



ST. TAMMANY PARISH

MICHAEL B. COOPER
PARISH PRESIDENT

NOTICE TO BIDDERS

ST. TAMMANY PARISH

Sealed bids will be received by the Department of Procurement, until **2:00 p.m., Wednesday, April 24th, 2024**, and then opened and read publicly at that time by the Procurement Staff for the following project:

Bid # 24-10-2 – Highway LA-21 Lift Station

Each paper bid must be submitted in a sealed envelope. The outside of the envelope shall show the Name and Address of the Bidder, the State Contractor's License Number of the Bidder (if the work is estimated at \$50k or more), the Bid Name and the Bid Number.

The project classification is:

MUNICIPAL & PUBLIC WORKS

This bid package is available online at www.bidexpress.com or LaPAC <https://wwwcfprd.doa.louisiana.gov/osp/lapac/pubmain.cfm>. It is the Vendor's responsibility to check Bid Express, or LaPAC frequently for any possible addenda that may be issued. The Parish is not responsible for a Vendor's failure to download any addenda documents required to complete a submission.

A Non-Mandatory pre-bid meeting will be held at the Staff Conference Room, 3rd Floor, located at St. Tammany Parish Government Administrative Complex, 21454 (Building B) Koop Drive, Mandeville, LA 70471 on Wednesday, April 3, 2024 at 2:00 pm.

Bids will be received at 21454 Koop Dr., Suite 2F, Mandeville, LA 70471 from each bidder or his agent and given a written receipt, by certified mail with return receipt requested, or electronically at www.bidexpress.com.

Procurement Department

BID PROPOSAL

ST. TAMMANY PARISH
GOVERNMENT



BID PACKAGE FOR
HIGHWAY LA-21 LIFT STATION

BID NO.: 24-10-2

MARCH 8, 2024

Section 01

Table of Contents

Section 01	Table of Contents
Section 02	Instructions to Bidders
Section 03	Summary of Work
Section 04	LA Uniform Public Work Bid Form Unit Price Form
Section 05	Affidavits, Louisiana (Pursuant to LSA-R.S. 38:2224, 38:2227 and 38:2212.10)
Section 06	Insurance Requirements
Section 07	Project Sign
Section 08	General Conditions
Section 09	Sample Corporate Resolution
Section 10	Sample Certificate of Insurance
Section 11	Sample Contract
Section 12	Technical Specifications
Section 13	Plan Sheets
Section 14	Federal Clauses

Section 02

Instructions to Bidders

Bidders are urged to promptly review the requirements of this specification and submit questions for resolution as early as possible during the bid period. Questions or concerns must be submitted in writing to the Procurement Department no later than 2:00 CST seven (7) working days prior to the bid opening date. Otherwise, this will be construed as acceptance by the bidders that the intent of the specifications is clear and that competitive bids may be obtained as specified herein. Protests with regard to the specification documents will not be considered after bids are opened.

1. Bid security is required. Be sure that your bid includes such security as is necessary to meet Parish requirements and is properly signed. The bid must be fully completed. All applicable Louisiana license numbers must be affixed.
2. The Owner is the St. Tammany Parish Government (the "Parish").
3. The terms "he/his" and "it/its" may be used interchangeably.
4. The terms "Owner," the "Parish," and "St. Tammany Parish" may be used interchangeably.
5. The successful Bidder understands the limited contract time in the contract is **285 calendar days**, and shall submit any request for an extension of time in accordance with the General and Supplementary Conditions. Said request will reflect the days requested and the reason for same. No extension request is guaranteed or absolute.
6. Bidder specifically understands that acknowledgment of the General Conditions is required. Bidder specifically understands that signature of receipt of the General Conditions is mandated. **The Bidder's signature on the "Louisiana Uniform Public Work Bid Form" will serve as acknowledgment of the Bidder's receipt and understanding of the General Conditions as well as any Supplementary Conditions.**
7. ***If any additional work is performed by the contractor without written approval by owner, the cost of the work will be borne by the contractor and will not be reimbursed by the Parish.***
8. **Only** the Louisiana Uniform Public Bid Form, the Unit Price Form (if necessary), the bid security, and written evidence of authority of person signing the bid shall be submitted on or before the bid opening time and date provided for in the Bid Documents. Necessary copies of the Louisiana Uniform Public Work Forms and Unit Price Forms (if necessary) will be furnished for Bidding. Bound sets of the Contract Documents are for Bidder's information and should not be used in submitting Bids.
9. All other documents and information required are to be submitted by the low Bidder within ten (10) days after the opening of the bids, and at the same time of day and location as given for the opening of the bids in the Bid Documents.
10. Each Bid must be submitted in a sealed envelope, unless submitted electronically. The outside of the envelope shall show the name and address of the Bidder, the State Contractor's License Number of the Bidder (if work requires contractor's license), and the Project name and the Bid number. In the case of an electronic bid proposal, a contractor may submit an authentic digital signature on the electronic bid proposal accompanied by the contractor's license number, Project name and the Bid number.
11. The price quoted for the Work shall be stated in words and figures on the Bid Form, and in figures only on the Unit Price Form. The price in the Bid shall include all costs necessary for the complete performance of the Work in full conformity with the conditions of the Contract Documents, and shall include all applicable Federal, State, Parish, Municipal or other taxes. The price bid for the items listed on the Unit Price Form will include the cost of all related items not listed, but which are normally required to do the type of Work bid.
12. The Bid shall be signed by the Bidder. The information required on the Louisiana Uniform Public Work Bid Form must be provided. Evidence of agency, corporate, or partnership authority is required and shall be provided in conformance with LSA-R.S. 38:2212(B).

13. Only a Contractor licensed by the State to do the type of Work as indicated on the Notice to Bidders can submit a Bid. The Bidder's signature on the Bid Form certifies that he holds an active license under the provisions of Chapter 24 of Louisiana Revised Statutes Title 37. Failure to be properly licensed constitutes authority for the Owner to reject the Bid.
14. Bidders shall not attach any conditions or provisions to the Bid. Any conditions or provisions so attached may, at the sole option of the Owner, cause rejection of the Bid.
15. A Bid Guarantee of five percent (5%) of the amount of the total Bid, including Alternates, must accompany the Proposal and, at the option of the Bidder, may be a cashier's check, certified check or a satisfactory Bid Bond. The Bid Guarantee must be attached to the Louisiana Uniform Public Work Bid Form. No Bid will be considered unless it is so guaranteed. Cashier's check or certified check must be made payable to the order of the Owner. Cash deposits will not be accepted. The Owner reserves the right to cash or deposit the cashier's check or certified check. Such guarantees shall be made payable to the Parish of St. Tammany. In accordance with LSA-R.S. 38:2218(C), if a bid bond is used, it shall be written by a surety or insurance company currently on the U.S. Department of the Treasury Financial Management Service list of approved bonding companies which is published annually in the Federal Register, or by a Louisiana domiciled insurance company with at least an A- rating in the latest printing of the A.M. Best's Key Rating Guide to write individual bonds up to ten percent of policyholders' surplus as shown in the A.M. Best's Key Rating Guide or by an insurance company in good standing licensed to write bid bonds which is either domiciled in Louisiana or owned by Louisiana residents. It is **not** required to be on any AIA form.
16. Bid securities of the three (3) lowest Bidders will be retained by the Owner until the Contract is executed or until final disposition is made of the Bids submitted. Bid securities of all other Bidders will be returned promptly after the canvas of Bids. Bids shall remain binding for forty-five (45) days after the date set for Bid Opening. The Parish shall act within the forty-five (45) days to award the contract to the lowest responsible bidder or reject all bids. However, the Parish and the lowest responsible bidder, by mutual written consent, may agree to extend the deadline for award by one or more extensions of thirty (30) calendar days. In the event the Owner issued the Letter of Award during this period, or any extension thereof, the Bid accepted shall continue to remain binding until the execution of the Contract.
17. A Proposal may be withdrawn at any time prior to the scheduled closing time for receipt of Bids, provided the request is in writing, executed by the Bidder or its duly authorized representative and is filed with the Owner prior to that time. When such a request is received, the Proposal will be returned to the Bidder unopened. A bid withdrawn under the provisions of LSA-R.S. 38:2214(C) cannot be resubmitted.
18. Written communications, over the signature of the Bidder, to modify Proposals will be accepted and the Proposal corrected in accordance therewith if received by the Owner prior to the scheduled closing time for receipt of Bids. Oral, telephonic or telegraphic Modifications will not be considered.
19. No oral interpretation obligating the Owner will be made to any Bidder as to the meaning of the Drawings, Specifications and Contract Documents. Every request for such an interpretation shall be made in writing and addressed and forwarded to the Owner. Inquiries received within seven (7) days prior to the day fixed for opening of the Bids may not be given consideration. Every interpretation made to the Bidder shall be in the form of an addendum to the Specifications. All such Addenda shall become part of the Contract Documents. Failure of the Owner to send or failure of Bidder to receive any such interpretation shall not relieve any Bidder from any obligation under this Bid as submitted without Modification. All Addenda shall be issued in accordance with the Public Bid Law, LSA-R.S. 38:2212(O).
20. The Owner reserves the right to reject any or all Bids for just cause in accordance with the Public Bid Law, LSA-R.S. 38:2214(B). Incomplete, informal, illegible, or unbalanced Bids may be rejected. Reasonable grounds for belief that any one Bidder is concerned directly or indirectly with more than one Bid will cause rejection of all Bids wherein such Bidder is concerned. If required, a Bidder shall furnish satisfactory evidence of its competence and ability to perform the Work stipulated in its Proposal. Incompetence will constitute cause

for rejection. If the Parish determines that the bidder is not responsive or responsible for any reason whatsoever, the bid may be rejected in accordance with State law.

21. Contractor shall be liable without limitation to the Parish for any and all injury, death, damage, loss, destruction, damages, costs, fines, penalties, judgments, forfeitures, assessments, expenses (including attorney fees), obligations, and other liabilities of every name and description, which may occur or in any way arise out of any act or omission of Contractor, its owners, agents, employees, partners or subcontractors.
22. Upon notice of any claim, demand, suit, or cause of action against the Parish, alleged to arise out of or be related to this Contract, Contractor shall investigate, handle, respond to, provide defense for, and defend at its sole expense, even if the claim, demand, suit, or cause of action is groundless, false, or fraudulent. The Parish may, but is not required to, consult with or assist the Contractor, but this assistance shall not affect the Contractor's obligations, duties, and responsibilities under this section. Contractor shall obtain the Parish's written consent before entering into any settlement or dismissal.
23. It is understood and agreed that neither party can foresee the exigencies beyond the control of each party which arise by reason of an Act of God or force majeure; therefore, neither party shall be liable for any delay or failure in performance beyond its control resulting from an Act of God or force majeure. The Parish shall determine whether a delay or failure results from an Act of God or force majeure based on its review of all facts and circumstances. The parties shall use reasonable efforts, including but not limited to, use of continuation of operations plans (COOP), business continuity plans, and disaster recovery plans, to eliminate or minimize the effect of such events upon the performance of their respective duties under this Contract.
24. Contractor shall fully indemnify and hold harmless the Parish, without limitation, for any and all injury, death, damage, loss, destruction, damages, costs, fines, penalties, judgments, forfeitures, assessments, expenses (including attorney fees), obligations, and other liabilities of every name and description, which may occur or in any way arise out of any act or omission of Contractor, its owners, agents, employees, partners or subcontractors. The Contractor shall not indemnify for the portion of any loss or damage arising from the Parish's act or failure to act.
25. Contractor shall fully indemnify and hold harmless the Parish, without limitation, from and against damages, costs, fines, penalties, judgments, forfeitures, assessments, expenses (including attorney fees), obligations, and other liabilities in any action for infringement of any intellectual property right, including but not limited to, trademark, trade-secret, copyright, and patent rights.

When a dispute or claim arises relative to a real or anticipated infringement, the Contractor, at its sole expense, shall submit information and documentation, including formal patent attorney opinions, as required by the Parish.

If the use of the product, material, service, or any component thereof is enjoined for any reason or if the Contractor believes that it may be enjoined, Contractor, while ensuring appropriate migration and implementation, data integrity, and minimal delays of performance, shall at its sole expense and in the following order of precedence: (i) obtain for the Parish the right to continue using such product, material, service, or component thereof; (ii) modify the product, material, service, or component thereof so that it becomes a non-infringing product, material, or service of at least equal quality and performance; (iii) replace the product, material, service, or component thereof so that it becomes a non-infringing product, material, or service of at least equal quality and performance; or, (iv) provide the Parish monetary compensation for all payments made under the Contract related to the infringing product, material, service, or component, plus for all costs incurred to procure and implement a non-infringing product, material, or service of at least equal quality and performance. Until this obligation has been satisfied, the Contractor remains in default.

The Contractor shall not be obligated to indemnify that portion of a claim or dispute based upon the Parish's unauthorized: i) modification or alteration of the product, material or service; ii) use of the product, material or service in combination with other products not furnished by Contractor; or, iii) use of the product, material or service in other than the specified operating conditions and environment.

26. Bidders shall familiarize themselves with and shall comply with all applicable Federal and State Laws, municipal ordinances and the rules and regulations of all authorities having jurisdiction over construction of the Project, which may directly or indirectly affect the Work or its prosecution. These laws and/or ordinances will be deemed to be included in the Contract, as though herein written in full.
27. Each Bidder shall visit the site of the proposed Work and fully acquaint itself with all surface and subsurface conditions as they may exist so that it may fully understand this Contract. Bidder shall also thoroughly examine and be familiar with drawings, Specifications and Contract Documents. The failure or omission of any Bidder to receive or examine any form, instrument, Drawing or document or to visit the site and acquaint itself with existing conditions shall in no way relieve any Bidder from any obligation with respect to its Bid and the responsibility in the premises.
28. The standard contract form enclosed with the Proposal documents is a prototype. It is enclosed with the Contract Documents for the guidance of the Owner and the Contractor. It has important legal consequences in all respects and consultation with an attorney is encouraged. Contractor shall be presumed to have consulted with its own independent legal counsel.
29. When one set of Contract plans show the Work to be performed by two or more prime Contractors, it is the responsibility of each Bidder to become knowledgeable of the Work to be performed by the other where the Work upon which this bid is submitted is shown to come into close proximity or in conflict with the Work of the other. In avoiding conflicts, pressure pipe lines must be installed to avoid conflict with gravity pipe lines and the Bidder of the smaller gravity pipe line in conflict with the larger gravity pipe line must include in his Bid the cost of a conflict box at these locations. The location of and a solution to the conflicts do not have to be specifically noted as such on the plans.
30. Bidder shall execute affidavit(s) attesting compliance with LSA-R.S. 38:2212.10, 38:2224, 38:2227, each as amended, and other affidavits as required by law, prior to execution of the contract.
31. In accordance with Louisiana Law, all Corporations (See LA R.S. 12:26.1) and Limited Liability Companies (See LA R.S. 12:1308.2) must be registered and in good standing with the Louisiana Secretary of State in order to hold a contract.
32. Sealed Bids shall be delivered to St. Tammany Parish Government at the office of **St. Tammany Parish Government, Department of Procurement, 21454 Koop Drive, Suite 2-F, Mandeville, LA 70471**, and a receipt given, until the time and date denoted in Notice to Bidders, at which time and place the Bids shall be publicly opened and read aloud to those present. In accordance with LSA-R.S. 38:2212(H), the designer's final estimated cost of construction shall be read aloud upon opening bids. Sealed Bids may also be mailed by certified mail to **St. Tammany Parish Government, Department of Procurement, 21454 Koop Drive, Suite 2-F, Mandeville, LA 70471**, and must be received before the bid opening. Bids may also be submitted electronically. Information concerning links for electronic bidding is contained in the Notice to Bidders. It is the responsibility of the Bidders to ensure that bids are delivered in a timely fashion. **Late bids, regardless of reason, will not be considered, and will be returned to bidder.**
33. Paper bids shall be placed in a sealed envelope, marked plainly and prominently as indicated in the Notice to Bidders, and these Instructions, and addressed:

**St. Tammany Parish Government
Department of Procurement
21454 Koop Drive, Suite 2-F
Mandeville, LA 70471**
34. See Notice to Bidders for availability of Drawings, Specifications and Contract Documents via electronic methods.
35. The successful Bidder shall be required to post in each direction a public information sign, 4' x 4' in size, at the location of the project containing information required by the Owner. The Owner shall supply this information.

36. The award of the Contract, if it is awarded, will be to the lowest responsible Bidder, in accordance with State Law. No award will be made until the Owner has concluded such investigations as it deems necessary to establish the responsibility and qualifications of the Bidder to do the Work in accordance with the Contract Documents to the satisfaction of the Owner within the time prescribed as established by the Department based upon the amount of work to be performed and the conditions of same. The written contract and bond shall be issued in conformance with LSA-R.S. 38:2216. If the Contract is awarded, the Owner shall give the successful Bidder written notice of the award within forty-five (45) calendar days after the opening of the Bids in conformance with LSA-R.S. 38:2215(A), or any extension as authorized thereunder.
37. At least three days prior to the execution of the Contract, the Contractor shall deliver to the Owner the required Bonds.
38. Failure of the successful Bidder to execute the Contract and deliver the required Bonds within ten (10) days of the Notice of the Award shall be just cause for the Owner to annul the award and declare the Bid and any guarantee thereof forfeited. Award may then be made to the next lowest responsible bidder.
39. In order to ensure the faithful performance of each and every condition, stipulation and requirement of the Contract and to indemnify and hold harmless the Owner from any and all damages, either directly or indirectly arising out of any failure to perform same, the successful Bidder to whom the Contract is awarded shall furnish a Performance and Payment Bond in an amount of at least equal to one hundred percent (100%) of the Contract Price. The Contract shall not be in force or binding upon the Owner until such satisfactory Bond has been provided to and approved by the Parish. The cost of the Bond shall be paid for by the Contractor unless otherwise stipulated in the Special Provisions.
40. No surety Company will be accepted as a bondsman which has no permanent agent or representative in the State upon whom notices referred to in the General Conditions of these Specifications may be served. Service of said notice on said agent or representative in the State shall be equal to service of notice on the President of the Surety Company, or such other officer as may be concerned.
41. In conformance with LSA-R.S. 38:2219(A)(1)(a), (b), and (c):

Any surety bond written for a public works project shall be written by a surety or insurance company currently on the U.S. Department of the Treasury Financial Management Service list of approved bonding companies which is published annually in the Federal Register, or by a Louisiana domiciled insurance company with at least an A- rating in the latest printing of the A.M. Best's Key Rating Guide, to write individual bonds up to ten percent of policyholders' surplus as shown in the A.M. Best's Key Rating Guide or by an insurance company that is either domiciled in Louisiana or owned by Louisiana residents and is licensed to write surety bonds.

For any public works project, no surety or insurance company shall write a bond which is in excess of the amount indicated as approved by the U.S. Department of the Treasury Financial Management Service list or by a Louisiana domiciled insurance company with an A- rating by A.M. Best up to a limit of ten percent of policyholders' surplus as shown by A.M. Best; companies authorized by this Paragraph who are not on the treasury list shall not write a bond when the penalty exceeds fifteen percent of its capital and surplus, such capital and surplus being the amount by which the company's assets exceed its liabilities as reflected by the most recent financial statements filed by the company with the Department of Insurance.

In addition, any surety bond written for a public works project shall be written by a surety or insurance company that is currently licensed to do business in the state of Louisiana. All contractors must comply with any other applicable provisions of LSA-R.S. 38:2219.
42. Should the Contractor's Surety, even though approved and accepted by the Owner, subsequently remove its agency or representative from the State or become insolvent, bankrupt, or otherwise fail, the Contractor shall immediately furnish a new Bond in another company approved by the Owner, at no cost to the Owner. The new Bond shall be executed under the same terms and conditions as the original Bond. The new bond shall be submitted within thirty (30) days of such time as the Owner notifies Contractor or from the time

Contractor learns or has reason to know that the original surety is no longer financially viable or acceptable to the Parish, whichever occurs first. In the event that Contractor fails or refuses to timely secure additional surety, then the Owner may secure such surety and thereafter deduct such cost or expense from any sum due, or to become due to Contractor.

43. The Contractor's bondsman shall obligate itself to all the terms and covenants of these Specifications and of contracts covering the Work executed hereunder. The Owner reserves the right to do Extra Work or make changes by altering, adding to deducting from the Work under the conditions and in the manner herein before described without notice to the Contractor's surety and without in any manner affecting the liability of bondsman or releasing it from any of its obligations hereunder.
44. The Bond shall also secure for the Owner the faithful performance of the Contract in strict accordance with plans, specifications, and other Contract Documents. It shall protect the Owner against all lien laws of the State and shall provide for payment of reasonable attorney's fees for enforcement of Contract and institution or concursus proceedings, if such proceedings become necessary. Likewise, it shall provide for all additional expenses of the Owner occurring through failure of the Contractor to perform.
45. The surety of the Contractor shall be and does hereby declare and acknowledge itself by acceptance to be bound to the Owner as a guarantor, jointly and in solido, with the Contractor, for fulfillment of terms of the Contract.
46. The performance Bond and Labor and Material Bond forming part of this Contract shall be continued by Contractor and its Surety for a period of one (1) year from date of acceptance of the Work/Project by Owner to assure prompt removal and replacement of all defective material, equipment, components thereof, workmanship, etc., and to assure payment of any damage to property of Owner or others as a result of such defective materials, equipment, workmanship, etc.
47. Contractor authorizes Parish to deduct from any payment due herein costs and service fees for recordation of this Contract in full or an excerpt hereof, or any revisions or modifications thereof as required by law. Contractor agrees to execute an excerpt or extract of this agreement for recordation purposes. If Contractor fails to execute such an excerpt, then the Parish shall file and record the entire Contract and all attachments at the expense of Contractor and Parish is hereby authorized to deduct all related costs from any proceeds due to the Contractor.
48. Contractor shall secure and maintain at its expense such insurance that will protect it and the Parish from claims for injuries to persons or damages to property which may arise from or in connection with the performance of Services or Work hereunder by the Contractor, his agents, representatives, employees, and/or subcontractors. The cost of such insurance shall be included in Contractor's bid.
49. The Contractor shall not commence work until it has obtained all insurance as required for the Parish Project. If the Contractor fails to furnish the Parish with the insurance protection required and begins work without first furnishing Parish with a currently dated certificate of insurance, the Parish has the right to obtain the insurance protection required and deduct the cost of insurance from the first payment due the Contractor. Further deductions are permitted from future payments as are needed to protect the interests of the Parish including, but not limited to, renewals of all policies.
50. Payment of Premiums: The insurance companies issuing the policy or policies shall have no recourse against the Parish of St. Tammany for payment of any premiums or for assessments under any form of policy.
51. Deductibles: Any and all deductibles in the described insurance policies shall be assumed by and be at the sole risk of the Contractor.
52. Authorization of Insurance Company(ies) and Rating: All insurance companies must be authorized to do business in the State of Louisiana and shall have an A.M. Best rating of no less than A-, Category VII.
53. Policy coverages and limits must be evidenced by Certificates of Insurance issued by Contractor's carrier to the Parish and shall reflect:

Date of Issue: Certificate must have current date.

Named Insured: The legal name of Contractor under contract with the Parish and its principal place of business shall be shown as the named insured on all Certificates of Liability Insurance.

Name of Certificate Holder: St. Tammany Parish Government, Office of Risk Management, P. O. Box 628, Covington, LA 70434

Project Description: A brief project description, including Project Name, Project Number and/or Contract Number, and Location.

Endorsements and Certificate Reference: All policies must be endorsed to provide, and certificates of insurance must evidence the following:

Waiver of Subrogation: The Contractor's insurers will have no right of recovery or subrogation against the Parish of St. Tammany, it being the intention of the parties that all insurance policy(ies) so affected shall protect both parties and be the primary coverage for any and all losses covered by the below described insurance. *Policy endorsements required for all coverages.*

Additional Insured: The Parish of St. Tammany shall be named as additional named insured with respect to general liability, marine liability, pollution/environmental liability, automobile liability and excess liability coverages. *Policy endorsements required.*

Hold Harmless: Contractor's liability insurers shall evidence their cognizance of the Hold Harmless and Indemnification in favor of St. Tammany Parish Government by referencing same on the face of the Certificate(s) of Insurance.

Cancellation Notice: Producer shall provide thirty (30) days prior written notice to the Parish of policy cancellation or substantive policy change.

54. The types of insurance coverage the Contractor is required to obtain and maintain throughout the duration of the Contract shall be designated by a separate document issued by the Office of Risk Management.
55. It is the intent of these instructions that they are in conformance with State Bid Laws. Should there be any discrepancy or ambiguity in these provisions, the applicable State Bid Law shall apply.
56. The letting of any public contract in connection with funds that are granted or advanced by the United States of America shall be subject to the effect, if any, of related laws of said United States and valid rules and regulations of federal agencies in charge, or governing use and payment of such federal funds.
57. Protests based on alleged solicitation improprieties that are apparent before bid opening, or the time set for receipt of initial proposals must be filed with and received by the Procurement Department BEFORE these times. Any other protest shall be filed no later than ten (10) calendar days after: the opening of the bid; the basis of the protest is known; or the basis of the protest should have been known (whichever is earlier).
58. It is the Parish's policy to provide a method to protest exclusion from a competition or from the award of a contract, or to challenge an alleged solicitation irregularity. It is always better to seek a resolution within the Parish system before resorting to outside agencies and/or litigation to resolve differences. All protests must be made in writing, and shall be concise and logically presented to facilitate review by the Parish. The written protest shall include:

The protester's name, address, and fax and telephone numbers and the solicitation, bid, or contract number;

A detailed statement of its legal and factual grounds, including a description of the resulting prejudice to the protester;

Copies of relevant documents;

All information establishing that the protester is an interested party and that the protest is timely; and

A request for a ruling by the agency; and a statement of the form of relief requested.

The protest shall be addressed to St. Tammany Parish Government Department of Procurement, P.O. Box 628, Covington, LA 70434

The protest review shall be conducted by the Parish Legal Department.

Only protests from interested parties will be allowed. Protests based on alleged solicitation improprieties that are apparent before bid opening, or the time set for receipt of initial proposals, must be filed with and received by the Department of Procurement BEFORE those deadlines.

Any other protest shall be filed no later than ten (10) calendar days after the basis of the protest is known, or should have been known (whichever is earlier).

The Parish will use its best efforts to resolve the protest within thirty (30) days of the date that it is received by the Parish. The written response will be sent to the protestor via mail and fax, if a fax number has been provided by the protestor. The protester can request additional methods of notification.

59. The last day to submit questions and/or verification on comparable products will be no later than 2:00 pm CST, seven (7) working days prior to the opening date of the bid/proposal due date. Further, any questions or inquiries must be submitted via fax to 985-898-5227, or via email to Procurement@stpgov.org. Any questions or inquiries received after the required deadline to submit questions or inquiries will not be answered.
60. St. Tammany Parish Government contracts to be awarded are dependent on the available funding and/or approval by members designated and/or acknowledged by St. Tammany Parish Government. At any time, St. Tammany Parish Government reserves the right to cancel the award of a contract if either or both of these factors is deficient.
61. Any action by the Parish to disqualify any Bidder on the grounds that they are not a responsible Bidder shall be conducted in accordance with LSA-R.S. 38:2212(X).
62. Failure to complete or deliver within the time specified or to provide the services as specified in the bid or response will constitute a default and may cause cancellation of the contract. Where the Parish has determined the contractor to be in default. The Parish reserves the right to purchase any or all products or services covered by the contract on the open market and to charge the contractor with the cost in excess of the contract price. Until such assessed charges have been paid, no subsequent bid or response from the defaulting contractor will be considered.
63. If any part of the provisions contained herein and/or in the Specifications and Contract for the Work shall for any reason be held invalid, illegal or unenforceable in any respect, such invalidity, illegality or unenforceability shall not affect any other provisions of this Agreement or attachment, but it shall be construed as if such invalid, illegal, or unenforceable provision or part of a provision had never been contained herein.

Section 03

Summary of Work

I. Work to Include:

The work will include the construction of the Hwy LA-21 Lift Station at the existing site. The scope of the proposed work includes reducing inflow, infiltration, sewer overflows, and the consolidation of the system into the West St. Tammany Regional Sewer System. Further, the project will include the installation of new control panels, pumping equipment, concrete wet well, a DU designed SCADA system, stand-by natural gas generator, paving & grading, and any necessary modifications to collection systems (piping, wet well, etc.).

II. Location of Work:

436 Hwy LA-21, Madisonville, LA 70443

III. Documents: Bid Documents dated March 8th, 2024, and entitled:

Highway LA-21 Lift Station (Project No.: TU23000173)

BID No. 24-10-2

IV. OTHER REQUIREMENTS (as applicable)

When not otherwise specified herein, all work and materials shall conform to the requirements of the Louisiana Department of Transportation and Development hereafter called LDOTD (2016 Edition of Louisiana Standard Specifications for Roads and Bridges).

This project is federally grant funded and therefore requires the Contractor to have a Unique Entity Identification number (UEI). The Contractor should submit with their response their UEI number. If the Contractor does not have a UEI already, then they must register at the below link before an award can be made.

<https://sam.gov/content/entity-registration>

Table 3.1

Liquidated Damages	
Original Contract Amount	Daily Charge
Dollars	Dollars
0 - 250,000	500
250,000 – 1 Million	1,000
> 1 Million – 5 Million	1,500
> 5 Million – 10 Million	2,000
> 10 Million	3,000

- Parish reserves the right to increase the Daily charge rate due to additional provisions required in order to complete the project as described in the specifications

Section 04

LOUISIANA UNIFORM PUBLIC WORK BID FORM

TO: St. Tammany Parish Government
21454 Koop Dr., Suite 2F
Mandeville, La 70471

(Owner to provide name and address of owner)

BID FOR: Highway LA-21 Lift Station

BID No. 24-10-2

(Owner to provide name of project and other identifying information.)

The undersigned bidder hereby declares and represents that she/he; a) has carefully examined and understands the Bidding Documents, b) has not received, relied on, or based his bid on any verbal instructions contrary to the Bidding Documents or any addenda, c) has personally inspected and is familiar with the project site, and hereby proposes to provide all labor, materials, tools, appliances and facilities as required to perform, in a workmanlike manner, all work and services for the construction and completion of the referenced project, all in strict accordance with the Bidding Documents prepared by:

High Tide Consultants and dated: March 08, 2024

(Owner to provide name of entity preparing bidding documents.)

Bidders must acknowledge all addenda. The Bidder acknowledges receipt of the following ADDENDA: (Enter the number the Designer has assigned to each of the addenda that the Bidder is acknowledging)

TOTAL BASE BID: For all work required by the Bidding Documents (including any and all unit prices designated "Base Bid" * but not alternates) the sum of:

Dollars (\$)

ALTERNATES: For any and all work required by the Bidding Documents for Alternates including any and all unit prices designated as alternates in the unit price description.

Alternate No. 1 (Owner to provide description of alternate and state whether add or deduct) for the lump sum of:

N/A Dollars (\$)

Alternate No. 2 (Owner to provide description of alternate and state whether add or deduct) for the lump sum of:

N/A Dollars (\$)

Alternate No. 3 (Owner to provide description of alternate and state whether add or deduct) for the lump sum of:

N/A Dollars (\$)

NAME OF BIDDER:

ADDRESS OF BIDDER:

LOUISIANA CONTRACTOR'S LICENSE NUMBER:

NAME OF AUTHORIZED SIGNATORY OF BIDDER:

TITLE OF AUTHORIZED SIGNATORY OF BIDDER:

SIGNATURE OF AUTHORIZED SIGNATORY OF BIDDER **:

DATE:

THE FOLLOWING ITEMS ARE TO BE INCLUDED WITH THE SUBMISSION OF THIS LOUISIANA UNIFORM PUBLIC WORK BID FORM:

* The Unit Price Form shall be used if the contract includes unit prices. Otherwise it is not required and need not be included with the form. The number of unit prices that may be included is not limited and additional sheets may be included if needed.

** A CORPORATE RESOLUTION OR WRITTEN EVIDENCE of the authority of the person signing the bid for the public work as prescribed by LA R.S. 38:2212(B)(5).

BID SECURITY in the form of a bid bond, certified check or cashier's check as prescribed by LA R.S. 38:2218(A) attached to and made a part of this bid.

LOUISIANA UNIFORM PUBLIC WORK BID FORM UNIT PRICE FORM

TO:

St. Tammany Parish Government
 21454 Koop Drive, Suite 2F
 Mandeville, LA. 70471
(OWNER TO PROVIDE NAME AND ADDRESS OF OWNER)

BID FOR:

Highway LA-21 Lift Station
 STP DU Project No. TU23000173
 Bid No. 24-10-2
(OWNER TO PROVIDE PROJECT NAME & OTHER IDENTIFYING INFO)

UNIT PRICES: This form shall be used for any & all work required by the Bidding Documents & described as unit prices. Amounts shall be stated in figures & only in figures.

Description:	<input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT #	MOBILIZATION		
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
101	1	LUMP SUM		
Description:	<input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT #	PRECONSTRUCTION VIDEO SURVEY		
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
102	1	LUMP SUM		
Description:	<input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT #	CLEARING AND GRUBBING		
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
103	1	LUMP SUM		
Description:	<input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT #	REMOVAL OF PORTLAND CEMENT CONCRETE PAVEMENT		
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
104	45	SQUARE YARD		

Wording for "description" is to be provided by the Owner. All Quantities Estimated. The Contractor will be paid based upon actual quantities as verified by the Owner.

UNIT PRICES: This form shall be used for any & all work required by the Bidding Documents & described as unit prices. Amounts shall be stated in figures & only in figures.

Description:		<input checked="" type="checkbox"/> BASE BID	OR	<input type="checkbox"/> ALT #	DEMOLITION
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)	
105	1	LUMP SUM			
Description:		<input checked="" type="checkbox"/> BASE BID	OR	<input type="checkbox"/> ALT #	FILL AND GRADING
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)	
106	1	LUMP SUM			
Description:		<input checked="" type="checkbox"/> BASE BID	OR	<input type="checkbox"/> ALT #	MODIFICATIONS TO EXISTING WET WELL
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)	
107	1	LUMP SUM			
Description:		<input checked="" type="checkbox"/> BASE BID	OR	<input type="checkbox"/> ALT #	INSTALL YARD HYDRANT AND BACKFLOW PREVENTER
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)	
108	1	LUMP SUM			
Description:		<input checked="" type="checkbox"/> BASE BID	OR	<input type="checkbox"/> ALT #	2-INCH GAS LINE
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)	
109	75	LINEAR FOOT			
Description:		<input checked="" type="checkbox"/> BASE BID	OR	<input type="checkbox"/> ALT #	10" DIA. DI MJ GATE VALVE
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)	
110	1	EACH			

Version 2017 Q2

Wording for "description" is to be provided by the Owner. All Quantities Estimated. The Contractor will be paid based upon actual quantities as verified by the Owner.

UNIT PRICES: This form shall be used for any & all work required by the Bidding Documents & described as unit prices. Amounts shall be stated in figures & only in figures.

Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # EXIST. 4" DIA. SFM CONNECTION				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
111	1	LUMP SUM		
Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # EXIST. 6" DIA. SFM CONNECTION				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
112	1	LUMP SUM		
Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # EXIST. EFFLUENT 8" DIA. SFM CONNECTION				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
113	1	LUMP SUM		
Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # 10" DIA. PVC SFM (DR18)(GREEN)				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
114	52	LINEAR FOOT		
Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # 12" DIA. PVC (SDR26)(GREEN)				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
115	20	LINEAR FOOT		
Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # 10' I.D. CONCRETE WET WELL				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
116	1	LUMP SUM		

Version 2017 Q2

Wording for "description" is to be provided by the Owner. All Quantities Estimated. The Contractor will be paid based upon actual quantities as verified by the Owner.

UNIT PRICES: This form shall be used for any & all work required by the Bidding Documents & described as unit prices. Amounts shall be stated in figures & only in figures.

Description:		<input checked="" type="checkbox"/> BASE BID	OR	<input type="checkbox"/> ALT #	ACCESS HATCH (48" X 72")(W/ FALL PROTECTION SYSTEM)		
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)			
117	1	LUMP SUM					
Description:		<input checked="" type="checkbox"/> BASE BID	OR	<input type="checkbox"/> ALT #	SUBMERSIBLE PUMPS (INTERNAL COMPONENTS & INSTALLATION)		
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)			
118	1	LUMP SUM					
Description:		<input checked="" type="checkbox"/> BASE BID	OR	<input type="checkbox"/> ALT #	8" DIA. DUCTILE IRON PIPE		
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)			
119	35	LINEAR FOOT					
Description:		<input checked="" type="checkbox"/> BASE BID	OR	<input type="checkbox"/> ALT #	10" DIA. DUCTILE IRON PIPE		
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)			
120	7	LINEAR FOOT					
Description:		<input checked="" type="checkbox"/> BASE BID	OR	<input type="checkbox"/> ALT #	CHECK VALVE (8")		
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)			
121	2	EACH					
Description:		<input checked="" type="checkbox"/> BASE BID	OR	<input type="checkbox"/> ALT #	GATE VALVE (8")		
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)			
122	2	EACH					

Version 2017 Q2

Wording for "description" is to be provided by the Owner. All Quantities Estimated. The Contractor will be paid based upon actual quantities as verified by the Owner.

UNIT PRICES: This form shall be used for any & all work required by the Bidding Documents & described as unit prices. Amounts shall be stated in figures & only in figures.

Description:		<input checked="" type="checkbox"/> BASE BID	OR	<input type="checkbox"/> ALT #	AIR RELEASE VALVE
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)	
123	2	EACH			
Description:		<input checked="" type="checkbox"/> BASE BID	OR	<input type="checkbox"/> ALT #	EMERGENCY PUMP OUT ASSEMBLY
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)	
124	1	LUMP SUM			
Description:		<input checked="" type="checkbox"/> BASE BID	OR	<input type="checkbox"/> ALT #	ELECTROMAGNETIC FLOWMETER
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)	
125	1	EACH			
Description:		<input checked="" type="checkbox"/> BASE BID	OR	<input type="checkbox"/> ALT #	DUCTILE IRON FITTINGS
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)	
126	1220	POUND			
Description:		<input checked="" type="checkbox"/> BASE BID	OR	<input type="checkbox"/> ALT #	PIPE SUPPORT
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)	
127	4	EACH			
Description:		<input checked="" type="checkbox"/> BASE BID	OR	<input type="checkbox"/> ALT #	6" THICK PORTLAND CEMENT CONCRETE PAVEMENT
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)	
128	94	SQUARE YARD			

Version 2017 Q2

Wording for "description" is to be provided by the Owner. All Quantities Estimated. The Contractor will be paid based upon actual quantities as verified by the Owner.

UNIT PRICES: This form shall be used for any & all work required by the Bidding Documents & described as unit prices. Amounts shall be stated in figures & only in figures.

Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # 6" THICK AGGREGATE SURFACE COURSE				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
129	155	SQUARE YARD		
Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # ELECTRICAL CONDUIT AND WIRING				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
130	1	LUMP SUM		
Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # CONTROL PANEL & SUPPORT STRUCTURE (W/ METAL ROOF)				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
131	1	LUMP SUM		
Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # STAND-BY NATURAL GAS GENERATOR (125Kw)				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
132	1	LUMP SUM		
Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # FREESTANDING JIB CRANE (1 TON)				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
133	1	LUMP SUM		
Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # 6' WOODEN FENCE				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
134	52	LINEAR FOOT		

Version 2017 Q2

Wording for "description" is to be provided by the Owner. All Quantities Estimated. The Contractor will be paid based upon actual quantities as verified by the Owner.

UNIT PRICES: This form shall be used for any & all work required by the Bidding Documents & described as unit prices. Amounts shall be stated in figures & only in figures.

Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # 6' CHAIN LINK FENCE & GATES				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
135	90	LINEAR FOOT		
Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # SILT FENCE				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
136	190	LINEAR FOOT		
Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # TEMPORARY BYPASS PUMP SYSTEM				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
137	1	LUMP SUM		
Description: <input checked="" type="checkbox"/> BASE BID OR <input type="checkbox"/> ALT # SITE RESTORATION				
REF NO.:	QUANTITY	UNIT OF MEASURE	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times unit price)
138	1	LUMP SUM		

Wording for "description" is to be provided by the Owner. All Quantities Estimated. The Contractor will be paid based upon actual quantities as verified by the Owner.

Section 05

**AFFIDAVIT PURSUANT TO LSA-R.S. 38:2224 and 38:2227
FOR BIDDERS FOR PUBLIC WORKS CONTRACTS**

STATE OF _____

PARISH/COUNTY OF _____

BEFORE ME, the undersigned authority, in and for the above stated State and Parish (or County), personally came and appeared:

Print Name

who, after first being duly sworn, did depose and state:

1. That affiant is appearing on behalf of _____, who is seeking a public contract with St. Tammany Parish Government.
2. That affiant employed no person, corporation, firm, association, or other organization, either directly or indirectly, to secure the public contract under which he received payment, other than persons regularly employed by the affiant whose services in connection with the construction, alteration or demolition of the public building or project or in securing the public contract were in the regular course of their duties for affiant; and
3. That no part of the contract price received by affiant was paid or will be paid to any person, corporation, firm, association, or other organization for soliciting the contract, other than the payment of their normal compensation to persons regularly employed by the affiant whose services in connection with the construction, alteration or demolition of the public building or project were in the regular course of their duties for affiant.
4. If affiant is a sole proprietor, that after July 2, 2010, he/she has not been convicted of, or has not entered a plea of guilty or nolo contendere to any of the crimes or equivalent federal crimes listed in LSA-R.S. 38:2227(B).
5. If affiant is executing this affidavit on behalf of a juridical entity such as a partnership, corporation, or LLC, etc., that no individual partner, incorporator, director, manager, officer, organizer, or member, who has a minimum of a ten percent ownership in the bidding entity, has been convicted of, or has entered a plea of guilty or *nolo contendere* to any of the crimes or equivalent federal crimes listed in LSA-R.S. 38:2227(B).

6. If affiant is a sole proprietor, that neither affiant, nor his/her immediate family is a public servant of St. Tammany Parish Government or the Contract is not under the supervision or jurisdiction of the public servant's agency.

7. If affiant is executing this affidavit on behalf of a juridical entity such as a partnership, corporation, or LLC, etc., that no public servant of St. Tammany Parish Government, or his/her immediate family, either individually or collectively, has more than a 25% ownership interest in the entity seeking the Contract with St. Tammany Parish Government if the Contract will be under the supervision or jurisdiction of the public servant's agency.

Printed Name: _____
Title: _____
Entity name: _____

THUS SWORN TO AND SUBSCRIBED BEFORE ME,
THIS _____, DAY OF _____, 202__.

Notary Public
Print Name: _____
Notary I.D./Bar No.: _____
My commission expires: _____

**AFFIDAVIT PURSUANT TO LSA-R.S. 38:2212.10 CONFIRMING
REGISTRATION AND PARTICIPATION IN A STATUS VERIFICATION
SYSTEM**

STATE OF _____

PARISH/COUNTY OF _____

BEFORE ME, the undersigned authority, in and for the above stated State and Parish (or County), personally came and appeared:

Print Name

who, after first being duly sworn, did depose and state:

1. That affiant is appearing on behalf of _____, a private employer seeking a bid or a contract with St. Tammany Parish Government for the physical performance of services within the State of Louisiana.

2. That affiant is registered and participates in a status verification system to verify that all employees in the state of Louisiana are legal citizens of the United States or are legal aliens; and

3. That affiant shall continue, during the term of the contract, to utilize a status verification system to verify the legal status of all new employees in the state of Louisiana.

4. That affiant shall require all subcontractors to submit to the affiant a sworn affidavit verifying compliance with this law.

Printed Name: _____

Title: _____

Name of Entity: _____

**THUS SWORN TO AND SUBSCRIBED BEFORE ME,
THIS _____, DAY OF _____, 202__.**

Notary Public

Print Name: _____

Notary I.D./Bar No.: _____

My commission expires: _____



Section 06

INSURANCE REQUIREMENTS*

Construction Project: Highway LA 21 Lift Station_____

Project/Quote/Bid#: 24-10-2_____

*****IMPORTANT – PLEASE READ*****

Prior to submitting your quote or bid, it is recommended that you review these insurance requirements with your insurance broker/agent.

These requirements modify portions of the insurance language found in the General Conditions and/or Supplementary General Conditions; however, there is no intention to remove all sections pertaining to insurance requirements and limits set forth in the General Conditions and/or Supplementary General Conditions, only to amend and specify those items particular for this Project.

- A. The Provider shall secure and maintain at its expense such insurance that will protect it and St. Tammany Parish Government (the "Parish") from claims for bodily injury, death or property damage as well as from claims under the Workers' Compensation Acts that may arise from the performance of services under this agreement. All certificates of insurance shall be furnished to the Parish and provide thirty (30) days prior notice of cancellation to the Parish, in writing, on all of the required coverage.
- B. All policies shall provide for and certificates of insurance shall indicate the following:
1. Waiver of Subrogation: The Provider's insurers will have no right of recovery or subrogation against the Parish of St. Tammany, it being the intention of the parties that all insurance policy(ies) so affected shall protect both parties and be the primary coverage for any and all losses covered by the below described insurance.
 2. Additional Insured: St. Tammany Parish Government shall be named as Additional Insured with respect to general liability, automobile liability and excess liability coverages, as well as marine liability and pollution/environmental liability, when those coverages are required or necessary.
 3. Payment of Premiums: The insurance companies issuing the policy or policies will have no recourse against St. Tammany Parish Government for payment of any premiums or for assessments under any form of policy.
 4. Project Reference: The project(s) and location(s) shall be referenced in the Comment or Description of Operations section of the Certificate of Insurance (Project ##-###, or Bid # if applicable, Type of Work, Location).
- C. Coverage must be issued by insurance companies authorized to do business in the State of Louisiana. Companies must have an A.M. Best rating of no less than A-, Category VII. St. Tammany Parish Risk Management Department may waive this requirement only for Workers Compensation coverage at their discretion.

Provider shall secure and present proof of insurance on forms acceptable to St. Tammany Parish Government, Office of Risk Management no later than the time of submission of the Contract to the Parish. However, should any work performed under this Contract by or on behalf of Provider include exposures that are not covered by those insurance coverages, Provider is not relieved of its obligation to maintain appropriate levels and types of insurance necessary to protect itself, its agents and employees, its subcontractors, St. Tammany Parish Government (Owner), and all other interested third parties, from any and all claims for damage or injury in connection with the services performed or provided throughout the duration of this Project, as well as for any subsequent periods required under this Contract.

The insurance coverages checked (✓) below are those required for this Contract.

- 1. **Commercial General Liability*** insurance – **Occurrence Form** - with a Combined Single Limit for bodily injury and property damage of at least \$1,000,000 per Occurrence / \$2,000,000 General Aggregate and \$2,000,000 Products-Completed Operations. Contracts over \$1,000,000 may require higher limits. The insurance shall provide for and the certificate(s) of insurance shall indicate the following coverages:
 - a) Premises - operations;
 - b) Broad form contractual liability;
 - c) Products and completed operations;
 - d) Personal/Advertising Injury;
 - e) Broad form property damage (for Projects involving work on Parish property);
 - f) Explosion, Collapse and Damage to underground property.
 - g) Additional Insured forms CG 2010 and CG 2037 in most current edition are required.

- 2. **Business Automobile Liability*** insurance with a Combined Single Limit of \$1,000,000 per Occurrence for bodily injury and property damage, and shall include coverage for the following:
 - a) Any auto;
 - or**
 - b) Owned autos; **and**
 - c) Hired autos; **and**
 - d) Non-owned autos.

- 3. **Workers' Compensation/Employers Liability insurance*** - Workers' Compensation coverage as required by State law. Employers' liability limits shall be a minimum of \$1,000,000 each accident, \$1,000,000 each disease, \$1,000,000 disease policy aggregate. When water activities are expected to be performed in connection with this project, coverage under the USL&H Act, Jones Act and/or Maritime Employers Liability (MEL) must be included. **Coverage for owners, officers and/or partners in any way engaged in the Project shall be included in the policy.** The names of any excluded individual must be shown in the Description of Operations/Comments section of the Certificate.

- 4. **Pollution Liability and Environmental Liability*** insurance in the minimum amount of \$1,000,000 per occurrence / \$2,000,000 aggregate including full contractual liability and third party claims for bodily injury and/or property damage, for all such hazardous waste, pollutants and/or environmental exposures that may be affected by this project stemming from pollution/environmental incidents as a result of Contractor's operations.

If coverage is provided on a claims-made basis, the following conditions apply:

- 1) the retroactive date must be prior to or coinciding with the effective date of the Contract, or prior to the commencement of any services provided by the Contractor on behalf of the Parish, whichever is earlier; AND
- 2) continuous coverage must be provided to the Parish with the same retro date for 24 months following acceptance or termination of the Project by the Parish either by
 - a) continued renewal certificates **OR**
 - b) a 24 month Extended Reporting Period

*The Certificate must indicate whether the policy is written on an occurrence or claims-made basis and, if claims-made, the applicable retro date must be stated.

5. **Contractor's Professional Liability/Errors and Omissions*** insurance in the sum of at least \$1,000,000 per claim / \$2,000,000 aggregate is required when work performed by Contractor or on behalf of Contractor includes professional or technical services including, but not limited to, construction administration and/or management, engineering services such as design, surveying, and/or inspection, technical services such as testing and laboratory analysis, and/or environmental assessments. An occurrence basis policy is preferred.

If coverage is provided on a claims-made basis, the following conditions apply:

- 1) the retroactive date must be prior to or coinciding with the effective date of the Contract, or prior to the commencement of any services provided by the Contractor on behalf of the Parish, whichever is earlier; AND
- 2) continuous coverage must be provided to the Parish with the same retro date for 24 months following acceptance or termination of the Project by the Parish either by
 - a) continued renewal certificates **OR**
 - b) a 24 month Extended Reporting Period

*The Certificate must indicate whether the policy is written on an occurrence or claims-made basis and, if claims-made, the applicable retro date must be stated.

6. **Marine Liability/Protection and Indemnity*** insurance is required for any and all vessel and/or marine operations in the minimum limits of \$1,000,000 per occurrence / \$2,000,000 per project general aggregate. The coverage shall include, but is not limited to, the basic coverages found in the Commercial General Liability insurance and coverage for third party liability

***Excess/Umbrella Liability** insurance may be provided to meet the limit requirements for any Liability coverage. For example: if the General Liability requirement is \$3,000,000 per occurrence, but the policy is only \$1,000,000 per occurrence, then the excess policy should be at least \$2,000,000 per occurrence thereby providing a combined per occurrence limit of \$3,000,000.)

7. **Owners Protective Liability (OPL)** shall be furnished by the Contractor and shall provide coverage in the minimum amount of \$1,000,000 CSL each occurrence / \$1,000,000 aggregate. **St. Tammany Parish Government, ATTN: Risk Management Department, P. O. Box 628, Covington, LA 70434 shall be the first named insured on the policy.**

8. **Builder's Risk Insurance** written as an "all-risk" policy providing coverage in an amount at or greater than one hundred percent (100%) of the completed value of the contracted project. Any contract modifications increasing the contract cost will require an increase in the limit of the Builder's Risk policy. Deductibles should not exceed \$5,000 and Contractor shall be responsible for all policy deductibles. This insurance shall cover materials at the site, stored off the site, and in transit. The Builder's Risk Insurance shall include the interests of the Owner, Contractor and Subcontractors and shall terminate only when the Project is accepted in writing. **St. Tammany Parish Government, ATTN: Risk Management Department, P. O. Box 628, Covington, LA 70434 shall be named as a Loss Payee on the policy.**

9. **Installation Floater Insurance**, on an "all-risk" form, shall be furnished by Contractor and carried for the full value of the materials, machinery, equipment and labor for each location. The Contractor shall be responsible for all policy deductibles. The Installation Floater Insurance shall provide coverage for property owned by others and include the interests of the Owner, Contractor and Subcontractors and shall terminate only when the Project is accepted in writing. **St. Tammany Parish Government, ATTN: Risk Management Department, P. O. Box 628, Covington, LA 70434 shall be named as a Loss Payee on the policy.**

- D. All policies of insurance shall meet the requirements of the Parish prior to the commencing of any work. The Parish has the right, but not the duty, to approve all insurance coverages prior to commencement of work. If any of the required policies are or become unsatisfactory to the Parish as to form or substance; or if a company issuing any policy is or becomes unsatisfactory to the Parish, the Provider shall promptly obtain a new policy, timely submit same to the Parish for approval, and submit a certificate thereof as provided above. The Parish agrees not to unreasonably withhold approval of any insurance carrier selected by Provider. In the event that Parish cannot agree or otherwise authorize a carrier, Provider shall have the option of selecting and submitting a new insurance carrier within 30 days of said notice by the Parish. In the event that the second submission is insufficient or is not approved, then the Parish shall have the unilateral opportunity to thereafter select a responsive and responsible insurance carrier all at the cost of Provider and thereafter deduct from Provider's fee the cost of such insurance.
- E. Upon failure of Provider to furnish, deliver and/or maintain such insurance as above provided, this contract, at the election of the Parish, may be declared suspended, discontinued or terminated. Failure of the Provider to maintain insurance shall not relieve the Provider from any liability under the contract, nor shall the insurance requirements be construed to conflict with the obligation of the Provider concerning indemnification.
- F. Provider shall maintain a current copy of all annual insurance policies and agrees to provide a certificate of insurance to the Parish on an annual basis or as may be reasonably requested for the term of the contract or any required Extended Reporting Period. Provider further shall ensure that all insurance policies are maintained in full force and effect throughout the duration of the Project and shall provide the Parish with annual renewal certificates of insurance evidencing continued coverage, without any prompting by the Parish.
- G. It shall be the responsibility of Provider to require that these insurance requirements are met by all contractors and sub-contractors performing work for and on behalf of Provider. Provider shall further ensure the Parish is named as an additional insured on all insurance policies provided by said contractor and/or sub-contractor throughout the duration of the project.
- H. Certificates of Insurance shall be issued as follows:

**St. Tammany Parish Government
Attn: Risk Management
P O Box 628
Covington, LA 70434**

To avoid contract processing delays, be certain the project name/number is included on all correspondence including Certificates of Insurance.

***NOTICE: St. Tammany Parish Government reserves the rights to remove, replace, make additions to and/or modify any and all of the insurance requirements at any time.**

Any inquiry regarding these insurance requirements should be addressed to:

**St. Tammany Parish Government
Office of Risk Management
P O Box 628
Covington, LA 70434
Telephone: 985-898-5226
Email: riskman@stpgov.org**

Section 07

Project Signs

1. General

- a. Work to include providing and installing project sign(s) at the beginning of the project. Some projects may require multiple signs. Should more than one sign be required, it will be reflected in the bidding documents.

2. Materials


- a. The printed project sign(s) shall be 3/8" primed Medium Density Overlay (MDO) **OR** 3-millimeter corrugated plastic secured to exterior plywood (4' x 4').
- b. Contractor shall not use previously provided templates and/or fonts.

3. Execution

- a. The sign(s) shall be printed on a project-by-project basis in black and white, using the template and font provided to the Contractor by the St. Tammany Parish Government Project Manager.
- b. All signage proofed and approved by State Tammany Parish Government before project sign(s) are to be produced by the Contractor.
- c. Exact placement of the project sign(s) must be coordinated with, and approved by, the St. Tammany Parish Government Project Manager prior to sign installation.
- d. The sign(s) is to be installed such that the bottom of the sign is a minimum of 5' above the existing ground elevation.
- e. Sign(s) is to be maintained throughout the period of construction. If sign(s) is damaged or destroyed, repair and/or replacement of sign(s) will be at Contractor's expense.
- f. Contractor is responsible for the removal of all project signs upon issuance of final acceptance by the St. Tammany Parish Government Project Manager at no direct pay.
- g. Cost to be included in "Temporary Signs and Barricades

Blank Template of Parish Project Sign:

PROGRESS



MICHAEL B. COOPER
Parish President

Councilmember Name
Council District X

\$XXX,XXX.XX

Project Name
Description of
Project Work

Short Description of Project stated here
(if deemed applicable by the Parish)

Name of Street, Bridge,
Subdivision, etc. stated here

Total Dollar \$
amount specified here

Example of a Completed Parish Project Sign:

PROGRESS



MICHAEL B. COOPER
Parish President

RYKERT O. TOLEDANO, JR
Council District 5

\$514,444.40

**Dove Park
Subdivision Drainage**
Drainage Improvements along
Swallow St., Sparrow St.,
Partridge St. and Egret St.

Section 08

General Conditions for St. Tammany Parish Government

This index is for illustrative purposes only and is not intended to be complete nor exhaustive.

All bidders/contractors are presumed to have read and understood the entire document. Some information contained in these conditions may not be applicable to all projects.

GENERAL CONDITIONS INDEX

A.A.S.H.T.O	01.01
A.C.I.	01.02
ADDENDA	01.03, 01.05, 01.12, 02.13, 02.13, 06.02, 06.03
ADVERTISEMENT	01.04, 01.12, 02.21, 02.22, 02.23
AGREEMENT	01.05, 01.11, 01.12, 01.14, 01.15, 01.19, 03.02, 03.03, 03.04, 06.01, 06.02, 10.01, 11.03, 12.01, 14.02, 29.06, 32.01, 32.02, 33.06, 33.07
APPLICATION FOR PAYMENT	01.06, 29.07
A.S.T.M.	01.07
AWARD	03.00, 03.01, 03.04, 03.05
BID	01.08, 01.12, 01.26, 02.02, 02.04, 02.08, 02.09, 02.10, 02.13, 02.14, 02.17, 02.19, 02.21, 03.01, 03.04, 04.02, 14.03, 22.01, 23.01, 28.08
BIDDER	01.04, 01.08, 01.09, 01.26, 01.28, 02.02, 02.04, 02.06, 02.08, 02.09, 02.10, 02.12, 03.13, 02.14, 02.16, 02.17, 02.19, 02.20, 02.21, 02.24, 03.01, 03.04, 03.05, 23.01
BONDS	01.10, 01.12, 02.02, 02.09, 03.00, 03.03, 03.04, 03.05, 03.07, 03.08, 03.10, 03.12, 03.13, 27.06
CHANGE ORDER	01.11, 01.19, 04.01, 09.04, 11.07, 16.02, 16.06, 16.07, 21.06, 21.08, 21.10, 21.11, 29.06, 33.07
CLAIMS	02.15, 04.05, 09.05, 14.01, 16.04, 16.05, 21.16, 24.01
CLOSING ROADS COMMENCE WORK	16.06, 16.07, 16.15 04.04, 07.04, 09.02, 11.02, 14.02, 16.13, 24.02
COMPLETION OF WORK OR PROJECT	01.14, 02.15, 08.03, 09.01, 09.04, 11.00, 11.03, 12.01, 13.01, 13.11, 20.01, 25.01, 28.02, 29.04
CONDITIONS AT JOB SITE	16.17
CONTRACT DOCUMENTS	01.03, 01.03, 01.10, 01.12, 01.13, 01.16, 01.17, 01.18, 01.19, 01.29, 01.22, 01.25, 01.30, 01.33, 02.02, 02.05, 02.13, 02.17, 02.18, 02.23, 03.01, 03.02, 04.01, 04.02, 04.03, 04.04, 04.05, 06.00, 06.01, 06.02, 06.03, 07.02, 07.03, 07.05, 08.01, 10.06, 11.03, 13.01, 13.02, 21.01, 21.09, 21.10, 21.11, 28.01, 28.04, 33.01
CONTRACT PRICE	01.11, 01.13, 03.05, 04.01, 12.01, 14.02, 21.06, 21.10, 21.11, 27.05, 28.01, 28.02, 28.03, 28.08

CONTRACT TIME	01.11, 01.14, 01.22, 10.06, 11.01, 21.06, 29.04
CONTRACTOR - (Defined)	01.15
DAMAGE	02.15, 03.05, 03.12, 04.05, 09.05, 11.09, 13.11, 14.01, 14.02, 16.01, 16.02, 16.03, 16.04, 16.05, 19.01, 19.03, 20.01, 20.08, 23.03, 24.01, 24.07, 24.12, 26.03, 28.05, 28.01, 28.10, 33.07
DEFECTIVE WORK	01.16, 10.03, 21.00, 21.01, 21.07, 21.08, 21.09, 21.10, 28.03
DELAYS	07.02, 11.05, 11.09, 12.01, 16.07, 18.02, 19.01, 28.04
DRAWINGS	01.12, 01.17, 02.13, 02.17, 02.23, 06.01, 06.02, 06.03, 13.15, 22.02, 01.27, 01.33, 03.12, 04.01, 06.02, 09.01, 10.01, 10.02, 11.07, 13.00, 13.01, 13.03, 13.05, 13.11, 13.12, 13.15, 14.02, 14.07, 14.08, 14.09, 16.09, 16.13, 21.01, 21.06, 21.07, 21.14, 24.07, 27.05, 27.07, 28.01, 28.05, 28.10, 29.03, 13.00, 13.11
ENGINEER STATUS (NOT APPLICABLE)	15.00
EXTRA WORK	03.09, 14.00, 14.03, 14.04, 14.05, 14.08, 14.09, 14.10, 14.11, 14.12, 16.01, 22.02
FAILURE OF CONTRACTOR	03.10, 04.05, 06.02, 09.05, 10.01, 10.03, 13.10, 16.03, 20.01, 24.09, 27.02, 28.10
FAILURE OF OWNER	02.13
FAILURE OF SUCCESSFUL BIDDER	02.13, 02.17, 03.04
FIELD ORDER	01.18
FORCE ACCOUNT	14.04, 14.05, 14.11, 14.12
FUNDING	33.09
INDEMNIFY / HOLD HARMLESS	02.15, 03.05, 04.05, 13.11, 16.04, 16.05, 20.02, 24.06, 24.09
INDEMNIFYING INFRINGEMENT CLAUSE	02.15
INJURIES	16.00, 16.01, 16.02, 19.01, 19.03, 20.01, 24.02, 24.07
INSPECTION FEES	13.12
INSPECTIONS, GENERALLY	01.16, 13.05, 16.13, 21.00, 21.03, 21.04, 21.05, 21.06, 21.14, 21.15, 28.04, 29.02, 29.03
INSURANCE	01.05, 14.05, 16.13, 24.00 - 12, 27.07, 28.05
INTENTION OF CONTRACT DOCUMENTS	06.00, 06.01
INTENTION OF GENERAL CONDITIONS	31.00

LABOR	01.33, 03.12, 09.01, 13.00, 13.01, 13.02, 13.08, 13.10, 13.11, 13.12, 14.05, 16.06, 16.07, 21.06, 21.07, 21.15, 27.01, 28.10, 29.03
LAWS	01.10, 01.20, 02.06, 02.13, 02.14, 02.16, 02.20, 03.01, 03.10, 13.12, 16.06, 16.07, 20.02, 21.02, 21.09, 27.01, 29.06, 33.00, 33.01, 33.08
LIQUIDATED DAMAGES	11.03, 12.00, 12.01, 29.04
MATERIALS	01.33, 03.12, 04.01, 06.02, 07.01, 09.01, 10.01, 10.02, 13.00, 13.01, 13.03, 13.04, 13.05, 13.12, 13.13, 13.15, 14.01, 14.11, 20.01, 12.01, 21.07, 21.14, 21.15, 23.03, 27.01, 27.05, 27.07, 28.01, 28.05, 28.07, 28.08, 28.10
MODIFICATIONS	01.12, 01.19, 02.12, 02.13, 06.01, 06.02, 24.07, 32.02
NOTICE OF AWARD	01.20, 03.01, 03.04, 04.01
NOTICE OF DEFAULT	12.01, 33.08
NOTICE TO BIDDER	2.21
NOTICE TO CONTRACTOR	01.12, 01.21, 21.11, 30.01
NOTICE TO OWNER	13.07, 24.06, 27.07
NOTICE TO PROCEED	01.22, 09.02, 11.01, 11.03
OBSTRUCTIONS	16.09, 16.11, 16.15, 23.00, 23.01, 23.02
OCCUPANCY	25.00
ORAL INTERPRETATIONS	02.13
OWNER - (Defined)	01.23
PAYMENT	01.30, 03.10, 03.12, 03.13, 04.12, 09.03, 11.04, 11.09, 14.04, 14.12, 16.02, 16.16, 19.02, 21.07, 21.08, 21.09, 21.10, 21.11, 21.16, 24.02, 24.03, 24.12, 27.01, 27.07, 28.00, 28.01, 28.02, 28.03, 28.04, 28.05, 28.06, 28.08, 28.09, 28.10, 29.00, 29.03, 29.05, 29.07
PERMITS	13.00, 13.12, 16.13, 28.08
PRICE	02.05, 14.02, 14.03, 14.04, 14.05, 22.01
PROGRESS PAYMENT	01.06, 28.06
PROGRESS SCHEDULE	09.03, 09.05, 21.11
PROGRESS OF WORK	09.00, 11.09, 13.07, 16.01, 16.12, 21.11, 21.12, 22.02, 27.02
PROJECT	01.24, 01.29, 01.30, 02.04, 03.07, 06.01, 07.03, 10.02, 11.04, 11.06, 13.08, 13.13, 14.08, 14.11, 16.15, 24.07, 24.11, 28.07, 29.03, 29.07

PROJECT REPRESENTATIVE	01.23, 21.16
PROPERTY	16.00, 16.01, 16.02, 16.03, 16.12, 16.13, 16.17, 18.01, 19.00, 19.01, 19.02, 19.03, 23.03, 24.01, 24.07, 26.03, 28.10, 29.08, 33.05
PROPOSAL	01.26, 02.00, 02.01, 02.03, 02.05, 02.06, 02.07, 02.08, 02.09, 02.10, 02.11, 02.12, 02.14, 02.18, 02.21, 02.22, 11.03, 12.01, 14.01, 14.02, 14.03, 19.02, 23.02, 28.08
PROTESTS	33.10
PUNCH LIST	29.03, 29.04
QUANTITIES OF ESTIMATES	14.00, 14.01, 14.02, 14.04
RAILROADS	16.13, 19.01
RECORD DRAWINGS	08.00, 18.01, 18.02, 18.03
RECORDATION OF DOCUMENTS	03.13, 28.03, 29.05, 29.06
REJECTION OF BIDS	02.03, 02.07, 02.08, 02.10, 02.14, 03.01
RENTAL OF EQUIPMENT	14.07, 14.09
RIGHTS OF WAY	18.00
SAFETY	16.01, 16.07, 16.14, 16.17
SANITARY PROVISIONS	13.01, 17.00
SCHEDULE OF WORK	09.03, 09.04, 9.05, 11.06, 13.09
SEVERABILITY	32.01, 32.02
SHOP DRAWINGS	01.27, 06.03, 07.00, 07.01, 07.02, 07.03, 07.04, 07.05
SITE	02.17, 7.04, 13.05, 13.07, 13.11, 14.06, 16.09, 21.08, 21.09, 21.12, 22.02, 23.01, 24.07
SOLICITATION OF EMPLOYMENT	13.14
SPECIFICATIONS	01.01, 01.02, 01.05, 01.07, 01.12, 01.28, 02.13, 02.17, 02.23, 03.06, 03.09, 03.10, 03.13, 06.01, 06.02, 06.03, 07.04, 07.05, 11.03, 13.05, 13.15, 20.01, 21.12, 22.02, 28.01, 28.04, 32.01
SUBCONTRACTOR	01.27, 01.29, 04.01, 04.02, 04.03, 04.04, 04.05, 16.02, 16.04, 16.05, 20.01, 20.02, 21.07, 24.01, 24.07, 27.01, 28.07
SUBCONTRACTS	04.00, 13.09
SUBSURFACE CONDITIONS	02.17, 22.00, 22.01, 22.02
SUBSTANTIAL COMPLETION	01.30, 11.04, 21.09, 28.04, 29.01, 29.02, 29.03, 29.04, 29.06
SUPERINTENDENT	01.21, 01.31, 13.07, 14.05

SUPERVISION	13.01, 13.06
SURETY	01.05, 01.10, 02.09, 03.05, 03.06, 03.07, 03.08, 03.09, 03.11, 03.12, 04.05, 05.01, 14.03, 27.03, 27.05
SURVEY	13.02, 26.00, 26.01
TAXES	02.05, 13.00, 13.12, 13.13, 14.05, 28.07, 28.08, 28.10
TERMINATION OF CONTRACT	13.10, 24.09, 27.00, 27.01, 27.02, 27.03, 27.04, 27.05, 27.06, 27.07
TESTS, GENERALLY	21.00, 21.02, 21.03, 21.04, 21.05, 21.06
TIME	01.32
TRAFFIC	16.06, 16.07, 16.10, 16.15, 16.16
TRAFFIC HAZARDS	16.16
TREES AND SHRUBS	19.02
VERBAL INSTRUCTIONS	21.16
WAIVERS	24.06, 29.03, 33.08
WARNING DEVICES	16.13, 16.14, 16.15
WARRANTY	21.01, 21.08, 21.09, 33.04, 33.06
WORK	01.31, 20.01
WORK BY OTHERS	10.03, 10.04, 10.05
WORK BY OWNER	10.02, 10.04, 10.05
WORK FOR OTHER, RESTRICTIONS	16.12
WORK ORDER	28.01

01.00 DEFINITIONS OF TERMS

Whenever used in these General Conditions or in other Contract Documents, the following terms shall have the meanings indicated, and these shall be applicable to both the singular and plural thereof.

- 01.01 A.A.S.H.T.O American Association of State Highway and Transportation Officials. When A.A.S.H.T.O. is referred to in these Specifications it takes the meaning of the specification for materials and methods of testing specified by this association and the specification stated is considered to be a part of the Specifications as if written herein in full.
- 01.02 A.C.I American Concrete Institute. When A.C.I. is referred to in these Specifications it takes the meaning of the specification for materials and methods of testing specified by this institute and the specification stated is considered to be a part of the Specifications as if written herein in full.
- 01.03 Addenda Written or graphic instruments issued prior to the opening of bids which clarify, correct, modify or change the bidding or Contract Documents.
- 01.04 Advertisement The written instrument issued by the Owner at the request of the Owner used to notify the prospective bidder of the nature of the Work. It becomes part of the Contract Documents.
- 01.05 Agreement The written agreement or contract between the Owner and the Contractor covering the Work to be performed and the price that the Owner will pay. Other documents, including the Proposal, Addenda, Specifications, plans, surety, insurance, etc., are made a part thereof.
- 01.06 Application for Payment The form furnished by the Owner which is to be used by the Contractor in requesting incremental (progress) payments and which is to include information required by Section 28.01 and an affidavit of the Contractor. The affidavit shall stipulate that progress payments theretofore received from the Owner on account of the Work have been applied by Contractor to discharge in full of all Contractor's obligations reflected in prior applications for payment.
- 01.07 A.S.T.M. American Society of Testing Materials. When A.S.T.M. is referred to in these Specifications it takes the meaning of the specification for materials and methods of testing specified by this society and the specification stated is considered to be a part of the Specifications as if written herein in full.
- 01.08 Bid The offer or Proposal of the Bidder submitted on the prescribed form setting forth all the prices for the Work to be performed.
- 01.09 Bidder Any person, partnership, firm or corporation submitting a Bid for the Work.
- 01.10 Bonds Bid, performance and payment bonds and other instruments of security, furnished by the Contractor and its surety in accordance with the Contract Documents and Louisiana law.
- 01.11 Change Order A written order to the Contractor signed by the Owner authorizing an addition, deletion or revision in the Work, or an adjustment in the Contract Price or the Contract Time after execution of the Agreement.
- 01.12 Contract Documents The Agreement, Addenda, Contractor's Bid and any documentation accompanying or post-bid documentation when attached as an exhibit, the Bonds, these General Conditions, the Advertisement for Bid, Notice to Contractor, all supplementary conditions, the Specifications, the Drawings, together with all Modifications issued after the execution of the Agreement.
- 01.13 Contract Price The total monies payable to the Contractor under the Contract Documents.

- 01.14 Contract Time The number of consecutive calendar days stated in the Agreement for the completion of the Work.
- 01.15 Contractor The person, firm, corporation or provider with whom the Owner has executed the Agreement.
- 01.16 Defective Work When work which is unsatisfactory, faulty or deficient for any reason whatsoever, or does not conform to the Contract Documents, or does not meet the requirements of any inspection, test or approval referred to in the Contract Documents, or has been damaged prior to the Owner's recommendation or acceptance.
- 01.17 Drawings The Drawings and plans which show the character and scope of the Work to be performed and which have been prepared or approved by the Owner and are referred to in the Contract Documents.
- 01.18 Field Order A written order issued by the Owner or his agent which clarifies or interprets the Contract Documents.
- 01.19 Modification (a) A written amendment of the Contract Documents signed by both parties, (b) A Change Order, (c) A written clarification or interpretation issued by the Owner or his agent. Modification may only be issued after execution of the Agreement.
- 01.20 Notice of Award The written notice by Owner to the lowest responsible Bidder stating that upon compliance of the conditions enumerated in the Notice of Award, or enumerated in the Bid documents, the Owner will deliver the Contract Documents for signature. The time for the delivery of the Contract Documents can be extended in conformance with Louisiana Law.
- 01.21 Notice to Contractor Instructions, written or oral given by Owner to Contractor and deemed served if given to the Contractor's superintendent, foreman or mailed to Contractor at his last known place of business.
- 01.22 Notice to Proceed A written notice given by the Owner fixing the date on which the Contract Time will commence, and on which date the Contractor shall start to perform his obligation under the Contract Documents. Upon mutual consent by both parties, the Notice to Proceed may be extended.
- 01.23 Owner St. Tammany Parish Government, acting herein through its duly constituted and authorized representative, including but not limited to the Office of the Parish President or its designee, its Chief Administrative Officer, and/or Legal Counsel. St. Tammany Parish Government (hereinafter, the "Parish") and Owner may be used interchangeably.
- 01.24 Project The entire construction to be performed as provided in the Contract Documents.
- 01.25 Project Representative The authorized representative of the Owner who is assigned to the Project or any parts thereof.
- 01.26 Proposal The Bid submitted by the Bidder to the Owner on the Proposal form setting forth the Work to be done and the price for which the Bidder agrees to perform the Work.
- 01.27 Shop Drawings All drawings, diagrams, illustrations, brochures, schedules and other data which are prepared by the Contractor, Subcontractor, Manufacturer, Supplier or Distributor and which illustrate the equipment, material or some portion of the Work.
- 01.28 Specifications The Instructions to Bidders, these General Conditions, the Special Conditions and the Technical Provisions. All of the documents listed in the "Table of Contents."
- 01.29 Subcontractor An individual, firm or corporation having a direct Contract with the Contractor or with any other Subcontractor for the performance of a part of the Project Work.
- 01.30 Substantial Completion The date as certified by the Owner or its agent when the construction of the Project or a specified part thereof is sufficiently complete in accordance with the Contract Documents so that the Project or specified part can be utilized for the

purposes for which it was intended; or if there is no such certification, the date when final payment is due in accordance with Section 28.

- 01.31 Superintendent Contractor's site representative. The person on the site who is in full and complete charge of the Work.
- 01.32 Time Unless specifically stated otherwise, all time delays shall be calculated in calendar days.
- 01.33 Work Any and all obligations, duties and responsibilities necessary to the successful completion of the Project assigned to or undertaken by the Contractor under the Contract Documents, usually including the furnishing of all labor, materials, equipment and other incidentals.
- 01.34 The terms "he/himself" may be used interchangeably with "it/itself."

02.00 PROPOSAL

- 02.01 All papers bound with or attached to the Proposal Form are a necessary part thereof and must not be detached.
- 02.02 For submitting Bids, the only forms allowed shall be the "Louisiana Uniform Public Work Bid Form", "Louisiana Uniform Public Works Bid Form Unit Price Form" (if necessary), the Bid Bond, and written evidence of authority of person signing the bid. Necessary copies of the Louisiana Uniform Public Work Forms will be furnished for Bidding. Bound sets of the Contract Documents are for Bidder's information and should not be used in submitting Bids.
- 02.03 Proposal forms must be printed in ink or typed, unless submitted electronically. Illegibility or ambiguity therein may constitute justification for rejection of the Bid.
- 02.04 Each Bid must be submitted in a sealed envelope, unless submitted electronically. The outside of the envelope shall show the name and address of the Bidder, the State Contractor's License Number of the Bidder (if work requires contractor's license), and the Project name and number for which the Bid is submitted, along with the Bid number.
- 02.05 The price quoted for the Work shall be stated in words and figures on the Bid Form, and in numbers only on the Unit Price Form. The price in the Proposal shall include all costs necessary for the complete performance of the Work in full conformity with the conditions of the Contract Documents, and shall include all applicable Federal, State, Parish, Municipal or other taxes. The price bid for the items listed on the Unit Price Form will include the cost of all related items not listed, but which are normally required to do the type of Work bid.
- 02.06 The Bid shall be signed by the Bidder. The information required on the Louisiana Uniform Public Work Bid Form must be provided. Evidence of agency, corporate, or partnership authority is required and shall be provided in conformance with LSA-R.S. 38:2212(B).
- 02.07 Only the Contractors licensed by the State to do the type of Work involved can submit a Proposal for the Work. The envelope containing the Proposal shall have the Contractor's license number on it. Failure to be properly licensed constitutes authority by the Owner for rejection of Bid.
- 02.08 Bidders shall not attach any conditions or provisions to the Proposal. Any conditions or provisions so attached may, at the sole option of the Owner, cause rejection of the Bid or Proposal.
- 02.09 A Bid Guarantee of five percent (5%) of the amount of the total Bid, including Alternates, must accompany the Proposal and, at the option of the Bidder, may be a cashier's check, certified check or a satisfactory Bid Bond. The Bid Guarantee must be attached to the Louisiana Uniform Public Work Bid Form. No Bid will be considered unless it is so guaranteed. Cashier's check or certified check must be made payable to the order of the Owner. Cash deposits will not be accepted. The Owner reserves the right to cash or deposit the cashier's check or certified check. Such guarantees shall be made payable to the Parish

of St. Tammany. In accordance with LSA-R.S. 38:2218(C), if a bid bond is used, it shall be written by a surety or insurance company currently on the U.S. Department of the Treasury Financial Management Service list of approved bonding companies which is published annually in the Federal Register, or by a Louisiana domiciled insurance company with at least an A- rating in the latest printing of the A.M. Best's Key Rating Guide to write individual bonds up to ten percent of policyholders' surplus as shown in the A.M. Best's Key Rating Guide, or by an insurance company in good standing licensed to write bid bonds which is either domiciled in Louisiana or owned by Louisiana residents. It is **not** required to be on any AIA form.

- 02.10 Bid securities of the three (3) lowest Bidders will be retained by the Owner until the Contract is executed or until final disposition is made of the Bids submitted. Bid securities of all other Bidders will be returned promptly after the canvas of Bids. Bids shall remain binding for forty-five (45) days after the date set for Bid Opening. The Parish shall act within the forty-five (45) days to award the contract to the lowest responsible bidder or reject all bids as permitted by Public Bid Law. However, the Parish and the lowest responsible bidder, by mutual written consent, may agree to extend the deadline for award by one or more extensions of thirty (30) calendar days. In the event the Owner issued the Letter of Award during this period, or any extension thereof, the Bid accepted shall continue to remain binding until the Execution of the Contract.
- 02.11 A Proposal may be withdrawn at any time prior to the scheduled closing time for receipt of Bids, provided the request is in writing, executed by the Bidder or its duly authorized representative and is filed with the Owner prior to that time. When such a request is received, the Proposal will be returned to the Bidder unopened.
- 02.12 Written communications, over the signature of the Bidder, to modify Proposals will be accepted and the Proposal corrected in accordance therewith if received by the Owner prior to the scheduled closing time for receipt of Bids. Oral, telephonic or telegraphic Modifications will not be considered.
- 02.13 No oral interpretation obligating the Owner will be made to any Bidder as to the meaning of the Drawings, Specifications and Contract Documents. Every request for such an interpretation shall be made in writing and addressed and forwarded to the Owner. No inquiry received within seven (7) days prior to the day fixed for opening of the Bids shall be given consideration. Every interpretation made to the Bidder shall be in the form of an addendum to the Specifications. All such Addenda shall become part of the Contract Documents. Failure of Bidder to receive any such interpretation shall not relieve any Bidder from any obligation under this Bid. All Addenda shall be issued in accordance with the Public Bid Law, LSA-R.S. 38:2212(O)(2)(a) and (b).
- 02.14 The Owner reserves the right to reject any or all Bids for just cause in accordance with the Public Bid Law, LSA-R.S. 38:2214(B). Incomplete, informal or unbalanced Bids may be rejected. Reasonable grounds for belief that any one Bidder is concerned directly or indirectly with more than one Bid will cause rejection of all Bids wherein such Bidder is concerned. If required, a Bidder shall furnish satisfactory evidence of its competence and ability to perform the Work stipulated in its Proposal. Incompetence will constitute cause for rejection. If the Parish determines that the bidder is not responsive or responsible for any reason whatsoever, the bid may be rejected in accordance with State law.
- 02.15 The Contractor shall indemnify and hold harmless the Owner from any and all suits, costs, penalties or claims for infringement by reason of use or installation of any patented design, device, material or process, or any trademark and copyright in connection with the Work agreed to be performed under this Contract, and shall indemnify and hold harmless the Owner for any costs, expenses and damages which it may be obliged to pay by reason of any such infringement at any time during the prosecution or after completion of the Work.
- 02.16 Bidders shall familiarize themselves with and shall comply with all applicable Federal and State Laws, municipal ordinances and the rules and regulations of all authorities having jurisdiction over construction of the Project, which may directly or indirectly affect the Work or its prosecution. These laws and/or ordinances will be deemed to be included in the Contract, as though herein written in full.
- 02.17 Each Bidder shall visit the site of the proposed Work and fully acquaint itself with all surface and subsurface conditions as they may exist so that it may fully understand this

Contract. Bidder shall also thoroughly examine and be familiar with drawings, Specifications and Contract Documents. The failure or omission of any Bidder to receive or examine any form instrument, Drawing or document or to visit the site and acquaint itself with existing conditions, shall in no way relieve any Bidder from any obligation with respect to its Bid and the responsibility in the premises.

- 02.18 The standard contract form enclosed with the Proposal documents is a prototype. It is enclosed with the Contract Documents for the guidance of the Owner and the Contractor. It has important legal consequences in all respects and consultation with an attorney is encouraged. Contractor shall be presumed to have consulted with its own independent legal counsel.
- 02.19 When one set of Contract plans show the Work to be performed by two or more prime Contractors, it is the responsibility of each Bidder to become knowledgeable of the Work to be performed by the other where the Work upon which this bid is submitted is shown to come into close proximity or into conflict with the Work of the other. In avoiding conflicts, pressure pipe lines must be installed to avoid conflict with gravity pipe lines and the Bidder of the smaller gravity pipe line in conflict with the larger gravity pipe line must include in his Bid the cost of a conflict box at these locations. The location of and a solution to the conflicts do not have to be specifically noted as such on the plans.
- 02.20 Bidder shall execute affidavit(s) attesting compliance with LSA-R.S. 38:2212.10, 38:2224, 38:2227, each as amended, and other affidavits as required by law, prior to execution of the contract.
- 02.21 Sealed Proposals (Bid) shall be received by St. Tammany Parish Government at the office of St. Tammany Parish Government, Department of Procurement, 21454 Koop Drive, Suite 2-F, Mandeville, LA 70471, until the time and date denoted in Notice to Bidders, at which time and place the Proposals (Bids), shall be publicly opened and read aloud to those present. In accordance with LSA-R.S. 38-2212(A)(3)(c)(i), the designer's final estimated cost of construction shall be read aloud upon opening bids. Sealed Proposals (Bids) may also be mailed by certified mail to St. Tammany Parish Government, Department of Procurement, 21454 Koop Drive, Suite 2-F, Mandeville, LA 70471, and must be received before the bid opening. Bids may also be submitted electronically. Information concerning links for electronic bidding is contained in the Notice to Bidders.
- 02.22 Proposals (Bids) shall be executed on Forms furnished and placed in a sealed envelope, marked plainly and prominently as indicated in the Notice to Bidders, and these General Conditions, and addressed:

St. Tammany Parish Government
Department of Procurement
21454 Koop Drive, Suite 2-F
Mandeville, LA 70471

- 02.23 See Notice to Bidders for availability of Drawings, Specifications and Contract Documents via electronic methods.
- 02.24 The successful Bidder shall be required to post in each direction a public information sign, 4' x 4' in size, at the location of the project containing information required by the Owner. The Owner shall supply this information.

03.00 AWARD, EXECUTION OF DOCUMENTS, BONDS, ETC.

- 03.01 The award of the Contract, if it is awarded, will be to the lowest responsible Bidder, in accordance with State Law. No award will be made until the Owner has concluded such investigations as it deems necessary to establish the responsibility, qualifications and financial ability and stability of the Bidder to do the Work in accordance with the Contract Documents to the satisfaction of the Owner within the time prescribed as established by the Department based upon the amount of work to be performed and the conditions of same. The written contract and bond shall be issued in conformance with LSA-R.S. 38:2216. The Owner reserves the right to reject the Bid of any Bidder in accordance with the Public Bid Law, LSA-R.S. 38:2214. If the Contract is awarded, the Owner shall give the successful Bidder written notice of the award within forty-five (45) calendar days after

the opening of the Bids in conformance with LSA-R.S. 38:2215(A), or any extension as authorized thereunder.

- 03.02 At least three counterparts of the Agreement and of such other Contract Documents as practicable shall be signed by the Owner and the Contractor. The Owner shall identify those portions of the Contract Documents not so signed and such identification shall be binding on both parties. The Owner and the Contractor shall each receive an executed counterpart of the Contract Documents.
- 03.03 Prior to the execution of the Agreement, the Contractor shall deliver to the Owner the required Bonds.
- 03.04 Failure of the successful Bidder to execute the Agreement and deliver the required Bonds within twenty (20) days of the Notice of the Award shall be just cause for the Owner to annul the award and declare the Bid and any guarantee thereof forfeited.
- 03.05 In order to ensure the faithful performance of each and every condition, stipulation and requirement of the Contract and to indemnify and save harmless the Owner from any and all damages, either directly or indirectly arising out of any failure to perform same, the successful Bidder to whom the Contract is awarded shall furnish a surety Bond in an amount of at least equal to one hundred percent (100%) of the Contract Price. The Contract shall not be in force or binding upon the Owner until such satisfactory Bond has been provided to and approved by the Parish. The cost of the Bond shall be paid for by the Contractor unless otherwise stipulated in the Special Provisions.
- 03.06 No surety Company will be accepted as a bondsman who has no permanent agent or representative in the State upon whom notices referred to in the General Conditions of these Specifications may be served. Services of said notice on said agent or representative in the State shall be equal to service of notice on the President of the Surety Company, or such other officer as may be concerned.
- 03.07 In conformance with LSA-R.S. 38:2219(A)(1)(a), (b), and (c):

Any surety bond written for a public works project shall be written by a surety or insurance company currently on the U.S. Department of the Treasury Financial Management Service list of approved bonding companies which is published annually in the Federal Register, or by a Louisiana domiciled insurance company with at least an A- rating in the latest printing of the A.M. Best's Key Rating Guide, to write individual bonds up to ten percent of policyholders' surplus as shown in the A.M. Best's Key Rating Guide or by an insurance company that is either domiciled in Louisiana or owned by Louisiana residents and is licensed to write surety bonds.

For any public works project, no surety or insurance company shall write a bond which is in excess of the amount indicated as approved by the U.S. Department of the Treasury Financial Management Service list or by a Louisiana domiciled insurance company with an A- rating by A.M. Best up to a limit of ten percent of policyholders' surplus as shown by A.M. Best; companies authorized by this Paragraph who are not on the treasury list shall not write a bond when the penalty exceeds fifteen percent of its capital and surplus, such capital and surplus being the amount by which the company's assets exceed its liabilities as reflected by the most recent financial statements filed by the company with the Department of Insurance.

In addition, any surety bond written for a public works project shall be written by a surety or insurance company that is currently licensed to do business in the state of Louisiana. All contractors must comply with any other applicable provisions of LSA-R.S. 38:2219.

- 03.08 Should the Contractor's Surety, even though approved and accepted by the Owner, subsequently remove its agency or representative from the State or become insolvent, bankrupt, or otherwise fail, the Contractor shall immediately furnish a new Bond in another company approved by the Owner, at no cost to the Owner. The new Bond shall be executed under the same terms and conditions as the original Bond. The new bond shall be submitted within thirty (30) days of such time as the Owner notifies Contractor or from the time Contractor learns or has reason to know that the original surety is no longer financially viable or acceptable to the Parish, whichever occurs first. In the event that Contractor fails

or refuses to timely secure additional surety, then the Owner may secure such surety and thereafter deduct such cost or expense from any sum due or to become due Contractor.

- 03.09 The Contractor's bondsman shall obligate itself to all the terms and covenants of these Specifications and of contracts covering the Work executed hereunder. The Owner reserves the right to do Extra Work or make changes by altering, adding to deducting from the Work under the conditions and in the manner herein before described without notice to the Contractor's surety and without in any manner affecting the liability of bondsman or releasing it from any of its obligations hereunder.
- 03.10 The Bond shall also secure for the Owner the faithful performance of the Contract in strict accordance with plans and Specifications. It shall protect the Owner against all lien laws of the State and shall provide for payment of reasonable attorney fees for enforcement of Contract and institution or concursus proceedings, if such proceedings become necessary. Likewise, it shall provide for all additional expenses of the Owner occurring through failure of the Contractor to perform.
- 03.11 The surety of the Contractor shall be and does hereby declare and acknowledge itself by acceptance to be bound to the Owner as a guarantor, jointly and in solido, with the Contractor, for fulfillment of terms of Section 03.00.
- 03.12 The performance Bond and Labor and Material Bond forming part of this Contract shall be continued by Contractor and its Surety for a period of one (1) year from date of acceptance of this Contract by Owner to assure prompt removal and replacement of all defective material, equipment, components thereof, workmanship, etc., and to assure payment of any damage to property of Owner or others as a result of such defective materials, equipment, workmanship, etc.
- 03.13 Contractor shall pay for the cost of recording the Contract and Bond and the cost of canceling same. Contractor shall also secure and pay for all Clear Lien and Privilege Certificates (together with any updates) which will be required before any final payment is made, and that may be required before any payment, at the request of the Owner, its representative, agent, architect, engineer and the like. All recordation and Clear Lien and Privilege Certificate requirements shall be in accordance with those requirements noted herein before in contract Specifications.

