City Council Regular Meeting Agenda

Monday, June 14, 2021 at 6:30 PM
City Council Chambers, 401 Virginia Street, New Meadows, ID 83654

PUBLIC NOTICE: THIS MEETING IS RECORDED AND PLACED IN AN ONLINE FORMAT. PERSONS MAY BE ABLE TO EITHER VIEW OR LISTEN TO VIDEO / AUDIO OF THIS MEETING UNTIL WHICH TIME THE RECORDING IS DESTROYED UNDER THE CITY'S RECORD RETENTION POLICY.

PARTICIPATE VIA ZOOM
Direct Link: https://zoom.us/j/94546488845?pwd=bi92UHRJaExCN25BTUVzZlFOOHJLQT09
Call in: 346-248-7799
Meeting ID: 945-4648-8845
Password: 235873

ROLL CALL / PLEDGE OF ALLEGIANCE

PUBLIC INPUT

(The Public is invited to speak to any item NOT already on the agenda. Items regarding Personnel or Elected Officials should be discussed with the Mayor. The Mayor or Presiding Officer may limit the amount of time). The public **may** be called upon to speak on any item on the agenda.

PRESENTATION

1. Volunteer Spotlight - The Fosdick
2. Budget Presentation - Dana Kautz

REPORTS

3. Staff Reports
4. Mayor's Report

DISCUSSION ITEMS

5. Yard Art Proposal - Darbey Edwards
6. Housing / Zoning Review
7. Farmer's Market at City Park

ACTION ITEMS

8. Grass & Weed Abatement Approval
9. Grass & Weed Abatement Contractor Approval - Barron Loper
10. Zwygart John & Associates Auditor Services Agreement Approval
11. Short Term RV Ordinance Amendment
12. Well House #5 Rebid
13. Robert Hale Cleanup Update
14. Land Change Request Form Approval - Frei
15. Broadband Grant Approval
16. Dust Abatement Approval
17. Executive Session 74-206 1 (B): To consider the evaluation, dismissal or disciplining of, or to hear complaints or charges brought against, a public officer, employee, staff member or individual agent, or public school student.
18. Wage / Status Approval - Daniel Potter

CONSENT AGENDA

19. City Council Minutes - May 24, 2021
20. Paid & Pending Claims
21. May 2021 Payroll

FUTURE MEETING TOPICS

22. USDA Funds
23. Building Official Service Contract Approval

ADJOURNMENT

Any person needing special accommodation to participate in the above noticed meeting should contact the City Clerk's Office at, 347-2171, at least 24 hours in advance of the meeting date.

City of New Meadows Mission Statement:

"To provide citizens with a safe and clean community as we develop a vibrant, diverse economy together. Through coordinated and collaborative planning, we will utilize proactive means to provide effective, safe and fiscally responsible municipal programs and services while building and maintaining infrastructure of adequate capacity to accommodate present and future needs. With the overall health of each resident in mind, we will maintain an open and honest government as we plan for the future while preserving, protecting and enhancing our legacy."

Statement of Expenditure - Budget vs. Actual Report 2021

Fund	Account	Object	Committed YTD	Budgeted Amount	Amount Over Budget	Comments
1 GENERAL						
	41100 City Hall Expenses	312 Attorney Fees (Professional)	2,093.00	1,000.00	-1,093.00	
	41100 City Hall Expenses	327 Information Technology Fees (Professional)	1,057.07	200.00	-857.07	
	41100 City Hall Expenses	331 Utilities - W/S	532.30	360.00	-172.30	
	41100 City Hall Expenses	709 Equipment and Software	18,528.64	2,730.00	-15,798.64	
	41400 Public Safety Enforcement	350 Shared Equip Maintenance	20.00	0.00	-20.00	
60 WATER FUND						
	43300 WATER	810 Refunds	108.42	0.00	-108.42	
	43320 Water Operating Expenses	309 Advertising	226.75	0.00	-226.75	
	43320 Water Operating Expenses	327 Information Technology Fees (Professional)	1,149.05	200.00	-949.05	
63 INDUSTRIAL PARK FUND						
	43100 Industrial Park	324 M&O (Materials)	7,875.20	1,334.00	-6,541.20	
	43100 Industrial Park	327 Information Technology Fees (Professional)	116.85	0.00	-116.85	
	43100 Industrial Park	330 Utilities - Electric	691.72	0.00	-691.72	
	43100 Industrial Park	630 Fuel	856.00	0.00	-856.00	
65 SEWER FUND						
	43220 Sewer Operating Expenses	327 Information Technology Fees (Professional)	1,149.06	200.00	-949.06	
	43220 Sewer Operating Expenses	511 Municipal Insurance	2,188.00	0.00	-2,188.00	
	43220 Sewer Operating Expenses	709 Equipment and Software	2,556.25	0.00	-2,556.25	
	43220 Sewer Operating Expenses	745 Testing	8,684.71	8,500.00	-184.71	

Daniel Potter
Public Works Assistant
Staff Report – June 14, 2021

In the last month we have serviced and greased the heavy equipment and the lawnmower. The oil was changed in the mower, new blades were installed, and a tire was repaired on the mower. We have replaced several water meters and had them updated in the system. We have watered many of the roads and conducted road blading. We are preparing for dust abatement on 17 June. The sidewalk project was started, and I compacted the dirt. A concrete shortage has us in standby. We conducted sewer line camera operations with Integrity Solutions. We cleaned the sewer lines on several streets. We have assisted the school with several projects. I conducted training in Boise at the Idaho Rural Water Association conference.

We have been in the process of leak testing our lagoons and have been having some setbacks due to weather or equipment issues. I conducted our first community clean up with my wife Lisa, my son Tony and Angie Mettie. I have been trying to find someone who can paint our park bathrooms with an artistic touch. I have not received any submissions yet. I have been doing my best to keep up with the amount of trash and glass bottles being thrown on the ground in the park. I've been trying to change the trash bags every few days.

In the next community cleanup, we may only have the dump truck and no backhoe. I will conduct one pass per road starting at 930 on the 19th of June. On 7 June at approximately 2pm we had yet another illegal sewer dumping incident. I caught the incident before it could get out of hand. We had several hundred gallons of water coming from between McLain and Taylor streets. I have replaced several signs throughout the city. We will be ordering more signs this week. As the signs come in, we will install them.

Staff Report
Angie Mettie
May 2021

Customer Service

Much time has been spent this month researching and finding information for customers, as well as completing past projects. These have included:

- Changing addresses on the West Central Mountains duplexes to match the County and Idaho Power addresses.
- Helping potential buyers with zoning questions, locating water meters, lot sizes, and more.
- Giving information to those wishing to oil their roads and alleyways on the 17th along with the city.
- Several burn permit questions regarding how to get permits and whether they are needed.
- Sent the new Land Change Request form to C. Hobbs for a signature, as the County stated the process was never complete for the WCMHT homes.
- Several building permits were received and taken to the County office.
- There were many move in / move outs and home purchases this month.

Billing

- Billing was completed for the month of May. Grass letters went out with each bill, along with a calendar showing when the city will check for tall grass and weeds. The Grass & Weed ordinance was also sent with the bills.

Newsletter

- The newsletter has been completed on Thursdays and is delivered electronically on Mondays. It is receiving positive feedback.

Minutes & Meetings

- I have attended all meetings and minutes have been completed for each.

Committees

- The Citizen Advisory / Parks & Rec will be meeting on Tuesday, June 22nd as a forum. It is the hope that the public will give input into the park master plan.

Special Projects

- I have completed the Stibnite Grant application for the flashing speed signs. Kyla has completed the grant application for the dog pound upgrade.

Leak Letters

- Leak letters were sent to customers flagged on the leak report. Three additional letters were sent to customers with high usage that did not show up on the report. Due to time constraints, we have not been able to work with Neptune to fine tune our system. We would like the leak report to be more accurate. There have been several large leaks in the last few months that did not show up on the report. We also would like to be able to "data log" problem meters. This only works on certain meters and also works sporadically. Dan Hawkins is working with Jessie on certain problem meters. We would like to be able to do the work ourselves without having to ask Dan for help.
- Hartland Inn was one of the properties with this high usage. Jessie stated that Dan Hawkins stated that the light to data log his meter will be a couple of weeks out.

Staff Report
Angie Mettie
May 2021

Complaints & Community Correspondence

- Several have asked if the weeds could be sprayed at the park and the bulb outs. Daniel has sprayed them and mowed in a timely manner.
- There have been several dog at large complaints. The Sheriff's office would like to know what the process will be if they pick up dogs, as they cannot take them to McPaws because they do not have a contract with them. It was decided that as soon as the dog pound is cleaned up, the Sheriff's department can place the dogs there and staff will take the dogs to McPaws on that same day. Daniel stated that he will work on cleaning up the pound.
- There have been several speeding complaints. It has been suggested the flashing speed sign be placed on side roads. I have contacted the Sheriff's Department several times and they are checking to see who is in charge of this.
- It was suggested that the City-Wide Yard Sale occur again this year during Meadows Valley Days. The Parks & Rec committee put this on last year. It was very simple and took little time. If a resident was having a yard sale, they sent information in and their address went on a map, which was distributed outside City Hall over Labor Day weekend. If there are no objections, I will go ahead with this event.
- Airplane noise complaints have been received. There does not seem to be an airplane noise ordinance, and a community member has offered to help with one, as this is a yearly occurrence.
- One rooster complaint has been filed and owner was sent the urban ranch packet with information, application, and ordinance. Update: No urban ranches have been approved or complete applications received since the ordinance went into effect.

Vacation

- I will be taking my first vacation since working for the city, June 21-25. Kyla will be stepping up to cover the Citizen Advisory / Parks & Rec meeting that Tuesday and will be covering the front desk that week along with Dana. I will need to have the meeting agendas and packets in place before I leave, so the earlier things fall into place, the less work Kyla will have to do. We are also gone for training June 16-18, so my last working day before the June 28th Council meeting will be June 15th.

Dana Kautz, City Treasurer

Staff Report for City Council Meeting May June 14th, 2021

Projects:

- Payroll and liability payments
- Stibnite Grant Application
- Emailed auditor to start a conversation as to what I can start to do to prepare for the next audit to ensure everything goes as smoothly as possible.
    - Got and email back with some pointers as well as a check list to help with being proactive for the audit.
- Budget and Levy Webinar
- Workmen's Comp Report
- Care Acts money allocation research and reporting
- Budget Spreadsheet
- YAC- visiting with a few people and businesses as well as coming up with a Facebook post to try and get people in the community involved.
- City yearly water usage comparison report
- Telephone meeting with Melissa from Idaho First Bank to discuss possible options such as Cash Management and ACH payroll.

City Clerk Staff Report for 6/14/2021

Meetings and Training I attended:

Adams County Wildfire Planning Meeting

Payette River Scenic Byway

Airbridge (Broadband)

Budget and Levy Training

Municode training

ICRMP

Idaho Power- Growth / Hazard Mitigation

What I worked on:

During the last month I have been working on payroll and Claims. I closed out a grant from 2013 and sent an extension to get Peterson Memorial finished. I completed and submitted a grant to Stibnite to be able to refurbish our current dog kennel. I have done research on other cities zoning allowing for smaller homes on less square footage, hoping to be able to improve the housing we have here in New Meadows. We are still looking for members to join our YAC (Youth Advocacy Coalition) committee here in New Meadows. YAC helps communities identify what their youth needs to succeed and provides programs, education, training and other resources to help them succeed. If you know of someone who would be a good fit for the committee please let me know.

Issues:

We have had several dogs at large calls over the last month.

CITY OF NEW MEADOWS MAYOR'S REPORT

June 9, 2021

This is our busy season and the traffic through town has definitely increased. City staff members are busy taking care of multiple projects with more on the horizon.

Kyla, myself, Gregg Tankersley and Darius Bruce of ITD met last week regarding the final closeout of the downtown water project. We reviewed any items still waiting to be completed and it looks like the end is in sight. We have submitted a request for reimbursement for the extra costs incurred due to the delay of the project.

Kyla and I met with two representatives of Idaho Power. They had interesting information regarding some new protocols they have implemented due to the high fire danger expected this year. I am planning to work with the local EMS and Fire department to put some options in place for at risk individuals should there be a power outage that lasts more than a few minutes. More to come on that.

Grass and weeds are growing furiously due to the rain and hot weather. Angie has come up with an excellent schedule and we have a plan to deal with the grass and weeds issue every month in a timely manner. That will be discussed at the meeting.

While the office staff is at training next week, I will have the city phone calls forwarded to me in case there are any emergencies that arise. Angie will be checking the city's email account as well.

We are moving forward on the broadband project with Airbridge. I am very excited to see the impact on Meadows Valley from this project.

I am doing my best to build excellent relationships with local business owners and investors in our community. When we work together, we accomplish so much more than when we try to work separately. This goal is reflected in several items we will discuss at the meeting.

"Building and repairing relationships are long term investments." Stephen Covey

Darbey Edwards

416 South Heigho

New Meadows, ID

June 4, 2021

Dear Mayor Good and Council Members,

The reason for asking a moment of your time is to ensure that I am not investing in something that may be deemed in violation of any city ordinance.

Over the winter I had to have my water service lines replaced. Angie was very proactive in notifying me and I am greatly appreciative of that. She does her job very well. The bill was paid promptly, and the necessary work was performed and overseen by Jessica.

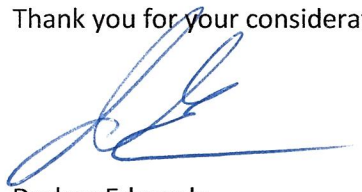
At a cost of, in excess of $2,000 I am not currently in a position to have my lawn re-sodded at an additional cost of $2,500, but I have an idea.

I have a vintage 1969 pickup that I would like to pull into my yard to cover the scar. My intention is to install a seating are on the tailgate, decorate it as the seasons change, install a fire ring surrounded by Adirondack chairs and a stone walkway.

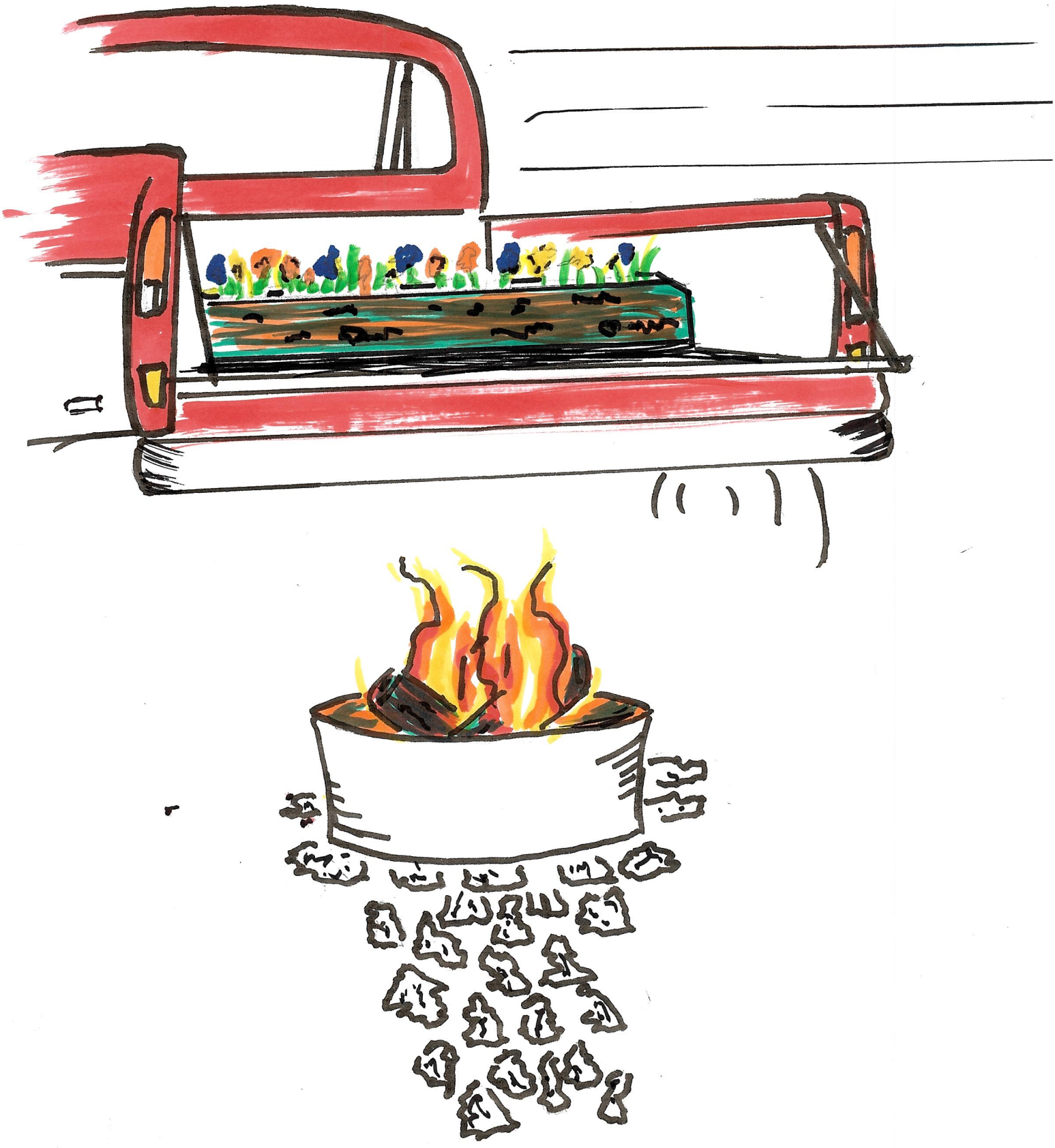
I have included a few sketches (excuse me for my lack of artistic ability), but hopefully you can invasion yourself, somewhere in your life, sitting on a tailgate next to a campfire and understand the concept that I am hoping to achieve.

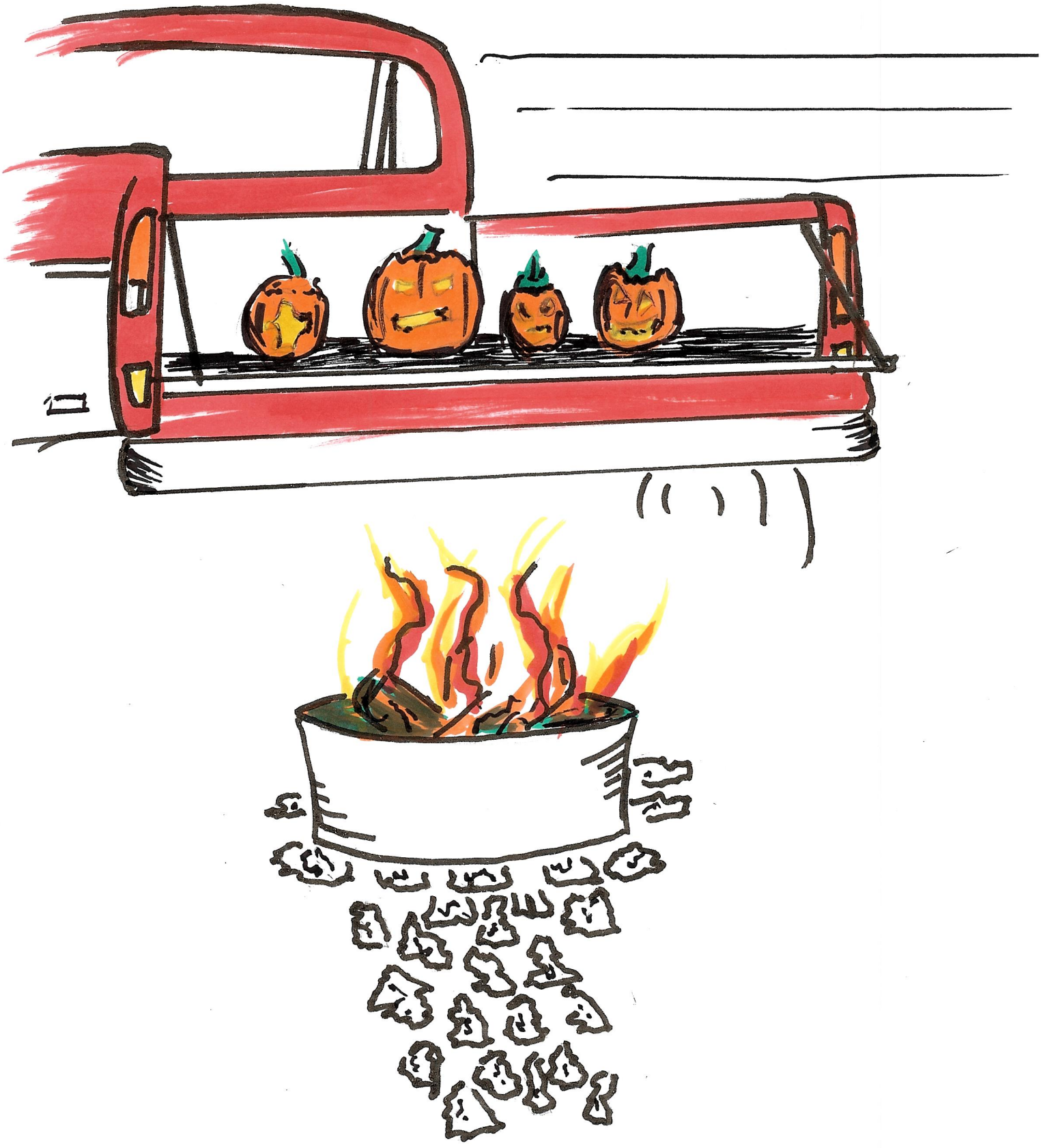
Again, I want to ensure that I will not be in violation of any city code before I move forward.

Thank you for your consideration.



Darbey Edwards






MERRY
CHRISTMAS

Chapter 2 – Residential Cleanup

4-2-1 Title; Purpose And Exceptions

This chapter is enacted pursuant to authority conferred by article 12, section 2, Idaho Constitution, and Idaho Code sections 31-714, 31-801, and 31-828. Its purpose is to provide for, and further, the health and/or safety of the public by providing a procedure for abating public nuisances which can create traffic safety hazards, and other hazards which may have a harmful effect upon the health and/or safety of the public and property.

The Adams County Sheriff, Mayor of New Meadows, designated Code Enforcement Officer, or any Idaho peace officer, shall be responsible for the administration and enforcement of the provisions of this chapter. Exceptions: This chapter shall not apply to:

1. Property which is completely enclosed within a building or privacy fence which has been approved by this Code, not visible from the street level or other public or private property and is not storing items defined in section 4-2-2, public nuisance definition, subsections A through C of this section.
2. Any person who seeks an exception to this chapter shall be required to come before the City Council for consideration. (Ord. 355-2018, 11-13-2018)

4-2-2 Definitions

ABATEMENT OF NUISANCES: As defined in Idaho Code, title 50, section 334 or its successors. Cities are empowered to declare what shall be deemed nuisances, to prevent, remove and abate nuisances at the expense of the parties creating, causing, committing or maintaining the same, to levy a special assessment as provided in Idaho Code section 50-1008, on land or premises whereon the nuisance is situated to defray the cost or to reimburse the City for the cost of abating the same.

PUBLIC NUISANCE: As defined by Idaho Code, title 52, article 1, a public nuisance is a condition or use of property which is harmful or injurious to, or creates a danger of harm or injury to the health, safety, or welfare of the neighborhood, community, or members of the public, or which is offensive to the senses or an obstruction of the free use of property by the neighborhood, community, or members of the public, including but not limited to the following:

1. A condition or use of premises or property which creates a fire hazard or any traffic or safety hazard to members of the public and property.
2. A condition or use of premises or property which creates a health hazard by permitting, allowing, or fostering the harboring and nesting of rodents, vermin and/or insects, or which creates any other type of health hazard to members of the public and property.
3. A condition or use of premises or property which creates the open storage, deposit, or scattering of discarded lumber or unusable wood, waste petroleum products, scrap or waste paper, trash, garbage, recyclable materials or debris of any type.
4. A condition or use of premises or property which creates the open storage, deposit, or scattering of scrap, abandoned or discarded objects such as furniture, appliances, cans, containers, tires, tools, or mechanical parts.

5. A condition or use of premises or property which creates the open storage, deposit, or scattering of dismantled or partially dismantled, wrecked, junked, scrapped, discarded or inoperable motor vehicles or parts thereof or trailers that are not roadworthy. No public nuisance for motor vehicles shall exist under this chapter unless two (2) or more motor vehicles thereof not in operating condition remain standing on the property for more than ten (10) calendar days. This shall not be applicable to approved automotive repair, automotive wrecking yard, junk yard auto repair businesses as defined in the Zoning Code.
6. A condition or use of premises or property which creates the growth of weeds and grasses over eight inches (8") high or fallen branches, leaves or other tree debris, bushes, shrubs, trees, or other plant life and in such a condition as to cause, or reasonably threaten to cause a fire or safety hazard because of their dried and unkept condition, or causes a traffic or safety hazard that obstructs sight, applying the measurements and standards contained in Idaho Code section 49-221, at intersections or other points at which driveways, lanes, or highways come together.

WEEDS: Undesirable or objectionable and non-useful plant growth including noxious weeds as defined by Idaho Code, section 22-2402. (Ord. 355-2018, 11-13-2018)

4-2-3 Prohibitions

1. It is unlawful for any person to create, cause, maintain or knowingly allow to exist for more than ten (10) calendar days a public nuisance on any premises or real property which the person owns, rents, leases, occupies, manages or of which the person has charge or possession.
2. The application and enforcement of this chapter shall not contravene title 22, chapter 45 of the Idaho Code in that no public nuisance shall exist under this chapter if the use or condition of the property exists pursuant to an agricultural operation in accordance with generally recognized agricultural practices.
3. It shall be unlawful and shall be a misdemeanor punishable as provided in Idaho Code section 18-113, to interfere with the Sheriff, Code Enforcement Officer, or any law enforcement officer in the performance of duties connected with enforcement of this chapter. Such interference shall include, but not be limited to, removal of notices posted on the property pursuant to this chapter or impediment or harassment of the authorized person in the performance of their duties under this chapter. (Ord. 355-2018, 11-13-2018)

4-2-4 Penalties And Abatement

1. A violation of this chapter is a misdemeanor punishable by a fine of up to two thousand dollars ($2,000.00), and up to six (6) months in jail.
    1. Warning Process: Before citing a person with this misdemeanor, that person must be notified in writing of the existence of the alleged nuisance at least thirty (30) days in advance of the issuance of the citation and given the opportunity to abate the nuisance during that thirty (30) day period. Certified mailing of the notice to the address of the violator as listed with the Adams County Assessor's Office, Idaho Department of Transportation and/or to the address where the nuisance

occurs shall be deemed sufficient notice for the purposes of this section. This provision does not apply if the person has been previously cited with a violation of this section within the preceding year.

2. Cost Of Prosecution: In addition to any fines and costs, the court shall impose the costs of prosecution and investigation notwithstanding the defendant's present ability to pay.
3. Cost Of Abatement: In addition to any fines and costs, the court shall impose all costs of cleanup and abatement of the nuisance incurred by the City of New Meadows.
    1. Payment To City: If the City also takes action to abate the nuisance by order of the court, the court shall permit payment to the City of the cost as a condition of any probation granted in a criminal proceeding.
4. Proof Of Abatement: The owner of the nuisance shall provide written notice to the City of New Meadows with date stamped photos that the nuisance has been abated. Such notice shall be delivered in person or by certified mail within thirty (30) days. (Ord. 355-2018, 11-13-2018)

While doing research Spur Texas and Walsenburg Colorado had zoning codes for tiny homes/ smaller sq.footage dwellings that related closely to what we would be looking to establish here in some of our R-3 zones for the City of New Meadows. Things that still need to be considered : What percentage of land can be dwelling, Setbacks, and frontage for those smaller lots.

Example from Spur, Texas:

Section IV: Basic Tiny House Requirements:

1. The Tiny House must be on a foundation with at least six (6) inches of cement footing, which is steel reinforced for load bearing walls. A tiny home built on a trailer is required to remove wheels/axles in order to tie down to a foundation as described above.
   B. The Tiny House must have a driveway.
   C. A Pre-manufactured Tiny House is required to be skirted.
   D. The Tiny House must be located on a Common Access Route / Internal Street, and have an assigned address.
   E. The Tiny House must be connected to City utilities, which is water and sewer services. Sewer service is essential to dispose of all human waste. No composting toilets will be permitted.
   F. The Tiny House must comply with applicable portions of the 2005 Structural Standards Code of the City of Spur.
   G. The Tiny House must pass the inspection of the Building Official, or any subsequent structural standards which may be adopted by the City of Spur.

Example from Walsenburg, CO

ARTICLE 9. - RESIDENTIAL CODE
to the following amendments that apply only to *tiny homes*:

(1) Section R202, Definitions, is amended by adding the following: "*Tiny home* means a permanent structure constructed on or off site for one or more persons year round living with a floor area between 100 and 500 square feet inclusive, mounted to a permanent foundation, attached permanently to City utilities with a separate water meter and, if applicable, a separate natural gas line and meter, that the City Building Inspector has inspected and for which the City Building Inspector has issued a certificate of occupancy."

(2) The following sections are waived for *tiny homes*:

a. IRC Sections R303.1, R304.1-R304.4, minimum room areas.

b. IRC Section R307.1, toilet, bath and shower spaces;

c. IRC Section 311.2, egress door;

d. IRC Section R313.2, fire sprinkler systems; and

e. IRC Section 311.7.1-7.10.1, stairways.

(3) The following section is modified for *tiny homes*: IRC Section E311.2 is modified to require an exit door width of no less than 32 inches.

(4) Qualified foundations. Qualified foundations include: stem wall, slab and diamond pier.

(5) Accessory dwelling standards. Accessory dwelling must meet each of the following standards:

a. May not exceed 400 square feet;

b. Must be placed on a permanent foundation;

c. May have a kitchen and cooking privileges;

d. Must meet all setback requirements;

e. Must have utility taps separate from any other dwelling;

f. Must conform with the codes adopted in this Chapter; and

g. Must have all necessary permits and pay all required fees.

a. Snow load 40 psf.

b. Roof live load 40 psf.

ZWYGART JOHN
CERTIFIED PUBLIC ACCOUNTANTS
Zwygart John & Associates CPAs, PLLC

16130 North Merchant Way, Suite 120 ◆ Nampa, Idaho 83687
Phone: 208-459-4649 ◆ FAX: 208-229-0404

City of New Meadows

At Zwygart John & Associates we strive to offer quality service to all of our clients at a competitive price. We understand that budgets are tight and that every dollar matters. We appreciate that you have trusted us to work on your annual audits and want to continue to offer you great service at a competitive price.

In the past few years there have been many changes in the accounting profession. This has included several new accounting standards and auditing standards that have added substantial additional work for us to make sure that your annual audit is in compliance. Due to this increase in work that has been required we have had to raise our rates this year at a higher then normal rate. This rate increase is necessary so that we can continue to make sure that your annual financial statements are prepared in accordance with all applicable requirements.

If you have any questions on your increase, please do not hesitate to call or e-mail me.

Thank you for your continued business.

Jordan Zwygart, CPA

(208)459-4649

jordan@myidahotax.com

Zwygart John & Associates, CPAs PLLC

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June 2, 2021

To: The Mayor and City Council
City of New Meadows
401 Virginia St.
New Meadows, ID 83654

The following represents our understanding of the services we will provide City of New Meadows.

You have requested that we audit the accompanying financial statements of the governmental activities, the business-type activities, each major fund, and the aggregate remaining fund information of City of New Meadows as of September 30, 2021, and for the year then ended and the related notes, which collectively comprise City of New Meadows's basic financial statements as listed in the table of contents. We are pleased to confirm our acceptance and our understanding of this audit engagement by means of this letter. Our audit will be conducted with the objective of our expressing an opinion on each opinion unit applicable to those basic financial statements.

Accounting principles generally accepted in the United States of America, (U.S. GAAP,) as promulgated by *the Governmental Accounting Standards Board* (GASB), issued by the Comptroller General of the United States, require that included supplementary information, such as management's discussion and analysis and budgetary comparison information be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the GASB, who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. As part of our engagement, we will apply certain limited procedures to the Required Supplementary Information (RSI) in accordance with auditing standards generally accepted in the United States of America, (U.S. GAAS). These limited procedures will consist primarily of inquiries of management regarding their methods of measurement and presentation, and comparing the information for consistency with management's responses to our inquiries. We will not express an opinion or provide any form of assurance on the RSI. The following RSI is required by U.S. GAAP. This RSI will be subjected to certain limited procedures but will not be audited:

- GASB Required Supplementary Pension Information
- Budgetary Comparison

Supplementary information other than RSI will accompany City of New Meadows's basic financial statements. We will subject the following supplementary information to the auditing procedures applied in our audit of the basic financial statements and perform certain additional procedures, including comparing and reconciling the supplementary information to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and additional procedures in accordance with U.S. GAAS. We intend to provide an opinion on the following supplementary information in relation to the basic financial statements as a whole:

1) Combining Statements.

Auditor Responsibilities

We will conduct our audit in accordance with auditing standards generally accepted in the United States of America (U.S. GAAS) and *Government Auditing Standards*. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the basic financial statements are free from material misstatement. An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the basic financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the basic financial statements, whether due to fraud or error, misappropriation of assets, or violations of laws, governmental regulations, grant agreements, or contractual agreements.

An audit also includes evaluating the appropriateness of accounting policies used, and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the basic financial statements. If appropriate, our procedures will therefore include tests of documentary evidence that support the transactions recorded in the accounts, tests of the physical existence of inventories, and direct confirmation of cash, investments, and certain other assets and liabilities by correspondence with creditors and financial institutions. As part of our audit process, we will request written representations from your attorneys, and they may bill you for responding. At the conclusion of our audit, we will also request certain written representations from you about the basic financial statements and related matters.

Because of the inherent limitations of an audit, together with the inherent limitations of internal control, an unavoidable risk that some material misstatements (whether caused by errors, fraudulent financial reporting, misappropriation of assets, or violations of laws or governmental regulations) may not be detected exists, even though the audit is properly planned and performed in accordance with U.S. GAAS and in accordance with *Government Auditing Standards*.

In making our risk assessments, we consider internal control relevant to the entity's preparation and fair presentation of the basic financial statements in order to design audit procedures that are appropriate in the circumstances but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. However, we will communicate to you in writing concerning any significant deficiencies or material weaknesses in internal control relevant to the audit of the basic financial statements that we have identified during the audit. Our responsibility as auditors is limited to the period covered by our audit and does not extend to any other periods.

We cannot provide assurance that unmodified opinions will be expressed. Circumstances may arise in which it is necessary for us to modify our opinions or add emphasis-of-matter or other-matter paragraphs. If our opinions on the basic financial statements are other than unmodified, we will discuss the reasons with you in advance. If, for any reason, we are unable to complete the audit or are unable to form or have not formed opinions, we may decline to express opinions or to issue a report as a result of this engagement.

Compliance with Laws and Regulations

As previously discussed, as part of obtaining reasonable assurance about whether the basic financial statements are free of material misstatement, we will perform tests of City of New Meadows's compliance with the provisions of applicable laws, regulations, contracts, and agreements. However, the objective of our audit will not be to provide an opinion on overall compliance and we will not express such an opinion.

Management Responsibilities

Our audit will be conducted on the basis that *management and those charged with governance* acknowledge and understand that they have responsibility:

a. For the preparation and fair presentation of the basic financial statements in accordance with accounting principles generally accepted in the United States of America;

b. For the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of basic financial statements that are free from material misstatement, whether due to error, fraudulent financial reporting, misappropriation of assets, or violations of laws, governmental regulations, grant agreements, or contractual agreements; and
c. To provide us with:
    i. Access to all information of which management is aware that is relevant to the preparation and fair presentation of the basic financial statements such as records, documentation, and other matters;
    ii. Additional information that we may request from management for the purpose of the audit; and
    iii. Unrestricted access to persons within the entity from whom we determine it necessary to obtain audit evidence.
d. For including the auditor's report in any document containing basic financial statements that indicates that such basic financial statements have been audited by the entity's auditor;
e. For identifying and ensuring that the entity complies with the laws and regulations applicable to its activities;
f. For adjusting the basic financial statements to correct material misstatements and confirming to us in the management representation letter that the effects of any uncorrected misstatements aggregated by us during the current engagement and pertaining to the current year period(s) under audit are immaterial, both individually and in the aggregate, to the basic financial statements as a whole; and
g. For maintaining adequate records, selecting and applying accounting principles, and safeguarding assets.

With regard to the supplementary information referred to above, you acknowledge and understand your responsibility: (a) for the preparation of the supplementary information in accordance with the applicable criteria; (b) to provide us with the appropriate written representations regarding supplementary information; (c) to include our report on the supplementary information in any document that contains the supplementary information and that indicates that we have reported on such supplementary information; and (d) to present the supplementary information with the audited basic financial statements, or if the supplementary information will not be presented with the audited basic financial statements, to make the audited basic financial statements readily available to the intended users of the supplementary information no later than the date of issuance by you of the supplementary information and our report thereon.

As part of our audit process, we will request from management written confirmation concerning representations made to us in connection with the audit.

Reporting

We will issue a written report upon completion of our audit of City of New Meadows's basic financial statements. Our report will be addressed to the governing body of City of New Meadows. We cannot provide assurance that unmodified opinions will be expressed. Circumstances may arise in which it is necessary for us to modify our opinions, add an emphasis-of-matter or other-matter paragraph(s), or withdraw from the engagement.

We also will issue a written report on in accordance with the requirements of *Government Auditing Standards*, we will also issue a written report describing the scope of our testing over internal control over financial reporting and over compliance with laws, regulations, and provisions of grants and contracts, including the results of that testing. However, providing an opinion on internal control and compliance will not be an objective of the audit and, therefore, no such opinion will be expressed.

Nonattest Services:

With respect to any nonattest services we perform, City of New Meadows's management is responsible for (a) making all management decisions and performing all management functions; (b) assigning a competent individual to oversee the services; (c) evaluating the adequacy of the services performed; (d) evaluating and accepting responsibility for the results of the services performed; and (e) establishing and maintaining internal controls, including monitoring ongoing activities. The services we will provide are:

- Help in preparation of the financial statements.

Government Auditing Standards require that we document an assessment of the skills, knowledge, and experience of management, should we participate in any form of preparation of the basic financial statements and related schedules or disclosures as these actions are deemed a non-audit service.

Other

We understand that your employees will prepare all confirmations we request and will locate any documents or support for any other transactions we select for testing.

If you intend to publish or otherwise reproduce the basic financial statements and make reference to our firm, you agree to provide us with printers' proofs or masters for our review and approval before printing. You also agree to provide us with a copy of the final reproduced material for our approval before it is distributed.

During the course of the engagement, we may communicate with you or your personnel via fax or e-mail, and you should be aware that communication in those mediums contains a risk of misdirected or intercepted communications.

Fees and Timing

Jordan Zwygart, CPA is the engagement partner for the audit services specified in this letter. Their responsibilities include supervising Zwygart John & Associates CPAs, PLLC's services performed as part of this engagement and signing or authorizing another qualified firm representative to sign the audit report.

Further, we will be available during the year to consult with you on financial management and accounting matters of a routine nature.

During the course of the audit, we may observe opportunities for economy in, or improved controls over, your operations. We will bring such matters to the attention of the appropriate level of management, either orally or in writing.

You agree to inform us of facts that may affect the basic financial statements of which you may become aware during the period from the date of the auditor's report to the date the financial statements are issued.

We agree to retain our audit documentation or work papers for a period of at least five years from the date of our report.

At the conclusion of our audit engagement, we will communicate to management the following significant findings from the audit:

- Our view about the qualitative aspects of the entity's significant accounting practices.
- Significant difficulties, encountered during the audit, if any.
- Uncorrected misstatements, other than those we believe are trivial, if any.
- Disagreements with management, if any.
- Other findings or issues, if any, arising from the audit that are, in our professional judgment, significant and relevant to those charged with governance regarding their oversight of the financial reporting process.
- Material, corrected misstatements that were brought to the attention of management as a result of our audit procedures.
- Representations we requested from management.
- Management's consultations with other accountants, if any.
- Significant issues, if any, arising from the audit that were discussed, or the subject of correspondence, with management.

The audit documentation for this engagement is the property of Zwygart John & Associates CPAs, PPLC's and constitutes confidential information. However, we may be requested to make certain audit documentation available to regulatory agencies pursuant to authority given to it by law or regulation, or to peer reviewers. If requested, access to such audit documentation will be provided under the supervision of Zwygart & John & Associates CPAs, PLLC's personnel. Furthermore, upon request, we may provide copies of selected audit documentation to regulatory agency. The regulatory agency may intend, or decide, to distribute the copies of information contained therein to others, including other governmental agencies.

Our fees are based on the amount of time required at various levels of responsibility, plus actual out-of-pocket expenses. We estimate that our fee for the audit will be $5,350. We will notify you immediately of any circumstances we encounter that could significantly affect this fee. Whenever possible, we will attempt to use City of New Meadows's personnel to assist in the preparation of schedules and analyses of accounts. This effort could substantially reduce our time requirements and facilitate the timely conclusion of the audit.

Please sign and return the attached copy of this letter to indicate your acknowledgment of, and agreement with, the arrangements for our audit of the basic financial statements including our respective responsibilities.

We appreciate the opportunity to be your financial statement auditors and look forward to working with you and your staff.

Respectfully,

Zwygart John & Associates CPAs, PLLC

****

RESPONSE:

This letter correctly sets forth the understanding of City of New Meadows.

City of New Meadows:

Name: _____

Title: _____

Date: _____

AMENDMENT PASSAGE PROCEDURE

"I move to introduce Ordinance TBD-2021, amending the Short Term RV Use Ordinance."
-- seconded
Roll Call Vote

"I move to suspend the rules requiring three separate readings on three separate days and read by title only once."
--seconded
Roll Call Vote

City Clerk reads ordinance by title only.

"I move to approve Ordinance TBD-2021, amending the Short Term RV Use Ordinance."
--seconded
Roll Call Vote

Ordinance TBD-2021

AN ORDINANCE OF THE CITY OF NEW MEADOWS, ADAMS COUNTY, IDAHO, AMENDING TITLE 4, CHAPTER 5, OF THE NEW MEADOWS CITY CODE AS FOLLOWS: IN SECTION 4-5-5, PERMIT TYPES, REMOVING THE 90 DAY RENEWAL PERIOD AND ADDING A 180 DAY RENEWAL PERIOD, AND REMOVING EMPLOYMENT VERIFICATION AND HOUSING SEARCH VERIFICATION.

NOW, THEREFORE, BE IT ORDAINED BY THE MAYOR AND CITY COUNCIL OF THE CITY OF NEW MEADOWS, IDAHO:

Section 1: Title 4 Chapter 5, Section 5.3 , Permit Types is hereby amended as follows, to wit:

3. Permit D Displacement RV Use: Documented displacement RV use is permitted when occupants are unable to find adequate housing but have a regular monthly source of income, either from a job in the area or retirement. The RV to be permitted must be fully operational and must be tied into the City's water and sewer service permanently. The RV must comply with Zoning Codes for set-back and must be placed on a level pad of concrete or gravel and only be located in a Residential Zone. The design and plan must be approved by Planning and Zoning prior to permitting. Off-street parking must be included at the site for one vehicle. ~~Application for the permit must include a statement of employment from a local employer~~. The permit must be renewed every ~~ninety (90)~~ one hundred eighty (180) days ~~and verification of housing search and income are required at each renewal.~~

Section 2: This ordinance shall be in full force and effect after its passage, approval, and publication, according to law.

PASSED AND APPROVED BY THE MAYOR AND COUNCIL OF THE CITY OF NEW MEADOWS, IDAHO THIS 14TH DAY OF JUNE 2021.

By: _____ Attest: By_____

Julie A. Good, Mayor Kyla Gardner, City Clerk

DRAFT

A SUMMARY OF ORDINANCE NO. TBD-2021
PASSED BY THE CITY COUNCIL, NEW MEADOWS, IDAHO

AN ORDINANCE OF THE CITY OF NEW MEADOWS, ADAMS COUNTY, IDAHO AMENDING TITLE 4, CHAPTER 5, OF THE NEW MEADOWS CITY CODE AS FOLLOWS: IN SECTION 4-5-5 C, PERMIT TYPES, REMOVING THE 90 DAY RENEWAL PERIOD AND ADDING A 180 DAY RENEWAL PERIOD, AND REMOVING EMPLOYEMENT VERIFICATION AND HOUSING SEARCH VERIFICAITON.

The principal provisions of the Ordinance:

- Amend Section 4-5-5 C: *Permit Types:* Removing "*Application for the permit must include a statement of employment from a local employer."* Removing *"and verification of housing search and income are required at each renewal*. Removing the *90-day* permit renewal and adding a *180-day* permit renewal.

That the effective date of the Ordinance is upon passage and publication as required by law.

The full text of the Ordinance is available for review at City Hall and will be provided by the City Clerk to any citizen upon personal request or can be viewed on the City Website at www.newmeadowsidaho.us.

APPROVED BY THE COUNCIL OF THE CITY OF NEW MEADOWS, IDAHO, THIS 14TH DAY OF JUNE 2021.

Approved:

By: _____ ATTEST: _____
Julie A. Good, Mayor Kyla Gardner, City Clerk

ORDINANCE SUMMARY CERTIFICATION

Ordinance No. TBD-2021

Certification of City Legal Advisor
Of the summary prepared for the above-numbered Ordinance

The undersigned City of New Meadows Legal Advisor, having reviewed the above-numbered Ordinance and the Summary for the above-numbered Ordinance, believes the Summary of the above-numbered Ordinance is true and complete and that it provides adequate notice to the public of the identity and principal provisions of the Ordinance.

Dated this 14th day of June, 2021.

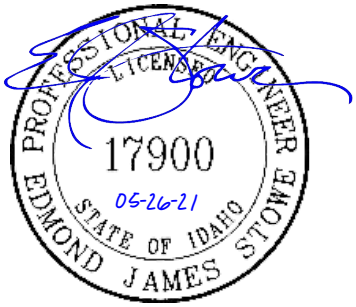
_____
Richard L. Stubbs

CITY OF NEW MEADOWS
WATER SYSTEM IMPROVEMENT PROJECT

June 2021

Specification Package

Prepared for:
City of New Meadows
401 Virginia St
New Meadows, ID 83654



Prepared by:
Mountain Waterworks, Inc.
PO Box 9906
Boise, ID 83707

Mountain
WATERWORKS

CITY OF NEW MEADOWS WATER SYSTEM IMPROVEMENTS PROJECT

TABLE OF CONTENTS

DIVISION 0 – PROCUREMENT AND CONTRACTING REQUIREMENTS

Bidding
Advertisement for Bids
USDA-RD ID Attachment 2 Instructions to Bidders
USDA-RD ID Attachment 3 Bid Form
EJCDC C-430 Bid Bond (Penal Sum)
Non-Collusion Affidavit
EJCDC C-510 Notice of Award

Contract
EJCDC C-520 Owner-Contractor Agreement (Stipulated Price)
EJCDC C-700 Standard General Conditions
USDA-RD ID Attachment 4 Supplementary Conditions
EJCDC C-610 Performance Bond
EJCDC C-615 Payment Bond

Construction
EJCDC C-550 Notice to Proceed
EJCDC C-620 Contractor's Application for Payment
EJCDC C-625 Certificate of Substantial Completion
EJCDC C-940 Work Change Directive
EJCDC C-941 Change Order
EJCDC C-942 Field Order

Funding Requirements
IDEQ Form 6-A Idaho DWSRF Specifications Insert
Davis-Bacon Conditions
Wage Determination General Decision No. ID20210036
Project Sign

DIVISION 1 – GENERAL REQUIREMENTS

01025 Measurement and Payment ..... 01025-1 - 01025-6
01110 Summary of Work ..... 01110-1 - 01110-1
01140 Work Restrictions ..... 01140-1 - 01140-3
01201 Payment Procedures ..... 01201-1 - 01201-2
01324 Progress Schedules ..... 01324-1 - 01324-5
01330 Submittal Procedures ..... 01330-1 - 01330-4
01350 Special Procedures ..... 01350-1 - 01350-1

01355 Stormwater Pollution Prevention Construction Activity.....01355-1 - 01355-3
01450 Quality Control.....01450-1 - 01450-3
01500 Temporary Facilities and Controls.....01500-1 - 01500-5
01600 Product Requirements.....01600-1 - 01600-3
01722 Field Engineering.....01722-1 - 01722-2
01756 Testing, Training, and Facility Start-up.....01756-1 - 01756-5
01770 Closeout Procedures.....01770-1 - 01770-3
01782 Operation and Maintenance Data.....01782-1 - 01782-2

DIVISION 2 – SITE CONSTRUCTION

02050 Basic Site Materials and Methods.....02050-1 - 02050-6
02200 Site Preparation.....02200-1 - 02200-2
02240 Dewatering.....02240-1 - 02240-2
02300 Earthwork.....02300-1 - 02300-8
02318 Trenching.....02318-1 - 02318-5
02821 Chain Link Fences and Gates.....02821-1 - 02821-2

DIVISION 9 – FINISHES

09910 Painting.....09910-1 - 09910-9
09960 Coatings.....09960-1 - 09960-17

DIVISION 11 – EQUIPMENT

11545 Submersible Turbine Pump and Motor.....11545-1 - 11545-8

DIVISION 15 – MECHANICAL

15052 Basic Piping Materials and Methods.....15052-1 - 15052-8
15061 Pipe Supports.....15061-1 - 15061-5
15104 Schedule 80 PVC Pressure Pipe.....15104-1 - 15104-2
15111 Ball Valves.....15111-1 - 15111-2
15114 Check Valves.....15114-1 - 15114-3
15115 Resilient Wedge Gate Valves.....15115-1 - 15115-3
15119 Combination Air Valves.....15119-1 - 15119-5
15121 Pipe Couplings.....15121-1 - 15121-4
15130 Pressure Relief/Sustaining Control Valves.....15130-1 - 15130-5
15142 Disinfection of Potable Water Lines and Facilities.....15142-1 - 15142-14
15251 Ductile Iron Piping.....15251-1 - 15251-4
15265 PVC Piping, Class Type.....15265-1 - 15265-2
15956 Piping Systems Testing.....15956-1 - 15956-7

DIVISION 16 – ELECTRICAL

16050 Electrical Installation and Materials.....16050-1 - 16050-42
16485 Variable Frequency Drives.....16485-1 - 16485-8

DIVISION 17 – SOFTWARE

17400 SCADA Computers and Software.....17400-1 - 17400-3

DIVISION 0 – PROCUREMENT AND CONTRACTING REQUIREMENTS

Bidding
Advertisement for Bids
USDA-RD ID Attachment 2 Instructions to Bidders
USDA-RD ID Attachment 3 Bid Form
EJCDC C-430 Bid Bond (Penal Sum)
Non-Collusion Affidavit
EJCDC C-510 Notice of Award

Public Works Construction Advertisement for Bids

Owner: City of New Meadows, Idaho

Facilities and Mailing Addresses: 401 Virginia St, New Meadows, ID 83654

Call for Bids from the **City of New Meadows** for sealed bids to be received at 401 Virginia St, New Meadows, ID 83654 until **3:00 p.m. local time on XXXXX, XXXXX, 2021** for the Project identified as the "New Meadows Water System Improvements Project." The Project includes installation of a submersible turbine pump, motor, and pitless unit at the City's Well No. 5, construction of a well house and related mechanical, electrical, and control equipment, site work and grading, and extension of a gravel access road to the well site.

This project is funded by the Idaho Department of Environmental Quality and the United States Department of Agriculture—Rural Development and is subject to equal employment opportunity, American Iron and Steel, and Davis-Bacon prevailing wage requirements.

Date and time of bid opening XXXX, XXXX, 2021 at 3:05 p.m. local time at which time the bids will be publicly opened and read. Tallied results will be provided to all bidders by end of business the next day. Bids will not be accepted by email or fax. A pre-bid meeting will take place at New Meadows City Hall, 401 Virginia St., New Meadows, ID 83654, on XXXXX, 2021 at 11:00 AM. Requests for information on the documents should be directed to Ed Stowe, P.E. at estowe@mountainwtr.com, 208-780-3992.

Contract Documents: Digital copies of the plans, specifications and contract documents, may be obtained at www.questcdn.com upon payment of $20.00. Log on to Quest CDN and enter Project Number XXXXXXX. Any addenda will be issued electronically and available at the same Quest CDN Project Number. Please contact Quest CDN at (952) 233-1632 or info@questcdn.com for assistance in free membership registration, downloading, and working with this digital project information.

A bid bond in the amount of 5% of the total bid amount shall be submitted with the sealed bid. All bids submitted shall be in compliance with applicable public works construction laws for the State of Idaho, including but not limited to Idaho Code 67-2310 and Idaho Code 54-1902. The City of New Meadows reserves the right to reject any and all bids and the right to waive any informalities contained in any bid.

Publication Dates: XXXX, 2021, XXXX, 2021

Instructions to Bidders

TABLE OF ARTICLES

	Page
Article 1 - Defined Terms	1
Article 2 - Copies of Bidding Documents	1
Article 3 - Qualifications of Bidders	2
Article 4 – Site and Other Areas; Existing Site Conditions; Examination of Site; Owner's Safety Program; Other Work at the Site	2
Article 5 – Bidder's Representations	4
Article 6 – Pre-Bid Conference	6
Article 7 - Interpretations and Addenda	6
Article 8 - Bid Security	6
Article 9 - Contract Times	7
Article 10 - Liquidated Damages	7
Article 11 - Substitute and "Or-Equal" Items	7
Article 12 - Subcontractors, Suppliers, and Others	7
Article 13 - Preparation of Bid	8
Article 14 - Basis of Bid; Comparison of Bids	9
Article 15 - Submittal of Bid	11
Article 16 - Modification and Withdrawal of Bid	11
Article 17 - Opening of Bids	12
Article 18 - Bids to Remain Subject to Acceptance	12
Article 19 - Evaluation of Bids and Award of Contract	12
Article 20 - Bonds and Insurance	13
Article 21 - Signing of Agreement	13
Article 22 - Sales and Use Taxes	13
Article 23 - Contracts to be Assigned	13
Article 24 – Wage Rate Requirements	14

ARTICLE 1 - DEFINED TERMS

1.01 Terms used in these Instructions to Bidders will have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:

A. Issuing Office – The office from which the Bidding Documents are to be issued and where the bidding procedures are to be administered. **The Issuing Office is the office of Mountain Waterworks, 1161 W River St. #130, Boise, ID, 83702.**

ARTICLE 2 - COPIES OF BIDDING DOCUMENTS

2.01 Complete sets of the Bidding Documents **may be obtained as stated in the Advertisement for Bids.**

2.02 Complete sets of Bidding Documents must be used in preparing Bids; neither Owner nor Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents. **Official complete sets of Bidding Documents are to be obtained solely from QuestCDN.com as described in the Advertisement for Bids.**

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 written evidence such as financial data, previous experience, present commitments, and such other data as may be called for below.

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

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

3.04 Bidder is advised to carefully review those portions of the Bid Form requiring Bidder's representations and certifications.

ARTICLE 4 – SITE AND OTHER AREAS; EXISTING SITE CONDITIONS; EXAMINATION OF SITE; OWNER'S SAFETY PROGRAM; OTHER WORK AT THE SITE

4.01 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 the 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.

4.02 Existing Site Conditions

A. Subsurface and Physical Conditions; Hazardous Environmental Conditions

1. The Supplementary Conditions identify:

a. those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site.
b. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).
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: Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities at or contiguous to the Site are set forth in the Contract Documents and are based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities, including Owner, or others.

C. Adequacy of Data: Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions, and Underground Facilities, and possible changes in the Bidding Documents due to differing or unanticipated subsurface or physical conditions appear in Paragraphs 5.03, 5.04, and 5.05 of the General Conditions. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to a Hazardous Environmental Condition at the Site, if any, and possible changes in the Contract Documents due to any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work, appear in Paragraph 5.06 of the General Conditions.

4.03 Site Visit and Testing by Bidders

A. Bidder shall conduct the required Site visit during normal working hours, and shall not disturb any ongoing operations at the Site.

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

C. On request, and to the extent Owner has control over the Site, and schedule permitting, the Owner will provide Bidder 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.

D. Bidder shall 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.

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

4.04 Owner's Safety Program

A. Site visits and work at the Site may be governed by an Owner safety program. As the General Conditions indicate, if an Owner safety program exists, it will be noted in the Supplementary Conditions.

4.05 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 5 – BIDDER'S REPRESENTATION

5.01 It is the responsibility of each Bidder before submitting a Bid to:

A. examine and carefully study the Bidding Documents, and any data and reference items identified in the Bidding Documents;

B. visit the Site, conduct a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfy itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work

C. become familiar with and satisfy itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work including but not limited to American Iron and Steel requirements as mandated by Section 746 of Title VII of the Consolidated Appropriations Act of 2017 (Division A - Agriculture, Rural Development, Food and Drug Administration, and Related Agencies Appropriations Act, 2017) and subsequent statutes mandating domestic preference which apply to the following products made primarily of iron or 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.

D. carefully study all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings;

E. consider 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 Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs;

F. agree, based on the information and observations referred to in the preceding paragraph, that at the time of submitting its Bid no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents;

G. become aware of the general nature of the work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents;

H. promptly give Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by Engineer is acceptable to Bidder;

I. determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work; and

J. agree that the submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, 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 6 - PRE-BID CONFERENCE

6.01 A pre-Bid conference will be held at the time and location stated in the invitation or advertisement 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.

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 Engineer as having received the Bidding Documents. Questions received less than five days prior to the date for opening of Bids may not be answered. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

7.02 Addenda may be issued to clarify, correct, supplement or change the Bidding Documents as deemed advisable by Owner or Engineer.

ARTICLE 8 - BID SECURITY

8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of 5 % of Bidder's maximum Bid price and in the form of a certified check, bank money order or a Bid bond (EJCDC No. C-430, 2013 Edition) issued by a surety meeting the requirements of paragraphs 6.01 and 6.02of 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 Documents, 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 Documents 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. Such forfeiture shall 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 seven 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 whom OWNER believes do not have a reasonable chance of receiving the award will be returned within seven 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 substantially completed and ready for final payment are set forth in the Agreement.

ARTICLE 10 -LIQUIDATED DAMAGES

10.01 Provisions for liquidated damages are set forth in the Agreement.

ARTICLE 11 - SUBSTITUTE AND "OR-EQUAL" ITEMS

11.01 The Contract for the Work, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents, and those "or-equal" or substitute materials and equipment subsequently approved by Engineer prior to the submittal of Bids and identified by Addendum. No item of material or equipment will be considered by Engineer as an "or- equal" or substitute unless written request for approval has been submitted by Bidder and has been received by Engineer at least 15 days prior to the date for receipt of Bids in the case of a proposed substitute and 5 days prior in the case of a proposed "or-equal." Each such request shall comply with the requirements of Paragraphs 7.04 and 7.05 of the General Conditions. Each such request shall include Manufacturer's Certification letter for compliance with Section 746 of Title VII of the Consolidated Appropriations Act of 2017 (Division A - Agriculture, Rural Development, Food and Drug Administration, and Related Agencies Appropriations Act, 2017) and subsequent statutes mandating domestic preference, if applicable. Refer to Manufacturer's Certification Letter provided in these Contract Documents. The burden of proof of the merit of the proposed item is upon Bidder. Engineer's decision of approval or disapproval

of a proposed item will be final. If Engineer approves any such proposed item, such approval will be set forth in an Addendum issued to all prospective Bidders. Bidders shall not rely upon approvals made in any other manner. Substitutes and "or-equal" materials and equipment may be proposed by Contractor in accordance with Paragraphs 7.04 and 7.05 of the General Conditions after the Effective Date of the Contract.

11.02 All prices that Bidder sets forth in its Bid shall be based on the presumption that the 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.

11.03 If an award is made, Contractor shall be allowed to submit proposed substitutes and "or-equals" in accordance with the General Conditions.

ARTICLE 12 - SUBCONTRACTORS, SUPPLIERS, AND OTHERS

12.01 If required by the bid documents, 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 following portions of the Work as listed on Form 1 of DEQ Form 6a. 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.

12.02 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 7.06 of the General Conditions.

12.03 Contractor shall not be required to employ any Subcontractor, Supplier, individual, or entity against whom Contractor has reasonable objection.

12.04 The Contractor shall not award work to Subcontractor(s) in excess of the limits stated in SC 7.06.

ARTICLE 13 - PREPARATION OF BID

13.01 The Bid Form is included with the Bidding Documents.

A. All blanks on the Bid Form shall be completed in ink and the Bid Form 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."

13.02 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. The corporate seal, if any, shall be affixed and attested by the corporate secretary or an assistant corporate secretary.

13.03 A Bid by a limited liability company shall be executed in the name of the firm by a member or other authorized person 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.

13.04 A Bid by an individual shall show the Bidder's name and official address.

13.05 A Bid by a joint venture shall be executed by an authorized representative of each joint venturer in the manner indicated on the Bid Form. The official address of the joint venture shall be shown.

13.06 All names shall be printed in ink below the signatures.

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

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

13.09 The Bid shall contain evidence of Bidder's authority and qualification to do business in the state where the Project is located, or Bidder shall covenant in writing to obtain such authority and qualification prior to award of the Contract and attach such covenant to the

Bid. Bidder's state contractor license number, if any, shall also be shown on the Bid Form.

ARTICLE 14 - BASIS OF BID; COMPARSION OF BIDS

14.01 Unit Price

A. Bidders shall submit a Bid on a unit price basis for each item of Work listed in the Bid schedule.

B. The total of all bid prices will be the sum of the products of the estimated quantity of each item and the corresponding unit price. The final quantities and Contract Price will be determined in accordance with paragraph 13.03 of the General Conditions.

C. 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. Discrepancies between words and figures will be resolved in favor of the words.

14.02 Allowances

A. For cash allowances the Bid 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, in accordance with Paragraph 13.02.B of the General Conditions.

ARTICLE 15 - SUBMITTAL OF BID

15.01 With each copy of the Bidding Documents, a Bidder is furnished **with an electronic copy** of the Bid Form and the Bid Bond Form. **Hard copies of the Bid Form, Bid Bond, and the other documents required to be submitted under the terms of Article 7 of the Bid Form are to be completed and submitted to the City of New Meadows as indicated in the Advertisement for Bids.**

15.02 A Bid shall be submitted no later than the date and time prescribed and at the place indicated in the Advertisement for Bids 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 a 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."

When using the mail or other delivery system, the Bidder is totally responsible for the mail or other delivery system delivering the Bid at the place and prior to the time indicated in the Advertisement for Bid. A mailed Bid shall be addressed to Owner at address in Article 1.01 of Bid Form.

15.03 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 16 - MODIFICATION AND WITHDRAWAL OF BID

16.01 A 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 the date and time for the opening of Bids. Upon receipt of such notice, the unopened Bid will be returned to the Bidder.

16.02 If a Bidder wishes to modify its Bid prior to Bid opening, Bidder must withdraw its initial Bid in the manner specified in Paragraph 16.01 and submit a new Bid prior to the date and time for the opening of Bids.

16.03 After the date and time Bids are opened, a bid may only be withdrawn in accordance with Idaho Code 54-1904. This provision to withdraw a Bid without forfeiting the Bid security does not apply to Bidder's errors in judgment in preparing the Bid.

ARTICLE 17 - OPENING OF BIDS

17.01 Bids will be opened at the time and place indicated in the advertisement or invitation to bid and, unless obviously non-responsive, read aloud publicly. An abstract of the amounts of the base Bids and major alternates, if any, will be made available to Bidders after the opening of Bids.

ARTICLE 18 - BIDS TO REMAIN SUBJECT TO ACCEPTANCE

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

ARTICLE 19 - EVALUATION OF BIDS AND AWARD OF CONTRACT

19.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner further reserves the right to reject the Bid of any Bidder whom it finds, after reasonable inquiry and evaluation, to be non-responsible. Owner also reserves the right to waive all

informalities not involving price, time, or changes in the Work and to negotiate contract terms with the Successful Bidder.

19.02 More than one Bid for the same Work from an individual or entity under the same or different names will not be considered. Reasonable grounds for believing that any Bidder has an interest in more than one Bid for the Work may be cause for disqualification of that Bidder and the rejection of all Bids in which that Bidder has an interest.

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

19.04 In evaluating Bidders, 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.

19.05 Owner may conduct such investigations as Owner deems necessary 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.

19.06 If the Contract is to be awarded, Owner will award the Contract to the responsible Bidder whose Bid, conforming with all the material terms and conditions of the Instructions to Bidders, is lowest, price and other factors considered. If detailed in the bid form, factors such as discounts, transportation costs, and life cycle costs may be used to determine which bidder, if any, is to be offered the award.

ARTICLE 20 - BONDS AND INSURANCE

20.01 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 and insurance. When the Successful Bidder delivers the executed Agreement to Owner, it shall be accompanied by such bonds.

ARTICLE 21 - SIGNING OF AGREEMENT

21.01 When Owner gives a Notice of Award to the Successful Bidder, it shall be accompanied by the required number of unsigned counterparts of the Agreement with the other Contract Documents which are identified in the Agreement as attached thereto. Within 15 days thereafter, Successful Bidder shall sign and deliver the required number of counterparts of the Agreement (and any bonds and insurance documentation required to

be delivered by the Contract Documents) to Owner. Within ten days thereafter, Owner shall deliver one fully signed counterpart to Successful Bidder, together with printed and electronic copies of the Contract Documents as stated in in Paragraph 2.02 of the General Conditions.

21.02 This Contract is expected to be funded in part with funds provided by the United States Department of Agriculture, Rural Utilities Service (RUS). Refer to Supplementary General Conditions for Federal requirements.

21.03 Concurrence by RUS in the award of the Contract is required before the Contract is effective.

ARTICLE 22 – SALES AND USE TAXES

22.01 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.

ARTICLE 23 - RESERVED

ARTICLE 24 – WAGE RATE REQUIREMENTS

24.01 If the contract cost is in excess of $100,000, provisions of the Contract Work Hours and Safety Standards Act at 29 CFR 5.5(b) apply.

24.02 Federal prevailing wage rates of the Department of Labor apply to this project.

24.03 Section 746 of Title VII of the Consolidated Appropriations Act of 2017 (Division A - Agriculture, Rural Development, Food and Drug Administration, and Related Agencies Appropriations Act, 2017) and subsequent statutes mandating domestic preference applies an American Iron and Steel requirement to this project. All iron and steel products used in this project must be produced in the United States. The term “iron and steel products” means the following products made primarily of iron or 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. The deminimis and minor components waiver apply to this contract.

Bid Form

Project Identification: **New Meadows Water System Improvements Project**

Contract Identification and Number: **197.0010**

TABLE OF ARTICLES

	Page
Article 1 – Bid Recipient	1
Article 2 - Bidder's Acknowledgments	1
Article 3 - Bidder's Representations	1
Article 4 - Bidder's Certification	3
Article 5 - Basis of Bid	3
Article 6 - Time of Completion	4
Article 7 - Attachments to Bid	4
Article 8 - Defined Terms	4
Article 9 - Certifications and Naming of Subcontractors	4
Article 10 - Bid Submittal	4

ARTICLE 1 - BID RECIPIENT

1.01 **This Bid Is Submitted to The City of New Meadows (Owner):**

City of New Meadows
401 Virginia St.
New Meadows, ID 83654

1.02 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 the Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2 - BIDDER'S ACKNOWLEDGMENTS

2.01 Bidder accepts all of the terms and conditions of the Advertisement and Instructions to Bidders, including without limitations those dealing with the dispositions of Bid security. The 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.

ARTICLE 3 - BIDDER'S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, the other related data identified in the Bidding Documents, and the following Addenda, receipt of which is hereby acknowledged:

Addendum No.	Addendum Date

B. Bidder has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. Bidder is familiar with and is satisfied as to all Federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work and including all American Iron and Steel requirements.

D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in SC-5.03, and (2) reports and drawings of Hazard Environmental Conditions, if any, at the Site that have been identified in SC-5.06 as containing reliable "technical data."

E. Bidder has considered the information known to Bidder; 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 Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents; and (3) Bidder's safety precautions and programs.

F. Based on the information and observations referred to in Paragraph 3.01.E above, Bidder does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times and in accordance with the other terms and conditions of the Bidding Documents.

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

H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by Engineer is acceptable to Bidder.

I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.

J. Bidder will submit written evidence of its authority to do business in the State or other jurisdiction where the Project is located not later than the date of its execution of the Agreement.

ARTICLE 4 - BIDDER'S CERTIFICATION

4.01 Bidder further represents that:

A. This Bid is genuine and not made in the interest of or on the behalf of any undisclosed individual or entity and is not submitted in conformity with any 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; and

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; 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 5 - BASIS OF BID

5.01 Bidder will complete the Work in accordance with the Contract Documents for the price(s) indicated in the BID SCHEDULE below.

BID SCHEDULE

SECTION 01025 REFERENCE	ITEM OF WORK	UNIT	ESTIMATED QUANTITY	BID UNIT PRICE	LINE ITEM TOTAL BID PRICE
2.01	MOBILIZATION AND DEMOBILIZATION	LS	1	$	$
2.02	CONSTRUCTION SURVEYING	LS	1	$	$
2.03	FENCING	LS	1	$	$
2.04	PROJECT SIGN	LS	1	$	$
2.05	SUBMERSIBLE WELL PUMP AND INSTALLATION	LS	1	$	$
2.06	WELL HOUSE - SITE GRADING AND DRAINAGE	LS	1	$	$
2.07	WELL HOUSE - YARD PIPING	LS	1	$	$
2.08	GRAVEL ACCESS ROAD	LS	1	$	$
2.09	WELL HOUSE - STRUCTURAL	LS	1	$	$
2.1	WELL HOUSE - MECHANICAL	LS	1	$	$
2.11	WELL HOUSE - ELECTRICAL	LS	1	$	$
2.12	WELL HOUSE - INSTRUMENTATION AND CONTROL	LS	1	$	$
2.13	WELL HOUSE - HVAC	LS	1	$	$
				TOTAL OF ALL BID LINE ITEMS	$

A. All specified cash allowances are included in the lump sum price(s) set forth in the BID SCHEDULE, and have been computed in accordance with Paragraph 13.02 of the General Conditions.

B. Unit Prices have been computed in accordance with paragraph 13.03.B of the General Conditions.

C. Bidder acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Bid items will be based on actual quantities, determined as provided in the contract Documents.

ARTICLE 6 - TIME OF COMPLETION

6.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with paragraph 15.06 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

6.02 Bidder accepts the provisions of the Agreement as to liquidated damage.

ARTICLE 7 - ATTACHMENTS TO THIS BID

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

A. Required Bid security in the form of a Bid Bond (EJCDC No. C-430) or Certified Check (circle type of security provided);

B. List of Proposed Subcontractors (IDEQ-SRF Form 6-A, Form 1);

C. IDEQ-SRF Form 6-A, Attachment A: Sworn Statement of Compliance with Disadvantaged Business Enterprise (DBE) Utilization Requirements;

D. IDEQ-SRF Form AIS-1: Bidder's Certification of Compliance with the Current SRF Assistance American Iron and Steel (AIS) Provisions;

E. Signed and notarized non-collusion affidavit;

F. Evidence of authority to do business in the state or jurisdiction of the Project; or a written covenant to obtain such license within the time frame for acceptance of Bids;

G. Manufacturers' Certification letter of compliance with Section 746 of Title VII of the Consolidated Appropriations Act of 2017 (Division A - Agriculture, Rural Development, Food and Drug Administration, and Related Agencies Appropriations Act, 2017) and subsequent statutes mandating domestic preference for all equals or substitutes approved by Addenda for American Iron and Steel products as provided in these Contract Documents.

ARTICLE 8 - DEFINED TERMS

8.01 The terms used in this Bid with the initial capital letters have the meanings indicated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 9 – CERTIFICATIONS & NAMING OF SUBCONTRACTORS

9.01 For convenience the "Compliance Statement & Certification of Non-Segregated Facilities" (Form RD 400-6), "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions" (Form AD-1048), and RD Instruction 1940-Q, Exhibit A-1, "Certification for Contracts, Grants, and Loans" are included as part of this bid form (Note: Lower tier, means lower tier to the

owner). By signing the bid form the bidder represents that (s)he is also signing the below documents, as they apply, depending on the bid amount.

If the bid amount exceeds $10,000, then Compliance Statement (RD 400-6) applies (9.01.A of this part);

If the bid amount exceeds $25,000, then Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions (AD-1048) also applies (9.01.B of this part);

If the bid amount exceeds $100,000, then RD Instruction 1940-Q, Exhibit A-1, Certification for Contracts, Grants, and Loans also applies (9.01.C of this part).

A. Compliance Statement

USDA Form Approved, COMPLIANCE STATEMENT, **Form RD 400-6**

This statement relates to a proposed contract with {**the City of New Meadows, ID**}

who expects to finance the contract with assistance from the Rural Utilities Service (RUS) or their successor agencies, United States Department of Agriculture (whether by a loan, grant, loan insurance, guarantee, or other form of financial assistance). I am the undersigned bidder or prospective contractor, I represent that:

1. I ☐ have, ☐ have not, participated in a previous contract or subcontract subject to Executive Order No. 11246 (regarding equal employment opportunity), as amended by Executive Order No. 13672, 79 Fed. Reg. 42971 (July 21, 2014) or a preceding similar Executive Order.

2. If I have participated in such a contract or subcontract, I ☐ have, ☐ have not, filed all compliance reports that have been required to file in connection with the contract or subcontract. If the proposed contract is for $50,000 or more and I have 50 or more employees, I also represent that:

3. I ☐ have, ☐ have not previously had contracts subject to the written affirmative action programs requirements of the Secretary of Labor.

4. If I have participated in such a contract or subcontract, I □have, □have not developed and placed on file at each establishment affirmative action programs as required by the rules and regulations of the Secretary of Labor.

I understand that if I have failed to file any compliance reports that have been required of me, I am not eligible and will not be eligible to have my bid considered or to enter into the proposed contract unless and until I make an

arrangement regarding such reports that is satisfactory to either the RHS, RBS or RUS, or to the office where the reports are required to be filed.

I also certify that I do not maintain or provide for my employees any segregated facilities at any of my establishments, and that I do not permit my employees to perform their services at any location, under my control, where segregated facilities are maintained. I certify further that I will not maintain or provide for my employees any segregated facilities at any of my establishments, and that I will not permit my employees to perform their services at any location, under my control, where segregated facilities are maintained. I agree that a breach of this certification is a violation of the Equal Opportunity clause in my contract. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms and wash rooms, restaurants and other eating areas time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, sex, sexual orientation, gender identity, or national origin, because of habit, local custom, or otherwise. I further agree that (except where I have obtained identical certifications for proposed subcontractors for specific time periods) I will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity clause; that I will retain such certifications in my files; and that I will forward the following notice to such proposed subcontractors (except where the proposed subcontractors have submitted identical certifications for specific time periods).

NOTICE TO PROSPECTIVE SUBCONTRACTORS OF REQUIREMENTS FOR CERTIFICATIONS OF NON-SEGREGATED FACILITIES

A certification of Nonsegregated Facilities, as required by the May 9, 1967, order (32F.R. 7439, May 19, 1967) on Elimination of Segregated Facilities, by the Secretary of Labor, must be submitted prior to the award of a subcontract exceeding $10,000 which is not exempt from the provisions of the Equal Opportunity clause. The certification may be submitted either for each subcontract or for all subcontracts during a period (i.e. quarterly, semiannually, or annually).

NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

B. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – Lower Tier Covered Transactions

U.S. DEPARTMENT OF AGRICULTURE

CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION - LOWER TIER COVERED TRANSACTIONS
USDA Form AD-1048

The following statement is made in accordance with the Privacy Act of 1974 (5 U.S.C. § 552(a), as amended). This certification is required by the regulations implementing Executive Order 12549, Debarment and Suspension, and 2 C.F.R. §§ 180.300, 180.355, Participants' responsibilities. The regulations were amended and published on August 31, 2005, in 70 Fed. Reg. 51865-51880. Copies of the regulations may be obtained by contacting the Department of Agriculture agency offering the proposed covered transaction. According to the Paperwork Reduction Act of 1995 an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0505-0027. The time required to complete this information collection is estimated to average 15 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. The provisions of appropriate criminal and civil fraud privacy, and other statutes may be applicable to the information provided.

Before signing the bid form, read instructions for Form AD-1048, available for download at: https://www.rd.usda.gov/files/AD1048-F-01-92.PDF

(1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

(2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

C. Certification for Contracts, Grants and Loans

CERTIFICATION FOR CONTRACTS, GRANTS AND LOANS
RD Instruction 1940-Q, Exhibit A-1

The bidder certifies, to the best of his or her knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant or Federal loan, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant or loan.

2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant or loan, the undersigned shall complete and submit Standard Form - LLL, "Disclosure of Lobbying Activities," in accordance with its instructions.

3. The undersigned shall require that the language of this certification be included in the award documents for all sub awards at all tiers (including contracts, subcontracts, and sub grants under grants and loans) and that all sub recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

9.02 Naming of Subcontractors

The sub-contractors to whom sub-contracts will be awarded if the bidder is awarded a contract shall be submitted to the Agency and the Idaho Department of Environmental Quality in accordance on Form 1—Bidder's List, included in DEQ-SRF Form 6-A.

ARTICLE 10 - BID SUBMITTAL

10.01 This bid is submitted by:

If Bidder is:

An Individual

Name (typed or printed): _____ SEAL, if required by State

By: _____

(Individual's Signature)

Doing Business As: _____

A Partnership

Partnership Name: _____ SEAL, if required by State

By: _____
(Signature of General Partner – Attach Evidence of Authority to Sign)

Name (typed or printed) _____

A Corporation

Corporation Name: _____

State or Jurisdiction of Incorporation: _____

Type (General Business, Profession, Service, Limited Liability):

_____

By: _____
(Signature – Attach Evidence of Authority to Sign)

Name (typed or printed): _____

Title _____

SEAL, if required by State

Attest _____
(Signature of Corporate Secretary)

Date of Qualification to do business in _____ (State or Other Jurisdiction Where Project is Located) is _____ / _____ / _____

A Joint Venture

Name of Joint Venture: _____

First Joint Venture Name: _____ SEAL, If required by State

By: _____
(Signature of Joint Venture Partner – Attach Evidence of Authority to Sign)

Name (typed or printed): _____

Title: _____

Second Joint Venture Name: _____

By: _____
(Signature of Joint Venture Partner – Attach Evidence of Authority to Sign)

Name (typed or printed): _____

Title: _____

(Each joint venturer must sign. The manner of signing for each individual, partnership, and corporation that is party to the venture should be in the manner indicated above.)

Bidder's Business Address: _____

_____

Business Phone No. ( ) _____

Business FAX No. ( ) _____

Business Email Address _____

State of Idaho Public Works License No. _____

DUNNS No. _____

Employer's Tax ID No. _____

Phone and FAX Numbers, and Address for receipt of official communications, if different from Business contact information:

_____

_____

10.02 Bid Submitted on _____ , 20 _____

BID BOND

Any singular reference to Bidder, Surety, Owner or other party shall be considered plural where applicable.

BIDDER *(Name and Address)*:

SURETY *(Name, and Address of Principal Place of Business)*:

OWNER *(Name and Address)*:
City of New Meadows
401 Virginia St, New Meadows, ID 83654

BID
Bid Due Date:
Description: City of New Meadows Water System Improvements Project, New Meadows, ID

BOND
Bond Number:
Date:
Penal sum _____ $ _____
(Words) (Figures)

Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.

BIDDER	**SURETY**
_____ (Seal)	_____ (Seal)
Bidder's Name and Corporate Seal	Surety's Name and Corporate Seal
By: _____	By: _____
Signature	Signature (Attach Power of Attorney)
_____	_____
Print Name	Print Name
_____	_____
Title	Title
Attest: _____	Attest: _____
Signature	Signature
Title	Title

Note: Addresses are to be used for giving any required notice.
Provide execution by any additional parties, such as joint venturers, if necessary.

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 shall be Owner's sole and exclusive remedy upon default of Bidder.

2. Default of Bidder shall occur 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 shall 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 shall not in the aggregate exceed 120 days from the Bid due date without Surety's written consent.

6. No suit or action shall 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 shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.

8. Notices required hereunder shall 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 Registered or Certified Mail, return receipt requested, postage pre-paid, and shall 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 shall 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 shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.

11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

CITY OF NEW MEADOWS WELL HOUSE PROJECT

CONTRACTOR'S NON-COLLUSION AFFIDAVIT

STATE OF IDAHO)
) ss.
County of _____)

_____, being first duly sworn, deposes and says that he/she is _____ of _____, the party making the foregoing bid; that such bid is not made in the interest of or on behalf of any undisclosed person, partnership, company, association, organization, or corporation; that such bid is genuine and not collusive of sham; that said bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, nor that anyone shall refrain from bidding; that said bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of said bidder or of any other bidder, nor to fix any overhead, profit, or cost element of such bid price, nor of that of any other bidder, nor to secure any advantage against the public body awarding the contract or anyone interested in the proposed contract; that all statements contained in such bid are true; and, further, that said bidder has not, directly or indirectly, submitted his bid price or any breakdown thereof, nor the contents thereof, nor divulged information or data relative thereto, nor paid and will not pay fee in connection therewith to any corporation, partnership, company, association, organization, bid depository, nor to any member or agent thereof, nor to any individual except to such person or persons as have a partnership or other financial interest with said bidder in his general business.

Signed: _____

Title: _____

Subscribed and sworn to before me this _____ day of _____, 2021.

_____
Notary Public for _____
Residing at: _____
My Commission Expires: _____

NOTICE OF AWARD

Date of Issuance:

Owner: Owner's Contract No.:

Engineer: Engineer's Project No.:

Project: Contract Name:

Bidder:

Bidder's Address:

TO BIDDER:

You are notified that Owner has accepted your Bid dated [_____] for the above Contract, and that you are the Successful Bidder and are awarded a Contract for:

_____ .

[describe Work, alternates, or sections of Work awarded]

The Contract Price of the awarded Contract is: $_____ *[note if subject to unit prices, or cost-plus]*

[ ] unexecuted counterparts of the Agreement accompany this Notice of Award, and one copy of the Contract Documents accompanies this Notice of Award, or has been transmitted or made available to Bidder electronically. *[revise if multiple copies accompany the Notice of Award]*

☐ a set of the Drawings will be delivered separately from the other Contract Documents.

You must comply with the following conditions precedent within 15 days of the date of receipt of this Notice of Award:

1. Deliver to Owner [____] counterparts of the Agreement, fully executed by Bidder.
2. Deliver with the executed Agreement(s) the Contract security *[e.g., performance and payment bonds]* and insurance documentation as specified in the Instructions to Bidders and General Conditions, Articles 2 and 6.
3. Other conditions precedent (if any):

Failure to comply with these conditions within the time specified will entitle Owner to consider you in default, annul this Notice of Award, and declare your Bid security forfeited.

Within ten days after you comply with the above conditions, Owner will return to you one fully executed counterpart of the Agreement, together with any additional copies of the Contract Documents as indicated in Paragraph 2.02 of the General Conditions.

Owner**:**

Authorized Signature

By:

Title:

Copy: Engineer

DIVISION 0 – PROCUREMENT AND CONTRACTING REQUIREMENTS

Contract
EJCDC C-520 Owner-Contractor Agreement (Stipulated Price)
EJCDC C-700 Standard General Conditions
USDA-RD ID Attachment 4 Supplementary Conditions
EJCDC C-610 Performance Bond
EJCDC C-615 Payment Bond

AGREEMENT
BETWEEN OWNER AND CONTRACTOR
FOR CONSTRUCTION CONTRACT (STIPULATED PRICE)

THIS AGREEMENT is by and between **City of New Meadows, Idaho** ("Owner") and ("Contractor").

Owner and Contractor hereby 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: **Construction of a new well house and related facilities and equipment to serve City Well No. 5, installation of a submersible turbine well pump and related equipment at City Well No. 5, and other work as detailed in the Contract Documents.**

ARTICLE 2 – THE PROJECT

2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows: **City of New Meadows Water System Improvements Project.**

ARTICLE 3 – ENGINEER

3.01 The part of the Project that pertains to the Work has been designed by **Mountain Waterworks**.

3.02 The Owner has retained **Mountain Waterworks** ("Engineer") to act as Owner's representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

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 *Contract Times: Dates*

A. The Work will be substantially completed on or before July 15th, 2022 and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before August 15th, 2022.

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 times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with the Contract. 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

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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 $**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.

2. Completion of Remaining Work: After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner $**500** for each day that expires after such time until the Work is completed and ready for final payment.

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 the amounts that follow, subject to adjustment under the Contract:

A. **For all Work, at the prices stated in Contractor's Bid, attached hereto as an exhibit.**

ARTICLE 6 –

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 on or about the **30th day of every month** during performance of the Work as provided in Paragraph 6.02.A.1 below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in 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 elsewhere in the Contract.

1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract

a. **95** percent of Work completed (with the balance being retainage). If the Work has been 50 percent completed as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer, then as long as the character and progress of the Work remain satisfactory to Owner and Engineer, there will be no additional retainage; and

b. **95** percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).

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B. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to **95** percent of the Work completed, less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions, and less **150** percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the punch list of items to be completed or corrected prior to final payment.

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.

ARTICLE 7 – INTEREST

7.01 **All amounts not paid when due shall bear interest as set forth in Idaho Code 63-3045.**

ARTICLE 8 – CONTRACTOR'S REPRESENTATIONS

8.01 In order to induce Owner to enter into this Contract, Contractor makes the following representations:

A. Contractor has examined and carefully studied the Contract Documents, and any data and reference items identified in the Contract Documents.

B. Contractor has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. Contractor is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress, and performance of the Work.

D. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.

E. 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 Site-related reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (3) Contractor's safety precautions and programs.

F. 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.

G. 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.

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H. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.

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

J. 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.

ARTICLE 9 – CONTRACT DOCUMENTS

9.01 *Contents*

A. The Contract Documents consist of the following:

1. This Agreement (pages 1 to ___, inclusive).
2. Performance bond (pages ___ to ___, inclusive).
3. Payment bond (pages ___ to ___, inclusive).
4. General Conditions (pages ___ to ___, inclusive).
5. **Supplementary Conditions (USDA-RD Attachment 4) (pages _1_ to _24_, inclusive).**
6. **Idaho Department of Environmental Quality Drinking Water State Revolving Fund Specifications Insert Form 6-A (pages 1 to 29, inclusive).**
7. **Davis-Bacon Contract Clause (pages 1 to 20, inclusive).**
8. **Davis-Bacon Wage Determination (pages 1 to 7, inclusive).**
9. **Specifications as listed in the table of contents of the Project Manual.**
10. **Drawings as listed in the table of contents of the Project Manual.**
11. Addenda (numbers ___ to ___, inclusive).
12. Exhibits to this Agreement (enumerated as follows):
    a. Contractor's Bid (pages ___ to ___, inclusive).
13. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:
    a. Notice to Proceed.
    b. Work Change Directives.
    c. Change Orders.
    d. Field Orders.

B. The 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 the General Conditions.

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ARTICLE 10 – MISCELLANEOUS

10.01 *Terms*

A. Terms used in this Agreement will have the meanings stated in the General Conditions and the Supplementary Conditions.

10.02 *Assignment of Contract*

A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto 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 Documents.

10.03 *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.

10.04 *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.

10.05 *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 10.05:

1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing 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.

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10.06 *Other Provisions*

A. Owner stipulates that if the General Conditions that are made a part of this Contract are based on EJCDC® C-700, Standard General Conditions for the Construction Contract, published by the Engineers Joint Contract Documents Committee®, and if Owner is the party that has furnished said General Conditions, then Owner has plainly shown all modifications to the standard wording of such published document to the Contractor, through a process such as highlighting or "track changes" (redline/strikeout), or in the Supplementary Conditions.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement.

This Agreement will be effective on _____ (which is the Effective Date of the Contract).

OWNER:	CONTRACTOR:
_____	_____
By: _____	By: _____
Title: _____	Title: _____
	(If Contractor is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)
Attest: _____	Attest: _____
Title: _____	Title: _____
Address for giving notices:	Address for giving notices:
_____	_____
_____	_____
_____	_____
	License No.: _____ *(where applicable)*

(If Owner is a corporation, attach evidence of authority to sign. If Owner is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of this Agreement.)

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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

EJCDC®
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

Issued and Published Jointly by

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AMERICAN COUNCIL OF ENGINEERING COMPANIES

ASCE
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REPRESENTING UTILITY & EXCAVATION CONTRACTORS

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To prepare supplementary conditions that are coordinated with the General Conditions, use EJCDC's Guide to the Preparation of Supplementary Conditions (EJCDC® C-800, 2013 Edition). The full EJCDC Construction series of documents is discussed in the Commentary on the 2013 EJCDC Construction Documents (EJCDC® C-001, 2013 Edition).

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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 5

Article 2 – Preliminary Matters 6

2.01 Delivery of Bonds and Evidence of Insurance 6

2.02 Copies of Documents 6

2.03 Before Starting Construction 6

2.04 Preconstruction Conference; Designation of Authorized Representatives 7

2.05 Initial Acceptance of Schedules 7

2.06 Electronic Transmittals 7

Article 3 – Documents: Intent, Requirements, Reuse 8

3.01 Intent 8

3.02 Reference Standards 8

3.03 Reporting and Resolving Discrepancies 8

3.04 Requirements of the Contract Documents 9

3.05 Reuse of Documents 10

Article 4 – Commencement and Progress of the Work 10

4.01 Commencement of Contract Times; Notice to Proceed 10

4.02 Starting the Work 10

4.03 Reference Points 10

4.04 Progress Schedule 10

4.05 Delays in Contractor's Progress 11

Article 5 – Availability of Lands; Subsurface and Physical Conditions; Hazardous Environmental Conditions 12

5.01 Availability of Lands 12

5.02 Use of Site and Other Areas 12

5.03 Subsurface and Physical Conditions 13

5.04 Differing Subsurface or Physical Conditions 14

5.05 Underground Facilities 15

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5.06 Hazardous Environmental Conditions at Site 17
Article 6 – Bonds and Insurance 19
6.01 Performance, Payment, and Other Bonds 19
6.02 Insurance—General Provisions 19
6.03 Contractor's Insurance 20
6.04 Owner's Liability Insurance 23
6.05 Property Insurance 23
6.06 Waiver of Rights 25
6.07 Receipt and Application of Property Insurance Proceeds 25
Article 7 – Contractor's Responsibilities 26
7.01 Supervision and Superintendence 26
7.02 Labor; Working Hours 26
7.03 Services, Materials, and Equipment 26
7.04 "Or Equals" 27
7.05 Substitutes 28
7.06 Concerning Subcontractors, Suppliers, and Others 29
7.07 Patent Fees and Royalties 31
7.08 Permits 31
7.09 Taxes 32
7.10 Laws and Regulations 32
7.11 Record Documents 32
7.12 Safety and Protection 32
7.13 Safety Representative 33
7.14 Hazard Communication Programs 33
7.15 Emergencies 34
7.16 Shop Drawings, Samples, and Other Submittals 34
7.17 Contractor's General Warranty and Guarantee 36
7.18 Indemnification 37
7.19 Delegation of Professional Design Services 37
Article 8 – Other Work at the Site 38
8.01 Other Work 38
8.02 Coordination 39
8.03 Legal Relationships 39

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Article 9 – Owner's Responsibilities 40
9.01 Communications to Contractor 40
9.02 Replacement of Engineer 40
9.03 Furnish Data 40
9.04 Pay When Due 40
9.05 Lands and Easements; Reports, Tests, and Drawings 40
9.06 Insurance 40
9.07 Change Orders 40
9.08 Inspections, Tests, and Approvals 41
9.09 Limitations on Owner's Responsibilities 41
9.10 Undisclosed Hazardous Environmental Condition 41
9.11 Evidence of Financial Arrangements 41
9.12 Safety Programs 41
Article 10 – Engineer's Status During Construction 41
10.01 Owner's Representative 41
10.02 Visits to Site 41
10.03 Project Representative 42
10.04 Rejecting Defective Work 42
10.05 Shop Drawings, Change Orders and Payments 42
10.06 Determinations for Unit Price Work 42
10.07 Decisions on Requirements of Contract Documents and Acceptability of Work 42
10.08 Limitations on Engineer's Authority and Responsibilities 42
10.09 Compliance with Safety Program 43
Article 11 – Amending the Contract Documents; Changes in the Work 43
11.01 Amending and Supplementing Contract Documents 43
11.02 Owner-Authorized Changes in the Work 44
11.03 Unauthorized Changes in the Work 44
11.04 Change of Contract Price 44
11.05 Change of Contract Times 45
11.06 Change Proposals 45
11.07 Execution of Change Orders 46
11.08 Notification to Surety 47
Article 12 – Claims 47

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12.01 Claims 47
Article 13 – Cost of the Work; Allowances; Unit Price Work 48
13.01 Cost of the Work 48
13.02 Allowances 50
13.03 Unit Price Work 51
Article 14 – Tests and Inspections; Correction, Removal or Acceptance of Defective Work 52
14.01 Access to Work 52
14.02 Tests, Inspections, and Approvals 52
14.03 Defective Work 53
14.04 Acceptance of Defective Work 53
14.05 Uncovering Work 53
14.06 Owner May Stop the Work 54
14.07 Owner May Correct Defective Work 54
Article 15 – Payments to Contractor; Set-Offs; Completion; Correction Period 55
15.01 Progress Payments 55
15.02 Contractor's Warranty of Title 58
15.03 Substantial Completion 58
15.04 Partial Use or Occupancy 59
15.05 Final Inspection 59
15.06 Final Payment 59
15.07 Waiver of Claims 61
15.08 Correction Period 61
Article 16 – Suspension of Work and Termination 62
16.01 Owner May Suspend Work 62
16.02 Owner May Terminate for Cause 62
16.03 Owner May Terminate For Convenience 63
16.04 Contractor May Stop Work or Terminate 63
Article 17 – Final Resolution of Disputes 64
17.01 Methods and Procedures 64
Article 18 – Miscellaneous 64
18.01 Giving Notice 64
18.02 Computation of Times 64
18.03 Cumulative Remedies 64

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18.04 Limitation of Damages 65
18.05 No Waiver 65
18.06 Survival of Obligations 65
18.07 Controlling Law 65
18.08 Headings 65

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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 form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting 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, or both; 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, or both; contesting an initial decision by Engineer concerning the 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; or (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

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has declined to address. 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), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to (a) the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§9601 et seq. ("CERCLA"); (b) the Hazardous Materials Transportation Act, 49 U.S.C. §§5101 et seq.; (c) the Resource Conservation and Recovery Act, 42 U.S.C. §§6901 et seq. ("RCRA"); (d) the Toxic Substances Control Act, 15 U.S.C. §§2601 et seq.; (e) the Clean Water Act, 33 U.S.C. §§1251 et seq.; (f) the Clean Air Act, 42 U.S.C. §§7401 et seq.; or (g) any other federal, state, or local statute, law, rule, regulation, ordinance, resolution, code, order, or decree 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 the 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. *Engineer*—The individual or entity named as such in the Agreement.

21. *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.

22. *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. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated in the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, does not establish a Hazardous Environmental Condition.

23. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

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24. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.

25. *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.

26. *Notice of Award*—The written notice by Owner to a Bidder of Owner's acceptance of the Bid.

27. *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.

28. *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.

29. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.

30. *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.

31. *Project Manual*—The written documents prepared for, or made available for, procuring and constructing the Work, including but not limited to the Bidding Documents or other construction procurement documents, geotechnical and existing conditions information, the Agreement, bond forms, General Conditions, Supplementary Conditions, and Specifications. The contents of the Project Manual may be bound in one or more volumes.

32. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative or "RPR" includes any assistants or field staff of Resident Project Representative.

33. *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.

34. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer's review of the submittals and the performance of related construction activities.

35. *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.

36. *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.

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37. *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 furnished by Owner which are designated for the use of Contractor.

38. *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.

39. *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.

40. *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 thereof.

41. *Successful Bidder*—The Bidder whose Bid the Owner accepts, and to which the Owner makes an award of contract, subject to stated conditions.

42. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.

43. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, 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.

44. *Technical Data*—Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (a) subsurface conditions at the Site, or physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) or (b) Hazardous Environmental Conditions at the Site. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then the data contained in boring logs, recorded measurements of subsurface water levels, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical or environmental report prepared for the Project and made available to Contractor are hereby defined as Technical Data with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06.

45. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including but not limited to those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, fiber optic transmissions, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

46. *Unit Price Work*—Work to be paid for on the basis of unit prices.

47. *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.

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48. *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.

1.02 *Terminology*

A. The words and terms discussed in the following paragraphs are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

B. *Intent of Certain Terms or Adjectives*:

1. 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*:

1. The word "day" means a calendar day of 24 hours measured from midnight to the next midnight.

D. *Defective*:

1. The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it:

a. does not conform to the Contract Documents; or

b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or

c. 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 15.04).

E. *Furnish, Install, Perform, Provide*:

1. The word "furnish," when used in connection with services, materials, or equipment, shall mean 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, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

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3. The words "perform" or "provide," when used in connection with services, materials, or equipment, shall mean 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.

F. 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 Bonds and Evidence of Insurance*

A. *Bonds*: When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.

B. *Evidence of Contractor's Insurance*: When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract), the certificates and other evidence of insurance required to be provided by Contractor in accordance with Article 6.

C. *Evidence of Owner's Insurance*: After receipt of the executed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or otherwise), 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 executed 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 specifically 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

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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 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 *Initial 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 for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.03.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall 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.

2.06 *Electronic Transmittals*

A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may transmit, and shall accept, Project-related correspondence, text, data, documents, drawings, information, and graphics, including but not limited to Shop Drawings and other submittals, in electronic media or digital format, either directly, or through access to a secure Project website.

B. If the Contract does not establish protocols for electronic or digital transmittals, then Owner, Engineer, and Contractor shall jointly develop such protocols.

C. When transmitting items in electronic media or digital format, the transmitting party makes no representations as to long term compatibility, usability, or readability of the items resulting from the recipient's use of software application packages, operating systems, or

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computer hardware differing from those used in the drafting or transmittal of the items, or from those established in applicable transmittal protocols.

ARTICLE 3 – DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

A. The Contract Documents are complementary; what is required by one 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 or digital versions of the Contract Documents (including any printed copies derived from such electronic or digital versions) and the printed record version, the printed record version shall 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.

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, shall mean 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, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, 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, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility 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,

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error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents 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 Documents 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 shall 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 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 thereunder.

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 give written notice to Owner and Contractor 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.

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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 editions, 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 shall preclude 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 thirtieth 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 sixtieth day after the day of Bid opening or the thirtieth 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 shall 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 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.

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2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall 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 shall 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 the Contract Times and Contract Price. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the 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. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall 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 utility owners (other than those performing other work at or adjacent to the Site by arrangement with the Owner, as contemplated in Article 8); and

4. acts of war or terrorism.

D. 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.

E. Paragraph 8.03 governs 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.

F. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times 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.

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G. Contractor must submit any Change Proposal seeking an adjustment in Contract Price or Contract Times under this paragraph within 30 days of the commencement of the delaying, disrupting, or interfering event.

ARTICLE 5 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 *Availability of Lands*

A. Owner shall furnish the Site. Owner shall notify Contractor 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.

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; 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 7.12, 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 at law; 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

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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 shall 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 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 known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site;

2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities); 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 upon the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. 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; or

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.

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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 either:

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; or

2. is of such a nature as to require a change in the Drawings or Specifications; or

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 the necessity of Owner's obtaining 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 above; 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. *Possible Price and Times Adjustments*:

1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, or both, 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 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,

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c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

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; or

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 as 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, or both, then any such adjustment shall 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, or both, 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.

5.05 *Underground Facilities*

A. *Contractor's Responsibilities*: The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or adjacent to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. Owner and Engineer do not warrant or guarantee the accuracy or completeness of any such information or data provided by others; and

2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:

a. reviewing and checking all information and data regarding existing Underground Facilities at the Site;

b. locating all Underground Facilities shown or indicated in the Contract Documents as being at the Site;

c. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and

d. 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 in the Contract Documents, or was not shown or indicated with reasonable accuracy, then Contractor shall, promptly after

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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), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer.

C. *Engineer's Review*: Engineer will promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the Underground Facility in question; 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 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. *Possible Price and Times Adjustments*:

1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, or both, to the extent that any existing Underground Facility at the Site that was not shown or indicated in the Contract Documents, 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. Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated the existence or actual location of the Underground Facility in question;

    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;

    c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times; and

    d. 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, or both, then any such adjustment shall 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, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.

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5.06 *Hazardous Environmental Conditions at Site*

A. *Reports and Drawings*: The Supplementary Conditions identify:

1. those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and

2. 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 Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. 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; or

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.

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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, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, 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.

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 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 or 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 shall obligate 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 shall obligate 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.

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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 all of Contractor's obligations under the Contract. These bonds shall 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 Supplementary Conditions, or other specific provisions of the Contract. Contractor shall also furnish such other bonds as are required by the Supplementary Conditions or other specific provisions of the Contract.

B. All bonds shall be in the form prescribed by the Contract except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (as amended and supplemented) by the Financial Management Service, Surety Bond Branch, 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 shall show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.

C. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds in the required amounts.

D. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or its right to do business is terminated in any state or jurisdiction where any part of the Project is located, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the bond and surety requirements above.

E. 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.

F. Upon request, Owner shall provide a copy of the payment bond to any Subcontractor, Supplier, or other person or entity claiming to have furnished labor or materials used in the performance of the Work.

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. Contractor shall deliver to Owner, with copies to each named insured and additional insured (as identified in this Article, in the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Contractor has obtained and is

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maintaining the policies, coverages, and endorsements 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 and endorsements, and documentation of applicable self-insured retentions and deductibles. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

D. Owner shall deliver to Contractor, with copies to each named insured and additional insured (as identified in this Article, the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Owner has obtained and is maintaining the policies, coverages, and endorsements 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 and endorsements, and documentation of applicable self-insured retentions and deductibles. Owner may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

E. 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, shall not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.

F. If either party does not purchase or maintain all of 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.

G. If Contractor has failed to obtain and maintain required insurance, Owner may exclude the Contractor from the Site, impose an appropriate set-off against payment, and exercise Owner's termination rights under Article 16.

H. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect 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 shall be adjusted accordingly.

I. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests.

J. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner and other individuals and entities in the Contract.

6.03 *Contractor's Insurance*

A. *Workers' Compensation*: Contractor shall purchase and maintain workers' compensation and employer's liability insurance for:

1. claims under workers' compensation, disability benefits, and other similar employee benefit acts.

2. United States Longshoreman and Harbor Workers' Compensation Act and Jones Act coverage (if applicable).

3. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees (by stop-gap endorsement in monopolist worker's compensation states).

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4. Foreign voluntary worker compensation (if applicable).

B. *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:

1. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees.

2. claims for damages insured by reasonably available personal injury liability coverage.

3. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.

C. *Commercial General Liability—Form and Content*: Contractor's commercial liability policy shall be written on a 1996 (or later) ISO commercial general liability form (occurrence form) and include the following coverages and endorsements:

1. Products and completed operations coverage:

a. Such insurance shall 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, to the extent permitted by law, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.

3. Broad form property damage coverage.

4. Severability of interest.

5. Underground, explosion, and collapse coverage.

6. Personal injury coverage.

7. 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 CG 20 10 07 04 and CG 20 37 07 04 (together); or their equivalent.

8. For design professional additional insureds, ISO Endorsement CG 20 32 07 04, "Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured" or its equivalent.

D. *Automobile liability*: Contractor shall purchase and maintain automobile liability insurance against claims 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 shall be written on an occurrence basis.

E. *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. Subject to industry-standard exclusions, the coverage afforded shall follow form as to each and every one of the underlying policies.

F. *Contractor's pollution liability insurance*: Contractor shall purchase and maintain a policy covering third-party injury and property damage claims, including clean-up costs, as a result

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of pollution conditions arising from Contractor's operations and completed operations. This insurance shall be maintained for no less than three years after final completion.

G. *Additional insureds*: The Contractor's commercial general liability, automobile liability, umbrella or excess, and pollution liability policies shall include and list as additional insureds Owner and Engineer, and any individuals or entities identified in the Supplementary Conditions; include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds; and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby (including as applicable those arising from both ongoing and completed operations) on a non-contributory basis. Contractor shall obtain all necessary endorsements to support these requirements.

H. *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 shall provide protection against claims arising out of performance of professional design or related services, and caused by a negligent error, omission, or act for which the insured party is legally liable. It shall be maintained throughout the duration of the Contract and for a minimum of two years after Substantial Completion. If such professional design services are performed by a Subcontractor, and not by Contractor itself, then the requirements of this paragraph may be satisfied through the purchasing and maintenance of such insurance by such Subcontractor.

I. *General provisions*: The policies of insurance required by this Paragraph 6.03 shall:

1. include at least the specific coverages provided in this Article.

2. be written for not less than the limits of liability provided in this Article and in the Supplementary Conditions, or required by Laws or Regulations, whichever is greater.

3. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed, or renewal refused until at least 10 days prior written notice has been given to Contractor. Within three days of receipt of any such written notice, Contractor shall provide a copy of the notice to Owner, Engineer, and each other insured under the policy.

4. remain in effect at least until final payment (and longer if expressly required in this Article) 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 Documents.

5. be appropriate for the Work being performed and provide protection from claims that may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed 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.

J. The coverage requirements for specific policies of insurance must be met by such policies, and not by reference to excess or umbrella insurance provided in other policies.

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6.04 *Owner's Liability Insurance*

A. In addition to the insurance required to be provided by Contractor under Paragraph 6.03, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

B. 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.

6.05 *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 full insurable replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:

1. include the Owner and Contractor as named insureds, and all Subcontractors, and any individuals or entities required by the Supplementary Conditions to be insured under such builder's risk policy, as insureds or named insureds. For purposes of the remainder of this Paragraph 6.05, Paragraphs 6.06 and 6.07, and any corresponding Supplementary Conditions, the parties required to be insured shall collectively be referred to as "insureds."

2. be written on a builder's risk "all risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire; lightning; windstorm; riot; civil commotion; terrorism; vehicle impact; aircraft; smoke; theft; vandalism and malicious mischief; mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; flood; collapse; explosion; debris removal; demolition occasioned by enforcement of Laws and Regulations; water damage (other than that caused by flood); and such other perils or causes of loss as may be specifically required by the Supplementary Conditions. 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 may be provided through other insurance policies acceptable to Owner and Contractor.

3. 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.

4. cover expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects).

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5. 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).
6. extend to cover damage or loss to insured property while in transit.
7. allow for partial occupation or use of the Work by Owner, such that those portions of the Work that are not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
8. allow for the waiver of the insurer's subrogation rights, as set forth below.
9. provide primary coverage for all losses and damages caused by the perils or causes of loss covered.
10. not include a co-insurance clause.
11. include an exception for ensuing losses from physical damage or loss with respect to any defective workmanship, design, or materials exclusions.
12. include performance/hot testing and start-up.
13. be maintained in effect, subject to the provisions herein regarding Substantial Completion and partial occupancy or use of the Work by Owner, until the Work is complete.

B. *Notice of Cancellation or Change*: All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 6.05 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed 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.

C. *Deductibles*: The purchaser of any required builder's risk or property insurance shall pay for costs not covered because of the application of a policy deductible.

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 notice of such occupancy or use to the builder's risk insurer. The builder's risk insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy; rather, those portions of the Work that are occupied or used by Owner may come off the builder's risk policy, while those portions of the Work not yet occupied or used by Owner shall remain covered by the builder's risk insurance.

E. *Additional Insurance*: 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 6.05, it may do so at Contractor's expense.

F. *Insurance of Other Property*: If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, such as tools, construction equipment, or other personal property owned by Contractor, a Subcontractor, or an employee of Contractor or a Subcontractor, then the entity or individual owning such property item will be responsible for deciding whether to insure it, and if so in what amount.

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6.06 *Waiver of Rights*

A. All policies purchased in accordance with Paragraph 6.05, expressly including the builder's risk policy, shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any insureds thereunder, or against Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors. 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 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 Subcontractors, all individuals or entities identified in the Supplementary Conditions as 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. None of the above waivers shall extend 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. 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:

1. loss 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 perils whether or not insured by Owner; and

2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner 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.

C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 6.06.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them.

D. Contractor shall be responsible for assuring that the agreement under which a Subcontractor performs a portion of the Work 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 any of the perils or causes of loss covered by builder's risk insurance and any other property insurance applicable to the Work.

6.07 *Receipt and Application of Property Insurance Proceeds*

A. Any insured loss under the builder's risk and other policies of insurance required by Paragraph 6.05 will be adjusted and settled with the named insured that purchased the

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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 6.05 shall 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, the damaged Work shall be repaired or replaced, the money so received applied on account thereof, and the Work and the cost thereof covered by Change Order, if needed.

ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES

7.01 *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. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.

B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.02 *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 at all times maintain good discipline and order at the Site.

B. 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 shall 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.

7.03 *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 shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and

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guarantees required by the Specifications shall 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 shall 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.

7.04 *"Or Equals"*

A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, 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 material or equipment, or items from other proposed suppliers under the circumstances described below.

1. If Engineer in its sole discretion determines that an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer shall deem it an "or equal" item. For the purposes of this paragraph, a proposed item of material or equipment will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment Engineer determines that:

1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

2) it 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) it has a proven record of performance and availability of responsive service; and

4) it is not objectionable to Owner.

b. Contractor certifies that, if approved and incorporated into the Work:

1) there will be no increase in cost to the Owner or increase in Contract Times; and

2) it 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.

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D. *Effect of Engineer's Determination*: Neither approval nor denial of an "or-equal" request shall result in any change in Contract Price. The Engineer's denial of an "or-equal" request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents.

E. *Treatment as a Substitution Request*: If Engineer determines that an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer considered the proposed item as a substitute pursuant to Paragraph 7.05.

7.05 *Substitutes*

A. Unless the specification or description of an item of material or equipment 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 material or equipment under the circumstances described below. To the extent possible such requests shall 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 material or equipment from anyone other than Contractor.

2. The requirements for review by Engineer will be as set forth in Paragraph 7.05.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.

3. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:

a. shall 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 that specified, and

3) be suited to the same use as that 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 that specified, and

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2) available engineering, sales, maintenance, repair, and replacement services.

d. shall 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.

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 shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.05.D, by timely submittal of a Change Proposal.

7.06 *Concerning Subcontractors, Suppliers, and Others*

A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner.

B. Contractor shall retain specific Subcontractors, Suppliers, or other individuals or entities 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, Supplier, or other individual or entity 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 five days.

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E. Owner may require the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work. 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, Suppliers, or other individuals or entities 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, Supplier, or other individual or entity so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity.

F. If Owner requires the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, or both, 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, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.

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 fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions.

J. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors, Suppliers, and all other individuals or entities performing or furnishing any of the Work.

K. Contractor shall restrict all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed herein.

L. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

M. All Work performed for Contractor by a Subcontractor or Supplier shall be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer.

N. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor on account of Work performed for Contractor by the particular Subcontractor or Supplier.

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O. Nothing in the Contract Documents:

1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier, or other individual or entity; nor

2. shall create 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.

7.07 *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 a particular 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 shall be disclosed by Owner 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.

7.08 *Permits*

A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits and licenses. 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

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7.09 *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.

7.10 *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. Except where otherwise expressly required by applicable Laws and Regulations, 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 shall not be Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.

C. Owner or Contractor may give 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 notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.11 *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.

7.12 *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. 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;

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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.

B. 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. Contractor shall notify Owner; the owners of adjacent property, Underground Facilities, and other utilities; and other contractors and utility owners performing work at or adjacent to the Site, when 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.

C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.

D. 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.

E. All damage, injury, or loss to any property referred to in Paragraph 7.12.A.2 or 7.12.A.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).

F. Contractor's duties and responsibilities for safety and protection shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 15.06.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

G. Contractor's duties and responsibilities for safety and protection shall 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.

7.13 *Safety Representative*

A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

7.14 *Hazard Communication Programs*

A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or

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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 threatened 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 thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

7.16 *Shop Drawings, Samples, and Other Submittals*

A. *Shop Drawing and Sample Submittal Requirements*:

1. Before submitting a Shop Drawing or Sample, Contractor shall have:

a. reviewed and coordinated the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;

b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;

c. determined and verified 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

d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.

2. Each submittal shall 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.

3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be set forth in a written communication separate from the Shop Drawings or Sample submittal; and, in addition, in the case of Shop Drawings by a specific notation made on each Shop Drawing submitted to Engineer for review and approval of each such variation.

B. *Submittal Procedures for Shop Drawings and Samples*: Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals. Each submittal will be identified as Engineer may require.

1. *Shop Drawings*:

a. Contractor shall submit the number of copies required in the Specifications.

b. Data shown on the Shop Drawings will 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

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provide and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.D.

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.D.

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. *Other Submittals*: Contractor shall submit other submittals to Engineer in accordance with the accepted Schedule of Submittals, and pursuant to the applicable terms of the Specifications.

D. *Engineer's Review*:

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. 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, conform to the information given in 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 shall 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 document any such approved variation from the requirements of the Contract Documents in a Field Order.

5. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 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, shall 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, Sample, or other submittal shall result in such item becoming a Contract Document.

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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.D.4.

E. *Resubmittal Procedures*:

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 submittals with sufficient information and accuracy to obtain required approval of an item with no more than three submittals. Engineer will record Engineer's time for reviewing a fourth or subsequent submittal of a Shop Drawings, sample, or other item requiring approval, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges.

3. If Contractor requests a change of a previously approved submittal item, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

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 and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on Contractor's warranty and guarantee.

B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, modification, or improper 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.

C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:

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. any inspection, test, or approval by others; or

8. any correction of defective Work by Owner.

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D. 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 shall 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 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 performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury 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 shall 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.

C. The indemnification obligations of Contractor under Paragraph 7.18.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:

1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or

2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

7.19 *Delegation of Professional Design Services*

A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable Laws and Regulations.

B. If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, and other submittals prepared by such professional. Shop

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Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.

D. Pursuant to this paragraph, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 7.16.D.1.

E. Contractor shall not be responsible for the adequacy of the performance or design criteria specified by Owner or Engineer.

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 utility work at or adjacent to the Site, Owner shall provide such information to Contractor.

C. Contractor shall afford each other contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work. 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.

D. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 8, 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.

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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 at or adjacent to the Site for Owner, the Owner's employees, any other contractor working for Owner, or any utility owner for whom the Owner is responsible 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, or both. 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 shall 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. When applicable, any such equitable adjustment in Contract Price shall 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 is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

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. 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 to 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.

C. 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 to Contractor.

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D. 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 shall 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.

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.

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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 Documents (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.

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 10.08. Particularly, but without limitation, during

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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 *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 Paragraph 10.08. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent, or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

10.04 *Rejecting Defective Work*

A. Engineer has the authority to reject Work in accordance with Article 14.

10.05 *Shop Drawings, Change Orders and Payments*

A. Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, are set forth in Paragraph 7.16.

B. Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, are set forth in Paragraph 7.19.

C. Engineer's authority as to Change Orders is set forth in Article 11.

D. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.06 *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.

10.07 *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.

10.08 *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, shall 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.

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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 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 10.08 shall also apply to the Resident Project Representative, if any.

10.09 *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 (if any) of which Engineer has been informed.

ARTICLE 11 – AMENDING THE CONTRACT DOCUMENTS; CHANGES IN THE WORK

11.01 *Amending and Supplementing Contract Documents*

A. The Contract Documents may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.

1. *Change Orders*:

a. If an amendment or supplement to the Contract Documents includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order. A Change Order also may be used to establish amendments and supplements of the Contract Documents that do not affect the Contract Price or Contract Times.

b. Owner and Contractor may amend those terms and conditions of the Contract Documents that do not 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, without the recommendation of the Engineer. Such an amendment shall be set forth in a Change Order.

2. *Work Change Directives*: 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 11.04 regarding change of Contract Price. Contractor must submit any Change Proposal seeking an

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adjustment of the Contract Price or the Contract Times, or both, no later than 30 days after the completion of the Work set out in the Work Change Directive. Owner must submit any Claim seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 60 days after issuance of the Work Change Directive.

3. *Field Orders*: 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. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.02 *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. Such changes shall be supported by Engineer's recommendation, to the extent the change involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters. Such changes 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 shall be performed under the applicable conditions of the Contract Documents. Nothing in this paragraph shall obligate 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.

11.03 *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.

11.04 *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 shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment of Contract Price shall comply with the provisions of Article 12.

B. An adjustment in the Contract Price will be determined as follows:

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); or

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 11.04.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

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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 11.04.C).

C. *Contractor's Fee*: When applicable, the Contractor's fee for overhead and profit shall 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 shall be 15 percent;

b. for costs incurred under Paragraph 13.01.B.3, the Contractor's fee shall be five 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 11.04.C.2.a and 11.04.C.2.b is that the Contractor's fee shall be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.A.1 and 13.01.A.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 five 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 shall be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the work;

d. no fee shall 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 will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and

f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 11.04.C.2.a through 11.04.C.2.e, inclusive.

11.05 *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 shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment in the Contract Times shall comply with the provisions of Article 12.

B. An adjustment of the Contract Times shall be subject to the limitations set forth in Paragraph 4.05, concerning delays in Contractor's progress.

11.06 *Change Proposals*

A. Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; appeal an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; contest a set-off against payment due; or seek other relief under

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the Contract. The Change Proposal shall specify any proposed change in Contract Times or Contract Price, or both, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents.

1. *Procedures*: Contractor shall submit each Change Proposal to Engineer promptly (but in no event later than 30 days) after the start of the event giving rise thereto, or after such initial decision. 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. The supporting data shall 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. Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal.

2. *Engineer's Action*: Engineer will review each Change Proposal and, within 30 days after receipt of the Contractor's supporting data, either deny the Change Proposal in whole, approve it in whole, or deny it in part and approve it in part. Such actions shall be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change 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.

3. *Binding Decision*: Engineer's decision will be final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.

B. *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 that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice shall be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.

11.07 *Execution of Change Orders*

A. Owner and Contractor shall execute appropriate Change Orders covering:

1. changes in the 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 11.02, (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 in the Contract Price or Contract Times, or other changes, which embody the substance of any final and binding results under Paragraph 11.06, or Article 12.

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B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of this Paragraph 11.07, it shall be deemed to be of full force and effect, as if fully executed.

11.08 *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 shall be submitted 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; and

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.

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 shall rest with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, or both, 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 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 shall 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 shall 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 shall resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim

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submittal and decision process shall 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 shall 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 shall 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 shall be incorporated in a Change Order 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

2. 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 shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 13.01.C, and shall 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. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, and vacation and holiday pay applicable

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thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall 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 shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment shall 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, who 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 shall 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 for services specifically related to the Work.

5. Supplemental costs including 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, and hand tools not owned by the workers, which are 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.

    c. Rentals of all construction equipment and machinery, and the parts thereof, whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the 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 property insurance established in accordance with Paragraph 6.05), provided such losses and damages have resulted from causes

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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 shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

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 shall not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety 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. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.

3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.

4. 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.

5. 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*: When the Work as a whole is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 11.04.C.

E. *Documentation*: Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

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.

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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 on account of any of the foregoing will be valid.

C. *Contingency Allowance*: Contractor agrees that a 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 on account of Work covered by allowances, and the Contract Price shall 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 thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of the following paragraph.

E. Within 30 days of Engineer's written decision under the preceding paragraph, Contractor may submit a Change Proposal, or Owner may file a Claim, seeking an adjustment in the Contract Price if:

1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement;

2. there is no corresponding adjustment with respect to any other item of Work; and

3. Contractor believes that it is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price, and the parties are unable to agree as to the amount of any such increase or decrease.

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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 will 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 therewith 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 shall 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.

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 shall 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 shall be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to

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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 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, 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 shall 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.

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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, or both, 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, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall 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 rejected Work as required by Engineer, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, then Owner may, after seven 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

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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 on account of 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. 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 shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens, and 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.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

3. 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:

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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.

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, or

b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or

c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or

d. to make any examination to ascertain how or for what purposes Contractor has used the money paid on account of the Contract Price, 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

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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 on account of Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages on account of 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;

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 that would constitute a default by Contractor and therefore justify a termination for cause has occurred;

j. liquidated 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;

l. there are other items entitling 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

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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 shall 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 shall be treated as an amount due as determined by Paragraph 15.01.C.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 seven 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 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 shall 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 seven 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.

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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 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 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 6.05 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

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inspection, annotated record documents (as provided in Paragraph 7.11), and other documents, Contractor may make application for final payment.

2. The final Application for Payment shall 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.

   d. a list of all disputes that Contractor believes are unsettled; 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 Application and Acceptance*:

1. 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 ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the Application for Payment to Owner for payment. Such recommendation shall 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. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to the provisions of Paragraph 15.07. 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. *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.

D. *Payment Becomes Due*: Thirty days after the presentation to Owner of the final Application for Payment and accompanying documentation, the amount recommended by Engineer (less any further sum Owner is entitled to set off against Engineer's recommendation,

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including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions above with respect to progress payments) will become due and shall be paid by Owner to Contractor.

15.07 *Waiver of Claims*

A. The making of final payment will not constitute a waiver by Owner of claims or rights against Contractor. Owner expressly reserves claims and rights arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 15.05, from Contractor's failure to comply with the Contract Documents or the terms of any special guarantees specified therein, from outstanding Claims by Owner, or from Contractor's continuing obligations under the Contract Documents.

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 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 terms of any applicable special guarantee required by the Contract Documents, or by any specific provision of the Contract Documents), any Work is found to be defective, or if the repair of any damages to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas used by Contractor as permitted by Laws and Regulations, is found to be defective, then 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 other adjacent areas;

2. correct such defective Work;

3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, 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 therefrom.

B. If 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 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 correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others).

C. 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.

D. 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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E. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph shall not 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, or both, directly attributable to any such suspension. Any Change Proposal seeking such adjustments shall 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) ten 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) 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 seven 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, 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,

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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 shall govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.03 *Owner May Terminate For Convenience*

A. Upon seven 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 on account of loss of anticipated overhead, profits, or revenue, 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 seven 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, seven 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 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

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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; and

2. Disputes between Owner and Contractor concerning the Work or obligations under the Contract Documents, and arising 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; or

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 Documents requires the giving of written notice, it will be deemed to have been validly given if:

1. delivered in person, by a commercial courier service or otherwise, to the individual or to a member of the firm or to an officer of the corporation for which it is intended; or

2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the sender of the notice.

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.

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.

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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 shall not constitute a waiver of that provision, nor shall 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 or completion of the Contract or termination 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 *Headings*

A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

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Supplementary Conditions

These Supplementary Conditions amend or supplement the Agreement between Owner and Contractor (EJCDC C-520, 2013 Edition), and the Standard General Conditions of the Construction Contract (EJCDC C-700, 2013 Edition) and other provisions of the Contract Documents as indicated below. All provisions that are not so amended or supplemented remain in full force and effect.

AGREEMENT BETWEEN OWNER AND CONTRACTOR
SUPPLEMENTS

Development of the Agreement between Owner and Contractor must be based on EJCDC C-520, 2013, as modified below:

- Delete paragraph 4.04 in its entirety and insert the following in its place:

  [Deleted]

- Amend paragraph 6.02.A.1.a by adding 95 to the blank.

- Amend paragraph 6.02.A.1.a by deleting the period at the end of the first sentence, replacing it with a semicolon, and by striking out the following text: “If the Work has been 50 percent completed as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer, then as long as the character and progress of the Work remain satisfactory to Owner and Engineer, there will be no additional retainage;”

- Amend paragraph 6.02.A.1.b by adding 95 to the blank.

- Amend paragraph 6.02.B by inserting “of the entire construction to be provided under the Contract Documents” after “Substantial Completion.”

