existing and predictable hazards in the surroundings, or working conditions that are unsanitary, hazardous or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

SC-7.18 Indemnification

Delete the word "negligent" from Paragraph 7.18.A.

Add the following to the end of Paragraph 7.18.A:

In addition, CONTRACTOR shall indemnify, hold harmless, and pay for the defense of OWNER and ENGINEER from and against claims, losses, or damages in regard to any act or failure to act by OWNER or ENGINEER in connection with general supervision, inspection and/or coordination of CONTRACTOR's operations.

CONTRACTOR shall, at its own expense, appear, defend, and pay all fees of attorneys and all costs and other expenses arising therefrom or incurred in connection therewith; and, if any judgments shall be rendered against any individual or entity indemnified hereunder in any such action, CONTRACTOR shall, at its own expense, satisfy and discharge same. CONTRACTOR expressly understands and agrees that any Letter of Credit or insurance protection required by the Contract, or otherwise provided by CONTRACTOR, shall in no way limit the responsibility to indemnify, hold harmless, and defend any individual or entity indemnified hereunder as herein provided.

Add the following new paragraph immediately after Paragraph 7.18.B:

C. For any matter for which OWNER and ENGINEER are indemnified under Paragraph 7.18.A, CONTRACTOR shall pay for OWNER’s and ENGINEER’s reasonable defense, including, but not limited to, all fees and charges of engineers, architects, attorneys, and other

professionals and all court or arbitration or other dispute resolution costs or awards until OWNER or ENGINEER are found negligent.

SC-7.19 Delegation of Professional Design Services

Add the following new paragraphs immediately after Paragraph 7.19.G:

H. The design professional providing the design calculations and design drawings shall be licensed in the State of the Project.

I. The design calculation and design drawings are not shop drawings, but shall be submitted to ENGINEER separately along with the required shop drawings for the system, material, or equipment specified. These calculations will be forwarded to OWNER for their records.

SC-10.03 Resident Project Representative

Add the following new paragraphs immediately after Paragraph 10.03.B:

C. The Resident Project Representative (RPR) will be ENGINEER's representative at the Site. RPR's dealings in matters pertaining to the Work in general will be with ENGINEER and CONTRACTOR. RPR's dealings with Subcontractors will only be through or with the full knowledge or approval of CONTRACTOR. The RPR will:

1. Conferences and Meetings: Attend meetings with CONTRACTOR, such as preconstruction conferences, progress meetings, job conferences, and other Project-related meetings (but not including CONTRACTOR’s safety meetings), and as appropriate prepare and circulate copies of minutes thereof.

2. Schedules: Review the progress schedule, schedule of Shop Drawing and Sample submittals, and Schedule of Values prepared by CONTRACTOR and consult with ENGINEER concerning acceptability.

3. Liaison:

a. Serve as ENGINEER’s liaison with CONTRACTOR. Working principally through CONTRACTOR’s authorized representative or designee, assist in providing information regarding the provisions and intent of the Contract Documents.

b. Assist ENGINEER in serving as OWNER’s liaison with CONTRACTOR when CONTRACTOR’s operations affect OWNER’s on-Site operations.

c. Assist in obtaining from OWNER additional details or information, when required for proper execution of the Work.

4. Interpretation of Contract Documents: Report to ENGINEER when clarifications and interpretations of the Contract Documents are needed and transmit to CONTRACTOR clarifications and interpretations as issued by ENGINEER.

5. Modifications: Consider and evaluate CONTRACTOR’s suggestions for modifications in Drawings or Specifications and report such suggestions, together with RPR’s recommendations, if any, to ENGINEER. Transmit to CONTRACTOR in writing decisions as issued by ENGINEER.

6. Review of Work and Rejection of Defective Work:

a. Conduct on-Site observations of CONTRACTOR's work in progress to assist ENGINEER in determining if the Work is in general proceeding in accordance with the Contract Documents.

b. Report to ENGINEER whenever RPR believes that any part of CONTRACTOR's work in progress is defective, will not produce a completed Project that conforms generally to the Contract Documents, or will imperil the integrity of the design concept of the completed Project as a functioning whole as indicated in the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test or approval required to be made; and advise ENGINEER of that part of work in progress that RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.

7. Tests and System Start-ups:

a. Observe that tests, equipment, and systems start-ups and operating and maintenance training are conducted in the presence of appropriate OWNER's personnel, and that CONTRACTOR maintains adequate records thereof.

b. Observe, record, and report to ENGINEER appropriate details relative to the test procedures and systems start-ups.

8. Records:

a. Prepare a daily report or keep a diary or log book, and send periodic reports to ENGINEER.

9. Reports:

a. Furnish to ENGINEER periodic reports as required of progress of the Work and of CONTRACTOR's compliance with the Progress Schedule and schedule of Shop Drawing and Sample submittals.

b. Draft and recommend to ENGINEER proposed Change Orders, Work Change Directives, and Field Orders. Obtain backup material from CONTRACTOR.

c. Notify ENGINEER of the occurrence of any Site accidents, emergencies, acts of God endangering the Work, force majeure or delay events, damage to property by fire or other causes, or the discovery of any Constituent of Concern or Hazardous Environmental Condition.

10. Payment Requests: Review applications for payment with CONTRACTOR for compliance with the established procedure for their submission and forward with recommendations to ENGINEER, noting particularly the relationship of the payment requested to the Schedule of Values, Work completed, and materials and equipment delivered at the Site but not incorporated in the Work.

11. Certificates, Operation and Maintenance Manuals: During the course of the Work, review materials and equipment certificates, operation and maintenance manuals and other data

required by the Contract Documents to be assembled and furnished by CONTRACTOR are applicable to the items actually installed and in accordance with the Contract Documents, and have these documents delivered to ENGINEER for review and forwarding to OWNER prior to payment for that part of the Work.

12. Completion:

a. Participate in ENGINEER's visits regarding Substantial Completion.

b. Assist in the preparation of a punch list of items to be completed or corrected.

c. Participate in ENGINEER's visit to the Site in the company of OWNER and CONTRACTOR regarding completion of the Work, and prepare a final punch list of items to be completed or corrected by CONTRACTOR.

d. Observe whether items on the final punch list have been completed or corrected.

D. The RPR will not:

1. Authorize any deviation from the Contract Documents or substitution of materials or equipment (including "or-equal" items).

2. Exceed limitations of ENGINEER's authority as set forth in the Contract Documents.

3. Undertake any of the responsibilities of CONTRACTOR, Subcontractors, or Suppliers.

4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences or procedures of construction.

5 Advise on, issue directions regarding, or assume control over security or safety practices, precautions, and programs in connection with the activities or operations of OWNER or CONTRACTOR .

6. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by ENGINEER.

7. Authorize OWNER to occupy the Project in whole or in part.

SC-11.01 Amending and Supplementing the Contract

Delete the second sentence in Paragraph 11.01.C in its entirety.

SC-11.07 Change of Contract Price

Amend the phrase at the end of Paragraph 11.07.B.2 to read:

(which may include an allowance for overhead and profit in accordance with Paragraph 11.07.C.2. unless OWNER and CONTRACTOR agree that these allowances are not appropriate for the Work involved.)

SC-11.09.C Change Proposals

Delete Paragraph 11.09.C in its entirety and insert the following in its place:

"Not used."

SC-11.10 Notification to Surety

Add the following new paragraphs immediately after Paragraph 11.10.A:

B. CONTRACTOR shall be responsible for notifying the surety of any assignment, modification, or change of the Contract, change in the Work covered thereby, or extension of time for the completion of the project.

C. Failure to provide notice to the surety of any such change shall not exonerate the surety from its obligations under the bond.

SC-12.01.A Claims Process

Delete Paragraph 12.01.A.3 in its entirety and insert the following in its place:

"Not used."

SC-14.02.A Tests and Inspections

Add the following to the beginning of Paragraph 14.02.A:

All Work is subject to testing to indicate compliance with Contract Document requirements. Copies of test results of all tests required shall be submitted to ENGINEER. Tests and inspection of work may be conducted by OWNER or an independent laboratory employed by OWNER. Tests may also be performed in the field by ENGINEER as a basis for acceptance of the Work.

Add the following to the end of Paragraph 14.02.A:

Samples required for testing shall be furnished by CONTRACTOR at no cost to OWNER. In the event that completed Work does not conform to specification requirements during the initial test, the Work shall be corrected and retested for conformance. The entire cost of retesting completed Work shall be borne by CONTRACTOR. This shall include the extra cost for inspection to OWNER which will be deducted from the final amount due CONTRACTOR.

SC-15.01.B Applications for Progress Payment

Add the following language at the end of Paragraph 15.01.B.1:

An updated Progress Schedule shall be submitted with each Application for Payment. Applications for Payment submitted without an acceptable updated Progress Schedule will be returned to CONTRACTOR without review. Progress Schedules that are submitted which do not reflect current project conditions, will not be considered acceptable.

Delete Paragraph 15.01.B.3 in its entirety and insert “Deleted.”

Add the following language at the end of Paragraph 15.01.B.4:

No payments will be made that would deplete the retainage, place in escrow any funds that are required for retainage, or invest the retainage for the benefit of CONTRACTOR.

Add the following paragraphs immediately after Paragraph 15.01.B.4:

5. No advanced payment for shop drawing preparation will be made. Shop drawing costs will be paid when equipment and materials are delivered and suitably stored on the site.

6. All stored equipment and materials for which payment is requested shall have invoices included with the pay request. Equipment shall be identified thoroughly on the invoices, including serial numbers.

7. Payment for the stored equipment and material which are on the site shall not exceed the invoiced amount for each item, less the Contract retainage. The overhead and profit for the stored items shall not be invoiced until the item is installed.

8. Payment for off-site storage is normally reserved for sensitive or very large pieces of equipment that in ENGINEER's opinion would not be practical to have stored on the site. Payment for off-site stored items shall be limited to 75% of the invoiced value of the item, less Contract retainage. CONTRACTOR shall reimburse OWNER the cost of inspecting off-site stored items. When off-site storage is approved, CONTRACTOR shall provide Insurance Certificates and Document of Ownership to OWNER.

9. Payment for PLC and SCADA programming shall be limited to 75% of the invoiced time spent, less Contract retainage.

To allow this payment value, programming must be completed by area and system. CONTRACTOR must provide the following:

a. Signed certification by an officer of CONTRACTOR and electrical subcontractor that work has been completed.

b. Ladder diagram or function block dump with complete descriptive narrative in PDF format.

c. Database cross reference report for graphics (if applicable).

d. I/O partition list.

e. Smart I/O (DeviceNet, profibers, control net, Ethernet I/O, field bus, etc.) configuration report.

f. Processor configuration report.

10. CONTRACTOR shall submit certified payroll to OWNER on a weekly basis or as otherwise required by the Davis-Bacon Act or the State Revolving Fund program.

11. By submitting an Application for Payment based in whole or in part on furnishing equipment or materials, CONTRACTOR certifies that such equipment and materials are compliant with American Iron and Steel requirements. Manufacturer’s Certification letter for materials satisfy this requirement.

SC-15.01.D Payment Becomes Due

Delete Paragraph 15.01.D.1 and insert the following in its place:

1. Within 10 days after presentation of the Application for Payment to OWNER with ENGINEER's recommendation, OWNER will (subject to the provisions of Paragraph 15.01.E) approve and submit the Application for Payment to Iowa Department of Natural Resources for approval. Payment should be made by that agency within 30 days subject to their internal procedures and reviews. OWNER shall promptly disburse payment to CONTRACTOR after receipt of payment from agency.

SC-15.01.E.1.k Reductions in Payment by OWNER

Delete Paragraph 15.01.E.1.k and insert the following in its place:

k. Claims pursuant to Iowa Code Chapter 573 have been filed in connection with the Work.

SC-15.02 CONTRACTOR's Warranty of Title

Delete the word "liens" in Paragraph 15.02.A and insert the following language in its place: "claims pursuant to Iowa Code Chapter 573."

Amend Paragraph 15.02.A by striking out the following text: "no later than seven days after the time of payment by OWNER" and inserting "no later than the time of payment by OWNER."

SC-15.03 Substantial Completion

Add the following new subparagraph to Paragraph 15.03.B:

1. If some or all of the Work has been determined not to be at a point of Substantial Completion and will require re-inspection or re-testing by ENGINEER, the cost of such re-inspection or re-testing, including the cost of time, travel and living expenses, will be paid by CONTRACTOR to OWNER. If CONTRACTOR does not pay, or the parties are unable to agree as to the amount owed, then OWNER may impose a reasonable set-off against payments due under this Article 15.

SC-15.06 Final Payment

Delete from Paragraph 15.06.A.2.c the word "liens" and replace it with the word "claims."

Delete from Paragraph 15.06.A2.e the phrase "lien rights" and word "liens" and replace each with the word "claims."

Delete from Paragraph 15.06.A.3 the word "lien" and replace it with the word "claims" in all locations where "lien" appears in this paragraph.

Delete Paragraph 15.06.E in its entirety and insert the following paragraph in its place:

1. Except as provided in subparagraph (2), retained funds shall be retained by OWNER for a period of 30 calendar days after the completion and final acceptance of the improvement by OWNER. If at the end of the 30 calendar day period claims are on file as

provided, OWNER shall continue to retain from the unpaid funds, a sum equal to double the total amount of all claims on file. The remaining balance of the unpaid fund, or if no claims are on file, the entire unpaid fund shall be released and paid to CONTRACTOR.

2. If CONTRACTOR requests an early release of retained funds, payment shall be in accordance with Iowa Code Section 26.13 and 573.15A. Retained funds will not be released prior to Substantial Completion of all Work on the Project, regardless as to whether OWNER takes partial utilization of the Work.

SC-15.08 Correction Period

Add the following new Paragraph 15.08.G:

G. The correction period specified as one year after the date of Substantial Completion in Paragraph 15.08.A of the General Conditions, as may be amended by the Supplementary Conditions, is hereby revised to be the number of years set forth in SC-6.01.B.1.

Add the following new Paragraph 15.08.H:

H. If Substantial Completion for the entire work is never requested by CONTRACTOR, the correction period shall commence after final payment.

SC-16.02 OWNER May Terminate for Cause

Add the following new paragraphs immediately after Paragraph 16.02.B.2:

3. complete the Work as OWNER may deem expedient at the expense of CONTRACTOR and surety;

4. apply the amounts retained from partial payments to the completion of the Work; and

5. authorize the surety to complete the steps in Paragraphs 16.02.B.1 through 4.

SC-16.03 OWNER May Terminate for Convenience

Add the following paragraph after Paragraph 16.03.B:

C. CONTRACTOR shall require similar provisions contained in Paragraph 16.03 in each of its subcontracts to protect CONTRACTOR from claims by Subcontractors arising from OWNER's termination for convenience, or to minimize claims by such subcontractors. The remedy provided to CONTRACTOR under this Paragraph 16.03 shall be CONTRACTOR's sole remedy in the event of termination for convenience by OWNER.

END OF SECTION

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME:	
Insurance Agency	PHONE (A/C, No, Ext):	FAX (A/C, No):
	E-MAIL ADDRESS:	
	PRODUCER CUSTOMER ID #:	

INSURED	INSURER(S) AFFORDING COVERAGE	NAIC #
Contractor	INSURER A : Insurance Company	
	INSURER B :	
	INSURER C :	
	INSURER D :	
	INSURER E :	
	INSURER F :	

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS		
	GENERAL LIABILITY						EACH OCCURRENCE	$	2,000,000
	X COMMERCIAL GENERAL LIABILITY						DAMAGE TO RENTED PREMISES (Ea occurrence)	$	
	CLAIMS-MADE X OCCUR						MED EXP (Any one person)	$	
		X					PERSONAL & ADV INJURY	$	2,000,000
							GENERAL AGGREGATE	$	5,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						PRODUCTS - COMP/OP AGG	$	2,000,000
	POLICY X PRO-JECT LOC							$	
	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident)	$	1,000,000
	X ANY AUTO						BODILY INJURY (Per person)	$	
	ALL OWNED AUTOS						BODILY INJURY (Per accident)	$	
	SCHEDULED AUTOS	X					PROPERTY DAMAGE (Per accident)	$	
	HIRED AUTOS								
	NON-OWNED AUTOS						EACH CLAIM	$	1,000,000
	UNMANNED AERIAL VEHICLE LIABILITY						AGGREGATE	$	2,000,000
	UMBRELLA LIAB X OCCUR						EACH OCCURRENCE	$	2,000,000
	EXCESS LIAB CLAIMS-MADE	X					AGGREGATE	$	5,000,000
	PROFESSIONAL LIABILITY						EACH CLAIM	$	1,000,000
							ANNUAL AGGREGATE	$	2,000,000
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y/N						X WC STATU-TORY LIMITS OTH-ER		
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) N/A						E.L. EACH ACCIDENT	$	1,000,000
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$	1,000,000
							E.L. DISEASE - POLICY LIMIT	$	2,000,000
	BUILDERS RISK POLLUTION LIABILITY						SEE SC-6.04 EACH CLAIM	$	1,000,000
							GENERAL AGGREGATE	$	2,000,000

SPECIMEN

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

Wastewater Treatment Plant Modifications, Contract 1-2026, City of Independence, Iowa
The City of Independence and Strand Associates, Inc. are additional insured with respect to General Liability, Automobile Liability, Unmanned Aerial Vehicle Liability, Pollution Liability, and Excess/Umbrella Liability. The City of Independence is an insured with respect to Builder's Risk policy. In addition, see attached Additional Insured Endorsements for the General Liability and Automobile Liability policies.

CERTIFICATE HOLDER

City of Independence
331 1st Street East
Independence, IA 50644

(Provide separate certificate to each party.)

Strand Associates, Inc.
910 West Wingra Drive
Madison, WI 53715

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

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SPECIFICATIONS

SECTION 01 11 00

SUMMARY OF WORK

PART 1–GENERAL

1.01 DIVISION ONE

A. The requirements of Division 01 apply to all sections of the Contract.

1.02 PROJECT SCOPE

A. CONTRACTOR shall provide all items, articles, materials, operations or methods mentioned or scheduled on the Drawings or herein specified: including all labor, supervision, equipment, incidentals, taxes, and permits necessary to complete the Work as described within the Contract Documents. CONTRACTOR shall install all items provided by OWNER as mentioned or scheduled on the Drawings or herein specified.

1.03 CONTRACT DOCUMENTS–INTENT AND USE

A. Intent of Documents:
   1. Singular notations and specifications shall be considered plural where application is reasonably inferred.
   2. Mention or indication of extent of work under any division or Specification section is done only for convenience of CONTRACTOR and shall not be construed as describing all work required under that division or section.
   3. Some individual sections may contain a list of related sections. The list of related sections in individual sections is provided for the convenience of CONTRACTOR and is not necessarily all-inclusive. CONTRACTOR may not rely upon this listing for determination of scope of work. Other sections of the Specifications not referenced in individual sections shall apply as required for proper performance of the Work.
   4. Command type sentences may be used in the Contract Documents. These sentences refer to and are directed to CONTRACTOR.
   5. Symbols for various elements and systems are shown on the Drawings. Should there be any doubt regarding the meaning or intent of the symbols used, a written interpretation shall be obtained from ENGINEER.

B. Use of Documents:
   1. CONTRACTOR shall examine all Specifications and Drawings for the Work, including those that may pertain to Work CONTRACTOR does not normally perform with its own forces.
   2. CONTRACTOR shall use all of the Project Drawings and Specifications:
      a. For a complete understanding of the Project.
      b. To determine the type of construction and systems required.
      c. For coordination with other contractors.
      d. To determine what other work may be involved in various parts or phases.
      e. To anticipate and notify others when work by others will be required.
      f. And all other relevant matters related to the project.
   3. CONTRACTOR is also bound by all requirements of the Contract Documents which are applicable to, pertain to, or affect its Work as may be shown or inferred by the entire set of Project Drawings and Specifications.

1.04 CONSTRUCTION REQUIREMENTS

A. General Information and Requirements:

1. Currently, wastewater treatment at the City of Independence Wastewater Treatment Plant consists of fine screening; grit removal; two-stage trickling filters, settling basins, and transfer pumping; chlorine disinfection, sulfur dioxide dechlorination, and post aeration of the final effluent. Primary and secondary waste activated sludge are cothickened in the primary clarifiers, stabilized in anaerobic digesters, stored as liquid, and applied directly to farm land for disposal typically twice per year in spring and fall.
2. Wastewater treatment during construction must be continuous and the treatment efficiency must be equal to that achieved prior to the start of construction.
3. It shall be the responsibility of CONTRACTOR to not in any way impair the normal treatment or operating efficiency of the facilities, regardless of the work underway. No bypassing of raw or partially treated wastewater to receiving stream shall occur at any time as a result of construction. In general, this requires that new facilities be complete and ready for service or that temporary facilities be provided prior to removing existing units from service for modification or repair. CONTRACTOR shall provide all temporary piping, bypass pumping, and temporary construction required to complete the Work.
4. Operation of existing treatment facilities will be the responsibility of OWNER. CONTRACTOR shall cooperate with OWNER's staff at all times. A minimum of 48 hours prior to making any process or electrical connections to existing facilities or modification or demolition of existing facilities, CONTRACTOR shall notify OWNER in writing. At the time of notification, CONTRACTOR shall submit a schedule for completion of the Work, including a description of measures that will be taken to minimize the impact to existing facilities.
5. Except as specified, OWNER will drain existing tanks to the level of the lowest existing drain line or will remove tank contents using existing piping and pumping equipment. Subsequent cleaning or further draining and/or pumping shall be provided by CONTRACTOR. If there exists sludge, grit, or other residue that cannot be drained or pumped in its present state, it shall be the responsibility of CONTRACTOR to remove and dispose of this material.
6. Access: CONTRACTOR shall maintain roadways open at all times to meet OWNER's requirements, including access for sludge hauling vehicles, garbage trucks, and chemical deliveries. CONTRACTOR shall be responsible for maintaining roadways in drivable condition, including placement of temporary stone and gravel and providing drainage as necessary. OWNER's roadways around the treatment facility shall be cleaned of construction site materials, soil, and debris as necessary.

B. Construction Sequence:

1. The following construction sequence is provided as a general guideline for the information and for the benefit of CONTRACTOR. This construction sequence is not intended to dictate means, method of construction, or direct construction activities. This construction sequence is a conceptual general construction sequence with minimum recommended outage, shutdowns, and operating units to be maintained in service. The general construction sequence is projected to allow the Work to be completed while maintaining treatment of the wastewater treatment plant. It is not intended to be all inclusive and does not list all work elements or details that are required to complete the Work, complete treatment processes, or place unit processes in service. CONTRACTOR shall be responsible for implementing any additional details required, including temporary piping, bypass pumping, or temporary construction at no additional cost to OWNER.

2. CONTRACTOR may propose alternate sequence or modifications to this sequence. OWNER will review the proposed modification and determine if such modification of the sequence interferes with the proper operation of the treatment activities. Any modifications to this general construction sequence shall be proposed in writing and shall be approved by OWNER prior to their implementations.
3. The existing electrical service for the City of Independence Wastewater Treatment Plant (WWTP) is provided by Independence Light and Power. CONTRACTOR shall coordinate with the utility for the re-routing of the electrical service around the construction zone. This shall generally include intercepting the primary conductors at a location outside the construction zone, rerouting the primary conductors around the construction zone, providing a new temporary transformer and meter (if it isn't possible to relocate the existing transformer and meter) adjacent to Structure 60, and new secondary conductors and conduit from the temporary transformer to the service entrance disconnect switch via the existing service cabinet.
    a. Switchover of the existing electrical service to the re-routed temporary electrical service shall be limited to an 8-hour period during which time the WWTP will be served by the existing emergency generator. CONTRACTOR shall coordinate with the utility for this work. The utilities work associated with this re-routing shall be paid for out of the electrical service allowance in Section 26 21 00–Electrical Service System. CONTRACTOR shall include all other costs related to this rerouting in the Lump Sum Base Bid.
4. CONTRACTOR shall install temporary earth retention and structure protection systems and provide temporary rerouting and/or support of existing utilities. Construction may then commence on the Oxidation Ditch Splitter Box, oxidation ditches, final clarifiers, RAS/WAS Pump Building, the emergency generator, Process Return Flow Pump Station, the aerobic sludge digesters, the Digested Sludge Transfer Station, and the Hauled Waste Receiving Station. The 6-inch DSL force main from the Digested Sludge Transfer Station will only be able to be partially routed to its ultimate connection point to the existing 8-inch DSL entering Sludge Storage Tank No. 1. This is to avoid disrupting the transfer of anaerobically digested sludge from the anaerobic digesters to the Sludge Storage Tank No. 1.
5. CONTRACTOR shall temporarily relocate the existing diesel powered emergency generator to an adjacent location that will allow construction of the Final Clarifier Splitter Box to commence. CONTRACTOR shall also temporarily relocate and/or provide protection "in-place" of utilities impacted by this construction, including adjacent structures. CONTRACTOR shall start-up existing emergency generator after relocation to confirm the generator can be utilized as necessary.
6. CONTRACTOR may begin the modifications within the Headworks Building once all necessary equipment and materials have been delivered to the site. CONTRACTOR shall remove one mechanical screen, one vortex grit collector, and one grit pump (not necessarily all at the same time as determined by CONTRACTOR) while the other set of this equipment remains in-service during a predicted low-flow period. Once this new equipment is started up successfully, and operating trouble-free for 10 days, CONTRACTOR shall replace the other set of screen, vortex grit collector, and grit pump while the new set of equipment is functioning. CONTRACTOR shall be allowed to temporarily bypass the entire Headworks Building by routing unscreened raw wastewater containing grit from upstream of the Headworks Building directly to the downstream existing treatment process by opening the sluice gate in the upstream Diversion Structure and closing the sluice gate which directs flow to the Headworks Building. This bypassing can be used when removing the existing single grit classifier to allow the installation of the new grit classifier within the same footprint. This bypassing can also be used when replacing specific slide gates within the Headworks Building and

must be used when completing modifications to the Headworks Channel upstream of the Headworks Building. When bypassing the Headworks Building, the two existing force mains entering the Headworks Building channels (12-inch F and 8-inch F) shall be temporarily re-routed to the upstream junction chamber.

7. CONTRACTOR may begin modifications within the Administration Building once all necessary equipment and materials have been delivered to the site.
    a. The existing laboratory must be temporarily relocated to allow the new laboratory modifications to be completed in the same footprint. CONTRACTOR shall complete the temp lab relocation within two days to avoid interruption of the daily lab testing processes. CONTRACTOR shall coordinate with OWNER prior to beginning lab relocation to allow lab to continue to operate while the lab bases/countertop, fume hood, incubators, dishwasher, refrigerator, and all other necessary equipment are being relocated. CONTRACTOR shall complete the new lab renovation from April 1 to May 31. Once the new laboratory renovations have been completed and is functional, CONTRACTOR shall dispose of all the temporarily relocated lab cabinets and equipment unless otherwise claimed for reuse by OWNER. CONTRACTOR shall provide temporary means of heating/cooling the temporary lab space during its operation.
    b. CONTRACTOR shall minimize the time necessary to complete the renovations in the superintendent's office, staff office, and conference training room to avoid displacement of city staff for longer than five days in each space. CONTRACTOR shall assist OWNER in relocating desks/cabinets/computers from the offices and conference training room to a temporary location in the vehicle storage area while renovations are being completed in these spaces. The renovated offices will be supplied with new office furniture paid by CONTRACTOR out of a bid allowance specified in Section 12 51 00–Office Furniture.
8. CONTRACTOR shall temporarily locate and power two new blowers specified in Section 43 11 33–Low Pressure Rotary Lobe Blowers adjacent to the new air piping routed into the new aerobic sludge digesters. One blower shall be connected to the air piping feeding two digester cells and the other blower shall feed the other two cells. Blowers shall be located on a temporary concrete pad and CONTRACTOR shall construct a temporary wood frame structure to protect the blowers from the elements. This temporary blower structure shall not be heated or cooled. The temporary piping connecting to the permanent air piping entering the digester cells shall be steel to eliminate the potential for melting plastic piping such as PVC or HDPE. The new intake filter shall be temporarily installed on the suction piping to protect the blower from dusty field conditions.
9. Once all the new piping has been tested and the new equipment successfully started-up, CONTRACTOR shall finish filling oxidation ditches with final effluent and begin mixing/aerating Oxidation Ditch No. 1 and start-up Final Clarifier No. 1. CONTRACTOR shall arrange for the hauling of 50,000 gallons of mixed liquor seed from a nearby wastewater treatment plant that nitrifies (removes ammonia from final effluent) and introduce this seed to Oxidation Ditch No. 1. Simultaneously, CONTRACTOR shall arrange for pumping settled sludge from the two existing final sedimentation basins to Oxidation Ditch No. 1 at a rate of approximately 100 gpm to supplement the biological seeding of the oxidation ditch. CONTRACTOR shall also arrange for the pumping of plant influent (following screening and grit removal) from the large existing flat top manhole immediately upstream of the existing grit channels (Structure 20) while original WWTP remains in-service. This establishment of the new biological population within the Oxidation Ditch No. 1 is expected to take up to four months. During this period, CONTRACTOR shall linearly increase the plant influent pumping from the flat top manhole from 100 gpm to 1,000 gpm into Oxidation Ditch No. 1 to acclimate the

biological organisms to increasingly higher influent BOD, ammonia, and phosphorus loadings (while simultaneously decreasing the loadings to the existing WWTP). Final Clarifier No. 2 shall be started up as biological population increases in Oxidation Ditch No. 1. OWNER's staff will collect samples for analysis in OWNER's lab during this 4-month period and will measure sludge blankets in final clarifiers.

10. OWNER must disinfect effluent wastewater from March 15 to November 15 annually. CONTRACTOR must complete modifications within the existing chlorination basins during the non-disinfection season from November 16 to March 14 (approximately four months) to convert them to a single ultraviolet disinfection basin. CONTRACTOR must complete modifications within this non-disinfection period and have all new equipment started up by no later than March 10 to begin disinfection. CONTRACTOR must also complete these modifications before the new WWTP is started up.
    a. CONTRACTOR shall install a temporary 24-inch diameter or larger pipe to bypass entirely around both the north and south chlorination basins from the final settling basins effluent channel to the new expanded effluent box of the chlorination basins. This bypass pipe will allow gravity flow around the chlorination basins while CONTRACTOR completes modifications during the non-disinfection season. CONTRACTOR shall provide all necessary "short-term bypass pumping" for critical modifications such as concrete wall coring/cutting to allow gravity bypass piping to be installed.
    b. CONTRACTOR may begin modifications within the north half of the chlorination basins prior to November 15, while the south half remains in-service disinfecting the effluent wastewater during "lower" flow periods. CONTRACTOR can direct flow to the south chlorination basin by using existing stop plates and providing supplemental sealing of these gates to provide dry conditions in the north chlorination basin for beginning these modifications. During this period, CONTRACTOR shall install the new 30-inch SE pipe into the existing north chlorination basin.
11. While the new WWTP is developing the appropriate biological mass while the existing WWTP remains in-service, all the settled sludge in the new final clarifier(s) shall be returned to the Oxidation Ditch Splitter Box by the new RASP pump(s) and no sludge wasting to the new aerobic digesters shall occur by the S/WASP pump(s). However, scum is collected off the active final clarifier(s) water surface continuously and directed to the scum wet well. Therefore, concentrated scum must be periodically pumped by the S/WASP pumps to the aerobic digesters. The new WWTP effluent samples will be collected by OWNER and analyzed by OWNER's laboratory and that data will be discussed at construction progress meetings.
    a. While the influent raw wastewater flow is progressively being re-directed to Oxidation Ditch No. 1, the sludge being wasted from the existing WWTP to the anaerobic digesters will progressively decrease while the sludge being wasted to the new aerobic digesters will progressively increase once an adequate biological population baseline is achieved in Oxidation Ditch No. 1. During this time period, OWNER's staff will determine if one or more of the three anaerobic digesters can be emptied in preparation for CONTRACTOR demolition. Additionally, CONTRACTOR shall provide temporary piping from the Digested Sludge Transfer Station force main to above the ground surface with a quick connect to allow OWNER to arrange for digested sludge hauling out of the new aerobic digesters during construction as necessary. CONTRACTOR shall also maintain access for OWNER to arrange for sludge hauling out of the existing Sludge Storage Tank No. 1 which is still receiving sludge from the existing anaerobic digesters.
    b. Once the new WWTP effluent is meeting final effluent limits, CONTRACTOR shall terminate CONTRACTOR-provided plant influent pumping from the flat-top manhole

to Oxidation Ditch No. 1 along with CONTRACTOR-provided settled sludge pumping from the two existing final sedimentation basins to Oxidation Ditch No. 1. CONTRACTOR shall then bypass pump the entire influent flow from the grit basin effluent channel(s) at the Headworks Building to Oxidation Ditch No. 1 while the new 30-inch PI is connected to the existing 30-inch PI to redirect the plant influent flow from the flat-top manhole to the new Oxidation Ditch Splitter Box. Once this connection is completed, CONTRACTOR shall pump the water/sludge from all existing WWTP tanks through the Headworks Building such that any screenings and grit material is removed by the new Headworks Building equipment prior to entering the new WWTP. OWNER shall pump remaining anaerobically digested sludge from the anaerobic digesters using existing pumps to Sludge Storage Tank No. 1. The remaining sludge in the anaerobic digesters shall be pumped to Sludge Storage Tank No. 1 by CONTRACTOR.

c. Once the existing WWTP tanks and anaerobic digesters have been drained, CONTRACTOR shall demolish and entirely remove the existing WWTP and anaerobic digesters and associated piping including the grit channels, Control Building, pre-aeration basins, settling basins, and trickling filters and all associated structures.

12. The modifications to the existing Sludge Storage Tank No. 1 may begin once the anaerobic digester demolition begins. Upon completion of the anaerobic digester demolition, construction of Sludge Storage Tanks No. 2 and No. 3 shall begin. CONTRACTOR shall protect the already-constructed Digested Sludge Transfer Station and associated piping during this construction. CONTRACTOR shall complete the connection of the new 6-inch DSL force main from the Digested Sludge Transfer Station to the existing 8-inch DSL force main adjacent to Sludge Storage Tank No. 1. Once this connection is made, this line can be used to transfer digested sludge by gravity from Sludge Storage Tank No. 1 back into Sludge Storage Tanks No. 2 and No. 3 once completed. This option could allow CONTRACTOR to complete construction and start-up of Sludge Storage Tanks No. 2 and No. 3 before performing the work within Sludge Storage Tank No. 1 that requires it to be empty.
    a. OWNER typically arranges for liquid sludge hauling by a privatization firm in the spring and fall weather pending. CONTRACTOR shall consider this in developing their construction schedule. CONTRACTOR shall pump any remaining sludge in Sludge Storage Tank No. 1 in order to perform the modifications.
13. The construction of the Storage Facility may begin once the trickling filters and related structure are demolished.

1.05 CONTRACTOR USE OF SITE

A. General:
1. The “area of the site” referred to in these Specifications shall be as shown on the Drawings. If the “area of the site” is not shown, OWNER's property lines, the Project right-of-way and/or any easements obtained for the Project shall be considered the “area of the site.”
2. Construction activities shall be confined within the “area of the site” limits.
3. From the start of work to completion CONTRACTOR is responsible for the care of the site and the premises which are affected by operations of Work of this Contract.
4. Except for permanent site improvements provided under the Contract, CONTRACTOR shall restore property disturbed during the Work, to the conditions which previously existed.

5. Work in occupied spaces shall be restricted to specified Work and essential activities, such as making necessary connections and extending services or constructing temporary access ways. Such work shall be scheduled in advance with OWNER.

B. Parking and Deliveries:
   1. CONTRACTOR is responsible for control of traffic by vehicles and persons within the limits of its operations.
   2. Parking for employees, subcontractors, and agents of CONTRACTOR shall be in areas as shown on the Drawings.
   3. Access to the site for delivery of construction material or equipment shall be at locations shown on the Drawings.

1.06 EXISTING SERVICES, OVERHEAD UTILITIES, AND UNDERGROUND FACILITIES INCLUDING STRUCTURES

A. Interruption of existing services and systems including heating, ventilating, air conditioning, water, sanitary, lighting and power, signal and security systems, and similar work shall be kept to an absolute minimum and shall be limited to times approved by OWNER.

B. If deemed necessary by OWNER, such work shall be accomplished after OWNER's normal office hours.

C. Work shall not commence until all labor, materials, and equipment are available so Work can continue without interruption or delay.

D. Should uncharted or incorrectly charted services or Underground Facilities be encountered during installation, notify OWNER and consult with utility owner immediately.

E. Cooperate with OWNER and utility companies in keeping respective services and Underground Facilities in operation and repair any damage.

F. CONTRACTOR shall not interrupt existing services and Underground Facilities occupied and used by OWNER or others, except when permitted in writing by OWNER.

G. Any accidental interruption of services and Underground Facilities shall be repaired immediately, including provision of temporary facilities until permanent repairs can be made.

H. Iowa Law (Chapter 480, Iowa Code) requires, among other provisions, that before excavation or demolition begins, reasonable advance notice (not less than 48 hours prior to the start of the excavation or demolition) of the intent to excavate or demolish be provided to the owners of the Underground Facilities in and near the construction area whose facilities may be affected by the excavation or demolition. As part of this notification requirement, CONTRACTOR shall contact Iowa One Call (811 or 1-800-292-8989). CONTRACTOR shall be aware that not all owners participate in the Iowa One Call program. A call to this agency shall not absolve CONTRACTOR of the requirements of this statute. CONTRACTOR shall comply with all other provisions of the statute though not enumerated herein.

I. Locations and elevations of services and Underground Facilities as shown on the Drawings are approximate. It shall be CONTRACTOR's responsibility to determine their exact location when in their vicinity. To this end, CONTRACTOR shall proceed with caution in the excavation and preparation of the Site so the exact location of services and Underground Facilities can be determined. CONTRACTOR shall include in the Contract Price any costs

for temporary or permanent relocations of such services and Underground Facilities required to complete the Work unless specifically indicated otherwise in the Specifications.

J. Where potential grade conflicts might occur with existing services and Underground Facilities, CONTRACTOR shall uncover such services and Underground Facilities sufficiently in advance of construction so that elevations may be determined to allow any necessary adjustments to be made.

K. CONTRACTOR shall coordinate with overhead utility companies prior to the Work. CONTRACTOR shall provide all necessary temporary and permanent support relocation or temporary and permanent restraint to maintain overhead utilities in service.

L. CONTRACTOR shall keep an accurate and complete record of all such services and Underground Facilities encountered and shall provide OWNER a copy of this record. The record shall include a description of the item encountered, opinion as to conditions, and adequate measurements and depths so that the item can be located in the future.

M. CONTRACTOR shall inspect all services and Underground Facilities for condition and soundness. Unsound conditions shall be reported to OWNER immediately after exposing. CONTRACTOR shall not proceed with the Work until the service or facility owner has been notified. Service or facility owner shall then be given time to inspect and correct, if required, the service or Underground Facility. CONTRACTOR may make claim under the provisions of Articles 11 and 12 of the General Conditions should CONTRACTOR feel a price or time adjustment is justified.

N. Any additional costs incurred because of failure of CONTRACTOR to report the condition of any and all existing services and Underground Facility encountered shall be paid for by CONTRACTOR.

O. Whenever ENGINEER feels it is necessary to explore and excavate to determine the location of existing services and Underground Facilities, CONTRACTOR shall make explorations and excavations for such purposes. If CONTRACTOR is required to perform additional Work in making the explorations and excavations, extra compensation will be allowed as provided for in the General Conditions.

1.07 PROTECTION OF WORK AND IMPROVEMENTS

A. CONTRACTOR shall protect the property of OWNER, existing improvements, and the Work installed by CONTRACTOR and others from abuse, damage, dust, debris, and other objectionable materials resulting from construction activities.

B. CONTRACTOR shall provide suitable covers, partitions, or other dust and fume containment devices to suit construction operations.

C. CONTRACTOR shall keep property, existing improvements, and the Work including structures, mains, fittings, and accessories free from dirt and foreign matter at all times.

D. CONTRACTOR shall provide temporary plugging of openings, holes, and pipe ends that are existing or that CONTRACTOR has installed.

E. Property, improvements, and Work damaged by CONTRACTOR shall be repaired or replaced by CONTRACTOR to the satisfaction of OWNER.

F. CONTRACTOR is cautioned that existing public and private streets, alleyways, and roads may not hold up to typical construction traffic or activities. CONTRACTOR shall repair or replace streets, alleyways, roads, and shoulders damaged by its construction activities to their original condition at CONTRACTOR's expense.

1.08 AVAILABILITY OF LANDS

A. Easements were not obtained for this Project. CONTRACTOR shall confine its operations, equipment and storage areas to the lands and rights-of-way in which the Project is to be located. CONTRACTOR may enter into written agreements with property owners for use of other lands during construction. Copies of such agreements shall be provided to OWNER.

PART 2–PRODUCTS

NOT APPLICABLE

PART 3–EXECUTION

NOT APPLICABLE

END OF SECTION

SECTION 01 29 00

CONTRACT CONSIDERATIONS

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
   1. Cash Allowances.
   2. Measurement and Payment–Lump Sum.

1.02 CASH ALLOWANCES

A. See Paragraph 13.02 of the General Conditions for costs to be included in allowances.

B. Refer to sections of the specifications identified in the Bid Form for specific information on use of cash allowances.

C. The Bid shall include the amount equal to the specified quantity times the unit price.

D. CONTRACTOR shall take measurements and compute quantities. ENGINEER will check measurements and quantities.

1.03 MEASUREMENT AND PAYMENT–LUMP SUM

A. Payment for Lump Sum projects will be based on the accepted schedule of values for the project.

B. An acceptable schedule of values will include the following features:
   1. Schedule shall list the installed value of the component parts of the work in sufficient detail to serve as a basis for computing values for progress payments during construction. Schedule shall be subdivided as necessary by specification section and work area.
   2. Identify each line item with the number and title of the respective Specification Section.
   3. For each major line item list sub-values of major products or operations under the item.
   4. For the various portions of the work:
      a. Each item shall include a directly proportional amount of CONTRACTOR's overhead and profit.
      b. For items on which progress payments will be requested for stored materials, break down the value into:
         (1) The cost of the materials, delivered and unloaded, with taxes paid. Paid invoices are required for materials upon request by ENGINEER.
         (2) The total installed value.
   5. The sum of all values listed in the schedule shall equal the total Contract Sum.
   6. Schedule shall include a separate listing of general items such as bonds, insurance, mobilization, demobilization, field supervision, record documents, and cash allowances.

C. Once a schedule of values is accepted, it shall not be revised, except for changes associated with subsequently executed change orders.

D. No separate measurement for payment will be performed for Lump Sum Work.

E. CONTRACTOR shall estimate percentage of Work completed. ENGINEER will review CONTRACTOR's estimate of quantity of Work completed.

F. Payment will be made based on the percentage of the Contract completed less retainage and/or liquidated damages.

G. Unless noted otherwise, all Work described in the Specifications and/or shown on the Drawings shall be included in the Lump Sum Bid.

H. Some technical specification sections may include payment provisions. These provisions are in addition to the provisions of this section which apply to all of the Work.

PART 2–PRODUCTS

NOT APPLICABLE

PART 3–EXECUTION

NOT APPLICABLE

END OF SECTION

SECTION 01 31 00

COORDINATION, FIELD ENGINEERING, AND MEETINGS

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
1. Coordination.
2. Field Engineering.
3. Progress Meetings.
4. Preinstallation Meeting.
5. Preconstruction Video.
6. Preinstallation Videoconference.

1.02 COORDINATION

A. CONTRACTOR shall coordinate scheduling, submittals, and work of the various sections of the work to provide an efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later. See Section 01 11 00–Summary of Work for specific construction sequence.

B. CONTRACTOR shall verify utility requirements and characteristics of operating equipment are compatible with building utilities and coordinate Work of various sections having interdependent responsibilities for installing, connecting to, and placing in service such equipment.

C. CONTRACTOR shall coordinate space requirements and installation of mechanical and electrical work which are indicated diagrammatically on the Drawings and shall follow routing shown for pipes, ducts, and conduit as closely as practicable; place runs parallel with line of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

D. In finished areas, except as otherwise indicated, CONTRACTOR shall conceal pipes, ducts, and wiring within the construction and coordinate locations of fixtures and outlets with finish elements.

E. CONTRACTOR shall coordinate completion and cleanup of Work of separate sections in preparation for substantial completion and for portions of Work designated for OWNER's occupancy.

F. After OWNER occupancy of premises, CONTRACTOR shall coordinate access to Site for correction of defective Work and Work not in accordance with Contract Documents to minimize disruption of OWNER's activities.

1.03 FIELD ENGINEERING

A. CONTRACTOR shall locate and protect property stakes, legal survey monuments, benchmarks, and survey control and reference points. CONTRACTOR shall pay for replacement of disturbed property stakes and legal survey monuments by a Registered Land

Surveyor acceptable to OWNER and for replacement of benchmarks and survey control and reference points provided by ENGINEER.

B. CONTRACTOR shall provide field engineering services as required to establish elevations, lines, and levels utilizing recognized engineering survey practices.

C. CONTRACTOR shall furnish all required plummets and graduated poles to check all Work.

D. If stakes and boards have to be reset because of negligence of CONTRACTOR, CONTRACTOR shall bear the cost of such work.

E. If laser beam is used, CONTRACTOR shall check its Work against intermediate grade stakes provided between manholes. Prior to initial use of the laser, CONTRACTOR shall set up laser on ground surface and check line and gradient controls. Lasers not functioning properly shall be immediately removed.

F. CONTRACTOR shall be responsible for all lines, elevations, and measurements of buildings, structures, piping, utilities, and other work executed by CONTRACTOR under the Contract. CONTRACTOR must exercise proper precaution to verify figures before laying out the Work and will be held responsible for any error resulting from its failure to exercise such precaution.

1.04 PROGRESS MEETINGS

A. Progress meetings will be held throughout progress of the Work at intervals agreed to by OWNER, ENGINEER, and CONTRACTOR. Interval will generally be monthly.

B. CONTRACTOR's project manager, job superintendent, major subcontractors, and suppliers shall attend as appropriate to address agenda topics for each meeting. CONTRACTOR's representatives shall have authority to bind CONTRACTOR to decisions at the meetings.

C. The project schedule shall be updated monthly and shall be reviewed at each progress meeting.

D. CONTRACTOR shall also provide the following information in written form at each meeting.
   1. Construction progress, including:
      a. Activities completed this reporting period.
      b. Activities in progress this reporting period.
      c. Activities scheduled to commence this reporting period.
   2. Description of problem areas.
   3. Current and anticipated delays.
      a. Cause of the delay.
      b. Corrective action and schedule adjustments to correct the delay.
      c. Impact of the delay on other activities, on milestones, and on completion dates.
   4. Changes in construction sequence.

E. ENGINEER will prepare and distribute minutes to all attending parties.

1.05 PREINSTALLATION MEETING

A. When required in individual specification sections, CONTRACTOR shall convene a preinstallation meeting at Work Site prior to commencing Work of the section.

B. CONTRACTOR shall require attendance of parties directly affecting or affected by work of the specific section.

C. CONTRACTOR shall notify ENGINEER seven days in advance of meeting date.

D. CONTRACTOR shall prepare agenda and preside at meeting:
   1. Review conditions of installation, preparation, and installation procedures.
   2. Review coordination with related work.

E. CONTRACTOR shall record minutes and distribute copies to participants and those affected by decisions made within one week after meeting.

1.06 PRECONSTRUCTION VIDEO

A. Prior to mobilization at the site, CONTRACTOR shall furnish to ENGINEER a high-resolution color audio-video recording of all planned construction areas, including but not limited to streets, driveways, sidewalks, curbs, fencing, visible utilities, retaining structures, and adjacent building structures. The purpose of the video is to document existing conditions and to provide a fair measure of required restoration. Care should be taken to record all existing conditions that exhibit deterioration, imperfections, structural failures, or situations that would be considered substandard.

B. The video recording shall be performed by a professional firm specializing in audio-video work. The videos shall be high quality, color, and high-resolution. The video shall be provided in a digitized format that is supported by Window Media Player. The videos shall be provided via DVD, thumb drive, or other media requested by OWNER. Temporary lighting shall be provided as necessary to properly video areas where natural lighting is insufficient (indoors, shadows, etc.). The videos shall include an audio soundtrack, to provide the following information.
   1. Detailed description of location being viewed referenced to Contract Drawings (i.e., station number, building designation, pipeline route, etc.).
   2. Direction (N, S, E, W, looking up, looking down, etc.) of camera view.
   3. Date, time, temperature, and environmental conditions at time of video.

C. Video recording shall not be performed during inclement weather or when the ground is covered partially of totally with snow, ice, leaves, etc.

D. As many videos as are necessary to satisfy the requirements of this section shall be prepared. The original videos shall be submitted to ENGINEER accompanied by a detailed log of the contents of each video. The log should include location descriptions to facilitate the quick location of information contained in the videos. The videos will be maintained by ENGINEER during construction and may be viewed at any time by CONTRACTOR upon request. Upon final acceptance, the videos will become permanent property of OWNER.

E. All costs associated with this shall be included in the Lump Sum Bid for this Work.

1.07 PREINSTALLATION VIDEOCONFERENCE

A. When required in Section 26 09 00–Controls and Instrumentation, CONTRACTOR shall convene a preinstallation videoconference prior to the on-site functional acceptance testing.

B. CONTRACTOR shall require attendance of CONTRACTOR, System Supplier, Division 26 contractor, OWNER, ENGINEER, and all other parties responsible for the equipment and controls schedules for on-site functional acceptance testing.

C. CONTRACTOR shall arrange videoconference two months prior to the anticipated on-site functional acceptance testing. CONTRACTOR shall arrange an additional videoconference one month prior to the date for on-site functional acceptance testing of each group of equipment.

D. Additional requirements for the videoconference can be found in Section 26 09 00–Controls and Instrumentation.

PART 2–PRODUCTS

NOT APPLICABLE

PART 3–EXECUTION

NOT APPLICABLE

END OF SECTION

SECTION 01 33 00

SUBMITTALS

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
   1. Whenever possible throughout the Contract Documents, the minimum acceptable quality of workmanship and materials has been defined either by manufacturer's name and catalog number or by reference to recognized industry standards.
   2. To facilitate CONTRACTOR's understanding of the design intent, procedures have been established for advance submittal of design data and for its review or rejection by ENGINEER.
   3. The type of submittal requirements specified in this section include construction progress schedule, submittal schedule, shop drawings, product data, samples, maintenance manuals, and other miscellaneous work-related submittals.

B. Related work described elsewhere: More detailed requirements for submittals are described in other sections of these specifications for some materials and equipment. They are to be considered additional requirements to supplement the requirements specified in this section. Submittals shall conform to Article 7 of the General Conditions.

C. Definitions: "Electronic Submittal" is defined as any submittal transmitted electronically to ENGINEER for review.

1.02 IDENTIFICATION OF SUBMITTALS

A. CONTRACTOR shall completely identify each submittal and resubmittal by showing at least the following information:
   1. Name and address of submitter, plus name and telephone number of the individual who may be contacted for further information.
   2. Name and location of project and identification number.
   3. Drawing number and specifications section number to which the submittal applies.
   4. Include the date of each submittal or resubmittal.

1.03 GROUPING OF SUBMITTALS

A. Unless otherwise specifically permitted by ENGINEER, CONTRACTOR shall make all submittals in groups containing all associated items so that information is available for checking each item when it is received.

B. Partial submittals may be rejected as not complying with the provisions of the Contract Documents.

1.04 TIMING OF SUBMITTALS

A. CONTRACTOR shall make all submittals far enough in advance of scheduled dates of installation to provide required time for reviews, for securing necessary approval, for possible revision and resubmittal, and for placing orders and securing delivery.

B. The review period for submittals that are received after 3 P.M. shall commence on the following business day.

1.05 CONSTRUCTION PROGRESS AND SUBMITTAL SCHEDULES

A. Submit preliminary schedules within 10 days of the Effective Date of the Contract.

B. Revise schedules incorporating any comments provided at the schedule review conference required in GC-2.05 and resubmit.

C. As a minimum, the construction progress schedule shall consist of a horizontal bar chart with a separate line for each major portion of Work or operation, identifying first workday of each week.

D. Show complete sequence of construction by activity, identifying Work of separate stages and other logically grouped activities. Indicate the early and late start, early and late finish, float (defined as the amount of time an activity can be delayed without impacting completion deadlines), and duration for each activity. Identify activities that are on the critical path.

E. Include line items for milestones (if any), Substantial, and Final Completion.

F. Submit updated schedules with each Application for Payment, identifying changes since previous version.

G. Indicate estimated percentage of completion for each item of Work at each submission.

H. Indicate submittal dates required for shop drawings, product data, samples, and product delivery dates.

1.06 SHOP DRAWINGS

A. Shop drawings shall include specially prepared technical data for this project including drawings, diagrams, performance curves, data sheets, schedules, templates, patterns, reports, calculations, instructions, measurements, and similar information not in standard printed form for general application to a range of similar projects. Shop drawings shall be submitted for all manufactured or fabricated items. See individual technical sections for special requirements.

B. CONTRACTOR shall make all shop drawings accurately to scale and sufficiently large to show all pertinent aspects of the item and its method of connection to the work.

C. Shop drawings shall be checked, approved, and stamped by CONTRACTOR in accordance with the General Conditions before transmittal to ENGINEER for review and approval.

D. Complete shop drawings and descriptive data shall be submitted on all manufactured or fabricated items prior to 50% completion of the Work. Applications for payment beyond 50% of the Contract amount will not be recommended for payment until all shop drawings are submitted, including color hard copies if requested by OWNER, or a revised schedule for any remaining submittals is agreed to by OWNER and ENGINEER.

E. CONTRACTOR shall submit shop drawings following the electronic submittal procedure described below.

F. Shop drawings submitted to ENGINEER will be reviewed and stamped “Approved,” “Approved as Noted,” “Approved as Noted-Resubmit,” or “Not Approved.” CONTRACTOR shall resubmit shop drawings stamped “Approved as Noted-Resubmit” and “Not Approved,” and will continue this process until shop drawings are stamped “Approved” or “Approved as Noted.” If drawings are stamped “Approved as Noted-Resubmit,” fabrication may proceed in accordance with the marked-up shop drawings. Installation shall not proceed until shop drawings have been resubmitted and stamped “Approved” or “Approved as Noted.”

G. If shop drawings are stamped “Approved as Noted” or “Approved as Noted-Resubmit” and CONTRACTOR does not agree with revisions or cannot conform with revisions, fabrication shall not proceed and shop drawings shall be resubmitted with explanation of CONTRACTOR’s position.

H. All shop drawings used for construction site activities shall bear the “Approved” or “Approved as Noted” stamp of ENGINEER.

I. Electronic Submittal Procedures:
   1. Summary:
      a. Shop drawing and product data submittals shall be transmitted to ENGINEER in electronic (PDF) format using Submittal Exchange, or equal, a website service designed specifically for transmitting submittals between construction team members, or equal.
      b. The intent of electronic submittals is to expedite the construction process by reducing paperwork, improving information flow, and decreasing turnaround time.
      c. The electronic submittal process is not intended for color samples, color charts, or physical material samples.
   2. Procedures:
      a. CONTRACTOR shall review and apply electronic stamp certifying that the submittal complies with the requirements of the Contract Documents including verification of manufacturer/product, dimensions and coordination of information with other parts of the work.
      b. CONTRACTOR shall transmit each submittal to ENGINEER using the Submittal Exchange website, www.submittalexchange.com, or equal.
      c. ENGINEER review comments will be made available on the approved website for downloading. CONTRACTOR will receive email notice of completed review.
      d. Distribution of reviewed submittals to subcontractors and suppliers is the responsibility of CONTRACTOR.
      e. Electronically submitted shop drawings shall follow the following format:
         (1) Filenames for the shop drawing submittals shall follow a XX XX XX.YYY-Z. Description convention where XX XX XX is the specification section number, YYY is the submittal number, .Z is the resubmittal number, and description is a short description of what the submittal includes. Submittals shall be consecutively numbered in direct sequence of submittal. Resubmittals shall be consecutively numbered with the first submittal numbered with a -0 and the first resubmittal numbered with a -1. Example file name: 03 20 00.016-1. Structure 10 Concrete Reinforcement. This would be the first revision of the sixteenth submittal and contain information on concrete reinforcement.
         (2) All files shall be delivered in PDF format with a minimum resolution of 300 dpi unless otherwise requested by ENGINEER. Scanned in material shall be scanned in color and any markings by CONTRACTOR shall be made in red. Pages shall be rotated to the appropriate position for easy reading on a computer monitor such that the majority of text is vertical.

(3) Files shall be delivered without security features activated.
(4) Shop Drawings shall be uploaded as individual files. Files combined into a zip drive are not acceptable. All pages of one submittal should be contained in one file.
(5) The file shall open to a cover page containing, at a minimum, the following information:
(a) CONTRACTOR's stamp.
(b) Name, e-mail, and telephone number of the individual who may be contacted for further information.
(c) Project number.
(d) Submittal number.
(e) Submission date, if resubmittal, all previous submission dates.
(f) Index detailing contents and the total number of pages in the submittal.

3. Costs:
a. CONTRACTOR shall include the full cost of approved website service, project subscription the Contract amount for the duration of the project.
b. Internet Service and Equipment Requirements:
(1) Email address and Internet access at CONTRACTOR's main office.
(2) Adobe Acrobat (www.adobe.com), Bluebeam PDF Revu (www.bluebeam.com), or other similar PDF review software for applying electronic stamps and comments.

J. CONTRACTOR is fully responsible for obtaining any and all copyright permission associated with conversion of shop drawing information to electronic format.

K. Shop drawings shall include verification that the item meets applicable codes and standards.

1.07 COLORS AND PATTERNS

A. Unless the precise color and pattern is specifically described in the Contract Documents, whenever a choice of color or pattern is available in a specified product, CONTRACTOR shall submit accurate color charts and pattern charts to ENGINEER for OWNER's review and selection.

B. Unless all available colors and patterns have identical wearing capabilities and are identically suited for the installation, CONTRACTOR shall completely describe the relative capabilities of each.

1.08 SAMPLES AND FIELD MOCKUPS

A. CONTRACTOR shall provide samples and field mockups where noted or specified.

B. Samples are physical examples which illustrate materials, equipment, or workmanship and establish standards by which the work will be judged.

C. Samples shall be of sufficient size and quantity to clearly illustrate the functional characteristics of the product and full range of color, texture, and pattern.

D. Samples shall have labels firmly attached, bearing the following information:
1. Name of project.
2. Description of product and finish.
3. Name of CONTRACTOR.

4. Trade name and number of product.
5. Standards met by the product.

E. Approval of samples must be obtained prior to proceeding with any work affected by material requiring sample approval.

F. Samples, unless otherwise noted, become the property of OWNER.

G. In situations specifically approved by ENGINEER, the retained sample may be used in the construction as one of the installed items.

H. Field Mockups:
1. CONTRACTOR shall erect field mockups at the project site in a location acceptable to ENGINEER and OWNER.
2. When accepted by ENGINEER, the mockup will become the basis for comparison of the actual work.
3. Remove mockup at conclusion of the work if it was not incorporated into the work.

1.09 PRODUCT DATA

A. CONTRACTOR shall provide product data as required to supplement shop drawings.

B. Product data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by CONTRACTOR to illustrate a material, product, or system for some portion of the work.

C. CONTRACTOR shall collect required product data into one submittal for each unit of work or system.

D. CONTRACTOR shall include manufacturer’s standard printed recommendations for application and use, compliance with standards, performance characteristics, wiring and piping diagrams and controls, component parts, finishes, dimensions, required clearances, and other special coordination requirements.

E. CONTRACTOR shall mark each copy of standard printed data to identify pertinent products, models, options, and other data.

F. CONTRACTOR shall supplement manufacturer’s standard data to provide information unique to the work.

1.10 RESUBMISSION REQUIREMENTS

A. Make any corrections or changes in the submittals required by ENGINEER.

B. Shop Drawings and Product Data:
1. Revise initial drawings or data and resubmit as specified for initial submittal.
2. Itemize in a cover letter any changes which have been made other than those requested by ENGINEER.

1.11 MANUFACTURER'S DIRECTIONS

A. Manufactured articles, materials, and equipment shall be stored, commissioned, operated, applied, installed, connected, erected, used, cleaned, and conditioned as directed by the manufacturer, unless specified to the contrary.

B. Wherever specifications call for work to be performed or materials to be installed in accordance with the manufacturer's printed instructions or directions, CONTRACTOR shall furnish copies as required for shop drawings of those instructions or directions to ENGINEER before installing the material or performing the work.

1.12 MAINTENANCE MANUAL

A. Prior to 75% completion of the Contract or at a minimum of 45 days prior to the scheduled start-up date of any individual item of equipment, whichever is earlier, CONTRACTOR shall furnish to ENGINEER one complete portable document format copy of a maintenance manual for all equipment furnished. Applications for payment beyond 75% of the contract amount will not be recommended for payment until all maintenance manuals are submitted or a revised schedule for remaining maintenance manuals is agreed to by OWNER and ENGINEER.

B. The manuals shall include manufacturer's instructions for maintenance and operation for each item of mechanical and electrical equipment. Manuals shall be specific for the equipment as installed; provide project specific inserts as required. Manuals shall contain: operation instructions, lubrication schedules, types and quantities, preventative maintenance program, spare parts list, parts lists, I.D. No. and exploded views, assembly instructions, parts supplier location, trouble shooting and startup procedures and, where applicable, test data and curves.

C. CONTRACTOR is responsible for producing an electronic version of the Equipment Operations and Maintenance (O&M) Manuals Manual. The Electronic Equipment O&M Manual shall be delivered in Portable Document Format (PDF). The entire manual may be converted to PDF via scanning or other method of conversion. Drawings or other graphics must be converted to PDF format and made part of the PDF document. CONTRACTOR shall provide all Equipment O&M Manuals in the electronic format as defined below.

D. The filename for the Equipment O&M Manual submittal will be provided with the request for final Equipment O&M Manuals. Filenames use the "eight dot three" convention (XX XX XX_YY.PDF) where XX XX XX is the specification section number and YY is an ID number. No one file shall be larger than 10 MB. If technical problems require that the submittal be divided into more than one file, a letter extension shall be added to the end of each filename.

E. The number of files shall be kept to a minimum. Equipment O&M Manuals that span more than one file shall have the final Bookmark "Return to Table of Contents" which shall take the User to the first file on the Equipment O&M Manual.

F. All text (word processed), spreadsheets, and electronic graphics shall be delivered in portable document format (*.PDF). The resolution of all scanned images shall be a minimum of 300 dpi unless otherwise requested by ENGINEER. Scanned images shall be processed with the "original image with hidden text" option (Adobe Acrobat 6 or higher). This results in a clear image and provides for optical character recognition (OCR) and word search functionality. Graphical files shall be fully searchable. All submittals must be indexed with the

Adobe Catalog feature. Placement and structure of index files shall be in accordance with Adobe's recommendations to minimize problems when transferring files. Successful searches for words or strings in the PDF document shall demonstrate proof of OCR.

G. Rotate pages viewed in landscape to the appropriate position for easy reading on a computer monitor.

H. Bookmarks shall be created in the navigation frame for each entry in the Table of Contents. Three levels deep is usually enough (i.e., “Chapter,” “Section,” “Subsection”); however, complex submittals like instrumentation and electrical may be required at the discretion of ENGINEER. When setting bookmarks for Chapter level heading, the page shall be displayed at Full Page. Section and Subsection level heading pages shall be displayed as a magnified view. Bookmarks shall be displayed as subordinate to other bookmarks in their hierarchy set so that only the Chapter level headings are displayed.

I. Thumbnails shall be generated and embedded in each PDF file.

J. Files shall be delivered without Security features activated. Password protected files will be unacceptable.

K. The opening view for PDF files shall be set as follows:
   1. Initial View: Bookmarks and Page
   2. Magnification: Fit In Window
   3. Page Layout: Single Page

L. The file shall open to the cover page of the Equipment O&M Manual with bookmarks to the left. The first bookmark shall be the name of Equipment O&M Manual.

M. O&M Manual PDFs shall be delivered electronically.

N. CONTRACTOR shall reprocess any portion of the document that does not view or print to OWNER's satisfaction.

O. CONTRACTOR is fully responsible for obtaining any and all copyright permissions associated with conversion of this information to electronic format.

P. Each maintenance manual shall include a completed equipment maintenance summary form for each type and size of equipment being furnished that requires power, lubrication, or maintenance. Equipment Summary forms are located at the end of this section.

PART 2–PRODUCTS

NOT APPLICABLE

PART 3–EXECUTION

NOT APPLICABLE

END OF SECTION

EQUIPMENT MAINTENANCE SUMMARY FORM(1)

Equipment No.: _____

_____

_____

_____

Specification Section: _____

Equipment Name: _____

Building Name: _____ Room No.: _____

Plant Location: _____

Manufacturer: _____

Address: _____

Phone: _____

Service Representative: _____

Address: _____

Phone: _____ Fax: _____

Make: _____ Model: _____

Serial No.: _____ Type: _____

Size: _____ _____

Equipment Speed: _____

Capacity: _____

Operating Range: _____

Material: _____

Alarms: _____

_____

_____

Drive Ratio: _____

Motor Speed: _____ Service Factor: _____

Volts: _____ Phase: _____ hp: _____ Efficiency: _____

Motor Type: _____

Motor Sensors: _____

Motor Manufacturer: _____

Model: _____ Motor Frame: _____

Insulation Class: _____ FLA: _____ LRA: _____

(1) Complete as applicable; attach supplementary pages as necessary.

Maintenance Requirements

(Use additional sheets if more space is needed.)

LUBRICATION

Item	Generic Type of Lubricant	Supplier	Estimated Frequency	Annual Quantity

PREVENTIVE MAINTENANCE

Item	Action	Frequency	Reference

SUGGESTED MINIMUM SPARE PARTS LIST

Manufacturer	Part No.	Quantity Unit	Description

The following information is included in O&M Manual:

Check or mark N/A

1. Recommended installation, adjustment, calibration, and troubleshooting. _____
2. Complete internal and connection wiring diagrams. _____
3. Complete parts lists, by generic title and identification number, with exploded views of each assembly. _____
4. Disassembly, overhaul, and reassembly instructions. _____
5. Recommended prestart checks. _____
6. Recommended start procedure. _____
7. Recommended shutdown procedure for both short and long term. _____
8. Recommended operating precautions that include safety for personnel and equipment. _____
9. Recommended standing maintenance procedure. _____

END OF SECTION

SECTION 01 41 00

REGULATORY REQUIREMENTS

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
1. OSHA Requirements.
2. Roadway Limits.
3. Permits.
4. Wage Rates.
5. American Iron and Steel Requirements.

1.02 OSHA REQUIREMENTS

A. All work including site safety, equipment, materials, and fabricated items provided under the Contract shall comply with the provisions of the “Occupational Safety and Health Act.”

1.03 ROADWAY LIMITS

A. CONTRACTOR shall comply with roadway weight restrictions including seasonal weight restrictions.

1.04 PERMITS

A. The following permits were obtained by OWNER:
1. Iowa Department of Natural Resources–No Permit Determination Notice for State Flood Plain and Sovereign Lands Permit.
2. Iowa Department of Natural Resources–Construction Permit.
3. Iowa State Revolving Fund Environmental Information Document.
4. Iowa State Revolving Fund Finding of No Significant Impact.

B. They are included as attachments to this division. CONTRACTOR shall comply with all provisions of these permits and shall be responsible for notifications as required by these permits. CONTRACTOR shall obtain all other permits required for the Work. Where the requirements of any permit is more restrictive than the Drawings or the Specifications, the permit requirements shall govern.

C. A building permit will be required from OWNER. However, OWNER will waive fees associated with the permit.

D. Any permits required for dewatering operations shall be obtained and paid for by CONTRACTOR.

E. The General Permit No. 2 Notice of Intent (NOI) will be submitted to the DNR by OWNER, listing CONTRACTOR as a co-permittee, upon awarding of the bid and the subsequent development and submittal by CONTRACTOR to OWNER, of an OWNER-approved Stormwater Pollution Prevention Plan (SP3) (including associated requirements of the SP3, as conveyed in the National Pollutant Discharge Elimination System General Permit No. 2

document, and the Storm Water Management For Construction Activities General Permit No. 2 Guidance Document).

CONTRACTOR and any sub-contractor that has potential to impact storm water runoff, will be required to be a co-permittee and sign (if a corporation, a principal executive officer of at least the level of vice-president) DNR Form 542-1415. CONTRACTOR must provide the signed DNR Form 542-1415 and the completed SP3 to OWNER for review, prior to OWNER submitting the NOI/SP3 to the DNR. Subcontractors that have the potential to impact storm water runoff must provide to OWNER a signed DNR Form 542-1415 prior to providing any professional services on the project.

Construction cannot start until OWNER confirms the DNR has received and approved OWNER/CONTRACTOR submitted NOI/SP3 and authorizes construction to commence.

F. CONTRACTOR shall obtain any additional Site Disturbance/Erosion Control Permits as necessary to accommodate CONTRACTOR's specific means and methods for completing the Work.

1.05 WAGE RATES

A. CONTRACTOR shall comply with the attached Federal Wage Rates, bound at the end of Division 01.

B. Not less than the prevailing wage rates for this area shall be paid to the workers employed to do the Work under this Contract.

C. CONTRACTOR shall adhere to the Federal Labor Standards Provisions (including Davis-Bacon Contract and Subcontract Provisions) included in the SRF Required Front-End Specifications attached to the end of the Bid Section.

1.06 AMERICAN IRON AND STEEL REQUIREMENTS

A. CONTRACTOR shall comply with the American Iron and Steel (AIS) requirements of the Consolidated Appropriations Act of 2014. CONTRACTOR shall submit, with each shop drawing, step certification that regulated iron and steel products meet AIS requirements. A sample certification letter is included in the SRF Required Front-End Specifications located at the end of the Bid section. Certification letters shall include the following at minimum:
   1. Identification of the product.
   2. City and State where the product was manufactured.
   3. Reference to OWNER and/or project.
   4. Signature of authorized manufacturer employee.
   5. Reference to current AIS requirements.

B. The Consolidated Appropriations Act of 2014 does grant the possibility of waivers and exclusions if certain conditions are met. Products that qualify for the AIS national de minimis waiver, dated April 2014, individually may comprise no more than one percent of the total project materials cost and cumulatively may comprise no more than five percent of the total project materials cost. Other conditions can be found in the AIS national de minimis waiver.

C. CONTRACTOR shall provide required AIS documentation prior to installation of regulated iron and steel product.

PART 2–PRODUCTS

NOT APPLICABLE

PART 3–EXECUTION

NOT APPLICABLE

END OF SECTION

SECTION 01 42 00

REFERENCE STANDARDS AND DEFINITIONS

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
   1. Reference Standards:
      a. Throughout the Contract Documents, reference is made to codes and standards which establish qualities and types of workmanship and materials, and which establish methods for workmanship and materials, and which establish methods for testing and reporting on the pertinent characteristics.
      b. Where materials or workmanship are required by these Contract Documents to meet or exceed the specifically named code or standard, it is CONTRACTOR's responsibility to provide materials and workmanship which meet or exceed that specifically named code or standard.
      c. It is also CONTRACTOR's responsibility, when so required by the Contract Documents, to deliver to ENGINEER all required proof that the material or workmanship, or both, meet or exceed the requirements of the specifically named code or standard.
   2. Definitions:
      a. A substantial amount of specification language constitutes definitions for terms found in other Contract Documents, including the Drawings which must be recognized as diagrammatic in nature and not completely descriptive of requirements indicated thereon.
      b. Certain terms used in the Contract Documents are defined generally in this section to supplement definitions of the Agreement, General Conditions, Supplementary Conditions, and other general contract documents.
      c. Definitions and explanations of this section are not necessarily either complete or exclusive, but are general for the Work.

B. Related Work Described Elsewhere: The specific naming of codes or standards occurs on the Drawings and in other sections of these Specifications.

1.02 QUALITY ASSURANCE

A. Familiarity with Pertinent Codes and Standards:
   1. It is CONTRACTOR's responsibility to verify the requirements of the specifically named codes and standards and to verify that the items procured for use in this Work meet or exceed the specified requirements.
   2. When required by individual sections of these specifications, CONTRACTOR shall obtain a copy of each pertinent code or standard and maintain the copies at the job site during submittals, planning, and progress of the Work until Substantial Completion of the Work is attained.

B. Overlapping or Conflicting Requirements:
   1. Where compliance with two or more industry standards or sets of requirements are specified, and the overlapping of those standards or requirements establishes different or conflicting minimums or levels of quality, the most stringent requirement (which is

generally recognized to be also most costly) is intended and will be enforced, unless more detailed language written directly into Contract Documents clearly indicates that a less stringent requirement is acceptable.

2. Refer all uncertainties to ENGINEER for decision before proceeding.

1.03 REFERENCE STANDARDS

A. Applicable standards of the construction industry are made a part of the Contract Documents by reference as if copied directly into the Contract Documents, or as if published copies were bound herewith. See Article 3.02 of the General Conditions for additional provisions regarding references.

B. Standards referenced directly in the Contract Documents or by governing regulation, have precedence over nonreferenced standards which are recognized in industry for applicability to the Work.

C. Nonreference standards are hereby defined to have no particular applicability to the Work except as a general measurement of whether the Work complies with standards recognized in the construction industry.

D. Reference standards and codes listed in these specifications may include, but are not necessarily limited to, standards or codes published by the following agencies and organizations:

1. AA — Aluminum Association
   1525 Wilson Boulevard, Arlington, VA 22209

2. AAMA — American Architectural Manufacturer's Association
   1827 Walden Office Square Suite 550, Schaumberg, IL 60173-4268

3. AASHTO — American Association of State Highway & Transportation Officials
   444 North Capitol Street NW Suite 249, Washington, DC 20001

4. ACI — American Concrete Institute
   38800 Country Club Drive, Farmington Hills, MI 48331-3439

5. AI — Asphalt Institute
   2696 Research Park Drive, Lexington, KY 40511-8480

6. AISC — American Institute of Steel Construction
   One East Wacker Drive Suite 700, Chicago, IL 60601-1802

7. AISI — American Iron and Steel Institute
   25 Massachusetts Avenue NW Suite 800, Washington, DC 20001

8. ANSI — American National Standards Institute
   25 West 43rd Street, New York, NY 10036

9. APA — American Plywood Association
   7011 South 19th, Tacoma, WA 98466-5333

10. API	American Petroleum Institute 1220 L Street NW, Washington, DC 20005-4070
11. ARI	Air-Conditioning & Refrigeration Institute 4100 North Fairfax Drive Suite 200, Arlington, VA 22203
12. ASHRAE	American Society of Heating, Refrigerating, and Air Conditioning Engineers 1791 Tullie Circle NE, Atlanta, GA 30329
13. ASME	American Society of Mechanical Engineers Two Park Avenue, New York, NY 10016-5990
14. ASSE	American Society of Sanitary Engineering 901 Canterbury Suite A, Westlake, OH 44145
15. ASTM	ASTM International 100 Barr Harbor Drive, West Conshohoken, PA 19428-2959
16. AWI	Architectural Woodwork Institute 46179 Westlake Drive Suite 120, Potomac Falls, VA 20165-5874
17. AWPA	American Wood Protection Association P.O. Box 361784, Birmingham, AL 35236-1784
18. AWS	American Welding Society 8669 Doral Boulevard Suite 130, Doral, FL 33166
19. AWWA	American Water Works Association 6666 West Quincy Avenue, Denver, CO 80235
20. BHMA	Builder's Hardware Manufacturers Association 355 Lexington Avenue 15th floor, New York, NY 10017
21. BIA	Brick Industry Association 1850 Centennial Park Drive Suite 301, Reston, VA 20191
22. CRSI	Concrete Reinforcing Steel Institute 9333 North Plum Grove Road, Schaumburg, IL 60173
23. DOT	U.S. Department of Transportation 1200 New Jersey Avenue, SE, Washington, DC 20590
24. EJMA	Expansion Joint Manufacturers Association 25 North Broadway, Tarrytown, NY 10591
25. FM	FM Global FM Global Corporate Offices, 270 Central Avenue, Johnston, RI 02919

26. FTI	Facing Tile Institute Box 8880, Canton, OH 44711
27. GA	Gypsum Association 6525 Belcrest Road Suite 480, Hyattsville, MD 20782
28. GANA	Glass Association of North America 800 SW Jackson Street Suite 1500, Topeka, KS 66612-1200
29. ICC	International Code Council 500 New Jersey Avenue NW 6th Floor, Washington, DC 20001
30. IES	Illuminating Engineering Society 120 Wall Street, Floor 17, New York, NY 10005-4001
31. MIL	Military Specifications Naval Publications and Forms Center 5801 Tabor Avenue, Philadelphia, PA 19120
32. NAAMM	National Association of Architectural Metal Manufacturers 800 Roosevelt Road Building C Suite 312, Glen Ellyn, IL 60137
33. NCMA	National Concrete Masonry Association 13750 Sunrise Valley Drive, Herndon, VA 20171-4662
34. NECA	NECA National Electrical Contractors Association 3 Bethesda Metro Center Suite 1100, Bethesda, MD 20814
35. NEMA	National Electrical Manufacturers Association 1300 North 17th Street Suite 1752, Rosslyn, VA 22209
36. NFPA	National Fire Protection Association 1 Batterymarch Park, Quincy, MA 02169-7471
37. NIST	National Institute of Standards and Technology (U.S. Department of Commerce), 100 Bureau Drive, Stop 1070 Gaithersburg, MD 20899-1070
38. NRCA	National Roofing Contractors Association 10255 West Higgins Road Suite 600, Rosemont, IL 60018-5607
39. NSF	National Sanitation Foundation International P.O. Box 130140, 789 North Dixboro Road, Ann Arbor, MI 48113-0140
40. OSHA	Occupational Safety & Health Administration 200 Constitution Avenue NW, Washington, DC 20210
41. PCA	Portland Cement Association 5420 Old Orchard Road, Skokie, IL 60077

42. PCI — Prestressed Concrete Institute
200 West Adams Street Suite 2100, Chicago, IL 60606

43. SAE — Society of Automotive Engineers
SAE World Headquarters
400 Commonwealth Drive, Warrendale, PA 15096-0001

44. SDI — Steel Deck Institute
P.O. Box 25, Fox River Grove, IL 60021

45. SDI — Steel Door Institute
30200 Detroit Road, Westlake, OH 44145-1987

46. SIGMA — Sealed Insulating Glass Manufacturers Assoc.
401 North Michigan Avenue Suite 2400, Chicago, IL 60611

47. SJI — Steel Joist Institute
234 Cheves Street, Florence, SC 29501

48. SMACNA — Sheet Metal and Air Conditioning
Contractor's National Association
4201 Lafayette Center Drive, Chantilly, VA 20151-1219

49. SSPC — Society for Protective Coatings
40 24th Street 6th Floor, Pittsburgh, PA 15222-4656

50. TCA — Tile Council of America
100 Clemson Research Boulevard, Anderson, SC 29625

51. UL — Underwriters Laboratories
333 Pfingston Road; Northbrook, IL 60062

1.04 SUBMITTALS

A. For OWNER's records, CONTRACTOR shall submit copies of permits, licenses, certifications, inspection reports, and similar documents, correspondence and records established in conjunction with compliance with standards and regulations bearing upon performance of the Work.

1.05 DEFINITIONS

A. Indicated:
1. The term “indicated” is a cross-reference to details, notes, or schedules on the drawings, to other paragraphs or schedules in the specifications and to similar means of recording requirements in the Contract Documents.
2. Where terms such as “shown,” “noted,” “scheduled,” and “specified” are used in lieu of “indicated,” it is for the purpose of helping the reader locate cross-reference, and no limitation is intended except as specifically noted.

B. Approve (or Words of Similar Nature):
   1. Where used in conjunction with ENGINEER's response to submittals, requests, applications, inquiries, reports, and claims by CONTRACTOR, the meaning of the term “approve” will be held to the limitation of ENGINEER's responsibilities and duties as specified in Paragraph 1.02.B of the General Conditions.
   2. In no case will “approval” by ENGINEER be interpreted as a release of CONTRACTOR from responsibility to fulfill requirements of the Contract Documents.

C. Minimum Requirements:
   1. Indicated requirements are for a specific minimum acceptable level of quality or quantity, as recognized in the industry.
   2. Actual work must comply with (or within specified tolerances) or exceed minimums.
   3. CONTRACTOR shall refer uncertainties to ENGINEER before proceeding.

D. Abbreviations: Abbreviations, where not defined in the Contract Documents, will be interpreted to mean the normal construction industry terminology.

PART 2–PRODUCTS

NOT APPLICABLE

PART 3–EXECUTION

NOT APPLICABLE

END OF SECTION

SECTION 01 45 00

QUALITY CONTROL

PART 1–GENERAL

1.01 SUMMARY

A. Work Includes:
   1. Quality Assurance–Control of Installation.
   2. Tolerances.
   3. Manufacturers' Field Services and Reports.

1.02 QUALITY ASSURANCE–CONTROL OF INSTALLATION

A. CONTRACTOR shall monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship to produce Work of specified quality.

B. CONTRACTOR shall comply with manufacturers' instructions, including each step in sequence.

C. Should manufacturers' instructions conflict with Contract Documents, CONTRACTOR shall request clarification from ENGINEER before proceeding.

D. CONTRACTOR shall comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Work shall be performed by persons qualified to produce workmanship of specified quality.

F. CONTRACTOR shall secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

1.03 TOLERANCES

A. CONTRACTOR shall monitor tolerance control of installed products to produce acceptable work and shall not permit tolerances to accumulate.

B. CONTRACTOR shall comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, CONTRACTOR shall request clarification from ENGINEER before proceeding.

C. CONTRACTOR shall adjust products to appropriate dimensions; position before securing products in place.

1.04 MANUFACTURERS' FIELD SERVICES AND REPORTS

A. When specified in individual specification sections or when requested by ENGINEER, CONTRACTOR shall require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, and quality of workmanship.

B. CONTRACTOR shall submit qualifications of observer to ENGINEER 30 days in advance of required observations.

C. CONTRACTOR shall report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

D. CONTRACTOR shall submit report in duplicate within 30 days of observation to ENGINEER for information.

PART 2–PRODUCTS

NOT APPLICABLE

PART 3–EXECUTION

NOT APPLICABLE

END OF SECTION

SECTION 01 50 00

TEMPORARY FACILITIES

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
   1. Temporary Utilities.
   2. Temporary Stairs and Access.
   3. Temporary Support Facilities.
   4. Removal of Temporary Facilities.

B. CONTRACTOR shall arrange for and provide temporary facilities as required for proper and expeditious prosecution of the Work.

C. CONTRACTOR shall pay all costs, except as otherwise specified, until final acceptance of the Work unless OWNER makes arrangements for use of completed portions of the Work after substantial completion in accordance with the provisions of the General Conditions.

D. CONTRACTOR shall make all temporary connections to utilities and services in locations acceptable to OWNER and local authorities having appropriate jurisdiction.
   1. Furnish all necessary labor and materials.
   2. Make all installations in a manner subject to the acceptance of such authorities and OWNER.
   3. Maintain such connections.
   4. Remove temporary installation and connection when no longer required.
   5. Restore services and sources of supply to proper operating conditions.

1.02 TEMPORARY UTILITIES

A. Temporary Toilets: CONTRACTOR shall provide and maintain sanitary temporary chemical toilets located where approved by OWNER and in sufficient number required for the work force employed by CONTRACTOR.

B. Temporary Electrical Services:
   1. CONTRACTOR shall make all necessary arrangements, furnish, install, and maintain necessary temporary electrical services at the Site. Services shall be a minimum of 200 amperes, 1 phase, 3 wire, 120/240 volt temporary power and lighting system adequate for the construction of this Project and in accordance with OSHA Requirements for Construction Projects. Installation of the temporary power and lighting system is to begin upon notification to proceed and shall be installed and routed in a manner so as not to interfere with construction of the Project. CONTRACTOR shall remove all temporary services when Project is complete.
   2. The temporary light and power system shall include temporary service poles, metering facilities, driven ground, fused main disconnect switch, panelboards, branch circuits, outlets and lamps, and the maintenance thereof.
   3. Construction areas, aisles, stairs, and ramps shall be illuminated to 5 fc. Construction shops, storerooms, mechanical, and electrical rooms shall be illuminated to 10 fc. Offices illuminated to 30 fc.

4. Temporary lights shall be equipped with heavy-duty electric cords and lamp guards. They must not be suspended by the power supply cord unless it is designed for this use.
5. All utility charges for installation of the temporary services shall be paid for by CONTRACTOR. All metering installation charges and all energy charges for electric current used for temporary lighting and power are to be paid by CONTRACTOR.
6. No permanent electrical equipment or wiring shall be used without express written permission of OWNER. Such approval, if given, shall not affect guarantee period. If OWNER authorizes use of permanent service facilities, CONTRACTOR shall pay all metering costs until acceptance or occupancy (whichever occurs first) of building by OWNER.

C. Weather Protection and Temporary Heat:
1. CONTRACTOR shall provide weather protection to protect the Work from damage because of freezing, rain, snow, and other inclement weather.
2. CONTRACTOR shall provide temporary heat within buildings, without cost to OWNER, from the time the buildings or portions thereof are enclosed until the Project is accepted or occupied by OWNER, whichever occurs first. The building work is to be heated during construction so a minimum temperature of 50°F is maintained at all times. Temporary heating equipment shall be properly vented.
3. Tanks that are constructed and existing tanks taken out of service as part of the Work shall be protected by CONTRACTOR from damage because of frost by insulating, enclosure, heating, or a combination of methods as required.
4. No permanent heating equipment shall be used on a temporary basis without express written permission by OWNER. Such approval, if given, shall not affect the guarantee period. If OWNER authorizes use of permanent heating equipment, CONTRACTOR shall pay all related energy costs until acceptance or occupancy (whichever occurs first) of the building by OWNER.

D. Temporary Water: CONTRACTOR shall supply its own water during construction. CONTRACTOR shall also provide its own piping, valves, and appurtenances for its requirements.

E. Temporary Fire Protection: CONTRACTOR and Subcontractor(s) who maintain or provide an enclosed shed or trailer shall provide and maintain in operating order in each shed or trailer a minimum of one fire extinguisher. More extinguishers shall be provided as necessary. Fire extinguishers shall be minimum dry chemical, nonfreezing-type, UL rating 2A-30BC, with 10-pound capacity for Class A, B, and C fires.

F. CONTRACTOR's and Subcontractor(s)' personnel shall refrain from smoking during excavation, laying pipe, backfilling, and other work at the Site which may involve potential contact with explosive vapors or gasoline products.

1.03 TEMPORARY STAIRS AND ACCESS

A. CONTRACTOR shall provide and maintain all equipment such as temporary stairs, ladders, ramps, runways, chutes, and so on as required for proper execution of the Work. CONTRACTOR shall be responsible for providing its own scaffolds, hoists, etc.

B. All such apparatus, equipment, and construction shall meet all requirements of OSHA, the labor laws, and other applicable State and local laws. Provide stairs with handrails. As soon as possible and where applicable, permanent stairs shall be installed.

C. As soon as permanent stairs are created, provide temporary protective treads, handrails, and shaft protection.

D. Provide barricades at hazardous locations, complete with signs, temporary general lighting, warning lights, and similar devices as required.

1.04 TEMPORARY SUPPORT FACILITIES

A. CONTRACTOR shall provide whatever facilities and services which may be needed to properly support primary construction process and meet compliance requirements and governing regulations.

B. CONTRACTOR shall not use permanent facilities except as otherwise indicated, unless authorized by OWNER.

1.05 REMOVAL OF TEMPORARY FACILITIES

A. Remove temporary materials, equipment, services, and construction as soon as practicable but no later than just prior to substantial completion inspection.

B. Clean and repair damage caused by installation or use of temporary facilities and restore existing facilities used during construction to specified, or to original, condition.

C. Minor temporary facilities which interfere with OWNER's operations shall be removed at the end of each Work period.

PART 2–PRODUCTS

NOT APPLICABLE

PART 3–EXECUTION

NOT APPLICABLE

END OF SECTION

SECTION 01 52 13

FIELD OFFICES AND SHEDS

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
1. Materials, Equipment, and Furnishings.
2. Construction.
3. Environmental Control.
4. CONTRACTOR Office and Facilities.
5. ENGINEER Office.
6. Storage Areas and Sheds.
7. Preparation.
8. Installation.
9. Maintenance and Cleaning.
10. Removal.

PART 2–PRODUCTS

2.01 MATERIALS, EQUIPMENT, AND FURNISHINGS

A. Materials, equipment, and furnishings shall be serviceable, new or used, and adequate for required purpose.

2.02 CONSTRUCTION

A. Portable or mobile buildings or buildings shall be constructed with floors raised above ground, securely fixed to foundations, with steps and landings at entrance doors.

B. CONTRACTOR shall provide structurally sound, secure, weathertight enclosures for office and storage spaces.

C. Temperature transmission resistance of floors, walls, and ceilings shall be compatible with occupancy and storage requirements.

D. Exterior materials shall be weather resistant.

E. Interior materials in offices shall consist of sheet type materials for walls and ceilings, prefinished or painted; resilient floors and bases.

F. Lighting for offices shall be 50 footcandles minimum at desk top height, with exterior lighting at entrance doors.

G. Provide appropriate type fire extinguisher at each office and each storage area.

H. Interior materials in storage sheds shall be as required to provide specified conditions for storage of products.

2.03 ENVIRONMENTAL CONTROL

A. Heating, cooling, and ventilating for offices shall consist of automatic equipment to maintain comfort conditions; 70°F heating and 78°F cooling.

B. Heating and ventilation for storage spaces shall be as needed to maintain products in accordance with Contract Documents and to provide adequate lighting for maintenance and observation of products.

2.04 CONTRACTOR OFFICE AND FACILITIES

A. CONTRACTOR shall provide facilities to meet CONTRACTOR's needs and to provide space for Project meetings.

B. Provide telephone as required for CONTRACTOR's needs.

C. Provide furnishings in meeting area. As a minimum, provide conference table and chairs to seat at least eight persons; racks and files for Contract Documents, submittals, and project record documents.

2.05 ENGINEER OFFICE

A. CONTRACTOR shall provide separate trailer for sole use of ENGINEER, with separate entrance door with new lock and two keys.

B. Minimum area shall be 200 square feet, minimum dimension 8 feet.

C. Minimum total area of windows shall be 10% of floor area, with operable sash and insect screens. Provide operable blinds on all windows. Locate to provide views of construction area.

D. Electrical distribution panel shall have two circuits minimum, 110-volt, 60 Hz service. Provide minimum four 110-volt duplex convenience outlets, one on each wall.

E. Provide cellular phone with voicemail service. Include cellular service for phone until final completion.

F. Provide the following personal computer items:
   1. One desktop or laptop PC, Windows compatible, with minimum, 3.0 GhZ Multi Core (latest or previous generation) Intel processor, 24 GB RAM (or larger), 500 GB Solid State Drive (or larger), GB Ethernet and WiFi NIC, Six USB 3.0 or higher ports, and current Windows version.
   2. Video card capable of displaying a minimum resolution of 2560 x 1440 on at least 2 monitors.
   3. Minimum of two LCD displays, minimum 24-inch capable of displaying 2560 x 1440 or higher resolution with display port or HDMI connections.
   4. All in one color multi-function device (print, copy, fax, scan) with USB and WiFi connectivity. Must accommodate both 8.5-inch by 11-inch and 11-inch by 17-inch paper. Replenish paper, cartridges, and other supplies before fully expended. Spare or refill cartridges shall be supplied at all times.
   5. Current version of Antivirus software with subscription to new updates.

6. A broadband high speed internet service provider with minimum download speeds of 100 Mbps; minimum upload speeds of 25 Mbps, or best available in area including satellite connections.
7. K Slot or Kensington lock and cable system to deter theft.
8. Webcam suitable and certified for web-conferencing with a resolution of 1080p or better.
9. All necessary cables for system configurations.
10. PC, monitor, and printer to be set up, configured, and fully functional for use with communications and security system installed.

G. Provide bottled drinking water dispenser and refill as necessary.

H. Provide the following furnishings:
1. One desk, minimum 54-inch by 30-inch, with three drawers.
2. One drafting table, 36-inch by 72-inch, with one equipment drawer.
3. Rack to hold working drawings, shop drawings, and record documents.
4. One standard four-drawer legal size metal filing cabinet.
5. Six linear feet of metal bookshelves.
6. One swivel armchair.
7. Two straight chairs.
8. One drafting table stool.
9. One tackboard, 36-inch by 30-inch.
10. One wastebasket.

2.06 STORAGE AREAS AND SHEDS

A. Provide storage areas and sheds of size to meet storage requirements for products of individual sections, allowing for access and orderly provision for maintenance and for observation of products to meet requirements of Section 01 60 00–Materials and Equipment.

PART 3–EXECUTION

3.01 PREPARATION

A. CONTRACTOR shall fill and grade sites for temporary structures to provide drainage away from buildings.

3.02 INSTALLATION

A. CONTRACTOR shall install office spaces ready for occupancy 15 days after date fixed in Notice to Proceed or as agreed upon by ENGINEER.

B. Provide two hard surfaced parking spaces for use by ENGINEER, connected to office by hard surfaced walk.

3.03 MAINTENANCE AND CLEANING

A. CONTRACTOR shall maintain approach walks free of mud, water, and snow.

3.04 REMOVAL

A. Upon final acceptance and completion of the Work, CONTRACTOR shall remove field offices, foundations, utility services, and debris and shall restore areas.

END OF SECTION

SECTION 01 57 00

TEMPORARY CONTROLS

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
   1. Dust Control.
   2. Water, Erosion, and Sediment Control.
   3. Noise Control.
   4. Traffic Control.
   5. Site Security.
   6. Daily Cleanup.

PART 2–PRODUCTS

NOT APPLICABLE

PART 3–EXECUTION

3.01 DUST CONTROL

A. CONTRACTOR shall execute the Work by methods to minimize raising dust from construction operations.

B. CONTRACTOR shall provide positive means to prevent airborne dust from dispersing into atmosphere.

C. CONTRACTOR shall provide partitions, enclosures, etc., within buildings as necessary to confine dust and protect adjacent areas.

3.02 WATER, EROSION, AND SEDIMENT CONTROL

A. CONTRACTOR shall grade site to drain and shall maintain excavations free of water. Provide, operate, and maintain pumping equipment.

B. CONTRACTOR shall protect Site from puddling or running water.

C. CONTRACTOR shall provide erosion control measures as necessary to control discharge of sediment laden water to surface waters and wetlands.

D. Except as provided for in the document, overland discharge of water from dewatering operations shall not be allowed. Depending on water quality, such water shall either be piped directly to the surface water or shall be directed to sedimentation basins or other such structures or features prior to discharge to surface waters so as not to cause damage to existing ground and improvements, erosion, or deposition in the discharge area.

E. CONTRACTOR shall use jute or synthetic netting, silt fences, straw bales, dikes, channels, and other applicable measures to prevent erosion of soils disturbed by its construction operation.

F. Restoration of the Site shall proceed concurrently with the construction operation. See Drawings and Specifications for erosion control measures in addition to that which may be required above.

G. Erosion control measures shall comply with BMP and Iowa DNR Construction State Erosion Manual.

3.03 NOISE CONTROL

A. Provide methods, means, and facilities to minimize noise produced by construction operations.

3.04 TRAFFIC CONTROL

A. CONTRACTOR shall be responsible for providing all signs, barricades, flagmen, and other traffic control devices in the construction zone.

B. All traffic control measures shall meet the requirements of the current edition of the Manual on Uniform Traffic Control Devices, except for exceptions noted in Iowa Admin.760-130.1.

C. Do not close or obstruct roadways without approval of OWNER.

D. Conduct operations with minimum interference to roadways.

E. Maintain one-way traffic on streets at all times.

3.05 SITE SECURITY

A. CONTRACTOR shall have the sole responsibility of safeguarding the Site perimeter to prevent unauthorized entry to the Site throughout the duration of the Project. CONTRACTOR shall at all times provide such permanent and temporary fencing or barricades or other measures as may be necessary to restrict unauthorized entry to its construction area including construction in public rights-of-way or easements. Site security measures shall include safeguards against attractive nuisance hazards as a result of construction activity.

B. CONTRACTOR shall at all times be responsible for the security of the Work including materials and equipment. OWNER will not take any responsibility for missing or damaged equipment, tools, or personal belongings. CONTRACTOR shall have the sole responsibility of safeguarding the Work and the Site throughout the duration of the Project.

3.06 DAILY CLEANUP

A. CONTRACTOR shall clean up the Site and remove all rubbish on a daily basis.

B. CONTRACTOR shall clean up public streets and highways and remove any dirt, mud, or other materials due to project traffic on daily basis and shall comply with all local and state ordinances and permit requirements.

END OF SECTION

SECTION 01 60 00

MATERIALS AND EQUIPMENT

PART 1–GENERAL

1.01 SUMMARY

A. Work Included: CONTRACTOR shall be responsible for the delivery, handling, storage and protection of all material and equipment required to complete the Work as specified herein.

B. Related Sections and Divisions: Specific requirements for the handling and storage of material and equipment are described in other sections of these Specifications.

1.02 PRODUCTS

A. Components required to be supplied in quantity within a Specification section shall be the same, and shall be interchangeable.

B. CONTRACTOR shall not use materials and equipment removed from existing construction, except as specifically required, or allowed, by the Contract Documents.

C. When any construction deviations from the Drawings and/or Specifications necessary to accommodate equipment supplied by CONTRACTOR, result in additional costs to CONTRACTOR or other contractors, such additional costs shall be borne by CONTRACTOR. CONTRACTOR shall also pay any additional costs necessary for revisions of Drawings and/or Specifications by ENGINEER.

D. Each major component of equipment shall bear a nameplate giving the name and address of the manufacturer and the catalogue number or designation.

1.03 TRANSPORTATION AND HANDLING

A. Materials, products and equipment shall be properly containerized, packaged, boxed, and protected to prevent damage during transportation and handling.

B. CONTRACTOR shall not overload any portion of the structure in the transporting or storage of materials.

C. CONTRACTOR shall not damage other construction by careless transportation, handling, spillage, staining or impact of materials.

D. CONTRACTOR shall provide equipment and personnel to handle products, including those provided by OWNER, by methods to prevent soiling and damage.

E. CONTRACTOR shall provide additional protection during handling to prevent marring and otherwise damaging products, packaging, and surrounding surfaces.

F. CONTRACTOR shall handle product by methods to avoid bending or overstressing. Lift large and heavy components only at designated lift points.

1.04 DELIVERY AND RECEIVING

A. CONTRACTOR shall arrange deliveries of products in accordance with the Progress Schedule, allowing time for observation prior to installation.

B. CONTRACTOR shall coordinate deliveries to avoid conflict with the Work and conditions at the Site; work activities of other contractors or OWNER; limitations on storage space; availability of personnel and handling equipment and OWNER's use of premises.

C. CONTRACTOR shall deliver products in undamaged, dry condition, in original unopened containers or packaging with identifying labels intact and legible.

D. CONTRACTOR shall clearly mark partial deliveries of component parts of equipment to identify equipment and contents to permit easy accumulation of parts and to facilitate assembly.

E. Immediately on delivery, CONTRACTOR shall inspect shipment to review that:
   1. Product complies with requirements of Contract Documents and reviewed submittals.
   2. Quantities are correct.
   3. Accessories and installation hardware are correct.
   4. Containers and packages are intact and labels legible.
   5. Products are protected and undamaged.

1.05 STORAGE AND PROTECTION

A. General:
   1. CONTRACTOR shall store products, immediately on delivery, in accordance with manufacturer's instructions, with all seals and labels intact and legible.
   2. Any additional off-site space required shall be arranged by CONTRACTOR.
   3. CONTRACTOR shall allocate the available storage areas and coordinate their use by the trades on the job.
   4. CONTRACTOR shall arrange storage in a manner to provide access for maintenance of stored items and for observation.

B. In enclosed storage, CONTRACTOR shall:
   1. Provide suitable temporary weather tight storage facilities as may be required for materials that will be damaged by storage in the open.
   2. Maintain temperature and humidity within ranges stated in manufacturer's instructions.
   3. Provide ventilation for sensitive products as required by manufacturer's instructions.
   4. Store unpacked and loose products on shelves, in bins, or in neat groups of like items.
   5. Store solid materials such as insulation, tile, mechanical and electrical equipment, fittings, and fixtures under shelter, in original packages, away from dampness and other hazards.
   6. Store liquid materials away from fire or intense heat and protect from freezing.

C. At exterior storage, CONTRACTOR shall:
   1. Store unit materials such as concrete block, brick, steel, pipe, conduit, door frames, and lumber off ground, out of reach of dirt, water, mud and splashing.
   2. Store tools or equipment that carry dirt outside.
   3. Store large equipment so as not to damage the Work or present a fire hazard.
   4. Cover products subject to discoloration or deterioration from exposure to the elements, with impervious sheet material and provide ventilation to avoid condensation.

5. Completely cover and protect any equipment or material which is prime coated or finish painted with secured plastic or cloth tarps. Store out of reach of dirt, water, mud and splashing.
6. Store loose granular materials on clean, solid surfaces such as pavement, or on rigid sheet materials, to prevent mixing with foreign matter.
7. Provide surface drainage to prevent erosion and ponding of water.
8. Prevent mixing of refuse or chemically injurious materials or liquids.
9. Cover aggregates such as sand and gravel in cold wet weather.
10. Remove all traces of piled bulk materials at completion of work and return site to original or indicated condition.

1.06 MAINTENANCE OF STORAGE

A. CONTRACTOR shall periodically inspect stored products on a scheduled basis.

B. CONTRACTOR shall verify that storage facilities comply with manufacturer's product storage requirements, and verify that manufacturer required environmental conditions are maintained continually.

C. CONTRACTOR shall verify that surfaces of products exposed to the elements are not adversely affected and that any weathering of finishes is acceptable under requirements of Contract Documents.

D. CONTRACTOR shall perform scheduled maintenance of equipment in storage as recommended by the manufacturer. A record of the maintenance shall be kept and turned over to ENGINEER when the equipment is installed.

1.07 INSTALLATION REQUIREMENTS

A. Manufactured articles, materials, and equipment shall be applied, installed, connected, erected, used, cleaned, and conditioned as directed by the respective manufacturers, unless otherwise specified.

B. After installation, CONTRACTOR shall protect all materials and equipment against weather, dust, moisture, and mechanical damage.

C. CONTRACTOR shall be responsible for all damages that occur in connection with the care and protection of all materials and equipment until completion and final acceptance of the Work by OWNER. Damaged material and equipment shall be immediately removed from the Site.

1.08 EQUIPMENT WARRANTIES

A. Warranties shall be nonprorated, include all parts and labor, and be in written form. Warranties shall specifically exclude buyer's indemnification language. Warranty language shall not eliminate manufacturer’s responsibility for sizing of the equipment. During warranty period, manufacturer shall be responsible for any travel expenses, outside contractor fees, and rental equipment fees associated with providing warranty service. Manufacturer shall pay expenses incurred for repairs and parts replacement not made by manufacturer if manufacturer’s response is not within 72 hours of notification by OWNER. Warranty language shall be provided with the shop drawings.

1.09 CONCRETE EQUIPMENT BASE

A. Cast-in-place concrete equipment bases shall be provided for all new and relocated equipment including electrical control panels, motor control centers, switchgear, etc. Concrete equipment bases shall be provided by CONTRACTOR except where specifically noted to be provided by others. Bases shall be 3 1/2-inch minimum height and shall be a minimum of 3 inches larger than equipment being supported. Grouting of equipment bases shall be as recommended by equipment manufacturer.

B. Concrete and grout shall meet applicable sections of the specifications.

C. Provide all anchor bolts, metal shapes and templates to be cast in concrete or used to form concrete for support of equipment.

PART 2–PRODUCTS

NOT APPLICABLE

PART 3–EXECUTION

NOT APPLICABLE

END OF SECTION

SECTION 01 73 29

CUTTING, PATCHING, AND ALTERATIONS

PART 1–GENERAL

1.01 SUMMARY

A. Work Included: CONTRACTOR shall be responsible for all cutting, fitting, patching, and other alterations required to complete the Work as specified herein or to:
   1. Make its several parts fit together properly.
   2. Uncover portions of the Work to install improperly sequenced Work.
   3. Remove and replace defective Work.
   4. Remove and replace Work not conforming to requirements of the Contract Documents.
   5. Remove samples of installed Work as specified for testing.
   6. Provide penetrations of surfaces for installation of piping and electrical conduit.
   7. Rehabilitate or renovate existing spaces.

1.02 REFERENCES

A. ANSI A10 Safety Requirements for Construction and Demolition.

1.03 QUALITY ASSURANCE

A. CONTRACTOR shall perform all cutting, patching, and alterations in strict accordance with pertinent requirements of these Specifications.

B. Except as modified by governing codes, CONTRACTOR shall comply with the applicable provision and recommendations of ANSI A10.

1.04 SUBMITTALS

A. CONTRACTOR shall submit a written request to OWNER well in advance of executing any cutting or alteration which affects the following:
   1. Work of OWNER or any separate contractor.
   2. Structural value or integrity of any element of the Project.
   3. Integrity or effectiveness of weather-exposed or moisture-resistant elements or systems.
   4. Efficiency, operational life, maintenance, or safety of operational elements.
   5. Visual qualities of sight-exposed elements.

B. The request shall include:
   1. Description of affected work.
   2. The necessity for cutting, patching, or alteration.
   3. Effect on work of OWNER, any separate contractor, or on the structural or weather-proof integrity of the Project.
   4. Description of proposed work to include:
      a. Scope of cutting, patching, or alteration.
      b. Trades who will execute the Work.
      c. Products proposed to be used.
      d. Extent of refinishing to be done.
   5. Alternatives to cutting and patching.

6. Written permission of any separate contractor whose work will be affected.

C. Submit written notice to OWNER designating the date and the time the Work will be uncovered or executed.

1.05 SCHEDULING AND COORDINATION

A. All work under this section shall be coordinated with OWNER's work forces and those of other contractors and shall be accomplished at times acceptable to OWNER.

B. Before starting any work relating to existing utilities (electrical, sewer, water, heat, gas, fire lines, etc.) that will temporarily discontinue or disrupt service to the existing building, notify ENGINEER and OWNER 72 hours in advance and obtain OWNER's approval before proceeding with this phase of the Work. Temporary facilities, if required, shall be in place prior to disruption of service.

PART 2–PRODUCTS

2.01 NEW MATERIALS

A. For replacement of work removed, CONTRACTOR shall use materials which comply with the pertinent sections of these Specifications.

B. All new materials for patching and extending work shall match existing products and work.

C. CONTRACTOR shall determine type and quality of existing products by inspection and any necessary testing and workmanship by use of existing as the standard.

2.02 SALVAGEABLE MATERIAL

A. Materials or items designated to be reinstalled or to become the property of OWNER shall be as specified or as shown on the Drawings.

B. CONTRACTOR shall remove such items with care under the supervision of the trade responsible for reinstallation.

C. CONTRACTOR shall store these materials (off-site if necessary) and protect from damage until they are incorporated into the new work.

D. Items which are not to be reinstalled but are to become the property of OWNER shall be removed by CONTRACTOR with care, cleaned, and stored in a location at the Site to be approved by OWNER.

E. Materials or items damaged in its removal shall be replaced by CONTRACTOR with similar new material at no additional cost to OWNER.

F. Where existing equipment or fixtures are indicated to be reused, CONTRACTOR shall repair such equipment and refinish as specified elsewhere.

2.03 UNSALVAGEABLE MATERIALS

A. Materials or items demolished and not designated to become the property of OWNER or not designated to be reinstalled shall become the property of CONTRACTOR and shall be removed from the site and legally and properly disposed of by CONTRACTOR.

B. Materials shall be removed by CONTRACTOR in a manner that will avoid damage to materials or equipment to remain.

PART 3–EXECUTION

3.01 INSPECTION

A. CONTRACTOR shall inspect existing conditions including elements subject to movement or damage during cutting, patching, and other alterations.

B. After uncovering the Work, CONTRACTOR shall inspect conditions affecting installation of new products or performance of new work.

C. CONTRACTOR shall report unsatisfactory or questionable conditions to ENGINEER in writing.

D. CONTRACTOR shall not proceed with work until unsatisfactory or questionable conditions are resolved.

E. Beginning of cutting, patching, and alterations work means acceptance of existing conditions by CONTRACTOR.

3.02 PREPARATION AND PROTECTION

A. CONTRACTOR shall provide temporary bracing, shoring, needling, and support of the structure during alterations work as necessary to prevent collapse, settling, or deflection and to protect persons and property from injury or damage.

B. Temporary supports must adequately carry all existing and imposed load.

C. CONTRACTOR shall provide and maintain temporary protection of surface finishes, equipment, and adjacent work designated to remain where demolition, removal, and new work is being done, connections are being made, materials are being handled, or equipment is being removed.

D. CONTRACTOR shall provide temporary partitions or barriers to contain all dust, dirt, and debris from entering into finished areas or areas where OWNER is operating, storing, or manufacturing products.

E. CONTRACTOR shall provide adequate fire protection in accordance with local Fire Department requirements.

F. CONTRACTOR shall provide waterproofing, weather protection, heat, and other facilities for that portion of the Work which may be exposed by cutting and patching, demolition, or other alterations.

G. CONTRACTOR shall cut, move, or remove items as necessary for access to alterations and renovations work and replace and restore at completion of the Work.

H. CONTRACTOR shall prepare surfaces and remove surface finishes to provide for proper installation of new work and new finishes.

I. CONTRACTOR shall be responsible for any damage to the existing structure or its contents directly or indirectly by its crews or those of its subcontractors.

3.03 PERFORMANCE

A. CONTRACTOR shall accomplish all work of cutting, removal, demolition, patching, or other alterations using only persons skilled in the appropriate trade.

B. CONTRACTOR shall execute the Work in a careful and orderly manner with the least possible disturbance to the public and to the occupants of the building.

C. CONTRACTOR shall execute cutting and demolition by methods which will prevent damage to other work and will provide proper surfaces to receive installation of repairs.

D. CONTRACTOR shall execute fitting and adjustment of products to provide a finished installation to comply with specified products, functions, tolerances, and finishes.

E. CONTRACTOR shall fit work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

F. CONTRACTOR shall thoroughly clean and prepare all surfaces to receive new finish or covering to completely remove all dirt, dust, grease, oil, paint, loose materials, and soil.

G. CONTRACTOR shall refinish entire surface as necessary to provide an even finish to match adjacent finishes:
   1. For continuous surfaces, refinish to nearest intersection.
   2. For an assembly, refinish entire unit.

3.04 DEMOLITION, CUTTING, AND REMOVAL

A. Cutting and removal of construction shall be performed by CONTRACTOR so as not to cut or remove more than is necessary and so as not to damage adjacent work.

B. CONTRACTOR shall cut out embedded anchorages and attachment items as required to properly provide for patching and repair of the respective finishes.

C. CONTRACTOR shall not cut structural work in a manner resulting in a reduction of load-carrying capacity or load/deflection ratio.

D. CONTRACTOR shall not cut operational elements and safety components in a manner resulting in decreased performance, shortened useful life, or increased maintenance.

E. CONTRACTOR shall not cut work exposed to view (exterior or interior) in a manner resulting in noticeable reduction of visual qualities as determined by OWNER.

F. Construction that is to remain which is loosened, cracked, or otherwise damaged or defaced as a result of careless cutting or demolition and is unsuitable for use intended shall be removed and replaced at no additional cost to OWNER.

G. CONTRACTOR shall clean demolished areas and remove debris, waste, and rubbish from the building at the conclusion of each day's work.

H. CONTRACTOR shall not let piled waste material endanger the structure.

3.05 PATCHING, EXTENDING, AND MATCHING

A. Patching work shall conform to the standards of the Specifications where applicable, and where not specified, work shall conform to the highest standards of the applicable trade.

B. CONTRACTOR shall patch construction to match adjacent work unless noted otherwise.

C. Patching or restoration shall be carried to natural breaks (e.g., corners) wherever possible.

D. CONTRACTOR shall provide adequate support to substrate for patching finishes.

E. At locations in existing areas where partitions are removed, CONTRACTOR shall patch floors, walls, and ceiling with finish material to match adjacent surfaces.

F. Transitions:
1. Where new work abuts or finishes flush with existing work, CONTRACTOR shall make the transition as smooth as possible.
2. Patched work shall match adjacent work in texture and appearance so as to make the patch or transition invisible to the eye at a distance of 3 feet.
3. Where masonry, tile, plaster, metal, or other finished surface is cut in such a way that a smooth transition is not possible, CONTRACTOR shall terminate the existing surface in a neat fashion along a straight line at a natural line of division and provide trim appropriate to the finished surface.
4. Where two or more spaces are indicated to become one space, CONTRACTOR shall rework floors and ceilings so that horizontal planes are without breaks, steps, or bulkheads, unless shown otherwise.
5. In case of extreme level changes (3 inches or more), review condition with ENGINEER prior to making transition.
6. CONTRACTOR shall restore existing work that is damaged during patching operations to a condition equal to its construction at the time of the start of the Work.

3.06 UNANTICIPATED MECHANICAL AND ELECTRICAL WORK EXPOSED

A. Where unanticipated mechanical piping or electrical conduit is exposed during removal of partitions or walls, removal or rerouting shall be accomplished by CONTRACTOR as applicable.
1. Rerouted piping shall be located and shall be connected to maintain all functions in proper operations.
2. Abandoned piping may be left in place where it is buried in floors or walls, providing that it is completely disconnected from its source.
3. There shall be no "dead end" gas, water, sewer, or vent piping existing in the completed work.

4. Unless otherwise shown, abandoned piping, ductwork, conduit, or other mechanical or electrical items in chases, vertical enclosures, or concealed above ceilings shall be completely removed.

B. Removals, capping, or otherwise terminating services which are abandoned shall be accomplished without additional cost to OWNER.

C. Relocation of services resulting from unanticipated conflicts of new and existing work in concealed spaces shall be paid for in accordance with the General Conditions.

END OF SECTION

SECTION 01 77 00

CONTRACT CLOSEOUT

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
   1. Closeout Procedures.
   2. Final Cleaning.
   3. Adjusting.
   4. Project Record Documents.
   5. Warranties.
   6. Warranty Bond.

1.02 CLOSEOUT PROCEDURES

A. CONTRACTOR shall provide submittals to ENGINEER that are required by governing or other authorities.

B. CONTRACTOR shall comply with General Conditions and Supplementary Conditions and complete the following before requesting ENGINEER's observation of the Work or designated portion thereof for substantial completion.
   1. Submit executed warranties, workmanship bonds, maintenance agreements, inspection certificates, and similar required documentation for specific units of Work, enabling OWNER's unrestricted occupancy and use.
   2. Submit record documentation, maintenance manuals, tools, spare parts, keys, and similar operational items.
   3. Submit consent of surety (if surety required in Contract).
   4. Complete final cleaning, touch-up work of marred surfaces, and remove temporary facilities and tools.

1.03 FINAL CLEANING

A. It is CONTRACTOR's responsibility to completely clean up the inside and outside of all buildings and the construction site at the completion of the Work.

B. CONTRACTOR shall clean areas of the building in which painting and finishing work is to be performed just prior to the start of this work and maintain these areas in satisfactory condition for painting and finishing. This cleaning includes:
   1. Removal of trash and rubbish from these areas.
   2. Broom cleaning of floors.
   3. Removal of any plaster, mortar, dust, and other extraneous materials from finish surfaces, including but not limited to exposed structural steel, miscellaneous metal, masonry, concrete, mechanical equipment, piping, and electrical equipment.

C. In addition to the cleaning specified above and the more specific cleaning that may be required in various technical sections of the Specifications, CONTRACTOR shall prepare the Project for occupancy by a thorough cleaning throughout, which shall include the following:

1. Clean interior and exterior glass surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.
2. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.
3. Replace filters of operating equipment.
4. Clean debris from roofs, gutters, downspouts, and drainage systems.
5. Clean site; sweep paved areas, rake clean landscaped surfaces.
6. Remove waste and surplus materials, rubbish, and construction facilities from the Site.

1.04 ADJUSTING

A. CONTRACTOR shall adjust operating products and equipment to provide smooth and unhindered operation.

1.05 PROJECT RECORD DOCUMENTS

A. CONTRACTOR shall maintain on Site one set of the following record documents to record actual revisions to the Work:
   1. Drawings.
   2. Specifications.
   3. Addenda.
   4. Change orders and other modifications to the Contract.
   5. Reviewed shop drawings, product data, and samples.
   6. Manufacturer’s instruction for assembly, installation, and adjusting.

B. CONTRACTOR shall make entries that are complete and accurate, enabling future reference by OWNER.

C. CONTRACTOR shall store record documents separate from documents used for construction.

D. CONTRACTOR shall record information concurrent with construction progress.

E. Specifications: CONTRACTOR shall legibly mark and record at each Product section description of actual products installed, including the following:
   1. Manufacturer’s name and product model and number.
   2. Product substitutions or alternates utilized.
   3. Changes made by addenda and modifications.

F. Record Drawings: CONTRACTOR shall legibly mark each item to record actual construction including:
   1. Measured depths of foundations in relation to finish floor datum.
   2. Measured horizontal and vertical locations of underground utilities and appurtenances referenced to permanent surface improvements.
   3. Measured locations of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of the Work.
   4. Field changes of dimension and detail.
   5. Details not on original Contract Drawings.

1.06 WARRANTIES

A. CONTRACTOR shall provide warranties beyond project one-year warranty as required by technical sections.

B. Submit warranty information as follows:
   1. Provide original copies bearing authorized signatures.
   2. Execute and assemble transferable warranty documents from subcontractors, suppliers, and manufacturers, and provide Table of Contents and assemble in three-ring binder with durable cover.
   3. Submit with request for certificate of Substantial Completion.
   4. For items of work delayed beyond date of Substantial Completion, provide updated submittal within 10 days after acceptance listing date of acceptance as start of warranty period.

1.07 WARRANTY BOND

A. CONTRACTOR shall provide warranty bond prior to or with the final Application for Payment in accordance with SC-6.01.

PART 2–PRODUCTS

NOT APPLICABLE

PART 3–EXECUTION

NOT APPLICABLE

END OF SECTION

SECTION 01 91 00

STARTING OF SYSTEMS

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
1. General.
2. Equipment and System Installation.
3. Starting Equipment and Systems.
4. Demonstration, Instructions, and Operator Training.
5. Start-Up and Testing.
6. Equipment Systems Requiring Certification of Proper Installation.
7. Equipment Systems Requiring Additional Documentation.

B. CONTRACTOR shall perform the Work described in the following subsections.

1.02 GENERAL

A. The number of days for manufacturer's services stated in the Specifications shall be considered as the minimum number of days. Should additional time be required for services because of equipment malfunction or other problem, such time shall be at the expense of CONTRACTOR, with no change in Contract Price.

B. "Days" specified shall consist of 8-hour days on-site, excluding travel time.

C. CONTRACTOR shall designate and provide one person to be responsible for scheduling, coordinating, and expediting the specified services. Scheduling the services shall be done in cooperation with, and with the prior approval of ENGINEER and OWNER. Such schedule shall be arranged with the appropriate subcontractors, manufacturers, and suppliers with sufficient time to allow their compliance with the service requirements.

D. CONTRACTOR shall manage equipment checkout such that checkout has been completed and deficiencies addressed prior to demonstration and training. Scheduling training prior to checkout may result in cancellation when checkout cannot be completed prior to training.

1.03 EQUIPMENT AND SYSTEM INSTALLATION

A. Competent and experienced technical personnel shall represent the manufacturers of all equipment and systems for as many days as may be necessary to provide proper installation and to resolve assembly or installation problems at the site that are attributable to, or associated with, the equipment furnished. This requirement applies to manufacturers for all equipment furnished, whether or not specifically set forth in the Specifications.

B. Where a Certificate of Proper Installation is called for in this Specification Section, the manufacturer's representative shall provide the attached Certificate of Proper Installation stating that the equipment or system has been installed in accordance with the manufacturer's instructions and has been inspected by a manufacturer's authorized representative, that it has been serviced with the proper initial lubricants, that applicable

safety equipment has been properly installed, that the proper electrical and mechanical connections have been made, and that any other manufacturer requirements have been met. This certification shall be provided to ENGINEER and OWNER prior to the start-up. This certificate is in addition to the manufacturer's standard startup reports, checklists, and other pertinent information.

C. Functional (or run) testing is required for all equipment and systems. The manufacturer's representative shall supervise the functional test, which shall include checking for proper rotation, alignment, speed, excessive vibration, and noisy operation. The Manufacturer's Certificate of Proper Installation shall state that proper adjustments have been made and that the equipment or system is ready for start-up.

D. Manufacturer shall demonstrate, using laser alignment equipment, if appropriate, that the installed equipment has been aligned properly. Final acceptance of equipment will not be granted until manufacturer has demonstrated to ENGINEER that acceptable alignment to tolerances have been achieved. For pumps with motors 7.5 hp and larger, the acceptable shaft alignment tolerances shall be as recommended in the pump manufacturer's written instructions and shall include parallel offset and angular gap measurements.

1.04 STARTING EQUIPMENT AND SYSTEMS

A. Where field testing and start-up services are called for in the Specifications, or when technical assistance is necessary as a result of any malfunction of the equipment or system furnished, the manufacturer's representative shall provide such services.

B. Manufacturer's representative shall also conduct and/or assist with performance testing, as required by the Specifications. These services shall continue until such times as the applicable equipment or system has been successfully tested for performance and has been accepted by OWNER for full-time operation.

C. Coordinate schedule for start-up of various equipment and systems. Coordination includes, but is not limited to, communication with subcontractors, suppliers, OWNER, and ENGINEER. CONTRACTOR shall confirm that all necessary work is complete and that the equipment and systems can be operated in conjunction with all associated processes.

D. Notify ENGINEER and OWNER a minimum of 7 days prior to start-up of each item using the attached Equipment Startup and O&M Training Scheduling form. CONTRACTOR shall submit form to ENGINEER.

E. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, or for other conditions that may cause damage.

F. Verify that tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.

G. Verify wiring and support components for equipment are complete and tested.

H. Execute start-up under supervision of applicable manufacturer's representative and CONTRACTOR's personnel in accordance with manufacturers' instructions.

I. Require manufacturer to provide authorized representative to be present at site to inspect, check, and approve equipment or system installation prior to start-up and to supervise

placing equipment or system in operation. Authorized representative shall provide approval for starting of systems in writing where specified.