04.00 SUBCONTRACTS

- 04.01 Contractor shall be fully responsible for all acts and omissions of its Subcontractors and of persons and organizations for whose acts any of them may be liable to the same extent that it is responsible for the acts and omissions of persons directly employed by it. Nothing in the Contract Documents shall create any contractual relationship between Owner and any Subcontractor or other person or organization having a direct Contract with Contractor, nor shall it create any obligation on the part of the Owner to pay or to see to the payment of any monies due any Subcontractor.
- 04.02 Nothing in the Contract Documents shall be construed to control the Contractor in dividing the Work among approved Subcontractors or delineating the Work to be performed by any trade.
- 04.03 The Contractor agrees to specifically bind every Subcontractor to all of the applicable terms and conditions of the Contract Documents prior to commencing Work. Every Subcontractor, by undertaking to perform any of the Work, shall thereby automatically be deemed bound by such terms and conditions.
- 04.04 The Contractor shall indemnify and hold harmless the Owner and their agents and employees from and against all claims, damages, losses and expenses including Attorney's fees arising out of or resulting from the Contractor's failure to bind every Subcontractor and Contractor's surety to all of the applicable terms and conditions of the Contract Documents.

05.00 ASSIGNMENT

05.01 Neither party to this Contract shall assign or sublet its interest in this Contract without prior written consent of the other, nor shall the Contractor assign any monies due or to become due to it under this Contract without previous written consent of the Owner, nor without the consent of the surety unless the surety has waived its right to notice of assignment.

06.00 CORRELATION, INTERPRETATION AND INTENT OF CONTRACT DOCUMENTS.

06.01 It is the intent of the Specifications and Drawings to describe a complete Project to be constructed in accordance with the Contract Documents. The Contract Documents comprise the entire Agreement between Owner and Contractor. Alterations, modifications and amendments shall only be in writing between these parties.

06.02 The Contract Documents are intended to be complimentary and to be read *in pari materii*, and what is called for by one is as binding as if called for by all. If Contractor finds a conflict, error or discrepancy in the Contract Documents, it shall call it to the Owner's attention, in writing, at once and before proceeding with the Work affected thereby; however, it shall be liable to Owner for its failure to discover any conflict, error or discrepancy in the Specifications or Drawings. In resolving such conflicts, errors and discrepancies, the documents shall be given precedence in the following order: Agreement, Modifications, Addenda, Special Conditions, General Conditions, Construction Specifications and Drawings. The general notes on the plans shall be considered special provisions. Figure dimensions on Drawings shall govern over scale dimensions and detail Drawings shall govern over general Drawings. Where sewer connections are shown to fall on a lot line between two lots, the Contractor shall determine this location by measurement not by scale. Any Work that may reasonably be inferred from the Specifications or Drawings as being required to produce the intended result shall be supplied whether or not it is specifically called for. Work, materials or equipment described herein which so applied to this Project are covered by a well-known technical meaning or specification shall be deemed to be governed by such recognized standards unless specifically excluded.

06.03 Unless otherwise provided in the Contract Documents, the Owner will furnish to the Contractor (free of charge not to exceed ten (10) copies) Drawings and Specifications for the execution of Work. The Drawings and Specifications are the property of the Owner and are to be returned to it when the purpose for which they are intended have been served. The Contractor shall keep one copy of all Drawings and Specifications, including revisions, Addenda, details, Shop Drawings, etc. on the Work in good order and available to the Owner or the regulatory agency of the governmental body having jurisdiction in the area of the Work.

07.00 SHOP DRAWINGS, BROCHURES AND SAMPLES

07.01 After checking and verifying all field measurements, Contractor shall submit to Owner for approval, five copies (or at Owner's option, one reproducible copy) of all Shop Drawings, which shall have been checked by and stamped with the approval of Contractor and identified as Owner may require. The data shown on the Shop Drawings will be complete with respect to dimensions, design criteria, materials of construction and the like to enable Owner to review the information as required.

07.02 Contractor shall also submit to Owner, for review with such promptness as to cause no delay in Work, all samples as required by the Contract Documents. All samples will have been checked by and stamped with the approval of Contractor identified clearly as to material, manufacturer, any pertinent catalog numbers and the use for which intended. At the time of each submission, Contractor shall in writing call Owner's attention to any deviations that the Shop Drawings or samples may have from the requirements of the Contract Documents.

07.03 Owner will review with reasonable promptness Shop Drawings and samples, but its review shall be only for conformance with the design concept of the Project and for compliance with the information given in the Contract Documents. The review of a separate item as such will not indicate approval of the assembly in which the item functions. Contractor shall make any corrections required by Owner and shall return the required number of

corrected copies of Shop Drawings and resubmit new samples for review. Contractor shall direct specific attention in writing or on resubmitted Shop Drawings to revisions other than the corrections called for by Owner on previous submissions. Contractor's stamp of approval on any Shop Drawing or sample shall constitute a representation to Owner that Contractor has determined and verified all quantities, dimensions, field construction criteria, materials catalog numbers and similar data and thereafter assumes full responsibility for doing so, and that it has reviewed or coordinated each Shop Drawing or sample with the requirements of the Work and the Contract Documents.

07.04 Where a Shop Drawing or sample submission is required by the Specifications, no related Work shall be commenced until the submission has been reviewed by Owner. A copy of each reviewed shop Drawing and each inspected sample shall be kept in good order by Contractor at the site and shall be available to Owner.

07.05 Owner's review of Shop Drawings or samples shall not relieve Contractor from its responsibility for any deviations from the requirements of the Contract Documents unless Contractor has in writing called Owner's attention to such deviation at the time of submission and Owner has given written approval to the specific deviation, nor shall any review by Owner relieve Contractor from responsibility for errors or omissions in the Shop Drawings. The mere submittal of shop drawings which contain deviations from the requirements of plans, specifications and/or previous submittals in itself does not satisfy this requirement.

08.00 RECORD DRAWINGS

08.01 The Contractor shall keep an accurate record in a manner approved by the Owner of all changes in the Contract Documents during construction. In Work concerning underground utilities, the Contractor shall keep an accurate record in a manner approved by the Owner of all valves, fittings, etc. Before the Work is accepted by the Owner, and said acceptance is recorded, the Contractor shall furnish the Owner a copy of this record.

08.02 Contractor shall keep an accurate drawing measured in the field to the nearest 0.1' of the location of all sewer house connections. The location shown shall be the end of the connection at the property line measured along the main line of pipe from a manhole.

08.03 Contractor shall keep an accurate drawing of the storm water drainage collection system. Inverts to the nearest 0.01' and top of castings shall be shown as well as location of all structures to the nearest 0.1'. Upon completion of the Work, the plan will be given to the Owner.

09.00 PROGRESS OF WORK

09.01 Contractor shall conduct the Work in such a professional manner and with sufficient materials, equipment and labor as is considered necessary to ensure its completion within the time limit specified.

09.02 The Owner shall issue a Notice to Proceed to the Contractor within twenty (20) calendar days from the date of execution of the Contract. Upon mutual consent by both parties, the Notice to Proceed may be extended. The Contractor is to commence Work under the Contract within ten (10) calendar days from the date the Notice to Proceed is issued by the Owner.

09.03 The Contractor, immediately after being awarded the Contract, shall prepare and submit for the Owner's approval an estimated progress schedule for the work to be performed, as well as a construction signing layout for all roads within the project area. The Contractor shall not start work or request partial payment until the work schedule has been submitted to the Owner for approval.

09.04 Revisions to the original schedule will be made based on extension of days granted for inclement weather or change orders issued under the contract. No other revision shall be made which affects the original completion or updated completion date, whichever is applicable.

09.05 Failure of the Contractor to submit an estimated progress schedule or to complete timely and on schedule the Work shown on the progress schedule negates any and all causes or claims by the Contractor for accelerated completion damages. These accelerated damage claims shall be deemed forfeited.

09.06 Meetings will be held as often as necessary to expedite the progress of the job. Meetings will be held during normal working hours at the jobsite and shall be mandatory for the Contractor and all Sub-Contractors working on the project. Meetings may be requested by the Owner at any time and at the discretion of the Owner.

10.00 OWNER'S RIGHT TO PROCEED WITH PORTIONS OF THE WORK

10.01 Upon failure of the Contractor to comply with any notice given in accordance with the provisions hereof, the Owner shall have the alternative right, instead of assuming charge of the entire Work, to place additional forces, tools, equipment and materials on parts of the Work. The cost incurred by the Owner in carrying on such parts of the Work shall be payable by the Contractor. Such Work shall be deemed to be carried on by the Owner on account of the Contractor. The Owner may retain all amounts of the cost of such Work from any sum due Contractor or those funds that may become due to Contractor under this Agreement.

10.02 Owner may perform additional Work related to the Project by itself or it may let any other direct contract which may contain similar General Conditions. Contractor shall afford the other contractors who are parties to such different contracts (or Owner, if it is performing the additional Work itself) reasonable opportunity for the introduction and storage of materials and equipment and the execution of Work, and shall properly connect and coordinate its Work with the subsequent work.

10.03 If any part of Contractor's Work depends upon proper execution or results upon the Work of any such other contractor (or Owner), Contractor shall inspect and promptly report to Owner in writing any defects or deficiencies in such Work that render it unsuitable for such proper execution and results. Failure to so report shall constitute an acceptance of the other Work as fit and proper for the relationship of its Work except as to defects and deficiencies which may appear in the other Work after the execution of its Work.

10.04 Whatever Work is being done by the Owner, other Contractors or by this Contractor, the parties shall respect the various interests of the other parties at all times. The Owner may, at its sole discretion, establish additional rules and regulations concerning such orderly respect of the rights of various interests.

10.05 Contractor shall do all cutting, fitting and patching of its Work that may be required to integrate its several parts properly and fit to receive or be received by such other Work. Contractor shall not endanger any Work of others by cutting, excavating or otherwise altering Work and will only alter Work with the written consent of Owner and of the other contractors whose Work will be affected.

10.06 If the performance of additional Work by other contractors or Owner is not noted in the Contract Documents, written notice thereof shall be given to Contractor prior to starting any such additional Work. If Contractor believes that the performance of such additional Work by Owner or others may cause additional expense or entitles an extension of the Contract Time, the Contractor may make a claim therefor. The claim must be in writing to the Owner within thirty (30) calendar days of receipt of notice from the Owner of the planned additional Work by others.

11.00 TIME OF COMPLETION

11.01 The Notice to Proceed will stipulate the date on which the Contractor shall begin work. That date shall be the beginning of the Contract Time charges.

11.02 Contractor shall notify the Owner through its duly authorized representative, in advance, of where Contractor's work shall commence each day. A daily log shall be maintained by Contractor to establish dates, times, persons contacted, and location of work. Specific notice shall be made to the Owner if the Contractor plans to work on Saturday, Sunday, or

a Parish approved holiday. If notice is not received, no consideration will be given for inclement weather and same shall be considered a valid work day.

11.03 The Work covered by the Plans, Specifications and Contract Documents must be completed sufficiently for acceptance within the number of calendar days specified in the Proposal and/or the Contract, commencing from the date specified in the Notice to Proceed. It is hereby understood and mutually agreed, by and between the Contractor and the Owner, that the time of completion is an essential condition of this Contract, and it is further mutually understood and agreed that if the Contractor shall neglect, fail or refuse to complete the Work within the time specified, or any proper extension thereof granted by the Owner, then the Contractor does hereby agree, as partial consideration for the awarding of this Contract, to pay the Owner based on **Table 3.1** as specified in the Contract, not as a penalty, but as liquidated damages for such breach of contract for each and every calendar day that the Contractor shall be in default after the time stipulated in the Contract for completing the Work. It is specifically understood that the Owner shall also be entitled to receive a reasonable attorney fee and all costs in the event that Contractor fails to adhere to this agreement and this contract is referred to counsel for any reason whatsoever. Reasonable attorney fees shall be the prevailing hourly rate of the private sector, and in no event shall the hourly rate be less than \$175.00 per hour. All attorney fees shall be paid to the operating budget of the Office of the Parish President.

11.04 Prior to final payment, the Contractor may, in writing to the Owner, certify that the entire Project is substantially complete and request that the Owner or its agent issue a certificate of Substantial Completion. See Section 29.00.

11.05 The Owner may grant an extension(s) of time to the Contractor for unusual circumstances which are beyond the control of the Contractor and could not reasonably be foreseen by the Contractor prior to Bidding. Any such request must be made in writing to the Owner within seven (7) calendar days following the event occasioning the delay. The Owner shall have the exclusive and unilateral authority to determine, grant, and/or deny the validity of any such claim.

11.06 Extensions of time for inclement weather shall be processed as follows:

Commencing on the start date of each job, the Parish Inspector assigned to same shall keep a weekly log, indicating on each day whether inclement weather has prohibited the Contractor from working on any project within the specific job, based upon the following:

1. Should the Contractor prepare to begin work on any day in which inclement weather, or the conditions resulting from the weather, prevent work from beginning at the usual starting time, and the crew is dismissed as a result, the Contractor will not be charged for a working day whether or not conditions change during the day and the rest of the day becomes suitable for work.
2. If weather conditions on the previous day prevent Contractor from performing work scheduled, provided that no other work can be performed on any project within the package. The Parish Inspector shall determine if it is financially reasonable to require the Contractor to deviate from the schedule and relocate to another location.
3. If the Contractor is unable to work at least 60% of the normal work day due to inclement weather, provided that a normal working force is engaged on the job.

Any dispute of weather conditions as related to a specific job shall be settled by records of the National Weather Service.

11.07 Extensions of time for change orders

When a change order is issued, the Owner and Contractor will agree on a reasonable time extension, if any, to implement such change. Consideration shall be given for, but not limited to, the following:

1. If material has to be ordered;
2. Remobilization and or relocation of equipment to perform task; and
3. Reasonable time frame to complete additional work.

Time extensions for change orders shall be reflected on the official document signed by the Owner and Contractor.

- 11.08 At the end of each month, the Owner or its agent will furnish to the Contractor a monthly statement which reflects the number of approved days added to the contract. The Contractor will be allowed fourteen (14) calendar days in which to file a written protest setting forth in what respect the monthly statement is incorrect; otherwise, the statement shall be considered accepted by the Contractor as correct.
- 11.09 Apart from extension of time for unavoidable delays, no payment or allowance of any kind shall be made to the Contractor as compensation for damages because of hindrance or delay for any cause in the progress of the Work, whether such delay be avoidable or unavoidable.

12.00 LIQUIDATED DAMAGES

- 12.01 In case the Work is not completed in every respect within the time that may be extended, it is understood and agreed that per diem deductions per **Table 3.1** for liquidated damages, as stipulated in the Proposal and/or Contract, shall be made from the total Contract Price for each and every calendar day after and exclusive of the day on which completion was required, and up to the completion of the Work and acceptance thereof by the Owner. It is understood and agreed that time is of the essence to this Contract, and the above sum being specifically herein agreed upon in advance as the measure of damages to the Owner on account of such delay in the completion of the Work. It is further agreed that the expiration of the term herein assigned or as may be extended for performing the Work shall, *ipso facto*, constitute a putting in default, the Contractor hereby waiving any and all notice of default. The Contractor agrees and consents that the Contract Price, reduced by the aggregate of the entire damages so deducted, shall be accepted in full satisfaction of all Work executed under this Contract. It is further understood and agreed that Contractor shall be liable for a reasonable attorney fee and all costs associated with any breach of this agreement, including but not limited to this subsection. In the event that any dispute or breach herein causes referrals to counsel, then Contractor agrees to pay a reasonable attorney fee at the prevailing hourly rate of the private sector. In no event shall the hourly rate be less than \$175.00 per hour.

13.00 LABOR, MATERIALS, EQUIPMENT, SUPERVISION, PERMITS AND TAXES

- 13.01 The Contractor shall provide and pay for all labor, materials, equipment, supervision, subcontracting, transportation, tools, fuel, power, water, sanitary facilities and all incidentals necessary for the completion of the Work in substantial conformance with the Contract Documents.
- 13.02 The Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. It shall at all times maintain good discipline and order at the site.
- 13.03 Unless otherwise specifically provided for in the Specifications, all workmanship, equipment, materials, and articles incorporated in the Work covered by this Contract are to be new and of the best grade of their respective kinds for the purpose intended. Samples of materials furnished under this Contract shall be submitted for approval to the Owner when and as directed.
- 13.04 Whenever a material or article required is specified or shown on the plans by using the name of a proprietary product or of a particular manufacturer or vendor, any material or article which shall perform adequately the duties imposed by the general design will be considered equal, and satisfactory, providing the material or article so proposed is of equal substance and function and that all technical data concerning the proposed substitution be approved by the Owner prior to the Bidding. The Owner shall have the exclusive and unilateral discretion to determine quality and suitability in accordance with LSA-R.S. 38:2212(T)(2).

- 13.05 Materials shall be properly and securely stored so as to ensure the preservation of quality and fitness for the Work, and in a manner that leaves the material accessible to inspection. Materials or equipment may not be stored on the site in a manner such that it will interfere with the continued operation of streets and driveways or other contractors working on the site.
- 13.06 The Contractor, by entering into the Contract for this Work, sets itself forth as an expert in the field of construction and it shall supervise and direct the Work efficiently and with its best skill and attention. It shall be solely responsible for the means, methods, techniques, sequences and procedures of construction.
- 13.07 Contractor shall keep on the Work, at all times during its progress, a competent resident Superintendent, who shall not be replaced without written Notice to Owner except under extraordinary circumstances. The Superintendent will be Contractor's representative at the site and shall have authority to act on behalf of Contractor. All communications given to the Superintendent shall be as binding as if given to the Contractor. Owner specifically reserves the right to approve and/or disapprove the retention of a new superintendent, all to not be unreasonably withheld.
- 13.08 Any foreman or workman employed on this Project who disregards orders or instructions, does not perform his Work in a proper and skillful manner, or is otherwise objectionable, shall, at the written request of the Owner, be removed from the Work and shall be replaced by a suitable foreman or workman.
- 13.09 The Contractor and/or its assigned representative shall personally ensure that all subcontracts and divisions of the Work are executed in a proper and workmanlike manner, on scheduled time, and with due and proper cooperation.
- 13.10 Failure of the Contractor to keep the necessary qualified personnel on the Work shall be considered cause for termination of the Contract by the Owner.
- 13.11 Only equipment in good working order and suitable for the type of Work involved shall be brought onto the job and used by the Contractor. The Contractor is solely responsible for the proper maintenance and use of its equipment and shall hold the Owner harmless from any damages or suits for damages arising out of the improper selection or use of equipment. No piece of equipment necessary for the completion of the Work shall be removed from the job site without approval of the Owner.
- 13.12 All Federal, State and local taxes due or payable during the time of Contract on materials, equipment, labor or transportation, in connection with this Work, must be included in the amount bid by the Contractor and shall be paid to proper authorities before acceptance. The Contractor shall furnish all necessary permits and certificates and comply with all laws and ordinances applicable to the locality of the Work. The cost of all inspection fees levied by any governmental entity whatsoever shall be paid for by the Contractor.
- 13.13 In accordance with St. Tammany Police Jury Resolution 86-2672, as amended, the Contractor must provide in a form suitable to the Owner an affidavit stating that all applicable sales taxes for materials used on this project have been paid.
- 13.14 During the period that this Contract is in force, neither party to the Contract shall solicit for employment or employ an employee of the other.
- 13.15 All materials or equipment shown on the Drawings or included in these specifications shall be furnished unless written approval of a substitute is obtained from the Designer, or Owner if no separate designer.
- 13.16 If a potential supplier wishes to submit for prior approval a particular product other than a product specified in the contract documents, he shall do so no later than seven working days prior to the opening of bids. Within three days, exclusive of holidays and weekends, after such submission, the prime design professional shall furnish to both the public entity and the potential supplier written approval or denial of the product submitted. The burden of proof of the equality of the proposed substitute is upon the proposer and only that information formally submitted shall be used by the Designer in making its decision.

13.17 The decision of the Designer/Owner shall be given in good faith and shall be final.

14.00 QUANTITIES OF ESTIMATE, CHANGES IN QUANTITIES, EXTRA WORK

14.01 Whenever the estimated quantities of Work to be done and materials to be furnished under this Contract are shown in any of the documents, including the Proposal, such are given for use in comparing Bids and the right is especially reserved, except as herein otherwise specifically limited, to increase or diminish same not to exceed twenty-five percent (25%) by the Owner to complete the Work contemplated by this Contract. Such increase or diminution shall in no way vitiate this Contract, nor shall such increase or diminution give cause for claims or liability for damages.

14.02 The Owner shall have the right to make alterations in the line, grade, plans, form or dimensions of the Work herein contemplated, provided such alterations do not change the total cost of the Project, based on the originally estimated quantities, and the unit prices bid by more than twenty-five percent (25%) and provided further that such alterations do not change the total cost of any major item, based on the originally estimated quantities and the unit price bid by more than twenty-five (25%). (A major item shall be construed to be any item, the total cost of which is equal to or greater than ten percent (10%) of the total Contract Price, computed on the basis of the Proposal quantity and the Contract unit price). Should it become necessary, for the best interest of the Owner, to make changes in excess of that herein specified, the same shall be covered by supplemental agreement either before or after the commencement of the Work and without notice to the sureties. If such alterations diminish the quantity of Work to be done, such shall not constitute a claim for damages for anticipated profits for the Work dispensed with, but when the reduction in amount is a material part of the Work contemplated, the Contractor shall be entitled to only reasonable compensation as determined by the Owner for overhead and equipment charges which it may have incurred in expectation of the quantity of Work originally estimated, unless specifically otherwise provided herein; if the alterations increase the amount of Work, the increase shall be paid according to the quantity of Work actually done and at the price established for such Work under this Contract except where, in the opinion of the Owner, the Contractor is clearly entitled to extra compensation.

14.03 Without invalidating the Contract, the Owner may order Extra Work or make changes by altering, adding to, or deducting from the Work, the Contract sum being adjusted accordingly. The consent of the surety must first be obtained when necessary or desirable, all at the exclusive discretion of the Owner. All the Work of the kind bid upon shall be paid for at the price stipulated in the Proposal, and no claims for any Extra Work or material shall be allowed unless the Work is ordered in writing by the Owner.

14.04 Extra Work for which there is no price or quantity included in the Contract shall be paid for at a unit price or lump sum to be agreed upon in advance in writing by the Owner and Contractor. Where such price and sum cannot be agreed upon by both parties, or where this method of payment is impracticable, the Owner may, at its exclusive and unilateral discretion, order the Contractor to do such Work on a Force Account Basis.

14.05 In computing the price of Extra Work on a Force Account Basis, the Contractor shall be paid for all foremen and labor actually engaged on the specific Work at the current local rate of wage for each and every hour that said foremen and labor are engaged in such Work, plus ten percent (10%) of the total for superintendence, use of tools, overhead, direct & indirect costs/expenses, pro-rata applicable payroll taxes, pro-rata applicable workman compensation benefits, pro-rata insurance premiums and pro-rata reasonable profit. The Contractor shall furnish satisfactory evidence of the rate or rates of such insurance and tax. The Contractor will not be able to collect any contribution to any retirement plans or programs.

14.06 For all material used, the Contractor shall receive the actual cost of such material delivered at the site of the Work, as shown by original receipted bill, to which shall be added five percent (5%). There will be absolutely no additional surcharges or additional fees attached hereto with respect to this subsection.

14.07 For any equipment used that is owned by the Contractor, the Contractor shall be allowed a rental based upon the latest prevailing rental price, but not to exceed a rental price as determined by the Associated Equipment Distributors (A.E.D. Green Book).

- 14.08 The Contractor shall also be paid the actual costs of transportation for any equipment which it owns and which it has to transport to the Project for the Extra Work. There will be absolutely no additional surcharges or additional fees attached hereto with respect to this subsection.
- 14.09 If the Contractor is required to rent equipment for Extra Work, but not required for Contract items, it will be paid the actual cost of rental and transportation of such equipment to which no percent shall be added. The basis upon which rental cost are to be charged shall be agreed upon in writing before the Work is started. Actual rental and transportation costs shall be obtained from receipted invoices and freight bills.
- 14.10 No compensation for expenses, fees or costs incurred in executing Extra Work, other than herein specifically mentioned herein above, will be allowed.
- 14.11 A record of Extra Work on Force Account basis shall be submitted to the Owner on the day following the execution of the Work, and no less than three copies of such record shall be made on suitable forms and signed by both the Owner or his representative on the Project and the Contractor. All bids for materials used on extra Work shall be submitted to the Owner by the Contractor upon certified statements to which will be attached original bills covering the costs of such materials.
- 14.12 Payment for Extra Work of any kind will not be allowed unless the same has been ordered in writing by the Owner.

15.00 STATUS OF THE ENGINEER (NOT APPLICABLE)

16.00 INJURIES TO PERSONS AND PROPERTY

- 16.01 The Contractor shall be held solely and exclusively responsible for all injuries to persons and for all damages to the property of the Owner or others caused by or resulting from the negligence of itself, its employees or its agents, during the progress of or in connection with the Work, whether within the limits of the Work or elsewhere under the Contract proper or as Extra Work. This requirement will apply continuously and not be limited to normal working hours or days. The Owner's construction review is for the purpose of checking the Work product produced and does not include review of the methods employed by the Contractor or to the Contractor's compliance with safety measures of any nature whatsoever. The Contractor agrees to pay a reasonable attorney fee and other reasonable attendant costs of the Owner in the event it becomes necessary for the Owner to employ an attorney to enforce this section or to protect itself against suit over the Contractor's responsibilities. Attorney fees shall be at the prevailing hourly rate of the private sector. The attorney fee hourly rate shall not be less than \$175.00 per hour. All attorney fees collected shall be paid to the operating budget of the Office of the Parish President.
- 16.02 The Contractor must protect and support all utility infrastructures or other properties which are liable to be damaged during the execution of its Work. It shall take all reasonable and proper precautions to protect persons, animals and vehicles or the public from the injury, and wherever necessary, shall erect and maintain a fence or railing around any excavation, and place a sufficient number of lights about the Work and keep same burning from twilight until sunrise, and shall employ one or more watchmen as an additional security whenever needed. The Contractor understands and agrees that the Owner may request that security be placed on the premises to ensure and secure same. The Owner shall have exclusive authority to request placement of such security. Contractor agrees to retain and place security as requested, all at the sole expense of Contractor. Additional security shall not be considered a change order or reason for additional payment by the Owner. The Contractor must, as far as practicable and consistent with good construction, permit access to private and public property and leave fire hydrants, catch basins, streets, etc., free from encumbrances. The Contractor must restore at its own expense all injured or damaged property caused by any negligent act of omission or commission on its part or on the part of its employees or subcontractors, including, but not limited to, sidewalks, curbing, sodding, pipes conduits, sewers, buildings, fences, bridges, retaining walls, tanks, power lines, levees or any other building or property whatsoever to a like condition as existed prior to such damage or injury.

- 16.03 In case of failure on the part of the Contractor to restore such property or make good such damage, the Owner may upon forty-eight (48) hours' notice proceed to repair or otherwise restore such property as may be deemed necessary, and the cost thereof will be deducted from any monies due or which may become due under its Contract.
- 16.04 Contractor agrees to protect, defend, indemnify, save, and hold harmless St. Tammany Parish Government, its elected and appointed officials, departments, agencies, boards and commissions, their officers, agents servants, employees, including volunteers, from and against any and all claims, demands, expense and liability arising out of injury or death to any person or the damage, loss or destruction of any property to the extent caused by any negligent act or omission or willful misconduct of Contractor, its agents, servants, employees, and subcontractors, or any and all costs, expense and/or attorney fees incurred by St. Tammany Parish Government as a result of any claim, demands, and/or causes of action that results from the negligent performance or non-performance by Contractor, its agents, servants, employees, and subcontractors of this contract. Contractor agrees to investigate, handle, respond to, provide defense for and defend any such claims, demand, or suit at its sole expense and agrees to bear all other costs and expenses related thereto caused by any negligent act or omission or willful misconduct of Contractor, its agents, servants, employees, and subcontractors.
- 16.05 As to any and all claims against Owner, its agents, assigns, representatives or employees by any employee of Contractor, any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts as may be liable, the indemnification obligation under Paragraph 16.04 shall not be limited in any way or by any limitation on the amount or type of damages, compensation or benefits payable by or for Contractor or any Subcontractor under workmen's compensation acts, disability benefit acts or other employee benefit acts.
- 16.06 No road shall be closed by the Contractor to the public except by written permission of the Owner. If so closed, the Contractor shall maintain traffic over, through and around the Work included in his Contract, with the maximum practical convenience, for the full twenty-four hours of each day of the Contract, whether or not Work has ceased temporarily. The Contractor shall notify the Owner at the earliest possible date after the Contract has been executed and, in any case, before commencement of any construction that might in any way inconvenience or endanger traffic, in order that necessary and suitable arrangements may be determined. Any and all security, maintenance, labor or costs associated with traffic control herein shall be at the sole expense of Contractor. This expense shall be paid directly by the Contractor. This expense shall not be considered as a change order nor shall it allow the Contractor any additional cost reimbursement whatsoever. All traffic deviations herein shall be coordinated with the appropriate law enforcement officials of this Parish.
- 16.07 The convenience of the general public and residents along the Works shall be provided for in a reasonable, adequate and satisfactory manner. Where existing roads are not available as detours, and unless otherwise provided, all traffic shall be permitted to pass through the Work. In all such cases, the public shall have precedence over Contractor's vehicles insofar as the traveling public's vehicles shall not be unduly delayed for the convenience of the Contractor. In order that all unnecessary delay to the traveling public may be avoided, the Contractor shall provide and station competent flagmen whose sole duties shall consist of directing and controlling the movement of public traffic either through or around the Work. Any and all security, maintenance, labor or costs associated with traffic control herein shall be at the sole expense of Contractor. This expense shall be paid directly by the Contractor. This expense shall not be considered as a change order nor shall it allow the Contractor any additional cost reimbursement whatsoever. All traffic deviations herein shall be coordinated with the appropriate law enforcement officials of this Parish.
- 16.08 The Contractor shall arrange its Work so that no undue or prolonged blocking of business establishments will occur.
- 16.09 Material and equipment stored on the right of way or work site shall be so placed and the Work at times shall be so conducted as to ensure minimum danger and obstruction to the traveling public.
- 16.10 During grading operations when traffic is being permitted to pass through construction, the Contractor shall provide a smooth, even surface that will provide a satisfactory passageway

for use of traffic. The road bed shall be sprinkled with water if necessary to prevent a dust nuisance, provided the dust nuisance is a result of the Work.

- 16.11 Fire hydrants shall be accessible at all times to the Fire Department. No material or other obstructions shall be placed closer to a fire hydrant than permitted by ordinances, rules or regulations or within fifteen (15) feet of a fire hydrant, in the absence of such ordinance, rules or regulations.
- 16.12 The Contractor shall not, without the written permission of the Owner, do Work for a resident or property owner abutting the Work at the time that this Work is in progress.
- 16.13 No Work of any character shall be commenced on railroad right-of-way until the Railroad Company has issued a permit to the Owner and has been duly notified by the Contractor in writing (with a copy forwarded to the Owner) of the date it proposes to begin Work, and until an authorized representative of the Railroad Company is present, unless the Railroad Company waives such requirements. All Work performed by the Contractor within the right-of-way limits of the railroad shall be subject to the inspection and approval of the chief engineer of the Railroad Company or its authorized representative. Any precautions considered necessary by said chief engineer to safeguard the property, equipment, employees and passengers of the Railroad Company shall be taken by the Contractor without extra compensation. The Contractor shall, without extra compensation, take such precautions and erect and maintain such tell-tale or warning devices as the Railroad Company considers necessary to safeguard the operation of its trains. The temporary vertical and horizontal clearance specified by the chief engineer of the Railroad Company in approving these shall be maintained at all times. No steel, brick, pipe or any loose material shall be left on the ground in the immediate vicinity of the railway track. Before any Work is done within Railroad right of way, the Contractor shall provide and pay all costs of any special insurance requirements of the Railroad.
- 16.14 The Contractor, shall, without extra compensation, provide, erect, paint and maintain all necessary barricades. Also, without extra compensation, the Contractor shall provide suitable and sufficient lights, torches, reflectors or other warning or danger signals and signs, provide a sufficient number of watchmen and flagmen and take all the necessary precautions for the protection of the Work and safety of the Public.
- 16.15 The Contractor shall erect warning signs beyond the limits of the Project, in advance of any place on the Project where operations interfere with the use of the road by traffic, including all intermediate points where the new Work crosses or coincides with the existing road. All barricades and obstructions shall be kept well painted and suitable warning signs shall be placed thereon. All barricades and obstructions shall be illuminated at night and all lights or devices for this purpose shall be kept burning from sunset to sunrise.
- 16.16 Whenever traffic is maintained through or over any part of the Project, the Contractor shall clearly mark all traffic hazards. No direct payment will be made for barricades, signs and illumination therefore or for watchmen or flagmen.
- 16.17 The Contractor will be solely and completely responsible for conditions on the job site, including safety of all persons and property during performance of the Work. This requirement will apply continuously and not be limited to normal working hours. The duty of the Owner to conduct construction review of the Contractor's performance is not intended to include review of the adequacy of the Contractor's safety measures, in, or near the construction site.

17.00 SANITARY PROVISIONS

- 17.01 The Contractor shall provide and maintain in a neat, sanitary condition such accommodations for the use of its employees as may be necessary to comply with the rules and regulations of the State Health Agency or of the other authorities having jurisdiction and shall permit no public nuisance.

18.00 RIGHTS OF WAY

- 18.01 The Owner will furnish the Contractor with all necessary rights-of-way for the prosecution of the Work. The rights of way herein referred to shall be taken to mean only permission to use or pass through the locations or space in any street, highway, public or private property in which the Contractor is to prosecute the Work.
- 18.02 It is possible that all lands and rights of way may not be obtained as herein contemplated before construction begins, in which event the Contractor shall begin its Work upon such land and rights of way as the Owner may have previously acquired. Any delay in furnishing these lands by the Owner can be deemed proper cause for adjustment in the Contract amount and/or in the time of completion.

19.00 PROTECTION AND RESTORATION OF PROPERTY AND LANDSCAPE

- 19.01 The Contractor shall not enter upon private property for any purpose without first obtaining permission from the Owner, as well as the private property owner and/or and private property Lessees. The Contractor shall use every precaution necessary for the preservation of all public and private property, monuments, highway signs, telephone lines, other utilities, etc., along and adjacent to the Work; the Contractor shall use every precaution necessary to prevent damage to pipes, conduits, and other underground structures; and shall protect carefully from disturbance or damage all land monuments and property marks until an authorized agent has witnessed or otherwise referenced their location and shall not remove them until directed. The street and highway signs and markers that are to be affected by the Work shall be carefully removed when the Work begins and stored in a manner to keep them clean and dry. The Contractor must obtain all necessary information in regard to existing utilities and shall give notice in writing to the owners or the proper authorities in charge of streets, gas, water, pipes, electric, sewers and other underground structures, including conduits, railways, poles and pole lines, manholes, catch basins, fixtures, appurtenances, and all other property that may be affected by the Contractor's operations, at least forty-eight (48) hours before its operations will affect such property. The Contractor shall not hinder or interfere with any person in the protection of such Work or with the operation of utilities at any time. When property, the operation of railways, or other public utilities are endangered, the Contractor shall at its own expense, maintain flagmen or watchmen and any other necessary precautions to avoid interruption of service or damage to life or property, and it shall promptly repair, restore, or make good any injury or damage caused by its negligent operations in an acceptable manner. The Contractor must also obtain all necessary information in regard to the installation of new cables, conduits, and transformers, and make proper provisions and give proper notifications, in order that same can be installed at the proper time without delay to the Contractor or unnecessary inconvenience to the Owner.
- 19.02 The Contractor shall not remove, cut or destroy trees, shrubs, plants, or grass that are to remain in the streets or those which are privately owned, without the proper authority. Unless otherwise provided in the Special Provisions or the Proposal, the Contractor shall replace and replant all plants, shrubs, grass and restore the grounds back to its original good condition to the satisfaction of the Owner and/or the property owner. The Contractor shall assume the responsibility of replanting and guarantees that plants, shrubs, grass will be watered, fertilized and cultivated until they are in a growing condition. No direct payment will be made for removing and replanting of trees, shrubs, plants or grass unless such items are set forth in the Proposal.
- 19.03 When or where direct damage or injury is done to public or private property by or on account of any negligent act, omission, neglect or otherwise of the Contractor, it shall make good such damage or injury in an acceptable manner.

20.00 CONTRACTORS RESPONSIBILITY FOR WORK

- 20.01 Until final acceptance of the Work by the Owner as evidence by approval of the final estimate, the Work shall be in the custody and under the charge and care of the Contractor and it shall take every necessary precaution against injury or damage to any part thereof by the action of the elements or from the non-execution of the Work; unless otherwise provided for elsewhere in the Specifications or Contract. The Contractor shall rebuild,

repair, restore and make good, without extra compensation, all injuries or damages to any portion of the Work occasioned by any of the above causes before its completion and acceptance, and shall bear the expenses thereof. In case of suspension of the Work from any cause whatever, the Contractor shall be responsible for all materials and shall properly and securely store same, and if necessary, shall provide suitable shelter from damage and shall erect temporary structures where necessary. If in the exclusive discretion of the Owner, any Work or materials shall have been damaged or injured by reason of failure on the part of the Contractor or any of its Subcontractors to so protect the Work, such materials shall be removed and replaced at the sole expense of the Contractor. Such amount shall be deducted from any sum due or to be due Contractor.

20.02 The Contractor shall give all notice and comply with all Federal, State, and local laws, ordinances, and regulations in any manner affecting the conduct of the Work, and all such orders and decrees as exist, or may be enacted by bodies or tribunals having any jurisdiction or authority over the Work, and shall indemnify and hold harmless the Owner against any claim or liability arising from, or based on, the violation of any such law, ordinance, regulation, order or decree, whether by itself, its employees or Subcontractors.

21.00 TESTS AND INSPECTIONS CORRECTION & REMOVAL OF DEFECTIVE WORK

21.01 Contractor warrants and guarantees to Owner that all materials and equipment will be new unless otherwise specified and that all Work will be of good quality and free from faults or defects and in accordance with the requirements of the Contract Documents. All unsatisfactory Work, all faulty or Defective Work and all Work not conforming to the requirements of the Contract Documents at the time of acceptance shall be considered Defective. Prompt and reasonable notice of all defects shall be given to the Contractor.

21.02 If the Contract Documents, laws, ordinances, rules, regulations or orders of any public authority having jurisdiction require any Work to specifically be inspected, tested or approved by some public body, Contractor shall assume full responsibility therefor, pay all costs in connection therewith and furnish Owner the required certificates of inspection, testing or approval. All other inspections, tests and approval required by the Contract Documents shall be performed by organizations acceptable to Owner and Contractor and the costs thereof shall be borne by the Contractor unless otherwise specified.

21.03 Contractor shall give Owner timely notice of readiness of the Work for all inspections, tests or approvals. If any such Work required to be inspected, tested or approved is covered without written approval of Owner, it must, if requested by Owner, be uncovered for observation, and such uncovering shall be at Contractor's expense unless Contractor has given Owner timely notice of its intention to cover such Work and Owner has not acted with reasonable promptness in response to such notice.

21.04 Neither observations by Owner nor inspections, tests or approvals shall relieve Contractor from its obligations to perform the Work in accordance with the requirements of the Contract Document.

21.05 Owner and its representatives will at reasonable times have access to the Work. Contractor shall provide proper and safe facilities for such access and observation of the Work and also for any inspection or testing thereof by others.

21.06 If any Work is covered contrary to the written request of Owner, it must, be uncovered for Owner's observation and replaced at Contractor's expense. If any Work has been covered which Owner has not specifically requested to observe prior to its being covered, or if Owner considers it necessary or advisable that covered Work be inspected or tested by others, the Contractor, at Owner's request, shall uncover, expose or otherwise make available for observations, inspections or testing as Owner may require, that portion of the Work in question, furnishing all necessary labor, material and equipment. If it is found that such Work is Defective, Contractor shall bear all the expenses of such uncovering, exposure, observation, inspection and testing and of satisfactory reconstruction, including compensation for additional professional services, and an appropriate deductive Change Order shall be issued. If, however, such Work is not found to be Defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to such uncovering, exposure, observation, inspection, testing and reconstruction.

- 21.07 If the Work is Defective, or Contractor fails to supply sufficient skilled workmen or suitable materials or equipment, or if the Contractor fails to make prompt payments to Subcontractors or for labor, materials or equipment, Owner may order Contractor to stop the Work, or any portion thereof, until the cause of such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor or any other party.
- 21.08 Prior to approval of final payment, Contractor shall promptly, without cost to Owner and as specified by Owner, either correct any Defective Work, whether or not fabricated, installed or completed, or if the Work has been rejected by Owner, remove it from the site and replace it with non-defective Work. If Contractor does not correct such Defective Work or remove and replace such rejected Work within a reasonable time, all as specified in a written notice from Owner, Owner may have the deficiency corrected or the rejected Work removed and replaced. All direct or indirect costs of such correction or removal and replacement including compensation for additional professional services shall be paid by Contractor, and an appropriate deductive Change Order shall be issued. Contractor shall also bear the expense of making good all Work of others destroyed or damaged by its correction, removal or replacement of its Defective Work.
- 21.09 If, after the approval of final payment and prior to the expiration of one year after the date of Substantial Completion or such longer period of time as may be prescribed by law or by the terms of any applicable special guarantee required by the Contract Documents, any Work is found to be Defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions, either correct such Defective Work or if it has been rejected by Owner, remove it from the site and replace it with non-defective Work. If Contractor does not promptly comply with the terms of such instructions, Owner may have the Defective Work corrected or the rejected Work removed and replaced, and all direct and indirect costs of such removal and replacement, including compensation for additional professional services, shall be paid by Contractor. The Contractor agrees to pay a reasonable attorney fee and other reasonable attendant costs of the Owner in the event it becomes necessary for the Owner to employ an attorney to enforce this section or to protect itself against suit over the Contractor's responsibilities. Attorney fees shall be at the prevailing hourly rate of the private sector. The attorney fee hourly rate shall not be less than \$175.00 per hour. All attorney fees collected shall be paid to the operating budget of the Office of the Parish President.
- 21.10 If, instead of requiring correction or removal and replacement of Defective Work, Owner (and prior to approval of final payment) prefers to accept it, the Owner may do so. In such case, if acceptance occurs prior to approval of final payment, a Change Order shall be issued incorporating the necessary revisions in the Contract Documents, including appropriate reduction in the Contract Price, or, if the acceptance occurs after approval of final payment, an appropriate amount shall be paid by Contractor to Owner.
- 21.11 If Contractor should fail to progress the Work in accordance with the Contract Documents, including any requirements of the Progress Schedule, Owner, after seven (7) days written Notice to Contractor, may, without prejudice to any other remedy Owner may have, make good such deficiencies and the cost thereof including compensation for additional professional services shall be charged against Contractor. In such cases, a Change Order shall be issued incorporating the necessary revisions in the Contract Documents including an appropriate reduction in the Contract Price. If the payments then or thereafter due Contractor are not sufficient to cover such amount, Contractor shall pay the difference to Owner.
- 21.12 The Owner may appoint representatives to make periodic visits to the site and observe the progress and quality of the executed Work. These representatives shall be governed by the same restrictions placed on the Owner by these Specifications. The governing body of the Federal, State or local government exercising authority in the area of the Work may appoint representatives to observe the progress and quality of the Work. Contractor shall cooperate with and assist these representatives in the performance of their duties.
- 21.13 The Contractor shall be responsible for the faithful execution of its Contract and the presence or absence of the Owner's or Government's Representative is in no way or manner to be presumed or assumed to relieve in any degree the responsibility or obligation of the Contractor.

- 21.14 The Contractor shall notify the Owner and the Governmental Agency having jurisdiction as to the exact time at which it is proposed to begin Work so the Owner may provide for inspection of all materials, foundations, excavations, equipment, etc., and all or any part of the Work and to the preparation or manufacture of materials to be used whether within the limits of the Work or at any other place.
- 21.15 The Owner or its representatives shall have free access to all parts of the Work and to all places where any part of the materials to be used are procured, manufactured or prepared. The Contractor shall furnish the Owner all information relating to the Work and the material therefor, which may be deemed necessary or pertinent, and with such samples of materials as may be required. The Contractor, at its own expense, shall supply such labor and assistance as may be necessary in the handling of materials for proper inspection or for inspection of any Work done by it.
- 21.16 No verbal instructions given to the Contractor by the Owner, Project Representative or any of their agents shall change or modify the written Contract. Contractors shall make no claims for additional payments or time based upon verbal instructions.

22.00 SUBSURFACE CONDITIONS

- 22.01 It is understood and agreed that the Contractor is familiar with the subsurface conditions that will be encountered and its price bid for the Work includes all of the costs involved for Work in these conditions and it is furthermore agreed that it has taken into consideration, prior to its Bid and acceptance by Owner, all of the subsurface conditions normal or unusual that might be encountered in the location of the Work.
- 22.02 Should the Contractor encounter during the progress of the Work subsurface conditions at the site materially differing from those shown on the Drawings or indicated in the Specifications, the attention of the Owner shall be directed to such conditions before the conditions are disturbed. If the Owner finds that the conditions materially differ from those shown on the Drawings or indicated in the Specifications, it shall at once make such changes in the Drawings or Specifications as it may find necessary, and any increase or decrease in cost or extension of time resulting from such changes shall be adjusted in the same manner as provided for changes for Extra Work. The Contractor shall submit breakdowns of all costs in a manner as instructed and approved by the Owner.

23.00 REMOVAL AND DISPOSAL OF STRUCTURES AND OBSTRUCTIONS

- 23.01 Bidder shall thoroughly examine the site of the Work and shall include in its Bid the cost of removing all structures and obstructions in the way of the Work.
- 23.02 The Contractor shall remove any existing structures or part of structures, fence, building or other encumbrances or obstructions that interfere in any way with the Work. Compensations for the removal of any structure shall be made only if the item(s) to be removed was/were listed as pay item(s) on the Proposal.
- 23.03 If called for in the Special Conditions, all privately and publicly owned materials and structures removed shall be salvaged without damage and shall be piled neatly and in an acceptable manner upon the premises if it belongs to an abutting property owner, otherwise at accessible points along the improvements. Materials in structures which is the property of the Owner or property of any public body, private body or individual which is fit for use elsewhere, shall remain property of the original Owner. It shall be carefully removed without damage, in sections which may be readily transported; same shall be stored on or beyond the right of way. The Contractor will be held responsible for the care and preservation for a period of ten (10) days following the day the last or final portion of the materials stored at a particular location are placed thereon. When privately owned materials are stored beyond the right of way, the Contractor will be held responsible for such care and preservation for a period of ten (10) days responsibility period for care and preservation of the materials begins. The Contractor must furnish the Owner with evidence satisfactory that the proper owner of the materials has been duly notified by the Contractor that the said owner must assume responsibility for its materials on the date following the Contractor's ten (10) day responsibility.

24.00 INSURANCE

- 24.01 Contractor shall secure and maintain at its expense such insurance that will protect it and the Parish from claims for injuries to persons or damages to property which may arise from or in connection with the performance of Services or Work hereunder by the Contractor, his agents, representatives, employees, and/or subcontractors. The cost of such insurance shall be included in Contractor's bid.
- 24.02 The Contractor shall not commence work until it has obtained all insurance as required for the Parish Project. If the Contractor fails to furnish the Parish with the insurance protection required and begins work without first furnishing Parish with a currently dated certificate of insurance, the Parish has the right to obtain the insurance protection required and deduct the cost of insurance from the first payment due the Contractor. Further deductions are permitted from future payments as are needed to protect the interests of the Parish including, but not limited to, renewals of all policies.
- 24.03 Payment of Premiums: The insurance companies issuing the policy or policies shall have no recourse against the Parish of St. Tammany for payment of any premiums or for assessments under any form of policy.
- 24.04 Deductibles: Any and all deductibles in the described insurance policies shall be assumed by and be at the sole risk of the Contractor.
- 24.05 Authorization of Insurance Company(ies) and Rating: All insurance companies must be authorized to do business in the State of Louisiana and shall have an A.M. Best rating of no less than A-, Category VII.
- 24.06 Policy coverages and limits must be evidenced by Certificates of Insurance issued by Contractor's carrier to the Parish and shall reflect:

Date of Issue: Certificate must have current date.

Named Insured: The legal name of Contractor under contract with the Parish and its principal place of business shall be shown as the named insured on all Certificates of Liability Insurance.

Name of Certificate Holder: St. Tammany Parish Government, Office of Risk Management, P. O. Box 628, Covington, LA 70434

Project Description: A brief project description, including Project Name, Project Number and/or Contract Number, and Location.

Endorsements and Certificate Reference: All policies must be endorsed to provide, and certificates of insurance must evidence the following:

Waiver of Subrogation: The Contractor's insurers will have no right of recovery or subrogation against the Parish of St. Tammany, it being the intention of the parties that all insurance policy(ies) so affected shall protect both parties and be the primary coverage for any and all losses covered by the below described insurance. *Policy endorsements required for all coverages.*

Additional Insured: The Parish of St. Tammany shall be named as additional named insured with respect to general liability, marine liability, pollution/environmental liability, automobile liability and excess liability coverages. *Policy endorsements required.*

Hold Harmless: Contractor's liability insurers shall evidence their cognizance of the Hold Harmless and Indemnification in favor of St. Tammany Parish Government by referencing same on the face of the Certificate(s) of Insurance.

Cancellation Notice: Producer shall provide thirty (30) days prior written notice to the Parish of policy cancellation or substantive policy change.

24.07 The types of insurance coverage the Contractor is required to obtain and maintain throughout the duration of the Contract, include, but is not limited to:

1. Commercial General Liability insurance with a Combined Single Limit for bodily injury and property damage of at least \$1,000,000 per Occurrence/\$3,000,000 General Aggregate/Products-Completed Operations Per Project. The insurance shall provide for and the certificate(s) of insurance shall indicate the following coverages:
 - a) Premises - operations;
 - b) Broad form contractual liability;
 - c) Products and completed operations;
 - d) Personal Injury;
 - e) Broad form property damage;
 - f) Explosion and collapse.
2. Marine Liability/Protection and Indemnity insurance is required for any and all vessel and/or marine operations in the minimum limits of \$1,000,000 per occurrence/\$2,000,000 per project general aggregate. The coverage shall include, but is not limited to, the basic coverages found in the Commercial General Liability insurance and coverage for third party liability.
3. Contractors' Pollution Liability and Environmental Liability insurance in the minimum amount of \$1,000,000 per occurrence, \$2,000,000 general aggregate and include coverage for full contractual liability and for all such environmental and/or hazardous waste exposures affected by this project.
4. Business Automobile Liability insurance with a Combined Single Limit of \$1,000,000 per Occurrence for bodily injury and property damage, and shall include coverage for the following:
 - a) Any automobiles;
 - b) Owned automobiles;
 - c) Hired automobiles;
 - d) Non-owned automobiles;
 - e) Uninsured motorist.
5. Workers' Compensation/Employers Liability insurance: worker's compensation insurance coverage and limits as statutorily required; Employers' Liability Coverage shall be not less than \$1,000,000 each accident, \$1,000,000 each disease, \$1,000,000 disease policy aggregate, except when projects include exposures covered under the United States Longshoremen and Harbor Workers Act, Maritime and/or Jones Act and/or Maritime Employers Liability (MEL) limits shall be not less than \$1,000,000/\$1,000,000/\$1,000,000. *Coverage for owners, officers and/or partners shall be included in the policy and a statement of such shall be made by the insuring producer on the face of the certificate.*
6. Owners Protective Liability (OPL) (formerly Owners and Contractors Protective Liability (OCP) Insurance) shall be furnished by the Contractor naming St. Tammany Parish Government as the Named Insured and shall provide coverage in the minimum amount of \$1,000,000 combined single limit (CSL) each occurrence, \$2,000,000 aggregate. Any project valued in excess of \$3,000,000 shall be set by the Office of Risk Management. The policy and all endorsements shall be addressed to St. Tammany Parish Government, Office of Risk Management, P. O. Box 628, Covington, LA 70434.
7. Builder's Risk Insurance shall be required on buildings, sewage treatment plants and drainage pumping stations, and shall be written on an "all-risk" or equivalent policy form in the amount of the full value of the initial Contract sum, plus value of subsequent Contract modifications and cost of materials supplied or installed by others, comprising 100% total value for the entire project including foundations. Deductibles should not exceed \$5,000 and Contractor shall be responsible for any

and all policy deductibles. This insurance shall cover portions of the work stored off the site, and also portions of the work in transit. In addition, Installation Floater Insurance, on an “all-risk” form, will be carried on all pumps, motors, machinery and equipment on the site or installed. Both the Builder’s Risk Insurance and the Installation Floater Insurance shall include the interests of the Owner, Contractor, Subcontractors, and Sub-subcontractors and shall terminate only when the Project has been accepted. St. Tammany Parish Government, P. O. Box 628, Covington, LA 70434 shall be the first named insured on the Builder’s Risk and Installation Floater Insurance.

8. Professional Liability (errors and omissions) insurance in the sum of at least One Million Dollars (\$1,000,000) per claim with Two Million Dollars (\$2,000,000) annual aggregate.
 9. An umbrella policy or excess policy may be required and/or allowed to meet minimum coverage limits, subject to the review and approval by St. Tammany Parish Government, Office of Risk Management.
- 24.08 All policies of insurance shall meet the requirements of the Parish of St. Tammany prior to the commencing of any work. The Parish of St. Tammany has the right, but not the duty, to approve all insurance policies prior to commencing of any work. If at any time, it becomes known that any of the said policies shall be or becomes unsatisfactory to the Parish of St. Tammany as to form or substance; or if a company issuing any such policy shall be or become unsatisfactory to the Parish of St. Tammany, the Contractor shall promptly obtain a new policy, timely submit same to the Parish of St. Tammany for approval and submit a certificate thereof as provided above. The Parish agrees to not unreasonably withhold approval of any insurance carrier selected by Contractor. In the event that Parish cannot agree or otherwise authorize said carrier, Contractor shall have the option of selecting and submitting new insurance carrier within 30 days of said notice by the Parish. In the event that the second submission is insufficient or is not approved, then the Parish shall have the unilateral opportunity to thereafter select a responsive and responsible insurance carrier all at the cost of Contractor and thereafter deduct from Contractor's fee the cost of such insurance.
- 24.09 Upon failure of Contractor to furnish, deliver and/or maintain such insurance as above provided, the contract, at the election of the Parish of St. Tammany, may be forthwith declared suspended, discontinued or terminated. Failure of the Contractor to maintain insurance shall not relieve the Contractor from any liability under the contract, nor shall the insurance requirements be construed to conflict with the obligation of the Contractor concerning indemnification.
- 24.10 Contractor shall maintain a current copy of all annual insurance policies and provide same to the Parish of St. Tammany as may be reasonably requested.
- 24.11 It shall be the responsibility of Contractor to require that these insurance requirements are met by all contractors and sub-contractors performing work for and on behalf of Contractor. Contractor shall further ensure the Parish is named as additional insured on all insurance policies provided by said contractor and/or sub-contractor throughout the duration of the project, and that renewal certificates for any policies expiring prior to the Parish’s final acceptance of the project shall be furnished to St. Tammany Parish Government, Department of Legal, Office of Risk Management, without prompting.

NOTICE:

These are only an indication of the coverages that are generally required. Additional coverages and/or limits may be required for projects identified as having additional risks or exposures. Please note that some requirements listed may not necessarily apply to your specific services. St. Tammany Parish Government reserves the right to remove, replace, make additions to and/or modify any and all of the insurance requirement language upon review of the final scope of services presented to Office of Risk Management prior to execution of a contract for services.

For inquiries regarding insurance requirements, please contact:

**St. Tammany Parish Government
Office of Risk Management
P. O. Box 628
Covington, LA 70434
Telephone: 985-898-5226
Email: riskman@stpgov.org**

24.12 Nothing contained in these insurance requirements is to be construed as limiting the extent of the Contractor's Responsibility for payment of damages resulting from its operations under this Contract.

25.00 OWNER'S RIGHT TO OCCUPANCY

25.01 The Owner shall have the right to use, at any time, any and all portions of the Work that have reached such a stage of completion as to permit such occupancy, provided such occupancy does not hamper the Contractor or prevent its efficient completion of the Contract or be construed as constituting an acceptance of any part of the Work.

25.02 The Owner shall have the right to start the construction of houses, structures or any other building concurrent with the Contractor's Work.

26.00 SURVEY HORIZONTAL AND VERTICAL CONTROL

26.01 The Owner shall provide surveys for construction to establish reference points which in its judgment are necessary to enable Contractor to layout and proceed with its Work. Contractor shall be responsible for surveying and laying out the Work and shall protect and preserve the established reference points and shall make no changes or relocations without the prior written approval of the Owner. Contractor shall report to Owner whenever any reference point is lost or destroyed and the Owner shall decide if the reference point shall be replaced by its or the Contractor's forces.

26.02 The Contractor shall establish lines and grades with its own forces in sufficient number and location for the proper execution of the Work.

26.03 If the Contractor, during the construction, damages the established property corners and/or other markers and thereafter requests the Owner to re-stake same in order to complete the project, this expense will be borne solely by the Contractor.

27.00 TERMINATION OF THE CONTRACT, OWNER'S AND CONTRACTORS RIGHT TO STOP WORK.

27.01 If the Contractor should be adjudged bankrupt (voluntarily or involuntarily) or if it should make a general assignment for the benefit of its creditors, or if a receiver should be appointed on account of its insolvency, or if it should persistently or repeatedly refuse or should fail (except in cases for which extension of time is provided) to supply enough properly skilled workmen or proper materials, or if it should fail to make prompt payment to Subcontractors or for material or labor, or persistently disregard laws, ordinances or the instructions of the Owner, or otherwise be guilty of a substantial violation of any provision of the Contract, then the Owner, upon the certificate of the Owner that, in its unilateral discretion and judgment, believes sufficient cause exists to justify such action, may, without prejudice to any other right or remedy and after giving the Contractor ten (10) calendar days written notice, terminate the employment of the Contractor and take possession of the premises and of all materials, tools and appliances thereon and finish the Work by whatever method the Owner may deem expedient.

27.02 Failure of the Contractor to start the Work within the time limit specified herein or substantial evidence that the progress being made by the Contractor is sufficient to complete the Work within the specified time shall be grounds for termination of the Contract by the Owner.

- 27.03 Before the Contract is terminated, the Contractor and its surety will first be notified in writing by the Owner of the conditions which make termination of the Contract imminent. When after ten (10) calendar days' notice is given and if satisfactory effort has not been made by the Contractor or its surety to correct the conditions, the Owner may declare, in its exclusive discretion, that the Contract is terminated and so notify the Contractor and its surety accordingly.
- 27.04 Upon receipt of notice from the Owner that the Contract has been terminated, the Contractor shall immediately discontinue all operations. The Owner may then proceed with the Work in any lawful manner that it may elect until Work is finally completed.
- 27.05 The exclusive right is reserved to the Owner to take possession of any machinery, implements, tools or materials of any description that shall be found upon the Work, to account for said equipment and materials, and to use same to complete the Project. When the Work is finally completed, the total cost of same will be computed. If the total cost is less than the Contract Price, the difference will not be paid to the Contractor or its surety.
- 27.06 In case of termination, all expenses incident to ascertaining and collecting losses under the Bond, including legal services, shall be assessed against the Bond.
- 27.07 If the Work should be stopped under any order of any court or public authority for period of sixty (60) calendar days, through no act or fault of the Contractor or anyone employed by it, or if the Owner shall fail to pay the Contractor within a reasonable time any sum certified by the Owner, then the Contractor may, upon ten (10) calendar days written notice to the Owner, stop Work or terminate this Contract and recover from the Owner payment for all Work properly and professionally executed in a workmanlike manner. This loss specifically includes actual cost of materials and equipment, together with all wages inclusive of all federal, state, and local tax obligations. This loss specifically includes reimbursement of all insurances on a pro-rata basis from the date of termination to date of policy period. This loss excludes and specifically does not include recovery by the Contractor for lost profit, indirect & direct expenses, overhead, and the like.

28.00 PAYMENTS TO THE CONTRACTOR

- 28.01 Monthly certificates for partial payment, in a form approved by the Owner, shall be transmitted to the Owner upon receipt from the Contractor and acceptance by the Owner. In accordance with LSA-R.S. 38:2248(A), when the Contract Price is less than five hundred thousand dollars, these certificates shall be equal to ninety percent (90%) of both the Work performed and materials stored at the site; and when the Contract Price is five hundred thousand dollars or more, these certificates shall be equal to ninety-five percent (95%) of both the Work performed and materials stored at the site. Partial payment certificates shall include only Work, materials and equipment that are included in official Work Order and which meet the requirements of plans, Specifications and Contract Documents. These monthly estimates shall show the amount of the original estimate for each item, the amount due on each item, the gross total, the retained percentage, the amount previously paid and the net amount of payment due.
- 28.02 After final completion and acceptance by the Owner of the entire Work, and when the Contract Price is less than five hundred thousand dollars, the Owner shall issue to the Contractor Certificate of Payment in sum sufficient to increase total payments to ninety percent (90%) of the Contract Price. After final completion and acceptance by the Owner of the entire Work, and when the Contract Price is five hundred thousand dollars or more, the Owner shall issue to the Contractor Certificate of Payment in sum sufficient to increase total payments to ninety-five percent (95%) of the Contract Price.
- 28.03 When the Contract Price is less than five hundred thousand dollars, the final payment certificate of the remaining ten percent (10%) of the Contract Price, minus any deduction for deficient or Defective Work or other applicable deductions, will be issued by the Owner forty-five (45) days after filing acceptance in the Mortgage Office of the Parish and a Clear Liens and Privilege Certificate has been secured. When the Contract Price is five hundred thousand dollars or more, the final payment certificate of the remaining five percent (5%) of the Contract Price, minus any deduction for deficient or Defective Work or other applicable deductions, will be issued by the Owner forty-five (45) days after filing

acceptance in the Mortgage Office of the Parish and a Clear Liens and Privilege Certificate has been secured. Before issuance of the final payment certificate, the Contractor shall deposit with the Owner a certificate from the Clerk of Court and Ex-Officio Recorder of Mortgages from the Parish in which the Work is performed to the effect that no liens have been registered against Contract Work.

- 28.04 When, in the opinion of the Contractor, the Work provided for and contemplated by the Contract Documents has been substantially completed, the Contractor shall notify the Owner in writing that the Work is substantially complete and request a final inspection. The Owner shall proceed to perform such final inspection accompanied by the Contractor. Any and all Work found by this inspection to be Defective or otherwise not in accordance with the plans and Specifications shall be corrected to the entire satisfaction of the Owner and at the sole expense of the Contractor. If the Contract is found to be incomplete in any of its details, the Contractor shall at once remedy such defects, and payments shall be withheld and formal acceptance delayed until such Work has been satisfactorily completed.
- 28.05 If payment is requested on the basis of materials and equipment not incorporated in the Work, but delivered and suitably stored and protected from damage and theft at the site, the Request for Payment shall also be accompanied by such data, satisfactory to the Owner, as will establish Owner's title to the material and equipment and protect its interest therein, including applicable insurance.
- 28.06 Each subsequent Request for Payment shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied to discharge in full all of Contractor's obligations reflected in prior Request for Payment.
- 28.07 Each subsequent request for payment shall include an affidavit by Contractor that Contractor, all subcontractors, agents, material suppliers and all other persons supplying material to the project upon which State of Louisiana and/or St. Tammany sales taxes are lawfully due have paid these taxes and that all supplies and materials purchased for this project and for which Contractor has been paid have had all lawfully due State and/or St. Tammany sales taxes paid.
- 28.08 The Bid Proposal, unless otherwise modified in writing, and the Contract constitute the complete Project. The Contract Prices constitute the total compensation payable to Contractor and the cost of all of the Work and materials, taxes, permits and incidentals must be included into the Bid submitted by the Contractor and included into those items listed on the Proposal.
- 28.09 Any additional supporting data required by the Owner in order to substantiate Contractor's request for payment shall be furnished by Contractor at no cost to the Owner.
- 28.10 Owner may withhold from payment to Contractor as may be necessary to protect itself from loss on account of:
- (1) Defective and/or inferior work;
 - (2) Damage to the property of Owner or others caused by Contractor;
 - (3) Failure by Contractor to make payments properly to sub-contractors or to pay for labor, materials or equipment used on this project;
 - (4) Failure by Contractor to pay taxes due on materials used on this project;
 - (5) Damage by Contractor to another Contractor;
 - (6) Insolvency;
 - (7) Bankruptcy, voluntary or involuntary;
 - (8) Revocation of corporate status;
 - (9) Failure to follow corporate formalities;
 - (10) Unprofessional activities;
 - (11) Unworkmanlike performance;
 - (12) Fraud and/or misrepresentation of any kind.

29.00 ACCEPTANCE AND FINAL PAYMENT(S)

- 29.01 Upon receipt of written notice from Contractor that the work is substantially complete and usable by Owner or the Public in suitable manner, the Owner and the Contractor shall jointly inspect the work.

- 29.02 If the Owner by inspection determines that the work is not substantially complete in a suitable manner for use by the Owner or the Public, then the Owner shall so notify the Contractor in writing stating such reason. All reasons need not be disclosed unless actually known. The Owner is afforded an opportunity to amend said notices as are reasonably possible.
- 29.03 If the Owner by its inspection determines that the work is substantially complete, it shall prepare a list of all items not satisfactorily completed and shall notify the Contractor and Owner in writing that the work is substantially complete and subject to satisfactory resolution of those items on the list (punch list). Punch lists may be amended from time to time by Owner in the event that additional deficiencies are discovered. In accordance with LSA-R.S. 38:2248(B), any punch list generated during a construction project shall include the cost estimates for the particular items of work the design professional has developed based on the mobilization, labor, material, and equipment costs of correcting each punch list item. The design professional shall retain his working papers used to determine the punch list items cost estimates should the matter be disputed later. The contract agency shall not withhold from payment more than the value of the punch list. Punch list items completed shall be paid upon the expiration of the forty-five (45) day lien period. The provisions of this Section shall not be subject to waiver.
- 29.04 Upon determination of substantial completeness with the punch list, the Contract Time is interrupted and the Contractor is given a reasonable time not to exceed thirty (30) consecutive calendar days to effect final completion by correcting or completing all of those items listed on the punch list. If the items on the punch list are not completed in a satisfactory manner within the thirty day period, then the Contract Time will begin to run again and will include for purposes of determining liquidated damages the thirty day period the grace period being withdrawn.
- 29.05 Upon receipt by Owner of written determination that all work embraced by the contract has been completed in a satisfactory manner, the Owner shall provide a written acceptance to Contractor who shall record Owner's written acceptance with the recorder of Mortgages, St. Tammany Parish. The Contractor shall properly prepare, submit and pay for all costs associated with said Acceptance. The Contractor is also responsible for preparation, re-submission and payment of any and all updated certificates.
- 29.06 Retainage monies, minus those funds deducted in accordance to the requirements of this agreement including but not limited to Paragraph 28.10, shall be due Contractor not earlier than forty-six (46) calendar days after recordation of certificate of Owner's acceptance provided the following:
- (1) Contractor shall prepare, secure, pay for and submit clear lien and privilege certificate, signed and sealed by Clerk of Court or Recorder of Mortgages, Parish of St. Tammany and dated at least forty-six (46) days after recordation of certificate of acceptance;
 - (2) Ensure that the official representative of the Owner has accepted as per LSA-R.S. 38:2241.1, *et seq.* and that all following sub-sections have been properly satisfied as per law;
 - (3) Ensure that all signatures are affixed and that there exists the requisite authority for all signatures;
 - (4) Ensure accurate and proper legal descriptions;
 - (5) Properly identify all parties and/or signatories;
 - (6) Properly identify all mailing addresses;
 - (7) Correctly set for the amount of the contract, together with all change orders;
 - (8) Set out a brief description of the work performed;
 - (9) Reference to any previously recorded contract, lien or judgment inscription that may affect the property;

- (10) Certification that substantial completion has occurred, together with any applicable date(s);
- (11) Certification that no party is in default and/or that the project has been abandoned.

29.07 After securing the clear lien and privilege certificate the Contractor shall prepare its final application for payment and submit to Owner. The Owner shall approve application for payment, or state its objections in writing and forward to Contractor for resolution.

30.00 NOTICE AND SERVICE THEREOF

30.01 Any Notice to Contractor from the Owner relative to any part of this Contract shall be in writing and shall be considered delivered and the service thereof completed when said notice is posted; by certified mail, return receipt requested to the said Contractor at its last given address, or delivered in person to said Contractor or its authorized representative on the Work.

31.00 INTENTION OF THESE GENERAL CONDITIONS

31.01 These General Conditions shall be applicable to all contracts entered into by and between the Owner and Contractors, except as may be altered or amended with the consent of the Owner, and/or provided for in the Special Conditions of each contract. Contractor shall be presumed to have full knowledge of these General Conditions which shall be applicable to all contracts containing these General Conditions, whether Contractor has obtained a copy thereof or not.

32.00 SEVERABILITY

32.01 If any one or more or part of any of the provisions contained herein and/or in the Specifications and Contract for the Work shall for any reason be held invalid, illegal or unenforceable in any respect, such invalidity, illegality or unenforceability shall not affect any other provisions of this Agreement or attachment, but it shall be construed as if such invalid, illegal, or unenforceable provision or part of a provision had never been contained herein.

32.02 **CHANGING THESE CONDITIONS:** Owner reserves the right to change or modify these General Conditions as it deems best, or as required by law. The General Conditions may also be modified for a particular project by the use of Special Conditions prior to the issuance of the Advertisement for Bid. However, once an advertisement for bid is made for any specific project, any changes to the General Conditions as they affect that specific project must be made in writing and issued via an addendum in accordance with State Law.

33.00 LAW OF THE STATE OF LOUISIANA

33.01 The Contract Documents shall be governed by the Law of the State of Louisiana.

33.02 The Contractor agrees to pay reasonable attorney's fees and other reasonable attendant costs, in the event that it becomes necessary for the Owner to employ an attorney in order to enforce compliance with or any remedy relating to any covenants, obligations, or conditions imposed upon the Contractor by this Agreement. Attorney fees shall be based upon the prevailing hourly rate of attorney rates in the private sector. In no case shall the hourly rate be less than \$175.00 per hour. All attorney fees collected shall be paid the operating budget of the Office of the Parish President.

33.03 The jurisdiction and venue provisions shall apply to all contractors, sureties, and subcontractors. The 22nd Judicial District for the Parish of St. Tammany shall be the court of exclusive jurisdiction and venue for any dispute arising from these General Conditions and/or any contract executed in conjunction with these General Conditions. All parties specifically waive any rights they have or may have for removal of any disputes to Federal Court, or transfers to different State District Court.

33.04 Contractor warrants that it has and/or had received a copy of these General Conditions at all times material hereto; Contractor further agrees that it has read and fully and completely understands each and every condition herein.

33.05 The property description will be more fully set out by an attached exhibit.

33.06 The Contractor warrants that it has the requisite authority to sign and enter this agreement.

33.07 It is specifically understood and agreed that in the event Contractor seeks contribution from the Parish or pursues its legal remedies for any alleged breach of this agreement by the Parish, then the following list of damages SHALL NOT BE RECOVERABLE BY CONTRACTOR. This list includes, but is not limited to:

1. indirect costs and/or expenses;
2. direct costs and/or expenses;
3. time-related costs and/or expenses;
4. award of extra days;
5. costs of salaries or other compensation of Contractor's personnel at Contractor's principal office and branch offices;
6. expenses of Contractor's principal, branch and/or field offices;
7. any part of Contractor's capital expenses, including any interest on Contractor's capital employed for the work;
8. any other charges related to change orders;
9. overhead and general expenses of any kind or the cost of any item not specifically and expressly included in Cost of Work.

33.08 DEFAULT AND WAIVERS

It is understood that time is of the essence. It is specifically understood between the parties that Contractor waives any and all notice to be placed in default by the Owner. This subsection shall supersede and prime any other subsection herein above that is in conflict. The Owner specifically reserves its right and specifically does not waive the requirement to be placed in default by the Contractor as per law.

33.09 St. Tammany Parish Government contracts to be awarded are dependent on the available funding and/or approval by members designated and/or acknowledged by St. Tammany Parish Government. At any time St. Tammany Parish Government reserves the right to cancel the award of a contract if either or both of these factors is deficient.

33.10 It is the Parish's policy to provide a method to protest exclusion from a competition or from the award of a contract, or to challenge an alleged solicitation irregularity. It is always better to seek a resolution within the Parish system before resorting to outside agencies and/or litigation to resolve differences. All protests must be made in writing, and shall be concise and logically presented to facilitate review by the Parish. The written protest shall include:

1. The protester's name, address, and fax and telephone numbers and the solicitation, bid, or contract number;
2. A detailed statement of its legal and factual grounds, including a description of the resulting prejudice to the protester;
3. Copies of relevant documents;
4. All information establishing that the protester is an interested party and that the protest is timely; and
5. A request for a ruling by the agency; and a statement of the form of relief requested.

The protest shall be addressed to Director of Procurement, St. Tammany Parish Government, P.O. Box 628, Covington, LA 70434.

The protest review shall be conducted by the Parish Procurement Department.

Only protests from interested parties will be allowed. Protests based on alleged solicitation improprieties that are apparent before bid opening, or the time set for receipt of initial proposals must be filed with and received by the Procurement Department BEFORE those deadlines.

Any other protest shall be filed no later than ten (10) calendar days after the basis of the protest is known, or should have been known (whichever is earlier).

The Parish will use its best efforts to resolve the protest within thirty (30) days of the date that it is received by the Parish. The written response will be sent to the protestor via mail and, fax, if a fax number has been provided by the protestor. The protester can request additional methods of notification.

Last day to submit questions and/or verification on comparable products will be no later than 2:00 pm CST, seven (7) working days prior to the opening date of the bid/proposal due date. Further any questions or inquires must be submitted via fax to 985-898-5227, or via email to Procurement@stpgov.org. Any questions or inquires received after the required deadline to submit questions or inquires will not be answered.

CORPORATE RESOLUTION

EXCERPT FROM MINUTES OF MEETING OF THE BOARD OF DIRECTORS OF INCORPORATED.

AT THE MEETING OF DIRECTORS OF _____ INCORPORATED, DULY NOTICED AND HELD ON _____, A QUORUM BEING THERE PRESENT, ON MOTION DULY MADE AND SECONDED. IT WAS:

RESOLVED THAT _____, BE AND IS HEREBY APPOINTED, CONSTITUTED AND DESIGNATED AS AGENT AND ATTORNEY-IN-FACT OF THE CORPORATION WITH FULL POWER AND AUTHORITY TO ACT ON BEHALF OF THIS CORPORATION IN ALL NEGOTIATIONS, BIDDING, CONCERNS AND TRANSACTIONS WITH THE PARISH OF ST. TAMMANY OR ANY OF ITS AGENCIES, DEPARTMENTS, EMPLOYEES OR AGENTS, INCLUDING BUT NOT LIMITED TO, THE EXECUTION OF ALL BIDS, PAPERS, DOCUMENTS, AFFIDAVITS, BONDS, SURETIES, CONTRACTS AND ACTS AND TO RECEIVE ALL PURCHASE ORDERS AND NOTICES ISSUED PURSUANT TO THE PROVISIONS OF ANY SUCH BID OR CONTRACT, THIS CORPORATION HEREBY RATIFYING, APPROVING, CONFIRMING, AND ACCEPTING EACH AND EVERY SUCH ACT PERFORMED BY SAID AGENT AND ATTORNEY-IN-FACT.

I HEREBY CERTIFY THE FOREGOING TO BE A TRUE AND CORRECT COPY OF AN EXCERPT OF THE MINUTES OF THE ABOVE DATED MEETING OF THE BOARD OF DIRECTORS OF SAID CORPORATION, AND THE SAME HAS NOT BEEN REVOKED OR RESCINDED.

SECRETARY-TREASURER

DATE

Certificate of Insurance Instructions

The below information is intended to guide Contractors on what information is needed to be listed on the Certificate of Insurance. All Insurance limit requirements can be found in Attachment D.

- **Certificate Holder** – STPG must be listed as the certificate holder, and it must include our address of: P.O. Box 628, Covington, LA 70434
 - Reason: the certificate holder is where cancellations of coverage, or updated certificates are mailed. If a vendor terminates a policy, we will be notified.
- **Additional Insured** – We must be named as an additional insured so that if there is a lawsuit against the vendor for a project, their coverage will cover STPG as well if we are named in the lawsuit.
 - We must be named in the Description of Operations box – reason: there could be other additional insureds, and we want to have no doubt that we are one of the additional insureds.
 - We must be named as additional insured on the following coverages: General liability, Auto Liability, Umbrella/Excess Liability, Environmental/Pollution Liability.
 - Professional Liability policies do not allow for an additional insured by most carriers.
- **Project Name & Contract #** - We need this listed in the Description of Operations, again so that if there is a lawsuit, we have proof that coverage was active for that project.
- **Waiver of Subrogation** – This can either be listed in the Description of Operations or checked off in the appropriate columns.

From the Insurance Requirement form:

Waiver of Subrogation: The Provider's insurers will have no right of recovery or subrogation against the Parish of St. Tammany, it being the intention of the parties that all insurance policy(ies) so affected shall protect both parties and be the primary coverage for any and all losses covered by the below described insurance.

- **Owners Protective Liability (OPL) or (OCP)** – Certificate of Insurance for OCP names St. Tammany Parish Government as the Insured and the Certificate Holder.
- Sample of Certificate of Insurance (COI) can be found on page 2.
- Please refer to this section in the package labeled “Insurance Requirements” for limits required for this project

Any questions regarding insurance requirements please contact the Risk Department at 985-898-5226 or email riskman@stpgov.org



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

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

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

PRODUCER	CONTACT NAME:		
	PHONE (A/C, No. Ext):	FAX (A/C, No):	
	E-MAIL ADDRESS:		
	INSURER(S) AFFORDING COVERAGE		NAIC #
INSURED	INSURER A :		
	INSURER B :		
	INSURER C :		
	INSURER D :		
	INSURER E :		
	INSURER F :		

COVERAGES

CERTIFICATE NUMBER:

REVISION NUMBER:

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

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
	GENERAL LIABILITY						EACH OCCURRENCE \$
	<input type="checkbox"/> COMMERCIAL GENERAL LIABILITY						DAMAGE TO RENTED PREMISES (Ea occurrence) \$
	<input type="checkbox"/> CLAIMS-MADE <input type="checkbox"/> OCCUR						MED EXP (Any one person) \$
							PERSONAL & ADV INJURY \$
							GENERAL AGGREGATE \$
	GEN'L AGGREGATE LIMIT APPLIES PER:						PRODUCTS - COMP/OP AGG \$
	<input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC						\$
	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident) \$
	<input type="checkbox"/> ANY AUTO						BODILY INJURY (Per person) \$
	<input type="checkbox"/> ALL OWNED AUTOS	<input type="checkbox"/>	<input type="checkbox"/>				BODILY INJURY (Per accident) \$
	<input type="checkbox"/> HIRED AUTOS	<input type="checkbox"/>	<input type="checkbox"/>				PROPERTY DAMAGE (Per accident) \$
		<input type="checkbox"/>	<input type="checkbox"/>				\$
	UMBRELLA LIAB						EACH OCCURRENCE \$
	<input type="checkbox"/> OCCUR						AGGREGATE \$
	EXCESS LIAB						\$
	<input type="checkbox"/> CLAIMS-MADE						
	DED						
	RETENTION \$						
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY						WC STATUTORY LIMITS
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH)						OTHER
	If yes, describe under DESCRIPTION OF OPERATIONS below	<input type="checkbox"/> Y / N	<input type="checkbox"/> N / A				E.L. EACH ACCIDENT \$
							E.L. DISEASE - EA EMPLOYEE \$
							E.L. DISEASE - POLICY LIMIT \$

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

Project Name:
Contract #:

(Name St. Tammany Parish Government as an additional insured).

CERTIFICATE HOLDER**CANCELLATION**St. Tammany Parish Government
P.O. Box 628
Covington, LA 70434

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

AUTHORIZED REPRESENTATIVE

Bond No.: _____

**CONTRACT AGREEMENT
BETWEEN PARISH AND CONTRACTOR**

BY: ST. TAMMANY PARISH GOVERNMENT

**UNITED STATES OF
AMERICA**

WITH:

**STATE OF LOUISIANA
ST. TAMMANY PARISH**

This agreement is entered into this _____ day of _____, 20____, by and between: «txtREQCompanyName», hereinafter called the "Contractor", whose business address is «txtREQAddress», «txtREQCity», «txtREQState» «txtREQZip» and the St. Tammany Parish Government, hereinafter called the "Parish", whose business address is P.O. Box 628, Covington, LA 70434 (collectively, the "Parties") for «txtPROJECTNAME» project. Witnessed that the Contractor and the Parish, in consideration of premises and the mutual covenants, consideration and agreement herein contained, agree as follows:

1. SCOPE OF SERVICES

The Contractor shall furnish all labor and materials and perform all of the work required to build, construct and/or complete in a thorough and workmanlike manner:

«txtScopeSummary»

2. CONSTRUCTION DOCUMENTS

It is recognized by the Parties herein that said Construction Documents, including by way of example and not of limitation, the plans and Specifications, General Conditions, Supplementary General Conditions, any addenda thereto, the drawings (if any), and the bid, quote or other procurement documents impose duties and obligations upon the Parties herein, and said Parties thereby agree that they shall be bound by said duties and obligations. For these purposes, all of the provisions contained in the aforementioned Construction Documents are incorporated herein by reference with the same force and effect as though said Construction Documents were herein set out in full. Copies of the aforementioned Construction Documents are in the possession of both the Contractor and the Parish for reference.

3. TIME FOR COMPLETION

The work shall be commenced on a date to be specified in a written order of the Parish and shall be completed within «intCompletionTime» calendar days from and after said date.

4. COMPENSATION TO BE PAID TO THE CONTRACTOR

The Parish will pay and the Contractor will accept in full consideration for the performance of the Contract the sum of «curREQGrandTotal» dollars.

5. PERFORMANCE AND PAYMENT BOND

To these presents personally came and intervened _____,
(Name of Attorney in Fact)
herein acting for _____, a corporation organized
(Surety)
and existing under the laws of the State of _____, and duly authorized to transact business in the State of Louisiana, as surety, who declared that having taken cognizance of this Contract and of the Construction Documents mentioned herein, he hereby in his capacity as its Attorney in Fact obligates his company, as surety for the said Contractor, unto the said Parish, up to the sum of «curREQGrandTotal». The condition of this performance and payment bond

shall be that should the Contractor herein not perform the Contract in accordance with the terms and conditions hereof, or should said Contractor not fully indemnify and save harmless the Parish from all costs and damages which he may suffer by said Contractor's non-performance or should said Contractor not pay all persons who have fulfilled obligations to perform labor and/or furnish materials in the prosecution of the work provided for herein, including by way of example, workmen, laborers, mechanics, and furnishers of materials, machinery, equipment and fixtures, then said surety agrees and is bound to so perform the Contract and make said payment(s).

Contractor and Parish specifically agree to and recognize (1) the statutory employer relationship existing between the Parish and any employees performing work under this Contract as employees of the Contractor or employees of the "Sub-Contractor", and (2) that the work performed by the employees of the Contractor and the employees of the "Sub-Contractor" is part of the Parish's business, occupation or trade and is essential to the ability of the Parish to generate their products or services, all of which is in accordance with LSA-R.S. 23:1061, and as may be amended.

6. LIABILITY AND INDEMNIFICATION

A. Duty to Defend

Upon notice of any claim, demand, suit, or cause of action against the Parish, alleged to arise out of or be related to this Contract, Contractor shall investigate, handle, respond to, provide defense for, and defend at its sole expense, even if the claim, demand, suit, or cause of action is groundless, false, or fraudulent. The Parish may, but is not required to, consult with or assist the Contractor, but this assistance shall not affect the Contractor's obligations, duties, and responsibilities under this section. Contractor shall obtain the Parish's written consent before entering into any settlement or dismissal.

B. Contractor Liability

Contractor shall be liable without limitation to the Parish for any and all injury, death, damage, loss, destruction, damages, costs, fines, penalties, judgments, forfeitures, assessments, expenses (including attorney fees), obligations, and other liabilities of every name and description, which may occur or in any way arise out of any act or omission of Contractor, its owners, agents, employees, partners or subcontractors.

C. Force Majeure

It is understood and agreed that neither party can foresee the exigencies beyond the control of each party which arise by reason of an Act of God or force majeure; therefore, neither party shall be liable for any delay or failure in performance beyond its control resulting from an Act of God or force majeure. The Parish shall determine whether a delay or failure results from an Act of God or force majeure based on its review of all facts and circumstances. The parties shall use reasonable efforts, including but not limited to, use of continuation of operations plans (COOP), business continuity plans, and disaster recovery plans, to eliminate or minimize the effect of such events upon the performance of their respective duties under this Contract.

D. Indemnification

Contractor shall fully indemnify and hold harmless the Parish, without limitation, for any and all injury, death, damage, loss, destruction, damages, costs, fines, penalties, judgments, forfeitures, assessments, expenses (including attorney fees), obligations, and other liabilities of every name and description, which may occur or in any way arise out of any act or omission of Contractor, its

owners, agents, employees, partners or subcontractors. The Contractor shall not indemnify for the portion of any loss or damage arising from the Parish's act or failure to act.

E. Intellectual Property Indemnification

Contractor shall fully indemnify and hold harmless the Parish, without limitation, from and against damages, costs, fines, penalties, judgments, forfeitures, assessments, expenses (including attorney fees), obligations, and other liabilities in any action for infringement of any intellectual property right, including but not limited to, trademark, trade-secret, copyright, and patent rights.

When a dispute or claim arises relative to a real or anticipated infringement, the Contractor, at its sole expense, shall submit information and documentation, including formal patent attorney opinions, as required by the Parish.

If the use of the product, material, service, or any component thereof is enjoined for any reason or if the Contractor believes that it may be enjoined, Contractor, while ensuring appropriate migration and implementation, data integrity, and

minimal delays of performance, shall at its sole expense and in the following order of precedence: (i) obtain for the Parish the right to continue using such product, material, service, or component thereof; (ii) modify the product, material, service, or component thereof so that it becomes a non-infringing product, material, or service of at least equal quality and performance; (iii) replace the product, material, service, or component thereof so that it becomes a non-infringing product, material, or service of at least equal quality and performance; or, (iv) provide the Parish monetary compensation for all payments made under the Contract related to the infringing product, material, service, or component, plus for all costs incurred to procure and implement a non-infringing product, material, or service of at least equal quality and performance. Until this obligation has been satisfied, the Contractor remains in default.

The Contractor shall not be obligated to indemnify that portion of a claim or dispute based upon the Parish's unauthorized: i) modification or alteration of the product, material or service; ii) use of the product, material or service in combination with other products not furnished by Contractor; or, iii) use of the

product, material or service in other than the specified operating conditions and environment.

7. MODIFICATION OF CONTRACT TERMS

Provided that any alterations which may be made in the terms of the Contract or in the work to be done under it, or the giving by the Parish of any extensions of time for the performance of the Contract, or any other forbearance on the part of either the Parish or the Contractor to the other shall not in any way release the Contractor or the Surety from their liability hereunder, notice to the Surety of any such alterations, extensions or other forbearance being hereby waived.

8. TERMINATION, CANCELLATION, AND SUSPENSION

A. Termination

The term of this Contract shall be binding upon the Parties hereto until the work has been completed by the Provider and accepted by the Parish, and all payments required to be made to the Provider have been made. But, this Contract may be terminated upon thirty (30) days written notice under any or all of the following conditions:

- 1) By mutual agreement and consent of the Parties hereto;
- 2) By the Parish as a consequence of the failure of the Provider to comply with the terms, progress, or quality of the work in a satisfactory manner, proper allowances being made for circumstances beyond the control of the Provider;
- 3) By either party upon failure of the other party to fulfill its obligations as set forth in this Contract;
- 4) By the Parish with less than thirty (30) days' notice due to budgetary reductions and changes in funding priorities by the Parish;
- 5) In the event of the abandonment of the project by the Parish.

Upon termination, the Provider shall be paid for actual work performed prior to the Notice of Termination, either based upon the established hourly rate for services actually performed, or on a pro-rata share of the basic fee based upon the phase or percentage of work actually completed, depending on the type of compensation previously established under this Contract.

Upon Termination, the Provider shall deliver to the Parish all original documents, notes, drawings, tracings, computer files, and other files pertaining to this Contract or the Work performed, except for the Provider's personal and administrative files.

B. Cancellation

The continuation of this Contract is contingent upon the appropriation of funds to fulfill the requirements of the Contract by the Parish. If the Parish fails to appropriate sufficient monies to provide for the continuation of this or any other Contract, or if such appropriation is reduced by the veto of Parish President by any means provided in the appropriations Ordinance to prevent the total appropriation for the year from exceeding revenues for that year, or for any other lawful purpose, and the effect of such reduction is to provide insufficient monies for the continuation of the Contract, the Contract shall terminate on the date of the beginning of the first fiscal year for which funds are not appropriated. It is understood and agreed that paragraph (9)(C) below may preempt this paragraph, all at the exclusive and unilateral option of the Parish.

C. Suspension

Should the Parish desire to suspend the work, but not definitely terminate the Contract, the Parish shall supply the Provider with thirty (30) days' notice. The Parish will also

supply Provider thirty (30) days' notice that the work is to be reinstated and resumed in full force. Provider shall receive no additional compensation during the suspension period. The Parties may revisit the terms of this Contract during the suspension period. The suspension shall not exceed six (6) months, unless mutually agreed upon between the Parties.

- D.** Failure to complete or deliver within the time specified or to provide the services as specified in the bid or response will constitute a default and may cause cancellation of the contract. Where the Parish has determined the contractor to be in default. The Parish reserves the right to purchase any or all products or services covered by the contract on the open market and to charge the contractor with the cost in excess of the contract price. Until such assessed charges have been paid, no subsequent bid or response from the defaulting contractor will be considered.
- E.** In the event of a default and/or breach of this agreement and this matter is forwarded to legal counsel, then the prevailing party may be entitled to collect a reasonable attorney fees and all costs associated therewith whether or not litigation is initiated. Attorney fees shall be based upon the current, reasonable prevailing rate for counsel in the private

sector. The Parties agree to be responsible for such attorney fees, together for all with legal interest from date of agreement breach, plus all costs of collection.

- F.** Termination or cancellation of this agreement will not affect any rights or duties arising under any term or condition herein.
- G.** As to the filing of voluntary or involuntary bankruptcy by Provider, Provider agrees that if any execution or legal process is levied upon its interest in this Contract, or if any liens or privileges are filed against its interest, or if a petition in bankruptcy is filed against it, or if it is adjudicated bankrupt in involuntary proceedings, or if it should breach this Contract in any material respect, the Parish shall have the right, at its unilateral option, to immediately cancel and terminate this Contract. In the event that Provider is placed in any chapter of bankruptcy, voluntarily or involuntarily, or otherwise triggers any provision of the preceding sentence herein, it is understood and agreed that all materials, goods and/or services provided shall be and remain the property of the Parish. All rights of Provider as to goods, wares, products, services, materials and the like supplied to Parish shall be deemed forfeited.

9. RECORDATION OF CONTRACT

Contractor authorizes Parish to deduct from any payment due herein costs and service fees for recordation of this Contract in full or an excerpt hereof, or any revisions or modifications thereof as required by law.