CERTIFICATE OF OWNER'S ATTORNEY

PROJECT NAME: _____

CONTRACTOR NAME: _____

I, the undersigned, _____, the duly authorized and acting legal representative of _____, do hereby certify as follows: I have examined the attached Contract(s) and performance and payment bond(s) and the manner of execution thereof, and I am of the opinion that each of the aforesaid agreements is adequate and has been duly executed by the proper parties thereto acting through their duly authorized representatives; that said representatives have full power and authority to execute said agreements on behalf of the respective parties named thereon; and that the foregoing agreements constitute valid and legally binding obligations upon the parties executing the same in accordance with the terms, conditions, and provisions thereof.

_____

Name Date

AGENCY CONCURRENCE

As lender or insurer of funds to defray the costs of this Contract, and without liability for any payments thereunder, the Agency hereby concurs in the form, content, and execution of this Agreement.

_____

Agency Representative Date

_____

Name

GENERAL CONDITION
SUPPLEMENTS

The terms used in these Supplementary Conditions will have the meanings indicated 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.

ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

SC 1.01.A.8 - <u>ADD</u> the following language at the end of last sentence of Paragraph 1.01.A.8:

The Change Order form to be used on this Project is EJCDC C-941. Agency approval is required before Change Orders are effective.

SC 1.01.A.48 - <u>ADD</u> the following language at the end of the last sentence of Paragraph 1.01.A.48:

A Work Change Directive cannot change Contract Price or Contract Times without a subsequent Change Order.

SC 1.01.A.49 - <u>ADD</u> the following new Paragraph after Paragraph 1.01.A.48:

Abnormal Weather Conditions – Conditions of extreme or unusual weather for a given region, elevation, or season as determined by Engineer. Extreme or unusual weather that is typical for a given region, elevation, or season should not be considered Abnormal Weather Conditions.

SC 1.01.A.50 - <u>ADD</u> the following new Paragraph after Paragraph 1.01.A.49:

Agency - The Project is financed in whole or in part by USDA Rural Utilities Service pursuant to the Consolidated Farm and Rural Development Act (7 USC Section 1921 et seq.). The Rural Utilities Service programs are administered through the USDA Rural Development offices; therefore, the Agency for these documents is USDA Rural Development.

SC 1.01.A.51 - <u>ADD</u> the following new Paragraph after Paragraph 1.01.A.50:

51. *Manufacturer's Certification letter* is documentation provided by the manufacturer, supplier, distributor, vendor, fabricator, etc. to various entities stating that the American Iron and Steel products to be used in the project are produced in the United States in accordance with American Iron and Steel requirements. Refer to Manufacturer's Certification Letter provided in these Contract Documents.

SC 1.01.A.52 - <u>ADD</u> the following new Paragraph after Paragraph 1.01.A.51

52. AIS - refers to requirements mandated by Section 746 of Title VII of the Consolidated Appropriations Act of 2017 (Division A - Agriculture, Rural Development, Food and Drug Administration, and Related Agencies Appropriations Act, 2017) and subsequent statutes

mandating domestic preference. The term "iron and steel products" means the following products made primarily of iron or 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.

ARTICLE 2 – PRELIMINARY MATTERS

SC-2.02 Copies of Documents

SC-2.02 Amend the first sentence of Paragraph 2.02.A. to read as follows:

Owner shall furnish to Contractor one electronic copy of the fully executed Contract Documents in electronic portable document format (.pdf).

ARTICLE 4 – COMMENCEMENT AND PROGRESS OF THE WORK

SC 4.01.A - Amend the last sentence of Paragraph 4.01.A by STRIKING OUT the following words:

In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Contract, whichever date is earlier.

SC 4.05.C.2 - Amend Paragraph 4.05.C.2 by STRIKING OUT the following text: "abnormal weather conditions;" and inserting the following text:

Abnormal Weather Conditions;

ARTICLE 5 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

SC-5.03 - DELETE Paragraphs 5.03.A and 5.03.B in their entirety and insert the following:

A. No reports or explorations or tests of subsurface conditions at or adjacent to the Site, or drawings of physical conditions relating to existing surface or subsurface structures at the Site are known to the Owner.

SC-5.06 - DELETE Paragraphs 5.06.A and 5.06.B in their entirety and insert the following:

A. No reports or drawings related to Hazardous Environmental Conditions at the Site are known to the Owner.

ARTICLE 6 – BONDS AND INSURANCE

SC 6.03 - ADD the following new paragraph immediately after Paragraph 6.03.J:

K. The limits of liability for the insurance required by Paragraph 6.03 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

1. Workers' Compensation, and related coverages under Paragraphs 6.03.A.1 and A.2 of the General Conditions:

State:	**Statutory**
Federal, if applicable (e.g., Longshoreman's):	**Statutory**
Employer's Liability:	
Bodily injury, each accident	**$ $100,000**
Bodily injury by disease, each employee	**$ $100,000**
Bodily injury/disease aggregate	**$ $500,000**

2. Contractor's Commercial General Liability under Paragraphs 6.03.B and 6.03.C of the General Conditions:

General Aggregate	**$ 2,000,000**
Products - Completed Operations Aggregate	**$ 1,000,000**
Personal and Advertising Injury	**$ 1,000,000**
Each Occurrence (Bodily Injury and Property Damage)	**$ 1,000,000**

3. Automobile Liability under Paragraph 6.03.D. of the General Conditions:

Bodily Injury:	
Each person	**$ 1,000,000**
Each accident	**$ 1,000,000**
Property Damage:	
Each accident	**$ 1,000,000**

4. Excess or Umbrella Liability:

Per Occurrence	**$ $750,000**
General Aggregate	**$ $750,000**

5. Contractor's Pollution Liability:

Each Occurrence	**$ N/A**
General Aggregate	**$ N/A**

☒ **If box is checked, Contractor is not required to provide Contractor's Pollution Liability insurance under this Contract**

6. Additional Insureds: In addition to Owner and Engineer, include as additional insureds the following: No other additional insureds are required.

7. Contractor's Professional Liability: Not required.

SC-6.05 Property Insurance

SC-6.05. Add the following to the list of requirements in Paragraph 6.05.A, as a numbered item:

14. be subject to a deductible amount defined at the discretion of the purchasing party.

ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES

SC-7.02.B. Add the following new subparagraphs immediately after Paragraph 7.02.B:

1. Regular working hours will be: 7:00 AM – 7:00 PM unless indicated otherwise by Owner.

2. Owner's legal holidays are all Federally-recognized holidays.

SC 7.03.D - ADD the following new Paragraph after Paragraph 7.03.C:

D. All iron and steel products must meet American Iron and Steel requirements.

SC 7.04.A - Amend the third sentence of Paragraph 7.04.A by STRIKING OUT the following words:

Unless the specification or description contains or is followed by words reading that no like, equivalent, or 'or-equal' item is permitted**.**

SC 7.04.A.1 - Amend the last sentence of Paragraph a.3 by STRIKING OUT "and;" and ADDING period at the end of Paragraph a.3.

SC 7.04.A.1 - DELETE paragraph 7.04.A.1.a.4 in its entirety and insert the following in its place:

[Deleted]

SC 7.04.B.1 - ADD the following new Subparagraph after Paragraph 7.04.B:

1. Contractor shall include a Manufacturer's Certification letter for compliance with American Iron and Steel requirements in support data, if applicable. Refer to Manufacturer's Certification Letter provided in these Contract Documents. In addition, for the Deminimis Waiver, Contractor shall maintain an itemized list of incidental components and ensure that the cost is less than 5% of total materials cost for project; for the Minor Components Waiver, the Contractor shall maintain a list of products to which the minor components waiver applies and the cost of the non- domestically produced component is less than 5% of total materials cost of that product.

SC 7.05.A.3.a.4 - ADD the following new Paragraph after Paragraph 7.05.A.3.a.3:

4) comply with American Iron and Steel by providing Manufacturer's Certification letter of American Iron and Steel compliance, if applicable. Refer to Manufacturer's Certification Letter provided in these Contract Documents."

SC 7.06.A - Amend Paragraph 7.06.A by ADDING the following text to the end of the Paragraph:

The Contractor shall not award work valued at more than fifty percent of the Contract Price to Subcontractor(s), without prior written approval of the Owner.

SC 7.06.B - DELETE paragraph 7.06.B in its entirety and insert the following in its place:

[Deleted]

SC 7.06.E - Amend the second sentence of Paragraph 7.06.E by STRIKING OUT the following:

"Owner may also require Contractor to retain specific replacements; provided, however, that".

SC 7.11.A - Amend Paragraph 7.11.A by INSERTING the following after "written interpretations and clarifications,":

Manufacturers' Certification letter is documentation provided by the manufacturer, supplier, distributor, vendor, fabricator, etc. to various entities stating that the iron and steel products to be used in the project are produced in the United States in accordance with American Iron and Steel Requirements. Refer to Manufacturer's Certification Letter provided in these Contract Documents.

SC 7.16.A.1.e - ADD the following new Paragraph after Paragraph 7.16.A.1.d:

e. obtained Manufacturer's Certification letter for any item in the submittal subject to American Iron and Steel requirements and include the Certificate in the submittal. Refer to Manufacturer's Certification Letter provided in these Contract Documents.

SC 7.16.D.9 - ADD the following new Paragraph after Paragraph 7.16.D.8:

9. Engineer's review and approval of Shop Drawing or Sample shall include review of compliance with American Iron and Steel requirements, as applicable.

SC 7.17.E - ADD the following new Paragraph after Paragraph 7.17.D:

E. Contractor shall certify upon Substantial Completion that all Work and Materials has complied with American Iron and Steel requirements as mandated by Section 746 of Title VII of the Consolidated Appropriations Act of 2017 (Division A - Agriculture, Rural Development, Food and Drug Administration, and Related Agencies Appropriations Act, 2017) and subsequent statutes

mandating domestic preference. Contractor shall provide said Certification to Owner. Refer to General Contractor's Certification Letter provided in these Contract Documents.

ARTICLE 10 – ENGINEER'S STATUS DURING CONSTRUCTION

SC-10.03 - <u>ADD</u> the following new paragraphs immediately after Paragraph 10.03.A:

B. The Resident Project Representative (RPR) will be Engineer's representative at the Site, will act as directed by and under the supervision of Engineer, and will confer with Engineer regarding RPR's actions.

1. General: RPR's dealings in matters pertaining to the Work in general shall be with Engineer and Contractor. RPR's dealings with Subcontractors shall only be through or with the full knowledge and approval of Contractor. RPR shall generally communicate with Owner only with the knowledge of and under the direction of Engineer.

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. Conferences and Meetings: Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences, and other Project-related meetings, and prepare and circulate copies of minutes thereof.

4. 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.

5. 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.

6. Shop Drawings and Samples:

    a. Record date of receipt of Samples and Contractor-approved Shop Drawings.

    b. Receive Samples which are furnished at the Site by Contractor, and notify Engineer of availability of Samples for examination.

c. Advise Engineer and Contractor of the commencement of any portion of the Work requiring a Shop Drawing or Sample submittal for which RPR believes that the submittal has not been approved by Engineer.

7. 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.

8. 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.

9. Inspections, Tests, and System Start-ups:

   a. Verify 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.

10. Records:

    a. Prepare a daily report or keep a diary or log book, recording Contractor's hours on the Site, Subcontractors present at the Site, weather conditions, data relative to questions of Change Orders, Field Orders, Work Change Directives, or changed conditions, Site visitors, deliveries of equipment or materials, daily activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures; and send copies to Engineer.

    b. Record names, addresses, fax numbers, e-mail addresses, web site locations, and telephone numbers of all Contractors, Subcontractors, and major Suppliers of materials and equipment.

    c. Maintain records for use in preparing Project documentation.

11. 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. Immediately 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.

12. 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.

13. Certificates, Operation and Maintenance Manuals: During the course of the Work, verify that 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.

14. Completion:

    a. Participate in Engineer's visits to the Site to determine Substantial Completion, assist in the determination of Substantial Completion and the preparation of a punch list of items to be completed or corrected.

    b. Participate in Engineer's final visit to the Site to determine completion of the Work, in the company of Owner and Contractor, and prepare a final punch list of items to be completed and deficiencies to be remedied.

    c. Observe whether all items on the final list have been completed or corrected and make recommendations to Engineer concerning acceptance and issuance of the notice of acceptability of the work.

C. The RPR shall 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 Contractor's work.

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. Accept Shop Drawing or Sample submittals from anyone other than Contractor.

8. Authorize Owner to occupy the Project in whole or in part.

SC 10.10.A - <u>ADD</u> the following new Paragraph after Paragraph 10.09:

A. American Iron & Steel: A. "Services required to determine and certify that to the best of the Engineer's knowledge and belief all iron and steel products referenced in engineering analysis, the Plans, Specifications, Bidding Documents, and associated Bid Addenda requiring design revisions are either produced in the United States or are the subject of an approved waiver and services required to determine to the best of the engineer's knowledge and belief that approved substitutes, equals, and all iron and steel products proposed in the shop drawings, Change Orders and Partial Payment Estimates are either produced in the United States or are the subject of an approved waiver under Section 746 of Title VII of the Consolidated Appropriations Act of 2017 (Division A - Agriculture, Rural Development, Food and Drug Administration, and Related Agencies Appropriations Act, 2017).

ARTICLE 11 – AMENDING THE CONTRACT DOCUMENTS; CHANGES IN THE WORK

SC 11.06.A.1 - **Amend Paragraph 11.06.A.1 by <u>INSERTING</u> the following after *"within 15 days after the submittal of the Change Proposal."*:**

Include supporting data (name of manufacturer, city and state where the product was manufactured, description of product, signature of authorized manufacturer's representative) in the Manufacturer's Certification Letter, as applicable.

SC 11.07.C - <u>ADD</u> the following new Paragraph after Paragraph 11.07.B:

All Contract Change Orders must be concurred in by Agency before they are effective.

ARTICLE 13 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

SC 13.02.C - DELETE Paragraph 13.02.C in its entirety and insert the following in its place:

[Deleted]

ARTICLE 14 – TESTS AND INSPECTION; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

SC 14.03.G - ADD the following new Paragraph after Paragraph 14.03.F:

G. Installation of Materials that are non-compliant with American Iron and Steel requirements shall be considered defective work.

ARTICLE 15 – PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

SC 15.01.B.3 - ADD the following language at the end of paragraph 15.01.B.3:

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 the Contractor.

SC 15.01.B.4 - ADD the following new Paragraph after Paragraph 15.01.B.3:

4. The Application for Payment form to be used on this Project is EJCDC C-620. The Agency must approve all Applications for Payment before payment is made. **Materials presented for payment subject to American Iron and Steel Requirements must be accompanied by a Manufacturer's Certification Letter conforming to the template provided with these Contract Documents.**

SC 15.01.B.5 - ADD the following new Paragraph after Paragraph 15.01.B.4:

5. By submitting Materials for payment, Contractor is certifying that the submitted Materials are compliant with American Iron and Steel requirements. Manufacturer's Certification letter for Materials satisfy this certification. Refer to Manufacturer's Certification Letter provided in these Contract Documents.

15.01.C.2.d - **ADD the following new Paragraph after Paragraph 15.01.C.2.c:**

d. the Materials presented for payment comply with American Iron and Steel.

SC 15.01.D.1 - DELETE Paragraph 15.01.D.1 in its entirety and insert the following in its place:

The Application for Payment with Engineer's recommendations will be presented to the Owner and Agency for consideration. If both the Owner and Agency find the Application for Payment acceptable, the recommended amount less any reduction under the provisions of Paragraph 15.01.E will become due **forty-five (45)** days after the Application for Payment is presented to the Owner, and the Owner will make payment to the Contractor.

SC 15.01.C.2.d

a. the Materials presented for payment comply with American Iron and Steel.

SC 15.02.A - Amend Paragraph 15.02.A by STRIKING OUT the following text:

"no later than seven days after the time of payment by Owner" and insert "no later than the time of payment by Owner."

SC 15.03.A - Amend Paragraph 15.03.A by ADDING the following text to the end of the Paragraph:

Services required to determine and certify that to the best of the Contractor's knowledge and belief all substitutes, equals, and all iron and steel products proposed in the shop drawings, Change Orders and Partial Payment Estimates, and those installed for the project are either produced in the United States or are the subject of an approved waiver under Section 746 of Title VII of the Consolidated Appropriations Act of 2017 (Division A - Agriculture, Rural Development, Food and Drug Administration, and Related Agencies Appropriations Act, 2017) and subsequent statutes mandating domestic preference.

SC 15.03.B 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, shall 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 Article 15.

ARTICLE 18 – MISCELLANEOUS

SC 18.09 - ADD the following new paragraphs after Paragraph 18.08:

The owner-contractor agreement may be simultaneously executed in several counterparts, each of which shall be an original and all of which shall constitute but one and the same instrument. Exact reproductions of the executed instrument shall be considered as valid and admissible for all purposes as if the reproduction was a counterpart original.

Tribal Sovereignty. No provision of this Agreement will be construed by any of the signatories as abridging or debilitating any sovereign powers of any Tribe; affecting the trust-beneficiary relationship between the Secretary of the Interior, Tribe, and Indian landowner(s); or interfering with the government-to-government relationship between the United States and the Tribe.

SC-18.13 - ADD the following after Article 18.12. with the title "Temporary Construction Project Sign Requirements"

Contractor will provide a temporary construction project sign as shown in the contract documents. The cost of the sign will be identified in the Bid Schedule, or if not specifically identified in the Bid Schedule, the cost for the sign shall be included in other items.

SC-18.14 - ADD the following after Article 18.13 with the title "Additional Construction Requirements"

The following additional construction requirements will be adhered to by the contractor:

A. The Contractor shall comply with EPA's regulations regarding the Construction General Permit under the National Pollutant Discharge Elimination System.

B. All construction activities shall be in accordance with the "Catalog of Storm Water Best Management Practices for Idaho Cities and Counties" by the Idaho Department of Environmental Quality.

C. Refueling of equipment and storage of petroleum products is forbidden within 300 feet of any waterway or wetland.

A. The Contractor will employ measures to control and minimize dust resulting from construction activities.

SC-18.15 - ADD the following after Article 18.14 with the title "Counterparts and Originals":

The owner-contractor agreement may be simultaneously executed in several counterparts, each of which shall be an original and all of which shall constitute but one and the same instrument. Exact reproductions of the executed instrument shall be considered as valid and admissible for all purposes as if the reproduction was a counterpart original.

SC 19 - ADD Article 19 titled "FEDERAL REQUIREMENTS"

SC 19.01 - ADD the following language as Paragraph 19.01 with the title "Agency Not a Party":

A. This Contract is expected to be funded in part with funds provided by Agency. Neither Agency, nor any of its departments, entities, or employees is a party to this Contract.

SC 19.02 - ADD the following sections after Article 19.01 with the title "Contract Approval":

A. Owner and Contractor will furnish Owner's attorney such evidence as required so that Owner's attorney can complete and execute the following "Certificate of Owner's Attorney" (Attachment GC-A) before Owner submits the executed Contract Documents to Agency for approval.

B. Concurrence by Agency in the award of the Contract is required before the Contract is effective.

SC 19.03 - ADD the following language after Article 19.02.B with the title "Conflict of Interest":

A. Contractor may not knowingly contract with a supplier or manufacturer if the individual or entity who prepared the plans and specifications has a corporate or financial affiliation with the supplier or manufacturer. Owner's officers, employees, or agents

shall not engage in the award or administration of this Contract if a conflict of interest, real or apparent, would be involved. Such a conflict would arise when: (i) the employee, officer or agent; (ii) any member of their immediate family; (iii) their partner or (iv) an organization that employs, or is about to employ, any of the above, has a financial interest in Contractor. Owner's officers, employees, or agents shall neither solicit nor accept gratuities, favors or anything of monetary value from Contractor or subcontractors.

SC 19.04 - <u>ADD</u> the following language after Article 19.03.A with the title "Gratuities":

A. If Owner finds after a notice and hearing that Contractor, or any of Contractor's agents or representatives, offered or gave gratuities (in the form of entertainment, gifts, or otherwise) to any official, employee, or agent of Owner or Agency in an attempt to secure this Contract or favorable treatment in awarding, amending, or making any determinations related to the performance of this Contract, Owner may, by written notice to Contractor, terminate this Contract. Owner may also pursue other rights and remedies that the law or this Contract provides. However, the existence of the facts on which Owner bases such findings shall be an issue and may be reviewed in proceedings under the dispute resolution provisions of this Contract.

B. In the event this Contract is terminated as provided in paragraph 19.04.A, Owner may pursue the same remedies against Contractor as it could pursue in the event of a breach of this Contract by Contractor. As a penalty, in addition to any other damages to which it may be entitled by law, Owner may pursue exemplary damages in an amount (as determined by Owner) which shall not be less than three nor more than ten times the costs Contractor incurs in providing any such gratuities to any such officer or employee.

SC 19.05 - <u>ADD</u> the following language after Article 19.04.B with the title "Audit and Access to Records":

A. Owner, Agency, the Comptroller General of the United States, or any of their duly authorized representatives, shall have access to any books, documents, papers, and records of the Contractor which are pertinent to the Agreement, for the purpose of making audits, examinations, excerpts, and transcriptions. Engineer shall maintain all required records for three years after final payment is made and all other pending matters are closed.

SC 19.06 - <u>ADD</u> the following language after Article 19.05.A with the title "Small, Minority and Women's Businesses":

A. If Contractor intends to let any subcontracts for a portion of the work, Contractor shall take affirmative steps to assure that small, minority and women's businesses are used when possible as sources of supplies, equipment, construction, and services. Affirmative steps shall consist of: (1) including qualified small, minority and women's businesses on solicitation lists; (2) assuring that small, minority and women's businesses are solicited whenever they are potential sources; (3) dividing total requirements when

economically feasible, into small tasks or quantities to permit maximum participation of small, minority, and women's businesses; (4) establishing delivery schedules, where the requirements of the work permit, which will encourage participation by small, minority and women's businesses; (5) using the services and assistance of the Small Business Administration and the Minority Business Development Agency of the U.S. Department of Commerce; (6) requiring each party to a subcontract to take the affirmative steps of this section; and (7) Contractor is encouraged to procure goods and services from labor surplus area firms.

SC 19.07 - <u>ADD</u> the following after Article 19.06.A with the title "Anti-Kickback":

A. Contractor shall comply with the Copeland Anti-Kickback Act (18 USC 874 and 40 USC 276c) as supplemented by Department of Labor regulations (29 CFR Part 3, "Contractors and Subcontractors on Public Buildings or Public Works Financed in Whole or in Part by Loans or Grants of the United States"). The Act provides that Contractor or subcontractor shall be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public facilities, to give up any part of the compensation to which they are otherwise entitled. Owner shall report all suspected or reported violations to Agency.

SC 19.08 - <u>ADD</u> the following after Article 19.07.A with the title "Clean Air and Pollution Control Acts":

A. If this Contract exceeds $100,000, compliance with all applicable standards, orders, or requirements issued under section 306 of the Clean Air Act (42 U.S.C. 1857(h) and 42 USC 7401et. seq.), section 508 of the Clean Water Act (33 U.S.C. 1368) and Federal Water Pollution Control Act (33 USC 1251 et seq.), Executive Order 11738, and Environmental Protection Agency regulations is required. Contractor will report violations to the Agency and the Regional Office of the EPA.

SC 19.09 - <u>ADD</u> the following after Article 19.08 with the title "State Energy Policy":

A. Contractor shall comply with the Energy Policy and Conservation Act (P.L. 94-163). Mandatory standards and policies relating to energy efficiency, contained in any applicable State Energy Conservation Plan, shall be utilized.

SC 19.10 - <u>ADD</u> the following after Article 19.09 with the title "Equal Opportunity Requirements":

A. If this Contract exceeds $10,000, Contractor shall comply with Executive Order 11246, "Equal Employment Opportunity," as amended by Executive Order 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," and as supplemented by regulations at 41 CFR part 60, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor."

B. Contractor's compliance with Executive Order 11246 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative active obligations required by the Standard Federal Equal Employment Opportunity Construction Contract Specifications, as set forth in 41 CFR Part 60-4 and its efforts to meet the goals

established for the geographical area where the Contract is to be performed. The hours of minority and female employment and training must be substantially uniform throughout the length of the Contract, and in each trade, and Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting Contractor's goals shall be a violation of the Contract, the Executive Order, and the regulations in 41 CFR part 60-4. Compliance with the goals will be measured against the total work hours performed.

C. Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the Contract resulting from this solicitation. The notification shall list the name, address, and telephone number of the subcontractor; employer identification number; estimated dollar amount of subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the Contract is to be performed.

SC 19.11 - <u>ADD</u> the following after Article 19.10.C with the title "Restrictions on Lobbying":

A. Contractor and each subcontractor shall comply with Restrictions on Lobbying (Public Law 101-121, Section 319) as supplemented by applicable Agency regulations. This Law applies to the recipients of contracts and subcontracts that exceed $100,000 at any tier under a Federal loan that exceeds $150,000 or a Federal grant that exceeds $100,000. If applicable, Contractor must complete a certification form on lobbying activities related to a specific Federal loan or grant that is a funding source for this Contract. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant, or any other award covered by 31 U.S.C. 1352. Each tier shall disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Certifications and disclosures are forwarded from tier to tier up to the Owner. Necessary certification and disclosure forms shall be provided by Owner.

SC 19.12 - <u>ADD</u> the following after Article 19.11.A with the title "Environmental Requirements":

When constructing a Project involving trenching and/or other related earth excavations, Contractor shall comply with the following environmental conditions:

A. Wetlands – When disposing of excess, spoil, or other construction materials on public or private property, Contractor shall not fill in or otherwise convert wetlands.

B. Floodplains – When disposing of excess, spoil, or other construction materials on public or private property, Contractor shall not fill in or otherwise convert 100-year floodplain areas (Standard Flood Hazard Area) delineated on the latest Federal Emergency Management Agency Floodplain Maps, or other appropriate maps, e.g., alluvial soils on NRCS Soil Survey Maps.

C. Historic Preservation – Any excavation by Contractor that uncovers an historical or archaeological artifact or human remains shall be immediately reported to Owner and a representative of Agency. Construction shall be temporarily halted pending the notification process and further directions issued by Agency after consultation with the State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officer (THPO, and/or appropriate Tribal Cultural Resource Office.

D. Endangered Species – Contractor shall comply with the Endangered Species Act, which provides for the protection of endangered and/or threatened species and critical habitat. Should any evidence of the presence of endangered and/or threatened species or their critical habitat be brought to the attention of Contractor, Contractor will immediately report this evidence to Owner and a representative of Agency. Construction shall be temporarily halted pending the notification process and further directions issued by Agency after consultation with the U.S. Fish and Wildlife Service.

E. Mitigation Measures – The following environmental mitigation measures are required on this Project: **{Not Required.}**

SC 19.13 - <u>ADD</u> the following new Paragraph after Paragraph 19.12:

Section 746 of Title VII of the Consolidated Appropriations Act of 2017 (Division A - Agriculture, Rural Development, Food and Drug Administration, and Related Agencies Appropriations Act, 2017) and subsequent statutes mandating domestic preference applies an American Iron and Steel requirement to this project. All iron and steel products used in this project must be produced in the United States. The term "iron and steel products" means the following products made primarily of iron or 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. The deminimis and minor components waiver *{add project specific waivers as applicable}* apply to this contract.

SC 19.14 - <u>ADD</u> the following new Paragraph after Paragraph 19.13:

Definitions:
"Assistance recipient" is the entity that receives funding assistance from programs required to comply with Section 746 Division A Title VII of the Consolidated Appropriations Act of 2017 (Agriculture, Rural Development, Food and Drug Administration, and Related Agencies Appropriations Act, 2017) and subsequent statutes mandating domestic preference. This term includes owner and/or applicant.

"Certifications" means the following:

- *Manufacturers'* certification is documentation provided by the manufacturer or fabricator to various entities stating that the iron and steel products to be used in the project are produced in the United States in accordance with American Iron and Steel (AIS) Requirements. If items are purchased via a supplier, distributor, vendor, etc. vs. from the manufacturer or fabricator directly, then the supplier, distributor, vendor, etc. will be responsible for obtaining and providing these certification letters to the parties purchasing

the products.

- *Engineers*' certification is documentation that plans, specifications, and bidding documents comply with AIS.
- *Contractors'* certification is documentation submitted upon substantial completion of the project that all iron and steel products installed were produced in the United States.

"Coating" means a covering that is applied to the surface of an object. If a coating is applied to the external surface of a domestic iron or steel component, and the application takes place outside of the United States, said product would be considered a compliant product under the AIS requirements. Any coating processes that are applied to the external surface of iron and steel components that would otherwise be AIS compliant would not disqualify the product from meeting the AIS requirements regardless of where the coating processes occur, provided that final assembly of the product occurs in the United States. This exemption only applies to coatings on the *external surface* of iron and steel components. It does not apply to coatings or linings on internal surfaces of iron and steel products, such as the lining of lined pipes. All manufacturing processes for lined pipes, including the application of pipe lining, must occur in the United States for the product to be compliant with AIS requirements.

"Construction materials" are those articles, materials, or supplies made primarily of iron and steel, that are permanently incorporated into the project, not including mechanical and/or electrical components, equipment and systems. Some of these products may overlap with what is also considered "structural steel".
Note: Mechanical and electrical components, equipment and systems are not considered construction materials. See definition of mechanical and electrical equipment.

"Consulting engineer" is an individual or entity with which the owner has contracted to perform engineering/architectural services for water and waste projects funded by the programs subject to AIS requirements).

"De minimis incidental components" are various miscellaneous low-cost components that are essential for, but incidental to, the construction and are incorporated into the physical structure of the project. Examples of incidental components could include small washers, screws, fasteners (such as "off the shelf" nuts and bolts), miscellaneous wire, corner bead, ancillary tube, signage, trash bins, door hardware etc.
Costs for such de minimis incidental components cumulatively may comprise no more than a total of five percent of the total cost of the materials used in and incorporated into a project; the cost of an individual item may not exceed one percent of the total cost of the materials used in and incorporated into a project.

"General contractor" is the individual or entity with which the applicant has contracted (*or is expected to*) to perform construction services (or for water and waste projects funded by the programs subject to AIS requirements).
This includes bidders, contractors that have received an award from the applicant and any party having a direct contractual relationship with the owner/applicant. A general contractor is often referred to as the prime contractor.

"Iron and steel products" are defined as the following products made primarily of iron or 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. Only items on the above list made primarily of iron or steel, permanently incorporated into the project must be produced in the United States. For example trench boxes, scaffolding or equipment, which are removed from the project site upon completion of the project, are not required to be made of U.S. Iron or Steel.

"Manufacturers" meaning a supplier, fabricator, distributor, materialman, or vendor is an entity with which the applicant, general contractor or with any subcontractor has contracted to furnish materials or equipment to be incorporated in the project by the applicant, contractor or a subcontractor.

"Manufacturing processes" are processes such as melting, refining, forming, rolling, drawing, finishing, and fabricating. Further, if a domestic iron and steel product is taken out of the United States for any part of the manufacturing process, it becomes foreign source material. However, raw materials such as iron ore, limestone and iron and steel scrap are not covered by the AIS requirement, and the material(s), if any, being applied as a coating are similarly not covered. Non-iron or steel components of an iron and steel product may come from non-US sources. For example, for products such as valves and hydrants, the individual non-iron and steel components do not have to be of domestic origin. Raw materials, suchas iron ore, limestone, scrap iron, and scrap steel, can come from non-U.S. sources.

"Mechanical equipment" is typically that which has motorized parts and/or is powered by a motor. "Electrical equipment" is typically any machine powered by electricity and includes components that are part of the electrical distribution system. AIS does apply to mechanical equipment.

"Minor components" are components *within* an iron and/or steel product otherwise compliant with the American Iron and Steel requirements. This is different from the de minimis definition where de minimis pertains to the entire project and the minor component definition pertains to a single product. This waiver, would allow non-domestically produced miscellaneous minor components comprising up to five percent of the total material cost of an otherwise domestically produced iron and steel product to be used. However, unless a separate waiver for a product has been approved, all other iron and steel components in said product must still meet the AIS requirements. This waiver does not exempt the whole product from the AIS requirements only minor components within said product and the iron or steel components of the product must be produced domestically.
Valves and hydrants are also subject to the cost ceiling requirements described here. Examples of minor components could include items such pins and springs in valves/hydrants, bands/straps in couplings, and other low cost items such as small fasteners etc.

"Municipal castings" are cast iron or steel infrastructure products that are melted and

cast. They typically provide access, protection, or housing for components incorporated into utility owned drinking water, storm water, wastewater, and solid waste infrastructure.

"National Office" refers to the office responsible for the oversight and administration of the program nationally. The National Office sets policy, develops program regulations, and provides training and technical assistance to help the state offices administer the program. The National Office is located in Washington, D.C.

"Owner" is the individual or entity with which the general contractor has contracted regarding the work, and which has agreed to pay the general contractor for the performance of the work, pursuant to the terms of the contract for water and waste projects funded by the programs subject to AIS requirements. For the purpose of this Bulletin, this term is synonymous with the term "applicant" as defined in 7 CFR 1780.7 (a) (1), (2) and (3) and is an entity receiving financial assistance from the programs subject to the AIS requirements.

"Pass through Entities" is an entity that provides a subaward to a loan and/or grant recipient to carry out part of a Federal program. Examples are grantees utilizing the Revolving Loan Program and Household Water Well Program and Alaska Native Tribal Health Consortium (ANTHC) or the State of Alaska from the RAVG Program.

"Primarily iron or steel" is defined as a product made of greater than 50 percent iron or steel, measured by cost. The cost should be based on the material costs. An exception to this definition is reinforced precast concrete (see Definitions). All technical specifications and applicable industry standards (e.g. NIST, NSF, AWWA) must be met. If a product is determined to be less than 50 percent iron and steel, the AIS requirements do not apply.

For example, the cost of a fire hydrant includes:

(1) The cost of materials used for the iron portion of a fire hydrant (e.g. bonnet, body and shoe); and
(2) The cost to pour and cast to create those components (e.g. labor and energy).

Not included in the cost are:

(1) The additional material costs for the non-iron and steel internal workings of the hydrant (e.g. stem, coupling, valve, seals, etc.); and
(2) The cost to assemble the internal workings into the hydrant body.

"Produced in the United States" means that the production in the United States of the iron or steel products used in the project requires that all manufacturing processes must take place in the United States, with the exception of metallurgical processes involving refinement of steel additives.

"Project" is the total undertaking to be accomplished for the applicant by consulting engineers, general contractors, and others, including the planning, study, design, construction, testing, commissioning, and start-up, and of which the work to be performed

under the contract is a part. A project includes all activity that an applicant is undertaking to be financed in whole or part by programs subject to AIS requirements. The intentional splitting of projects into separate and smaller contracts or obligations to avoid AIS requirements is prohibited.

“Reinforced Precast Concrete” may not consist of at least 50 percent iron or steel, but the reinforcing bar and wire must be produced in the United States and meet the same standards as for any other iron or steel product. Additionally, the casting of the concrete product must take place in the United States. The cement and other raw materials used in concrete production are not required to be of domestic origin. If the reinforced concrete is cast at the construction site, the reinforcing bar and wire are considered to be a construction material and must be produced in the United States.

“Steel” means an alloy that includes at least 50 percent iron, between 0.02 and 2 percent carbon, and may include other elements. Metallic elements such as chromium, nickel, molybdenum, manganese, and silicon may be added during the melting of steel for the purpose of enhancing properties such as corrosion resistance, hardness, or strength. The definition of steel covers carbon steel, alloy steel, stainless steel, tool steel, and other specialty steels.

“Structural steel” is rolled flanged shapes, having at least one dimension of their cross-section three inches or greater, which are used in the construction of bridges, buildings, ships, railroad rolling stock, and for numerous other constructional purposes. Such shapes are designated as wide-flange shapes, standard I-beams, channels, angles, tees, and zees. Other shapes include but are not limited to, H-piles, sheet piling, tie plates, cross ties, and those for other special purposes.

“Ultimate recipient” is a loan or grant recipient receiving funds from a pass- through entity. Examples include: (1) a loan recipient from the Revolving Loan Fund; (2) a loan recipient from the Household Water Well Program; and (3) a grant recipient from ANTHC or the State of Alaska from the RAVG Program.

“United States” means each of the several states, the District of Columbia, and each Federally Recognized Indian Tribe.

ENGINEER'S CERTIFICATION OF FINAL PLANS AND SPECIFICATIONS

PROJECT NAME: **City Genesee Well No. 8 Construction Project**

The final Drawings and Specifications, other assembled Construction Contract Documents, bidding related documents (or requests for proposals or other construction procurement documents), and any other Final Design Phase deliverables, comply with all requirements of the U.S. Department of Agriculture, Rural Utilities Service, to the best of my knowledge and professional judgment.

If the Engineers Joint Contract Documents Committee (EJCDC) documents have been used, all modifications required by RUS Bulletin 1780-26 have been made in accordance the terms of the license agreement, which states in part that the Engineer "must plainly show all changes to the Standard EJCDC Text, using 'Track Changes' (redline/strikeout), highlighting, or other means of clearly indicating additions and deletions." Such other means may include attachments indicating changes (e.g. Supplementary Conditions modifying the General Conditions). In addition, all changes to this attachment have been identified by 'Track Changes'.



05-26-21

Engineer — Date

Ed Stowe, P.E., Project Manager

Name and Title

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

PERFORMANCE BOND

CONTRACTOR *(name and address)*:

SURETY *(name and address of principal place of business)*:

OWNER *(name and address)*:
City of New Meadows
401 Virginia St, New Meadows, ID 83654

CONSTRUCTION CONTRACT
Effective Date of the Agreement:
Amount:
Description *(name and location)*:

BOND
Bond Number:
Date *(not earlier than the Effective Date of the Agreement of the Construction Contract)*:
Amount:
Modifications to this Bond Form: ☐ None ☐ See Paragraph 16

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL	**SURETY**
_____ *(seal)*	_____ *(seal)*
Contractor's Name and Corporate Seal	Surety's Name and Corporate Seal
By: _____	**By:** _____
Signature	Signature *(attach power of attorney)*
_____	_____
Print Name	Print Name
_____	_____
Title	Title
Attest: _____	**Attest:** _____
Signature	Signature
_____	_____
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 shall be 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, 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 shall 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 shall 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 shall 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 shall 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 shall 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

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 shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall 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 shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.

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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 may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall 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 shall be applicable.

12. Notice to the Surety, the Owner, or the Contractor shall 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 shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall 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 shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

16. Modifications to this Bond are as follows:

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EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

PAYMENT BOND

CONTRACTOR *(name and address)*:

SURETY *(name and address of principal place of business)*:

OWNER *(name and address)*:

City of New Meadows
401 Virginia St, New Meadows, ID 83654

CONSTRUCTION CONTRACT

Effective Date of the Agreement:
Amount:
Description *(name and location)*:

BOND

Bond Number:
Date *(not earlier than the Effective Date of the Agreement of the Construction Contract)*:
Amount:
Modifications to this Bond Form: ☐ None ☐ See Paragraph 18

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

_____ *(seal)*
Contractor's Name and Corporate Seal

By: _____
Signature

_____
Print Name

_____
Title

Attest: _____
Signature

_____
Title

SURETY

_____ *(seal)*
Surety's Name and Corporate Seal

By: _____
Signature *(attach power of attorney)*

_____
Print Name

_____
Title

Attest: _____
Signature

_____
Title

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Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

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 shall 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 shall 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.

    7.3 The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 shall 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 shall 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 shall 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 shall 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 satisfy 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.

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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 shall 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 shall be applicable.

13. Notice and Claims to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall 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 shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall 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.

16. **Definitions**

16.1 **Claim:** A written statement by the Claimant including at a minimum:

1. The name of the Claimant;
2. The name of the person for whom the labor was done, or materials or equipment furnished;
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;
4. A brief description of the labor, materials, or equipment furnished;
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;
6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;
7. The total amount of previous payments received by the Claimant; and
8. The total amount due and unpaid to 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 shall be 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 shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

18. Modifications to this Bond are as follows:

DIVISION 0 – PROCUREMENT AND CONTRACTING REQUIREMENTS

Construction
EJCDC C-550 Notice to Proceed
EJCDC C-620 Contractor's Application for Payment
EJCDC C-625 Certificate of Substantial Completion
EJCDC C-940 Work Change Directive
EJCDC C-941 Change Order
EJCDC C-942 Field Order

NOTICE TO PROCEED

Owner:	Owner's Contract No.:
Contractor:	Contractor's Project No.:
Engineer:	Engineer's Project No.:
Project:	Contract Name:
	Effective Date of Contract:

TO CONTRACTOR:

Owner hereby notifies Contractor that the Contract Times under the above Contract will commence to run on [_____, 20__]. *[see Paragraph 4.01 of the General Conditions]*

On that date, Contractor shall start performing its obligations under the Contract Documents. No Work shall be done at the Site prior to such date. In accordance with the Agreement, [the date of Substantial Completion is _____, and the date of readiness for final payment is_____] ***or*** [the number of days to achieve Substantial Completion is _____, and the number of days to achieve readiness for final payment is _____].

Before starting any Work at the Site, Contractor must comply with the following:
[Note any access limitations, security procedures, or other restrictions]

Owner**:**

Authorized Signature

By:

Title:

Date Issued:

Copy: Engineer

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

Contractor's Application for Payment No.

	Application Period:	Application Date:
To (Owner):	From (Contractor):	Via (Engineer):
Project:	Contract:	
Owner's Contract No.:	Contractor's Project No.:	Engineer's Project No.:

Application For Payment

Change Order Summary

Approved Change Orders		
Number	Additions	Deductions
TOTALS		
NET CHANGE BY CHANGE ORDERS		

1. ORIGINAL CONTRACT PRICE			**$**
2. Net change by Change Orders			**$**
3. Current Contract Price (Line 1 ± 2)			**$**
4. TOTAL COMPLETED AND STORED TO DATE (Column F total on Progress Estimates)			**$**
5. RETAINAGE:			
a.	**X** _____	**Work Completed**	**$**
b.	**X** _____	**Stored Material**	**$**
c. Total Retainage (Line 5.a + Line 5.b)			**$**
6. AMOUNT ELIGIBLE TO DATE (Line 4 - Line 5.c)			**$**
7. LESS PREVIOUS PAYMENTS (Line 6 from prior Application)			**$**
8. AMOUNT DUE THIS APPLICATION			**$**
9. BALANCE TO FINISH, PLUS RETAINAGE (Column G total on Progress Estimates + Line 5.c above)			**$**

Contractor's Certification

The undersigned Contractor certifies, to the best of its knowledge, the following:
(1) All previous progress payments received from Owner on account of Work done under the Contract have been applied on account to discharge Contractor's legitimate obligations incurred in connection with the Work covered by prior Applications for Payment;
(2) Title to all Work, materials and equipment incorporated in said Work, or otherwise listed in or covered by this Application for Payment, will pass to Owner at time of payment free and clear of all Liens, security interests, and encumbrances (except such as are covered by a bond acceptable to Owner indemnifying Owner against any such Liens, security interest, or encumbrances); and
(3) All the Work covered by this Application for Payment is in accordance with the Contract Documents and is not defective.

Contractor Signature

By:	Date:

Payment of: $ _____
(Line 8 or other - attach explanation of the other amount)

is recommended by: _____ _____
(Engineer) (Date)

Payment of: $ _____
(Line 8 or other - attach explanation of the other amount)

is approved by: _____ _____
(Owner) (Date)

Approved by: _____ _____
Funding or Financing Entity (if applicable) (Date)

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Progress Estimate - Lump Sum Work

Contractor's Application

For (Contract):	Application Number:
Application Period:	Application Date:

A		B	C	D	E	F		G
Specification Section No.	Description	Scheduled Value ($)	Work Completed: From Previous Application (C+D)	Work Completed: This Period	Materials Presently Stored (not in C or D)	Total Completed and Stored to Date (C + D + E)	% (F / B)	Balance to Finish (B - F)

Progress Estimate - Unit Price Work

Contractor's Application

For (Contract):								Application Number:			
Application Period:								Application Date:			
A					B	C	D	E	F		
Item		Contract Information				Estimated Quantity Installed	Value of Work Installed to Date	Materials Presently Stored (not in C)	Total Completed and Stored to Date (D + E)	% (F / B)	Balance to Finish (B - F)
Bid Item No.	Description	Item Quantity	Units	Unit Price	Total Value of Item ($)						
	Totals										

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Stored Material Summary

Contractor's Application

For (Contract):								Application Number:			
Application Period:								Application Date:			
A		B	C		D		E		F		G
Bid Item No.	Supplier Invoice No.	Submittal No. (with Specification Section No.)	Storage Location	Description of Materials or Equipment Stored	Stored Previously		Amount Stored this Month ($)	Subtotal Amount Completed and Stored to Date (D + E)	Incorporated in Work		Materials Remaining in Storage ($) (D + E - F)
					Date Placed into Storage (Month/Year)	Amount ($)			Date (Month/ Year)	Amount ($)	
				Totals							

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CERTIFICATE OF SUBSTANTIAL COMPLETION

Owner:	Owner's Contract No.:
Contractor:	Contractor's Project No.:
Engineer:	Engineer's Project No.:
Project:	Contract Name:

This [preliminary] [final] Certificate of Substantial Completion applies to:

☐ All Work ☐ The following specified portions of the Work:

Date of Substantial Completion

The Work to which this Certificate applies has been inspected by authorized representatives of Owner, Contractor, and Engineer, and found to be substantially complete. The Date of Substantial Completion of the Work or portion thereof designated above is hereby established, subject to the provisions of the Contract pertaining to Substantial Completion. The date of Substantial Completion in the final Certificate of Substantial Completion marks the commencement of the contractual correction period and applicable warranties required by the Contract.

A punch list of items to be completed or corrected is attached to this Certificate. This list may not be all-inclusive, and the failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract.

The responsibilities between Owner and Contractor for security, operation, safety, maintenance, heat, utilities, insurance, and warranties upon Owner's use or occupancy of the Work shall be as provided in the Contract, except as amended as follows: *[Note: Amendments of contractual responsibilities recorded in this Certificate should be the product of mutual agreement of Owner and Contractor; see Paragraph 15.03.D of the General Conditions.]*

Amendments to Owner's responsibilities: ☐ None ☐ As follows

Amendments to Contractor's responsibilities: ☐ None ☐ As follows:

The following documents are attached to and made a part of this Certificate: *[punch list; others]*

This Certificate does not constitute an acceptance of Work not in accordance with the Contract Documents, nor is it a release of Contractor's obligation to complete the Work in accordance with the Contract.

EXECUTED BY ENGINEER:	RECEIVED:	RECEIVED:
By: _____ (Authorized signature)	By: _____ Owner (Authorized Signature)	By: _____ Contractor (Authorized Signature)
Title: _____	Title: _____	Title: _____
Date: _____	Date: _____	Date: _____

Work Change Directive No.

Date of Issuance:	Effective Date:
Owner:	Owner's Contract No.:
Contractor:	Contractor's Project No.:
Engineer:	Engineer's Project No.:
Project:	Contract Name:

Contractor is directed to proceed promptly with the following change(s):

Description:

Attachments: *[List documents supporting change]*

Purpose for Work Change Directive:

Directive to proceed promptly with the Work described herein, prior to agreeing to changes on Contract Price and Contract Time, is issued due to: *[check one or both of the following]*

☐ Non-agreement on pricing of proposed change.

☐ Necessity to proceed for schedule or other Project reasons.

Estimated Change in Contract Price and Contract Times (non-binding, preliminary):

Contract Price $ [increase] [decrease].

Contract Time days [increase] [decrease].

Basis of estimated change in Contract Price:

☐ Lump Sum ☐ Unit Price

☐ Cost of the Work ☐ Other

RECOMMENDED:	AUTHORIZED BY:	RECEIVED:
By:	By:	By:
Engineer (Authorized Signature)	Owner (Authorized Signature)	Contractor (Authorized Signature)
Title:	Title:	Title:
Date:	Date:	Date:

Approved by Funding Agency (if applicable)

By: Date:

Title:

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

Change Order No. _____

Date of Issuance: | Effective Date:
Owner: | Owner's Contract No.:
Contractor: | Contractor's Project No.:
Engineer: | Engineer's Project No.:
Project: | Contract Name:

The Contract is modified as follows upon execution of this Change Order:

Description:

Attachments: *[List documents supporting change]*

CHANGE IN CONTRACT PRICE	**CHANGE IN CONTRACT TIMES** *[note changes in Milestones if applicable]*
Original Contract Price: $_____	Original Contract Times: Substantial Completion: _____ Ready for Final Payment: _____ days or dates
[Increase] [Decrease] from previously approved Change Orders No. ___ to No. ___: $_____	[Increase] [Decrease] from previously approved Change Orders No. ___ to No. ___: Substantial Completion: _____ Ready for Final Payment: _____ days
Contract Price prior to this Change Order: $_____	Contract Times prior to this Change Order: Substantial Completion: _____ Ready for Final Payment: _____ days or dates
[Increase] [Decrease] of this Change Order: $_____	[Increase] [Decrease] of this Change Order: Substantial Completion: _____ Ready for Final Payment: _____ days or dates
Contract Price incorporating this Change Order: $_____	Contract Times with all approved Change Orders: Substantial Completion: _____ Ready for Final Payment: _____ days or dates

RECOMMENDED:	ACCEPTED:	ACCEPTED:
By: _____	By: _____	By: _____
Engineer (if required)	Owner (Authorized Signature)	Contractor (Authorized Signature)
Title: _____	Title _____	Title _____
Date: _____	Date _____	Date _____

Approved by Funding Agency (if applicable)

By: _____ Date:

Title: _____

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

Field Order No. _____

Date of Issuance:	Effective Date:
Owner:	Owner's Contract No.:
Contractor:	Contractor's Project No.:
Engineer:	Engineer's Project No.:
Project:	Contract Name:

Contractor is hereby directed to promptly execute this Field Order, issued in accordance with General Conditions Paragraph 11.01, for minor changes in the Work without changes in Contract Price or Contract Times. If Contractor considers that a change in Contract Price or Contract Times is required, submit a Change Proposal before proceeding with this Work.

Reference: _____ (Specification(s)) _____ (Drawing(s) / Detail(s))

Description:

Attachments:

ISSUED:	RECEIVED:
By: _____	By: _____
Engineer (Authorized Signature)	Contractor (Authorized Signature)
Title: _____	Title: _____
Date: _____	Date: _____

Copy to: Owner

DIVISION 0 – PROCUREMENT AND CONTRACTING REQUIREMENTS

Funding Requirements
IDEQ Form 6-A Idaho DWSRF Specifications Insert
Davis-Bacon Conditions
Wage Determination General Decision No. ID190036
Project Sign

Form 6-A

Idaho Drinking Water State Revolving Fund (DWSRF) Specifications Insert

A. GENERAL

The requirements contained herein apply to **all** projects either partially or completely funded by the DWSRF Program. In the event of conflict with other requirements contained elsewhere, the requirements contained herein shall control.

All applicable federal, state, and local laws shall be complied with during bidding and construction. The contractor is responsible for its own and its employees' acts or omissions under the laws and the contract and are jointly and equally responsible for the acts and omissions of their employees.

Copies of all documentation required by this specification insert and in Chapter 6 of this Handbook shall be kept by the loan recipient, who shall maintain the records until three years of loan repayments will have occurred.

B. COMPLIANCE WITH STATE AND LOCAL LAWS

The construction of the project, including the letting of subcontracts in connection herewith, shall conform to the applicable requirements of state and local laws and ordinances to the extent that such requirements do not conflict with federal laws and regulations.

C. MAINTENANCE OF EXISTING TREATMENT WORKS DURING CONSTRUCTION

Where construction consists of replacement or modification to any existing supply or distribution line, pumping facility or water treatment works, the contractor shall provide for the maintenance of the works' conveyance of water and its existing level of treatment at all times during construction, unless otherwise specified within these specifications.

D. ACCESS

The contractor shall provide for access to all sites of contract work for representatives of the Environmental Protection Agency (EPA) and the state Department of Environmental Quality (DEQ).

E. BONDING REQUIREMENTS

For construction or facility improvement contracts exceeding $100,000, the minimum requirements shall be as follows:

1. Bid guarantee: a bid guarantee from each bidder equivalent to five percent of the bid price. The "bid guarantee" shall consist of a firm commitment such as a bid bond, certified check, or other negotiable instrument accompanying a bid as assurance that the bidder will, upon acceptance of his bid, execute such contractual documents as may be required within the time specified.

2. Performance bond: a performance bond on the part of the contractor for 100 percent of the contract price. A "performance bond" is one executed in connection with a contract to secure fulfillment of all the contractor's obligations under such contract.

3. Payment bond: a payment bond on the part of the contractor for 100 percent of the contract price. A "payment bond" is one executed in connection with a contract to assure payment as required by law of all persons supplying labor and material in the execution of the work provided for in the contract.

F. INSURANCE

The contractor shall obtain such construction insurance (e.g., fire and extended coverage, workers' compensation, public liability, property damage, and "all risk" builder's risk) as is customary and appropriate unless identified more specifically elsewhere in these specifications.

G. SAFETY

Contractors are solely responsible for ensuring safety standards at the project site and for ensuring that all work will be conducted in a manner consistent with Occupational Safety and Health Administration Safety and Health Standards, 29 Code of Federal Regulations (CFR) Part 1926.

H. PROJECT SIGN

A sign may be produced and erected in a prominent location to adequately mark the project. (Signage costs are loan eligible.) The sign indicates that the project is funded by DEQ. Refer to Chapter 6 of the DWSRF Handbook for sign specifications.

I. MODEL CONTRACT CLAUSES

As appropriate, the borrower shall include the following Model Contract Clauses, or their equivalent, in each contract.

1. Supersession

The recipient and the contractor agree that this and the following clauses apply to that work

eligible for DWSRF assistance to be performed under this contract and that these clauses supersede any conflicting provisions of this contract.

2. Privity Of Contract Clause

This contract is expected to be funded in part with funds from the EPA and DEQ. Neither the United States, the State of Idaho nor any of its departments, agencies, or employees is, or will be a party to this contract or any lower tier contract.

3. Audit Access to Records

a) The contractor (the person or entity under contract with the loan recipient to perform the work partially or fully paid for with DWSRF) shall maintain books, records, documents, and other evidence directly pertinent to performance on DWSRF-funded work under this contract in accordance with generally accepted accounting principles and practices consistently applied, and the applicable DEQ regulations in effect on the date of execution of this contract. The contractor shall also maintain the financial information and data used in the preparation or support of any cost submission required under applicable regulations for negotiated contracts or change orders and a copy of the cost summary submitted to the recipient. The DEQ, the EPA, the Comptroller General of the United States, the United States Department of Labor, and the recipient, or any of their authorized representatives shall have access to all such books, records, documents, and other evidence for the purpose of inspection, audit, and copying during normal business hours. The contractor will provide proper facilities for such access and inspection.

b) If this is a fixed price contract awarded through sealed bidding or otherwise on the basis of effective price competition, the contractor agrees to make paragraphs (a) through (g) of this clause applicable to all negotiated change orders and contract amendments affecting the contract price. In the case of all other types of prime contracts, the contractor agrees to make paragraphs (a) through (g) applicable to all contract awards in excess of $10,000, at any tier, and to make paragraphs (a) through (g) of this clause applicable to all change orders directly related to project performance.

c) Audits conducted under this provision shall be in accordance with generally accepted auditing standards and with established procedures and guidelines of the reviewing or audit agency.

d) The contractor agrees to disclose all information and reports resulting from access to records under paragraphs (a) and (b) of this clause to any of the agencies referred to in paragraph (a).

e) Records under paragraphs (a) and (b) above shall be maintained by the contractor during performance on DEQ assisted work under this contract and for three years after the recipient makes final payment to the contractor and all other pending matters are closed.

f) Access to records is not limited to the required retention periods. The authorized representatives designated in paragraph (a) of this clause shall have access to records at any

reasonable time for as long as the records are maintained.

g) This right of access clause applies to financial records pertaining to all contracts (except for fixed price contracts awarded through sealed bidding or otherwise on the basis of effective price competition), and all contract change orders regardless of the type of contract, and all contract amendments regardless of the type of contract. In addition, this right of access applies to all records pertaining to all contracts, contract change orders, and contract amendments:

(1) To the extent the records pertain directly to contract performance;

(2) If there is any indication that fraud, gross abuse, or corrupt practices may be involved; or

(3) If the contract is terminated for default or for convenience.

4. Covenant Against Contingent Fees

The contractor assures that no person or selling agency has been employed or retained to solicit or secure this contract upon an agreement or understanding for a commission, percentage, brokerage or contingent fee excepting bona fide employees or bona fide established commercial or selling agencies maintained by the contractor for the purposes of securing business. For breach or violation of this assurance, the recipient shall have the right to annul this agreement without liability or, at its discretion, to deduct from the contract price or consideration, or otherwise recover the full amount of such commission, percentage, and brokerage or contingent fee.

5. Gratuities

a) If the recipient finds after a notice and hearing that the contractor or any of the contractor's agents or representatives offered or gave gratuities (in the form of entertainment, gifts or otherwise) to any official, employee or agent of the recipient, DEQ or EPA in an attempt to secure a contract or favorable treatment in awarding, amending or making any determinations related to the performance of this contract, the recipient may, by written notice to the contractor, terminate this contract. The recipient may also pursue other rights and remedies that the law or this contract provides.

b) In the event this contract is terminated as provided in paragraph (a), the recipient may pursue the same remedies against the contractor as it could pursue in the event of a breach of the contract by the contractor, and as a penalty, in addition to any other damages to which it may be entitled by law, be entitled to exemplary damages in an amount which shall be not less than three nor more than ten times the costs the contractor incurs in providing any such gratuities to any such officer or employee.

6. Contracts For Professional Services

The following clause applies only to contracts for services.

a) The contractor is responsible for the professional quality, technical accuracy, timely completion, and coordination of all designs, drawings, specifications, reports and other services furnished by the contractor under this contract. If the contract involves environmental measurements or data generation, the contractor shall develop and implement quality assurance practices consisting of policies, procedures, specifications, standards and documentation sufficient to produce data of quality adequate to meet project objectives and to minimize loss of data due to unforeseen conditions or malfunctions. The contractor shall, without additional compensation, correct or revise any errors, omissions or other deficiencies in that contractor's designs, drawings, specifications, reports and other services.

b) The contractor shall perform the professional services necessary to accomplish the work specified in this contract in accordance with this contract and applicable DEQ requirements in effect on the date of execution of the assistance agreement for this project.

c) The owner's or DEQ's approval of drawings, designs, specifications, reports and incidental work or materials furnished shall not in any way relieve the contractor of responsibility for the technical adequacy of his work. Neither the owner's nor DEQ's review, approval, acceptance or payment for any of the services shall be construed as a waiver of any rights under this agreement or of any cause for action arising out of the performance of this contract.

d) The contractor shall be, and shall remain, liable in accordance with applicable law for all damages to the owner or DEQ caused by the contractor's negligent performance of any of the services furnished under this contract, except for errors, omissions or other deficiencies to the extent attributable to the owner, owner-furnished data or third party. The contractor shall not be responsible for any time delays in the project caused by circumstances beyond the contractor's control.

e) The contractor's obligations under this clause are in addition to the contractor's other express or implied assurances under this contract or state law and in no way diminish any other rights that the owner may have against the contractor for faulty materials, equipment or work.

7. Anti- Lobbying Act

The contractor agrees to comply with the requirements of the federal Anti-Lobbying Act, Section 1352, Title 31, U.S. Code, which requires disclosure of lobbying activities. The Certification Form, "*Certification of Compliance with Anti-Lobbying Act*", (Attachment B see Section P - Submissions), must be signed by all contractors entering into contracts of $100,000 or greater. (For further information refer to http://www.gpo.gov/fdsys/granule/USCODE-2010-title31/USCODE-2010-title31-subtitleII-chap13-subchapIII-sec1352/content-detail.html).

8. Compliance With Copeland Act Requirements

The contractor shall comply with the requirements of 29 CFR Part 3, which are incorporated

in this contract by reference.

9. 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.

10. 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.

11. Wage Rate Requirements Under The Consolidated And Further Continuing Appropriations Act, 2013 (P.L. 113-6): Required Davis-Bacon Contract Clauses:

a) **Preamble:** With respect to the Clean Water and Safe Drinking Water State Revolving Funds, EPA provides capitalization grants to each State which in turn provides subgrants or loans to eligible entities within the State. These eligible entities are referred to as subrecipients.

b) **Davis-Bacon Requirements For Subrecipients That *Are* Governmental Entities:** Typically, the subrecipients are municipal or other local governmental entities that manage the funds. For these types of recipients, the provisions of the Davis Bacon (DB) requirements set forth in Section I shall apply --these DB requirements are accessible at http://www.deq.idaho.gov/media/60179667/srf-davis-bacon-conditions.pdf and shall be incorporated in all contracts and subcontracts as model contract clauses. The DB requirements are incorporated into this specification through reference. Although EPA and the State remain responsible for ensuring subrecipients' compliance with the wage rate requirements set forth therein, those subrecipients shall have the primary responsibility to maintain payroll records as described in Section II.3.

c) **Davis-Bacon Requirements For Subrecipients That Are *Not* Governmental Entities:** Occasionally, the subrecipient may be a not for profit entity. For these recipients, the provisions set forth in Section II of the DB requirements shall apply --these DB requirements are accessible at http://www.deq.idaho.gov/media/60179667/srf-davis-bacon-conditions.pdf and shall be incorporated in all contracts and subcontracts as model contract clauses. The applicable DB requirements are incorporated into this specification through reference. Although EPA and the State remain responsible for ensuring subrecipients' compliance with the wage rate requirements set forth herein, those subrecipients shall have the primary responsibility to maintain payroll records as described in Section II.3.

d) **For Further Information:** If a subrecipient requires general guidance, or has questions regarding when DB applies, obtaining the correct DB wage determinations, DB provisions, or compliance monitoring, it may contact Idaho DEQ's Tim Wendland at tim.wendland@deq.idaho.gov or at 208-373-0439. The subrecipient may also obtain additional guidance from U.S. Department of Labor's (DOL) web site at http://

www.dol.gov/whd/

12. Required American Iron and Steel Contract Clause

a) Preamble: In accordance with the current SRF Assistance AIS requirements, all of the iron and steel products used in the project shall be produced in the United States. This requires that all manufacturing processes, including application of coatings, must take place in the United States. The term "all manufacturing processes" includes processes such as melting, refining, forming, casting, rolling, drawing, finishing, fabricating and coating.

The term "iron and steel products" means products made of greater than 50% iron or steel measured by cost; the cost should be based on the material costs of the iron and steel products in the article (e.g., hydrants, valves). The definition of steel covers carbon steel, alloy steel, stainless steel, tool steel and other specialty steels. These products include, but are not limited to: lined or unlined pipes and fittings, hydrants, tanks, flanges, pipe clamps and restraints, valves, structural steel, reinforced precast concrete, construction materials, manhole covers and other municipal castings.

b) Required AIS Construction Contract Clause: In order to ensure compliance with the AIS requirement, the following AIS contract language is part of these specifications and the construction contract:

"*The Contractor acknowledges to and for the benefit of the City/District of ("Purchaser") and the Idaho State Department of Environmental Quality, 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 that have statutory requirements 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 Contractor 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."

13. Required Nondiscrimination Contract Clause

As required by 40 CFR 33, Appendix A, the following clause shall be included as part of these specifications and the construction contract:
"The contractor shall not discriminate on the basis of race, color, national origin or sex in the performance of this contract. The contractor shall carry out applicable requirements of 40 CFR Part 33 in the award and administration of contracts awarded under EPA financial assistance agreements. Failure by the contractor to carry out these requirements is a material breach of this contract which may result in the termination of this contract or other legally available remedies."

J. MISCELLANEOUS DAVIS BACON

1. It is important for the actual wage determination(s) to be physically included in the bid specifications/contract. Contractors need to see the minimum wages they will be required to pay while they develop their cost estimates for work to be performed.

2. As of July 2019, the website to locate current wage determinations is http://beta.sam.gov/

3. *All* contracts and subcontracts shall include the DB Model Contract Clause either Section I or Section II, as applicable, from http://www.deq.idaho.gov/media/60179667/srf-davis-bacon-conditions.pdf (verbatim, in their entirety).

4. The default wage category is "heavy." If another category of work is performed that exceeds 10% of the total project cost or exceeds $1 million, then the project labor costs must use the additional wage category/ies (i.e., roads, buildings, residential). Additionally, the additional category/ies labor costs shall be supported with documentation.

K. MISCELLANEOUS AMERICAN IRON AND STEEL

1. On-site Data Records: The General Contractor shall develop and maintain an on-site materials compliance log containing current records of all iron and steel products arriving on the construction site. The log shall include the Purchase Order number and sufficient product information to enable tracking of the materials, such as product description, serial and lot numbers (if available), manufacturer's name, and origin of shipment including city and state. In addition, a separate log shall be maintained to track information related to de minimis materials such as Purchase Order number, product description, current value of de minimis materials, and the running percentage of de minimis product value received to the total cost of materials for the project.

2. Manifests: To ensure information is consistent and valid, the Contractor shall compare the information contained on the manifests accompanying iron and steel products, with previously submitted AIS Product Compliance Letters.

3. Bidder's Certification of Compliance: An executed Bidder's Certification of Compliance, (Form AIS-1, see Section P - Submissions), covering all proposed steel and iron products, shall be furnished by bidders as part of the sealed bid; this Certification is required in order to constitute a valid bid.

4. AIS Products - Manufacturer Letter Certifying Product Compliance: Subsequent to the issuance of the Notice of Award, but prior to payment, Manufacturer Product Letter(s) of Compliance, shall be furnished by the Prime Contractor (`the Contractor') to the Owner or Owner's representative for iron and steel products. The lack of the ability of the Contractor to furnish letters certifying compliance of iron and steel products with AIS requirements will be justification for rejection of the product(s), and any related cost increases this may cause will be borne by the Contractor. The product certification shall assert that all manufacturing processes occurred in the USA (Form AIS-2, see Section P - Submissions). A copy of certifications for specific AIS products shall be required prior to reimbursement from SRF loan funds for the products.

5. AIS Information: For information regarding waivers, and further AIS clarifications and definitions, refer to the SRF Handbook, Chapter 6: http://www.deq.idaho.gov/media/1117871/dw-loan-handbook.pdf and the EPA AIS website: http://water.epa.gov/grants_funding/aisrequirement.cfm . For any AIS related questions Jorge Medrano of the EPA may be contacted at (202) 564-1968 Medrano.Jorge@epa.gov. For assistance with reviewing manufacturer product certification letters contact SRF_AIS@epa.gov with “cert letter review” as the subject. For a list of AIS Best Management Practices contact the State SRF Loan program, AIS designee: Kevin McNeill P.E. at Kevin.McNeill@deq.idaho.gov, or phone: (208) 373-0452.

L. SUSPENDED AND DEBARRED

The contractor agrees to comply with Subpart C of 2 CFR Part 180 and 2 CFR Part 1532 (Suspension and Debarment). The contractor or subcontractor shall not knowingly enter into covered transactions (any contract awarded to a subcontractor, supplier, or consultant where the expected amount of the contract is $25,000 or greater) with excluded persons. The contractor or subcontractor shall insert this condition into all lower tier covered transactions and ensure any subsequent lower tier covered transactions include this condition. Excluded parties may be verified at www.sam.gov.

M. BIDDER'S LIST

The successful bidder shall submit **Form 1. Bidder's List** (see Section P - Submissions) to the loan recipient who shall provide a copy to DEQ. The list shall provide specific contact information on the general contractor and all subcontractors including business name, contact, address, phone, email, date bid submitted; and shall outline the items of work for which they will be retained; and shall indicate if they are a Disadvantaged Business Enterprise (DBE). The completed form must be in-hand prior to DEQ issuance of the Authorization to Award.

N. EQUAL EMPLOYMENT OPPORTUNITY/AFFIRMATIVE ACTION (EEO/AA)

The EEO/AA requirements only apply to contractor who has (1) 50 or more employees and (2) signs a contract, subcontract, or purchase order amounting to $50,000 or more.

1. Online Standard Form 100 (EEO-1): Successful bidders shall complete and submit the online form 100 to the Joint Reporting Committee within 30 days after the award of such a contract or purchase order, unless such person has submitted such a report within 12 months preceding the date of award. Subsequent reports shall be submitted annually on or before the 30th day of September. Failure to file timely, complete, and accurate reports as required constitutes non-compliance with contractors' or subcontractors' obligations under Executive Order 11246, as amended, and is grounds for the imposition of sanctions authorized by Executive Order 11246 and other rules and regulations issued pursuant thereto. Further information is available at: http://www.eeoc.gov/employers/eeo1survey/faq.cfm#top. The EEO-1 Form is available at: http://www.eeoc.gov/employers/eeo1survey/2007instructions.cfm.

2. The EEO Poster (EEOC-P/E-1): Successful bidders must post the EEO poster on site; the EEO poster may be ordered through the Equal Employment Opportunity Commission (EEOC) Website at: http://www1.eeoc.gov/employers/poster.cfm.

3. Contact the EEOC: It is the successful bidder's responsibility to contact the EEOC within 30 days of contract award. EEO Contact Information: EEO-1 Joint Reporting Committee P.O. Box 19100, Wash. D.C. 20036-9100; phone (866) 286-6440; Email: e1.techassistance@eeoc.gov.

O. DISADVANTAGED BUSINESS ENTERPRISE UTILIZATION

1. Policy

Consistent with the President's Policy Statement on Disadvantage Business Enterprises (DBEs) dated December 17, 1983, Executive Order 12432 and the Environmental Protection Agency's Procurement Under Assistance Agreements Regulation (40 CFR 33) dated May 28, 2008, all bidders shall be required to comply fully with these bid specifications toward the goal of equitable utilization of DBEs. DBEs consist of Minority Business Enterprises (MBE), Women Business Enterprises (WBE), and Small Business Enterprises (SBEs).

Such utilization may be through prime contracting, subcontracting, joint-venture, procurement of supplies, material or equipment, or other business participation utilized in performing this project. In this regard all contractors shall take all necessary and reasonable steps to ensure DBEs have the maximum opportunity to compete for and/or perform contracts. Contractors shall not discriminate on the basis of race, color, national origin, or sex in the award and performance of EPA assisted projects.

2. Fair Share

Fair Share is a reasonable amount of funds commensurate with total project funding,

demographic factors, and the availability of DBE businesses. A fair share does not constitute an absolute goal, but a commitment on the part of the bidder to attempt to use minority and women's businesses by carrying out the five "Good Faith Efforts" described under 40 CFR 33 Subpart C.

3. Requirements

Bidders must take the following "Good Faith Efforts" in awarding subcontracts for supplies, construction or services and equipment:

a) Make DBEs aware of contracting opportunities to the fullest extent practicable through outreach and recruitment activities. For Indian Tribal, State and Local and Government recipients, this will include placing DBEs on solicitation lists and soliciting them whenever they are potential sources.

b) 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 solicitations for bids or proposals for a minimum of 30 calendar days before the bid or proposal closing date.

c) Consider in the contracting process whether firms competing for large contracts could subcontract with DBEs. For Indian Tribal, State and local Government recipients, this will include dividing total requirements when economically feasible into smaller tasks or quantities to permit maximum participation by DBEs in the competitive process.

d) Encourage contracting with a consortium of DBEs when a contract is too large for one of these firms to handle individually.

e) Use the services and assistance of the Idaho Transportation Department, Idaho Department of Environmental Quality's Fiscal Office, the Small Business Administration, and the Office of Minority Business Enterprise of the U.S. Department of Commerce, as appropriate.

f) If the prime contractor awards subcontracts, require the prime contractor to take the above steps.

g) The sucessful bidder shall complete and submit a Sworn Statement of Compliance (Attachment A; see Section P - Submissions). The Loan Recipient shall forward a copy to DEQ prior to issuance of the Authorization to Award.

h) For DBE questions, contact the SRF DBE Coordinator:

Charlie Parkins SRF DBE Coordinator,
Idaho Dept. Environmental Quality,
1410 N Hilton St., Boise Idaho 83706
Phone: (208) 373-0577
Charlie.Parkins@deq.idaho.gov

4. Recordkeeping

The loan recipient must maintain all records documenting its compliance with the DBE requirements of 40 CFR Part 33 (Subpart E: Recordkeeping and Reporting), including documentation of its, and its prime contractors, good faith efforts (Subpart C) and data relied upon in formulating its fair share objectives (Subpart D). Such records must be retained in accordance with applicable record retention requirements of the recipients financial assistance agreement.

P. SUBMISSIONS (Copies of Required Forms Follow this Section)

1. Form to be submitted by all bidders as part of the sealed bid:

FORM AIS-1 American Iron & Steel	Bidder's Certification of Compliance With American Iron and Steel (AIS) Provisions

2. Forms to be submitted by the Successful Bidder prior to issuance of the authorization to award:

Form 1.	Bidder's List of Subcontractors
ATTACHMENT A	Sworn Statement of Compliance with Disadvantaged Business Enterprise Utilization Requirements

3. Forms to be submitted by the Loan Recipient to DEQ with requisitions for reimbursement:

FORM AIS-2 American Iron & Steel	Product Letter(s) of Compliance with American Iron and Steel Provisions

4. Forms to be submitted by the Successful Bidder to the Loan Recipient prior to issuance of the notice to proceed:

ATTACHMENT B	Certification of Compliance with Anti-Lobbying Act (Anti-Lobbying Certification)
ATTACHMENT C	Disadvantaged Business Enterprises to be Utilized
ATTACHMENT D	Disadvantaged Business Enterprises Contacted
ATTACHMENT E	Contractor's Compliance Statement (Executive Order #11246)
ATTACHMENT F	Certification of Non-Segregated Facilities

To be submitted as part of the sealed bid; Recipient forwards a copy to DEQ

FORM AIS-1
Bidder's Certification of Compliance
With the Current SRF Assistance American Iron and Steel (AIS) Provisions

(To be submitted as part of the sealed bid)

Bidder's Statement of Certification

The Bidder acknowledges to and for the benefit of the ("Owner") for the ("Project") that the Bidder understands the project is being funded in part with SRF Assistance. "AIS" requirements specify that all iron and steel products used in the project shall be produced in the United States. Consistent with the terms of the Owner's bid solicitation and the provisions of SRF Assistance, the Bidder hereby represents and warrants to and for the benefit of the Owner that:

1. The Bidder has reviewed and understands the AIS requirements.

2. The Bidder certifies that the iron and steel goods used in the project will be produced in the United States in a manner that complies with the AIS requirements unless a waiver of the requirements is requested by the Owner and approved by the EPA.

3. The Bidder agrees to provide to the Owner reasonable, sufficient, and timely information, certification, or verification of the United States production of each component contained in Attachment 6 as a prior condition for approval of - and reimbursement for - materials received.

4. The undersigned hereby acknowledges that the iron and steel products utilized in this project will meet the current SRF Assistance AIS requirements, and that all required Manufacturer/Supplier Certification Statements or waivers from EPA will be obtained to document compliance with the AIS requirements.

Bidder Signature:_____ Date: _____

Title

Organization

FORM 1. BIDDER'S LIST

To be Submitted Prior to Authorization to Award; Recipient forwards a copy to DEQ.

Prime Contractor Information:		Items of Work Bid On	Date Bid Submitted	MBE/WBE Contractor
Business Name:				
Contact Name:				
Mailing Address:				
Phone:				
Email:				
Subcontractor Information:				
Business Name:				
Contact Name:				
Mailing Address:				
Phone:				
Email:				
Subcontractor Information:				
Business Name:				
Contact Name:				
Mailing Address:				
Phone:				
Email:				
Subcontractor Information:				
Business Name:				
Contact Name:				
Mailing Address:				
Phone:				
Email:				

COPY THIS PAGE IF ADDITIONAL SUBCONTRACTORS ARE NEEDED

To Be Submitted Prior to Authorization to Award; Recipient forwards a copy to DEQ

ATTACHMENT A

SWORN STATEMENT OF COMPLIANCE WITH DISADVANTAGED BUSINESS ENTERPRISE (DBE) UTILIZATION REQUIREMENTS

To be eligible for award of this contract, each successful bidder must execute, and submit, as part of their proposal, and together with their bid, the following certification relating to DBE participation. The certification below shall be deemed a part of the resulting contract.

The bidder has taken the following "Good Faith Efforts" in awarding subcontracts:

1. Ensure DBEs are made aware of contracting opportunities to the fullest extent practicable through outreach and recruitment activities. For Indian Tribal, State and Local Government recipients, this will include placing DBEs on solicitation lists and soliciting them whenever they are potential sources.
2. 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 solicitations for bids or proposals for a minimum of 30 calendar days before the bid or proposal closing date.
3. Consider in the contracting process whether firms competing for large contracts could subcontract with DBEs. For Indian Tribal, State and local Government recipients, this will include dividing total requirements when economically feasible into smaller tasks or quantities to permit maximum participation by DBEs in the competitive process.
4. Encourage contracting with a consortium of DBEs when a contract is too large for one of these firms to handle individually.
5. Use the services and assistance of the Idaho Transportation Department, Idaho Department of Environmental Quality's Fiscal Office, SBA and the Minority Business Development Agency of the Department of Commerce, as appropriate.
6. If the prime contractor awards subcontracts, require the prime contractor to take the above steps.

_____ _____

Signature Date

Name and title of Signer

Email Address

Loan Recipient receives from the Successful Bidder, who approves and submits to DEQ as supporting documentation for Pay Requests

FORM AIS-2

(Must be Provided on Company Letterhead)

Letter Certifying Compliance of Iron & Steel Products with Current SRF Assistance American Iron and Steel (AIS) Provisions

Date:

Company Name:

Address, City:

State, Zip:

Subject: **AIS Step Certification for Project** (name of project)

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 AIS provisions as mandated in EPA's State Revolving Fund Programs.

Item, Products and/or Materials:

1. Xxxxx
2. Xxxxx
3. Xxxxx

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.

_____

Signature of Company Representative

_____

Date

Loan Recipient Receives from the Successful Bidder Prior to issuing Notice to Proceed

ATTACHMENT B

Certification of Compliance with Anti-Lobbying Act

The undersigned certifies, to the best of his/her knowledge and belief that:

1. No federally appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any federal contract, the making of any federally funded grant, the making of any federally funded loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any federally funded contract, grant, loan or cooperative agreement.

2. If any funds other than federally appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this federally funded contract, grant, loan or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying", in accordance with its instructions.

3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

_____

Signature

_____

Date

Loan Recipient Receives from the Successful Bidder Prior to issuing Notice to Proceed

Attachment C
Disadvantaged Business Enterprises to be Utilized

Project

Name of Bidder

MBE = minority business enterprise
WBE = women's business enterprise
SBE = small business enterprise

Name of firm

Address

City State Zip Code

Phone

Description of work element or supplies

Amount to be contracted

☐ MBE
☐ WBE
☐ SBE

☐ Joint Venture Percent:
☐ Other

☐ Subcontractor
☐ Supplier
☐ Manufacturer

Name of firm

Address

City State Zip Code

Phone

Description of work element or supplies

Amount to be contracted

☐ MBE
☐ WBE
☐ SBE

☐ Joint Venture Percent:
☐ Other

☐ Subcontractor
☐ Supplier
☐ Manufacturer

Name of firm

Address

City State Zip Code

Phone

Description of work element or supplies

Amount to be contracted

☐ MBE
☐ WBE
☐ SBE

☐ Joint Venture Percent:

☐ Other

☐ Subcontractor
☐ Supplier
☐ Manufacturer

Contractor

Signature _____

Use additional pages if necessary.

Loan Recipient Receives from the Successful Bidder Prior to issuing Notice to Proceed

Attachment D
Disadvantaged Business Enterprises Contacted

Project

Name of Bidder

MBE = minority business enterprise
WBE = women's business enterprise
SBE = small business enterprise

Name of firm

Address

City State Zip Code

Phone

Description of work element or supplies

Amount to be contracted, if utilized

☐ MBE
☐ WBE
☐ SBE

☐ Joint Venture Percent:
☐ Other

☐ Subcontractor
☐ Supplier
☐ Manufacturer

Name of firm

Address

City State Zip Code

Phone

Description of work element or supplies

Amount to be contracted, if utilized

☐ MBE
☐ WBE
☐ SBE

☐ Joint Venture Percent:
☐ Other

☐ Subcontractor
☐ Supplier
☐ Manufacturer

Name of firm

Address

City State Zip Code

Phone

Description of work element or supplies

Amount to be contracted, if utilized

☐ MBE
☐ WBE
☐ SBE

☐ Joint Venture Percent:

☐ Other

☐ Subcontractor
☐ Supplier
☐ Manufacturer

Use additional pages if necessary.

Loan Recipient Receives from the Successful Bidder Prior to issuing Notice to Proceed

ATTACHMENT E

CONTRACTOR'S COMPLIANCE STATEMENT (EXECUTIVE ORDER #11246)

Date

This statement relates to a proposed contract with (name of grantee):

who expects to finance the contract with assistance from the Environmental Protection Agency. I am the undersigned bidder or prospective contractor. I represent that:

I have ☐ I have not ☐ participated in a previous contract or subcontract subject to Executive Order 11246 of September 24, 1965 (regarding equal employment opportunity) or a preceding similar Executive Order. I agree to comply with all the provisions of this Executive Order and the rules, regulations and relevant orders of the Secretary of Labor. (60-1.4(b)(4))

Signature _____ Date _____

_____

Name and Title of Signer

Loan Recipient Receives from the Successful Bidder Prior to issuing Notice to Proceed

ATTACHMENT F

CERTIFICATION OF NONSEGREGATED FACILITIES

(Applicable to federally assisted construction contracts and related subcontracts exceeding $10,000 which are not exempt from the Equal Opportunity clause.)

The federally assisted construction contractor certifies that he does not maintain or provide for his employees any segregated facilities at any of his establishments, and that he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The federally assisted construction contractor certified, further that he will not maintain or provide for his employees any segregated facilities at any of his establishments, and that he will not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The federally assisted construction contractor agrees that a breach of this certification is a violation of the Equal Opportunity clause in this contract.

As used in this certification, the term "segregated facilities" means any waiting rooms, work area, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or area, in fact, segregated on the basis of race, creed, color, or national origin, because of habit, local custom, or otherwise. The federally assisted construction contractor agrees that (except where he has obtained identical certifications from proposed contractors for specific time periods) he will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity clause, and that he will retain such, certification in this file.

_____ _____

Signature Date

_____

Name and Title of Signer

Davis-Bacon Conditions

Wage Rate Requirements

The recipient agrees to include in all agreements to provide assistance for the construction of treatment works carried out in whole or in part with such assistance 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 with such assistance made available under section 205(m) of that Act (33 U.S.C. 1285(m)), or both, a term and condition requiring compliance with the requirements of section 513 of that Act (33 U.S.C. 1372) in all procurement contracts and sub-grants, and require that loan recipients, procurement contractors and sub-grantees include such a term and condition in subcontracts and other lower tiered transactions. All contracts and subcontracts for the construction of treatment works carried out in whole or in part with assistance made available as stated herein shall insert in full in any contract in excess of $2,000 the contract clauses as attached hereto entitled "Wage Rate Requirements Under The Clean Water Act, Section 513." This term and condition applies to all agreements to provide assistance under the authorities referenced herein, whether in the form of a loan, bond purchase, grant, or any other vehicle to provide financing for a project, where such agreements are executed on or after October 30, 2009.

Preamble

With respect to the Clean Water State Revolving Funds, EPA provides capitalization grants to each State which in turn provides sub grants or loans to eligible entities within the State. Typically, the sub recipients are municipal or other local governmental entities that manage the funds. For these types of recipients, the provisions set forth under Roman numeral I, below, shall apply. Although EPA and the State remain responsible for ensuring sub recipients' compliance with the wage rate requirements set forth herein, those sub recipients shall have the primary responsibility to maintain payroll records as described in Section 3(ii)(A), below and for compliance as described in Section I-5.

Occasionally, the sub recipient may be a private for profit or not for profit entity. For these types of recipients, the provisions set forth in Roman Numeral II, below, shall apply. Although EPA and the State remain responsible for ensuring sub recipients' compliance with the wage rate requirements set forth herein, those sub recipients shall have the primary responsibility to maintain payroll records as described in Section II-3(ii)(A), below and for compliance as described in Section II-5.

ATTACHMENT 1

I. Requirements Under The Water Resources Reform and Development Act of 2014 (WRRDA) For Sub recipients That Are Governmental Entities:

The following terms and conditions specify how recipients will assist EPA in meeting its Davis-Bacon (DB) responsibilities when DB applies to EPA awards of financial assistance under the Water Resources Reform and Development Act of 2014 (WRRDA) - with respect to State recipients and sub recipients that are governmental entities. If a sub recipient has questions regarding when DB applies, obtaining the correct DB wage determinations, DB provisions, or compliance monitoring, it may contact the State recipient. If a State recipient needs guidance, the recipient may contact **Region 10 SRF staff,** of EPA, - for guidance. The recipient or sub recipient may also obtain additional guidance from DOL's web site at http://www.dol.gov/whd/

1. Applicability of the Davis- Bacon (DB) prevailing wage requirements.

Under the Water Resources Reform and Development Act of 2014 (WRRDA) -, DB prevailing wage requirements apply to the construction, alteration, and repair of treatment works carried out in whole or in part with assistance made available by a State water pollution control revolving. If a sub recipient encounters a unique situation at a site that presents uncertainties regarding DB applicability, the sub recipient must discuss the situation with the recipient State before authorizing work on that site.

2. Obtaining Wage Determinations.

(a) Sub recipients shall obtain the wage determination for the locality in which a covered activity subject to DB will take place prior to issuing requests for bids, proposals, quotes or other methods for soliciting contracts (solicitation) for activities subject to DB. These wage determinations shall be incorporated into solicitations and any subsequent contracts. Prime contracts must contain a provision requiring that subcontractors follow the wage determination incorporated into the prime contract.

(i) While the solicitation remains open, the sub recipient shall monitor www.wdol.gov weekly to ensure that the wage determination contained in the solicitation remains current. The sub recipients shall amend the solicitation if DOL issues a modification more than 10 days prior to the closing date (i.e. bid opening) for the solicitation. If DOL modifies or supersedes the applicable wage determination less than 10 days prior to the closing date, the sub recipients may request a finding from the State recipient that there is not a reasonable time to notify interested contractors of the modification of the wage determination. The State recipient will provide a report of its findings to the sub recipient.

(ii) If the sub recipient does not award the contract within 90 days of the closure of the solicitation, any modifications or supersedes DOL makes to the wage determination contained in the solicitation shall be effective unless the State recipient, at the request of the sub recipient, obtains an extension of the 90 day period from DOL pursuant to 29 CFR 1.6(c)(3)(iv). The sub recipient shall monitor www.wdol.gov on a weekly basis if it does not award the contract within 90 days of closure of the solicitation to ensure that wage determinations contained in the solicitation remain current.

(b) If the sub recipient carries out activity subject to DB by issuing a task order, work assignment or similar instrument to an existing contractor (ordering instrument) rather than by publishing a solicitation, the sub recipient shall insert the appropriate DOL wage determination from www.wdol.gov into the ordering instrument.

(c) Sub recipients shall review all subcontracts subject to DB entered into by prime contractors to verify that the prime contractor has required its subcontractors to include the applicable wage determinations.

(d) As provided in 29 CFR 1.6(f), DOL may issue a revised wage determination applicable to a sub recipient's contract after the award of a contract or the issuance of an ordering instrument if DOL determines that the sub recipient has failed to incorporate a wage determination or has used a wage determination that clearly does not apply to the contract or ordering instrument. If this occurs, the sub recipient shall either terminate the contract or ordering instrument and issue a revised solicitation or ordering instrument or incorporate DOL's wage determination retroactive to the beginning of the contract or ordering instrument by change order. The sub recipient's contractor must be compensated for any increases in wages resulting from the use of DOL's revised wage determination.

3. Contract and Subcontract provisions.

(a) The Recipient shall insure that the sub recipient(s) shall insert in full in any contract in excess of $2,000 which is entered into for the actual construction, alteration and/or repair, including painting and decorating, of a treatment work under the CWSRF - financed in whole or in part from Federal funds or in accordance with guarantees of a Federal agency or financed from funds obtained by pledge of any contract of a Federal agency to make a loan, grant or annual contribution (except where a different meaning is expressly indicated), and which is subject to the labor standards provisions of any of the acts listed in § 5.1 or -FY 2015 Water Resource Reform and Development Act, the following clauses:

(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 § 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.

Sub recipients may obtain wage determinations from the U.S. Department of Labor's web site, www.dol.gov.

(ii)(A) The sub recipient(s), on behalf of EPA, 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 State award official shall approve a request for 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 sub recipient(s) agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), documentation of the action taken and the request, including the local wage determination shall be sent by the sub recipient (s) to the State award official. The State award official will transmit the request, to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210 and to the EPA DB Regional Coordinator concurrently. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification request within 30 days of receipt and so advise the State award official or will notify the State award official 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 sub recipient(s) do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the award official shall refer the request and the local wage determination, including the views of all interested parties and the recommendation of the State award official, to the Administrator for determination. The request shall be sent to the EPA DB Regional Coordinator concurrently. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt of the request 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 sub recipient(s), shall upon written request of the EPA Award Official or 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 (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 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 sub recipient, that is, the entity that receives the sub-grant or loan from the State capitalization grant recipient. Such documentation shall be available on request of the State

recipient or EPA. As to each payroll copy received, the sub recipient shall provide written confirmation in a form satisfactory to the State indicating whether or not the project is in compliance with the requirements of 29 CFR 5.5(a)(1) based on the most recent payroll copies for the specified week. The payrolls 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 the weekly payrolls. 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/forms/wh347instr.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 sub recipient(s) for transmission to the State or EPA if requested by EPA, the State, 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 sub recipient(s).

(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 § 5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under § 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 State, 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 or State 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 sub contractor'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 the equal employment opportunity requirements of Executive Order 11246, as amended and 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 EPA determines may by appropriate, 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 (or any of its subcontractors) and sub recipient(s), State, EPA, 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.

4. Contract Provision for Contracts in Excess of $100,000.

(a) Contract Work Hours and Safety Standards Act. The sub recipient shall insert the following clauses set forth in paragraphs (a)(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 Item 3, above or 29 CFR 4.6. 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 (a)(1) of this section the contractor and any subcontractor responsible therefore 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 (a)(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 (a)(1) of this section.

(3) Withholding for unpaid wages and liquidated damages. The sub recipient**,** upon written request of the EPA Award Official or an authorized representative of the Department of Labor, shall 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 (a)(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 (a)(1) through (4) of this section.

(b) In addition to the clauses contained in Item 3, above, in any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other statutes cited in 29 CFR 5.1, the Sub recipient shall 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 Sub recipient shall insert in any such contract a clause providing hat 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 (write the name of agency) and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview employees during working hours on the job.

5. Compliance Verification

(a) The sub recipient shall periodically interview a sufficient number of employees entitled to DB prevailing wages (covered employees) to verify that contractors or subcontractors are paying the appropriate wage rates. As provided in 29 CFR 5.6(a)(6), all interviews must be conducted in confidence. The sub recipient must use Standard Form 1445 (SF 1445) or equivalent documentation to memorialize the interviews. Copies of the SF 1445 are available from EPA on request.

(b) The sub recipient shall establish and follow an interview schedule based on its assessment of the risks of noncompliance with DB posed by contractors or subcontractors and the duration of the contract or subcontract. Sub recipients must conduct more frequent interviews if the initial interviews or other information indicated that there is a risk that the contractor or subcontractor is not complying with DB. Sub recipients shall immediately conduct interviews in response to an alleged violation of the prevailing wage requirements. All interviews shall be conducted in confidence."

(c) The sub recipient shall periodically conduct spot checks of a representative sample of weekly payroll data to verify that contractors or subcontractors are paying the appropriate wage rates. The sub recipient shall establish and follow a spot check schedule based on its assessment of the risks of noncompliance with DB posed by contractors or subcontractors and the duration of the contract or subcontract. At a minimum, if practicable, the sub recipient should spot check payroll data within two weeks of each contractor or subcontractor's submission of its initial payroll data and two weeks prior to the completion date the contract or subcontract. Sub recipients must conduct more frequent spot checks if the initial spot check or other information indicates that there is a risk that the contractor or subcontractor is not complying with DB. In addition, during the examinations the sub recipient shall verify evidence of fringe benefit plans and payments there under by contractors and subcontractors who claim credit for fringe benefit contributions.

(d) The sub recipient shall periodically review contractors and subcontractor's use of apprentices and trainees to verify registration and certification with respect to apprenticeship and training programs approved by either the U.S Department of Labor or a state, as appropriate, and that contractors and subcontractors are not using disproportionate numbers of, laborers, trainees and apprentices. These reviews shall be conducted in accordance with the schedules for spot checks and interviews described in Item 5(b) and (c) above.

(e) Sub recipients must immediately report potential violations of the DB prevailing wage requirements to the EPA DB contact listed above and to the appropriate DOL Wage and Hour District Office listed at http://www.dol.gov/whd/america2.htm.

II. Requirements Under The Water Resource Reform and Development Act of 2014 (WRDA) -) For Sub recipients That Are Not Governmental Entities:

The following terms and conditions specify how recipients will assist EPA in meeting its DB responsibilities when DB applies to EPA awards of financial assistance under –FY 2014 Water Resource Reform and Development Act with respect to sub recipients that are not governmental entities. If a sub recipient has questions regarding when DB applies, obtaining the correct DB wage determinations, DB provisions, or compliance monitoring, it may contact the State recipient for guidance. If a State recipient needs guidance, the recipient may Region 10 SRF staff, EPA Grants Management Office for guidance. The recipient or sub recipient may also obtain additional guidance from DOL's web site at http://www.dol.gov/whd/

Under these terms and conditions, the sub recipient must submit its proposed DB wage determinations to the State recipient for approval prior to including the wage determination in any solicitation, contract task orders, work assignments, or similar instruments to existing contractors.

1. Applicability of the Davis- Bacon (DB) prevailing wage requirements.

Under the FY 2015 Water Resource Reform and Development Act -, DB prevailing wage requirements apply to the construction, alteration, and repair of treatment works carried out in whole or in part with assistance made available by a State water pollution control revolving fund -. If a sub recipient encounters a unique situation at a site that presents uncertainties regarding DB applicability, the sub recipient must discuss the situation with the recipient State before authorizing work on that site.

2. Obtaining Wage Determinations.

(a) Sub recipients must obtain proposed wage determinations for specific localities at www.wdol.gov. After the Sub recipient obtains its proposed wage determination, it must submit the wage determination to **Idaho DEQ SRF, Tim Wendland, (208) 373-0439, tim.wendland@deq.idaho.gov** for approval prior to inserting the wage determination into a solicitation, contract or issuing task orders, work assignments or similar instruments to existing contractors (ordering instruments unless subsequently directed otherwise by the State recipient Award Official.)

(b) Sub recipients shall obtain the wage determination for the locality in which a covered activity subject to DB will take place prior to issuing requests for bids, proposals, quotes or other methods for soliciting contracts (solicitation) for activities subject to DB. These wage determinations shall be incorporated into solicitations and any subsequent contracts. Prime contracts must contain a provision requiring that subcontractors follow the wage determination incorporated into the prime contract.

(i) While the solicitation remains open, the sub recipient shall monitor www.wdol.gov. on a weekly basis to ensure that the wage determination contained in the solicitation remains current. The sub recipients shall amend the solicitation if DOL issues a modification more than 10 days prior to the closing date (i.e. bid opening) for the solicitation. If DOL modifies or supersedes the applicable wage determination less than 10 days prior to the closing date, the sub recipients may request a finding from the State recipient that there is not a reasonable time to notify interested contractors of the modification of the wage determination. The State recipient will provide a report of its findings to the sub recipient.

(ii) If the sub recipient does not award the contract within 90 days of the closure of the solicitation, any modifications or supersedes DOL makes to the wage determination contained in the solicitation shall be effective unless the State recipient, at the request of the sub recipient, obtains an extension of the 90 day period from DOL pursuant to 29 CFR 1.6(c)(3)(iv). The sub recipient shall monitor www.wdol.gov on a weekly basis if it does not award the contract within 90 days of closure of the solicitation to ensure that wage determinations contained in the solicitation remain current.

(c) If the sub recipient carries out activity subject to DB by issuing a task order, work assignment or similar instrument to an existing contractor (ordering instrument) rather than by publishing a solicitation, the sub recipient shall insert the appropriate DOL wage determination from www.wdol.gov into the ordering instrument.

(d) Sub recipients shall review all subcontracts subject to DB entered into by prime contractors to verify that the prime contractor has required its subcontractors to include the applicable wage determinations.

(e) As provided in 29 CFR 1.6(f), DOL may issue a revised wage determination applicable to a sub recipient's contract after the award of a contract or the issuance of an ordering instrument if DOL determines that the sub recipient has failed to incorporate a wage determination or has used a wage determination that clearly does not apply to the contract or ordering instrument. If this occurs, the sub recipient shall either terminate the contract or ordering instrument and issue a revised solicitation or ordering instrument or incorporate DOL's wage determination retroactive to the beginning of the contract or ordering instrument by change order. The sub recipient's contractor must be compensated for any increases in wages resulting from the use of DOL's revised wage determination.

3. Contract and Subcontract provisions.

(a) The Recipient shall insure that the sub recipient(s) shall insert in full in any contract in excess of $2,000 which is entered into for the actual construction, alteration and/or repair, including painting and decorating, of a treatment work under the CWSRF - or in accordance with guarantees of a Federal agency or financed from funds obtained by pledge of any contract of a Federal agency to make a loan, grant or annual contribution (except where a different meaning is expressly indicated), and which is subject to the labor standards provisions of any of the acts listed in § 5.1 or the FY 2015 Water Resouce Reform and Development Act -, the following clauses:

(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 § 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.

Sub recipients may obtain wage determinations from the U.S. Department of Labor's web site, www.dol.gov. .

(ii)(A) The sub recipient(s), on behalf of EPA, 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 State award official shall approve a request for 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 sub recipient(s) agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), documentation of the action taken and the request, including the local wage determination shall be sent by the sub recipient(s) to the State award official. The State award official will transmit the report, to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210 and to the EPA DB Regional Coordinator concurrently. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification request within 30 days of receipt and so advise the State award official or will notify the State award official 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 sub recipient(s) do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the award official shall refer the request, and the local wage determination, including the views of all interested parties and the recommendation of the State award official, to the Administrator for determination. The request shall

be sent to the EPA Regional Coordinator concurrently. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt of the request 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 sub recipient(s) shall upon written request of the EPA Award Official or 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 (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 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 sub recipient, that is, the entity that receives the sub-grant or loan from the State capitalization grant recipient. Such documentation shall be available on request of the State recipient or EPA. As to each payroll copy received, the sub recipient shall provide written confirmation in a form satisfactory to the State indicating whether or not the project is in compliance with the requirements of 29 CFR 5.5(a)(1) based on the most recent payroll copies for the specified week. The payrolls 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 the weekly payrolls. 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/forms/wh347instr.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 sub recipient(s) for transmission to the State or EPA if requested by EPA, the State, 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 sub recipient(s).

(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 § 5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under § 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 State, 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 or State 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 subcontractors 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 the equal employment opportunity requirements of Executive Order 11246, as amended and 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 EPA determines may by appropriate, 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 (or any of its

subcontractors) and Sub recipient(s), State, EPA, 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.

4. Contract Provision for Contracts in Excess of $100,000.

(a) Contract Work Hours and Safety Standards Act. The sub recipient shall insert the following clauses set forth in paragraphs (a)(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 Item 3, above or 29 CFR 4.6. 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 therefore 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 sub recipient shall upon the request of the EPA Award Official or 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 (a)(2) of this section.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (a)(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 (a)(1) through (4) of this section.

(c) In addition to the clauses contained in Item 3, above, in any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other statutes cited in 29 CFR 5.1, the Sub recipient shall 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 Sub recipient shall 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 (write the name of agency) and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview employees during working hours on the job.

5. Compliance Verification

(a) The sub recipient shall periodically interview a sufficient number of employees entitled to DB prevailing wages (covered employees) to verify that contractors or subcontractors are paying the appropriate wage rates. As provided in 29 CFR 5.6(a)(6), all interviews must be conducted in confidence. The sub recipient must use Standard Form 1445 (SF 1445) or equivalent documentation to memorialize the interviews. Copies of the SF 1445 are available from EPA on request.

(b) The sub recipient shall establish and follow an interview schedule based on its assessment of the risks of noncompliance with DB posed by contractors or subcontractors and the duration of the contract or subcontract. Sub recipients must conduct more frequent interviews if the initial interviews or other information indicated that there is a risk that the contractor or subcontractor is not complying with DB. Sub recipients shall immediately conduct interviews in response to an alleged violation of the prevailing wage requirements. All interviews shall be conducted in confidence."

(c). The sub recipient shall periodically conduct spot checks of a representative sample of weekly payroll data to verify that contractors or subcontractors are paying the appropriate wage rates. The sub recipient shall establish and follow a spot check schedule based on its assessment of the risks of noncompliance with DB posed by contractors or subcontractors and the duration of the contract or subcontract. At a minimum, if practicable the sub recipient should spot check payroll data within two weeks of each contractor or subcontractor's submission of its initial payroll data and two weeks prior to the completion date the contract or subcontract. Sub recipients must conduct more frequent spot checks if the initial spot check or other information indicates that there is a risk that the contractor or subcontractor is not complying with DB . In addition, during the examinations the sub recipient shall verify evidence of fringe benefit plans and payments there under by contractors and subcontractors who claim credit for fringe benefit contributions.

(d). The sub recipient shall periodically review contractors and subcontractors use of apprentices and trainees to verify registration and certification with respect to apprenticeship and training programs approved by either the U.S Department of Labor or a state, as appropriate, and that contractors and subcontractors are not using disproportionate numbers of, laborers, trainees and apprentices. These reviews shall be conducted in accordance with the schedules for spot checks and interviews described in Item 5(b) and (c) above.

(e) Sub recipients must immediately report potential violations of the DB prevailing wage requirements to the EPA DB contact listed above and to the appropriate DOL Wage and Hour District Office listed at http://www.dol.gov/whd/america2.htm.

"General Decision Number: ID20210036 04/30/2021

Superseded General Decision Number: ID20200036

State: Idaho

Construction Type: Heavy
HEAVY CONSTRUCTION, Including water and sewer line construction and heavy construction projects on treatment plants and industrial (power plants, manufacturing plants, processing plants, etc.) sites

County: Adams County in Idaho.

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.95 for calendar year 2021 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, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.95 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 calendar year 2021. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate,if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/01/2021
1	04/02/2021
2	04/30/2021

ELEC0291-011 12/06/2019

	Rates	Fringes

ELECTRICIAN.....$ 31.65 6%+13.26

ENGI0370-031 01/01/2019

	Rates	Fringes
POWER EQUIPMENT OPERATOR:		
Blade Operator, Cranes (up to and including 50 tons), Drilling (bit under 8in), Front End Loader (over 4 yds to and including 7yds), Oiler, Scraper (up to and including 40 yds)		
GROUP 6	$ 30.67	12.05
Bulldozer, Scraper (over 80 yds to 100 yds)		
GROUP 8	$ 31.27	12.05
Cranes (over 50 tons), Drill (bit 8 in and over), Grader (Fine), Front End Loader (over 7 yds), Heavy Duty Mechanic, Scrapers (over 40 yds to 60 yds), Tower Crane		
GROUP 7	$ 31.04	12.05
Elevating Grader Operator		
GROUP 5	$ 30.50	12.05
Front End Loader (up to 4yd)		
GROUP 4	$ 30.33	12.05
Roller		
GROUP 3	$ 30.02	12.05
Scraper (over 100 yds)		
GROUP 10	$ 31.75	12.05

ZONE PAY:
Zone 1 0 - 30 miles: free
Zone 2 30 - 60 miles: $30.00/per day
Zone 3 More than 60 miles: $35.00/per day.

If a project is located in more than one zone the lower zone rate shall apply

ZONES SHALL BE MEASURED FROM THE THE FOLLOWING U.S. POST OFFICES:

BOISE: 304 N. 8TH STREET
TWIN FALLS: 253 2ND AVE. WEST

POCATELLO: CLARK STREET
IDAHO FALLS: 875 NORTH CAPITAL AVE.

BOOM PAY: All Cranes and Concrete Pump Boom Trucks
100 ft to 150 ft $.15 over scale
150 ft to 200 ft $.30 over scale
Over 200 ft $.45 over scale

IRON0014-002 07/01/2020

	Rates	Fringes
IRONWORKER, STRUCTURAL	$ 34.59	30.10

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* LABO0155-008 01/01/2021

	Rates	Fringes
LABORER		
Asphalt Including Raker, Shoveler, Spreader, and Distributor		
Group 3	$ 29.04	14.00
Flagger		
Group 1	$ 28.84	14.00

TEAM0483-003 01/01/2021

	Rates	Fringes
TRUCK DRIVER		
GROUP 5A	$ 28.56	15.45
GROUP 5B	$ 28.74	15.45
GROUP 5C	$ 28.97	15.45
GROUP 5D	$ 29.08	15.45
GROUP 5E	$ 29.71	15.45
GROUP 5F	$ 30.15	15.45

GROUP DEFINITIONS:

GROUP 5A: Dump (0-16 yds)
GROUP 5B: Dump (16-30 yds)
GROUP 5C: Dump (30-50 yds)
GROUP 5D: Dump (50-75 yds)
GROUP 5E: Dump (75-100 yds)
GROUP 5F: Dump (over 100 yds)

SUID2010-029 08/08/2012

	Rates	Fringes
CARPENTER, Includes Form Work	$ 25.41	9.98
CEMENT MASON/CONCRETE FINISHER	$ 23.25	12.31
IRONWORKER, REINFORCING	$ 27.22	16.70
LABORER: Common or General	$ 22.46	10.00
LABORER: Pipelayer	$ 17.67	7.26
OPERATOR: Backhoe/Excavator/Trackhoe	$ 26.02	9.93
OPERATOR: Bobcat/Skid Steer/Skid Loader	$ 20.97	0.00
OPERATOR: Concrete Batch Plant	$ 24.94	11.96
OPERATOR: Forklift	$ 21.20	0.00
TRUCK DRIVER: Lowboy Truck	$ 21.00	12.10
TRUCK DRIVER: Water Truck	$ 24.70	12.10

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 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) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which 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. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates

the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of 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. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write 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 the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write 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 by 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

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION"

City of New Meadows

Water System Improvements

FUNDED BY:

Joseph R. Biden
President of the United States

Tom Vilsack
Secretary of Agriculture

Financed by United States Department of Agriculture (USDA) Rural Development

USDA is an equal opportunity provider and employer

Idaho Department of Environmental Quality

State Revolving Loan Fund

Department of Commerce

HUD / Community Development Block Grant

BRAD LITTLE, Governor

SECTION 01025

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.01 BASIS FOR MEASUREMENT AND PAYMENT

A. Measurement and Payment will be made for only those items included in the BID FORM or contract Change Orders for the work.

B. All measurement and payment will be for completed work performed on each separate item of work according to contract drawings, specifications, construction details, and BID SCHEDULE. The ENGINEER will measure all work according to the methods outlined below.

C. Payment for any item is full compensation for furnishing all labor, materials, equipment, and incidentals required to provide a complete and fully functional item of the work. Any work or material paid for under one item will not be paid for under another item.

D. Where units differ between the items listed below and the BID SCHEDULE, the BID SCHEDULE govern.

E. All estimated quantities for unit price items stipulated in the BID SCHEDULE or other contract documents are approximate and are to be used as a basis for estimating the probable cost of the work and for comparing the bids submitted for the Project. The actual amounts of work done and materials furnished under unit price items may differ from the estimated quantities. The basis of payment for work and materials will be the actual amount of work done and materials incorporated into the Project.

F. If the installed quantity of an item of work comprises more than 10% of the total contract amount and the installed quantity is greater than 25% of the estimated quantity shown in the BID SCHEDULE, then CONTRACTOR may make a request to OWNER for a unit price adjustment change order.

G. If the installed quantity of an item of work comprises more than 10% of the total contract amount and the installed quantity is less than 25% of the estimated quantity shown in the BID SCHEDULE then no change order for a unit price adjustment will be considered.

1.02 ABBREVIATIONS

A. Lump Sum – (LS)

B. Each – (EA)

C. Linear Foot – (LF)

D. Square Foot – (SQFT)

E. Square Yard – (SQYD)

F. Cubic Foot – (CFT)

G. Cubic Yard – (CYD)

1.03 INCIDENTAL ITEMS

A. Incidental items are items that are required to complete the work, but will not be measured and paid for separately unless specifically specified in the contract documents. Costs for incidental items shall be included in the various bid items as required. No additional payments will be made to the CONTRACTOR for incidental items.
   1. Incidental items include, but are not limited to:
      a. Labor
      b. Equipment
      c. Materials
      d. Transportation
      e. Tools
      f. Bonds and insurance
      g. Workers' compensation
      h. Taxes
      i. General overhead and profit
      j. Material royalties
      k. Permits
      l. Coordination with agencies
      m. Licenses
      n. Project coordination
      o. Overtime inspection fees from OWNER
      p. Contract administration, shop drawings, submittals
      q. Site security including temporary fencing
      r. Noise and dust control
      s. All excavation, backfilling and restoration outside of trench pay item which is required to complete the work of any other bid item
      t. Excavation support including, but not limited to, temporary sheeting, shoring, bracing, and use of trench box
      u. Clearing and grubbing
      v. Disposal of excess soil
      w. Disposal of debris from site clearing operations
      x. Grading
      y. Test pits
      z. Protection of existing utilities and other facilities
      aa. Protection of existing landscaping
      bb. Dewatering
      cc. Bedding and backfill
      dd. Compaction and testing
      ee. Soil tests
      ff. Material and equipment tests
      gg. Installation and maintenance of erosion and sediment control measures

hh. Laboratory and shop tests
ii. Hydrostatic and leakage tests
jj. Bacterial tests
kk. Painting and coating tests
ll. Strength of materials tests
mm. Equipment test performance tests
nn. Mechanical performance tests and lighting
oo. Sanitation Facilities
pp. Mechanical systems cleaning and flushing and disinfecting
qq. Commissioning, startup, testing, and troubleshooting
rr. Operation and maintenance manuals
ss. Owner training
tt. Site restoration including temporary and final
uu. Surveying and construction staking
vv. Monument replacement
ww. Installing and maintaining site access
xx. Pre-construction condition documentation
yy. Record drawings
zz. All other items of expense and incidentals required to complete the work as shown on the drawings or specified in the contract documents

PART 2 CONTRACT ITEMS

2.01 MOBILIZATION AND DEMOBILIZATION

A. Measurement: The lump sum bid price for Mobilization and Demobilization is limited to five (5) % of the total of all other items in the BID SCHEDULE.

B. Payment: Mobilization and Demobilization will be paid for at the contract lump sum price, which price will be full compensation for performing the work specified and the furnishing of all materials and labor, tools, equipment, administration and incidentals necessary to mobilize and subsequently demobilize the construction operations. Payment for this item will be made in two installments. The first payment of 50% of the lump sum price will be made at commencement of the project on the first pay application after which the CONTRACTOR has mobilized to the Project site. The second and final payment of 50% of the lump sum price will be made upon finalization of the project after all Work, including restoration and clean up, has been completed and will be a part of the Final Payment.

2.02 CONSTRUCTION SURVEYING

A. Measurement: There will be no separate measurement for this item.

B. Payment: Payment for this item will be at the contract lump sum price established in the BID SCHEDULE for Construction Surveying complete and shall include all labor, materials, including furnishing all surveying equipment, stakes, flags, pins, lath, whiskers, hubs, and other materials necessary to construct roads, structures, fencing, grades, and other items of work in the locations shown on and to the elevations indicated on the Drawings. Payment for this item will be made based on the percentage completed of the overall work, as determined by the ENGINEER.

2.03 FENCING

A. Measurement: There will be no separate measurement for this item.

B. Payment: Payment for this item will be at the contract lump sum price established in the BID SCHEDULE and shall include all labor, materials, clearing, grubbing, excavation, concrete post footings, line and corner posts, bracing, fencing and gates, outriggers, anchors, stops, modifications and connections to existing fencing, and fencing appurtenances necessary to provide a fully functional fencing system.

2.04 PROJECT SIGN

A. Measurement: There will be no separate measurement for this item.

B. Payment: Payment for this item will be at the contract lump sum price established in the BID SCHEDULE and shall include all labor, materials, and items of expense necessary to construct the Project Sign on the Project site.

2.05 SUBMERSIBLE WELL PUMP AND INSTALLATION

A. Measurement: There will be no separate measurement for this item.

B. Payment: Payment for this item will be at the contract lump sum price established in the BID SCHEDULE and shall include all labor, materials, and items of expense necessary to construct the Submersible Well Pump Installation complete. Included in this item is the well pump, well pump motor, column pipe, check valves, torque arrester, sounder tubes, pitless unit, VFD-rated submersible electrical cable, flushing and disinfecting, testing, startup, training, operation and maintenance manuals and appurtenances. Payment for this item will be made based on the percentage completed, as determined by the ENGINEER.

2.06 WELL HOUSE-SITE GRADING AND DRAINAGE

A. Measurement: There will be no separate measurement for this item.

B. Payment: Payment for this item will be at the contract lump sum price established in the BID SCHEDULE and shall include all labor, materials, and items of expense necessary to construct the Well House Site Grading and Drainage, complete. Included in this item is scarification and re-compaction, placement and compaction of Type A2 Aggregate, placement and compaction of Type 1 Aggregate, seepage beds, swales, erosion control measures, drainage areas, detention basins, stilling basins, drain rock and placement, riprap and placement, and final grading and shaping. Payment for this item will be made based on the percentage completed, as determined by the ENGINEER.

2.07 WELL HOUSE YARD PIPING

A. Measurement: There will be no separate measurement for this item.

B. Payment: Payment for this item will be at the contract lump sum price established in the BID SCHEDULE and shall include all labor, equipment, materials, and items of expense necessary to construct the Well House Yard Piping, complete. Included in this item are all excavations, trenching, imported aggregate material, marking tape, tracer wire, pipe, pipe fittings, pipe couplings and adapters, saddle taps, bolt kits, gaskets, thrust restraints, tie rods, pipe supports, concrete thrust blocking, valves, valves boxes, field location and connections to existing pipes and fittings, pipe insulation, surface repair, and other appurtenances and items of expense necessary to provide a fully functional yard piping installation. Payment for this item will be made based on the percentage completed, as determined by the ENGINEER.

2.08 GRAVEL ACCESS ROAD

A. Measurement: There will be no separate measurement for this item.

B. Payment: Payment for this item will be at the contract lump sum price established in the BID SCHEDULE and shall include all labor, materials, and items of expense necessary to construct the Gravel Access Road, complete. Included in this item is scarification and re-compaction, placement and compaction of Type 2 Bedding for road subbase, placement and compaction of Type A1 Aggregate for road surface, and final grading and shaping. Payment for this item will be made based on the percentage completed, as determined by the ENGINEER.

2.09 WELL HOUSE - STRUCTURAL

A. Measurement: There will be no separate measurement for this item.

B. Payment: Payment for this item will be at the contract lump sum price established in the BID SCHEDULE and shall include all labor, materials, and items of expense necessary to construct the Well House complete. Included in this item is all excavations and backfill, dewatering, aggregates, structural backfill, compaction, footing and foundation work, concrete, floors, housekeeping pads, reinforcing steel, walls, partitions, CMUs, framing, trusses, insulation, barriers, sheathings, roofing, claddings, painting, coatings, doors, locks, keys, placards, signs, testing and appurtenances. Payment for this item will be made based on the percentage completed, as determined by the ENGINEER.

2.10 WELL HOUSE - MECHANICAL

A. Measurement: There will be no separate measurement for this item.

B. Payment: Payment for this item will be at the contract lump sum price established in the BID SCHEDULE and shall include all labor, materials, and items of expense necessary to construct the Well House complete. Included in this item is all excavations and backfill, dewatering, bedding, structural backfill, compaction, lean concrete backfill, plumbing, fixtures, piping, connections to piping, valves, control valves, pressure tanks, bladder tanks, meters, mechanical pressure gauges, drains,

drain piping, pipe supports, painting, coatings, labels, flushing and disinfecting, testing, startup, training, operation and maintenance manuals and appurtenances. Payment for this item will be made based on the percentage completed, as determined by the ENGINEER.

2.11 WELL HOUSE - ELECTRICAL

A. Measurement: There will be no separate measurement for this item.

B. Payment: Payment for this item will be at the contract lump sum price established in the BID SCHEDULE and shall include all labor, materials, and items of expense necessary to construct the Well House complete. Included in this item is all excavations and backfill, dewatering, bedding, conduit, compaction, connections, utility drops, transformers, service entrances, disconnects, conductors, wiring, splices, pull boxes, motor starters, variable frequency drives, motors, electrical hardware, motor control centers, feeders, busways, switchboards, panelboards, breakers, GFIs, AFCIs, light fixtures, lights, switches, receptacles, plates, covers, painting, coatings, labels, testing, startup, operation and maintenance manuals, training and appurtenances. Payment for this item will be made based on the percentage completed, as determined by the ENGINEER.

2.12 WELL HOUSE - INSTRUMENTATION AND CONTROL

A. Measurement: There will be no separate measurement for this item.

B. Payment: Payment for this item will be at the contract lump sum price established in the BID SCHEDULE and shall include all labor, materials, and items of expense necessary to construct the Well House complete and provide a fully functioning and integrated instrumentation and control system including communications and communication systems. Integration with OWNER/utilities SCADA system is required. Included in this item is all instrumentation radios, dialers, transducers, limit switches, flow switches, position indicators, integration, testing, startup, tuning, operation and maintenance manuals, training and appurtenances. Payment for this item will be made based on the percentage completed, as determined by the ENGINEER.

2.13 WELL HOUSE - HVAC

A. Measurement: There will be no separate measurement for this item.

B. Payment: Payment for this item will be at the contract lump sum price established in the BID SCHEDULE and shall include all labor, materials and items of expense necessary to construct the Well House complete and provide a fully functioning heating, ventilation and air conditioning system(s). Included in this item is all compressors, evaporators, ventilators, ducting, vents, fans, blowers, heat pumps, thermostats, heaters, enclosures, plenums, sealing, charging, testing, balancing, filters, startup, commissioning, operation and maintenance manuals, training and appurtenances. Payment for this item will be made based on the percentage completed, as determined by the ENGINEER.

-END OF SECTION-

SECTION 01110

SUMMARY OF WORK

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes: Identification and summary description of the Work, location, OWNER furnished products, activities by others, and coordination.

1.02 THE WORK

A. The Work consists of construction of the City of New Meadows Water System Improvements Project, including repair and reconstruction of existing improvements affected by the Work, and incidentals for complete and usable facility.

B. The Work includes construction of a new well house at City Well No. 5, including installation of a submersible turbine well pump, motor, and pitless unit, construction of a gravel access road, well house building construction, mechanical piping, yard piping, electrical, instrumentation, and controls work required for a complete and fully functioning facility as indicated on the Drawings.

1.03 LOCATION OF PROJECT

A. The Work is located within the city limits of New Meadows, Idaho in Adams County. Specific locations of the Work are indicated on the Drawings.

1.04 OWNER FURNISHED EQUIPMENT

A. The OWNER will not furnish equipment or products.

1.05 ACTIVITIES BY OTHERS

A. OWNER, utilities, and others may perform activities within Project area while the Work is in progress.
   1. Schedule the Work with OWNER, utilities, and others to minimize mutual interference.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

-END OF SECTION-

SECTION 01140

WORK RESTRICTIONS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes: Requirements for sequencing and scheduling the Work affected by existing site and facility, work restrictions and coordination between construction operations and water system operations, including constraints on sequence and scheduling of work.

B. Related Sections:
   1. Section 01110 - Summary of Work.
   2. Section 01500 - Temporary Facilities and Controls.

1.02 GENERAL CONSTRAINTS ON SEQUENCE AND SCHEDULING OF WORK

A. Water Projects:
   1. Existing Well No. 4 and the existing booster station and reservoir connected to Well No. 3 are the OWNER’s sole existing sources of drinking water. The booster station is the primary source of pumping capacity for fire protection.
   2. Conduct work such that the OWNER's ability to meet its customer's demands for drinking water meeting National Primary Drinking Water Standards remains uninterrupted throughout the Work.
   3. The status of the water system shall be defined as "operational" when the City’s wells are capable of meeting the OWNER's customer's demands for water in terms of the required quantity and quality of water as defined herein.

B. Work Sequence and Constraints:
   1. Utilize description of critical events in work sequence in this Section as a guideline for scheduling and undertaking the Work.
   2. Work sequence and constraints presented do not include all items affecting completion of the Work, but are intended to describe critical events necessary to minimize disruption of the existing facilities, ensure adequate water is available to meet customer demands, and to ensure compliance with National Primary Drinking Water Standards.

1.03 INTERRUPTION OF WATER SUPPLY PROCESSES

A. Indicate required shutdowns of existing facilities or interruptions of existing operations on Progress Schedule.

B. Submit notification of required shutdowns of existing facilities at least 7 days prior to the planned date of shutdown.

C. The ENGINEER and the OWNER will evaluate the request based on the water system’s ability to reliably meet capacity demands.

D. Minimize shutdown times by thorough advanced planning. Have required equipment, materials, and labor on hand at time of shutdown.

E. Where required to minimize water supply interruptions while complying with specified sequencing constraints, provide temporary water, pumping, power, lighting, controls, instrumentation, and safety devices.

1.04 WORK BY OTHERS

A. Where proper execution of the Work depends upon work by others, inspect and promptly report discrepancies and defects.

1.05 EXISTING SYSTEM INFORMATION

A. Water for the City of New Meadows Public Drinking Water System is provided by two existing wells; Well No. 3 and Well No. 4.
   1. Well No. 3 pumps directly to the existing storage reservoir through a dedicated transmission pipeline.
   2. Water produced by Well No. 3 is pumped into the distribution system by the existing booster pumping station to meet customer demands and provide fire protection.
   3. Well No. 4 is equipped with a variable frequency drive, and is capable of pressure-based operation. Upon completion, Well No. 5 will have similar capabilities.

1.06 WORK SEQUENCE

A. The OWNER has constructed a new well (Well No. 5) to supplement the two existing wells (Well No. 3 and Well No. 4).
   1. Install pitless unit and submersible turbine pump and motor in Well No. 5.
   2. Construct and test Well No. 5 Well House and equipment.
   3. Construct and test interconnecting piping from Well No. 5 Well House to existing City distribution system.
   4. Interconnect Well No. 5 and Well No. 5 Well House to City’s existing water system.
   5. Construction of the Well No. 5 well house, including installation of the well pump and connections to the existing water system, shall be substantially complete and approved by the Idaho Department of Environmental Quality to serve water to the public prior to final acceptance.

1.07 TEMPORARY SERVICES, MATERIALS, AND EQUIPMENT

A. Locate temporary facilities in a manner that minimizes interference to OWNER's operation and maintenance personnel.

B. Unless otherwise specified, install temporary pipelines of the same size as its connection to the existing facility at the downstream end of the pipeline.

C. Provide piping of suitable material for the material being conveyed.

D. Provide submittals on proposed temporary electrical and instrumentation components necessary to maintain existing facilities.

E. Dimensions for all existing structures, piping, paving, and other nonstructural items are approximate. The CONTRACTOR shall field verify all dimensions and conditions and report any discrepancies to the ENGINEER a minimum of 7 days in advance of any construction in the area.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

-END OF SECTION-

SECTION 01201

PAYMENT PROCEDURES

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes: Procedures for submitting applications for payment and means used as a basis for Progress Payments, including:
   1. Payment Requests.

B. Related Sections:
   1. Section 01025 - Measurement and Payment.

1.02 PAYMENT REQUESTS

A. Prepare progress payment requests on a monthly basis. Base requests on the breakdowns of costs for each scheduled activity and the percentage of completion for each activity.

