



STATE OF UTAH - DEPARTMENT OF ADMINISTRATIVE SERVICES

Division of Facilities Construction and Management

DFCM

**STANDARD LOW BID PROJECT – INVITATIONAL
Project Budgets \$50,000 - \$100,000**

June 19, 2007

**OGDEN 2ND DISTRICT COURTS SEWER
AND GROUND WATER EJECTION
PUMP REPLACEMENT**

**ADMINISTRATION OFFICE OF THE
COURTS**

OGDEN, UTAH

DFCM Project Number 07208150

WHW Engineering
1354 East 3300 South
Salt Lake City, Utah 84106

TABLE OF CONTENTS

Page Numbers

Title Page	1
Table of Contents	2
Invitation to Bid	3
Project Description	4
Project Schedule	5
Bid Form	6
Instructions to Bidders	8
Bid Bond	12
Contractors Sublist Form	13
Fugitive Dust Plan	16
Contractor's Agreement	23
Performance Bond	28
Payment Bond	29
Change Order Form	30
Certificate of Substantial Completion	31

Fairpark Map

Current copies of the following documents are hereby made part of these contract documents by reference. These documents are available on the DFCM web site at <http://dfcm.utah.gov> or are available upon request from DFCM.

DFCM General Conditions dated May 25, 2005.

DFCM Application and Certification for Payment dated May 25, 2005.

Technical Specifications :

Drawings:

The Agreement and General Conditions dated May 25, 2005 have been updated from versions that were formally adopted and in use prior to this date. The changes made to the General Conditions are identified in a document entitled Revisions to General Conditions that is available on DFCM's web site at <http://dfcm.utah.gov>

INVITATION TO BID

Only firms that have been invited to submit bids on this project are allowed to bid on this project.

Sealed bids will be received by the Division of Facilities Construction and Management (DFCM) for:

**OGDEN 2ND DISTRICT COURTS SEWER AND GROUND WATER EJECTION PUMP
REPLACEMENT
ADMINISTRATION OFFICE OF THE COURTS
DFCM PROJECT NO: 07208150**

<u>Company</u>	<u>Contact</u>	<u>Fax</u>
Ralph Tye and Sons	Doug Tye	801-262-9900
Wasatch West	Greg Stennett	801-677-0303
KOH Mechanical	Lynn Hansen	801-254-6374

Bids will be in accordance with the Contract Documents that will be available on June 19, 2007, and distributed in electronic format only on CDs from DFCM, at the Wasatch Building at the Utah State Fair Park, approximately 155 North 1000 West, Salt Lake City, Utah and on the DFCM web page at <http://dfcm.utah.gov>. For questions regarding this project, please contact Tim K. Parkinson, DFCM, at 801-450-2478. No others are to be contacted regarding this bidding process. The construction budget for this project is \$63,000.00.

A **mandatory** pre-bid meeting will be held at 10:00 a.m. on Friday June 22, 2007 at the Ogden 2nd District Courts - 2525 Grant Ave. Ogden, Utah. All bidders wishing to bid on this project are required to attend this meeting.

Bids will be received until the hour of 2:00 PM on June 27, 2007 at the Wasatch Building at the Utah State Fairpark, approximately 155 North 1000 West, Salt Lake City, Utah. Refer to the map on the DFCM website for directions (http://dfcm.utah.gov/downloads/fairpark_map.pdf). Bids will be opened and read aloud in the Wasatch Building at the Utah State Fairpark. NOTE: Bids must be received at the Wasatch Building at the Utah State Fairpark by the specified time.

A bid bond in the amount of five percent (5%) of the bid amount, made payable to the Division of Facilities Construction and Management on DFCM's bid bond form, shall accompany the bid.

The Division of Facilities Construction and Management reserves the right to reject any or all bids or to waive any formality or technicality in any bid in the interest of DFCM.

DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT

Joanna Fisher, Contract Coordinator
4110 State Office Building, Salt Lake City, Utah 84114

PROJECT DESCRIPTION

Replace existing Duplex Sewage Pumps, Starters, Sump Covers, Controls and associated piping. The Contractor is responsible for the complete execution of the contract documents as indicated and Specified.

**PROJECT SCHEDULE**

PROJECT NAME: Ogden 2nd District Courts Sewer and Ground Water Ejection Pump Replacement – Administrative Office of the Courts – Ogden, Utah				
DFCM PROJECT NO. 07208150				
Event	Day	Date	Time	Place
Bidding Documents Available	Tuesday	June 19, 2007	10:00 A.M.	Wasatch Building Utah State Fairpark Approx 155 North 1000 West Salt Lake City, UT ** or DFCM web site *
Mandatory Pre-bid Site Meeting	Friday	June 22, 2007	10:00 A.M.	Ogden 2 nd District Courts 2525 Grant Ave. Ogden, Utah
Last Day to Submit Questions	Monday	June 25, 2007	10:00 A.M.	e-mail to tparkins@utah.gov
Addendum Issued Responding to Questions (if needed)	Tuesday	June 26, 2007	2:00 P.M.	DFCM web site *
Prime Contractors Turn In Bid and Bid Bond	Wednesday	June 27, 2007	2:00 P.M.	Wasatch Building Utah State Fairpark Approx 155 North 1000 West Salt Lake City, UT **
Sub-contractor List Due	Thursday	June 28, 2007	2:00 P.M.	DFCM 4110 State Office Bldg SLC, UT Fax 801-538-3677
Substantial Completion Date	Friday	August 31, 2007	5:00 P.M.	

* **NOTE:** DFCM's web site address is <http://dfcm.utah.gov>

** **Due to the ongoing construction on Capitol Hill and the anticipated shortage of parking during 2007, all bids will be received and opened at the Wasatch Building at the Utah State Fairpark. Refer to map on the DFCM web site for directions (http://dfcm.utah.gov/downloads/fairpark_map.pdf)**



BID FORM

NAME OF BIDDER _____ DATE _____

To the Division of Facilities Construction and Management
4110 State Office Building
Salt Lake City, Utah 84114

The undersigned, responsive to the "Notice to Contractors" and in accordance with the "Instructions to Bidders", in compliance with your invitation for bids for the **Ogden 2nd District Courts Sewer and Ground Water Ejection Pump Replacement – Administrative Office of the Courts – Ogden, Utah Project No. 07208150** and having examined the Contract Documents and the site of the proposed Work and being familiar with all of the conditions surrounding the construction of the proposed Project, including the availability of labor, hereby proposes to furnish all labor, materials and supplies as required for the Work in accordance with the Contract Documents as specified and within the time set forth and at the price stated below. This price is to cover all expenses incurred in performing the Work required under the Contract Documents of which this bid is a part:

I/We acknowledge receipt of the following Addenda: _____

For all work shown on the Drawings and described in the Specifications and Contract Documents, I/we agree to perform for the sum of:

_____ DOLLARS (\$_____)

(In case of discrepancy, written amount shall govern)

I/We guarantee that the Work will be Substantially Complete by August 31, 2007, should I/we be the successful bidder, and agree to pay liquidated damages in the amount of **\$500.00** per day for each day after expiration of the Contract Time as stated in Article 3 of the Contractor's Agreement.

This bid shall be good for 45 days after bid opening.

Enclosed is a 5% bid bond, as required, in the sum of _____

The undersigned Contractor's License Number for Utah is _____.

Upon receipt of notice of award of this bid, the undersigned agrees to execute the contract within ten (10) days, unless a shorter time is specified in the Contract Documents, and deliver acceptable Performance and Payment bonds in the prescribed form in the amount of 100% of the Contract Sum for faithful performance of the contract.

The Bid Bond attached, in the amount not less than five percent (5%) of the above bid sum, shall become the property of the Division of Facilities Construction and Management as liquidated damages for delay and additional expense caused thereby in the event that the contract is not executed and/or acceptable 100% Performance and Payment bonds are not delivered within the time set forth.

Type of Organization:

(Corporation, Partnership, Individual, etc.)

Any request and information related to Utah Preference Laws:

Respectfully submitted,

Name of Bidder

ADDRESS:

Authorized Signature

INSTRUCTIONS TO BIDDERS

1. Drawings and Specifications, Other Contract Documents

Drawings and Specifications, as well as other available Contract Documents, may be obtained as stated in the Invitation to Bid.

2. Bids

Before submitting a bid, each contractor shall carefully examine the Contract Documents, shall visit the site of the Work; shall fully inform themselves as to all existing conditions and limitations; and shall include in the bid the cost of all items required by the Contract Documents. If the bidder observes that portions of the Contract Documents are at variance with applicable laws, building codes, rules, regulations or contain obvious erroneous or uncoordinated information, the bidder shall promptly notify the DFCM Representative and the necessary changes shall be accomplished by Addendum.

The bid, bearing original signatures, must be typed or handwritten in ink on the Bid Form provided in the procurement documents and submitted in a sealed envelope at the location specified by the Invitation to Bid prior to the deadline for submission of bids.

Bid bond security, in the amount of five percent (5%) of the bid, made payable to the Division of Facilities Construction and Management, shall accompany bid. **THE BID BOND MUST BE ON THE BID BOND FORM PROVIDED IN THE PROCUREMENT DOCUMENTS IN ORDER TO BE CONSIDERED AN ACCEPTABLE BID.**

If the bid bond security is submitted on a bid bond form other than DFCM's required bid bond form, and the bid security meets all other legal requirements, the bidder will be allowed to provide an acceptable bid bond by the close of business on the next business day following notification by DFCM of submission of a defective bid bond security. **NOTE: A cashier's check cannot be used as a substitute for a bid bond.**

3. Contract and Bond

The Contractor's Agreement will be in the form found in the specifications. The Contract Time will be as indicated in the bid. The successful bidder, simultaneously with the execution of the Contract Agreement, will be required to furnish a performance bond and a payment bond, both bearing original signatures, upon the forms provided in the procurement documents. The performance and payment bonds shall be for an amount equal to one hundred percent (100%) of the contract sum and secured from a company that meets the requirements specified in the requisite forms. Any bonding requirements for subcontractors will be specified in the Supplementary General Conditions.

4. Listing of Subcontractors

Listing of Subcontractors shall be as summarized in the “Instructions and Subcontractor’s List Form”, which are included as part of these Contract Documents. The Subcontractors List shall be delivered to DFCM or faxed to DFCM at (801)538-3677 within 24 hours of the bid opening. Requirements for listing additional subcontractors will be listed in the Contract Documents.

DFCM retains the right to audit or take other steps necessary to confirm compliance with requirements for the listing and changing of subcontractors. Any contractor who is found to not be in compliance with these requirements is subject to a debarment hearing and may be debarred from consideration for award of contracts for a period of up to three years.

5. Interpretation of Drawings and Specifications

If any person or entity contemplating submitting a bid is in doubt as to the meaning of any part of the drawings, specifications or other Contract Documents, such person shall submit to the DFCM Project Manager a request for an interpretation thereof. The person or entity submitting the request will be responsible for its prompt delivery. Any interpretation of the proposed documents will be made only by addenda posted on DFCM’s web site at <http://dfcm.utah.gov>. Neither the DFCM nor A/E will be responsible for any other explanations or interpretations of the proposed documents. A/E shall be deemed to refer to the architect or engineer hired by DFCM as the A/E or Consultant for the Project.

6. Addenda

Addenda will be posted on DFCM’s web site at <http://dfcm.utah.gov>. Contractors are responsible for obtaining information contained in each addendum from the web site. Addenda issued prior to the submittal deadline shall become part of the bidding process and must be acknowledged on the bid form. Failure to acknowledge addenda may result in disqualification from bidding.

7. Award of Contract

The Contract will be awarded as soon as possible to the lowest, responsive and responsible bidder, based on the lowest combination of base bid and acceptable prioritized alternates, provided the bid is reasonable, is in the interests of the State of Utah to accept and after applying the Utah Preference Laws in U.C.A. Title 63, Chapter 56. DFCM reserves the right to waive any technicalities or formalities in any bid or in the bidding. Alternates will be accepted on a prioritized basis with Alternate 1 being highest priority, Alternate 2 having second priority, etc.

8. DFCM Contractor Performance Rating

As a contractor completes each DFCM project, DFCM, the architect/engineer and the using agency will evaluate project performance based on the enclosed “DFCM Contractor Performance Rating” form. The ratings issued on this project will not affect this project but may affect the award on future projects.

9. Licensure

The Contractor shall comply with and require all of its subcontractors to comply with the license laws as required by the State of Utah.

10. Right to Reject Bids

DFCM reserves the right to reject any or all Bids.

11. Time is of the Essence

Time is of the essence in regard to all the requirements of the Contract Documents.

12. Withdrawal of Bids

Bids may be withdrawn on written request received from bidder prior to the time fixed for opening. Negligence on the part of the bidder in preparing the bid confers no right for the withdrawal of the bid after it has been opened.

13. Product Approvals

Where reference is made to one or more proprietary products in the Contract Documents, but restrictive descriptive materials of one or more manufacturer(s) is referred to in the Contract Documents, the products of other manufacturers will be accepted, provided they equal or exceed the standards set forth in the drawings and specifications and are compatible with the intent and purpose of the design, subject to the written approval of the A/E. Such written approval must occur prior to the deadline established for the last scheduled addenda to be issued. The A/E’s written approval will be in an issued addendum. If the descriptive material is not restrictive, the products of other manufacturers specified will be accepted without prior approval provided they are compatible with the intent and purpose of the design as determined by the A/E.

14. Financial Responsibility of Contractors, Subcontractors and Sub-subcontractors

Contractors shall respond promptly to any inquiry in writing by DFCM to any concern of financial responsibility of the contractor, subcontractor or sub-subcontractor.

15. Debarment

By submitting a bid, the Contractor certifies that neither it nor its principals, including project and site managers, have been, or are under consideration for, debarment or suspension, or any action that would exclude such from participation in a construction contract by any governmental department or agency. If the Contractor cannot certify this statement, attach to the bid a detailed written explanation which must be reviewed and approved by DFCM as part of the requirements for award of the Project.

BID BOND

(Title 63, Chapter 56, U. C. A. 1953, as Amended)

KNOW ALL PERSONS BY THESE PRESENTS:

That _____ hereinafter referred to as the "Principal," and _____, a corporation organized and existing under the laws of the State of _____, with its principal office in the City of _____ and authorized to transact business in this State and U. S. Department of the Treasury Listed, (Circular 570, Companies Holding Certificates of Authority as Acceptable Securities on Federal Bonds and as Acceptable Reinsuring Companies); hereinafter referred to as the "Surety," are held and firmly bound unto the STATE OF UTAH, hereinafter referred to as the "Obligee," in the amount of \$ _____ (5% of the accompanying bid), being the sum of this Bond to which payment the Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that whereas the Principal has submitted to Obligee the accompanying bid incorporated by reference herein, dated as shown, to enter into a contract in writing for the _____ Project.