10. AUTHORITY TO ENTER CONTRACT

The undersigned representative of Contractor warrants and personally guarantees that he/she has the requisite and necessary authority to enter and sign this Contract on behalf of the corporate entity, partnership, etc. The undersigned Parties warrant and represent that they each have the respective authority and permission to enter this Contract. In the event that Contractor is a member of a corporation, partnership, L.L.C., L.L.P., or any other juridical entity, the Parish requires, as an additional provision, that Contractor supply a certified copy of a corporate resolution authorizing the undersigned to enter and sign this Contract. Another option to fulfill this additional provision he/she can supply Louisiana Secretary of State Business filings confirming that he/she is a managing member of a

corporation, partnership, L.L.C., L.L.P., or any other juridical entity which authorizes the undersigned to enter and sign this Contract.

In Witness thereof, the Parties hereto on the day and year first above written have executed this Contract in One (1) counterparts, each of which shall, without proof or accountancy for the other counterparts, be deemed an original thereof.

WITNESSES:

CONTRACTOR:

Signature

Signature

Print Name

Print Name

Signature

Title

Print Name

Date

Bond No.: _____

WITNESSES:

**ST. TAMMANY PARISH
GOVERNMENT:**

Signature

Michael B. Cooper
Parish President

Print Name

Date

Signature

Print Name

APPROVED BY:

Assistant District Attorney- Civil (Surety)
Division

Signature

Date

Print Name

SECTION 12

TECHNICAL SPECIFICATIONS

HIGHWAY LA-21 LIFT STATION

MARCH 2024



PREPARED BY:

HIGH TIDE CONSULTANTS, LLC
409 W 21ST AVE – SUITE B
COVINGTON, LA 70433
Ph. (985)446-1110

Technical Specifications

Division 01 - General Requirements

Section 01010 - Summary of Work	01010-1 to 01010-4
Section 01025 - Measurement and Payment	01025-1 to 01025-10
Section 01041 - Project Coordination	01041-1 to 01041-2
Section 01043 - Job Site Administration	01043-1 to 01043-2
Section 01047 - Control of Work	01047-1 to 01047-2
Section 01050 - Site Condition Video Survey	01050-1 to 01050-4
Section 01090 - Reference Standards	01090-1 to 01090-4
Section 01152 - Applications for Payment	01152-1 to 01152-4
Section 01153 - Change Order Procedures	01153-1 to 01153-6
Section 01200 - Project Meetings	01200-1 to 01200-4
Section 01300 - Submittals	01300-1 to 01300-6
Section 01311 - Construction Schedule	01311-1 to 01311-2
Section 01370 - Schedule of Values	01370-1 to 01370-2
Section 01380 - Construction Photographs	01380-1 to 01380-2
Section 01400 - Testing Laboratory	01400-1 to 01400-2
Section 01505 - Mobilization	01505-1 to 01505-2
Section 01510 - Temporary Utilities	01510-1 to 01510-4
Section 01600 - Materials and Equipment	01600-1 to 01600-2
Section 01610 - Delivery, Storage and Handling	01610-1 to 01610-4
Section 01700 - Contract Closeout	01700-1 to 01700-2

Section 01710 - Cleaning	01710-1 to 01710-4
Section 01720 - Project Record Documents	01720-1 to 01720-4
Section 01730 - Operation and Maintenance Data	01730-1 to 01730-4
Section 01740 - Warranties and Bonds	01740-1 to 01740-2

Division 02 - Site Construction

Section 02050 - Demolition	02050-1 to 02050-8
Section 02140 - Dewatering	02140-1 to 02140-2
Section 02160 - Sheeting, Shoring, and Bracing	02160-1 to 02160-2
Section 02300 - Excavation and Backfill	02300-1 to 02300-4
Section 02580 - Pipeline Installation and Testing	02580-1 to 02580-6
Section 02920 - Seeding and Sodding	02920-1 to 02920-4
Section 02955 - Temporary Bypass Pumping	02950-1 to 02950-4

Division 03 - Concrete

Section 03300 - Cast-In-Place Concrete	03300-1 to 03300-8
Section 03400 - Precast Concrete	03400-1 to 03400-6

Division 04 - Masonry (Not Used)

Division 05 - Metals

Section 05120 – Structural Steel Framing	05120-1 to 05120-12
Section 05500 - Miscellaneous Metals	05500-1 to 05500-6
Section 05511 – Aluminum Access Hatches	05511-1 to 05511-2

Divisions 06 - 08 (Not Used)

Division 09 - Finishes

Section 09800 - Protective Coatings	09800-1 to 09800-14
-------------------------------------	---------------------

Division 10 - Specialties (Not Used)

Division 11 - Equipment

Section 11310 - Submersible Wastewater Pumps 11310-1 to 11310-10

Divisions 12 - 14 (Not Used)

Division 15 - Mechanical

Section 15009 - Pipe Supports 15009-1 to 15009-12

Section 15042 - Ductile Iron Pipe 15042-1 to 15042-4

Section 15064 - Plastic Pressure Pipe 15064-1 to 15064-4

Section 15200 - Valves, General 15200-1 to 15200-4

Section 15203 - Check Valves 15203-1 to 15203-2

Section 15206 - Gate Valves 15206-1 to 15206-2

Section 15207 - Plug Valves 15207-1 to 15207-2

Section 15230 - Miscellaneous Valves and Appurtenances 15230-1 to 15230-4

Division 16 - Electrical

Section 16010 - Basic Electrical Requirements 16010-1 to 16010-8

Section 16050 - Basic Electrical Materials and Methods 16050-1 to 16050-4

Section 16060 - Grounding and Bonding 16060-1 to 16060-4

Section 16120 - Low-Voltage Conductors (600 Volt AC) 16120-1 to 16120-4

Section 16130 - Raceways, Fittings, And Supports 16130-1 to 16130-4

Section 16200 - Standby Power Generator 16200-1 to 16200-17

Section 16900 - Pump Control Panel 16900-1 to 16900-7

END OF SECTION

SECTION 01010 - SUMMARY OF WORK

PART 1 - GENERAL

1.01 WORK REQUIRED BY THE CONTRACT

- A. The Work of this Contract consists of upgrades to an existing sewer lift station. The Work includes demolition; restoration; construction; concrete wet well, new pumps, piping, valves, electrical and control systems, concrete paving, install water service, install gas generator and rehabilitation of existing wet well. Flow control for continuous operation of existing lift station is included, as is all other incidental work necessary to complete the project as shown on the Drawings and specified herein.
- B. The Contractor shall perform the Work complete, in place, and ready for continuous service, and shall include repairs, testing, cleanup, replacements and restoration required as a result of damages caused during this construction.
- C. The Contractor shall furnish all labor, materials, equipment, tools, services, and incidentals to complete all work required by these Specifications and as shown on the Drawings.
- D. The Contractor shall furnish and install all materials, equipment, and labor which is reasonably and properly inferable and necessary for the proper completion of the Work, whether specifically indicated in the Contract Documents or not.
- E. The Contractor shall perform the Work under a lump sum price contract as stated in the Bid Form.

1.02 REQUIREMENTS

- A. The Contractor shall assume full responsibility for the protection and safekeeping of products under this Contract, stored on the site.
- B. The Contractor shall move any stored products, under Contractor's control, which interfere with operations of the Owner or separate contractor.
- C. The Contractor shall obtain and pay for the use of additional storage or work areas needed for Contractor's operations.

1.03 WORK SEQUENCE

- A. The Contractor shall begin work on the project within ten (10) days of the Notice to Proceed and complete the work within the period specified in the contract.

1.04 QUALITY OF WORK

- A. All work shall be subject to examination and approved by the Engineer and by all inspectors and authorities having jurisdiction. The Contractor shall replace all imperfect or condemned work with work conforming to all applicable requirements and codes to the satisfaction of the Engineer without additional cost to the Owner. If any work is covered before inspection and approval, the Contractor shall bear all costs for uncovering it, correcting it if necessary, and covering it again, at no additional cost to the Owner.

1.05 ENVIRONMENTAL CONTROLS

- A. Provisions for Control of Erosion and Pollutants: Sufficient precautions shall be taken during construction to minimize the run-off of polluting substances such as silt, clay, fuels, oils, bitumens, calcium chloride, or other materials harmful to humans, fish, or other life, into the ground and surface waters of the State. Control measures shall be adequate to assure that turbidity in the receiving waters will not be increased more than otherwise required by the State or other controlling agency. Special precautions shall be taken in the use of construction equipment to prevent operations which promote erosion. The Contractor shall be responsible for obtaining all permits in conjunction with the conveyance of storm water during construction activities.
- B. In the event of inclement weather, the Contractor shall protect the Work and materials and equipment against damage or injury from the weather. Damaged Work and materials shall be removed and replaced. If, in the opinion of Engineer, any portion of Work or materials has been damaged or injured by reason of failure on the part of the Contractor to so protect the Work, neither additional time nor additional payment for removal and replacement will be given by the Owner to the Contractor.
- C. Public Nuisance:
 - 1. The Contractor shall not create a public nuisance, including, but not limited to, encroachment on adjacent lands, flooding of adjacent lands, or excessive noise.
 - 2. Sound levels from Contractor operations shall not exceed 45 dBA 7 PM to 7 AM or 55 dBA 7 AM to 7 PM, unless approved otherwise in writing. This sound level shall be measured at the exterior of the nearest exterior wall of the nearest residence or business. Levels at operating equipment shall not exceed 85 dBA at the equipment at any time. Sound levels in excess of these values are sufficient cause to have the work halted until equipment can be quieted to these levels. Work stoppage by the Engineer for excessive noise shall not relieve the Contractor of any obligations under the contract, including, but not limited to, performance of the work at the contract time and contract price.

3. No additional payment to the Contractor will be made for time lost due to work stoppage resulting from the creation of a public nuisance.

D. Hazardous Locations

1. For operations in hazardous locations, the Contractor shall use spark-proof tools and explosion-proof temporary lighting and shall not use electric power tools, open flame devices, electric welding or any device or methods which might conceivably cause ignition or explosion.
2. If a working area atmosphere is unsafe, the Contractor shall furnish, install, operate and later remove such temporary auxiliary ventilating facilities as are necessary to provide a safe atmosphere.
3. The Contractor shall instruct its employees and the employees of all subcontractors to avoid smoking while in the hazardous areas. Suitable prominent "No Smoking" signs shall be placed at locations where hazardous gas could be present.

1.06 PERMITS

Upon notice of award, the Contractor shall immediately apply for all applicable permits not previously obtained by the Owner to do the work from the appropriate governmental agency or agencies. No work shall commence until all applicable permits have been obtained and copies delivered to the Engineer. The costs for obtaining all permits shall be borne by the Contractor.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

THIS PAGE LEFT BLANK INTENTIONALLY

SECTION 01025 - MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 DESCRIPTION

- A. The Contractor shall furnish all labor, materials, tools, equipment, appurtenances and all services necessary to perform all Work required, at the lump sum or unit prices for the items listed herein.
- B. The items listed below beginning with Article 1.03 are the same pay items listed in the Unit Prices Table of Section 00300 - Louisiana Uniform Public Works Bid Form. These items constitute all of the pay items for completion of the Contract. No direct or separate payment will be made for providing miscellaneous, temporary, or accessory works, plant, services, Contractor's or Engineer's field offices, layout surveys, job signs, sanitary requirements, testing, safety devices, approval and record drawings, water supplies, power, removal of waste, watchmen, bonds, insurance, taxes, and any other items necessary to complete the intent and letter of the Contract Documents. Compensation for all such services, things and materials required for a complete and usable facility shall be included in the prices stipulated for the lump sum and unit pay items listed herein.

1.02 ESTIMATED QUANTITIES

The estimated quantities for unit price bid items, as listed in the Louisiana Uniform Public Works Bid Form Unit Prices Table, are approximate only, and are included solely for the purpose of comparison of Bids. Certain pay item quantities are based on theoretical plan quantity and will not be adjusted; these items are noted in 1.03 or on the Drawings. The Owner does not expressly or by implication agree that the nature of the materials encountered below the surface of the ground, or the actual quantities of material encountered or required will correspond therewith and reserves the right to increase or decrease any quantity, or to eliminate any quantity, as Owner may deem necessary.

1.03 PAY ITEMS (Base Bid)

- A. Item 101 – Mobilization
 - 1. Description and Measurement: Item 101 includes all work as identified in Section 01505 - Mobilization. Mobilization shall not exceed 5% of the total contract price for the Base Bid. No partial measurement will be made for this item. Measurement will be made upon completion of all required items in Section 01505.
 - 2. Payment: Mobilization will be paid at the lump sum price listed in the Unit Prices Table.
- B. Item 102 – Preconstruction Video Survey
 - 1. Description and Measurement: Item 102 includes all labor, materials, equipment and incidentals necessary for providing preconstruction audio-video recordings in accordance with Section 01050. No partial measurement will be made for this item. Measurements will be made upon provision of preconstruction videos accepted by the Engineer.

2. Payment: Preconstruction Video Survey will be paid at the lump sum price listed in the Unit Prices Table.
- C. Item 103 – Clearing and Grubbing
1. Description and Measurement: Item 103 includes all labor, materials, equipment, and incidentals necessary for removal and disposal of all vegetation, debris, and excess fill in accordance with the Drawings and Specifications, as identified by the Engineer, and as necessary to complete the required improvements. Measurement will be made by percentage complete of the lump sum price in accordance with the schedule of values submitted by the Contractor and accepted by the Engineer.
 2. Payment: Clearing and Grubbing will be paid at the at the lump sum price listed in the Unit Prices Table.
- D. Item 104 – Removal of Portland Cement Concrete Pavement
1. Description and Measurement: Item 104 includes all labor, materials, equipment, and incidentals necessary to remove Portland cement concrete pavement in accordance with the Drawings and Specifications, and as directed by the Engineer. The price bid for this item shall include full depth sawcut between pavement to be removed and to remain. Measurement will be made by the square yard of pavement removed and accepted by the Engineer.
 2. Payment: Removal of Portland Cement Concrete Pavement will be paid by the square yard price listed in the Unit Prices Table.
- E. Item 105 – Demolition
1. Description and Measurement: Item 105 includes all labor, materials, equipment, and incidentals necessary for removal and disposal of all items including the removal and delivery of the existing sewer pump equipment in accordance with the Drawings and Specifications, as identified by the Engineer, and as necessary to complete the required improvements. Measurement will be made by percentage complete of the lump sum price in accordance with the schedule of values submitted by the Contractor and accepted by the Engineer.
 2. Payment: Demolition will be paid at the at the lump sum price listed in the Unit Prices Table.
- F. Item 106 – Fill and Grading
1. Description and Measurement: Item 106 includes all labor, materials, equipment, and incidentals necessary for the fill and grading required in accordance with the Drawings and Specifications, as identified by the Engineer, and as necessary to complete the required improvements. Measurement will be made by percentage complete of the lump sum price in accordance with the schedule of values submitted by the Contractor and accepted by the Engineer.
 2. Payment: Fill and Grading will be paid at the at the lump sum price listed in the Unit Prices Table.
- G. Item 107 – Modifications to Existing Wet Well
1. Description and Measurement: Item 107 includes all labor, materials, equipment, and incidentals necessary for the rehabilitation and modification of the existing concrete wet well in accordance with the Drawings and Specifications. This item includes cleaning, coating, and necessary repairs; backfill, compaction, grouting,

and shaping of the existing concrete floor; penetrations and tie-in of the influent and effluent sewer lines. Measurement will be made by percentage complete of the lump sum price in accordance with the schedule of values submitted by the Contractor and accepted by the Engineer.

2. Payment: Modifications to Existing Wet Well will be paid at the lump sum price listed in the Unit Prices Table.
- H. Item 108 – Install Yard Hydrant and Backflow Preventer
1. Description and Measurement: Item 108 includes all labor, materials, equipment, and incidentals necessary to install a new backflow preventer, 1” Dia. water line and non-freeze hose bib as indicated on the Drawings. Excavation, handling, incidental adjustments, tie into existing water meter, bedding, backfill, and any other appurtenances required for the installation are included. Measurement will be made by percentage complete of the lump sum price in accordance with the schedule of values submitted by the Contractor and accepted by the Engineer.
 2. Payment: Install Non-Freeze Hose Bib and Backflow Preventer will be paid at the at the lump sum price listed in the Unit Prices Table.
- I. Item 109 – 2-inch Gas Line
1. Description and Measurement: Item 109 includes all labor, materials, equipment, and incidentals necessary for installing an open cut gas line in accordance with the Drawings and Specifications. Measurement will be made by linear foot of pipe installed and accepted by the Engineer.
 2. Payment: 2-inch Gas Line will be paid by the linear foot price listed in the Unit Prices Table.
- J. Item 110 – 10” Dia. DI MJ Gate Valve
1. Description and Measurement: Item 110 includes all labor, materials, equipment, and incidentals necessary to install the sewer force main gate valve in accordance with the Drawings and Specifications. Measurement will be made per each valve installed and accepted by the Engineer.
 2. Payment: 10” Dia. DI MJ Gate Valve will be paid at the per each price listed in the Unit Prices Table.
- K. Item 111 – Exist. 4” Dia. SFM Connection
1. Description and Measurement: Item 111 includes all labor, materials, equipment, and incidentals necessary to reroute and connect the existing influent 4” sewer force main in accordance with the Drawings and Specifications. Measurement will be made by percentage complete of the lump sum price in accordance with the schedule of values submitted by the Contractor and accepted by the Engineer.
 2. Payment: Exist. 4” Dia. SFM Connection will be paid at the lump sum price listed in the Unit Prices Table.
- L. Item 112 – Exist. 6” Dia. SFM Connection
1. Description and Measurement: Item 112 includes all labor, materials, equipment, and incidentals necessary to reroute and connect the existing influent 6” sewer force main in accordance with the Drawings and Specifications. Measurement will be made by percentage complete of the lump sum price in accordance with the schedule of values submitted by the Contractor and accepted by the Engineer.

2. Payment: Exist. 6” Dia. SFM Connection will be paid at the lump sum price listed in the Unit Prices Table.
- M. Item 113 – Exist. Effluent 8” Dia. SFM Connection
1. Description and Measurement: Item 113 includes all labor, materials, equipment, and incidentals necessary to connect to the existing effluent 8” sewer force main in accordance with the Drawings and Specifications. Measurement will be made by percentage complete of the lump sum price in accordance with the schedule of values submitted by the Contractor and accepted by the Engineer.
 2. Payment: Exist. Effluent 8” Dia. SFM Connection will be paid at the lump sum price listed in the Unit Prices Table.
- N. Item 114 – 10” Dia. PVC SFM (DR18)(Green)
1. Description and Measurement: Item 114 includes all labor, materials, equipment, excavations, backfill, bedding, and incidentals necessary for installing an open cut 10” Dia. PVC sewer force main in accordance with the Drawings and Specifications. Measurement will be made by linear foot of pipe installed and accepted by the Engineer.
 2. Payment: 10” Dia. PVC SFM (DR18)(Green) will be paid by the linear foot price listed in Unit Prices Table.
- O. Item 115 – 12” Dia. PVC (SDR26)(Green)
1. Description and Measurement: Item 115 includes all labor, materials, equipment, excavations, backfill, bedding, and incidentals necessary for installing an open cut 12” Dia. PVC gravity sewer line in accordance with the Drawings and Specifications. Measurement will be made by linear foot of pipe installed and accepted by the Engineer.
 2. Payment: 12” Dia. PVC (SDR26)(Green) will be paid by the linear foot price listed in Unit Prices Table.
- P. Item 116 – 10’ I.D. Concrete Wet Well
1. Description and Measurement: Item 116 includes all labor, materials, equipment, and incidentals required to install the new 10’ I.D. Concrete Wet Well as indicated on the Drawings and Specifications. This item includes excavation and compaction of the backfill, installation and compaction of the aggregate bedding and geotextile fabric, connection of the sewer lines, and concrete top slab. Measurement will be made by percentage complete of the lump sum price in accordance with the schedule of values submitted by the Contractor and accepted by the Engineer.
 2. Payment: 10’ I.D. Concrete Wet Well will be paid at the lump sum price listed in the Unit Prices Table.
- Q. Item 117 – Access Hatch (48”x72”)(w/ Fall Protection System)
1. Description and Measurement: Item 117 includes all labor, materials, equipment, and incidentals necessary to install an access hatch with a fall protection system on the new concrete wet well in accordance with the Drawings and Specifications. Measurement will be made by percentage complete of the lump sum price in accordance with the schedule of values submitted by the Contractor and accepted by the Engineer.
 2. Payment: Access Hatch (48”x72”)(w/ Fall Protection System) will be paid at the lump sum price listed in the Unit Prices Table.

- R. Item 118 – Submersible Pumps (Internal Components & Installation)
1. Description and Measurement: Item 118 includes all labor, materials, equipment and incidentals required to install the new submersible pumps, guide rails, base, discharge piping, elevation controls, and internal components as indicated on the Drawings and Specifications. Measurement will be made by percentage complete of the lump sum price in accordance with the schedule of values submitted by the Contractor and accepted by the Engineer.
 2. Payment: Submersible Pumps (Internal Components & Installation) will be paid at the lump sum price listed in the Unit Prices Table.
- S. Item 119 – 8” Dia. Ductile Iron Pipe
1. Description and Measurement: Item 119 includes all labor, materials, equipment, excavations, backfill, and incidentals necessary for installing the 8” Dia. Ductile iron discharge pipe and required coatings in accordance with the Drawings and Specifications. Measurement will be made by linear foot of pipe installed and accepted by the Engineer.
 2. Payment: 8” Dia. Ductile Iron Pipe will be paid by the linear foot price listed in Unit Prices Table.
- T. Item 120 – 10” Dia. Ductile Iron Pipe
1. Description and Measurement: Item 120 includes all labor, materials, equipment, excavations, backfill, and incidentals necessary for installing the 10” Dia. Ductile iron discharge pipe in accordance with the Drawings and Specifications. Measurement will be made by linear foot of pipe installed and accepted by the Engineer.
 2. Payment: 10” Dia. Ductile Iron Pipe will be paid by the linear foot price listed in Unit Prices Table.
- U. Item 121 – Check Valve (8”)
1. Description and Measurement: Item 121 includes all labor, materials, equipment, and incidentals necessary to install check valve(s) on the sewer discharge pipe in accordance with the Drawings and Specifications. Measurement will be made per each valve installed and accepted by the Engineer.
 2. Payment: Check Valve (8”) will be paid at the per each price listed in the Unit Prices Table.
- V. Item 122 – Gate Valve (8”)
1. Description and Measurement: Item 122 includes all labor, materials, equipment, and incidentals necessary to install gate valve(s) on the sewer discharge pipe in accordance with the Drawings and Specifications. Measurement will be made per each valve installed and accepted by the Engineer.
 2. Payment: Gate Valve (8”) will be paid at the per each price listed in the Unit Prices Table.
- W. Item 123 – Air Release Valve
1. Description and Measurement: Item 123 includes all labor, materials, equipment, and incidentals necessary to install air release valve(s) on the sewer discharge pipe in accordance with the Drawings and Specifications. Measurement will be made per each valve installed and accepted by the Engineer.
 2. Payment: Air Release Valve will be paid at the per each price listed in the Unit Prices Table.

- X. Item 124 – Emergency Pump Out Assembly
 - 1. Description and Measurement: Item 123 includes all labor, materials, equipment and incidentals required to install a new Emergency Pump Out (EPO) as indicated on the Drawings and Specifications. Measurement will be made by percentage complete of the lump sum price in accordance with the schedule of values submitted by the Contractor and accepted by the Engineer.
 - 2. Payment: Emergency Pump Out Assembly will be paid at the lump sum price listed in the Unit Prices Table.

- Y. Item 125 – Electromagnetic Flowmeter
 - 1. Description and Measurement: Item 125 includes all labor, materials, equipment, and incidentals necessary to install the electromagnetic flow meter on the sewer discharge pipe in accordance with the Drawings and Specifications. Measurement will be made per each electromagnetic flowmeter installed and accepted by the Engineer.
 - 2. Payment: Electromagnetic Flowmeter will be paid at the per each price listed in the Unit Prices Table.

- Z. Item 126 – Ductile Iron Fittings
 - 1. Description and Measurement: Item 126 includes all labor, materials, equipment, and incidentals necessary for installing all types of mechanical joint ductile iron fittings, including flanged reducers and bends, and required coatings in accordance with the Drawings and Specifications, for buried pipe only. Measurement will be made per pound of fitting installed and accepted by the Engineer. Weights used in measurement shall be as shown in the accepted submittal for each type of fitting.
 - 2. Payment: Ductile Iron Fittings will be paid by the per pound price listed in the Unit Prices Table.

- AA. Item 127 – Pipe Support
 - 3. Description and Measurement: Item 127 includes all labor, materials, equipment, and incidentals necessary to install the pipe support(s) for the sewer discharge pipe in accordance with the Drawings and Specifications. Measurement will be made per each pipe support installed and accepted by the Engineer.
 - 4. Payment: Pipe Support will be paid at the per each price listed in the Unit Prices Table.

- BB. Item 128 – 6” Thick Portland Cement Concrete Pavement
 - 1. Description and Measurement: Item 128 includes all labor, materials, equipment, and incidentals necessary for furnishing, installing, forming, jointing, finishing, and curing concrete pavement; in accordance with the Drawings and Specifications. Grading and compaction of base material and provision, placement, and compaction of incidental granular material to grade below paving are included. Measurement will be made by the square yardage of concrete pavement installed and accepted by the Engineer.
 - 2. Payment: 6” Thick Portland Cement Concrete Pavement will be paid at the square yard price listed in the Unit Prices Table.

- CC. Item 129 – 6” Thick Aggregate Surface Course
1. Description and Measurement: Item 129 includes all labor, materials, equipment, and incidentals necessary for installing aggregate surface course in accordance with the Drawings and Specifications. Grading and compaction of base material and provision, placement, and compaction of incidental granular material to grade below paving are included. Measurement will be made by the square yardage of aggregate surface course installed and accepted by the Engineer.
 2. Payment: 6” Thick Aggregate Surface Course will be paid at the square yard price listed in the Unit Prices Table.
- DD. Item 130 – Electrical Conduit and Wiring
1. Description and Measurement: Item 130 includes all labor, materials, equipment and incidentals required to provide electrical service to the control panel, pumps, and crane as indicated on the Drawings and Specifications. Excavation, handling, incidental adjustments, electrical conduit, backfill, and any other appurtenances required for the installation are included. Measurement will be made by percentage complete of the lump sum price in accordance with the schedule of values submitted by the Contractor and accepted by the Engineer.
 2. Payment: Electrical Conduit and Wiring will be paid at the lump sum price listed in the Unit Prices Table
- EE. Item 131 – Control Panel & Support Structure (w/ Metal Roof)
1. Description and Measurement: Item 131 includes all labor, materials, equipment and incidentals required to install a new control panel, structural support, and roof as indicated on the Drawings and Specifications. Excavation, handling, incidental adjustments, structural metal, anchor bolts, foundation system, backfill, roofing, and any other appurtenances required for the installation are included. Measurement will be made by percentage complete of the lump sum price in accordance with the schedule of values submitted by the Contractor and accepted by the Engineer.
 2. Payment: Control Panel & Support Structure (w/ Metal Roof) will be paid at the lump sum price listed in the Unit Prices Table.
- FF. Item 132 – Stand-by Natural Gas Generator (125kW)
1. Description and Measurement: Item 132 includes all labor, materials, equipment and incidentals required to install a new 125 kW generator and ATS as indicated on the Drawings and Specifications. Measurement will be made by percentage complete of the lump sum price in accordance with the schedule of values submitted by the Contractor and accepted by the Engineer.
 2. Payment: Stand-by Natural Gas Generator (125kW) will be paid at the lump sum price listed in the Unit Prices Table.
- GG. Item 133 – Freestanding Jib Crane (1 Ton)
1. Description and Measurement: Item 133 includes all labor, materials, equipment and incidentals required to install the freestanding jib crane, hoist, and foundation as indicated on the Drawings and Specifications. Measurement will be made by percentage complete of the lump sum price in accordance with the schedule of values submitted by the Contractor and accepted by the Engineer.
 2. Payment: Freestanding Jib Crane (1 Ton) will be paid at the lump sum price listed in the

Unit Prices Table.

- HH. Item 134 – 6’ Wooden Fence
1. Description and Measurement: Item 134 includes all labor, materials, equipment, and incidentals necessary for installing a new 6’ Wooden fence in accordance with the Drawings and Specifications. Measurement will be made by linear foot of fence installed and accepted by the Engineer. Gates will not be paid separately.
 2. Payment: 6’ Wooden Fence will be paid by the linear foot price listed in Unit Prices Table.
- II. Item 135 – 6’ Chain Link Fence & Gates
1. Description and Measurement: Item 135 includes all labor, materials, equipment, and incidentals necessary for installing a new 6’ chain-link fence and gates (black) in accordance with the Drawings and Specifications. Measurement will be made by linear foot of fence installed (including gates) and accepted by the Engineer. Gates will not be paid separately.
 2. Payment: 6’ Chain Link Fence & Gates will be paid by the linear foot price listed in Unit Prices Table.
- JJ. Item 136 – Silt Fence:
1. Description and Measurement: Item 136 includes all labor, materials, equipment and incidentals required to install a silt fence as indicated on the Drawings and Specifications. Measurement will be made by linear foot of silt fence installed and accepted by the Engineer.
 2. Payment: Silt Fence will be paid by the linear foot price listed in Unit Prices Table.
- KK. Item 137 – Temporary Bypass Pump System
1. Description and Measurement: Item 137 includes all necessary wastewater flow control for continuous operation of the existing lift station in accordance with Section 02995 - Temporary Bypass Pumping and in accordance with the Drawings is included in this item. Measurement will be made by percentage complete of the lump sum price in accordance with the schedule of values submitted by the Contractor and accepted by the Engineer.
 2. Payment: Temporary Bypass Pump System will be paid by the lump sum price listed in Unit Prices Table.
- LL. Item 138 – Site Restoration:
1. Description and Measurement: Item 138 includes all labor, materials, equipment, and incidentals required to restore project sites to their original condition and to accomplish any supporting work required in order to carry out the intent of the Contract Documents. This includes, but is not limited to, miscellaneous embankment (not covered by other pay item), grading, ditch grading, reinstatement of signs & mailboxes, seeding, sodding, and other items as necessary to restore the site to pre-construction condition. No payment will be made for restoring any damage caused by the Contractor’s operations. Measurement will be made by percentage complete of the lump sum price in accordance with the schedule of values submitted by the Contractor and accepted by the Engineer.
 2. Payment: Site Restoration will be paid at the lump sum price listed in the Unit

Prices Table.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

THIS PAGE LEFT BLANK INTENTIONALLY

SECTION 01041 - PROJECT COORDINATION

PART 1 - GENERAL

1.01 REQUIREMENTS

The Contractor shall plan, schedule, and coordinate his operations in a manner that will facilitate the simultaneous progress of the work included under other contracts outside the scope of these Contract Documents. The Contractor shall plan, schedule and coordinate with all utilities in a manner conducive to timely and efficient progress in the execution of the contract.

1.02 NOTICE TO PROPERTY OWNERS AND UTILITIES

A. The Contractor shall, as provided in the General Conditions, notify owners of adjacent property and utilities when prosecution of the Work may affect them. Utilities and other concerned agencies shall be contacted at least 48 hours prior to cutting or closing streets or other traffic areas or excavating near underground utilities or pole lines. When it is necessary to temporarily deny the access of owners or tenants to their property, or when any utility service connections must be interrupted, Contractor shall give notices sufficiently in advance to enable the affected persons to provide for their needs. Notices shall conform to any applicable local ordinance and, whether delivered orally or in writing, shall include appropriate information concerning the interruptions and instructions on how to limit their inconvenience.

B. Notice to Electric Utility:

The Contractor shall review with Electric Utility the construction methods to be used in the vicinity of that entity's power lines. This review shall establish which lines, if any, need temporary relocation or de-energizing work being required. The Contractor shall be responsible for notifying and coordinating with Utility officials prior to and during the construction of all facilities within the project limits. The Contractor shall schedule work activities in cooperation with the utility personnel to ensure uninterrupted electrical service to the public. The Contractor shall coordinate all construction activities that affect Electric Utility facilities through the local representative of the local office.

C. Notice to Gas Utility:

The Contractor shall review with the Gas Utility any work to be done in the vicinity of gas lines. Where temporary relocation of gas lines or reinforcement of coating is required, the Contractor shall meet with the Gas Utility as soon as possible, but no less than thirty (30) days in advance of when relocation is required. The Contractor shall give at least 48 hours notice for temporary

shutdown of gas mains and other notification as required by the Gas Utility when working in the vicinity of gas mains.

1.03 CONNECTIONS TO EXISTING FACILITIES

- A. Unless otherwise specified or indicated, the Contractor shall make all necessary connections to existing facilities including structures, drain lines, and shall make all necessary connections to existing utilities such as water, sewer, gas, telephone, and electric. In each case, the Contractor shall receive permission from the Owner or the Utility prior to undertaking connections. The Contractor shall protect facilities against deleterious substances and damage.
- B. Connections to existing facilities which are in service shall be thoroughly planned in advance, and all required equipment, materials and labor shall be on hand at the time of undertaking the connections. Work shall proceed continuously (around the clock if necessary) to complete connections in the minimum time. Operation of valves of other appurtenances on existing utilities, when required, shall be by or under the direct supervision of the utility company.

1.04 OPERATION OF EXISTING FACILITIES

- A. All existing facilities shall be kept in continuous operation throughout the construction period. No interruption will be permitted which adversely affects the degree of service provided. Provided permission is obtained from the Owner in advance, portions of the existing facilities may be taken out of service for short periods corresponding with periods of minimum service demands.
- B. The Contractor shall provide temporary facilities and make temporary modifications as necessary to keep the existing facilities in operation during the construction period.

1.05 COORDINATION OF STRUCTURAL, MECHANICAL, AND ELECTRICAL WORK

The Contractor shall coordinate all details of the equipment with other related parts of the Work including verification that all structures, piping, wiring, and equipment components are compatible. The Contractor shall be responsible for all structural and other alterations in the Work required to accommodate equipment differing in dimensions or other characteristics from that shown in the Contract Drawings or Specifications.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01043 - JOB SITE ADMINISTRATION

PART 1 - GENERAL

1.01 SITE ADMINISTRATION

- A. The Contractor shall be responsible for all areas of the site used by the Contractor, and shall exert full control over the actions of all employees, all subcontractors, all suppliers, and other persons with respect to the use and preservation of property and existing facilities, except as such controls are specifically reserved to the Owner and the Engineer. A full time superintendent, who is a regular full time employee of the Contractor, shall be on site at all times during the Work. The Contractor's full time superintendent shall be on site at all times during the Work, including any activities by subcontractors or suppliers.
- B. The Contractor has the right to exclude from the areas of the site used by the Contractor all persons who have no purpose related to the Work or its inspection, except the Owner's personnel required to operate and maintain the existing treatment facilities. The Contractor may require all persons in the areas of the site used by the Contractor to observe the same safety regulations as required of its employees.

1.02 UNFAVORABLE CONSTRUCTION CONDITIONS

- A. The Contractor shall confine his operations to work which will not be adversely affected by unfavorable weather, wet ground, or other unsuitable construction conditions. No portion of the Work shall proceed under conditions which would adversely affect the quality or efficiency of the Work, unless suitable special precautions or countermeasures are taken by the Contractor.

1.03 LAND FOR CONSTRUCTION PURPOSES

- A. The Contractor shall provide arrangements with the Owner for any land required for construction purposes including the storage of materials and equipment. The location and extent of the areas so used shall be as directed by the Owner. The Contractor shall immediately move stored material or equipment if any occasion arises, as determined by Owner, requiring access to the area used for storage. Materials or equipment shall not be placed on the property of Owner until Owner has agreed to the location to be used for storage.
- B. The Contractor shall provide arrangements for additional land required for construction, if necessary, beyond that furnished by the Owner. This work shall be considered a subsidiary obligation of the Contractor and all costs in connection therewith shall be absorbed by the Contractor.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01047 - CONTROL OF WORK

PART 1 - GENERAL

1.01 SITE WORK

- A. The Contractor shall furnish all necessary equipment and labor that will be sufficient to produce a satisfactory quality of work at a rate of progress which will insure the completion of the work within the Contract Time. If at any time such equipment and labor appears to the Engineer to be insufficient for producing the quality of work required at the rate of progress aforesaid, the Engineer may order the Contractor to increase the efficiency, change the character, increase the personnel, or increase the equipment, and the Contractor shall conform to such order. Failure of the Engineer to give any such order shall in no way relieve the Contractor of the obligation to complete the Work within the Contract Time.

1.02 PRIVATE LAND

- A. Contractor shall not enter or occupy private land outside of easements, except by permission of the land owner.

1.03 OPEN EXCAVATIONS

- A. All open excavations shall be adequately safeguarded by providing temporary barricades, caution signs, lights and other means to prevent accidents to persons and damage to property. The Contractor shall provide suitable and safe bridges and other crossings for accommodating travel by pedestrians and workmen. Bridges provided for access during construction shall be removed when no longer required. The length or size of excavation will be controlled by the particular surrounding conditions, but shall always be confined to the limits prescribed by the Engineer. If the excavation becomes a hazard, or if it excessively restricts traffic at any point, the Engineer may require special construction procedures such as limiting the length of the open trench, prohibiting stacking excavated material in the street and requiring that the trench shall not remain open overnight.
- B. The Contractor shall take precautions to prevent injury to the public due to open trenches. All trenches, excavated material, equipment, or other obstacles which could be dangerous to the public shall be well lighted at night.

1.04 TEST PITS

- A. Test pits for the purpose of locating underground pipeline or structures in advance of underground construction features shall be excavated and backfilled at the direction of the Engineer. Test pits shall be backfilled immediately after their purpose has been satisfied and the surface restored and maintained in a manner satisfactory to the Engineer.

1.05 CARE AND PROTECTION OF PROPERTY

- A. The Contractor shall be responsible for the preservation of all public and private property and shall use every precaution necessary to prevent damage thereto. If any direct or indirect damage is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work on the part of the Contractor, such property shall be restored by the Contractor, at the Contractor's expense, to a condition similar or equal to that existing before the damage was done.

1.06 PROTECTION AND RELOCATION OF EXISTING STRUCTURES AND UTILITIES

- A. The Contractor shall assume full responsibility for the protection of all buildings, structures, and utilities, public or private, including poles, signs, services to buildings, utilities in the street, gas pipes, water pipes, hydrants, sewers, drains and electric and telephone cables, whether or not they are shown on the Drawings. The Contractor shall carefully support and protect all such structures and utilities from damage of any kind. Any damage resulting from the Contractor's operations shall be repaired by the Contractor.
- B. Assistance will be given the Contractor in determining the location of existing services. The Contractor, however, shall bear full responsibility for obtaining all locations of underground structures and utilities (including existing water services, electrical duct banks, drain lines and sewers). Services to buildings shall be maintained, and all costs or charges resulting from damage thereto shall be borne by the Contractor.

1.07 CLEANUP AND DISPOSAL OF EXCESS MATERIAL

- A. During execution of the Work, the Contractor shall keep the site of its operations in as clean and neat a condition as is possible. The Contractor shall dispose of all residues resulting from the Work and, at the conclusion of the Work, shall remove and haul away any surplus excavation, broken pavement, lumber, equipment, temporary structures and any other refuse remaining from the construction operations and shall leave the entire site of the work in a neat and orderly condition.
- B. In order to prevent environmental pollution arising from the construction activities related to the performance of this Contract, the Contractor shall comply with, and shall require all subcontractors to comply with, all applicable Federal, State and local laws and regulations concerning waste material disposal, as well as the specific requirements stated in this Section and elsewhere in the Specifications.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01050 - SITE CONDITION VIDEO SURVEY

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Prior to the start of construction on the Contract, the Contractor shall furnish to the Engineer audio-video recordings of the construction area. The video will be used as a record of existing site conditions and as a guide by the Engineer, prior to issuance of final payments, in determining the adequacy of restoration and the extent of damages attributable to the Contractor's work.
- B. The Contractor shall furnish to the Engineer two (2) sets of audio-video recordings showing in detail the construction areas prior to start of construction of the construction contract. The Engineer, after reviewing them, will forward one (1) set of each to the Owner within ten (10) days of receipt. The recording(s) and written records shall become the property of the Owner.

PART 2 - PRODUCTS

2.01 TECHNICAL REQUIREMENTS

- A. The total audio-video recording system and the procedures employed in its use shall be such as to produce a finished product that will fulfill the technical requirements of the project, as well as those more subjective requirements of high-quality audio and video production. The video portion of the recording shall reproduce bright, sharp, clear pictures with accurate colors and shall be free from distortion, tearing, rolls or any other form of picture imperfection. The audio portion of the recording shall reproduce precise and concise explanatory notes by the camera operator with proper volume, clarity and freedom from distortion.

2.02 OPERATOR EXPERIENCE

The video survey shall be conducted by an independent company experienced in this field. The operator in charge of the video recording must have had previous experience video documenting a minimum of five (5) public works construction projects. Any apprentice operators must be continuously supervised by an above-described experienced operator.

PART 3 - EXECUTION

3.01 GENERAL

- A. Coverage. The video recording shall include coverage of all surface features located within the construction zone-of-influence. This zone shall be defined as
(1) the area within the plant disinfection site, and areas directed by the Owner. The surface features within the construction zone shall include, but not be limited to, all structures, slabs, sidewalks, retaining walls, equipment, and fences. Of particular concern shall be the existence, or non-existence, of any faults, fractures or defects.
- B. Identification Summary. At the start of production, at the beginning of a new tank site, an identification summary shall be read into the record while, at the same time, a wide-angle view with numeric displays shall be provided for a visual record. This summary will include (1) tape number, (2) job title, (3) job location, (4) positional location at job start, (5) date and time, (6) weather and (7) any other notable conditions.
- C. Character Printout. All video recordings must, by electronic means, display continuously and simultaneously, generated transparent digital information to include (1) the date and the time of the recording, or as directed by the Engineer, (3) the name of the site, (4) the project name, and (5) the direction of the view. The time and date shall appear linearly in the bottom left hand corner (e.g. 9-20- 15 8:30:15).
- The remainder of the printed information shall appear at the bottom of the viewing screen. To maximize viewing area no more than twenty-four rasters shall be used to express the transparent digital information.
- D. Visibility. No recording shall be done during periods of significant precipitation, mist or fog. The recording shall only illuminate the subjects of recording.

3.02 RECORDING SCHEDULE

The preconstruction video recording shall be performed prior to the placement of any construction materials or equipment on the proposed construction site, but not more than seven weeks prior to the placement of materials or equipment.

3.03 VIDEO INDEXING

All discs and their storage cases shall be properly identified by video index number, project title and general project location. Displayed on the storage case of each video shall be a log of that disc's contents. That log shall describe the various segments contained on that disc, coverage start, direction, and endpoints, with corresponding video disc player counter numbers. A cumulative index correlating the various segments of coverage to their corresponding tapes shall be typed and supplied to the Owner.

3.04 UNACCEPTABLE DOCUMENTATION

The Engineer/Owner shall have the authority to reject all or any portion of the video documentation not conforming to the specifications. Those rejected portions shall be resurveyed at no additional cost to the Owner.

END OF SECTION

THIS PAGE LEFT BLANK INTENTIONALLY

SECTION 01090 - REFERENCE STANDARDS

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

Abbreviations and acronyms used in the Contract Documents to identify reference standards.

1.02 QUALITY ASSURANCE

- A. Application: When a standard is specified by reference, the Contractor shall comply with requirements and recommendations stated in that standard, except when requirements are modified by the Contract Documents or applicable codes establish stricter standards.
- B. Publication Date: The publication in effect on the date of issue of the Contract Documents, except when a specific publication date is specified.

1.03 ABBREVIATIONS, NAMES, AND ADDRESSES OF ORGANIZATIONS

The Contractor shall obtain copies of referenced standards directly from the publication source, when needed for proper performance of work, or when required for submittal by the Contract Documents.

AA	Aluminum Association 818 Connecticut Avenue, N.W. Washington, DC 20006
AASHTO	American Association of State Highway and Transportation Officials 444 North Capitol Street, N.W. Washington, DC 20001
ACI	American Concrete Institute Box 19150, Reford Station Detroit, MI 48219
AI	Asphalt Institute Asphalt Institute Building College Park, MD 20740
AISC	American Institute of Steel Construction 1221 Avenue of the Americas New York, NY 10020

AISI	American Iron and Steel Institute 1000 16th Street, N.W. Washington, DC 20036
ANSI	American National Standards Institute 1430 Broadway New York, NY 10018
ASHRAE	American Society of Heating, Refrigerating and Conditioning Engineers 1791 Tullie Circle, N.E. Atlanta, GA 30329
ASME	American Society of Mechanical Engineers Two Park Avenue New York, NY 10016
ASTM	American Society for Testing and Materials 100 Bar Harbor Drive West Conshocken, PA 19428
AWWA	American Water Works Association 6666 W. Quincy Avenue, Denver, CO 80235
AWS	American Welding Society 2501 NW 7th Street Miami, FL 33125
CRSI	Concrete Reinforcing Steel Institute 180 North LaSalle Street, Suite 2110 Chicago, IL 60601
FS	Federal Specification General Services Administration Specifications and Consumer Information Distribution Section (WFSIS) Washington Navy Yard, Building 197 Washington, DC 20407
LSSRB	Louisiana Standard Specifications for Roads and Bridges Louisiana Department of Transportation and Development Headquarters Administration Building - Room 100 1201 Capitol Access Road Baton Rouge, Louisiana 70802

MLSFA	Metal Lath/Steel Framing Association 221 North LaSalle Street Chicago, IL 60601
NAAMM	National Association of Architectural Metal Manufacturers 221 North LaSalle Street Chicago, IL 60601
NEMA	National Electrical Manufacturers' Association 2101 L Street, N.W. Washington, DC 20037
OSHA	Occupational Safety and Health Administration 200 Constitution Ave NW Washington, DC 20210
PCA	Portland Cement Association 5420 Old Orchard Road Skokie, IL 20076
PCI	Prestressed Concrete Institute 20 North Wacker Drive Chicago, IL 60606
SDI	Steel Door Institute 712 Lakewood Center North Cleveland, OH44107
SMACNA	Sheet Metal and Air Conditioning Contractors" National Association 8224 Old Court House Road Vienna, VA 22180
SSPC	Steel Structures Painting Council 4400 Fifth Avenue Pittsburg, PA
UL	Underwriters' Laboratories, Inc. 333 Pfingston Road Northbrook, IL 60062

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01152 - APPLICATIONS FOR PAYMENT

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

The Contractor shall submit applications for payment to the Engineer in accord with the schedule established by Conditions of the Contract.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Agreement between Owner and Contractor: Lump-Sum.
- B. Conditions of the Contract: Progress Payments, Retainages and Final Payment.
- C. Section 01380: Construction Photographs.
- D. Section 01700: Contract Closeout.

1.03 FORMAT AND DATA REQUIRED

- A. The Contractor shall submit payment applications in the form required by the Owner with itemized data typed on 8 ½ x 11 white paper continuation sheets.
- B. The Contractor shall provide itemized data on continuation sheet: format, schedules, line items and values.

1.04 SUBSTANTIATING DATA FOR PROGRESS PAYMENTS

- A. All payment applications shall be accompanied by a completed pay application checklist and shall include a signed affidavit regarding previous payments received, a short progress narrative describing work performed since previous payment submittal, progress photos as per Section 01380, current updated project schedule, and invoices for any stored materials billed. The pay application checklist form shall be as provided on Page 01152-3. All items required on the checklist must be included with each pay application for the application to be processed.
- B. When the Owner or the Engineer requires additional substantiating data, the Contractor shall submit suitable information, with a cover letter.
- C. The Contractor shall submit one copy of all data required with a cover letter for each monthly pay application. Any additional substantiating data requested shall also be submitted as required in Part B above.

1.05 PREPARATION OF APPLICATION FOR FINAL PAYMENT

- A. The Contractor shall complete application form as specified for progress payments.
- B. The Contractor shall use continuation sheet for presenting the final statement of accounting as specified in section 01700 - Contract Closeout.

1.06 SUBMITTAL PROCEDURE

- A. The Contractor shall submit applications for payment to the Engineer at the times stipulated in the Agreement.
- B. Number required: Three original copies of each application, or as determined at the Preconstruction Conference.
- C. Once the Engineer determines the application properly completed and correct, a certificate for payment will be prepared and transmitted to the Owner, with a copy to the Contractor.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

PAY APPLICATION CHECKLIST
(CONSTRUCTION CONTRACT)

PARTIAL APPLICATION:

- Pre-Construction Video (Date Submitted): _____
- Construction Schedule (Updated) _____
- Progress Narrative _____
- Schedule of Values _____
- Affidavit Re: Previous Payments _____
- Progress Photos _____
- List of Stored Materials Billed _____
- Invoice for Stored Materials Billed _____
- Insurance for (off Site) _____
- Stored Materials Billed _____

FINAL APPLICATION:

- Application for Payment _____
- w/Final Statement of Accounts _____
- Punch List (checked off) _____
- O & M Manuals (Date Submitted) _____
- Record Drawings (Date Submitted) _____
- Spare Parts Lists _____
- Receipt for Material _____
- (Spare Parts) Delivered _____
- To Owner _____
- Clear L & P Certificate _____
- Warranties & Bonds _____
- Consent of Surety to Final Payment _____
- Letter from Contractor stating _____
- warranty of the Work for _____
- one year following date of _____
- Substantial Completion _____
- Verification of Bond to Remain in _____
- effect for one year from Final _____
- Payment _____

END OF SECTION

SECTION 01153 - CHANGE ORDER PROCEDURES

PART 1 - GENERAL

1.01 REQUIREMENTS

- A. The Contractor shall promptly implement Change Order procedures as follows:
 - 1. The Contractor shall provide full written data required to evaluate changes.
 - 2. The Contractor shall maintain detailed records of work done on a time and material basis.
 - 3. The Contractor shall provide full documentation to Engineer.
- B. The Contractor shall designate in writing, and submit to the Engineer, the member of Contractor's organization as follows:
 - 1. Person authorized to accept changes in the Work.
 - 2. Person responsible for informing others in the Contractor's employ of the authorization of changes in the Work.
- C. The Owner will designate in writing the person authorized to execute Change Orders.

1.02 RELATED REQUIREMENTS

- A. Conditions of the Contract are included in the Agreement, General Conditions and Supplementary Conditions, including the following:
 - 1. Methods of determining cost or credit to Owner resulting from changes in Work made on a time and material basis.
 - 2. Contractor's claims for additional costs.

1.03 DEFINITIONS

- A. Change Order: See General Conditions of the Contract.
- B. Work Directive Change: A written order to the Contractor, signed by the Owner and the Engineer, which amends the Contract Documents as described and authorizes Contractor to proceed with a change which affects the Contract Sum or the Contract Time, for inclusion in a subsequent Change Order.
- C. Field Order: A written order to the Contractor signed by the Engineer and the Contractor, which is issued to interpret/clarify the Contract Documents, order

minor changes in the work, and/or memorialize trade-off agreements. The Work described by a Field Order shall be accomplished without change to the Contract Sum, Contract Time, and without claims for other costs.

1.04 PRELIMINARY PROCEDURES

A. The Owner or the Engineer may initiate changes by submitting a Request for Proposal (RFP) to the Contractor. Request will include:

1. Detailed description of the Change, Products and location of the change in the Project.
2. Supplementary or revised Drawings and Specifications.
3. The projected time span for making the change and a specific statement as to whether overtime work is, or is not, authorized.
4. A specific period of time during which the requested price will be considered valid.
5. Such request is for information only and is not an instruction to execute the changes, or to stop work in progress.

B. The Contractor may initiate changes by submitting a written Proposal to the Engineer. The Proposal shall include the following:

1. Description of the proposed changes.
2. Statement of the reason for making the changes.
3. Statement of the effect on the Contract Sum and the Contract Time.
4. Statement of the effect on the work of separate contractors.
5. Documentation supporting any change in Contract Sum or Contract Time, as appropriate.

1.05 WORK DIRECTIVE CHANGE AUTHORIZATION

A. In lieu of a Request for Proposal (RFP), the Engineer may issue a Work Directive Change Authorization for the Contractor to proceed with a change for subsequent inclusion in a Change Order.

B. Authorization will describe changes in the Work, both additions and deletions, with attachments of revised Contract Documents to define details of the change and will designate the method of determining any change in the Contract Sum and any change in Contract Time.

C. The Owner and the Engineer will sign and date the Work Directive Change Authorization as authorization for the Contractor to proceed with the changes.

D. The Contractor shall sign and date the Work Directive Change Authorization to indicate agreement with the terms therein.

1.06 DOCUMENTATION OF PROPOSALS AND CLAIMS

A. The Contractor shall support each quotation for a lump sum proposal and for each unit price, which has not previously been established, with sufficient substantiating data to allow Engineer to evaluate the quotation.

B. The Contractor shall provide additional data to support time and cost computations as follows:

1. Labor required.
2. Equipment required.
3. Products required.
 - a. Recommended source of purchase and unit cost.
 - b. Quantities required.
4. Taxes, insurance and bonds.
5. Credit for work deleted from Contract, similarly documented.
6. Overhead and profit.
7. Justification for any change in Contract Time.

C. The Contractor shall support each claim for additional costs and for work done on a time and material basis, with documentation as required for a lump sum proposal, plus additional information as follows:

1. Name of the Owner's authorized agent who ordered the work and date of the order.
2. Dates and times work was performed, and by whom.
3. Time record, summary of hours worked, and hourly rates paid.
4. Receipts and invoices for:
 - a. Equipment used, listing dates and times of use.
 - b. Products used, listing of quantities.
 - c. Subcontracts (The Contractor shall also provide full documentation supporting the subcontract amount).

1.07 PREPARATION OF CHANGE ORDERS AND FIELD ORDERS

A. Engineer will prepare Change Orders and Field Orders.

B. The Change Order will describe changes in the Work, both additions and deletions, with attachments of revised Contract Documents to define details of the change.

- C. The Change Order will provide an accounting of the adjustment in the Contract Sum and in the Contract Time.
- D. The Field Order will describe interpretations or clarifications of Contract Documents, order minor changes in the Work, and/or memorialize trade-off agreements.
- E. Field Order work shall be accomplished without change in the Contract Sum, Contract Time, and/or claims for other costs.
- F. Change Order and Field Order forms for Owner will be provided by the Engineer. The Contractor shall provide the Change Orders and Field Orders on correct forms as provided.

1.08 LUMP SUM CHANGE ORDER PROCEDURE

- A. Content of Change Orders will be based on, either:
 - 1. The Engineer's RFP and the Contractor's responsive Proposal as mutually agreed between the Owner and the Contractor.
 - 2. The Contractor's Proposal for a change, as recommended by the Engineer.
- B. The Owner and the Engineer will sign and date the Change Order as authorization for the Contractor to proceed with the changes.
- C. The Contractor shall sign and date the Change Order to indicate agreement with the terms therein.

1.09 WORK DIRECTIVE CHANGE AUTHORIZATION PROCEDURE

- A. The Engineer and the Owner may issue a Work Directive Change Authorization directing the Contractor to proceed with the changes.
- B. At completion of the change, the Contractor shall submit itemized accounting and supporting data as provided herein.
- C. The Engineer will determine the allowable cost of such work, as provided in General Conditions and Supplementary Conditions.
- D. The Engineer will sign and date the Change Order to establish the change in the Contract Price and in the Contract Time.
- E. The Contractor shall sign and date the Change Order to indicate agreement therewith.

- F. The Owner will sign and date the Change Order to indicate agreement therewith.
- G. All time and material Work shall be documented and approved by the Project Representative on a daily basis.

1.10 CORRELATION WITH CONTRACTOR'S SUBMITTALS

- A. The Contractor shall periodically revise the Schedule of Values and Request for Payment forms to record each change as a separate item of Work, and to record the adjusted Contract Sum.
- B. The Contractor shall periodically revise the Construction Schedule to reflect each change in Contract Time.
 - 1. The Contractor shall revise subcontractor schedules to show changes for other items of work affected by the changes.
- C. Upon completion of work under a Change Order, the Contractor shall enter pertinent changes in Record Documents.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

THIS PAGE LEFT BLANK INTENTIONALLY

SECTION 01200 - PROJECT MEETINGS

PART 1 – GENERAL

1.01 REQUIREMENTS INCLUDED

- A. The Engineer will schedule and administer a preconstruction meeting, construction progress meetings, and specially called meetings throughout the progress of the work. The Engineer will:
 - 1. Prepare agenda for meetings.
 - 2. Make physical arrangements for meetings.
 - 3. Preside at meetings.
 - 4. Record notes; including significant proceedings and decisions.
 - 5. Reproduce and distribute copies of minutes.
- B. The Contractor shall attend all meetings. When appropriate, the Contractor shall require subcontractors and suppliers to attend. Those in attendance shall be qualified and authorized to act on behalf of the entity each represents.
- C. The Contractor shall attend and identify at the meetings the actual status of the Contract Work. When the Work is not being performed consistently with the Contract Documents and construction schedules, the Contractor shall identify at the meetings the steps being taken to resolve the inconsistency.
- D. The Contractor shall provide all required documentation including Construction Schedule and required updates to Construction Schedule in accordance with Section 01311 – Construction Schedules.

1.02 PRE-CONSTRUCTION MEETING

- A. The Contractor shall participate in a preconstruction meeting to be held after the effective date of the Agreement and prior to the date of Notice to Proceed.
- B. The following shall be in attendance:
 - 1. The Owner's Representative and other staff as appropriate.
 - 2. The Engineer's Representative.
 - 3. The Resident Project Representative.
 - 4. The Contractor's Project Manager
 - 5. The Contractor's Construction Superintendent.
 - 6. Subcontractors as appropriate.
 - 7. Suppliers as appropriate.
 - 8. Utility representatives as appropriate.
 - 9. Others as appropriate.

- C. The Contractor shall supply sufficient copies of the following documents:
1. Construction Schedule.
 2. Schedule of Values.
 3. List of Subcontractors.
 4. List of Suppliers.
 5. Schedule of Submittals.
- D. The following matters shall be addressed:
1. Distribution and discussion of:
 - a. Project Construction Schedule.
 - b. Schedule of Values.
 - c. List of Subcontractors.
 - d. List of Suppliers.
 - e. Schedule of Submittals.
 2. Critical work sequencing.
 3. Project Coordination.
 4. Designation of responsible personnel.
 5. Procedures and processing of:
 - a. Applications for Payment.
 - b. Submittals.
 - c. Field decisions.
 - d. Proposal requests.
 - e. Change Orders.
 6. Procedures for maintaining Record Documents.
 7. Use of premises:
 - a. Contractor's Field Office, work and storage areas.
 - b. Owner's requirements.
 8. Construction facilities and controls.
 9. Temporary utilities.
 10. Housekeeping procedures.
 11. Insurance certifications.
 12. Liquidated damages for delay.
 13. Laboratory testing of material requirements.

14. Notice to Proceed and Final Completion date.

1.03 CONSTRUCTION PROGRESS MEETINGS

- A. Construction progress meetings will be held monthly with the first meeting 30 days after the date of Notice to Proceed.
- B. Special construction progress meetings will be held as required by progress of the Work.
- C. The following shall be in attendance:
 - 1. The Owner's Representative and other staff as appropriate.
 - 2. The Engineer and his professional consultants as appropriate.
 - 3. The Contractor's Representative and/or construction Superintendent.
 - 4. Subcontractors as appropriate.
 - 5. Suppliers as appropriate.
 - 6. Others as appropriate.
- D. The following matters shall be addressed:
 - 1. Review of progress during succeeding work period.
 - 2. Revisions to Construction Schedule.
 - 3. Problems which impede Construction Schedule.
 - 4. Field observations, problems, conflicts.
 - 5. Review of off-site fabrication, delivery schedules.
 - 6. Corrective measures and procedures for Construction Schedule.
 - 7. Remaining Submittals.
 - 8. Review of Record Drawings.
 - 9. Payment applications and processing.
 - 10. Maintenance of quality standards.
 - 11. Review proposed changes and Change Orders:
 - a. Effect on Construction Schedule and completion date.
 - b. Effect on other contracts of the Project.
 - 12. Other matters as appropriate.

- E. The Contractor shall be prepared to discuss the above topics and to make commitments for resolving deficiencies.
- F. The Contractor shall provide sufficient copies of the following documents for each meeting:
 - 1. Revised Construction Schedule in accordance with Section 01311.
 - 2. Revised Submittal Schedule.
 - 3. Current Submittal Log in accordance with Section 01340.
 - 4. Updated Record Drawings.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01300 - SUBMITTALS

PART 1 - GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A. This Section describes the procedures and requirements for submittals of materials, equipment, and other items to be incorporated into the Work, such as shop drawings, product data, and samples. The requirements for administrative submittals are described in other sections.
- B. Additional individual item submittal requirements are specified in the Sections for each item of work.
- C. Definitions. The work related submittals of this Section, in addition to the definitions of the General Conditions and elsewhere in the Contract Documents, are further categorized for convenience as follows:
 - 1. Shop drawings include specially prepared technical data of all forms including drawings, diagrams, performance curves, data sheets, schedules, templates, patterns, reports, calculations, instructions, measurements and similar information not in standard printed form for application to more than one project.
 - 2. Product data includes standard printed information on materials, products and systems, not specifically prepared for this project, other than the designation of selections from among available choices printed therein.
 - 3. Samples include both fabricated and unfabricated physical examples of materials, products, and units of work, both as complete units and as smaller portions of units of work, either for limited visual inspection or (where indicated) for more detailed testing and analysis.
 - 4. Other non-administrative submittals include warranties, certifications, maintenance agreements, survey data and reports, field measurement data, factory and quality testing reports, record drawings, operating and maintenance manuals, and other items applicable to the Work that are not processed as shop drawings, product data, or samples.

1.02 GENERAL SUBMITTAL REQUIREMENTS

- A. Scheduling. Required administrative submittals shall include submittal requirements and time schedules for coordination and integration of submittal activity with related work.

1. Within ten (10) days after the effective date of the Agreement, a schedule shall be submitted to the Engineer for all material and equipment items. For each required item, the date shall be given for intended submission of the drawing to the Engineer for review and the date required for its incorporation into the Work.
- B. Coordination of Submittal Times. The Contractor shall prepare and transmit each submittal to the Engineer sufficiently in advance of performing related work or other applicable activities, such that the installation will not be delayed or improperly sequenced by processing times, including resubmittal if required. Coordinate each submittal with other submittals, testing, purchasing, delivery and similar sequenced activities. There will be no extension of Contract Time given due to Contractor's failure to transmit submittals to the Engineer sufficiently in advance of the work.
- C. Preparation of Submittals. The Contractor shall provide permanent marking on each submittal to include all of the following items:
1. The date of submittal, and the date(s) of any previous submittal(s).
 2. The project title and number.
 3. The names of:
 - a. Contractor.
 - b. Supplier.
 - c. Manufacturer.
 - d. Subcontractor.
 4. Identification of Specification Section number and equipment tag numbers.
 5. Notification to the Engineer in writing, at the time of submission, of any deviations in the submittal from the requirements of the Contract Documents.
 6. The Contractor's review stamp, signed or initialed, certifying Contractor's review of submittal, and that verification of products required, field dimensions, adjacent construction Work, and coordination of information within the submittal, has been completed and is in accordance with the requirements of the Work and the Contract Documents.
 7. A 4" x 6" minimum blank space for the Engineer's review stamp and review comments.
 8. Identification of revisions on resubmittals.
 9. Field dimensions, clearly identified as such.
 10. Relation to adjacent or critical features of the Work.
 11. Applicable standards, such as ASTM or Federal Specification numbers.
 12. Any submittal sheets or drawings showing more items than the particular item under consideration shall have all but the pertinent description of the item for which review is requested crossed out or blanked out. Standard drawing or data sheets with multiple options unmarked will cause the submittal to be returned not reviewed.

- E. Transmittal Form. All submittals shall be accompanied by the Contractor's standard submittal transmittal form. Any submittal not accompanied by such a form, or where all applicable items on the form are not completed, will be returned not reviewed. Submittals received from sources other than the Contractor, such as suppliers or subcontractors, will not be reviewed by the Engineer.
- F. Transmittal Identification. The Contractor shall number transmittals in sequence for each Division and each Section of the Specifications. The Contractor shall identify resubmittals with a letter of the alphabet following the original number, using A for the first resubmittal, B for the second resubmittal, etc.
- G. Resubmittal. The Contractor shall be allowed to make one (1) resubmittal to address the Engineers comments if the original submittal is returned for resubmittal. Any review of subsequent resubmittals will be considered Contractor required engineering services, and treated in accordance with the requirements of the specifications. There will be no extension of Contract Time given due to Contractor's failure to adequately address all of the Engineer's comments in the first resubmittal.
- H. Engineer's Review. The Engineer will review the Contractor's submittal, and upon completion will return to the Contractor marked with one of the following designations, with required action by the Contractor:
 - 1. "Reviewed: No Exceptions." No further submission is required by the Contractor for this item.
 - 2. "Reviewed: Exceptions Noted." No further submission is required by the Contractor for this item. The Contractor shall incorporate all of the Engineer's review notes into the Work.
 - 3. "Revise and Resubmit." The Contractor shall incorporate all of the Engineer's review notes into a revised submittal and resubmit, in accordance with Paragraph G. above.
 - 4. "Rejected." The item submitted is not in conformance with the Contract Documents, and cannot be used on this project. The Contractor shall provide the item as specified, and resubmit in accordance with Paragraph G. above.
 - 5. "Information Only." No further submission is required by the Contractor for this item.
- I. Record Document. After the Engineer's review, if no further submission is required by the Contractor, the reviewed document shall be printed and

maintained by the Contractor as the "Record Document". The Contractor shall not proceed with installation of materials, products or systems until a copy of the final reviewed document is in possession of the Contractor.

1.03 SPECIFIC CATEGORY REQUIREMENTS

- A. Shop Drawings. The Contractor shall provide newly prepared information, on reproducible sheets, with graphic information at accurate scale (except as otherwise indicated), with name of preparer (firm name) indicated. The Contract Drawings shall not be traced or reproduced by any method for use as or in lieu of detail shop drawings. Drawings shall show dimensions and note which are based upon field measurements. Drawings shall identify materials and products, and indicate compliance with standards and special coordination requirements. The Contractor shall not allow shop drawing copies without the appropriate final review markings by the Engineer to be used in connection with the Work.
- B. Product Data. The Contractor shall collect all required data into one comprehensive submittal for each unit of work or system, and clearly mark the choices and options applicable to the Work. The Contractor shall include manufacturer's standard printed recommendations for application and use, compliance with standards, application of labels and seals, notation of field measurements which have been checked, and special coordination requirements. Maintain one (1) set of product data (for each submittal) at project site, available for reference by the Engineer or others.
- C. Samples. The Contractor shall provide samples identical with final condition of proposed materials or products for the work. Range samples shall be included (not less than three (3) units) where unavoidable variations must be expected, and shall describe or identify variations between units of each set. The Contractor shall provide a full set of optional samples where the Engineer's selection is required. Information shall be included with each sample to show generic description, source or product name and manufacturer, limitations, and compliance with standards.
 - 1. Submittal. The Contractor's shall provide submittal of a single set of samples for the Engineer's review.
 - 2. Quality Control Set. The Contractor shall maintain a final set of samples at the project site, in suitable condition and available for quality control comparisons by the Engineer and the Owner.

1.04 SUBMITTAL SCHEDULING

- A. Review Time. Unless otherwise specified, a minimum of fifteen (15) calendar days following receipt of submittals shall be included in the project schedule for the

Engineer's review. A suitable longer period shall be included in the project schedule where the Engineer's review must be delayed for coordination with subsequent submittals due to the Contractor's submittal sequencing.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

THIS PAGE LEFT BLANK INTENTIONALLY

SECTION 01311 - CONSTRUCTION SCHEDULE

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Within ten (10) days after the effective date of the Agreement, the Contractor shall submit to the Engineer for review a preliminary Construction Schedule indicating the starting and completion dates of the various stages of the work.
- B. The Contractor shall submit a revised Construction Schedule monthly with each request for payment.
- C. The Construction Schedule shall be coordinated and updated with all changes including Field Orders, Work Directive Changes, and Change Orders through the completion of the Work.

1.02 FORM OF SCHEDULES

- A. The Contractor shall prepare all schedules in the form of a horizontal bar chart. The chart shall include the following:
 - 1. A separate horizontal bar for each trade or operation.
 - 2. A horizontal time scale: Identify the first work day of each week.
 - 3. Scale and Spacing to allow for notations and future revisions.
 - 4. A minimum sheet size of 8-1/2" X 11".
- B. The Construction Schedule shall:
 - 1. Show the complete sequence of construction by activity.
 - 2. Show the dates for the beginning and completion of each major element of construction.
 - 3. Show projected percentage of completion for each item, as of the first day of each month.
- C. A Submittals Schedule for Shop Drawings, Product Data, and Samples, shall be provided and shall include the following:
 - 1. Dates of Contractor's submittals.
 - 2. Dates the submittal items will be required for inclusion in the Work.

1.04 CONSTRUCTION SCHEDULE REVISIONS

- A. Construction Schedule revisions shall indicate the progress of each activity to the date of submission.
- B. Construction Schedule revisions shall show changes occurring since previous submission of schedule to include the following:

1. Major changes in scope.
2. Activities modified since previous submission.
3. Revised projections of progress and completion.
4. Other identifiable changes.

- C. The Contractor shall provide a narrative report as needed to define:
1. Problem areas, anticipated delays, and the impact on the schedule.
 2. Corrective action recommended and its effect.

1.05 SUBMISSIONS

- A. The Contractor shall submit the initial Construction Schedule in accordance with the General Conditions.
1. The Engineer will review and return a review copy within ten (10) days after receipt.
 2. If required, the Contractor shall resubmit within seven (7) days after return of review copy.
- B. The Contractor shall submit a revised Construction Schedule with each application for payment.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01370 - SCHEDULE OF VALUES

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. The Contractor shall submit to the Engineer for review a preliminary Schedule of Values allocated to the various portions of the Work within ten (10) days after the effective date of the Agreement, and at any other time required in the specifications. The Notice to Proceed will not be issued prior to receipt of a Schedule of Values acceptable to the Engineer. Upon request of the Engineer, the Contractor shall provide supporting documentation for substantiating the values used.
- B. The Schedule of Values shall be used as a basis for the Contractor's Applications for Payment. The sum of all values listed in the Schedule shall equal the total Contract Price. General Conditions (mobilization, bonds, insurance, etc.) shall be no more than 5% of the total Contract Price.

1.02 FORM AND CONTENT OF SCHEDULE OF VALUES

- A. The Schedule shall be on minimum 8-1/2 in. x 11 in. white paper. The Contractor's standard form and/or automated printout will be considered for acceptance by the Engineer upon the Contractor's request, provided the standard form includes all of the requirements herein. The Schedule shall be identified as follows:
 - 1. Title of Project and location.
 - 2. Engineer and Project number.
 - 3. Name and Address of Contractor.
 - 4. Date of submission.
- B. The Schedule shall list the installed value of the appropriate component parts for each item of the Work in sufficient detail to serve as a basis for computing values for progress payments during construction. Component Parts shall be defined as any single item with a value of more than \$5,000.00, or defined by separate construction trade, whichever is of less value. The Engineer may direct further break down of additional parts. Component parts shall be identified by Specification Section, where applicable.
- C. The Schedule shall be itemized by each separate structure. For projects with multiple site locations, the Schedule shall be itemized by each separate location.

1.03 SCHEDULE OF MAJOR EQUIPMENT ITEM VALUES

- A. Major equipment items, defined as any item with a value of more than \$20,000, shall be subdivided into components to include the following:
 - 1. Preparation and processing of submittal and any required resubmittals.
 - 2. Fabrication and delivery to the Site (subdivided further by equipment items as defined in the equipment list contained in the Specification Section for the equipment).
 - 3. Installation (subdivided further by equipment items as defined in the equipment list contained in the Specification Section for the equipment).
 - 4. Start-up and operator training.
 - 5. Delivery of spare parts, warranties, and Operation & Maintenance Manuals to the Owner.

1.04 REQUIRED ITEMS

- A. In addition to the requirements above, the Schedule shall contain separate items as listed below (at a minimum, and as applicable):
 - 1. General Conditions (to include mobilization)
 - 2. Demolition
 - 3. Bypass Pumping
 - 4. Paving
 - 5. Coatings
 - 6. Mechanical Equipment
 - 7. Piping
 - 8. Electrical Equipment
 - 9. Electrical Work
 - 10. Site Restoration
 - 11. Submission of Record Documents

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01380 – CONSTRUCTION PHOTOGRAPHS

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. The Contractor shall employ a competent photographer to take construction record photographs prior to and periodically during the course of the Work.
- B. Progress payments will not be processed unless photographs are included and current with construction progress.

1.02 SUBMITTALS

- A. The Contractor shall provide at least six (6) photographs each month of each major portion of the work taken at each major stage of construction. The Contractor shall provide digital files of each photograph identified with project title, description of view and date.

PART 2 - PRODUCTS

2.01 PRINTS

- A. All prints shall be color as follows:
 - 1. Paper: 20lb Bond Paper.
 - 2. Print Size: 3 ½ in. x 5 in.
 - 3. Each picture shall be date stamped.
 - 3. Prints: 1 column and 2 rows of pictures per sheet.
- B. Each print shall be identified by caption below the picture, listing:
 - 1. Project Subject / Item.
 - 2. Location / Station.
 - 3. Direction of view.

PART 3 - EXECUTION

3.01 TECHNIQUE FOR STILL PHOTOGRAPHS

- A. Factual presentation.
- B. Correct exposure and focus.
 - 1. High resolution and sharpness.

2. Maximum depth-of-field.
3. Minimum distortion.

3.02 VIEWS REQUIRED FOR STILL PHOTOGRAPHS

- A. Contractor shall photograph from locations to adequately illustrate conditions of construction and state of progress.
- B. Prior to construction, at least six photographs of pertinent features shall be taken at various locations at the site and promptly submitted to the Engineer. Additional progress photographs shall be made monthly throughout the progress of the work and of significant milestones items or areas when work has taken place at that location during the month and submitted with each of the Contractor's applications for payment.

3.03 DELIVERY OF PHOTOGRAPHS AND PRINTS

- A. Preconstruction photographs shall be delivered to the Engineer prior to the beginning of construction.
- B. Digital photographs shall be of at least 4 megapixels and shall be clear, sharp and encompass depth of field. The photographs shall be submitted as a color printed composite PDF, digital PDF file and original digital camera files on a CD/DVD ROM. Two (2) printed colored PDFs on bond paper and (2) CD/DVD ROMS labeled with the Project Title and date shall be furnished with each set of photographs. All digital photographs taken during construction by the contractor shall be retained, and a copy of all digital files shall be delivered on CD/DVD ROM to the Engineer at the completion of the project or as directed by the Engineer or Project Representative.

END OF SECTION

SECTION 01400 - TESTING LABORATORY

PART 1-GENERAL

1.01 REQUIREMENTS

- A. The Owner will provide the services of an independent testing laboratory to perform specified testing upon recommendation of the Engineer. All samples of the Work will be collected by the testing laboratory. Any equipment, supplies, and delivery services required for testing will be provided by the testing laboratory.
- B. The Contractor shall cooperate with the laboratory to facilitate the execution of the required testing services. Representatives of the testing laboratory shall have access to the work at all times and facilities for such access shall be provided in order that the laboratory may perform its functions properly. The Contractor shall consult the testing laboratory in advance to determine the time required to perform the tests and to issue findings. The testing laboratory shall be notified by the Contractor of any schedule changes.

1.02 CONTRACTOR'S RESPONSIBILITIES

The Contractor shall:

- A. Coordinate with the laboratory to request testing, as directed by the Engineer.
- B. Secure and deliver to the laboratory, when requested by Engineer, adequate quantities of representational samples of materials proposed to be used and which require testing.
- C. Provide to the laboratory the preliminary design mix proposed to be used for concrete, and other materials mixes which require control by the testing laboratory.
- D. Furnish copies of material test reports as required.
- E. Furnish incidental labor and facilities:
 - 1. To provide access to Work to be tested.
 - 2. To facilitate inspections and tests.
 - 3. For field storage and curing of test samples.
- G. Notify laboratory sufficiently in advance of operations to allow for laboratory assignment of personnel and scheduling of tests. When tests or inspections cannot be performed after such notice, reimburse Owner for laboratory personnel and travel expenses incurred due to Contractor's negligence.

- H. Make arrangements with laboratory and pay for additional samples and tests required by failed test results, or for the Contractor's convenience.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01505 - MOBILIZATION

PART 1 - GENERAL

1.01 SCOPE OF WORK

The Contractor shall set up necessary construction facilities including storage areas, temporary facilities, Contractor's field offices and such sanitary and other facilities as are required by local or state law or regulation; all as required for the proper performance and completion of the Work.

A. The Contractor shall provide all items of work covered in this Section which shall include but not be limited to the following principal items:

1. Establishment on site of all Contractor's field offices, facilities, and equipment required for the first month of operation.
2. Installation of temporary construction power, wiring, and lighting facilities.
3. Development of construction water supply.
4. Provision of on-site sanitary facilities and potable water facilities as specified.
5. Establishment of Contractor's work and storage yard.
6. Procurement and submittal of all required subcontractor insurance certificates and bonds.
7. Obtaining all required permits.
8. Posting of all OSHA required notices and other information as required by Federal, State and Local Agencies.
9. The Contractor's superintendent established at the job site full time.
10. Provision of a detailed construction schedule acceptable to the Owner for project use as specified.
11. Erection of project sign(s) as specified.
12. Provision of pre-construction site survey video.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01510 - TEMPORARY UTILITIES

PART 1 - GENERAL

1.01 SCOPE OF WORK

The Contractor shall provide equipment that is adequate for the performance of the work under this contract within the time specified. All equipment shall be kept in satisfactory operating condition, shall be capable of safely and efficiently performing the required work, and shall be subject to inspection and approval by the Owner's representative at any time within the duration of the Contract. All work hereunder shall conform to the applicable requirements of the OSHA Standards for Construction, and shall conform with requirements of the National Electric Code.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 POWER AND LIGHTING

- A. Power:
The Contractor shall provide all necessary power required for construction operations under the Contract, and shall provide and maintain all temporary power lines required to perform the work in a safe and satisfactory manner.
- B. Construction Lighting:
All work conducted at night or under conditions of deficient daylight shall be suitably lighted to insure proper work and to afford adequate facilities for inspection and safe working conditions.
- C. Approval of Electrical Connections:
All temporary connections for electricity shall be subject to approval of the Owner and the power company representative, and shall be removed in like manner prior to final acceptance at work.
- D. Separation of Circuits:
Lighting circuits shall be separated from power circuits.
- E. Construction Wiring:
All wiring for temporary electric light and power shall be properly installed and maintained and securely fastened in place. All electrical facilities shall conform to the requirements of Subpart K of the OSHA Safety and Health Standards for Construction and shall be subject to approval of the Owner.

3.02 WATER SUPPLY

- A. General:
The Contractor shall provide an adequate supply of water for construction purposes. The Contractor shall pay the water utility for water used at the job site.
- B. The Contractor shall provide and operate all pumping facilities, pipelines, valves, hydrants, storage tanks, and all other equipment necessary for the adequate development and operation of the temporary water supply system. The Contractor shall insure the adequate functioning of the temporary water supply system and shall be solely liable for any claims arising from the use of same, including discharge or waste of water therefrom.
- C. Potable Water: All drinking water on the site during construction shall be furnished by the Contractor.
- D. Water Connections:
The Contractor shall not make connection to, or draw water from, any fire hydrant or pipeline without first obtaining permission of the authority having jurisdiction over the use of said fire hydrant or pipeline and from the agency owning the affected water system. For each such connection made, the Contractor shall first attach to the fire hydrant or pipeline a backflow preventer, valve, and meter, if required by the said authority, of a size and type acceptable to said authority and agency. Only approved hydrants wrenches may be used to open and close hydrants. In instances where connections are made to water pipelines for the purpose of pressure testing newly constructed force mains or sewers, a double check valve system and pressure gauge shall be utilized to prevent back flow into the water main system.
- E. Removal of Water Connections:
Before final acceptance of the Work on the project, all temporary connections and piping installed by the Contractor shall be entirely removed, and all affected improvements shall be restored to their original condition, or better, to the satisfaction of the Owner and to the agency owning the affected utility.
- F. Fire Protection:
The construction plant and all other parts of the work shall be connected with the Contractor's water supply system and shall be adequately protected against damage by fire. Hose connections and hose, water casks, chemical equipment, or other sufficient means shall be provided for fighting fires in the temporary structures and other portions of the work, and responsible persons shall be designated and instructed in the operation of such fire apparatus so as to prevent or minimize the hazard of fire. The Contractor's fire protection program shall conform to the requirements of Subpart F of the OSHA Standards for Construction.

3.03 SANITATION

A. Toilet Facilities:

Fixed or portable chemical toilets shall be provided wherever needed for the use of employees. Toilets at construction job sites shall conform to the requirements of Subpart D, Section 1026.51 of the OSHA Standards for Construction.

B. Sanitary and Other Organic Wastes:

The Contractor shall establish and provide regular collection of all sanitary and organic wastes. All wastes and refuse from sanitary facilities provided by the Contractor or organic materials wastes from any other source related to the Contractor's operations shall be disposed of away from the site in accordance with all laws and regulations pertaining thereto.

3.04 SAFETY

A. Public Safety:

During the performance of the work the Contractor shall erect and maintain temporary fences, bridges, railings, and barriers as necessary for the prevention of accidents. The Contractor shall take all other necessary precautions and place proper guards for the prevention of accidents. The Contractor shall erect and maintain suitable and sufficient lights and other signals.

END OF SECTION

THIS PAGE LEFT BLANK INTENTIONALLY

SECTION 01600 - MATERIALS AND EQUIPMENT

PART 1 - GENERAL

1.01 REQUIREMENTS

1. All materials and equipment furnished and installed under this contract shall conform to the general stipulations set forth in this Section, except as otherwise specified in other sections of these Specifications. All materials and equipment furnished under this contract shall be submitted to the Engineer for review. The Contractor shall not incorporate into the Work any materials or equipment not submitted for review and accepted by the Engineer.

1.02 WORKMANSHIP

1. The Contractor shall guarantee all equipment against faulty or inadequate design, improper assembly or erection, defective workmanship or materials, and leakage, breakage, or other failure. Materials shall be suitable for service conditions.
2. All equipment shall be new and designed, fabricated, and assembled in accordance with the best modern engineering and shop practice. Individual parts shall be manufactured to standard sizes and gauges so that repair parts furnished at any time, can be installed in the field. Like parts of duplicate units shall be interchangeable. Equipment shall not have been in service at any time prior to delivery, except as required by tests.
3. Except where otherwise specified, structural and miscellaneous fabricated steel used in equipment shall conform to AISC standards. Unless otherwise specified, all steel which will be submerged, all or in part, during normal operation of the equipment shall be at least $\frac{1}{4}$ inch thick.

1.03 MATERIALS AND EQUIPMENT

1. The Contractor shall be fully responsible for all materials and equipment furnished under this Contract, and shall furnish necessary replacements at any time prior to expiration of the Correction Period.
2. The Contractor shall stock additional supplies of materials and equipment as the Contractor deems necessary for timely and efficient execution of this Contract.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01610 - DELIVERY, STORAGE AND HANDLING

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. This Section specifies the general requirements for the delivery, handling, storage and protection for all items required in the construction of the work. Specific requirements, if any, are specified with the related item.

1.02 TRANSPORTATION AND DELIVERY

- A. Items shall be transported and handled in accordance with the manufacturer's instructions and requirements.
- B. The Contractor shall schedule delivery to reduce long term on-site storage prior to installation and/or operation. Equipment shall not be delivered to the site more than three weeks prior to installation without written authorization from the Engineer.
- C. The Contractor shall coordinate delivery with installation to ensure minimum holding time for items that are hazardous, flammable, easily damaged or sensitive to deterioration.
- D. Products shall be delivered to the site in the manufacturer's original sealed containers or other packing systems, complete with instructions for handling, storing, unpacking, protecting and installing.
- E. All items delivered to the site shall be unloaded and placed in a manner that will not hamper the Owner's normal operation of the treatment plant.
- F. The Contractor shall provide all necessary equipment and personnel to unload items delivered to the site.
- G. The Contractor shall promptly inspect shipment to assure that products comply with requirements, quantities are correct, and items are undamaged. For items furnished by others, the Contractor shall perform inspection in the presence of the Engineer. The Contractor shall notify the Engineer verbally, and in writing, of any problems.

1.03 STORAGE AND PROTECTION

- A. The Contractor shall store and protect products in accordance with the manufacturer's instructions, with seals and labels intact and legible. Storage instructions shall be studied by the Contractor and reviewed with the Engineer. Instructions shall be carefully followed and a written record kept by the Contractor. The Contractor shall arrange storage to permit access for inspection by the Engineer.

- B. Loose granular materials shall be stored on solid flat surfaces in a well-drained area. The Contractor shall prevent mixing with foreign matter.
- C. Cement and lime shall be stored under a roof and off the ground and shall be kept completely dry at all times. All structural, miscellaneous and reinforcing steel shall be stored off the ground or otherwise to prevent accumulations of dirt or grease and in a position to prevent accumulations of standing water and to minimize rusting. Beams shall be stored with the webs vertical. Precast concrete shall be handled and stored in a manner to prevent accumulations of dirt, standing water, staining, chipping or cracking. Brick, block and similar masonry products shall be handled and stored in a manner to reduce breakage, cracking and spalling to a minimum.
- D. All mechanical and electrical equipment and instruments subject to corrosive damage by the atmosphere if stored outdoors (even though covered by canvas) shall be stored in a weathertight building to prevent injury. The building may be a temporary structure on the site or elsewhere, but it shall be satisfactory to the Engineer. Building shall be provided with adequate ventilation to prevent condensation. The Contractor shall maintain temperature and humidity within range required by manufacturer.
 - 1. All equipment shall be stored fully lubricated with oil, grease and other lubricants unless otherwise instructed by the manufacturer.
 - 2. Moving parts shall be rotated a minimum of once weekly to insure proper lubrication and to avoid metal-to-metal "welding". Upon installation of the equipment, the Contractor shall start the equipment, at least half load, once weekly for an adequate period of time to ensure that the equipment does not deteriorate from lack of use.
 - 3. Lubricants shall be changed upon completion of installation and as frequently as required thereafter during the period between installation and acceptance. New lubricants shall be put into the equipment at the time of acceptance.
 - 4. Prior to acceptance of the equipment, the Contractor shall require the manufacturer inspect the equipment and certify that its condition has not been detrimentally affected by the long storage period. Such certifications by the manufacturer shall be deemed to mean that the equipment is judged by the manufacturer to be in a condition equal to that of equipment that has been shipped, installed, tested and accepted in a minimum time period. As such, the manufacturer will guaranty the equipment equally in both instances. If such certification is not provided, the equipment shall be judged to be defective and shall be removed and replaced.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

THIS PAGE LEFT BLANK INTENTIONALLY

SECTION 01700 - CONTRACT CLOSEOUT

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. The Contractor shall comply with all requirements stated in Contract Documents in closing out the Contract.

1.02 RE-INSPECTION FEES

- A. Should the Engineer perform re-inspections due to failure of the Work to comply with claims of status of completion made by the Contractor the following shall apply:
 - 1. Owner will compensate Engineer for such additional services.
 - 2. Owner will deduct the amount of such compensation from the final payment to the Contractor.

1.03 FINAL SUBMITTALS

- A. No application for final payment will be accepted until all required submittals have been made to the Engineer and processed by the Engineer, including, but not limited to, the following:
 - 1. Consent of Surety to Final Payment as specified in the General and Supplementary Conditions.
 - 2. Affidavit of Final Payment and Release as specified in the General and Supplementary Conditions.
 - 3. Project Record Documents as specified in Section 01720.
 - 4. All submittals required by federal, state and local regulatory agencies.
 - 5. Record Drawings.

1.04 FINAL ADJUSTMENT OF ACCOUNTS

- A. The Contractor shall submit a final statement of accounting to the Engineer.
- B. The Statement shall reflect all adjustments to the Contract Price as follows:
 - 1. The original Contract Price.
 - 2. Additions and deductions resulting from:
 - a. Previous Change Orders.
 - b. Allowances (if applicable).
 - c. Unit Prices (if applicable).
 - d. Deductions for uncorrected work.

- e. Deductions for liquidated damages.
 - f. Deductions for re-inspection payments.
 - g. Deductions for resubmittal review payments.
 - 3. Total Contract Price, as adjusted.
 - 4. Previous payments.
 - 5. Sum remaining due.
- C. The Engineer will prepare a final Change Order, reflecting approved adjustments to the Contract Price which were not made by previous Change Orders.

1.05 FINAL PAYMENT

- A. The Contractor shall submit the final Application for Payment in accordance with procedures and requirements stated in the General and Supplementary Conditions.
- B. Final payment will be made to the Contractor in accordance with the General and Supplementary Conditions.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01710 - CLEANING

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. The Contractor shall execute cleaning during progress of the Work, and at completion of the Work, as required by the Contract Documents.

1.02 DISPOSAL REQUIREMENTS

- A. Cleaning and disposal operations shall comply with all local, state, and federal codes, ordinances, regulations and anti-pollution laws.

PART 2-PRODUCTS

2.01 MATERIALS

- A. Cleaning materials which will not create hazards to health or property and which will not damage surfaces shall be used only.
- B. The Contractor shall only use cleaning materials and methods recommended by the manufacturer of the surface material to be cleaned.
- C. The Contractor shall use cleaning materials only on surfaces recommended by cleaning material manufacturer.

PART 3-EXECUTION

3.01 DURING CONSTRUCTION

- A. Premises shall be kept free from accumulation of waste materials or rubbish caused by Contractor's operations. The Contractor shall oversee cleaning and ensure that building and grounds are maintained free from accumulations of waste material and rubbish.
- B. At reasonable intervals during progress of work, the Contractor shall clean-up site, buildings, and access, and dispose of waste materials, rubbish and debris. Appropriate containers shall be provided and located on site for collection of waste materials, rubbish and debris. The Contractor shall not allow waste materials, rubbish and debris to accumulate and become an unsightly or hazardous condition.
- C. Waste materials shall be transported in a controlled manner with as few handlings as possible. Dusty debris and dusty areas shall be sprinkled with water.

- D. Burning or burying of rubbish and waste materials on the site shall not be performed. Disposal of volatile fluid wastes (such as mineral spirits, oil, or paint thinner) in storm or sanitary sewer systems shall not be performed. The Contractor shall remove waste materials, rubbish and debris from the site and legally dispose of at public or private dumping areas off the Owner's property.
- E. The Contractor shall properly clean up and dispose of any chemicals and materials which may be toxic or hazardous in accordance with all federal, state, and local codes.