B. Utilize Form EJCDC C-620 spreadsheet for developing monthly applications for progress payments.

C. Prepare total costs for each Major Item of Work listed in the Bid Form. Submit monthly progress estimates identifying the estimated percent of completion for each activity included in the Bid Form, and the value of work completed for both the payment period and job to date. Utilize Form EJCDC C-620 to develop and submit progress estimates.

D. Submit progress payment requests electronically to the ENGINEER by email at the end of each month.
   1. Progress payment applications shall include the payment application summary and the progress estimate developed using Form EJCDC C-620.
   2. Execute application with signature of responsible officer of CONTRACTOR.
   3. Submit (1) electronic copy of Form EJCDC C-620 in .pdf format and (1) electronic copy of the Form EJCDC C-620 in .xlsx format.

E. ENGINEER will review application for accuracy. When accurate, ENGINEER will transmit application to OWNER and state and/or federal funding agencies for apprroval of payment and release of funds.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

-END OF SECTION-

SECTION 01324

PROGRESS SCHEDULES

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes: Preparation, submittal, and maintenance of progress schedule and reports including the following:

1. Preliminary Schedule.
2. Schedule Revisions.

B. Related Sections:

1. Section 01770 – Close Out Procedures.

1.02 SCHEDULING FORMAT

A. Schedule Format: Utilize critical path method (CPM) format.

B. Prepare computerized schedule utilizing Microsoft Project, or similar software.

1.03 PREPARATION

A. Preparation and submittal of Progress Schedule represents CONTRACTOR's intention to execute the Work within specified time and constraints.

B. During preparation of the preliminary Progress Schedule, ENGINEER will facilitate CONTRACTOR's efforts by being available to answer questions regarding sequencing issues, scheduling constraints, interface points, and dependency relationships.

C. Prepare schedule utilizing activity durations in terms of working days. CONTRACTOR shall coordinate holidays to be observed with the OWNER and incorporate them into the schedule as non-working days.

D. Failure to include an activity required for execution of the Work does not excuse CONTRACTOR from completing the Work and portions thereof within specified times and at price specified in Agreement. Failure of CONTRACTOR to include required schedule constraints, sequences or milestones in schedule shall not relieve CONTRACTOR of obligation to conform to requirements of Contract. Acceptance of schedule shall not waive Contract requirements. In event of conflict between accepted schedule and Contract requirements, terms of Contract shall govern at all times.

E. Reference schedule to working days with beginning of Contract Time as Day "1."

F. Contract float is for the mutual benefit of both OWNER and CONTRACTOR. No time extensions shall be granted nor delay damages owed until Work extends beyond currently accepted Contract completion date. Likewise, CONTRACTOR may utilize float to offset delays other than delays caused by OWNER. Mutual use of float shall continue until all available float shown by schedule has been utilized by either OWNER or CONTRACTOR, or both. At that time, extensions of the Contract time may be granted by OWNER for valid OWNER-caused or third party-caused delays which affect the planned completion date and which have been properly documented and demonstrated by CONTRACTOR.

G. Schedule Logic: Schedule shall be assembled to show order in which CONTRACTOR proposes to carry out Work, indicate restrictions of access, availability of Work areas, and availability and use of manpower, materials and equipment. Following criteria shall form basis for assembly of schedule logic.

1. Which activities must be completed before subsequent activities can be started?
2. Which activities can be performed concurrently?
3. Which activities must be started immediately following completed activities?
4. What major facility, equipment or manpower restrictions are required for sequencing these activities?

H. Non-sequestering of Float: Pursuant to float sharing requirements of Contract, use of float suppression techniques such as preferential sequencing or logic, special lead or lag logic restraints, extended activity durations or imposed dates shall be cause for rejection of any schedule submittal.

I. Interim Milestone Dates, Operational Constraints: In event there are interim milestone dates and/or operational constraints set forth in Contract, CONTRACTOR shall show them on schedule as specified in Contract. CONTRACTOR shall not use Zero Total Float constraint or Mandatory Finish Date on such Contract requirements.

J. Schedule Windows for Owner-furnished, Contractor-installed Equipment or Materials.

1.04 SUBMITTAL OF PROGRESS SCHEDULES

A. Submit preliminary and baseline schedule in accordance with the Conditions of the Contract as modified by this Section 01324.

B. Submit, on a monthly basis, updated schedules as specified. Submit final schedule update as specified.

C. Submit revised schedules and time impact analyses as specified.

D. Submit the following documents electronically in .pdf format:

1. Gantt Chart format sized 11”x17” for printing.
2. Tabular reports listing all activities sorted numerically identifying duration, early start, late start, early finish, late finish, total float, and all predecessor/successor information.

1.05 REVISIONS TO SCHEDULE

A. Submit revised schedule within 5 calendar days:

1. When delay in completion of any activity or group of activities indicates an overrun of the Contract time or milestone dates by 20 working days or 5% of the remaining duration, whichever is less.
2. When delays in submittals, deliveries, or work stoppages are encountered making necessary the re-planning or rescheduling of activities.
3. When the schedule does not represent the actual progress of activities.
4. When any change to the sequence of activities, the completion date for major portions of the work, or when changes occur which affect the critical path.
5. When Contract modification necessitates schedule revision, submit schedule analysis of change order work with cost proposal.

B. Submit revised schedule and materials as specified under Article, "Submittal of Progress Schedule.”

C. Make revisions on most recently accepted version of schedule.

D. Schedule Revisions shall not be prepared or submitted with Schedule Updates. They shall be separate submittals and shall be noted as Schedule Revisions.

E. Only upon acceptance of a revision by the OWNER shall it be reflected in the next monthly Schedule Update.

1.06 WEEKLY SCHEDULE

A. Submit to ENGINEER, on the last working day of every week, a progress schedule showing the activities completed during the previous week and the CONTRACTOR's schedule of activities for the following 2 weeks.

B. The Weekly Schedule may be a CPM schedule or a bar chart but shall utilize the logic and conform to the status of the current progress schedule. In the event that the Weekly Schedule no longer conforms to the current schedule CONTRACTOR may be required to revise the schedule in accordance with Article "REVISIONS TO SCHEDULE."

C. The activity designations used in the Weekly Schedule shall be consistent with those used in the Baseline Schedule and the monthly Schedule Updates.

D. The format of the Weekly Schedule shall be as agreed upon between the CONTRACTOR and the ENGINEER.

1.07 ADJUSTMENT OF CONTRACT TIMES

A. If the CONTRACTOR believes that the OWNER has impacted its work, such that the project completion date will be delayed, the CONTRACTOR must submit proof demonstrating the delay to the critical path. This proof, in the form of a Time Impact Analysis, may entitle the CONTRACTOR to an adjustment of contract time.

B. Time Impact Analysis:

1. The Time Impact Analysis submitted by the CONTRACTOR shall utilize the accepted schedule update that is current relative to the time frame of the delay event (change order, third party delay, or other OWNER-caused delay). The CONTRACTOR shall represent the delay event in the schedule by 1) inserting new activities associated with the delay event into the schedule, 2) revising activity logic, or 3) revising activity durations.
2. If the project schedule's critical path and completion date are impacted as a result of adding this delay event to the schedule, a time extension equal to the magnitude of the impact may be warranted.
3. The Time Impact Analysis submittal shall consist of 1) a fragment of the portion of the schedule affected by the delay event, 2) a narrative explanation of the delay issue and how it impacted the schedule, and 3) a copy of the electronic schedule file used to perform the Time Impact Analysis.

C. When a delay to the project as a whole can be avoided by revising preferential sequencing or logic, and the CONTRACTOR chooses not to implement the revisions, the CONTRACTOR will be entitled to a time extension and no compensation for extended overhead.

D. Indicate clearly that the CONTRACTOR has used, in full, all project float available for the work involved in the request, including any float that may exist between the CONTRACTOR's planned completion date and the Contract completion date. Utilize the latest version of the Schedule Update accepted at the time of the alleged delay, and all other relevant information, to determine the adjustment of the contract time.

E. Actual delays in activities which do not affect the critical path work or which do not move the CONTRACTOR's planned completion date beyond the Contract completion date will not be the basis for an adjustment to the contract time.

F. Notify ENGINEER of a request for contract time adjustment. In cases where the CONTRACTOR does not submit a request for contract time adjustment for a specific change order, delay, or CONTRACTOR request within the specified period

of time, then it is mutually agreed that the particular change order, delay, or CONTRACTOR request has no time impact on the Contract completion date and no time extension is required.

G. The ENGINEER will, within 30 calendar days after receipt of a contract time adjustment, request any supporting evidence, review the facts and advise the CONTRACTOR in writing.

H. The new Progress Schedule data, if accepted by the OWNER, shall be included in the next monthly Schedule Update.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

-END OF SECTION-

SECTION 01330

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes: Requirements and procedures for submitting Shop Drawings, Product Data, Samples, and other required product data as specified in individual Technical Specifications.

1.02 DEFINITIONS

A. Manufacturer's Instructions: Instructions, stipulations, directions, and recommendations issued in printed form by the manufacturer of a product addressing handling, installation, erection, and application of the product; Manufacturer’s Instructions are not prepared especially for the Work.

B. Shop Drawings: Drawings, diagrams, schedules, and other data specially prepared for the Work to illustrate some portion of the Work.

C. Product Data: Illustrations, standard schedules, performance charts, brochures, diagrams and other information to illustrate materials or equipment for some portion of the Work.

D. Samples: Physical examples which illustrate materials, equipment, or workmanship and establish standards by which the Work will be judged.

E. Special Samples: Physical examples which illustrate materials, equipment, or workmanship and establish standards by which the Work will be judged, and will be incorporated in the Work.

1.03 PROCEDURES

A. Deliver submittals to ENGINEER electronically through email or by other mutually agreed upon electronic method.

B. Furnish submittals in ample time for each to serve submittals' intended purpose.

C. Furnish submittals which are specified or reasonably required for construction, operation, and maintenance of the Work.

D. Deliver submittals under acceptable transmittal form which identifies:
   1. Submittal date.
   2. Project and CONTRACTOR.
   3. Subcontractor and major supplier, when appropriate.
   4. Reference submittal to Contract Documents by Drawing, detail, and/or Specification section numbers, as appropriate.
   5. Variations from Contract Documents when variations are included in submittal.

E. Furnish specified number of copies of submittal.

F. Provide or furnish products and execute the Work in accordance with accepted submittals, unless in conflict with Contract Documents.

G. When minor deviations from Contract Documents are accepted, modify Contract Documents in accordance with the Conditions of the Contract.

H. Submit Shop Drawings, Product Data, Samples, and other pertinent information in sufficient detail to show compliance with specified requirements.

I. Check, verify, and revise submittals as necessary to bring them into conformance with Contract Documents and actual field conditions.
   1. Determine and verify quantities, dimensions, specified design and performance criteria, materials, catalog numbers, and similar data.
   2. Coordinate submittal with other related submittals and with the requirements of the Contract Documents.

J. After completion of checking, verification, and revising, sign and date submittals indicating review and approval and submit to ENGINEER.
   1. Signature indicates CONTRACTOR has satisfied shop drawing review responsibilities and constitutes CONTRACTOR's written approval.
   2. Submittals without CONTRACTOR's written approval will be returned for resubmission.

1.04 SHOP DRAWINGS

A. **Shop Drawings:** Submit 1 electronic copy in .pdf format. ENGINEER will return an electronic copy in .pdf format with reviewer's comments, redlines, and stamp.

1.05 PRODUCT DATA

A. Submit 1 electronic copy in .pdf format. Excise or cross out non-applicable information and clearly mark applicable information with citations to and terminology consistent with Contract Documents. ENGINEER will return an electronic copy in .pdf format with reviewer's comments, redlines, and stamp.

1.06 MANUFACTURER'S INSTRUCTIONS

A. Submit 1 electronic copy in .pdf format. Submit manufacturer's instructions whenever made available by manufacturers and when installation, erection, or application in accordance with manufacturer's instructions are required by the Specifications.

B. Submit manufacturer's instructions prior to installation, erection, or application of equipment and other project components. Submit manufacturer's instructions in accordance with requirements for Product Data.

1.07 SAMPLES

A. Submit 1 sample labeled with reference to applicable Contract Documents. Label will be returned with reviewer's selection when appropriate, comments and stamp. Samples will not be returned unless return is requested in writing and additional sample is submitted.

1.08 SPECIAL SAMPLES:

A. Submit 1 sample labeled with reference to applicable Contract Documents. Sample and 1 label will be returned for installation in the Work.

1.09 ENGINEER'S REVIEW

A. ENGINEER's review of submittals shall not release CONTRACTOR from CONTRACTOR's responsibility for performance of requirements of Contract Documents. Neither shall ENGINEER's review release CONTRACTOR from fulfilling purpose of installation nor from CONTRACTOR's liability to replace defective work.

B. ENGINEER's review of shop drawings, samples, or test procedures will be only for conformance with design concepts and for compliance with information given in Contract Documents.
   1. ENGINEER's review does not extend to:
      a. Accuracy of dimensions, quantities, or performance of equipment and systems designed by CONTRACTOR.
      b. CONTRACTOR's means, methods, techniques, sequences, or procedures except when specified, indicated on the Drawings, or required by Contract Documents.
      c. Safety precautions or programs related to safety which shall remain the sole responsibility of the CONTRACTOR.

C. Except as may be provided in subsequent specifications, a submittal will be returned within 30 days. When a submittal cannot be returned within that period, ENGINEER will, within a reasonable time after receipt of the submittal, give notice of the date by which that submittal will be returned.

D. For submittals returned marked “Make Corrections Noted”, Contractor shall incorporate all review comments into the work, but resubmittal of an amended submittal package is not required.

E. For submittals returned marked “Amend and Resubmit”, Contractor shall incorporate the review comments into a complete revised package, and resubmit it for review.

F. For submittals returned marked “Rejected Resubmit”, Contractor shall develop a new submittal package with materials, equipment, methods, etc. that meet the requirements of the Contract Documents.

G. ENGINEER will be entitled to rely upon the accuracy or completeness of designs, calculations, or certifications made by licensed professionals accompanying a

particular submittal whether or not a stamp or seal is required by Contract Documents or Laws and Regulations.

H. Costs incurred by OWNER as a result of additional reviews of a particular submittal after the second time it has been reviewed shall be borne by CONTRACTOR. Reimbursement to OWNER will be made by deducting such costs from CONTRACTOR's subsequent partial payments.

1.10 MINOR OR INCIDENTAL PRODUCTS

A. Shop Drawings of minor or incidental fabricated products will not be required, unless requested.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

-END OF SECTION-

SECTION 01350

SPECIAL PROCEDURES

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes: Special procedures for locating and verifying concealed existing facilities.

1.02 CONCEALED EXISTING FACILITIES

A. Verify locations of existing utilities and facilities by contacting the OWNER, utility companies, and DIGLINE, Inc. at 1-800-342-1585 or 811.
   1. Abide by easement and right-of-way restrictions.

B. Notify the OWNER, owners of facilities when the Work will be in progress. Make arrangements for potential emergency repairs in accordance with requirements of owners of utility facilities, including individual or residential facilities.

C. Assume responsibility for repair of facilities damaged by performance of the Work.

D. Expose sanitary and storm sewers, water, gas, electric, telephone utility lines, and other underground facilities as required to commence Work in affected area. Contact DIGLINE (1-800-342-1585 or 811) prior to commencement of excavation. Expose existing utilities in ample time to resolve any utility conflicts identified with minimum delaying effect on contract time.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

-END OF SECTION-

SECTION 01355

STORMWATER POLLUTION PREVENTION CONSTRUCTION ACTIVITY

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Requirements for preparation and implementation of the Stormwater Pollution Prevention Plan for the CONTRACTOR's construction activities.

B. Related Sections:
   1. Section 01500 - Temporary Facilities and Controls.

1.02 REFERENCES

A. United States Code of Federal Regulation (CFR):
   1. 40 CFR Part 117.
   2. 40 CFR Part 302.

1.03 SUBMITTALS

A. Stormwater Pollution Prevention Plan:
   1. Prepare a SWPPP in accordance with EPA regulations and submit to the OWNER for reference.
      a. The SWPPP shall detail the placement of physical Best Management Practices (BMPs) required for installation and the methods used to comply with those BMPs directed at operational procedures, Monitoring Program and Reporting Plan.
      b. The SWPP shall specifically address and detail changes from the alternatives called out in this section. The CONTRACTOR’s preferred techniques shall show how it will comply with the stated objectives of the program.

B. The CONTRACTOR shall submit a copy of the BMP Handbook with each BMP to be utilized check marked to show compliance or marked to show deviation.

C. The entire plan shall be kept and maintained by the CONTRACTOR on the construction site during the duration of the project.

D. The CONTRACTOR shall be responsible for taking the proper actions to prevent contaminants and sediments from entering the storm sewer drainage system should any unforeseen circumstance occur. The CONTRACTOR shall take immediate action if directed by the ENGINEER, or if the CONTRACTOR observes contaminants and/or sediments entering surface water or the storm drainage system, to prevent the occurrence of further discharges.

1.04 REGULATORY REQUIREMENTS

Construction activities that disturb 1 acre or more of land, including clearing, grading, and excavation activities require the CONTRACTOR to obtain coverage under the EPA's Construction General Permit under the National Pollutant Discharge Elimination System (NPDES).

A. The CONTRACTOR shall comply with the following prohibitions and limitations, which are contained in the EPA Construction General Permit:
   1. Administrative:
      a. If a SWPPP is required (more than 1 acre is disturbed), the contractor must file a Notice of Intent and Notice of Termination with EPA Region 10, in accordance with EPA requirements.
   2. Discharge prohibitions:
      a. Discharges of materials other than stormwater, which are not otherwise regulated by a NPDES permit, to a separate stormwater sewer system or water of the nation are prohibited.
      b. Stormwater discharges shall not cause or threaten to cause pollution, contamination (including sediment) or nuisance.
      c. Stormwater discharges regulated by this general permit shall not contain a hazardous substance equal to or in excess of a reportable quantity listed in 40 CFR Part 117 and 40 CFR Part 302.
   3. Receiving Water Limitations:
      a. Stormwater discharges to any surface or groundwater shall not adversely impact human health or the environment.

1.05 STORMWATER POLLUTION PREVENTION PLAN IMPLEMENTATION

A. The CONTRACTOR shall implement all activities required by the Construction General Permit and as detailed in the Stormwater Pollution Prevention Plan, Monitoring Program and Reporting Plan.

1.06 NON-STORMWATER MANAGEMENT

A. The Stormwater Pollution Prevention Plan shall discuss any non-storm water sources (i.e., landscaping irrigation, pipe flushing, street washing and dewatering). In addition, the Plan shall include standard observation measures and best management practices, including best available technologies economically achievable and best conventional pollutant control technologies, that are to be implemented in order to reduce the pollutant loading to the waters.

1.07 AMENDMENTS

A. The CONTRACTOR shall amend the Stormwater Pollution Prevention Plan, Monitoring Program, and Reporting Plan whenever there is a change in construction or operations which may affect the discharge of pollutants to storm water.

B. The Stormwater Pollution Prevention Plan shall also be amended if it is in violation of any conditions of the general permit or has not achieved the general objective of reducing pollutants in storm water discharges.

C. All amendments shall be completed at no additional cost to the OWNER.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-END OF SECTION-

SECTION 01450

QUALITY CONTROL

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes: Quality control requirements and procedures for products and workmanship and includes the following:
   1. Sampling and testing of materials;
   2. Testing of equipment;
   3. Requirements for testing laboratories;
   4. Procedures and limitations of inspection.

1.02 REFERENCES

A. American Society for Testing and Materials (ASTM):
   1. E 329 - Standard for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction.

1.03 SAMPLING AND TESTING

A. Sampling:
   1. Furnish specimens of materials when requested.
   2. Do not use materials which are required to be tested until testing indicates satisfactory compliance with specified requirements.
   3. Specimens of materials will be taken for testing whenever necessary to determine quality of material.
   4. Assist ENGINEER in preparation of test specimens at site of Work, such as soil samples and concrete test cylinders.

1.04 TESTING AND LABORATORY SERVICES

A. Qualification of Laboratory:
   1. Meets "Recommended Requirements for Independent Laboratory Qualification," published by American Council of Independent Laboratories.
   2. Meets requirements of ASTM E 329.
   3. Has authorization to operate in state in which Project is located.
   4. Has testing equipment calibrated at reasonable intervals by devices of accuracy traceable to NIST or accepted values of natural physical constants.

B. Laboratory Duties:
   1. Cooperate with ENGINEER and CONTRACTOR.
   2. Provide qualified personnel.
   3. Notify ENGINEER and CONTRACTOR, in writing, of response time needed to schedule testing or inspections after receipt of notice.

4. Perform specified inspections, sampling, and testing of materials and methods of construction in accordance with specified standards to ascertain compliance of materials with requirements of Contract Documents.
5. Promptly notify ENGINEER and CONTRACTOR of observed irregularities or deficiencies of construction.
6. Promptly submit written report of each test and inspection; one copy each to ENGINEER, OWNER, CONTRACTOR, and one copy to file of Project Record Documents. Each report shall include:
    a. Date issued.
    b. Project title and number.
    c. Testing laboratory name, address, and telephone number.
    d. Name and signature of laboratory inspector.
    e. Date and time of sampling or inspection.
    f. Record of temperature and weather conditions.
    g. Date of test.
    h. Identification of product and Specification Section.
    i. Location of sample or test in Project.
    j. Type of inspection or test.
    k. Results of tests and compliance with Contract Documents.
    l. Interpretation of test results, when requested by ENGINEER.

C. Limitations of Authority of Testing Laboratory: Laboratory is not authorized to:
1. Release, revoke, alter, or enlarge on requirements of Contract Documents.
2. Approve or accept portion of Work.
3. Perform duties of CONTRACTOR.

1.05 CONTRACTOR'S RESPONSIBILITIES

A. Cooperate with laboratory personnel and provide access to construction and manufacturing operations.

B. Secure and deliver to laboratory adequate quantities of representative samples of materials proposed to be used and which require testing.

C. Provide to laboratory preliminary mix design proposed to be used for concrete, and other materials mixes which require control by testing laboratory.

D. Furnish copies of product test reports.

E. Furnish Incidental Labor and Facilities:
1. To provide access to construction to be tested.
2. To obtain and handle samples at Work site or at source of product to be tested.
3. To facilitate inspections and tests.
4. For storage and curing of test samples.

F. Notify laboratory in advance of when observations, inspections and testing is needed for laboratory to schedule and perform in accordance with their notice of response time.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

-END OF SECTION-

SECTION 01500

TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Furnishing, maintaining, and removing temporary construction facilities, including temporary utilities, construction aids, barriers and enclosures, security, access roads, temporary controls, project sign, and removal after construction.

B. Related Sections:
   1. Section 01140 - Work Restrictions

1.02 TEMPORARY UTILITIES

A. Temporary Electrical Power:
   1. Arrange with local utility to provide adequate temporary electrical service.
   2. Provide and maintain adequate jobsite power distribution facilities conforming to applicable Laws and Regulations.

B. Temporary Electrical Lighting:
   1. In work areas, provide temporary lighting sufficient to maintain lighting levels during working hours not less than lighting levels required by OSHA and state agency which administers OSHA regulations where Project is located.

C. Temporary Heating, Cooling, and Ventilating:
   1. Heat and ventilate work areas to protect the Work from damage by freezing, high temperatures, weather, and to provide safe environment for workers.
   2. Permanent heating system may be utilized when sufficiently completed to allow safe operation.

D. Temporary Water:
   1. Pay for and construct facilities necessary to furnish potable water for human consumption and construction use. Arrange with OWNER to provide adequate temporary water supplies.
   2. Remove temporary piping and connections and restore affected portions of the facility to original condition before Substantial Completion.

E. Temporary Sanitary Facilities:
   1. Provide suitable and adequate sanitary facilities that are in compliance with applicable Laws and Regulations.
   2. At completion of the Work, remove sanitary facilities and leave site in neat and sanitary condition.

F. Temporary Fire Protection: Provide sufficient number of fire extinguishers of type and capacity required to protect the Work and ancillary facilities.

G. First Aid: Post first aid facilities and information posters conforming to requirements of OSHA and other applicable Laws and Regulations in readily accessible locations.

1.03 CONSTRUCTION AIDS

A. Provide railings, kick plates, enclosures, safety devices, and controls required by Laws and Regulations and as required for adequate protection of life and property.

B. Use construction hoists, elevators, scaffolds, stages, shoring, and similar temporary facilities of ample size and capacity to adequately support and move loads.

C. Design temporary supports with adequate safety factor to assure adequate load bearing capability.
   1. When requested, submit design calculations by professional registered engineer prior to application of loads.
   2. Submitted design calculations are for information and record purposes only.

D. Accident Prevention:
   1. Exercise precautions throughout construction for protection of persons and property.
   2. Observe safety provisions of applicable Laws and Regulations.
   3. Guard machinery and equipment, and eliminate other hazards.
   4. Make reports required by authorities having jurisdiction, and permit safety inspections of the Work.
   5. Before commencing construction Work, take necessary action to comply with provisions for safety and accident prevention.

E. Barricades:
   1. Place barriers at ends of excavations and along excavations to warn pedestrian and vehicular traffic of excavations.
   2. Provide barriers with flashing lights after dark.
   3. Keep barriers in place until excavations are entirely backfilled and compacted.
   4. Barricade excavations to prevent persons from entering excavated areas in streets, roadways, parking lots, parks, treatment plants, or other public or private areas.

F. Warning Devices and Barricades: Adequately identify and guard hazardous areas and conditions by visual warning devices and, where necessary, physical barriers.
   1. Devices shall conform to minimum requirements of OSHA and State agency which administers OSHA regulations where Project is located.

G. Hazards in Public Right-of-Way:
   1. Mark at reasonable intervals, trenches and other continuous excavations in public right-of-way, running parallel to general flow of traffic, with traffic cones, barricades, or other suitable visual markers during daylight hours.
      a. During hours of darkness, provide markers with lamps, flashers, or other adequate lights.

2. At intersections or for pits and similar excavations, where traffic may reasonably be expected to approach head on, protect excavations by continuous barricades.
    a. During hours of darkness, provide warning lights at close intervals.

H. Hazards in Protected Areas: Mark or guard excavations in areas from which public is excluded, in manner appropriate for hazard.

I. Above Grade Protection: On multi-level structures, provide safety protection that meets requirements of OSHA and State agency which administers OSHA regulations where Project is located.

J. Protect existing structures, trees, shrubs, and other items to be preserved on Project site from injury, damage or destruction by vehicles, equipment, worker or other agents with substantial barricades or other devices commensurate with hazards.

K. Fences:
1. Enclose site of the Work with fence adequate to protect the Work against acts of theft, violence and vandalism.
2. When entire or part of site is to be permanently fenced, permanent fence may be built to serve for both permanent and temporary protection of the Work site, provided that damaged or defaced fencing is replaced prior to Substantial Completion.
3. Protect temporary and permanent openings and close openings in existing fences to prevent intrusion by unauthorized persons. Bear responsibility for protection of facilities and material on site of the work when openings in existing fences are not closed.
4. During night hours, weekends, holidays, and other times when no work is performed at site, provide temporary closures or enlist services of security guards to protect temporary openings.
5. Fence temporary openings when openings are no longer necessary.

1.04 ACCESS ROADS

A. General:
1. Build and maintain access roads to and on site of the Work to provide for delivery of material and access.
2. Build and maintain dust free roads which are suitable for travel at 20 miles per hour.

B. Off-Site Access Roads:
1. Build and maintain graded earth roads.
2. Build roads only in public right-of-way or easements obtained by OWNER.
3. Obtain rights-of-way or easements when electing to build along other alignment.

C. On-Site Access Roads:
1. Maintain access roads to storage areas and other areas to which frequent access is required.

2. Maintain similar roads to existing facilities on site of the Work to provide access for maintenance and operation.
3. Protect buried vulnerable utilities under temporary roads with steel plates, wood planking, or bridges.
4. Maintain on-site access roads free of mud. Under no circumstances shall vehicles leaving the site track mud off the site onto the public right-of-way.

1.05 TEMPORARY CONTROLS

A. Dust Control:
   1. Prevent dust nuisance caused by operations, unpaved roads, excavation, backfilling, demolition, or other activities.
   2. Control dust by sprinkling with water, use of dust palliatives, modification of operations, or other means acceptable to agencies having jurisdiction.

B. Noise Control:
   1. In inhabited areas, particularly residential, perform operations in manner to minimize noise.
   2. In residential areas, take special measures to suppress noise during night hours.

C. Mud Control:
   1. Prevent mud nuisance caused by construction operations, unpaved roads, excavation, backfilling, demolition, or other activities.

1.06 PROJECT SIGN

1. Provide and maintain a project sign consisting of painted 8 foot wide by 4 foot high exterior grade plywood and minimum 10 foot long 4 by 4 lumber posts, set in ground at least 3 feet.
2. Template for project sign will be furnished to CONTRACTOR by ENGINEER.
3. Erect Project identification sign where directed by ENGINEER.
4. Placement of Project sign is required prior to start of construction.

1.07 REMOVAL

A. Remove temporary buildings and furnishings before inspection for Final Completion or when directed.

B. Clean and repair damage caused by installation or use of temporary facilities.

C. Remove underground installations to minimum depth of 24 inches and grade to match surrounding conditions.

D. Restore existing facilities used during construction to specified or original condition.

E. Remove Project sign and support posts immediately prior to issurance of Final Completion.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

-END OF SECTION-

SECTION 01600

PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes: Product requirements; product selection; products schedule; execution; manufacturer's instructions; and delivery, handling, and storage.

1.02 PRODUCT REQUIREMENTS

A. Comply with Specifications and referenced standards as minimum requirements.

B. Provide products by same manufacturer when products are of similar nature, unless otherwise specified.

C. Provide identical products when products are required in quantity.

D. Provide products with interchangeable parts whenever possible.

E. Require each equipment manufacturer to have maintenance facilities meeting the following requirements:
   1. Minimum 3 years operational experience.
   2. Location in continental United States.
   3. Equipment and tools capable of making repairs.
   4. Staff qualified to make repairs.
   5. Inventory of maintenance spare parts.

1.03 PRODUCT SELECTION

A. When products are specified by standard or specification designations of technical societies, organizations, or associations only, provide products which meet or exceed reference standard and Specifications.

B. When products are specified with names of manufacturers but no model numbers or catalog designations, provide:
   1. Products by one of named manufacturers which meets or exceeds Specifications.
   2. Accepted or-equals.

C. When products are specified with names of manufacturers and model numbers or catalog designations, provide:
   1. Products with model numbers or catalog designations by 1 of named manufacturers.
   2. Accepted or-equals.

D. When products are specified with names of manufacturers, but with brand or trade names, model numbers, or catalog designations by 1 manufacturer only, provide:

1. Products specified by brand or trade name, model number, or catalog designation.
2. Products by 1 of named manufacturers proven in accordance with requirements for or-equals to meet or exceed quality, appearance and performance of specified brand or trade name, model number, or catalog designation.
3. Accepted or-equals.

E. When Products are specified with only 1 manufacturer followed by "or Equal," provide:
   1. Products meeting or exceeding Specifications by specified manufacturer.
   2. Accepted or-equals.

1.04 PRODUCT OPTIONS AND SUBSTITUTIONS

A. Whenever a product is specified using a name of a particular manufacturer or supplier, the specific item cited shall be understood as establishing type, function, dimension, appearance, and quality desired. Other manufacturer's products will be considered for acceptance provided sufficient information is submitted to the ENGINEER for review to determine that the products proposed are equivalent to those named.

1.05 QUALITY ASSURANCE

A. Employ entities that meet or exceed specified qualifications to execute the Work.

B. Inspect conditions before executing subsequent portions of the Work. Accept responsibility for correcting unsatisfactory conditions upon executing subsequent portions of the Work.

C. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, and racking.

1.06 DELIVERY, HANDLING, AND STORAGE

A. Prepare Products for Shipment by:
   1. Applying grease and lubricating oil to bearings and similar items.
   2. Separately packing or otherwise suitably protecting bearings.
   3. Tagging or marking products to agree with delivery schedule or Shop Drawings.
   4. Including complete packing lists and bills of material with each shipment.
   5. Packaging products to facilitate handling and protection against damage during transit, handling and storage.

B. Transport products by methods that avoid product damage. Deliver products in undamaged condition in manufacturer's unopened containers or packaging.

C. Provide equipment and personnel to handle products by methods to prevent soiling or damage.

D. Upon delivery, promptly inspect shipments. Verify compliance with Contract Documents, correct quantities and undamaged condition of products. Immediately store and protect products and materials until installed in Work.

E. Store products with seals and legible labels intact.

F. Store moisture sensitive products in weathertight enclosures.

G. Maintain products within temperature and humidity ranges required or recommended by manufacturer.

H. Connect and operate space heaters during storage when ambient temperatures fall below temperatures recommended by manufacturer.

I. Protect painted surfaces against impact, abrasion, discoloration, and other damage. Repaint damaged painted surfaces.

J. Exterior Storage of Fabricated Products:
   1. Place on above ground supports which allow for drainage.
   2. Cover products subject to deterioration with impervious sheet covering.
   3. Provide ventilation to prevent condensation under covering.

K. Store loose granular materials on solid surfaces in well-drained area. Prevent materials mixing with foreign matter.

L. Provide access for inspection.

M. Maintain equipment per the manufacturer’s recommendation and industry standards, including oil changes, rotation, etc. Provide a log of equipment maintenance to the ENGINEER, on a monthly basis.

1.07 MANUFACTURER’S INSTRUCTIONS

A. Deliver, handle, store, install, erect, or apply products in accordance with manufacturer's instructions, Contract Documents and industry standards.

B. Periodically inspect to assure products are undamaged and maintained under required conditions.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

-END OF SECTION-

SECTION 01722

FIELD ENGINEERING

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes: Field engineering to establish lines and grades for the Work.

1.02 QUALITY ASSURANCE

A. Accuracy of stakes, alignments, and grades may be checked randomly by ENGINEER.
   1. Notice of when checking will be conducted will be given.
   2. When notice of checking is given, postpone parts of the Work affected by stakes, alignments or grades to be checked until checked.
   3. Do not assume that ENGINEER's check substitutes or complements required field quality control procedures.

1.03 CONSTRUCTION STAKES, LINES, AND GRADES

A. Execute the Work in accordance with the lines and grades indicated.

B. Make distances and measurements on horizontal planes, except elevations and structural dimensions.

1.04 SURVEY REFERENCE POINTS

A. Benchmarks are indicated on the Drawings on the civil sheets.

B. From these reference points, establish other control and reference points as required to properly lay out the Work.

C. Locate and protect control points prior to starting sitework, and preserve permanent reference points during construction.
   1. Make no changes or relocations without prior written notice.
   2. Replace Project control point, when lost or destroyed, in accordance with original survey control.

D. Set monuments for principal control points and protect them from being disturbed and displaced.
   1. Re-establish disturbed monuments.
   2. When disturbed, postpone parts of the Work that are governed by disturbed monuments until such monuments are re-established.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

-END OF SECTION-

SECTION 01756

TESTING, TRAINING, AND FACILITY START-UP

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes: Requirements for equipment and system testing and facility start-up, including the following:
   1. Start-up Plan.
   2. Performance Testing.
   3. General Start-up and Testing Procedures.
   4. Functional Testing.
   5. Operational Testing.
   6. Certificate of Proper Installation.
   7. Services of manufacturer's representatives.
   8. Training of OWNER's personnel.
   9. Final testing requirements for the complete facility.

1.02 GENERAL TESTING, TRAINING, AND START-UP REQUIREMENTS

A. Contract Requirements: Testing, training, and start-up are requisite to the satisfactory completion of the Contract.

B. Complete testing, training, and start-up within the Contract Times.

C. Allow realistic durations in the Progress Schedule for testing, training, and start-up activities.

D. Furnish labor, power, chemicals, tools, equipment, instruments, and services required for and incidental to completing functional testing, performance testing, and operational testing.

E. Provide competent, experienced technical representatives of equipment manufacturers for assembly, installation and testing guidance, and operator training.

1.03 START-UP PLAN

A. Submit start-up plan for each piece of equipment and each system not less than 3 weeks prior to planned initial start-up of equipment or system.

B. Provide detailed sub-network of Progress Schedule with the following activities identified:
   1. Manufacturer's services.
   2. Installation certifications.
   3. Operator training.
   4. Submission of Operation and Maintenance Manual.
   5. Functional testing.

6. Performance testing.
7. Operational testing.

C. Provide testing plan with test logs for each item of equipment and each system. Include testing of alarms, control circuits, capacities, speeds, flows, pressures, vibrations, sound levels, and other parameters.

D. Provide summary of shutdown requirements for existing systems which are necessary to complete start-up of new equipment and systems.

E. Revise and update start-up plan based upon review comments, actual progress, or to accommodate changes in the sequence of activities.

1.04 PERFORMANCE TESTING

A. Test equipment for proper performance at point of manufacture or assembly when specified.

B. When source quality control testing is specified:
1. Demonstrate equipment meets specified performance requirements.
2. Provide certified copies of test results.
3. Do not ship equipment until certified copies have received written acceptance from ENGINEER. Written acceptance does not constitute final acceptance.
4. Perform testing as specified in the equipment specification sections.

1.05 GENERAL START-UP AND TESTING PROCEDURES

A. Mechanical Systems:
1. Remove rust preventatives and oils applied to protect equipment during construction.
2. Flush lubrication systems and dispose of flushing oils. Recharge lubrication system with lubricant recommended by manufacturer.
3. Flush fuel system and provide fuel for testing and start-up.
4. Install and adjust packing, mechanical seals, O-rings, and other seals. Replace defective seals.
5. Remove temporary supports, bracing, or other foreign objects installed to prevent damage during shipment, storage, and erection.
6. Check rotating machinery for correct direction of rotation and for freedom of moving parts before connecting driver.
7. Inspect hand and motorized valves for proper adjustment. Tighten packing glands to ensure no leakage, but permit valve stems to rotate without galling. Verify valve seats are positioned for proper flow direction.
8. Tighten leaking flanges or replace flange gasket. Inspect screwed or glued joints for leakage.
9. Install gratings, safety chains, handrails, shaft guards, and sidewalks prior to operational testing.

B. Electrical Systems:
1. Perform insulation resistance tests on wiring except 120-volt lighting, wiring, and control wiring inside electrical panels.
2. Perform continuity tests on grounding systems.

3. Test and set switchgear and circuit breaker relays for proper operation.
4. Check motors for actual full load amperage draw. Compare to nameplate value.

C. Instrumentation Systems:
1. Bench or field calibrate instruments and make required adjustments and control point settings.
2. Energize transmitting and control signal systems, verify proper operation, ranges and settings.

1.06 FUNCTIONAL TESTING

A. Perform checkout and performance testing as specified in the individual equipment specification sections.

B. Functionally test mechanical and electrical equipment, and instrumentation and controls systems for proper operation after general start-up and testing tasks have been completed.

C. Demonstrate proper rotation, alignment, speed, flow, pressure, vibration, sound level, adjustments, and calibration. Perform initial checks in the presence of and with the assistance of the manufacturer's representative.

D. Demonstrate proper operation of each instrument loop function including alarms, local and remote controls, instrumentation and other equipment functions. Generate signals with test equipment to simulate operating conditions in each control mode.

E. Conduct continuous 8-hour test under full load conditions. Replace parts which operate improperly.

1.07 OPERATIONAL TESTING

A. After completion of operator training, conduct operational test of the entire facility. Demonstrate satisfactory operation of equipment and systems in actual operation.

B. Conduct operational test for continuous 12-hour period.

C. OWNER will provide operations personnel, power, fuel, and other consumables for duration of test.

D. Immediately correct defects in material, workmanship, or equipment which became evident during operational test.

E. Repeat operational test when malfunctions or deficiencies cause shutdown or partial operation of the facility or results in performance that is less than specified.

1.08 CERTIFICATE OF PROPER INSTALLATION

A. At completion of Functional Testing, furnish written report prepared and signed by manufacturer's authorized representative, certifying equipment:
1. Has been properly installed, adjusted, aligned, and lubricated.

2. Is free of any stresses imposed by connecting piping or anchor bolts.
3. Is suitable for satisfactory full-time operation under full load conditions.
4. Operates within the allowable limits for vibration.
5. Controls, protective devices, instrumentation, and control panels furnished as part of the equipment package are properly installed, calibrated, and functioning.

B. Furnish written report prepared and signed by the electrical and/or instrumentation Subcontractor certifying:
1. Motor control logic that resides in motor control centers, control panels, and circuit boards furnished by the electrical and/or instrumentation subcontractor has been calibrated and tested and is properly operating.
2. Control logic for equipment start-up, shutdown, sequencing, interlocks and emergency shutdown has been tested and is properly operating.
3. Co-sign the reports along with the manufacturer's representative and subcontractors.

1.09 TRAINING OF OWNER'S PERSONNEL

A. Provide operations and maintenance training for items of mechanical, electrical and instrumentation equipment. Utilize manufacturer's representatives to conduct training sessions.

B. Coordinate training sessions to prevent overlapping sessions. Arrange sessions so that individual operators and maintenance technicians do not attend more than 2 sessions per week.

C. Provide Operation and Maintenance Manual for specific pieces of equipment or systems 1 month prior to training session for that piece of equipment or system.

D. Satisfactorily complete functional testing before beginning operator training.

E. Coordinate training schedule with OWNER.

F. Provide training sessions for equipment as specified in the individual equipment specification sections.

G. The CONTRACTOR shall digitally record all training sessions and provide a copy on a memory stick for the OWNER.

H. The CONTRACTOR shall designate and provide one or more persons to be responsible for coordinating and expediting his/her training duties. The person or persons so designated shall be present at all training coordination meetings with the OWNER.

I. The CONTRACTOR's coordinator shall coordinate the training periods with OWNER personnel and manufacturer's representatives, and shall submit a training schedule for each piece of equipment or system for which training is to be provided. Such training schedule shall be submitted not less than 21 calendar days prior to the time that the associated training is to be provided and shall be based on the current plan of operation.

1.10 RECORD KEEPING

A. Maintain and submit following records generated during start-up and testing phase of Project:
   1. Daily logs of equipment testing identifying all tests conducted and outcome.
   2. Logs of time spent by manufacturer's representatives performing services on the job site.
   3. Equipment lubrication records.
   4. Electrical phase, voltage, and amperage measurements.
   5. Insulation resistance measurements.
   6. Data sheets of control loop testing including testing and calibration of instrumentation devices and setpoints.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

-END OF SECTION-

SECTION 01770

CLOSEOUT PROCEDURES

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes: Contract closeout requirements including:
   1. Final cleaning.
   2. Waste Disposal.
   3. Touch-Up and Repair.
   4. Disinfection of systems.
   5. Preparation and submittal of closeout documents.
   6. Final completion certification.

B. Related Sections:
   1. Section 01722 - Field Engineering.

1.02 FINAL CLEANING

A. Perform final cleaning prior to inspections for Substantial Completion.

B. Use cleaning materials which are recommended by manufacturers of surfaces to be cleaned.

C. Prevent scratching, discoloring, and otherwise damaging surfaces being cleaned.

D. Clean roofs, gutters, downspouts, and drainage systems.

E. Broom clean exterior paved surfaces and rake clean other surfaces of sitework.

F. Remove dust, cobwebs, and traces of insects and dirt.

G. Clean grease, mastic, adhesives, dust, dirt, stains, fingerprints, paint, blemishes, sealants, plaster, concrete, and other foreign materials from sight-exposed surfaces, and fixtures and equipment.

H. Remove non-permanent protection and labels.

I. Clean ducts, blowers and coils when units were operated without filters during construction.

J. Clean light fixtures and replace non-functional lamps.

1.03 WASTE DISPOSAL

A. Arrange for and dispose of surplus materials, waste products, and debris off-site in accordance with applicable Laws and Regulations.

B. Complete leveling and cleanup prior to Substantial Completion.

1.04 TOUCH-UP AND REPAIR

A. Touch-up or repair finished surfaces on structures, equipment, fixtures, and installations that have been damaged prior to inspection for Substantial Completion.

B. Refinish or replace entire surfaces which cannot be touched-up or repaired satisfactorily.

1.05 CLOSEOUT DOCUMENTS

A. Submit following Closeout Submittals upon Substantial Completion and at least 7 days prior to submitting Application for Final Payment:
   1. Project Record Documents.
   2. Operation and Maintenance Manuals.
   3. Keys and Keying Schedule.

1.06 PROJECT RECORD DOCUMENTS

A. Maintain at Project site, available to OWNER and ENGINEER, one copy of the Contract Documents, shop drawings and other submittals, in good order.
   1. Mark and record field changes and detailed information contained in submittals and change orders.
   2. Record actual depths, horizontal and vertical location of underground pipes, duct banks and other buried utilities. Reference dimensions to permanent surface features.
   3. Identify specific details of pipe connections, location of existing buried features located during excavation, and the final locations of piping, equipment, electrical conduits, manholes, and pull boxes. Two reference dimensions (swing ties) to permanent surface structures are required for each buried feature.
   4. Identify location of spare conduits including beginning, ending and routing through pull boxes, and manholes. Record spare conductors, including number and size, within spare conduits, and filled conduits.
   5. Provide schedules, lists, layout drawings, and wiring diagrams.
   6. Make annotations with erasable colored pencil conforming to the following color code:

Additions:	Red
Deletions:	Green
Comments:	Blue
Dimensions:	Graphite

B. Maintain documents separate from those used for construction.
   1. Label documents "RECORD DOCUMENTS."

C. Keep Documents Current:
   1. Record required information at the time the material and equipment is installed and before permanently concealing.

D. Deliver record documents with transmittal letter containing date, Project title, CONTRACTOR's name and address, list of documents, and signature of CONTRACTOR.

E. During progress meetings, record documents will be reviewed to ascertain that changes have been recorded.

1.07 CERTIFICATE OF FINAL COMPLETION

A. After startup testing has been successfully completed, ENGINEER will verify that new facilities are operationally complete. ENGINEER will submit a list of known items (punch list) still to be completed or corrected prior to contract completion.

B. List of items to be completed or corrected will be amended as items are resolved by CONTRACTOR.

C. When all items have been completed or corrected, submit written certification that the entire work is complete in accordance with the Contract Documents and request final inspection.

D. Upon completion of final inspection, ENGINEER will either prepare a written acceptance of the entire work or advise CONTRACTOR of work not complete. If necessary, inspection procedures will be repeated.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

-END OF SECTION-

SECTION 01782

OPERATION AND MAINTENANCE DATA

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes: Preparation and submittal of Operation and Maintenance Manuals.

1.02 SUBMITTALS

A. Submit Operation and Maintenance Manuals before field quality control testing and before training on each piece of equipment or system.

B. Submit 1 hardcopy and 1 electronic manual for each piece of equipment or system.

C. Make manuals available at project site for use by construction personnel and ENGINEER.

D. Make additions and revisions to the Manuals in accordance with ENGINEER's review comments.

1.03 OPERATION AND MAINTENANCE MANUALS

A. Preparation:
   1. Provide hardcopy Operations and Maintenance Manuals in 3-ring binders with rigid covers. Utilize tab sheets to organize information.

B. Contents of Operation And Maintenance Manuals:
   1. Cover Page: Equipment name, equipment tag number, project name, OWNER's name, appropriate date.
   2. Table of Contents: General description of information provided within each tab section.
   3. Lubrication Information: Required lubricants and lubrication schedules.
   4. Control Diagrams:
      a. Internal and connection wiring, including logic diagrams, wiring diagrams for control panels, ladder logic for computer based systems, and connections between existing systems and new additions, and adjustments such as calibrations and set points for relays, and control or alarm contact settings.
   5. Start-Up Procedures: Recommendations for installation, adjustment, calibration, and troubleshooting.
   6. Operating Procedures:
      a. Step-by-step procedures for starting, operating, and stopping equipment under specified modes of operation.
      b. Include safety precautions and emergency operating shutdown instructions.

7. Preventative Maintenance Procedures: Recommended steps and schedules for maintaining equipment.
8. Overhaul Instructions: Directions for disassembly, inspection, repair and reassembly of the equipment; safety precautions; and recommended tolerances, critical bolt torques, and special tools that are required.
9. Parts List: Generic title and identification number of each component part of equipment; include bearing manufacturer, model and ball or roller pass frequencies for every bearing.
10. Spare Parts List: Recommended number of parts to be stored at the site and special storage precautions.
11. Drawings: Exploded view or plan and section views with detailed callouts.
12. Provide electrical and instrumentation schematic record drawings.
13. Source (Factory) Quality Control Test Results: Provide copies of factory test reports if specified.
14. Field Quality Control Test Results: After field-testing is completed, insert field test reports if specified.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

-END OF SECTION-

SECTION 02050

BASIC SITE MATERIALS AND METHODS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Aggregate Base Course – Type A1 Aggregate.
   2. Drain Rock.
   3. Pipe Bedding – Type 1.
   4. Foundation Stabilization – Type 2 Bedding.
   5. Imported Material.
   6. Native Material.
   7. Sand.
   8. Granular Structural Fill.
   9. Top Soil.

1.02 REFERENCES

A. American Society for Testing and Materials (ASTM):
   1. C 117 - Standard Test Method for Materials Finer than 75-µm (No. 200) Sieve in Mineral Aggregates by Washing.
   2. C 131 - Standard Test Method for Resistance to Degradation of Small-Size Course Aggregate by Abrasion and Impact in the Los Angeles Machine.
   3. C 136 - Standard Test Method for Sieve Analysis of Fine and Course Aggregates.
   4. D 422 - Standard Test Method for Particle-Size Analysis of Soils.
   5. D 2419 - Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate.
   6. D 4318 - Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.
   7. D 4829 - Standard Test Method for Expansion Index for Soils.

B. AASHTO Standard Specifications for Transportation Materials and Methods of Sampling and Testing.

1.03 SUBMITTALS

A. Product Data:
   1. Material source.
   2. Gradation.
   3. Testing data.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Storage and Protection: Protect from segregation and excessive moisture during delivery, storage, and handling.

PART 2 MATERIALS

2.01 AGGREGATE BASE COURSE – TYPE A1 AGGREGATE

A. Fine and coarse fragments of crushed stone.

B. May include sand, finely crushed stone, crusher screenings, or similar filler material.

C. Percent of wear not more than 35, at 500 revolutions.
   1. AASHTO T 96: Los Angeles Abrasion Test.

D. Production requirements.
   1. Percentage of fractured particles occurring in the finished product to be uniform and constant.
   2. The percentage of aggregate retained on the No.4 sieve having at least one fractured face as determined by AASHTO T35 to be 60 percent for untreated base and 75 percent for treated base and road mix.
   3. Material may require screening and/or washing prior to crushing to eliminate excessive fines. No additional payment will be made for pre-screening or washing.

E. Test coarse and fine aggregates for soundness.
   1. AASHTO T 104: Soundness of Aggregate by Use of Sodium Sulfate or Magnesium Sulfate.
      a. Five (5) cycles using sodium sulfate.
      b. Maximum loss ≤ 12%.

F. Incorporate all materials passing the No. 4 sieve into the final product unless it is necessary to reduce the amount of this material to meet gradation specifications.

G. Gradations are listed in the chart below. Allowable percent passing No. 4 sieve may be adjusted within the range shown in the table with additional compensation to the Contractor.
   1. Test Methods:
      a. AASHTO T 2: Sampling of Aggregates.
      b. AASHTO T 11: Materials Finer than No. 200 Sieve in Mineral Aggregates by Washing.
      c. AASHTO T 27: Sieve Analysis of Fine and Coarse Aggregates.

Sieve Sizes (Square Openings)	Percent by Weight Passing Sieve
1 inch	100
¾ inch	90-100
Number 4	40-65
Number 8	30-50
Number 200	3-9

2.02 DRAIN ROCK

A. Consist of hard, durable particles of stone or gravel, screened or crushed to specified size and gradation.

B. Free from organic matter, lumps or balls of clay, or other deleterious matter.

C. Percent of wear not more than 50, at 500 revolutions.
   1. AASHTO T 96: Los Angeles Abrasion Test.

D. Crush or waste coarse material and waste fine material as required to meet gradation requirements.

E. Conform to size and grade within the limits as follows when tested in accordance with ASTM C 117 and C 136:

Sieve Size (Square Openings)	Percent By Weight Passing Sieve
3 inch	100
1 Inch	25-60
3/8 Inch	0-4
Number 200	0-2

2.03 Pipe Bedding – Type 1

A. Consist of hard, durable particles of stone or gravel, screened or crushed to specified size and gradation.

B. Percent of wear not more than 50, at 500 revolutions on material retained on No. 4 sieve.
   1. AASHTO T 96: Los Angeles Abrasion Test.

C. The percentage of aggregate retained on the No.4 sieve having at least one fractured face as determined by AASHTO T35 to be 60 percent.

D. Free from organic matter, lumps or balls of clay, or other deleterious matter.

E. Crush or waste coarse material and waste fine material as required to meet gradation requirements.

F. Conform to size and grade within the limits as follows when tested in accordance with ASTM C 117 and C 136:

1 inch	100
3/4 inch	80-100
3/8 inch	20-70
No. 4	5-20
No. 8	0-5
No. 200	0-3

2.04 FOUNDATION STABILIZATION – TYPE 2 BEDDING

A. Consist of hard, durable particles of stone or gravel, screened or crushed to specified size and gradation.

B. Free from organic matter, lumps or balls of clay, or other deleterious matter.

C. Percent of wear not more than 50, at 500 revolutions.
   1. AASHTO T 96: Los Angeles Abrasion Test.

D. Crush or waste coarse material and waste fine material as required to meet gradation requirements.

E. Conform to size and grade within the limits as follows when tested in accordance with ASTM C 117 and C 136:

Sieve Size (Square Openings)	Percent by Weight Passing Sieve
3-inch	100
No. 4	25-60
Number 200	0-12

2.05 IMPORTED MATERIAL

A. Clean, fill dirt material free of roots, refuse, brush, or other debris.

B. 100 percent shall pass a 4-inch screen.

C. Soil shall be classified as GP, GM, GC, SP, SM, SC or ML, in accordance with the Unified Soil Classification System.

2.06 NATIVE MATERIAL

A. Sound, earthen material with less than 3 percent organic material.

B. Top 12 inches of cleared and grubbed material cannot be used as native material except for as storm water retention basin embankment material and for landscaping.

2.07 SAND

A. Clean, coarse, natural sand.

B. Non-plastic when tested in accordance with ASTM D 4318.

C. 100 percent shall pass a 1/2-inch screen.

D. No more than 12 percent shall pass a Number 200 sieve.

2.08 GRANULAR STRUCTURAL FILL

A. Consist of clean, hard, durable particles of crushed rock or gravel screened or crushed to the specified sizes and gradations.

B. Shall be free of any detrimental quantity of soft, friable, thin, elongated, or laminated pieces, disintegrated material, organic matter, oil, alkali, or other deleterious substance.

C. Shall be free of slaking or decomposition under the action of alternate wetting and drying.

D. Percent of wear not more than 50, at 500 revolutions on material retained on No. 4 sieve.
   1. AASHTO T 96: Los Angeles Abrasion Test.

Sieve Size (Square Openings)	Percent by Weight Passing Sieve
6 inch	100
Number 4	15-60
Number 200	0-12

Conform to size and grade when tested in accordance with ASTM C 117 and ASTM C 136.

E. Portion of fine aggregate passing the No. 200 sieve to be less than 60% of that portion passing the No. 40 sieve.

F. Liquid limit of fine aggregate passing the No. 40 sieve ≤ 25. Plasticity Index ≤ 6.
   1. AASHTO T 2: Sampling of Aggregates.
   2. AASHTO T 89: Determining the Liquid Limits of Soils.
   3. AASHTO T 90: Determining the Plastic Limit and Plasticity Index of Soils.

G. Sand Equivalent ≥ 25. Sand Equivalent not required if less than 5% passing the No. 200 sieve.

H. AASHTO T 176: Plastic Fines in Graded Aggregates and Soils by Use of the Sand Equivalent Test.

2.09 TOP SOIL

A. Excavated material up to 12” below stripped surface. Free of rocks larger than 3-inch, roots, refuse, brush, or other debris. Top soil can be used for storm water retention basin embankment material and landscaping surface repair.

PART 3 EXECUTION

Not Used.

-END OF SECTION-

SECTION 02200

SITE PREPARATION

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes: Clearing, grubbing, and stripping of project site.

B. Related Sections:
   1. Section 02050 - Basic Site Materials.

1.02 DEFINITIONS

A. **Clearing:** Consists of removal of natural obstructions and existing foundations, buildings, fences, lumber, walls, stumps, brush, weeds, rubbish, trees, boulders, utility lines, and any other items which shall interfere with construction operations or are designated for removal.

B. **Grubbing:** Grubbing shall consist of the removal and disposal of wood or root matter below the ground surface remaining after clearing and shall include stumps, trunks, roots, or root systems greater than 1 inch in diameter or thickness to a depth of 6 inches below the ground surface.

C. **Stripping:** Stripping shall include the removal and disposal of all organic sod, topsoil, grass and grass roots, and other objectionable material remaining after clearing and grubbing from the areas designated to be stripped. The depth of stripping is estimated to be 6 inches, but the required depth of stripping will be determined by the ENGINEER.

1.03 QUALITY ASSURANCE

A. Regulatory Requirements: Verify and comply with applicable regulations regarding those governing noise, dust, nuisance, drainage and runoff, fire protection, and disposal.

1.04 SEQUENCING AND SCHEDULING

A. Clearing and Grubbing: Perform clearing and grubbing in advance of grading operations.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.01 PREPARATION

A. Protect existing improvements from damage by site preparation work.

3.02 INSTALLATION

A. Clearing:
   1. Clear areas where construction is to be performed and other areas as indicated on the Drawings, or specified in this Section, of fences, lumber, walls, stumps, brush, roots, weeds, trees, shrubs, rubbish, and other objectionable material of any kind which, if left in place, would interfere with proper performance or completion of the work, would impair its subsequent use, or form obstructions therein.
   2. Do not incorporate organic material from clearing and grubbing operations in fills and backfills.
   3. CONTRACTOR's Construction Facilities: Fill or remove pits, fill, and other earthwork required for erection of facilities, upon completion of the work, and level to meet existing contours of adjacent ground.

B. Grubbing:
   1. Grub stumps, roots, and other obstructions 3 inches or over in diameter to depth of not less than 18 inches below finish grade.
   2. Backfill and compact cavities left below subgrade elevation by removal of stumps or roots to density of adjacent undisturbed soil.

C. Stripping:
   1. Remove soil material containing sod, grass, or other vegetation to depth of 6 inches from areas to receive fill or pavement and from area within 5 feet outside foundation walls.
   2. Deposit stripped material in accordance with following requirements:
      a. At locations as accepted.
      b. Use accepted material in top 6 inches of areas to be used for future planting.
   3. Replace topsoil where indicated on the Drawings.

-END OF SECTION-

SECTION 02240

DEWATERING

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Installation and maintenance of dewatering systems.
   2. Disposal of water entering excavation or other parts of the work.

B. Related Sections:
   1. Section 01355 – Stormwater Pollution Prevention Construction Activity

1.02 SYSTEM DESCRIPTION

A. Requirements:
   1. Keep excavations reasonably free from water. The static water level shall be drawn down a minimum of 2 feet below the bottom of excavations.
   2. All water produced by dewatering activities that is discharged to surface water must comply with State of Idaho water quality standards for sediment.
   3. Dewatering shall be coordinated with excavation and shoring design. The shoring and excavation design shall recognize the changes in groundwater conditions and earth pressures.
   4. Do not place concrete or masonry foundations or floors in water, nor allow water to rise over them until concrete or mortar has set at least 24 hours.
   5. Maintain operation of the dewatering system until the complete structure including walls, slabs, beams, struts, and all other structural elements have been constructed and the concrete has attained specified strength, and backfill has been completed to finish grade.

B. Secure written permission from the Engineer before locating wells, well points, or drain lines for purposes of dewatering within limits of structure foundation.

C. Locate dewatering facilities where they will not interfere with utilities and construction work to be performed by others.

D. Open manholes will not be allowed for discharge piping.

1.03 SUBMITTALS

A. Dewatering Plan:
   1. Types, arrangements, locations, and depths of system components.
   2. Type and sizes of filters.
   3. Required discharge permits for disposal of water.

B. Document the following:
   1. The volume of water produced by dewatering activities.

2. The duration of dewatering activities.
3. The method of cleaning the water to remove sediment prior to discharge.

1.04 QUALITY ASSURANCE

A. Regulatory Requirements:
   1. The Contractor shall be responsible for obtaining all water discharge permits that are required.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.01 INSTALLATION

A. Contractor shall obtain coverage under the EPA's Construction General Permit in accordance with Section 01355 if discharge to surface water is anticipated.

B. Provide and Maintain During Construction: Ample means and devices with which to promptly remove and properly dispose of surface water and groundwater entering excavation or other parts of the work.

C. Intercept and divert precipitation and surface water away from excavations through the use of dikes, curb walls, ditches, pipes, sumps, or other means.

D. Disposing of Water:
   1. Dispose of water from the work in suitable manner without damage to adjacent property.
   2. Do not drain water into work built or under construction.
   3. Dispose of water in such manner as not to be menace to public health.

-END OF SECTION-

SECTION 02300

EARTHWORK

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Loosening, excavating, filling, grading, borrow, hauling, preparing subgrade, compacting in final location, wetting and drying, and operations pertaining to site grading for buildings, basins, reservoirs, boxes, roads, and other facilities.
   2. Backfilling and compacting under and around structures.

B. Related Sections:
   1. Section 02050 - Basic Site Materials and Methods.
   2. Section 02240 - Dewatering.

1.02 REFERENCES

A. American Society for Testing and Materials (ASTM):
   1. D 1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand Cone Method.
   2. D 2922 - Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
   3. D 3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

B. American Association of State Highway and Transportation Officials (AASHTO)
   1. T99 – Standard Method of Test for Moisture Density Relations of Soils Using 5.5-lb Rammer and a 12-inch Drop.

1.03 DEFINITIONS

A. Backfill Adjacent to Structure: Backfill within volume bounded by the exterior surfaces of structure, the surface of undisturbed soil in the excavation around structure, and finish grade around structure.

B. Embankments: Dikes, levees, berms, and similar facilities.

C. Excavation: Consists of loosening, removing, loading, transporting, depositing, and compacting in final location, wet and dry materials, necessary to be removed for purposes of construction of structures, ditches, grading, roads, and such other purposes as are indicated on the Drawings.

1.04 SUBMITTALS

A. Copy of property owner’s agreement allowing placement of surplus soil material on their property, if material is placed on any private property.

B. Excavation Plan.

C. Testing Lab: Submit CONTRACTOR's proposed testing laboratory capabilities and equipment.

D. Test Reports: Submit certified test reports of all tests specified to be performed by the CONTRACTOR. Test reports shall be signed and sealed by a registered Civil Engineer who practices geotechnical engineering registered in the state of where the project is located.

1.05 QUALITY ASSURANCE

A. Initial Compaction Demonstration:
   1. Adequacy of Compaction Equipment and Procedures: Demonstrate adequacy of compaction equipment and procedures before exceeding any of following amounts of earthwork quantities:
      a. 50 cubic yards of backfill adjacent to or beneath structures.
      b. 100 cubic yards of embankment work.
      c. 100 cubic yards of fill.
      d. 50 cubic yards of roadway base material.
      e. 100 cubic yards of road fill.
   2. Compaction Sequence Requirements: Until specified degree of compaction on previously specified amounts of earthwork is achieved, do not perform additional earthwork of the same kind.
   3. After satisfactory conclusion of initial compaction demonstration and at any time during construction, provide confirmation tests as specified under "FIELD QUALITY CONTROL."

1.06 SEQUENCING AND SCHEDULING

A. Schedule earthwork operations to meet requirements in this Section for excavation and uses of excavated material.

B. If necessary, stockpile excavated material in order to use it at specified locations.

C. Excavation, Backfilling, and Filling: Perform excavation, backfilling, and filling during construction in manner and sequence that provides drainage at all times.

PART 2 PRODUCTS

2.01 MATERIALS

A. Water for Compacting: Use water from source acceptable to ENGINEER.

B. Soil and Rock Materials:
   1. General:
      a. Provide aggregate base course, drain rock, pipe bedding, imported fill, native soil, sand, and granular structural fill where specified or indicated on the Drawings.

b. If suitable surplus materials are available, obtain native material from cut sections or excavations.

2. Materials Requirements for the following are defined in Section 02050:
   a. Aggregate Base Course – Type A1 Aggregate.
   b. Drain Rock.
   c. Pipe Bedding – Type 1.
   d. Foundation Stabilization – Type 2 Bedding.
   e. Imported Material.
   f. Native Material.
   g. Sand.
   h. Granular Structural Fill.
   i. Top Soil.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verification of Conditions:
   1. Character and Quantity of Material:
      a. Verify character and quantity of rock, gravel, sand, silt, water, and other inorganic or organic materials to be encountered in work to be performed.
      b. Determine suitability of material for use intended in work to be performed as specified in Section 02050.
      c. Determine quantity of material, and cost thereof, required for construction of backfills, cuts, embankments, excavations, fills, and roadway fills, whether from onsite excavations, or borrow areas, or imported materials. Include in cost of work to be performed.
      d. Include wasting of excess material, if required, in cost of work to be performed.

3.02 PREPARATION

A. Backfills:
   1. After clearing is completed, scarify entire areas which underlie backfills or structures to a depth of 6 inches and until surface is free of ruts, hummocks, and other features which would prevent uniform compaction by equipment to be used.
   2. Recompact scarified areas to density specified before placing backfill material or concrete.
   3. No backfill shall be placed against walls until:
      a. Walls have been cast full height of structure and concrete has reached the specified strength.
      b. Connecting slabs and beams have been cast and concrete has reached the specified strength.
   4. Prior to backfilling, all forms shall be removed and the excavation shall be cleaned of all trash and debris.
   5. After inspection of foundation, walls, and pipes, backfill shall be placed symmetrically around structures to prevent eccentric loading of structures.

B. Embankments:

1. After clearing is completed, scarify entire areas which underlie embankments to a depth of 6 inches and until surface is free of ruts, hummocks, and other features which would prevent uniform compaction by equipment to be used.
2. Recompact scarified areas to density specified for embankments before placing of embankment material.

C. Fills:
1. After clearing is completed, scarify entire areas which underlie fill sections or structures to a depth of 6 inches and until surface is free of ruts, hummocks, and other features which would prevent uniform compaction by equipment to be used.
2. Recompact scarified areas to density specified for compacted fills before placing of fill material or concrete.

D. Roadway Fills:
1. After clearing is completed, scarify entire areas which underlie roadway fills to a depth of 6 inches and until surface is free of ruts, hummocks, and other features which would prevent uniform compaction by equipment to be used.
2. Recompact scarified areas to density specified for roadway fills before placing of roadway fill material.

E. Sloped Surfaces for Fill or Foundations:
1. Foundations for fill having slopes in excess of 1':4' (V:H)
   a. Bench or terrace to adequately key existing ground and fill built thereon.
2. Slopes of Original Hillsides and Old Fills: Bench minimum of 10 feet horizontally as fill is placed.
3. Provision of New Benches:
   a. Start new bench wherever vertical cut of next lower bench intersects existing grade.
   b. Recompact material thus cut out along with new embankment material at no additional cost to the OWNER.

3.03 INSTALLATION

A. General:
1. Dispose of excavated materials which are not required or are unsuitable for fill and backfill in lawful manner.
2. Dispose of surplus material on private property only when written permission agreement is furnished by owner of property. Submit copies of such agreements.
3. Rocks, broken concrete, or other solid materials larger than 4 inches in greatest dimension shall not be placed, but shall be removed from project site at no additional cost to OWNER.
4. Stabilization of Subgrade: Provide materials used, or perform work required, to stabilize subgrade so it can withstand loads which may be placed upon it by CONTRACTOR's equipment.

B. Borrow Area: There is no borrow area on Project site.
1. Where material is required, import material from source located off Project site selected by the CONTRACTOR and subject to acceptance by the ENGINEER.

C. Compaction:
   1. Provide specified compaction for backfills, cuts, embankments, fills, roadway fills, and other earthwork.
   2. Perform confirmation tests to verify and confirm that work has complied, and is complying at all times, with compaction requirements specified in this Section for initial compaction demonstration and field quality control testing.
   3. In-place density of compacted backfills, cuts, embankments, fills, and roadway fills determined in accordance with ASTM D 1556, or with ASTM D 2922 and ASTM D 3017.
   4. Maximum density obtained in laboratory when tested in accordance with AASHTO T-99.
   5. To prevent damage to structures due to backfilling operations, backfill shall be placed with equipment that does not exceed H-20 loading, within a distance from the face of the structure of not less than 1/2 the depth of backfill. The depth of backfill is the distance between the level being compacted and the bottom of the excavation. Outside this distance, heavier compaction equipment may be used.
   6. Compact to percentage of maximum density as follows:
      a. Backfill Adjacent to Structures: 95 percent.
      b. Backfilling Voids: 95 percent.
      c. Embankments: 95 percent.
      d. Demolition Areas: 95 percent.
      e. Loose Fill:
         a) No compaction other than by hauling vehicles will be required.
         b) Uniformly distribute travel of vehicles over fill area as required to provide uniformly compacted surface.]
      f. Other areas: 85 percent.
      g. Spoil areas indicated on the Drawings: No minimum required.
      h. Under present and future structures: 95 percent.
      i. Under roadways, parking and storage areas, curbs, and sidewalks: 95 percent.
      j. Upper 6 inches of cuts: 95 percent.
      k. Fills: 95 percent.

D. Excavation:
   1. Blasting: Not permitted.
   2. Excavations for Structures:
      a. Provide excavations conforming to dimensions and elevations indicated on the Drawings for each structure, including trenching for piping and all work incidental thereto.
      b. After clearing is complete, excavate for the structure, down to the elevation indicated on the Drawings. Unless directed by ENGINEER, excavations shall not be carried below elevation indicated on the Drawings.
      c. Where soil is encountered having unsuitable bearing value, ENGINEER may direct in writing that excavation be carried to elevations below those indicated on the Drawings.
      d. Where excavations are made below elevations indicated on the Drawings, adjust elevations of excavations in accordance with the following requirements:

1) Under Slabs: Restore to proper elevation in accordance with procedure specified for backfill in this Section.
2) Under Footings: Restore to the proper elevation using one of the following:
a) Aggregate base-course.

e. Excavation Width:
1) Extend excavations at least 2 feet clear from walls and foundations of structures to allow for placing and removal of forms, installation of services, and inspection.
2) Do not undercut slopes.

f. Difficulty of Excavation: No extra compensation will be made for removal of rock or any other material due to difficulty of excavation.

3. Excavation of Ditches and Gutters:
a. Cut ditches and gutters accurately to cross sections and grades indicated on the Drawings.
b. Take care not to excavate ditches and gutters below grades indicated on the Drawings.
c. Backfill excessive ditch and gutter excavations to grade with suitable material acceptable to ENGINEER that is thoroughly compacted.
d. Do not deposit any material within 3 feet of edge of ditch unless otherwise indicated on the Drawings.

4. Necessary Over Excavation:
a. Where it becomes necessary to excavate beyond normal lines of excavation in order to remove boulders or other interfering objects, backfill voids remaining after removal as specified in backfilling of voids below, or as acceptable to the ENGINEER.
b. Backfill voids with aggregate base course or other material acceptable to the ENGINEER.

E. Materials for Backfills, Embankments, Fills, Roadway Fills:
1. General:
a. Obtain import material from other sources if surplus materials from cuts and excavations obtained from within Project site do not conform to specified requirements or are not sufficient in quantity for construction of Project.

2. Backfills:
a. Unless otherwise specified or indicated on the Drawings, material for Backfill adjacent to structures, slabs, or walls shall consist of native soil or imported material meeting the requirements of native soil.
b. Backfill material under concrete structures shall consist of aggregate base course material, except in areas where concrete encasement is indicated on the Drawings.
c. Backfill in any area under concrete structures shall extend from undisturbed soil or rock to the bottom aggregate base course material layer.

3. Embankments:
a. Unless otherwise specified or indicated on the Drawings, material for embankments shall consist of native material, or imported material meeting the requirements native material.

4. Fills:
    a. Unless otherwise specified or indicated on the Drawings, material for fills shall consist of native material or imported material meeting the requirements of native material.
    b. Fill in any area under concrete structures shall extend from undisturbed soil or rock to the bottom aggregate base course material layer.
5. Roadway Fills: Unless otherwise specified or indicated on the Drawings, material within roadways shall be aggregate base course, granular structural fill, and/or Type II Bedding material.

F. Placement:
1. Lines and Grades:
    1) Construct Backfills, embankments, fills, and road fills, at locations and to lines and grades indicated on the Drawings.
    2) All permanent fill slopes shall be overbuilt by at least 1 foot and then cut to final grade to provide adequate compaction of the remaining fill.
2. Backfills, Fills, Embankments, and Roadway Fills:
    a. Place loose material in successive layers that do not exceed 8 inches in depth after compaction.
    b. Bring each layer to a moisture content between optimum moisture content and 3 percent above optimum moisture content before compacting.
    c. Remove and recompact if necessary to achieve compaction to the specified percentage of maximum density.

3.04 FIELD QUALITY CONTROL

A. Tests:
1. Confirmation Tests:
    a. CONTRACTOR's Responsibilities:
        1) Accomplish specified compaction for backfills, fills, and other earthwork.
        2) Control operations by confirmation tests to verify that compaction work complies, and is complying at all times, with requirements specified in this Section concerning compaction, control, and testing.
        3) Cost of Confirmation Tests: Paid for by the CONTRACTOR.
        4) Qualifications of CONTRACTOR's Testing Laboratory: Perform confirmation testing by soils testing laboratory acceptable to the ENGINEER.
        5) Copies of Confirmation Test Reports: Submit promptly to the ENGINEER.
2. Compliance Tests:
    a. Periodic compliance tests will be made by the ENGINEER to verify that compaction is meeting requirements previously specified.
    b. Remove overburden above level at which the ENGINEER wishes to test. Backfill and recompact excavation after testing is completed.
    c. If compaction fails to meet specified requirements, perform remedial work by one of the following methods:
        1) Remove and replace materials at proper density.
        2) Bring density up to specified level by other means acceptable to the ENGINEER.

d. Retesting:
   1) Costs of retesting required to confirm and verify that remedial work has brought compaction within specified requirements shall be borne by the CONTRACTOR.
   2) CONTRACTOR's Confirmation Tests During Performance of Remedial Work: Double the normal rate specified herein.

B. Tolerances:
   1. Finish Grading of Backfills, Cuts, Embankments, Fills, and Roadway Fills:
      a. Perform fine grading under concrete structures such that finish surfaces are never above the grade or cross section indicated on the Drawings and are never more than 0.10 feet below.
      b. Provide finish surface for areas outside of structures that are within 0.10 feet of grade or cross section indicated on the Drawings.
   2. Areas not under structures, concrete, asphalt, dikes, and similar facilities:
      a. Provide finish graded surfaces of either undisturbed soil, or cohesive material not less than 6 inches deep.
      b. Intent of proceeding is to avoid sandy or gravelly areas.
   3. Finish Grading of Surfaces:
      a. Reasonably smooth, compacted, and free from irregular surface changes.
      b. Provide degree of finish that is ordinarily obtainable from blade grader operations, except as otherwise specified.
      c. Uniformly grade areas which are not under concrete.
      d. Finish ditches and gutters so that they drain readily.

3.05 ADJUSTING

A. Finish Grades of Excavations, Backfills, and Fills:
   1. Repair and reestablish grades to required elevations and slopes due to any settlement or erosion that may occur from action of the elements or any other cause prior to final acceptance.

3.06 PROTECTION

A. Finish Grades of Backfills, Cuts, Excavations, and Fills:
   1. Protect newly graded areas from erosion and deterioration by action of the elements.

B. Ditches and Gutters:
   1. Maintain ditches and gutters free from detrimental quantities of debris that might inhibit drainage until final acceptance.

-END OF SECTION-

SECTION 02318

TRENCHING

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes: Trench excavation, fine grading, pipe bedding, backfilling, and compaction for the following, including requirements for ditch crossings:
   1. Pipes, electrical and control duct banks, and electrical and control conduits.
   2. Manholes, valves, or other accessories.
   3. Potable water pipe appurtenances.

B. Related Sections:
   1. Section 02050 - Basic Site Materials and Methods.
   2. Section 02240 – Dewatering

1.02 REFERENCES

A. American Society for Testing and Materials (ASTM):
   1. D 1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand Cone Method.
   2. D 2922 - Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
   3. D 3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

B. American Association of State Highway and Transportation Officials (AASHTO)
   1. T99 – Standard Method of Test for Moisture Density Relations of Soils Using 5.5-lb Rammer and a 12-inch Drop.

1.03 SUBMITTALS

A. Lab certification.

B. Confirmation test reports.

1.04 QUALITY ASSURANCE

A. Initial Compaction Demonstration:
   1. Adequacy of Compaction Equipment and Procedures: Demonstrate adequacy of compaction equipment and procedures before exceeding 200 linear feet of trench backfill.
   2. Compaction Sequence Requirements: Until specified degree of compaction on previously specified amounts of earthwork is achieved, do not perform additional earthwork of the same kind.

3. After satisfactory conclusion of initial compaction demonstration and at any time during construction, provide confirmation tests as specified under "FIELD QUALITY CONTROL."

PART 2 PRODUCTS

2.01 MATERIALS

A. Soil and Rock Materials: As specified in Section 02050.
   1. Aggregate Base Course
   2. Drain Rock
   3. Pipe Bedding
   4. Imported Material
   5. Native Material
   6. Sand
   7. Granular Structural Fill
   8. Top Soil

PART 3 EXECUTION

3.01 PREPARATION

A. General:
   1. Before laying pipes in fill, place fill and compact it to not less than 2 feet above top of pipe. After placing and compacting fill, excavate pipe trench through fill.

B. Protection: Stabilize trench excavations in accordance with OSHA regulations.

3.02 INSTALLATION

A. Trench Excavation:
   1. General Requirements:
      a. Rock: If bottom of excavation is found to consist of rock or any material that by reason of its hardness cannot be excavated to provide uniform bearing surface, remove such rock or other material to a depth of not less than 4 inches below bottom of pipe and fill overcut with Type A1 aggregate base course material to up to bottom of pipe bedding material and grade as specified.
      b. Soft or Unstable Material: If bottom of excavation is found to consist of soft or unstable material which is incapable of providing proper support, remove such material to a depth and for the length required, as determined by the ENGINEER. Refill trench to bottom of pipe bedding material with foundation stabilization Type II Bedding material compacted to 95% of maximum density per AASHTO T99 test.
      c. Trench Widths:
         1) Clear Width of Trench for Pipe (Measured at Top of Pipe):
            a) Not less than outside diameter of the pipe plus 24 inches.
      d. For Manholes, Valves, or Other Accessories:

1) Provide excavations sufficient to leave at least 12 inches clear between their outer surfaces and sides of trench or shoring.
2) Backfilling of Manhole Excavation: Conform to backfilling requirements as specified for trenches in this Section.
3) Backfill under manholes, vaults, tanks, or valves with Type I bedding. Do not backfill with native material.
4) Fill any excess excavation below elevation indicated on the Drawings for foundation of any structure with Type A1 aggregate base course material at no additional cost to OWNER.

e. Potable Water Pipe Appurtenances:
1) Lay in trenches separate from those used for sewers.
2) Unless otherwise specified or indicated on the Drawings, lay in trenches having cover of not less than 4 feet below surface of ground and located at distance of not less than 10 feet from any parallel sewer trench.

f. At Road Crossings or Existing Driveways:
1) Make provision for trench crossings at these points, either by means of backfills, tunnels, or temporary bridges.

B. Pipe Bedding:
1. Placement of pipe bedding material shall be as scheduled herein.
a. Excavate bottom of trench to a depth of at least 4 inches below bottom of pipe.
b. Place Type 1 pipe bedding material at uniform density, with minimum possible compaction.
c. Where trench excavation is below grade of bottom of fine grading material, restore trench bottom to proper grade by backfilling with Type 2 foundation stabilization material and compacting to 95 percent of maximum density per AASHTO T99 test, at no additional cost to OWNER.
2. Bell or Coupling Holes:
a. Dig holes to accommodate bells or couplings after trench bottom has been graded.
b. Excavate holes only as necessary for making joints and to ensure that the body of the pipe rests upon prepared trench bottom, and the pipe is not supported by any portion of the joint, bell, or coupling.
3. Depressions for Joints, Other than Bell-and-Spigot:
a. Make in accordance with recommendations of joint manufacturer for particular joint used.
4. Place bedding material under and around pipe in 6-inch maximum lifts of bedding material, to level 6 inches minimum above top of pipe. Compact to 95 percent of maximum density per AASHTO T99 test.

5. Pipe Displacement:
    a. Take necessary precautions in placement and compaction of bedding material to prevent displacement of piping.
    b. In event there is movement or floating of the piping, re-excavate, re-lay, and backfill the pipe.

C. Trench Backfill Under Structures and Storage Tanks:
    a. Backfill trench up to underside of foundation or floor slab with lean concrete backfill as defined on Sheet G-2 of the Drawings, unless otherwise indicated on the Drawings**.**

D. Trench Backfill in all Other Areas:
    1. Backfill above Type 1 Pipe Bedding with native material or imported material meeting the requirements of native material. Place in 8-inch maximum lifts and compact to 95% of maximum density per AASHTO T99 test.

E. Compaction:
    1. Determine in-place density of compacted trench backfill and bedding in accordance with ASTM D 1556, or with ASTM D 2922 and ASTM D 3017.
    2. Maximum density obtained in laboratory when tested in accordance with AASHTO T-99.

F. Consolidation:
    a. Do not use water settling methods such as flooding, pooling, or jetting.

G. Dewatering:
    1. Conduct dewatering operations in accordance with Section 02240 if required.

H. Excess Material:
    1. Remove excess excavated material from the Project site as specified in Section 02300.

3.03 FIELD QUALITY CONTROL

A. Compaction Confirmation Tests:
    1. Contractor's Responsibilities:
        a. Accomplish specified compaction of trench backfill.
        b. Control operations by confirmation tests to verify and confirm that compaction work complies, and is complying at all times, with requirements specified in this Section concerning compaction, control, and testing.
        c. Cost of Confirmation Tests: Paid for by the CONTRACTOR.
        d. Qualifications of Contractor's Testing Laboratory: Acceptable to ENGINEER. Provide lab certification.
        e. Copies of Confirmation Test Reports: Submit promptly to the ENGINEER.
        f. Frequency of Confirmation Testing:
            1) Perform testing not less than as follows:
                a) For Trenches: At each test location include tests for each type or class of backfill from bedding to finish grade.
                b) In Open Fields: 2 every 1,000 linear feet.

c) Along Dirt or Gravel Road or off Traveled Right-of-Way: Two every 500 linear feet.
d) Crossing Paved Roads: 2 locations along each crossing.
e) Under Pavement Cuts or Within 2 Feet of Pavement Edges: 1 location every 400 linear feet.

2. Compliance Tests:
   a. Frequency of Testing: Periodic compliance tests will be made by the ENGINEER to verify that compaction is meeting requirements previously specified.
   b. If Compaction Fails to Meet Specified Requirements: Perform remedial work by one of the following methods:
      1) Remove and replace backfill at proper density.
      2) Bring density up to specified level by other means acceptable to the ENGINEER.
3. Retesting:
   a. Costs of Retesting: Costs of retesting required to confirm and verify that remedial work has brought compaction within specified requirements shall be borne by the CONTRACTOR.
   b. CONTRACTOR's Confirmation Tests During Performance of Remedial Work:
      1) Performance: Perform tests in manner acceptable to the ENGINEER.
      2) Frequency: Double amount specified for initial confirmation tests.

-END OF SECTION-

SECTION 02821

CHAIN LINK FENCES AND GATES

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Fence framework, fabric, and accessories.
   2. Excavation for post bases; concrete foundation for posts, and center drop for gates.
   3. Manual gates and related hardware.

B. Related Sections:
   1. Section 01330 - Submittal Procedures.

1.02 REFERENCES

A. American Society for Testing and Materials (ASTM):
   1. A 123 - Specification for Zinc (Hot Dip Galvanized) Coatings on Iron and Steel Products.
   2. A 153 - Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
   3. A 392 - Specification for Zinc-Coated Steel Chain-Link Fence Fabric.
   4. F 567 - Practice for Installation of Chain-Link Fence.
   5. F 1043 - Specification for Strength and Protective Coatings on Metal Industrial Chain Link Fence Framework.
   6. F 1083 - Specification for Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures.

1.03 SUBMITTALS

A. Submit in accordance with Section 01330, Submittal Procedures.

B. Product Data: Provide data on fabric, posts, accessories, fittings and hardware.

C. Manufacturer's Installation Instructions: Indicate installation requirements.

D. Shop Drawings: Indicate plan layout, grid, spacing of components, post foundation dimensions, hardware anchorage, hardware, and schedule of components.

E. American Iron and Steel: Manufacturers certification letter of compliance with American Iron and Steel requirements.

PART 2 PRODUCTS

2.01 MATERIALS

A. Fence Posts and Rails: Sch. 40 pipe conforming to ASTM F1083 with galvanized coating per ASTM F1043, Group 1A.

B. Fence Fabric: ASTM A 392 zinc coated wire fabric, 2-inch diamond mesh 9-gauge interwoven wire, galvanized after weave type, with knuckle-barbed selvage. Furnish with 2 ounces/square foot zinc coating.

C. Top and Brace Rail: 1.66-inch diameter, plain end, sleeve coupled pipe. Provide continuous top rails in manufacturer's longest lengths, with expansion type couplings for each joint. Provide necessary fittings for attaching top rail to each gate, corner, pull and end post. Furnish with galvanized coating per ASTM F1043, Group 1A.

D. Gate Frame: 1.66-inch diameter for welded fittings and truss rod fabrication. Furnish with galvanized coating per ASTM F1043, Group 1A.

E. Tension Wire: 6 gage thick steel, single strand, galvanized coating to match fence fabric.

F. Tie Wire: 9-gauge steel ties, galvanized coating to match fence fabric.

2.02 ACCESSORIES

A. Caps: Galvanized steel; sized to post diameter, set screw retainer.

B. Fittings: Sleeves, bands, clips, rail ends, tension bars, fasteners and fittings; galvanized steel.

C. Gate Hardware: Center gate stop and drop rod; two 180-degree gate hinges per leaf and hardware for padlock.

2.03 FINISHES

A. Components and Fabric: Galvanized to ASTM A 123; 2.0 ounces per square foot coating.

B. Hardware: Galvanized to ASTM A 153, 2.0 ounces per square foot coating.

C. Accessories: Same finish as framing.

PART 3 EXECUTION

A. Install framework, fabric, accessories and gates in accordance with manufacturer's instructions and ASTM F567. Do not stretch fabric until concrete post footings have cured a minimum of 7 days.

-END OF SECTION-

SECTION 09910

PAINTING

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Field applied paints and coatings for normal exposures
2. Painting Accessories.

1.02 DEFINITIONS

A. Paints: Manufacturer's best ready-mixed coatings, except when field catalyzed, with fully ground pigments having soft paste consistency and capable of being readily and uniformly dispersed to complete homogeneous mixture, having good flowing and brushing properties, and capable of drying or curing free of streaks or sags.

B. Volatile Organic Compound (VOC): Content of air polluting hydrocarbons in uncured coating product measured in units of grams per liter or pounds per gallon.

1.03 REFERENCES

A. American Society for Testing and Materials (ASTM):

1. D 16 - Terminology Relating to Paint, Varnish, Lacquer, and Related Products.

B. National Sanitary Foundation (NSF):

1. NSF 61 - Drinking Water System Components - Health Effects.

C. SSPC – Society for Protective Coatings:

1. SSPC SP1 - Solvent Cleaning.
2. SSPC SP2 - Hand Tool Cleaning.
3. SSPC SP3 - Power Tool Cleaning.
4. SSPC SP5 - White Metal Blast Cleaning.
5. SSPC SP6 - Commercial Blast Cleaning.
6. SSPC SP7 - Brush-Off Blast Cleaning.
7. SSPC SP10 - Near-White Blast Cleaning.
8. SSPC SP 11 - Power Tool Cleaning to Bare Metal.
9. SSPC-SP 12 - High- and Ultrahigh-Pressure Water Jetting.

1.04 SUBMITTALS

A. Shop Drawings: Include schedule of where and for what use coating materials are proposed in accordance with requirements for Product Data.

B. Product Data: Include description of physical properties of coatings including solids content and ingredient analysis, VOC content, temperature resistance, typical exposures and limitations, and manufacturer's standard color chips.

C. Samples: Include 8 inch square draw-downs or brush-outs of topcoat finish when requested. Identify each sample as to finish, formula, color name and number and sheen name and gloss units.

D. Manufacturer's Instructions: Submit in accordance with requirements for Product Data. Include:

1. Special requirements for transportation and storage.
2. Mixing instructions.
3. Shelf Life.
4. Pot life of material.
5. Precautions for applications free of defects.
6. Surface preparation.
7. Method of application.
8. Recommended number of coats.
9. Recommended thickness of each coat.
10. Recommended total thickness.
11. Drying time of each coat, including prime coat.
12. Required prime coat.
13. Compatible and non-compatible prime coats.
14. Recommended thinners, when recommended.
15. Limits of ambient conditions during and after application.
16. Time allowed between coats.
17. Required protection from sun, wind and other conditions.
18. Touch-up requirements and limitations.

1.05 QUALITY ASSURANCE

A. Products: First line or best grade.

B. Materials for Each Paint System: By single manufacturer.

C. Applicator Qualifications: Applicator of products similar to specified products with minimum 3 years experience.

D. Regulatory Requirements: Comply with by using paints that do not exceed governing agency's VOC limits or do not contain lead.

E. Field Samples: Paint one complete surface of each color scheme to show colors, finish texture, materials and workmanship. Obtain approval before painting other surfaces.

1.06 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products in accordance with Section 01600.

B. Remove unspecified and unapproved paints from Project site immediately.

C. Deliver containers with labels identifying the manufacturer's name, brand name, product type, batch number, date of manufacturer, expiration date or shelf life, color, and mixing and reducing instructions.

D. Store coatings in well ventilated facility that provides protection form the sun weather, and fire hazards. Maintain ambient storage temperature between 45 and 90 degrees Fahrenheit, unless otherwise recommended by the manufacturer.

E. Take precautions to prevent fire and spontaneous combustion.

1.07 ENVIRONMENTAL CONDITIONS

A. Surface Moisture Contents: Do not paint surfaces that exceed manufacturer specified moisture contents, or when not specified by the manufacturer, the following moisture contents:

1. Plaster and Gypsum Wallboard: 12 percent.
2. Masonry, Concrete and Concrete Block: 12 percent.
3. Interior Located Wood: 15 percent.
4. Concrete Floors: 7 percent.

B. Do Not Paint or Coat:

1. Under dusty conditions.
2. When light on surfaces measures less than 15 foot-candles.
3. When ambient or surface temperature is less than 50 degrees Fahrenheit or unless manufacturer allow a lower temperature.
4. When relative humidity is higher than 85 percent.
5. When surface temperature is less than 5 degrees Fahrenheit above dew point.
6. When surface temperature exceeds the manufacturer's recommendation.

7. When ambient temperature exceeds 90 degrees Fahrenheit, unless manufacturer allows a higher temperature.
8. Apply clear finishes at minimum 65 degrees Fahrenheit.

C. Provide fans, heating devices, or other means recommended by coating manufacturer to prevent formation of condensate or dew on surface of substrate, coating between coats and within curing time following application of last coat.

D. Provide adequate continuous ventilation and sufficient heating facilities to maintain minimum 50 degrees Fahrenheit for 24 hours before, during and 48 hours after application of finishes.

1.08 PROTECTION

A. Protect adjacent surfaces from paint and damage. Repair damage resulting from inadequate or unsuitable protection.

B. Furnish sufficient drop cloths, shields and protective equipment to prevent spray or droppings from fouling surfaces not being painted and in particular, surfaces within storage and preparation area.

C. Place cotton waste, cloths, and material that may constitute fire hazard in closed metal containers and remove daily from site.

D. Remove electrical plates, surface hardware, fittings and fastenings, prior to painting operations. Carefully store, clean and replace on completion of painting in each area. Do not use solvent or degreasers to clean hardware that may remove permanent lacquer finish.

1.09 EXTRA MATERIALS

A. Extra Materials: Deliver in accordance with Section 01770. Include minimum 1 gallon of each type and color of coating applied.

1. When manufacturer packages material in gallon cans, deliver unopened labeled cans as comes from factory.
2. When manufacturer does not package material in gallon cans, deliver material in new gallon containers, properly sealed and identified with typed labels indicating brand, type and color.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Paints: One of the following or equal:

1. Carboline: Carboline, St. Louis, MO.

2. Devoe: Devoe Coatings, Louisville, KY.
3. Pittsburgh: Pittsburgh Paints.
4. P & L: Pratt & Lambert.
5. S-W: Sherwin-Williams Co., Cleveland, OH.
6. Tnemec: Tnemec Co., Kansas City, MO.

B. Submit requests for substitutions to architect for approval.

1. Include certified ingredient analyses.
2. Provide colors that match specified colors.

2.02 PRETREATMENT, PRIMERS, PRIMER-SEALERS

A. Concrete Masonry Filler/primer: One of following or equal:

1. S-W: B42W25, Block Filler Interior/Exterior.
2. Tnemec: 130-6601, Envirofill.

B. Galvanized Metal Surface Pretreatment Materials: One of following or equal:

1. Amercoat: 59.
2. S-W: P60G2, Wash Primer.
3. Tnemec: 32-1210, Tneme-Grip.

C. Galvanized Metal Surface Primer: One of following or equal:

1. S-W: B66W1 for alkyd. None for latex systems.
2. Tnemec: Series 135 Chembuild.

2.03 PAINTS, INTERIOR EXPOSURE

A. Latex, Flat: One of following or equal: Submit color to architect for approval.

1. S-W: Promar 200, Latex Flat Wall Paint.
2. Tnemec: Series 6, Tneme Cryl.

B. Latex, Semi-gloss: One of following or equal: Submit color to architect for approval.

1. S-W: Promar 200, Latex Semi-Gloss Wall Paint.
2. Tnemec: Series 7, Tneme Cryl.

C. Alkyd, Gloss: One of following or equal: Submit color to architect for approval.

1. S-W: B54Z, Industrial Enamel, VOC Complying.

D. Acrylic, Semi-gloss: One of following or equal: Submit color to architect for approval.

1. S-W: B31W200, ProMar 200 Interior Latex, Semi Gloss Enamel.

2.04 PAINTS, EXTERIOR EXPOSURE

A. Latex, Flat: One of following or equal: Submit color to architect for approval.

1. S-W: Loxon XP, Flat Exterior Latex.
2. Tnemec: W55 WB, Tneme-Crete.

B. Alkyd, Gloss: One of following or equal: Submit color to architect for approval.

1. S/W: B54Z, Industrial Enamel, VOC Complying.

C. Acrylic Latex, Semi-gloss: One of following or equal: Submit color to architect for approval.

1. S/W: A100, Latex House and Trim Paint.

PART 3 EXECUTION

3.01 INSPECTION

A. Thoroughly examine surfaces scheduled to be painted before starting work.

B. Start painting when unsatisfactory conditions have been corrected.

3.02 SURFACE PREPARATION

A. Prepare surfaces in accordance with paint manufacturer's instructions or when none, the following:

1. Gypsum Wallboard: Remove contamination and prime to show defects. Repair and prime defects.
2. Galvanized Surfaces: Remove surface contamination and oils and wash with degreasers. Apply coat of etching type primer.
3. Zinc Coated Surfaces: Remove surface contamination and oils and prepare for priming in accordance with metal manufacturer's recommendations.
4. Concrete and Concrete Masonry: Remove dirt, loose mortar, scale, powder and other foreign matter. Remove oil and grease with solution of tri-sodium phosphate. Remove stains caused by weathering of corroding metals with solution of sodium metasilicate. Rinse well and allow to thoroughly dry. Spot prime exposed metal with alkyd primer.
5. Unprimed Steel and Iron: Remove grease, rust, scale, dirt and dust by wire brushing, sandblasting or other necessary method.
6. Shop Primed Steel: Sand and scrape to remove loose primer and rust. Feather out edges to make touch-up patches inconspicuous. Clean surfaces. Prime bare steel surfaces.
7. Mildew: Remove by scrubbing with solution of tri-sodium phosphate and chlorine bleach. Rinse with clean water and allow surface to dry completely.

3.03 APPLICATION

A. Apply each coat at proper consistency.

B. Tint each coat of paint slightly darker than preceding coat.

C. Sand lightly between coats to achieve required finish.

D. Do not apply finishes on surfaces that are not sufficiently dry.

E. Allow each coat of finish to dry before following coat is applied, unless directed otherwise by manufacturer.

F. Where clear finishes are required ensure tint fillers match wood. Work fillers well into grain before set. Wipe excess from surface.

G. Prime top and bottom edges of wood and metal doors with enamel undercoat when they are to be painted.

H. Prime top and bottom edges of wood doors with gloss varnish when they are to receive stain or clear finish.

3.04 MECHANICAL AND ELECTRICAL EQUIPMENT

A. Identify equipment, ducting, piping, and conduit in accordance with Related Sections.

B. Remove grilles, covers and access panels for mechanical and electrical system from location and paint separately.

C. Finish paint primed equipment with color selected by the ENGINEER.

D. Prime and paint insulated and bare pipes, conduits, boxes, insulated and bare ducts, hangers, brackets, collars and supports, except where items are plated or covered with prefinished coating.

E. Replace identification markings on mechanical or electrical equipment when painted over or spattered.

F. Paint interior surfaces of air ducts, convector and baseboard heating cabinets that are visible through grilles and louvers with 1 coat of flat black paint, to limit of sight line.

G. Paint dampers exposed immediately behind louvers, grilles, convector and baseboard cabinets to match face panels.

H. Paint exposed conduit and electrical equipment occurring in finished areas with color and texture to match adjacent surfaces.

I. Paint both sides and edges of plywood backboards for electrical equipment before installing backboards and mounting equipment on them.

J. Color code equipment, piping, conduit and exposed ductwork and apply color banding and identification, such as flow arrows, naming and numbering, in accordance with DIVISIONS 15 and 16.

3.05 SURFACES NOT REQUIRING FINISHING

A. Stainless Steel, Brass, Bronze, Copper, Monel, Chromium, Anodized Aluminum: Specially finished articles such as porcelain enamel, plastic coated fabrics, and baked enamel.

B. Finished products such as ceramic tile, windows, glass, brick, resilient flooring, acoustical tiles, board and metal tees; other architectural features, such as finish hardware, furnished in aluminum, bronze or plated ferrous metal, prefinished panels, or other items that are installed prefinished.

C. Items completely finished at factory, such as preformed metal roof and wall panels, aluminum frames, toilet compartments, sound control panels, acoustical tiles, shower compartments, folding partition, flagpole.

3.06 CLEANING

A. As work proceeds and upon completion, promptly remove paint where spilled, splashed, or spattered.

B. During progress of work, keep premises free from unnecessary accumulation of tools, equipment, surplus materials and debris.

C. Upon completion of work, leave premises neat and clean.

3.07 INTERIOR PAINT SCHEDULE

A. Concrete Masonry: 2 Coats of following finish paints over block filler:

1. Water proofing, Flat:
    a. S-W: Loxon XP. Clear crystal.

B. Metal, Interior Doors and Frames, Non-Galvanized Ferrous: 2 coats of following finish paints over specified primer.

1. Powder Coated Finish Flat:
    a. See Manufacturer. Gray.

C. Plywood: 2 coats of the following paints over latex primer:

1. Latex, gloss
    a. S-W: Superpaint, Ibis White.

3.08 EXTERIOR PAINT SCHEDULE

A. Metal: 2 Coats of following finish paints over pretreatment and specified primer:

1. Powder Coated Finish:
    a. See Manufacturer.

B. Hardiboard/wood: 2 coats of the following finish paints over primer:

1. Latex, Flat
    a. S-W: Superpaint. Ibis White.

-END OF SECTION-

SECTION 09960

COATINGS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes: Field applied coatings.

B. Related Sections:
1. Section 01312 - Project Meetings.
2. Section 01770 - Closeout Procedures.
3. Section 09910 - Paints.
4. Section 15251 – Ductile Iron Piping.

1.02 REFERENCES

A. American Society for Testing and Materials (ASTM):
1. D 4262-83 - Test Method for pH of Chemically Cleaned or Etched Concrete Surfaces.
2. D 4263-83 - Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method.
3. D4285-83 - Test Method for Indicating Oil or Water in Compressed Air.
4. D4541-93 - Test Method for Pull-off Strength of Coatings Using Portable Adhesion Testers.

B. NACE International, The Corrosion Society (NACE):
1. RPO188-99 - Discontinuity (Holiday) Testing of Protective Coatings.

C. National Association of Pipe Fabricators (NAPF):
1. NAPF 500-03 - Surface Preparation Standard for Ductile Iron Pipe and Fittings Receiving Special External Coatings and/or Special Internal Linings.

D. NSF International (NSF):
1. NSF 61 - Drinking Water System Components - Health Effects.

E. SSPC – Society for Protective Coatings:
1. SSPC SP1 - Solvent Cleaning.
2. SSPC SP2 - Hand Tool Cleaning.
3. SSPC SP3 - Power Tool Cleaning.
4. SSPC SP5 - White Metal Blast Cleaning.
5. SSPC SP6 - Commercial Blast Cleaning.
6. SSPC SP7 - Brush-Off Blast Cleaning.
7. SSPC SP10 - Near-White Blast Cleaning.
8. SSPC SP 11 - Power Tool Cleaning to Bare Metal.
9. SSPC-SP 12 - High- and Ultrahigh-Pressure Water Jetting.

F. Underwriters' Laboratory (UL):
   1. UL 3P83 - Drinking Water System Components - Health Effects.

1.03 DEFINITIONS

A. Submerged Metal: Steel or iron surfaces below tops of channel or structure walls which will contain water even when above expected water level.

B. Submerged Concrete and Masonry Surfaces: Surfaces which are or will be:
   1. Underwater.
   2. In structures which normally contain water.
   3. Below tops of walls of water containing structures.

C. Exposed Surface: Any metal or concrete surface, indoors or outdoors that is exposed to view.

D. Dry Film Thickness (DFT): Thickness of fully cured coating, measured in mils.

E. Volatile Organic Compound (VOC): Content of air polluting hydrocarbons in uncured coating product measured in units of grams per liter or pounds per gallon, as determined by EPA Method 24.

F. Ferrous: Cast iron, wrought iron, and all steel alloys except stainless steel.

G. Where SSPC surface preparation standards are specified or implied for ductile iron pipe or fittings, the equivalent NAPF surface preparation standard shall be substituted for the SSPC standard.

1.04 PERFORMANCE REQUIREMENTS

A. Coating materials for concrete and metal surfaces shall be especially adapted for use in wastewater treatment plants.

B. Coating for final coats shall be fume resistant, compounded with pigment suitable for exposure to sewage gases, especially to hydrogen sulfide and to carbon dioxide.

C. Pigments shall be materials that do not darken, discolor, or fade due to action of sewage gases.

D. Coating materials used in conjunction with potable water supply systems shall be certified to NSF 61 or UL 3P83.

1.05 SUBMITTALS

A. General: Submit in accordance with Section 01330.

B. Shop Drawings: Include schedule of where and for what use coating materials are proposed in accordance with requirements for Product Data.

C. Product Data: Include description of physical properties of coatings including solids content and ingredient analysis, VOC content, temperature resistance, typical exposures and limitations, and manufacturer's standard color chips.

1. Regulatory Requirements: Submit data concerning the following:
   a. Volatile organic compound limitations.
   b. Coatings containing lead compounds and PCBs.
   c. Abrasives and abrasive blast cleaning techniques, and disposal.
   d. NSF or UL certification of coatings for use in potable water supply systems.

D. Samples: Include 8-inch square drawdowns or brush-outs of topcoat finish when requested. Identify each sample as to finish, formula, color name and number and sheen name and gloss units.

E. Certificates: Submit in accordance with requirements for Product Data.

F. Manufacturer's Instructions: Include the following:
   1. Special requirements for transportation and storage.
   2. Mixing instructions.
   3. Shelf life.
   4. Pot life of material.
   5. Precautions for applications free of defects.
   6. Surface preparation.
   7. Method of application.
   8. Recommended number of coats.
   9. Recommended dry film thickness (DFT) of each coat.
   10. Recommended total dry film thickness (DFT).
   11. Drying time of each coat, including prime coat.
   12. Required prime coat.
   13. Compatible and non-compatible prime coats.
   14. Recommended thinners, when recommended.
   15. Limits of ambient conditions during and after application.
   16. Time allowed between coats (minimum and maximum).
   17. Required protection from sun, wind and other conditions.
   18. Touch-up requirements and limitations.

G. Manufacturer's Representative’s Field Reports.

H. Operations and Maintenance Data: Submit as specified in Section 01770.
   1. Reports on visits to project site to view and approve surface preparation of structures to be coated.
   2. Reports on visits to project site to observe and approve coating application procedures.
   3. Reports on visits to coating plants to observe and approve surface preparation and coating application on items that are “shop coated.”

1.06 QUALITY ASSURANCE

A. Applicator Qualifications:
   1. Minimum of 5 years experience applying specified type or types of coatings under conditions similar to those of the Work.
      a. Provide qualifications of applicator and references listing five similar projects completed in the past two years.

2. Manufacturer approved applicator when manufacturer has approved applicator program.
3. Approved and licensed by polymorphic polyester resin manufacturer to apply polymorphic polyester resin coating system.
4. Approved and licensed by elastomeric polyurethane (100 percent solids) manufacturer to apply 100 percent solids elastomeric polyurethane system.
5. Applicator of off-site application of coal tar epoxy shall have successfully applied coal tar epoxy on similar surfaces in material, size, and complexity as on the Project.

B. Regulatory Requirements: Comply with governing agencies regulations by using coatings that do not exceed permissible volatile organic compound limits and do not contain lead.
   1. Do not use coal tar epoxy in contact with drinking water.

C. Certification: Certify that applicable pigments are resistant to discoloration or deterioration when exposed to hydrogen sulfide and other sewage gases and product data fails to designate coating as "fume resistant."

D. Field Samples: Prepare and coat a minimum 100 square foot area between corners or limits such as control or construction joints of each system. Approved field sample may be part of Work.

E. Pre-Installation Conference: Conduct as specified in Section 01312.

F. Compatibility of Coatings: Use products by same manufacturer for prime coats, intermediate coats, and finish coats on same surface, unless specified otherwise.

G. Services of Coating Manufacturers Representative: Arrange for coating manufacturers representative to attend pre-installation conferences. Make periodic visits to the project site to provide consultation and inspection services during surface preparation and application of coatings, and to make visits to coating plants to observe and approve surface preparation procedures and coating application of items to be “shop primed and coated”.

1.07 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products in accordance with manufacturer’s recommendation.

B. Remove unspecified and unapproved paints from Project site immediately.

C. Deliver containers with labels identifying the manufacturer's name, brand name, product type, batch number, date of manufacturer, expiration date or shelf life, color, and mixing and reducing instructions.

D. Store coatings in well-ventilated facility that provides protection form the sun weather, and fire hazards. Maintain ambient storage temperature between 45 and 90 degrees Fahrenheit, unless otherwise recommended by the manufacturer.

E. Take precautions to prevent fire and spontaneous combustion.

1.08 PROJECT CONDITIONS

A. Surface Moisture Contents: Do not coat surfaces that exceed manufacturer specified moisture contents, or when not specified by the manufacturer, the following moisture contents:
   1. Plaster and Gypsum Wallboard: 12 percent.
   2. Masonry, Concrete and Concrete Block: 12 percent.
   3. Interior Located Wood: 15 percent.
   4. Concrete Floors: 7 percent.

B. Do Not Apply Coatings:
   1. Under dusty conditions, unless tenting, covers, or other such protection is provided for structures to be coated.
   2. When light on surfaces measures less than 15 foot-candles.
   3. When ambient or surface temperature is less than 50 degrees Fahrenheit unless manufacturer allows a lower temperature.
   4. When relative humidity is higher than 85 percent.
   5. When surface temperature is less than 5 degrees Fahrenheit above dew point.
   6. When surface temperature exceeds the manufacturer's recommendation.
   7. When ambient temperature exceeds 90 degrees Fahrenheit, unless manufacturer allows a higher temperature.
   8. Apply clear finishes at minimum 65 degrees Fahrenheit.

C. Provide fans, heating devices, dehumidifiers, or other means recommended by coating manufacturer to prevent formation of condensate or dew on surface of substrate, coating between coats and within curing time following application of last coat.

D. Provide adequate continuous ventilation and sufficient heating facilities to maintain minimum 50 degrees Fahrenheit for 24 hours before, during and 48 hours after application of finishes.

1.09 SEQUENCING AND SCHEDULING

A. Sequence and Schedule: As specified in Section 01140.

1.10 MAINTENANCE

A. Extra Materials: Deliver in accordance with Section 01770. Include minimum 1 gallon of each type and color of coating applied.
   1. When manufacturer packages material in gallon cans, deliver unopened labeled cans as comes from factory.
   2. When manufacturer does not package material in gallon cans, deliver material in new gallon containers, properly sealed and identified with typed labels indicating brand, type and color.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Special Coatings: One of the following or equal:
   1. Ameron: Ameron International, Brea, CA.
   2. Carboline: Carboline, St. Louis, MO.
   3. Ceilcote: Ceilcote Corrosion Control, Brecksville, OH.
   4. Dampney: The Dampney Company, Everett, MA.
   5. Devoe: Devoe Coatings, Louisville, KY.
   6. Dudick: Dudick, Inc., Streetsboro, OH.
   7. Enduraflex: Global Eco Technologies, Pittsburg, CA.
   8. IET: Integrated Environmental Technologies, Santa Barbara, CA.
   9. PPC: Polymorphic Polymers Corp., N. Miami, FL.
   10. Sanchem: Sanchem, Chicago, IL.
   11. Superior: Superior Environmental Products, Inc., Addison, TX.
   12. S-W: Sherwin-Williams Co., Cleveland, OH.
   13. Tnemec: Tnemec Co., Kansas City, MO.
   14. Wasser: Wasser High Tech Coatings, Kent, WA.

2.02 PREPARATION AND PRETREATMENT MATERIALS

A. Metal Pretreatment: As manufactured by one of the following or equal:
   1. Ameron: Galvaprep.
   2. International: Galvaprep 5 or Alumiprep 33.
   3. S-W: P60G2, Wash Primer.
   4. Tnemec: Series N69 Hi-Build Epoxoline II

B. Surface Cleaner and Degreaser: As manufactured by one of the following or equal:
   1. Carboline Surface Cleaner No.3.
   2. Devoe: Devprep 88.
   3. S-W: Clean and Etch.

2.03 COATING MATERIALS

A. Alkali Resistant Bitumastic: As manufactured by one of the following or equal:
   1. Carboline: Bitumastic Super Service Black.
   2. S-W: Corothane I Coal Tar, B65B11.
   3. Tnemec: 46-465.
   4. Wasser: MC-Tar.

B. Wax Coating: As manufactured by one of the following or equal:
   1. Sanchem: No-Ox-Id A special.
      a. Series 135 Chembuild (non-immersion service).
      b. Series 104 HS (immersion service).

C. High Solids Epoxy Not less than 80 Percent Solids by Volume: As manufactured by one of the following or equal:
   1. Ameron: Amerlock 400.
   2. Carboline: Super Hi-Gard 891.
   3. Devoe: Bar Rust 233H.

4. S-W: Macropoxy HS.
5. Tnemec:
    a. Series 135 Chembuild (non-immersion service).
    b. Series 104 HS (immersion service).

D. Aliphatic or Aliphatic-Acrylic Polyurethane: As manufactured by one of the following or equal:
1. Ameron: Amercoat 450HS.
2. Carboline: Carbothane 134HG.
3. Devoe: Devthane 379.
4. S-W: High Solids Polyurethane.
5. Tnemec: Series 73 Endura-Shield II.

E. Polymorphic Polyester Resin Coating System: Two component, modified styrene based thermoset resin, EPA approved for potable water, with 100 percent solids and maximum 10 grams per liter volatile organic compounds. Final coat color as selected by ENGINEER. As manufactured by one of the following or equal:
1. IET: IET Prime Coat DS-101, Intermediate Coat DS-301, and Finish Coat DS-401.
2. PPC: PPC Prime Coat, IC-Filler Coat, and FC-Final Coat.

F. Asphalt Varnish: AWWA C 500.

G. Coal Tar Epoxy: As manufactured by one of the following or equal:
1. Ameron: 78HB.
2. Ceilcote: Flexetar 661.
3. Carboline: 300-M, Bitumastic.
4. Devoe: Devtar 247.
5. S-W: B69B60 Tar Guard.
6. Tnemec: Series 46H-413.

H. Vinyl Ester: Glassmat reinforced, total system 125 mils DFT. As manufactured by one of the following or equal:
1. Carboline: Semstone 870.
2. Ceilcote: 664 Ceilcrete.
3. Dudick: Protecto-Line 800.
4. S-W: Cor-Cote VEN Mortar Laminate

I. Elastomeric Polyurethane, 100% Solids, ASTM D16, Type V, (Urethane P): As manufactured by one of the following or equal:
1. Endura-Flex: Endura-Flex EF-1988.
2. S-W: Sherflex

J. Concrete Floor Coatings: As manufactured by one of the following or equal:
1. Carboline: Semstone 145.
2. Devoe: Derran 124.
3. Dudick: Protecto Coat 100XT-SL.
4. S-W: Cor-Cote EN 7000

2.04 MIXES

A. Mix epoxy parts in accordance with manufacturer's instructions.

B. Mix coal tar epoxy in containers furnished by manufacturer for mixing purposes. Mix unit quantities only. Use power mixer for minimum time recommended by manufacturer. Do not include time during pouring or stirring in mixing time.

PART 3 EXECUTION

3.01 GENERAL PROTECTION

A. Protect adjacent surfaces from coatings and damage. Repair damage resulting from inadequate or unsuitable protection:

B. Protect adjacent surfaces not to be coated from spatter and droppings with drop cloths and other coverings.
   1. Mask off surfaces of items not to be coated or remove items from area.

C. Furnish sufficient drop cloths, shields and protective equipment to prevent spray or droppings from fouling surfaces not being coated and in particular, surfaces within storage and preparation area.

D. Place cotton waste, cloths and material which may constitute fire hazard in closed metal containers and remove daily from site.

E. Remove electrical plates, surface hardware, fittings and fastenings, prior to application of coating operations. Carefully store, clean and replace on completion of coating in each area. Do not use solvent or degreasers to clean hardware that may remove permanent lacquer finish.

3.02 GENERAL PREPARATION

A. Prepare surfaces in accordance with coating manufacturer's instructions, unless more stringent requirements are specified in this Specification.

B. Protect following surfaces from abrasive blasting by masking, or other means:
   1. Threaded portions of valve and gate stems.
   2. Machined surfaces for sliding contact.
   3. Surfaces to be assembled against gaskets.
   4. Surfaces of shafting on which sprockets are to fit.
   5. Surfaces of shafting on which bearings are to fit.
   6. Machined surfaces of bronze trim, including those slide gates.
   7. Cadmium-plated items except cadmium-plated, zinc-plated, or sherardized fasteners used in assembly of equipment requiring abrasive blasting.
   8. Galvanized items, unless scheduled to be coated.

C. Protect installed equipment, mechanical drives, and adjacent coated equipment from abrasive blasting to prevent damage caused by entering sand or dust.

D. Concrete:
   1. Allow new concrete to cure for minimum of 28 days before coating.
   2. Clean concrete surfaces of dust, mortar, fins, loose concrete particles, form release materials, oil, and grease. Fill voids so that surface is smooth. Etch or brush off-blast clean in accordance with SSPC SP-7 to provide surface profile similar to 60 grit sandpaper, or as recommended by coating manufacturer.

E. Ferrous Metal Surfaces:
   1. Remove grease and oil in accordance with SSPC SP-1.
   2. Remove rust, scale, and welding slag and spatter, and prepare surfaces in accordance with appropriate SSPC standard as specified herein.
   3. Abrasive blast surfaces prior to coating.
   4. When abrasive blasted surfaces rust or discolor before coating, abrasive blast surfaces again to remove rust and discoloration.
   5. When metal surfaces are exposed because of coating damage, abrasive blast surfaces before touching-up.

F. Ferrous Metal Surfaces Not to be Submerged: Abrasive blast in accordance with SSPC SP-10, unless blasting may damage adjacent surfaces, prohibited or specified otherwise. Where not possible to abrasive blast, power tool clean surfaces in accordance with SSPC SP-3.

G. Ferrous Metal Surfaces to be Submerged: Unless specified otherwise, abrasive blast in accordance with SSPC SP-5 to clean and provide roughened surface profile of not less than 2 mils and not more than 4 mils in depth when measured with Elcometer 123, or as recommended by the coating manufacturer.

H. Ductile Iron Pipe and Fittings to be Lined or Coated: Degrease and solvent clean exteriors to be coated in accordance with SSPC SP1.

I. Sherardized, Aluminum, Copper, and Bronze Surfaces: Prepare in accordance with coating manufacturer's instructions.

J. Galvanized Surface:
   1. Degrease or solvent clean to remove oily residue.
   2. Power tool or hand tool clean or whip abrasive blast.
   3. Apply metal pretreatment within 24 hours before coating galvanized surfaces that cannot be thoroughly abraded physically, such as bolts, nuts, or preformed channels.

K. Shop Primed Metal:
   1. Certify that primers applied to metal surfaces in the shop are compatible with coatings to be applied over such primers in the field.
   2. Remove shop primer from metal to be submerged by abrasive blasting in accordance with SSPC SP-10, unless greater degree of surface preparation is required by coating manufacturer’s representative.
   3. Correct abraded, scratched or otherwise damaged areas of shop prime coat by sanding or abrasive blasting in accordance with SSPC SP-6.
   4. When entire shop priming fails or has weathered excessively, or when recommended by coating manufacturer’s representative, abrasive blast shop

prime coat to remove entire coat and prepare surface in accordance with SSPC SP-10.

5. When incorrect prime coat is applied, remove incorrect prime coat by abrasive blasting in accordance with SSPC SP-10.
6. When prime coat not authorized by ENGINEER is applied, remove unauthorized prime coat by abrasive blasting in accordance with SSPC SP-10.
7. Shop Applied Bituminous Paint or Asphalt Varnish: Abrasive blast clean shop applied bituminous paint or asphalt varnish from surfaces scheduled to receive non-bituminous coatings.

L. Abrasive blast cadmium-plated, zinc-plated, or sherardized fasteners in same manner as unprotected metal when used in assembly of equipment designated for abrasive blasting .

M. Abrasive blast components to be attached to surfaces which cannot be abrasive blasted before components are attached.

N. Grind sharp edges to approximately 1/16 inch radius before abrasive blast cleaning.

O. Remove and grind smooth all excessive weld material and weld spatter before blast cleaning.

P. PVC and FRP Surfaces:
1. Prepare surfaces to be coated by light sanding and wipe-down with clean cloths, or by solvent cleaning in strict accordance with coating manufacturer's instructions.

Q. Cleaning of Previously Coated Surfaces:
1. Utilize cleaning agent to remove soluble salts such as chlorides and sulfates from concrete and metal surfaces.
   a. Cleaning Agent: Biodegradable non-flammable and containing no volatile organic compounds.
   b. Manufacturer: Chlor-Rid International, Inc., or accepted equal.
2. Cleaning of surfaces utilizing the decontamination cleaning agent may be accomplished in conjunction with abrasive blast cleaning, high pressure, washing, or hand washing as approved by the coating manufacturer's representative and the ENGINEER.
3. Test cleaned surfaces in accordance with the cleaning agent manufacturer's instructions to ensure all soluble salts have been removed. Additional cleaning shall be carried out as necessary.
4. Final surface preparation prior to application of new coating system shall be made in strict accordance with coating manufacturer's printed instructions

3.03 GENERAL APPLICATION REQUIREMENTS

A. Apply coatings in accordance with manufacturer's instructions.

B. Coat metal unless specified otherwise.
1. Aboveground piping to be coated shall be empty of contents during application of coatings.

C. Verify metal surface preparation immediately before applying coating in accordance with SSPC Pictorial Surface Preparation Standard.

D. Allow surfaces to dry, except where coating manufacturer requires surface wetting before coating.

E. Wash coat and prime sherardized, aluminum, copper, and bronze surfaces, or prime with manufacturer's recommended special primer.

F. Prime shop primed metal surfaces. Spot prime exposed metal of shop primed surfaces before applying primer over entire surface.

G. Apply minimum number of specified coats.

H. Apply coats to thicknesses specified, especially at edges and corners.

I. Apply additional coats when necessary to achieve specified thicknesses.

J. Coat surfaces without drops, ridges, waves, holidays, laps, or brush marks.

K. Remove spatter and droppings after completion of coating.

L. When multiple coats of same material are specified, tint prime coat and intermediate coats with suitable pigment to distinguish each coat.

M. Dust coatings between coats. Lightly sand and dust surfaces to receive high gloss finishes, unless instructed otherwise by coating manufacturer.

N. Apply coating by brush, roller, trowel, or spray, unless particular method of application is required by coating manufacturer's instructions or these Specifications.

O. Spray Application:
   1. Stripe coat edges by brush before beginning spray application, as necessary, to ensure specified coating thickness along edges.
   2. When using spray application, apply coating to thickness not greater than that recommended in coating manufacturer's instructions for brush coat application.
   3. Use airless spray method, unless air spray method is required by coating manufacturer's instruction or these Specifications.
   4. Conduct spray coating under controlled conditions. Protect adjacent construction and property from coating mist or spray.

P. Drying and Recoating:
   1. Provide fans, heating devices, or other means recommended by coating manufacturer to prevent formation of condensate or dew on surface of substrate, coating between coats and within curing time following application of last coat.
   2. Limit drying time to that required by these Specifications or coating manufacturer's instructions.
   3. Do not allow excessive drying time or exposure which may impair bond between coats.

4. Recoat epoxies within time limits recommended by coating manufacturer.
5. When time limits are exceeded, abrasive blast clean prior to applying another coat.
6. When limitation on time between abrasive blasting and coating cannot be met before attachment of components to surfaces which cannot be abrasive blasted, coat components before attachment.
7. Ensure primer and intermediate coats of coating are unscarred and completely integral at time of application of each succeeding coat.
8. Touch up suction spots between coats and apply additional coats where required to produce finished surface of solid, even color, free of defects.
9. Leave no holidays.
10. Sand and recoat scratched, contaminated, or otherwise damaged coating surfaces so damages are invisible to naked eye.

Q. Concrete:
1. Apply first coat (primer) only when surface temperature of concrete is decreasing in order to eliminate effects of off-gassing on coating.

3.04 ALKALI RESISTANT BITUMASTIC

A. Preparation:
1. Prepare surfaces in accordance with general preparation requirements.

B. Application:
1. Apply in accordance with general application requirements and as follows:
a. Apply at least 2 coats, 8 to 14 mils dry film thickness each.

3.05 WAX COATING

A. Preparation:
1. Prepare surfaces in accordance with general preparation requirements.

B. Application:
1. Apply in accordance with general application requirements and as follows:
a. Apply at least 1/32-inch thick coat with 2 inch or shorter bristle brush.
b. Thoroughly rub coating into metal surface with canvas covered wood block or canvas glove.

3.06 HIGH SOLIDS EPOXY SYSTEM

A. Preparation:
1. Prepare surfaces in accordance with general preparation requirements and as follows:
a. Abrasive blast ferrous metal surfaces to be submerged at jobsite in accordance with SSPC SP-5 prior to coating. When cleaned surfaces rust or discolor, abrasive blast surfaces in accordance with SSPC SP-10.
b. Abrasive blast non-submerged ferrous metal surfaces at jobsite in accordance with SSPC SP-10, prior to coating. When cleaned surfaces rust or discolor, abrasive blast surfaces in accordance with SSPC SP-6.
c. Degrease and solvent clean ductile iron surfaces in accordance with SSPC SP-1.