J. Equipment manufacturer shall provide a written report covering checkout, testing, inspections, and start-up and shall identify any deficiencies noted. Report shall be submitted to ENGINEER. CONTRACTOR shall be responsible for correcting all deficiencies noted in report. In addition, CONTRACTOR shall submit a fully executed Certificate of Proper Installation form if required in Paragraph 3.01 of this section.

1.05 DEMONSTRATION, INSTRUCTIONS, AND OPERATOR TRAINING

A. For all mechanical equipment and systems and where called for in the Specifications, provide a qualified technical representative to provide detailed instructions to OWNER's personnel for operation and maintenance of equipment and associated instrumentation. Training services shall include pre-start-up classroom instruction and start-up on-site instruction, as stated in the Specifications.

B. Refer to the Specifications for additional training requirements.

C. CONTRACTOR shall coordinate the pre-start-up training periods with OWNER's operating personnel and manufacturers' representatives.
   1. Schedule training dates and times with OWNER, that are acceptable to OWNER, using equipment, startup, and O&M training form. Normal hours available for training are between 7:30 A.M. to 3 P.M., Monday through Friday, except for holidays.
   2. Submit outline and presentation to ENGINEER at least 7 days in advance of training.
   3. Provide name, contact information, and brief synopsis of qualifications of the trainer.
   4. If materials above are not provided at least 7 days in advance, training may be canceled.
   5. Failure of supplier's or manufacturer's representative to appear for scheduled training, failure to notify OWNER 24 hours in advance of need to cancel scheduled training or failure to arrive within 30 minutes of start of scheduled training shall result in reimbursement to OWNER for time lost by OWNER's personnel in waiting for arrival of manufacturer's representative. Except in case of failure to arrive on time, time will not exceed 1 hour for each employee scheduled to receive training. Failure to arrive on time will be reimbursed by actual time late, up to 1 hour, after 1 hour, training will be rescheduled. CONTRACTOR shall reimburse OWNER via a change order.
   6. During the training, instructor will dedicate its time solely to training and not start-up services.
   7. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with OWNER's personnel in detail to explain all aspects of operation and maintenance.
   8. Demonstrate start-up, operation, control, adjustment, troubleshooting, servicing, maintenance, and shutdown of each item of equipment.
   9. Prepare and insert additional data in operation and maintenance manuals when need for additional data becomes apparent during instruction.
   10. OWNER may videorecord the training for future internal use. Provide to OWNER paper and electronic copies of any media used as part of training.
   11. Provide training handouts for each of OWNER's personnel present.

D. CONTRACTOR shall provide attached Certificate of Operator Training cosigned by OWNER and supplier's representative verifying training was accomplished to satisfaction of all parties.

E. Operation and maintenance manual submitted in accordance with Section 01 33 00–Submittals shall be provided prior to operator training.

F. For equipment or systems requiring seasonal operation, perform demonstration for dormant season at start of dormant season.

G. Final payment for various items of equipment will not be made by OWNER until the equipment is operating to OWNER's satisfaction.

H. Where items of equipment are placed into service at different times or sequence, manufacturer's services for start-up, field testing, and supervision shall be provided for each time or sequence. Training shall be provided prior to or at the time the first similar item of equipment is placed in service.

1.06 START-UP AND TESTING

A. Prior to acceptance of any portion of the Work, start-up and testing of all equipment and testing of all materials furnished on the Project by CONTRACTOR shall have been conducted in the presence of representatives of CONTRACTOR, OWNER, and ENGINEER and also manufacturer if requested by OWNER or ENGINEER.

B. CONTRACTOR shall provide whatever temporary installations and conditions are necessary in order to perform start-up and testing operations on all equipment and materials furnished under the Contract. Temporary connections and equipment necessary during start-up and testing operations shall include, but not be limited to, temporary piping and electrical power and control equipment and devices, temporary connection from various parts of the systems and any other labor, materials, fuel, devices, or items that may be required for start-up and testing operations. Temporary conditions shall include filling with water, if necessary, to check equipment and materials.

C. All temporary installations and conditions shall be removed by CONTRACTOR upon completion of start-up and testing.

PART 2–PRODUCTS

NOT APPLICABLE

PART 3–EXECUTION

3.01 EQUIPMENT SYSTEMS REQUIRING CERTIFICATION OF PROPER INSTALLATION

A. All Special Structures specified in Division 13.

B. All space and process related heating, cooling, and ventilation equipment and systems specified in Division 23.

C. Section 26 09 00–Controls and Instrumentation (Gas Detectors and Monitoring Systems).

D. Section 26 32 13–Standby Power System.

E. Section 26 36 24-Service Entrance Rated Automatic Transfer Switches.

F. Section 40 05 59.23–Slide Gates.

G. All Conveying Systems specified in Division 41.

H. All equipment specified in Divisions 43 and 46.

3.02 EQUIPMENT SYSTEMS REQUIRING ADDITIONAL DOCUMENTATION

A. Section 26 05 26–Secondary Grounding: Ground system resistance test report.

B. Section 26 05 73–Power System Study: Statement of qualifications, initial power system study report, and final power system study report.

C. Section 26 09 00–Controls and Instrumentation: Documented date(s) of CONTRACTOR written request for Factory Acceptance Test.

D. Section 26 09 00–Controls and Instrumentation: Documented date(s) of CONTRACTOR written request for On-Site Acceptance Test.

E. Section 27 10 00–Structured Cabling: Cable pulling tension reports and copper and fiber-optic cable acceptance test reports.

END OF SECTION

TS No. _____

EQUIPMENT START-UP AND O&M TRAINING SCHEDULING FORM
STRAND ASSOCIATES, INC.®

PROJECT _____ CLIENT _____

CONTRACT _____

CONTRACTOR _____ Date: _____

The following equipment is scheduled for start-up on _____

EQUIPMENT NAME: _____ SPECIFICATION SECTION: _____

MANUFACTURER: _____ MINIMUM HOURS OF TRAINING: _____

DATE O&M MANUALS SUBMITTED: _____

Specification Section 01 91 00 requires that start-up and operation and training be conducted by a qualified manufacturer's representative prior to placing equipment in operation. Review Specification Sections 01 33 00 and 01 45 00 and the individual equipment sections for start-up and training requirements. OWNER may find it necessary to propose alternate dates for training based on conflicts with other training and staff availability. The Operation and Maintenance Manuals must be submitted prior to training.

After the equipment or system has been properly installed and is functioning correctly, submit a written report in accordance with Specification Section 01 45 00.

Submit the completed form to ENGINEER and OWNER at least 7 days prior to start-up and training.

Proposed Training Date: _____ Time of Training: _____

Factory-trained representative giving training:

Name(s): _____

Company: _____

Address: _____

Phone: _____

Fax: _____

E-mail: _____

CERTIFICATE OF PROPER INSTALLATION

Project _____

Equipment _____

Specification Section _____

Contract _____

I hereby certify the equipment supplier/manufacturer has inspected this equipment and that it has been properly installed, adjusted, and calibrated. I further certify this equipment may now be operated for test purposes and/or normal use.

MANUFACTURER'S REPRESENTATIVE

Signature _____ Date _____

Name (print) _____

Title _____

Representing _____

CONTRACTOR

Signature _____ Date _____

Name (print) _____

Title _____

This form shall be completed and submitted to ENGINEER prior to OWNER training.

CERTIFICATE OF OPERATOR TRAINING

Project _____

Equipment _____

Specification Section _____

Contract _____

I hereby certify the equipment supplier/manufacturer has instructed OWNER's personnel in the start-up operation and maintenance of this equipment as required in the Specifications.

MANUFACTURER'S REPRESENTATIVE

Signature _____ Date _____

Name (print) _____

Title _____

Representing _____

CONTRACTOR

Signature _____ Date _____

Name (print) _____

Title _____

OWNER

I hereby state that my operating personnel received instruction for start-up, operation, and maintenance of this equipment.

Signature _____ Date _____

Name (print) _____

Title _____

END SECTION

PERMITS

Iowa Department of Natural Resources
No Permit Determination Notice
for State Flood Plain and Sovereign Lands Permits

Date of Determination:	7/19/2024
Iowa DNR Tracking Number:	2024-1327
Project Type(s):	Waste or Water Treatment Facility
Project Latitude/Longitude:	42.4529, -91.8787
Project Description:	Waste or Water Treatment Facility: All work will occur on the existing wastewater treatment plant property. The existing plant outfall to the Wapsipinicon River will not be changed. The project is not expected to have any affects to a stream wetland or other waterbody. The plant modifications include the following: -Demolition of the existing pre-aeration basins, settling basins, trickling filters, and anaerobic digesters along with the Control Building. -Replace all equipment within the Preliminary Treatment Building and the existing sludge storage tank. - Construction of new oxidation ditches, clarifiers, RAS/WAS pumping building, process return flow pumping station, aerobic digestion tanks, digested sludge storage tanks, digested sludge transfer station, storage facility, hauled waste receiving station, and stormwater retention area. -Conversion of the chlorine disinfection system to UV disinfection. -Interior upgrades to the Administration Building.
Applicant/Agency/Address:	Travis Foley/City of Independence/2018 3 Elms Park Rd, Independence, IA 50644

Iowa Department of Natural Resources
No Permit Determination Notice
for State Flood Plain and Sovereign Lands Permits

1. Iowa DNR Flood Plain / Dam Safety and Sovereign Lands Permit Determination:
   No Iowa DNR Flood Plain or Sovereign Lands Permits Required based on the information you submitted into the online application system for your project with respect to the relevant threshold criteria contained in IAC 567 Chapter 71 (Chapter 73 for Dam projects) and applicable provisions of Iowa Code Sections 455B.262, .264, .275 and .277.

   For a review of state listed threatened/endangered species and sensitive natural communities that may be impacted by your project. Please submit an Environmental Review requests here (https://programs.iowadnr.gov/permt/Application/ERRequestForm).

   For a review of federally listed plant and animal species that may be impacted by the project please contact the US Fish and Wildlife service at https://www.fws.gov/midwest/rockisland/contactus.html or visit their project planning tool website at https://ecos.fws.gov/ipac/.

2. Local Flood Plain Permit Determination:
   Local Flood Plain Permit(s) May Be Required based on the information submitted into the online application system for your project. Local Flood Plain Manager(s) that should be contacted for local flood plain permits are provided below.
   - Todd Sherrets, Independence; 1000 12th St NE; Independence, IA 50644-2814; 3193344711 TSherrets@independenceia.org

3. US Army Corps of Engineers and Other Permits:
   The applicant is responsible for complying with all other local, state and federal statutes, ordinances, rules and permit requirements applicable to the construction, operation and maintenance of the approved works. This project has been submitted electronically to the Corps of Engineers for review. The Corps of Engineers will contact you directly regarding approval of this project.

4. Automated Determination Limitations and Conditions:
   a. Certification of Submitted Materials: The applicant certified that they are familiar with the information submitted, and that to the best of their knowledge and belief, such information is true, complete, and accurate. They further certified that they possess the authority to undertake the proposed activities.
   b. Future Review and Enforcement of Submitted Information: The Iowa DNR reserves the right to review or inspect any project submitted using this online application system. Failure to submit accurate information may result in enforcement activities by the Department.
   c. Time Limitation for Automated Determination Results: This determination expires 2 years from the Date of Determination listed above. Approval is revoked if construction is not complete within two years of the date listed above.

Iowa Department of Natural Resources
No Permit Determination Notice
for State Flood Plain and Sovereign Lands Permits

d. Consent to Enter Property: Submission of this application is deemed to constitute consent by the applicant for the Iowa DNR staff and its agents to enter upon the land on which the proposed activity will be located for the sole purpose of collecting the data necessary to review the project.

Approximate Site Information:

Project Type: Waste or Water Treatment Facility
Drainage Area (square miles): less than 2 square miles
Project Inside City Limits: Yes (Distance to the nearest city is 0.00 miles)
Protected Stream: False
Detailed Flood Insurance Study: No
FEMA Mapped Floodway: No
NFIP Participation: Yes (Independence)
FEMA Map Special Flood Hazard Area Zone: X (X,)
User Identified Project Location: 42.4529, -91.8787

STATE OF IOWA
DEPARTMENT OF NATURAL RESOURCES
6200 PARK AVE STE 200
DES MOINES, IOWA 50321

CONSTRUCTION PERMIT

City of Independence
Attn: Travis Foley
2018 Three Elms Park Rd.
Independence, IA 50644

PERMIT NO.: 2026-0197-S
FILE: City of Independence - Sewage
RE: Independence Wastewater Treatment Plant Modifications
PROJECT NO: S2025-0136A

In accordance with the provisions of Section 455B.173.3 and 455B.174.4, Code of Iowa, and Rule 567--60.2(455B) or Rule 567--65.6(455B), or Rule 567--43.3(455B) of the Iowa Administrative Code, the Director of the Department of Natural Resources does hereby issue a permit for the construction of wastewater treatment improvements which include the following:

- Two 2) Oxidation ditch measuring 177'x92'x19' each
    - Four (4) mechanical draft tube impeller aerators
    - Four (4) submersible mixers
    - Four (4) low speed submersible mixers
    - Two (2) motorized slide gates
      All for the anoxic/anerobic tanks suitable for operation in two (2) AlternatIR Carrousel System or OxyStream system basins
- Three (3) final clarifier mechanisms to be placed in three (3) 70 ft diameter clarifiers each with a side water depth of 15 feet
- Two (2) mechanically cleaned fine bar screens with the ability to function at a peak flow of 8.6 mgd each
- Two (2) screening was presses
- One (1) grit classifier with a flow rate of 316 gpm and settling tank volume of 81.2 ft^3
- Two (2) forced vortex grit collectors with 4.0 mgd capacity each
- Modifications to existing sludge storage (tank 1) and construction of a sludge storage tanks 2 & 3 bringing total storage of 808,000 gallons and total storage time of 180 days
    - Two (2) submersible sludge mixers in sludge storage tank 1
    - Four (4) submersible sludge mixers in sludge storage tanks 2 & 3
- Four (4) aerobic digesters
    - Fine bubble membrane disk aeration systems for aeration and mixing
- Three (3) low pressure rotary lobe blowers with ability to produce air flow of 3,300 SCFM
- Site Pumps
    - Sewage ejector pumps
    - One (1) self priming sludge pump operating at 1,000 gpm at 50 feet TDH
    - Four (4) RAS pumps operating at 750 gpm at 35 feet TDH
    - Two (2) rotary lobe pumps for WAS pumping, operating at a capacity of 250 gpm
    - Two (2) peristaltic hose type grit pumps operating between 80 gpm to 120 gpm
    - Two (2) submersible process return flow pumps with the ability to operate at normal conditions of 400 gpm at 40 feet TDH
    - Two (2) digested sludge transfer pumps with the ability to operate at normal conditions of 400 gpm at 75 feet TDH
- Open channel gravity flow ultraviolet disinfection system (Trojan UVSigna) with two banks, 12 lamps per bank ability to operate at a minimum dosage of 30,000(μ·Ws)/cm^2 under all critical flow conditions.

- Two (2) self-contained automatic refrigerated samplers (One for raw wastewater influent, one for final effluent)
- New influent/effluent flow measuring equipment
- Installation of a diesel engine emergency/standby generator
- New equipment storage facility
- New hauled waste receiving system
- Demolition of existing structures as needed
- and all related appurtenances necessary to complete the project in accordance with the approved plans and specifications.

DESIGN FLOWS AND LOADINGS

Design Flows (mgd)		Maximum 30 Day Design Loadings (lbs/day)	
ADW	1.8	BOD_5	12,105
AWW	4.27	TSS	9,450
MWW	8.57	TKN	1,189
PHWW	8.60		

Wasteload Limits (09/26/2024)

Parameters	Average (mg/l)	Maximum (mg/l)	Average (lbs/d)	Maximum (lbs/d)
$CBOD_5$*	25	40	834	1,334
TSS*	30	45	1,001	1,501
	2.2	18.8	70.7	625.4
	694	694	19,976	23,366
	1,671	1,671	56,274	56,274
	0.017	0.021	0.415	0.708
E. coli	126 org/ 100 ml		March 15th to November 15th	

* 85% removal is required

Water Quality Based Permit Limits				
Ammonia – Nitrogen				
Months	Average (mg/l)	Maximum (mg/l)	Average (lbs/d)	Maximum (lbs/d)
January	8.2	16.1	265.5	567.5
February	9.4	15.2	305.7	534.8
March	4.9	15.5	158.9	548.9
April	3.6	16.4	117.9	581.3
May	4.2	16.0	134.7	564.6
June	3.1	15.2	101.5	537.3
July	2.4	18.5	77.8	653.0
August	2.3	17.1	73.8	602.8
September	2.5	17.3	81.8	610.5
October	3.7	16.4	120.8	581.3

November	5.6	15.4	180.6	544.0
December	5.9	16.7	192.3	590.9

The construction permit is approved with the following conditions:

1) Provisions for obtaining raw wastewater samples without process return flows from treatment units at the plant shall be provided.

These conditions do not modify any existing requirements or conditions contained in NPDES Permit # 1037001 issued on 10/01/2020.

The City has opted to utilize State Revolving Loan Funds (SRF) for financing the proposed project. Therefore, an environmental review (ER) is necessary to assess the environmental impacts of the project in accordance with procedures in 40 CFR Part 6, ***and is required for all loan recipients***. A decision will be made by the department to determine if the project qualifies for a categorical exclusion (CX) or if a finding of no significant impact (FNSI) is required. The construction permit is approved conditionally based strictly on the technical review of the design plans and specifications. Any project changes resulting from the environmental review may require an amendment to the construction permit to retain eligibility for SRF funding. *You must not start* ***construction of the project prior to the environmental review completion. This could jeopardize your SRF eligibility and funding.*** Please contact Becca Flynn Kettman, Environmental Review Staff, at 515-204-5672 or Rebecca.flynnkettman@dnr.iowa.gov for questions about the ER status.

Construction of the project shall be initiated within one year of issuance of this permit or this permit is no longer valid. Within thirty days after completion of construction, the City of Independence shall submit a certification by a licensed professional engineer that the project was completed in accordance with the approved project documents.

A complete operation and maintenance (O&M) manual for the wastewater treatment and conveyance system described in this construction permit shall be prepared prior to the initiation of operations. Within one year after the initiation of operations, one copy of the final O&M manual approved by the design engineer for the permit holder's use shall be forwarded by the permit holder to the IDNR Field Office #1 in Manchester, Iowa.

The issuance of this permit in no way relieves the permittee of the responsibility for complying with any other local, state, and federal laws, ordinances, regulations or other requirements applicable to this facility.

Pursuant to Section 455B.174.4, Code of Iowa, you have the right to appeal any condition of this permit by filing with the Director of the Department of Natural Resources a notice of appeal and request for administrative hearing within 30 days of receipt of this permit.

Please feel free to contact me at 515-725-8431 or email Timothy.Bauer@dnr.iowa.gov if you have any questions or comments.

FOR THE DEPARTMENT OF NATURAL RESOURCES

KAYLA LYON, DIRECTOR

By: Tim Bauer Digitally signed by Tim Bauer Date: 2026.03.13 09:54:02 -05'00'

ENVIRONMENTAL SERVICES DIVISION

Date: 03/13/2026

Copy (via electronic delivery): Strand Associates, Inc. – Bradley Lake, Bradley.lake@strand.com
DNR FO 1 (Manchester, Iowa)
DNR Sewage File 6-10-37-0-01
SRF File CS192119601
Amy Seyffer, IDNR
Tony Toigo, Lee Wagner, Yolanda Attaway IFA
Becca Flynn Kettman

Why You Should Read This: The document below reviews the environmental impact likely from a State Revolving Fund project. As part of the environmental review, you are entitled to provide comments. If you have concerns about the environmental impact of this project, raise them now. We encourage public input in this decision making process.

IOWA™
State Revolving Fund

IOWA STATE REVOLVING FUND
ENVIRONMENTAL INFORMATION DOCUMENT

PROJECT IDENTIFICATION

Applicant: City of Independence
County: Buchanan
State: Iowa

SRF Number: CS1921196 01
Iowa DNR Project Number: W2025-0136A

COMMUNITY DESCRIPTION

Location: The City of Independence is located in Buchanan County, Iowa approximately 23 miles east of Waterloo, Iowa and 36 miles northwest of Cedar Rapids, Iowa.

Population: The population of the City of Independence according to the 2020 US Census was 6,064 people. The design population equivalent for the year 2046 is 6,695 people.

Current Waste Treatment: The City of Independence owns and operates a wastewater treatment plant (WWTP) located at 2018 Three Elms Park Road that provides wastewater treatment for domestic and industrial wastewater from all the customers in the City's service area. The WWTP was originally constructed in 1978. The major treatment processes at the WWTP include influent flow metering, screening, grit removal, preaeration, primary clarification, first-stage trickling filters, intermediate clarification, second-stage trickling filters, final clarification, chlorination, and dechlorination. Improvements to the biosolids processes were made in the late 1990s. The WWTP currently uses anaerobic digestion to produce Class A biosolids, utilizing three egg-shape digesters. A sludge storage tank provides on-site liquid storage. Class A biosolids are not currently a requirement at the WWTP because of the eventual sludge application on agricultural land, therefore, production of Class B biosolids would be sufficient to continue the current reuse program. Both a new headworks facility and third first-stage trickling filter were constructed in the early 2000s. The most recent upgrade at the WWTP was completed in 2020 and included miscellaneous improvements to existing processes. The City holds a NPDES permit with limits that expire September 30, 2025. The City had a notable permit exceedance for a mass-based total suspended solids violation in September 2018, likely the result of high flow conditions due to the localized flooding after a rainfall event. The City anticipates more stringent effluent limits in future NPDES permits due to revised regulatory standards and changing environmental impacts. The current biological treatment system and trickling filtration is not amenable to the removal of nutrients to meet future permit levels. Additionally, in recent interviews with the two largest industrial users in the City's service area, the City learned that growth from these two existing significant industrial users is expected to be between 25 and 50 percent. Based on the age of the current WWTP facilities, expected

increases in industrial loading, as well as the potential changes to the regulations governing discharges from the WWTP, the City needs to consider improvements to its treatment processes and its needs for additional capacity at the existing WWTP.

Current Waste Collection System: The City owns and operates a sanitary sewer collection system that conveys domestic and industrial flow generated throughout the City to the WWTP. Before the construction of the current WWTP facility, wastewater was treated at a site located east of the Wapsipinicon River in the southeast corner of the City. A pumping station was constructed on Lover's Lane Boulevard to pump flow from the influent of the previous facility to the current WWTP site, and the previous facility was abandoned following construction of the current WWTP. Most of the flow to the current WWTP is pumped to the site by the Lover's Lane Boulevard pumping station.

PROJECT DESCRIPTION

Purpose: The purpose of this project is to make improvements to the wastewater treatment facilities to increase capacity, meet future effluent limits, and reliably operate the City of Independence's wastewater system for the next 20 years.

Proposed Improvements: The proposed project includes the following improvements to the wastewater treatment plant: replace preliminary treatment equipment, construct two oxidation ditches, construct three secondary clarifiers, construct new RAS/WAS pumping building, install UV disinfection equipment, construct four aerobic digesters, install new equipment in the existing sludge storage tank, construct two sludge storage tanks, and construct a new storage building. The new tanks, buildings, and equipment will be constructed while the existing plant is in service. After construction, the flow will be strategically transitioned to flow through the new plant and once the new biology has been established in the new wastewater treatment plant, the existing plant will be demolished. Once the existing plant is demolished, the storage building will be constructed. The project also includes two new submersible pump stations and associated valve and meter vaults to pump plant sanitary sewer and biosolids to their appropriate locations. There will also be a hauled waste receiving station to receive vactor truck waste along with two new splitter structures to split flow evenly into the two oxidation ditches and the three final clarifiers. The existing Headworks Building, Administration Building, and Blower/UV Building will include plumbing, HVAC, and electrical/SCADA upgrades and will receive new paint, doors, and flooring/ceilings. The Administration Building renovation will also include a remodeled lab and offices within their existing footprint. New site utilities include a gas distribution system, a plant sanitary sewer system, and an electrical/SCADA distribution system along with an emergency generator. A new fence will be installed on the north side, and part of the east side. New concrete roadways will be included and disturbed areas will be graded and reseeded. A stormwater collection system will be installed and will flow to a retention basin prior to leaving the site.

Receiving Stream: The treated wastewater from the WWTP discharges into the Wapsipinicon River. It has a stream use designation of Class A1, Class B (WW-1), and Class HH. Class A1 waters are waters in which recreational or other uses may result in prolonged and direct contact with the water, involving considerable risk of ingesting water in quantities sufficient to pose a health hazard. Such activities would include, but not be limited to, swimming, diving, water skiing, and water contact recreational canoeing. Class B (WW-1) waters are waters in which temperature, flow and other habitat characteristics are suitable to maintain warm water game fish populations along with a resident aquatic community that includes a variety of native nongame fish and invertebrate species. These waters generally include border rivers, large interior rivers, and the lower segments of medium-size tributary streams. Class HH waters are waters in which fish are routinely harvested for human consumption or waters both designated as a drinking water supply and in which fish are routinely harvested for human consumption.

ALTERNATIVES CONSIDERED

Alternatives Considered: First, the City considered improvements to the treatment process for biological treatment and disinfection. The two alternative biological treatment methods the City considered include an oxidation ditch process or an aerobic granular sludge (AGS) process. Both processes can remove biochemical oxygen demand, total suspended solids, ammonia, and phosphorus to the anticipated required concentrations.

Oxidation ditch processes are a modification of the activated sludge process and are capable of removing nutrients to meet the anticipated permit limits. Advantages include resistance to shock loads due to a complete-mix design and long hydraulic residence time, and relatively simple operation and maintenance. However, they occupy more site area than alternative technologies. AGS processes differ from conventional activated sludge by selecting for organisms that form granules, which settle much faster than conventional activated sludge. This eliminates the need for secondary clarification and reduces reactor size. Each individual granule is composed of an oxic, anoxic, and anaerobic layer (or zones). This eliminates the need for separate anoxic and anaerobic tanks while providing both total nitrogen and total phosphorus removal to meet permit limits. Disadvantages of this type of process include its equipment cost, somewhat higher operational complexity, relatively few applications in the United States, and reduced capacity to handle peak wet weather flows. The United States license for the process is held by one company (Aqua Aerobics), which is a disadvantage for competition and cost control.

The City considered ultraviolet (UV) disinfection alternatives at the WWTP that will meet future seasonal *E. coli* limits and comply with the *Iowa Wastewater Facilities Design Standards*. Considering only UV disinfection is consistent with the City's desire to discontinue chemical (i.e., chlorine) disinfection. The UV system would be installed in half of the existing chlorine contact tank. Controls and winter lamp storage will be housed in the chlorine room of the existing pump building. The two similar UV disinfection alternatives the City is considering includes installing either a Trojan Technologies or Wedeco disinfection system.

Last, the City also considered alternatives for continued sludge digestion at the WWTP including continuing anaerobic digestion, installing aerobic digestion with new digesters, or installing aerobic digestion with a retrofit of the egg-shape digesters.

Continuation of anaerobic digestion at the WWTP would use the existing digestion configuration to treat sludge. The proposed nutrient reduction alternatives do not require primary clarification, and, therefore, will not produce primary sludge. Anaerobic digestion is not normally used for waste activated sludge-only digestion applications because waste activated sludge is not very amenable to anaerobic digestion. In addition, the capital costs to continue operating the temperature-phase anaerobic digestion facilities (constructed in 1978) would be very high with no meaningful energy recovery benefit. Finally, the biological upgrades will include biological phosphorus removal processes that will tend to create struvite problems within the anaerobic digesters and biosolids storage facilities.

Alternatively, aerobic digestion can be used to meet requirements for Class B (Class 2 in the State of Iowa) solids stabilization. Benefits of aerobic digestion include operational simplicity, reduced struvite potential, and lower supernatant recycle loading. Aerobic digestion with all new digesters would be appropriately sized and covered to meet the minimum digester temperature year round. The design consists of a 216,000-cubic-foot (cf) digester divided into four cells. This configuration provides more than 60 days of solids retention time

with four cells in service under design maximum month conditions. Alternatively, the existing egg-shape digesters could be converted into additional volume for aerobic digesters. The primary advantage of this alternative over constructing completely new digester volume is that the required new digester volume would be 106,000 cf, with the remaining 110,000 cf supplied by the existing digesters. However, the egg-shape digesters are difficult to access and have not been inspected recently, so their current condition is unknown. Reusing the egg-shape digesters may require structural improvements, potentially including structural rehabilitation. Conversion of the digesters will require demolition of the existing equipment and most piping. Conversion will add aeration diffusers to the digesters, requiring support from the floors that currently have a steep slope.

Reasons for Selection of Proposed Alternative: The No-Action alternative is not viable due to the aging infrastructure, the City's need to meet increased future loads, and the anticipated NPDES permit limits. First, the installation of the AGS system was deemed mechanically complex compared to the oxidation ditch and is a relatively new technology with a sole-sourced supplier. This may result in higher future capital costs and could present potential issues due to limited resources for operational troubleshooting. Second, because of incompatibility of anaerobic digestion with the nutrient reduction alternatives, and lack of economic benefit from gas production, anaerobic digestion was not considered a viable alternative. The current condition of the egg-shape digesters is uncertain and retrofitting them for aerobic digestion would likely require structural repairs, and they would require costly and complex equipment. Thus, the City determined that the cost to retrofit equipment and repair the existing egg-shape digesters into additional volume for aerobic digesters exceeded the savings with the required smaller new digester volume. The City determined it was more economical to construct all new aerobic digesters. At this time, the City compared the costs for the two similar disinfection systems and the Wedeco system was deemed more expensive.

The project site was selected for the availability of land (it is already City-owned and is the site of the existing WWTP) as well as minimization of the impacts to the environment.

MEASURES TAKEN TO ASSESS IMPACT

Coordination and Documentation with Other Agencies and Special Interest Groups: The following Federal, state and local agencies were provided an opportunity to comment on the proposed project to better assess the potential impact to the environment:

U.S. Army Corps of Engineers
U.S. Fish and Wildlife Service
State Historical Society of Iowa (State Historical Preservation Office)
Flandreau Santee Sioux
Ho-Chunk Nation
Iowa Tribe of Kansas and Nebraska
Iowa Tribe of Oklahoma
Kickapoo Tribe in Kansas
Kickapoo Tribe of Oklahoma
Lower Sioux Indian Community Council
Miami Tribe of Oklahoma
Omaha Tribal Council
Otoe-Missouria Tribe
Pawnee Nation of Oklahoma
Peoria Tribe of Indians of Oklahoma
Ponca Tribe of Indians of Oklahoma

Ponca Tribe of Nebraska
Prairie Band Potawatomi Nation
Prairie Island Indian Community
Sac & Fox Nation of Mississippi in Iowa
Sac & Fox Nation of Missouri
Sac & Fox Nation of Oklahoma
Santee Sioux Nation
Shakopee Mdewakanton Sioux Community
Sisseton-Wahpeton Oyate
Spirit Lake Tribal Council
Three Affiliated Tribes Mandan, Hidatsa & Arikara Nations
Upper Sioux Tribe
Winnebago Tribal Council
Yankton Sioux Tribal Business and Claims Committee
Buchanan County Historic Preservation Commission

No adverse comments have been received from any agencies or general public to date. Conditions placed on the applicant by the above agencies in order to assure no significant impact are included in the Summary of Reasons for Concluding No Significant Impact section.

ENVIRONMENTAL IMPACT SUMMARY

Construction: Traffic patterns within the community may be disrupted and above normal noise levels in the vicinity of the construction equipment can be anticipated during construction and should be a temporary problem. Adverse environmental impacts on noise quality will be handled by limited hours of contractor work time during the day. Other adverse environmental effects from construction activities will be minimized by proper construction practices, inspection, prompt cleanup, and other appropriate measures. Areas temporarily disturbed by the construction will be restored. Solid wastes resulting from the construction project will be regularly cleared away with substantial efforts made to minimize inconvenience to area residents.

Care will be taken to maintain dirt to avoid erosion and runoff. The proposed project will disturb one or more acres of soil; therefore, the applicant is required to obtain an NPDES General Permit Number 2 (for storm water discharge associated with construction activities) and abide by its terms. Provided that this permit is obtained and the terms of which are abided by, no significant impact to surface water quality, fish, shellfish, wildlife, or their natural habitats is expected.

Temporary air quality degradation may occur due to dust and fumes from construction equipment. The applicant shall take reasonable precautions to prevent the discharge of visible emissions of fugitive dusts beyond the lot line of the property during the proposed project (567 Iowa Administrative Code IAC 23.3(2)"c"). This project does include construction of equipment that has a potential to emit criteria pollutants and/or hazardous air pollutants. However, the equipment's potential to emit and anticipated actual emissions are below minor source reporting thresholds.

This project may require the disposal of sewage sludge. It is the responsibility of the applicant to ensure that the disposal of any sewage sludge complies with applicable requirements found in 40 CFR Part 503 and 567 Iowa Administrative Code IAC 67.

Historical/Archaeological: Various Native American tribes with an interest in the area and the Certified Local Government were provided information regarding the project. This project will not be receiving federal funds through SRF. As such, this project is not considered a federal undertaking as defined in §300320 under the National Historic Preservation Act, 54 U.S.C. 300101 et seq. for the purpose of the SRF environmental review. If this SRF project receives federal funds from other sources, it is the responsibility of the applicant to ensure all federal requirements are met for that funding. However, if project activities uncover any item(s) that might be of archaeological, historical, or architectural interest, or if important new archaeological, historical, or architectural data should be encountered in the project area, the applicant should make reasonable efforts to avoid further impacts to the property until an assessment can be made by an individual meeting the Secretary of the Interior's professional qualifications standards (36 CFR Part 61).

Environmental: The project area was screened for the presence of wetlands, floodplains, and sovereign lands. Impacts to wetlands are not anticipated. The project will not interfere with any State-owned parks. The project will not impact any wild and scenic rivers as none exist within the State of Iowa. Endangered Species Act Section 7 consultation is not required for this non-federal SRF project. Section 9 of the Endangered Species Act may apply and other wildlife conservation laws such as the Migratory Bird Treaty Act of 1918 and the Bald and Golden Eagle Protection Act of 1940. The U.S. Fish & Wildlife Service Information for Planning and Consultation website (IPAC) consultation determined that the project will not impact protected species or their habitats. However, if any State- or Federally-listed threatened or endangered species or communities are found during the planning or construction phases, additional studies and/or mitigation may be required. Impacts to the 100-year flood plain are not anticipated. No adverse impacts are expected to result from this project, such as those to surface water quantity, or groundwater quality or quantity.

Land Use and Trends: The project will not displace population nor will it alter the character of existing residential areas. The proposed project is within the present corporate limits of Independence in areas zoned residential, commercial, or industrial. No significant farmlands will be impacted.

This project should not impact population trends as the presence or absence of existing water/sewer infrastructure is unlikely to induce significant alterations in the population growth or distribution given the myriad of factors that influence development in this region. Similarly, this project is unlikely to induce significant alterations in the pattern and type of land use.

Irreversible and Irretrievable Commitment of Resources: Fuels, materials, and various forms of energy will be utilized during construction.

Nondiscrimination: All programs, projects, and activities undertaken by DNR in the SRF programs are subject to federal anti-discrimination laws, including the Civil Rights Act of 1964, section 504 of the Rehabilitation Act of 1973, and section 13 of the Federal Water Pollution Control Amendments of 1972. These laws prohibit discrimination on the basis of race, color, national origin, sex, disability, or age.

POSITIVE ENVIRONMENTAL EFFECTS TO BE REALIZED FROM THE PROPOSED PROJECT

Positive environmental effects will be improved treatment of the wastewater from the City of Independence WWTP, compliance with existing and future effluent discharge permit limits, and reduced E. Coli and nutrients into the receiving stream.

SUMMARY OF REASONS FOR CONCLUDING NO SIGNIFICANT IMPACT

- The project will not significantly affect the pattern and type of land use (industrial, commercial, agricultural, recreational, residential) or growth and distribution of population.
- The project will not conflict with local, regional or State land use plans or policies.

- Impacts to wetlands are not anticipated.
- The project will not affect threatened and endangered species or their habitats. If any State- or Federally-listed threatened or endangered species or communities are found during the planning or construction phases, additional studies and/or mitigation may be required. Section 9 of the Endangered Species Act may apply and other wildlife conservation laws such as the Migratory Bird Treaty Act of 1918 and the Bald and Golden Eagle Protection Act of 1940.
- The project will not displace population, alter the character of existing residential areas, or convert significant farmlands to non-agricultural purposes.
- Impacts to the 100-year flood plain are not anticipated.
- The project will not have effect on parklands, preserves, other public lands, or areas of recognized scenic or recreational value.
- Various Native American tribes with an interest in the area and the Certified Local Government were provided information regarding the project. This project will not be receiving federal funds through SRF. As such, this project is not considered a federal undertaking as defined in §300320 under the National Historic Preservation Act, 54 U.S.C. 300101 et seq. for the purpose of the SRF environmental review. If this SRF project receives federal funds from other sources, it is the responsibility of the applicant to ensure all federal requirements are met for that funding.
- If project activities uncover any item(s) that might be of archaeological, historical, or architectural interest, or if important new archaeological, historical, or architectural data should be encountered in the project APE, the applicant should make reasonable efforts to avoid further impacts to the property until an assessment can be made by an individual meeting the Secretary of the Interior's professional qualifications standards (36 CFR Part 61).
- The project will not have a significant adverse effect upon local ambient air quality provided the applicant takes reasonable precautions to prevent the discharge of visible emissions of fugitive dusts beyond the lot line of the property during the proposed project (567 IAC 23.3(2)"c").
- The project will not have a significant adverse effect upon local ambient noise levels, surface water quantity, groundwater quality or quantity, or water supply.
- No significant impact to surface water quality, fish, shellfish, wildlife, or their natural habitats is expected provided that an NPDES General Permit Number 2 (for storm water discharge associated with construction activities) is obtained and the terms of which are abided by.

The project description, scope, and anticipated environmental impacts detailed above are accurate and complete to the best to my knowledge.

Brad Bleichner
Signature of the Mayor, City of Independence

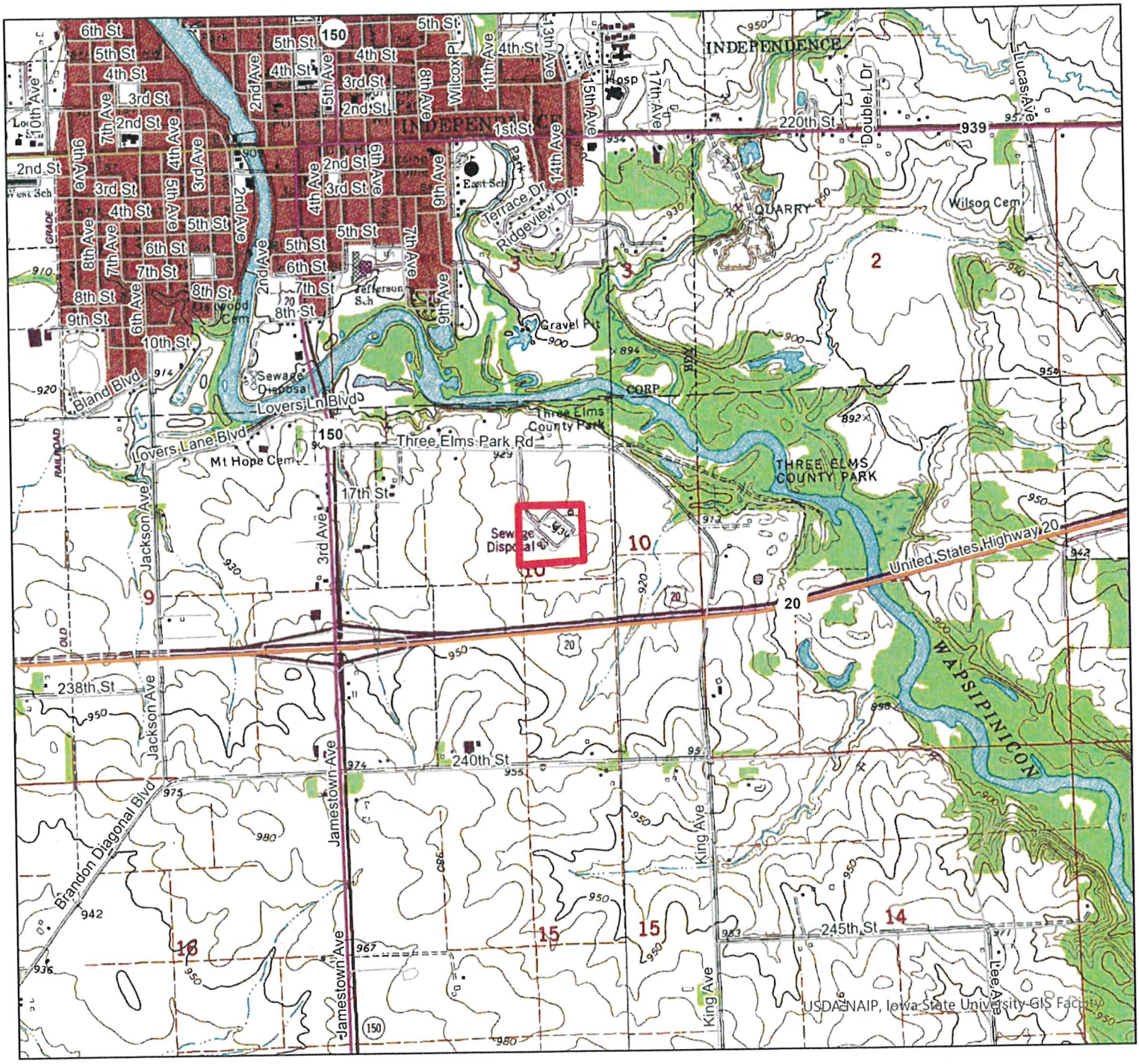
12/9/2025
Date

Brad Bleichner
Printed Name of the Mayor, City of Independence

IOWA
State Revolving Fund

USGS 7.5 Minute Quadrangle: Independence
Section: 10, Township: 88 N, Range: 09 W
Date: 1982

N



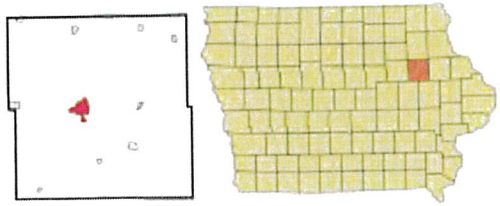
USGS Topographic Map

City of Independence WWTP Modifications
Independence, IA (Buchanan County)

Legend

Proposed Project Area

0 1,500 3,000 6,000 Feet

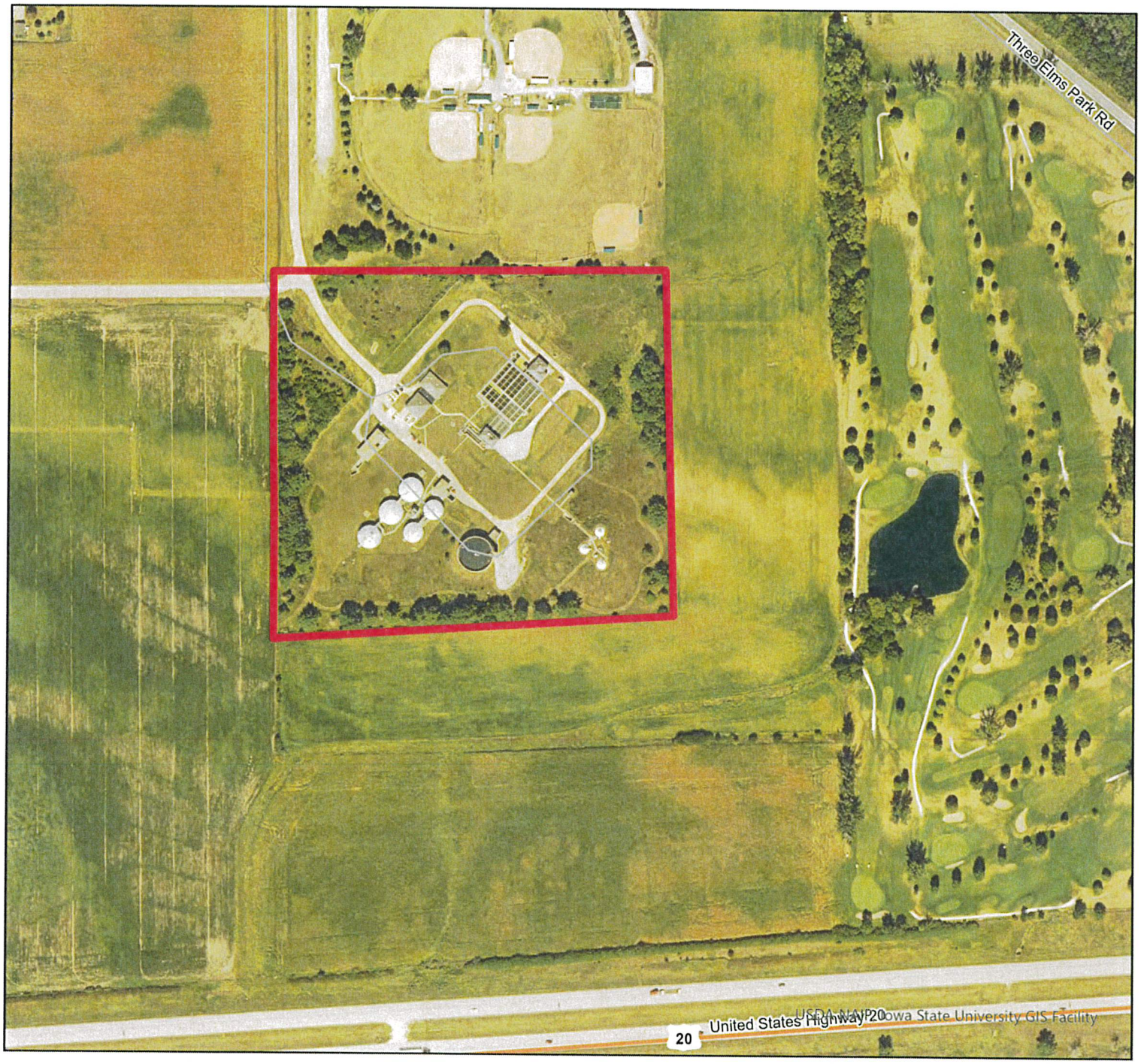


Buchanan County. Image source: Wikipedia, 2025.

IOWA
State Revolving Fund

2023 Aerial Photograph

N



City of Independence WWTP Modifications
Independence, IA (Buchanan County)

0 250 500 1,000 Feet

Legend

Proposed Project Area

Why You Should Read This: The document below reviews the environmental impact likely from a State Revolving Fund project. As part of the environmental review, you are entitled to provide comments. If you have concerns about the environmental impact of this project, raise them now. We encourage public input in this decision-making process.

IOWA STATE REVOLVING FUND
FINDING OF NO SIGNIFICANT IMPACT

December 10, 2025

To: All Interested Citizens, Government Agencies, and Public Groups

An environmental review has been performed based on the procedures for implementing the National Environmental Policy Act (NEPA), for the proposed agency action below:

Applicant: City of Independence
County: Buchanan
State: Iowa

SRF Number: CS1921196 01
Iowa DNR Project Number: W2025-0136A

The City of Independence, Iowa is planning an upgrade to their wastewater infrastructure. The city has applied for financial assistance through the State Revolving Fund (SRF) loan program to build the project. The State Revolving Loan Program is a program authorized by the Environmental Protection Agency (EPA) and administered by the Iowa Department of Natural Resources (DNR) in partnership with the Iowa Finance Authority. This project will not be receiving federal funds through SRF.

The City of Independence is located in Buchanan County, Iowa approximately 23 miles east of Waterloo, Iowa and 36 miles northwest of Cedar Rapids, Iowa. The population of the City of Independence according to the 2020 US Census was 6,064 people. The design population equivalent for the year 2046 is 6,695 people.

The City of Independence owns and operates a wastewater treatment plant (WWTP) located at 2018 Three Elms Park Road that provides wastewater treatment for domestic and industrial wastewater from all the customers in the City's service area. The WWTP was originally constructed in 1978. The major treatment processes at the WWTP include influent flow metering, screening, grit removal, preaeration, primary clarification, first-stage trickling filters, intermediate clarification, second-stage trickling filters, final clarification, chlorination, and dechlorination. Improvements to the biosolids processes were made in the late 1990s. The WWTP currently uses anaerobic digestion to produce Class A biosolids, utilizing three egg-shape digesters. A sludge storage tank provides on-site liquid storage. Class A biosolids are not currently a requirement at the WWTP because of the eventual sludge application on agricultural land, therefore, production of Class B biosolids would be sufficient to continue the current reuse program. Both a new headworks facility and third first-stage trickling filter were constructed in the early 2000s. The most recent upgrade at the WWTP was completed in 2020 and included miscellaneous improvements to existing processes. The City holds a NPDES permit with limits that expire September 30, 2025. The City had a notable permit exceedance for a mass-based total suspended solids violation in September 2018, likely the result of high flow conditions due to the localized flooding after a rainfall event. The City anticipates more stringent effluent limits in future NPDES permits due to revised regulatory standards and changing environmental

impacts. The current biological treatment system and trickling filtration is not amenable to the removal of nutrients to meet future permit levels. Additionally, in recent interviews with the two largest industrial users in the City's service area, the City learned that growth from these two existing significant industrial users is expected to be between 25 and 50 percent. Based on the age of the current WWTP facilities, expected increases in industrial loading, as well as the potential changes to the regulations governing discharges from the WWTP, the City needs to consider improvements to its treatment processes and its needs for additional capacity at the existing WWTP.

The City owns and operates a sanitary sewer collection system that conveys domestic and industrial flow generated throughout the City to the WWTP. Before the construction of the current WWTP facility, wastewater was treated at a site located east of the Wapsipinicon River in the southeast corner of the City. A pumping station was constructed on Lover's Lane Boulevard to pump flow from the influent of the previous facility to the current WWTP site, and the previous facility was abandoned following construction of the current WWTP. Most of the flow to the current WWTP is pumped to the site by the Lover's Lane Boulevard pumping station.

The purpose of this project is to make improvements to the wastewater treatment facilities to increase capacity, meet future effluent limits, and reliably operate the City of Independence's wastewater system for the next 20 years. The proposed project includes the following improvements to the WWTP: replace preliminary treatment equipment, construct two oxidation ditches, construct three secondary clarifiers, construct new RAS/WAS pumping building, install UV disinfection equipment, construct four aerobic digesters, install new equipment in the existing sludge storage tank, construct two sludge storage tanks, and construct a new storage building. The new tanks, buildings, and equipment will be constructed while the existing plant is in service. After construction, the flow will be strategically transitioned to flow through the new plant and once the new biology has been established in the new wastewater treatment plant, the existing plant will be demolished. Once the existing plant is demolished, the storage building will be constructed. The project also includes two new submersible pump stations and associated valve and meter vaults to pump plant sanitary sewer and biosolids to their appropriate locations. There will also be a hauled waste receiving station to receive vactor truck waste along with two new splitter structures to split flow evenly into the two oxidation ditches and the three final clarifiers. The existing Headworks Building, Administration Building, and Blower/UV Building will include plumbing, HVAC, and electrical/SCADA upgrades and will receive new paint, doors, and flooring/ceilings. The Administration Building renovation will also include a remodeled lab and offices within their existing footprint. New site utilities include a gas distribution system, a plant sanitary sewer system, and an electrical/SCADA distribution system along with an emergency generator. A new fence will be installed on the north side, and part of the east side. New concrete roadways will be included and disturbed areas will be graded and reseeded. A stormwater collection system will be installed and will flow to a retention basin prior to leaving the site.

The treated wastewater from the WWTP discharges into the Wapsipinicon River. It has a stream use designation of Class A1, Class B (WW-1), and Class HH. Class A1 waters are waters in which recreational or other uses may result in prolonged and direct contact with the water, involving considerable risk of ingesting water in quantities sufficient to pose a health hazard. Such activities would include, but not be limited to, swimming, diving, water skiing, and water contact recreational canoeing. Class B (WW-1) waters are waters in which temperature, flow and other habitat characteristics are suitable to maintain warm water game fish populations along with a resident aquatic community that includes a variety of native nongame fish and invertebrate species. These waters generally include border rivers, large interior rivers, and the lower segments of medium-size tributary streams. Class HH waters are waters in which fish are routinely harvested for human consumption or waters both designated as a drinking water supply and in which fish are routinely harvested for human consumption.

Positive environmental effects will be improved treatment of the wastewater from the City of Independence WWTP, compliance with existing and future effluent discharge permit limits, and reduced E. Coli and nutrients into the receiving stream.

The project will not significantly affect the pattern and type of land use (industrial, commercial, agricultural, recreational, residential) or growth and distribution of population. The project will not conflict with local, regional or State land use plans or policies. The project will not impact wetlands. The project will not affect threatened and endangered species or their habitats. If any State- or Federally-listed threatened or endangered species or communities are found during the planning or construction phases, additional studies and/or mitigation may be required. Section 9 of the Endangered Species Act may apply and other wildlife conservation laws such as the Migratory Bird Treaty Act of 1918 and the Bald and Golden Eagle Protection Act of 1940. The project will not displace population, alter the character of existing residential areas, or convert significant farmlands to non-agricultural purposes. The project will not affect the 100-year flood plain. The project will not have effect on parklands, preserves, other public lands, or areas of recognized scenic or recreational value.

Various Native American tribes with an interest in the area and the Certified Local Government were provided information regarding the project. This project will not be receiving federal funds through SRF. As such, this project is not considered a federal undertaking as defined in §300320 under the National Historic Preservation Act, 54 U.S.C. 300101 et seq. for the purpose of the SRF environmental review. If this SRF project receives federal funds from other sources, it is the responsibility of the applicant to ensure all federal requirements are met for that funding. If project activities uncover any item(s) that might be of archaeological, historical, or architectural interest, or if important new archaeological, historical, or architectural data should be encountered in the project APE, the applicant should make reasonable efforts to avoid further impacts to the property until an assessment can be made by an individual meeting the Secretary of the Interior's professional qualifications standards (36 CFR Part 61).

The project will not have a significant adverse effect upon local ambient air quality provided the applicant takes reasonable precautions to prevent the discharge of visible emissions of fugitive dusts beyond the lot line of the property during the proposed project (567 IAC 23.3(2)"c"). The project will not have a significant adverse effect upon local ambient noise levels, surface water quantity, groundwater quality or quantity, or water supply. No significant impact to surface water quality, fish, shellfish, wildlife, or their natural habitats is expected provided that an NPDES General Permit Number 2 (for storm water discharge associated with construction activities) is obtained and the terms of which are abided by.

Minimum separation distances will be maintained. Noise during construction will be maintained at tolerable levels through controls on construction activities. Any construction debris will be removed from the site for proper disposal. Adverse environmental effects from construction activities will be minimized with proper construction practices, inspection, prompt clean up and other appropriate measures. Areas temporarily disturbed by the construction will be restored.

It has been determined that the proposed action will result in no significant impacts to the surrounding environment. This determination is based on a careful review of the engineering report, the environmental assessment and other supporting data which are on file at the Department of Natural Resources' office in Des Moines, Iowa. These are available for public review upon request. A copy of the environmental assessment is attached. This Department will not take any administrative action on the project for at least thirty (30) calendar days from the above date. Persons disagreeing with the above environmental decision may submit

comments to the department during this period. Your comments can be sent to SRF-PC@dnr.iowa.gov or directly to me at Rebecca.FlynnKettman@dnr.iowa.gov or (515) 204-5672.

Sincerely,

Rebecca Flynn Kettman
Environmental Specialist
6200 Park Ave, Suite 200
Des Moines, IA 50321

Enclosures: Environmental Assessment Document
Project Map

Distribution List (email):
Bradley Lake, Strand Associates, Inc.
Edward Boling, Council on Environmental Quality
Jake Hansen, Iowa Department of Agriculture and Land Stewardship
Ken Sharp, Iowa Department of Health & Human Services
Mindy Wells, Iowa Department of Health & Human Services
Chad Sands, Iowa Economic Development Authority
Alicia Vasto, Iowa Environmental Council
Michael Schmidt, Iowa Environmental Council
Tony Toigo, Iowa Finance Authority
Lee Wagner, Iowa Finance Authority
Yolanda Attaway, Iowa Finance Authority
Mickey Shields, Iowa League of Cities
Jane Clark, Sierra Club
Josh Mandelbaum, Environmental Law and Policy Center
Kate Sand, USDA Rural Development
Tokey Boswell, USDOI, National Park Service, Midwest Region
Kraig McPeek, Fish and Wildlife Service, Rock Island Field Office
Ann D'Alfonso, USEPA Region VII
Kelly Beard-Tittone, USEPA Region VII
Independence Bulletin Journal

Why You Should Read This: The document below reviews the environmental impact likely from a State Revolving Fund project. As part of the environmental review, you are entitled to provide comments. If you have concerns about the environmental impact of this project, raise them now. We encourage public input in this decision making process.

IOWA STATE REVOLVING FUND
ENVIRONMENTAL ASSESSMENT DOCUMENT

PROJECT IDENTIFICATION

Applicant: City of Independence
County: Buchanan
State: Iowa

SRF Number: CS1921196 01
Iowa DNR Project Number: W2025-0136A

COMMUNITY DESCRIPTION

Location: The City of Independence is located in Buchanan County, Iowa approximately 23 miles east of Waterloo, Iowa and 36 miles northwest of Cedar Rapids, Iowa.

Population: The population of the City of Independence according to the 2020 US Census was 6,064 people. The design population equivalent for the year 2046 is 6,695 people.

Current Waste Treatment: The City of Independence owns and operates a wastewater treatment plant (WWTP) located at 2018 Three Elms Park Road that provides wastewater treatment for domestic and industrial wastewater from all the customers in the City's service area. The WWTP was originally constructed in 1978. The major treatment processes at the WWTP include influent flow metering, screening, grit removal, preaeration, primary clarification, first-stage trickling filters, intermediate clarification, second-stage trickling filters, final clarification, chlorination, and dechlorination. Improvements to the biosolids processes were made in the late 1990s. The WWTP currently uses anaerobic digestion to produce Class A biosolids, utilizing three egg-shape digesters. A sludge storage tank provides on-site liquid storage. Class A biosolids are not currently a requirement at the WWTP because of the eventual sludge application on agricultural land, therefore, production of Class B biosolids would be sufficient to continue the current reuse program. Both a new headworks facility and third first-stage trickling filter were constructed in the early 2000s. The most recent upgrade at the WWTP was completed in 2020 and included miscellaneous improvements to existing processes. The City holds a NPDES permit with limits that expire September 30, 2025. The City had a notable permit exceedance for a mass-based total suspended solids violation in September 2018, likely the result of high flow conditions due to the localized flooding after a rainfall event. The City anticipates more stringent effluent limits in future NPDES permits due to revised regulatory standards and changing environmental impacts. The current biological treatment system and trickling filtration is not amenable to the removal of nutrients to meet future permit levels. Additionally, in recent interviews with the two largest industrial users in the City's service area, the City learned that growth from these two existing significant industrial users is expected to be between 25 and 50 percent. Based on the age of the current WWTP facilities, expected

increases in industrial loading, as well as the potential changes to the regulations governing discharges from the WWTP, the City needs to consider improvements to its treatment processes and its needs for additional capacity at the existing WWTP.

Current Waste Collection System: The City owns and operates a sanitary sewer collection system that conveys domestic and industrial flow generated throughout the City to the WWTP. Before the construction of the current WWTP facility, wastewater was treated at a site located east of the Wapsipinicon River in the southeast corner of the City. A pumping station was constructed on Lover's Lane Boulevard to pump flow from the influent of the previous facility to the current WWTP site, and the previous facility was abandoned following construction of the current WWTP. Most of the flow to the current WWTP is pumped to the site by the Lover's Lane Boulevard pumping station.

PROJECT DESCRIPTION

Purpose: The purpose of this project is to make improvements to the wastewater treatment facilities to increase capacity, meet future effluent limits, and reliably operate the City of Independence's wastewater system for the next 20 years.

Proposed Improvements: The proposed project includes the following improvements to the WWTP: replace preliminary treatment equipment, construct two oxidation ditches, construct three secondary clarifiers, construct new RAS/WAS pumping building, install UV disinfection equipment, construct four aerobic digesters, install new equipment in the existing sludge storage tank, construct two sludge storage tanks, and construct a new storage building. The new tanks, buildings, and equipment will be constructed while the existing plant is in service. After construction, the flow will be strategically transitioned to flow through the new plant and once the new biology has been established in the new wastewater treatment plant, the existing plant will be demolished. Once the existing plant is demolished, the storage building will be constructed. The project also includes two new submersible pump stations and associated valve and meter vaults to pump plant sanitary sewer and biosolids to their appropriate locations. There will also be a hauled waste receiving station to receive vactor truck waste along with two new splitter structures to split flow evenly into the two oxidation ditches and the three final clarifiers. The existing Headworks Building, Administration Building, and Blower/UV Building will include plumbing, HVAC, and electrical/SCADA upgrades and will receive new paint, doors, and flooring/ceilings. The Administration Building renovation will also include a remodeled lab and offices within their existing footprint. New site utilities include a gas distribution system, a plant sanitary sewer system, and an electrical/SCADA distribution system along with an emergency generator. A new fence will be installed on the north side, and part of the east side. New concrete roadways will be included and disturbed areas will be graded and reseeded. A stormwater collection system will be installed and will flow to a retention basin prior to leaving the site.

Receiving Stream: The treated wastewater from the WWTP discharges into the Wapsipinicon River. It has a stream use designation of Class A1, Class B (WW-1), and Class HH. Class A1 waters are waters in which recreational or other uses may result in prolonged and direct contact with the water, involving considerable risk of ingesting water in quantities sufficient to pose a health hazard. Such activities would include, but not be limited to, swimming, diving, water skiing, and water contact recreational canoeing. Class B (WW-1) waters are waters in which temperature, flow and other habitat characteristics are suitable to maintain warm water game fish populations along with a resident aquatic community that includes a variety of native nongame fish and invertebrate species. These waters generally include border rivers, large interior rivers, and the lower segments of medium-size tributary streams. Class HH waters are waters in which fish are routinely harvested for human consumption or waters both designated as a drinking water supply and in which fish are routinely harvested for human consumption.

ALTERNATIVES CONSIDERED

Alternatives Considered: First, the City considered improvements to the treatment process for biological treatment and disinfection. The two alternative biological treatment methods the City considered include an oxidation ditch process or an aerobic granular sludge (AGS) process. Both processes can remove biochemical oxygen demand, total suspended solids, ammonia, and phosphorus to the anticipated required concentrations.

Oxidation ditch processes are a modification of the activated sludge process and are capable of removing nutrients to meet the anticipated permit limits. Advantages include resistance to shock loads due to a complete-mix design and long hydraulic residence time, and relatively simple operation and maintenance. However, they occupy more site area than alternative technologies. AGS processes differ from conventional activated sludge by selecting for organisms that form granules, which settle much faster than conventional activated sludge. This eliminates the need for secondary clarification and reduces reactor size. Each individual granule is composed of an oxic, anoxic, and anaerobic layer (or zones). This eliminates the need for separate anoxic and anaerobic tanks while providing both total nitrogen and total phosphorus removal to meet permit limits. Disadvantages of this type of process include its equipment cost, somewhat higher operational complexity, relatively few applications in the United States, and reduced capacity to handle peak wet weather flows. The United States license for the process is held by one company (Aqua Aerobics), which is a disadvantage for competition and cost control.

The City considered ultraviolet (UV) disinfection alternatives at the WWTP that will meet future seasonal *E. coli* limits and comply with the *Iowa Wastewater Facilities Design Standards*. Considering only UV disinfection is consistent with the City's desire to discontinue chemical (i.e., chlorine) disinfection. The UV system would be installed in half of the existing chlorine contact tank. Controls and winter lamp storage will be housed in the chlorine room of the existing pump building. The two similar UV disinfection alternatives the City is considering includes installing either a Trojan Technologies or Wedeco disinfection system.

Last, the City also considered alternatives for continued sludge digestion at the WWTP including continuing anaerobic digestion, installing aerobic digestion with new digesters, or installing aerobic digestion with a retrofit of the egg-shape digesters.

Continuation of anaerobic digestion at the WWTP would use the existing digestion configuration to treat sludge. The proposed nutrient reduction alternatives do not require primary clarification, and, therefore, will not produce primary sludge. Anaerobic digestion is not normally used for waste activated sludge-only digestion applications because waste activated sludge is not very amenable to anaerobic digestion. In addition, the capital costs to continue operating the temperature-phase anaerobic digestion facilities (constructed in 1978) would be very high with no meaningful energy recovery benefit. Finally, the biological upgrades will include biological phosphorus removal processes that will tend to create struvite problems within the anaerobic digesters and biosolids storage facilities.

Alternatively, aerobic digestion can be used to meet requirements for Class B (Class 2 in the State of Iowa) solids stabilization. Benefits of aerobic digestion include operational simplicity, reduced struvite potential, and lower supernatant recycle loading. Aerobic digestion with all new digesters would be appropriately sized and covered to meet the minimum digester temperature year round. The design consists of a 216,000-cubic-foot (cf) digester divided into four cells. This configuration provides more than 60 days of solids retention time with four cells in service under design maximum month conditions. Alternatively, the existing egg-shape digesters could be converted into additional volume for aerobic digesters. The primary advantage of this alternative over constructing completely new digester volume is that the required new digester volume would

be 106,000 cf, with the remaining 110,000 cf supplied by the existing digesters. However, the egg-shape digesters are difficult to access and have not been inspected recently, so their current condition is unknown. Reusing the egg-shape digesters may require structural improvements, potentially including structural rehabilitation. Conversion of the digesters will require demolition of the existing equipment and most piping. Conversion will add aeration diffusers to the digesters, requiring support from the floors that currently have a steep slope.

Reasons for Selection of Proposed Alternative: The No-Action alternative is not viable due to the aging infrastructure, the City's need to meet increased future loads, and the anticipated NPDES permit limits. First, the installation of the AGS system was deemed mechanically complex compared to the oxidation ditch and is a relatively new technology with a sole-sourced supplier. This may result in higher future capital costs and could present potential issues due to limited resources for operational troubleshooting. Second, because of incompatibility of anaerobic digestion with the nutrient reduction alternatives, and lack of economic benefit from gas production, anaerobic digestion was not considered a viable alternative. The current condition of the egg-shape digesters is uncertain and retrofitting them for aerobic digestion would likely require structural repairs, and they would require costly and complex equipment. Thus, the City determined that the cost to retrofit equipment and repair the existing egg-shape digesters into additional volume for aerobic digesters exceeded the savings with the required smaller new digester volume. The City determined it was more economical to construct all new aerobic digesters. At this time, the City compared the costs for the two similar disinfection systems and the Wedeco system was deemed more expensive.

The project site was selected for the availability of land (it is already City-owned and is the site of the existing WWTP) as well as minimization of the impacts to the environment.

MEASURES TAKEN TO ASSESS IMPACT

Public Involvement: A public hearing was held on December 8, 2025 at 5:30 pm at the City's regular council meeting. The public notice of this hearing was made available by publication in the Independence Bulletin Journal on November 1, 2025, placed on the City website on November 1, 2025, and posted to the City Facebook page on November 1, 2025. The purpose of this hearing was to present the environmental and financial impacts of the proposed improvement project. No written or oral comments were received.

Coordination and Documentation with Other Agencies and Special Interest Groups: The following Federal, state and local agencies were provided an opportunity to comment on the proposed project to better assess the potential impact to the environment:

Flandreau Santee Sioux
Ho-Chunk Nation
Iowa Tribe of Kansas and Nebraska
Iowa Tribe of Oklahoma
Kickapoo Tribe in Kansas
Kickapoo Tribe of Oklahoma
Lower Sioux Indian Community Council
Miami Tribe of Oklahoma
Omaha Tribal Council
Otoe-Missouria Tribe
Pawnee Nation of Oklahoma
Peoria Tribe of Indians of Oklahoma
Ponca Tribe of Indians of Oklahoma
Ponca Tribe of Nebraska

Prairie Band Potawatomi Nation
Prairie Island Indian Community
Sac & Fox Nation of Mississippi in Iowa
Sac & Fox Nation of Missouri
Sac & Fox Nation of Oklahoma
Santee Sioux Nation
Shakopee Mdewakanton Sioux Community
Sisseton-Wahpeton Oyate
Spirit Lake Tribal Council
Three Affiliated Tribes Mandan, Hidatsa & Arikara Nations
Upper Sioux Tribe
Winnebago Tribal Council
Yankton Sioux Tribal Business and Claims Committee
Buchanan County Historic Preservation Commission

No adverse comments have been received from any agencies or general public. Conditions placed on the applicant by the above agencies in order to assure no significant impact are included in the Summary of Reasons for Concluding No Significant Impact section.

ENVIRONMENTAL IMPACT SUMMARY

Construction: Traffic patterns within the community may be disrupted and above normal noise levels in the vicinity of the construction equipment can be anticipated during construction and should be a temporary problem. Adverse environmental impacts on noise quality will be handled by limited hours of contractor work time during the day. Other adverse environmental effects from construction activities will be minimized by proper construction practices, inspection, prompt cleanup, and other appropriate measures. Areas temporarily disturbed by the construction will be restored. Solid wastes resulting from the construction project will be regularly cleared away with substantial efforts made to minimize inconvenience to area residents.

Care will be taken to maintain dirt to avoid erosion and runoff. The proposed project will disturb one or more acres of soil; therefore, the applicant is required to obtain an NPDES General Permit Number 2 (for storm water discharge associated with construction activities) and abide by its terms. Provided that this permit is obtained and the terms of which are abided by, no significant impact to surface water quality, fish, shellfish, wildlife, or their natural habitats is expected.

Temporary air quality degradation may occur due to dust and fumes from construction equipment. The applicant shall take reasonable precautions to prevent the discharge of visible emissions of fugitive dusts beyond the lot line of the property during the proposed project (567 Iowa Administrative Code IAC 23.3(2)“c”). This project does include construction of equipment that has a potential to emit criteria pollutants and/or hazardous air pollutants. However, the equipment’s potential to emit and anticipated actual emissions are below minor source reporting thresholds.

This project may require the disposal of sewage sludge. It is the responsibility of the applicant to ensure that the disposal of any sewage sludge complies with applicable requirements found in 40 CFR Part 503 and 567 Iowa Administrative Code IAC 67.

Historical/Archaeological: Various Native American tribes with an interest in the area and the Certified Local Government were provided information regarding the project. This project will not be receiving federal funds

through SRF. As such, this project is not considered a federal undertaking as defined in §300320 under the National Historic Preservation Act, 54 U.S.C. 300101 et seq. for the purpose of the SRF environmental review. If this SRF project receives federal funds from other sources, it is the responsibility of the applicant to ensure all federal requirements are met for that funding. However, if project activities uncover any item(s) that might be of archaeological, historical, or architectural interest, or if important new archaeological, historical, or architectural data should be encountered in the project area, the applicant should make reasonable efforts to avoid further impacts to the property until an assessment can be made by an individual meeting the Secretary of the Interior's professional qualifications standards (36 CFR Part 61).

Environmental: The project area was screened for the presence of wetlands, floodplains, and sovereign lands. The project will not impact wetlands. The project will not interfere with any State-owned parks. The project will not impact any wild and scenic rivers as none exist within the State of Iowa. Endangered Species Act Section 7 consultation is not required for this non-federal SRF project. Section 9 of the Endangered Species Act may apply and other wildlife conservation laws such as the Migratory Bird Treaty Act of 1918 and the Bald and Golden Eagle Protection Act of 1940. The U.S. Fish & Wildlife Service Information for Planning and Consultation website (IPAC) consultation determined that the project will not impact protected species or their habitats. However, if any State- or Federally-listed threatened or endangered species or communities are found during the planning or construction phases, additional studies and/or mitigation may be required. The project will not impact the 100-year flood plain. No adverse impacts are expected to result from this project, such as those to surface water quantity, or groundwater quality or quantity.

Land Use and Trends: The project will not displace population nor will it alter the character of existing residential areas. The proposed project is within the present corporate limits of Independence in areas zoned residential, commercial, or industrial. No significant farmlands will be impacted.

This project should not impact population trends as the presence or absence of existing water/sewer infrastructure is unlikely to induce significant alterations in the population growth or distribution given the myriad of factors that influence development in this region. Similarly, this project is unlikely to induce significant alterations in the pattern and type of land use.

Irreversible and Irretrievable Commitment of Resources: Fuels, materials, and various forms of energy will be utilized during construction.

Nondiscrimination: All programs, projects, and activities undertaken by DNR in the SRF programs are subject to federal anti-discrimination laws, including the Civil Rights Act of 1964, section 504 of the Rehabilitation Act of 1973, and section 13 of the Federal Water Pollution Control Amendments of 1972. These laws prohibit discrimination on the basis of race, color, national origin, sex, disability, or age.

POSITIVE ENVIRONMENTAL EFFECTS TO BE REALIZED FROM THE PROPOSED PROJECT

Positive environmental effects will be improved treatment of the wastewater from the City of Independence WWTP, compliance with existing and future effluent discharge permit limits, and reduced E. Coli and nutrients into the receiving stream.

SUMMARY OF REASONS FOR CONCLUDING NO SIGNIFICANT IMPACT

- The project will not significantly affect the pattern and type of land use (industrial, commercial, agricultural, recreational, residential) or growth and distribution of population.
- The project will not conflict with local, regional or State land use plans or policies.
- The project will not impact wetlands.

- The project will not affect threatened and endangered species or their habitats. If any State- or Federally-listed threatened or endangered species or communities are found during the planning or construction phases, additional studies and/or mitigation may be required. Section 9 of the Endangered Species Act may apply and other wildlife conservation laws such as the Migratory Bird Treaty Act of 1918 and the Bald and Golden Eagle Protection Act of 1940.
- The project will not displace population, alter the character of existing residential areas, or convert significant farmlands to non-agricultural purposes.
- The project will not affect the 100-year flood plain.
- The project will not have effect on parklands, preserves, other public lands, or areas of recognized scenic or recreational value.
- Various Native American tribes with an interest in the area and the Certified Local Government were provided information regarding the project. This project will not be receiving federal funds through SRF. As such, this project is not considered a federal undertaking as defined in §300320 under the National Historic Preservation Act, 54 U.S.C. 300101 et seq. for the purpose of the SRF environmental review. If this SRF project receives federal funds from other sources, it is the responsibility of the applicant to ensure all federal requirements are met for that funding.
- If project activities uncover any item(s) that might be of archaeological, historical, or architectural interest, or if important new archaeological, historical, or architectural data should be encountered in the project APE, the applicant should make reasonable efforts to avoid further impacts to the property until an assessment can be made by an individual meeting the Secretary of the Interior's professional qualifications standards (36 CFR Part 61).
- The project will not have a significant adverse effect upon local ambient air quality provided the applicant takes reasonable precautions to prevent the discharge of visible emissions of fugitive dusts beyond the lot line of the property during the proposed project (567 IAC 23.3(2)"c").
- The project will not have a significant adverse effect upon local ambient noise levels, surface water quantity, groundwater quality or quantity, or water supply.
- No significant impact to surface water quality, fish, shellfish, wildlife, or their natural habitats is expected provided that an NPDES General Permit Number 2 (for storm water discharge associated with construction activities) is obtained and the terms of which are abided by.

THEREFORE:

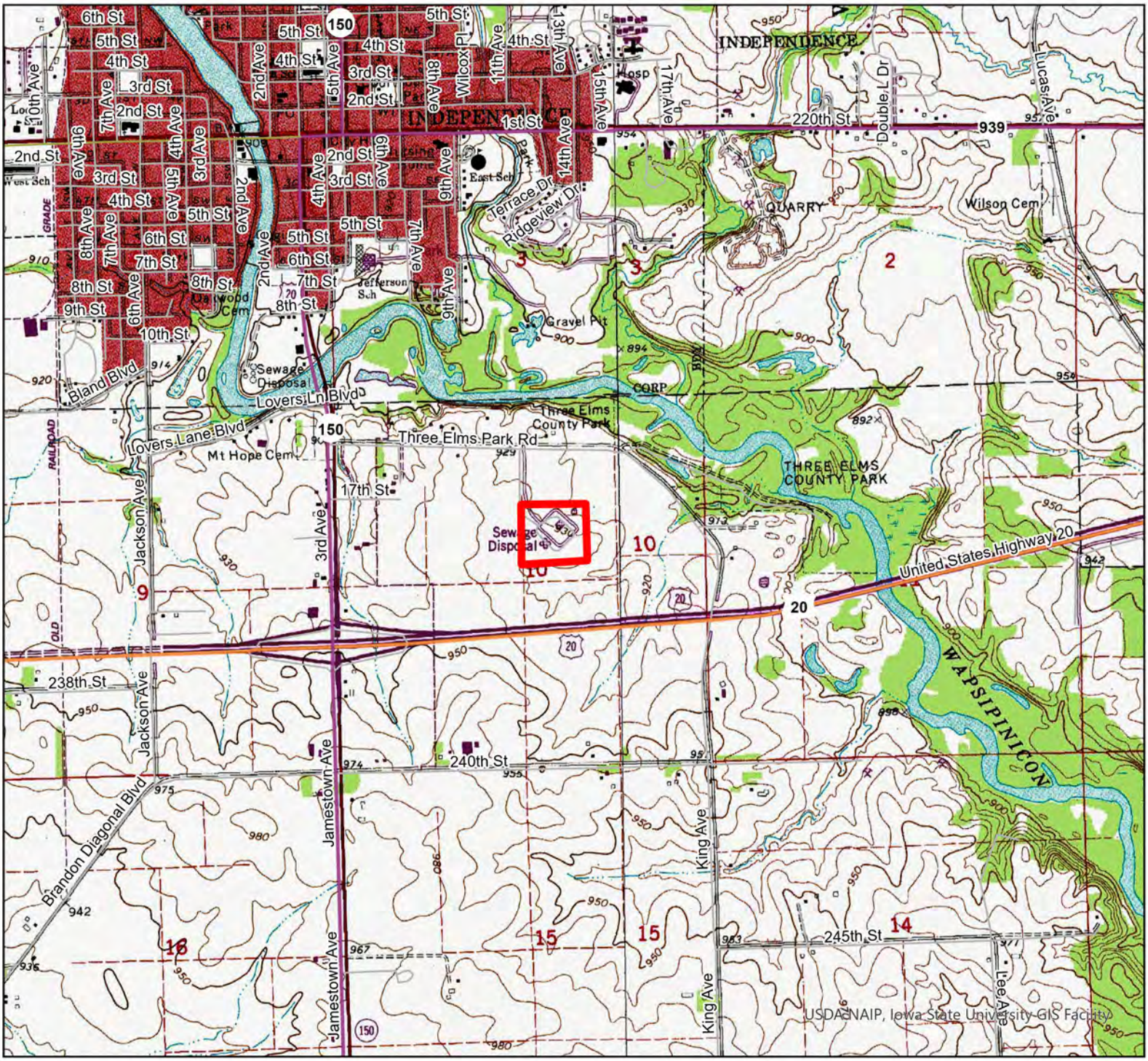
The above project conforms to the criteria in 567 Iowa Administrative Code 92.8(1)"b" relating to compliance with the National Environmental Policy Act of 1969. This Environmental Assessment Document (EAD) outlines the justification that the environmental review for the proposed project should be classified as a Finding of No Significant Impact (FNSI) and does not rise to the significance of an Environmental Impact Statement (EIS) in accordance with 40 CFR § 1501.5.

Rebecca Flynn Kettman
Environmental Review Specialist
State Revolving Fund
Iowa Department of Natural Resources

IOWA
State Revolving Fund

USGS 7.5 Minute Quadrangle: Independence
Section: 10, Township: 88 N, Range: 09 W
Date: 1982

N



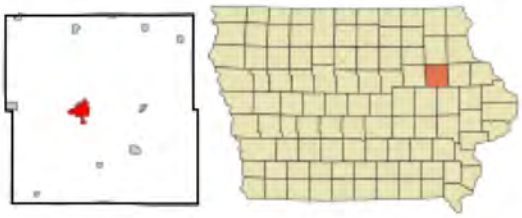
USGS Topographic Map

City of Independence WWTP Modifications
Independence, IA (Buchanan County)

Legend

Proposed Project Area

0 1,500 3,000 6,000 Feet



Buchanan County. Image source: Wikipedia, 2025.

IOWA
State Revolving Fund

2023 Aerial Photograph

N



City of Independence WWTP Modifications
Independence, IA (Buchanan County)

0 250 500 1,000 Feet

Legend

Proposed Project Area

FEDERAL WAGE RATES

"General Decision Number: IA20260080 01/02/2026

Superseded General Decision Number: IA20250080

State: Iowa

Construction Type: Building

Counties: Buchanan, Butler, Chickasaw, Fayette, Franklin, Hardin, Mitchell, Winneshiek and Worth Counties in Iowa.

BUILDING CONSTRUCTION PROJECTS (does not include single family homes or apartments up to and including 4 stories).

Modification Number	Publication Date
0	01/02/2026

BOIL0083-009 01/01/2025

	Rates	Fringes
BOILERMAKER	$ 48.48	33.91

BRIA0003-017 05/01/2025

CHICKASAW, FAYETTE, FRANKLIN, MITCHELL, WINNESHIEK, AND WORTH COUNTIES

	Rates	Fringes
BRICKLAYER	$ 29.80	17.16

BRIA0003-018 05/01/2025

BUCHANAN, BUTLER AND HARDIN COUNTIES

	Rates	Fringes
BRICKLAYER	$ 30.65	20.10

ELEV0033-002 01/01/2025

	Rates	Fringes
ELEVATOR MECHANIC	$ 56.30	38.435+a+b

FOOTNOTES:

A. Employer contributes 8% of regular basic hourly rate as vacation pay credit for employees with more than 5 years of service, and 6% for employees with less than 5 years of service.

B. PAID HOLIDAYS: New Year's Day; Memorial Day; Independence Day; Labor Day; Veteran's Day; Thanksgiving Day; Day after Thanksgiving; & Christmas Day.

ENGI0234-018 05/01/2025

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
Class 2		
Forklift (Used for steel erection or machinery moving)	$ 37.62	18.35
Class 3		
Forklift (Other than above)	$ 35.29	18.35

IRON0089-001 05/01/2025

	Rates	Fringes
IRONWORKER (Structural)	$ 35.53	24.45

IRON0577-001 06/01/2025

	Rates	Fringes
IRONWORKER (Ornamental)	$ 36.30	25.80

LABO0043-010 05/01/2025

BUCHANAN COUNTY

	Rates	Fringes
LABORER (Mason Tender - Brick)	$ 22.30	17.92

LABO0043-011 05/01/2025

CHICKASAW COUNTY

	Rates	Fringes

LABORER (Mason Tender - Brick)...$ 25.17 19.82

LABO0177-009 05/01/2025

BUTLER, FRANKLIN, HARDIN, MITCHELL, AND WORTH COUNTIES

	Rates	Fringes
LABORER (Mason Tender - Brick)...	$ 29.36	17.99

PAIN0246-001 05/01/2025

	Rates	Fringes
PAINTER (Brush and Roller).....	$ 32.41	16.3

PLUM0033-002 06/01/2025

	Rates	Fringes
PIPEFITTER (HVAC Pipe Installation Only).....	$ 45.20	23.25

SUIA2016-055 07/19/2016

	Rates	Fringes
CARPENTER, Includes Drywall Hanging, and Form Work.....	$ 20.94	10.16
CAULKER.....	$ 17.21	8.18
CEMENT MASON/CONCRETE FINISHER...	$ 16.99	1.73
ELECTRICIAN.....	$ 25.02	9.76
INSULATOR: Mechanical (Duct, Pipe and Mechanical System Insulation).....	$ 18.09	4.67
IRONWORKER, REINFORCING.....	$ 24.43	16.24
LABORER: Common or General.....	$ 15.21	3.23
LABORER: Pipelayer.....	$ 18.00	2.70
OPERATOR: Backhoe/Excavator/Trackhoe.....	$ 26.64	14.47
OPERATOR: Bobcat/Skid		

Steer/Skid Loader.....$ 25.14 18.26

OPERATOR: Bulldozer.....$ 22.31 8.36

OPERATOR: Crane.....$ 21.51 6.41

OPERATOR: Loader.....$ 25.36 15.62

PLUMBER.....$ 25.66 9.61

ROOFER.....$ 15.53 4.57

SHEET METAL WORKER, Includes
HVAC Duct, and HVAC Unit
Installation.....$ 24.11 10.14

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at https://www.dol.gov/agencies/whd/government-contracts.

Note: Executive Order 13658 generally applies to contracts subject to the Davis-Bacon Act that were awarded on or between January 1, 2015 and January 29, 2022, and that have not been renewed or extended on or after January 30, 2022. Executive Order 13658 does not apply to contracts subject only to the Davis-Bacon Related Acts regardless of when they were awarded. If a contract is subject to Executive Order 13658, the contractor must pay all covered workers at least $13.30 per hour (or the applicable wage rate listed on this wage

determination, if it is higher) for all hours spent performing on the contract in 2025. The applicable Executive Order minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under Executive Order 13658 is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (iii)).

The body of each wage determination lists the classifications and wage rates that have been found to be prevailing for the type(s) of construction and geographic area covered by the wage determination. The classifications are listed in alphabetical order under rate identifiers indicating whether the particular rate is a union rate (current union negotiated rate), a survey rate, a weighted union average rate, a state adopted rate, or a supplemental classification rate.

Union Rate Identifiers

A four-letter identifier beginning with characters other than ""SU"", ""UAVG"", ?SA?, or ?SC? denotes that a union rate was prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2024. PLUM is an identifier of the union whose collectively bargained rate prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2024 in the example, is the effective date of the most current negotiated rate.

Union prevailing wage rates are updated to reflect all changes over time that are reported to WHD in the rates in the collective bargaining agreement (CBA) governing the classification.

Union Average Rate Identifiers

The UAVG identifier indicates that no single rate prevailed for those classifications, but that 100% of the data reported for the classifications reflected union rates. EXAMPLE: UAVG-OH-0010 01/01/2024. UAVG indicates that the rate is a

weighted union average rate. OH indicates the State of Ohio. The next number, 0010 in the example, is an internal number used in producing the wage determination. The date, 01/01/2024 in the example, indicates the date the wage determination was updated to reflect the most current union average rate.

A UAVG rate will be updated once a year, usually in January, to reflect a weighted average of the current rates in the collective bargaining agreements on which the rate is based.

Survey Rate Identifiers

The ""SU"" identifier indicates that either a single non-union rate prevailed (as defined in 29 CFR 1.2) for this classification in the survey or that the rate was derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As a weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SUFL2022-007 6/27/2024. SU indicates the rate is a single non-union prevailing rate or a weighted average of survey data for that classification. FL indicates the State of Florida. 2022 is the year of the survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 6/27/2024 in the example, indicates the survey completion date for the classifications and rates under that identifier.

?SU? wage rates typically remain in effect until a new survey is conducted. However, the Wage and Hour Division (WHD) has the discretion to update such rates under 29 CFR 1.6(c)(1).

State Adopted Rate Identifiers

The ""SA"" identifier indicates that the classifications and prevailing wage rates set by a state (or local) government were adopted under 29 C.F.R 1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 01/03/2024 in the example, reflects the date on which the classifications and rates under the ?SA? identifier took effect under state law in the state from which the rates were adopted.

WAGE DETERMINATION APPEALS PROCESS

1) Has there been an initial decision in the matter? This can be:

a) a survey underlying a wage determination
b) an existing published wage determination
c) an initial WHD letter setting forth a position on a wage determination matter
d) an initial conformance (additional classification and rate) determination

On survey related matters, initial contact, including requests for summaries of surveys, should be directed to the WHD Branch of Wage Surveys. Requests can be submitted via email to davisbaconinfo@dol.gov or by mail to:

Branch of Wage Surveys
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

Regarding any other wage determination matter such as conformance decisions, requests for initial decisions should be directed to the WHD Branch of Construction Wage Determinations. Requests can be submitted via email to BCWD-Office@dol.gov or by mail to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2) If an initial decision has been issued, then any interested party (those affected by the action) that disagrees with the decision can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Requests for review and reconsideration can be submitted via email to dba.reconsideration@dol.gov or by mail to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210.

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END OF GENERAL DECISION
"

"General Decision Number: IA20260003 01/02/2026

Superseded General Decision Number: IA20250003

State: Iowa

Construction Type: Heavy Sewer/Water Treating Plant

Counties: Iowa Statewide.

EXCEPT SCOTT COUNTY

SEWER AND WATER TREATMENT PLANTS ONLY

Modification Number	Publication Date
0	01/02/2026

SUIA2002-004 12/01/2014

	Rates	Fringes
Carpenters (ALL OF THE STATE OF IOWA, except the named cities and counties listed below:)	$ 27.26	13.68
Carpenters (BURLINGTON AND KEOKUK)	$ 29.53	17.49
Carpenters (CLINTON COUNTY, City of Clinton)	$ 29.53	17.49
Carpenters (CLINTON, DUBUQUE, JOHNSON, LOUISA, MUSCATNE, DES MOINES, CEDAR and LEE COUNTIES, Except any of the previously named cities)	$ 25.45	15.49
Carpenters (COUNCIL BLUFFS)	$ 33.33	13.68
Carpenters (DUBUQUE COUNTY (City of Dubuque))	$ 29.53	17.49
Carpenters (FORT MADISON)	$ 29.53	17.49
Carpenters (IOWA CITY)	$ 29.53	17.49
Carpenters (LINN COUNTY)	$ 33.58	17.49
Carpenters (MUSCATINE COUNTY, City of Muscatine)	$ 27.97	18.50
Carpenters (POLK COUNTY)	$ 37.53	13.54
Carpenters (SIOUX CITY)	$ 33.33	13.68
Carpenters (WATERLOO/CEDAR FALLS)	$ 29.53	17.49
Cement mason (ALL OF THE STATE OF IOWA, except for the named cities and couties listed below:)	$ 27.40	11.05

Cement mason (BURLINGTON AND KEOKUK)	$ 36.89	11.05
Cement mason (CLINTON COUNTY, City of Clinton)	$ 36.89	11.05
Cement mason (CLINTON, DUBUQUE, JOHNSON, LOUISA, MUSCATINE, DES MOINES, CEDAR and LEE COUNTIES, Except any of the previously named cities)	$ 31.53	11.05
Cement mason (COUNCIL BLUFFS)	$ 33.55	11.05
Cement mason (DUBUQUE COUNTY (City of Dubuque))	$ 36.98	11.05
Cement mason (FORT MADISON)	$ 35.45	11.05
Cement mason (IOWA CITY)	$ 36.89	11.05
Cement mason (LINN COUNTY)	$ 36.89	11.05
Cement mason (MUSCATINE COUNTY)	$ 36.89	11.05
Cement mason (POLK COUNTY)	$ 36.89	11.05
Cement mason (SIOUX CITY)	$ 34.17	11.05
Cement mason (WATERLOO/CEDAR FALLS)	$ 31.68	11.05
IRONWORKER (ALL OF THE STATE OF IOWA, except for the named cities or counties listed below:)	$ 23.75	16.37
IRONWORKER (BURLINGTON AND KEOKUK)	$ 28.58	16.37
IRONWORKER (CLINTON COUNTY, City of Clinton)	$ 35.04	16.37
IRONWORKER (CLINTON, DUBUQUE, JOHNSON, LOUISA, MUSCATINE, DES MOINES, CEDAR and LEE COUNTIES, Except any of the previously named cities)	$ 23.75	16.37
IRONWORKER (COUNCIL BLUFFS)	$ 24.15	16.37
IRONWORKER (DUBUQUE COUNTY (City of Dubuque))	$ 27.53	16.37
IRONWORKER (FORT MADISON)	$ 28.58	16.37
IRONWORKER (IOWA CITY)	$ 27.53	16.37
IRONWORKER (LINN COUNTY)	$ 27.53	16.37
IRONWORKER (MUSCATINE COUNTY)	$ 35.04	16.37
IRONWORKER (POLK COUNTY)	$ 27.37	16.37

IRONWORKER (SIOUX CITY)	$ 18.57	16.37
IRONWORKER (WATERLOO/CEDAR FALLS)	$ 27.53	16.37
LABORERS (ALL OF THE STATE OF IOWA, except for the named cities and counties listed below:)	$ 25.14	9.38
LABORERS (BURLINGTON AND KEOKUK)	$ 30.11	9.38
LABORERS (CLINTON COUNTY, City of Clinton)	$ 29.52	9.38
LABORERS (CLINTON, DUUQUE, JOHNSON, LOUISA, MUSCATINE, DES MOINES, CEDAR and LEE COUNTIES, Except any of the previously named cities)	$ 26.89	9.38
LABORERS (COUNCIL BLUFFS)	$ 26.89	9.38
LABORERS (DUBUQUE COUNTY (City of Dubuque))	$ 26.89	9.38
LABORERS (FORT MADISON)	$ 30.11	9.38
LABORERS (IOWA CITY)	$ 28.35	9.38
LABORERS (LINN COUNTY)	$ 30.87	9.38
LABORERS (MUSCATINE COUNTY (City of Muscatine))	$ 30.35	9.38
LABORERS (POLK COUNTY)	$ 30.77	9.38
LABORERS (SIOUX CITY)	$ 26.89	9.38
LABORERS (WATERLOO/CEDAR FALLS)	$ 26.89	9.38
OPERATOR: Power Equipment (POLK, WARREN, DALLAS, STORY & JASPER COUNTIES)		
SEWER		
Class A	$ 36.00	14.55
Class B	$ 34.30	14.55
Class C	$ 31.91	14.55
WATER		
Class A	$ 35.73	14.55
Class B	$ 34.03	14.55
Class C	$ 31.65	14.55
Power Equipment Operator (ALL OF THE STATE OF IOWA, except for the named cities and counties listed below:)		
Class A	$ 35.73	14.55
Class B	$ 34.03	14.55
Class C	$ 31.65	14.55
Power Equipment Operator		

(BURLINGTON AND KEOKUK)
Class A.....$ 34.50 31.85
Class B.....$ 31.85 31.85

Power Equipment Operator
(CLINTON COUNTY, City of
Clinton)
Class A.....$ 34.50 31.85
Class B.....$ 31.85 31.85

Power Equipment Operator
(CLINTON, LOUISA, MUSCATINE,
DES MOINES, CEDAR and LEE
COUNTIES, Except any of the
previously named cities)
Class A.....$ 34.50 31.85
Class B.....$ 31.85 31.85

Power Equipment Operator
(COUNCIL BLUFFS)
SEWER
Class A.....$ 36.00 14.55
Class B.....$ 34.30 14.55
Class C.....$ 31.91 14.55
WATER
Class A.....$ 35.73 14.55
Class B.....$ 34.03 14.55
Class C.....$ 31.65 14.55

Power Equipment Operator
(DUBUQUE COUNTY (Including
City of Dubuque) and JOHNSON
COUNTY)
SEWER
Class A.....$ 36.00 14.55
Class B.....$ 34.30 14.55
Class C.....$ 31.91 14.55
WATER
Class A.....$ 35.73 14.55
Class B.....$ 34.03 14.55
Class C.....$ 31.65 14.55

Power Equipment Operator
(FORT MADISON)
Class A.....$ 34.50 31.85
Class B.....$ 31.85 31.85

Power Equipment Operator
(IOWA CITY)
SEWER
Class A.....$ 36.00 14.55
Class B.....$ 34.30 14.55
Class C.....$ 31.91 14.55
WATER
Class A.....$ 35.73 14.55
Class B.....$ 34.03 14.55
Class C.....$ 31.65 14.55

Power Equipment Operator
(LINN COUNTY)
SEWER
Class A.....$ 36.00 14.55
Class B.....$ 34.30 14.55
Class C.....$ 31.91 14.55
WATER

Class A	$ 35.73	14.55
Class B	$ 34.03	14.55
Class C	$ 31.91	14.55
Power Equipment Operator (MUSCATINE COUNTY)		
Class A	$ 34.50	31.85
Class B	$ 31.85	31.85
Power Equipment Operator (SIOUX CITY)		
SEWER		
Class A	$ 36.00	14.55
Class B	$ 34.30	14.55
Class C	$ 31.91	14.55
WATER		
Class A	$ 35.73	14.55
Class B	$ 34.03	14.55
Class C	$ 31.91	14.55
Power Equipment Operator (WATERLOO/CEDAR FALLS)		
SEWER		
Class A	$ 36.00	14.55
Class B	$ 34.30	14.55
Class C	$ 31.91	14.55
WATER		
Class A	$ 35.73	14.55
Class B	$ 34.03	14.55
Class C	$ 31.91	14.55
Truck drivers (ALL OF THE STATE OF IOWA, except for the named cities and counties listed below:)	$ 21.66	10.50
Truck drivers (BURLINGTON AND KEOKUK)	$ 24.59	10.50
Truck drivers (CLINTON COUNTY, City of Clinton)	$ 25.03	10.50
Truck drivers (CLINTON, DUBUQUE, JOHNSON, LOUISA, MUSCATINE, DES MOINES, CEDAR and LEE COUNTIES, Except any of the previously named cities)	$ 22.76	10.50
Truck drivers (COUNCIL BLUFFS)	$ 25.68	10.50
Truck drivers (DUBUQUE COUNTY (City of Dubuque))	$ 24.06	10.50
Truck drivers (FORT MADISON)	$ 24.59	10.50
Truck drivers (IOWA CITY)	$ 26.34	10.50
Truck drivers (LINN COUNTY)	$ 27.10	10.50
Truck drivers (MUSCATINE COUNTY)	$ 24.59	10.50
Truck drivers (POLK COUNTY)	$ 25.68	10.50

Truck drivers (SIOUX CITY).....$ 23.28 10.50

Truck drivers (WATERLOO/CEDAR FALLS).....$ 24.21 10.50

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

CLASS A: Asphalt laydown machine, Asphalt Plant Operator, Asphalt heater-planer unit, Backhoe, Bulldozer, Central Mix Plant, Concrete Pump, Crawler Tractor Pulling Scraper, Dredge Engineer, Dredge Leverman, Front-end Loader (over 2 yds), Group Equipment Greaser (unsupervised), Horizontal boring machine, Master Mechanic, Milling Machine, Motor Patrol, Porland Concrete Paver, Power Shovel, Crane & Dragline, Pushcat, Scraper (10 yards & over or finish), Self-propelled Elevation Grader or Similar Machine, Sideboom Tractor, Subgrader (or equivalent), Tow Push Boat or Work Boat, Trenching Machine (Cleveland 80 or similar capacity).

CLASS B: Asphalt Distributor, Asphalt Finish Roller, Asphalt Screed, Belt Loader or Similar Machine, Bullfloat, Churn or Rotary Drill, Concrete Widening Machine, Concrete Curbing Machine, Conveyor, Crawler Tractor - Pulling ripper, Disc, Sheepsfoot or Roller, Deckhand/Oiler, Finishing Machine (on concrete), Flex-plane, forklift, Form Grader, Front-end Loader (under 2 yeards), Group greaser (supervised), Haiss loader or similar, Mechanic-welder, Offroad articulated hauler, Paving breaker pumps (over 3""), Screening & wash plant, Skid loader, Spreader Operator, Self-propell Roller (other than asphalt), Self-propelled vibrating compactor, shoulder machine, Trenching Machine (other than above), Water wagon on compaction.

CLASS C: Asphalt Roller (other than finish), Boiler, Boom & Winch Truck, Compressor, Concrete Spreader, Belt Placer, Farm Type or Utility Tractor with attachments (under 50 hp), Group Greaser Light plant, Mechanical Broom, Mechanical Heater, Oiler, Pile Hammer Power Unit, Pump (Other than Dredge), Pumps (3"" and under), Pumps on well points & deep wells for dewatering, Safety Boat, Truck Crane combination Driver Oiler, Welding Machine.

FOOTNOTE:

IRONWORKERS: (Setting of all structural steel and reinforcing steel installation)

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is

like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at https://www.dol.gov/agencies/whd/government-contracts.

Note: Executive Order 13658 generally applies to contracts subject to the Davis-Bacon Act that were awarded on or between January 1, 2015 and January 29, 2022, and that have not been renewed or extended on or after January 30, 2022. Executive Order 13658 does not apply to contracts subject only to the Davis-Bacon Related Acts regardless of when they were awarded. If a contract is subject to Executive Order 13658, the contractor must pay all covered workers at least $13.30 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2025. The applicable Executive Order minimum wage rate will be adjusted annually.   Additional information on contractor requirements and worker protections under Executive Order 13658 is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (iii)).

The body of each wage determination lists the classifications and wage rates that have been found to be prevailing for the type(s) of construction and geographic area covered by the wage determination. The classifications are listed in alphabetical order under rate identifiers indicating whether the particular rate is a union rate (current union negotiated rate), a survey rate, a weighted union average rate, a state adopted rate, or a supplemental classification rate.

Union Rate Identifiers

A four-letter identifier beginning with characters other than ""SU"", ""UAVG"", ?SA?, or ?SC? denotes that a union rate was prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2024. PLUM is an identifier of the union whose collectively bargained rate prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2024 in the example, is the effective date of the most current negotiated rate.

Union prevailing wage rates are updated to reflect all changes over time that are reported to WHD in the rates in the collective bargaining agreement (CBA) governing the classification.

Union Average Rate Identifiers

The UAVG identifier indicates that no single rate prevailed for

those classifications, but that 100% of the data reported for the classifications reflected union rates. EXAMPLE: UAVG-OH-0010 01/01/2024. UAVG indicates that the rate is a weighted union average rate. OH indicates the State of Ohio. The next number, 0010 in the example, is an internal number used in producing the wage determination. The date, 01/01/2024 in the example, indicates the date the wage determination was updated to reflect the most current union average rate.

A UAVG rate will be updated once a year, usually in January, to reflect a weighted average of the current rates in the collective bargaining agreements on which the rate is based.

Survey Rate Identifiers

The ""SU"" identifier indicates that either a single non-union rate prevailed (as defined in 29 CFR 1.2) for this classification in the survey or that the rate was derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As a weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SUFL2022-007 6/27/2024. SU indicates the rate is a single non-union prevailing rate or a weighted average of survey data for that classification. FL indicates the State of Florida. 2022 is the year of the survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 6/27/2024 in the example, indicates the survey completion date for the classifications and rates under that identifier.

?SU? wage rates typically remain in effect until a new survey is conducted. However, the Wage and Hour Division (WHD) has the discretion to update such rates under 29 CFR 1.6(c)(1).

State Adopted Rate Identifiers

The ""SA"" identifier indicates that the classifications and prevailing wage rates set by a state (or local) government were adopted under 29 C.F.R 1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 01/03/2024 in the example, reflects the date on which the classifications and rates under the ?SA? identifier took effect under state law in the state from which the rates were adopted.

WAGE DETERMINATION APPEALS PROCESS

1) Has there been an initial decision in the matter? This can be:

a) a survey underlying a wage determination
b) an existing published wage determination
c) an initial WHD letter setting forth a position on a wage determination matter
d) an initial conformance (additional classification and rate) determination

On survey related matters, initial contact, including requests

for summaries of surveys, should be directed to the WHD Branch of Wage Surveys. Requests can be submitted via email to davisbaconinfo@dol.gov or by mail to:

Branch of Wage Surveys
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

Regarding any other wage determination matter such as conformance decisions, requests for initial decisions should be directed to the WHD Branch of Construction Wage Determinations. Requests can be submitted via email to BCWD-Office@dol.gov or by mail to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2) If an initial decision has been issued, then any interested party (those affected by the action) that disagrees with the decision can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Requests for review and reconsideration can be submitted via email to dba.reconsideration@dol.gov or by mail to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210.

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END OF GENERAL DECISION
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AMERICAN IRON AND STEEL SAMPLE CERTIFICATION

Sample Certification

The following information is provided as a sample letter of step certification for AIS compliance. Documentation must be provided on company letterhead.

Date

Company Name
Company Address
City, State Zip

Subject: American Iron and Steel Step Certification for Project (XXXXXXXXXX)

I, (company representative), certify that the (melting, bending, coating, galvanizing, cutting, etc.) process for (manufacturing or fabricating) the following products and/or materials shipped or provided for the subject project is in full compliance with the American Iron and Steel requirement as mandated in EPA's State Revolving Fund Programs.

Item, Products and/or Materials:
1. Xxxx
2. Xxxx
3. Xxxx

Such process took place at the following location:

_____

If any of the above compliance statements change while providing material to this project we will immediately notify the prime contractor and the engineer.

Signed by company representative

DE MINIMIS WAIVER FOR AMERICAN IRON AND STEEL

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF WATER

DECISION MEMORANDUM

SUBJECT: De Minimis Waiver of Section 436 of P.L. 113-76, Consolidated Appropriations Act (CAA), 2014

FROM: Nancy K. Stoner
Acting Assistant Administrator

The EPA is hereby granting a nationwide waiver pursuant to the "American Iron and Steel (AIS)" requirements of P.L. 113-76, Consolidated Appropriations Act, 2014 (Act), section 436 under the authority of Section 436(b)(1) (public interest waiver) for de minimis incidental components of eligible water infrastructure projects. This action permits the use of products when they occur in de minimis incidental components of such projects funded by the Act that may otherwise be prohibited under section 436(a). Funds used for such de minimis incidental components cumulatively may comprise no more than a total of 5 percent of the total cost of the materials used in and incorporated into a project; the cost of an individual item may not exceed 1 percent of the total cost of the materials used in and incorporated into a project.

P.L. 113-76, Consolidated Appropriations Act, 2014 (Act), includes an "American Iron and Steel" (AIS) requirement in section 436 that requires Clean Water State Revolving Loan Fund (CWSRF) and Drinking Water State Revolving Loan Fund (DWSRF) assistance recipients to use specific domestic iron and steel products that are produced in the United States if the project is funded through an assistance agreement executed beginning January 17, 2014 (enactment of the Act), through the end of Fiscal Year 2014, unless the agency determines it necessary to waive this requirement based on findings set forth in Section 436(b). The Act states, "[the requirements] shall not apply in any case or category of cases in which the Administrator of the Environmental Protection Agency…finds that— (1) applying subsection (a) would be inconsistent with the public interest" 436(b)(1).

In implementing section 436 of the Act, the EPA must ensure that the section's requirements are applied consistent with congressional intent in adopting this section and in the broader context of the purposes, objectives, and other provisions applicable to projects funded under the SRF. Water infrastructure projects typically contain a relatively small number of high-cost components incorporated into the project. In bid solicitations for a project, these high-cost components are generally described in detail via project specific technical specifications. For these major components, utility owners and their contractors are generally familiar with the conditions of availability, the potential alternatives for each detailed specification, the approximate cost, and the country of manufacture of the available components.

Every water infrastructure project also involves the use of thousands of miscellaneous, generally low-cost components that are essential for, but incidental to, the construction and are incorporated into the physical structure of the project. For many of these incidental components, the country of manufacture and the availability of alternatives is not always readily or reasonably identifiable prior to procurement in the normal course of business; for other incidental components, the country of manufacture may be known but the miscellaneous character in conjunction with the low cost, individually and (in total) as typically procured in bulk, mark them as properly incidental. Examples of incidental components could include small washers, screws, fasteners (i.e., nuts and bolts), miscellaneous wire, corner bead, ancillary tube, etc. Examples of items that are clearly not incidental include significant process fittings (i.e., tees, elbows, flanges, and brackets), distribution system fittings and valves, force main valves, pipes for sewer collection and/or water distribution, treatment and storage tanks, large structural support structures, etc.

The EPA undertook multiple inquiries to identify the approximate scope of de minimis incidental components within water infrastructure projects during the implementation of the American Reinvestment and Recovery Act (ARRA) and its requirements (Buy American provisions, specifically). The inquiries and research conducted in 2009 applies suitably for the case today. In 2009, the EPA consulted informally with many major associations representing equipment manufacturers and suppliers, construction contractors, consulting engineers, and water and wastewater utilities, and performed targeted interviews with several well-established water infrastructure contractors and firms who work in a variety of project sizes, and regional and demographic settings to ask the following questions:

- What percentage of total project costs were consumables or incidental costs?

- What percentage of materials costs were consumables or incidental costs?

- Did these percentages vary by type of project (drinking water vs. wastewater treatment plant vs. pipe)?

The responses were consistent across the variety of settings and project types, and indicated that the percentage of total costs for drinking water or wastewater infrastructure projects represented by these incidental components is generally not in excess of 5 percent of the total cost of the materials used in and incorporated into a project. In drafting this waiver, the EPA has considered the de minimis proportion of project costs generally represented by each individual type of these incidental components within the many types of such components comprising those percentages, the fact that these types of incidental components are obtained by contractors in many different ways from many different sources, and the disproportionate cost and delay that would be imposed on projects if the EPA did not issue this waiver.

Assistance recipients who wish to use this waiver should in consultation with their contractors determine the items to be covered by this waiver and must retain relevant documentation (i.e., invoices) as to those items in their project files.

If you have any questions concerning the contents of this memorandum, please contact Timothy Connor, Chemical Engineer, Municipal Support Division, at connor.timothy@epa.gov or (202) 566-1059 or Kirsten Anderer, Environmental Engineer, Drinking Water Protection Division, at anderer.kirsten@epa.gov or (202) 564-3134.

Issued on: APR 15 2014

Approved by: _____

Nancy K. Stoner
Acting Assistant Administrator

SECTION 02 41 00

DEMOLITION

PART 1–GENERAL

1.01 SUMMARY

A. Work Included: All demolition, removal, and salvage work as shown on the Drawings or specified herein.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 SUBMITTALS

A. CONTRACTOR shall submit permits and notices, if required, authorizing building demolition.

1.03 QUALITY ASSURANCE

A. CONTRACTOR shall perform demolition, removal, and salvage in conformity with applicable federal, state, and local safety practices and code requirements.

B. CONTRACTOR shall contact all public utilities and shall shut off, cut and cap all utility services in accordance with utility requirements, codes, rules, and regulations.

C. Obtain and pay for all necessary permits, licenses, and certificates required.

D. Removal of flammable and combustible liquid storage tanks shall be by a state certified remover.

E. Flammable and combustible liquid storage tank removal shall be in accordance with all applicable federal, state, and local codes.

1.04 SEQUENCE

A. No demolition, removal, or salvage work shall commence until approval to proceed has been granted by OWNER. Such work shall be completed in accordance with the construction sequence included in Division 01 of these Specifications and in accordance with the construction phases of this project and work to be done by other contractors.

B. OWNER has completed an asbestos inspection and lead/schromium paint inspection at each existing facility where work is required to be completed by CONTRACTOR. OWNER will hire a separate contractor to remove all materials containing asbestos prior to demolition and modifications of structures by CONTRACTOR. Both the asbestos inspection reports and lead/chromium paint inspection reports are discussed in Supplementary Conditions Paragraph SC-5.06 and are included in the Appendix.

PART 2–PRODUCTS

2.01 GENERAL

A. Compacted fill shall meet the requirements of Section 31 23 00–Excavation, Fill, Backfill, and Grading.

B. Pipe fittings and materials shall meet the requirements of Section 33 00 10–Buried Piping and Appurtenances and Section 40 05 00–Piping and Appurtenances.

PART 3–EXECUTION

3.01 BREAKING DOWN AND REMOVING STRUCTURES

A. General:
   1. All existing structures, with all attached parts and connections, shown on the Drawings or specified to be removed or that interfere with the new construction, shall be entirely removed within the limits shown or specified, unless otherwise provided.
   2. When a portion of any existing structure is to be retained, CONTRACTOR shall take care during construction operations so as not to impair the value of the retained portion.
      a. Complete all operations necessary for the removal of any existing structure which might endanger the new construction prior to the construction of the new work.
      b. Do not use any equipment or devices which might damage structures, facilities, or property which are to be preserved and retained.
   3. When existing reinforcing is exposed at the surface of removal areas, CONTRACTOR shall burn back the reinforcing bars 2 inches and patch with nonshrink grout, unless noted otherwise.

B. Pavement, Curb, Gutter, Sidewalk, Driveways, Crosswalk, and Similar Structures:
   1. Where portions of the existing structure are to be left in the surface of the finished work, CONTRACTOR shall remove the structure to an existing joint, or saw and chip the structure to a true line.
   2. Sufficient removal shall be made to provide for proper grades and connections in the new work.

C. Walls, Piers, Surface Drains, Foundations, and Similar Masonry Structures:
   1. Remove entirely or break down to an elevation at least 2 feet below the earth subgrade within the areas of a road bed and elsewhere to 2 feet below the finished slopes or natural ground, as the case may be.
   2. Remove existing construction as required to clear new construction.

D. Underground Tanks (Other than Septic Tanks):
   1. Remove the contents of underground tanks to allow the complete removal of such tanks.
   2. Backfill the resulting hole or pit in accordance with the backfill portion of this section.

E. Pipe Culverts:
   1. Remove entirely all culverts that are to be removed, except as hereinafter provided for closing culverts.

2. Remove sidewalls or substructure units in water to an elevation no higher than the elevation of the natural stream or lake bed.
    a. Where grading of the channel is required, remove such units to the proposed finished grade of the stream or lake bed.
    b. Remove all other endwalls or substructure units down to at least 2 feet below natural or finished ground line, as the case may be.
3. Where existing culverts are to be extended or otherwise incorporated into the new work, remove only such part or parts of the existing culvert as necessary to provide a proper connection to the new work.
4. Remove pipe culverts designated for salvage in a manner that will preclude damage to the culverts.
5. Closing culverts:
    a. A culvert may be closed instead of being removed if the following conditions apply:
        (1) If the diameter of the culvert is less than 48 inches.
        (2) If the top thereof does not come within 5 feet of the elevation of the finished grade line.
        (3) If the culvert is in suitable condition.
    b. Remove the headwall and such parts as would be within 2 feet of the finished grade line.
    c. Completely fill each end of the culvert with concrete for a distance from each end of at least 2 feet plus the height of the opening of the structure.

3.02 ABANDONING STRUCTURES

A. Tanks, Manholes, Catch Basins, and Inlets:
    1. CONTRACTOR shall thoroughly clean structures to be abandoned.
    2. CONTRACTOR shall plug existing pipe connections with brick or concrete block masonry or with any grade of concrete having a 28-day compressive strength in excess of 2,000 psi.
    3. CONTRACTOR shall remove the walls of the structures to an elevation at least 2 feet below the finished grade line, or to such elevation that may be designated on the Drawings or as necessary to clear new construction.

3.03 ABANDONING AND REMOVING UTILITIES AND UNDERGROUND PROCESS PIPING

A. CONTRACTOR shall be responsible for the turning off or unhooking of all utilities and process piping before starting the demolition work. Remove all utility lines, including electrical services and process piping that are shown or specified to be removed. Remove utility lines that are to be abandoned as needed to clear new construction.

B. The ends of utility lines and process piping shown or specified to be abandoned that are exposed by excavation shall be plugged with concrete to prevent soil infiltration into the pipes.

3.04 EQUIPMENT

A. CONTRACTOR shall remove all equipment specified herein or indicated.

B. CONTRACTOR shall remove associated exposed conduit, power wiring, controls, switches, instrumentation, control wiring, control boxes, appurtenances, and their supports serving equipment to be removed. Electrical items shall be removed to their junction with motor

control center, control panel, or their junction with conduit serving other equipment that is to remain.

C. CONTRACTOR shall remove all piping and appurtenances and their supports serving equipment indicated to be removed. Piping shall be removed to its junction with the main service header serving other equipment that is to remain or new equipment as indicated. Remaining piping and tubing shall be fitted with an appropriate blind flange or plug and insulated as required.

D. CONTRACTOR shall remove equipment bases, anchor bolts, and other supports serving equipment to be removed. Concrete bases shall be removed to 1 inch below floor elevation and repaired with nonshrink grout plus surfacing to match existing.

E. CONTRACTOR shall patch floors, walls, and ceilings as required to match existing or as indicated where equipment, piping, electrical, bases, or supports are removed.

3.05 INTERIOR PIPING, DUCTWORK, AND APPURTENANCES

A. CONTRACTOR shall remove all piping, ductwork, and appurtenances as indicated. The location and elevations of existing piping are approximate.

B. CONTRACTOR shall remove all supports for piping, ductwork, and appurtenances indicated to be removed. Repiping and connections to new piping shall be as specified for new piping. Remaining piping and tubing, not reconnected for new piping, shall be fitted with an appropriate blind flange or plugged and insulated as required.

C. CONTRACTOR shall patch all holes resulting from removal of piping, ductwork, appurtenances, and their supports. Patching of concrete shall be with nonshrink grout and as indicated. Patching of masonry shall be with matching material toothed in. Patch other material as indicated.

3.06 SALVAGE

A. OWNER has first right of refusal to all material, piping, and equipment removed.

B. All equipment, material, and piping, except as specified hereinafter, within the buildings and structures to be demolished and additional items as noted shall be removed by CONTRACTOR. CONTRACTOR shall inspect each structure and determine the type and amount of equipment, materials, and piping to be removed.

C. All equipment, material, and piping, except as specified hereinafter, within the limits of the demolition and additional items noted to be removed, will become the property of CONTRACTOR if OWNER does not claim under first right of refusal and shall be removed from the project site. Comply with State and local ordinances and regulations for disposing of materials.

3.07 BACKFILL

A. CONTRACTOR shall fill all abandoned structures and excavations resulting from removal of structures and utilities with compacted fill. See Section 31 23 00–Excavation, Fill, Backfill, and Grading for required degree of compaction.

B. Prior to filling, CONTRACTOR shall break one opening in the floor or wall near the base of each compartment to allow groundwater to freely migrate through the structure.

END OF SECTION

SECTION 03 11 00

CONCRETE FORMWORK

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
   1. Forms for Cast-In-Place Concrete.
   2. Form Accessories.
   3. Openings for Other Work.
   4. Form Stripping.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. ACI 117–Tolerances for Concrete Construction.

B. ACI 301–Structural Concrete for Buildings.

C. ACI 318–Building Code Requirements for Reinforced Concrete.

D. ACI 347–Recommended Practice for Concrete Formwork.

E. PS1–Construction and Industrial Plywood.

F. NSF/ANSI 61-Drinking Water System Components.

1.03 DESIGN

A. All formwork shall comply with ACI 347 and ACI 301.

B. CONTRACTOR shall assume the responsibility for the complete design and construction of the formwork.

1.04 SUBMITTALS

A. Submit shop drawings in accordance with Section 01 33 00–Submittals for form ties, form coatings, form liners (if any), and any other form accessories.

B. Submit geometry of forms for circular structures.

PART 2–PRODUCTS

2.01 FORMS

A. Forms shall be of wood, plywood, steel, fiberboard lined, or other approved materials which will produce concrete which meets the specified requirements. The type, size, quality, and shape of all materials of which the forms are made are subject to the review of ENGINEER.

B. Caution shall be exercised in the use of wood or composition forms or form liner to be certain that no chemical reaction will take place which causes a damaging effect on the concrete surface.

2.02 FORM TIES–NONREMOVABLE

A. Internal wall ties shall contain positive stops at the required wall thickness. The exterior clamp portions of the tie shall be adjustable in length. Ties shall have cones on the water side of water-containing structures. Ties shall also have cones on the exterior side of all structures which have PVC water-stopped construction joints. Ties shall provide a positive disconnection on both ends 1 to 1 1/2 inches inside the finished face of the concrete.

B. All wall ties used in the placement of structures which have PVC or hydrophilic water-stopped construction joints shall contain integral waterstops. All such ties shall be crimped or deformed in such a manner that the bond between concrete and tie cannot be broken in removal of the outer units. This portion of the tie shall not be removed prior to 24 hours after completion of the concrete placement.

C. The use of wood spacers and wire ties will not be approved.

2.03 FORM TIES–REMOVABLE

A. Taper ties which are designed to be removed entirely from the wall may be used with forms designed for this tie type and spacing.

B. Tie holes shall be plugged with either a neoprene plug, Sure-Plug by Dayton Superior, Inc., or an EPDM rubber plug, X-Plug by Sika Greenstreak, or equal.

C. Cementitious waterproofing material for patching taper tie holes shall be Hey Di K-11, Xypex Patch-N-Plug, or equal. Taper tie holes above the normal operating water surface shall be patched with mortar mix as specified in Section 03 30 00–Cast-In-Place Concrete for patching tie holes.

2.04 FORM COATINGS

A. Provide commercial formulation form-coating compounds that will not bond with, stain, nor adversely affect concrete surfaces requiring bond or adhesion, nor impede the wetting of surfaces to be cured with water or curing compounds.

B. Form release agents for potable water containing structures shall be compliant with NSF/ANSI 61.

2.05 CHAMFER STRIPS

A. Provide 3/4-inch by 3/4-inch wood or plastic chamfer strips at all exposed corners, except as noted.

2.06 KEYWAYS

A. Keyways shall be formed with wood inserts.

PART 3–EXECUTION

3.01 CONSTRUCTION

A. Forms shall conform to the shape, line, grade, and dimensions as shown on the drawings. They shall be mortar-tight and sufficiently rigid to prevent displacement or sagging between supports and shall support the loads and pressures without deflection from the prescribed lines. They shall be properly braced or tied together so as to maintain position and shape. Spacing of ties shall be recommended by the tie manufacturer.

B. Formwork and finished concrete construction shall meet the tolerances specified in ACI 117.

C. All exposed curved surfaces shall be formed to the continuous surface of the radius specified. Where segmented forms are proposed, a form system which deviates more than 3/8 inch from a circle through pan edges will not be allowed.

D. Architectural surfaces and surfaces to be fitted with equipment shall be formed to match the shape intended. Where indicated on the drawings, the form shall be lined with minimum 3/8-inch masonite and shimmed as required.

E. When forms are placed for successive concrete placement, thoroughly clean concrete surfaces, remove fins and laitance, and tighten forms to close all joints. Align and secure joints to avoid offsets.

F. At the request of ENGINEER, temporary openings shall be provided at the base of column forms and wall forms and at other points where necessary to facilitate cleaning and observation immediately before depositing concrete.

G. Provide inserts and provide openings in concrete form work to accommodate work of other trades. Verify size and location of openings, recesses, and chases with the trade requiring such items. Securely support items to be built into forms.

H. Provide top forms for inclined surfaces where the slope is too steep to place and vibrate concrete.

I. Bevel wood inserts for forming keyways (except in expansion joints where inserts shall have square edges), reglets, recesses, and the like to allow for ease of removal. Inserts shall be securely held in place prior to concrete placement. Unless otherwise shown, chamfer strips shall be placed in the angles of the forms to provide 3/4-inch bevels at exterior edges and corners of all exposed concrete.

J. The forms shall be oiled with a field-applied commercial form oil or a factory-applied nonabsorptive liner. Oil shall not stain or impede the wetting of surfaces to be cured with water or curing compounds. The forms shall be coated prior to placing reinforcing steel. Oil on reinforcement will not be permitted.

K. All form surfaces shall be thoroughly cleaned, patched, and repaired before reusing and are subject to review of ENGINEER.