NOW, THEREFORE, THE CONDITION OF THE ABOVE OBLIGATION IS SUCH, that if the said principal does not execute a contract and give bond to be approved by the Obligee for the faithful performance thereof within ten (10) days after being notified in writing of such contract to the principal, then the sum of the amount stated above will be forfeited to the State of Utah as liquidated damages and not as a penalty; if the said principal shall execute a contract and give bond to be approved by the Obligee for the faithful performance thereof within ten (10) days after being notified in writing of such contract to the Principal, then this obligation shall be null and void. It is expressly understood and agreed that the liability of the Surety for any and all defaults of the Principal hereunder shall be the full penal sum of this Bond. The Surety, for value received, hereby stipulates and agrees that obligations of the Surety under this Bond shall be for a term of sixty (60) days from actual date of the bid opening.

PROVIDED, HOWEVER, that this Bond is executed pursuant to provisions of Title 63, Chapter 56, Utah Code Annotated, 1953, as amended, and all liabilities on this Bond shall be determined in accordance with said provisions to same extent as if it were copied at length herein.

IN WITNESS WHEREOF, the above bounden parties have executed this instrument under their several seals on the date indicated below, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

DATED this _____ day of _____, 20_____.

Principal's name and address (if other than a corporation):

By: _____

Title: _____

Principal's name and address (if a corporation):

By: _____

Title: _____
(Affix Corporate Seal)

Surety's name and address:

By: _____
Attorney-in-Fact (Affix Corporate Seal)

STATE OF _____)
COUNTY OF _____) ss.

On this ___ day of _____, 20_____, personally appeared before me _____, whose identity is personally known to me or proved to me on the basis of satisfactory evidence, and who, being by me duly sworn, did say that he/she is the Attorney-in-fact of the above-named Surety Company, and that he/she is duly authorized to execute the same and has complied in all respects with the laws of Utah in reference to becoming sole surety upon bonds, undertakings and obligations, and that he/she acknowledged to me that as Attorney-in-fact executed the same.

Subscribed and sworn to before me this _____ day of _____, 20_____.
My Commission Expires: _____
Resides at: _____

NOTARY PUBLIC

Agency: _____
Agent: _____
Address: _____
Phone: _____

Approved As To Form: May 25, 2005
By Alan S. Bachman, Asst Attorney General

**Division of Facilities Construction and****INSTRUCTIONS AND SUBCONTRACTORS LIST FORM**

The three low bidders, as well as all other bidders that desire to be considered, are required by law to submit to DFCM within 24 hours of bid opening a list of **ALL** first-tier subcontractors, including the subcontractor's name, bid amount and other information required by Building Board Rule and as stated in these Contract Documents, on the following basis:

PROJECTS UNDER \$500,000 - ALL SUBS \$20,000 OR OVER MUST BE LISTED
PROJECTS \$500,000 OR MORE - ALL SUBS \$35,000 OR OVER MUST BE LISTED

- Any additional subcontractors identified in the bid documents shall also be listed.
- The DFCM Director may not consider any bid submitted by a bidder if the bidder fails to submit a subcontractor list meeting the requirements of State law.
- List subcontractors for base bid as well as the impact on the list that the selection of any alternate may have.
- Bidder may not list more than one subcontractor to perform the same work.
- Bidder must list "Self" if performing work itself.

LICENSURE:

The subcontractor's name, the type of work, the subcontractor's bid amount, and the subcontractor's license number as issued by DOPL, if such license is required under Utah Law, shall be listed. Bidder shall certify that all subcontractors, required to be licensed, are licensed as required by State law. A subcontractor includes a trade contractor or specialty contractor and does not include suppliers who provide only materials, equipment, or supplies to a contractor or subcontractor.

BIDDER LISTING 'SELF' AS PERFORMING THE WORK:

Any bidder that is properly licensed for the particular work and intends to perform that work itself in lieu of a subcontractor that would otherwise be required to be on the subcontractor list, must insert the term 'Self' for that category on the subcontractor list form. Any listing of 'Self' on the sublist form shall also include the amount allocated for that work.

'SPECIAL EXCEPTION':

A bidder may list 'Special Exception' in place of a subcontractor when the bidder intends to obtain a subcontractor to perform the work at a later date because the bidder was unable to obtain a qualified or reasonable bid under the provisions of U.C.A. Section 63A-5-208(4). The bidder shall insert the term 'Special Exception' for that category of work, and shall provide documentation with the subcontractor list describing the bidder's efforts to obtain a bid of a qualified subcontractor at a reasonable cost and why the bidder was unable to obtain a qualified subcontractor bid. The Director must find that the bidder complied in good faith with State law requirements for any 'Special Exception' designation, in order for the bid to be considered. If awarded the contract, the Director shall supervise the bidder's efforts to obtain a qualified subcontractor bid. The amount of the awarded contract may not be adjusted to reflect the actual amount of the subcontractor's bid. Any listing of 'Special Exception' on the sublist form shall also include amount allocated for that work.

INSTRUCTIONS AND SUBCONTRACTORS LIST FORM
Page No. 2

GROUND FOR DISQUALIFICATION:

The Director may not consider any bid submitted by a bidder if the bidder fails to submit a subcontractor list meeting the requirements of State law. Director may withhold awarding the contract to a particular bidder if one or more of the proposed subcontractors are considered by the Director to be unqualified to do the Work or for such other reason in the best interest of the State of Utah. Notwithstanding any other provision in these instructions, if there is a good faith error on the sublist form, at the sole discretion of the Director, the Director may provide notice to the contractor and the contractor shall have 24 hours to submit the correction to the Director. If such correction is submitted timely, then the sublist requirements shall be considered met.

CHANGES OF SUBCONTRACTORS SPECIFICALLY IDENTIFIED ON SUBLIST FORM:

Subsequent to twenty-four hours after the bid opening, the contractor may change its listed subcontractors only after receiving written permission from the Director based on complying with all of the following criteria.

- (1) The contractor has established in writing that the change is in the best interest of the State and that the contractor establishes an appropriate reason for the change, which may include, but not is not limited to, the following reasons: the original subcontractor has failed to perform, or is not qualified or capable of performing, and/or the subcontractor has requested in writing to be released.
- (2) The circumstances related to the request for the change do not indicate any bad faith in the original listing of the subcontractors.
- (3) Any requirement set forth by the Director to ensure that the process used to select a new subcontractor does not give rise to bid shopping.
- (4) Any increase in the cost of the subject subcontractor work is borne by the contractor.
- (5) Any decrease in the cost of the subject subcontractor work shall result in a deductive change order being issued for the contract for such decreased amount.
- (6) The Director will give substantial weight to whether the subcontractor has consented in writing to being removed unless the Contractor establishes that the subcontractor is not qualified for the work.

EXAMPLE:

Example of a list where there are only four subcontractors:

TYPE OF WORK	SUBCONTRACTOR, "SELF" OR "SPECIAL EXCEPTION"	SUBCONTRACTOR BID AMOUNT	CONT. LICENSE #
ELECTRICAL	ABCD Electric Inc.	\$350,000.00	123456789000
LANDSCAPING	"Self"	300,000.00	123456789000
CONCRETE (ALTERNATE #1)	XYZ Concrete Inc	298,000.00	987654321000
MECHANICAL	"Special Exception" (attach documentation)	Fixed at: 350,000.00	(TO BE PROVIDED AFTER OBTAINING SUBCONTRACTOR)

PURSUANT TO STATE LAW - SUBCONTRACTOR BID AMOUNTS CONTAINED IN THIS SUBCONTRACTOR LIST SHALL NOT BE DISCLOSED UNTIL THE CONTRACT HAS BEEN AWARDED.



SUBCONTRACTORS LIST
FAX TO 801-538-3677

PROJECT TITLE: _____

Caution: You must read and comply fully with instructions.

Table with 4 columns: TYPE OF WORK, SUBCONTRACTOR, "SELF" OR "SPECIAL EXCEPTION", SUBCONTRACTOR BID AMOUNT, CONT. LICENSE #. The table contains 15 empty rows for data entry.

We certify that:

- 1. This list includes all subcontractors as required by the instructions, including those related to the base bid as well as any alternates.
2. We have listed "Self" or "Special Exception" in accordance with the instructions.
3. All subcontractors are appropriately licensed as required by State law.

FIRM: _____

DATE: _____

SIGNED BY: _____

NOTICE: FAILURE TO SUBMIT THIS FORM, PROPERLY COMPLETED AND SIGNED, AS REQUIRED IN THESE CONTRACT DOCUMENTS, SHALL BE GROUNDS FOR DFCMS REFUSAL TO ENTER INTO A WRITTEN CONTRACT WITH BIDDER. ACTION MAY BE TAKEN AGAINST BIDDERS BID BOND AS DEEMED APPROPRIATE BY DFCM. ATTACH A SECOND PAGE IF NECESSARY.

FUGITIVE DUST PLAN

The Contractor will fill out the form and file the original with the Division of Air Quality and a copy of the form with the Division of Facilities Construction & Management, prior to the issuance of any notice to proceed.

The Contractor will be fully responsible for compliance with the Fugitive Dust Control Plan, including the adequacy of the plan, any damages, fines, liability, and penalty or other action that results from noncompliance.

Utah Division of Air Quality

April 20, 1999

**GUIDANCE THAT MUST BE CONSIDERED IN DEVELOPING AND SUBMITTING A
DUST CONTROL PLAN FOR COMPLIANCE WITH R307-309-3, 4, 5, 6, 7**

Source Information:

1. Name of your operation (source): provide a name if the source is a construction site.

2. Address or location of your operation or construction site.

3. UTM coordinates or Longitude/Latitude of stationary emission points at your operation.

4. Lengths of the project, if temporary (time period).

5. Description of process (include all sources of dust and fugitive dust). Please, if necessary, use additional sheets of paper for this description. Be sure to mark it as an attachment.

6. Type of material processed or disturbed.

7. Amount of material processed (tons per year, tons per month, lbs./hr., and applicable units).

8. Destination of product (where will the material produced be used or transported, be specific, provide address or specific location), information needed for temporary relocation applicants.

9. Identify the individual who is responsible for the implementation and maintenance of fugitive dust control measures. List name(s), position(s) and telephone number(s).

10. List, and attach copies of any contract lease, liability agreement with other companies that may, or will, be responsible for dust control on site or on the project.

Description of Fugitive Dust Emission Activities
(Things to consider in addressing fugitive dust control strategies.)

1. Type of activities (drilling and blasting, road construction, development construction, earth moving and excavation, handling and hauling materials, cleaning and leveling, etc).
2. List type of equipment generating the fugitive dust.
3. Diagram the location of each activity or piece of equipment on site. Please attach the diagram.
4. Provide pictures or drawings of each activity. Include a drawing of the unpaved/paved road network used to move loads “on” and “off” property.
5. Vehicle miles travels on unpaved roads associated with the activity (average speed).
6. Type of dust emitted at each source (coal, cement, sand, soil, clay, dust, etc.)
7. Estimate the size of the release area at which the activity occurs (square miles). For haul or dirt roads include total miles of road in use during the activity.

Description of Fugitive Dust Emission Controls on Site

Control strategies must be designed to meet 20% opacity or less on site (a lesser opacity may be defined by Approval Order conditions or federal requirements such as NSPS), and control strategies must prevent exceeding 10% opacity from fugitive dust at the property boundary (site boundary) for compliance with R307-309-3.

1. Types of ongoing emission controls proposed for each activity, each piece of equipment, and haul roads.
2. Types of additional dust controls proposed for bare, exposed surfaces (chemical stabilization, synthetic cover, wind breaks, vegetative cover, etc).
3. Method of application of dust suppressant.
4. Frequency of application of dust suppressant.
5. Explain what triggers the use of a special control measure other than routine measures already in place, such as covered loads or measures covered by a permit condition (increase in opacity, high winds, citizen complaints, dry conditions, etc).
6. Explain in detail what control strategies/measures will be implemented off-hours, i.e., Saturdays/Sundays/Holidays, as well as 6 PM to 6 AM each day.

Fugitive Dust Control Plan Violation Report

When a source is found in violation of R307-309-3 or in violation of the Fugitive Dust Control Plan, the source must submit a report to the Executive Secretary within 15 days after receiving a Notice of Violation. The report must include the following information:

1. Name and address of dust source.
2. Time and duration of dust episode.
3. Meteorological conditions during the dust episode.
4. Total number and type of fugitive dust activities and dust producing equipment within each operation boundary. If no change has occurred from the existing dust control plan, the source should state that the activity/equipment is the same.
5. Fugitive dust activities or dust producing equipment that caused a violation of R-307-309-3 or the source's dust control plan.
6. Reasons for failing to control dust from the dust generating activity or equipment.
7. New and/or additional fugitive dust control strategies necessary to achieve compliance with R307-309-3, 4, 5, 6, or 7.
8. If it can not be demonstrated that the current approved Dust Control Plan can result in compliance with R307-309-3 through 7, the Dust Control Plan must be revised so as to demonstrate compliance with 307-309-3 through 7. Within 30 days of receiving a fugitive dust Notice of Violation, the source must submit the revised Plan to the Executive Secretary for review and approval.

Submit the Dust Control Plan to:

Executive Secretary	Phone: (801) 536-4000
Utah Air Quality Board	FAX: (801) 536-4099
POB 144820	
15 North 1950 West	
Salt Lake City, Utah 84114-4820	

Attachments: DFCM Form FDR R-307-309, Rule 307-309

CONTRACTOR'S AGREEMENT

FOR:

THIS CONTRACTOR'S AGREEMENT, made and entered into this ____ day of _____, 20__, by and between the DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT, hereinafter referred to as "DFCM", and _____, incorporated in the State of _____ and authorized to do business in the State of Utah, hereinafter referred to as "Contractor", whose address is _____.

WITNESSETH: WHEREAS, DFCM intends to have Work performed at _____.

WHEREAS, Contractor agrees to perform the Work for the sum stated herein.

NOW, THEREFORE, DFCM and Contractor for the consideration provided in this Contractor's Agreement, agree as follows:

ARTICLE 1. SCOPE OF WORK. The Work to be performed shall be in accordance with the Contract Documents prepared by _____ and entitled "_____"

The DFCM General Conditions ("General Conditions") dated May 25, 2005 on file at the office of DFCM and available on the DFCM website, are hereby incorporated by reference as part of this Agreement and are included in the specifications for this Project. All terms used in this Contractor's Agreement shall be as defined in the Contract Documents, and in particular, the General Conditions.

The Contractor Agrees to furnish labor, materials and equipment to complete the Work as required in the Contract Documents which are hereby incorporated by reference. It is understood and agreed by the parties hereto that all Work shall be performed as required in the Contract Documents and shall be subject to inspection and approval of DFCM or its authorized representative. The relationship of the Contractor to the DFCM hereunder is that of an independent Contractor.