B. Application:
   1. Apply coatings in accordance with general application requirements and as follows:
      a. Apply minimum 2-coat system with minimum total dry film thickness (DFT) of 12 mils.
      b. Recoat or apply succeeding epoxy coats within time limits recommended by manufacturer. Prepare surfaces for recoating in accordance with manufacturer's instructions.
      c. Coat metal to be submerged before installation when necessary, to obtain acceptable finish and to prevent damage to other surfaces.
      d. Coat entire surface of support brackets, stem guides, pipe clips, fasteners, and other metal devices bolted to concrete.
      e. Coat surface of items to be exposed and adjacent 1 inch to be concealed when embedded in concrete or masonry.

3.07 HIGH SOLIDS EPOXY AND POLYURETHANE COATING SYSTEM

A. Preparation:
   1. Prepare surfaces in accordance with general preparation requirements and as follows:
      a. Prepare concrete surfaces in accordance with general preparation requirements.
      b. Touch up shop primed steel and miscellaneous iron.
      c. Abrasive blast ferrous metal surfaces at jobsite in accordance with SSPC SP-6, Commercial Blast Cleaning, prior to coating. When cleaned surfaces rust or discolor, abrasive blast surfaces in accordance with SSPC SP-6.
      d. Degrease or solvent clean, whip abrasive blast, power tool, or hand tool clean galvanized metal surfaces.
      e. Lightly sand fiberglass and poly vinyl chloride (PVC) pipe to be coated and wipe clean with dry cloths, or solvent clean in accordance with coating manufacturer's instructions.
      f. Degrease and solvent clean ductile iron surfaces per SSPC-1.

B. Application:
   1. Apply coatings in accordance with general application requirements and as follows:
   2. Apply 3 coat system consisting of:
      a. Primer: 4 to 5 mils dry film thickness high solids epoxy primer,
      b. Intermediate Coat: 4 to 5 mils dry film thickness high solids epoxy intermediate coat, and
      c. Top Coat: 2.5 to 3.5 mils dry film thickness aliphatic or aliphatic-acrylic polyurethane topcoat.
   3. Recoat or apply succeeding epoxy coats within 30 days or within time limits recommended by manufacturer, whichever is shorter. Prepare surfaces for recoating in accordance with manufacturer's instructions.
   4. For fiberglass and PVC pipe, apply one coat high solids epoxy (4 to 5 mils DFT) and two coats aliphatic or aliphatic-acrylic polyurethane.

3.08 POLYMORPHIC POLYESTER RESIN SYSTEM

A. Preparation:
   1. Prepare surfaces in accordance with general preparation requirements and as follows:
   2. Prepare concrete to obtain clean, open pore with exposed aggregate in accordance with manufacturer's instructions.
   3. Prepare ferrous metal surfaces in accordance with SSPC SP-5, White Metal Finish, with coating manufacturer's recommended anchor pattern.
   4. Complete abrasive blast cleaning within 6 hours of applying prime coat. When cleaned surfaces rust or discolor, abrasive blast surfaces in accordance with SSPC SP-5.
   5. When handling steel, wear gloves to prevent hand printing.
   6. Adjust pH of concrete to within 5.5 to 8.0 before applying prime coat.

B. Application:
   1. Apply coatings in accordance with general application requirements and as follows:
   2. Apply minimum dry film thickness system consisting of primer, tie coat and top coat in accordance with manufacturer's instructions as follows:
      a. Steel: 35 mils.
      b. Concrete: 45 mils.

3.09 HIGH TEMPERATURE COATING

A. Preparation:
   1. Prepare surfaces in accordance with general preparation requirements and as follows:
   2. Abrasive blast surface in accordance with SSPC SP-10.

B. Application:
   1. Apply coatings in accordance with general application requirements and as follows:
      a. Apply number of coats in accordance with manufacturer's instructions.

3.10 ASPHALT VARNISH

A. Preparation:
   1. Prepare surfaces in accordance with general preparation requirements.

B. Application:
   1. Apply coatings in accordance with general application requirements and as follows:
      a. Apply minimum 2 coats.

3.11 COAL TAR EPOXY

A. Preparation:
   1. Prepare surfaces in accordance with general preparation requirements and as follows:

a. Abrasive blast iron or steel surfaces to be coated as submerged metal in accordance with SSPC SP-5. Prepare other metal surfaces to be coated with coal tar epoxy in accordance with epoxy manufacturer's instructions.

B. Application:
1. Apply coatings in accordance with general application requirements and as follows:
a. Waterproofing Outside Surfaces of Concrete Structures: Apply minimum 2 coats with total dry film thickness of 40 mils.
b. Apply two coats of 8 mils each for a total 16 mils dry film thickness.
c. Apply coal tar epoxy on blasted steel on same day that steel is blasted.
d. Apply succeeding coats over previous coat as soon as application does not cause sagging, within the following times, or as recommended by the coating manufacturer, whichever is sooner.

Average Temperature Degrees (Fahrenheit)	Maximum Time Between Coats (Hours)
50 to 60	36
60 to 70	24
70 to 80	12
80 to 120	4

e. Apply additional coats required to obtain specified thickness.
f. When previous coat has cured or set or Maximum Time Between Coats has lapsed, abrasive blast previous coat until surface film is removed. Wash and clean surface with cleaning solvent. Apply succeeding coat within Maximum Time Between Coats or as recommended by coating manufacturer, whichever is sooner.
g. When succeeding coat is applied over previous coat which has cured or set or Maximum Time Between Coats has lapsed, and surface has not been abrasive blasted, remove entire coating system to substrate, and apply new coating system.
h. Where coating system is applied to exterior concrete surfaces below grade, extend system at least 3 inches above finish grade in straight level. Step extended system down 3 inches when extended system reaches 6 inches above finish grade.

3.12 VINYL ESTER

A. Preparation:
1. Prepare surfaces in accordance with coating manufacturer's recommendations and as directed and approved by coating manufacturer's representative.

B. Application:
1. Apply prime coat, as required by coating manufacturer, base coat, glass mat, and topcoat to total dry film thickness of 125 mils minimum.
a. Final topcoat on floors shall include non-skid surface, applied in accordance with manufacturer's instructions.
2. Perform holiday detection test over 100 percent of coated surface areas to ensure pinhole free finished coating system.

3. All work shall be accomplished in strict accordance with coating manufacturer's instructions and under direction of coating manufacturer's representative.

3.13 ELASTOMERIC POLYURETHANE (100 PERCENT SOLIDS)

A. Preparation:
   1. Prepare surfaces in strict accordance with coating manufacturer's instructions and as directed and approved by coating manufacturer's representative.

B. Application:
   1. Apply epoxy primer at DFT of 1 to 2 mils, in strict accordance with manufacturer's instructions.
   2. Apply polyurethane coating at minimum total DFT as follows:
      a. Steel: 60 mils DFT.
      b. Ductile Iron and Ductile Iron Pipe Coating and Lining: 30 mils DFT.
      c. Concrete: 120 mils DFT.
      d. Or as recommended by the coating manufacturer and accepted by the ENGINEER.
   3. For Concrete application, provide saw cutting for coating terminations in strict accordance with manufacturer's instructions.

3.14 CONCRETE FLOOR COATINGS

A. Preparation:
   1. Prepare surfaces in accordance with general application requirements and in strict a accordance with coating manufacturer’s instructions.

B. Application:
   1. Apply primer if required by coating manufacturer.
   2. Apply one or more coats as recommended by coating manufacturer to receive a minimum total dry film thickness of 25 mils, color as selected by OWNER.

C. Final Topcoat shall include non-skid surface, applied in strict accordance with coating manufacturer's instructions.

3.15 FIELD QUALITY CONTROL

A. Each coat will be inspected. Strip and remove defective coats, prepare surfaces and recoat. When approved, apply next coat.

B. Control and check dry film thicknesses and integrity of coatings.

C. Measure dry film thickness with calibrated thickness gauge.

D. Dry film thicknesses on ferrous-based substrates may be checked with Elcometer Type 1 Magnetic Pull-off gage or Positector 6000.

E. Verify coat integrity with low-voltage holiday detector. Allow ENGINEER to use detector for additional checking.

F. Check wet film thickness before coal tar epoxy coating cures on concrete or non-ferrous metal substrates.

G. Arrange for services of coating manufacturer's field representative to provide periodic field consultation and inspection services to ensure proper surface preparation of facilities and items to be coated, and to ensure proper application and curing.
   1. Notify ENGINEER 24 hours in advance of each visit by coating manufacturer's representative.
   2. Provide ENGINEER with a written report by coating manufacturer's representative within 48 hours following each visit.

3.16 SCHEDULE OF ITEMS NOT REQUIRING COATING

A. General: Unless specified otherwise, the following items do not require coating.
   1. Items that have received final coat at factory and not listed to receive coating in field.
   2. Aluminum, brass, bronze, copper, plastic (except PVC pipe), rubber, stainless steel, chrome, everdur, or lead.
   3. Buried or encased piping or conduit.
   4. Exterior Concrete.
   5. Galvanized roof decking, buried electrical conduits, pipe trays, cable trays, and other items.
      a. Areas on galvanized items or parts where galvanizing has been damaged during handling or construction shall be repaired as follows:
         1 Clean damaged areas by SSPC SP-1, SP-2, SP-3, or SP-7 as required.
         2 Apply two coats of a cold galvanizing zinc compound such as ZRC World Wide Inovatie Zinc Technologies of Mansfield, MA or accepted equal, in strict accordance with manufacturer’s instructions.
   6. Grease fittings.
   7. Fiberglass ducting or tanks in concealed locations.
   8. Steel to be encased in concrete or masonry.

3.17 SCHEDULE OF SURFACES TO BE COATED IN THE FIELD

A. In general, apply coatings to steel, iron, galvanized surfaces, and wood surfaces unless specified or otherwise indicated on the Drawings. Coat concrete surfaces and anodized aluminum only when specified or indicated on the Drawings.

B. Ductile Iron Pipe and Fittings
      a. Match filtration vessel and facepiping.
   2. Furnish pipe and fittings with phenolic alkyd primer shop-applied by the pipe manufacturer. Refer to Section 15251.

C. Pipe Supports
   1. Match piping.

-END OF SECTION-

SECTION 11545

SUBMERSIBLE TURBINE PUMP AND MOTOR

PART 1 GENERAL

1.01 SUMMARY

A. Furnish and install one submersible turbine pump, with column pipe, submersible electric motor, submersible pump cable, and appurtenant work necessary to provide a complete and operable well, as specified herein and as shown on the drawings.

B. Equipment Tags – P5

C. Provide factory representative to certify installation and aid in start-up.

D. Provide testing and disinfection of well and pump assembly as specified in this Section.

1.02 REFERENCES

A. ASTM: American Society of Testing and Materials
   1. A48 – Standard Specification for Gray Iron Castings
   2. B584 – Standard Specification for Copper Alloy Sand Castings for General Applications
   3. A582 – Standard Specification for Free-Machining Stainless Steel Bars
   4. A536 – Standard Specification for Ductile Iron Castings

B. AWWA: American Water Works Association
   1. C654 – Disinfection of Wells

C. ANSI: American National Standards Institute
   1. B1.20.1 – Standard on Pipe Threads, General Purpose, Inch
   2. B58.1 – Standard for Vertical Turbine Pumps

1.03 SUBMITTALS

A. Product Data: Submit manufacturer's technical product data, performance curves, materials of construction, pump outline drawing and installation instructions for the pump.

B. Operation and Maintenance Manual: Submit operation and maintenance manual for the equipment. Manual shall include the following:
   1. Operational procedures, troubleshooting, disassembly, reassembly, etc. Manufacturer-recommended procedures on the following shall be included:
   2. Preventive maintenance procedures and recommended frequency.
   3. Parts list accompanied with cross-sectional or exploded view drawings.
   4. Wiring diagrams.
   5. Approved shop drawings, including performance curves for pumps furnished.

6. Safety precautions for working on equipment.
7. Equipment warranties.
8. If manufacturer's standard brochures and manuals are used to describe operating and maintenance procedures, modify such brochures and manuals to reflect only the model or series of equipment used on this project and features provided. Cross out neatly or remove extraneous material, or otherwise annotate or eliminate.

C. American Iron and Steel: Manufacturer's certification letter of compliance with American Iron and Steel requirements.

A. Certification of compliance with NSF-61/NSF 372 for materials in contact with potable water.

1.04 QUALITY ASSURANCE

A. Manufacturers: Firms regularly engaged in manufacture of pumping equipment of types required, whose equipment has been in satisfactory use in similar service for not less than 5 years.

B. Warranty: The Contractor shall correct all defects in the pumping system upon notification from the Owner within one (1) year from the date of final acceptance.

1.05 DELIVERY AND STORAGE

A. All equipment delivered and placed in storage shall be stored with protection from the weather, humidity and temperature variations, dirt or dust, or other contaminants.

1.06 OPERATING CONDITIONS AND PERFORMANCE REQUIREMENTS

A. Pump shall be multi-stage, submersible turbine type pump.

B. Pump column diameter: 6 inches.

C. Maximum diameter of pump/motor combination: 8 inches.

D. The pump will be installed in a 12-inch inside diameter steel casing.

E. Pump setting depth: 400 feet below ground surface.

F. Power cable between VFD and pump motor shall be shielded cable manufactured for VFD applications.

G. Performance Requirements: The pump shall be capable of operation under the following conditions of service within +/- 5%:

Flow (gpm)	Head (ft)	Efficiency (%)	Power (hp)	NPSHr (ft)
0	922	0	0	6
160	820	49	72	6
320	721	72	81	7.1
400	667	77	86	10.9
500 (Design Point)	574 (Design Point)	79 (Design Point)	91 (Design Point)	15.7 (Design Point)
600	440	74	90	20.3

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Pumps:
   1. Goulds Water Technology
   2. National Pump Company
   3. Approved Equal

B. Motors:
   1. Centripro
   2. Franklin Electric
   3. Hitachi
   4. Approved Equal

C. Submersible Power Cable:
   1. Paige Pumpwire, Type TC-VFD.
   2. Approved Equal.

2.02 PUMP AND COLUMN MATERIALS OF CONSTRUCTION

A. Materials of construction shall be as follows:

Bowl Component	Material	ASTM Standard
Coupling-Sub Motor	SST 416	A582M
Shaft - Bowl	SST 416	A582 S41600
Discharge Bowl	Cast Iron Cl30	A48 CLASS 30B
Bearing - Discharge Bowl	Rubber / Carbon Steel	D2000
Bowl - Intermediate	Cast Iron Cl30 Enamel	A48
Motor Adapter	Ductile Iron 65-45-12	A536
Bearing - Intermediate Bowl	Rubber / Carbon Steel	D2000
Impeller	SST 316 or Aluminum Bronze	A744M, B148
Taper Lock-Impeller	SST 416	A582M
Wear Ring-Bowl	Bronze, Al C95400	B148

Wear Ring - Impeller	Bronze, Al C95200	B148
Bearing - Motor Adapter	Bronze Bismuth	B584 Modified
Guard-Cable	SST 304	A240M
Capscrew-(Motor)	SST 304	A276
Screen-Suction	SST 316	A240M
Washer - Upthrust	Tivar 1000	N/A
Check Valves	Ductile Iron 65-45-12	A536
Bowl Coating	Tnemec 141 epoxy or equal, 16 mils minimum, NSF-61 compliant	N/A
Pump Column Component	**Material**	**ASTM Standard**
Column Pipe	Steel, Sch. 40	A53
Column Pipe Coupling	Carbon Steel	A53

2.03 SUBMERSIBLE POWER CABLE

A. Assembly:
   1. Individual conductors shall be bare annealed copper covered with crosslinked polyethylene (XLP) insulation. The conductors shall be cabled together with fillers and three bare ground wires, shielded with an uncoated 5 mil thick copper tape (50% overlap) and covered with an overall flame retardant, moisture and sunlight resistant PVC jacket.

B. Materials:
   1. Conductors:
      a. Class B stranded, uncoated annealed copper conforming to ASTM B-3 and B-8.
   2. Insulation:
      a. Each conductor shall be insulated with XLP conforming to ICEA S-95-658/NEMA WC-70, Table 3-7 and UL Standard 44 for Type RHH/RHW-2. Ground conductors shall be bare copper.
   3. Cable Core:
      a. Each conductor shall be printed with its conductor number in accordance with ICEA Method 4.
   4. Ground Wires:
      a. Three Class B stranded, un-coated annealed copper ground wires conforming to ASTM B-3 and B-8.

C. Shielding:
   1. A 5 mil uncoated copper tape shall be helically wrapped over the twisted assembly with a 50% nominal overlap. The shield shall be in contact with the ground wires.

D. Outer Jacket:
   1. A flame-retardant polyvinyl chloride (PVC) jacket meeting the requirements of UL Standard 1277 shall be applied.

E. Splice Kits:

1. A waterproof splice kit shall be used to connect the motor leads to the submersible power cable. Splice kits shall be furnished by the submersible power cable manufacturer.

F. Installation:
   1. Submersible power cable shall extend from the submersible motor to the variable frequency drive. Splices shall be provided to connect to the motor leads and at the pitless unit.
   2. Submersible power cable between the submersible motor and the variable frequency drive shall be furnished by the pump and motor supplier.

2.04 MOTOR

A. General requirements:

Type	Submersible
Horsepower	125 Hp
Synchronous Speed	3,525 RPM
Service Factor	1.15
Voltage	460
Phase	3
Frequency	60 Hz

1. The motor shall be an encapsulated, inverter-duty rated submersible motor capable of continuous operation underwater.
2. Thrust bearing: Kingsbury type, water lubricated.
3. Windings: Encapsulated in anti-tracking resin.
4. Stator area shall be hermetically sealed.

B. Materials of construction shall be as follows:

Motor Component	Material Type
Castings	Gray Iron
Stator Shell	304 SST
Stator Ends	Carbon Steel
Shaft Extensions	17-4 SST
Fasteners	300 Series SST
Seal Cover	304 SST and Sintered Bronze
Seal Cover	Carbon/Ceramic Fact
Diaphragm	Nitrile
Diaphragm Plate	304 SST and Sintered Bronze
Diaphragm Spring	302 SST
Slinger	Nitrile
Lead Sleeve	316 SST
Lead Potting	Epoxy
Lead Jam Nut	Brass
Filter	Delrin and Polyester

2.05 ACCESSORIES

A. Sounding Tubes
   1. Two required.
   2. 1-inch PVC Schedule 40 flush threaded.

B. Pitless Unit
   1. Sized and coordinated with casing and drop pipe described within this specification.
   2. Termination at 24 inches above ground level
   3. 6-inch 150-pound ANSI flange outlet connection.
   4. 304 stainless steel O-ring seat.
   5. Steel vented cap.
   6. Furnish with torque arrestor.
   7. All steel to be epoxy coated with NSF-61 certified materials
   8. Manufacturer:
      a. MAASS Midwest, Model MB Heavy Duty
      b. Baker Manufacturing Company
      c. Approved equal.

PART 3 EXECUTION

3.01 PUMP INSTALLATION

A. Pumping equipment shall be installed in accordance with approved procedures submitted as shown with shop drawings, unless otherwise approved by the Engineer.

3.02 PUMP TESTING

A. Check pump rotation and record amps drawn on each leg.

B. All installation procedures and adjustments are to be checked by a qualified factory technician. Technician is to certify that installation is correct and equipment is running properly.

C. See Section 01756.

3.03 DISINFECTION/CHLORINATION OF EQUIPMENT AND MATERIAL USED IN WELL PRIOR TO INSTALLATION

A. Permanent equipment shall be disinfected prior to operation in accordance with AWWA Standard C654.

B. All permanent equipment and material to be installed in the well shall be chlorinated just before installation. This shall be done by spraying exposed areas with a solution having a free chlorine residual of not less than 200 mg/L.

3.04 DISINFECTION/CHLORINATION OF WELL AFTER PERMANENT EQUIPMENT AND MATERIAL IS INSTALLED

A. After permanent equipment and materials are installed, the well shall be chlorinated and disinfected in accordance with AWWA Standard C654.

B. General Disinfection Procedure:
   1. The well shall be chlorinated by treating the water in the well casing to provide a free chlorine residual of no less than 50 mg/L;
   2. Circulating the chlorinated water within the well casing and pump column
   3. Pumping the well to waste to remove chlorinated water.

C. Procedure for treating the water in the well casing:
   1. The water in the casing shall be treated with chlorine so that the free chlorine residual of no less than 50 mg/L is in the entire volume of water in the casing. This may be done by using granular calcium hypochlorite, calcium hypochlorite tablets, or sodium hypochlorite solution in the amounts shown in Table 1.
      a. If calcium hypochlorite tablets are used, they shall be dribbled down the casing vent and at least 30 minutes shall pass to allow the tablets to fall through the water and dissolve.
      b. If sodium hypochlorite, or calcium hypochlorite dissolved on-site is used, the solution must reach all parts of the well. To accomplish this, a tube shall be suspended through the well casing vent, when possible, so that it reaches the bottom of the well. After it reaches the well bottom, it shall be withdrawn as the sodium hypochlorite solution is pumped through the tube. If not possible, the use of calcium hypochlorite tablets as described above may be appropriate.
   2. After the chlorine has been applied, the well shall be surged at least three times to improve the mixing and induce contact of the chlorinated water with the adjacent aquifer. The chlorine residual of this water shall be verified. The chlorinated water shall be allowed to rest in the casing for at least 12 hours.
   3. After the well has been chlorinated and allowed to rest for at least 12 hours, it shall be pumped to waste. The discharge water shall be tested periodically for free chlorine residual. When no detectable chlorine residual is measured, the well shall continue to be pumped to waste for at least 15 minutes before proceeding with bacteriological sampling.

D. Disposing of heavily chlorinated water:
   1. A neutralizing chemical shall be applied to the water to be pumped to waste prior to release to thoroughly neutralize the residual chlorine (e.g. sodium sulfite, sodium thiosulfate, calcium thiosulfate, or ascorbic acid; see ANSI/AWWA C655 for a complete list of neutralizing chemicals) prior to release. Submit a dechlorination plan to the ENGINEER for approval prior to discharging any heavily chlorinated water.

Table 1: Chlorine Compound Required to Dose 100 feet of Water-Filled Well at 50 mg/L

Well Casing Diameter (in)	Volume of Water per 100 ft of Water Depth (gal)	Calcium Hypochlorite (65 % available Cl) (oz)	Sodium Hypochlorite (12% trade strength) (fl oz)
4	65.28	0.7	3.5
6	146.9	1.5	7.8
8	261.1	2.7	13.9
10	408	4.2	22.4
12	587.5	6	32
16	1044	10.7	56
20	1632	17	89.6
24	2350	24	128
30	3672	38	192
36	5287	54	281.6

3.05 BACTERIOLOGICAL TESTING

A. Procedure for collecting bacteriological samples following disinfection:
   1. After the well has been chlorinated, allowed to rest for at least 12 hours, and pumped to waste for a minimum of 15 minutes with no detectable chlorine residual, a minimum of two water samples shall be taken while the well is being continuously pumped not less than 30 minutes apart, and the samples shall be tested for the presence of coliform in accordance with *Standard Methods for the Examination of Water and Wastewater.* Samples must show the absence of coliform prior to the well being placed in service.
   2. If any samples show the presence of coliform, one of the following procedures shall be followed:
      a. Pump the well to waste for a minimum of an additional 15 minutes, then take a minimum of two water samples while the well is being continuously pumped not less than 30 minutes apart and test for the presence of coliform in accordance with *Standard Methods for the Examination of Water and Wastewater.* Samples must show the absence of coliform prior to the well being placed in service.
      b. If passing results are not achieved, repeat procedure. No separate payments will be made.
      c. If the samples after the procedure is repeated indicate the presence of coliform, consult the ENGINEER to determine the course of corrective action.

-END OF SECTION

SECTION 15052

BASIC PIPING MATERIALS AND METHODS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes: Basic piping materials and methods.

B. Related Sections:
1. Section 01140 - Work Restrictions.
2. Section 09910 - Paints.
3. Section 15061 - Pipe Supports.
4. Section 15142 - Disinfection of Domestic Water Lines.
5. Section 15956 - Piping Systems Testing.

1.02 REFERENCES

A. American Water Works Association (AWWA):
1. C111/A21.11 – Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
2. C115/A21.15 – AWWA Standard for Flanged Ductile-Iron Pipe with threaded Flanges

B. American Society of Testing and Materials (ASTM):
1. A 536 – Standard Specification for Ductile Iron Castings
2. F 37 – Standard Test Methods for Sealability of Gasket Materials.
3. A307 – Standard Specifications for Carbon Steel Bolts, Studs, and Threaded Rod 60,000 PSI Tensile Strength
4. F477 – Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe
5. F593 – Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs
6. F594 – Standard Specification for Stainless Steel Nuts

C. American National Standards Institute/American Society of Mechancial Engineers (ANSI/ASME):
1. B1.1 – Unified Inch Screwe threads (Un, UNR, and UNJ thread Forms)
2. B18.2.1 – Square, Hex, Heavy Hex, and Askew Head Bolts and Hex, Heavy Hex, Hex Flange, Lobed Head, and Lag Screws (Inch Series)
3. B18.2.2 – Nuts for General Applications: Machine Screw Nuts, Hex, Square, Hex flange, And Coupling Nuts (Inch Series)

1.03 DEFINITIONS

A. Buried Pipe: Pipe that is buried in the soil, or cast in a concrete pipe encasement that is buried in the soil.

B. Exposed Pipe: Pipe that is located above ground, or pipe that is located inside a structure, supported by a structure, or case into a concrete structure.

C. Underground Piping: Piping actually buried in soil or cast in concrete.

D. Underwater Piping: Piping below tops of walls in basins or tanks containing water.

E. Wet Wall: Wall with water on at least 1 side.

1.04 SUBMITTALS

A. Product Data:
   1. Escutcheons.
   2. Link-type seals.
   3. Thrust restraints.
   4. Bolts and nuts.
   5. Gaskets.

B. American Iron and Steel: Manufacturers certification letter of compliance with American Iron and Steel requirements.

C. Certification of compliance with NSF-61 for materials in contact with potable water.

PART 2 PRODUCTS

2.01 ESCUTCHEONS

A. Material: Chrome-plated steel plate.

B. Manufacturers: One of the following or equal:
   1. Dearborn Brass Company
   2. Keeney Manufacturing Company

2.02 LINK TYPE SEALS

A. Characteristics:
   1. Modular mechanical type, consisting of interlocking neoprene or synthetic rubber links shaped to continuously fill the annular space between the pipe and wall opening.
   2. Assemble links solely with stainless steel bolts and nuts to form a continuous rubber belt around the pipe.
   3. Provide a nylon polymer pressure plate with 316 Stainless Steel hardware. Isolate pressure plate from contact with wall sleeve.

B. Manufacturers: One of the following or equal:
   1. Calpico, Incorporated.
   2. Pipeline Seal and Insulator, Inc., Link-Seal.

2.03 MECHANICAL JOINT THRUST RESTRAINTS

A. Design: Restraint devices for nominal pipe sizes 3 inch through 54 inch shall consist of multiple gripping wedges incorporated into a follower gland meeting the applicable requirements of ANSI/AWWA C110/A21.10. Proper actuation of the gripping wedges shall be ensured with torque limiting twist off nuts.

B. Pressure Rating:
   1. For restraint of ductile iron piping: Thrust restraint devices shall have a working pressure rating of 350 psi for 3-16-inch, 250 psi for 18-48 inch and 200 psi for the 54-inch size. Ratings are for water pressure and must include a minimum safety factor of 2 to 1 in all sizes.
   2. For restraint of PVC Class-type (C900 DR18) piping: Thrust restraint devices shall have a working pressure rating equal to 235 psi. Ratings are for water pressure and must include a minimum safety factor of 2 to 1 in all sizes.

C. Materials:
   1. Gland body, wedges and wedge actuating components shall be cast from grade 65-45-12 ductile iron material in accordance with ASTM A536.
   2. Ductile iron gripping wedges shall be heat treated within a range of 370 to 470 BHN.

D. Coatings:
   1. Glands, wedge assemblies, restraining bolts, and related parts shall be furnished with a fusion bonded thermoset epoxy coating.

E. Manufacturers:
   1. For restraint of ductile iron piping:
      a. Romac, Romagrip
      b. EBAA Iron, 1100 Megalug
      c. Approved equal.
   2. For restraint of PVC Class-type (C900 DR18) piping:
      a. Romac, PVC Romagrip
      b. EBAA Iron, Series 2000PV
      c. Approved equal.

2.04 T-BOLTS AND NUTS FOR MECHANICAL JOINT FITTINGS AND THRUST RESTRAINTS IN BURIED SERVICE

A. Dimensions:
   1. T-bolt and nut dimensions shall be in accordance with ANSI/AWWA C111/A21.11.

B. Materials:
   1. T-bolts shall be 304 stainless steel per ASTM F593, alloy group 1, condition CW1 for bolts 5/8” in diameter, condition CW2 for bolts ¾” in diameter and greater.
   2. Hex nuts shall be 304 stainless steel per ASTM F594 and shall match the alloy group and condition of the matching T-bolts.
   3. Bolts and nuts shall be threaded in in accordance with ANSI/ASME B1.1, unified inch screw threads.

C. Manufacturers: One of the following or equal:
   1. Star Pipe Products
   2. Romac
   3. EBAA Iron

2.05 T-BOLTS AND NUTS FOR MECHANICAL JOINT FITTINGS AND THRUST RESTRAINTS IN ABOVE GROUND SERVICE

A. Materials: High strength, low alloy steel in accordance with AWWA C111.

2.06 FLANGE JOINT HEX BOLTS AND NUTS

A. Bolts and nuts for joints in buried service:
   1. Bolt dimensions shall be in accordance with ANSI/ASME B18.2.1.
   2. Nut dimensions shall be in accordance with ANSI/ASME B18.2.2.
   3. Bolts and nuts shall be threaded in in accordance with ANSI/ASME B1.1, unified inch screw threads, Class 2A external and Class 2B internal.
   4. Bolts and nuts shall be hex pattern regardless of bolt diameter.
   5. Bolts shall be 304 stainless steel per ASTM F593, alloy group 1, condition CW1 for bolts 5/8" in diameter, condition CW2 for bolts ¾" in diameter and greater.
   6. Hex nuts and washers shall be 304 stainless steel per ASTM F594 and shall match the alloy group and condition of the matching T-bolts.

B. Bolts and nuts for joints in above-ground service:
   1. Bolt dimensions shall be in accordance with ANSI/ASME B18.2.1.
   2. Nut dimensions shall be in accordance with ANSI/ASME B18.2.2.
   3. Bolts and nuts shall be threaded in in accordance with ANSI/ASME B1.1, unified inch screw threads, Class 2A external and Class 2B internal.
   4. Bolts and nuts shall be hex pattern regardless of bolt diameter.
   5. Bolts and nuts shall be low-carbon steel in accordance with ASTM A307, 60 ksi tensile strength, grade B.
      a. Higher strength bolts may be used where gray iron flanges are installed with full-face gasketets or where ductile iron flanges are installed with ring or full-face gaskets.

C. Manufacturers:
   1. Pacific Coast Bolt
   2. Portland Bolt and Manufacturing

2.07 GASKETS

A. Gaskets for ductile iron mechanical joint pipe and fittings in potable water service piping:
   1. Material: Styrenebutadiene Rubber (SBR) per ASTM D 2000 MBA 710, meeting the specifications of AWWA C111.
      a. Gaskets in potable water service shall be certified to be NSF/ANSI-61G compliant.

B. Gaskets for ductile iron flanged pipe and fittings in potable water service piping:
   1. Material: Styrenebutadiene Rubber (SBR)

2. Suitable for hot or cold water, pressures equal to or less than 150 pounds per square inch gauge, and temperatures equal to or less than 160 degrees Fahrenheit.
3. Thickness: minimum 1/8th inch.
4. Durometer, Shore A (ASTM D2240): 75 ±5
5. Gaskets shall comply with requirements of:
    a. ASTM D1330—Standard Specification for Rubber Sheet Gaskets
    b. ANSI/AWWA C115/A21.15—AWWA Standard for Flanged Ductile-Iron Pipe with Threaded Flanges
    c. SNSI/AWWA C111/A21.11—Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
    d. Gaskets in potable water service shall be certified to be NSF/ANSI-61G compliant.

C. Gaskets for PVC Class Type (AWWA C900) pipe joints in potable water service:
1. Styrenebutadiene Rubber (SBR) in accordance with ASTM F477.
2. Gaskets in potable water service shall be certified to be NSF/ANSI-61G compliant.

D. Manufacturers: One of the following or equal:
1. Garlock
2. Mueller
3. Romac

E. Gaskets for any other fluids or any other pressure or temperature conditions shall be suitable for the specific fluids and pressure and temperature conditions.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verification of Existing Conditions:
1. Locate and expose existing structures, piping, conduits, and other facilities and obstructions that may affect construction of underground piping before starting excavation for new underground piping and appurtenances.
2. Verify sizes, elevations, locations, and other relevant features of existing facilities and obstructions. Determine conflicts for the construction of the new underground piping and appurtenances.
3. Make piping location and grade adjustments to resolve conflicts between new piping and existing facilities and obstructions.

3.02 INSTALLATION

A. General:
1. Piping Drawings:
    a. Except in details, piping is indicated diagrammatically. Not every offset and fitting, or structural difficulty that may be encountered has been indicated on the Drawings. Sizes and locations are indicated on the Drawings.

b. Perform minor modifications to piping alignment where necessary to avoid structural, mechanical, or other type of obstructions that cannot be removed or changed.
   1) Modifications are intended to be of minor scope, not involving a change to the design concept or a change to the Contract Price or Contract Times.

B. Wall and Slab Penetrations:
   1. Provide sleeves for piping penetrations through aboveground masonry and concrete walls, floors, ceilings, roofs, unless specified or otherwise indicated on the Drawings.

C. Exposed Piping:
   1. Install exposed piping in straight runs parallel to the axes of structures, unless otherwise indicated on the Drawings.
   2. Install piping runs plumb and level, unless otherwise indicated on the Drawings. Slope plumbing drain piping with a minimum of 1/4 inch per foot downward in the direction of flow.
   3. Install exposed piping after installing equipment and after piping and fitting locations have been determined.
   4. In addition to the joints indicated on the Drawings, provide unions, flexible couplings, flanged joints, flanged coupling adapters, and other types of joints or means which are compatible with and suitable for the piping system, and necessary to allow ready assembly and disassembly of the piping.
   5. Assemble piping without distortion or stresses caused by misalignment.
      a. Match and properly orient flanges, unions, flexible couplings, and other connections.
      b. Do not subject piping to bending or other undue stresses when fitting piping. Do not correct defective orientation or alignment by distorting flanged joints or subjecting flange bolts to bending or other undue stresses.
      c. Flange bolts, union halves, flexible connectors, and other connection elements shall slip freely into place.
      d. Alter piping assembly to fit, when proper fit is not obtained.
      e. Install eccentric reducers or increasers with the top horizontal for pump suction piping.

D. Buried Piping:
   1. Bury piping with minimum 3-foot cover without air traps, unless otherwise indicated on the Drawings.
   2. Maintain inside of pipe in clean condition.
   3. Encase all buried pipe installed under concrete slabs or structures with polyethelyne wrap and encase with lean concrete backfill.
   4. Where 2 similar services run parallel to each other, piping for such services may be laid in the same trench. Lay piping with sufficient room for assembly and disassembly of joints, for thrust blocks, for other structures, and to meet separation requirements of public health authorities having jurisdiction.
   5. Laying Piping:
      a. Lay piping in finished trenches free from water or debris. Begin at the lowest point with bell ends up slope.
      b. Place piping with top or bottom markings with markings in proper position.

c. Lay piping on an unyielding foundation with uniform bearing under the full length of barrels.
d. Where joints require external grouting, banding, or pointing, provide space under and immediately in front of the bell end of each section laid with sufficient shape and size for grouting, banding, or pointing of joints.
e. At the end of each day's construction, completely plug or cap open ends of piping temporarily to prevent entrance of water, debris or animals.

E. Venting Piping Under Pressure:
1. Lay piping under pressure flat or at a continuous slope without air traps, unless otherwise indicated on the Drawings.
2. Provide additional pipe taps with plug cocks and riser pipes along piping as required for venting during initial filling, disinfecting, and sampling.
3. Before piping is placed into service, close plug valves and install plugs.

F. Restraining Piping:
1. Restrain piping using restraints or concrete thrust blocks at valves and at fittings where piping changes direction, changes sizes, and at pipe ends.
2. Provide restraints with ample size to withstand all thrust forces resulting from fluid pressure and flow.
a. During testing, provide suitable temporary restraints where piping does not require permanent restraints.
3. Place concrete thrust blocks against undisturbed soil. Place concrete so piping joints, fittings, and other appurtenances are accessible for assembly and disassembly.

G. Connections to Existing Piping:
1. Expose existing piping to which connections are to be made with sufficient time to permit, where necessary, field adjustments in line, grade, or fittings.
a. Protect domestic water/potable water supplies from contamination.
1) Make connections between domestic water supply and other water systems in accordance with requirements of public health authorities.
2) Provide devices approved by OWNER of domestic water supply system to prevent flow from other sources into the domestic supply system.
2. Make connections to existing piping and valves after sections of new piping to be connected have been tested and passing results obtained.
3. Provide sleeves, flanges, nipples, couplings, adapters, and other fittings needed to install or attach new fittings to existing piping and to make connections to existing piping.

H. Connections Between Ferrous and Nonferrous Metals:
1. Connect ferrous and nonferrous metal piping, tubing, and fittings with dielectric couplings especially designed for the prevention of chemical reactions between dissimilar metals.
2. Nonferrous metals include aluminum, copper, and copper alloys.

I. Flanged Connections Between Dissimilar Metals Such as Ductile Iron Pipe and Steel Pipe:
1. Provide stainless steel bolts with isolation bushings and washers, and full-face flange gaskets.

3.03 CLEANING

A. Upon completion of installation, clean piping interior of foreign matter and debris. Flush and disinfect potable water piping as specified in Section 15142.

-END OF SECTION

SECTION 15061

PIPE SUPPORTS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes: Supports for pipe, fittings, valves, and appurtenances.

B. Related Sections:
   1. Section 09960 - Coatings.

1.02 REFERENCES

A. American National Standard Institute or Manufacturer's Standardization Society (ANSI/MSS):
   1. SP-58 - Pipe Hangers and Supports - Materials, Design, and Manufacture.
   2. SP-69 - Pipe Hangers and Supports - Selection and Application.

1.03 SUBMITTALS

A. Submit in accordance with Division 1.

B. Shop Drawings: Include schedule, indicating where supports will be installed, and drawings of pipe support system components.

C. Calculations and other information to substantiate supports meet minimum design strength requirements and can withstand seismic loads.

D. American Iron and Steel: Manufacturers certification letter of compliance with American Iron and Steel requirements.

PART 2 PRODUCTS

2.01 PIPE SUPPORTS

A. Concrete Inserts for Pipes Under 30-Inch Diameter: ANSI/MSS SP-69, Type 18. Minimum 1,140 pounds capacity with 5/8 inch diameter rod.
   1. Manufacturers: One of the following or equal:
      a. Anvil International.
      b. Carpenter & Paterson.
      c. Cooper B-Line Systems, Inc.

B. Hanger Rods: Sized to match suspended pipe hanger, or as indicated on the Drawings.
   1. Manufacturers: One of following or equal:
      a. Anvil International.

b. Bergen-Power.
c. Cooper B-Line Systems, Inc.

C. Hanger Rods, Continuously Threaded: Sized to match suspended pipe hanger, or as indicated on the Drawings.
1. Manufacturers: One of the following or equal:
a. Anvil International.
b. Bergen-Power.

D. Eye Bolts: Welded and rated equal to full load capacity of rod.

E. Welded Eyebolt Rod:
1. Manufacturers: One of the following or equal:
a. Anvil International.
b. Bergen-Power.
c. Cooper B-Line Systems, Inc.

F. Adjustable Ring Hangers: ANSI/MSS SP-69 Type 7 or Type 9 (system dependent).
1. Manufacturers: One of the following or equal:
a. Anvil International.
b. Cooper B-Line Systems, Inc.

G. Adjustable Clevis Hangers: ANSI/MSS SP-69, Type 1.
1. Manufacturers: One of the following or equal:
a. Anvil International.
b. Bergen-Power.
c. Cooper B-Line Systems, Inc.

H. Adjustable Clevis Hangers for Insulated Pipe: Oversize.
1. Manufacturers: One of the following or equal:
a. Anvil International.
b. Bergen-Power.
c. Cooper B-Line Systems, Inc.

I. Brackets: ANSI/MSS SP-69, Type 32 with back plate; rated for 1,500 pounds.
1. Manufacturers: One of the following or equal:
a. Anvil International.
b. Cooper B-Line Systems, Inc.

J. Standard U-Bolt: ANSI/MSS SP-69, Type 24.
1. Manufacturers: One of the following or equal:
a. Anvil International.
b. Bergen-Power.
c. Cooper B-Line Systems, Inc.

K. Riser Clamps: ANSI/MSS SP-69, Type 8.
1. Manufacturers: One of the following or equal:
a. Anvil International.
b. Bergen-Power.
c. Cooper B-Line Systems, Inc.

L. Pipe Clamps: ANSI/MSS SP-69, Type 4.
   1. Manufacturers: One of the following or equal:
      a. Anvil International.
      b. Bergen-Power.
      c. Cooper B-Line Systems, Inc.

M. Adjustable Offset Pipe Clamp:
   1. Manufacturers: One of the following or equal:
      a. Anvil International.
      b. Cooper B-Line Systems, Inc.

N. Offset Pipe Clamp:
   1. Manufacturers: One of the following or equal:
      a. Anvil International.
      b. Cooper B-Line Systems, Inc.

O. Floor Stand or Stanchion Saddles: ANSI/MSS SP-69 Type 37. Provided with U-bolt hold down yokes.
   1. Manufacturers: One of the following or equal:
      a. Anvil International.
      b. Bergen-Power.
      c. Cooper B-Line Systems, Inc.

P. Spring Hangers:
   1. Manufacturers: One of the following or equal:
      a. Anvil International.
      b. Bergen-Power.

Q. One Hole Pipe Clamps:
   1. Manufacturers: One of the following or equal:
      a. Anvil International.
      b. Carpenter & Paterson.

R. Welded Beam Attachment: ANSI/MSS SP-69, Type 22.
   1. Manufacturers: One of the following or equal:
      a. Anvil International.
      b. Bergen-Power.
      c. Cooper B-Line Systems, Inc.

S. Heavy Pipe Clamp: ANSI/MSS SP-69, Type 4.
   1. Manufacturers: One of the following or equal:
      a. Anvil International.
      b. Bergen-Power.

T. PTFE Pipe Slide Assembly: ANSI/MSS SP-58, Type 35 with lateral and vertical restraint.
   1. Manufacturers: One of the following or equal:
      a. Anvil International.
      b. Cooper B-Line Systems, Inc.

U. Anchor bolts, flush shells, powder actuated fasteners, and concrete anchors.

2.02 MATERIALS

A. Pipe Supports:
   1. Stainless Steel (Type 304 or 316): Use in all submerged locations, above water level but below top of wall inside water bearing structures and where specifically indicated on the Drawings.
   2. Hot-Dip Galvanized Steel: Use in areas other than above and where specifically indicated on the Drawings. Hot-dip galvanize pipe support after fabrication.
   3. Plastic, aluminum, FRP, and other miscellaneous materials: Use where specifically indicated on the Drawings.

B. Fasteners:
   1. As indicated on the Drawings.

PART 3 EXECUTION

3.01 INSTALLATION

A. Properly support, suspend, or anchor exposed pipe, fittings, valves, and appurtenances to prevent sagging, overstressing, or movement of piping; and to prevent thrusts or loads on or against connected pumps, blowers, and other equipment.

B. Carefully determine locations of inserts. Anchor to formwork prior to placing concrete.

C. Do not use anchors relying on deformation of lead alloy.

D. Do not use stud type powder actuated fasteners for securing metallic conduit or steel pipe larger than 1 inch to concrete, masonry, or wood.

E. Suspend pipe hangers from hanger rods. Secured with double nuts.

F. Install continuously threaded hanger rods only where indicated on the Drawings.

G. Use adjustable ring hangers; or adjustable clevis hangers, for 4 inch and smaller diameter pipe.

H. Use adjustable clevis hangers for pipe larger than 4 inches in diameter.

I. Secure pipes with galvanized double nutted U-bolts or suspend pipes from hanger rods and hangers.

J. Support Spacing:
   1. Support 2 inch and smaller piping on horizontal and vertical runs at maximum 5 feet on center, unless otherwise specified.
   2. Support larger than 2 inch piping on horizontal and vertical runs at maximum 10 feet on center, unless otherwise specified.

3. Support exposed polyvinyl chloride and other plastic pipes at maximum 5 feet on center, regardless of size.
4. Support tubing, copper pipe and tubing, fiber-reinforced plastic pipe or duct, and rubber hose and tubing at intervals close enough to prevent sagging greater than 1/4 inch between supports.

K. Install Supports at:
1. Horizontal bends.
2. Both sides of flexible pipe connections.
3. Base of risers.
4. Floor penetrations.
5. Connections to pumps, blowers, and other equipment.
6. Valves and appurtenances.

L. Securely anchor plastic pipe, valves, and headers to prevent movement during operation of valves.

M. Anchor plastic pipe between expansion loops and direction changes to prevent axial movement through anchors.

N. Provide ductile iron elbows or tees supported from floors with base fittings where indicated on the Drawings.

O. Support base fittings with metal supports or when indicated on the Drawings, concrete piers.

P. Size hanger rods, supports, clamps, anchors, brackets, and guides in accordance with ANSI/MSS SP-58 and SP-69.

Q. Do not use chains, plumbers' straps, wire, or similar devices for permanently suspending, supporting, or restraining pipes.

R. Support plumbing drainage and vents in accordance with Uniform Plumbing Code.

S. Supports, clamps, brackets, and portions of support system bearing against copper pipe: Copper plated, copper throughout, or isolated with neoprene or polyvinyl chloride tape.

T. Where pipe is insulated, install over-sized supports and hangers.

U. Install insulation shield in accordance with ANSI/MSS SP-69, Type 40. Shield shall be galvanized steel unless specified elsewhere.

V. Install riser clamps at floor penetrations and where indicated on the Drawings.

W. Coat support system components as specified in Section 09960.

-END OF SECTION-

SECTION 15104

SCHEDULE 80 PVC PRESSURE PIPE

PART 1 GENERAL

1.01 SUMMARY

A. Section includes: Polyvinyl Chloride (PVC) pressure pipe and fittings with solvent-welded, flanged, or threaded joints.

B. Related Sections:
   1. Section 15052 - Basic Piping Materials and Methods.

1.02 REFERENCES

A. American Society of Testing and Materials (ASTM):
   1. D1785 – Standard Specification for Polyvinyl Chloride (PVC) Plastic Pipe, Schedules 40, 80, and 120.
   2. D2564 – Standard Specification for Solvent Cements for Polyvinyl Chloride Plastic Piping Systems
   3. F656 – Standard Specification for Primers for Use in Solvent Cement Joints of Polyvinyl Chloride (PVC) Plastic Pipe and Fittings

B. American National Standards Institute/American Society of Mechanical Engineers (ANSI/ASME):
   1. B16.5 - Pipe Flanges and Flanged Fittings: NPS 1/2 through NPS 24 Metric/Inch Standard

1.03 SUBMITTALS:

A. Product Data:
   1. Submit manufacturer’s product data for pipe, fittings, gaskets, pipe cement, and thread sealants demonstrating compliance with the requirements of this specification.

B. Documentation of certification that pipe, fittings, gaskets, pipe cement, and thread sealants are certified to be NSF-61 compliant.

PART 2 PRODUCTS

A. Pipe Material: PVC pipe shall be made from all new rigid unplasticized polyvinyl chloride and shall be normal impact class 12454-B, Schedule 80, unless otherwise indicated, in accordance with ASTM D 1785.

B. Pipe Joints:
   1. Solvent-welded joints shall be made with solvent cement in accordance with ASTM D 2564, and with primer in accordance with ASTM F 656.

2. Threaded joints shall be made using non-hardening pipe thread sealant certified by the sealant manufacturer for use on PVC pipe threads.
   a. Manufacturers:
      1) One of the following or equal:
         a) Federal Process Corporation, Gasoila-NT Non-PTFE Thread Sealant
3. Flanged joints shall be made with solvent-welded PVC ANSI B16.5 Class 150 Van Stone-type flanges rated to 150 psi.
   a. Gaskets shall be the full-face type, manufactured from 1/8" thick EPDM rubber, and sized to match the diameter, bolt pattern, and pressure rating of the flange.
   b. Furnish bolts and nuts in accordance with the Drawings and as specified in Section 15052.

PART 3 EXECUTION

A. All PVC pipe shall be installed in a neat and workmanlike manner and be firmly supported with fabricated or commercial hangers or supports.

B. Pipe Preparation: Prior to installation, each pipe length shall be carefully inspected and flushed clean of any debris or dust.

C. Pipe Joints:
1. Threaded Joints: Pipe threads shall be full and cleanly cut with sharp dies designed for use on plastic pipe and that have not been used for cutting other materials. Vices and pipe wrenches used to hold pipe during thread cutting shall be designed and used in such a manner that the pipe is not damaged. Do not overtighten threaded joints; one to two turns past finger tightness is adequate to achieve a tight seal. Not more than three threads shall remain exposed after installation.
   a. Threaded joints shall be made using non-hardening plastic pipe thread sealant. Products containing poly(1,1,2,2-tetrafluoroethylene), i.e. PTFE or Teflon, shall not be used to seal PVC threaded joints.
2. Solvent-welded Joints: Solvent-welded joints shall be made with fresh primer and solvent cement on clean, dry pipe ends. The primer and cement cans shall be kept closed at all times when not in use, and the joints shall be made up per the manufacturer's recommendations. All pipe ends shall be inserted to the full depth of the socket.
3. Flange Joints: Flanged joints shall be made with gaskets; care shall be taken not to over-torque the bolts.

D. Inspection: All finished installations shall be inspected for proper joints and sufficient supports, anchoring, interferences, and damage to pipe, fittings, and coatings. Any damage shall be repaired to the satisfaction of the Engineer.

E. Field Testing: Prior to enclosure or burying, all piping systems shall be pressure tested as indicated in Division 15.

-END OF SECTION-

SECTION 15111

BALL VALVES

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes**:** Metal body ball valves.

1.02 SUBMITTALS

A. Product Data: Submit manufacturer's catalog data describing design and technical features for products specified.

B. Certifications:
   1. Metal Body Ball Valves: Submit affidavit of compliance with NSF 61/NSF 372.

PART 2 PRODUCTS

2.01 METAL BODY BALL VALVES, LESS THAN 6 INCH SIZE

A. Manufacturers: One of the following, or equal:
   1. Apollo Valves as manufactured by Conbraco Industries, Inc.
   2. B&K.
   3. NIBCO, Inc.

B. General:
   1. Type: Non-lubricated and capable of sealing in either direction.
   2. Connections: Threaded end connections.
   3. Shafts: Rigidly connected to the ball by a positive means. The connection shall be designed to transmit torque equivalent to at least 75 percent of the torsional strength of the shaft.
   4. Handles: Corrosion resistant handle with vinyl grip designed to open and close the valve under operating conditions.
   5. Temperature Limits: Suitable for operation between minus 20 and 350 degrees Fahrenheit.

C. Materials:
   1. Lead-free brass that complies with NSF/ANSI 61.
   2. Ball: Chromium plated or stainless steel.
   3. Seats: TFE, PTFE, or RPTFE.
   4. Stem Seals: TFE, PTFE, or RPTFE, or Viton.
   5. Bearings: Self-lubricated, corrosion resistant material that will not contaminate potable water.

PART 3 EXECUTION

3.01 INSTALLATION

A. General: Install each type of valve in accordance with manufacturer's instructions.

-END OF SECTION-

SECTION 15114

CHECK VALVES

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Center Guide Silent Globe Check Valves
   2. Center Guide Threaded Submersible Pump Check Valves

B. Related Sections:
   1. Section 15052 - Basic Piping Materials and Methods.

1.02 REFERENCES

A. ASTM A536 – Standard Specification for Ductile Iron Castings

B. ASTM B584 – Standard Specification for Copper Alloy Sand Castings For General Applications

C. ASME B16.42 – Ductile Iron Pipe Flanges and Flanged Fittings: Classes 150 and 300

D. AWWA C550 – Protective Interior Coatings for Valves and Hydrants

1.03 SUBMITTALS

A. Product Data: Submit detailed technical information, including descriptions of component parts, materials of construction, performance information, dimensions, and weights.

B. American Iron and Steel: Manufacturers certification letter of compliance with American Iron and Steel requirements.

C. Certification of compliance with NSF-61/NSF-372 for materials in contact with potable water.

PART 2 PRODUCTS

2.01 CENTER GUIDE (SILENT) GLOBE CHECK VALVES

A. Manufacturers: One of the following or equal:
   1. Val-Matic, Series 1800A.
   2. DeZurik-APCO, CSC 600A

B. Valve Design:

1. Shall incorporate a center guided, spring loaded sealing disc with short linear stroke and shaft guide bushing. Valves shall begin to close as the forward flow velocity diminishes and shall fully close at zero velocity to prevent flow reversal and water hammer. Flow area through the body shall be equal to or greater than the cross-sectional area of the equivalent pipe size. The dynamic characteristics of the valve shall be published and verified by independent laboratory test data.
2. Flanges: ASME B16.42, Class 150
   a. Furnish bolts and nuts in accordance with the Drawings and as specified in Section 15052.
3. Working pressure: 200 psig minimum.
4. All component parts shall be field replaceable without the need of special tools.

C. Materials:
1. Body: Globe body style, ductile iron ASTM A536.
2. Disc: Lead-free bronze ASTM B584 C87600, ductile iron, or stainless steel
3. Seat: Lead-free bronze ASTM B584 C87600, or stainless steel
4. Resilient Seat: EPDM or Buna-N
5. Spring: Stainless steel Type 316.
6. Shaft and Bushing: Bronze, ASTM B 584 C83600 or stainless steel
7. Interior/exterior coatings: NSF/ANSI 61 certified fusion bonded epoxy per AWWA C550.

2.02 SUBMERSIBLE PUMP CHECK VALVES

A. Manufacturers:
1. Flomatic Valves, Series 80 DI VFD Stainless Steel Guided.

B. Valve Design:
1. Center Guided
2. Spring loaded sealing disc
3. Buna-N rubber sealing surfaces
4. Closes noiselessly and drip-tight after each pump cycle
5. NPT-threaded end connections, sized to match column pipe
6. Designed for vertical applications

C. Materials:
1. Ductile Iron body and poppet: ASTM A536
2. Stem: ASTM A312 Stainless Steel
3. Spring: ASTM A276 Stainless Steel
4. Stem guide: Ductile Iron, ASTM A536
5. Bushings: Engineered composite
6. Retainer rings: ASTM A276 Stainless Steel
7. O-rings: Buna-N
8. Interior/Exterior coatings: NSF-61 certification required.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install valves in accordance with the manufacturer's instructions.

B. Provide incidental work and materials necessary for installation of valves including flange gaskets, flange bolts and nuts, valve boxes and covers, concrete bases, blocking, and protective coating.

-END OF SECTION-

SECTION 15115

RESILIENT WEDGE GATE VALVES

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes: Gate valves.

B. Related Sections:
   1. Section 15052 – Basic Piping Materials and Methods

1.02 REFERENCES

A. American Water Works Association (AWWA):
   1. C509 - Standard for Resilient-Seated Gate Valves for Water Supply Service.
   2. C550 - Standard for Protective Interior Coatings for Valves and Hydrants.
   3. C111 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.

B. ASTM International:
   1. A536 - Standard Specification for Ductile Iron Castings.
   2. A126 - Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings
   3. B763 - Standard Specification for Copper Alloy Sand Castings for Valve Applications

C. Manufacturers Standardization Society of the Valve and Fittings Industry (MSS):
   1. MSS SP-60 - Connecting Flange Joint between Tapping Sleeves and Tapping Valves.
   2. MSS SP-113 - Connecting Joints Between Tapping Machines and Tapping Valves.

D. American Society of Mechanical Engineers:
   1. B16.42 – Ductile Iron Pipe Flanges and Flanged Fittings: Classes 150 and 300

1.03 SUBMITTALS

A. Product Data: Submit detailed technical information, including descriptions of component parts, materials of construction, performance information, dimensions, and weights.

B. American Iron and Steel: Manufacturers certification letter of compliance with American Iron and Steel requirements.

C. Certification of compliance with NSF-61/NSF 372 for materials in contact with potable water.

PART 2 PRODUCTS

2.01 SERVICE REQUIREMENTS:

A. Gate valves shall be the resilient wedge type and shall meet or exceed AWWA C509, with coatings meeting or exceeding AWWA C550.

B. Valves shall be rated for a minimum 250 psig working pressure.

C. Valves in below ground service shall be equipped with a 2-inch operating nut opening to the left and painted black.

D. Valves in above grade service shall be equipped with handwheel operators opening to the left and painted black, unless otherwise indicated on the Drawings.

2.02 MATERIALS:

A. Body and bonnet**:** ASTM A536 ductile iron with less than 0.08% phosphorus content. Wall thicknesses shall conform to AWWA C509.

B. Body seating surfaces: Metallic seating surfaces shall have corrosion resistance equivalent to or better than bronze. Non-metallic surfaces shall comply with AWWA C550.

C. Stuffing Box**:** ASTM A536 ductile iron with rubber O-ring or gasketed seal.

D. Valve Ends: Valve ends shall conform to the following:
   1. Flanged ends: Flanges shall conform to ASME B16.42 Class 150. Bolt holes shall straddle the vertical centerline of the valve.
   2. Mechanical joint ends: Mechanical joint bell dimensions shall conform to AWWA C111.
   3. Bolts and nuts for mechanical joint and flanged ends: Furnish bolts and nuts in accordance with the Drawings and as specified in Section 15052.
   4. Push-on joint ends. Push-on joints shall conform to AWWA C111/A21.11.
   5. Tapping valve ends: The end flange that forms a joint with the tapping sleeve shall conform to the dimensions of MSS SP-60. The end flange that forms a joint with the tapping machine shall conform to the dimensions of MSS SP-113.

E. Resilient Wedge: Rubber-encapsulated ASTM A536 ductile iron.

F. Bolts and Washers: Type 304 stainless steel.

G. Stem and Wedge Nut: Manganese bronze per ASTM B763.

H. Operating Nut: ASTM A536 ductile iron or ASTM A126 cast iron.

I. Handwheel: ASTM A536 ductile iron or ASTM A126 cast iron.

J. Gaskets and O-rings: EPDM or nitrile rubber.

K. Internal and external coatings: Fusion-bonded thermoset epoxy powder coating per AWWA C550; 10 mils nominal thickness.

2.03 MANUFACTURERS:
One of the following or equal:

A. Mueller Company.

B. American Flow Control.

C. Nibco, Model F-619-RWS-SON

PART 3 EXECUTION

3.01 INSTALLATION

A. Install valves in accordance with the manufacturer's instructions and AWWA C509 Appendix A.

-END OF SECTION-

SECTION 15119

COMBINATION AIR VALVES

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes: Well service air valves, cast iron body combination air valves, and composite body combination air valves.

1.02 REFERENCES

A. American Water Works Association (AWWA) Standards:
   1. AWWA C512—Air release, Air/Vacuum, and Combination Air Valves for Waterworks Service
   2. AWWA C550—Protective Interior Coatings for Valves and Hydrants

B. American Society of Mechanical Engineers (ASME) Standard B16—Pipe Flanges and Flanged Fittings

C. American Society for Testing and Materials (ASTM) Standards:
   1. ASTM A313—Standard Specification for Stainless Steel Spring Wire
   2. ASTM B584—Standard Specification for Copper Alloy Sand Castings for General Applications
   3. ASTM A126—Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings
   4. ASTM A536—Standard Specification for Ductile Iron Castings

1.03 SUBMITTALS

A. Product Data: Submit detailed technical information, including descriptions of component parts, materials of construction, performance information, dimensions, and weights.

B. Operations and Maintenance Data: Provide installation, operation, and maintenance instructions.

C. American Iron and Steel: Manufacturers certification letter of compliance with American Iron and Steel requirements.

D. Certification of compliance with NSF 61 and NSF 372.

PART 2 PRODUCTS

2.01 WELL SERVICE AIR VALVES

A. Standards, Approvals and Verification

1. Valves shall be manufactured and tested in accordance with American Water Works Association (AWWA) Standard C512.

B. Connections:
   1. Well Service Air Valves shall be fully automatic float operated valves designed to exhaust air which is present in the pump column on pump startup and allow air to re-enter the column on pump shutdown or should a negative pressure occur. The Dual Port Throttling Device (3 in. and smaller valves) shall provide adjustable control of the exhaust rate and allow free flow into the valve through a separate inlet port. The Regulated Exhaust Device (4 in. and larger valves) shall allow free air flow in and out of the valve, close upon rapid air exchange, and control the air exhaust rate to reduce pressure surges.
   2. Valve sizes 3 in. (76 mm) and smaller shall have full size NPT inlets and outlets equal to the nominal valve size.
   3. Valve sizes 4 in. (100 mm) and larger shall have bolted flange inlets equal to the valve size. Flanges shall be in accordance with ASME B16.1 for Class 125 or Class 250 iron flanges and ASME B16.42 for Class 300 ductile iron flanges. Valve sizes 6 in. (150 mm) and smaller shall have NPT outlets; larger valves shall have ASME B16.1 Class 125 outlet flanges.
   4. The valve shall have two additional NPT connections for the addition of air release valves, gauges, testing, and draining.

C. Design:
   1. The valve body shall provide a through flow area equal to the nominal valve size. A bolted cover with alloy screws and flat gasket shall be provided to allow for maintenance and repair.
   2. The float shall have a hexagonal guide shaft supported in the body by circular bushings to prevent binding from debris. The float shall be protected against direct water impact by an internal baffle.
   3. The float shall be double guided with a guide shaft extending through the float to prevent any contact with the body. A resilient bumper shall be provided to cushion the float during sudden opening conditions.
   4. Valves 3 in. (75 mm) and smaller shall be equipped with a dual port throttling device to control the discharge of air from the valve and allow full vacuum flow through a separate port. The device shall have an externally adjustable screw and locknut for adjusting the discharge control disc. The disc shall be sized to allow a 5% flow area when fully throttled. The vacuum port shall be equipped with a spring-loaded disc to allow flow into the valve during negative pressure conditions. The spring shall be ASTM A313 Type 316 Stainless Steel.
   5. Valves 4 in. (100 mm) and larger will be equipped with a regulated exhaust device to prevent valve pressure surges due to rapid changes in velocity and pressure.
      a. The exhaust device shall be mounted on the inlet of the combination air valve, and allow free air flow in and restricted flow out of the valve to reduce valve pressure surges.
      b. The exhaust device shall be a flanged, globe pattern, with a center guided disc and seat assembly. The disc shall have threaded holes to provide adjustment of the flow rate through the valve.
      c. The seat and disc shall be Bronze ASTM B584, alloy C83600.

D. Materials:

1. The Well Service Air Valve body, cover, and baffle shall be constructed of ASTM A126 Class B cast iron for Class 125 and Class 250 valves. Class 300 ductile iron valves shall be constructed of ASTM A536 Grade 65-45-12 cast ductile iron.
2. The float, guide shafts, and bushings shall be constructed of Type 316 stainless steel. Resilient seats shall be Buna-N rubber.

E. Coatings:
1. The exterior of the valve shall be coated with a universal alkyd primer.
2. Valve interiors and exteriors shall be coated with an NSF/ANSI 61-certified fusion bonded epoxy in accordance with AWWA C550.

F. Manufacturers:
1. One of the following or approved equal:
   a. Val-Matic Valve and Manufacturing Corporation
   b. Cla-Val
   c. Henry Pratt

2.02 CAST IRON BODY COMBINATION AIR VALVES

A. Standards, Approvals and Verification
1. Valves shall be manufactured and tested in accordance with American Water Works Association (AWWA) Standard C512.

B. Connections
1. Dual body valve sizes 3 in. (75 mm) and smaller and single body valve sizes 4 in. (100 mm) and smaller shall have full size NPT inlets and outlets equal to the nominal valve size. The body inlet connection shall be hexagonal for a wrench connection.
2. Larger sizes shall have bolted flanged inlets and threaded or flanged outlets. Inlet flanges shall be in accordance with ANSI B16.1 for Class 125 or Class 250 iron flanges and ANSI B16.5 for Class 300 steel flanges.
3. The valve shall have two additional NPT connections for the connection to gauges, testing, and draining.

C. Design
1. Valves shall provide a through flow area equal to the nominal size. Floats shall be unconditionally guaranteed against failure including pressure surges. The cover shall be bolted to the body and sealed with a flat gasket. A resilient bumper shall be provided on 4 in. (100 mm) and larger sizes to cushion the float during sudden opening conditions. The resilient seat shall be replaceable and provide drop tight shut off to the full valve pressure rating.
2. Single body combination valves shall have an expanded outlet to provide full flow area around the guide mechanism. The valve shall have a double guided plug on 2 in. (50 mm) and larger sizes, and an adjustable threaded orifice button. The plug shall be protected against direct water impact by an internal baffle. On valve sizes 4 in. (100mm) and smaller, the plug shall have a precision orifice drilled through the center stem.

D. Materials

1. The valve body and cover shall be constructed of ASTM A126 Class B cast iron for Class 125 and Class 250 valves. Class 300 ductile iron valves shall be constructed of ASTM A536 Grade 65-45-12 ductile iron.
2. The float, guide shafts, and bushings shall be constructed of Type 316 stainless steel. Non-metallic floats, linkage, or bushings are not acceptable. Resilient seats shall be Buna-N. Class 300 steel dual body valves shall have a 316 stainless steel seat with Buna-N seal to provide an initial contact to Buna-N with a final metal-to-metal contact to prevent over compression of the resilient seal.
3. A stainless-steel screened outlet shall be provided.
4. Valve interiors and exteriors shall be coated with an NSF/ANSI 61-certified fusion bonded epoxy in accordance with AWWA C550.
5. Low durometer seat and orifice button shall be furnished for low pressure applications.

E. Cross Contamination and Security Protection
1. Combination air valves installed in vaults or flood prone locations shall include an inflow preventer to prevent the introduction of contaminated water through the air valve outlet. The inflow preventer shall allow the admittance and exhausting of air while preventing contaminated water from entering during normal operating conditions. The inflow preventer shall be flow tested by an independent third party to certify performance. The third party shall be an approved testing lab of the American Society of Sanitary Engineers.

F. Manufacturers:
1. One of the following or approved equal:
   a. Val-Matic Valve and Manufacturing Corporation
   b. Cla-Val
   c. Henry Pratt

2.03 COMPOSITE BODY AIR VALVES

A. Connections
1. End connections: NPT threaded male.
2. Discharge connection: NPT threaded female.
   a. Furnish valves with replaceable stainless-steel screen on discharge outlet.

B. Design
1. Valves shall combine the features of both and air & vacuum valve and an air release valve as a triple function, combination air valve. The air & vacuum component admits large volumes of air during drainage and at water column separation. The air release component releases entrapped air in pressurized systems.

C. Materials:
1. The body and operating parts shall be made of composite polyamide fiberglass reinforced materials.
2. The float shall be made of polypropylene foam.

D. Pressure and temperature requirements:
1. Working pressure range: 3 – 250 psi

2. Maximum operating temperature: 140°F and a maximum intermittent temperature: 194° F.

E. Manufacturers:
   1. AV-Tek, Inc., 5300 Series
   2. ARI Model D-040
   3. Approved equal.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions and recommendations.

B. For cast iron and ductile iron body valves, install air valves with galvanized iron pipe discharge lines to nearest drainage system.

C. For composite body valves, install air valves with PVC pipe discharge lines to nearest drainage system.

-END OF SECTION-

SECTION 15121

PIPE COUPLINGS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
1. Dismantling joints.
2. Flanged coupling adapters.
3. Flexible couplings.
4. Restrained flange coupling adapters.

B. Related Sections:
1. Section 15052 - Basic Piping Materials and Methods.

1.02 REFERENCES

A. American National Standards Institute/National Science Foundation (ANSI/NSF).
1. ANSI/NSF 61 - Drinking Water System Components - Health Effects.

B. American Society for Testing and Materials (ASTM):
1. A 36 - Standard Specification for Carbon Structural Steel.
2. A 53 - Standard Specification for Pipe, Steel, Black and Hot-Dip, Zinc-Coated, Welded and Seamless.
3. A 193 - Standard Specification for Alloy Steel and Stainless Steel Bolting Materials for High Temperature Service.
4. A 536 - Standard Specification for Ductile Iron Castings.
5. A 563 - Standard Specification for Carbon and Alloy Steel Nuts.
6. A 576 - Standard Specification for Steel Bars, Carbon, Hot-Wrought, Special Quality.
7. F 593 - Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs.

C. American Water Works Association (AWWA):
1. C105 – AWWA Standard for Polyethylene Encasement for Ductile-Iron Pipe Systems.
2. C111 - AWWA Standard for Rubber Gasket Joints for Ductile Iron Pipe and Fittings.
3. C207 - AWWA Standard for Steel Pipe Flanges for Waterworks Service - Sizes 4 In. Through 144 In. (100mm through 3,600mm).

1.03 SUBMITTALS

A. Shop drawings, detailing dimensions, and materials.

B. Piping Layout Drawings: Coordinate preparation of required piping layout drawings such that coupling center sleeve sizes are clearly identified on drawings.

C. Manufacturer's published installation instructions.

D. American Iron and Steel: Manufacturers certification letter of compliance with American Iron and Steel requirements.

E. Certification of compliance with NSF-61/NSF 372 for materials in contact with potable water.

PART 2 PRODUCTS

2.01 PIPE COUPLINGS FOR DUCTILE IRON PIPING

A. Dismantling Joints:
1. Manufacturers: One of the following or equal:
    a. Romac Industries, Inc., Style DJ400.
    b. Smith-Blair, Inc., Series 975.
2. Materials:
    a. Flanged Spool:
        1) C207 Schedule 40 steel pipe in accordance with ASTM A 53 for sizes 3 inches to 12 inches.
        2) Steel for pipe in accordance with ASTM A 36 for sizes 14 inches to 72 inches.
    b. End Ring and Body:
        1) For sizes 3 inches to 12 inches, ductile iron in accordance with ASTM A 536.
        2) For sizes 14 inches to 72 inches, steel in accordance with ASTM A 36 or A 53.
    c. Follower Ring: Ductile iron in accordance with ASTM A 536 or steel in accordance with ASTM A 36 or A 576.
    d. Bolts and Hex Nuts: Furnish bolts and nuts in accordance with the Drawings and as specified in Section 15052.
    e. Tie Rods: High tensile steel in accordance with ASTM A 193 Grade B7.
3. Flange Design: Class D steel ring flange in accordance with AWWA C207, compatible with ANSI Class 125 and 150 bolt circles.
4. Coating and Lining: Manufacturer’s standard fusion bonded epoxy, ANSI/NSF 61 certified.

B. Flanged Coupling Adapters:
1. Manufacturers: One of the following or equal:
    a. Romac Industries, Inc., Style FCA501.
    b. Smith-Blair, Inc., Series 912.
2. Materials:
    a. Flanged Body: Ductile iron in accordance with ASTM A 536.
    b. Follower Ring: Ductile iron in accordance with ASTM A 536.
    c. Bolts and Hex Nuts: Furnish bolts and nuts in accordance with the Drawings and as specified in Section 15052.
3. Class D steel ring flange in accordance with AWWA C207, compatible with ANSI Class 125 and 150 bolt circles.
4. Coating and Lining: Manufacturer’s standard fusion bonded epoxy, ANSI/NSF 61 certified.

5. Polyethylene Encasement:
    a. Required for underground coupling installations.
        1) 8 mil thickness low density polyethylene in accordance with AWWA C105 or;
        2) 4 mil thickness high density, cross laminated polyethylene accordance with AWWA C105.

C. Flexible Couplings:
1. Manufacturers: One of the following or equal:
    a. Romac Industries, Inc., Style 501.
    b. Smith-Blair, Inc., Series 441.
2. Materials:
    a. Center Rings: Ductile iron in accordance with ASTM A 536.
    b. Follower Rings: Ductile iron in accordance with ASTM A 536.
    c. Bolts and Hex Nuts: Furnish bolts and nuts in accordance with the Drawings and as specified in Section 15052.
3. Coating and Lining: Manufacturer's standard fusion bonded epoxy, ANSI/NSF 61 certified.
4. Polyethylene Encasement:
    a. Required for underground coupling installations.
        1) 8 mil thickness low density polyethylene in accordance with AWWA C105 or;
        2) 4 mil thickness high density, cross laminated polyethylene accordance with AWWA C105.

D. Restrained Flange Coupling Adapter:
1. Manufacturers: One of the following or equal:
    a. Romac Industries, Inc., Style RFCA.
    b. Smith-Blair, Inc., Series 911
2. Materials:
    a. Flange and Flanged Body: Ductile iron in accordance with ASTM A 536.
    b. Follower Ring: Lug type restraint system.
        1) Follower Ring: Ductile iron in accordance with ASTM A 536.
        2) Restraining Lugs: Ductile iron in accordance with ASTM A 536.
            a) Designed to contact the pipe and apply forces evenly.
        3) Restraining Bolts: Ductile iron in accordance with ASTM A 536. Bolt heads shall be designed to twist off when the proper torque has been applied.
    c. Bolts and Hex Nuts: Furnish bolts and nuts in accordance with the Drawings and as specified in Section 15052.
    d. Flange Design: Class D steel ring flange in accordance with AWWA C207, compatible with ANSI Class 125 and 150 bolt circles.
3. Coating and Lining: Manufacturer's standard fusion bonded epoxy, ANSI/NSF 61 certified.
4. Polyethylene Encasement:
    a. Required for underground coupling installations.
        1) 8 mil thickness low density polyethylene in accordance with AWWA C105 or;
        2) 4 mil thickness high density, cross laminated polyethylene accordance with AWWA C105.

5. Angular Deflection: Restrained flange coupling adapter must allow angular deflection after assembly.

2.02 GASKETS FOR FLEXIBLE COUPLINGS AND FLANGED COUPLING ADAPTERS

A. Furnish gaskets as specified in Section 15052.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install couplings in accordance with manufacturer's instructions.

B. Install couplings with polyethylene encasement in underground installations in accordance with AWWA C105.

-END OF SECTION-

SECTION 15130

PRESSURE RELIEF/SUSTAINING CONTROL VALVES

PART 1 GENERAL

A. This specification covers the design, manufacture, and testing of 1 in. through 36 in. pressure relief/sustaining control valves.

B. Standard products required – furnish valves by the same manufacturer for multiple control valve units.

1.02 SUBMITTALS

A. Product Data
   1. The following information shall be provided:
      a. Control Valve manufacturer's technical product data.
      b. Control Valve manufacturer's Installation, Operation and Maintenance manual (IOM).
   2. Provide specific information on all optional features specified and confirm that these items are provided.

B. American Iron and Steel: Manufacturers certification letter of compliance with American Iron and Steel requirements.

C. Certification of compliance with NSF-61/NSF 372 for materials in contact with potable water.

PART 2 PRODUCTS

2.01 PRESSURE RELIEF/SUSTAINING CONTROL VALVES

A. Operation: The Pressure Relief/Sustaining Control Valve shall maintain a constant, field-adjustable upstream pressure by bypassing or relieving excess pressure and shall maintain close pressure limits without causing surges. Valve will remain closed until the upstream pressure exceeds a pre-determined set point. Valve will be fast opening and modulate to limit the upstream pressure to a pre-determined set point. If upstream pressure decreases below the pilot spring setting, the valve shall close. Valve will be slow closing to prevent surges.

B. Manufacturers:
   1. Cla-Val, Model 650-01

C. Main valve size and type:
   1. 4-inch diameter, angle-style reduced-port.

D. Materials
   1. Material Specification for the Pressure Reducing Control Valves Main Valve is as follows:

Component	Material
Body & Cover	Ductile Iron-ASTM A536
Main Valve Trim	Stainless Steel
Disc Retainer and Diaphragm Washer	Cast Iron
Seat	Stainless Steel
Stem, Nut, and Spring	Stainless Steel
Seal Disc	Buna-N® Rubber
Diaphragm	Nylon Reinforced Buna-N® Rubber
Internal Trim Parts	Bronze, Stainless Steel, Brass
End Detail	Flanged per ASME/ANSI B16.42, Class 150
Pressure Rating	250 psi
Temperature Range	Water to 180 °F
Any other wetted metallic parts	Stainless Steel; Bronze; Brass
Coating	Fusion Bonded Epoxy Coating (Interior and Exterior); ANSI / NSF 61 Approved / AWWA coating specifications C116-03.
Main Valve Cavitation Protection	Not required
Optional Accessories	Main valve position indicator Pilot system isolation valves

E. Manufacture:
   1. Main Valve:
      a. The main valve shall be hydraulically operated, single diaphragm actuated, globe or angle pattern. The valve shall consist of three major components; the body with seat installed, the cover with bearing installed and the diaphragm assembly. The diaphragm assembly shall be the only moving part and shall form a sealed chamber in the upper portion of the valve, separating the operating pressure from line pressure. Packing glands, stuffing boxes and/or rolling diaphragm technology will not be permitted and there shall be no pistons operating the main valve or pilot controls. No fabrication or welding shall be used in the manufacturing process. Main valve shall comply with NSF/ANSI Standard 61 and certified lead free to NSF/ANSI 372 as a safe drinking water system component.
   2. Main Valve End Connections:
      a. End Connections for control valve shall be flanged per ASME/ANSI B16.42 Class 150.
   3. Main Valve Body:
      a. No separate chamber(s) below the diaphragm shall be allowed between the main valve cover and body.
      b. The valve shall contain a resilient, synthetic rubber disc with a rectangular cross-section contained on three and one half sides by a disc retainer and forming a tight seal against a single removable seat insert. The disc guide shall be of the contoured type to permit smooth transition of flow and shall hold the discs firmly in place. The disc retainer shall be of a sturdy one-piece design capable of withstanding opening and closing shocks.

c. The diaphragm assembly containing a non-magnetic stainless-steel stem; of sufficient diameter to withstand high hydraulic pressures and shall be fully guided at both ends by a bearing in the main valve cover and an integral bearing in the valve seat. The valve seat shall be a solid, one-piece design and shall have a minimum five-degree taper on the seating surface for a positive, drip-tight shut off. The stem shall be drilled and tapped in the cover end to receive and affix such accessories as may be deemed necessary. The diaphragm assembly shall be the only moving part and shall form a sealed chamber in the upper portion of the valve, separating the operating pressure from the line pressure.

d. The flexible, non-wicking, diaphragm shall consist of nylon fabric bonded with synthetic rubber compatible with the operating fluid. The diaphragm's center hole for the main valve stem must be sealed by the vulcanized process or a rubber grommet sealing the center stem hole from the operating pressure. The diaphragm must withstand a Mullins Burst Test of a minimum of 600 X per layer of nylon fabric and shall be cycled tested 100,000 times to insure longevity. The diaphragm shall not be used as the seating surface. The diaphragm shall be fully supported in the valve body and cover by machined surfaces which support no less than one-half of the total surface area of the diaphragm in either the fully opened or fully closed position.

e. The main valve seat and stem bearing in the valve cover shall be removable. The cover bearing and seat in the 6" and smaller size valve shall be threaded into the cover and body. The valve seat in the 8" and larger size valves shall be retained by flat head machine screws for ease of maintenance. The lower bearing of the valve stem shall be contained concentrically within the seat and shall be exposed to the flow on all sides to avoid deposits. To ensure proper alignment of the valve stem, the valve body and cover shall be machined with a locating lip. Cover bearing, disc retainer and seat shall be made of the same material. All necessary repairs and/or modifications other than replacement of the main valve body shall be possible without removing the valve from the pipeline. The valve shall be designed such that both the cover assembly and internal diaphragm assembly can be disassembled and lifted vertically straight up from the top of a narrow opening/vault. The seat shall be of the solid one-piece design.

4. Pilot Control System:

a. The pressure relief/sustaining pilot shall be a direct-acting, adjustable, spring-loaded, diaphragm valve designed to permit flow when controlling pressure exceeds the adjustable spring setting. The pressure relief pilot control is normally held closed by the force of the compression in the spring above the diaphragm and it opens when the pressure acting on the underside of the diaphragm exceeds the spring setting. Pressure relief pilot control sensing shall be upstream of the pilot system strainer so accurate control may be maintained if the strainer is partially blocked. Pilot shall comply with NSF/ANSI 61 and certified lead free to NSF/ANSI 372 as a safe drinking water system component.

b. The pilot control system shall include a strainer, a fixed orifice closing speed and all required control accessories, equipment, control tubing and fittings. The pilot system shall include an opening speed control on all

valves sizes 3” and smaller as standard equipment. The pilot system shall include isolation ball valves on sizes 4” and larger as standard equipment.

5. Material Specification for Pilot Control:

Component	Material
Body & Cover	Bronze, Low Lead $CuZn_{21}Si_3P$
Pilot Trim	Brass & Stainless Steel 303
Rubber	Buna-N®
Connections	FNPT
Pressure Rating	400 psi Max.
Temperature Range	Water to 180°F Max.
Control Tubing	Copper
Control Fittings	Brass
Adjustment Ranges (Main Pilot)	20 – 105 psi

6. Factory Assembly:
   a. Each control valve shall be factory assembled.
   b. The Quality Management System of the factory shall be certified in accordance with ISO 9001: 2008.
   c. For all control valves, the factory assembly shall include the complete main valve, pilot valve(s), and all associated accessories and control equipment.
   d. During factory assembly the control valve manufacturer shall make all necessary adjustments and correct any defects.
7. Nameplates:
   a. Each Control Valve and associated pilot(s) shall be provided with an identifying nameplate.
   b. Nameplates, depending on type and size of control valve, shall be mounted in the most practical position possible, typically on the inlet side of the valve body.
   c. Nameplates shall be brass and a minimum of 3/32” thick, ¾” high and 2-3/4” long.
   d. Pertinent control valve data shall be etched or stamped into the nameplate. Data shall include control valve Catalog number, function, size, material, pressure rating, end-connection details, type of pilot controls used and control adjustment range.
8. Factory Testing
   a. Each control valve shall be factory tested.
   b. The Quality Management System of the factory shall be certified in accordance with ISO 9001: 2008
   c. Tests shall conform to approved test procedures.
   d. The standard factory tests shall include a valve body and cover leakage test, seat leakage test and a stroke test. Control valves and pilot valves, in the partially open position, with both ends closed off with blind flanges (valves) and pipe plugs (pilots), shall be subject to an air test. The applied air pressure shall be 90 psi minimum. All air pressure tests shall be applied for a minimum of 15 minutes. No visible leakage is permitted through the valve seat, the pressure boundary walls of the valve body, valve cover, pilot body, pilot cover or the body-cover joint.

PART 3 EXECUTION

A. Delivery, Storage, and Handling
   1. Packing and Shipping
      a. Control valves specified herein shall be factory assembled. Any control valve appurtenances, accessories, parts and assemblies that are shipped unassembled shall be packaged and tagged in a manner that will protect the equipment from damage and facilitate the final assembly in the field.
      b. Prior to shipping, the control valves and all associated accessories shall be acceptably packaged and covered to prevent entry of foreign material.
      c. All packaged control valves shall be shipped, remain covered and stored on site until they are installed and put into use.

B. Warranty
   1. The Control Valve manufacturer shall warrant the valve to be free of defects in material and workmanship for a period of three years from date of final acceptance provided the valve is installed and used in accordance with manufacturer's instructions.

C. Field Adjusting
   1. Adjust to open at line pressure of 85 psi.
   2. A direct factory representative shall be made available by the equipment supplier for start-up service, inspection, and necessary adjustments.

-END OF SECTION-

SECTION 15142

DISINFECTION OF POTABLE WATER LINES AND FACILITIES

PART 1 GENERAL

1.01 SCOPE

A. Contractor shall provide all equipment and work necessary for the disinfection of newly installed potable water piping, including facility mechanical piping, yard piping, and distribution system piping and appurtenances.

B. The Contractor shall be responsible for obtaining permits for discharging excess testing and disinfection water, as well as dechlorination prior to release of such water.

1.02 SUBMITTALS

A. Submit detailed disinfection plan for each facility and pipe segment and similar dechlorination plan to ENGINEER for review and approval at least two weeks prior to conducting disinfection procedures.

PART 2 PRODUCTS

2.01 MATERIALS

A. Sodium Hypochlorite 12.5%, Calcium Hypochlorite 65.0%

PART 3 EXECUTION

3.01 DISINFECTION

A. Before the pipeline or facility is placed in service and before certification of completion by the Engineer, all new pipe installed by the Contractor shall be disinfected. The Contractor shall be responsible to inject or place the chemical in the pipeline as directed, as well as to obtain, transport and provide laboratory test results. Schedule work to accommodate twenty-four (24) to forty-eight (48) hours of test “turn-around” time in order to provide the proper incubation period.

B. Forms of Chlorine for Disinfection

1. The forms of chlorine that may be used in the disinfection operations are sodium hypochlorite solution and calcium hypochlorite granules.

a. Sodium Hypochlorite

1) Sodium hypochlorite conforming to ANSI/AWWA B300. Available chlorine is expressed as a percent of weight when the concentration is 5% or less, and usually as a per cent of volume for higher concentrations. Percent x 10 = grams of available chlorine per liter of hypochlorite.

b. Calcium Hypochlorite

1) Calcium hypochlorite conforming to ANSI/AWWA B300 containing approximately 65% available chlorine by weight.

a) CAUTION: Tablets dissolve in approximately seven (7) hours and must be given adequate CT. Do not use calcium hypochlorite intended for swimming pool disinfection, as this material has been sequestered and is extremely difficult to eliminate from the pipe after the desired CT has been achieved.

c. The use of liquid chlorine (i.e. pressurized chlorine gas cylinders) and direct-feed chlorinators is not permitted.

3.02 BASIC DISINFECTION PROCEDURES

A. The basic disinfection procedure generally consists of the following steps;

1. Inspection of materials and chemicals to be used to ensure their integrity.
2. Preventing contaminating materials from entering pipe during storage, construction, or repair and noting potential contamination at the construction site.
3. Removing, by flushing or other means, those materials that may have entered the pipe.
4. Disinfect in accordance with AWWA C651, “Disinfecting Water Mains”, and flush the chlorinated water.
5. Protecting the existing distribution system from backflow caused by hydrostatic pressure testing and disinfection procedures.
6. Document that an adequate level of chlorine contacted all wetted surfaces to provide disinfection.
7. Determine the bacteriological quality by laboratory testing after disinfection.
8. Final connection of the approved water facilities to the active distribution system.

3.03 PRE-FLUSHING OF SOURCE WATER

A. The source water used for disinfection and pressure testing shall be flushed prior to its use to ensure that contaminants or debris are not introduced into the new pipe. Adequate drainage must be provided during flushing. Drainage should take place away from the construction area. During the contact period, it is recommended that the valve isolating the new main from this system (if applicable) be tagged to prevent unintentional release of the elevated chlorine residual water into the system.

3.04 METHODS OF CHLORINATION

A. Granule Method: The granule method gives an average chlorine dose of approximately twenty-five (25) mg/L. This procedure must not be used on solvent-welded plastic or on screwed-joint steel pipe because of the danger of fire or explosion from the reaction of the joint compounds with the calcium hypochlorite.

1. The granule method consists of placing calcium hypochlorite granules in the water main as it is being installed, and then filling the main with potable water when installation is completed. This method may be used only if the pipes and appurtenances are kept clean and dry during construction.
2. Placing of calcium hypochlorite granules:
   a. During construction, calcium hypochlorite granules shall be placed at the upstream end of the first section of pipe, at the upstream end of each branch main, and at 500-ft intervals. The quantity of granules shall be as shown in Table 1.

Table 1: Ounces (grams) of calcium hypochlorite granules to be placed at beginning of main and at each 500-ft interval

Pipe Diameter	Quantity of Calcium Hypochlorite Granules (65% available chlorine)	
inches	ounces	grams
4	1.7	48
6	3.8	108
8	6.7	190
10	10.5	298
12	15.1	428
14 and larger	(inside pipe diameter in feet)^2 x 15.1	(inside pipe diameter in feet)^2 x 428

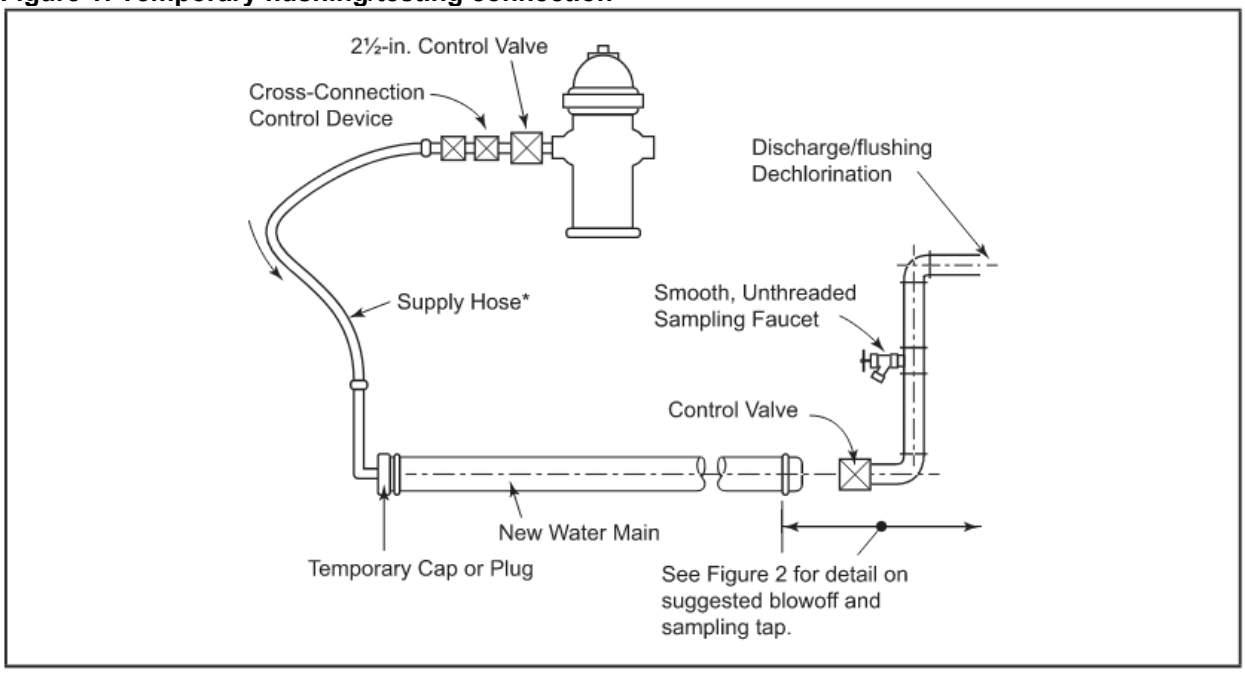
3. Filling and contact:
   a. When installation has been completed, the main shall be filled with water at a rate to ensure that the water within the main will flow at a velocity no greater than 1 ft/s (0.3 m/s).
   b. Precautions shall be taken to ensure that air pockets are eliminated. This water shall remain in the pipe for at least twenty-four (24) hours. If the water temperature is less than 41°F (5°C), the water shall remain in the pipe for at least forty-eight (48) hours.
   c. Water used to fill the new main shall be supplied through a temporary connection that shall include an appropriate cross-connection control device, consistent with the degree of hazard, for backflow protection of the active distribution system (see Figure 1). A detectable chlorine residual should be found at each sampling point after the twenty-four (24) hours period. The results must be reported.

B. Continuous-feed Method: The continuous-feed method consists of completely filling the main with potable water, removing air pockets, then flushing the completed main to remove particulates, and refilling the main with potable water that has been chlorinated to 25 mg/L. After a 24-hr holding period in the main there shall be a free chlorine residual of not less than 10 mg/L.

Preliminary flushing. Before the main is chlorinated, it shall be filled to eliminate air pockets and flushed to remove particulates. The flushing velocity in the main shall not be less than 3.0 ft/s (0.914 m/s) unless the purchaser determines that conditions

do not permit the required flow to be discharged to waste. Table 2 shows the rates of flow required to produce a velocity of 2.5 ft/s (0.76 m/s) in commonly used sizes of pipe. Note that flushing is no substitute for preventive measures during construction. Certain contaminants, such as caked deposits, resist flushing at any feasible velocity, and pigging of the main, or other suitable method acceptable to the ENGINEER, may be required. Where such flow rates are not possible, flushing at the maximum expected flow rate for the line for 2 – 3 volumes may be acceptable. For larger mains, pigging, or other suitable method acceptable to the ENGINEER, is an option in place of high velocity flushing.

Figure 1: Temporary flushing/testing connection



Note: Figure 1 applies to pipes with diameters 4" – 12". Larger sizes must be handled on a case by case basis.
*****Clean potable water hose only. Size and number of taps per Table 2. This hose must be removed during the hydrostatic pressure test.

Figure 2: Combination blowoff and sampling tap

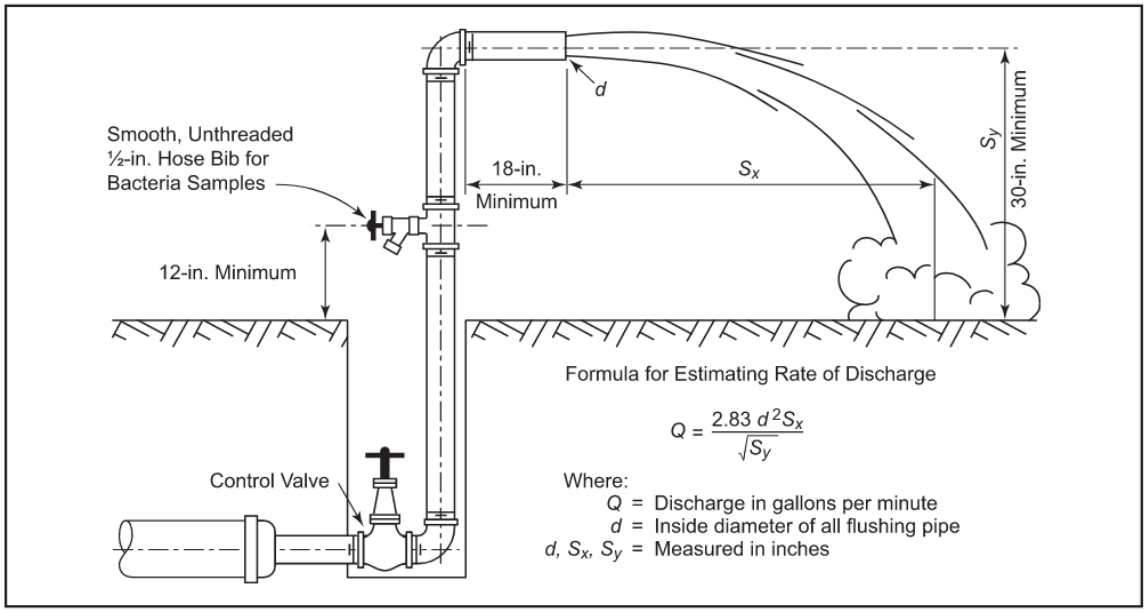


Table 2: Required flow and openings (taps or hydrants) to flush pipelines at 3.0 ft/sec and 40 psi residual water main pressure[1]

Pipe Diameter (inches)	Flow Required to Produce 3.0 ft/sec (approx.) Velocity in Main (gpm)	Size of Tap Used			Number of Hydrant Outlets	
		1 inch	*1 ½ inch*	*2 inches*	*2 ½ inches*	*4 ½ inches*
		Number of Taps Required on Pipe[2]				
4	120	1	-	-	1	1
6	260	-	1	-	1	1
8	470	-	2	-	1	1
10	730	-	3	2	1	1
12	1,060	-	-	5	2	1
16	1,880	-	-	5	2	1

With a 40-psi pressure in the main with the hydrant flowing to atmosphere, a 2 ½-inch hydrant outlet will discharge approximately 1,000 gpm and a 4 ½-inch hydrant outlet will discharge approximately 2,500 gpm.
Number of taps on pipe based on 3.0-ft/sec discharge through 5 ft of galvanized iron pipe with one 90 degree elbow.

1. For 24-in. (600-mm) or larger diameter mains, an acceptable alternative to flushing is to broom-sweep the main, carefully removing all sweepings prior to chlorinating the main, in accordance with OSHA confined space entry requirements.
2. Procedure for chlorinating the main:

Potable water may be supplied from a temporary backflow-protected connection to the existing distribution system or other supply source approved by the ENGINEER. The cross-connection control device shall be consistent with the degree of hazard for backflow protection of the active distribution system (see **Figure 1**). The flow shall be at a constant, measured rate into the newly installed water main. In the absence of a meter, the rate may be approximated using a Pitot gauge in the discharge, measuring the time to fill a container of known volume, or measuring

the trajectory of the discharge and using the formula shown in **Figure 2**. The main shall undergo hydrostatic testing prior to disinfection.

a. At a point not more than ten (10) feet (3m) downstream from the beginning of the new main, water entering the new main shall receive a dose of chlorine fed at a constant rate such that the water will have not less than 25 mg/L free chlorine. To ensure an appropriate concentration is achieved, the free chlorine concentration shall be measured at regular time intervals using an appropriate chlorine test kit.

b. **Table 3** gives the amount of chlorine required for each 100 ft. (30.5 m) of pipe of various diameters. Solutions with a minimum of 1% chlorine may be prepared with sodium hypochlorite or calcium hypochlorite. The latter solution requires one (1) lb (454 g) of calcium hypochlorite in eight (8) gal (30.3 L) of water.

c. Chlorine application shall not cease until the entire main is filled with chlorinated water. The chlorinated water shall be retained in the main for at least 24 hours, during which time valves and hydrants in the treated section shall be operated to ensure disinfection of the appurtenances. At the end of this 24-hour period, the treated water in all portions of the main shall have a residual of not less than 10 mg/l free chlorine.

Table 3: Chlorine required to produce 25-mg/L concentration in 100 ft (30.5 m) of pipe by diameter.

Pipe Diameter	1% Chlorine Solution	
	Gallons	Liters
4	0.16	0.6
6	0.36	1.4
8	0.65	2.5
10	1.02	3.9
12	1.44	5.4
16	2.6	9.8

3.05 BASIC DISINFECTION PROCEDURE FOR NEW MAINS

A. The basic disinfection procedure consists of:

1. Inspecting materials to be used to ensure their integrity.
2. Preventing contaminating materials from entering the water main during storage, construction, or repair, and noting potential contamination at the construction site.
3. Removing, by flushing or other means, those materials that may have entered the water main or appurtenances.
4. Preventing contamination of existing mains from cross-connection during flushing, pressure testing, and disinfection.

5. Pressure testing the water main to ensure the main meets the specified allowable leakage rate. Hydrostatic pressure tests shall be conducted with potable water.
6. Chlorinating and adequately documenting the process used for disinfection.
7. Flushing the chlorinated water from the main. Submit dechlorination plan meeting the requirements of AWWA C655—Field Dechlorination to ENGINEER for review and approval prior to flushing.
8. Determine the bacteriological quality of water samples collected from the pipe by laboratory test after disinfection.
9. Final connection of the newly disinfected water main to the active distribution system without sacrificing sanitary practices and conditions.

3.06 PREVENTIVE AND CORRECTIVE MEASURES DURING NEW CONSTRUCTION

A. *General:* Heavy particulates generally contain bacteria and prevent even very high chlorine concentrations from contacting and killing these organisms. The procedures of this section must be observed to ensure a water main and its appurtenances have been thoroughly cleaned for the final disinfection by chlorination. Any connection of a new water main to the active distribution system before the receipt of satisfactory bacteriological samples shall be considered a cross-connection. The new main shall remain isolated until bacteriological tests described in this Section are satisfactorily completed.

B. *Keep pipe clean and dry:* The interiors of pipes, fittings, and valves shall be protected from contamination.

C. *Openings:* Openings in the pipeline shall be closed with watertight plugs when pipe laying is stopped at the close of the day's work or for other reasons such as rest breaks or meal periods. Rodent-proof plugs may be used when watertight plugs are not practicable and when thorough cleaning will be performed by flushing or other means.

D. *Stringing Pipe:* Pipe delivered for construction shall be strung to minimize the entrance of foreign material.

E. *Delays:* Delay in placement of delivered pipe invites contamination. The more closely the rate of delivery is correlated to the rate of pipe laying, the lower the risk of contamination.

F. *Joints:* Joints of pipe in the trench shall be completed before work is stopped. If water accumulates in the trench, the plugs shall remain in place until the trench is free of standing water and mud that may enter the pipe.

G. *Packing Materials:* Yarning or packing material shall consist of molded or tubular rubber rings, rope of treated paper, or other approved materials. Materials such as jute or hemp shall not be used. Packing material shall be handled in a manner that avoids contamination.

H. *Sealing Materials:* No contaminated material or any material capable of supporting growth of microorganisms shall be used for sealing joints. Sealing material or gaskets shall be handled in a manner that avoids contamination. The lubricant used in the installation of sealing gaskets shall be suitable for use in potable water meeting

requirements of NSF/ANSI 61 and shall not contribute odors. It shall be delivered to the job in closed containers and shall be kept clean and applied with dedicated clean applicators.

I. *Wet-Trench Construction:* If it is not possible to keep the pipe and fittings dry during installation, a scour flush at 3 ft/sec or greater for a minimum of three pipe volumes followed by continuous-feed chlorination and bacteria testing before release is required. For larger mains, pigging or other suitable method acceptable to the ENGINEER is an option in place of high-velocity flushing.

J. *Flooding by Storm or Accident during Construction:* If the main is flooded during construction, it shall be cleared of the floodwater by draining and flushing with potable water until the main is clean. The section exposed to the floodwater shall then be filled with a chlorinated potable water that, at the end of a 24-hour holding period, will have a free chlorine residual of not less than 25 mg/L. The chlorinated water may then be drained or flushed from the main. If chemical contamination occurs, such as a hydraulic oil leak or petroleum product spill, the pipe sections exposed to the contamination shall be replaced and not reused for potable water applications. After construction is completed, the main shall be disinfected using the continuous feed method.

K. *Backflow Protection:* The new water main shall be kept isolated from the active distribution system using a physical separation (refer to Figure 1) until satisfactory bacteriological testing has been completed and the disinfection water flushed out. Water required for hydrostatic pressure testing, disinfection, and flushing shall be supplied through a temporary connection between the distribution system and the new main or other approved supply source. The temporary connection shall include an appropriate cross-connection control device consistent with the degree of hazard (a double check valve assembly or a reduced pressure zone assembly) and shall be disconnected (physically separated) from the new main during the hydrostatic pressure test. It will be necessary to reestablish the temporary connection after completion of the hydrostatic pressure test to flush out the disinfectant water prior to final connection of the new main to the distribution system.

3.07 FINAL FLUSHING FOR NEW MAINS

A. *Clearing the main of heavily chlorinated water.* After the applicable retention period, heavily chlorinated water should not remain in prolonged contact with pipe. In order to prevent damage to the pipe lining or to prevent corrosion damage to the pipe itself, the heavily chlorinated water shall be flushed from the main fittings, valves, and branches until chlorine measurements show that the concentration in the water leaving the main is no longer higher than that generally prevailing in the distribution system or that is acceptable for domestic use.

B. *Disposing of heavily chlorinated water.* A neutralizing chemical shall be applied to the water to be wasted to thoroughly neutralize the residual chlorine (e.g. sodium sulfite, sodium thiosulfate, calcium thiosulfate, or ascorbic acid; see ANSI/ASSA C655 for a complete list of neutralizing chemicals) prior to release. Submit a dechlorination plan to the ENGINEER for approval prior to discharging any heavily chlorinated water.

1. The Idaho Department of Environmental Quality (IDEQ) guidance document *"Guidance for Public Water System Disposal of Water from Construction, Maintenance, and Operations"* provides additional information on disposal of water from construction activities. Contact the local IDEQ office for further information or download from http://www.deq.idaho.gov/media/1117311/pws-disposal-guidance-0414.pdf.

3.08 FINAL CONNECTIONS TO EXISTING MAINS

Water mains and appurtenances must be completely installed, flushed, disinfected, and satisfactory bacteriological sample results received prior to permanent connections being made to the active distribution system. Sanitary construction practices must be followed during installation of the final connection so that there is no contamination of the new or existing water main with foreign material or groundwater.

A. *Connections equal to or less than one pipe length (generally ≤20 ft [6 ml]).* The new pipe, fittings, and valve(s) required for the connection may be spray disinfected or swabbed with a minimum 1 percent solution of chlorine just before being installed, if the total length of the connection from the end of a new main to the existing main is equal to or less than 20 ft (6 m).

B. *Connections greater than one pipe length (generally >20 ft [6 ml]).* The pipe required for the connection must be set up aboveground, disinfected, and bacteriological samples taken, as described in PART 4, if the total length of the connection from the end of a new main to the existing main is greater than 20 ft (6 m). After satisfactory bacteriological sample results have been received for the pre-disinfected pipe, the pipe can be used in connecting the new main to the active distribution system. Between the time the satisfactory bacteriological sample results are received and the time that the connection piping is installed, the ends of the piping must be sealed with plastic wraps, watertight plugs, or caps.

3.09 DISINFECTION PROCEDURES WHEN CUTTING INTO OR REPAIRING EXISTING PIPE

A. *General.* The planned, unplanned, or emergency repair of a water main or appurtenance (e.g., valve) is time sensitive—an important goal is to minimize the disruption of water service to customers. Nonetheless, the repair work needs to be accomplished using sanitary and safe procedures by well-trained crews with proper supervision and guidance. Refer to preventative and corrective measures described previously in this Section. Follow all personal protection precautions when working with chlorine solutions.

B. *Basic disinfection.* Work should follow basic disinfection and contamination prevention procedures:

1. Preventing contaminants from entering the existing pipe during the repair such as by maintaining positive pressure in the leaking pipe until the repair site on the pipe is fully exposed, by maintaining a dewatered trench, and by keeping all pipe materials being used in the repair in a clean and sanitary condition.

2. Inspecting and cleaning, followed by disinfection of spraying or swabbing with a minimum 1 percent chlorine solution:

- Exposed portions of existing pipe interior surfaces
- Pipe materials used in the repair
- Handheld materials and tools used to make the repair

3. As appropriate, advising affected customers to adequately flush their service lines upon return to service.

C. *Selection of disinfection procedure*. The disinfection procedure selected should be determined by the conditions and severity of the main break. Many leaks or breaks can be repaired under controlled conditions without depressurizing the water main, such as when applying a clamp to a small crack or hole, thus preventing contaminants from entering the water system. In most other situations, the water main can be maintained pressurized until the break site is secured and the pipe is fully exposed. Some circumstances (e.g., severe erosion of the local environment or icing of the roadway) that impact public safety may require that water pressure by substantially reduced prior to exposing the pipe in the area of the leak. In some cases, situations become catastrophic where there is a pipe blowout and a loss of water pressure prior to shutdown, requiring disinfection procedures equivalent to those of a new main installation. The procedures described in Sec. 3.09.C.1 through 3.09.C.3 describe the contamination risks and the associated disinfection and sampling requirements for different scenarios of pipeline repair. Specific situations not captured below need to be evaluated and the appropriate disinfection and sampling methods followed.

Note that the procedures explained in Sec. 3.09.C.1, 3.09.C.2, and 3.09.C.3 for distribution mains may need to be modified for large transmission mains. Large mains may need additional work (such as having a valve replaced or requiring a special order on a connection), may be out of service for more than a day, or may not be able to accommodate a scour flush. These modifications need to be made on a case by case basis but should still take into account the procedures outlined in ANSI/AWWA C651.

1. *Controlled pipe repair without depressurization.* In this situation, activities are well controlled and a full shutdown is not needed, thus maintaining positive pressure to the area of shutdown and around the break site at all times. The repair site is exposed and the trench is adequately dewatered so that the repair site can be cleaned and disinfected by spraying or swabbing with a minimum 1 percent chlorine solution. The water main is then returned to service with flushing to obtain three volumes of water turnover, making sure that the flushed water is visually clear. No bacteriological testing is necessary. It is advisable to check for a typical system chlorine residual, and if not found, to continue flushing until residuals are restored to levels maintained in the distribution system by the water utility—if the system operates with a disinfectant residual.

2. *Controlled pipe repair with depressurization after shutdown*. In this situation, after the repair site has been exposed and secured from trench soil/water contamination, the water main is depressurized by a shutdown to complete the repair. The repair site should be cleaned and disinfected by spraying or swabbing with a minimum 1 percent chlorine solution. The water main is then returned to service with flushing to scour the pipe and obtain three volumes of

water turnover, making sure that the flushed water is visually clear. It is advisable to check for a typical system chlorine residual, and if not found, to continue flushing until residuals are restored to levels maintained in the distribution system by the water utility—if the system operates with a disinfectant residual.

When the existing pipe has to be opened and the interior surfaces of the water system exposed to the environment, additional procedures need to be followed. The existing pipe should be inspected and cleaned with the help of flushing water into the trench, where possible, until the flush water runs visually clear. The repair site should be accessible and the trench adequately dewatered so that the repair site can be cleaned and disinfected by spraying or swabbing with a minimum 1 percent chlorine solution. Additionally, any accessible upstream and downstream interior of the existing pipe should be disinfected by swabbing or spraying with a minimum 1 percent chlorine solution. If the repair requires a full pipe section replacement, the new pipe should be inspected, cleaned, and disinfected from both ends by swabbing with a minimum 1 percent chlorine solution. The water main may then be returned to service after flushing to scour the pipe and obtain three volumes of water turnover. The flushed water should run visually clear, have measurable chlorine residual if the system operates with a residual, and be checked with bacteriological testing. The pipeline may be returned to service prior to obtaining bacteriological results.

3. *Uncontrolled pipe break with a likelihood of water contamination or loss of sanitary conditions during repair.* In situations in which the existing main to be repaired could not be protected and kept free of contamination and there are obvious signs of contamination (e.g., muddy trench water flowing into the broken pipe and a leaking sewer pipe in the trench, or catastrophic pipe failure where pipe is open and there is a likelihood that contamination was drawn into the active system) or when a controlled repair situation turns into a situation in which the internal pipe and water have become contaminated, the procedures outlined in Section 3.04 should be followed where practical. These methods specify chlorine doses of 25 mg/L; however, such levels may present greater harm if the line or services cannot be reliably isolated or shut down and exposure of customers to high concentrations of chlorine cannot be controlled. Free chlorine residuals up to 4 mg/L (based on annual averages) are allowed by federal drinking water regulations; therefore this level is suggested as a minimum to be maintained for at least 16 hr in conjunction with flushing, coliform sampling, and associated customer education. Such situations require careful review and need to balance the public health risks of the pipeline failure as well as the repair process.

   Where practical and appropriate considering the risks of public exposure to high concentrations of chlorine, in addition to the procedures previously described in this standard, the section of pipe in which the break is located shall be isolated, all service connections shut off, and the section flushed and disinfected. After chlorination and repair, perform scour flushing at 3.0 ft/sec (0.91 m/sec) or greater for a minimum of three pipe volumes and continue until discolored water is not observed and the chlorine residual is restored to the levels maintained in the distribution system by the water utility.

For larger-diameter pipe (12 in. and greater), if a water velocity of 3.0 ft/sec (0.91 m/sec) cannot be achieved, it is desirable to flush at the maximum flow for the main until three pipe volumes have been displaced before returning the main to service. The flushed water should run visually clear, and have typical system chlorine residual (if the system operates with a disinfectant residual).

After following the appropriate methods above, prior to returning the pipe to service, the efficacy of the disinfection procedure shall be verified by testing for the absence of coliform bacteria. If allowed by local regulations, the pipeline may be returned to limited service prior to obtaining bacteriological results with proper notification of the affected customers.

D. *Temporary service lines.* Temporary water service lines to customers during main repair activities shall be disinfected prior to use. Materials shall meet the NSF/ANSI 61 certification for potable water use. Disinfection should be accomplished by the procedures in Sec. 3.04 followed by scour flushing at 3.0 ft/sec (0.91 m/sec) or greater for a minimum of three pipe volumes (see Table 2) or until the water runs visually clear and preferably a measurable chlorine residual is restored.

PART 4 VERIFICATION

4.01 BACTERIOLOGICAL TESTS

A. *Standard condition for new mains.* It should be recognized that the primary means of ensuring the sanitary integrity of a main are the sanitary handling of materials, the practices during construction, and continual inspection of work. After disinfection and final flushing such that typical system chlorine residuals are present, if the system operates with a residual, samples shall be collected as follows:

1. For new mains, the purchaser has two options for the bacteriological testing for total coliform analysis.

   Option A: Before approving a main for release, take an initial set of samples and then resample again after a minimum of 16 hr using the sampling site procedures outlined. Both sets of samples must pass for the main to be approved for release.

   Option B: Before approving a main for release, let it sit for a minimum of 16 hr without any water use. Then collect, using the sampling site procedures outlined and without flushing the main, two sets of samples a minimum of 15 min apart while the sampling taps are left running. Both sets of samples must pass for the main to be approved for release.

   A set of samples includes all samples collected along the length of the pipeline, as described in Sec. 4.01.A.2.

2. For new mains, sets of samples shall be collected every 1,200 ft (370 m) of the new water main, plus one set from the end of the line and at least one from each branch greater than one pipe length.

3. If trench water has entered the new main during construction or if, in the opinion of the ENGINEER, excessive quantities of dirt or debris have entered the new main, bacteriological samples shall be taken at intervals of

approximately 200 ft (61 m), and the sampling location shall be identified (see Sec. 4.01.C for sampling location details). Samples shall be taken of water that has stood in the new main for at least 16 hr after final flushing has been completed.

B. *Standard conditions for repaired mains.* It should be recognized that the primary means of ensuring the sanitary integrity of a main are the sanitary handling of materials, the practices during repair work, and continual inspection of work. After disinfection and final flushing, samples shall be collected as follows:

1. For repaired mains that were depressurized and/or wholly or partially dewatered, one set of samples may be required, and depending upon the sanitary conditions, the line may be reactivated prior to the completion of bacteriological testing. Samples shall be collected downstream of the repair site and at intervals of approximately 200 ft (61 m) within the length of pipe that was shut down. If direction of flow is not known, samples shall be collected on either side of the repair site. Refer to Sec. 3.09.
2. For repaired mains that were maintained under pressurized conditions at all times, disinfection and/or testing may not be required. Refer to Sec. 3.09.C.
3. However, under either main repair scenario, it is advisable where possible to provide a scour flush to clear before the release of the repaired section.

C. *Sampling procedure.* Samples for bacteriological analysis shall be collected in sterile bottles treated with sodium thiosulfate, in accordance with Section 9060—Samples of *Standard Methods for the Examination of Water and Wastewater*. Hoses and fire hydrants are not recommended for the collection of samples that will be used to make decisions on the bacteriological quality of drinking water. However, if no sampling port is available, cleaned fire hydrants that have been cleared of standing water and/or other sanitized sampling apparatus (i.e., sanitized tubing, hose, gooseneck, spigot) may be used with the understanding that they do not represent optimum access to the water main for bacteriological sampling. A suggested combination blowoff and sampling tap used for mains up to and including 8-in. (200-mm) diameter is shown in Figure 2. There should be no water in the trench up to the connection for sampling. The sampling pipe must be dedicated and clean and disinfected and flushed prior to sampling. A corporation cock may be installed in the main with a copper-tube gooseneck assembly. After samples have been collected, the gooseneck assembly may be removed and retained for future use and the corporation cock should be capped or taped for future reuse. If corporation cocks are placed at the 12 o'clock position, they may be struck more easily during future excavations.

D. *Sample results.* Samples shall be tested for bacteriological quality in accordance with *Standard Methods for the examination of Water and Wastewater* and shall show the absence of coliform bacteria.

E. *Record of compliance.* The record of compliance shall be the bacteriological test results certifying that the water sampled is free of coliform bacteria contamination.

F. *Re-disinfection.* If the initial disinfection fails to produce satisfactory bacteriological results, or if other results indicate unacceptable water quality, the main may be re-flushed and shall be resampled. If check samples fail to produce acceptable results,

the main shall be re-chlorinated by the continuous-feed method until samples showing the absence of coliform bacteria are obtained.

Note: In the case of new mains, high velocities in the adjacent existing system, resulting from flushing the new main, may disturb sediment that has accumulated in the existing mains. When check samples are taken, it is advisable to sample water entering the new main to determine if excessive turbidity is present that could be interfering with results.

-END OF SECTION-

SECTION 15251

DUCTILE IRON PIPING

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes: Ductile iron piping, joints, fittings, gaskets, and pipe lining and coating.

B. Related Sections:
1. Section 02318 - Trenching.
2. Section 09960 - Coatings
3. Section 15052 - Basic Piping Materials and Methods.

1.02 REFERENCES

A. American National Standards Institute/American Society of Mechanical Engineers (ANSI/ASME):
1. B 16.1 - Cast Iron Pipe Flanges and Flanged Fittings.

B. American Society for Testing and Materials (ASTM):
1. A 47 - Specifications for Ferritic Malleable Iron Castings.
2. A 183 - Specifications for Carbon Steel Tank Bolts and Nuts.
3. A 283 - Specifications for Low and Intermediate Tensile Strength Carbon Steel Plates.
4. A 536 - Ductile Iron Castings.
5. A 674 - Practice for Polyethylene Encasement for Ductile Iron Pipe for Water or Other Liquids.
6. D 792 - Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement.
7. D 1248 - Specifications for Polyethylene Plastics Molding and Extrusion Materials.

C. American Water Works Association (AWWA):
1. C 104 - Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water.
2. C 105 - Polyethylene Encasement for Ductile-Iron Pipe Systems.
3. C 110 - Ductile-Iron and Gray-Iron Fittings, 3 Inches Through 48 Inches, for Water and Other Liquids.
4. C 111 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
5. C 115 - Flanged Ductile-Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flanges.
6. C 150 - Thickness Design of Ductile-Iron Pipe.
7. C 151 - Ductile-Iron Pipe, Centrifugally Cast, for Water or Other Liquids.
8. C 153 - Ductile-Iron Compact Fittings, 3 Inches Through 24 Inches, and 54 Inches Through 64 Inches, for Water Service.
9. C 600 - Installation of Ductile-Iron Water Mains and Their Appurtenances.
10. C 606 - Grooved and Shouldered Joints.

1.03 SUBMITTALS

A. Shop Drawings:
   1. Detailed layout drawings showing alignment of pipes, location of valves, fittings, and appurtenances, types of joints, connections to structures and thrust restraint system layouts.
   2. Thrust Restraint Systems: Layouts and supporting calculations for restrained joint thrust restraint systems.

B. Product Data: Photographs, drawings, and descriptions of fittings, gaskets, couplings, grooving of pipe and fittings, pipe linings, and coatings.

C. American Iron and Steel: Manufacturers certification letter of compliance with American Iron and Steel requirements.

D. Certification of compliance with NSF-61 for materials in contact with potable water.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Block piping material for shipment, prevent damage to castings and linings.

B. Carefully handle piping material during loading, unloading, and installation. Do not drop piping material from cars or trucks. Lower piping material by mechanical means. Do not drop or pound pipe to fit grade.

C. Repair damaged cement mortar lining to match quality, thickness, and bonding of original lining in accordance with AWWA C 104. When lining cannot be repaired or repairs are defective, replace defective piping with undamaged piping.

D. Protect gaskets and polyethylene encasement from long term exposure to sunlight.

E. Store fittings and other accessories such that they do not accumulate and hold rainwater, dirt, and debris.

PART 2 PRODUCTS

2.01 MATERIALS

A. Ductile Iron Piping:
   1. Type, Typical: AWWA C 150 and AWWA C 151 with minimum pressure class wall thickness as indicated on the Drawings.
   2. Type with Screw-on Flanges: AWWA C 115 with minimum special thickness Class 53 wall thickness that meets project pressure and structural requirements, unless otherwise specified or indicated on the Drawings.
      a. Ductile iron piping with screw-on flanges shall be used in all mechanical piping applications inside buildings and beneath building floor slabs and foundations.

B. Joints:
   1. Flanged Joints:

a. Flanges, Screw-On: Comply with the diameter, thickness, drilling, and other characteristics in accordance with ANSI B 16.1. In addition, comply with the following requirements:
   1) Ductile iron.
   2) Long hub, threaded, and specially designed for ductile iron pipe.
   3) After attaching to pipe, machine flange face to make pipe end and flange even and perpendicular to the axis of the pipe.
b. Bolt Holes on Flanges: aligned at both ends of pipe.
c. Cap Screw or Stud Bolt Holes: Tapped.
d. Bolts and Nuts: As specified in Section 15052.
e. Gaskets: As specified in Section 15052.

2. Mechanical Joints: In accordance with AWWA C 111/ANSI A21.11 with T-bolts, nuts, and gaskets as specified in Section 15052.
3. Mechanical joint thrust restraints: As specified in Section 15052.

C. Fittings
1. Fittings: Ductile iron conforming with AWWA C153/ANSI A21.53.
2. Plain end-to-flanged joint connectors using set screws are not acceptable.

D. Pipe Coatings
1. Asphaltic Base Coating: Apply in 1 mil thickness to outside surfaces of pipes and fittings in below-grade installations which will not receive another field-applied coating. Apply in accordance with the appropriate AWWA standard for pipe or fittings (AWWA C151, 115, 110, or 153).
   a. Coating shall be shop-applied by pipe manufacturer.
2. Phenolic Alkyd Primer: Apply in 2 – 3.5 mil thickness to outside surfaces of pipe and fittings in above-grade service which will be coated in the field in accordance with Section 09960.
   a. Primer shall be lead- and chromate-free, fast-drying, corrosion-resistant, and shall accept a variety of topcoats, including high solids epoxies.
   b. Products: Tnemec Chem-Prime H.S. Series 37H or equal.
   c. Coating shall be shop-applied by pipe manufacturer.

E. Pipe Linings:
1. Cement-Mortar Lining: AWWA C 104/ANSI A 21.4, apply on clean bare metal surfaces; extended to faces of flanges, ends of spigots, and shoulders of hubs.

F. Polyethylene Encasement
1. Polyethylene Encasement Sheets or Tubes:
   a. 8 mil thickness low density polyethylene, or
   b. 4 mil thickness high density, cross laminated polyethylene.

PART 3 EXECUTION

3.01 INSTALLATION

A. General:
1. Install ductile iron piping in accordance with AWWA C 600.

B. Polyethylene Encasement:

1. Wrap ductile iron pipe to be buried with polyethylene encasement in accordance with ASTM A 674 and AWWA C 105.
2. Repair tears and make joints with two layers of plastic tape.

3.02 JOINTS

A. Install types of joints as specified in piping schedule and as indicated on the Drawings.

3.03 FIELD QUALITY CONTROL

A. Test ductile iron piping as specified in Section 15956.

-END OF SECTION-

SECTION 15265

PVC PIPING, CLASS TYPE

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes: Plastic pipe and fittings.

B. Related Sections:
1. Section 15052 - Basic Piping Materials and Methods.
2. Section 15251 - Ductile Iron Piping.
3. Section 15956 - Piping Systems Testing.

1.02 REFERENCES

A. American Society for Testing and Materials (ASTM):
1. D 1784 - Specification for Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds.
2. F 477 - Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.
3. F 645 - Guide for Selection, Design and Installation of Thermoplastic Water Pressure Piping Systems.

B. American Water Works Association (AWWA):
1. C 900 - Polyvinyl/Chloride (PVC) Pressure Pipe, 4 Inches Through 60 Inches, for Water Distribution.

1.03 ABBREVIATIONS

A. DR: Dimension Ratio; the Outside Diameter divided by the pipe wall thickness.

1.04 SUBMITTALS

A. Product Data: Describe pipe materials, characteristics, fittings, and gaskets.

B. Manufacturer's Published Installation Instructions.

C. Certificates:
1. Submit manufacturer's certificate attesting that plastic pipe, tubing, and fitting types meet specified requirements.
2. Manufacturer's certification of date of manufacture of plastic pipe and tubing for each lot delivered.