3.02 FORM REMOVAL

A. Supporting forms and shoring shall not be removed until the member has acquired sufficient strength to support its own weight and the construction live loads on it.

B. All form removal shall be accomplished in such a manner that will prevent injury to the concrete.

C. Forms shall not be removed before the expiration of the minimum times as stated below or until the concrete has attained its minimum 28-day design strength as confirmed by concrete cylinder tests, unless specifically authorized by ENGINEER.
   1. Wall and vertical faces: 24 hours.
   2. Columns: 24 hours.
   3. Beams and elevated slabs: 14 days.

END OF SECTION

SECTION 03 20 00

CONCRETE REINFORCEMENT

PART 1–GENERAL

1.01 SUMMARY

A. Work includes providing complete, in-place, all steel and fibers required for reinforcement of cast-in-place concrete as shown on the Drawings.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. Applicable standards listed in this section include, but are not necessarily limited to the following:
   1. ACI 315–Manual of Standard Practice for Detailing Reinforced Concrete Structures.
   2. ACI 318–Building Code Requirements for Reinforced Concrete.
   3. ASTM A1064–Standard Specifications for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete.
   4. ASTM A615–Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
   5. ASTM A996–Standard Specification for Rail-Steel and Axle-Steel Deformed Bars for Concrete Reinforcing.
   6. ASTM C1116-Standard Specification for Fiber-Reinforced Concrete.
   7. CRSI–Manual of Standard Practice.

1.03 SUBMITTALS

A. Comply with pertinent provisions of Section 01 33 00–Submittals.

B. Provide complete shop drawings of all material to be furnished and installed under this section:
   1. Before fabrication of the reinforcement is begun, CONTRACTOR shall obtain the approval of ENGINEER on reinforcing bar lists and placing drawings.
   2. These drawings and lists shall show in detail the number, size, length, bending, and arrangement of the reinforcing. Reinforcing supports shall also be located on the shop drawings.
   3. Shop drawings shall be in accordance with ACI 315.

1.04 PRODUCT HANDLING

A. Delivery:
   1. Deliver reinforcement to the job site bundled, tagged, and marked.
   2. Use metal tags indicating bar size, lengths, and other information corresponding to markings shown on placement diagrams.

B. Storage: Store reinforcement at the job site on blocks and in a manner to prevent damage and accumulation of dirt and excessive rust.

PART 2–PRODUCTS

2.01 MATERIALS

A. Reinforcing bars shall comply with ASTM A615 or A996 Type R, Grade 60. Reinforcing bars required to be welded shall be ASTM A706 low alloy.

B. Steel wire and welded wire fabric shall comply with ASTM A1064. Fabric shall be provided in flat sheets. Rolled fabric shall not be used.

C. Reinforcement supports including bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcement in place shall be:
   1. Wire bar-type supports complying with CRSI recommendations, unless otherwise indicated.
   2. For slabs on grade, supports with sand plates, or horizontal runners where base material will not support chair legs.
   3. For exposed-to-view concrete surfaces or where the concrete surface will be exposed to weather or moisture, where legs of supports are in contact with forms, supports with either hot-dipped galvanized or plastic protected legs.
   4. When supports bear directly on the ground and it is not practical to use steel bar supports, precast concrete blocks may be used to support only the bottom lift of reinforcement. The precast blocks must be solid, be of an equal or higher strength than the concrete being placed, must provide adequate support to the reinforcement, and be of proper height to provide specified reinforcing cover. The use of face bricks, hollow concrete blocks, rocks, wood blocks, or other unapproved objects will not be permitted.

D. Fibrous Reinforcing:
   1. Fibrous concrete reinforcement shall be Fibermesh 300, manufactured by Propex Concrete Systems, or equal.
   2. Reinforcement shall be 100% virgin polypropylene fibrillated, multi-length graded fiber containing no reprocessed olefin materials and specifically manufactured for use as concrete secondary reinforcement.
   3. Physical Characteristics:
      a. Specific Gravity: 0.91.
      b. Fiber Length: Multidesign gradation.

E. Mechanical Splices and Threaded Couplers:
   1. Mechanical splices shall be Zap Screwlok by Bar Splice Products, Inc., or equal.
   2. Threaded couplers and dowel bar replacements shall be Dowel Bar Splicer System by Dayton/Richmond, or equal.
   3. Mechanical splices and couplers shall be capable of developing at least 125% of the yield strength of the reinforcing bar.

2.02 FABRICATION

A. General:
   1. Fabricate reinforcing bars to conform to required shapes and dimensions with fabrication tolerances which comply with CRSI Manual.
   2. In case of fabricating errors, do not rebend or straighten reinforcement in a manner that will injure or weaken the material.
   3. Unless otherwise shown on the Drawings, all end hook dimensions shall conform with “ACI Standard Hooks.”

B. Reinforcement with any of the following defects shall be deemed unacceptable and will not be permitted in the work:
   1. Bar lengths, depths, and bends exceeding specified fabrication tolerances.
   2. Bend or kinks not indicated on Drawings or final shop drawings.
   3. Bar with reduced cross section because of excessive rusting or other cause.

PART 3–EXECUTION

3.01 INSPECTION

A. Examine the substrate, formwork, and the conditions under which concrete reinforcement is to be placed.

B. Correct conditions detrimental to the proper and timely completion of the work.

C. Do not proceed until unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. General:
   1. Comply with the specified standards for details and methods of placing reinforcement and supports.
   2. Clean reinforcement to remove loose rust, mill scale, earth, and other materials which reduce or destroy bond with concrete.

B. Placing Reinforcement:
   1. All reinforcing shall be placed in accordance with Contract Drawings and with shop drawings stamped and approved by ENGINEER.
   2. Position, support, and secure reinforcing against displacement by formwork, construction, or concrete placement operations.
   3. Support reinforcing by metal chairs, runners, bolsters, spacers, and hangers as needed.
   4. Unless otherwise shown on the Drawings, the reinforcement is to be so detailed and placed as to allow the following concrete protection:
      a. Three inches of cover where the concrete is placed directly against ground.
      b. Two inches of cover where the concrete is placed in forms but is to be exposed to weather, liquid, or the ground.
      c. One-inch cover in slabs and walls not exposed to weather, liquid, or the ground.
      d. One and one-half-inch cover in beams, girders, and columns not exposed to weather, liquid, or the ground. This cover applies to beam stirrups and column ties where applicable.
   5. Reinforcement shall be positioned within ±3/8 inch for members with depth to tension reinforcing from compression face less than or equal to 8 inches. Tolerance shall be ±1/2 inch for members with depth to tension reinforcing from compression face greater than 8 inches. Tolerance on dimension between adjacent bars in slab and wall reinforcing mats shall be 1 inch. Secure against displacement by anchoring at the supports and bar intersections with wire or clips.
   6. Bars shall be securely tied at all intersections except where spacing is less than 1 foot in each direction when alternate intersections shall be tied. To avoid interference with embedded items, bar spacing may be varied slightly if acceptable to ENGINEER. Tack welding of reinforcing will not be permitted.

7. Set wire ties so that twisted ends are directed away from exposed concrete surfaces.
8. If reinforcing must be cut because of openings or embedded items in the concrete, additional reinforcing must be provided adjacent to the opening at least equal in cross sectional area to that reinforcing which was cut, and it shall extend a minimum of 36 bars diameters beyond the opening on each side or as shown on the Drawings. At sumps or depressions in slabs, bars shall be bent and/or extended under sumps or depressions.
9. Wall reinforcing mats shall be secured in a vertical plane by providing clearance from forms with bar supports and by using Z-shaped bars at ±4 feet on center wired between two mats of steel, spacing and staying both of them. Nails shall not be driven into the forms to support reinforcement and neither shall wire for this purpose come in contact with the forms. Alternate top transverse bars in slab shall be supported by individual bar chairs at approximately 3-foot 0-inch centers. Bottom longitudinal bars shall be supported by continuous bar chairs at approximately 4-foot 0-inch centers.
10. If carrier bars are to be used, CONTRACTOR shall provide reinforcing bars for this purpose in addition to the reinforcing called for by the Drawings and Specifications.
11. Reinforcement bars used as grade pins shall not be tied to or used to support structural reinforcement. Grade pins shall either be completely removed or lowered to provide the specified clear cover from the slab surface.

C. Reinforcement Supports:
1. Strength and number of supports shall be sufficient to carry reinforcement.
2. Do not place reinforcing bars more than 2 inches beyond the last leg of any continuous bar support.
3. Do not use supports as bases for runways for concrete-conveying equipment and similar construction loads.

D. Welded Wire Fabric:
1. Install welded wire fabric in as long of lengths as practicable.
2. Lap adjoining pieces at least one full mesh.
3. Fabric shall be supported with bar supports.

E. Splices:
1. Provide standard reinforcement splices by lapping ends, placing bars in contact, and tightly wire tying.
2. Lap splices in reinforcing shall be provided as shown on the Drawings. Where lap splice lengths are not shown on the Drawings, provide Class B, Category 1 lap splices in accordance with ACI 318.
3. Adjacent splices of tangential bars in circular slabs and horizontal bars in circular walls shall be staggered a minimum of one full lap splice length or 3 feet, whichever is greater, unless otherwise shown. Stagger dimension shall be measured from center to center of lap splices.
4. For circular walls, horizontal bar lap splices shall not coincide in vertical arrays more frequently than every third bar.
5. Mechanical splices and threaded dowel bar inserts may be used where acceptable to ENGINEER.

F. Embedded Items:
1. Allow other trades to install embedded items as necessary.
2. Particularly after bottom layer of reinforcing is placed in slabs, allow electrical contractors to install conduit scheduled for encasement in slabs prior to placing upper layer of reinforcing.

G. Minimum Reinforcing: Where reinforcing is not shown, provide a minimum of No. 4 at 8-inch centers each way in members 10 inches or less in thickness and No. 5 at 12-inch centers each way in each face in members greater than 10 inches thick.

H. Fibrous Reinforcing:
   1. Fibrous concrete reinforcing shall be used in all building interior slab-on-grade concrete and all precast concrete topping, and where shown on the Drawings.
   2. Add fibers at a minimum rate of 1.5 pounds per cubic yard.
   3. Mix concrete in strict accordance with reinforcement manufacturer’s recommendations.

END OF SECTION

SECTION 03 30 00

CAST-IN-PLACE CONCRETE

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
   1. All cast-in-place concrete as shown except, as noted otherwise.
   2. PVC and hydrophilic waterstops, expansion joint fillers, bonding agents, patching mortars, curing compounds, nonshrink grout, grout topping, floor sealer, and other related items and accessories.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. ACI 211.1–Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete.

B. ACI 301–Specifications for Structural Concrete.

C. ACI 304R–Guide for Measuring, Mixing, Transporting, and Placing Concrete.

D. ACI 305R–Guide to Hot Weather Concreting.

E. ACI 306R–Guide to Cold Weather Concreting.

F. ACI 308–Specification for Curing Concrete.

G. ACI 309–Guide for Consolidation of Concrete.

H. ACI 318–Building Code Requirements for Structural Concrete and Commentary.

I. ASTM C31–Standard Practice for Making and Curing Concrete Test Specimens in the Field.

J. ASTM C33–Standard Specification for Concrete Aggregates.

K. ASTM C39–Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.

L. ASTM C40–Standard Test Method for Organic Impurities in Fine Aggregates for Concrete.

M. ASTM C88-Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate.

N. ASTM C94–Standard Specification for Ready-Mixed Concrete.

O. ASTM C143–Standard Test Method for Slump of Hydraulic-Cement Concrete.

P. ASTM C150–Standard Specification for Portland Cement.

Q. ASTM C156–Standard Test Method for Water Loss (from a Mortar Specimen) Through Liquid Membrane-Forming Curing Compounds for Concrete.

R. ASTM C172–Standard Practice for Sampling Freshly Mixed Concrete.

S. ASTM C231–Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.

T. ASTM C260–Standard Specification for Air-Entraining Admixtures for Concrete.

U. ASTM C309–Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.

V. ASTM C494–Standard Specification for Chemical Admixtures for Concrete.

W. ASTM C595–Standard Specification for Blended Hydraulic Cements.

X. ASTM C618–Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete.

Y. ASTM C652–Standard Specification for Hollow Brick (Hollow Masonry Units Made From Clay or Shale).

Z. ASTM D994–Standard Specification for Preformed Expansion Joint Filler for Concrete (Bituminous Type).

AA. ASTM D1752–Standard Specification for Preformed Sponge Rubber Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction.

1.03 SUBMITTALS

A. Submit shop drawings in accordance with Section 01 33 00–Submittals.

B. Submit the following information:
1. Gradation of fine and coarse aggregate–ASTM C33.
2. Specific gravity and dry rodded density of each aggregate.
3. Test of deleterious substances in fine and coarse aggregate–ASTM C33.
4. Design mix of each individual concrete mix to be used.
5. Previous test results or trial batch results with 7- and 28-day compressive strengths for each concrete mix proposed.
6. Certified mill test results for cement identifying brand, type, and chemistry of cement to be used.
7. Brand, type, principal ingredient, and amount of each admixture to be used.

C. It is important that the above data be submitted to ENGINEER well in advance of anticipated concreting operations to avoid any delay in construction.

PART 2–PRODUCTS

2.01 CEMENT

A. Cement shall be Portland cement Type I/II conforming to ASTM C150 or Portland limestone cement Type IL conforming to ASTM C595. All cement shall be the product of one reputable manufacturer and mill.

B. Cement shall be stored in a dry, weathertight, properly ventilated structure with the floor raised not less than 1 foot above the ground.

2.02 FLY ASH

A. All fly ash used as an admixture in Portland cement or Portland limestone cement concrete shall be Class C or F conforming to the requirements of ASTM C618.

2.03 AGGREGATE

A. All aggregates shall be washed and shall consist of natural sand, gravel, or crushed rock and shall have clean, hard, durable, uncoated grains of strong minerals. The amounts of deleterious substances present in the fine and coarse aggregate expressed in percentages by weight shall not exceed the following:

	Aggregate	
Deleterious Substance	Fine	Coarse
Clay Lumps and Friable Particles	3.0	3.0
Coal and Lignite	0.5	0.5
Mineral finer than No. 200 sieve	3.0	
Soft Fragments	3.0	3.0
Chert*	---	5.0
Sum of Chert and Clay Lumps		5.0

* Material classified as chert and having a bulk specific gravity of less than 2.45. The percentage of chert shall be determined on the basis of the weight of chert in the sample retained on a 3/8-inch sieve divided by the weight of the total sample.

B. The combined amount of all deleterious substances in an aggregate shall not exceed 5% of the weight of the aggregate.

C. If requested by ENGINEER, sodium sulfate soundness tests (ASTM C88) shall be performed on the aggregate. When the aggregate is subjected to 5 cycles, the weight loss shall not exceed 12%. Samples of proposed aggregates shall be submitted to an independent laboratory for testing in advance of concrete work. All testing shall be performed in accordance with ASTM C33. Certified test results shall be submitted to ENGINEER confirming that aggregate complies with all stated specifications. Report shall identify source of aggregate and absorbed water.

D. Fine aggregate shall be well-graded from coarse to fine and shall conform to the following requirements:

Percentage by Weight	
Passing 3/8-inch sieve	100
Passing No. 4 sieve	95-100
Passing No. 8 sieve	80-100
Passing No. 16 sieve	50-85
Passing No. 30 sieve	25-60
Passing No. 50 sieve	5-30
Passing No. 100 sieve	0-10

E. Gradation of fine aggregate shall be reasonably uniform and not subject to the extreme percentages of gradation specified above. The fineness modulus shall be not less than 2.3 or more than 3.1, nor shall the fineness modulus of any sample vary by more than +0.20 from the fineness modulus of the representative sample used in proportioning the concrete.

F. If requested by ENGINEER, fine aggregate shall be subjected to the color-metric test for organic impurities (ASTM C40) and shall not produce a color darker than Figure 1, unless they pass the mortar strength test. Aggregate producing color darker than Figure 2 shall not be used in any event.

G. Coarse aggregate shall be well-graded from coarse to fine, and when tested by laboratory sieves having square openings, shall conform to the following requirements:

	Percentage by Weight Aggregate	
	3/4-Inch Stone	1 1/2-Inch Stone
Passing 2-inch sieve	---	100
Passing 1 1/2-inch sieve	---	90-100
Passing 1-inch sieve	100	20-55
Passing 3/4-inch sieve	90-100	0-15
Passing 3/8-inch sieve	20-55	0-5
Passing No. 4 sieve	0-10	---
Passing No. 8 sieve	0-5	---

H. The 3/4-inch aggregate shall be used in concrete members no thinner than 4 inches and less than 10 inches thick. A blend of 3/4-inch and 1 1/2-inch aggregate shall be used in members 10 inches thick and thicker with the 3/4-inch aggregate comprising between 35% and 65% of the total course aggregate. When members thinner than 10 inches are placed monolithically with members thicker than 10 inches, the aggregate requirements for the thinner member shall apply.

I. Aggregates must be allowed to drain for at least 12 hours before being used. The ground upon which aggregates are stored must be hard, firm, well-drained, and free from all vegetable matter. Various sizes of aggregates must be stored separately, and if they have become contaminated or merged with each other, they shall not be used.

2.04 WATER

A. Water used in mixing concrete shall be clean and free from injurious amounts of oil, alkali, organic matter, or other deleterious substances.

2.05 ADMIXTURES

A. Water Reducing Admixture shall be Master Pozzolith® 200 by Master Builders Solutions, Daracem 19 by Grace, or equal. Water reducing admixture shall conform to ASTM C494, Type A and Type F. Water reducing admixture shall not reduce durability, shall increase strength 10%, and shall not affect bleeding characteristics over reference mix.

B. Air-Entraining Admixture shall be equal to MasterAir® AE 90 by Master Builders Solutions, Darex by Grace Construction Products, or equal. Air-entraining admixture shall conform to ASTM C260.

C. No other admixture will be allowed without written approval of ENGINEER. All admixture shall be compatible with cement, aggregate, and water used.

2.06 PROPORTIONING

A. The proportions of aggregate to cement shall be such as to produce a workable mixture that can be thoroughly compacted and that will work readily in the forms and around reinforcement without permitting materials to segregate or excess water to collect on the surfaces. The combined aggregates shall be such that when separated on the No. 4 sieve, the weight passing the sieve shall not be less than 30% nor greater than 50%.

B. Concrete of various classes shall have the following maximum water/cement or water/(cement + fly ash) ratio minimum compressive strengths at 28 days and minimum cement and fly ash contents:

Class	Maximum Water/ Cement or Water/ (Cement+Fly Ash)	Minimum 28 Day Strength-Pounds per Square Inch	Cement Content-Pounds per Cubic Yard	Fly Ash-Pounds per Cubic Yard	
				Type C	Type F
AA	0.42	4,500	611	---	---
AA-FA	0.42	4,500	520	120	135
A	0.45	4,000	564	---	---
A-FA	0.45	4,000	480	110	125
X	---	2,000	376	---	---

C. Concrete for all liquid containing structures shall be Class AA or AA-FA. Unless noted otherwise on the Drawings or in the Specifications, all other concrete shall be Class A or Class A-FA concrete.

D. Concrete topping for clarifier bottoms shall contain pea gravel, crushed stone, or other suitable coarse aggregate graded from 1/8 inch to 3/8 inch in addition to well-graded sand. Use six bags of Portland cement and 100 pounds of Class C fly ash per cubic yard. Not more than 35 gallons of mixing water per cubic yard, including free water in aggregate, shall be used. Minimum 28-day design strength shall be 4,000 psi. Provide similar mix with fibrous reinforcing added for concrete topping over precast plank.

E. All concrete mixes shall be designed for a strength of 15% above that specified to allow for job variations. All mixes shall be designed in accordance with ACI 211.1 by a qualified concrete engineer or qualified laboratory technician. Required materials test data shall be

submitted with design mixes for review and approval by ENGINEER. Mix computations shall be submitted if requested by ENGINEER.

F. The slump for all concrete shall be 3 inches and concrete with a slump within the range of 2 to 3 1/2 inches will be acceptable unless otherwise stated.

G. A water-reducing admixture shall be used in all concrete. A qualified representative of the manufacturer shall be available to assist in proportioning the concrete, advise on the proper addition of the admixture to the concrete, and advise on adjustments of concrete proportions to suit job conditions.

H. An air-entraining admixture shall be used in all concrete except as noted. Air content shall be tested by the pressure method as outlined in ASTM C231 and shall be between 4% to 7% by volume. An air-entraining admixture is not required for concrete patching and for concrete floors, equipment pads, and supports in interior heated buildings where the concrete will be protected from freezing during and after construction.

I. CONTRACTOR shall submit to ENGINEER concrete cylinder compressive strength results from previous projects for the same concrete mixes proposed on the current project. If this information is not available, one cubic yard trial batches of each individual mix proposed for use shall be made prior to use in the work. Four test cylinders shall be made for each trial batch, two to be tested at 7 days and two at 28 days. The trial batches shall be made preceding actual placement operations so that the results of the 7-day tests can be obtained. All costs for material, equipment, and labor incurred during design of concrete mixes shall be borne by CONTRACTOR.

J. All aggregates shall be measured by weight. The concrete mixer is to be equipped with an automatic water-measuring device that can be adjusted to deliver the desired amount of water.

2.07 WATERSTOPS

A. PVC waterstops shall be as manufactured by Greenstreak, Inc., W.R. Meadows, Durajoint, or equal. Provide serrated center bulb-type, nontapered 3/8 inch minimum thickness waterstops manufactured from virgin polyvinyl chloride with no reclaimed/scrapped material or pigment whatsoever conforming to Corps of Engineers CRD-C-572. The waterstop shall have an integral fastening system consisting of hogrings or grommets. For 6-inch PVC waterstops in construction joints, use Greenstreak, Inc. Profile No. 732, or equal. For expansion joints, use Greenstreak, Inc. Profile No. 735, or equal. Where 4-inch PVC waterstops are called for in the Drawings, use Greenstreak, Inc. Profile No. 702, or equal.

B. Hydrophilic waterstop shall be a flexible hydrophilic natural rubber strip composed of nonvulcanized rubber and urethane polymer hydrophilic agent creating a moisture-activated, self-healing waterproofing compound.

C. Hydrophilic waterstop shall be Adeka Ultraseal, or equal, products as follows:
   1. Construction Joints:
      a. Wall/slab thickness greater than 9 inches with double mat of reinforcing: MC-2010MN (3/4 inch by 3/8 inch) with embedded stainless steel wire mesh for expansion control. The waterstop shall develop a minimum of 400 psi expansion pressure and withstand a minimum 150-foot hydrostatic head. Expansion amount shall not exceed 120%.

b. Wall/slab thickness between 4 inches and 9 inches with 1-inch minimum cover and single or double mat of reinforcing: KBA-1510FP (9/16 inch by 3/8 inch). Expansion amount shall not exceed 30%.

2. Pipe Penetrations:
   a. Wall/slab thickness between 4 inches and 9 inches and pipe diameter greater than 4 inches and less than or equal to 24 inches: KBA-1510FP (9/16 inch by 3/8 inch).
   b. Wall/slab thickness greater than 9 inches with double mat of reinforcing and pipe diameter greater than 4 inches and less than or equal to 24 inches: MC-2005T (3/4 inch by 3/16 inch).
   c. Wall/slab thickness greater than 9 inches with double mat of reinforcing and pipe diameter greater than 24 inches: MC-2010MN (3/4 inch by 3/8 inch) with embedded stainless steel wire mesh for expansion control.

2.08 JOINT FILLER

A. Expansion joints shall have standard 1/2-inch-thick cork expansion joint filler, W. R. Meadows, or equal, meeting ASTM D1752–Type II. Exceptions to this are expansion joints in exterior concrete walks and between concrete walks and other structures which shall be asphalt expansion joint filler, 1/2-inch-thick, Grace, W.R. Meadows, or equal, meeting ASTM D994.

2.09 BONDING AGENT

A. Bonding agent for bonding new concrete to existing concrete at construction joints and for bonding concrete overlays to existing concrete shall be a liquid latex product meeting ASTM C1059, Type II. Acceptable products include Eucoweld 2.0 by Euclid Chemical, Acrylic Bonding Agent J40 by Dayton Superior, or equal.

2.10 PATCHING ADDITIVE

A. Acceptable manufacturers include MasterEmaco® A 660 by Master Builders Solutions, Sonocrete by Sonneborn Contech Co., or equal.

2.11 NONSHRINK GROUT

A. Acceptable manufacturers include Dayton Superior, Master Builders Solutions, or equal. Grout shall be nonshrink, nonmetallic and shall achieve a strength of 7,500 psi in 28 days.

2.12 CURE–SEAL HARDENER

A. Penetrating sealer for interior building floors shall be Ashford Formula by Curecrete Chemical Company, Inc., or equal. See finish schedule for locations to be used.

PART 3–EXECUTION

3.01 MIXING

A. Ready-mixed concrete shall be batched, mixed, and delivered in accordance with ASTM C94 and ACI 304R. In general, concrete shall be mixed 50 revolutions at plant, 20 upon arrival at site, and 20 each time water is added; maximum of 110 revolutions at mixing speed. Concrete shall be delivered and discharged within 1 1/2 hours or before the drum has revolved 300 times after introduction of water to the cement and aggregates or the

cement to the aggregates. Truck mixers shall be equipped with drum revolution counters. In no event shall concrete which has taken its initial set be allowed to be used. Retempering of concrete is not permitted.

B. A representative of ENGINEER may be at the batching plant periodically to observe the batching and mixing.

C. No water shall be added on the job unless required by CONTRACTOR and with the knowledge of ENGINEER; the amount of water, if added, shall be recorded on all copies of the delivery tickets. If water is added, CONTRACTOR shall verify that the required water-cement ratio is not exceeded.

D. Concrete shall have a temperature not less than 60°F nor more than 80°F as delivered to the jobsite.

E. With each load of concrete, CONTRACTOR shall obtain delivery tickets and shall make these tickets available for review by ENGINEER. Delivery tickets shall provide the following information:
   1. Date.
   2. Name of ready-mix concrete plant, job location, and CONTRACTOR.
   3. Type of cement and admixtures, if any.
   4. Specified cement content in sacks per cubic yard of concrete and approved concrete mix number or designation.
   5. Amount of concrete in load, in cubic yards.
   6. Water-cement ratio.
   7. Water added at job, if any.
   8. Truck number and time dispatched.
   9. Number of mixing drum revolutions.

F. For job-mixed concrete, all concrete materials shall be mixed in a machine batch mixer for at least 1 1/2 minutes after all ingredients are in the mixer and shall continue until there is a uniform distribution of the materials and the mass is uniform in color and homogeneous. The mixer shall not be loaded beyond the capacity given by the manufacturer and shall be rotated at the speed recommended by the manufacturer. The mixer is to be provided with positive timing device that will positively prevent discharging the mixture until the specified mixing time has elapsed.

3.02 JOINTS

A. CONTRACTOR shall place all joints as shown on the Drawings or specified herein. If acceptable to ENGINEER, CONTRACTOR may, at its own expense, place construction joints in addition to and at places other than those shown on the Drawings. Unless otherwise shown, all joints shall be straight, truly vertical or horizontal, and proper methods shall be employed to obtain this result.

B. Where construction joints are not shown on the Drawings or specified elsewhere, CONTRACTOR shall provide construction joints in walls as follows:
   1. Vertical construction joints at 60 feet on center maximum but not more than 15 feet from corners or intersections.
   2. Horizontal construction joints at 18 feet on center maximum for walls 12 inches or more in thickness.
   3. Horizontal construction joints of 8 feet on center maximum for walls 10 inches or less in thickness.

C. Immediately after completion of the first pour at a joint, the concrete surface, reinforcement, and waterstop projecting beyond the joint shall be thoroughly cleaned and laitance removed. The waterstops shall not be disturbed after the concrete in the first pour at a joint has set. Concrete around waterstops shall be thoroughly compacted by hand spading and vibrating. Immediately before the second pour, all extraneous matter shall be removed from the joint, the waterstop and steel cleaned, and the surface thoroughly wetted.

D. Concrete at all joints shall have been in place at least 48 hours before abutting concrete is placed. At least two hours must elapse after depositing concrete in columns or walls before depositing in beams, girders, or slab supported thereon. Beams, girders, brackets, column capital, and haunches shall be considered as part of the floor system and shall be placed integrally therewith.

3.03 WATERSTOPS

A. Unless noted otherwise, PVC waterstops shall be provided at all expansion joints and at construction joints in floors and walls of structures exposed to ground or liquid on one side and occupied by personnel or nonsubmerged equipment on the other side.

B. PVC waterstops shall be made continuous by splicing. Waterstops shall be spliced using a corner, tee, or cross splice, as applicable, at intersections. Waterstops shall be mitered to maintain the continuity of the ribs and center bulb. Splices shall be made using a hot metal plate or an electric splicer and full butt weld. Direct flame will not be allowed. Sample field-splices shall be submitted to ENGINEER for review prior to construction.

C. PVC waterstops placed in all joints shall be securely held in place by an acceptable method or as shown on the Drawings. PVC waterstops shall be installed and secured prior to concrete placement. PVC waterstops shall not be inserted into wet concrete. No nails will be permitted through the waterstop. Great care shall be taken when concrete is placed so that the waterstop remains erect and is not bent over.

D. Either hydrophilic or PVC waterstop shall be provided at all construction joints in liquid holding tanks and channels that are not adjacent to areas occupied by personnel and at joints between new and existing concrete. Waterstop shall be placed as shown on drawing details, if any, and in accordance with the manufacturer’s recommendations. Where not shown on the Drawings, waterstops shall be approximately centered in walls and slabs.

3.04 BONDING TO EXISTING CONCRETE

A. When placing new concrete adjacent to existing concrete, the existing concrete shall be thoroughly roughened, cleaned, and saturated with water 24 hours before pouring new concrete. Existing concrete is defined as concrete more than six months old. At time of new pour, remove any standing water and apply bonding agent. Bonding agent shall be applied in accordance with manufacturer’s recommendations.

3.05 PATCHING EXISTING CONCRETE

A. When patching existing concrete, remove poor concrete until firm hard concrete is exposed; roughen and clean surface of the existing concrete, clean any exposed reinforcing bars, and pour new concrete. Concrete finish shall match existing concrete. New concrete shall be 4,000 psi 28-day strength mixed with patching additive, mixed according to manufacturer’s instructions. Concrete shall not be air-entrained.

3.06 EMBEDDED ITEMS IN CONCRETE

A. All sleeves, inserts, anchors, and embedded items required for adjoining work or for its support shall be placed prior to concreting.

B. All contractors whose work is related to the concrete or must be supported by it shall be given ample notice and opportunity to introduce and/or furnish embedded items before the concrete is placed.

C. Embedded items shall be positioned accurately and supported against displacement. Reinforcing bars shall clear embedded items a minimum of 2 inches.

3.07 PLACING CONCRETE

A. Before placing concrete, all equipment, forms, ground, reinforcements, and other surfaces with which the concrete will come in contact are to be thoroughly cleaned of all debris, ice, and water. Ground shall be wetted prior to placement of concrete on it.

B. After reinforcement is placed and before concrete is placed over it, ENGINEER shall be allowed sufficient time to observe the reinforcing.

C. Unless otherwise authorized by ENGINEER, all concrete shall be placed in the presence of ENGINEER.

D. Concrete shall be conveyed from the mixer to the place of final deposit as rapidly as practicable by methods that will prevent the segregation or loss of materials. Chuting for conveying purposes must be accomplished in such a manner as to prevent segregation or loss of materials. Receiving hoppers shall be installed at the chute discharge and at no point in its travel from the mixer to place of final deposit shall the concrete pass through a free vertical drop of more than 3 feet. Elephant trunks or tremies shall be used in all wall pours to prevent coating of forms and reinforcing bars.

E. Care shall be taken to avoid an excess of water on the concrete surface. Excess water shall be drained or otherwise removed from the surface. Dry cement or a mixture of cement and sand shall not be sprinkled directly on the surface to absorb water.

F. Concrete in wall and beam pours shall be deposited in approximately horizontal layers not to exceed 18 inches in thickness. Each layer shall be well worked into the preceding layer while both layers are still soft.

G. Concrete shall be deposited as nearly as practicable in its final position to avoid segregation from rehandling or flowing. The maximum allowable lateral movement of the concrete after being deposited is 3 feet. Once concreting is started, it shall be carried on as a continuous operation until the placing of the section or panel is completed.

H. All concrete shall be placed with the aid of mechanical vibrating equipment in accordance with ACI 309. In congested areas, vibration shall be supplemented by hand spading adjacent to the forms. Vibration should secure the desired results within 5 to 15 seconds at intervals of 18 inches apart maximum. The vibrator shall penetrate the preceding layer of concrete. Vibrators shall have a frequency of not less than 10,000 impulses per minute when in operation submerged in concrete.

I. A sufficient number of spare vibrators shall be kept in ready reserve to provide adequate vibration in case of breakdown of those in use.

J. In placing concrete in beams where it is intended to be continuous and monolithic with the slab above, a delay to provide for settlement of the deep concrete shall be scheduled before placing the upper concrete in the slab. The length of delay shall be as long as possible and still permit the revibration of the deep concrete.

K. Concrete is not to be placed under water. A suitable means shall be provided for lowering the water level below surfaces upon which concrete is to be placed. This may require excavating approximately 12 inches below the bottom of the concrete surface and refilling with gravel and compacting. The groundwater shall not be allowed to rise to the bottom of the concrete until 24 hours after the concrete pour has been completed. Water shall not be allowed to fall upon or run across the concrete during this period.

L. No extra payment will be allowed for dewatering, undercutting, and gravel fill.

3.08 MOIST CURING

A. All concrete shall be maintained in a moist condition for at least 7 days after being deposited except that for high-early strength concrete, a 3-day period will be sufficient. Moist curing shall be accomplished by one of the following methods:
   1. Wood forms left in place and kept wet at all times. If wood forms are not going to be kept wet or if metal forms are used, they shall be removed as soon as practicable and other methods of moist curing shall be started without delay.
   2. Use of a curing compound conforming to ASTM C309, Type I as approved by ENGINEER. Curing compound shall be applied at a uniform rate as indicated by the manufacturer sufficient to comply with the requirements of the test water retention of ASTM C156. Curing compound applied to vertical concrete surfaces after forms are removed shall be specially adapted to provide required coverage on the vertical surface. On nonformed surfaces, the curing compound shall be applied immediately after the disappearance of the water sheen after finishing of the concrete. Curing compound shall not be used on concrete surfaces that are to be painted, receive ceramic tile or resilient flooring, or be waterproofed. Care shall be taken not to get curing compound on construction joints, reinforcing steel, and other surfaces against which new concrete will be poured.
   3. Use of plastic film. Plastic film shall have a minimum thickness of 4 mils. It shall be placed over the wet surface of the fresh concrete as soon as possible without marring the surface and shall be weighted so that it remains in contact with all exposed surfaces of the concrete. All joints and edges shall be lapped and weighted. Any tears in the film shall be immediately repaired.
   4. Application of wet coverings weighing 9 ounces per square yard such as burlap, cotton mats, or other moisture-retaining fabrics. The covering system shall include two layers and shall be kept continuously moist so that a film of water remains on the concrete surface throughout the curing period.
   5. Use of an approved waterproof curing paper. Edges of adjacent sheets shall be overlapped several inches and tightly sealed.
   6. Ponding of water or continuous sprinkling of water is permitted. Sprinkling at intervals will not be permitted.
   7. Construction joints shall be moist cured by one of the methods listed above except by Method “2.”

B. The use of moist earth, sand, hay, or another method that may discolor hardened concrete will not be permitted.

3.09 HOT WEATHER CONCRETING

A. When the atmospheric temperature exceeds 80°F during concrete placement, this section and ACI 305 shall apply in addition to all other sections of the specifications.

B. The temperature of the delivered concrete shall not exceed 85°F.

C. Care shall be exercised to keep mixing time and elapsed time between mixing and placement at a minimum. Ready-mix trucks shall be dispatched so as to avoid delay in concrete placement, and the work shall be organized to use the concrete promptly after arrival at the jobsite.

D. The subgrade, forms, and reinforcing shall be sprinkled with cool water just prior to placement of concrete. Prior to placing concrete, there shall be no standing water or puddles on the subgrade.

E. If approved by ENGINEER, an admixture for retarding the setting of the concrete may be used.

F. Exposed concrete surfaces shall be carefully protected from drying. Continuous water curing is preferred. Curing compounds shall be white pigmented.

3.10 COLD WEATHER CONCRETING

A. Conditions of this section shall apply, in addition to all other sections of the specifications, when placing concrete in cold weather. Cold weather is defined as a period when, for more than three successive days, the average daily temperature drops below 40°F. When temperatures above 50°F occur during more than half of any 24-hour period, the period will no longer be regarded as cold weather. The average daily temperature is the average of the highest and lowest temperature during the period from midnight to midnight. Cold weather concreting shall conform to all requirements of ACI 306.1, except as modified by the requirements of these specifications.

B. Detailed procedures for the production, placement, protection, curing, and temperature monitoring of concrete during cold weather shall be submitted to ENGINEER. Cold weather concreting shall not begin until these procedures have been reviewed for conformance with ACI 306.1.

C. All concrete materials, forms, ground, mixing equipment, and other surfaces with which the concrete is to come in contact shall be free from frost, and the temperature of contact surfaces shall be 35°F or above. Ground upon which concrete is to be placed shall not be frozen at any depth.

D. The mixing water and aggregates shall be heated and when entering the mixer shall have temperatures not exceeding 175°F and 80°F, respectively. Concrete temperature as mixed shall not exceed 80°F and shall typically be between 55°F and 70°F. Concrete, when placed in the forms, shall have a temperature of not less than 50°F.

E. Freshly placed concrete shall be protected by adequate covering, insulating, or housing and heating. If heating is used, ambient temperature inside the housing shall be maintained at a minimum of 70°F for 3 days or 50°F for 5 days. The maximum ambient temperature during curing shall not exceed 80°F. If insulating methods are used, recommendations contained in ACI 306R shall be followed. Surface temperature shall be maintained at 50°F for 7 days. After the curing period, the temperature of the concrete shall be reduced uniformly at a rate

not to exceed 40°F per 24 hours until outside air temperature is reached. Heating of enclosure shall continue if it is anticipated that the outside air temperature will drop more than 20°F in the next 24 hours. The concrete temperature shall be obtained by attaching a thermometer provided by CONTRACTOR to the concrete surface. Concrete shall be kept moist.

F. If heating is used, the housing shall be constructed weathertight and shall be constructed in a manner that will provide uniform air circulation and air temperatures over the complete concrete area that is being cured. Special attention shall be given to the edges and ends of a concrete pour with the housing extending at least 5 feet beyond any concrete surface being protected. The housing shall be in place and heat applied within 2 hours after concrete placement.

G. Heating may be by steam or hot air. Heaters shall be vented to outside of the housing. Open burning salamanders will not be permitted. Heating devices shall not be placed so close to the concrete as to cause rapid drying or discoloration from smoke.

H. If heating is used, CONTRACTOR shall provide sufficient 24-hour inspection of the heaters to provide compliance with the above-specified temperature requirements during the curing period. CONTRACTOR shall provide maximum-minimum thermometers for ENGINEER's use.

I. The use of calcium chloride, salts, or other chemical admixtures for the prevention of freezing is prohibited.

J. Salts or other deleterious materials shall not be used on temporary or permanent structures above concrete surfaces that are being placed, finished, or cured.

3.11 FINISHING

A. Flat Work:
   1. Floated Finish: Place, consolidate, strike off, and level concrete eliminating high spots and low spots. Do not work concrete further until it is ready for floating. Begin floating with a hand float, a bladed power float equipped with float shoes, or a powered disk float when the bleed water sheen has disappeared and the surface has stiffened sufficiently to permit the operation. Immediately refloat the slab to a uniform texture.
   2. Light Troweled Finish: Float concrete surface, then power trowel the surface. Hand trowel the surface smooth and free of trowel marks.
   3. Hard Troweled Finish: Float concrete surface, then power trowel the surface. Hand trowel the surface smooth and free of trowel marks. Continue hand troweling until a ringing sound is produced as the floor is troweled.
   4. Tolerance for concrete floors shall be 1/4 inch within 10 feet in any direction. Straight edge shall be furnished by CONTRACTOR.
   5. Broom or Belt Finish: Immediately after concrete has received a floated finish, give the concrete surface a coarse transverse scored texture by drawing a broom or burlap belt across the surface.
   6. The above finishes shall be used in the following locations:
      a. Float Finish: Surface to receive roofing, waterproofing, or sand bed terrazzo.
      b. Light Troweled Finish: Submerged tank slabs.
      c. Hard Troweled Finish: Building floors.
      d. Broom or Belt Finish: Exterior slabs, sidewalks, tops of walls, and tank slabs to receive grout topping.

B. Formed Surfaces:

1. Within 2 days after removing forms and prior to application of a curing compound, all concrete surfaces shall be observed and any poor joints, voids, stone pockets, or other defective areas shall be patched at once before the concrete is thoroughly dry. Defective areas shall be chipped away to remove all loose and partially bonded aggregate. The area shall be thoroughly wetted and filled with as dry as practical mortar mix placed to slightly overfill the recess. Mortar shall include a bonding agent. After partial set has taken place, the excess mortar shall be removed flush with the surface on the concrete using a wood float. All patching shall be cured, protected, and covered as specified for concrete. All cracks, leaks, or moist spots that appear shall be repaired. No extra compensation will be allowed CONTRACTOR for such work.
2. The exterior or removal portion of nonremovable ties shall be removed with the use of a special tool designed for this purpose. Cutting or chipping of concrete to permit removal of exterior portion will not be permitted.
3. For nonremovable ties, tie rod holes left by the removal of the exterior portion of the tie and cone shall be thoroughly wetted and filled by ramming with as dry as practical mortar mix in such a manner such that it completely fills the hole. Mortar shall include a bonding agent. All patching shall be cured, protected, and covered as specified for concrete. The holes are to be filled immediately after removal of the exterior portion of the tie.
4. Holes left by removable ties shall be filled by installing a neoprene plug near the center of the wall. The balance of the hole shall be filled with mortar as specified above to within 1 inch of the face of the wall. The remainder of the hole shall be filled with a waterproofing compound.
5. All finished or formed surfaces shall conform accurately to the shape, alignment, grades, and sections as shown or prescribed by ENGINEER. All surfaces shall be free from fins, bulges, ridges, offsets, honeycombing, or roughness. All sharp angles, where required, shall be rounded or beveled. Any formed surface to be painted shall be free of any material that will be detrimental to the paint. The surface of the concrete shall be given one of the following finishes immediately after form stripping:
    a. Finish A shall be referred to as a sack finish. Surfaces shall be free of contaminants prior to sacking. After wetting the surface, a grout shall be rubbed in using a rubber float or burlap. After the grout hardens sufficiently, it shall be scraped from the surface with the edge of a steel trowel without disturbing the grout in the air holes. After further drying, the surface shall be rubbed with burlap to remove all surface grout. The entire surface shall be finished to secure a continuous, hard, dust-free uniform texture surface free from pinholes and other minor imperfections. Finish A will be required for all unpainted surfaces (See Section 09 91 00–Painting for painted surfaces), interior surfaces of equipment rooms, operation areas, and permanently exposed vertical surfaces. Where steel-faced forms are used to form walls, the portion of wall to receive the sack finish shall first be roughened by brush blasting or other acceptable method to achieve a texture similar to 40 to 60 grit sandpaper.
    b. Finish B shall be the same as Finish A, except that the final burlap rubbing may be omitted, providing the steel trowel scraping removes the loose buildup from the surface. Finish B shall be provided for waterproof- and moistureproof-coated surfaces.
    c. Finish C shall be referred to as a finish that has surface imperfections less than 3/8 inch in any dimension. Surface imperfections greater than 3/8 inch shall be repaired or removed and the affected areas neatly patched. Finish C or smoother shall be provided for interior surfaces of wet wells, tanks, and channels from 1 foot below minimum water surfaces and down and otherwise unfinished interior surfaces.
    d. Finish D shall be the finish for surfaces that may be left as they come from the forms, except that tie holes shall be plugged and defects greater than 1/2 inch in any

dimension shall be repaired. Finish D shall be provided for surfaces to be buried or covered by other construction such as masonry veneer.

C. All precautions shall be taken to protect the concrete from stains or abrasions, and any such damage shall be removed or repaired under this Contract.

3.12 LOADING OF CONCRETE STRUCTURES

A. No concrete structure or portion thereof shall be loaded with its design load until the concrete has obtained its specified 28-day compressive strength. This shall include but not be limited to vertical live load, equipment loading, water loading, groundwater loading, and backfill load. Concrete strength at time of loading shall be determined by testing field-cured concrete cylinders.

B. Extreme care shall be taken so that construction loads do not exceed design loading of the structure.

3.13 WATER TEST

A. All liquid-retaining structures shall be water-tested by CONTRACTOR before being faced with masonry or backfilled. The structure shall be filled with water, kept full for at least 24 hours, leaks or moist areas marked, and the structure or surrounding area drained. Repairs shall be made from the face of the concrete that is subjected to water pressure. Method of repair shall be reviewed by ENGINEER.

B. Testing of the structure shall not take place until the last concrete placed in the structure has developed 28-day design strength as determined by testing field-cured concrete cylinders.

C. After repair, the structure shall again be tested as above. Testing and repair shall continue until all leaks or moist spots have disappeared. Unless otherwise stated, water for testing shall be supplied by CONTRACTOR.

3.14 NONSHRINK GROUT

A. Nonshrink, nonmetallic grout shall be used for filling recesses and pockets left for equipment installation and for setting of base plates. The material used shall be approved by ENGINEER. Store, mix, and place the nonshrinking compound as recommended by the manufacturer. The minimum compressive strength shall be 5,000 psi at age 7 days and 7,500 psi at age 28 days.

3.15 TESTING AND SAMPLING

A. The following tests of fresh concrete shall be performed by the SPECIAL INSPECTOR. The SPECIAL INSPECTOR shall prepare, protect, transport, and have tested all cylinders at its expense.
   1. Sampling of concrete for slump tests, air tests, temperature tests, and for making concrete test cylinders shall be performed in accordance with ASTM C172.
   2. Cylinders:
      a. Three test cylinders shall be made for each pour less than 25 cubic yards, four test cylinders shall be made for each pour between 25 and 100 cubic yards, and eight test cylinders shall be made for each pour in excess of 100 cubic yards. Each concrete mix shall be represented by at least four cylinders for the entire job. Concrete for cylinders shall be collected near the middle of the load and/or as requested by ENGINEER.

b. Cylinders shall be made and tested in accordance with ASTM C31 and ASTM C39, respectively. The cylinders must be kept moist and at temperatures between 60°F and 80°F and shall remain undisturbed and stored in a location free from vibration. In hot weather, the cylinders shall be covered with wet burlap and stored in a shaded area. It is CONTRACTOR's responsibility to provide a suitable protected location for storing cylinders on the jobsite.
c. After 24 hours, the cylinders shall be transferred to an independent testing laboratory acceptable to OWNER. The cylinders shall be packed in sawdust or other cushioning material for transit to avoid any bumping or jarring of the cylinders.
d. Cylinders shall be broken at 7 and 28 days or as requested by ENGINEER. Test results shall be transmitted immediately and directly to ENGINEER and OWNER. Test data shall include date and location of pour and concrete mix used.

3. Slump Test: The SPECIAL INSPECTOR shall make one slump test near the beginning of all pours with two tests being made for all pours in excess of 25 yards or as requested by ENGINEER. Slump tests shall conform to ASTM C143.
4. Air Test:
   a. When air-entrained concrete is used, the air content shall be checked by SPECIAL INSPECTOR near the beginning of all pours with at least two checks being made for all pours in excess of 25 cubic yards, or as requested by ENGINEER.
   b. The air contents shall be checked using the pressure method in accordance with ASTM C231. The pocket-sized alcohol air indicator shall not be used unless it is first used in conjunction with the pressure method test.

B. All costs of additional testing and sampling of fresh or hardened concrete needed because of suspected or actual violation of the specifications shall be borne by CONTRACTOR.

3.16 RECORDS

A. A record is to be kept of all concrete work. The record shall include the date, location of pour, concrete mix, slump, air content, test cylinder identification, concrete temperature, and ambient air temperature. In addition, for cold weather concreting the record shall include the daily maximum-minimum thermometer readings of all thermometers during the entire curing period for all concrete pours. The Resident Project Representative will keep this record, and CONTRACTOR shall assist in obtaining needed information.

3.17 CONCRETE TOPPING

A. The clarifier base slabs shall receive a 2-inch concrete topping as specified below. The topping coat shall be struck off by placing a screed on the clarifier mechanism arm and rotating the mechanism in accordance with clarifier mechanism manufacturer's recommendations. After striking off, a light steel troweled finish shall be applied. CONTRACTOR shall run the clarifier mechanism.

B. Before the grout topping is applied, the base slab shall be thoroughly cleaned. The base slab shall be wetted and kept saturated prior to placing the topping. A thin coat of cement grout shall be broomed into the base slab for a short distance ahead of the topping. The topping shall be applied before the grout is hardened.

3.18 CONCRETE REMOVAL AND PATCHING

A. All areas disturbed as a result of concrete removal or repair shall be patched as specified in Bonding to Existing Concrete.

3.19 CURING AND SEALING INTERIOR BUILDING FLOORS

A. Install cure-seal hardener product in accordance with manufacturer's instructions. Apply only to those floors noted to be sealed in the finish schedule.

B. Where product will be used for moist curing, sealing and hardening, apply to new concrete as soon as the concrete is firm enough to walk on after troweling. Where product will be used for sealing and hardening only, surface must be free of dust, dirt, laitance, curing compounds, and any material that would inhibit the penetration of the product. In some instances, the floor may need to be stripped and neutralized before application.

C. Spray on at rate of 200 square feet per gallon.

D. Keep surfaces wet with cure-seal hardener for minimum soak-in period of 30 minutes, without allowing drying out or becoming slippery. In hot weather, slipperiness may appear before the 30-minute time period has elapsed. If that occurs, apply more cure-seal hardener as required to keep entire surface in a nonslippery state for the first 15 minutes. For the remaining 15 minutes, mist the surface as needed with water to keep the material in a nonslippery state.

E. After this period, when treated surface becomes slippery, lightly mist with water until slipperiness disappears.

F. Wait for surface to become slippery again and then flush entire surface with water removing all residue of cure-seal hardener.

G. Squeegee surface completely dry, flushing any remaining slippery areas until no residue remains.

H. Wet vacuum or scrubbing machines may be used to remove residue, provided manufacturer's instructions are followed.

I. Protect installed floors until chemical reaction process is complete; at least 3 months.

J. Clean up spills immediately and spot-treat stains with good degreaser or oil emulsifier.

K. Protection and cleaning of floors are the responsibility of CONTRACTOR until final completion. Replace concrete that becomes stained because of improper precautions or lack of cleaning.

END OF SECTION

SECTION 03 41 13

PRECAST CONCRETE HOLLOW CORE PLANKS

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
   1. Precast Concrete Hollow Core Planks.
   2. Connection Plates and Hangers.
   3. Grouting Plank Joint Keys.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. ACI 318-Building Code Requirements for Reinforced Concrete.

B. ASTM C150-Portland Cement.

C. AWS D1.1-Structural Welding Code.

D. AWS D1.4-Structural Welding Code-Reinforcing Steel.

E. PCI-Manual For The Design of Hollow Core Slabs.

F. PCI MNL-116–Manual for Quality Control for Plants and Production of Precast and Prestressed Concrete Products.

G. PCI MNL-120–Design Handbook–Precast and Prestressed Concrete.

H. PCI MNL-123–Manual on Design of Connections for Precast Prestressed Concrete.

I. PCI-Design Handbook-Precast and Prestressed Concrete.

J. PCI-Tolerances for Precast and Prestressed Concrete.

1.03 DESIGN REQUIREMENTS

A. Size components to withstand design loads in an unrestrained condition as follows: Roof Assembly: All dead loads plus live and snow loads and concentrated loads as shown on the Drawings. Increased loading due to snow drifting at obstructions and changes in roof elevation shall be included in the design.

B. Plank shall be designed in accordance with the PCI-Manual For The Design of Hollow Core Slabs and PCI-Design Handbook.

C. Plank shall be capable of resisting shear forces as a diaphragm. Diaphragm chords will be the masonry bond beams.

1.04 SUBMITTALS

A. Professional Engineer: All plank designs shall bear the name and seal of a State of Iowa licensed professional engineer. CONTRACTOR shall be responsible for submitting the required additional copies of plank drawings with original stamp and signature for submittal to the State of Iowa. These materials must be submitted prior to installation.

B. Shop Drawings: Indicate plank locations, unit identification marks, connection details, edge conditions, bearing requirements, support conditions, dimensions, openings, openings intended to be field cut, and relationship to adjacent materials.

C. Product Data: Indicate standard component configuration, design loads, deflections, and cambers.

1.05 QUALIFICATIONS

A. Fabricator: Company specializing in manufacturing the work of this section with 3 years experience. Maintain plant records and quality control program during production of precast planks. Make records available upon request.

B. Erector: Company specializing in erecting the work of this Section approved by fabricator.

C. Design precast concrete members in accordance with PCI Manual For The Design of Hollow Core Slabs under direct supervision of a professionalengineer experienced in design of this work and licensed in the State of Iowa.

D. Welder: Qualified within previous 12 months in accordance with AWS D1.1.

1.06 REGULATORY REQUIREMENTS

A. Conform to ACI 318 and the 2018 International Building Code for design load and on-site construction requirements.

B. CONTRACTOR shall submit additional copies of shop drawings for submittal to the State of Iowa by ENGINEER.

1.07 PREINSTALLATION CONFERENCE

A. Convene minimum one week prior to commencing work of this section under provisions of Section 01 31 00–Coordination, Field Engineering, and Meetings.

B. Discuss anchor and weld plate locations, sleeve locations, and cautions regarding cutting or core drilling.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Lifting or handling devices shall be capable of supporting member in positions anticipated during manufacture, storage, transportation, and erection.

B. Mark each member with date of production and final position in structure.

1.09 COORDINATION

A. Coordinate the work of framing components not post tensioned but directly associated with the work of this section.

B. Coordinate field cut openings with affected section.

C. Coordinate location of hanger tabs and devices for mechanical and electrical work.

D. Coordinate location of anchors to be placed in masonry walls.

PART 2–PRODUCTS

2.01 FABRICATORS

A. The plank shall be prestressed hollow-core precast concrete plank as fabricated by The Wells Company, Flexicore Company, or equal.

2.02 MATERIALS

A. Materials shall comply with provisions of ACI 318.

B. Cement grout for grouting joints shall be one part Portland Cement per ASTM C150, three parts sand and water.

2.03 ACCESSORIES

A. Connecting and supporting devices shall be 304 stainless steel unless noted otherwise.

B. Bearing pads shall be high-density plastic, 1/8-inch thick.

C. Caulk as approved by plank manufacturer.

2.04 FABRICATION

A. Conform to AWS D1.4., PCI MNL-116, and PCI MNL-120, and PCI MNL-123.

B. Embed anchors, inserts, plates, angles, and other items at locations indicated.

C. Cut exposed ends flush.

2.05 FINISHES

A. Plank to be painted shall be field abrasive blasted and painted as specified in Section 09 91 00–Painting.

B. Connecting and supporting stainless steel devices shall not be painted.

2.06 FABRICATION TOLERANCES

A. Conform to PCI-Tolerances for Precast and Prestressed Concrete.

PART 3–EXECUTION

3.01 EXAMINATION

A. Verify that site conditions and supporting structure are ready to receive work and field measurements are as indicated on shop drawings.

3.02 PREPARATION

A. Prepare support devices for the erection procedure and temporary bracing.

3.03 ERECTION

A. Erect members without damage to structural capacity, shape, or finish. Replace or repair damaged members.

B. Align and maintain uniform horizontal and end joints as erection progresses.

C. Maintain temporary bracing in place until final connection is made. Protect members from staining.

D. Install bearing pads at bearing ends of planks as indicated.

E. Adjust differential camber between precast members to tolerance before final attachment and grouting.

F. Adjust differential elevation between precast members to tolerance before final attachment.

G. Grout plank joints, trowel smooth. Any grout that may have seeped through to the ceiling below shall be removed before it hardens. Grout shall also be placed between masonry and underside of roof plank in spaces created by roof plank camber over all exterior walls and bearing walls. On nonbearing interior walls, a void over 1/2 inch shall be filled with 1/2-inch expansion material and grout the remainder. This grout shall be applied following roofing. It is the intent that a space of 1/4 inch to 1/2 inch be left for caulking as required in Section 07 90 00–Caulking and Sealants.

H. Underside of joints between planks that remain exposed shall be caulked as required in Section 07 90 00–Caulking and Sealants.

I. Where open cores at end of planks are to remain exposed to view. The cores shall be grouted full for a minimum 6-inch depth to provide finished end of plank.

J. Secure units in place. Perform welding, where shown, in accordance with AWS D1.1.

3.04 ERECTION TOLERANCES

A. Erect members level and plumb within allowable tolerances. Conform to PCI MNL-116.

3.05 CUTTING OPENINGS

A. Cooperation shall be extended to all trades in permitting the insertion of anchors, hangers, vents, electrical outlets, etc. Holes needed for such devices shall be cut in the field by the various trades. Cuts shall be made with a masonry saw or core drill. The various trades shall be present during installation of the roof deck. All openings not dimensioned or shown on the Drawings shall be located by the trades requiring the openings. All openings larger than 8 inches in any dimension shall be made by the roof slab supplier, and where necessary, hangers shall be furnished by the supplier. All spalling shall be repaired by the roof plank supplier prior to caulking. It is essential that plank which will remain exposed from below have a neat finished surface. Particular care shall be given to appearance of holes and openings.

END OF SECTION

SECTION 03 53 00

CONCRETE TOPPING

PART 1–GENERAL

1.01 SUMMARY

A. Work Included: Polymer-modified, Portland-cement concrete.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

PART 2–PRODUCTS

2.01 MANUFACTURER

A. Concrete topping shall be polymer-modified Portland Cement, 2-component SikaTop 122, as manufactured by Sika Corporation or equal.

PART 3–EXECUTION

3.01 SURFACE PREPARATION

A. Verify repair area is not less than 1/4 inch in depth.

B. Remove all deteriorated concrete, dirt, grease, and all other bond-inhibiting materials from surface.

C. Roughen surface in accordance with manufacturer’s recommendations.

D. Saturate surface with clean water.

3.02 INSTALLATION

A. Substrate shall be saturated surface dry with no standing water during application.

B. Mix components and apply concrete according to manufacturer’s instructions.

C. Topping shall be water cured only.

END OF SECTION

SECTION 04 05 13

MORTAR AND MASONRY GROUT

PART 1–GENERAL

1.01 SUMMARY

A. The work includes mortar and grout for masonry.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. 2018 International Building Code.

B. ASTM C91–Masonry Cement.

C. ASTM C144–Aggregate for Masonry Mortar.

D. ASTM C150–Portland Cement.

E. ASTM C207–Hydrated Lime for Masonry Purposes.

F. ASTM C404–Aggregates for Masonry Grout.

G. ASTM C476–Grout for Masonry

H. ASTM C979–Pigments for Integrally Colored Mortar/Concrete.

1.03 SUBMITTALS

A. Submit under provisions of Section 01 33 00–Submittals.

B. Submit information on Portland cement, integral waterproofing compound, and hydrated lime for mortar. Include design mix with proportions of materials being used. Submit gradation on aggregates.

C. Submit design mix for grout including gradation of aggregates.

D. Manufacturer’s certificate: Certify that products meet or exceed specified requirements.

1.04 DELIVERY, STORAGE, AND HANDLING

A. All cement shall be stored in a dry, weatherproof, properly ventilated structure which will protect it from dampness and freezing.

1.05 ENVIRONMENTAL REQUIREMENTS

A. See Section 04 20 00–Unit Masonry System, for cold weather requirements.

PART 2–PRODUCTS

2.01 MORTAR

A. Provide Portland cement-lime mortar or masonry cement mortar with proportion restrictions as stated in the 2018 International Building Code. Provide integral waterproofing compound in mortar for all exterior masonry. Provide Type N mortar for exterior non-load bearing brick and split face block veneer. Provide Type S mortar for all other masonry.

B. Portland cement shall conform to ASTM C150, Type I or III, or ASTM C595 Type IL.

C. Hydrated lime shall conform to ASTM C207, Type S.

D. Masonry cement shall conform to ASTM C91.

E. Integral waterproofing compound shall be Dry-Block by W.R. Grace Company, or equal.

F. Mortar aggregate for ordinary tile, brick, stone, and block shall consist of clean, sharp sand, conforming to ASTM C144. The sand shall be graded within the following limits:

Sieve Number	Percent by Weight Passing
4	100
8	95 to 100
16	70 to 100
30	40 to 75
50	10 to 35
100	2 to 15
200	---

G. Sand from any one source shall not vary over the extreme limits shown above. For unusually thin joints, such as occur with a unit having cut or ground edges, the aggregate used shall conform to these specifications except that 95% shall pass a No. 16 sieve.

H. Water used in mixing water shall be clean and free of injurious materials.

I. Mortar shall be thoroughly mixed until of uniform color and consistency. Only sufficient mortar to meet the immediate requirements of the work shall be mixed at one time. No mortar shall be retempered after it has begun to set, and no partially set mortar shall be used. No antifreeze material shall be used in the mortar to lower the freezing point.

2.02 GROUT

A. Grout shall conform to ASTM C476–Mortar and Grout for Reinforced Masonry.

B. Aggregates shall conform to ASTM C404–Aggregates for Masonry Grout.

C. Grout shall have a minimum 28-day compressive strength of 2,500 psi with the following proportions:
   1. Fine Grout: 1 Portland Cement: 0 to 1/10 lime: 2 1/2 to 3 fine aggregate.

2. Coarse Grout: 1 Portland Cement: 0 to 1/10 lime: 2 1/2 to 3 fine aggregate: 1 to 2 coarse aggregate.

D. Fine grout shall be used in spaces with least horizontal dimension greater than 3/4 inch and less than 2 1/2 inches. Coarse grout shall be used in all spaces with least dimensions 2 1/2 inches or greater.

PART 3–EXECUTION

3.01 INSTALLATION

A. Brace masonry for wet grout pressure.

B. Work grout into masonry cores and cavities.

C. Where joints occur in grout, they shall be made 2 inches below the block joint so that a key is provided.

D. Grout full masonry walls from top of floor to underside of all lintels at openings for a distance of 16 inches adjacent to each side of opening, unless shown otherwise on the Drawings.

END OF SECTION

SECTION 04 20 00

UNIT MASONRY SYSTEM

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
1. Concrete Block.
2. Glazed Concrete Masonry Units.
3. Split-Face and Decorative Block.
4. Reinforcement, Anchorage, Control Joints, and Accessories.
5. Cold Weather Requirements.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 SUBMITTALS

A. Comply with pertinent provisions of Section 01 33 00–Submittals.

B. Provide complete shop drawings of all material to be furnished and installed under this section.

1.03 REFERENCES

A. 2018 International Building Code.

B. ASTM C67–Standard Test Methods for Sampling and Testing Brick and Structural Clay Tile.

C. ASTM C90–Standard Specification for Loadbearing Concrete Masonry Units.

D. ASTM C216–Standard Specification for Facing Brick (Solid Masonry Units Made from Clay or Shale).

E. ASTM C744–Standard Specification for Prefaced Concrete and Calcium Silicate Masonry Units.

F. UL–Fire Resistance Directory.

1.04 QUALITY ASSURANCE

A. Variation from the plumb in the lines and surfaces of columns and walls shall not exceed 1/4 inch in 10 feet, 3/8 inch in a story height or 20 feet maximum or 1/2 inch in 40 feet or more. Variation from plumb for external corners, expansion joints, and other conspicuous lines shall not exceed 1/4 inch in any story or 20 feet maximum or 1/2 inch in 40 feet or more.

B. Variation from the level of the grades indicated on the drawing for exposed lintels, sills, parapets, horizontal grooves, and other conspicuous lines shall not exceed 1/4 inch in any bay or 20 feet or 1/2 inch in 40 feet or more.

C. Variation of the linear building line from an established position in plan and related portion of columns, walls, and partitions shall not exceed 1/2 inch in any bar or 20 feet maximum or 3/4 inch in 40 feet or more.

D. Variation in cross-sectional dimensions of columns and thickness of walls shall not exceed minus 1/4 inch or plus 1/2 inch from the dimensions indicated on the Drawings.

1.05 MOCKUP

A. Provide a 4-foot by 4-foot mockup panel of masonry, including anchor accessories and flashings, before any masonry work begins. Location will be indicated by OWNER. Mockup panel shall be approved by OWNER and used as a sample of the quality of work to be expected on the job. Mockup panel may not remain as part of the work.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Masonry units, when delivered to the site, shall be thoroughly cured and shall be dry. When stored on the site, they shall not be in contact with the ground, shall be kept clean and covered.

1.07 COLD WEATHER REQUIREMENTS

A. All masonry units delivered to use in freezing weather shall be fully protected by a weathertight covering to prevent accumulation of ice on the units. Loose board covering will not be permitted.

B. Cold Weather Protection:
   1. Remove any ice or snow formed on masonry bed by carefully applying heat until top surface is dry to the touch.
   2. Remove all masonry determined to be frozen or damaged by freezing conditions.
   3. Perform the following construction procedure while the work is progressing. When air temperature is from 40°F (4°C) to 32°F (0°C), heat sand or mixing water to produce mortar temperature between 40°F (4°C) and 120°F (49°C):
      a. When air temperature is from 32°F (0°C) to 25°F (-4°C), heat sand or water to produce mortar temperature between 40°F (4°C) and 120°F (49°C); maintain temperature of mortar on boards above freezing.
      b. When air temperature is from 25°F (-4°C) to 20°F (-7°C), heat sand and mixing water to produce mortar temperatures between 40°F (4°C) and 120°F (49°C); maintain temperature of mortar on boards above freezing; use salamanders or other heat sources on both sides of walls under construction; use wind breaks when wind is in excess of 15 mph.
      c. When air temperature is from 20°F (-7°C) and below, heat sand and mixing water to produce mortar temperatures between 40°F (4°C) and 120°F (49°C); provide enclosures and auxiliary heat to maintain air temperature above 32°F (0°C); do not lay units which have a surface temperature of 20°F (-7°C).
   4. Perform the following protections for completed masonry and masonry not being worked on:
      a. When the mean daily air temperature is from 40°F (4°C) to 32°F (0°C), protect masonry from rain or snow for at least 24 hours by covering with weather-restrictive membrane.

b. When the mean daily air temperature is from 32°F (0°C) to 25°F (-4°C), completely cover masonry with weather-restrictive membrane for at least 24 hours.
c. When the mean daily air temperature is from 25°F (-4°C) to 20°F (-7°C), completely cover masonry with insulating blankets or similar protection for at least 24 hours. Extend time period to 48 hours for grouted masonry.
d. When mean daily temperature is 20°F (-7°C) and below, maintain masonry temperature above 32°F (0°C) for 24 hours using enclosures, blankets, and supplementary heat. Extend time period to 48 hours for grouted masonry.

PART 2–PRODUCTS

2.01 CONCRETE BLOCK

A. Concrete block shall be load bearing and shall conform to the requirements of ASTM C90 and the 2018 International Building Code. Bond shall be running bond. Concrete block shall be the two-cell type and shall be made with normal weight aggregate.

B. Concrete block shall have a minimum net area compressive strength f'_{cmu} of 3,250 psi.

C. Unless otherwise indicated, interior concrete block at window sills and lintels, pilasters, and the top course of walls at roof lines shall be constructed of solid concrete block, lintel block filled with grout, or the cores of the block filled with grout. Interior block at window sills shall be solid concrete block unless otherwise noted. Bullnose block shall be used at all door, window, and wall corners that remain exposed.

D. All interior concrete block walls shall extend to the underside of roof deck or floor above unless noted otherwise.

E. Provide sash units with integral dovetail slots at masonry control joints.

2.02 DECORATIVE CONCRETE BLOCK

A. Glazed Concrete Masonry Units:
1. Glazed concrete masonry units shall be used where indicated on the Finish Schedule.
2. All glazed concrete masonry units shall be made with lightweight aggregate and shall be autoclaved units conforming to ASTM C90 as applicable. The glazed surface shall have a smooth satin-gloss finish and externally heat-polymerized cast-on facing conforming to ASTM C744, Federal Specification SS-C-621b, and ASTM C67, Paragraph 8 (50 cycles of Freezing and Thawing).
3. Glazed masonry units shall be used with colors selected by OWNER from manufacturer’s standard.
4. The glazed facing shall be free from chips, cracks, crazes, or any other imperfections that would detract from the overall appearance of the wall when viewed from a distance of 5 feet at right angles to the wall.
5. Glazed units shall be ASTRA-GLAZE-SW as manufactured by Trenwyth Industries, Inc., or equal. All units shall include W.R. Grace DRY-Block water repellent block admixture, or equal.

B. Split Fluted and Smooth Face Block:
   1. Split fluted units to match existing buildings shall be used for all structures. Smooth face units shall be used where shown on the Drawings. Nominal face size of units shall be 8 inches by 16 inches. Nominal thickness shall be as shown on the Drawings.
   2. The block shall be made with an integral coloring compound and an integral waterproofing compound. The block shall be made with normal weight aggregate and shall meet ASTM C33 and ASTM C90.
   3. The integral waterproofing compound shall be DRY-BLOCK SYSTEM, Block Admixture as manufactured by W.R. Grace & Co., Cambridge, MA, or equal. The admixture manufacturer shall determine the amount of compound to be used. The admixture used in the block shall be of the same manufacture as used in the mortar.
   4. Block colors shall be selected by OWNER.

2.03 REINFORCEMENT AND ANCHORAGE

A. For concrete block walls, masonry wall reinforcement shall be 270-2X Ladder Eye-Wire manufactured by Hohmann & Barnard, Inc., Ladder Wire, manufactured by Wire-Bond, or equal.

B. For cavity walls, masonry wall reinforcement shall be 265 Ladder Adjustable or manufactured by Hohmann & Barnard, Inc., Ladder Adjustable Tab by Wire-Bond, or equal.

C. Wall reinforcement and ties shall be hot-dipped galvanized having a minimum 1.50 ounce/square foot zinc coating in accordance with ASTM A153 Class B2.

D. Side rods shall be 9-gauge wire, and cross rods and tabs shall be 9 gauge wire. Maximum spacing of tabs shall be 24 inches.

E. Prefabricated corner and tee sections shall be used to form continuous reinforcement around corners and for anchoring abutting walls and partitions.

F. Reinforcing Bar Positioners: Where vertical reinforcing bars are required, provide bar positioners by Hohmann and Barnard, or equal.

2.04 ACCESSORIES

A. Cellular or honeycomb cell vents, 2 1/2 inches high, shall be provided at weep holes. Cell vents shall be UV-resistant polypropylene, QV-Quadro-Vent, or equal.

B. Vertical expansion control joints shall be located as shown on the Drawings. Control joints shall be constructed with a factory-extruded section of rubber equal to RS Series–Rubber Control Joint by Hohmann & Barnard, Inc., Rubber Control Joint by Wire-Bond, or equal, and shall extend for the entire height of the wall. Care shall be taken so that the gap is free of mortar or debris. Control joint shall be caulked on exposed faces with caulk of a color to match mortar.

C. Mortar mesh in cavity wall construction shall be MortarNet WallDefender by Mortar Net, or equal. Provide 1-inch-thick mesh at base of cavity walls and above all openings where weep vents are located. Through-wall flashing shall extend minimum 6 inches above top of MortarNet.

D. See Section 05 50 00–Metal Fabrications for masonry veneer support loose lintels.

E. See Section 07 26 00–Vapor and Air Barrier for air barrier on masonry walls.

F. See Section 07 62 00–Flashing and Sheet Metal for masonry flashing specifications.

PART 3–EXECUTION

3.01 MASONRY WORKMANSHIP

A. All masonry shall be laid plumb and true to lines.

B. All masonry shall be laid in running bond, unless specified otherwise.

C. Avoid over-plumbing and pounding of the corners and jambs to fit stretcher units after being set in position. Where an adjustment must be made after the mortar has started to harden, the mortar shall be removed and replaced with fresh mortar.

D. In building cavity walls, the cavity shall be kept clean by slightly beveling the mortar bed to incline toward the cavity or by placing wood strips with attached wire pulls on the metal ties. The strips shall be withdrawn and cleaned before placing the next row of metal ties. Any mortar fins that protrude into the cavity space as the wall is built shall be troweled flat onto the inner face of the wythe.

E. Where cutting of exposed masonry is necessary, the cuts shall be made with a motor-driven masonry saw or by other methods that provide cuts that are straight and true.

F. Glazed concrete masonry units shall be cut using either an abrasive or diamond blade and cut units shall be cut neatly and located for desirable appearance.

G. Where flashing is to be laid on or against masonry, the surface of the masonry shall be smooth and free from projections that might puncture the flashing material. Through-wall flashing shall be placed on a bed of mortar, and mortar shall be placed above the flashing.

H. Weep holes spaced 32 inches on center 2 1/2 inches high shall be provided in the first course immediately above all flashing and at the uppermost course immediately below soffits or coping. Weep holes shall be kept free of mortar droppings.

I. Outside joints around the perimeter of exterior door and window frames or other wall openings shall be not less than 1/4 inch nor more than 3/8 inch wide and shall be cleaned out to a uniform depth of at least 3/4 inch ready for placement of caulk.

J. All walls shall be adequately braced until they are completed and anchored to the roof construction.

3.02 MORTAR JOINTS

A. All joints shall be laid plumb to lines. Unless specified otherwise, mortar beds shall be full 3/8 inch thick and shall be spread smooth or only slightly furrowed. Vertical joints shall be shoved not over 3/8 inch thick, unless otherwise shown. All joints shall be completely filled.

B. Interior and exterior joints shall be tooled concave. All joints shall be tooled to uniform depth and shall be straight and true. Mortar joints shall be cut flush with masonry where rigid thermal insulation will be applied to interior masonry surfaces.

C. The laying of glazed concrete masonry units shall be consistent with the best concrete masonry practices. Units shall be aligned level, plumb, and true with uniform carefully tooled 1/4-inch-wide joints on the glazed face side of the wall.

3.03 REINFORCEMENT AND ANCHORAGE

A. Reinforcement shall be installed in the first and second bed joint 8 inches apart immediately above lintels and below sills at openings. Elsewhere, spacing shall be at 16-inch vertical intervals or as shown on the Drawings. Extend reinforcement in the second joint above and below openings 2 feet beyond the jambs. All other reinforcing shall be continuous.

B. Side rods shall be lapped 6 inches minimum at splices. Reinforcement units shall be of widths required for wall thicknesses as shown. Reinforcement shall be placed to allow for a 5/8-inch mortar cover on the exterior face of walls and 1/2-inch mortar cover on interior faces.

C. Vertical reinforcing bars shall be installed using prefabricated bar positioners. Provide one positioner at the top of the first course of block and one additional positioner at a maximum spacing of 200 bar diameters.

3.04 BUILT-IN WORK

A. As work progresses, install all built-in work (such as window and door frames, anchor bolts, plates, and lintels) to be provided by other sections.

B. Install built-in items plumb and level.

C. Bed anchors of metal door frames in adjacent mortar joints. Grout all steel door frames full with mortar except those called for to be “removable.”

D. Do not use built-in organic materials subject to deterioration.

E. Steel members embedded in exterior masonry shall be “buttered” with not less than 1/2 inch of setting mortar on all surfaces.

3.05 JOINING OF WORK

A. Where fresh masonry joins masonry that is partially set or totally set, the exposed surface of the set masonry shall be cleaned and lightly wetted so as to obtain the best possible bond with the new work. All loose brick and mortar shall be removed. If it becomes necessary to “stop-off” a horizontal run of masonry, this shall be done only by racking back brick in each course, and if grout is used, stopping grout 4 inches back of the rack. Toothing will not be permitted.

3.06 PROTECTION OF WORK

A. During erection, all walls shall be kept dry by covering at the end of each day or shutdown period with a canvas or waterproof covering. Partially completed walls not being worked on

shall be similarly protected at all times. All covering shall overhang at least 2 feet on each side of the wall and shall be securely anchored.

3.07 MASONRY CONTROL JOINTS

A. Provide vertical masonry control joints as detailed on the Drawings.

B. Where control joint locations are not shown on the Drawings, they shall be provided as follows:
   1. Block veneer:
      a. Distance from wall corner (maximum): At inside corners and within 2 feet of outside corners.
      b. Spacing between joints (maximum): 20 feet or 1.5 times veneer height, whichever is less.
      c. Additional locations: At changes in wall height.
   2. Block backup walls and single-wythe block walls:
      a. Distance from wall corner or intersection (maximum): 12 feet or 0.75 times wall height, whichever is less.
      b. Spacing between joints: 25 feet or 1.5 times wall height, whichever is less.
      c. Additional locations: At changes in wall height, at steps on top of foundation walls, and at junctions between shallow and deeper.

C. Where possible, joints shall be located at one or both edges of door, window, and louver openings and at changes in wall height.

3.08 CLEANING NEW WORK

A. Masonry faces to remain exposed shall be wiped with a damp cloth as the work progresses and thoroughly cleaned and pointed upon completion. If stiff brushes and water will not suffice, the surface shall be thoroughly wetted with plain water and then scrubbed with a 5% or 10% solution of hydrochloric acid. Alternatively, a commercial cleaner such as Sure Klean, or equal, may be used. Immediately after, the surface shall be washed to remove all traces of acid. All surfaces not being cleaned shall be protected from the acid. All mortar shall be removed from surfaces other than masonry.

B. Glazed masonry walls shall be cleaned with a detergent masonry cleaner containing no muriatic acid strictly following the cleaner manufacturer’s instructions, including thorough rinsing.

3.09 EXISTING MASONRY

A. Openings in existing walls which are to be filled shall be filled with masonry units to match existing including bull nose jamb, headers, or row lock units necessary to match existing coursing.

B. Where possible, new openings in existing masonry shall be sawcut.

C. Provide all necessary removals and repairs required for installation of new louvers, fans, openings, etc.

D. At lintel bearings of all new openings, grout masonry full for 16 inches full height on both sides of opening.

E. Repair all masonry damaged during construction.

F. All existing masonry which will remain exposed shall be cleaned as specified for new masonry.

G. New units shall be toothed into existing units including jambs, sills, and headers.

H. Where toothing is not practical or desirable, joint reinforcing may be drilled and anchored into existing mortar joints and carried into new units.

I. Masonry reinforcing shall be carried through new units.

END OF SECTION

SECTION 04 72 00

CAST STONE

PART 1–GENERAL

1.01 SUMMARY

A. Work includes cast stone bands.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. ASTM A184–Fabricated Deformed Steel Bar Mats for Concrete Reinforcement.

B. ASTM A615–Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.

C. ASTM A1064–Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete.

D. ASTM C33–Concrete Aggregates.

E. ASTM C150–Portland Cement.

F. ASTM C260–Air-Entraining Admixtures for Concrete.

G. ASTM C494–Chemical Admixtures for Concrete.

H. ASTM C979–Pigments for Integrally Colored Concrete.

1.03 DESCRIPTION

A. Cast stone is a building material manufactured from carefully controlled portions of Portland Cement and coarse and fine aggregates molded into shapes by the manufacturer.

1.04 DESIGN REQUIREMENTS

A. Units shall be designed to withstand dead and live loads, applicable snow load, erection forces, and other loads in accordance with the 2018 International Building Code.

1.05 SUBMITTALS

A. Submittals shall be in accordance with provisions of Section 01 33 00–Submittals.

B. Shop drawings shall indicate layout, configuration, dimensions, joint locations, identification marks, reinforcement, connection details, openings, lifting devices, and relationship to adjacent materials.

C. Submit sample of each type of unit illustrating surface finish, color, and texture.

1.06 QUALITY ASSURANCE

A. Manufacturer shall have minimum 5 years of continuous successful experience in fabricating cast stone materials in compliance with Cast Stone Institute standards.

B. Installer shall have minimum 5 years successful experience in handling and installing cast stone units on projects of comparable size and scope.

1.07 DELIVERY, STORAGE, AND PROTECTION

A. Provide protective coverings and temporary lateral support to prevent damage during shipping. Blocking and supports shall be clean, nonstaining, and shall not cause harm to exposed surfaces.

B. Store stone units under cover, off the ground, away from areas subject to high humidity conditions.

C. Where extended on-site storage is necessary, provide nonstaining wood cribbing between stacked units to promote air circulation and prevent condensation.

PART 2–PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Cast stone members shall be as manufactured by Edwards Cast Stone Company, Dubuque, Iowa, or equal.

2.02 MATERIALS

A. Cement: ASTM C150, Portland, Type 1 or III, grey.

B. Fine Aggregate: ASTM C33, graded and washed natural sand; gradation required to attain indicated texture and finish.

C. Coarse Aggregate: ASTM C33, graded and washed natural gravel; gradation required to attain indicated texture and finish.

D. Color Pigments: ASTM C979, inorganic iron oxide pigments, limeproof. Cement grade carbon black pigment is not acceptable.

E. Reinforcing: ASTM A615, Grade 60, galvanized where embedment is less than 2 inches for No. 5 bars or greater; 1 1/2 inches for No. 4 bars or smaller.

F. Steel Wire Reinforcement: ASTM A1064.

G. Welded Wire Fabric: Comply with ASTM A1064, where applicable.

H. Steel Bar or Rod Mat Reinforcement: Comply with ASTM A184, where applicable.

I. Admixtures: Comply with ASTM C494.

J. Water: Potable, free of impurities.

K. Air Entrainment: Comply with ASTM C260. Wet-cast mixtures shall contain between 5 to 7% air entrainment where surfaces are exposed to freeze-thaw conditions.

L. Mortar shall be as specified in Section 04 05 13–Mortar and Masonry Grout.

2.03 SUPPORT DEVICES

A. Connecting and supporting devices shall be Type 304 or 316 stainless steel.

B. Bolts, nuts, and washers shall be Type 304 stainless steel.

C. Provide cramp anchors for anchoring stones together at corners.

D. Setting buttons, shims, and sheet shall be lead or resilient plastic, nonstaining, thickness to suit joint thickness. For pointed joints, sized to avoid interference with pointing operation.

2.04 ACCESSORIES

A. Sealant shall be type specified in Section 07 90 00–Caulking and Sealants.

2.05 FABRICATION

A. Factory fabrication shall comply with Cast Stone Institute recommended fabricating practices.

B. Comply with Cast Stone Institute recommended tolerances and the following:
   1. Height and Width: Plus 1/16 inch; minus 1/8 inch.
   2. Lengths:
      a. Up to 2 feet 0 inch: Plus 1/16 inch; minus 1/8 inch.
      b. From 2 feet 0 inch to 5 feet 0 inch: Plus or minus 1/8 inch.
      c. From 5 feet 0 inch to 10 feet 0 inch: Plus 1/8 inch; minus 3/16 inch.

C. Color and texture shall match approved samples, when viewed in direct daylight at a 20-foot distance.

D. Cast stone manufacturer is responsible for preparing design mix to attain compressive strength of 6,500 psi at 28 days.

E. Water absorption shall be maximum 6% by dry weight.

F. Reinforcing shall be placed according to Cast Stone Institute recommendations for safe handling, settling, and structural requirements and as indicated on approved shop drawings.

G. After manufacturing, cure all dry-tamped cast stone minimum of 8 hours in a totally enclosed curing room at 85°F and 100% relative humidity; then steam cure for minimum 10 hours.

H. For new design mixes, take daily test cylinders and test in-house using a certified technician, at 20 hours and 28 days after manufacture to provide compliance with minimum compressive strength requirements. Cast stone manufacturer will not be required to retest previous tested and used standard design mixes.

I. Maintain consistent quality during manufacture.

J. Exposed-to-view finish surfaces shall be uniform in color and appearance.

PART 3–EXECUTION

3.01 EXAMINATION

A. Examine surfaces to receive cast stone work and verify that building structure, anchors, devices, and openings are ready to receive work of this section. Do not proceed with installation until surfaces and conditions meet requirements for acceptable installation.

3.02 PREPARATION

A. Verify that installation of items required for stonework to be installed by others are proper type, size, finish, and are located at proper spacings with proper anchorage.

3.03 ERECTION

A. Install/set all units and accessories accurately, using skilled experienced personnel, according to approved shop and setting drawings.

B. Clean stone surfaces before setting using only water or mild cleaning compounds containing no caustic or abrasives.

C. Drench all stone units thoroughly with water just before setting.

D. Provide chases, reveals, openings, and other spaces required to accommodate other work. Close up after other work is complete with cast stone which matches stone already set.

E. Where an open cavity is indicated between cast stone and backup material, keep cavity free of mortar and grout.

F. Install anchors, supports, fasteners, and other attachments indicated or necessary to secure stonework in place. Attach anchors securely to stone and to supporting surfaces. Place anchors and dowels firmly, and fill holes with mortar or nonshrink grout.

G. Set cast stone accurately, in patterns and locations indicated, with uniform joints of dimensions indicated and with edges and faces aligned according to established relationships and indicated tolerances.

H. Set stones supported on solid structural members on setting buttons, shims, or sheets, or a combination of setting buttons and mortar.

I. After setting each stone, sponge off mortar smears and splashes.

J. Embed only ends of lugged sills and similar stones; leave remainder of joint open and tuckpoint on faces only.

K. Set all partially or fully horizontal stones with unfilled vertical joints. After setting, install backer rod, prime ends, and caulk.

L. Setting Tolerances: Set cast stone units to the following tolerances unless detailed otherwise:
   1. Variation from plumb of lines and surfaces of columns, walls, and arises: Maximum 1/4 inch in 10 feet.
   2. Variation from level of grades indicated for floors, exposed lintels, sills, parapets, horizontal grooves, and other conspicuous lines: Maximum 1/2 inch in any 20-foot bay; maximum 3/4 inch in any dimension over 40 feet.
   3. Variation of linear building lines from position in plan: Maximum 1/2 inch in any 20-foot bay.
   4. Variation in cross-sectional dimensions of column and wall thicknesses: maximum ±1/4 inch.
   5. Variation between faces of adjacent pieces and panels is not permitted.

3.04 FIELD QUALITY CONTROL

A. Remove and replace work that is broken, chipped, stained, or otherwise damaged; work that does not match approved samples or approved mockup; and work containing defective joints. Replace unacceptable materials in accordance with the cast stone manufacturer, leaving no visible evidence of replacement.

3.05 CLEANING

A. Perform final cleaning as soon as possible after mortar has set and been tooled. Use no wire brushes, acid-type cleaning agents, cleaning compounds with caustic or harsh fillers, or other materials or methods which could damage or cause discoloration or etching of surfaces or joints, without written approval from cast stone manufacturer.

3.06 PROTECTION

A. Protect work from staining or damage to finished surfaces by ongoing construction until acceptance by OWNER.

END OF SECTION

SECTION 05 12 00

STRUCTURAL STEEL

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
   1. Structural Carbon Steel Framing Members.
   2. Steel Base Plates and Bearing Plates.
   3. Structural Steel Bolted Connections and Anchor Bolts.
   4. Welding of Structural Steel.
   5. Galvanizing of Structural Steel.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. AISC–Code of Standard Practice–Manual of Steel Construction–Allowable Stress Design (ASD).

B. ASTM A36/A36M–Standard Specification for Carbon Structural Steel.

C. ASTM A53–Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.

D. ASTM A123–Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

E. ASTM A143–Standard Practice for Safeguarding Against Embrittlement of Hot-Dip Galvanized Structural Steel Products and Procedure for Detecting Embrittlement.

F. ASTM A153–Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.

G. ASTM A307–Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60000 PSI Tensile Strength.

H. ASTM A325–Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength.

I. ASTM A384–Standard Practice for Safeguarding Against Warpage and Distortion During Hot-Dip Galvanizing of Steel Assemblies.

J. ASTM A385–Standard Practice for Providing High-Quality Zinc Coatings (Hot-Dip).

K. ASTM A500–Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.

L. ASTM A780–Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.

M. ASTM A992/A992M–Standard Specification for Structural Steel.

N. AWS A2.4–Symbols for Welding, Brazing, and Nondestructive Examination.

O. AWS D1.1–Structural Welding Code.

P. SSPC (Steel Structures Painting Council)–Painting Manual.

1.03 SUBMITTALS FOR REVIEW

A. Comply with pertinent provisions of Section 01 33 00–Submittals.

B. Provide shop drawings with complete details and schedules for fabrication and shop assembly of members.
   1. Include details of cuts, connections, camber, holes, and other pertinent data.
   2. Indicate welds by AWS symbols, and show size, length, and type of weld.
   3. Provide setting drawings, templates, and directions for installation of anchor bolts and other anchorages.
   4. Identify details by reference to sheet and detail number on the Drawings.
   5. Connection details and supporting calculations stamped and signed by a professional engineer licensed in the state of Iowa.

C. Mill Test Reports: Submit indicating structural strength and composition.

D. Unless shown otherwise, all connections shall be designed and detailed by the fabricator to support one-half of the total uniform load capacity shown in the tables for uniform load constants in the AISC Specifications.

E. Except as shown otherwise, structural steel details shall conform to standard practice as illustrated in Structural Shop Drafting Textbook of the AISC.

F. Indicate all temporary bracing or cabling required to stabilize the structural frame during erection.

1.04 QUALITY ASSURANCE

A. Fabricate structural steel members in accordance with AISC Code of Standard Practice.

B. Welders Certificates: Certify welders employed on the work, verifying AWS qualification within the previous 12 months.

1.05 QUALIFICATIONS

A. Qualify welding processes and welding operators in accordance with AWS “Standard Qualifications Procedures.”

B. CONTRACTOR shall design all connections not detailed on the Drawings under direct supervision of a professional engineer experienced in design of this work and licensed in the State of Iowa.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver all materials to job site properly marked to identify the structure for which it is intended and at such intervals to allow uninterrupted progress of the work. Marking shall correspond to markings indicated on the shop drawings.

B. Store all members off the ground using pallets, platforms, or other supports.

C. Do not store materials on the structure in a manner that might cause distortion or damage to the members of the supporting structures.

D. In the event of damage, immediately make all repairs and replacements necessary at no additional cost to OWNER.

PART 2–PRODUCTS

2.01 MATERIALS

A. Structural Steel Members:
   1. ASTM A36/A36M (channels, angles, plates).
   2. ASTM A992-50 (wide flange sections).

B. Structural Tubing: ASTM A500, Grade B.

C. Pipe: ASTM A53, Grade B.

D. Bolts, Threaded Rods, Nuts, and Washers: ASTM A307 or ASTM A325, galvanized in accordance with ASTM A123 and A153.

E. Anchor Bolts: ASTM F1554 Grade 36.

F. Welding Electrodes: Comply with AWS D1.1; E70XX electrodes. For ASTM A992 steel and any other steel with 50 ksi or greater yield strength, use only E7018 or other E70XX electrodes specifically permitted by AWS D1.1.

G. Galvanizing: ASTM A123 and A153 for structural steel plates, shapes and bars, and structural steel tubing. ASTM A53 for steel pipe.

2.02 FABRICATION

A. Fabrication and Assembly:
   1. Fabricate items of structural steel in accordance with AISC Specifications and as indicated on the approved shop drawings.
   2. Properly mark and match-mark materials for field assembly and for identification as to structure and site for which intended.
   3. Fabricate for delivery sequence which will expedite erection and minimize field handling of materials.
   4. Where finishing is required, complete the assembly, including welding of units, before start of finishing operation.

5. Provide finish surfaces of members exposed in the final structure free of markings, burrs, and other defects.

B. Connections:
   1. Bolts and washers of all types and sizes shall be provided for completion of all field erection.
   2. Comply with AWS Code for procedures, appearance, and quality of welds used in correcting welded work.
   3. Assemble and weld built-up sections to produce true alignment of axes without warp.
   4. Welding shall be done by the shielded arc process.
   5. All welds shall be chipped, ground smooth, and primed immediately after fabrication.

C. Holes for Other Work:
   1. Provide holes for securing other work to structural steel framing and for the passage of other work through steel framing members as indicated.
   2. Provide threaded nuts welded to framing and other specialty items as shown to receive other work.
   3. Drill, cut, or punch holes perpendicular to metal surfaces.
   4. Do not flame cut holes or enlarge holes by burning.
   5. Drill holes in all bearing plates.

2.03 FINISHES

A. Before shipping, prepare structural component surfaces in accordance with SSPC SP 10 as specified in Section 09 91 00–Painting.

B. Immediately after surface preparation, shop prime structural steel members in accordance with Section 09 91 00–Painting. Do not prime surfaces that will be field-welded, galvanized, or high-strength bolted with friction-type connection.

C. Surfaces which will be inaccessible after assembly or erection shall be field finish coated prior to assembly or erection.

D. Do not prime surfaces where galvanizing or field welding is required.

E. Structural Steel Members: Galvanize after fabrication to the requirements in this section and ASTM A123.

F. Galvanizing:
   1. All items designated to be galvanized, except piping, shall be hot-dipped galvanized in accordance with ASTM Specification A123 and A153. Piping shall be hot-dipped galvanized in accordance with ASTM A53. Furnish a Certificate of Compliance stating that the galvanizing complies with ASTM Specifications and Standards and all other applicable requirements specified herein.
   2. Fabrication of items to be galvanized shall be in accordance with ASTM A143, A384, and A385. Structural steel shall be fabricated generally in accordance with Class 1 guidelines as shown in “Recommended Details for Galvanized Structures” as published by the American Hot Dip Galvanizer’s Association, Inc.
   3. Galvanized items shall be handled, transported, and stored to prevent damage or staining to the coating. Maintain adequate ventilation and continuous drainage.
   4. Silicon content for steel to be hot-dipped galvanized shall be in the range of 0 to 0.04%.

5. Steel work shall be precleaned utilizing a caustic bath, acid pickle and flux, or shall be blast cleaned and fluxed. In either case, all surface contaminants and coatings shall be removed.
6. All welding shall be performed in accordance with the American Welding Society publication D19.0-72, “Welding Zinc Coated Steel.” All uncoated weld areas shall be touched up.

PART 3–EXECUTION

3.01 EXAMINATION

A. Correct conditions detrimental to proper and timely completion of the work.

B. Do not proceed until unsatisfactory conditions have been corrected.

3.02 ERECTION

A. General: Comply with AISC Specifications and Code of Standard Practice and as specified herein.

B. Surveys:
1. Establish permanent bench marks necessary for the accurate erection of structural steel.
2. Check elevations of concrete and masonry, bearing surfaces, and locations of anchor bolts and similar items before erection proceeds.

C. Temporary Shoring and Bracing:
1. Provide temporary shoring and bracing members with connection of sufficient strength to bear imposed loads.
2. Provide temporary guidelines to achieve proper alignment of the structures as erection proceeds.
3. Remove temporary connections and members when permanent members are in place and final connections are made.

D. Anchor Bolts:
1. Provide anchor bolts and other connectors for securing structural steel to foundations and other in-place work.
2. Provide templates and other devices as needed for the presetting of bolts and other anchors to accurate locations.

E. Setting Bases and Bearing Plates:
1. Clean bearing surfaces free from bond-reducing materials and then roughen to improve bond to surface.
2. Set loose and attached base plates and bearing plates for structural members using wedges, leveling nuts, or other adjusting devices.
3. Tighten anchor bolts after the supported members have been positioned and plumbed. Do not remove wedges or shims, but if protruding, cut off flush with the edges of the base or bearing plates prior to packing with grout.
4. Pack grout solidly between bearing surfaces and bases so that no voids remain.
5. Finish exposed surfaces, protect installed materials, and allow to cure in strict compliance with the manufacturer’s instructions.

F. Field Assembly:
   1. Set structural frames accurately to the lines and elevations indicated. Align and adjust the various members forming a part of a complete frame or structure before fastening permanently.
   2. Clean the bearing surfaces and other surfaces which will be in permanent contact before assembly.
   3. Perform necessary adjustments to compensate for discrepancies in elevation and alignment.
   4. Level and plumb individual members of the structure within specified AISC tolerances.
   5. Comply with AISC Specifications for bearing, adequacy of temporary connections, alignment, and removal of paint on surfaces adjacent to field welds.

G. Gas Cutting:
   1. Do not use gas cutting torches in the field for correcting fabricating errors in the structural framing.
   2. Cutting will be permitted only on secondary members which are not under stress as acceptable to ENGINEER.
   3. When gas cutting is permitted, finish the sections equal to the sheared appearance.

H. After erection, prime welds, abrasions, and surfaces not shop-primed or galvanized, except surfaces to be in contact with concrete.

I. Comply with AWS Code for procedures of manual shielded metal arc welding, appearance and quality of weld made, and methods in correcting welding work.

3.03 GALVANIZING REPAIR

A. Areas damaged by welding, flame-cutting or during handling, transport, or erection shall be repaired by one of the following methods whenever damage exceeds 3/16 inches in width.
   1. Cold Galvanizing Compound:
      a. Surfaces to be reconditioned with zinc-rich paint shall be clean, dry, and free of oil, grease, and corrosion products.
      b. Areas to be repaired shall be power disc-sanded to bright metal. So that a smooth reconditioned coating can be effected, surface preparation shall extend into the undamaged galvanized coating.
      c. Touchup paint shall be an organic cold-galvanized compound having a minimum of 94% zinc dust in the dry film.
      d. The paint shall be spray- or brush-applied in multiple coats until a dry film thickness of 8 mils minimum has been achieved. A finish coat of aluminum paint shall be applied to provide a color blend with the surrounding galvanizing.
      e. Coating thickness shall be verified by measurements with a magnetic or electromagnetic gauge.
   2. Zinc-Based Solder:
      a. Surfaces to be reconditioned with zinc-based solder shall be clean, dry, and free of oil, grease, and corrosion products.
      b. Areas to be repaired shall be wire brushed.
      c. Heat shall be applied slowly and broadly close to but not directly onto the area to be repaired. The zinc-based solder rod shall be rubbed onto the heated metal until the rod begins to melt. A flexible blade or wire brush shall be used to spread the melt over the area to be covered. The zinc-based solder shall be applied in a minimum thickness of 2 mils.

d. Coating thickness shall be verified by measurements with a magnetic or electromagnetic gauge.

3.04 FIELD QUALITY CONTROL

A. CONTRACTOR shall inspect all field-bolted connections in accordance with the AISC Specifications.

B. Field Welding:
1. CONTRACTOR shall visually inspect all welds and test during erection of structural steel.
2. CONTRACTOR shall certify welders and conduct inspections and tests as required by applicable standards.
3. CONTRACTOR shall record types and locations of defects found and record the work required and performed to correct deficiencies.

C. Correction:
1. Correct deficiencies in structural steel work which inspections and test reports have indicated to be not in compliance with the specified requirements.
2. CONTRACTOR shall perform all additional testing required to show compliance of corrected work.

END OF SECTION

SECTION 05 31 33

ALUMINUM FLAT PANEL COVER SYSTEM

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
   1. Design.
   2. Fabrication Delivery.
   3. Installation of Aluminum Flat Panel Cover Systems.
   4. Cover Panels.
   5. Structural Supports.
   6. Flashing and Trim, Access Hatches, Duct Connections, Gaskets, Fasteners, Anchors, and Accessories and Appurtenances Indicated on the Drawings.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

C. CONTRACTOR may provide fiberglass flat panel cover system or aluminum flat panel cover system. See Section 06 73 13–Fiberglass Flat Panel Cover System for fiberglass system requirements.

1.02 QUALITY ASSURANCE

A. CONTRACTOR shall be responsible for verifying all field dimensions for development and approval of the manufacturer's drawings.

B. For coordination and compatibility of parts, a single manufacturer shall provide all tank cover materials.

C. Tank cover manufacturer shall have full responsibility for products and design. Split responsibility of materials or design is not acceptable.

D. Tank cover manufacturer shall have:
   1. Minimum of 10 years proven experience in wastewater applications.
   2. Within the last 5 years completed three jobs of similar tank size and type as those required in this scope.

E. Erector shall be regularly engaged in and have a minimum of 10 years' experience with the erection of aluminum cover for wastewater treatment tanks.

F. Welders: Qualified within the past 2 years in accordance with AWES.

1.03 DESIGN REQUIREMENTS

A. Distributed Design Live Load and Deflection: All structural components of the cover system shall be designed to support the dead weight of the structure, a downward live load of 50 pounds per square foot of surface, and uplift loads due to wind in accordance with 2018 International Building Code. The maximum deflection of any component under full dead load plus live load shall not exceed L/180 of the span of that components. In no event

shall the dead load deflection exceed the rise of any component in order to avoid surface ponding.

B. Concentrated Live Load: The structural components of the cover system shall be designed to support a 400-pound load on a 6-inch by 6-inch area located anywhere on the surface of the structure, without permanently deforming the tested area.

C. Design Stresses: All allowable design stresses in structural aluminum shall be in accordance with the “Specifications for Aluminum Structures” by the Aluminum Association.

1.04 SUBMITTALS

A. Submittals shall be in accordance with provisions of Section 01 33 00–Submittals.

B. Submit fabrication drawings showing complete cover system layout and details for panels supports, and access hatches. Include all connection details. Preliminary drawings shall be stamped by cover manufacturer’s professional engineer. Final drawings shall bear the stamp of a State of Iowa licensed professional engineer.

C. Submit information regarding cover system materials, including panels, structural supports, trim, access hatches, hinges, gaskets, fastener and other system materials.

D. Submit complete structural calculations showing the governing stresses in all members and connections. Calculations shall bear the stamp of a State of Iowa licensed professional engineer.

E. Submit copy of manufacturer’s standard cover system guarantee.

F. Submit a letter of certification signed and sealed by a licensed structural engineer confirming that the aluminum cover is in full compliance with the Drawings and Specifications, including any testing provisions included therein.

1.05 DELIVERY, STORAGE, AND HANDLING

A. The manufacturer shall be responsible for jobsite storage of the delivered components. The components shall be stored off the ground on level surface in such a manner as to prevent damage.

PART 2–PRODUCTS

2.01 MANUFACTURERS

A. The aluminum cover system shall be as manufactured by Hallsten Corporation, P.O. Box 41036, Sacramento, CA 95841, (800) 473-7440, CST Industries, Conroe, TX (extruded flat panel covers), RPS Engineering, Inc., Elgin, IL or equal.

2.02 COVER SYSTEM DESCRIPTION AND REQUIREMENTS

A. Configuration: The aluminum cover shall be composed of panels and beams. The weight of any individual panel shall not exceed 150 pounds. Smaller panel sizes weighing 80 pounds or less are preferred. Each removable panel shall be easy to remove and the lifting force required shall not exceed the dead weight of the panel.

B. Chemical Resistance: Panels shall be fabricated entirely of 6061-T6 corrosion-resistant aluminum extrusions.

C. Skid Resistance: The cover shall possess an integral nonskid surface and no exposed area of cover system wider than 1 inch shall be without ribs/nonskid surface.

2.03 MATERIALS

A. Aluminum: All aluminum used in the fabrication of the cover system shall be alloy 6061 T-6. All plate shall be alloy 6061 T-6. Material shall be new and of first quality.

B. Framing: Primary and secondary framing members shall be standard aluminum or stainless steel shapes. Design and detailing shall be by the cover system manufacturer.

C. Welding Electrodes: Filler metal shall be an alloy which produces welds compatible with, and with strength and corrosion-resistance characteristics comparable to the base metal.

D. Fasteners: All fasteners between aluminum components shall be type 316 stainless steel. Secure cover system to concrete structures using type 316 stainless steel expansion bolts. Aluminum shall be isolated from dissimilar materials by means of a stainless steel spacer or an elastomeric isolator.

E. Steel Accessories: No carbon steel components shall be used.

F. Access Hatches: Provide integral gear hinged access hatches at locations noted on the Drawings. The access hatches shall have the same material and performance properties as the rest of the aluminum cover system. The access hatches shall be full panel width. In the open position the panel shall lie on the cover and will not require a hold-open device. Provide integral flush-mounted aluminum handles incorporated into the access hatch panels.

G. Handles: Handles shall be integral flush-mounted aluminum and incorporated into nonskid deck slat.

H. Piping Openings: Provide square openings where shown for large pipe penetrations. Opening shall have neat, finished appearance. Provide supplemental framing as required.

I. All materials shall be provided by cover system manufacturer.

2.04 FABRICATION AND WORKMANSHIP

A. Workmanship: The quality of workmanship shall be equal to the best general practice in modern structural fabrication shops. Workmanship, fabrication, and shop connections shall be in accordance with the latest edition of the ANSI/AWS D1.2 “Structural Welding Code for Aluminum.”

B. Preparation for Welding: All components to be welded shall be free of dirt, grease, and other contaminants and shall fit up to properly for sounding welding. Surfaces to be welded may not be cut with oxygen. Sawing, shearing, or machining may be used.

C. Welding Procedures: All welding shall be with an inert gas shield arc process. Machine settings shall be developed with test welds of the same material, alloy and geometry as the work pieces and samples will be tested destructively.

2.05 FINISH

A. Aluminum cover system components shall have a standard mill finish.

PART 3–EXECUTION

3.01 GENERAL

A. See Division 01 for requirements related to equipment installation, field quality control, testing, supervision and start-up.

3.02 ASSEMBLY AND ERECTION

A. Assemble and install cover system in accordance with manufacturer’s written installation instructions and approved shop drawings.

END OF SECTION

SECTION 05 50 00

METAL FABRICATIONS

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
   1. Shop-Fabricated Carbon Steel, Stainless Steel, and Aluminum Items, Including Lintels, Metal Stairs, Ladders, and Weirs And Baffles.
   2. Stair Treads and Nosings.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. ASTM A36–Carbon Structural Steel.

B. ASTM A53–Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.

C. ASTM A123–Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

D. ASTM A143–Practice for Safeguarding Against Embrittlement of Hot-Dipped Galvanized Structural Steel Products and Procedure for Detecting Embrittlement.

E. ASTM A153–Zinc Coating (Hot-Dip) on Iron and Steel Hardware.

F. ASTM A240–Standard Specification for Chromium and Chromium Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.

G. ASTM A276–Stainless Steel Bars and Shapes.

H. ASTM A307–Carbon Steel Bolts, Studs, and Threaded Rod 60,000 psi Tensile Strength.

I. ASTM A384–Practice for Safeguarding Against Warpage and Distortion During Hot-Dip Galvanizing of Steel Assemblies.

J. ASTM A385–Practice for Providing High-Quality Zinc Coatings (Hot-Dip).

K. ASTM A500–Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.

L. ASTM A780–Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.

M. ASTM A992–Structural Steel Shapes.

N. ASTM A1008–Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable.

O. ASTM A1011–Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength.

P. ASTM B209–Aluminum and Aluminum-Alloy Sheet and Plate.

Q. ASTM B211–Aluminum and Aluminum-Alloy Rolled or Cold Finished Bar, Rod, and Wire.

R. ASTM B221–Aluminum and-Alloy Extruded Bars, Rods, Wire, Profiles and Tubes.

S. AWS A2.0–Standard Symbols for Welding, Brazing, and Nondestructive Examination.

T. AWS A5.4–Stainless Steel Electrodes for Shielded Metal Arc Welding.

U. AWS D1.1–Structural Welding Code–Steel.

V. AWS D1.2–Structural Welding Code–Aluminum.

W. AWS D1.6–Structural Welding Code–Stainless Steel.

X. ASTM F593–Standard Specifications for Stainless Steel Bolts, Hex Cap Screws, and Studs.

Y. ASTM F594–Standard Specification for Stainless Steel Nuts.

1.03 DESIGN REQUIREMENTS

A. All fabrications shall meet applicable code requirements including OSHA.

1.04 SUBMITTALS FOR REVIEW

A. Comply with pertinent provisions of Section 01 33 00–Submittals.

B. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, sections, elevations, and details where applicable.

C. Mill Test Reports: Submit indicating structural strength and composition.

D. Indicate welded connections using standard AWS A2.0 welding symbols. Indicate net weld lengths.

1.05 QUALITY ASSURANCE

A. Fabricate steel members in accordance with AISC Code of Standard Practice.

B. Welders Certificates: Certify welders employed on the work, verifying AWS qualification within the previous 12 months.

1.06 QUALIFICATIONS

A. Qualify welding processes and welding operators in accordance with AWS *Standard Qualifications Procedures*.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver all materials to job site properly marked to identify the structure for which it is intended and at such intervals to allow uninterrupted progress of the work. Marking shall correspond to markings indicated on the shop drawings.

B. Store all members off the ground using pallets, platforms, or other supports.

C. Do not store materials on the structure in a manner that might cause distortion or damage to the members of the supporting structures.

D. In the event of damage, immediately make all repairs and replacements necessary at no additional cost to OWNER.

PART 2–PRODUCTS

2.01 MATERIALS–CARBON STEEL

A. Steel Sections:
   1. ASTM A36 (channels, angles, plates).
   2. ASTM A992 (wide flange sections).
   3. Pipe: ASTM A53, Grade B.
   4. Tubes: ASTM A500, Grade B.
   5. Silicon content of steel members to be hot-dipped galvanized shall be in the range of 0 to 0.04%. Submit mill test reports confirming compliance.

B. Sheet Steel: ASTM A1011.

C. Plain Washers: Round carbon steel complying with FS FF-W-92.

D. Bolts, Threaded Rods, and Nuts: ASTM A307 Grade A, or galvanized to ASTM A153 for galvanized components for exterior use and where built into exterior walls.

E. Lock Washers: Helical spring-type carbon steel complying with FS FF-W-84.

F. Welding Electrodes: Comply with AWS D1.1. E70XX electrodes for carbon steel. For ASTM A992 steel and any other steel with 50 ksi or greater yield strength, use only E7018 or other E70XX electrodes specifically permitted by AWS D1.1.

G. Select fasteners for the type, grade, and class required.

2.02 MATERIALS–STAINLESS STEEL

A. Unless otherwise noted, all stainless steel bars and shapes shall meet the requirements of ASTM A276 and shall be Type 316L.

B. Unless otherwise noted, all stainless steel bolts shall meet the requirements of ASTM F593 and shall be Type 316L.

C. Unless otherwise noted, all stainless steel nuts shall meet the requirements of ASTM F594 and shall be Type 316L.

D. If components are not available in Type 316L, other 300 Series type shall be used as approved by ENGINEER.

E. Welding Electrodes:
   1. Comply with AWS D1.6.
   2. Use ER316L electrodes for 316L stainless steel.
   3. Use ER308L electrodes for 304L stainless steel.

2.03 MATERIALS–ALUMINUM

A. Extruded Aluminum: ASTM B221, Alloy 6061, Temper T6.

B. Sheet Aluminum: ASTM B209, Alloy 3005.

C. Aluminum-Alloy Bars: ASTM B211, Alloy 6061, Temper T6.

D. Bolts, Nuts, and Washers: Stainless steel.

E. Welding Materials: AWS D1.2; type required for materials being welded.

2.04 ACCESSORIES

A. Stair Treads: Stair treads for aluminum stairs shall be constructed of nonslip grating and shall have an integral nosing. Treads shall be IKG Industries, or equal, serrated, aluminum swage-locked treads with 1 1/4-inch abrasive nosing.

2.05 FABRICATION

A. Fabrication and Assembly:
   1. Fabricate items of structural steel in accordance with AISC Specifications and as indicated on the approved shop drawings.
   2. Properly mark and match-mark materials for field assembly and for identification as to structure and site for which intended.
   3. Fabricate for delivery sequence which will expedite erection and minimize field handling of materials.
   4. Where finishing is required, complete the assembly, including welding of units, before start of finishing operation.
   5. Provide finish surfaces of members exposed in the final structure free of markings, burrs, and other defects.

B. Connections:
   1. Bolts and washers of all types and sizes shall be provided for completion of all field erection.
   2. Comply with AWS Code for procedures, appearance, and quality of welds used in correcting welded work.
   3. Assemble and weld built-up sections to produce true alignment of axes without warp.
   4. Welding shall be done by the shielded arc process.
   5. All welds shall be chipped, ground smooth, and primed immediately after fabrication.

C. Workmanship:
   1. Use materials of size and thickness shown or, if not shown, of size and thickness to produce strength and durability in the finished product.
   2. Work to dimensions shown or accepted on the shop drawings using proven details of fabrication and support.
   3. Form exposed work true to line and level, with accurate angles and surfaces, and with straight sharp edges.
   4. Form bent metal corners to smallest radius possible without causing grain separation or otherwise impairing works.
   5. Cap all open ends of pipe and structural tubing.
   6. Weld corners and seams continuously, complying with AWS recommendations. At exposed connections, grind exposed welds smooth and flush; match and blend with adjoining surfaces.
   7. Provide for anchorage of the type shown. Coordinate with supporting structures. Fabricate and space the anchoring devices to provide adequate support for intended use.
   8. Cut, reinforce, drill, and tap miscellaneous metal work as indicated to receive hardware and similar items.

2.06 MISCELLANEOUS METAL FABRICATION

A. Metal Stairs:
   1. Fit and shop-assemble components in largest practical sections for delivery to site.
   2. Fabricate components with joints tightly fitted and secured.
   3. Supply components for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.
   4. Treads and risers for metal pan stairs shall be fabricated with 14 gauge sheet steel, closed risers, treads ready to receive concrete.
   5. Aluminum grating stair treads shall be bolted to stringers with aluminum or stainless steel bolts.
   6. Aluminum safety treads shall be screwed to aluminum carrier angles.

B. Aluminum Ladder: Provide fixed aluminum ladder. Aluminum ladder shall have serrated surface on rungs.

C. New Safety Climb Equipment:
   1. Safety Climb Equipment: Provide a safety climb device on all ladders. Fall protection system components shall be supplied by the same company. System supplied shall conform to OSHA standards.
   2. The top bracket of the safety climb equipment shall extend above the platforms at the tops of the ladders. The top of the usable cable shall be at the top of the ladder above the platform. Where roof hatches prohibit standard extensions, Telescoping Top Bracket shall be installed. DBI/SALA LAD-SAF galvanized Flexible Cable Ladder System. Provide two DBI/SALA safety sleeves with Saflok carabiner 6160054.

D. Weirs and Baffles: Weirs and baffles shall be fiberglass. See Section 06 61 14–Fiberglass Weirs, Baffles and Troughs for fiberglass.

2.07 FINISHES

A. Carbon steel surfaces shall be prepared by abrasive blasting to SSPC-SP10 as specified in Section 09 91 00–Painting.

B. Do not prime surfaces where galvanizing or field welding is required.

C. Immediately after surface preparation, prime paint carbon steel items with one coat in accordance with manufacturer's instructions and Section 09 91 00–Painting.

D. Structural Steel Members: Galvanize after fabrication to the requirements in this section and ASTM A123.

E. Surfaces that will be inaccessible after assembly or erection shall be finish painted prior to assembly or erection.

F. Galvanizing:
   1. All items, except piping designated to be galvanized, shall be hot-dipped galvanized in accordance with ASTM Specification A123 and A153. Piping shall be hot-dipped galvanized in accordance with ASTM A53. Furnish a Certificate of Compliance stating that the galvanizing complies with ASTM Specifications and Standards and all other applicable requirements specified herein.
   2. Fabrication of items to be galvanized shall be in accordance with ASTM A143, A384, and A385. Structural steel shall be fabricated generally in accordance with Class 1 guidelines as shown in *Recommended Details for Galvanized Structures* as published by the American Hot Dip Galvanizer's Association, Inc.
   3. Galvanized items shall be handled, transported, and stored to prevent damage or staining to the coating. Maintain adequate ventilation and continuous drainage.
   4. Silicon content for steel to be hot-dipped galvanized shall be in the range of 0 to 0.04%.
   5. Steel work shall be precleaned utilizing a caustic bath, acid pickle and flux, or shall be blast cleaned and fluxed. In either case, all surface contaminants and coatings shall be removed.
   6. All welding shall be performed in accordance with the American Welding Society publication D19.0-72, *Welding Zinc Coated Steel*. All uncoated weld areas shall be touched up.

G. Aluminum shall have a mill finish unless otherwise specified. Any aluminum in contact with concrete or dissimilar metal shall be coated with multiple coats of bituminous paint, minimum 10 mils dry.

PART 3–EXECUTION

3.01 EXAMINATION

A. Correct conditions detrimental to the proper and timely completion of the work.

B. Do not proceed until unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Furnish setting drawings, diagrams, templates, instructions, and directions for installation of anchorages such as concrete inserts, anchor bolts, and miscellaneous items having integral anchors which are to be embedded in concrete construction.

B. Coordinate delivery of such items to project.

C. Clean and strip primed steel items to bare metal where site welding is required.

3.03 INSTALLATION

A. Setting Precast Anchorages:
   1. Clean bearing surfaces free from bond-reducing materials, and roughen to improve bond to surfaces. Clean the bottom surface of bearing plates.
   2. After the bearing members have been positioned and plumbed, tighten and anchor bolts. Do not remove wedges or shims, but if protruding, cut off flush with the edge of the bearing plate before packing with grout.
   3. Pack grout solidly between bearing surfaces and plates so that no voids remain.

B. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing miscellaneous metal fabrications to in-place construction including threaded fasteners for concrete inserts, toggle bolts, through bolts, lag bolts, wood screws, and other connectors.

C. Cutting, Fitting, and Placement:
   1. Perform cutting, drilling, and fitting for installation of miscellaneous metal fabrications.
   2. Set work accurately in location, alignment, and elevation and make plumb, level, true, and free from rack measured from established lines and levels.
   3. Fit exposed connections accurately together to form tight hairline joints.
   4. Weld connections that are not to be left as exposed joints, grind joints smooth, and touchup shop paint coat or galvanizing repair.

D. Install Safety Climb Equipment:
   1. After all other work is completed, install the new safety climb equipment to all ladders.
   2. Safety climb equipment on the shaft ladders shall extend above the platforms. Provide telescoping brackets as required to accommodate equipment.
   3. Safety climb equipment shall be inspected and the installation shall be approved by a representative of the manufacturer.

3.04 FIELD WELDING

A. Comply with AWS Code for procedures of manual shielded metal arc welding (steel, stainless steel) and gas metal arc welding (aluminum), appearance and quality of weld made, and methods in correcting welding work.

3.05 TOUCH-UP PAINTING

A. Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with same material as used for shop painting in accordance with Section 09 91 00–Painting.

3.06 GALVANIZING REPAIR

A. Areas damaged by welding, flame-cutting, or during handling, transport, or erection shall be repaired by one of the following methods whenever damage exceeds 3/16 inch in width.
   1. Cold Galvanizing Compound:
      a. Surfaces to be reconditioned with zinc-rich paint shall be clean, dry, and free of oil, grease, and corrosion products.
      b. Areas to be repaired shall be power disc-sanded to bright metal. So that a smooth reconditioned coating can be effected, surface preparation shall extend into the undamaged galvanized coating.
      c. Touch-up paint shall be an organic cold-galvanized compound having a minimum of 94% zinc dust in the dry film.
      d. The paint shall be spray- or brush-applied in multiple coats until a dry film thickness of 8 mils minimum has been achieved. A finish coat of aluminum paint shall be applied to provide a color blend with the surrounding galvanizing.
      e. Coating thickness shall be verified by measurements with a magnetic or electromagnetic gauge.
   2. Zinc-Based Solder:
      a. Surfaces to be reconditioned with zinc-based solder shall be clean, dry, and free of oil, grease, and corrosion products.
      b. Areas to be repaired shall be wire-brushed.
      c. Heat shall be applied slowly and broadly close to but not directly onto the area to be repaired. The zinc-based solder rod shall be rubbed onto the heated metal until the rod begins to melt. A flexible blade or wire brush shall be used to spread the melt over the area to be covered. The zinc-based solder shall be applied in a minimum thickness of 2 mils.
      d. Coating thickness shall be verified by measurements with a magnetic or electromagnetic gauge.

3.07 SCHEDULE

A. The following schedule is a list of principal items only. Refer to Drawing details for items not specifically scheduled.

B. Guard Posts: Steel pipe, concrete-filled, crowned cap, as detailed-galvanized and field finish paint in accordance with Division 09.

C. Lintels: Shop prime paint finish for interior wall lintels; galvanized and field finish paint in accordance with Division 09 for exterior wall lintels. Lintels approved by ENGINEER shall be placed over all masonry openings, even if not shown on the Drawings. See lintel schedule on the Drawings.

D. Door Frames for Overhead Door Openings: Sill angle sections-galvanized finish.

E. Aluminum stairs, serrated aluminum treads and landings. Mill finish.

F. Stainless steel ladder, mill finish.

G. Monorail Beams: Shop primed and field finish painted. Stencil capacity on beam.

END OF SECTION

SECTION 05 52 00

HANDRAILS AND RAILINGS

PART 1–GENERAL

1.01 SUMMARY

A. Work includes steel and aluminum handrails, railings, fittings, and self-closing gates.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. ASTM A53–Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.

B. ASTM B241–Standard Specification for Aluminum and Aluminum-Alloy Seamless Pipe and Seamless Extruded Tube.

1.03 DESIGN REQUIREMENTS

A. Railings, handrails, and self-closing gates shall be designed in accordance with and meet the applicable requirements of the Occupational Safety and Health Act and the 2018 International Building Code.

B. Submit engineering calculations for all rails, posts, and connections demonstrating compliance with the design requirements. Calculations shall be stamped by a Iowa Professional Engineer.

PART 2–PRODUCTS

2.01 ALUMINUM RAILING SYSTEM

A. Provide a mechanically joined pipe railing system, Tabco 2500 Railing System as manufactured by Tuttle Aluminum and Bronze Co. or equal.

B. Rails shall be ASTM B241, Aluminum Alloy 6063-T6, 6005-T5, or 6105-T5, Schedule 40, 1 1/2-inch-diameter pipe extrusion.

C. Posts shall be ASTM B241, Aluminum Alloy 6063-T6, 6005-T5, or 6105-T5, Schedule 40, 1 1/2-inch-diameter pipe.

D. Furnish and install 4-inch by 1/4-inch toeboards where shown or noted on the Drawings, or where required by OSHA 1910.29(k).

E. Furnish and install self-closing aluminum gates with stainless steel torsion springs at openings in railings providing points of access as shown on the Drawings.

F. Provide expansion joints in railing and toeboards at expansion joints in structures and as necessary to prevent buckling or buildup of stresses. Expansion joints shall occur within 1 foot of posts.

G. Finished joints shall be smooth.

H. All rails, posts, toeboards, and connectors shall have a M10C22A41 clear anodized finish.

I. Posts shall be anchored to the top of walls and decks with a flange base plate. Base plate shall reinforce the bottom end of the post as required to meet OSHA design criteria.

J. Stainless steel adhesive or expansion bolt anchoring system, in accordance with manufacturer's recommendations, shall be used.