ARTICLE 2. CONTRACT SUM. The DFCM agrees to pay and the Contractor agrees to accept in full performance of this Contractor's Agreement, the sum of _____ DOLLARS AND NO CENTS (\$_____.00), which is the base bid, and which sum also includes the cost of a 100% Performance Bond and a 100%

Payment Bond as well as all insurance requirements of the Contractor. Said bonds have already been posted by the Contractor pursuant to State law. The required proof of insurance certificates have been delivered to DFCM in accordance with the General Conditions before the execution of this Contractor's Agreement.

ARTICLE 3. TIME OF COMPLETION AND DELAY REMEDY. The Work shall be Substantially Complete by _____. Contractor agrees to pay liquidated damages in the amount of \$ _____ per day for each day after expiration of the Contract Time until the Contractor achieves Substantial Completion in accordance with the Contract Documents, if Contractor's delay makes the damages applicable. The provision for liquidated damages is: (a) to compensate the DFCM for delay only; (b) is provided for herein because actual damages can not be readily ascertained at the time of execution of this Contractor's Agreement; (c) is not a penalty; and (d) shall not prevent the DFCM from maintaining Claims for other non-delay damages, such as costs to complete or remedy defective Work.

No action shall be maintained by the Contractor, including its or Subcontractor or suppliers at any tier, against the DFCM or State of Utah for damages or other claims due to losses attributable to hindrances or delays from any cause whatsoever, including acts and omissions of the DFCM or its officers, employees or agents, except as expressly provided in the General Conditions. The Contractor may receive a written extension of time, signed by the DFCM, in which to complete the Work under this Contractor's Agreement in accordance with the General Conditions.

ARTICLE 4. CONTRACT DOCUMENTS. The Contract Documents consist of this Contractor's Agreement, the Conditions of the Contract (DFCM General Conditions, Supplementary and other Conditions), the Drawings, Specifications, Addenda and Modifications. The Contract Documents shall also include the bidding documents, including the Invitation to Bid, Instructions to Bidders/ Proposers and the Bid/Proposal, to the extent not in conflict therewith and other documents and oral presentations that are documented as an attachment to the contract.

All such documents are hereby incorporated by reference herein. Any reference in this Contractor's Agreement to certain provisions of the Contract Documents shall in no way be construed as to lessen the importance or applicability of any other provisions of the Contract Documents.

ARTICLE 5. PAYMENT. The DFCM agrees to pay the Contractor from time to time as the Work progresses, but not more than once each month after the date of Notice to Proceed, and only upon Certificate of the A/E for Work performed during the preceding calendar month, ninety-five percent (95%) of the value of the labor performed and ninety-five percent (95%) of the value of materials furnished in place or on the site. The Contractor agrees to furnish to the DFCM invoices for materials purchased and on the site but not installed, for which the Contractor requests payment and agrees to

safeguard and protect such equipment or materials and is responsible for safekeeping thereof and if such be stolen, lost or destroyed, to replace same.

Such evidence of labor performed and materials furnished as the DFCM may reasonably require shall be supplied by the Contractor at the time of request for Certificate of Payment on account. Materials for which payment has been made cannot be removed from the job site without DFCM's written approval. Five percent (5%) of the earned amount shall be retained from each monthly payment. The retainage, including any additional retainage imposed and the release of any retainage, shall be in accordance with UCA 13-8-5 as amended. Contractor shall also comply with the requirements of UCA 13-8-5, including restrictions of retainage regarding subcontractors and the distribution of interest earned on the retention proceeds. The DFCM shall not be responsible for enforcing the Contractor's obligations under State law in fulfilling the retention law requirements with subcontractors at any tier.

ARTICLE 6. INDEBTEDNESS. Before final payment is made, the Contractor must submit evidence satisfactory to the DFCM that all payrolls, materials bills, subcontracts at any tier and outstanding indebtedness in connection with the Work have been properly paid. Final Payment will be made after receipt of said evidence, final acceptance of the Work by the DFCM as well as compliance with the applicable provisions of the General Conditions.

Contractor shall respond immediately to any inquiry in writing by DFCM as to any concern of financial responsibility and DFCM reserves the right to request any waivers, releases or bonds from Contractor in regard to any rights of Subcontractors (including suppliers) at any tier or any third parties prior to any payment by DFCM to Contractor.

ARTICLE 7. ADDITIONAL WORK. It is understood and agreed by the parties hereto that no money will be paid to the Contractor for additional labor or materials furnished unless a new contract in writing or a Modification hereof in accordance with the General Conditions and the Contract Documents for such additional labor or materials has been executed. The DFCM specifically reserves the right to modify or amend this Contractor's Agreement and the total sum due hereunder either by enlarging or restricting the scope of the Work.

ARTICLE 8. INSPECTIONS. The Work shall be inspected for acceptance in accordance with the General Conditions.

ARTICLE 9. DISPUTES. Any dispute, PRE or Claim between the parties shall be subject to the provisions of Article 7 of the General Conditions. DFCM reserves all rights to pursue its rights and remedies as provided in the General Conditions.

ARTICLE 10. TERMINATION, SUSPENSION OR ABANDONMENT. This Contractor's Agreement may be terminated, suspended or abandoned in accordance with the General Conditions.

ARTICLE 11. DFCM'S RIGHT TO WITHHOLD CERTAIN AMOUNT AND MAKE USE THEREOF. The DFCM may withhold from payment to the Contractor such amount as, in DFCM's judgment, may be necessary to pay just claims against the Contractor or Subcontractor at any tier for labor and services rendered and materials furnished in and about the Work. The DFCM may apply such withheld amounts for the payment of such claims in DFCM's discretion. In so doing, the DFCM shall be deemed the agent of Contractor and payment so made by the DFCM shall be considered as payment made under this Contractor's Agreement by the DFCM to the Contractor. DFCM shall not be liable to the Contractor for any such payment made in good faith. Such withholdings and payments may be made without prior approval of the Contractor and may be also be prior to any determination as a result of any dispute, PRE, Claim or litigation.

ARTICLE 12. INDEMNIFICATION. The Contractor shall comply with the indemnification provisions of the General Conditions.

ARTICLE 13. SUCCESSORS AND ASSIGNMENT OF CONTRACT. The DFCM and Contractor, respectively bind themselves, their partners, successors, assigns and legal representatives to the other party to this Agreement, and to partners, successors, assigns and legal representatives of such other party with respect to all covenants, provisions, rights and responsibilities of this Contractor's Agreement. The Contractor shall not assign this Contractor's Agreement without the prior written consent of the DFCM, nor shall the Contractor assign any moneys due or to become due as well as any rights under this Contractor's Agreement, without prior written consent of the DFCM.

ARTICLE 14. RELATIONSHIP OF THE PARTIES. The Contractor accepts the relationship of trust and confidence established by this Contractor's Agreement and covenants with the DFCM to cooperate with the DFCM and A/E and use the Contractor's best skill, efforts and judgment in furthering the interest of the DFCM; to furnish efficient business administration and supervision; to make best efforts to furnish at all times an adequate supply of workers and materials; and to perform the Work in the best and most expeditious and economic manner consistent with the interests of the DFCM.

ARTICLE 15. AUTHORITY TO EXECUTE AND PERFORM AGREEMENT. Contractor and DFCM each represent that the execution of this Contractor's Agreement and the performance thereunder is within their respective duly authorized powers.

ARTICLE 16. ATTORNEY FEES AND COSTS. Except as otherwise provided in the dispute resolution provisions of the General Conditions, the prevailing party shall be entitled to reasonable attorney fees and costs incurred in any action in the District Court and/or appellate body to enforce this Contractor's Agreement or recover damages or any other action as a result of a breach thereof.

PERFORMANCE BOND
(Title 63, Chapter 56, U. C. A. 1953, as Amended)

That _____ hereinafter referred to as the "Principal" and _____, a corporation organized and existing under the laws of the State of _____, with its principal office in the City of _____ and authorized to transact business in this State and U. S. Department of the Treasury Listed (Circular 570, Companies Holding Certificates of Authority as Acceptable Securities on Federal Bonds and as Acceptable Reinsuring Companies); hereinafter referred to as the "Surety," are held and firmly bound unto the State of Utah, hereinafter referred to as the "Obligee," in the amount of _____ DOLLARS (\$ _____) for the payment whereof, the said Principal and Surety bind themselves and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written Contract with the Obligee, dated the _____ day of _____, 20____, to construct _____ in the County of _____, State of Utah, Project No. _____, for the approximate sum of _____ Dollars (\$ _____), which Contract is hereby incorporated by reference herein.

NOW, THEREFORE, the condition of this obligation is such that if the said Principal shall faithfully perform the Contract in accordance with the Contract Documents including, but not limited to, the Plans, Specifications and conditions thereof, the one year performance warranty, and the terms of the Contract as said Contract may be subject to Modifications or changes, then this obligation shall be void; otherwise it shall remain in full force and effect.

No right of action shall accrue on this bond to or for the use of any person or corporation other than the state named herein or the heirs, executors, administrators or successors of the Owner.

The parties agree that the dispute provisions provided in the Contract Documents apply and shall constitute the sole dispute procedures of the parties.

PROVIDED, HOWEVER, that this Bond is executed pursuant to the Provisions of Title 63, Chapter 56, Utah Code Annotated, 1953, as amended, and all liabilities on this Bond shall be determined in accordance with said provisions to the same extent as if it were copied at length herein.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument this _____ day of _____, 20____.

WITNESS OR ATTESTATION:

PRINCIPAL:

By: _____

(Seal)

Title: _____

WITNESS OR ATTESTATION:

SURETY:

By: _____

Attorney-in-Fact (Seal)

STATE OF _____)
) ss.
COUNTY OF _____)

On this _____ day of _____, 20____, personally appeared before me _____, whose identity is personally known to me or proved to me on the basis of satisfactory evidence, and who, being by me duly sworn, did say that he/she is the Attorney in-fact of the above-named Surety Company and that he/she is duly authorized to execute the same and has complied in all respects with the laws of Utah in reference to becoming sole surety upon bonds, undertakings and obligations, and that he/she acknowledged to me that as Attorney-in-fact executed the same.

Subscribed and sworn to before me this _____ day of _____, 20____.

My commission expires: _____

Resides at: _____

NOTARY PUBLIC

Agency: _____
Agent: _____
Address: _____
Phone: _____

Approved As To Form: May 25, 2005
By Alan S. Bachman, Asst Attorney General

PAYMENT BOND

(Title 63, Chapter 56, U. C. A. 1953, as Amended)

KNOW ALL PERSONS BY THESE PRESENTS:

That _____ hereinafter referred to as the "Principal," and _____, a corporation organized and existing under the laws of the State of _____ authorized to do business in this State and U. S. Department of the Treasury Listed (Circular 570, Companies Holding Certificates of Authority as Acceptable Securities on Federal Bonds and as Acceptable Reinsuring Companies); with its principal office in the City of _____, hereinafter referred to as the "Surety," are held and firmly bound unto the State of Utah hereinafter referred to as the "Obligee," in the amount of _____ Dollars (\$ _____) for the payment whereof, the said Principal and Surety bind themselves and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written Contract with the Obligee, dated the _____ day of _____, 20____, to construct _____ in the County of _____, State of Utah, Project No. _____ for the approximate sum of _____ Dollars (\$ _____), which contract is hereby incorporated by reference herein.

NOW, THEREFORE, the condition of this obligation is such that if the said Principal shall pay all claimants supplying labor or materials to Principal or Principal's Subcontractors in compliance with the provisions of Title 63, Chapter 56, of Utah Code Annotated, 1953, as amended, and in the prosecution of the Work provided for in said Contract, then, this obligation shall be void; otherwise it shall remain in full force and effect.

That said Surety to this Bond, for value received, hereby stipulates and agrees that no changes, extensions of time, alterations or additions to the terms of the Contract or to the Work to be performed thereunder, or the specifications or drawings accompanying same shall in any way affect its obligation on this Bond, and does hereby waive notice of any such changes, extensions of time, alterations or additions to the terms of the Contract or to the Work or to the specifications or drawings and agrees that they shall become part of the Contract Documents.

PROVIDED, HOWEVER, that this Bond is executed pursuant to the provisions of Title 63, Chapter 56, Utah Code Annotated, 1953, as amended, and all liabilities on this Bond shall be determined in accordance with said provisions to the same extent as if it were copied at length herein.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument this _____ day of _____, 20____.

WITNESS OR ATTESTATION:

PRINCIPAL:

By: _____ (Seal)
Title: _____

WITNESS OR ATTESTATION:

SURETY:

By: _____ (Seal)
Attorney-in-Fact

STATE OF _____)
) ss.
COUNTY OF _____)

On this _____ day of _____, 20____, personally appeared before me _____, whose identity is personally known to me or proved to me on the basis of satisfactory evidence, and who, being by me duly sworn, did say that he/she is the Attorney-in-fact of the above-named Surety Company, and that he/she is duly authorized to execute the same and has complied in all respects with the laws of Utah in reference to becoming sole surety upon bonds, undertakings and obligations, and that he/she acknowledged to me that as Attorney-in-fact executed the same.

Subscribed and sworn to before me this _____ day of _____, 20____.

My commission expires: _____

Resides at: _____

NOTARY PUBLIC

Agency: _____
Agent: _____
Address: _____
Phone: _____

Approved As To Form: May 25, 2005
By Alan S. Bachman, Asst Attorney General



CERTIFICATE OF SUBSTANTIAL COMPLETION

PROJECT _____ PROJECT NO: _____
AGENCY/INSTITUTION _____

AREA ACCEPTED _____

The Work performed under the subject Contract has been reviewed on this date and found to be Substantially Completed as defined in the General Conditions; including that the construction is sufficiently completed in accordance with the Contract Documents, as modified by any change orders agreed to by the parties, so that the State of Utah can occupy the Project or specified area of the Project for the use for which it is intended.

The DFCM - (Owner) accepts the Project or specified area of the Project as Substantially Complete and will assume full possession of the Project or specified area of the Project at _____ (time) on _____ (date).

The DFCM accepts the Project for occupancy and agrees to assume full responsibility for maintenance and operation, including utilities and insurance, of the Project subject to the itemized responsibilities and/or exceptions noted below:

The Owner acknowledges receipt of the following closeout and transition materials:

- As-built Drawings O & M Manuals Warranty Documents Completion of Training Requirements

A list of items to be completed or corrected (Punch List) is attached hereto. The failure to include an item on it does not alter the responsibility of the Contractor to complete all the Work in accordance with the Contract Documents, including authorized changes thereof. The amount of _____(Twice the value of the punch list work) shall be retained to assure the completion of the punch list work.