D. Certification of compliance with NSF-61 for materials in contact with potable water.

1.05 QUALITY ASSURANCE

A. Plastic Pipe in Potable Water Applications: Provide pipe and tubing bearing NSF-61 seal.

B. Mark plastic pipe with nominal size, type, class, schedule or pressure rating, manufacturer and all markings required by applicable ASTM and AWWA standards.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Protect piping materials from sunlight, scoring and distortion.

B. Do not allow surface temperatures on pipe and fittings to exceed 120 degrees Fahrenheit.

C. Store and handle pipe and fittings in accordance with the manufacturer's recommendations.

PART 2 PRODUCTS

2.01 MATERIALS

A. Extruding and Molding Material: Virgin material containing no scrap, regrind, or rework material except where permitted in the referenced standards.

2.02 PVC PIPING, CLASS TYPE

A. PVC Pipe, Class Type: AWWA C 900, DR 18, Pressure Class 235 psi.
   1. Fittings and joints: Ductile iron fittings and mechanical joints as specified under Section 15251 and Section 15052, sized for the dimensions of the pipe being used.
   2. Gaskets: As specified in Section 15052.
   3. Mechanical joint thrust restraints: As specified in Section 15052.

PART 3 EXECUTION

3.01 INSTALLATION

A. General:
   1. Install piping in accordance with AWWA C900 and the manufacturer's published instructions.

-END OF SECTION-

SECTION 15956

PIPING SYSTEMS TESTING

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes: Test requirements for piping systems.

B. Related Sections:
   1. Section 01500 – Temporary Facilities and Controls.
   2. Section 15052 – Basic Piping Materials and Methods.
   3. Section 15142 – Disinfection of Potable Water Lines and Facilities.

1.02 REFERENCES

A. Uniform Plumbing Code (UPC).

1.03 TESTING REQUIREMENTS

A. General Requirements:
   1. Test plumbing piping in accordance with the Uniform Plumbing Code.
   2. When testing with water, the specified test pressure is considered to be the pressure at the highest point of the piping section under test. Lower test pressure as necessary to prevent testing the lowest point above a safe test pressure.

B. Furnish necessary personnel, materials, and equipment, including bulkheads, restraints, anchors, temporary connections, pumps, water, pressure gauges, and other means and facilities required to perform tests.

C. Water for Testing, Cleaning, and Disinfecting:
   1. Water for testing, cleaning, and disinfecting will be provided by OWNER.
   2. Coordinate with OWNER. Maximum available supply rate = 250 gpm.

D. Pipes to be Tested: Test only those portions of pipes that have been installed as part of this Contract. Test new pipe sections prior to making final connections to existing piping. Furnish and install test plugs, bulkheads, and restraints required to isolate new pipe sections. Do not use existing valves as test plug or bulkhead.

E. Unsuccessful Tests:
   1. Where tests are not successful, correct defects or remove defective piping and appurtenances and install piping and appurtenances that comply with the specified requirements.
   2. Repeat testing until tests are successful.

F. Test Completion: Drain and leave piping clean after successful testing.

G. Disinfect pipe and facilities per Section 15142.

H. Test Water Disposal: Determine acceptable locations for disposal of water used for flushing, pressure testing, and disinfection with OWNER. Dechlorinate and dispose of water used for disinfection in accordance with Section 15142.

I. Scheduling of Tests:
   1. Furnish OWNER and ENGINEER with a list of scheduled piping and facility tests three working days prior to the date of the scheduled tests.
   2. Ensure personnel, materials, and equipment are available prior to testing.

1.04 SEQUENCE

A. Clean and flush piping before pressure or leak tests.

B. Test gravity piping underground, including sanitary sewers, for visible leaks before backfilling and compacting.

C. Underground pressure piping may be tested before or after backfilling when not indicated or specified otherwise. Provide adequate thrust restraint.

D. Backfill and compact trench, or provide blocking that prevents pipe movement before testing underground piping with a maximum leakage allowance.

E. Test underground piping before encasing piping in concrete or covering piping with slab, structure, or permanent improvement.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.01 TESTING ALIGNMENT, GRADE, AND DEFLECTION

A. Alignment and Grade:
   1. Visually inspect the interior of gravity piping with artificial light, reflected light, or laser beam.
   2. Consider inspection complete when no broken or collapsed piping, no open or poorly made joints, no grade changes that affect the piping capacity, or no other defects are observed.

3.02 TESTING GRAVITY FLOW PIPING

A. Test Gravity Flow Piping Indicated with Test Method "GR" in the Piping Schedule, as Follows:

B. Perform Testing in the presence of the Engineer

C. Visual Inspection
   1. Visually inspect the pipeline between manholes with mirrors or lights after the trench has been backfilled to check alignment and grade, and to check for pipe

distortions, leaks, infiltration and other defects. Verify that a full diameter of pipe is visible from one manhole to the next. Uncover and repair leaks and defects in the pipeline. Do not reinstall damaged pipe.

D. Air Pressure Testing
   1. Low pressure air test lines that are 24 inches and smaller in diameter.
   2. Provide equipment including gauges and instrumentation and calibrate the equipment at the request of the Engineer.
   3. Preliminary and Final Testing:
      a. Preliminary Testing: At the discretion of the Contractor preliminary testing may be done at any time prior to installation of other utilities.
      b. Final Testing: Perform final testing after backfilling and compaction and following installation of other utilities, but prior to surface restoration.
   4. Test Procedure.
      a. Securely brace plugs to prevent unintentional release of the plug. Prohibit workers from entering a manhole where a plugged pipe is under pressure.
      b. Locate pressure gauges, valves, and instrumentation required for the test and operation of the equipment at the ground surface.
      c. Equip testing apparatus with a pressure release device such as a rupture disk or pressure relief valve to relieve pressure in the pipe being tested at 6 psi.
      d. Measure static groundwater depth above the pipe at the low end of the pipe. If static groundwater level is below the centerline of the pipe use the test pressures noted in this section. If the groundwater is above the centerline, add 0.5 psi to the test pressure of every foot of groundwater above the centerline of the pipe. If pressure will exceed 6 psi use hydrostatic exfiltration testing.
      e. Pressurize the pipe to 4.0 psi and maintain pipe pressure between 3.5 and 4.0 psi for at least 2 minutes.
      f. With the pressure at exactly 3.5 psi, disconnect the air supply, start a stopwatch and record the time for pressure to drop to 3.0 psi.
      g. If the pressure drops more than 0.5 psi in the pipe faster than the minimum holding time presented in the following tables make the necessary corrections to reduce the leakage to acceptable limits and retest the pipe.

Table 1

TIME HOLDING CHART											
1 Pipe Dia. (in)	2 Min. Time. (min:sec)	3 Length for Min.Time (ft)	4 Time for Longer Length (sec)	Specification Time of Length (L) shown (min:sec)							
				100 ft	150 ft	200 ft	250 ft	300 ft	350 ft	400 ft	450 ft
4	1:53	597	.190L	1:53	1:53	1:53	1:53	1:53	1:53	1:53	1:53
6	2:50	398	.427L	2:50	2:50	2:50	2:50	2:50	2:50	2:51	2:51
8	3:47	289	.760L	3:47	3:47	3:47	3:47	3:48	4:26	5:04	5:42
10	4:43	239	1.187L	4:43	4:43	4:43	4:57	5:56	6:55	7:54	8:54
12	5:40	199	1.709L	5:40	5:40	5:42	7:08	8:33	9:58	11:24	12:50
15	7:05	159	2.671L	7:05	7:05	8:54	11:08	13:21	15:35	17:48	20:02
18	8:30	133	3.846L	8:30	9:37	12:49	16:01	19:14	22:26	25:38	28:51
21	9:55	114	5.235L	9:55	13:05	17:27	21:49	26:11	30:32	34:54	39:16
24	11:20	99	6.537L	11:24	17:47	22:48	28:30	34:11	39:53	45:35	51:17

E. Hydrostatic Exfiltration Testing.
   1. Hydrostatic exfiltration test pipes larger than 24 inches in diameter or pipes 24 inches and smaller in diameter with groundwater conditions above pipe invert.
   2. Test Procedure:
      a. If necessary, fill pipe with clean water 24 hours prior to the test to allow time for absorption into the pipe walls.
      b. Conduct exfiltration testing with a test pressure of at least 6 feet of water column above the static water table or the crown of the pipe at the upper end of the pipe, whichever is higher.
      c. If exfiltration exceled 0.16 gallon/hour/inch of inside diameter of pipe per 100 linear feet of pipe, make the necessary correction to reduce leakage to acceptable limits and retest the pipe. If manholes are included in the test section, increase the allowable leakage by 01. gallon/hour/foot of manhole depth tested.
      d. Minimum test time is four hours.

3.03 TESTING HIGH-HEAD PRESSURE PIPING

A. Test piping for which the specified test pressure in the Piping Schedule is 20 pounds per square inch gauge or greater, by the high head pressure test method, indicated "HH" in the Piping schedule.

B. Cross-connection control: When existing water mains are used to supply test water, they shall be protected from backflow by temporarily installing a double check-valve assembly between the test and supply main or by other means approved by the Engineer. Prior to pressure and leakage testing, the temporary backflow protection should be removed and the main under test isolated from the supply main.

C. General:
   1. Test connections, hydrants, valves, blowoffs, and closure pieces with the piping.

2. Do not use installed valves for shutoff when the specified test pressure exceeds the valve's maximum allowable seat differential pressure. Provide blinds or other means to isolate test sections.
3. Do not include valves, equipment or piping specialties in test sections if test pressure exceeds the valve, equipment or piping specialty safe test pressure allowed by the item's manufacturer.
4. During the performance of the tests, test pressure shall not vary more than plus or minus 5 pounds per square inch gauge with respect to the specified test pressure.
5. The test pressure shall not be less than 1.25 times the working pressure at the highest point along the test section.
6. Test piping for minimum 2 hours for visible leaks test and minimum 2 hours for the pressure test with maximum leakage allowance.
7. Select the limits of testing to sections of piping. Select sections that have the same piping material and test pressure.
8. When Test Results Indicate Failure of Selected Sections, Limit Tests to Piping:
    a. Between valves.
    b. Between a valve and the end of the piping.
    c. Less than 500 feet long.

D. Testing Procedures:
1. Fill piping section under test slowly with water while venting air. Use potable water for all potable waterlines and where noted on the Piping Schedule. If permanent air vents are not located at all high points, corporation cocks shall be installed at these points to expel the air as the line is filled with water. After the air has been expelled, the corporation cocks shall be closed and the test pressure applied. At the conclusion of the pressure test, the corporation cocks shall be removed and the pipe plugged or left in place as required by the specifications.
2. Before pressurizing for the tests, retain water in piping under slight pressure for a water absorption period of minimum 24 hours.
3. Raise pressure to the specified test pressure and inspect piping visually for leaks. Any damaged or defective pipe, fittings, valves, hydrants, or joints that are discovered following the pressure test shall be repaired or replaced with reliable material, and the test shall be repeated until satisfactory results are obtained. Consider visible leakage testing complete when no visible leaks are observed.

E. Pressure Test with Maximum Leakage Allowance:
1. Leakage allowance is zero for piping systems using flanged, National Pipe Thread threaded and welded joints.
2. Pressure test piping after completion of visible leaks test.
3. For piping systems using joint designs other than flanged threaded or welded joints, accurately measure the makeup water necessary to maintain the pressure in the piping section under test during the pressure test period.
    a. Consider the pressure test to be complete when makeup water added is less than the allowable leakage and no damage to piping and appurtenances has occurred.
    b. Successful completion of the pressure test with maximum leakage allowance shall have been achieved when the observed leakage during

the test period is equal or less than the allowable leakage and no damage to piping and appurtenances has occurred.

c. When leakage is allowed, calculate the allowable leakage by the following formulas:

d. For ductile iron piping:

$L = S \times D \times P^{1/2} \times 133{,}200^{-1}$

wherein the terms shall mean:

L = Allowable leakage in gallons per hour.

S = Length of the test section in feet.

D = Nominal diameter of the piping in inches.

P = Average observed test pressure in pounds per square inches, gauge, at the lowest point of the test section, corrected for elevation of the pressure gauge.

x = The multiplication symbol.

e. For PVC piping:

$L = N \times D \times P^{1/2} \times 7{,}400^{-1}$

wherein the terms shall mean:

L = Allowable leakage in gallons per hour.

N = Number of joints in the length of pipeline tested

D = Nominal diameter of the piping in inches.

P = Average observed test pressure in pounds per square inches, gauge, at the lowest point of the test section, corrected for elevation of the pressure gauge.

x = The multiplication symbol.

3.04 TESTING LOW-HEAD PRESSURE PIPING

A. Test piping for which the specified test pressure is less than 20 pounds per square inch gauge, by the low head pressure test method, indicated "LH" in the Piping Schedule.

B. General:
   1. During the performance of the tests, test pressure shall not vary more than plus or minus 2 pounds per square inch gauge with respect to the specified test pressure.
   2. Test connections, blowoffs, vents, closure pieces, and joints into structures, including existing bell rings and other appurtenances, with the piping.

3. Test piping for minimum 2 hours for visible leaks test and minimum 2 hours for the pressure test with maximum leakage allowance.

C. Visible Leaks Test:
   1. Subject piping under test to the specified pressure measured at the lowest end.
   2. Fill piping section under test slowly with potable water while venting air.
   3. Before pressurizing for the tests, retain water in piping under slight pressure for the water absorption period of minimum 24 hours.
   4. Raise pressure to the specified test pressure and inspect piping visually for leaks. Consider testing complete when no visible leaks are observed.

D. Pressure Test with Maximum Leakage Allowance:
   1. Pressure test piping after completion of visible leaks test.
   2. Accurately measure the makeup water necessary to maintain the pressure in the piping section under test during the pressure test period.
      a. Consider the pressure test to be complete when makeup water added is less than the allowable leakage of 11.65 gallons per day per inch of nominal pipe diameter per mile of piping section under test and no damage to piping and appurtenances has occurred.

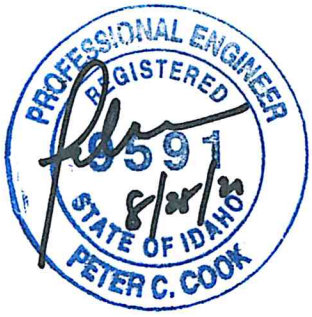
3.05 AIR TESTING METHOD FOR PRESSURE PIPING

A. Air test piping, indicated with "AM" in the Piping Schedule, with air or another nonflammable or inert gas.

B. Test gas, air, liquefied petroleum gas, liquid chlorine, and chlorine gas piping by the air test method.
   1. Test chlorine piping with dry air or nitrogen having a dew point of minus 40 degrees Fahrenheit or less. Supply temporary air dryers as necessary.

C. Test at pressure as specified in Piping Schedule in Section 15052.
   1. Provide temporary pressure relief valve for piping under test. Set at the lesser of 110 percent of the test pressure or 50 pounds per square inch gauge over the test pressure.
   2. Air method test pressures shall not exceed 110 percent of the piping maximum allowable working pressure calculated in accordance with the most stringent of ANSI/ASME B31.1, ANSI/ASME B31.3, ANSI/ASE B31.8, or the pipe manufacturer's stated maximum working pressure.
   3. Gradually increase test pressure to an initial test pressure equal to the lesser of one-half the test pressure or 25 pounds per square inch gauge.
   4. Perform initial check of joints and fittings for leakage.
   5. Gradually increase test pressure in steps no larger than the initial pressure. Check for leakage at each step increase until test pressure reached.
   6. At each step in the pressure, examine and test piping being air tested for leaks with soap solution.
   7. Consider examination complete when piping section under test holds the test pressure for 15 minutes without losses.

-END OF SECTION-



Issue Date	*Originated/Revised*	*Checked*	*Approved*	*Remarks*
Revision A 4/14/2020	I. Mahaney 4/14/2020			Issued for Review
Revision B 8/20/2020	I. Mahaney 8/20/2020	M. Johnson 8/20/2020	P. Cook 8/20/2020	Issued for Construction

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CITY OF NEW MEADOWS WATER SYSTEM IMPROVEMENTS PROJECT

SPECIFICATION SECTION 16050

ELECTRICAL INSTALLATION AND MATERIALS

SECTION 16050

ELECTRICAL INSTALLATION AND MATERIALS

CITY OF NEW MEADOWS, IDAHO
WELL 5
PROJECT

PART 1 GENERAL

1.1 SECTION INCLUDES

A. This Specification Section covers the requirements for the furnishing of all designs, labor, supervision, equipment, materials and methods for performing all operations necessary to meet the requirements of electrical work for the Well 5 project for the City of New Meadows, Idaho.

B. Furnish, install, interconnect and test the equipment and materials specified herein.

C. Site elevation, weather data, seismic requirements and other information and general criteria applicable to the work and materials specified herein are provided in the related Sections listed below and other Specification Sections.

1.2 RELATED SECTIONS

A. Drawings and general provisions of the Contract, including General and Special Conditions and Division 1 Specification Sections included in Contract Documents, and other Sections as they apply to this Section.

1.3 REFERENCES

A. ANSI – American National Standards Institute

ANSI/NEMA C80.1, Rigid Steel Conduit - Zinc Coated

ANSI/NEMA C80.3, Electrical Metallic Tubing - Zinc Coated (EMT)

ANSI/NEMA C82.1, Specifications for Fluorescent Lamp Ballasts

ANSI/NEMA C82.4, Ballasts for High-Intensity-Discharge and Low-Pressure Sodium Lamp Ballasts (Multiple Supply Type)

ANSI/IEEE C2, National Electric Safety Code (NESC)

ANSI/IEEE No. 81, IEEE Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System

ANSI/IEEE No. 515, IEEE Standard for the Testing, Design, Installation, and Maintenance of Electrical Resistance Heat Tracing for Industrial Applications

ANSI/IEEE 43, Recommended Practice for Testing Insulation Resistance of Rotating Machinery.

ANSI/IEEE 112, Standard Test Procedure for Polyphase Induction Motors and Generators.

ANSI/IEEE 114, Test Procedure for Single-phase Induction Motors.

ANSI/NEMA PB 1, Panelboards

ANSI/NFPA 70, National Electrical Code (NEC)

ANSI/UL 489, UL Standard for Safety Molded-Case Circuit Breakers and Circuit-Breaker Enclosures

ANSI/UL 845, Motor Control Centers

B. IEEE – Institute of Electrical and Electronic Engineers

IEEE 519, IEEE Recommended Practices and Requirements for Harmonic Control in Electrical Power Systems

C. ASTM – American Society for Testing and Materials

ASTM A123, Specification for Zinc (Hot Dip Galvanized) Coatings on Iron and Steel Products

ASTM A475, Standard Specification for Zinc-Coated Steel Wire Strand

ASTM A153/A153M, Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware

ASTM B1, Standard Specification for Hard-Drawn Copper Wire

ASTM B3, Standard Specification for Soft or Annealed Copper Wire

ASTM B8, Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard or Soft

ASTM B227, Standard Specification for Hard-Drawn Copper-Clad Steel Wire

ASTM B695, Standard Specification for Coatings of Zinc Mechanically Deposited on Iron and Steel

D. NETA – InterNational Electrical Testing Association

ATS - Acceptance Testing Specifications for Electric Power Distribution Equipment and Systems

E. NEMA – National Electrical Manufacturers Association

NEMA 250, Enclosures for Electrical Equipment (1000 Volts Maximum)

NEMA AB 1, Molded Case Circuit Breakers and Molded Case Switches

NEMA FB 1, Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit and Cable Assemblies

NEMA ICS 2, Industrial Control Devices, Controllers, and Assemblies

NEMA ICS 3, Industrial Control and Systems Factory Built Assemblies

NEMA ICS 4, Industrial Control and Systems Terminal Blocks

NEMA KS 1, Enclosed and Miscellaneous Distribution Equipment Switches (600 V Maximum)

NEMA MG 1, Motors and Generators

NEMA TC 8-90, Extra-Strength PVC Plastic Utilities Duct for Underground Installation

NEMA TC 9-90, Fittings for ABS and PVC Plastic Utilities Duct for Underground Installation

NEMA WC 7, Cross-Linked Thermosetting-Polyethylene-Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy

NEMA WC 8, Ethylene-Propylene-Rubber-Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy

F. NFPA – National Fire Protection Association

National Fire Code, all inclusive as applicable.

G. OSHA – Occupational Safety and Health Administration

OSHA 29 CFR 1926.417, Lockout and Tagging of Circuits

H. UL – Underwriters' Laboratories, Inc.

UL 98, Enclosed and Deadfront Switches

UL 360, Liquid-Tight Flexible Steel Conduit

UL 489, Molded Case Circuit Breakers and Circuit Breaker Enclosures

UL 508A, Industrial Control Panels

UL 514B, Fittings for Cable and Conduit

UL 698A, Industrial Control Panels Relating to Hazardous (Classified) Locations

UL 845, Standard for Safety Motor Control Centers

UL 1008, Standard for Transfer Switch Equipment

UL 1449, Standard for Transient Voltage Surge Suppressors

I. FM – FM Global

All inclusive, as applicable.

1.4 DEFINITIONS AND AMBIENT REQUIREMENTS

A. Definitions:

1. Contract Documents: Purchase and contractual documentation and agreements among Owner, Engineer, Contractor and Manufacturers.
2. Contractor: Contractor providing and installing equipment and systems. Carries ultimate responsibility for a complete and operable facility.
3. Engineer: Overseeing engineering firm and Owner's representative.
4. Manufacturer: Supplier/fabricator of equipment and components to Contractor.
5. Owner: City of New Meadows, Idaho.

B. Ambient Conditions:

1. Maximum Temperature: +105°F

2. Minimum Temperature: -30°F
3. Elevation: 4,700 feet above sea level

C. Seismic Requirements: In accordance with the Contract Documents.

D. Wind Design Requirements: In accordance with the Contract Documents.

E. Snow Load Requirements: In accordance with the Contract Documents.

1.5 PRODUCTS TO BE FURNISHED UNDER OTHER SECTIONS AND INSTALLED UNDER THIS SECTION

A. Section 16485 Variable Frequency Drives

1.6 PRODUCTS TO BE FURNISHED AND INSTALLED UNDER THIS SECTION

A. Materials specified in the Contract Documents and under this Section including, but not limited to:
1. Conduit and Fittings
2. Wire and Cable:
   a. Low-Voltage Wire and Cable
   b. Tray Cable
   c. Shielded Tray Cable
   d. Instrumentation Cable
   e. Telephone Cable
3. Grounding and Bonding
4. Lighting Fixtures and Accessories
5. Small Power and Lighting Transformers
6. Power Panelboards
7. Distribution Panelboards, including modifications to existing
8. Safety Switches
9. Wiring Devices
10. Enclosures
11. Motor Control Centers, including modifications to existing
12. Individually Mounted Motor Starters
13. Welding Outlets
14. Control Panels
15. Motor Controller Heater Elements
16. Electric Motors and Accessories
17. Instrumentation

1.7 PRODUCTS TO BE FURNISHED AND INSTALLED BY OTHERS

A. None

1.8 SERVICES TO BE PROVIDED UNDER THIS SECTION

A. Interface and coordinate all equipment outages and changeovers with other Contractors under direction of the City of New Meadows. Coordinate and provide information and detail as may be requested by the City.

1.9 SUBMITTALS

A. Submit the following in accordance with requirements of the Contract Documents.

B. Product Data: Submit data for all equipment provided and as listed below. Include product description, dimensional details, plans and elevations, conduit entrance/stubup locations, manufacturers' installation details and assembly drawings with bills of material. Include wiring diagrams, interconnecting diagrams and foundation loading/weight. Include catalog cuts with ratings, specifications, standards compliance, finish, and enclosure type. Include photometric data for all light fixtures.

1. Safety switches, small distribution transformers, mini-power-centers and panelboards.
2. Enclosures and associated equipment.
3. Motor control centers.
4. Motor control center modifications.
5. Motor starter overload relays.
6. Wire and cables, conduit, wiring devices, pull boxes.
7. Grounding materials.
8. Lighting fixtures and accessories.
9. Control panels, including schematic and wiring diagrams showing all internal and external connections.
10. Instrumentation.
11. Active Harmonic Filter calculations with verification of compliance to IEEE 519. Provide certificate for active correction units shown on drawings.

C. Inspection and Test Reports: Submit legible shop test results for source testing specified in Part 2 of this Section and legible field test results for source testing specified in Part 3 of this Section.

D. Other: Submit legible interruption of power schedule as requested in below.

1.10 PRODUCT OPTIONS, SUBSTITUTIONS AND EXCEPTIONS

A. Include an itemized list of proposed exceptions with the bid materials and future submittals as they are identified. Identify by page and paragraph where an exception is being taken, accompanied by an explanation of a proposed alternate solution. If the exception is being taken because of incompatibility of specified items, then make a clear statement to that effect.

B. Design requirements in this Section and its references are intended to identify particular features of design having significance to the Owner.

C. Submit product options and substitutions in accordance with the Contract Documents. Product options and substitutions require Engineer approval. Refer to the requirements for exceptions, above.

1.11 QUALITY ASSURANCE

A. Refer to Contract Documents for General Quality Assurance requirements.

B. Electrical Components, Devices and Accessories: Listed and labeled as defined in ANSI/NFPA 70, Article 100, by a testing agency acceptable to the Authority Having Jurisdiction, and marked for intended use.

C. Test all materials and equipment as required by this Section and standards referenced.

1.12 OPERATION AND MAINTENANCE DATA

A. Refer to the Contract Documents for operation and maintenance manuals submittal requirements.

1.13 WARRANTY

A. Warrant that materials and workmanship or apparatus supplied are in accordance with Contract Document requirements.

1.14 DELIVERY, STORAGE AND HANDLING

A. Ensure equipment and materials are prepared for shipment in accordance with Manufacturers' instructions.

B. Transport, handle, store and protect products, equipment and materials in accordance with Manufacturers' instruction.

C. Seal, store, and handle cables to ensure no damage to the outer covering or insulation from moisture and weather.

D. Replace damaged or defective items with new items.

E. Assume full responsibility for materials furnished by others but installed under this Section, and for their safekeeping, until the completed installation has been approved and accepted.

F. Protect all items from the detrimental effects of weather. Prior to installation, items subject to corrosion under damp conditions, and items containing insulation, such as transformers, conductors, and devices shall be stored indoors.

1.15 STANDARD REQUIREMENTS

A. Perform work according to the following:
   1. The Contract Documents.
   2. The contents of this Section.
   3. The Drawings.
   4. The installation and testing instructions of the Manufacturers of equipment or materials supplied for installation, unless the Section or the Drawings call for more stringent requirements.

B. Complete and prepare for use all electrical systems as outlined on the Drawings and in each Specification Section.

C. Furnish all labor and materials necessary for the completion and satisfactory operation of the electrical systems.

D. All materials and installations shall be in strict accordance with the applicable requirements of the NEC and the NESC.

1.16 CLASSIFIED AREAS

A. Classified areas are noted on the Drawings and other Contract Documents. All electrical materials, equipment, and work in these areas shall comply with the requirements of the NEC, applicable Codes, Standards and Recommended Practices of the NFPA and other regulatory bodies as may be invoked, subject to approval by the Authority Having Jurisdiction.

1.17 DRAWINGS

A. The electrical Drawings are diagrammatic. Follow them as appropriate in the actual construction of the facilities and as the work of the other trades will permit.

B. Verify Drawing dimensions and layouts for clearance and interference prior to the commencement of any work.

1.18 OPERATION PRIOR TO COMPLETION

A. If advantageous, operate mechanical or electrical equipment after it is tested, operable and safe. Obtain approval from Engineer prior to doing so.

B. Properly clean all equipment, and complete all punch list items before final acceptance by the Engineer regardless of whether the equipment has or has not been operated.

1.19 SPACE AND EQUIPMENT ARRANGEMENT

A. Determine that the equipment proposed will fit the allotted space. Shop drawings shall show suitable arrangements, which allow for operations, maintenance and the NEC working space.

B. Locate and install equipment readily accessible for operation and maintenance. Engineer reserves the right to require minor changes in locations of equipment, prior to roughing in, without incurring additional costs or changes.

1.20 INTERRUPTION OF EXISTING ELECTRICAL AND OTHER NECESSARY SERVICES

A. Tie–ins, alterations to, or replacement of, existing circuits or equipment shall be scheduled according to requirements listed in the Contract Documents. Prepare a written schedule of dates and time and number of hours needed for all shutdowns and submit to the Engineer for review.

B. Do not interrupt or impede other contractors' operations and work in adjacent areas.

PART 2 PRODUCTS

2.1 MATERIALS

A. All electrical equipment and material shall be new, free of defects, and identified as to suitability for a specific task, environment or application.

B. The Manufacturer's name or trademark and other applicable markings such as voltage, current, wattage or similar ratings shall appear on all installed equipment.

C. Materials and equipment shall be UL or CSA (US or NRTL suffix only) listed and labeled unless the materials or equipment are of a type for which those organizations

do not provide a listing or labeling service. In such cases provide materials and equipment acceptable to the local Authority Having Jurisdiction.

D. Electrical equipment used to control and isolate power to machines, and equipment requiring servicing and maintenance, shall include a Lockout/Tagout device as required by OSHA Regulations 29 CFR 1926.417. Examples are manually operated electric circuit breakers and disconnect switches.

E. All electrical equipment specified or shown on the Drawings, and not specifically shown to be furnished and installed by others, shall be furnished and installed by the Contractor.

2.2 CONDUIT AND FITTINGS

A. Conduit:

1. Rigid Galvanized Steel Conduit (RGS): RGS shall comply with the requirements of ANSI C80.1.
2. Electrical Metallic Tubing (EMT): EMT shall comply with the requirements of ANSI C80.3.
3. Liquid-Tight Flexible Steel Conduit: Liquid-tight flexible conduit shall be flexible metal galvanized steel with a sunlight-resistant jacket. The entire assembly shall comply with UL 360.
4. Nonmetallic Conduit (PVC): Nonmetallic conduit shall conform to NEMA TC 8 Type EB and UL Standard 651. Conduit shall be heavy wall type, Schedule 40.
5. Minimum above-grade conduit size for RGS, EMT and flexible metal conduits shall be ¾ inch trade diameter unless otherwise noted on the Drawings. Size 1¼ inch and 3½ inch shall not be used.
6. Minimum below-grade direct burial and in-concrete conduit size for RGS shall be 1-inch trade diameter unless otherwise noted on the Drawings.
7. Minimum below-grade and in-concrete conduit size for PVC shall be 2-inch trade diameter unless otherwise noted on the Drawings.

B. Fittings:

1. Fittings for RGS, EMT or flexible metal conduit shall be zinc coated and in compliance with UL 514 and NEMA FB 1.
2. Fittings for PVC conduit shall be in accordance with fittings and conduit bodies shall be in compliance with NEMA TC 9.
3. Fittings shall be sized sufficiently so as not to exceed the Manufacturer's recommendations for minimum bend radius for cables contained within.

C. Wireway: Wireway shall be rated NEMA 12 unless otherwise noted on the Drawings.

2.3 WIRE AND CABLE

A. Low-Voltage Wire and Cable:

1. Low-voltage wire and cable used for power, control and lighting shall be single conductor copper, stranded, rated 600 V, types THHN/THWN or XHHW-2 insulation according to NEMA WC 7 or NEMA WC 8, sized as shown on the Drawings or as required by the load and the NEC.
2. Minimum wire size shall be No. 12 AWG for power circuits, No. 14 AWG for lighting circuits and No. 16 AWG for control circuits.
3. All wire and cable shall have a minimum temperature rating 75 deg F.

B. Tray Cable:

1. Multi-conductor power cables and control cables shall be type TC rated 600 V for use in wet and dry locations in accordance with the NEC.
2. The power cables shall contain a bare copper ground wire sized according to NEC requirements.
3. The conductors shall be copper per ASTM B3, stranded according to ASTM B8, sized as shown on the Drawings.
4. Conductor insulation shall be types THHN/THWN or XHHW-2 according to NEMA WC 7 or NEMA WC 8.
5. The overall jacket shall be heavy-duty hypalon or chlorinated polyethylene (CPE) having high resistance to tearing, punctures, moisture, ozone, oil, sunlight, and chemicals.
6. All wire and cable shall have a minimum temperature rating of 75 deg F.

C. Shielded Tray Cable:

1. Multi-conductor shielded power cables shall be type TC rated 600 V for use in wet and dry locations in accordance with the NEC.
2. The power cables shall contain three insulated power conductors and one insulated ground conductor.
3. The conductors shall be copper per ASTM B3, stranded according to ASTM B8, sized as shown on the Drawings.
4. Conductor insulation shall be types THHN/THWN or XHHW-2 according to NEMA WC 7 or NEMA WC 8.
5. The shield shall be a 10-mil-thick copper corrugated tape applied longitudinally over a clear polyester tape.
6. The overall jacket shall be heavy-duty hypalon or chlorinated polyethylene (CPE) having high resistance to tearing, punctures, moisture, ozone, oil, sunlight, and chemicals.

D. Instrumentation Cable:
   1. Shielded Twisted-Pair Cable:
      a. Description: A pair of individual conductors, twisted and triplexed with a copper drain wire and an aluminum Mylar tape applied over the triplexed group, with an overall jacket.
      b. Individual Conductors: Tinned stranded copper.
      c. Insulation Voltage Rating: 600 V.
      d. Insulation Material: High-density polyethylene (HDPE).
      e. Minimum conductor size shall be No. 18 AWG or as shown on the Drawings.
      f. Shielding: Overall aluminum Mylar tape.
      g. Overall Jacket: HDPE or CPE.
   2. Multi-Conductor Cable:
      a. Description: Multi-conductor instrument cable shall consist of a bundle of individually shielded twisted pairs as specified above, bundled together with a copper drain wire and an overall aluminum Mylar tape shield covered by an overall jacket.
      b. Overall shield: Aluminum Mylar tape.
      c. Overall jacket: HDPE or CPE.
   3. Identification: All instrument cable shall be labeled and marked as required by the NEC.
   4. All instrumentation cable shall be type TC rated 600 V for use in wet or dry locations.
   5. All instrumentation cable shall have an overall jacket having a high resistance to tearing, punctures, moisture, ozone, oil, sunlight, and chemicals.

E. Telephone Cable:
   1. Copper wire multi-paired, solid conductor, polyethylene jacket, with quantity of pairs as shown on the Drawings.
   2. Each pair shall be Category 3, 24 AWG.
   3. Cable shall be suitable for overhead and cable tray installation.

F. Coaxial Cable: RGS type, bare copper covered steel conductor with polyethylene insulation, conductive layer, tinned copper braid shield and polyethylene jacket.

2.4 GROUNDING AND BONDING

A. Rod Electrode:
   1. Material: Copper-clad steel ground rod.
   2. Diameter: ¾ inch.
   3. Length: 8 feet.

B. Mechanical Connectors:
   1. Description: Bolted pressure clamp-type connectors.
   2. Material: Silicon Bronze.

C. Grounding Connections: Connections shall be made by the exothermic process or high-strength compression connectors as shown on the Drawings.

D. Wire:
   1. Description: Bonding and grounding conductors sized No. 8 AWG and smaller shall be solid, bare copper complying with ASTM B1. Bonding and grounding conductors sized No. 6 AWG and larger shall be Class B, stranded copper complying with ASTM B8.
   2. Material: Copper, sized as shown on the Drawings.

2.5 LIGHTING FIXTURES AND ACCESSORIES

A. Luminaires:
   1. Furnish lighting fixtures as shown on the Drawings. All fixtures shall be new and UL listed.
   2. All luminaires and lighting equipment shall be delivered to the project site complete with suspension accessories, canopies, casings, sockets, holders, reflectors, diffusing materials, and ballasts, all wired and assembled.

B. Lamps: Furnish energy-saving lamps for lighting fixtures where available or as specified on the Drawings.

C. Ballast:
   1. All ballasts shall meet the requirements of ANSI C82.4 or ANSI C82.1, where applicable.
   2. Ballasts for high-intensity discharge lamps shall be high power factor, CBM (Certified Ballast Manufacturers) labeled, constant wattage autotransformers, rated for -20°F starting. Cold start and restart amperage shall not exceed operating amperage. Ballasts shall start lamps and operate satisfactorily at normal line voltage ±10 percent. All ballasts shall have individual fuse protection.
   3. Fluorescent fixtures shall be supplied with electronic, energy-saving ballast where available. All ballast shall have individual fuse protection.

D. Accessories: Furnish all material and suspension accessories required for installation of the lighting fixtures.

2.6 SMALL POWER AND LIGHTING TRANSFORMERS

A. General-purpose dry-type transformers per ANSI/NEMA ST 20, NEMA 2, factory-assembled, air-self-cooled, two-winding type with ratings as shown on the Drawings.

B. Insulation system average winding temperature rise for rated kVA as follows:
   1. 1-15 kVA: Class 185 with 115°C rise.
   2. 25-150 kVA: Class 220 with 150°C rise.

C. Winding Taps:
   1. Transformer 15 kVA and less: Two 5 percent full-capacity primary taps below rated voltage.
   2. Transformers 25 kVA and larger: Four 2.5 percent full-capacity primary taps below rated voltage and two 2.5 percent full capacity taps above rated voltage.

2.7 POWER PANELBOARDS

A. Panelboards shall be NEMA PB 1, circuit breaker type, UL approved.

B. Panelboard bus shall be copper, with ratings as indicated on the Drawings. Provide copper ground bus in each panelboard.

C. Molded case circuit breakers shall be NEMA AB 1, with integral thermal and instantaneous magnetic trip in each pole. ANSI/UL 489 listed Type HACR for air conditioning equipment branch circuit breakers.

D. Enclosures shall be NEMA PB 1, Type 1, unless indicated otherwise on the Drawings.

E. Cabinet fronts shall be flush or surface type, as indicated on the Drawings, fastened with concealed trim clamps or screw cover and shall include a hinge and latch where applicable. Provide a directory card and holder mounted on the inside of the door. Finish in manufacturer's standard gray enamel.

2.8 DISTRIBUTION PANELBOARDS

A. Lighting and appliance branch circuit panelboards shall be NEMA PB1, circuit breaker type.

B. Panelboard bus shall be copper, with ratings as indicated on the Drawings. Provide copper ground bus in each panelboard.

C. Molded case circuit breakers shall be NEMA AB 1, bolt-on or snap-on type thermal magnetic trip circuit breakers, with common trip handle for all poles. Provide circuit

breakers ANSI/UL 489 listed as Type SWD for lighting circuits. Provide UL Class A ground fault interrupter circuit breakers where scheduled.

D. Enclosures shall be NEMA PB 1, Type 1, unless indicated otherwise on the Drawings.

E. Cabinet fronts shall be flush or surface type, as indicated on the Drawings, fastened with concealed trim clamps or screw cover and shall include a hinge and latch where applicable. Provide a directory card and holder mounted on the inside of the door. Finish in manufacturer's standard gray enamel.

2.9 CONTROL PANELS

A. Provide control panels arranged as shown on the Drawings.

1. Enclosures: Panel enclosures shall be NEMA 4X, NEMA 4, NEMA 12 or as shown on the Drawings and provided with continuous-hinged covers and external mounting feet. Finish shall be ANSI 61 Gray Polyester Powder Coating.
2. Completed control panels shall be labeled as conforming to UL 508A and/or UL 698A, as applicable.
3. Wiring: Internal panel wiring shall be single conductor stranded copper conductor, 600 VAC class, 90°C rated, switchboard wire, Type THHN insulation. Minimum single conductor wire size shall be No. 16 AWG.
4. Indicating Lights and Switches: Panel indicating lights shall be heavy-duty, industrial, transformer types with legend plate, NEMA 4/13. Switches shall be heavy-duty, industrial with legend plate, NEMA 4/13.
5. Terminal Strips: Terminal strips shall be tubular screw with pressure plate types, sized as shown on the Drawings, suitable for mounting on mounting rails. Terminal block circuit breakers shall be thermal-magnet types, sized as shown on the Drawings.
6. Wireways: Provide plastic wireways to facilitate panel wiring, sized and routed as required, and installed with sufficient wiring space to allow easy connection of wires and readability of wire labels outside the wireways.
7. Barriers: Provide steel barriers as required to maintain separation between low level analog signals and 120 VAC power circuits.
8. Nameplates: Provide nameplates for all devices mounted inside and outside the cabinets as shown on the Drawings. Nameplates shall be engraved laminated plastic, black with white surface, fastened to the cabinet surfaces with self-tapping stainless-steel machine screws or permanent adhesive.

2.10 ENCLOSURES

A. Junction boxes shall be NEMA 4X, NEMA 4, NEMA 12 or as shown on the Drawings. Terminal strips shall be tubular screw with pressure-plate types, sized as shown on the Drawings, suitable for mounting on mounting rails. Terminal block

circuit breakers shall be thermal-magnetic types, sized as shown on the Drawings. Provide nameplates for panel cover as shown on the Drawings. Nameplates shall be engraved laminated plastic, black with white surface, fastened to the cabinet surfaces with self-tapping stainless-steel machine screws or permanent adhesive.

2.11 WIRING DEVICES

A. Convenience Receptacles:
   1. Rating: 120 V.
   2. Source of Supply: Panelboard, with no more than eight receptacles per 20-ampere circuit breaker, unless conditions dictate otherwise. Receptacles shall not be connected to same circuits as lighting fixtures.
   3. Locations: Furnish as shown on Drawings.
   4. Description:
      a. GFCI Receptacles: Specification grade, duplex, 15-A, 2-pole, 3-wire, ivory, NEMA type 5-15.
      b. Cover Plates: Plates shall be cast material with a neoprene gasketed spring door for damp locations.
      c. Outlet Boxes: Surface mount cast box with a ¾-inch hub.
      d. Mounting Height: 4'-6" in process areas above grade or floor unless noted.
      e. Mounting Height: 12" to bottom in office areas above grade or floor unless noted.
      f. Convenience Receptacles: 20-A, 2-pole, 3-wire duplex, ivory (NEMA 5-20) with cover to match unless indicated otherwise in the Drawings.

B. Terminal Blocks and Accessories:
   1. Terminal Blocks and Accessories shall be UL listed and comply with the requirements of NEMA ICS 4.
   2. Terminal blocks shall be suitable for copper conductor connections.

2.12 MOTOR CONTROL CENTERS

A. General: Designed, manufactured, and tested in conformance with ANSI/UL 845, NEMA ICS 2 and NEMA ICS 3. The motor control center shall be metal-enclosed, freestanding, dead-front vertical sections joined together to form assemblies containing power buses, neutral buses, ground buses, motor starters, feeder circuit breakers, and control equipment. Provide means for locking all disconnect operating handles for lockout activities.
   1. The Motor Control Center shall be designed to operate continuously at 480 VAC, 3-phase, 3-wire, 60 Hz or 480Y/277 VAC, 3-phase, 4-wire, 60 Hz, solidly-grounded, as shown on the Contract Documents.

2. Enclosure shall be NEMA 1 or as otherwise specified on the Contract Documents, gasketed and classified NEMA Class 1, Type B.
3. Integrated Equipment Short Circuit Symmetrical Current Rating: 65,000 amperes symmetrical RMS minimum at 480 volts.
4. Provide 20 percent spare space in each motor control center.
5. Where shown on drawings, Active Harmonic Filter units to be integral with MCC and comply with IEEE 519 recommendations.

B. Buses:
1. Material: Copper with tin-plated joints and terminals.
2. Main horizontal bus bars shall have continuous current carrying capacity as shown on the drawings, 600 amperes minimum.
3. Provide vertical bus to supply power to each section cubicle with adequate continuous current rating for the section load, but not less than 300 amperes.
4. For 3-phase, 4-wire MCCs only provide a full-capacity neutral bus installed near the phase buses extending the entire length of the low-voltage motor control center.
5. Provide a copper ground bus firmly secured to each vertical section structure and extending the entire length of the motor control center. Short circuit rating equal to integrated equipment short circuit rating. Furnish two ground lugs attached to the ground bus, one near each end, suitable for 4/0 AWG copper cable.

C. Circuit Breakers:
1. Feeder Circuit Breakers:
   a. Thermal-magnetic, molded-case units per NEMA AB 1.
   b. Frame Size and Trip Rating: As shown on Drawings.
   c. Short Circuit: Same as Integrated Equipment Short Circuit Symmetrical Current Rating.
   d. Provide circuit breakers with changeable trip units.
2. Electronically Controlled Main Circuit Breakers:
   a. Provide microprocessor monitoring and control of main circuit breakers where required in the Contract Documents.
   b. Trip Units
      1) Each circuit breaker microprocessor-based tripping system shall consist of three (3) current sensors, a trip unit and a shunt trip. The trip unit shall use microprocessor-based technology to provide the adjustable time-current protection functions. True rms sensing circuit protection shall be achieved by analyzing the secondary current signals received from the circuit breaker current sensors, and initiating trip signals to the circuit breaker when predetermined trip levels and time-delay settings are reached.

2) An adjustable trip setting dial mounted on the front of the trip unit shall establish the continuous trip ratings of each circuit breaker. Rating plugs shall be interlocked so they are not interchangeable between frames, and interlocked such that a breaker cannot be closed and latched with the rating plug removed.

3) System coordination shall be provided by the following microprocessor-based programmable time/current curve shaping adjustments:
   a) Adjustable long-time setting (set by adjusting the trip setting dial).
   b) Adjustable short-time setting and delay with selective curve shaping.
   c) Adjustable instantaneous setting.
   d) Adjustable ground fault setting and delay if required by Contract Documents.

4) The microprocessor-based trip unit shall have both powered and unpowered thermal memory to provide protection against cumulative overheating should a number of overload conditions occur in quick succession.

5) When the adjustable instantaneous setting is not required, the trip unit shall be provided with an instantaneous override. A discriminator circuit shall be provided to prevent the breaker being closed and latched on to a faulted circuit.

6) Where internal ground fault protection is specified, adjustable settings shall not exceed 1200 amperes. Provide neutral ground fault sensor for four-wire loads where required.

7) Breakers shall have built-in test points for testing the long-time delay, instantaneous, and ground fault functions of the breaker by means of a test set.

8) The trip unit shall have a battery backed information system to provide indication of mode of trip following an automatic trip operation. The indication of the mode of trip shall be retained after an automatic trip. Internal relays shall provide contacts for remote indication of mode of trip and high load.

9) An alphanumeric display shall be provided to indicate the following data:
   a) Cause of trip.
   b) Instantaneous value of maximum phase and ground current.
   c) Level of fault current that initiated an automatic trip operation.

10) For enhanced system analysis the following additional parameter values shall be calculated and indicated in the trip unit alphanumeric display panel:

a) Line-to-line voltage, selectable per line combination.
b) Phase current, selectable per phase.
c) Power factor.
d) Percentage harmonic content.
e) Total Harmonic Distortion (THD).

11) One password protected hand-held programming unit shall be provided. The programmer shall be self-powered by an internal battery. The monitored data shall be displayed on the programmer:
a) The trip unit shall contain test capability providing selection of values of test current within a range of available settings. The basic protection functions shall not be affected during test operations. The breaker may be tested in either the "Trip" or "No Trip" test mode.
b) The programming unit shall be capable of setting/changing the time/current set points and to perform functional testing of phase and ground trip characteristics.

3. Motor Circuit Protectors (MCP):
a. Integral instantaneous magnetic trip in each pole, molded-case units.
b. Frame Size as shown on Drawings. Trip Rating dependent upon motor nameplate data and in accordance with NEC.
c. Short Circuit: Same as Integrated Equipment Short Circuit Symmetrical Current Rating.

D. Structure
1. Each vertical section shall be 20 inches deep unless specified otherwise and not more than 90 inches high. Each section shall be 20 inches wide except as required by special equipment such as the incoming section. Adequate space for conduit entrance shall be provided at the top and the bottom of each section.
2. A vertical wireway shall be provided in each vertical section and shall extend the full height with a full-length door separate from individual controller doors.
3. The motor control center shall contain horizontal wireways, at the top or bottom, which are continuous throughout the unit.
4. Incoming line connection entrance compartment shall be identified by a nameplate.

E. Plug-in Units:
1. Draw-out type front only mounted units accessible from the front only.
2. Each compartment door shall be mechanically interlocked to prevent the door from being opened when the external disconnect operator is in the ON position, and to prevent the external disconnect operator from being turned to the ON position when the door is open. A device shall be furnished to permit trained personnel to bypass these mechanical interlocks.

4. With the door closed, circuit breaker operating handle positions shall indicate ON, TRIPPED, and OFF, and shall have provisions for padlocking with at least one padlock in the ON position and three padlocks in the OFF position.
5. Incoming line equipment and devices as shown on the Drawings shall be mounted in the incoming line section of the MCC.

F. Control Devices:
1. Control relays shall be 120 VAC, with silver alloy contacts rated 120 VAC, 10 A continuous, six amperes make and six amperes break, unless shown otherwise on the Drawings. Provide a minimum of four electrically-independent, field-convertible contacts.
2. Open knife switches shall not be used.

G. Combination Motor Starter Units:
1. All motor starter units shall be of the drawout combination type, consisting of a MCP/disconnect device and magnetic motor starter or a thermal-magnetic breaker and magnetic contactor, as shown on the Drawings. Wiring shall be readily accessible for ease of maintenance, and connected to the vertical bus by means of self-aligning, stab-on, free-floating spring-type connectors to ensure positive silver-to-silver contact with both sides of the bus at all times.
2. Reversing motor starters shall be electrically and mechanically interlocked to prevent the simultaneous energizing of both forward and reverse contactors.
3. Full-voltage non-reversing (FVNR) and full-voltage reversing (FVR) magnetic motor starters, complete with overload protection as required by the Drawings, MCP/disconnect device or thermal-magnetic breaker and magnetic contactor as required by the Drawings, 120-volt control power transformer, run indicating light and all other accessories, shall be housed in a common enclosure.
4. Starters shall be full-voltage, 480 volt, 3-phase, 60 Hz unless shown otherwise on Drawings. The NEMA starter size shall be suitable for the motor horsepower rating shown on the Drawings.
5. Two normally-open (NO) and two normally-closed (NC) electrically-isolated spare auxiliary contacts shall be provided in each motor starter unit in addition to those required for operation and indication, wired to outgoing terminal blocks and marked as spares for use by others.
6. Each motor controller shall have transformer-type indicating lights. All indicating lights shall be push-to-test, heavy-duty oil-tight type with unshrouded color caps.
    a. ON (red) for FVNR starters.
    b. ON (red) forward, ON (red) reverse for FVR starters.
    c. All lights shall be visible without opening the cubicle door.

7. Overload relays shall be three-phase, ambient-temperature compensated, with door-mounted reset pushbutton. They shall be selected based upon motor full-load current nameplate data. Supply heaters for overload relays.
8. Individual control power transformers (CPTs), 480-120 VAC, single phase, 60 Hz, shall be supplied for each combination motor starter or contactor, and shall be mounted in the same enclosure as the starter or contactor. The CPT shall be sized by the Manufacturer to have a minimum of 100 VA or 20 percent capacity in excess of the continuous volt-ampere requirements of the holding coil, indicating lights and any other devices included with the starter which ever is more. CPTs shall have both primary legs fused. One secondary leg of the CPT shall be provided with a fuse and the other secondary leg grounded. Connections to both secondary legs shall be provided at the control terminal block.

H. Wiring
1. All circuits requiring external wiring connections shall be wired to terminal blocks with not more than two wires connected to any terminal point. All current transformers, whether for internal or field wiring, shall be wired to terminal blocks, with integral shorting bars. A minimum of 20% spare terminal points, but not less than two terminal points per terminal block, shall be provided.
2. The control terminal blocks shall be rated at least 10 amperes continuous at 600 VAC, 90°C.
3. Terminal blocks for field interconnection shall have the manufacturer's wiring on one side, and the other side available for field wiring.
4. Wiring diagrams for typical control schemes are shown in the Drawings. The manufacturer shall incorporate these schemes in his design, where applicable.

I. Wireways:
1. Each vertical section shall have a vertical wireway, and at least 4 inches minimum between the units and the end side sheets for unit wiring. Each wireway shall be provided with a tightly-secured, formed sheet steel, gasketed, access door.
2. Each vertical section shall be provided with a horizontal wireway at least 4 inches high at the top which shall line up with adjacent sections to form a continuous wiring raceway through the entire length of the motor control center assembly.

J. Identification
1. Each motor control center and all devices located in every motor control center shall be furnished with engraved nameplates made of 1/16-inch-thick laminated black and white material, with 1/8-inch letters engraved through the white top lamination to the black. Nameplates shall be attached with self-tapping screws. Identifiers shall be as shown on the Drawing. A similarly

constructed and installed nameplate with minimum ½-inch letters indicating motor control center equipment number shall be installed on the front of each motor control center. Supplier shall submit a nameplate list to the Contractor for review and approval.

2. Engraved metal rating nameplate shall be permanently attached to the motor control centers with self-tapping screws or captive fasteners. Rating nameplate shall indicate Manufacturer's name, style, type model/catalog number, and equipment rating.
3. Identification of wiring shall be provided using Manufacturer's standard wire identification. Individual identification for each wire shall be included in wiring and schematic diagrams. All wires shall be labeled at both ends and at any point between where the wires may terminate. At terminal blocks used to splice wires, the incoming and outgoing wires must both be labeled. All labels must be permanent and in accordance with wire identification shown on approved wiring and interconnection Drawings. Wire numbers shall be typewritten or machine-stamped on the plastic sleeve markers; handwritten wire numbers are not acceptable.
4. Each part of each piece of equipment requiring field assembly shall be durably marked with equipment number, title, and part number related to the installation requirements.
5. Bus phasing shall be identified as follows:
   a. Front to Back: A, B, C, respectively
   b. Top to Bottom: A, B, C, respectively
   c. Left to Right: A, B, C, respectively

F. Special Tools and Spares

1. Provide two sets of any materials, equipment and supplies that will be required to operate and maintain the motor control centers. This includes any special tools required for breaker removal and replacement and any fuses required for normal and emergency operation of the motor control centers.

K. Factory Finishes and Painting

1. All exterior and interior steel surfaces of the motor control centers shall be properly cleaned and provided with a rust-inhibiting phosphatized coating. The paint finish and color shall be Manufacturer’s standard. Provide touch-up paint to match finish color.
2. Interior surfaces shall be painted white for increased visibility.

L. Source Quality Control

1. Manufacturer shall perform Manufacturer’s standard factory tests and as listed in Standards UL 489 and 1087.
2. Manufacturer shall allow witnessing of factory tests at Manufacturer's facility. Notify Contractor before tests are scheduled according to Special Conditions.

3. Manufacturer shall make completed motor control center available for inspection at Manufacturer's facility prior to packaging for shipment. Notify Contractor before inspections are required according to Special Conditions.

2.13 MODIFICATIONS TO EXISTING MOTOR CONTROL CENTERS

A. General: The existing Motor Control Center (if applicable) shall be modified in accordance with this Section and the Contract Documents. It is presumed to have been designed, manufactured, and tested in conformance with ANSI/UL 845, NEMA ICS 2 and NEMA ICS 3. The motor control center is metal-enclosed, freestanding, dead-front vertical sections joined together to form assemblies containing power buses, neutral buses, ground buses, motor starters, feeder circuit breakers, and control equipment. There are means for locking all disconnect operating handles for lockout activities.

B. Confirm the following features of the existing Motor Control Center and advise the Engineer of any discrepancies:
   1. The Motor Control Center shall be designed to operate continuously at 480 VAC, 3-phase, 3-wire, 60 Hz or 480Y/277 VAC, 3-phase, 4-wire, 60 Hz, solidly-grounded, as shown on the Contract Documents.
   2. Enclosure shall be NEMA 1 or as otherwise specified on the Contract Documents, gasketed and classified NEMA Class 1, Type B.
   3. Integrated Equipment Short Circuit Symmetrical Current Rating: 65,000 amperes symmetrical RMS minimum at 480 volts.

C. Circuit Breakers:
   1. Feeder Circuit Breakers:
      a. Thermal-magnetic, molded-case units per NEMA AB 1.
      b. Frame Size and Trip Rating: As shown on Drawings.
      c. Short Circuit: Same as Integrated Equipment Short Circuit Symmetrical Current Rating.
      d. Provide circuit breakers with changeable trip units.
   4. Motor Circuit Protectors (MCP):
      a. Integral instantaneous magnetic trip in each pole, molded-case units.
      b. Frame Size as shown on Drawings. Trip Rating dependent upon motor nameplate data and in accordance with NEC.
      c. Short Circuit: Same as Integrated Equipment Short Circuit Symmetrical Current Rating.

D. Plug-in Units:
   1. Draw-out type front only mounted units accessible from the front only.
   2. Each compartment door shall be mechanically interlocked to prevent the door from being opened when the external disconnect operator is in the ON

position, and to prevent the external disconnect operator from being turned to the ON position when the door is open. A device shall be furnished to permit trained personnel to bypass these mechanical interlocks.

5. With the door closed, circuit breaker operating handle positions shall indicate ON, TRIPPED, and OFF, and shall have provisions for padlocking with at least one padlock in the ON position and three padlocks in the OFF position.
6. Incoming line equipment and devices as shown on the Drawings shall be mounted in the incoming line section of the MCC.

2.14 INDIVIDUALLY MOUNTED MOTOR STARTERS

A. Local motor starters shall be furnished by the Contractor unless specifically indicated otherwise on the Drawings.

1. Fractional horsepower manual starters shall be full-voltage, non-reversing, single-speed, 2-pole, with overload protection for 115/230 volt, single phase, 60-hertz induction motors, single unit with toggle type of operator in NEMA 4 enclosures, unless enclosure is designated otherwise on the Drawings. NEMA size shall be as required by the Drawings.
2. Combination motor starters shall be full-voltage, non-reversing, single-speed for 480 volt, 3 phase, 60 hertz service complete with externally resettable overloads, molded case circuit breaker MCP, and control transformer (100 VA minimum), with primary and secondary fuses, rated 480-120 volt. Contactor shall have 120 volt operating coil and a minimum of one normally open and one normally closed, electrically independent contacts wired to terminal blocks. These contacts shall be in addition to those required for "seal-in" and local indicators. The combination starters shall be in NEMA 4 enclosures, unless enclosures are designated otherwise on the Drawings. NEMA sizes and additional features shall be as required by the Drawings.

2.15 WELDING OUTLETS

A. Welding outlets shall be suitable for 480 volt, 60 ampere, 3 phase, 60-hertz utilization. They shall be combination type, consisting of a circuit breaker and a receptacle. The receptacle shall be interlocked with the circuit breaker so the plug cannot be withdrawn unless the breaker is open, and the breaker cannot be closed unless the plug is fully inserted. The receptacle shall be provided with an extra pole for the grounding conductor in a connecting cable.

B. Circuit breaker shall provide both short-circuit and thermal overload protection.

C. Welding outlet enclosures shall be NEMA 4 unless specified otherwise on the Drawings.

2.16 SAFETY SWITCHES

A. Materials:

1. All materials and equipment shall meet the requirements of NEMA KS 1, ANSI/NFPA 70 and UL 98.
2. Switches shall be quick-make, quick-break type, load interrupter knife switches, heavy-duty, enclosed, fusible or non-fusible rated for voltage, ampere, or ampere and horsepower, as indicated on the Drawings.
3. Enclosures: NEMA type 3R for outdoor, NEMA 4X, NEMA 4, NEMA 12 for indoors or as shown on the Drawings.
4. Externally operable handle interlocked to prevent opening front cover with switch in ON position and interlock bypass for testing purposes. Handle lockable in OFF and ON positions with room for up to three padlocks. All switches shall have switchblades, which are fully visible in the OFF position when the switch door is open. Fuse clips, designed to accommodate Class K fuses.
5. Fuses shall be as indicated on the Drawings.

2.17 MOTOR CONTROLLERS HEATER ELEMENTS

A. Provide 480-V heater elements in accordance with motor nameplate full-load current.

2.18 INSTRUMENTATION

A. Provide instrumentation in accordance with the Instrument Schedule drawing.

2.19 SOURCE QUALITY CONTROL

A. Provide Manufacturers' standard shop test reports for all equipment and devices provided under this Section.

PART 3 EXECUTION

3.1 GENERAL

A. Install equipment according to the Manufacturers' instructions, the Drawings, and Specification Sections.

B. Inspect equipment for physical damage and report any deficiencies immediately to Engineer. Compare equipment nameplate information with latest Drawings and report discrepancies to Engineer

C. Work shall be performed by qualified electricians, conforming to the best-accepted trade practice and with the proper tools and shall conform to the requirements of the Drawings, Specification Sections and the NEC.

D. Electrical clearance at all voltage levels shall be made according to the requirements of the NEC and the NESC.

E. The installation shall conform to structures, preserve clearances, avoid obstructions, maintain headroom and keep openings and passageways clear.

F. Exact locations, distances, and levels shall be governed by field conditions.

G. Phase Rotation:

1. The required order of phase rotation for the project shall be phase A, phase B, phase C, with the voltage reaching maximum amplitude in that order.
2. When facing circuit breakers, motor starters, or panelboards, the phase conductor to terminal connection shall be A-B-C, with A phase on the left and C phase on the right. Bus bars in the equipment shall be in the order A-B-C from front to back and top to bottom.
3. All motors shall be bumped to check for correct direction of rotation prior to further testing.
4. Wires/cables shall be phase marked at source and load ends.
5. When phase reversing is required, record and change at the motor end.

H. Support for Equipment:

1. Provide all necessary supports for equipment installed under this Section and in accordance with the Drawings. Supports shall include steel frames, plates, brackets, racks, and other shapes of adequate size, fastened with bolts, screws, or by welding. The use of any other material for support shall require the Engineer's approval.
2. Thoroughly clean metal surfaces and paint in accordance the Contract Documents.
3. Provide all supports, foundations, curbs, and stands for other electrical equipment, which are not shown on the Drawings, but necessary for proper installation.

I. Cutting and Patching:

1. Avoid cutting into the work of others by using sleeves, inserts, chases and similar openings necessary for installation of the electrical work. The Contractor shall be responsible for correctly sizing and locating the work, and shall furnish all sleeves and inserts.
2. Properly reinforce and patch all cutting, welding, or drilling of concrete or structural members to match as nearly as possible the surrounding work.

Secure approval of the Engineer before cutting, welding, or drilling any concrete or structural member.

3. Coordinate equipment and raceway locations to openings in walls, floors, and equipment pads.
4. All cutting and patching shall be done by individuals skilled in the appropriate building trade.
5. Restore all surfaces to match adjacent surface.

J. Identification: Furnish and install engraved nameplates identifying control stations, safety switches, individual motor starters, panelboards, transformers, and other electrical equipment not identified by factory nameplates. Nameplate material shall be 1/16 inch-thick black and white laminated phenol resin. The engraving shall extend through a semi-matte white surface to give black letters of adequate readability. The height of letters and figures shall be approximately 1/8 inch for component nameplates and 7/16 inch for position nameplates. Furnish a list of nameplate legends, descriptions, types, and sizes for approval by the Engineer prior to procurement.

K. Field Quality Control: Perform all quality control testing unless otherwise indicated. The types and frequency of testing, and reporting of test results shall be according to this Section and the Manufacturer's instructions. Refer to the Contract Documents for detailed field quality control requirements by system.

L. Electrical Testing:

1. General: Upon completion and before acceptance of the work, perform complete functional operating tests of all systems, optionally in the Engineer's presence. Demonstrate that all systems and equipment function as intended according to the requirements of this Section and other Sections. Report defective systems or materials found during acceptance tests directly to the Engineer. Maintain written records of all tests. Submit certified test reports to the Engineer in accordance with Contract Documents.
2. Testing and Adjusting: The following requirements are supplementary to test requirements specified for individual equipment or systems under this and other Sections.
    a. Schedule all testing for approval by the Engineer.
        1) Notify the Engineer at least one week in advance of any testing.
        2) Complete test and inspection records shall be made and incorporated into a report for each piece of equipment tested.
            a) Record all readings taken.
            b) Submit copies to Engineer for review as specified in Part 1.
    b. Furnish calibrated meters, instruments, temporary wiring and labor necessary to perform all required tests and adjust equipment and wiring installed and connected in this work.

c. Verify correct polarity and phasing, freedom from grounds and shorts, and proper equipment operation.

3. Test each piece of equipment as specified in other Sections.
4. Perform function-operating tests after completing the equipment tests as indicated above, to demonstrate the proper interaction of all sensing, processing, and action devices.
5. Test all interlocks, safety devices and fail safe functions in addition to the design function.
6. Propose methods to initiate the sensing device by physical stimuli and quantitatively measure the end result or output.

M. Start-Up Assistance: Provide start-up assistance to the Engineer in accordance with Contract Documents. This start-up assistance may include, but is not limited to, inspection, testing, pre-operational checkout, trouble shooting and engineering support necessary to bring the facility into full operation.

N. Adjusting and Cleaning:
1. Keep premises clean and orderly during construction.
2. Keep all equipment nameplates clean for easy reading.
3. Upon completion of work, clean all equipment and remove surplus material and rubbish relating to electrical work, leaving the work area neat and clean.

3.2 CONDUIT AND FITTINGS

A. General Installation:
1. All conduit and fittings shall be installed in a neat and workmanlike manner according to this Section, the Drawings, the NEC, and the Manufacturer's written instructions.
2. Coordinate conduit installation with the other trades to avoid interference.
3. Conduit entrances through exterior concrete walls or below grade footings shall be made watertight. Provide pipe sleeves in the concrete with 1/2-inch minimum clearance around the conduit and an entrance seal.
4. In no case shall any conduit or body be mounted "hard-up" against structural members, building siding or concrete. Stand-offs shall be provided which allow a minimum of 1/4" free air space between the conduit or body and the surface to which it is being mounted.
5. In no case shall it be acceptable to use any conduit, body or other part of any raceway system to establish ground continuity or bonding extension.

B. Application:
a. RGS:

All exposed conduits.

b. PVC schedule 40:

All embedded and buried conduits

2. Make electrical connections to motors and other equipment subject to vibration or movement with liquid-tight flexible steel conduit.
3. Connectors terminating flexible conduit shall be insulated, watertight, and shall meet UL requirements for positive ground continuity.

C. Exposed Conduit Installation:
1. Route exposed conduits parallel or perpendicular to structure lines with right-angle turns and standard bends.
2. Supports: Conduit and raceways shall be supported in accordance with NEC Chapter 3.
3. Rigidly maintain and fasten exposed conduit to structural steel using clamps or devices manufactured for the purpose. Banks of conduits (two or more conduits) shall be installed on galvanized, pre-formed steel channel supported from the building or structural members and clamped with steel channel conduit clamps. Single conduits may be fastened to wood or concrete structures with one-hole conduit clamps and clampbacks.
4. Rigidly brace conduit supports at the first and last support of conduit runs where a vertical or horizontal direction change occurs, so that wire may be pulled without damaging the conduit system.
5. Support conduits and equipment independently. Conduits shall not be supported from piping or pipe supports unless shown otherwise on the Drawings.
6. Obtain written permission from the Engineer prior to welding to or drilling structural members.

D. Rough-In Work:
1. Field Bends: Make field bends with standard tools and equipment manufactured specifically for conduit bending.
2. Conduit Sizing: Where conduit size is not indicated on the Drawings, size according to the NEC for the number and sizes of wires to be installed.
3. Liquid-Tight Installation: Liquid-tight flexible steel conduit shall be installed as follows:
   a. Limited to connections less than 36 inches in length.
   b. Bonded per NEC requirements.
4. Conduit Expansion Joints: Provide conduit expansion joints with bonding conductor at building expansion joints and wherever necessary to compensate for thermal expansion and contraction of the conduit or building. Expansion

fittings shall be approved for the use intended and shall include a copper-bonding jumper.

5. Install pull fittings or boxes in accessible locations to facilitate pulling wire and cables. Maximum distance for straight runs shall not exceed 200 feet.
6. Install drain fittings in the vertical drops of outdoor, above grade conduit runs at the point at which the conduits enter control panels and other similar enclosures.
7. Secure conduit to all equipment enclosures internal and external to the facility, not furnished with threaded hubs or bases, with conduit hubs and insulating ground bushings on the inside of the enclosure.

E. Below Grade Conduit, General

1. Conduits shall slope at least three inches per 100 feet and be arranged to drain to handholes or cable vaults. Where conduits must be tapped, provide drain tees in a coarse gravel bed.
2. Terminate indoor conduit stub-ups with a coupling three inches above the floor for extension or for using seal fittings. The exception is for conduits under major equipment, which may terminate with a coupling flush with the floor.
3. Review all drawings and vendor data of the area and equipment concerned to avoid interferences, and then install the conduits in a suitable position.
4. Above grade conduit extensions shall be RGS or EMT, as required by the area, unless indicated otherwise on the Drawings. Provide below grade PVC conduits with approved adapters for connection to the metal conduit. Install adapters below grade, in the concrete envelope if applicable.

F. Conduit in Slab

1. Conduits larger than 1 inch shall not be installed in structural concrete slabs unless approved in writing, or shown on the Drawings.
2. Conduit shall not interfere with the proper placement of principal concrete reinforcement.
3. Conduit shall be placed between the upper and lower layers of reinforcing steel, where applicable.

G. Conduit in Duct Banks or Earth

1. A minimum of 12 inches of separation between conduit and hot water or steam lines shall be maintained. Locate the top of the conduit envelope a minimum of 36 inches below grade. Conduit envelopes shall be above water mains, sewers and gas lines.
2. Reinforce sections of duct banks installed under railroads and roadways, crossing disturbed soil, and crossing open trenches, such as for sewers or water mains, with steel bar.
3. The concrete envelope surrounding the structure of conduits shall have a minimum thickness of three inches on the top, bottom, sides and between

conduits and as indicated by NEC. Where reinforced duct sections are required, as under roadways, increase and reinforce the thickness of the concrete envelope adequately for the specific truck loading. Truck loading will be provided by the Engineer upon request.

4. After concrete has set, backfill and compact fill to a depth of 10 to 12 inches above top of duct bank. Install a continuous warning strip of approved six-inch wide metal-foil-backed plastic tape, detectable type, colored red with suitable warning legend describing electrical lines. Continue backfill and compacting in accordance with the Contract Documents.
5. Duct banks shall have concrete dyed red.

H. Field Quality Control: Inspect conduit and fittings for proper installation, connections, fitting tightness, and support.

3.3 WIRE AND CABLE

A. Examination:
1. Verify that any mechanical work likely to damage wire and cable has been completed.
2. Verify that conduit systems and wireways are ready to receive cable.

B. General:
1. Complete and clean conduit systems and wireways before pulling in wires or cables.
2. Do not install cables in conduit if the ambient temperature of the work area is below the cable Manufacturer's recommended minimum handling temperature.
3. Install power conductors continuous from termination to termination. When necessary, make splices and taps only in junction boxes or terminal boxes. Submit location for review by Engineer.
4. Use cable-pulling lubricants when pulling cables. The type of lubricants shall be suitable for the insulation involved. Cables shall be pulled directly from reels into the conduit raceway. Do not lay conductors out on the ground or triplex them prior to pulling into the raceway system.
5. Pulling stresses applied to conductors shall not exceed the Manufacturer's limitations.
6. Avoid parallel runs of signal cables next to noise generating equipment whenever possible. However, if parallel runs cannot be avoided, maintain the following minimum spacing between power cables and signal cables:

Parallel Power Wiring Capacity	Minimum Separation from Signal Cables
120 V, up to 10 A	12 inches
120 V, 11 A to 49 A	18 inches
240 V, up to 50 A	18 inches
240 V, 51 A to 199 A	24 inches
480 V, up to 200 A	24 inches

Crossovers that bring power and signal cables into close proximity shall be made at right angles.

C. Preparation:

1. Use swab to clean conduits of debris before pulling cables.
2. Do not install cables until it has been verified that cable splicing and testing can proceed immediately thereafter.
3. Do not leave conduit systems and enclosures open or wires exposed to weather or mechanical hazards longer than necessary.

D. Installation:

1. Wire and cable shall be installed in a neat and workmanlike manner and according to this Section, the Drawings, the Manufacturer's written instructions and the NEC.
2. Cable routing is shown on Drawings in approximate locations unless dimensioned. Route as required to complete wiring system.
3. Install a green insulated copper-grounding conductor, No. 12 AWG minimum, with each electrical circuit, sized according to NEC requirements or as shown on the Drawings.
4. The 600-V instrument cable shall be installed to preclude kinking, excess tension, and crushing of the insulation and shielding.
5. Low-voltage conductors No. 8 AWG and larger shall be terminated or spliced with compression connectors except where clamp or pressure terminals are part of the connected equipment. Conductors smaller than No. 8 AWG used in lighting or HVAC may be spliced using twist-on connectors at junction points.
6. Use pre-insulated compression connectors for wiring 600 V or less.
7. Terminate wiring for control, instrument and communication systems only on terminal blocks in designated terminal boxes or approved enclosures. There shall be no more than two conductors per terminal, including strap-type jumpers.
8. Where possible, color-code No. 6 AWG and smaller wire by the color of the insulation covering. Wires larger than No. 6 AWG may be color-coded using wrap-around markers and phase tape.
9. Instrumentation Wiring: Minimize the number of splices in shielded signal wires and cables. Make splices in suitable terminal boxes with screw-type terminal blocks where required. Soldering shall not be acceptable. Provide

terminals for each active and spare pair in multiconductor cables. Ground the cable shield and make it electrically continuous throughout the entire run. Ground the overall cable shield at the panel end only.

10. Splicing of Wire: If splicing is necessary, it shall be done in an accessible pull, junction or outlet box.
11. Splices shall provide a firm mechanical and electrical connection.
12. The insulation value of the splice shall equal the conductor insulation.
13. The conductor shall be inserted full depth into a pressure lug.
    a. Wire nuts shall be used at taps to lighting fixtures.
    b. Termination or splice devices shall be approved for use with the conductor to be installed.
    c. Splices shall be indicated on the Record Drawings.
14. Splices and Connection to Devices: A minimum of 8 inches of conductor shall be left in boxes.
15. Avoid abrasion and other damage to cables during installation.
16. All wire and cable installed shall be listed by UL for the specific type of installation (e.g., conduit, duct, aerial and similar items) as shown on the Drawings.
17. The bending/training radius of insulated wire or cable shall not be less than the minimum recommended by the Manufacturer.

E. Identification:

1. Color Coding: Grounded conductors and grounding conductors shall be color coded according to the NEC.
    a. Phase conductors for three-phase feeders and motor branch circuits shall be color coded as follows:
        1) 120/208 Volt:

            Phase A: Black.
            Phase B: Red.
            Phase C: Blue.
            Neutral: White.
            Ground: Green.

        2) 277/480 Volt:

            Phase A: Yellow.
            Phase B: Orange.
            Phase C: Brown.
            Neutral: Gray.
            Ground: Green.

    b. Conductors for 120/240 V single-phase feeders and branch circuits shall be color coded as follows:

        Phase 1: Black.
        Phase 2: Red.
        Neutral: White.

Ground: Green.

c. Conductors for analog systems shall be color-coded as follows:

Positive: Black
Negative: White
Shield: N/A
Ground: Green with yellow stripe

d. Where insulation pigmentation or coding is not available for large conductor sizes, use a colored plastic tape and wrap in a spiral half-lap manner to identify the exposed conductors.

e. Control cable color-coding shall comply with NEMA WC 7, Appendix K, Table K-2.

f. Color-code otherwise unidentified conductors with self-adhesive wrap-around markers at each splice or terminated end, and at all locations where the conductor is visible and accessible.

2. Wire and Circuit Identification

a. Power and feeder wires shall be uniquely identified at termination points. Tags shall be solid or heat-shrink sleeve type with machine-printed identification symbol. Adhesive or individual-letter type tags may only be used with prior approval of the Engineer.

b. Signal, control, and instrument wires shall be identified at all termination and splice points. Identify as shown on the Drawings. Tags shall be solid or heat-shrink sleeve type with machine-printed identification symbol. Adhesive or individual-letter type tags may only be used with prior approval of the Engineer.

F. Field Quality Control:

1. Low-Voltage, 600 V Maximum, Cables and Wires

a. Perform Visual and Mechanical inspection except for thermographic survey per NETA.

b. Perform Electrical Tests per NETA. Test values per NETA.

c. Submit testing and inspection documentation in accordance with above submittal requirements and the Contract Documents.

3.4 GROUNDING AND BONDING

A. Examination: Verify that final backfill and compaction has been completed before driving rod electrodes.

B. Installation:

1. Install products in accordance with Manufacturers' instructions.

2. Establish a grounding electrode system in accordance with Chapter 2 of the NEC. Provide interconnection of grounding electrodes listed in the NEC, where they exist, with the following additional requirements:

a. If specified, install driven ground rods connected by bare copper wire located as shown on the Drawings. The top of ground rods shall be a minimum of 2-1/2 feet below finished grade.

b. If specified, the main cable of a ground ring shall be No. 4/0 AWG unless indicated otherwise on the Drawings, installed a minimum of 2-1/2 feet below grade. Taps shall be minimum No. 2 AWG copper cable unless indicated otherwise on the Drawings.

c. Coordinate site activities with other Contractors to ensure concrete-encased electrodes within foundations and footings are captured within the grounding electrode system.

3. All below grade connections shall be exothermic. Make above-grade connections to motors and equipment using bolted pressure clamp-type connectors. Connections to building steel and structures shall be exothermic or as indicated on the Drawings.

4. Where structures or equipment requiring grounding are not available at time of installation, bring the buried ground leads or taps near the proposed terminal point. Provide a 6-foot coil, protected and tagged for identification.

5. Equipment remote from the grounding electrode system may be grounded by separate grounding electrodes and conductors to comply with NEC requirements.

6. Connect all non-current carrying metal parts of electrical equipment and installations to the grounding electrode system as required by the Drawings and the NEC. These shall include, but are not necessarily limited to, building structural columns, lightning arresters, raceways, electrical equipment enclosures, ground bus, transformers and motor frames.

7. In no case shall it be acceptable to use any conduit, body or other part of any raceway system to establish ground continuity or bonding extension. All raceway systems shall contain a suitably sized green-jacketed ground conductor.

8. Grounding jumpers shall be required around all flexible conduit connections for 1-1/2 inch seal-tight flexible conduit and larger. All flexible conduits less than 1-1/2 inch without an integral ground wire shall have a grounding jumper.

9. Connect the grounding system for instrumentation and computers according to the Manufacturer's instructions and in compliance with NEC requirements. Obtain and review this information prior to constructing the grounding system.

C. Field Quality Control:

1. Perform Visual and Mechanical Inspection per NETA.

2. Perform Electrical Tests per NETA. Test values per NETA.

3. Submit testing and inspection documentation in accordance with above submittal requirements and the Contract Documents. Include final grounding electrode system configuration and resistance-to-ground values.

3.5 ELECTRIC MOTORS AND ACCESSORIES

A. Installation:

1. Install and test single-phase and three-phase squirrel-cage induction motors and accessories in accordance with all Manufacturers' instructions including motors shipped separately from driven equipment.
2. Verify all motor data is in accordance with Contract Documents prior to motor installation or connection.
3. Make the electrical connections in accordance with Manufacturer's instructions and the Drawings.
4. Provide grounding and bonding in accordance with this Specification Section and the National Electrical Code.
5. Check for motor free rotation. Check motor rotation for proper shaft direction.
6. Check for proper motor lubrication.
7. Verify that correct quantity and size of all overload and protective devices are provided in each motor starter.

B. Field Quality Control#

1. Provide documented receipt inspection to verify that all equipment and materials are of the types and quantity required for the Work, are not damaged nor exhibit other unsatisfactory characteristics, and are stored properly and protected from dirt or moisture.
2. Perform Visual and Mechanical Inspection per NETA and as referenced in this Section.
3. Perform Non-Optional Electrical Tests for Induction Motors in accordance with NETA and as referenced in this Section. Test values per NETA.
4. If any deficiencies are revealed during any tests, such deficiencies shall be brought to the attention of the Engineer.
5. Notice of Testing: Notify Engineer three working days in advance of testing to allow witnessing of tests.
6. Submit testing and inspection documentation in accordance with above submittal requirements and the Contract Documents.

3.6 LIGHTING FIXTURES AND ACCESSORIES

A. Installation:

1. Install in accordance with Manufacturer's instructions.
2. Install and connect all luminaires and lighting equipment and accessories shown on the Drawings to make a completed system ready for service.
3. Install surface mounted luminaires plumb and adjust to align with building lines and with each other. Secure to prevent movement.

4. Bond products and metal accessories to branch circuit equipment grounding conductor.
5. Replace any damaged or defective fixtures, including glassware and plastics or diffusers or lamps, up to time of final inspection and acceptance by the Engineer.
6. Luminaire wiring, supports, and connections shall be in accordance with Article 410 of the NEC. Do not locate splices or taps within an arm, stem or chain. Wire shall be continuous from splice in outlet box of building wiring system to lamp socket or ballast terminal.
7. Install lamps for lighting fixtures as specified on the plans.

B. Field Quality Control:
1. Operate each luminaire after installation. Inspect for proper connection and operation.
2. Provide a minimum of eight hours demonstration of luminaire operation.
3. Submit testing and inspection documentation in accordance with above submittal requirements and the Contract Documents.

C. Adjusting:
1. Aim and adjust luminaires as indicated on the Drawings or as directed by the Engineer.
2. Upon completion of work there shall be a complete set of lamps of proper sizes and types, in good condition, in all fixtures.

D. Cleaning:
1. All fixtures shall be cleaned of dirt and foreign matter before the installation is turned over to the Owner.
2. Clean photometric control surfaces as recommended by Manufacturer.
3. Clean finishes and touch up paint.

3.7 SMALL POWER AND LIGHTING TRANSFORMERS

A. Installation
1. All dry-type transformers shall be installed in accordance with NEMA ST20, NFPA 70, and the Manufacturer's written instructions.
2. Use a two-foot minimum flexible conduit for connections to transformer.
3. Mount transformers on vibration isolating pads when necessary to isolate noise from the building structure.
4. Provide seismic restraints where required.
5. Install transformers so that ventilation openings are not obstructed.
6. Provide grounding and bonding.

B. Field Quality Control

1. Check for damage and verify that all connections are tight prior to energizing the transformer.
2. Measure primary and secondary voltages and make appropriate tap adjustments.
3. Perform an insulation resistance test with a 1000 V megger for all 480-volt and higher windings, and 500 V megger for winding 240 volts and lower. Values of insulation resistance less than Manufacturer's minimum or one megohm shall be investigated. Replace defective materials.
4. Submit testing and inspection documentation in accordance with above submittal requirements and the Contract Documents.

3.8 PANELBOARDS

A. Install panelboards in accordance with NEMA PB 1.1. Panelboards shall be plumb, with recessed panelboards flush with wall finishes. Provide supports in accordance with this Section.

1. Panelboards shall be mounted with top six feet above finished floor where obtainable.
2. Provide filler plates for unused spaces in panelboards.
3. Provide typed or neatly printed circuit directories for each branch circuit panelboard. Revise directory to reflect circuiting changes required to balance phase loads.
4. Provide engraved plastic nameplates identifying each panelboard in accordance with the panelboard schedules.

B. Field Quality Control

1. Measure steady state load currents at each panelboard feeder. If necessary, rearrange circuits in the panelboard to balance the phase loads to within 20 percent of each other. Maintain proper phasing for multi-wire branch circuits.
2. Inspect for physical damage, proper alignment, anchorage, and grounding. Check proper installation and tightness of connections for circuit breakers.

3.9 WIRING DEVICES

A. Installation: The installation of wiring devices shall comply with the NEC, in agreement with this Section and the Manufacturer's written instructions.

B. Identification: Identify and mark all device plates with the panel and circuit number.

C. Field Quality Control: Prior to final acceptance, replace all cracked, chipped, or burned devices or cover plates and damaged devices.

3.10 MOTOR CONTROL CENTERS

A. Install all equipment and hardware in accordance with Manufacturer's instructions and according to the final design Drawings, Specifications and NEMA ICS 2.3.

1. Anchor each motor control center assembly to steel channel sills arranged and sized according to Manufacturer's written instructions. Attach by bolting. Level and grout sills flush with motor control center mounting surface.

B. All contact surfaces of bolted connections shall be:

1. Thoroughly degreased and scratch brushed.
2. Liberally coated with No. 2 electrical joint compound and brushed through the compound and joined without removal of compound.
3. Tighten accessible bus connections and mechanical fasteners after installing motor control center.

C. Provide grounding and bonding in accordance with this Section, NFPA 70 and the design Drawings.

D. Verify that overload heater elements, motor starter, and other components in motor controllers have been correctly selected and installed to match installed motor characteristics.

E. Verify that trip units and overload relays provide adequate overcurrent protection and selective tripping with upstream and downstream protective devices.

F. Provide a door-mounted sign on each compartment in which an external voltage source will be terminated. The sign construction and installation shall be similar to unit nameplates, but with white letters on a red background. The sign shall read "CAUTION – This Unit Contains an External Voltage Source."

G. Field Quality Control

1. Perform the following inspections and tests in accordance with this Section and the codes and standards listed in Part 1. If any deficiencies in Supplier-furnished equipment or material are revealed during tests, correct such deficiencies and repeat the tests.
2. General:
    a. Provide receiving inspection.
    b. Maintain a written record of all tests performed. This record shall contain test results, date of tests, names of personnel performing and witnessing the tests, identification of the devices tested, including serial numbers when applicable and calibration test data for the test equipment. Furnish calibrated meters, instruments, temporary wiring, and labor necessary to perform all required tests and adjustments.

c. Replace or repair any devices or equipment that are damaged during testing or handling.

d. Inspect completed installation for physical damage, proper alignment, anchorage, and grounding.

e. Check proper installation and tightness of connections for circuit breakers.

f. Check tightness of accessible bolted bus joints using calibrated torque wrench.

3. Test all equipment and material items in accordance with NETA 7.16. All visual, mechanical and electrical tests shall be performed. Tests indicated in NETA as optional are not required. Acceptable test results are as listed in NETA.

4. Prior to energizing the motor control centers, perform the following tests and procedures.

a. Perform specific inspection and mechanical tests recommended by the Manufacturer and NEMA ICS 2.3.

b. Verify proper auxiliary device operation.

5. After the motor control center is in service, verify the following:

a. Phase rotation.

b. Check overload heaters are properly sized.

c. Proper operation of all auxiliary equipment.

6. Notice of Testing: Notify Contractor's QC Representative at least 48 hours in advance of scheduled witness testing.

H. Manufacturer's Field Services

1. If required, obtain services of the Manufacturer's representative experienced in calibration and setting all other specialized equipment contained in the motor control center.

3.11 SAFETY SWITCHES

A. Installation:

1. The installation of switches shall comply with the NEC and the Drawings, this Section, and the Manufacturer's written instructions.

2. Install fuses in fusible disconnect switches.

B. Identification: Switches are to be clearly identified and labeled to indicate power source, voltage, number of phases, and equipment being served.

C. Field Quality Control:

1. Perform Visual and Mechanical Inspection per NETA.

2. Perform Electrical Tests per NETA. Test values per NETA.

3. Submit testing and inspection documentation in accordance with above submittal requirements and the Contract Documents.



Issue Date	*Originated/Revised*	*Checked*	*Approved*	*Remarks*
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Revision B 8/20/2020	I. Mahaney 8/20/2020	M. Johnson 8/20/2020	P. Cook 8/20/2020	Issued for Construction

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CITY OF NEW MEADOWS WATER SYSTEM IMPROVEMENTS PROJECT

SPECIFICATION SECTION 16485
VARIABLE FREQUENCY DRIVES

SECTION 16485

VARIABLE FREQUENCY DRIVES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Variable frequency drives.

1.2 RELATED SECTIONS

A. Section 16050-Electrical Installation and Materials

1.3 REFERENCES

A. NFPA 70 - National Electrical Code.

B. NEMA FU-1 - Fuses.

C. NEMA ICS 3.1 - Safety Standards for Construction and Guide for Selection, Installation and Operation of Adjustable Speed Drive Systems.

D. NEMA ICS 7 – Adjustable Speed Drives.

E. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).

F. ISO 9001, U.L. 508.

G. EMC Standards:
1. Emission - EN55011/CISPR 11 (w/ RFI filter option).
2. Emission - VDE 0875, part 3, curve N or G as applicable (with optional RFI filter).
3. Immunity - ANSI/NEMA ICS 2-230 showering arc test.
4. Immunity - VDE 0160 Section 7.3.1.1 AC line transient, V peak = 2.3 x AC line, 1.3 ms half value time.

H. Line Disturbance Standards:
1. VDE 0160, Section 5.3.1.1.3, Undervoltage
2. VDE 0160, Section 5.3.1.1.3, Overvoltage
3. VDE 0160, Section 5.3.1.1.3, Phase loss

I. Harmonics
1. IEEE STD 519-1992

1.4 SUBMITTALS

A. Submit under provisions of the Contract

B. Shop Drawings: Include front and side views of enclosures with overall dimensions and weights shown; conduit entrance locations and requirements; and nameplate legends.

C. Product Data: Provide catalog sheets showing voltage, controller size, ratings and size of switching and overcurrent protective devices, short circuit ratings, dimensions, and enclosure details.

D. Test Reports: Indicate field test and inspection procedures and test results.

E. Manufacturer's Installation Instructions: Indicate application conditions and limitations of use stipulated by Product testing agency specified under Regulatory Requirements. Include instructions for storage, handling, protection, examination, preparation, installation, and starting of Product.

F. Manufacturer's Field Reports: Submit under provisions of the Contract.

G. Manufacturer's Field Reports: Indicate start-up inspection findings.

1.5 OPERATION AND MAINTENANCE DATA

A. Submit under provisions of the Contract.

B. Operation Data: Include instructions for starting and operating controllers, and describe operating limits that may result in hazardous or unsafe conditions.

C. Maintenance Data: Include routine preventive maintenance schedule.

1.6 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum 5 years documented experience, and with service facilities, including a drives specialist within 140 miles of Project.

1.7 REGULATORY REQUIREMENTS

A. Conform to requirements of NFPA 70.

B. Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and indicated.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, protect and handle products to site under provisions of the Contract.

B. Accept controllers on site in original packing. Inspect for damage.

C. Store in a clean, dry space. Maintain factory wrapping or provide an additional heavy canvas or heavy plastic cover to protect units from dirt, water, construction debris, and traffic.

D. Handle in accordance with manufacturer's written instructions. Lift only with lugs provided for the purpose. Handle carefully to avoid damage to components, enclosure, and finish.

1.9 FIELD MEASUREMENTS

A. Verify that field measurements are as indicated on shop drawings.

1.10 MAINTENANCE SERVICE

A. Furnish service and maintenance of controller for one year from Date of Substantial Completion.

1.11 EXTRA MATERIALS

A. Standard spare parts list as recommended by manufacturer.

B. Provide two of each air filter.

C. Provide three of each fuse size and type.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable manufacturers.
1. Allen-Bradley Powerflex
2. Eaton submit for approval
3. Square-D submit for approval
4. Danfoss submit for approval
5. Substitutions: submit for approval

2.2 DESCRIPTION

A. Provide enclosed variable frequency controllers with Ethernet adapter suitable for operating the indicated loads. Conform to requirements of NEMA ICS 3.1.

2.3 RATINGS

A. Rated Input Voltage: 480 volts, three phase, 60 Hertz.

B. Motor Nameplate Voltage: 460 volts, three phase, 60 Hertz.

C. Displacement Power Factor: Between 1.0 and 0.90 lagging, over entire range of operating speed and load.

D. Operating Ambient: 0 degrees C to 50 degrees C. at altitudes up to 4700 feet without additional cooling.

E. Minimum Efficiency at Full Load: 96 percent.

F. Motor loads:
1. Refer to One-Line diagram.

2.4 DESIGN

A. Employ microprocessor based inverter logic isolated from power circuits.

B. Employ pulse width modulated inverter system.

C. Employ switching power supply operating off DC link.

D. Design for ability to operate controller with motor disconnected from output for testing and servicing.

E. Design for drive output rotation to be independent of input rotation.

F. Design to limit output voltage rate of rise to 500 volts per micro second (1-60HP) and 2000 volts per micro second (75HP+).

G. Design to be self protected while running or at rest against:
1. Switching motor on drive output.
2. Output line to line or line to ground short circuits.
3. Drive overload.

H. Design to drive a 75hp motor, or a 3hp motor up to 75 feet away without exceeding the requirements of MGI-1993.

I. Design to include electronic thermal overload protection without motor temperature feedback. Provide class 10 motor protection, with speed sensitive response.

J. Design for speed regulation ±.5% of rated speed with a 10 to 90% load variation from 6 to 60 Hz.

K. Design for three programmable skip frequencies.

2.5 PRODUCT OPTIONS AND FEATURES

A. Display: Provide integral digital display programmed to indicate any of the following one at a time:
1. Reference signal %.
2. Frequency of the output Hz.
3. Feedback programmable unit.
4. Motor current Amps.
5. Motor torque %.
6. Power kW.
7. Power HP.
8. Energy kWh.
9. Output Voltage Volts.
10. DC Bus Voltage Volts.

B. Status Indicators: Separate indicators for overcurrent, overvoltage, ground fault, overtemperature, and input power ON.

C. Volts Per Hertz Adjustment: Automatic, programmable.

D. Current Limit Adjustment: Programmable percent of rated.

E. Acceleration Rate Adjustment: Programmable 0 to 9999 seconds.

F. Deceleration Rate Adjustment: Programmable 0 to 9999 seconds.

H. Input Signal: 4 - 20 mA DC.

I. Safety Interlocks: Provide four terminals for remote contact to inhibit starting under both manual and automatic mode.

J. Control Interlocks: Provide terminals for remote contact to allow forward or reverse starting in automatic mode.

K. Disconnecting Means: Fused switch or MCP at MCC.

L. Two Form C dry contact outputs 120v 2-amp minimum for drive run, drive fail, drive alarm.

M. Isolated 4-20ma output linear and proportional to drive speed.

N. Front/door mounted Human Interface Module with digital manual speed control and full programming capability.

O. Digital I/O: The VFD shall have (6) generic digital input points.

2.6 FABRICATION

A. Wiring Terminations: Match conductor materials and sizes indicated.

B. Enclosure: NEMA 250, Type 1.

C. Finish: Manufacturer's standard enamel.

2.7 SOURCE QUALITY CONTROL

A. Inspect and production-test each product specified in this section.

2.8 HARMONIC DISTORTION

A. Include 5% Line Reactor or equivalent at each drive.

B. Filter shall limit distortion to:

1. Limits as determined by IEEE-519 requirements.

C. Submit documentation certifying compliance with this section prior to shipping the drive and filter.

2.9 CONTROL

A. VFD operation will be by plant SCADA or local manual mode.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify conditions under provisions of the Contract.

B. Verify that surface is suitable for controller installation and that the physical layout will not interfere with future equipment scheduled for the location.

C. Do not install controller until building environment can be maintained within the service conditions required by the manufacturer.

3.2 PREPARATION - Not Used

3.3 INSTALLATION

A. Controller shall be wall mounted.

B. Tighten accessible connections and mechanical fasteners after placing controller.

C. Install fuses in fusible switches.

D. Select and install overload heater elements in motor controllers to match installed motor characteristics.

E. Provide engraved plastic nameplates under the provisions of the Contract.

F. Provide neatly typed label inside each motor controller door identifying motor served, nameplate horsepower, full load amperes, code letter, service factor, and voltage/phase rating.

3.4 FIELD QUALITY CONTROL

A. Field inspection and testing will be performed under provisions of the Contract.

B. Inspect completed installation for physical damage, proper alignment, anchorage, and grounding.

3.5 MANUFACTURER'S FIELD SERVICES

A. Prepare and start systems under provisions of the Contract.

3.6 ADJUSTING

A. Adjust work to comply with directions provided by City personnel.

B. Make final adjustments to installed drive to assure proper operation of fan system. Obtain performance requirements from installer of driven loads.

3.7 CLEANING

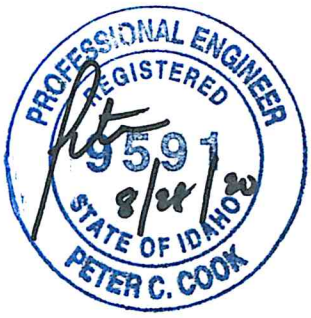
A. Touch up scratched or marred surfaces to match original finish.

3.8 DEMONSTRATION

A. Provide systems demonstration under provisions of the Contract.

B. Demonstrate operation of controllers in automatic and manual modes.

END OF SECTION



Issue Date	*Originated/Revised*	*Checked*	*Approved*	*Remarks*
Revision A 4/13/2020	M. Johnson 4/13/2020			Issued for Review
Revision B 8/20/2020	I. Mahaney 8/20/2020	M. Johnson 8/20/2020	P. Cook 8/20/2020	Issued for Construction

Control Engineers, PA

1095 S Federal Way
Boise, Idaho 83705

(208) 433-9997
fax (208) 426-0550

CITY OF NEW MEADOWS IDAHO WATER SYSTEM IMPROVEMENTS PROJECT

SPECIFICATION SECTION 17400

SCADA COMPUTERS AND SOFTWARE

SECTION 17400

SCADA COMPUTERS AND SOFTWARE

GENERAL

WORK INCLUDED

The Contractor shall provide and install (1) PC COMPUTER and (1) copy of the software license for the SCADA RUNTIME SOFTWARE.

The Contractor and/or SYSTEM INTEGRATOR shall coordinate work with MOUNTAIN WATERWORKS, owner & other disciplines.

DEFINITIONS

SCADA SOFTWARE: InduSoft Web Studio for 1500 tag development package License.

SYSTEM INTEGRATOR: The individual, partnership, corporation or other legal entity contracted to develop SCADA programming, configure alarms, and configure SCADA network equipment and interface Vendor equipment into the plant SCADA system. The system Integration shall be provided by OWNER.

PC COMPUTER – Refers to the desktop personal computer to be provided to the SYSTEM INTEGRATOR for use as the main SCADA terminal. Refer to detailed specifications below.

SUBMITTALS

Shop Drawings: Submit catalog data for each computer and software package.

QUALITY ASSURANCE

Warranty: The Contractor shall provide a warranty on all installed equipment for a minimum period of one year from date of acceptance.

PRODUCTS

GENERAL

All materials shall be UL listed.

PC COMPUTER

The Contractor shall provide the PC COMPUTER.

The PC COMPUTER shall be manufactured by Dell or equal as pre-approved by SCADA INTEGRATOR.

The system shall have the following minimum specifications:

Item	Specification
Operating System	Microsoft® Windows® 10 Professional
CPU Processor	Intel i5-9500, 6-core
Memory	8GB (2x4GB) DDR4 SDRAM
Hard Drive	256 GB SATA SSD
Optical Drive	16X DVD+/-RW drive
Audio	Integrated audio with external speakers
LAN	Integrated NIC
Mouse & Keyboard	Dell USB optical scroll mouse
Graphics Card	NVIDIA Quadro P400
Display	Dell E2420HS, 24” 1080p IPS
UPS	Battery Backed w/Transient Suppression Cyberpower CP600LCD or equal

SCADA SOFTWARE

The Contractor shall provide (1) copy licensed in OWNER’s name of InduSoft Web Studio for 1500 tag development package License for Windows 10. The license shall support 1500 tags and (1) thin client and shall have softkey licensing method.

EXECUTION

INSTALLATION

SCADA Software to be provided by Contractor and installed by the SYSTEM INTEGRATOR.

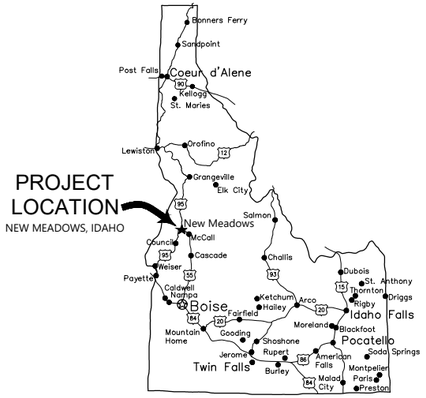
- END OF SECTION 17400 -

CITY OF NEW MEADOWS

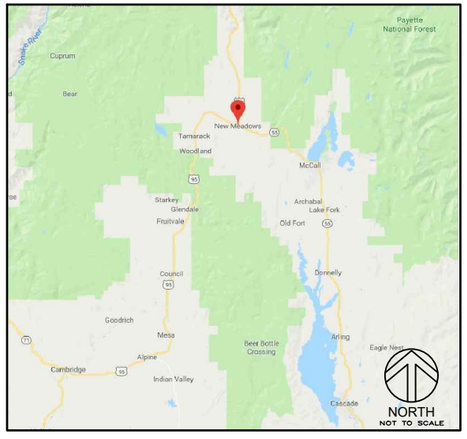
New Meadows, Idaho

WATER SYSTEM IMPROVEMENTS PROJECT

June 2021



MAP OF IDAHO



LOCATION MAP

PHYSICAL ADDRESS

CITY OF NEW MEADOWS
401 VIRGINIA ST
NEW MEADOWS, ID 83654

CIVIL/MECHANICAL ENGINEER

MOUNTAIN WATERWORKS
1161 W RIVER ST
SUITE 130
BOISE, ID 83702
(208) 780-3990

ARCHITECT

CHATFIELD ACRCHITECTURE
1911 MONTCLAIR
BOISE, ID 83702

STRUCTURAL ENGINEER

ALLY STRUCTURAL CONSULTING, LLC
3778 PLANTATION RIVER
SUITE 102
BOISE, ID 83703

ELECTRICAL/CONTROL SYSTEMS ENGINEER:

CONTROL ENGINEERS
1095 S FEDERAL WAY
BOISE, ID 83705

HVAC ENGINEER

TIKKER ENGINEERING
9050 W OVERLAND RD
SUITE 170
BOISE, ID 83709

PROFESSIONAL ENGINEER
REGISTERED
17900
STATE OF IDAHO
EDMOND JAMES STOWE
5-26-21

DRAWING INDEX

GENERAL
G-1 COVER SHEET
G-2 GENERAL NOTES
G-3 LINE LEGEND AND PIPE SCHEDULE
G-4 LEGEND AND SYMBOL CALLOUTS

CIVIL
C-1 WELL HOUSE SITE PLAN
C-2 WELL HOUSE SITE SECTIONS AND DETAILS

MECHANICAL
M-1 WELL HOUSE MECHANICAL PLAN
M-2 WELL HOUSE MECHANICAL SECTIONS

TYPICAL DETAILS
TD-1 TYPICAL DETAILS
TD-2 TYPICAL DETAILS
TD-3 TYPICAL DETAILS
TD-4 TYPICAL DETAILS
TD-5 TYPICAL DETAILS

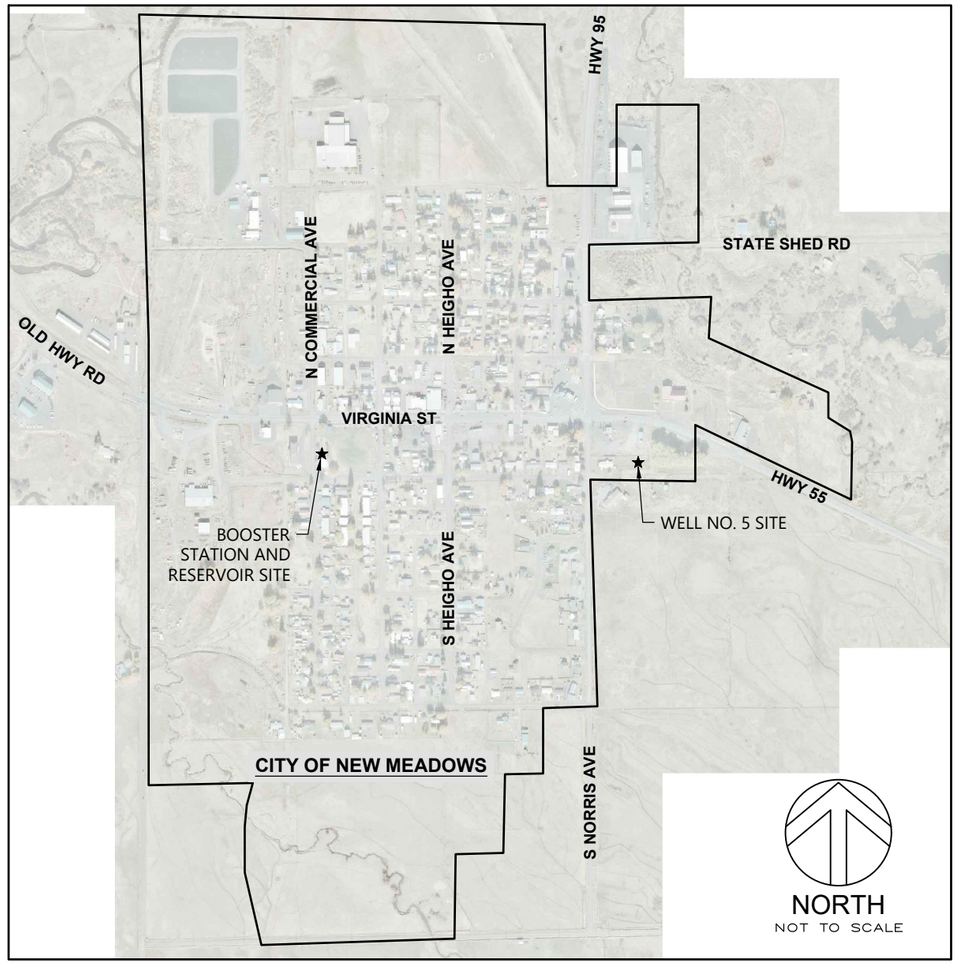
ELECTRICAL
E0.1 DRAWING INDEX AND GENERAL NOTES
E0.2 ELECTRICAL SYMBOLS AND ABBREVIATIONS
E1.0 ONE-LINE DIAGRAM - WELL 5
E1.1 ELECTRICAL SITE PLAN - WELL 5
E1.2 ELECTRICAL LOCATION PLAN - WELL 5
E1.3 ELECTRICAL LIGHTING PLAN - WELL 5
E3.0 SYSTEM ARCHITECTURE

ELECTRICAL (cont.)
E4.1 CONTROL PANEL - LAYOUT
E4.2 CONTROL PANEL - BOM
E4.3 CONTROL PANEL - POWER SCHEMATIC
E4.4 CONTROL PANEL - LOOP DIAGRAM DIGITAL INPUT
E4.5 CONTROL PANEL - LOOP DIAGRAM DIGITAL OUTPUT
E4.6 CONTROL PANEL - LOOP DIAGRAM - ANALOG IO
E5.0 INSTRUMENT SCHEDULE
E6.0 VFD SCHEMATIC (TYP)
N0.1 PROCESS AND INSTRUMENTATION LEGEND (1 OF 2)
N0.2 PROCESS AND INSTRUMENTATION LEGEND (2 OF 2)
N1.0 P&ID - WELL 3 & RESERVOIR
N2.0 P&ID - BOOSTER STATION
N3.0 P&ID - WELL 4
N4.0 P&ID - WELL 5

ARCHITECTURAL
A000 ARCHITECTURAL CODE PLANS
A100 WELL HOUSE - FLOOR PLAN & EXTERIOR ELEVATIONS
A101 WELL HOUSE - BUILDING SECTIONS
A300 DOOR SCHEDULE, ELEVATIONS & DETAILS

STRUCTURAL
S1.1 GENERAL STRUCTURAL NOTES
S1.2 SPECIAL INSPECTIONS
S1.3 SPECIAL INSPECTIONS
S2.1 WELL HOUSE ROOF FOUNDATION & ROOF FRAMING PLAN
S3.1 DETAILS

HVAC
M101 HVAC PLAN



VICINITY MAP

NO.	REVISION	BY	DATE

DESIGN: DLP
DRAWN: SCB
CHECKED: EJS
APPROVED:

Mountain WATERWORKS
ENGINEERING AND ENVIRONMENTAL SOLUTIONS
1161 W RIVER ST, STE 130
BOISE, IDAHO 83702
208.780.3990

IDAHO OFFICES
BOISE · LEWISTON · COEUR D'ALENE

CITY OF NEW MEADOWS
WATER SYSTEM IMPROVEMENTS PROJECT
NEW MEADOWS, IDAHO
COVER SHEET

VERIFY SCALE
BAR IS ONE INCH ON FULL SIZE DRAWING
0 1"

PROJECT 197.0010.01
DATE 8/6/2019
DRAWING NO. G-1

Path: C:\MWW\Dropbox (Mountain Waterworks)\CAD\Proj\M-R\New Meadows, 197\0010 Well House, Distribution\CDD\G-1_Nw Mdws WH.dwg File Name: G-1_Nw Mdws WH.dwg Plot Date: 5/25/2021 3:49 PM SBennett

GENERAL NOTES:

1. ALL APPROVALS AND PERMITS REQUIRED BY THE CITY OF NEW MEADOWS, IDAHO DEPARTMENT OF TRANSPORTATION, ADAMS COUNTY, UNITED STATES ENVIRONMENTAL PROTECTION AGENCY SHALL BE OBTAINED BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION.

2. EXISTING SITE INFORMATION INCLUDING THE LOCATION OF EXISTING SITE CONDITIONS, SURFACE TOPOGRAPHY AND PROJECT BENCHMARKS AS SHOWN ON THESE PLANS HAVE BEEN PROVIDED BY SAWTOOTH LAND SURVEYING THROUGH FIELD WORK PERFORMED IN THE FALL OF 2019. THE EXISTING SITE INFORMATION IS PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR AND SHALL BE FIELD VERIFIED BY CONTRACTOR CONSTRUCTION SURVEY PRIOR TO THE START OF ANY PROJECT CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL CONSTRUCTION STAKING.

3. THE TYPES, LOCATIONS, SIZES AND/OR DEPTHS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THESE DRAWINGS WERE OBTAINED FROM SOURCES OF VARYING RELIABILITY. THE CONTRACTOR IS CAUTIONED THAT ONLY ACTUAL EXCAVATION WILL REVEAL THE TYPES, EXTENT, SIZES, LOCATIONS AND DEPTHS OF SUCH UNDERGROUND UTILITIES. THE PROJECT ENGINEER ASSUMES NO RESPONSIBILITY FOR THE COMPLETENESS OR ACCURACY OF THE DELINEATION OF SUCH UNDERGROUND UTILITIES, OR THE EXISTENCE OF OTHER BURIED OBJECTS OR UTILITIES WHICH MAY BE ENCOUNTERED, BUT WHICH ARE NOT SHOWN ON THESE DRAWINGS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO IDENTIFY EXACT LOCATIONS OF EXISTING UTILITIES PRIOR TO THE START OF ANY PROJECT CONSTRUCTION. ANY LOCATION WHICH MAY POSE A CONFLICT WITH THE PROPOSED CONSTRUCTION MUST BE REPORTED TO THE PROJECT ENGINEER PRIOR TO THE START OF ANY PROJECT CONSTRUCTION.

4. WATER MAINS AND NON-POTABLE MAINS (SEWER, STORM DRAIN AND IRRIGATION) SHALL HAVE A MINIMUM HORIZONTAL SEPARATION OF 10 FEET AND A MINIMUM VERTICAL SEPARATION OF 18 INCHES. REFER TO TYPICAL DETAILS P100 AND P101 NON-POTABLE WATER LINE (NPWL) SEPARATION FOR ADDITIONAL INFORMATION.

5. UNLESS DETAILED, SPECIFIED, OR OTHERWISE INDICATED ON THE DRAWINGS, CONSTRUCTION SHALL BE AS INDICATED ON THE APPLICABLE TYPICAL DETAILS AND GENERAL NOTES. TYPICAL DETAILS SHALL APPLY EVEN THOUGH NOT REFERENCED AT SPECIFIC LOCATIONS ON DRAWINGS.

6. WHERE NO CONSTRUCTION DETAILS ARE SHOWN OR NOTED FOR ANY PART OF WORK, DETAILS SHALL BE THE SAME AS FOR OTHER SIMILAR WORK.

7. ANY CHANGES TO THE DESIGN AS SHOWN IN THESE CONSTRUCTION DRAWINGS MUST BE REVIEWED AND APPROVED BY THE PROJECT ENGINEER BEFORE CHANGES ARE MADE. THIS INCLUDES CHANGES REQUESTED BY THE OWNER AND SUBCONTRACTORS.

8. CONTRACTOR TO RETAIN AND PROTECT ALL FEATURES NOT DESIGNATED FOR DEMOLITION OR MODIFICATION.

9. COAT ALL WALL THIMBLES WITH COAL TAR EPOXY.

10. ALL BURIED PIPE FITTINGS AND VALVES SHALL BE MECHANICALLY RESTRAINED OR HAVE THRUST BLOCKS INSTALLED FOR TRUST RESTRAINT.

11. CONTRACTOR SHALL MAINTAIN A COPY OF THE IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY APPROVED PLANS AND SPECIFICATIONS ON-SITE AT ALL TIMES.

12. THE CONTRACTOR SHALL CALL DIG LINE (800-342-1585) TO LOCATE ALL EXISTING UTILITIES AT LEAST THREE (3) DAYS PRIOR TO CONSTRUCTION,

13. THE CONTRACTOR SHALL NOTIFY THE CITY OF NEW MEADOWS A MINIMUM OF SEVENTY-TWO (72) HOURS PRIOR TO DISRUPTING SEWER OR WATER SERVICE.

14. CONTRACTOR SHALL PROTECT ALL EXISTING MONUMENTS, SURVEY MARKERS, STREET SIGNS, UTILITIES, IRRIGATION LINES, PAVEMENT, TREES, FENCES, AND ANY OTHER IMPORTANT OBJECTS ON OR ADJACENT TO THE JOB SITE FROM DAMAGE AND REPAIR OR REPLACE DAMAGED FACILITIES AS REQUIRED BY THE OWNER AND THE PROJECT ENGINEER.

15. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK AND SHALL IMMEDIATELY NOTIFY THE PROJECT ENGINEER OF ANY DISCREPANCIES.

16. THE CONTRACTOR SHALL INSTALL NO. 12 COPPER LOCATOR WIRE IN THE TRENCH WITH ALL WATER LINES. LOCATOR WIRE SHALL BE BROUGHT UP TO THE TOP OF ALL VALVE BOXES, FIRE HYDRANTS AND SERVICES. BLUE TAPE MARKED "WATER" SHALL BE INSTALLED APPROXIMATELY 3 FEET ABOVE ALL WATER MAIN LINES. SEE TYPICAL DETAIL C117.

17. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL REQUIREMENTS AS REQUIRED BY CITY OF NEW MEADOWS, ADAMS COUNTY AND/OR THE IDAHO DEPARTMENT OF TRANSPORTATION.

18. CONTRACTOR IS RESPONSIBLE FOR COMPLIANCE WITH ALL APPLICABLE SAFETY LAWS OF ANY JURISDICTIONAL BODY INCLUDING, BUT NOT LIMITED TO, SAFE WORKING PRACTICES WITHIN AND AROUND THE CONSTRUCTION AREA. IN ADDITION, JURISDICTIONAL AGENCIES, THE OWNER AND THE PROJECT ENGINEER SHALL NOT BE RESPONSIBLE FOR ENFORCING SAFETY REGULATIONS.

19. CONTRACTOR IS REQUIRED TO PAY FOR ALL COMPACTION TESTING, INCLUDING NUCLEAR DENSITY TESTING OF THE PIPE BEDDING, TRENCH BACKFILL, SUBGRADE, SUBBASE, BASE COURSE AND ASPHALT, AND THE COST ASSOCIATED WITH PROCTORS FOR THE BASE COURSE MATERIAL AND ASPHALT PAVEMENT AND STRUCTURAL FILLS. TESTING SHALL BE CONDUCTED BY AN INDEPENDENT THIRD PARTY.

20. ALL DUCTILE IRON PIPING BENEATH BUILDINGS AND STRUCTURES AND INSIDE BUILDINGS TO BE AWWA C115 THICKNESS CLASS 53 WITH THREADED FLANGE UNLESS SHOWN OTHERWISE.

21. LEAN CONCRETE BACKFILL. TYPE II CEMENT, 30 LB PER CUBIC YARD. MINIMUM UNCONFINED COMPRESSIVE STRENGTH OF 50 PSI AT 28 DAYS. LIMIT WATER TO 285 POUNDS PER CUBIC YARD.

22. CONTRACTOR TO SUBMIT SHOP DRAWINGS INDICATIONG PIPE AND RESTRAINT LENGTHS FOR SOILS ENCOUNTERED.

EROSION AND SEDIMENT CONTROL NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER INSTALLATION AND MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL MEASURES/STORMWATER BEST MANAGEMENT PRACTICES (BMP'S) IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REQUIREMENTS.

2. THE IMPLEMENTATION OF THESE EROSION AND SEDIMENT CONTROL MEASURES INCLUDING CONSTRUCTION, MAINTENANCE, REPLACEMENT AND UPGRADING OF THIS PLAN IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ALL PROJECT CONSTRUCTION IS COMPLETED AND APPROVED BY THE OWNER.

3. ALL EROSION CONTROL BMP'S SHALL BE INSTALLED PRIOR TO THE START OF ANY PROJECT CONSTRUCTION OR EARTH DISTURBING ACTIVITIES AND SHOULD REMAIN IN PLACE UNTIL ALL DISTURBED/EXPOSED AREAS HAVE BEEN STABILIZED AND/OR REVEGETATED.

4. ALL STORMWATER, EROSION AND SEDIMENT CONTROL FACILITIES SHALL BE REGULARLY INSPECTED AND MAINTAINED BY THE CONTRACTOR DURING CONSTRUCTION.

5. WORK ACTIVITIES SHALL TAKE PLACE WITHIN PUBLIC RIGHTS OF WAY AND ON CITY OF NEW MEADOWS OWNED PROPERTY AS SHOWN ON THESE PLANS. CONTRACTOR SHALL PRESERVE NATURAL LANDSCAPE WHEREVER POSSIBLE.

6. DURING CONSTRUCTION CONTRACTOR SHALL WATER SPRINKLE ALL DISTURBED AREAS AS NECESSARY FOR DUST ABATEMENT. THIS WORK IS TO BE CONSIDERED INCIDENTAL TO THE PIPE WORK.

7. CONTRACTOR SHALL STOCKPILE TOPSOIL REMOVED DURING CONSTRUCTION ONSITE AND REUSE/DISTRIBUTE OVER GRADED AREAS PRIOR TO RESEEDING.

8. TOPSOILING AND RESEEDING OF ALL DISTURBED AREAS TO BE COMPLETED IMMEDIATELY AFTER GRADING USING A NATIVE SEED MIXTURE.

9. ALL CULVERTS TO HAVE A MINIMUM OF 18" OF COVER.

AMERICAN IRON AND STEEL REQUIREMENTS:

SECTION 436 OF TITLE IV OF THE CONSOLIDATED APPROPRIATES ACT OF 2014 (DIVISION G - DEPARTMENT OF THE INTERIOR, ENVIRONMENT, AND RELATED AGENCIES APPROPRIATIONS ACT, 2014)

AND

SECTION 746 OF TITLE VII OF THE CONSOLIDATED APPROPRIATIONS ACT OF 2017 (DIVISION A - AGRICULTURE, RURAL DEVELOPMENT, FOOD AND DRUG ADMINISTRATION, AND RELATED AGENCIES APPROPRIATIONS ACT, 2017)

APPLIES AN AMERICAN IRON AND STEEL REQUIREMENT TO THIS PROJECT. ALL IRON AND STEEL PRODUCTS USED IN THIS PROJECT MUST BE PRODUCED IN THE UNITED STATES. 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.

NSF-61 REQUIREMENTS:

ALL VALVES, PIPING, AND APPURTENANCES THAT COME IN CONTACT WITH POTABLE WATER SHALL BE NSF-61 AND NSF 372 COMPLIANT.

NO.	REVISION	BY	DATE

DESIGN DLP
DRAWN SCB
CHECKED EJS
APPROVED

PROFESSIONAL ENGINEER REGISTERED 17900 STATE OF IDAHO EDMOND JAMES STOWE

Mountain WATERWORKS

ENGINEERING AND ENVIRONMENTAL SOLUTIONS
1161 W RIVER ST, STE 130
BOISE, IDAHO 83702
208.780.3990

IDAHO OFFICES
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CITY OF NEW MEADOWS
WATER SYSTEM IMPROVEMENTS PROJECT

NEW MEADOWS, IDAHO
GENERAL NOTES

VERIFY SCALE
BAR IS ONE INCH ON FULL SIZE DRAWING
0 1"

PROJECT 197.0010.01
DATE 8/6/2019
DRAWING NO. G-2

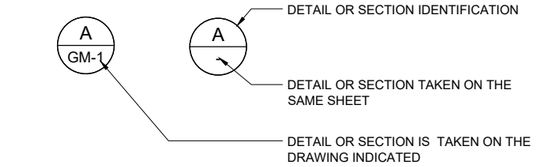
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LINE LEGEND

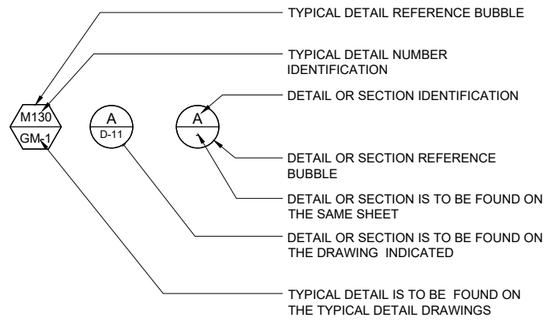
SECTION LINE
QUARTER SECTION LINE
EXISTING DEED OR LOT LINE
CENTERLINE
RIGHT OF WAY
EASEMENT
EXISTING BUILDING
EDGE OF CONCRETE
ROAD CUT (PROPOSED)
ROAD FILL (PROPOSED)
FIBER OPTIC (EXISTING) — UGFO
FIBER OPTIC (PROPOSED) — UGFO
PRESSURE SEWER (EXISTING) — PS
PRESSURE SEWER (PROPOSED) — PS

	EXISTING	PROPOSED/NEW
EDGE OF PAVEMENT	EP	EP
EDGE OF GRAVEL	EG	EG
TOP OF BANK	TB	TB
TOE OF SLOPE	TOE	TOE
SEWER LINE	SS	SS
SERVICE (WATER,GAS)		
UNDERGROUND GAS LINE	G	G
WATER LINE	W	W W W
PRESSURE IRRIGATION LINE	PIRR	PIRR
GRAVITY IRRIGATION LINE	IRR	IRR
FLOW LINE	<	<
STORM DRAIN	SD	SD SD
OVERHEAD POWER	OHP	OHP
UNDERGROUND POWER	UP	UP
UNDERGROUND TELEPHONE	UT	UT

PROPOSED CHAIN LINK FENCE
EXISTING CHAIN LINK FENCE
EXISTING BOARD FENCE
EXISTING WIRE FENCE
EXISTING 1' CONTOUR — 2601
PROPOSED 1' CONTOUR — 2601
EXISTING 5' CONTOUR — 2600
PROPOSED 5' CONTOUR — 2600
EXISTING DRAINAGE PIPE
EXISTING BEDROCK
FIBER WATTLES
PROPOSED SILT FENCE — S



AT TITLE



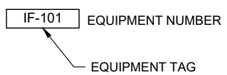
AT CROSS REFERENCE

DRAWING CROSS REFERENCE



CROSS SECTION

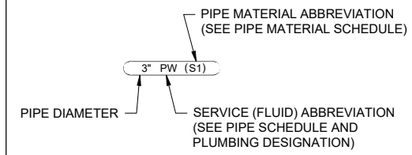
EQUIPMENT DESIGNATION LEGEND



PIPE MATERIAL SCHEDULE

ABBREV.	SERVICE	FITTINGS
D1	DUCTILE IRON, AWWA C115, RESTRAINED	DUCTILE IRON, AWWA C110, CL 150
D2	DUCTILE IRON, AWWA C115, RESTRAINED, LEAN CONCRETE ENCASED & POLYETHYLENE WRAPPED	DUCTILE IRON, AWWA C110, CL 150
D3	DUCTILE IRON, AWWA C150/151, RESTRAINED, POLYETHYLENE WRAPPED	DUCTILE IRON, AWWA C110, CL 150
P1	POLYVINYL CHLORIDE, SCH 80	POLYVINYL CHLORIDE, SOLVENT WELD SOCKET
P3	POLYVINYL CHLORIDE, SDR 35, ASTM 3034	POLYVINYL CHLORIDE, SDR 35 ASTM 3034
P4	POLYVINYL CHLORIDE, AWWA C900, DR 18	DUCTILE IRON, AWWA C110, CL 150
P5	POLYVINYL CHLORIDE, SDR 35, ASTM 3034 LEAN CONCRETE ENCASED	POLYVINYL CHLORIDE, SDR 35 ASTM 3034
P6	HDPE SIDR 7/PE 4710, PC 250, AWWA C901/ASTM D3035	HDPE, FUSED, OR COMPRESSION FITTINGS WITH STIFFENERS

PIPE DESIGNATION LEGEND



NOTES:
3"-ML-PVC INDICATES PIPE SIZE, SERVICE (FLUID) ABBREVIATION AND PIPE MATERIAL.