K. All accessories and connections for aluminum rails and posts shall be aluminum or stainless steel.

L. Any aluminum in contact with concrete or dissimilar metal shall be coated with multiple coats of bituminous paint, minimum 10 mils dry.

PART 3–EXECUTION

3.01 INSTALLATION

A. Install all railing in accordance with approved shop drawings and manufacturer's instructions providing a complete installation.

B. Install components plumb and level, accurately fitted, and free from distortion or defects.

C. Clean all components as recommended by railing manufacturer.

D. Self-closing gates shall be installed to slide or swing away from the open edge (toward platform or walking surface).

END OF SECTION

SECTION 05 53 00

GRATING AND FLOOR PLATES

PART 1–GENERAL

1.01 SUMMARY

A. Work includes
   1. Floor and Stair Tread Grating.
   2. Checkered Floor Plate.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. ASTM A123–Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

B. NAAMM Metal Bar Grating Manual ANSI NAAMM MBG531 and MBG532.

C. ASTM B221-Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

1.03 PERFORMANCE REQUIREMENTS

A. Floor grating shall be designed for a maximum deflection of 1/4 inch when supporting a 100 psf uniform load.

B. Checkered floor plate thickness shall be determined based on a maximum deflection of L/150 of the short side or a stress of 28,000 psi under a 100 psf uniform load. The larger plate thickness shall govern. Where plate thickness does not meet these requirements, or where a thinner plate is desired, CONTRACTOR shall design and provide welded aluminum stiffeners that, in combination with the provided floor plate, meet these load and deflection requirements.

1.04 FIELD MEASUREMENTS

A. Take all field measurements prior to preparation of shop drawings. Verify that field measurements are as indicated on shop drawings.

PART 2–PRODUCTS

2.01 ALUMINUM FLOOR GRATING

A. All grating, unless otherwise specified, shall be rectangular bar style, swage-locked aluminum floor grating with serrated surface.

B. Acceptable manufacturers include the following or equal: Harsco Industrial, IKG Type S-19-4-BS.

C. All edges of the grating and all openings in the grating for pipe and miscellaneous equipment shall be banded by welding on minimum 1/8-inch-thick bars. The band shall have less depth than the bearing bars to permit drainage.

D. Individual sections shall be of a size to permit ease in handling with a maximum length not in excess of 8 feet. Weight of individual sections shall not exceed 75 pounds.

E. Where possible, provide a 12-inch-wide section of grating over each stop gate and over each valve operating nut.

F. All aluminum grating support angles shall be aluminum. Support angles shall be provided at the bearing ends of all grating. This includes locations such as wall openings and corners. Support angles shall also be provided at the nonbearing ends of grating where shown on the Drawings.

G. For aluminum grating stair treads, refer to Section 05 50 00–Metal Fabrications.

H. Provide 4-inch by 1/4-inch toeboards anchored to edge of grating at all slide gates in grated areas.

2.02 ALUMINUM CHECKERED FLOOR PLATE

A. Aluminum checkered plate shall be manufactured from aluminum alloy 6061-T6.

B. Provide welded aluminum stiffeners for checkered plate where required by design.

C. Support angles for floor plate shall be aluminum.

D. Provide hand hole in each plate.

E. Plate size shall be limited to a maximum weight of 75 pounds.

2.03 FINISHES

A. Protection of Aluminum from Dissimilar Materials:
   1. Where aluminum surfaces come into contact with dissimilar metals, surfaces shall be kept from direct contact by painting the dissimilar metal with multiple coats of bituminous paint, minimum 10 mils dry, or other approved insulating material.
   2. Where aluminum surfaces come into contact with dissimilar materials such as concrete, masonry, or lime mortar, exposed aluminum surfaces shall be painted with multiple coats of bituminous paint, minimum 10 mils dry, or other approved insulating material.

PART 3–EXECUTION

3.01 EXAMINATION

A. Verify that opening sizes and dimensional tolerances are acceptable.

B. Prior to installation, CONTRACTOR shall inspect supports for correct size, layout, and alignment. Any inconsistencies between Contract Drawings and supporting structure deemed detrimental to placement shall be reported in writing to ENGINEER prior to placement.

3.02 INSTALLATION

A. Place embedded frames and supports in correct position, plumb and level. Provide blocking as required to maintain alignment of sections.

B. Seal small gaps between embedded angles at face of wall with backer rod to prevent concrete entry.

C. All aluminum floor grating shall be secured to supporting members with aluminum or stainless steel saddle clips supplied by the grating manufacturers. Stud bolts and other hardware shall be supplied by CONTRACTOR.

D. Install in accordance with shop drawings and standard installation clearances as recommended by the NAAMM Metal Bar Grating Manual.

E. Cutting, Filling, and Placement:
   1. Perform all cutting and fitting required for installation.
   2. Cutouts for circular obstructions are to be at least 2 inches larger in diameter than the obstruction. Cutouts for all piping 4 inches or less shall be made in the field.
   3. All rectangular cutouts are to be made to the next bearing bar beyond the penetration with a clearance not to exceed bearing bar spacing.
   4. Utilize standard panel widths wherever possible.

END OF SECTION

SECTION 05 56 00

ANCHOR BOLTS AND POST-INSTALLED ANCHORS

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
   1. Anchor Bolts.
   2. Expansion Bolt.
   3. Adhesive Anchors.
   4. Screw Anchors.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. ASTM A36/A36M–Standard Specification for Carbon Structural Steel.

B. ASTM F1554–Anchor Bolts, Steel, 36, 55, and 105-ksi yield strength.

C. ICC-ES International Code Council–Evaluation Service.

D. AC 193–Acceptance Criteria for Mechanical Anchors in Concrete Elements.

E. AC 308–Acceptance Criteria for Post-Installed Adhesive Anchors in Concrete.

F. ACI 355.2–Qualification of Post-Installed Mechanical Anchors in Concrete and Commentary.

G. ACI 355.4–Qualification of Post-Installed Adhesive Anchors in Concrete and Commentary.

PART 2–PRODUCTS

2.01 GENERAL

A. Unless indicated otherwise on the drawings or specified, use the following bolt material for the various installation situations:
   1. Stainless Steel: For all submerged locations, below final grade, and in contact with aluminum appurtenances and other items not to be painted. Also for anchoring equipment, unless otherwise specified.
   2. Steel: In other locations in contact with items to be painted or encased in concrete.

2.02 ANCHOR BOLTS

A. Anchor bolts complete with washers and nuts shall be fabricated as shown or as specified by the equipment manufacturer and unless otherwise indicated shall be hot-dip galvanized carbon steel or 316 stainless steel. Anchor bolts shall, as a minimum, conform to the requirements of ASTM F1554-Grade 36.

B. Stainless steel anchor bolts shall be used in all submerged locations, below final grade, and in contact with aluminum and other items not to be painted. Galvanized anchor bolts shall be used elsewhere.

2.03 EXPANSION BOLTS

A. Expansion bolts shall be KWIK Bolt TZ by Hilti, Inc., Power-Stud+ SD2, SD4, or SD6 by DeWalt, Strong-Bolt or Strong-Bolt 2 by Simpson Strong-Tie Anchor Systems, or approved equal.

B. All expansion bolts shall comply with the 2018 International Building Code, AC 193, and ACI 355.2. They shall be ICC-ES approved for use in cracked and uncracked concrete.

C. Expansion bolts will not be permitted as substitutes for embedded anchor bolts except with the prior written acceptance of ENGINEER or where otherwise specifically called for.

2.04 ADHESIVE ANCHORS

A. Adhesive anchors shall be HIT HY 200 by Hilti, Inc., Red Head C6+ or Red Head A7+ by ITW, Pure 110+ or AC200+ by DeWalt, Set-XP by Simpson Strong-Tie Anchor Systems, or approved equal.

B. All adhesive anchors shall comply with the 2018 International Building Code, AC 308, and ACI 355.4. They shall be ICC-ES approved for use in cracked and uncracked concrete.

2.05 SCREW ANCHORS

A. Screw anchors shall be KWIK HUS-EZ by Hilti, Inc., Screw-Bolt by DeWalt, Titen-HD by Simpson Strong-Tie Anchor Systems, or approved equal.

B. All screw anchors shall comply with the 2018 International Building Code. They shall be ICC-ES approved for use in cracked and uncracked concrete.

PART 3–EXECUTION

3.01 ANCHOR BOLTS

A. Anchor bolts for structural members shall be located as shown and specified.

B. Anchor bolts for mechanical equipment shall have embedment length, edge distances, and spacing as required by the equipment manufacturer.

C. All dirt or foreign materials shall be removed prior to embedding into concrete. After anchor bolts have been embedded, their threads shall be protected by grease and by installing the nuts or by other means until the time of installation of the equipment or metal work.

3.02 EXPANSION BOLTS

A. Unless otherwise noted on the Drawings, expansion bolt edge distance and spacing shall be in accordance with manufacturer’s printed installation instructions.

B. Bolt embedment shall at least equal 6-bolt diameters.

C. Installation procedures shall be in accordance with the manufacturer's printed installation instructions.

D. Where location of bolts is adjustable, reinforcing steel shall be located prior to drilling holes and bolts shall be located to clear reinforcing steel.

3.03 ADHESIVE ANCHORS

A. At locations shown on the Drawings, reinforcing bars or threaded rod shall be provided in existing concrete by drilling holes, injecting epoxy adhesive, and inserting the reinforcing bar.

B. All existing surfaces to receive adhesive anchors, including the entire area in contact with the new concrete, shall be cleaned and roughened to amplitude of 1/4 inch.

C. Installation procedures shall be in accordance with the manufacturer's printed installation instructions.

D. Adhesive anchors shall be installed in concrete having a minimum age of 21 days at time of installation.

E. Where location of anchors is adjustable, reinforcing steel shall be located prior to drilling holes and anchors shall be located to clear reinforcing steel.

F. CONTRACTOR shall arrange an anchor manufacturer's representative to provide on-site installation training for installation of their adhesive anchor system products. Submit documentation that all CONTRACTOR's personnel or subcontractors who install adhesive anchors have been trained prior to the announcement of anchor installation.

G. Adhesive anchors in horizontal and upwardly inclined orientations to resist sustained tension loads are subject to the following requirements:
   1. They shall be installed by personnel certified by an applicable certification program. Certification shall include written and performance tests in accordance with the ACI/CRSI Adhesive Anchor Installer Certification program, or equivalent, as approved by ENGINEER.
   2. They require continuous special inspection during installation. CONTRACTOR shall notify ENGINEER and SPECIAL INSPECTOR of the schedule for these anchor installations to permit coordination of inspections.

3.04 SCREW ANCHORS

A. Unless otherwise noted on the Drawings, screw anchor edge distance and spacing shall be in accordance with manufacturer's recommendations.

B. Anchor embedment shall at least equal 6-bolt diameters.

C. Installation procedures shall be in accordance with the manufacturer's printed installation instructions.

D. Where location of anchors is adjustable, reinforcing steel shall be located prior to drilling holes and anchors shall be located to clear reinforcing steel.

END OF SECTION

SECTION 06 11 00

WOOD FRAMING AND SHEATHING

PART 1–GENERAL

1.01 SUMMARY

A. Work included:
   1. Structural Floor, Wall, and Roof Framing.
   2. Floor, Wall, and Roof Sheathing.
   3. Miscellaneous Framing and Sheathing.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. ALSC–American Lumber Standards Committee.

B. APA–American Plywood Association.

C. AWPA–American Wood Preservers Association.

D. NFPA–National Forest Products Association.

E. NLGA–National Lumber Grades Authority.

F. SPIB–Southern Pine Inspection Bureau.

G. WCLIB–West Coast Lumber Inspection Bureau.

H. WWPA–Western Wood Products Association.

1.03 DELIVERY, STORAGE, AND HANDLING

A. Protect lumber and other building materials and keep under cover both in transit and at the job site. Protect from dampness. Stack framing lumber and plywood to provide proper air circulation. Locate stacks on well-drained areas. Support 6 inches above grade and protect with waterproof cover.

PART 2–PRODUCTS

2.01 MATERIALS

A. Lumber shall be kiln-dried with moisture content not to exceed 19% at time of installation and grade marked according to the National Lumber Manufacturer’s Association.

B. All studs shall be 2 inches by 4 inches nominal or 2 inches by 6 inches nominal as shown on the Drawings and shall be No. 2 Douglas Fir, No. 2 Southern Pine, or better.

C. All roof joists, ceiling joists, and floor joists shall be No. 2 Southern Pine or better.

D. Plywood roof, wall, and ceiling sheathing shall be grade C-D (CDX), Exposure 1, or better, graded in accordance with the American Plywood Association.

E. Wood sills, plates, blocking, etc., to be same grade as studs.

PART 3–EXECUTION

3.01 FRAMING

A. General: All rough framing lumber and all other wood framing, studs blocking, and furring shall be accurately set to required lines and levels, closely fitted, shimmed, and rigidly secured in place.

B. Place all wood studs in sizes as shown and spaced at 16 inches o.c., unless noted otherwise. Erect studs on single bottom and single top plate at nonbearing walls, double studs at all openings, triple studs at corners. Install blocking between studs as required. Bolt plates and blocking to concrete at 32-inch centers, unless noted otherwise. Space framing to receive electrical piping or ductwork without cutting joist. Verify all duct and piping runs prior to framing to eliminate conflict. Stud walls shall extend a minimum of 8 inches above the ceiling line. Stud walls shall be adequately braced off of other stud walls and/or masonry walls.

C. Construct load bearing, framing, and curb members full length without splices.

D. Provide double studs at openings over 24 inches wide. Space short studs over and under opening to stud spacing.

E. Unless shown otherwise, provide double joists at floor and ceiling openings over 24 inches wide and under wall stud partitions that are parallel to floor joists. Frame rigidly into joists.

F. Unless shown otherwise, provide mid-span bridging between joists spanning 12 feet or more. Unless shown otherwise, provide solid wood blocking at ends of joists placed between alternate joist spaces.

3.02 PLYWOOD SHEATHING

A. Plywood sheathing shall be nailed at 6 inches on center at edges and 12 inches on center at intermediate supports with 10d common nails.

B. Secure roof sheathing perpendicular to framing members with ends staggered and sheet ends over firm bearing. Use sheathing clips between sheets between roof framing members, or provide solid edge blocking between sheets.

C. Secure wall sheathing with long dimension parallel to wall studs with ends over firm bearing and staggered.

3.03 CONNECTIONS

A. All framing connections and nailing shall be in accordance with the details shown and/or the 2018 International Building Code minimum requirements, whichever is more restrictive.

B. Framing connectors shall be Simpson Strong Tie, Mitek, or equal. Connector numbers shown on details are Simpson. Submit engineering data on any substitutes.

C. Connectors shall be installed in accordance with manufacturer's requirements.

END OF SECTION

SECTION 06 11 10

WOOD BLOCKING AND CURBING

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
   1. Roof Curbs and Cants.
   2. Wood Blocking.
   3. Preservative Treatment of Wood.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. ALSC–American Lumber Standards Committee.

B. AWPA–American Wood Preservers Association.

C. ICC-ES–International Code Council Evaluation Service.

D. NFPA–National Forest Products Association.

E. NLGA–National Lumber Grades Authority.

F. SPIB–Southern Pine Inspection Bureau.

G. WCLIB–West Coast Lumber Inspection Bureau.

H. WWPA–Western Wood Products Association.

1.03 SUBMITTALS

A. Submittals shall be in accordance with Section 01 33 00–Submittals.

B. Submit ICC-ES Evaluation report for each preservative treatment product to be used.

1.04 DELIVERY, STORAGE, AND HANDLING

A. All materials shall be thoroughly sealed and protected from weather during transport and at the jobsite. Protect from dampness.

PART 2–PRODUCTS

2.01 MATERIALS

A. Lumber for roof curbs, cants, and blocking shall be “standard” grade Douglas Fir, No. 2 Southern Pine, or better, graded in accordance with the WWPA, WCLIB, NLGA, or SPIB grading rules as applicable. Lumber shall bear the grading agency’s stamp.

B. Wood shall be kiln-dried with moisture content not to exceed 19% at time of installation.

C. All lumber furnished under this section shall be pressure-treated with a micronized copper azole (MCA) or chromated copper arsenate (CCA) waterborne preservative to a minimum retention in pounds per cubic foot of preservative actives as required by the manufacturer to meet the relevant use category as defined in AWPA Standard U1-24–User Specification for Treated Wood.

D. MCA and CCA preservative treatment shall comply with AWPA Standards P61 and P23, respectively.

PART 3–EXECUTION

3.01 INSTALLATION

A. Provide and install wood curbs, cants, and blocking of proper size and shape where shown on the Drawings and where required to secure other work or equipment in place.

B. Members shall be installed true to lines, level, plumb, and secure.

C. Connections and nailing shall be in accordance with the details shown and/or the 2018 International Building Code minimum requirements, whichever is more restrictive.

D. Apply brush-on wood preservative treatment to cuts in accordance with manufacturer’s recommendations.

END OF SECTION

SECTION 06 17 53

PLATE CONNECTED WOOD TRUSSES

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
   1. All Materials, Equipment, and Labor Necessary for the Prefabrication, Delivery, and Permanent Setting of Wood Trusses on Buildings.
   2. Bridging.
   3. Temporary and Permanent Bracing.
   4. Related Hardware.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. ALSC–American Lumber Standards Committee.

B. APA–American Plywood Association.

C. ASTM A653–Sheet Steel, Zinc-Coated (Galvanized) by the Hot Dip Process, (Structural Physical) Quality.

D. AWPA–American Wood Preservers Association.

E. NFPA–National Forest Products Association.

F. SPIB–Southern Pine Inspection Bureau.

G. TPI–Truss Plate Institute.

H. WWPA–Western Wood Products Association.

1.03 DESIGN REQUIREMENTS

A. The basic design loads shall be in accordance with the 2018 International Building Code.

B. Dead Loads and Collateral Loads: Trusses shall be designed for a top chord dead load of 10 psf.

C. Live Loads:
   1. Roof live load and snow load shall be computed in accordance with the 2018 International Building Code using ground snow load, snow load importance factor, and snow exposure and thermal factors as tabulated on the Drawings. Minimum roof live load shall be 20 psf. Snow load and minimum roof live load shall be applied to the top chord.
   2. Design for unbalanced snow loads in accordance with the building code.

3. Roof live loads shall be applied to the horizontal projection of the roof.

D. Wind Loads: Wind loads shall be computed in accordance with the 2018 International Building Code using wind speed, exposure category, and importance factor as tabulated on the Drawings.

E. Concentrated Loads: Design for any concentrated loads shown on the Drawings.

F. Combination of Loads: The combining of loads for design purposes shall be as prescribed with the 2018 International Building Code.

1.04 SUBMITTALS

A. Submittals shall be as in Section 01 33 00–Submittals.

B. Professional Engineer: All truss designs shall bear the name and seal of a State of Iowa licensed professional engineer. CONTRACTOR shall be responsible for submitting the required additional copies of truss drawings with original stamp and signature for submittal to the State of Iowa. These materials must be submitted prior to installation.

C. Truss designs shall include the following information: Pitch, span, dimensions, and spacing of trusses; truss bearing sizes and locations; design loading of truss and allowable stress increase; axial forces in each truss member; nominal sizes and location of connector plates at all joints; size, species, and stress of grade of lumber for all truss members; camber; permanent lateral bracing as required by design to reduce buckling length of individual truss members; and handling and erection recommendations. Where sheathing is not attached directly to truss bottom chords, provide bottom chord bracing and bridging as required by design to resist wind uplift loads.

1.05 QUALITY ASSURANCE

A. The design and fabrication criteria of all wood trusses shall meet the following:
1. “National Design Specifications for Stress-Grade Lumber and its Fastenings,” by National Forest Products Association (latest revision).
2. “Timber Construction Standards,” by American Institute of Timber Construction (latest revision).
3. “Design Specifications for Light Metal Plate Connected Wood Trusses,” by Truss Plate Institute (latest revision).
4. 2018 International Building Code.

B. Fabricator Manufacturer: Minimum three years experience in successful fabrication of trusses comparable to type indicated for this project.

C. Design Trusses under direct supervision of a professional engineer experienced in design of this work and licensed in the State of Iowa.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Fabricated trusses and subcomponents shall be so handled and stored that they are not subject to damage.

B. If the trusses are to be stockpiled prior to erection, sufficient bearing points and/or bracing shall be provided to prevent excessive lateral bending or tipping over.

PART 2–PRODUCTS

2.01 MATERIALS

A. Lumber:
1. All lumber used for truss members shall be Spruce-Pine-Fir, Douglas Fir, Southern Pine, Hem-Fir, or Western Larch and shall conform to lumber for trusses and shall have a minimum nonrepetitive fiber bending strength of 1,050 psi. If design calls for use of a lumber with greater strength, then that lumber shall be used for the associated members.
2. At the time of delivery, the moisture content of all lumber shall not exceed 19% kiln-dried.
3. All lumber shall conform to the species and shall be fully recognized nominal sizes shown on the Drawings or truss engineering design.
4. All members shall be cut from lumber which bear the proper grade-mark stamps of a licensed lumber inspection agency.

B. Connectors:
1. All truss connector plates shall be manufactured from ASTM A653, Grade A, prime commercial quality galvanized sheet steel of no less than 20-gauge thickness which has a minimum yield of 33,000 psi and a minimum ultimate tensile strength of 45,000 psi.
2. The corrosion-resistant coating shall be ASTM A924–Standard Specification for General Requirements for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process, General Requirements, Coating Designation C90 or G60, ASTM A879–Standard Specification for Steel Sheet, Zinc Coated by the Electrolytic Process for Applications Requiring Designation of the Coating Mass on Each Surface, Coating Class C, or such treatment as will give equivalent corrosion protection.
3. The connectors shall have a series of nail-like projections which are designed to separate the fibers of the wood into which they are pressed in accordance with accepted nailing practices.
4. Where field-assembly of truss subcomponents is necessary, the connections shall be in accordance with the details shown on the truss design drawings, approved by a Professional Engineer.

2.02 FABRICATION

A. All trusses and other roof structural components shall be fabricated in a properly equipped manufacturing facility of a permanent nature. They shall be manufactured by experienced workmen using precision cutting and truss fabricating equipment under the direct supervision of a qualified foreman. All trusses shall be fabricated under strict rules of inspection and quality control as the local code may require and be open to the observation of ENGINEER or its representative at all times.

B. All truss members shall be accurately cut to length, angle, and be true to line to provide tight joints for finished truss.

C. All truss members and connector plates shall be properly placed in special jigs and the members tightly clamped in place remaining in that position until the connector plates have been pressed into the lumber simultaneously on both sides of the joints.

D. Camber shall be built into the trusses, as noted on the engineering truss designs, by properly positioning the members in the fabricating jig. No camber will be allowed on the bottom chord.

PART 3–EXECUTION

3.01 ERECTION

A. Install trusses in accordance with manufacturer's instructions and TPI BWT (latest revision).

B. Framing anchors and/or truss hangers shall be provided by CONTRACTOR, as required, or detailed to withstand all loads, both dead and live, as well as wind and transfer loads to bearing.

C. Field erection of the trusses, including items such as handling, safety precautions, and temporary bracing to prevent toppling or the domino effect on the trusses during erection, and any other safeguards or procedures consistent with good workmanship and good building erection practices, shall be employed.

D. During the entire construction period, all contractors shall provide means for adequate distribution of concentrated loads so that the carrying capacity of any one truss and/or other component is not exceeded.

E. Proper erection bracing shall be installed to hold the trusses true and plumb and in safe condition until permanent truss bracing and bridging can be solidly nailed in place to form a structurally sound roof framing system. All erection and permanent bracing shall be installed and all components permanently fastened before the application of any loads. Provide all permanent bracing necessary for truss stability. Where sheathing is not attached directly to truss bottom chord and where required by design, provide bottom chord bracing and bridging as required to resist wind uplift loads.

F. Frame openings between trusses with lumber in accordance with Section 06 11 00–Wood Framing and Sheathing.

END OF SECTION

SECTION 06 40 00

ARCHITECTURAL WOODWORK

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
   1. Plastic Laminate Cabinets.
   2. Solid Surfacing Material.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. AWI–Quality Standards.

B. ANSI A156.9–American National Standard for Cabinet Hardware.

C. BHMA Cabinet Hardware Standard 201.

1.03 SUBMITTALS

A. Submit shop drawings showing location of each item, dimensioned plans and elevations, large scale details, attachment devices and other components.

1.04 QUALITY ASSURANCE

A. Except as otherwise shown or specified, the work shall comply with specified provisions of the Architectural Woodwork Institute (AWI) “Quality Standards.”

B. For following types of architectural woodwork; comply with indicated standards as applicable:
   1. Casework and Countertops: AWI Section 400.
   2. Shelving: AWI Section 600.
   3. Miscellaneous Work: AWI Section 700.

PART 2–PRODUCTS

2.01 MATERIALS

A. General: Provide materials that comply with requirements of the AWI quality standards for each type of woodwork and quality grade specified, unless otherwise noted.

B. Wood Moisture Content: Provide kiln-dried lumber with an average content range of 9% to 13% for exterior work and 6% to 11% for interior work. Maintain temperature and relative humidity during fabrication, storage, and finishing operations so that moisture content values for woodwork at time of installation do not exceed 5% to 10%.

C. Interior wood for transparent finish shall be plain sliced maple.

D. Wood Panel Products: Comply with the following:
   1. Particle board: ANSI A208.1, Grade M-2.
   2. Sky Blend particle board (SCS Certified 100% pre-consumer recycled wood fiber particle board with below .04 ppm formaldehyde emissions) as supplied by Roseburg Forest Products, 1-800-245-1115, or equal.

E. Thermoset Decorative Overlay: Medium-Density fiberboard complying with ANSI A208.2, Grade MD, with surface of thermally fused, melamine-impregnated decorative paper complying with LMA SAT-1.

F. High Pressure Decorative Laminate:
   1. NEMA LD3, grades as indicated, or if not indicated, as required by woodwork quality standard.
   2. Manufacturer to provide high-pressure decorative laminates to be Formica Corporation, Wilsonart International, or equal.

G. Adhesive for bonding plastic laminate: water-based contact cement.

H. Solid-Surfacing Material:
   1. Homogeneous solid sheets of filled plastic resin complying with material and performance requirements in ANSI 2124.3 for Type 5 or Type 6, without a precoated finish.
   2. Manufacturer to be Corian, Dupont Polymers, Vendura, Vendura Industries, Wilsonart, or equal.

I. Wood Casework for Transparent Finish:
   1. Comply with AWI Section 400 requirements for wood cabinets.
   2. Manufacturer to be Kraft Maid Cabinetry, Custom Built Cabinetry, or equal.

2.02 HARDWARE

A. General: Provide cabinet hardware and accessory materials associated with architectural woodwork, except for units which are specified as “door hardware” in other sections of these specifications.

B. Hardware Standards: Except as otherwise indicated, comply with ANSI A156.9:
   1. Quality Level: Type 2 (institutional), unless otherwise indicated.
   2. Quality Certification: Where available, provide cabinet hardware bearing the BHMA certification label affixed either to hardware or its packaging showing compliance with BHMA Cabinet Hardware Standard 201.

C. Cabinet Door Hardware: Provide hinges, catches and pulls of types indicated to properly accommodate each door size and style.

D. Drawer Hardware: Provide slides and pulls of types indicated to properly accommodate each drawer size and style.

E. Locks: Where indicated, provide standard pin-type or disc type (5 pins or disks) tumbler locks keyed individually, except as otherwise noted.

F. Hinges: Blum No. 335, or equal.

G. Shelf Supports: Where shelving is indicated as “adjustable,” provide slotted type standards and brackets to support uniform 40 pound-per-square-foot Knape and Vogt Manufacturing Company 255/256, or equal.

H. Drawer Slides: Side mounted full extension ball bearing nylon roller, rated for the following loads:
   1. Box Drawer Slides: 100 lbf.
   2. Pencil Drawer Slides: 45 lbf.
   3. Keyboard Slides: 75 lbf.

I. Pulls: Stanley Hardware No. 4477, or equal.

J. Sliding Door Pulls: Stanley Hardware No. 2689, or equal.

K. Magnetic Catches: Stanley Hardware No. 46, or equal.

L. Grommets: 2 1/2-inch-diameter black plastic with notched cover cap, Hughes plastic H404, H786, or equal.

M. Closet Bars: Telescoping steel or brass tubing with forged end brackets; size and wall thickness as required to support full continuous hanging of clothing.

N. Exposed Hardware Finish: Except where noted or not available, provide with BHMA Code 626 satin chromium plate finish (US26D) where not available provide either aluminum or satin stainless steel finish.

O. Concealed Hardware Finish: Provide manufacturer’s standard finish that complies with product class requirements in BHMA A156.9.

2.03 SHELVING

A. Wood storage shelving with transparent finish shall be custom grade and shall be Economy Grade (HPMA Sound Grade) hardwood plywood with matching hardwood edge bands on exposed edges. Provide matching end and closure panels (if any). Species shall be Plain Sliced Maple.

B. Finish for shelving shall meet the following requirements.
   1. General: The primary and prefinishing (if any) of architectural woodwork required to be performed at the shop or factory is specified as work of this section. Refer to Division 09 sections for final finishing of installed architectural woodwork.
   2. Preparations for Finishing: Comply with AWI Quality Standards, Section 1500, for sanding, filling countersunk fasteners, back priming, and similar preparations for finishing of architectural woodwork, as applicable to each unit of work.
   3. Transparent Finish:
      a. General Finish Standard: AWI Finish System No. 3, Premium Grade, open grain finish.
      b. Shop Application: Stain and sealer (match approved sample for color).
      c. Final Finish: Sanding, followed by two coats of clear alkyd-urea conversion varnish, rubbed to medium sheen.

2.04 FABRICATION, GENERAL

A. Interior Woodwork Grade: Provide premium grade interior woodwork complying with the referenced quality standard.

B. Wood Moisture Content: Comply with requirements of referenced quality standard for wood moisture content in relation to ambient relative humidity during fabrication and in installation areas.

C. Complete fabrication, including assembly and hardware application to maximum extent possible before shipment to project site.
   1. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming and fitting.
   2. Trial fit assemblies at fabrication shop that cannot be shipped completely assembled. Install dowels, screws, bolted connectors and other fastening devices that can be removed after trial fitting. Verify that various parts fit as intended and check measurements of assemblies against field measurements indicated on shop drawings before disassembling for shipment.

D. Shop cut openings to maximum extent possible to receive hardware, appliances, plumbing fixtures, electrical work and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs. Seal edges of openings in countertops with a coat of varnish.

2.05 PLASTIC-LAMINATE CABINETS

A. Quality Standard: Comply with AWI Section 400 requirements for laminate cabinets.

B. Grade: Premium.

C. AWI Type of Cabinet Construction: Flush overlay.

D. Core Materials: Sky Blend particle board.

E. Laminate Cladding for Exposed Surfaces: High-pressure decorative laminate complying with the following requirements:
   1. Horizontal Surfaces Other than Tops: GP.
   2. Vertical Surfaces: VST.
   3. Door and Drawer Edges: VST.

F. Materials for Semiexposed Surfaces: Provide surface materials indicated below:
   1. Surfaces Other Than Drawer Bodies: Thermoset decorative overlay.
   2. Drawer Sides and Backs: Thermoset decorative panels.
   3. Drawer Bottoms: Thermoset decorative panels.

G. Wood Grain Plastic Laminate Pattern: Orient wood grain vertically and provide continuous sequenced vertical match as follows:
   1. Between base cabinet doors and drawers.
   2. Between wall cabinet doors and soffit.

H. Colors, patterns and finishes to be selected by OWNER from manufacturer's standard products.

2.06 SOLID-SURFACING-MATERIAL COUNTERTOPS AND WINDOW SILLS

A. Quality Standard; Comply with AWI Section 400 requirements for countertops.

B. Grade: Premium.

C. Products: Provide the following, or equal:
1. Wilsonart.
2. Corian.

D. Solid-Surfacing-Material Thickness: 1/2 inch.

E. Colors, Patterns and Finishes to be selected by OWNER for manufacturer's standard products.

F. Fabricate tops in one piece with shop-applied backsplashes and edges unless otherwise indicated. Comply with solid-surfacing-material manufacturer's written recommendations for adhesives, sealers, fabrication and finishing.

G. Integral Sink Bowls: Install integral sink bowls in countertops in shop.
1. Sink bowl width: Not less than 16 inches.
2. Sink bowl depth: Provide sink bowls that allow not less than 27 inches clearance between bottom of sink bowl and finished floor surface.

H. Drill holes in countertops for plumbing fittings and soap dispensers in shop, as required.

2.07 SHOP FINISHING

A. Quality Standard: Comply with AWI Section 1500, unless otherwise indicated.

B. General: Finish paneling at fabrication shop as specified in this section. Defer only final touchup, cleaning and polishing until after installation.

C. Preparations for Finishing:
1. Comply with referenced quality standard for sanding, filling countersunk fasteners, sealing concealed surfaces, and similar preparations for finishing paneling as applicable to each unit of work.
2. Backpriming: Apply two coats of sealer compatible with finish coats to concealed surfaces of paneling.

D. Transparent Finish: Comply with requirements indicated below for grade, finish system, staining and sheen, with sheen measured on 60° gloss meter per ASTM D523.
1. Grade: Premium.
2. AWI Finish System: Conversion Varnish Transparent.
3. Sheen: Satin, 30-50 gloss units.

E. Transparent Finish for Woodstalk Machinable Fiberboard: Polyureseal BP, Interior Clear Gloss Satin, Safecoat, or equal.

F. Finish color to be selected by OWNER.

PART 3–EXECUTION

3.01 PREPARATION

A. Condition woodwork to average prevailing humidity conditions in installation areas prior to installing.

B. Prior to installation of architectural woodwork, examine shop-fabricated work for completion, and complete work as required including back priming and removal of packing.

3.02 INSTALLATION

A. Install the work plumb, level, true, and straight with no distortions. Shim as required using concealed shims. Install to a tolerance of 1/8 inch in 8 feet 0 inch for plumb and level (including countertops); and with 1/16-inch maximum offset in flush adjoining surfaces, 1/8-inch maximum offsets in revealed adjoining surfaces.

B. Scribe and cut work to fit adjoining work, and refinish cut surfaces, or repair damaged finish at cuts.

C. Anchor woodwork to anchors of blocking built-in or directly attached to substrates. Secure to grounds, stripping and blocking with countersunk concealed fasteners and blind nailing as required for a complete installation.

D. Except where prefinished matching fastener heads are required, use fine finishing nails for exposed nailing, countersunk, and filled flush with woodwork and matching final finish where transparent finish is indicated.

E. Casework: Install without distortion so that doors and drawers will fit openings properly and be accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete the installation of hardware and accessory items as indicated. Maintain veneer sequence matching (if any) of casework with transparent finish.

F. Countertops: Anchor securely to base units and other support systems.

G. Wood Storage Shelving: Complete the assembly of units and install in the areas indicated, including hardware and accessories as indicated.

3.03 PROTECTION

A. Installer of architectural woodwork shall advise CONTRACTOR of final protection and maintained conditions necessary so that work will be without damage or deterioration.

B. Cover completed work with 4 mil polyethylene film protective enclosure applied in a manner which will allow easy removal and without damage to woodwork or adjoining work. Remove cover immediately before time of final acceptance.

END OF SECTION

SECTION 06 60 00

FIBERGLASS FABRICATIONS

PART 1–GENERAL

1.01 SUMMARY

A. Work includes fiberglass structural shapes (angles, channels, I-beams, tubes, bars, plates, etc.).

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 QUALIFICATIONS

A. Manufacturer of fiberglass structural shapes, ladders, and handrail shall have a minimum of 5 years of verifiable experience in the manufacture and fabrication of pultruded fiberglass structural shapes and fabrications.

1.03 DESIGN REQUIREMENTS

A. The design of fiberglass fabrications, including connections, shall be in accordance with 2018 International Building Code.

B. Structural members shall be designed to support all applied loads. Deflections in any direction shall not be more than L/180 of span for structural members unless specifically stated otherwise in Drawings. Connections shall be designed to transfer the loads.

1.04 SUBMITTALS

A. Submit shop drawings and design calculations stamped and signed by a State of Iowa registered professional engineer.

PART 2–PRODUCTS

2.01 FIBERGLASS STRUCTURAL SHAPES

A. Fiberglass structural shapes shall be manufactured by the pultrusion process using the following materials:
   1. Isophthalic polyester resin with flame-retardant additive.
   2. Glass fiber reinforcing consisting of both continuous strand mat and continuous strand longitudinal fiber (roving).
   3. Surfacing veil of polyester nonwoven fabric.
   4. UV inhibitor.

B. Acceptable product lines include the following or equal:
   1. Extren Series 525 by Strongwell Extren.
   2. Pultex Series 1525 by Creative Pultrusions, Inc.
   3. Dynaform ISOFR system by Fibergrate Composite Structures, Inc.

C. Sections shall be constructed of materials recommended for use in a submerged condition in contact with ferric chloride or alum at any concentration.

2.02 FASTENERS/ADHESIVES

A. Fiberglass bolts, nuts, and washers shall be Dynaform as manufactured by Fibergrate Composite Structures, Inc., FibreBolt as manufactured by Strongwell, or equal.

B. Adhesive resin used for joining sections and for sealing cut edges shall be approved for use by the manufacturer.

PART 3–EXECUTION

3.01 INSTALLATION

A. Installation/erection of components shall be in accordance with the design drawings and shop drawings.

B. All cut edges shall be sealed with a resin recommended by the manufacturer.

END OF SECTION

SECTION 06 61 10

FIBERGLASS GRATING

PART 1–GENERAL

1.01 SUMMARY

A. Work includes fiberglass grating.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 DESIGN REQUIREMENTS

A. Grating shall be designed to safely support a uniform load of 100 psf with a maximum deflection of 1/4 inch.

PART 2–PRODUCTS

2.01 GRATING

A. Fiberglass grating shall be manufactured by the wet layup (molded) or pultruded process using the following materials:
   1. Isophthalic polyester resin with flame-retardant additive. Resin content shall be a minimum of 60% and fiberglass a maximum of 40% by weight.
   2. UV inhibitor.

B. Acceptable products include the following, or equal:
   1. Rectangular bar style:
      a. Duragrate Series by Strongwell.
      b. Chemgrate and Fibergrate by Fibergrate Composite Structures, Inc.
   2. I-shaped bar styles:
      a. Duragrate Series by Strongwell.
      b. Safe-T-Span by Fibergrate Composite Structures, Inc.

C. Grating shall be of depth required to meet design requirements.

D. Rectangular bar-style grating bars shall be tapered to promote self-cleaning.

E. Angular silica particles shall be integrally embedded in the top surface of the grating to create an antislip surface. The tips of the bearing bars and cross bars shall be in the same plane to maximize the antislip top surface area.

F. Individual grating sections shall be of a size to permit ease of handling, with a maximum length not in excess of 8 feet.

G. Provide 316 stainless steel hold-down clips for all grating.

2.02 GRATING SUPPORT ANGLES

A. Grating support angles shall be provided as detailed on the drawings and in accordance with Section 06 60 00–Fiberglass Fabrications. Support angles shall be provided under all edges of grating. Support angles shall be mitered at corners.

PART 3–EXECUTION

3.01 INSTALLATION

A. Install grating in accordance with design drawings, shop drawing, and grating manufacturer's written instructions.

B. Field cut or sanded surfaces shall be coated with resin furnished by the manufacturer and applied in accordance with manufacturer's instructions.

C. Provide a 1/8-inch to 1/4-inch gap between adjacent grating panels.

END OF SECTION

SECTION 06 61 14

FIBERGLASS WEIRS, BAFFLES, AND TROUGHS

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
   1. Fiberglass Weirs.
   2. Baffles.
   3. Troughs.
   4. As Shown on the Drawings

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. ANSI/AWWA F101–Contact-Molded, Fiberglass-Reinforced Plastic Wash Water Troughs and Launders.

B. ANSI/AWWA F102–Matched-Die-Molded, Fiberglass-Reinforced Plastic Weir Plates, Scum Baffles, and Mounting Brackets.

C. ASTM D570–Standard Test Method for Water Absorption of Plastics.

D. ASTM D638–Standard Test Method for Tensile Properties of Plastics.

E. ASTM D790–Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.

F. ASTM D2583–Standard Test Method for Indentation Hardness of Rigid Plastics by Means of a Barcol Impressor.

G. NSF/ANSI 61 Drinking Water System Components–Health Effects.

1.03 DESIGN REQUIREMENTS

A. Troughs:
   1. Loadings: The troughs shall be designed to support, within stress and deflection limitations, the following loadings:
      a. Gravity load: Downward vertical loads shall include the weight of the trough and appurtenant attachments, such as weir plates and the spreader bars, together with the weight of water to fill the trough. Any additional loads, such as piping, etc., shall also be considered.
      b. Buoyant load: The buoyant load shall act vertically upward, its magnitude equal to the weight of displaced water (trough weight neglected). The line of action passes through the centroid of the submerged cross-sectional area.

c. Lateral load: Loads acting against the trough side walls, specifically those included by differential water levels on either side of the trough walls. The maximum possible differential, existing when the trough is empty and the tank is full, or when the tank is empty shall be used when calculating deflection, fiber stress, etc.

2. Thermal stresses: The troughs shall be designed to accommodate temperature-induced stresses resulting from differences in coefficients of thermal expansion (contraction) between the trough and tank/support materials.
3. Torsional stability: The trough system shall be designed to resist torsional oscillations induced by the flow of water over trough edges. Any or all of the following trough stabilization techniques shall be considered.
   a. Trough-to-trough stabilization.
   b. Torsional stiffness.
   c. Support spacing and rigidity.
   d. Internal baffles and/or flow straighteners.
4. Deflection under load: Maximum vertical deflection under full buoyant or gravity load shall be less than or equal to L/1,000 where L is defined as the unsupported trough length in inches. Under no circumstances shall the maximum vertical deflection, measured at mid-point between trough supports, exceed 3/16 inch.
5. Maximum trough side wall horizontal deflection under full lateral load shall be less than or equal to D/100 where D is defined as the trough depth in inches. Under no circumstances shall the maximum side wall deflection exceed 3/16 inch.
6. Trough bottom deflection (oil canning) under full buoyant or gravity load shall be less than or equal to W/100 where W is defined as the trough width in inches. Under no circumstances shall the maximum bottom deflection exceed 3/16 inch.
7. Fiber Stress Limitations: Supplemental to the deflection criteria, the troughs shall also be designed such that the maximum wall stress under the most severe loading conditions is less than or equal to 1,500 psi. This stress criterion is equivalent to 7:1 safety factor (approximate) as applied to the tensile and flexural properties of contact molded troughs and launders.
8. Thermal Expansion/Contraction: The trough shall be designed to accommodate a thermally induced expansion (contraction) of 1/8 inch per 20-foot length of trough over temperature range of 10°F to 100°F without exceeding the deflection or strain limitation set forth in the preceding sections.

1.04 QUALITY ASSURANCE

A. Manufacturer shall maintain a continuous quality control program and shall submit certified test reports of physical properties.

B. Weir plates, scum baffles, and mounting brackets shall be fabricated to ANSI/AWWA F102 Standards.

C. Submit shop drawings and calculations stamped and signed by a State of Iowa professional engineer.

1.05 PACKING AND STORAGE

A. Should it be necessary to store product prior to installation, precautions should be taken to prevent warpage or distortion.

B. Troughs should be stored on a flat place and adequately supported on wooden support members to evenly distribute weight of troughs. When stored more than one high, succeeding items should be stored level and evenly supported by blocks or spacers.

PART 2–PRODUCTS

2.01 WEIRS AND BAFFLES

A. Weirs and baffles shall be fiberglass.

B. Fiberglass shall be as manufactured by Warminster Fiberglass Company, NEFCO Incorporated, or equal. All fasteners and anchors shall be type 304 stainless steel of size and type recommended by manufacturer of weirs and baffles.

C. The weirs, scum baffles and supports shall be polyester plastic resin, reinforced with glass fiber. All weir plates, weir washers, weir splice plates, scum baffle panels, scum baffle splice plates and baffle support brackets shall be fiberglass reinforced plastic molded to produce uniform smooth surfaces. The surface shall be resin rich, free of voids and porosity, without dry spots, crazes or unreinforced areas and shall provide for increased corrosion resistance and UV protection. All edges shall be sealed in the mold. The weirs and scum baffles shall be green in color.

D. Laminate will have Type “C” (chemical) glass surfacing mat, 10 to 20 mils thick, with a silane finish and a styrene soluble binder, on both sides. Required thickness will be achieved using the appropriate number of piles of Type “E” (electrical borosilicate) glass mat with chrome or silane finish and a styrene soluble binder. Glass content of laminate will be 28 ±3% by weight. Resin filters shall be 40 ±2% of the resin mixture. Final laminate thickness shall be within ±10% of the nominal specified thickness.

E. The fiberglass laminate shall have the following minimum physical properties:

		Test Method
Tensile Strength (min)	14,000 psi	ASTM D638
Flexural Strength (min)	25,000 psi	ASTM D790
Flexural Modulus (min)	1.0×10^6	ASTM D790
Impact, Notched, Izod, foot pound per inch (min)	15.0	ASTM D256
Barcol Hardness (min avg)	40	ASTM D2583
Water Absorption, % 24 hours (max)	0.2%	ASTM D570
Average Coefficient of Thermal Expansion inch per inch per °F (max)	10.5 x 10-6	ASTM D696

F. All machined or cut edges shall be sealed with Polyester Resin.

2.02 TROUGHS

A. Manufacturer: Troughs shall be fiberglass as manufactured by Warminster Fiberglass Company, NEFCO Incorporated, or equal.

B. Materials:
   1. Resin: The resin shall be a commercial grade general purpose polyester thermosetting resin which has either been evaluated in laminate or which has been determined by a previous documented service to be acceptable for the service conditions.
   2. The resin shall contain no fillers except as follows:
      a. A thixotropic agent which does not interfere with laminate quality or with the required chemical resistance of the laminate may be added for viscosity control.
      b. Resin may contain pigments, dyes, or colorants which have been determined by at least 5 years previous service to be acceptable for the service condition without fading or chalking from original color standard.
   3. Ultraviolet Resistance: Ultraviolet resistance is required in all laminates exposed to ultraviolet light whether it be in the form of pigmentation or ultraviolet absorbers.
   4. Metal Reinforcement: When metal reinforcements are used, they shall be free of rust, oil, and any foreign matter. They shall be completely encapsulated with a minimum of 1/8-inch-thick laminate.
   5. Glass reinforcement shall consist of chemically bonded surfacing mat and chopped strand or chopped strand mat as hereinafter described. Surfacing mat shall by Type C, 10 to 20 mil thick, with a silane finish and a styrene-soluble binder. The glass content of the finished laminate shall be adequate to produce mechanical and physical properties conforming to the following:

	ASTM Test Method	For 1/4-IN Wall Thickness
Ultimate Tensile Strength psi x 10^3 (min)	D638	12
Flexural Strength psi x 10^3 (min)	D790	19
Flexural Modulus of Elasticity psi x 10^3 (min)	D790	0.9
Barcol Hardness (min)	D2583	35
Water Absorption-% (max)	D570	0.2

C. Manufacture:
   1. The inner surface of the trough shall be smooth and resin rich. The outer surface shall be reasonably smooth, and no glass fibers shall be exposed. The size and number of air bubbles shall be held to a minimum. Lamination shall be dense and without voids, dry spots, cricks, or crazes.
   2. The inner surface of the trough shall be reinforced with glass surfacing mat. This shall be followed with chopped strand glass laminate (maximum two ounces per square foot) in a minimum of two layers. Void content of the complete laminate shall not exceed 2 1/2% of laminate volume.
   3. The top edges of the trough shall be level and parallel with a tolerance of plus or minus 1/8 inch (measured when the trough is not loaded).The length of a trough section shall have a tolerance of ±1/8 inch per 10-foot length. The laminate thickness tolerance shall be ±1/8 inch thick.
   4. Thickness at locations of supports such as saddles shall be at least 1 1/2 times the nominal thickness of the trough and shall conform to the fiber stress limitations set forth in the design section of this specification.
   5. End flanges and blind ends shall be a minimum of 1 1/2 times the nominal thickness of the trough and shall conform to the fiber stress limitations set forth in the design section of this specification.
   6. An integrally molded waterstop shall be provided on the trough whenever the trough is grouted into and/or passes through a wall.
   7. One-inch-diameter ABS spreaders shall be bolted between the trough walls on approximate 2-foot centers to enhance the structural rigidity of the trough system.

2.03 NEOPRENE GASKETS

A. All splices and connections of weirs and troughs shall have a minimum 1/4 inch thick, or as noted on drawings, neoprene gasket in accordance with Section 10 00 20–Miscellaneous Specialties.

PART 3–EXECUTION

3.01 INSTALLATION

A. All trough mounting brackets, hardware, and stabilizers shall be Type 316L stainless steel and shall be supplied by the trough manufacturer.

B. Install weirs and baffles in accordance with details shown on the Drawings using Type 316L stainless steel or fiberglass connection hardware.

C. Troughs, weirs, and scum baffles shall be installed level to within ±1/8 inch.

D. Troughs shall be watertight.

E. All weir and trough splices and connections shall be watertight. Provide neoprene gaskets between all splices and connections to provide complete watertight unit. Provide splice plates as required.

END OF SECTION

SECTION 06 73 13

FIBERGLASS FLAT PANEL COVER SYSTEM

PART 1–GENERAL

1.01 SUMMARY

A. Work Included: Design, fabrication, delivery, and installation of fiberglass reinforced plastic (FRP) flat panel sealed cover systems for the Aerobic Digesters (Structure 50). The cover system includes, but is not necessarily limited to:
   1. Cover Panels.
   2. Structural Supports.
   3. Flashing and Trim.
   4. Fasteners and Anchors.
   5. Bulb Gaskets and Sealant.
   6. Duct Connections and Pipe Penetrations.
   7. Access Hatches.
   8. Other Accessories and Appurtenances Where Indicated on the Drawings.

B. Related Sections and Divisions: Applicable provisions of Division 1 shall govern work in this section.

C. CONTRACTOR may provide fiberglass flat panel cover system or aluminum flat panel cover system. See Section 05 31 33–Aluminum Flat Panel Cover System for aluminum system requirements.

1.02 QUALITY ASSURANCE

A. CONTRACTOR shall be responsible for verifying all field dimensions for development and approval of the manufacturer’s drawings.

B. For coordination and compatibility of parts, a single manufacturer shall provide all basin cover materials.

C. Tank cover manufacturer shall have full responsibility for products and design. Split responsibility of materials or design is not acceptable.

D. Tank cover manufacturer shall have:
   1. Minimum of 5 years proven experience in wastewater treatment applications.
   2. Within the last 5 years, completed three jobs of similar tank size and type as those required in this scope.

E. Erector shall be regularly engaged in and have a minimum of 5 years’ experience with the erection of FRP cover for wastewater tanks.

F. Welders: Qualified within the past 2 years in accordance with AWS.

1.03 PERFORMANCE TESTING

A. Materials shall comply with federal and local laws or ordinances, applicable codes, standards, regulations, and/or regulatory agency requirements including:
   1. ASTM D638–Standard Test Method for Tensile Properties of Plastics.
   2. ASTM D790–Standard Test Method for Flexural Properties of Plastics and Electrical Insulating Materials.
   3. ASTM D695–Standard Test Method for Compressive Strength of Plastics.
   4. ASTM E84–Standard Test Method for Surface Burning Characteristics of Plastics.

B. Structural framing and deck panels shall meet the performance and design criteria listed herein for the spans and conditions indicated on the Drawings. Individual units (independent of any foam-filled core) shall demonstrate compliance with design criteria by full-scale testing:
   1. FRP Deck Panels: ASTM E72 Strength of Panels for Building Construction.
   2. FRP Structural Components: Three-Point Load Bending Test.
   3. Full scale Load and Deflection Test meeting or exceeding the design requirements specified herein may be used in place of tests listed in 1.03.B.1 and 1.03.B.2.

1.04 DESIGN CRITERIA

A. Uniform Design Loads:
   1. Live Load: 50 psf live load.
   2. Wind uplift: In accordance with the 2018 International Building Code. L/60 maximum deflection.
   3. Dead Load:
      a. Deck panels: Individual units and other materials attached to and supported by the decking panels.
      b. Structure: Total weight of the cover structure and other materials attached to and supported by the cover structure.
   4. Concentrated live load: system shall be capable of supporting a 250 lb. concentrated load on any 12-inch by 12-inch area.

B. Deflection Limits and Factors of Safety: Dead plus Live Load: Deflection limit of L/180, factor of safety of 2.5.

C. Foot Traffic: The basin cover decking shall support incidental foot traffic.

D. Lateral Bracing: FRP structural members shall be capable of supporting all design loads without use of lateral bracing.

E. Air Infiltration: Covers shall be designed as relatively airtight. Provide flanged FRP pipe stubs on the top of the cover system to relieve negative differential pressure under the cover as the tank drains and fills.

F. Design and provide all framing required for a fully-functioning system meeting specified load and deflection criteria; including support angles, beams, and columns. All framing shall be fiberglass.

1.05 SUBMITTALS

A. Submittals shall be in accordance with provisions of Section 01 30 00-Submittals.

B. Submit fabrication drawings showing complete cover system layout and details supports. Include all connection details. Drawings shall bear the stamp of an Illinois licensed structural engineer.

C. Submit information regarding cover system materials including panels, structural supports, trim, hinges, gaskets, fastener, and other system materials.

D. Submit complete structural calculations showing the governing stresses in all members and connections. Calculations shall bear the stamp of an Illinois licensed structural engineer.

E. Submit copy of manufacturer's standard one-year cover system guarantee.

F. Submit a letter of certification signed and sealed by an Illinois licensed structural engineer confirming that the FRP cover is in full compliance with the Drawings and Specifications, including any testing provisions included therein.

G. Submit representative samples of FRP deck and framing members.

H. Submit operation and maintenance data for FRP cover and hatches.

1.06 DELIVERY STORAGE AND HANDLING

A. At the time of delivery, all material shall be inspected by CONTRACTOR for shipping and handling damage. Notify the freight company and the manufacturer immediately of any damage.

B. Protect surface of FRP units from cuts, scratches, gouges, abrasions, and impacts. Do not use wire slings unless material is fully protected. Use spreader bars when lifting these materials. Do not drag panels or flashing across one another unless separated by a nonscratching spacer.

C. FRP panels shall be stored on edges; do not store flat. Cover and protect all stored materials. Do not stack or store other building materials on tip of unprotected units. Store materials in a dry location, up off the ground, and allow for ventilation.

D. Replace or repair all damaged material to the satisfaction of OWNER prior to cover construction.

PART 2–PRODUCTS

2.01 MANUFACTURERS

A. The specified system is based upon cover components manufactured and fabricated by the following manufacturer: XL6 Cover System as manufactured by Enduro Composites, 7100 Old Katy Road, Houston, TX 77024, (800) 231-7271. Other approved manufacturers/products include Composi-Cover by Fiberglass Fabricators, Inc., Smithfield, RI; FRP flat cover system by RPS Engineering, Elburn, Illinois; FRP ribbed flat cover system by Syntechnics, Inc., Paducah, KY, or equal. Enduro Composites is the basis for design and establishes a minimum quality, characteristic, and performance standard.

2.02 MATERIALS

A. Fiberglass reinforced plastic (FRP) structural components such as decking, beams, and framing shall be manufactured by pultrusion process. Contact molded or hand laid-up fiberglass materials are not acceptable as structural components.

B. Tank Cover Deck Panels:
   1. Resin-type for FRP basin cover decking shall be UV-stabilized vinyl ester or isophthalic polyester. General purpose or orthothalic polyester is not acceptable.
   2. Glass fiber reinforcements shall be a minimum of 50% of the material weight.
   3. Materials shall be fire-retardant and have a flamespread rating of 25 or less when tested in accordance with ASTM E84 (UL723).
   4. Materials shall exhibit these physical properties (at a minimum):
      a. Tensile Strength (ASTM D638): 30,000 psi.
      b. Compressive Strength (ASTM D695): 30,000 psi.
      c. Flexural Strength (ASTM D790): 30,000 psi.
   5. The top surface of the basin cover decking shall have a factory-applied, nonskid, and UV-resistant surface.
   6. The top surface of the basin cover decking shall be flat and nonprofiled (other than nonskid, gritted surface).
   7. Deck panels shall nest with adjacent panels in preformed slots at side-lap conditions.
   8. Deck panels shall be sealed at side-laps with factory-installed, nonadhesive 3/4-inch-diameter neoprene bulb gasket (conforming to ASTM C864). Gaskets shall fit into an integral-receiving groove and shall not be mechanically attached. To seal cover system, gaskets shall be oriented vertically so they are compressed downward when an adjacent panel is placed into position.
   9. For vertical removal and lifting, deck panels shall have integral handles at each end. The integral lift handles shall not protrude vertically above the tank cover surface.
   10. Covers shall be designed with panels as fully removable.
   11. Panel sections shall weigh no more than 150 pounds each. Size panels accordingly.

C. FRP Structural Framing:
   1. Resin-type for FRP beams and framing members where required, shall be UV-stabilized vinyl ester.
   2. Glass fiber reinforcements shall be a minimum of 50% of the material weight.
   3. Structural components shall be fire-retardant and have a flame-spread rating of 25 or less when tested in accordance with ASTM E84 (UL723).
   4. Metallic angles or plates attached to FRP beams or fastening connections shall be 316L stainless steel or 6061-T6 aluminum.
   5. FRP support beams for the membrane tank (Structure 53) covers shall be coordinated with membrane equipment manufacturer to enable membrane modules to be removed without removing support beams.

D. Flashing and Trim:
   1. FRP flashing shall be isophthalic polyester.
   2. End flashing shall be factory attached to deck.
   3. FRP end flashing shall have integral lift handle.

E. Hardware:
   1. All fasteners, anchorage, hinges, and other structural accessories located on the underside of cover shall be 316L stainless steel, aluminum, or monel. Nonstructural hardware shall be FRP or 316L stainless steel.

2. Other hardware not exposed to underside of basin cover environment and anchors into concrete shall be 304 stainless steel.

F. Gaskets and Sealants:
1. Gaskets located along longitudinal side laps between panels shall be 3/4-inch-diameter neoprene, bulb-type.
2. To properly seal basin perimeter and seams, neoprene gaskets shall be installed underneath all flashing components.

G. Hatches:
1. Hatches shall be raised and fabricated from pultruded fiberglass components. See drawings for sizes and locations.
2. Hatch openings shall be factory-cut into the tank cover decking by manufacturer.
3. Hatch frames shall be fabricated from channel-type framing. Hatch framing shall fit inside tank cover deck panel profile so that a deck panel with hatch can be removed without affecting adjacent panels.
4. Hatch lids shall be fully sealed from underside with a 3/8-inch-diameter neoprene bulb gasket that fits onto the hatch curb without adhesive or fasteners. Perimeter hatch curb shall be sealed to decking surface with Sikaflex®-1A sealant.
5. Hatch hinges shall be fabricated from pultruded fiberglass. Hatch lifting handles shall be made of 316L stainless steel or corrosion-resistant plastic. Fasteners shall be 316 stainless steel.
6. Hatch lids shall have a factory-applied nonskid, gritted, and UV-resistant top surface.
7. Hatches shall have a 316L stainless steel hold-open device to prevent door from blowing open or closing on itself.

H. Inlet Vents: Gooseneck ventilation piping for inlet ducts shall be FRP with corrosion resistant insect screen and shall be provided by cover manufacturer.

I. Odor Control Pipe Penetrations: Provide flanged connection on top of cover for odor control piping with dimensions and on locations as shown on the Drawings. ANSI flange connections shall be on the surface of the cover to allow odor control piping to draw air from inside each tank.

J. Air Pipe Penetrations: Provide openings commensurate with piping sizes shown on the Drawings. Air piping openings need not be sealed airtight. Square openings are acceptable. Provide supplemental framing and edge trim.

2.03 FINISHES

A. The exterior surface of deck panels shall be a satin finish of polyester gelcoat to produce a corrosion-resistant, resin-rich surface, free from pits, porosity, or dry glass. The finish shall protect the FRP covers from UV degradation. Color of finish shall be selected by OWNER from available standard colors.

PART 3–EXECUTION

3.01 GENERAL

A. See Division 01 for requirements related to equipment installation, field quality control, testing, supervision, and start-up.

3.02 INSTALLATION

A. Cover sections shall bear on FRP supports provided by the cover manufacturer or on concrete walls and walkways, as shown on the Drawings.

B. Before placing and attaching components, the erector must confirm the alignment and location of bearing plates, surfaces, brackets, saddles, etc. All bearing surfaces must be clean and free of debris.

C. Before placing the secondary framing members or deck, the erector must check the alignment and location of truss members.

D. Erection shall proceed according to sequences shown on the approved drawings.

E. If applicable, field assemble any ledger angles as shown on manufacturer's drawings. Install beam seats or structural and ledger angles in locations shown on the approved drawings.

F. Position FRP columns and beams and other framing in locations as shown on the approved manufacturer's drawings. Field modifications (cuts, copes, holes, etc.) other than work shown on the drawings are not allowed without the manufacturer's written consent. Field cutting shall be indicated on drawings by manufacturer where needed.

G. All field cuts shall be sealed with epoxy or other sealing method as specified by the manufacturer.

H. Anchor FRP framing and adjust components into final position with proper bearing and alignment at joints, laps, and supports before fastening. Refer to the manufacturer's installation instructions for proper fastener selection, fastener location, driving techniques, and pertinent information for fastening equipment.

I. Starting at the end shown by manufacturer on field drawings, position and place deck panels in locations as shown. Field modifications (cuts, copes, holes, etc.) other than work shown on the drawings are not allowed without the manufacturer's written consent.

J. Fasten or anchor FRP deck panels into location as shown on approved Drawings.

END OF SECTION

SECTION 07 14 00

FLUID-APPLIED WATERPROOFING

PART 1–GENERAL

1.01 SUMMARY

A. Work Included: Fluid-applied elastomeric waterproofing membrane for belowgrade walls. Fluid-applied waterproofing membrane is required on the earth side of concrete walls that are below grade, have earth on one side, and are common with rooms, tunnels, or galleries to be occupied by equipment, piping, or personnel. Membrane is not required for walls that are poured directly against an excavated surface.

B. Fluid-applied elastomeric waterproofing membrane for belowgrade structures.

C. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. NRCA (National Roofing Contractors Association)–Waterproofing Manual.

1.03 SUBMITTALS

A. Submit two samples of coating system applied to 1/4-inch plywood or similar rigid base.

B. Submit list of at least five projects of similar nature by waterproofing applicator that have been installed within the last 5 years, identified with project name, location, and date.

C. Submit letter from membrane manufacturer stating that applicator is an approved or certified applicator of its product.

D. Submit copies of warranty.

1.04 QUALIFICATIONS OF APPLICATOR

A. Membrane applicator shall be approved by the manufacturer and shall have a minimum of 5 years experience in application of fluid-applied waterproofing coatings.

1.05 ENVIRONMENTAL CONDITIONS

A. No waterproofing work shall be performed at ambient temperatures below 40°F.

B. No waterproofing work shall be performed during inclement weather or when such weather is imminent.

1.06 WARRANTY

A. Provide installer's 2-year total system warranty of watertightness covering cost (labor and materials) to repair any leaks in the waterproofing membrane, including cost to remove backfill material or other materials concealing the membrane, if required.

B. Provide manufacturer's standard 5-year product warranty.

PART 2–PRODUCTS

2.01 MEMBRANE

A. Membrane shall be a one-part, moisture curing, high solids, VOC-compliant, modified polyurethane waterproofing membrane that can be applied to damp and green concrete.

B. Acceptable products include the following, or equal: Tremproof 250 GC, manufactured by Tremco.

2.02 ACCESSORIES

A. Cleaners and conditioners, primers, sealants, backer rod, flashing and flashing reinforcements, and other accessories related to the membrane application shall be provided as required by the membrane manufacturer.

B. Provide 1/8-inch-thick protection board, Tremco Protection Mat by Tremco, or equal.

PART 3–EXECUTION

3.01 SURFACE PREPARATION

A. Surface preparation shall be in accordance with the membrane manufacturer's recommendations.

B. Verify that curing methods used for concrete are compatible with the membrane system.

C. Concrete surfaces shall be free of laitance, loosely adhering materials, oil, curing compounds, and all other contaminants prior to membrane application. Prepare all concrete surfaces by sandblasting followed by vacuum cleaning or by acid etching.

3.02 PRODUCT APPLICATION

A. Preparatory work (priming and flashing) must be fully cured in accordance with manufacturer's recommendations prior to coating application.

B. Apply coating in accordance with manufacturer's recommendations using approved squeegee, trowel, or spray equipment to produce a 60 mil wet film thickness. This is in addition to the primer and flashing coats. Extend coating over all previously flashed and primed areas.

C. The membrane shall be cured as recommended by the manufacturer prior to water testing, backfilling, or allowing foot traffic on surfaces.

D. Horizontal surfaces shall be flooded to a depth of 2 inches maintained over a 12-hour period. Any leaks evident after this period shall be repaired and the leaky areas retested until leaks are stopped.

E. Apply protection board to all surfaces prior to backfilling.

END OF SECTION

SECTION 07 21 12

BOARD INSULATION

PART 1–GENERAL

1.01 SUMMARY

A. Work includes board insulation for cavity wall construction and for perimeter foundation walls.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

PART 2–PRODUCTS

2.01 CAVITY WALL INSULATION

A. Cavity wall insulation shall be 3-inch-thick polyisocyanurate foam board with foil facing on both sides. Aged thermal resistance (R-value) at 72°F shall be a minimum of 19.0.

B. Acceptable products include the following, or equal: Thermax Sheathing by DuPont.

C. Adhesive for adhering insulation to backup wall shall be as recommended by the insulation manufacturer.

2.02 FOUNDATION INSULATION

A. Foundation insulation shall be 2-inch-thick extruded polystyrene closed cell rigid foam board with continuous skins on both sides. Aged thermal resistance (R-value) at 75°F shall be a minimum of 10.0.

B. Acceptable products include the following, or equal:
1. Styrofoam Square Edge by DuPont.
2. Foamular NGX 250 by Owens Corning.

PART 3–EXECUTION

3.01 INSTALLATION–CAVITY WALLS

A. Insulation shall be installed horizontally within the cavity space between masonry wythes.

B. Take care during installation so that all insulation boards are butted and installed between ties and fit flush against inner wythe or backup wall.

C. Cut insulation neatly to fit around obstructions across the cavity such as vents, louvers, pipes, and conduits.

D. Secure insulation in place against backup wall with mastic adhesive and observe label directions.

3.02 INSTALLATION–FOUNDATION WALLS

A. Rigid insulation shall be laid dry against the foundation walls as backfill is placed. Insulation shall be located at all perimeter frost walls and below-grade walls of buildings and structures containing areas that may be occupied by personnel.

B. At perimeter frost wall foundations, insulation shall be 40 inches high and located on the inside of foundation walls.

END OF SECTION

SECTION 07 21 13

BLOWN-IN INSULATION

PART 1–GENERAL

1.01 SUMMARY

A. Work includes blown-in insulation in roof, and insulation vent system between roof trusses as called for on the Drawings.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. ASTM C665–Specification for Mineral Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.

PART 2–PRODUCTS

2.01 BLOWN-IN INSULATION

A. Blown-in insulation shall be Insul-Safe III as manufactured by the Certainteed Corp., or equal.

B. Minimum R-value shall be 2.75 per inch.

2.02 INSULATION VENTS

A. Insulation vents shall be 2 inches high by 14 inches wide by 48 inches long, tear-resistant high-impact plastic as manufactured by proVent, or equal.

PART 3–EXECUTION

3.01 INSTALLATION–ROOF INSULATION

A. Prior to installing insulation, vapor barrier shall be in place (See Section 07 26 00–Vapor and Air Barrier).

B. Insulation shall be loose laid on the precast plank over the vapor barrier. If two layers of insulation are used to make up the required thickness, upper layer shall be installed perpendicular to the lower layer.

3.02 BLOWN-IN INSULATION

A. Provide 14 inches of insulation in all attic spaces (R-38).

B. Install per manufacturer’s recommendations.

3.03 INSULATION VENTS

A. Insulation vents shall be installed between roof trusses at the truss bearing ends providing an unobstructed air channel from the soffit into the attic.

END OF SECTION

SECTION 07 21 29

SPRAY FOAM INSULATION

PART 1–GENERAL

1.01 SUMMARY

A. Work includes spray-in-place, medium-density, semi-rigid, closed-cell polyurethane foam insulation in assemblies indicated on the Drawings, to provide a void filler at wall and column locations.

1.02 REFERENCES

A. ASTM International (ASTM):
1. ASTM C 518–Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
2. ASTM D 1621–Standard Test Method for Compressive Properties of Rigid Cellular Plastics.
3. ASTM D 1622–Standard Test Method for Apparent Density of Rigid Cellular Plastics.
4. ASTM D 1623–Standard Test Method for Tensile and Tensile Adhesion Properties of Rigid Cellular Plastics.
5. ASTM D 2126–Standard Test Method for Response of Rigid Cellular Plastic to Thermal and Humid Aging.
6. ASTM D 2842–Standard Test Method for Water Absorption of Rigid Plastics.
7. ASTM D 6226–Standard Test Method for Open Cell Content of Rigid Cellular Plastics.
8. ASTM E 84–Standard Test Method for Surface Burning Characteristics of Building Materials.
9. ASTM E 96–Standard Test Methods for Water Vapor Transmission of Materials.
10. ASTM E 283–Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
11. ASTM 2178–Standard Test Method for Air Permeance of Building Materials.

B. International Code Council–International Building Code.

C. NFPA 286–Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth.

D. Underwriters Laboratories, Inc. (UL).

1.03 SUBMITTALS

A. Submit under provisions of Section 01 33 00–Submittals.

B. Before commencing work, submit in accordance with local code:
1. Technical data sheet from the manufacturer showing the test results from the ASTM E84 (Surface Burning Characteristics).
2. Other technical data sheets and samples as required by local code officials.

C. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation methods.

1.04 QUALITY ASSURANCE

A. Installer Qualifications: CONTRACTOR performing work under this section shall be trained in the art of application of spray polyurethane foam insulation.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Materials shall be delivered in manufacturer's original containers clearly labeled with manufacturer's name, product identification, safety information, net weight of contents and expiration date.

B. Material shall be stored in a safe manner and where the temperatures are in the limits specified by the material manufacturer.

C. Empty containers shall be removed from site on a daily basis.

1.06 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

B. Ventilate insulation application area in accordance with the Spray Foam Coalition's Guidance on best practices for the installation of Spray Polyurethane Foam.

C. Protect workers as recommended by the standards of the Spray Foam Coalition's Guidance on best practices for the installation of Spray Polyurethane Foam.

D. Protect adjacent surfaces, windows, equipment and site areas from damage of overspray.

PART 2–PRODUCTS

2.01 MANUFACTURERS

A. Acceptable Manufacturer: DuPont Inc., or equal.

2.02 SPRAY FOAM INSULATION

A. Spray Applied Semi Rigid Polyurethane Closed Cell Foam Insulation System: Two component, high density insulation.
   1. Product: Thermoseal 2000 manufactured by ThermoSeal, LLC, or equal.
   2. Contains zero ozone depleting agents, catalysts, polyols, and fire retarding materials.
   3. Fills cracks, crevices, and larger voids to form air seal and thermal insulation.
   4. Evaluation Report: ICC-ESR Pending Publication.
   5. Physical Properties:
      a. Density (ASTM D 1622): 1.75 lbs/cf.

b. Thermal Resistance (ASTM C 518): R-6.7 initial. R-6.2 (sf.h degree F/BTU) at 1 inch at 180 days at 76°F (24.4°C) and R-6.7 per inch at 2-inch thickness.
c. Closed Cell Content (ASTM D 6226): Minimum 92 percent.
d. Water Vapor Transmission - Permeance (ASTM E 96): 0.8 Perms at 1 inch, 0.23 at 3.5 inches.
e. Air Leakage (ASTM E 283): Zero at 75 Pa.
f. Compressive Strength (ASTM D 1621): 23.4 psi.
g. Tensile Strength (ASTM D 1623): 60 lbf/sq. inch (414 kPa).
h. Dimensional Stability (ASTM D 2126): Less than 5 percent.
i. Fungi Resistance (ASTM G 21): Zero rating.
j. Surface Burning Characteristics (ASTM E 84): Class 1 Pass, Flame Spread Index less than 25, Smoke Developed Index less than 450.

PART 3–EXECUTION

3.01 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. Commencement of work outlined in this section shall be deemed as acceptance of existing work and conditions.

3.02 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Apply only when surfaces and environmental conditions are within limits prescribed by the material manufacturer.

C. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.03 INSTALLATION

A. Install in accordance with manufacturer's instructions and approved submittals. Apply as recommended by manufacturer to thickness as indicated on the Drawings.

3.04 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before covering.

END OF SECTION

SECTION 07 26 00

VAPOR AND AIR BARRIER

PART 1–GENERAL

1.01 SUMMARY

A. Work Includes:
   1. Vapor Barrier Under Concrete Floors On Grade and On Top of Precast Roof Plank.
   2. Air Barrier In Masonry Double Wythe Walls On Concrete Block Backup Wall.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

PART 2–PRODUCTS

2.01 MATERIALS

A. Vapor barrier for below slabs: Vapor barrier shall consist of 10 mil ASTM E1745 Class B polyethylene sheeting with less than 0.3 perm water vapor permeance in accordance with ASTM E96.

B. Vapor barrier and precast plank construction: Vapor barrier shall consist of 6 mil ASTM D4397, Class B polyethylene sheeting with less than 0.3 perm water vapor permeance in accordance with ASTM E96

C. Permeable air barrier for masonry cavity wall construction shall be fluid applied membrane, ExoAir 230 by Tremco, or equal. Apply to outside face of inner wythe of concrete block prior to installation of rigid insulation. Apply in strict accordance with manufacturer’s instructions. Air barrier shall be included in all new cavity wall construction on the project.

PART 3–EXECUTION

3.01 INSTALLATION–UNDER CONCRETE FLOORS ON GRADE

A. Provide continuous vapor barrier under concrete floors on grade that are 8 inches or less in thickness, lap all joints a minimum of 12 inches.

B. Specific location of vapor barrier (whether directly under slab or under granular cushion) shall be as shown on the Drawings.

3.02 INSTALLATION ON TOP OF PRECAST ROOF PLANK

A. Provide continuous vapor barrier on top of precast plank.

B. Lap all joints a minimum of 12 inches and tape all joints.

3.03 INSTALLATION OF AIR BARRIER

A. Install air barrier on outside face of inner wythe of concrete block in cavity wall construction.

B. Install air barrier per manufacturer's recommendations and approved details.

END OF SECTION

SECTION 07 61 00

SHEET METAL ROOFING

PART 1–GENERAL

1.01 SUMMARY

A. Work Included: Standing seam metal roof system.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. ASTM A653–Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

B. SMACNA–Architectural Sheet Metal Manual.

C. NRCA–Roofing and Weatherproofing Manual (including construction details) and Handbook of Accepted Roofing Knowledge.

D. Manufacturer's Handbook of Construction Details.

E. AISI "Specifications for the Design of Light–Gauge Cold Formed Steel Structural Member, latest edition."

1.03 SUBMITTALS

A. See Section 01 33 00–Submittals for general submittal requirements.

B. Shop drawings: Submit fabrication details, jointing details, fastening methods, and termination details.

C. Samples: Submit one sample of each type of prefinished and preformed panel showing color and profile match. Provide same for closures.

D. Warranty from manufacturer: Submit sample of manufacturer's 20-year warranty on weather tightness, flashing, inclusive.

1.04 QUALITY ASSURANCES

A. Perform work in accordance with manufacturer's instructions and these specifications.

1.05 QUALIFICATIONS

A. Material Manufacturer: Five years documented experience with this type of construction.

B. Installer: Five years of satisfactory documental experience in the installation of this type of work.

1.06 WARRANTIES

A. Architectural finish coating shall be provided with a 20-year guarantee against cracking, chipping, peeling, and fading.

B. Warrant materials and workmanship for 20 years for weather tightness, flashing, inclusive.

1.07 SYSTEM DESIGN

A. All components of the paneling system shall be designed in accordance with sound engineering methods and practices.

B. The panels shall be designed in accordance with AISI “Specifications for the Design of Light Gauge Cold Form Steel Structural Members,” latest edition.

C. The paneling system and its attachments shall be designed to support live, snow, and wind loads.

D. Panels shall be designed for 30 psf live load.

E. The roof system shall carry UL wind-uplift Class 90 rating.

PART 2–PRODUCTS

2.01 MATERIALS

A. Metal Roof System:
   1. Roof panels shall be roll formed panels of uniform width 12 to 18 inches wide with two major corrugations, 2 1/2 inches high, 16 inches (equal to panel width) on center.
   2. Panel materials shall be 24 gauge, hot-dipped galvanized steel (50,000 psi yield), G-90 coating conforming to ASTM A653 specification.

B. Fasteners:
   1. All connections of panels to structural members, except at eave, shall be made with clips with moveable tabs that are seamed into the standing seam side lap.
   2. Panel clips shall be fastened to structural members with fasteners as per manufacturer’s erection drawings.
   3. Panel-to-panel connections shall be made with a positive, field-formed standing double-lock seam, formed by a special seaming device.

C. Underlayment and Eave Protection Membrane:
   1. Underlayment for all areas, except along eaves, shall be No. 30 unperforated asphalt saturated felt conforming to ASTM D226.
   2. Eave (ice dam) protection applied to 4 feet inside the exterior wall line eaves shall be a sheet membrane of rubberized asphalt bonded to sheet polyethylene, 40 mils minimum total thickness, with strippable release paper. Acceptable products include the following, or equal:
      a. Ice and Water Shield by W.R. Grace Company.
      b. Winter Guard Waterproofing Shingle Underlayment by Certainteed Corporation.

2.02 MANUFACTURERS AND PRODUCTS

A. Roof panels shall be roll-formed Stand N' Seam panels as manufactured by Fabral, or equal.

B. Sealants: Per Section 07 90 00–Caulking and Sealants.

C. Flashing at eave, gable, ridge, and penetrations shall be in accordance with manufacturer's recommendations and Section 07 62 00–Flashing and Sheet Metal.

D. Unless shown otherwise on the Drawings, provide continuous ridge venting using manufacturer's standard ridge/hip flashing and manufacturer's approved detail. Provide vent material to prevent entry of insects.

E. Unless shown otherwise on the Drawings, provide snow guards on the roof above all exterior door openings, extending minimum 1 foot beyond each edge of door. Snow guards shall consist of a snow bar mounted to a nonpenetrating clamp attached to the standing seam ribs. Snow bar shall incorporate a prepainted metal strip to match the roof panel color. Acceptable products include Color Guard Snow Guard with prepainted insert and S-5-U clamps by LM Curbs, Longview, Texas, or equal.

2.03 FINISHES

A. Finishes on all exterior surfaces shall be a 1.0 mil DFT two-coat, factory-applied, 70% Kynar, 500 fluoropolymer coating over an epoxy prime coat.

B. All exposed fasteners shall be provided with the same finish as the sheet material products.

C. Colors shall be selected by OWNER.

PART 3–EXECUTION

3.01 INSTALLATION

A. The panels shall be attached to the supporting structurals by means of a clip device. The clip shall occur at the panel major corrugation.

B. Panel sidelaps shall be field-seamed by a seaming device; all sidelap sealant shall be factory-applied.

C. Panel endlaps, when required, shall be at least 6 inches and sealed with field-applied sealant. One panel end shall be "swaged" to provide nestible, watertight endlaps.

D. Provisions for thermal expansion/contraction movement of the panel shall be accomplished by the use of clips with a moveable tab. The tabs shall be factory-centered on the roof clip to provide full movement in either direction.

E. The roof shall provide for thermal expansion/contraction without detrimental effect on the roof panel when there is a 100°F temperature differential between the interior structural framework of the building and the roof panels.

END OF SECTION

SECTION 07 62 00

FLASHING AND SHEET METAL

PART 1–GENERAL

1.01 SUMMARY

A. Work Includes:
   1. Masonry Wall Flashing.
   2. Custom-Fabricated Sheet Metal Flashing and Counter Flashing at Eave, Gable, and Ridge Lines.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. ASTM A653–Steel Sheet, Zinc-Coated (Galvanized) or Zinc Iron Alloy-Coated (Galvanealed) by the Hot-Dip Process.

B. ASTM A924–General Requirements for Steel Sheet, Metallic Coated by the Hot-Dip Process.

C. ASTM B32–Solder Metal.

D. ASTM B209–Aluminum and Alloy Sheet and Plate.

E. ASTM D4586–Asphalt Roof Cement, Asbestos-Free.

F. SMACNA–Architectural Sheet Metal Manual.

1.03 SUBMITTALS

A. See Section 01 33 00–Submittals for general submittal requirements.

B. Shop drawings: Submit fabrication details, jointing details, fastening methods, and termination details.

1.04 QUALITY ASSURANCE

A. Perform work in accordance with SMACNA standard details and requirements.

1.05 QUALIFICATIONS

A. Fabricator and installer shall be a company specializing in sheet metal fabrication work with a minimum of 5 years of verifiable experience in that field.

1.06 WARRANTY

A. Kynar 500 coating shall be provided with a 20-year guarantee against cracking, chipping, peeling, and fading.

PART 2–PRODUCTS

2.01 MATERIALS

A. Masonry wall flashing and flashing around windows, doors, and other openings shall be 32 mil of self-adhesive rubberized asphalt integrally bonded to 8 mil of cross-laminated, high-density polyethylene film to provide a minimum 40 mil thick membrane. Flashing shall be PERM-A-BARRIER wall flashing as manufactured by Grace Construction Products, or equal. Provide primer or surface conditioner as recommended by manufacturer.

B. Galvanized Steel Sheet: 26 gauge meeting ASTM A525, Grade A with G90 zinc coating.

C. Aluminum Sheet: 0.032 inch thick meeting ASTM B209.

D. Fasteners: Same material and finish as flashing sheet. Stainless steel fasteners may be used with any flashing material. Provide soft neoprene washers with fasteners.

E. Primer: Zinc chromate type.

F. Protective Backing Paint: Bituminous type.

G. Sealant: See Section 07 90 00–Caulking and Sealants.

H. Bedding Compound: Rubber asphalt or butyl type.

I. Plastic Cement: ASTM D4586, Type I or II.

J. Reglets: Galvanized steel or PVC, surface-mounted or recessed, or as shown on the Drawings.

K. Solder: ASTM B32. Soldering is not permitted on aluminum or stainless steel sheet.

2.02 FABRICATION

A. All flashing and fascia shall be formed to the configurations shown on the Drawings and/or the applicable manufacturer’s details, or in accordance with SMACNA standard details where not shown on the Drawings, or in manufacturers details. Form sections true to shape, accurate in size, square, and free from buckles, kinks, or other defects.

B. All exposed edges shall be folded or returned on themselves at least 1/2 inch. Corners shall be mitered and seamed.

C. Form pieces in the longest possible lengths. Form material with flat lock seams.

D. All sections shall be provided with slip joints at 8 feet on center.

E. Cleats shall be fabricated of the same materials as the flashing sheets and shall be interlockable with the sheets.

F. Fabricate vertical faces with bottom edge formed outward 1/4 inch and hemmed to form a drip.

G. Fabricate corners from one piece with minimum 18-inch-long legs. Seam or solder for rigidity and seal with sealant.

2.03 FINISH

A. Back paint all sheet metal with asphaltum paint where sheet metal surfaces come in contact with masonry or steel.

B. Flashing and fascia shall be painted where exposed to view from the ground. Galvanized steel shall be painted in accordance with Section 09 91 00–Painting. Aluminum shall be coated with a Kynar 500 coating system.

PART 3–EXECUTION

3.01 INSTALLATION

A. Through-wall flashing shall be installed 1/2 inch back of the outside face of the wall, carried through the outside wythe, turned up in the collar, and adhered to back-up wall as shown on the Drawings. At no time should any portion of the flashing be allowed to hang or drape beyond the width of the wall. All laps shall be sealed and shall not be less than 3 inches in width. Flashing around openings shall extend at least 3 inches beyond each side of opening.

B. Fit flashing tight in place. Make corners square, surfaces true and straight in planes, and line accurate to profiles. Seal metal joints watertight.

C. Secure flashings in place using concealed fasteners. Use exposed fasteners only where permitted by ENGINEER.

D. Insert flashings into reglets where shown on the Drawings. Seal flashings into reglets with sealant.

E. Counter flashing shall be provided at all vertical masonry and/or concrete walls which extend above the roof line. The counter flashing shall be installed in a reglet unless otherwise shown. Surface-mounted reglets shall be used where noted.

F. CONTRACTOR shall provide copper sleeves for hot pipes penetrating the roof as approved by the roofing manufacturer. The annular space between the sleeve and the pipe shall be packed with insulation capable of withstanding the maximum temperature of the pipe. CONTRACTOR to provide a galvanized steel rain collar welded to the hot pipe.

END OF SECTION

SECTION 07 71 00

MANUFACTURED ROOF SPECIALTIES

PART 1–GENERAL

1.01 SUMMARY

A. Work Included: Metal fascia and soffit.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. SMACNA–Architectural Sheet Metal Manual.

1.03 SUBMITTALS

A. Submittals shall comply with requirements of Section 01 33 00–Submittals.

B. Submit sample panels for selection of anodized or Kynar 500 finish colors.

1.04 QUALITY ASSURANCE

A. Perform work in accordance with SMACNA standard details.

1.05 WARRANTY

A. Kynar 500 coating shall be provided with a 20-year guarantee against cracking, chipping, peeling, and fading.

PART 2–PRODUCTS

2.01 FASCIA

A. Metal fascia system shall be constructed of 24 gauge galvanized steel and shall include all necessary angles, clips, corners, and other accessories of the same material as the finish panels.

B. Acceptable products include the following, or equal: Fascia System by Fabral, Peterson Aluminum Corporation, and shall be made by the same manufacturer as the sheet metal roofing in Section 07 61 00–Sheet Metal Roofing.

2.02 SOFFIT

A. Metal soffit system shall be constructed of 0.032-inch-thick aluminum sheet and shall include all necessary channels, angles, clips, flashing, fasteners, and other accessories of the same material as the soffit panels. Soffit panels shall be fully vented to allow for ventilation and shall have stiffener grooves spaced at 6 inches on center.

B. Acceptable products include the following, or equal: Fabral, PAC 750 by Peterson Aluminum Corporation, and shall be made by the same manufacturer as the sheet metal roofing in Section 07 61 00–Sheet Metal Roofing.

2.03 FINISHES

A. Finish on all products shall be a 1.0 mil DFT two-coat factory-applied 70% Kynar 500 fluoropolymer coating over an epoxy prime coat. Colors shall be selected by OWNER. All exposed fasteners shall be provided with the same finish as the sheet metal products.

PART 3–EXECUTION

3.01 INSTALLATION

A. Install components in accordance with the Drawings and the manufacturer's instructions.

B. Installation details shall be such as to allow for thermal expansion and contraction of the components and to provide for a complete weatherproof installation.

END OF SECTION

SECTION 07 71 23

GUTTERS AND DOWNSPOUTS

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
   1. Aluminum Gutters and Downspouts.
   2. Precast Concrete Splash Pads.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. ASTM B209–Aluminum and Aluminum Alloy Sheet and Plate.

B. SMACNA–Architectural Sheet Metal Manual.

1.03 DESIGN REQUIREMENTS

A. Conform to SMACNA manual for sizing components for a 10-year storm event.

1.04 REGULATORY REQUIREMENTS

A. Conform to the 2018 International Building Code or governing local building code for size and method of rainwater discharge.

PART 2–PRODUCTS

2.01 GUTTERS AND DOWNSPOUTS

A. Gutters and downspouts shall be constructed of 0.032-inch-thick aluminum sheet conforming to ASTM B209 and shall be made from the same manufacturer as the fascia and soffit system.

2.02 ACCESSORIES

A. Anchorage devices shall meet SMACNA or manufacturer’s requirements.

B. Gutter supports shall be straps and fasteners at maximum 3 feet 0 inch on center.

C. Downspout supports shall be brackets of the appropriate size and spacing.

D. Fasteners shall be aluminum or stainless steel.

2.03 SPLASH PADS

A. Splash pads shall be precast concrete of the appropriate size with minimum 28-day compressive strength of 3,000 psi and minimum 5% air entrainment.

2.04 FABRICATION

A. Form gutters and downspouts to SMACNA requirements.

B. Fabricate with required connection pieces.

C. Form sections square, true, and accurate in size, in maximum possible lengths, free of distortion of defects detrimental to appearance or performance. Allow for expansion by providing expansion joints as required.

D. Hem exposed edges of metal.

E. Fabricate gutter and downspout accessories; seal watertight.

2.05 FINISHES

A. Finish on gutters and downspouts shall match finish on fascia system. All components, including fasteners and supports, shall be prefinished to match gutters and downspouts.

PART 3–EXECUTION

3.01 INSTALLATION

A. Install gutters, downspouts, and accessories with manufacturer’s instructions.

B. Join lengths with formed seams sealed watertight. Flash and seal gutters to downspouts and accessories.

C. Install gutters level.

D. Seal metal joints watertight.

E. Set splash pads under downspouts.

END OF SECTION

SECTION 07 84 00

FIRESTOPPING

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
   1. Silicone firestopping foam for sealing annular spaces around ductwork penetrations through fire-rated assemblies.
   2. Silicone firestopping sealant for sealing annular spaces around piping and conduit penetrations through fire-rated assemblies and to seal gaps at intersections of walls and floors/ceilings.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. UL 1479–Fire Tests of Through-Penetration Fire Stops.

B. UL–Fire Hazard Classifications.

1.03 REGULATORY REQUIREMENTS

A. Firestopping materials and installation shall conform to the 2018 International Building Code requirements, including fire-resistance ratings and surface-burning characteristics.

B. Provide certificate of compliance from local building inspector indicating approval of firestopping materials and installation.

1.04 ENVIRONMENTAL REQUIREMENTS

A. A small amount of hydrogen gas is released as the firestopping foam cures. Use forced-air ventilation when installing if areas of installation have less than 2 cubic feet of free air for each pound of liquid mixture being formed.

PART 2–PRODUCTS

2.01 FIRESTOPPING FOAM

A. Firestopping foam for duct penetrations through fire-rated assemblies shall be a foamed-in-place silicone elastomer produced from two liquid components.

B. Acceptable products include the following, or equal: Fire Barrier Rated Foam, FIP 1 Step by 3M Corporation.

2.02 FIRESTOPPING SEALANT

A. Firestopping sealant for piping and conduit penetrations through fire-rated assemblies shall be a single-component silicone elastomer.

B. Acceptable products include the following, or equal: Fire Barrier Silicone Sealant 2000 by 3M Corporation.

2.03 DAMMING MATERIAL

A. Damming material shall be fire-resistant mineral fiber (if left in place) or other combustible material (if removed), as directed by the appropriate fire-tested designs.

2.04 PRIMER AND WRAP STRIP

A. Primer for firestopping sealant shall be 3M Corporation, or equal.

B. Wrap strip for firestopping sealant shall be 3M Fire Barrier FS-195 Wrap/Strip, or equal.

PART 3–EXECUTION

3.01 INSTALLATION

A. Firestopping foam and sealant shall be applied according to manufacturer's written instructions and shall achieve a fire rating equal to rating of construction which is penetrated. Substrate shall be free of all combustible materials (except damming material for later removal), loose impediment, oil, and other free liquids.

B. Install damming material to establish the thickness and hold the firestopping foam/sealant in place. Follow the manufacturer's installation instructions. All gaps or cracks left after damming materials are in place must be sealed.

C. Firestopping Foam: Immediately after mixing, dispense liquid foam into the penetration opening in accordance with manufacturer's installation instructions. Do not overfill penetration openings with liquid foam. Foam expands approximately three times its original volume during cure. Follow manufacturer's guidelines. If the opening is not filled when the cured foam has completed its expansion, repeat the installation and cure procedure until the opening is filled to the desired level. Allow 15 minutes between application of each shot.

D. Firestopping Sealant: Apply primer and wrap strip in accordance with manufacturer's instructions prior to installing sealant. Apply sealant to a minimum depth of 1 1/2 inches and with uniform density and texture.

E. Remove combustible damming material after foam/sealant has cured. Noncombustible damming material may be left in place.

3.02 QUALITY CONTROL

A. Firestopping Foam:
   1. Perform manufacturer's four-step in-line quality control check at least once daily and upon changing to a new lot of material in order to review performance of both dispensing equipment and foam product prior to installing penetration seals. The four-step quality check includes evaluation for: snap time (cure rate); foam color and uniformity; foam cell structure; and foam density (weight).
   2. Check cured penetration seal after 24-hour cure by removing damming materials to examine seal.
   3. Cured foam should completely fill penetration. Fill all remaining gaps with freshly mixed foam or firestopping sealant.
   4. Recheck after added material has cured 24 hours.
   5. Damming materials required to achieve a fire rating must be returned to the penetration.
   6. Clean up spills of liquid components with high-flash mineral spirit solvent, following manufacturer's instructions.
   7. If necessary, trim excess cured foam with a sharp knife or blade.

B. Firestopping Sealant:
   1. Check completed work for complete adhesion and seal 48 hours after sealant application.
   2. Clean adjacent surfaces of excess sealant using a compatible solvent in accordance with the manufacturer's instructions.

END OF SECTION

SECTION 07 90 00

CAULKING AND SEALANTS

PART 1–GENERAL

1.01 SUMMARY

A. Work Included: Caulking and sealants on the project, including primers and backer rod material.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. ASTM C920–Elastomeric Joint Sealants.

1.03 SUBMITTALS

A. Submittals shall comply with provisions of Section 01 33 00–Submittals.

B. Submit color chart for each sealant used on project. Colors will be selected by ENGINEER.

C. Submit copies of warranty.

1.04 WARRANTY

A. Caulked joints shall be weathertight and guaranteed watertight by installer for two years from the earlier of either the date established for partial utilization in accordance with GC 15.03 and 15.04, as modified in the Supplementary Conditions, or Substantial Completion of the project. Deliver original guarantee to OWNER with copies to ENGINEER.

PART 2–PRODUCTS

2.01 CAULK–NONSUBMERGED AND SUBMERGED NON-POTABLE APPLICATIONS–GENERAL

A. Caulk for nonsubmerged and submerged non-potable water contact applications in all locations except floor joints shall be a one-part or two-part polyurethane sealant.

B. Acceptable products include the following, or equal:
1. Masterseal NP1 by Master Builders Solutions.
2. Vulkem 116 by Tremco, Inc. (exterior applications only).
3. Dymonic 100 by Tremco, Inc.
4. Sikaflex-2c NS EZ Mix by Sika Products.

2.02 CAULK–NONSUBMERGED AND SUBMERGED NON-POTABLE WATER APPLICATIONS–FLOOR JOINTS

A. Caulk for floor joints in nonsubmerged and submerged non-potable water contact applications shall be a one-part, self-leveling, polyurethane sealant.

B. Acceptable products include the following, or equal:
   1. MasterSeal SL1 by Master Builders Solutions.
   2. Vulkem 45 SSL by Tremco, Inc.
   3. Sikaflex-2c SL by Sika Products.

2.03 CAULK–VERTICAL EXPANSION JOINTS

A. Caulk at vertical expansion joints in nonsubmerged and submerged non-potable water contact applications shall be a one-part or two-part polyurethane sealant.

B. Caulk shall be capable of ±50% joint movement.

C. Acceptable products include the following, or equal:
   1. Dymonic 100 by Tremco, Inc.
   2. Sikaflex-2c NS EZ Mix by Sika Products.

2.04 CAULK–EXPANSION JOINTS–FLOORS

A. Caulk at floor expansion joints in nonsubmerged and submerged non-potable water contact applications shall be a one-part or two-part polyurethane sealant.

B. Caulk shall be capable of ±50% joint movement.

C. Acceptable products include the following, or equal: Sikaflex-2c SL by Sika Products.

2.05 ACCESSORIES

A. Backer rod shall be flexible, closed-cell polyethylene rod stock sized to be under at least 25% compression when positioned in the joint. In shallow joints and where backer rod is not used, polyethylene bond breaker tape shall be used. It is essential that the caulk bond to the side of the joint but not to the base of the joint.

B. Primer(s) shall be used where required by the manufacturer for the specific product(s) used and the specific application(s) intended. Specific product(s) shall be as recommended by the manufacturer.

C. Cleaning fluid shall be methyl ethyl ketone (MEK), methyl isopropyl ketone (MIK), or similar solvent material which will not etch or mar metal finishes and shall be the product of a nationally recognized manufacturer, of type expressly recommended for use with the caulking or sealant compound used.

PART 3–EXECUTION

3.01 INSTALLATION

A. Seal completely all joints around entire perimeter of all openings in all exterior walls (inside and outside faces), including joints at all exterior doors, windows, louvers, sills, and elsewhere as noted on the Drawings and as necessary to seal all open joints in the building in a complete manner. Joints in exterior walls shall be caulked in a completely weathertight manner. Joints between interior walls and concrete ceilings and other interior joints shall be caulked as indicated on the Drawings. Caulking not specified in other sections shall be performed under this heading.

B. All caulking shall be done in accordance with manufacturer's specifications. Allow minimum 28-day curing period for concrete, grout, or mortar prior to caulking unless requested otherwise. Caulking work shall be done before the final coat of paint is applied except at moving joints which shall be finish painted before caulking or caulking shall be protected during painting. All caulking shall occur only when the temperature is above 40°F.

C. Joints shall be thoroughly cleaned and primed before caulking in accordance with manufacturer's instructions. Unless otherwise shown, joints shall be square in cross section 1/2-inch by 1/2-inch and shall comply with manufacturer's joint width/depth ratio limitations.

D. Backer rod shall be used in all openings 3/4 inch or more in depth and shall be tightly packed to completely fill the space to 1/2 inch back of face. The 1/2 inch shall then be filled with caulking compound.

E. Caulking shall be done by hand gun. Compound shall be driven into joint grooves with sufficient pressure to force out all air and fill joint grooves solidly. Caulking where exposed shall be free of wrinkles and shall be uniformly smooth.

F. At completion of caulking, clean off all excess material from adjoining surfaces and material. Entire installation shall be left in clean, weathertight condition.

3.02 CAULKING EXISTING JOINTS

A. All caulked joints in walls, ceilings, and floors requiring painting in the Room Finish Schedule (see Drawings) shall be recaulked. Existing caulk and backer shall be completely removed. Caulk joints as specified for new construction.

B. Caulking of existing joints shall be coordinated with Section 09 91 00–Painting.

END OF SECTION

SECTION 08 12 13

STANDARD STEEL FRAMES

PART 1–GENERAL

1.01 SUMMARY

A. Work includes nonrated and fire-rated steel door frames.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. ANSI/SD1-100–Standard Steel Doors and Frames.

B. UL 10B–Fire-Rated Tests of Door Assemblies.

1.03 SUBMITTALS

A. Submittals shall be in accordance with provisions of Section 01 33 00–Submittals.

B. In addition to shop drawings and product data, indicate type of primer paint to be used and verify compatibility with field-paint system specified.

1.04 REGULATORY REQUIREMENTS

A. Fire-Rated Frame Construction: Conform to UL 10B and the 2018 International Building Code.

PART 2–PRODUCTS

2.01 FRAMES

A. Steel door frames shall be made of 14 gauge, cold-rolled, prime-quality steel in accordance with ANSI/SD1-100.

B. Fire-rated frames shall carry Underwriters' label on the frame.

C. Frames shall be removable where shown on the Drawings.

2.02 FABRICATION

A. Fabricate frames as welded unit. Weld joints continuously through full throat width of frames, including rabbets, soffits, and stops; grind, fill, dress, and make smooth, flush, and invisible.

B. Welded frames shall be provided with two steel spreaders temporarily attached to the bottom of both jambs to serve as a brace during shipping and handling. Spreader bars are for bracing only and shall not be used to size the frame opening.

C. Mullions for double doors shall be removable type of same profiles as jambs.

D. Frames shall be 2 inches by 5 3/4 inches. Frames shall have 4-inch-head member at 7-foot 0 inch doors in masonry walls.

E. Fabricate frames with hardware reinforcement plates welded in place.

F. All Underwriters' fire-rated frames shall be constructed to meet Underwriters' Laboratories specific approval according to current procedure for the indicated class.

G. Provide anchors appropriate to wall type.

2.03 FINISH

A. Frames shall receive one coat of rust-inhibitive, shop-applied primer paint. Primer paint must be compatible with field-paint system specified.

B. Frames shall be finish painted as specified in Section 09 91 00–Painting prior to installation. This includes back sides of door frames.

PART 3–EXECUTION

3.01 INSTALLATION

A. Install frames in accordance with ANSI/SD1-100.

B. Coordinate installation of frames with wall construction for anchor placement.

C. Coordinate installation of frames with installation of doors, hardware, joint sealers, and field painting.

D. Set all frames as supplied by manufacturer.

E. Frames in masonry walls shall be grouted full.

3.02 SCHEDULE

A. Unless noted otherwise, provide hollow metal frames for all hollow metal and wood doors. See Door Schedule on the Drawings.

END OF SECTION

SECTION 08 14 16

FLUSH WOOD DOORS

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
   1. Solid Core Flush Wood Doors With Veneer Faces.
   2. Fire-Rated Doors Where Indicated or Required.
   3. Louvers.
   4. Factory Prefitting to Frames and Factory Premachining for Hardware.
   5. Factory Finish.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 SUBMITTALS

A. Submit in accordance with Section 01 33 00–Submittals.

B. Product Data: Submit door manufacturer's technical data for each type of door, including details of core and edge construction, trim for openings and louvers, and factory finishing specifications.

C. Shop Drawings: Submit shop drawings indicating location and size of each door, elevation of each kind of door, details of construction, location and extent of hardware blocking, fire ratings, trim for glass and louvers, and requirements for factory finishing and other pertinent data.

1.03 QUALITY ASSURANCE

A. Comply with the following standards:
   1. WDMA Quality Standard: I.S.1 "Industry Standard for Wood Flush Doors," of Window and Door Manufacturer's Association (WDMA).
   2. AWI Quality Standard: "Architectural Woodwork Quality Standards," including Section 1300 "Architectural Flush Doors," of Architectural Woodwork Institute (AWI) for grade of door, core construction, finish, and other requirements exceeding those of NWWDA quality standard.
   3. Fire-Rated Wood Doors: Provide wood doors which are identical in materials and construction to units tested in door and frame assemblies per NFPA 80 and 252 and which are labeled and listed for ratings indicated by Underwriters Laboratories (UL) or Warnock Hersey testing and inspection agency acceptable to authorities having jurisdiction.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Protect doors during transit, storage, and handling to prevent damage, soiling, and deterioration. Comply with requirements of referenced standards and recommendations of NWWDA pamphlet “How to Store, Handle, Finish, Install, and Maintain Wood Doors,” as well as with manufacturer’s instructions.

B. Identify each door with individual opening numbers which correlate with designation system used on schedule and shop drawings for door, frames, and hardware using temporary removable or concealed markings.

1.05 PROJECT CONDITIONS

A. Conditioning:
   1. Do not deliver or install doors until conditions for temperature and relative humidity have been stabilized and will be maintained in storage and installation areas during remainder of construction period to comply with the following requirements applicable to project’s geographical location.
   2. Referenced AWI quality standard including Section 100-S-3 “Moisture Content.”

1.06 WARRANTY

A. Submit two copies of written warranty on door manufacturer’s standard form, signed by the manufacturer, installer, and CONTRACTOR agreeing to repair or replace defective doors which have warped (bow, cup, or twist), or which show telegraphing of core construction in face veneers, or do not conform to tolerance limitations as defined in WDMA Standard Door Warranty, except the WDMA provision for refunding the price received by the door manufacturer for any defective door shall not apply. The warranty shall also include refinishing and reinstallation that may be required because of repair or replacement of defective doors. Warranty shall be in effect during the life of installation.

PART 2–PRODUCTS

2.01 ACCEPTABLE MANUFACTURER’S AND PRODUCTS

A. Doors shall be:
   1. Algoma Hardwoods, Inc.–Novodor.
   2. Eggers Industries–Architectural Wood Door-Particle.
   3. Weyerhauser Company–Timblend Particleboard Core (DPC-1), or equal.

B. Core shall be 1 3/4 inches thick.

C. Face veneer shall be AWI “premium” Grade A face veneers, plain-sliced, book matched select white hard maple for transparent finish. Provide exposed solid wood components of the same specie as face veneer for wood stops.

D. Provide manufacturer’s standard core reinforcement material at top rail and lock blocks at both vertical stiles to allow surface-mounted hardware to be attached with screws.

E. Provide wood beads for light opening in doors.

F. Metal louvers shall be inverted V-type, fabricated from 20 gauge, galvanized steel, baked-enamel finish, color to be selected by OWNER. See Door Schedule for location and size required for each louver.

2.02 FABRICATION

A. Factory prefit and premachine doors to fit frame opening sizes indicated complying with tolerance requirements of AWI for prefitting. Comply with final hardware schedules and door frame shop drawings and with hardware templates.

B. Coordinate measurements of hardware mortises in metal frames to verify dimensions and alignment before proceeding with factory premachining.

C. Cut and trim openings through doors and panels as shown. Comply with applicable requirements of referenced standards for kind and quality of door shown and specified. Trim openings for nonrated doors with solid wood moldings of profile shown, or if not otherwise shown, with rectangular section, flush with faces of door.

2.03 FRAMES

A. Frames for wood doors shall be hollow metal as noted in the Door Schedule. See Section 08 14 16–Flush Wood Doors.

2.04 FACTORY FINISH

A. All doors (including beading and moldings) to be finished at the factory, with UV-cured system with performance properties equivalent to TR-6 Catalyzed Polyurethane. Factory prefinished doors to be individually protected at the factory. Final color, build, and sheen to be approved by OWNER based on actual review samples.

PART 3–EXECUTION

3.01 INSTALLATION

A. Condition doors to average prevailing humidity in installation area prior to hanging.

B. Prepare doors to receive hardware; refer to Section 08 71 00–Door Hardware for hardware.

C. Install wood doors to comply with manufacturer’s instructions and of referenced AWI standard and as indicated.

D. Provide openings in doors as indicated or scheduled. Install glass and/or metal louvers in prepared openings in accordance with manufacturer’s recommendations.

E. Doors shall be finished prior to installation.

3.02 ADJUSTING AND PROTECTION

A. Rehang or replace doors which do not swing or operate freely.

B. Refinish or replace doors damaged during installation.

C. Protect doors as recommended by door manufacturer so that wood doors will be without damage or deterioration at time of Substantial Completion.

3.03 SCHEDULE

A. See Door Schedule on the Drawings.

END OF SECTION

SECTION 08 17 43

ALUMINUM AND FIBERGLASS DOORS AND FRAMES

PART 1–GENERAL

1.01 SUMMARY

A. Work includes thermally-insulated aluminum doors and frames and fiberglass doors and frames for fire rated doors.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 WARRANTY

A. Provide 10-year warranty on doors and frames signed by manufacturer, installer, and CONTRACTOR.

PART 2–PRODUCTS

2.01 ALUMINUM DOORS

A. Thermally-insulated aluminum doors shall be 1 3/4 inches total thickness with a 1 1/2-inch rigid polyurethane core.

B. Acceptable products include the following, or equal: Special-Lite, Inc., SL-16.

2.02 FIBERGLASS DOORS (FIRE RATED)

A. Door shall be 1-7/8 inches thick with mineral core and tectonite stiles.

B. Acceptable products include the following, or equal: Special-Lite, Inc., SL-20 Sandstone Texture.

2.03 DOOR FRAMES

A. Frames shall have 4-inch head member at 7-foot 0 inch doors in masonry walls.

B. Aluminum frames shall be tube-type, minimum 0.125-inch thick.

C. Fire rated frames shall be FR-Series fiberglass frames.

2.04 FABRICATION

A. Aluminum door face sheets shall be laminated to the polyurethane core. Face sheets shall be 0.125-inch-thick aluminum skin in smooth texture. Stiles and rails shall be minimum 2 5/16 inches depth by 0.125-inch-thick aluminum, 6063-T6 aluminum alloy.

B. Fiberglass fire rated doors shall have 0.120-inch thick, Sandstone texture, through color FRP face sheets. Edge channels shall be stainless steel 0.062 inch thick and 3/4 inch leg.

C. All doors shall be mortised and reinforced to receive hardware.

D. Frames shall be prepared for all door hardware.

E. Door lights shall be factory installed and glazed prior to shipment. See Section 08 81 00-Glazing for lights.

2.05 FINISH

A. Color of fiberglass door face sheets shall be chosen by OWNER from manufacturer's standard colors. Aluminum frames and doors shall have a Class 1 clear anodized finish.

PART 3–EXECUTION

3.01 INSTALLATION

A. Set all doors and frames as supplied by manufacturer. Use masonry anchors to support frame.

B. Hang all doors allowing for expansion and contraction at time of setting.

C. Set all hardware in accordance with templates as supplied by hardware supplier.

D. Cover all exposed hardware until completion of painting and finishing.

E. Examine hardware at completion; test, oil, grease, and adjust as needed for smooth operation.

3.02 SCHEDULE

A. See Door Schedule on the Drawings.

END OF SECTION

SECTION 08 31 13

ACCESS DOORS AND FRAMES

PART 1–GENERAL

1.01 SUMMARY

A. Work included: Aluminum floor doors and frame units.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

PART 2–PRODUCTS

2.01 ALUMINUM FLOOR DOORS AND FRAMES

A. Acceptable products include the following, or equal: The Bilco Company, Type J, Nystrom, or equal, as scheduled.

B. Type J doors shall be designed for a minimum live load of 300 psf with a maximum deflection of 1/150 of span.

C. Doors shall be constructed of stiffened 1/4-inch aluminum diamond-pattern plate.

D. Channel frame for Type J doors shall be 1/4-inch extruded aluminum with bend-down anchor tabs. Depth of frame shall be 6 inches. A continuous EPDM gasket shall be mechanically attached to the frame around the entire perimeter.

E. Hinges shall be through bolted to the door and frame with tamper-proof Type 316 stainless steel lock bolts.

F. Provide 1 1/2-inch drain coupling located in corner of channel frame for Type J doors.

G. Type J doors shall be equipped with required number and size of compression spring operators for door to operate easily and smoothly. Provide heavy-forged cam-action hinges to open door so edge of door does not open into channel. Doors shall have smooth controlled operation and not be affected by temperature.

H. Provide hold-open arm that automatically locks in open position. Provide snap lock with fixed handle mounted to underside of cover. Provide removable exterior turn/lift handle with spring-loaded ball detent to open cover. All hardware shall be Type 316 stainless steel for corrosive environment.

2.02 FINISH

A. Aluminum floor doors and frames shall have mill finish. Apply bituminous coating to portions of frames in contact with concrete.

2.03 ACCESSORIES

A. Provide 8 Bilco Ladder-Up devices at Structure 70 for cover access doors that have a ladder access. Materials and finishes shall be aluminum, mill finish.

B. All aluminum floor door openings shall be fitted with a permanently installed, fall-through prevention grating system that is easily retractable for access to the opening below. Grating system shall be factory installed by access door manufacturer.

C. Performance Characteristics:
   1. Grating panel(s) shall be high visibility safety yellow in color.
   2. Grating panel(s) shall lock automatically in the full open position.
   3. Grating system shall have a 25-year warranty.
   4. Grating panel(s) shall have a provision for locking to prevent unauthorized opening.

D. Grating: Panels shall be aluminum with a powder coat paint finish and designed to meet OSHA 1926.502(c) and 1910.29 requirements for fall protection.

E. Hold Open Feature: A Type 316 stainless hold open device shall be provided to lock the cover in the fully open 90-degree position.

F. Hardware: All hardware shall be Type 316 stainless steel.

PART 3–EXECUTION

3.01 INSTALLATION

A. Installation shall be in accordance with manufacturer's instructions and approved submittals. Locate units level, plumb, and in proper alignment with adjacent work.

B. Provide piping from channel frames for Type J floor doors from outlet to base of wall nearest floor drain or through wall to ground for tank structures. Terminate pipe in minimum 1 cubic foot of clear stone if termination is below ground.

3.02 ADJUSTING AND CLEANING

A. Clean exposed surfaces using methods acceptable to the manufacturer that will not damage finish.

B. Test units for proper function and adjust until proper operation is achieved.

C. Repair finishes damaged during installation.

D. Restore finishes so no evidence remains of corrective work.

3.03 SCHEDULE

A. See Door Schedule on the Drawings.

END OF SECTION

SECTION 08 33 23

OVERHEAD COILING DOORS

PART 1–GENERAL

1.01 SUMMARY

A. Work includes insulated overhead coiling door with electric operation, operating hardware, controls, and supports.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. ASTM A653–Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

1.03 REGULATORY REQUIREMENTS

A. Conform to the 2018 International Building Code for motor and motor control requirements.

B. Products requiring electrical connection shall be listed and classified by Underwriters' Laboratories, Inc. as suitable for the purpose specified and indicated.

PART 2–PRODUCTS

2.01 MANUFACTURERS

A. Acceptable manufacturers include the following, or equal: Overhead Door Co. Series 625 Insulated Stormtite door, Raynor Series IF, or equal.

2.02 MATERIALS

A. Curtain:
   1. Curtain slats shall be Type F-265I flat crown, pitch 2 5/8 inches, 0.040-inch aluminum. Back cover shall be 0.024-inch aluminum.
   2. Slat system shall be integral and foamed in place with polyurethane foam nominal 2-pound density applied between the slat and back cover, rising to bond the slat and back cover into an integral member with a thickness of 3/4 inch.
   3. End locks shall be used on alternate slats. Provide wind locks as required for 25 psf design wind load.

B. Bottom Bar: The bottom bar shall be two aluminum angles, minimum thickness 1/8 inch, bolted back-to-back to reinforce the curtain in the guides, and have a loop-type weather seal.

C. Guides:
   1. Guides shall be three aluminum angles with a minimum thickness of 3/16 inch.
   2. Guides shall be equipped with full door height PVC weather seals contacting the exterior and interior curtain surfaces to minimize air flow.
   3. Guides shall be insulated full height and shall be equipped with wind lock bars to meet 25 psf design wind load.

D. Brackets:
   1. Brackets shall be minimum 3/16-inch-thick steel plate to support the barrel, counterbalance, and hood.
   2. Provide intermediate support brackets as necessary.

E. Counterbalance:
   1. Counterbalance shall be helical torsion springs housed in a steel pipe barrel, supporting the curtain with a deflection limited to 0.03 inch per foot of width.
   2. Counterbalance shall be adjustable by means of an external adjusting tension wheel and designed for minimum 20,000 cycles.

F. Hood:
   1. The hood shall be 0.024-inch aluminum minimum.
   2. The hood shall have an internal baffle and an external lintel baffle to retard air infiltration.

G. Locking: Manual chain hoist-operated doors shall have chain-keeper locks suitable for padlocking.

H. Manual Operator: Chain hoist.

I. Electric Components:
   1. Electric operator shall be Model RHX by Overhead Door Corp., or equal. Operator shall be 3/4 horsepower, 208 volts, three-phase. Operator shall be equipped with quick-release equipment for manual operation in case of emergency or power failure.
   2. Provide one interior NEMA 12 or NEMA 4X, as noted on the Drawings, 3-button control station for each door, open/close/stop, 24-volt circuit.
   3. Provide remote control radio transmitters (quantity 12) with open, close, and stop functions and a NEMA 1 radio receiver for each door operator. Receiver shall have three isolated contacts: open, close, and stop. Transmitter shall be Allstar Model 639 and receiver shall be Allstar Model 831J, or equal. Provide coaxial antenna kit with cable as required to remote mount antenna on exterior of building.
   4. Each door with electric operator shall have electric sensing edge to stop and reverse the door upon contacting an object while closing. Sensing edge shall be powered from the electric operator and monitored in accordance with UL 325:2010. Sensing edge shall be as manufactured by Miller Edge Model MGO20Y, with 25 feet of factory-provided cable, or equal.
   5. Each door with electric operator shall have infrared optoelectronic sensors mounted maximum 6 inches above the floor to stop and reverse the door upon sensing an object while closing. Provide manufacturer’s mounting adapters. Sensors shall be powered from the electric operator and monitored in accordance with UL 325:2010. Sensors shall have visible LEDs to indicate power and proper alignment and shall utilize self-adjusting light intensity. Sensors shall be constructed of polypropylene and rated NEMA 4X. Sensors shall be as manufactured by Vitector Model OSE with 50 feet of factory-provided cable, or equal. Sensors shall be tested with the electric operator to comply with UL 325:2010.

2.03 FINISHES

A. The curtain and hood shall receive a clear anodized finish.

B. All nongalvanized, exposed ferrous surfaces shall receive one coat of manufacturer's standard factory-applied rust-inhibitive primer compatible with field paint.

C. All nongalvanized, ferrous surfaces that will become inaccessible after installation shall be finish painted as specified in Section 09 91 00–Painting prior to installation.

PART 3–EXECUTION

3.01 INSTALLATION

A. Door shall be installed in accordance with manufacturer's instructions and standards by an authorized representative.

B. Upon completion of installation, operating devices and controls shall be adjusted and lubricated to operate properly.

3.02 SCHEDULE

A. See Door Schedule on the Drawings.

END OF SECTION

SECTION 08 36 13

SECTIONAL OVERHEAD DOORS

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
   1. Electrically Operated Insulated Overhead Sectional Door.
   2. Operating Hardware, Controls, Track, and Supports.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. ASTM A653–Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

B. ASTM E283–Standard Test Method for Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors.

C. ANSI/NFPA70–National Electrical Code.

1.03 SYSTEM REQUIREMENTS

A. Total air leakage through the doorway opening at a wind velocity of 15 mph shall be 0.08 cfm per square foot or less in accordance with ASTM E283.

1.04 SUBMITTALS

A. Submittals shall be in accordance with provisions of Section 01 33 00–Submittals.

B. Submit air leakage test data done by lab in accordance with ASTM E283.

1.05 REGULATORY REQUIREMENTS

A. Conform to the 2018 International Building Code for motor and motor control requirements.

B. Products requiring electrical connection shall be listed and classified by Underwriters Laboratories, Inc. as suitable for the purpose specified and indicated.

PART 2–PRODUCTS

2.01 INSULATED DOORS

A. Thermally insulated sectional overhead doors shall be nominal 2 inches thick, ribbed, embossed panels with 0.015-inch-thick minimum G30 galvanized exterior steel face and

minimum G40 galvanized interior steel face in accordance with ASTM A653 and polyurethane core.

B. Acceptable products include the following, or equal:
   1. Wayne Dalton Thermospan 200.
   2. Overhead Door Corporation Thermacore 592.

2.02 ELECTRICAL COMPONENTS

A. Electric operator shall be drawbar center-type, three-phase 3/4 horsepower, 208 volts. Operator shall be equipped with quick-release equipment for manual operation in case of emergency or power failure.

B. Provide one interior NEMA 12 3-button control station for each door, open/close/stop, 24-volt circuit.

C. Provide one NEMA 4X exterior, surface-mounted, keyed open/close/stop control station for each door.

D. Provide remote control radio transmitters (quantity 4) with open, close, and stop functions and a NEMA 1 radio receiver for each door operator. Receiver shall have three isolated contacts: open, close, and stop. Transmitter shall be Allstar Model 639 and receiver shall be Allstar Model 831J, or equal. Provide coaxial antenna kit with cable as required to remote mount antenna on exterior of building.

E. Each door with electric operator shall have electric sensing edge to stop and reverse the door upon contacting an object while closing. Sensing edge shall be powered from the electric operator and monitored in accordance with UL 325:2010. Sensing edge shall be as manufactured by Miller Edge Model MGO20Y, with 25 feet of factory-provided cable, or equal.

F. Each door with electric operator shall have infrared optoelectronic sensors mounted maximum 6 inches above the floor to stop and reverse the door upon sensing an object while closing. Provide manufacturer’s mounting adapters. Sensors shall be powered from the electric operator and monitored in accordance with UL 325:2010. Sensors shall have visible LEDs to indicated power and proper alignment and shall utilize self-adjusting light intensity. Sensors shall be constructed of polypropylene and rated NEMA 4X. Sensors shall be as manufactured by Vitector Model OSE with 50 feet of factory-provided cable, or equal. Sensors shall be tested with the electric operator to comply with UL 325:2010.

2.03 ACCESSORIES

A. Provide springs rated at 10,000 cycles.

2.04 FABRICATION

A. Insulated doors shall have a thermal break between exterior and interior faces.

B. Insulated doors shall have joint seals between sections, jamb seals, top seal, and a U-type threshold gasket.

C. Track shall be 2 inches, minimum 14 gauge galvanized steel. Provide high-lift track where noted.

D. Doors with electric operators shall be provided without interior slide lock. Provide lock on manually operated doors only.

2.05 FINISH

A. Exterior face shall be primed with a baked-on polyester primer and finished with a baked-on polyester finish coat. Color shall be selected by OWNER.

B. Interior face shall be primed and finish-coated with baked-on polyester. Color shall be white.

C. All other ferrous surfaces, except galvanized surface and working parts of machinery, shall receive one shop-coat of rust-inhibitive metal primer. Primer shall be compatible with field-paint system. Those areas that will become inaccessible after installation shall be finish painted as specified in Section 09 91 00–Painting prior to installation.

PART 3–EXECUTION

3.01 INSTALLATION

A. Erection shall be performed in accordance with the manufacturer's standards and instructions by their authorized representatives.

B. All required casing materials shall be provided by CONTRACTOR.

C. Upon completion of installation, operating devices and controls shall be adjusted and lubricated to operate properly.

3.02 SCHEDULE

A. See Door Schedule on the Drawings.

END OF SECTION

SECTION 08 51 13

ALUMINUM WINDOWS

PART 1–GENERAL

1.01 SUMMARY

A. Work includes exterior extruded aluminum window frames.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. AAMA 101–Specifications for Aluminum Prime Windows and Sliding Glass Doors.

B. ASTM E283–Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors.

C. ASTM E330–Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.

D. ASTM E331–Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.

E. ASTM B221–Aluminum-Alloy Extruded Bar, Rod, Wire, Shape, and Tube.

F. AAMA 611–Specification and Inspection Methods for Electrolytically Deposited Color Anodic Finishes for Architectural Aluminum.

1.03 PERFORMANCE REQUIREMENTS

A. Design and size components to withstand a minimum static air pressure difference of 90 psf for exterior windows and 60 psf for interior windows in accordance with ASTM E330.

B. Limit member deflection to 1/175 with full recovery of glazing materials.

C. System to accommodate, without damage to components or deterioration of seals, movement between window and perimeter framing, deflection of lintel.

D. Limit air leakage through assembly to 0.10 cfm/min/sq ft of wall area measured at a reference differential pressure across assembly of 6.24 psf as measured in accordance with ASTM E283.