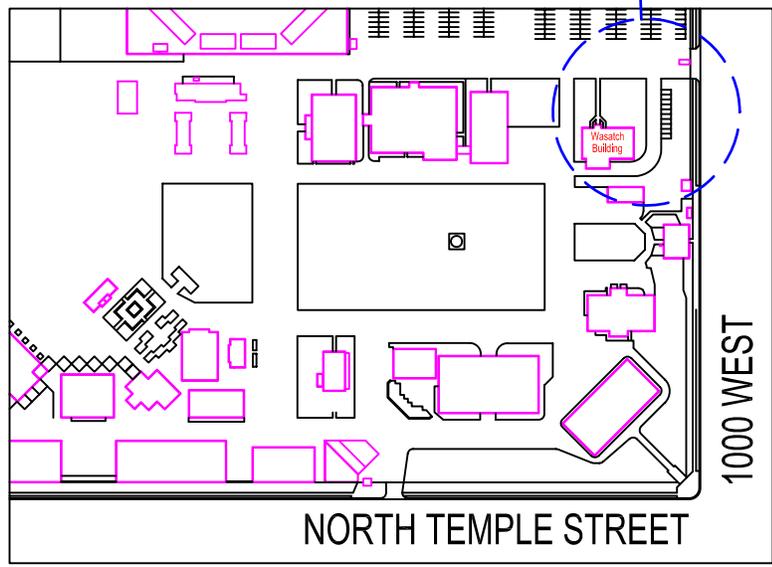
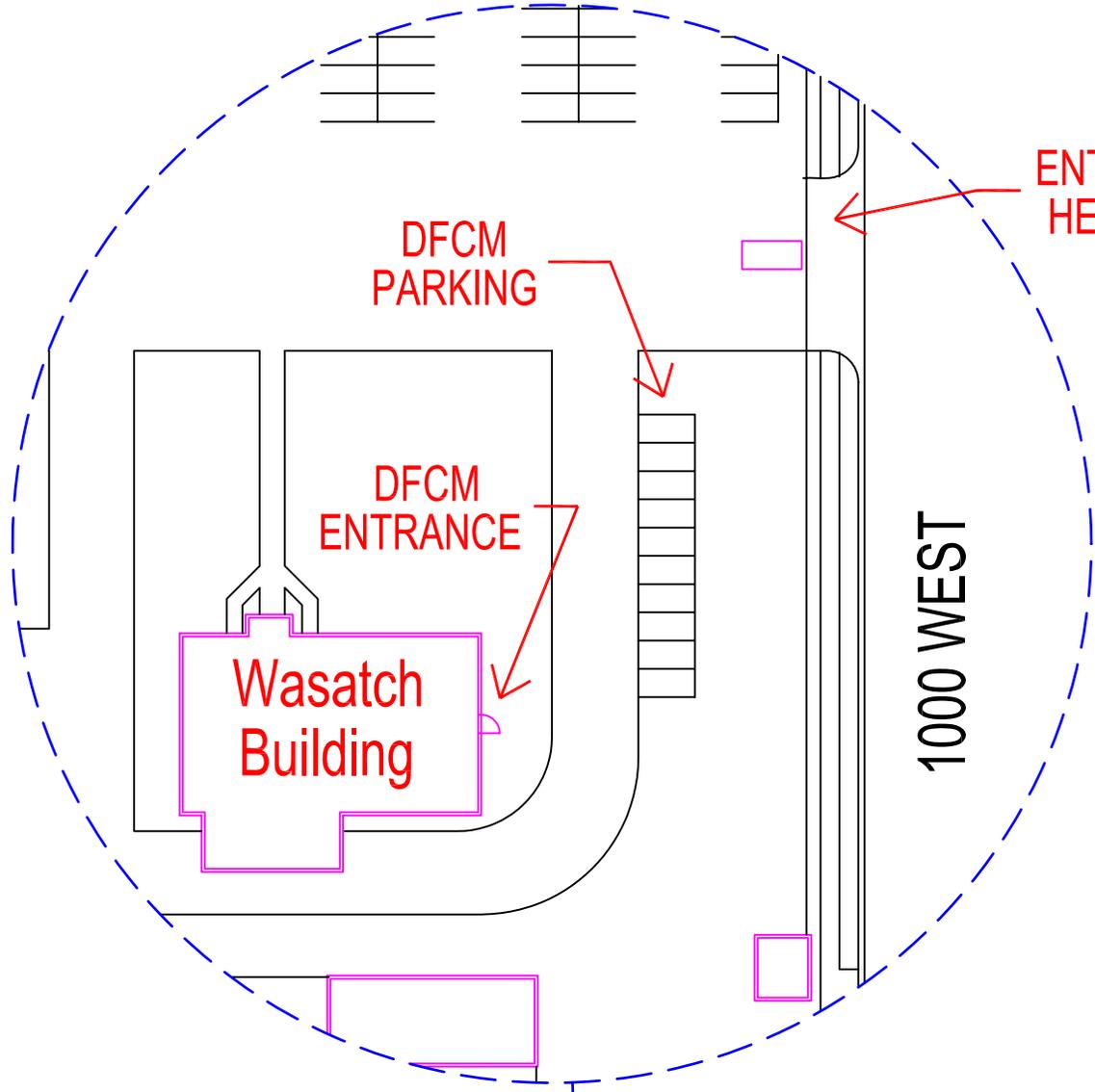
The Contractor shall complete or correct the Work on the list of (Punch List) items appended hereto within _____ calendar days from the above date of issuance of this Certificate. The amount withheld pending completion of the list of items noted and agreed to shall be: \$_____. If the list of items is not completed within the time allotted the Owner has the right to be compensated for the delays and/or complete the work with the help of independent contractor at the expense of the retained project funds. If the retained project funds are insufficient to cover the delay/completion damages, the Owner shall be promptly reimbursed for the balance of the funds needed to compensate the Owner.

by: _____
CONTRACTOR (include name of firm) (Signature) DATE

by: _____
A/E (include name of firm) (Signature) DATE

by: _____
USING INSTITUTION OR AGENCY (Signature) DATE

by: _____
DFCM (Owner) (Signature) DATE



UTAH STATE
FAIR PARK



DFCM Temporary Location

**OGDEN 2ND DISTRICT COURTS
SEWER AND GROUND WATER
EJECTION PUMPS REPLACEMENT
OGDEN, UTAH**

DFCM PROJECT #07208150



State of Utah—Department of Administrative Services

**DIVISION OF FACILITIES CONSTRUCTION
AND MANAGEMENT**

4110 State Office Building / Salt Lake City, Utah 84114 / 538-3018

SPECIFICATIONS

PREPARED BY

**WHW ENGINEERING INC.
1354 EAST 3300 SOUTH, SUITE 200
SALT LAKE CITY, UTAH 84106
PHONE: (801) 466-4021
FAX: (801) 466-8536**

June 2007

WHW Engineering Project # 07018

DIVISION 1 - GENERAL REQUIREMENTS

- 01100 SUMMARY
- 01140 WORK RESTRICTIONS
- 01200 DEFINITIONS AND STANDARDS
- 01230 ALTERNATES
- 01300 PROCEDURES AND CONTROLS
- 01330 SUBMITTAL PROCEDURES
- 01340 PROJECT MEETINGS
- 01732 SELECTIVE DEMOLITION
- 01770 CLOSEOUT PROCEDURES
- 01781 PROJECT RECORD DOCUMENT

DIVISION 15 - MECHANICAL SPECIFICATION

- 15010 GENERAL REQUIREMENTS
- 15050 BASIC MECHANICAL MATERIALS AND METHODS
- 15060 HANGERS AND SUPPORTS
- 15075 MECHANICAL IDENTIFICATION
- 15150 SANITARY WASTE AND VENT PIPING
- 15445 SEWAGE PUMPS
- 15446 SUMP PUMPS
- 15915 ELECTRIC AND ELECTRONIC CONTROL

**DIVISION 1
GENERAL REQUIREMENTS**

- 01100 SUMMARY
- 01140 WORK RESTRICTIONS
- 01200 DEFINITIONS AND STANDARDS
- 01230 ALTERNATES
- 01300 PROCEDURES AND CONTROLS
- 01330 SUBMITTAL PROCEDURES
- 01340 PROJECT MEETINGS
- 01732 SELECTIVE DEMOLITION
- 01770 CLOSEOUT PROCEDURES
- 01781 PROJECT RECORD DOCUMENT

SECTION 01100 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Work covered by the Contract Documents.
 - 2. Owner's occupancy requirements.
 - 3. Work restrictions.
 - 4. Specification formats and conventions.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

- A. Project Identification: Ogden 2nd District Courts Sewer and Ground Water Ejection Pumps Replacement.
 - 1. Project Location: Ogden, Utah.
- B. Owner: State of Utah.
 - 1. Owner's Representative: DFCM.
- C. Engineer: WHW Engineering 1354 East 3300 South #200 Salt Lake City, Utah 84106.
- D. The Work consists of the following:
 - 1. The removal and replacement of the two (2) existing sewage ejector pumps, starters, and controls.
 - 2. The removal and replacement of the single ground water vertical sump pump, starters, and controls.
 - 3. The removal and replacement of the two (2) existing ground water submersible sump pumps, starters, and controls.
 - 4. All items shown on the contract documents.
 - 5. Provide new control panels, starters, wiring, etc. for new pumps.

1.4 TYPE OF CONTRACT

- A. Project will be constructed under a low bid prime contract between DFCM and Contractor.

1.5 USE OF PREMISES

- A. General: Each Contractor shall have use of premises for construction operations as indicated in project documents.
- B. Use of Site: Limit use of premises to areas within the Contract limits indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated. The Contractor's use of premises is limited insofar as this is a courts building and security is present at all times.
 - 1. Owner Occupancy: Allow for Owner occupancy of Project site and use by the public.
 - 2. Driveways and Entrances: Keep driveways loading areas, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
 - a. Schedule deliveries to minimize use of driveways and entrances.
 - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
- C. Use of Existing Building: Maintain existing building in a weathertight condition throughout construction period. Repair damage caused by construction operations. Protect building and its occupants during construction period.

1.6 OWNER'S OCCUPANCY REQUIREMENTS

- A. Full Owner Occupancy: Owner will occupy site and existing building during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's day-to-day operations. Maintain existing entrances and exits, unless otherwise indicated.
 - 1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and authorities having jurisdiction.
 - 2. Provide not less than 72 hours' notice to Owner of activities that may affect Owner's operations and do not proceed without written permission from Owner.

1.7 WORK RESTRICTIONS

- A. On-Site Work Hours: Work shall be generally performed inside the existing building during normal business working hours of 8:00 a.m. to 5:00 p.m., Monday through Friday, except otherwise indicated, or agreed upon between owner and contractor.
- B. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
 - 1. Notify Owner not less than 72 hours in advance of proposed utility interruptions.
 - 2. Do not proceed with utility interruptions without Owner's written permission.
 - 3. If possible, schedule shut-downs for after hours and week ends.

1.8 SPECIFICATION FORMATS AND CONVENTIONS

- A. Specification Format: The Specifications are organized into Divisions and Sections using the 16-division format and CSI/CSC's "MasterFormat" numbering system.
 - 1. Section Identification: The Specifications use Section numbers and titles to help cross-referencing in the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete because all available Section numbers are not used. Consult the table of contents at the beginning of the Project Manual to determine numbers and names of Sections in the Contract Documents.
 - 2. Division 1: Sections in Division 1 govern the execution of the Work of all Sections in the Specifications.
- B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
 - 1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
 - 2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
 - a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

1.9 CONSTRUCTION DOCUMENTS

- A. The Working Drawings constitute the visual construction guide.
- B. Working Drawings and Specifications are complimentary to each other and what is called for by one is as binding as if called for and defined by both. In case of conflict between the two, the Specifications take precedence unless they are obviously in error. Any such conflict shall be brought to the Engineer's attention immediately. Figured dimensions take precedence over scale measurements.
- C. In no case are manufacturer's or supplier's shop drawings to nullify, take precedence of, or supplant the Working Drawings.

1.10 GUARANTEE/WARRANTY

- A. Notwithstanding other guarantees or warranties for specific components of the work, the entire work included in this contract shall be guaranteed for a period of one (1) year from the date of issuance of the Certificate of Substantial Completion against all defects in equipment, material, or workmanship.
- B. Furnish and pay for all labor, equipment, and material required to correct defects and deficiencies in the work without additional cost to the Owner and as approved by the Engineer.
- C. In addition to the general project warranty, specific project warranties are required. Requirements of the warranties are noted in the indicated Specification Sections.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01100

SECTION 01140 - WORK RESTRICTIONS

PART 1 - GENERAL

1.1 USE OF PREMISES

- A. Use of Site: Limit use of premises to work in areas indicated. Do not disturb portions of site beyond areas in which the Work is indicated.
1. Limits: Confine constructions operations to area of disturbance as indicated on drawings.
 2. Coordinate with the Owner for scheduling work and hours of noise sensitive operations and procedures.
 3. Develop detailed Construction Schedules outlining construction activities.
 4. Protect all adjacent areas from noise and construction dust and debris.
 5. Maintain employee and public access of the site at all times during normal business hours.
 6. Protect employees and the public from potentially dangerous or harmful construction activities at all times.
 7. After hours and weekend work may be required during the course of the project. Coordinate with the Owner's security personnel for access of the building and site during non-business hours. Provide security for construction personnel as required beyond the Owner's security forces and procedures.

PART 2 - PRODUCTS

(Not Used)

PART 3 - EXECUTION

(Not Used)

END OF SECTION 01140

SECTION 01200 - DEFINITIONS AND STANDARDS

PART 1-GENERAL

1.1 DEFINITIONS

- A. General: Except as specifically defined otherwise, the following definitions shall supplement definitions of the Contract, General Conditions, Supplementary Conditions and other general contract documents, and apply generally to the work.
- B. General Requirements: The provisions of Division-1 sections, General Requirements, apply to the entire work of the Contract.
- C. Indicated: Shown on drawing by notes, graphics or schedules, or written into other portions of contract documents. Terms such as "shown", "noted", "schedules", and "specified" have same meaning as "indicated", and are used to assist the reader in locating particular information.
- D. Directed, Requested, Approved, Accepted, etc.: These terms imply "by the Engineer", unless otherwise indicated.
- E. Approved by Engineer: In no case releases Contractor from responsibility to fulfill requirements of contract documents.
- F. Project Site: Space available to Contractor at location of project, either exclusively or to be shared with separate contractors, for performance of work.
- G. Furnish: Supply and deliver to project site, ready for unloading, unpacking, assembly, installation, and similar subsequent requirements.
- H. Install: Operations at project site, including unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning and similar requirements.
 - 1. Provide: Furnish and install, complete and ready for intended use.
- I. Installer: Entity (firm or person) engaged to install work, by Contractor, subcontractor or sub-sub contractor. Installers are required to be skilled in work they are engaged to install.
- J. Specification Text Format: Underscoring facilitates scan reading, no other meaning. Imperative language is directed at Contractor, unless otherwise noted.
- K. Overlapping/Conflicting Requirements: Most stringent (generally) requirement written directly into the contract documents is intended and will be enforced, unless specifically detailed language written into the contract documents clearly indicates that a less stringent requirement is acceptable. Refer uncertainties to the Engineer for a decision before proceeding.