3.02 DUST CONTROL

- A. The Contractor shall clean interior spaces prior to the start of finish painting and continue cleaning on an as-needed basis until painting is finished.
- B. The Contractor shall schedule operations so that dust and other contaminants resulting from cleaning process will not fall on wet or newly-coated surfaces.
- C. The Contractor shall broom clean interior building areas when ready to receive finish painting and continue cleaning on an as-needed basis until building is ready for acceptance or occupancy.

3.03 FINAL CLEANING

- A. The Contractor shall employ skilled workmen for final cleaning.
- B. The Contractor shall remove grease, mastic, adhesives, dust, dirt, stains, fingerprints, labels and other foreign materials from interior and exterior surfaces.
- C. The Contractor shall wash and shine glazing and mirrors.
- D. The Contractor shall polish glossy surfaces to a clear shine.
- E. For ventilating systems the Contractor shall:
 - 1. Clean permanent filters and replace disposable filters if units were operated during construction.
 - 2. Clean ducts, blowers and coils if units were operated without filters during construction.
- F. The Contractor shall broom clean exterior paved surfaces; rake clean other surfaces of the grounds.
- G. The Contractor shall remove waste materials and rubbish from and about the site as well as tools, construction equipment, machinery and surplus materials.

- H. Prior to final completion, or Owner occupancy, the Contractor shall conduct an inspection of interior and exterior surfaces and all work areas, to verify that the entire site where Work was performed is clean. The Contractor shall clean any areas found to be not clean.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

THIS PAGE LEFT BLANK INTENTIONALLY

SECTION 01720 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. The Contractor shall maintain at the site at all times during construction one copy of the following Project Record Documents:
 - 1. Conformed Drawings.
 - 2. Conformed Specifications.
 - 3. Change Orders and other modifications to the Contract.
 - 4. Engineer's Field Orders or written instructions.
 - 5. Approved Shop Drawings, Product Data and Samples.
 - 6. Field test records.
 - 7. Construction photographs.
 - 8. Current updated progress schedule.
- B. Progress payments will not be approved unless Project Record Documents are current with construction progress.

1.02 MAINTENANCE OF DOCUMENTS AND SAMPLES

- A. Documents and samples shall be stored in the Contractor's office apart from documents used for construction.
 - 1. The Contractor shall provide files and racks for storage of documents.
 - 2. The Contractor shall provide locked cabinet or secure storage space for storage of samples.
- B. Documents and samples shall be filed in accordance with specification section numbers.
- C. Documents shall be maintained in a clean, dry, legible condition and in good order. Record Documents shall not be used for construction purposes.
- D. Documents and samples shall be made available at all times for inspection by the Engineer and Owner.

1.03 MARKING DEVICES

- A. The Contractor shall provide felt tip marking pens for recording information in the color codes designated by the Engineer. Record Documents shall be marked accordingly.

1.04 RECORDING

- A. Each Record Document shall be labelled "PROJECT RECORD" with rubber stamp.
- B. The Contractor shall record information concurrently with construction progress, and shall not conceal any work until required information is recorded.
- C. Drawings shall be legibly marked to record actual construction, and shall include the following:
 - 1. Locations of all underground pipe and conduits installed.
 - 2. Elevations where applicable for all underground piping installed or located.
 - 3. Locations of all underground utilities, structures, obstacles, etc. encountered during construction, whether being installed or not, in the manner indicated above for underground pipes and conduits.
 - 4. Location of internal utilities and appurtenances concealed in the construction by referencing to visible and accessible features of the structure.
 - 5. Field changes of dimension and detail.
 - 6. Changes made by Field Order or by Change Order.
 - 7. Details not on original Drawings.
 - 8. Location and elevation of all equipment and piping.
 - 9. Location and elevation of all structures including channels and platforms.
 - 10. Identify pumping equipment installed by manufacturer's name, model number, impeller size, rated capacity and serial number.
- D. Specifications shall be legibly marked by each Section to record the following:
 - 1. Manufacturer, trade name, catalog number, and supplier of each product and item of equipment actually installed.
 - 2. Changes made by Field Order, Change Order, or other modifications to the Contract.
- F. Reviewed submittals:
 - 1. One set of record drawings for each process equipment item, piping, electrical system and instrumentation system.

G. The Contractor shall provide certified site survey and elevations.

1.05 FINAL SUBMITTAL

A. At Contract closeout, all Record Documents shall be delivered to the Engineer.

B. The submittal shall have a transmittal letter containing the following:

1. Date.
2. Project title and number.
3. Contractor's name and address.
4. Title and number of each Record Document.
5. Signature of Contractor or his authorized representative.

C. Final Acceptance will not be granted until the Record Documents have been turned over and accepted by the Engineer as complete.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

THIS PAGE LEFT BLANK INTENTIONALLY

SECTION 01730 - OPERATING AND MAINTENANCE DATA

PART I - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. The Contractor shall compile product data and related information appropriate for Owner's maintenance and operation of products furnished under contract. The Contractor shall prepare operating and maintenance data as specified in this section and as referenced in other pertinent sections of the specifications.
- B. The Contractor shall instruct the Owner's personnel in maintenance of products and in operation of equipment and systems.

1.02 RELATED REQUIREMENTS

- A. Section 01300: Submittals.
- B. Section 01700: Contract Closeout.
- C. Section 01740: Warranties and Bonds.

1.03 FORM OF SUBMITTALS

- A. The Contractor shall prepare data in form of an instructional manual for use by the Owner's personnel.
- B. The format shall be as follows:
 - 1. DVD/ROM.
 - 2. PDFs.
 - 3. Text: Manufacturer's printed data, or typewritten.
 - 4. Drawings: Full size PDFs
 - 5. Fly-leaf for each separate product or each piece of operating equipment.
 - a. Description of product and major component parts of equipment.
 - b. Indexed tabs.
 - 6. Identification of each volume with typed or printed title "OPERATING AND MAINTENANCE INSTRUCTIONS", and the following:
 - a. Title of project.
 - b. Identification of separate structure as applicable.
 - c. Identification of general subject matter covered in the manual.

1.04 MANUAL FOR EQUIPMENT AND SYSTEMS

- A. The Contractor shall submit three (3) copies of complete manual in final form.

- B. The manual content, for each unit of equipment and system, shall be as follows:
1. Description of unit and component parts.
 - a. Function, normal operating characteristics, and limiting conditions.
 - b. Performance curves, engineering data and tests.
 - c. Complete nomenclature and commercial number of replaceable parts, which are cross-referenced with manufacturer's parts list.
 2. Operating procedures:
 - a. Start-up, break-in, routine and normal operating instructions.
 - b. Regulation, control, stopping, shutdown and emergency instructions.
 - c. Summer and winter operating instructions (if applicable).
 - d. Special operating instructions.
 3. Maintenance Procedures:
 - a. Routine operations.
 - b. Guide to "trouble-shooting".
 - c. Disassemble, repair and reassemble.
 - d. Alignment, adjusting and checking.
 4. Servicing and lubrication schedule with list of lubricants required.
 5. Manufacturer's printed operating and maintenance instructions.
 6. Description of sequence of operation by control manufacturer.
 7. Original manufacturer's parts list, illustrations, assembly drawings and diagrams required for maintenance.
 - a. Predicted life of parts subject to wear.
 - b. Items recommended to be stocked as spare parts.
 8. As-installed control diagrams by controls manufacturer.
 9. As-installed color coded piping diagrams.
 10. Charts of valve tag numbers, with location and function of each valve.
 11. List of original manufacturer's spare parts, manufacturer's current prices, and recommended quantities to be maintained in storage.
 12. Other data as required under pertinent sections of specifications.
- C. Content, for each electric and electronic system, as appropriate:

1. Description of system and component parts.
 - a. Function, normal operating characteristics, and limiting conditions.
 - b. Performance curves, engineering data and tests.
 - c. Complete nomenclature and commercial number of replaceable parts.
 2. Circuit directories of panel boards.
 - a. Electrical service.
 - b. Controls.
 - c. Communications.
 3. As-installed color coded wiring diagrams.
 4. Operating procedures:
 - a. Routine and normal operating instructions.
 - b. Sequences required.
 - c. Special operating instructions.
 5. Maintenance procedures:
 - a. Routine operations.
 - b. Guide to "trouble-shooting".
 - c. Disassembly, repair and reassembly.
 - d. Adjustment and checking.
 6. Manufacturer's printed operating and maintenance instructions.
 7. List of original manufacturer's spare parts, manufacturer's current prices, and recommended quantities to be maintained in storage.
 8. Other data as required under pertinent sections of specifications.
- D. The Contractor shall Prepare and include additional data when the need for such data becomes apparent during instruction of Owner's personnel.
- E. Additional requirements for operating and maintenance data: Respective sections of specifications.

1.05 SUBMITTAL SCHEDULE

- A. The Contractor shall Submit preliminary draft of proposed formats and outlines of contents for Engineer's review.
- B. The Contractor shall Submit one (1) copy of completed data in final form fifteen days prior to final inspection. Copy will be returned after final inspection with comments.

- C. The Contractor shall Submit specified number of copies of approved data in final form within ten (10) days after final inspection.

1.06 INSTRUCTION OF OWNER'S PERSONNEL

- A. Prior to final inspection or acceptance, the Contractor shall fully instruct the Owner's designated operating and maintenance personnel in operation, adjustment and maintenance of products, equipment and systems.
- B. Operating and maintenance manual shall constitute the basis of instruction. The Contractor shall review contents of the manual with the Owner's designated operating and maintenance personnel, in full detail, to explain all aspects of operations and maintenance.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01740 - WARRANTIES AND BONDS

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. The Contractor shall compile specified warranties and bonds.
- B. The Contractor shall compile specified service and maintenance contracts.
- C. The Contractor shall co-execute submittals when so specified.
- D. The Contractor shall review submittals to verify compliance with Contract Documents.
- E. The Contractor shall submit to Engineer for review and transmittal to owner.

1.02 RELATED REQUIREMENTS

- A. Conditions of the Contract: Performance Bond and Labor and Material Payment Bond.
- B. Conditions of the Contract: General Warranty of Construction.
- C. Section 01700: Contract Closeout.
- D. Section 01730: Operating and Maintenance Data.

1.03 SUBMITTAL REQUIREMENTS

- A. The Contractor shall assemble warranties, bonds, and service and maintenance contracts, executed by each of the respective manufacturers, suppliers, and subcontractors; as specified in respective sections of these specifications
- B. Table of Contents: Neatly typed, in orderly sequence. The Contractor shall provide complete information for each item as follows:
 - 1. Product or work item.
 - 2. Firm, with name of principal, address and telephone number.
 - 3. Scope.
 - 4. Date of beginning of warranty, bond or service and maintenance contract.
 - 5. Duration of warranty, bond, or service maintenance contract.
 - 6. Information for Owner's personnel:
 - a. Proper procedure in case of failure.
 - b. Instances which might affect the validity of warranty or bond.
 - 7. Contractor, with name of responsible principal, address and telephone number.

1.04 FORM OF SUBMITTALS

A. Format:

1. Size 8 ½" x 11" or legal size sheets.
2. Scanned, original signed PDFs on DVD-ROM with case
3. Cover: Identify each DVD and case with typed or printed title "WARRANTIES AND BONDS". List:
 - a. Title of project.
 - b. Name of Contractor.

1.05 TIME OF SUBMITTALS

- A. The Contractor shall make submittals within ten days after Date of Substantial Completion, prior to final request for payment.
- B. For items of work, where acceptance is delayed materially beyond Date of Substantial Completion, the Contractor shall provide an updated submittal within ten days after acceptance, listing date of acceptance as start of warranty period.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 02050 - DEMOLITION

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. The Contractor shall furnish all labor, materials, equipment and incidentals required and demolish, modify, alter and convert existing structures and pipelines as required for the construction of the pump station modifications as shown on the Drawings and as specified herein.
- B. This Section covers demolition and initial modifications necessary to allow existing station operation during the construction phase and final modifications during activation of the improved facility. Included, but not limited to, are demolition, modification and removal of existing materials, equipment or work necessary to install the new work as shown on the Drawings and as specified herein and to connect with existing work in approved manner.
- C. This Section calls attention to certain activities necessary to maintain and facilitate operation during and immediately following construction, and does not purport to cover all of the activities necessary. The Contractor shall exercise due concern for facility operation and diligently direct all activities toward maintaining continuous operation and minimizing operator inconvenience.
- D. Demolition includes:
 - 1. Complete demolition of all existing structures which are encountered in the way of the new work, as shown on the Drawings.
 - 2. Partial demolition as necessary below finished grade of all existing structures which are not in service or required for construction.
 - 3. Temporary modification of structures, equipment, appurtenances and utilities as necessary to allow for operation of the facilities during construction.
 - 4. Removal of existing pumps, piping and other equipment.
 - 5. Removal or plugging of existing piping.
 - 6. Demolition, partial removal and cutting of existing masonry as required for the new construction.
 - 7. Removing all existing wiring, conduit, switches, junction boxes, pull boxes, panels, outlets and other electrical devices
 - 8. Distribution of salvageable and excess unacceptable material as specified below.
 - 9. Off-site disposal of excess and unacceptable materials.
- E. Blasting and the use of explosives shall not be used for any demolition work.

1.02 RELATED WORK

- A. Section 02300 - Excavation and Backfill.
- B. Section 02955 - Temporary Bypass Pumping.
- C. Section 03300 - Concrete.
- D. Demolition of electrical material and equipment is included in Division 16.

1.03 SUBMITTALS

- A. The Contractor shall submit to the Engineer, in accordance with Section 01300, proposed methods and operations of demolition of the structures and modifications prior to the start of work. Coordination of shutoff, capping and continuation of utility service as required shall be included.
- B. The Contractor shall furnish a detailed sequence of demolition and removal work to ensure the uninterrupted progress of the Owner's operations.
- C. Before commencing demolition work affecting current facility operation, all modifications necessary to bypass the affected structure shall be completed. Actual work shall not begin until the Engineer has inspected and approved the modifications and authorized commencement of the demolition work in writing.

1.04 CONDITION OF STRUCTURES

- A. The Owner and the Engineer assume no responsibility for the actual condition of the structures to be demolished or modified.
- B. Conditions existing at the time of inspection for bidding purposes will be maintained by the Owner insofar as practicable. However, variations within a structure or on the site may occur prior to the start of demolition work.

1.05 DISPOSAL OF MATERIAL

- A. Where directed by the Engineer, salvageable material and equipment listed hereinafter shall become the property of the Owner. All such items shall be dismantled to a size that can be readily handled and deliver them to a designated storage area.
- B. Designated materials and items of equipment shall remain the property of the Owner and stored where directed on site. Any such material damaged due to improper handling will not be accepted and the replacement value of the material deducted from the payment to the Contractor.

- C. All other material and items of equipment shall become the Contractor's property and shall be removed from the site. The storage or sale of removed items on the site shall not be conducted.

1.06 TRAFFIC AND ACCESS

- A. Demolition and modification operations and the removal of equipment and debris shall be conducted to ensure minimum interference with roads, streets, walks both onsite and offsite and to ensure minimum interference with occupied or used facilities.
- B. Special attention shall be directed towards maintaining safe and convenient access to the existing facilities by operational personnel and associated vehicles.
- C. Streets, walks or other occupied or used facilities shall not be closed without written permission from the Engineer. Alternate routes around closed or obstructed traffic in access ways shall be provided.

1.07 PROTECTION

- A. The Contractor shall conduct operations to minimize damage by falling debris or other causes to adjacent buildings, structures, roadways and other facilities, including persons. The Contractor shall furnish interior and exterior shoring, bracing, or support to prevent movement or settlement or collapse of structures to be demolished and adjacent facilities to remain.
- B. The Contractor shall exercise precautions for fire prevention. Acceptable fire extinguishers shall be available at all times in areas where demolition work by burning torches is being performed. Burning of demolition debris shall not be permitted onsite or near the site.
- C. The Contractor shall erect and maintain barriers, lights, sidewalk sheds, and other required protective devices.

1.08 DAMAGE

- A. The Contractor shall promptly repair damage caused to adjacent facilities by demolition operations as directed by the Engineer and at no additional cost to the Owner. Repairs shall be made to a condition at least equal to that which existed prior to construction.
- B. Where sidewalks, curbs, roadways, drainage inlets or other surface fixtures must be demolished in order to perform work or are damaged during work, they shall be replaced.

1.09 UTILITIES

- A. The Contractor shall maintain existing utilities as directed by the Engineer to remain in service and protect against damage during demolition operations.
- B. Existing utilities serving occupied or used facilities shall not be interrupted except when authorized by the Engineer. The Contractor shall provide temporary services during interruptions to existing utilities as acceptable to the Engineer.
- C. The Contractor shall cooperate with the Owner to shut off utilities serving structures of the existing facilities as required by demolition operations.
- D. All necessary arrangements and for performing any necessary work involved in connection with the discontinuance or interruption of all public and private utilities or services under the jurisdiction of the utility companies shall be made by the Contractor.
- E. All utilities being abandoned shall be disconnected and terminated at the service mains in conformance with the requirement of the utility companies or the municipality owning or controlling them.

1.10 NOTIFICATION

- A. At least 48 hours prior to commencement of a demolition or removal, the Engineer shall be notified in writing. Owner shall be allowed to inspect the existing equipment to identify and mark those items which are to remain the property of the Owner. No removals shall be started without the permission of the Engineer.
- B. Prior to any demolition or excavation, the Contractor shall locate all underground utilities.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 GENERAL

- A. All materials and equipment removed from existing work shall become the property of the Contractor except for those which the Owner has identified and marked. All materials and equipment marked by the Owner to remain shall be carefully removed, so as not to be damaged, cleaned and stored on or adjacent to the site in a protected place specified by the Engineer or loaded onto trucks provided by the Owner.
- B. All demolition materials, equipment, debris and all other items not marked by the

Owner to remain shall be properly disposed offsite, in accordance with all applicable laws and regulations. Demolition debris shall not be used for fill or backfill.

C. Pollution Controls

1. The Contractor shall use water sprinkling, temporary enclosures and other suitable methods to limit the amount of dust and dirt rising and scattered in the air to the lowest practical level. The Contractor shall comply with governing regulations pertaining to environmental protection.
 - a. The Contractor shall not use water when it may create hazardous or objectionable conditions such as flooding or pollution.
 - b. The Contractor shall clean adjacent structures, facilities, and improvements of dust, dirt and debris caused by demolition operations. Adjacent areas shall be returned to conditions existing prior to the start of the work.

3.02 REMOVAL OF EXISTING EQUIPMENT, PIPING AND APPURTENANCES

- A. Mechanical removals shall consist of dismantling and removing of existing piping, equipment, and other appurtenances as specified, shown or required for the completion of the work. It shall include cutting, capping and plugging as required.
- B. Existing water, wastewater, and other piping not required for the new work shall be removed where shown on the Drawings, or where it will interfere with the new work. Chemical and gas fuel lines shall be purged and made safe prior to removal or capping.
- C. When underground piping is to be altered or removed, the remaining piping shall be properly capped. Abandoned underground piping may be left in place unless it interferes with new work or is shown or specified to be removed.
- D. All equipment, piping and appurtenances shall be cleaned, flushed and drained. Equipment to be retained by the Owner as specified in Paragraph 1.06 shall be dismantled sufficiently to permit thorough cleaning and draining. All valves shall be left open. All discontinued piping shall be capped and sleeves and openings remaining after removal of the existing equipment, piping and appurtenances shall be plugged and sealed as shown on the Drawings and as directed by the Engineer.
- E. Any changes to potable water piping and other plumbing and heating system work shall be made in conformance with all applicable codes and under the same requirements as other underground piping. All portions of the potable water system that have been altered or opened shall be pressure tested and disinfected in

accordance with Louisiana Health Department and AWWA requirements. Other plumbing and heating piping shall be pressure tested only.

3.03 DEMOLITION

- A. Demolition shall be performed to the limits shown on the Drawings, or if no limits are shown, to a depth at least two feet below final grade, or two feet below any new foundation or pipe.
- B. The Contractor shall wet down work during demolition operations to prevent dust from arising. The Contractor shall furnish maximum practicable protection from inclement weather for materials, equipment and personnel located in partially dismantled structures.
- C. Existing, below grade slabs to be abandoned but not demolished shall have sufficient holes cut to allow for positive drainage to prevent flotation.
- D. The Contractor shall remove all existing items as indicated on the Drawings and prepare adjoining areas for installation of new work or for blocking up and filling in of openings.
- E. Structural Demolition
 - 1. Unless otherwise approved by the Engineer, the Contractor shall proceed with demolition from the top of the structure to the ground. The Contractor shall complete demolition work above each floor or tier before disturbing supporting members of lower levels.
 - 2. All mechanical, electrical, piping, and miscellaneous appurtenances shall be removed prior to demolition of the structure.
 - 3. The Contractor shall demolish concrete and masonry in small sections. The Contractor shall remove structural framing members and lower to ground by means of hoist, derricks, or other suitable methods. The Contractor shall break-up and remove foundations and slabs-on-grade, unless otherwise shown to remain. The Contractor shall locate demolition equipment throughout the structure and remove material so as to not impose excessive loads on supporting walls, floors, or framing.
 - 4. The Contractor shall remove structures to the lines and grades shown unless otherwise directed by the Engineer. Where no limits are shown, the limits shall be 4 inches outside the item to be installed. Removal beyond these limits shall be at no additional expense to the Owner, and these excess removals shall be reconstructed to the satisfaction of the Engineer with no additional compensation to the Contractor.

5. All concrete, brick, tile, concrete block, roofing materials, reinforcement, structural or miscellaneous metal, plaster, wire mesh and other items contained in or upon the structure shall be removed and taken from the site, unless otherwise approved by the Engineer. Demolished items shall not be used in backfill adjacent to structures or in pipe line trenches.
6. After removal of parts or all masonry walls, slabs and like work which tie into new work or existing work, the point of junction shall be neatly repaired so as to leave only finished edges and surface exposed.

3.04 MISCELLANEOUS CONCRETE SLABS AND SIDEWALKS

- A. The Contractor shall remove miscellaneous concrete slabs and sidewalks where shown on the Drawings or where necessary for the construction of new structures or modification of existing structures.

3.05 ELECTRICAL REMOVALS

- A. Electrical removals shall consist of the removal of existing transformers, distribution switchboards, control panels, motors, conduits and wires, poles and overhead wiring, panelboards, lighting fixtures and miscellaneous electrical equipment all as shown on the Drawings, specified herein, or required to perform the work.
- B. All existing electrical equipment and fixtures to be removed shall be removed with such care as may be required to prevent unnecessary damage, to keep existing systems in operation and to maintain the integrity of the grounding systems.
- C. Conduits and wires shall be abandoned or removed where shown or as required.
- D. Wall switches, receptacles, starters and other miscellaneous electrical equipment shall be removed and disposed of off the site as required.

3.06 MODIFICATIONS

- A. Modifications to existing structures, piping, tanks, etc. shall be performed as shown on the Drawings or required to perform the construction of the work under this Contract.

3.07 CLEAN-UP

- A. Upon completion of the demolition work, all materials, equipment, waste and debris of every sort shall be removed and the premises shall be kept clean, neat, and orderly.

END OF SECTION

SECTION 02140 - DEWATERING

PART 1 - GENERAL

1.01 SCOPE

The Work under this section includes supplying materials, equipment, services, and labor necessary to prevent surface water and subsurface or ground water from flowing into excavations and from flooding project site and surrounding area. The Contractor shall dewater and dispose of the water so as not to cause injury to public or private property, or to cause a nuisance or a menace to the public. The Contractor shall have adequate equipment and personnel at the site at all times to comply with these requirements.

1.02 RELATED WORK SPECIFIED ELSEWHERE

Section 02300: Excavation and Backfill

PART 2: PRODUCTS (NOT USED)

PART 3: EXECUTION

3.01 INSTALLATION

The Contractor shall install all equipment necessary for dewatering. The Contractor shall have on hand, at all times, sufficient pumping equipment and machinery in good working condition and shall have available, at all times, competent workers for the operation of the pumping equipment. Adequate standby equipment shall be kept available at all times to insure efficient dewatering and maintenance of dewatering operation during power failures.

3.02 PERFORMANCE

A. General: The control of groundwater shall be such that softening of the bottom of excavations or formation of unstable conditions during excavation shall be prevented. Dewatering systems shall be designed and operated to prevent erosion of the natural soils. Care shall be taken to prevent disturbance, due to the method of dewatering, of pipe bedding already in place in the trench. The Contractor shall maintain the integrity of previously placed pipe and bedding during dewatering and the release of groundwater.

During excavation, construction of structures, installation of pipelines, placement of the structure and trench backfill, and the placing and setting of concrete, excavations shall be kept free of water. The Contractor shall control surface runoff to prevent entry or collection of water in excavations. The static water level shall be controlled in the vicinity of the excavation to maintain the undisturbed state of the foundation soils and allow the placement of any fill or backfill to the required density. The

dewatering system shall be installed and operated so that the groundwater level outside the excavation is not altered to an extent that would damage or endanger adjacent structures or property.

B. Well Pointing: Well pointing shall be used when directed by the Engineer to facilitate proper construction techniques. Well points shall include providing, setting up, operating and removing a properly sized pump, header pipes and well points. If the well points are operated twenty-four (24) hours a day, the motors shall be equipped with super silencers, unless otherwise approved by the Engineer. Each well point location shall include:

1. a minimum of four (4) well points operated for a period of eight hours, at a maximum depth of twenty (20) feet and forty (40) feet of header pipe.
2. sufficient pumping capacity to dewater the construction site.

Additional well points may be installed to dewater the construction area, as safety dictates. The header pipe shall be measured per linear foot and shall include one well point for each 3 feet of header. Increased pumping capacity, if required, shall be provided at no additional cost to the Owner.

3.03 RELEASE OF GROUNDWATER

The release of groundwater to its static level shall be performed in such a manner as to maintain the undisturbed state of the natural foundation soils, prevent disturbance of compacted backfill and prevent flotation or movement of structures, pipelines, and sewers.

END OF SECTION

SECTION 02160 - SHEETING, SHORING, AND BRACING

PART I - GENERAL

1.01 SCOPE

The Work under this Section includes supplying materials, services, and labor necessary to provide sheeting, shoring, and bracing or supports as required to provide a safe working condition for the Contractor's personnel and to provide protection of utilities, buildings, and structures. The Contractor shall assume sole responsibility for sheeting, shoring, and bracing.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Section 02140: Dewatering

B. Section 02300: Excavation and Backfill

1.03 SAFETY REQUIREMENTS

All sheeting, shoring, and bracing of excavations shall comply with OSHA regulations, local codes, and any authorities having jurisdiction.

PART 2 - PRODUCTS

2.01 WOOD SHEETING

Wood for shoring and sheeting shall be green, rough cut hardwood (i.e. oak or hickory) Planking for sheeting and foundation lumber shall have a minimum thickness of 2 inches.

2.02 STEEL SHEETING

Steel sheet piling shall be a continuous interlock design. The sheet piling must, be in good condition and shall provide a tight interlocking connection which will retard the infiltration of ground water. Steel sheeting is recommended at all deep pipe installations.

PART 3 - EXECUTION

3.01 PERFORMANCE

A. The planning, installation and removal of all sheeting, shoring, bracing, and sheet piling shall be accomplished in such a manner as to maintain the required trench or excavated cross section and to maintain the undisturbed state of the soils adjacent to the trench and below the excavated bottom. Horizontal strutting below the barrel of a pipe or structure or the use of a pipe as support for trench bracing shall not be used.

- B. Wood sheeting shall be left in place and the upper part of the sheeting shall be cut off 3 feet below the finished ground surface after backfilling. All bracing above this level shall also be removed. Lower bracing shall be left in place. Steel sheeting or piling which are withdrawn shall be extracted in a manner so as to prevent subsequent settlement of the pipe or produce additional loadings to the structure and to maintain the undisturbed state of the soil adjacent to the trench or in the immediate area.

END OF SECTION

SECTION 02300 - EXCAVATION AND BACKFILL

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. The Work under this Section includes, except as provided elsewhere, trenching for installation of pipelines and appurtenances, including excavation, backfilling, disposal of surplus material, and restoration of trench surfaces.
- B. Excavation shall extend to the width and depth shown on the Drawings or as specified; or where not specified, the Contractor shall confine the excavation to the least width practicable and shall provide suitable room for installing pipe, structures, and appurtenances.
- C. The Contractor shall furnish and place all necessary sheeting, bracing, and supports in accordance with OSHA regulations.
- D. The Contractor shall remove from the excavation all materials which are unsuitable for backfill, including that which the Engineer deems unsuitable for backfill.

1.02 RELATED WORK Section

02140: Dewatering

Section 02160: Sheeting, Shoring, and Bracing

PART 2 - PRODUCTS

2.01 BACKFILL AND BEDDING MATERIAL

Backfill and bedding material shall be granular material, stone, or an approved blend as shown on the Drawings.

2.02 FOUNDATION MATERIAL

Foundation material shall be as shown on the Drawings.

2.03 GEOTEXTILE FABRIC

Geotextile fabric shall be Mirafi 500X, or approved equal.

PART 3 - EXECUTION

3.01 EXCAVATION

- A. Excavation shall be open cuts with vertical sides using sheeting and bracing as required, all sheeting and bracing for excavations shall be in accordance with OSHA regulations.
- B. The bottom of the excavation shall be firm, dry, and in all respects, acceptable. If required on the Drawings, the Contractor shall install limestone for pipe bedding, or limestone refill for excavation below grade. This material shall be placed directly onto the bottom of the trench immediately after excavation has reached the proper depth and before the bottom of the trench has become softened or disturbed by any cause whatever.
- C. In case the excavation for any pipeline is directed by the Engineer to be carried below the required depth, the Contractor shall fill the bottom of the excavation up to grade with compacted bedding material.
- D. If the Contractor excavates below grade through error or for convenience, or through failure to properly dewater the trench, or disturbs the subgrade before dewatering is sufficiently complete, the Engineer may direct the Contractor to excavate below grade as set forth in the preceding paragraphs; in which case the work of excavating below grade and finishing and placing the refill shall be performed at no additional cost to the Owner.
- E. All material excavated shall be placed so as to minimize interference with public travel and to permit proper access for inspection of the work.

3.02 DISPOSAL OF MATERIALS

- A. Excavated material shall be stacked without excessive surcharge on the trench bank and without obstructing free access to hydrants and valves. Inconvenience to traffic and abutters shall be avoided as much as possible. Excavated material shall be segregated for use in backfilling as specified below.
- B. All excavated material which is either unsuitable for backfill or that will not be used for backfill in the same location shall be removed from the site of the Work by the Contractor. The Contractor shall remove and properly dispose of excess excavated material.
- C. Should conditions make it impracticable or unsafe to stack material adjacent to the trench, the material shall be hauled and stored at a location provided by the Contractor. When required, it shall be rehandled and used in backfilling the trench, or hauled to the Owner's designated storage site, or disposed of properly.

3.03 REMOVAL OF STUMPS, ROOTS, AND LOGS

- A. Stumps, roots, and logs, which are encountered within the trench area, shall be cut to a depth of one foot (1') below the bottom of the trench and removed. The Contractor shall fill the excavated space with compacted bedding material.
- B. When directed by the Engineer, the Contractor shall probe one foot (1') below the established bottom of the trench. If any stumps, roots, or logs are discovered by this probing, the Contractor shall remove them as required in Paragraph A above.
- C. Blasting shall not be used for the removal of stumps, roots, and logs. All removed stumps, roots, and logs shall be disposed of properly.

3.04 TEST PITS

Test pits for the purpose of locating underground utilities or structures in advance of the construction may be excavated by the Contractor. Test pits shall be backfilled immediately after the desired information has been obtained. The backfilled surface shall be restored and maintained in a manner satisfactory to the Engineer. Test pits and related restoration and shall be at no additional cost to the Owner.

3.05 PLACEMENT OF BEDDING MATERIAL

- A. Bedding shall conform to the details on the Drawings. When laying pipe, the groove for the pipe and bell hole shall be accurately shaped, and the bedding material shall be closely packed under and around the pipe.
- B. If required on the Drawings, the bedding and pipe shall be enclosed in a geotextile fabric. Geotextile fabric shall be installed in accordance with the manufacturer's recommendations.

3.06 BACKFILL

- A. As soon as practical after the pipe has been laid and jointed, backfill material (free from stones, pieces of lumber, and other foreign material) shall be hand placed and hand tamped to a depth over the top of the pipe as shown on the Drawings.
- B. Where pipes are laid in developed areas, the trench shall be filled with approved backfill material to an elevation six inches below the existing grade. The remainder of the trench shall be filled with top soil.
- C. Where pipes are laid within street rights-of-ways, the remainder of the trench above the bedding shall be backfilled as shown on the Drawings.

- D. All road surfaces adjacent to backfilling operations shall be broomed and hose cleaned immediately after backfilling.

3.07 RESTORING TRENCH SURFACE

- A. The Contractor shall thoroughly consolidate the backfill and shall maintain the surface as the work progresses. If settlement takes place, additional fill shall be installed to restore the level to the adjacent ground.
- B. The surface of any street, driveway, sidewalk or any other area which is disturbed by the trench excavation, shall be restored by the Contractor to a condition at least equal to that existing before work began.
- C. In sections where the pipeline passes through maintained grassed areas, the Contractor shall regrade and re-sod all disturbed areas.

3.08 PROTECTION

Guard rails, curbing, and fencing in the vicinity of the Contractor's operations shall be adequately protected and, if necessary, removed and restored after backfilling. All curbing, fencing, or guard rails which are damaged during construction shall be replaced with material fully equal to that existing prior to construction.

END OF SECTION

SECTION 02580 - PIPELINE INSTALLATION AND TESTING

PART 1 - GENERAL

1.01 Description

- A. The Contractor shall furnish all labor, equipment and materials required to perform all work required for installation of pipelines as indicated on the drawings and specified herein.
- B. The Drawings indicate the alignment of all known pipelines within the limits of the Work, based upon records. The Contractor shall inspect the entire project to verify the location of all existing pipelines and to determine the existence of any conflicts with the Work. The location of proposed pipelines may be field adjusted, with prior approval from the Engineer, to avoid conflicts with other utilities. Damage to any pipelines by the Contractor, subcontractors, material and equipment suppliers or other persons, prior to acceptance, shall be repaired by the Contractor to the satisfaction of the Engineer and Owner at no additional cost to the Owner.

1.02 Construction Layout

The Contractor shall establish all lines and grades and stake out all work on this project from controls shown on the Drawings.

1.03 Related Work

Section 02160 - Sheeting, Shoring, and Bracing
Section 02300 - Excavation and Backfill
Section 15042 - Ductile Iron Pipe
Section 15064 - Plastic Pressure Pipe

PART 2 - PRODUCTS

- 2.03 shall be color coded, foil backed with lettering reading "WARNING (or CAUTION) - BURIED WATERLINE (or WASTEWATER) LINE".

PART 3 - EXECUTION

3.01 General

- A. The installation of pipelines shall be strictly in accordance with these specifications, latest applicable AWWA standards, and the manufacturer's requirements and recommendations.
- B. Trenching requirements are included in Section 02160 - Sheeting, Shoring and Bracing,

and Section 02300 - Excavation and Backfill.

- C. Pipe installation shall be accomplished with pipe sections and fittings such that pipe cutting is held to an absolute minimum. Should pipe cutting be required, cutting shall be done in a neat manner, without damage to the pipe or to the lining. Cuts shall be smooth, straight, and at right angles to the pipe axis. After cutting, the end of the pipe shall be dressed with a file to remove all roughness and sharp corners. All cutting of pipe shall be done with mechanical equipment only. Pipe ends shall be cut with a saw or abrasive wheel. Field cut holes for saddles shall be cut with mechanical pipe cutters.
- D. The interior of all pipe and fittings shall be thoroughly cleaned of foreign matter, and for waterlines, shall be swabbed with chlorine prior to installation and shall be kept clean until the work has been accepted. Swabbing herein shall mean the forceful introduction of a large sponge type device through a pipe to remove debris, such as stones and sand. Before jointing, all joint contact surfaces shall be wire brushed if necessary, wiped clean, and kept clean until jointing is completed. Precautions shall be taken to prevent foreign material from entering the pipe during installation. Debris, tools, clothing, or other materials shall not be placed in or allowed to enter the pipe.
- E. A representative of the Owner shall be present or shall be given the chance to inspect all installed pipe prior to backfill. The Owner may require the Contractor to uncover any or all water distribution system items installed for inspection, at no additional cost to the Owner.

3.02 Water System Valves and Hydrants Operation

- A. All water distribution system valves and hydrants shall be operated by the Owner. The Contractor shall not operate water system valves or hydrants without prior written permission from the Owner. The Contractor may be allowed to operate water system valves or hydrants without prior written permission only when the Owner's representatives are present at all times during operation, and give specific verbal permission.

3.03 Material Handling

- A. Pipes, fittings, couplings, and all other incidentals and accessories shall be handled in a manner that will insure installation in sound, undamaged condition. Equipment, tools, and methods used in handling and installing pipe and fittings shall not damage the pipe and fittings. Hooks inserted in ends of pipe shall have broad, well-padded contact surfaces. When lifting with slings, only wide fabric choker slings capable of safely carrying the load shall be used to lift, move, or lower pipe and fittings. Wire ropes and chains shall not be used. Slings shall be of sufficient capacity for the load, and shall be inspected before use. Worn or damaged equipment shall not be used.
- B. All pipe and fitting coatings which have been damaged shall be repaired by the Contractor before installation. Any such repairs shall be done in total conformance with

the manufacturer's requirements and recommendations, shall use approved materials only, and shall be subject to final acceptance by the Engineer.

3.05 Connection to Existing Piping

- A. The Owner's representative shall be present during all work being done at the tie-in points. All tie-in locations shall be excavated and existing piping shall be investigated (material type, size, outside diameter, condition, photograph, etc.) prior to ordering material and equipment, and especially prior to the cutting of the existing pipe. Connections between new work and existing piping shall be made using fittings suitable for the conditions encountered and as indicated on the drawings. Each connection to an existing pipe shall be made at a time and under conditions which will least interfere with service to customers, and as authorized by the Owner.
- B. Facilities shall be provided for proper dewatering and for disposal of all water removed from the dewatered lines and excavations without damage to adjacent properties.

3.06 Allowable Clearance Between Pipelines

- A. Between Waterlines and Wastewater Lines - When wastewater lines are parallel to waterlines, the clearance shall be a minimum of 10 feet (measured horizontally); when wastewater lines and waterlines cross, vertical clearance shall be 18 inches, with the waterline crossing above the wastewater line.
- B. Between Waterlines and Any Private Utility Lines - Minimum clearance between a waterline and any private utility line shall be 6 feet (measured horizontally).

3.07 Pipe Marking

- A. All pipelines shall be installed with buried warning tape. All non-metallic pipelines shall be installed with detector wire.
- B. Warning tape shall be laid in the trench while backfilling, and shall be placed between 12 to 18 inches above the top of the pipe.
- B. Detector wire shall be laid directly over the pipe and shall terminate in valve boxes, meter boxes, or bored or drilled crossings.

3.08 Pipeline Pressure Testing

- A. All pipelines shall be pressure tested. The Contractor shall supply all labor, equipment, material, gauges, pumps, and incidentals required for testing.
- B. The test pressure shall be 100 psig for waterlines and 50 psig for wastewater lines, unless noted otherwise. The test pressure shall be measured at the highest point along the test section.

- C. Testing shall be conducted only after backfilling has been completed.
- D. Testing procedure shall be as follows:
 - 1) Fill line slowly with water. Maintain flow velocity less than two feet per second.
 - 2) Expel air completely from the line during filling and again before applying test pressure. Air shall be expelled by means of taps at points of highest elevation.
 - 3) Apply test pressure. Measure the quantity of water that must be pumped into the line to maintain pressure within five (5) psig of the test pressure for a period of two (2) hours. This quantity is defined as leakage.
 - 4) Carefully examine any exposed pipe, fittings, and joints for leakage during the test.
- E. Allowable leakage: Leakage shall be less than that determined by the following formula:

$$L = \frac{(S)(D)(P)^{1/2}}{133,200}$$

- L = Loss in gallons per hour
- S = Length of pipe tested in feet
- D = Nominal pipe diameter in inches
- P = Recorded test pressure in psig

- F. If any test of a pipeline section discloses leakage greater than that allowed, the Contractor shall, at no additional cost to the Owner, locate and repair the cause of leakage and retest the line.
- G. All visible leaks shall be repaired regardless of the amount of leakage.

3.09 Waterline Disinfection

- A. Before being placed into service, all new, modified, and/or contaminated segments of the water distribution system shall be cleaned, flushed, and disinfected (chlorinated) by the Contractor under the direct supervision of the Owner. The disinfection of piping shall conform to AWWA C651 “Standard for Disinfection of Water Mains”. All disinfection procedures shall be in full compliance with the Louisiana Sanitary Code (Code), Part XII Water Supplies, Chapter 3, Section 353. The procedures to be used, including the chemicals to be used, shall be submitted to the Engineer for approval.
- B. The interior of the piping shall be thoroughly cleaned, flushed, disinfected, flushed, and tested. Flushing shall be done at flow rates sufficient to provide a velocity in the lines of at least 2.5 feet per second.

- C. The Contractor shall arrange for sampling and bacteriological testing to be conducted by the Owner. Water prepared for sampling, and water used for flushing, shall not have a chlorine residual higher than that normally maintained in the water system. The piping shall be cleaned, flushed, disinfected, flushed, and tested as many times as necessary to achieve a suitable bacteriological test result, at no additional cost to the Owner. No additional Contract Time will be awarded the Contractor for work necessary due to failed bacteriological testing.
- D. Only after satisfactory pressure testing, disinfection, and successful bacteriological test results from the Owner is completed, shall the waterline segment be connected to the existing water distribution system. Under no circumstances shall the Contractor make a connection to the existing water distribution system without direct supervision of the Owner.

3.10 Water Usage

- A. Water for flushing, pressure testing, and disinfection may be obtained by the Contractor from the Owner's water system. In order to prevent backflow (back siphon, back pressure) or reversal of the flow of potentially unclean liquids into the drinking water system a separate check valve, as a minimum, shall be used by the Contractor at the point of connection to the Owner's system. A meter shall be used to record the Contractor's water usage.
- B. The Contractor will not be charged for the water used in filling, flushing, testing and chlorinating of pipelines. The Contractor will be charged for any water necessary for retesting due to negligence of the Contractor, and for any water necessary due to failed bacteriological testing.

END OF SECTION

THIS PAGE LEFT BLANK INTENTIONALLY

SECTION 02920 – SEEDING AND SODDING

PART 1 - GENERAL

1.01 REQUIREMENT

- A. The Contractor shall provide all labor, materials, and equipment to install seeding and sodding, with fertilizing and mulching for all disturbed areas that are not to be paved or otherwise treated in accordance with the Contract Documents. The Contractor shall re-establish vegetative cover in all areas where such cover existed prior to the beginning of the Work, and in areas so designated on the Drawings.
- B. The Work under this Section includes furnishing and placing topsoil, seed and sod, and mulching, fertilizing, watering, and maintenance until final acceptance by the Owner.

1.02 QUALITY ASSURANCE

- A. The Contractor shall deliver a satisfactory stand of grass as specified. If necessary, the Contractor shall repeat any or all of the work, including grading, seeding or sodding, fertilizing, and watering until a satisfactory stand is obtained.
- B. A satisfactory stand of grass is herein defined as a full lawn cover of the predominant vegetative species existing prior to the beginning of the Work, or species as required herein, over areas to be seeded or sodded. Grass shall be alive and growing, free from weeds, and leaving no bare spots larger than one square foot in area, separated by at least 10 feet in distance.
- C. If a satisfactory stand of grass has not been obtained within a reasonable period of time, the Engineer will instruct the Contractor in writing that the vegetative cover is not adequate and additional measures as determined by the Engineer, including installation of sodding on areas previously treated with seed applications, shall be undertaken by the Contractor to establish the required satisfactory stand of grass, at no additional cost to the Owner.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Fertilizer: Fertilizer shall be a commercial, chemical type, uniform in composition, free-flowing, conforming to state and federal laws and suitable for application with equipment designed for that purpose.

- B. Seed: Seed shall be delivered in original unopened packages bearing an analysis of the contents. Seed shall be guaranteed 95 percent pure with a minimum germination rate of 80 percent.
1. The following grass species may be established by seeding procedures.
 - a. Hulled Bermuda
 - b. Pensacola Bahia
 - c. Kentucky 31 Fescue
- C. Sod: The Contractor shall furnish sod equal to and similar in type as that disturbed by the Contractor's operations.
1. The following grass species shall be established by sodding procedures:
 - a. St. Augustine
 - b. Centipede
 - c. All other species not listed under Seeding.
 2. The following areas shall have vegetative cover restored by sodding procedures, regardless of the grass species.
 - a. Slopes steeper than four (4) horizontal to one (1) vertical.
 - b. Locations subject to concentrations of water flow or erosion including but not limited to roadway ditch bottoms and flume areas where storm water runoff is concentrated.
 - c. Repair of eroded areas within areas previously seeded.
- D. Mulch: Mulch shall be a fibrous, wood cellulose product produced for this purpose. It shall be dyed green and shall contain no growth or germination inhibiting substances, and shall be manufactured so that when thoroughly mixed with seed, fertilizer, and water, in the proportions indicated it will form a homogenous slurry which is capable of being sprayed.
- E. Topsoil: Topsoil stockpiled during excavation may be used. If additional topsoil is required to replace topsoil removed during construction, it shall be obtained off site at no additional cost to the Owner. Topsoil shall be fertile, natural surface soil, capable of supporting the grassing specified.
- F. Water: Water shall be clean, fresh, and free of substances that would inhibit vigorous growth of turf. The Contractor shall make whatever arrangements necessary to ensure an adequate supply of water to meet the needs for the work. The Contractor shall furnish all necessary hose, equipment, attachments, and accessories for the adequate irrigation of lawns and planted areas as required.

PART 3 - EXECUTION

3.01 GENERAL

- A. Weather Conditions: Fertilizing, seeding, sodding, or mulching operations shall not be conducted when wind velocities exceed 15 miles per hour or when the ground is frozen, unduly wet, or otherwise not in a tillable condition.

- B. Soil Preparation: The ground to be seeded shall be graded in conformance with the Drawings and shall be loose and free of large rocks, roots, and other material which will interfere with the work. Areas to be sodded shall be pulverized or tilled to a depth of 3 inches.
- C. Soil Placement: Topsoil shall be spread evenly over all planting areas to a depth of 4 inches.
- D. Method of Seed Application: Fertilizer, seed, and mulch may be applied separately (Dry Method), or they may be mixed together with water and the homogeneous slurry applied by spraying (Hydraulic Method), except that all slopes steeper than 3 units horizontal to 1 unit vertical shall be stabilized by the Hydraulic Method.
- E. Sod placement shall begin upon arrival on site. Sod shall be placed with no space between edges, and staggered so as to prevent a continuous seam. Sod shall be rolled or hand tamped after placement.

3.02 DRY METHOD

- A. Fertilizing: The fertilizer shall be spread uniformly at the rate of approximately 1 pound per 55 square feet. The fertilizer shall be raked in and thoroughly mixed with the soil to a depth of approximately 2 inches prior to the application of seed or mulch.
- B. Seeding: The seed shall be broadcast uniformly at the rate of approximately 1 pound per 730 square feet. After the seed has been distributed it shall be incorporated into the soil by raking or by other approved methods.
- C. Mulch Application: Mulch shall be applied at the rate approximately 1 pound (air dried weight) per 30 square feet.

3.03 HYDRAULIC METHOD

The hydraulic method shall consist of the uniform application by spraying of a homogeneous mixture of water, seed, fertilizer, and mulch. The slurry shall be prepared by mixing the ingredients in the same proportions as indicated above. The slurry shall have the proper consistency to adhere to the earth slopes without lumping or running. Mixing time of materials shall not exceed 45 minutes from the time the seeds come into contact with the water in the mixer to the complete discharge of the slurry onto the slopes; otherwise the batch shall be recharged with seed. The mixture shall be applied using equipment containing a tank having a built-in, continuous agitation and recirculation system, and a discharge system which will allow application of the slurry to the slopes at a continuous and uniform rate. The application rates of the ingredients shall be the same as those specified for the Dry Method. The nozzle shall produce a spray that does not concentrate the slurry nor erode the soil.

3.04 WATERING

Upon completion of the seeding and/or sodding, the entire area shall be soaked to saturation by a fine spray. The new planting shall be kept watered by a sprinkling system on the Site during dry weather or whenever necessary for proper establishment of the planting until final project acceptance. At no time shall the planting be allowed to dry out. Care shall be taken to avoid excessive washing or puddling on the surface and any such damage caused thereby shall be repaired by the Contractor, at no additional cost to the Owner.

3.05 MAINTENANCE PRIOR TO FINAL ACCEPTANCE

The Contractor shall maintain the planted areas in a satisfactory condition until final acceptance of the project. Such maintenance shall include the filling, leveling, and repairing of any washed or eroded areas, and sufficient watering to maintain the plant materials in a healthy condition. The Engineer may require replanting of any areas in which the establishment of the vegetative ground cover does not appear to be developing satisfactorily.

END OF SECTION

SECTION 02955 – TEMPORARY BYPASS PUMPING

PART 1 – GENERAL

1.01 SCOPE OF WORK

- A. The Contractor shall furnish all labor, materials, equipment, and incidentals required to maintain continuous and reliable temporary bypass pumping service during construction.
- B. The Contractor shall supply pumps, conduits, power, and other equipment to divert the flow of sewage around the area in which Work is to be performed. The bypass pumping system shall be of sufficient capacity to handle the wastewater flows as indicated on the Drawings. The Contractor shall establish adequate bypass pumping to complete the Work and shall anticipate severe weather conditions and increases in peak flows during rain events.
- C. The Contractor shall construct and maintain all temporary bypass sewers and bypass pumping of sewage that may be required to prevent backing up of sewage and allow appropriate conditions for proper inspection, rehabilitation, testing or drainage during construction or reconnections to existing sewers.
- D. The Contractor shall stage redundant bypass pump and standby forces, intake and discharge conduit, and other equipment necessary to provide continuous wastewater flow and prevent the backing up of sewage in the case of emergencies at all times, that may be mobilized to the project and functioning within one hour of notification by Owner; at any time, 24 hours per day, 7 days a week.
- E. Primary bypass pumps shall be critically silenced when used in residential settings or areas where excessive noise levels would create a disturbance. Redundant bypass pumping does not have to be critically silenced.

1.02 SUBMITTALS

- A. The Contractor shall submit to the Engineer for review a schedule to complete the Work. It shall include the sequencing and coordination of connections to existing lines and the handling of wastewater flow during construction. The Contractor shall include the time required for installation of new electrical service from the electric utility company, where applicable.
- B. The design, installation, and operation of the temporary pumping system shall be solely the Contractor's responsibility. The Contractor shall either demonstrate, or employ the services of a subcontractor who can demonstrate, specialization in the design and operation of temporary bypass pumping systems.

C. The Contractor shall prepare a specific, detailed description of the proposed bypass pumping system (Bypass Pumping Plan). The Bypass Pumping Plan shall be submitted and approved prior to the mobilization of any of the equipment included in the Bypass Pumping Plan. The Bypass Pumping Plan shall outline all provisions and precautions to be taken by the Contractor regarding handling of existing wastewater flows. This Bypass Pumping Plan shall be specific and complete, including such items as schedules, locations, elevations, capacities of equipment, materials, and all other incidental items necessary and/or required to ensure proper protection of the facilities, including protection of access and bypass pumping locations for damage due to the discharge flows. The plan shall include, but not be limited to, the following details:

1. Contact information for Contractor including names and 24-hour phone numbers.
2. Staging areas for pumps.
3. Sewer plugging method and types of plugs.
4. Size and location of manholes or access points for suction and discharge hose or piping.
5. Number, size, material, location and method of installation of suction piping.
6. Number, size, material, location and method of installation of discharging piping.
7. Bypass pump sizes, capacities, and number of each size to be provided on-site including all primary, secondary, and spare pumping units.
8. Calculations of static lift, friction losses, and flow velocity (pump curves showing pump, operating range shall be submitted).
9. Thrust and restraint block sizes and locations. Provide the details necessary to demonstrate the integrity of all suction and discharge piping including piping and fittings associated with all primary and secondary pumping units.
10. Sections showing suction and discharge pipe depth, embedment, select fill and special backfill.
11. Method of noise control for each pump and any additional equipment that is included in the Bypass Pumping Plan.
12. Any temporary pipe supports and anchoring requirements.
13. Access plans to all bypass pumping locations indicated on the drawings.
14. Schedule for installation of and maintenance of bypass pumping lines.
15. Plan indicating location of bypass pumping pipe locations.
16. Emergency plan for adverse weather and flooding for various phases of the Work.
17. Plan for providing continuous monitoring of the bypass pumping operation including monitoring personnel qualifications.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 BYPASS PUMPING

- A. No leakage is permitted in temporary sewers. The Contractor shall demonstrate that the pumping system is in good working order and is sufficiently sized to successfully handle flows by performing a test run for a period of 24 hours prior to beginning bypassing operations.
- B. If automatic operation of bypass pumps and temporary sewers is not functioning, the Contractor shall provide on-site manual oversight of all bypass pumping operations 24 hours per day, 7 days per week until automatic operation is restored.
- C. The Contractor shall take care to prevent damage to existing structures. The Contractor shall repair any damage to public or private property caused by the Contractor.
- D. The Contractor shall immediately remove and dispose of all spillage during bypass pumping. The Contractor shall immediately notify the Owner should a sanitary sewer overflow (SSO) occur and take the necessary action to clean up and disinfect the spillage to the satisfaction of the Owner and/or other government agency. If sewage is spilled onto public or private property, the Contractor shall wash down, clean up, and disinfect the spillage to the satisfaction of the property owner, the Owner, and/or other government agency. The Contractor shall pay any fines imposed for spills or overflows that occur as a result of the temporary bypass pumping operations.
- E. The Contractor shall not overflow, bypass, pump or by any other means convey sewage to any land, street, storm drain or water course. No sewage shall be leaked, dumped, or spilled in or onto any area outside the existing wastewater system.
- F. The Contractor shall cease bypass pumping operations only after acceptance of the Work, and as directed by the Owner. When bypass operations are complete, all bypass piping shall be flushed with fresh water and drained into the wastewater system prior to disassembly.
- G. 24-hour monitoring personnel shall be properly trained, experienced, and mechanically qualified such that they can quickly and effectively address any potential emergency and non-emergency situations associated with the pumps and bypass pumping system that remain in operation for an extended period.

END OF SECTION

SECTION 03300 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Scope: Contractor shall provide all labor, materials, equipment and incidentals as shown, specified and required to furnish and install cast-in-place concrete, reinforcement and related materials.
- B. Coordination: Review installation procedures under other Sections and coordinate the installation of items that must be installed in the concrete.

1.02 QUALITY ASSURANCE

- A. Source Quality Control:
 - 1. Concrete Testing Service:
 - a. Owner will employ a testing laboratory to perform materials evaluation, testing and design of concrete mixes.
 - b. Owner's laboratory will also evaluate concrete delivered to and placed at the site.
 - 2. Quality Control: Owner's laboratory will perform sampling and testing during concrete placement, as follows:
 - a. Sampling: ASTM C 172.
 - b. Slump: ASTM C 143, one test for each load at point of discharge.
 - c. Air Content: ASTM C 31, one for each set of compressive strength specimens.
 - d. Compressive Strength: ASTM C 39, one set for each 50 cubic yards or fraction thereof for each class of concrete; a minimum of one set for each pour of structural concrete; 1 specimen tested at 7 days, 2 specimens tested at 28 days.
- B. Reference Standards: Comply with the applicable provisions and recommendations of the following, except as otherwise shown or specified.
 - 1. ACI 301, Specifications for Structural Concrete for Building (includes ASTM Standards referred to herein except ASTM A 36).
 - 2. ACI 347, Recommended Practice for Concrete Formwork.
 - 3. ACI 304, Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete.
 - 4. ACI 315, Manual of Standard Practice for Detailing Reinforced Concrete Structures.
 - 5. ACI 305, Recommended Practice for Hot Weather Concreting.
 - 6. ACI 306, Recommended Practice for Cold Weather Concreting
 - 7. ASTM A36, Structural Steel.
 - 8. Concrete Reinforcing Steel Institute, Manual of Standard Practice, include ASTM Standards referred herein.

1.03 SUBMITTALS

- A. Mix Design: In advance of concrete operations, materials proposed for use in concrete will be sampled and tested to determine their compliance with these specifications. Mix proportions shall be reviewed by the laboratory for each strength and type of concrete required and reports submitted to the Engineer for approval, showing the mix designs. Include the following information in concrete mix design:
1. Proportions of cement, fine and coarse aggregate, and water
 2. Water-cement ratio, 28-day compressive and design strength, slump, and air content
 3. Type of cement and aggregate
 4. Aggregate gradation
 5. Type and dosage of admixtures
 6. Special requirements for pumping
 7. Range of ambient temperature and humidity for which design is valid
 8. Special characteristics of mix which require precautions in mixing, placing, or finishing techniques to achieve finished product specified
- B. Samples: Submit samples of materials as specified and may be requested by the Engineer including names, sources and descriptions.
- C. Shop Drawings: Submit the following for approval in accordance with the General Requirements and with additional requirements as specified.
1. Copies of manufacturer's specifications with application and installation instructions for proprietary materials and items, including admixtures and bonding agents.
 2. Drawings for fabrication, bending, and placement of concrete reinforcement. Comply with ACI 315, Chapters 1 thru 8. For walls, show elevations to a minimum scale of 3/8 inch to 1 foot. Show bar schedules, stirrup spacing, diagrams of bent bars, arrangements and assemblies, as required for the fabrication and placement of concrete reinforcement.
 3. List of concrete materials and concrete mix designs proposed for use. Include the results of all tests performed to qualify the materials and to establish the mix designs in accordance with ACI 301, 3.9. Submit written report to Engineer for each proposed concrete mix at least 15 days prior to start of Work. Do not begin concrete production until mixes have been reviewed and are acceptable to Engineer. Mix designs may be adjusted when material characteristics, job conditions, weather, test results or other circumstances warrant. Do not use revised concrete mixes until submitted to and accepted by Engineer.
- D. Laboratory Test Reports: Submit copies of historical laboratory test reports for concrete cylinders, materials and mix design tests. Production of concrete to comply with specified requirements is the responsibility of the Contractor.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver concrete reinforcement materials to the site bundled, tagged and marked. Use tags indicating bar size, lengths, and other information corresponding to markings shown on placement diagrams.
- B. All materials used for concrete shall be kept clean and free from all foreign matter during transportation and handling and kept separate until measured and placed in the mixer. Bins or platforms having hard clean surfaces shall be provided for storage. Suitable means shall be taken during hauling, piling and handling to insure that segregation of the coarse and fine aggregate particles does not occur and the grading is not affected.

PART 2 - PRODUCTS

2.01 CONCRETE MIX DESIGN

- A. Concrete Paving for Drives: Unless noted otherwise, mix design shall be Type B as defined in the LSSRB, 2016 Edition and latest revisions.
- B. Concrete for Incidentals: Unless noted otherwise, mix design shall be Type M as defined in the LSSRB, 2016 Edition and latest revisions.

2.02 CONCRETE MATERIALS

- A. Portland Cement:
 - 1. Wet Well and Valve Box: ASTM C 150, Type II.
 - 2. All other Uses: ASTM C 150, Type I.
- B. Aggregates: ASTM C33.
 - 1. Fine Aggregate: Clean, sharp, natural sand free from loam, clay, lumps or other deleterious substances. Dune sand, bank run sand and manufactured sand are not acceptable.
 - 2. Coarse Aggregate: Clean, uncoated, processed aggregate containing no clay, mud, loam, or foreign matter, as follows:
 - a. Crushed stone, processed from natural rock or stone.
 - b. Washed gravel, either natural or crushed. Use of slag and pit or bank run gravel is not permitted.
- C. Coarse Aggregate Size: Size to be in accordance with ASTM C33, Nos. 57 or 67, unless permitted otherwise by Engineer.
- D. Water: Clean, potable.
- E. Air-Entraining Admixture: ASTM C 260.
- F. Water-Reducing Admixture: ASTM C 494. Only use admixtures which have been tested and accepted in mix designs.
- G. Slump Limits: Proportion and design mixes to result in concrete slump at the point of placement of not less than one inch and not more than four inches.
- H. Crystalline Waterproofing Admixture: Wet well and valve box shall have admixture included in concrete at time of batching. Admixture shall be at a rate of 15 lbs/cubic yard of concrete and in accordance with the manufacturer's instructions.

1. Manufacturer:
 - a. Xypex,
 - b. Or equal.

2.03 FORM MATERIALS

- A. Provide form materials with sufficient stability to withstand pressure of placed concrete without bow or deflection.
- B. Exposed Concrete Surfaces: Acceptable panel-type to provide continuous, straight, smooth, as-cast surfaces. Use largest practical sizes to minimize form joints.
- C. Unexposed Concrete Surfaces: Suitable material to suit project conditions.
- D. Provide ¾ inch chamfer at all exposed corners.

2.04 REINFORCING MATERIALS

- A. Reinforcing Bars: ASTM A615, Grade 60.
- B. Welded Wire Fabric: ASTM A185.
- C. Steel Wire: ASTM A82.
- D. Supports for Reinforcement: Bolsters, chairs, spacers and other devices for spacing, supporting and fastening reinforcement in place.
 1. Use wire bar type supports complying with CRSI recommendations, except as specified below. Wood, brick, or other unacceptable materials, shall not be used.
 2. For slabs on grade, supports shall have sand plates or horizontal runners where base materials will not support chair legs.
 3. For all concrete surfaces, where legs of supports are in contact with forms, provide supports complying with CRSI, Manual of Standard Practice as follows:
Either hot-dip galvanized, plastic protected or stainless steel legs.

2.05 GROUT

- A. Non-metallic, 100 percent solids, high strength epoxy grout.
 1. Use clean well graded sand with epoxy resins suitable for use on dry or damp surfaces.
 2. Product and Manufacturer; Provide one of the following:
 - a. Euco High Strength Grout by the Euclid Chemical Company.
 - b. Sikadur 42 Grout by Sika Chemical Company.
 - c. Five Star Epoxy Grout by U.S. Grout Corporation.
 - d. Or equal.
- B. Nonshrink, Nonmetallic Grout:
 1. Premixed nonstaining cementitious grout requiring only the addition of water at the job site.
 2. Product and Manufacturer: Provide one of the following:

- a. Euco N-S by the Euclid Chemical Company.
- b. Masterflow 713 by Master Builders Company.
- c. Five Star by U.S. Grout Corporation.
- d. Or equal.

C. Ordinary Cement-Sand Grout:

- 1. Except where otherwise specified use 1 part cement to 3 parts sand complying with the following:
 - a. Cement: ASTM C 150, Type I.
 - b. Sand: ASTM C 33.

2.06 JOINTS

A. Expansion joint filler shall be preformed expansion joint filler complying with ASTM D1752, Type II cork.

B. Joint sealer:

- 1. Exterior and Interior Joints in Horizontal Planes: Two-Component Polyurethane Sealant:
 - a. Polyurethane-based, 2-part elastomeric sealant complying with the following:
 - (1) FS TT-S-00227, Type 1 (self-leveling) Class A.
 - (2) Water Immersion Bond, FS TT-S-00227; Elongation of 25 percent with no adhesive failure.
 - (3) Hardness (Standard Conditions), ASTM C 661: 30-40.
 - (4) Stain and Color Change, FS TT-S-00227 and ASTM C 510: No discoloration or stain.
 - (5) Accelerated Aging, ASTM C 793: No change in sealant characteristics after 250 hours in weatherometer.
 - b. Product and Manufacturer: Provide one of the following:
 - (1) Sonolastic Paving Joint Sealant by Sonneborn Division of Contech Incorporated.
 - (2) Vulkem 255 by Mameco International.
 - (3) Or equal.

PART 3 - EXECUTION

3.01 INSPECTION

The Contractor shall examine the substrate and the conditions under which Work is to be performed and notify the Engineer of unsatisfactory conditions. The Contractor shall not proceed with the Work until unsatisfactory conditions have been corrected in a manner acceptable to Engineer.

3.02 FORMWORK

- A. Formwork: Construct formwork so that concrete members and structures are correct size, shape, alignment, elevation and position, complying with ACI 347.
- B. Provide openings in formwork to accommodate Work of other trades. Accurately place and securely support items built into forms.
- C. Clean and adjust forms prior to concrete placement. Apply form release agents or wet forms, as required. Retighten forms during and after concrete placement if required to eliminate mortar leaks.

3.03 REINFORCEMENT, JOINTS, AND EMBEDDED ITEMS

- A. Comply with the applicable recommendations of specified codes and standards, and ACI Manual No. SP-66, latest edition, for details and methods of reinforcement placement and supports.
- B. Clean reinforcement to remove loose rust and mill scale, earth, ice, and other materials which reduce or destroy bond with concrete.
- C. Position, support, and secure reinforcement against displacement during formwork construction or concrete placement. Locate and support reinforcing by metal chairs, runners, bolsters, spacers and hangers, as required.
 - 1. Place reinforcement to obtain the minimum concrete converges as shown and as specified in ACI 318. Arrange, space, and securely tie bars and bar supports together with 16 gauge wire to hold reinforcement accurately in position during concrete placement operations. Set with ties so that twisted ends are directed away from exposed concrete surfaces.
 - 2. Reinforcing steel shall not be secured to forms with wire, nails or other ferrous metal. Metal supports subject to corrosion shall not touch formed or exposed concrete surfaces.
- D. Provide sufficient numbers of supports of strength required to carry reinforcement. Reinforcing bars shall not be placed more than 2 inches beyond the last leg of any continuous bar support. Supports shall not be used as bases for runways for concrete conveying equipment and similar construction loads.
- E. Splices: Provide standard reinforcement splices by lapping ends, placing bars in contact, and tying tightly with wire. Comply with requirements for minimum lap of spliced bars.
- F. Install welded wire fabric in as long lengths as practical, lapping at least one mesh.
- G. Concrete shall not be placed until the reinforcing steel is inspected and approved by the Engineer for placing concrete. All concrete placed in violation of this provision will be rejected.
- H. Joints: Provide construction, isolation, and control joints as indicated or required. Locate construction joints so as to not impair the strength and appearance of the structure. Place isolation and control joints in slabs on ground to stabilize differential settlement and random cracking.
- I. Installation of Embedded Items: Set and build into the Work anchorage devices and embedded items required for other Work that is attached to, or supported by cast-in-place concrete. Use setting diagrams, templates and instructions provided

under other Sections and other contracts for locating and setting. Refer also to Paragraph 1.01.B., Coordination, above.

3.04 CONCRETE AND PLACEMENT

- A. Only ready-mixed concrete shall be used. It shall be in accordance with ASTM C 94.
- B. Concrete Placement: Comply with ACI 304, placing concrete in a continuous operation within planned joints or sections. Placement shall not begin until work of other trades affecting concrete is completed.
- C. Consolidate placed concrete using mechanical vibrating equipment with hand rodding and tamping, so that concrete is worked around reinforcement and other embedded items and into all parts of forms.
- D. Protect concrete from physical damage or reduced strength due to weather extremes during mixing, placement, and curing.
 - 1. In cold weather comply with ACI 306.
 - 2. In hot weather comply with ACI 305.

3.05 QUALITY OF CONCRETE WORK

- A. Make all concrete solid, compact and smooth, and free of laitance, cracks and cold joints.
- B. Cut out and properly replace to the extent ordered by the Engineer, or repair to the satisfaction of the Engineer, surfaces which contain cracks or voids, are unduly rough, or are in any way defective. Patches or plastering shall not be used.
- C. Repair, removal, and replacement of defective concrete as ordered by the Engineer shall be at no additional cost to the Owner.

3.06 CURING

- A. Begin initial curing after placing and finishing concrete as soon as free water has disappeared from exposed surfaces. Where possible, keep continuously moist for not less than 72 hours. Continue curing with the use of moisture-retaining cover or membrane-forming curing compound. Cure formed surfaces by moist curing until forms are removed. Provide protection as required to prevent damage to exposed concrete surfaces.
- B. Forms on structural walls shall be left in place for a minimum of 72 hours unless a cylinder break indicates the strength of the concrete has reached 75 percent of design strength.
- C. Forms on structural floors and ceiling shall be left in place until a cylinder break indicates the strength of the concrete has reached 85 percent of design strength.

3.07 FINISHES

- A. After placing concrete slabs, do not work the surface further until ready for floating. Begin floating when the surface water has disappeared or when the

concrete has stiffened sufficiently. Check and level the surface plane to a tolerance not exceeding 3 inch in 10 feet when tested with a 10 foot straightedge placed on the surface at not less than 2 different angles. Cut down high spots and fill all low spots. Uniformly slope surfaces to drains. Immediately after leveling, refloat the surface to a uniform, smooth, granular texture.

- B. After floating, begin the first trowel finish operation using a trowel. Begin final troweling when the surface produces a ringing sound as the trowel is moved over the surface.
- i. Consolidate the concrete surface with the final hand troweling operation. Finish shall be free of trowel marks, uniform in texture and appearance, and with a surface plane tolerance not exceeding 1/8 inch in 10 feet when tested with a 10 foot straight edge. Grind smooth surface defects.
 - ii. Use trowel finish for the following: Interior exposed slabs unless otherwise shown or specified.
 - iii. Apply non-slip broom finish to exterior concrete slab and elsewhere as shown on the Drawings.

3.08 GROUT PLACEMENT

General:

1. Place grout as shown and in accordance with manufacturer's instructing. If manufacturer's instructions conflict with the Specifications do not proceed until the Engineer provides clarification.
2. Drypacking shall not be used.
3. Manufacturers of proprietary products shall make available upon 72 hours notification the services of a qualified, full-time employee to aid in assuring proper use of the product under job conditions.
4. Placing grout shall conform to the temperature and weather limitations described in Paragraph 3.04 above.

END OF SECTION

SECTION 03400 - PRECAST CONCRETE

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Scope: The Contractor shall furnish all labor, materials, equipment, and incidentals necessary to provide all precast concrete structures, including wet wells, valve boxes and manholes as shown on the Drawings and specified herein.
- B. General:
 - 1. Structures shall conform in shape, size, dimensions, material, and other respects to the details shown on the Drawings or as ordered by the Engineer.
 - 2. Metal frames, grates, covers, and similar required items shall be as shown and as specified herein.
 - 3. Inverts shall conform accurately to the size and elevation of the adjoining pipes. Side inverts shall be curved and main inverts, where direction changes, shall be laid out in smooth curves of the longest possible radius which is tangent to the centerlines of adjoining pipelines.
- C. Related Work Specified Elsewhere:
 - 1. Section 02300, Excavation and Backfill
 - 2. Section 02530, Gravity Sewer
 - 3. Section 11310, Submersible Wastewater Pumps

1.02 QUALITY ASSURANCE

Reference Standards:

- A. ASTM C 478, Precast Reinforced Concrete Manhole Sections.
- B. ASTM A 536, Standard Specification for Ductile Iron Castings.
- C. LSSRB, 2016 edition.

1.03 SUBMITTALS

- A. Samples: Submit for approval samples of mastic joint material and all accessories required for the manholes, if requested by Engineer.
- B. Shop Drawings:
 - 1. Submit for approval Shop Drawings of design and construction details of all precast concrete structures, including covers and hatches certified by a professional engineer licensed in the State of Louisiana.
 - 2. Submit manufacturer's data on interior lining material, preformed mastic joint material and rubber manhole boots, manhole water stops, and/or lateral connectors.
- C. The Contractor shall submit an affidavit from the coating applicator that each precast concrete section and special has been coated in accordance with these specifications.

- D. Submit test results as described in paragraph 3.07.

PART 2 – PRODUCTS

2.01 PRECAST CONCRETE MANHOLES

- A. The following applies to precast manholes, wet well, and valve pit.
- B. Concrete shall be Class P, according to the LSSRB. Use Type II Portland cement.
- C. Precast manholes shall conform to the details shown on the Drawings. Manhole bases may be precast unless cast-in-place is required by the Drawings.
- D. Except where otherwise specified, manhole sections shall conform to ASTM C 478.
- E. Precast manhole bases shall be of approved design and of sufficient strength to withstand the loads to be imposed upon them. Provide thicknesses as shown on the Contract Drawings or as recommended by the manufacturer. An approved joint shall be provided to receive the riser sections forming the barrel.
- F. The date of manufacture and the name or trademark of the manufacturer shall be marked on inside of the barrel.
- G. Unless a larger size is required by the Drawings, the barrel of precast manholes shall be constructed of 48-inch diameter standard reinforced concrete manhole sections. The barrel shall be constructed of various lengths in combination to provide the correct height with the fewest joints. Wall sections shall not be less than five inches thick.
- H. Joints shall be tongue and groove with preformed mastic joint compound or rubber and concrete using O-ring gaskets conforming with ASTM C-443. For rubber ring joints, the base of the bell shall be buttered with 1 to 2 cement mortar to provide a uniform bearing for the spigot of the entering pipe.
- I. A precast slab or precast eccentric cone, as shown or approved, shall be provided at the top of the manhole barrel to receive the cast iron frame and cover. The slab or cone shall be of acceptable design and of sufficient strength to safely support an H-20 loading. Concrete slabs shall be not less than eight inches thick.
- J. Manhole sections shall contain manhole steps, uniformly spaced, 12 inches minimum, 16 inches maximum on centers, accurately positioned and embedded in the concrete.
- K. Lifting holes in the manhole base or riser section will not be allowed.
- L. Where indicated on the drawings, manholes shall be coated in accordance with Section 09800. Coating shall be applied in the factory. Joints shall be retouched as required after installation.
- M. Admixture Crystalline Concrete Waterproofing:
 - 1. Wet well, valve box, and manhole concrete shall include admixture of cementitious crystalline waterproofing.
 - 2. The cementitious crystalline waterproofing shall be included in the concrete mix at the time of batching.
 - 3. Manufacturer:
 - (a) Xypex,
 - (b) Or equal.

4. Precast concrete shall utilize Xypex Admixture C-1000R (or equal) at a rate of 20 lbs/cubic yard of concrete and in accordance with the manufacturer's instructions. Red dye is used for field verification.

2.02 MANHOLE FRAMES AND COVERS

Provide manhole frames with covers as follows:

- A. Heavy Duty Frame and Cover: As shown on the drawings.
- B. Fabricate castings true to pattern so that component parts fit together.
- C. Identification Markings: All markings shall be subject to review by the Engineer.

2.03 PRECAST CONCRETE WET WELL AND VALVE BOX

- A. Concrete shall be Class P, according to the Louisiana Standard Specifications for Roads and Bridges, 2016 edition. Use Type II Portland cement.
- B. Precast structures shall conform to the details shown on the Drawings.
- C. If precast bases and/or top slabs are substituted for cast-in-place, they shall be of approved design and of sufficient strength to withstand the loads to be imposed upon them. Top slabs shall be proportioned in accordance with ACI 318 to match the nominal strength of the cast-in-place sections shown on the drawings. A licensed engineer in the State of Louisiana shall sign and seal the shop drawings if deviations from the cast-in-place sections shown on the Drawings are proposed. An approved joint shall be provided to receive the riser sections forming the barrel.
- D. The date of manufacture and the name or trademark of the manufacturer shall be marked on inside of precast sections.
- E. Joints shall be tongue and groove with preformed mastic joint compound or rubber and concrete using O-ring gaskets conforming to ASTM C-443. For rubber ring joints, the base of the bell shall be buttered with 1 to 2 cement mortar to provide a uniform bearing for the spigot of the entering pipe.
- F. Lifting holes in the manhole base or riser section will not be allowed.
- G. A 4" ductile iron vent pipe shall be supplied as shown on the Drawings. The insect screen shall be 16 mesh Type 316 stainless steel.
- J. Admixture Crystalline Concrete Waterproofing shall be in accordance with the system as specified in paragraph 2.01 M.

2.05 DROP INLET CONNECTIONS

Drop inlet connections for manholes shall be constructed where shown on the Drawings and shall conform to the design and details shown on the Drawings. Pipe and fittings

shall be same as inlet pipe. Concrete shall be bonded to manhole in a manner shown or otherwise approved by ENGINEER.

2.06 RUBBER MANHOLE BOOTS

- A. Rubber manhole boots complying with ASTM C923 shall be employed in the connection of each gravity sewer pipe with an outside diameter less than 59 inches to precast wall sections.
- B. The connector shall consist of rubber EPDM and elastomers designed to resist ozone, acids, alkalis, oils and petroleum products.
- C. The banding mechanism shall be Type 304 stainless steel and torqued for 60-70 inch/lbs.
- D. Manufacturer:
 - 1. Kor-N-Seal.
 - 2. Or equal.

PART 3 - EXECUTION

3.01 LAYING MASONRY

Each grading ring shall be laid in a full bed of mortar and shall be thoroughly bonded.

3.02 PLASTERING

The outside of grading rings shall be neatly plastered with 2 inch of cement mortar as the Work progresses.

3.03 PRECAST MANHOLE BASES

Precast bases shall be set on a concrete foundation or compacted granular material as shown on the Drawings. Precast bases shall be set at the proper grade and carefully leveled and aligned.

3.04 VERTICAL PRECAST SECTIONS

- A. Set sections vertical with sections in true alignment.
- B. Install sections in accordance with manufacturers' recommendations.

3.05 MANHOLE CHANNELS

- A. For straight through flow, inverts shall be formed of concrete and shall be given a hard trowel finish.
- B. Where side channels and curved sections occur, the channels within the manholes shall be formed of concrete and shall be given a hard trowel finish.
- C. Inverts shall be coated as specified in Paragraph 2.01.

3.06 GRADING RINGS

Grading rings shall be used for all precast manholes where required. Stacks shall be a maximum of 12 inches in height and shall be constructed on the roof slab or cone section on which the manhole frame and cover shall be placed. The height of the stack shall be such as is necessary to bring the manhole frame to the proper grade.

3.07 TESTING

- A. All structures (manholes, wet well, valve box) shall be free of visible leakage.
- B. All structures shall be tested for leakage by applying a vacuum of at least 10 inches of mercury to each assembled structure.
- C. The structure shall be considered acceptable if the time required for a 1-inch drop in mercury meets or exceeds the values listed in Table 1 of ASTM C1244 "Standard Test Method for Concrete Sewer Manhole".
- D. All pipes entering the structure shall be plugged, taking care to securely brace the plug from being drawn in during the test.
- E. If the structure fails the initial test, the Contractor shall locate the leak(s) and make the appropriate repairs acceptable to the Engineer in preparation for additional tests.
- F. Retesting shall be required until a satisfactory test is obtained.
- G. In the event that a structure is adjusted or damaged after the vacuum test is completed, the structure shall be retested.
- H. The tests shall be conducted in the presence of the Engineer and a complete written and tabulated report of the tests shall be prepared by the Contractor and submitted to the Engineer.

END OF SECTION

THIS PAGE LEFT BLANK INTENTIONALLY

SECTION 05120 – STRUCTURAL STEEL FRAMING

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Structural steel.
 - 2. Shrinkage-resistant grout.
- B. Related Requirements:
 - 1. Section 055000 "Metal Fabrications" for steel lintels and shelf angles not attached to structural-steel frame, miscellaneous steel fabrication and other steel items not defined as structural steel.

1.02 DEFINITIONS

- A. Structural Steel: Elements of the structural frame indicated on Drawings and as described in ANSI/AISC 303.

1.03 COORDINATION

- A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written recommendations to ensure that shop primers and topcoats are compatible with one another.
- B. Coordinate installation of anchorage items to be embedded in or attached to other construction without delaying the Work. Provide setting diagrams, sheet metal templates, instructions, and directions for installation.

1.04 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: See preconstruction meeting requirements.

1.05 ACTION SUBMITTALS

- A. Product Data:
 - 1. Structural-steel materials.
 - 2. High-strength, bolt-nut-washer assemblies.
 - 3. Anchor rods.
 - 4. Threaded rods.
 - 5. Shop primer.

6. Galvanized-steel primer.
 7. Etching cleaner.
 8. Galvanized repair paint.
 9. Shrinkage-resistant grout.
- B. Shop Drawings: Show fabrication of structural-steel components.
1. Include details of cuts, connections, splices, camber, holes, and other pertinent data.
 2. Include embedment Drawings.
 3. Indicate welds by standard AWS symbols, distinguishing between shop and field welds, and show size, length, and type of each weld. Show backing bars that are to be removed and supplemental fillet welds where backing bars are to remain.
 4. Indicate type, size, and length of bolts, distinguishing between shop and field bolts. Identify pretensioned and slip-critical, high-strength bolted connections.
 5. Identify members not to be shop primed.

1.06 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer, fabricator, shop-painting applicators, and testing agency.
- B. Welding certificates.
- C. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers, certifying that shop primers are compatible with topcoats.
- D. Mill test reports for structural-steel materials, including chemical and physical properties.
- E. Product Test Reports: For the following:
 1. Bolts, nuts, and washers, including mechanical properties and chemical analysis.
 2. Direct-tension indicators.
 3. Tension-control, high-strength, bolt-nut-washer assemblies.
- F. Survey of existing conditions.
- G. Source quality-control reports.
- H. Field quality-control reports.

1.07 QUALITY ASSURANCE

- A. Fabricator Qualifications: A qualified fabricator that participates in the AISC Quality Certification Program and is designated an AISC-Certified Plant,

Category BU or is accredited by the IAS Fabricator Inspection Program for Structural Steel (Acceptance Criteria 172).

- B. Installer Qualifications: A qualified Installer who participates in the AISC Quality Certification Program and is designated an AISC-Certified Erector.
- C. Shop-Painting Applicators: Qualified in accordance with AISC's Sophisticated Paint Endorsements or to SSPC-QP 3.
- D. Welding Qualifications: Qualify procedures and personnel in accordance with AWS D1.1/D1.1M.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Store materials to permit easy access for inspection and identification. Keep steel members off ground and spaced by using pallets, dunnage, or other supports and spacers. Protect steel members and packaged materials from corrosion and deterioration.
 - 1. Do not store materials on structure in a manner that might cause distortion, damage, or overload to members or supporting structures. Repair or replace damaged materials or structures as directed.
- B. Store fasteners in a protected place in sealed containers with manufacturer's labels intact.
 - 1. Fasteners may be repackaged provided Owner's testing and inspecting agency observes repackaging and seals containers.
 - 2. Clean and relubricate bolts and nuts that become dry or rusty before use.
 - 3. Comply with manufacturers' written recommendations for cleaning and lubricating ASTM F3125/F3125M, Grade F1852 bolt assemblies and for retesting bolt assemblies after lubrication.

PART 2 - PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

- A. Comply with applicable provisions of the following specifications and documents:
 - 1. ANSI/AISC 303.
- B. Connection Design Information:
 - 1. Design connections and final configuration of member reinforcement at connections in accordance with ANSI/AISC 303 by fabricator's qualified professional engineer.

2.02 STRUCTURAL-STEEL MATERIALS

- A. W-Shapes: ASTM A992/A992M, Grade 50
- B. Channels, Angles ASTM A36/A36M.
- C. Plate and Bar: ASTM A36/A36M.
- D. Corrosion-Resisting (Weathering) Structural-Steel Shapes, Plates, and Bars: ASTM A588/A588M, 50 ksi.
- E. Cold-Formed Hollow Structural Sections: ASTM A500/A500M, Grade B structural tubing.
- F. Corrosion-Resisting (Weathering), Cold-Formed Hollow Structural Sections: ASTM A847/A847M structural tubing.
- G. Steel Pipe: ASTM A53/A53M, Type E or Type S, Grade B.
 - 1. Weight Class: as indicated on drawings.
- H. Welding Electrodes: Comply with AWS requirements.

2.03 BOLTS AND CONNECTORS

- A. High-Strength A325 Bolts, Nuts, and Washers: ASTM F3125/F3125M, Grade A325 (Grade A325M), Type 1, heavy-hex steel structural bolts; ASTM A563, Grade DH (ASTM A563M, Class 10S), heavy-hex carbon-steel nuts; and ASTM F436/F436M, Type 1, hardened carbon-steel washers; all with plain finish.
 - 1. Direct-Tension Indicators: ASTM F959/F959M, Type 325-1 (Type 8.8-1), compressible-washer type with plain finish.
- B. High-Strength A490 Bolts, Nuts, and Washers: ASTM F3125/F3125M, Grade A490 (Grade A490M), Type 1, heavy-hex steel structural bolts **or** ASTM A563, Grade DH (ASTM A563M, Class 10S), heavy-hex carbon-steel nuts; and ASTM F436/F436M, Type 1, hardened carbon-steel washers; all with plain finish.
 - 1. Direct-Tension Indicators: ASTM F959/F959M, Type 490-1 (Type 10.9-1), compressible-washer type with plain finish.
- C. Zinc-Coated High-Strength A325 Bolts, Nuts, and Washers: ASTM F3125/F3125M, Grade A325 (Grade A325M), Type 1, heavy-hex steel structural bolts; ASTM A563, Grade DH (ASTM A563M, Class 10S), heavy-hex carbon-steel nuts; and ASTM F436/F436M, Type 1, hardened carbon-steel washers.
 - 1. Finish: Hot-dip zinc coating

2. Direct-Tension Indicators: ASTM F959/F959M, Type 325-1 (Type 8.8-1), compressible-washer type with mechanically deposited zinc coating.
- D. Tension-Control, High-Strength Bolt-Nut-Washer Assemblies: ASTM F3125/F3125M, Grade F1852, Type 1, heavy-hex round head assemblies, consisting of steel structural bolts with splined ends; ASTM A563, Grade DH (ASTM A563M, Class 10S), heavy-hex carbon-steel nuts; and ASTM F436/F436M, Type 1, hardened carbon-steel washers.
- E. Shear Stud Connectors: ASTM A108, AISI C-1015 through C-1020, headed-stud type, cold-finished carbon steel; AWS D1.1/D1.1M, Type B.

2.04 RODS

- A. Unheaded Anchor Rods: ASTM F1554, Grade 36
 1. Nuts: ASTM A563 (ASTM A563M) [heavy-]hex carbon steel.
 2. Plate Washers: ASTM A36/A36M carbon steel.
 3. Washers: ASTM F436 (ASTM F436M), Type 1, hardened carbon steel.
 4. Finish: [Hot-dip zinc coating, ASTM A153/A153M, Class C]
- B. Headed Anchor Rods: ASTM F1554, Grade 36 straight.
 1. Nuts: ASTM A563 (ASTM A563M) heavy-hex carbon steel.
 2. Plate Washers: ASTM A36/A36M carbon steel.
 3. Washers: ASTM F436 (ASTM F436M), Type 1, hardened carbon steel.
 4. Finish: Hot-dip zinc coating, ASTM A153/A153M, Class C
- C. Threaded Rods: ASTM A36/A36M
 1. Nuts: ASTM A63 (ASTM A563M) heavy-hex carbon steel.
 2. Washers: [ASTM F436 (ASTM F436M), Type 1, hardened] ASTM A36/A36M carbon steel.
 3. Finish: Hot-dip zinc coating, ASTM A153/A153M, Class C

2.05 FORGED-STEEL STRUCTURAL HARDWARE

- A. Clevises and Turnbuckles: Made from cold-finished carbon-steel bars, ASTM A108, AISI C-1035.
- B. Eye Bolts and Nuts: Made from cold-finished carbon-steel bars, ASTM A108, AISI C-1030.
- C. Sleeve Nuts: Made from cold-finished carbon-steel bars, ASTM A108, AISI C-1018.

2.06 PRIMER

- A. Steel Primer:
 - 1. SSPC-Paint 23, latex primer.
 - 2. Fabricator's standard lead- and chromate-free, nonasphaltic, rust-inhibiting primer complying with MPI#79 and compatible with topcoat.
- B. Galvanized-Steel Primer:
 - 1. Etching Cleaner: MPI#25, for galvanized steel.
 - 2. Galvanizing Repair Paint: MPI#18, MPI#19, per ASTM A780/A780M.

2.07 SHRINKAGE-RESISTANT GROUT

- A. Metallic, Shrinkage-Resistant Grout: ASTM C1107/C1107M, factory-packaged, metallic aggregate grout, mixed with water to consistency suitable for application and a 30-minute working time.
- B. Nonmetallic, Shrinkage-Resistant Grout: ASTM C1107/C1107M, factory-packaged, nonmetallic aggregate grout, noncorrosive and nonstaining, mixed with water to consistency suitable for application and a 30-minute working time.

2.08 FABRICATION

- A. Structural Steel: Fabricate and assemble in shop to greatest extent possible. Fabricate in accordance with ANSI/AISC 303 and to ANSI/AISC 360.
 - 1. Camber structural-steel members where indicated.
 - 2. Fabricate beams with rolling camber up.
 - 3. Identify high-strength structural steel in accordance with ASTM A6/A6M and maintain markings until structural-steel framing has been erected.
 - 4. Mark and match-mark materials for field assembly.
 - 5. Complete structural-steel assemblies, including welding of units, before starting shop-priming operations.
- B. Thermal Cutting: Perform thermal cutting by machine to greatest extent possible.
 - 1. Plane thermally cut edges to be welded to comply with requirements in AWS D1.1/D1.1M.
- C. Bolt Holes: Cut, drill, or punch standard bolt holes perpendicular to metal surfaces.
- D. Finishing: Accurately finish ends of columns and other members transmitting bearing loads.
- E. Steel Wall-Opening Framing: Select true and straight members for fabricating steel wall-opening framing to be attached to structural-steel frame. Straighten as

required to provide uniform, square, and true members in completed wall framing. Build up welded framing, weld exposed joints continuously, and grind smooth.

- F. Welded-Steel Door Frames: Build up welded-steel door frames attached to structural-steel frame. Weld exposed joints continuously and grind smooth. Plug-weld fixed steel bar stops to frames. Secure removable stops to frames with countersunk machine screws, uniformly spaced not more than 10 inches o.c. unless otherwise indicated on Drawings.
- G. Holes: Provide holes required for securing other work to structural steel and for other work to pass through steel members.
 - 1. Cut, drill, or punch holes perpendicular to steel surfaces. Do not thermally cut bolt holes or enlarge holes by burning.
 - 2. Baseplate Holes: Cut, drill, mechanically thermal cut, or punch holes perpendicular to steel surfaces.
 - 3. Weld threaded nuts to framing and other specialty items indicated to receive other work.

2.09 SHOP CONNECTIONS

- A. High-Strength Bolts: Shop install high-strength bolts in accordance with RCSC's "Specification for Structural Joints Using High-Strength Bolts" for type of bolt and type of joint specified.
 - 1. Joint Type: Snug tightened or Pretensioned
- B. Weld Connections: Comply with AWS D1.1/D1.1M for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.
 - 1. Assemble and weld built-up sections by methods that maintain true alignment of axes without exceeding tolerances in ANSI/AISC 303 for mill material.

2.10 GALVANIZING

- A. Hot-Dip Galvanized Finish: Apply zinc coating by the hot-dip process to structural steel in accordance with ASTM A123/A123M.
 - 1. Fill vent and drain holes that are exposed in the finished Work unless they function as weep holes, by plugging with zinc solder and filing off smooth.
 - 2. Galvanize lintels, shelf angles and welded door frames attached to structural-steel frame and located in exterior walls.