E. Water leakage: None when measured in accordance with ASTM E331 with a test pressure difference of 10 psf.

1.04 SUBMITTALS

A. Submittals shall be in accordance with provisions of Section 01 33 00–Submittals.

PART 2–PRODUCTS

2.01 EXTERIOR WINDOWS

A. Exterior window frames shall be 2-inch-deep extruded aluminum, in accordance with ASTM B221, with thermobreak.

B. Acceptable products include the following, or equal:
   1. Kawneer Sealair 8225T Isolock, Fixed and Casement Windows.
   2. Oldcastle Signature Series 12P Fixed and Casement Windows.

2.02 FABRICATION

A. Aluminum extrusions shall be not less than 0.125-inch thick.

B. All fabrication and erection fasteners shall be 18-8 stainless steel.

C. Unless shown otherwise, provide 0.040-inch aluminum sill plates on exterior of window. Finish shall match window.

D. Permit internal drainage weep holes and channels to migrate moisture to exterior. Provide internal drainage of glazing spaces to exterior through weep holes.

E. Nominal window height and length for all windows shall be as shown in the schedule. CONTRACTOR shall measure all openings and coordinate sizes with window supplier.

2.03 FINISH

A. Finish on all exposed aluminum shall be architectural class 1, anodic coating, confirming to AAMA 611. Color to be selected by OWNER.

PART 3–EXECUTION

3.01 INSTALLATION

A. Field verify wall opening sizes.

B. Frames shall be securely attached to masonry as recommended by the window manufacturer.

3.02 SCHEDULE

A. See Window Schedule on the Drawings.

END OF SECTION

SECTION 08 71 00

DOOR HARDWARE

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
   1. Hardware to Fully Equip All Doors.
   2. Thresholds and Weatherstripping.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. NFPA 80–Fire Doors and Windows.

1.03 REGULATORY REQUIREMENTS

A. Hardware shall conform to the 2018 International Building Code for requirements applicable to fire-rated doors and frames. Hardware shall comply with NFPA 80 and shall be properly stamped or labeled for easy identification.

B. Hardware for all buildings shall comply with barrier-free requirements.

PART 2–PRODUCTS

2.01 LOCKSETS AND LATCHSETS

A. Mortise locksets and latchsets with stainless steel (ss) finish, as indicated in Paragraph 3.02 Schedule shall be Sargent mortise type Series 8200 line, Style L, Schlage L9000 Series, or equal.

B. Locksets and latchsets without stainless steel (ss) finish shall be Sargent cylindrical type Series 10L, Schlage D Line, Best Access Systems 9K Series, or equal.

C. Locksets and latchsets shall have 2 3/4-inch backset. Strikes shall be curved lip.

D. Lockset and latchset numbers listed in Paragraph 3.02 Schedule are Sargent or Accurate (listed first) followed by Schlage or Schwepper number (listed second in parentheses).

E. Provide removable core brass 6- or 7-pin cylinders for all locksets and latchsets.

2.02 EXIT DEVICES

A. Exit devices shall be Sargent 8813 x ETL Series, or equal, and shall be equipped with reinforced cross bars and functions as indicated on the hardware sets. The exit device shall be operated by a lockable lever from the exterior side.

2.03 HINGES

A. Butt hinges shall be Stanley FBB 191, Hager BB 1191, or equal, full mortise, ball bearing, nonferrous, nonrising, loose pin, and flat bottom tip, unless otherwise specified. Provide three 4 1/2-inch by 4 1/2-inch hinges per door for doors 7 feet or less in height with one additional hinge for each additional 30 inches or fraction thereof, unless otherwise specified. Provide additional hinges or heavyweight hinges for all doors that are over 36 inches wide, unless specified otherwise. Finish on aluminum entrance doors shall match framing. Electrified hinge shall be Stanley CEFBB191.

2.04 DOOR CLOSERS

A. Door closers shall be LCN Series 1460 for exterior doors and 1461 for interior doors, or equal. Provide aluminum finish on closers. Provide full covers. Door closers for locations noted as (ss) shall have the SRI primer for corrosion resistance. Door closers specified in paragraph 3.02 are LCN. (H-Hold Open).

2.05 OVERHEAD DOOR HOLDERS

A. Overhead door holders shall be Glynn Johnson GJ 81H Series, or equal, unless otherwise specified. Holders for locations noted as (ss) shall be fabricated with stainless steel components. Numbers specified in Paragraph 3.02 are Glynn Johnson.

2.06 SURFACE BOLTS

A. Surface bolts shall be 8-inch Ives 1630 series, or equal. At doors with (ss) hardware, bolts shall be 8-inch Ives 1640 Series, or equal.

2.07 KICKPLATES

A. Kickplates shall be Rockwood, or equal, 6 inches high. Kickplate width shall be 2 inches less than door width.

2.08 DOOR STOPS

A. Provide wall- or floor-mounted door stops at all interior doors. Stops shall be Glynn Johnson GJFB-13, GJ60C, or GJ60W for locations noted as (ss), or equal.

2.09 THRESHOLD AND WEATHERSTRIPPING

A. All exterior doors shall be weatherstripped with Reese DS75, National Guard Products, Inc. 156, or equal, weatherstripping. Provide Reese 323C, Pemko 315AN, or equal, sweeps; and Reese S425A, Pemko 171A (provide Reese S439A, Pemko 273A, for areas with thicker flooring on one side), or equal, thresholds. Exterior doors without mullion shall have Reese No. 87, Pemko 352A, or equal, positive sealing astragal.

2.10 KEYING

A. Door keys shall be keyed to match OWNER's existing lock system. Provide two keys per lock. Doors shall have temporary construction cylinders. Provide permanent cylinders at project completion.

2.11 ROLLER LATCH

A. Roller latch shall be Glynn Johnson GJ32, or equal.

2.12 FINISH

A. Finish for all hardware, except as noted below, shall be US 26D or US 32D where stainless steel (ss) hardware is specified in Paragraph 3.02.

B. Finish for surface bolts shall be US 26D; finish for kickplates shall be 32D.

C. Where stainless steel (ss) is specified, all hardware, including threshold and weatherstripping, shall be installed with stainless steel fasteners.

PART 3–EXECUTION

3.01 INSTALLATION

A. Provide finish hardware to fully equip all doors.

B. Install hardware in accordance with manufacturer's instructions.

3.02 SCHEDULE

A. Provide the following hardware groups in the amounts indicated on the door schedule or required for a complete and proper installation:

Group 1

Lockset–10G05 (ND92PD)
Door Closer–1460H
(Parallel Arm)
Hinges and Kickplate
Electric Strike

Group 2

Lockset–8205LNL (ss) (L9050)
Door Closer–1460 (ss)
(Parallel Arm)
Hinges and Kickplate (ss)
Electric Strike

Group 3

Exit Device–8813 x PRK (ss)
Door Closer–1460 (ss)
(Parallel Arm)
Hinges and Kickplate (ss)
Electric Strike

Group 4

Lever–Rigid, each face
Surface bolts–One top and bottom
Overhead Door Holder GJ 81 H–HD
Electrified Hinges and Kickplate
Electric Strike

Group 5

Lever–Rigid, each face (ss)
Surface bolts–One top and bottom (ss)
Overhead Door Holder GJ 81 H–HD (ss)
Electrified Hinges and Kickplate (ss)
Electric Strike

Group 6

Latchset 10U15 (ND10S)
Door Closer–1460 BF (Regular Arm)
Hinges and Kickplate

Group 7

Lockset 10U65 (ND40S)
Hinges

Group 8

Exit Device 8813
Door Closer–1460 BF (Regular arm)
Hinges and Kickplates

Group 9

Latchset 10U15 (ND10S)
Hinges

Group 10

Push Plate and Pull
Door Closer–1460 (Regular arm)
Hinges and Kickplate

Group 11

Latchset 10U15
Holder
Hinges and Kickplates

Group 12

Push Bar and Pull
Holder
Hinges

Group 13

Exit Device 8813
Door Closer–1460 BF (regular arm)
Hinges and Kickplates
Electric Strike

END OF SECTION

SECTION 08 81 00

GLAZING

PART 1–GENERAL

1.01 SUMMARY

A. Work includes glass and glazing for door lights.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. GANA–Glass Association of North America.

B. NFPA 257–Standard on Fire Test for Window and Glass Block Accessories.

C. NFPA 80–Standard for Fire Doors and Other Opening Protectives.

D. UL 9–Standard for Safety Fire Tests of Window Assemblies.

1.03 WARRANTY

A. Exterior insulating glass shall be provided with a 10-year warranty against failure of the seal.

B. Coated glass shall be provided with a 10-year warranty against peeling, cracking, or deterioration of the coating.

PART 2–PRODUCTS

2.01 EXTERIOR GLASS

A. Glass in exterior door lights shall be 1-inch-thick insulating glass consisting of two pieces of 1/4-inch float glass separated by a 1/2-inch air space.

B. Acceptable manufacturers include the following, or equal: Oldcastle Glass Company, PPG Solarban 70XL.

C. Glass shall be Low-E with clear tint outboard light and clear tint inboard light with the following maximum values, or equal.

	Shading Coefficient	U-Value		
		Winter	Summer	SHGC
Clear	.32	.28	.26	.27

D. Exterior door lights shall have tempered glass in compliance with the governing building code.

2.02 INTERIOR GLASS

A. Glass in interior door lights, except as noted, shall be 1/4-inch-thick float glass, fully tempered.

B. Acceptable manufacturers include the following, or equal: Oldcastle Glass Company, PPG.

2.03 FIRE RATED GLASS

A. Fire rated glass shall be Pilkington Pyrostop manufactured by Pilkington Group, or equal.

B. Fire rated glass shall comply with NFPA 257 or UL 9 and NFPA 80.

C. Glazing accessories, manufacturer's standard compression gaskets, standoff spacers, setting blocks, and other accessories necessary to complete installation.

2.04 GLAZING COMPOUNDS AND ACCESSORIES

A. Glazing system shall consist of a polyisobutylene-butyl tape, liquid polymer sealant, and vinyl roll-in strip.

B. Acceptable products include the following, or equal:
1. Tremco Vision Strip System.
2. General Electric Silglaze.

2.05 FABRICATION

A. Glazing of windows shall be from the interior.

B. Accessories such as setting blocks, clips, etc., shall be provided to properly set glass.

C. Obtain sizes from work at the site or from the manufacturer of work into which the materials will be set. Responsibility for the correctness of measurements shall be assumed by CONTRACTOR.

PART 3–EXECUTION

3.01 INSTALLATION

A. Comply with "Glazing Manual" by Glass Association of North America (GANA), except as specifically recommended otherwise by manufacturers of the glass and glazing materials.

B. Completed installation shall be water- and airtight.

END OF SECTION

SECTION 09 51 00

SUSPENDED ACOUSTICAL CEILINGS

PART 1–GENERAL

1.01 SUMMARY

A. Work includes normal acoustical ceilings, laboratory ceilings, and suspended grid system.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. ASTM C423–Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.

1.03 SUBMITTALS

A. Submittals shall be in accordance with provisions of Section 01 33 00–Submittals.

B. Submit samples for ENGINEER's review before installation.

1.04 EXTRA MATERIAL

A. Provide an extra package of each type of ceiling tile used.

PART 2–PRODUCTS

2.01 SUSPENSION SYSTEM

A. Suspension system for normal acoustical shall be rolled-steel exposed grid system with white aluminum bottom trim, PRELUDE ML 15/16 inch by Armstrong, or equal. Suspension system for moisture-resistant, and laboratory acoustical ceiling shall be rolled-aluminum exposed grid system with white finish, AL PRELUDE 15/16 inch by Armstrong, or equal. Anchor suspension systems to roof with galvanized steel hanger wire.

B. The suspension system shall support the ceiling assembly with a maximum deflection of 1/360 of the span.

2.02 NORMAL ACOUSTICAL CEILINGS

A. Unless otherwise specified, acoustical ceiling material in rooms with suspended ceilings shall be Cortega Tegular as manufactured by Armstrong, or equal. Finish shall be 24 inches by 24 inches by 5/8 inch thick. Edge shall be Angled Tegular.

2.03 LABORATORY CEILINGS

A. Ceiling in laboratory areas shall be Armstrong VL-Perforated, Special Performance, or equal. Finish size shall be 24 inches by 24 inches and 3/4-inch thick.

PART 3–EXECUTION

3.01 INSTALLATION

A. Coordinate grid layouts with building electrical plan sheets.

B. The systems shall be installed to permit border units of the greatest possible size.

C. All members shall be aligned for true, level surface, and straight lines.

D. Metal moldings shall be provided at the perimeter of the ceiling, at the face of beams, and at all openings.

E. Where conduits, pipes, or ductwork penetrate ceiling, they shall be banded by properly supported ceiling grid.

F. Cut recess into edge of field cut panels to match full-size panels where recessed edges are provided.

G. Remove and reinstall all piping, conduit, lights, etc., to allow installation of ceiling in existing building.

3.02 CLEANING AND ADJUSTING

A. Remove and replace units which are damaged or improperly installed.

B. Following installation, clean soiled or discolored surfaces of units.

3.03 SCHEDULE

A. Acoustical ceiling board and grid system suspended from ceilings shall be provided in rooms indicated on the Finish Schedule on the Drawings.

END OF SECTION

SECTION 09 67 00

FLOOR COATING SYSTEMS

PART 1–GENERAL

1.01 WORK INCLUDED

A. Furnish necessary material, labor, and equipment required to prepare designated areas and install the following floor coating systems: One-eighth-inch decorative mosaic epoxy system.

1.02 RELATED WORK

A. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.03 QUALITY ASSURANCE

A. Manufacturer's Qualifications: Obtain materials from a single manufacturer with a minimum of 5 year’s verifiable experience providing materials of the type specified in this section.

B. CONTRACTOR's Qualifications: Installation must be performed by a manufacturer certified contractor with skilled mechanics having not less than 3 year’s satisfactory experience in the installation of the type of systems as specified in this section, and must be certified in writing by the manufacturer.

1.04 WARRANTY

A. Standard One-Year Warranty: Unless otherwise stated below, manufacturer shall warrant the system to be free from defects in material and workmanship for a period of one year from the earlier of either the date established for partial utilization in accordance with GC15.03 and 15.04, as modified in the Supplementary Conditions, or Substantial Completion of the project.

1.05 SUBMITTAL

A. System Data: Submit manufacturer's specifications on cured system and individual components of each system, including physical properties and performance properties and tests described in Paragraph 2.01 and submit Safety Data Sheets. Each individual component of the system will be evaluated on the basis of these standards. For any tests not listed in the manufacturer's standard nationally published data, the manufacturer must supply the missing data accompanied by the independent testing laboratory's test results which prove compliance in accordance with the referenced standard(s). Manufacturer's standard color chart shall also be submitted and must afford OWNER color selection from at least nine standard colors for Epoxy Slurry System and Urethane Slurry System and 24 standard colors for Decorative Epoxy System.

B. CONTRACTOR shall submit a 6-inch by 6-inch cured system sample which CONTRACTOR has made for verification purposes and finish texture approval of each system.

C. CONTRACTOR Experience: CONTRACTOR shall furnish a list of projects using either specified material or equivalent that they have installed during the last 5 years. Information shall include: project name, square footage, OWNER contact name with OWNER's address and phone number. Also, CONTRACTOR shall furnish résumés detailing the experience of key project personnel including supervisors and mechanics.

D. CONTRACTOR shall submit a copy of the manufacturer's packing slip, tagged for this specific job, along with calculations, signed by an officer of the primary material supplier demonstrating that the quantity of material furnished for the project will achieve the specified coverage and mil thickness.

1.06 MATERIAL DELIVERY, HANDLING AND STORAGE

A. Primary system materials shall be delivered in the manufacturer's undamaged, unopened containers. Each container shall be clearly marked with the following:
   1. Product name(s) and/or Number(s).
   2. Manufacturer's name.
   3. Component designation (A, B, etc.).
   4. Product Mix Ratio.
   5. Health and Safety Information.
   6. CHEMTREC Emergency Response Information.

B. Provide equipment and personnel to handle the materials by methods which prevent damage.

C. CONTRACTOR shall promptly inspect direct jobsite material deliveries to review that quantities are correct, comply with requirements and are not damaged.

D. CONTRACTOR shall be responsible for materials they furnish and shall replace, at their own expense, such materials that are found to be defective in manufacture or that have become damaged in transit, handling, or storage.

E. Store material(s) in accordance with manufacturer's instructions, with seals and labels intact and legible. Maintain temperatures within the required range. Do not use materials which exceed the manufacturer's maximum recommended shelf life.

1.07 JOB CONDITIONS

A. CONTRACTOR shall visit the jobsite prior to the installation of each system to evaluate substrate condition, including substrate moisture transmission, quantity and severity of cracking, and the extent of repairs needed. Substrate imperfections should be repaired only after mechanical preparation of the substrate. Surface preparation reveals most imperfections requiring repair. Concrete substrates shall be tested to verify that the moisture vapor transmission of the substrate does not exceed the manufacturer’s' recommendations.

B. CONTRACTOR should exercise care during surface preparation and system installation to protect surrounding substrates and surfaces, as well as in-place equipment.

C. Subfloor tolerances are specified in Section 03 30 00–Cast-In-Place Concrete (in accordance with ACI 302). Each drain in the installation area must be working and raised or lowered to the actual finished elevation of the system.

D. System must be protected until it is accepted and turned over to OWNER.

E. The minimum slab temperature must be conditioned to 60°F before commencing installation, during installation, and for at least 72 hours after installation is complete. The substrate temperature must be at least 5°F above the dewpoint during installation.

PART 2–PRODUCTS

2.01 MANUFACTURER

A. The floor coating systems products listed in the following paragraphs are those manufactured by General Polymers, Sherwin Williams.

2.02 MATERIALS

A. One-eighth-Inch Decorative Mosaic Floor Coating System:
   1. System consists of 3579 Standard Primer / Binder as primer, 3462 AquArmor Coating as base coat and 6750/6755 Decorative Vinyl Chip Aggregate. Seal coat shall be 3461 AquArmor Gloss Topcoat.
   2. Typical physical properties:

Color	Custom Color Blends Available
Abrasion Resistance ASTM D 4060, CS-17 Wheel, 1,000 cycles	100 mgs lost
Flexural Strength ASTM C 580	10,000 psi
Adhesion ACI 503R	350 psi 100% concrete failure
Flammability	Self-extinguishing over concrete
Impact Resistance MIL-D-3134J	Direct, inch pound greater than 160, passes Reverse, inch pound greater than 80, passes
Resistance Elevated Temperatures MIL-D-3134J	No slip or flow at required temperature of 158°F

PART 3–EXECUTION

3.01 SURFACE PREPARATION

A. Concrete surfaces shall be abrasive blasted per SSPC-SP13/NACE No. 6 to remove all surface contaminants and laitance. The prepared concrete shall have a surface profile equal to ICRI CSP 3-5.

B. After initial preparation, inspect the concrete for bug holes, voids, fins and other imperfections. Protrusions shall be ground smooth while voids shall be filled with manufacturer-approved filler.

3.02 INSTALLATION

A. General: Apply each component of each system in compliance with manufacturer's written installation instructions and strictly adhere to mixing and installation methods, recoat windows, cure times and environmental restrictions. The system is to be installed directly over non-moving control joints and cracks which have been treated with EPO-FLEX epoxy,

and the system will terminate at the edge of isolation and expansion joints as designated by the design professional. Integral cove base shall be installed in all areas.

B. Cracks: For information pertaining to the treatment of cracks in concrete substrates, consult manufacturer's publication, Concrete 102.

C. Control Joints: For information pertaining to the treatment of control joints in concrete substrates, consult manufacturer's publication, Concrete 103.

D. Isolation/Expansion and Other Joints Subject to Movement: All expansion joints must be honored through the flooring system. For information pertaining to the above, consult manufacturer's publication, Concrete 105.

E. One-eighth-Inch Decorative Mosaic Epoxy System:
   1. System Primer: 3579 Standard Primer / Binder.
   2. Base Coat: 3462 AquArmor Coating.
   3. Chip Broadcast: 6750/6755 Decorative Vinyl Chip Aggregate (±0.2 lb/sf).
   4. Select Seal Coat: 3461 AquArmor Gloss Topcoat.

3.03 CURING, CLEANING AND PROTECTION

A. Cure materials in compliance with manufacturer's directions, taking care to prevent contamination during stages of the installation and prior to completion of the curing process.

B. Protect the systems from damage and wear during other phases of the construction operation, using temporary coverings as recommended by the manufacturer, if required. Remove temporary covering just prior to final inspection.

C. Clean the systems just prior to final inspection, using materials and procedures suitable to the system manufacturer.

D. Some cleaners will affect the color, gloss or texture of your polymer floor surfaces. To determine how your cleaner will perform, first test each cleaner, in a small area, utilizing your cleaning technique. This precaution will demonstrate the effect of your cleaner and technique. If no deleterious effects are observed, continue with the procedure. If deleterious effects do occur, modify the cleaning material and/or procedure. For recommendations regarding types of cleaners, contact the manufacturer.

END OF SECTION

SECTION 09 68 13

CARPET TILE

PART 1–GENERAL

1.01 SUMMARY

A. Section includes:
   1. Carpet Tile.
   2. Installation.

B. Related Documents: Drawings and general provisions of the Contract, including Applicable Provisions of Division 01 shall govern work on this section.

1.02 REFERENCES

A. ASTM E648–Flooring Radiant Panel.

B. ASTM E662–Smoke Density.

C. AATCC 134–Electrostatic Propensity.

D. CRI TM-102–Fluorine Analysis.

E. ASTM D3936–Delamination.

F. Other from methods specified in Part 2.

1.03 SUBMITTALS

A. Shop drawing showing columns, doorways, enclosing walls or partitions, built-in cabinets, and locations where cutouts are required, as well as direction of carpet pile and pattern, location of edge moldings and edge bindings shall be submitted to ENGINEER for approval prior to installation.

B. Carpet schedule using same room designations indicated on Drawings.

C. Product Data: Provide data on specified products, describing physical and performance characteristics, sizes, patterns, colors available, and method of installation.

D. Selection Samples: Submit manufacturer's complete set of color samples for OWNER's color selection.

E. Verification Samples: Submit two 18-inch by 18-inch samples illustrating color and pattern for each carpet material specified.

F. Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention.

G. Maintenance Data: Include maintenance procedures, recommendations for maintenance materials and equipment, and suggested schedule for cleaning.

H. Manufacturer's Carpet Warranty.

I. Certification of Recycled Content and verification of reclamation and recycling program.

1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications:
   1. Company specializing in manufacturing specified carpet with minimum 6 years documented experience.
   2. Upon request, manufacturer to provide representative to assist in project start-up and to inspect installation while in process and upon completion. Representative will notify designated contact if any installation instructions are not followed.
   3. Single Source Responsibility: Obtain each type of carpet from one source and by a single manufacturer.

B. Installer Qualifications:
   1. Flooring subcontractor must be certified by the carpet manufacturer prior to bid.
   2. Flooring subcontractor to be a specialty contractor normally engaged in this type of work and shall have prior experience in the installation of these types of materials.
   3. Flooring subcontractor will be responsible for proper product installation, including floor testing and preparation as specified by the carpet manufacturer and job conditions herein.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to the site in manufacturer's original packaging listing manufacturer's name, product name, identification number, and related information.

B. Store in a dry location, between 60°F and 80°F and a relative humidity below 65%. Protect from damage and soiling. Store in pallet form as supplied by manufacturer. Do not stack pallets.

C. Make stored materials available for observation by OWNER's representative.

D. Store materials in area of installation for minimum period of 48 hours prior to installation.

1.06 ENVIRONMENTAL REQUIREMENTS

A. Subfloor preparation is to include all required work to prepare the existing floor for installation of the product as specified in this document and manufacturer's installation instructions.

B. The maximum amount of moisture evacuation from the floor is 3.0 pounds per 1,000 square feet in 24 hours. The acceptable pH level of the substrate is between 7.0 and 9.0. Flooring contractor is responsible for floor testing.

C. All material used in subfloor preparation and repair shall be recommended by the carpet manufacturer and shall be chemically and physically compatible with the carpet system being bid.

D. Maintain minimum 65°F ambient temperature and 65% relative humidity for 72 hours prior to, during, and 48 hours after installation.

E. Do not install carpet until space is enclosed and weatherproof, wet-work in space is completed and nominally dry, work above ceilings is complete, and ambient temperature and humidity conditions are and will be continuously maintained at values near those indicated for final occupancy.

1.07 EXTRA MATERIALS

A. Provide additional 5% of each type, color, and pattern furnished; product to be boxed and, when necessary, palletized. Coordinate storage location with OWNER.

B. Deliver all unused carpet and large scraps to OWNER for “attic stock.”

PART 2–PRODUCTS

2.01 ACCEPTABLE MANUFACTURER

A. Carpet tile flooring shall be modular tile as manufactured by C&A Floorcoverings Product E lines Applause No. 02803, Infinity No. 05849, or equal.

2.02 RECYCLED CONTENT

A. Product must contain a minimum of 31% recycled content by weight. This percentage is calculated by diving the weight of recycled content in 1 square yard of finished carpet by the total weight of 1 square yard of finished carpet, and multiplying by 100. (Recycle Content Weight) / (Total Product Weight) by 100] per FTC Marketing Guides 16 C.F.R. 260.7 (e).

B. Recycled content must be certified by a neutral, independent, third-party organization such as Scientific Certification Systems. Product must carry product label certifying overall recycled content (including post-industrial and post-consumer content). Report percentage of post-industrial and post-consumer recycled content as a percentage of total product weight and the source(s) of recycled content.

C. Product must have a minimum 8% post-consumer recycled content by weight from recycled post-consumer carpet. This is so that carpet is diverted from landfills for the production of the product and that virgin resource use in the product is reduced.

D. Product must be available inclusive of 100% recycled content secondary backing with no up-charge. The secondary backing must contain at least 75% recycled carpet of which a minimum of 25% shall be post-consumer carpet.
   1. Recycled content and post-consumer content must not be subject to availability. Post-industrial and post-consumer recycled content of product installed must be the same as those claimed by the manufacturer and required by project requirements.
   2. Recycled content must be expressed as an exact percentage or a range. Statements such as “*up to* 60%” recycled content are not acceptable.
   3. Recycled content products provided must have equal or better performance and cost no more than comparable virgin products.
   4. Product’s recycled content must comply with FTC Guides 16 CFR Part 260.7 (e) in that normal by-products in product manufacturing which are normally reused within the

original manufacturing process, or waste by-products that would not normally enter the waste stream, do not constitute as either post-consumer or post-industrial recycled content.

2.03 PRODUCT RECYCLABILITY

A. Product must meet FTC guides for recyclability and must be 100% closed-loop recyclable back into carpet. Products containing both recyclable and nonrecyclable components, manufacturer must adequately report which portions of the product are recyclable per FTC guides 16 CFR section 260.7(d). Note: A manufacturer cannot claim that a product or any portion of a product that is incinerated is recyclable, even if incineration is used to produce heat and power (i.e., waste-to-energy) per FTC guides 16 CFR section 260.7 (d) example 3.

B. Recyclability of product installed must be the same as that claimed by the manufacturer and required by Contract requirements.

2.04 RECYCLING PROGRAM

A. Manufacturer must have a collection and recovery system for product and a fully established, currently operational recycling program at time of bid per FTC guides Section 260.7 (d).

B. Manufacturer must be able to reclaim and recycle 100% of existing carpet of similar composition back into carpet at time of bid.

C. Manufacturer must have product, a take-back program, and be able to reclaim and recycle 100% of installed product back into carpet at the end of its service life at time of bid. Claiming a product is recyclable based on future expectation of technology, equipment, process, or availability of that product as feed stock is not acceptable. Recycling process must be available for viewing.

D. Collection and recycling program must be verified by an independent, neutral third-party organization such as Scientific Certification Systems.

E. Manufacturer must have written guarantee that 100% of the recovered product will be recycled and that no portion of the product will be landfilled or incinerated (including waste-to-energy).

2.05 ENVIRONMENTALLY PREFERABLE PRODUCT

A. Carpet must be certified as an Environmentally Preferable Product (EPP) by a neutral, independent, third party organization such as Scientific Certification Systems. Carpets must carry an EPP carpet label certifying its Environmental Preferability. Products carrying EPP carpet labels will be given higher preference than those carrying only an EPP fiber label.

2.06 INDOOR AIR QUALITY

A. Product must have low VOC, factory-applied, “dry” adhesive.

B. Product, inclusive of floor covering adhesive, must meet CRI's IAQ requirements for carpet only. Environmental chamber testing per ASTM D5116. Emission rates determined at 24 hours.
   1. Product, inclusive of preapplied adhesive, must off gas less than:
      a. 0.5 mg/sq. meter per hour of Total Volatile Organic Compound (TVOC);
      b. 0.05 mg/sq. meter per hour of formaldehyde;
      c. 0.4 mg/sq. meter per hour of styrene; and
      d. 0.05 mg/sq. meter per hour of 4-Phenyl Cyclohexene (4-PC)
   2. Submit Indoor Air Quality report showing CRI Green label Certification Number for carpet (inclusive of adhesive). [If results for carpet testing are not inclusive of adhesive, submit separate IAQ test reports for carpet and adhesive.]
   3. Indoor air quality results of the product installed must be same as those specified by the Contract requirements.

2.07 CARPET WARRANTY

A. Warranty to be sole source responsibility of the manufacturer.

B. If the product fails to perform as warranted when properly installed and maintained, the affected area will be repaired or replaced at the discretion of the manufacturer.

C. Warranty shall be for a specifically defined nonprorated period of 15 years. "Lifetime" warranties are not acceptable. The nonprorated 15-year warranty shall specifically warrant against:
   1. Excessive surface wear: More than 15% loss of pile fiber weight.
   2. Excessive static electricity: More than 3.0 kV per AATCC 134.
   3. Resiliency loss of the backing: More than 10% loss of backing resiliency.
   4. Delamination.
   5. Edge ravel.
   6. Zippering.

D. Tuft Bind warranty in lieu of edge ravel; zippering is not acceptable.

E. Manufacturer to provide a written warranty that 100% of carpeting returned to manufacturer for recycling will be recycled and that no portion of the carpet will be landfilled or incinerated.

2.08 FIBER

A. Nylon Fiber:
   1. Invista.
   2. Antron.
   3. Solution dyed.
   4. Multicolored / Solid / Patterned.
   5. Bulked Continuous Filament (BCF) Nylon.

B. Bulked Continuous Filament (BCF) Nylon in a loop-pile construction. Cut pile is not acceptable.

C. Report Fiber Type (i.e., EPP Certified Invista Antron, SAVANT, etc.).

D. Report postconsumer and postindustrial recycled content of the pile face yarn in product based on weight i.e., total weight of pile face yarn by 100.

E. Fiber to contain carbon-core filament for permanent static control. Topical treatments are not acceptable.

F. Durable stain inhibitor should be applied to the fiber during product manufacturing to resist fiber staining and soiling:
   1. Initial: Minimum 500 ppm Fluorine per CRI TM-102.
   2. After two hot water extractions per AATCC 171: Minimum 400 ppm Fluorine per CRI TM-102.

2.09 BACKING CHARACTERISTICS

A. Primary Backing: Synthetic nonwoven.

B. Secondary Backing:
   1. ER3–100% recycled content.
   2. Density (ASTM D-1667): Min. 65 lbs/cu ft ±5%.
   3. Standard Size: 18-inch by 18-inch; 24-inch by 24-inch; or 36-inch by 36-inch.
   4. Fiberglass reinforced.
   5. Fully-fused secondary backing system that will not delaminate.

C. Adhesive System: RS:
   1. Low VOC, factory-applied “dry” adhesive applied to backing and cured during manufacturing.
   2. Product as installed to be securely attached to the floor in compliance with Americans with Disabilities Act (ADA), Section 4.5.3.

2.10 PERFORMANCE CHARACTERISTICS

A. Test reports for the following performance assurance testing to be submitted upon request. Submitted results shall represent average results for production goods of the referenced style. Requirements listed below must be met by all products:
   1. Flooring radiant panel: ASTM E648: Class 1 (CRF: 0.45 watts/sq cm, or greater).
   2. Federal flammability: CPSC FF 1-70: Passes.
   3. Smoke density: ASTM E662: < 450 Flaming Mode.
   4. Electrostatic propensity: AATCC 134 (Step and Scuff): 3.0 kV or less.
   5. Static coefficient of friction: Passes ADA Requirements for accessible routes (minimum 0.60).
   6. Delamination of secondary backing of pile floor coverings: ASTM D3936: No delamination.
   7. Lightfastness: AATCC 16E: > 4 @ 100 hours.
   8. Vetterman drum: ASTM D5417: Minimum three @ 22,000 cycles.
   9. Dimensional Stability: ISO 2551: Maximum Change ±0.149%.

2.11 ACCESSORIES

A. Materials recommended by manufacturer for patching, leveling, priming, etc.

B. Adhesives: Products to be supplied with a low VOC, factory-applied, “dry” adhesive for “peel-and-stick” installation.

C. Base, Carpet Edge, and Transition Strips: As specified in applicable sections.

PART 3–EXECUTION

3.01 EXAMINATION/PREPARATION

A. Prepare subfloor to comply with criteria established in manufacturer's installation instructions. Use only preparation materials that are acceptable to the manufacturer.
   1. Remove all deleterious substances from substrate(s) that would interfere with or be harmful to the installation (i.e., floor wax).
   2. Remove subfloor ridges and bumps. Fill cracks, joints, holes, and other defects.

B. Verify that subfloor is smooth and flat within specified tolerances and ready to receive carpet.

C. Verify that substrate surface is dust-free and free of substances that would impair bonding of product to the floor.

D. Verify that concrete surfaces are ready for installation by conducting moisture and pH testing. Results must be within limits recommended by manufacturer.

E. There will be no exceptions to the provisions stated in the manufacturer's installation instructions.

3.02 INSTALLATION-GENERAL

A. Install product in accordance with manufacturer's installation instructions.

B. Where demountable partitions or other items are indicated for installation on top of finished carpet tile floor, install carpet tile before installation of these items.

C. Cut and fit carpet tile to butt tightly to vertical surfaces, permanent fixtures, and built-in furniture including cabinets, pipes, outlets, edgings, thresholds, and nosings.

D. Extend carpet tile into toe spaces, door reveals, closets, open-bottomed obstructions, removable flanges, alcoves, and similar openings.

E. Install borders parallel to walls.

F. Roll with appropriate roller for complete contact of carpet with mill-applied adhesive to subfloor. Carpet to be securely adhered in accordance with ADA requirements (Section 4.5.3).

G. Trim carpet neatly at walls and around interruptions.

H. Completed carpet is to be smooth and free of bubbles, puckers, and other defects.

3.03 PROTECTION AND CLEANING

A. Remove excess adhesive and/or other from floor and wall surfaces without damage.

B. All rubbish, wrappings, debris, trimmings, etc., to be removed from site and disposed of properly.

C. Clean and vacuum carpet surfaces using a beater brush/bar commercial vacuum.

D. After each area of carpet is installed, protect from soiling and damage by other trades.

END OF SECTION

SECTION 09 91 00

PAINTING

PART 1–GENERAL

1.01 SUMMARY

A. Work Included: Surface preparation and application of paints and coatings.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. ASTM B117–Standard Practice for Operating Salt Spray (Fog) Apparatus.

B. ASTM D2247–Standard Practice for Testing Water Resistance of Coatings in 100 % Relative Humidity.

C. ASTM D3363–Standard Test Method for Film Hardness by Pencil Test.

D. ASTM D4060–Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser.

E. ASTM D4541–Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers.

F. ASTM D4585–Standard Practice for Testing Water Resistance of Coatings Using Controlled Condensation.

G. Federal Register–Code of Federal Regulations (CFR).

H. Federal Register–Resource Conservation and Recovery Act (RCRA).

I. Federal Register–Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

J. ICRI–International Concrete Repair Institute.

K. NACE–National Association of Corrosion Engineers.

L. SSPC–The Society for Protective Coatings–Steel Structures Painting Manual.

M. AMPP–Association for Materials Protection and Performance.

1.03 SUBMITTALS

A. Submittals shall be in accordance with provisions of Section 01 33 00–Submittals.

B. Shop primer proposed for use shall be submitted with all material and equipment submittals. All shop primers shall be of the same generic type and quality as those specified herein.

C. Submit manufacturer's Safety Data Sheets (SDS) for each type of paint with each shop drawing submittal. SDS sheets shall be posted at the construction site at all times painting is in progress.

D. Substitution submittals shall include performance test data, as certified by a qualified testing laboratory, for the ASTM tests specified in Paragraph 2.01.

1.04 QUALITY ASSURANCE

A. Regulatory Requirements: All paints, surface preparation, and application methods shall conform to federal requirements for allowable exposure to lead and other hazardous substances.

B. Prepainting Meeting:
   1. A prepainting meeting shall be held immediately following the project preconstruction conference. The prepainting meeting is to be held prior to any material and equipment that requires painting is delivered to the site.
   2. CONTRACTOR, the paint subcontractor, and the paint manufacturer's representative shall be present to review the specifications and project scope.
   3. The paint manufacturer's representative shall review progress at the site as requested by ENGINEER. These are generally expected to be prior to monthly progress meetings.

1.05 FIELD QUALITY CONTROL

A. Furnish testing apparatus as applicable for observing surface preparation, testing atmospheric conditions and testing coatings, prior to beginning surface preparation. Provide the following apparatus:
   1. One set of U.S. Department of Commerce thickness calibration plates, certified by the National Bureau of Standards, to test dry film thickness.
   2. One wet-film thickness gauge.
   3. One dry-film thickness gauge, Mikrotest III, 0-40 mils with calibration standard approved by the Bureau of Standards.
   4. One Bacharach Sling Psychrometer, Model 12-7011.
   5. Tinker and Razor Model M-1 Holiday Detector and recommended wetting agent.
   6. One set of SSPC-VIS 1-89 Visual Standards for Abrasive Blast Cleaned Steel.

B. Provide access via scaffolding or staging for inspection.

C. Entire surface of coated submerged concrete shall be tested with holiday detector. Mark and repair all pinholes, then retest until no pinholes are found.

D. CONTRACTOR shall provide documentation to ENGINEER of conditions before and during painting operations for each area and each day's work. Documented conditions shall include the following at a minimum: date, area of work, system used, preparation methods, environmental conditions, quantity and thickness of coating placed, noted conditions, and nonconforming items. ENGINEER can provide sample report form if CONTRACTOR does not have their own.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Materials shall be delivered to the site in original containers with labels intact and seals unbroken.

B. Drop cloths shall be used in all areas where painting is done to fully protect other surfaces.

C. Oily rags and waste must be removed from the building each night or kept in an appropriate metal container.

1.07 ENVIRONMENTAL REQUIREMENTS

A. CONTRACTOR shall dry-heat, dehumidify, and ventilate to obtain painting conditions recommended by the paint manufacturer during surface preparation, application, and cure.

B. Relative humidity conditions as specified by the paint manufacturer's data sheet shall be adhered to. This includes times in which supplemental heat is used. Supplemental heat shall be indirect-fired hot air furnaces or electric heat. Open-flame heaters shall not be used.

C. No unprotected, unheated exterior painting shall be undertaken when damp weather appears probable, nor when the temperature of the substrate is below 55°F, unless approval in writing is received from the paint manufacturer.

1.08 COLOR SELECTIONS

A. Provide color charts for all coatings being used on the project. After initial selection of colors by OWNER, provide draw down samples of selected colors for OWNER's final approval. For stained wood, provide specified wood species sample with selected color for final approval.

B. CONTRACTOR shall provide a summary sheet at the completion of the project listing the finish paint products used and the manufacturer's color identification for each item painted. This summary sheet should be submitted to ENGINEER and OWNER for review.

PART 2–PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. All materials required for painting shall be types and quality as manufactured by Tnemec Company, Inc., Sherwin-Williams Company, Carboline, PPG Protective and Marine Coatings, or equal, unless noted otherwise in the schedule.

B. Where thinning is necessary, only the products of the manufacturer furnishing the paint will be allowed. All such thinning shall be done strictly in accordance with the manufacturer's instructions.

C. Paint and paint products of Tnemec Company and Sherwin-Williams, listed in the following specifications, are set up as standard of quality. Carboline and PPG Protective and Marine Coatings have preapproved equivalent products that shall be used. Other manufacturer's products will be considered as a substitution if CONTRACTOR and paint manufacturer certify that the products offered are recommended for the service intended, are compatible with the shop primers used, are equal in solids content and composition, and are of the same type. Submittal shall include the following performance data as certified by a qualified testing laboratory. ASTM Specifications shall be the latest revision:
   1. Abrasion–ASTM D4060, CS-17 Wheel, 1,000 grams load.
   2. Adhesion–ASTM D4541.
   3. Hardness–ASTM D3363.

4. Humidity–ASTM D2247 and D4585.
5. Salt (Fog) Spray–ASTM B117.

PART 3–EXECUTION

3.01 SURFACE PREPARATION

A. General:
   1. All surfaces to be painted shall be prepared as specified herein and by the manufacturer's published data sheet and label directions. The objective shall be to obtain a uniform, clean, and dry surface.
   2. No field painting shall be done before the prepared surfaces are observed by ENGINEER. Surfaces painted without such observation shall be abrasive-blast-cleaned and repainted.
   3. Prior to field-blasting, a sample of the blast abrasive shall be provided to ENGINEER for pH testing. Additional samples of subsequent deliveries or batches of blast abrasive shall be provided to ENGINEER for pH testing.
   4. For on-site abrasive-blasting, low-dust, low-silica content material shall be used. Coal slag abrasive shall be used on pipe and ferrous materials. Staurolite abrasive shall be used on concrete and concrete block.
   5. Quality of surface preparations listed below are considered a minimum. If paint manufacturer requires a better preparation for a particular application, it shall be considered a requirement of this specification.
   6. All concrete surfaces shall be tested for moisture in accordance with ASTM D4263 and, if necessary, F1869. Surfaces shall also be verified that the pH of the cleaned concrete surface to be coated is within the range of 8 to 11.

B. Ferrous Metal:
   1. All ferrous metal to be primed in the shop shall have all rust, dust, and mill scale, as well as all other foreign substances, removed by abrasive blasting. Cleaned metal shall be primed or pretreated immediately after cleaning to prevent new rusting.
   2. All ferrous metals not primed in the shop shall be abrasive-blasted in the field prior to application of the primer, pretreatment, or paint.
   3. Abrasive blasting of metals in the shop shall be in accordance with SSPC-SP 10 Near White Blast Cleaning. Abrasive blasting of metals in the field for immersion service shall be in accordance with SSPC-SP 10 Near White Blast Cleaning. Abrasive blasting of metals in the field for nonimmersion service shall be in accordance with SSPC-SP6 Commercial Blast Cleaning.
   4. Solvent cleaning in accordance with SSPC-SP1 shall precede all abrasive-blasting operations.
   5. Ductile iron pipe shall be prepared by abrasive blasting per National Association of Pipe Fabricators NAPF 500-03-04 Abrasive Blast Cleaning.
   6. Existing ferrous metal materials which are impractical to abrasive-blast onsite and impractical to remove from the site shall be power-tool cleaned to bare metal as specified in SSPC-SP15 Commercial Grade Power Tool Cleaning or NAPF 500-03-03 Power Tool Cleaning.
   7. Existing railings, stairs, and hoist rails shall be prepared by removing loose paint and rust per SSPC-SP11 power tool cleaning to bare metal. Mechanically abrade remainder of surfaces to roughen existing coatings. Clean per SSPC-SP1 Solvent Cleaning.
   8. Other existing ferrous metal items in nonimmersion conditions to be painted shall be abrasive blasted to remove all existing coatings in accordance with SSPC-SP-6 Commercial Blast Cleaning or NAPF 500-03-04 Abrasive Blast Cleaning.

9. Prior to finish coating, all primed areas that are damaged shall be cleaned and spot-primed.

C. Concrete:
   1. All concrete surfaces, including precast concrete to be painted, shall be cleaned of all form oil, curing compound, and other foreign matter. Concrete floors containing oil and grease residues shall be cleaned with detergent to remove all residues.
   2. All new concrete and precast concrete walls, floors, and ceilings shall be abrasive-blast cleaned in accordance with SSPC-SP13/NACE No. 6 in order to prepare the surfaces for adherence of the painting systems as specified. Abrasive blasting of concrete shall result in a surface profile in accordance with ICRI No. 03732 at CSP-3 to CSP-5.
   3. Bug holes, pits, voids, and cracks shall be filled as specified in Section 03 30 00–Cast-In-Place Concrete without placing a friable sand-cement surface overall. The dried surface shall be stoned down.
   4. Paint manufacturer shall observe and approve the surface preparation method and the prepared surface prior to painting.
   5. After cleaning, the surface shall be washed and all dust, sand, and loose particles shall be removed by vacuuming. If CONTRACTOR elects to blow the surfaces off with air, it shall be oil-free air, and the methods shall conform to OSHA requirements.

D. Existing Concrete and Concrete Block:
   1. All previously coated walls and ceilings of concrete and concrete block of existing structures, except as noted, shall be pole-sanded and hand-sanded to remove all old peeling paints as well as roughen-up existing paints.
   2. All concrete and precast concrete walls, floor, and ceiling which are not currently painted but are scheduled for painting shall be abrasive-blasted in accordance with SSPC-SP13/NACE No. 6. Abrasive blasting of concrete shall result in a texture similar to 40-60 grit sandpaper (ICRI SP3-5).
   3. Concrete floors containing oil and grease residues shall be cleaned with detergent to remove all residues and allowed to dry.
   4. All existing floors, unless otherwise specified, shall be power-sanded with a Clark HD floor scrubber, or equal, with a rubber pad and abrasive disc, followed by vacuuming and removing all oil and grease contamination and particulate matter.
   5. Bug holes, pits, voids, and cracks that are opened up shall be filled with an appropriate filler.
   6. Paint manufacturer shall observe and approve the surface preparation method and the prepared surface prior to painting.
   7. After cleaning, the surface shall be washed, and all dust, sand, and loose particles shall be removed by vacuuming. If CONTRACTOR elects to blow the surfaces off with air, it shall be oil-free air, and the methods shall conform to OSHA requirements.

E. Galvanized: Where galvanized items are not submerged or buried, they shall be cleaned with nonhydrocarbon solvent cleaner (such as Clean N Etch, or equal) in accordance with SSPC-SP1 and shall be abrasive-blasted in accordance with SSPC-SP16 Brush-Off Blast Cleaning.

F. Copper: Where copper piping is not submerged or buried, it shall be solvent-cleaned in accordance with SSPC-SP1 and shall be lightly sanded.

G. PVC and CPVC: All PVC and CPVC to be painted shall be solvent-cleaned in accordance with SSPC-SP1 and shall be lightly sanded.

H. Aluminum: Where listed in the Schedule to be painted, it shall be solvent-cleaned in accordance with SSPC-SP1 and shall be lightly sanded.

I. Dust Controls:
   1. All motors, pumps, mechanical equipment, and electrical controls shall be wrapped in 6 mil opaque plastic sheeting and taped in place with 3-inch-wide tape where abrasive blasting or spray coating application is being performed.
   2. Plastic sheeting shall be provided with continuous filtered clean air supply to create a positive pressure relative to surrounding spaces.

3.02 APPLICATION

A. All materials shall be used as specified by the manufacturer's published data sheets and label directions.

B. No paint shall be applied on a wet or damp surface and in no case until the preceding coat is dry and hard. Each coat shall be allowed to dry in accordance with manufacturer's data sheets before the next coat is applied.

C. Drying time shall be construed to mean "under normal conditions." Where conditions are other than normal because of the weather or because painting must be done in confined spaces, other drying times will be necessary.

D. Additional coats of paint shall not be applied, nor shall units be returned to service until paints are thoroughly dry and cured.

E. Steel that will be inaccessible in the completed work shall receive the final coat before enclosure.

F. Paint shall be applied to provide an opaque, smooth surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, or other surface imperfections will not be acceptable. Tops and bottoms of walls and areas that are "cut-in" by brush prior to rolling shall have a uniform appearance in comparison with adjoining surfaces.

G. Concrete block walls shall be back-rolled to achieve a pinhole-free surface coat.

H. Walls and ceiling surfaces shall receive a minimum of one coat of paint before surface-mounted items such as conduits, boxes, piping, etc., are installed on these surfaces.

I. Crevices and other hard-to-apply areas shall be back-rolled/back-brushed in conjunction with application of the first field coat of primer or intermediate coat. This includes, but is not limited to, between pipe flanges, pipe flange/pipe barrel joints, equipment fittings, and other narrow openings.

J. No paint shall be applied to new or existing surfaces until joints have been caulked according to Section 07 90 00–Caulking and Sealants requirements, except at moving joints which shall be finish-painted before caulking or caulking shall be protected during painting.

K. For PVC and CPVC piping, unions and valves shall not be painted.

L. No field coating of paint shall be applied to ductile iron piping until the piping has been tested, the pipe gaps or joints have been caulked, and the caulk has fully cured, as specified in Section 40 05 00–Piping and Appurtenances.

3.03 FIELD QUALITY CONTROL

A. Examination of work on the site by the manufacturer's representative shall be performed when requested by ENGINEER.

3.04 CLEANING

A. All stains and marks shall be removed from other surfaces upon completion of the work.

3.05 SCHEDULE

A. General:
1. At the completion of the project, all painted surfaces which have been damaged shall be repainted or touched-up.
2. See Finish Schedule on the Drawings for an additional reference for areas to be painted.
3. The painter shall use some discretion in what should and should not be painted. Do not paint over labels and other information, bronze, machined surfaces, moving parts where painting may impair movement, hot surfaces which may peel, etc. If in doubt whether a part should be painted, ask ENGINEER.
4. Products listed first are Tnemec and second are Sherwin-Williams.

B. New Work:
1. All new work done by all trades shall be painted by CONTRACTOR in accordance with the following schedule and in accordance with paint manufacturer's recommendation. It is the intent of these specifications that all non-galvanized ferrous metal items scheduled for painting be shop-primed. If items are not shop-coated, surfaces shall be prepared and painted in the field as specified. If any items of new construction are not listed, CONTRACTOR shall request paint system from ENGINEER, and the items shall be painted as part of this Contract without additional cost.
2. Interior concrete floors, including equipment bases: See Section 03 30 00–Cast-In-Place Concrete for sealed concrete floors.
3. Interior concrete block walls: One filler coat of Epoxoblock WB 1254, Kem Cati-Coat HS, and two coats Series N69 Hi-Build Epoxoline II, Macropoxy 646 FC.

Note: Paint shall be roller- or brush-applied to concrete sound-absorptive block.

4. Interior concrete walls:
a. One filler coat (1/16 inch minimum thickness) Mortarclad 218, Duraplate 2300.
b. Two coats of Series N69 Hi-Build Epoxoline II, Macropoxy 646 FC.

Note: Interior face of concrete tank walls and floors channels and pipe trenches are not to be painted.

5. All exposed concrete ceilings (ceilings of water-containing tanks are not considered exposed): Two coats of Series N69 Hi-Build Epoxoline, Macropoxy 646 FC.
6. Cast or ductile iron; not submerged or buried (including pipes to be insulated):
a. One shop coat of N69-1255 Hi-Build Epoxoline, Macropoxy 646 Beige as primer;

b. Touch-up prime coat prior to finish coating; and apply either:
   (1) Two coats of N69 Hi-Build Epoxoline II, Macropoxy 646 FC for interior surfaces, or
   (2) One coat of N69 Hi-Build Epoxoline II, Macropoxy 646 FC, and one coat of 1094 Endura-Shield, Acrolon 218HS for exterior surfaces.

7. Cast or ductile iron, tar coated; buried: Not painted.
8. Cast or ductile iron, submerged:
   a. One shop coat Series 1 Omnithane (20HS or N69-1255 Epoxoline), Dura-Plate 235 Beige as primer.
   b. Touch-up prime coat prior to finish coating and one stripe coat on all edges of N69 Epoxoline, Dura-Plate 235.
   c. Two coats of Series N69-Hi-Build Epoxoline II, (one coat) Sher-Glass FF.
9. Steel, machinery, and equipment; not submerged (including pipes to be insulated):
   a. One shop coat of N69-1255 Hi-Build Epoxoline, Macropoxy 646 FC Beige as primer.
   b. Touch-up primer prior to finish coat, and either:
      (1) Two coats of N69 Hi-Build Epoxoline II, Macropoxy 646 FC for interior surfaces; or
      (2) One coat of N69 Hi-Build Epoxoline II, Macropoxy 646 FC; and one coat of 1094 Endura-Shield, Acrolon 218HS for exterior surfaces.

      FIRST FIELD COAT SHALL BE APPLIED PRIOR TO INSTALLATION TO SURFACES INACCESSIBLE AFTER INSTALLATION INCLUDING BACK SIDES OF DOOR FRAMES. SEE DIVISION 08 FOR FACTORY-APPLIED DOOR PRIMERS.

10. Motors, gear drives, and doors delivered with nonepoxy primers:
    a. Degrease per SSPC-SP1.
    b. Lightly hand-sand per SSPC-SP2.
    c. Apply one coat 135-1255 Chembuild Beige, Macropoxy 646 Beige.
    d. Apply two finish coats as follows:
       (1) Two coats of N69 Hi-Build Epoxoline II, Macropoxy 646 for interior surfaces, or
       (2) One coat of N69 Hi-Build Epoxoline II, Macropoxy 646, and one coat of 1094 Endura-Shield, Acrolon 218HS for exterior surfaces.
11. Steel, machinery, and equipment, submerged:
    a. One shop coat Series 1 Omnithane (20HS or N69-1255 Epoxoline), Dura-Plate 235 Beige as primer.
    b. Touch-up prime coat prior to finish coating, and one stripe coat on all edges of N69 Hi-Build Epoxoline, Dura-Plate 235.
    c. Two coats of N69 Hi-Build Epoxoline, (one coat) Sher-Glass FF.
12. Galvanized, copper, brass, CPVC, and PVC; not submerged or buried:
    a. Two coats of N69 Hi-Build Epoxoline, Macropoxy 646 FC for interior surfaces, or
    b. One coat of N69 Hi-Build Epoxoline, Macropoxy 646 FC, and one coat of 1094 Endura-Shield, Acrolon 218HS for exterior surfaces.
    c. For galvanized items that are embedded in construction, provide one coat before installing.
13. Insulation of equipment, pipes, and ductwork:
    a. Two coats of Series 1029 Endurotone, DTM Acrylic.
    b. Colored PVC jacketing shall not be painted.
14. Galvanized, copper, CPVC, and PVC; submerged or buried: Not painted.
15. Aluminum items:
    a. Exposed areas of structural items such as railings and grating shall not be painted.
    b. For structural items in contact with concrete, see Division 05.

16. Stainless steel: Not painted.

C. Existing Areas: Existing areas damaged by removal of existing work and/or installation of new work shall be repainted to match existing and in accordance with the schedule for new work. Existing equipment and structures shall be painted in accordance with the following schedule and as listed in the Finish Schedule, or as noted on the Drawings.
   1. Steel handrails, stairs-interior, monorails, lintels, etc.:
      a. Remove all existing coatings and prepare as specified.
      b. Prime and coat per new item 9.
   2. Precast and Cast-in-Place Concrete Walls and Ceilings–Interior which remain exposed and are currently painted.
      a. Prepare as specified.
      b. Coat in accordance with items 4 or 5 of new work.
   3. Precast and cast-in-place concrete and concrete block walls, ceilings, and floors which are currently unfinished.
      a. Prepare as specified.
      b. Coat per new items 2, 3, 4, or 5.
   4. Concrete floors which are currently finished:
      a. Remove existing coating as specified.
      b. Coat in accordance with item 2a of new work.
   5. Interior concrete block walls which are currently painted and remain exposed:
      a. Prepare and overcoat as specified.
      b. Provide spot masonry filler coat as needed and two finish coats per Item 3 of new work.
   6. Drywall: Prepare and finish coat per new item 17 except for primer.
   7. Insulation of Equipment and Pipes: Prepare and coat per new item 13.

D. Coverage:
   1. Dry mil thickness shall conform to those specified. Mil test measurement shall conform to SSPC Steel Structures Painting Manual. Dry Film Thickness (DFT) shall be verified in accordance with SSPC-PA2.
   2. The coatings listed will provide the mil thickness given when applied at the coverages listed. Upon the request of ENGINEER, such surfaces shall be checked by the painter with a calibrated mil thickness gauge and any deficiencies found in the film shall be remedied by additional coat(s) at the expense of CONTRACTOR.
   3. On masonry, application rates will vary according to surface texture; however, in no case shall the manufacturer's stated coverage rate be exceeded. On porous surfaces, it shall be the painter's responsibility to achieve a protective and decorative pinhole-free finish either by decreasing the coverage rate or by applying additional coats of paint.
   4. Coverages reflect manufacturer's recommendations using spray application techniques. Where brushing or rolling is specified or performed at the discretion of the painter, one additional coat, minimum, will be required to achieve total DFT as specified and recommended by the manufacturer.

	Min. Sq. Ft.** Coverage	Min. Dry Mil** Thickness Per Coat
Products		
1029 Endurotone, DTM Acrylic B66100	200	
N69 Hi-Build Epoxoline II, Macropoxy 646 FC		
Steel or Impervious Substrate Primer Coat	---	4.0
Steel or Impervious Substrate Intermediate Coat(s)	---	5.0

	Min. Sq. Ft.** Coverage	Min. Dry Mil** Thickness Per Coat
Steel or Impervious Substrate Finish coat	---	5.0
135-1255 Chembuild, Macropoxy 646 FC	335	4.0
Steel Doors	---	3.0
1094 Endura-Shield II, Acrolon 218HS	---	2.5
Epoxoblock WB 1254, Kem Cati-Coat HS	80	
N69 Hi-Build Epoxoline, Macropoxy 646 FC (Masonry and Concrete)	250	
Series 1 Omnithane, DuraPlate 235 (Primer)		3.0, 5.0
N69 Hi-Build Epoxoline II (Submerged)		6.0
Sher-Glass FF (Submerged)		12.0

** Roller or brush application requires two or more coats to obtain recommended film thickness. No allowance is made here for overspray, waste in handling, mixing, or application. Final minimum total DFT shall be equal to that specified. Paint submittals shall note where roller or brush application is proposed and the paint manufacturer's recommendations of number of coats to achieve the required thickness shall be noted.

Primer, intermediate and/or final surface colors shall be of contrasting colors to promote coverage.

E. Pipe Colors: Colors are to be selected by OWNER, with the following piping colors used where applicable. Pipe color shall be in accordance with the requirements of the Iowa Administrative Code.

Pipe Type	WASTEWATER PIPING COLORS 10 States Standards (2014 Wastewater)
Sludge	Black
Natural gas	Red
Potable water	Blue
Chlorine	Yellow
Sewage (wastewater)	Gray
Compressed air	Dark Green
Heating hot water (buildings)	Blue with 6-inch red band spaced 30 inches apart
Plumbing drains and vents	Black
Nonpotable water	Purple
Ferric chloride	Orange
Electrical conduit	-
Gas	Red
Other lines	Light gray
Instrument air	-

Section 653.120 Piping Identification:

1) Piping in a water treatment facility shall be identified clearly by legends and color coding as described in the Standards or American National Standards Institute (ANSI) Standard A-13.1. A consistent standard shall be used throughout the system.
2) Potable water lines shall be clearly and permanently identified where dual water lines or pressure sewer systems exist.

F. Shop Finish Painting: The following items shall have factory-applied finishes and will not require field painting. CONTRACTOR shall field touch-up any damaged areas with factory-provided touch-up coating.
   1. Sectional overhead doors and overhead coiling doors.
   2. Aluminum windows, doors, and entrances.
   3. Hoists, trolleys, and cranes.
   4. Factory-finished HVAC equipment. Rooftop units are to be field-painted.
   5. Chemical feed system pumps and accessories.
   6. Submersible pumps.
   7. Grit pumps.
   8. Screening equipment.
   9. Screenings wash press.
   10. Final clarifiers (center pier bolt template, bottom seal ring, manifold and center pier).
   11. Trilobe positive displacement blowers.
   12. Aeration equipment.
   13. Submersible mixers.
   14. Anoxic/anaerobic mixers.
   15. Laboratory furniture and equipment.
   16. Samplers.
   17. Parshall flume liners.
   18. Motor control centers.
   19. Supervisory control centers.
   20. Switchgear.
   21. 5 kV standby power system.
   22. Sump pumps.

END OF SECTION

SECTION 09 96 35

CHEMICAL-RESISTANT COATING

PART 1–GENERAL

1.01 SUMMARY

A. Work includes high-performance chemical-resistant epoxy coating system.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 SUBMITTALS

A. Submittals shall be in accordance with provisions of Section 01 33 00–Submittals.

B. Submit copy of manufacturer's Safety Data Sheets (SDS) for each product.

1.03 QUALITY ASSURANCE

A. Applicator shall have minimum 5 year's of satisfactory documented experience on projects of similar size and scope.

B. Furnish primers, pretreatments, thinners, and finish coats by the same manufacturer.

1.04 ENVIRONMENTAL CONDITIONS

A. Storage and application temperatures shall be in strict accordance with manufacturer's recommendations.

PART 2–PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Acceptable manufacturers include the following, or equal: Tnemec Company, Inc.; Sherwin Williams.

2.02 MATERIALS

A. Primer shall be compatible with coating; Series 201 Epoxoprime, Corobond Epoxy Primer, or equal.

B. Coating for floor and tank base in chemical containment area shall be chemical-resistant, Novolac epoxy coatings, Tnemec Series 239SC ChemBloc, Cor-cote HCR Novolac intermediate coatings, followed by Series 282, Core-Cote HCR FF Novolac top coat or equal.

C. Coating for walls in chemical containment area from floor up to top of containment wall shall be Novolac epoxy coating, Tnemec Series 282, Core-Cote HCR FF Novolac, or equal.

PART 3–EXECUTION

3.01 PREPARATION

A. Concrete surfaces shall be abrasive cleaned in accordance with SPCC-SP13/NACE No. 6 and provide a surface profile in accordance with ICRI NO. 03732 at CSP-3 to CSP-5.

B. A representative of the manufacturer shall observe and approve the surface preparation prior to application of coating.

3.02 APPLICATION

A. Mix components in strict accordance with manufacturer's instructions.

B. Surface and material temperature shall be between 70°F and 90°F during application.

C. Coating for Floors and Bases:
   1. Primer shall be applied at the rate of 160 square feet per gallon.
   2. Intermediate coat shall be applied within 4 to 6 hours of prime coat. Intermediate coat shall be applied to 1/8 inch (125 mils) thickness, aggregate filled, and in accordance with manufacturer's instructions.
   3. Top coat shall be applied at 250 square feet per gallon.

D. Coating for walls shall be applied as follows:
   1. One primer coat (160 square feet per gallon).
   2. One top coat (180 square feet per gallon).
   3. One top coat (250 square feet per gallon).

E. Exposed perimeter edges of topcoat, including doorways, drains, traffic aisle sides, etc., shall be "keyed" into substrate to allow full 1/8 inch thickness at these points. Sawcut substrate using power saw with carbide or diamond tip blades.

F. Where the concrete floor meets the wall, provide a 45 degree angle cove with a height of 1 to 2 inches.

G. Do not install coating over expansion joints.

END OF SECTION

SECTION 10 00 20

MISCELLANEOUS SPECIALTIES

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
   1. Lockout/Tagout Centers.
   2. Rolling Step Ladder.
   3. Neoprene Gaskets.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

PART 2–PRODUCTS

2.01 LOCKOUT/TAGOUT CENTERS

A. CONTRACTOR shall provide four lockout/tagout centers. One lockout/tagout center shall be located at each MCC at the Waterwater Treatment Plant. Centers shall include 25 lockout/tagout training booklets, six padlocks in six colors, five 1 1/2-inch lockout hasps, and 20 “DANGER–EQUIPMENT LOCKED OUT” lockout tags. Centers shall be durable 24 inches wide by 30 inches high impact-resistant styrene (display board with three 5-inch-deep pockets).

B. Lockout/tagout centers shall be Seton Model No. 69981.

C. Lockout/tagout kits shall be Seton Model No. 42469.

2.02 ROLLING STEP LADDER

A. Provide one rolling step ladder with spring-loaded casters and rubber feet. Treads shall be 26 inches wide at top, Ezy-Tread, or equal. Top step of ladder shall be 60 inches above floor. Ladder shall include handrails.

B. Acceptable products include EGA Products, Inc., Model Z026, or equal.

2.03 NEOPRENE GASKETS

A. Furnish and install neoprene gaskets at weir plates and as called for on the Drawings.

B. Neoprene shall be of the size and thickness shown on the Drawings. Minimum thickness shall be 1/8 inch. The material shall be 40-50 durometer premium-grade neoprene. Only virgin polymers shall be used to manufacture the neoprene. A certificate of material quality shall be furnished.

C. Where splices are necessary, they shall be butt splices made with a two-part neoprene base-bonding cement. The vulcanizing cement shall be Black Cement by CPR Industries of Carteret, New Jersey, or equal.

D. At splices in weir plates, provide an additional thickness of neoprene to match the plate material. Bond the additional neoprene to the continuous gasket using the cement specified for splices.

E. All gaskets shall be watertight.

PART 3–EXECUTION

3.01 INSTALLATION

A. Install accessories in accordance with manufacturer's instructions.

END OF SECTION

SECTION 10 14 00

PLASTIC AND METAL SIGNS

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
   1. Facility Sign.
   2. Bronze Plaque.
   3. Room Signs.
   4. Site Signs.
   5. Fire Wall Signs.
   6. Caution Signs.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 SUBMITTALS

A. Submit under provisions of Section 01 33 00–Submittals.

B. Shop Drawings: Indicate sign styles, lettering font, foreground and background colors, locations, and overall dimensions of each sign.

PART 2–PRODUCTS

2.01 FACILITIES SIGN

A. Shall be in accordance with the details shown on the Drawings.

B. Sign shall be constructed of aluminum letters. See Drawing for layout and size.

C. Color of aluminum sign and vinyl lettering will be selected by OWNER.

2.02 BRONZE PLAQUE

A. Bronze plaque size shall match existing plaque size.

B. Raised surfaces and borders shall be satin-polished natural color. Background shall be brown-colored contrast. Plaque edges shall be single-edge bevel.

C. Lettering shall be Helvetica Medium with a maximum number of 360 characters.

D. Plaque will have name of project, list of officials, ENGINEER, CONTRACTOR, etc. Actual wording, layout, and final location will be determined by ENGINEER.

E. Mount plaque by concealed fastening, using studs on back, set in cement.

F. Plaque shall be equal to those manufactured by Metal Arts, Mandan, North Dakota; A.R.K. Ramos Signage Systems, Oklahoma City, Oklahoma, or equal.

2.03 ROOM SIGNS

A. Provide room signs, W.H. Brady Co., B-909, or equal. OWNER shall select color.

2.04 SITE SIGN

A. Provide site sign as shown on the Drawings. Sign shall be reflective sheeting on 0.070-inch aluminum, W.H. Brady Co., B-959, or equal. Sign shall be mounted on steel U-channel posts, W.H. Brady Co., 97205, or equal.

2.05 FIRE WALL SIGNS

A. Marking and identification of all fire walls, fire barriers, fire partitions, smoke barriers, and smoke partitions or any other wall required to have protected openings shall be effectively and permanently identified with signs or stenciling and shall meet the three following requirements:
   1. Shall be located in accessible concealed floor, floor-ceiling, or attic spaces.
   2. Shall be repeated at intervals not exceeding 30 feet measured horizontally along the wall or partition.
   3. Shall include lettering not less than 1/2 inch in height, incorporating the suggested wording: “FIRE BARRIER–PROTECT ALL OPENINGS” or other wording.

B. Sign shall indicate fire rating of wall or partition. Refer to code review drawing, included in drawing set, for fire rated partition locations and rating.

2.06 DANGER SIGNS

A. CONTRACTOR shall provide danger signs complying with OSHA requirements. Signs shall state Danger–Permit Required Confined Space Do Not Enter.

B. Signs shall be fiberglass, Brady Systems, or equal, minimum size 7 inches by 10 inches. Colors shall be red and black on white.

2.07 NON-POTABLE WATER HYDRANT SIGNS

A. Non-potable Water and Caution Signs: Place non-potable water signs permanently mounted at every hose bib, hydrant, or faucet on the non-potable water system. Sign shall include as a minimum the wording “NOTICE, NON-POTABLE WATER, DO NOT DRINK.” Signs shall be Brady Safety sign, or equal, minimum size 6 inches by 10 inches, constructed of fiberglass. Mount signs on building wall or structures with stainless steel screws or fasteners. At yard hydrant, provide post-mounted signs on steel U-channel posts.

PART 3–EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer’s instructions.

B. Install signs after surfaces are finished in locations as shown on the Drawings.

3.02 SCHEDULES

A. Provide one facility sign where shown on the Drawings.

B. Provide one bronze plaque mounted in the administration building where indicated by OWNER.

C. Provide one “MEN,” one “WOMEN,” one “OFFICE,” one “MECHANICAL,” and one “LAB” room sign at Administration Building.

D. Provide CAUTION signs at all wet wells, including the PRF Pump Station, Digested Sludge Transfer Station, and scum wet well. Additionally, provide signs at the four entry points into the covered aerobic digester, the Headworks Channel (outside) and the screening channels within the headworks building, and the vortex grit basins. Provide 10 total.

END OF SECTION

SECTION 10 21 13.13

METAL TOILET COMPARTMENTS

PART 1–GENERAL

1.01 SUMMARY

A. Work Included: Metal toilet compartments, floor-mounted, and overhead-braced.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. ANSI A117.1–Safety Standards for the Handicapped.

B. ASTM A653–Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

C. FS RR-P-1352–Partitions, Toilet, Complete.

1.03 SUBMITTALS

A. Submit under provisions of Section 01 33 00–Submittals.

B. Shop Drawings: Indicate partition plan, elevation views, dimensions, details of wall and floor supports, and door swings.

C. Product Data: Provide data on panel construction, hardware, and accessories.

1.04 REGULATORY REQUIREMENTS

A. Conform to ANSI A117.1 code for access for the handicapped.

PART 2–PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. American Sanitary Partition Corporation, or equal.

2.02 MATERIALS

A. Doors: One inch thick, constructed of two sheets of 22 gauge bonderized-galvanized steel formed and cemented under pressure to a hexagonal honeycomb core.

B. Panels: One inch thick, made of two sheets of 20 gauge bonderized-galvanized steel construction in a V-shaped manner with hexagonal honeycomb core.

C. Pilasters: 1 1/4 inches thick, constructed of two sheets of 20 gauge bonderized-galvanized steel.

2.03 ACCESSORIES

A. Each compartment shall be complete with all hardware; door hinges, latch stop and keeper, coat hook, bumper, pull for out swinging doors, and all necessary fittings and fastenings for complete installation.

2.04 FABRICATION

A. Doors:
1. Face plates of doors shall be welded together at intervals around the entire perimeter to provide a rigid one-piece unit which will remain flat despite extreme stress.
2. All edges shall be bound with 20 gauge interlocking molding; corners shall be welded and ground smooth.
3. Doors shall have suitable internal reinforcement to accommodate hardware items.

B. Panels:
1. Provisions for leveling shall be provided at panel-to-wall connection.
2. All corners shall be welded and ground smoothly.

C. Pilasters:
1. Face plates to be formed and cemented under pressure to honeycomb core and shall be welded together at intervals around the entire perimeter to provide a rigid, integral unit which will withstand the severest abuse.
2. Edges shall be interlocked with 20 gauge over-shaped molding; corners shall be welded and ground smooth.
3. All pilasters shall have a 3-inch plinth (18-8, Type 301 stainless). Antigrip headrail (1-inch by 1 1/2-inch aluminum tubing) is set into top of pilaster in a reinforced channel.

D. Hardware:
1. Doors shall be hung on concealed universal-type gravity hinges. Lower hinge recessed in door shall operate on opposing Dupont Zytel nylon cams. Upper hinge shall operate in a nylon bushing on a stainless steel pin anchored above and below the hinge bracket.
2. Concealed latch with emergency opening slot.

2.05 FINISHING

A. All panels, doors, pilasters, and related materials that require painting shall be finished in the factory with baked enamel, color to be chosen by OWNER.

B. All hardware and fasteners shall have highly-polished chrome finish.

PART 3–EXECUTION

3.01 EXAMINATION

A. Verify correct spacing of and between plumbing fixtures.

B. Verify correct location of built-in framing, anchorage, and bracing.

3.02 INSTALLATION

A. Install partitions secure, rigid, plumb, and level in accordance with manufacturer's instructions.

B. Maintain 3/8-inch to 1/2-inch space between wall and panels and between wall and end pilasters.

C. Attach panel brackets securely to walls using anchor devices.

D. Attach panels and pilasters to brackets with through bolts and nuts.

E. Provide adjustment for floor variations with screw jack through steel saddles integral with pilaster. Conceal floor fastenings with pilaster shoes.

F. All surfaces shall be cleaned after installation is completed and ready for use.

3.03 ERECTION TOLERANCES

A. Maximum Variation From True Position: 1/4-inch.

B. Maximum Variation From Plumb: 1/8-inch.

END OF SECTION

SECTION 10 28 00

TOILET AND BATH ACCESSORIES

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
   1. Toilet, Bath, Shower, and Washroom Accessories.
   2. Grab Bars.
   3. Attachment Hardware.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. ANSI A117.1–Safety Standards for the Handicapped.

B. ASTM A123–Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

C. ASTM A269–Seamless and Welded Austenitic Stainless Steel Tubing for General Service.

D. ASTM A1008–Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable.

E. ASTM B456–Electro-deposited Coatings of Copper Plus Nickel Plus Chromium and Nickel Plus Chromium.

1.03 REGULATORY REQUIREMENTS

A. Conform to ANSI A117.1 and Federal ADA-AG code and the 2018 International Building Code for access for the handicapped.

PART 2–PRODUCTS

2.01 TOILET TISSUE DISPENSERS

A. Multiroll dispensers shall be surface-mounted. Bobrick B-2888, Bradley 5402, or equal. Provide total of three.

B. Unit shall be Type 304 stainless steel with satin finish.

2.02 HOOKS

A. Heavy-duty hooks shall be Bradley Model 9315, or equal. Provide total of 12.

B. Hook and flange shall be brass castings with satin nickel-plated finish.

2.03 SOAP DISPENSER

A. Surface-mounted liquid soap dispensers shall be Bobrick B-4112, Bradley 6562, Bradley B-5050, or equal. Provide total of three.

B. Unit shall be impact-resistant polymer with corrosion-resistant valve capable of dispensing EA-rated soaps.

C. Install one above each toilet room sink and one at general purpose room sink.

2.04 WASTE RECEPTACLE

A. Waste receptacles shall be swing-type, free-standing Bobrick B-2250, Bradley 377, or equal.

B. Units shall be stainless steel with satin finish.

C. Provide one unit for each toilet room or locker room.

2.05 MIRRORS

A. Mirrors in administration building shall be shelfless mirrors with frames, 48 inches by 36 inches high. Bobrick B-165 4836, or equal. Provide total of two.

B. Mirrors in RAS/WAS pumping building and storage facility shall be shelfless mirrors without frames, 24 inches by 36 inches high, Bradley 747 with clip fasteners, or equal.

C. Mirrors shall have heavy gauge 304 stainless steel frame with satin finish and No. 1 quality, 1/4-inch float plate-glass mirror.

2.06 SHOWER CURTAIN, ROD, AND BENCH

A. Shower curtain rod shall be 1 1/4 inches diameter, 18 BW gauge, 304 satin-finish stainless steel shower curtain rod, Bradley Model 9531, or equal.

B. Flanges shall be 3-inch-diameter satin-finish stainless steel. Provide twelve chrome-plated brass curtain hooks for each curtain, Bradley 9536, or equal.

C. Provide two antibacterial shower curtains, Bradley 9537, or equal.

D. ADA bench in showers shall be a durable, water-resistant, 1/2-inch plastic laminate seat with Type 304 stainless steel foldup-frame and mounting brackets, Bobrick B-5191, Bradley 9591, or equal.

2.07 GRAB BARS

A. Provide stainless steel, peen grip with satin finish, 1 1/4-inch-diameter grab bars. Bars shall be concealed mounted-type, Bobrick B-550.99X18, B-550.99X36 and B-550.99X42; Bradley 832-00118, 832-00136 and 832-00142, or equal.

B. Provide stainless steel, peen grip with satin finish 1 1/4-inch-diameter grab bar. Bar shall be concealed mounted-type, Bobrick B-58616, Bradley 832-059, or equal.

C. See Drawings for configuration of grab bars.

2.08 SOAP DISH

A. Soap dish in showers shall be extra heavy-duty stainless steel with rounded edges, Bobrick B-680, Bradley 9014-63, or equal.

2.09 UNDERSINK PROTECTIVE PIPE COVERS

A. ADA-conforming, wheelchair-accessible lavatory P-trap and angle valve assemblies shall be covered with molded, antimicrobial undersink protective pipe covers, TRUE BRO, INC. LAV GUARD 2 No. 103 E-Z and No. 402 with 105 E-Z accessory, 1-800-340-5969, or equal.

B. Cover shall be secured with reusable fasteners and access covers.

C. Coordinate protective pipe covers for tailpiece and extensions to fit lavatories.

D. Standard color to be selected by OWNER.

2.10 KEYING

A. Supply two keys for each accessory to OWNER.

B. Key all accessories alike.

PART 3–EXECUTION

3.01 INSTALLATIONS

A. Install accessories in accordance with manufacturers' instructions, ANSI A117.1, Federal ADA-AG, and the 2018 International Building Code.

B. Install plumb and level securely and rigidly anchored to substrate.

END OF SECTION

SECTION 10 43 16

FIRST AID KIT

PART 1–GENERAL

1.01 SUMMARY

A. Work Included: First aid kit.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

PART 2–PRODUCTS

2.01 MANUFACTURER

A. First aid kit shall be SmartCompliance First Aid Cabinet Model No. 90580 wall-mounted (50-person 202-item kit). First aid only Model No. 225AN (50 person 196-item kit)., or equal.

PART 3–EXECUTION

3.01 INSTALLATION

A. First aid kit shall be wall-mounted.

B. Mount in the Storage Building or building where requested by OWNER.

END OF SECTION

SECTION 10 44 43

FIRE EXTINGUISHERS AND ACCESSORIES

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
1. Fire Extinguishers.
2. Accessories.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. ANSI/NFPA 10–Portable Fire Extinguishers.

1.03 SUBMITTALS

A. Submit under provisions of Section 01 33 00–Submittals.

B. Product Data: Provide extinguisher operational features, color and finish, anchorage details, and cabinet dimensions.

1.04 QUALITY ASSURANCE

A. Provide units conforming to NFPA 10 requirements for portable fire extinguishers.

B. Provide fire extinguisher and accessories by single manufacturer.

PART 2–PRODUCTS

2.01 MANUFACTURERS

A. Larsen’s Manufacturing Company, Product MP Series.

B. Substitutions: Under provisions of Section 01 60 00–Materials and Equipment.

2.02 EXTINGUISHERS

A. Provide sixteen dry-chemical-type, Larsen’s MP Series, 10-pound-capacity fire extinguishers. Fire extinguishers shall be UL-approved for Class A, Class B, and Class C fires.

PART 3–EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer’s instructions.

B. Place extinguishers in brackets where shown on the Drawings.

C. Mount fire extinguisher so the handle is at 48 inches above the finished floor.

D. The fire extinguishers will be located in the following buildings:
1. Headworks building–Three.
2. RAS/WAS pumping building–Four.
3. Blower/UV building–Three.
4. Administration building–Three.
5. Storage Facility–Three.

END OF SECTION

SECTION 10 51 00

LOCKERS AND BENCHES

PART 1–GENERAL

1.01 SUMMARY

A. Work Included: Steel lockers and bench.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

PART 2–PRODUCTS

2.01 LOCKERS

A. Provide seven 15-inch by 12-inch by 72-inch single-tier lockers with louvers top and bottom; as manufactured by Penco, Oaks, Pennsylvania, (610) 666-0500, “Vanguard” line, or Republic Storage Systems, Canton, Ohio, (800) 477-1255, “Standard” line, or equal.

B. Lockers shall be provided with continuous sloping tops with a height of 5 inches.

C. Lockers shall have minimum 24 gauge steel body with minimum 16 gauge steel door and frame.

D. Provide hat shelf, coat hooks, wall and base anchors, latches, end panels, corner panel if required, end and side base, and baked enamel finish; color to be selected by OWNER. All locker appurtenances, including bolts, shall be rustproof.

E. Lockers shall be mounted on existing CMU wall base and shall be anchored to walls and/or base per manufacturer’s recommendations.

2.02 LOCKER ROOM BENCHES

A. Provide two clear hardwood bench, see Drawings for dimensions.

B. Hardwood top shall be finished with three coats of plastic sealer and supported on existing CMU wall base.

C. Overall bench height shall be approximately 16 inches.

PART 3–EXECUTION

3.01 INSTALLATION

A. Lockers and benches shall be installed in accordance with manufacturer’s recommendations.

END OF SECTION

SECTION 11 53 00

LABORATORY FURNITURE AND EQUIPMENT

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
1. Steel Casework.
2. Work Surfaces.
3. Sinks and Outlets.
4. Service Fittings.
5. Accessory Equipment.
6. Laboratory Equipment.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. SEFA 8: Laboratory Furniture, Casework, Shelving, and Tables Guidelines Science Equipment and Furniture Association (SEFA).

1.03 LABORATORY EQUIPMENT ALLOWANCE

A. See Paragraph 2.11 for Laboratory Equipment Allowance.

1.04 CASEWORK DESIGN REQUIREMENTS

A. Flush Construction: Surfaces of doors, drawers, and panel faces shall align with cabinet fronts without overlap of case ends and top or bottom rails. Horizontal- and vertical-case shell members (panels, top rails, and bottoms) shall meet in the same plane without overlap, cracks, or crevices.

B. Self-Supporting Units: Completely welded shell assembly without applied panels at ends, backs, or bottoms so that cases can be used interchangeably or as a single, stand-alone unit.

C. Interior of Case Units: Easily cleanable, flush interior. Cupboard bottom shall be full depth and width of unit on all cases to prevent dust from entering cabinet.

D. Drawers: Sized on a modular basis for interchange to meet varying storage needs, and designed to be easily removable in field without the use of special tools.

E. Case Openings: Rabbeted-like joints all four sides of case opening for hinged doors and two sides for sliding doors to provide dust-resistant case.

F. Framed Glazed Doors: Identical in construction, hardware, and installation to solid panel doors. Design frame-glazed doors to be removable for glass replacement.

1.05 CASEWORK PERFORMANCE REQUIREMENTS

A. Structural Performance Requirements: Casework components shall withstand the following minimum loads without damage to the component or to the casework operation:
   1. Steel base unit load capacity: 500 pounds per linear foot.
   2. Suspended units: 300 pounds.
   3. Drawers in a cabinet: 150 pounds.
   4. Utility tables (four-legged): 300 pounds.
   5. Hanging wall cases: 300 pounds.
   6. Load capacity for shelves of base units, wall cases, and tall cases: 100 pounds.

B. Metal Finish Performance Requirements:
   1. Hardness: Surface hardness equivalent to 4H pencil, minimum.
   2. Humidity resistance: Withstand 1,000-hour exposure in saturated humidity at 100°F, per ASTM D2247-85.
   3. Moisture resistance:
      a. No visible effect to surface finish after boiling water trickled over test panel inclined at 45 degrees for 5 minutes.
      b. No visible effect to surface finish following 100-hour continuous application of a water-soaked cellulose sponge, maintained in a wet condition throughout the test period.
   4. Adhesion: Score finish surface of test panel with razor blade into 100 squares, 1/16 inch by 1/16 inch, cutting completely through the finish but with minimum penetration of the substrate, and brush away particles with soft brush. Minimum 90 squares shall maintain their finish.
   5. Salt spray: Withstand minimum 250-hour salt spray test, per ASTM B117-85.

C. Chemical Resistance Finish Performance Requirements:
   1. Test procedure: Apply 10 drops (approximately 0.5 cubic centimeters) of each reagent identified in the SEFA 8 requirements to the surface of the finished test panes laid flat and level on a horizontal surface. Ambient temperature: 68° to 72°F (20° to 22°C). After 1 hour, flush away chemicals with cold water and wash surface with detergent and warm water at 150°F (65.5°C) and with alcohol to remove surface stains. Examine surface under 100 foot-candles of illumination.
   2. Evaluation ratings: Change in surface finish and function shall be described by the following ratings:
      a. Level 0–No detectable change.
      b. Level 1–Slight change in color or gloss.
      c. Level 2–Slight surface etching or sever staining.
      d. Level 3–Pitting, cratering, swelling, erosion of coating, obvious and significant deterioration.
   3. Test results to match SEFA 8 requirements for color selected by OWNER.

1.06 WORK SURFACE PERFORMANCE REQUIREMENTS

A. Test Procedure: Apply five drops of each reagent to surface and cover with 25 mm watch glass, convex side down; test volatiles using 1-ounce bottle stuffed with saturated cotton. After 24-hour exposure, flush surface clean, rinse, and wipe dry.

B. Evaluation Ratings: Change in surface finish and function shall be described by the following ratings:
   1. No effect: No detectable change in surface material.

2. Excellent: Slight detectable change in color or gloss, but no change to the function or life of the work surface material.
3. Good: Clearly discernible change in color or gloss, but no significant impairment of work surface function or life.
4. Fair: Objectionable change in appearance because of surface discoloration or etch, possibly resulting in deterioration of function over an extended period.
5. Failure: Pitting, cratering, or erosion of work surface material; obvious and significant deterioration.

C. Test Results–Epoxy Resin Work Surface: Test results to comply with Thermo Hamilton Epoxy Resin Work Surface Test.

1.07 SUBMITTALS

A. Submittals shall comply with the requirements of Section 01 33 00–Submittals.

B. Shop Drawings: Provide 1/2 inch = 1 foot 0 inch scale elevations of individual and battery of casework units, cross sections, rough-in and anchor placements, tolerances and clearances. Indicate relation of units to surrounding walls, windows, doors, and other building components. Provide 1/4 inch = 1 foot 0 inch rough-in plan drawings for coordination with trades. Rough-in shall show free area.

C. Test Reports: Submit test reports verifying conformance to test performance specified.

1.08 QUALITY ASSURANCE

A. Single Source Responsibility: Casework, work surfaces, and accessories shall be manufactured or furnished by a single laboratory furniture company.

B. Manufacturer's Qualifications:
1. Five years or more experience in manufacture of laboratory casework and equipment of type specified.
2. Ten installations of equal or larger size and requirements.

C. Installer shall be factory-certified by the manufacturer.

D. Cabinet Identification: New cabinets to be installed are identified on Drawings by letter. New equipment to be installed is identified by double letters. Unless otherwise modified on Drawings or in Specifications, catalog description constitutes specific requirements for each type of cabinet.

1.09 DELIVERY, STORAGE AND HANDLING

A. Schedule delivery of casework and equipment so that spaces are sufficiently complete that material can be installed immediately following delivery.

B. Protect finished surfaces from soiling or damage during handling and installation. Keep covered with polyethylene film or other protective coating.

C. Protect all work surfaces throughout construction period with 1/4-inch corrugated cardboard completely covering the top and securely taped to edges. Mark cardboard in large lettering "No Standing."

1.10 PROJECT CONDITIONS

A. Do not deliver or install equipment until the following conditions have been met:
   1. Windows and doors are installed and the building is secure and weathertight.
   2. Ceiling, overhead ductwork, and lighting are installed.
   3. All painting is completed and flooring is installed.

PART 2–PRODUCTS

2.01 LABORATORY EQUIPMENT

A. Acceptable manufacturer includes the following or equal: Mott Manufacturing, Ltd. (Brantford, Ontario, Canada).

B. Schedule of items to be provided is as follows: Model Nos. refer to Mott.

Designation	Description	Model No.
AA	Flume Hood	--
BB	24 X 36 Epoxy Pegboard	EPB2430
CC	2" Drip Trough	DTC0224

2.02 LABORATORY FURNITURE

A. Acceptable manufacturer includes the following, or equal: Mott Manufacturing, Ltd. (Brantford, Ontario, Canada).

B. Laboratory furniture shall be supplied from the same manufacturer as the fume hood.

C. Schedule of items to be provided is as follows: Model Nos. refer to Mott, unless otherwise noted.

Designation	Description	Model No.
A	24-Inch Base (4) Drawers	1210044
B	24-Inch Base (2) Drawers and Door	1210033
C	36-Inch Base (6) Drawers	14100CC
D	30-Inch Base (2) Drawers and Doors	1310022
E	15-Inch Base File Drawer Unit	1910133
F	15-Inch Base (3) Drawers	1910100
G	12-Inch Base (4) Drawers	1010044
H	48-Inch Base Sink Unit	1518022
J	30-Inch Base Sink Unit	1318022
K	Corner Unit–Right Hinged	1017011
L	Corner Unit–Left Hinged	1017111
M	15-Inch Base Acid Storage Unit	1911011
N	18-Inch Base Pump Storage Unit	111P022
P	48-Inch Wall Sliding Glass Door Unit	5510020
Q	24-Inch Wall Hinged Door Unit	5211030
R	30-Inch Wall Hinged Door Unit	5310030

D. Provide scribing strips, filler panels, and enclosures as required.

2.03 CASEWORK MATERIALS

A. Sheet Steel: Mild, cold-rolled, and leveled unfinished steel.

B. Minimum Gauges:
1. 20 Gauge: Solid door interior panels, drawer fronts, scribing strips, filler panels, enclosures, drawer bodies, shelves, and security panels.
2. 18 Gauge: Case tops, ends, bottoms, bases, backs, vertical posts, uprights, glazed door members, door exterior panels, and access panels.
3. 16 Gauge: Top front rails, top rear gussets, intermediate horizontal rails, table legs and frames, and leg rails and stretchers.
4. 14 Gauge: Drawer suspensions, door and case hinge reinforcements, and front corner reinforcements.
5. 11 Gauge: Table leg corner brackets and gussets for leveling screws.

C. Glass for Glazed Swinging and Sliding Doors: 7/32-inch (6 mm)-thick, clear laminated safety glass.

2.04 CASEWORK FABRICATION

A. Base Units and Cases:
1. Base units and 25-inch-, 31-inch-, and 37-inch-high wall cases: End panels and back reinforced with internal reinforcing front and rear posts.
2. 49-inch- and 84-inch-high cases: Formed end panels with front and rear reinforcing post channels; back shall be formed steel panel, recessed 3/4 inch for mounting purposes.
3. Posts: Front post fully closed with full height reinforcing upright. Shelf adjustment holes in front and rear posts shall be perfectly aligned for level setting, adjustable to 1/2 inch on center.
4. Secure intersection of case members with spot and arc welds. Provide gusset reinforcement at front corners.

B. Drawers:
1. Drawer fronts: 3/4-inch-thick, double-wall construction, prepainted prior to assembly, and sound-deadened; top front corners welded and ground smooth.
2. Drawer bodies: Bottom and sides formed into one-piece center section with bottom and sides coves and formed top edges. Front and back panels spot-welded to center section.
3. Drawer suspension: Heavy-duty coved raceways for both case and drawer with nylon-tired, ball-bearing rollers; self-centering and self-closing when open to within 5 inches of the closed position.
4. Provide drawer with rubber bumpers. Friction centering devices are not acceptable.
5. Provide security panels for drawers with keyed different locks.
6. File drawers: Provide with full extension slides for full access and operation.

C. Doors:
1. Solid panel doors: 3/4 inch thick, double wall, telescoping box steel construction with interior prepainted and sound-deadened; all outer corners welded and ground smooth. Reinforce interior of front panel with welded steel hat channels. Hinges with screws to

internal 14 gauge reinforcing in case and door. Hinges shall be removable; welding of hinges is not acceptable. Doors shall close against rubber bumpers.

2. Frame-glazed doors: Outer head to be one-piece construction. Inner head to consist of top, bottom, and side framing members that are removable for installation or replacement of glass. Provide continuous vinyl glazing retainer to receive glass. In all other respects, framed glazed door construction and quality shall match solid panel doors.
3. Sliding doors, solid- or framed-glazed: Design for tilt-out removal after removal of bottom guide. Doors shall be hung with nylon-tired sleeve-bearing rollers in formed steel, top-hung track and shall close against rubber bumpers.
4. Unframed sliding glass doors: Glass with edges ground set in extruded aluminum shoe with integral pulls, wheel assemblies, and top and bottom extruded aluminum track. Provide rubber bumpers at fully opened and closed door position.

D. Shelves:
1. Form front and back edges down and back 3/4 inch. Form ends down 3/4 inch.
2. Reinforce shelves over 36 inches long with welded hat channel reinforcement the full width of shelf.
3. Pull out shelves: Same suspension as specified for drawers.

E. Base Molding: 4 inches high, black rubber or vinyl; inside corners mitered and outside corners wrapped. Base molding around lab casework is by flooring contractor.

F. Hardware:
1. Drawer and hinged door pulls: Clear anodized extruded aluminum, screw attached on minimum 4 1/4-inch centers.
2. Sliding door pulls: Recessed stainless steel, styled and sized to harmonize with drawer pulls.
3. Hinges: Institutional-type, five knuckle-projecting barrel hinges, minimum 2 1/2 inches long, Type 302 or 304 stainless steel. Provide two hinges for doors up to 36 inches high; three hinges for doors over 36 inches high. Drill each leaf for three-screw attachment to door and frame.
4. Door catches: Adjustable-type, spring-actuated nylon roller catches.
5. Elbow catches: Spring-type of cadmium-plated steel, with strike of suitable design.
6. Locks: National Lock Remove-A-Core 5-disk tumbler, heavy-duty cylinder type. Exposed lock noses shall be dull nickel (satin) plated and stamped with identifying numbers.
7. Label holders: Formed steel with satin chrome finish, 1 inch by 1 1/2 inches, screw installed. Label holders will be provided where shown on elevation drawings.
8. Shelf clips: Die-formed steel, zinc-plated, designed to engage in shelf adjustment holes.
9. File followers: Metal backs engaging in steel bottom channel with spring positioning lock.

2.05 METAL FINISH

A. Prepare all surfaces, make free of defects with welds ground smooth and indistinguishable from surrounding metal.

B. Components shall be cleaned in a four-stage chemical spray process that produces an iron phosphate coating bonded to the steel surfaces. Components shall be thoroughly oven-dried before painting.

C. Components shall be electrostatically coated with an epoxy/urethane powder applied in a controlled environment then baked/cured in a temperature controlled oven to provide a smooth hard finish. Surface shall be a chemical resistant, high quality laboratory grade finish. The resulting paint coating shall provide a minimum film thickness of 1.2 mils on all exposed parts and an average film thickness of 1.0 mils on all other surfaces.

2.06 EPOXY RESIN WORK SURFACE

A. Material: Chemical- and abrasion-resistant, durable countertop of 1-inch-thick cast material of epoxy resins and inert products, cast flat, with a uniform low-sheen black surface. Provide new countertop, curbs, ledges, and reagent rack tops throughout new laboratory.

B. Backsplash Curb: Same material as countertop, 5 inches high, butt-jointed, and cemented to top. Provide where indicated on Drawings and at reagent ledges. Include end curb where top abuts end wall.

C. Ledges: Same material as countertop. Provide 5-inch-high by 8-inch-wide single-faced units as shown on Drawings. Ledge face shall permit installation of service fixtures and top shall be removable for access to service utilities. Ledges are required only if shown on Drawings.

D. Reagent Rack Top: Same material as countertop.

2.07 SINKS, DRAINS AND TRAPS

A. Epoxy Resin Sinks: Integrally molded from modified thermosetting black epoxy resin, specially compounded and oven cured. Cove inside corners and pitch bottom to threaded drain outlet.

B. Sink Supports:
1. Cabinet sinks: Support sinks on 11 gauge adjustable 1-inch by 2-inch by 1-inch channel with reagent-resistant finish. Provide two channels across width of cabinet attached to 3/8-inch-diameter threaded hanger rods.
2. Caulk joint between top and sink with nonhardening mastic.

C. Troughs: Cast epoxy resin troughs without longitudinal joints, with bottom edges, coves, and with bottom sloped minimum 1/8 inch per foot to drain. Provide cemented epoxy end caps at trough terminations. Seal joint between trough and tabletop watertight with acid- and alkali-resistant compound.

2.08 LABORATORY FITTINGS

A. Water Service Fittings:
1. Water service faucets and valves shall have renewable unit containing all working parts subject to wear, including replaceable stainless steel seat. Unit shall have serrations for position-locking into valve body.
2. Gooseneck vacuum breakers: Brass forgings integral with gooseneck with renewable seat and special design valve member for fine flow control.
3. Goosenecks shall have separate 3/8-inch IPS coupling securely brazed to gooseneck to provide full thread for attachment of antisplash outlet fittings, serrated tips, and filter pumps.

B. Air and Vacuum Systems Fittings:
   1. Needle valves: Small pattern needle valve, straightway-type with stainless steel replaceable floating cone and brass seat (nonrenewable). Ten serrated end is integral with valve body.
   2. Laboratory ball valves shall have a forged brass valve body, a removable ten-serration hose end and a forged brass lever type handle with a full view color-coded index disc. Valves shall have a floating chrome-plated brass ball and molded TFE seals. Valves shall be certified by the CSA for use with natural gas under ANSI Z21.15. Valves shall be individually tested at 125 psi air pressure and shall be rated for use at working pressure up to 75 psi air.

C. Handles for Service Cocks, Faucets, and Remote Controls: One-arm-type except ground key cocks. Provide removable screw-on-type colored plastic disks with letter stamped on disk in contrasting color as scheduled below:

Service	Disk/Letter Colors	Letters
Gas	Blue/White	Gas
Vacuum	Yellow/Black	Vac.
Compressed Air	Orange/White	C-Air
Cold Water	Green/White	C.W.
Hot Water	Red/White	H.W.
Distilled Water	White/Black	D.W.

D. Fixture Finish: Chrome finish developed by the following sequence of platings over properly prepared brass castings or forgings:

Plating	Minimum Plating Thickness
Copper (Initial)	0.000050 inch
Nickel	0.000350 inch
Chromium (Final)	0.000015 inch

2.09 ACCESSORY EQUIPMENT

A. Pegboards:
   1. Board: Epoxy resin board finished on face and edges. Where exposed, finish back with slightly different surface texture and bevel bottom edges.
   2. Pegs: White polypropylene pegs in 5-inch, 6 1/2-inch, and 8-inch lengths with glassware protector base. Base of pegs shall be two-prong style for mechanical attachment. Do not bond pegs to board.

B. Service Support Struts: Heavy 1/4-inch by 1 1/2-inch steel channel uprights:
   1. Fasten at top and bottom with U-shaped spreader and bolts designed to support tops, box curbs, troughs, hoods, or other heavy loads.
   2. Service piping and drain line hanger supports are to be provided by contractor providing these services.

2.10 LABORATORY EQUIPMENT ALLOWANCE

A. CONTRACTOR shall INCLUDE in the Bid an allowance of $100,000 for providing laboratory equipment to be included as part of the Lump Sum Base Bid. OWNER will provide a list to CONTRACTOR of necessary laboratory equipment to be purchased and provided to CONTRACTOR in the spring of 2026. The Contract Bid amount will be adjusted (ADD or DEDUCT) by a Change Order to reflect the actual cost of the laboratory equipment. The equipment listed below is expected to be purchased as part of this allowance.

Designation	Description
AA	BOD Incubator
BB	Refrigerator/Freezer with Ice Maker
CC	Dishwasher
DD	Water Distiller
EE	Air/Vacuum Pump for Solids Testing
FF	Solids Oven (105°F)
GG	Volatile Solids Oven (550°F)
HH	Solids Balance
II	Desiccator
JJ	Stir Plate
KK	Centrifuge
LL	Dissolved Oxygen Meter (Lab and Portable)
MM	pH Meter (Lab and Portable)
NN	ORP Meter (Portable)
OO	Ammonia Meter (Lab and Portable)
PP	Kjeldahl Nitrogen Digester

PART 3–EXECUTION

3.01 INSTALLATION

A. Casework Installation:
1. Set casework components plumb, square, and straight with no distortion and securely anchored to building structure. Shim as required using concealed shims.
2. Bolt continuous cabinets together with joints flush, tight, and uniform and with alignment of adjacent units within 1/16 inch tolerance.
3. Secure wall cabinets to solid supporting material, not to plaster, lath, or gypsum board.
4. Abut top edge surfaces in one true plane. Provide flush joints not to exceed 1/8 inch between top units.

B. Work Surface Installation:
1. Where required because of field conditions, scribe to abutting surfaces.
2. Only factory-prepared field joints located in accordance with approved shop drawings shall be permitted. Secure joints in field where practicable in the same manner as in factory with dowels, splines, adhesive, or fasteners recommended by manufacturer.
3. Secure work surfaces to casework and equipment components with material and procedures recommended by the manufacturer.

C. Sink Installation: Sinks that were not factory-installed shall be set in chemical-resistant sealing compound and secured and supported in accordance with manufacturer's recommendations.

D. Accessory Installation: Install accessories and fittings in accordance with manufacturer's recommendations. Turn screws to seat flat; do not drive.

3.02 ADJUSTING

A. Repair or remove and replace defective work as requested by ENGINEER upon completion of installation.

B. Adjust doors, drawers, hardware, fixtures, and other moving or operating parts to function smoothly.

3.03 CLEANING

A. Clean shop-finished casework, touchup as required.

B. Clean counter tops with diluted dishwashing liquid and water, leaving tops free of all grease and streaks. Do not use wax or oils.

3.04 PROTECTION OF FINISHED WORK

A. Provide all necessary protective measures to prevent exposure of casework and equipment to other construction activity.

B. Advise CONTRACTOR of procedures and precautions for protection of material and installed laboratory casework and fixtures from damage by work of other trades.

END OF SECTION

SECTION 11 53 13

LABORATORY FUME HOOD

PART 1–GENERAL

1.01 SUMMARY

A. Work Includes Laboratory fume hood.

B. Relate Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 RELATED SECTIONS

A. Section 26 05 00–General Electrical Requirements.

B. Related Work To Be Performed By Others:
1. Final installation of all plumbing, service and electrical fixtures attached to fume hood or countertop (excluding piping and wiring within fume hoods).
2. Final connection to service lines of all plumbing, service and electrical fixtures attached to laboratory casework or fume hoods.

1.03 REFERENCES

A. SEFA 1–Latest Edition: Laboratory Fume Hoods–Design, Materials, Use and Testing Guidelines Science Equipment and Furniture Association (SEFA).

B. ISO 9001:2015–Quality Management International Standards Organization (ISO).

C. ADA (ATBCB ADAAG) Americans with Disabilities Act Accessibility Guidelines Americans with Disabilities Act (ADA).

D. ANSI/ASHRAE 110, 2016 Methods of Testing Performance of Laboratory Fume Hoods.

E. UL1805 Standard for Laboratory Hoods and Cabinets.

F. ASTM E84 Surface Burning Characteristics of Building Materials

1.04 SUBMITTALS

A. Submittals shall comply with the requirements of Section 01 33 00–Submittals.

B. Product Data: Drawings shall include data and details for construction of the laboratory fume hoods as well as information regarding the name, quantity, type and construction of materials (such as hardware, gauges, etc.), that will be used to complete the project.

C. Shop Drawings:
1. The laboratory casework manufacturer shall furnish shop drawings illustrating the layout and placement of all laboratory casework and fume hoods as well as any products included in this section.

2. Indicate the type and location of all service fittings and associated supply connections.
3. Preparation instructions and recommendations.
4. Storage and handling requirements and recommendations.
5. Installation methods.

D. Selection Samples: Submit one complete set of color chips representing the manufacturer's full range of available colors. Minimum sample size 2 1/2 inches by 2 1/2 inches.

E. Quality Assurance/Control:
1. Design Data/Test Reports: Manufacturer shall submit test data and design criteria which are in compliance with the project specifications.
2. Performance: Fume Hoods, "Pro" model, shall be designed to meet or exceed the American Standard for Laboratory Ventilation and the American Industrial Hygiene Association standard as described in ANSI/AIHA Z9.5. This standard of performance shall be verified through factory testing in accordance with the established protocol as set out by the ANSI/ASHRAE 110 standard.
3. Certificates: All certifications required in the specifications shall be submitted with the original submittal package under separate cover. Certificates must be provided with the signature of a qualified individual of the supplier.
4. Manufacturers' Instructions: Provide manufacturer's instructions for installation and maintenance of all products provided and installed within this section.

1.05 QUALITY ASSURANCE

A. Single Source Responsibility: Fume hood casework, work surfaces and accessories shall be manufactured or furnished by a single laboratory furniture company.

B. Manufacturer's Qualifications:
1. Five years or more experience in manufacture of laboratory casework and equipment of type specified.
2. Ten installations of qual or larger size and requirements.

C. Installer shall be factory-certified by the manufacturer.

1.06 DELIVERY, STORAGE AND HANDLING

A. Packaging, Shipping, Handling and Unloading:
1. Packaging: Products shall have packaging adequate enough to protect finished surfaces from soiling or damage during shipping, delivery and installation.
2. Delivery: Fume hood delivery shall only take place after painting, utility rough-ins and related activities are completed that could otherwise damage, soil or deteriorate fume hoods in installation areas.
3. Handling: Care, such as the use of proper moving equipment, experienced movers, etc., shall be used at all times to avoid damaging the fume hoods. Until installation takes place, any wrapping, insulation or other method of protection applied to products from the factory will be left in place to avoid accidental damage.

B. Acceptance at Site: Fume hoods will not be delivered or installed until the conditions specified under Part 3, Installation section of this document have been met.

C. Storage: Fume hoods shall be stored in the area of installation. If, prior to installation, it is necessary for the fume hoods to be temporarily stored in an area other than the installation

area, the environmental conditions shall meet the environmental requirements specified under the Project Site Conditions article of this section.

D. Waste Management and Disposal: The supplier of the laboratory fume hoods is responsible for removing any waste or refuse resulting from the installation of, or work pertaining to laboratory fume hoods; thereby leaving the project site clean and free of debris. Trash container(s) are to be provided by others.

1.07 PROJECT SITE CONDITIONS

A. An operational HVAC system that maintains temperature and humidity at occupancy levels must be in place.

B. Adjacent and related work shall be complete.

C. Ceiling, overhead ductwork and lighting must be installed.

D. Site must be free of any further construction such as “wet work.”

E. Required casework must be installed accurately and the project must be ready for fume hood installation.

1.08 WARRANTY

A. Furnish a written warranty that Work performed under this Section shall remain free from defects as to materials and workmanship for a period of two years from date of shipment. Defects in materials and workmanship that may develop within this time are to be replaced without cost or expense to OWNER. Defects include, but are not limited to:
   1. Ruptured, cracked, or stained coating.
   2. Discoloration or lack of finish integrity.
   3. Cracking or peeling of finish.
   4. Slippage, shift, or failure of attachment to wall, floor, or ceiling.
   5. Weld or structural failure.
   6. Warping or unloaded deflection of components.
   7. Failure of hardware.

B. The warranty with respect to products of another manufacturer sold by Mott Manufacturing is limited to the warranty extended by that manufacturer to Mott Manufacturing.

PART 2–PRODUCTS

2.01 MANUFACTURER

A. Acceptable Manufacturer as basis of design, performance and warranty:
   1. Mott Manufacturing Ltd.; 452 Hardy Rd. Brantford, ON, Canada N3T 5L8. Tel: (519) 752-7825, Fax: (519) 752-2895 Email: inquire@mott.ca, www.mott.ca, or equal.
   2. Other manufacturers that comply with the minimum thicknesses of material and similar construction appearance and quality as specified and shown in the Drawings.

2.02 FUME HOOD MATERIALS

A. Basic Materials:

NOTE: A complete list of basic materials is provided here. Not all models use all materials listed.

1. Exterior Panels Framing Members and Furring Panels: Cold rolled and levelled mild steel and shall conform to ASTM A1008/A1008M, finished as in Fume Hood Exterior Finish Section.
2. Screws: Interior fastening devices; stainless steel screws complete with corrosion resistant plastic caps.
3. By-Pass Grilles: 18-Ga.-thick mild steel directionally louvered upward, finished same as exterior panels.
4. Lower Air Foil: Type 316-4 stainless steel 14 Ga.
5. Upper Front Panel: to be 18-Ga.-thick mild steel, with louvered bypass grills, finished same as exterior panels.
6. Sash Pull: Type 316, 18-Ga.-thick stainless steel with an AISI #4 satin finish.
7. Laminated Safety Glass: 1/4-inch-thick complying to ASTM C1172 standards.
8. Sash Cable: 3/32-inch stranded stainless steel 7 by 19 construction.
9. Pulley Assembly For Sash Cable: 1 1/2-inch-diameter nylon rim, ball bearing roller, with cable retaining device. Provide interior access panels on both sides, and secure using special molded white vinyl gasket designed to be removed and reinstalled without use of special tools.
10. Sash Guides: Track shall be corrosion resistant polyvinyl chloride (PVC).
11. Baffle Supports: PVC hexagonal rods shall be used on hoods with FRP liners. Other liner baffles will be supported with material matching the liner material.
12. Duct Stubs: Bell shaped Type 316, 18 Ga stainless steel.
13. Light Switches: Light switches shall be black in color unless otherwise noted, commercial spec grade or higher, 20 amp, and shall be UL and CSA approved.
14. Electrical Receptacles: Electrical receptacles shall be black in color unless otherwise noted, commercial spec grade or higher, 20 amp, and shall be UL and CSA approved.
15. Cover Plates: Electrical cover plates shall be black in color unless otherwise noted, nylon and UL and CSA approved.

B. Fume Hood Liner: FRP: Hood linings and baffles shall be fiberglass reinforced polyester thermoset resin of 3/16-inch thickness. The fiberglass reinforced polyester panel shall have a minimum flexural strength of 15,000 psi (103,400 kPa), with a flame spread of 25 or less as per ASTM #E84. Final appearance shall be smooth and white in color.

C. Fume Hood Furring Panels:
1. Where called for, provide matching furring panels to enclose the space between top edge of fume hoods and the finished ceiling. Furring panel shall include a hinged access panel for maintenance purposes.
2. Panels shall be flanged, notched and reinforced where required to form a well-fitted enclosure, free from oil canning. Secure panels using cadmium-plated, self-tapping screws; panels shall be removable for maintenance purposes.
3. Finish shall match fume hood to which it is connected.

2.03 BENCH FUME HOOD CONSTRUCTION

A. Fume hood superstructure shall be double wall construction consisting of an outer shell of sheet steel and an inner hood liner. Double wall shall house and conceal steel framing

members, attaching brackets and remote operating service fixture mechanisms. Overall double wall thickness: 4 3/4-inch maximum.

B. Front double-wall posts shall be pre-punched to accept up to five plumbing fittings per side, two electrical duplex outlets, 2-pole light switch for control of the light and exhaust fan, and optional monitor alarm where indicated on the Drawings. Electrical outlets and light switch shall be factory-wired and terminate at a junction box on roof of hood. All electrical components shall be UL listed/classified.

C. Exterior panel members shall be fastened by means of concealed devices. Exposed screws are not acceptable.

D. Provide access to remote-controlled fixture valves concealed between walls through removable panels on hood exterior and access panels on both inside liner walls. Assemble hood superstructure, fasten and connect inner and outer frame into a rigid self-supporting entity.

E. LED Light Fixture: Light located in the roof of the hood shall include a LED module and driver combination and provide 5900 lumens with a color temperature of 4000k with a nominal width of 22 inches. One light on each hood up to 6 feet wide and two lights on each hood 8 feet wide shall be provided. Light(s) shall be isolated from the fume chamber by 6 mm (0.236”)-thick safety glass sealed to the liner using a chemically resistant adhesive. Average interior illumination levels within the fume chamber shall be 80-foot candles minimum. Efficiency of light shall be 120 lumens per watt, and life expectancy of 50,000 hours.

F. Vertical Rising Sash: Fume hood sash shall be full view vertical type providing a clear and unobstructed side to side view of fume hood interior. Sash shall slide vertically in extruded polyvinyl chloride guide. Bottom and side sash rails shall be 18 Ga stainless steel. Safety glass shall be set into rails with PVC glazing channel.

G. Bottom handle shall be an integral, formed, full width, flush pull and shall be anchored on each side to counter weight system.

H. A counter balance system using a single weight, sprockets, and chain shall be used for each vertical operation of sash and prevent jamming to permit one finger operation at any point along full width sash pull and to maintain sash at any position without creep.

I. Sash shall be capable of opening to 28 1/2 inches above the lower air foil.

J. Sash system shall be designed to prevent sash drop in the event of counter weight failure. Sash shall open and close against rubber bumper stops.

K. Hood shall be constant volume type with a built-in automatic compensating by-pass to maintain constant exhaust volume regardless of sash position. By-pass shall be positive in action and controlled by louvered panel in the area immediately above the top portion of the sash when closed. As the sash is lowered, the by-pass design limits the increase in face velocity to a maximum of 4 1/2 times average face velocity as measured with the sash fully open.

L. Perimeter of sash opening shall have a lower air foil and streamlined shape side and top with angled opening toward hood interior. Air shall enter under the bottom horizontal foil

through a nominal 1-inch by-pass when the sash is in the closed position. Bottom foil shall be removable without the use of special tools. Sash shall close on air foil.

M. Three-piece fixed baffles shall provide controlled air vectors into and through the fume hood and be fabricated of the same material as the liner. Provide exhaust slots on the full perimeter of baffles.

N. For safety, fume hood shall maintain essentially constant exhaust volume at any baffle position. Changes in average face velocity and exhaust volume as a result of baffle adjustment shall not exceed 5% for any baffle position at the specified face velocity.

O. Design fume hoods to minimize static pressure loss with adequate slot area around the baffle and the bell shaped exhaust collar configuration. Measured average static pressure loss reading taken three diameters above the hood outlet from four points, 90 degrees apart, shall not exceed the following values based on 60-inch-wide hood:

Face Velocity	Measured Static Pressure Loss
80 F.P.M. (0.38 m/s)	0.15” (37.3 Pa)
100 F.P.M. (0.51 m/s)	0.20” (49.8 Pa)

P. Electrical duplex outlets shown mounted on the face of fume hoods shall be GFCI type and installed in front posts and pre-wired to a junction box mounted on top of fume hood superstructure. Electrical devices shall be UL classified/listed.

2.04 FUME HOOD ACCESSORIES

A. Fume hood shall include a cup sink.

B. Fume hood shall be pre-plumbed at the factory with hose mounts for cold water.

2.05 FUME HOOD EXTERIOR FINISH

A. Preparation: Spray clean metal with a heated cleaner, phosphate solution; pretreat with iron phosphate spray, water rinse, and neutral final seal. Immediately dry in heated ovens, gradually cooled, prior to application of finish.

B. Application: Electrostatically apply Urethane powder coat of selected color and base in controlled high-temperature oven to provide a smooth, hard stain finish. Surfaces shall have a chemical resistant, high-grade laboratory furniture quality finish of the following thicknesses:
   1. Exterior and interior surfaces exposed to view: 1.5 mil average and 1.2 mil minimum.
   2. Backs of cabinets and other surfaces not exposed to view: 1.0 mil average.

PART 3–EXECUTION

3.01 INSTALLATION

A. In addition to requirements of Section 11 53 13–Laboratory Fume Hoods, install fume hoods in positions shown, align and set level with levelling devices.

B. Work in close cooperation with allied trades installing ductwork, wiring and other services.

C. Apply small bead of sealant to junction of fume hood counter top and adjacent hood liner.

D. Turn over to Mechanical Trades, service fitting remote control rods and valves for installation to fume hood superstructure and service lines.

3.02 FIELD QUALITY CONTROL TESTING OF FUME HOOD

A. Field Testing Requirements:
   1. Perform tests in in field to verify proper operation of the new fume hood before they are put in use, using only qualified personnel.
   2. Perform tests after installation is complete, the building ventilation system has been balanced, all connections have been made, and written verification has been submitted that the above conditions have been met.
   3. Verify that the building makeup air system is in operation, the doors and windows are in normal operating position, and that all other hoods and exhaust devices are operating at designed conditions.
   4. Correct any unsafe conditions disclosed by these tests before request for test procedures.

END OF SECTION

SECTION 12 25 13

WINDOW ROLLER SHADES

PART 1–GENERAL

1.01 SUMMARY

A. Work Includes:
   1. Roller Shades.
   2. Manual Operation.
   3. Accessories.

B. Shade fabric.

1.02 RELATED SECTIONS

A. Applicable provisions of Division 01 shall govern work in this section.

B. Section 06 11 00–Wood Blocking and Curbing: Wood blocking and grounds for mounting roller shades and accessories.

C. Section 09 29 00–Gypsum Board: Coordination with gypsum board assemblies for installation of shade pockets, closures and related accessories.

D. Section 09 51 00–Suspended Acoustical Ceilings: Coordination with acoustical ceiling systems for installation of shade pockets, closures and related accessories.

1.03 REFERENCES

A. ASTM International (ASTM): ASTM G21 and E 2180–Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi.

B. Cradle to Cradle Products Innovation Institute (C2C): C2C (DIR)–C2C Certified Products Registry.

C. National Fire Protection Association (NFPA): NFPA 701–Standard Methods of Fire Tests for Flame Propagation of Textiles and Films.

D. Window Covering Manufacturers Association (WCMA): WCMA A100.1–Safety of Window Covering Products; 2018.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: One week prior to commencing work related to this section. Require attendance of all affected installers.

B. Sequencing:
   1. Do not fabricate shades until field dimensions for each opening have been taken with finished conditions in place. "Hold to" dimensions are not acceptable.
   2. Do not install shades until final surface finishes and painting are complete.

1.05 SUBMITTALS

A. Comply with pertinent provisions of Section 01 33 00–Submittals.

B. Product Data: Manufacturer's catalog pages and data sheets for products specified including materials, finishes, dimensions, profiles, mountings, and accessories.
   1. Preparation instructions and recommendations.
   2. Styles, material descriptions, dimensions of individual components, profiles, features, finishes , accessories, and operating instructions.
   3. Storage and handling requirements and recommendations.
   4. Mounting details and installation methods.
   5. Manufacturer's Instructions: Include storage, handling, protection, examination, preparation, and installation.
   6. Operation and Maintenance Data: Component list with part numbers, and operation and maintenance instructions.

C. Shop Drawings: Plans, elevations, sections, product details, installation details, operational clearances, and relationship to adjacent work.
   1. Provide location plan showing all manual shade control locations. Cross-reference furniture drawings for optimal positioning of chains.
   2. Provide elevation drawings showing shade band layout. Indicate any necessary seam or batten locations, and align with horizontal mullions where possible.

D. Window Treatment Schedule: For all roller shades. Use same room designations as indicated on the Drawings and include opening sizes and key to typical mounting details.

E. Maintenance Data: Bill of materials for all components with part numbers. Methods for maintaining roller shades, precautions regarding cleaning materials and methods, instructions for operating hardware and controls.

F. Warranty: Provide manufacturer’s warranty documents as specified in this Section.

1.06 QUALITY ASSURANCE

A. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

B. Manufacturer Qualifications: Obtain roller shades system through one source from a single manufacturer with a minimum of ten years experience and minimum of five projects of similar scope and size in manufacturing products comparable to those specified in this section.

C. Installer for Roller Shade System:
   1. Qualifications: Installer trained and certified by the manufacturer with a minimum of ten years experience in installing products comparable to those specified in this section.
   2. Requirements for Roller Shade Installer/Contractor: Roller Shade Hardware, shade fabric and all related controls shall be furnished and installed as a complete assembly.

D. Product Listing Organization Qualifications: Organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

E. Fire-Test-Response Characteristics: Passes NFPA 701 small and large-scale vertical burn. Materials tested shall be identical to products proposed for use.

F. ShadeCloth Anti-Microbial Characteristics: 'No Growth' per ASTM G 21 results for fungi ATCC9642, ATCC9644 and ATCC9645, and E2180.

G. ShadeCloth Cleanability and Disinfecting: ShadeCloth must meet cleanability and disinfecting requirements via 3rd party testing to comply with BIFMA HCF 8.1-2014 standards using chemical solutions compliant with EPA guidelines for use against COVID-19.

H. Environmental Certification: Submit written certification from the manufacturer, including third party evaluation, recycling characteristics, and perpetual use certification as specified. Initial submittals, which do not include the Environmental Certification will be rejected. Materials that are simply 'PVC free' without identifying their inputs shall not qualify as meeting the intent of this specification and shall be rejected.

I. Third Party Evaluation: Provide documentation stating the shade cloth has undergone third party evaluation for all chemical inputs, down to a scale of 100 parts per million, that have been evaluated for human and environmental safety. Identify any and all inputs, which are known to be carcinogenic, mutagenic, teratogenic, reproductively toxic, or endocrine disrupting. Also identify items that are toxic to aquatic systems, contain heavy metals, or organohalogens. The material shall contain no inputs that are known problems to human or environmental health per the above major criteria, except for an input that is required to meet local fire codes.

J. Recycling Characteristics: Provide documentation that the shade cloth can, and is part of a closed loop of perpetual use and not be required to be down cycled, incinerated or otherwise thrown away. Scrap material can be sent back to the mill for reprocessing and recycling into the same quality yarn and woven into new material, without down cycling. Certify that this process is currently underway and will be utilized for this project.

K. Perpetual Use Certification: Certify that at the end of the useful life of the shade cloth, that the material can be sent back to the manufacturer for recapture as part of a closed loop of perpetual use and that the material can and will be reconstituted into new yarn, for weaving into new shade cloth. Provide information on each shade band indicating that the shade band can be sent back to the manufacturer for this purpose.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver in factory-labeled packages, marked with manufacturer and product name, fire-test-response characteristics, and location of installation using same room designations indicated on Drawings and in Window Treatment Schedule.

B. Store and handle products per manufacturer's recommendations.

1.08 PROJECT CONDITIONS

A. Environmental Limitations: Install roller shades after finish work including painting is complete and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

1.09 WARRANTY

A. Roller Shade Hardware and Chain Warranty: Manufacturer's standard non-depreciating, transferrable warranty for interior shading.
   1. Shade Hardware–10 years unless otherwise indicated: Mecho/5 and Mecho/5x with ThermoVeil, EuroTwill, Soho, Equinox, Midnite, Chelsea, or Classic Blackout shade fabric: 25-years.
   2. All Mecho Shadecloth: Manufacturer's standard 25-year warranty.
   3. Roller Shade Installation: One year from date of Substantial Completion, not including scaffolding, lifts or other means to reach inaccessible areas, which are deemed OWNER's responsibility.