1. Where optional requirements are specified in a parallel manner, option is intended to be Contractor's unless otherwise indicated.
- L. Minimum Requirements: Indicated requirements are for a specific minimum acceptable level of quality/quantity, as recognized in the industry. Actual work must comply (within specified tolerances), or may exceed minimums within reasonable limits. Refer uncertainties to Architect/Engineer before proceeding.
- M. Abbreviations, Plural Words: Abbreviations, where not defined in contract documents, will be interpreted to mean the normal construction industry terminology, determined by recognized grammatical rules, by the Engineer. Plural words will be interpreted as singular and singular words will be interpreted as plural where applicable for context of contract of documents.
- N. Testing laboratory: An independent entity engaged for the project to provide inspections, tests, interpretations, reports and similar services.

1.2 STANDARDS AND REGULATIONS

- A. Industry Standards: Applicable standards of construction industry have same force and effect on performance of the work as if copied directly into contract documents or bound and published therewith. Standards referenced in contract documents or in governing regulations have precedence over non-referenced standards, insofar as different standards may contain overlapping or conflicting requirements. Comply with standards in effect as of date of contract documents, unless otherwise indicated.
 1. Abbreviations: Where abbreviations or acronyms are used in contract documents, they mean the well recognized name of entity in building construction industry; refer uncertainties to Architect/Engineer before proceeding, or consult "Encyclopedia of Associations" by Gale Research Co.

PART 2-PRODUCTS

(Not Used)

PART 3-EXECUTION

(Not Used)

END OF SECTION 01200

SECTION 01230 - ALTERNATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for alternates.

1.3 DEFINITIONS

- A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the Bidding Requirements that may be added to the Base Bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
 - 1. The cost for each alternate is the net addition to the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

1.4 PROCEDURES

- A. Coordination: Modify or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
 - 1. Include as part of alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
- B. Execute accepted alternate under the same conditions as other work of the Contract.
- C. Schedule: A Schedule of the Alternate is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

- A. Alternate No. One (1): Provide two new submersible sump pumps and all associated items including: piping, tie-ins, electrical control panel, etc., as shown on drawings.

END OF SECTION 01230

SECTION 01300 - PROCEDURES AND CONTROLS

PART 1 - GENERAL

1.1 ADMINISTRATION AND SUPERVISION

- A. Coordination: Coordinate various elements of the work and entities engaged to perform work; and coordinate the work with existing facilities/conditions, and with work by separate contractors and by Owner.

1.2 INSTALLATION, GENERAL

- A. Comply with manufacturer's instructions and recommendations to extent printed information is more detailed or stringent than requirements contained directly in contract documents.
- B. Timing: Install work during time and under conditions which will ensure best possible results, coordinated with required inspection and testing. Timing is of the up most importance.

1.3 CLEANING AND PROTECTION

- A. General: Clean each element of work at time of installation. Provide sufficient maintenance and protection during construction to ensure freedom from damage and deterioration at time of substantial completion.

PART 2 - PRODUCTS

(Not Used)

PART 3 - EXECUTION

(Not Used)

END OF SECTION 01300

SECTION 01330 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
- B. Related Sections include the following:
 - 1. Divisions 01 through 16 Sections for specific requirements for submittals in those Sections.

1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information that requires Engineer's responsive action.

1.4 SUBMITTAL PROCEDURES

- A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 - 2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. Engineer reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- B. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Engineer's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. Initial Review: Allow 5 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Engineer will advise Contractor when a submittal being processed must be delayed for coordination.
 2. Resubmittal Review: Allow 5 days for review of each resubmittal.
- C. Identification: Place a permanent label or title block on each submittal for identification.
1. Indicate name of firm or entity that prepared each submittal on label or title block.
 2. Provide a space approximately on label or beside title block to record Contractor's review and approval markings and action taken by Engineer.
 3. Include the following information on label for processing and recording action taken:
 - a. Project name.
 - b. Date.
 - c. Name and address of Engineer.
 - d. Name and address of Contractor.
 - e. Name and address of subcontractor.
 - f. Name and address of supplier.
 - g. Name of manufacturer.
 - h. Submittal number or other unique identifier, including revision identifier.
 - 1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 15515.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 15515.01A).
 - i. Number and title of appropriate Specification Section.
 - j. Drawing number and detail references, as appropriate.
 - k. Location(s) where product is to be installed, as appropriate.
 - l. Other necessary identification.
- D. Deviations: Highlight or encircle, or otherwise specifically identify deviations from the Contract Documents on submittals.
- E. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form.
- F. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
1. Note date and content of previous submittal.
 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
 3. Resubmit submittals until they are approved.
- G. Distribution: Furnish five (5) copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

- A. General: Prepare and submit Action Submittals required by individual Specification Sections.
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
 - 1. Mark each copy of each submittal to show which products and options are applicable.
 - 2. Include the following information, as applicable:
 - a. Manufacturer's written recommendations.
 - b. Manufacturer's product specifications.
 - c. Manufacturer's installation instructions.
 - d. Manufacturer's catalog cuts.
 - e. Wiring diagrams showing factory-installed wiring.
 - f. Printed performance curves.
 - g. Operational range diagrams.
 - h. Compliance with specified referenced standards.
 - i. Testing by recognized testing agency.
 - j. Application of testing agency labels and seals.
 - k. Notation of coordination requirements.
 - 3. Number of Copies: Submit five copies of Product Data, unless otherwise indicated. Engineer will return four copies. Mark up and retain one returned copy as a Project Record Document.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

- A. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Engineer.
- B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ENGINEER'S ACTION

- A. General: Engineer will not review submittals that do not bear Contractor's approval stamp and will return them without action.
- B. Action Submittals: Engineer will review each submittal, make marks to indicate corrections or modifications required, and return it. Engineer will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken.
- C. Partial submittals are not acceptable, will be considered nonresponsive, and will be returned without review.
- D. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

END OF SECTION 01330

SECTION 01340 - PROJECT MEETINGS

PART 1-GENERAL

1.1 PRECONSTRUCTION CONFERENCE:

- A. DFCM will schedule and conduct preconstruction conference and organizational meeting at Project site or other convenient location. Engineer will conduct on site construction meetings to review responsibilities and personnel assignments.
- B. Attendees - Owner, Engineer, Contractor and his superintendent, major Subcontractors and other concerned parties shall each be represented at conference by persons familiar with and authorized to conclude matters relating to the Work.
- C. Agenda - Discuss items of significance that could affect progress including such topics as
 - 1. Tentative construction schedule.
 - 2. Critical Work sequencing.
 - 3. Designation of responsible personnel.
 - 4. Procedures for processing interpretations and Modifications.
 - 5. Procedures for processing Payment Requests.
 - 6. Distribution of Contract Documents.
 - 7. Submittal of Product Data, Shop Drawings, Samples, Quality Assurance/Control submittals.
 - 8. Preparation of record documents and O & M manual.
 - 9. Use of the premises.
 - 10. Office, work, and storage areas.
 - 11. Equipment deliveries and priorities.
 - 12. Safety procedures.
 - 13. First aid.
 - 14. Security.
 - 15. Housekeeping.
 - 16. Working hours.
 - 17. Resolving current problems.
 - 18. Further orientation as to requirements of Contract Documents.
 - 19. Engineer's responsibility to Owner for site observation.
 - 20. Working out general schedule of Engineer's site observation.
- D. Engineer will record significant discussions and agreements and disagreements of each meeting and distribute minutes of meeting to everyone concerned, including Owner, within seven working days.

1.2 PROGRESS MEETINGS:

- A. Engineer will conduct progress meetings at Project site at scheduled intervals.

- B. Owner, Engineer, Contractor, and each Subcontractor concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings by persons familiar with Project and authorized to conclude matters relating to progress.

- C. Agenda -
 - 1. Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - 2. Progress since last meeting will be reviewed. Where each activity is in relation to Contractor's Construction Schedule, whether on time or ahead or behind schedule, will be determined. How construction behind schedule is to be expedited will be decided and commitments secured from parties involved to do so. Schedule revisions required to ensure that current and subsequent activities will be completed within Contract Time will be discussed.
 - 3. Present and future needs of each entity present will be discussed, including such items as -
 - a) Interface requirements.
 - b) Time.
 - c) Deliveries.
 - d) Site use.
 - e) Hours of work.
 - f) Hazards and risks.
 - g) Housekeeping.
 - h) Quality and Work standards.
 - i) Modifications.
 - j) Documentation of information for Payment Requests.

- D. Engineer will include brief summary, in narrative form, of progress since previous meeting. By seven days after each progress meeting date, Engineer will distribute copies of minutes of meeting to each party present and to parties who should have been present, including Owner.

- E. Revise Contractor's Construction Schedule after each progress meeting where revisions to schedule have been made or recognized. Issue revised schedule by three days after each progress meeting date, to each party present and to parties who should have been present, including Owner.

PART 2-PRODUCTS

(Not Used)

PART 3-EXECUTION

(Not Used)

END OF SECTION 01330

SECTION 01732 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Demolition and removal of two (2) sewage ejector pumps, valves, starters, disconnects, and selective piping. See demolition drawings.
 - 2. Demolition and removal of one (1) ground water vertical sump pump, valves, starter, disconnect, and select piping. See demolition drawings.
 - 3. Demolition and removal of two (2) ground water submersible sump pumps, starters, disconnects, and select piping. See demolition drawings.
- B. Related Sections include the following:
 - 1. Division 1 Section "Summary" for use of premises and Owner-occupancy requirements.

1.3 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site.
- B. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.4 QUALITY ASSURANCE

- A. Demolition Firm Qualifications: An experienced firm that has specialized in demolition work similar in material and extent to that indicated for this Project.
- B. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- C. Standards: Comply with ANSI A10.6 and NFPA 241.

1.5 PROJECT CONDITIONS

- A. Owner will occupy building during demolition. Conduct selective demolition so Owner's operations will not be disrupted.
 - 1. Comply with requirements specified in Division 1 Section "Summary."
- B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
- C. Notify Engineer of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
 - 1. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Engineer and Owner. Owner will remove hazardous materials under a separate contract.
- E. Storage or sale of removed items or materials on-site is not permitted.
- F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
 - 1. Maintain fire-protection facilities in service during selective demolition operations.

1.6 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems: Maintain services/systems indicated to remain and protect them against damage during selective demolition operations.
 - 1. Comply with requirements for existing services/systems interruptions specified in Division 1 Section "Summary."
- B. Service/System Requirements: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.

3.3 PREPARATION

- A. Site Access and Temporary Controls: Conduct selective demolition operations to ensure minimum interference with walkways and other adjacent occupied and used facilities.
 - 1. Comply with requirements for access and protection specified in Division 1 Section "Temporary Facilities and Controls."
- B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
 - 1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.

3.4 SELECTIVE DEMOLITION, GENERAL

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
 - 1. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 - 2. Do not use cutting torches until work area is cleared of flammable materials. Maintain portable fire-suppression devices during flame-cutting operations.
 - 3. Maintain adequate ventilation when using cutting torches.
 - 4. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
 - 5. Dispose of demolished items and materials promptly.
- B. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition.

3.5 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.
 - 1. Do not allow demolished materials to accumulate on-site.
 - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- B. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

3.6 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 01732

SECTION 01770 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Inspection procedures.
 - 2. Warranties.
 - 3. Final cleaning.
- B. Related Sections include the following:
 - 1. Division 1 Section "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
 - 2. Divisions 1 through 15 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

1.3 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
 - 1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
 - 2. Advise Owner of pending insurance changeover requirements.
 - 3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 - 4. Prepare and submit Project Record Documents, operation and maintenance manuals, and similar final record information.
 - 5. Complete startup testing of systems.
 - 6. Submit test/adjust/balance records.
 - 7. Terminate and remove temporary facilities from Project site, along with construction tools and similar elements.
 - 8. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.

9. Complete final cleaning requirements, including touchup painting.
10. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Engineer will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Engineer, that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for Final Completion.

1.4 FINAL COMPLETION

A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:

1. Submit a final Application for Payment according to General Conditions.
2. Submit certified copy of Engineer's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Engineer. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.

B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Engineer will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.5 WARRANTIES

A. Submittal Time: Submit written warranties on request of Engineer for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.

B. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual. Bind in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 FINAL CLEANING

- A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
 - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project: This is for areas only disturbed by this contractor.
 - a. Clean Project site, yard, and grounds, in areas used by construction activities, including areas of rubbish, waste material, litter, and other foreign substances.
 - b. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - d. Clean exposed exterior and interior hard-surfaced finishes damaged or marked during construction.
 - e. Vacuum carpet and similar soft surfaces in areas used by contractors. Shampoo if visible soil or stains remain.
 - f. Remove labels that are not permanent from equipment, piping, etc.
 - g. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
 - 1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
 - h. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint, etc. and other foreign substances.
 - i. Leave Project clean.

- C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION 01770

SECTION 01781 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for Project Record Documents, including the following:
 - 1. Record Drawings.
- B. Related Sections include the following:
 - 1. Division 1 Section "Closeout Procedures" for general closeout procedures.
 - 2. Divisions 1 through 15 Sections for specific requirements for Project Record Documents of the Work in those Sections.

1.3 SUBMITTALS

- A. Record Drawings: Comply with the following:
 - 1. Number of Copies: Submit one set of marked-up Record Prints.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

- A. Record Prints: Maintain one set of black-line white prints of the Contract Drawings and Shop Drawings.
 - 1. Preparation: Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.
 - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.

- b. Accurately record information in an understandable drawing technique.
 - c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
2. Content: Types of items requiring marking include, but are not limited to, the following:
 - a. Dimensional changes to Drawings.
 - b. Revisions to details shown on Drawings.
 - c. Revisions to routing of piping.
 - d. Actual equipment locations.
 - e. Changes made by Change Order or Change Directive.
 - f. Changes made following Engineer's written orders.
 - g. Details not on the original Contract Drawings.
 - h. Field records for variable and concealed conditions.
 - i. Record information on the Work that is shown only schematically.
3. Mark the Contract Drawings completely and accurately.
4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
5. Mark important additional information that was either shown schematically or omitted from original Drawings.
6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

- A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of Project.