PIPE SCHEDULE

ABBREV.	SERVICE	TEST METHOD	TEST PRESSURE (PSI)
CON	CONDUIT	AM	5
DR	DRAIN	GR	5
PW	POTABLE WATER	HH	150
SD	STORM DRAIN	GR	6.5

NO.	REVISION	BY	DATE

DESIGN: DLP
DRAWN: SCB
CHECKED: EJS
APPROVED:

PROFESSIONAL ENGINEER REGISTERED 17900 5-26-21 EDMOND JAMES STONE STATE OF IDAHO

Mountain WATERWORKS
ENGINEERING AND ENVIRONMENTAL SOLUTIONS
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BOISE, IDAHO 83702
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CITY OF NEW MEADOWS
WATER SYSTEM IMPROVEMENTS PROJECT
NEW MEADOWS, IDAHO
LINE LEGEND AND PIPE SCHEDULE

VERIFY SCALE
BAR IS ONE INCH ON FULL SIZE DRAWING (0 — 1")
PROJECT 197.0010.01
DATE 8/6/2019
DRAWING NO. G-3

Path: C:\MWW\Dropbox (Mountain Waterworks)\CAD\Proj\M-R\New Meadows, 197\0010 Well House Distribution\CD\DG-3 Line Legend_Pipe Schedule.dwg File Name: G-3 Line Legend_Pipe Schedule.dwg Plot Date: 5/25/2021 3:50 PM SBennett

LEGEND AND SYMBOLS

- BOLLARD
- EXISTING MANHOLE
- OR NEW MANHOLE
- LS EXISTING LIFT STATION
- WMH EXISTING WATER MANHOLE
- W EXISTING WATER METER
- W EXISTING WATER SERVICE
- EXISTING WATER VALVE
- EXISTING TREE, BUSH
- WATER SURFACE ELEVATION
- CO NEW CLEANOUT
- BO BLOW OFF
- EXISTING UTILITY POLE
- UTILITY POLE ANCHOR
- EXISTING FIRE HYDRANT
- EXISTING LIGHT POLE
- E EXISTING ELECTRICAL BOX
- G EXISTING GAS METER/RISER
- P EXISTING POWER METER
- D EXISTING STORM MANHOLE
- EXISTING STORM DRAIN CATCH BASIN
- MW EXISTING MONITORING WELL
- T EXISTING TELEPHONE RISER
- TJB EXISTING TELEPHONE JUNCTION BOX
- EXISTING CATCH BASIN / GRATE
- EXISTING STREET SIGN
- NEW STREET SIGN
- 2545.00 FINISHED ELEVATION
- (2545.2±) EXISTING ELEVATION
- BREAK LINE
- DRAINAGE FLOW OR PIPE FLOW DIRECTION
- SURVEY MONUMENT / REBAR / PROPERTY CORNER
- BENCH MARK (BM)
- REVISION NUMBER
- BOREHOLE / TESTHOLE
- SURVEY CONTROL POINT
- X KEY NOTE
- XXX COORDINATE NUMBER
- CONCRETE (PLAN AND SECTION)
- EARTH
- GRAVEL/DRAINROCK/AGGREGATE BASE
- AC PAVEMENT
- REVISION CLOUD

TYPE OF JOINT OR COUPLER	THREE LINE PIPE
FLANGED JOINT	
MECHANICAL JOINT	
WELDED JOINT	
PUSH-ON JOINT	
RESTRAINED PUSH-ON JOINT	R
SCREWED OR GLUED JOINT	
CONCRETE OR CLAY PIPE JOINT	
GROOVED COUPLING	
RESTRAINED FLANGED COUPLING ADAPTER	
FLEXIBLE COUPLING	
RESTRAINED FLEXIBLE COUPLING FOR STEEL PIPE	
RESTRAINED FLEXIBLE COUPLING FOR FLANGED PIPE	
DISMANTLING JOINT	
EXPANSION JOINT	
PIPE SUPPORT (P608)	

SCHEMATIC VALVES

EXISTING	PROPOSED	
		AIR VACUUM AND AIR RELEASE ASSEMBLY
		ANGLE
		BACK-PRESSURE
		BALL
		BALL CHECK
		BUTTERFLY
		CHECK
		DIAPHRAGM
		GATE
		GLOBE
		MULTIPORT - 3 WAY
		NEEDLE
		PLUG
		PRESSURE RELIEF
S	S	SOLENOID
		PRESSURE REDUCING
		GATE VALVE, BURIED WITH VALVE BOX
		BUTTERFLY VALVE, BURIED WITH VALVE BOX
		ECCENTRIC PLUG VALVE, BURIED WITH VALVE BOX
PT	PT	PRESSURE TRANSDUCER
PS	PS	PRESSURE SWITCH
		CHECK CHANGE IN PIPE MATERIAL
P	P	MOTOR OPERATOR FOR VALVES (P = PNEUMATIC)
M	M	MOTOR OPERATOR FOR VALVES (M = ELECTRIC)
G	G	PRESSURE GAUGE
		FLOW TUBE
M M	M M	MAGNETIC METER
P M	P M	PROPELLER METER
F M	F M	FLOW METER

- ROTAMETER (SIDE)
- ROTAMETER (TOP/BOTTOM)
- INJECTOR OR EDUCATOR
- PIPE SUPPORT (IN PLAN)
- PULSATION DAMPENER
- BACK FLOW PREVENTOR
- FLANGED FITTING
- MECHANICAL-TYPE FITTING (GROOVED)
- SCREWED, WELDED, SOCKET-WELD, BELL AND SPIGOT OR HUBLESS FITTING
- STOP GATE
- SLIDE GATE
- SLUICE GATE
- FH FIRE HYDRANT
- HUB DRAIN
- FLOOR DRAIN
- FLOOR SINK
- YARD HYDRANT
- PIPE END
- SLEEVE TYPE COUPLING
- FLANGED ADAPTER
- MECHANICAL TYPE COUPLING
- FLEXIBLE COUPLING
- UNION
- QUICK DISCONNECT COUPLER
- CAPPED END OR PLUGGED END
- BLIND FLANGE
- REDUCER OR INCREASER
- STRAINER
- DRAIN
- AIRGAP

- CENTRIFUGAL OR TURBINE PUMP, OR FAN
- CHEMICAL FEED PUMP
- SUMP PUMP
- M MIXER
- M MAGNETIC FLOW METER
- S SAMPLE TAP

THREE LINE VALVES

- GATE
- BUTTERFLY
- SILENT GLOBE CHECK
- CHECK
- BALL
- PLUG

NO.	REVISION	BY	DATE

DESIGN DLP
DRAWN SCB
CHECKED EJS
APPROVED

PROFESSIONAL ENGINEER REGISTERED 17900 STATE OF IDAHO EDMOND JAMES STONE 5-26-21

Mountain WATERWORKS
ENGINEERING AND ENVIRONMENTAL SOLUTIONS
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BOISE, IDAHO 83702
208.780.3990
IDAHO OFFICES
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CITY OF NEW MEADOWS
WATER SYSTEM IMPROVEMENTS PROJECT
NEW MEADOWS, IDAHO
LEGEND AND SYMBOL CALLOUTS

VERIFY SCALE
BAR IS ONE INCH ON FULL SIZE DRAWING
0 1"

PROJECT	197.0010.01
DATE	8/6/2019
DRAWING NO.	G-4

Path: C:\MWW\Dropbox (Mountain Waterworks)\CAD\Pro\M-R\New Meadows, 197\0010 Well House, Distribution\CDD\G-4 Legend_Symb Callouts.dwg File Name: G-4 Legend_Symb Callouts.dwg Plot Date: 5/25/2021 3:50 PM SBennett

NORTH

0 10 20 40 60

SCALE: 1" = 20'

KEY NOTES ◇#

1. DEMOLISH BOARD AND WIRE FENCE
2. CONNECT TO EXISTING FENCE, SEE DETAIL C612/TD-3
3. CENTER ROAD ON GATE
4. WELL LOT SURFACING PER C203/TD-2
5. NOT USED
6. RELOCATE EXISTING SIGN AND INSTALL PER C620/TD-3
7. NOT USED
8. NOT USED
9. NOT USED
10. NEW WELL HOUSE, SEE SHEET M-1
11. 8"x6" TAPPING SLEEVE AND 6" GATE VALVE WITH THRUST BLOCKING
12. DRAINAGE AREA FOR WELL FLUSHING
13. EXISTING SHALLOW CISTERN
14. PUMP TO WASTE OUTLET
15. NOT USED
16. EXISTING WELL
17. SEEPAGE BED TO BE 10' x 4' LxW. PERFORATED DRAIN PIPE TO EXTEND LENGTH OF SEEPAGE BED.
18. CONTRACTOR TO DISPOSE OF APPROXIMATELY 40 CUBIC YARDS OF WELL DRILLING CUTTINGS FROM SETTLING PIT AT THIS LOCATION.
19. DRILLING EQUIPMENT PAD AND TEMPORARY ACCESS ROAD WERE CONSTRUCTED DURING WELL DRILLING OPERATIONS. DRILL PAD AND ACCESS ROAD WERE CONSTRUCTED FROM APPROXIMATELY 230 CUBIC YARDS OF 3"- PIT RUN AND 48 CUBIC YARDS OF CRUSHED ROCK ROAD MIX. CONTRACTOR MAY USE THESE MATERIALS AS NEEDED TO COMPLETE SITE WORK AND ACCESS ROAD.

S. NORRIS AVENUE

KATHERINE AVENUE

RESIDENCE

BARN

WELL HOUSE

GRADE TO MATCH EXISTING S. NORRIS AVE

MATCH EXISTING

MATCH EXISTING

PAYLIMIT: WELL HOUSE SITE GRADING & DRAINAGE

PAYLIMIT: WELL HOUSE MECHANICAL

PAYLIMIT: GRAVEL ACCESS ROAD

2 C-3 TYPICAL WELL HOUSE GRAVEL ACCESS ROAD

N: 1204794.65
E: 2488098.37
ELEV: 3875.96
PROJECT BENCHMARK

N: 1204814.55
E: 2488088.08

C135 TD-2 · C225 TD-3 · C611 TD-3 · C140 TD-2 · C150 TD-2 PMP-P5 · C111 TD-1 · C110 TD-1 · C203 TD-2 · C610 TD-3

1 C-3

8" DR (P3) · 4" DR (P3) · 6" PW (D3) · 6"W

3876.8 · 3876.0 · 3875.60 · 3875.20 · 3874.80

S 89°38'54" W 150.00' · N 00°21'42" W 90.00' · S 00°21'42" E 90.00' · N 89°38'54" E 150.00'

81' · 55' · 69' · 25' · 53' · R10' · R20' · R20' TYP.

3875 · 3873 · 3872 · 3874 · 3876 · 3875 · 3874

MH · MH

Path: C:\MWW Dropbox (Mountain Waterworks)\CAD Pro\M-R\New Meadows, 197\0010 Well House Distribution\CUD\C-1.dwg File Name: C-1.dwg Plot Date: 5/25/2021 3:50 PM SBennett

NO.	REVISION	BY	DATE

DESIGN DLP · DRAWN SCB · CHECKED EJS · APPROVED

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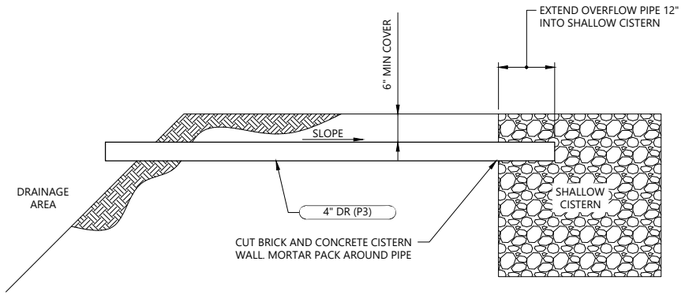
CITY OF NEW MEADOWS WATER SYSTEM IMPROVEMENTS PROJECT

NEW MEADOWS, IDAHO

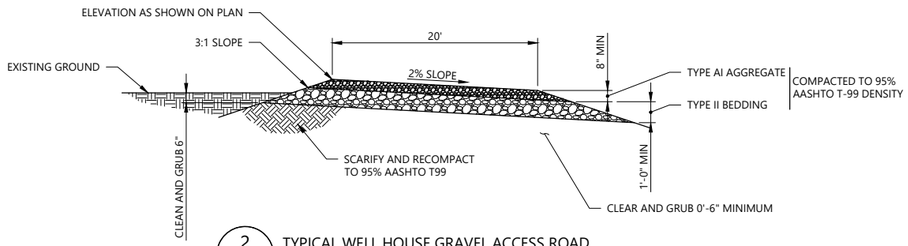
WELL HOUSE SITE PLAN

VERIFY SCALE
BAR IS ONE INCH ON FULL SIZE DRAWING
0 1"

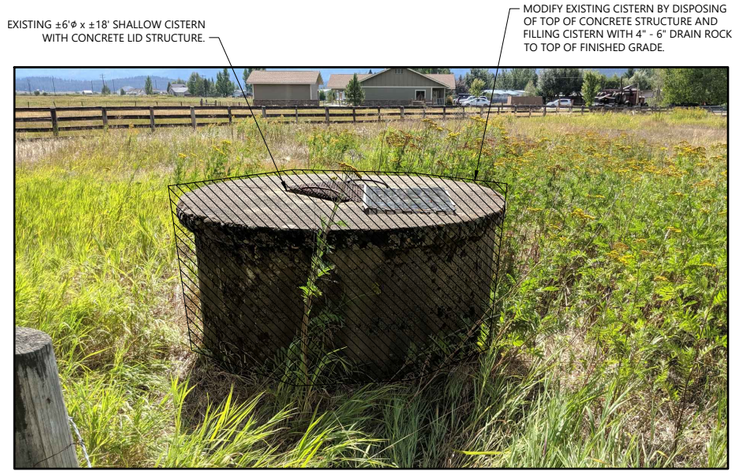
PROJECT	197.0010.01
DATE	8/6/2019
DRAWING NO.	C-1



1 / C-2 DRAINAGE AREA OVERFLOW TO SHALLOW CISTERN
NOT TO SCALE



2 / C-2 TYPICAL WELL HOUSE GRAVEL ACCESS ROAD
NOT TO SCALE



PHOTO

NO.	REVISION	BY	DATE

DESIGN: DLP
DRAWN: SCB
CHECKED: EJS
APPROVED

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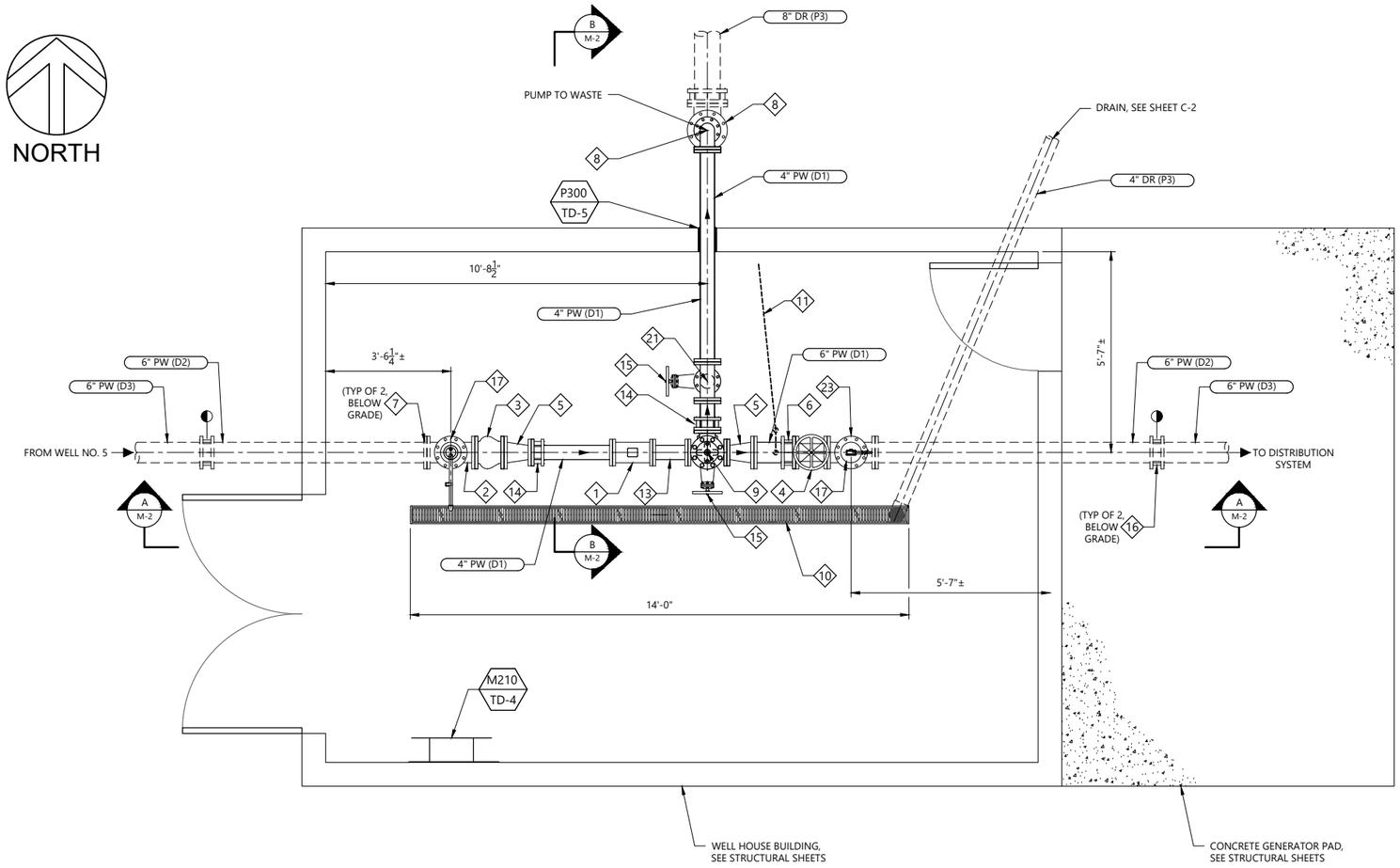
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CITY OF NEW MEADOWS
WATER SYSTEM IMPROVEMENTS PROJECT
NEW MEADOWS, IDAHO
WELL HOUSE SITE SECTIONS AND DETAILS

VERIFY SCALE
BAR IS ONE INCH ON FULL SIZE DRAWING
0 1"

PROJECT 197.0010.01
DATE 8/6/2019
DRAWING NO. C-2

Path: C:\MWWDropbox (Mountain Waterworks)\CAD\Proj\M-R\New Meadows, 197\0010 Well House Distribution\CD\DC-2.dwg File Name: C-2.dwg Plot Date: 9/25/2021 3:50 PM SBennett



WELL HOUSE MECHANICAL - PLAN

SCALE: 1/2" = 1'-0"

KEY NOTES ◇#

1. 4" MAGNETIC FLOWMETER.
2. 6" TEE.
3. 6" GLOBE CHECK VALVE.
4. 6" GATE VALVE FLG X FLG W/ HANDWHEEL OPERATOR.
5. 6" X 4" REDUCER.
6. 6" RESTRAINED FLANGED COUPLING ADAPTER, ROMAC RFCA.
7. 6" 90° FLG X FLG ELBOW.
8. 4" 90° FLG X FLG ELBOW.
9. 4" REDUCED PORT PRESSURE RELIEF VALVE, CLA-VAL MODEL 650-01 OR EQUAL.
10. 5" TRENCH DRAIN WITH METAL GRATE (TYP), SLOPE TOWARDS DRAIN LINE.
11. 2" PVC SCH 80 CONDUIT, UNDER SLAB, USE LONG RADIUS BENDS.
12. COMPOSITE BODY COMBINATION AIR VALVE, 3/4" NPT PROCESS CONNECTION, CONFIGURATION 'C'.
13. 4" FLG X FLG DI SPOOL
14. 4" RESTRAINED FLANGED COUPLING ADAPTER, ROMAC RFCA.
15. 4" GATE VALVE FLG X FLG W/ HANDWHEEL OPERATOR.
16. 6" COUPLING, ROMAC 501.
17. 6" BLIND FLANGE, TAPPED.
18. 6" UNI FLANGE.
19. 8" X 4" FLG REDUCER.
20. NOT USED.
21. 4" TEE.
22. NOT USED.
23. 8" FLANGED COUPLING ADAPTER, ROMAC FCA.
24. 8" 90° FLG X FLG ELBOW.
25. WOVEN 14 GAUGE ALUMINUM WIRE, 3 OPENINGS PER INCH. SECURE TO PIPE FLANGES WITH TWO BAND CLAMPS.
26. 4" DIA. NPT THREADED GALVANIZED STEEL OR BRASS PIPE NIPPLE, 16" LONG.
27. 8" X 4" FLG REDUCER.
28. 8" X 4" NPT DI COMPANION FLANGE.

NO.	REVISION	BY	DATE

DESIGN: DLP
DRAWN: SCB
CHECKED: EJS
APPROVED:

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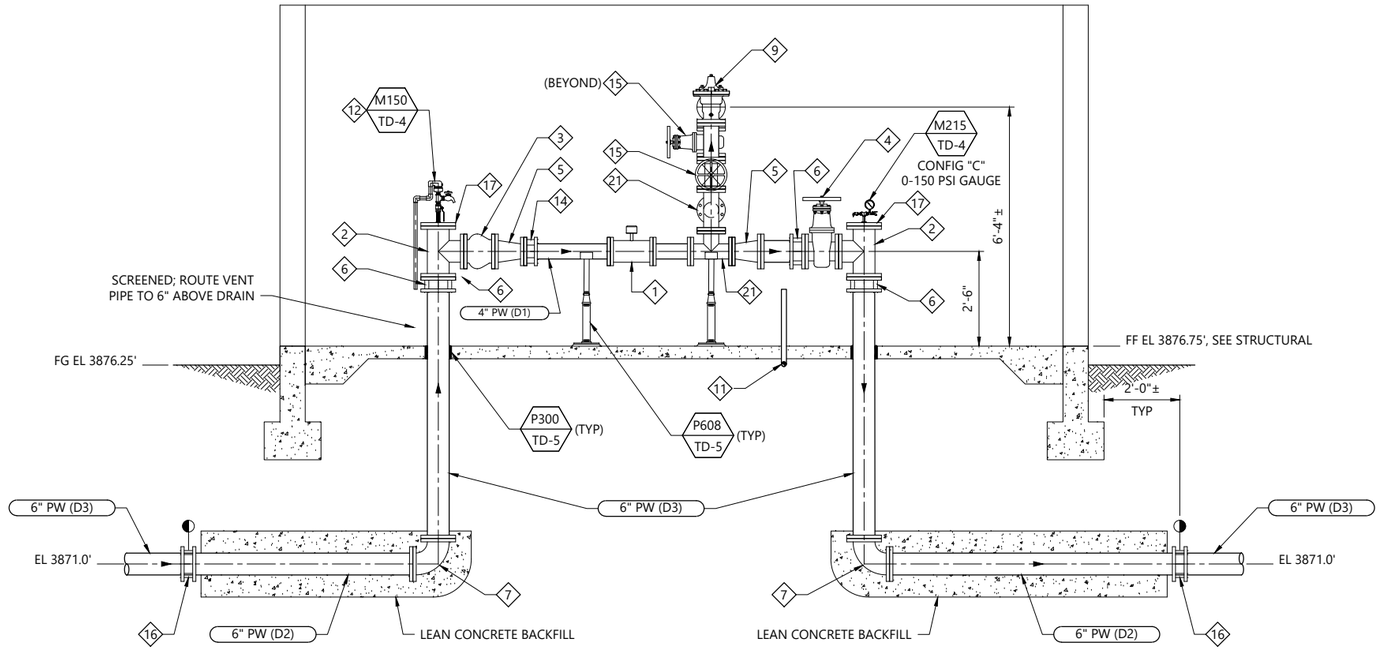
CITY OF NEW MEADOWS
WATER SYSTEM IMPROVEMENTS PROJECT

NEW MEADOWS, IDAHO
WELL HOUSE MECHANICAL PLAN

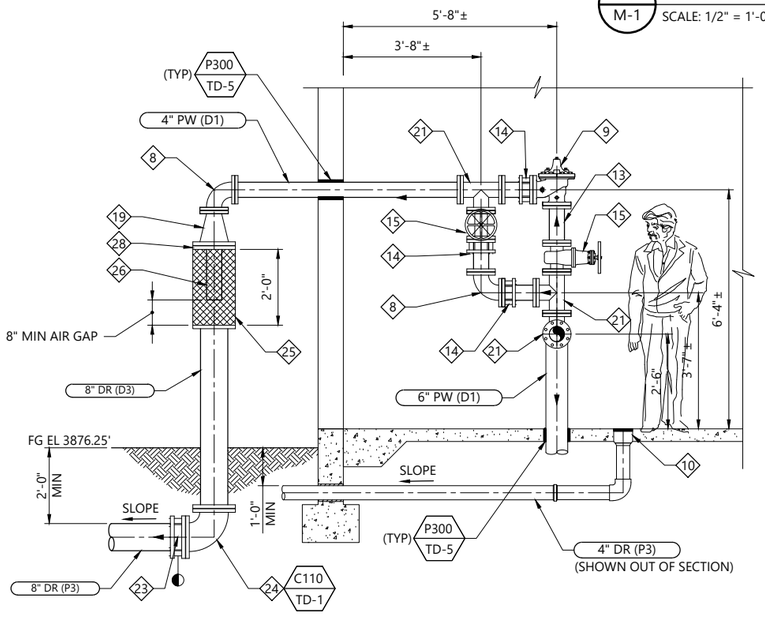
VERIFY SCALE
BAR IS ONE INCH ON FULL SIZE DRAWING
0 1"

PROJECT	197.0010.01
DATE	8/6/2019
DRAWING NO.	M-1

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A M-1 WELL HOUSE MECHANICAL - SECTION
SCALE: 1/2" = 1'-0"



B M-1 WELL HOUSE MECHANICAL - SECTION
SCALE: 1/2" = 1'-0"

KEY NOTES

1. 4" MAGNETIC FLOWMETER.
2. 6" TEE.
3. 6" GLOBE CHECK VALVE.
4. 6" GATE VALVE FLG X FLG W/ HANDWHEEL OPERATOR.
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20. NOT USED.
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27. 8" X 4" FLG REDUCER.
28. 8" X 4" NPT DI COMPANION FLANGE.

NO.	REVISION	BY	DATE

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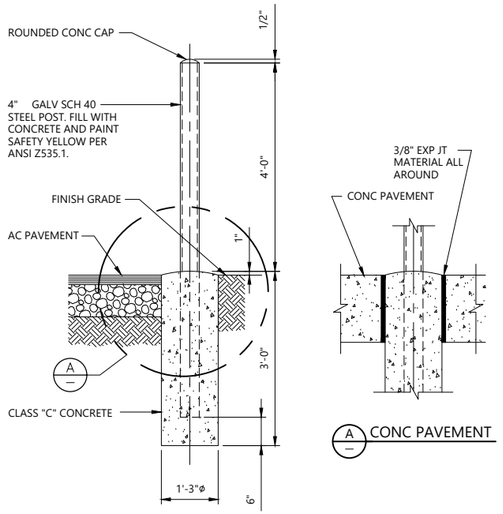
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CITY OF NEW MEADOWS
WATER SYSTEM IMPROVEMENTS PROJECT
NEW MEADOWS, IDAHO
WELL HOUSE MECHANICAL SECTIONS

VERIFY SCALE
BAR IS ONE INCH ON FULL SIZE DRAWING
0 1"

PROJECT	197.0010.01
DATE	8/6/2019
DRAWING NO.	M-2

Path: C:\MWW\Dropbox (Mountain Waterworks)\CAD Proj\M-R\New Meadows_197\0010 Well House Distribution\CDDM-2.dwg File Name: M-2.dwg Plot Date: 5/25/2021 3:50 PM SBennett



AC PAVEMENT AND FINISH GRADE

C102 TYP BOLLARD
NOT TO SCALE

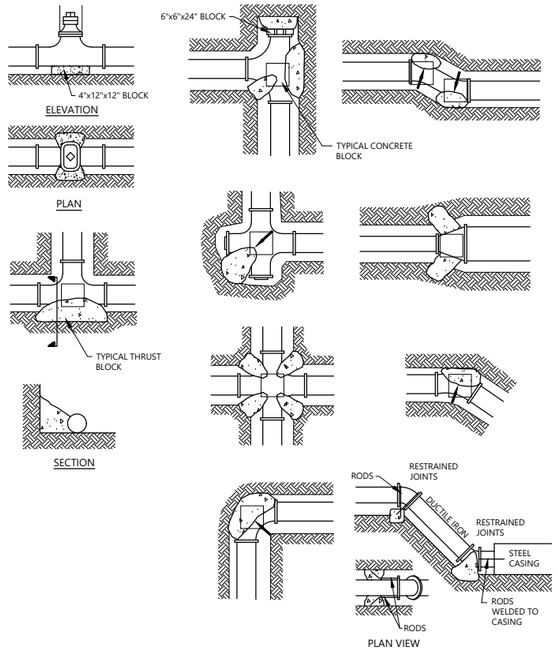


TABLE 1
THRUST AREA FOR HORIZONTAL BENDS***

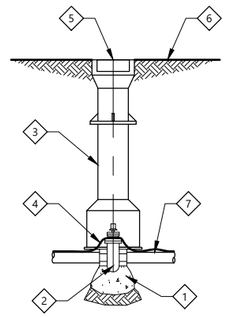
SOIL BEARING PRESSURE = 2000 PSF WORKING PRESSURE RATING = 150 PSI SAFETY FACTOR = 1.5				
	MINIMUM SQUARE FEET OF THRUST AREA ONTO UNDISTURBED EARTH*			
PIPE SIZE	TEE, PLUG OR VALVE	90° BEND**	45° BEND	22.5°, 11.25° BENDS OR REDUCER
3	0.8	1.1	0.6	0.3
4	1.4	2.0	1.1	0.6
6	3.2	4.5	2.4	1.2
8	5.7	8.0	4.3	2.2
10	8.8	12.5	6.8	3.4
12	12.7	18.0	9.7	5.0
14	17.3	24.5	13.3	6.8
16	22.6	32.0	17.3	8.8
18	28.6	40.5	21.9	11.2

* MUST BE INCREASED BASED ON DIFFERENT CONDITIONS (HIGHER WORKING PRESSURE OR LOWER SOIL; BEARING STRENGTH).
** OR TEE ACTING AS A 90° BEND
*** THRUST BLOCK DEPTH TO BE A MINIMUM OF 12" FOR PIPE SIZES 3"-8" AND 18" FOR PIPE SIZES 10"-18" OR THE SQUARE ROOT OF THE REQUIRED BEARING AREA, WHICHEVER IS GREATER.

GENERAL NOTES:

1. ALL CONCRETE SHALL HAVE A MINIMUM TWENTY-EIGHT(28) DAY COMPRESSIVE STRENGTH OF NOT LESS THAN 2500 PSI.
2. THRUST BLOCKING SHALL BE PLACED BETWEEN UNDISTURBED EARTH AND THE FITTING TO BE ANCHORED.
3. THRUST BLOCKING SHALL BE PLACED SO THAT THE PIPE AND FITTING JOINTS WILL BE ACCESSIBLE TO REPAIRS.
4. ALL FITTINGS SHALL HAVE A 12"X12"X4" CONCRETE SUPPORT BLOCK.
5. WRAP BOLTS, FLANGES, AND FITTINGS WITH 6 MIL POLYPROPYLENE TO PROTECT FROM CONCRETE ADHERENCE DURING INSTALLATION OF THRUST BLOCKS.

C110 TYP THRUST BLOCKS
NOT TO SCALE



STANDARD VALVE BOX DETAIL
NOT TO SCALE

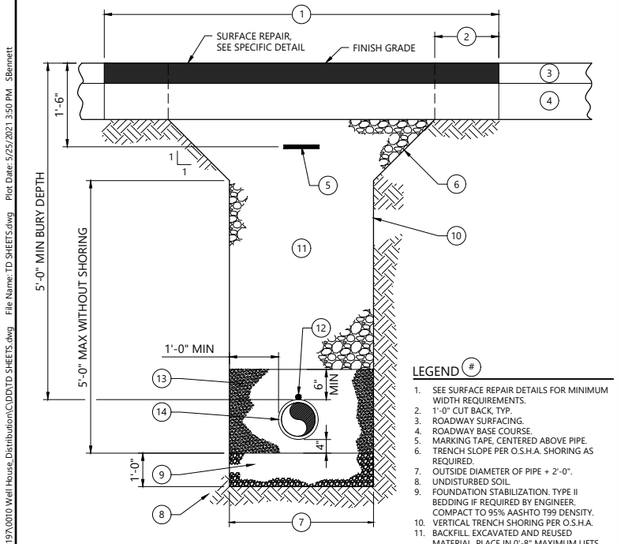
NOTES:

A. ALL VALVES TO BE LOCATED AT THE WATER MAIN AS SHOWN ON THE PLAN SHEET OR AS DIRECTED BY THE ENGINEER. WHERE EXISTING FITTINGS ARE NOT COMPATIBLE WITH NEW MAIN CONSTRUCTION. USE SUITABLE ADAPTERS OR NEW FITTINGS UPON APPROVAL BY THE ENGINEER.
B. ALL ANCHORS AND BLOCKING TO BEAR AGAINST UNDISTURBED SOIL.
C. PLACE LOCATOR WIRE DIRECTLY ABOVE PIPE. SECURE FINDER WIRE UNDER (MJ) BOLT AT MAIN.
D. JOINT RESTRAINT DEVICES MAY BE USED AS AN ALTERNATE TO THRUST BLOCK WITH ENGINEER'S APPROVAL.

LEGEND (#)

1. VALVE SUPPORT (PRECAST OR CAST IN PLACE).
2. GATE OR PLUG VALVE. SIZE, TYPE, MATERIAL, AND END CONNECTIONS AS INDICATED ON CIVIL PLANS.
3. CAST IRON VALVE BOX, TYLER NO. 6855 OR EQUAL.
4. NO. 12 AWG. COPPER WIRE FINDER.
5. 5 1/4" STANDARD VALVE BOX LID, TYLER NO. 6855 OR EQUAL.
6. FINISHED GRADE.
7. WATER MAIN PIPE.

C111a TYP VALVE BOX AND LID DETAIL
NOT TO SCALE



LEGEND (#)

1. SEE SURFACE REPAIR DETAILS FOR MINIMUM WIDTH REQUIREMENTS.
2. 1'-0" CUT BACK, TYP.
3. ROADWAY SURFACING.
4. ROADWAY BASE COURSE.
5. MARKING TAPE, CENTERED ABOVE PIPE.
6. TRENCH SLOPE PER O.S.H.A. SHORING AS REQUIRED.
7. OUTSIDE DIAMETER OF PIPE + 2'-0".
8. UNDISTURBED SOIL.
9. FOUNDATION STABILIZATION. TYPE II BEDDING IF REQUIRED BY ENGINEER. COMPACT TO 95% AASHTO T99 DENSITY.
10. VERTICAL TRENCH SHORING PER O.S.H.A.
11. BACKFILL. EXCAVATED AND REUSED MATERIAL. PLACE IN 0'-8" MAXIMUM LIFTS. COMPACT TO 95% AASHTO T99 DENSITY.
12. NO. 12 AWG COPPER LOCATING WIRE WITH INSULATION. TAPE TO TOP OF PIPE.
13. PIPE BEDDING, TYPE I. COMPACT TO 95% AASHTO T-99 DENSITY.
14. PIPE. SIZE, TYPE, AND CLASS AS IDENTIFIED ON THE DRAWINGS.

C117 TYP TRENCH DETAIL - WATER
NOT TO SCALE

NO.	REVISION	BY	DATE

DESIGN DLP
DRAWN STC
CHECKED EJS
APPROVED

REGISTERED PROFESSIONAL ENGINEER
17900
5-26-21
EDMOND JAMES STOWE
STATE OF IDAHO

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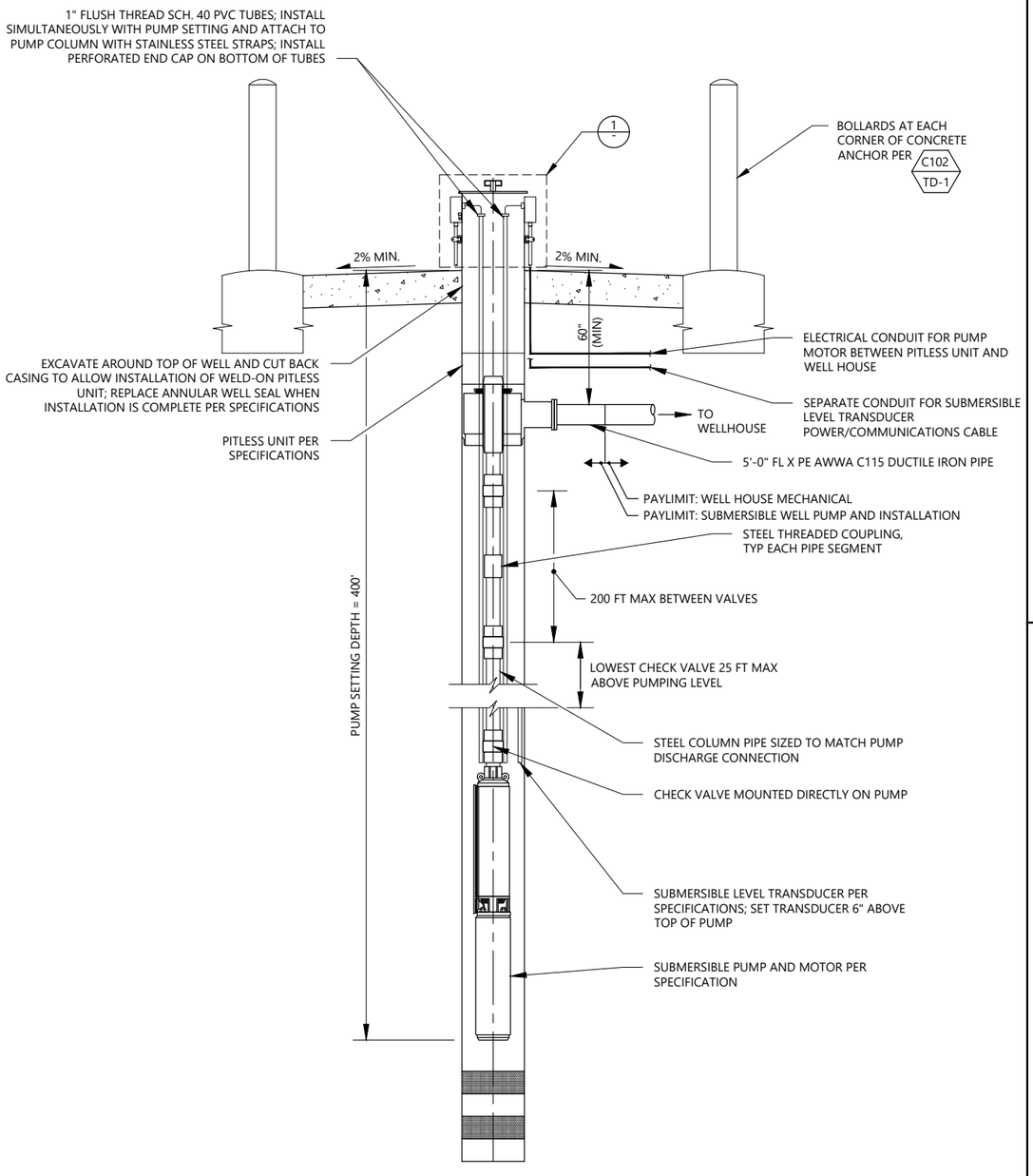
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CITY OF NEW MEADOWS
WATER SYSTEM IMPROVEMENTS PROJECT
NEW MEADOWS, IDAHO
TYPICAL DETAILS

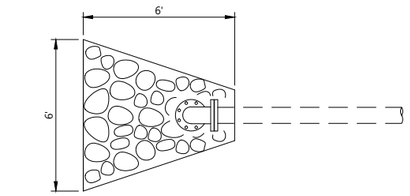
VERIFY SCALE
BAR IS ONE INCH ON FULL SIZE DRAWING
0 1"

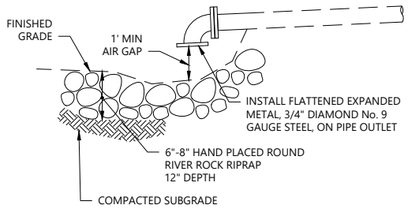
PROJECT 197.0010.01
DATE 8/6/2019
DRAWING NO. TD-1

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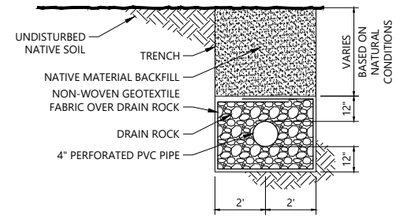


C150a TYP SUBMERSIBLE WELL PUMP, MOTOR, PITLESS UNIT, & ACCESSORIES DETAIL
NTS

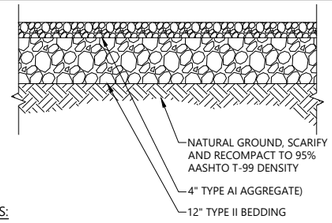




C135 TYP PIPE OUTFALL
NOT TO SCALE



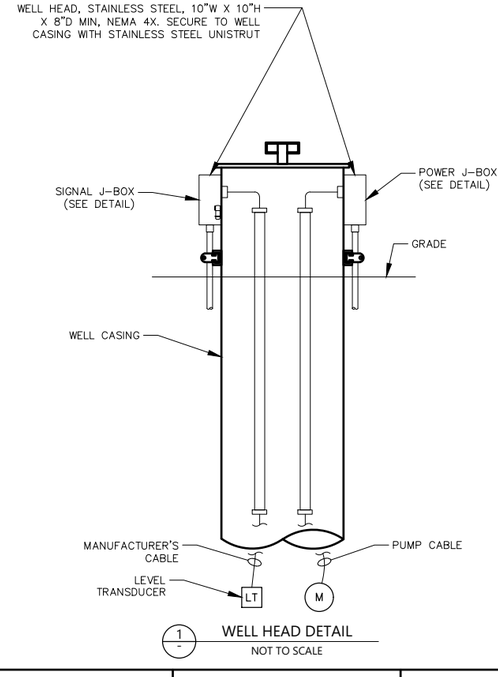
C140 TYP SEEPAGE BED
NOT TO SCALE



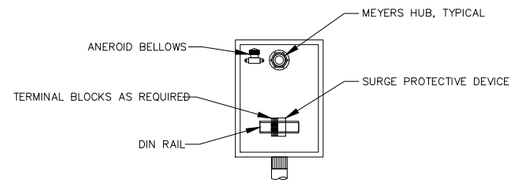
NOTES:

1. ALL MATERIAL TO BE COMPACTED TO AT LEAST 95% OF OPTIMUM DENSITY PER APPROPRIATE AASHTO STANDARD PROCTORS.
2. COMPLETED SECTION SHALL NOT POND/POOL WATER.
3. GRAVEL PAD SECTION SHALL SLOPE A MIN OF 1% AWAY FROM BUILDINGS FOR A DISTANCE NO LESS THAN 10' OUT UNLESS NOTED OTHERWISE.

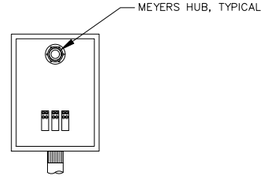
C203 TYP GRAVEL PAD SECTION
NOT TO SCALE



1 WELL HEAD DETAIL
NOT TO SCALE



WELL HEAD SIGNAL J-BOX LAYOUT
NOT TO SCALE



WELL HEAD POWER J-BOX LAYOUT
NOT TO SCALE

NO.	REVISION	BY	DATE

DESIGN DLP
DRAWN SCB
CHECKED EJS
APPROVED

PROFESSIONAL ENGINEER REGISTERED 17900 EDMOND JAMES STOWE STATE OF IDAHO

Mountain WATERWORKS

ENGINEERING AND ENVIRONMENTAL SOLUTIONS
1161 W RIVER ST, STE 130
BOISE, IDAHO 83702
208.780.3990

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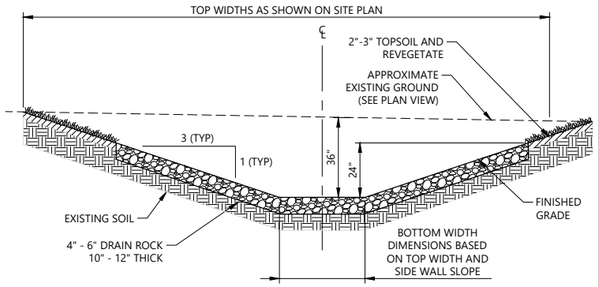
CITY OF NEW MEADOWS
WATER SYSTEM IMPROVEMENTS PROJECT

NEW MEADOWS, IDAHO
TYPICAL DETAILS

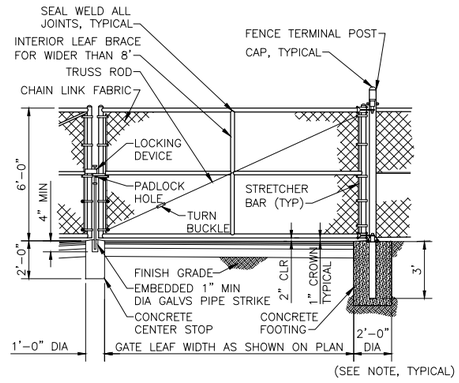
VERIFY SCALE
BAR IS ONE INCH ON FULL SIZE DRAWING
0 1"

PROJECT	197.0010.01
DATE	8/6/2019
DRAWING NO.	TD-2

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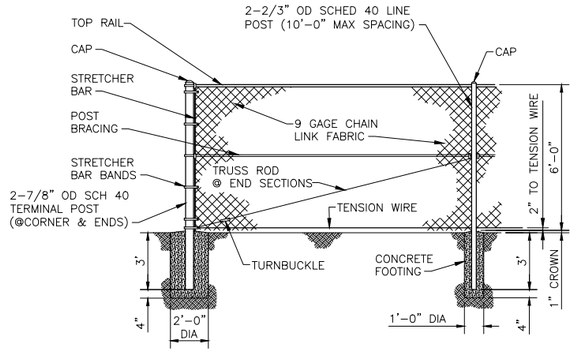
C225 TYP DRAINAGE AREA DETAIL
NOT TO SCALE



NOTE:
1. USE 4'-0" DIA CONCRETE
2. FOOTING HOLE FOR POST
3. DIA GREATER THAN 6".

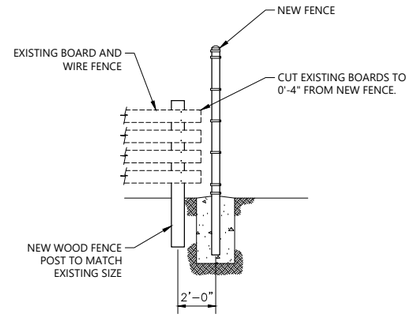
GATE POST SCHEDULE	
LEAF SPAN	NOMINAL DIAMETER
< 6'	3"
6'-12'	5"
12'-18'	6"
18'-24'	8"

C610 TYP SECURITY GATE DETAIL
NOT TO SCALE



GENERAL NOTES:
1. INSTALL PRIVACY SLATS. COLOR TO BE DETERMINED.

C611 TYP SECURITY FENCE DETAIL
NOT TO SCALE



INCLUDE IN FENCING BID ITEM

C612 TYP CONNECT TO EXISTING FENCE
NOT TO SCALE

NO.	REVISION	BY	DATE

DESIGN: DLP
DRAWN: CDS
CHECKED: EJS
APPROVED:

PROFESSIONAL ENGINEER REGISTERED 17900 5-26-21 EDMOND JAMES STONE STATE OF IDAHO

Mountain WATERWORKS

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BOISE, IDAHO 83702
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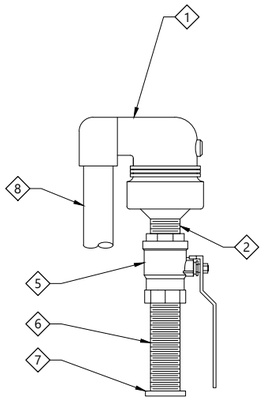
CITY OF NEW MEADOWS
WATER SYSTEM IMPROVEMENTS PROJECT

NEW MEADOWS, IDAHO
TYPICAL DETAILS

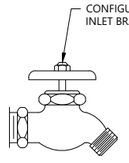
VERIFY SCALE
BAR IS ONE INCH ON FULL SIZE DRAWING
0 1"

PROJECT 197.0010.01
DATE 8/6/2019
DRAWING NO. TD-3

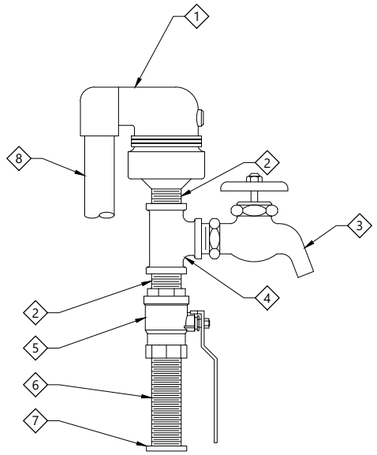
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CONFIGURATION "A"



CONFIGURATION "B"
(INC. THREADED HOSE BIBB)



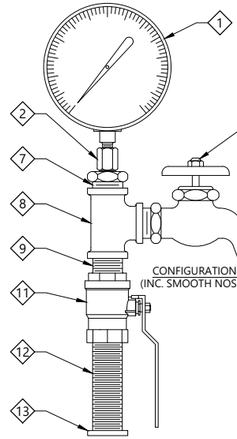
CONFIGURATION "C"
(INC. SMOOTH NOSE SAMPLE TAP)

CONFIGURATION C: 3/4" MNPT INLET BRASS THREADED HOSE BIBB

KEY NOTES #

1. COMBINATION AIR VALVE.
2. 3/4" MNPT NIPPLE.
3. 3/4" MNPT CHROME-PLATED BRASS SMOOTH NOSE SAMPLE TAP
4. 3/4"FNPT BRASS TEE.
5. 3/4" FNPT BRASS FULL PORT QUARTER TURN LEVER HANDLE BALL VALVE, APOLLO OR EQUAL.
6. 3/4" MNPT BRASS NIPPLE, PROVIDE SUFFICIENT LENGTH FOR CLEARANCE TO TURN BALL VALVE HANDLE.
7. 3/4" MNPT PROCESS CONNECTION, SEE MECHANICAL SHEETS.
8. 3/4" GIP CONNECTION TO FLOOR DRAIN. PROVIDE 18" MINIMUM AIR GAP AT OUTLET.

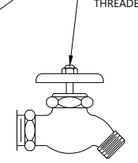
M150 TYP — COMBINATION AIR VALVE-SINGLE BODY



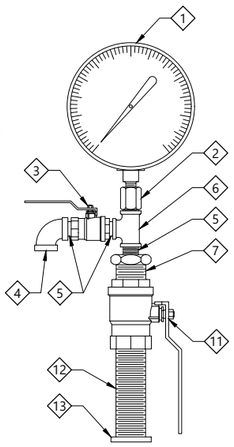
CONFIGURATION "A"
(INC. SMOOTH NOSE TAP)

CONFIGURATIONS A AND C: 3/4" MNPT CHROME-PLATED BRASS SMOOTH NOSE SAMPLE TAP

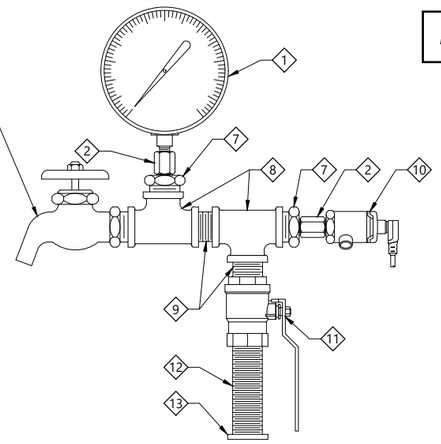
CONFIGURATION B: 3/4" MNPT INLET BRASS THREADED HOSE BIBB



CONFIGURATION "B"
(INC. THREADED HOSE BIBB)



CONFIGURATION "D"



CONFIGURATION "C"

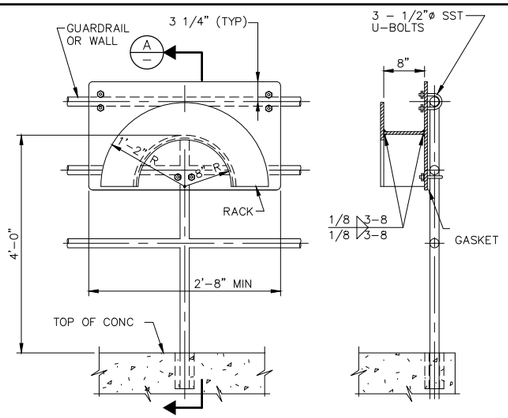
KEY NOTES #

1. STAINLESS STEEL GLYCERIN-FILLED PRESSURE GAUGE WITH 1/4" MNPT PROCESS CONNECTION AND 2.5" DIAL. WIKA OR EQUAL.
2. 1/4" MNPT X FNPT BRASS SNUBBER, WIKA OR EQUAL.
3. 1/4" FNPT BRASS FULL PORT QUARTER TURN LEVER HANDLE BALL VALVE, APOLLO OR EQUAL.
4. 1/4" MNPT BRASS ELBOW.
5. 1/4" MNPT BRASS NIPPLE.
6. 1/4"FNPT BRASS TEE.
7. 3/4" MNPT x 1/4"FNPT BRASS BUSHING.
8. 3/4" FNPT BRASS TEE.
9. 3/4" FNPT BRASS NIPPLE.
10. PRESSURE TRANSDUCER, SEE ELECTRICAL/CONTROLS SHEETS.
11. 3/4" FNPT BRASS FULL PORT QUARTER TURN LEVER HANDLE BALL VALVE, APOLLO OR EQUAL.
12. 3/4" MNPT BRASS NIPPLE, PROVIDE SUFFICIENT LENGTH FOR CLEARANCE TO TURN BALL VALVE HANDLE.
13. 3/4" MNPT PROCESS CONNECTION, SEE MECHANICAL SHEETS.

NOTE:

1. PRESSURE GAUGE MEASUREMENT RANGE SPECIFIED IN MECHANICAL SHEETS KEY NOTES.

M215 TYP — PRESSURE GAUGE W/ HOSE BIBB



NOTES:

1. HOSE RACK SHALL BE FABRICATED FROM 3/16" ALUMINUM PLATE. ROUND ALL EDGES SMOOTH.
2. GUARDRAIL INSTALLATION SHOWN.
3. HOSE RACKS INSTALLED IN YARD LOCATIONS SHALL BE MOUNTED ON POST. THE POST SHALL BE TS 3 x 3 x 0.1875 x 4'-0" HOT-DIP GALVANIZED AND SHALL BE SET IN CONCRETE 18" Ø x 18" DEEP. WELD CAP ON TOP OF POST.
4. HOSE RACKS INSTALLED IN STRUCTURES SHALL BE WALL MOUNTED. FASTEN RACK TO WALL WITH 2- 5/8" Ø SST CONCRETE ANCHORS. FOR MASONRY WALLS, FASTEN TO GROUTED CELLS.

M210 TYP — HOSE RACK

NO.	REVISION	BY	DATE

DESIGN: DLP
DRAWN: SCB
CHECKED: EJS
APPROVED

PROFESSIONAL ENGINEER REGISTERED EDMOND JAMES STONE 17900 STATE OF IDAHO 5-26-21

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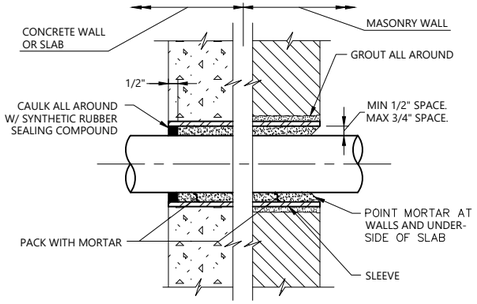
CITY OF NEW MEADOWS
WATER SYSTEM IMPROVEMENTS PROJECT

NEW MEADOWS, IDAHO
TYPICAL DETAILS

VERIFY SCALE
BAR IS ONE INCH ON FULL SIZE DRAWING
0 1"

PROJECT	197.0010.01
DATE	8/6/2019
DRAWING NO.	TD-4

Path: C:\MWW\Dropbox (Mountain Waterworks)\CAD\Proj\M-R\New Meadows_197\0010 Well House Distribution\CDD\TD SHEETS.dwg File Name: TD SHEETS.dwg Plot Date: 5/25/2021 3:50 PM SBennett



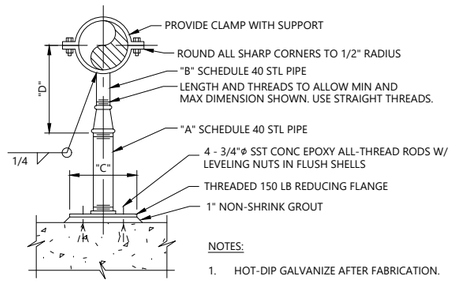
NOTES:

1. 6"ø DIAMETER SLEEVES AND SMALLER SHALL BE SCHEDULE 40 STEEL PIPE OR SCHEDULE 80 PVC PIPE.
2. SLEEVES LARGER THAN 6"ø SHALL BE 1/4" THICK STEEL PIPE.
3. STEEL SLEEVE SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.
4. SLEEVES FOR ELECTRICAL CONDUIT SHALL BE SCHEDULE 80 PVC.

P300 TYP — SLEEVE INSTALLATION THROUGH DRY WALLS AND FLOOR SLABS
NOT TO SCALE

ADJUSTABLE PIPE SADDLE SUPPORT SCHEDULE
DIMENSIONS IN INCHES

SIZE OF SUPPORTED PIPE	PIPE SIZE "A"	PIPE SIZE "B"	"C"	"D" MINIMUM	"D" MAXIMUM
2 1/2*	2 1/2	1 1/2	9	8	13
3	2 1/2	1 1/2	9	8 1/2	13 1/2
3 1/2	2 1/2	1 1/2	9	8 1/2	13 1/2
4	3	2 1/2	9	9 1/2	14
6	3	2 1/2	9	10 1/2	15 1/2
8	3	2 1/2	9	11 1/2	16 1/2
10	3	2 1/2	9	13 1/2	18 1/2
12	3	2 1/2	9	15	19 1/2
14	4	3	11	16 1/2	20 1/2
16	4	3	11	17 1/2	22 1/2
18	6	3 1/2	13 1/2	19 1/2	24
20	6	3 1/2	13 1/2	21	25 1/2
24	6	4	13 1/2	23 1/2	28 1/2
30	6	4	13 1/2	27	31 1/2
32	6	4	13 1/2	28 1/2	32 1/2
36	6	4	13 1/2	30 1/2	34 1/2



NOTES:

1. HOT-DIP GALVANIZE AFTER FABRICATION.
2. *USE 2 1/2" SUPPORTS FOR PIPES LESS THAN 2 1/2"

P608 TYP — ADJUSTABLE PIPE SUPPORT
NOT TO SCALE

Path: C:\MWW\Dropbox (Mountain Waterworks)\CAD\Proj\M-R\New Meadows, 197\0010 Well House Distribution\CDD\TD SHEETS.dwg File Name: TD SHEETS.dwg Plot Date: 5/25/2021 3:51 PM SBennett

NO.	REVISION	BY	DATE

DESIGN: DLP
DRAWN: SCB
CHECKED: EJS
APPROVED:

PROFESSIONAL ENGINEER REGISTERED 17900 STATE OF IDAHO EDMOND JAMES STONE 5-26-21

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CITY OF NEW MEADOWS
WATER SYSTEM IMPROVEMENTS PROJECT
NEW MEADOWS, IDAHO
TYPICAL DETAILS

VERIFY SCALE
BAR IS ONE INCH ON FULL SIZE DRAWING
0 1"

PROJECT 197.0010.01
DATE 8/6/2019
DRAWING NO. TD-5

INDEX

DRAWING INDEX	
SHEET NUMBER	SHEET TITLE
E0.1	DRAWING INDEX AND GENERAL NOTES
E0.2	ELECTRICAL SYMBOLS AND ABBREVIATIONS
E1.0	ONE-LINE DIAGRAM - WELL 5
E1.1	ELECTRICAL SITE PLAN - WELL 5
E1.2	ELECTRICAL LOCATION PLAN - WELL 5
E1.3	ELECTRICAL LIGHTING PLAN - WELL 5
E3.0	SYSTEM ARCHITECTURE
E4.1	CONTROL PANEL- LAYOUT
E4.2	CONTROL PANEL - BOM
E4.3	CONTROL PANEL - POWER SCHEMATIC
E4.4	CONTROL PANEL - LOOP DIAGRAM DIGITAL INPUT
E4.5	CONTROL PANEL - LOOP DIAGRAM DIGITAL OUTPUT
E4.6	CONTROL PANEL - LOOP DIAGRAM - ANALOG IO
E5.0	INSTRUMENT SCHEDULE
E6.0	VFD SCHEMATIC (TYP)
N0.1	PROCESS AND INSTRUMENTATION LEGEND (1 OF 2)
N0.2	PROCESS AND INSTRUMENTATION LEGEND (1 OF 2)
N1.0	P&ID - WELL 3 & RESERVOIR
N2.0	P&ID - BOOSTER STATION
N3.0	P&ID - WELL 4
N4.0	P&ID - WELL 5

1 DRAWING INDEX
SCALE: NTS

GENERAL NOTES

1. AREA ENVIRONMENTAL CLASSIFICATIONS:
   - WET AREAS: OUTDOORS & PROCESS AREAS
   - DRY AREAS: DEDICATED ELECTRICAL ROOMS
2. GENERAL CONDUIT REQUIREMENTS UNLESS NOTED OTHERWISE:
   - WET AREAS SHALL BE EMT.
   - DRY AREAS SHALL BE EMT.
   - UNDERGROUND CONDUIT OR ENCASED IN CONCRETE SHALL BE PVC SCH. 40.
3. MINIMUM ENCLOSURE REQUIREMENTS UNLESS NOTED OTHERWISE:
   - DRY AREAS: NEMA 1
   - WET AREAS: NEMA 4
4. ALL WORK SHALL BE DONE IN ACCORDANCE WITH 2017 NATIONAL ELECTRIC CODE, LOCAL ELECTRIC CODE AND OTHER LOCAL ORDINANCES.
5. ALL MATERIALS USED SHALL BE UL LISTED.
6. WHEN ELECTRICAL EQUIPMENT (PANELBOARDS, MOTOR CONTROL CENTERS, AND SWITCHGEAR) IS MOUNTED AGAINST A WALL IN ANY ROOM OF THE BUILDING, ELECTRICAL CONTRACTOR SHALL USE PROPER CAULKING MATERIALS TO SEAL THE SPACE BETWEEN THE EQUIPMENT AND THE WALLS WHERE IT IS MOUNTED.
7. ALL RACEWAY AND CABLE PENETRATIONS SHALL BE SEALED WITH APPROPRIATE RATED MATERIALS DESIGNED TO MAINTAIN NECESSARY FIRE RATINGS.
8. CABLE TRAY, CONDUIT, AND CABLE SHALL BE SUPPORTED PER NEC REQUIREMENTS AT A MINIMUM.
9. CONTRACTOR SHALL CIRCUIT NO MORE THAN SIX (6) 120V CONVENIENCE RECEPTACLES ON A SINGLE 15A CIRCUIT AND NO MORE THAN EIGHT (8) 120V CONVENIENCE RECEPTACLES ON A SINGLE 20A CIRCUIT.
10. AMPACITY OF ALL POWER CABLES LISTED IN THE CABLE SCHEDULE (IF PROVIDED) HAVE BEEN SIZED ACCORDING TO 2017 NEC USING 75°C COPPER WIRE UNO.
11. CONTRACTOR IS ALLOWED TO GROUP CIRCUITS TO CONSOLIDATE CONDUIT RUNS AT THEIR DISCRETION PROVIDED CIRCUIT CONDUCTORS ARE DERATED, AND CONDUIT AND J-BOXES ARE SIZED ACCORDING TO THE 2017 NEC. REVISE DRAWINGS AND CABLE/CONDUIT SCHEDULE TO MATCH.
12. E0.2 IS A STANDARD LEGEND SHEET. SOME SYMBOLS OR ABBREVIATIONS MAY APPEAR ON THIS DRAWING AND NOT ON THE PLANS.
13. FOR ADDITIONAL ABBREVIATIONS OF OTHER DIVISIONS (HVAC, MECHANICAL, AND STRUCTURAL/ARCHITECTURAL), SEE OTHER LEGENDS.
14. IF REFERENCED AS FUTURE, CONTRACTOR SHALL MAKE SPACE AND ELECTRICAL ALLOWANCES FOR BUT NOT PROVIDE OR INSTALL ASSOCIATED EQUIPMENT OR SYSTEMS EXCEPT WHERE REQUIRED BY OTHER CONTRACT DOCUMENTS. PROVIDE AND INSTALL UNDERGROUND CONDUIT, STUB UP AND CAP.
15. ALL PART NUMBERS CALLED OUT FOR MODELING PURPOSES. CONTRACTOR TO PROVIDE SAME OR EQUIVALENT UPON ENGINEERING APPROVAL.
16. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING A SET OF DRAWINGS SHOWING ANY FIELD CHANGES, ACTUAL CONDUIT ROUTING AND EQUIPMENT LOCATIONS. THE SET SHALL BE TURNED OVER TO THE ENGINEER AT THE END OF THE PROJECT.
17. CONNECTIONS BETWEEN RIGID CONDUIT AND MOTOR TERMINAL BOXES OR OTHE EQUIPMENT SUBJECT TO VIBRATION SHALL BE FLEXIBLE LIQUID-TIGHT CONDUIT UNO.
18. PANEL CONSTRUCTION SHALL ADHERE TO UL580A INDUSTRIAL CONTROL PANEL REQUIREMENTS.

2 GENERAL NOTES
SCALE: NTS

NO.	REVISION	BY	DATE
A	DESIGN FOR REVIEW	RDL	10/3/2019
B	90% REVIEW	RDL	2/24/2020
C	100% REVIEW	IBM	3/31/2020
D	FOR CONSTRUCTION	MTJ	6/15/2020

DESIGN RDL
DRAWN RDL
CHECKED MTJ
APPROVED PCC

PROFESSIONAL ENGINEER REGISTERED 9591 STATE OF IDAHO PETER C. COOK 6/30/20

PROJECT: 0228-18-02
1095 S FEDERAL WAY
BOISE, IDAHO 83705
(208) 433-9997
(208) 426-0550 FAX
Control Engineers

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CITY OF NEW MEADOWS
WATER SYSTEM IMPROVEMENTS
NEW MEADOWS, IDAHO
DRAWING INDEX AND GENERAL NOTES

VERIFY SCALE
BAR IS ONE INCH ON FULL SIZE DRAWING
0 1"

PROJECT	104.0060.06
DATE	OCT. 2019
DRAWING NO.	E0.1

Path: p:\0228 mountain waterworks llc\18-02 city of new meadows water system upgrades\Drawings\E0.1 DRAWING INDEX AND GENERAL NOTES.dwg File Name: E0.1 DRAWING INDEX AND GENERAL NOTES.dwg Plot Date: 8/26/2020 1:22 PM mtjohnson

ELECTRICAL LEGEND

SYMBOL	DESCRIPTION
	CONNECTION POINT TO EQUIPMENT SPECIFIED. FURNISHED AND INSTALLED UNDER OTHER DIVISIONS. RACEWAY, CONDUCTOR AND CONNECTION SPECIFIED IN DIVISION 16. COORDINATE FINAL CONNECTION WITH EQUIPMENT SUPPLIER.
MCC–A	MAJOR ELECTRICAL COMPONENT OR DEVICE – NAME OR IDENTIFYING SYMBOL AS SHOWN.
	BRANCH CIRCUIT PANELBOARD
UH	UNIT HEATER
TTC	TELEPHONE TERMINAL CABINET
CTC	COMPUTER TERMINAL CABINET
TJB	TERMINAL JUNCTION BOX
M	MOTOR, SQUIRREL CAGE INDUCTION, HORSEPOWER INDICATED ON ONE–LINE DIAGRAM
A	LUMINAIRE, CAPITAL LETTER INDICATES ITEM IN SCHEDULE
A	LUMINAIRE, CAPITAL LETTER INDICATES ITEM IN SCHEDULE
A	LUMINAIRE, UNSWITCHED, CAPITAL LETTER INDICATES ITEM IN SCHEDULE
A	LUMINAIRE AND POLE, CAPITAL LETTER INDICATES ITEM IN SCHEDULE
A	WALL MOUNTED LUMINAIRE, CAPITAL LETTER INDICATES ITEM IN SCHEDULE
A	EMERGENCY LIGHTING UNIT, CAPITAL LETTER INDICATES ITEM IN SCHEDULE
A	EXIT LIGHTS, CAPITAL LETTER INDICATES ITEM IN SCHEDULE
S a or 2a	SMALL LETTER SUBSCRIPT AT SWITCH AND LUMINAIRE INDICATES SWITCHING. SUBSCRIPT NUMBER AT LUMINAIRE INDICATES CIRCUIT IN PANELBOARD.
$X	SWITCH:

WALL SWITCH: 2– DOUBLE POLE; 3– THREE WAY; 4– FOUR WAY; CRE– CORROSION RESISTANT; D– DIMMER; K– KEY OPERATED; P– PILOT LIGHT; WP– WEATHERPROOF; XP– EXPLOSION PROOF

MOTOR SWITCH: M– MOTOR RATED TOGGLE SWITCH WITHOUT OVERLOADS; MS–STARTER MANUAL MOTOR WITH OVERLOADS

LA–2	HOME RUN – DESTINATION SHOWN
or	EXPOSED CONDUIT AND CONDUCTORS
or	CONCEALED CONDUIT AND CONDUCTORS MINIMUM NO.12 AWG POWER MINIMUM NO.14 AWG LIGHTING MINIMUM NO.16 AWG CONTROL
	UNGROUNDED OR NEUTRAL CONDUCTORS
	GROUND CONDUCTORS
	FLEXIBLE OR LIQUID–TIGHT CONDUIT
C200	CIRCUIT CALLOUT INDICATES CONDUIT SIZE AND NUMBER AND TYPE OF CONDUCTORS
	GROUND TEST WELL
	GROUND ROD
	CONDUIT DOWN
	CONDUIT UP
	CONDUIT, STUBBED AND CAPPED AS SHOWN
B	BUS DUCT, SEE SPECIFICATIONS
CE	CONCRETE ENCASED CONDUIT
DB	CONCRETE ENCASED DUCT BANK
G	GROUND
DN	DEVICENET
ETH	ETHERNET

SYMBOL	DESCRIPTION
	CONVENIENCE RECEPTACLE – DUPLEX UNLESS SPECIFIED OTHERWISE. NUMBER INDICATES PANELBOARD CIRCUIT. WP–WEATHERPROOF C– CLOCK HANGER TL–TWIST LOCK CRE–CORROSION RESISTANT
	GFCI RECEPTACLE. NUMBER INDICATES PANELBOARD CIRCUIT.
9	QUAD RECEPTACLE, PANELBOARD CKT INDICATED
30	RECEPTACLE, SPECIAL PURPOSE – AMPERAGE INDICATED
	DUPLEX CONVENIENCE RECEPTACLE – FLUSH IN FLOOR
	CEILING FAN – FLUSH IN CEILING
	MULTI–OUTLET ASSEMBLY
	CLOCK HANGER CONVENIENCE RECEPTACLE
	TELEPHONE RECEPTACLE (OUTLET BOX ONLY) FLUSH IN FLOOR
	TELEPHONE RECEPTACLE (OUTLET BOX ONLY)
	DATA RECEPTACLE (QUAD JACK RJ–45 DATA OUTLET BOX ONLY)
T	THERMOSTAT. NUMBER INDICATES PANELBOARD CIRCUIT.
HH	GENERAL CONTROL OR WIRING DEVICE. LETTER SYMBOLS OR ABBREVIATIONS INDICATE TYPE OF DEVICE.
CS	CONTROL STATION, SEE CONTROL DIAGRAMS FOR TYPE.
J	CONDUIT FITTING OR JUNCTION BOX
	DISCONNECT OR SAFETY SWITCH
2	CONTACTOR, MAGNETIC, NEMA SIZE INDICATED.
30 L	LIGHTING CONTACTOR, CURRENT RATING INDICATED. FOR NUMBER OF POLES, SEE CONTROL DIAGRAM.
2	STARTER MAGNETIC NEMA SIZE INDICATED, SEE CONTROL DIAGRAM.
2	COMBINATION (FUSE OR CIRCUIT BREAKER AS INDICATED) MAGNETIC STARTER, NEMA SIZE INDICATED, SEE CONTROL DIAGRAM.
	METERING FACILITIES
	MULTI–PARTY DESK TOP COMMUNICATIONS SYSTEM STATION WITH REMOTE AMPLIFIER
W	MULTI–PARTY WALL MOUNTED COMMUNICATIONS SYSTEM STATION WITH INTEGRAL AMPLIFIER
	CONE TYPE PAGING SPEAKER, CEILING MOUNTED
	INTERIOR PAGING TRUMPET SOUND REPRODUCER, WITH REMOTE AMPLIFIER, SURFACE MOUNTED.
	OUTDOOR PAGING TRUMPET SOUND REPRODUCER, WITH REMOTE AMPLIFIER, SURFACE MOUNTED.
	TERMINAL CABINET FOR COMMUNICATIONS SYSTEM
	ALARM HORN
F	FIRE ALARM BELL
F	FIRE ALARM HORN
F	FIRE ALARM COMBINATION STROBE/HORN
S	FIRE ALARM COMBINATION STROBE/SPEAKER, WALL MOUNT
FI	FIRE ALARM IONIZATION DETECTOR
I	AIR DUCT IONIZATION DETECTOR
FA	FIRE ALARM STATION, AUTOMATIC, HEAT DETECTOR
EC	ELECTRONICALLY MONITORED/CONTROLLED CIRCUIT BREAKER

SYMBOL	DESCRIPTION
1	CONTACT – NORMALLY OPEN WITH NEMA SIZE INDICATED AS APPLICABLE
	CONTACT – NORMALLY CLOSED
	OVERLOAD RELAY HEATER
1	MAGNETIC STARTER WITH NEMA SIZE INDICATED
100/M	CIRCUIT BREAKER, MAGNETIC TRIP ONLY, FRAME SIZE SHOWN, 3 POLE UNLESS INDICATED OTHERWISE.
400	CIRCUIT BREAKER, THERMAL MAGNETIC TRIP SHOWN, 3 POLE UNLESS INDICATED OTHERWISE.
100	SWITCH – CURRENT RATING INDICATED, 3 POLE UNLESS INDICATED OTHERWISE.
225	FUSE – RATING INDICATED
	DRAWOUT CIRCUIT BREAKER, LOW VOLTAGE
	DRAWOUT CIRCUIT BREAKER, MEDIUM VOLTAGE
	DRAWOUT FUSED SWITCH, MEDIUM VOLTAGE
	SURGE ARRESTER
10	CAPACITOR – KVAR INDICATED
V VS 0–600V	METER WITH SWITCH – SCALE RANGE SHOWN
	GROUND
120V or	TRANSFORMER, SECONDARY VOLTAGES, PHASE AND RATING INDICATED AS APPLICABLE 15 KVA, 1PH 120/240V
GFR 25A 0.1	PICK–UP SETTING TIME CURRENT CHARACTERISTIC GROUND FAULT RELAY WITH CURRENT TRANSFORMER
	PUSH–BUTTON SWITCH, MOMENTARY CONTACT, NORMALLY OPEN
	PUSH–BUTTON SWITCH, MOMENTARY CONTACT, NORMALLY CLOSED
	PUSH BUTTON SWITCH, MAINTAINED CONTACTS WITH MECHANICAL INTERLOCK
	NORMALLY CLOSED, TIME DELAY OPENING
	NORMALLY CLOSED, TIME DELAY CLOSING
	NORMALLY OPEN, TIME DELAY CLOSED
	NORMALLY OPEN, TIME DELAY OPEN
	REMOTE DEVICE
0 H A X00 00X	ROTARY SELECTOR SWITCH – ARROW INDICATES SPRING RETURN IF APPLICABLE – CHART IDENTIFIES OPERATION:

CKT	POSITION HAND	OFF	AUTO	
1	X	0	0	X – CLOSED CONTACT
2	0	0	X	0 – OPEN CONTACT

(3)	CURRENT TRANSFORMER, NUMBER INDICATED
A	INDICATING LIGHT, PUSH–TO–TEST, LETTER INDICATES COLOR –
A	INDICATING LIGHT – LETTER INDICATES COLOR A – AMBER G – GREEN B – BLUE R – RED C CLEAR W WHITE
	DISCONNECT, SAFETY SWITCH

ABBREVIATIONS

ABBREVIATIONS	DESCRIPTION
A	AMMETER, AMPERE, AMBER
AF	AMPERE FRAME
AFD	ADJUSTABLE FREQUENCY DRIVE
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AIT	AMPERE INSTANTANEOUS TRIP
AS	AMMETER SWITCH, AMPERE SENSOR, ADJUSTABLE SETTING
ASU	AIR SUPPLY UNIT
AT	AMPERE TRIP
ATC	AUTOMATIC THROWOVER CONTROL
ATS	AUTOMATIC TRANSFER SWITCH: P=PREF., A=ALT.
BBM	BREAK BEFORE MAKE
BC	BARE COPPER
BKR	BREAKER
C	CONDUIT, CONTACTOR
CB	CIRCUIT BREAKER
CC	CONTROL CABLE
CE	CONCRETE ENCASED
CKT	CIRCUIT
CPT	CONTROL POWER TRANSFORMER
CR	CONTROL RELAY
CRE	CORROSION–RESISTANT
CRS	COATED RIGID STEEL CONDUIT
CT	CURRENT TRANSFORMER
DC	DIRECT CURRENT
DIV	DIVISION
DSC	DISCONNECT, SAFETY SWITCH
E	EMPTY, EXISTING
EO	ELECTRIC OPERATOR
EQPT	EQUIPMENT
ESS	EMERGENCY SHUTDOWN SWITCH
ETM	ELAPSED TIME METER
EXST	EXISTING
FDR	FEEDER
F	FUSE
FLR	FLOOR
FLUOR	FLUORESCENT
FO	FIBER OPTIC
FVNR	FULL VOLTAGE NON–REVERSING
FVR	FULL VOLTAGE REVERSING
G	GREEN, GROUND
GALV	GALVANIZED
GEPD	GROUND EQUIPMENT PROTECTION DEVICE
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFR	GROUND FAULT RELAY
GND	GROUND
H	HIGH SPEED
HH	HANDHOLE
HID	HIGH INTENSITY DISCHARGE
HMCP	MOTOR CIRCUIT PROTECTOR
HPS	HIGH PRESSURE SODIUM
HS	HAND SWITCH OR STATION
IC	INTERRUPTING CAPACITY
I&C	INSTRUMENTATION AND CONTROL
IMC	INTERMEDIATE METAL CONDUIT
INCAND	INCANDESCENT
INST	INSTANTANEOUS
J, J–BOX	JUNCTION BOX
K	KEY INTERLOCK
L	LIGHTING CONTACTOR, LOW SPEED
LOS	LOCKOUT STOP PUSH BUTTON
LR	LATCH RELAY, LINE REACTOR
LT FLEX	LIQUID TIGHT FLEX CONDUIT
LTS	LIGHTS

ABBREVIATIONS	DESCRIPTION
M	MAGNETIC CONTACTOR COIL
MBB	MAKE BEFORE BREAK
MCC	MOTOR CONTROL CENTER
MH	MANHOLE, METAL HALIDE
MO	MOTOR OPERATOR
MPC	MINI–POWER–CENTER
MS	MOTOR STARTER
MSB	MAIN SWITCH BOARD
MT	MOUNT
MTS	MANUAL TRANSFER SWITCH
MTD	MOUNTED
MTP	MOTOR THERMAL PROTECTION
N	NEUTRAL
NA	NON–AUTOMATIC
NC	NORMALLY CLOSED
NL	NIGHT LIGHT
NO	NORMALLY OPEN
NP	NAMEPLATE
NTU	NEPHELOMETRIC TURBIDITY UNITS
OC	ON CENTER
OFE	OWNER FURNISHED EQUIPMENT
OL	OVERLOAD RELAY
PB	PULL BOX, PUSH BUTTON, SWITCH
PC	PHOTOCELL
PH	PHASE
PMR	PHASE MONITOR RELAY
PNL	PANEL
PNLB	PANELBOARD
PS	PRESSURE SWITCH
PT	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE CONDUIT
R	RED
RCPT	RECEPTACLE
REQD	REQUIRED
RGS	RIGID GALVANIZED STEEL (RMC)
RM	REMOTE MULTIPLEXER
RS	RIGID STEEL CONDUIT
RT	REMOTE TELEMETRY
RVNR	REDUCED VOLTAGE NON–REVERSING
RVR	REDUCED VOLTAGE REVERSING
SA	SURGE ARRESTOR
SCCR	SHORT CIRCUIT CURRENT RATING
SE	SERVICE ENTRANCE
S/N	SOLID NEUTRAL
SPD	SPEED
SSC	SOLID STATE CONTROL
SST	STAINLESS STEEL
STR	MOTOR STARTER
SOV	SOLENOID VALVE
SUSE	SUITABLE FOR USE AS SERVICE EQUIPMENT
SW	SWITCH
T	THERMOSTAT
TB	TERMINAL BOARD, TERMINAL BLOCK OR TERMINAL BOX
TC	TIME CLOSE
TD	TEMPERATURE DETECTOR RELAY
TDR	TIME DELAY RELAY
TJB	TERMINAL JUNCTION BOX
T.O.	TIME OPEN
TS	AUTO TRANSFORMER TEMPERATURE SWITCH
TSP	TWISTED SHIELDED PAIR
TST	TWISTED SHIELDED TRIAD
TYP	TYPICAL
UH	UNIT HEATER
UNO	UNLESS NOTED OTHERWISE
UVR	UNDER VOLTAGE RELAY
V	VOLTMETER, VOLT
VFD	VARIABLE FREQUENCY DRIVE
VS	VOLTMETER SWITCH
W	WATT
WHD	WATTHOUR DEMAND METER
WP	WEATHERPROOF
XFDR	TRANSDUCER
XFMR	TRANSFORMER
XFPR	TRANSPONDER

1 ELECTRICAL SYMBOLS AND ABBREVIATIONS
SCALE: NTS

NO.	REVISION	BY	DATE
A	DESIGN FOR REVIEW	RDL	10/3
B	90% REVIEW	RDL	2/24/20
C	100% Review	IBM	3/31/20
D	FOR CONSTRUCTION	MTJ	6/15/2020

DESIGN: RDL
DRAWN: RDL
CHECKED: MTJ
APPROVED: PCC

PROFESSIONAL ENGINEER 10591 STATE OF IDAHO PETER C. COOK

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CITY OF NEW MEADOWS
WATER SYSTEM IMPROVEMENTS
NEW MEADOWS, IDAHO
ELECTRICAL SYMBOLS AND ABBREVIATIONS

VERIFY SCALE
BAR IS ONE INCH ON FULL SIZE DRAWING
0 1"

PROJECT 104.0060.06
DATE OCT. 2019
DRAWING NO. E0.2

Path: p:\0228 mountain waterworks llc\18-02 city of new meadows water system upgrades\Drawings\E0.2 ELECTRICAL SYMBOLS AND ABBREVIATIONS.dwg File Name: E0.2 ELECTRICAL SYMBOLS AND ABBREVIATIONS.dwg Plot Date: 8/26/2020 1:22 PM mtjohnson

RATINGS & FEATURES ():

- 480V, 3–PHASE, 3–WIRE, 200A, NEMA 4, SE RATED
- SURGE PROTECTION DEVICE ON INCOMING MAINS AS PER SPECIFICATIONS.

CONDUIT/WIRE SCHEDULE

	# CONDUIT	PHASE CONDUCTORS PER CONDUIT (QTY) SIZE	NEUTRAL CONDUCTORS PER CONDUIT (QTY) SIZE	GROUND CONDUCTORS PER CONDUIT (QTY) SIZE	CONDUIT SIZE	NOTES
1	1	(3) 4/0	(1) 4/0	(1) #2	2"	
2	1	(3) 4/0		(1) #2	2"	
3	1	(3) #12		(1) #12	3/4"	
4	1	(2) #12		(1) #12	3/4"	
5	1	(2) #8		(1) #8	3/4"	
6	1	(2) #4	(1) #4	(1) #4	3/4"	
U	1	BY IPCO	BY IPCO	–	4" PVC	

NOTES:

1. CONTRACTOR TO COORDINATE WITH IDAHO POWER COMPANY FOR ELECTRIC SERVICE
2. CONTRACTOR TO PROVIDE:
   * TRANSFORMER BASE PER IPCO REQUIREMENTS
   * PRIMARY TRENCHWORK AND CONDUIT
   * SECONDARD TRENCHWORK, CONDUIT & WIRE
   * METER BASE PER IPCO REQUIREMENTS
3. IDAHO POWER TO PROVIDE:
   * PRIMARY WIRING
   * TRANSFORMER
   * METER
4. PROVIDE 480V, 3ø, 4–WIRE, 200A RECEPTACLE AND PLUG FOR 480V EXISTING TRAILER MOUNTED GENERATOR.

SERVICE : 240/120 V, 1-Phase
LOCATION : Well 5
MOUNTING : Surface
REFERENCE DRAWING : E1.0

VOLTS (PH TO PH) : 240
VOLTS (PH TO G) : 120

PROJECT NAME : NEW MEADOWS
WORK ORDER NO. : 0228-18-02
SPECIFICATION NO. : 16050

REVISION/DATE : Rev C
DESIGNED BY/DATE : RDL/IBM, 3/30/2020
CHECKED BY/DATE : PCC, 6/8/2020

DESCRIPTION	VA OR WATTS A	VA OR WATTS B	BREAKER POLE	BREAKER A	CKT NO.	BUS CONN.	CKT NO.	BREAKER POLE	BREAKER A	VA OR WATTS A	VA OR WATTS B	DESCRIPTION
INTERNAL LIGHTING	480	--	1	20	1	---*-------	2	1	20	360	--	RECEPTACLES
CONTROL PANEL	--	600	1	20	3	-------*---	4	1	20	--	120	EXTERIOR LIGHTING
EMERGENCY LIGHTING	240	--	1	20	5	---*-------	6	1	20	1500	--	CHLORINATOR
EXHAUST FAN - EF 5	--	600	1	20	7	-------*---	8	1	20	--	360	RECEPTACLES
SPARE		--	1	20	9	---*-------	10	1	20	360	--	RECEPTACLES
SPARE	--		1	20	11	-------*---	12	1	20	--		SPARE
SPARE		--	1	20	13	---*-------	14	1	20		--	SPARE
SPARE	--		1	20	15	-------*---	16	1	20	--		SPARE
SPARE		--	1	20	17	---*-------	18	1	20		--	SPARE
SPARE	--		1	20	19	-------*---	20	1	20	--		SPARE
SPARE		--	1	20	21	---*-------	22	1	20		--	SPARE
SPARE	--		1	20	23	-------*---	24	1	20	--		SPARE
SPARE		--	1	20	25	---*-------	26	1	20		--	SPARE
SPARE	--		1	20	27	-------*---	28	1	20	--		SPARE
SPACE		--	-	-	41	---*-------	42	-	-		--	SPACE
TOTAL (1)	720	1200					TOTAL (2)			2220	480	
TOTAL (1+2)	2940	1680										

PHASE A CURRENT : 24.5
PHASE B CURRENT : 14.0

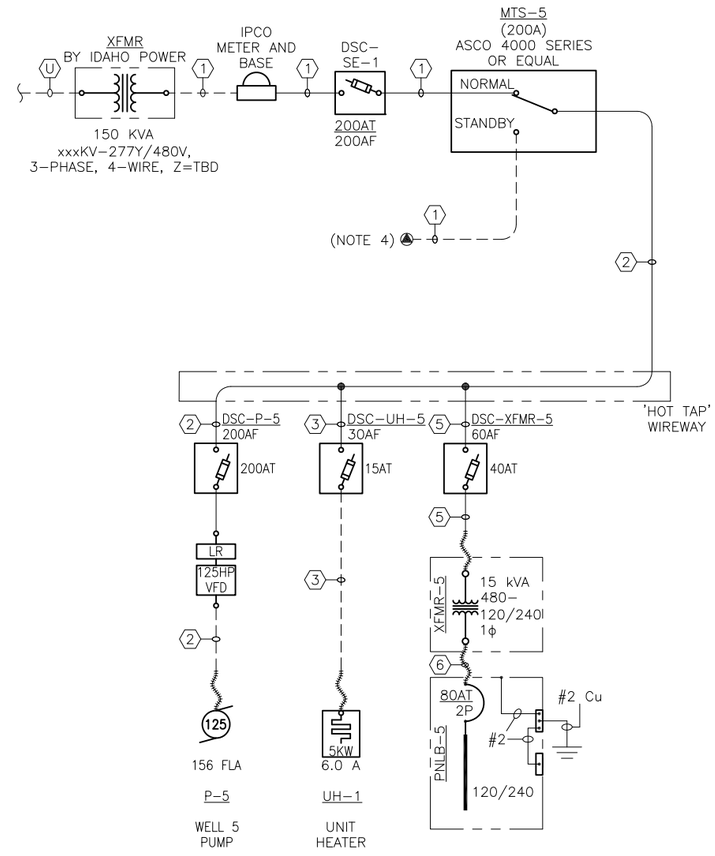
TOTAL PANEL CURRENT : 24.5
TOTAL PANEL KVA : 5.9

Breaker Types
None Switch Rated
G GFCI
H HACR

BUS RATING : 100 A
MAIN LUGS : --
PRIMARY BREAKER : 100 A
FEEDER ENTRANCE : Bottom
FEEDER SIZE :
SHORT CKT RATING : > 22kA
PANEL SOURCE : XFMR-5

NOTES: 1. Loads estimated, Contractor to confirm.

1 WELL 5 PANELBOARD SCHEDULE (PNLB–5)
SCALE: NTS



2 WELL 5 ONE–LINE DIAGRAM
SCALE: NTS

NO.	REVISION	BY	DATE
A	DESIGN FOR REVIEW	RDL	10/3
B	90% REVIEW	RDL	2/24/20
C	100% Review	IBM	3/31/20
D	FOR CONSTRUCTION	MTJ	6/15/2020

DESIGN RDL
DRAWN RDL
CHECKED MTJ
APPROVED PCC

PROFESSIONAL ENGINEER REGISTERED 9591 STATE OF IDAHO PETER C. COOK

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CITY OF NEW MEADOWS
WATER SYSTEM IMPROVEMENTS
NEW MEADOWS, IDAHO
ONE-LINE DIAGRAM - WELL 5

VERIFY SCALE
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0 1"

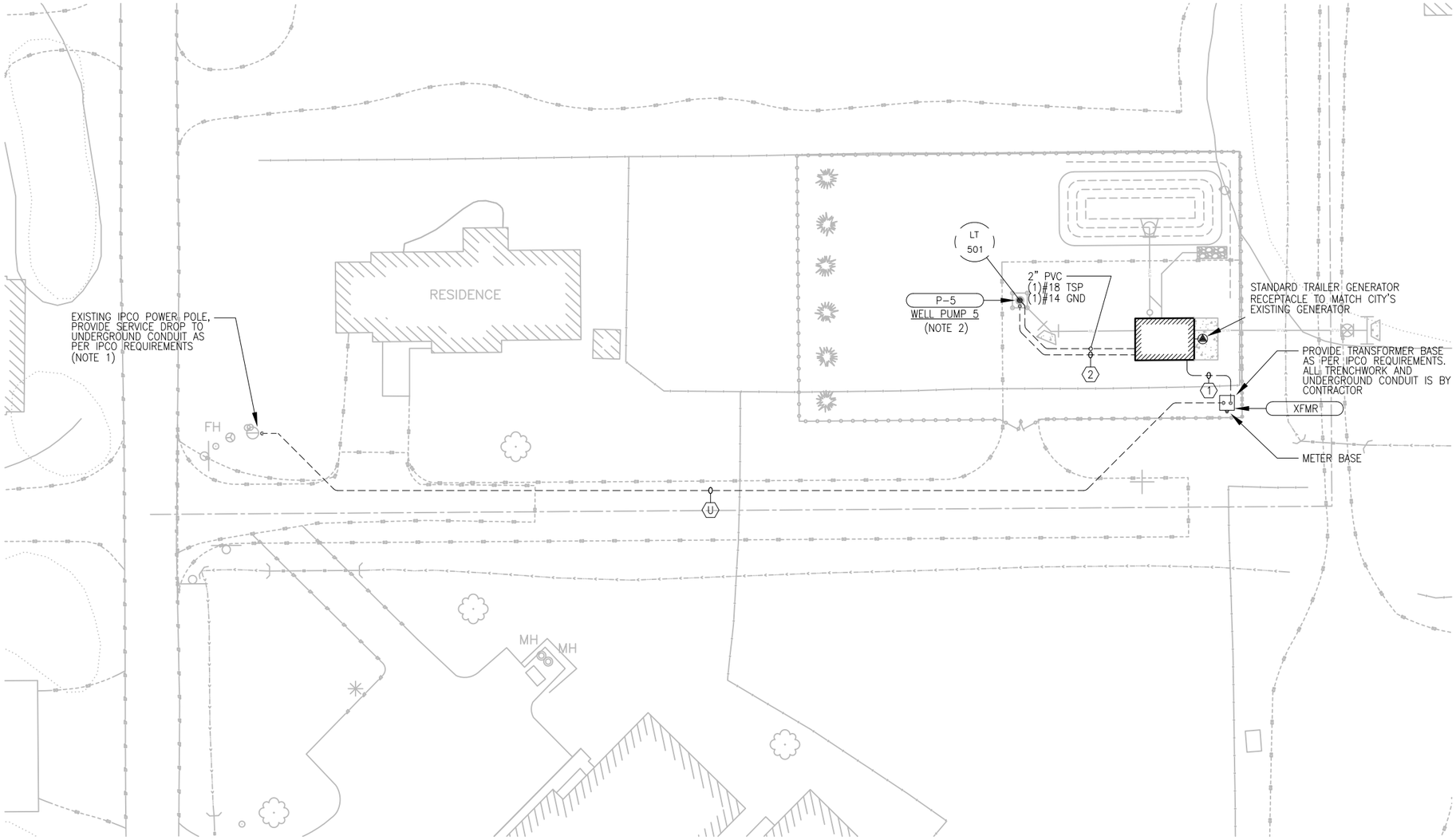
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DATE OCT. 2019
DRAWING NO. E1.0

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NORTH

NOTES:

1. COORDINATE W/ IPCO TO DETERMINE IF SERVICE LATERAL AND POLE ARE REQ'D.
2. PROVIDE WELL DEPTH TRANSDUCER AS PER INSTRUMENT SCHEDULE. MAINTAIN MINIMUM 12" SEPARATION BETWEEN TRANSDUCER WIRING AND WELL PUMP VFD WIRING.
3. REFER TO ONE-LINE DIAGRAM FOR CONDUIT SIZE & FILL



1 ELECTRICAL SITE LOCATION PLAN — WELL 5
SCALE: 1"=20'

NO.	REVISION	BY	DATE
A	DESIGN FOR REVIEW	RDL	10/3
B	90% REVIEW	RDL	2/24/20
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DESIGN RDL
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ELECTRICAL SITE PLAN - WELL 5

VERIFY SCALE
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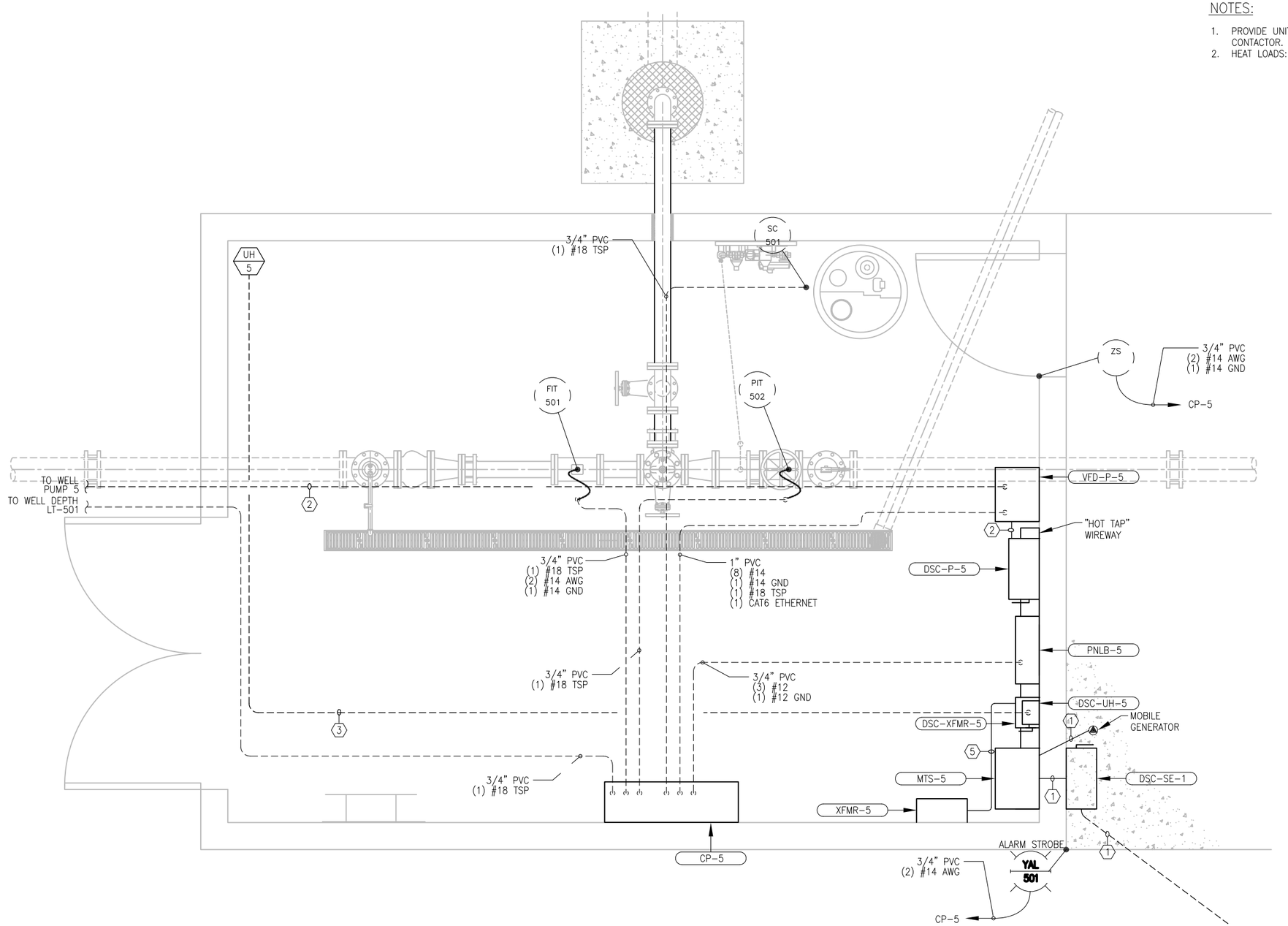
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DATE OCT. 2019
DRAWING NO. E1.1

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NORTH

NOTES:

1. PROVIDE UNIT HEATER WITH INTEGRAL THERMOSTAT AND CONTACTOR.
2. HEAT LOADS: REFER TO HVAC SHEETS.



1 ELECTRICAL LOCATION PLAN — WELL 5
SCALE: 3/4"=1'

NO.	REVISION	BY	DATE
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C	100% Review	IBM	3/31/20
D	FOR CONSTRUCTION	MTJ	6/15/2020

DESIGN	RDL
DRAWN	RDL
CHECKED	MTJ
APPROVED	PCC

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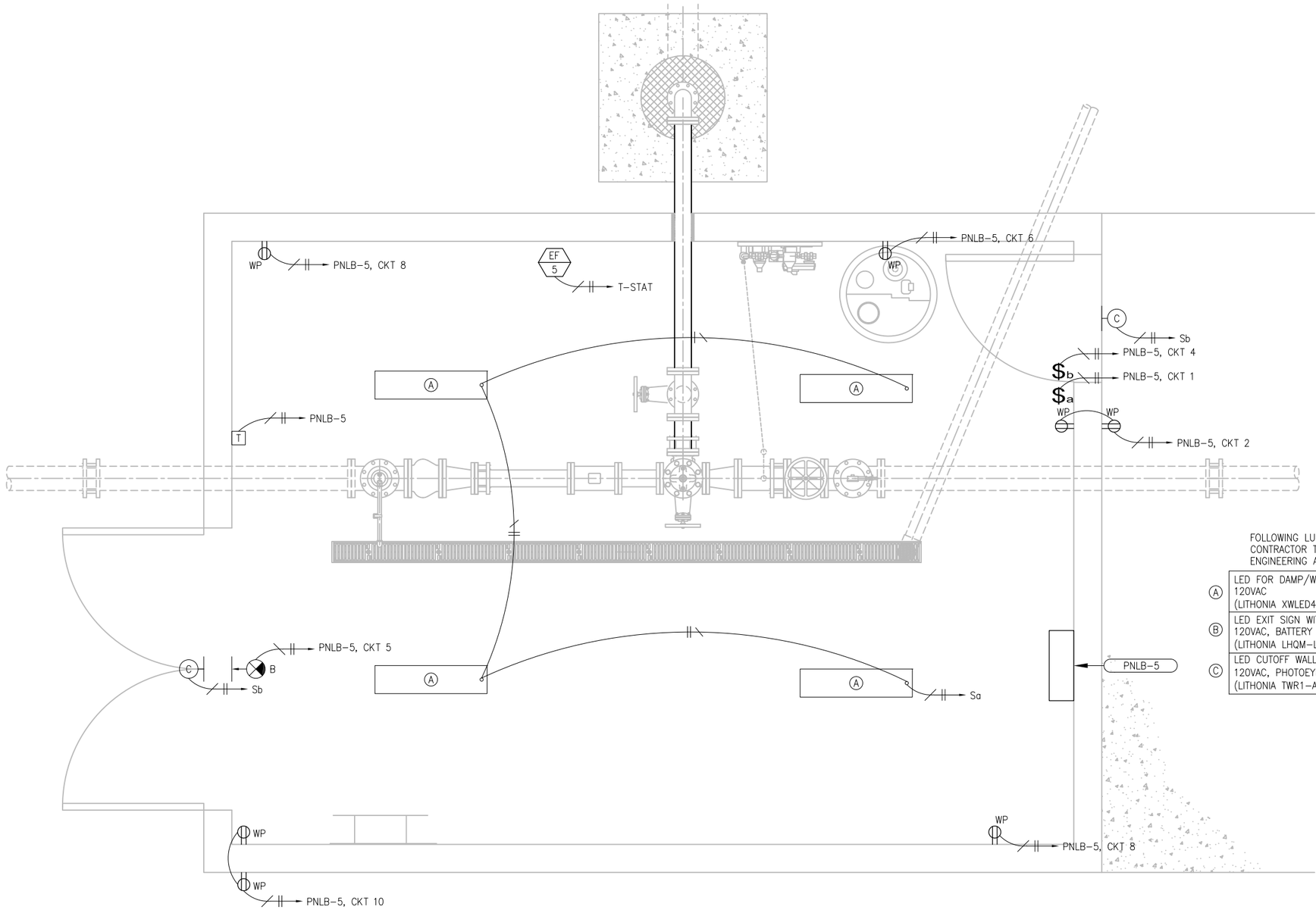
CITY OF NEW MEADOWS
WATER SYSTEM IMPROVEMENTS
NEW MEADOWS, IDAHO
ELECTRICAL LOCATION PLAN - WELL 5

VERIFY SCALE
BAR IS ONE INCH ON FULL SIZE DRAWING
0 1"

PROJECT	104.0060.06
DATE	OCT. 2019
DRAWING NO.	E1.2

Path: p:\0228 mountain waterworks llc\18-02 city of new meadows water system upgrades\Drawings\E1.3 ELECTRICAL LIGHTING PLAN - WELL 5.dwg File Name: E1.3 ELECTRICAL LIGHTING PLAN - WELL 5.dwg Plot Date: 8/26/2020 1:23 PM amkinsey

NORTH



FIXTURE SCHEDULE

FOLLOWING LUMINAIRES FOR MODELING PURPOSES. CONTRACTOR TO PROVIDE SAME OR EQUIVALENT UPON ENGINEERING APPROVAL.

(A)	LED FOR DAMP/WET LOCATION 120VAC (LITHONIA XWLED4 OR EQUIV.)
(B)	LED EXIT SIGN WITH EMERGENCY LIGHT (BUG-EYE) 120VAC, BATTERY FOR 90 MINUTES MINUMUM (LITHONIA LHQM-LED-R-HO OR EQUIV.)
(C)	LED CUTOFF WALL PACK 120VAC, PHOTOEYE W/SWITCH OVERRIDE (LITHONIA TWR1-ALO-LED OR EQUIV.)

1 ELECTRICAL LIGHTING PLAN — WELL 5
SCALE: 3/4"=1'

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B	90% REVIEW	RDL	2/24/20
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DESIGN RDL
DRAWN RDL
CHECKED MTJ
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CITY OF NEW MEADOWS
WATER SYSTEM IMPROVEMENTS
NEW MEADOWS, IDAHO
ELECTRICAL LIGHTING PLAN - WELL 5

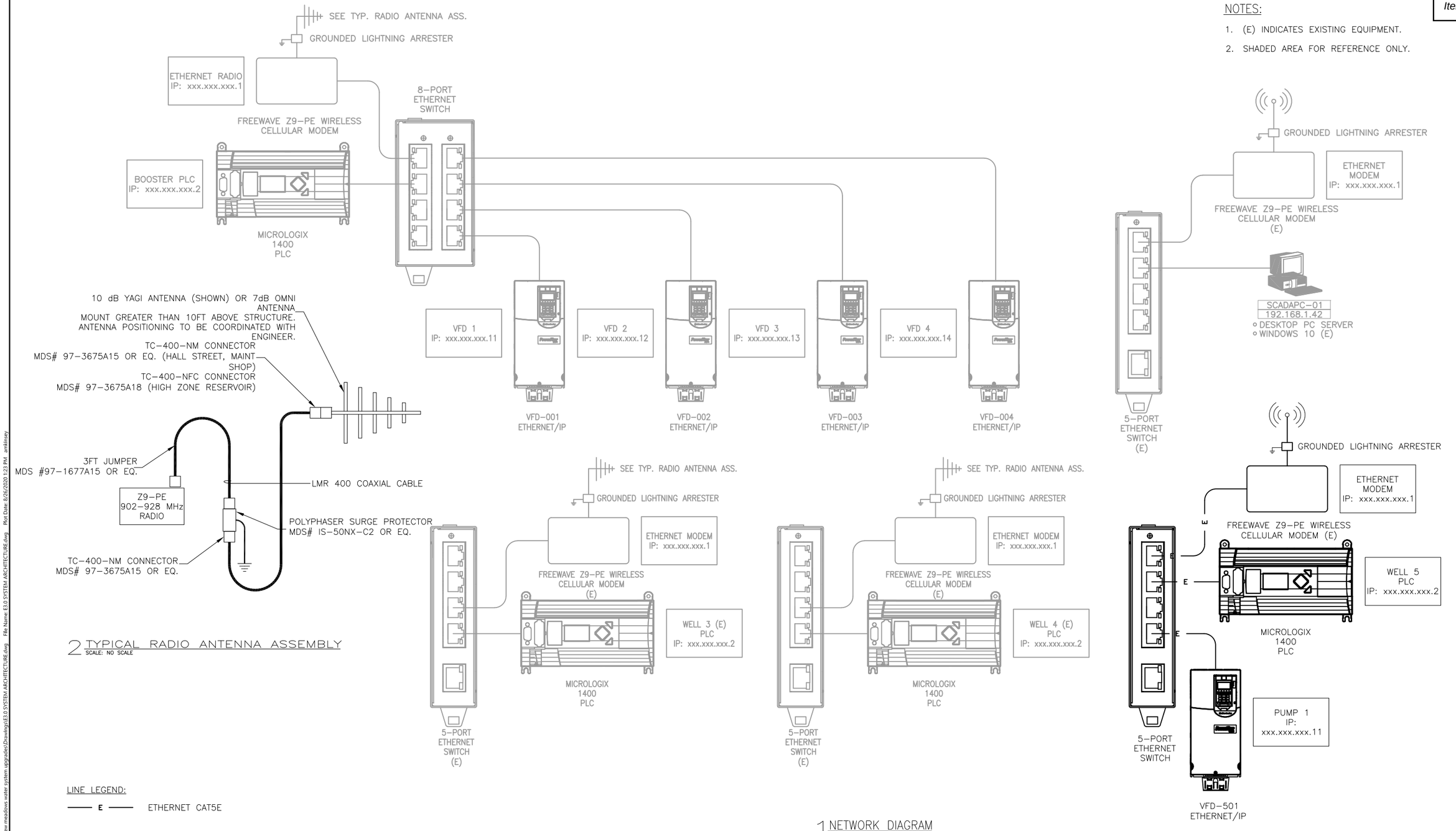
VERIFY SCALE
BAR IS ONE INCH ON FULL SIZE DRAWING
0 1"

PROJECT	104.0060.06
DATE	OCT. 2019
DRAWING NO.	E1.3

Path: p:\0228 mountain waterworks llc\18-02 city of new meadows water system upgrades\Drawings\E1.3 ELECTRICAL LIGHTING PLAN - WELL 5.dwg File Name:E1.3 ELECTRICAL LIGHTING PLAN - WELL 5.dwg Plot Date: 8/26/2020 1:23 PM amkinsey

NOTES:

1. (E) INDICATES EXISTING EQUIPMENT.
2. SHADED AREA FOR REFERENCE ONLY.



2 TYPICAL RADIO ANTENNA ASSEMBLY
SCALE: NO SCALE

1 NETWORK DIAGRAM
SCALE: NTS

LINE LEGEND:

—— E —— ETHERNET CAT5E

NO.	REVISION	BY	DATE
A	DESIGN FOR REVIEW	RDL	10/3
B	90% REVIEW	RDL	2/24/20
C	100% Review	IBM	3/31/20
D	FOR CONSTRUCTION	MTJ	6/15/2020

DESIGN: RDL
DRAWN: RDL
CHECKED: MTJ
APPROVED: PCC

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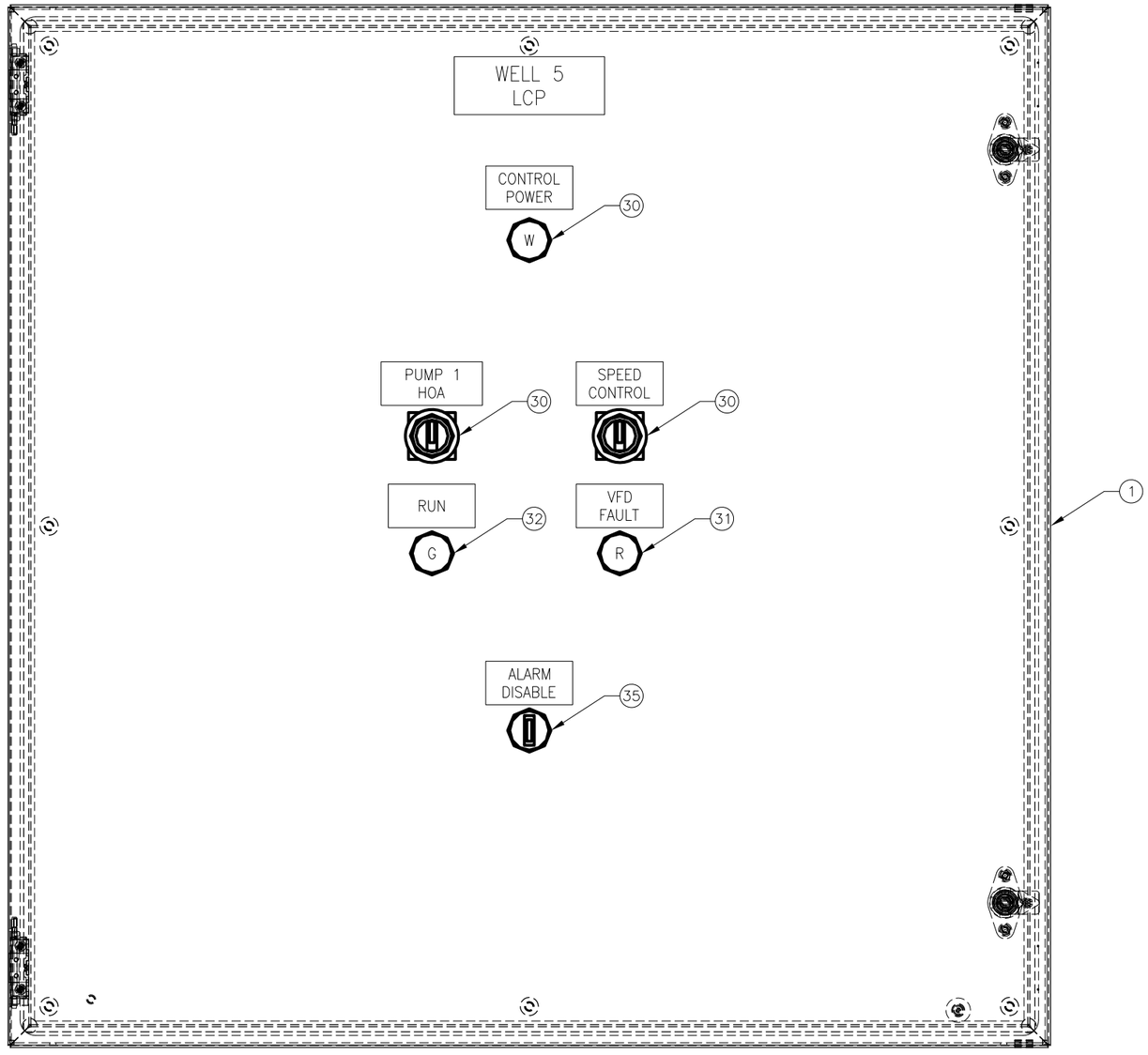
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CITY OF NEW MEADOWS
WATER SYSTEM IMPROVEMENTS
NEW MEADOWS, IDAHO
SYSTEM ARCHITECTURE

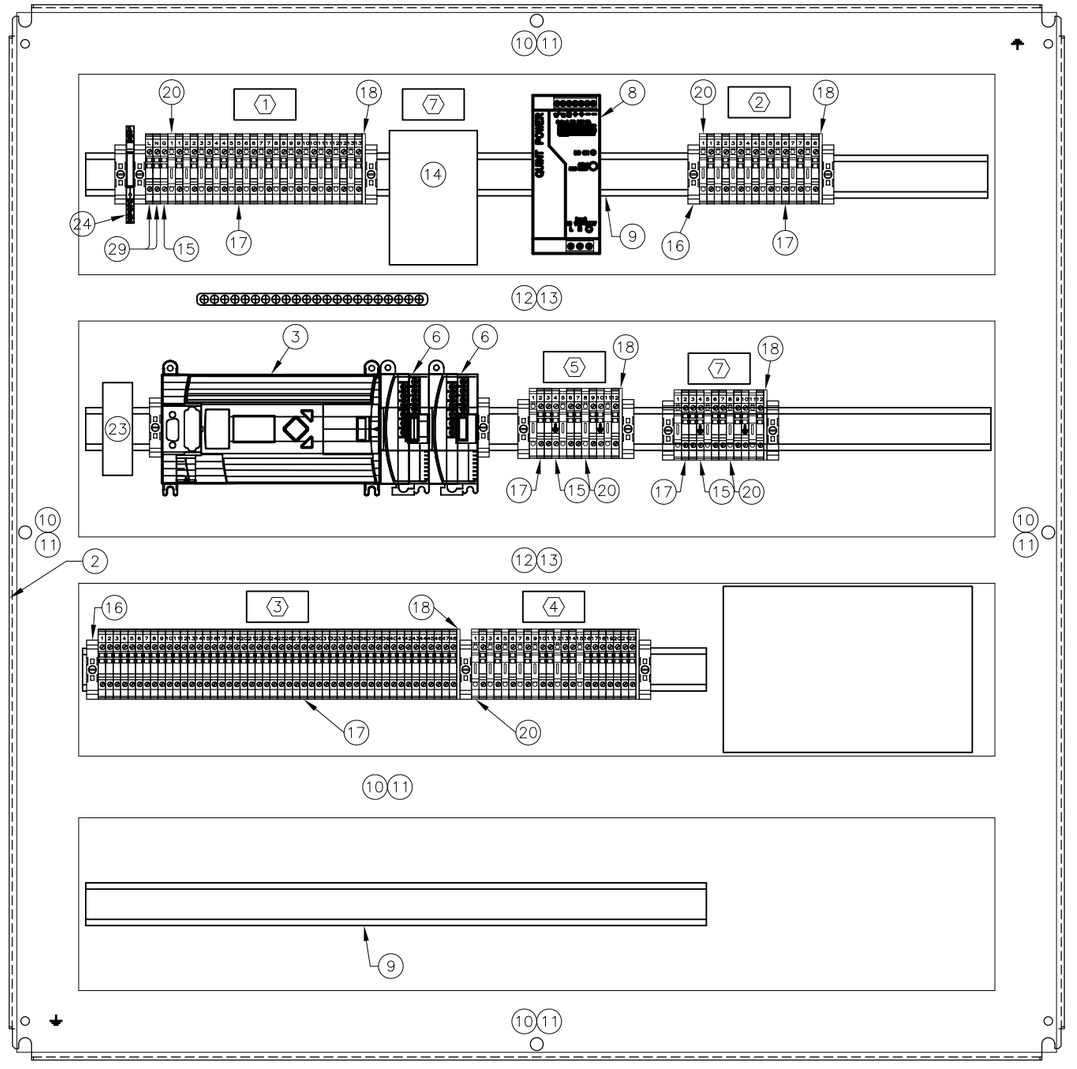
VERIFY SCALE
BAR IS ONE INCH ON FULL SIZE DRAWING
0 1"

PROJECT	104.0060.06
DATE	OCT. 2019
DRAWING NO.	E3.0

Path: p:\0228 mountain waterworks llc\18-02 city of new meadows water system upgrades\Drawings\E3.0 SYSTEM ARCHITECTURE.dwg File Name: E3.0 SYSTEM ARCHITECTURE.dwg Plot Date: 8/26/2020 1:23 PM amkinsey



1 PLC FRONT PANEL LAYOUT (CP-1)
SCALE: 5"=1'0"



2 PLC BACK PANEL LAYOUT (CP-1)
SCALE: 5"=1'0"

NO.	REVISION	BY	DATE
A	DESIGN FOR REVIEW	RDL	10/3
B	90% REVIEW	RDL	2/24/20
C	100% Review	IBM	3/31/20
D	FOR CONSTRUCTION	MTJ	6/15/2020

DESIGN RDL
DRAWN RDL
CHECKED MTJ
APPROVED PCC

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CITY OF NEW MEADOWS
WATER SYSTEM IMPROVEMENTS
NEW MEADOWS, IDAHO
CONTROL PANEL- LAYOUT

VERIFY SCALE
BAR IS ONE INCH ON FULL SIZE DRAWING
0 1"

PROJECT	104.0060.06
DATE	OCT. 2019
DRAWING NO.	E4.1

Path: p:\0228 mountain waterworks llc\18-02 city of new meadows water system upgrades\Drawings\E4.1 CONTROL PANEL- LAYOUT.dwg File Name: E4.1 CONTROL PANEL- LAYOUT.dwg Plot Date: 8/26/2020 1:23 PM amkinsey

CONTROL PANEL BILL OF MATERIALS			
ITEM	QTY	DESCRIPTION	CATALOG #
1	1	CONCEPT WALL MOUNT ENCLOSURE (36" x 36" x 12")	HOFFMAN C-SD363612
2	1	CONCEPT PANEL (34.2" x 34.2")	HOFFMAN C-P3636
3	1	MICROLOGIX 1400 PLC	ALLEN BRADLEY 1766-L32BWAA
4	–	NOT USED	
5	–	NOT USED	
6	2	MICROLOGIX 2-PT ANALOG INPUT, 2-PT ANALOG OUTPUT EXPANSION I/O MODULE	ALLEN BRADLEY 1762-IF2OF2
7	–	NOT USED	
8	1	QUINT-PS-100-240AC/24DC/5 SINGLE-PHASE PRIMARY-SWITCHED POWER SUPPLY	PHOENIX CONTACT 29 38 58 1
9	A/R	DIN MOUNTING RAIL NS35/7.5 PERFORATED	PHOENIX CONTACT 08 01 73 3
10	A/R	WIREWAY 2"W x 3"D	PANDUIT F2x3WH6
11	A/R	WIREWAY COVER 2"	PANDUIT C2WH6
12	A/R	WIREWAY 1.5"W x 3"D	PANDUIT F1.5x3WH6
13	A/R	WIREWAY COVER 1.5"	PANDUIT C1.5WH6
14	1	DUAL 120VAC RECEPTACLE, DIN RAIL MOUNTED	–
15	A/R	GROUND TERMINAL BLOCK, UT4-MTD-PE	PHOENIX CONTACT 30 44 12 8
16	A/R	UNIVERSAL END HOLDER, E/NS 35 N	PHOENIX CONTACT 08 00 88 6
17	A/R	FEED THROUGH TERMINAL BLOCK, UT4-MTD	PHOENIX CONTACT 30 46 18 4
18	A/R	TERMINAL BLOCK END SECTION D-UT 2,5/4-TWIN	PHOENIX CONTACT 30 47 14 1
19	A/R	ZACK STRIP, ZB6	PHOENIX CONTACT 10 51 01 6
20	A/R	FUSE TERMINAL BLOCKS WITH DISCONNECT LEVER, UT 4-HESI	PHOENIX CONTACT 30 46 03 2
21	A/R	ZACK STRIP, ZB5, BLANK	PHOENIX CONTACT 10 50 00 4
22	A/R	FUSE 5mm x 25mm OR 5mm x 20mm	SIZES INDICATED ON SCHEMATIC
23	1	ETHERNET SWITCH, 5 PORT	MOXA EDS-205
24	1	TERMINAL BLOCK RELAY, 120VAC COIL, SPST CR1	PHOENIX CONTACT 29 66 19 7
25	–	NOT USED	
26	–	NOT USED	
27	0	RADIO, CELLULAR, ETHERNET	(EXISTING EQUIPMENT BY OWNER)
28	1	UNINTERRUPTIBLE POWER SUPPLY (UPS), 1000VA, 120VAC	CYBERPOWER CP1000LCD
29	–	NOT USED	
30	1	PILOT LIGHT, 30.5MM, 24VDC, LED, PTT, WHT	–
31	1	PILOT LIGHT, 30.5MM, 24VDC, LED, PTT, RED	–
32	1	PILOT LIGHT, 30.5MM, 24VDC, LED, PTT, GRN	–
33	1	HAND-OFF-AUTO SELECTOR SWITCH, (2) SETS NO & NC BLOCKS, 30.5MM, LABEL	–
34	1	SPEED CONTROL POTENTIOMETER, 10K OHMS, 30.5MM, 0-100% LABEL	–
35	1	LOCKING 2 POSITION SWITCH, 22MM, 1 NO	HARMONY XB4BG41
36	1	CONTROL RELAY WITH BASE, 24VDC COIL, 4PDT	IDEC RH4B-UL-DC24V, SH4B-05

1 PLC PANEL BILL OF MATERIALS (CP-1)
SCALE: NTS

Path: p:\0228 mountain waterworks llc\18-02 city of new meadows water system upgrades\Drawings\E4.2 CONTROL PANEL - BOM.dwg File Name: E4.2 CONTROL PANEL - BOM.dwg Plot Date: 8/26/2020 1:23 PM amkinsey

NO.	REVISION	BY	DATE
A	DESIGN FOR REVIEW	RDL	10/3
B	90% REVIEW	RDL	2/24/20
C	100% Review	IBM	3/31/20
D	FOR CONSTRUCTION	MTJ	6/15/2020

DESIGN RDL
DRAWN RDL
CHECKED MTJ
APPROVED PCC

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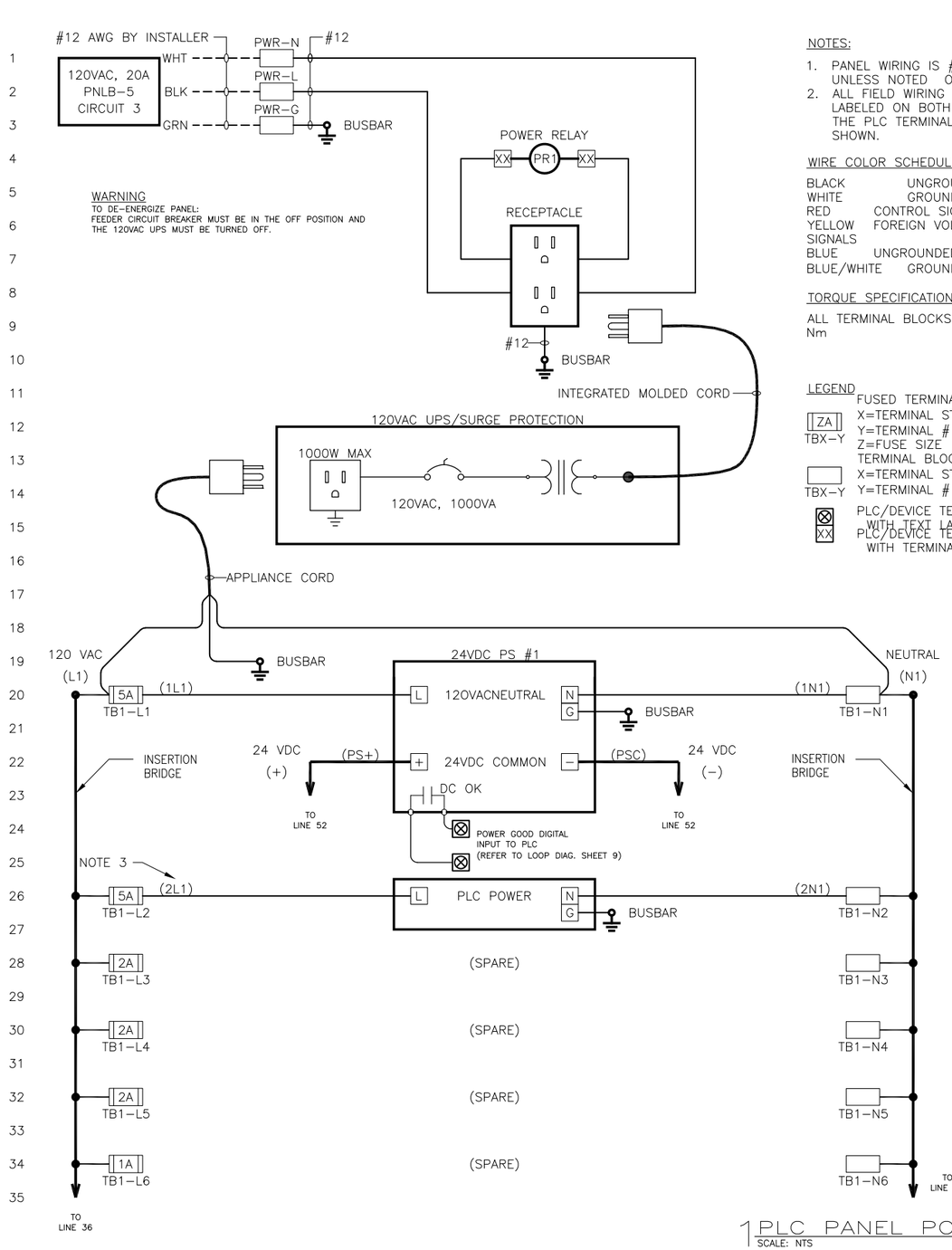
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CITY OF NEW MEADOWS
WATER SYSTEM IMPROVEMENTS
NEW MEADOWS, IDAHO
CONTROL PANEL - BOM

VERIFY SCALE
BAR IS ONE INCH ON FULL SIZE DRAWING
0 1"

PROJECT	104.0060.06
DATE	OCT. 2019
DRAWING NO.	E4.2



NOTES:

1. PANEL WIRING IS #16 AWG UNLESS NOTED OTHERWISE.
2. ALL FIELD WIRING SHALL BE LABELED ON BOTH ENDS WITH THE PLC TERMINAL NUMBER AS SHOWN.