PART 2–PRODUCTS

2.01 MANUFACTURERS

A. Acceptable Manufacturer for Window Shade Control System as basis of design, performance and warranty: Mecho, which is located at: 42-03 35th Street.; Long Island City, NY 11101; ASD Tel: 718-729-2020; Fax: 718-729-2941; Email: marketing@mechoshade.com; Web: www.mechoshade.com. For your local Mecho rep: https://www.mechoshade.com/find-a-rep/, or equal.

2.02 APPLICATIONS/SCOPE

A. Roller Shade Schedule: Shade Type: Manual operating, chain drive, sunscreen single roller shades and related mounting systems and accessories as indicated on drawings.

2.03 ROLLER SHADES, MANUAL OPERATION AND ACCESSORIES

A. Shade System; General:
   1. Components capable of being removed or adjusted without removing mounted shade brackets, or cassette support channel.
   2. Smoothly operation raising or lowering shades.
   3. Cradle-to-Cradle certified and listed in C2C (DIR).
   4. Environmental Product Declaration (EPD): Published disclosure of product's environmental impacts based on a full Life Cycle Assessment (LCA). Manufacturer must have EPD certification by independent 3rd party evaluation service.

B. Basis of Design: Mecho/5 System as manufactured by Mecho.
   1. Description: Manually operated fabric window shades.
      a. Shade Type: Single Roller.
      b. Universal drive capability to offset drive chain for reverse or regular roll shades.
      c. Drop Position: Regular roll.
      d. Mounting: Mount to window head per Drawings.
      e. Shades shall be sized to fit between jambs and fully cover window sizes as indicated on Drawings. Field verify openings prior to procurement of shades.
      f. Fabric: As indicated under Shade Fabric article.
   2. Brackets and Mounting Hardware: As recommended by manufacturer for mounting indicated and to accommodate shade fabric roll-up size and weight. Material: Steel, 1/8 inch thick.

3. Roller Tubes:
    a. Material: Extruded aluminum.
    b. Size: As recommended by manufacturer; selected for suitability for installation conditions, span, and weight of shades.
    c. Fabric Attachment: Utilize extruded channel in tube to accept vinyl spline welded to fabric edge. Shade band to be removable and replaceable without removing roller tube from brackets or inserting spline from the side of the roller tube.
    d. Roller tubes to be capable of being removed and reinstalled without affecting roller shade limit adjustments.
4. Hembars: Designed to maintain bottom of shade straight and flat.
    a. Style: Full wrap fabric covered bottom bar, flat profile with heat sealed closed ends.
    b. Room-Darkening Shades: Provide a slot in bottom bar with wool-pile light seal.
5. Clutch Operator: Manufacturer's standard material and design integrated with bracket/brake assembly.
    a. Heavy-duty, 1/8 inch steel mounting bracket and integrated steel brake, clutch and sprocket assembly rigidly affix the shade support and user control to the building structure fully independent of the roller tube components.
    b. Permanently lubricated maintenance-free brake assembly employs an oil-impregnated steel hub with wrapped spring clutch.
    c. Brake must withstand minimum pull force of 50 pounds (22.7 kg) in the stopped position.
    d. Direct drive clutch requires no interstitial gear stages or plastic parts between the building structure and clutch providing reliable operation across the full range of shade sizes.
    e. Maximum shade hanging weight of 18 pounds (8.2 kg).
6. Drive Chain: Continuous loop stainless steel beaded ball chain, 100 pound (45 kg) minimum breaking strength. Provide upper and lower limit stops.
    a. Chain Retainer: Chain tensioning device complying with WCMA A100.1.
    b. Limit stops: Bead stops affixed to the chain maintain consistent shadeband alignment at the top and bottom of shade travel across multiple shades, and help prevent shade damage resulting from unmanaged user control.
7. Accessories:
    a. Fascia: Removable extruded aluminum fascia, size as required to conceal shade mounting, attachable to brackets without exposed fasteners.
        (1) Finish: Clear anodized.
        (2) Two-Piece Double Fascia: Front and rear double fascia.
        (3) Profile: Square.
        (4) Configuration: Captured, fascia stops at captured bracket end.
    b. Room-Darkening Channels: Extruded aluminum side and center channels with brush pile edge seals, SnapLoc mounting base, and concealed fasteners. Channels to accept one-piece exposed blackout hembar to provide side light control and sill light control.

2.04 ROLLER SHADE FABRICATION

A. Field measure finished openings prior to ordering or fabrication.

B. Dimensional Tolerances: Fabricate shades to fit openings within specified tolerances.
1. Vertical Dimensions: Fill Opening from Head to Sill: 1/2 inch space between bottom bar and window sill.
2. Horizontal Dimensions: Inside Mounting.
    a. Room-Darkening Shades: Fill openings from jamb to jamb. No light gap.

b. All Other Shades: Symmetrical Light Gaps on Both Sides of Shade: 3/4 inch total.

2.05 SHADE FABRIC

A. Basis of Design: Shade fabric as manufactured by MechoShade Systems LLC.
1. Solar Shadecloths:
a. Fabric: EcoSheer: 6750 series. Cradle to Cradle Certified, woven 100 percent polyester, PVC-free, reversible face, (3 percent open). The first shadecloth to pass NFPA 701 flame tests without added chemical flame retardants.
(1) NRC Rating: 0.15.
(2) SAA Rating: 0.19.
(3) Low-Emitting Material Certification: Greenguard Gold certified and listed in UL (GGG).
(4) Health Product Declaration (HPD): Published declaration with full disclosure of known hazards.
(5) Cradle to Cradle Material Health Certificate:
(6) Achievement Level: Bronze.
(7) Declare label.
(8) Environmental Product Declaration (EPD): Published disclosure of product's environmental impacts based on a full Life Cycle Assessment (LCA). Manufacturer must have EPD certification by independent 3rd party evaluation service.
b. Color: Selected by OWNER from manufacturer's standard colors.
2. Performance Requirements:
a. Flammability per NFPA 701: Pass. Large or small scale test.
b. Fungal Resistance: No growth when tested per ASTM G21.
c. Cleanability and Disinfecting: ShadeCloth must meet cleanability and disinfecting requirements via 3rd party testing to comply with BIFMA HCF 8.1-2014 standards using chemical solutions compliant with EPA guidelines for use against COVID-19.
3. Fabrication:
a. Fabric Orientation: Railroaded, fabric is turned 90 degrees off the roll.
b. Battens: Manufacturer's standard material, full width of shade, and enclosed in welded shade fabric pocket; locate as indicated on drawings.
c. Seams for Railroaded Fabric: Manufacturer's standard seam; locate as indicated on drawings.
d. Welded Zipper Edge: Full height on both sides of fabric providing smooth operation within ShadeLoc channels.

PART 3–EXECUTION

3.01 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify ENGINEER of unsatisfactory preparation before proceeding.

C. Start of installation shall be considered acceptance of substrates.

3.02 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using methods recommended by manufacturer for achieving best result for substrate under the project conditions.

C. Coordinate with window installation and placement of concealed blocking to support shades.

3.03 INSTALLATION

A. Contractor Furnish and Install Responsibilities:
   1. Window Covering Contractor (WC) shall provide an on site, Project Manager, and shall be present for all related jobsite scheduling meetings.
   2. WC shall supervise the roller shade installation, and setting of intermediate stops of all shades.
   3. WC shall be responsible for field inspection on an area-by- area and floor-by-floor basis during construction to confirm proper mounting conditions per approved shop drawings.
   4. Verification of Conditions: examine the areas to receive the work and the conditions under which the work would be performed and notify General Contractor and OWNER of conditions detrimental to the proper and timely completion of the work. Do not proceed until unsatisfactory conditions have been corrected. Commencement of installation shall constitute acceptance of substrate conditions by the installer.
   5. WC shall provide accurate to 0.0625 inch; field measurements for custom shade fabrication on the Roller Shades manufacturers input forms.
   6. WC Installer shall install roller shades level, plumb, square, and true according to manufacturer’s written instructions, and as specified here in. Blocking for roller shades installed under the contract of the interior General Contractor shall be installed plumb, level, and fitted to window mullion as per interior architect’s design documents and in accordance with industry standard tolerances. The horizontal surface of the shade pocket shall not be out-of-level more than 0.625 inch over 20 linear feet.
   7. Shades shall be located so the shade band is not closer than 2 inches to the interior face of the glass. Allow proper clearances for window operation hardware.
   8. Adjust, align and balance roller shades to operate smoothly, easily, safely, and free from binding or malfunction throughout entire operational range.
   9. Installer shall set Upper and Lower limits of all manual shade bands, and provide alignment in accordance with the above requirements.
   10. Clean roller shade surfaces after installation, according to manufacturer’s written instructions.
   11. WC shall train OWNER’s maintenance personnel to adjust, operate and maintain roller shade systems. Use operation and maintenance manual as a reference, supplemented with additional training materials as required.

3.04 PROTECTION AND CLEANING

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.
   1. Clean soiled shades and exposed components as recommended by manufacturer.
   2. Replace shades that cannot be cleaned to "like new" condition.

END OF SECTION

SECTION 12 48 43

FLOOR MATS

PART 1–GENERAL

1.01 SUMMARY

A. Work Included: Carpeted walk-off mats and switchboard mats.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

PART 2–PRODUCTS

2.01 WALK-OFF MATS

A. Walk-off mats shall be 3 feet wide cut nylon carpet pile permanently bonded to rubber backing.

B. Mats shall be of a thickness that does not impede door swing.

C. Acceptable manufacturers include the following, or equal: Wilen Company of Georgia.

D. Color and length of segments shall be as requested by ENGINEER.

2.02 DIAMOND-PLATE SWITCHBOARD MATS

A. Switchboard mats shall be diamond-plate, high-performance, nonconductive, switchboard matting. Matting shall conform to ANSI/ASTM D-178-01, Type II, Class 2.

B. Acceptable manufacturers shall include the following, or equal: Wearwell Carpet, No. 701. Mats shall be 3 feet wide and extend the full length of the equipment.

PART 3–EXECUTION

3.01 INSTALLATION

A. Install mats after cleaning of finish flooring.

3.02 SCHEDULE

Building	Location	Size	Type
Administration Building	Vestibule 9507	36"x48"	Walk-Off
Administration Building	Hall 9504	36"x48"	Walk-Off

END OF SECTION

SECTION 12 51 00

OFFICE FURNITURE

PART 1–GENERAL

1.01 SUMMARY

A. Work Included: Offices, plan room, and conference training room furniture.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 QUALITY ASSURANCE

A. Listed manufacturer's products are specified to establish construction quality.

B. Style of other manufacturer's products shall be of same type.

PART 2–PRODUCTS

2.01 MANUFACTURERS

A. Products shall be by manufacturer with minimum 10 years' experience.

2.02 OFFICE FURNITURE ALLOWANCE

A. CONTRACTOR shall INCLUDE in the bid an allowance of $20,000 for providing office furniture to be included as part of the Lump Sum Base Bid. OWNER will provide a list to CONTRACTOR of necessary office furniture to be purchased and provided to CONTRACTOR in the spring of 2026. The Contract Bid amount will be adjusted (ADD or DEDUCT) by a Change Order to reflect the actual cost of the office furniture. The furniture listed below for the Administration Building is expected to be purchased as part of this allowance.

PART 3–EXECUTION

3.01 SCHEDULE

Item	Room
Table and Chairs for 6 to 8 People	Conference Training Room
Desks and Chairs for 4 People	Office
Desk and Chair	Lab Office
Desk and Chair	Superintendent
File Cabinets/Shelving	Office, Lab Office, Superintendent

END OF SECTION

SECTION 13 34 19

METAL BUILDINGS

PART 1–GENERAL

1.01 SUMMARY

A. Work included: Providing and installing a pre-engineered metal building.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

C. The intent of these Specifications and Drawings is to establish a quality and performance level for structural design, material, durability, and workmanship.

D. The building shall be the design of a manufacturer who is regularly engaged in the fabrication of pre-engineered structures. All materials shall be new, unused, and free from defects.

1.02 REFERENCES

A. *Cold Formed Steel Design Manual*–American Iron and Steel Institute.

B. AISC–Specification for Structural Steel for Buildings–Allowable Stress Design and Plastic Design.

C. AISC–Quality Certification Program, Category MB.

D. ASTM A36/A36M–Standard Specification for Carbon Structural Steel.

E. ASTM A307–Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rods 60,000 psi Tensile Strength.

F. ASTM A325/A325M–Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength.

G. ASTM A792/A792M–Standard Specification for Steel Sheet 55%, Aluminum Zinc Alloy Coated by the Hot-Dip Process.

H. ASTM A924–Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.

I. *Aluminum Construction Manual*–The Aluminum Association

J. AWS A2.0–Standard Welding Symbols.

K. AWS D1.1–Structural Welding Code–Steel.

L. MBMA (Metal Building Manufacturers Association)–*Metal Building Systems Manual*.

M. SSPC (Steel Structures Painting Council)–*Steel Structures Painting Manual*.

N. UL–Building Material Directory–Roof Deck Construction.

O. ASCE 7-05–Minimum Design Loads for Buildings and Other Structures.

P. The following criteria shall also be applicable in other phases of design:
   1. 2018 International Building Code.
   2. Structural Steel Painting Council–Standards.
   3. Federal, Military and Commercial Standards.
   4. ASTM Standards.
   5. Ratings by: Underwriters Laboratories, Inc., Factory Mutual Engineering Association.

1.03 BUILDING DESCRIPTION

A. See Drawings for building dimensions and configuration.

B. Sidewall Column Type: Tapered.

C. Column Mounting: Columns mounted on top of concrete foundation wall piers. See structural drawings.

D. Endwall Frames: Standard post and beam endwall.

E. Girt Condition: Outset type. Locate first girt at approximately 4 feet 0 inches above floor to laterally support stud wall and block veneer as shown on the Drawings.

F. Framing at Openings: Provide channel framing at all wall openings for doors, windows, louvers, and other items.

G. Wall Bracing: Provide as needed and where it will not interfere with wall openings.

H. Steel Finish: Manufacturer’s standard rust-inhibitive primer for all primary and secondary steel framing members.

I. Exterior Wall Covering: Split face block and cast stone veneer as shown on the Drawings. Metal wall panels as specified for remainder of walls.

J. Roof Covering: Metal standing seam roofing as specified.

K. Interior Wall and Ceiling Covering: Manufacturer’s standard interior liner panels full height on all walls and ceiling. Insulation finish system on ceiling.

L. Beam and Column Cladding: None.

M. Gutters, Downspouts and Rake Trim: Manufacturer’s standard metal gutters at eaves and rake trim at rake edges. Manufacturer’s standard metal downspouts where shown on the Drawings.

N. Wall Insulation: Eight inches unfaced fiberglass batt and vapor barrier. Provide insulation supports as specified to secure insulation.

O. Roof Insulation: Nine inches unfaced fiberglass batt over Simple Saver, or equal, interior finish system.

1.04 DESIGN LOADS

A. The basic design loads shall be in accordance with the 2018 International Building Code and Factory Mutual requirements.

B. Roof Live Loads:
   1. Roof live loads shall be computed in accordance with the 2018 International Building Code using a ground snow load of 30 psf, a snow load importance factor of 1.0, and snow exposure and thermal factors and drift loads as per Code. Minimum roof live load shall be 20 psf.
   2. Design for unbalanced snow loads in accordance with the building code.
   3. Roof covering shall be designed for either 50 psf uniformly distributed or a 200-pound concentrated (point) load (over a 1-foot by 1-foot area) located at center of maximum roofing (panel) span. The most severe conditions shall govern. Under this loading, panel deflection-to-span ratio in a two-span condition shall not exceed L/180.
   4. Roof live loads shall be applied to the horizontal projection of the roof.

C. Wind Loads: Wind loads shall be computed in accordance with the 2018 International Building Code and FM 1-7 using a 3-second gust wind speed of 108 mph, exposure category C, and an importance factor of 1.0.

D. Seismic Loads: Compute in accordance with the 2018 International Building Code assuming site class D, an importance factor of 1.0, and spectral response coefficients per the building code, and specific to the project locale.

E. Collateral Loads: Purlins and primary frames shall be designed for an additional collateral load of 10 psf to account for weights of light fixtures, conduit, and piping, and other item suspended from the roof framing.

F. Combination of Loads: The combining of loads for design purposes shall be as prescribed with the 2018 International Building Code.

G. Component Design: The design of primary and secondary framing, roof and wall bracing, roof and wall covering shall be per manufacturer's standard, the 2018 International Building Code and Factory Mutual requirements.

H. Column Anchorage: Column reactions, anchor bolt diameters, and anchor bolt patterns shall be determined by the building manufacturer. Anchor bolt lengths shall be as shown on ENGINEER's design drawings.

I. Column Reactions: The building foundation was designed using estimated frame reactions for clear-span rigid-frame structures with tapered columns and a pinned base connection, and proposed building width, eave height, and bay spacing. Submit actual column reactions for all load cases so that the foundation design can be checked for adequacy and modified as required.

1.05 SUBMITTALS

A. Submittals shall be in accordance with provisions of Section 01 33 00–Submittals.

B. Product Data: Provide data on profiles, component dimensions, fasteners, and wall and roof panels.

C. Shop Drawings: Indicate assembly dimensions, locations of structural members, connections, attachments, openings, and loads; wall and roof system dimensions, panel layout, general construction details, anchorages and method of anchorage; framing anchor bolt settings, sizes, and locations from datum, column reactions; provide licensed/registered professional seal and signature.

D. Certification: Submit complete structural design computations bearing the seal of a structural engineer licensed in the State of Iowa.

1.06 REGULATORY REQUIREMENTS

A. All necessary building code approvals pertaining to the metal building will be obtained by OWNER. Necessary drawings, calculations and application forms shall be submitted to ENGINEER by CONTRACTOR for transmittal to the building code reviewing authority.

B. UL Uplift Ratings: The roof system shall carry UL wind uplift Class 90 rating to provide structural integrity and possible reduction of insurance rates.

PART 2–PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. The products of the following manufacturers, or equal, are acceptable provided that they comply with the remainder of this specification:
1. Varco Pruden Buildings.
2. Nucor Buildings.
3. Butler Metal Building Systems.

B. These products are set up as a standard of quality. Other manufacturers' products will be accepted if they are equal in quality.

2.02 MATERIALS

A. Structural Steel Main Framing: Main frame columns, rafters, and beams shall be fabricated from structural steel conforming to ASTM A529, ASTM A572 and/or ASTM A36.

B. Roof Covering and Supports: The roof shall be a standing-seam roof system. The roof panels shall be the manufacturer's standard ribbed panel roof system. Details and installation shall be in accordance with the manufacturer's drawings.
1. Panel Description (Standing-Seam Roof System):
a. Panels shall be roll-formed, 2 feet wide, with two major corrugations, 2 inches (2 3/4 inches including seam) high, 24 inches on center.
b. Panels of maximum possible lengths shall be used to minimize end laps.
c. Ridge assembly shall be designed to allow roof panels to move with expansion and contraction.
d. Eave panels shall extend beyond the structural line of the wall.
e. Roof panels shall be factory prepunched at panel end to match prepunched holes in the eave structural member. Panel end splices shall be prepunched and prenotched.

2. Panel Design:
   a. Panel shall be designed in accordance with AISI *Specifications for the Design of Light Gauge Cold Formed Steel Structural Members* and in accordance with sound engineering methods and practices.
   b. Panels shall be designed to support design live loads and roof traffic during construction.
3. Provision for Expansion/Contraction:
   a. Provision for thermal movement of the panel shall be accomplished by the use of clips with movable tabs.
   b. The roof shall provide for expansion/contraction without detrimental effect on the roof panel when ambient air temperature varies ±100°F from the temperature at which the roof was installed.
4. Panel Material: Panel material shall be one of the following:
   a. 24 gauge aluminum-coated steel sheet coated on both sides with a layer of aluminum applied by the continuous hot-dip method. Triple-spot minimum -0.75 ounces per square foot as determined by the triple-spot test per ASTM A428.
   b. 24 gauge aluminum-zinc alloy-coated steel coated both sides with a layer of aluminum-zinc alloy (approximately 55% aluminum, 45% zinc) applied by the continuous hot-dip method. Nominal aim is 0.5 ounces of aluminum-zinc alloy per square foot of coated sheet (total both sides). Triple-spot minimum, 0.36 ounces per square foot as determined by the triple-spot test per ASTM A428.
   c. 24 gauge G-90 galvanized steel sheet conforming to ASTM A653.
5. Panel Finish:
   a. Exterior face of panels shall be finished with a 70% Kynar 500 fluoropolymer coating. Color shall be selected by OWNER from manufacturer's standard colors. Interior face of panels shall be finished with a clear wash coat. Finish shall be guaranteed for a period of 20 years against blistering, peeling, cracking, and chipping. Chalking shall not exceed No. 8 ASTM and fading shall be 5ΔE color difference units or less for a period of 20 years.
6. Purlins:
   a. Purlins shall be fabricated from cold-formed structural steel conforming to ASTM A1011 and shall have a minimum yield strength of 50 ksi.
   b. The purlins' configuration, thickness, and spacing shall be the building manufacturer's standard provided all design criteria, including deflection, are met or exceeded.
   c. The deflection of the purlin shall not exceed L/180 of its span when supporting the applicable vertical live loads previously prescribed and any collateral loads required.
7. Roof Openings:
   a. Openings 12 inches or smaller may be flashed and sealed to the roof panel, providing complete structural support and weathertightness is maintained.
   b. Openings larger than 12 inches round or square shall be framed with a welded metal base fabricated from 0.07-inch-thick (minimum) aluminum. A vacuum-molded base of acrylic polyvinyl chloride shall also be considered adequate in lieu of metal. The base and its appurtenance shall be supported by the roof purlins and/or header framing (if required). The base shall have a minimum projection of 6 inches above the weather surface of the roof and the configuration of the flanges shall match the roof panel. The flange-to-panel joint shall be sealed with a nonhardening sealant and fastened in such a manner to provide complete support and weathertightness.
   c. All openings required in the roof by various trades shall be made and properly sealed by CONTRACTOR. CONTRACTOR shall furnish all necessary materials and work

in order to provide complete structural support and weathertightness against the elements.

8. Furnish prefabricated insulated roof curbs for all roof-mounted equipment.
9. The manufacturer shall provide a minimum 20 year weathertightness warranty. Warranty shall cover labor and materials.

C. Wall Covering and Supports:
   1. Wall Panels:
      a. Exterior wall panels shall be minimum 26 gauge galvanized steel conforming to ASTM A653.
      b. The covering width and configuration of the panel shall be the building manufacturer's standard, provided all design criteria including deflection are met or exceeded.
      c. Panels shall be finished with a fluoropolymer coating. Color shall be selected by OWNER from manufacturer's standard colors. Interior finish shall be a clear wash coat.
   2. Guarantee: Finish shall be guaranteed for a period of 20 years against blistering, peeling, cracking, and chipping. Chalking shall not exceed No. 8 ASTM and fading shall be 5ΔE color difference units or less for a period of 20 years.
   3. Girts:
      a. Girts shall be fabricated from cold-formed structural steel conforming to ASTM A1011 and shall have a minimum yield strength of 50 ksi.
      b. The girt's configuration and thickness shall be the building manufacturer's standard, provided all design criteria including deflection and girt spacing is met. Based on a simple span, the deflection of the girts (supporting the wall covering) shall not exceed L/180 (L/400 where supporting masonry) of its span when supporting the applicable design load previously described.
   4. Wall Openings: Provide steel framing at door, window, and mechanical openings as required.

D. Interior Wall and Ceiling Liner Panels:
   1. Panels: Panels shall be same thickness and material as exterior wall panels.
   2. Finish: Panel finish shall be manufacturer's standard baked-on epoxy primer on both sides. Exposed side shall also have baked-on silicone polyester coating with a total dry film thickness of 1.5 mils minimum. Color shall be off-white. Finish shall be guaranteed for 5 years against chalking, fading, blistering, peeling, or cracking.

E. Structural Steel Finish: All uncoated structural steel beams, columns, girts, purlins, wall and roof framing, etc., shall be given one shop coat of rust inhibitive primer paint that meets or exceeds SSPC Paint Specification No. 15. Finish paint as noted in Section 09 91 00–Painting.

F. Roof and Exterior Wall Insulation (Insulation Finish System):
   1. The roof insulation system shall be a 2-layer system with a 3-inch upper layer and an 8-inch lower layer. Minimum R-value shall be R-35.
   2. Wall insulation shall be a single layer, a minimum of 8 inches thick or the depth of the wall girts, whichever is greater. Minimum R-value shall be R-25.
   3. Insulation shall be fiberglass blanket or batt insulation meeting Federal specification HH-I-558B, Form B, Type 1.
   4. Wall insulation hangers for supporting insulation between wall girts shall be FAST-R hangers by Thermal Design, Inc.

5. Thermal break shall be 1/8-inch-thick by 3-inch-wide white closed-cell polyethylene foam with preapplied adhesive film and peel-off backing. Polystyrene snap-on thermal blocks may be used in lieu of the above.

G. Accessories:
   1. Gutter and Downspouts: Provide 26 gauge galvanized steel continuous gutters along the building eaves. Fabricate gutters per SMACNA requirements and size per the 2018 International Building Code requirements. Provide 26 gauge galvanized steel downspouts where shown on the Drawings. Install gutters level. Joints shall be watertight and shall be sealed to downspouts. Finish of gutter and downspouts shall match that for the wall panels.
   2. Column and Beam Cladding: Provide 26 gauge Galvalume or 26 gauge galvanized steel cladding around exposed portions of beams and columns. Cladding shall have same finish as interior wall and ceiling liner panels. Provide metal stud or metal hat channel framing around beams and columns as required to support cladding. Fastener heads shall be coated to match panel finish color.
   3. Provide manufacturer's standard snow guards above door openings where shown on the Drawings. Snow guards shall extend 1 foot minimum beyond each door edge.
   4. Other Accessories: Doors, windows, electrical, heating and ventilation accessories, etc., are specified elsewhere in these specifications.

PART 3–EXECUTION

3.01 INSTALLATION

A. Roof Covering and Supports:
   1. Panel Application:
      a. All panels shall be positioned and aligned by matching the prepunched holes in the eave structural member and by aligning the panel with the panel clip.
      b. All side laps shall be field-sealed by a lock-seaming device.
      c. All side-lap sealant shall be factory applied.
      d. Panel laps shall be at least 6 inches sealed with sealants and fastened together by clamping plates.
      e. Provide insulation spacer blocks at purlins.
   2. Fasteners:
      a. All connections of roof panels to structural members shall be made with clips with movable tabs that are seamed into the standing lock seam side lap.
      b. Roof panel-to-panel connections shall be made with positive field-formed standing double-lock seam.
      c. Standing seams shall be formed by a special lock-seaming device.

B. Wall Covering and Supports:
   1. Panel Application:
      a. Panels shall be overlapped one corrugation and sealed with a weather-sealing compound.
      b. Panels shall be aligned and attached in accordance with manufacturer's erection drawings.
   2. Fasteners:
      a. Panel-to-structural connections shall be made with corrosion-resistant self-drilling structural fasteners with factory color-coated head to match the color of the panels. A neoprene washer shall be provided at each fastener.

b. Panel-to-panel fasteners shall be self-tapping screws with factory color-coated heads to match color of panels. Provide neoprene washer for each fastener.
c. Panel-to-panel fasteners shall be of the same type as above, but may be No. 14.
d. Fastener locations shall be as shown on erection drawing furnished by the panel manufacturer.

3. Trim:
   a. Furnish manufacturer's standard flashing and trim at all exposed roof and wall edges.
   b. Trim shall be of the same material and finish as the wall panels. Color shall be selected by OWNER from the manufacturer's standard colors.
   c. Provide neoprene closure at the top and bottom of the wall panels.
   d. Trim shall be compatible with roof panels.
   e. Provide all necessary trim at doors, windows, and other wall penetrations for a neat, finished appearance.
4. Openings:
   a. All openings in metal wall panel for all trades shall be done by the erector. All openings with any dimension 6 inches or larger shall be shop-fabricated and framed in a similar manner as specified for roof openings.
   b. All openings shall provide complete structural support and be sealed for weather tightness.
5. Roof and Exterior Wall Insulation: Install insulation finish system in accordance with manufacturer's instructions.

END OF SECTION

SECTION 20 05 53

IDENTIFICATION FOR PLUMBING AND HVAC PIPING AND EQUIPMENT

PART 1–GENERAL

1.01 SUMMARY

A. Work Included: Perform all work required to furnish and install equipment, pipe, and wire identification with supplementary items necessary for proper installation as specified herein, or shown on the Drawings. CONTRACTOR shall identify all equipment, piping, ductwork, dampers, pumps, and wires.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 SUBMITTALS

A. Submit shop drawings and product data in accordance with provisions of Section 01 33 00–Submittals.

1.03 REFERENCES

A. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.

B. All material, installation, and workmanship shall comply with the applicable requirements and standards addressed within the following references.
   1. ASME A13.1–Scheme for the Identification of Piping Systems.
   2. 2018 Uniform Plumbing Code.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer’s unopened packaging with labels clearly identifying product name and manufacturer until ready for installation.

B. Storage: Store materials in clean, dry area indoors until ready for installation.

C. Handling: Protect materials and finish from damage during handling and installation.

PART 2–PRODUCTS

2.01 MANUFACTURERS

A. Equipment tags, valve tags, and pipe markers shall be manufactured by Marking Services, Incorporated, Seton Name Plate Company, WH Brady Company, or Graphic Products, Inc.

2.02 EQUIPMENT TAGS

A. Plastic Labels For Equipment (Indoor Application):
   1. Use: All equipment purchased by CONTRACTOR or OWNER and CONTRACTOR installed included in Divisions 22 or 23.
   2. Materials and Thickness: Multilayer, multicolor, plastic labels for mechanical engraving, 1/16 inch thick.
   3. Character Color: Black.
   4. Background Color: White.
   5. Minimum Label Size: Length and width vary for required label content, but not less than 1 inch by 3 inches.
   6. Minimum Letter Size: 1/4 inch.
   7. Adhesive: Contact-type permanent adhesive, compatible with label and with substrate.

B. Plastic Labels for Equipment (Outdoor Application):
   1. Use: All equipment purchased by CONTRACTOR or OWNER and CONTRACTOR installed included in Divisions 22 or 23.
   2. Material: MS-215 Max-Tek with printed graphics protected by a chemical and UV resistant MS-3000 top laminate.
   3. Letter Color: Black.
   4. Background Color: White.
   5. Minimum Label Size: Length and width vary for required label content, but not less than 1 inch by 3 inches.
   6. Minimum Letter Size: 1/4 inch.
   7. Adhesive: Contact-type permanent adhesive, compatible with label and with substrate.

2.03 LABELING TAGS

A. Labeling Tags:

Use: Field-mounted devices (limit switches, instrument gauges, natural gas pressure regulators, etc.).
Size: 1-inch by 3-inch.
Material: 1/32-inch-thick stainless steel.
Character Size: 1/4 inch.
Engraving: As requested by ENGINEER.

2.04 WIRE MARKERS

A. Wire markers shall be permanently attached wraparound adhesive, sleeve- or heat-shrink-type labels. Wire numbering preprinted on the conductor, flag-type labels, and individual wraparound numbers (such as Brady preprinted markers) are not acceptable.

B. Wire markers shall be specifically printed for this project using a wire marker printer. Handwritten markers are not acceptable.

2.05 PIPE MARKERS

A. Manufacturers: Marking Systems, Inc., Seton Name Plate Company, W.H. Brady Company, or equal.

B. Pipe markers shall conform to ANSI A13.1. Arrow markers must have same ANSI background colors as their companion pipe markers or be incorporated into the pipe identification marker.

C. Plastic Pipe Markers: Factory-fabricated, flexible, semirigid plastic, preformed to fit around pipe or pipe covering; minimum information indicating flow direction arrow and identification of fluid being conveyed.

D. Pipe markers and arrow markers also shall be provided for all piping systems.

E. Use Seton Setmark type SNA or Brady Snap-on type identification for all piping systems, up through 6 inches. For piping systems larger than 6 inches, use Seton or Brady strap-on markers, or similar, by Marking Services, Inc. Self-adhesive labels that stick directly to the pipe or insulation jacketing are not acceptable. Provide lettering in accordance with the following table.

PIPE MARK SIZE CHART

Outside Pipe Diameter (Including Covering)	Minimum Length of Label Field Color (Inch)	Minimum Height of Letters (Inch)
3/4 inch to 1 1/4 inch	8	1/2
1 1/2 inch to 2 inch	8	3/4
2 1/2 inch to 6 inch	12	1 1/4
8 inch to 10 inch	24	2 1/2
Over 10 inch	32	3 1/2

PART 3–EXECUTION

3.01 INSTALLATION

A. Installation shall meet or exceed all applicable federal, state, and local requirements and referenced standards and conform to code and ordinances of authorities having jurisdiction.

B. Degrease and clean surfaces to receive nameplates.

C. Install nameplates parallel to equipment lines.

D. Affix nameplates with stainless steel screws or sticky-back adhesive.

E. Affix labeling tags with permanent bonding cement or locking wire ties. Provide 3/8 inch hole to accommodate wire tie.

F. Prepare and install neatly typed directions in all panels, including existing panels, where work is done under this Contract.

G. Four-inch-round, 4-inch-square, and 4 11/16-inch junction boxes concealed above ceilings may be identified with neat lettering on the cover with a permanent-type black marking pen.

3.02 WIRE IDENTIFICATION

A. Provide wire markers on each conductor in panelboard gutters, pull boxes, control panels, thermostats, junction boxes, and at load connection. Identify with branch circuit or feeder

number for power circuits and with control wire number as indicated on schematic and interconnection diagrams for control wiring. Wire markers shall be permanently attached wraparound adhesive or heat-shrink-type markers. Wire numbering preprinted on the conductor, individual wraparound numbers, and flag-type labels are not acceptable.

B. Conductors in pull boxes, motor control centers, control panels, cabinets, and panelboards shall be grouped as to circuits and arranged in a neat manner. All conductors of a feeder or branch circuit shall be grouped, bound together with nylon ties, and identified. Phase identification shall be consistent throughout the system.

3.03 PIPE MARKERS

A. Install pipe markers in accordance with manufacturer's instructions.

B. Install in clear view and align with axis of piping.

C. All pipes shall be labeled with a minimum of two labels in each room, crawl space, or compartment. Locate identification at maximum 20-foot centers on straight runs, including risers and drops adjacent to each valve and tee, at each side of penetration of structure or enclosure, and at each obstruction. Labels shall be abbreviated as noted under fluid abbreviations on the Drawings.

D. Labels shall identify fluid being conveyed and include flow direction arrow. Provide a double-ended arrow marker when flow can be in either or both directions.

E. CONTRACTOR shall include a schedule in its submittal identifying the various pipe designations, abbreviations, and labeling scheme. Colors, text, and piping abbreviations are to be selected by OWNER, with the following piping marker scheme used where applicable.

Pipe Contents	Label Colors (Background/Text)
Water Lines	
Non-potable water	Green/White
Potable water	Green/White
Other Lines	
Exhaust	Blue/White
Natural gas	Brown/White
Plumbing drains and vents	Green/White
Stormwater	Green/White

END OF SECTION

SECTION 22 05 19

GENERAL PLUMBING PIPING SPECIALTIES

PART 1–GENERAL

1.01 SUMMARY

A. Work Included: Piping specialties for all plumbing piping systems unless noted otherwise.

B. Related Sections and Divisions: Applicable provisions of Division 01 govern work under this section.

1.02 REFERENCES

A. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.

B. All materials, installation and workmanship shall comply with the applicable requirements and standards addressed within this specification.

1.03 QUALITY ASSURANCE

A. All equipment or components of this specification section shall meet or exceed the requirements and quality of the items herein specified, or as denoted on the Drawings.

B. Equipment provider shall be responsible for providing certified equipment start-up and, when noted, an in the field certified training session. New start-up shall be for the purpose of determining alignment, lubrication, voltage, and amperage readings. New startup shall confirm proper electrical connections, discharge and suction gauge readings. A copy of the start-up report shall be made and sent to both CONTRACTOR and ENGINEER.

1.04 SUBMITTALS

A. Submit under provisions of Section 01 33 00–Submittals.

B. Include data concerning dimensions, required clearances, capacities, materials of construction, ratings, weights, manufacturer's installation requirements, manufacturer's performance limitations, and appropriate identification.

C. Submittals for motors associated with equipment specified in this section shall include data sheets from the motor manufacturer. Data sheets from the equipment manufacturer or supplier are not acceptable.

D. Submit manufacturer’s installation instructions.

E. Submittals must be specific to this project. Generic submittals will not be accepted.

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to the site in such a manner as to protect the materials from shipping and handling damage. Provide materials on factory provided shipping skids and lifting lugs, if required for handling.

B. Materials that could be damaged by the elements should be packaged in such a manner that they could withstand short-term exposure to the elements during transportation.

C. Store materials in a clean, dry place and protect from weather and construction traffic. Handle carefully to avoid damage.

D. Use all means necessary to protect equipment before, during, and after installation.

E. All scratched, dented, and otherwise damaged units shall be repaired or replaced at no additional cost to OWNER.

1.06 OPERATION AND MAINTENANCE DATA

A. Include installation instructions, assembly views, lubrication instructions, recommended maintenance schedule and activities.

B. Include replacement and spare parts lists.

1.07 WARRANTY

A. Standard One-Year Warranty: Unless otherwise stated below, manufacturer shall warrant the equipment to be free from defects in material and workmanship for a period of one year from the earlier of either the date established for partial utilization in accordance with GC15.03 and 15.04, as modified in the Supplementary Conditions, or Substantial Completion of the project.

PART 2–PRODUCTS

2.01 THERMOMETERS

A. Manufacturers: Ashcroft, H.O. Trerice, Ametek/U. S. Gauge.

B. Stem Type: Cast aluminum case, 9-inch scale, clear acrylic window. Adjustable angle brass stem with stem of sufficient length so the end of the stem is near the middle of a pipe without reducing the thickness of any insulation, red indicating fluid, black lettering against a white background, with scale ranges as follows:

Service	Hot Water
Scale Range, °F	30-180
Increment, °F	2

2.02 THERMOMETER SOCKETS

A. Brass with threaded connections suitable for thermometer stems and temperature control sensing elements in pipeline. Furnish with extension necks for insulated piping systems.

2.03 TEST WELLS

A. Similar to thermometer sockets except with a brass cap that threads into the inside of the test well to prevent dirt from accumulating. Secure cap to body with a short chain. Furnish with extension necks, where appropriate, to accommodate the pipe insulation.

2.04 TEST PLUGS

A. Brass threaded pressure and temperature test plug with neoprene self-closing valve, valve retainer, brass threaded cap, rated for 150 psi and 0 to 200°F.

2.05 PRESSURE GAUGES

A. Manufacturers: Ashcroft, H.O. Trerice, Ametek/U. S. Gauge.

B. Cast aluminum case of not less than 4.5 inches in diameter, double strength glass window, black lettering on a white background, phosphor bronze bourdon tube with bronze bushings, recalibration from the front of the dial, 99% accuracy over the middle half of the scale, 98.5% accuracy over the remainder of the scale, with scale range as follows:

Service	Hot Water	Cold Water	Compressed Air
Scale Range, psig	0-100	0-100	0-200
Increment, psig	1	1	2

C. Pressure Snubbers: Bronze construction, 300 psig working pressure, 1/4-inch size.

D. Gauge Valves: Provide ball valves as specified in Section 22 05 23–General Duty Valves for Plumbing Piping.

2.06 WATER HAMMER ARRESTORS

A. Manufacturer: Sioux Chief, Wade, Watts, or Zurn.

B. ANSI A112.26.1, ASSE 1010; sized in accordance with PDI WH-201, precharged piston type constructed of hard drawn Type K copper, threaded brass adapter, brass piston with O-ring seals, FDA-approved silicone lubricant, suitable for operation in temperature range 35°F to 150°F, maximum 250 psig working pressure, 1500 psig surge pressure. Watts Series LF15M2 or LF15M2S, or equal.

C. CPVC or HDPE water hammer arrestor as manufactured by Spears Manufacturing, model WHA-005, or equal.

2.07 BACKFLOW PREVENTERS

A. Backflow Preventers:
   1. Reduced Pressure Zone (RPZ) Type:
      a. Manufacturers: Watts, or equal.
      b. The assembly shall meet the requirements of ASSE 1013, AWWA C511.
      c. The assembly shall consist of a pressure differential relief valve located in a zone between two positive seating check valves and captured springs. Back siphonage protection shall include provision to admit air directly into the reduced pressure zone

via a separate channel from the water discharge channel. The assembly shall include two tightly closing shutoff valves before and after the valve and test cocks.

d. Seats: Bronze, removable and replaceable, without removing valve from the line.
e. Checks: Independently operating.
f. Relief Valve: Independently operating, located between the two check valves.
g. Rated 175 psi maximum working pressure with continuous temperature range of 33°F to 140°F.
h. Unit to be complete with vent-port funnel to maintain the air gap and to provide a drain connection point.
i. Sizes 1/2 inch through 2 inches: Bronze body, bronze strainer, upstream and downstream quarter-turn ball valves, union connections. Watts Regulator Company Series LFU009.
j. Sizes 2 1/2 inches through 10 inches: FDA epoxy-coated cast iron body, FDA epoxy-coated strainer, upstream and downstream OSY-UL/FM outside stem and yoke resilient seated gate valves, flange connections: Watts Regulator Series LF-909.
k. Sizes 2 1/2 inches through 10 inches in corrosive (NEMA 4X) or hazardous (Class I, Division I) environments: Stainless steel body, stainless steel relief valve, upstream and downstream OSY-UL/FM outside stem and yoke resilient seated gate valves, lead free assembly, flanged connections. Watts Regulator Company Series 994.

2.08 WALL HYDRANTS

A. Manufacturer: Watts, Woodford, or Zurn.

B. WH-1: Freezeproof automatic draining wall hydrant in flush mounted cast brass wall box with locking door, 3/4-inch inlet, 3/4-inch hose thread ASSE 1052 double check backflow preventer outlet, loose key operator, polished brass finish. Woodford model B67, or equal.

2.09 YARD HYDRANTS

A. Manufacturer: Woodford, or equal.

B. YH-1: Freezeproof, pollution-proof post-type, with below-ground reservoir yard hydrant with locking handle, 1-inch inlet, 3/4-inch hose thread, ASSE 1052 backflow preventer outlet, 1 1/4-inch galvanized steel casing pipe, schedule 80 PVC pipe reservoir, Teflon packing, flow-finder flow plunger. Woodford Model S3-BFP or S4-BFP.

2.10 HOSE BIBBS (HB)

A. Manufacturer: Woodford, Watts, or Wade.

B. HB-1: Hose bibbs shall be Woodford Model 24, Watts, HB-1, or Wade HB-1. Provide 3/4-inch garden hose thread, 3/4-inch inlet, and ASSE 1011 approved backflow preventer outlet. Interior hose valves shall be equipped with approved vacuum breaker, Watts 8A, Nidel Model 34H, or equal. Provide metal handle and chrome plate finish. Hose bibbs providing non-potable water shall be provided with a removable key handle.

C. HB-2: Hose bibbs located in Corrosive or Hazardous environments shall be of stainless steel construction. Provide 3/4-inch garden hose thread, 3/4-inch inlet, and ASSE 1011 approved backflow preventer outlet.

2.11 NON-POTABLE WATER SIGNS

A. Non-potable Water Caution Signs: Place non-potable water signs permanently mounted at every hose bib or faucet on the non-potable water system. Sign shall include as a minimum the wording “CAUTION, NON-POTABLE WATER, DO NOT DRINK” or similar standard language. Signs shall be Brady Safety sign, or equal, minimum size 7 inches by 10 inches, constructed of fiberglass. Mount signs on building wall or structures with stainless steel screws or fasteners.

2.12 LAVATORY THERMOSTATIC MIXING VALVE

A. Provide Watts Model LFUSG, or equal. Valve shall be capable of operating pressure of 30 psi to 150 psi, operating flow 0.25 gpm to 2.25 gpm, hot water temperatures 120°F to 180°F, cold water inlet temperatures of 39°F to 80°F, hot inlet to outlet temperature differential of 5°F or less, and a field-adjustable outlet temperature of 80°F to 120°F. Valve shall comply with requirements of ASSE 1070. Valve shall be designed for under sink installation.

PART 3–EXECUTION

3.01 INSTALLATION

A. Install thermometer in piping systems as indicated on the Drawings and/or details using a separable socket in each location.

B. Install thermometer sockets at each point where a thermometer or temperature control sensing element is located in a pipeline.

C. Install test wells in piping systems as indicated on the Drawings and/or details wherever provisions are needed for inserting a thermometer at a later date.

D. Install test plugs in piping systems as indicated on the Drawings and/or details wherever provisions are needed for short-term measurement of pressure or temperature.

E. Install pressure gauges in locations where indicated on the Drawings and/or details, with scale range appropriate to the system operating pressures. Install pressure snubbers in gauge piping for all gauges used on water services. Install gauge valves at each gauge location as close to the main as possible and at each location where a gauge tapping is indicated.

F. Install water hammer arrestors where indicated and at quick closing valve installations.

G. Install backflow preventers in accordance with local requirements maintaining minimum clearance distances for servicing and testing. Provide indirect waste piping with air gap installation from relief opening to termination point as indicated on the Drawings.

H. Where backflow preventers requiring registration are installed, provide initial registration, testing and report filing as required. List the name and address of the building that the backflow preventer installations occur in.

I. Mount wall hydrants recessed in exterior wall construction with valve plug extended beyond interior side of building insulation. Slope to drain to exterior. Install so discharge is 18 inches minimum above finished grade. Set wall box in grout or caulk and fill exterior wall penetration with insulation.

J. Mount yard hydrants with discharge 27 inches minimum above finished grade. Set base of hydrant in 1 cubic yard of granular backfill material for free drainage. Crown finished grade materials for drainage away from hydrant.

K. Mount hose bibbs securely fastened to wall where indicated. Provide water hammer arrestor in line to hose bibb. Hose bibbs providing non-potable water shall be provided with non-potable water warning signage as outlined in this section.

END OF SECTION

SECTION 22 05 23

GENERAL-DUTY VALVES FOR PLUMBING PIPING

PART 1–GENERAL

1.01 SUMMARY

A. Work Included: Valves of all descriptions except where indicated elsewhere.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.

B. All materials, installation and workmanship shall comply with the applicable requirements and standards addressed within this specification.

1.03 QUALITY ASSURANCE

A. Quality assurance shall be in accordance with Section 01 45 00–Quality Control.

1.04 SYSTEM DESCRIPTIONS

A. Performance Requirements:
   1. Lead-Free Requirements: All materials that contact potable water shall be lead free. Lead free refers to the wetted surface of pipe, fittings and fixtures in potable water systems that have a weighted average lead content ≤0.25% per the Federal Safe Drinking Water Act as amended January 4th, 2011 Section 1417. All products used in potable water systems shall be UL classified in accordance with ANSI/NSF 61 for potable water service and shall meet the low lead requirements of NSF-372.
   2. Where valve types (ball, butterfly, etc.) are specified for individual plumbing services (i.e., domestic water, gas, etc.), each valve type shall be of the same manufacturer unless prior written approval is obtained from OWNER.
   3. Valves shall be line size unless specifically noted otherwise.

1.05 SUBMITTALS

A. Submit shop drawings and product data in accordance with provisions of Section 01 33 00–Submittals.

B. Schedule of all valves indicating type of service, dimensions, materials of construction, and pressure/temperature ratings for all valves shall be used on the project. Temperature ratings specified are for continuous operation.

1.06 OPERATION AND MAINTENANCE DATA

A. All operations and maintenance data shall comply with the submission and content requirements specified under Section 01 33 00–Submittals.

PART 2–PRODUCTS

2.01 WATER SYSTEM VALVES (PW, HW, NPH, SNPW, NPW, SW)

A. All water system valves to be rated at not less than 125 psig water working pressure at 240°F unless noted otherwise.

B. Provide valve extensions for valves installed in all piping with insulation.

C. All local shutoff valves serving emergency eyewash and shower stations shall be lockable.

D. All valves on potable water supplies shall be suitable for potable water applications.

E. Shutoff valves in CPVC piping 3 inches in diameter and smaller shall be hand-operated 150 psi CPVC ball valves, Chemtrol TU Series Tru-bloc, Hayward, Walworth, or equal. Valves and all components shall be suitable for potable water applications.

F. Shutoff valves in copper piping 3 inches in diameter and smaller shall be two-piece bronze body, solder joint or threaded ends, chrome plated bronze ball, glass filled Teflon seat, Teflon packing and threaded packing nut, blowout-proof stem, 600 psi. Apollo 70LF-200, Milwaukee UPBA150, Nibco S580-80-LF.

G. Drain and Vent Valves: 3/4-inch ball valve with integral threaded hose adapter, sweat or threaded inlet connections, with threaded cap and chain on hose threads, Apollo 70LF-100-HC or 70LF-200-HC, Milwaukee UPBA100H or UPBA150H, or Nibco T-585-80-LF-HC or S-585-80-LF-HC.

H. Check valves in copper piping 3 inches in diameter and smaller shall be bronze body, wye pattern, swing check, with bronze disc, rated for 300 psig CWP, and NSF certified lead free Apollo valves 161S-LF, or equal.

I. Potable Water Circuit Setters/Balance Valves:
   1. Manufacturers: Bell and Gossett, or equal.
   2. Valve shall be designed to allow installing contractor to pre-set balance points for proportional system balance prior to system start-up.
   3. All valves shall be of Lead-Free Brass body and stainless steel ball construction with glass and carbon filled TFE seat rings.
   4. Valves shall have differential pressure read-out ports across valve seat area. Read-out ports shall be fitted with internal EOT inserts/check valves. Valve bodies shall have 1/4-inch NPT tapped drain/purge ports.
   5. Valves shall have memory stop feature to allow valve to be closed for service and then reopened to set point without disturbing balance position. All valves shall have calibrated nameplates to provide specific valve settings. Valves shall be designed for positive shut-off.
   6. Valves shall be suitable for 400 psi service up to 250°F.

2.02 WASTE SYSTEM VALVES (SAN)

A. PVC Check Valves: Pressure rating at 73°F: 150 psi for full flow (open) and 75 psi for back pressure (closed). Maximum service temperature 140°F. Spears Quiet Check Valve, or equal.

1. Minimum valve size for sewage discharge applications shall be 2 inches.
2. Install minimum of 12 to18 inches above sump pump discharge, or as recommended by pump manufacturer.
3. In all installations, valve shall be installed in proper flow direction as indicated by flow arrow on valve body.

2.03 SPECIALTY VALVES AND VALVE ACCESSORIES

A. Gauge Valves: Use 1/4-Inch ball valves. Needle valves and gauge cocks will not be accepted.

PART 3–EXECUTION

3.01 GENERAL

A. Properly align piping before installation of valves. Install and test valves in strict accordance with valve manufacturer's installation recommendations. Do not support weight of piping system on valve ends.

B. Mount valves in locations which allow access for operation, servicing and replacement.

C. Provide valve handle extensions for all valves installed in insulated piping.

D. Install all valves with the stem in the upright or horizontal position. If possible, install butterfly valves with the stem in the horizontal position. Valves installed with the stems down will not be accepted.

E. Prior to flushing of piping systems, place all valves in the full-open position.

3.02 SHUT-OFF VALVES

A. Install shut-off valves at each piece of equipment, at each branch take-off from mains for isolation or repair and elsewhere as indicated. Branch take-off valves shall be installed as close as feasible to header to minimize piping deadleg when in closed position.

3.03 DRAIN VALVES

A. Provide drain valves for complete drainage of all systems. Locations of drain valves include low points of piping systems, downstream of riser isolation valves, equipment locations specified or detailed, other locations required for drainage of systems and elsewhere as indicated.

3.04 BALANCING VALVES

A. Install where indicated on the Drawings and details for balancing of flow in pumped hot water recirculation piping systems.

B. Upon project completion, adjust each valve and set position stop. Balance system to minimum flow in return piping branches needed to maintain even supply water temperature throughout building.

3.05 VENT VALVES

A. Provide vent valves at all high points in system. All locations where air can accumulate shall be provided with a vent valve.

END OF SECTION

SECTION 22 05 29

HANGERS AND SUPPORTS FOR PLUMBING PIPING AND EQUIPMENT

PART 1–GENERAL

1.01 SUMMARY

A. Work Included: Hangers and supports for plumbing piping and equipment.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.

B. All materials, installation and workmanship shall comply with the applicable requirements and standards addressed within this specification.

1.03 QUALITY ASSURANCE

A. Quality assurance shall be in accordance with Section 01 45 00–Quality Control.

1.04 SUBMITTALS

A. Submit shop drawings and product data in accordance with provisions of Section 01 33 00–Submittals.

1.05 OPERATION AND MAINTENANCE DATA

A. All operations and maintenance data shall comply with the submission and content requirements specified under Section 01 33 00–Submittals.

PART 2–PRODUCTS

2.01 MANUFACTURERS

A. Anvil, B-Line, Pate, G-Strut, Piping Technology, Roof Products & Systems or approved equal.

2.02 STRUCTURAL SUPPORTS

A. Provide all supporting steel required for the installation of mechanical equipment and materials, including angles, channels, beams, etc. to suspended or floor supported tanks and equipment. All of this steel may not be specifically indicated on the Drawings.

2.03 PIPE HANGERS AND SUPPORTS

A. Hangers for Pipe Sizes 1/2-Inch through 2 Inches:
   1. Carbon steel, adjustable swivel ring. B-Line B3170, Anvil 69 or 70.
   2. Carbon steel, adjustable clevis, standard. B-Line B3100, Anvil 260.

B. Hangers for Pipe Sizes 2 Inches and Larger: Carbon steel, adjustable clevis, standard. B-Line B3100, Anvil 260.

C. Multiple or Trapeze Hangers: Steel channels with welded spacers and hanger rods.

D. Wall Support:
   1. Carbon steel welded bracket with hanger. B-Line B3068 Series, Anvil 194 Series.
   2. Perforated, epoxy painted finish, 16-12 gauge, minimum, steel channels securely anchored to wall structure, with interlocking, split-type, bolt secured, galvanized pipe/tubing clamps. B-Line type S channel with B-2000 series clamps, Anvil type AS 200 H with AS 1200 clamps. When copper piping is being supported, provide flexible elastomeric/thermoplastic isolation cushion material to completely encircle the piping and avoid contact with the channel or clamp, equal to B-Line B1999 Vibra Cushion or provide manufacturers clamp and cushion assemblies, B-Line BVT series.

E. Vertical Support: Carbon steel riser clamp. B-Line B3373, Anvil 261 for above floor use.

F. Floor Support: Carbon steel pipe saddle, stand and bolted floor flange. B-Line B3088T/B3093.

G. Copper Pipe Supports: All supports, fasteners, clamps, etc. directly connected to copper piping shall be copper plated or polyvinylchloride coated. Where steel channels are used, provide isolation collar between supports/clamps/fasteners and copper piping.

2.04 PIPE HANGERS AND SUPPORTS IN CORROSIVE (NEMA 4X) AREA

A. All hangers, rods, attachments, and supports to be stainless steel unless otherwise noted on the drawings.

B. Hangers:
   1. Adjustable stainless steel clevis hanger, B-Line B3100.
   2. Stainless steel trapeze hanger with u-bolts. See Drawings for requirements.

2.05 PIPE HANGER RODS

A. Steel Hanger Rods:
   1. Hanger rod shall be continuously threaded, complete with adjusting and lock nuts.
   2. Size rods for individual hangers and trapeze support as indicated in the following schedule.
   3. Total weight of equipment, including valves, fittings, pipe, pipe content, and insulation, shall not exceed the limits indicated.

Maximum Load (pounds)	Rod Diameter (inches)
(650°F Maximum Temperature)	
610	3/8
1,130	1/2
1,810	5/8
2,710	3/4
3,770	7/8
4,960	1
8,000	1 1/4

2.06 BEAM CLAMPS

A. MSS SP-58 Types 19 and 23 malleable black iron clamp for attachment to beam flange to 0.62 inch thick with a retaining ring and threaded rod of 3/8-, 1/2-, and 5/8-inch diameter. Furnish with a hardened steel cup point set screw. B-Line B3036L/B3034, Anvil 86/92.

B. MSS SP-58 Type 28 or Type 29 forged steel jaw type clamp with a tie rod to lock clamp in place, suitable for rod sizes to 1 1/2-inch diameter. B-Line B3054, Anvil 228.

2.07 CONCRETE INSERTS

A. Poured in Place:
   1. MSS SP-58 Type 18 wedge type to be constructed of a black carbon steel body with a removable malleable iron nut that accepts threaded rod to 7/8-inch diameter. Wedge design to allow the insert to be held by concrete in compression to maximize the load carrying capacity. B-Line B2505, Anvil 281.
   2. MSS SP-58 Type 18 universal type to be constructed of black malleable iron body with a removable malleable iron nut that accepts threaded rod to 7/8-inch-diameter. B-Line B3014N, Anvil 282.

B. Drilled Fasteners: Concrete inserts shall meet the requirements of Section 05 56 00–Anchor Bolts and Post-installed anchors.

2.08 ANCHORS

A. Use welding steel shapes, plates, and bars to secure piping to the structure.

2.09 EQUIPMENT STANDS

A. Use structural steel members welded to and supported by pipe supports. Clean, prime and coat with three coat rust inhibiting alkyd paint or one coat epoxy mastic. Where exposed to weather, treat with corrosive atmosphere coatings.

PART 3–EXECUTION

3.01 INSTALLATION

A. Size, apply and install supports and anchors in compliance with manufacturers recommendations.

B. Install supports to allow free expansion of the piping system. Support all piping from the structure using concrete inserts, beam clamps, ceiling plates, wall brackets, or floor stands. Fasten ceiling plates and wall brackets securely to the structure and test to demonstrate the adequacy of the fastening.

C. Coordinate hanger and support installation to properly group piping of all trades.

D. Where piping can be conveniently grouped to allow the use of trapeze type supports, use standard structural shapes or continuous insert channels for the supporting steel. Where continuous insert channels are used, pipe supporting devices made specifically for use with the channels may be substituted for the specified supporting devices provided that similar types are used and all data is submitted for prior approval.

E. Size and install hangers and supports, except for riser clamps, for installation on the exterior of piping insulation. Where a vapor barrier is not required, hangers may be installed either on the exterior of pipe insulation or directly on piping.

F. Perform welding in accordance with standards of the American Welding Society.

3.02 HANGER AND SUPPORT SPACING

A. Install hangers to provide minimum 1/2-inch space between finished covering and adjacent work.

B. Place a hanger within 12 inches of each horizontal elbow, valve, strainer, or similar piping specialty item.

C. Use hangers with 1 1/2-inch minimum vertical adjustment.

D. Where several pipes can be installed in parallel and at the same elevation, provide multiple or trapeze hangers.

E. Support riser piping independently of connected horizontal piping.

F. Adjust hangers to obtain the slope specified in the piping section of these specifications.

G. Space hangers for pipe as follows:

Pipe Material	Pipe Size	Maximum Horizontal Spacing	Maximum Vertical Spacing
Copper	1/2" through 3/4"	5'-0"	10'-0"
Copper	1" through 1 1/4"	6'-0"	10'-0"
Copper	1 1/2" through 2 1/2"	8'-0"	10'-0"
Copper	3"	10'-0"	10'-0"
Ductile Iron[1]	All	5'-0"	15'-0"
PVC and CPVC	All	4'-0"	10'-0"

[1] The maximum horizontal spacing for supports may be increased to 10 feet when 10-foot lengths of pipe are employed.

H. Any piping materials not explicitly listed above shall have pipe support provided at maximum spacing intervals as noted in the applicable code or manufacturer recommendations, whichever is more restrictive.

3.03 RISER CLAMPS

A. Support vertical piping with clamps secured to the piping and resting on the building structure or secured to the building structure below at each floor.

3.04 CONCRETE INSERTS

A. Select size based on the manufacturer's stated load capacity and weight of material that will be supported. Furnish inserts to Division 03 for placement in concrete formwork. Use inserts for suspending hangers from reinforced concrete slabs and sides of reinforced concrete beams. Provide hooked rod to concrete reinforcement section for inserts carrying pipe over 4-inch size. Where concrete slabs form finished ceiling, provide inserts that are flush with the slab surface.

3.05 ANCHORS

A. Install where indicated on the Drawings and details. Where not specifically indicated, install anchors at ends of principal pipe runs and at intermediate points in pipe runs between expansion loops. Make provisions for preset of anchors as required to accommodate both expansion and contraction of piping.

END OF SECTION

SECTION 22 07 16

EQUIPMENT INSULATION FOR PLUMBING

PART 1–GENERAL

1.01 SUMMARY

A. Work includes insulation for all equipment provided under Division 22–Plumbing:
   1. Flexible Closed Cell Insulation.
   2. Adhesives, Mastic, Sealants, and Reinforcing Materials.
   3. Jacketing.
   4. Accessories.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.

B. All material, installation, and workmanship shall comply with the applicable requirements and standards addressed within the following references.
   1. ASTM B117–Standard Practice for Operating Salt Spray (Fog) Apparatus.
   2. ASTM C168–Standard Terminology Relating to Thermal Insulation.
   3. ASTM C518–Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
   4. ASTM C591–Unfaced Preformed Rigid Cellular Polyisocyanurate Thermal Insulation.
   5. ASTM C1427–Standard Specification for Extruded Preformed Flexible Cellular Polyolefin Thermal Insulation in Sheet and Tubular Form.
   6. ASTM D1000–Methods for Pressure-Sensitive Adhesive-Coated Tapes Used for Electrical and Electronic Applications.
   7. ASTM E84–Standard Test Method for Surface Burning Characteristics of Building Materials.
   8. ASTM C871-Standard Test Method for Chemical Analysis of Thermal Insulation Materials.
   9. ASTM E96–Standard Test Methods for Water Vapor Transmission of Materials.
   10. FED L-P-535E: Plastic Sheet (Sheeting): Plastic Strip: Poly (Vinyl Chloride) And Poly (Vinyl Chloride-Vinyl Acetate), Rigid.
   11. EPA Method 8260B–Volatile Organic Compounds By Gas Chromatography/Mass Spectrometry (Gc/Ms).
   12. NFPA 262–Standard Method of Test for Flame Travel and Smoke of Wires and Cables for Use in Air-Handling Spaces.

1.03 SUBMITTALS

A. Submit under provisions of Section 01 33 00–Submittals.

B. Submit a schedule of all insulating materials to be used on the project, including adhesives, fastening methods, and fitting materials, along with safety data sheets and intended use of

each material. Include manufacturer's technical data sheets indicating density, thermal characteristics, jacket type, and manufacturer's installation instructions.

1.04 QUALITY ASSURANCE

A. All insulation or components of this specification section shall meet or exceed the requirements and quality of the items herein specified, or as denoted on the Drawings.

B. Label all insulating products delivered to the construction site with the manufacturer's name and description of materials.

C. Insulation systems shall be applied by experienced contractors. Within the past five years, CONTRACTOR shall be able to document the successful completion of a minimum of three projects of at least 50% of the size and similar scope of the work specified in this section.

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle materials in accordance with Section 01 60 00–Materials and Equipment.

B. Deliver materials to the site in such a manner as to protect the materials from shipping and handling damage.

C. Materials that could be damaged by the elements should be packaged in such a manner that they could withstand short-term exposure to the elements during transportation.

D. Store materials in a clean, dry place and protect from weather and construction traffic. Handle carefully to avoid damage.

E. Use all means necessary to protect insulation before, during, and after installation.

F. All scratched, dented, and otherwise damaged insulation shall be repaired or replaced without additional cost to OWNER.

1.06 GENERAL REQUIREMENTS

A. Unless otherwise indicated, all equipment covering, jackets, insulation, vapor barriers, adhesive, and mastics shall have flame spread rating of 25 or less and smoke spread rating of 450 or less when tested in accordance with ASTM E84.

B. All equipment covering, jackets, insulation, vapor barriers, adhesive, and mastics within active return or supply air plenums shall have flame spread rating of 25 or less and smoke-developed rating of 50 or less when tested in accordance with ASTM E84.

PART 2–PRODUCTS

2.01 FLEXIBLE CLOSED CELL INSULATION

A. Acceptable manufacturers are K-flex Insul-tube, Nomaco ArcticFlex, or equal.

B. Insulation shall be flexible closed cell type conforming to ASTM C1427, Type 1, Grade 1.

C. Minimum nominal density shall be between 3 to 6 lbs/ft^3.

D. K-factor shall not exceed 0.25 (btu-in)/(hr-ft^2-°F) at 75°F mean.

E. Insulation shall be rated for service range of -20°F to 220°F on piping or 180°F where adhered to equipment.

2.02 ADHESIVES, MASTIC, SEALANTS, AND REINFORCING MATERIALS

A. Products shall be compatible with surfaces and materials on which they are applied, and shall be suitable for use at operating temperatures of systems to which they are applied.

B. Vapor Retarding Mastic:
   1. Acceptable Manufacturers: Foster 30-65 Vapor Fas, Childers CP-34, and Vimasco 749.
   2. For equipment insulation operating below 50°F, mastic water vapor permeance shall be less than 0.03 perms at 45 mils dry film thickness conforming to ASTM E96.
   3. Use insulation joint sealant at all joints. Acceptable manufacturers are Foster 95-50 Flextra, Childers CP-76 Chil-Byl, or Pittsburgh Corning CW Sealant.

C. Weather Barrier Breather Mastic:
   1. Acceptable Manufacturers: Foster 46-50 Weatherite, Childers Vi-Cryl CP-10/CP-11, or Vimasco WC-5.
   2. For equipment insulation operating at 50°F or above, mastic water vapor permeance shall be greater than 1.0 perms at 1/16-inch dry film thickness conforming to ASTM E96.

D. PVC Jacket Adhesive: Acceptable manufacturers: Dow Corning Corporation; 739, Dow Silicone, Johns Manville; Zeston Perma-Weld, CEEL-TITE Solvent Welding Adhesive.

E. For indoor applications, adhesive shall have a VOC content of 80 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

2.03 JACKETING

A. PVC Jackets (PVJ):
   1. PVC film, gloss finish one side, semi-gloss other side.
   2. PVC film shall conform to FED L-P-535E, Composition A, Type II, Grade NT.
   3. Jacket thickness shall be minimum 0.03 inch.

2.04 ACCESSORIES

A. All products shall be compatible with surfaces and materials on which they are applied, and be suitable for use at operating temperatures of the systems to which they are applied.

B. Adhesives, sealants, and protective finishes shall be as recommended by insulation manufacturer for applications specified.

C. Insulation bands shall be 3/4 inch wide, constructed of aluminum or stainless steel. Minimum thickness shall be 0.015 inch for aluminum and 0.010 inch for stainless steel.

D. Staples shall be clinch style.

E. Tack fasteners shall be stainless steel ring grooved shank tacks.

F. Joint sealants and metal jacketing sealants shall be non-shrinking and permanently flexible.

PART 3–EXECUTION

3.01 GENERAL

A. All insulation damaged during construction shall be replaced in accordance with these specifications.

B. All insulation shall be applied in accordance with the manufacturer's written recommendations. Destructive methods such as sheet metal screws are not acceptable. All insulation shall be installed with joints butted firmly together.

C. All valves shall be insulated with mitered sections of insulation equal in density and thickness to adjoining insulation or with "Zeston"-type, premolded PVC fittings installed in accordance with the manufacturer's instructions.

D. Install insulation with smooth and even surfaces. Poorly fitted joints or use of filler in voids will not be accepted. Provide neatly beveled and coated terminations at all nameplates, uninsulated fittings, or at other locations where insulation terminates.

3.02 VAPOR BARRIER INSTALLATION

A. For systems operating at 65°F or above, jackets on insulation may be stapled using outward clinch staples spaced 3 inches apart at least 1/4-inch in from the lap edge.

B. For systems operating below 65°F, laps shall be vapor-sealed using self-sealing lap, lap-seal tape gun, or adhesive.

C. Install fabric reinforcing without wrinkles. Overlap seams a minimum of 2 inches.

D. Use full length material (as delivered from manufacturer) wherever possible. Scrap piecing of insulation or pieces cut undersize and stretched to fit will not be accepted.

E. All insulation ends shall be tapered and sealed regardless of service.

F. Vapor barrier jackets shall be applied with a continuous, unbroken vapor seal. Vapor barrier jackets shall not be broken at supports.

3.03 FLEXIBLE CLOSED CELL INSULATION INSTALLATION

A. Miter cut fittings allowing sufficient length to prevent stretching. Completely seal seams and joints for vapor tight installation. Apply full bed of adhesive to both surfaces. Cover flexible closed cell insulation on systems operating below 65°F with vapor retarding mastic.

3.04 PROTECTIVE JACKET INSTALLATION

A. PVC Fitting Covers and Jackets (PVJ): Lap seams and joints a minimum of 2 inches and continuously seal PVC with welding solvent recommended by jacket manufacturer. Lap slip

joint ends 4 inches without fasteners where required to absorb expansion and contraction. For sections where vapor retarding jacket is not required and jacket requires routine removal, tack fasteners may be used. Secure PVC fitting covers with tack fasteners. For systems requiring a vapor retarding jacket, apply a 1 1/2-inch band of mastic over ends, throat, seams and penetrations.

3.05 EQUIPMENT INSULATION

A. Insulation shall not cover equipment access manholes, fittings, nameplates or ASME stamps. Bevel and seal insulation at these locations.

B. Provide insulation on equipment as outlined in the schedule below:

Equipment	Insulation	Jacket	Thickness
Water Meters	Flexible Closed Cell	N/A	0.5"
Water Softeners	Flexible Closed Cell	N/A	0.5"
Reduced Pressure Backflow Preventers	Flexible Closed Cell	N/A	0.5"

3.06 SPECIAL AREAS

A. All areas indicated on the Drawings as “Corrosive” or NEMA 4X shall include PVJ jackets.

END OF SECTION

SECTION 22 07 19

PIPING INSULATION FOR PLUMBING

PART 1–GENERAL

1.01 SUMMARY

A. Work includes insulation for all piping provided under Division 22–Plumbing.
   1. Rigid Formed Fiberglass Insulation.
   2. Flexible Closed Cell Pipe Insulation.
   3. Adhesives, Mastic, Sealants, and Reinforcing Materials.
   4. Jacketing.
   5. Insulation Inserts and Pipe Shields.
   6. Accessories.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.

B. All material, installation, and workmanship shall comply with the applicable requirements and standards addressed within the following references.
   1. ASTM C168–Standard Terminology Relating to Thermal Insulation.
   2. ASTM C272–Standard Test Method for Water Absorption of Core Materials for Sandwich Constructions.
   3. ASTM C518–Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
   4. ASTM C533–Standard Specification for Calcium Silicate Block and Pipe Thermal Insulation.
   5. ASTM C547–Standard Specification for Mineral Fiber Pipe Insulation.
   6. ASTM C591–Unfaced Preformed Rigid Cellular Polyisocyanurate Thermal Insulation.
   7. ASTM C612–Standard Specification for Mineral Fiber Block and Board Thermal Insulation.
   8. ASTM C1427–Standard Specification for Extruded Preformed Flexible Cellular Polyolefin Thermal Insulation in Sheet and Tubular Form.
   9. ASTM D1000–Standard Test Methods for Pressure-Sensitive Adhesive-Coated Tapes Used for Electrical and Electronic Applications.
   10. ASTM E84–Standard Test Method for Surface Burning Characteristics of Building Materials.
   11. ASTM E96–Standard Test Methods for Water Vapor Transmission of Materials.
   12. FED L-P-535E: Plastic Sheet (Sheeting): Plastic Strip: Poly (Vinyl Chloride) And Poly (Vinyl Chloride-Vinyl Acetate), Rigid.
   13. NFPA 262–Standard Method of Test for Flame Travel and Smoke of Wires and Cables for Use in Air-Handling Spaces.

1.03 SUBMITTALS

A. Submit under provisions of Section 01 33 00–Submittals.

B. Submit a schedule of all insulating materials to be used on the project, including adhesives, fastening methods, and fitting materials, along with safety data sheets and intended use of each material. Include manufacturer's technical data sheets indicating density, thermal characteristics, jacket type, and manufacturer's installation instructions.

1.04 QUALITY ASSURANCE

A. All insulation or components of this specification section shall meet or exceed the requirements and quality of the items herein specified, or as denoted on the Drawings.

B. Label all insulating products delivered to the construction site with the manufacturer's name and description of materials.

C. Insulation systems shall be applied by experienced contractors. Within the past five years, CONTRACTOR shall be able to document the successful completion of a minimum of three projects of at least 50% of the size and similar scope of the work specified in this section.

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle materials in accordance with Section 01 60 00–Materials and Equipment.

B. Deliver materials to the site in such a manner as to protect the materials from shipping and handling damage.

C. Materials that could be damaged by the elements should be packaged in such a manner that they could withstand short-term exposure to the elements during transportation.

D. Store materials in a clean, dry place and protect from weather and construction traffic. Handle carefully to avoid damage.

E. Use all means necessary to protect insulation before, during, and after installation.

F. All scratched, dented, and otherwise damaged insulation shall be repaired or replaced as requested by OWNER without additional cost to OWNER.

1.06 GENERAL REQUIREMENTS

A. Unless otherwise indicated, all pipe covering, jackets, insulation, vapor barriers, adhesives, and mastics shall have flame spread rating of 25 or less and smoke spread rating of 450 or less when tested in accordance with ASTM E84.

B. All pipe covering, jackets, insulation, vapor barriers, adhesive, and mastics within active return or supply air plenums shall have flame spread rating of 25 or less and smoke-developed rating of 50 or less when tested in accordance with ASTM E84.

C. All PVC jacketing provided shall come factory finished. CONTRACTOR shall not paint PVC jacketing. Where painted insulation transitions to PVC jacketing, CONTRACTOR shall

coordinate colors with OWNER. Colors shall be in accordance with Section 20 05 53–Identification for Plumbing, and HVAC Piping and Equipment.

D. All insulation and associated materials shall be free of asbestos.

PART 2–PRODUCTS

2.01 RIGID FORMED FIBERGLASS INSULATION

A. Acceptable manufacturers are Johns Manville Micro-Lok, or equal.

B. Insulation shall be mineral fiber type conforming to ASTM C547, Type IV.

C. Minimum nominal density shall be of 3.0 lbs/ft^3.

D. K-factor shall not exceed 0.23 (btu-in)/(hr-ft^2-°F) at 75°F mean.

E. Insulation shall be rated for service to 850°F.

2.02 FLEXIBLE CLOSED CELL PIPE INSULATION

A. Acceptable manufacturers are K-flex Insul-tube, Armacell AP/Armaflex, or equal.

B. Insulation shall be flexible closed cell type conforming to ASTM C534, Type 1, Grade 1.

C. K -factor shall not exceed 0.25 (btu-in)/(hr-ft^2-°F) at 75°F mean.

D. Insulation shall be rated for service range of -20°F to 220°F on piping or 180°F where adhered to equipment.

2.03 ADHESIVES, MASTIC, SEALANTS, AND REINFORCING MATERIALS

A. Products shall be compatible with surfaces and materials on which they are applied, and shall be suitable for use at operating temperatures of systems to which they are applied.

B. Fiberglass Insulation Adhesive: Acceptable Manufacturers: Foster 85-60, Childers CP-127, and Duro Dyne SSG.

C. Sealant for Metal Jacketing: Acceptable Manufacturers: Foster 95-44 Elastolar, Childers CP-76 Chil-Byl, Pittsburgh Corning 727.

2.04 JACKETING

A. PVC Jackets (PVJ):
   1. PVC film, gloss finish one side, semi-gloss other side.
   2. PVC film shall conform to FED L-P-535D, Composition A, Type II, Grade NT.
   3. Jacket thickness shall be minimum 0.03 inch.

B. ADA Accessible Lavatory Insulation: Provide Truebro, Inc. Lav-Guard, or equal, undersink piping cover. Piping cover shall meet applicable ADA requirements. The P-trap, angle valve assemblies, supply piping, and tailpiece shall be covered with the molded vinyl, antimicrobial

pipe cover. Cover shall be secured with flush reusable fasteners; angle stop shall have locking access cover.

2.05 INSULATION INSERTS AND PIPE SHIELDS

A. Acceptable manufacturers are B-Line, Pipe Shields, or Value Engineered Products.

B. Provide pipe shields on all insulated piping.

C. Insulation inserts shall be provided in all piping 2 inches and larger that require fiberglass insulation.

D. Construct inserts with calcium silicate or polyisocyanurate with minimum 140 psi compressive strength. Piping 12 inches and larger shall be supplemented with high density 600 psi structural calcium silicate insert. Provide 16-gauge galvanized steel shield, 12 inches long. Insert and shield shall include minimum 180 degree coverage on bottom supported piping and full 360 degree coverage on clamped piping. On roller mounted piping and piping designed to slide on support, provide additional load distribution stainless steel plate. In corrosive (NEMA 4X) or hazardous (Class I, Division 1) environments, shields and distribution plates shall be constructed of 316 stainless steel.

E. Where contractor proposes shop/site fabricated inserts and shields, submit schedule of materials, thicknesses, gauges and lengths for each pipe size to demonstrate equivalency to pre-engineered/premanufactured product described above. On low temperature systems, high density rigid polyisocyanurate may be substituted for calcium silicate provided insert and shield length and shield gauge are increased to compensate for lower insulation compressive strength.

F. Wood blocks will not be accepted.

G. All pipe shields shall be banded to the jacketing using stainless steel bands. One band is required on each side of the support.

2.06 ACCESSORIES

A. All products shall be compatible with surfaces and materials on which they are applied, and be suitable for use at operating temperatures of the systems to which they are applied.

B. Adhesives, sealants, and protective finishes shall be as recommended by insulation manufacturer for applications specified.

C. Insulation bands shall be 3/4 inch wide, constructed of aluminum or stainless steel. Minimum thickness shall be 0.015 inch for aluminum and 0.010 inch for stainless steel.

D. Load distributing metal shields shall be constructed of aluminum or stainless steel. Minimum thickness shall be 0.015 inch for aluminum and 0.010 inch for stainless steel.

E. Staples shall be clinch style.

F. Tack fasteners shall be stainless steel ring grooved shank tacks.

G. Joint sealants and metal jacketing sealants shall be non-shrinking and permanently flexible.

PART 3–EXECUTION

3.01 GENERAL

A. All insulation damaged during construction shall be replaced in accordance with these specifications.

B. All insulation shall be applied in accordance with the manufacturer's written recommendations. Destructive methods such as sheet metal screws are not acceptable. All pipe insulation shall be installed with joints butted firmly together.

C. All valves and fittings shall be insulated with mitered sections of insulation equal in density and thickness to adjoining insulation.

D. Install insulation with smooth and even surfaces. Poorly fitted joints or use of filler in voids will not be accepted. Provide neatly beveled and coated terminations at all nameplates, uninsulated fittings, or at other locations where insulation terminates.

E. All pipe insulation shall be continuous through walls, ceiling or floor openings and through sleeves. Where piping penetrates fire rated assemblies, CONTRACTOR shall seal penetration to maintain rating of the assembly. See life safety plan for locations of fire rated assemblies.

F. All un-insulated penetrations through the insulation system shall be insulated along their length to a minimum distance of four times the insulation thickness. To prevent moisture migration behind the insulation, these penetrations shall be sealed with a sealant as recommended by the manufacturer and flashed to shed water.

3.02 SUPPORT INSTALLATION

A. For each pipe hanger, provide a hanger block on the bottom half of the pipe in place of the insulation.

B. Pipe hangers and supports shall be sized large enough to be installed over the outer surface of the insulation.

C. Load distributing metal shields shall be installed around the lower circumference of the insulation and jacket.

3.03 RIGID FORMED FIBERGLASS INSULATION INSTALLATION

A. Fittings, valves, unions, flanges, couplings and specialties shall be insulated with factory molded insulation of the same thickness as adjoining insulation. Secure insulation sections with two wraps of nylon filament tape 9-inch to 12-inch on center. On single insulation layer systems and on the outer layer of double insulation layer systems, apply a thin coat of flexible closed cell joint sealant rated for system operating temperatures to all longitudinal and butt insulation joints covering entire face of joint. Allow sealant to fully cure before applying protective covering. Where two layers of insulation are used, do not use sealant on the inner layer or adhere the inner layer to the outer layer. Apply vapor stop bead of joint sealant between pipe and insulation on both sides of valves, expansion/contraction joints, flanges,

thermometers/gauges, attached vent and drain lines. Insulate attached non-circulated lines, control lines, vents, etc., for a minimum distance of 6 inches from pipe. Cover insulation with a protective jacket as specified below. Do not penetrate protective covering or insulation with mechanical fasteners.

3.04 FLEXIBLE CLOSED CELL INSULATION INSTALLATION

A. Where practical, slip insulation on piping during pipe installation while pipe ends are open. Miter cut fittings allowing sufficient length to prevent stretching. Completely seal seams and joints for vapor tight installation. Apply full bed of adhesive to both surfaces. Cover flexible closed cell insulation on systems operating below 65°F with vapor retarding mastic.

3.05 PROTECTIVE JACKET INSTALLATION

A. PVC Fitting Covers and Jackets (PVJ): Lap seams and joints a minimum of 2 inches and continuously seal PVC with welding solvent recommended by jacket manufacturer. Lap slip joint ends 4 inches without fasteners where required to absorb expansion and contraction. For sections where vapor retarding jacket is not required and jacket requires routine removal, tack fasteners may be used. Secure PVC fitting covers with tack fasteners. For systems requiring a vapor retarding jacket, apply a 1 1/2-inch band of mastic over ends, throat, seams and penetrations.

B. Vapor Barriers: On systems operating at 65°F and above, pipe insulation jackets may be stapled using outward clinch staples spaced 3 inches apart at least 1/4 inch in from the lap edge. Mastics used shall be “breather” type allowing passage of water vapor.

3.06 PIPING INSULATION

A. Provide insulation on new piping as indicated in the following schedule:

SERVICE	INSULATION	JACKET	INSULATION THICKNESS BY PIPE SIZE				
			< 1"	1" to < 1 1/2"	1 1/2" to < 4"	4" to < 8"	8" and Larger
Piping within Slabs and Masonry Walls	Flexible Closed Cell	N/A	1/2"	1/2"	1/2"	-	-
Liquid-Carrying Piping Located in Exterior or Unconditioned Spaces (Unless Specified Elsewhere)	Rigid Formed Fiberglass	PVJ	2"	2"	2"	2"	2"
Cold Water (Potable/Nonpotable/Softened)	Rigid Formed Fiberglass	PVJ	1"	1"	1"	1"	1"
Hot Water (Potable/Nonpotable/Softened)	Rigid Formed Fiberglass	PVJ	1"	1"	1.5"	1.5"	1.5"

B. For systems with operating fluid temperatures 65°F or less, furnish and install removable flexible closed cell insulation covers, plugs or caps for all mechanical equipment and devices that require access by balancing contractors or service and maintenance personnel. Covers shall be tight fitting to provide a complete vapor retarding barrier. Examples include but are not limited to:
1. Flow sensing devices.
2. Circuit setters.
3. Manual ball valve air vents.
4. Drain valves.

5. Blowdown valves.
6. Pressure/temperature test plugs.
7. Grease fittings.
8. Pump bearing caps.
9. Equipment labels.

3.07 SPECIAL AREAS

A. All areas indicated on the Drawings as “Hazardous”, Class I Division 1, or Class I Division 2 shall include PVJ jackets.

B. All areas indicated on the Drawings as “Corrosive” or NEMA 4X shall include PVJ jackets.

END OF SECTION

SECTION 22 11 00

FACILITY WATER DISTRIBUTION PIPING

PART 1–GENERAL

1.01 SUMMARY

A. Work Included: All pipe, fittings, and appurtenances for domestic (hot and cold) potable and non-potable water within and to 5 feet beyond building perimeter.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work under this section.

1.02 REFERENCES

A. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.

B. All materials, installation and workmanship shall comply with the applicable requirements and standards addressed within this specification.

1.03 QUALITY ASSURANCE

A. Order all pipe with each length marked with the name or trademark of the manufacturer and type of pipe; with each shipping unit marked with the purchase order number, metal or alloy designation, temper, size, and name of supplier.

B. Any installed material not meeting the specification requirements must be replaced with material that meets these specifications without additional cost to OWNER.

1.04 SUBMITTALS

A. Submit under provisions of Section 01 33 00–Submittals.

B. CONTRACTOR shall provide schedule indicating the ASTM, AWWA, or CISPI specification number of the pipe being proposed along with its type and grade if known at the time of submittal, and sufficient information to indicate the type and rating of fittings for each service.

C. CONTRACTOR shall provide statement from manufacturer on their letterhead that pipe furnished meets the ASTM, AWWA, or CISPI specification contained in this section.

D. CONTRACTOR shall provide statement from manufacturer on manufacturer’s letterhead that pipe furnished meets requirements for Buy American (AIS).

1.05 DELIVERY AND STORAGE

A. CONTRACTOR shall promptly inspect shipments to review that the material is undamaged and complies with specifications.

B. CONTRACTOR shall cover pipe to prevent corrosion or deterioration while allowing sufficient ventilation to avoid condensation. Materials shall not be stored directly on grade. Pipe, tube, and fitting ends shall be protected so they are not damaged. Where end caps are provided or specified, CONTRACTOR shall take precautions so the caps remain in place. Protect fittings, flanges, and unions by storage inside or by durable, waterproof, above ground packaging.

C. Offsite storage agreements will not relieve CONTRACTOR from using proper storage techniques.

D. Deliver, store, and protect in accordance with Section 01 60 00–Materials and Equipment.

PART 2–PRODUCTS

2.01 DOMESTIC WATER (INCLUDES COLD, HOT, TEMPERED, SOFTENED, AND NON-POTABLE)

A. Copper Piping and Fittings: Piping smaller than 3 inches in diameter shall be Type K copper water tube, H (drawn) temper, ASTM B88; wrought copper pressure fittings, ANSI B16.22; lead free (<.2%) solder, ASTM B32; flux, ASTM B813; copper phosphorous brazing alloy, AWS A5.8 BCuP. Mechanically formed brazed tee connections may be used in lieu of specified tee fittings for branch takeoffs up to one-half the diameter of the main.

B. Ductile Iron Piping and Ductile Iron Fittings:
   1. Water piping 3 inches in diameter or larger shall be ductile iron conforming to ANSI/AWWA C151/A21.51, with flanged or grooved joints as shown on the Drawings. Unless otherwise shown or specified, all piping shall be minimum special thickness Class 53 with a minimum rated working pressure of 250 psi for flanged pipe. Pipe wall thickness shall be furnished as required by AWWA C115 for flanged piping; AWWA C606 for grooved piping; special thickness Class 53 minimum unless otherwise shown or specified. Manufacturers of flanged pipe and fittings shall be certified to NSF 61 by an ANSI-accredited third-party certification organization.
   2. The words “Ductile Iron” and the weight and class of pipe shall be plainly marked on each piece of pipe.
   3. All flanged sections of pipe shall be made up in strict accordance with AWWA C115 specifications. No field make-up flanges will be allowed unless strictly conforming to AWWA C115 with facing done after turning pipe through flange.
   4. Flanged joints shall conform to AWWA C110, C111, and C115, and shall be compatible with ANSI B16.1 Class 125. Flanges shall be ductile iron. Flanged gaskets shall be minimum 1/8-inch, full-face, rubber-ring, Toruseal, Flange-Tyte, Maloney, or equal, gaskets. Thicker gaskets shall be provided as recommended by the manufacturer to meet joint tolerance. All hot water piping shall have EPDM gaskets designed for a minimum of 225°F service. Flange bolts shall be standard zinc-plated steel with hex head and hex nuts for the rated working pressure and installation conditions specified or shown.
   5. Flanged fittings shall be of ductile iron with ductile iron flanges. Flanged fittings shall conform to AWWA C110 and ANSI B16.1, as applicable, with a minimum rated working pressure of 150 psi.
   6. All ductile iron fittings shall be American Cast Iron Pipe, Tyler, U.S. Pipe, or equal. No compact fittings are allowed.
   7. The exterior of ductile iron piping and associated appurtenances shall be furnished with all surfaces prepared in accordance with near white grade SSPC Specification No. 10

removing all dirt, rust scale, and foreign materials. Cleaned surfaces shall then be shop-primed. Factory shop prime with one coat of Tnemec N69 or N140 or Sherwin Williams Duraplate 235 or Macropoxy 646PW, or equal, applied at a minimum 5.0 mils dry film thickness. Primer color shall be beige. Primer used shall be compatible with proposed finish coats; CONTRACTOR shall verify. It is the intent of this specification that all piping, supports, and appurtenances shall be furnished shop-primed, clean, and ready to accept finish painting by CONTRACTOR with a minimal amount of surface preparation. Preparation and painting shall conform to all requirements and provisions specified in Division 09. Following field-welding, areas damaged by welding shall be prepared and reprimed as specified above. All field surface preparation shall be completed prior to equipment installation.

8. All ductile iron piping and fittings conveying water above 100°F shall be cement mortar lined but not asphaltic-coated inside.

C. CPVC Piping:

1. Piping shall be located in corrosive (NEMA 4X) environments and where called out on Drawings.
2. CPVC material used in manufacturing piping and fittings shall conform to ASTM D1784, Class 23447.
3. CPVC piping shall be CPVC 4120, Schedule 80, high-impact conforming to ASTM F441. Piping and fittings shall be approved for use by the National Sanitation Foundation. All pipe delivered to the jobsite shall be properly marked for type, grade, and design stress rating. Expansion joints shall be provided as required. In general, all joints shall be solvent weld, except where flanges are shown or called out on the Drawings. All piping shall be supported at spacing not exceeding that recommended by the manufacturer.
4. Solvent cement for CPVC piping shall be specifically designed for piping systems receiving chemical resistance. Cement shall be Oatey EP42, IPS Weld-On ZZ724, or equal.
5. CPVC Schedule 80 pressure fittings shall meet requirements of ASTM F437 (threaded type) and ASTM F439 (solvent weld socket type). All internal threads shall be machine-taped to the requirements of ANSI/ASME B1.20.1. The quick burst strength of the fittings shall be equal to or greater than the burst strength of the equivalent Schedule 80 CPVC pipe. Fittings shall be made of CPVC 23447-B, or better.
6. All CPVC piping and components shall be rated for potable water use.

2.02 DIELECTRIC UNIONS AND FLANGES

A. Watts Regulator Company, Lochinvar, Wilkins or EPCO Sales, Inc., dielectric unions 2 inches and smaller; dielectric flanges 2 inches and larger; with iron female pipe thread to copper solder joint or brass female pipe thread end connections, non-asbestos gaskets, having a pressure rating of not less than 175 psig at 180°F.

2.03 UNIONS AND FLANGES

A. Unions, flanges and gasket materials to have a pressure rating of not less than 150 psig at 180°F. Gasket material for flanges and flanged fittings shall be Teflon type. Treated paper gaskets are not acceptable.

B. Two and One Half-Inch and Smaller Copper: ANSI B16.18 cast bronze union coupling or ANSI B15.24 Class 150 cast bronze flanges.

C. Three-Inch and Larger Steel: ASTM A181 or A105, grade 1 hot forged steel flanges of threaded, welding neck, or slip-on pattern on black steel and threaded only on galvanized steel. Use raised face flanges ANSI B16.5 for mating with other raised face flanges or equipment with flat ring or full face gaskets. Use ANSI B16.1 flat face flanges with full face Teflon gaskets for mating with other flat face flanges on equipment. Gaskets shall be Teflon type.

PART 3–EXECUTION

3.01 GENERAL

A. Install pipe and fittings in accordance with reference standards, manufacturers' recommendations, and recognized industry practices.

3.02 PREPARATION

A. Cut pipe ends square. Ream ends of piping to remove burrs. Clean scale and dirt from interior and exterior of each section of pipe and fitting prior to assembly.

3.03 ERECTION

A. Install all piping parallel to building walls and ceilings and at heights which do not obstruct any portion of a window, doorway, stairway, or passageway. Where interferences develop in the field, offset or reroute piping as required to clear such interferences. Coordinate locations of plumbing piping with piping, ductwork, conduit and equipment of other trades to allow sufficient clearances. In all cases, consult drawings for exact location of pipe spaces, ceiling heights, door and window openings, or other architectural details before installing piping.

B. Where copper or steel piping is embedded in masonry or concrete, provide protective sleeve covering of elastomeric pipe insulation.

C. Maintain piping in clean condition internally during construction.

D. Provide clearance for installation of insulation, access to valves, and piping specialties.

E. Provide anchors, expansion joints, swing joints, and/or expansion loops so that piping may expand and contract without damage to itself, equipment, or building.

F. Do not route piping through transformer vaults or above transformers, panelboards, or switchboards, including the required service space for this equipment.

G. Tracer wire shall be installed on all underground pipe as specified in Section 33 00 10–Buried Piping and Appurtenances.

3.04 THREADED PIPE JOINTS

A. Use a thread lubricant or Teflon tape when making joints; no hard setting pipe thread cement or caulking shall be allowed.

3.05 DOMESTIC WATER

A. Maintain piping system in clean condition during installation. Remove dirt and debris from assembly of piping as work progresses. Cap open pipe ends where left unattended or subject to contamination.

B. Provide thrust restraints for 3-inch and larger exterior water piping joints, hydrants, caps, plugs, fittings, and bends of 22 1/2 degrees or more. Field apply continuous anti-corrosion coating to rodded restraint components. Protect mechanical joints, nuts and bolts from concrete cover. Cover with 8 mil sheet or tube polyethylene material sleeve.

C. Install interior water piping with drain valves where indicated and at low points of system to allow complete drainage. Install shutoff valves where indicated and at the base of risers to allow isolation of portions of system for repair. Do not install water piping within exterior walls.

3.06 DIELECTRIC UNIONS AND FLANGES

A. Install dielectric unions or flanges at each point where a copper-to-steel pipe connection is required in domestic water systems.

3.07 UNIONS AND FLANGES

A. Install a union or flange at each connection to each piece of equipment and at other items which may require removal for maintenance, repair, or replacement. Where a valve is located at a piece of equipment, locate the flange or union connection on the equipment side of the valve. Concealed unions or flanges are not acceptable.

3.08 TESTING AND CLEANING

A. General:
   1. All new piping shall be tested. All piping, interior or exposed, shall be subject to test before being covered with insulation or paint. All piping and appurtenances shall be watertight or airtight and free from visible leaks.
   2. All piping shall be flushed or blown out after installation and prior to testing. CONTRACTOR shall provide all necessary piping connections, water, air, test pumping equipment, water meter, bulkheads, valves, pressure gauge and other equipment, materials, and facilities necessary to complete the specified tests, flushing, sterilization. CONTRACTOR shall also provide all temporary sectionalizing devices and vents as required.
   3. All new and parts of existing altered, extended, or repaired plumbing system piping shall be tested for leaks and defects. Piping being tested shall not leak nor show any loss in test pressure for duration specified.
   4. In cases of minor installation and repairs where specified water and/or air test procedures are deemed impractical, CONTRACTOR shall perform alternate testing procedures if acceptable to ENGINEER. Alternate testing procedures for minor installation and repairs may include visual evaluation of installed components by ENGINEER during a simulation of use.
   5. The water used for tests shall be obtained from a potable source of supply.
   6. Prepare testing reports. If testing is performed in segments, submit separate report for each segment, complete with diagram or clear description of applicable portion of piping. After testing has been accepted for portions thereof, certify in writing the time, date, name, and title of the persons reviewing the test. This shall also include the

description of what portion of the system has been accepted. A complete record shall be maintained of all testing that has been accepted and shall be made available at the jobsite. Upon completion of the work, all records and certifications regarding testing shall be submitted to ENGINEER before final payment is made.

7. Verify systems are complete, flushed, and clean prior to testing. Isolate or remove components subject to damage or not rated for test pressure. Test for leaks and defects in new piping and parts of existing piping that have been altered, extended, or repaired. Leave piping uninsulated, uncovered, and unconcealed until it has been tested. Where any portion of piping system must be concealed before completion of entire system, the portion shall be tested separately as specified for the entire system prior to concealment. CONTRACTOR shall expose all untested covered or concealed piping.
8. Gauges used for testing shall have increments as follows:
   a. Tests requiring a pressure of 10 psi or less shall use a testing gauge having increments of 0.10 psi or less.
   b. Tests requiring a pressure of greater than 10 psi but less than or equal to 100 psi shall use a testing gauge having increments of 1 psi or less.
   c. Tests requiring a pressure of greater than 100 psi shall use a testing gauge having increments of 2 psi or less.
9. Separately test above- and belowground piping.
10. Do not introduce test water into piping systems when exposure to freezing temperatures is possible.
11. Do not introduce test water into sections of piping located above existing sensitive areas and/or equipment that may be damaged or contaminated by water leakage. Coordinate with OWNER to determine areas and/or equipment considered as being sensitive.
12. Defective work or material shall be reworked and replaced and test repeated. Repairs shall be made with new materials. Pipe dope, caulking, tape, dresser couplings, etc., shall not be used to correct deficiencies.
13. CONTRACTOR shall be responsible for cleaning up any leakage during flushing, testing, repairing, and disinfecting to the original condition any building parts subjected to spills or leakage.
14. If required for the additional pressure load under test, provide temporary restraints at fittings or expansion joints. Backfill underground pressure mains prior to testing with the exception of thrust restrained valves that may be exposed to isolate potential leaks.
15. For hydrostatic tests, use clean water and remove all air from the piping being tested by means of air vents or loosening of flanges/unions. Measure and record test pressure at the high point in the system.
16. For air or nitrogen tests, gradually increase the pressure to not more than one-half of the test pressure; then increase the pressure in steps of approximately one-tenth of the test pressure until the required test pressure is reached. Examine all joints and connections with a soap bubble solution or equivalent method. System will not be accepted until it can be demonstrated that there is no measurable loss of test pressure during the test period.

B. Domestic Water System:
   1. Subject piping system to a hydrostatic pressure of at least 100 pounds per-square-inch gauge, but not less than the operating pressure under which it is to be used. During test period, all pipe, fittings and accessories in the particular piping system that is being tested shall be carefully observed. If leaks are detected, such leaks shall be stopped and the hydrostatic test shall again be applied. This procedure shall be repeated until no leaks are detected. EXCEPTION: Piping located above sensitive areas and/or equipment that may be damaged or become contaminated due to test water leakage shall be tested with oil-free air in lieu of water.

2. After completion of the testing, all new and/or altered water piping systems shall be thoroughly sterilized with a solution containing not less than 50 parts per million of available chlorine. Do not exceed 150 parts per million at any time. Introduce chlorine into the supply stream at a rate sufficient to provide a uniform concentration throughout the system. All outlets shall be opened and closed several times. When the specified level of chlorine is detected at every outlet in the system, close all valves to prevent release of water from the system for 24 hours. At the completion of the 24-hour disinfection period, test every outlet for a minimum chlorine residual of 50 parts per million. This minimum residual must be present to proceed with flushing. Flush the system with clean water at a sufficient velocity until the residual chlorine detected at every outlet is within 0.2 parts per million or the normal water supply's level.
3. Sufficient samples must be taken no sooner than 24 hours after sterilization and flushing to represent the extent and complexity of the affected water system, along with a control sample to indicate municipal water quality at the time of testing. Send water samples to an accredited and/or certified laboratory to perform qualitative and quantitative bacteriological analysis in accordance with AWWA C651 or in accordance with Plumbing Code. CONTRACTOR shall obtain written certification from the independent testing agency stating that the water samples meet federal and state guidelines for safe drinking water. Failure to fully comply with the above procedures will result in a requirement to repeat the procedure until acceptable results are achieved, at no additional cost to OWNER.
4. Isolate or bypass equipment that would be detrimentally affected by disinfecting solution. Isolate all other sections of the domestic water system not being disinfected to prevent migration of chlorine.
5. Prior to injection of chlorine into the piping system, strategically place signs stating "Heavily Chlorinated Water-Do Not Drink," and protect all outlets to prevent use during disinfection and flushing procedures.
6. A bacteria test may not be necessary for small scale work. However, disinfection is required. Examples of small scale work are less than 20 feet of pipe, replacement and/or installation of a sink, drinking fountain, eyewash, backflow preventer, isolation valve, etc. Disinfect individual parts, fixtures, isolation valves, pipes, etc. by swabbing with full strength bleach (5.25%) or soaking for at least 30 minutes in a 500-ppm chlorine solution. Materials should then be thoroughly rinsed before putting into service.

System	Test Medium	Pressure	Final Test Duration
Belowground Domestic or Nonpotable Water	Water	200 psig	2 hours
Aboveground Domestic or Nonpotable Water	Water	100 psig	8 hours

END OF SECTION

SECTION 22 11 23

DOMESTIC WATER PUMPS

PART 1–GENERAL

1.01 SUMMARY

A. Work Included: Domestic water pumps.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.

B. All materials, installation and workmanship shall comply with the applicable requirements and standards addressed within this specification.

1.03 QUALITY ASSURANCE

A. Field inspection and testing to be performed under provisions of Section 01 45 00–Quality Control.

B. Inspect completed installation for physical damage.

C. All equipment or components of this specification section shall meet or exceed the requirements and quality of the items herein specified, or as noted on the Drawings.

D. Electrical components shall be UL listed for the service specified.

E. Electrical components and work shall be in accordance with the National Electrical Code.

1.04 SUBMITTALS

A. Submit shop drawings and product data in accordance with provisions of Section 01 33 00–Submittals.

B. Include data concerning dimensions, required clearances, capacities, materials of construction, ratings, weights, manufacturer’s installation requirements, manufacturer’s performance limitations, and appropriate identification. Include plans, elevations and sections.

C. Submittals for motors associated with equipment specified in this section shall include data sheets from the motor manufacturer. Data sheets from the equipment manufacturer or supplier are not acceptable.

D. Submittal shall include pump-specific performance curves showing flow, head and motor horsepower.

E. Submit manufacturer's installation instructions and recommendations.

F. Submittals must be specific to this project. Generic submittals will not be accepted.

G. Hanging and support requirements shall follow the recommendations in the manufacturer's installation instructions.

H. Provide detailed control wiring diagrams as well as all external connections.

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to the site in such a manner as to protect the materials from shipping and handling damage. Provide materials on factory provided shipping skids and lifting lugs, if required for handling.

B. Materials that could be damaged by the elements should be packaged in such a manner that they could withstand short-term exposure to the elements during transportation.

C. Store materials in a clean, dry place and protect from weather and construction traffic. Handle carefully to avoid damage.

D. Use all means necessary to protect equipment before, during and after installation.

E. All scratched, dented, and otherwise damaged units shall be repaired or replaced at no additional cost to OWNER.

F. Motors, shafts and bearings shall be protected from weather and dust.

1.06 OPERATION AND MAINTENANCE DATA

A. Include installation instructions, assembly views, lubrication instructions, recommended maintenance schedule and activities.

1.07 WARRANTY

A. Unless otherwise stated below, manufacturer shall warrant the equipment to be free from defects in material and workmanship for a period of one year from the earlier of either the date established for partial utilization in accordance with GC15.03 and 15.04 and or substantial completion of the project. Warranty Certificate shall be provided with the shop drawings.

PART 2–PRODUCTS

2.01 IN-LINE CENTRIFUGAL PUMPS

A. Acceptable manufacturers are Bell and Gossett, or equal.

B. See Drawing schedules for pump selections.

C. Type: Horizontal, single stage, oil lubricated in-line pumps, 145 psig maximum working pressure at operating temperature of 230°F continuous. The manufacturer shall certify all pump ratings. All pumps shall operate without excessive noise or vibration.

D. All products in contact with potable water shall be NSF 61/NSF 372 certified. Documentation of compliance shall be provided in the shop drawing.

E. Pump Body shall be cast iron or stainless steel. Impeller shall be impact modified PPE. Bearings shall be ceramic and lubricated by circulating fluid. Shaft shall be ceramic and include EPDM O-ring.

F. Pump motor shall be an electrically commutated motor (ECM) and be 120 volts and single phase. Furnish each pump and motor with a nameplate giving the manufacturer's name, serial number of the pump, capacity in GPM, and head in feet at design condition, horsepower, voltage, frequency, speed, and full load current.

G. Pump shall be furnished with a manufacturer provided check valve shipped loose for field installation.

H. Pump control shall be by ITT Bell & Gossett TC-1 automatic timer kit, or equal. The timer shall be suitable for 115/120 VAC, 60 Hz operation and mounting on the connection box of pump. If the pump is not accessible, CONTRACTOR shall mount timer in a convenient location determined by OWNER. The timer shall provide both automatic and manual on-off.

I. Motor: Provide pump with open drip-proof motor with built-in thermal overload protection sized for non-overloading operation over the entire pump curve. Furnish each pump and motor with a nameplate giving the manufacturer's name, serial number of pump, capacity in GPM and head in feet at design condition, horsepower, voltage, frequency, speed and full load current.

PART 3–EXECUTION

3.01 INSTALLATION

A. Install plumbing equipment where indicated in accordance with manufacturer's recommendations. Coordinate equipment location with piping, ductwork, conduit and equipment of other trades to allow sufficient clearances. Locate equipment and arrange plumbing piping to provide access space for servicing all components.

B. Connect equipment to water piping using unions or flanges and isolation valves. Pump shall be supported separately from piping.

C. Startup and test equipment adjusting operating and safety controls for proper operation.

D. Lubricate pumps before startup. Adjust pumps for rated flow. Clean and blowdown strainers after 8 hours of operation.

END OF SECTION

SECTION 22 13 16

SANITARY WASTE AND VENT PIPING

PART 1–GENERAL

1.01 SUMMARY

A. Work Included: All plumbing pipe and pipe fittings for this project within and up to 5 feet from the building foundation wall.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work under this section.

1.02 QUALITY ASSURANCE

A. Quality assurance shall be in accordance with Section 01 45 00–Quality Control.

B. Order all copper, cast iron, steel, PVC, and polyethylene pipe with each length marked with the name or trademark of the manufacturer and type of pipe; with each shipping unit marked with the purchase order number, metal or alloy designation, temper, size, and name of supplier.

C. Any installed material not meeting the specification shall be replaced with material that meets these specifications without additional cost to OWNER.

1.03 SUBMITTALS

A. Submit under provisions of Section 01 33 00–Submittals.

B. CONTRACTOR shall provide schedule indicating the ASTM or CISPI specification number of the pipe being proposed along with its type and grade if known at the time of submittal, and sufficient information to indicate the type and rating of fittings for each service.

C. CONTRACTOR shall provide statement from manufacturer on manufacturer's letterhead that pipe furnished meets the ASTM or CISPI specification contained in this section.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Promptly inspect shipments to review that the material is undamaged and complies with specifications.

B. Cover pipe to prevent corrosion or deterioration while allowing sufficient ventilation to avoid condensation. Do not store materials directly on grade. Protect pipe, tube, and fitting ends so they are not damaged. Where end caps are provided or specified, take precautions so the caps remain in place. Protect fittings, flanges, and unions by storage inside or by durable, waterproof, aboveground packaging.

C. Offsite storage agreements will not relieve CONTRACTOR from using proper storage techniques.

D. Storage and protection methods must allow observation to verify products.

1.05 DESIGN CRITERIA

A. Use only new material, free of defects, rust, and scale, and meeting the latest revision of ASTM or CISPI specifications as listed in this specification.

B. Construct all piping for the highest pressures and temperatures in the respective system.

C. Non-metallic piping will be acceptable only for the services indicated. It will not be acceptable in ventilation plenum spaces, including plenum ceilings.

D. Where weld fittings or mechanical grooved fittings are used, use only long radius elbows having a centerline radius of 1.5 pipe diameters.

PART 2–PRODUCTS

2.01 SANITARY WASTE AND VENT

A. Aboveground PVC shall not be used where smoke generation, noise transmission, or physical abuse/durability are an issue.

B. Interior Above Ground, Gravity: PVC plastic pipe, Schedule 40, Class 12454-B (PVC 1120), ASTM D1785; PVC plastic drain, waste and vent pipe and fittings, ASTM D2665; socket fitting patterns, ASTM D3311; primer, ASTM F656; solvent cement, ASTM D2564.

C. Interior Above Ground, Pressurized: PVC plastic pipe, Schedule 40, Class 12454, where temperature will not exceed 130°F, ASTM D1784, ASTM D1785, with solvent cement joints, pressure rated, ASTM D2466, medium or long radius fittings; Primer, ASTM F656; Solvent, ASTM D2564.

D. Interior Below Ground, Gravity: PVC plastic pipe, Schedule 40, Class 12454-B (PVC 1120), ASTM D1785; PVC plastic drain, waste and vent pipe and fittings, ASTM D2665; socket fitting patterns, ASTM D3311; primer, ASTM F656; solvent cement, ASTM D2564.

E. Below Ground 3 Inches and Smaller, Pressurized: PVC plastic pipe, Schedule 40, Class 12454-B (PVC 1120), ASTM D1785; PVC plastic drain, waste and vent pipe and fittings, ASTM D2665; socket fitting patterns, ASTM D3311; primer, ASTM F656; solvent cement, ASTM D2564.

F. Below Ground 3 Inches and Larger, Pressurized: PVC pressure pipe, DR 18, Class 150, AWWA C900; with integral bell and elastomeric gaskets, ASTM D3139. Fittings and fitting polyethylene encasement to be same as noted above for ductile iron.

PART 3–EXECUTION

3.01 GENERAL

A. Install pipe and fittings in accordance with reference standards, manufacturers recommendations and recognized industry practices.

3.02 PREPARATION

A. Cut pipe ends square. Ream ends of piping to remove burrs. Clean scale and dirt from interior and exterior of each section of pipe and fitting prior to assembly.

3.03 ERECTION

A. Install all piping parallel to building walls and ceilings and at heights which do not obstruct any portion of a window, doorway, stairway, or passageway. Where interferences develop in the field, offset or reroute piping as required to clear such interferences. Coordinate locations of plumbing piping with piping, ductwork, conduit and equipment of other trades to allow sufficient clearances. In all cases, consult drawings for exact location of pipe spaces, ceiling heights, door and window openings, or other architectural details before installing piping.

B. Maintain piping in clean condition internally during construction.

C. Provide clearance for installation of insulation, access to valves and piping specialties.

D. Provide anchors, expansion joints, swing joints and/or expansion loops so that piping may expand and contract without damage to itself, equipment, or building.

E. Do not route piping through transformer vaults or above transformers, panelboards, or switchboards, including the required service space for this equipment.

F. Install all valves and piping specialties, including items furnished by others, as specified and/or detailed. Provide access to valves and specialties for maintenance. Make connections to all equipment, fixtures and systems installed by others where same requires the piping services indicated in this section.

3.04 SOLVENT WELDED PIPE JOINTS

A. Install in accordance with ASTM D2855 "Making Solvent Cemented Joints With PVC Pipe and Fittings". Saw cut piping square and smooth. Tube cutters may be used if they are fitted with wheels designed for use with PVC/CPVC pipe that do not leave a raised bead on pipe exterior. Support and restrain pipe during cutting to prevent nicks and scratches. Bevel ends 10 to 15 degrees and deburr interior. Remove dust, drips, moisture, grease and other superfluous materials from pipe interior and exterior. Check dry fit of pipe and fittings. Reject materials which are out of round or do not fit within close tolerance. Use heavy body solvent cement for large diameter fittings.

B. Maintain pipe, fittings, primer, and cement between 40 and 100 degrees during application and curing. Apply primer and solvent using separate daubers (3-inch and smaller piping only) or clean natural bristle brushes about half the size of the pipe diameter. Apply primer to the fitting socket and pipe surface with a scrubbing motion. Check for penetration and reapply as needed to dissolve surface to a depth of 4 to 5 thousandths. Apply solvent cement to the fitting socket and pipe in an amount greater than needed to fill any gap. While both surfaces are wet, insert pipe into socket fitting with a quarter turn to the bottom of the socket. Solvent cement application and insertion must be completed in less than 1 minute. Minimum of 2 installers is required on piping 4 inches and larger. Hold joint for 30 seconds or until set. Reference manufacturer recommendations for initial set time before handling and for full curing time before pressure testing. Cold weather solvent/cement may be utilized only under unusual circumstances and when specifically approved by ENGINEER.

3.05 PUSH-ON GASKETED PIPE CONNECTIONS

A. Clean pipe end, bell, gasket seat and gasket of dirt or debris. Coat end of pipe and gasket with gasket lubricant. Pipe shall be supported off the ground so lubricant does not pick up dirt. Push spigot end into gasket bell with levered pipe joining tool recommended by pipe manufacturer. Large diameter exterior mains may be joined by pushing end of pipe section with backhoe against wood blocking over pipe end. Insert to fully seated position or to reference mark on pipe.

3.06 SANITARY WASTE AND VENT

A. Verify invert elevations and building elevations prior to installation. Install exterior piping pitched to drain at indicated elevations and slope. Install interior piping pitched to drain at minimum slope of 1/4-inch per foot where possible and in no case less than 1/8-inch per foot for piping 3 inches and larger.

B. Flush piping inlets (floor drains, hub drains, mop basins, fixtures, etc.) with high flow of water at completion of project to demonstrate full flow capacity. Remove blockages and make necessary repairs where flow is found to be impeded.

3.07 PIPING SYSTEM LEAK TESTS

A. Drainage and Vent System:
   1. Subject gravity drainage and vent piping and joints to a test pressure and duration as outlined in the schedule at the end of this section. If, at end of indicated test duration, the level of the water has been lowered by leakage, the leaks must be found and stopped and the water level shall again be raised to the level described and the test repeated until, after another test duration period, there shall be no perceptible lowering of the water level in the system being tested.
   2. Piping located above sensitive areas and/or equipment that may be damaged or become contaminated because of test water leakage shall be tested with air. Air test may also be performed when allowed by ENGINEER. Isolate the test section from all other sections and slowly fill pipe with oil-free air until there is a uniform gauge pressure of 5 pounds per square inch. The air pressure shall be regulated to prevent the pressure inside the pipe from exceeding 5.0 psig. This pressure shall be held for a test period of at least 15 minutes. Any adjustments to the test pressure required because of changes in ambient temperature or the seating of gaskets shall be made prior to the beginning of the test period.
   3. Should the completion of these tests leave any reasonable question of a doubt relative to the integrity of the installation, additional tests or measures shall be performed to demonstrate the reliability of these systems to ENGINEER.
   4. Test plugs must extend outside the end of pipe to provide a visible indication for removal after the test has been completed.
   5. Each floor drain P-trap that has successfully passed pressure testing shall be proven clean and free of debris as follows:
      a. A request shall be submitted to OWNER, identifying the quantity and location of drain(s) to be observed.
      b. Vacuum out each floor drain P-trap. An observation of the trap shall be performed to verify that the trap is debris free.
      c. Perform a free-flowing test by pouring two 5-gallon buckets of water down the floor drain.

d. After confirming that the floor drain trap is clean and free of debris, review that the trap is filled with water.
e. At the discretion of ENGINEER, an observation of the trap using a sewer scope may be required in addition to, or in lieu of, a vacuum procedure.

6. OWNER may require that any portion of the drainage, waste, and vent systems installed be proven undamaged, clean and free of debris. Verification of the interior condition of piping shall be accomplished using a sewer scope or other method as acceptable to ENGINEER.

B. Isolate or remove components from system which are not rated for test pressure. Test piping in sections or entire system as required by sequence of construction. Do not insulate or conceal pipe until it has been successfully tested.

C. If required for the additional pressure load under test, provide temporary restraints at fittings or expansion joints.

D. For hydrostatic tests, use clean water and remove all air from the piping being tested by means of air vents or loosening of flanges/unions. Measure and record test pressure at the high point in the system.

E. Inspect system for leaks. Where leaks occur, repair the area with new materials and repeat the test; caulking will not be acceptable.

F. Entire test shall be witnessed by OWNER or ENGINEER.

System	Test Medium	Final Test	
		Pressure	Duration
Sanitary Waste and Vent	Water	10 feet water	2 hours
Pressurized Sanitary Waste and Vent	Water	100 psig	2 hours

END OF SECTION

SECTION 22 13 19

SANITARY WASTE PIPING SPECIALTIES

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
   1. Floor Drains.
   2. Cleanouts.
   3. Hub Drains.
   4. Trench Drains.
   5. Other Miscellaneous Plumbing Specialties.

B. Related Sections and Divisions: Applicable provisions of Division 01 govern work under this section.

1.02 REFERENCES

A. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.

B. All materials, installation and workmanship shall comply with the applicable requirements and standards addressed within the following references.

1.03 QUALITY ASSURANCE

A. All equipment or components of this specification section shall meet or exceed the requirements and quality of the items herein specified, or as denoted on the Drawings.

B. Equipment provider shall be responsible for providing certified equipment start-up and, when noted, an in the field certified training session. New start-up shall be for the purpose of determining alignment, lubrication, voltage, and amperage readings. New start-up shall confirm all proper electrical connections and discharge and suction gauge readings. A copy of the start-up report shall be made and sent to both CONTRACTOR and to ENGINEER.

1.04 SUBMITTALS

A. Submit under provisions of Section 01 33 00–Submittals.

B. Include data concerning dimensions, required clearances, capacities, materials of construction, ratings, weights, manufacturer's installation requirements, manufacturer's performance limitations, and appropriate identification.

C. Submittals for motors associated with equipment specified in this section shall include data sheets from the motor manufacturer. Data sheets from the equipment manufacturer or supplier are not acceptable.

D. Submit manufacturer’s installation instructions.

E. Submittals must be specific to this project. Generic submittals will not be accepted.

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to the site in such a manner as to protect the materials from shipping and handling damage. Provide materials on factory provided shipping skids and lifting lugs, if required for handling.

B. Materials that could be damaged by the elements should be packaged in such a manner that they could withstand short-term exposure to the elements during transportation.

C. Store materials in a clean, dry place and protect from weather and construction traffic. Handle carefully to avoid damage.

D. Use all means necessary to protect equipment before, during, and after installation.

E. All scratched, dented, and otherwise damaged units shall be repaired or replaced at no additional cost to OWNER.

1.06 OPERATION AND MAINTENANCE DATA

A. Include installation instructions, assembly views, lubrication instructions, recommended maintenance schedule and activities.

B. Include replacement and spare parts lists.

1.07 WARRANTY

A. Standard One-Year Warranty: Unless otherwise stated below, manufacturer shall warrant the equipment to be free from defects in material and workmanship for a period of one year from the earlier of either the date established for partial utilization in accordance with GC15.03 and 15.04, as modified in the Supplementary Conditions, or Substantial Completion of the project.

PART 2–PRODUCTS

2.01 FLOOR DRAINS (FD)

A. All floor drains shall be furnished and installed with all options and accessories required for a leak-free installation within the particular construction in which they are to be mounted.

B. FD-1: Floor drains in finished areas or tiled areas, where shown on the Drawings, shall be Zurn ZN-415, Type H, or Wade Model 1300-1-11, or Josam 32100-HP-7-2, with 6-inch round adjustable strainer top with integral clamping frame and secured heelproof grate. Provide polished nickel bronze top. Provide square grate for tiled floors.

C. FD-2: Floor drains in unfinished areas for piping 4 inches and under shall be Zurn ZN-550, Wade 1100-AX, or Josam 30900-9AD, and for piping larger than 4 inches Zurn ZN-505, Wade W-1240-1, or Josam 32200-1. Provide nickel bronze grate.

D. FD-3: Stainless Steel Floor Drains: Floor drains in areas where noted on Drawings shall be Kusel, KE-100, Jay R. Smith 9635-SRF, or AWI Manufacturing. Floor drain shall be 316 stainless steel with perforated-style basket strainer. Provide no hub, Schedule 40 outlet, and standard industrial finish polished plate and solid cover.

E. Each drain shall be provided with a trap. A minimum of one cleanout shall be provided for each single or common leader.

F. Couplings for connection between no hub floor drain body and p-trap piping shall be made with no hub coupling. Clamps shall be medium duty with minimum four clamps per coupling. For slab on grade drain locations, thickened concrete slab shall be provided at installed locations such that coupling is fully encased in concrete. Bottom of concrete shall be minimum of 2 inches below bottom of coupling. Fernco MD, or equal.

G. Elevated floor drains above lower floor levels shall be installed with membrane flashing clamp and safing to prevent water leakage to lower level. Install per manufacturer's recommendations.

2.02 TRAP GUARDS

A. Manufacturer: ProSet Systems Trap Guard, Jay R. Smith Quad Close, Mifab Mi-Gard, Sure Seal or approved equal.

B. Flexible elastomeric PVC construction diaphragm trap guard for installation in new floor drains, hub drains, and trench drains. Trap guard to prevent trap evaporation and waste backflow. Size as applicable to the drain outlet size, up to 4-inch size.

2.03 HUB DRAINS (HD)

A. HD-1: Provide Kusel Equipment, AWI Manufacturing, or Jay R. Smith 316 stainless steel hub drain. Drain shall consist of fully welded components. Portions of drain visible in final installation shall be blasted clean to remove discoloration and provide a uniform finished appearance. All pipe shall be sourced from the United States. Pipe thickness shall be Schedule 40.

B. Transition from hub drain outlet to downstream piping shall be as noted for no hub floor drains above.

2.04 TRENCH DRAINS (TD)

A. TD-1:
   1. Trench drains shall be ACO Drain KS100 by ACO Polymer Products, Poly Drain System by ABT, Inc., or equal.
   2. Trench drain channels shall be made of precast polymer concrete. Channels shall have minimum top width of 5 inches, radiused bottom, minimum width of 4 inches, and nominal lengths of 1/2 meter or 1 meter. All channels shall interlock with tongue-and-groove connections with adjoining channels. Each channel shall have full-length horizontal anchoring ribs. Channels shall have minimum built-in bottom slope of 0.5%. Channels shall be one piece construction.
   3. Channel rails shall be made of stainless steel and grates shall be ductile iron with a slotted configuration. Grates shall be securely locked down to channel without the use of bolts.

4. Accessories: Channels shall be provided with the following to facilitate installation:
    a. End plates.
    b. Outlet plates.
    c. Locking devices.
    d. Sealant.
    e. Tools required for installation.
5. Trench drain system shall be rated for Load Class C (EN-1443)–56,202 lbs, 1,934 psi.

B. Transition from trench drain outlet to downstream piping shall be as noted for no hub floor drains above.

2.05 CLEANOUTS

A. Manufacturers shall be Zurn, Wade, Jay R. Smith, Josam, or Kusel.

B. Each cleanout shall be gas- and watertight.

C. Cleanouts that are elevated shall include a membrane flashing flange and safing to prevent leakage to the lower floor.

D. Interior concrete floor areas: Enameled cast iron body with round or square adjustable scoriated polished nickel bronze cover, tapered threaded ABS closure plug. Zurn ZN-1400.

E. Interior finished wall areas: Line-type cleanout tee with cast iron body and tapered threaded ABS cleanout plug, round polished stainless steel access cover secured with machine screw; Zurn Z-1446. (Note: Screw shall not pass completely through the ABS plug; trim screw as necessary.)