END OF SECTION 01781

DIVISION 15
MECHANICAL SPECIFICATION

- 15010 GENERAL REQUIREMENTS
- 15050 BASIC MECHANICAL MATERIALS AND METHODS
- 15060 HANGERS AND SUPPORTS
- 15075 MECHANICAL IDENTIFICATION
- 15150 SANITARY WASTE AND VENT PIPING
- 15445 SEWAGE PUMPS
- 15446 SUMP PUMPS
- 15915 ELECTRIC AND ELECTRONIC CONTROL

SECTION 15010 - GENERAL REQUIREMENTS

PART 1 - GENERAL

1.1 GENERAL:

- A. General Conditions and Division 01 apply to this Division.

1.2 SCOPE:

- A. Includes -
 1. Furnish all labor, materials, and equipment necessary for completion of the plumbing work for the replacement of the sewage ejector pumps, sump pumps, and sewer and ground water piping. Scope also includes the pump control and electrical requirements for the Ogden 2nd District Courts building located in Ogden, Utah.
 2. Sewer and ground water piping where shown in the manholes shall be removed and replaced. Vent piping shall remain.
 3. Furnish and install all motors specified in this Division and be responsible for the proper operation of electrical powered equipment furnished by this Division.
 4. Placing the pumps into full operation and continuing their operation during testing.
 5. The satisfactory performance of the completed systems is a requirement of this specification.
 6. This contractor shall contract with a design-building electrical contractor for the electrical portion of this project.

1.3 SITE INSPECTION:

- A. The Contractor shall examine the site and understand the conditions which may affect the performance of work of this Division before submitting proposals for this work.
- B. No subsequent allowance for time or money will be considered for any consequence related to failure to examine existing site conditions.

1.4 DRAWINGS:

- A. Mechanical drawings show general arrangement of pumps, piping, electrical, controls, etc; however, locations are to be regarded as shown diagrammatically only. Follow as closely as field conditions dictate.
- B. Because of the small scale of drawings, it is not possible to indicate all offsets, fittings, and accessories which may be required. Investigate existing structural and finished conditions affecting this work and arrange work accordingly, providing such fittings and accessories required to meet conditions.

- C. If changes in location of piping, etc. are required due to lack of coordination of work under this division, such changes shall be made without charge. Contractor shall review drawings with state agencies having jurisdiction and any changes required by them shall be brought to the attention of the Engineer prior to bidding or commencement of work.

1.5 CODE REQUIREMENTS, FEES, AND PERMITS:

- A. The work shall be installed in accordance with the following applicable codes, ordinances and standards unless otherwise specified. The codes and standards shall include but not be limited to and be of the latest and current editions.
 - 1. American National Standards Institute (ANSI)
 - 2. American Society of Mechanical Engineers (ASME)
 - 3. American Society of Testing Materials (ASTM)
 - 4. American Standards Association (ASA)
 - 5. National Electrical Code (NEC)
 - 6. National Fire Protection Association (NFPA)
 - 7. Underwriters Laboratories (UL)
 - 8. International Building Code (IBC) 2006 ed
 - 9. International Mechanical Code (IMC) 2006 ed
 - 10. International Plumbing Code (IPC) with Utah Amendments 2006 ed
 - 11. Utah State Safety Orders (OSHA/UOSH)
 - 12. Utah Air Conservation Regulations/Waste Disposal regulations.
- B. Should drawings conflict with any code, the code shall govern. If drawings and specifications establish a quality exceeding the code, the drawings and specifications shall govern. If conflicts do exist among the drawings, specifications and codes, the same shall be brought to the attention of the Engineer in writing prior to bidding, otherwise Contractor shall comply with applicable codes.
- C. The latest edition of all codes shall be used.

1.6 OPERATION AND MAINTENANCE MANUAL FOR MECHANICAL SYSTEMS:

- A. Upon completion of work and before final payment, Contractor shall furnish and deliver to the Owner, through the Engineer, three (3) sets of installation, operating and maintenance manuals and instructions for the new pumps installed in the building.
- B. Bind Operation and Maintenance Manual for Mechanical Systems in a hard-backed piano hinge loose-leaf binder with strong sturdy cover. The following lettering shall be stamped on front and spine of each binder:

OPERATION
AND
MAINTENANCE
MANUAL
for Sewer and Ground Water
Ejection Pumps Replacement
Ogden 2nd District Courts
Ogden, Utah
WHW Engineering Inc.

- C. The first section is to contain the following information.
1. First page shall be a table of contents including name of project, date awarded and date of substantial completion.
 2. Second page shall contain the names, phone numbers and addresses of Engineers, and Associates.
 3. Third page shall contain a list of names, addresses and phone numbers of contractors and all sub-contractors and work to which each was assigned.
 4. Final page or pages shall contain an equipment list. The list shall contain each item of equipment or material for which a submittal was required giving ID or tag no as contained on the drawings make and model No. Serial No. Identification No. Location in building, function and name address and phone number of supplier.
- D. The second section shall contain a comprehensive lubrication list and maintenance schedule for the new pumps. If bearings are sealed equipment shall still be included and a statement to indicate no lubrication or maintenance required.
- E. The final section shall be one for starters, disconnects, high water level alarm and alternator. Each section shall include:
1. Equipment descriptions
 2. Detailed installation instruction, operating and maintenance instructions. Provided more than just product operations and maintenance instructions provided with unit where required. Instructions should be written in a step by step manner identifying start-up, operating, shutdown and emergency action sequence sufficiently clear so a person unfamiliar with the equipment could perform its operations.
 3. Equipment drawings, performance curves, operating characteristics, etc.
 4. Name addresses and phone number of manufacturer, fabricator and local vender clearly printed or stamped on cover.
 5. Complete parts listing which include catalog number, serial number, contract number or other accurate provision for ordering replacement and spare parts.
 6. General product and approved submittal sheets.
- F. Equipment to be covered:

1. Sewage Ejector Pumps
2. Vertical Sump Pump
3. Submersible Sump Pump
4. Pump Control Panels with Starters and Disconnects
5. High and Low Water Controls
6. Alarms for High and Low Water Levels

1.7 OPERATION AND MAINTENANCE INSTRUCTIONS:

- A. Contractor shall instruct building maintenance personnel in the operation and maintenance of the installed sewage ejector pumps and sump pumps utilizing the Operation and Maintenance Manual when so doing.
- B. Minimum instruction period shall be one hour.
- C. Instruction periods shall occur before final inspection when systems are properly working and before final payment is made.

1.8 RECORD DRAWINGS:

- A. Contractor shall keep an up-to-date set of plumbing drawings in his custody showing all changes in red, clearly defined and neatly drafted by him. At the end of construction, he shall turn these drawings over to the Engineer. Record drawings must be completed and submitted prior to final inspection and final payment. Record drawings shall be carefully red lined since there are no other drawings of this building.
- B. Since these drawings are the only record drawings of this building, the red lines shall be accurate with dimensions from known walls to the replaced sewer and waste piping shown when turned over to the engineer.

PART 2 - PRODUCTS

(Not Used)

PART 3 - EXECUTION

(Not Used)

END OF SECTION 15010

SECTION 15050 - BASIC MECHANICAL MATERIALS AND METHODS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 1. Piping materials and installation instructions common to most piping systems.
 2. Transition fittings.
 3. Demolition.
 4. Equipment installation requirements common to equipment sections.
 5. Painting and finishing.

1.3 DEFINITIONS

- A. Exposed, Interior Installations: Exposed to view indoors. Examples include finished occupied spaces and submersible pump sally port room.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver pipes and tubes with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe end damage and to prevent entrance of dirt, debris, and moisture.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where subparagraph titles below introduce lists, the following requirements apply for product selection:
 1. Manufacturers: Subject to compliance with requirements, provide products by the manufacturers specified.

2.2 PIPE, TUBE, AND FITTINGS

- A. Refer to individual Division 15 piping Sections for pipe and fitting materials and joining methods.

- B. Pipe Threads: ASME B1.20.1 for factory-threaded pipe and pipe fittings.

2.3 JOINING MATERIALS

- A. Refer to individual Division 15 piping Sections for special joining materials not listed below.
- B. Pipe-Flange Gasket Materials: Suitable for chemical and thermal conditions of piping system contents. Flanged connections shall be located at connections to the outlets of both pumps.
 - 1. ASME B16.21, nonmetallic, flat, asbestos-free, 1/8-inch (3.2-mm) maximum thickness unless thickness or specific material is indicated.
 - a. Full-Face Type: For flat-face, Class 125, cast-iron and cast-bronze flanges.
- C. Flange Bolts and Nuts: ASME B18.2.1, carbon steel, unless otherwise indicated.

PART 3 - EXECUTION

3.1 MECHANICAL DEMOLITION

- A. Disconnect, demolish, and remove existing sewage ejector pumps, vertical sump pump and interior submersible sump pumps and components, sewer, and ground water piping to the extent shown on the drawings.
 - 1. Piping to Be Removed: Remove portion of sewer and ground water piping in manholes as shown on the drawings
- B. If any piping, electrical or equipment to remain is damaged in appearance or is unserviceable due to demolition or installation by this contractor, he shall remove damaged or unserviceable piping, electrical and equipment and replace with new products of equal capacity and quality at contractor's expense.
- C. Contractor, for his own protection, should document any existing condition that was not caused by his installation. This should be by photographs and discussed during project meetings.

3.2 PIPING SYSTEMS - COMMON REQUIREMENTS

- A. Install new ground water and sewer piping according to the following requirements and Division 15 Sections specifying piping systems.
- B. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems. Drawings do not show every offset, or bend that may be required.

- C. Install piping at right angles or parallel to walls. Diagonal runs are prohibited unless specifically indicated otherwise, or the contractor is following the path of the existing removed piping.
- D. Install piping free of sags and bends and at the proper slope according to the IPC and existing conditions.
- E. Install fittings for changes in direction and branch connections. See Section 15150.

3.3 PIPING JOINT CONSTRUCTION

- A. Join pipe and fittings according to the following requirements and Division 15 Sections specifying piping systems.
- B. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.
- C. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:
 - 1. Apply appropriate tape or thread compound to external pipe threads unless dry seal threading is specified.
 - 2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.
- D. Flanged Joints: Only applies to connection at pump outlets, check valves, and butterfly valves if used in lieu of ball valves. Select appropriate gasket material, size, type, and thickness for service application. Install gasket concentrically positioned. Use suitable lubricants on bolt threads.

3.4 PIPING CONNECTIONS

- A. Make connections according to the following, unless otherwise indicated:
 - 1. Install unions, in piping NPS 2 and smaller.
 - 2. Install flanges, in piping NPS 2-1/2 and larger.

3.5 EQUIPMENT INSTALLATION - COMMON REQUIREMENTS

- A. Install new sewage ejector pumps and sump pump, controls, etc. level and plumb, parallel and perpendicular to other building systems and components in exposed interior spaces, unless otherwise indicated.
- B. Install sewage and sump pumps, controls, electric, etc. to facilitate service, maintenance, and repair or replacement of components.

- C. New sewage ejector pumps and the one vertical sump pump shall fit in the existing openings created by the removal of the existing pumps. Seal air and water tight.

3.6 PAINTING

- A. Damage and Touchup: Repair marred and damaged factory-painted finishes with materials and procedures to match original factory finish.

END OF SECTION 15050

SECTION 15060 - HANGERS AND SUPPORTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes supports for the new and existing sewer and ground water piping within the manholes to keep the weight off the pumps.
 - 1. Steel pipe hangers and supports.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

2.2 STEEL PIPE HANGERS AND SUPPORTS

- A. Description: MSS SP-58, Types 1 through 58, factory-fabricated components. Refer to Part 3 "Hanger and Support Applications" Article for where to use specific hanger and support types.
- B. Manufacturers:
 - 1. B-Line Systems, Inc.; a division of Cooper Industries.
 - 2. Grinnell Corp.
 - 3. Bergen-Power Pipe Supports.
 - 4. Carpenter & Paterson, Inc.
 - 5. Piping Technology & Products, Inc.
 - 6. AAA Technology & Specialties Co., Inc.
 - 7. Prior approved equal.
- C. Galvanized, Metallic Coatings: Pregalvanized or hot dipped.

PART 3 - EXECUTION

3.1 HANGER AND SUPPORT APPLICATIONS

- A. Specific hanger and support requirements are specified in Sections specifying piping systems and equipment.
- B. Comply with MSS SP-69 for pipe hanger selections and applications that are not specified in piping system Sections.
- C. Use hangers and supports with galvanized, metallic coatings.
- D. Horizontal-Piping Hangers and Supports: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
 - 1. Adjustable, Steel Clevis Hangers (MSS Type 1): For suspension of noninsulated stationary pipes.
 - 2. U-Bolts (MSS Type 24): For support of heavy pipes.
- E. Vertical-Piping Clamps: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
 - 1. Extension Pipe or Riser Clamps (MSS Type 8): For support of pipe risers.
 - 2. Carbon- or Alloy-Steel Riser Clamps (MSS Type 42): For support of pipe risers.
- F. Hanger-Rod Attachments: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
 - 1. Steel Clevises (MSS Type 14).

3.2 HANGER AND SUPPORT INSTALLATION

- A. Steel Pipe Hanger Installation: Comply with MSS SP-69 and MSS SP-89. Install hangers, supports, clamps, and attachments as required to properly support piping from manhole.
- B. Load Distribution: Install hangers and supports so piping live and dead loads and stresses from movement will not be transmitted to connected equipment.

END OF SECTION 15060

SECTION 15075 - MECHANICAL IDENTIFICATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following mechanical identification materials and their installation for the sewer ejector pumps, vertical and submersible sump pumps:
 - 1. Equipment nameplates (From factory).
 - 2. Equipment markers.

PART 2 - PRODUCTS

2.1 EQUIPMENT IDENTIFICATION DEVICES

- A. Equipment Markers: Engraved, color-coded laminated plastic. Include contact-type, permanent adhesive.
 - 1. Terminology: Match schedules as closely as possible.
 - 2. Data:
 - a. Name and plan number: SP-1 and SP-1A.
 - b. Equipment service: Sewage ejector.
 - c. Design capacity: GPM and HD.
 - 3. Size: 4-1/2 by 6 inches for all pumps.

PART 3 - EXECUTION

3.1 APPLICATIONS, GENERAL

- A. Products specified are for applications referenced in other Division 15 Sections. If more than single-type material, device, or label is specified for listed applications, selection is Installer's option.

3.2 EQUIPMENT IDENTIFICATION

- A. Install and permanently fasten equipment nameplates on each pump. Locate nameplates where accessible and visible. For submersible pump install with chain around piping above the basin.
- B. Install equipment markers with screws on each new pump except submersible pumps.
 - 1. Letter Size: Minimum 1/4 inch for name of units if viewing distance is less than 24 inches, 1/2 inch for viewing distances up to 72 inches, and proportionately larger lettering for greater viewing distances. Include secondary lettering two-thirds to three-fourths the size of principal lettering.
 - 2. The name tag provided and installed at the Manufacturer's plant is separate from the plastic tag noted in this section. The tag from the Manufacturer shall be stamped information.
- C. Locate markers where accessible and visible.