WIRE COLOR SCHEDULE

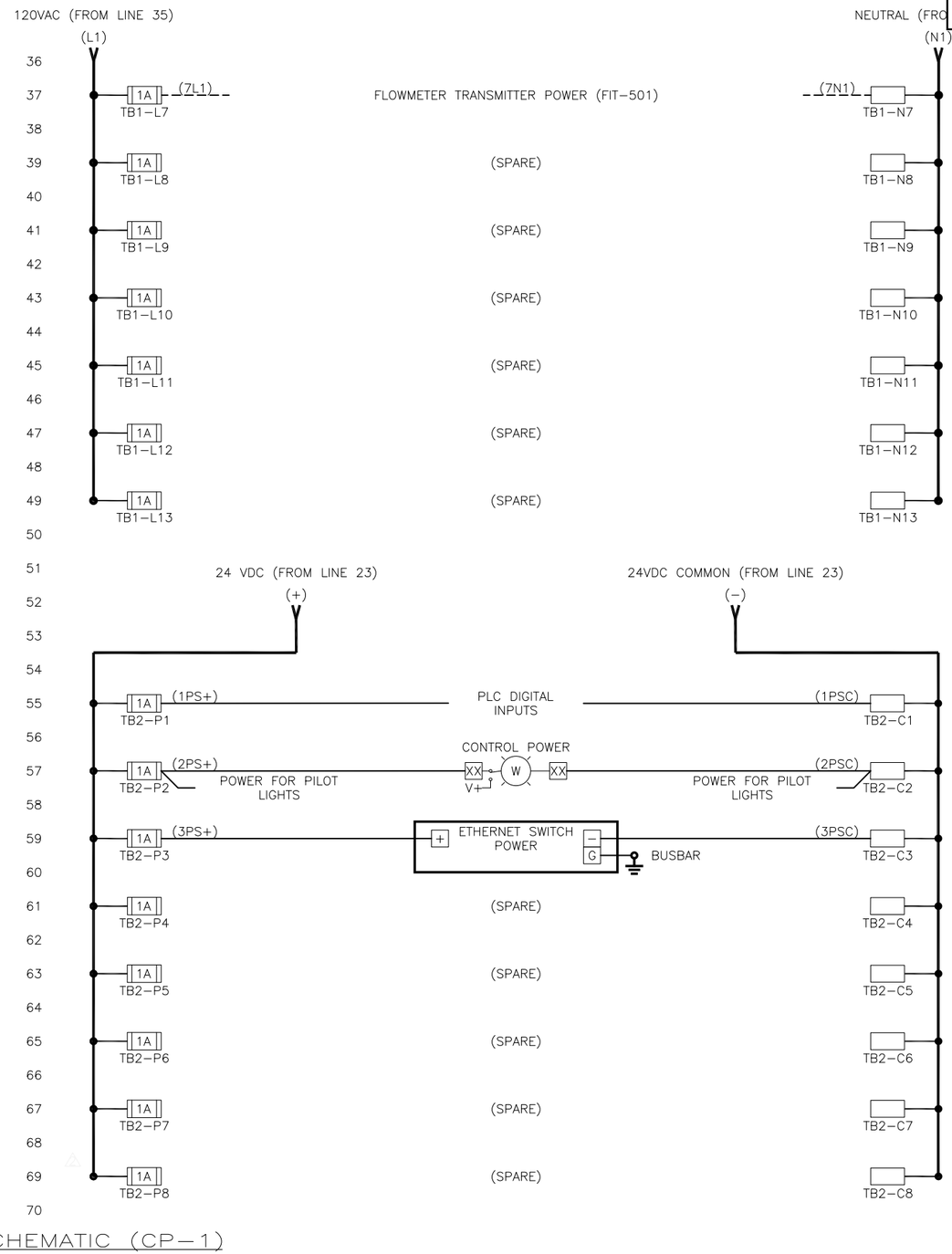
BLACK	UNGROUNDED, 120VAC
WHITE	GROUNDED, 120VAC
RED	CONTROL SIGNALS, 120VAC
YELLOW	FOREIGN VOLTAGE CONTROL SIGNALS
BLUE	UNGROUNDED, 24VDC
BLUE/WHITE	GROUNDED, 24VDC

TORQUE SPECIFICATIONS

ALL TERMINAL BLOCKS: 0.6 – 0.8 Nm

LEGEND

- [ZA] TBX–Y — FUSED TERMINAL BLOCK X=TERMINAL STRIP # Y=TERMINAL # Z=FUSE SIZE
- [ ] TBX–Y — TERMINAL BLOCK X=TERMINAL STRIP # Y=TERMINAL #
- ⊗ XX — PLC/DEVICE TERMINAL BLOCK WITH TEXT LABEL
- ⊗ XX — PLC/DEVICE TERMINAL BLOCK WITH TERMINAL NUMBER



1 PLC PANEL POWER SCHEMATIC (CP–1)

SCALE: NTS

NO.	REVISION	BY	DATE
A	DESIGN FOR REVIEW	RDL	10/3
B	90% REVIEW	RDL	2/24/20
C	100% Review	IBM	3/31/20
D	FOR CONSTRUCTION	MTJ	6/15/2020

DESIGN RDL · DRAWN RDL · CHECKED MTJ · APPROVED PCC

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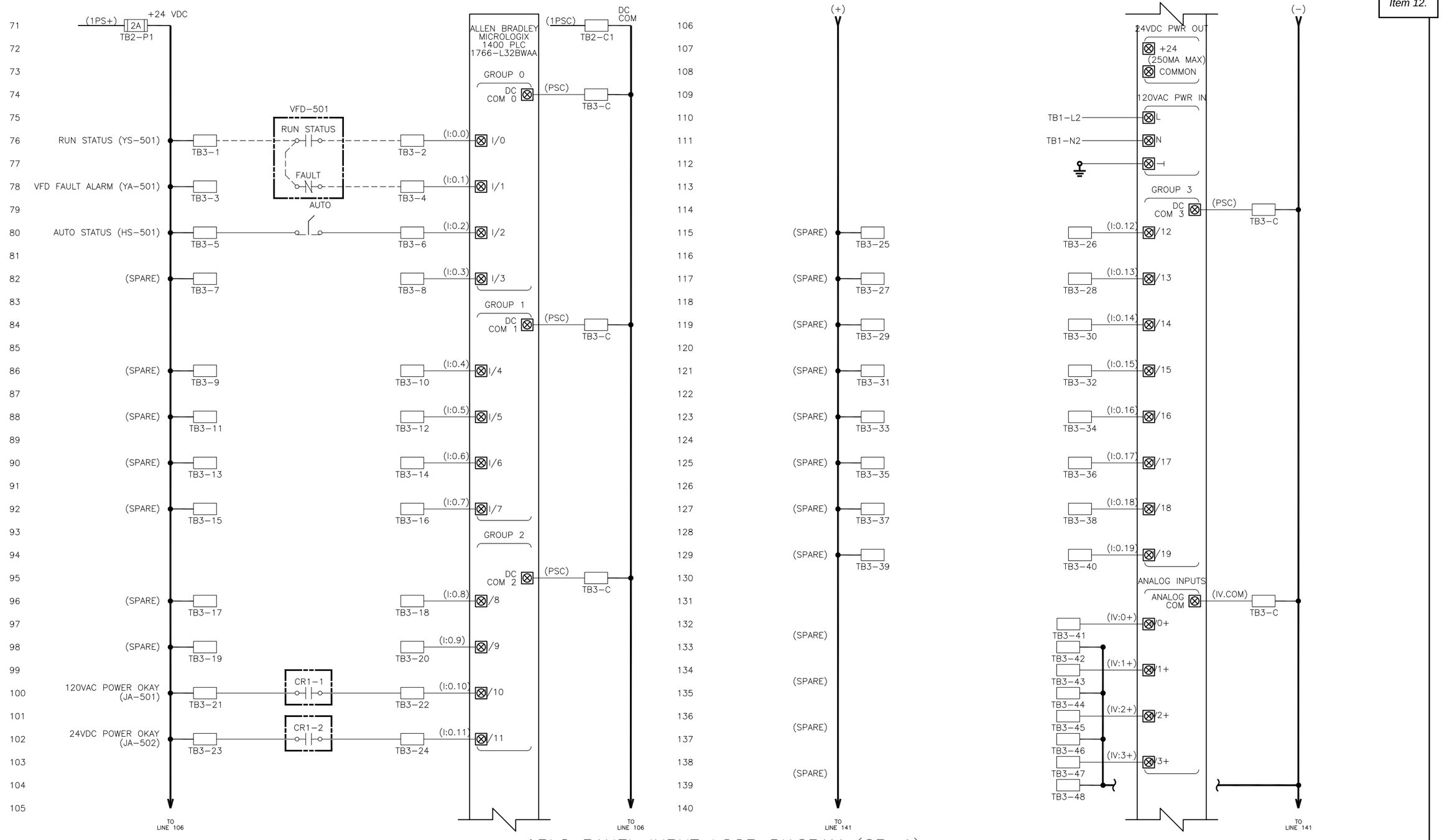
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CITY OF NEW MEADOWS
WATER SYSTEM IMPROVEMENTS
NEW MEADOWS, IDAHO
CONTROL PANEL - POWER SCHEMATIC

VERIFY SCALE
BAR IS ONE INCH ON FULL SIZE DRAWING (0 – 1")

PROJECT	104.0060.06
DATE	OCT. 2019
DRAWING NO.	E4.3

Path: p:\0228 mountain waterworks llc\18-02 city of new meadows water system upgrades\Drawings\E4.3 CONTROL PANEL - POWER SCHEMATIC.dwg File Name: E4.3 CONTROL PANEL - POWER SCHEMATIC.dwg Plot Date: 9/26/2020 1:23 PM mtjohnson



1 PLC PANEL INPUT LOOP DIAGRAM (CP−1)
SCALE: NTS

NO.	REVISION	BY	DATE
A	DESIGN FOR REVIEW	RDL	10/3
B	90% REVIEW	RDL	2/24/20
C	100% Review	IBM	3/31/20
D	FOR CONSTRUCTION	MTJ	6/15/2020

DESIGN: RDL
DRAWN: RDL
CHECKED: MTJ
APPROVED: PCC

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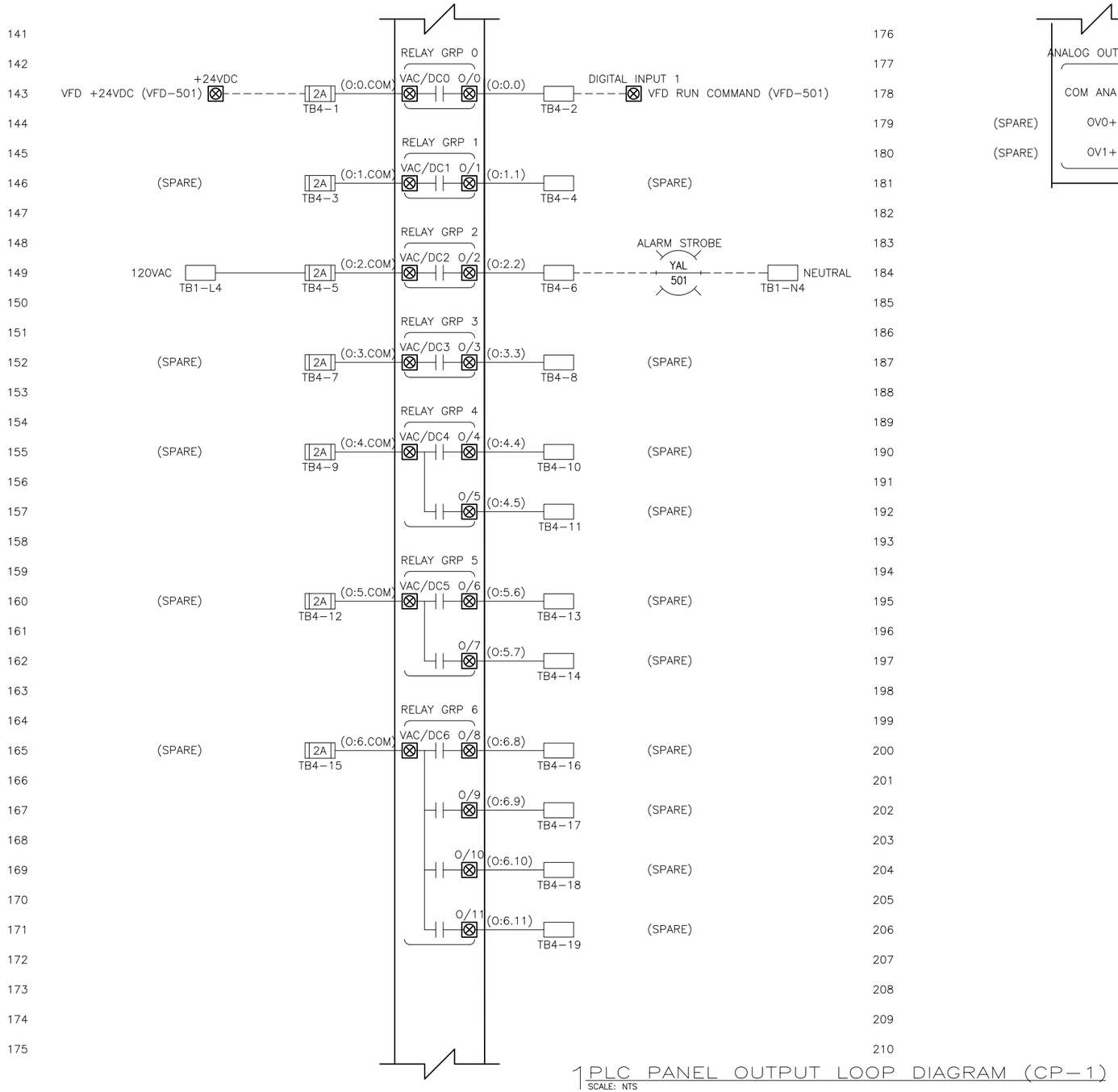
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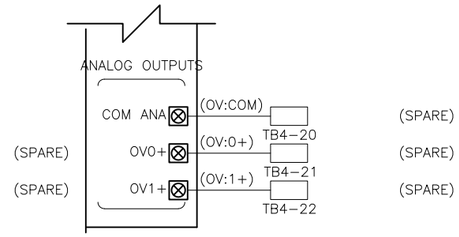
CITY OF NEW MEADOWS
WATER SYSTEM IMPROVEMENTS
NEW MEADOWS, IDAHO
CONTROL PANEL - LOOP DIAGRAM DIGITAL INPUT

VERIFY SCALE
BAR IS ONE INCH ON FULL SIZE DRAWING (0 — 1")

PROJECT	104.0060.06
DATE	OCT. 2019
DRAWING NO.	E4.4

Path: p:\0228 mountain waterworks llc\18-02 city of new meadows water system upgrades\Drawings\E4.4 CONTROL PANEL - LOOP DIAGRAM DIGITAL INPUT.dwg File Name: E4.4 CONTROL PANEL - LOOP DIAGRAM DIGITAL INPUT.dwg Plot Date: 8/26/2020 1:23 PM amkinsey





1 PLC PANEL OUTPUT LOOP DIAGRAM (CP-1)
SCALE: NTS

NO.	REVISION	BY	DATE
A	DESIGN FOR REVIEW	RDL	10/3
B	90% REVIEW	RDL	2/24/20
C	100% Review	IBM	3/31/20
D	FOR CONSTRUCTION	MTJ	6/15/2020

DESIGN RDL
DRAWN RDL
CHECKED MTJ
APPROVED PCC

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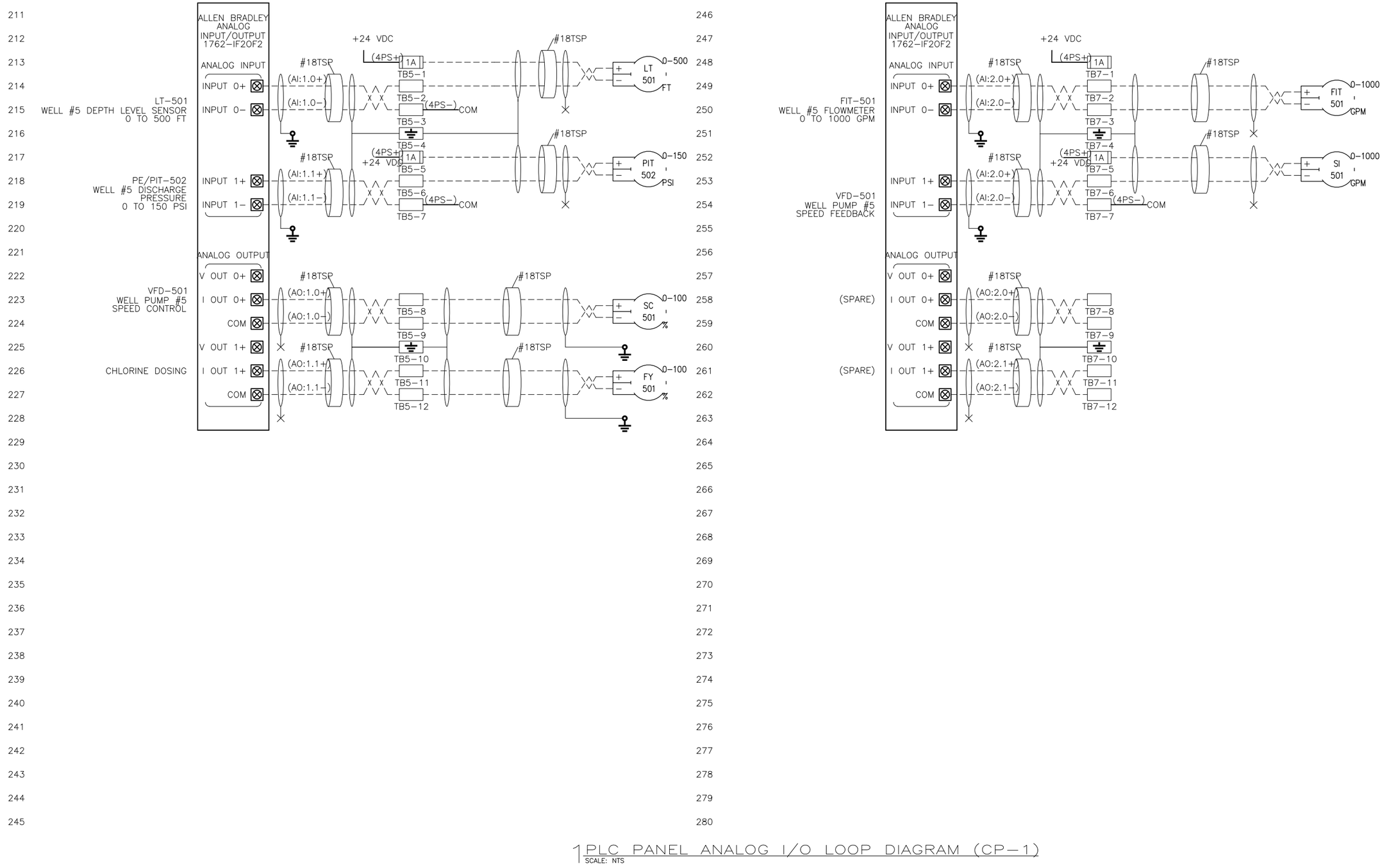
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CITY OF NEW MEADOWS
WATER SYSTEM IMPROVEMENTS
NEW MEADOWS, IDAHO
CONTROL PANEL - LOOP DIAGRAM DIGITAL OUTPUT

VERIFY SCALE
BAR IS ONE INCH ON FULL SIZE DRAWING
0 1"

PROJECT	104.0060.06
DATE	OCT. 2019
DRAWING NO.	E4.5

Path: p:\0228 mountain waterworks llc\18-02 city of new meadows water system upgrades\Drawings\E4.5 CONTROL PANEL - LOOP DIAGRAM DIGITAL OUTPUT.dwg File Name: E4.5 CONTROL PANEL - LOOP DIAGRAM DIGITAL OUTPUT.dwg Plot Date: 8/26/2020 1:23 PM mtjohnson



1 PLC PANEL ANALOG I/O LOOP DIAGRAM (CP-1)
SCALE: NTS

NO.	REVISION	BY	DATE
A	DESIGN FOR REVIEW	RDL	10/3
B	90% REVIEW	RDL	2/24/20
C	100% Review	IBM	3/31/20
D	FOR CONSTRUCTION	MTJ	6/15/2020

DESIGN	RDL
DRAWN	RDL
CHECKED	MTJ
APPROVED	PCC

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CITY OF NEW MEADOWS
WATER SYSTEM IMPROVEMENTS
NEW MEADOWS, IDAHO
CONTROL PANEL - LOOP DIAGRAM - ANALOG IO

VERIFY SCALE
BAR IS ONE INCH ON FULL SIZE DRAWING
0 1"

PROJECT	104.0060.06
DATE	OCT. 2019
DRAWING NO.	E4.6

Path: p:\0228 mountain waterworks llc\18-02 city of new meadows water system upgrades\Drawings\E4.6 CONTROL PANEL - LOOP DIAGRAM - ANALOG IO.dwg Plot Date: 8/26/2020 1:23 PM amkinsey File Name: E4.6 CONTROL PANEL - LOOP DIAGRAM - ANALOG IO.dwg

MAGNETIC FLOW METERS

TAG	LINE DATA SIZE, TYPE	MOUNTING SIZE, MAT	LOCATION	LINER TYPE	ELECTRODE TYPE	PROCESS FLUID	TRANSMITTER MOUNTING	FLOW RANGE GPM	TUBE MANUF: MODEL TRANSMITTER MANUF: MODEL	INSTRUMENT NOTES
FIT–501	4", DI	4" SS	WELL 5	ULTRALINER EPOXY	316 SS	POTABLE WATER	REMOTE	8–1140	McCROMETER, ULTRAMAG UM06	1,2,4

GENERAL NOTES:

1. COMPONENTS SHALL BE CONSTRUCTED OF 304 OR 316 SST.
2. REFER TO MECHANICAL SHEETS FOR DETAILS.
3. PROVIDE CALIBRATION CERTIFICATE.
4. POTABLE DRINKING WATER APPROVED.

INSTRUMENT NOTES:

1. 24VDC POWERED
2. 4–20MA OUTPUT
3. 120VAC POWERED
4. NSF 61, DRINKING WATER SYSTEMS COMPONENT COMPLIANT

PRESSURE INDICATING TRANSMITTERS

TAG	TYPE	LOCATION	PROCESS FLUID	RANGE	MANUF: MODEL	INSTRUMENT NOTES
PIT–502	GAUGE PRESSURE	WELL 5	POTABLE WATER	0 TO 150 PSI	ENDRESS + HAUSER: PMP51	1,2,3,4

GENERAL NOTES:

1. COMPONENTS SHALL BE CONSTRUCTED OF 304 OR 316 SST.
2. REFER TO MECHANICAL SHEETS FOR DETAILS.
3. PROVIDE CALIBRATION CERTIFICATE.
4. POTABLE DRINKING WATER APPROVED.

INSTRUMENT NOTES:

1. 24VDC POWERED
2. 4–20MA OUTPUT
3. NSF 61, DRINKING WATER SYSTEMS COMPONENT COMPLIANT
4. NSF 372, LEAD–FREE COMPLIANT

PRESSURE/LEVEL TRANSMITTERS

TAG	TYPE	LOCATION	PROCESS FLUID	RANGE	MANUF: MODEL	INSTRUMENT NOTES
LT–501	WELL DEPTH	WELL 5	POTABLE WATER	0 TO 500 FT	KELLER: MICROLEVEL	1,2,3,4

GENERAL NOTES:

1. COMPONENTS SHALL BE CONSTRUCTED OF 304 OR 316 SST.
2. REFER TO MECHANICAL SHEETS FOR DETAILS.
3. PROVIDE CALIBRATION CERTIFICATE.
4. POTABLE DRINKING WATER APPROVED.

INSTRUMENT NOTES:

1. 24VDC POWERED
2. 4–20MA OUTPUT
3. NSF 61, DRINKING WATER SYSTEMS COMPONENT COMPLIANT
4. NSF 372, LEAD–FREE COMPLIANT

NO.	REVISION	BY	DATE
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DESIGN RDL
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APPROVED PCC

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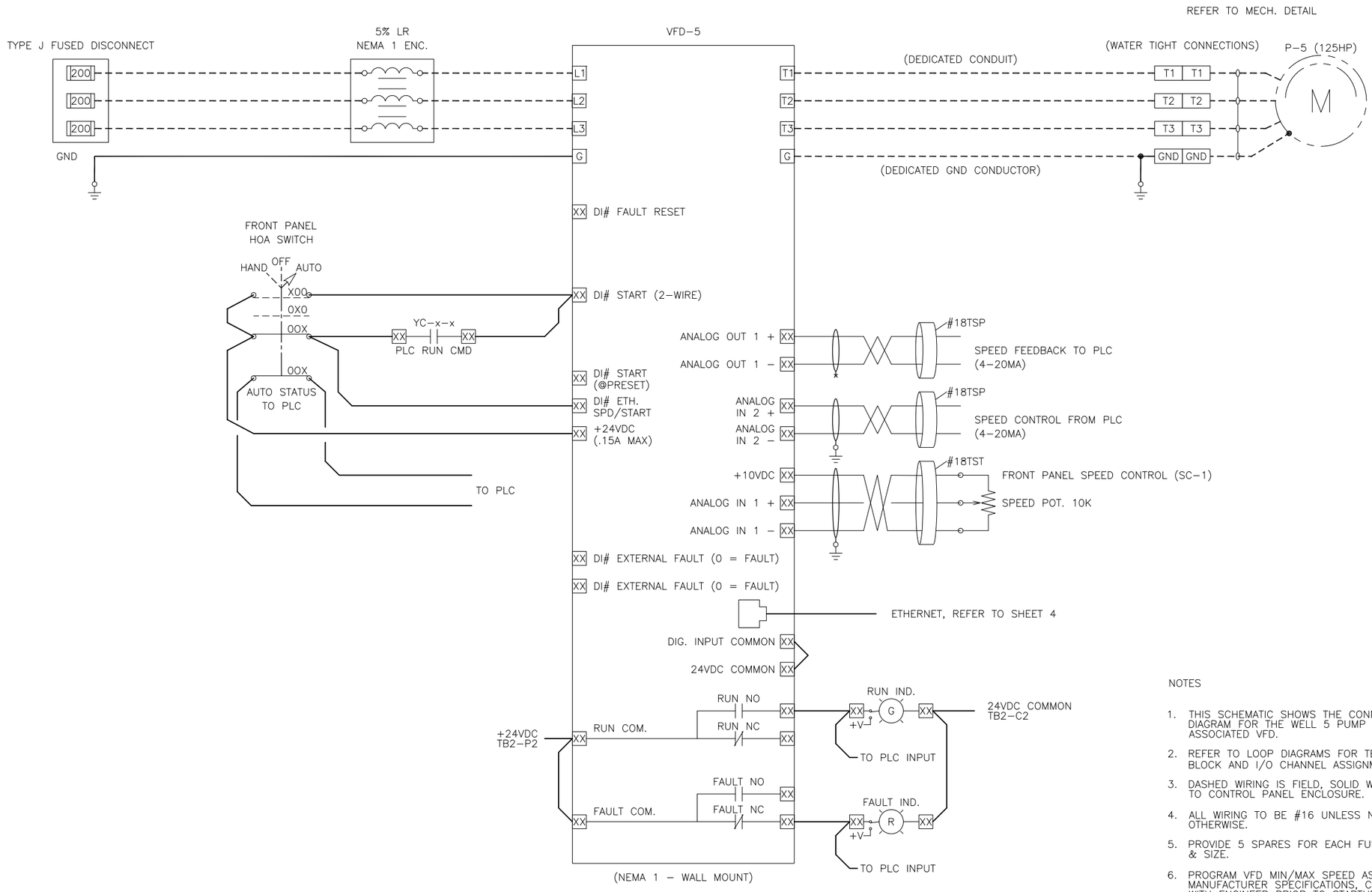
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CITY OF NEW MEADOWS
WATER SYSTEM IMPROVEMENTS
NEW MEADOWS, IDAHO
INSTRUMENT SCHEDULE

VERIFY SCALE
BAR IS ONE INCH ON FULL SIZE DRAWING
0 1"

PROJECT 104.0060.06
DATE OCT. 2019
DRAWING NO. E5.0

Path: p:\0228 mountain waterworks llc\18-02 city of new meadows water system upgrades\Drawings\E5.0 INSTRUMENT SCHEDULE.dwg File Name: E5.0 INSTRUMENT SCHEDULE.dwg Plot Date: 8/26/2020 1:23 PM amkinsey



NOTES

1. THIS SCHEMATIC SHOWS THE CONNECTION DIAGRAM FOR THE WELL 5 PUMP AND ASSOCIATED VFD.
2. REFER TO LOOP DIAGRAMS FOR TERMINAL BLOCK AND I/O CHANNEL ASSIGNMENTS.
3. DASHED WIRING IS FIELD, SOLID WIRING IS TO CONTROL PANEL ENCLOSURE.
4. ALL WIRING TO BE #16 UNLESS NOTED OTHERWISE.
5. PROVIDE 5 SPARES FOR EACH FUSE TYPE & SIZE.
6. PROGRAM VFD MIN/MAX SPEED AS PER MANUFACTURER SPECIFICATIONS, CONFIRM WITH ENGINEER PRIOR TO STARTUP.

1 WELL 5 VFD SCHEMATIC
SCALE: NTS

NO.	REVISION	BY	DATE
A	DESIGN FOR REVIEW	RDL	10/3
B	90% REVIEW	RDL	2/24/20
C	100% Review	IBM	3/31/20
D	FOR CONSTRUCTION	MTJ	6/15/2020

DESIGN RDL
DRAWN RDL
CHECKED MTJ
APPROVED PCC

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CITY OF NEW MEADOWS
WATER SYSTEM IMPROVEMENTS
NEW MEADOWS, IDAHO
WELL 5 VFD SCHEMATIC

VERIFY SCALE
BAR IS ONE INCH ON FULL SIZE DRAWING
0 1"

PROJECT	104.0060.06
DATE	OCT. 2019
DRAWING NO.	E6.0

Path: p:\0228 mountain waterworks llc\18-02 city of new meadows water system upgrades\Drawings\E6.0 VFD SCHEMATIC (TYP).dwg File Name: E6.0 VFD SCHEMATIC (TYP).dwg Plot Date: 8/26/2020 1:24 PM amkinsey

INSTRUMENT TAG IDENTIFICATION



TAG NAME
- P: FIRST LETTER, SEE ISA TABLE BELOW
- AH: SUCCEEDING LETTERS, SEE ISA TABLE BELOW
- HOA: TAG FUNCTION ABBREVIATION, SEE LISTING AT RIGHT

TAG NUMBER
- 1: UNIT NUMBER. UNIT (UNIT PROCESS) NUMBER IS A MAJOR PORTION OF THE ENTIRE TREATMENT PROCESS. SEE DRAWING NO. 09-N-1 FOR INTERFACE SUMMARY DIAGRAM.
- 2: LOOP NUMBER
- 3: DEVICE NUMBER
- 4: SECONDARY DEVICE NUMBER. USED WHEN MORE THAN ONE COMPONENT HAS THE SAME UNIT, LOOP AND DEVICE DESIGNATIONS.

(QUANTITY) (2): TOTAL NUMBER OF DEVICES WHERE MORE THAN ONE DEVICE IS REQUIRED. DEVICE NUMBERS ARE SEQUENTIAL BEGINNING WITH THE TAG NUMBER SHOWN. IF QUANTITY IS NOT SHOWN THEN ONE DEVICE ONLY IS REQUIRED.

COMPONENT DESIGNATOR ◆: SEE LISTING AT RIGHT

TAG FUNCTION ABBREVIATIONS

AI	ANALOG INPUT
ALT	ALTERNATE
AO	ANALOG OUTPUT
CLS	CLOSE(D)
CM	COMPUTER-MANUAL
DI	DIGITAL INPUT
DIFF	DIFFERENCE OR DIFFERENTIAL
DOP	DIGITAL OUTPUT
DO	DISSOLVED OXYGEN
F	FAIL
F(X)	CHARACTERIZED
FOR	FORWARD-STOP(OFF)-REVERSE (MAINTAINED CONTACT)
FSR	FORWARD-STOP-REVERSE (MOMENTARY CONTACT)
FT	FEET
HOA	HAND-OFF-AUTOMATIC (MAINTAINED CONTACT)
HOR	HAND-OFF-REMOTE (MAINTAINED CONTACT)
II	CURRENT-TO-CURRENT
IP	CURRENT-TO-PNEUMATIC
LL	LEAD-LAG (MAINTAINED CONTACT)
LOE	LOSS OF ECHO (ULTRASONIC SENSOR FAILURE)
LOR	LOCAL-OFF-REMOTE (MAINTAINED CONTACT)
LOS	LOCKOUT STOP (LOCKABLE IN "STOP" POSITION. MOMENTARY CONTACT)
LR	LOCAL-REMOTE (MAINTAINED CONTACT)
MA	MANUAL-AUTOMATIC (MAINTAINED CONTACT)
MOA	MANUAL-OFF-AUTOMATIC (MAINTAINED CONTACT)
OPN	OPEN
OA	OFF-AUTOMATIC
OCA	OPEN-CLOSE-AUTOMATIC (MAINTAINED CONTACT)
OC	OPEN-CLOSE(D) (MAINTAINED CONTACT)
OCR	OPEN-CLOSE(D) (MAINTAINED CONTACT)
OSC	OPEN-STOP-CLOSE (MOMENTARY CONTACT SPRING RETURN TO CENTER POSITION)
O/L	OVERLOAD RELAY
OO	ON-OFF (MAINTAINED CONTACT)
OOA	ON-OFF-AUTOMATIC (MAINTAINED CONTACT)
OOR	ON-OFF-REMOTE (MAINTAINED CONTACT)
PB	PULL BOX
POS	POSITION
POT	POTENTIOMETER
RUN	RUN
RESET	RESET
SBL	SLUDGE BLANKET INTERFACE LEVEL
SEL	SELECTOR SWITCH
SPD	SPEED
SQRT	SQUARE ROOT
SS	START-STOP (MOMENTARY CONTACT)
SSA	START-STOP-AUTOMATIC (MOMENTARY CONTACT)
SSL	START-STOP-LOCK (LOCKABLE IN "STOP" POSITION. MOMENTARY CONTACT)
STP	MOTOR STOP
STR	MOTOR STARTER
SUM	SUMMATION
VIB	VIBRATION
X	MULTIPLY
0-##	RANGE OF THE GIVEN INSTRUMENT

TAG SYMBOLS

	FIELD MOUNTED	PANEL MOUNTED ACCESSIBLE TO OPERATOR	PANEL MOUNTED NONACCESSIBLE TO OPERATOR	MOTOR STARTER MOUNTED ACCESSIBLE TO OPERATOR	MOTOR STARTER MOUNTED NONACCESSIBLE TO OPERATOR
DISCRETE INSTRUMENTS	◯	⊟	⊢⊣	═	═
PROGRAMMABLE CONTROLLER-BASED FUNCTIONS			◇		◇
MULTIFUNCTION KEYPAD/DISPLAY FUNCTIONS	⬡	⊟		═	
HMI/SCADA SOFTWARE-BASED FUNCTIONS		⊟	⊢⊣		

INSTRUMENT SOCIETY OF AMERICA TABLE

LETTER	FIRST LETTER (S)		SUCCEEDING LETTERS		
	PROCESS OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS (*)		ALARM (W. LOGGING)	ANNUNCIATE	
B	BURNER COMBUSTION		USERS CHOICE (*)	USERS CHOICE (*)	USERS CHOICE (*)
C	USERS CHOICE (*)			CONTROL	
D	USERS CHOICE (*)	DIFFERENTIAL			
E	VOLTAGE		PRIMARY ELEMENT		
F	FLOW RATE				FEEDBACK
G	USERS CHOICE (*)		GLASS		
H	HAND (MANUAL)				HIGH
I	CURRENT		INDICATE		
J	POWER	SCAN			
K	TIME OR SCHEDULE	TIME RATE OF CHANGE	KEYPAD (DATA ENTRY)	CONTROL STATION	
L	LEVEL		LIGHT (PILOT)		LOW
M	MOTOR	MOMENTARY			MONITORING
N	USERS CHOICE (*)		USERS CHOICE (*)	USERS CHOICE (*)	USERS CHOICE (*)
O	USERS CHOICE (*)		ORIFICE		
P	PRESSURE OR VACUUM		POINT (TEST CONNECTION)		
Q	QUANTITY	INTEGRATE			
R	RADIOACTIVITY		RECORD OR TREND		
S	SPEED OR FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	UNIVERSAL/MULTIVARIABLE (*)		MULTIFUNCTION (*)	MULTIFUNCTION (*)	MULTIFUNCTION (*)
V	VIBRATION			VALVE	
W	WEIGHT OR FORCE		WELL		
X	UNCLASSIFIED (*)	X AXIS	UNCLASSIFIED (*)	UNCLASSIFIED (*)	CONTROL
Y	EVENT, STATE (W. LOGGING)	Y AXIS		RELAY OR COMPUTE (*)	
Z	POSITION, DIMENSION	Z AXIS		DRIVE, ACTUATE OR UNCLASSIFIED FINAL CONTROL ELEMENT	

(*) WHEN USED. EXPLANATION IS SHOWN ADJACENT TO INSTRUMENT SYMBOL.

SPECIAL CASES:
ETM – ELAPSED TIME METER
MS – MOTOR STARTER
MOR – MOTOR OVERLOAD RELAY

EQUIPMENT AND VALVE TAG IDENTIFICATION

TAG NUMBER

W-X-Y-Z
**

- W: EQUIPMENT OR SELF CONTAINED VALVE ABBREVIATION
- X: UNIT PROCESS NUMBER
- Y: LOOP NUMBER
- Z: UNIT NUMBER
- ** COMPONENT DESIGNATOR

EQUIPMENT ABBREVIATIONS

E	EJECTOR
G	GATE
M	MECHANICAL EQUIPMENT
P	PUMP
T	TANK

SELF CONTAINED VALVE ABBREVIATIONS

ARV	AIR RELEASE VALVE
AVRV	AIR AND VACUUM RELIEF VALVE
LCV	LEVEL CONTROL VALVE
PCV	PRESSURE CONTROL VALVE
TCV	TEMPERATURE CONTROL VALVE
PSV	PRESSURE SAFETY (RELIEF) VALVE

LOCAL CONTROL PANEL TAG IDENTIFICATION

TAG NUMBER

W-X-Y-Z
◆

- W SITE IDENTIFIER (BUILDING NUMBER)
- X SEE EQUIPMENT LIST BELOW
- Y UNIT PROCESS NUMBER
- Z PANEL NUMBER
- ◆ COMPONENT DESIGNATOR

EQUIPMENT LIST

- LCP – LOCAL CONTROL PANEL
- CS – CONTROL STATION
- ITC – INTERCONNECTING TERMINATION CABINET
- AFD – ADJUSTABLE FREQUENCY DRIVE
- AP – ALARM PANEL

POWER OPERATED VALVE TAG IDENTIFICATION

- HKU — MULTIFUNCTION DISPLAY/KEYPAD
- S — SERIAL LINK
- F — PLC DATA HWY (FIBER OPTIC)
- DH — PLC DATA HWY (COPPER)
- FOC — FIBER OPTIC CONVERTER
- PIC — PROCESSOR INTERFACE CARD
- D — DATA OUTLET

LINE IDENTIFICATION

PROCESS FLOW

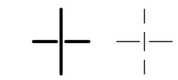
- FLOW STREAM IDENTIFIERS
- PI → NEW MAJOR PROCESS FLOW STREAM (CLOSED CONDUIT)
- RAS → NEW INTERMEDIATE PROCESS FLOW STREAM (CLOSED CONDUIT)
- ALP → NEW MINOR PROCESS FLOW STREAM (CLOSED CONDUIT)
- PI → EXISTING MAJOR PROCESS FLOW STREAM (CLOSED CONDUIT)
- RAS → EXISTING INTERMEDIATE PROCESS FLOW STREAM (CLOSED CONDUIT)
- ALP → EXISTING MINOR PROCESS FLOW STREAM (CLOSED CONDUIT)
- PI → FUTURE PROCESS FLOW STREAM

SIGNALS

- DISCRETE (ON/OFF ETC.)
- MODULATED (4 TO 20 mADC ETC.)
- DATA HIGHWAY
- S — SERIAL LINK (RS-232, RS-485)
- INSTRUMENT SUPPLY OR CONNECTION TO EQUIPMENT
- X X FILLED SYSTEM (CAPILLARY TUBING ETC.)
- PNEUMATIC
- L L HYDRAULIC
- ELECTROMAGNETIC OR SONIC (GUIDED)
- ELECTROMAGNETIC OR SONIC (UNGUIDED)
- MECHANICAL LINK

STRUCTURES AND EQUIPMENT

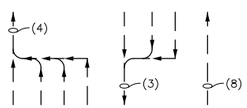
- NEW OR RELOCATED ITEM
- EXISTING ITEM
- NEW OR RELOCATED STRUCTURE
- EXISTING STRUCTURE



NON-CONNNECTING LINES



CONNECTING LINES



PARALLELING LINES. (PARENTHETICAL NUMBER INDICATES THE NUMBER OF SIGNALS REPRESENTED)

COMPONENT DESIGNATORS

- • CRITICAL ALARM
- ◆ PROVIDE IN ACCORDANCE WITH SECTION 13400
- ◆◆ EXISTING COMPONENT TO BE RELOCATED IN ACCORDANCE WITH SECTION 13400
- ◆◆◆ OWNER FURNISHED COMPONENT TO BE INSTALLED IN ACCORDANCE WITH SECTION 13400
- * OWNER FURNISHED COMPONENT TO BE INSTALLED IN ACCORDANCE WITH DIVISION 11 AND DIVISION 15
- ** PROVIDE AS PART OF A MANUFACTURER'S OR VENDOR'S PACKAGED SYSTEM IN ACCORDANCE WITH DIVISION 11, DIVISION 13 AND DIVISION 15
- *** EXISTING COMPONENT TO BE RELOCATED IN ACCORDANCE WITH DIVISION 11 AND DIVISION 15

PROVIDE COMPONENT WITHOUT A DESIGNATOR IN ACCORDANCE WITH DIVISION 11, DIVISION 13 AND DIVISION 15

GENERAL NOTES

1. HALF-TONED PORTIONS OF P&ID'S
   INDICATE EXISTING FACILITIES WHICH ARE NOT A PART OF THIS CONTRACT.
2. HALF-TONED RECTANGULAR SHAPES ON P&ID'S
   REPRESENT EXISTING CONTROL PANELS WHICH ARE NOT A PART OF THIS CONTRACT.
3. THERE IS NO INTENT TO SHOW ALL EXISTING FACILITIES ON THE P&ID'S.

NOTICE:

THIS IS A STANDARD LEGEND. NOT ALL OF THE INFORMATION SHOWN ON THIS LEGEND IS USED IN THESE CONTRACT DRAWINGS.

NO.	REVISION	BY	DATE
A	DESIGN FOR REVIEW	RDL	10/3
B	90% REVIEW	RDL	2/24/20
C	100% Review	IBM	3/31/20
D	FOR CONSTRUCTION	MTJ	6/15/2020

DESIGN RDL
DRAWN RDL
CHECKED MTJ
APPROVED PCC

PROFESSIONAL ENGINEER REGISTERED 10591 STATE OF IDAHO PETER C. COOR

PROJECT: 0228-18-02
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Control Engineers

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CITY OF NEW MEADOWS
WATER SYSTEM IMPROVEMENTS
NEW MEADOWS, IDAHO
PROCESS AND INSTRUMENTATION LEGEND (1 OF 2)

VERIFY SCALE
BAR IS ONE INCH ON FULL SIZE DRAWING
0 1"

PROJECT	104.0060.06
DATE	OCT. 2019
DRAWING NO.	N0.1

Path: p:\0228 mountain waterworks ll\18-02 city of new meadows water system upgrades\Drawings\N0.2 PROCESS AND INSTRUMENTATION LEGEND (1 OF 2).dwg File Name: N0.2 PROCESS AND INSTRUMENTATION LEGEND (1 OF 2).dwg Plot Date: 8/26/2020 1:24 PM mtjohnson

VALVE SYMBOLS

ECCENTRIC PLUG (SEAT/PORT)
BUTTERFLY
BALL
GLOBE
GATE
KNIFE GATE
PINCH
NEEDLE
SOLENOID
THREE–WAY
TELESCOPING
BALL CHECK
SWING CHECK
SPLIT DISC CHECK
DIAPHRAM CHECK
CALIBRATED BALANCE
PRESSURE CONTROL (REGULATED SIDE)
PRESSURE RELIEF
AIR RELEASE AND VACUUM RELIEF
MUD
SIGHT GLASS

GATE SYMBOLS

SLUICE
SLIDE
FLAP GATE
WIER GATE
STOP PLANK

VALVE AND GATE POWER ACTUATOR SYMBOLS

ELECTRIC MOTOR
ELECTRIC MOTOR WITH POSITIONER
PNEUMATIC WITH SOLENOID
PNEUMATIC WITH POSITIONER
HYDRAULIC WITH SOLENOID
HYDRAULIC WITH POSITIONER

NOTE ON 'XX':

ON LOSS OF PRIMARY POWER (PNEUMATIC OR ELECTRICAL)

XX:
FC = FAIL CLOSED POSITION
FIP = FAIL INTERMEDIATE POSITION
FLP = FAIL LAST POSITION
FO = FAIL OPEN POSITION

INSTRUMENT ELEMENT SYMBOLS

PARSHALL FLUME
ROTAMETER
PROPELLER OR TURBINE METER
SUSPENDED ULTRASONIC LEVEL ELEMENT
SUSPENDED SUBMERSIBLE LEVEL ELEMENT
SUBMERSIBLE PROBE
CLAMP ON ULTRASONIC FLOWMETER
MAGNETIC FLOWMETER
PITOT–STATIC
TARGET TYPE SENSOR
VENTURI OR FLOW TUBE
VORTEX SHEDDING
ORIFICE METER
INSERTION FLOW METER
M=MAGNETIC
H=HOT WIRE

MISCELLANEOUS SYMBOLS

HARDWIRED INTERLOCK SEE SPECIFICATION
OR
MICROPROCESSOR BASED INTERLOCK SEE SPECIFICATION
OR
BLIND FLANGE OR CLEAN OUT
AIR GAP
STRAINER
FLUSHING WATER CONNECTION
SEAL WATER CONNECTION
EJECTOR
AUTOMATIC SAMPLER
DIFFUSER
BUBBLER LEVEL ELEMENT
VENT
PURGE SET
X: W = WATER
A = AIR
120 VOLT, 60 HZ POWER SUPPLY POINT
MIXER WITH ELECTRIC MOTOR
ELECTRIC MOTOR
MANUAL SAMPLE PORT
AUTOMATIC DRAIN
MANUAL DRIP TRAP
DIAPHRAGM SEAL
ANNULAR SEAL
FLOW STRAIGHTENING VANE
CALIBRATION CHAMBER
DENSITY METER
X: N – NUCLEAR
O – OPTICAL
U – ULTRASONIC
RUPTURE DISK
PULSATION DAMPENER

PUMP & COMPRESSOR SYMBOLS

SUBMERSIBLE PUMP
CENTRIFUGAL PUMP (DRY PIT)
VERTICAL TURBINE PUMP
PROGRESSING CAVITY PUMP
CENTRIFUGAL BLOWER
ROTARY LOBE PUMP, BLOWER OR COMPRESSOR (POSITIVE DISPLACEMENT)
COMPRESSOR (PISTON)
CHEMICAL FEED PUMP
PLUNGER PUMP
DIAPHRAGM PUMP
AIR LIFT PUMP

INTERFACE SYMBOLS

PROCESS FLOW

XXX = SOURCE SHEET XO.
YYY = DESTINATION SHEET NO.

INTER–UNIT PROCESS:
A = SOURCE UNIT PROCESS NO.
B = INTERFACE NO.

NEW OR CONCURRENT
EXISTING
TO INTERFACE NOT IN CONTRACT

INPUTS & OUTPUTS (I/O) TO PLC OR DISTRIBUTED CONTROL SYSTEMS

(X) ANALOG INPUT
(X) ANALOG OUTPUT
(X) PULSE INPUT
(X) PULSE (MODULATING) OUTPUT
(X) DIGITAL INPUT
(X) DIGITAL OUTPUT

NOTE ON 'X':

X = TOTAL NUMBER OF I/O WHERE MORE THAN ONE I/O IS REQUIRED. IF QUANTITY IS NOT SHOWN THEN ONE I/O IS REQUIRED.

NOTICE:

THIS IS A STANDARD LEGEND.
NOT ALL OF THE INFORMATION SHOWN ON THIS LEGEND

NO.	REVISION	BY	DATE
A	DESIGN FOR REVIEW	RDL	10/3
B	90% REVIEW	RDL	2/24/20
C	100% Review	IBM	3/31/20
D	FOR CONSTRUCTION	MTJ	6/15/2020

DESIGN RDL
DRAWN RDL
CHECKED MTJ
APPROVED PCC

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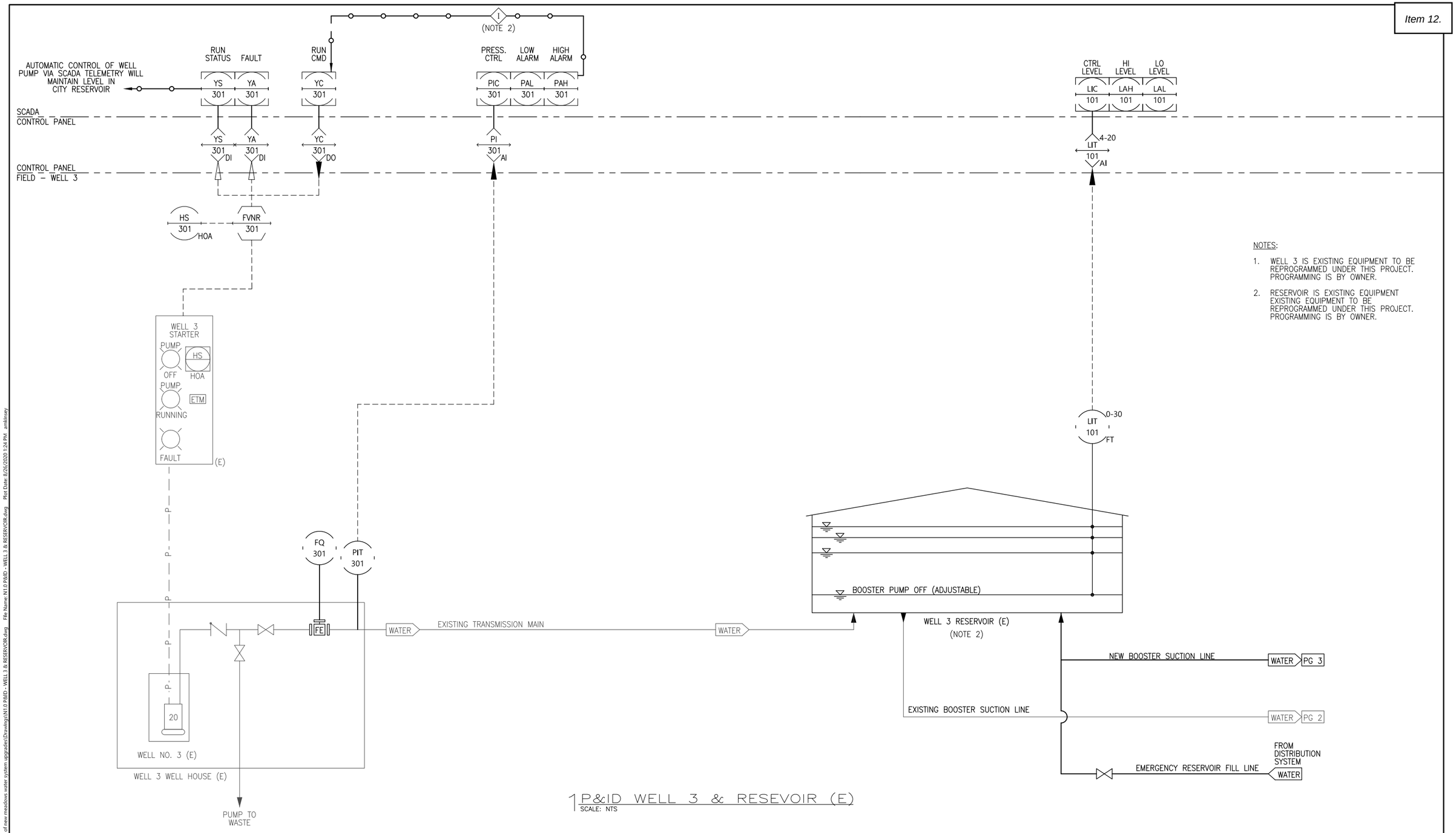
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CITY OF NEW MEADOWS
WATER SYSTEM IMPROVEMENTS
NEW MEADOWS, IDAHO
PROCESS AND INSTRUMENTATION LEGEND (1 OF 2)

VERIFY SCALE
BAR IS ONE INCH ON FULL SIZE DRAWING
0 1"
PROJECT 104.0060.06
DATE OCT. 2019
DRAWING NO. N0.2

Path: p:\0228 mountain waterworks llc\18-02 city of new meadows water system upgrades\Drawings\N0.2 PROCESS AND INSTRUMENTATION LEGEND (1 OF 2).dwg File Name: N0.2 PROCESS AND INSTRUMENTATION LEGEND (1 OF 2).dwg Plot Date: 8/26/2020 1:24 PM mtjohnson



1 P&ID WELL 3 & RESEVOIR (E)
SCALE: NTS

NOTES:

1. WELL 3 IS EXISTING EQUIPMENT TO BE REPROGRAMMED UNDER THIS PROJECT. PROGRAMMING IS BY OWNER.
2. RESERVOIR IS EXISTING EQUIPMENT EXISTING EQUIPMENT TO BE REPROGRAMMED UNDER THIS PROJECT. PROGRAMMING IS BY OWNER.

NO.	REVISION	BY	DATE
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B	90% REVIEW	RDL	2/24/20
C	100% Review	IBM	3/31/20
D	FOR CONSTRUCTION	MTJ	6/15/2020

DESIGN RDL
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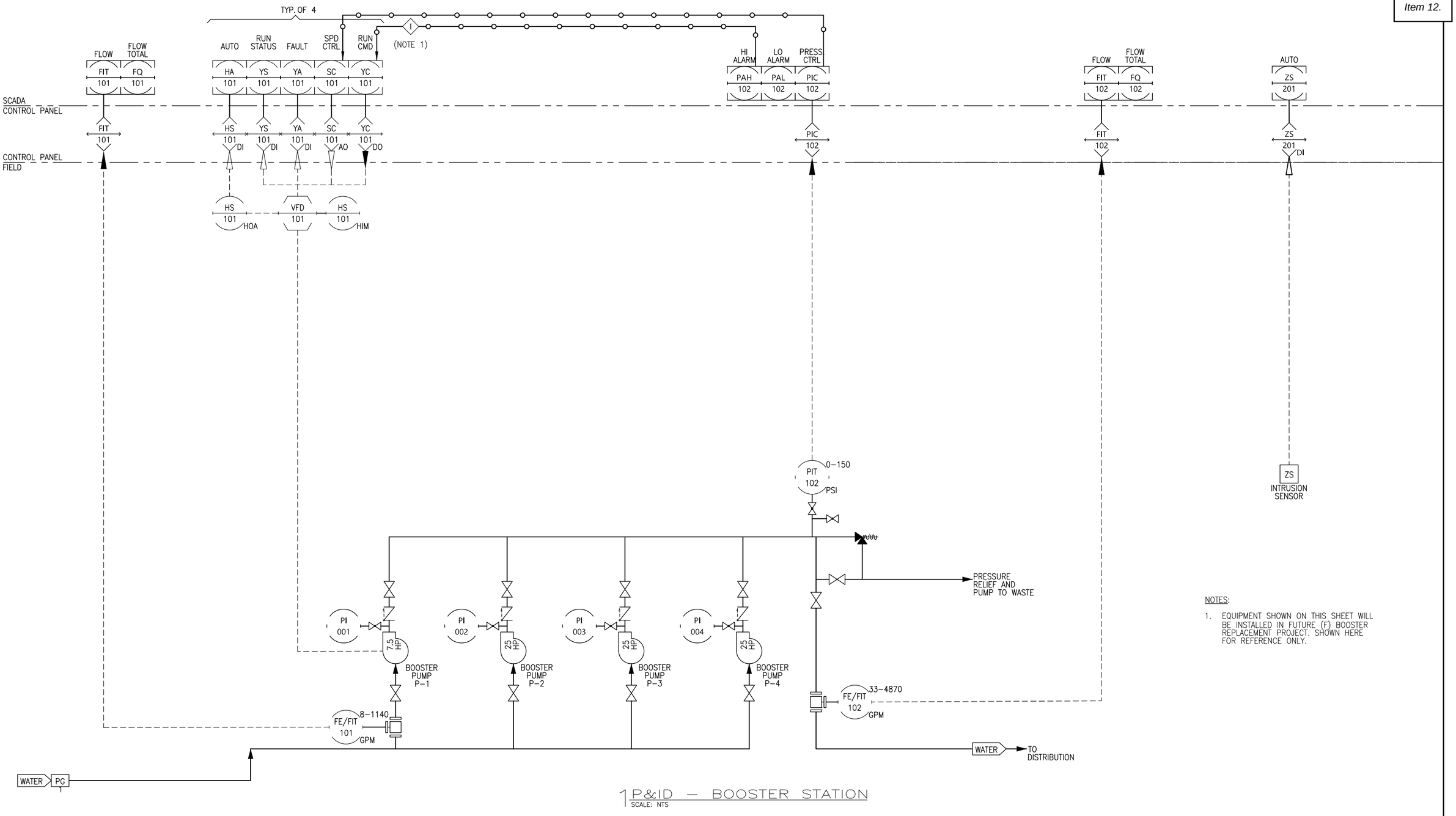
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CITY OF NEW MEADOWS
WATER SYSTEM IMPROVEMENTS
NEW MEADOWS, IDAHO
P&ID - WELL 3 & RESERVOIR

VERIFY SCALE
BAR IS ONE INCH ON FULL SIZE DRAWING
0 1"

PROJECT	104.0060.06
DATE	OCT. 2019
DRAWING NO.	N1.0

Path: p:\0228 mountain waterworks llc\18-02 city of new meadows water system upgrades\Drawings\N1.0 P&ID - WELL 3 & RESERVOIR.dwg File Name: N1.0 P&ID - WELL 3 & RESERVOIR.dwg Plot Date: 8/26/2020 1:24 PM amkinsey



1 P&ID – BOOSTER STATION
SCALE: NTS

NOTES:

1. EQUIPMENT SHOWN ON THIS SHEET WILL BE INSTALLED IN FUTURE (F) BOOSTER REPLACEMENT PROJECT. SHOWN HERE FOR REFERENCE ONLY.

NO.	REVISION	BY	DATE
A	DESIGN FOR REVIEW	RDL	10/3
B	90% REVIEW	RDL	2/24/20
C	100% Review	IBM	3/31/20
D	FOR CONSTRUCTION	MTJ	6/15/2020

DESIGN RDL
DRAWN RDL
CHECKED MTJ
APPROVED PCC

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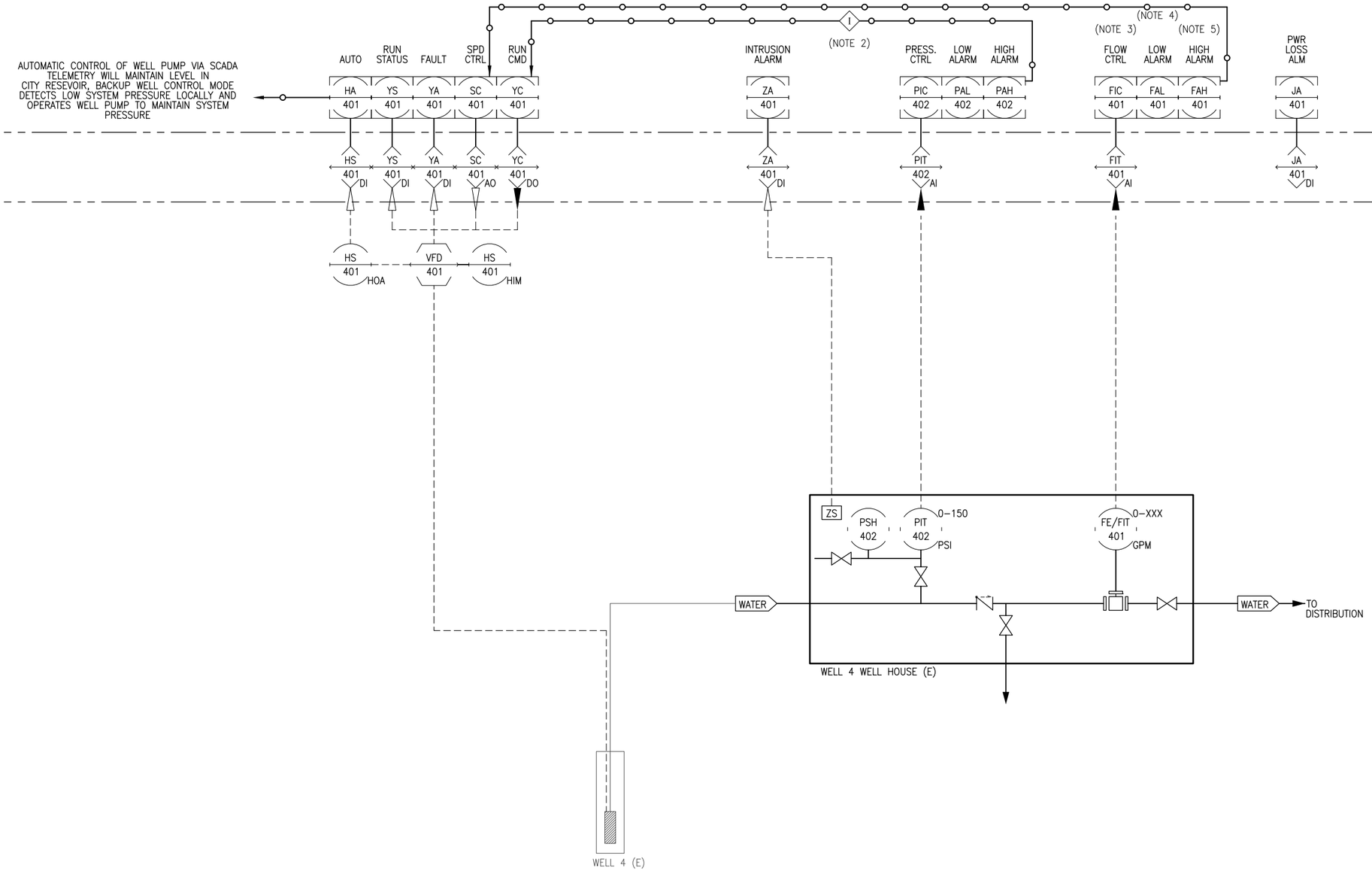
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CITY OF NEW MEADOWS
WATER SYSTEM IMPROVEMENTS
NEW MEADOWS, IDAHO
P&ID - BOOSTER STATION

VERIFY SCALE
BAR IS ONE INCH ON FULL SIZE DRAWING
0 1"

PROJECT	104.0060.06
DATE	OCT. 2019
DRAWING NO.	N2.0

Path: p:\0228 mountain waterworks llc\18-02 city of new meadows water system upgrades\Drawings\N1.0 P&ID - WELL 3 & RESERVOIR.dwg File Name: N1.0 P&ID - WELL 3 & RESERVOIR.dwg Plot Date: 8/26/2020 1:24 PM amkinsey



1 P&ID — WELL 4 (E)
SCALE: NTS

NOTES:

1. EXISTING PROCESS, INCLUDED IN SET FOR REFERENCE.
2. INTERLOCK DISCHARGE PRESSURE HIGH ALARM WITH PUMP RUN COMMAND FOR SYSTEM OVERPRESSURE PROTECTION.
3. FLOW CONTROL LOOP MODULATES WELL FLOW SETPOINT TO LIMIT DRAWDOWN FOR LOW WELL DEPTH CONDITION.
4. LOW FLOW ALARM ACTIVE IF WELL PUMP IS RUNNING TO DETECT DEADHEAD CONDITION.
5. HIGH FLOW ALARM ACTIVE IF WELL PUMP IS RUNNING TO DETECT BROKEN PIPE CONDITION.
6. WELL 4 IS EXISTING EQUIPMENT TO BE REPROGRAMMED AS PART OF THIS PROJECT. PROGRAMMING IS BY OWNER.

NO.	REVISION	BY	DATE
A	DESIGN FOR REVIEW	RDL	10/3
B	90% REVIEW	RDL	2/24/20
C	100% Review	IBM	3/31/20
D	FOR CONSTRUCTION	MTJ	6/15/2020

DESIGN RDL
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CHECKED MTJ
APPROVED PCC

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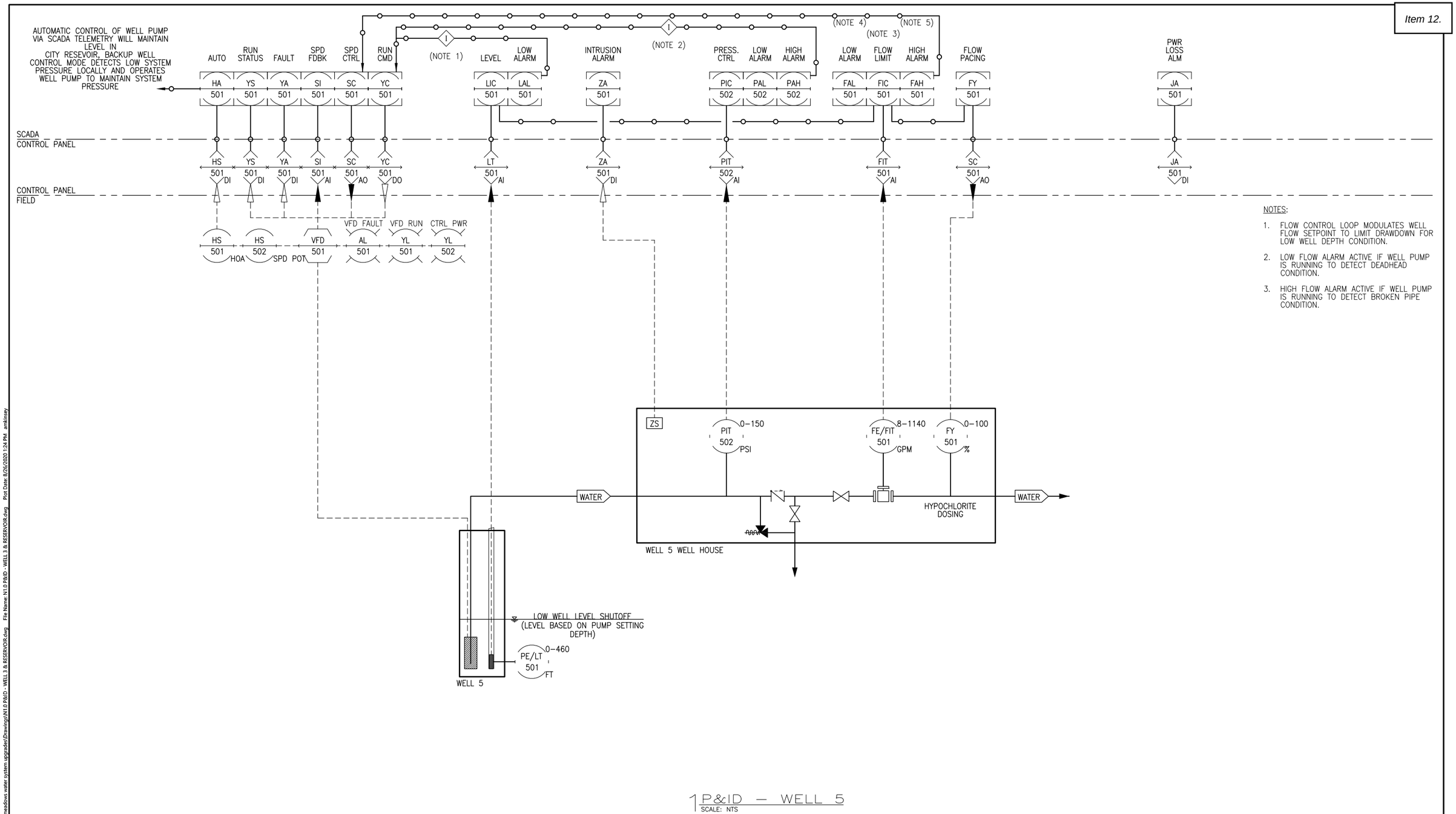
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CITY OF NEW MEADOWS
WATER SYSTEM IMPROVEMENTS
NEW MEADOWS, IDAHO
P&ID - WELL 4

VERIFY SCALE
BAR IS ONE INCH ON FULL SIZE DRAWING
0 1"

PROJECT	104.0060.06
DATE	OCT. 2019
DRAWING NO.	N3.0

Path: p:\0228 mountain waterworks llc\18-02 city of new meadows water system upgrades\Drawings\N1.0 P&ID - WELL 3 & RESERVOIR.dwg File Name: N1.0 P&ID - WELL 3 & RESERVOIR.dwg Plot Date: 8/26/2020 1:24 PM amkinsey



NOTES:

1. FLOW CONTROL LOOP MODULATES WELL FLOW SETPOINT TO LIMIT DRAWDOWN FOR LOW WELL DEPTH CONDITION.
2. LOW FLOW ALARM ACTIVE IF WELL PUMP IS RUNNING TO DETECT DEADHEAD CONDITION.
3. HIGH FLOW ALARM ACTIVE IF WELL PUMP IS RUNNING TO DETECT BROKEN PIPE CONDITION.

1 P&ID – WELL 5
SCALE: NTS

NO.	REVISION	BY	DATE
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B	90% REVIEW	RDL	2/24/20
C	100% Review	IBM	3/31/20
D	FOR CONSTRUCTION	MTJ	6/15/2020

DESIGN RDL
DRAWN RDL
CHECKED MTJ
APPROVED PCC

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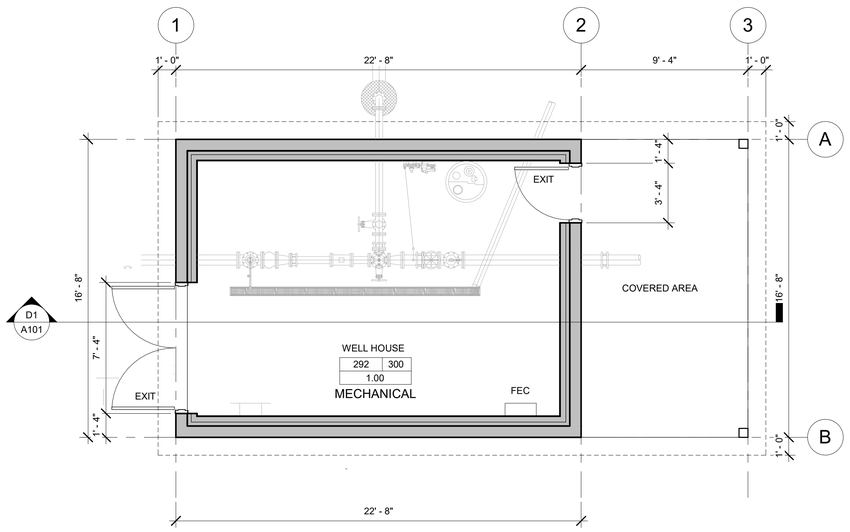
Mountain WATERWORKS

CITY OF NEW MEADOWS
WATER SYSTEM IMPROVEMENTS
NEW MEADOWS, IDAHO
P&ID - WELL 5

VERIFY SCALE
BAR IS ONE INCH ON FULL SIZE DRAWING
0 1"

PROJECT	104.0060.06
DATE	OCT. 2019
DRAWING NO.	N4.0

Path: p:\0228 mountain waterworks llc\18-02 city of new meadows water system upgrades\Drawings\N4.0 P&ID - WELL 3 & RESERVOIR.dwg File Name: N1.0 P&ID - WELL 3 & RESERVOIR.dwg Plot Date: 8/26/2020 1:24 PM amkinsey



WELL HOUSE CODE PLAN

1/4" = 1'-0"

GENERAL NOTES CODE PLAN:

A. ALL CONSTRUCTION ADDENDA, CHANGE ORDERS, OR DESIGN CLARIFICATIONS MUST BE SUBMITTED TO THE BUILDING DEPARTMENT OFFICE STAFF FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION IN THE FIELD. THE FIELD INSPECTOR WILL NOT APPROVE CHANGES TO THESE APPROVED PLANS AND SPECIFICATIONS.

B. ABBREVIATIONS OR PARTIAL CODE SECTIONS NOTED ON THE PLAN AND PLAN REVIEW LIST ARE INTENDED TO INDICATE THE NATURE OF THE PLAN DEFICIENCY OR GIVE ADDITIONAL INFORMATION. THE FULL TEXT OF THE CODE, AS INDICATED BY THE CODE SECTION REFERENCED, ALWAYS APPLIES.

C. THE ISSUANCE OR GRANTING OF A PERMIT OR APPROVAL OF PLANS, SPECIFICATIONS, AND COMPUTATIONS SHALL NOT BE CONSTRUED TO BE A PERMIT FOR, OR AN APPROVAL OF, ANY VIOLATION OF ANY OF THE PROVISIONS OF THE IBC OR ANY OTHER RADIANCE OF THIS JURISDICTION. PERMITS PRESUMING TO GIVE AUTHORITY TO VIOLATE OR CANCEL THE PROVISIONS OF THE IBC OR OTHER ORDINANCES OF THIS JURISDICTION SHALL NOT BE VALID.

D. APPROVAL AS A RESULT OF AN INSPECTION SHALL NOT BE CONSTRUED TO BE AN APPROVAL OF VIOLATIONS OF THE PROVISIONS OF THE IBC OR OF OTHER ORDINANCES OF THIS JURISDICTION. INSPECTIONS PRESUMING TO GIVE AUTHORITY TO VIOLATE OR CANCEL THE PROVISIONS OF THE IBC OR OF OTHER ORDINANCES OF THIS JURISDICTION SHALL NOT BE VALID.

E. ALTERATIONS OR REPAIRS TO ANY BUILDING OR STRUCTURE SHALL CONFORM WITH THE REQUIREMENTS OF THE PLAN REVIEW COMMENTS. ADDITIONS OR ALTERATIONS SHALL NOT BE MADE TO AN EXISTING STRUCTURE WHICH WILL CAUSE THE EXISTING BUILDING OR STRUCTURE TO BE IN VIOLATION OF ANY PROVISIONS APPLICABLE IN THE IBC.

CODE REVIEW:

APPLICABLE CODES:
2006 INTERNATIONAL BUILDING CODE
2006 INTERNATIONAL RESIDENTIAL CODE

IBC CHAPTER 3: USE AND OCCUPANCY CLASSIFICATION
OCCUPANCY CLASSIFICATION: U

IBC CHAPTER 5: GENERAL BUILDING HEIGHTS AND AREAS
IBC ALLOWABLE HEIGHT (TABLE 504.3) = **40'**
IBC ALLOWABLE STORIES ABOVE GRADE PLANE (TABLE 504.4) = **2**
IBC ALLOWABLE AREA PER STORY (TABLE 506.2) = **5,500 SF**

OCCUPANCY SEPARATION (TABLE 508.4)
NO SEPARATION REQUIRED

IBC CHAPTER 6: TYPES OF CONSTRUCTION
IBC CONSTRUCTION TYPE: **TYPE VB**

IBC CHAPTER 9: FIRE PROTECTION SYSTEMS
SECTION 903 AUTOMATIC FIRE SPRINKLER SYSTEM
FIRE SPRINKLER SYSTEM - **NO**

SECTION 903 PORTABLE FIRE EXTINGUISHERS
PROVIDE (1) FEC PER BUILDING, SEE PLANS
FIRE EXTINGUISHER - PROVIDE LARSEN'S MP10 FIRE EXTINGUISHER W/ VERTICAL DUO 2-1/2" SURFACE CABINET OR APPROVED EQUAL.

SECTION 907 FIRE ALARM AND DETECTION SYSTEMS
FIRE ALARM SYSTEM - **NO**

IBC CHAPTER 10: MEANS OF EGRESS
SECTION 1004 OCCUPANT LOAD
SEE CODE PLAN & 'OCCUPANCY SCHEDULE' THIS SHEET .
WELL HOUSE OCCUPANTS = 1
BOOSTER STATION OCCUPANTS = 3

ENERGY CODE REVIEW:

CHAPTER 5: COMMERCIAL PROVISIONS
SECTION 502.2 GENERAL (PRESCRIPTIVE)
1. OPAQUE ASSEMBLIES SHALL COMPLY WITH TABLE 502.2(1)

CLIMATE ZONE 6B:
ROOFS: ATTIC: **R-30**
WALLS, ABOVE GRADE (WOOD FRAMED): **R-13**
WALLS, BELOW GRADE: **NOT REQUIRED**
SLAB ON GRADE (UNHEATED): **NOT REQUIRED**
SWING DOORS: **U-0.70 OR BETTER**
ROLL-UP DOORS: **U-0.70 OR BETTER**

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ARCHITECTURE
1911 MONTCLAIR | BOISE, ID 83702 | (208) 921-9220

STAMP:

LICENSED ARCHITECT
AR-984992
JON CHATFIELD
STATE OF IDAHO

CONSULTANT:

PROJECT INFORMATION:

PROJECT NAME:

NEW MEADOWS WELL HOUSE

OWNER:

CITY OF NEW MEADOWS

NEW MEADOWS, ID

REVISIONS:

MARK	DATE	DESCRIPTION

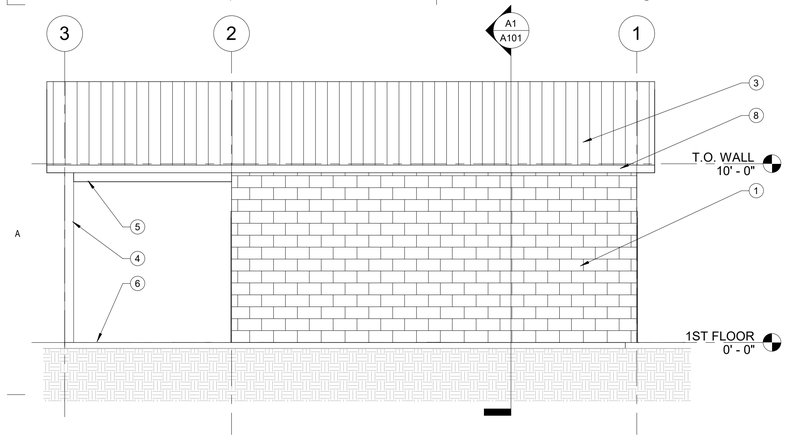
PROJECT PHASE	PERMIT PLOTS
PROJECT NUMBER	19-42
PROJECT ARCHITECT	J. Chatfield
DESIGN	J. Chatfield
DRAWN BY	J. Chatfield

SHEET NAME:

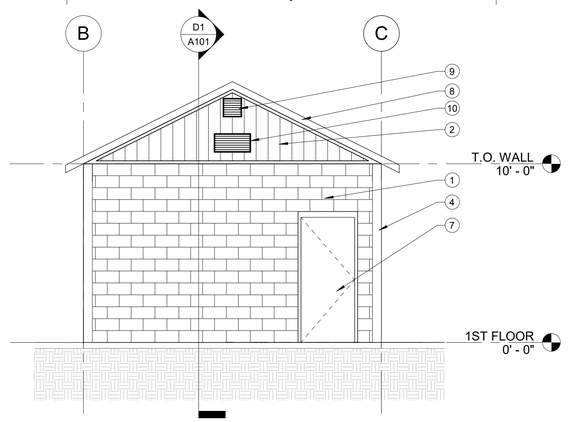
ARCHITECTURAL CODE PLANS

A000

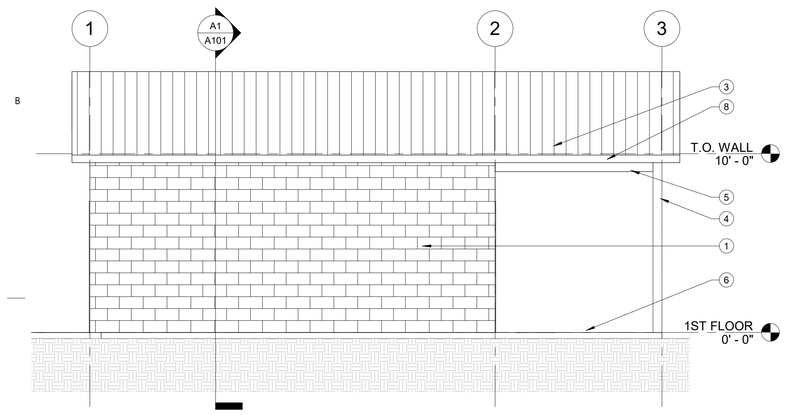
PLOT DATE: 04.01.2020



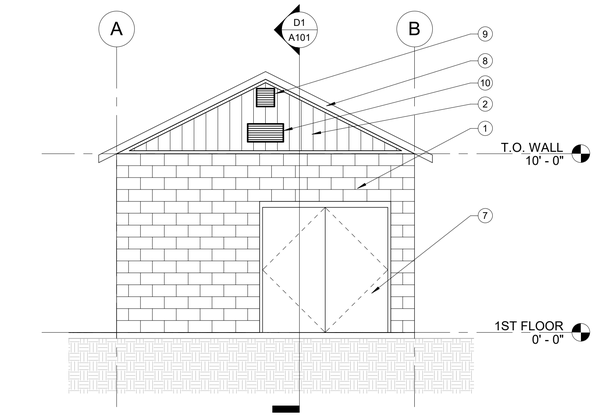
B3 NORTH ELEVATION
1/4" = 1'-0"



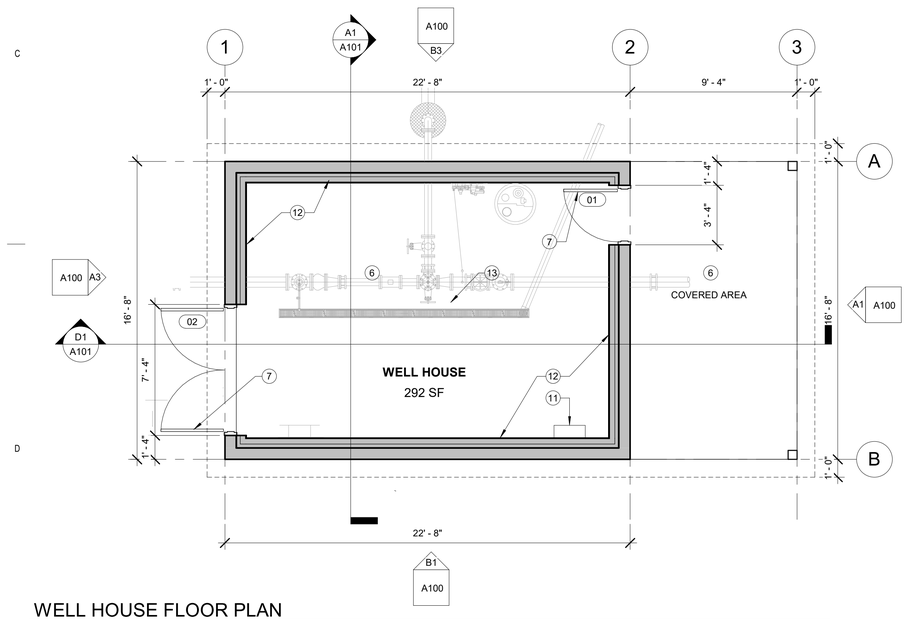
A1 EAST ELEVATION
1/4" = 1'-0"



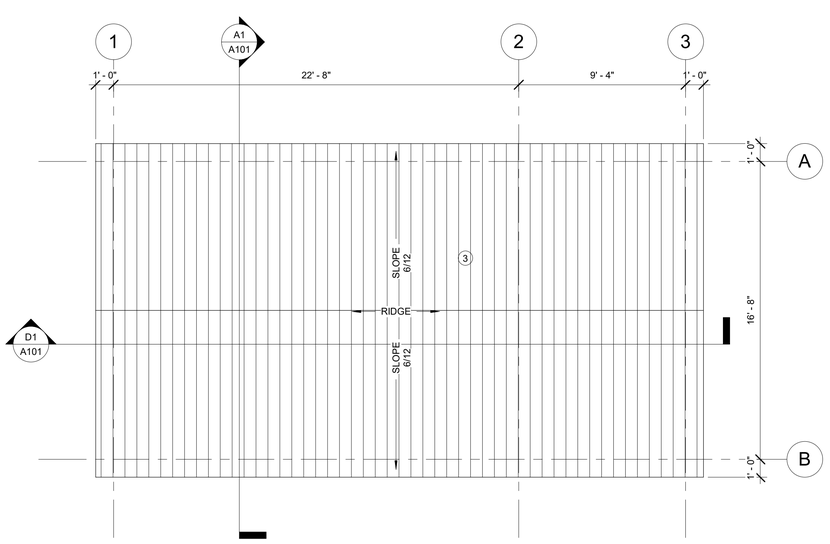
B1 SOUTH ELEVATION
1/4" = 1'-0"



A3 WEST ELEVATION
1/4" = 1'-0"



WELL HOUSE FLOOR PLAN
1/4" = 1'-0"



WELL HOUSE ROOF PLAN
1/4" = 1'-0"

KEY NOTES:

1. MASONRY WALL. PROVIDE 8X8X16 CMU PER STRUCTURAL SPECIFICATIONS. CMU MASONRY TO BE SPLIT FACE STANDARD GRAY COLOR.

2. VERTICAL FIBER-CEMENT SIDING PANEL SYSTEM & TRIM BOARDS (AS INDICATED ON ELEVATIONS). PROVIDE JAMES HARDIE SELECT CEDARMILL, FACTORY PRIMED. PAINT (2) COATS OF EXTERIOR GRADE PAINT. PAINT WHITE, COORDINATE COLOR WITH OWNER.

3. METAL ROOFING SYSTEM. SLOPE ROOF AT 6/12. PROVIDE ROOFING SYSTEM WITH A COMPLETE 20 YEAR WARRANTY. PROVIDE STANDARD COLOR SELECTION TO OWNER FOR SELECTION OF ROOFING AND ASSOCIATED METAL TRIM.

4. COLUMN, SEE STRUCTURAL PLANS. PAINT COLUMN WHITE TO MATCH CMU.

5. BEAM, SEE STRUCTURAL PLANS. WRAP BEAM WITH SOFFIT BOARD AND PAINT TO MATCH.

6. 4" CONCRETE SLAB, SEE STRUCTURAL PLANS FOR REQUIREMENTS.

7. INSULATED METAL DOOR, SEE SHEET A300 FOR DETAILS. PRIME AND PAINT DOOR, COORDINATE COLOR WITH OWNER.

8. ROOF FASCIA/RAKE TRIM BOARD, PAINT TO MATCH SIDING COLOR. SEE DETAIL ON SHEET A101.

9. GABLE END VENT.
   WELL HOUSE - PROVIDE 1 SQ. FT. OF VENTILATED AREA AT EACH END OF GABLE .

10. 12" x 24" MECHANICAL VENT, RE: MECHANICAL PLANS.

11. FIRE EXTINGUISHER, SEE A100.

12. EXTERIOR WALL SYSTEM, SEE SECTION FOR WALL DETAILS.

13. EQUIPMENT, SEE MECHANICAL DRAWINGS.

GENERAL NOTES FLOOR PLAN:

A. GENERAL NOTES APPLY TO ALL DRAWING SETS.

B. FIELD VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS. NOTIFY ARCHITECT IMMEDIATELY IF ANY CONFLICTS OR DISCREPANCIES OCCUR BEFORE PROCEEDING WITH WORK.

C. CROSS REFERENCES SHOWN ON DRAWINGS DO NOT NECESSARILY INDICATE ALL LIKE CONDITIONS AND DO NOT LIMIT APPLICATION OF ANY DRAWING OR DETAIL. WHERE SPECIFIC DIMENSIONS, DETAILS, OR DESIGN INTENT CANNOT BE DETERMINED, CONSULT THE ARCHITECT PRIOR TO PROCEEDING WITH WORK. IF DESIGN INTENT REMAINS UNCLEAR THEN PROVIDE MOST EXPENSIVE OPTION IN BID.

D. PATCH ALL HOLES IN EXISTING SURFACES AND WHERE EQUIPMENT HAS BEEN REMOVED OR DEMOLITION HAS OCCURRED AND PREPARE WALL SURFACES (PATCH, SKIM COAT, ETC.) AS REQUIRED IN PREPARATION FOR NEW FINISHES SCHEDULED. PATCH TO MATCH ADJACENT SURFACES IN FINISH AND COLOR IF NOT SCHEDULED.

E. DIMENSIONS ARE TO GRID LINE OR FACE OF STRUCTURAL MEMBER UNLESS OTHERWISE NOTED. DOOR & WINDOW OPENING DIMENSIONS ARE TO ROUGH OPENING OR CENTERLINE OF OPENING. CONCRETE AND BRICK DIMENSIONS ARE GIVEN TO THE FACE OF CONCRETE OR MASONRY AND TO THE FACE OF ROUGH OPENINGS.

GENERAL NOTES ROOF PLAN:

A. COORDINATE INSTALLATION OF ROOFING WITH OTHER TRADES. REPORT ANY CONFLICTS WITH ITEMS INSTALLED BY OTHER TRADES TO ARCHITECT.

B. METAL ROOFING TO BE SECURED TO THE SUPPORTS IN ACCORDANCE WITH THE APPROVED MANUFACTURERS FASTENERS.

C. ALL VENTS SHALL EXTEND ABOVE THE FINISHED SURFACE OF THE ROOF SYSTEM AS REQUIRED TO PROVIDE FOR A MINIMUM OF 8" BASE FLASHING. PROVIDE FLASHING AROUND VENTS AND ROOF PENETRATIONS PER ROOFING MANUFACTURER RECOMMENDATIONS.

D. UNLESS NOTED OTHERWISE - PROVIDE FIRESTONE UNI-CLAD KYNAR 500/HYLAR 5000 PRE-FINISHED GALVALUME STEEL (24 GA) ARCHITECTURE SHEET AND COIL FOR ALL COPINGS, FLASHING & TRIM PIECES. SUBMIT STANDARD COLOR SELECTION TO ARCHITECT FOR APPROVAL. FIELD PAINT METAL ONLY AS REQUIRED OR NOTED. ALL CLEATS TO BE CONTINUOUS.

E. METAL ROOFING SYSTEM TO HAVE 20 YEAR COMPLETE ROOF WARRANTY.

F. UNDERLAYMENT - REQUIRED UNDERLAYMENT SHALL CONFORM TO ASTM D 226 TYPE I, ASTM D 4869 TYPE I, OR ASTM D 6757. SELF-ADHERING POLYMER MODIFIED BITUMEN SHEET SHALL COMPLY WITH ASTM D 1970. INSTALLATION PER MANUFACTURER OR INTERNATIONAL RESIDENTIAL CODE.

G. UNDERLAYMENT APPLICATION - FOR ROOF SLOPES FROM 2/12 TO 4/12 UNDERLAYMENT SHALL BE TWO LAYERS. APPLY A 19" STRIP OF UNDERLAYMENT PARALLEL TO AND STARTING AT THE EAVES, FASTENED SUFFICIENTLY TO HOLD IN PLACE. START AT THE EAVE, APPLY 36" SHEET, OVERLAPPING SUCCESSIVE SHEETS 19" AND FASTEN SUFFICIENTLY TO HOLD IN PLACE. FOR ROOF SLOPES OF 4/12 OR GREATER, UNDERLAYMENT SHALL BE ONE LAYER. APPLY IN SHINGLE FASHION PARALLEL TO AND STARTING FROM THE EAVE AND LAPPED 2" FASTEN SUFFICIENTLY TO HOLD IN PLACE. DISTORTIONS IN UNDERLAYMENT SHALL NOT INTERFERE WITH THE ABILITY OF THE SHINGLES TO SEAL.

H. FLASHING - FLASHING: (1) BASE AND CAP FLASHING PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. BASE FLASHING SHALL BE OF EITHER CORROSION-RESISTANT METAL OF MINIMUM NOMINAL 0.019" OR MINERAL SURFACE ROLL ROOFING WEIGHING A MINIMUM OF 77 POUNDS PER 100 SQUARE FEET. CAP FLASHING SHALL BE CORROSION-RESISTANT METAL OF MINIMUM NOMINAL 0.019". (2) DRIP EDGE SHALL BE PROVIDED AT EAVES AND GABLES OF SHINGLE ROOFS (OVERLAP 2"). DRIP EDGES SHALL EXTEND A MINIMUM OF 1/4" BELOW THE ROOF SHEATHING AND EXTEND UP THE ROOF DECK A MINIMUM OF 2". DRIP EDGES SHALL BE MECHANICALLY FASTENED TO THE ROOF DECK AT A MAXIMUM OF 12" O.C. UNDERLAYMENT SHALL BE INSTALLED OVER THE DRIP EDGE ALONG EAVES AND UNDER THE UNDERLAYMENT ON GABLES. (3) OTHER FLASHING: FLASHING AGAINST A VERTICAL FRONT WALL, SOIL STACK, VENT PIPE AND CHIMNEY FLASHING, SHALL BE APPLIED ACCORDING TO MANUFACTURER.

I. ATTIC VENTILATION - AT ENCLOSED ATTICS AND ENCLOSED RAFTER SPACES FORMED WHERE CEILINGS ARE APPLIED DIRECTLY TO THE UNDERSIDE OF ROOF RAFTERS SHALL HAVE CROSS VENTILATION FOR EACH SEPARATE SPACE BY VENTILATING OPENINGS PROTECTED AGAINST THE ENTRANCE OF RAIN OR SNOW. THE MINIMUM NET FREE VENTILATING AREA SHALL BE 1/150 OF THE AREA OF THE VENTED SPACE. AT LEAST 40% AND NOT MORE THAN 50% OF THE REQUIRED VENTILATING AREA IS PROVIDED BY VENTILATORS LOCATED IN THE UPPER PORTION OF THE ATTIC OR RAFTER SPACE. UPPER VENTILATORS SHALL BE LOCATED NO MORE THAN 3 FEET BELOW THE RIDGE OR HIGHEST POINT OF THE SPACE, MEASURED VERTICALLY, WITH THE BALANCE OF THE REQUIRED VENTILATION PROVIDED BY EAVE OR CORNICE VENTS. WHERE THE LOCATION OF WALL OR ROOF FRAMING MEMBERS CONFLICTS WITH THE INSTALLATION OF UPPER VENTILATORS, INSTALLATION MORE THAN 3' BELOW THE RIDGE OR HIGHEST POINT OF THE SPACE SHALL BE PERMITTED.

J. EAVE BAFFLE - IRC 402.2.3. FOR AIR-PERMEABLE INSULATIONS IN VENTED ATTICS, A BAFFLE SHALL BE INSTALLED ADJACENT TO SOFFIT AND EAVE VENTS. BAFFLES SHALL MAINTAIN AN OPENING EQUAL OR GREATER THAN THE SIZE OF THE VENT. THE BAFFLE SHALL EXTEND OVER THE TOP OF THE ATTIC INSULATION. THE BAFFLE SHALL BE PERMITTED TO BE ANY SOLID MATERIAL.

K. ATTIC INSULATION - PROVIDE R30 BATT INSULATION ABOVE OCCUPIED CEILINGS WITHIN ATTIC OR RAFTER SPACE. VENT SPACE PER VENTILATION CALCULATIONS THIS SHEET.

L. SEE TYPICAL FASCIA DETAIL ON SHEET A101.

ATTIC VENTILATION CALCULATION:

THE MINIMUM NET FREE VENTILATION AREA SHALL BE 1/150 OF THE AREA OF THE VENTED SPACE.
WELL HOUSE VENTILATION: 4 SQUARE FEET OF TOTAL VENTILATION AREA.

PROVIDE HARDIE VENTILATED (5 SQ. LIN. FT. FREE AREA) SOFFIT ALONG ENTIRE LENGTH OF BUILDING, SEE SECTIONS.

SEE ELEVATIONS & SECTIONS FOR GABLE END VENTING REQUIREMENTS.

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LICENSED ARCHITECT
AR-984992
JON CHATFIELD
STATE OF IDAHO

CONSULTANT:

PROJECT INFORMATION:

PROJECT NAME:

NEW MEADOWS WELL HOUSE

OWNER:

CITY OF NEW MEADOWS

NEW MEADOWS, ID

REVISIONS:

MARK	DATE	DESCRIPTION

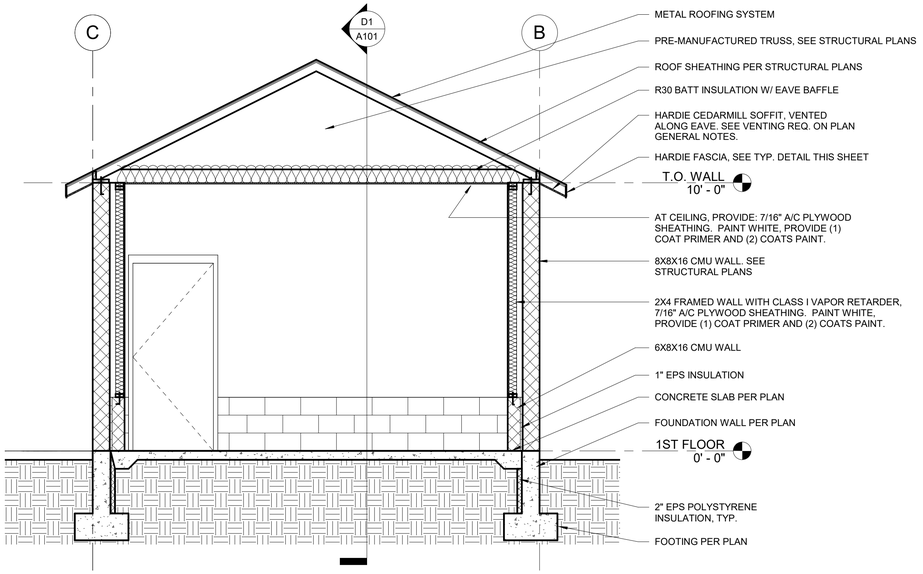
PROJECT PHASE	PERMIT PLOTS
PROJECT NUMBER	19-42
PROJECT ARCHITECT	J. Chatfield
DESIGN	J. Chatfield
DRAWN BY	J. Chatfield

SHEET NAME:

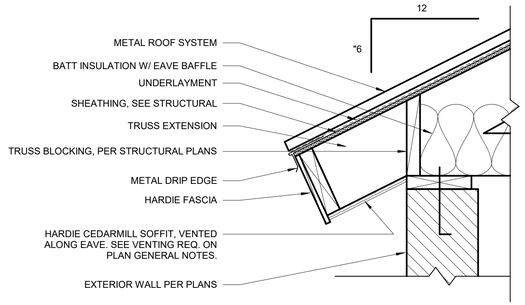
WELL HOUSE - FLOOR PLAN & EXTERIOR ELEVATIONS

A100

PLOT DATE: 04.01.2020

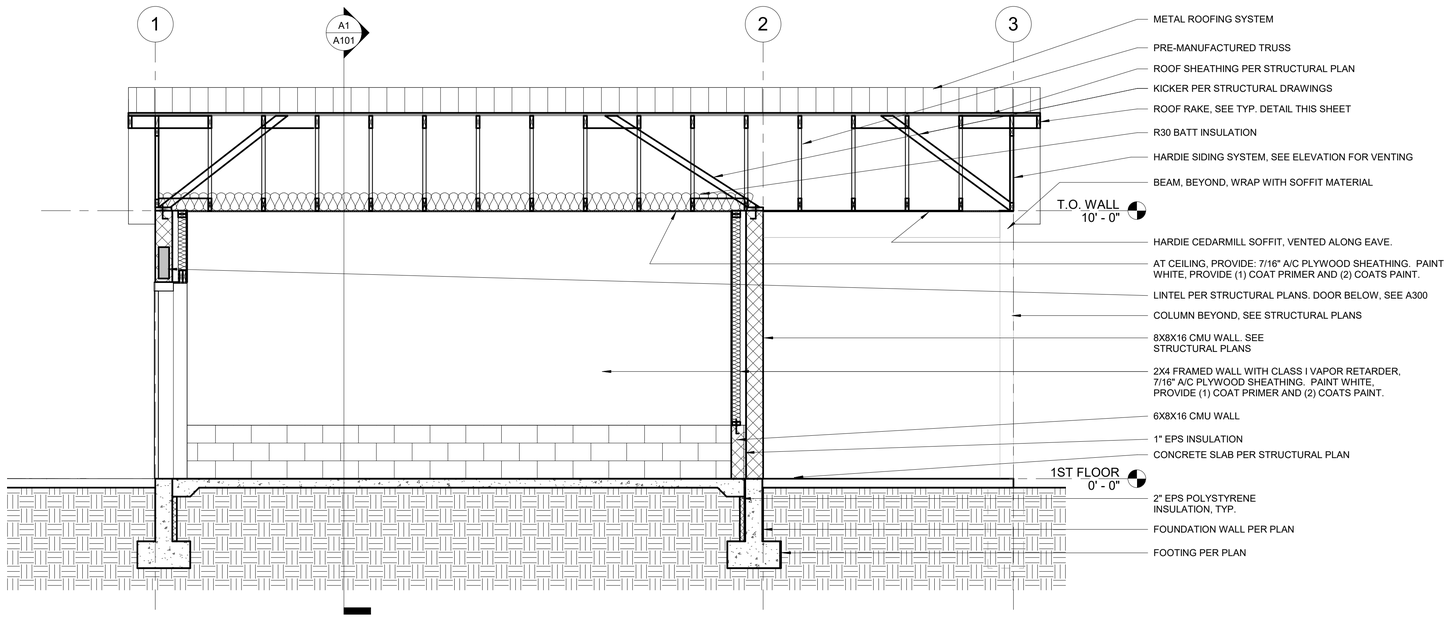


A1 SECTION A
3/8" = 1'-0"



ROOF RAKE DETAIL SIMILAR

A4 TYP. FASCIA/RAKE DETAIL
1 1/2" = 1'-0"



D1 SECTION B
3/8" = 1'-0"

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CITY OF NEW MEADOWS

NEW MEADOWS, ID

REVISIONS:

MARK	DATE	DESCRIPTION

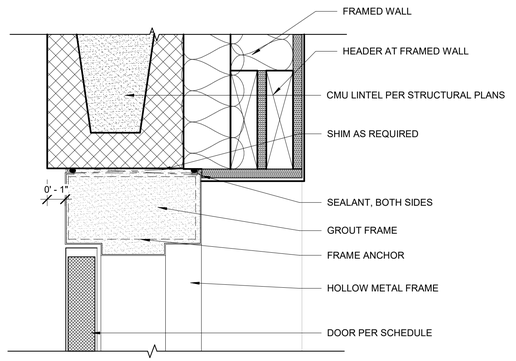
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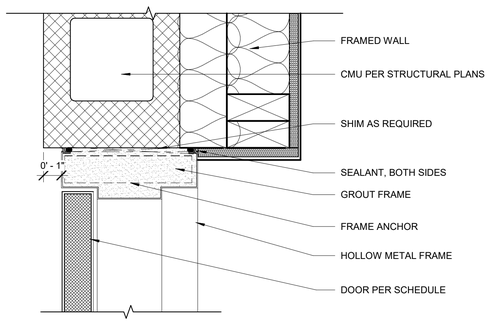
WELL HOUSE - BUILDING SECTIONS

A101

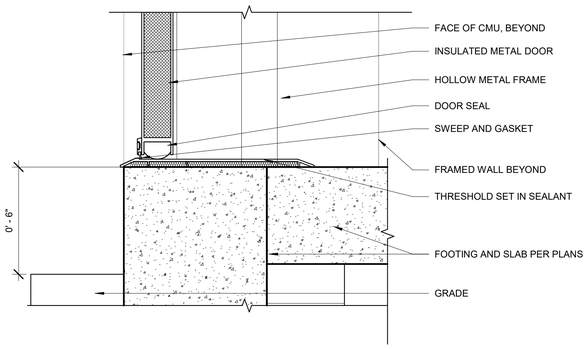
PLOT DATE: 04.01.2020



A1 DOOR HEAD DETAIL
3" = 1'-0"



C1 DOOR JAMB DETAIL
3" = 1'-0"

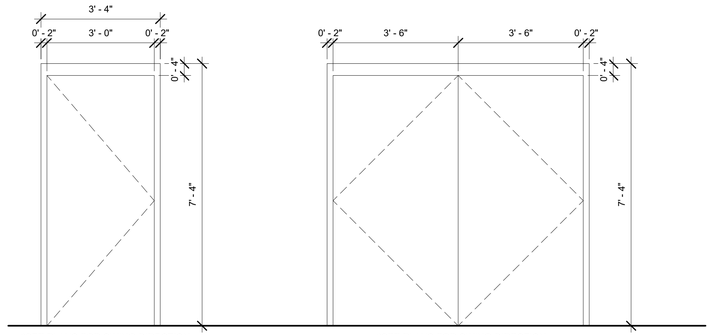


D1 DOOR SILL DETAIL
3" = 1'-0"

DOOR HARDWARE SCHEDULE

DOOR NUMBER	W	H	T	DOOR ELEVATION	DOOR MATERIAL	DOOR FINISH	FRAME TYPE	FRAME MATERIAL	FRAME FINISH	HARDWARE TYPE	TYPICAL DETAILS	REMARKS
01	3'-0"	7'-0"	1-3/4"	A	MTL, INS	PAINT	HM	MTL	*PAINT	KEYED ENTRY	A1,C1,D1 - A300	INSULATED EXTERIOR DOOR
02	7'-0"	7'-0"	1-3/4"	B	MTL, INS	PAINT	HM	MTL	*PAINT	KEYED ENTRY	A1,C1,D1 - A300	PAIR - INSULATED EXTERIOR DOOR

* COORDINATE DOOR AND OVERHAD DOOR COLOR WITH OWNER.



DOOR ELEVATIONS
1/2" = 1'-0"

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STAMP:

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JON CHATFIELD
STATE OF IDAHO

CONSULTANT:

PROJECT INFORMATION:

PROJECT NAME:
NEW MEADOWS WELL HOUSE

OWNER:
CITY OF NEW MEADOWS

NEW MEADOWS, ID

REVISIONS:

MARK	DATE	DESCRIPTION

PROJECT PHASE	PERMIT PLOTS
PROJECT NUMBER	19-42
PROJECT ARCHITECT	J. Chatfield
DESIGN	J. Chatfield
DRAWN BY	J. Chatfield

SHEET NAME:

DOOR SCHEDULE, ELEVATIONS & DETAILS

A300

PLOT DATE: 04.01.2020

GENERAL STRUCTURAL NOTES (G.S.N.)

GENERAL

THE GENERAL CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND SITE CONDITIONS BEFORE STARTING WORK. THE STRUCTURAL ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCY. THESE STRUCTURAL DRAWINGS ARE INTENDED TO PRESENT SUFFICIENT DIMENSIONS TO INDICATE MAJOR PLAN SIZES AND TO LOCATE PRIMARY STRUCTURAL COMPONENTS. THE CONTRACTOR SHALL COORDINATE LOCATION OF SECONDARY ELEMENTS, WALLS, OR MEMBERS RELATED TO OTHER DISCIPLINES. USE DETAILS MARKED "TYPICAL" WHEREVER APPLICABLE. CHANGES, OMISSIONS OR SUBSTITUTIONS ARE NOT PERMITTED WITHOUT THE WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER. REFER TO SPECIFICATIONS FOR FURTHER REQUIREMENTS. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE 2015 INTERNATIONAL BUILDING CODE (IBC). THE DESIGN, ADEQUACY AND SAFETY OF ERECTION BRACING, SHORING, TEMPORARY SUPPORTS, ETC., IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR, AND HAS NOT BEEN CONSIDERED BY THE STRUCTURAL ENGINEER. THE CONTRACTOR IS RESPONSIBLE FOR THE STABILITY OF THE STRUCTURE PRIOR TO THE COMPLETION OF ALL SHEAR WALLS, ROOF DIAPHRAGMS AND FINISH MATERIALS. THE CONTRACTOR SHALL PROVIDE THE NECESSARY BRACING TO PROVIDE STABILITY PRIOR TO THE APPLICATION OF THE ABOVE-MENTIONED COMPONENTS. OBSERVATION VISITS TO THE SITE BY THE STRUCTURAL ENGINEER SHALL NOT INCLUDE INSPECTION OF THE ABOVE ITEMS.

SHOP DRAWINGS

SHOP DRAWINGS ARE TO BE CHECKED AND APPROVED BY THE GENERAL CONTRACTOR PRIOR TO SUBMITTING FOR STRUCTURAL REVIEW. ANY REQUEST FOR MODIFICATION TO THE DRAWINGS MUST BE SUBMITTED IN WRITING. THIS MAY BE ACCOMPLISHED THROUGH THE SHOP DRAWINGS ONLY IF THE CHANGE IS CLEARLY REPRESENTED, CLOUDED AND NOTED AS BEING A REQUESTED CHANGE REQUIRING THE STRUCTURAL ENGINEER APPROVAL. CHANGES TO THE DRAWINGS BY WAY OF THE SHOP DRAWINGS THAT ARE NOT CLEARLY NOTED AS STATED ABOVE, DO NOT CONSTITUTE AN AUTHORIZED CHANGE EVEN THOUGH THE DRAWINGS HAVE BEEN STAMPED WITH THE STRUCTURAL ENGINEER REVIEW STAMP. GENERAL CONTRACTOR IS RESPONSIBLE FOR VERIFICATION AND COORDINATION OF DIMENSIONS AND DETAILS FOR EACH SUBCONTRACTOR.

SHOP DRAWINGS SHALL INCLUDE PLANS AND DETAILS AS NECESSARY TO INDICATE UNDERSTANDING OF THE CONTRACT DOCUMENTS. ENSURE ADEQUATE COPIES OF SHOP DRAWINGS ARE SUBMITTED FOR THE CONTRACTOR, ARCHITECT, AND STRUCTURAL ENGINEER TO RETAIN ONE COPY EACH FOR THEIR FILES.

SHOP DRAWINGS ARE REQUIRED FOR THE FOLLOWING:
* CONCRETE REINFORCING
* MASONRY REINFORCING
* STRUCTURAL STEEL
* PRE-FABRICATED WOOD TRUSSES

INFORMATIONAL SUBMITTALS

SUBMITTALS ARE TO BE CHECKED AND APPROVED BY THE GENERAL CONTRACTOR PRIOR TO SUBMITTING FOR STRUCTURAL REVIEW. SUBMITTALS SHALL INCLUDE CURRENT PRODUCT ICC/IAMPO REPORTS WHERE APPLICABLE AND INDICATED LOCATIONS OF USAGE FOR THE PRODUCT. ENSURE ADEQUATE COPIES OF SUBMITTALS ARE SUBMITTED FOR THE CONTRACTOR, ARCHITECT, AND STRUCTURAL ENGINEER TO RETAIN ONE COPY EACH FOR THEIR FILES.

INFORMATIONAL SUBMITTALS ARE REQUIRED FOR THE FOLLOWING:
* CONCRETE MIX DESIGN
* MASONRY WALL MATERIALS

PRODUCT AND MATERIAL SUBSTITUTIONS

PRODUCTS AND MATERIALS ARE TO BE AS SPECIFIED IN THE CONTRACT DOCUMENTS. SUBSTITUTIONS ARE NOT PERMITTED WITHOUT THE APPROVAL OF THE STRUCTURAL ENGINEER AND ARCHITECT.

DESIGN LOADS

ROOF LIVE LOAD	20 PSF
GROUND SNOW LOAD, P_g	89 PSF
FLAT-ROOF SNOW LOAD, P_f	62 PSF
MINIMUM SNOW LOAD, P_m	100 PSF
SNOW EXPOSURE FACTOR, C_e	0.90
IMPORTANCE FACTOR (SNOW), I_S	1.0
THERMAL FACTOR, C_t	1.1
RISK CATEGORY PER IBC	II
BASIC WIND SPEED, V_{ULT}	103 MPH (3 SEC GUST), EXPOSURE C
IMPORTANCE FACTOR (SEISMIC) I_E	1.0
S_S	0.399
S_1	0.130
SITE CLASS	D
S_{DS}	0.394
S_{D1}	0.203
SEISMIC DESIGN CATEGORY	D
SEISMIC FORCE RESISTING SYSTEM	SPECIAL REINFORCED MASONRY WALL
DESIGN BASE SHEAR	C_sW
SEISMIC RESPONSE COEFFICIENT, C_S	0.0788
RESPONSE MODIFICATION FACTOR, R	5.0
ANALYSIS PROCEDURE	EQUIVALENT LATERAL FORCE

FOUNDATION

DESIGN ALLOWABLE SOIL BEARING PRESSURE = 1,500 PSF ASSUMED. BOTTOM OF ALL FOOTINGS TO BEAR ON COMPETENT, NATIVE, INORGANIC, UNDISTURBED SOIL 1'-0" MINIMUM BELOW EXISTING GRADE OR COMPACTED STRUCTURAL FILL. EXTEND ALL EXTERIOR FOOTINGS 28" MINIMUM BELOW FINISHED GRADE. NO FOOTING SHALL BEAR HIGHER THAN A 1 VERTICAL TO 1.5 HORIZONTAL SLOPE ABOVE ANY EXCAVATION, EXISTING OR PLANNED. CONTRACTOR SHALL PROVIDE TEMPORARY SHORING TO PREVENT MOVEMENT OF WALLS IF BACKFILL IS PLACED BEFORE FLOOR SYSTEM IS IN PLACE. THERE SHALL BE 95% COMPACTION (ASTM D1557 MODIFIED PROCTOR DENSITY) OF ALL BACKFILL SOIL UNDER SLABS ON GRADE.

CAST-IN-PLACE CONCRETE

FOOTINGS:

* ATTAIN THE FOLLOWING MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS:	2500 PSI
* MAXIMUM SLUMP:	3" +/- 1"
* MAXIMUM W/C RATIO:	0.50
* AIR ENTRAINMENT:	NO REQUIREMENT
* MAXIMUM AGGREGATE SIZE:	¾"

INTERIOR CONCRETE SLABS:

* ATTAIN THE FOLLOWING MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS:	4000 PSI
* MAXIMUM SLUMP:	4" +/- 1"
* MAXIMUM W/C RATIO:	0.45
* AIR ENTRAINMENT:	0%
* MAXIMUM AGGREGATE SIZE:	¾"

FOUNDATION WALLS, PIERS, & EXPOSED CONCRETE SLABS:

* ATTAIN THE FOLLOWING MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS:	4500 PSI
* MAXIMUM SLUMP:	4" +/- 1"
* MAXIMUM W/C RATIO:	0.45
* AIR ENTRAINMENT:	6% +/- 1%
* MAXIMUM AGGREGATE SIZE:	¾"

CONSTRUCTION TO BE IN ACCORDANCE WITH ACI 318-14. REFER TO ACI 302.1R-04 FOR SLAB ON GRADE MIX DESIGN. LOCATION OF CONSTRUCTION OR POUR JOINTS MUST BE APPROVED BY THE STRUCTURAL ENGINEER IF DIFFERENT FROM THAT SHOWN ON PLANS.

MASONRY

CONCRETE MASONRY UNITS: ASTM C90, MEDIUM WEIGHT RUNNING BOND. F'_m = 1,900 PSI.
MORTAR: ASTM C270, TYPE S, MINIMUM COMPRESSIVE STRENGTH OF 1800 PSI AT 28 DAYS.
GROUT: ASTM C476 WITH A MIN. COMPRESSIVE STRENGTH OF 2000 PSI AT 28 DAYS (SEE MASONRY WALL STRENGTHS BELOW).

FILL ALL CELLS CONTAINING REINFORCING WITH GROUT IN LIFTS NOT EXCEEDING 4'-0" IN HEIGHT. FILL OTHER CELLS WITH GROUT AS INDICATED ON DRAWINGS. ALL REINFORCEMENT SHALL BE IN PLACE PRIOR TO GROUTING WITH VERTICAL BARS HELD AT TOP, BOTTOM AND 120 DIAMETERS MAXIMUM ON CENTER. GROUT SHALL BE CONSOLIDATED BY MECHANICAL VIBRATION DURING PLACING AND RE-CONSOLIDATED BY MECHANICAL VIBRATION TO MINIMIZE VOIDS DUE TO WATER LOSS. CONTRACTOR SHALL PROVIDE TEMPORARY BRACING FOR MASONRY WALLS, AS REQUIRED, UNTIL CONNECTIONS TO FLOOR AND/OR ROOF DIAPHRAGMS ARE COMPLETED.

THE STRENGTH OF MASONRY ASSEMBLY SHALL BE DETERMINED BY THE UNIT STRENGTH METHOD IN ACCORDANCE WITH SECTION 2105.2.2.1 OF THE 2015 INTERNATIONAL BUILDING CODE.

REINFORCING STEEL

WELDED WIRE REINFORCING: ASTM A82 AND A185.
DEFORMED BARS: ASTM A615, GRADE 40 FOR #3; GRADE 60 FOR #4 & LARGER; ASTM A706 FOR WELDED CONDITIONS.

LAP SPLICES (HORIZONTAL AND VERTICAL STEEL)
* MASONRY: 48-BAR DIA. AT CELLS WITH BARS AT CENTER FOR #5'S & SMALLER.
52-BAR DIA. AT CELLS WITH BARS AT CENTER FOR #6'S.

64-BAR DIA. AT CELLS WITH BARS AT EACH/ALTERNATING FACE FOR # 5'S & SMALLER.
100-BAR DIA. AT CELLS WITH BARS AT EACH/ALTERNATING FACE FOR # 6'S.

* CONCRETE: 52-BAR DIA. FOR BEAMS, COLUMNS, RETAINING AND ABOVE-GRADE WALLS FOR #6 & SMALLER.
40-BAR DIA. OTHER, UNLESS NOTED OTHERWISE FOR #6 & SMALLER.