F. Interior exposed vertical stacks: Line-type cleanout tee with cast iron body and tapered threaded ABS closure plug; Zurn Z-1445.

G. Interior horizontal lines: Cast iron hub with tapped ferrule and tapered, threaded ABS or PVC closure plug, or no-hub coupling and blind plug.

H. Interior Floor Areas and corrosive (NEMA 4X) environments: All Type 304 stainless steel cleanout body and plug with O-ring seal. Provide NSF certification with a load classification of Extra Heavy Duty based on ASME A112.36.2M with a load rating of between 7,500 and 10,000 lbs. ZURN Z1745, Kusel KEC Series, or equal.

2.06 SAFINGS

A. Manufacturers: Noble, Oatey, or equal.

B. Chlorinated polyethylene sheeting, 40 mils thick, ASTM D4068, joined with CPE solvent; or 3 lb./sq. ft. sheet lead.

2.07 VENT FLASHINGS

A. Manufacturers: Semco, Oatey.

B. Formed 3 lb./sq. ft. lead flashing with minimum base size of 15 inches by 17 inches.

C. Single Ply Membrane Roofs: Flashing boot of material compatible with roofing membrane with base flange for adhering to membrane and stainless steel drawband for securing to vent pipe.

2.08 DOWNSPOUT BOOT

A. Eighteen inches long, cast iron body, and support strap for transition from exposed downspout to underground pipe. Provide Jay R. Smith Figure 1785 or 1786 depending on downspout size.

PART 3–EXECUTION

3.01 INSTALLATION

A. Coordinate location and setting of plumbing specialties with adjacent construction. Install in accordance with manufacturers recommendations.

B. Set floor drains, trench drains and cleanouts level and plumb adjusted to finished floor elevation. Locate where serviceable. Allow minimum of 18 inches clearance around cleanouts for rodding. Lubricate threaded cleanout plugs with graphite and oil, teflon tape or waterproof grease. Install trap primer connections where indicated. Provide deep seal traps on floor drains and hub drains installed in mechanical rooms.

C. Trap guards shall be provided as indicated on the Drawings.

D. Install safing at floor drains and cleanouts above grade. Extend 12 inches beyond drains in all directions. Extend 6 inches up in walls above curbs and to a height of 6 feet (3 inches wide each direction) in corners. Install on concrete floor that is smooth and free of debris. Seal all joints and connect to drain body clamp. Safing is subject to standing water leak test. Install safing at all built-up shower installations. (Note: spray-on and brush applied liquid safing is not acceptable).

E. Flash vent penetrations through roof. Turn down top of lead flashing into vent pipe. Tighten drawband of membrane boot to vent pipe. Adhere base flashing to deck or membrane. Provide waterproof patch around penetration on existing roofs.

END OF SECTION

SECTION 22 13 23

SANITARY WASTE INTERCEPTORS

PART 1–GENERAL

1.01 SUMMARY

A. Work Included: This section includes specifications for sumps, catch basins, oil interceptors, acid neutralization tanks, and other equipment used for plumbing applications located in and within 5 feet 0 inch of the building foundation.

B. Related Sections and Divisions: Applicable provisions of Division 01 govern work under this section.

1.02 REFERENCES

A. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.

B. All materials, installation and workmanship shall comply with the applicable requirements and standards addressed within this specification.

1.03 QUALITY ASSURANCE

A. All equipment or components of this specification section shall meet or exceed the requirements and quality of the items herein specified, or as denoted on the Drawings.

B. Equipment provider shall be responsible for providing certified equipment start-up and, when noted, an in the field certified training session. New start-up shall be for the purpose of determining alignment, lubrication, voltage, and amperage readings. All proper electrical connections, discharge and suction gauge readings. A copy of the start-up report shall be made and sent to both CONTRACTOR and to ENGINEER.

1.04 SUBMITTALS

A. Submit under provisions of Section 01 33 00–Submittals.

B. Include data concerning dimensions, required clearances, capacities, materials of construction, ratings, weights, manufacturer's installation requirements, manufacturer's performance limitations, and appropriate identification.

C. Submittals for motors associated with equipment specified in this section shall include data sheets from the motor manufacturer. Data sheets from the equipment manufacturer or supplier are not acceptable.

D. Submit manufacturer’s installation instructions.

E. Submittals must be specific to this project. Generic submittals will not be accepted.

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to the site in such a manner as to protect the materials from shipping and handling damage. Provide materials on factory provided shipping skids and lifting lugs, if required for handling.

B. Materials that could be damaged by the elements should be packaged in such a manner that they could withstand short-term exposure to the elements during transportation.

C. Store materials in a clean, dry place and protect from weather and construction traffic. Handle carefully to avoid damage.

D. Use all means necessary to protect equipment before, during, and after installation.

E. All scratched, dented, and otherwise damaged units shall be repaired or replaced at no additional cost to OWNER.

1.06 OPERATION AND MAINTENANCE DATA

A. Include installation instructions, assembly views, lubrication instructions, recommended maintenance schedule and activities.

B. Include replacement and spare parts lists.

1.07 WARRANTY

A. Standard One-Year Warranty: Unless otherwise stated below, manufacturer shall warrant the equipment to be free from defects in material and workmanship for a period of one year from the earlier of either the date established for partial utilization in accordance with GC15.03 and 15.04, as modified in the Supplementary Conditions, or Substantial Completion of the project.

PART 2–PRODUCTS

2.01 SUMPS

A. Fiberglass sump basin constructed of 25 to 30 percent fiberglass and 70 to 75 percent polyester resin with no fillers; minimum design safety factor of four; complete with tapped top flange; side hub fittings; bolted galvanized steel or aluminum gasketed cover with inspection access plate, access plate with discharge pipe flange for each pump and control and vent flange where required. Minimum sump wall thickness as follows:

WALL THICKNESS (INCHES)

Diameter	24	30	36	42	48	60	72
Max. 10' Depth	3/16	1/4	1/4	1/4	5/16	5/16	3/8
Max. 15' Depth	1/4	5/16	5/16	5/16	3/8	3/8	7/16
Max. 20' Depth	5/16	5/16	3/8	3/8	7/16	1/2	1/2

B. Precast reinforced concrete manhole sections, ASTM C478. Construct base of 6-inch thick precast reinforced concrete or 8-inch thick cast in place concrete. Construct top of precast reinforced concrete or 6-inch thick reinforced concrete slab. Seal between sections with rubber ring gaskets, ASTM C443, or plastic preformed gasket material. Seal pipe penetrations with flexible watertight rubber gasketed seals. Provide bolted galvanized steel or aluminum gasketed cover with inspection access plate, access plate with discharge pipe flange for each pump and control and vent flange where required.

2.02 CATCH BASIN GRATING

A. Catch basin grates shall be Neenah R-1550 with machined frame and Type D open grate, or equal. Interior mud basin castings shall be Neenah R-6118, or equal, with grey iron Class 35 frame and grating for heavy-duty use.

2.03 OIL INTERCEPTOR (OIL-96-01)

A. Oil Interceptor shall be large capacity fabricated steel with Acid Resistant Coated interior and exterior. Interceptor shall include bronze cleanout plug, visible double wall trap seal, removable combination pressure equalizing/flow diffusing baffle and sediment bucket, horizontal baffle, adjustable oil draw-off and vent connections either side. Complete with secured, gasketed, non-skid, heavy duty traffic cover with removable lift handles and flow control fitting. Manufactured by Zurn, or equal.

B. See drawing schedules for oil interceptor selection(s).

C. Interceptor and associated piping shall be installed where indicated on the Drawings.

D. Provide riser section, as required, based on invert elevation of sanitary piping and finished floor elevation of installed location.

2.04 ACID NEUTRALIZATION TANK (AN-1)

A. Provide an undercounter acid neutralization tank as manufactured by Striem, or equal. Tank shall be model LB-2, polyethylene material, 2-gallon capacity, and have maximum operating temperature of 140°F. Tank shall be furnished with 2 inlets and 1 outlet connection with bushings included to field adapt 1 1/2-inch or 2-inch drain line pipe size. Tank shall be watertight and contain an internal sewer gas trap. Tank shall have gasketed cover with captive hand-thread hardware. CONTRACTOR shall provide neutralization limestone per manufacturer recommendation. Install in an accessible location for adding limestone in the future.

PART 3–EXECUTION

3.01 INSTALLATION

A. Install plumbing equipment where indicated in accordance with manufacturer's recommendations. Coordinate equipment location with piping, ductwork, conduit and equipment of other trades to allow sufficient clearances. Locate equipment and arrange plumbing piping to provide access space for servicing all components.

B. Set sumps, and below grade interceptors on compacted granular backfill adjusting for plumb and level. Backfill in even layers around sump with granular backfill.

END OF SECTION

SECTION 22 13 29

SUBMERSIBLE PUMPS

PART 1–GENERAL

1.01 SUMMARY

A. Work includes the following pumping systems and associated accessories: Sewage ejector pumps.

B. Related Sections and Divisions: Applicable provisions of Division 01 govern work under this section.

1.02 REFERENCES

A. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.

B. All materials, installation and workmanship shall comply with the applicable requirements and standards addressed within this specification.

1.03 QUALITY ASSURANCE

A. All equipment or components of this specification section shall meet or exceed the requirements and quality of the items herein specified, or as denoted on the Drawing.

B. Equipment provider shall be responsible for providing certified equipment start-up and, when noted, an in the field certified training session. New start-up shall be for the purpose of determining alignment, lubrication, voltage, and amperage readings. Proper electrical connections, pump rotation, and discharge and suction gauge readings shall be provided in start-up report. A copy of the start-up report shall be made and sent to both CONTRACTOR and to ENGINEER.

1.04 SUBMITTALS

A. Submit under provisions of Section 01 33 00–Submittals.

B. Include data concerning dimensions, required clearances, capacities, materials of construction, ratings, weights, manufacturer's installation requirements, manufacturer's performance limitations, and appropriate identification.

C. Submittals for motors associated with equipment specified in this section shall include data sheets from the motor manufacturer. Data sheets from the equipment manufacturer or supplier are not acceptable.

D. Submit manufacturer’s installation instructions.

E. Submittals must be specific to this project. Generic submittals will not be accepted.

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to the site in such a manner as to protect the materials from shipping and handling damage. Provide materials on factory provided shipping skids and lifting lugs, if required for handling.

B. Materials that could be damaged by the elements should be packaged in such a manner that they could withstand short-term exposure to the elements during transportation.

C. Store materials in a clean, dry place and protect from weather and construction traffic. Handle carefully to avoid damage.

D. Use all means necessary to protect equipment before, during, and after installation.

E. All scratched, dented, and otherwise damaged units shall be repaired or replaced at no additional cost to OWNER.

1.06 OPERATION AND MAINTENANCE DATA

A. Include installation instructions, assembly views, lubrication instructions, recommended maintenance schedule and activities.

B. Include replacement and spare parts lists.

1.07 WARRANTY

A. A. Standard One-Year Warranty: Unless otherwise stated below, manufacturer shall warrant the equipment to be free from defects in material and workmanship for a period of one year from the earlier of either the date established for partial utilization in accordance with GC15.03 and 15.04, as modified in the Supplementary Conditions, or Substantial Completion of the project.

PART 2–PRODUCTS

2.01 PLUMBING EQUIPMENT

A. Sewage Ejector Pumps:
   1. Manufacturers: Submersible sump pump(s) shall be manufactured by Hydromatic (H), Myers (M), PACO (P), Zoeller (Z), or equal. Furnish and install complete sump pump system(s) as shown on the Drawing and specified herein. The complete system shall include pumps, electric controls, level controls, and all accessories.
   2. See drawing schedules for Sewage Ejector Pump selections.
   3. Type: Submersible pumps shall be constructed of epoxy-coated cast iron shell, cast iron volute, two-vane enclosed semiopen or recessed Vortex nonclog cast iron pump. Impeller shall be thermoplastic with a stainless steel shaft and stainless steel fasteners and have upper and lower ball bearings. Pump shall be oil-lubricated or factory-sealed grease-lubricated with a ceramic mechanical seal. Pump shall be capable of discharging 2-inch solids.
   4. Motors: The motor shall be submersible-type, ball-bearing design, and oil-filled with built-in thermal overload protection sized for non-overloading over the entire pump curve. Motor housing shall be filled with dielectric pure, clean insulating oil. Motor shall

have precision mechanical seal to prevent leakage into the housing. Seal faces shall be carbon and ceramic, super lapped for long leakproof life. Power cord and float switch cords shall be provided in lengths adequate to reach the receptacle as provided by Division 26. Pump motor shall be nonoverloading over the entire curve.

5. Controls: Sewage ejector pump shall be controlled with integral float switch on pump for automatic operation.
6. Accessories:
   a. Rails: Dual stainless steel liftout guide rails with stainless steel wall, pump, and sump brackets. Provide bronze and neoprene quick-disconnect fitting and corrosion-proof pull chain or cable.
   b. Sump Cover: Cover shall provide airtight seal between the sump and atmosphere. Pump discharges, vent, level control, and power cables shall enter the sump through the top of the sump. The openings in the sump shall be sealed with a mechanical seal.
   c. Piping: Provide dual check valves, full port ball valves, union or flange for each pump discharge, and flexible connectors.
   d. Explosion proof Class I, Division 1, Groups C and D motor.

PART 3–EXECUTION

3.01 INSTALLATION

A. Plumbing system shall be installed in accordance with local plumbing requirements and applicable portions of the 2018 Uniform Plumbing Code. Where requirements conflict, the stricter standard shall apply.

B. Install all piping, conduit, and accessories to permit access to equipment for maintenance. Coordinate the exact location of wall and ceiling access panels and doors with the general contractor, making sure that access is available for all equipment and specialties. Where access is required in plaster walls or ceilings, furnish the access doors to the general contractor.

C. CONTRACTOR shall identify piping, valves, and outlets in accordance with Division 09 and Section 20 05 53–Identification for Fire Suppression, Plumbing, and HVAC Piping and Equipment.

D. Install plumbing equipment where indicated in accordance with manufacturer’s recommendations. Coordinate equipment location with piping, ductwork, conduit, and equipment of other trades to allow sufficient clearances. Locate equipment and arrange plumbing piping to provide access space for servicing all components.

E. Startup and test equipment adjusting operating and safety controls for proper operation.

F. Lubricate pumps before start-up. Adjust pumps for rated flow. Clean and blow down strainers after 8 hours of operation. Remove suction diffuser strainers after initial system flushing and cleaning. Turn over to OWNER.

G. Install pumps in accordance with manufacturer’s instructions. Set level and plumb.

H. Test fixtures to demonstrate proper operation. Replace malfunctioning units or components.

I. Provide isolation valves at plumbing equipment.

3.02 TESTING AND CLEANING

A. General:
   1. The water used for tests shall be obtained from a potable source of supply.
   2. Prepare testing reports. If testing is performed in segments, submit separate report for each segment, complete with diagram or clear description of applicable portion of piping. After testing has been accepted for portions thereof, certify in writing the time, date, name, and title of the persons reviewing the test. This shall also include the description of what portion of the system has been accepted. A complete record shall be maintained of all testing that has been accepted and shall be made available at the jobsite. Upon completion of the work, all records and certifications regarding testing shall be submitted to ENGINEER before final payment is made.
   3. Gauges used for testing shall have increments as follows:
      a. Tests requiring a pressure of 10 psi or less shall use a testing gauge having increments of 0.10 psi or less.
      b. Tests requiring a pressure of greater than 10 psi but less than or equal to 100 psi shall use a testing gauge having increments of 1 psi or less.
      c. Tests requiring a pressure of greater than 100 psi shall use a testing gauge having increments of 2 psi or less.
   4. Defective work or material shall be reworked and replaced and test repeated. Repairs shall be made with new materials. Pipe dope, caulking, tape, dresser couplings, etc., shall not be used to correct deficiencies.
   5. For hydrostatic tests, use clean water and remove all air from the piping being tested by means of air vents or loosening of flanges/unions. Measure and record test pressure at the high point in the system.

END OF SECTION

SECTION 22 30 00

PLUMBING EQUIPMENT

PART 1–GENERAL

1.01 SCOPE

A. This section includes specifications for water heaters, water softeners, garbage disposals, and other equipment used for plumbing applications.

B. Related Sections and Division: Applicable provisions of Division 01 shall govern work under this section.

1.02 QUALITY ASSURANCE

A. Field inspection and testing to be performed under provisions of Section 01 45 00–Quality Control.

B. Inspect completed installation for physical damage.

1.03 SHOP DRAWINGS

A. Submit under provisions of Section 01 33 00–Submittals. Included in submittals shall be detailed control wiring diagrams that show logic circuits for the unit, as well as all external connections.

PART 2–PRODUCTS

2.01 WATER HEATERS

A. Power Vented Gas Fired Water Heater (WH-96-01):
   1. Manufacturers: A.O. Smith, Bradford White, and Lochinvar.
   2. Type: Power vented natural gas fired atmospheric storage water heater. Design to be AGA certified with 1 year commercial tank and parts warranty.
   3. Water heater performance shall be as listed on Drawings.
   4. Tank: Steel glass lined tank rated for 150 psig complete with removable magnesium anode rod, plastic diffuser type dip tube, inlet and outlet heat trap fittings, polyurethane foam insulation, painted steel jacket, drain valve and temperature and pressure relief valve.
   5. Burner: Construct burner of cast iron, aluminized steel (natural gas only) or stainless steel.
   6. Controls: 120-volt, single-phase, 60 Hz controls consisting of operating thermostat with adjustable temperature control, energy cutoff, gas valve, integral pressure regulator, intermittent spark ignition, blower pressure switches, blower interlock and 6-foot power cord and plug.
   7. Vent: Schedule 40 PVC with DWV solvent weld fittings with weatherproof screened outlet tee or elbow as recommended by manufacturer.
   8. Provide Watts LFN36M1, or equal, vacuum breaker on cold water inlet piping to water heater.

B. Residential Electric Water Heater (WH-15-01, WH-55-01, WH-95-01):
   1. Manufacturers: A.O. Smith, Bradford White, Lochinvar.
   2. Water heater performance shall be as listed on Drawings.
   3. Type: Electric storage domestic water heater. Design to be UL listed with 3-year commercial use tank warranty and 1 year parts warranty.
   4. Tank: Steel glass lined tank rated for 150 psig complete with removable magnesium anode rod, plastic diffuser type dip tube, inlet and outlet heat trap fittings, minimum R-20 polyurethane foam insulation, painted steel jacket, drain valve and temperature and pressure relief valve.
   5. Provide Watts LFN36M1, or equal, vacuum breaker on cold water inlet piping to water heater.

C. Electric Instantaneous Water Heater (IWH-60-01):
   1. Manufacturers: Eemax (E), or equal.
   2. Type: Wall-mounted, tankless, UL listed, instantaneous electric water heater with digital microprocessing temperature control capable of maintaining outlet temperature of one degree accuracy, LED temperature display, 150 psig pressure rating, and capable of supplying multiple lavatories.
   3. Performance:
      a. Storage: None.
      b. Input: 208-volt, 40-amp, single-phase, 8.3 kW.
      c. Minimum recovery rate: 57-degree temperature rise at 1 gpm.
   4. Element shall be replaceable cartridge insert nickel chrome material.
   5. Accessories:
      a. Provide Watts LFTWH, or equal, tankless water heater service valve. Pipe service, shutoff, drain, and relief valves in accordance with manufacturer's recommendations. Service valve installation shall include provisions for water heater purge and vinegar wash. Hot side: Watts LFTWH-UT/UTS-H-RV, or equal. Cold side: Watts LFTWH-UT/UTS-C, or equal.
      b. Set pressure relief valves in accordance with local regulations.

2.02 WATER SOFTENERS

A. Manufacturers: Culligan, or equal.

B. Influent Water Analysis:

Constituent	
Hardness	17 grains/gallon

C. Product Standards:
   1. NSF/ANSI 61 for materials in contact with water.
   2. NSF/ANSI 44 for residential softeners, control valves 1 1/4-inch and smaller, and tank structural.
   3. NSF/ANSI 372 for lead content of materials in contact with water.

D. Fiberglass Ion Exchange Media Tanks: Fiberglass reinforced ion exchange media tank constructed of molded high density polyethylene inner shell reinforced by exterior fiberglass winding and epoxy resin rated for 150 psig at 120^{o}F with 5 year warranty. Complete with slotted or hub and lateral distributor tube in washed quartz bed or bottom plate distributor.

E. Ion Exchange Media: High capacity cation ion exchange media, minimum of 8 percent crosslinked media.

F. Brine Tank: High density polyethylene salt and brine storage tank with cover, brine well, safety brine valve assembly, air check and overflow fitting. Contractor to provide initial fill with high purity solar or pellet salt recommended by manufacturer.

G. Control Valve:
   1. Top or side-mount glass filled polymer (Noryl™), stainless steel or brass construction with hydraulically balanced piston, seals and spacer. Fully adjustable regeneration cycle durations for backwash, brining/slow rinse, fast rinse, timed brine refill and return to service.
   2. Side-mount multiport electro-coated cast iron diaphragm valve or multiple Y-type electro-coated cast iron or glass filled polymer piston or diaphragm valves with Buna-N diaphragms and ethylene/propylene seals, rated for 100 psig and 120°F. Self-contained pressure compensating flow limiting valves; bronze, stainless steel or PVC construction, rated for 100 psig and 120°F.
   3. Equip twin alternating, demand recall and parallel systems with no hard water bypass to prevent hard water distribution during regeneration.

H. Microprocessor Controller: LED/OLED/LCD display with status for online, regeneration and standby modes; time of day; gallons since last regeneration and gallons remaining; days until regeneration, flow rate and total volume used. Permanent memory backup of programing and battery backup for time of day. Regeneration programming options include variable reserve, fixed reserve, immediate and delayed regeneration, calendar day override, hardness sensor initiated and pressure differential regeneration.

I. Electronic Inline Flow Meter: Hall effect sensor. PVC, glass filled polymer, stainless steel, bronze or brass construction. Accurate to ±5% of reading over softener flow range.

J. Electrical: 120 volt AC, DC adapter/transformer for DC powered systems, power cord and plug, factory wired and tested controls.

K. Efficiency Rating: Provide minimum system efficiency of 4,000 grains/lb of salt with a maximum of 10 mg/l of hardness leakage. Demonstrate efficiency through pre-certification by third party testing organization, manufacturer’s engineering calculations or field sampling, meter analysis and adjustment.

L. Operation: Single Tank System–Delayed meter or hardness sensor initiated regeneration, one flow meter, variable reserve with proportional brining.

M. Accessories:
   1. Inlet and outlet flexible braided stainless steel pipe connectors where recommended by ion exchange media tank manufacturer, 150 psig at 120°F.
   2. Inlet and outlet sampling valves, inlet and outlet pressure gauges with shutoff valve for each ion exchange media tank.
   3. Hach 5B or equal hardness test kit.
   4. Ion exchange media tank inlet and outlet unions, shutoff and bypass valves.
   5. Ion exchange media tank bottom drain valve.
   6. Vacuum relief valve in common inlet or integrated into control valve.
   7. Non-phosphate based resin cleaner for iron and bacteria. Provide 4-month manual dosing supply with instructions on use.

2.03 GARBAGE DISPOSAL (GD-1)

A. Provide food waste disposal below sink as indicated on the Drawings. Disposal shall be In-Sink-Erator Model Evolution, Kitchen Aid, or equal. Unit shall be 1 hp, 120 V single-phase motor equipped with manual reset overload. Installation shall include anti-vibration mounts at sink and tailpipe, sink noise baffle, and sound limiting insulation. Provide EZ connect power cord accessory with unit.

PART 3–EXECUTION

3.01 INSTALLATION

A. Install plumbing equipment where indicated in accordance with manufacturer's recommendations. Coordinate equipment location with piping, ductwork, conduit and equipment of other trades to allow sufficient clearances. Locate equipment and arrange plumbing piping to provide access space for servicing all components.

B. Set commercial water heaters, commercial water softeners, and storage tanks on concrete housekeeping pads. Adjust and level equipment.

C. Connect equipment to water and drain piping using unions or flanges and isolation valves.

D. Water softener drain pipe and fittings to be solvent welded PVC/CPVC SDR 13.5. Water softener brine piping to be polyethylene as supplied by softener manufacturer or same as drain piping.

E. Size temperature and relief valves per CSA ratings. Pipe temperature and pressure relief valves to floor drain or floor as indicated.

F. Startup and test equipment adjusting operating and safety controls for proper operation.

G. Water Softener Startup: Do not fill water softeners with water or startup until building occupancy and active use to avoid stagnant conditions and resulting microbiological contamination. Maintain water softeners in dry bypass mode until active use. Program and cycle water softeners for specified minimum efficiency rating, regeneration cycle intervals and times, consumption, backflow rate, brine flow rate, variable reserve and proportional brining, etc. Program standby ion exchange media tanks into service every 12 hours for minimum of one tank full of water to pass through. Provide initial salt fill of brine tank. Test and report on untreated and treated water hardness, pH, iron and chlorine. For water softeners demonstrating efficiency through field sampling, meter analysis and adjustment; report field data confirming efficiency.

H. Adjust expansion tank precharge to scheduled minimum operating pressure prior to connecting to system.

I. Provide isolation valves at plumbing equipment.

END OF SECTION

SECTION 22 42 00

COMMERCIAL PLUMBING FIXTURES

PART 1–GENERAL

1.01 SCOPE

A. This section includes specifications for plumbing fixtures, faucets, and trim.

1.02 REFERENCE

A. Applicable provisions of Division 01 shall govern work under this section.

1.03 QUALITY ASSURANCE

A. Substitution of Materials: Refer to Section GC–General Conditions of the Contract, Equals and Substitutions.

B. Plumbing products requiring approval by the State of Iowa must be approved or have pending approval at the time of shop drawing submission.

1.04 SHOP DRAWINGS

A. Include data concerning sizes, utility sizes, rough in-dimensions, capacities, materials of construction, ratings, weights, trim, finishes, manufacturer's installation requirements, manufacturer's performance limitations, and appropriate identification.

1.05 ENERGY EFFICIENCY REQUIREMENTS

A. Plumbing fixtures must meet the following maximum water usage requirements which are based upon Federal Energy Management Program (FEMP) performance requirements.
   1. Lavatory Faucets: Flow of 2 gpm or less and .25 gallon per cycle or less (based on inlet pressure of 60 psi.)
   2. Showerheads: Flow of 2.2 gpm or less (based on inlet pressure of 80 psi).
   3. Urinal Flush Valves: 1.0 gallon per flush or less.
   4. Water Closet Flush Valves: 1.6 gallons per flush or less.

PART 2–PRODUCTS

2.01 PLUMBING FIXTURES

A. Manufacturers: Fixture descriptions establish fixture type, quality, materials, features, and size. Products of the following manufacturers determined to be equal by ENGINEER will be accepted.
   1. Water Closets: American Standard, Kohler, Zurn.
   2. Water Closet Seats: Bemis, Beneke, Centoco, Olsonite Sperzel.
   3. Urinals: American Standard, Kohler, Zurn.
   4. Sinks: American Standard, Elkay, Just, Kohler.
   5. Lavatories: American Standard, Kohler, Zurn.

6. Faucets: Chicago Faucet, Kohler, or Zurn.
7. Service Sinks: American Standard, Crane, Kohler.
8. Electric Water Coolers: Elkay, Halsey Taylor, Haws.
9. Emergency Eyewash Fountains and Showers: Bradley, Guardian, or Haws.
10. Mop Basins: Fiat, Mustee, Stern-Williams.
11. Shower heads: Bradley.
12. Drinking Fountains: Elkay, Halsey Taylor, Haws, Filtrine, Oasis, SunrocUrinals: American Standard, Kohler, Zurn.

B. Water Closets (WC-1): Floor mount bottom outlet white vitreous china, gravity-style tank type water closet with elongated bowl, 1.28-gallon flush, polished chrome trip lever, and ADA-compliant.
   1. Fixture: Kohler Kingston K-25077-SS.
   2. Seat: Bemis 1655-SS/C white solid plastic open front seat.

C. Urinals (UR-1): Wall-mount white vitreous china washout urinal with 3/4-inch top inlet spud, 2-inch outlet, removable strainer, and 1-gallon flush, Kohler Bardon K-4991-ET, or equal. Provide Sloan Royal 180 exposed manual urinal flushometer, or equal. Manual flush shall be 1.0 gallons per flush, top spud fixture connection, and polished chrome finish.

D. Sinks (SK-1):
   1. Single bowl undermount, 16 gauge 304 stainless steel, 30 1/2-inch by 18 1/2-inch by 8-inch, rear center drain placement, polished satin finish, and full spray sides and bottom with sides and bottom pads, model Elkay EFRU2816TC, or equal.
   2. Faucet: Provide Chicago faucet series 434, or equal with sink. Faucet shall be single hole, 1.0 GPM, ceramic operating cartridge with volume control and hot water limit stop, and 9-inch center-to-center tubular brass spout with dual-pattern pull down outlet.

E. Lavatories:
   1. L-1: K-2030 (20-inch by 18-inch), A 0356.015, wall-hung with pop-up drain, supplies, and cast iron hanger. Provide ADA-approved faucets. Faucet: Provide ADA-approved, Chicago Faucet 2200-4E2805 ABCP, or equal, with 0.5 gpm vandalproof nonaerating spray, polished chrome-plated solid brass construction, and temperature limit stop.
   2. L-2: Faucet only. Provide Chicago faucet Series 895, or equal. Faucet shall have 4-inch fixed centers, 6-inch rigid/swing gooseneck spout, pressure compensating laminar flow non-aerating outlet 1.5 GPM, vandal proof 4-inch wrist blade handle, ceramic 1/4-turn operating cartridges, and polished chrome finish.
   3. L-3: Faucet only. Provide ADA-approved, Chicago Faucet 2200-4E2805 ABCP, or equal, with 0.5 gpm vandalproof nonaerating spray, polished chrome-plated solid brass construction, and temperature limit stop.

F. Service Sinks (SS-1): K 6719 (24-inch by 20-inch), A 7692.023, with fittings, wall brace, and wall hangers. Provide Chicago Faucets 835-RCF for supplies from above and exposed and Chicago Faucets 782 VBCP for behind wall supplies. Faucet shall include cross-connection prevention device.

G. Mop Basins (MB-1): Floor mounted molded polyester resin and stone mop basin, 24-inch by 36-inch by 10-inch, with 3-inch drain, stainless steel strainer and vinyl bumper guards.
   1. Fixture: E.L. Mustee & Sons, Inc., Zurn, or Fiat.
   2. Faucet: Chicago Faucet No.911-ISCP.
   3. Accessories: Hose, hose holder, mop hanger, bumper guards, wall guards, and quick drain connector.

H. Shower Fittings:
   1. Manufacturers: Bradley (B), Speakman (S), or equal.
   2. SH-1: Built-in showers: Built-in shower shall be (B) 1C-EF/SF/IS with with pressure balancing valve and individual checkstops for valves and institutional/deluxe shower head with ball joint.

I. Drinking Fountain (DF-1): DF-1: Elkay ezH2O model EZS8WSLK, or equal with bottle filling station, single ADA cooler, non-filtered, refrigerated, light gray. Features shall include Antimicrobial, Green Ticker, hands free, laminar flow, real drain. Furnished with Flexi-Guard Safety Bubbler. Electronic bottle filler sensor with electronic front and side bubbler pushbar activation. Unit shall come pre-wired with 120-volt, single-phase, 60 Hz plug connection. Product shall be Wall Mount for Indoor applications serving one station. Unit shall be certified to UL 399.

J. Electric Water Coolers (EWC-1): Wall-mounted barrier free electric water cooler with stainless steel basin, self-closing front and side mounted push bars, wall hanger and 1 1/4-inch tailpiece, rated for 7.6 gph at 80-degree inlet water, 90-degree ambient and 50-degree leaving water, 400 watts, 120-volts, single-phase, 60 Hz, plug connection. Color to be selected by ENGINEER from manufacturers standard color selection. Mount at 36-inch spout height, Elkay EZS-8.

K. Emergency Showers:
   1. Manufacturers: Bradley (B), Guardian (G), Haws (H), or equal.
   2. Unit shall be hydrostatically tested to meet or exceed ANSI Z358.
   3. All units shall be identified with a high-visibility sign made from rigid polyethylene, Brady B-450, V-style 45-degree, 12-inch by 18-inch Brady 49043/49044, or equal. Provide one sign at each unit.
   4. EEWS-1: Corrosion-resistant safety station with ABS plastic shower head, ABS plastic bowl, cast aluminum powder-coated flag handle, PVC floor flange, 2-inch IPS Schedule 80 PVC pipe and fittings, 1-inch IPS and 1/2-inch IPS U.S.-made PVC-coated brass stay-open ball valve, and polished stainless steel pull rod. Unit shall have two polypropylene “GS” spray heads with integral “flip-top” dust covers, strainer, and 1.8 gpm flow control orifice mounted on chrome stainless steel head assembly, Model No. (B) S19-310PVC, (G) G1992, or (H) 8336.
   5. Thermostatic Mixing Valve (TMV-1): Thermostatic mixing valve with temperature override protection set for 85°F valve for emergency shower. Unit shall include built-in cold water bypass, thermostatic control valve, rough brass finish, solid bimetal thermostat, limit stop factory set for 90°F, integral check stops, and dial thermometer. Unit shall be ASSE 1071 rated. Performance: Unit shall have a flow range of 0.5 gpm to 50 gpm with a maximum pressure loss of 30 psi, Model No. (G) G6040, or equal.

PART 3–EXECUTION

3.01 INSTALLATION

A. Install plumbing fixtures in accordance with manufacturer’s instructions. Set level and plumb. Secure in place to counters, floors and walls providing solid bearing and secure mounting. Bolt fixture carriers to floor and wall. Secure rough-in fixture piping to prevent movement of exposed piping.

B. Install each fixture with trap easily removable for servicing and cleaning. Install fixture stops in readily accessible location for servicing.

C. Install barrier free fixtures in compliance with IBC 1108 and 3408, COMM 52, 69 and Federal ADA Accessibility Guidelines. Install barrier free lavatory traps parallel and adjacent to wall and supplies and stops elevated to 27 inches above floor to avoid contact by wheelchair users.

D. Provide unions at water connections to drinking fountains and electric water coolers.

E. Each fixture shall have a stop valve installation to control the fixture. Stop valves shall be heavy duty type with brass stems and screwed or sweat inlet connections. Compression type inlets are not acceptable.

F. Cover pipe penetrations with escutcheons. Exposed traps, stops, piping and escutcheons to be chrome plated brass, same items in concealed locations may be of rough brass finish.

G. Set floor mounted water closets, floor mounted service sinks; counter-mounted lavatories and sinks; lavatory and sink faucets and drains with full setting bed of flexible non-staining plumber's putty. Cover exposed water closet bolts with bolt covers.

H. Seal openings between walls, floors and fixtures with mildew-resistant silicone sealant same color as fixture.

I. Test fixtures to demonstrate proper operation. Replace malfunctioning units or components. Adjust valves for intended water flow rate to fixtures without splashing, noise or overflow. Adjust self-closing lavatory faucets to 15 second cycle. Adjust shower valve temperature limit stops to 110-degree maximum outlet temperature.

J. Protect fixtures during construction. At completion clean plumbing fixtures and trim using manufacturer's recommended cleaning methods and materials.

K. Set mop basins to floor and wall with grout or silicone sealant.

END OF SECTION

SECTION 23 05 23

GENERAL-DUTY VALVES FOR HVAC PIPING

PART 1–GENERAL

1.01 SUMMARY

A. Work Included: Valve specifications for all Division 23 systems unless otherwise noted.

B. Related Section and Divisions: Applicable provisions of Division 01 govern work under this section.

1.02 SUBMITTALS

A. Submit product data under provisions of Section 01 33 00–Submittals.

B. Contractors shall submit a schedule of all valves indicating type of service, dimensions, materials of construction, and pressure/temperature ratings for all valves to be used on the project. Temperature ratings specified are for continuous operation.

1.03 OPERATION AND MAINTENANCE DATA

A. All operations and maintenance data shall comply with the submission and content requirements specified under Section 01 33 00–Submittals.

1.04 DESIGN CRITERIA

A. All valves shall be of the same manufacturer.

PART 2–PRODUCTS

2.01 GENERAL

A. Manufacturers: Acceptable manufacturers are Apollo, Bell & Gossett, Crane, Danfoss-Flomatic, DeZurik, Fisher, Grinnell, Jamesbury, Milwaukee, Nibco, Vogt, Watts.

2.02 NATURAL GAS SYSTEM

A. Interior Shutoff Valves: 2-Inch and Smaller: Ball valve, bronze body, threaded ends, chrome-plated bronze or stainless steel ball, full or conventional port, Teflon seat, blowout-proof stem, two-piece construction, suitable for 150 psig working pressure. U.L. listed for use as natural gas shut-off. Manufacturers Apollo 77G-UL, Nibco T-585-70-UL, Crane 9201.

B. Exterior Aboveground Shutoff Valves: Black body, brass plug type with square head, top check and lock wing stop lock, threaded ends for 25 psi or less gas pressure requirements, McDonald No. 10687B, or equal.

C. Pressure Regulators:
   1. Manufacturers: Rockwell, Maxitrol, Fischer, or equal.
   2. All pressure regulators shall be designed, manufactured and approved for natural gas service.
   3. Pressure regulators for individual service lines shall be capable of reducing distribution line pressure to pressures required for users. Pressure relief shall be set at a lower pressure than would cause unsafe operation of any connected user. Regulator shall have a single port with orifice diameter no greater than that recommended by manufacturer for the maximum gas pressure at the regulator inlet. Regulator vent valve shall be of resilient materials designed to withstand flow conditions when pressed against valve port. Regulator shall be capable of limiting buildup of pressure under no-flow conditions to 50% or less of the discharge pressure maintained under flow conditions. Provide commercial-grade diaphragm type with internal relief valve, vent valve, cast iron body, and Buna-N diaphragm.

PART 3–EXECUTION

3.01 GENERAL

A. Properly align piping before installation of valves in an upright position; operators installed below the valves will not be accepted.

B. Install valves in strict accordance with valve manufacturer's installation recommendations. Do not support weight of piping system on valve ends.

C. Install all valves with the stem in the upright position. Valves may be installed with the stem in the horizontal position only where space limitations do not allow installation in an upright position or where large valves are provided with chain wheel operators. Where valves 2 1/2-inch and larger are located more than 12-foot 0-inch above mechanical room floors, install valve with stem in the horizontal position and provide a chain wheel operator. Valves installed with the stems down, will not be accepted.

D. Install stem extensions when shipped loose from valve.

E. Prior to flushing of piping systems, place all valves in the full-open position.

F. Install all valves, and piping specialties, including items furnished by others, as specified and/or detailed. Make connections to all equipment installed by others where that equipment requires the piping services indicated in this section.

G. Install valves for shutoff and to isolate equipment, parts of systems, or vertical risers. All valves shall be located such that servicing and operation is possible with adequate clearance for access. Install line shutoff valve at each branch connection to riser. Branch line shutoff valves shall be automatic type where shown on Drawings. Install valves with stems upright or horizontal, not inverted unless required otherwise by the valve manufacturer.

H. Valves, regulators, flanges, unions, and similar appurtenances shall be accessible for operation and servicing and shall not be located within chases, above ceilings, within walls/partitions, or nonaccessible locations.

I. Identify all gas regulators, including utility-provided regulators, in accordance with Section 20 05 53–Identification for Plumbing and HVAC Piping and Equipment.

J. Locate all valves so that the removal of their bonnets is possible. All flanged valves in horizontal lines with the valve stem in a horizontal position shall be positioned so that the valve stem is inclined one bolt hole above the horizontal position. Screw pattern valves placed in horizontal lines shall be installed with their valve stems at a minimum 30-degree angle above the horizontal position. All valves must be true and straight at the time the system is tested and inspected for final acceptance. Install valves as close as possible to the locations indicated on the Drawings. Any change in valve location must be so indicated on the Record Drawings.

K. Shut-Off Valves: Install shut-off valves at all equipment, at each branch take-off from mains, and at each automatic valve for isolation or repair.

L. Pressure Reducing Valves:
   1. Provide gate valve and strainer at inlet. Provide gate valve at outlet.
   2. Install pressure gauges to indicate inlet and outlet pressure at each pressure reducing valve in accordance with Section 23 05 29–General Plumbing Piping Specialties.

M. Gas Pressure Regulators: When the gas pressure regulator is equipped with a vent connection, run a connection size vent to outside air in accordance with codes. Use a larger size vent when required by the manufacturer's installation instructions.

END OF SECTION

SECTION 23 05 29

HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT

PART 1–GENERAL

1.01 SCOPE

A. This section includes specifications for supports of all HVAC piping and equipment and materials as well as piping system anchors.

1.02 RELATED WORK

A. Section 23 07 13–Ductwork Insulation for Heating, Ventilation, and Air Conditioning.

1.03 REFERENCE

A. Applicable provisions of Division 01 shall govern work under this section.

1.04 REFERENCE STANDARDS

A. MSS SP-58–Materials, Design, Manufacture, Selection, Application, and Installation

1.05 DESCRIPTION

A. Provide all supporting devices as required for the installation of mechanical equipment and materials. All supports and installation procedures are to conform to the latest requirements of the ANSI Code for pressure piping.

B. Do not hang any mechanical item directly from a metal deck or run piping so it rests on the bottom chord of any truss or joist.

C. Support apparatus and material under all conditions of operation, variations in installed and operating weight of equipment and piping, to prevent excess stress, and allow for proper expansion and contraction.

D. Protect insulation at all hanger points; see Related Work above.

1.06 SHOP DRAWINGS

A. Refer to Division 01, General Conditions, Submittals.

B. Schedule of all hanger and support devices indicating shields, attachment methods, and type of device for each pipe size and type of service.

1.07 DESIGN CRITERIA

A. Materials and application of pipe hangers and supports shall be in accordance with MSS Standard Practice SP-58, unless noted otherwise.

B. Piping flexible connections and vibration isolation supports are required for piping connected to coils that are in a fan assembly where the entire assembly is mounted on vibration supports; the vibration isolation supports are required for a distance of one hundred pipe diameters or three supports away from the equipment, whichever is greater. Piping flexible connection and vibration isolation supports are not required when the fan section is separately and independently isolated by means of vibration supports and duct flexible connections. Standard pipe hangers/supports as specified in this section are required when there are no vibration isolation devices in the piping and beyond the 100 pipe diameter/3 support distance.

C. Fasteners depending on soft lead for holding power or requiring powder actuation will not be accepted.

D. Allow sufficient space between adjacent pipes and ducts for insulation, valve operation, routine maintenance, etc.

PART 2–PRODUCTS

2.01 PIPE HANGER AND SUPPORT MANUFACTURERS

A. Acceptable manufacturers include Anvil, B-Line, G-Strut, Fee and Mason, Kindorf, Michigan Hanger, Unistrut, or approved equal. Anvil figure numbers are listed below; equivalent material by other manufacturers is acceptable.

2.02 STRUCTURAL SUPPORTS

A. Provide all supporting steel required for the installation of mechanical equipment and materials, whether or not it is specifically indicated or sized, including angles, channels, beams, etc. to suspend or floor support tanks and equipment.

2.03 PIPE HANGERS AND SUPPORTS

A. Hangers For Steel Pipe Sizes 1/2-Inch Through 2 Inches: Carbon steel, adjustable, clevis, black finish. Anvil figure 65 or 260.

B. Adjustable steel yoke, cast iron roll, double hanger. Anvil figure 181.

C. Multiple or Trapeze Hangers: Steel channels with welded spacers and hanger rods, if calculations are submitted.

D. Wall Support:
   1. Welded steel bracket with hanger. B-Line B3068 Series, Anvil 194 Series.
   2. Perforated epoxy painted finish, 16-12 gauge min., steel channels securely anchored to wall structure with interlocking, split type, bolt secured, galvanized pipe/tubing clamps. B-Line type S channel with B-2000 series clamps, Anvil type AS200 H with AS 1200 clamps.

E. Vertical Riser Support: Carbon steel riser clamp, copper plated when used with copper pipe. Anvil figure 261 for steel pipe, figure CT121 for copper pipe.

F. Floor Support For Pipe Sizes Through 4 Inches: Cast iron adjustable pipe saddle, locknut nipple, floor flange, and concrete pier or steel support.

G. Insulation Protection Shields: Galvanized carbon steel of not less than 18 gauge for use on insulated pipe 2 1/2-inch and larger. Minimum shield length is 12 inches. Anvil figure 167.

H. Steel Hanger Rods:
1. Continuous threaded, black finish.
2. Size rods for individual hangers and trapeze support as indicated in the following schedule.
3. Total weight of equipment, including valves, fittings, pipe, pipe content, and insulation, are not to exceed the limits indicated.

Maximum Load (pounds)	Rod Diameter (inches)
(650°F Maximum Temperature)	
610	3/8
1,130	1/2
1,810	5/8
2,710	3/4
3,770	7/8
4,960	1
8,000	1 1/4

4. Provide rods complete with adjusting and lock nuts.

2.04 BEAM CLAMPS

A. MSS SP-58 Type 23 malleable black iron clamp for attachment to beam flange to 0.62-inch thick for single threaded rods of 3/8-, 1/2-, and 5/8-inch diameter, for use with pipe sizes 4-inch and less. Furnish with a hardened steel cup point set screw. Anvil figure 86.

2.05 CONCRETE INSERTS

A. Concrete inserts shall meet requires of Section 05 56 00–Anchor Bolts and Post Installed Anchors.

2.06 ANCHORS

A. Use welding steel shapes, plates, and bars to secure piping to the structure.

PART 3–EXECUTION

3.01 INSTALLATION

A. Install supports to provide for free expansion of the piping system. Support all piping from the structure using concrete inserts, beam clamps, ceiling plates, wall brackets, or floor stands. Fasten ceiling plates and wall brackets securely to the structure and test to demonstrate the adequacy of the fastening.

B. Piping shall be supported independently from ductwork and all other trades.

C. Where piping can be conveniently grouped to allow the use of trapeze type supports, use standard structural shapes for the supporting steel.

D. Perform all welding in accordance with standards of the American Welding Society. Clean surfaces of loose scale, rust, paint or other foreign matter and properly align before welding. Use wire brush on welds after welding. Welds shall show uniform section, smoothness of weld metal and freedom from porosity and clinkers. Where necessary to achieve smooth connections, joints shall be dressed smooth.

3.02 HANGER AND SUPPORT SPACING

A. Place a hanger within 12 inches of each horizontal elbow, valve, strainer, or similar piping specialty item.

B. Where several pipes can be installed in parallel and at the same elevation, provide multiple or trapeze hangers. Provide minimum of 3 inches between piping systems (flanges, insulation, valves, etc.)

C. Support riser piping independently of connected horizontal piping.

D. Adjust hangers to obtain the slope specified in the piping section of this specification.

E. Space hangers for pipe as follows:

Pipe Material	Pipe Size	Maximum Spacing
Steel	1/2" through 1 1/4"	6'-6"
Steel	1 1/2" through 6"	10'-0"

3.03 VERTICAL RISER CLAMPS

A. Support vertical piping with clamps secured to the piping and resting on the building structure or secured to the building structure below at each floor.

3.04 ANCHORS

A. Install where indicated on the Drawings and details. Where not specifically indicated, install anchors at ends of principal pipe runs and at intermediate points in pipe runs between expansion loops. Make provisions for preset of anchors as required to accommodate both expansion and contraction of piping.

END OF SECTION

SECTION 23 05 93

TESTING, ADJUSTING, AND BALANCING

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
   1. Balancing Air Systems.
   2. Balancing Division 22-Provided Water Systems.
   3. Thermal Performance Testing.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.

B. All material, installation, and workmanship shall comply with the applicable requirements and standards addressed within the following references.
   1. ASHRAE 11–Practices for Measurement, Testing, Adjusting, and Balancing of Building Heating, Ventilation, Air Conditioning, and Refrigeration Systems.
   2. SMACNA–HVAC Systems Testing, Adjusting, and Balancing.

1.03 SUBMITTALS

A. Submit under provisions of Section 01 33 00–Submittals.

B. Prior to final balancing, submit a preliminary report that includes the following design information for all control modes. Design information shall be from approved shop drawings. Report shall compare design and field tested data.
   1. For each supply, return and exhaust register, and ceiling outlet:
      a. Room number.
      b. Type of register and outlet and catalog size.
      c. Air flow factor.
      d. Design CFM and velocity.
      e. Actual CFM and velocity.
      f. Percent of design CFM.
      g. Room pressure relationship.
   2. For each fan and pump:
      a. Unit number.
      b. Fan size and wheel type (pump size and impeller size).
      c. Motor horsepower.
      d. Motor nameplate voltage and amps.
      e. Design CFM and static pressure (total pressure) (pump GPM and head).
      f. Actual CFM and static pressure (total pressure) (pump GPM and head).
      g. Actual fan RPM (pump RPM).
      h. Actual motor voltage and amps (each phase).

3. For Division 22 Piping: For piping system, record water flow through all equipment and inlet and outlet water pressure at each pump together with motor nameplate and actual current. Provide table of all circuit setter valve setpoints and flow rates.

C. Provide summary sheet describing mechanical system deficiencies. Where not physically observable, provide pressure and/or flow readings to demonstrate suspected deficiencies. Describe objectionable noise or drafts found during testing, adjusting, and balancing. All deficiencies shall be corrected prior to final balancing.

D. Upon completion of final balancing, provide updated report indicating thermal performance testing and changes to system during final balancing for all control modes including updated airflows, pressures, velocities, etc. Final report shall be submitted prior to substantial completion.

1.04 QUALITY ASSURANCE

A. Obtain services of an independent testing organization to perform testing and balancing work. The organization shall have a certified membership in the Associated Air Balance Council (AABC) or certification by the National Environmental Balancing Bureau (NEBB).

B. Division 22 and Division 23 shall provide a technician and/or controls contractor to observe and assist in balancing the system. Balancing report must include verification of participation, including name and contact information of assisting party.

PART 2–PRODUCTS

2.01 BALANCING EQUIPMENT

A. CONTRACTOR shall have the following minimum equipment for balancing systems:
1. Duct air velocities below 1,000 fpm: Pitot tube and Micro-Manometer or Alnor velometer and duct-jet using zero to 1,000 fpm range.
2. Water Flows: Ultrasonic Dopler Flow Meter for water systems.
3. Supply Register Velocities: Alnor velometer and applicable jet or Anemotherm.
4. Fan Rotative Speed: Timec tachometer or RPM counter and stop watch (1-minute reading, minimum).
5. Contact pyrometer 0 to 300°F range.
6. Amprobe model RS-3, or equal.
7. Calibrated pressure gauge (0 to 100 feet water head).
8. Inclined manometer 0 to 30 inches of water.
9. Instruments used for measurements shall be accurate, and calibration shall be calibrated by the manufacturer or an AABC-approved method.
10. Instruments shall be applied in accordance with manufacturer’s instructions.

B. All instruments used for measurements shall be accurate, and calibration histories for each instrument to be available for examination upon request. Calibration and maintenance of all instruments to be in accordance with the requirements of NEBB or AABC Standards.

PART 3–EXECUTION

3.01 PRELIMINARY BALANCING

A. Division 23 shall provide an experienced installer to review the air distribution system with the testing and balancing agency for completion to confirm the test openings and volume dampers indicated on the Drawings or called for in the specifications are installed, that dampers are in the open position, that the fans operate properly during all control modes, air filters are clean, and that the system is ready for balancing. Add test openings, volume dampers, air scoops, deflectrols, turning vanes, etc., as required. Adjust and change fan drives and belts, remove and reinstall ceilings, air terminals, access doors, and air devices as required to balance the system. Maintain the air handling equipment in good operating condition during the testing and balancing procedures.

3.02 PRESSURE DIAGRAM

A. Provide a diagram indicating, at minimum, the static pressure at the following points while system is operating at 100% airflow.
   1. MAU inlet.
   2. MAU outlet.
   3. EF inlet.
   4. RTU inlet.
   5. RTU outlet.

B. Diagram shall include all components in an air handling unit and additional pressure points as required in thermal performance testing.

C. Coordinate with Division 23 and equipment manufacturer to obtain readings where access is difficult or limited. Lack of readings due to inaccessibility will not be accepted.

3.03 SCHEDULE OF TOLERANCES

A. Final air system measurements shall be within the following range of specified cfm:
   1. Fans: 0% to +10%.
   2. Supply grilles: 0% to +10%.
   3. Return/exhaust grilles: 0% to -10%.

B. Final water system measurements shall be within the following range of specified gpm: Domestic water flow rates: 0% to +10%.

3.04 GENERAL REQUIREMENTS

A. Perform testing, balancing, and adjusting procedures in accordance with AABC or NEBB, unless specified below.

B. Contact the Division 26 contractor for assistance in operation and adjustment of controls during testing, adjusting, and balancing procedures. Cycle controls and verify proper operation and setpoints. Include in report description of temperature control operation for all control modes and any deficiencies found.

C. Permanently mark equipment settings, including damper and valve positions, control settings, and similar devices allowing settings to be restored. Set and lock memory stops.

D. Division 23 shall correct any installation deficiencies found by the test and balance agency that were specified and/or shown on the Contract Documents to be performed as part of that division of work, including sheave and pulley replacement or corrections to the controls system. Test and balance agency shall notify CONTRACTOR of these items and instructions will be issued to Division 23 for correction of the deficient work. Testing and balancing reports shall be submitted only after all deficiencies have been corrected and balancing completed upon the corrected system.

3.05 THERMAL PERFORMANCE TESTING

A. Measure and record system measurements for each system described below during all control modes. Measurements shall be taken with airflows at 100% and coils at 100% capacity. CONTRACTOR shall make provisions for seasonal testing.

B. Direct Expansion (DX) Coils:
1. Coil location.
2. Actual airflow during testing.
3. Design and actual entering air temperature (dry bulb and wet bulb).
4. Design and actual leaving air temperature (dry bulb and wet bulb).
5. Actual pressure drop across the coil.
6. Refrigerant saturated suction temperature.
7. Designation of wet or dry coil.

C. Natural Gas Burners in Make-up Air Units:
1. Coil location.
2. Actual airflow during testing.
3. Design and actual entering air temperature (dry bulb and wet bulb).
4. Design and actual leaving air temperature (dry bulb and wet bulb).
5. Actual pressure drop across the coil.

D. Electric Heating Coils:
1. Coil location.
2. Actual airflow during testing.
3. Design and actual entering air temperature (dry bulb and wet bulb).
4. Design and actual leaving air temperature (dry bulb and wet bulb).
5. Actual pressure drop across the coil.
6. Actual voltage and amperage (each phase).

END OF SECTION

SECTION 23 07 13

DUCTWORK INSULATION FOR HEATING, VENTILATION, AND AIR CONDITIONING

PART 1–GENERAL

1.01 SUMMARY

A. Work includes:
   1. Wrap Type Fiberglass Insulation.
   2. Rigid Board Fiberglass Insulation.
   3. Adhesives, Mastic, Sealants, and Reinforcing Materials.
   4. Jacketing.
   5. Accessories.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.

B. All material, installation, and workmanship shall comply with the applicable requirements and standards addressed within the following references:
   1. ASTM B117–Standard Practice for Operating Salt Spray (Fog) Apparatus.
   2. ASTM C168–Standard Terminology Relating to Thermal Insulation.
   3. ASTM C272–Water Absorption of Core Materials for Sandwich Constructions.
   4. ASTM C547–Standard Specification for Mineral Fiber Pipe Insulation.
   5. ASTM C518–Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
   6. ASTM C591–Unfaced Preformed Rigid Cellular Polyisocyanurate Thermal Insulation.
   7. ASTM C612–Standard Specification for Mineral Fiber Block and Board Thermal Insulation.
   8. ASTM C871–Standard Test Method for Chemical Analysis of Thermal Insulation Materials.
   9. ASTM C916–Standard Specification for Adhesives for Duct Thermal Insulation.
   10. ASTM C1071–Standard Specification for Fibrous Glass Duct Lining Insulation (Thermal and Sound Absorbing Material).
   11. ASTM C1290–Standard Specification for Flexible Fibrous Glass Blanket Insulation Used to Externally Insulate HVAC Ducts.
   12. ASTM C1427–Standard Specification for Extruded Preformed Flexible Cellular Polyolefin Thermal Insulation in Sheet and Tubular Form.
   13. ASTM D1000–Methods for Pressure-Sensitive Adhesive-Coated Tapes Used for Electrical and Electronic Applications.
   14. ASTM E84–Standard Test Method for Surface Burning Characteristics of Building Materials.
   15. ASTM E96–Standard Test Methods for Water Vapor Transmission of Materials.
   16. FED L-P-535E: Plastic Sheet (Sheeting): Plastic Strip: Poly (Vinyl Chloride) And Poly (Vinyl Chloride-Vinyl Acetate), Rigid.

17. EPA Method 8260B–Volatile Organic Compounds By Gas Chromatography/Mass Spectrometry (Gc/Ms).
18. NFPA 262–Standard Method of Test for Flame Travel and Smoke of Wires and Cables for Use in Air-Handling Spaces.

1.03 SUBMITTALS

A. Submit under provisions of Section 01 33 00–Submittals.

B. Submit a schedule of all insulating materials to be used on the project, including adhesives, fastening methods, and fitting materials, along with safety data sheets and intended use of each material. Include manufacturer's technical data sheets indicating density, thermal characteristics, jacket type, and manufacturer's installation instructions.

1.04 QUALITY ASSURANCE

A. All components of this specification section shall meet or exceed the requirements and quality of the items herein specified, or as denoted on the Drawings.

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to the site in such a manner as to protect the materials from shipping and handling damage. Provide materials on factory provided shipping skids and lifting lugs, if required for handling.

B. Materials that could be damaged by the elements should be packaged in such a manner that they could withstand short-term exposure to the elements during transportation.

C. Store materials in a clean, dry place and protect from weather and construction traffic. Handle carefully to avoid damage.

D. Use all means necessary to protect insulation before, during, and after installation.

E. All scratched, dented, and otherwise damaged insulation shall be repaired or replaced at no additional cost to OWNER.

1.06 GENERAL REQUIREMENTS

A. Unless otherwise indicated, all duct covering, jackets, insulation, vapor barriers, adhesive, and mastics shall have flame spread rating of 25 or less and smoke spread rating of 50 or less when tested in accordance with ASTM E84.

PART 2–PRODUCTS

2.01 WRAP TYPE FIBERGLASS INSULATION

A. Acceptable manufacturer is Johns Manville Microlite XG, Owens Corning SOFTR, or Knauf Friendly Feel.

B. Insulation shall be resin-bonded fiberglass type conforming to ASTM C1290, Type 150.

C. Minimum nominal density shall be 1.5 lbs/ft^3.

D. K-factor shall not exceed 0.25 (btu-in)/(hr-ft^2-°F) at 75°F mean.

E. Insulation shall be free of formaldehyde.

2.02 RIGID BOARD FIBERGLASS INSULATION

A. Acceptable manufacturer is Johns Manville Spin-Glas Series 814, Owens Corning Type 703, or Knauf Insulation Board.

B. Insulation shall be mineral fiber type conforming to ASTM C612.

C. Minimum nominal density shall be 3 lbs/ft^3.

D. K-factor shall not exceed 0.23 (btu-in)/(hr-ft^2-°F) at 75°F mean.

E. Insulation shall be rated for service to 450°F.

2.03 ADHESIVES, MASTIC, SEALANTS, AND REINFORCING MATERIALS

A. Products shall be compatible with surfaces and materials on which they are applied and shall be suitable for use at operating temperatures of systems to which they are applied.

B. All adhesives used for ductwork insulation shall conform to ASTM C916, Type II.

C. Fiberglass Insulation Adhesive. Acceptable Manufacturers: Foster 85-60, Childers CP-127, and Duro Dyne SSG.

D. Vapor Retarding Mastic:
   1. Acceptable Manufacturers: Foster 30-65 Vapor Fas, Childers CP-34, and Vimasco 749.
   2. For ductwork insulation operating below 50°F, mastic water vapor permeance shall be less than 0.03 perms at 45 mils dry film thickness conforming to ASTM E96.
   3. Use insulation joint sealant at all joints. Acceptable manufacturers are Foster 95-50 Flextra, Childers CP-76 Chil-Byl, or Pittsburgh Corning CW Sealant.

E. Weather Barrier Breather Mastic:
   1. Acceptable Manufacturers: Foster 46-50 Weatherite, Childers Vi-Cryl CP-10/CP-11, or Vimasco WC-5.
   2. For ductwork insulation operating at 50°F or above, mastic water vapor permeance shall be greater than 1.0 perms at 1/16-inch dry film thickness conforming to ASTM E96.

2.04 JACKETING

A. Foil Scrim Jackets (FSJ): Glass fiber reinforced foil kraft laminate, factory applied to insulation. Maximum permeance of .02 perms and minimum beach puncture resistance of 25 units.

B. Self-Adhering Jackets (SAJ):
   1. Acceptable manufacturers are 3M VentureClad 1577CW, or equal.

2. Jackets shall be 5-ply, self-adhering multiple laminated waterproofing material with reflective aluminum foil, high density polymer films and cold weather acrylic adhesive providing zero (0.0) moisture permeance.
3. Jackets in corrosive (NEMA 4X) areas shall be 3M VentureClad 1577CW-WM, 4-ply poly vinyl fluoride, self-adhering multiple laminated waterproofing material with reflective aluminum foil, high density polymer films and cold weather acrylic adhesive providing zero (0.0) moisture permeance.
4. Minimum material thickness shall be 6 mils.
5. Minimum puncture resistance shall be 25 lbs conforming to ASTM D1000.

2.05 ACCESSORIES

A. All products shall be compatible with surfaces and materials on which they are applied and be suitable for use at operating temperatures of the systems to which they are applied.

B. Adhesives, sealants, and protective finishes shall be as recommended by insulation manufacturer for applications specified.

C. Insulation bands shall be 3/4-inch wide, constructed of aluminum or stainless steel. Minimum thickness shall be 0.015 inch for aluminum and 0.010 inch for stainless steel.

D. Staples shall be clinch style.

E. Tack fasteners shall be stainless steel ring grooved shank tacks.

F. Joint sealants and metal jacketing sealants shall be non-shrinking and permanently flexible.

PART 3–EXECUTION

3.01 GENERAL

A. All insulation damaged during construction shall be replaced in accordance with these specifications.

B. All insulation shall be applied in accordance with the manufacturer’s written recommendations. Destructive methods such as sheet metal screws are not acceptable.

C. Install insulation with smooth and even surfaces. Poorly fitted joints or use of filler in voids will not be accepted. Provide neatly beveled and coated terminations at all nameplates, uninsulated fittings, or at other locations where insulation terminates.

D. All duct insulation shall be continuous through walls, ceiling or floor openings and through sleeves. Where ductwork penetrates fire rated assemblies, CONTRACTOR shall seal penetration to maintain rating of the assembly. See life safety plan for locations of fire rated assemblies.

E. Where insulated ductwork is supported by trapeze hangers, the insulation shall be installed continuous through the hangers. Drop the supporting channels required to facilitate the installation of the insulation. Where rigid board or flexible insulation is specified, install high density inserts to prevent the weight of the ductwork from crushing the insulation.

F. Where insulated duct risers are supported by steel channels secured directly to the duct, extend the insulation and vapor retarding jacketing to encapsulate the support channels.

3.02 WRAP TYPE FIBERGLASS INSULATION INSTALLATION

A. Insulation shall be installed per manufacturer's recommendations with mechanical fasteners. Seal all joints and fasteners with UL-labeled vapor-proof tape.

B. Provide finished edges at all access doors and ends.

3.03 RIGID BOARD FIBERGLASS INSULATION INSTALLATION

A. Provide finished edges at all access doors and ends of insulation.

B. Provide additional insulation trim pieces over flanged ductwork joints to completely insulate and seal to the thickness specified.

C. For exterior ductwork, insulate duct such that minimum thickness is maintained and is sloped/peaked to shed water.

D. Flexible connections from ducts to HVAC equipment shall not be insulated.

3.04 PROTECTIVE JACKET INSTALLATION

A. Foil Scrim Jackets (FSJ): Install according to manufacturer’s recommendations using factory supplied lap seals and butt strip seals.

B. Self-Adhering Jackets (SAJ):
1. Install according to manufacturer’s recommendations. Cut allowing minimum 4-inch overlap on ends and 6 inches on longitudinal joints. Align parallel to surface. Remove release paper and press flat to surface to avoid wrinkles. Rub entire surface for full adhesion and sealing at joint overlaps. On exterior applications, provide a bead of compatible caulk along exposed edges.
2. Wrap elbows, fittings, valves and butt joints with two layers of vapor retarding tape. Vapor retarding tape shall be compatible with the jacket material used.

3.05 DUCTWORK INSULATION

A. Provide insulation on new ductwork as indicated in the following schedule:

Service	Insulation	Jacket	Thickness
Exhaust/Relief Ducts from Exterior to 12 Inches Beyond Damper	Rigid Board Fiberglass	FSJ or SAJ	2.0"
Ductwork Exterior to Building or in Unconditioned Spaces	Rigid Board Fiberglass	SAJ	3.0"
Intake and Exhaust Damper Frames	Rigid Board Fiberglass	FSJ	2.0"
Restroom Exhaust Ducts from Exterior Wall to Exhaust Fan	Wrap Type Fiberglass	FSJ	2.0"
Exposed Supply Ducts in Mechanical Rooms	Rigid Board Fiberglass	FSJ or SAJ	2.0"
Outside Air Ducts	Rigid Board Fiberglass	FSJ or SAJ	2.0"

Service	Insulation	Jacket	Thickness
Concealed Supply Ducts	Wrap Type Fiberglass	FSJ	1.5"
Mixed Air Ducts and Plenums	Rigid Board Fiberglass	FSJ or SAJ	2.0"

3.06 SPECIAL AREAS

A. All areas indicated on the Drawings as “Hazardous”, Class I Division 1, or Class I Division 2 shall include SAJ jackets.

B. All areas indicated on the Drawings as “Corrosive” or NEMA 4X shall include SAJ jackets.

END OF SECTION

SECTION 23 09 13

TEMPERATURE CONTROLS AND INSTRUMENTATION

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
   1. Electrical Components.
   2. Thermostats.
   3. Dampers and Actuators.
   4. Thermistor.
   5. End devices.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 SUBMITTALS

A. Submit under provision of Section 01 33 00–Submittals.

B. Submittal shall include control schematics with wiring and logic diagrams in addition to equipment information. All wiring shall be color coded and labeled at each end with corresponding numbers in accordance with Section 20 05 53–Identification for Fire Suppression, Plumbing, and HVAC Piping and Equipment. This numbering shall be shown on the shop and record drawings. Wiring diagrams shall be job-specific and indicate all point-to-point wiring connections. Manufacturer’s standard wiring diagrams are not acceptable.

1.03 QUALITY ASSURANCE

A. Temperature control equipment including panels and other standard marketed apparatus shall bear the nameplate of the manufacturer. The entire system including temperature control wiring shall be installed by mechanics employed by or under contract to the temperature control provider, a factory-licensed distributor, or factory-licensed dealer. The provider shall be responsible for the quality and satisfactory operation of all materials.

B. All control panels shall bear a serialized UL label.

C. Comply with the National Electrical Code (NFPA 70) and any and all local codes as applicable to construction of electrical wiring devices, material, and equipment herein specified.

PART 2–PRODUCTS

2.01 ELECTRICAL COMPONENTS

A. Provide electrical work in accordance with Division 26. See controls diagrams on drawings for wiring and conduit responsibilities.

B. Provide all components necessary to complete the work of this section including, but not limited to relays, transformers, motors, solenoid valves, starters, switches, override controls, operator linkages, and associated low voltage wiring. Outdoor wiring and equipment shall be NEMA 4X, or as indicated.

C. All relays, time clocks, transformers, motors, operator linkages, wiring, etc., not specifically mentioned herein but necessary to make the control system complete and operative in accordance with the sequence of operation shall be provided as part of this section.

D. All boxes for thermostats shall be provided by Division 26 contractor.

E. All control and auxiliary relays shall have indicating LEDs.

F. CONTRACTOR shall provide all low voltage (<100 V) wiring and shall utilize Division 26 for line voltage wiring and installation of all conduits. CONTRACTOR shall submit name and license number of electrician with shop drawings.

2.02 THERMOSTATS

A. Provide low voltage programmable thermostat, Viconics Model VT8600 series or equal, as indicated on the Drawings. Thermostat shall be capable of heating, cooling, economizing, and shall have programmable occupancy schedules. Thermostat programming shall be saved to non-volatile memory such that the programming is not erased when power is removed. Thermostat shall receive 24 VAC power from the AHU. Thermostat shall have password protection to prevent unauthorized access to the configuration menu parameters.
   1. Thermostat shall include:
      a. Start/stop cooling stage 1.
      b. Start/stop cooling stage 2.
      c. Start/stop heating.
      d. Modulate heating.
      e. Start/stop of the supply fan.
      f. Economizer damper control.
      g. Minimum two digital outputs.
      h. Terminals for exhaust fan enable.
      i. Terminals for outdoor air temperature sensor.
      j. Terminals for supply air temperature sensor.
      k. Room temperature sensor
   2. Where required or shown on the Drawings provide remote sensors compatible with thermostat.

2.03 DAMPERS AND ACTUATORS

A. Outside Air Intake and Exhaust Outlet:
   1. Dampers shall be TAMCO Series 9000 BF, Alumavent Series 3900SS, or Arrow AFDTI-25LT, thermally insulated control damper with aluminum construction. Dampers for corrosive (NEMA 4X) and Class I, Division 1 environments shall be TAMCO Series 9000 SW provided with an anodized coating and stainless steel linkage.
   2. Dampers shall be parallel blade.
   3. Extruded aluminum (6063T5) damper frame shall be thermally broken, minimum 0.080 inch thickness. Damper frame to be 4 inches deep and shall be

insulated with polystyrene on four sides. Damper shall be rated at a leakage of less than 8.0 cfm per square foot at 4.0 inches of water column pressure differential at 20°F.

4. Blades to be extruded aluminum (6063T5), internally insulated with non-CFC, expanded polyurethane foam and shall be thermally broken. Complete blade shall have an insulating factor of R-2.29 and a temperature index of 55 as tested in accordance with AMCA Standard 511.
5. Blade gaskets shall be extruded EPDM; blade seals shall be silicone.
6. Shaft to actuator shall be hex type, material to match damper construction.
7. Side seals shall be silicone.
8. Dampers shall be flanged to duct type. Clear opening in damper shall be same size as ductwork.
9. Dampers in round ductwork shall be SMD on/off motorized damper by Plastec Ventilation. Damper shall have temperature rating of 140°F and be fully constructed of PVC.

B. Actuators:

1. Actuators shall be Belimo NFBUP, Honeywell MS4110, or Siemens GCA, maintenance-free actuator rated at minimum 88 in-lb. of torque. Dampers shall be power-to-open, spring-closed unless otherwise specified. Actuator shall be capable of accepting 120-volt power for operation and control.
2. Modulating low voltage damper actuators shall be Belimo NFB24-SR, or equal, rated for 90-inch-lb of torque. Actuator shall accept 2-10 VDC input signal and provide a 2-10 VDC feedback signal. Outside, relief and exhaust dampers shall fail closed on power failure.
3. Actuators shall include electronic overload protection and visual position indication throughout range of motion.
4. Actuators shall include a manual override via a manufacturer-supplied hex crank.
5. Where actuators are located in Class I, Division 1 rated spaces, provide Belimo ZS260 or equal, explosion-proof housing for actuators.
6. Provide Belimo NFBUP N4, or equal, for actuators in corrosive (NEMA 4X) or exterior locations, unless noted otherwise below.
7. All actuators shall be direct-coupled to damper and mounted outside the air stream utilizing TAMCO motor mounting bracket model AL-0001, or equal unless otherwise noted. CONTRACTOR shall verify suitability of mounting bracket prior to ordering.
8. If auxiliary switch is not used, terminate cord in nearest junction box.
9. All actuators shall be of the same manufacturer. Manufacturer shall be responsible for furnishing quantity of actuators required to meet minimum damper torque rating, plus an additional 10% torque.

2.04 THERMISTOR (PIPE TEMPERATURE)

A. Thermistor shall have a 1 1/2-inch square copper plate encapsulated to the back side of the unit. Sensor shall have two, 14-inch 22 AWG Etched Teflon colored lead wires. Unit shall be located in ABS or Polystyrene enclosure. Thermistor shall be ACI model A/CP-S10-PB or equal. CONTRACTOR shall provide thermal grease and strap extension with unit.

2.05 END DEVICES

A. Temperature sensors shall have multiple linear 0 to 10 VDC output signals. Each sensor shall be specific for the application indicated. Sensors shall be loop powered with 24 VDC maximum. Temperature sensors located in exterior areas shall include NEMA 4X-rated polystyrene enclosure. Ranges shall be as follows:

1. Outside air temperature: -20°F to 100°F.
2. Supply air temperature: -20°F to 100°F.
3. Room temperature: -20°F to 100°F.

PART 3–EXECUTION

3.01 INSTALLATION

A. Install all equipment in accordance with manufacturer's recommendations and Division 26.

B. Coordinate location of exposed devices prior to rough-in. Thermostats shall be mounted where shown on the Drawings. Thermostats on exterior walls shall have insulated bases.

C. Temperature controls to be installed in or on insulated ductwork shall be installed after the insulation has been applied.

D. Install all dampers in accessible locations with ample space to install direct-coupled actuator, housing and accessories.

E. Coordinate with fire alarm CONTRACTOR the activation of duct smoke detectors. Upon activation, associated unit shall shut down and outside air shall close for the following units:
1. MAU-15-01.
2. MAU-55-01.
3. MAU-96-01.
4. RTU-55-01.

3.02 SEQUENCE OF OPERATION

A. Make-up air units shall be controlled by manufacturer as specified in Section 23 74 23–Packaged Outdoor Heating Only Make-up Air Units and monitored by Division 26-provided SCADA System.

B. Infrared unit heaters (IR) shall be controlled by a low-voltage remote-mounted thermostat furnished by the manufacturer that cycles the burner on when room temperature falls below thermostat setpoint. Wiring between thermostat and heater shall be provided by Division 23 in conduit provided by Division 26 contractor. Control power shall be from control power transformer at unit.

C. Electric wall heaters (EWH) shall be controlled by an integral thermostat.

D. Controls for electric unit heaters (EUH) and ceiling unit heaters (CUH) shall be provided by Division 26 contractor. Thermostats shall be suitable to meet room electrical rating. Control power shall be from control power transformer at unit.

E. Devices and control logic for the following fans shall be provided by the Division 26 contractor. Refer to Section 26 09 00–Controls and Instrumentation.
1. EF-15-01.
2. EF-15-02.
3. EF-55-02.
4. EF-55-03.
5. EF-60-01.

6. EF-71-01.
7. EF-95-01.
8. EF-95-02.
9. EF-96-01.
10. EF-96-02.
11. EF-96-03.

F. The following fans shall be controlled by a room fan switch as indicated on Division 26 Drawings. Provide all required interfaces with the switch and coordinate switch type. Speed control for fans shall be for balancing only and shall be inaccessible to room occupants.
   1. EF-55-01.
   2. EF-95-04.
   3. EF-96-04.

G. Exhaust fan EF-95-03 shall be controlled by Division 23-provided thermostat (T-95-01). The fan shall be called to run continuously during occupied mode and shall be off during unoccupied mode.

H. High Volume Low Speed fans (HVLS) shall be controlled by a line voltage standard controller furnished by the manufacturer. See specification Section 23 34 39–High Volume-Low-Speed Propeller Fans for controller information. Division 26 contractor shall provide wiring between switch and fan.

I. Split systems (SS) shall be controlled as specified in Section 23 81 26–Split System Air Conditioners.

J. Rooftop Units (RTU) shall be controlled as specified in Section 23 74 16–Packaged Rooftop Air-Conditioning Units.

K. The following motor control dampers shall be interlocked with the HVAC equipment noted to be fully open when equipment is running.
   1. DA-15-01 (EF-15-01).
   2. DA-15-02 (EF-15-02).
   3. DA-15-03 (EF-15-01).
   4. DA-55-01 (EF-55-02).
   5. DA-55-02 (EF-55-03).
   6. DA-55-03 (EF-55-03).
   7. DA-60-01 (EF-60-01).
   8. DA-60-02 (EF-60-01).
   9. DA-71-01 (EF-71-01).
   10. DA-71-02 (EF-71-01).
   11. DA-95-01 (EF-95-01).
   12. DA-95-02 (EF-95-02).
   13. DA-95-03 (EF-95-03).
   14. DA-95-04 (EF-95-04).
   15. DA-95-05 (AHU-95-01).
   16. DA-95-06 (AHU-95-02).
   17. DA-96-01 (EF-96-01).
   18. DA-96-02 (EF-96-02).
   19. DA-96-03 (EF-96-03).

L. AHU-95-01 shall be controlled by a Division 23 provided thermostat (T-95-01) as follows:
   1. Occupied mode:
      a. Supply fan shall run continuously.
      b. Outside air damper shall be set to minimum position.
      c. Heating: Heating shall be enabled when the space temperature is below heating space temperature setpoint. Electric heating coil shall start and modulate until space temperature is above heating space temperature setpoint.
      d. Cooling:
         (1) Cooling shall be enabled when space temperature is above the cooling space temperature setpoint and the economizer is disabled. Cooling shall start and stage as required to maintain space temperature setpoint.
         (2) When outdoor air temperature is below 55°F, cooling shall be disabled.
         (3) If the outdoor air temperature is below 55°F and there is a call for cooling, the unit shall economize and the outside air damper shall modulate to achieve a supply air temperature of 55°F.
         (4) If the outdoor air temperature is above 55°F and there is a call for cooling, the unit shall operate cooling as indicated above.
   2. Unoccupied mode:
      a. Supply fan shall cycle with demand for heating and cooling.
      b. Outdoor air damper shall be closed unless economizing.
      c. Heating shall operate as indicated in occupied mode
      d. Cooling shall operate as indicated in occupied mode.

M. AHU-95-02 shall be controlled by a Division 23 provided thermostat (T-95-02) as follows:
   1. Occupied mode:
      a. Supply fan shall run continuously
      b. EF-95-03 shall run continuously.
      c. Outside air damper shall be set to minimum position.
      d. Heating shall be enabled when the space temperature is below heating space temperature setpoint. Electric heating coil shall start and modulate until space temperature is above heating space temperature setpoint.
      e. Cooling:
         (1) Cooling shall be enabled when space temperature is above the cooling space temperature setpoint and the economizer is disabled. Cooling shall start and stage as required to maintain space temperature setpoint.
         (2) When outdoor air temperature is below 55°F, cooling shall be disabled.
         (3) If the outdoor air temperature is below 55°F and there is a call for cooling, the unit shall economize and the outside air damper shall modulate to achieve a supply air temperature of 55°F.
         (4) If the outdoor air temperature is above 55°F and there is a call for cooling, the unit shall operate cooling as indicated above.
   2. Unoccupied mode:
      a. Supply fan shall cycle with demand for heating and cooling.
      b. EF-95-03 shall not run.
      c. Outdoor air damper shall be closed unless economizing.
      d. Heating shall operate as indicated in occupied mode
      e. Cooling shall operate as indicated in occupied mode.

END OF SECTION

SECTION 23 11 23

FACILITY FUEL GAS PIPING

PART 1–GENERAL

1.01 SUMMARY

A. Work Included: All facility fuel gas pipe and fittings unless otherwise noted.

B. Related Sections and Divisions: Applicable provisions of Division 01 govern work under this section.

1.02 REFERENCES

A. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.

B. All material, installation, and workmanship shall comply with the applicable requirements and standards addressed within the following references.
1. NFPA 54–National Fuel Gas Code (Current Edition).
2. ANSI B16.3–Malleable Iron Threaded Fittings.
3. ASTM A53–Pipe, Steel, Black and Hot-Dipped, Zinc Coated Welded and Seamless.
4. ASTM A234–Pipe Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and Elevated Temperatures.
5. 2018 International Fuel Gas Code.

1.03 QUALITY ASSURANCE

A. All materials, equipment and Work shall meet or exceed all applicable federal, state and local requirements and conform to codes and ordinances of authorities having jurisdiction.

B. Welding Materials and Procedures: Conform to ASME Code and applicable state labor regulations.

C. Order all Type E and Type S steel pipe with heat numbers rolled, stamped, or stenciled to each length or each bundle, depending on the size of the pipe, and in accordance with the appropriate ASTM specification.

1.04 SUBMITTALS

A. Submittals shall be in accordance with provisions of Section 01 33 00–Submittals.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Accept piping on-site in shipping containers with labeling in place, inspect for damage and store with a minimum of handling. Store plastic piping under cover out of direct sunlight. Do not store materials directly on the ground.

B. Provide temporary end caps and closures on piping and fittings. Maintain in place until installation.

C. Protect piping systems from entry of foreign materials by installing temporary covers, completing sections of the work and isolating parts of completed system.

D. Cover pipe to eliminate rust and corrosion while allowing sufficient ventilation to avoid condensation. Do not store materials directly on grade. Protect pipe, tube, and fitting ends so they are not damaged. Where end caps are provided or specified, take precautions so the caps remain in place.

1.06 DESIGN CRITERIA

A. Use only new material, free of defects, rust and scale, and meeting the latest revision of ASTM specifications as listed in this specification.

B. Construct all piping for the highest pressures and temperatures in the respective system in accordance with ANSI B31, but not less than 125 psig unless specifically indicated otherwise.

C. Non-metallic piping will be acceptable only for the services indicated. It will not be acceptable in occupied spaces and ventilation plenum spaces, including plenum ceilings.

D. Use only long radius elbows having a centerline radius of 1.5 pipe diameters.

E. Where ASTM A53 grade A pipe is specified, ASTM A53 grade B pipe may be substituted at CONTRACTOR's option. Where the grade or type is not specified, CONTRACTOR may choose from those commercially available.

1.07 WELDER QUALIFICATIONS

A. Before any metallic welding is performed, CONTRACTOR to submit their Standard Welding Procedure Specification together with the Procedure Qualification Record as required by Section IX of the ASME Boiler and Pressure Vessel Code and/or the National Certified Pipe Welding Bureau.

B. Before any polyethylene fusion welding is performed, CONTRACTOR to submit certification that the welders to be used on this project have successfully demonstrated proper welding procedures in accordance with the Code of Federal Regulations, Title 49, Part 192, Section 192.285.

C. ENGINEER and OWNER reserves the right to test the work of any welder employed on the project, at CONTRACTOR's expense. If the work of the welder is found to be unsatisfactory, the welder shall be prevented from doing further welding on the project.

PART 2–PRODUCTS

2.01 GENERAL

A. All materials shall meet or exceed all applicable referenced standards, federal, state, and local requirements, and conform to codes and ordinances of authorities having jurisdiction.

B. Natural gas pressures shall not exceed 5 psig on customer side of the meter.

C. Buried natural gas shall be in accordance with Section 33 52 16–Fuel Gas Distribution Utilities.

2.02 NATURAL GAS

A. 2-Inch and Smaller: ASTM A53, type E or S, standard weight (Schedule 40) black steel pipe with ASTM A197/ANSI B16.3 class 150 black malleable iron threaded fittings or ASTM A234 grade WPB/ANSI B16.9 standard weight, seamless, carbon steel weld fittings.

B. 2 1/2-Inch and Larger: ASTM A53, type E or S, standard weight black steel pipe with ASTM A234 grade WPB/ANSI B16.9 standard weight, seamless, carbon steel weld fittings.

C. The exterior of steel piping and associated appurtenances shall be furnished with all surfaces prepared in accordance with near white grade SSPC Specification No. 10 removing all dirt, rust scale, and foreign materials. Cleaned surfaces shall then be shop-primed. Factory shop prime with one coat of Tnemec N69 or N140 or Sherwin Williams Duraplate 235 or Macropoxy 646PW, or equal, applied at a minimum 5.0 mils dry film thickness. Primer color shall be beige. Primer used shall be compatible with proposed finish coats; CONTRACTOR shall verify. It is the intent of this specification that all piping, supports, and appurtenances shall be furnished shop-primed, clean, and ready to accept finish painting by CONTRACTOR with a minimal amount of surface preparation. Preparation and painting shall conform to all requirements and provisions specified in Division 09. Following field-welding, areas damaged by welding shall be prepared and reprimed as specified above. All field surface preparation shall be completed prior to equipment installation.

D. All aboveground piping shall be labeled in accordance with Section 20 05 53–Identification for Fire Suppression, Plumbing, and HVAC Piping and Equipment. Where not labeled on manufacturer nameplate, regulator tags shall indicate inlet pressure, outlet pressure, and flow. Appliance regulators provided by equipment manufacturer as part of a manufacturer's gas train are not required to be tagged.

2.03 VENTS AND RELIEF VALVE DISCHARGE PIPING

A. Use pipe and pipe fittings as specified for the system to which the relief valve or vent is connected.

B. Exterior terminations shall be provided with either a double outlet t-style open vent or a mushroom style breather vent. Terminations shall include aluminum body with stainless steel screen.

2.04 UNIONS AND FLANGES

A. 2-Inch and Smaller: ASTM A197/ANSI B16.3 malleable iron unions with brass seats. Use black malleable iron on black steel piping and galvanized malleable iron on galvanized steel piping. Use unions of a pressure class equal to or higher than that specified for the fittings of the respective piping service but not less than 250 psi.

B. 2 1/2-Inch and Larger: ASTM A181 or A105, grade 1 hot forged steel flanges of threaded, welding and of a pressure class compatible with that specified for valves, piping specialties and fittings of the respective piping service. Flanges smaller than 2 1/2-inch may be used as needed for connecting to equipment and piping specialties. Use raised face flanges ANSI B16.5 for mating with other raised face flanges on equipment with flat ring or full face

gaskets. Use ANSI B16.1 flat face flanges with full face gaskets for mating with other flat face flanges on equipment.

C. Provide ASTM A 193 B7 grade bolts and A 194 2H grade nuts and hardened washers for connections (star washers for grounding).

2.05 GASKETS

A. Branded, compressed, non-asbestos sheet gaskets. Klingersil C4401, Garlock 3000, or JM Clipper 978-C.

PART 3–EXECUTION

3.01 PREPARATION

A. Remove all foreign material from interior and exterior of pipe and fittings.

3.02 INSTALLATION

A. Support:
1. All interior or exposed pipelines shall be securely supported by adjustable metal saddles, brackets, or adjustable hangers supported directly by concrete, masonry work, or tile.
2. Strap hangers, tin clips, or U-hooks will not be acceptable.
3. In general, the maximum spacing of supports shall not exceed 10 feet on centers.
4. Insulation saddles shall be used. CONTRACTOR shall furnish and place hangers, supports, wall pipes, sleeves, and floor boxes in the forms before concrete is poured wherever needed or shown on the Drawings.
5. The weight of the piping shall be supported independently of connected equipment.
6. All supports and parts shall conform to the latest requirements of ASME B31 and shall have a structural safety factor of 5. Accurate weight balance calculation shall be made by CONTRACTOR to determine the required supporting force at each hanger location and the pipe weight load at each equipment connection. CONTRACTOR shall be responsible for the installation and application of the supports. Pipe hangers shall be capable of supporting the pipe weight load in all conditions of operation. The hangers shall allow free expansion and contraction of the piping to prevent excessive stress in the piping. Hangers and supports shall be spaced in accordance with ASME B31 and as indicated in this specification. Pipe supports shall be placed before and after a valve, expansion joint, or equipment so that stress will not be transferred to them.
7. CONTRACTOR shall provide calculations of pipe supports if requested by ENGINEER.
8. The following maximum spacings shall be provided for supports:

MAXIMUM HORIZONTAL PIPE
HANGER AND SUPPORT SPACING

Nominal Pipe or Tube Size	Black Steel (See Note 1) ft
3/4	8
1	8
1 1/4	8
1 1/2	8

Nominal Pipe or Tube Size	Black Steel (See Note 1) ft
2	10
2 1/2	10
3	10
4	10
5	10
6	10
8	10
10	10
12	10

Note 1: Provide at least one hanger per pipe length located as close to the flange or joint on barrel as possible.

9. The length of hanger span and support spacing in the above table refers to straight lengths of pipe. When there are changes of direction in pipe, two supports shall be placed less than three-fourths the full span in the table. When practical, a hanger shall be located immediately adjacent to a change in direction of piping. Where there are concentrated loads between supports such as valves, spacing shall be based on load calculations rather than this table.
10. Provide saddles or shields under piping hanger and supports for all insulated piping to prevent crushing of insulation. Provide stainless steel pipe shields under stainless steel piping to prevent indentation of piping from the support or clamp.
11. Vertical piping shall be supported at each floor level and at intervals as specified for horizontal piping.

B. Penetrations:
1. Where pipes pass through concrete members without wall fittings shown, CONTRACTOR shall provide sleeves in the forms for the piping.
2. The sleeve diameter shall not exceed the pipe O.D. (or flange O.D. where applicable) plus 2 inches, unless otherwise shown on Drawings.
3. If the concrete members are to be watertight, the annular space around the pipe shall be sealed with an approved mechanical seal.
4. Where pipes pass through a roof, they shall be run through an approved roof penetration with flashing and counter-flashing.
5. Where pipes pass through nonwatertight walls, the annular space shall be grouted full.
6. Where pipes pass through nonwatertight floors, the sleeve shall extend 1-inch above the finished floor elevation, and the annular space shall remain open, unless noted otherwise.
7. Space between wall sleeve or wall pipe and concrete shall be filled with nonshrinking mortar.
8. The annular space between the wall sleeve and pipe shall be sealed with an approved mechanical seal.
9. Where new pipes go through existing nonwatertight concrete or masonry members, holes shall be cored and grouted full (walls), remain open (floors), unless noted otherwise.
10. Plug abandoned pipes and wall pipes, after pipe and fitting removal, flush to the concrete surface with nonshrinking mortar, or as otherwise acceptable, to achieve a watertight seal.
11. No chases or recesses shall be made in poured concrete for pipe installation, and no pipe shall run in poured concrete unless called for in the Drawings or Specifications or

permitted by ENGINEER. The cutting or core drilling of concrete for pipe shall be avoided wherever possible, and in no case, where such cutting or core drilling is necessary, shall reinforcing rods be cut or disturbed without prior consultation with ENGINEER.

12. All openings for pipe work shall be neatly patched in a workmanlike manner.

C. Layout:

1. Install all piping parallel to building walls and ceilings and at heights that do not obstruct any portion of a window, doorway, stairway, or passageway. Where interferences develop in the field, offset or reroute piping as required to clear such interferences. In all cases, consult Drawings for location of pipe spaces, ceiling heights, door and window openings, or other architectural details before installing piping.
2. Exposed piping shall run straight, in neat parallel lines, and shall be located far enough from walls, ceilings and floors, to permit access for covering of pipe and painting work.
3. Care shall be taken in laying out piping that there is no interference with the proper location of piping for other purposes or other equipment, and shall be run with regard to the requirements of each service.
4. Piping shall not interfere with headroom or clear floor space.
5. Plates shall be provided on all uncovered pipes passing through floors, walls, and ceilings, constructed of materials other than poured concrete. Plates shall be on exposed sides and shall be chrome-plated, spring and snap type.
6. An ample number of unions shall be provided in all threaded, soldered, and glued pipelines and at all equipment to facilitate removal and replacement. Install a shutoff valve at each appliance.
7. In joining two dissimilar types of pipe, standard fittings shall be used when available. The proposed joint shall be submitted by CONTRACTOR to ENGINEER for review prior to installation.

3.03 ERECTION

A. Provide anchors, expansion joints, swing joints and/or expansion loops so that piping may expand and contract without damage to itself, equipment, or building.

B. Mitered ells, notched tees, and orange peel reducers are not acceptable. On threaded piping, bushings are not acceptable.

C. "Weldolets" and "Threadolets" may be used for branch takeoffs up to one-half the diameter of the main.

D. Do not route piping through transformer vaults or above transformers, panelboards, or switchboards, including the required service space for this equipment, unless the piping is serving this equipment.

3.04 WELDED PIPE JOINTS

A. Welding of pipe in normally occupied buildings is prohibited. Off-site welding is acceptable.

B. If welding is required in a normally occupied building for connecting to an existing welded system, written approval from OWNER shall be obtained and shall comply with building’s fire and life safety, as well as hot work requirements.

C. Piping and fittings shall be welded and fabricated in accordance with ASME/ANSI latest editions of B31 for all systems from the Code for Pressure Piping. Machine beveling in CONTRACTOR's shop is preferred. Field beveling may be done by flame cutting to recognized standards.

D. Provide complete penetration of deposited metal with base metal. Provide filler metal suitable for use with base metal. Maintain inside of fittings free from globules of weld metal.

E. All welded pipe joints shall be made by the fusion welding process, employing a metallic arc or gas welding process. All pipes shall have the ends beveled 37 1/2 degrees and all joints shall be aligned true before welding. Except as specified otherwise, all changes in direction, intersection of lines, reduction in pipe size and the like shall be made with factory-fabricated welding fittings. Mitering of pipe to form elbows, notching of straight runs to form tees, or any similar construction shall not be permitted.

F. Align piping and equipment so that no part is offset more than 1/16 inch. Set all fittings and joints square and true and preserve alignment during welding operation. Use of alignment rods inside pipe is prohibited.

G. CONTRACTOR shall not permit any weld to project within the pipe so as to restrict it. Tack welds, if used, must be of the same procedure as the completed weld. Otherwise, remove tack weld during welding operation.

H. Do not split, bend, flatten or otherwise damage piping before, during or after installation.

I. Remove dirt, scale or other foreign matter from the inside of the piping, by swabbing or flushing, prior to the connection of other piping sections, fittings, valves or equipment.

J. Schedule 40 pipe shall in no case be welded with less than three passes including one stringer/root, one filler and one lacer. Schedule 80 shall be welded with no less than four passes, including one stringer/root, two filler and one lacer. In all cases, the weld must be filled before the cap weld is added.

K. Weld Testing:
   1. All welds are subject to inspection, visual and/or x-ray, for compliance with Specifications. OWNER will at OWNER's option, provide employees or employ a testing laboratory for the purposes of performing said inspections and/or x-ray testing. Initial visual and x-ray inspections will be provided by OWNER. CONTRACTOR shall be responsible for all labor, material and travel expenses involved in the reinspection and retesting of any welds found to be unacceptable. In addition, CONTRACTOR shall be responsible for the costs involved in any and all additional testing required or recommended by ASME/ANSI Standards B31.1 and B31.3 because of the discovery of poor, unacceptable or rejected welds.
   2. Welds lacking penetration, containing excessive porosity or cracks, or are found to be unacceptable for any reason, must be removed and replaced with an original quality weld as specified herein. All qualifying tests, welding and stress relieving procedures shall, moreover, be in accordance with Standard Qualification for Welding Procedures, Welders and Welding Operators, Appendix A, Section 6 of the Code, current edition.

3.05 THREADED PIPE JOINTS

A. Use a Teflon based thread lubricant or Teflon tape when making joints; no hard setting pipe thread cement or caulking will be allowed.

3.06 NATURAL GAS

A. Pitch horizontal piping down 1-inch in 60 feet in the direction of flow. Install a 4-inch minimum depth dirt leg at the bottom of each vertical run and at each appliance. When installing mains and branches, cap gas tight each tee or pipe end which will not be immediately extended. All branch connections to the main shall be from the top or side of the main.

B. Do not install gas pipe in a ventilation air plenum.

C. If an above ground vent terminates in an area subject to snow accumulation, terminate the line at least five feet above grade.

D. Piping through a roof shall be run through an approved roof penetration with flashing and counter flashing.

E. Each gas pressure reducing valve vent and relief valve vent shall be run separately to a point outside of the building, terminated with a screened vent cap, and located according to gas utility regulations.

F. Clean all welded piping before all regulators and control valves. Test by placing target cloth over piping and blow with compressed air. Clean piping until target cloth is clean and free of debris.

3.07 VENTS AND RELIEF VALVE DISCHARGE PIPING

A. Install vent and relief valve discharge lines as indicated on the Drawings, as detailed, and as specified for each specific valve or piping specialty item. Each gas pressure reducing valve vent and relief valve vent shall be run separately to a point outside of the building, terminated with a screened vent cap, and located according to gas utility regulations.

B. Pipe vents from gas pressure reducing valves and pipe casing sleeves to the exterior of the building and terminate with outlet turned down and capped with corrosion resistant insect screen. Vent terminations shall be at least 7 feet above grade or pedestrian traffic and a minimum of 3 feet above or 10 feet horizontally from all air intakes or building openings. Provide stainless steel insect screens on vent outlets.

3.08 UNIONS AND FLANGES

A. Install a union or flange, as required, at each automatic control valve and at each piping specialty or piece of equipment which may require removal for maintenance, repair, or replacement. Where a valve is located at a piece of equipment, locate the flange or union connection on the equipment side of the valve. Concealed unions or flanges are not acceptable.

B. Provide dielectric isolation device where nonferrous lines connect to ferrous lines or equipment, such as dielectric union, coupling, or dielectric flange fitting.

3.09 PIPING SYSTEM LEAK TESTS

A. Piping system shall be tested as a complete unit or in sections. Under no circumstances shall a valve in a line be used as a bulkhead between gas in one section and test medium in an adjacent section, unless two valves in series are installed with a valved “telltale” located between these valves.

B. Verify that the piping system being tested is fully connected to all components and that all equipment is properly installed, wired, and ready for operation. If required for the additional pressure load under test, provide temporary restraints at expansion joints or isolate them during the test. Verify that hangers can withstand any additional weight load that may be imposed by the test.

C. All natural gas systems shall be inspected, tested, purged and placed into operation in accordance with NFPA 54 and as required by local code. Tester shall submit pneumatic tests to ENGINEER.

D. Conduct pressure test with air. Test time and pressure shall be as indicated in the table below; additional time may be necessary to conduct an examination for leakage. Each test must be witnessed by ENGINEER. If leaks are found, repair the area with new materials and repeat the test; caulking will not be acceptable.

System	Pressure	Medium	Duration
Natural Gas	Test pressure shall be no less than 1.5 times the proposed maximum working pressure, but not less than 3 psi. Where the test pressure exceeds 125 psi, test pressure shall not exceed 50% minimum yield strength of pipe.	Air, carbon dioxide, nitrogen, or inert gas.	1/2 hour per 500 cubic feet pipe volume not to exceed 24 hours. Test duration shall be not less than 1/2 hour for each 500 cubic feet of pipe volume or fraction thereof. When testing a system having a volume less than 10 cubic feet the test duration shall be a minimum of 60 minutes. The duration of the test shall not be required to exceed 24 hours.

E. Gradually increase the pressure to not more than one half of the test pressure; then increase pressure in steps of approximately one-tenth of the test pressure until the required test pressure is reached. Examine all joints and connections with a soap bubble solution or equivalent method. After testing is complete, slowly release the pressure in a safe manner.

F. All necessary piping, fittings, blind flanges, and apparatus for conducting tests shall be furnished by CONTRACTOR and shall comply with the requirements of NFPA 54 and as required by local codes.

G. All new rough-in distribution piping and affected portions of existing systems connected to, shall be subjected to a pneumatic test pressure utilizing clean, dry air and must be demonstrated to be absolutely tight when subjected to the pressures and time durations listed in table above. All equipment and components designed for operating pressures of less than the test pressure shall not be connected to the piping system during test.

H. Test pressure shall be measured with a manometer or with a pressure-measuring device designed and calibrated to read, record or indicate a pressure loss caused by leakage during the pressure test period.

I. Piping system shall withstand test pressure specified without showing any evidence of leakage or other defects. Any reduction of test pressures as indicated by pressure gauges shall be deemed to indicate a leak unless can be attributed to some other cause.

J. Leakage shall then be located by means of a gas detector, a noncorrosive leak detection fluid, or other leak detection method. Matches, candles, open flames or other methods that provide a source of ignition shall not be used.

K. When placing system into operation, appliances and equipment shall not be placed into operation until piping system has been checked for leakage with above requirements.

END OF SECTION

SECTION 23 23 00

REFRIGERANT PIPING

PART 1–GENERAL

1.01 SCOPE

A. This section contains specifications for all refrigerant piping for this project. Included are the following topics:
   1. Refrigerant Piping.
   2. Refrigerant Piping Accessories.
   3. Refrigerant.

1.02 REFERENCE

A. Applicable provisions of Division 01 govern work under this section.

1.03 REFERENCE STANDARDS

A. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.

B. All material, installation, and workmanship shall comply with the applicable requirements and standards addressed within the following references.
   1. ANSI B16.22–Wrought Copper and Wrought Copper Alloy Solder Joint Pressure Fittings.
   2. ASHRAE 15–Safety Standard for Refrigeration Systems.
   3. ASHRAE 32–Sustainable, High-Performance Operations and Maintenance.
   4. ASHRAE 34–Designation and Safety Classification of Refrigerants.
   5. ASME B31.5–Refrigeration Piping and Heat Transfer Components.
   6. ASTM B280–Seamless Copper Tube for Air Conditioning and Refrigeration Field Service.
   7. NFPA 70–National Electrical Code.

1.04 SUBMITTALS

A. Submit under provisions of Section 01 33 00–Submittals.

B. CONTRACTOR shall submit schedule indicating the ASTM specification number of the pipe being proposed along with its type and grade and sufficient information to indicate the type and rating of fittings for each service.

1.05 COPPER TUBE

A. Statement from manufacturer on their letterhead that the pipe furnished meets the ASTM specification contained in this section.

1.06 QUALITY ASSURANCE

A. All equipment or components of this specification section shall meet or exceed the requirements and quality of the items herein specified, or as denoted on the Drawings.

B. Order all copper refrigeration tube with each shipping unit marked with the purchase order number, metal or alloy designation, temper, size, and name of supplier; with soft straight lengths or coils identified with a tag indicating that the product was manufactured in accordance with ASTM B280; and with each hard temper straight length identified throughout its length by a blue colored marking not less than 3/16 inch in height and a legend at intervals of not greater than three feet that includes the designation “ACR” and pipe outside diameter.

C. Any installed material not meeting the specification requirements must be replaced with material that meets these specifications without additional cost to OWNER.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Promptly inspect shipments to review that the material is undamaged and complies with specifications.

B. Cover pipe to eliminate rust and corrosion while allowing sufficient ventilation to avoid condensation. Do not store materials directly on grade. Protect pipe, tube, and fitting ends so they are not damaged. Where end caps are provided or specified, take precautions so the caps remain in place. If end caps are not present on tube bearing the “ACR” designation, clean and re-cap in accordance with ASTM B280. Protect fittings, flanges, and unions by storage inside or by durable, waterproof, above ground packaging.

C. Offsite storage agreements will not relieve CONTRACTOR from using proper storage techniques.

D. Storage and protection methods must allow observation to verify products.

1.08 DESIGN CRITERIA

A. Use only new material, free of defects and scale, and meeting the latest revision of ASTM specifications as listed in this specification.

PART 2–PRODUCTS

2.01 REFRIGERANT PIPING

A. Acceptable manufacturer is Streamline ACR Copper Tube, or equal.

B. Piping shall be hard drawn copper tube, cleaned and capped in accordance with ASTM B280, and marked “ACR”, with ANSI B16.22 wrought copper solder-type fittings. The piping shall have an operating pressure of 700 psi at 250°F.

C. Precharged tubing line sets may be used on systems 3 1/2 tons and less in size.

2.02 REFRIGERANT PIPING ACCESSORIES

A. Acceptable manufacturers are Sporlan, Alco, or equal.

B. Provide all refrigerant piping specialties with a maximum working pressure of full vacuum to no less than the pressure vessel.

C. Flexible Pipe Connectors: Double braided bronze hose flexible pipe connectors with solder end connections.

D. Sight Glasses: Two piece brass construction with solder end connections. Include color indicator for sensing moisture.

E. Check Valves: Spring loaded type with bronze body, bronze disc, neoprene seat, bronze bonnet, stainless steel spring and solder end connections.

2.03 REFRIGERANT

A. Refrigerant shall be R-454B or R32 in accordance with ASHRAE 34.

PART 3–EXECUTION

3.01 PREPARATION

A. Remove all foreign material from interior and exterior of pipe and fittings.

3.02 ERECTION

A. Install all piping parallel to building walls and ceilings and at heights which do not obstruct any portion of a window, doorway, stairway, or passageway. Where interferences develop in the field, offset or reroute piping as required to clear such interferences. In all cases, consult Drawings for exact location of pipe spaces, ceiling heights, door and window openings, or other architectural details before installing piping.

B. Do not route piping through transformer vaults or above transformers, panelboards, or switchboards, including the required service space for this equipment, unless the piping is serving this equipment

C. Do not install piping running through any elevator shaft, public stairway, stair landing, or means of egress.

D. Install all valves and piping specialties, including items furnished by others, as specified and/or detailed. Make connections to all equipment installed by others where that equipment requires the piping services indicated in this section.

3.03 REFRIGERANT PIPING

A. Refrigeration piping to be installed by firms who are experienced in installation of such piping and in accordance with the requirements of the International Mechanical Code.

B. All brazing filler metals shall have a melting temperature above 1400°F and contain a minimum of 6 percent silver.

C. Tubing to be new and delivered to the job site with the original mill end caps in place. Clean and polish all joints before brazing. Avoid prolonged heating and burning during brazing. Purge all lines with nitrogen during brazing. Provide manual shut-off and check valves as required.

D. No refrigerant is to be vented directly to the atmosphere except that which may escape through leaks in the system during leak testing. During evacuation procedures, use equipment designed to recover and allow recycling of the refrigerant.

E. Systems erected on site which use A1 refrigerants and no piping larger than 0.62 inch in diameter shall be leak tested with refrigerant in accordance with ASHRAE 15 as follows. Leak test the system by charging the system to a pressure of 10 psig with an HFC refrigerant, with the compressor suction and discharge valves closed and with all other system valves open. Increase pressure to 300 psig with dry nitrogen. Rap all joints with a mallet and check for leaks with an electric leak detector having a certified sensitivity of at least one ounce per year. Seal any leaks that may be found and retest.

F. After completion of the leak test, evacuate the system with a vacuum pump to an absolute pressure not exceeding 1500 microns while the system ambient temperature is above 60°F. Break the vacuum to 2 psig with the refrigerant to be used in the system. Repeat the evacuation process, again breaking the vacuum with refrigerant. Install a drier of the required size in the liquid line, open the compressor suction and discharge valves, and evacuate to an absolute pressure not exceeding 500 microns. Leave the vacuum pump running for not less than two hours without interruption. Raise the system pressure to 2 psig with refrigerant and remove the vacuum pump.

G. Charge refrigerant directly from original drums through a combination filter-drier. Each drier may be used for a maximum of three cylinders of refrigerant and then must be replaced with a fresh drier. Charge the system by means of a charging fitting in the liquid line. Weigh the refrigerant drum before charging so that an accurate record can be kept of the weight of refrigerant put in the system. If refrigerant is added to the system through the suction side of the compressor, charge in vapor form only.

3.04 REFRIGERANT PIPING ACCESSORIES

A. Install accessories in accordance with the manufacturer’s written instructions and recommendations.

END OF SECTION

SECTION 23 31 00

DUCTWORK AND DUCTWORK SUPPORTS

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
1. Duct Pressure/System Class.
2. Duct Materials.
3. Insulated Flexible Ductwork.
4. Fasteners, Hangers and Supports.
5. Duct Sealants and Gaskets.
6. Ductwork Fabrication.

1.02 REFERENCES

A. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.03 SUBMITTALS

A. Submit under provisions of Section 01 33 00–Submittals.

B. Provide layout drawing for review prior to ductwork fabrication. Layout drawings shall be coordinated between all other trades prior to review.

1.04 PROJECT RECORD DOCUMENTS

A. Submit under provisions of Section 01 77 00–Contract Closeout.

B. Record actual locations and sizes of ducts and duct fittings. Record changes in fitting location sizes and types. Show additional fittings used.

1.05 QUALITY ASSURANCE

A. Perform Work in accordance with SMACNA–HVAC Duct Construction Standards–Metal and Flexible.

1.06 REGULATORY REQUIREMENTS

A. Construct ductwork to NFPA 90A standards.

1.07 ENVIRONMENTAL REQUIREMENTS

A. Do not install duct sealants when temperatures are less than those recommended by sealant manufacturers.

B. Maintain recommended minimum temperatures during and after installation of duct sealants.

C. Ductwork shall be stored indoors or in durable, waterproof, abovegrade packing.

1.08 DUCTWORK DESIGN

A. Duct layout and design shown on the Drawings are based on design of supply, return and exhaust system components. Any changes to the design for installation shall be submitted to and approved by OWNER and ENGINEER. Proposed changes shall be submitted with layout and pressure drop calculations. CONTRACTOR shall be responsible for the cost of any changes to the duct system or any system components.

1.09 DELIVERY, STORAGE AND HANDLING

A. Store products inside and protect from weather.

PART 2–PRODUCTS

2.01 DUCT PRESSURE/SYSTEM CLASS (METAL DUCTWORK)

A. Ductwork shall be constructed to the static pressure class as shown below, unless otherwise noted:
   1. Supply ductwork: 2-inch positive pressure class.
   2. Transfer air ductwork: 1-inch positive or negative pressure class.
   3. Exhaust air ductwork: 2-inch negative pressure class.
   4. Return air ductwork: 2-inch negative pressure class.

2.02 DUCT MATERIALS

A. All sheet metal used for construction of duct shall be 24 gauge, or heavier, except for round ductwork 12 inches and smaller shall be 26 gauge where allowed by SMACNA.

B. Galvanized steel ducts shall be ASTM A653 galvanized steel sheet, lock-forming quality, having G90 zinc coating of 1.25 ounces per square foot in conformance with ASTM A90. Sheet metal for ductwork noted or specified to be painted shall include “Paint Grip” finish.

C. Stainless Steel Ducts: ASTM A240/A240M and A480/A480M, Type 316 as indicated on Drawings. Provide Number 2B finish for all stainless steel ductwork unless otherwise indicated.

D. PVC Ducts:
   1. PVC piping (round duct) material less than 22 inches in diameter shall conform to ASTM D1784, Class 12454. PVC piping and fittings shall be PVC 1120, Schedule 80, high impact pipe conforming to ASTM D1785 with bells conforming to ASTM D2672. Solvent weld fittings shall conform to ASTM D2467, and for threaded, ASTM D2464. PVC round duct and fittings greater than or equal to 22 inches in diameter shall be of PVC conforming to ASTM D1784, Class 16444-D.
   2. All duct delivered to the job site shall be properly marked for type, grade, and design stress rating. Expansion joints shall be provided where needed. In general, all joints shall be solvent weld, except where flanges are required or as shown on the Drawings or where transition to another material is required.
   3. All exterior exposed duct shall be formulated with sufficient ultraviolet-light screeners to provide for long-term outdoor exposure with no deleterious effects.

4. Entire duct shall be of PVC construction. PVC-coated materials are not acceptable.
5. All PVC shall have a flame-spread rating of 25 or less in accordance with ULC S102.2.

E. All ductwork within and all negatively pressurized ductwork serving corrosive or Class 1, Division 1 areas shall be stainless steel. Material proposed shall be compatible with corrosive vapors present in environment.

2.03 INSULATED FLEXIBLE DUCTWORK

A. Insulated flexible ductwork shall be Atco Model 76 Series, or equal, with 1 1/2-inch, 3/4-pound density fiberglass insulation, reinforced polyester or foil-type vapor barrier, polyester or vinyl film with bonded galvanized steel helix core liner, and zinc-coated high carbon steel helix. Thermal conductance shall not exceed 0.23 btu/h-ft-°F minimum negative working pressure rating shall be 3/4 inches of water and minimum positive pressure rating shall be 6 inches of water. All items shall comply with UL-181, NFPA 90A, and 90B. Flame spread–25 maximum, smoke development–50 maximum.

2.04 FASTENERS, HANGERS, AND SUPPORTS

A. Ductwork shall be supported in accordance with SMACNA–HVAC Duct Construction Standards–Metal and Flexible. Secure wire method of support is not acceptable.

B. Inserts and Fasteners:
1. Concrete inserts installed prior to pouring shall be manufactured inserts. Carbon steel expansion anchors, vibration resistant, with ASTM B633 zinc plating. Use drill bit of same manufacturer as anchor. Acceptable manufacturers include Hilti, Rawl, and Redhead.
2. Concrete fasteners installed after pouring shall be epoxy-type.
3. Fasteners for structural steel shall be beam clamps.
4. Fasteners to ductwork shall be 316 stainless steel, unless otherwise indicated.

C. Hangers:
1. Strip hangers shall be only used in concealed areas and shall be galvanized steel.
2. Hanger rod shall be ASTM A36 galvanized steel for galvanized ducts or 316 stainless steel for ducts other than galvanized, unless noted otherwise. Rods shall be continuously threaded.

D. Supports:
1. Duct support material shall be galvanized steel for galvanized duct. Material for supports in corrosive spaces shall be as noted below.
2. Acceptable supports for trapeze hangers are steel angles or uni-strut. Exposed ductwork shall be supported by steel angle supports painted to match duct.
3. Riser supports shall be angles or channels secured to the sides of the duct with welds or fasteners.
4. Provide all supporting steel required for the installation of ductwork and materials, whether or not it is specifically indicated or sized, including angles, channels, beams, etc. to suspend or floor support.

5. For ground or equipment pad mounted support stand, use galvanized structural steel members and use duct rollers fastened to the structural member. Supports shall be secured to the ground or equipment pad.

E. Beam Clamps:
1. MSS SP-58 Type 23 malleable black iron clamp for attachment to beam flange to 0.62 inch thick for single threaded rods of 3/8-, 1/2-, and 5/8-inch diameter. Furnish with a hardened steel cup point set screw. Acceptable manufacturer includes Anvil Figure 86.
2. MSS SP-58 Type 28 or Type 29 forged steel jaw type clamp with a tie rod to lock clamp in place, suitable for rod sizes to 1 1/2-inch diameter. Acceptable manufacturer includes Anvil Figure 228.

F. Corrosive Atmosphere Coatings:
1. Corrosive environments shall be as noted on the Drawings.
2. Type 304 stainless steel supports and fasteners shall be used in tanks, wet wells, screening and grit facilities, sludge dewatering or thickening facilities, or as indicated.
3. Ductwork in chemical rooms, and where indicated on the Drawings, shall be supported with a plastic or fiberglass support system, Aickinstrut, Strongwell, or equal.

2.05 DUCT SEALANTS AND GASKETS

A. Duct sealant shall be United McGill–United Duct Sealer, or equal for indoor applications and United McGill–Uni-Weather Duct Sealer, or equal for outdoor applications. Sealant shall be UL classified for flame and smoke development and shall be suitable for mating materials.

B. Gaskets at flanged joints shall be butyl rubber or EPDM.

2.06 DUCTWORK FABRICATION

A. Rectangular Field and Shop Fabricated Ductwork:
1. Fabricate and support in accordance with SMACNA–Duct Construction Standards–Metal and Flexible. Duct material, gauges, reinforcing, joint types and sealing shall be in accordance with required pressure class in the standard.
2. Construct tees, bends, and elbows with radius of not less than 1 1/2 times width of duct on centerline. Where not possible, rectangular elbows may be used with turning vanes in accordance with Section 23 33 00–Air Duct Accessories.
3. Increase duct sizes gradually, not exceeding 15 degree divergence wherever possible; maximum 30 degree divergence upstream of equipment and 45 degree convergence downstream.
4. Provide 45 degree expanded entry takeoffs unless otherwise indicated. Flange ductwork for attachment to grille registers and outlets, unless otherwise noted.
5. Provide reinforcement and rigidity required for pressure class.
6. Provide cross breaking or cross beading on duct sides larger than 18 inches.
7. Seal all joints airtight with gaskets and sealants.

B. Round Manufactured Ductwork and Fittings:
1. Fabricate and support in accordance with SMACNA–Duct Construction Standards–Metal and Flexible. Duct material, gauges, reinforcing, joint types and sealing shall be in accordance with required pressure class in the standard.
2. Ductwork shall be fabricated spiral seam round.

3. Ductwork shall be constructed with locktight spiral grooved seams, gored elbows with centerline radius of 1 1/2 times the duct diameter, and male/female fittings. Conical tees, conical 45 degree laterals, conical bellmouth taps, and fittings shall be used.
4. Seal all joints airtight with gaskets and sealants.
5. Where grilles and registers are shown to be tapped into ductwork sides, the entire assembly including the round duct section and the rectangular tap shall be fully welded and provided by the manufacturer.

PART 3–EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install and seal ducts in accordance with SMACNA HVAC Duct Construction Standards–Metal and Flexible.

C. Duct sizes are inside clear dimensions.

D. Provide openings in ductwork to accommodate testing equipment and controllers. Where openings are provided in insulated ductwork, install a metal insulation sleeve of same material as ductwork.

E. Locate ducts with sufficient space around equipment to allow normal operating and maintenance activities. Make all necessary incidental changes in cross-section, offsets, etc., to avoid interference with other equipment and supports.

F. Supports:
1. Use double nuts and lock washers on threaded rod supports.
2. Inserts shall be coordinated with general contractor for installation in concrete.
3. The weight of the ductwork shall be supported independently of connected equipment.
4. Roof Mounted Supports: Use for all ductwork on roof. Secure bottom of support flat on roof deck. Apply two coats of zinc rich paint to cut edges of all galvanized steel elements. Flashing and counter flashing by the Division 07 Contractor.
5. Secure ducts to supports with metal straps over ductwork and insulation and jacketing, if applicable.

G. Connect air diffusers, registers, and grilles to supply and return ducts directly. Where registers and grilles are to be mounted on exposed ductwork, provide flanged opening for finished appearance.

H. During construction, provide temporary closures of metal or taped polyethylene on open ductwork to prevent construction dust from entering ductwork system.

I. Provide an experienced installer to go through the air distribution system with the balancer.

J. Any modifications to the ductwork shown on the Drawings must be reviewed by ENGINEER prior to installation.

K. Where ducts pass through non-fire rated partitions in interior or exterior walls, provide stainless steel flange on four sides on both sides of partition concealing opening. Flange

shall overlap opening all around by 2 inches. Fill space with insulation if duct is insulated on either side of partition.

L. Stainless steel ductwork for fume hoods shall be of liquid-tight construction and TIG-welded.

M. For flexible ductwork, follow manufacturer's installation instructions with particular attention to fully extending duct. Ducts shall be supported to prevent sags in excess of 4 inches in 10 feet. No more than one long turn (radius = 1 1/2 times diameter) will be allowed in any single run. Use round sheet metal stub ducts with conical bell mouth inlet and damper attached to trunk or branch duct for starting flexible duct run and provide insulated guard. Furnish and install a rigid elbow at the inlet to each diffuser of same diameter as flexible duct. Steel strap clamp bands or plastic draw bands with self-lock may be used for connection of flexible ducts to other materials. Maximum duct lengths shall be 6 feet for any runout.

END OF SECTION

SECTION 23 33 00

AIR DUCT ACCESSORIES

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
   1. Air Turning Devices.
   2. Duct Access Doors.
   3. Duct Test Holes.
   4. Flexible Duct Connections.
   5. Duct Screens.
   6. Balancing Dampers.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.

B. All material, installation, and workmanship shall comply with the applicable requirements and standards addressed within the following references.
   1. NFPA 90A–Installation of Air Conditioning and Ventilating Systems.
   2. SMACNA–HVAC Duct Construction Standards–Metal and Flexible.
   3. UL 33–Heat Responsive Links for Fire-Protection Service.
   4. UL 555–Fire Dampers and Ceiling Dampers.

1.03 SUBMITTALS

A. Submit under provisions of Section 01 33 00–Submittals.

B. Damper submittals shall include actual pressure drop, free area, and torque requirements for each type of damper provided.

1.04 PROJECT RECORD DOCUMENTS

A. Submit under provisions of Section 01 77 00–Contract Closeout.

B. Record actual locations of access doors, fire dampers, flexible duct connections, dampers, and screens.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store and handle products in accordance with manufacturers recommendations and Section 01 60 00–Materials and Equipment.

1.06 WARRANTY

A. Standard One-Year Warranty: Unless otherwise stated below, manufacturer shall warrant the equipment to be free from defects in material and workmanship for a period of one year from the earlier of either the date established for partial utilization in accordance with GC15.03 and 15.04, as modified in the Supplementary Conditions, or Substantial Completion of the project.

PART 2–PRODUCTS

2.01 AIR TURNING DEVICES

A. Provide factory-fabricated metal air turning vanes in all square elbows and bends according to SMACNA Standards. Turning vanes shall be constructed of the same material specified for the ductwork.

2.02 DUCT ACCESS DOORS

A. Provide Ductmate Model FD&H, or equal, access doors for ductwork. Access door hinge and cover shall be constructed of material similar to that specified for ductwork. Provide insulated access doors where ductwork is insulated. All access doors shall be gasketed.

2.03 DUCT TEST HOLES

A. Provide Ventfabrics, Inc. No. 699 Instrument Test Holes, or equal, complete with gaskets and screw caps. Coordinate test hole height with insulation thickness.

B. On uninsulated ductwork only, plastic pull-tab centered tapered plugs may be used. Plugs shall be Caplugs CPT-3, or equal, with minimum diameter of 0.36 inch.

2.04 FLEXIBLE DUCT CONNECTIONS

A. Flexible duct connections in unrated spaces shall be Ventfabrics, Inc. “Ventglas®”, or equal, neoprene-coated glass fabric. Fabric shall be suitable for continuous operation up to 200°F. Fabric shall have zero leakage at ±10 inches water column.

B. Flexible duct connections in rated spaces shall be Ventfabrics, Inc. “Ventel™”, or equal, Teflon fluorocarbon resin-coated glass fabric. Fabric shall be suitable for continuous operation up to 500°F. Fabric shall have zero leakage at ±8 inches water column.

2.05 DUCT SCREENS

A. Provide screens equal to Ryerson Ryex Standard, 3/4 inches, 12-gauge sheet metal with border frame for protection on open duct inlets and outlets, and as indicated on the Drawings. Frame and screen shall be stainless steel.

B. In PVC ductwork, provide screen equal to Harrison Machine and Plastic, 3/4 inches with border frame for protection, in lieu of metal. Install screen at sufficient angle to provide 60% of duct-free area through screen.

2.06 BALANCING DAMPERS

A. All balancing dampers shall be provided with locking devices to hold the dampers in a fixed position without vibration. Single blade dampers shall be stiffened to operate in a stable manner.
   1. Balancing dampers for rectangular metal ductwork 12 inches high or less and for round metal ductwork shall be single blade manual balancing dampers of same material as specified for the ductwork. Dampers shall conform to SMACNA standards for single blade-type volume dampers.
   2. Balancing dampers for rectangular ductwork over 12 inches high shall be Greenheck VCD-20, or equal, multi-blade volume dampers of same material as specified for the ductwork. Damper blades shall be 3V type of 16-gauge construction. Bushings shall be nylon. Axles shall be 1/2-inch diameter. Blade operation shall be opposed. Damper shall include an indicator to show position of the blades. Where dampers are installed in vertical ductwork, provide dampers with jamb seals designed for vertical duct installation.