2.11 SHOP PRIMING

- A. Shop prime steel surfaces, except the following:
 - 1. Surfaces embedded in concrete or mortar. Extend priming of partially embedded members to a depth of 2 inches.

2. Surfaces to be field welded.
 3. Surfaces of high-strength bolted, slip-critical connections.
 4. Surfaces to receive sprayed fire-resistive materials (applied fireproofing).
 5. Galvanized surfaces unless indicated to be painted.
 6. Corrosion-resisting (weathering) steel surfaces.
 7. Surfaces enclosed in interior construction.
- B. Surface Preparation of Steel: Clean surfaces to be painted. Remove loose rust and mill scale and spatter, slag, or flux deposits. Prepare surfaces in accordance with the following specifications and standards:
1. SSPC-SP 2.
 2. SSPC-SP 3.
 3. SSPC-SP 11.
 4. SSPC-SP 10 (WAB)/NACE WAB-2.
 5. SSPC-SP 5 (WAB)/NACE WAB-1.
 6. SSPC-SP 8.
- C. Surface Preparation of Galvanized Steel: Prepare galvanized-steel surfaces for shop priming by thoroughly cleaning steel of grease, dirt, oil, flux, and other foreign matter, and treating with etching cleaner or in accordance with SSPC-SP 16.
- D. Priming: Immediately after surface preparation, apply primer in accordance with manufacturer's written instructions and at rate recommended by SSPC to provide a minimum dry film thickness of 1.5 mils. Use priming methods that result in full coverage of joints, corners, edges, and exposed surfaces.
1. Stripe paint corners, crevices, bolts, welds, and sharp edges.
 2. Apply two coats of shop paint to surfaces that are inaccessible after assembly or erection. Change color of second coat to distinguish it from first.

2.12 SOURCE QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to perform shop tests and inspections.
1. Allow testing agency access to places where structural-steel work is being fabricated or produced to perform tests and inspections.
 2. Bolted Connections: Inspect and test shop-bolted connections in accordance with RCSC's "Specification for Structural Joints Using High-Strength Bolts."
 3. Welded Connections: Visually inspect shop-welded connections in accordance with AWS D1.1/D1.1M and the following inspection procedures, at testing agency's option:
 4. Prepare test and inspection reports.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify, with certified steel erector present, elevations of concrete- and masonry-bearing surfaces and locations of anchor rods, bearing plates, and other embedment's for compliance with requirements.
 - 1. Prepare a certified survey of existing conditions. Include bearing surfaces, anchor rods, bearing plates, and other embedment's showing dimensions, locations, angles, and elevations.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Provide temporary shores, guys, braces, and other supports during erection to keep structural steel secure, plumb, and in alignment against temporary construction loads and loads equal in intensity to design loads. Remove temporary supports when permanent structural steel, connections, and bracing are in place unless otherwise indicated on Drawings.

3.03 ERECTION

- A. Set structural steel accurately in locations and to elevations indicated and in accordance with ANSI/AISC 303 and ANSI/AISC 360.
- B. Baseplates Bearing Plates and Leveling Plates: Clean concrete- and masonry-bearing surfaces of bond-reducing materials, and roughen surfaces prior to setting plates. Clean bottom surface of plates.
 - 1. Set plates for structural members on wedges, shims, or setting nuts as required.
 - 2. Weld plate washers to top of baseplate.
 - 3. [Snug-tighten] or [Pretension] anchor rods after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of plate before packing with grout.
 - 4. Promptly pack shrinkage-resistant grout solidly between bearing surfaces and plates, so no voids remain. Neatly finish exposed surfaces; protect grout and allow to cure. Comply with manufacturer's written installation instructions for grouting.
- C. Maintain erection tolerances of structural steel within ANSI/AISC 303.
- D. Align and adjust various members that form part of complete frame or structure before permanently fastening. Before assembly, clean bearing surfaces and other

surfaces that are in permanent contact with members. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.

1. Level and plumb individual members of structure. Slope roof framing members to slopes indicated on Drawings.
2. Make allowances for difference between temperature at time of erection and mean temperature when structure is completed and in service.

E. Splice members only where indicated.

F. Do not enlarge unfair holes in members by burning or using drift pins. Ream holes that must be enlarged to admit bolts.

3.04 FIELD CONNECTIONS

- A. High-Strength Bolts: Install high-strength bolts in accordance with RCSC's "Specification for Structural Joints Using High-Strength Bolts" for bolt and joint type specified.
 1. Joint Type: Snug tightened or Pretensioned.
- B. Weld Connections: Comply with AWS D1.1/D1.1M for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.
 1. Comply with ANSI/AISC 303 and ANSI/AISC 360 for bearing, alignment, adequacy of temporary connections, and removal of paint on surfaces adjacent to field welds.
 2. Remove backing bars or runoff tabs, back gouge, and grind steel smooth.
 3. Assemble and weld built-up sections by methods that maintain true alignment of axes without exceeding tolerances in ANSI/AISC 303 for mill material.

3.05 REPAIR

- A. Galvanized Surfaces: Clean areas where galvanizing is damaged or missing, and repair galvanizing to comply with ASTM A780/A780M.
- B. Touchup Painting:
 1. Immediately after erection, clean exposed areas where primer is damaged or missing, and paint with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
 - a. Clean and prepare surfaces by SSPC-SP 2 hand-tool cleaning or SSPC-SP 3 power-tool cleaning.

3.06 FIELD QUALITY CONTROL

- A. Special Inspections: Owner will engage a special inspector to perform the following special inspections:

1. Verify structural-steel materials and inspect steel frame joint details.
 2. Verify weld materials and inspect welds.
 3. Verify connection materials and inspect high-strength bolted connections.
- B. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
1. Bolted Connections: Inspect and test bolted connections in accordance with RCSC's "Specification for Structural Joints Using High-Strength Bolts."
 2. Welded Connections: Visually inspect field welds in accordance with AWS D1.1/D1.1M.

END OF SECTION

THIS PAGE LEFT BLANK INTENTIONALLY

SECTION 05500 - MISCELLANEOUS METALS

PART 1 - GENERAL

1.01 REQUIREMENT

The CONTRACTOR shall provide miscellaneous metalwork and appurtenances, complete and in place, in accordance with the Contract Documents. This Section includes the requirements for handrailing and grating.

1.02 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

A. Federal Specifications

MIL-G-18015 A(3) (Ships) Aluminum Planks. (6063-T6)

MIL-A-907E Antiseize Thread Compound, High Temperature

B. Commercial Standards

AA-M32C22A41 Aluminum Association

AASHTO HS-20 Truck Loading

AISC Manual of Steel Construction

ASTM A 48 Gray Iron Castings

ASTM A 193 Alloy Steel and Stainless Steel Bolting Materials for High Temperature Service

ASTM A 194 Carbon and Alloy Steel Nuts for Bolts for High Pressure and High Temperature Service

1.03 CONTRACTOR SUBMITTALS

A. The CONTRACTOR shall furnish submittals in accordance with Section 01300 - Shop Drawings, Product Data, and Samples.

B. Shop Drawings: Shop Drawings shall conform to AISC recommendations and specifications and shall show holes, etc. required for other parts of the WORK. Drawings shall include complete details of members and connections, anchor bolt layouts, schedules for fabrication procedures, and diagrams for the sequence of erection.

1. Layout drawings for ladders, railings, grating, showing the direction of

span, type and depth of grating, size and shape of grating panels, seat angle details, and details of grating hold down fasteners. Load and deflection tables shall be submitted for each style and depth of grating used.

PART 2 - PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. **Stainless Steel:** Unless otherwise indicated, stainless steel metalwork and bolts shall be of Type 316 stainless steel.
- B. **Aluminum:** Unless otherwise indicated, aluminum metalwork shall be of Alloy 6061-T6. Aluminum in contact with concrete, masonry, wood, porous materials, or dissimilar metals shall have contact surfaces coated in accordance with manufacturer's recommendations.

2.02 ALUMINUM RAILINGS

- A. **General:** Aluminum handrails and railings shall be component systems complete with anchors, attachments, balusters, brackets, caps, fasteners, gates (swing with self-latching hardware or be removable), posts, sleeves, trim, and any other related items required or necessary for a complete installation. Gates and removable rail sections shall be complete with hardware such as self-closing hinges, self-latching latches, hasps, etc. Railings shall conform to the Building Code and OSHA General Industry Occupational Safety and Health Standards (29CFR1910).
- B. **Materials:** Materials shall conform to the following:
 - 1. **Aluminum:** Aluminum shall be U.S. Alloy 6063 T-5 or T-6. Aluminum pipe rail shall not be less than 1-1/2 inch diameter Schedule 40 pipe.
 - 2. **Electrolysis Protection:** Electrolysis protective material shall be used for surfaces in contact with dissimilar metals and concrete.
 - 3. **Sleeves:** Sleeves shall be of galvanized steel or PVC.
 - 4. **Grout:** Grout for handrail posts shall consist of an inorganic, non-shrink, non-metallic premixed grout in accordance with Section 03300 - Cast In Place Concrete with a minimum 28 Day compressive strength of 4,000 psi.
 - 5. **Fasteners:** Fasteners, screws, and bolts shall be concealed and shall be of stainless steel or aluminum.
 - 6. **Welding Rods:** Aluminum welding rods shall be of a type recommended by the aluminum manufacturer for anodized finished products.
 - 7. **Kickplates:** Kickplates shall be provided on railings, not set in curbs.
- C. **Finishes:** Pipe railing system including handrails, railings, tube caps, and other miscellaneous parts of rails shall be provided with a clear anodized finish, AA-

M32C22A41.

- D. Manufacturers or Equal,
 - 1. C-V Pipe Rail by Crane Veyor Corp.
 - 2. Connectorail by Julius Blum and Co.

2.3 METAL GRATING

- A. General: Metal grating shall be of the design, sizes, and types indicated. Grating shall be completely banded at edges and cutouts using material and cross section equivalent to the bearing bars. Such banding shall be welded to each cut bearing bar. Grating shall be supported around an opening by support members. Where grating is supported on concrete, embedded support angles matching grating material shall be used, unless indicated otherwise. Such angles shall be mitered and welded at corners.
 - 1. Pieces of grating shall be fastened in 2 locations to each support.
 - 2. Where grating forms the landing at the top of a stairway, the edge of the grating that forms the top riser shall have an integral non-slip nosing, width equal to that of the stairway.
 - 3. Where grating depth is not given, grating shall be provided that will be within allowable stress levels and which shall not exceed a deflection of 1/4-inch or the span divided by 180, whichever is less. For standard duty plank and safety grating, the loading to be used for determining stresses and deflections shall be the uniform live load of the adjacent floor or 100 psf, whichever is greater or a concentrated load of 1000 pounds. For heavy duty grating, the loading used for determining stresses and deflections shall be AASHTO HS-20. The minimum depth shall be one inch.
- B. Material
 - 1. Except where indicated otherwise, bar grating shall be fabricated entirely of aluminum as follows: Bearing and banding bars, alloy 6061-T6; cross bars, alloy 6063-T5.
 - 2. Safety grating shall be fabricated of aluminum alloy 5052-H32.
 - 3. Plank grating shall be fabricated of aluminum alloy 6063-T6.
 - 4. Grating that may be partially or wholly submerged shall be fabricated entirely of stainless steel, Type 316.
- C. Standard-Duty Grating
 - 1. No single piece of grating shall weigh more than 80 pounds, unless indicated otherwise. Standard duty grating shall be serrated bar grating.
 - 2. Cross bars shall be welded or mechanically locked tightly into position so that there is no movement allowed between bearing and cross bars.
- D. Safety Grating: Safety grating shall be made of sheet metal punched into an open serrated diamond pattern and be formed into plank sections. The open diamond

shapes shall be approximately 1-7/8 inch by 11/16-inch in size. Safety grating shall be Grip Strut by Metal Products Division, United States Gypsum Company; Deck Span by IKG Industries, or equal.

- E. Plank Grating: Plank grating shall be extruded in 6-inch widths with a minimum of 6 integral 1-bar type bearing bars per plank. The top surface shall be solid with raised ribs, unless indicated otherwise. Where punched grating is required, the top surface shall be provided with a pattern of 3-inch by 19/32-inch rectangular openings spaced at 4-inches on center. The planks shall have continuous tongue and groove type interlock at each side, except that interlocking planks shall be arranged so that any 4-foot wide section may be removed independently from the other grating sections. Plank grating shall be provided with a clear anodized finish, except that punched grating may have standard mill finish.

2.3 BOLTS AND ANCHORS

- A. Standard Service (Non-Corrosive Application): Unless otherwise indicated, bolts, anchor bolts, washers, and nuts shall be steel as indicated. Threads on galvanized bolts and nuts shall be formed with suitable taps and dies such that they retain their normal clearance after hot-dip galvanizing. Except as otherwise indicated, steel for bolt material, anchor bolts, and cap screws shall be in accordance with the following:
 - 1. Structural connections: ASTM A 307, Grade A or B, hot-dip galvanized.
 - 2. Anchor Bolts: ASTM A 307, Grade A or B, or ASTM A 36, hot-dip galvanized.
 - 3. High strength bolts where indicated: ASTM A 325.
 - 4. Pipe and equipment flange bolts: ASTM A 193, Grade B-7.
- C. Corrosive Service: Bolts, nuts, and washers in the locations listed below shall be stainless steel as indicated.
 - 1. Buried locations.
 - 2. Submerged locations.
 - 3. Locations subject to seasonal or occasional flooding.
 - 4. Inside hydraulic structures below the top of the structure.
 - 5. Inside buried vaults, manholes, and structures that do not drain through a gravity sewer or to a sump with a pump.
 - 6. Chemical handling areas.
 - 7. Inside trenches, containment walls, and curbed areas.
 - 8. Locations indicated by the Contract Documents or designated by the ENGINEER to be provided with stainless steel bolts.

Unless otherwise indicated, stainless steel bolts, anchor bolts, nuts, and washers shall be Type 316 stainless steel, Class 2, conforming to ASTM A 193 for bolts and to ASTM A 194 for nuts. Threads on stainless steel bolts shall be protected with an antiseize lubricant suitable for submerged stainless steel bolts, to meet government specification MIL-A-907E. Buried bolts in poorly drained soil shall

be coated the same as the buried pipe.

1. Antiseize lubricant shall be classified as acceptable for potable water use by the NSF.
2. Antiseize lubricant shall be "PURE WHITE" by Anti-Seize Technology, Franklin Park, IL, 60131, AS-470 by Dixon Ticonderoga Company, Lakehurst, NJ, 08733, or equal.

C. Bolt Requirements

1. The bolt and nut material shall be free-cutting steel.
2. The nuts shall be capable of developing the full strength of the bolts. Threads shall be Coarse Thread Series conforming to the requirements of the American Standard for Screw Threads. Bolts and cap screws shall have hexagon heads and nuts shall be Heavy Hexagon Series.
3. Bolts and nuts shall be installed with washers fabricated of material matching the base material of bolts, except that hardened washers for high strength bolts shall conform to the requirements of the AISC Specification. Lock washers fabricated of material matching the bolts shall be installed where indicated.
4. The length of each bolt shall be such that the bolt extends at least 1/8-inch beyond the outside face of the nut before tightening, except for anchor bolts, which shall be flush with the face of the nut before tightening.
5. Dielectric material or insulating washers shall be used between dissimilar metals.

PART 3 - EXECUTION

3.01 FABRICATION AND INSTALLATION REQUIREMENTS

- A. Aluminum Ladders and Railings: Aluminum railing fabrication and installation shall be performed by craftsmen experienced in the fabrication of architectural metalwork. Exposed surfaces shall be free from defects or other surface blemishes. Dimensions and conditions shall be verified in the field. Joints, junctions, miters, and butting sections shall be precision fitted with no gaps occurring between sections, and with surfaces flush and aligned. Electrolysis protection of materials shall be provided.

END OF SECTION

THIS PAGE LEFT BLANK INTENTIONALLY

SECTION 05511 - ALUMINUM ACCESS HATCHES

PART 1 - GENERAL

1.01 SUMMARY

- A. The Contractor shall furnish and install factory fabricated aluminum access hatches as shown on the Drawings and as specified herein.
- B. Related Work:

1.02 REFERENCES

- A. ASTM A36: Standard Specification for Structural Steel

1.03 SUBMITTALS

- A. The Contractor shall provide manufacturer's product data for all materials furnished under this specification section.
- B. Shop Drawings shall be provided that show profiles, accessories, location, and dimensions.
- C. The Contractor shall provide the manufacturer's Warranty prior to contract completion.

1.04 PRODUCT HANDLING

- A. All materials shall be delivered in manufacturer's original packaging.
- B. The Contractor shall store materials in a dry, protected, well-vented area.

1.05 WARRANTY/GUARANTEE

- A. Manufacturer's standard warranty: Materials shall be free of defects in material and workmanship for a period of (10) Ten years from the date of purchase. Should a part fail to function in normal use within this period, manufacturer shall furnish a new part at no charge.

PART 2 - PRODUCTS

2.01 MANUFACTURER

- A. Bilco, U.S.F. Fabrication, Inc., Hialeah, FL, or equal.

2.02 ACCESS HATCH

- A. The access hatch shall be a double leaf style access door. The entire assembly shall be manufactured and assembled in the USA.

- C. Cover shall be 1/4" (6.3 mm) aluminum diamond plate reinforced to support 300 PSF pedestrian loads. The cover shall open using a flush lifting handle to insure controlled operation throughout the entire arc of opening and closing
- D. Angle frame shall be minimum 1/4" (6.3mm) extruded aluminum with Horizontal Flange with 9/16" diameter holes for anchoring to the existing surface. Frame shall have a beveled edge that slopes to the existing floor.
- E. Hinges shall be through bolted to the cover with tamperproof type 316 stainless steel bolts and locknuts and shall be through bolted to the frame with Type 316 stainless steel bolts and locknuts.
- F. A flush lifting handle shall be provided for each door.
- G. Lifting mechanisms shall provide the proper amount of lift assist to insure that the cover can be opened by a single person with no more than 40lbs of lifting force required.
- H. Where required by drawings, provide hinged reading lid with lockable hasp.
- I. Hardware:
 - 1. Type 316 stainless steel hinges shall be provided.
 - 2. Cover shall be equipped with a Type 316 stainless steel hold open arm, with a secondary latch that locks the cover in its full upright and open position.
 - 3. A staple for a padlock shall be provided.
 - 4. Hardware shall be Type 316 stainless steel throughout.
- J. Finishes:
 - 1. Factory finish shall be mill finish aluminum.
 - 2. An adhesive backed vinyl material, that protects the product during shipping and installation, shall cover the entire top of the hatch.

PART 3 - EXECUTION

3.01 INSPECTION

- A. The Contractor shall verify that the substrate is dry, clean, and free of foreign matter. The Contractor shall correct any defects prior to installation.

3.02 INSTALLATION

- A. The Contractor shall check as-built conditions and verify the manufacturer's vault access door details for accuracy to fit the application prior to fabrication. The Contractor shall comply with the manufacturer's installation instructions. The Contractor shall insure that the entire unit is installed level and square to insure proper performance.

END OF SECTION

SECTION 09800 - PROTECTIVE COATINGS

PART 1 - GENERAL

1.01 SCOPE OF WORK

This Section covers materials, preparation of surfaces, performance, and completion of coating for all surfaces, unless specified otherwise elsewhere in the Contract Documents.

1.02 DELIVERY AND STORAGE

All materials delivered to job site shall be in original sealed and labeled containers of the paint manufactured.

1.03 SUBMITTALS

- A. The Contractor shall submit manufacturer's literature for each product to be used giving the name, generic type, descriptive information and evidence of satisfactory past performance. Submittals shall include all specified performance data as specified herein under Paragraph 2.03, and as certified by a qualified testing laboratory.
- B. Upon completion of installation, the Contractor shall submit written certification from the manufacturer that all work has been performed within the limits prescribed by the manufacturer.

PART 2 - PRODUCTS

2.01 COLORS

- A. Colors, where not specified, shall be as selected by the Engineer. The Contractor shall furnish color chips for each protective coating system for review and selection.
- B. Safety Color Code for Marking Physical Hazards. The safety color selected for the marking of physical hazards and safety, firefighting and protection equipment shall be in accordance with OSHA 1910.144.

1. Safety Color Selection

Colors shall meet the tests specified in ANSI Z53.1. The colors used shall conform to the color chips identified by numbers specified in Federal Standard 595.

<u>Color</u>	<u>Standard</u>	<u>Color</u>	<u>Standard</u>
Red	11105	Blue	15120
Yellow	13655	Purple	17142
Orange	12246	White	17875
Green	14260	Black	17038

C. Color selection for the items not covered by OSHA Color Standards shall either be in accordance with the Painting Schedule, or to be determined after submittal of color chips by Contractor.

2.02 COATING SCHEDULE

A. Ferrous Metal Surfaces - Exterior Environment (UV exposure)

1. Surface Preparation for Carbon Steel: SSPC-SP6/NACE 3 Commercial Blast Cleaning.
2. Surface Preparation for Cast Iron & Ductile
3. Iron: Clean as required to remove all soluble surface contaminants. Abrasive blast all surfaces to be coated in accordance with NAPF 500-03-04 to remove all insoluble surface contaminants and to achieve a minimum surface profile of 1.5 mils.

4. Coating System

		<u>Dry Film Thickness (mils)</u>
1 st Coat	Polyamidoamine Epoxy Tnemec Series N69	4.0 - 6.0
2 nd Coat	Polyamidoamine Epoxy Tnemec Series N69	4.0 - 6.0
3 rd Coat	Polyamide Epoxy Tnemec Series 1074U	2.5 - 3.0
		Total 10.5 - 15

5. Description: All ferrous metal surfaces without appropriate factory finish and not installed within an enclosed structure including piping, fittings, couplings, adaptors, valves, vaults, control panel enclosures, etc.
6. Primer (1st Coat) shall be factory-applied. Intermediate and top coats (2nd Coat and 3rd Coat) shall be factory-applied or field-applied. Where coating is field applied, it shall only be done with the Engineer or Engineer's representative present to witness coating application and verify thickness.

B. Ferrous Metal Surfaces - Corrosive Gas or Immersion Environment

1. Surface Preparation for Carbon Steel SSPC-SP10/NACE 2 Near-White Blast Cleaning
2. Surface Preparation for Cast Iron & Ductile Iron: Clean as required to remove all soluble surface contaminants. Abrasive blast all surfaces to be coated in accordance with NAPF 500-03-04 to remove all insoluble surface contaminants and to achieve a minimum surface profile of 1.5 mils
3. Coating System

		<u>Dry Film Thickness (mils)</u>
1 st Coat	Polyamidoamine Epoxy Tnemec Series N69	4.0 - 6.0
2 nd Coat	Cycloaliphatic Amine Epoxy Tnemec Series 104	5.0 - 6.0
3 rd Coat	Cycloaliphatic Amine Epoxy Tnemec Series 104	5.0 - 6.0
		Total 14 - 18

4. Description: Ferrous metal surfaces exposed or immersed in lift station, wet well, manholes immediate upstream of wet wells, discharge manholes, or similar locations, including piping, fittings, valves, pumps, brackets, supports, etc.
5. Primer (1st Coat) shall be factory-applied. Intermediate and top coats (2nd Coat and 3rd Coat) shall be factory-applied or field-applied. Where coating is field applied, it shall only be done with the Engineer or Engineer's representative present to witness coating application and verify thickness.

C. Interior of Existing Concrete Structures (corrosive gas or immersion environment):

1. Structures that hold liquids or are subject to corrosive gases and liquids: Buried concrete or brick structures holding liquids such as wet wells and manholes. Any one of the following three systems specified herein; System A, System B, or System C, may be used.
2. Application procedures shall conform to recommendations of the manufacturer, including materials handling, mixing, environmental controls during application, safety and spray equipment.
3. System A- 100% Solids Epoxy (Tnemec Perma-Shield H₂S or equal)
 - a. Surface Preparation: Prepare concrete surfaces in accordance with NACE No. 6/SSPC-SP13. Abrasive blast to remove laitance, form

release agents, curing compounds, sealers, or other contaminants, and to achieve a surface profile equivalent to ICRI CSP 5.

b. Materials:

	<u>Dry Film Thickness</u>
1 st Coat: Surfacers: Cementitious Epoxy Resurfacer	
Tnemec Series 218 Mortarclad (for lightly exposed aggregate)	1/16” - 1/4”
Tnemec Series 217 Mortarcrete (for exposed aggregate and rebar)	1/4” - 2”
2 nd Coat: Lining: 100% Solids Polyamine Epoxy Mortar	1/8”
Tnemec Series 434 Perma-Shield H ₂ S	
3 rd Coat: Glaze Coat: 100% Solids Polyamine Epoxy	12 - 15 mils
Tnemec Series 435 Perma-Glaze	

4. System B - Cementitious Coating (Dinjer, or equal)

a. Surface Preparation: The use of high pressure water cleaning, hydro blasting, abrasive blasting, grinding and detergent water cleaning shall conform to manufacturer’s recommendations. All surface defects repair materials and procedures shall conform to manufacturer’s recommendations.

b. Materials:

	<u>Dry Film Thickness</u>
1 st Coat: Cementitious Epoxy Resurfacer	1/16” - 1/4”
Dinjer CMS-10K	
2 nd Coat: Amine Epoxy Mortar	100 mils
Dinjer SG Mastic	

c. Cementitious Coating: Shall be quick setting, high strength, sulfide resistant, calcium aluminate-based or portland cement material; suitable for troweling or rotary spray application to inside of structure. Additives shall be used to increase corrosion resistance or bond strength at manufacturer’s direction and with Engineer’s approval.

5. System C - Cementitious Composite Coating (Mainstay, or equal)

a. Surface Preparation: The use of high pressure water cleaning, hydro blasting, abrasive blasting, grinding and detergent water cleaning shall conform to manufacturer’s recommendations. All surface defects repair materials and procedures shall conform to manufacturer’s recommendations.

b. Materials:		<u>Dry Film Thickness</u>
1 st Coat:	Cementitious Microsilica Blend Mainstay ML-72	1/2"
2 nd Coat:	100% Solids Hi Build Epoxy Mainstay DS-5	50 - 125 mils

D. New Concrete Surfaces (Corrosive Gas or Immersion Environment)

1. Description: New cast-in-place or pre-cast structures that hold liquids or are subject to corrosive gases or liquids such as manholes, valve pits, and wet wells.
2. Application procedures shall conform to recommendations of the manufacturer, including materials handling, mixing, environmental controls during application, safety and spray equipment.
3. Product: 100% Solids Epoxy (Tnemec Perma-Shield H₂S or equal)
 - a. Surface Preparation: Allow new concrete to cure for 28 days, verify dryness by ASTM D4263. Abrasive blast to remove laitance, form release agents, curing compounds, sealers, or other contaminants and to achieve a surface profile equivalent to ICRI CSP 5 and SSPC-SP13/NACE No. 6.

b. Materials:

		<u>Dry Film Thickness</u>
1 st Coat:	Surfacer: Epoxy Modified Cementitious Mortar Tnemec Series 218 Mortarclad (for light exposed aggregate)	1/16"
2 nd Coat:	Lining: Modified Aliphatic Amine Tnemec Series 434 Perma-Shield H ₂ S	1/8"
3 rd Coat:	Glaze Coat: Modified Polyamine Epoxy Tnemec Series 435 Perma-Glaze	12 - 15 mils

2.03 PERFORMANCE REQUIREMENTS

- A. Polyamidoamine Epoxy: Polyamidoamine epoxy shall contain no lead or soluble chromates. Polyamidoamine epoxy shall be able to weather sixty (60) days prior to top coating with itself or aliphatic urethanes. Scarify surface before top coating if exposed to sunlight for 60 days or longer.
 - 1) Minimum Solids per Gallon: 67.0 +/- 2.0%

- 2) Abrasion: No more than 115 mg loss after 1000 cycles (ASTM D 4060, CS-17 Wheel, 1,000 grams load)
- 3) Adhesion: Not less than 1600 psi pull average of three trials (ASTM D 4541 Elcometer Adhesion Tester)
- 4) Exterior Exposure: No blistering, cracking or delamination of the film. No more rust creepage at scribe or after seventy-two months exposure.
- 5) Fresh Water Immersion: No blistering, cracking, softening or delamination of the film after 4 years immersion in 77 F. tap water (ASTM D 870).
- 6) Hardness: Must pass 3H (ASTM D 3363)
- 7) Salt Fog: No blistering, rusting, cracking, softening or delamination of the film. No more than 1/8 inch rust creepage at scribe after 8,000 hours exposure (ASTM B117).
- 8) Manufacturer: Tnemec N69 Hi-Build Epoxoline II or equal.

B. Cycloaliphatic Amine Epoxy:

- 1) Minimum Solids per Gallon: 82.0 +/- 2.0%
- 2) Abrasion: No more than 120 mg loss after 1000 cycles (ASTM D 4060, CS-17 Wheel, 1,000 grams load)
- 3) Chemical Resistance: No blistering, cracking, softening or delamination of the film after seven days exposure at 75°F to 10% sulfuric acid, 50% sodium hydroxide, 10% hydrochloric acid, 10% phosphoric acid and 5% sodium chloride.
- 4) Salt Spray Resistance: No blistering, rusting, cracking, softening or delamination of the film. No more than 1/32 inch rust creepage at scribe after 1,500 hours exposure (ASTM B 117-73).
- 5) Manufacturer: Tnemec 104 H.S. Epoxy or equal.

C. Modified Aliphatic Amine Epoxy Mortar: Aggregate - reinforced 100% solids, hybrid epoxy mortar:

- 1) Minimum Solids per Gallon: 100%
- 2) Volatile Organic Compounds: 0.15 lbs/gal (EPA Method 24)
- 3) Chemical Resistance: No blistering, cracking, erosion, softening, swelling, or loss of adhesion or gloss after 98 day continuous immersion at 100F and 25% sulfuric acid (ASTM D 868 Atlas Cell).
- 4) Impact Resistance: No visible cracking or delamination after 160 in-lbs (ASTM D 2794, direct impact).
- 5) ASTM G 210 Severe Wastewater Analysis Test: Minimal initial impedance of 10 Log Z (Z in ohms cm² @ 0.1 hz). No blistering, cracking, checking or loss of adhesion. Final impedance greater than 9 Log Z after 28 days exposure.
- 6) Manufacturer: Tnemec 434 Perma-Shield H₂S or equal.

D. Modified Polyamine Epoxy: 100% solids epoxy:

- 1) Minimum Solids per Gallon: 100%
- 2) Volatile Organic Compounds: 0.23 lbs/gal (EPA Method 24)
- 3) Chemical Resistance: No blistering, cracking, erosion, softening, swelling, or loss of adhesion or gloss after 98 day continuous immersion at 100F and 25% sulfuric acid (ASTM D 868 Atlas Cell).

- 4) ASTM G210 Severe Wastewater Analysis Test: Minimal initial impedance of 11 Log Z (Z in ohms cm² @ 0.1 hz). No blistering, cracking, checking or loss of adhesion. Final impedance greater than 11 Log Z after 28 days exposure.
 - 5) Manufacturer: Tnemec 435 Perma-Glaze or equal.
- E. Cementitious Repair Mortar:
- 1) Compressive Strength: Minimum - 10,650 psi (ASTM C579).
 - 2) Drying Shrinkage: Maximum 0% (ASTM C596).
 - 3) Linear Shrinkage: Maximum 0.0220% (ASTM C531).
 - 4) Splitting Tensile Strength: Minimum 850 psi (ASTM C496).
 - 5) Thermal Expansion: Maximum 7.46x10⁻⁶ in/in/°F linear coefficient (ASTM C531).
 - 6) Volatile Organic Compounds: 0.0 lbs/gal.
 - 7) Manufacturer: Tnemec 217 Mortarcrete, or equal.
- F. Epoxy Modified Cementitious Mortar:
- 1) Minimum Solids per Gallon: 100%
 - 2) Bond Strength: Minimum 1,040 by slant sheer; average of 3 tests (ASTM C882).
 - 3) Compressive Strength: Minimum 7,100 psi (ASTM C579).
 - 4) Drying Shrinkage (56 day cure): Maximum 2.5x10⁻⁶ inches; average of 5 tests (ASTM C596).
 - 5) Shrinkage: Maximum 3.1x10⁻⁶ inches (ASTM C531).
 - 6) Splitting Tensile Strength: Minimum 640 psi (ASTM C496).
 - 7) Thermal Expansion: Maximum 3.15x10⁻⁶ in/in/°F linear coefficient (ASTM C531).
 - 8) Volatile Organic Compounds: 0.15 lbs/gal (unthinned)
 - 9) Manufacturer: Tnemec 218 Mortarclad or equal.
- G. Aliphatic Acrylic Polyurethane:
- 1) Minimum Solids per Gallon: 100% ± 2% (mixed)
 - 2) Exterior Exposure: No blistering, cracking, or chalking. No less than 97% retention (2 units gloss change) and 0.11 DED Hunter Lab Scale color change after 500 MJ exposure. (ASTM D4141 Method C).
 - 3) No blistering, cracking, or chalking. No less than 64% gloss retention (33 unites gloss change) and 2.46 DED FMCII (MacAdam units) color change after 7,000 hours exposure.
 - 4) Flexibility: Minimum 12.6% elongation; average of 3 tests. (ASTM D522, Method A, Conical Mandrel).
 - 5) Abrasion: Maximum 116 mg loss after 1,000 cycles (ASTM D4060, CS-17 wheel, 1,000 gram loaded).
 - 6) Humidity: No blistering, cracking, rusting, or delamination of film after 2,500 hours exposure (ASTM D4585).
 - 7) Volatile Organic Compounds: 2.59 lbs/gal (unthinned) (EPA Method 24)
 - 8) Manufacturer: Tnemec 1074U Endurashield II or equal.

- H. Cementitious Coating:
- 1) Compressive Strength: One day minimum - 2,000 psi (ASTM C109).
 - 2) Compressive Strength: 28 days minimum - 5,500 psi (ASTM C109).
 - 3) Bond Strength: 28 days minimum - 1,640 psi (ASTM C882)
 - 4) Flexural Strength: 28 days minimum - 1,500 psi (ASTM C78).
 - 5) Density when applied: 135 lb./cf. +/- 5 lb./cf.
 - 6) Manufacturer: Dinjer CMS-10K, or equal.
- I. Cementitious Composite Coating:
- 1) Compressive Strength: One day minimum - 3,000 psi (ASTM C109).
 - 2) Compressive Strength: 28 days minimum - 10,000 psi (ASTM C109).
 - 3) Bond Strength: 28 days minimum - 3,440 psi (ASTM C882)
 - 4) Flexural Strength: One day minimum - 535 psi (ASTM C293).
 - 5) Flexural Strength: 28 days minimum - 1,505 psi (ASTM C293).
 - 6) Tensile Strength: One day minimum - 330 psi (ASTM C496).
 - 7) Tensile Strength: 28 days minimum - 910 psi (ASTM C496).
 - 8) Shrinkage: 28 days @ 90% Rh - 0% (ASTM C596).
 - 9) Density when applied: 135 lb./cf.
 - 10) Manufacturer: Mainstay ML-72, or equal.

PART 3 - EXECUTION

3.01 GENERAL

- A. All surface preparation, coating and painting shall conform to applicable standards of the Steel Structures Painting Council (SSPC), and the manufacturer's printed instructions. Material applied prior to approval of the surface by the Engineer shall be removed and reapplied to the satisfaction of the Engineer at the expense of the Contractor.
- B. All work shall be performed by skilled craftsmen qualified to perform the required work in a manner comparable with the best standards of practice. Continuity of personnel shall be maintained and transfers of key personnel shall be coordinated with the Engineer.
- C. The Contractor shall provide a supervisor at the work site during cleaning and application operation. The supervisor shall have the authority to sign change orders, coordinate work and make decisions pertaining to the fulfillment of the contract.
- D. Dust, dirt, oil, grease or any foreign matter that will affect the adhesion or durability of the finish must be removed by washing with clean rags dipped in an approved cleaning solvent and wiped dry with clean rags as per SSPC SP1.
- E. Coating and painting systems include surface preparations, prime coating and finish coatings. Any off-site work that does not conform to this specification is subject to rejection by the Engineer.

- F. Shop applied prime coatings, which are damaged during transportation, construction or installation shall be thoroughly cleaned and touched up in the field as directed by the Engineer. The Contractor shall use repair procedures that insure the complete protection of all adjacent primer. The specified repair method and equipment may include wire brushing, hand, or power tool cleaning or dry air blast cleaning. In order to prevent injury to surrounding painted areas, blast cleaning may require use of lower air pressure, small nozzle and abrasive particle sizes, short blast nozzle, distance from surface, shielding and masking. If damage is too extensive or uneconomical to touch-up, then the item shall be re-cleaned and coated or painted as directed by the Engineer.
- G. The Contractor's coating and painting equipment shall be designed for application of materials specified and shall be maintained in first class working condition. Compressors shall have suitable traps and filters to remove water and oils from the air. Contractor's equipment shall be subject to approval of the Engineer.
- H. Application of the first coat shall follow immediately after surface preparation and cleaning and within an eight-hour working day. Any cleaned areas not receiving first coat within eight-hour period shall be re-cleaned prior to application of first coat.
- I. Prior to assembly, all surfaces made inaccessible after assembly shall be prepared as specified herein and shall receive the coating or paint system specified.
- J. Coatings shall be applied during good painting and coating weather. Air and surface temperatures as well as dew point shall be within limits prescribed by the manufacturer for the coating being applied and work areas shall be reasonably free of airborne dust at the time of application and while coating is drying.
- K. Field touch up painting shall be required on scratched or damaged surfaces.

3.02 SURFACE PREPARATION

- A. The latest revision of the following surface preparation specifications of the SSPC shall form a part of this specification.
 - 1. Solvent Cleaning (SSPC SP): Removal of oil, grease soil and other contaminants by use of solvents, emulsions, cleaning compounds, steam cleaning or similar materials and methods which involve a solvent or cleaning action.
 - 2. Hand Tool Cleaning (SSPC SP2): Removal of loose rust, loose mill scale and other detrimental foreign matter to degree specified by hand chipping, scraping, sanding and wire brushing.
 - 3. Power Tool Cleaning (SSPC-SP3): Removal of loose rust, loose mill scale and other detrimental foreign matter to degree specified by power wire brushing, power impact tools or power sanders.

4. White Metal Blast Cleaning (SSPC-SP5): Blast cleaning to a gray-white uniform metallic color until each element of surface area is free of all visible residues.
 5. Commercial Blast Cleaning (SSPC-SP6): Blast cleaning until at least two thirds of each element of surface area is free of all visible residues.
 6. Brush-Off Blast Cleaning (SSPC-SP7): Blast cleaning to remove loose rust, loose mill scale and other detrimental foreign matter to degree specified.
 7. Near White Blast Cleaning (SSPC-SP10): Blast cleaning to nearly white metal cleanliness, until at least 95 percent of each element of surface area is free of all visible residues.
- B. Slag and weld metal accumulation and spatters not removed by the fabricator, erector or installer shall be removed by chipping and grinding. All sharp edges shall be peened, ground or otherwise blunted as required by the Engineer.
 - C. Field blast cleaning for all surfaces shall be by dry method unless otherwise directed.
 - D. Particle size of abrasives used in blast cleaning shall be that which will produce a 1 1/2 - 2 mil (37.5 microns - 50.0 microns) surface profile or in accordance with recommendations of the manufacturer of the specified coating or paint system to be applied.
 - E. Abrasive used in blast cleaning operations shall be new, washed, graded, and free of contaminants that would interfere with adhesion of coating or paint and shall not be reused unless specifically approved by the Engineer.
 - F. Surface preparation will be based upon comparison with: "Pictorial Surface preparation Standards for Painting Steel Surfaces", SSPC-Vis 1 ASTM Designation D220; "Standards Methods of Evaluation Degree of Rusting on Painted Steel Surfaces", SSPC-Vis-2 ASTM Designation D610; "Visual Standard for Surfaces of New Steel Air blast Cleaned with Sand Abrasive".
 - G. During blast cleaning operations, caution shall be exercised to insure that existing coatings or paint are not exposed to abrasion from blast cleaning.
 - H. The Contractor shall keep the area of his work in a clean condition and shall not permit blasting materials to accumulate as to constitute a nuisance or hazard to the prosecution of the work or the operation of the existing facilities.
 - I. Blast cleaned surfaces shall be cleaned prior to application of specified coatings or paint. No coatings or paint shall be applied over damp or moist surfaces.

3.03 APPLICATION

- A. Coating and paint application shall conform to the requirements of the Steel Structures Painting Council Paint Application Specification SSPC-PA latest revision for "Shop Field and Maintenance Painting", and the manufacturer of the coating and paint materials.
- B. Thinning shall be permitted only as recommended by the manufacturer and approved by the Engineer.
- C. Each application of coating or paint shall be applied evenly, free of brush marks, sags, runs, with no evidence of poor workmanship. Care shall be exercised to avoid lapping on glass or hardware. Coatings and paints shall be sharply cut to lines. Finished surfaces shall be free from defects or blemishes.
- D. Protective coverings or drop cloths shall be used to protect floors, fixtures, and equipment. Care shall be exercised to prevent coatings or paints from being splattered onto surfaces that are not to be coated or painted. Surfaces from which materials cannot be removed satisfactorily shall be recoated or repainted as required to produce a finish satisfactory to the Engineer.
- E. When two coats of paint are specified, where possible, the first coat shall contain sufficient approved color additive to act as an indicator of coverage or the two coats must be of contrasting color.
- F. Film thicknesses per coat specified are the minimum required. Contractor shall apply additional coats as necessary to achieve the specified thickness.
- G. No coating or paint shall be applied: When the surrounding air temperature or the temperature of the surface to be coated or painted is below 40 degrees F., too wet or damp surfaces or in rain, snow, fog or mist; when the temperature is less than 5 degrees F. above the dew point; when it is expected the air temperature will drop below 40 degrees F. six hours after application of coating and paint. Dew point shall be measured by use of an instrument such as a Sling Psychrometer in conjunction with U.S. Department of Commerce Weather Bureau Psychrometric Tables.
- H. If above conditions are prevalent, coating or painting shall be delayed or postponed until conditions are favorable. The day's coating or painting shall be completed in time to permit the film sufficient drying time prior to damage by atmospheric conditions.
- I. All material shall be applied as per manufacturer's recommendations.
- J. All welds and irregular surfaces shall receive a brush coat of the specified product prior to application of the first complete coat.

- K. All parts that can be disassembled such as vents and manhole covers shall be removed and coated inside and out as per applicable coating systems. Upon completion of coating, those parts disassembled shall be reassembled prior to placing in service.

3.04 ACCEPTANCE OF WORK

- A. All surface preparation and repairs shall be approved by the Engineer/Owner before primer is applied.
- B. The Contractor shall request and receive acceptance of each coat before applying next coat.
- C. The Contractor shall correct work that is not acceptable and request reinspection.
- D. Thickness of coatings and or the paint shall be checked with a non-destructive, magnetic type thickness gauge. (Use an instrument such as a Tooke Gauge if a destructive tester is deemed necessary.) Coating integrity of interior coated surfaces shall be tested with approved inspection devices. Holiday detection shall be performed prior to application of aluminum or metallic finish coats. Non-destructive holiday detector shall not exceed 67.5 volts nor shall destructive holiday detector exceed the voltage recommended by the manufacturer of the coating system. For thicknesses between 10 and 20 mils (250 microns and 500 microns) a non-sudsing type setting agent, such as Kodak Photo-Flo, shall be added to the water and detector sponge prior to detector use. All pinholes shall be marked and repaired in accordance with the manufacturer's printed recommendations and retested. No pinholes or other irregularities shall be permitted in the final coating.
- E. The Contractor shall furnish, until final acceptance of coating and painting, inspection devices in good working condition for detection of holidays and measurement of dry-film thickness of coating and paint. The Contractor shall also furnish U.S. Department of Commerce, National Bureau of Standards certified thickness calibration plates to test accuracy of dry-film thickness gauge and certified instrumentation to test accuracy of holiday detectors.
- F. The Contractor shall require regular checks with these devices to insure dry-film thicknesses meet specifications. The Engineer shall at his discretion use the Contractors or his own equipment to perform similar inspections.
- G. Dry-film thickness gauges and holiday detectors shall be made available for the Engineer's use at all times until final acceptance of application. Holiday detection device shall be operated in the presence of the Engineer.
- H. Concrete surfaces in immersion service must have void - and pinhole-free coating application. Inspection of coating system with 5X magnification will provide these assurances.

- I. Warranty inspection shall be conducted during the eleventh month following completion of all coating and painting work. All defective work shall be repaired in accordance with this specification and to the satisfaction of the Engineer/Owner.
- J. In accordance with requirements set forth by regulatory agencies applicable to the construction industry and manufacturer's printed instructions and appropriate technical bulletins and manuals, the Contractor shall provide and require use of personnel protective lifesaving equipment for persons working in, or about the project site.
- K. Equipment shall include protective helmets that shall be worn by all persons while in the vicinity of the work. In addition, workers engaged in or near the work during sandblasting shall wear eye and face protection devices and air purifying, half-mask or mouthpiece respirator with appropriate filter. Barrier creams shall be used on any exposed areas of skin.
- L. Where ventilation is used to control hazardous exposure, all equipment shall be explosion proof. Ventilation shall reduce the concentration of air contaminant to the degree a hazard does not exist. Air circulation and exhausting of solvent vapors shall be continued until coatings have fully cured.
- M. Whenever the occupational noise exposure exceeds maximum allowable sound levels, the Contractor shall provide and require the use of approved ear protective devices.
- N. Adequate illumination shall be provided while work is in progress, including explosion-proof lights and electrical equipment. Whenever required by the Engineer, the Contractor shall provide additional illumination and necessary supports to cover all areas to be inspected. The level of illumination for inspection purposes shall be determined by the Engineer.
- O. All temporary ladders and scaffolding shall conform to applicable safety requirements. They shall be erected where requested by the Engineer to facilitate inspection and be moved by the Contractor to locations requested by the Engineer.
- P. All coatings and paints shall be stored in enclosed structures to protect them from weather and excessive heat or cold. Flammable coatings or paint must be stored to conform to City, Parish, State, and Federal safety codes for flammable coating or paint materials. At all times, coatings and paints shall be protected from freezing.

3.05 CLEAN UP

Upon completion of the work, all staging, scaffolding and containers shall be removed from the site or destroyed in a manner approved by the Engineer. Coating or paint spots and oil or stains upon adjacent surfaces shall be removed and the job site cleaned. All

damage to surfaces resulting from the work of painting contractor or subcontractor shall be cleaned, repaired, or refinished to the satisfaction of the Engineer at no cost to the Owner.

END OF SECTION

SECTION 11310 - SUBMERSIBLE WASTEWATER PUMPS

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. The Contractor shall furnish all labor, materials, equipment and incidentals required to provide solids handling, centrifugal, submersible, explosion proof, premium efficiency, wastewater pumps as shown on the Drawings and specified herein. The pumping units shall all be supplied by one manufacturer and shall be complete including pumps, motors, base elbows, guide rails, power cables, and lifting cables.
- B. To assure unity of responsibility all pumping units, accessories, and control panels shall be furnished by a single supplier.

1.02 RELATED WORK

- A. Section 09800 - Painting
- B. Section 16900 - Control Panels

1.03 SUBMITTALS

- A. Copies of all materials required to establish compliance with the specification shall be submitted in accordance with the provisions of Section 01340. Submittals shall include the following:
 - 1. Certified shop and erection drawings showing all important details of construction, dimensions and anchor bolt locations.
 - 2. Descriptive literature bulletins and/or catalogs of the equipment.
 - 3. Data on the characteristics and performance of the pumps. Data shall include guaranteed performance curves, based on actual shop tests of duplicate units, which show that they meet the specified requirements for head, capacity, efficiency, allowable NPSHR, allowable suction lift and horsepower. Curves shall be submitted on 8-1/2 in by 11 in sheets.
 - 4. Literature and drawings describing the equipment in sufficient detail, including parts list and materials of construction, to indicate full conformance with the detail specifications.
 - 5. Total weight of pumping unit including the weight of the single largest part.
 - 6. A list of the manufacturer's recommended spare parts with the manufacturer's current price for each item. Include gaskets, packing etc, on the list. List bearings by the bearing manufacturer's number only.
 - 7. A statement indicating bearing life.
 - 8. Complete description of the surface preparation and shop prime painting.
 - 9. Warranty.

- B. Design Data
 - 1. Manufacturer's certified rating curves, to satisfy the specified design conditions, showing pump characteristics of discharge, head, brake horsepower, efficiency and guaranteed net positive suction head required (NPSHR). Curves shall show the full-recommended range of performance and include shut-off head. This information shall be prepared specifically for the pump proposed. Catalog sheets showing a family of curves shall not be submitted.

- C. Test Reports
 - 1. Certified motor test data.
 - 2. Tabulated data for the drive motors including rated HP, full load RPM, power factor and efficiency curves at 1/2, 3/4 and full load, service factor and KW input, including when the pump is at its design point. Submit a certified statement from the motor manufacturer that the motors are capable of continuous operation on the power supply to be furnished without affecting their design life for bearings or windings.
 - 3. Description of pump factory test procedures and equipment and a copy of final report when available.

- D. Operation and Maintenance Data
 - 1. Complete operating and maintenance instructions shall be furnished for all equipment included under these specifications. The maintenance instructions shall include trouble shooting data and full preventative maintenance schedules and complete spare parts lists with ordering information.

1.05 QUALITY ASSURANCE

- A. The Contractor and manufacturer shall assume responsibility for the satisfactory installation and operation of the entire pumping system including pumps as specified.
- B. The equipment covered by these specifications is intended to be standard pumping equipment of proven ability as manufactured by companies having extensive experience in the production of such equipment. The equipment furnished shall be designed, constructed and installed to operate satisfactorily when installed as shown on the Drawings.
- C. Pumps shall be manufactured in accordance with the Hydraulic Institute Standards, except where otherwise specified herein.
- D. The rated horsepower of the drive unit shall be such that the unit will not be overloaded nor the service factor reduced when the pump is operated at any point on the pump's capacity curve. If, due to the slope of the pump's performance, a drive unit of greater horsepower than that shown on the Drawings is required to meet this condition, the pump will be considered for use under this Contract only if any and all necessary changes in the Work required by the larger motor will be provided by the Contractor at no additional cost to the Owner.

- E. The pumps, motors and drives shall be designed and built for 24 hour continuous service at any and all points within the required range of operation, without overheating, without cavitation, and without excessive vibration or strain. All parts shall be so designed and proportioned as to have liberal strength, stability and stiffness and to be especially constructed to meet the specified requirements. Ample room and facilities shall be provided for inspection, repairs and adjustments.

1.06 MAINTENANCE

- A. Furnish all special tools and test equipment required for the proper servicing of all equipment. All such tools and test equipment shall be furnished in a suitable steel tool chest complete with lock and duplicate keys.
- B. All spare parts shall be properly protected for long periods of storage and packed in containers that are clearly identified with indelible markings as to contents.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. All parts shall be properly protected so that no damage or deterioration will occur during a prolonged delay from the time of shipment until installation is completed and the unit and equipment are ready for operation.
- B. All equipment and parts shall be properly protected against any damage during shipment. Equipment shall be stored in accordance with the manufacturer's instruction.
- C. Factory assembled parts and components shall not be dismantled for shipment.
- D. The finished surfaces of all exposed flanges shall be protected by wooden or equivalent blank flanges, strongly built and securely bolted thereto.
- E. Finished iron or steel surfaces not painted shall be properly protected to prevent rust and corrosion.

1.08 PATENTS AND LICENSES

- A. The Contractor shall be responsible for all patents or licenses that exist on the equipment provided.
- B. The Contractor and the equipment manufacturer shall bear all costs of patent fees or licenses for the equipment or process; and shall safeguard and save harmless the Parish/Engineer from all damages, judgements, claims and expenses arising from license fees, or claimed infringement of any letter, patents, or patent rights, or fees for the use of equipment or process, structural feature or arrangement of any component parts of the installation; and the bid price shall be deemed to include payment of as such patent fees, licenses or other cost pertaining thereto.

1.09 WARRANTY

- A. The pump unit or any part thereof shall be warranted against defects in material or workmanship within one (1) year from date of installation and shall be

replaced at no charge with a new or manufactured part, F.O.B. factory or authorized warranty service station. The warranty shall not assume responsibility for removal, reinstallation, or freight, nor shall it assume responsibility of incidental damages resulting from the failure of the pump to perform. The warranty shall not apply to damage resulting from accident, alternation, design, misuse or abuse.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Furnish two (2) submersible non-clog wastewater pump(s). Each pump shall be equipped with an 60 HP submersible electric motor, connected for operation on 460 volts, 3 phase, 60 hertz, wire service, with 25 feet of submersible cable (SUBCAB) suitable for submersible pump applications. The power cable shall be sized according to NEC and ICEA standards and also meet with P-MSHA Approval.
- B. The pumps shall be supplied with a mating cast iron six (6) inch discharge connection and be capable of delivering 850 GPM at 130 FT. TDH. The pump(s) shall be automatically and firmly connected to the discharge connection, guided by no less than two guide bars extending from the top of the station to the discharge connection. There shall be no need for personnel to enter the wet-well. Sealing of the pumping unit to the discharge connection shall be accomplished by a machined metal to metal watertight contact. Sealing of the discharge interface with a diaphragm, O-ring or profile gasket will not be acceptable. No portion of the pump shall bear directly on the sump floor.
- C. All necessary foundation bolts, nuts and washers shall be furnished by the Contractor and shall be Type 316 stainless steel.
- D. The equipment shall be furnished with stainless steel nameplates using embossed data and securely mounted to the body of the equipment with stainless steel hardware. The nameplates for the pumps shall include the manufacturer's name and model number, serial number, rated flow capacity, head, speed and all other pertinent data. Nameplates for motors shall include the manufacturer's name and model number, serial number, horsepower, speed, input voltage, amps, number of cycles and power and service factors. The pumps shall also be equipped with a stainless steel nameplate stating that the unit is accepted for use in NEC Class 1, Division 1, Group C, D hazardous locations with third party UL Listing, or Factory Mutual, approval and NEMA premium efficient motors.
- E. All electrical materials and equipment shall be Underwriters Laboratories Inc. listed, and NEMA rated.

2.02 CONDITIONS OF OPERATION

- A. The pumps shall be capable of continuous operation at full load, fully submersed, without cavitation or overheating of the motor.
- B. The pump performance data curves shall show head, capacity, horsepower demand, NPSH required, and pump efficient over the entire operating range of the pump.

The equipment manufacturer shall indicate separate the head, capacity, horsepower demand, overall efficiency, and minimum submergence required at the design flow condition and the maximum and minimum flow conditions. The performance curves shall meet those points on the curve stated in the pump station data table on the Drawings.

- C. The manufacturer shall indicate the limits on the performance curves recommended for stable operation without surge, cavitation, or excessive vibration. The stable operating range shall be as wide as possible based on actual hydraulic and mechanical tests.

2.03 PUMP CONSTRUCTION

- A. Major pump components shall be of grey cast iron, ASTM A-48, Class 35B, with smooth surfaces devoid of blow holes or other irregularities. The lifting handle shall be of stainless steel. All exposed nuts or bolts shall be of stainless steel construction. All metal surfaces coming into contact with the pumpage, other than stainless steel or brass, shall be protected by a factory applied spray coating of acrylic dispersion zinc phosphate primer with a polyester resin paint finish on the exterior of the pump..
- B. Sealing design shall incorporate metal-to-metal contact between machined surfaces. Critical mating surfaces where watertight sealing is required shall be machined and fitted with Nitrile rubber O-rings. Fittings will be the result of controlled compression of rubber O-rings in two planes and O-ring contact of four sides without the requirement of a specific torque limit.
- C. Rectangular cross sectioned gaskets requiring specific torque limits to achieve compression shall not be considered as adequate or equal. No secondary sealing compounds, elliptical O-rings, grease or other devices shall be used.

2.04 ELECTRICAL POWER CORD

- A. The power cable shall be sized according to the NEC and ICEA standards and shall be of sufficient length to reach the junction box without the need of any splices. The power cable shall be of a shielded design in which an overall tinned copper shield is included and each individual phase conductor is shielded with an aluminum coated foil wrap. The outer jacket of the cable shall be oil resistant chlorinated polyethylene rubber. The cable shall be capable of continuous submergence underwater without loss of watertight integrity to a depth of 65 feet or greater..

2.05 MOTOR

- A. The pump motor shall be a NEMA B design, induction type with a squirrel cage rotor, shell type design, housed in an air filled, watertight chamber. The stator windings shall be insulated with moisture resistant Class H insulation rated for 180°C (356°F). The stator shall be insulated by the trickle impregnation method using Class H monomer-free polyester resin resulting in a winding fill factor of at least 95%. The motor shall be inverter duty rated in accordance with NEMA MG1, Part 31. The stator shall be heat-shrink fitted into the cast iron stator housing. The

use of multiple step dip and bake-type stator insulation process is not acceptable. The use of pins, bolts, screws or other fastening devices used to locate or hold the stator and that penetrate the stator housing are not acceptable. The motor shall be designed for continuous duty while handling pumped media of up to 104°F. The motor shall be capable of no less than 30 evenly spaced starts per hour. The rotor bars and short circuit rings shall be made of aluminum. Three thermal switches shall be embedded in the stator end coils, one per phase winding, to monitor the stator temperature.

- B. These thermal switches shall be used in conjunction with and supplemental to external motor overload protection and shall be connected to the motor control panel. The junction chamber shall be sealed off from the stator housing and shall contain a terminal board for connection of power and pilot sensor cables using threaded compression type terminals. The use of wire nuts or crimp-type connectors is not acceptable. The motor and the pump shall be produced by the same manufacturer.
- C. The motor service factor (combined effect of voltage, frequency and specific gravity) shall be 1.15. The motor shall have a voltage tolerance of +/- 10%. The motor shall be designed for continuous operation in up to a 40°C ambient and shall have a NEMA Class B maximum operating temperature rise of 80°C. A motor performance chart shall be provided upon request exhibiting curves for motor torque, current, power factor, input/output kW and efficiency. The chart shall also include data on motor starting and no-load characteristics.
- D. Motor horsepower shall be sufficient so that the pump is non-overloading throughout its entire performance curve, from shut-off to run-out. The motor and cable shall be capable of continuous submergence underwater without loss of watertight integrity to a depth of 65 feet or greater.
- E. The cable entry seal design shall preclude specific torque requirements to insure a watertight and submersible seal. The cable entry shall consist of dual cylindrical elastomer grommets, flanked by washers, all having a close tolerance fit against the cable outside diameter and the entry inside diameter. The grommets shall be compressed by the cable entry unit, thus providing a strain relief function. The assembly shall provide ease of changing the cable when necessary using the same entry seal. The cable entry junction chamber and motor shall be sealed from each other, which shall isolate the stator housing from foreign material gaining access through the pump top. Epoxies, silicones, or other secondary sealing systems shall not be considered equal.

2.06 BEARING AND SHAFT

- A. The integral pump/motor shaft shall rotate on two bearings. The motor bearings shall be sealed and permanently grease lubricated with high temperature grease. The upper motor bearing shall be a two row angular contact ball bearing. The lower bearing shall be a two row angular contact ball bearing to handle the thrust and radial forces. The minimum L10 bearing life shall be 50,000 hours at any usable portion of the pump curve..

2.07 SEALS

- A. Each pump shall be provided with a positively driven dual, tandem mechanical shaft seal system consisting of two seal sets, each having an independent spring. The lower primary seal, located between the pump and seal chamber, shall contain one stationary and one positively driven rotating corrosion and abrasion resistant tungsten-carbide ring. The upper secondary seal, located between the seal chamber and the seal inspection chamber shall be a leakage-free seal. The upper seal shall contain one stationary and one positively driven rotating corrosion and abrasion resistant tungsten-carbide seal ring. The rotating seal ring shall have small back-swept grooves laser inscribed upon its face to act as a pump as it rotates, returning any fluid that should enter the dry motor chamber back into the lubricant chamber. All seal rings shall be individual solid sintered rings. Each seal interface shall be held in place by its own spring system. The seals shall not depend upon direction of rotation for sealing. Mounting of the lower seal on the impeller hub is not acceptable. Shaft seals without positively driven rotating members or conventional double mechanical seals containing either a common single or double spring acting between the upper and lower seal faces are not acceptable. The seal springs shall be isolated from the pumped media to prevent materials from packing around them, limiting their performance.
- B. Each pump shall be provided with a lubricant chamber for the shaft sealing system. The lubricant chamber shall be designed to prevent overfilling and shall provide capacity for lubricant expansion. The seal lubricant chamber shall have one drain and one inspection plug that are accessible from the exterior of the motor unit. The seal system shall not rely upon the pumped media for lubrication.

2.7 GUIDE RAILS

The dual guide rail system shall consist of a guide connector at the discharge base elbow, upper guide bracket, lifting cable, float mounting bracket, and two inch minimum diameter Type 316 stainless steel guide rails.

- A. The discharge base elbow supplied with the pump shall anchor and align the two stainless steel guide rails. The base elbow shall be of high quality gray cast iron, ASTM A48, Class 30. The base elbow shall be epoxy coated.
- B. A Type 316 stainless steel upper guide bracket shall align and support the two guide rails at the top of the station. It shall bolt directly to the access door frame or the concrete below the frame and incorporate an expandable rubber grommet for secure rail installation.
- C. Each pumping unit shall be provided with a Type 316 stainless steel lifting cable or chain, and be of sufficient length to extend from the installed pump to the top of the access hatch. The access frame shall provide a hook to attach the cable when not in use. The lifting cable shall be sized for the pump weight.
- D. A Type 316 stainless steel float-mounting bracket shall be provided with stain relief that support and hold the level control cords. Continuous cords shall be provided to run from pumps and level controls to the control panel.
- E. Guide rails over ten feet long shall be supplied with at least one intermediate Type 316 stainless steel bracket mounted to the station wet well wall.

2.8 SPARE PARTS

- A. The pumps shall be backed by supplies of spare parts from stock and after-sales service from a factory-trained and authorized maintenance facility, located within 100 miles from the site.

2.9 MANUFACTURER

- A. Pumps shall be FLYGT, or prior engineer approved equal.

PART 3 - EXECUTION

3.01 FACTORY TESTING AND SHIPMENT

- A. Pumps shall be factory tested prior to shipment.
 - 1. Verification of the pump curves by testing flow, head, and motor current.
 - 2. Verification of cavitation-free service and absence of motor overheating during conditions simulating the actual operating conditions after installation, whether submerged, semi-submerged, or dry.

3.02 SERVICES OF MANUFACTURER

- A. Inspection, Startup, and Field Adjustment: An authorized service representative of the manufacturer shall visit the site to witness the following and to certify in writing that the equipment has been properly installed, aligned, lubricated, adjusted, and readied for operation.
 - 1. Installation of equipment
 - 2. Inspection, checking, and adjusting the equipment
 - 3. Startup and field testing for proper operation.
 - 4. Performing field adjustments to ensure that the equipment installation and operation comply with requirements.

3.03 FIELD TESTS

- A. Each pump shall be field tested after installation to demonstrate the following:
 - 1. Satisfactory operation without excessive noise and vibration.
 - 2. No material loss caused by cavitation.
 - 3. Indicated head and flow at the design point.
- B. Field testing shall be witnessed by the Engineer and/or his representative. The Contractor shall furnish a minimum of three days of advance notice of field testing.
- C. In the event any pumping system fails to meet the indicated requirements, the pump shall be modified or replaced and re-tested as above until it satisfies the requirements.
- D. After each pumping system has satisfied the requirements, the Contractor shall certify in writing that it has been satisfactorily tested and that final adjustments have been made. Certification shall include the date of the field tests, a listing of persons present during the tests, and the test data.
- E. The Contractor shall be responsible for costs of field tests, including related services of the manufacturer's representative, except for power and water, which the Owner will bear. If available, the Owner's operating personnel will provide assistance in field testing.

END OF SECTION

THIS PAGE LEFT BLANK INTENTIONALLY

SECTION 15009 - PIPE SUPPORTS

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. The Contractor shall furnish labor, materials, equipment and incidentals and install pipe hangers, supports, beam clamps, hanger rods, friction clamps, concrete inserts, and anchor bolts including all hanging and supporting devices for supporting non- buried piping as shown on the Drawings and as specified herein. The Contractor shall note not all pipe supports, hangers, anchorages, or expansion joints may be shown on the drawings. The Contractor shall provide final responsibility for proper permanent support and anchorage of all piping systems.
- B. Unless otherwise noted, whenever the word “support” is used herein, it shall mean any overhead hangers, wall bracket, supports from the floor, friction clamps and attendant beam clamps, concrete inserts, pipe guides, rods, supports pipes and other necessary equipment for supporting and/or anchoring any pipes, tubing, or appurtenances. Where the word “pipe” is used it shall mean pipe, appurtenances and/or tubing.

1.02 RELATED WORK

- A. Concrete is included in Division 3.
- B. Miscellaneous metal fabrication is included in Section 05500.
- C. Field painting is included in Section 09800.
- D. Piping and valves are included in Division 15.

1.03 SUBMITTALS

- A. The Contractor shall submit to the Engineer as provided in Section 01300, complete sets of shop drawings of all items to be furnished under this Section. Submittals shall include complete layouts, schedules, location plans and complete total bill of materials for all pipe support systems.
- B. Submittals shall include a representative catalog cut for each different type of pipe hanger or support indicating the materials of construction, important dimensions and range of pipe sizes for which that hanger is suitable. Where standard hangers and/or supports are not suitable, submit detailed drawings showing materials and details of construction for each type of special hanger and/or support.

- C. Submittals shall include complete piping drawings indicating type of hanger and/or support, location, magnitude of load transmitted to the structure and type of anchor, guide and other pipe supporting appurtenances. Submittals shall use detail numbers as shown on the Drawings to indicate type of support proposed wherever possible.
- D. Type and locations of pipe hangers and/or supports shall also be shown on the piping layouts for each piping submittal as specified in the respective Division 13 and 15 pipe specifications.
- E. Submit complete design data for support systems to show conformance with this Specification.

1.04 QUALIFICATIONS

- A. Hangers, supports and appurtenances shall conform to the latest applicable requirements of ASME B31.1, except as supplemented or modified by the requirements herein.
- B. Hangers, supports and appurtenances shall be of approved standard design where possible and shall be adequate to maintain the supported load in proper position under all operating conditions. The minimum working factor of safety for supporting equipment, with the exception of springs, shall be five times the ultimate tensile strength of the material, assuming 10 feet of water filled pipe being supported.
- C. Pipe and appurtenances connected to equipment shall be supported in such a manner as to prevent any strain being imposed on the equipment. When manufacturers have indicated requirements that piping loads shall not be transmitted to their equipment, submit certification stating that such requirements have been complied with.
- D. The supports specified under this section shall be furnished by a manufacturer who is fully experienced, reputable, qualified and is regularly engaged in the design of complete pipe support systems and the manufacture (or fabrication) of the items to be furnished.
- E. The piping supports and anchorages (including location of guides and expansion joints) shall be designed and supplied, as an integral system, by a single manufacturer. The pipe support manufacturer shall certify through the Contractor to the Engineer that the supports and/or anchorage have been designed as a system.
- F. Design calculations for pipe supports and anchorage systems (including guides and expansion joints) shall be submitted, along with the pipe system drawings. Calculations shall be stamped by a licensed Professional Engineer who is regularly engaged in pipe support system design.

1.05 DESCRIPTION OF SYSTEM

- A. All pipe and tubing shall be supported and anchored as required to prevent significant stresses in the pipe or tubing material, valves, fittings and other pipe appurtenances and to support and secure the pipe in the intended position and alignment. All supports and anchorage shall be designed to adequately secure the pipe against excessive dislocation due to thermal expansion and contraction, internal flow forces, and all probable external forces such as equipment, pipe, and personnel contact.
- B. All pipe and appurtenances connected to equipment shall be supported in such a manner as to prevent any strain being imposed on the equipment. When manufacturers have indicated requirements that piping loads shall not be transmitted to their equipment, submit certification stating that such requirements have been complied with.
- C. All pipe supports shall be designed with liberal strength and stiffness to support the respective pipes under the maximum combination of peak loading conditions to include pipe weight, liquid weight, liquid movement, and pressure forces, thermal expansion and contraction, vibrations, and all probable externally applied forces. Prior to installation, all pipe supports shall be approved by the Engineer.
- D. The minimum working factor of safety for all supporting equipment, with the exception of springs and anchorage, shall be five (5) times the ultimate tensile strength of the material, assuming a supported weight of a length of water filled pipe and equal to half the distance to the next supports. Valves and other concentrated loads shall be accounted for.
- E. The minimum factor of safety for thrust anchorage design shall be 1.5. Thrust design shall utilize: working pressure plus water hammer; or 1.5 times working pressure; or test pressure whichever is highest or as noted on the Drawings and as acceptable to the Engineer.
- F. All supports of the same type shall be identical, varying only with size, and the product of a single manufacturer or fabricator. Supports shall be provided where indicated on the Drawings, where required, and where acceptable to the Engineer to form a complete workable system. If types of pipe supports other than those shown on the Drawings or specified are required, they shall be as acceptable to the Engineer.

1.06 REFERENCE STANDARDS

- A. Manufacturer's Standardization Society (MSS):
 - 1. MSS SP-58 - Pipe Hangers and Supports - Materials and Design.
 - 2. MSS SP-69 - Pipe Hangers and Supports - Selection and Application.

- B. American Society for Testing and Materials (ASTM):
 - 1. ASTM A36 - Standard Specification for Carbon Structural Steel.
 - 2. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60000 PSI Tensile Strength.
- C. American Society of Mechanical Engineers (ASME):
 - 1. ASME B31.1 - Power Piping Code.

PART 2: PRODUCTS

2.01 GENERAL

- A. The equipment specified herein is intended to support the various types of pipe and piping systems. The details shown on the Drawings are intended to indicate the generally desired methods of support under normal conditions. It shall be the responsibility of the Contractor to develop final details and any details associated with special conditions not already covered to meet the system conditions specified in the respective Division 15 pipe specifications.
- B. Pipe and tubing shall be supported as required to prevent significant stresses in the pipe or tubing material, valves, fittings and other pipe appurtenances and to support and secure the pipe in the intended position and alignment. Supports shall be designed to adequately secure the pipe against excessive dislocation due to thermal expansion and contraction, internal flow forces, and all probable external forces such as equipment, pipe, and personnel contact. Any structural steel members required to brace any piping from excessive dislocation shall conform to the applicable requirements of Section 05500 and shall be furnished and installed under this Section.
- C. Hangers and supports shall be spaced in accordance with ASME B31.1, except that the maximum unsupported spans shall not exceed 10 feet unless otherwise specified herein.
- D. Where flexible couplings are required at equipment, tanks, etc., the end opposite to the piece of equipment, tank, etc., shall be rigidly supported. All sleeve couplings and expansion joints shall be supported on both sides.
- E. Pipe and appurtenances connected to the equipment shall be supported in a manner to prevent any strain from being imposed on the equipment or piping system.
- F. Rods, clamps, hangers, inserts, anchor bolts, brackets, and components for interior pipe supports shall be furnished with galvanized finish, hot dipped or elector- galvanized coated, except where field welding is required. Interior clamps on plastic pipe shall be plastic coated. Supports for copper pipe shall be copper plated or shall

- have a 1/16-in. plastic coating. Rods, clamps, hangers, inserts, anchor bolts, brackets, and components for exterior pipe, submerged piping, pipe subject to splashing and pipe within outdoor structures shall be of Type 316 stainless steel.
- G. Supports shall be sufficiently close together such that the sag of the pipe is within limits that will permit drainage and avoid excessive bending stresses from concentrated loads between supports. There shall be no visible sagging.
 - H. Uninsulated non-metallic piping such as PVC, CPVC, etc., shall be protected from local stress concentrations at each support point. Protection shall be provided by galvanized steel protection shields or other method as approved by the Engineer. Where pipes are bottom supported 180 degrees, arc shields shall be furnished. Where 360 degree arc support is required, such as U bolts, protection shields shall be provided for the entire pipe circumference. Protection shields shall have an 18 gauge minimum thickness, not be less than 12 inches in length, and be securely fastened to pipe with stainless steel or galvanized metal straps not less than 3 inches wide.
 - I. Insulated pipe shall be furnished with a rigid foam insulating saddle at each pipe support location as specified under respective pipe insulation. Provide galvanized protection shields as specified in Paragraph 2.01H above at each location.
 - J. Where pipe hangers and supports come in contact with copper piping, provide protection from galvanic corrosion by wrapping pipe with 1/16-in. thick neoprene sheet material and galvanized protection shield isolators, or by using copper plated or PVC coated hangers and supports.
 - K. Pipe supports shall be provided as follows:
 - 1. Cast iron and ductile iron piping shall be supported at a maximum support spacing of 10 feet with a minimum of one support per pipe section at the joints.
 - 2. Support spacing for steel and stainless steel piping two inch and smaller diameter and copper tubing shall not exceed five feet.
 - 3. Vertical pipes shall be supported at each floor or at intervals of not more than twelve feet by approved pipe collars, clamps, brackets, or wall rests, and at points necessary to insure rigid construction.
 - 4. Pipe supports shall not induce point loadings but shall distribute pipe loads evenly along the pipe circumference.
 - 5. Supports shall be provided at changes in direction or specified herein. No piping shall be supported from other piping or from metal stairs, ladders, and walkways, unless specifically directed or authorized by the Engineer.

6. Pipe supports shall be provided to minimize lateral forces through valves, both sides of split type couplings, and sleeve type couplings and to minimize all pipe forces on pump housings. Pump housings shall not be utilized to support connecting pipes.
 7. Effects of thermal expansion and contraction of the pipe shall be accounted for in the pipe support selection and installation.
- L. Unless otherwise specified herein, pipe hangers and supports shall be as manufactured by Carpenter and Paterson, Inc., Woburn, MA; Anvil International, Portsmouth, NH; and Unistrut, Harvey, IL; or equal. Any reference to a specific figure number of a specific manufacturer is for the purpose of establishing a type and quality of product and shall not be considered as proprietary.
 - M. Any required pipe supports for which the supports specified in this Section are not applicable shall be fabricated or constructed from standard structural steel shapes, concrete and anchor hardware similar to items previously specified herein and shall be subject to the approval of the Engineer.
 - N. Wedge anchor bolts shall be equal to Kwik-Bolt as manufactured by the Hilti Corporation, or equal. The length of expansion bolts shall be sufficient to place the wedge portion of the bolt a minimum of 1 inch behind the steel reinforcement, but in no case less than 3 inches. Expansion type anchors shall not be used in locations where the normal loading will be direct tension.
 - P. Cast-in-place anchor bolts for interior supports shall meet the requirements of ASTM A307. All anchor bolts, nuts and washers shall be hot dip galvanized or cadmium plated; except where pipe supports will be submerged or within one foot above liquid levels, in which case all bolts, nuts, washers and hardware shall be Type 316 stainless steel.

2.02 SINGLE PIPE HANGERS

- A. Single pipes shall be supported by hangers suspended by steel rods from structural steel members, concrete ceilings and beams, bottom of trapeze hangers and wall mounted steel angle brackets.
- B. Hanger rods shall be hot rolled steel, machine threaded. The strength of the rod shall be based on its root diameter.
- C. Except as otherwise specified herein, pipe hangers shall be adjustable clevis type similar to Carpenter and Paterson Figure 100, material as required.
- D. Hanger rods shall be attached to concrete structures using concrete inserts similar to Carpenter and Paterson Figure 650. Beam clamps, C clamps, or welded beam attachments shall be used for attaching hanger rods to structural steel members.

Where necessary and approved by the Engineer, double expansion shields shall be used for attaching to concrete structures.

- E. Where pipes are near walls, beams, columns etc. and located an excessive distance from ceilings or underside of beams, welded steel wall brackets similar to Carpenter and Paterson Figures 69, 84, or 139, shall be used for hanging pipe. Where single pipes rest on top of bracket pipe supports, attachments shall meet requirements as specified under multiple pipe hangers.

2.03 MULTIPLE PIPE HANGERS

- A. Suspended multiple pipes, running parallel in the same horizontal plane, which are adjacent to each other shall be suspended by trapeze type hangers or wall brackets. Trapeze hangers shall consist of structural steel channel supported from threaded rod or attached to concrete walls, columns or structural steel support members as required to meet the intent of this specification. Channel shall be similar to Carpenter and Paterson Figure 371. Rods, concrete inserts, "C" Clamps, beam clamps, welded beam attachments, and expansion shields shall be as specified in Paragraph 2.02 Single Pipe Hangers above.
- B. Except as otherwise specified herein, pipe anchors used for attaching pipe to trapeze or multiple pipe wall brackets shall be anchors or pipe chairs as required. Chair "U" bolts shall be tightened to allow freedom of movement for normal expansion and contraction, except where pipe must be anchored to control direction of movement or to act as a thrust anchor.

2.04 SINGLE AND MULTIPLE PIPE SUPPORTS

- A. Single pipes located in a horizontal plane close to the floor shall be supported by one of the methods specified herein or as shown on the Drawings.
- B. Pipes 3 inches in diameter and larger shall be supported by adjustable stanchions similar to Carpenter and Paterson Figures 101 and 138. Stanchions shall provide at least a 4 inch adjustment and be flange mounted to the floor.
- C. Pipes less than 3 inches in diameter shall be held in position by fabricated "C" channel, welded post base similar to Unistrut Series P2072A and pipe clamps similar to Unistrut Series P1109 thru P1126. Where required to assure adequate support, fabricate supports using two vertical members and post bases connected together by horizontal member of sufficient load capacity to support pipe. Wherever possible, supports shall be fastened to nearby walls or other structural members to provide horizontal rigidity. More than one pipe may be supported from a common fabricated support.

- D. Where shown on the Drawings, pipe shall be supported using concrete anchor posts. The pipe shall be securely fastened to concrete anchor posts using suitable metal straps as required and approved by the Engineer.

2.05 WALL SUPPORTED PIPES

- A. Single or multiple pipes located adjacent to walls, columns or other structural members, whenever deemed necessary, shall be supported using welded steel wall brackets similar to Carpenter and Paterson Figures 69, 84, or 139; or "C" Channel with steel brackets similar to Unistrut pipe clamps. All members shall be securely fastened to wall, column, etc. using double expansion shields or other method as approved by the Engineer. Additional wall bearing plates shall be provided where required.
- B. Pipe shall be attached to supports using methods hereinbefore specified to meet the intent of this Specification.

2.06 BASE ANCHOR SUPPORT

- A. Where pipes change direction from horizontal to vertical via a bend, a weld or cast base anchor support shall be installed at the bend to carry the load. The bend anchor shall be fastened to the floor and double expansion shields or other method as approved by the Engineer.
- B. Where pipe are to bends shall be supported using concrete anchor posts, pipes shall be securely fastened to concrete supports with suitable metal bands as required and approved by the Engineer.

2.07 VERTICAL PIPE SUPPORTS

- A. Where vertical pipes are not supported by a Unistrut system as specified in Paragraph 2.08, they shall be supported in one of the following methods.
 - 1. For pipes $\frac{1}{4}$ inch to 2 inches in diameter, an extension hanger ring may be used with an extension rod and hanger flange. The rod diameter shall be as recommended by the manufacturer for the type of pipe to be supported. The hanger ring shall be galvanized steel, stainless steel, or PVC clad depending on the supported pipe. The hanger ring shall be similar to Carpenter and Paterson Figure 81. The anchor flange shall be similar to Carpenter and Paterson Figure 85.
 - 2. For pipes equal to or greater than $\frac{1}{2}$ inches in diameter, extended pipe clamps similar to Carpenter and Patterson Figure 267 may be used. The hanger shall be attached to concrete structures using double expansion shields or to steel support members using welding lugs similar to Carpenter and Paterson Figure 220.

3. Pipe riser clamps shall be used to support vertical pipes extending through floor slabs. Riser clamps shall be similar to Carpenter and Patterson Figure 126. Copper clad or PVC coating clamps shall be used on copper pipes. Insulation shall be removed from insulated pipes prior to installing riser clamp.
4. Unless otherwise specified, shown, or specifically approved by the Engineer, vertical runs exceeding twelve feet shall be supported by approved pipe collars, clamps, brackets or wall rests at all points required to insure a rigid installation.

2.08 SPECIAL SUPPORTS

- A. Pipe supports shall be provided for closely spaced vertical piping systems as required to provide a rigid installation. The support system shall consist of a framework suitably anchored to floors, ceilings and walls and be as manufactured by Unistrut, or equal.
- B. Vertical and horizontal supporting members shall be U shaped channels similar to Unistrut Series P1000 or P5500. Vertical piping shall be secured to the horizontal members by pipe clamps or pipe straps equal to Unistrut Series P2558.
- C. The assemblies shall be furnished complete with nuts, bolts, and fittings required for a complete assembly including end caps for all members.
- D. The design of each individual framing system shall be the responsibility of the Contractor. Shop drawings, as specified above shall be submitted and shall show all details of the installation, including dimensions and types of supports. In all instances the completed frame shall be adequately braced to provide a complete rigid structure when all the piping has been attached.
- E. Any required pipe supports for which the supports specified in this Section are not applicable shall be fabricated or constructed from standard structural steel shapes in accordance with applicable provisions of Section 05500, shall have anchor hardware similar to items specified herein, shall meet the minimum requirements listed below, and shall be subject to the approval of the Engineer.
 1. Pipe support systems shall meet all requirements of this Section and all related Sections of this Specification.
 2. Complete design details of the entire pipe support system shall be provided for review by the Engineer in the submittals specified in subsection 1.03.
 3. The pipe support system shall not impose loads on the supporting structures in excess of the loads for which the supporting structure is designed.

2.09 SURFACE PREPARATION AND SHOP PRIME PAINTING

- A. Non-galvanized ferrous surfaces shall be prepared and shop painted as part of the work of this Section. Surface preparation and shop painting shall be specified in Section 09800.

PART 3 - EXECUTION

3.01 COATING

- A. After fabrication and before installation, all ferrous metal surfaces of pipe supports, hangers, anchors, rods, support pipes, brackets, nuts, bolts, washers and other metal used, shall be either galvanized (except cast or ductile iron), or shall receive the coating as specified in Section 09800.

3.02 SHIPPING, HANDLING, DELIVERY AND STORAGE

- A. All supports and hangers shall be crated, delivered and uncrated so as to protect against any damage.
- B. All parts shall be properly protected so that no damage or deterioration shall occur during a prolonged delay from the time of shipment until installation is completed.

3.03 PREPARATION

- A. Locate hangers, supports and accessories to support piping, valves and at all concentrated loads.
- B. Locate hangers, supports and accessories within maximum span lengths specified to support continuous pipeline runs.
- C. Locate hangers and supports to prevent vibration or swaying and to provide for expansion and contraction.
- D. Install items to be embedded before concrete placement.
- E. Fasten embedded items securely to prevent movement during concrete placement.
- F. Install hanger and support units on piping systems as recommended by manufacturer.
- G. Adjust hangers and supports and place grout for concrete supports to bring pipelines to specified elevations.
- H. Ferrous pipe shall be supported by galvanized steel or stainless steel pipe attachments.

- I. Copper pipe shall be supported by plastic-coated or copper-plated steel pipe attachments.
- J. Plastic pipe shall be supported by plastic-coated steel pipe attachments, or with suitable rubber shields.
- K. Stainless steel pipe shall be supported by plastic-coated steel pipe attachments.

3.04 INSTALLATION

A. Supports and Hangers for Horizontal Pipes.

1. Space supports and hangers for all piping no farther apart than indicated below unless otherwise shown.
 - a. Copper Tube:
 - (1) 2 inches in diameter and smaller: 5 feet
 - (2) Greater than 2 inches in diameter: 8 feet
 - b. Steel Pipe:
 - (1) 1 inch in diameter and smaller: 6 feet
 - (2) Greater than 1 inch in diameter: 10 feet
 - c. Stainless Steel Pipe:
 - (1) 2 inches in diameter and smaller: 5 feet
 - (2) Greater than 2 inches in diameter: 8 feet
 - d. Plastic Pipe:
 - (1) Maximum support spacing for plastic pipe at ambient temperature shall be one-half the above values specified for steel pipe.
 - e. Ductile Iron Pipe:
 - (1) Two supports per length.
2. Additional supports shall be placed immediately adjacent to any change in piping direction, and on both sides of valves and couplings.
3. Accurately locate inserts for hanger rods in forms before concrete is placed.

4. Use expansion anchors only to support rods, hangers and brackets for piping 2-in. and smaller and only if the expansion anchors are designed to carry 100 percent of the full load, hangers and/or bracket and pipe load.

B. Supports for Vertical Piping.

1. Provide riser clamp placed under hub, fitting or coupling with approved solid bearing on steel sleeve at each floor level.
2. Where riser clamps are used with plastic piping they shall be modified so as not to exert any compressive forces on the pipe.

3.05 ACCEPTANCE AND SERVICE

- A. Pipe systems shall be brought to operating pressures and temperatures. Systems shall be cycled to duplicate operating conditions. If any part of the piping support system proves to be defective or inadequate, it shall be repaired or augmented under this section to the satisfaction of the Engineer and at no additional cost to the Owner. Contractor shall furnish labor and materials to readjust and correct faults with hangers and supports for the piping systems.

END OF SECTION

SECTION 15042 - DUCTILE IRON PIPE

PART 1 - GENERAL

1.01 SCOPE OF WORK

The Contractor shall furnish all labor, materials, equipment and incidentals required and install ductile iron pipe, and ductile iron fittings for buried piping complete as shown on the drawings and as specified herein.

1.02 RELATED WORK SPECIFIED ELSEWHERE

Section 09800 - Protective Coatings
Section 15000 - Pipe Supports

1.03 QUALITY ASSURANCE

- A. The Contractor shall obtain ductile iron pipe and fittings from no more than one manufacturer.
- B. Reference Standards: The material furnished and installed under this Section shall comply with the latest editions of the following:
 - 1. AWWA C104, Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water.
 - 2. AWWA C110, Gray-Iron and Ductile-Iron Fittings, 3 in. through 48 in., for Water and Other Liquids.
 - 3. AWWA C111, Rubber Gasket Joints for Ductile-Iron and Gray-Iron Pressure Pipe and Fittings.
 - 4. AWWA C115, Flanged Ductile- Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flanges.
 - 5. AWWA C116, Protective Fusion-Bonded Epoxy Coatings for the Interior and Exterior Surfaces of Ductile-Iron and Gray-Iron Fittings.
 - 6. AWWA C151, Ductile-Iron Pipe, Centrifugally Cast.

1.04 SUBMITTALS

- A. The Contractor shall submit complete information on pipe and fittings including definitive demonstration of compliance with all applicable standards.
- B. The Contractor shall submit, and shall comply with, the recommendations of the pipe manufacturer for handling, storing, and installing pipe and fittings.
- C. The Contractor shall submit the pipe manufacturer's certification of compliance with the specifications.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Ductile iron pipe shall conform to AWWA C151. Thickness of flanged pipe shall be Special Class 53 for 54" diameter and smaller. Fittings shall meet the requirements of AWWA C110.
- B. Flanged joints shall be provided for exposed locations, including the valve box and wet well. Pipe barrels shall conform to AWWA C151. Flanges shall be ductile iron in accordance with AWWA C115. The bolt holes shall be aligned per AWWA C115. Flanges shall be factory installed. Flanges shall conform to the drilling and facing of ANSI B16.1 Class 125 flanges.
- C. Full face gaskets designed specifically for the unique surface of ductile iron shall be used. Flat rubber gaskets shall not be used. All nuts and bolts shall be 316 stainless steel with anti-seize compound.
- D. Interior Lining
 - 1. Interior surfaces of pipe shall be cleaned and lined in the factory with a NSF 61 certified cement mortar lining in conformance with AWWA C104. Lining shall be double thickness for pipe to be used in waterlines. Pipe to be used in wastewater lines shall have a ceramic epoxy lining as follows:
 - a. Material: Amine cured novalac epoxy containing a minimum of 20 percent by volume ceramic quartz pigment meeting all the performance characteristics of Protecto 401 or equal coating system. Certification of test results for coating system shall be submitted.
 - b. Surface Preparation: The surface shall be prepared in strict accordance with the coating system manufacturer's procedures.
 - c. Application: Coating system shall be factory applied by the ductile iron pipe manufacturer.
 - d. Lining Thickness: Pipe shall receive 40 mils, minimum dry film thickness of coating.
 - e. Inspection: Pipe lining shall be checked in the factory for thickness using a magnetic film thickness gauge using the method outlined SSPCPA-2 Film Thickness Rating. Interior lining of pipe and fittings shall be tested for pinholes with a non-destructive 2,500-volt test. Any defects found shall be repaired prior to shipment.
 - 2. Interior surfaces of fittings shall be lined in the factory with a NSF 61 certified fusion bonded epoxy lining in conformance with AWWA C116.

E. Exterior Coating

1. The exterior surfaces of pipe and fittings which will not be buried shall be coated in conformance with the requirements of Section 09800 - Protective Coating for Ferrous Metal Surfaces – Corrosive Gas or Immersion Environment.
2. The exterior surfaces of pipe and fittings which will be buried shall be coated with a minimum 1 mil thick asphaltic coating per AWWA C151 for pipe and AWWA C110 and AWWA C153 for fittings.
3. Polyethylene encasement in accordance with ASNI/AWWA C105/A21.5 shall be required for all buried ductile iron pipes.

2.02 IDENTIFICATION

Each length of pipe and each fitting shall be marked with the name of manufacturer, size and class. All gaskets shall be marked with the name of manufacturer, size, and proper insertion direction.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. All piping shall be installed in accordance with recommendations of the pipe manufacturer and as specified herein.
- B. Care shall be taken in handling, storage, and installation of pipe and fittings to prevent injury to the pipe, lining or coating. Every precaution shall be taken to prevent damage to the lining. Pipe shall only be handled from the exterior. No interior handling forks, rods, ropes, straps or other handling means shall be used within the pipe. All pipe and fittings shall be examined before installation, and no piece shall be installed which is found to be defective. Any damage to the pipe coating shall be repaired according to the manufacturer's recommendations.
- C. Flanged faces shall bear uniformly on the gasket, and the bolts shall be tightened in a progressively crisscrossed pattern, such as by tightening the bottom bolt first; then, the top bolt; next, the bolts at either side; and finally, the remaining bolts. This process shall be repeated until all bolts are adequately tightened.
- D. The Contractor shall prevent bending or torsional strains from being applied to flanges or flanged appurtenances.

END OF SECTION

THIS PAGE LEFT BLANK INTENTIONALLY

SECTION 15064 - PLASTIC PRESSURE PIPE

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Scope:
 - 1. The Contractor shall furnish all labor, materials, equipment and incidentals for plastic pressure pipe systems as shown on the Drawings.

1.02 RELATED SECTIONS

Section 02300 - Excavation and Backfill
Section 02580 - Pipeline Installation and Testing
Section 15064 - Ductile Iron Pipe

1.03 QUALITY ASSURANCE

- A. Source Quality Control:
The Contractor shall obtain pipe from no more than one manufacturer.
- B. Reference Standards: The Contractor shall comply with the latest editions of the following:
 - 1. ASTM D1784, Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds.
 - 2. ASTM F477 - Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.
 - 3. AWWA C900 (ANSI A21.4), Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water.