3.3 CLEANING

- A. Clean faces of mechanical identification devices.

END OF SECTION 15075

SECTION 15150 - SANITARY WASTE AND GROUND WATER PIPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following for soil and ground water piping inside the manholes and basins:
 - 1. Pipe, tube, and fittings.
 - 2. Special pipe fittings.
- B. Related Sections include the following:
 - 1. Division 15 Section "Sewage Pumps."
 - 2. Division 15 Section "Sump Pumps."

1.3 PERFORMANCE REQUIREMENTS

- A. Components and installation shall be capable of withstanding the following minimum working pressure, unless otherwise indicated:
 - 1. Soil and Ground Water Piping: 50-foot head of water.

1.4 QUALITY ASSURANCE

- A. Piping materials shall bear label, stamp, or other markings of specified testing agency.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

2.2 PIPING MATERIALS

- A. Refer to Part 3 "Piping Applications" Article for applications of pipe, tube, fitting, and joining materials.

2.3 HUB-AND-SPIGOT, CAST-IRON SOIL PIPE AND FITTINGS

- A. Pipe and Fittings: ASTM A 74, Extra-Heavy class.
- B. Gaskets: ASTM C 564, rubber.

2.4 STEEL PIPE AND FITTINGS

- A. Steel Pipe: ASTM A 53/A 53M, Type E or S, Grade A or B, Standard Weight or Schedule 40, galvanized. Include ends matching joining method.
- B. Drainage Fittings: ASME B16.12, galvanized, threaded, cast-iron drainage pattern.
- C. Pressure Fittings:
 - 1. Steel Pipe Nipples: ASTM A 733, made of ASTM A 53/A 53M or ASTM A 106, Schedule 40, galvanized, seamless steel pipe. Include ends matching joining method.
 - 2. Malleable-Iron Unions: ASME B16.39; Class 150; hexagonal-stock body with ball-and-socket, metal-to-metal, bronze seating surface; and female threaded ends.
 - 3. Cast-Iron Flanges: ASME B16.1, Class 125.
 - 4. Cast-Iron, Flanged Fittings: ASME B16.1, Class 125.

2.5 SPECIAL PIPE FITTINGS

- A. Pressure Pipe Couplings: AWWA C219 metal, sleeve-type same size as, with pressure rating at least equal to, and ends compatible with, pipes to be joined.
 - 1. Manufacturers:
 - a. Dresser, Inc.; DMD Div.
 - b. Viking Johnson.
 - c. JCM Industries, Inc.
 - d. Cascade Waterworks Mfg. Co.
 - e. Prior approved equal.
 - 2. Center-Sleeve Material: Carbon steel.
 - 3. Gasket Material: Natural or synthetic rubber.
 - 4. Metal Component Finish: Corrosion-resistant coating or material.

PART 3 - EXECUTION

3.1 PIPING APPLICATIONS

- A. Flanges and unions may be used on aboveground pressure piping, unless otherwise indicated.
- B. Aboveground, soil and ground water piping NPS 4 and smaller shall be any of the following:
 - 1. Service class, cast-iron soil pipe and fittings; gaskets; and gasketed joints.
 - 2. Steel pipe, galvanized drainage fittings, and threaded joints.

3.2 PIPING INSTALLATION

- A. Basic piping installation requirements are specified in Division 15 Section "Basic Mechanical Materials and Methods."
- B. Install cast-iron soil piping according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook," Chapter IV, "Installation of Cast Iron Soil Pipe and Fittings."
- C. Make changes in direction for soil and ground water piping using appropriate branches, bends, and long-sweep bends. Sanitary tees and short-sweep 1/4 bends may be used on vertical stacks if change in direction of flow is from horizontal to vertical.
- D. Do not enclose, cover, or put piping into operation until it is inspected and approved by authorities having jurisdiction.

3.3 JOINT CONSTRUCTION

- A. Basic piping joint construction requirements are specified in Division 15 Section "Basic Mechanical Materials and Methods."
- B. Join hub-and-spigot, cast-iron soil piping with gasket joints according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook" for compression joints.

3.4 VALVE INSTALLATION

- A. See drawings for valve requirements and locations.
- B. Shutoff Valves: Install shutoff valve on each sewage pump and sump pump discharge.
 - 1. Install full-port ball valve for piping NPS 2 and smaller.
 - 2. Install gate valve for piping NPS 2-1/2 and larger.

- C. Check Valves: Install swing check valve, between pump and shutoff valve, on each sewage and sump pump discharge.

3.5 HANGER AND SUPPORT INSTALLATION

- A. Pipe hangers and supports are specified in Division 15 Section "Hangers and Supports." Install the following:
 - 1. Vertical Piping: MSS Type 8 or Type 42, clamps.
 - 2. Install individual, straight, horizontal piping runs according to the following:
 - a. 100 Feet and Less: MSS Type 1, adjustable, steel clevis hangers.
- B. Install supports according to Division 15 Section "Hangers and Supports."
- C. Support vertical piping and tubing at base and top.
- D. Install hangers for cast-iron soil piping with the following maximum horizontal spacing and minimum rod diameters:
 - 1. NPS 4: Where shown with 5/8-inch rod.
- E. Install hangers for steel piping with the following maximum horizontal spacing and minimum rod diameters:
 - 1. NPS 2: 10 feet with 3/8-inch rod.
 - 2. NPS 3: Where shown with 1/2-inch rod.
 - 3. NPS 4: Where shown with 5/8-inch rod.

3.6 CONNECTIONS

- A. Drawings indicate general arrangement of piping, fittings, and specialties.
- B. Connect new soil and ground water piping to existing in manholes as shown on the drawings. Use transition fitting to join dissimilar piping materials.

3.7 FIELD QUALITY CONTROL

- A. During installation, notify authorities having jurisdiction at least 24 hours before inspection must be made. Perform tests specified below in presence of authorities having jurisdiction.
 - 1. Roughing-in Inspection: Arrange for inspection of piping before testing.
 - 2. Final Inspection: Arrange for final inspection by authorities having jurisdiction to observe tests specified below and to ensure compliance with requirements.

- B. Reinspection: If authorities having jurisdiction find that piping will not pass test or inspection, make required corrections and arrange for reinspection.
- C. Reports: Prepare inspection reports and have them signed by authorities having jurisdiction.
- D. Test sanitary and ground water piping according to procedures of authorities having jurisdiction or, in absence of published procedures, as follows:
 - 1. Test for leaks and defects in new piping and parts of existing piping that have been altered, extended, or repaired. If testing is performed in segments, submit separate report for each test, complete with diagram of portion of piping tested.
 - 2. Roughing-in Plumbing Test Procedure: Test sewer and ground water piping for 50 ft. hd. from 15 minutes before inspection starts to completion of inspection, inspect joints for leaks.
 - 3. Repair leaks and defects with new materials and retest piping, or portion thereof, until satisfactory results are obtained.
 - 4. Prepare reports for tests and required corrective action.

3.8 CLEANING

- A. Clean interior of piping. Remove dirt and debris as work progresses.
- B. Place plugs in ends of uncompleted piping at end of day and when work stops.

END OF SECTION 15150

SECTION 15445 - SEWAGE PUMPS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following sewage pumps and accessories for sanitary drainage piping systems in buildings:
 - 1. Wet-pit-mounted, vertical sewage pumps.
 - 2. Sewage pump reverse-flow assemblies.
 - 3. Sewage pump basins.
- B. Related Sections include the following:
 - 1. Division 15 Section "Sump Pumps" for applications in ground water systems.

1.3 SUBMITTALS

- A. Product Data: Include certified performance curves with operating points plotted on curves; and rated capacities of selected models, furnished specialties, and accessories.
- B. Shop Drawings: Diagram power, signal, and control wiring.
- C. Operation and Maintenance Data: For sewage pump to include in operation and maintenance manuals.

1.4 QUALITY ASSURANCE

- A. Product Options: Drawings indicate size, profiles, and dimensional requirements of sewage pumps and are based on the specific system indicated. Refer to Division 1 Section "Product Requirements."
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Retain shipping flange protective covers and protective coatings during storage.
- B. Protect bearings and couplings against damage.
- C. Comply with pump manufacturer's written rigging instructions for handling.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

2.2 WET-PIT-MOUNTED, VERTICAL SEWAGE PUMPS

- A. Manufacturers:
 - 1. Weil Pump Company, Inc. Model 2224 or equal by:
 - 2. Weinman Div.; Crane Pumps & Systems.
 - 3. Aurora Pump; Pentair Pump Group (The).
 - 4. Chicago Pump Company; a division of Yeomans Chicago Corporation.
 - 5. Sterling Peerless; Sterling Fluid Systems Group.
 - 6. Prior approved equal.
- B. Description: Factory-assembled and -tested, single-stage, centrifugal, end-suction sewage pumps complying with UL 778. Vertical, separately coupled, suspended pumps complying with HI 1.1-1.2 and HI 1.3 for wet-pit-volute sewage pumps with reverse-flow assembly.
 - 1. Pump Arrangement: Two new pumps to replace existing.
 - 2. Casing: Cast iron, with open inlet and flanged connection for NPS 4 discharge piping.
 - 3. Impeller: ASTM A 48/A 48M, Class No. 25 A or higher cast iron; statically and dynamically balanced, open, nonclog design for 2-1/2" solids handling; overhung, single suction, and keyed and secured to shaft.
 - 4. Pump Shaft and Sleeve Bearings: Stainless-steel shaft with bronze sleeve bearings. Include oil-lubricated, intermediate sleeve bearings at 48-inch maximum intervals and grease-lubricated, ball-type thrust bearings.
 - 5. Pump and Motor Shaft Coupling: Flexible, capable of absorbing torsional vibration and shaft misalignment.
- C. Pump Discharge Piping: Manufacturer's standard galvanized-steel.

- D. Basin Cover: Existing.
- E. Cover Shaft Seal: Stuffing box, with graphite-impregnated braided-yarn rings and bronze packing gland.
- F. Motor: Single-speed; grease-lubricated ball bearings.
 - 1. Mounting: On vertical, cast-iron pedestal.
- G. Controls: NEMA 250, Type 1 (Manufacturer's Standard) enclosure, pedestal-mounted float switches; with floats, float rods, and rod buttons.
 - 1. Float Guide: Pipe or other restraint for floats and rods.
 - 2. High-Water Alarm: Cover-mounted, mechanical-float-switch alarm, with electric bell.
- H. Provide wall mounted control panel equal to Weil Model #8184.
 - 1. Panel Includes:
 - a. Enclosure, NEMA type 1.
 - b. Sequence for 2 pump control.
 - c. Two Contactors
 - d. Two Overloads - one per pump. Ambient compensated bi-metallic (class s10) motor overload circuit protector. Instantaneous magnetic trip for short circuit protection. Single-phase protection for three-phase motors. Field adjustable within the amp range.
 - e. Two lockable pump disconnects, one for each pump motor. Lock is not provided.
 - f. Control transformer with branch circuit fused primary and fused secondary.
 - g. U/L listed label.
 - h. Timer - manually adjustable to set time between doses and pump run time.
 - i. Selector switches for each pump. Three (3) position (test-off-automatic) mounted inside panel. Spring return from test position.
 - j. Green pilot lights for each pump indicates power to pump motor.
 - k. Amber light on door indicates control power is on. Light is rated for 100,000 hours.
 - l. Red pump failure light for each pump. Light indicates contractor failed to close or motor overload.
 - m. Elapsed time meters (2), mounted on door. Non-resetting meter indicates total pump run time.
 - n. HWA Test-Auto-Silence switch with spring return from test and silence position, mounted inside panel.
 - o. Red HWA light on door.
 - p. Horn on door, 95 dB.
 - q. Isolated contacts (2) for remote monitoring and/or telephone connection.
 - r. Control terminal strip, numbered and wired.
 - s. Layout and schematic diagrams are CAD generated and include single pole level switch connections.

I. Capacities and Characteristics:

1. System Capacity: 100 gpm.
2. Number of Pumps: Two.
3. Each Pump:
 - a. Capacity: 50 gpm.
 - b. Solids Handling Capability: 2-1/2 inches minimum.
 - c. Total Dynamic Head: 40 ft. hd.
 - d. Speed: 1750 rpm.
 - e. Discharge Pipe Size: 4" NPS.
 - f. Motor Horsepower: 3 HP.
 - g. Electrical Characteristics:
 - 1) Volts: 208-230/460.
 - 2) Phases: Three.
 - 3) Hertz: 60.
4. Alternator Control Required: Yes, mounted automatically in panel.
5. Reverse-Flow Assembly Required: Yes.

2.3 SEWAGE PUMP REVERSE-FLOW ASSEMBLIES

A. Manufacturers:

1. Weil Pump Company, Inc.
2. Chicago Pump Company; a division of Yeomans Chicago Corporation.
3. Federal Pump Corp.
4. Sterling Peerless; Sterling Fluid Systems Group.
5. Paco Pumps, Inc.
6. Prior approved equal.

B. Description: Factory-fabricated, sewage pump reverse-flow assembly for field assembly and installation in existing sewage pump basin. Include the following corrosion-resistant-metal components:

1. Inlet Fitting: One combination inlet-overflow strainer fitting.
2. Valves: Two shutoff valves and two check valves.
3. Strainers: Two strainer housings with reverse-flow, self-flushing strainers.
4. Pipe and Fittings: Size and configuration required to connect to sewage pumps and piping.

2.4 SEWAGE PUMP BASINS

A. Description: Existing 8'0" deep basin.

B. Cover: Reuse existing duplex cover with openings for pumps, high level alarm, float controls, outlet piping and access.

2.5 BUILDING AUTOMATION SYSTEM INTERFACE

- A. Provide auxiliary contacts in pump controllers for interface to building automation system. Include the following:
 - 1. On-off status of each pump.
 - 2. Alarm status.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine existing plumbing piping to verify actual locations of sanitary drainage and vent piping connections before sewage pump installation.

3.2 INSTALLATION

- A. Install the two new sewage pumps according to applicable requirements in HI 1.4. Use existing basin cover openings due to the removal of the existing pumps.
- B. Install pumps and arrange to provide access for maintenance including removal of motors, impellers, couplings, and accessories.
- C. Suspend wet-pit-mounted, vertical sewage pumps from existing basin covers. Make direct connections to sanitary drainage piping as shown on drawings.
- D. Support piping so weight of piping is not supported by pumps.