B. Dampers for PVC ductwork shall be Chicago Plastics Systems Blastgate or quadrant damper, or equal. Dampers shall be PVC with lockable blades for balancing.

PART 3–EXECUTION

3.01 INSTALLATION

A. Install accessories in accordance with manufacturer's instructions, NFPA 90A, and follow SMACNA HVAC Duct Construction Standards–Metal and Flexible. Refer to Section 23 31 00–Ductwork and Ductwork Supports for duct construction and pressure class.

B. Provide duct access doors for inspection and cleaning before and after intake louver screens, filters, coils, fans, automatic dampers, at fire dampers, underneath duct smoke detectors, and elsewhere as indicated.

C. Division 23 shall be responsible for coordinating with testing and balancing agency and providing test holes in all locations required for testing and balancing agency to complete their scope of work.

D. Provide flexible connections immediately adjacent to equipment in ducts associated with fans and motorized equipment. Metal-to-metal gap shall be approximately 4 inches.

E. Provide balancing dampers at points on supply, return, and exhaust systems where branches are taken from larger ducts for air balancing and where indicated on the Drawings. Install minimum two duct widths from duct takeoff.

F. Provide balancing dampers on duct takeoff to diffusers, grilles, and registers regardless of whether dampers are specified as part of the diffuser, grille, or register assembly.

END OF SECTION

SECTION 23 34 16

CENTRIFUGAL HVAC FANS

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
   1. Vertical Upblast and Sidewall Fans.
   2. Ceiling Fans.
   3. Centrifugal Blowers.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.

B. All material, installation, and workmanship shall comply with the applicable requirements and standards addressed within the following references.
   1. AMCA 99–Standards Handbook.
   2. AMCA 210–Laboratory Methods of Testing Fans for Aerodynamic Performance Rating.
   3. AMCA 300–Reverberant Room Method for Sound Testing of Fans.
   4. AMCA 301–Method for Calculating Fan Sound Ratings from Laboratory Test Data.
   5. ASTM B117–Standard Practice for Operating Salt Spray (Fog) Apparatus.
   6. NFPA 70–National Electrical Code.
   7. NEMA MG 1–Motors and Generators.

1.03 SUBMITTALS

A. Submit under provisions of Section 01 33 00–Submittals.

B. Include data concerning dimensions, required clearances, capacities, materials of construction, ratings, weights, manufacturer's installation requirements, manufacturer's performance limitations, and appropriate identification. Include plans, elevations, sections, and details.

C. Submittal shall include fan-specific performance curves showing airflow, head, and motor horsepower.

D. Submit manufacturer’s installation instructions and recommendations.

E. Submittals must be specific to this project. Generic submittals will not be accepted.

F. Hanging and support requirements shall follow the recommendations in the manufacturer’s installation instructions.

1.04 QUALITY ASSURANCE

A. All equipment or components of this specification section shall meet or exceed the requirements and quality of the items herein specified, or as denoted on the Drawings.

B. Fans shall bear AMCA-certified rating seals.

C. Electrical components shall be UL listed for the service specified.

D. Electrical components and work shall be in accordance with the National Electrical Code.

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to the site in such a manner as to protect the materials from shipping and handling damage. Provide materials on factory provided shipping skids and lifting lugs, if required for handling.

B. Materials that could be damaged by the elements should be packaged in such a manner that they could withstand short-term exposure to the elements during transportation.

C. Store materials in a clean, dry place and protect from weather and construction traffic. Handle carefully to avoid damage.

D. Use all means necessary to protect equipment before, during, and after installation.

E. All scratched, dented, and otherwise damaged units shall be repaired or replaced at no additional cost to OWNER.

F. Motors, shafts and bearings shall be protected from weather and dust.

1.06 OPERATION AND MAINTENANCE DATA

A. Include installation instructions, assembly views, lubrication instructions, recommended maintenance schedule and activities.

B. Include replacement and spare parts lists.

1.07 WARRANTY

A. Standard One-Year Warranty: Unless otherwise stated below, manufacturer shall warrant the equipment to be free from defects in material and workmanship for a period of one year from the earlier of either the date established for partial utilization in accordance with GC15.03 and 15.04, as modified in the Supplementary Conditions, or Substantial Completion of the project.

PART 2–PRODUCTS

2.01 VERTICAL UPBLAST AND SIDEWALL FANS

A. Acceptable manufacturers are Greenheck, Cook, or Twin City Fans.

B. Vertical upblast fans shall be of drive type listed on drawing schedules. Fan installation shall include roof curb (for upblast fans), drain trough, and bird guard. Fan performance shall be as indicated on drawings schedules. Fans shall be UL listed.

C. The fan housing shall be aluminum with all fasteners either aluminum or stainless steel.

D. All fan wheels shall be aluminum construction, have backward-inclined or forward-curved blades, and the fan wheel shall be statically and dynamically balanced.

E. The entire drive assembly shall be mounted on neoprene vibration isolators to provide quiet, vibration-free operation. Fan performance shall include AMCA-certified air and sound ratings, and fans shall bear the AMCA seal.

F. The fan motor shall be as noted on the equipment schedule and shall be NEMA-approved. Motor shall be provided with a 1.15 service factor. Starters and disconnects shall be provided as noted on equipment schedules. Motors 1 hp and higher shall have NEMA premium efficiency rating. Where drawing schedules indicate, provide electronically commutated motor (ECM) capable of varying speed based on external 0 to 10 VDC control signal or potentiometer speed dial. Provide shaft grounding split ring kit as manufactured by AEGIS, or equal, for motors operating on VFDs. Motors operating on VFDs shall be inverter duty rated. Thermostats shall be applied to motor windings operating on VFDs, capable of shutdown and manual reset by external controls (by Division 26) for motors operating on VFDs.

G. Provide a fan and motor suitable for Class I, Division 1 environments where schedules indicate. Fans serving Class I, Division 1 environments shall be equipped with nonsparking fan wheels with AMCA B rating and a NEMA 7 (explosion proof) motor.

H. Each fan and motor combination shall be capable of delivering 110% of air quantity scheduled at scheduled static pressure. The motor furnished with the fan shall not operate into the motor service factor when operating under these conditions.

I. The belt-driven fan shafts shall be mounted in prelubricated sealed ball bearing pillow blocks. Bearings shall have a minimum L_{10} life of 100,000 hours. Belt drives shall have an adjustable motor plate for belt tensioning. Belt driven motors and drives shall be mounted out of the airstream.

J. Provide an aluminum wire bird guard on the fan’s discharge.

K. Manufacturer shall provide a prefabricated, insulated aluminum roof curb with wood blocking to level curb on roof for upblast fans only. Curb shall be sized for 1/4-inch clearance on all sides between curb and fan. The roof curb insulation shall be 1-inch thick, 3 pounds per cubic foot rigid fiberglass board. Curb height shall be nominal 12 inches unless otherwise indicated. Fans on pitched roof shall be provided with a pitched and cricketed roof curb. Finish shall match finish of fan. Roof curb shall be provided with a foam seal and aluminum liner.

L. Where schedules indicate fans are to be suitable for corrosive environments, all surfaces of the fan, bird screen, and curb liner shall be coated with 2 to 3 mils of Hi-Pro Polyester powder coating. Wheel shall be rebalanced statically and dynamically by the fan manufacturer after application of the coatings. Color shall be selected by OWNER. Submit color chart with shop drawings.

M. All surfaces of fan, bird screen, and curb liner shall be coated with 2 to 3 mils of Hi-Pro Polyester powder coating. Wheel shall be rebalanced statically and dynamically by the fan manufacturer after application of coating. Color to be selected by OWNER. Submit color chart with shop drawings.

2.02 CEILING FANS

A. Acceptable manufacturers are Greenheck, Cook, or Twin City Fans.

B. Fans shall have acoustically insulated housings and shall have maximum sound level rating not to exceed 4.0 sones in accordance with AMCA Bulletin 300-74. Fans shall bear the AMCA-certified ratings and seal for air capacity, sound, and UL label.

C. Unit shall be equipped with integral chatter proof backdraft damper.

D. Fans shall have centrifugal wheel with inlet perpendicular to grille. Ceiling grille shall be aerodynamically designed and shall provide 80% free area.

E. Terminal box shall be furnished with cord, plug, and receptacle inside housing. Entire fan, motor, and wheel assembly shall be removable without disturbing the housing. Motor speed shall not exceed 1,100 rpm.

F. Fan shall be mounted on vibration isolators furnished by fan manufacturer.

G. Manufacturer shall furnish line voltage internally-mounted and wired variable speed controller for fan. Controller shall be used for balancing only and shall be inaccessible to room occupants unless otherwise indicated on the Drawings. The fan motor shall be open drip proof as indicated on Drawings. Starters and disconnects shall be provided as noted on equipment schedules.

2.03 CENTRIFUGAL BLOWERS

A. Blowers, as shown on the Drawings, shall be manufactured Plastec Ventilation, or equal.

B. Blower housing shall be single-piece, seamless, UV-resistant polypropylene. Split-molded housings are not acceptable. All supporting hardware shall be stainless steel.

C. The blower wheel shall be constructed of polypropylene and be forward-curved type. Blower wheel shall be statically and dynamically balanced. Blower wheel shall be provided with a motor shaft bushing and hubcap made of polypropylene.

D. The blower motor shall be UL listed for continuous-duty. Motor shall be as noted on equipment schedule and provided with a motor junction box. Provide stainless steel motor stand from manufacturer. Starters and disconnects shall be provided as noted on equipment schedules. Motors 1 hp and higher shall have NEMA premium efficiency rating.

PART 3–EXECUTION

3.01 INSTALLATION

A. Install units level and plumb, maintaining manufacturer’s recommended clearances and tolerances.

B. Install in accordance with manufacturer's instructions and approved submittals. Test for proper operation and adjust until satisfactory results are obtained.

C. Install units with vibration isolators as recommended or supplied by manufacturer.

D. Provide flexible duct connections on all duct connections to unit in accordance with Section 23 33 00–Air Duct Accessories.

E. Provide lubrication line extenders as required to allow regreasing of bearings without removal of equipment components.

F. Provide all mounting hardware and accessories necessary for complete installation.

G. Touch-up, repair or replace damaged products at no additional cost to OWNER.

H. Installation of all equipment furnished under this Contract shall be supervised by a qualified representative of the equipment manufacturer. All equipment shall be placed in operation, and plant operators/building maintenance personnel shall be trained to the satisfaction of OWNER by a qualified representative of the equipment manufacturer. OWNER may videotape training presentations given by manufacturer’s representatives. Final payment for various items of equipment will not be made by OWNER until the equipment is operating to their satisfaction.

I. Drawings and Specifications are based on the scheduled manufacturer and model number. CONTRACTOR shall be responsible for the cost of any changes because of substitutions or alternates of other manufacturers or model numbers including but not limited to, structural, mechanical, and electrical work. CONTRACTOR shall pay all costs for revisions of drawings by ENGINEER. Any changes shall be coordinated and provided at no additional cost to OWNER.

END OF SECTION

SECTION 23 34 39

HIGH VOLUME LOW-SPEED PROPELLER FANS

PART 1–GENERAL

1.01 SUMMARY

A. Work Included: High-volume low-speed fans.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.

B. All material, installation, and workmanship shall comply with the applicable requirements and standards addressed within the following references.
   1. AMCA 99–Standards Handbook.
   2. AMCA 210–Laboratory Methods of Testing Fans for Aerodynamic Performance Rating.
   3. AMCA 300–Reverberant Room Method for Sound Testing of Fans.
   4. AMCA 301–Method for Calculating Fan Sound Ratings from Laboratory Test Data.
   5. NFPA 70–National Electrical Code.
   6. NEMA MG 1–Motors and Generators.

1.03 QUALITY ASSURANCE

A. All equipment or components of this specification section shall meet or exceed the requirements and quality of the items herein specified, or as denoted on the Drawings.

B. Fans shall bear AMCA-certified rating seals.

C. Electrical components shall be UL listed for the service specified.

D. Electrical components and work shall be in accordance with the National Electrical Code.

1.04 SUBMITTALS

A. Submit under provisions of Section 01 33 00–Submittals.

B. Include data concerning dimensions, required clearances, capacities, materials of construction, ratings, weights, manufacturer's installation requirements, manufacturer's performance limitations, and appropriate identification. Include plans, elevations, sections, and details.

C. Submittal shall include fan-specific performance curves showing airflow, head, and motor horsepower.

D. Submit manufacturer’s installation instructions and recommendations.

E. Submittals must be specific to this project. Generic submittals will not be accepted.

F. Hanging and support requirements should follow the recommendations in the manufacturer's installation instructions.

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to the site in such a manner as to protect the materials from shipping and handling damage. Provide materials on factory provided shipping skids and lifting lugs, if required for handling.

B. Materials that could be damaged by the elements should be packaged in such a manner that they could withstand short-term exposure to the elements during transportation.

C. Store materials in a clean, dry place and protect from weather and construction traffic. Handle carefully to avoid damage.

D. Use all means necessary to protect equipment before, during, and after installation.

E. All scratched, dented, and otherwise damaged units shall be repaired or replaced at no additional cost to OWNER.

F. Motors, shafts and bearings shall be protected from weather and dust.

1.06 OPERATION AND MAINTENANCE DATA

A. Include installation instructions, assembly views, lubrication instructions, recommended maintenance schedule and activities.

1.07 WARRANTY

A. Standard One-Year Warranty: Unless otherwise stated below, manufacturer shall warrant the equipment to be free from defects in material and workmanship for a period of one year from the earlier of either the date established for partial utilization in accordance with GC15.03 and 15.04, as modified in the Supplementary Conditions, or Substantial Completion of the project.

B. Extended Warranty: Manufacturer shall warrant high volume low speed fans for a period of 3 years from the earlier of either the date established for partial utilization in accordance with GC15.03 and 15.04, as modified in the Supplementary Conditions, or Substantial Completion of the project.

PART 2–PRODUCTS

2.01 HIGH VOLUME LOW SPEED FANS

A. Acceptable manufacturer is Big Ass Solutions, Greenheck, or equal.

B. Airfoils:
1. Each fan shall have eight low speed airfoils of extruded 6063-T5 aluminum alloy.

2. Each airfoil shall be of the high performance PowerFoil™ design.
3. The foils shall be connected to the hub section of the fan by means of two locking bolts per foil. The locking bolts shall be SAE grade 8 only, 5/16-inch diameter with 150,000 psi tensile strength.
4. The airfoils shall be interlocked with airfoil retainers to prevent an individual airfoil from becoming accidentally disconnected from the hub. The straps shall consist of 1008 steel with a clear zinc chromate finish.

C. Winglets:
1. PowerFoil™ winglets shall redirect outward airflow into downward airflow.
2. Winglets shall be attached to the tip of each foil by means of a No. 10 barrel screw.
3. Each winglet shall be colored as specified by OWNER, nominally measure 8 1/2 inches by 3 inches, and be made of No Break Polypropylene.

D. Motor: The fan motor shall be Baldor/Reliance, 1750 RPM, 460 VAC, 60 Hz, three-phase, inverter-rated with Class F insulation, 40°C ambient-continuous. Model PFX4-12 shall be 1.9 horsepower or 1.4 kW.

E. Bevel Gear Reducer:
1. The gear reducer shall be a high-efficiency helical gear reducer with a cast iron housing.
2. Gearing shall be precision finished for low noise and long service life with a backlash of less than 20 arc minutes. Output shaft diameter shall be 1 1/4-inch 17-4 PH stainless steel.
3. Gear reducer shall be assembled with double lip seals to prevent contamination or oil leakage and shall be lubricated for life.

F. Motor Frame: The fan motor frame and mount shall be constructed of 3/16-inch powder-coated steel.

G. Hub:
1. The fan hub assembly shall be constructed of a precision cast of prime 713 aluminum zinc magnesium alloy.
2. The hub shall incorporate six safety clips made of 1/4-inch steel that shall restrain the hub/airfoil assembly in case of shaft failure.

H. Mount:
1. The fan mount shall be designed for quick and secure mounting of the fan from a structure's supported beams.
2. The mounting system of the fan shall allow easy removal and relocation, if required.
3. The fan mount shall be constructed of 3/16-inch powder-coated steel.

I. Safety Cable:
1. The safety cable shall provide an additional means of securing the fan assembly to the building structure.
2. The safety cable shall be 1/4 inch in diameter and consist of 7 by 19 galvanized steel with swaged Nicopress end loops. The ends shall be secured by 7/16-inch screw-in shackles.
3. The safety cable shall have a breaking strength of at least 7,000 pounds.

J. Fan Controller:
1. Fan controller shall be UL listed as Industrial Control Panels and built pursuant to construction guidelines set forth by UL Article 508A and the National Electrical Code.

2. Each fan controller shall include a factory-programmed Variable Frequency Drive (VFD) to provide a soft start for the fan, as well as infinite speed control capability for the fan.
3. Multiple motor systems shall include a Solid-State Overload relay for each motor.
4. Load reactors shall be included for 400 to 600 V multifan controls.
5. Each fan controller shall be constructed of durable UV-resistant materials and equipped with an ON/OFF/AUTO switch, speed control potentiometer, safety disconnect, and properly sized fuse block.
6. The controls shall be housed in a NEMA Type 1 enclosure to prevent accidental contact with the enclosed equipment, and to exclude entry of unwanted substances.
7. Provide one controller to control both HVLS-96-01 and HVLS-96-02. Controller shall be located as shown on the Drawings.

K. Fan Controller Program: Controllers and VFD shall be factory-programmed to minimize starting and braking torques.

PART 3–EXECUTION

3.01 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify ENGINEER of unsatisfactory preparation before proceeding.

3.02 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.03 INSTALLATION

A. Install units level and plumb, maintaining manufacturer’s recommended clearances and tolerances.

B. Install in accordance with manufacturer's instructions and approved submittals. Test for proper operation and adjust until satisfactory results are obtained.

C. Provide all mounting hardware and accessories necessary for complete installation.

D. Touch-up, repair or replace damaged products at no additional cost to OWNER.

E. Installation of all equipment furnished under this Contract shall be supervised by a qualified representative of the equipment manufacturer. All equipment shall be placed in operation, and plant operators/building maintenance personnel shall be trained to the satisfaction of OWNER by a qualified representative of the equipment manufacturer. OWNER may videotape training presentations given by manufacturer’s representatives. Final payment for various items of equipment will not be made by OWNER until the equipment is operating to their satisfaction.

F. Drawings and Specifications are based on the scheduled manufacturer and model number. CONTRACTOR shall be responsible for the cost of any changes because of substitutions or alternates of other manufacturers or model numbers including but not limited to, structural, mechanical, and electrical work. CONTRACTOR shall pay all costs for revisions of Drawings by ENGINEER. Any changes shall be coordinated and provided at no additional cost to OWNER.

G. Fan controllers shall be installed on wall 48 inches above finished floor (top of box), unless otherwise noted.

END OF SECTION

SECTION 23 37 08

LOUVERS AND VENTS

PART 1–GENERAL

1.01 SUMMARY

A. Work Included: Louvers.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.

B. All material, installation, and workmanship shall comply with the applicable requirements and standards addressed within the following references.
1. ADC 1062–Certification Rating and Test Manual.
2. AMCA 500–Test Method for Louvers, Dampers, and Shutters.
3. ARI 650–Air Outlets and Inlets.
4. ASHRAE 70–Method of Testing for Rating the Air Flow Performance of Outlets and Inlets.
5. NFPA 90A–Installation of Air Conditioning and Ventilating Systems.

1.03 QUALITY ASSURANCE

A. Performance of air terminals shall be in accordance with ADC 1062.

B. Louvers shall be tested and certified in accordance with AMCA 500 and shall bear the AMCA seal.

1.04 SUBMITTALS

A. Submit under provisions of Section 01 33 00–Submittals.

B. Include a louver schedule that includes louver model, screen type, screen location, louver size, finish type, free areas, face velocity, and pressure drop for each louver.

C. Submit manufacturer’s installation instructions and recommendations.

D. Submit color selection chart with submittal for selection by OWNER.

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to the site in such a manner as to protect the materials from shipping and handling damage.

B. Materials that could be damaged by the elements should be packaged in such a manner that they could withstand short-term exposure to the elements during transportation.

C. Store materials in a clean, dry place and protect from weather and construction traffic. Handle carefully to avoid damage.

D. Use all means necessary to protect equipment before, during, and after installation.

E. Scratched, dented, and otherwise damaged units shall be repaired or replaced with no additional cost to OWNER.

PART 2–PRODUCTS

2.01 LOUVERS (EXTRUDED ALUMINUM)

A. Acceptable louvers are Greenheck ESD 635, or equal. See Drawings for sizes and locations.

B. Blades and frame shall be extruded aluminum 6063-T5 alloy and 0.08-inch thickness.

C. Blades shall be 35-degree drainable type spaced at 4 inches on center. Louver shall be capable of a velocity of 1,077 fpm with no water penetration. Performance shall include AMCA-certified air and moisture penetration data and louver shall bear the AMCA seal. Vertical and horizontal mullions and connections between panels shall not be exposed.

D. Provide channel frame.

E. Provide aluminum screen on louver (type and location) in accordance with louver schedule and detail on the Drawings. All fastenings shall be stainless steel or aluminum. Screen frame shall be painted to match louver. Paint shall be by manufacturer or per Section 09 91 00–Painting.

F. Louver free area shall be equal to or greater than attached ductwork and damper free area.

G. Louvers shall be furnished with 3 coats of 70% Kynar 500 finish with custom color selected by OWNER. Submit manufacturer’s standard color chart with shop drawings.

PART 3–EXECUTION

3.01 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify ENGINEER of unsatisfactory preparation before proceeding.

3.02 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.03 INSTALLATION

A. Install units level and plumb, maintaining manufacturer’s recommended clearances and tolerances.

B. Install in accordance with manufacturer’s instructions, drawing details, and approved submittals.

C. Clean surface of louvers and vents after installation.

END OF SECTION

SECTION 23 37 13

DIFFUSERS, REGISTERS, AND GRILLES

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
   1. Diffusers.
   2. Registers.
   3. Grilles.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.

B. All material, installation, and workmanship shall comply with the applicable requirements and standards addressed within the following references.
   1. ADC 1062–Certification Rating and Test Manual.
   2. AMCA 500–Test Method for Louvers, Dampers, and Shutters.
   3. ARI 650–Air Outlets and Inlets.
   4. ASHRAE 70–Method of Testing for Rating the Air Flow Performance of Outlets and Inlets.
   5. NFPA 90A–Installation of Air Conditioning and Ventilating Systems.

1.03 QUALITY ASSURANCE

A. All equipment or components of this specification section shall meet or exceed the requirements and quality of the items herein specified, or as denoted on the Drawings.

B. Performance of air terminals shall be in accordance with ADC 1062.

1.04 SUBMITTALS

A. Submit under provisions of Section 01 33 00–Submittals.

B. Include data concerning dimensions, required clearances, capacities, materials of construction, ratings, weights, manufacturer's installation requirements, manufacturer's performance limitations, and appropriate identification.

C. Submittal shall include a schedule that includes model, size, and finish type.

D. For product requiring color selection, provide a hard copy color chart to OWNER for color selection.

E. CONTRACTOR shall provide all required sizes and quantities as shown on Drawings.

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to the site in such a manner as to protect the materials from shipping and handling damage. Provide materials on factory provided shipping skids and lifting lugs, if required for handling.

B. Materials that could be damaged by the elements should be packaged in such a manner that they could withstand short-term exposure to the elements during transportation.

C. Store materials in a clean, dry place and protect from weather and construction traffic. Handle carefully to avoid damage.

D. Use all means necessary to protect equipment before, during, and after installation.

E. All scratched, dented, and otherwise damaged units shall be repaired or replaced at no additional cost to OWNER.

PART 2–PRODUCTS

2.01 DIFFUSERS, REGISTERS, AND GRILLES

A. Acceptable manufacturers are Carnes (C), Price (P), Nailor (N), or Titus (T). Submit standard color chart with shop drawings for selection by OWNER.

B. CD-1: Ceiling supply diffusers for lay-in ceilings shall be (C) SFAB, (N) ARNS, (T) TMS-AA or (P) ASCDA. 24 by 24 diffusers shall be fixed aluminum stamped-type with round neck duct connection.

C. RG-1 or TG-1: Return grilles for sidewall and surface mounting shall be (C) RSLA, (N) 6145H, (T) 350RL, or (P) 530. Grilles shall be steel construction with 45-degree horizontal louvered blades.

D. RG-2: Eggcrate-type return, transfer, and exhaust grilles for lay-in ceilings shall be (C) RAPB, (N) 4260AA, (T) 50F, or (P) 80. Grilles shall be full-face egg crate with 1/2-inch by 1/2-inch by 1/2-inch aluminum core and frame. Ducted grille connection shall be round neck duct connection. Grilles open to plenum shall be provided with a light shield painted flat black.

E. EG-1: Stainless steel exhaust grilles for sidewall and surface mounting shall be (C) RLAB, (N) 6745H, (T) 350RL-SS, or (P) 730. Grilles shall be 304 stainless steel construction with 45-degree horizontal louvered blades.

F. SG-1: Supply grilles for sidewall and surface mounting shall be (C) RSDB, (N) 61DH, (T) 300RL or (P) 520. Grilles shall be steel construction with double deflection blades.

G. SG-2: Stainless steel supply grilles for sidewall and surface mounting shall be (C) RLDB, (N) 67DH, (T) 300RL-SS, or (P) 720. Grilles shall be 304 stainless steel construction with double deflection blades.

H. SD-1: Slot diffusers shall be (C) DFSB, (N) 5800 Series, (T) T-slot, or (P) TBDI7. Diffuser plenum shall be lined with 1/4-inch 3 pcf density fiberglass matte-faced insulation with round duct inlet connection.

PART 3–EXECUTION

3.01 INSTALLATION

A. Install units level and plumb, maintaining manufacturer’s recommended clearances and tolerances.

B. Install in accordance with manufacturer's instructions and approved submittals.

C. Provide all mounting hardware and accessories necessary for complete installation.

D. Clean surface of diffusers, grilles, and registers after installation.

E. Drawings and Specifications are based on the scheduled manufacturer and model number. CONTRACTOR shall be responsible for the cost of any changes because of substitutions or alternates of other manufacturers or model numbers including but not limited to, structural, mechanical, and electrical work. CONTRACTOR shall pay all costs for revisions of Drawings by ENGINEER. Any changes shall be coordinated and provided at no additional cost to OWNER.

END OF SECTION

SECTION 23 55 23

GAS-FIRED RADIANT HEATERS

PART 1–GENERAL

1.01 SUMMARY

A. Work Included: Tubular infrared heaters (IR).

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.

B. All material, installation, and workmanship shall comply with the applicable requirements and standards addressed within the following references.
1. ASHRAE 103–Heating Seasonal Efficiency of Central Furnaces and Boilers, Methods of Testing.
2. NFPA 54 (AGA Z223.1)–National Fuel Gas Code.
3. NFPA 70–National Electrical Code.
4. NFPA 90A–Installation of Air Conditioning and Ventilating Systems.
5. NFPA 90B–Installation of Warm Air Heating and Air Conditioning Systems.
6. NFPA 211–Chimneys, Fireplaces, Vents, and Solid Fuel-Burning Appliances.
7. ASHRAE 90A–Energy Conservation in New Building Design.

1.03 REFERENCES

A. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.

B. All materials, installation and workmanship shall comply with the applicable requirements and standards addressed within the following references:
1. ASME B16.1–Gray Iron Pipe Flanges and Flanged Fittings Classes 25, 125, 250.
2. ASME B16.5–Pipe Flanges and Flanged Fittings.
3. ASME BPVC Section VIII, Division 1–Boiler and Pressure Vessel Code Section VIII, Division 1.

1.04 QUALITY ASSURANCE

A. All equipment or components of this specification section shall meet or exceed the requirements and quality of the items herein specified, or as denoted on the Drawings.

B. Equipment provider shall be responsible for providing certified equipment start-up and, when noted, an in the field certified training session. Start-up shall be for the purpose of determining alignment, lubrication, voltage, amperage readings, and all proper electrical connections. A copy of the start-up report shall be made and sent to both CONTRACTOR and to ENGINEER.

C. All gas-fired heating equipment shall be design-certified by the American Gas Association.

D. All control panels shall be UL listed.

1.05 SUBMITTALS

A. Submit under provisions of Section 01 33 00–Submittals. Included in submittals shall be detailed control wiring diagrams that show logic circuits for the unit, as well as all external connections (i.e., thermostats, SCADA, etc.)

B. Include data concerning dimensions, required clearances, capacities, materials of construction, ratings, weights, manufacturer's installation requirements, manufacturer's performance limitations, and appropriate identification.

C. Submittals for motors associated with equipment specified in this section shall include data sheets from the motor manufacturer. Data sheets from the equipment manufacturer or supplier are not acceptable.

D. Submit manufacturer’s installation instructions.

E. Submittals must be specific to this project. Generic submittals will not be accepted.

1.06 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to the site in such a manner as to protect the materials from shipping and handling damage. Provide materials on factory provided shipping skids and lifting lugs, if required for handling.

B. Materials that could be damaged by the elements should be packaged in such a manner that they could withstand short-term exposure to the elements during transportation.

C. Store materials in a clean, dry place and protect from weather and construction traffic. Handle carefully to avoid damage.

D. Use all means necessary to protect equipment before, during, and after installation.

E. All scratched, dented, and otherwise damaged units shall be repaired or replaced at no additional cost to OWNER.

1.07 OPERATION AND MAINTENANCE DATA

A. Include installation instructions, assembly views, lubrication instructions, recommended maintenance schedule and activities.

B. Include replacement and spare parts lists.

1.08 WARRANTY

A. Standard One-Year Warranty: Unless otherwise stated below, manufacturer shall warrant the equipment to be free from defects in material and workmanship for a period of one year from the earlier of either the date established for partial utilization in accordance with

GC15.03 and 15.04, as modified in the Supplementary Conditions, or Substantial Completion of the project.

PART 2–PRODUCTS

2.01 TUBULAR INFRARED HEATERS (IR)

A. Acceptable manufacturers are Re-Verber-Ray, or equal.

B. The burner shall be equipped with a direct sense silicon-carbide hot surface ignition control system with a 100% shutoff ignition device. The burner shall contain a totally-enclosed motor with thermal overload motor protection, a balanced air rotor, combustion air proving safety pressure switch, a nickel-plated burner head, and a combustion chamber equipped with a sight glass for visual inspection of igniter and burner flame. Provide an air intake collar on unit.

C. The heating tube shall be constructed of aluminized steel.

D. The reflector shall be constructed of aluminum with a parabolic shape and shall be designed to reflect all radiant output below the horizontal centerline of the radiant tube.

E. All starters and burner controls shall be factory installed. Equipment disconnect shall be provided by Division 26 contractor.

F. Provide exhaust venting and intake as required by manufacturer and as shown on Drawings.

G. Remote mounted thermostat shall be provided for each unit. Thermostat shall be single stage, NEMA 4X rated, 40°F-100°F temperature range, and capable for use with 24-277 VAC. Re-Verber-Ray model TH-115, or equal.

PART 3–EXECUTION

3.01 INSTALLATION

A. Drawings are based on the scheduled equipment make and model number. Any changes because of substitutions shall be provided and coordinated at no additional cost to OWNER.

B. Installation of all equipment furnished under this Contract shall be supervised by a qualified representative of the equipment manufacturer. All equipment shall be placed in operation, and plant operators shall be trained to the satisfaction of OWNER by a qualified representative of the equipment manufacturer. OWNER may videotape training presentations given by manufacturer’s representatives. Final payment for various items of equipment will not be made by OWNER until the equipment is operating to their satisfaction.

C. CONTRACTOR shall install the equipment and accessories in accordance with manufacturer's recommendations, NFPA 54, NFPA 90A, and as indicated on the Drawings. Provide connection to gas system.

D. All equipment shall be installed plumb and level and anchored to structure.

E. Proper access space around equipment shall be left for servicing the equipment. Follow manufacturer’s recommendations for clearance and maintenance access requirements. Provide no less than a minimum of three feet, not including piping and piping appurtenances.

F. Provide an adequate number of isolation valves for service and maintenance of the system and its components.

G. Install the equipment under the direct supervision of an authorized representative of the manufacturer.

H. All piping shall be brought to equipment connections in such a manner so as to prevent the possibility of any loads or stresses being applied to the connections or piping.

I. All piping shall be fitted to equipment connections even though piping adjustments may be required after the pipe is installed.

J. CONTRACTOR shall furnish the services of the equipment manufacturer's authorized representative to supervise prestart checkout, initial start-up, performance testing, and operator instruction. Time available shall be as required to properly start up.

K. Any operational deficiencies noted in equipment start-up shall be promptly corrected.

L. Install thermostats 48 inches above floor (top of enclosure), unless otherwise noted. Wiring between thermostat and heater shall be provided by Division 26 contractor.

END OF SECTION

SECTION 23 62 13

PACKAGED AIR-COOLED REFRIGERANT COMPRESSOR AND CONDENSER UNITS

PART 1–GENERAL

1.01 SUMMARY

A. Work Included: Staged air-cooled condensing units.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.

B. All material, installation, and workmanship shall comply with the applicable requirements and standards addressed within the following references.
1. ASHRAE 15–Safety Code for Mechanical Refrigeration.
2. ARI 210/240–Unitary Air-Conditioning and Air-Source Heat Pump Equipment.
3. ARI 270–Sound Rating of Outdoor Unitary Equipment.
4. UL 207–Refrigerant-Containing Components and Accessories, Nonelectrical.
5. UL 900–Test Performance for Air Filter Units.

1.03 QUALITY ASSURANCE

A. All equipment or components of this specification section shall meet or exceed the requirements and quality of the items herein specified, or as denoted on the Drawings.

B. Equipment provider shall be responsible for providing certified equipment start-up and, when noted, an in the field certified training session.

C. Electrical components shall be UL listed for the service specified.

D. Electrical components and work shall be in accordance with the National Electrical Code.

1.04 SUBMITTALS

A. Submit under provisions of Section 01 33 00–Submittals.

B. Include data concerning dimensions, required clearances, capacities, materials of construction, ratings, weights, manufacturer's installation requirements, manufacturer's performance limitations, and appropriate identification. Include plans, elevations, sections, and details.

C. Project specific wiring diagrams for power, signal and control.

D. Submit manufacturer’s installation instructions and recommendations.

E. Submittals must be specific to this project. Generic submittals will not be accepted.

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to the site in such a manner as to protect the materials from shipping and handling damage. Provide materials on factory provided shipping skids and lifting lugs, if required for handling.

B. Materials that could be damaged by the elements should be packaged in such a manner that they could withstand short-term exposure to the elements during transportation.

C. Store materials in a clean, dry place and protect from weather and construction traffic. Handle carefully to avoid damage.

D. Use all means necessary to protect equipment before, during, and after installation.

E. All scratched, dented, and otherwise damaged units shall be repaired or replaced at no additional cost to OWNER.

1.06 OPERATION AND MAINTENANCE DATA

A. Include installation instructions, assembly views, lubrication instructions, recommended maintenance schedule and activities.

1.07 WARRANTY

A. Standard One-Year Warranty: Unless otherwise stated below, manufacturer shall warrant the equipment to be free from defects in material and workmanship for a period of one year from the earlier of either the date established for partial utilization in accordance with GC15.03 and 15.04, as modified in the Supplementary Conditions, or Substantial Completion of the project.

PART 2–PRODUCTS

2.01 STAGED COMPRESSOR AIR-COOLED CONDENSING UNITS

A. Acceptable manufacturers are AAON, Ruud, York, or Trane.

B. Unit shall be a self-contained, packaged, factory-assembled and prewired air-cooled condensing unit suitable for outdoor use. Unit shall be as indicated on Drawing schedule.

C. Casing shall provide a fully weatherproof enclosure for outdoor installations. Construction shall be galvanized steel with baked-enamel finish. Provide access panels for service access and openings for power and refrigerant connections.

D. Condenser coils shall be designed for use with R-454B refrigerant and constructed of copper tubes with aluminum fins mechanically bonded to the tubes and aluminum end casings. Fin design shall be sine wave rippled. Coils shall be designed for a minimum of 10°F of refrigerant sub-cooling. Coils shall be hydrogen leak tested.

E. Condenser fans shall be horizontal discharge direct-driven propeller-type with fan guard on discharge. Condensing unit shall be provided with an electrically commutated motor (ECM) condenser fan, condenser head pressure controller, and discharge pressure transducers for modulating head pressure control to allow cooling operation down to 35°F. Fan motor shall be weather protected, three-phase, direct drive, and totally enclosed air over (TEAO) with electronic protection.

F. All motors shall be suitable for outdoor use or weather-protected with permanent lubricated ball bearings and thermal overload protection.

G. Compressor shall be two-stage scroll compressor with thermal overload protection. Two-stage compressor shall include 2 stages of capacity control, 67% and 100%. Compressors shall be mounted in an isolated service compartment which can be accessed without affecting unit operation. Lockable hinged access doors shall provide access to the compressors. Provide factory-installed crankcase heater.

H. Unit shall be provided with refrigerant tubing and charge, liquid and suction shutoff valves, and all refrigerant specialties for complete installation. See Section 23 23 00–Refrigerant Piping and Specialties for refrigerant piping and specialties.

I. All controls shall be factory-wired. Controls shall include high- and low-pressure cutouts, compressor overload cutout, anti-short-cycle timer. All required control power and other transformers shall be factory-furnished and installed.

J. Provide manufacturer single point power non-fused disconnect. Mount disconnect exterior to the unit and within sight.

K. Compressor shall receive Stage 1 and Stage 2 Enable/Disable signals from Division 23 provided thermostat.

L. Unit shall include a factory holding charge of R-454B refrigerant and oil. Adjusting the charge of the system will be required during installation.

PART 3–EXECUTION

3.01 INSTALLATION

A. Install units level and plumb, maintaining manufacturer’s recommended clearances and tolerances.

B. Install in accordance with manufacturer's instructions and approved submittals. Test for proper operation and adjust until satisfactory results are obtained.

C. All electrical wiring and interconnections shall be furnished and installed as part of Division 26.

D. Provide connection to refrigerant piping system and evaporators.

E. Protect installed products until completion of project.

F. Touch-up, repair or replace damaged products at no additional cost to OWNER.

G. Installation of all equipment furnished under this Contract shall be supervised by a qualified representative of the equipment manufacturer. All equipment shall be placed in operation, and plant operators/building maintenance personnel shall be trained to the satisfaction of OWNER by a qualified representative of the equipment manufacturer. OWNER may videotape training presentations given by manufacturer's representatives. Final payment for various items of equipment will not be made by OWNER until the equipment is operating to their satisfaction.

H. Drawings and Specifications are based on the scheduled manufacturer and model number. CONTRACTOR shall be responsible for the cost of any changes because of substitutions or alternates of other manufacturers or model numbers including but not limited to, structural, mechanical, and electrical work. CONTRACTOR shall pay all costs for revisions of Drawings by ENGINEER. Any changes shall be coordinated and provided at no additional cost to OWNER.

3.02 CLEANING

A. Unit shall be cleaned and new filters shall be furnished and installed prior to final acceptance by OWNER. One spare set of filters shall remain for OWNER.

END OF SECTION

SECTION 23 73 13

MODULAR INDOOR CENTRAL STATION AIR-HANDLING UNITS

PART 1–GENERAL

1.01 SUMMARY

A. Work Included: Modular air-handling units (AHU).

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.

B. All material, installation, and workmanship shall comply with the applicable requirements and standards addressed within the following references.
1. ASHRAE 15–Safety Code for Mechanical Refrigeration.
2. ASHRAE 62–Ventilation for Acceptable Indoor Air Quality.
3. ASHRAE 84-87P–Method of Testing Air-to-Air Heat/Energy Exchangers.
4. ASTM B117–Standard Practice for Operating Salt Spray (Fog) Apparatus.
5. ARI 410–Forced Circulation Air-Cooling and Air-Heating Coils.
6. ARI 430–Central Station Air-Handling Units.
7. ARI 1060–Performance Rating of Air-to-Air Heat Exchangers for Energy Recovery.
8. NFPA 70–National Electrical Code.
9. NFPA 90A–Installation of Air Conditioning and Ventilating Systems.
10. UL181–Factory-Made Air Ducts and Air Connectors.
11. UL900–Test Performance for Air Filter Units.

1.03 QUALITY ASSURANCE

A. All equipment or components of this specification section shall meet or exceed the requirements and quality of the items herein specified, or as denoted on the Drawings.

B. Equipment provider shall be responsible for providing certified equipment start-up and, when noted, an in the field certified training session.

C. Electrical components shall be UL listed for the service specified.

D. Electrical components and work shall be in accordance with the National Electrical Code.

E. Insulation and insulation adhesive shall comply with NFPA 90A requirements for flame spread and smoke generation.

F. Unit performance shall be certified in accordance with ARI 430 for Central Station Air-Handling Units.

G. Direct expansion coils shall be designed and tested in accordance with ASHRAE 15 Safety Code for Mechanical Refrigeration, latest edition.

H. Fan motors shall be sized such that the fan brake horsepower shall be less than 90 percent of the motor’s rated horsepower, excluding service factor.

1.04 SUBMITTALS

A. Submit under provisions of Section 01 33 00–Submittals.

B. Include data concerning dimensions, required clearances, capacities, materials of construction, ratings, weights, manufacturer's installation requirements, manufacturer's performance limitations, and appropriate identification. Include plans, elevations, sections, and details.

C. Provide project specific wiring diagrams for power, signal and control.

D. Submit manufacturer’s installation instructions and recommendations.

E. Submittals must be specific to this project. Generic submittals will not be accepted.

F. Hanging and support requirements shall follow the recommendations in the manufacturer’s installation instructions.

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to the site in such a manner as to protect the materials from shipping and handling damage. Provide materials on factory provided shipping skids and lifting lugs, if required for handling.

B. Materials that could be damaged by the elements should be packaged in such a manner that they could withstand short-term exposure to the elements during transportation.

C. Store materials in a clean, dry place and protect from weather and construction traffic. Handle carefully to avoid damage.

D. Use all means necessary to protect equipment before, during, and after installation.

E. All scratched, dented, and otherwise damaged units shall be repaired or replaced at no additional cost to OWNER.

1.06 OPERATION AND MAINTENANCE DATA

A. Include installation instructions, assembly views, lubrication instructions, recommended maintenance schedule and activities.

B. Include replacement and spare parts lists.

1.07 WARRANTY

A. Standard One-Year Warranty: Unless otherwise stated below, manufacturer shall warrant the equipment to be free from defects in material and workmanship for a period of one year

from the earlier of either the date established for partial utilization in accordance with GC15.03 and 15.04, as modified in the Supplementary Conditions, or Substantial Completion of the project.

PART 2–PRODUCTS

2.01 MODULAR AIR-HANDLING UNIT (AHU)

A. Acceptable manufacturers are AAON, Daikin, York, or Trane.

B. Drawings and Specifications are based on the scheduled manufacturer and model number. CONTRACTOR shall be responsible for the cost of any changes because of substitutions or alternates of other manufacturers or model numbers including, but not limited to, structural, mechanical, and electrical work. CONTRACTOR shall pay all costs for revisions of Drawings by ENGINEER. Any changes shall be coordinated and provided at no additional cost to OWNER.

C. Air handling unit shall be factory-assembled air-handling units consisting of the following sections:
   1. Supply fan.
   2. Direct expansion coil.
   3. Combination filter section.
   4. Electric heating coil.

D. Unit Casing:
   1. Construct walls, roof and floor from 2-inch thick double wall panel assemblies. Panels shall be injected with polyurethane foam insulation and shall have a minimum thermal conductivity (R-value) of 6.25.
   2. The outer shell shall be constructed of solid G90 galvanized steel with baked enamel finish. The inner liner shall be constructed of solid G90 galvanized steel.
   3. Panels shall be gasketed with permanently applied bulb-type gaskets and able to be removed without affecting the integrity of casing structure.
   4. A full perimeter base rail shall be installed at each air handling unit. The base rail shall be constructed from a minimum of 12 gauge G60 galvanized steel and shall be at least 8 inches high. Panels shall be able to be removed without affecting the integrity of casing structure.
   5. Install sealing collars to the interior and exterior of each penetration to prevent air leakage where coil piping, humidifier piping, air vents, drain piping, and electrical conduits penetrate air handling unit casing. Silicone sealants and duct sealants are not acceptable to seal pipe penetrations of the air handling unit casing.

E. Access Sections and Doors:
   1. Provide access sections for maintenance.
   2. Access sections shall be of the same construction as the unit casing.
   3. Access doors shall be double wall, of same construction and thickness as casing, hinged with quarter turn latches and piano type hinges, continuously gasketed with bulb type gaskets.
   4. Access doors shall be flush mounted to cabinetry.

F. Cooling and Heating Coils:
   1. Unit shall be provided with coil connections that extend beyond unit casing for ease of installation. All coil connections shall be factory sealed with grommets on interior and exterior panel liners to minimize air leakage. Coils shall be removable through side and/or top panels of unit without the need to remove and disassemble the entire section from the unit.
   2. Electric Heating:
      a. Unit shall include an include electric heater consisting of electric heating coils, fuses, contactors, and a high temperature limit switch, with capacities as shown on the Drawings.
      b. Electric heat shall have fully modulating capacity controlled by an SCR (Silicon Controlled Rectifier). A 0-10 VDC heating control signal shall be field provided to control the amount of heating.
      c. Electric heating coils shall be located in the reheat position downstream of the supply fans.
      d. Electric heating access shall be through bolted service access (panel with handle) (door with piano hinges and lockable quarter turn handle).
   3. Direct Expansion Coil:
      a. Coil shall be designed for use with R-454B refrigerant and constructed of copper tubes with aluminum fins mechanically bonded to the tubes and aluminum end casings. Fin design shall be sine wave rippled.
      b. Coil shall have a single circuit
      c. Coil shall be 4 row and 14 fins per inch.
      d. Coil shall be hydrogen leak tested.
      e. Coil shall be furnished with factory installed thermostatic expansion valves. The sensing bulbs shall be field installed on the suction line immediately outside the cabinet.
      f. Coil shall have left hand external piping connections. Liquid and suction connections shall be sweat connection. Coil connections shall be labeled, extend beyond the unit casing, and be factory sealed on both the interior and exterior of the unit casing to minimize air leakage.
      g. Access to cooling coil shall be through hinged access door with lockable quarter turn handles.

G. Supply Fan Section:
   1. Fans shall be of type indicated on Drawing schedules.
   2. Fan and motor combination shall be capable of delivering 110% of air quantity scheduled at scheduled static pressure. The motor furnished with the fan shall not operate into the motor service factor when operating under these conditions.
   3. Fans to be fastened to solid steel shafts and designed for continuous operation at maximum rated static pressure.
   4. Fan bearings shall be self-aligning, pillow block, regreasable ball type.
   5. Furnish extended grease lines from bearings to allow servicing without entering the unit. Grease lines can be terminated within the unit as long as they are able to be easily serviced by opening the access door.
   6. Fan, drive and motor assembly shall be mounted inside fan casing section and integrally isolated within unit.
   7. Motors shall be premium efficient, of type indicated on Drawings. Motors shall be NEMA Design B with size and electrical characteristics as shown on the Drawings. Where motors are indicated for variable frequency drive (VFD) service, insulation shall be Class F rated for a Class B temperature rise. Motors shall be inverter duty rated,

meet the requirements of NEMA MG1, Part 31, and be capable of a minimum speed turndown of 4:1. Provide AEGIS shaft grounding rings.

H. Filter Sections:
1. Filter sections shall accept standard filters in a flat orientation. Prefilter section shall accept 2-inch-thick MERV 7 pleated filters.
2. Provide two full sets of filters.
3. Unit filter access shall be through service access door with piano hinges and draw latches.

I. Controls:
1. Unit shall have terminal strip for controls as indicated on the drawings
2. Unit shall be provided with a proof of airflow switch. When airflow is not detected, other electrical components cannot power on.

PART 3–EXECUTION

3.01 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify ENGINEER of unsatisfactory preparation before proceeding.

3.02 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.03 INSTALLATION

A. Install units level and plumb, maintaining manufacturer’s recommended clearances and tolerances.

B. Install in accordance with manufacturer's instructions and approved submittals. Test for proper operation and adjust until satisfactory results are obtained.

C. Pipe and trap condensate to nearest floor drain in accordance with Section 22 13 16–Sanitary Waste and Vent Piping and as shown on Drawings.

D. Install units with vibration isolators as recommended or supplied by manufacturer.

E. Provide flexible duct connections on all duct connections to unit in accordance with Section 23 33 00–Air Duct Accessories.

F. Provide lubrication line extenders as required to allow regreasing of bearings without removal of equipment components.

G. Protect installed products until completion of project.

H. Touch-up, repair or replace damaged products at no additional cost to OWNER.

I. Installation of all equipment furnished under this Contract shall be supervised by a qualified representative of the equipment manufacturer. All equipment shall be placed in operation, and plant operators/building maintenance personnel shall be trained to the satisfaction of OWNER by a qualified representative of the equipment manufacturer. OWNER may videotape training presentations given by manufacturer's representatives. Final payment for various items of equipment will not be made by OWNER until the equipment is operating to their satisfaction.

J. Drawings and Specifications are based on the scheduled manufacturer and model number. CONTRACTOR shall be responsible for the cost of any changes because of substitutions or alternates of other manufacturers or model numbers including but not limited to, structural, mechanical, and electrical work. CONTRACTOR shall pay all costs for revisions of Drawings by ENGINEER. Any changes shall be coordinated and provided at no additional cost to OWNER.

3.04 CLEANING

A. Unit shall be cleaned and new filters shall be furnished and installed prior to final acceptance by OWNER. One spare set of filters shall remain for OWNER.

END OF SECTION

SECTION 23 74 16

PACKAGED ROOFTOP AIR-CONDITIONING UNITS

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
   1. Modulating Capacity Rooftop Units (RTU).
   2. Roof Curbs.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.

B. All material, installation, and workmanship shall comply with the applicable requirements and standards addressed within the following references.
   1. ASHRAE 15–Safety Code for Mechanical Refrigeration.
   2. ASHRAE 62–Ventilation for Acceptable Indoor Air Quality.
   3. ASHRAE 84-87P–Method of Testing Air-to-Air Heat/Energy Exchangers.
   4. ASTM B117–Standard Practice for Operating Salt Spray (Fog) Apparatus.
   5. ARI 210/240–Unitary Air-Conditioning and Air-Source Heat Pump Equipment.
   6. ARI 410–Forced Circulation Air-Cooling and Air-Heating Coils.
   7. ARI 430–Central Station Air-Handling Units.
   8. ARI 1060–Performance Rating of Air-to-Air Heat Exchangers for Energy Recovery.
   9. NFPA 70–National Electrical Code.
   10. NFPA 90A–Installation of Air Conditioning and Ventilating Systems.
   11. UL 181–Factory-Made Air Ducts and Air Connectors.
   12. UL 900–Test Performance for Air Filter Units.

1.03 QUALITY ASSURANCE

A. All equipment or components of this specification section shall meet or exceed the requirements and quality of the items herein specified, or as denoted on the Drawings.

B. Equipment provider shall be responsible for providing certified equipment start-up and, when noted, an in the field certified training session.

C. Electrical components shall be UL listed for the service specified.

D. Electrical components and work shall be in accordance with the National Electrical Code.

E. Insulation and insulation adhesive shall comply with NFPA 90A requirements for flame spread and smoke generation.

F. Unit performance shall be certified in accordance with ARI 430 for Central Station Air-Handling Units.

G. Direct expansion coils shall be designed and tested in accordance with ASHRAE 15 Safety Code for Mechanical Refrigeration, latest edition.

1.04 SUBMITTALS

A. Submit under provisions of Section 01 33 00–Submittals.

B. Include data concerning dimensions, required clearances, capacities, materials of construction, ratings, weights, manufacturer's installation requirements, manufacturer's performance limitations, and appropriate identification. Include plans, elevations, sections, and details.

C. Provide project specific wiring diagrams for power, signal and control.

D. Submit manufacturer’s installation instructions and recommendations.

E. Submittals must be specific to this project. Generic submittals will not be accepted.

F. Hanging and support requirements should follow the recommendations in the manufacturer’s installation instructions.

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to the site in such a manner as to protect the materials from shipping and handling damage. Provide materials on factory provided shipping skids and lifting lugs, if required for handling.

B. Materials that could be damaged by the elements should be packaged in such a manner that they could withstand short-term exposure to the elements during transportation.

C. Store materials in a clean, dry place and protect from weather and construction traffic. Handle carefully to avoid damage.

D. Use all means necessary to protect equipment before, during, and after installation.

E. All scratched, dented, and otherwise damaged units shall be repaired or replaced at no additional cost to OWNER.

1.06 OPERATION AND MAINTENANCE DATA

A. Include installation instructions, assembly views, lubrication instructions, recommended maintenance schedule and activities.

B. Include replacement and spare parts lists.

1.07 WARRANTY

A. Standard One-Year Warranty: Unless otherwise stated below, manufacturer shall warrant the equipment to be free from defects in material and workmanship for a period of one year

from the earlier of either the date established for partial utilization in accordance with GC15.03 and 15.04, as modified in the Supplementary Conditions, or Substantial Completion of the project.

PART 2–PRODUCTS

2.01 MODULATING CAPACITY ROOFTOP UNITS (RTU)

A. Acceptable manufacturers are AAON, ClimaCool, or Addison.

B. Units shall be furnished and installed as scheduled on Contract Documents and in these specifications. Cooling capacity ratings shall be based on ARI Standard 210/240. Units shall consist of insulated weathertight casing with compressors, air-cooled condenser coil, condenser fans, evaporator coil, return air filters, supply motors and drives, and unit controls.

C. Unit shall be factory prewired with all variable frequency drives (VFD), control power transformer, and NEMA 3R disconnect. Wiring and devices shall meet requirements of Division 26.

D. Units shall be 100% factory-run tested and fully charged with R-454B.

E. Units shall have labels, decals, and/or tags to aid in the service of the unit and indicate caution areas.

F. Unit Casing:
1. Insulated double wall panels of 20 gauge or heavier G90 galvanized steel.
2. Exterior cabinet surfaces shall be powder coated with a baked on 3 mil finish.
3. Cabinet top cover shall be one-piece construction or where seams exist, it shall be double hemmed and gasket sealed. Unit roof shall be sloped to provide drainage.
4. Access Panels: Water and airtight panels with hinges and quarter turn latches shall provide access to filters, heating section, supply air fan section, economizer section, evaporator coil section, and unit control section. All service doors shall have lockable handles, rain break overhangs, and an internal metal liner with full perimeter gasketing.
5. Insulation: Provide 2-inch-thick injected polyurethane foam with a minimum R-value of 13 btu/hr in °F insulation on all exterior panels in contact with the return and conditioned air stream. Panels shall be thermally broken.

G. Air Filters: Factory-installed filters shall be mounted on racks within the unit and shall be accessible through access panels. One-inch-thick glass fiber disposable media filters shall be provided with the provisions within the unit for 2-inch-thick filters to be field provided and installed.

H. Fans and Motors:
1. Provide evaporator fan section with centrifugal-type fan. Fan shall have self-aligning, grease-lubricated, ball or sleeve bearings with permanent lubrication fittings.
2. Provide units with direct drive, multiple speed, statically and dynamically balanced supply fans.
3. Outdoor and Indoor fan motors shall be permanently lubricated and have internal thermal overload protection.
4. Outdoor fans shall be direct drive, statically and dynamically balanced, draw-through in the vertical discharge position.

5. Motors operating on VFDs shall be inverter ready, meet the requirements of NEMA MG1, Part 31 for motor insulation, and be capable of a minimum speed turndown of 4:1. Provide shaft grounding split ring kit as manufactured by AEGIS, or equal, for motors operating on VFDs.

I. Evaporator Coil:
   1. Provide configured aluminum fin surface mechanically bonded to copper tubing coil, and an independent expansion device for each refrigeration circuit. Factory pressure test at 450 psig and leak test at 200 psig.
   2. Provide insulated, removable drain pan under base of evaporator coil constructed of 304 stainless steel with external connections, double sloped for positive drainage.

J. Condenser Section:
   1. Provide internally finned 3/8-inch seamless copper tube mechanically bonded to aluminum fins or micro channel aluminum tube with aluminum fins, factory pressure tested to 450 psig.
   2. Provide vertical discharge, direct-drive fans with aluminum blades. Fans shall be statically balanced. Motors shall be permanently lubricated with integral thermal overload protection in a weathertight casing.

K. Compressors: Provide digital scroll compressor on lead circuit with crankcase heater and centrifugal oil pump. Internally isolated motors on rubber isolators. Provide suction gas-cooled motor with overtemperature and overcurrent protection.

L. Outdoor Air Section:
   1. Provide a fully integrated factory 100% modulating outside air economizer with unit return and barometric relief air dampers. Unit operation shall include primary temperature controls that automatically modulate dampers to maintain space temperature conditions.
   2. Provide economizer with dry bulb control only and adjustable minimum position control located in the economizer section of the unit.
   3. Provide spring return motor for outside air damper closure during unit shutdown or power interruption.

M. Operating Controls:
   1. Provide microprocessor unit-mounted control (UCM), which when used with an electronic zone sensor, provides proportional integral room control. This UCM shall perform all unit functions by making all cooling and ventilating decisions through resident software logic.
   2. Provide factory-installed indoor evaporator defrost control to prevent compressor slugging by interrupting compressor operation.
   3. Provide a factory-installed minimum 3-minute off-timer to prevent compressor from short cycling.
   4. Unit shall be furnished with space temperature sensor, outside air temperature sensor, supply air temperature sensor, and return air temperature sensor. UCM shall accept all room temperature readings.
   5. Unit shall operate as single zone VAV system.
   6. Unit shall have remote safety shutdown terminal for shutdown upon signal from duct smoke detectors provided by Division 26.

N. Condenser Fans: The condenser fans shall be direct drive, statically and dynamically balanced draw-through in the vertical discharge position. The fan motor(s) shall be permanently lubricated and have built-in thermal overload protection.

O. Provide 120 V convenience outlet, to be wired separately by Division 26.

2.02 EQUIPMENT CURBS

A. Curb shall be a plenum curb type to accommodate bottom discharge and return air path from RTU and shall also include side connections for ductwork. Curb shall be fully gasketed and insulated between the curb top and unit bottom with the curb providing full perimeter support, cross structure support, and air seal for the unit. Curb gasket shall be shipped loose within the control compartment of the RTU and shall be field-installed to the curb upper rail prior to mounting RTU on curb. Acceptable curb manufacturer is Thybar, or equal.

B. Knockdown curb with duct support rails shall be factory-furnished for field assembly.

PART 3–EXECUTION

3.01 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify ENGINEER of unsatisfactory preparation before proceeding.

3.02 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.03 INSTALLATION

A. Install units level and plumb, maintaining manufacturer’s recommended clearances and tolerances.

B. Install in accordance with manufacturer's instructions and approved submittals. Test for proper operation and adjust until satisfactory results are obtained.

C. Pipe and trap condensate to grade in accordance with Section 22 13 16–Sanitary Waste and Vent Piping and as shown on Drawings.

D. Provide flexible duct connections on all duct connections to unit in accordance with Section 23 33 00–Air Duct Accessories.

E. Provide lubrication line extenders as required to allow regreasing of bearings without removal of equipment components.

F. Protect installed products until completion of project.

G. Touch-up, repair or replace damaged products at no additional cost to OWNER.

H. Installation of all equipment furnished under this Contract shall be supervised by a qualified representative of the equipment manufacturer. All equipment shall be placed in operation, and plant operators/building maintenance personnel shall be trained to the satisfaction of OWNER by a qualified representative of the equipment manufacturer. OWNER may videotape training presentations given by manufacturer's representatives. Final payment for various items of equipment will not be made by OWNER until the equipment is operating to their satisfaction.

I. Drawings and Specifications are based on the scheduled manufacturer and model number. CONTRACTOR shall be responsible for the cost of any changes because of substitutions or alternates of other manufacturers or model numbers including but not limited to, structural, mechanical, and electrical work. CONTRACTOR shall pay all costs for revisions of Drawings by ENGINEER. Any changes shall be coordinated and provided at no additional cost to OWNER.

3.04 CLEANING

A. Unit shall be cleaned and new filters shall be furnished and installed prior to final acceptance by OWNER. One spare set of filters shall remain for OWNER.

3.05 SEQUENCE OF OPERATIONS

A. RTU-55-01 shall be controlled by manufacturer and running and fail signals shall be monitored through Division 26 provided SCADA system. Provide dry contacts rated for 120V for Running and Failed indication at the SCADA System.

B. RTU-55-01 shall be controlled by manufacturer provided controller, outside air temperature sensor, and manufacturer-furnished, CONTRACTOR-installed digital room temperature sensor with set point and override. Room temperature sensor (TE-55-01) shall be installed in the location shown on the Drawings. Controller shall be factory-installed in the controls compartment of the RTU. Controller shall be capable of standalone operation with unit configuration and setpoint adjustment. Unit shall operate as described below:
   1. Cooling Mode:
      a. If the room temperature is above cooling room temperature setpoint (80°F, operator adjustable), the unit shall start and supply fan shall turn on and run as single zone VAV.
      b. If the outside air temperature is above 60°F (operator adjustable), and there is a call for cooling, the outside air damper shall be in the 100% closed position and the air cooled condensing unit shall be enabled. and modulate as required to maintain space temperature setpoint.
      c. When TE-55-01 reads 75°F or less (operator adjustable), the unit shall turn off.
   2. Economizing Mode:
      a. If the outside air temperature is below 60°F (operator adjustable) and the room temperature is above cooling room temperature setpoint, the unit shall start, the supply fan shall turn on and run as single zone VAV, and the outside air damper shall open and modulate to maintain room temperature setpoint.
      b. Compressor shall be disabled in economizer mode. If after 15 minutes (operator adjustable), room temperature (TE-55-01) has not dropped 2°F (operator adjustable), the unit shall enter and operate in cooling mode as described above.

c. When outside air temperature is above 60°F (operator adjustable), the unit shall disable economizing and operate cooling as indicated above.

3. Heating Mode:
   a. If the room temperature is below heating room temperature setpoint (60°F, operator adjustable), the unit shall start and the supply fan shall turn on and run as single zone VAV. The electric heating coil shall be enabled and modulate to maintain the room temperature setpoint.
   b. When TE-55-01 reads 65°F or more (operator adjustable), the unit shall turn off.

END OF SECTION

SECTION 23 74 23

PACKAGED OUTDOOR HEATING ONLY MAKE-UP AIR UNITS

PART 1–GENERAL

1.01 SUMMARY

A. Work Included:
   1. Direct-Fired Make-Up Air Units.
   2. Control Panel Requirements.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.

B. All material, installation, and workmanship shall comply with the applicable requirements and standards addressed within the following references.
   1. ASHRAE 62–Ventilation for Acceptable Indoor Air Quality.
   2. ASHRAE 90A–Energy Conservation in New Building Design.
   3. NFPA 54 (AGA Z223.1)–National Fuel Gas Code.
   4. NFPA 70–National Electrical Code.
   5. NFPA 90A–Installation of Air Conditioning and Ventilating Systems.
   6. UL181–Factory-Made Air Ducts and Air Connectors.
   7. UL900–Test Performance for Air Filter Units.

1.03 QUALITY ASSURANCE

A. All equipment or components of this specification section shall meet or exceed the requirements and quality of the items herein specified, or as denoted on the Drawings.

B. Equipment provider shall be responsible for providing certified equipment start-up and, when noted, an in the field certified training session.

C. Electrical components shall be UL listed for the service specified.

D. Electrical components and work shall be in accordance with the National Electrical Code.

E. Insulation and insulation adhesive shall comply with NFPA 90A requirements for flame spread and smoke generation.

F. Unit shall be designed to meet the ANSI Z83.4 standards for direct fired gas heating equipment and shall be ETL listed.

G. All gas-fired equipment shall be design-certified by the American Gas Association.

1.04 SUBMITTALS

A. Submit under provisions of Section 01 33 00–Submittals.

B. Include data concerning dimensions, required clearances, capacities, materials of construction, ratings, weights, manufacturer's installation requirements, manufacturer's performance limitations, and appropriate identification. Include plans, elevations, sections, and details.

C. Project specific wiring diagrams for power, signal and control.

D. Submit manufacturer’s installation instructions and recommendations.

E. Submittals must be specific to this project. Generic submittals will not be accepted.

F. Hanging and support requirements shall follow the recommendations in the manufacturer’s installation instructions.

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to the site in such a manner as to protect the materials from shipping and handling damage. Provide materials on factory provided shipping skids and lifting lugs, if required for handling.

B. Materials that could be damaged by the elements should be packaged in such a manner that they could withstand short-term exposure to the elements during transportation.

C. Store materials in a clean, dry place and protect from weather and construction traffic. Handle carefully to avoid damage.

D. Use all means necessary to protect equipment before, during, and after installation.

E. All scratched, dented, and otherwise damaged units shall be repaired or replaced at no additional cost to OWNER.

1.06 OPERATION AND MAINTENANCE DATA

A. Include installation instructions, assembly views, lubrication instructions, recommended maintenance schedule and activities.

B. Include replacement and spare parts lists.

1.07 WARRANTY

A. Standard One-Year Warranty: Unless otherwise stated below, manufacturer shall warrant the equipment to be free from defects in material and workmanship for a period of one year from the earlier of either the date established for partial utilization in accordance with GC15.03 and 15.04, as modified in the Supplementary Conditions, or Substantial Completion of the project.

PART 2–PRODUCTS

2.01 MANUFACTURERS

A. Acceptable manufacturers are Greenheck, or equal.

B. Drawings and Specifications are based on the scheduled manufacturer and model number. CONTRACTOR shall be responsible for the cost of any changes because of substitutions or alternates of other manufacturers or model numbers including, but not limited to, structural, mechanical, and electrical work. CONTRACTOR shall pay all costs for revisions of Drawings by ENGINEER. Any changes shall be coordinated and provided at no additional cost to OWNER.

2.02 DIRECT-FIRED MAKE-UP AIR UNIT (MAU)

A. Unit casing and curb shall be double wall fabricated of galvanized steel with 1-inch fiberglass insulation and Hi-Pro Polyester powder finish. Provide gasketed hinged access panels for all internal controls and components. Provide observation ports for main and pilot flame. The casing shall be designed for roof curb mounting (see Drawings for configuration). Furnish and install a prefabricated, insulated, 24-inch roof curb with a treated wood nailer, with metal liner, and coated to match unit. Unit shall be provided with 24-inch access section to facilitate unit access from one side of unit.

B. Blower section shall include forward-curved centrifugal belt drive blower and be statically and dynamically balanced. Blowers 18 inches and smaller shall have permanently sealed bearings. Blowers larger than 18 inches shall have field-regreasable bearings.

C. Provide V-Bank filter box with 2-inch-thick permanent filters.

D. All burner and blower controls, including VFDs, shall be furnished by unit manufacturer and shall be factory-prewired for single-point power connection and housed in a weatherproof enclosure. All electrical components shall be UL listed or recognized where applicable, and wired in compliance with the National Electrical Code. Disconnect shall be provided with the unit. All wiring shall be numbered and routed in plastic wiring ducts. Plastic spiral wrapping may be substituted for plastic wiring ducts. All components within control panels shall be labeled on the enclosure back panel and all labels shall match the schematic drawings.

E. Burner gas train and controls shall include main gas shutoff valve, main and pilot regulators, modulating electronic gas valve with 25:1 turndown, air-proving differential switch, freezestat, high and low gas pressure switches, high and low limit and operating thermostats, flame safeguard, flame sensor, and control transformer.

F. Provide a factory-mounted and wired two-position intake damper and electric actuator.

G. Manufacturer shall provide a 120-volt NEMA 3R GFI service receptacle on unit to be powered separately by Division 26 contractor.

H. Unit controls shall be provided to allow enable/disable from the plant SCADA system. All other controls shall be by the internal microprocessor as described below.
   1. The unit controls shall be configured so that it can function as a stand-alone heating system controlled by microprocessor with thermostats and sensors.

2. Unit shall be provided with microprocessor controller with integral LCD screen that provides text readouts of status, operating settings, and alarm conditions. Microprocessor controller shall have a built-in keypad to permit operator to access read-out screens and change settings without the use of ancillary equipment, devices, or software. DDC controllers that require the use of equipment or software that are not factory-installed in the unit are not acceptable. Alarm readouts consisting of flashing light codes are not acceptable.
3. Unit shall have factory installed variable frequency drives for modulation of the blower motors. The VFDs shall be factory-programmed for unit-specific requirements and shall not require additional field programming to operate other than VFD speed setting from the microprocessor.
4. Unit shall come furnished with Running and VFD Fault dry contacts for monitoring at remote SCADA PLC.
5. Unit shall accept enable/disable signal dry contact from remote SCADA PLC for start/stop control.
6. Sensors below are to be factory installed and wired within the unit:
    a. Heating Air Inlet Sensor.
    b. Dirty Filter Sensor.
    c. Air Flow Proving Switch.
    d. Discharge Air Temperature Sensor.

2.03 CONTROL PANEL REQUIREMENTS

A. Unit controls and control devices shall be mounted on an equipment back panel within the unit. Each device on the back panel shall be labeled to match the shop and O&M wiring diagrams for the unit. Labels shall be permanently attached to the back panel and in typewritten format. Labels shall not be installed on devices or wireways.

B. All control wiring shall be routed through wireways installed on the back panel. In the event wireways are not used, wiring may be wrapped in continuous spiral bindings and attached to the back panel. All control wiring within the unit shall be numbered at each end. All numbering shall match the shop and O&M wiring diagrams.

C. Terminal strips shall be provided for all external wiring connections. All terminals shall be numbered. Splices shall not be allowed within the unit control panel.

D. All VFDs shall be sized according to the NEC.

E. Wiring diagrams shall be included in each unit control panel. Provide laminated sheet attached to control enclosure door/cover.

2.04 MOTORS

A. Motors shall conform to all applicable requirements of NEMA, ANSI, IEEE, and NEC standards and shall be UL recognized.

B. Motors provided for the equipment scheduled on the Drawings shall meet the following requirements. Motors shall not be loaded beyond nominal rating, not including service factor, at any design condition: AC Motors: The fan motor enclosure shall be as indicated on the Drawing schedules. Motors shall have a 1.15 service factor and motors 1 hp and higher shall have a NEMA premium efficiency rating. Starters and disconnects shall be provided as indicated on the Drawing schedules. Motors operating on VFDs shall be inverter ready, meet

the requirements of NEMA MG1, Part 31 for motor insulation, and be capable of a minimum speed turndown of 4:1. Provide shaft grounding split ring kit as manufactured by AEGIS, or equal, for motors operating on VFDs. Thermostats shall be applied to motor windings, capable of shutdown and manual reset by external controls (by Division 26) for motors operating on VFDs.

C. Where indicated on the Drawings, the equipment manufacturer shall provide a VFD mounted within the equipment control panel. VFDs shall be factory mounted and wired. VFDs shall be factory programmed to match the characteristics of the associated fan and motor. Operation shall be controlled by an on-board potentiometer, 0 to 10V input signal, 4-20 mA input signal, or Modbus/BACnet communications. Internal circuitry shall be UL recognized and accept a power supply as scheduled on the Drawings.

PART 3–EXECUTION

3.01 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify ENGINEER of unsatisfactory preparation before proceeding.

3.02 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.03 SEQUENCE OF OPERATION

A. The following make-up air units shall be interlocked with the exhaust fan(s) noted to run when the exhaust fan(s) are running.
1. MAU-15-01 (EF-15-01, EF-15-02).
2. MAU-55-01 (EF-55-02).
3. MAU-95-01 (EF-95-02).
4. MAU-96-01 (EF-96-02, EF-96-03).

B. Dampers: While the unit supply fan is running, associated dampers, including the internal intake damper shall be open.

C. MAU-15-01 and MAU-55-01 shall operate continuously based on an enable signal from the plant SCADA system, and shall be controlled by manufacturer provided microprocessor as follows. When the outside air temperature rises above an operator-adjustable “MAU Heat Disable” setpoint (55°F to 95°F), this microprocessor shall disable the burner. When the outside air temperature falls below this setpoint, this microprocessor shall enable the burner. When the burner is enabled, this microprocessor shall modulate the burner firing rate based on the discharge air temperature to maintain an operator-adjustable “MAU Discharge Air Temperature” setpoint (40°F to 90°F). Coordinate scaling of the burner firing rate signal with the make-up air unit manufacturer.

D. MAU-95-01 shall operate via exhaust fan EF-95-02 as outlined by Division 26. MAU-96-01 shall operate via Building 96 exhaust fans as outlined by Division 26. MAU-95-01 and MAU-96-01 shall be controlled by manufacturer provided microprocessor as outlined below: When the outside air temperature rises above an operator-adjustable “MAU Heat Disable” setpoint (55°F to 95°F), this microprocessor shall disable the burner. When the outside air temperature falls below this setpoint, this microprocessor shall enable the burner. When the burner is enabled, this microprocessor shall modulate the burner firing rate based on the discharge air temperature to maintain an operator-adjustable “MAU Discharge Air Temperature” setpoint (40°F to 90°F). Coordinate scaling of the burner firing rate signal with the make-up air unit manufacturer.

3.04 INSTALLATION

A. Install units level and plumb, maintaining manufacturer’s recommended clearances and tolerances.

B. Install in accordance with manufacturer's instructions and approved submittals. Test for proper operation and adjust until satisfactory results are obtained.

C. Install gas piping to unit in accordance with NFPA 90A and NFPA 54 (AGA Z223.1). Provide connection to fuel gas system.

D. Pipe gas regulator vents to an exterior location with sufficient clearances to air inlets and building openings in accordance with Section 23 11 23–Facility Fuel Gas Piping.

E. Pipe and trap condensate from burner to grade in accordance with Section 22 13 16–Sanitary Waste and Vent Piping and as shown on Drawings.

F. Provide flexible duct connections on all duct connections to unit in accordance with Section 23 33 00–Air Duct Accessories.

G. Provide lubrication line extenders as required to allow regreasing of bearings without removal of equipment components.

H. Protect installed products until completion of project.

I. Touch-up, repair or replace damaged products at no additional cost to OWNER.

J. Installation of all equipment furnished under this Contract shall be supervised by a qualified representative of the equipment manufacturer. All equipment shall be placed in operation, and plant operators/building maintenance personnel shall be trained to the satisfaction of OWNER by a qualified representative of the equipment manufacturer. OWNER may videotape training presentations given by manufacturer’s representatives. Final payment for various items of equipment will not be made by OWNER until the equipment is operating to their satisfaction.

K. Drawings and Specifications are based on the scheduled manufacturer and model number. CONTRACTOR shall be responsible for the cost of any changes because of substitutions or alternates of other manufacturers or model numbers including but not limited to, structural, mechanical, and electrical work. CONTRACTOR shall pay all costs for revisions of Drawings by ENGINEER. Any changes shall be coordinated and provided at no additional cost to OWNER.

3.05 CLEANING

A. Unit shall be cleaned and filters shall be replaced prior to final acceptance by OWNER. One spare set of filters shall remain for OWNER.

END OF SECTION

SECTION 23 81 26

SPLIT-SYSTEM AIR CONDITIONERS

PART 1–GENERAL

1.01 SUMMARY

A. Work Included: Split systems (SS).

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.

B. All material, installation, and workmanship shall comply with the applicable requirements and standards addressed within the following references.
1. ASHRAE 15–Safety Code for Mechanical Refrigeration.
2. ASHRAE 62–Ventilation for Acceptable Indoor Air Quality.
3. ASHRAE 90A–Energy Conservation in New Building Design.
4. NFPA 70–National Electrical Code.
5. NFPA 90A–Installation of Air Conditioning and Ventilating Systems.
6. UL900–Test Performance for Air Filter Units.

1.03 QUALITY ASSURANCE

A. All equipment or components of this specification section shall meet or exceed the requirements and quality of the items herein specified, or as denoted on the Drawings.

B. Equipment provider shall be responsible for providing certified equipment start-up and, when noted, an in the field certified training session.

C. Electrical components shall be UL listed for the service specified.

D. Electrical components and work shall be in accordance with the National Electrical Code.

E. Insulation and insulation adhesive shall comply with NFPA 90A requirements for flame spread and smoke generation.

F. Direct expansion coils shall be designed and tested in accordance with ASHRAE 15 Safety Code for Mechanical Refrigeration, latest edition.

1.04 SUBMITTALS

A. Submit under provisions of Section 01 33 00–Submittals.

B. Include data concerning dimensions, required clearances, capacities, materials of construction, ratings, weights, manufacturer's installation requirements, manufacturer's

performance limitations, and appropriate identification. Include plans, elevations, sections, and details.

C. Project specific wiring diagrams for power, signal, and control.

D. Submit manufacturer's installation instructions and recommendations.

E. Submittals must be specific to this project. Generic submittals will not be accepted.

F. Hanging and support requirements shall follow the recommendations in the manufacturer's installation instructions.

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to the site in such a manner as to protect the materials from shipping and handling damage. Provide materials on factory provided shipping skids and lifting lugs, if required for handling.

B. Materials that could be damaged by the elements should be packaged in such a manner that they could withstand short-term exposure to the elements during transportation.

C. Store materials in a clean, dry place and protect from weather and construction traffic. Handle carefully to avoid damage.

D. Use all means necessary to protect equipment before, during, and after installation.

E. All scratched, dented, and otherwise damaged units shall be repaired or replaced at no additional cost to OWNER.

1.06 OPERATION AND MAINTENANCE DATA

A. Include installation instructions, assembly views, lubrication instructions, recommended maintenance schedule and activities.

1.07 WARRANTY

A. Standard One-Year Warranty: Unless otherwise stated below, manufacturer shall warrant the equipment to be free from defects in material and workmanship for a period of one year from the earlier of either the date established for partial utilization in accordance with GC15.03 and 15.04, as modified in the Supplementary Conditions, or Substantial Completion of the project.

PART 2–PRODUCTS

2.01 SPLIT SYSTEM (SS)

A. Acceptable manufacturers are Sanyo, Mitsubishi, or Daikin.

B. General:
1. Split system unit shall be a wall-mounted evaporator/blower section and matching outdoor condensing section.

2. Systems shall bear the ARI label showing that the system is ARI 210 or 240, and 270 Certified. Systems shall be listed by ETL Testing Laboratories and bear the ETL label. Matching systems shall meet or exceed the minimum Federally mandated Seasonal Energy Efficiency Rating (SEER) of 13, as certified by the ARI testing programs.
3. Matching indoor and outdoor sections shall be connected by deoxidized, annealed refrigerant copper tubing, type “L” cleaned and capped as specified in Section 23 23 00–Refrigerant Piping. All systems shall have flared refrigeration connections on both indoor and outdoor sections.
4. Systems indoor and outdoor sections shall be completely factory assembled and wired with a precharge of refrigerant. A single power source shall provide voltage to the outdoor unit. The indoor unit shall source power from the outdoor unit. Electrical wire and connections to outdoor section and between indoor and outdoor sections shall be sized, installed and grounded by the installer in conformance with the National Electrical Code (NEC), local codes, as well as manufacturer’s instructions.
5. System shall be equipped with a hardwired microprocessor control system with LCD display, that provides access to all system functions, and transmits room conditions and programs to the indoor microprocessor every 3 minutes. Controller shall be capable of operating system mounted up to 26 feet from the indoor section according to manufacturer’s recommendations and instructions. System shall have the capability of continuous operation in the case of damaged controller, utilizing a factory-installed integral manual switch in conjunction with the system microprocessor.

C. System Remote Controller: Controller shall include system mode selection, programmable temperature control, 24-hour programmable timer, automatic three-speed indoor fan speed control, constant fan speed selection, night setback mode, room temperature sensor located on wired controller. Controller model shall be Daikin Navigation, or equal.

D. Outdoor Condensing Section:
1. Outdoor condensing section shall be factory assembled, wired, piped, and precharged with a start-up amount of R-32 refrigerant.
2. Unit shall be constructed of G90 galvannealed steel with corrosion-inhibiting, acrylic, baked-on enamel finish.
3. Unit shall be furnished with a high-efficiency, rotary compressor with internal overload protection, mounted with vibration isolators to reduce noise and vibration.
4. Condenser coil heat exchanger shall be constructed of nonferrous rifled copper tubing with enhanced aluminum slit fins mechanically bonded to the copper. A suction line accumulator, a coil temperature sensor, and cap tube metering device shall be factory installed. The fins shall be covered with an anti-corrosion acrylic resin and hydrophilic film type E1 rated for up to 1,000 hours salt spray. The pipe plates shall be treated with powdered polyester resin for corrosion prevention. The thickness of the coating shall be between 2.0 to 3.0 microns.
5. Fan motor shall be direct drive with internal overload protection, permanent lubrication, with propeller-type fan, mounted for horizontal air discharge.
6. Brass valves with refrigeration flare connections and flare nuts and service ports shall be factory mounted prior to shipment for installation.
7. Low ambient outdoor section shall contain a printed circuit board, factory mounted and wired, to assist in control of low ambient operation. A factory-installed 20-watt crankcase heater shall provide additional compressor protection. Unit shall be factory provided with a high pressure safety switch and internal thermal overload protector.
8. Cooling only models: Unit shall be able to operate in the A/C mode down to 0°F outdoor temperature..

E. Indoor Evaporator Section:
   1. Indoor section shall be wall mount type with single direction airflow, factory assembled and wired.
   2. Unit shall contain an evaporator heat exchanger constructed of nonferrous, rifled copper tubing with enhanced aluminum slit fans, mechanically bonded to the copper.
   3. A single centrifugal blower wheel, statically and dynamically balanced shall be attached to a single direct-drive PSC fan motor with overload protection, permanent lubrication, and multispeed capability.
   4. Unit shall contain a printed circuit board with a control circuit fuse and microprocessor, factory mounted and wired, that receives and processes all commands and transmissions from the system Infrared Remote Controller. Indoor unit shall also contain an Operation Switch with visible lamps for operation, standby and timer functions, as well as a system test switch and manual ON/OFF switch.
   5. Unit shall contain an air sensor thermistor, a coil-freeze safety thermistor to prevent freeze-up, a factory-installed condensate drain pump, drain pan, hose and fitting, and refrigeration line connections with flare nuts.
   6. Indoor section shall be provided with factory assembled supply and return air grille with a motorized louver/flap on the supply air opening. The motorized louver/flap, controlled by the infrared remote controller, shall provide automatic, full-oscillating supply airflow, as well as being capable of being placed in a set, stationary position.
   7. Unit shall also contain adjustable horizontal air louvers to provide user defined directional airflow. Indoor unit will be furnished with an in-ceiling plenum which surrounds the evaporator coil section.
   8. Unit shall be furnished with antimold, poly type washable air filters that can be removed without removing indoor unit casing. Indoor unit shall be powered by voltage from the matching outdoor unit.

F. Refrigerant Piping:
   1. Precharged tubing line sets may be used on systems 3 1/2 tons and less in size.
   2. Hard piped refrigerant lines and accessories may be provided in lieu of precharged line sets. Refer to Section 23 23 00–Refrigerant Piping.

PART 3–EXECUTION

3.01 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify ENGINEER of unsatisfactory preparation before proceeding.

3.02 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.03 INSTALLATION

A. Install units level and plumb, maintaining manufacturer’s recommended clearances and tolerances.

B. Install in accordance with manufacturer's instructions and approved submittals. Test for proper operation and adjust until satisfactory results are obtained.

C. Pipe and trap condensate grade in accordance with Section 22 13 16–Sanitary Waste and Vent Piping and as shown on Drawings.

D. Protect installed products until completion of project.

E. Touch-up, repair or replace damaged products at no additional cost to OWNER.

F. Installation of all equipment furnished under this Contract shall be supervised by a qualified representative of the equipment manufacturer. All equipment shall be placed in operation, and plant operators/building maintenance personnel shall be trained to the satisfaction of OWNER by a qualified representative of the equipment manufacturer. OWNER may videotape training presentations given by manufacturer’s representatives. Final payment for various items of equipment will not be made by OWNER until the equipment is operating to their satisfaction.

G. Drawings and Specifications are based on the scheduled manufacturer and model number. CONTRACTOR shall be responsible for the cost of any changes because of substitutions or alternates of other manufacturers or model numbers including but not limited to, structural, mechanical, and electrical work. CONTRACTOR shall pay all costs for revisions of Drawings by ENGINEER. Any changes shall be coordinated and provided at no additional cost to OWNER.

3.04 CLEANING

A. Unit shall be cleaned and filters shall be cleaned prior to final acceptance by OWNER.

END OF SECTION

SECTION 23 82 39

UNIT HEATERS

PART 1–GENERAL

1.01 SUMMARY

A. Work Included: Electric unit heaters.

B. Related Sections and Divisions: Applicable provisions of Division 01 shall govern work in this section.

1.02 REFERENCES

A. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.

B. All material, installation, and workmanship shall comply with the applicable requirements and standards addressed within the following references.
1. ARI 410–Forced Circulation Air-Cooling and Air-Heating Coils.
2. NFPA 70–National Electrical Code.

1.03 QUALITY ASSURANCE

A. All equipment or components of this specification section shall meet or exceed the requirements and quality of the items herein specified, or as denoted on the Drawings.

B. Electrical components shall be UL listed for the service specified.

C. Electrical components and work shall be in accordance with the National Electrical Code.

D. Coil performance shall be certified in accordance with ARI 410.

1.04 SUBMITTALS

A. Submit under provisions of Section 01 33 00–Submittals.

B. Include data concerning dimensions, required clearances, capacities, materials of construction, ratings, weights, manufacturer's installation requirements, manufacturer's performance limitations, and appropriate identification. Include plans, elevations, sections, and details.

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to the site in such a manner as to protect the materials from shipping and handling damage. Provide materials on factory provided shipping skids and lifting lugs, if required for handling.

B. Materials that could be damaged by the elements should be packaged in such a manner that they could withstand short-term exposure to the elements during transportation.

C. Store materials in a clean, dry place and protect from weather and construction traffic. Handle carefully to avoid damage.

D. Use all means necessary to protect equipment before, during, and after installation.

E. All scratched, dented, and otherwise damaged units shall be repaired or replaced at no additional cost to OWNER.

1.06 WARRANTY

A. Standard One-Year Warranty: Unless otherwise stated below, manufacturer shall warrant the equipment to be free from defects in material and workmanship for a period of one year from the earlier of either the date established for partial utilization in accordance with GC15.03 and 15.04, as modified in the Supplementary Conditions, or Substantial Completion of the project.

PART 2–PRODUCTS

2.01 ELECTRIC UNIT HEATERS

A. CONTRACTOR shall provide electric heaters of the type, size, capacity, and accessories as listed on the equipment schedule. All units shall be UL listed.

B. All electric unit heaters shall be factory-assembled and tested.

C. Electric Unit Heaters (Standard) (EUH):
1. Acceptable manufacturers are Chromalox, QMark, Indeeco, or equal.
2. The cabinet shall be constructed of heavy gauge, die-formed steel with baked enamel coating. Manufacturer shall provide mounting bracket.
3. Provide a propeller fan with direct-drive, totally enclosed motor.
4. Provide an aluminum-finned copper-clad steel sheath heating element.
5. Provide an automatic reset thermal cutout to protect the element.
6. Unit-mounted equipment disconnect shall be ABB OT Series, or equal, provided by manufacturer and meet the requirements of Division 26.
7. Mount units to provide 8 feet 0 inch clearance below, unless otherwise shown on the Drawings.
8. Unit shall include a thermal fan delay to dissipate heat when coil deenergizes, and prevent cold air drafts when it starts.
9. Unit control voltage shall be 120 V. Line voltage (120 V) thermostat shall be provided by Division 26.

D. Electric Unit Heaters (Explosion-proof) (EUH):
1. Acceptable manufacturers are Indeeco, or equal.
2. The cabinet shall be constructed of heavy gauge corrosion-resistant 316 stainless steel with a louvered grille and wall-mounting bracket.
3. Unit shall include an aluminum propeller fan with direct-drive, totally enclosed motor for operation in a Class I, Division 1, Groups C and D hazardous environment.
4. Unit shall include a manual reset thermal cutout to protect the element, and a thermal fan delay.
5. Unit control voltage shall be 120 V. Line voltage (120 V) thermostat shall be provided by Division 26.

6. Unit-mounted equipment disconnect shall be ABB OT Series provided by manufacturer suitable for Class I, Division 1, Groups C and D locations and meet the requirements of Division 26.
7. Mount bottom of units 8 feet 0-inch above finished floor, unless otherwise shown on Drawings.
8. Heat exchanger shall be sealed liquid-to-air-type with a field-replaceable immersion heating element. Heat transfer fluid shall be propylene glycol. Heat exchanger shall include a pressure relief valve. Heat exchanger shall be of 316 stainless steel construction with aluminum fins.

E. Electric Unit Heaters (Corrosion-Resistant) (EUH):
1. Acceptable manufacturers are:
   a. QMark Model QWD.
   b. Berko Model BWD.
   c. Chromalox Model HD3D.
   d. INDEECO Model TRIAD.
2. The cabinet shall be constructed of heavy gauge stainless steel with stainless steel adjustable air deflectors and stainless steel wall-mounting bracket. Heating elements shall be 316 stainless steel sheathed with 316 stainless steel fins.
3. Unit shall include a direct-drive totally enclosed epoxy coated motor, wired to a NEMA 4X enclosure.
4. Unit shall include an automatic reset thermal cutout to protect the element and a thermal fan delay.
5. Unit control voltage shall be 120 V. Line voltage (120 V) thermostat shall be provided by Division 26.
6. Unit-mounted equipment disconnect shall be ABB OT Series provided by manufacturer suitable for corrosive locations and meet the requirements of Division 26.
7. Mount bottom of units 8 feet 0 inch above finished floor, unless otherwise shown on Drawings.

F. Electric Wall Heaters (EWH):
1. Acceptable manufacturer is QMark, or equal.
2. Furnish and install a steel cabinet for recessed mounting in standard 2 by 4 stud wall or surface mounting on a standard block wall as shown on Drawings. Provide a cabinet with 16 gauge steel grille bars and finished in baked enamel.
3. Provide a direct-drive propeller fan and permanently lubricated totally enclosed motor.
4. Provide steel-finned metal sheath electric heating elements.
5. Provide manual reset thermal overheat protection to disconnect power in the event of overheating. Provide an integral, tamper-resistant thermostat. Provide integral contactors and disconnects.

G. Ceiling Unit Heaters (CUH):
1. Acceptable manufacturer is QMark, or equal.
2. Heater section shall be prewired and consist of a 20 gauge steel chassis on which are mounted the heating elements, fan motor and blade, fan control, thermal cutout, and 3-pole contactor.
3. Heating elements shall be 80/20 NiCh resistance wire enclosed in a steel sheath to which steel plate fins are brazed. The elements shall cover entire air intake area.
4. Fan motor shall be impedance protected, permanently lubricated with a totally enclosed rotor.
5. Unit shall be recess-mounted in acoustic ceiling grid via manufacturer provided recessed mounting enclosure.

6. Provide manufacturer recessed mount power disconnect switch (three-pole), 30-amp, 600-volt, three-phase, 60 Hz.
7. Unit control voltage shall be 120 V. Line voltage (120 V) thermostat shall be provided by Division 26.
8. Fan and heating element shall operate on call for heat, and fan shall continue to run after thermostat is satisfied.

PART 3–EXECUTION

3.01 INSTALLATION

A. Install units level and plumb, maintaining manufacturer’s recommended clearances and tolerances.

B. Install in accordance with manufacturer's instructions and approved submittals. Test for proper operation and adjust until satisfactory results are obtained.

C. Provide all mounting hardware and accessories necessary for complete installation.

D. Installation of all equipment furnished under this Contract shall be supervised by a qualified representative of the equipment manufacturer. All equipment shall be placed in operation, and plant operators/building maintenance personnel shall be trained to the satisfaction of OWNER by a qualified representative of the equipment manufacturer. OWNER may videotape training presentations given by manufacturer’s representatives. Final payment for various items of equipment will not be made by OWNER until the equipment is operating to their satisfaction.

E. Drawings and Specifications are based on the scheduled manufacturer and model number. CONTRACTOR shall be responsible for the cost of any changes because of substitutions or alternates of other manufacturers or model numbers including but not limited to, structural, mechanical, and electrical work. CONTRACTOR shall pay all costs for revisions of Drawings by ENGINEER. Any changes shall be coordinated and provided at no additional cost to OWNER.

END OF SECTION

For more location information please visit www.strand.com

Office Locations

Ames, Iowa | 515.233.0000

Brenham, Texas | 979.836.7937

Cincinnati, Ohio | 513.861.5600

Columbus, Indiana | 812.372.9911

Columbus, Ohio | 614.835.0460

Joliet, Illinois | 815.744.4200

Lexington, Kentucky | 859.225.8500

Louisville, Kentucky | 502.583.7020

Madison, Wisconsin* | 608.251.4843

Milwaukee, Wisconsin | 414.271.0771

Nashville, Tennessee | 615.800.5888

Phoenix, Arizona | 602.437.3733

*Corporate Headquarters

STRAND ASSOCIATES®

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

PERFORMANCE BOND

Bond No. 190058693

Contractor	Surety
Name: **Woodruff Construction, Inc.**	Name: **Liberty Mutual Insurance Company**
Address *(principal place of business)*: **1890 Kountry Lane, Fort Dodge, IA 50501**	Address *(principal place of business)*: **175 Berkeley Street, Boston, MA 02116**
Owner	**Contract**
Name: **City of Independence**	Description *(name and location)*: **Wastewater Treatment Plant Modifications Contract 1-2026, Independence, IA**
Mailing address *(principal place of business)*: **331 1st Street East, Independence, IA 50644**	Contract Price: **$58,176,300.00**
	Effective Date of Contract: 7/15/26

Bond

Bond Amount: **$58,176,300.00**

Date of Bond: 7/15/26

(Date of Bond cannot be earlier than Effective Date of Contract)

Modifications to this Bond form:

☒ None ☐ See Paragraph 16

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Performance Bond, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

Contractor as Principal	Surety
Woodruff Construction, Inc. *(Full formal name of Contractor)*	**Liberty Mutual Insurance Company** *(Full formal name of Surety) (corporate seal)*
By: *(Signature)*	By: *(Signature)(Attach Power of Attorney)*
Name: Jason Rechkemmer *(Printed or typed)*	Name: **Sara Huston** *(Printed or typed)*
Title: CEO	Title: **Attorney-in-Fact**
Attest: *(Signature)*	Attest: *(Signature)*
Name: Adam Harris *(Printed or typed)*	Name: **Jamie Gifford**
Title: Project Coordinator	Title: **Witness to Surety**

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.

LIBERTY MUTUAL INSURANCE COMPANY INCORPORATED 1912 MASSACHUSETTS

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1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.

3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond will arise after:

   3.1. The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice may indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 will be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement does not waive the Owner's right, if any, subsequently to declare a Contractor Default;

   3.2. The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and

   3.3. The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 does not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

   5.1. Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

   5.2. Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

   5.3. Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

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5.4. Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:

5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or

5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment, or the Surety has denied liability, in whole or in part, without further notice, the Owner shall be entitled to enforce any remedy available to the Owner.

7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner will not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety will not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:

   7.1. the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

   7.2. additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and

   7.3. liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.

9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price will not be reduced or set off on account of any such unrelated obligations. No right of action will accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.

10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

11. Any proceeding, legal or equitable, under this Bond must be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and must be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit will be applicable.

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12. Notice to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown on the page on which their signature appears.

13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement will be deemed deleted therefrom and provisions conforming to such statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.

14. Definitions

    14.1. *Balance of the Contract Price*—The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

    14.2. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

    14.3. *Contractor Default*—Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

    14.4. *Owner Default*—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

    14.5. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.

15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.

~~16. Modifications to this Bond are as follows: **[Describe modification]**~~

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ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

PAYMENT BOND

Bond No. 190058693

Contractor	Surety
Name: Woodruff Construction, Inc. Address *(principal place of business)*: 1890 Kountry Lane Fort Dodge, IA 50501	Name: Liberty Mutual Insurance Company Address *(principal place of business)*: 175 Berkeley Street Boston, MA 02116
Owner	**Contract**
Name: City of Independence Mailing address *(principal place of business)*: 331 1st Street East Independence, IA 50644	Description *(name and location)*: Wastewater Treatment Plant Modifications Contract 1-2026, Independence, IA Contract Price: $58,176,300.00 Effective Date of Contract: 7/15/26

Bond

Bond Amount: $58,176,300.00

Date of Bond: 7/15/26

(Date of Bond cannot be earlier than Effective Date of Contract)

Modifications to this Bond form:

☒ None ☐ See Paragraph 18

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Payment Bond, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

Contractor as Principal	Surety
Woodruff Construction, Inc. *(Full formal name of Contractor)*	Liberty Mutual Insurance Company *(Full formal name of Surety) (corporate seal)*
By: *(Signature)*	By: *(Signature)(Attach Power of Attorney)*
Name: Jason Rechkemmer *(Printed or typed)*	Name: Sara Huston *(Printed or typed)*
Title: CEO	Title: Attorney-in-Fact
Attest: *(Signature)*	Attest: *(Signature)*
Name: Adam Harris *(Printed or typed)*	Name: Jamie Gifford
Title: Project Coordinator	Title: Witness to Surety

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.

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1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.
2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond will arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.
4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.
5. The Surety's obligations to a Claimant under this Bond will arise after the following:

    5.1. Claimants who do not have a direct contract with the Contractor

        5.1.1. have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and

        5.1.2. have sent a Claim to the Surety (at the address described in Paragraph 13).

    5.2. Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).
6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.
7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:

    7.1. Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and

    7.2. Pay or arrange for payment of any undisputed amounts.

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7.3. The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 will not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

8. The Surety's total obligation will not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond will be credited for any payments made in good faith by the Surety.

9. Amounts owed by the Owner to the Contractor under the Construction Contract will be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfying obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.

11. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

12. No suit or action will be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit will be applicable.

13. Notice and Claims to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, will be sufficient compliance as of the date received.

14. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement will be deemed deleted here from and provisions conforming to such statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.

15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

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16. Definitions

16.1. *Claim*—A written statement by the Claimant including at a minimum:

16.1.1. The name of the Claimant;

16.1.2. The name of the person for whom the labor was done, or materials or equipment furnished;

16.1.3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;

16.1.4. A brief description of the labor, materials, or equipment furnished;

16.1.5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;

16.1.6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;

16.1.7. The total amount of previous payments received by the Claimant; and

16.1.8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.

16.2. *Claimant*—An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond is to include without limitation in the terms of "labor, materials, or equipment" that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.

16.3. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

16.4. *Owner Default*—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

16.5. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.

17. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.

~~18. Modifications to this Bond are as follows: **[Describe modification]**~~

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POWER OF ATTORNEY

Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company
West American Insurance Company

Certificate No: **8213828-190056**

KNOWN ALL PERSONS BY THESE PRESENTS: That The Ohio Casualty Insurance Company is a corporation duly organized under the laws of the State of New Hampshire, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts, and West American Insurance Company is a corporation duly organized under the laws of the State of Indiana (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Anne Crowner; Brian M. Deimerly; Craig E. Hansen; Dione R. Young; Grace Dickinson; Jamie Gifford; Jay D. Freiermuth; John Cord; Kate Zanders; Sara Huston; Seth D. Rooker; Tim McCulloh; Zachary R. Fuller

all of the city of Waukee state of IA each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 16th day of April, 2025.

Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company
West American Insurance Company

By: _____
Nathan J. Zangerle, Assistant Secretary

State of PENNSYLVANIA
County of MONTGOMERY ss

On this 16th day of April, 2025 before me personally appeared Nathan J. Zangerle, who acknowledged himself to be the Assistant Secretary of Liberty Mutual Insurance Company, The Ohio Casualty Company, and West American Insurance Company, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at Plymouth Meeting, Pennsylvania, on the day and year first above written.

Commonwealth of Pennsylvania - Notary Seal
Teresa Pastella, Notary Public
Montgomery County
My commission expires March 28, 2029
Commission number 1126044
Member, Pennsylvania Association of Notaries

By: _____
Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and Authorizations of The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company which resolutions are now in full force and effect reading as follows:

ARTICLE IV – OFFICERS: Section 12. Power of Attorney.
Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and execution of any such instruments and to attach thereto the seal of the Corporation. When so executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

ARTICLE XIII – Execution of Contracts: Section 5. Surety Bonds and Undertakings.
Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

Certificate of Designation – The President of the Company, acting pursuant to the Bylaws of the Company, authorizes Nathan J. Zangerle, Assistant Secretary to appoint such attorneys-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

Authorization – By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Renee C. Llewellyn, the undersigned, Assistant Secretary, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this _____ day of _____, **2026**.

By: _____
Renee C. Llewellyn, Assistant Secretary

LMS-12873 LMIC OCIC WAIC Multi Co 02/24

Not valid for mortgage, note, loan, letter of credit, currency rate, interest rate or residual value guarantees.

For bond and/or Power of Attorney (POA) verification inquiries, please call 610-832-8240 or email HOSUR@libertymutual.com.

DORSEY

DORSEY+WHITNEY LLP

July 21, 2026

VIA EMAIL

Susi Lampe
City Clerk/City Hall
Independence, Iowa

Re: Wastewater Treatment Plant Modifications Project
Our File No. 419440-108

Dear Susi:

We have prepared and attached the proceedings related to the approval of the contract and bonds for the Wastewater Treatment Plant Modifications Project.

The materials attached include the following items:

1. Minutes of the July 27, 2026, meeting at which the City Council will adopt the resolution approving the contract and performance and/or payment bonds, with the resolution following.

2. Attestation Certificate with respect to the validity of the transcript.

As these proceedings are completed, please return one fully executed copy to our office.

If you have any questions, please contact Emily Hammond or me.

Best regards,

John P. Danos

Attachments

cc: Matt Schimtz
Michelle Nejdl
Bradley Lake

MINUTES OF MEETING TO APPROVE CONTRACT AND BONDS

419440-108

Independence, Iowa

July 27, 2026

The City Council of the City of Independence, Iowa, met at the City Hall, Independence, Iowa, on July 27, 2026, at 5:30 p.m., pursuant to the rules of the Council.

The meeting was called to order by the Mayor and the roll being called, there were present the following named Council Members:

Present: _____

Absent: _____.

After due consideration and discussion, Council Member _____ introduced and moved the adoption of the resolution next hereinafter set out, the same being a resolution approving an executed contract and performance and/or payment bonds for the Wastewater Treatment Plant Modifications Project. The motion was seconded by Council Member _____ and passed with record vote as follows:

Ayes: _____

Nays: _____.

Thereupon, the resolution was declared adopted, as follows:

RESOLUTION NO. 2026-____

Resolution approving contract and performance and/or payment bonds for the Wastewater Treatment Plant Modifications Project

WHEREAS, the City Council of the City of Independence, Iowa, has heretofore awarded a contract for the Wastewater Treatment Plant Modifications Project and fixed the amount of the performance and/or payment bonds to be furnished by such contractor, and instructed and authorized the City Manager and City Clerk to execute the said contract on behalf of the City, subject to the approval of the Council; and

WHEREAS, the said contract has been duly signed by the contractor and by the City Manager and City Clerk, and upon examination by this Council the same appears to be in proper form; and

WHEREAS, the contractor has filed satisfactory performance and/or payment bonds in the required amount;

NOW, THEREFORE, Be It Resolved by the City Council of the City of Independence, Iowa, as follows:

Section 1. The aforementioned contract and performance and/or payment bonds are hereby approved and declared to be binding upon the parties thereto.

Section 2. All resolutions or parts of resolutions in conflict herewith are hereby repealed to the extent of such conflict.

Passed and approved July 27, 2026.

_____
Mayor

Attest:

_____
City Clerk

• • • •

There being no further business to come before the meeting, it was upon motion adjourned.

_____
Mayor

Attest:

_____
City Clerk

ATTESTATION CERTIFICATE:

STATE OF IOWA
BUCHANAN COUNTY SS:
CITY OF INDEPENDENCE

I, the undersigned, City Clerk of the City of Independence, Iowa, hereby certify that the attached is a true, correct and complete copy of the proceedings related to the approval of the executed contract and performance and/or payment bonds for the Wastewater Treatment Plant Modifications Project, including a true, correct and complete copy of the resolution referred to in such minutes.

WITNESS MY HAND this _____ day of _____, 2026.

_____
City Clerk

City Council

Memorandum

To:	City Council Members
From:	Matthew R. Schmitz, MPA, City Manager
Date of Meeting:	July 27, 2026
Item Title:	Resolution to fix a date for a public hearing on proposal to enter into a Sewer Revenue Loan and Disbursement Agreement and to borrow money thereunder in a principal amount not to exceed $56,658,000

Background:

As discussed multiple times before, to secure funding for the Wastewater Treatment Plant Replacement Project, we are proposing a Sewer Revenue Loan and Disbursement Agreement with a principal amount not to exceed $56,658,000.

Discussion:

This resolution fulfills the procedural requirement to set a public hearing regarding the proposed loan agreement. By passing this item, we formally schedule the hearing for August 10, 2026, at 5:30 p.m. and direct the City Clerk to publish the necessary public notice.

Key financial protections remain in place, as this agreement is payable solely from the Net Revenues of the Utility and does not constitute a general obligation of the City, nor will it be payable by taxation (i.e., property taxes). Additionally, the resolution includes an IRS declaration of official intent, which legally allows the City to expend funds for eligible project expenditures using the eventual bond proceeds.

Results:

The City has established priorities during strategic planning sessions. This item supports the Vision from that session of **promoting and encouraging community involvement and engagement**. This item helps achieve that vision by engaging the community to express their thoughts about this topic.

Financial Consideration:

There is no significant financial consideration for this matter other than the staff's time in preparing the resolution and the publication cost for the hearing notice.

Recommendation:

Staff recommends a motion to authorize the Mayor to sign a resolution establishing a time and place for a Public Hearing on August 10, 2026, at 5:30 PM, on a proposal to enter into a Sewer Revenue Loan and Disbursement Agreement and to borrow money thereunder in a principal amount not to exceed $56,658,000.

Attachments:

1. RES 2026- Pub Hearing Sewer Revenue Loan 56.658.000
2. D-W 1st Half Set Hrg Sewer Rev LDA (Indep 419440-108) 2026-v3

RESOLUTION NO. 2026-

RESOLUTION TO FIX A DATE FOR A PUBLIC HEARING ON PROPOSAL TO ENTER INTO A SEWER REVENUE LOAN AND DISBURSEMENT AGREEMENT AND TO BORROW MONEY THEREUNDER IN A PRINCIPAL AMOUNT NOT TO EXCEED $56,658,000

WHEREAS, the City of Independence (the "City"), in Buchanan County, State of Iowa, did heretofore establish a Municipal Sanitary Sewer System (the "Utility") in and for the City which has continuously supplied sanitary sewer service in and to the City and its inhabitants since its establishment; and

WHEREAS, the management and control of the Utility are vested in the City Council (the "Council"), and no board of trustees exists for this purpose; and

WHEREAS, pursuant to a prior resolution of the Council (the "Outstanding Bond Resolution"), the City has previously issued its $1,565,000 Sewer Revenue Bond, SRF Series 2018A, dated December 21, 2018 (the "Outstanding Bond"), a portion of which remains outstanding; and

WHEREAS, pursuant to the Outstanding Bond Resolution, the City reserved the right to issue additional obligations payable from the net revenues of the Utility and ranking on a parity with the Outstanding Bond under the terms and conditions set forth in the Outstanding Bond Resolution; and

WHEREAS, the City now proposes to enter into a Sewer Revenue Loan and Disbursement Agreement (the "Agreement") and to borrow money thereunder in a principal amount not to exceed $56,658,000, pursuant to the provisions of Section 384.24A of the Code of Iowa, for the purpose of paying the cost, to that extent, of planning, designing, and constructing improvements and extensions to the Utility (the "Project"), and it is necessary to fix a date of meeting of the City Council at which it is proposed to take action to enter into the Agreement and to give notice thereof as required by such law;

NOW, THEREFORE, Be It Resolved by the City Council of the City of Independence, Iowa, as follows:

Section 1. This City Council shall meet on August 10, 2026, at the City Hall, in the City, at 5:30 p.m., at which time and place a hearing will be held and proceedings will be instituted and action taken to enter into the Agreement.

Section 2. The City Clerk is hereby directed to give notice of the proposed action on the Agreement setting forth the amount and purpose thereof, the time when and place where the said meeting will be held, by publication at least once, not less than four (4) and not more than twenty (20) days before the meeting, in a legal newspaper which has a general circulation in the City. The notice shall be in substantially the following form:

NOTICE OF PROPOSED ACTION TO INSTITUTE
PROCEEDINGS TO ENTER INTO A LOAN AND DISBURSEMENT AGREEMENT IN A
PRINCIPAL AMOUNT NOT TO EXCEED $56,658,000

(SEWER REVENUE)

The City Council of the City of Independence, Iowa, will meet on August 10, 2026, at the City Hall, in the City, at 5:30 p.m., for the purpose of instituting proceedings and taking action to enter into a loan and disbursement agreement (the "Agreement") and to borrow money thereunder in a principal amount not to exceed $56,658,000, for the purpose of paying the cost, to that extent, of planning, designing, and constructing improvements and extensions to the Municipal Sanitary Sewer System (the "Utility") of the City.

The Agreement will not constitute a general obligation of the City, nor will it be payable in any manner by taxation, but together with the City's outstanding Sewer Revenue Bond, SRF Series 2018A, dated December 21, 2018 and any additional obligations of the City as may be hereafter issued and outstanding from time to time ranking on a parity therewith, will be payable solely and only from the Net Revenues of the Utility.

DRAFT

At the aforementioned time and place, oral or written objections may be filed or made to the proposal to enter into the Agreement. After receiving objections, the City may determine to enter into the Agreement, in which case, the decision will be final unless appealed to the District Court within fifteen (15) days thereafter.

By order of the City Council of the City of Independence, Iowa.

Susi Lampe
City Clerk

Section 3. Pursuant to Section 1.150-2 of the Income Tax Regulations (the "Regulations") of the Internal Revenue Service, the City declares (a) that it intends to undertake the Project which is reasonably estimated to cost approximately $56,658,000, (b) that other than (i) expenditures to be paid or reimbursed from sources other than the issuance of bonds, notes or other obligations (the "Bonds"), or (ii) expenditures made not earlier than 60 days prior to the date of this Resolution or a previous intent resolution of the City, or (iii) expenditures amounting to the lesser of $100,000 or 5% of the proceeds of the Bonds, or (iv) expenditures constituting preliminary expenditures as defined in Section 1.150-2(f)(2) of the Regulations, no expenditures for the Project have heretofore been made by the City and no expenditures will be made by the City until after the date of this Resolution or a prior intent resolution of the City, and (c) that the City reasonably expects to reimburse the expenditures made for costs of the City out of the proceeds of the Bonds. This declaration is a declaration of official intent adopted pursuant to Section 1.150-2 of the Regulations.

Section 4. All resolutions or parts of resolutions in conflict herewith are hereby repealed to the extent of such conflict.

Section 5. This resolution shall be in full force and effect immediately upon its adoption and approval, as provided by law.

RESOLUTION NO. 2026- Passed and approved by a majority vote of the Independence City Council on the 27th day of July 2026.

Record of Voting:

Ayes:

Nays:

Absent:

RESOLUTION NO. 2026- declared passed and adopted by the Mayor on this 27th day of July 2026.

_____
Brad Bleichner, Mayor of the City of Independence, IA

ATTEST:

_____
Susi Lampe, CMC, IaCMC, IaCFO,
Assistant City Manager/City Clerk/Treasurer of the City of Independence, IA

DRAFT

DORSEY
DORSEY+WHITNEY LLP

July 21, 2026

VIA EMAIL
Susi Lampe
City Clerk/City Hall
Independence, IA

Re: $56,658,000 SRF Sewer Revenue Loan and Disbursement Agreement
File No. 419440-108

Dear Susi:

We have prepared and attach proceedings for the July 27, 2026, City Council meeting to enable the Council to set August 10, 2026, as the date for a hearing on the proposal to enter into the SRF Sewer Revenue Loan and Disbursement Agreement (the "Agreement").

The documents attached include the following items:

1. Resolution fixing the date of meeting at which it is proposed to take action to enter into the Agreement. The form of notice is set out in Section 2 of the resolution. Please insert the time and place of the hearing in both the resolution and the notice. Please print an extra copy for delivery to the newspaper for publication.

2. Attestation Certificate with respect to the validity of the transcript.

3. Organization and Establishment Certificate.

4. Outstanding Debt Certificate with respect to the outstanding debt of the Sewer Utility.

5. Publication Certificate with respect to publication of the notice, to which must be attached the publisher's affidavit of publication with a clipping of the notice as published.

The notice must be published at least once, not less than four (4) and not more than twenty (20) days before the meeting date set for the hearing, in a legal newspaper which has a general circulation in Independence. The last date on which this notice can be effectively published is August 6, 2026.

As soon as the notice appears in the newspaper, please have a copy scanned and emailed to lemke.susan@dorsey.com.

Please return one fully executed copy of all completed pages to us as soon as they are available.

Please call Emily Hammond, Erin Regan, Lauren Baker or me if you have questions.

Best regards,

John P. Danos

Attachments

cc: Matt Schimtz
Michelle Nejdl
Tony Toigo
Lee Wagner
Yolanda Attaway
Maggie Burger
Bradley Lake

MINUTES TO SET DATE FOR HEARING ON ENTERING INTO A LOAN AND DISBURSEMENT AGREEMENT

419440-108 (N/I)

Independence, Iowa

July 27, 2026

The City Council of the City of Independence, Iowa, met on July 27, 2026, at 5:30 p.m., at the City Hall, in the City.

The Mayor presided and the roll was called showing the following members of the Council present and absent:

Present: _____

Absent: _____.

Council Member _____ introduced the resolution hereinafter next set out and moved its adoption, seconded by Council Member _____; and after due consideration thereof by the Council, the Mayor put the question upon the adoption of the said resolution and the roll being called, the following named Council Members voted:

Ayes: _____

Nays: _____.

Whereupon, the Mayor declared the resolution duly adopted as follows:

RESOLUTION NO. 2026-_____

Resolution to fix a date for a public hearing on proposal to enter into a Sewer Revenue Loan and Disbursement Agreement and to borrow money thereunder in a principal amount not to exceed $56,658,000

WHEREAS, the City of Independence (the "City"), in Buchanan County, State of Iowa, did heretofore establish a Municipal Sanitary Sewer System (the "Utility") in and for the City which has continuously supplied sanitary sewer service in and to the City and its inhabitants since its establishment; and

WHEREAS, the management and control of the Utility are vested in the City Council (the "Council"), and no board of trustees exists for this purpose; and

WHEREAS, pursuant to a prior resolution of the Council (the "Outstanding Bond Resolution"), the City has previously issued its $1,565,000 Sewer Revenue Bond, SRF Series 2018A, dated December 21, 2018 (the "Outstanding Bond"), a portion of which remains outstanding; and

WHEREAS, pursuant to the Outstanding Bond Resolution, the City reserved the right to issue additional obligations payable from the net revenues of the Utility and ranking on a parity with the Outstanding Bond under the terms and conditions set forth in the Outstanding Bond Resolution; and

WHEREAS, the City now proposes to enter into a Sewer Revenue Loan and Disbursement Agreement (the "Agreement") and to borrow money thereunder in a principal amount not to exceed $56,658,000, pursuant to the provisions of Section 384.24A of the Code of Iowa, for the purpose of paying the cost, to that extent, of planning, designing, and constructing improvements and extensions to the Utility (the "Project"), and it is necessary to fix a date of meeting of the City Council at which it is proposed to take action to enter into the Agreement and to give notice thereof as required by such law;

NOW, THEREFORE, Be It Resolved by the City Council of the City of Independence, Iowa, as follows:

Section 1. This City Council shall meet on August 10, 2026, at the City Hall, in the City, at 5:30 p.m., at which time and place a hearing will be held and proceedings will be instituted and action taken to enter into the Agreement.

Section 2. The City Clerk is hereby directed to give notice of the proposed action on the Agreement setting forth the amount and purpose thereof, the time when and place where the said meeting will be held, by publication at least once, not less than four (4) and not more than twenty (20) days before the meeting, in a legal newspaper which has a general circulation in the City. The notice shall be in substantially the following form:

NOTICE OF PROPOSED ACTION TO INSTITUTE
PROCEEDINGS TO ENTER INTO A LOAN AND DISBURSEMENT AGREEMENT
IN A PRINCIPAL AMOUNT NOT TO EXCEED $56,658,000

(SEWER REVENUE)

The City Council of the City of Independence, Iowa, will meet on August 10, 2026, at the City Hall, in the City, at 5:30 p.m., for the purpose of instituting proceedings and taking action to enter into a loan and disbursement agreement (the "Agreement") and to borrow money thereunder in a principal amount not to exceed $56,658,000, for the purpose of paying the cost, to that extent, of planning, designing, and constructing improvements and extensions to the Municipal Sanitary Sewer System (the "Utility") of the City.

The Agreement will not constitute a general obligation of the City, nor will it be payable in any manner by taxation, but together with the City's outstanding Sewer Revenue Bond, SRF Series 2018A, dated December 21, 2018 and any additional obligations of the City as may be hereafter issued and outstanding from time to time ranking on a parity therewith, will be payable solely and only from the Net Revenues of the Utility.

At the aforementioned time and place, oral or written objections may be filed or made to the proposal to enter into the Agreement. After receiving objections, the City may determine to enter into the Agreement, in which case, the decision will be final unless appealed to the District Court within fifteen (15) days thereafter.

By order of the City Council of the City of Independence, Iowa.

Susi Lampe
City Clerk

Section 3. Pursuant to Section 1.150-2 of the Income Tax Regulations (the "Regulations") of the Internal Revenue Service, the City declares (a) that it intends to undertake the Project which is reasonably estimated to cost approximately $56,658,000, (b) that other than (i) expenditures to be paid or reimbursed from sources other than the issuance of bonds, notes or other obligations (the "Bonds"), or (ii) expenditures made not earlier than 60 days prior to the date of this Resolution or a previous intent resolution of the City, or (iii) expenditures amounting to the lesser of $100,000 or 5% of the proceeds of the Bonds, or (iv) expenditures constituting preliminary expenditures as defined in Section 1.150-2(f)(2) of the Regulations, no expenditures for the Project have heretofore been made by the City and no expenditures will be made by the City until after the date of this Resolution or a prior intent resolution of the City, and (c) that the City reasonably expects to reimburse the expenditures made for costs of the City out of the proceeds of the Bonds. This declaration is a declaration of official intent adopted pursuant to Section 1.150-2 of the Regulations.

Section 4. All resolutions or parts of resolutions in conflict herewith are hereby repealed to the extent of such conflict.

Section 5. This resolution shall be in full force and effect immediately upon its adoption and approval, as provided by law.

Passed and approved this July 27, 2026.

_____
Mayor

Attest:

_____
City Clerk

• • • •

On motion and vote, the meeting adjourned.

_____
Mayor

Attest:

_____
City Clerk

ATTESTATION CERTIFICATE:

STATE OF IOWA
BUCHANAN COUNTY SS:
CITY OF INDEPENDENCE

I, the undersigned, City Clerk of the aforementioned City, do hereby certify that attached hereto is a true and correct copy of the proceedings of the City Council relating to fixing a date for hearing on the City Council's proposal to take action in connection with a Sewer Revenue Loan and Disbursement Agreement.

WITNESS MY HAND this _____ day of _____, 2026.

_____
City Clerk

ORGANIZATION AND ESTABLISHMENT CERTIFICATE:

STATE OF IOWA
BUCHANAN COUNTY SS:
CITY OF INDEPENDENCE

I, the undersigned City Clerk, do hereby certify that the aforementioned City is organized and operating under the provisions of Title IX of the Code of Iowa and not under any special charter and that such City is operating under the Mayor-Council form of government and that there is not pending or threatened any question or litigation whatsoever touching the incorporation of the City, the inclusion of any territory within its limits or the incumbency in office of any of the officials hereinafter named.

And I do further certify that the following named parties are officials of the City as indicated:

Brad Bleichner,	Mayor
Matthew Schmitz,	City Manager
Susi Lampe,	City Clerk
Susi Lampe,	City Treasurer
Brian Prusator,	Council Member/Mayor Pro Tem
Ralph Moore,	Council Member
Melissa Appleby,	Council Member
Bret Weber,	Council Member
Michael O'Loughlin,	Council Member
Debra Hanna,	Council Member
Matthew Mayner,	Council Member

I further certify that the City established the Municipal Sanitary Sewer System (the "Utility") and that the Utility has been in continuous operation by the City since its establishment as aforesaid in supplying sanitary sewer service to the City and its inhabitants.

I further certify that the management and control of the Utility are vested in the City Council of the City, and that no board of trustees exists which has any part of the control and management of such Utility.

WITNESS MY HAND this _____ day of _____, 2026.

_____
City Clerk

OUTSTANDING DEBT CERTIFICATE:

STATE OF IOWA
BUCHANAN COUNTY SS:
CITY OF INDEPENDENCE

I, the undersigned, City Clerk of the City of Independence, Iowa (the "City"), do hereby certify that the City has no bonds or other obligations of any kind now outstanding which are secured by and payable from the revenues derived from the operation of the Municipal Sanitary Sewer System (the "Utility"), except as follows:

Date	Type	Principal Amount Outstanding	Maturity
12-21-2018	Sewer Revenue	$1,085,000.00	06-01-2039

(Attach here a separate sheet listing any other outstanding obligations of the City secured by and payable from the revenues of the Utility, if any, excluding the proposed issue.)

WITNESS MY HAND this _____ day of _____, 2026.

_____
City Clerk

PUBLICATION CERTIFICATE:

STATE OF IOWA
BUCHANAN COUNTY SS:
CITY OF INDEPENDENCE

I, the undersigned, City Clerk of the aforementioned City, do hereby certify that pursuant to the resolution of its City Council fixing a date of meeting at which it is proposed to take action to enter into a loan and disbursement agreement, the notice, of which the printed slip attached to the publisher's affidavit hereto attached is a true and complete copy, was published on the date and in the newspaper specified in such affidavit, which newspaper has a general circulation in the City.

WITNESS MY HAND this _____ day of _____, 2026.

_____
City Clerk

(Attach here the publisher's original affidavit with clipping of the notice, as published.)

(PLEASE NOTE: Please do not date and return this certificate until you have received the publisher's affidavit and have verified that the notice was published on the date indicated in the affidavit, but please return all other completed pages to us as soon as they are available.)