1.04 SUBMITTALS

- A. Shop Drawings and Product Data:
 - 1. Submittals shall contain the following at a minimum:
 - a. Size, class and other details of pipe to be used.
 - b. Information on typical joint and harnessing details.
 - c. Description of proposed testing methods, procedures and apparatus.
- B. Tests: All test reports shall be submitted.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Delivery, storage and handling of pipe, fittings, and specials shall be in complete compliance with the manufacturer's instructions.
- B. All pipe, fittings and accessories shall be handled carefully with approved devices. The Contractor shall not drop or roll pipe off trucks or otherwise drop, roll or skid pipe. Materials cracked, gouged, chipped, dented or otherwise

- damaged shall not be used.
- C. Pipe, fittings and specials shall be unloaded and stored as close to the place where they are to be laid as is practicable to avoid unnecessary handling. Interiors shall be kept free from dirt and foreign matter.
 - D. Piping shall be stored off of the ground on wooden pallet or similar.

PART 2 – PRODUCTS

2.01 PIPE

- A. Pipe shall comply with the following standards:
 - 1. Material: ASTM D1784, Cell Classification 12454-B
 - 2. Class 235 DR 18, AWWA C900 for pipe sizes 4” – 12” diameter.
 - 3. Class 165 DR 25, AWWA C900 for pipe sizes 12” – 24” diameter.
- B. Joints shall be:
 - 1. ASTM D1689
 - 2. Type: Integral bell and spigot.
 - 3. Flexible seals: Elastomeric, conforming to ASTM F477.
 - 4. Lubricant: As recommended by manufacturer.
- C. Fittings shall be ductile iron as specified in Section 15042.
- D. Restrained joints shall be Series 2000 PV or 2000 SV MEGALUG mechanical joint thrust restraint as manufactured by EBAA Iron, Inc. or approved equal. Joints shall be furnished with 316 stainless steel T-bolts. All gland bodies, wedges, and wedge activators and bolts shall be fusion bonded epoxy coated.

2.02 PIPE MARKING

- A. All pipe shall be continually marked at five feet maximum intervals.
- B. Designations shall include:
 - 1. Pipe nominal size.
 - 2. Pipe pressure class or (S)DR designation.
 - 3. AWWA standard designation.
 - 4. ASTM standard designation
 - 5. PVC cell classification, as applicable.
 - 6. Manufacturer's name or trade name and code.

B. DETECTOR WIRE

Detector wire shall be minimum AWG 12-gauge solid copper, TWHN insulated. The wire shall be one continuous, unbroken length.

PART 3 – EXECUTION

3.01 INSTALLATION

- A. General:

1. The Contractor shall install piping as shown on the Drawings, as specified herein, and as recommended by the pipe manufacturer.
2. The Contractor shall request instructions from the Engineer before proceeding if there is a conflict between the Drawings or Specifications and the manufacturer's recommendations.
3. Minimum cover over piping shall be three feet unless otherwise shown or approved by the Engineer.
4. Sewer mains shall be laid at least 10' horizontally and 18" vertically from any water lines (water over sewer). Where water lines cross over sewer lines, the above requirements will be waived if pipe segments are centered to provide maximum spacing of the joints of both water and sewer lines and a vertical separation of at least 18" (water over sewer) is maintained

B. Bedding:

1. Excavation and bedding shall be as defined in Section 02300.

C. Laying Pipe:

1. The Contractor shall comply with manufacturer's instructions, technical specifications, and details on Contract Drawings.
2. Ground water level shall be at least six inches below bottom of trench. Pipe shall not be laid in water. A dry trench shall be maintained until jointing and backfilling are complete.
3. Bell and spigot pipe shall be placed so that bells face the direction of laying, unless otherwise approved by Engineer.
4. The Contractor shall excavate around joints in bedding and lay pipe so that only the barrel receives bearing pressure from the trench bottom.
5. Permissible deflections at joints shall not exceed the amount allowed by manufacturer.
6. The Contractor shall ensure that no foreign material enters the piping prior to and during installation.
7. Interior of all pipe and fittings shall be inspected and all dirt, gravel, sand, debris or other foreign materials shall be completely removed from the pipe interior before it is moved into the trench.
8. Bell and spigot mating surfaces shall be thoroughly wire brushed and wiped clean and dry immediately before pipe is laid.
9. Every time that pipe laying is not actively in progress, the open ends of pipe shall be closed by a watertight plug.

D. Restraints:

1. The Contractor shall provide and install restrained joints as shown, specified, required, and as recommended by the manufacturer.

E. Transitions from One Type of Pipe to Another:

The Contractor shall provide and install all necessary adapters, specials and connection pieces required when connecting different types and sizes of pipe.

F. Backfilling:

1. Backfilling shall be as defined in Section 02300.

3.02 TESTING OF PIPING

A. Testing shall be as defined in Section 02580.

3.03 CLEANING AND DISINFECTION

A. Cleaning and disinfection shall be as defined in Section 02580.

END OF SECTION

SECTION 15200 - VALVES, GENERAL

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Scope: The Contractor shall furnish all labor, materials, equipment and incidentals required to provide all valves as shown on the Drawings and as specified herein.

1.02 QUALITY ASSURANCE

- A. Manufacturer's Qualifications:
 - 1. Valves and appurtenances provided under this Section shall be the standard product in regular production by manufacturers whose products have proven reliable in similar service.
 - 2. All valves of the same specific type shall be the product of a single manufacturer.
 - 3. All valves shall be new and unused.
- B. Reference Standards: The products provided by the Contractor shall comply with applicable provisions and recommendations of the following, except as otherwise shown or specified.
 - 1. ANSI A21.11, Rubber Gasket Joints for Ductile Iron Pressure Pipe & Fittings.
 - 2. ANSI B16.1, Cast Iron Pipe Flanges and Flanged Fittings
 - 3. NSF/ANSI 61, Drinking Water System Components - Health Effects

1.03 SUBMITTALS

- A. Shop Drawings:
 - 1. The Contractor shall submit detailed drawings, data, and descriptive literature on all valves, including:
 - a. Dimensions.
 - b. Size.
 - c. Complete materials of construction.
 - d. Weight.
 - e. Protective coating.
- B. Manufacturer's Certificates:
 - 1. The Contractor shall submit manufacturer's certificates of compliance with ANSI, AWWA and other Standards listed herein.
 - 2. The Contractor shall submit manufacturer's NSF 61 certification for all products and materials to be used in contact with potable water.

- C. Manufacturer's Service Report:
 - 1. The Contractor shall submit manufacturer's certification that valves are properly installed, with recommend corrective action for any deficiencies noted.

- D. Operation and Maintenance Data:
 - 1. The Contractor shall submit a detailed operation and maintenance manual for all valves provided including the following information:
 - a. Product name and number.
 - b. Name, address and telephone number of manufacturer and local distributor.
 - c. Instruction bulletins for operation, maintenance and recalibration.
 - d. Complete parts and recommended spare parts lists.

1.04 PRODUCTS DELIVERY, STORAGE AND HANDLING

- A. The Contractor shall handle all valves with care.
- B. Valves which are cracked, chipped, distorted or otherwise damaged or dropped shall not be used, and shall be replaced with undamaged items.
- C. The Contractor shall store all valves off the ground, and in enclosed shelters or otherwise protected from the weather.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. General:
 - 1. All valves shall have manufacturer's name and working pressure cast in raised letters on valve body.
 - 2. All manual valve operators shall turn right to close unless otherwise specified. Valves shall indicate the direction of operation.
 - 3. Unless otherwise specified all flanged valves shall have ends conforming to ANSI B16.1, Class 125.
 - 4. All buried valves shall have ends conforming to ANSI A21.11.
 - 5. All buried valves shall be provided with adjustable three piece valve boxes, extension stems, operating nuts, and covers unless otherwise shown or specified.
 - 6. All bolts, nuts and studs on or required to connect buried or submerged valves shall be 316 stainless steel.
 - 7. Bolts and nuts shall have hexagon heads and nuts.
 - 8. Gasket material and installation shall conform to manufacturer's recommendations.
 - 9. Valve ferrous surfaces shall be coated inside and outside with factory applied fusion bonded epoxy.
 - 10. All valves for potable water service shall have NSF 61 certification for all materials in contact with potable water.

2.02 FIELD APPLIED COATING

- A. Outside Walls of Exposed Valves
 - 1. In compliance with Section 09800.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. The Contractor shall install all valves in accordance with manufacturer's instructions.
- B. The Contractor shall install suitable corporation stops at all points shown and required where air binding of pipe lines might occur.
- C. Valves shall be installed plumb and level, free from distortion and strain caused by misaligned piping, equipment or other causes.
- D. Valve boxes shall be set plumb, and centered with the bodies directly over the valves. Earth fill shall be carefully tamped around each valve box to a distance of four feet on all sides of the box, or to the undisturbed trench face, if less than four feet.

3.02 FIELD TEST AND ADJUSTMENTS

- A. The Contractor shall adjust all parts and components as required for correct operation.
- B. The Contractor shall conduct functional field test of each valve in presence of the Engineer to demonstrate that each part and all components together function correctly. All testing equipment required shall be provided.

END OF SECTION

THIS PAGE LEFT BLANK INTENTIONALLY

SECTION 15203 – CHECK VALVES

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Scope: The Contractor shall furnish all labor, materials, equipment and incidentals required to provide swing check valves as shown on the Drawings and as specified herein.

1.02 RELATED SECTIONS

- A. Section 15200 - Valves, General

1.03 REFERENCE STANDARDS

- A. Reference Standards: The products provided by the Contractor shall comply with applicable provisions and recommendations of the following, except as otherwise shown or specified.
 1. ASTM A536, Standard Specification for Ductile Iron Castings.
 2. AWWA C508, Swing Check Valves for Waterworks Service.

1.04 TESTING

- A. Valves shall be tested by the manufacturer as a complete assembly per AWWA C508.

1.05 WARRANTY

- A. Valve shall be warranted by the manufacturer for defects in materials and workmanship for a period of two years (24 months) from date of shipment.

PART 2 - PRODUCTS

2.01 Swing Check Valves shall be APCO model CVS-EDV-LW as manufactured by DeZURIK, Inc., or equal.

2.02 Valves shall conform to AWWA C508 with an externally adjustable lever and weight used to accelerate disc closure before flow reversal can occur. Lever shall be horizontal in the closed position. Valve shall be rated to 250 psi cold working pressure.

2.03 Body shall be ductile iron ASTM A536 Grade 65-45-12 for sizes 2 inch - 24 inch. Body shall have flanged ends. Body seat shall be Type 304 stainless steel. Flow direction arrow shall be cast on the body exterior.

- 204 Disc shall be of ductile iron ASTM A536 Grade 65-45-12, with a seat of NBR or EPDM. The disc seat shall be replaceable and provide drip tight shutoff. Seat shall be held in place by Type 304 stainless steel screws.
- 205 Shaft shall be one-piece Type 304 stainless steel. Shaft shall be keyed and protrude through both sides of the body.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. The Contractor shall install all check valves in accordance with manufacturer's instructions and Section 15200.

END OF SECTION

SECTION 15206 – GATE VALVES

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Scope: The Contractor shall furnish all labor, materials, equipment and incidentals required to provide resilient wedge gate valves as shown on the Drawings and as specified herein.

1.02 RELATED SECTIONS

- A. Section 15200 – Valves, General

1.03 REFERENCE STANDARDS

- A. Reference Standards: The products provided by the Contractor shall comply with applicable provisions and recommendations of the following, except as otherwise shown or specified.
 1. ASTM A536: Standard Specification for Ductile Iron Castings.
 2. AWWA C515: Reduced Wall, Resilient Seated Gate Valves for Water Supply Service.

1.04 TESTING

- A. Valves shall be tested by the manufacturer as a complete assembly per AWWA C515.

1.05 WARRANTY

- A. Valves shall be warranted by the manufacturer for defects in materials and workmanship for a period of ten years from date of shipment.

PART 2 - PRODUCTS

2.01 Resilient Wedge Gate Valves shall be Kennedy KS-AW, Mueller A-2361, or equal.

2.02 Resilient Wedge Gate Valves shall meet or exceed all applicable requirements of ANSI/AWWA C515. Valves shall be certified to ANSI/NSF 61 & 372. Valves shall have an AWWA working pressure of 250 psig. Valves shall be shell tested to 500 psig and seat tested to 375 psig.

2.03 The valve body, bonnet, stuffing box, and disc shall be composed of ASTM A536 Grade 65-45-12 minimum ductile iron. The body and bonnet shall also adhere to the minimum wall thickness as set forth in AWWA C515. Valves shall have Type 316 Stainless Steel bolts and nuts for the stuffing box and bonnet.

- 2.04 Valve type shall be Non-Rising Stem (NRS). Valve stems shall be made of Type 316 Stainless Steel material. Valve stems shall have at least one “anti-friction” thrust washer above and below the stem collar to reduce operating torque. Valve stem design shall be such that if excessive input torque is applied, stem failure shall occur above the stuffing box at such a point as to enable the operation of the valve with a pipe wrench or other readily available tool.
- 2.05 Valves shall have an arrow cast on the operating nut or hand wheel showing opening direction. The direction of opening shall be as specified.
- 2.06 Valves shall have an O-ring sealed stuffing box. Two O-rings shall be placed above and one O-ring below the stem thrust collar. The thrust collar shall be factory lubricated. The thrust collar and its lubrication shall be isolated by the O-rings from the waterway and from outside contamination providing permanent lubrication for long term ease of operation.
- 2.07 The valve disc and guide lugs shall be fully (100%) encapsulated in SBR ASTM D2000 rubber material. The peel strength shall not be less than ASTM D429 (Method B) required 75 pounds per inch. Guide caps of an acetyl bearing material shall be placed over solid guide lugs to prevent abrasion and to reduce the operating torque.
- 2.08 Valves shall have all internal and external ferrous surfaces coated with a fusion bonded thermosetting powder epoxy coating of 10 mil nominal thickness. Coatings shall conform to AWWA C550.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. The Contractor shall install all gate valves in accordance with manufacturer's instructions and Section 15200.

END OF SECTION

SECTION 15207 - PLUG VALVES

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Scope: The Contractor shall furnish all labor, materials, equipment and incidentals required to provide eccentric plug valves as shown on the Drawings and as specified herein.

1.02 RELATED SECTIONS

- A. Section 15200 - Valves, General

1.03 REFERENCE STANDARDS

- A. Reference Standards: The products provided by the Contractor shall comply with applicable provisions and recommendations of the following, except as otherwise shown or specified.
 - 1. ASTM A536: Standard Specification for Ductile Iron Castings.

1.04 TESTING

- A. Valves shall be tested by the manufacturer as a complete assembly.

1.05 WARRANTY

- A. Valves shall be warranted by the manufacturer for defects in materials and workmanship for a period of ten years from date of shipment.

PART 2 - PRODUCTS

2.01 Eccentric plug valves shall be DeZurick, Model PEC (1/4 turn), or equal.

2.02 Valves shall be flanged. Valves shall have a cold water working pressure rating of 285 psig.

2.03 The valve body, bonnet, and plug shall be composed of ASTM A536, Grade 65-45-12, ductile iron. Valve body shall have a nickel seat. Plug shall have a resilient facing of NBR. Body and bonnet bearings shall be Type 316 Stainless Steel.

2.04 Valves shall have an arrow cast on the operating nut or hand wheel showing opening direction. The direction of opening shall be as specified.

2.05 Body and bonnet bearings shall be Type 316 Stainless Steel. Thrust bearings and packing shall be PTFE.

2.06 Valves shall have all internal and external ferrous surfaces coated with a fusion bonded thermosetting powder epoxy coating of 10 mil nominal thickness.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. The Contractor shall install all plug valves in accordance with manufacturer's instructions and Section 15200.

END OF SECTION

SECTION 15230 - MISCELLANEOUS VALVES AND APPURTENANCES

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Scope: The Contractor shall furnish all labor, materials, equipment and incidentals required to provide all miscellaneous valves and appurtenances as shown on the Drawings and as specified herein.

1.02 QUALITY ASSURANCE

- A. Manufacturer's Qualifications:
 - 1. Valves and appurtenances shall be the standard product in regular production by manufacturers whose products have proven reliable in similar service.
 - 2. All valves and appurtenances of the same specific type shall be the product of one manufacturer.
 - 3. All valves and appurtenances shall be new and unused.
- B. Reference Standards: The products provided by the Contractor shall comply with applicable provisions and recommendations of the following, except as otherwise shown or specified.
 - 1. ASTM A536, Standard Specification for Ductile Iron Castings.
 - 2. ASTM D2000, Standard Classification System for Rubber Products in Automotive Applications.
 - 3. AWWA C219, Bolted Sleeve Type Couplings for Plain End Pipe.
 - 4. AWWA C511, Reduced-Pressure Principle Backflow Prevention Assembly.
 - 5. NSF/ANSI 61, Drinking Water System Components - Health Effects.
 - 6. US Federal Standard A-A-59326.

1.03 RELATED SECTIONS

- A. Sections 15200 - Valves, General.

1.04 SUBMITTALS

- A. In accordance with Sections 15200 and 01300.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Ball Valves:
 - 1. Valves shall be full port two piece stainless steel ball valves. Valves shall be rated for a working pressure of 150 psig.

2. Valve body shall be composed of Type 316 Stainless Steel. Valve body shall have female threaded ends.
3. Seats shall be PTFE.
4. The valve handle shall be Type 304 Stainless Steel. The handle shall be lockable in open or closed position and shall have vinyl insulator.
5. The stem shall be blowout proof and contain adjustable PTFE packing, thrust washer, and body seal.
6. Valve shall be Watts Series S-FBV-1, or equal.

B. Freezeless Hydrant:

1. Hydrant shall be Woodford Model Y34, or equal.
2. Hydrant shall be rated for a maximum pressure of 125 psig.
3. Hydrant casing shall be a minimum 1" galvanized steel pipe.
4. Drain hole shall be 1/8" NPT minimum.
5. Female inlet shall be 3/4" NPT minimum.
6. Hydrant nozzle shall be 3/4" brass male hose nozzle.

C. Reduced Pressure Zone Backflow Preventer:

1. A backflow preventer that operates on the reduced inlet pressure principle shall be provided and installed on the potable water service supply. The backflow preventer device shall be located downstream of the service metering point and upstream of any point of use as shown on the Drawings. The backflow preventer shall be supplied with an inlet strainer and ball type isolation valve.
2. The backflow preventer shall be in conformance with AWWA C511, and shall be NSF 61 Certified.
3. The unit shall have lead-free bronze body construction, with celcon check seats and stainless steel relief valve seats, shafts, and bolts. The units shall have tight seating check valve and relief assemblies, and lead-free bronze bodies with non-rising stem ball valve tests cocks.
4. Manufacturer and Model: Watts Model No. LF909, or equal.
5. The backflow preventer shall be enclosed in fiberglass or aluminum, insulated enclosure.
 - a. Manufacturer and Model: Watts Model WB-2, or equal.

D. Sleeve Couplings:

1. Couplings shall be designed to connect smooth end pipes. Couplings shall meet or exceed AWWA C219, and shall be NSF 61 Certified.
2. End rings and center ring shall be ductile iron ASTM A536, Grade 65-45-12.
3. Gaskets shall be SBR, compounded for water and sewage service in accordance with ASTM D2000 MBA710.
4. Body coating shall be fusion bonded epoxy.
5. Nuts and bolts shall be Type 316 stainless steel, with rolled thread and anti-galling coating.
6. Couplings shall be as manufactured by Romac, Model 501, or equal.

- E. Tapping Sleeve
 - 1. 304 Stainless Steel body and flange, 304 stainless steel bolts and nuts
 - 2. Full circumferential seal
 - 3. Manufacturer and Model:
 - a. Romac SST
 - b. Mueller H-304
 - c. Or equal.

- F. Quick Connect Couplings:
 - 1. Quick connect couplings shall be female cam and grove fittings. Couplings shall meet US Federal Standard A-A-59326.
 - 2. Couplings shall be Type 316 Stainless Steel, designed for a working pressure of 100 psi.
 - 3. Flange end or flange adapter shall be provided. Adapters shall be Type 316 Stainless Steel.
 - 4. End cap with chain shall be provided. Cap and chain shall be Type 316 Stainless Steel.
 - 5. Couplings shall be as manufactured by PT Coupling, or equal.

2.02 FIELD APPLIED COATING

- A. Outside walls of exposed ferrous valves and appurtenances shall be coated in compliance with Section 09800.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. The Contractor shall install all valves and appurtenances in accordance with manufacturer's instructions and Section 15200.

END OF SECTION

THIS PAGE LEFT BLANK INTENTIONALLY

SECTION 16010 - BASIC ELECTRICAL REQUIREMENTS

PART 1 - GENERAL

1.01 SUMMARY

- A. Provisions of Division 01 apply to this section
- B. Section Includes: This section provides basic electrical requirements.

1.02 BASIC ELECTRICAL REQUIREMENTS

- A. Quality Assurance:
 - 1. Workers possessing the skills and experience obtained in performing work of similar scope and complexity shall perform the Work of this Division.
 - 2. Refer to other sections of the Specifications for other qualification requirements.
- B. Drawings and Specifications Coordination:
 - 1. Drawings are diagrammatic, and the size and location of equipment is indicated to scale where possible. Verify conditions, dimensions, indicated equipment sizes, and manufacturer's data and information as necessary to install the Work of this Division. Coordinate location and layout with other Work.
 - 2. Drawings indicate required size and points of termination of conduits, number and size of conductors, and diagrammatic routing of conduit. Install conduits with minimum number of bends to conform to structure, avoid obstructions, preserve headroom, keep openings and passageways clear, and comply with applicable code requirements.
 - 3. Routing of conduits may be changed provided that the length of any conduit run is not increased more than 10 percent of length indicated on the Drawings.
 - 4. Coordinate electrical Work with all other Work.
 - 5. The scope of the electrical work includes furnishing, installing testing and warranty of all Electrical work and complete electrical systems shown on the electrical drawings and specified herein.
 - 6. The drawings and specifications complement each other and together complete the contract documents for the electrical work included in this project. Neither the drawings nor the specifications are complete without the other. Any item mentioned in either document is binding. Where conflicts arise between the drawings and the specifications, the more stringent requirement shall prevail.
 - 7. The contractor shall provide and install all electrical systems to provide a complete package as indicated by the contract documents. The documents are intended to provide an outline for the required installations. The contractor shall

ultimately provide a complete and operational system at the conclusion of the project.

8. Details are provided as they relate to the installation. Contractor shall provide and install all miscellaneous components, parts, materials, fasteners, splices, and any other incidental items necessary to provide a complete installation.

C. Terminology:

1. Low Voltage: Applies to signal systems operating at 120 volts and less, and power systems operating at less than 600 volts.
2. UL: Underwriter's Laboratories Inc, Nationally Recognized Testing Laboratory (NRTL), or equal.

D. Regulations: Work shall comply with the requirements of authorities having jurisdiction and the Electrical and Building Codes. Material shall conform to regulations of the National Board of Fire Underwriters for electrical wiring and apparatus. Materials shall be new and listed by UL, or another NRTL.

E. Electrically Operated Equipment and Appliances:

1. Furnished Equipment and Appliances:

- a. Work shall include furnishing and installing wiring enclosures for, and the complete connection of electrically operated equipment and appliances and electrical control devices which are specified to be furnished and installed in this or other sections of the Specifications, wiring enclosures shall be concealed except where exposed Work is indicated on the Drawings.
- b. Connections shall be provided as necessary to install equipment ready for use. Equipment shall be tested for proper operation and, if motorized, for proper rotation. If outlets are of incorrect electrical characteristics or any specified equipment fails to operate properly, repair and/or replace the outlet and/or equipment.

2. Equipment and Appliances Furnished by Others:

- a. Equipment and appliances indicated on Drawings as "not in contract" (NIC), "furnished by others," or "furnished by the Owner," will be delivered to the Project site. Required electrical connections shall be performed for such equipment and appliances. Motorized equipment will be furnished factory-wired to a control panel or junction box unless otherwise indicated. Appliances will be furnished equipped with portable cord and cap. Provide disconnect switches where required.
- b. Connections to equipment furnished under this Division shall be part of the Work of this section. Work shall include internal wiring, installation,

connection and adjustment of bolted drive motors in which the motor is supplied as a separate unit, and connections only for equipment furnished with factory installed internal wiring, except as further limited by Drawings and this Specification. Work shall include furnishing and installing suitable outlets, disconnecting devices, starters, push-button stations, selector switches, conduit, junction boxes, and wiring necessary for a complete electrical installation. Work shall also include furnishing and installing conduit and boxes for control systems, furnished under other Divisions. Devices and equipment furnished shall be of same type used elsewhere on the Work or as specified.

- c. Electrical equipment furnished under other sections, for installation and connection under Work of this section, will be delivered to the Project site ready for installation.
- d. Suitability and condition of equipment furnished under other sections shall be determined in advance of installation. Immediate notice of damage, unsuitability, or lack of parts shall be given to the entity providing such equipment.

F. Protection of Materials:

- 1. Protect materials and equipment from damage and provide adequate and proper storage facilities during progress of the Work. Damaged materials and/or equipment shall be replaced.

G. Cleaning:

- 1. Exposed parts of Work shall be left in a neat, clean, usable condition. Finished painted surfaces shall be unblemished and metal surfaces shall be polished.
- 2. Thoroughly clean parts of apparatus and equipment. Exposed parts to be painted shall be thoroughly cleaned of cement, plaster, and other materials. Remove grease and oil spots with solvent. Such surfaces shall be wiped and corners and cracks scraped out. Exposed rough metal shall be smooth, free of sharp edges, carefully steel brushed to remove rust and other spots, and left in proper condition to receive finish painting.
- 3. Remove rubbish, debris, and waste materials and legally dispose of off the Project site.

H. Permits and Regulations:

- 1. Include payment of all permit and inspection fees applicable the work in this Division.
- 2. Work must conform to the National Electric Code, National Electrical Safety Code, and other applicable local, state, and federal laws, ordinances, and regulations. Where drawings or specifications exceed code requirements, the drawings and specifications shall govern. No work shall be installed which is less than minimum legal standards.
- 3. All work performed under this Division shall be inspected and approved by the Local Authority having Jurisdiction.

I. Site Inspection:

1. Each and all bidders shall inspect the project site prior to bidding.
2. Existing site conditions shall be compared with the information shown on the drawings. Immediately report any discrepancies to the engineer. After project bid date, no allowances will be made for failure to have made inspections.
3. During construction, the contractor shall exercise care and take appropriate precautionary measures to prevent any damage to the existing structures, sidewalks, utilities, communications, etc. during the project. The Contractor shall correct all damage caused by or during the project. Contractor shall provide not less than (2) and not more than (10) working days advance written, electronic, or telephonic notice of the commencement, extent, location and duration of the excavation work to Louisiana 811 and any nonmembers operator(s) of any underground utility lines or underground facilities in and near the excavation area, so that Louisiana 811 operator(s) and any non-member operator(s) may locate and mark the location of underground utility lines and underground facilities in the excavation area.

J. Utility Company Coordination and Fees:

1. Contractor shall inspect and verify the existing utilities at the project site prior to bidding.
2. Where applicable, the contractor shall contact the local utility companies to verify service arrangements with each. Install all service entrance conduits, pads, duct banks, etc, to meet the requirements of the respective utility company. In instances where contract documents' requirements are more stringent than utility company requirements, the drawings and specifications shall take precedence.
3. The contractor shall be responsible for and shall include in his bid any and all utility company fees required to provide connections for the project. Contractor shall be responsible for any fees assessed by the utility companies. The Engineer or Owner shall not be responsible for any fees assessed by the utility companies.
4. The Contractor must coordinate with owner during the project for connection of permanent power to the facility, however, the contractor shall not utilize the permanent utilities unless written permission is granted by the owner. The local

utility and authority having jurisdiction shall approve when permanent power may be installed in order to provide electrical start-up and check-out of equipment. Upon written permission of use of permanent electrical power, contractors shall pay any charges for power consumption while utilizing permanent power until the building or facility has been accepted by the owner.

K. Temporary Power for Construction:

1. The electrical subcontractor shall provide and install temporary power during the construction period as required to complete the project installation. Contractor shall coordinate with the general contractor, utility company, and/or owner to provide 120/240 volt power for the project. All devices shall be provided with ground fault circuit protection. Power shall be provided in central work area(s). This shall not include any remote power needs for any specific trades. For power requirements at voltages other than those listed above, the contractor shall coordinate connection requirements with the local utility company.
2. All temporary power installations shall meet local and national codes and be approved by the local authority having jurisdiction.
4. Temporary services shall be removed at completion of the project. Permanent utilities shall not be used during the Project except with the written permission of the Owner.

1.03 SUBMITTALS

- A. Where indicated submit to engineer, PDFs of Shop Drawings including control diagrams, list of materials, catalog cuts, technical data, manufacturer's specifications, and applicable installation details.

1.04 RECORD DRAWINGS

- A. The Electrical subcontractor shall maintain, at the project site, a separate set of prints of the contract documents and shall show all changes and variations, in a neat and clearly discernible manner, which are made during construction. Upon completion of the work, these drawings shall be turned over to the Engineer. Provide the following as-built documents including all contract drawings regardless of whether corrections were necessary and include in the transmittal: "One set of electronic copies and one set of prints for the Owner's use, one set of electronic copies for Engineers Records". Delivery of these as-built electronic files and prints are a condition of final acceptance.

1.05 OPERATION AND MAINTENANCE MANUALS

- A. The Electrical subcontractor shall submit to engineer (3) copies each of operating and maintenance manuals for each piece of equipment applicable to the project.
- B. All shop drawings, installation, operation, and maintenance manuals, wiring diagrams, parts lists, and other information including warranties and technical support, shall be obtained from each manufacturer.
- C. Assemble all information into three-ring binders or other suitable binding. Add an index and/or tabbed and labeled sections of all items submitted.

- D. The Electrical subcontractor shall at all times, maintain a clean set of construction document plans on site. Any and all deviations from the construction documents shall be marked, and clearly noted in red ink. All changes shall exactly indicate the revisions or changes to the design documents. Upon completion of the project, (2) clean sets of "red-line" construction as-built documents shall be submitted to the engineer. Unclear, illegible, or inaccurate plans will be returned to the contractor for correction and resubmission. As-built documents shall be corrected by the Contractor and resubmitted at no additional cost.

1.06 INSPECTIONS AND PUNCH LIST

- A. The Electrical subcontractor shall survey and inspect his work and develop his own punch list to confirm that work is complete and finished. He shall then notify the General Contractor that work is complete and ready for inspection by the Engineer. It is not the Engineers obligation to perform a final inspection until the contractor states his work has been inspected and is complete and ready for final inspection.
- B. Request to the Engineer, or Owner for final inspection may be accompanied by a limited list of known deficiencies with a brief explanation or status of deficiencies and schedule for completion of each. Correction of these items shall be completed within (30) days of inspection or before final acceptance of occupancy.

1.07 WARRANTY

- A. The Electrical subcontractor shall warrant all workmanship, equipment, and materials installed under this contract for a period of (1) year minimum from the date of final acceptance as agreed between the Contractor and the engineer, unless indicated by other sections of these specifications.
- B. Any equipment, materials, etc. proving to be defective during the warranty period shall be corrected or replaced without any expense to the Owner or other parties. This provision shall not be construed to include general maintenance items or luminaire lamps or correcting errors on the part of the owner, owner's personnel, or owner's representative.

PART 2 - PRODUCTS

2.01 MATERIALS AND EQUIPMENT

- A. Materials and Equipment furnished under this contract shall be in strict accordance with the specifications and drawings and shall be new and of best grade and quality. When two or more items of equal and similar materials and construction are required, they shall be of the same manufacturer.
- B. All electrical equipment and materials shall bear the Underwriters Laboratories, Inc. label, and shall comply with the NEC and NFPA requirements as applicable.

2.02 MATERIALS AND EQUIPMENT SELECTION

- A. Selection of Materials and Equipment furnished under this contract shall be determined by the following:
 - 1. Where trade names, brands, and manufacturer's part numbers are listed, the exact equipment listed shall be furnished. Where more than one name is used, the

contractor shall have the option of selecting between those specified. All products used shall be equal to that specified and shall be of best quality.

2. When the words “or equal” appear, specific approval must be obtained from the Engineer during the bidding period in sufficient time to be included in an addendum. The same shall apply for equipment and materials not named in the specifications, where approval is sought.
 3. Alternate materials and/or equipment must be submitted for approval a minimum 2 weeks prior to project bid date.
- B. Before bidding, when preparing shop drawings, and prior to rough-in for installation, the contractor shall verify that adequate space is available for entry and installation of the item including any accessories. Also that adequate space is available for servicing equipment and required code clearances are satisfied.

PART 3 - EXECUTION

3.01 GENERAL REQUIREMENTS

- A. Advise the general contractor or engineer before starting the Work of this Division.
- B. Exposed conduits shall be painted to match the surfaces adjacent to installation. Refer to painting and coating section of specifications.
- C. Salvaged materials, if applicable, removed from buildings shall be removed from the Project site as required by the general contractor.
- D. Trenches outside of barricade limits shall be backfilled and paved within 24 hours after being inspected. Provide traffic plates during the time that trenches are open in traffic areas and in areas accessible to non-construction personnel.
- E. Where structural components are required to be cored for new conduit runs, separation between cored holes shall be 3 inches edge to edge, unless otherwise required by the Engineer. All coring to be laid out and reviewed by Engineer prior to drilling. Contractor to verify location of structural steel, rebar, stress cabling, or similar prior to lay out.
- F. Electrical equipment shall be braced and anchored as indicated on the Drawings.

3.02 CLEANUP

- A. Remove rubbish, debris and waste materials and legally dispose of off the Project site.

3.03 PROTECTION

- A. Protect the Work of this section until Substantial Completion.

END OF SECTION

THIS PAGE LEFT BLANK INTENTIONALLY

SECTION 16050 - BASIC ELECTRICAL MATERIALS AND METHODS

PART 1 - GENERAL

1.01 SUMMARY

- A. Provisions of Division 01 apply to this section
- B. Section Includes:
 - 1. Boxes, enclosures, keys and locks.
 - 2. Identifications and signs.
- C. Related Sections:
 - 1. Section 16010: Basic Electrical Requirements.

PART 2 - PRODUCTS

2.01 BOXES, ENCLOSURES, KEYS AND LOCKS

- A. Outlet Boxes and Fittings:
 - 1. Junction boxes installed in concealed Work shall be galvanized steel, pressed, or welded type, with knockouts.
 - 2. In exposed Work, where conduit runs change direction or size, outlet boxes and conduit fittings shall be cast metal with threaded hubs cast integral with box or fitting.
 - 3. Fittings shall be cast metal and non-corrosive. Ferrous metal fittings shall be cadmium-plated or zinc galvanized. Castings shall be true to pattern, smooth, straight, with even edges and corners, of uniform thickness of metal, and shall be free of defects.
 - 4. Covers for fittings shall be galvanized steel or non-corrosive aluminum and shall be designed for particular fitting installed.
 - 5. Junction boxes shall be minimum, 4-inch square, 2-1/8 inches deep, depending upon number of conductors or conduits therein.
 - 6. Factory made knockout seals shall be installed to seal box knockouts, which are not intact.
 - 7. Where flexible conduit is extended from flush outlet boxes, provide and install weatherproof universal box extension adapters.
- B. Junction and Pull boxes:
 - 1. Junction and pull boxes, in addition to those indicated, shall only be used in compliance with codes, recognized standards, and Contract Documents.
 - 2. Interior and non-weatherproof boxes shall be constructed of blue or galvanized steel with ample laps, spot welded, and shall be rigid under torsion and deflecting forces. Boxes shall be furnished with auxiliary angle iron framing where necessary to ensure rigidity.
 - 3. Covers shall be fastened to box with a sufficient number of brass machine screws to ensure continuous contact all around. Flush type boxes shall be drilled and tapped for cover screws if boxes are not installed plumb. Surfaces of pull and junction boxes and covers shall be labeled in black marker ink designating

system, panelboard and circuit designation contained in box. In exposed Work, designation shall be installed on inside of pull box or junction box cover.

4. Weatherproof NEMA 3R pull and junction boxes shall conform to foregoing for interior boxes with following modifications:
 - a. Cover of flush mounting boxes shall be furnished with a weather-tight gasket cemented to, and trimmed even with, cover all around.
 - b. Surface or semi-flush mounting pull and junction boxes shall be UL, or another Nationally Recognized Testing Laboratory (NRTL) listed as rain-tight and shall be furnished complete with threaded conduit hubs.
 - c. Exposed portions of boxes shall be galvanized and finished with one prime coat and one coat of baked-on gray enamel, unless already furnished with factory baked-on finish.
5. Junction and pull boxes shall be rigidly fastened to structure and shall not depend on conduits for support.
6. Polymer Concrete Boxes (if required):
 - a. Polymer concrete boxes are to be made from aggregates in combination with polymer resin, combined and processed by mixing, molding, and curing, and reinforced with fiberglass.
 - b. Boxes are to be high strength, impact resistant, corrosion resistant, nonflammable, and noncorrosive.
 - c. Enclosures, boxes and covers are required to conform to all test provisions of the most current ANSI/SCTE 77 "Specification For Underground Enclosure Integrity"
 - d. All components in an assembly (box & cover) are manufactured using matched surface tooling.
 - e. Covers shall be marked as electrical, power, communications, fiber, signal, etc. as required.
 - f. Bottom of box shall be filled with 6" of pea gravel.

C. Keys and Locks:

1. Provide 2 keys with furnished door locks, including cabinet door locks and enclosure or panel locks, and 2 keys with interlocks or other furnished lock switches.

2.02 IDENTIFICATION AND SIGNS

A. Identification Plates:

1. Provide identification plates for the following unless otherwise specified, for control panels, push-button stations, time switches, contactors, disconnect switches, motor starters, motor switches, terminal cabinets.
2. Identification plates shall be of plastic stock and shall adequately describe function, voltage and phase of identified equipment. Where identification plates are detailed or described on Drawings, inscription and size of letters shall be as indicated. Identification plates shall indicate panel designation, voltage, and phase of equipment. For terminal cabinets, identification plates shall indicate system contained in terminal cabinet.

3. Identification plates shall be black-and-white nameplate stock of bakelite with characters cut through black exposing white. Plates shall be furnished with beveled edges and shall be securely fastened in place with No. 4 Phillips-head, cadmium-plated steel, self-tapping screws. Characters shall be 3/16 inch high, unless otherwise indicated.
- B. Markings:
1. Install identification markings to surface-mounted starters, switches, and other devices controlling motors and appliances. Provide abbreviations required along with an identifying number. Markings to be provided with locking type stencils using paint of a contrasting color. Figures shall be 3/8 inch high unless otherwise indicated. Self-sticking plastic labels, with embossed characters made with a typewriter may be installed instead of stencils and paint; self adhesive plastic, or self sticking laminated plastic labels may be installed.

PART 3 - EXECUTION

3.01 INSTALLATION AND SUPPORT OF BOXES

- A. Install boxes plumb and securely fastened to structure, independent of conduit.

3.02 IDENTIFICATION OF CIRCUITS AND EQUIPMENT

- A. Provide descriptive nameplates or tags permanently attached to circuit breakers, disconnect switches, starters, pushbutton control stations and other apparatus installed for operation or control of circuits.
- B. Provide nameplates of engraved laminated plastic, or etched metal. Submit Shop Drawings denoting dimensions and format to engineer before installation. Fasten to equipment with escutcheon pins, rivets, self-tapping screws, or machine screws. Self-adhering or adhesive backed nameplates are not permitted.
- C. Fasten tags to feeder wiring in conduits at every point where runs are broken or terminated, including pull wires in empty conduits. Indicate circuit, phase, and function. Tag branch circuits in panel boards and motor control centers. Tags may be manufactured of pressure-sensitive plastic or embossed self-attached stainless steel or brass ribbon.
- D. Provide circuit identification cards and cardholders in all control enclosures. Cardholders shall consist of metal frame retaining a clear plastic cover permanently attached to inside of panel door. List of circuits shall be typewritten on a card. Circuit description shall include name or number of circuit, area and connected load.

3.03 PROTECTION

- A. Protect Work of this section until Substantial Completion.

3.04 CLEANUP

- A. Remove rubbish, debris, and waste materials and legally dispose of off Project site.

END OF SECTION

THIS PAGE LEFT BLANK INTENTIONALLY

SECTION 16060 - GROUNDING AND BONDING

PART 1 - GENERAL

1.01 SUMMARY

- A. Provisions of Division 01 apply to this section
- B. Section Includes: Provide and install grounding system as indicated or required.
- C. Related Sections:
 - 1. Refer to related sections for their system grounding requirements.
 - 2. Section 16010: Basic Electrical Requirements.

1.02 QUALITY ASSURANCE

- A. Reference Standards:
 - 1. IEEE 142 Green Book.
 - 2. Underwriter's Laboratories (UL).
 - 3. National Electrical Code.
 - 4. Building Industry Consultant Services International (BICSI) (Signal).
 - 5. EIA/TIA (Signal and power).
 - 6. Nationally Recognized Testing Laboratory (NRTL) or equal.

1.03 SYSTEM DESCRIPTION

- A. Metallic objects on the Project site that enclose electrical conductors, or that are likely to be energized by electrical currents, shall be effectively grounded.
- B. Metal equipment parts, such as enclosures, raceways, and equipment grounding conductors, and earth grounding electrodes shall be solidly joined together into a continuous electrically conductive system.
- C. Metallic systems shall be effectively bonded to the main grounding electrode system.
- D. A separately derived AC source shall be grounded to the equipment grounding conductor, and to separate "made" electrode of building grounding electrode system.
- E. Electrical continuity to ground metal raceways and enclosures, isolated from equipment ground by installation of non-metallic conduit or fittings, shall be provided by a green insulated grounding conductor of required size within each raceway connected to isolated metallic raceways, or enclosures at each end. Each flexible conduit over 6 feet in length shall be provided with a green insulated grounding conductor of required size.
- F. Cold water, or other utility piping systems, shall not be utilized as grounding electrodes due to the installation of insulating couplings and non-metallic pipe in such installations.
- G. Non-current carrying metal parts of enclosures, motor frames, equipment cabinets, and metal frames of buildings shall be permanently and effectively grounded. Provide a NEC sized grounding conductor in every raceway.

- H. Neutral of service conductors shall be grounded as follows:
 - 1. Neutral shall be grounded at only one point within the Project site for that particular service. Preferable location of grounding point shall be at the service equipment or panelboard, or main switch.
 - 2. Equipment and conduit grounding conductors shall be bonded to that grounding point.

1.04 SUBMITTALS

- A. None.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Electrodes shall be copper-clad steel ground rods, minimum ¾-inch diameter by 10 feet long.
- B. Grounding conductors shall be copper, #12 minimum with green insulation, unless noted otherwise.
- C. Ground tails shall be copper, #12 minimum with green insulation, installed in all metallic junction boxes where devices are being installed. Branch circuit ground, junction box, and devices shall be bonded at each junction box.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. All grounding shall be installed in accordance with details on drawings and per NEC 250.
- B. Bond all electrical boxes and enclosures.
- C. All conduits shall have a grounding conductor, minimum #12 copper. Conductor size shall be increased based on ampacity and/or phase conductors of the circuit.
- D. Install grounding conductors at each electrical location as noted on drawings.
- E. Grounding electrodes shall be installed in the nearest suitable planting area, where not otherwise indicated on Drawings.
- F. Grounding electrode conductors shall be installed in conduit from the service disconnecting means and extended to the connection point of the grounding electrode.
- G. Grounding rods shall be driven to a depth of not less than 10 feet. If necessary, permanent ground enhancement material, as manufactured by Erico Electrical Products, or equal, shall be installed at each ground rod to improve grounding effectiveness. Install in accordance with manufacture's installation instructions.
- H. Grounding electrodes shall provide a resistance to ground of not more than 25 ohms.
- I. When installing grounding rods, if resistance to ground exceeds 25 ohms, 2 or more rods connected in parallel, or coupled together shall be provided to meet grounding resistance requirements.

- J. Parallel grounding rods shall be connected together with recognized fittings and grounding conductors in galvanized rigid steel conduit, buried not less than 12 inches below finish grade.

3.02 TESTING

- A. Test grounding resistance of electrodes, ground rods, bonding of building steel, water pipes, gas pipes and other utility piping. Tests shall be performed as follows:
 - 1. Visually and mechanically examine ground system connections for completeness and adequacy.

3.03 PROTECTION

- A. Protect the Work of this section until Substantial Completion.

3.04 CLEANUP

- A. Remove rubbish, debris, and waste materials and legally dispose of off the Project site.

END OF SECTION

THIS PAGE LEFT BLANK INTENTIONALLY

SECTION 16120 - LOW-VOLTAGE CONDUCTORS (600 VOLT AC)

PART 1 - GENERAL

1.01 SUMMARY

- A. Provisions of Division 01 apply to this section
- B. Section Includes: Low-voltage wire, splices, terminations and installation.

1.02 SUBMITTALS

- A. None.

PART 2 - PRODUCTS

2.01 WIRES

- A. Wires shall be single conductor type THHN or THWN insulated with polyvinyl chloride and covered with a protective sheath of nylon, rated at 600 volts. Wires may be operated at 90 degrees C. maximum continuous conductor temperature in dry locations, and 75 degrees C. in wet locations and shall be listed by UL Standard 83 for thermoplastic insulated wires, listed by Underwriter's Laboratories (UL) for installation in accordance with Article 310 of the National Electrical Code (NEC). Conductors shall be solid or stranded copper for 12 AWG and smaller conductors, and stranded copper for 10 AWG and larger conductors. Conductors shall be insulated with PVC and sheathed with nylon. Wires shall be identified by surface markings indicating manufacturer's identification, conductor size and metal, voltage rating, UL symbol, type designations and optional rating. Indentations for lettering is not permitted. Wires shall be tested in accordance with the requirements of UL standard for types THWN, or THHN.
- B. Conductors shall be solid Class B or stranded Class C, annealed uncoated copper in accordance with UL standards, or another Nationally Recognized Testing Laboratory (NRTL).

2.02 STANDARDS

- A. THWN/THHN wires shall comply with the following standards:
 - 1. UL 83 for thermoplastic insulated wires.
 - 2. UL 1063 for machine tool wires and cables.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Wires shall not be installed until debris and moisture is removed from conduits, boxes, and cabinets. Wires stored at site shall be protected from physical damage until they are installed and walls are completed.
- B. Wire-pulling compounds furnished as lubricants for installation of conductors in raceways shall be compounds approved and listed by UL, NRTL, or equal. Oil, grease, graphite, or similar substances are not permitted. Pulling of 2 AWG or larger conductors

shall be performed with a cable pull machine. Any runs shorter than 50 feet are exempt. When pulling conductors, do not exceed manufacturer's recommended values

- C. Pressure cable connectors, pre-insulated Scotchlok, 3M, or equal, Y, R or B spring-loaded twist-on type, may be furnished in splicing number 8 AWG or smaller wires for wiring systems; except public address and telephone systems.
- D. All Joints, splices, taps, and connections to neutral, bonding or grounding conductors, conductors to ground busses, and transformer connections for wires 6 gauge and larger shall be performed with high-pressure cable connectors approved for installation with copper conductors. Connectors shall be insulated with heavy wall heat shrink WCSM, or cold-applied roll-on sleeve RVS.
- E. Connections to any bussing and high-press cable connectors shall be securely bolted together with corrosion-resistant plated carbon steel, minimum grade 5 machine screws secured with constant pressure-type locking devices.
- F. Connection of any bonding or grounding conductors shall be securely bolted together with corrosion-resistant plated carbon steel, minimum grade 5 machine screws secured with constant pressure-type locking devices.
- G. Wiring in panel cabinets, pull boxes, and other cabinets, shall be neatly grouped and tied in bundles with nylon ties at 10-inch intervals. In enclosures and terminal blocks, wires shall be fanned out to terminals. If bundles are longer than 24 inches, a maximum of 9 current carrying conductors may be bundled together.
- H. Install conductor lengths with a minimum length within the wiring space. Conductors must be long enough to reach the terminal location in a manner that avoids strain on the connecting lug.
- I. Maintain the conductor required bending radius.
- J. Neutral conductors larger than 6 gauge, which are not color identified throughout their entire length, shall be taped, painted white or natural gray, or taped white where they appear in cabinet, gutters or pull boxes. Neutral conductors 6 gauge and smaller shall be white color identified throughout their entire length.
- K. Wiring systems shall be free from short circuits and grounds, other than required grounds.

3.02 COLOR CODES

A. General Wiring:

1. Color code conductor insulation as follows:

	SYSTEM VOLTAGE	
Conductor	277/480V	120/208V
Phase A	Brown	Black
Phase B	Orange	Red
Phase C	Yellow	Blue
Neutral	Grey	White

2. For phase and neutral conductors 6 gauge or larger, permanent plastic-colored tape may be furnished to mark conductor end instead of coded insulation. Tape shall cover not less than 2 inches of conductor insulation within enclosure.

3.03 FEEDER IDENTIFICATION

- A. Feeder wires and cables shall be identified at each point the conduit run is broken by a cabinet, box, gutter, etc. Where terminal ends are available, identification shall be by means of heat shrink wire markers, which provide terminal strain relief. Markers shall be Brady Perma-Sleeve, or equal. Identification in other areas shall be by means of wrap-around tape markers Brady Perma-Code or equal. Markers shall include feeder designation, size, and description.

3.04 TAPE AND SPLICE KITS

- A. Splices, joints, and connectors joining conductors in dry and wet locations shall be covered with insulation equivalent to that provided on conductors. Free ends of conductors connected to energized sources shall be taped. Voids in irregular connectors shall be filled with insulating compound before taping. Thermoplastic insulating tape approved by UL, NRTL, or equal for installation as sole insulation of splices shall be furnished and shall be installed according to manufacturer's printed specifications.

3.05 PROTECTION

- A. Protect the Work of this section until Substantial Completion.

3.06 CLEANUP

- A. Remove rubbish, debris and waste materials and legally dispose of off the Project site.

END OF SECTION

THIS PAGE LEFT BLANK INTENTIONALLY

SECTION 16130 - RACEWAYS, FITTINGS, AND SUPPORTS

PART 1 - GENERAL

1.01 SUMMARY

- A. Provisions of Division 01 apply to this section
- B. Section Includes:
 - 1. Raceways and wire ways
 - 2. Conduit installation.
 - 3. Underground requirements.
- C. Related Sections:
 - 1. Section 16010: Basic Electrical Requirements.
 - 2. Section 16050: Basic Electrical Materials and Methods
- D. Applicable Standards and Codes
 - 1. EIA/TIA 569 Standards.
 - 2. National American Standards Institute (ANSI)
 - 3. National Electrical Manufacturer's Association (NEMA)
 - 4. Nationally Recognized Testing Laboratory (NRTL)
 - 5. National Electrical Code (NEC)
 - 6. Underwriters Laboratory (UL)

1.02 SUBMITTALS

- A. None.

PART 2 - PRODUCTS

2.01 RACEWAYS

- A. Conduit Materials:
 - 1. Metallic conduit, and tubing shall be manufactured under the supervision of an UL, or another NRTL factory inspection and label service program. Each 10- foot length of conduit and tubing shall bear the UL or another NRTL label and manufacturer's name.
 - 2. Rigid aluminum conduit shall be corrosion resistant aluminum and manufactured of 6063 alloy in temper designation T-1. It shall be manufactured in accordance with ANSI C80.5. All fittings shall be of the same materials and finish as the aluminum conduit. Schedule 80 PVC may be used in lieu of rigid aluminum conduit where approved by the Engineer.
 - 3. Flexible metallic conduit shall be of flexible interlocking strip construction with continuous zinc coating on strips, manufactured in accordance with UL 1.
 - a. Connectors and couplings shall be required fittings of the type, which threads into convolutions of flexible conduit.

- b. Nonmetallic flexible conduit is not allowed.
- 4. Liquid-tight flexible metal conduit shall be galvanized heavy wall, flexible locked metallic strip construction, UV rated, with smooth moisture and oil- proof, abrasion-resistant, extruded plastic jacket. Connectors shall be as required for installation with liquid-tight flexible conduit and shall be installed to provide a liquid-tight connection.
- 5. Non-metallic conduit shall be rigid PVC electrical conduit extruded to schedule 40 dimensions of Type II. Grade 1 high impact, polyvinyl chloride, sweeps, couplings, reducers and terminating fittings shall be listed under the UL, or another NRTL, and shall bear the manufacturer's listed marking.
- 6. Conduit size shall be 3/4" minimum for all installations.
- 7. Metal Clad (MC) cable system is not allowed.
- 8. Electrical Metallic Tubing (EMT) is not allowed.
- B. Sleeves for Conduits: Sleeves shall be adjustable type, of 26 gage galvanized iron, Adjust-to Crete Co. Adjust-to-Crete, or Jet Line Products Inc. Jet-Line, or equal.
- C. Where conduit enters a structure or enclosure through a concrete foundation below grade, or ground water level, or where it is necessary to seal around a conduit where it passes through a concrete floor or wall, provide O-Z/Gedney Type FSK Thru Wall and Floor Seal, or equal.
- D. Wireways shall be 16 gage galvanized steel enclosed hinge/screw wiring troughs, surface metal raceway, wireway, and auxiliary gutter designed to enclose electrical wiring. Wireway fittings shall be furnished with removable covers and sides to permit complete installation of conductors throughout the entire wireway run. Cover shall be furnished with keyhole slots to accept captive screws locking the cover securely closed. Wireways shall be UL or another NRTL listed, and shall be Square D Type LDG NEMA-1 enclosure for interior applications, or Type RD NEMA-3R enclosure for exterior applications, or equal by Cooper B-line, Hoffman, Wire Guard, or Circle AW.
- E. Penetration into Structures: Provide 3M, or equal, caulk for installing seals around penetrations. Seal water-tight.
- F. Pull Wires: Install 1/8 inch polypropylene cords in empty or spare conduits.

PART 3 - EXECUTION

3.01 CONDUIT INSTALLATION

- A. General Requirements:
 - 1. Provide complete and continuous systems of rigid aluminum conduit, rigid non-metallic PVC conduit, junction boxes, fittings and cabinets for systems of electrical wiring including, power, and signal systems, except as otherwise specified.
 - 2. EMT may not be utilized.
 - 3. Flexible metallic conduit shall be installed for final connection of motor terminal boxes, not exceeding 36 inches, to permit full travel or adjustment of motor on

its base. Flexible metallic conduit shall not be used for equipment not requiring adjustment or frequent interchange.

4. Liquid-tight flexible metallic conduit shall be installed at exterior locations or where subject to liquid or oil exposure, except where otherwise specified, for final connection of equipment and as listed above.
5. Connectors for flexible metal conduit and liquid-tight flexible metallic conduit shall be compatible with the conduit, and of the types which threads into convolutions of conduit. Connectors for watertight flexible metal conduit shall be as required for installation and shall be installed to provide a watertight connection.
6. Above grade conduit shall be rigid aluminum with compatible couplings and fittings. Aluminum conduits shall extend to a minimum of 24" below grade before transitioning to PVC.
7. Install seal offs where conduits enter control panel enclosure.
8. Underground feeder distribution conduits for systems may be non-metallic conduit instead of rigid conduit except where otherwise specified or indicated.
9. Exposed conduit shall be installed vertically and horizontally following the general configuration of the equipment, using cast threaded hub conduit fittings where required and shall be clamped to equipment with suitable iron brackets and one hole pipe strap.
10. Bends or offsets will not be permitted unless absolutely necessary. Radius of each conduit bend or offset shall be as required by ordinance. Bends and offsets shall be performed with standard industry tools and equipment or may be factory fabricated bends or elbows complying with requirements for radius of bend specified. Heating of metallic conduit to facilitate bending is not permitted. Refer to underground installation, specified in this section, for radius of bends and offsets required for underground installations.
11. Running threads are not permitted. Provide conduit unions where union joints are necessary. Conduit shall be maintained at least 6 inches from covering of hot water and steam pipes and 18 inches from flues and breechings. Open ends of conduits shall be sealed with permitted conduit seals during construction of buildings and during installation of underground systems.
12. Where conduits are terminated in groups at cabinets, etc., provide templates or spacers to fasten conduits in proper position and to preserve alignment.
13. Conduits shall be supported as required by code, but not to exceed 10 feet. Where applicable, conduit needs to be rigidly supported every 5 feet and supported within 3 feet of every junction box.
14. Bushings and locknuts for rigid aluminum conduit shall be threaded insulating type. Setscrew bushings are not permitted.
15. Flex conduits shall be cut square and not at an angle.
16. Routing of conduits may be changed providing length of any conduit run is not increased more than 10 percent of the length indicated on Drawings.

B. Underground Requirements:

1. Underground conduits and raceways shall be buried to a depth of not less than 24 inches below finished grade to top of the conduit envelope, unless otherwise specified.
2. Assemble sections of conduit with required fittings. Cut ends of conduit shall be reamed to remove rough edges. Joints in conduits shall be provided liquid-tight. Bends at risers shall be completely below surface where possible.
3. Non-metallic conduit installations shall comply with following additional requirements. Joints in PVC conduit shall be sealed by means of required solvent-weld cement supplied by conduit manufacturer. Non-metallic conduit bends and deflections shall comply with requirements of applicable electrical code, except that minimum radius of any bend or offset for conduits sized from 1/2 inch to 1-1/2 inches inclusive shall not be less than 24 inches. Bends at risers and risers shall be, rigid aluminum conduit. Aluminum conduits below slab shall be painted with epoxy, resin paint.
4. All below grade non-metallic conduits shall have, rigid aluminum 90's painted with epoxy, resin paint.
5. Furnish and install a 6-inch wide, polyethylene, red underground barrier tape 12 inches above full length of conduits reading, "CAUTION ELECTRIC LINE BURIED BELOW".
6. Underground conduit systems provided for utility companies shall be furnished to meet the requirements of the utility companies requiring service.
7. Protect inside of conduit and raceway from dirt and rubbish during construction by capping openings.
8. All underground conduits and raceways shall be swabbed prior to wirepull.

3.02 PROTECTION

- A. Protect the Work of this section until Substantial Completion.

3.03 CLEANUP

- A. Remove rubbish, debris and waste materials and legally dispose of off the Project site.

END OF SECTION

SECTION 16200 - STANDBY POWER GENERATOR

PART 1 - GENERAL

1.01 DESCRIPTION OF SYSTEM

- A. Provide a standby power system to supply electrical power in event of failure of normal supply, consisting of a liquid cooled engine, an AC alternator and system controls with all necessary accessories for a complete operating system, including but not limited to the items as specified hereinafter.
- B. Provide an automatic transfer switch described elsewhere in this specification so that the system comes on-line fully automatically, and on restoration of utility power automatically retransfers load to normal power, shuts down the generator and returns to readiness for another operating cycle.

1.02 REQUIREMENTS OF REGULATORY AGENCIES

- A. The electric generating system consists of a prime mover, generator, governor, coupling and all controls which must have been tested as a complete unit.
- B. Conform to current edition of the NEC and applicable inspection authorities.
- C. Transfer switch to be labeled under UL 1008.

1.03 QUALITY ASSURANCE

- A. This system shall be supplied by a manufacturer who has been regularly engaged in the production of engine-alternator sets, automatic transfer switches, and associated controls for a minimum of ten years, so there is one source of supply and responsibility.
- B. The manufacturer shall have printed literature and brochures describing the standard series specified, not a one of kind fabrication.
- C. The manufacturer shall maintain an authorized service center within 75 miles of the Project site, capable of providing training, parts, and emergency repairs.
- D. The basis for this specification is Cummins Power Generation equipment; approved equals may be considered if equipment performance is shown to meet the requirements herein.

1.04 WARRANTY

- A. Base Warranty: Manufacturer shall provide base warranty coverage on the material and workmanship of the generator set for a minimum of twenty-four (24) months for Standby product from registered commissioning and start-up.

1.05 SUBMITTALS

- B. Product Data: For each type of packaged engine generator indicated. Include rated capacities, operating characteristics, and furnished specialties and accessories. In addition, include the following:
 - 1. Thermal damage curve for generator.
 - 2. Time-current characteristic curves for generator protective device.
 - 3. Sound test data, based on a free field requirement.
- C. Shop Drawings: Detail equipment assemblies and indicate dimensions, weights, and location and size of each field connection.
 - 1. Dimensioned outline plan and elevation drawings of engine-generator set and other components specified.
 - 2. Wiring Diagrams: Control interconnection, Customer connections.
- D. Certifications:
 - 1. Submit statement of compliance which states the proposed product(s) is certified to the emissions standards required by the location for EPA, stationary emergency application.
- E. Warranty:
 - 1. Submit manufacturer's warranty statement to be provided for this Project.

PART 2 - PRODUCTS

2.01 ENGINE-GENERATOR SET

- A. Factory-assembled and -tested, engine-generator set.

B. Mounting Frame: Maintain alignment of mounted components without depending on concrete foundation; and have lifting attachments.

1. Rigging Information: Indicate location of each lifting attachment, generator-set center of gravity, and total package weight in submittal drawings.

C. Capacities and Characteristics:

1. Power Output Ratings: Electrical output power rating for Standby operation of not less than 125kW, at 80 percent lagging power factor, 277/480V Wye, Three phase, 4-wire, 60 hertz.
2. Alternator shall be capable of recovering to a minimum of 90% of rated no load voltage. Following the application of the specified kVA load at near zero power factor applied to the generator set.
3. Nameplates: For each major system component to identify manufacturer's name and address, and model and serial number of component. The engine-generator nameplate shall include information of the power output rating of the equipment.

D. Generator-Set Performance:

1. Steady-State Voltage Operational Bandwidth: 1.0 percent of rated output voltage from no load to full load.
2. Transient Voltage Performance: Not more than 11 percent variation for 50 percent step-load increase or decrease. Voltage shall recover and remain within the steady-state operating band within 3 seconds. On application of a 100% load step the generator set shall recover to stable voltage within 10 seconds.
3. Steady-State Frequency Operational Bandwidth: 0.5 percent of rated frequency from no load to full load.
4. Steady-State Frequency Stability: When system is operating at any constant load within the rated load, there shall be no random speed variations outside the steady-state operational band and no hunting or surging of speed.
5. Transient Frequency Performance: Not more than 4 percent variation for 50 percent step-load increase or decrease. Frequency shall recover and remain within the steady-state operating band within 1 seconds. On application of a 100% load step the generator set shall recover to stable frequency within 10 seconds.

6. Output Waveform: At full load, harmonic content measured line to line or line to neutral shall not exceed 5 percent total and 3 percent for any single harmonic. Telephone influence factor, determined according to NEMA MG 1, shall not exceed 50.
7. Sustained Short-Circuit Current: (For engine-generator sets using a PMG-excited alternator) For a 3-phase, bolted short circuit at system output terminals, system shall supply a minimum of 300 percent of rated full-load current for not less than 8 seconds without damage to generator system components. For a 1-phase, bolted short circuit at system output terminals, system shall regulate both voltage and current to prevent over-voltage conditions on the non-faulted phases.
8. Start Time: Comply with NFPA 110, Level 1, Type 10, system requirements.
9. Ambient Condition Performance: Engine generator shall be designed to allow operation at full rated load in an ambient temperature under site conditions, based on highest ambient condition. Ambient temperature shall be as measured at the air inlet to the engine generator for enclosed units, and at the control of the engine generator for machines installed in equipment rooms.

2.02 ENGINE

- A. Fuel: Natural Gas
- B. Rated Engine Speed: 1800RPM.
- C. Lubrication System: The following items are mounted on engine or skid:
 1. Lube oil pump: shall be positive displacement, mechanical, full pressure pump.
 2. Filter and Strainer: Provided by the engine manufacturer of record to provide adequate filtration for the prime mover to be used.
 3. Crankcase Drain: Arranged for complete gravity drainage to an easily removable container with no disassembly and without use of pumps, siphons, special tools, or appliances.
- D. Engine Fuel System: The engine fuel system shall be installed in strict compliance to the engine manufacturer's instructions
- E. Coolant Jacket Heater: Electric-immersion type, factory installed in coolant jacket system. Comply with NFPA 110 requirements for Level 1 equipment for heater capacity and performance.

1. Designed for operation on a single 120 VAC, Single phase, 60Hz power connection. Heater voltage shall be shown on the project drawings.
 2. Installed with isolation valves to isolate the heater for replacement of the element without draining the engine cooling system or significant coolant loss.
 3. Provided with a 12VDC thermostat, installed at the engine thermostat housing
- F. Governor: Adjustable isochronous, with speed sensing. The governing system dynamic capabilities shall be controlled as a function of engine coolant temperature to provide fast, stable operation at varying engine operating temperature conditions. The control system shall actively control the fuel rate as appropriate to the state of the engine generator. Fuel rate shall be regulated as a function of starting, accelerating to start disconnect speed, accelerating to rated speed, and operating in various isochronous states.
- G. Cooling System: Closed loop, liquid cooled
1. The generator set manufacturer shall provide prototype test data for the specific hardware proposed demonstrating that the machine will operate at rated standby load in an outdoor ambient condition of 50 deg C.
 2. Coolant: Solution of 50 percent ethylene-glycol-based antifreeze and 50 percent water, with anticorrosion additives as recommended by engine manufacturer.
 3. Size of Radiator overflow tank: Adequate to contain expansion of total system coolant from cold start to 110 percent load condition.
 4. Expansion Tank: Constructed of welded steel plate and rated to withstand maximum closed-loop coolant system pressure for engine used. Equip with gage glass and petcock.
 5. Temperature Control: Self-contained, thermostatic-control valve modulates coolant flow automatically to maintain optimum constant coolant temperature as recommended by engine manufacturer.
 6. Duct Flange: Generator sets installed indoors shall be provided with a flexible radiator duct adapter flange.
- H. Muffler/Silencer: Selected with performance as required to meet sound requirements of the application, sized as recommended by engine manufacturer and selected with exhaust piping system to not exceed engine manufacturer's engine

backpressure requirements. For generator sets with outdoor enclosures the silencer shall be inside the enclosure.

- I. Air-Intake Filter: Engine-mounted air cleaner with replaceable dry-filter element and restriction indicator.
- J. Starting System: 12 or 24V, as recommended by the engine manufacturer; electric, with negative ground.
 1. Components: Sized so they will not be damaged during a full engine-cranking cycle with ambient temperature at maximum specified in Part 1 "Project Conditions" Article.
 2. Cranking Cycle: As required by NFPA 110 for level 1 systems.
 3. Battery Cable: Size as recommended by engine manufacturer for cable length as required. Include required interconnecting conductors and connection accessories.
 4. Battery Compartment: Factory fabricated of metal with acid-resistant finish.
 5. Battery-Charging Alternator: Factory mounted on engine with solid-state voltage regulation. The battery charging alternator shall have sufficient capacity to recharge the batteries with all parasitic loads connected within 4 hours after a normal engine starting sequence.
 6. Battery Chargers: Unit shall comply with UL 1236, provide fully regulated, constant voltage, current limited, battery charger for each battery bank. It will include the following features:
 - a. Operation: Equalizing-charging rate based on generator set manufacturer's recommendations shall be initiated automatically after battery has lost charge until an adjustable equalizing voltage is achieved at battery terminals. Unit shall then be automatically switched to a lower float-charging mode and shall continue to operate in that mode until battery is discharged again.
 - b. Automatic Temperature Compensation: Adjust float and equalize voltages for variations in ambient temperature from minus 20 deg C to plus 40 deg C to prevent overcharging at high temperatures and undercharging at low temperatures.

- c. Automatic Voltage Regulation: Maintain constant output voltage regardless of input voltage variations up to plus or minus 10 percent.
- d. Safety Functions: Sense abnormally low battery voltage and close contacts providing low battery voltage indication on control and monitoring panel. Sense high battery voltage and loss of ac input or dc output of battery charger. Either condition shall close contacts that provide a battery-charger malfunction indication at system control and monitoring panel.
- e. Provide LED indication of general charger condition, including charging, faults, and modes. Provide a LCD display to indicate charge rate and battery voltage. Charger shall provide relay contacts for fault conditions as required by NFPA110.
- f. Enclosure and Mounting: NEMA, Type 1, wall-mounted cabinet.

2.03 CONTROL AND MONITORING

- A. Engine generator control shall be microprocessor based and provide automatic starting, monitoring, protection and control functions for the unit.
- B. Automatic Starting System Sequence of Operation: When mode-selector switch on the control and monitoring panel is in the automatic position, remote-control contacts in one or more separate automatic transfer switches initiate starting and stopping of generator set. When mode-selector switch is switched to the on position, generator set starts. The off position of same switch initiates generator-set shutdown. (Switches with different configurations but equal functions are acceptable.) When generator set is running, specified system or equipment failures or derangements automatically shut down generator set and initiate alarms. Operation of the local (generator set-mounted) and/or remote emergency-stop switch also shuts down generator set.
- C. Manual Starting System Sequence of Operation: Switching on-off switch on the generator control panel to the on position starts generator set. The off position of same switch initiates generator-set shutdown. When generator set is running, specified system or equipment failures or derangements automatically shut down generator set and initiate alarms. Operation of the local (generator set-mounted) and/or remote emergency-stop switch also shuts down generator set.
- D. Configuration: Operating and safety indications, protective devices, system controls, engine gages and associated equipment shall be grouped in a common control and monitoring panel. Mounting method shall isolate the control panel from

generator-set vibration. AC output power circuit breakers and other output power equipment shall not be mounted in the control enclosure.

- E. Indicating and Protective Devices and Controls: As required by NFPA 110 for Level 1 system, and the following:
1. AC voltmeter (3-phase, line to line and line to neutral values).
 2. AC ammeter (3-phases).
 3. AC frequency meter.
 4. AC kVA output (total and for each phase). Display shall indicate power flow direction.
 5. Ammeter-voltmeter displays shall simultaneously display conditions for all three phases.
 6. Emergency Stop Switch: Switch shall be a red “mushroom head” pushbutton device complete with lock-out/tag-out provisions. Depressing switch shall cause the generator set to immediately stop the generator set and prevent it from operating.
 7. Fault Reset Switch: Supply a dedicated control switch to reset/clear fault conditions.
 8. DC voltmeter (alternator battery charging).
 9. Engine-coolant temperature gage.
 10. Engine lubricating-oil pressure gage.
 11. Running-time meter.
 12. Generator-voltage and frequency digital raise/lower switches. Rheostats for these functions are not acceptable. The control shall adjustment of these parameters in a range of plus or minus 5% of the voltage and frequency operating set point (not nominal voltage and frequency values.)
 13. AC Protective Equipment: The control system shall include over/under voltage, over current, short circuit, loss of voltage reference, and over excitation shut down protection. There shall be an overload warning, and overcurrent warning alarm.

14. Status LED indicating lamps to indicate remote start signal present at the control, existing alarm condition, not in auto, and generator set running.
 15. A graphical display panel with appropriate navigation devices shall be provided to view all information noted above, as well as all engine status and alarm/shutdown conditions (including those from an integrated engine emission control system). The display shall also include integrated provisions for adjustment of the gain and stability settings for the governing and voltage regulation systems.
 16. Panel lighting system to allow viewing and operation of the control when the generator room or enclosure is not lighted.
 17. DC control Power Monitoring: The control system shall continuously monitor DC power supply to the control, and annunciate low or high voltage conditions. It shall also provide an alarm indicating imminent failure of the battery bank based on degraded voltage recover on loading (engine cranking).
- F. Common Remote Audible Alarm: Comply with NFPA 110 requirements for Level 1 systems. Include necessary contacts and terminals in control and monitoring panel.
1. Overcrank shutdown.
 2. Coolant low-temperature alarm.
 3. Control switch not in auto position.
 4. Battery-charger malfunction alarm.
 5. Battery low-voltage alarm.
- G. Remote Alarm Annunciator: Comply with NFPA 110. An LED labeled with proper alarm conditions shall identify each alarm event and a common audible signal shall sound for each alarm condition.

2.04 GENERATOR, EXCITER, AND VOLTAGE REGULATOR

- A. Comply with NEMA MG 1.
- B. Drive: Generator shaft shall be directly connected to engine shaft. Exciter shall be rotated integrally with generator rotor.
- C. Electrical Insulation: Class H

- D. Temperature Rise: 105 / Class H environment.
- E. Construction shall prevent mechanical, electrical, and thermal damage due to vibration, over speed up to 125 percent of rating, and heat during operation at 110 percent of rated capacity.
- F. Permanent Magnet Generator (PMG) shall provide excitation power for optimum motor starting and short circuit performance.
- G. Enclosure: Drip-proof.
- H. Voltage Regulator: SCR type, Separate from exciter, providing performance as specified. The voltage regulation system shall be microprocessor-controlled, full wave rectified, and provide a pulse-width modulated signal to the exciter. No exceptions or deviations to these requirements will be permitted.
- I. The alternator shall be provided with anti-condensation heater(s) in all applications where the generator set is provided in an outdoor enclosure, or when the generator set is installed in a coastal or tropical environment.
- J. Windings: Two-thirds pitch stator winding and fully linked amortisseur winding.
- K. Subtransient Reactance: 15 percent maximum, based on the rating of the engine generator set.

2.05 OUTDOOR GENERATOR-SET ENCLOSURE

- A. Description: Sound Attenuated Aluminum housing. Multiple panels shall be lockable and provide adequate access to components requiring maintenance. Instruments, control, and battery system shall be mounted within enclosure.
- B. Construction:
 - 1. Hinged Doors: With padlocking provisions. Restraint/Hold back hardware to prevent door to keep door open at 180 degrees during maintenance. Rain lips over all doors.
 - 2. Exhaust System:
 - a. Muffler Location: Within enclosure.
 - 3. Hardware: All hardware and hinges shall be stainless steel.
 - 4. Wind Rating: Wind rating shall be 150 mph

5. Mounting Base: Suitable for mounting on housekeeping pad.
 6. A weather protective enclosure shall be provided which allows the generator set to operate at full rated load with a static pressure drop equal to or less than 0.5 inches of water.
- C. Engine Cooling Airflow through Enclosure: Housing shall provide ample airflow for engine generator operation at rated load in an ambient temperature of 50 deg C.
- D. Sound Performance: Reduce the sound level of the engine generator while operating at full rated load to a maximum of 72 dBA measured at any location 7 m from the engine generator in a free field environment.
- E. Site Provisions:
1. Lifting: Complete assembly of engine generator, enclosure shall be designed to be lifted into place as a single unit, using spreader bars.

2.06 VIBRATION ISOLATION DEVICES

- A. Vibration Isolation: Generators installed on grade shall be provided with elastomeric isolator pads integral to the generator, unless the engine manufacturer requires use of spring isolation.

2.07 FINISHES

- A. Indoor and Outdoor Enclosures and Components: Powder-coated and baked over corrosion-resistant pretreatment and compatible primer. Manufacturer's standard color or as directed on the drawings.

2.08 SOURCE QUALITY CONTROL

- A. Prototype Testing: Factory test engine-generator set using same engine model, constructed of identical or equivalent components and equipped with identical or equivalent accessories.
1. Tests: Comply with NFPA 110, Level 1 Energy Converters. In addition, the equipment engine, skid, cooling system, and alternator shall have been subjected to actual prototype tests to validate the capability of the design under the abnormal conditions noted in NFPA110. Calculations and testing on similar equipment which are allowed under NFPA110 are not sufficient to meet this requirement.

- B. Project-Specific Equipment Tests: Before shipment, factory test engine-generator set manufactured specifically for this Project. Perform tests at rated load and power factor. Include the following tests:
1. Test engine generator set manufactured for this Project to demonstrate compatibility and functionality.
 2. Full load run.
 3. Maximum power.
 4. Voltage regulation.
 5. Steady-state governing.
 6. Single-step load pickup.
 7. Simulated safety shutdowns.
 8. Provide 14 days' advance notice of tests and opportunity for observation of tests by Owner's representative.

2.05 AUTOMATIC TRANSFER SWITCH

- A. The automatic transfer switch shall be furnished by the manufacturer of the engine-generator set so as to maintain system compatibility and local service responsibility for the complete emergency power system. It shall be listed by Underwriter's Laboratory, Standard 1008 with circuit breaker protection. Representative production samples of the transfer switch supplied shall have demonstrated through tests the ability to withstand at least 10,000 mechanical operation cycles. One operation cycle is the electrically operated transfer from normal to emergency and back to normal. Wiring must comply with NEC table 373-6(b). The manufacturer shall furnish schematic and wiring diagrams for the particular automatic transfer switch and a typical wiring diagram for the entire system.
- B. The automatic transfer switch shall be rated for 200 amperes continuous operation in ambient temperatures of -40 Degrees Fahrenheit (-40 Degrees Celsius) to +122 Degrees Fahrenheit (+50 Degrees Celsius) and shall be service entrance listed. Main power switch contacts shall be rated for 480 Volt AC minimum. Where the line side overcurrent protection is provided by circuit breakers, the short circuit withstand and closing ratings shall be 65,000 amperes RMS. These RMS symmetrical fault current ratings shall be the rating listed in the UL listing or component recognition procedures for the transfer switch. All withstand tests

shall be performed with the overcurrent protective devices located external to the transfer switch.

- C. The transfer switch shall be double throw construction, positively electrically and mechanically interlocked to prevent simultaneous closing and mechanically held in both normal and emergency positions. Independent break before make action shall be used to positively prevent dangerous source to source connections. When switching the neutral, this action prevents the objectionable ground currents and nuisance ground fault tripping that can result from overlapping designs. The transfer switch shall be approved for manual operation. The electrical operating means shall be by electric solenoid. Every portion of the contactor is to be positively mechanically connected. No clutch or friction drive mechanism is allowed, and parts are to be kept to a minimum. This transfer switch shall not contain integral overcurrent devices in the main power circuit, including molded case circuit breakers or fuses.
- D. The transfer switch electrical actuator shall have an independent disconnect means to disable the electrical operation during manual switching. Maximum electrical transfer time in either direction shall be 160 milliseconds, exclusive of time delays. Main switch contacts shall be high pressure silver alloy contacts to resist burning and pitting for long life operation.
- E. There shall be two SPDT, 10 ampere, 250 volt auxiliary switches on both normal and emergency sides, operated by the transfer switch. Full rated neutral bar with lugs for normal, emergency and load conductors shall be provided inside the cabinet.
- F. All control equipment shall be mounted on the inside of the cabinet door in a metal lockable enclosure with transparent safety shield to protect all solid state circuit boards. This will allow for ease of service access when main cabinet lockable door is open, but to prevent access by unauthorized personnel. Control boards shall have installed cover plates to avoid shock hazard while making control adjustments. The solid state voltage sensors and time delay modules shall be plug-in circuit boards with silver or gold contacts for ease of service.
- G. A solid state undervoltage sensor shall monitor all phases of the normal source and provide adjustable ranges for field adjustments for specific application needs. Pick-up and drop-out settings shall be adjustable from a minimum of 70% to a maximum of 95% of nominal voltage. A utility sensing interface shall be used, stepping down line voltage to 24VAC, helping to protect the printed circuit board from voltage spikes and increasing personnel safety when troubleshooting.
- H. The control unit shall signal the engine-generator set to start in the event of a power interruption. A set of contacts shall close to start the engine and open for engine

shutdown. A solid state time delay start (adjustable, .1 to 10 seconds) shall delay this signal to avoid nuisance start-ups on momentary voltage dips or power outages.

- I. The control units shall transfer the load to the engine-generator set after it reaches proper voltage and frequency. A solid state time delay (adjustable, 5 seconds-3 minutes) shall delay this transfer to allow the engine-generator to warm-up before application of load. There shall be a switch to bypass this warm-up timer when immediate transfer is required.
- J. The controller shall retransfer the load to the line after normal power restoration. A return to utility timer (adjustable, 1-30 minutes) shall delay this transfer to avoid short term normal power restoration.
- K. The operating power for transfer and retransfer shall be obtained from the source to which the load is being transferred. Controls shall provide an automatic retransfer of the load from emergency to normal if the emergency source fails with the normal source available.
- L. The control shall signal the engine-generator to stop after the load retransfers to normal. A solid state engine cool down timer (adjustable, 1-30 minutes) shall permit the engine to run unloaded to cool down before shutdown.
- M. Provide an engine minimum run timer (adjustable, 5-30 minutes) to ensure an adequate engine run period.
- N. Provide a solid state plant exercise clock to start the generator set exercise period. Clock shall have a one week cycle and be powered by the load side of the transfer switch. A battery must be supplied to maintain the circuit board clock operation when the load side of the transfer switch is de-energized. Include a switch to select if the load will transfer to the engine-generator set during the exercise period.
- O. Control shall include a digital display interface enabling the operator to establish unit exercise time within a twenty four hour period. Additional switch settings enable any combination of days within a week for unit exercise. This control is completely self-contained, eliminating the need for the operator to handle pins and jumper wires.
- P. Front mounted controls shall include a selector switch to provide for a NORMAL TEST mode with full use of time delays, FAST TEST mode which bypasses all time delays to allow for testing the entire system in less than one minute, or AUTOMATIC mode to set the system for normal operation.
- Q. Provide bright lamps to indicate the transfer switch position in either UTILITY (white) or EMERGENCY (red). A third lamp is needed to indicate STANDBY

OPERATING (amber). These lights must be energized from utility or the engine-generator set.

- R. Provide a manual operating handle to allow for manual transfer. This handle must be mounted inside the lockable enclosure so accessible only by authorized personnel.
- S. Provide LED status lights to give a visual readout of the operating sequence. This shall include utility on , engine warmup, engine warmup bypass, standby voltage "ready", standby frequency "ready", standby on, transfer to standby, inphase monitor, time delay neutral, return to utility, engine cool down, engine minimum run and fast test mode.
- T. The transfer switch mechanism and controls are to be mounted in a NEMA 3R enclosure.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Comply with packaged engine-generator manufacturers' written installation, application, and alignment instructions and with NFPA 110.
- B. Equipment shall be installed by the contractor in accordance with final submittals and contract documents. Installation shall comply with applicable state and local codes as required by the authority having jurisdiction. Install equipment in accordance with manufacturer's instructions and instructions included in the listing or labeling of UL listed products.
- C. Installation of equipment shall include furnishing and installing all interconnecting wiring between all major equipment provided for the on-site power system. The contractor shall also perform interconnecting wiring between equipment sections (when required), under the supervision of the equipment supplier.
- D. Equipment shall be installed on concrete housekeeping pads. Equipment shall be permanently fastened to the pad in accordance with manufacturer's instructions and seismic requirements of the site.
- E. Equipment shall be initially started and operated by representatives of the manufacturer. All protective settings shall be adjusted as instructed by the consulting engineer.

- F. All equipment shall be physically inspected for damage. Scratches and other installation damage shall be repaired prior to final system testing. Equipment shall be thoroughly cleaned to remove all dirt and construction debris prior to initial operation and final testing of the system.
- G. On completion of the installation by the electrical contractor, the generator set supplier shall conduct a site evaluation to verify that the equipment is installed per manufacturer's recommended practice.

3.02 ON-SITE ACCEPTANCE TEST

- A. The complete installation shall be tested to verify compliance with the performance requirements of this specification following completion of all site work. Testing shall be conducted by representatives of the manufacturer, with required fuel supplied by Contractor. The Engineer shall be notified in advance and shall have the option to witness the tests. The generator set manufacturer shall provide a site test specification covering the entire system. Tests shall include:
 - B. Prior to start of active testing, all field connections for wiring, power conductors, and bus bar connections shall be checked for proper tightening torque.
 - C. Installation acceptance tests to be conducted on site shall include a "cold start" test, a two hour full load (resistive) test, and a one-step rated load pickup test in accordance with NFPA 110. Provide a resistive load bank and make temporary connections for full load test, if necessary.
 - D. Perform a power failure test on the entire installed system. This test shall be conducted by opening the power supply from the utility service, and observing proper operation of the system for at least 2 hours. Coordinate timing and obtain approval for start of test with site personnel.

3.03 TRAINING

- A. The equipment supplier shall provide training for the facility operating personnel covering operation and maintenance of the equipment provided. The training program shall be not less than 4 hours in duration and the class size shall be limited to 5 persons. Training date shall be coordinated with the facility owner.

3.04 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.

3.05 SERVICE AND SUPPORT

- A. The generator set supplier shall maintain service parts inventory for the entire power system at a central location which is accessible to the service location 24 hours per day, 365 days per year. The inventory shall have a commercial value of \$3 million or more. The manufacturer of the generator set shall maintain a central parts inventory to support the supplier, covering all the major components of the power system, including engines, alternators, control systems, paralleling electronics, and power transfer equipment.
- B. The generator set shall be serviced by a local service organization that is trained and factory certified in generator set service. The supplier shall maintain an inventory of critical power system replacement parts in the local service location. Service vehicles shall be stocked with critical replacement parts. The service organization shall be on call 24 hours per day, 365 days per year. The service organization shall be physically located within 50 of the site.
- C. The manufacturer shall maintain model and serial number records of each generator set provided for at least 20 years.

END OF SECTION 16200

SECTION 16900 – PUMP CONTROL PANEL

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Scope: The pump manufacturer shall have provide a Duplex Pump Control system that shall control 2 pumps in an energy conservation mode of operation. The system shall be capable of adapting to changing inflow conditions and shall automatically regulate pumped outflow based on inflow conditions and shall seek an optimal energy efficiency for the pump station. This shall be accomplished by providing Variable Frequency Drives with built in integral logic software that is SCADA ready for operation. This system will incorporate the functionality as noted in the following sections.

1.02 Electrical Control Panel

The NEMA 3R stainless steel control panel shall house both VFD's each equipped with integral liquid level control, moisture and thermal protection modules and will be provided with the minimum of the following:

- (a) Mainline lugs of the appropriate sizes shall be furnished for connecting the incoming supply power. The lugs shall be suitable for use with aluminum or copper conductors.
- (b) Each pump motor circuit shall be protected by a properly sized E frame molded case circuit breaker. Each pole of these breakers shall provide inverse time delay overload protection and instantaneous short circuit protection by means of a thermal magnetic element. The breaker shall be operated by a toggle type handle and shall have a Quick-make, Quick-break over center switching mechanism that is mechanically trip free from the handle so that the contacts cannot be held closed against short circuits and abnormal currents. Tripping due to overload or short circuit shall be clearly indicated by the handle automatically assuming a position midway between the manual "ON" and "OFF" position. The minimum interrupting rating of the breaker shall be 42,000 amps at 460 VAC. Pump motor circuit breaker toggle shall be operable through a cutout in the inner door.
- (c) Hand-Off-Automatic (integral the VFD HMI) switches to select the operating mode for each pump installed on the control panel inner deadfront door.
- (d) Elapsed time meters for each pump motor.
- (e) In the event either pump operation selector switch is in the "Off" position, the control system software shall automatically designate the operating pump motor as the "next pump motor to operate" after that pump motor is started.

- (f) The hinged inner door shall be provided fabricated from, 5052-H32.080, marine alloy aluminum. The hinged inner door shall contain cutouts for all circuit breaker toggles. Control switches and indicators shall be labeled and mounted to the hinged inner door to keep operators from entering the live electrical compartment. A warning sign stating “DANGER -- Disconnect All Sources Of Power Before Opening Door” shall be installed on the inner door. The inner door shall be completely removable for ease of service and shall be held closed by at least (2) hand operated 1/4 turn fasteners. The following items shall be mounted on the inner door:
 - i. Pilot lights – Alarm, Pump Run, Pump Fail
 - ii. Hand-Off-Automatic – Integral to the VFD Operator Interface
- (g) The control system enclosure shall include a removable back-panel. The back-panel shall be painted white and fabricated from cold roll steel.
- (h) Components shall be fastened to the back-panel using stainless steel pinhead machine screws. All devices shall be clearly labeled in accordance with the schematic ladder diagram.
- (i) Transient Voltage Surge Suppressors on the 120VAC circuit
- (j) Loop Power Surge Suppressor
- (k) Lightning Arresstor

B. Variable Frequency Drives

- (a) A Variable Frequency pump drive shall be provided for each pump in the system, sized for the appropriate voltage and power. The pump drive shall be supplied by the pump manufacturer and designed for wastewater pumping and with functionality pre-programmed for the specific pump model used. The pump drive shall provide all level control functionality, hand/auto operation, pump alternation, pump over temperature monitoring, seal leakage monitoring, pump self-cleaning, sump cleaning and pipe cleaning algorithms without the need for an external PLC. The pump drive shall also include capability to monitor station inflow, pump speed and energy consumption in order to automatically operate the pump station at optimal energy efficiency.

The pump drive shall be tested and approved in accordance with national and international standards and comply with Directive 98/37/EC, Safety of Machinery and EN60204-1.

It shall conform to the relevant safety provisions of the Low Voltage Directive 2006/95/EC and the EMC Directive 2004/108/EC and has been designed and

manufactured in accordance with the following harmonized European standards:

EN 61800-5-1: 2003	Adjustable speed electrical power drive systems. Safety requirements. Electrical, thermal and energy.
EN 61800-3 2nd Ed: 2004	Adjustable speed electrical power drive systems. EMC requirements and specific test methods
EN 55011: 2007	Limits and Methods of measurement of radio disturbance characteristics of industrial, scientific and medical (ISM) radio-frequency equipment (EMC)
EN60529 : 1992	Specifications for degrees of protection provided by enclosures

The variable frequency drive ampere rating shall be equal to or greater than the ampere rating listed on the motor being driven by the variable frequency drive.

- (b) The drive units shall be modularly constructed. Printed circuit boards shall be connected in such manner that they are easily removed from the unit. Power components shall be readily accessible and be connected in such manner that they are easily removed from the unit. The pump drive shall be freestanding for wall mounting or cabinet installation construction, for 460V, 60HZ 3Phase power supply. It holds an IP55 and IP66 isolation class.

C. System Operation – VFD functionality

(a) High/Low Level Sump Control:

- i. The pump controls system shall provide automatic level control via means of a submersible pressure transducer (4-20mADC) and one (1) non-mercury liquid level float switch. User-programmable Start Level shall indicate the point at which the pump will start. Upon activation the pump shall run at maximum speed for a pre-determined period, then ramp down to the energy efficient Optimal speed, calculated by the pump drive. When the water level reaches the Stop Level, the pump shall stop. The Optimal Speed shall either be calculated by the pump drive or manually entered by the user.

In case of high inflow, the pump drive shall increase pump speed until the water level begins to decrease. When the water level reaches the Stop Level, the pump shall stop.

In case of very high inflow, in a duplex installation, when a single pump is unable to overcome the inflow conditions even at maximum speed, additional pumps shall be activated and run at maximum speed until the Stop Level is reached. If water levels continue to rise, a High Level Alarm shall be activated.

The pump drive shall incorporate a Minimum Speed function that prevents the pump from operating at speeds too low to move water based on the pump curve.