3.3 CONNECTIONS

- A. Piping installation requirements are specified in Division 15 Section "Drainage and Vent Piping." Drawings indicate general arrangement of piping, fittings, and specialties.
- B. Install piping adjacent to sewage pumps to allow service and maintenance. See drawings.
- C. Connect sanitary drainage and vent piping to pumps. Install discharge piping equal to or greater than size of pump discharge piping. Install vent piping equal to or greater than size of pump basin vent connection. Refer to Division 15 Section "Sanitary Drainage and Vent Piping."
 - 1. Install check and shutoff valves on discharge piping from each pump. Install valves same size as connected piping. Refer to Division 15 Section "Valves" for general-duty valves for sanitary waste piping.

- D. Ground equipment.

3.4 STARTUP SERVICE

- A. Engage a factory-authorized service representative to perform startup service.
 - 1. Complete installation and startup checks according to manufacturer's written instructions.
 - 2. Verify bearing lubrication.
 - 3. Disconnect couplings and check motors for proper direction of rotation.
 - 4. Verify that each pump is free to rotate by hand. If pump is bound or drags, do not operate until cause of trouble is determined and corrected.
 - 5. Verify that pump controls are correct for required application.
- B. Start pumps without exceeding safe motor power:
 - 1. Start motors.
 - 2. Open discharge valves slowly.
 - 3. Check general mechanical operation of pumps and motors.
- C. Test and adjust controls and safeties.
- D. Remove and replace damaged and malfunctioning components.
 - 1. Pump Controls: Set pump controls for automatic start, stop, and alarm operation as required for system application.
 - 2. Set field-adjustable switches and circuit-breaker trip ranges for normal operation.
- E. Occupancy Adjustments: When requested within 12 months of date of Substantial Completion, provide on-site assistance in adjusting system to suit actual occupied conditions. Provide up to two visits to Project outside normal occupancy hours for this purpose.

3.5 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain controls and pumps. Refer to Division 1 Section "Closeout Procedures."

END OF SECTION 15445

SECTION 15446 - SUMP PUMPS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following sump pumps and accessories, inside and outside the building, for ground water control:
 - 1. Wet-pit-mounted, vertical sump pump - one required.
 - 2. Submersible sump pumps - two required.
 - 3. Sump pump basins.
- B. Related Sections include the following:
 - 1. Division 15 Section "Sewage Pumps" for application in sanitary drainage systems.

1.3 SUBMITTALS

- A. Product Data: For each type and size of sump pump specified. Include certified performance curves with operating points plotted on curves, and rated capacities of selected models, furnished specialties, and accessories.
- B. Shop Drawings: Diagram power, signal, and control wiring.
- C. Operation and Maintenance Data: For each sump pump to include in operation and maintenance manuals.

1.4 QUALITY ASSURANCE

- A. Product Options: Drawings indicate size, profiles, and dimensional requirements of sump pumps and are based on the specific system indicated. Refer to Division 1 Section "Product Requirements."
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Retain shipping flange protective covers and protective coatings during storage.
- B. Protect bearings and couplings against damage.
- C. Comply with pump manufacturer's written rigging instructions for handling.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

2.2 WET-PIT-MOUNTED, VERTICAL SUMP PUMP

- A. Manufacturers:
 - 1. Weil Pump Company, Inc. Model 1303 or equal by:
 - 2. Weinman Div.; Crane Pumps & Systems.
 - 3. Aurora Pump; Pentair Pump Group (The).
 - 4. Chicago Pump Company; a division of Yeomans Chicago Corporation.
 - 5. Prior approved equal.
- B. Description: Factory-assembled and -tested, single-stage, simplex, vertical enclosed shaft, screened, centrifugal, sump pump complying with UL 778. Vertical, separately coupled, suspended pump complying with HI 1.1-1.2 and HI 1.3 for wet-pit-volute sump pumps.
 - 1. Pump Arrangement: Simplex.
 - 2. Casing: Cast iron, with screened inlet and flanged connection for NPS 3 discharge piping.
 - 3. Impeller: ASTM A 48/A 48M, Class No. 25 A or higher cast iron; statically and dynamically balanced nonclog design; overhung, single suction, keyed and secured to shaft.
 - 4. Pump Shaft and Sleeve Bearings: Stainless-steel shaft with bronze sleeve bearings. Include oil-lubricated, intermediate sleeve bearings at 48-inch maximum intervals, and grease-lubricated, ball-type thrust bearings.
 - 5. Pump and Motor Shaft Coupling: Flexible, capable of absorbing torsional vibration and shaft misalignment.
- C. Pump Discharge Piping: Manufacturer's standard galvanized-steel pipe.

- D. Basin Cover: Existing - Use existing opening made by the removal of the existing pump.
- E. Cover Shaft Seal: Stuffing box, with graphite-impregnated braided-yarn rings and bronze packing gland.
- F. Motor: Single speed; grease-lubricated ball bearings, vertical, totally-enclosed, fan-cooled.
 - 1. Mounting: On vertical, cast-iron pedestal.
- G. Controls: NEMA 250, Type 1 enclosure, pedestal-mounted float switches; with floats, float rods, and rod buttons.
 - 1. Float Guide: Pipe or other restraint for floats and rods.
 - 2. High-Water Alarm: Cover-mounted, mechanical-float-switch alarm, with electric bell.
- H. Control Panel: Wall mounted control panel equal to Weil Model 8111.
 - 1. Panel Includes:
 - a. U/L listed label.
 - b. One Contactor - Industrial duty.
 - c. Overload. Ambient compensated bi-metallic (Class 10) motor overload circuit protector. Instantaneous magnetic trip for short circuit protection. Single-phase protection for three-phase motors. Field adjustable within the amp range.
 - d. One lockable pump disconnect on motor overload protector. Lock is not provided.
 - e. Control system - 115V with 100 VA control transformer, fused primary and fused secondary. Single-phase 115-volt has a fused control circuit.
 - f. Pump test switch. Three-position TOA (Test-off-automatic) with spring return to off from test, mounted inside panel.
 - g. Green light on the door indicates power to pump motor.
 - h. Amber light on the door indicates control power is on. Light is rated for 100,000 hours.
 - i. Red light indicates motor overload condition and pump is off. Light remains on and pump remains off until reset.
 - j. Hour Meter (1), mounted on door. Non resetting meter indicates total pump run time.
 - k. High water alarm system.
 - 1) HWA Test-Auto-Silence switch with spring return from test and silence position, mounted inside panel.
 - 2) Red HWA light on the door.
 - 3) Horn on the door, 95 dB.
 - 4) Isolated contact for remote monitoring and/or telephone connection.
 - I. Padlocking hasp. Padlock not included.

- m. Control terminal board, numbered and wired.
 - n. Layout and schematic CAD diagrams are provided. Installer connections at terminal board are clearly marked.
- I. Capacity and Characteristics:
- 1. System Capacity: 120 gpm.
 - 2. Number of Pumps: One.
 - 3. Pump:
 - a. Capacity: 120 gpm.
 - b. Total Dynamic Head: 52 ft. hd.
 - c. Speed: 1750 rpm.
 - d. Discharge Pipe Size: 3 NPS.
 - e. Motor Horsepower: 3 HP.
 - f. Electrical Characteristics:
 - 1) Volts: 208-230/460.
 - 2) Phases: Three.
 - 3) Hertz: 60.
 - 4. Alternator Control Required: No.

2.3 SUBMERSIBLE SUMP PUMPS - ALTERNATE #1

- A. Manufacturers:
- 1. Weil Pump Company, Inc. Model 1413 or equal by:
 - 2. Weinman Div.; Crane Pumps & Systems.
 - 3. Little Giant Pump Co.
 - 4. Gorman-Rupp Company (The).
 - 5. Prior approved equal.
- B. Description: Two new factory-assembled and -tested, single-stage, centrifugal, end-suction, submersible, direct-connected sump pumps complying with UL 778 and HI 1.1-1.2 and HI 1.3 for submersible sump pumps.
- C. Casing and Impeller: Cast-iron casing with cast-iron inlet strainer and cast-iron impeller.
- D. Pump and Motor Shaft: Stainless steel, with factory-sealed, grease-lubricated ball bearings.
- E. Motor: Hermetically sealed, capacitor-start type, with built-in overload protection; three-conductor waterproof power cable of length required, and with grounding plug and cable-sealing assembly for connection at pump. Comply with requirements in Division 15 Section "Motors."
- 1. Moisture-Sensing Probe: Internal moisture sensor with moisture alarm.

- F. Pump Discharge Piping: Factory, ASTM A 53/A 53M, Schedule 40, galvanized-steel pipe.
- G. Basin Cover: Reuse existing basin cover.
- H. Controls: NEMA 250, Type 1 enclosure, pedestal-mounted float switch; with float, float rod, and rod buttons.
- I. Provide wall mounted control panel equal to Weil model 8138:
 - 1. Panel Includes:
 - a. U/L listed label.
 - b. One lockable panel disconnect - through-the-door with door interlock. The mechanical interlock prevents the door from being opened when the disconnect is in the ON position. Lock is not provided.
 - c. Two lockable pump disconnects, one for each pump motor. Lock is not provided.
 - d. Electric alternator.
 - e. Two Overloads - one per pump. Ambient compensated bimetallic (class 10) motor overload circuit protector. Instantaneous magnetic trip for short circuit protection. Single-phase protection for three-phase motors. Field adjustable within amp range.
 - f. Control system - 115V with 100 VA control transformer, fused primary and fused secondary. Single-phase 115-volt has a fused control circuit.
 - g. Pump test switches - one per pump. Three position TOA (Test-Off-Automatic) with spring return to Off from Test.
 - h. Green light on the door indicates power to pump motor. One light per pump.
 - i. Amber light on the door indicates control power is on. Light is rated for 100,000 hours.
 - j. Control terminal board, numbered and wired.
 - k. Layout and schematic CAD diagrams are provided. Installer connections are clearly marked.
 - l. High water alarm system, NEMA 4X.
 - 1) Red HWA light on the door.
 - 2) HWA horn, 95 dB, and silence button mounted on side of enclosure.
 - 3) Isolated contact for remote monitoring and/or telephone connection.
 - 4) Alarm circuit may be field modified to use a 115-volt AC external power source.
 - m. Padlocking hasp. Padlock not included.
- J. Capacity and Characteristics:
 - 1. System Capacity: 80 gpm.
 - 2. Number of Pumps: Two.
 - 3. Each Pump:

- a. Capacity: 40 gpm.
- b. Total Dynamic Head: 40 ft. hd.
- c. Speed: 1750 rpm.
- d. Discharge Pipe Size: 2 NPS.
- e. Motor Horsepower: 1 HP.
- f. Electrical Characteristics:
 - 1) Volts: 208-230/460.
 - 2) Phases: Three.
 - 3) Hertz: 60.

4. Alternator Control Required: Yes, with panel.

2.4 SUMP PUMP BASINS

- A. Description: Existing factory fabricated basin with cover.
- B. Sump: Existing 4'-0" deep submersible pump basin.
- C. Sump: Existing 12'-0" deep vertical pump basin.
- D. Cover: The covers for both basins are existing and will be reused for new pumps.

2.5 BUILDING AUTOMATION SYSTEM INTERFACE

- A. Provide auxiliary contacts in pump controllers for interface to building automation system. Include the following:
 1. On-off status of each pump.
 2. Alarm status.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine existing plumbing piping to verify actual locations of piping connections before new sump pump installations.

3.2 SUMP PUMP INSTALLATION

- A. Install sump pumps according to applicable requirements in HI 1.4.
- B. Install pumps and arrange to provide access for maintenance including removal of motors, impellers, couplings, and accessories.

- C. Suspend wet-pit-mounted, vertical sump pump from existing basin cover. Make direct connections to existing discharge piping.
- D. Set submersible sump pumps on existing basin floor. Make direct connections to existing discharge piping.
- E. Support piping so weight of piping is not supported by pumps.

3.3 CONNECTIONS

- A. Install piping adjacent to sump pumps to allow service and maintenance.
- B. Connect new discharge piping to pumps. See drawings.
 - 1. Install check and shutoff valves on discharge piping from vertical sump pump. Install unions on submersible pumps having threaded pipe connections and flanges on vertical sump pump. Install valves same size as connected piping.
- C. Ground equipment.

3.4 STARTUP SERVICE

- A. Engage a factory-authorized service representative to perform startup service.
 - 1. Complete installation and startup checks according to manufacturer's written instructions.
 - 2. Verify bearing lubrication.
 - 3. Disconnect couplings and check motors for proper direction of rotation.
 - 4. Verify that each pump is free to rotate by hand. If pump is bound or drags, do not operate until cause of trouble is determined and corrected.
 - 5. Verify that pump controls are correct for required application.
- B. Start pumps without exceeding safe motor power:
 - 1. Start motors.
 - 2. Open discharge valves slowly.
 - 3. Check general mechanical operation of pumps and motors.
- C. Test and adjust controls and safeties.
- D. Remove and replace damaged and malfunctioning components.
 - 1. Pump Controls: Set pump controls for automatic start, stop, and alarm operation as required for system application.
 - 2. Set field-adjustable switches and circuit-breaker trip ranges as indicated, or if not indicated, for normal operation.

- E. Occupancy Adjustments: When requested within 12 months of date of Substantial Completion, provide on-site assistance in adjusting system to suit actual occupied conditions. Provide up to two visits to Project outside normal occupancy hours for this purpose.

3.5 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain controls and pumps. Refer to Division 1 Section "Closeout Procedures."

END OF SECTION 15446

SECTION 15915 - ELECTRIC AND ELECTRONIC CONTROLS

PART 1 - GENERAL

1.1 SCOPE

- A. Includes but not limited to:
1. Provide a design-build electrical contractor for this installation. Submit design to engineer for approval before installation.
 2. Provide new control wiring and conduit from the existing sewage manhole to a new control panel located in the sally port. Provide wiring for connections to the new sewage pumps, float switches and alarms.
 3. Provide new control wiring and conduit for one new vertical sump pump within the manhole. Pull new wiring in existing conduit that runs from manhole to new control panel inside sally port in same location as existing removed panel.
 4. Provide new control panel in same location as existing removed panel. Reconnect existing electrical and control wiring to new panel. (Alternate #1)
 5. Furnish new starters and conductors and make final connections to new pumps.
 6. Existing electrical feeds shall remain.

PART 2 - PRODUCTS

(Not Used)

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Run new wiring in manhole in liquid tight flexible steel conduit.
- B. Starters shall be a Nema size 1 starter with hand- off-auto switches. Provide run red pilot light.
- C. All wiring shall be copper.
- D. All electrical installation shall be in accordance with NEC-2005 and DFCM guides and standards.

3.2 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service - Calibrate, adjust, and set controls for proper operation, operate systems, and be prepared to prove operation of any part of control system. This work is to be completed before pre substantial completion inspection.

END OF SECTION 15915