WELDED WIRE FABRIC SPLICES: WIRE SPACING + 2".

CONCRETE COVER:
UNLESS OTHERWISE NOTED ON THESE DRAWINGS, UTILIZE THE FOLLOWING CLEAR EMBEDMENT AT REINFORCING BARS VALUES FOR CAST-IN-PLACE, NON-PRE-STRESSED CONCRETE TYPICALLY:

CONCRETE CAST AGAINST SOIL = 3".
FORMED CONCRETE EXPOSED TO EARTH OR WEATHER = 1-1/2" (#5 OR LESS)
CONCRETE NOT EXPOSED TO EARTH OR WEATHER = 3/4" (SLABS, WALLS & JOISTS)
SLAB ON GRADE = 1-1/2".

SECURELY TIE ALL REINFORCING IN PLACE WITH DOUBLE ANNEALED 16-GAUGE IRON WIRE OR APPROVED CLIPS. SUBMIT SHOP DRAWINGS OF REINFORCING STEEL FOR REVIEW BY THE STRUCTURAL ENGINEER PRIOR TO FABRICATION.

GROUT AND EPOXY ADHESIVES

NON-SHRINK GROUT: "MASTERFLOW 928" AS MANUFACTURED BY BASF BUILDING SYSTEMS OR APPROVED EQUIVALENT.

EPOXYADHESIVES:

* FOR INSTALLATION IN REINFORCED MASONRY:	SIMPSON "SET-XP" (ER-265)
* FOR INSTALLATION IN CONCRETE:	SIMPSON "SET-XP" (ESR-2508)

STRUCTURAL AND MISC. STEEL

WIDE FLANGE SHAPES: ASTM A992, F_y = 50 KSI MINIMUM.

CHANNELS, ANGLES, PLATES AND BARS: ASTM A36, F_y = 36 KSI MINIMUM.

HOLLOW STRUCTURAL SHAPES (HSS): ASTM A500, GRADE B, F_y = 46 KSI (RECTANGULAR SECTIONS), F_y = 42 KSI (ROUND SECTIONS).

PIPE: ASTM A53 OR A501, F_y = 35 KSI MINIMUM.

BOLTS: ASTM A325 HIGH STRENGTH BOLTS (H.S.B.) UNLESS NOTED AS ASTM A307 MACHINE BOLTS (M.B.). WHERE HIGH STRENGTH BOLTS ARE USED, THEY SHALL BE INSTALLED WITH LOAD INDICATOR DEVICES (LOAD INDICTOR WASHERS OR SNAP-OFF HEADS). WHERE AN OVERSIZED OR SHORT SLOTTED HOLE OCCURS IN AN OUTER PLY OF ANY CONNECTION, A HARDENED WASHER SHALL BE USED.

ANCHOR BOLTS (A.B.): ASTM F1554, GRADE 36 KSI. PROVIDE DOUBLE NUT FOR LEVELING AT COLUMNS OR BEAM BASE PLATES.

MECHANICAL BOLTS: IN CONCRETE AND GROUTED MASONRY, SIMPSON {"STRONG-BOLT 2" (ESR-3037, ER-240)|"TITEN HD" (ESR-2713, ESR-1056)} OR APPROVED EQUIVALENT

EPOXY ANCHORS: CARBON STEEL THREADED ANCHOR RODS CONFORMING TO ASTM A307 GRADE C, OR ASTM A193 GRADE B7; OR STAINLESS STEEL THREADED ANCHOR RODS CONFORMING TO ASTM F593, ALLOY GROUP 1, TYPE 304, CONDITION CW. INSTALL RODS USING APPROPRIATE EPOXY ADHESIVE FOR THE BASE MATERIAL ACCORDING TO THE "GROUT AND EPOXY ADHESIVE" SECTION ABOVE.

HEADED ANCHOR STUD (H.A.S.) AND THREADED ANCHOR STUD (T.A.S.): ASTM A108-69T, F_y = 50 KSI, END WELDED PER MANUFACTURER'S RECOMMENDATIONS.

DEFORMED BAR ANCHORS (D.B.A.): ASTM A496, F_y = 70 KSI, ATTACHED WITH NELSON STUD GUN OR ASTM A706, FY = 60 KSI END WELDED WITH 3/16" FILLET ALL-AROUND.

POWDER DRIVEN FASTENERS (PDF): FOR ATTACHMENT TO CONCRETE AND STRUCTURAL STEEL, 0.157"Ø SIMPSON "PDPA" (ESR 2138) OR APPROVED EQUIVALENT.

WELDING ELECTRODES OR WIRES: AWS A5.1 OR A5.5, E70XX; AWS A5.18, E70S-X; AWS A5.20, E7XT-X.

ERECTION AND FABRICATION: IN ACCORDANCE WITH AISC "SPECIFICATIONS FOR DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS". WELDING SHALL CONFORM TO AWS "CODE FOR ARC AND GAS WELDING IN BUILDING CONSTRUCTION". ALL WELDING SHALL BE PERFORMED BY AWS CERTIFIED WELDERS. ALL COLUMNS AND BEAMS TO BE FROM UN-SPLICED LENGTHS UNLESS NOTED OTHERWISE ON THE DRAWINGS. SUBMIT SHOP DRAWINGS SHOWING SIZES, DIMENSIONS AND REQUIRED CONNECTION DETAILS FOR REVIEW BY THE STRUCTURAL ENGINEER PRIOR TO FABRICATION.

FIELD WELDS: WELDING OF STRUCTURAL STEEL SHALL BE PERFORMED IN THE SHOP WHENEVER PRACTICAL. AN EFFORT HAS BEEN MADE TO INDICATE WELDS THAT CAN BE OR SHOULD BE FIELD WELDED. IT IS, HOWEVER, THE FABRICATORS RESPONSIBILITY TO DECIDE WHERE AND HOW THE WELDING IS TO BE ACCOMPLISHED TO ACHIEVE THE INTENDED RESULT.

COMPLETE JOINT PENTRATION WELD (C.J.P.): PROVIDE BACKER BARS, RUN OFF TABS, AND ACCESS HOLES PER AWS D1.1. BACKER BARS SHALL BE REMOVED AFTER WELDING, THE ROOT WELD BACK GOUGED AND REPAIRED IF NECESSARY AND REINFORCED WITH A FILLET. RUN OFF TABS SHALL BE REMOVED AFTER WELDING WITH THE FLANGE EDGE GROUND SMOOTH.

COLD FORMED STRUCTURAL STEEL MEMBERS

33 & 43 MILS MATERIAL: ASTM C955 GRADE 33 FOR PAINTED CARBON SHEET STEEL OR ASTM A653/A653M FOR GALVANIZED STEEL (F_y=33 KSI).
54, 68 & 97 MILS MATERIAL: ASTM C955 GRADE 50 FOR PAINTED CARBON SHEET STEEL OR ASTM A653/A653M FOR GALVANIZED STEEL (F_y=50 KSI).
CARBON SHEET STEEL MUST BE COATED WITH A RUST INHIBITIVE PAINT. GALVANIZED COATINGS SHALL MEET ASTM A924/A924M. ALL STRUCTURAL PROPERTIES COMPUTED IN ACCORDANCE WITH AISI "NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS" (AISI S100-07/S2-10) DESIGNATIONS ON THE DRAWINGS ARE STEEL STUD MANUFACTURER'S ASSOCIATION (S.S.M.A.). APPROVED EQUIVALENT PRODUCTS MAY BE PERMITTED UPON REVIEW OF THE STRUCTURAL ENGINEER. INSTALL MEMBERS IN ACCORDANCE WITH NAS-01 AND AISI "STANDARD FOR COLD-FORMED STEEL FRAMING-GENERAL PROVISIONS" (AISI S200-07). UNLESS OTHERWISE NOTED ON THESE DRAWINGS, STUD WALL TRACK TO BE OF THE SAME MATERIAL AND GAUGE AS STUDS. PROVIDE HORIZONTAL BRIDGING AT 5'-0" O.C. MAXIMUM AT NON-BEARING WALLS AND 3'-4" O.C. MAXIMUM AT BEARING WALLS. BEARING WALLS TO BE ERECTED WITH STUD ENDS SEATED AGAINST TRACK WEB TOP AND BOTTOM. SUBMIT SHOP DRAWINGS SHOWING STUD AND JOIST LAYOUT, DIMENSIONS, SIZES, BRIDGING AND REQUIRED CONNECTION DETAILS FOR REVIEW BY THE STRUCTURAL ENGINEER. ALL WELDING TO BE PERFORMED BY AWS CERTIFIED WELDERS EXPERIENCED IN THIS TYPE OF CONSTRUCTION.

WOOD

GENERAL:ALL WOOD BEARING ON CONCRETE OR MASONRY, IF LESS THAN 4'-0" ABOVE GRADE, SHALL BE PRESSURE TREATED DOUGLAS FIR. STRUCTURAL MEMBERS SHALL NOT BE CUT FOR PIPES, ETC., UNLESS SPECIFICALLY NOTED OR DETAILED.

SAWN LUMBER: NO. 2 & BETTER DOUGLAS FIR-LARCH, WWPA GRADING RULES.

SHEATHING: APA RATED SHEATHING, APA RATED STURD-I-FLOOR, EXPOSURE-1, NER-108.
FRAMING ANCHORS AND CONNECTORS: "SIMPSON STRONG TIE" OR USP PRODUCT THAT MEETS OR EXCEEDS SIMPSON PRODUCTS OR APPROVED EQUIVALENT AS INDICATED ON DRAWINGS. INSTALL AND CONNECT PER MANUFACTURER'S REQUIREMENTS.

NAIL GUNS: ALL NAILED ROOF OR FLOOR DIAPHRAGMS AND SHEAR WALLS ARE DESIGNED USING ALLOWABLE IBC SHEAR VALUES WHICH ARE BASED ON CONVENTIONAL COMMON NAIL SIZES. USE OF PNEUMATIC NAIL GUNS OR STAPLES IS ACCEPTABLE ONLY WITH ENGINEER APPROVAL OF TYPE OF FASTENER AND SPACING IN ORDER TO MEET INTENDED DESIGN LOADS. FOR NAILING NOT SHOWN ON DRAWINGS, USE IBC FASTENING SCHEDULE, TABLE 2304.9.1.

FASTENERS IN CONTACT WITH PRESSURE PRESERVATIVE-TREATED (PPT) AND FIRE-RETARDANT-TREATED WOOD ARE TO BE HOT-DIPPED GALVANIZED STEEL, STAINLESS STEEL, SILICON BRONZE OR COPPER. CONNECTIONS SHOULD NOT INCORPORATE DISSIMILAR METALS OR METALLIC COATINGS IN CONTACT WITH EACH OTHER. PRODUCTS IN WHICH THE COATINGS HAVE BEEN DAMAGED OR COMPROMISED DURING SHIPPING, STORAGE OR INSTALLATION SHOULD BE DISCARDED OR OTHERWISE EFFECTIVELY RESTORED (IBC SECTION 2304.9.5, IRC SECTION R317.3).

PREFABRICATED WOOD TRUSSES

MAXIMUM TRUSS SPACING: 24" O.C.
TRUSS LOADING UNLESS NOTED OTHERWISE ON DRAWINGS:

TOP CHORD LIVE LOAD	(L)	=	20 PSF.
TOP CHORD SNOW LOAD	(S)	=	100 PSF.
TOP CHORD DEAD LOAD	(D)	=	8.0 PSF.
BOTTOM CHORD LIVE LOAD	(L)	=	10 PSF.
BOTTOM CHORD DEAD LOAD	(D)	=	8.0 PSF.
WIND [STRENGTH]	(W)	=	25 PSF.

NOTE: LIVE LOADS ARE NOT CONCURRENT.

TRUSSES TO BE FABRICATED BY A CERTIFIED MEMBER OF THE TRUSS PLATE INSTITUTE. DESIGN FABRICATION AND ERECTION TO CONFORM TO THE TRUSS PLATE INSTITUTE STANDARDS. CONNECTOR PLATES SHALL HAVE ICC-ES/IAPMO ES ACCEPTANCE. ALL CHORD MEMBERS SHALL HAVE LUMBER GRADE STAMPS; ALL WEB MEMBERS SHALL GRADE STAMPS OR ALL WEB MEMBERS, FOR GIVEN TRUSS, SHALL BE MADE FROM THE SAME LUMBER GRADE WITH AT LEAST 50% OF THE WEB MEMBERS BEARING A GRADE STAMP. TRUSS DESIGNS AND ERECTION PLANS SHALL BE BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF IDAHO.

ERECTION PLANS SHALL SHOW TRUSS SPACING, TRUSS MARK NUMBERS (CORRESPONDING TO THE DESIGN CALCULATIONS), CONCENTRATED LOADS, PERMANENT BRACING/BRIDGING AS REQUIRED BY THE TRUSS DESIGN AND ERECTION BRACING. SHOP DRAWINGS SHALL INCLUDE, FOR EACH TYPE OF TRUSS, DIMENSIONS AND CONFIGURATIONS, NOMINAL LUMBER SIZE AND GRADE, SPECIFICATIONS FOR CONNECTOR PLATES USED, SIZE AND LOCATION OF EACH CONNECTOR AT EACH JOINT AND AMOUNT OR CAMBER IF REQUIRED. DESIGN CALCULATIONS, SHOP DRAWINGS AND ERECTION PLANS SHALL BE SUBMITTED FOR REVIEW BY THE STRUCTURAL ENGINEER PRIOR TO FABRICATION.

PROPRIETARY PRODUCTS

PRE-MANUFACTURED WOOD I-JOISTS, BEAMS, AND TRUSSES SHALL HAVE ICC-ES/IAPMO ES ACCEPTANCE, AND BE OF THE SAME DEPTHS AND SPACING AS NOTED ON THE FRAMING PLANS. THE DESIGN LOAD CARRYING CAPACITIES OF THE PRODUCTS SUPPLIED MUST BE EQUAL TO OR GREATER THAN THE MANUFACTURER'S PUBLISHED LOAD TABLES. INSTALL THE PRODUCT PER MANUFACTURER'S RECOMMENDATIONS. SUBMIT SHOP DRAWINGS OF LAYOUT AND REQUIRED CONNECTION DETAILS FOR REVIEW BY THE STRUCTURAL ENGINEER PRIOR TO FABRICATION.

DEFERRED SUBMITTAL ITEMS

DOCUMENTS FOR DEFERRED SUBMITTAL ITEMS SHALL BE SUBMITTED TO THE ARCHITECT AND STRUCTURAL ENGINEER FOR REVIEW.
DEFERRED SUBMITTAL ITEMS INCLUDE:
* PRE-MANUFACTURED WOOD TRUSSES
THESE ITEMS SHALL NOT BE INSTALLED UNTIL THE DEFERRED SUBMITTAL DOCUMENTS HAVE BEEN: 1) REVIEWED AND BEEN FOUND TO BE IN GENERAL CONFORMANCE WITH THE BUILDING DESIGN BY THE ARCHITECT AND STRUCTURAL ENGINEER, AND 2) APPROVED BY THE BUILDING OFFICIAL.

SPECIAL STRUCTURAL INSPECTIONS

THE OWNER SHALL EMPLOY A SPECIAL INSPECTION SERVICE TO PERFORM INSPECTIONS IN ACCORDANCE WITH CHAPTER 17 OF THE 2015 INTERNATIONAL BUILDING CODE. INSPECTION REPORTS FOR THE ITEMS LISTED IN THE SPECIAL INSPECTION TABLES SHALL BE FURNISHED TO THE STRUCTURAL ENGINEER OF RECORD IN A TIMELY MANNER. INSPECTION REPORTS SHALL INDICATE THAT WORK INSPECTED WAS DONE IN CONFORMANCE TO APPROVED CONSTRUCTION DOCUMENTS. DISCREPANCIES THAT ARE NOT CORRECTED SHALL BE BROUGHT TO THE ATTENTION OF THE STRUCTURAL ENGINEER OF RECORD PRIOR TO THE COMPLETION OF THAT PHASE OF THE WORK. A FINAL REPORT DOCUMENTING THE REQUIRED SPECIAL INSPECTIONS AND CORRECTION OF ANY DISCREPANCIES NOTED IN THE INSPECTIONS SHALL BE SUBMITTED TO THE OWNER AND STRUCTURAL ENGINEER OF RECORD.

ABBREVIATIONS

#	POUNDS OR NUMBER	EMBED.	EMBEDMENT	OPNG.	OPENING
@	AT	EXIST.	EXISTING	P.D.F	POWDER DRIVEN FASTENER
A.B.	ANCHOR BOLTS	EXT.	EXTERIOR	P.T.	PRESSURE TREATED
A.F.F.	ABOVE FINISH FLOOR	F.N.	FIELD NAILING	PERP.	PERPENDICULAR
ADD'L.	ADDITIONAL	FDN.	FOUNDATION	PL.	PLATE
APPLIC.	APPLICABLE	FIN.	FINISH	PLF	POUNDS PER LINEAR FOOT
ARCH'L.	ARCHITECTURAL	FLR.	FLOOR	PSF	POUNDS PER SQUARE FOOT
B.N.	BOUNDARY NAILING	FRMG.	FRAMING	PSI	POUNDS PER SQUARE INCH
B.O.D.	BOTTOM OF DECK	FTG.	FOOTING	PSL	PARALLAM
BLKG.	BLOCKING	G.S.N.	GENERAL STRUCTURAL NOTES	PT.	POINT
B.M.	BEAM	G.A.	GAUGE	REINF.	REINFORCING
BOT.	BOTTOM	GLB	GLU-LAM BEAM	REQ'D.	REQUIRED
BRNG.	BEARING	H.A.S.	HEADED ANCHOR STUD	SCHED.	SCHEDULE
BTWN.	BETWEEN	H.S.B.	HIGH STRENGTH BOLT	SHT.	SHEET
C	CAMBER	HORIZ.	HORIZONTAL	SHTG.	SHEATHING
C.F.S.	COLD FORMED STEEL	INFO.	INFORMATION	SIM.	SIMILAR
C.J.P.	COMPLETE JOINT PENETRATION	INT.	INTERIOR	SJ.	SLAB JOINT
CL.	CENTERLINE	J.A.	JOIST BEARING	SPECS.	SPECIFICATIONS
CLR.	CLEAR	JST.	JOIST	SQ.	SQUARE
CMU	CONCRETE MASONRY UNIT	K	KIPS (1000 POUNDS)	STAGG.	STAGGERED
COL.	COLUMN	LL	LIVE LOAD	STD.	STANDARD
CONC.	CONCRETE	LLH	LONG LEG HORIZONTAL	STIFF.	STIFFENER
CONN.	CONNECTION	LLV	LONG LEG VERTICAL	STL.	STEEL
CONT.	CONTINUOUS	LSL	LAMINATED STRAND LUMBER	T.A.S.	THREADED ANCHOR STUD
COORD.	COORDINATE	LVL	LAMINATED VENEER LUMBER	T.N.	TOE NAIL
D.B.A.	DEFORMED BAR ANCHOR	M.A.	MACHINE BOLT	T.O.F.	TOP OF FOOTING
DBL.	DOUBLE	MAS.	MASONRY	T.O.M.	TOP OF MASONRY
DET.	DETAIL	MAX.	MAXIMUM	T.O.S.	TOP OF STEEL
DL	DEAD LOAD	MECH'L	MECHANICAL	TYP.	TYPICAL
D.P.	DEEP	MFR.	MANUFACTURER	U.O.	UNLESS NOTED OTHERWISE
DWLS.	DOWELS	MIN.	MINIMUM	VERT.	VERTICAL
E.A.	EPOXY ANCHOR	MISC.	MISCELLANEOUS	V.I.F.	VERIFY IN FIELD
E.B.	EXPANSION BOLT	N.T.S.	NOT TO SCALE	W.F.	WIDE FLANGE (BEAM)
E.N.	EDGE NAILING	NO.	NUMBER	W.P.	WORK POINT
EA.	EACH	O.C.	ON CENTER	W/	WITH
ELEV.	ELEVATION	O.H.	OPPOSITE HAND	W/O	WITHOUT
E.A.	EDGE SCREWING	O.W..J.	OPEN WEB STEEL JOIST	WD.	WOOD
				W.W.R.	WELDED WIRE REINF.

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STAMP:
PROFESSIONAL ENGINEER LICENSED 14767 04/20/2020 STATE OF IDAHO CRAIG E. BRASHER

CONSULTANT:
Ally Structural Consulting, LLC
www.allystructural.com
208-949-5993
PROJECT: 19-057

PROJECT INFORMATION:

PROJECT NAME:
NEW MEADOWS WELL HOUSE

OWNER:
CITY OF NEW MEADOWS

NEW MEADOWS, ID

REVISIONS:

MARK	DATE	DESCRIPTION

PROJECT PHASE	PERMIT PLOTS
PROJECT NUMBER	19-42
PROJECT ARCHITECT	J. Chatfield
DESIGN	C. Brasher
DRAWN BY	C. Brasher

SHEET NAME:
GENERAL STRUCTURAL NOTES

S1.1

PLOT DATE: 04.01.2020

SPECIAL INSPECTION TABLE 1
1705.6 SOILS

YES	NO	MATERIAL/ACTIVITY	CONTINUOUS	PERIODIC
X		1. VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.		X
X		2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.		X
X		3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS.		X
X		4. VERIFY USE OF PROPER MATERIALS, DENSITIES, AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL.	X	
X		5. PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.		X

SPECIAL INSPECTION TABLE 2
1705.3 CONCRETE CONTRUCTION

YES	NO	MATERIAL/ACTIVITY	CONTINUOUS	PERIODIC
X		1. INSPECTION OF REINFORCING STEEL, INCLUDING PRESTRESSING TENDONS, AND PLACEMENT.		X
X		2. INSPECTION OF REIFORCING STEEL WELDING IN ACCORDANCE WITH TABLE 1705.2.2 ITEM 2B.		
	X	3. INSPECTION OF ANCHORS CAST IN CONCRETE WHERE ALLOWABLE LOADS HAVE BEEN INCREASED PER SECTION 1908.5 OR WHERE STRENGTH DESIGN IS USED.		X
X		4. INSPECTION OF ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS.		X
X		5. VERIFY USE OF REQUIRED DESIGN MIX		X
X		6. AT THE TIME OF FRESH CONCRETE IS SAMPLED TO FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	X	
X		7. INSPECTION OF CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECH-NIQUES.	X	
X		8. INSPECTION FOR MAINTENANCE OF SPECI ED CURING TEMPERATURE AND TECHNIQUES.		X
	X	9. INSPECTION OF PRESTRESSED CONCRETE:		
		A. APPLICATION OF PRESTRESSING FORCES	X	
		B. GROUTING OF BONDED PRESTRESSING TENDONS IN THE SEISMIC-FORCE-RESISTING SYSTEM	X	
	X	10. ERECTION OF PRECAST CONCRETE MEMBERS.		X
	X	11. VERIFICATION OF IN-SITU CONCRETE STRENGTH, PRIOR TO STRESSING OF TENDONS IN POST TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUC-TURAL SLABS.		X
X		12. INSPECTION OF FORMWORK FOR SHAPE, LINES, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.		X

SPECIAL INSPECTION TABLE 3
1705.4 SPECIAL INSPECTION LEVEL B QUALITY ASSURANCE FOR MASONRY CONSTRUCTION

YES	NO	MATERIAL/ACTIVITY	CONTINUOUS	PERIODIC
		MINIMUM TESTS PER ASTM 402/ACI 530/ASCE 5 AND TMS 602/ACI 530.1/ASCE 6		
		VERIFICATION OF SLUMP FLOW AND VISUAL STABILITY INDEX (VSI) AS DELIVERED TO THE PROJECT SITE IN ACCORDANCE WITH SPECIFICATION ARTICLE 1.5 B.1.B.3 FOR SELF CONSOLIDATING GROUT		
		VERIFICATION OF F_m AND F'_{AAC} IN ACCORDANCE WITH SPECIFICATION ARTICLE 1.4 B PRIOR TO CONSTRUCTION, EXCEPT WHERE SPECIFICALLY EXEMPTED BY THIS CODE		
X		1. VERIFY COMPLIANCE WITH THE APPROVED SUBMITTALS.		X
X		2. AS MASONRY CONSTRUCTION BEGINS VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE:		X
		A. PROPORTIONS OF SITE MORTAR		X
		B. CONSTRUCTION MORTAR JOINTS		X
		C. GRADE AND SIZE OF PRESTRESSING TENDONS AND ANCHORAGES		X
		D. LOCATIONS OF REINFORCEMENT, CONNECTIONS, AND PRESTRESSING TENDONS AND ANCHORAGES		X
		E. PRESTRESSING TECHNIQUE		X
		F. PROPERTIES OF THIN-BED MORTAR FOR AAC MASONRY	X(B)	X(C)
X		3. PRIOR TO GROUTING, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE:		
		A. GROUT SPACE		X
		B. GRADE, TYPE, AND SIZE OF REINFORCEMENT AND ANCHOR BOLTS, AND PRESTRESSING TENDONS AND ANCHORAGES		X
		C. PLACEMENT OF REINFORCEMENT, CONNECTORS, AND PRESTRESSING TENDONS AND ANCHORAGES		X
		D. PROPORTIONS OF SITE-PREPARED GROUT AND PRESTRESSING GROUT FOR BONDED TENDONS		X
		E. CONSTRUCTION OF MORTAR JOINTS		X
X		4. VERIFY DURING CONSTRUCTION:		
		A. SIZE AND LOCATION OF STRUCTURAL ELEMENTS		X
		B. TYPE, SIZE, AND LOCATION OF ANCHORS, INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES AND OTHER CONSTRUCTION		X
		C. WELDING REINFORCEMENT	X	
		D. PREPARATION, CONSTRUCTION, AND PROTECTION OF MASONRY, DURING COLD WEATHER (TEMPERATURE BELOW 400 F (4.40C) OR HOT WEATHER (TEMPERATURE ABOVE 900F (32.20 C))		X
		E. APPLICATION AND MEASUREMENT OF PRESTRESSING FORCE	X	
		F. PLACEMENT OF GROUT AND PRESTRESSING GROUT FOR BONDED TENDONS IS IN COMPLIANCE	X	
		G. PLACEMENT OF AAC MASONRY UNITS AND CONSTRUCTION OF THIN-BED MORTAR JOINTS	X(B)	X(C)
X		5. OBSERVE PREPARATION OF GROUT SPECIMENS, MORTAR SPECIMENS, AND/OR PRISMS		X(C)

A) FREQUENCY REFERS TO FREQUENCY OF INSPECTION, WHICH MAY BE CONTINUOUS DURING THE TASK LISTED OR PERODICALY DURING THE TASK , AS DE NED IN THE TABLE.

B) REQUIRED FOR THE RST 500 SQUARE FEET (465 SQUARE METERS) OF AAC MASONRY

C) REQUIRED AFTER TEH FIRST 500 SQUARE FEET (465 SQUARE METERS) OF AAC MASONRY

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PROFESSIONAL ENGINEER LICENSED 14767 04/20/2020 STATE OF IDAHO CRAIG E. BRASHER

CONSULTANT:

Ally Structural Consulting, LLC
www.allystructural.com
208-949-5993
PROJECT: 19-057

PROJECT INFORMATION:

PROJECT NAME:
NEW MEADOWS WELL HOUSE
OWNER:
CITY OF NEW MEADOWS

NEW MEADOWS, ID

REVISIONS:

MARK	DATE	DESCRIPTION

PROJECT PHASE	PERMIT PLOTS
PROJECT NUMBER	19-42
PROJECT ARCHITECT	J. Chatfield
DESIGN	C. Brasher
DRAWN BY	C. Brasher

SHEET NAME:

SPECIAL INSPECTIONS

S1.2

PLOT DATE: 04.01.2020

SPECIAL INSPECTION TABLE 4
1705.2.1 STRUCTURAL STEEL

YES	NO	MATERIAL/ACTIVITY	CONTINUOUS	PERIODIC
		WELDING: (AISC360) TABLE C-N5.4-1 INSPECTION TASKS PRIOR TO WELDING		
X		1. WELDING PROCEDURE SPECIFICATIONS WPSs AVAILABLE	X	
X		2. MANUFACTURER CERTI CATION FOR WELDING CONSUMABLES AVAILABLE	X	
X		3. MATERIAL IDENTIFICATION (TYPE/GRADE)		X
X		4. WELDER IDENTIFICATION SYSTEM		X
	X	5. FIT-UP OF GROOVE WELDS (INCLUDING JOINT GEOMETRY)		X
		A. JOINT PREPARATION		
		B. DIMENSIONS (ALIGNMENT, ROOT OPENING, ROOT FACE, BEVEL)		
		C. CLEANLINESS (CONDITION OF STEEL SURFACE)		
		D. TACKING (TACK WELD QUALITY AND LOCATION)		
		E. BACKING TYPE AND T (IF APPLICABLE)		
	X	6. CONFIGURATION AND FINISH OF ACCESS HOLES		X
X		7. FIT-UP FOR LLET WELDS		X
		A. DIMENSIONS (ALIGNMENT, GAPS AT ROOT)		
		B. CLEANLINESS (CONDITION OF STEEL SURFACES)		
		C. TACKING (TACK WELD QUALITY AND LOCATION)		
X		8. CHECK WELDING EQUIPMENT		X
		WELDING: (AISC360) TABLE C-N5.4-2 INSPECTION TASKS DURING WELDING		
X		1. USE OF QUALIFIED WELDERS		X
X		2. CONTROL AND HANDLING OF WELDING CONSUMABLES		X
		A. PACKAGING		
		B. EXPOSURE CONTROL		
X		3. NO WELDING OVER CRACKED TACK WELDS		X
X		4. ENVIRONMENTAL CONDITIONS		X
		A. WIND SPEED WITHIN LIMITS		
		B. PRECIPITATION AND TEMPERATURE		
X		5. WPS FOLLOWED		X
		A. SETTING ON WELDING EQUIPMENT		
		B.TRAVEL SPEED		
		C. SELECTED WELDING MATERIALS		
		D. SHEILDING GAS TYPE/ OW RATE		
		E. PREHEAT APPLIED		
		F. INTERPASS TEMPERATURE MAINTAINED (MIN/MAX)		
		G. PROPER POSITION (F, V, H, OH)		
X		6. WELDING TECHNIQUES		X
		A. INTERPASS AND FINAL CLEANING		
		B. EACH PASS WITHIN PROFILE LIMITATIONS		
		C. EACH PASS MEETS QUALITY REQUIREMENTS		
		WELDING: (AISC360) TABLE C-N5.4-3 INSPECTION TASKS AFTER WELDING		

SPECIAL INSPECTION TABLE 4
1705.2.1 STRUCTURAL STEEL

YES	NO	MATERIAL/ACTIVITY	CONTINUOUS	PERIODIC
		WELDING: (AISC360) TABLE C-N5.4-1 INSPECTION TASKS PRIOR TO WELDING		
X		1. WELDS CLEANED		X
X		2. SIZE, LENGTH AND LOCATION OF WELDS	X	
X		3. WELDS MEET VISUAL ACCEPTANCE CRITERIA	X	
		A. CRACK PROHIBITION		
		B. WELD/BASE-METAL FUSION		
		C. CRATER CROSS SECTION		
		D. WELD PROFILES		
		E. WELD SIZE		
		F. UNDERCUT		
		G. POROSITY		
X		4. ARC STRIKES	X	
	X	5. K-AREA	X	
	X	6. BACKING REMOVED AND WELD TABS REMOVED IF REQUIRED	X	
X		7. REPAIR ACTIVITIES	X	
X		8. DOCUMENT ACCEPTANCE OR REJECTION OF WELDED JOINT MEMBER	X	
		BOLTING: (AISC360) TABLE C-N5.6-1 INSPECTION TASKS PRIOR TO BOLTING		
	X	1. MANUFACTURER'S CERTIFICATIONS AVAILABLE FOR FASTENER MATERIALS	X	
	X	2. FASTENERS MARKED IN ACCORDANCE WITH ASTM REQUIREMENTS		X
	X	3. PROPER FASTENERS SELECTED FOR THE JOINT DETAIL (GRADE, TYPE, BOLT LENGTH IF THREADS TO BE EXCLUDED FROM SHEAR PLANE)		X
	X	4. PROPER BOLTING PROCEDURE SELECTED FOR JOINT DETAIL		X
	X	5. CONNECTING ELEMENTS, INCLUDING THE APPROPRIATE FAYING SURFACE CONDITION AND HOLE PREPARATION, IF SPECIFIED, MEET APPLICABLE REQUIREMENTS		X
	X	6. PRE-INSTALLATION VERI CATION TESTING BY INSTALLATION PERSONNEL OBSERVED AND DOCUMENTED FOR FASTENER ASSEMBLIES AND METHODS USED	X	
	X	7. PROPER STORAGE PROVIDED FOR BOLTS, NUTS, WASHERS AND OTHER FASTENER COMPONENTS		X
		BOLTING: (AISC360) TABLE C-N5.6-2 INSPECTION TASKS DURING BOLTING		
	X	1. FASTENER ASSEMBLIES OF SUITABLE CONDITION, PLACED IN ALL HOLES AND WASHERS (IF REQUIRED) ARE POSITIONED AS REQUIRED		X
	X	2. JOINT BROUGHT TO SNUG TIGHT CONDITION PRIOR TO THE PRETENSIONING OPERATION		X
	X	3. FASTENER COMPONENT NOT TURNED BY THE WRENCH PREVENTED FROM ROTATING		X
	X	4. FASTENERS ARE PRETENSIONED IN ACCORDANCE WITH A METHOD APPROVED BY RSCE AND PROGRESSING SYSTEMATICALLY FROM MOST RIGID POINT TOWARD FREE EDGES		X
		BOLTING: (AISC360) TABLE C-N5.6-3 INSPECTION TASKS AFTER BOLTING		
	X	1. DOCUMENT ACCEPTANCE OR REJECTION OF BOLTED CONNECTIONS	X	

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CONSULTANT:

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www.allystructural.com
208-949-5993
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OWNER:
CITY OF NEW MEADOWS

NEW MEADOWS, ID

REVISIONS:

MARK	DATE	DESCRIPTION

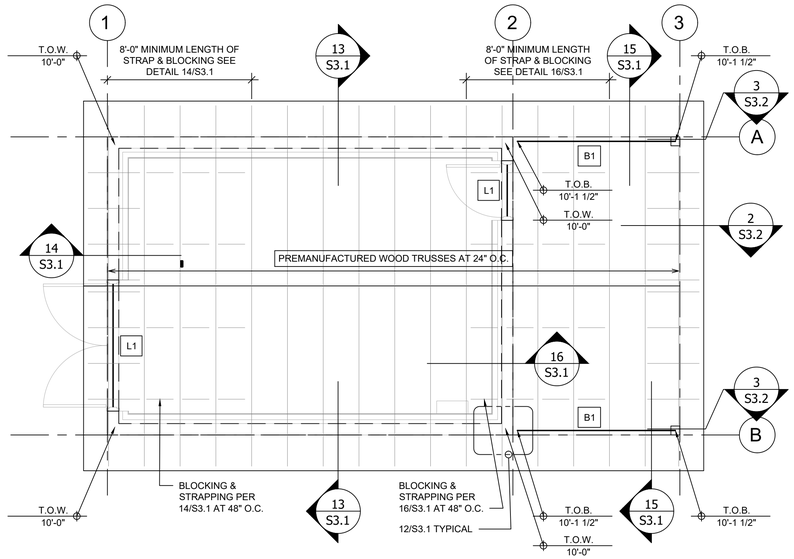
PROJECT PHASE	PERMIT PLOTS
PROJECT NUMBER	19-42
PROJECT ARCHITECT	J. Chatfield
DESIGN	C. Brasher
DRAWN BY	C. Brasher

SHEET NAME:

SPECIAL INSPECTIONS

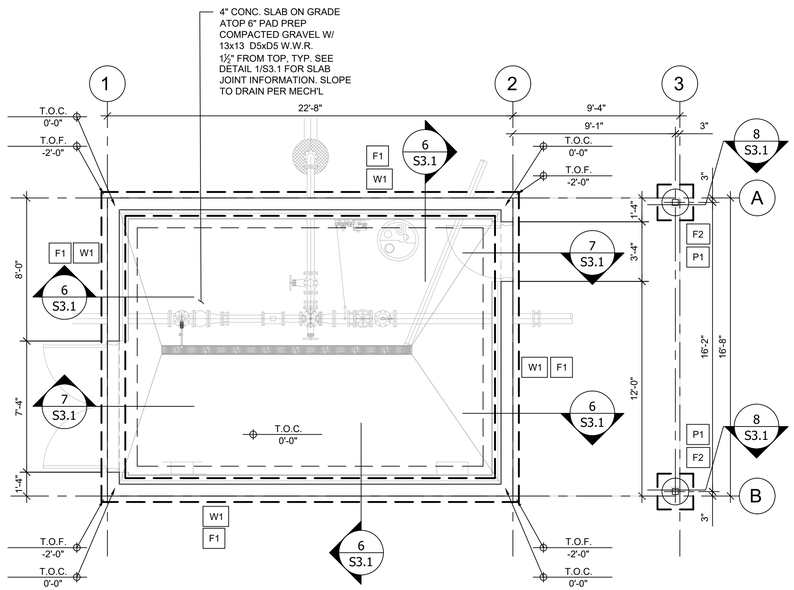
S1.3

PLOT DATE: 04.01.2020



2 WELL HOUSE ROOF FRAMING PLAN

Scale: 1/4"=1'-0"



1 WELL HOUSE FOUNDATION PLAN

Scale: 1/4"=1'-0"

PLAN NOTES

1. FOR GENERAL STRUCTURAL NOTES SEE S1.1.
2. FOR TYPICAL FOUNDATION DETAILS, SEE 1-5/S3.1.
4. FOR TYPICAL MASONRY WALL DETAILS, SEE 9-11/S3.1.
5. T.O.F. -2'-0" DENOTES ELEVATION
6. ROOF FRAMING:
   THE ROOF FRAMING IS OF WOOD PRE-MANUFACTURED PRESS PLATE TRUSSES AT 24" O.C. MAX. SEE THE GSN FOR DESIGN CRITERIA NOT INDICATED HERE.
7. ROOF SHEATHING:
   $^{19}/_{32}$" APA RATED SHEATHING $^{40}/_{20}$ SPAN RATING EXTERIOR EXPOSURE 1. STAGGER PANEL EDGES. NAIL WITH 10d'S AT 6" O.C. AT EDGE SUPPORTS AND 12" O.C. AT INTERMEDIATE SUPPORTS

FOUNDATION SCHEDULE

MARK	SIZE	REINFORCING
F1	1'-6"x12" DP CONT.	(2) #5 CONT.
F2	2'-0"SQ.x12" DP.	(3) #5 EA. WAY
P1	18" DIA. PIER	(5) #5 VERT. EVENLY SPACED W/ #4 TIES (2) IN TOP 5" THEN AT 10" O.C.

CMU WALL SCHEDULE

MARK	NOMINAL WIDTH	RIENFORCING
W1	8"	#5 VERT. AT 48" O.C. AT WALL CENTER

NOTES:
TYPICAL HORIZONTAL REINFORCING AT ALL WALL TYPES SHALL BE (2)#4 AT 48" O.C. AND BOTTOM. AT ROOF LEVEL PROVIDE (2)#5 HORIZONTAL. SOLID GROUT REINFORCED CELLS ONLY EXCEPT SOLID GROUT BELOW GRADE. FOR TYPICAL MASONRY DETAILS SEE 9-11/S3.1

LINTEL SCHEDULE

MARK	LINTEL DEPTH	REINFORCING	JAMB WIDTH	JAMB VERT. REINF. U.N.O.
L1	16"	(2)#5 AT BOTTOM	8"	#5 AT EA. FACE AT 8" O.C.
L2	40"	(2)#5 AT BOTTOM	8"	#5 AT EA. FACE AT 8" O.C.

BEAM SCHEDULE

MARK	BEAM SIZE & TYPE	COLUMN
B1	(3)1¾"x11⅞" 2.0E LVL	HSS4x4x¼ W/ ¾"x10"SQ. BASE PLATE & (4)¾" HEAVY HEX BOLTS EMBED 7" INTO CONCRETE PIERS

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REVISIONS:

MARK	DATE	DESCRIPTION

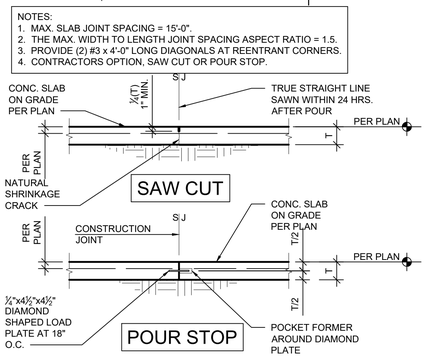
PROJECT PHASE	PERMIT PLOTS
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PROJECT ARCHITECT	J. Chatfield
DESIGN	C. Brasher
DRAWN BY	C. Brasher

SHEET NAME:

WELL HOUSE ROOF FOUNDATION & ROOF FRAMING PLAN

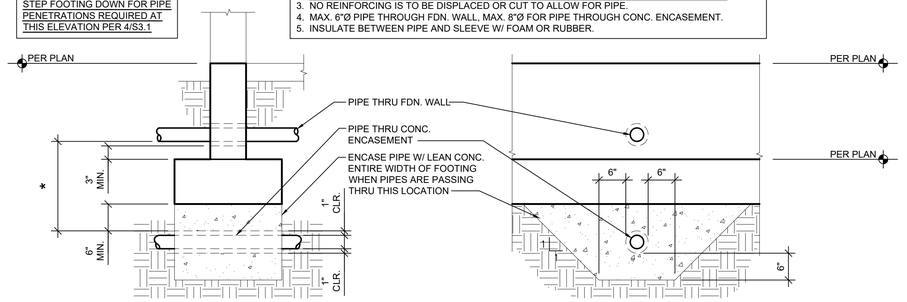
S2.1

PLOT DATE: 04.01.2020



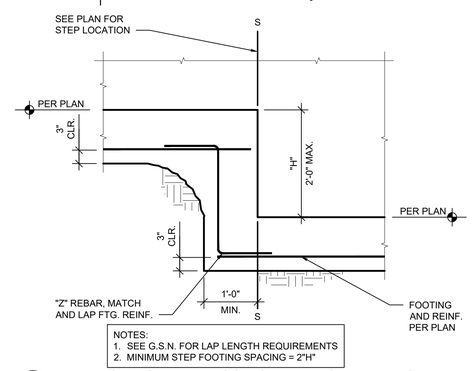
1 TYPICAL CONCRETE SLAB JOINTS

SCALE: 3/4" = 1'-0"



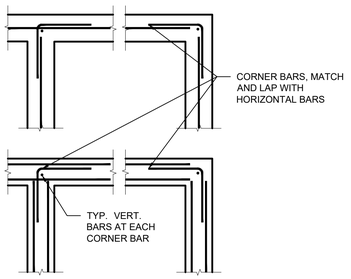
2 TYPICAL PENETRATIONS AT CONCRETE FOUNDATION

SCALE: 3/4" = 1'-0"



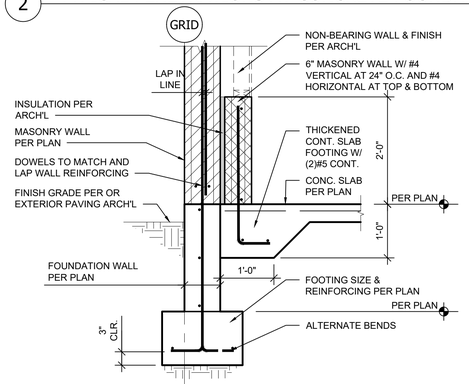
4 TYPICAL STEP AT CONCRETE FOUNDATION

SCALE: 3/4" = 1'-0"



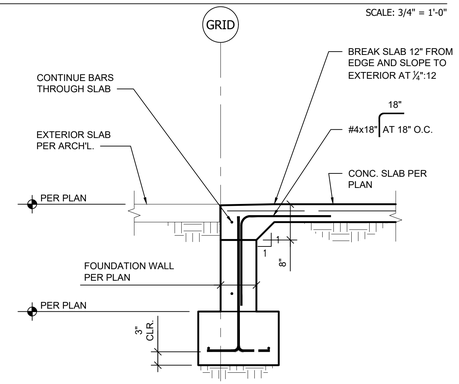
5 TYPICAL WALL CORNER/INTERSECTION REINF.

SCALE: 3/4" = 1'-0"



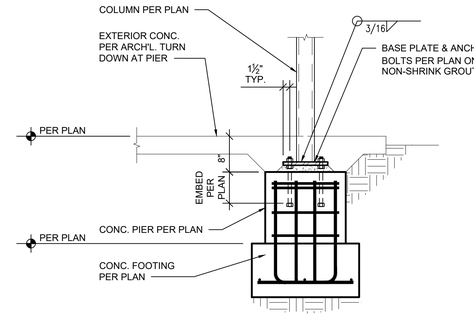
6 MASONRY WALL AT CONCRETE FOUNDATION

Scale: 3/4"=1'-0"



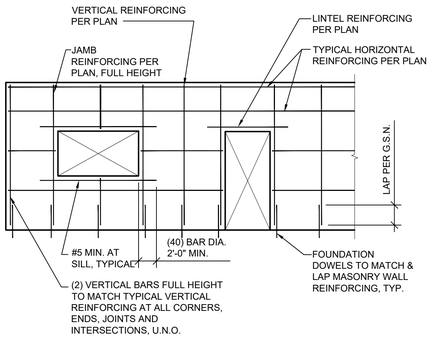
7 TURN-DOWN AT CONCRETE FOUNDATION

Scale: 3/4"=1'-0"



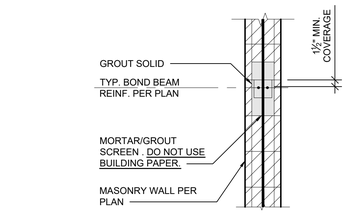
8 STEEL COLUMN AT CONCRETE FOUNDATION

Scale: 3/4"=1'-0"



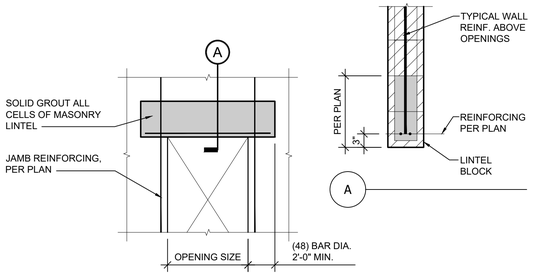
9 TYPICAL MASONRY WALL LAYOUT - ELEVATION

Scale: 3/4"=1'-0"



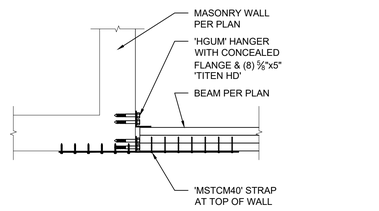
10 TYPICAL BOND BEAM AT HORIZ. RIENF.

Scale: 3/4"=1'-0"



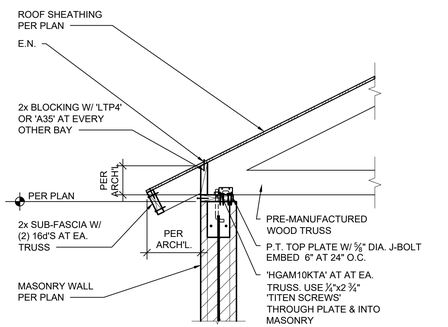
11 TYPICAL MASONRY LINTEL LAYOUT

Scale: 3/4"=1'-0"



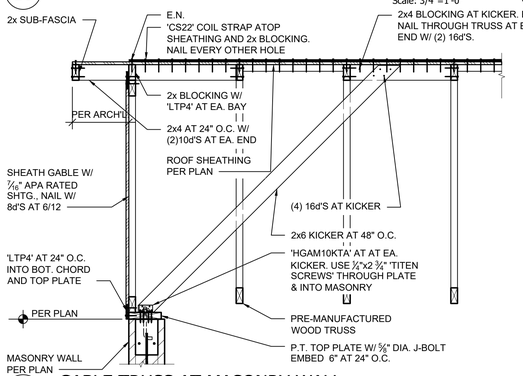
12 BEAM AT MASONRY WALL

SCALE: 3/4" = 1'-0"



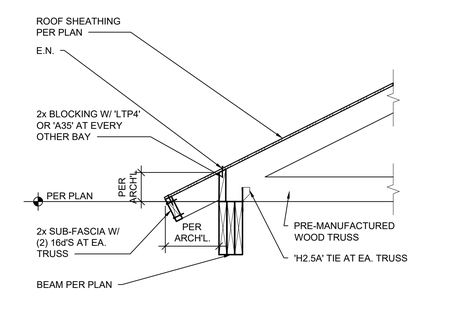
13 TRUSS AT MASONRY WALL

SCALE: 3/4" = 1'-0"



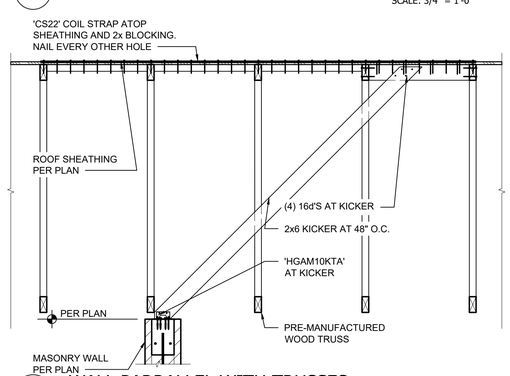
14 GABLE TRUSS AT MASONRY WALL

SCALE: 3/4" = 1'-0"



15 TRUSS AT BEAM

SCALE: 3/4" = 1'-0"



16 WALL PARRALLEL WITH TRUSSES

SCALE: 3/4" = 1'-0"

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PROJECT PHASE	PERMIT PLOTS
PROJECT NUMBER	19-42
PROJECT ARCHITECT	J. Chatfield
DESIGN	C. Brasher
DRAWN BY	C. Brasher

SHEET NAME:

DETAILS

S3.1

PLOT DATE: 04.01.2020

MECHANICAL SPECIFICATIONS

Section
Number Title

15010 BASIC MECHANICAL REQUIREMENTS
15060 HANGERS AND SUPPORTS
15835 UNIT HEATERS
15870 POWER VENTILATORS
15990 TESTING, ADJUSTING AND BALANCING

15010
BASIC MECHANICAL REQUIREMENTS
GENERAL
All work shall conform to mandated version of IBC, SMACNA, UPC, IMC, NFPA, IFC, IFGC, IECC and all other applicable codes enforced by the authorities having jurisdiction.
The scope of the work shall include mechanical systems as shown on the plans. The Contractor shall provide all supervision, labor, material, equipment, machinery, plant and any and all other items as indicated on the drawings as required for complete systems.
Contractor shall give all necessary notices, obtain and pay for all permits and pay all government sales taxes, fees and other costs incurred in connection with the work, file all necessary plans, prepare all documents and obtain all required certificates of inspections for his work and deliver same to the Engineer before request for acceptance and final payment for the work.
All materials installed shall bear the UL label and shall be new and of the best quality.
The Contractor shall follow drawings in laying out work, check drawings of other trades and verify on-site conditions in which work will be installed.
The Contractor shall protect all work, material and existing furnishings from damage by his work or workmen and shall be liable for all damage thus caused.
Provide two sets of operations and maintenance manual and two sets of as built record drawings within 60 days of substantial completion of project.
All work shall be guaranteed in writing to be free of defective work, materials or parts for a period of one year after substantial completion of work.

15060
HANGERS AND SUPPORTS
GENERAL
Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.
Design seismic restraint system per IBC in accordance with SMACNA Seismic Design Guide for service zones as identified by current IBC.
PRODUCTS
Manufactured Units Hangers, Supports and Components: Factory fabricated according to MSS SP-58.
EXECUTION
Hanger and Support applications to comply with MSS SP-69 for pipe hanger selections and applications.
Hanger and Support Installation to comply with MSS SP-69 and SP-89. Install hangers, supports, clamps and attachments as required to properly support piping from building structure.

15835
UNIT HEATERS
ELECTRICAL UNIT HEATERS
Heating Elements: Nickel-chromium heating wire elements. Finish surface temperature does not exceed 550°F at any point during normal operation.
Heating Circuit Protection: One-time fuses in terminal box for over current protection and limit controls.
Fan and Motor: Direct-drive propeller fan and manufacturer's standard motor.
Discharge Configuration: Vertical discharge with radial louver diffuser.
Optional Accessories: Include the following:
1. Time switch
2. Integral thermostat.
3. Safety-switch disconnect on cover of terminal box.
4. Mercury contactors.
5. Fan-delay relay.

15870
POWER VENTILATORS
PROPELLER WALL VENTILATORS
Belt driven propeller wall fan consists of steel housing and fan blades.
Provide with OSHA wire guard, wall collar, gravity backdraft damper and exterior weather hood.

15990
TESTING, ADJUSTING AND BALANCING
GENERAL
The requirements and procedures total mechanical systems testing, adjusting and balancing requirements include measurement and establishment of the fluid quantities of the mechanical systems as required to meet design specifications and recording and reporting the results.
Test, adjust and balance the following mechanical systems:
1. Supply air systems, all pressure ranges.
2. Exhaust air systems.
3. Verify temperature control system operation.

COMcheck Software Version 4.1.2.1
Mechanical Compliance Certificate

Project Information

Energy Code:	90.1 (2013) Standard
Project Title:	New Meadows Well House
Location:	Boise, Idaho
Climate Zone:	5b
Project Type:	New Construction

Construction Site:
New Meadows, ID

Owner/Agent:

Designer/Contractor:
Robert Tikker
Tikker Engineering
9050 W. Overland Rd Ste 170
Boise, ID 83709

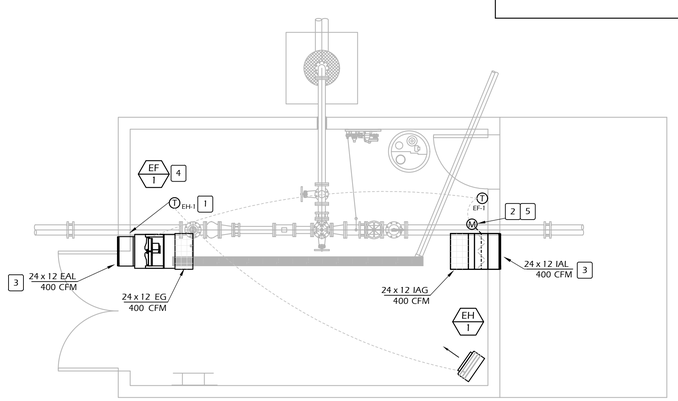
Mechanical Systems List

Quantity	System Type & Description
1	EH-1 (Single Zone): Heating: 1 each - Unit Heater, Electric, Capacity = 8 kBtu/h; No minimum efficiency requirement applies; Fan System: None

Mechanical Compliance Statement

Compliance Statement: The proposed mechanical design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 90.1 (2013) Standard requirements in COMcheck Version 4.1.2.1 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

ROBERT D. TIKKER — Name - Title
Robert D. Tikker — Signature
2-5-20 — Date



NORTH

HVAC PLAN - WELL HOUSE
SCALE: 1/4"=1'-0"
4 3 2 1 0 4 8 12

ENERGY CODE COMPLIANCE NOTES:
1. MECHANICAL SYSTEMS HAVE BEEN DESIGNED UNDER THE 2015 IECC.
2. LOAD CALCULATIONS HAVE BEEN PERFORMED IN ACCORDANCE WITH ASHRAE FUNDAMENTALS HANDBOOK (IECC C403.2.1).
3. ALL THERMOSTATS CONTROLLING HVAC SYSTEMS SHALL BE 7-DAY, SOLID STATE, PROGRAMMABLE THERMOSTATS WITH NIGHT SETBACK CAPABILITIES, HAVE AN OUTPUT TO ENABLE THE ECONOMIZER, HAVE AN INPUT FOR THE FDD ALARM FROM THE ECONOMIZER CONTROLLER, AND A DEADBAND OF 5°F OR LESS UNLESS DDC CONTROLS ARE SPECIFIED. IF DDC CONTROLS ARE SPECIFIED, FOLLOW NOTES SHOWN IN PLANS AND SPECIFICATIONS.
4. CONTRACTOR SHALL PROVIDE A COMPLETE SET OF AS BUILT RECORD DRAWINGS, OPERATION AND MAINTENANCE MANUALS AND HVAC SYSTEM BALANCE REPORTS TO OWNER AFTER SUBSTANTIAL COMPLETION OF PROJECT (IECC C408.2.5).

GENERAL NOTES:
1. COORDINATE HVAC EQUIPMENT WITH ALL OTHER TRADES AS REQUIRED.

KEY NOTES:
1. PROVIDE LOW-TEMPERATURE ALARM.
2. 120-VOLT MOTORIZED INTAKE AIR DAMPER TO BE INTERLOCKED WITH OPERATION OF EXHAUST FAN EF-1.
3. LOCATE LOUVER IN ROOF GABLE. COORDINATE LOCATION WITH ARCHITECT PRIOR TO WORK COMMENCING.
4. EXHAUST FAN TO BE LOCATED ABOVE CEILING. MECHANICAL CONTRACTOR TO PROVIDE MAINTENANCE ACCESS PANEL IN CEILING FOR SERVICE OF EXHAUST FAN.
5. MOTORIZED DAMPER TO BE LOCATED ABOVE CEILING. MECHANICAL CONTRACTOR TO PROVIDE MAINTENANCE ACCESS PANEL IN CEILING FOR SERVICE OF MOTORIZED DAMPER.

EXHAUST FAN SCHEDULE

NO.	TYPE	CFM	SPE	WATTS / HP	CHAR	RPM	WEIGHT	MANUFACTURER	REMARKS
1	WALL PROPELLER	400	.25"	32.4W	120/1ø	1725	55#	'COOK' XPD 10XP24D17EC	1 2

1 EXHAUST FAN CONTROLLED BY THERMOSTAT. FAN TO TURN ON WITH TEMPERATURE RISE ABOVE SETPOINT. INTAKE AIR TO BE PROVIDED VIA INTAKE AIR HOOD WITH 120-VOLT MOTORIZED DAMPER.

2 PROVIDE WITH OSHA WIRE GUARD, WALL COLLAR, GSS WALL SHUTTER, BIRD SCREEN, SPEED CONTROLLER FOR BALANCING AND OUTSIDE AIR EXHAUST HOOD.

ELECTRIC HEATER SCHEDULE

NO.	TYPE	MBH	KW	CHAR	MANUFACTURER	REMARKS
1	WALL-HUNG	7.5	2.2	208/1ø	'Q MARK' MUH03-21	---

GRILLE AND REGISTER SCHEDULE

SYMBOL	DESCRIPTION	TYPE	FINISH
EAL	EXHAUST AIR LOUVER	'RUSKIN' ELF 375DX	1
IAL	INTAKE AIR LOUVER	'RUSKIN' ELF 375DX	1
EG	EXHAUST GRILLE	'TITUS' 50F	OFF WHITE
IAG	INTAKE AIR GRILLE	'TITUS' 50F	OFF WHITE

1 MECHANICAL CONTRACTOR TO COORDINATE COLOR/FINISH WITH ARCHITECT/OWNER PRIOR TO ORDER.

LOAD CALCULATION SUMMARY FORM

ZONE	EQUIPMENT	SF	COOLING LOAD W/ FRESH AIR (MBH)	HEATING LOAD W/ FRESH AIR (MBH)
1	EH-1	290	2.4	6.1

LOAD CALCULATIONS HAVE BEEN DETERMINED IN ACCORDANCE WITH THE PROCEDURES DESCRIBED IN 2007 ASHRAE/ACCA STANDARD 183

CLIMATIC DESIGN INFORMATION

CITY	BOISE, ID
ELEVATION (FT)	3868
LATITUDE	44.97N
LONGITUDE	116.29W
HEATING DB (99%)	-7.3°
COOLING DB / MCWB (1%)	82.8.0° / 57.9°
DESIGN RAINFALL (IN/HR)	1"

MECHANICAL LEGEND

SYMBOL	DESCRIPTION
T	THERMOSTAT
M	MOTORIZED DAMPER
	RETURN GRILLE
	EXHAUST GRILLE
	SUPPLY DUCT
	RETURN DUCT
	EXHAUST DUCT
	FLEX DUCT
X / X	EQUIPMENT CALLOUT

MECHANICAL ABBREVIATIONS

SYMBOL	DESCRIPTION
AFF	ABOVE FINISHED FLOOR
BTU	BRITISH THERMAL UNITS
CFM	CUBIC FEET PER MINUTE
CHAR	CHARACTERISTICS
EAT	ENTERING AIR TEMPERATURE
EER	ENERGY EFFICIENCY RATIO
EFF	EFFICIENCY
FA	FRESH AIR
FLA	FULL LOAD AMPS
FT	FEET
HP	HORSE POWER
HR	HOUR
kW	KILOWATT
LB	POUNDS
MAX	MAXIMUM
MBH	BTU'S IN THOUSANDS
MCA	MINIMUM CIRCUIT AMPS
MIN	MINIMUM
PD	PRESSURE DROP
PRV	PRESSURE REDUCING VALVE
RA	RETURN AIR
RPM	REVOLUTIONS PER MINUTE
SF	SQUARE FEET
SP	STATIC PRESSURE
SPE	STATIC PRESSURE EXTERNAL
TYP	TYPICAL

DRAWING LEGEND

SHEET	DRAWING TITLE
M101	MECHANICAL PLAN

NO.	REVISION	BY	DATE
1	COORDINATION MODIFICATIONS		04-14-20

DESIGN: IS
DRAWN: BT
CHECKED:
APPROVED:

PROFESSIONAL ENGINEER REGISTERED 7009 STATE OF IDAHO ROBERT D. TIKKER 2-5-20

TIKKER ENGINEERING
A MECHANICAL CONSULTING FIRM
9050 W. Overland Rd. Suite 170 Boise, ID 83709
Phone: (208) 658-0218 Fax: (208) 658-0219
JOB # 19215

.\pump station\MVV_White Box Square.jpg

ENGINEERING AND ENVIRONMENTAL SOLUTIONS
1161 W RIVER ST, STE 130
BOISE, IDAHO 83702
208.780.3990

IDAHO OFFICES
BOISE · LEWISTON · COEUR D'ALENE

CITY OF NEW MEADOWS
WATER SYSTEM IMPROVEMENTS PROJECT
NEW MEADOWS, IDAHO

VERIFY SCALE
REFERENCE PLAN FOR SCALE
PROJECT 197.0010.01
DATE 04/15/2020
DRAWING NO. 1 M101

Land Change Request—Lauren & Joann Frei

Combining lots 10 & 11





City of New Meadows
LAND CHANGE REQUEST

1. APPLICANT INFORMATION

Name: Lauren & JoAnn Frei Phone: (208) 305-4618

Address: 23003 Deer Creek Rd.

City: Winchester State: ID Zip: 83555

Email: cabinhappy@gmail.com

2. REQUEST DETAILS

☐ Split ☒ Combine ☐ Lot Line Adjustment ☐ Other: _____

Parcel Number(s): RPM05000000100A (Lot 10) & RPM05000000110A (Lot 11)

Is there a water right associated with this property? ☐ YES ☐ NO

Is there a lien holder on this property? ☐ YES ☒ NO (*may require approval from lienholder*)

Describe the proposed changes, including resulting parcel size(s). Remove the property line between Lot 10 & Lot 11, making one larger lot.

Describe any impact this change will have on neighboring properties.

Make it more open area and less fire danger.

By my signature below, I acknowledge that I have requested the action to be considered by the New Meadows Planning & Zoning Committee. I understand that all requests will be reviewed and evaluated for compliance with the zoning and building regulations of the City of New Meadows.

Owner Signature: Lauren J Frei Date: 5/30/2021

Owner Signature: JoAnn Frei Date: 5/30/2021

3. PLANNING & ZONING APPROVAL ☐ Approved ☐ Denied

Signature: _____ Date: _____

4. NEW MEADOWS CITY COUNCIL APPROVAL ☐ Approved ☐ Denied

Signature: _____ Date: _____

RECEIVED 6.3.21 AM

To: Mayor Good
From: Dodd Snodgrass, CEDA
Date: June 14, 2021
Re: Background on north-south broadband project

In recent changes to the Idaho State Broadband Grant Program, the Idaho Broadband Advisory Board is seeking non-CARES Act eligible projects to be considered for future funding.

The Port of Lewiston is going to submit an application for non-CARES Act funds through the Idaho State Broadband Grant Program. We are asking you for a support letter (sample provided) for the construction of the Grangeville to New Meadows segment, which has been featured in the Governor's Broadband Task Force Report and promoted by District 2 Interoperability Governance Board (DIGB2) for north central Idaho. This is a statewide need and the Port's request will not include "local match"

Status

- **Grangeville – Riggins – New Meadows Planning Project ($150,000)**: Idaho County received notification of a $120,000 award. It is being matched with $24,000 GEM Grant (verbally told there is award) leaving $6,000 to be match by the five counties. This study will provide the basis for funding the construction of middle mile dark fiber.

- **Grangeville – Riggins – New Meadows Construction Project ($16 million)**: Subject of the request. The Port of Lewiston has been working on getting cost estimates and concept designs for this project in anticipation that they might be able to apply for broadband funds as they come through.

I will need the attached letter pdf'd back to me this week

Thanks!

New Meadows Letterhead

Idaho Broadband Advisory Board
c/o Idaho Department of Commerce
P.O. Box 83720
Boise, ID 83720

Re: Grangeville to New Meadows Fiber Backbone Project Support

Dear Idaho Broadband Advisory Board:

The City of New Meadows supports the Port of Lewiston's construction of a fiber segment that will connect Grangeville (Idaho County) and New Meadows (Adams County). This letter will be included with the Port of Lewiston's grant proposal that is being submitted as a non-CARES Act project. This project is recognized as a statewide need and critical infrastructure for telecommunication for public safety as well as education, healthcare, and industry. As a dark fiber, open access network it will provide internet service providers lease options to address customer needs; it will provide telecommunication directly connecting northern Idaho and southern Idaho.

In 2009, this need was recognized in Idaho House Concurrent Resolution No. 21 by Environment, Energy, and Technology Committee. It was signed by then Speaker of the House Lawerence Denney and Senate President Robert L. Geddes and certified by then Idaho Secretary of State Ben Ysursa. This north-central Idaho "open access" fiber network is high-priority action item recommended in 2019 to Governor Little by the Idaho Broadband Task Force.

Although each of these documents identify the need between Grangeville and Riggins, it has since been determined that an open access fiber connection is needed between Riggins and New Meadows. This expansion is supported by the District 2 Interoperability Governance Board (DIGB2) for north central Idaho. New Meadows supports the work of DIGB2 to have a direct north-south connection within the State of Idaho.

We see this as a statewide need to connect private and public telecommunication activity and will directly benefit state agency, industry, education, public safety, and healthcare.

Please fund this project.

Sincerely,

City of New Meadows

CITY OF NEW MEADOWS CITY COUNCIL MEETING MINUTES
HELD MONDAY, MAY 24, 2021 AT 6:30 P.M.
CITY COUNCIL CHAMBERS, 401 VIRGINIA STREET, NEW MEADOWS

Roll Call / Pledge of Allegiance

Present at City Hall was Mayor Julie Good. Present via Zoom were Council Members Jeff Parnett, Darla Weber, and Shiloh Ryker.

Staff present at City Hall were Dana Kautz, Daniel Potter, Kyla Gardner, and Angie Mettie. City Attorney Dick Stubbs was present via Zoom.

Public present at City Hall was Kaytlyn Gilliam, David McNight from Air Bridge, and Chelsea Tuttle from the Star News. Present via Zoom was Kim Northway from the Record Reporter.

Mayor Good opened the meeting at 6:30 P.M. and led the Pledge of Allegiance.

Public Input

There was no public input.

Presentations

Broadband Presentation

David McNight gave a presentation regarding the possibility of bringing high-speed broadband to New Meadows. His company is interested in working with rural towns and outlying residents who may not have access to Internet from other companies. He stated that a 40' structure is required, as is line of sight. He would like to get Adams County on board, and also is willing to create free wi-fi areas, possibly at the park, which would be a benefit for travelers.

After the Broadband presentation, new Council Member Kaytlyn Gilliam was appointed and sworn in, thus joining the Council for the remainder of the meeting (see below).

Reports

Mayor Good gave an oral report stating that ICRMP offered many resources to help in creating checklists for emergency situations that may arise. They are willing to help review procedures and offer suggestions. All checklists will be reviewed by the City Attorney prior to implementation.

Mayor Good also asked that the community be encouraged to help with cleanup. Flyers have been created, and funds have been donated for items that require payment at the transfer site. She cautioned against city staff entering private property to help remove items but asked that residents bring items to the curb for pickup on designated days.

She also informed the Council that David Eaton has sold his cell tower. She is in hopes that the agreement of donated space for the City on the tower was transferred with the sale.

Public Works Assistant Potter stated that the cleanup day on May 15th was a success. Six dump truck loads were taken to the transfer site. Potter also volunteered a second day to complete

cleanup work. Flyers have been created for the next cleanup day, and residents have been informed about the effort. The city shop has also been organized and cleaned by Potter.

Discussion Items

Housing Discussion / Zoning Review

Mayor Good suggested a portion of the R-3 zone could be zoned for singles or couples who would be interested in affordable tiny homes. These smaller homes might be placed closer together, and only require one parking space. She did not want the entire R-3 zone to have these specifications, but possibly certain areas. Attorney Stubbs will research zoning to find out about creating a new zone. City Clerk Gardner will look at tiny home developments in other communities for ideas.

Stibnite Grant – Dog Kennel

Council Member Weber provided information, websites, and photos regarding what the city dog kennels might look like when upgraded. Public Works Assistant Potter stated that the cement foundation and structure are sound. Only the inside might need upgrading. Council Member Gilliam stated that the project might be of interest to Seniors as their Senior Project. Estimates for materials will be obtained from C&M, and a grant applied for.

Action Items

Short Term RV Ordinance – Sunset of Displacement Permit

The Council discussed the options for the sunsetting displacement permit amidst the current housing crisis. If a property owner chose to create RV pads within the stipulations in the ordinance and hook up permanent RVs to water and sewer, one would be able to rent out the RVs to those who cannot find housing. This would not be used for travelers or vacation rentals. The Council chose to change the permit expiration from 90 days to 180 days. The Council also chose not to verify income of those living in the RVs, as they would be tenants of the property owner. All other stipulations would still apply, and the displacement option will be reviewed again in two years. The Council would like to receive an update in September 2021 to review the number of displacement permits applied for, and to discuss possible pocket parks for RVs, if the permitting process is being used by residents.

Rates & Fees Amendment

The Council reviewed the updated Rates & Fees Resolution, which added the word “infertile” to the $10 dog license rate, and also lowered the $100 Vacation RV fee to include a $5 one-time Vacation permit fee.

- Council Member Ryker moved to Approve the two changes for the rates and fees on the Consolidated Fees Resolution; Council Member Weber seconded the motion. Roll Call Vote: Weber – Yes, Ryker – yes, Gilliam – yes, Parnett – yes. Motion carried.

After the broadband presentation, City Clerk Gardner swore in Gilliam, who signed the Oath of Office and joined the Council for the remainder of the meeting.

Approval of Council Seat Appointment – Kaytlyn Gilliam

- Council Member Weber moved to approve the appointment of Kaytlyn Gilliam to the vacant City Council seat; Council Member Parnett seconded the motion. Roll Call Vote: Weber – yes, Ryker – yes, Parnett – yes. Motion carried.

IRWA Training for Daniel Potter

The Council reviewed training information for Daniel Potter to attend overnight training May 25-27, 2021.

- Council Member Weber moved to approve of Daniel Potter attending IRWA training and travel May 25-27, 2021; Council Member Parnett seconded the motion. Roll Call Vote: Parnett – yes, Weber – yes, Gilliam – yes, Ryker – yes. Motion carried.

Approval of City Hall Closure

All City Hall staff will be at training June 16-18, 2021.

- Council Member Parnett moved to approve City Hall closures for June 16-18th; Council Member Weber seconded the motion. Roll Call Vote: Weber – yes, Parnett – yes, Gilliam – yes, Ryker – yes. Motion carried.

Consent Agenda

The Consent Agenda included minutes from May 10, 2021, April 2021 Financials, and paid & pending claims. Mayor Good read the claims.

- Council Member Ryker moved to approve the Consent Agenda; Council Member Gilliam seconded the motion. Voice Vote: Gilliam – yes, Parnett – yes, Ryker – yes, Weber – yes. Motion carried.

Future Meeting Topics

- Budget Presentation – Kautz
- Stibnite Grant – Speed limit Signs, Dog Kennel
- Housing Discussion – Gardner / Stubbs
- Revised Short-Term RV Ordinance
- Ordinance Calendar for Review
- Mountain Waterworks – Rebid
- Engineer's Report
- Virginia Street Project closeout update
- September – Review displacement permitting

CITY OF NEW MEADOWS CITY COUNCIL MEETING MINUTES
HELD MONDAY, MAY 24, 2021 AT 6:30 P.M.
CITY COUNCIL CHAMBERS, 401 VIRGINIA STREET, NEW MEADOWS

Adjournment

Mayor Good adjourned the meeting at 7:55 P.M.

_____ ATTEST:_____

Julie A. Good, Mayor Kyla Gardner, City Clerk

DRAFT

* ... Over spent expenditure

Claim/ Check / Vendor #/Name/ Invoice #/Inv Date/Description	Document $/ Line $	Disc $	PO #	Fund	Org	Acct	Object	Proj	Cash Account
*** Claim from another period (3/21) ****									
4899 E 292 Adams County Building Dept.	434.55								
Fy 19/20 3rd qtr (May) - FY 20/21 2nd qtr (March)									
Q3 20 - Q2 05/19/21 Q3 FY20/21 70% Building P	292.60			1	41100		321		10102
Q3 20 - Q2 05/19/21 Q3 FY20/21 SOLID WASTE FE	141.95			1	41100		321		10102
Total for Vendor:	**434.55**								
*** Claim from another period (5/21) ****									
4903 E 25 Analytical Labs, Inc.	484.81								
81676 05/31/21 Water Sampling / Testing	16.15			60	43320		745		10102
81677 05/31/21 Sewer Sampling / Testing	468.66*			65	43220		745		10102
Total for Vendor:	**484.81**								
*** Claim from another period (5/21) ****									
4895 26 Association of Idaho Cities	945.00								
2021 AIC Conference Attendees: Kyla, Dana, Angie									
2-07607 04/14/21 AIC Conference(G)	315.00			1	41100		520		10102
2-07607 04/14/21 AIC Conference(WTR)	315.00			60	43320		520		10102
2-07607 04/14/21 AIC Conference(SWR)	315.00			65	43220		520		10102
Total for Vendor:	**945.00**								
*** Claim from another period (5/21) ****									
4901 E 644 Big State Industrial Supply,	263.52								
1439240 05/24/21 Gloves/Safety GlassesSupplies	87.84			1	41500		324		10102
1439240 05/24/21 Gloves/Safety Glasses (H20)	87.84			60	43320		324		10102
1439240 05/24/21 Gloves/Safety Glasses (SWR)	87.84			65	43220		324		10102
Total for Vendor:	**263.52**								
*** Claim from another period (5/21) ****									
4902 140 Buys, Douglas	400.00								
Monthly Back-up Operator									
690 05/31/21 MAY 2021 H20 Back-up Operator	200.00			60	43320		310		10102
690 05/31/21 MAY 2021 SWR Back-up Operator	200.00			65	43220		310		10102
Total for Vendor:	**400.00**								
*** Claim from another period (5/21) ****									
4890 1 C & M Lumber Co, Inc	259.24								
Ind Park total was 135.66. There was a .33 credit for returned fasteners, so posted as $135.33. - am									
05/25/21 Parks	113.04			1	41600		324		10102
05/25/21 Water - Shop	10.87			60	43320		324		10102
05/25/21 Ind Park	135.33*			63	43100		324		10102
Total for Vendor:	**259.24**								

* ... Over spent expenditure

Claim/	Check	Vendor #/Name/ Invoice #/Inv Date/Description	Document $/ Line $	Disc $	PO #	Fund	Org	Acct	Object	Proj	Cash Account
		*** Claim from another period (5/21) ****									
4907		557 Campbell's Backflow Testing LLC	480.00								
BackFlow Device Inspections											
	1383	06/07/21 Sewer	120.00			65		43220	324		10102
	1383	06/07/21 Auger Room Assembly	120.00			65		43220	324		10102
	1383	06/07/21 Industrial Park Inspection	120.00*			63		43100	324		10102
	1383	06/07/21 City Hall Inspection	120.00			1		41100	324		10102
		Total for Vendor:	**480.00**								
		*** Claim from another period (3/21) ****									
4897		96 Challenger Companies	1,864.75								
Water Treatment Building Start-up & Pumpg rebuild - electrical/mechanical											
	114006	03/19/21 water treatment bldg - rebuild	1,864.75			60		43320	324		10101
		Total for Vendor:	**1,864.75**								
		*** Claim from another period (5/21) ****									
4889		29 City of New Meadows	531.88								
	025-00	05/28/21 Chlorinator Room	14.76			65		43220	339		10102
	310-00	05/28/21 Park Irrigation	14.30			1		41600	332		10102
	309-00	05/28/21 Park Restrooms	90.76			1		41600	331		10102
	014-00	05/28/21 Industrial Park	230.15*			63		43100	331		10102
	364-00	05/28/21 Auger Room	16.69			65		43220	338		10102
	126-00	05/28/21 City Hall	76.37*			1		41100	331		10102
	015-00	05/28/21 Skate Park	14.30			1		41600	332		10102
	013-00	05/28/21 Industrial Park - 104 W Taylor	74.55*			63		43100	331		10102
		Total for Vendor:	**531.88**								
		*** Claim from another period (5/21) ****									
4892	E	577 CTC Telecom, Inc.	205.10								
	06/01/21	Phone - General	68.36			1		41100	308		10102
	06/01/21	Phone - Water	68.37			60		43320	308		10102
	06/01/21	Phone - Sewer	68.37			65		43220	308		10102
		Total for Vendor:	**205.10**								
		*** Claim from another period (5/21) ****									
4909		367 Custom Works / Barron Loper	172.00								
	ACCT	05/21/21 Equip Rental Street Sweeper	172.00			1	8	41500	701		10102
		Total for Vendor:	**172.00**								

* ... Over spent expenditure

Claim/ Check	Vendor #/Name/ Invoice #/Inv Date/Description	Document $/ Line $	Disc $	PO #	Fund	Org	Acct	Object	Proj	Cash Account
	*** Claim from another period (5/21) ****									
4900	643 Daniel Potter	466.79								
Mileage to IRWA Conference 5/25 - 5/27										
Reimburse for Lodging 5/25-5/27										
	05/27/21 Reimburse Lodging (Gen)	110.36			1	41100		521		10102
	05/27/21 Reimburse Lodging (W)	110.36			60	43320		521		10102
	05/27/21 Reimburse Lodging (SWR)	110.37			65	43220		521		10102
	05/27/21 IRWA Travel Mileage Reim (H20)	67.85			60	43320		521		10102
	05/27/21 IRWA Travel Mileage Reim (SWR)	67.85			65	43220		521		10102
	Total for Vendor:	**466.79**								
	*** Claim from another period (5/21) ****									
4905 E	416 De Lage LANDEN FINANCIAL	131.18								
Photocopier Lease										
	72753067 06/06/21 Photocopier Lease	43.73			1	41100		324		10102
	72753067 06/06/21 Photocopier Lease	43.73			60	43320		324		10102
	72753067 06/06/21 Photocopier Lease	43.72			65	43220		324		10102
	Total for Vendor:	**131.18**								
	*** Claim from another period (5/21) ****									
4896	641 High Mountain Cleaning &	212.75								
OFFICE CLEANING / CITY HALL										
	9253 05/04/21 OFFICE CLEANING / CITY HALL	212.75			1	41100		324		10102
	Total for Vendor:	**212.75**								
	*** Claim from another period (5/21) ****									
4906 E	4 Idaho Power	2,710.87								
	0032879986 06/04/21 Street Lights (Electricity	633.29			1	41500		330		10102
	0032879987 06/04/21 City Shop (Electricity) Wa	64.27			60	43320		330		10102
	0032879987 06/04/21 City Shop (Electtricty) Se	64.27			65	43220		330		10102
	0032879987 06/04/21 City Shop (Electricty) Str	64.27			1	41500		330		10102
	0032879959 06/04/21 Parks (Electricity)	149.44*			1	41600		330		10102
	0032879967 06/04/21 Sewer Lift Station (Electr	6.00			65	43220		337		10102
	0032879945 06/04/21 Well #3 (Electric)	270.80			60	43320		334		10102
	0032879933 06/04/21 Well #4 (Electric)	347.27			60	43320		335		10102
	0032879940 06/04/21 Booster Station (Electric)	261.50			60	43320		333		10102
	0032879919 06/04/21 Sewer Plant (Electricity)	450.61			65	43220		336		10102
	0030309892 06/04/21 City Hall (Electricity) Ge	62.03			1	41100		330		10102
	0030309892 06/04/21 City Hall (Electricty) H2O	62.03			60	43320		330		10102
	0030309892 06/04/21 City Hall (Electricty) SWR	62.03			65	43220		330		10102

* ... Over spent expenditure

Claim/	Check	Vendor #/Name/ Invoice #/Inv Date/Description	Document $/ Line $	Disc $	PO #	Fund	Org	Acct	Object	Proj	Cash Account
		0032880160 06/04/21 Sewer Land Ap	162.57			65		43220	330		10102
		0032952904 06/04/21 Meat Shop	50.49*			63		43100	330		10102
		Total for Vendor:	**2,710.87**								
		*** Claim from another period (5/21) ****									
4898		642 Kundrick, Kirk	300.00								
Monthly Back-up Operator											
		CNM-2105 06/02/21 MAY2021 H20 Back-up Operator	150.00			60		43320	310		10102
		CNM-2105 06/02/21 MAY2021 SWR Back-up Operator	150.00			65		43220	310		10102
		Total for Vendor:	**300.00**								
		*** Claim from another period (5/21) ****									
4911	E	150 Lake Shore Disposal	126.00								
		***1403 06/01/21 Garbage - General	31.50			1		41100	324		10102
		***1403 06/01/21 Garbage - Water	31.50			60		43320	324		10102
		***1403 06/01/21 Garbage - Sewer	31.50			65		43220	324		10102
		***1403 06/01/21 Garbage - Industrial Park	31.50*			63		43100	324		10102
		Total for Vendor:	**126.00**								
		*** Claim from another period (5/21) ****									
4913	E	514 PERKINS MITCHELL	52.00								
		27235 06/09/21 City Matters	52.00*			1		41100	312		10102
		Total for Vendor:	**52.00**								
4914	E	500 SPARKLIGHT formerly Cable One	104.48								
Internet Services											
		06/08/21 Internet - General	34.82			1		41100	308		10102
		06/08/21 Internet - Water	34.83			60		43320	308		10102
		06/08/21 Internet - Sewer	34.83			65		43220	308		10102
		Total for Vendor:	**104.48**								
		*** Claim from another period (5/21) ****									
4888	E	253 United Oil	43.16								
		05/15/21 Fuel - General - Streets	14.38			1		41500	630		10102
		05/15/21 Fuel - General - Water	14.39			60		43320	630		10102
		05/15/21 Fuel - General - Sewer	14.39			65		43220	630		10102
		*** Claim from another period (5/21) ****									
4910	E	253 United Oil	127.10								
		967029 05/31/21 Fuel - Backhoe-Streets	31.31*			1	11	41500	630		10102
		967029 05/31/21 Fuel - Backhoe - Water	31.30			60		43320	630		10102
		967029 05/31/21 Fuel - Backhoe - Sewer	31.30			65		43220	630		10102

* ... Over spent expenditure

Claim/	Check	Vendor #/Name/ Invoice #/Inv Date/Description	Document $/ Line $	Disc $	PO #	Fund	Org	Acct	Object	Proj	Cash Account
		967029 05/31/21 Fuel- General -Streets	11.07			1	41500		630		10102
		967029 05/31/21 Fuel- General - Water	11.06			60	43320		630		10102
		967029 05/31/21 Fuel- General- Sewer	11.06			65	43220		630		10102
		Total for Vendor:	**170.26**								
		*** Claim from another period (5/21) ****									
4908	E	436 US Bank	674.54								
		UPS Store 05/25/21 SWR Sample Postage	42.78			65	43220		620		10102
		EMAIL 05/25/21 GOOGLE G SUITE (GEN)	31.50*			1	41100		327		10102
		EMAIL 05/25/21 GOOGLE G SUITE (SWR)	31.50*			65	43220		327		10102
		EMAIL 05/25/21 GOOGLE G SUITE (WTR)	31.50*			60	43320		327		10102
		EMAIL 05/25/21 GOOGLE G SUITE (IND)	31.50*			63	43100		327		10102
		TSHEETS 05/25/21 TSHEETS (GEN)	15.00			1	41100		324		10102
		TSHEETS 05/25/21 TSHEETS (IND)	15.00*			63	43100		324		10102
		TSHEETS 05/25/21 TSHEETS (WTR)	15.00			60	43320		324		10102
		TSHEETS 05/25/21 TSHEETS (SWR)	15.00			65	43220		324		10102
		OFFICE 05/25/21 Notary for Clerk and Treasurer	79.16			1	41100		324		10102
		OFFICE 05/25/21 City Cleanup Fee	21.60			1	41100		324		10102
		Training 05/25/21 IRWA Annual Training (WTR)	115.00			60	43320		324		10102
		Training 05/25/21 IRWA Annual Training (SWR)	115.00			65	43220		324		10102
		Training 05/25/21 IRWA Annual Training (GEN)	115.00			1	41100		324		10102
		Total for Vendor:	**674.54**								
4891		8 US Postal Service - Postmaster	92.00								
		06/01/21 PO Rental - General	15.33			1	41100		324		10102
		06/01/21 PO Rental - P&Z	15.33			1	41300		324		10102
		06/01/21 PO Rental - Water	15.33			60	43320		324		10102
		06/01/21 PO Rental - Sewer	15.33			65	43220		324		10102
		06/01/21 PO Rental - Parks	15.34			1	41600		324		10102
		06/01/21 PO Rental - Industrial Park	15.34*			63	43100		324		10102
		Total for Vendor:	**92.00**								
		# of Claims 23	**Total:**	**11,081.72**							
		Total Electronic Claims		**5,357.31**							
		Total Non-Electronic Claims		**5724.41**							

Kyla Gardner **Pay Period** **5/1/2021 to**

				Comp Time				
Day	Date	Regular	Paid OT	Comp Time Earned (Straight)	Earned Comp Time Used	Comp Conversion Earned (Not in totals)	Holiday	PTO
Sunday								
Monday								
Tuesday								
Wednesday								
Thursday								
Friday								
Saturday	5/1/2021							
Total Week		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Sunday	5/2/2021							
Monday	5/3/2021	6.85						
Tuesday	5/4/2021	6.80						
Wednesday	5/5/2021	6.78						
Thursday	5/6/2021	7.03						
Friday	5/7/2021	6.34						
Saturday	5/8/2021							
Total Week		**33.80**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Sunday	5/9/2021							
Monday	5/10/2021	9.63						
Tuesday	5/11/2021	6.63						
Wednesday	5/12/2021	6.63						
Thursday	5/13/2021	6.43						
Friday	5/14/2021	5.90						
Saturday	5/15/2021							
Total Week		**35.22**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Total Pay Period		**69.02**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

I hereby certify the hours indicated above are true and correct and that I have not
unauthorized overtime. I further certify and acknowledge the hours logged on the
system (as attached) are true and correct to the best of my knowledge. (Notes on T

Employee Signature: _____ **Date:**

Supervisor Signature: _____ **Date:**

Payperiod Notes:

5/15/2021

VAC	Total
	0.00
	0.00
	0.00
	0.00
	0.00
	0.00
	0.00
0.00	**0.00**
	0.00
	6.85
	6.80
	6.78
	7.03
	6.34
	0.00
0.00	**33.80**
	0.00
	9.63
	6.63
	6.63
	6.43
	5.90
	0.00
0.00	**35.22**
0.00	**69.02**

worked
city's tracking
-Sheets)

Kyla Gardner

05/01/2021 to 05/15/2021

Regular	PTO	OT	DT	To
69.02	0.00	0.00	0.00	69.02

Time in	Time out	Duration		
May 3, 2021				**6.85**
8:21am	3:12pm	6.85	ADM › ADM - Customer Relations	
May 4, 2021				**6.80**
8:23am	3:11pm	6.80	ADM › ADM - Customer Relations	
May 5, 2021				**6.78**
8:27am	3:14pm	6.78	ADM › ADM - Customer Relations	
May 6, 2021				**7.03**
8:16am	3:18pm	7.03	ADM › ADM - Customer Relations	
May 7, 2021				**6.33**
8:38am	2:58pm	6.33	ADM › ADM - Customer Relations	
May 10, 2021				**9.63**
8:18am	3:22pm	7.07	ADM › ADM - Customer Relations	
6:07pm	8:41pm	2.57	MTG › MTG - Council Meeting	
May 11, 2021				**6.63**
8:28am	3:06pm	6.63	ADM › ADM - Customer Relations	
May 12, 2021				**6.63**
8:38am	3:16pm	6.63	ADM › ADM - Customer Relations	
May 13, 2021				**6.42**
8:42am	3:07pm	6.42	ADM › ADM - Customer Relations	
May 14, 2021				**5.90**
8:29am	2:23pm	5.90	ADM › ADM - Customer Relations	

Jessie Gerke **Pay Period** **5/16/2021 to 5/31/2021**

				Comp Time						
Day	Date	Regular	Paid OT	Comp Time Earned (Straight)	Earned Comp Time Used	Comp Conversion Earned (Not in totals)	Holiday	PTO	VAC	Total
Sunday	5/16/2021									0.00
Monday	5/17/2021	8.45								8.45
Tuesday	5/18/2021	8.00								8.00
Wednesday	5/19/2021	8.00								8.00
Thursday	5/20/2021	8.67								8.67
Friday	5/21/2021	1.17								1.17
Saturday	5/22/2021									0.00
Total Week		**34.29**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**34.29**
Sunday	5/23/2021	1.00								1.00
Monday	5/24/2021	9.20								9.20
Tuesday	5/25/2021	3.50								3.50
Wednesday	5/26/2021	8.50								8.50
Thursday	5/27/2021	8.33								8.33
Friday	5/28/2021	8.33								8.33
Saturday	5/29/2021									0.00
Total Week		**38.86**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**38.86**
Sunday	5/30/2021									0.00
Monday	5/31/2021						8.00			8.00
Tuesday										0.00
Wednesday										0.00
Thursday										0.00
Friday										0.00
Saturday										0.00
Total Week		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**8.00**	**0.00**	**0.00**	**8.00**
Total Pay Period		**73.15**	**0.00**	**0.00**	**0.00**	**0.00**	**8.00**	**0.00**	**0.00**	**81.15**

I hereby certify the hours indicated above are true and correct and that I have not worked unauthorized overtime. I further certify and acknowledge the hours logged on the city's tracking system (as attached) are true and correct to the best of my knowledge. (Notes on T-Sheets)

Employee Signature: _____ **Date:** _____

Supervisor Signature: _____ **Date:** _____

Payperiod Notes:

Jessica Gerke

05/16/2021 to 05/31/2021

Regular	PTO	OT	DT	To
73.15	0.00	0.00	0.00	73.15

Time in	Time out	Duration		
May 17, 2021				**8.45**
8:20am (MDT)	9:00am (MDT)	0.67	MTG › MTG - Staff Meeting	
9:00am (MDT)	9:50am (MDT)	0.83	SWR › SWR - Sewer Logs	
9:50am (MDT)	10:40am (MDT)	0.83	SWR › SWR - System Maintenance	
10:40am (MDT)	11:22am (MDT)	0.70	WTR › WTR - Booster Station & Well Logs	
11:22am (MDT)	1:23pm (MDT)	2.02	SWR › SWR - System Maintenance	
1:23pm (MDT)	3:40pm (MDT)	2.28	WTR › WTR - Booster Pump Maintenance	
3:40pm (MDT)	4:47pm (MDT)	1.12	WTR › WTR - Well #4 Maintenance	
May 18, 2021				**8.00**
8:00am (MDT)	8:50am (MDT)	0.83	SWR › SWR - Sewer Logs	
8:50am (MDT)	2:10pm (MDT)	5.33	WTR › WTR - Service Call	
NOTES: Survey				
2:10pm (MDT)	4:00pm (MDT)	1.83	SWR › SWR - System Maintenance	
May 19, 2021				**8.00**
8:00am (MDT)	8:50am (MDT)	0.83	SWR › SWR - Sewer Logs	
8:50am (MDT)	10:02am (MDT)	1.20	SWR › SWR - System Maintenance	
10:02am (MDT)	1:30pm (MDT)	3.47	WTR › WTR - Meter Reading	
1:30pm (MDT)	2:32pm (MDT)	1.03	WTR › WTR - Booster Station & Well Logs	
2:32pm (MDT)	4:00pm (MDT)	1.47	SWR › SWR - System Maintenance	
May 20, 2021				**8.67**
8:00am (MDT)	8:52am (MDT)	0.87	PW › PW - Office Time	
8:52am (MDT)	9:33am (MDT)	0.68	SWR › SWR - Sewer Logs	
9:33am (MDT)	11:34am (MDT)	2.02	WTR › WTR - Service Call	
11:34am (MDT)	4:40pm (MDT)	5.10	SWR › SWR - System Maintenance	
NOTES: Seepage				
May 21, 2021				**1.17**
10:50am (MDT)	12:00pm (MDT)	1.17	MTG › MTG - Staff Meeting	
May 23, 2021				**1.00**
6:00pm (MDT)	7:00pm (MDT)	1.00	WTR › WTR - Service Call	
May 24, 2021				**9.20**
8:30am (MDT)	9:30am (MDT)	1.00	MTG › MTG - Staff Meeting	
9:30am (MDT)	10:09am (MDT)	0.65	SWR › SWR - Sewer Logs	
10:09am (MDT)	11:39am (MDT)	1.50	SWR › SWR - System Maintenance	
11:39am (MDT)	1:41pm (MDT)	2.03	PW › PW - Office Time	
1:41pm (MDT)	3:17pm (MDT)	1.60	EQP › EQP - Parts Run	

3:17pm (MDT)	4:30pm (MDT)	1.22	PW › PW - City Shop	
6:30pm (MDT)	7:42pm (MDT)	1.20	MTG › MTG - Other Governement	
May 25, 2021				**3.50**
12:30pm (MDT)	1:16pm (MDT)	0.77	SWR › SWR - Sewer Logs	
1:16pm (MDT)	2:56pm (MDT)	1.67	SWR › SWR - Sewer Testing	
2:56pm (MDT)	4:00pm (MDT)	1.07	WTR › WTR - Service Call	
May 26, 2021				**8.50**
8:00am (MDT)	8:48am (MDT)	0.80	PW › PW - Office Time	
8:48am (MDT)	9:37am (MDT)	0.82	SWR › SWR - Sewer Logs	
9:37am (MDT)	3:00pm (MDT)	5.38	STRTS › STRTS - Pot Hole Repair	
3:00pm (MDT)	4:30pm (MDT)	1.50	SWR › SWR - System Maintenance	
May 27, 2021				**8.33**
8:00am (MDT)	9:00am (MDT)	1.00	SWR › SWR - Sewer Logs	
9:00am (MDT)	10:02am (MDT)	1.03	EQP › EQP - Parts Run	
10:02am (MDT)	1:44pm (MDT)	3.70	PARK › PARK - Maintenance	
1:44pm (MDT)	2:47pm (MDT)	1.05	WTR › WTR - Booster Station & Well Logs	
2:47pm (MDT)	4:20pm (MDT)	1.55	PW › PW - Office Time	
May 28, 2021				**8.33**
8:00am (MDT)	8:40am (MDT)	0.67	SWR › SWR - Sewer Logs	
8:40am (MDT)	9:56am (MDT)	1.27	SWR › SWR - Land Application Project	
9:56am (MDT)	11:16am (MDT)	1.33	WTR › WTR - Service Call	
11:16am (MDT)	1:06pm (MDT)	1.83	STRTS › STRTS - Sign Maintenance / Replacement	
1:06pm (MDT)	3:00pm (MDT)	1.90	PARK › PARK - Mowing / Trimming	
3:00pm (MDT)	4:20pm (MDT)	1.33	WTR › WTR - Well #4 Maintenance	

Angie Mettie **Pay Period** **5/16/2021 to 5/31/2021**

				Comp Time						
Day	Date	Regular	Paid OT	Comp Time Earned (Straight)	Earned Comp Time Used	Comp Conversion Earned (Not in totals)	Holiday	PTO	VAC	Total
Sunday	5/16/2021									0.00
Monday	5/17/2021	7.08								7.08
Tuesday	5/18/2021									0.00
Wednesday	5/19/2021	7.52								7.52
Thursday	5/20/2021	7.97								7.97
Friday	5/21/2021	4.33								4.33
Saturday	5/22/2021									0.00
Total Week		**26.90**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**26.90**
Sunday	5/23/2021									0.00
Monday	5/24/2021	8.55								8.55
Tuesday	5/25/2021	6.55								6.55
Wednesday	5/26/2021	6.50								6.50
Thursday	5/27/2021	9.35								9.35
Friday	5/28/2021									0.00
Saturday	5/29/2021									0.00
Total Week		**30.95**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**30.95**
Sunday	5/30/2021									0.00
Monday	5/31/2021						8.00			8.00
Tuesday										0.00
Wednesday										0.00
Thursday										0.00
Friday										0.00
Saturday										0.00
Total Week		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**8.00**	**0.00**	**0.00**	**8.00**
Total Pay Period		**57.85**	**0.00**	**0.00**	**0.00**	**0.00**	**8.00**	**0.00**	**0.00**	**65.85**

I hereby certify the hours indicated above are true and correct and that I have not worked unauthorized overtime. I further certify and acknowledge the hours logged on the city's tracking system (as attached) are true and correct to the best of my knowledge. (Notes on T-Sheets)

Employee Signature: _____ **Date:** _____

Supervisor Signature: _____ **Date:** _____

Payperiod Notes:

Angie Mettie

05/16/2021 to 05/31/2021

Regular	PTO	OT	DT	To
57.85	0.00	0.00	0.00	57.85

Time in	Time out	Duration		
May 17, 2021				**7.08**
8:30am	8:45am	0.25	MTG › MTG - Staff Meeting	
8:45am	3:35pm	6.83	ADM › ADM - Customer Relations	
May 19, 2021				**7.52**
8:46am	4:17pm	7.52	ADM › ADM - Customer Relations	
May 20, 2021				**7.97**
8:39am	4:37pm	7.97	ADM › ADM - Customer Relations	
May 21, 2021				**4.33**
8:49am	1:09pm	4.33	ADM › ADM - Customer Relations	
May 24, 2021				**8.55**
8:33am	9:24am	0.85	MTG › MTG - Staff Meeting	
9:24am	3:18pm	5.90	ADM › ADM - Customer Relations	
6:26pm	8:14pm	1.80	MTG › MTG - Council Meeting	
May 25, 2021				**6.55**
8:46am	3:19pm	6.55	ADM › ADM - Customer Relations	
May 26, 2021				**6.50**
8:46am	3:16pm	6.50	ADM › ADM - Customer Relations	
May 27, 2021				**9.35**
7:22am	4:43pm	9.35	ADM › ADM - Customer Relations	

Dana Kautz **Pay Period** **5/16/2021 to 5/31/2021**

				Comp Time						
Day	Date	Regular	Paid OT	Comp Time Earned (Straight)	Earned Comp Time Used	Comp Conversion Earned (Not in totals)	Holiday	PTO	VAC	Total
Sunday	5/16/2021									0.00
Monday	5/17/2021	6.53								6.53
Tuesday	5/18/2021	5.00								5.00
Wednesday	5/19/2021	5.93								5.93
Thursday	5/20/2021									0.00
Friday	5/21/2021									0.00
Saturday	5/22/2021									0.00
Total Week		**17.46**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**17.46**
Sunday	5/23/2021									0.00
Monday	5/24/2021	7.90								7.90
Tuesday	5/25/2021	5.37								5.37
Wednesday	5/26/2021	4.77								4.77
Thursday	5/27/2021									0.00
Friday	5/28/2021									0.00
Saturday	5/29/2021									0.00
Total Week		**18.04**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**18.04**
Sunday	5/30/2021									0.00
Monday	5/31/2021						8.00			8.00
Tuesday										0.00
Wednesday										0.00
Thursday										0.00
Friday										0.00
Saturday										0.00
Total Week		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**8.00**	**0.00**	**0.00**	**8.00**
Total Pay Period		**35.50**	**0.00**	**0.00**	**0.00**	**0.00**	**8.00**	**0.00**	**0.00**	**43.50**

I hereby certify the hours indicated above are true and correct and that I have not worked unauthorized overtime. I further certify and acknowledge the hours logged on the city's tracking system (as attached) are true and correct to the best of my knowledge. (Notes on T-Sheets)

Employee Signature: _____ **Date:** _____

Supervisor Signature: _____ **Date:** _____

Payperiod Notes:

Dana Kautz

05/16/2021 to 05/31/2021

Regular	PTO	OT	DT	To
35.50	0.00	0.00	0.00	35.50

Time in	Time out	Duration		
May 17, 2021				**6.53**
8:31am (MDT)	3:03pm (MDT)	6.53	ADM › ADM - Customer Relations	
May 18, 2021				**5.00**
8:59am (MDT)	1:59pm (MDT)	5.00	ADM › ADM - Customer Relations	
May 19, 2021				**5.93**
8:54am (MDT)	2:50pm (MDT)	5.93	ADM › ADM - Customer Relations	
May 24, 2021				**7.90**
8:37am (MDT)	2:42pm (MDT)	6.08	ADM › ADM - Customer Relations	
6:19pm (MDT)	8:08pm (MDT)	1.82	MTG › MTG - Citizen Advisory Committee	
May 25, 2021				**5.37**
9:48am (MDT)	3:10pm (MDT)	5.37	ADM › ADM - Customer Relations	
May 26, 2021				**4.77**
9:00am (MDT)	1:46pm (MDT)	4.77	ADM › ADM - Customer Relations	

Dana Kautz **Pay Period** **5/1/2021 to 5/15/2021**

				Comp Time						
Day	Date	Regular	Paid OT	Comp Time Earned (Straight)	Earned Comp Time Used	Comp Conversion Earned (Not in totals)	Holiday	PTO	VAC	Total
Sunday										0.00
Monday										0.00
Tuesday										0.00
Wednesday										0.00
Thursday										0.00
Friday										0.00
Saturday	5/1/2021									0.00
Total Week		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Sunday	5/2/2021									0.00
Monday	5/3/2021	6.08								6.08
Tuesday	5/4/2021	5.82								5.82
Wednesday	5/5/2021	5.67								5.67
Thursday	5/6/2021									0.00
Friday	5/7/2021									0.00
Saturday	5/8/2021									0.00
Total Week		**17.57**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**17.57**
Sunday	5/9/2021									0.00
Monday	5/10/2021	8.43								8.43
Tuesday	5/11/2021									0.00
Wednesday	5/12/2021	5.63								5.63
Thursday	5/13/2021	3.85								3.85
Friday	5/14/2021									0.00
Saturday	5/15/2021									0.00
Total Week		**17.91**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**17.91**
Total Pay Period		**35.48**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**35.48**

I hereby certify the hours indicated above are true and correct and that I have not worked unauthorized overtime. I further certify and acknowledge the hours logged on the city's tracking system (as attached) are true and correct to the best of my knowledge. (Notes on T-Sheets)

Employee Signature: _____ **Date:** _____

Supervisor Signature: _____ **Date:** _____

Payperiod Notes:

Dana Kautz

05/01/2021 to 05/15/2021

Regular	PTO	OT	DT	To
35.48	0.00	0.00	0.00	35.48

Time in	Time out	Duration		
May 3, 2021				**6.08**
8:28am (MDT)	2:33pm (MDT)	6.08	ADM › ADM - Customer Relations	
May 4, 2021				**5.82**
8:49am (MDT)	2:38pm (MDT)	5.82	ADM › ADM - Customer Relations	
May 5, 2021				**5.67**
8:43am (MDT)	2:23pm (MDT)	5.67	ADM › ADM - Customer Relations	
May 10, 2021				**8.43**
8:25am (MDT)	2:31pm (MDT)	6.10	ADM › ADM - Customer Relations	
6:20pm (MDT)	8:40pm (MDT)	2.33	Shift Total	
May 12, 2021				**5.63**
9:00am (MDT)	2:38pm (MDT)	5.63	ADM › ADM - Customer Relations	
May 13, 2021				**3.85**
8:48am (MDT)	10:29am (MDT)	1.68	ADM › ADM - Customer Relations	
12:31pm (MDT)	2:41pm (MDT)	2.17	ADM › ADM - Customer Relations	

Daniel Potter **Pay Period** **5/16/2021 to 5/31/2021**

				Comp Time						
Day	Date	Regular	Paid OT	Comp Time Earned (Straight)	Earned Comp Time Used	Comp Conversion Earned (Not in totals)	Holiday	PTO	VAC	Total
Sunday	5/16/2021									0.00
Monday	5/17/2021	8.52								8.52
Tuesday	5/18/2021	6.72								6.72
Wednesday	5/19/2021	7.67								7.67
Thursday	5/20/2021	9.22								9.22
Friday	5/21/2021	6.83								6.83
Saturday	5/22/2021	1.04		5.12						6.16
Total Week		**40.00**	**0.00**	**5.12**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**45.12**
Sunday	5/23/2021									0.00
Monday	5/24/2021	10.32								10.32
Tuesday	5/25/2021	8.00								8.00
Wednesday	5/26/2021	8.00								8.00
Thursday	5/27/2021	8.08								8.08
Friday	5/28/2021	5.60		2.48						8.08
Saturday	5/29/2021									0.00
Total Week		**40.00**	**0.00**	**2.48**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**42.48**
Sunday	5/30/2021									0.00
Monday	5/31/2021						8.00			8.00
Tuesday										0.00
Wednesday										0.00
Thursday										0.00
Friday										0.00
Saturday										0.00
Total Week		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**8.00**	**0.00**	**0.00**	**8.00**
Total Pay Period		**80.00**	**0.00**	**7.60**	**0.00**	**0.00**	**8.00**	**0.00**	**0.00**	**95.60**

I hereby certify the hours indicated above are true and correct and that I have not worked unauthorized overtime. I further certify and acknowledge the hours logged on the city's tracking system (as attached) are true and correct to the best of my knowledge. (Notes on T-Sheets)

Employee Signature: _____ **Date:** _____

Supervisor Signature: _____ **Date:** _____

Payperiod Notes:

Daniel Potter

05/16/2021 to 05/31/2021

Regular	PTO	OT	DT	To
80.00	0.00	7.60	0.00	87.60

Time in	Time out	Duration		
May 17, 2021				**8.52**
8:30am (MDT)	9:00am (MDT)	0.50	MTG › MTG - Staff Meeting	
9:00am (MDT)	5:01pm (MDT)	8.02	WTR › WTR - Booster Station & Well Logs	
May 18, 2021				**6.72**
8:20am (MDT)	3:03pm (MDT)	6.72	PARK › PARK - Mowing / Trimming	
May 19, 2021				**7.67**
9:00am (MDT)	4:40pm (MDT)	7.67	SWR › SWR - System Maintenance	
May 20, 2021				**9.22**
8:30am (MDT)	5:43pm (MDT)	9.22	SWR › SWR - Sewer Logs	
May 21, 2021				**6.83**
8:00am (MDT)	2:50pm (MDT)	6.83	IND › IND - Industrial Park Maintenance	
May 22, 2021				**6.17**
12:00pm (MDT)	6:10pm (MDT)	6.17	IND › IND - Industrial Park Maintenance	
May 24, 2021				**10.32**
8:30am (MDT)	9:00am (MDT)	0.50	MTG › MTG - Staff Meeting	
9:00am (MDT)	5:26pm (MDT)	8.43	PARK › PARK - Maintenance	
6:30pm (MDT)	7:53pm (MDT)	1.38	MTG › MTG - Council Meeting	
May 25, 2021				**8.00**
9:00am (MDT)	5:00pm (MDT)	8.00	WTR › Train - Water	
May 26, 2021				**8.00**
8:00am (MDT)	4:00pm (MDT)	8.00	WTR › Train - Water	
May 27, 2021				**8.08**
8:00am (MDT)	4:05pm (MDT)	8.08	WTR › Train - Water	
May 28, 2021				**8.08**
9:00am (MDT)	12:31pm (MDT)	3.52	STRTS › STRTS - Sign Maintenance / Replacement	
12:31pm (MDT)	5:05pm (MDT)	4.57	STRTS › STRTS - Sign Maintenance / Replacement	

Daniel Potter **Pay Period** **5/1/2021 to 5/15/2021**

				Comp Time						
Day	Date	Regular	Paid OT	Comp Time Earned (Straight)	Earned Comp Time Used	Comp Conversion Earned (Not in totals)	Holiday	PTO	VAC	Total
Sunday										0.00
Monday										0.00
Tuesday										0.00
Wednesday										0.00
Thursday										0.00
Friday										0.00
Saturday	5/1/2021									0.00
Total Week		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Sunday	5/2/2021									0.00
Monday	5/3/2021									0.00
Tuesday	5/4/2021									0.00
Wednesday	5/5/2021									0.00
Thursday	5/6/2021									0.00
Friday	5/7/2021									0.00
Saturday	5/8/2021									0.00
Total Week		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Sunday	5/9/2021									0.00
Monday	5/10/2021									0.00
Tuesday	5/11/2021									0.00
Wednesday	5/12/2021									0.00
Thursday	5/13/2021									0.00
Friday	5/14/2021									0.00
Saturday	5/15/2021		11.00							11.00
Total Week		**0.00**	**11.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**11.00**
Total Pay Period		**0.00**	**11.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**11.00**

I hereby certify the hours indicated above are true and correct and that I have not worked unauthorized overtime. I further certify and acknowledge the hours logged on the city's tracking system (as attached) are true and correct to the best of my knowledge. (Notes on T-Sheets)

Employee Signature: _____ **Date:** _____

Supervisor Signature: _____ **Date:** _____

Payperiod Notes:

Daniel Potter

05/01/2021 to 05/15/2021

Regular	PTO	OT	DT	To
11.00	0.00	0.00	0.00	11.00

Time in	Time out	Duration		
May 15, 2021				**11.00**
9:00am (MDT)	8:00pm (MDT)	11.00	STRTS › STRTS - Street Sweeping	

Kyla Gardner **Pay Period** **5/16/2021 to**

				Comp Time				
Day	Date	Regular	Paid OT	Comp Time Earned (Straight)	Earned Comp Time Used	Comp Conversion Earned (Not in totals)	Holiday	PTO
Sunday	5/16/2021							
Monday	5/17/2021	7.00						
Tuesday	5/18/2021	6.97						
Wednesday	5/19/2021	7.07						
Thursday	5/20/2021	6.73						
Friday	5/21/2021	6.70						
Saturday	5/22/2021							
Total Week		**34.47**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Sunday	5/23/2021							
Monday	5/24/2021	9.03						
Tuesday	5/25/2021	6.80						
Wednesday	5/26/2021	8.08						
Thursday	5/27/2021	8.13						
Friday	5/28/2021	3.73						
Saturday	5/29/2021							
Total Week		**35.77**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Sunday	5/30/2021							
Monday	5/31/2021						8.00	
Tuesday								
Wednesday								
Thursday								
Friday								
Saturday								
Total Week		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**8.00**	**0.00**
Total Pay Period		**70.24**	**0.00**	**0.00**	**0.00**	**0.00**	**8.00**	**0.00**

I hereby certify the hours indicated above are true and correct and that I have not
unauthorized overtime. I further certify and acknowledge the hours logged on the
system (as attached) are true and correct to the best of my knowledge. (Notes on T

Employee Signature: _____ **Date:**

Supervisor Signature: _____ **Date:**

Payperiod Notes:

5/31/2021

VAC	Total
	0.00
	7.00
	6.97
	7.07
	6.73
	6.70
	0.00
0.00	**34.47**
	0.00
	9.03
	6.80
	8.08
	8.13
	3.73
	0.00
0.00	**35.77**
	0.00
	8.00
	0.00
	0.00
	0.00
	0.00
	0.00
0.00	**8.00**
0.00	**78.24**

worked
city's tracking
Γ-Sheets)

Kyla Gardner

05/16/2021 to 05/31/2021

Regular	PTO	OT	DT	To
70.25	0.00	0.00	0.00	70.25

Time in	Time out	Duration		
May 17, 2021				**7.00**
8:17am	8:49am	0.53	MTG › MTG - Staff Meeting	
8:49am	3:17pm	6.47	ADM › ADM - Customer Relations	
May 18, 2021				**6.97**
8:21am	3:19pm	6.97	ADM › ADM - Customer Relations	
May 19, 2021				**7.07**
8:18am	3:22pm	7.07	ADM › ADM - Customer Relations	
May 20, 2021				**6.73**
8:26am	3:10pm	6.73	ADM › ADM - Customer Relations	
May 21, 2021				**6.70**
8:17am	2:59pm	6.70	ADM › ADM - Customer Relations	
May 24, 2021				**9.03**
8:19am	9:35am	1.27	MTG › MTG - Staff Meeting	
9:35am	3:12pm	5.62	ADM › ADM - Customer Relations	
6:07pm	8:16pm	2.15	MTG › MTG - Council Meeting	
May 25, 2021				**6.80**
8:29am	3:17pm	6.80	ADM › ADM - Customer Relations	
May 26, 2021				**8.08**
8:36am	4:41pm	8.08	ADM › ADM - Customer Relations	
May 27, 2021				**8.13**
8:05am	4:13pm	8.13	ADM › ADM - Customer Relations	
May 28, 2021				**3.73**
8:24am	12:08pm	3.73	ADM › ADM - Customer Relations	

Angie Mettie **Pay Period** **5/1/2021 to 5/15/2021**

				Comp Time						
Day	Date	Regular	Paid OT	Comp Time Earned (Straight)	Earned Comp Time Used	Comp Conversion Earned (Not in totals)	Holiday	PTO	VAC	Total
Sunday										0.00
Monday										0.00
Tuesday										0.00
Wednesday										0.00
Thursday										0.00
Friday										0.00
Saturday	5/1/2021									0.00
Total Week		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Sunday	5/2/2021									0.00
Monday	5/3/2021	6.68								6.68
Tuesday	5/4/2021	7.58								7.58
Wednesday	5/5/2021	7.36								7.36
Thursday	5/6/2021	7.68								7.68
Friday	5/7/2021	4.18								4.18
Saturday	5/8/2021									0.00
Total Week		**33.48**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**33.48**
Sunday	5/9/2021									0.00
Monday	5/10/2021	9.43								9.43
Tuesday	5/11/2021	6.42								6.42
Wednesday	5/12/2021	6.20								6.20
Thursday	5/13/2021	6.47								6.47
Friday	5/14/2021									0.00
Saturday	5/15/2021	7.00								7.00
Total Week		**35.52**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**35.52**
Total Pay Period		**69.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**69.00**

I hereby certify the hours indicated above are true and correct and that I have not worked unauthorized overtime. I further certify and acknowledge the hours logged on the city's tracking system (as attached) are true and correct to the best of my knowledge. (Notes on T-Sheets)

Employee Signature: _____ **Date:** _____

Supervisor Signature: _____ **Date:** _____

Payperiod Notes:

Angie Mettie

05/01/2021 to 05/15/2021

Regular	PTO	OT	DT	To
69.00	0.00	0.00	0.00	69.00

Time in	Time out	Duration		
May 3, 2021				**6.68**
8:31am	3:12pm	6.68	ADM › ADM - Customer Relations	
May 4, 2021				**7.58**
7:50am	3:25pm	7.58	ADM › ADM - Customer Relations	
May 5, 2021				**7.35**
7:49am	3:10pm	7.35	ADM › ADM - Customer Relations	
May 6, 2021				**7.68**
7:50am	3:31pm	7.68	ADM › ADM - Customer Relations	
May 7, 2021				**4.18**
8:39am	12:50pm	4.18	ADM › ADM - Customer Relations	
May 10, 2021				**9.43**
8:28am	9:29am	1.02	MTG › MTG - Staff Meeting	
9:29am	3:28pm	5.98	ADM › ADM - Customer Relations	
6:15pm	8:41pm	2.43	MTG › MTG - Council Meeting	
May 11, 2021				**6.42**
8:51am	3:16pm	6.42	ADM › ADM - Customer Relations	
May 12, 2021				**6.20**
8:50am	3:02pm	6.20	ADM › ADM - Customer Relations	
May 13, 2021				**6.47**
8:43am	3:11pm	6.47	ADM › ADM - Customer Relations	
May 15, 2021				**7.00**
9:00am	4:00pm	7.00	Shift Total	

NOTES: Community Cleanup

Jessie Gerke **Pay Period** **5/1/2021 to 5/15/2021**

				Comp Time						
Day	Date	Regular	Paid OT	Comp Time Earned (Straight)	Earned Comp Time Used	Comp Conversion Earned (Not in totals)	Holiday	PTO	VAC	Total
Sunday										0.00
Monday										0.00
Tuesday										0.00
Wednesday										0.00
Thursday										0.00
Friday										0.00
Saturday	5/1/2021	9.50								9.50
Total Week		**9.50**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**9.50**
Sunday	5/2/2021									0.00
Monday	5/3/2021	8.05								8.05
Tuesday	5/4/2021	8.03								8.03
Wednesday	5/5/2021	6.98								6.98
Thursday	5/6/2021	8.03								8.03
Friday	5/7/2021	5.68								5.68
Saturday	5/8/2021									0.00
Total Week		**36.77**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**36.77**
Sunday	5/9/2021									0.00
Monday	5/10/2021	7.07								7.07
Tuesday	5/11/2021	6.22								6.22
Wednesday	5/12/2021	2.25								2.25
Thursday	5/13/2021	8.03								8.03
Friday	5/14/2021	8.28								8.28
Saturday	5/15/2021									0.00
Total Week		**31.85**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**31.85**
Total Pay Period		**78.12**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**78.12**

I hereby certify the hours indicated above are true and correct and that I have not worked unauthorized overtime. I further certify and acknowledge the hours logged on the city's tracking system (as attached) are true and correct to the best of my knowledge. (Notes on T-Sheets)

Employee Signature: _____ **Date:** _____

Supervisor Signature: _____ **Date:** _____

Payperiod Notes:

Jessica Gerke

05/01/2021 to 05/15/2021

Regular	PTO	OT	DT	To
74.92	0.00	3.20	0.00	78.12

Time in	Time out	Duration		
May 1, 2021				**9.50**
9:00am (PDT) **NOTES:** School	6:30pm (PDT)	9.50	WTR › WTR - Service Call	
May 3, 2021				**8.05**
8:28am (MDT)	9:30am (MDT)	1.03	MTG › MTG - Staff Meeting	
9:30am (MDT)	10:16am (MDT)	0.77	SWR › SWR - Sewer Logs	
10:16am (MDT)	11:29am (MDT)	1.22	SWR › SWR - System Maintenance	
11:29am (MDT)	1:42pm (MDT)	2.22	WTR › WTR - Service Call	
1:42pm (MDT)	3:04pm (MDT)	1.37	SWR › SWR - Service Call	
3:04pm (MDT)	4:31pm (MDT)	1.45	PW › PW - Office Time	
May 4, 2021				**8.03**
8:36am (MDT)	12:36pm (MDT)	4.00	WTR › WTR - Service Call	
12:36pm (MDT)	1:14pm (MDT)	0.63	SWR › SWR - Sewer Logs	
1:14pm (MDT)	2:41pm (MDT)	1.45	SWR › SWR - System Maintenance	
2:41pm (MDT)	4:38pm (MDT)	1.95	PARK › PARK - Restroom	
May 5, 2021				**6.98**
8:19am (MDT)	9:15am (MDT)	0.93	PW › PW - Office Time	
11:00am (MDT)	11:40am (MDT)	0.67	PW › PW - Office Time	
11:40am (MDT)	2:46pm (MDT)	3.10	PARK › PARK - Mowing / Trimming	
2:46pm (MDT)	3:43pm (MDT)	0.95	SWR › SWR - Sewer Logs	
3:43pm (MDT)	5:03pm (MDT)	1.33	SWR › SWR - System Maintenance	
May 6, 2021				**8.03**
8:09am (MDT)	9:18am (MDT)	1.15	SWR › SWR - Sewer Testing	
9:18am (MDT)	10:01am (MDT)	0.72	SWR › SWR - Sewer Logs	
10:01am (MDT)	10:50am (MDT)	0.82	SWR › SWR - Sewer Testing	
10:50am (MDT)	1:25pm (MDT)	2.58	WTR › WTR - Service Call	
1:25pm (MDT)	2:36pm (MDT)	1.18	WTR › WTR- Fire Hydrants	
2:36pm (MDT)	4:11pm (MDT)	1.58	SWR › SWR - Sewer Testing	
May 7, 2021				**5.68**
8:17am (MDT)	9:15am (MDT)	0.97	PW › PW - Office Time	
9:15am (MDT)	9:55am (MDT)	0.67	SWR › SWR - Sewer Logs	
9:55am (MDT)	10:56am (MDT)	1.02	SWR › SWR - System Maintenance	
10:56am (MDT)	11:49am (MDT)	0.88	WTR › WTR - Service Call	
11:49am (MDT)	1:58pm (MDT)	2.15	PW › PW - City Shop	
May 10, 2021				**7.07**

8:28am (MDT)	9:45am (MDT)	1.28	MTG › MTG - Staff Meeting	
9:45am (MDT)	10:38am (MDT)	0.88	SWR › SWR - Sewer Logs	
10:38am (MDT)	12:00pm (MDT)	1.37	PW › PW - Office Time	
12:00pm (MDT)	2:33pm (MDT)	2.55	SWR › SWR - System Maintenance	
2:33pm (MDT)	3:32pm (MDT)	0.98	WTR › WTR - Service Call	
May 11, 2021				**6.22**
10:02am (MDT)	10:55am (MDT)	0.88	SWR › SWR - Sewer Logs	
10:55am (MDT)	11:27am (MDT)	0.53	SWR › SWR - System Maintenance	
11:27am (MDT)	1:55pm (MDT)	2.47	WTR › WTR - Service Call	
1:55pm (MDT)	3:48pm (MDT)	1.88	PARK › PARK - Mowing / Trimming	
3:48pm (MDT)	4:15pm (MDT)	0.45	WTR › WTR - Booster Station & Well Logs	
May 12, 2021				**2.25**
8:06am (MDT)	9:15am (MDT)	1.15	PW › PW - Office Time	
9:15am (MDT)	10:21am (MDT)	1.10	SWR › SWR - Sewer Logs	
May 13, 2021				**8.02**
8:04am (MDT)	9:22am (MDT)	1.30	PW › PW - Office Time	
9:22am (MDT)	10:17am (MDT)	0.92	SWR › SWR - Sewer Logs	
10:17am (MDT)	12:23pm (MDT)	2.10	PARK › PARK - Restroom	
12:23pm (MDT)	2:50pm (MDT)	2.45	SWR › SWR - Sewer Testing	
2:50pm (MDT)	4:05pm (MDT)	1.25	SWR › SWR - System Maintenance	
May 14, 2021				**8.28**
8:07am (MDT)	9:17am (MDT)	1.17	PW › PW - Office Time	
9:17am (MDT)	9:59am (MDT)	0.70	SWR › SWR - Sewer Logs	
9:59am (MDT)	11:27am (MDT)	1.47	SWR › SWR - System Maintenance	
11:27am (MDT)	1:51pm (MDT)	2.40	WTR › WTR - Service Call	
1:51pm (MDT)	2:47pm (MDT)	0.93	WTR › WTR - Booster Station & Well Logs	
2:57pm (MDT)	3:59pm (MDT)	1.03	WTR › WTR - Booster Station & Well Logs	
3:59pm (MDT)	4:34pm (MDT)	0.58	PW › PW - City Shop	