(b) Run Time Averaging (Duplex Application Only):

- i. In cases of duplex pumps/drives, the pump drive shall provide capability to balance run times for even wear. This shall be an internal function of the drive and not require external devices, such as an Alternating Relay. The function shall operate by determining a “random” start level based on the Start Level setting. Each drive shall determine its own random start level independent of each other. New random start levels will be determined every 24 hours. The pump with the lowest random start level shall be first to start on any given pump cycle. The second pump shall remain in Standby capacity in case the lead pump shall not be able to lower the water level as described in the section above. By recalculating the random start levels every 24 hours, balanced run times are accomplished.

(c) Pump Cleaning Function:

- i. The Pump drive shall incorporate a “self-cleaning” function to remove debris from the impeller. The cleaning shall be triggered by three circumstances:
 1. Soft Clogging: When motor current equals 20% or greater above rated motor current, in the drive, for a period of 7 seconds.
 2. Hard Clogging: When motor current equals 80% or greater above rated current for a period of 0.01 seconds.
 3. Schedule Cleaning: The pump drive is pre-programmed to perform cleaning regularly.
- ii. The cleaning function shall consist of forced stopping, reversal and forward runs timed to allow for debris to fall from the impeller. After cleaning cycle is complete, drive shall resume to automatic operation.

(d) Sump Cleaning Function:

- i. The pump drive shall incorporate a sump cleaning function to ensure surface solids and grease is regularly removed from the sump. The sump cleaning function shall perform regularly when enabled by the operator. Sump cleaning shall consist of the following functions:
 1. Sump cleaning is triggered when internal timer expires and during a normal pump down cycle
 2. Pump is automatically ramped to maximum speed
 3. Pump runs at maximum speed for designated time or until the pump are snoring."
 4. When Sump Cleaning is over, the pump is shut off and resumes normal operation.

(e) Pipe Cleaning Function:

- i. The pump drive shall incorporate a pipe cleaning function to avoid discharge pipe sedimentation and clogging due to reduced pump speed. This shall be an automatic feature that initiates with every pump cycle. Upon reaching Pump Start Level, the drive shall operate the pump at 100% speed for a determined time before ramping down to the most energy efficient speed for the duration of the cycle.

(f) Energy efficient speed finder:

- i. The pump drive shall provide a function that automatically calculates the most energy efficient speed for the pump based on station inflow characteristics. An algorithm calculates the optimal speed whereby the most water is pumped using the least amount of energy, the optimal speed is constantly adjusted to account for changes inflow without requiring operator adjustment, multiple setpoints, etc.
- ii. The energy efficient function prevents the drive from running off of the system curve for the pump. This will ensure maximum hydraulic efficiency as well as electrical efficiency is maintained.

(g) Alarms & Monitoring:

- i. The pump drive shall provide alarms and monitoring for the drive, pump and sump. Alarms shall be presented on the LCD display, via a Summary Alarm relay and via Modbus registers. All alarms, when occurring, shall remain active until reset. Alarms shall have a built-in 4 second delay to prevent nuisance tripping. Alarms shall be as follows:

1. Pump Monitoring:
 - a. Pump Over Temperature (thermal contacts in motor stator)
 - b. Pump Seal Leak (Flygt FLS leakage sensor)
2. Sump Monitoring:
 - a. High Sump Level (via level float switch or submersible transducer)
 - b. Submersible transducer Sensor Error (Submersible transducer is not connected, reports faulty values or the wrong start level is used)
3. Pump drive Monitoring (includes, but not limited to):
 - a. Drive Overcurrent
 - b. Drive Overload Trip
 - c. Drive Overvoltage
 - d. Drive Undervoltage
 - e. Drive Overtemperature (internal)
 - f. Drive Overtemperature (ambient)
 - g. Drive Undertemperature (ambient)
 - h. Input Phase Loss
 - i. Drive Output Max Torque Exceeded

D. Submersible Pressure Transducer

- (a) The liquid level of the wet well shall be sensed by an MJK submersible level transducer. The transducer shall be a 2-wire type to operate from the level controller's regulated loop power supply and produce an instrumentation signal (4-20mA) in direct proportion to the measured level excursion over a factory-calibrated range of zero to (30) feet of water.
- (b) The transducer shall be of the ceramic capacitive, relative pressure sensing type, suitable for continuous submergence and operation and shall be installed in accordance with manufacturer's instructions. The bottom diaphragm face of the sensor shall be installed approximately 6 inches above the wet well floor. The sensor shall be hung in the wet well using a cable bracket including two sliding cable locking jaws in a location in the wet well and as shown on the job plans.
- (c) The transducer housing shall be fabricated of PPS (polyphenylene sulfide) with a ceramic bottom diaphragm.
- (d) The transducer element shall incorporate high over-pressure protection and be designed to withstand intermittent overpressures (10) times the full-scale range being sensed. Metallic diaphragms shall not be acceptable in that they are subject to damage or distortion. Sensing principles employing LVDTs,

resistive or pneumatic elements shall not be acceptable.

- (e) The internal pressure of the lower transducer assembly shall be relieved to atmospheric pressure through a heavy-duty urethane jacketed hose/cable assembly and a slack PVC bellows mounted in the control panel. The sealed breather system shall compensate for variations in barometric pressure and expansion and contraction of air due to temperature changes and altitude as well as prevent fouling from moisture and other corrosive elements.
- (f) The transducer assembly shall be installed where directed by the Engineer and connected with other system elements and placed in successful operation.
- (g) The transducer shall have a programming feature using a standard USB interface and a laptop computer, the servicing transmitter can be programmed on-the-fly to the required measuring range. The design without sharp edges prevents particles, textiles and paper from sticking to the housing or the diaphragm. The transducer shall be surge resistant.
- (h) The transducer power cable shall be steel reinforced PUR cable with high tensile stretch.

1.03 CLOG FREE GUARANTEE

- A. In addition to the manufacturer's warranty stated above, the pump manufacturer shall provide a (2) year clog free guarantee. If the pump clogs with typical solids and/or debris normally found in domestic wastewater during this period (within 24 months of pump station start-up), the manufacturer or the manufacturer's representative will reimburse the Owner for reasonable cost to remove the pump, clear the obstruction and reinstall the affected pump, or the manufacturer's representative will provide a service technician to perform this work at no cost to the Owner.

END OF SECTION

WATER MAIN NOTES

1. NEW WATER MAINS SHALL BE NO SMALLER THAN 8" INSIDE DIAMETER.
2. NEW WATER MAINS BETWEEN 8" AND 30" DIAMETER SHALL BE AWWA C900 POLYVINYL CHLORIDE (PVC) PIPE AND SHALL HAVE A PRESSURE CLASS OF 235 PSI (DR18). NEW WATER MAINS SHALL BE THE COLOR BLUE AND LABELED AS "WATER". CONNECTIONS TO OTHER WATER MAINS, INCLUDING THOSE OF DIFFERENT MATERIAL, SHALL BE MADE USING THE APPROPRIATE ADAPTERS AND FITTINGS.
3. NEW WATER MAINS INSTALLED USING AN OPEN CUT/TRENCH METHOD SHALL BE POLYVINYL CHLORIDE (PVC) PIPE CONFORMING TO AWWA C900. NEW WATER MAINS BETWEEN 8" AND 48" DIAMETER SHALL HAVE A PRESSURE CLASS OF 235 PSI (DR18). CONNECTIONS BETWEEN PIPE LENGTHS SHALL BE OF AN INTEGRATED "BELL AND SPIGOT" PUSH-ON DESIGN WITH A RUBBER GASKET SEAL. RUBBER SEAL SHALL CONFORM TO AWWA C111. NEW WATER MAINS SHALL BE THE BLUE AND LABELED AS "WATER".
4. TRACER WIRE AND IDENTIFICATION TAPE SHALL BE INSTALLED ALONG THE ENTIRE LENGTH OF THE WATER MAIN FOR ALL LINES INSTALLED USING THE OPEN CUT METHOD. THE TRACER WIRE AND IDENTIFICATION TAPE SHALL BE INSTALLED SIMULTANEOUSLY WITH THE WATER MAIN.
5. JOINT RESTRAINTS FOR PVC PIPE BELL JOINTS SHALL BE RESTRAINED WITH A SERIES 1900 SERRATED RESTRAINT HARNESS MANUFACTURED BY EBBA, INC. OR APPROVED EQUAL.
6. ALL APPLICABLE WATER MAIN JOINTS SHALL BE RESTRAINED IN ACCORDANCE WITH THE PROVIDED DETAIL. THE MINIMUM RESTRAINT LENGTH FOR PVC PIPE JOINTS SHALL BE IN ACCORDANCE WITH THE PROVIDED DETAIL.
7. NEW WATER MAINS INSTALLED USING HORIZONTAL DIRECTIONAL DRILLING (HDD) METHODS SHALL BE HIGH-DENSITY POLYETHYLENE (HDPE) PIPE CONFORMING TO AWWA C906, ASTM D3035 AND ASTM F714. NEW WATER MAINS BETWEEN 8" AND 48" DIAMETER SHALL HAVE A PRESSURE CLASS OF 200 PSI (DR11) AND CONFORM TO DUCTILE IRON PIPE SIZES (DIPS). CONNECTIONS BETWEEN PIPE LENGTHS SHALL BE FUSED IN ACCORDANCE WITH THE MANUFACTURER'S DIRECTIONS AND RECOMMENDATIONS. NEW HDPE WATER MAINS SHALL BE THE COLOR BLACK WITH A BLUE STRIPE. CONNECTIONS TO OTHER WATER MAINS, INCLUDING THOSE OF DIFFERENT MATERIAL, SHALL BE MADE USING THE APPROPRIATE ADAPTERS AND FITTINGS.
8. FUSIBLE POLYVINYL CHLORIDE (PVC) PIPE CONFORMING TO AWWA C900 SHALL BE PERMITTED FOR NEW WATER MAINS INSTALLED USING HORIZONTAL DIRECTIONAL DRILLING (HDD) METHODS. NEW WATER MAINS BETWEEN 8" AND 30" DIAMETER SHALL HAVE A PRESSURE CLASS OF 235 PSI (DR18). CONNECTIONS BETWEEN PIPE LENGTHS SHALL BE FUSED BY THE PIPE MANUFACTURER'S APPROVED INSTALLER AND IN ACCORDANCE WITH THE PIPE MANUFACTURER'S INSTRUCTIONS. NEW WATER MAINS SHALL BE THE COLOR BLUE AND LABELED AS "WATER". CONNECTIONS TO OTHER WATER MAINS, INCLUDING THOSE OF DIFFERENT MATERIAL, SHALL BE MADE USING THE APPROPRIATE ADAPTERS AND FITTINGS.
9. FUSIBLE PVC PIPE SHALL BE USED FOR UNINTERRUPTED SEGMENTS OF NEW WATER MAINS GREATER THAN 1,000 LINEAR FEET THAT ARE INSTALLED USING AN OPEN CUT TRENCH METHOD.
10. UPON COMPLETION OF WATER MAIN CONSTRUCTION, THE DRILLING LOGS FOR ALL HDD INSTALLED WATER MAINS SHALL BE PROVIDED WITH THE RECORD DRAWINGS/AS-BUILT PLANS. THE DRILLING LOGS SHALL CONTAIN, AT MINIMUM, THE SIZE OF THE WATER MAIN, THE DEPTH OF INSTALLATION, AND THE LENGTH OF THE SEGMENT.
11. NEW WATER MAIN FITTINGS SHALL BE DUCTILE IRON FITTINGS CONFORMING TO AWWA C110/A21.10 WITH FITTING JOINTS CONFORMING TO AWWA C111/A21.11. THE DUCTILE IRON FITTING SHALL BE EPOXY COATED INSIDE AND OUT. BURIED FITTINGS SHALL BE MECHANICAL JOINT (MJ) FITTINGS. THE CONNECTION BETWEEN THE PVC FORCE MAIN AND THE FITTING SHALL BE RESTRAINED WITH A 2000PV OR 2000SV MEGA-LUG MECHANICAL JOINT THRUST RESTRAINT MANUFACTURED BY EBBA, INC. OR AN APPROVED EQUAL. THE NUTS AND BOLTS SHALL BE TEFLON COATED COR-TEN FASTENERS. ABOVE GROUND FITTINGS SHALL BE FLANGED, AND FASTENERS SHALL BE STAINLESS STEEL.
12. THE CONTRACTOR SHALL INSTALL IDENTIFICATION TAPE ALONG

THE ENTIRE LENGTH OF THE NEW WATER MAIN. IDENTIFICATION TAPE SHALL BE INSTALLED BY THE CONTRACTORS ONCE THE BACKFILL HAS BEEN PLACED AND COMPACTED TO AT LEAST 12" ABOVE THE TOP OF THE PIPE AND NOT MORE THAN 18" ABOVE THE CONNECTION.

13. ALL NEW WATER MAINS SHALL UNDERGO HYDROSTATIC TESTING TO VERIFY LEAK TIGHTNESS. NEW WATER MAINS SHALL TESTED A 125 PSI FOR 2 HOURS. THERE SHALL BE NO PRESSURE DROPS DURING THE TEST. IN THE EVENT THE WATER MAIN FAILS THE TEST, THE WATER MAIN PIPES SHALL BE CHECKED AND REPAIRED ACCORDINGLY. THE WATER MAIN SHALL BE RE-TESTED.
14. AFTER SUCCESSFUL PRESSURE TESTING, WATERLINES AND WATER MAINS SHALL BE DISINFECTED IN ACCORDANCE WITH AWWA C-601. DISINFECTED LINES SHALL BE TESTED AND APPROVED BY THE LOUISIANA DEPARTMENT OF HEALTH BEFORE BEING PLACED INTO SERVICE. ALL LOUISIANA DEPARTMENT OF HEALTH TEST SAMPLES SHALL BE COLLECTED FROM AN INSTALLED KUPFERLE FOUNDRY COMPANY MODEL # 88 SAMPLE STATION.

WATER FITTINGS AND VALVES NOTES

1. WATER VALVES THREE INCHES (3") OR LARGER SHALL BE AWWA C-509 RESILIENT-SEATED GATE VALVE FOR POTABLE WATER SUPPLY SERVICE. WATER VALVES SHALL BE FUSION BONDED EPOXY AND LINED PER AWWA C-550. VALVES SHALL BE MUELLER SERIES 2360 OR TAMMANY UTILITIES APPROVED EQUAL. WATER VALVES SHALL BE RESTRAINED JOINT WITH MEGALUG AND TEFLON COATED CORE-TEN BOLTS AND NUTS.
2. BURIED VALVES, INCLUDING TWO INCH (2") VALVES, SHALL HAVE A 3-PIECE CAST IRON BOX INSTALLED AND ADJUSTED TO FINISHED GRADE. BURIED VALVES SHALL HAVE AN AWWA OPERATING NUT AND A COVER LABELLED "WATER". EACH VALVE BOX SHALL HAVE A PRECAST OR CAST-IN-PLACE VALVE MEASURING AT LEAST 4" THICK BY 24" BY 24" SQUARE OR 4" THICK BY 24" ROUND.
3. MANHOLE AND VALVE COVERS SHALL HAVE DIAMOND TREAD PATTERN AND HAVE WORD "WATER" CAST ON THE COVER.
4. IN GENERAL, WATER MAINS AND VALVES SHALL BE LOCATED BETWEEN THE RIGHT-OF-WAY LINE AND TOP OF DITCH OR SUBSURFACE DRAINAGE FEATURE. A HORIZONTAL CLEARANCE OF MINIMUM THREE FEET (3') SHALL BE MAINTAINED BETWEEN THE TOP OF DITCH (OR SUBSURFACE DRAINAGE FEATURE) AND EDGE OF THE MAIN AND/OR VALVE. IF THE CLEARANCE REQUIREMENT CANNOT BE MET DUE TO FIELD CONDITIONS, THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER TO DETERMINE AN ACCEPTABLE LOCATION OF THE MAIN AND/OR THE VALVE, ALL AT NO ADDITIONAL COST TO THE PROJECT. UNDER NO CIRCUMSTANCES VALVES AND THEIR ACCESS BE CONSTRUCTED IN DITCHES OR UNDER SUBSURFACE DRAINAGE FEATURES ARE ACCEPTABLE. ENGINEER'S DECISION SHALL BE FINAL.
5. IN GENERAL, WATER MAINS AND VALVES SHALL BE AT LEAST THREE FEET (3') BELOW FINISHED GRADE BUT NO DEEPER THAN FIVE FEET (5') BELOW FINISHED GRADE. IF THE DEPTH OF THE WATER VALVE IS LESS THAN 3' OR GREATER THAN 5', THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER TO DETERMINE IF THE DEPTH OF THE WATER VALVE IS ACCEPTABLE. THE WATER VALVE SHALL BE MOVED AT NO ADDITIONAL COST TO THE PROJECT. ENGINEER'S DECISION SHALL BE FINAL.
6. FITTINGS SHALL BE RESTRAINED JOINT DUCTILE IRON USING MEGALUGS AND TEFLON COATED CORE-TEN BOLTS AND NUTS. FITTINGS SHALL CONFORM TO ALL APPLICABLE AWWA/ANSI SPECIFICATIONS REGARDING USE IN POTABLE WATER SYSTEMS.
7. BRASS FITTINGS SHALL BE LEAD FREE. BRASS FITTINGS SHALL BE MUELLER, FORD METER BOX COMPANY, OR TAMMANY UTILITIES APPROVED EQUAL. REFER TO SHEET C-503 FOR APPROVED MODELS FROM MUELLER AND FORD METER BOX COMPANY.
8. CONNECTIONS TO EXISTING WATERLINES SHALL BE MADE USING MULLER STAINLESS STEEL TAPPING SLEEVE AND VALVE, MODEL NO. H-304SS. CONNECTION TO EXISTING WATERLINES USING OTHER TAPPING SLEEVES AND VALVES OTHER THAN MUELLER H-304SS SHALL BE APPROVED BY TAMMANY UTILITIES PRIOR TO USE.
9. WATER SERVICE CONNECTIONS SHALL HAVE A BRASS TAPPING SADDLE, BRASS CORPORATION STOP, AND A MINIMUM 1" CONNECTION SIZE. SERVICE CONNECTION PIPING SHALL BE AWWA C901 POLYETHYLENE TUBING, PE3408 DR9. WATER SERVICE CONNECTION SHALL HAVE MAXIMUM COVER OF 2'. A U-BRANCH SHALL BE INSTALLED ON WATER SERVICE CONNECTION WHIP. THE LOCATION OF THE WATER SERVICE CONNECTIONS SHALL BE STAMPED

IN THE CURB FACE OR ROAD SURFACE USING THE "W" SYMBOL, AND THE LETTERING SHALL BE AT LEAST 4" BY 8".

10. ALL WATER SERVICE CONNECTION SHALL BE LOCATED AT THE LOT LINE. WATER SERVICE CONNECTIONS SHALL NOT BE LOCATED WITHIN THE DRIVEWAY.
11. ONE SAMPLE STATION SHALL BE INSTALLED BETWEEN VALVES ON THE WATER MAIN OR BETWEEN A VALVE AND DEAD-END OR CUL-DE-SAC.
12. ALL NEW SAMPLE STATIONS SHALL BE KUPFERLE FOUNDRY COMPANY BRAND - MODEL # 88-SS.

FIRE HYDRANT NOTES

1. FIRE HYDRANTS SHALL BE MUELLER SUPER CENTURION 250 HS WITH BUILT-IN CHECK VALVE AND SHALL COMPLY WITH AWWA C-502. OTHER MODEL FIRE HYDRANTS SHALL BE SUBMITTED TO AND APPROVED BY TAMMANY UTILITIES PRIOR TO PURCHASING AND INSTALLING. ALL FIRE HYDRANTS SHALL COMPLY AWWA C-502 AND/OR C-503. FIRE HYDRANTS SHALL HAVE AT LEAST THREE OUTLETS PER HYDRANT, AND ALL OUTLETS SHALL HAVE NATIONAL STANDARD THREADS. ONE OUTLET SHALL BE A 5 1/2 INCH PUMPER CONNECTION, AND TWO OUTLETS SHALL BE 2 1/2 INCH HOSE CONNECTIONS. FIRE HYDRANTS SHALL BE PAINTED CHROME YELLOW.
2. ALL FIRE HYDRANTS SHALL HAVE A MINIMUM OF 24 INCHES OF CLEARANCE BETWEEN FINISHED GRADE AND THE BOTTOM OF THE 2 1/2 INCH OUTLET. IF THE FIRE HYDRANT BECOMES BURIED OR THE CLEARANCE IS LESS THAN THE REQUIRED 24", THE CONTRACTOR SHALL RAISE THE FIRE HYDRANT TO ACHIEVE THE MINIMUM REQUIRED CLEARANCE. TAMMANY UTILITIES SHALL NOT ACCEPT THE DEVELOPMENT UNTIL ALL FIRE HYDRANTS HAVE THE REQUIRED GROUND CLEARANCE. IF THE FIRE HYDRANT BECOMES BURIED TAMMANY UTILITIES ACCEPTS THE WATER INFRASTRUCTURE AS A RESULT OF THE BUILDING CONSTRUCTION, THE TAMMANY UTILITIES SHALL NOT INSTALL A WATER METER TO SERVICE THE PROPERTY UNTIL THE FIRE HYDRANT IS UNCOVER OR RAISED. THE RESPONSIBILITY OF UNCOVERING OR RAISING THE FIRE HYDRANT SHALL NOT BE PLACED ON TAMMANY UTILITIES AND SHALL BE WORKED OUT BETWEEN THE DEVELOPER AND BUILDING CONTRACTOR.
3. FIRE HYDRANTS SHALL HAVE A 6" DIAMETER DUCTILE IRON LEAD WITH 6" MUELLER GATE VALVE FOR ISOLATION FROM THE WATER MAIN.
4. THE LOCATION OF EACH FIRE HYDRANT SHALL BE MARKED WITH A BLUE REFLECTOR ON THE ROADWAY PAVEMENT. BLUE REFLECTOR SHALL BE PLACED IN THE CENTER OF THE TRAVEL LANE CLOSEST TO THE FIRE HYDRANT.
5. FIRE HYDRANTS SHALL BE LOCATED AT LEAST SIX FEET, OR GREATER AS NECESSARY BY REGULATORY REQUIREMENT, FROM THE EDGE OF ROADWAY PAVEMENT.
6. THE MAXIMUM SPACING BETWEEN FIRE HYDRANTS SHALL BE 500 FEET.
7. A MINIMUM OF THREE FIRE HYDRANTS IN THE DEVELOPMENT SHALL BE TESTED TO VERIFY ACTUAL FIRE FLOW AND TO CLASSIFY THE FIRE HYDRANTS BY OBSERVED FLOW RATES. THE NUMBER AND SELECTION OF HYDRANTS SHALL BE DETERMINED BY THE LOCAL FIRE PROTECTION DISTRICT. A REPRESENTATIVES OF TAMMANY UTILITIES AND THE LOCAL FIRE PROTECTION DISTRICT SHALL BE PRESENT TO OBSERVE FIRE FLOW TESTING AND RESULTS.
8. AFTER FIRE FLOW TESTING, THE DEVELOPER AND/OR THE CONTRACTOR SHALL PAINT THE TOP AND THE THREE OUTLET CAPS OF EACH FIRE HYDRANT IN ACCORDANCE WITH THE NFPA COLOR CODING SYSTEM TO CLASSIFY EACH HYDRANT BY FIRE FLOW.
 - a. RED: TO BE USED ON ALL FIRE HYDRANTS WITH FIRE FLOW LESS THAN 500 GALLONS PER MINUTE
 - b. ORANGE: TO BE USED ON ALL FIRE HYDRANTS WITH FIRE FLOW BETWEEN 500 AND 1,000 GALLONS PER MINUTE
 - c. GREEN: TO BE USED ON ALL FIRE HYDRANTS WITH FIRE FLOW BETWEEN 1,000 AND 1,500 GALLONS PER MINUTE
 - d. BLUE: TO BE USED ON ALL FIRE HYDRANTS WITH FIRE FLOW GREATER THAN 1,500 GALLONS PER MINUTE

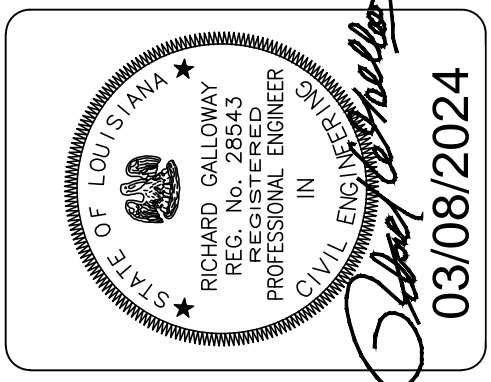
REFER TO SHEET 2 FOR ADDITIONAL WATER STANDARD NOTES



DEPT. OF UTILITIES
ST. TAMMANY PARISH
GOVERNMENT
620 N. TYLER STREET
COVINGTON, LA 70433

No.	DESCRIPTION OF REVISION	DATE

DESIGNED BY: THA	ISSUE DATE: 3/8/24 (BID)
DRAWN BY: KRG	APPROVED BY: RCG
CHECKED BY: RCG	SHEET SIZE: ANSI D
SUBMITTED BY: HCH THE CONSULTANTS	SCALE: AS SHOWN
PROJECT No.: T023000173	



HIGHWAY LA-21 LIFT STATION
WST SEWER SYSTEM
MADISONVILLE, LOUISIANA
PROJECT No.: T023000173

WATER STANDARD NOTES
SHEET 2 OF 2

SHEET NO.
4
SHEET 4 of 22

**HIGH TIDE
CONSULTANTS LLC**
409 W 21ST AVENUE - SUITE B
COVINGTON, LA 70433
www.hightidela.com

GENERAL SEWER STANDARD NOTES

1. ALL MATERIALS SHALL COMPLY WITH ALL APPLICABLE AWWA STANDARDS AND SPECIFICATIONS.
2. THE CONTRACTOR SHALL PROVIDE A ONE-YEAR WARRANTY FOR ALL NEWLY INSTALLED SEWER INFRASTRUCTURE ASSOCIATED WITH THE CONSTRUCTION OF THE PROJECT, INCLUDING BUT NOT LIMITED TO ANY SEWER FORCE MAIN AND GRAVITY SEWER MAIN EXTENSIONS. THE WARRANTY SHALL EXTEND FOR A PERIOD OF FIVE YEARS FROM THE DATE OF FINAL ACCEPTANCE. THE CONTRACTOR SHALL FURNISH ALL MATERIALS AND LABOR REQUIRED TO CORRECT DEFICIENCIES IN THE SYSTEM AT NO COST TO DEPARTMENT OF UTILITIES.
3. A PRE-CONSTRUCTION MEETING WITH DEPARTMENT OF UTILITIES, THE CONTRACTOR, AND ENGINEER OF RECORD SHALL BE HELD 30-DAYS PRIOR TO THE START OF CONSTRUCTION. ALL PRE-CONSTRUCTION MEETINGS SHALL BE HELD ON THURSDAYS AT DEPARTMENT OF UTILITIES OFFICE IN COVINGTON. THE ENGINEER OF RECORD SHALL COORDINATE WITH DEPARTMENT OF UTILITIES TO SCHEDULE THE DATE AND TIME OF THE PRE-CONSTRUCTION MEETING.
4. PARALLEL SEWER LINES (I.E. GRAVITY SEWER LINES AND SEWER FORCE MAINS) AND WATER LINES SHALL BE LAID IN SEPARATE TRENCHES WITH THE HORIZONTAL CLEARANCE BETWEEN ALL WATER LINES AND ALL SEWER LINES OF 10'. THE HORIZONTAL CLEARANCE BETWEEN GRAVITY SEWER LINES AND SEWER FORCE MAINS SHALL BE 10'. IN THE EVENT A WATER LINE CROSSES OVER A SEWER LINE CROSS, THE MINIMUM VERTICAL CLEARANCE SHALL BE 18" BETWEEN THE WATER AND SEWER LINES. ALL SEWER LINES SHALL BE LOWER THAN WATER LINES. ANY CLEARANCES LESS THAN THE ABOVE MENTIONED SHALL BE APPROVED BY DEPARTMENT OF UTILITIES.
5. EXCAVATIONS FOR SEWER LINES AND STRUCTURES SHALL BE EXCAVATED, BEDDED AND BACKFILLED IN ACCORDANCE WITH THE NOTES BELOW AND THE PROVIDED SEWER DETAILS.
 - a. GRAVITY SEWER MAINS AND SEWER FORCE MAINS SHALL BE BEDDED IN A CLEAN SAND COMPLYING WITH AASHTO A-3 CLASSIFICATION. THE CLEAN SAND BEDDING MATERIAL SHALL PLACED IN LOOSE 8" LIFTS AND COMPACTED TO 95% OF OPTIMAL DRY DENSITY AS DETERMINED BY ASTM D698.
 - b. THE MINIMUM THICKNESS FOR PIPE BEDDING MATERIAL UNDER ALL SEWER GRAVITY MAINS AND SEWER FORCE MAINS SHALL BE 6" OR AS DICTATED BY THE RECOMMENDATIONS OUTLINED IN THE GEOTECHNICAL REPORT. THE BEDDING MATERIAL SHALL EXTEND TO THE SPRINGLINE OF THE PIPE (I.E. HALF PIPE O.D.). THE MORE STRINGENT REQUIREMENT SHALL CONTROL.
 - c. WHEN A SOFT AND/OR WET EXCAVATION BOTTOM HAS BEEN ENCOUNTERED, THE EXCAVATION BOTTOM SHALL BE STABILIZED IN ACCORDANCE WITH THE RECOMMENDATIONS OUTLINED IN THE GEOTECHNICAL REPORT. HOWEVER AT A MINIMUM, A 6" THICK CRUSHED No. 57 LIMESTONE FOUNDATION SHALL BE USED TO STABILIZE A SOFT AND/OR WET EXCAVATION BOTTOM. A MINIMUM OF 6" OF THE SOFT AND/OR WET NATIVE MATERIAL SHALL BE REMOVED PRIOR TO PLACING THE CRUSHED LIMESTONE FOUNDATION. THE CRUSHED LIMESTONE FOUNDATION SHALL BE PLACED ON TOP OF A COMBINATION OF GEOTEXTILE AND BI-AXIAL GEOGRID FABRICS. THE CRUSHED LIMESTONE FOUNDATION SHALL BE PLACED IN LOOSE 8" LIFTS AND COMPACTED TO 90% OF THE RELATIVE DRY DENSITY AS DETERMINED BY ASTM D4253. THE GEOTEXTILE FABRIC SHALL ENCASE THE LIMESTONE FOUNDATION. THE MORE STRINGENT REQUIREMENTS SHALL CONTROL.
 - d. SEWER FORCE MAIN VALVES AND SEWER STRUCTURES (I.E. MANHOLES, WET WELLS, VALVE VAULTS, EQUIPMENT PADS) SHALL BE CONSTRUCTED ON No. 57 CRUSHED LIMESTONE BASE. THE MINIMUM THICKNESS OF THE LIMESTONE BASE AND THE USE OF GEO-SYNTHETIC FABRICS SHALL BE DICTATED BY THE RECOMMENDATIONS OUTLINED IN THE GEOTECHNICAL REPORT. HOWEVER, THE LIMESTONE BASE SHALL HAVE A MINIMUM THICKNESS 12" UNDER SEWER STRUCTURE AND 6" UNDER SEWER FORCE MAIN VALVES. THE LIMESTONE BASE SHALL BE PLACED ON TOP OF A COMBINATION OF GEOTEXTILE AND BI-AXIAL GEOGRID FABRICS. THE CRUSHED LIMESTONE MATERIAL SHALL BE PLACED IN LOOSE 8" LIFTS AND COMPACTED TO 90% OF THE RELATIVE DRY DENSITY AS DETERMINED BY ASTM D4253. THE GEOTEXTILE FABRIC SHALL ENCASE THE LIMESTONE BASE. THE MORE STRINGENT REQUIREMENTS SHALL CONTROL.
6. THE COVER BETWEEN THE TOP OF PIPE FOR ALL SEWER LINES (I.E. GRAVITY SEWER AND SEWER FORCE MAINS) AND FINISHED GRADE SHALL BE AT LEAST 3' FOR LANDSCAPED AREAS AND 5' UNDER ROADS.

7. THE LOCATION OF ALL NEW HOUSE CONNECTIONS SHALL BE IMPRESSED INTO THE CURB FACE OR STREET SURFACE WITH THE LETTERS "H1C" AND AN ARROW POINTING THE DIRECTION THE HOUSE CONNECTION. THE LETTERING SHALL BE 4" BY 8"; REFER TO THE SEWER STANDARD DETAILS. PRIOR THE CONSTRUCTION OF THE RESIDENCE, NEW HOUSE CONNECTIONS SHALL BE LOCATED USING A 2" BY 2" STAKE WITH A FLORESCENT GREEN FLAG/STREAMER OR PAINTED FLORESCENT GREEN FOR EASE OF LOCATING BY DEPARTMENT OF UTILITIES INSPECTORS. THE STAKE SHALL EXTEND AT LEAST 3 FEET FROM THE EXISTING GROUND SURFACE. THE STAKE MUST BE MAINTAINED UNTIL THE RESIDENCE HAS BEEN CONNECTED TO THE SERVICE LINE.
8. DEPARTMENT OF UTILITIES REPRESENTATIVE SHALL BE ON-SITE FOR ALL TESTING REQUIRED FOR THE ACCEPTANCE OF THE DEVELOPMENT. THE DEVELOPER SHALL CONTACT DEPARTMENT OF UTILITIES AT LEAST 48-HOURS PRIOR TO TESTING. THE DEVELOPER SHALL CONTACT TAMMANY UTILITIES AT (985) 893-1717 TO SCHEDULE INSPECTIONS AND TESTING.
9. THE CONTRACTOR AND ENGINEER OF RECORD SHALL BE RESPONSIBLE FOR VERIFYING THE HORIZONTAL AND VERTICAL LOCATION OF ALL NEW SEWER INFRASTRUCTURE POST-CONSTRUCTION. THE FIELD VERIFICATION DATA SHALL BE REFLECTED AND CERTIFIED IN THE RECORD DRAWINGS/AS-BUILT PLANS TO BE PREPARED BY THE ENGINEER OF RECORD FOR THE PROJECT. DEPARTMENT OF UTILITIES SHALL NOT ACCEPT THE DEVELOPMENT UNTIL THE ENGINEER OF RECORD PROVIDES AN ACCURATE, VERIFIED SET OF RECORD DRAWINGS/AS-BUILT PLANS FOR THE DEVELOPMENT.
10. THE RECORD DRAWINGS/AS-BUILT PLANS SHALL CONTAIN THE FOLLOWING SHEETS OF INFORMATION:
 - a. ALL SHEETS SHALL BE STAMPED WITH THE BLOCK "RECORD DRAWINGS" OR "AS-BUILT PLANS" AND SHALL BE DATED.
 - b. TITLE SHEET WITH AN INDEX OF SHEETS. IF ADDITIONAL SHEETS ARE NEEDED TO CAPTURE CHANGES VIA CHANGE-ORDER/PLAN CHANGE, THESE ADDITIONAL SHEETS SHALL BE LISTED IN THE INDEX OF SHEETS AND BE ADDED AT THE END OF THE PLAN SET.
 - c. GENERAL NOTES AND LEGEND. STRIKETHROUGH NOTES WHICH DO NOT APPLY.
 - d. SITE VICINITY MAP SHOWING NEW WATER AND SEWER INFRASTRUCTURE AND TIE-IN LOCATION TO THE EXISTING SYSTEM(S).
 - e. PLAN AND PROFILE SHEETS
 - f. SUMMARY OF MATERIAL QUANTITIES. FINAL QUANTITIES INSTALLED SHALL BE TABULATED.
 - g. SUMMARY OF HOUSE CONNECTIONS. INFORMATION REGARDING THE HOUSE CONNECTIONS SHALL BE TABULATED. THE LOCATION OF EACH HOUSE CONNECTION SHALL BE DETERMINED BY MEASURING ALONG THE CENTERLINE OF THE SEWER GRAVITY MAIN FROM THE CENTER OF THE DOWNSTREAM MANHOLE. ADDITIONALLY, THE DIRECTION AND OFFSET OF EACH HOUSE CONNECTION SHALL BE MEASURED FROM THE CENTERLINE OF THE SEWER (I.E. 35' L).
 - h. STANDARD DETAILS - STRIKETHROUGH STANDARD DETAILS NOT USED.
8. PLAN AND PROFILE SHEETS IN THE RECORD DRAWINGS/AS-BUILT PLANS SHALL CONTAIN THE FOLLOWING INFORMATION AT A MINIMUM:
 - a. LABEL THE CENTER-TO-CENTER DISTANCE BETWEEN MANHOLES ALONG THE DIRECTION OF FLOW IN PLAN-VIEW ONLY.
 - b. LABEL THE SLOPE AND DIRECTION OF FLOW FOR ALL SEWER LINES IN PLAN-VIEW ONLY. SLOPE OF THE GRAVITY SEWER LINE SHALL BE LABELED. SLOPE SHALL BE PROVIDED AS A PERCENTAGE.
 - c. LABEL TOP-OF-CASTING (TOC) AND INVERT ELEVATIONS FOR ALL MANHOLES. SHOW INVERT ELEVATIONS AND CARDINAL DIRECTION (I.E. N. INV. 20.19) FOR ALL PIPES IN THE MANHOLE
 - d. SHOW AND LABEL TIE-IN LOCATIONS BETWEEN EXISTING AND NEW SEWER INFRASTRUCTURE.
 - e. SEPARATE PLAN AND PROFILE SHEETS SHALL BE PROVIDED FOR THE LIFT STATION(S) AND FORCE MAIN(S). LABEL ALL VALVES AND FITTINGS ALONG THE FORCE MAIN. LABEL THE DISTANCE BETWEEN ALL VALVES AND FITTINGS. LABEL VERTICAL AND HORIZONTAL

OFFSETS FROM PROJECT BASELINE OR DATUM.

10. THE CONTRACTOR'S REDLINE DRAWINGS SHALL NOT BE SUBSTITUTED FOR OR ACCEPTED BY DEPARTMENT OF UTILITIES AS RECORD DRAWINGS/AS-BUILT PLANS

11. THE CONTRACTOR AND/OR ENGINEER OF RECORD FOR THE PROJECT SHALL PROVIDE RECORD DRAWINGS/AS-BUILT PLANS IN THE FOLLOWING FORMATS AND QUANTITIES: THREE (3) FULL-SIZE HARD COPIES, ONE (1) COPY IN PDF FORMAT, AND ONE (1) COPY IN AUTOCAD 2016 FORMAT.

12. DEPARTMENT OF UTILITIES STANDARD NOTES AND DETAILS SHALL BE MADE PART OF THE CONSTRUCTION DOCUMENTS. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS, INCLUDING DEPARTMENT OF UTILITIES STANDARD NOTES AND DETAILS.

SEWER MANHOLES NOTES

1. ALL NEW MANHOLES SHALL HAVE MINIMUM INSIDE DIAMETER OF 48 INCHES. ALL COMPONENTS OF THE MANHOLES (I.E. BASE, RISER, AND TOP) SHALL BE A PRE-CAST, REINFORCED CONCRETE STRUCTURE CONFORMING TO ASTM C478. THE PRE-CAST MANHOLE STRUCTURE SHALL BE DESIGNED TO MEET OR EXCEED AASHTO HS-20 LOADING.
2. CONCRETE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4,000 PSI. CONCRETE SHALL CONTAIN XYPEX CONTENT OF AT LEAST 3% BY WEIGHT. REINFORCING STEEL SHALL BE GRADE 60 AND CONFORM TO ASTM A615.
3. CONCRETE SHALL BE FORTIFIED WITH THE CORROSION CONTROL ADDITIVE "CON-SHIELD" IN ADDITION TO XYPEX OR XYPEX C500 BIO-SAN FOR THE FOLLOWING CONDITIONS: (1) MANHOLES RECEIVING DISCHARGE FROM A FORCE MAIN, (2) MANHOLES WITHIN 100' OF A LIFT STATION, OR (3) MANHOLES WITH A DEPTH GREATER THAN 8'. CONCRETE SHALL CONTAIN "CON-SHIELD" AT RATE OF ONE GALLON PER CUBIC YARD IN ADDITION TO XYPEX C100R AT 3% BY WEIGHT OF CEMENT OR XYPEX C500 BIO-SAN BY 1% BY WEIGHT OF CEMENT.
4. EXISTING MANHOLES TO BE REFURBISHED AND/OR TO RECEIVE FLOW FROM A SEWER FORCE MAIN SHALL BE COATED USING ONE OF THE FOLLOWING COMPOSITE LINER SYSTEMS: MADEWELL MAINSTAY (ML72 TO REBUILD TO ORIGINAL THICKNESS OR MIN. 3/8" THICKNESS, DS5 EPOXY LINER WITH 125 MILS THICKNESS), TNEPEC PERMASHIELD (SERIES 217 MORTOR CLAD TO REBUILD TO ORIGINAL THICKNESS OR MIN. 3/8" THICKNESS, SERIES 434 PERMA-SHIELD EPOXY LINER WITH 125 MILS THICKNESS) OR XYPEX BIO-SAN MEGAMIX 2 (MIN. 3/8" THICKNESS). PRIOR TO APPLYING THE SELECTED COMPOSITE LINER SYSTEM, ALL SURFACES SHALL BE PREPARED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. THE COMPOSITE LINER SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. COORDINATE WITH DEPARTMENT OF UTILITIES TO DETERMINE THE SCOPE OF THE MANHOLE REFURBISHMENT PRIOR TO BEGINNING WORK.
5. JOINTS IN THE MANHOLE SECTIONS SHALL BE SEALED WITH "RAM-NEK" OR A RUBBER GASKET CONFORMING TO ASTM C433. EXCESS JOINT SEALANT MATERIAL PROTRUDING FROM THE JOINT ON THE INTERIOR OF THE MANHOLE SHALL BE TRIMMED FLUSH WITH THE INTERIOR OF SURFACE OF THE MANHOLE. INTERIOR JOINTS SHALL THEN BE SEALED WITH A NON-SHRINK, NON-METALLIC GROUT.
6. ALL PIPE PENETRATIONS INTO MANHOLES SHALL BE CAST OR CORED. CONNECTION OF SEWER PIPES TO MANHOLES SHALL BE WATERTIGHT. THE CONNECTIONS SHALL BE MADE WITH AN ELASTOMERIC PIPE TO MANHOLE CONNECTOR OR BOOT CONFORMING TO ASTM C923 AND NON-METALLIC EPOXY GROUT.
7. GROUT AND MORTAR MIXES SHALL CONTAIN CONCRETE ADDITIVES LISTED IN NOTE #3 ABOVE.
8. MANHOLE FRAMES AND COVERS SHALL BE GRAY IRON CONFORMING TO ASTM A48. MANHOLE FRAMES AND COVERS SHALL EAST JORDAN IRON WORKS OR US FOUNDRY. ALL MANHOLE FRAMES AND COVERS SHALL BE RATED FOR AASHTO HS-20 LOADING. A "RAINSTOPPER" INSERT SHALL BE INSTALLED WITH ALL NEW MANHOLE COVERS.
9. MANHOLE COVERS SHALL HAVE DIAMOND TREAD PATTERN AND HAVE WORD "SEWER" CAST ON THE COVER.

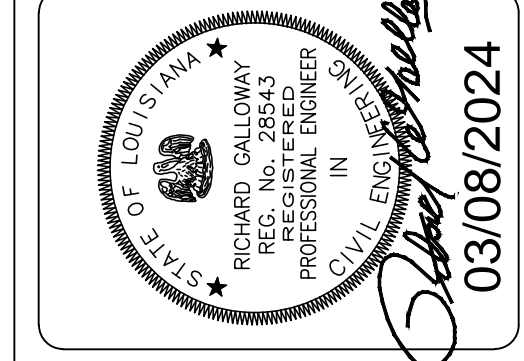
REFER TO SHEET 6 FOR ADDITIONAL SEWER STANDARD NOTES



DEPT. OF UTILITIES
ST. TAMMANY PARISH
GOVERNMENT
620 N. TYLER STREET
COVINGTON, LA 70433

DATE:	DESCRIPTION OF REVISION	No.

DESIGNED BY: THA	ISSUE DATE: 3/8/24 (BID)
DRAWN BY: KRG	APPROVED BY: RCG
CHECKED BY: RCG	SHEET SIZE: ANSI D
SUBMITTED BY: HCH TIE CONSULTING	SCALE: AS SHOWN
PROJECT No.: TU23000173	



HIGHWAY LA-21 LIFT STATION
WST SEWER SYSTEM
MADISONVILLE, LOUISIANA
PROJECT No.: TU23000173

SEWER STANDARD NOTES
SHEET 1 OF 2

SHEET NO.
5
SHEET 5 of 22



GRAVITY SEWER MAIN NOTES

- NEW GRAVITY SEWER LINES BETWEEN 6" AND 15" DIAMETER, INCLUDING HOUSE SERVICE CONNECTIONS, SHALL BE POLYVINYL CHLORIDE (PVC) PIPE CONFORMING TO ASTM D3034. NEW GRAVITY SEWER LINES BETWEEN 6" AND 15" DIAMETER SHALL HAVE A PIPE STIFFNESS NO LESS THAN 115 PSI (SDR26). CONNECTIONS BETWEEN PIPE LENGTHS SHALL BE OF AN INTEGRATED "BELL AND SPIGOT" DESIGN WITH A RUBBER GASKET SEAL. RUBBER SEAL SHALL CONFORM TO ASTM F477. NEW GRAVITY SEWER LINES SHALL BE THE COLOR GREEN AND LABELED AS "SEWER".
- NEW GRAVITY SEWER LINES BETWEEN 18" AND 48" DIAMETER SHALL BE POLYVINYL CHLORIDE (PVC) PIPE CONFORMING TO ASTM F679. NEW GRAVITY SEWER LINES BETWEEN 18" AND 48" DIAMETER SHALL HAVE A PIPE STIFFNESS NO LESS THAN 115 PSI (PS115). CONNECTIONS BETWEEN PIPE LENGTHS SHALL BE OF AN INTEGRATED "BELL AND SPIGOT" DESIGN WITH A RUBBER GASKET SEAL. RUBBER SEAL SHALL CONFORM TO ASTM F477. NEW GRAVITY SEWER LINES SHALL BE THE COLOR GREEN AND LABELED AS "SEWER".
- NEW GRAVITY SEWER MAINS SHALL BE NO SMALLER THAN 8" INSIDE DIAMETER PVC PIPE WITH A MINIMUM SLOPE 0.4%. NEW GRAVITY SEWER MAINS SHALL HAVE MINIMUM VELOCITY OF 2 FEET PER SECOND.
- NEW HOUSE SERVICE CONNECTIONS SHALL BE NO SMALLER THAN 6" INSIDE DIAMETER PVC PIPE. A NEW HOUSE SERVICE CONNECTIONS SHALL BE INSTALLED A PERPENDICULAR TO THE GRAVITY SEWER MAIN AND SHALL BE PROPERLY SECURED WITH A PVC CAP.
- THE LOCATION OF THE HOUSE SERVICE CONNECTIONS SHALL BE STAMPED IN THE CURB FACE OR ROAD SURFACE USING THE LETTERING "H+C", AND THE LETTERING SHALL BE AT LEAST 4" BY 8".
- ALL NEW HOUSE SERVICE CONNECTIONS SHALL BE LOCATED AT THE LOT LINE. HOUSE SERVICE CONNECTION SHALL NOT BE LOCATED WITHIN THE DRIVEWAY.
- THE GRAVITY SEWER SYSTEM SHALL BE TESTED FOR LEAKS BY SMOKE TESTING.
- GRAVITY SEWER PIPES SHALL BE CHECKED FOR ALIGNMENT BY MANDREL TESTING AND VIDEO INSPECTION. CLEAN WATER SHALL BE INTRODUCED INTO THE GRAVITY SEWER LINE UNDERGOING VIDEO INSPECTION TO DETERMINE IF THE GRAVITY SEWER LINE HAS ANY SAGS OR HIGH POINTS THAT WILL IMPEDE FLOW. A DEPARTMENT OF UTILITIES REPRESENTATIVE SHALL BE ON-SITE DURING THE VIDEO INSPECTION.
- IN THE EVENT A SECTION OF GRAVITY SEWER PIPE FAILS INSPECTION AND TESTING, PIPES SHALL BE RE-LAID AND RE-CHECKED AT EXPENSE OF THE CONTRACTOR AND/OR THE DEVELOPER.

SEWER LIFT STATION NOTES

- WET WELLS SHALL HAVE A MINIMUM INSIDE DIAMETER OF 60 INCHES.
- LIFT STATION SERVITUDE SHALL BE CENTERED ON THE WET WELL AND MEASURE AT LEAST 25' BY 25'. THE ACCESS DRIVEWAY SHALL BE AT LEAST 12' WIDE. A SEPARATE SERVITUDE FOR THE ACCESS DRIVEWAY TO THE LIFT STATION SHALL BE PROVIDED IN ADDITION TO THE LIFT STATION SERVITUDE.
- LIFT STATIONS LOCATED IN A RESIDENTIAL OR COMMERCIAL SETTING SHALL BE SECURED BY A WOODEN PRIVACY FENCE. THE FENCE SHALL CONSTRUCTED ALONG THE PERIMETER OF LIFT STATION SERVITUDE. THE FENCE SHALL BE 6- FEET TALL. A DOUBLE SWING GATE SHALL BE PROVIDED FOR MAINTENANCE VEHICLE ACCESS, AND THE CLEAR OPENING FOR THE GATE SHALL BE 16- FEET. THE APPROPRIATE WARNING SIGNS AND DEPARTMENT OF UTILITIES SIGNS SHALL BE ATTACHED TO FENCE AND GATE.
- LIFT STATIONS LOCATED IN AN INDUSTRIAL SETTING OR ALONG A HIGHWAY SHALL BE SECURED BY A CHAIN LINK FENCE. THE FENCE SHALL CONSTRUCTED ALONG THE PERIMETER OF LIFT STATION SERVITUDE. THE FENCE SHALL BE 6- FEET TALL WITH A BARBED WIRE TOP-OF-FENCE TREATMENT. ADDITIONALLY, A DARK GREEN PRIVACY MESH FABRIC SHALL BE INSTALLED ON THE FENCE AND GATE. A ROLLER GATE SHALL BE PROVIDED FOR MAINTENANCE VEHICLE ACCESS, AND THE CLEAR OPENING FOR THE GATE SHALL BE 16- FEET. THE APPROPRIATE WARNING SIGNS AND DEPARTMENT OF UTILITIES SIGNS SHALL BE ATTACHED TO FENCE AND GATE.
- ALL COMPONENTS OF THE WET WELL (I.E. BASE, RISER, AND TOP) SHALL BE A PRE-CAST, REINFORCED CONCRETE STRUCTURE

CONFORMING TO ASTM C478. THE PRE-CAST WET WELL STRUCTURE SHALL BE DESIGNED TO MEET OR EXCEED AASHTO HS-20 LOADING.

- CONCRETE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4,000 PSI. REINFORCING STEEL SHALL BE GRADE 60 AND CONFORM TO ASTM A615. CONCRETE SHALL CONTAIN XYPEX C1000-R CONTENT OF AT LEAST 3% BY WEIGHT OF CEMENT AND SHALL BE FORTIFIED WITH A CORROSION CONTROL ADDITIVE SUCH AS "CON-SHIELD" OR XYPEX C500 BIO-SAN. CONCRETE SHALL CONTAIN "CON-SHIELD" AT RATE OF ONE GALLON PER CUBIC YARD IN ADDITION TO XYPEX C100R AT 3% BY WEIGHT OF CEMENT OR XYPEX C500 BIO-SAN BY 1% BY WEIGHT OF CEMENT. THE CONTRACTOR SHALL SUBMIT CONCRETE MIX DESIGNS FOR APPROVAL BY THE ENGINEER AND DEPARTMENT OF UTILITIES PRIOR TO ORDERING THE WET WELL.
- JOINTS IN THE WET WELL OF THE SEWER LIFT STATION SECTIONS SHALL BE SEALED WITH A RUBBER GASKET CONFORMING TO ASTM C433. EXCESS JOINT SEALANT MATERIAL PROTRUDING FROM THE JOINT ON THE INTERIOR OF THE WET WELL SHALL BE TRIMMED FLUSH WITH THE INTERIOR OF SURFACE OF THE WET WELL. INTERIOR JOINTS SHALL THEN BE SEALED WITH A NON-SHRINK, NON-METALLIC GROUT.
- GROUT AND MORTAR MIXES SHALL CONTAIN CONCRETE ADDITIVES LISTED IN NOTE #6 ABOVE.
- EXISTING WET WELLS TO BE REFURBISHED SHALL BE COATED USING ONE OF THE FOLLOWING COMPOSITE LINER SYSTEMS: MADEWELL MAINSTAY (ML72 TO REBUILD TO ORIGINAL THICKNESS OR MIN. 3/8" THICKNESS, DS5 EPOXY LINER WITH 125 MILS THICKNESS), TNEC PERMASHIELD (SERIES 217 MORTOR CLAD TO REBUILD TO ORIGINAL THICKNESS OR MIN. 3/8" THICKNESS, SERIES 434 PERMA-SHIELD EPOXY LINER WITH 125 MILS THICKNESS) OR XYPEX BIO-SAN MEGAMIX 2 (MIN. 3/8" THICKNESS). PRIOR TO APPLYING THE SELECTED COMPOSITE LINER SYSTEM, ALL SURFACES SHALL BE PREPARED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. THE COMPOSITE LINER SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. COORDINATE WITH DEPARTMENT OF UTILITIES TO DETERMINE THE SCOPE OF THE WET WELL REFURBISHMENT PRIOR TO BEGINNING WORK.
- ALL PIPE PENETRATIONS INTO THE WET WELL SHALL BE CAST OR CORED. CONNECTION OF SEWER PIPES TO MANHOLES SHALL BE WATERTIGHT. THE CONNECTIONS SHALL BE MADE WITH AN ELASTOMERIC PIPE TO MANHOLE CONNECTOR OR BOOT CONFORMING TO ASTM C923 AND NON-METALLIC EPOXY GROUT.
- A COLLECTOR MANHOLE SHALL BE CONSTRUCTED IMMEDIATELY UPSTREAM OF THE WET WELL TO MINIMIZE THE NUMBER OF PENETRATIONS IN THE WET WELL WALL. THE MANHOLE AND WET WELL SHALL BE CONNECTED USING 12" DIAMETER GRAVITY SEWER LINE WITH MINIMUM SLOPE OF 2.5%. THE GRAVITY SEWER LINE BETWEEN THE MANHOLE AND WET WELL SHALL BE PVC PIPE CONFORMING TO THE "GRAVITY SEWER NOTES" ABOVE. THE SEALS AROUND PIPE PENETRATIONS SHALL CONFORM TO THE "GRAVITY SEWER NOTES" AND "SEWER LIFT STATION NOTES". THE COLLECTOR MANHOLE SHALL CONFORM TO THE "SEWER MANHOLE NOTES" PREVIOUSLY NOTED.
- WET WELL HATCH FRAMES AND COVERS SHALL BE CONSTRUCTED OF ALUMINUM AND BE RATED FOR AASHTO HS-20 LOADING.

SEWER FORCE MAIN NOTES

- NEW SEWER FORCE MAINS CONNECTING TO OTHER SEWER FORCE MAINS SHALL HAVE MINIMUM INSIDE DIAMETER OF 4". NEW SEWER FORCE MAINS FOR LIFT STATIONS INTERIOR TO A SUBDIVISION (I.E. DAISY CHAIN OF LIFT STATIONS) SHALL HAVE MINIMUM INSIDE DIAMETER OF 3".
- MINIMUM VELOCITY IN ALL SEWER FORCE MAINS SHALL BE 3 FEET PER SECOND. MAXIMUM VELOCITY IN ALL SEWER FORCE MAINS SHALL NOT EXCEED 8 FEET PER SECOND. VELOCITIES IN EXCESS OF 8 FEET PER SECOND SHALL APPROVED BY DEPARTMENT OF UTILITIES.
- NEW SEWER FORCE MAINS SHALL BE POLYVINYL CHLORIDE (PVC) PIPE CONFORMING TO AWWA C900 OR HIGH-DENSITY POLYETHYLENE (HDPE) PIPE CONFORMING TO AWWA C906.
- SEWER FORCE MAINS CONSTRUCTED USING PVC PIPE BETWEEN 4" AND 30" DIAMETER SHALL BE AWWA C900 DR-18. CONNECTIONS BETWEEN PIPE LENGTHS OF PVC SHALL BE OF AN INTEGRATED "BELL AND SPIGOT" PUSH-ON DESIGN WITH A RUBBER GASKET

SEAL. RUBBER SEAL SHALL CONFORM TO AWWA C111. NEW SEWER FORCE MAINS SHALL BE THE COLOR GREEN AND LABELED AS "SFM".

- SEWER FORCE MAINS CONSTRUCTED USING PVC PIPE 3" AND 30" DIAMETER SHALL BE A PRESSURE CLASS OF 160 PSI (SDR26). CONNECTIONS BETWEEN PIPE LENGTHS OF PVC SHALL BE OF AN INTEGRATED "BELL AND SPIGOT" PUSH-ON DESIGN WITH A RUBBER GASKET SEAL. RUBBER SEAL SHALL CONFORM TO AWWA C111. NEW SEWER FORCE MAINS SHALL BE THE COLOR GREEN AND LABELED AS "SFM".
- ALL SEWER FORCE MAINS CONSTRUCTED USING HDPE PIPE BETWEEN 4" AND 48" DIAMETER SHALL HAVE A PRESSURE CLASS OF 160 PSI (DR13.5) AND CONFORM TO DUCTILE IRON PIPE SIZES (DIPS). CONNECTIONS BETWEEN PIPE LENGTHS SHALL BE FUSED IN ACCORDANCE WITH THE MANUFACTURER'S DIRECTIONS AND RECOMMENDATIONS. NEW HDPE SEWER FORCE MAINS SHALL BE THE COLOR BLACK WITH A GREEN STRIPE. CONNECTIONS TO OTHER SEWER FORCE MAINS, INCLUDING THOSE OF DIFFERENT MATERIAL, SHALL BE MADE USING THE APPROPRIATE ADAPTERS AND FITTINGS.
- NEW SEWER FORCE MAINS INSTALLED USING HORIZONTAL DIRECTIONAL DRILLING (HDD) METHODS SHALL USE HIGH-DENSITY POLYETHYLENE (HDPE) PIPE CONFORMING TO NOTE #5 ABOVE.
- UPON COMPLETION OF SEWER FORCE MAIN CONSTRUCTION, THE DRILLING LOGS FOR ALL HDD INSTALLED FORCE MAINS SHALL BE PROVIDED WITH THE RECORD DRAWINGS/AS-BUILT PLANS. THE DRILLING LOGS SHALL CONTAIN, AT MINIMUM, THE SIZE OF THE FORCE MAIN, THE DEPTH OF INSTALLATION, AND THE LENGTH OF THE SEGMENT.
- THE CONTRACTOR SHALL INSTALL A TRACER WIRE ALONG THE ENTIRE LENGTH OF THE FORCE MAIN. THE TRACER WIRE SHALL BE INSTALLED SIMULTANEOUSLY WITH THE FORCE MAIN.
- JOINT RESTRAINTS FOR PVC PIPE BELL JOINTS SHALL BE RESTRAINED WITH A SERIES 1900 SERRATED RESTRAINT HARNESS MANUFACTURED BY EBBA, INC. OR APPROVED EQUAL.
- ALL APPLICABLE FORCE MAIN JOINTS SHALL BE RESTRAINED IN ACCORDANCE WITH THE PROVIDED DETAIL. THE MINIMUM RESTRAINT LENGTH FOR PVC PIPE JOINTS SHALL BE IN ACCORDANCE WITH THE PROVIDED DETAIL.
- NEW SEWER FORCE MAIN FITTINGS SHALL BE DUCTILE IRON FITTINGS CONFORMING TO AWWA C110/A21.10 WITH FITTING JOINTS SHALL BE EPOXY COATED INSIDE AND OUT. FITTINGS SHALL BE MECHANICAL JOINT (MJ) FITTINGS. THE CONNECTION BETWEEN THE PVC FORCE MAIN AND THE FITTING SHALL BE RESTRAINED WITH A 2000PV OR 2000SV MEGA-LUG MECHANICAL JOINT THRUST RESTRAINT MANUFACTURED BY EBBA, INC. OR AN APPROVED EQUAL. THE NUTS AND BOLTS SHALL BE TEFLON COATED COR-TEN FASTENERS.
- THE CONTRACTOR SHALL INSTALL IDENTIFICATION TAPE ALONG THE ENTIRE LENGTH OF THE NEW SEWER FORCE MAIN. IDENTIFICATION TAPE SHALL BE INSTALLED BY THE CONTRACTORS ONCE THE BACKFILL HAS BEEN PLACED AND COMPACTED TO AT LEAST 12" ABOVE THE TOP OF THE PIPE AND NOT MORE THAN 18" ABOVE THE CONNECTION.
- AIR RELEASE VALVES (ARVS) SHALL BE LOCATED UPSTREAM OF THE LIFT STATIONS AND AT HIGH POINTS ALONG THE LENGTH OF THE FORCE MAIN. THE ARVS SHALL BE CONTAINED WITHIN A STANDARD PRE-CAST SEWER MANHOLE.
- ALL NEW SEWER FORCE MAINS SHALL UNDERGO HYDROSTATIC TESTING TO VERIFY LEAK TIGHTNESS. NEW SEWER FORCE MAINS SHALL TESTED A 150 PSI FOR 2 HOURS. THERE SHALL BE NO PRESSURE DROPS DURING THE TEST. IN THE EVENT THE SEWER FORCE MAIN FAILS THE TEST, THE FORCE MAIN PIPES SHALL BE CHECKED AND REPAIRED ACCORDINGLY. THE FORCE MAIN SHALL BE RE-TESTED.

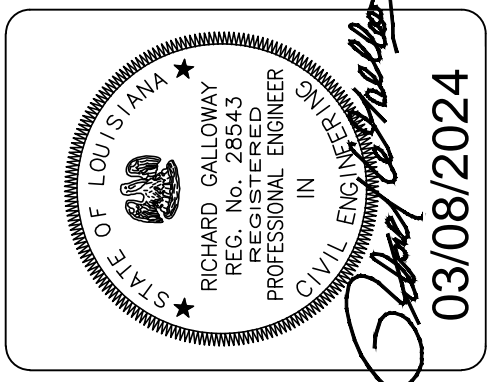
REFER TO SHEET 5 FOR ADDITIONAL SEWER STANDARD NOTES



DEPT. OF UTILITIES
ST. TAMMANY PARISH
GOVERNMENT
620 N. TYLER STREET
COVINGTON, LA 70433

DATE:	DESCRIPTION OF REVISION	NO.

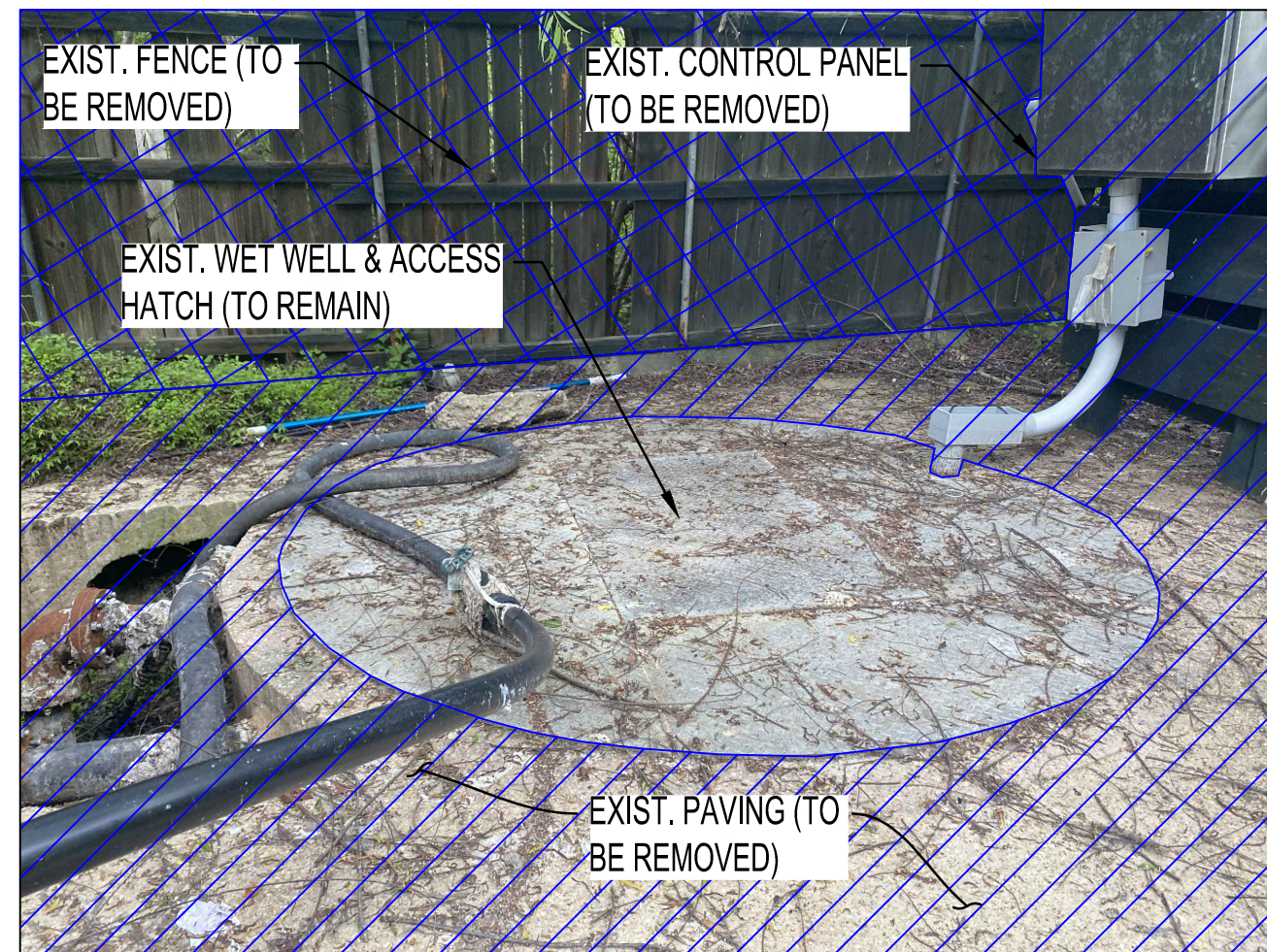
DESIGNED BY: THA	THA
DRAWN BY: KRG	KRG
CHECKED BY: RCG	RCG
SUBMITTED BY: HCH THE CONSULTANTS	HCH
PROJECT No.: T023000173	T023000173
ISSUE DATE: 3/9/24 (BID)	3/9/24 (BID)
APPROVED BY: RCG	RCG
SHEET SIZE: ANSI D	ANSI D
SCALE: AS SHOWN	AS SHOWN



HIGHWAY LA-21 LIFT STATION
WEST SEWER SYSTEM
MADISONVILLE, LOUISIANA
PROJECT No.: T023000173
SEWER STANDARD NOTES
SHEET 2 OF 2

SHEET NO.
6
SHEET 6 of 22

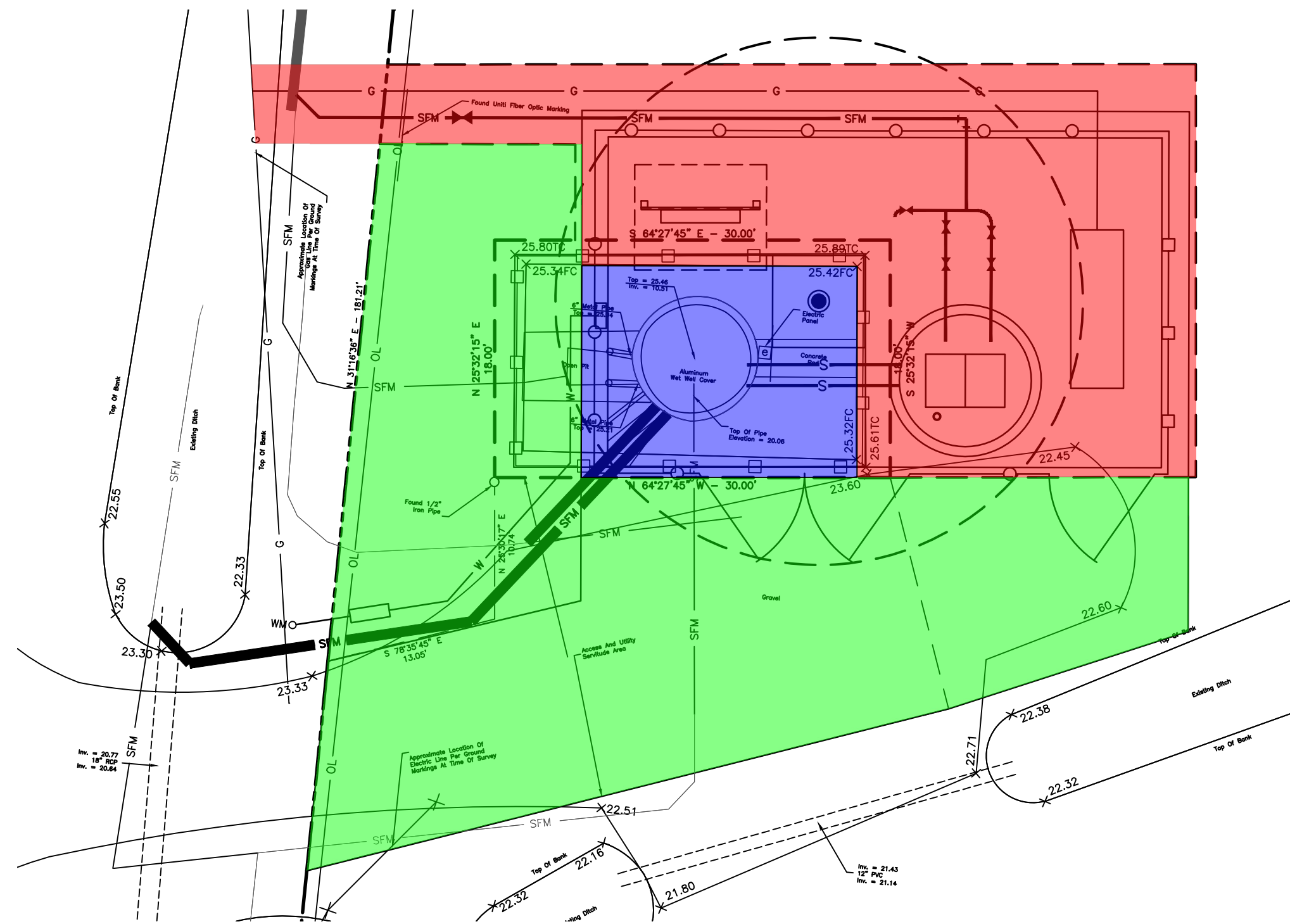




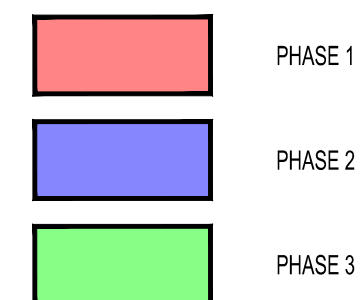
EXISTING SITE CONDITIONS
N.T.S.

TEMPORARY BYPASS PUMPING NOTES:

1. THE CONTRACTOR SHALL DEVELOP AND SUBMIT A TEMPORARY BY-PASS PUMPING PLAN, WHICH INCLUDES A n+1 PUMP, TO THE ENGINEER OF RECORD. ALL ACTIVITIES INVOLVED WITH THE BY-PASS PUMPING PROCESS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR INCLUDING ENSURING PROPER SEWER FLOW AND OPERATION OF THE EXISTING SEWER SYSTEM.
2. CONTRACTOR SHALL PROVIDE A TEMPORARY BYPASS PUMPING AND FORCE MAIN PIPING SYSTEM SHALL BE DESIGNED TO PROVIDE A TOTAL BYPASS FLOW CAPACITY EQUIVALENT TO THE SPECIFIED PUMP CAPACITY FOR THE STATION. TEMPORARY PIPING SYSTEM CAN TIE DIRECTLY TO INFLUENT SEWER FORCE MAIN AND MAY BE PLACED ABOVE GROUND. THE TEMPORARY BYPASS PUMPING AND PIPING SYSTEM AND ARRANGEMENT SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO INSTALLATION. THE ENGINEER WILL ASSIST THE CONTRACTOR IN DEVELOPING THE TEMPORARY PUMPING SYSTEM HEAD CONDITIONS IF NEEDED.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR THE OPERATION AND MAINTENANCE OF THE TEMPORARY BYPASS PUMPING SYSTEM UNTIL ALL EXISTING WET WELL MODIFICATIONS ARE COMPLETE.
4. CONTRACTOR SHALL PLUG TEE AND REMOVE TEMPORARY BYPASS CONNECTION, LINES AND APPURTENANCES, ONCE THE PERMANENT STATION IS DEEMED OPERATIONAL.



SUGGESTED SEQUENCE OF CONSTRUCTION
N.T.S.



SEQUENCE OF CONSTRUCTION GENERAL NOTES:

1. THIS IS A SUGGESTED SEQUENCE OF CONSTRUCTION ONLY. CONTRACTOR SHALL SUBMIT THEIR SEQUENCE OF CONSTRUCTION TO THE PROJECT ENGINEER FOR APPROVAL PRIOR TO BEGINNING WORK ONSITE.
2. CONTRACTOR SHALL COMPLY TO THE FULLEST EXTENT WITH THE LATEST STANDARD OF O.S.H.A. DIRECTIVES OR ANY OTHER AGENCY HAVING JURISDICTION FOR EXCAVATION AND TRENCHING PROCEDURES.
3. CONTRACTOR IS RESPONSIBLE FOR SUBMITTING LA ONE CALL TICKET AND COORDINATE ALL UTILITY OWNERS TO CONFIRM ALL EXISTING UTILITIES ARE ADEQUATELY MARKED BEFORE ANY CONSTRUCTION ACTIVITIES COMMENCE. ANY UTILITY CONFLICTS DETERMINED BY THESE FINDINGS SHALL BE RESOLVED PRIOR TO INSTALLATION OF REQUIRED UTILITIES.
4. CONTRACTOR MAINTAIN ACCESS TO THE LIFT STATION FOR PARISH OPERATIONS AT ALL TIMES.
5. ALL UPSTREAM SEWER SYSTEMS MUST REMAIN OPERATIONAL AT ALL TIMES DURING CONSTRUCTION. IF SHORT TERM SHUTDOWNS OF UPSTREAM SYSTEMS ARE DEEMED NECESSARY TO PERFORM REQUIRED WORK, THE CONTRACTOR SHALL COORDINATE SAID CLOSURES WITH PARISH.
6. ALL MATERIAL AND EQUIPMENT STORAGE SHALL NOT BE ALLOWED WITHIN ADJACENT RIGHTS-OF-WAY. CONTRACTOR SHALL MAINTAIN THROUGH TRAFFIC WITH PROPERLY SIGNED TRAFFIC CONTROL FOR ANY MATERIAL AND EQUIPMENT DELIVERY AT NO DIRECT PAY.
7. ALL DISTURBED AREAS, OUTSIDE OF PAVEMENT AND AGGREGATE AREAS, SHALL RECEIVE 4" OF TOPSOIL, BE SEEDED AND FERTILIZED BEFORE THE SITE IS TURNED OVER TO THE OWNER - AT NO DIRECT EXPENSE TO THE OWNER.

SUGGESTED SEQUENCE OF CONSTRUCTION PHASING NOTES:

PHASE 1:

1. SUBMIT ONE CALL TICKET AND COORDINATE ALL UTILITY OWNERS TO CONFIRM ALL EXISTING UTILITIES ARE ADEQUATELY MARKED.
2. INSTALL TEMPORARY EROSION CONTROL DEVICES AS SHOWN ON THE PLANS.
3. CLEAR AND GRUB TO THE EXTENTS AS SHOWN ON THE PLANS.
4. RELOCATE EXIST. CONTROL PANEL TO TEMPORARY ON-SITE LOCATION IN ORDER TO INSTALL INFLUENT GRAVITY SEWER LINES.
5. CONTRACTOR TO PERFORM EXCAVATION, FILL, AND GRADING ACTIVITIES, OUTSIDE OF EXISTING LIFT STATION, AS SHOWN ON THE PLANS.
6. INSTALL REQUIRED CONCRETE WET WELL, INFLUENT GRAVITY SEWER LINES, SUBMERSIBLE PUMPS AND APPURTANCES, EFFLUENT SEWER FORCE MAIN, INFLUENT GRAVITY SEWER LINES, CONTROL PANEL STRUCTURE, ELECTRICAL CONDUIT, AND GENERATOR WITH PAD AND GAS SERVICE LINE AS SHOWN ON THE PLANS. (NOTE: CONTRACTOR SHALL NOT MAKE CONNECTION TO EXISTING WET WELL UNTIL PHASE 2.)
7. INSTALL REQ'D EFFLUENT SEWER FORCE MAIN TO TIE-IN LOCATION AS SHOWN ON PLANS.

PHASE 2:

1. ONCE THE CONTRACTOR HAS DEEMED THE NEW LIFT STATION OPERABLE AND APPROVED BY THE PARISH, THE CONTRACTOR SHALL INSTALL A TEMPORARY BYPASS SYSTEM FROM THE INFLUENT SEWER FORCE MAIN TO THE NEW LIFT STATION.
2. DRAIN AND CLEAN EXISTING WET WELL.
3. INSTALL AND MAKE CONNECTION OF GRAVITY SEWER LINES FROM NEW WET WELL AT EXISTING WET WELL, AS SHOWN ON THE PLANS, AND PLUG UNTIL IMPROVEMENTS ARE COMPLETED IN EXISTING WET WELL.
4. CONSTRUCT INFLUENT SEWER FORCE MAIN CONNECTIONS AND BOTTOM OF EXIST. WET WELL IMPROVEMENTS AS SHOWN ON THE PLANS.
5. COAT EXISTING WET WELL.
6. COMPLETE TIE-IN OF INFLUENT SEWER FORCE MAIN TO INSTALLED CONNECTIONS AT THE EXISTING WET WELL AS SHOWN ON THE PLANS. (NOTE: PRIOR TO MAKING TIE-IN, CONTRACTOR SHOULD REMOVE PLUGS FROM GRAVITY SEWER LINES.
7. REMOVE TEMPORARY BYPASS SYSTEM.
8. INSTALL NON-FREEZE HOSE BIB AND BACKFLOW PREVENTER.

PHASE 3:

1. INSTALL PORTLAND CEMENT CONCRETE PAVEMENT AND AGGREGATE SURFACE COURSE AS SHOWN ON THE PLANS.
2. INSTALL FENCE AND GATES.
3. FINALIZE GRADING AND SITE RESTORATION.
4. REMOVE ALL TEMPORARY EROSION CONTROL DEVICES.

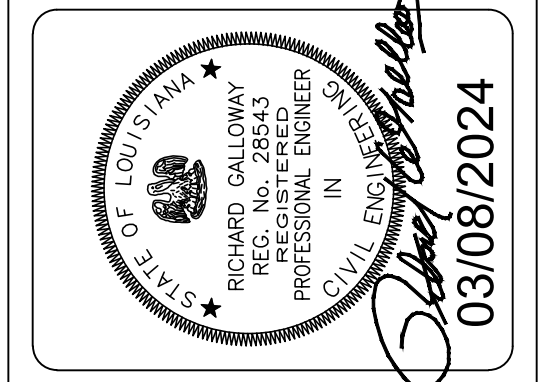
SUGGESTED SEQUENCE OF CONSTRUCTION



DEPT. OF UTILITIES
ST. TAMMANY PARISH
GOVERNMENT
620 N. TYLER STREET
COVINGTON, LA 70433

DATE:	DESCRIPTION OF REVISION

DESIGNED BY: THA	KRG
DRAWN BY: KRG	RCG
CHECKED BY: RCG	HCH
SUBMITTED BY: HCH	HCH
PROJECT No.: TU23000173	
ISSUE DATE: 3/9/24 (BID)	
APPROVED BY: RCG	ANSI D
SHEET SIZE: AS SHOWN	
SCALE: AS SHOWN	



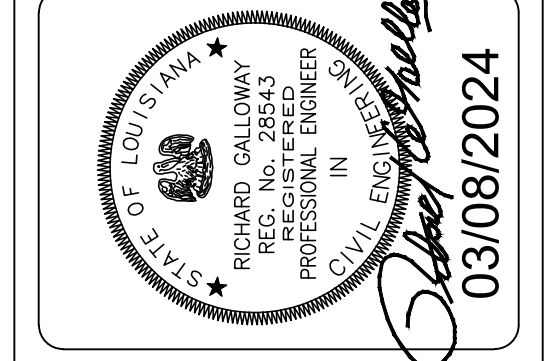
HIGHWAY LA-21 LIFT STATION
WEST SEWER SYSTEM
MADISONVILLE, LOUISIANA
PROJECT No.: TU23000173
SUGGESTED SEQUENCE
OF CONSTRUCTION



DEPT. OF UTILITIES
ST. TAMMANY PARISH
GOVERNMENT
620 N. TYLER STREET
COVINGTON, LA 70433

No.	DESCRIPTION OF REVISION	DATE

DESIGNED BY:	THA	KRG
DRAWN BY:	KRG	RCG
CHECKED BY:	RCG	
SUBMITTED BY:	HCH	HIE CONSLUMS
PROJECT No.:	TU23000173	
ISSUE DATE:	3/8/24	(BID)
APPROVED BY:	RCG	
SHEET SIZE:	ANSI D	
SCALE:	AS SHOWN	



HIGHWAY LA-21 LIFT STATION
WST SEWER SYSTEM
MADISONVILLE, LOUISIANA
PROJECT No.: TU23000173

LIFT STATION
PLAN AND ELEVATION

SHEET NO.
12
SHEET 12 of 23

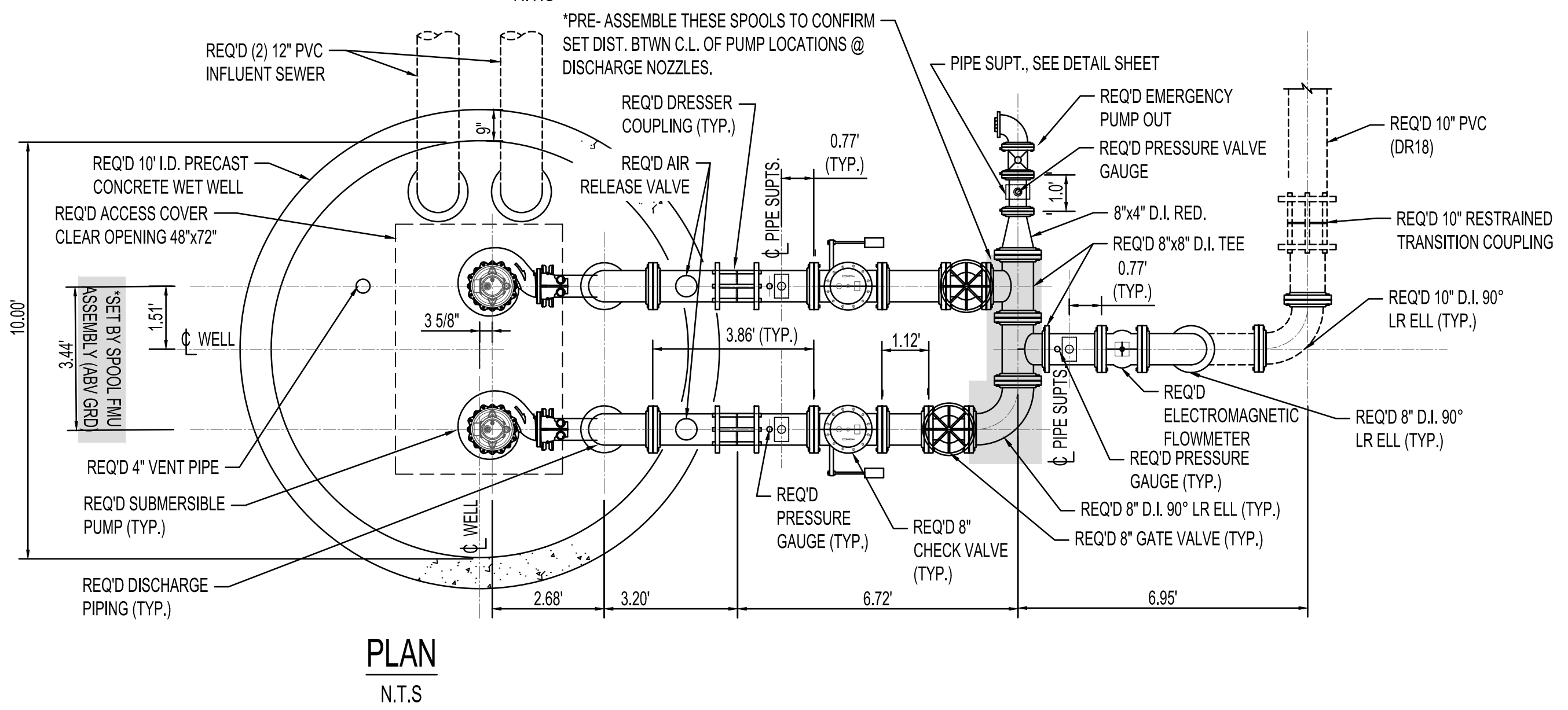
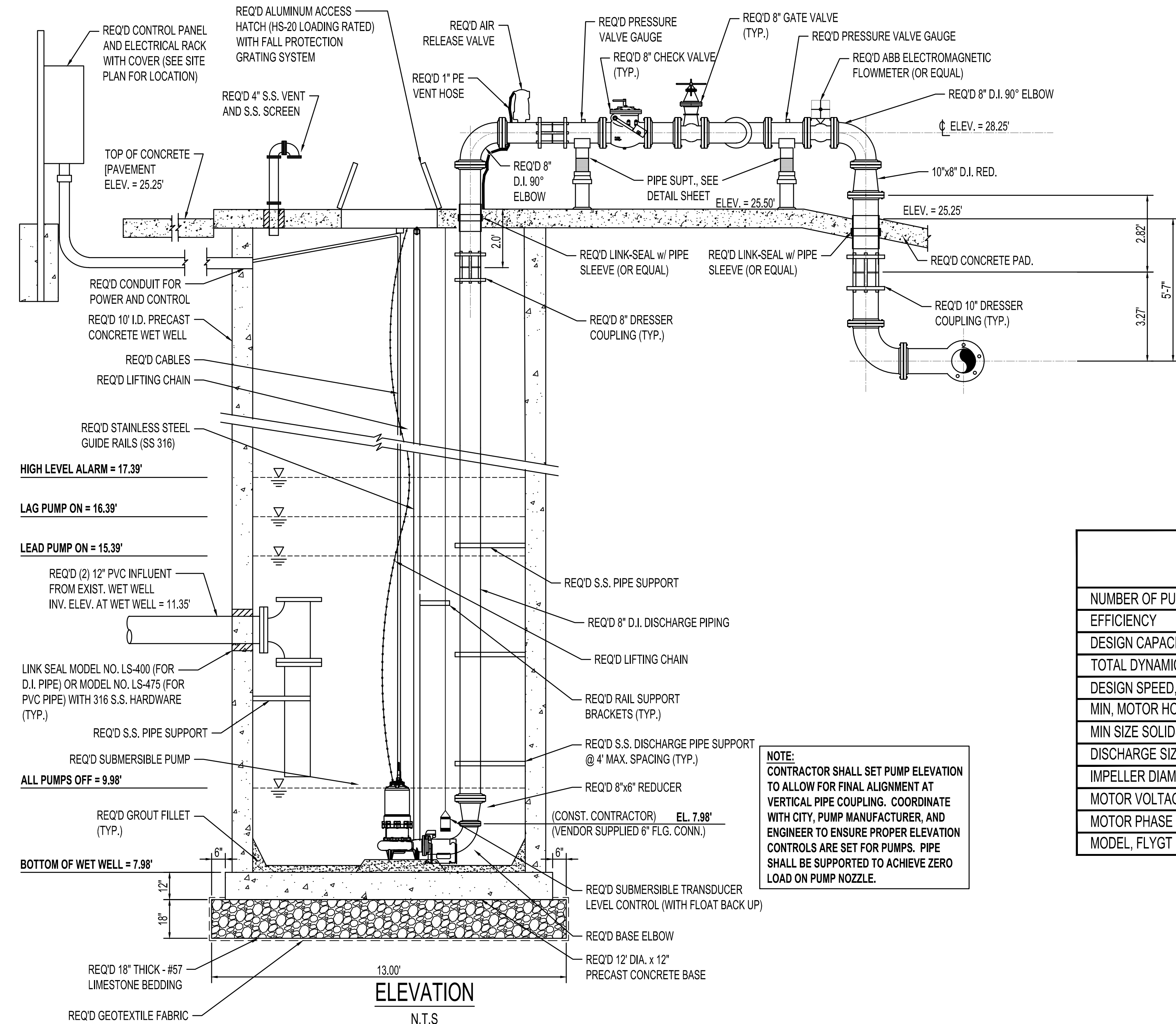
NOTES

- PUMPS, GUIDE RAILS, BASE ELBOWS, AND ACCESS HATCHES SHALL BE SUPPLIED BY THE PUMP SUPPLIER, OR CERTIFIED AS COMPATIBLE BY THE RESPECTIVE MANUFACTURERS.
- THE PRECISE LOCATION OF HATCHES, AND LOCATION/ SPACING OF PUMPS, GUIDE RAILS, AND BASE ELBOWS, SHALL BE AS RECOMMENDED BY THE MANUFACTURER.
- ALL GUIDE RAILS, BRACKETS, CHAINS, LIFTING CABLES, BOLTS, NUTS, FASTENERS, AND ANY HARDWARE WITHIN THE WET WELL SHALL BE TYPE 316 STAINLESS STEEL.
- ALL INTERNAL PIPING AND FITTINGS SHALL BE FLANGED DUCTILE IRON. PIPING SHALL BE INDEPENDENTLY SUPPORTED BY 316 STAINLESS STEEL ASSEMBLIES, THE THROUGH-WALL MECHANICAL SEALS SHALL NOT BE RELIED UPON FOR WEIGHT BEARING OR THRUST RESTRAINT.
- PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW OF A COMPLETE SET OF SHOP DRAWINGS OF EACH STRUCTURE AND FOR ALL EQUIPMENT IN THE WET WELL AND ABOVE GROUND FOR THE DISCHARGE PIPING SEPARATELY DETAILING DIMENSIONS, PIPE/ VALVES CLEARANCE, SIZES AND ANY OTHER NECESSARY DETAILS.
- NON-BURIED PIPES, VALVES, AND FITTINGS SHALL BE COATED IN ACCORDANCE WITH SECTION 09800.
- BEDDING MATERIAL SHALL BE 18" THICK COMPACTED LIMESTONE UNDERLAIN BY GEOTEXTILE FABRIC (GEOTEX 200ST OR EQ).
- ACCESS HATCHES AND GRATING SYSTEM SHALL MEET THE REQUIREMENTS OF OSHA STANDARD 29 CFR 1926.502(C). HOLD OPEN DEVICE AND HARDWARE SHALL BE TYPE 316 STAINLESS STEEL. HATCH AND GRATE SHALL BE BILCO OR EQUAL APPROVED BY ENGINEER.
- CONTRACTOR SHALL PLUMB AND RETURN AIR RELEASE VENT HOSE TO DISCHARGE INTO THE WET WELL.
- VENT PIPE, PRESSURE GAUGE CONNECTIONS, PIPE SUPPORTS, AND VENT PIPE WALL PENETRATIONS SHALL BE IN ACCORDANCE WITH DETAILS SHOWN IN THE DETAIL SHEETS.

PUMP DATA TABLE

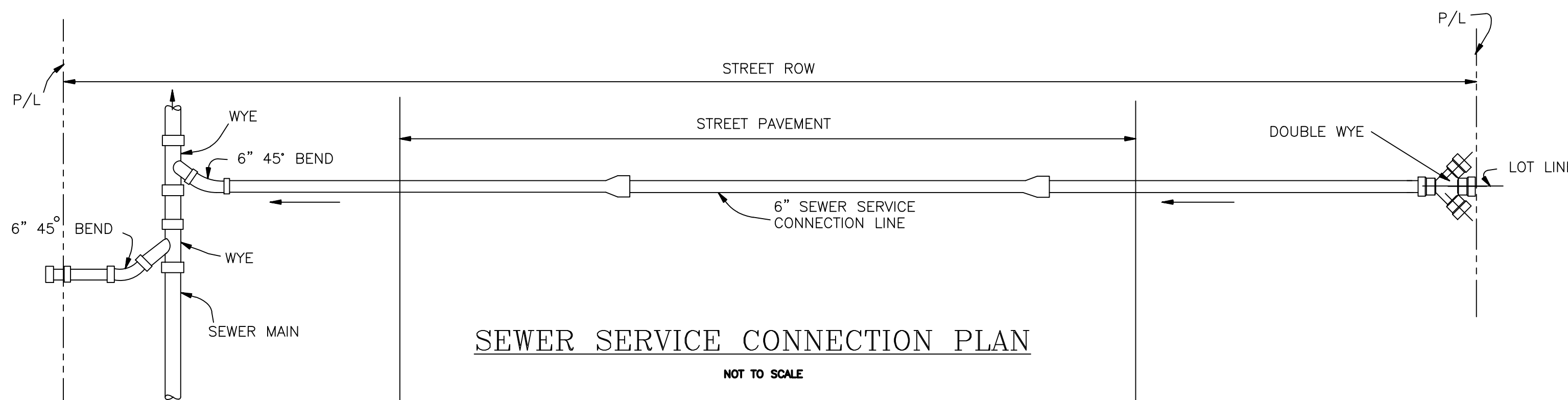
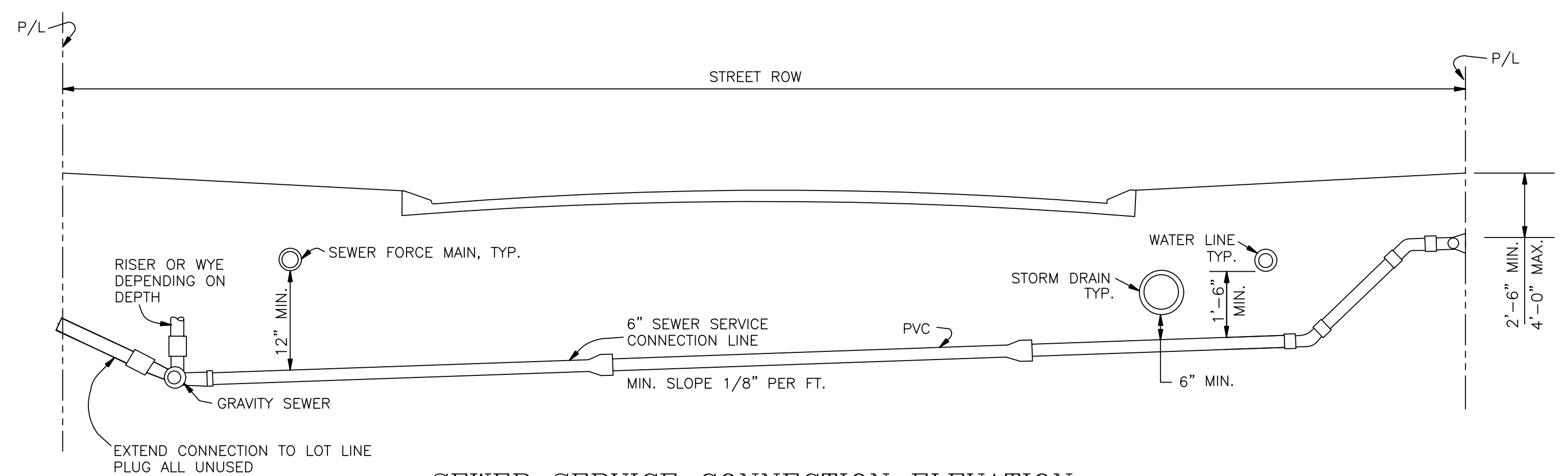
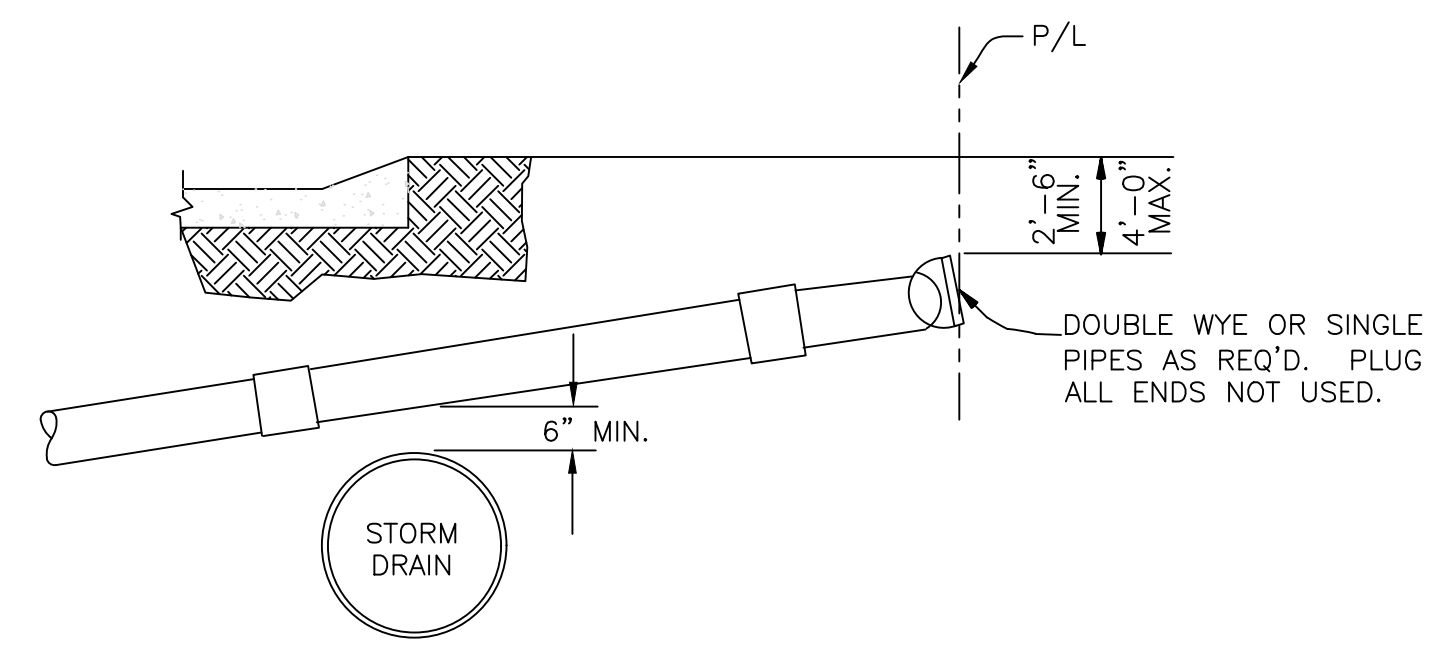
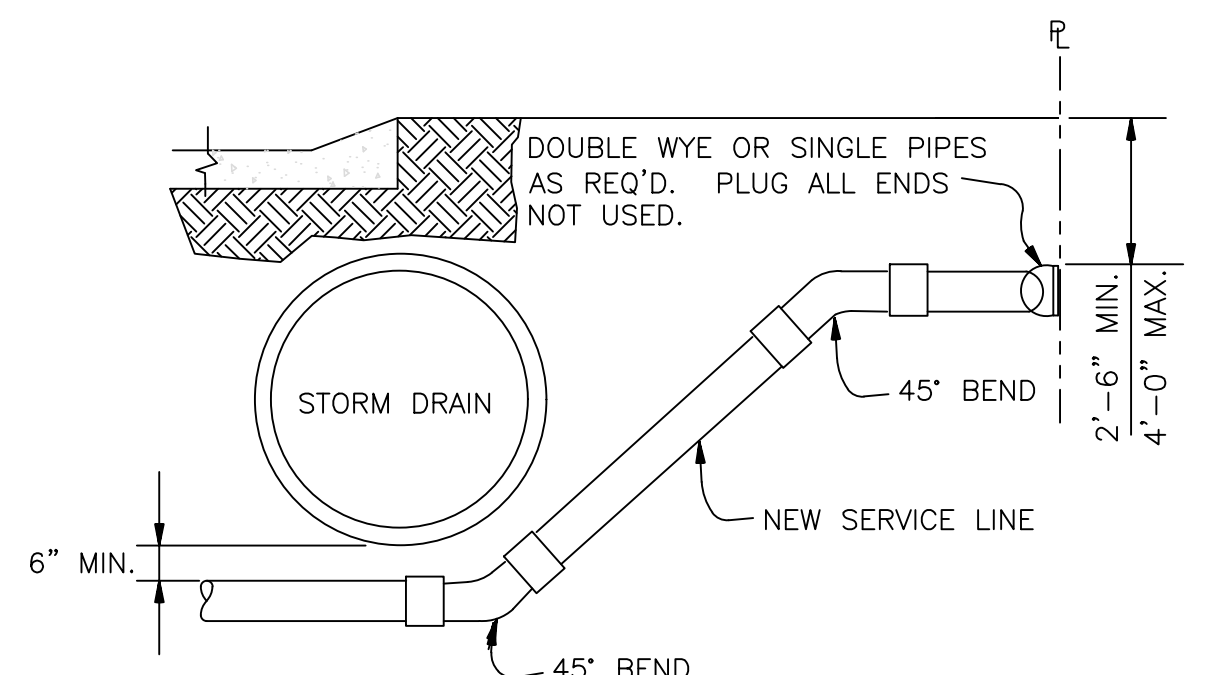
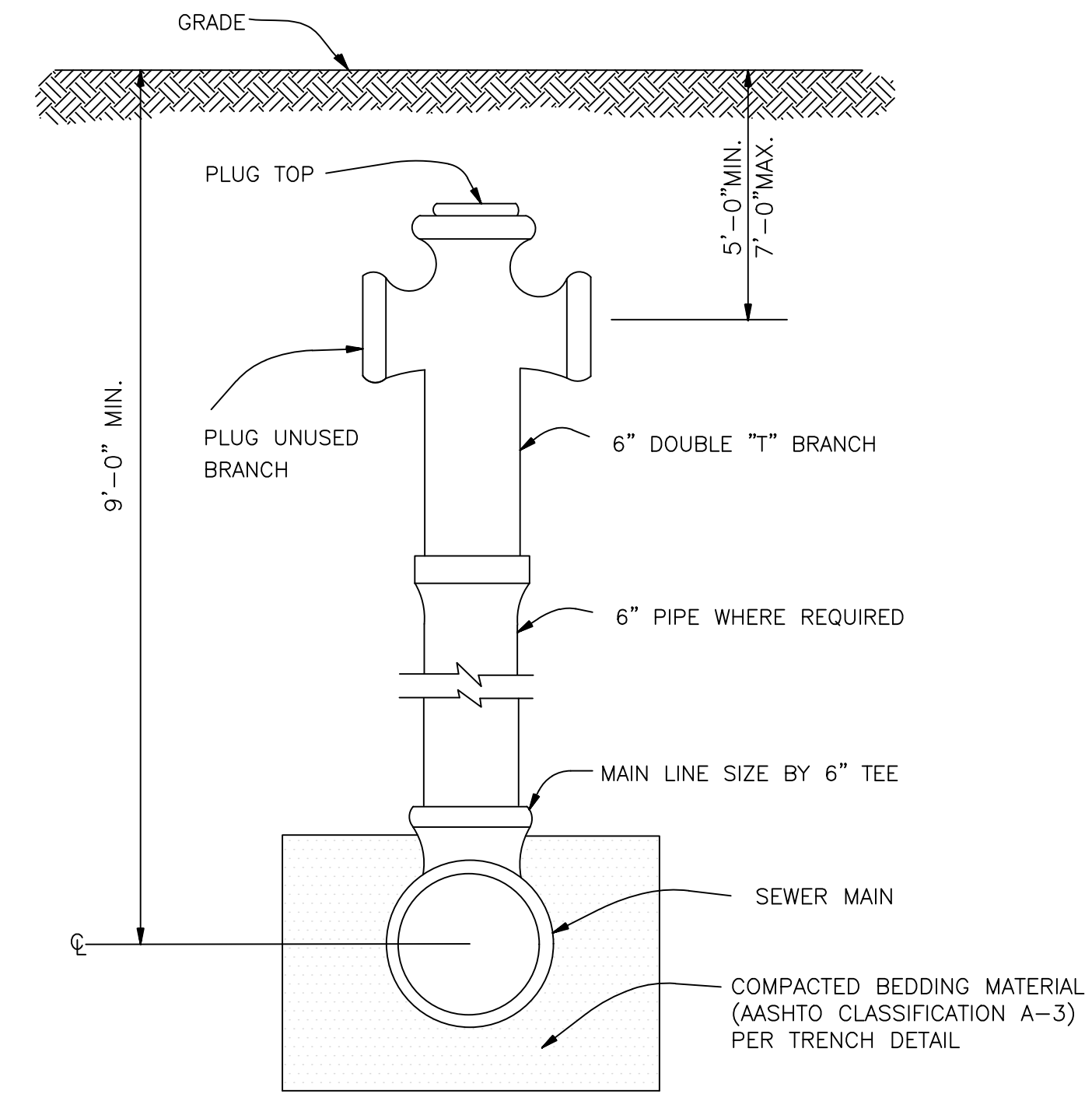
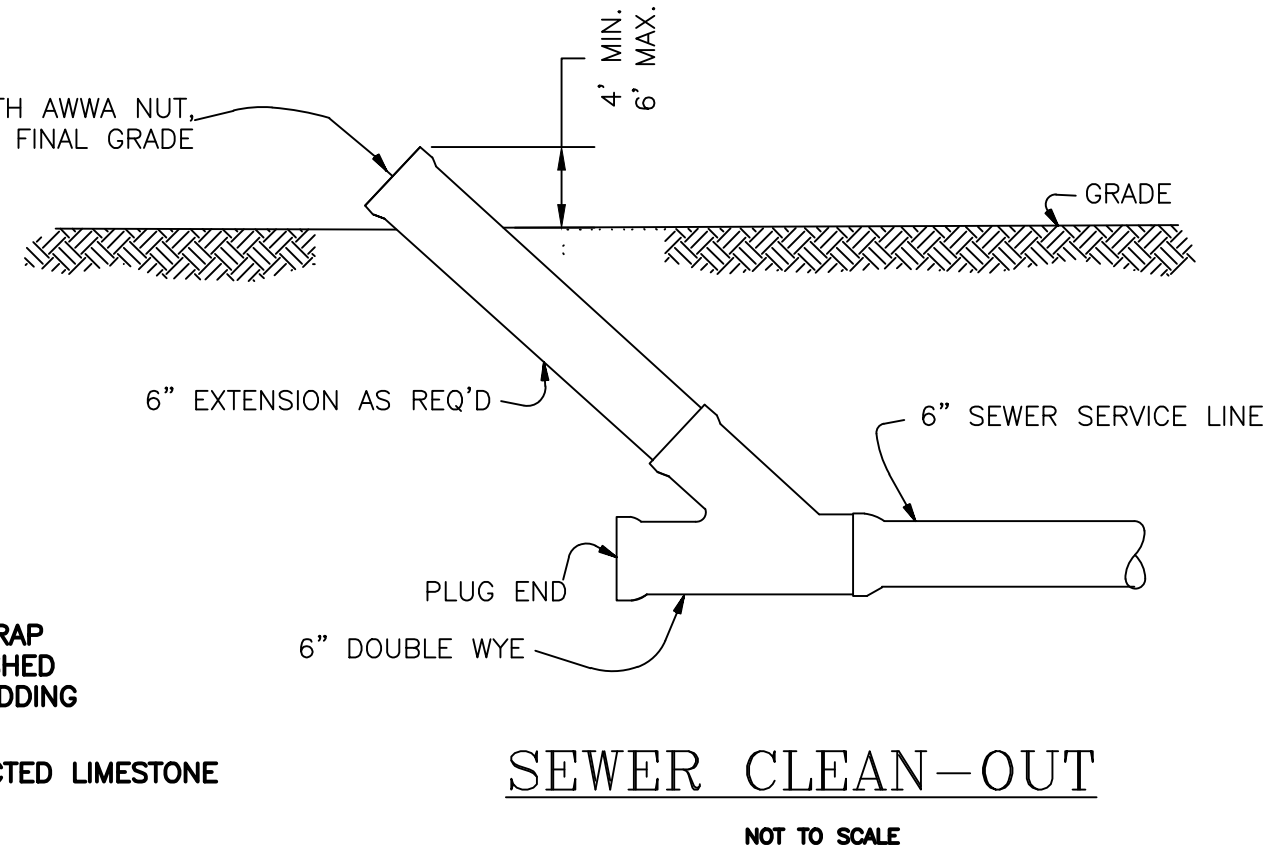
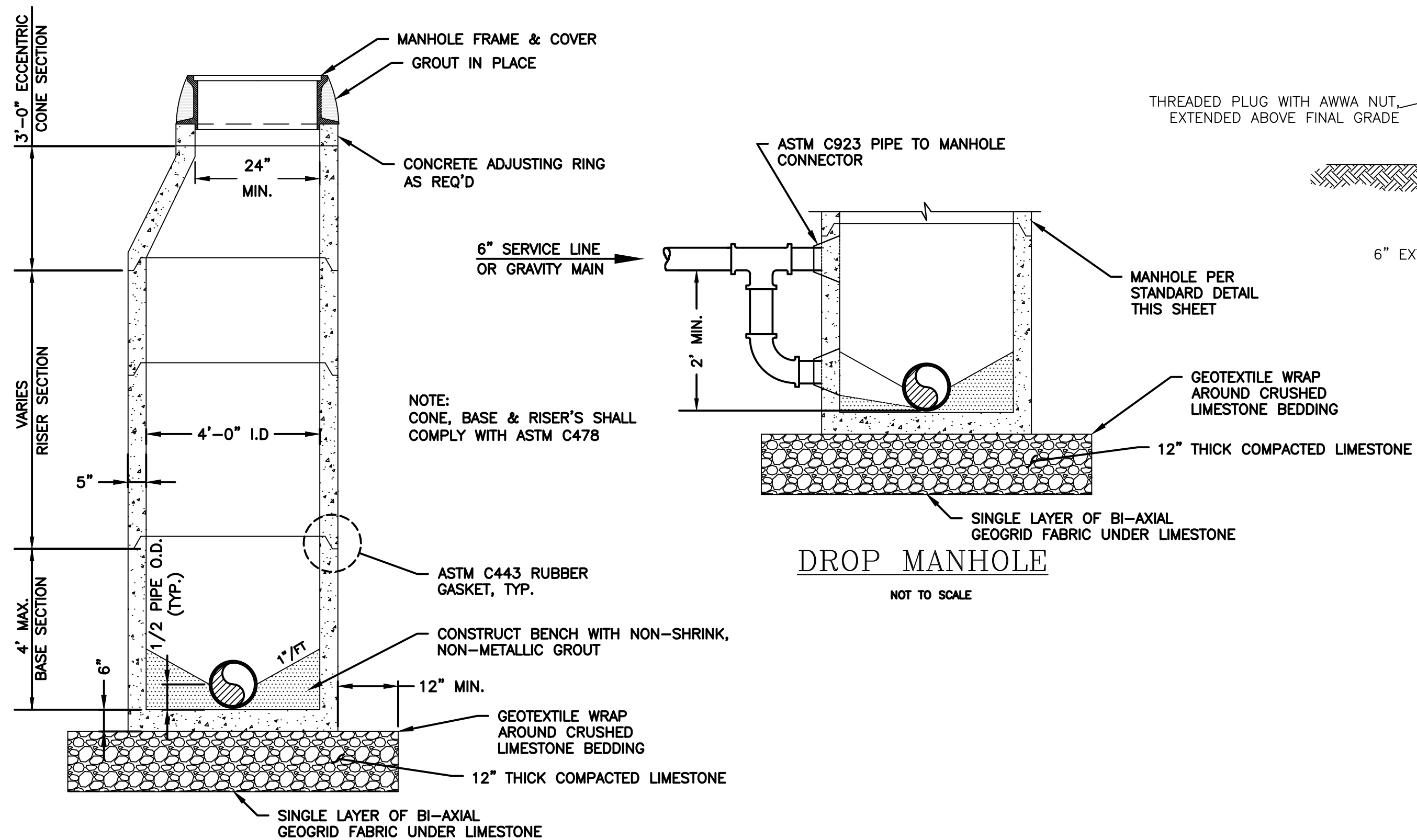
NUMBER OF PUMPS	2
EFFICIENCY	73.2%
DESIGN CAPACITY PER PUMP, GPM	850
TOTAL DYNAMIC HEAD, FEET	120
DESIGN SPEED, RPM	1775
MIN. MOTOR HORSEPOWER PER/PUMP	60
MIN SIZE SOLIDS PASSED, INCH	3"
DISCHARGE SIZE, INCH	6"
IMPELLER DIAMETER, MM	310
MOTOR VOLTAGE	460
MOTOR PHASE	3
MODEL, FLYGT (w/ SMART RUN CONTROLLER) OR APPROVED EQUAL	NP 3202 HT3-458

NOTE:
CONTRACTOR SHALL SET PUMP ELEVATION TO ALLOW FOR FINAL ALIGNMENT AT VERTICAL PIPE COUPLING. COORDINATE WITH CITY, PUMP MANUFACTURER, AND ENGINEER TO ENSURE PROPER ELEVATION CONTROLS ARE SET FOR PUMPS. PIPE SHALL BE SUPPORTED TO ACHIEVE ZERO LOAD ON PUMP NOZZLE.



HIGH TIDE CONSULTANTS LLC
 409 W 21ST AVENUE - SUITE B
 COVINGTON, LA 70433
 www.hightidela.com
 HTC PROJ# 23-161

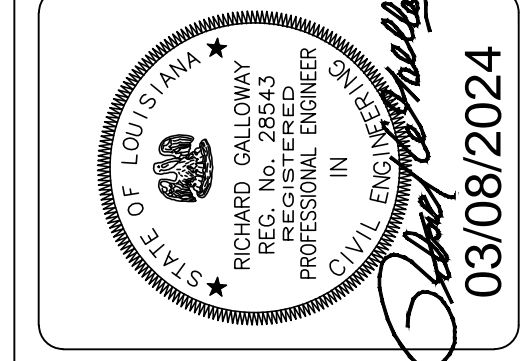
**LIFT STATION
PLAN AND ELEVATION**



DEPT. OF UTILITIES
ST. TAMMANY PARISH
GOVERNMENT
620 N. TYLER STREET
COVINGTON, LA 70433

No.	DESCRIPTION OF REVISION	DATE

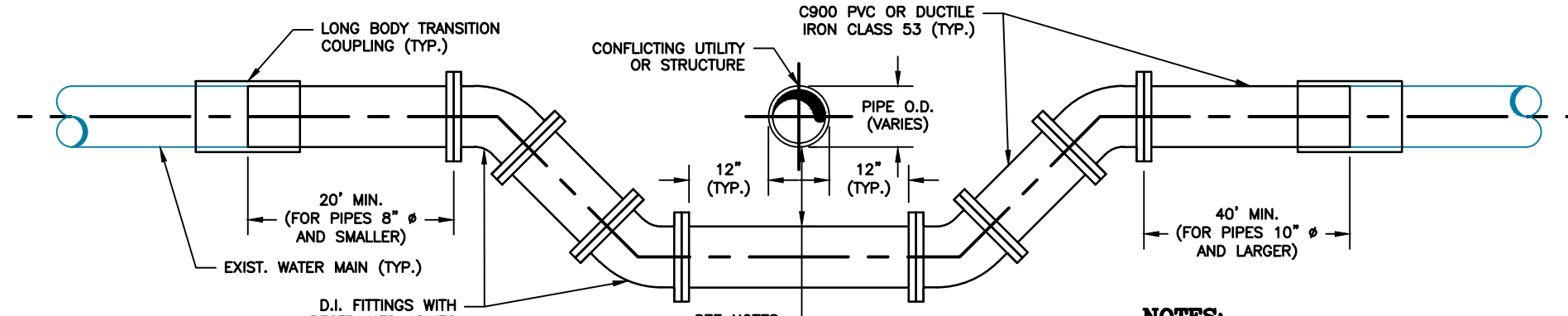
DESIGNED BY:	THA
DRAWN BY:	KRG
CHECKED BY:	RCG
SUBMITTED BY:	HCH THE CONSULTANTS
PROJECT No.:	TU23000173
ISSUE DATE:	3/8/24 (BID)
APPROVED BY:	RCG
SHEET SIZE:	ANSI D
SCALE:	AS SHOWN



HIGHWAY LA-21 LIFT STATION
WST SEWER SYSTEM
MADISONVILLE, LOUISIANA
PROJECT No.: TU23000173

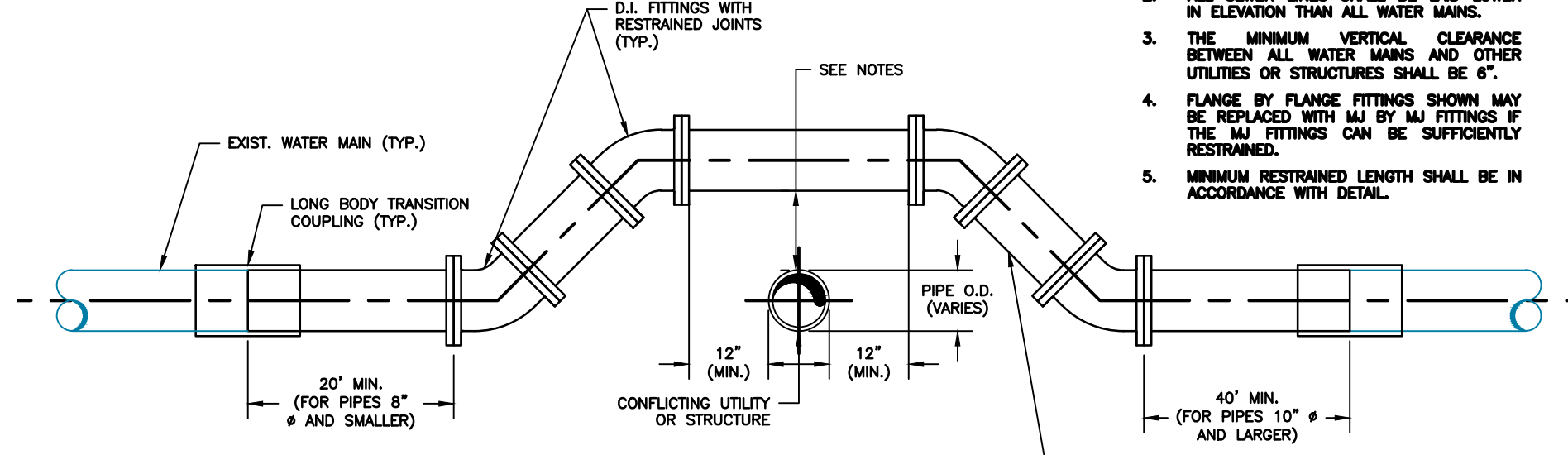
SEWER STANDARD NOTES
GRAVITY SEWER





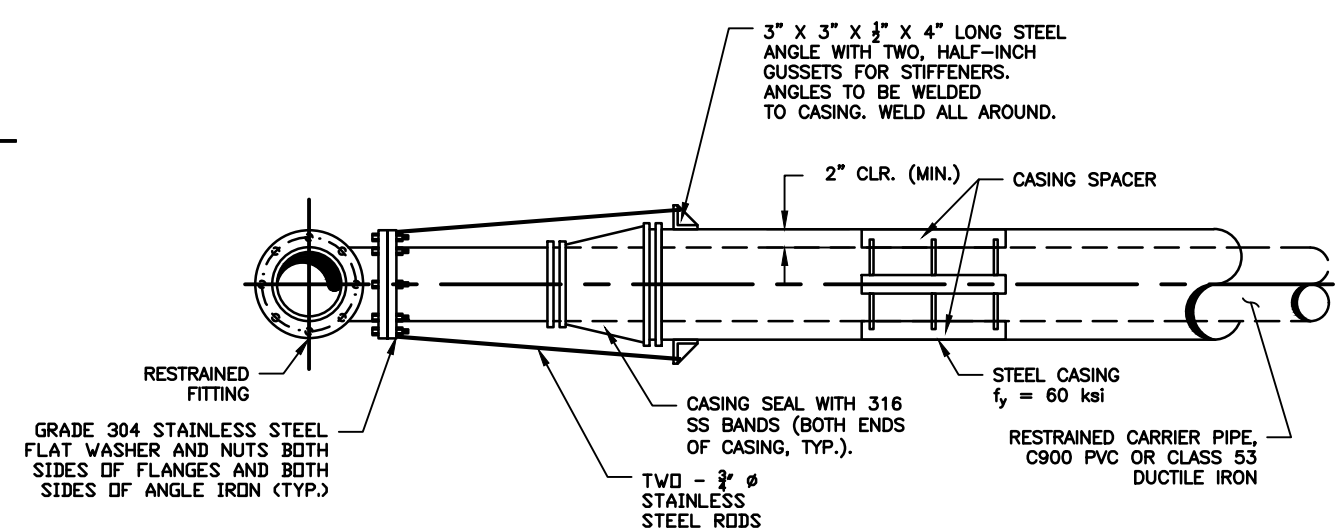
WATER MAIN HORIZONTAL OFFSET DETAIL
(PLAN VIEW)
(NOT TO SCALE)

- NOTES:**
1. THE MINIMUM HORIZONTAL CLEARANCE BETWEEN ALL WATER MAINS AND SEWER LINES/STRUCTURES SHALL BE 18".
 2. ALL SEWER LINES SHALL BE LAID LOWER IN ELEVATION THAN ALL WATER MAINS.
 3. THE MINIMUM HORIZONTAL CLEARANCE BETWEEN ALL WATER MAINS AND OTHER UTILITIES OR STRUCTURES SHALL BE 6".
 4. FLANGE BY FLANGE FITTINGS SHOWN MAY BE REPLACED WITH MJ BY MJ FITTINGS IF THE MJ FITTINGS CAN BE SUFFICIENTLY RESTRAINED.
 5. MINIMUM RESTRAINED LENGTH SHALL BE IN ACCORDANCE WITH DETAIL.



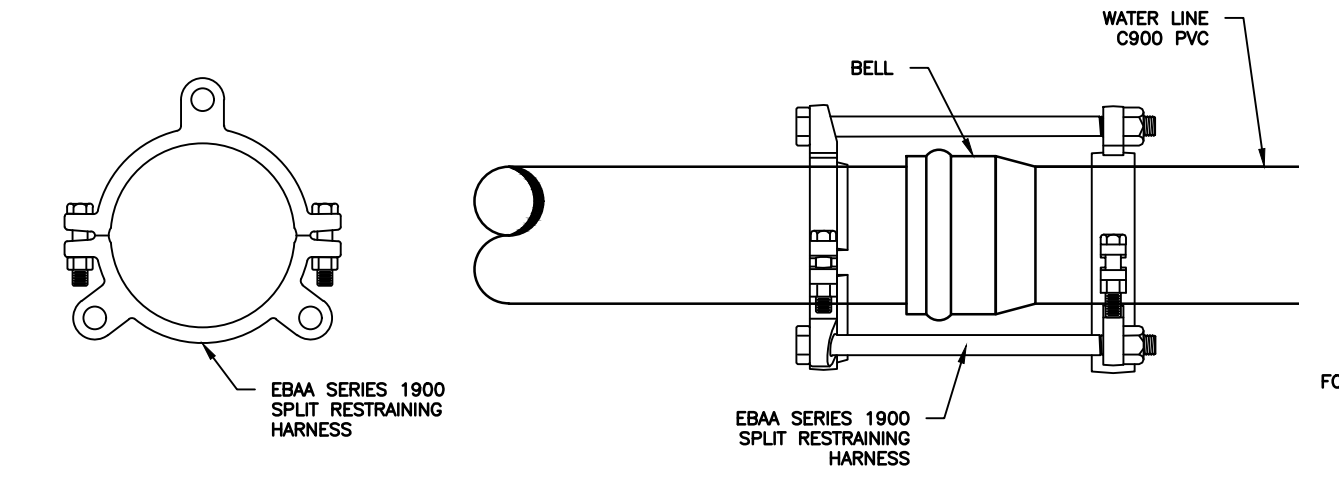
WATER MAIN VERTICAL OFFSET DETAIL
(PROFILE VIEW)
(NOT TO SCALE)

- NOTES:**
1. THE MINIMUM VERTICAL CLEARANCE BETWEEN ALL WATER MAINS AND SEWER LINES/STRUCTURES SHALL BE 18".
 2. ALL SEWER LINES SHALL BE LAID LOWER IN ELEVATION THAN ALL WATER MAINS.
 3. THE MINIMUM VERTICAL CLEARANCE BETWEEN ALL WATER MAINS AND OTHER UTILITIES OR STRUCTURES SHALL BE 6".
 4. FLANGE BY FLANGE FITTINGS SHOWN MAY BE REPLACED WITH MJ BY MJ FITTINGS IF THE MJ FITTINGS CAN BE SUFFICIENTLY RESTRAINED.
 5. MINIMUM RESTRAINED LENGTH SHALL BE IN ACCORDANCE WITH DETAIL.



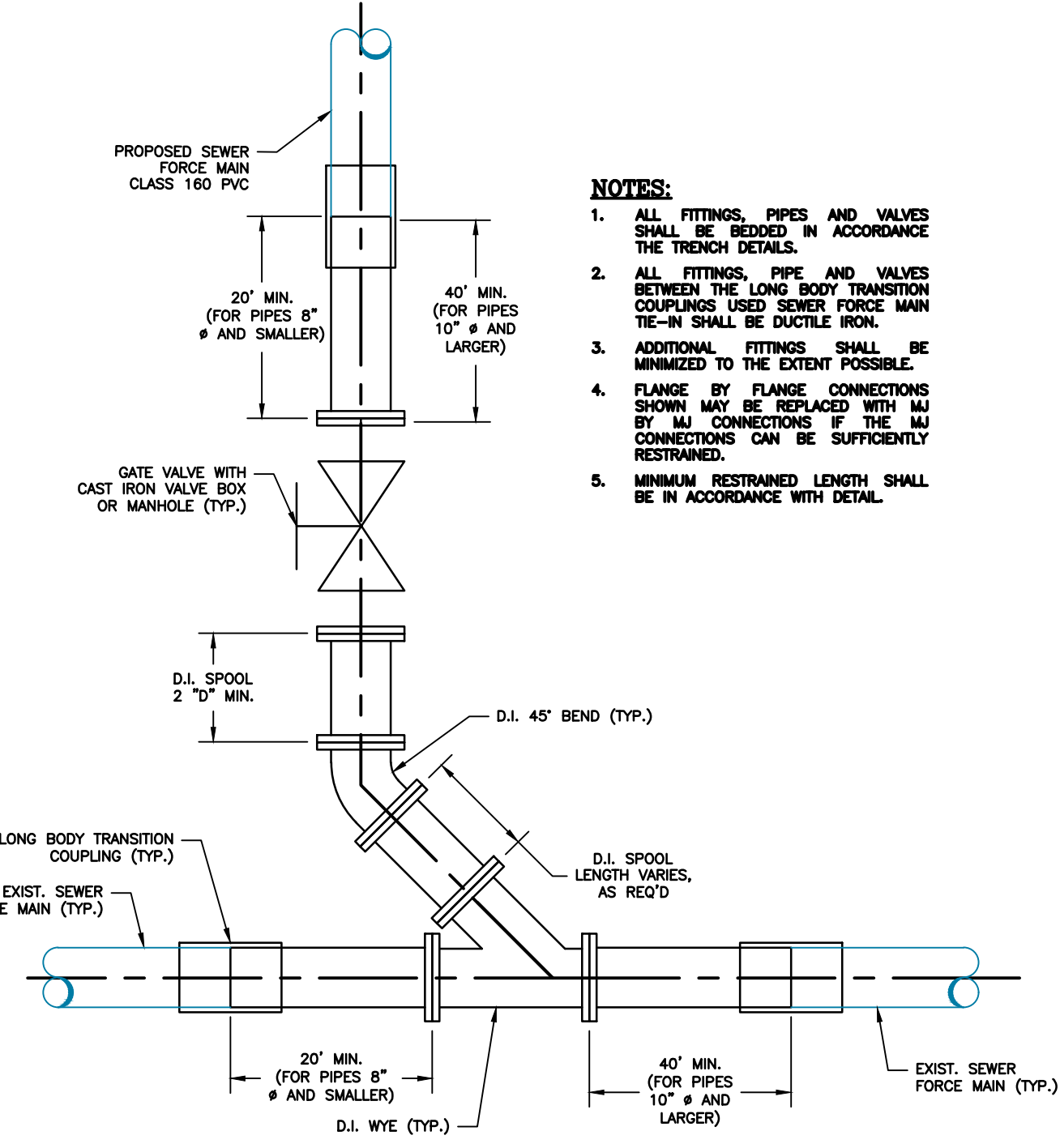
WATER MAIN CASING RESTRAINT DETAIL
(NOT TO SCALE)

- NOTES:**
1. ALL CASING ENDS SHALL BE RESTRAINED TO THE NEAREST FITTING.



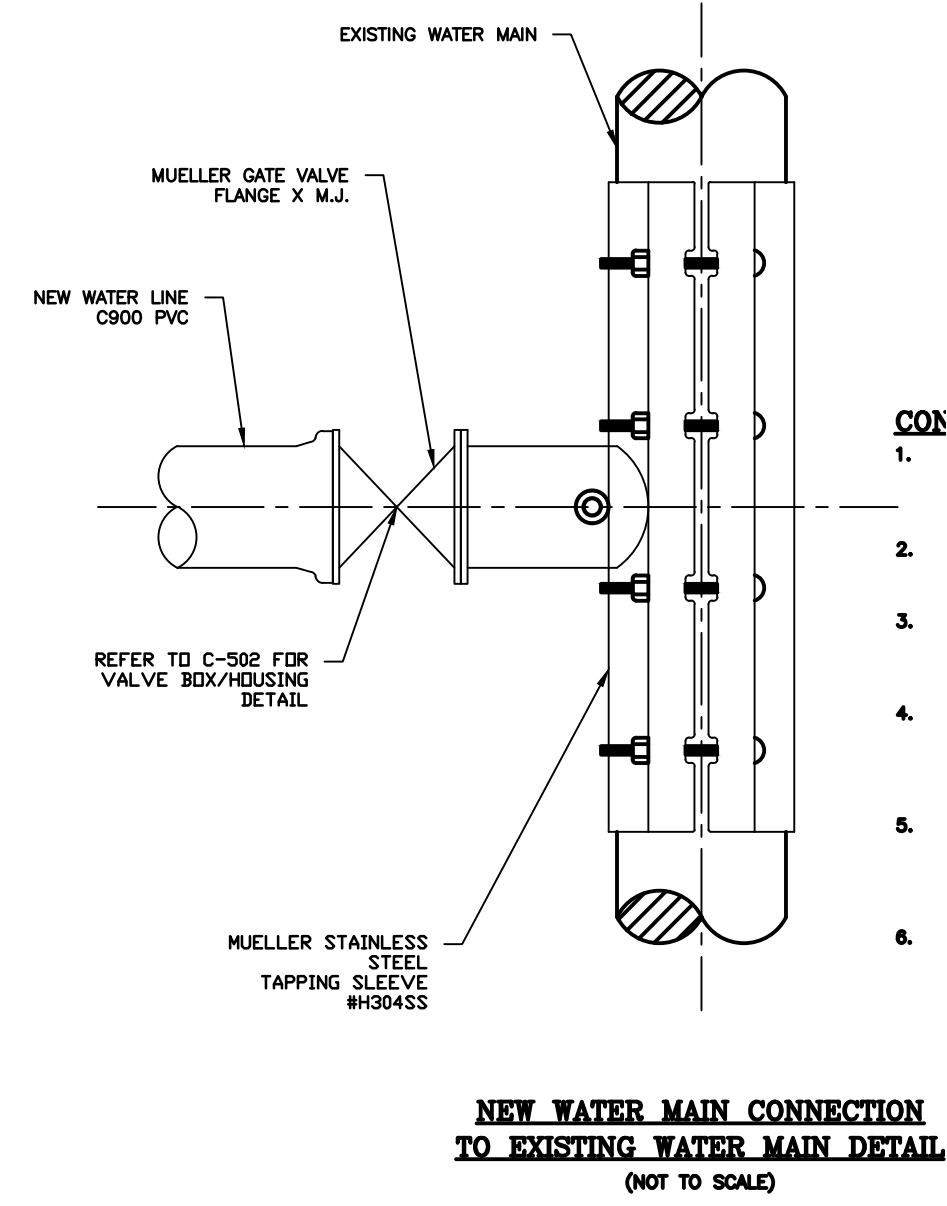
WATER MAIN JOINT RESTRAINING DETAIL
(NOT TO SCALE)

- RESTRAINT NOTES:**
1. THE FOURTH JOINT OF ALL PIPE WITH A BELL AND SPIGOT DESIGN SHALL BE RESTRAINED USING A SPLIT RESTRAINING HARNESS SUCH AS EBA SERIES 1900 OR OWNER APPROVED EQUAL.
 2. PIPE GASKETS SHALL CONFORM TO ANMA C111.

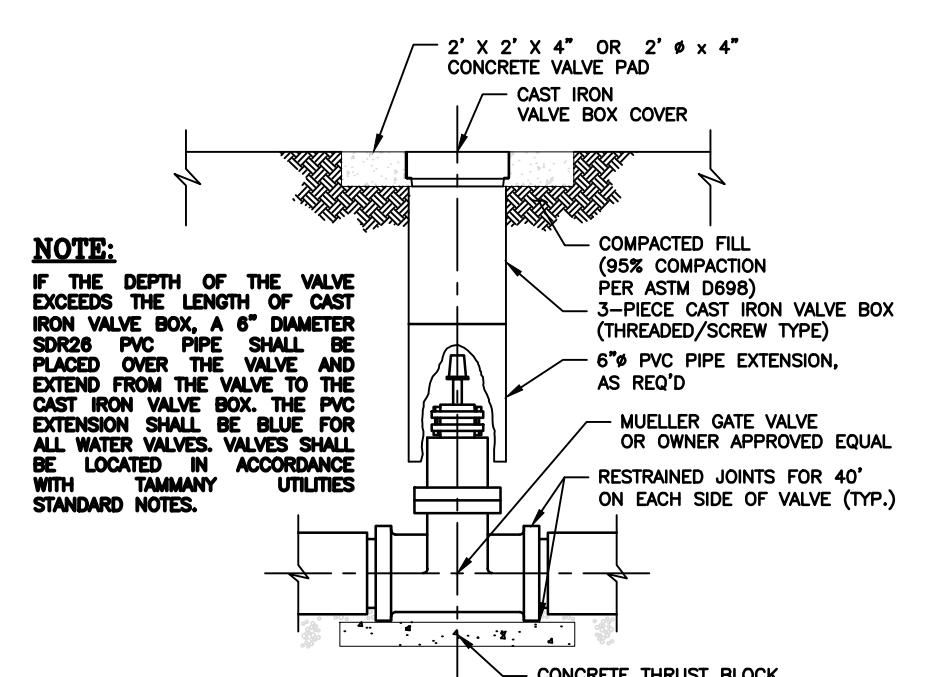


TYPICAL SEWER FORCE MAIN TIE-IN DETAIL
(NOT TO SCALE)

- NOTES:**
1. ALL FITTINGS, PIPES AND VALVES SHALL BE REBID IN ACCORDANCE WITH THE TRENCH DETAILS.
 2. ALL FITTINGS, PIPE AND VALVES BETWEEN THE LONG BODY TRANSITION COUPLINGS USED SEWER FORCE MAIN TIE-IN SHALL BE DUCTILE IRON.
 3. ADDITIONAL FITTINGS SHALL BE MINIMIZED TO THE EXTENT POSSIBLE.
 4. FLANGE BY FLANGE CONNECTIONS SHOWN MAY BE REPLACED WITH MJ BY MJ CONNECTIONS IF THE MJ CONNECTIONS CAN BE SUFFICIENTLY RESTRAINED.
 5. MINIMUM RESTRAINED LENGTH SHALL BE IN ACCORDANCE WITH DETAIL.

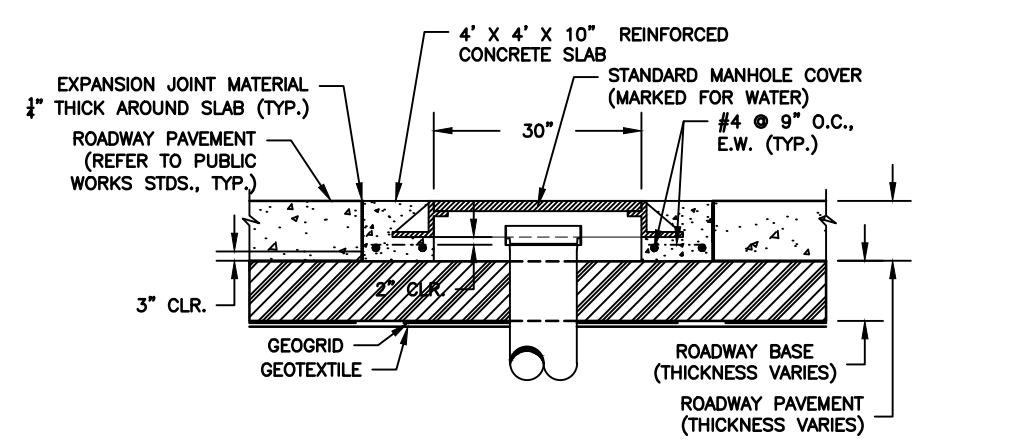


NEW WATER MAIN CONNECTION TO EXISTING WATER MAIN DETAIL
(NOT TO SCALE)

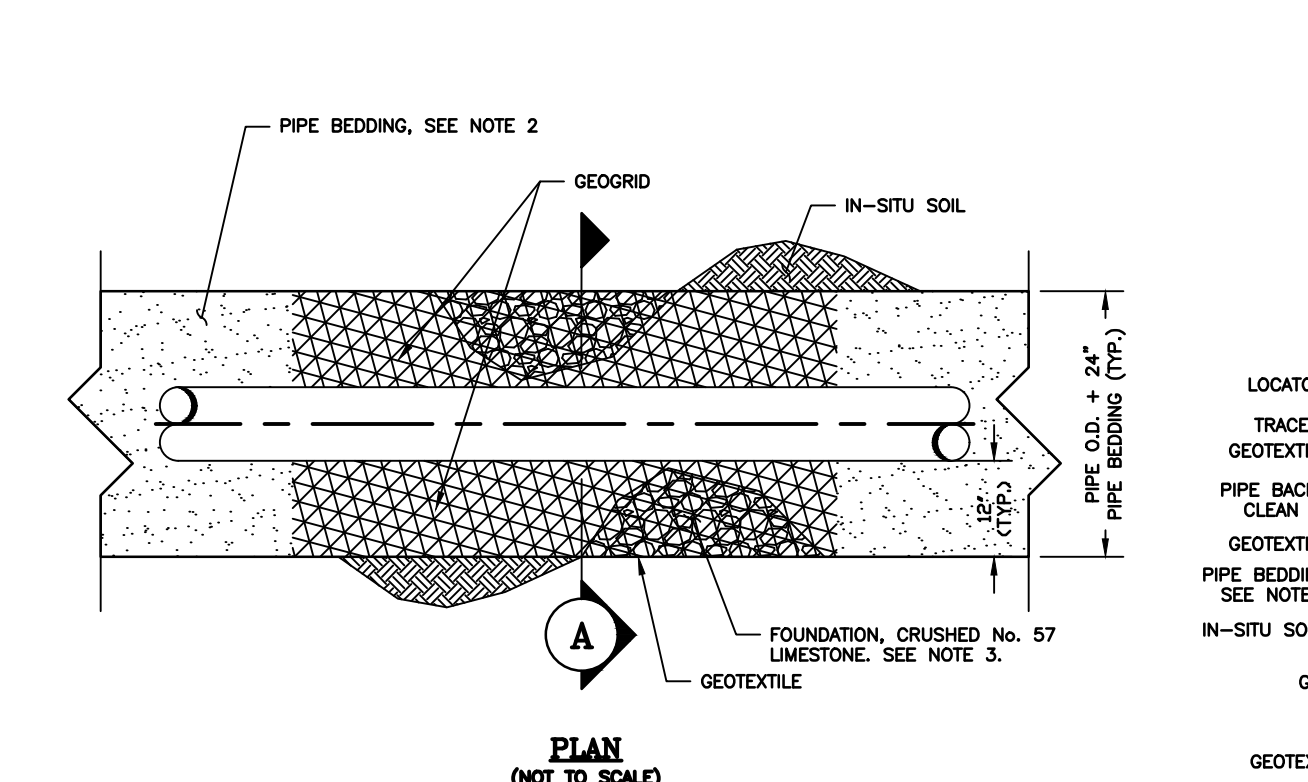


- NOTE:**
- IF THE DEPTH OF THE VALVE EXCEEDS THE LENGTH OF CAST IRON VALVE BOX, A 6" DIAMETER SERVO PVC PIPE SHALL BE PLACED OVER THE VALVE AND EXTEND FROM THE VALVE TO THE CAST IRON VALVE BOX. THE PVC EXTENSION SHALL BE BLUE FOR ALL WATER VALVES. VALVES SHALL BE LOCATED IN ACCORDANCE WITH TAMMANY STANDARD NOTES.

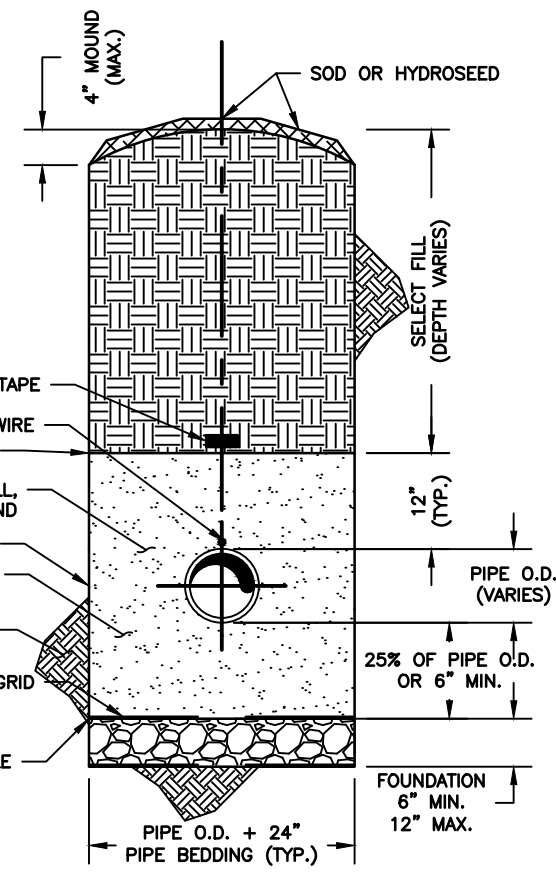
VALVE BOX FOR NON-TRAFFIC AREAS
(NOT TO SCALE)



WATER VALVE BOX MANHOLE COVER FOR TRAFFIC AREAS
(NOT TO SCALE)

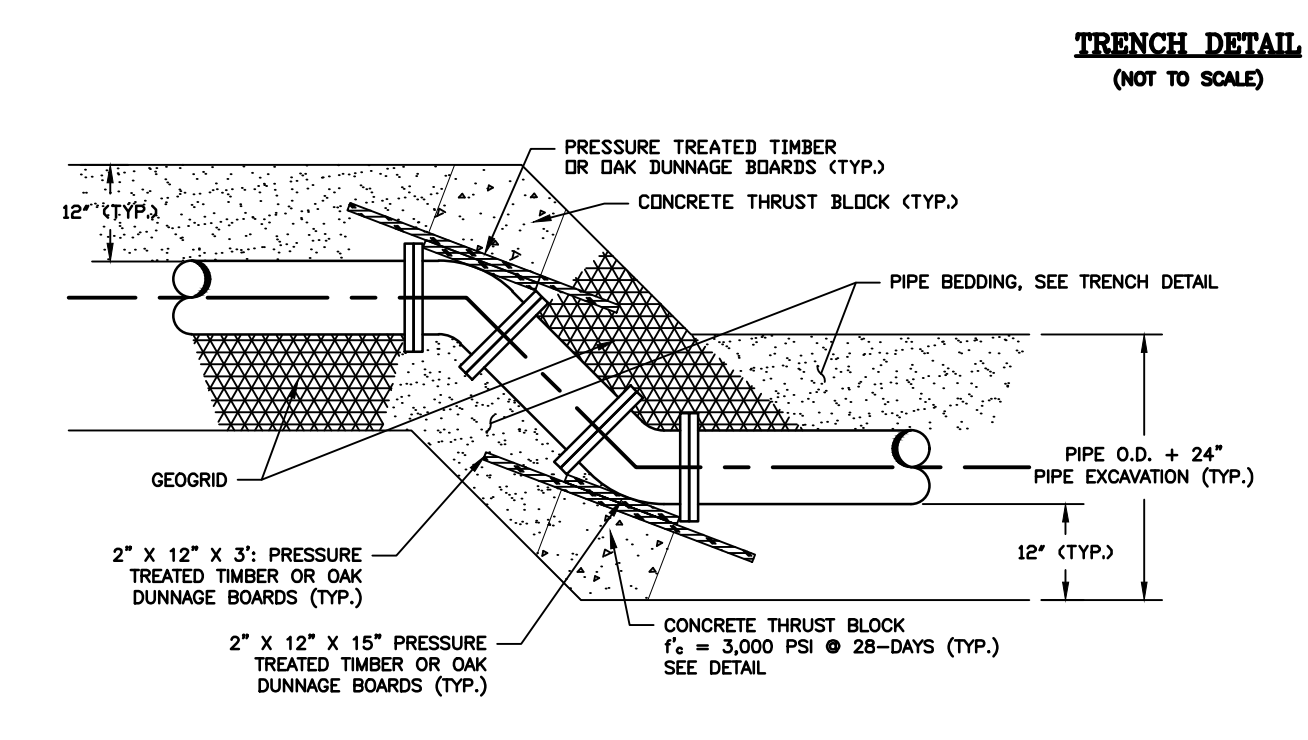


PLAN
(NOT TO SCALE)

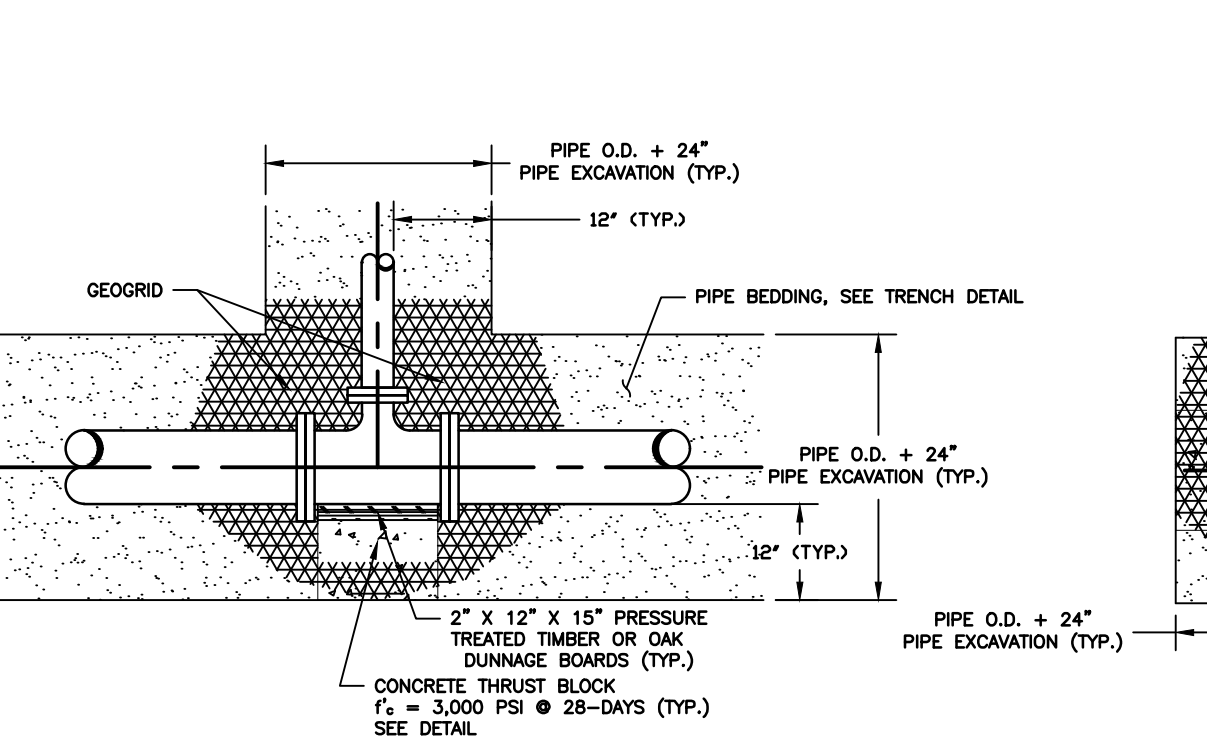


SECTION A
(NOT TO SCALE)

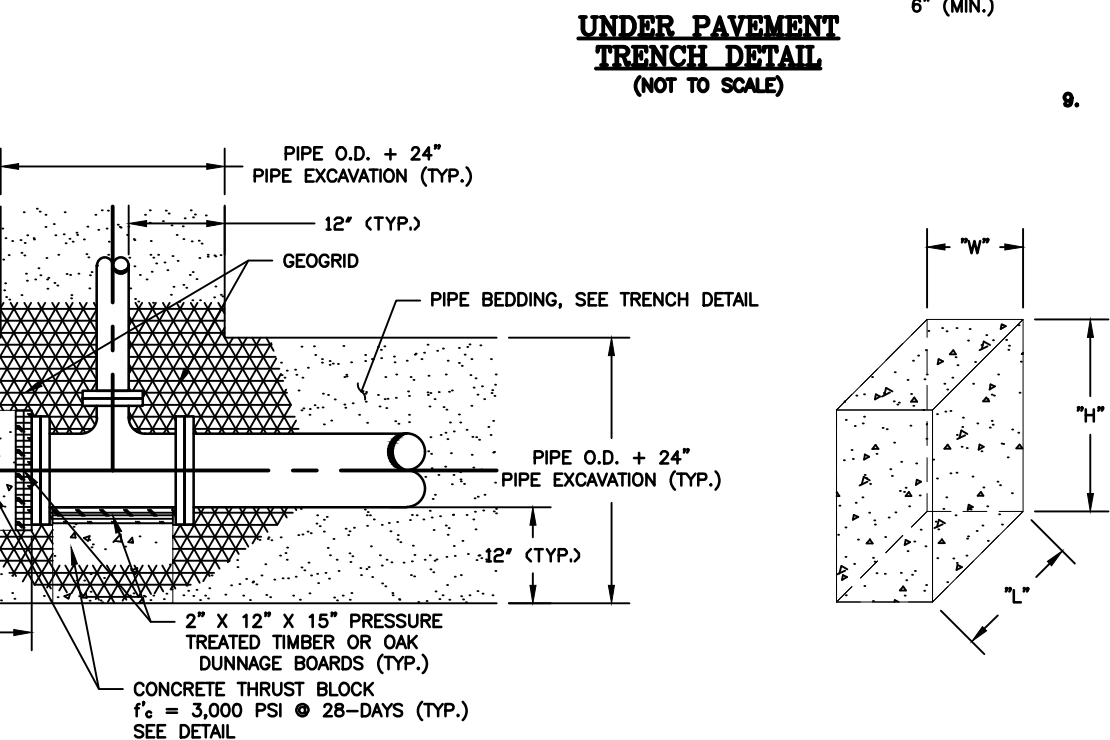
- TRENCH DETAIL NOTES:**
1. SELECT FILL SHALL BE A SILTY OR CLAYEY SAND COMPLYING WITH AASHTO GROUP CLASSIFICATION A-2-4. IN-SITU SOILS USED AS SELECT FILL SHALL MEET AASHTO GROUP CLASSIFICATION A-2-4 AND SHALL BE FREE OF LARGE DEBRIS, LARGE ROCKS, ROOTS, AND OTHER DELETERIOUS MATERIALS. SELECT FILL SHALL HAVE MINIMUM COMPACTION OF 95% OF THE MAXIMUM DRY UNIT WEIGHT AS DETERMINED BY ASTM D698.
 2. BEDDING MATERIALS FOR WATER LINES SHALL BE A CLEAN SAND COMPLYING WITH AASHTO GROUP CLASSIFICATION A-3. ALL BEDDING MATERIALS SHALL BE PLACED IN LOOSE LIFTS NOT EXCEEDING A THICKNESS OF EIGHT INCHES (8") PER LIFT. SANDY BEDDING MATERIALS SHALL HAVE MINIMUM COMPACTION OF 95% OF THE MAXIMUM DRY UNIT WEIGHT AS DETERMINED BY ASTM D698.
 3. A CRUSHED No. 57 LIMESTONE FOUNDATION SHALL BE USED TO STABILIZE SOFT AND/OR WET BOTTOM OF EXCAVATION. A MINIMUM OF 6 INCHES OF SOFT AND/OR WET NATIVE MATERIAL SHALL BE REMOVED PRIOR TO PLACING THE CRUSHED LIMESTONE FOUNDATION. CRUSHED No. 57 LIMESTONE SHALL BE PLACED IN LOOSE LIFTS NOT EXCEEDING A THICKNESS OF EIGHT INCHES (8") PER LIFT. CRUSHED LIMESTONE FOUNDATION SHALL HAVE MINIMUM COMPACTION OF 95% OF THE MAXIMUM DRY UNIT WEIGHT AS DETERMINED BY ASTM D4253.
 4. THE PLACEMENT OF GEOTRID SHALL BE AS SHOWN ON THE DETAIL. ALL GEOTRID SHALL BE A BIAXIAL GEOTRID SUCH AS TENSAR B141000, SYNTEX SBA12 OR APPROVED EQUAL. TRANSVERSE AND LONGITUDINAL OVERLAP SHALL BE A MINIMUM OF 24 INCHES.
 5. THE PLACEMENT OF GEOTEXTILE FABRIC SHALL BE AS SHOWN ON THE DETAIL. GEOTEXTILE FABRIC SHALL BE MIRAFI 500X, PROTEX GEOTEXT 200ST OR APPROVED EQUAL. TRANSVERSE AND LONGITUDINAL OVERLAP SHALL BE A MINIMUM OF 24 INCHES.
 6. CONCRETE THRUST BLOCK SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3,000 PSI.



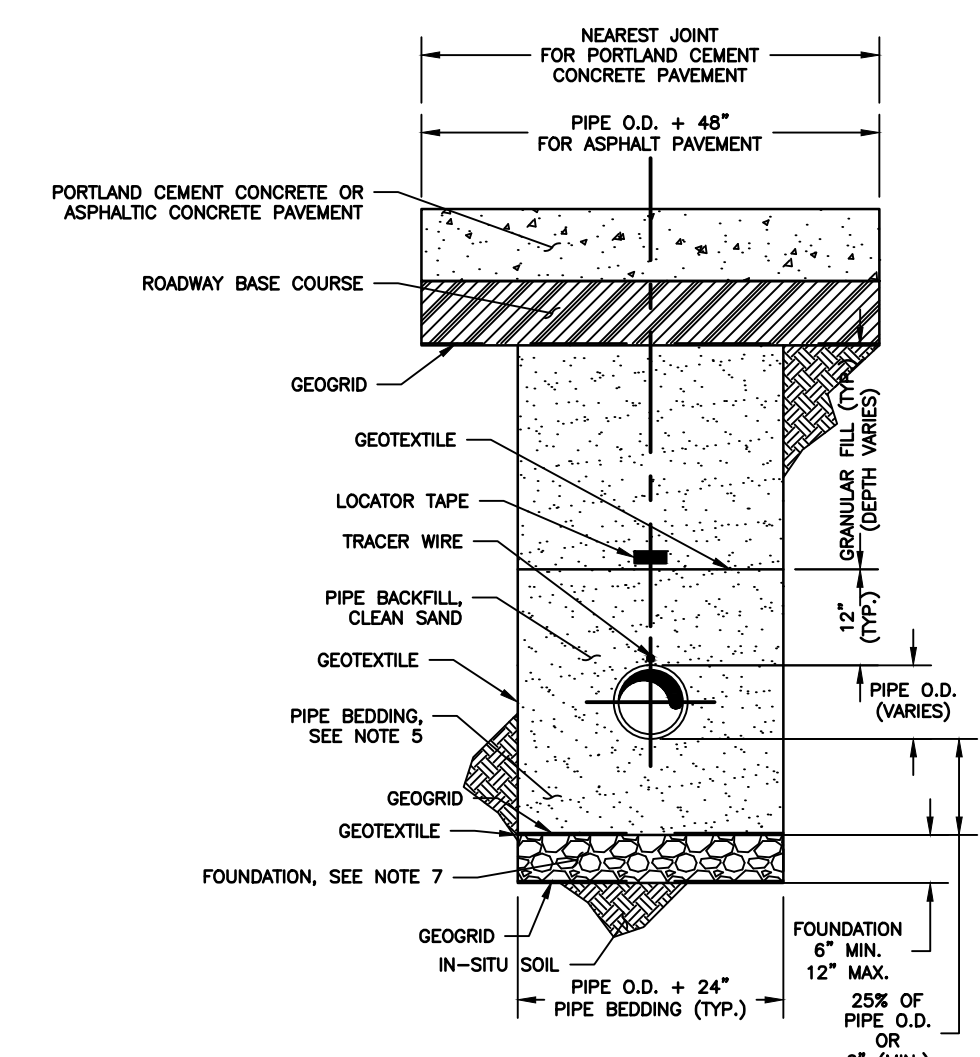
THRUST BLOCK DETAILS FOR BENDS
(NOT TO SCALE)



THRUST BLOCK DETAILS FOR TEES
(NOT TO SCALE)



THRUST BLOCK DETAILS FOR TEES AND PLUGS
(NOT TO SCALE)

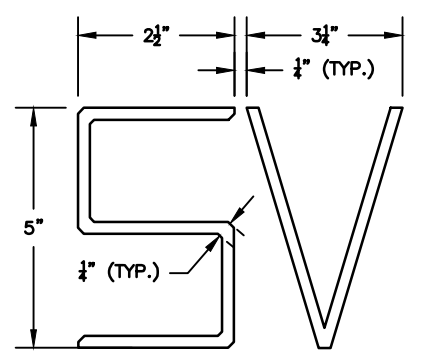


UNDER PAVEMENT TRENCH DETAIL
(NOT TO SCALE)

- UNDER PAVEMENT TRENCH DETAIL NOTES:**
1. ROADS, CURBS, DRIVEWAY APRONS AND SIDEWALKS TO BE IMPACTED BY EXCAVATION FOR SEWER OR WATER LINE REPAIRS SHALL BE REMOVED AND REPLACED TO NEAREST JOINT. WHEN THE SEWER OR WATER LINE WILL BE REPAIRED UNDER ASPHALT PAVEMENT, THE ASPHALTIC CONCRETE PAVEMENT SHALL BE SAW CUT BEFORE TEARING OUT PAVEMENT.
 2. ASPHALTIC CONCRETE PAVEMENT, BASE COURSE AND PORTLAND CEMENT CONCRETE PAVEMENT SHALL COMPLY WITH THE MOST RECENT VERSION OF THE STANDARD PLANS AND SPECIFICATIONS PROMULGATED BY THE LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT.
 3. PORTLAND CEMENT CONCRETE PAVEMENT USED FOR ROADWAYS SHALL HAVE A MINIMUM 3-DAY COMPRESSIVE STRENGTH OF 4,000 PSI.
 4. GRANULAR BACKFILL SHALL BE CLEAN SAND COMPLYING WITH AASHTO GROUP CLASSIFICATION A-3. GRANULAR BACKFILL SHALL BE PLACED IN LOOSE LIFTS NOT EXCEEDING A THICKNESS OF EIGHT INCHES (8") PER LIFT. GRANULAR BACKFILL SHALL HAVE MINIMUM COMPACTION OF 95% OF THE MAXIMUM DRY UNIT WEIGHT AS DETERMINED BY ASTM D698.
 5. BEDDING MATERIALS FOR WATER LINES SHALL BE A CLEAN SAND COMPLYING WITH AASHTO GROUP CLASSIFICATION A-3. ALL BEDDING MATERIALS SHALL BE PLACED IN LOOSE LIFTS NOT EXCEEDING A THICKNESS OF EIGHT INCHES (8") PER LIFT. SANDY BEDDING MATERIALS SHALL HAVE MINIMUM COMPACTION OF 95% OF THE MAXIMUM DRY UNIT WEIGHT AS DETERMINED BY ASTM D698.
 6. A CRUSHED No. 57 LIMESTONE FOUNDATION SHALL BE USED TO STABILIZE SOFT AND/OR WET BOTTOM OF EXCAVATION. A MINIMUM OF 6 INCHES OF SOFT AND/OR WET NATIVE MATERIAL SHALL BE REMOVED PRIOR TO PLACING THE CRUSHED LIMESTONE FOUNDATION. CRUSHED No. 57 LIMESTONE SHALL BE PLACED IN LOOSE LIFTS NOT EXCEEDING A THICKNESS OF EIGHT INCHES (8") PER LIFT. CRUSHED LIMESTONE FOUNDATION SHALL HAVE MINIMUM COMPACTION OF 95% OF THE MAXIMUM DRY UNIT WEIGHT AS DETERMINED BY ASTM D4253.
 7. THE PLACEMENT OF GEOTRID SHALL BE AS SHOWN ON THE DETAIL. ALL GEOTRID SHALL BE A BIAXIAL GEOTRID SUCH AS TENSAR B141000, SYNTEX SBA12 OR APPROVED EQUAL. TRANSVERSE AND LONGITUDINAL OVERLAP SHALL BE A MINIMUM OF 24 INCHES.
 8. THE PLACEMENT OF GEOTEXTILE FABRIC SHALL BE AS SHOWN ON THE DETAIL. GEOTEXTILE FABRIC SHALL BE MIRAFI 500X, PROTEX GEOTEXT 200ST OR APPROVED EQUAL. TRANSVERSE AND LONGITUDINAL OVERLAP SHALL BE A MINIMUM OF 24 INCHES.
 9. CONCRETE THRUST BLOCK SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3,000 PSI.

MINIMUM THRUST BLOCK SIZES BY FITTING TYPE			
FITTING TYPE	DIMENSION "W"	DIMENSION "H"	DIMENSION "L"
125"	6" MIN. DR 3" D" / 2	2" D" + PIPE O.D.	4" MIN.
22.5"	6" MIN. DR 3" D" / 2	2" D" + PIPE O.D.	4" MIN.
45"	6" MIN. DR 3" D" / 2	2" D" + PIPE O.D.	2" D" MIN.
90"	6" + 2" D"	2" D" + PIPE O.D.	3" D" MIN.
TEE	6" MIN. DR 3" D" / 2	2" D" + PIPE O.D.	2" D" MIN.
VYE	6" MIN. DR 3" D" / 2	2" D" + PIPE O.D.	2" D" MIN.
PLUG	6" MIN. DR 3" D" / 2	3" D"	3" D"

NOTE:
D = NOMINAL PIPE DIAMETER



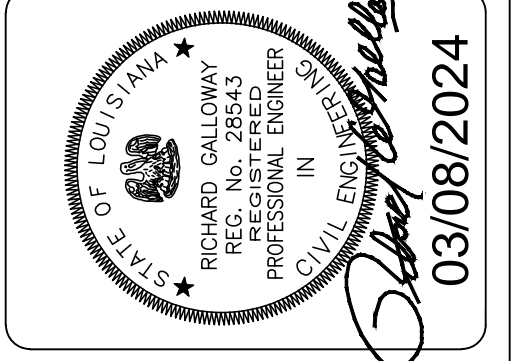
SEWER FORCE MAIN VALVE PAVEMENT STAMP DETAIL
(NOT TO SCALE)



DEPT. OF UTILITIES
ST. TAMMANY PARISH
GOVERNMENT
620 N. TYLER STREET
COVINGTON, LA 70433

DATE:	DESCRIPTION OF REVISION	No.

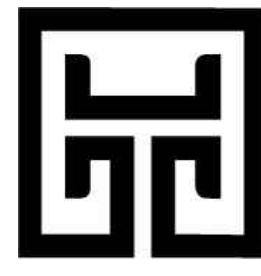
DESIGNED BY:	THA
DRAWN BY:	KRG
CHECKED BY:	RCG
SUBMITTED BY:	HCH THE CONSULTANTS
PROJECT No.:	TU23000173
ISSUE DATE:	3/9/24 (BID)
APPROVED BY:	RCG
SHEET SIZE:	ANSI D
SCALE:	AS SHOWN



HIGHWAY LA-21 LIFT STATION
WST SEWER SYSTEM
MADISONVILLE, LOUISIANA
PROJECT No.: TU23000173

SEWER STANDARD NOTES
GRAVITY SEWER

SHEET NO.
21
SHEET 21 of 23



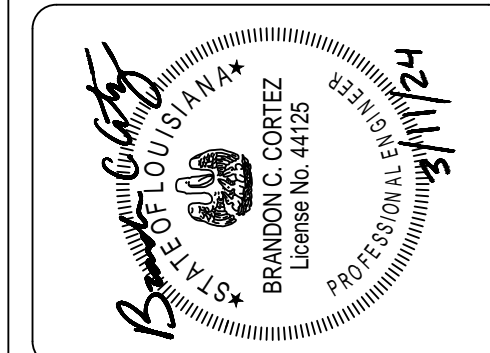
HIGH TIDE CONSULTANTS LLC
409 W 21ST AVENUE - SUITE B
COVINGTON, LA 70433
www.hightidela.com



DEPT. OF UTILITIES
ST. TAMMANY PARISH
GOVERNMENT
620 N. TYLER STREET
COVINGTON, LA 70433

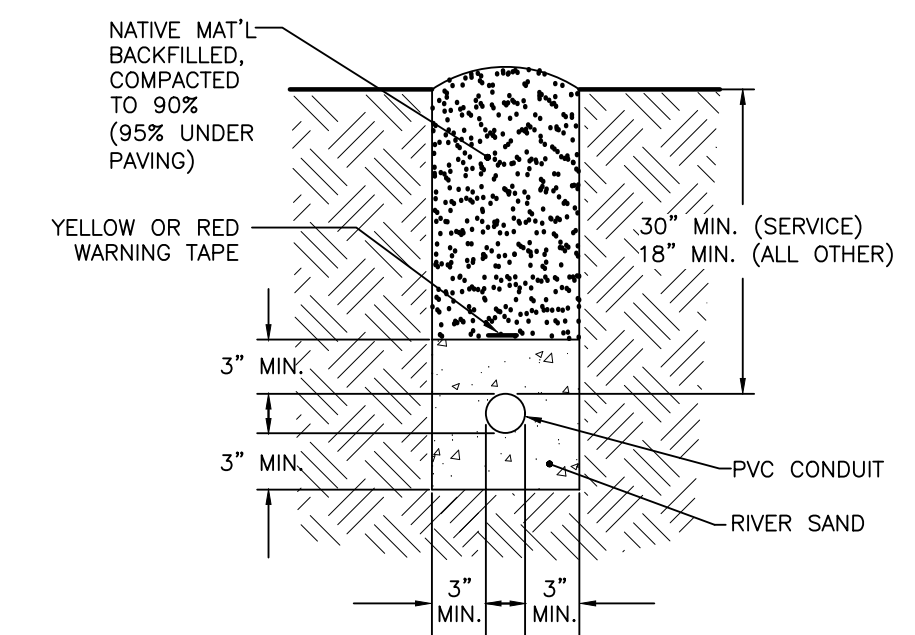
DATE:	DESCRIPTION OF REVISION	No.

DESIGNED BY:	BCC
DRAWN BY:	BCC
CHECKED BY:	BCC
SUBMITTED BY:	HIGH TIDE CONSULTANTS
PROJECT No.:	TU23000173
ISSUE DATE:	3/8/2024
APPROVED BY:	BCC
SHEET SIZE:	ANSI D
SCALE:	



HIGHWAY LA-21 LIFT STATION
WST SEWER SYSTEM
MADISONVILLE, LOUISIANA
PROJECT No.: TU23000173
ELECTRICAL PLAN

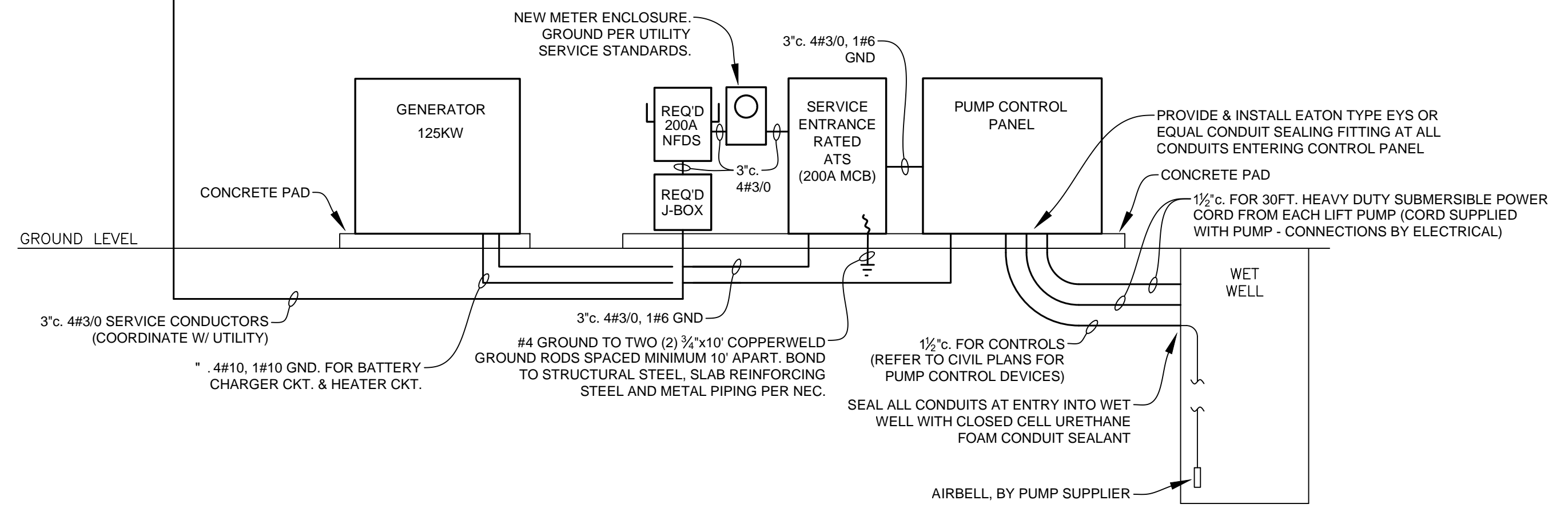
SHEET NO.
23
SHEET 23 of 23



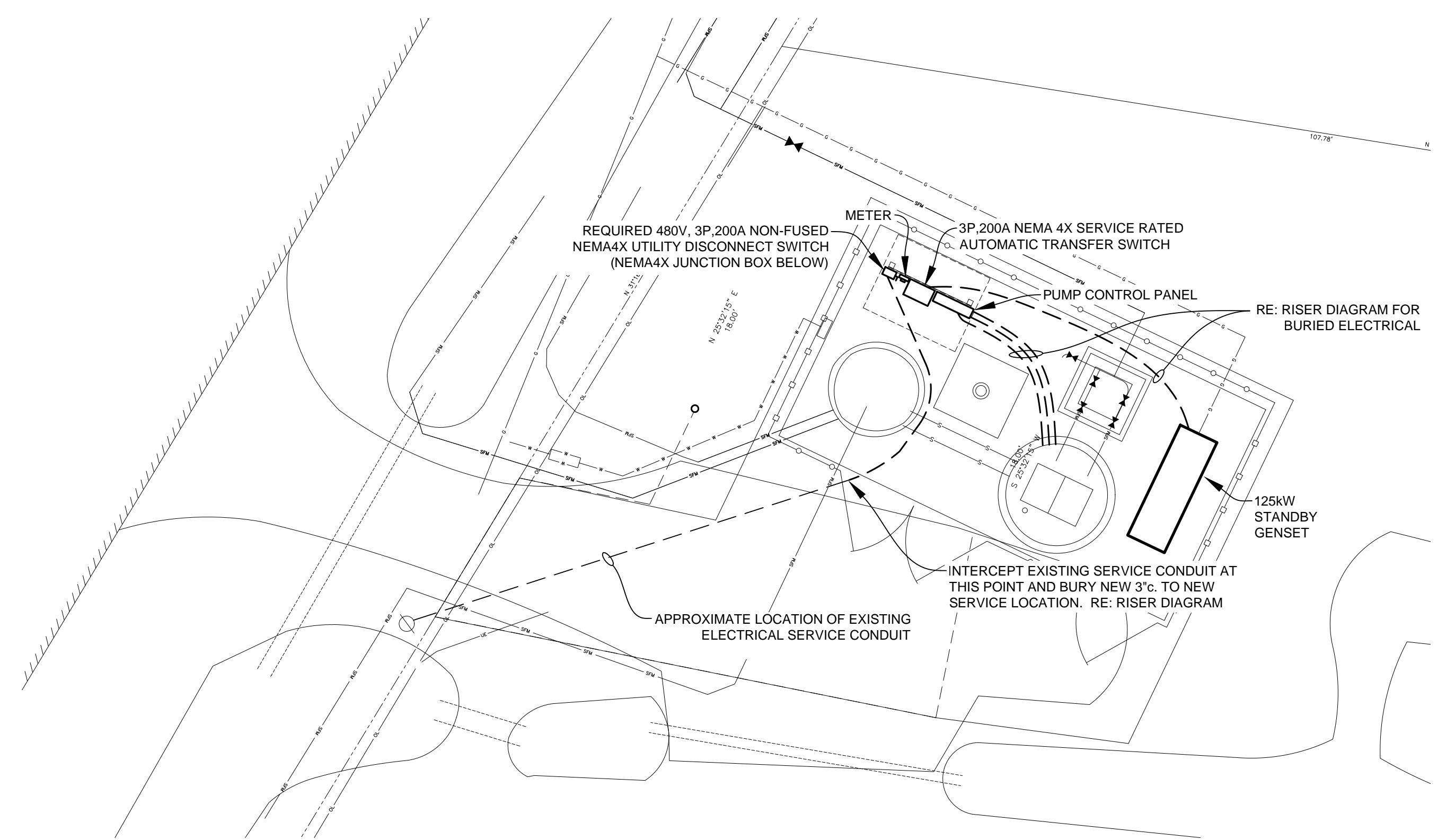
CONDUIT BURIAL DETAIL

GENERAL NOTES:

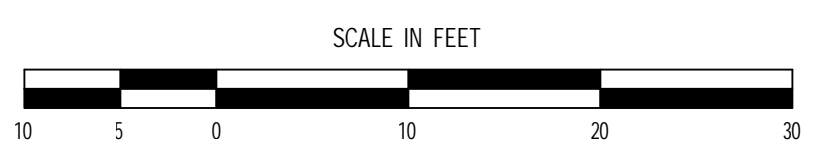
1. ANCHOR GENERATOR SECURELY TO CONCRETE PAD.
2. REFER TO CONTROL DIAGRAMS ON CIVIL PLANS FOR FIELD WIRING INDICATED BY DASHED LINES & CONNECTIONS REQUIRED BY ELECTRICAL CONTRACTOR.
3. ELECTRICAL EQUIPMENT SHALL BE MOUNTED TO STRUCTURE PROVIDED. REFER TO CIVIL PLANS FOR STRUCTURE DETAILS.



RISER DIAGRAM



LA-21 PUMP STATION ELECTRICAL PLAN



SECTION 14

**Department of the Treasury (DOT) & American Rescue Plan Act (ARPA)
Federal Contract Clauses
WATER SECTOR PROGRAM
31 CFR Part 35 Subpart A**

1. EQUAL EMPLOYMENT OPPORTUNITY

During the performance of this contract, the contractor agrees as follows:

(1) The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following:

Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

(2) The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.

(3) The contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the contractor's legal duty to furnish information.

(4) The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(5) The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(6) The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(7) In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(8) The contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (8) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance:

Provided, however, that in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency, the contractor may request the United States to enter into such litigation to protect the interests of the United States. The applicant further agrees that it will be bound by the above equal opportunity clause with respect to its own employment practices when it participates in federally assisted construction work: *Provided*, That if the applicant so participating is a State or local government, the above equal opportunity clause is not applicable to any agency, instrumentality or subdivision of such government which does not participate in work on or under the contract.

The applicant agrees that it will assist and cooperate actively with the administering agency and the Secretary of Labor in obtaining the compliance of contractors and subcontractors with the equal opportunity clause and the rules, regulations, and relevant orders of the Secretary of Labor, that it will furnish the administering agency and the Secretary of Labor such information as they may require for the supervision of such compliance, and that it will otherwise assist the administering agency in the discharge of the agency's primary responsibility for securing compliance.

The applicant further agrees that it will refrain from entering into any contract or contract modification subject to Executive Order 11246 of September 24, 1965, with a contractor debarred from, or who has not demonstrated eligibility for, Government contracts and federally assisted construction contracts pursuant to the Executive Order and will carry out such sanctions and penalties for violation of the equal opportunity clause as may be imposed upon

contractors and subcontractors by the administering agency or the Secretary of Labor pursuant to Part II, Subpart D of the Executive Order. In addition, the applicant agrees that if it fails or refuses to comply with these undertakings, the administering agency may take any or all of the following actions: Cancel, terminate, or suspend in whole or in part this grant (contract, loan, insurance, guarantee); refrain from extending any further assistance to the applicant under the program with respect to which the failure or refund occurred until satisfactory assurance of future compliance has been received from such applicant; and refer the case to the Department of Justice for appropriate legal proceedings.

2. DAVIS-BACON ACT, as amended (40 U.S.C. 3141-3148). When required by Federal program legislation, all prime construction contracts in excess of \$2,000 awarded by non-Federal entities must include a provision for compliance with the Davis-Bacon Act (40 U.S.C. 3141-3144, and 3146-3148) as supplemented by Department of Labor regulations (29 CFR Part 5, "Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction"). In accordance with the statute, contractors must be required to pay wages to laborers and mechanics at a rate not less than the prevailing wages specified in a wage determination made by the Secretary of Labor. In addition, contractors must be required to pay wages not less than once a week. The non-Federal entity must place a copy of the current prevailing wage determination issued by the Department of Labor in each solicitation. The decision to award a contract or subcontract must be conditioned upon the acceptance of the wage determination. The non-Federal entity must report all suspected or reported violations to the Federal awarding agency. The contracts must also include a provision for compliance with the Copeland "Anti-Kickback" Act (40 U.S.C. 3145), as supplemented by Department of Labor regulations (29 CFR Part 3, "Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States"). The Act provides that each contractor or subrecipient must be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public work, to give up any part of the compensation to which he or she is otherwise entitled. The non-Federal entity must report all suspected or reported violations to the Federal awarding agency.

3. COMPLIANCE WITH THE CONTRACT WORK HOURS AND SAFETY STANDARDS ACT.

(1) *Overtime requirements.* No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less

than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) *Violation; liability for unpaid wages; liquidated damages.* In the event of any violation of the clause set forth in paragraph (b)(1) of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (b)(1) of this section, in the sum of \$27 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (b)(1) of this section.

(3) *Withholding for unpaid wages and liquidated damages.* The Parish shall upon its own action or upon written request of an authorized representative of the Department of Labor or U.S. Treasury withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (b)(2) of this section.

(4) *Subcontracts.* The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (b)(1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (b)(1) through (4) of this section.

4. RIGHTS TO INVENTIONS MADE UNDER A CONTRACT OR AGREEMENT

If the Federal award meets the definition of “funding agreement” under 37 CFR § 401.2 (a) and the recipient or subrecipient wishes to enter into a contract with a small business firm or nonprofit organization regarding the substitution of parties, assignment or performance of experimental, developmental, or research work under that “funding agreement,” the recipient or subrecipient must comply with the requirements of 37 CFR Part 401, “Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements,” and any implementing regulations issued by the awarding agency.

5. CLEAN AIR ACT

(1) The Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. § 7401 *et seq.*

(2) The Contractor agrees to report each violation to the Parish and understands and agrees that the Parish will, in turn, report each violation as required to assure notification to the federal awarding agency, and the appropriate Environmental Protection Agency Regional Office.

(3) The Contractor agrees to include these requirements in each subcontract exceeding \$150,000 financed in whole or in part with Federal assistance provided by ARPA.

6. FEDERAL WATER POLLUTION CONTROL ACT

(1) The Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. § 7401 *et seq.*

(2) The Contractor agrees to report each violation to the Parish and understands and agrees that the Parish will, in turn, report each violation as required to assure notification to the Federal awarding agency, and the appropriate Environmental Protection Agency Regional Office.

(3) The Contractor agrees to include these requirements in each subcontract exceeding \$150,000 financed in whole or in part with Federal assistance provided by ARPA.

7. SUSPENSION AND DEBARMENT

(1) This contract is a covered transaction for purposes of 2 C.F.R. pt. 180 and 2 C.F.R. pt. 3000. As such, the contractor is required to verify that none of the contractor's principals (defined at 2 C.F.R. § 180.995) or its affiliates (defined at 2 C.F.R. § 180.905) are excluded (defined at 2 C.F.R. § 180.940) or disqualified (defined at 2 C.F.R. § 180.935).

(2) The contractor must comply with 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C, and must include a requirement to comply with these regulations in any lower tier covered transaction it enters into.

(3) This certification is a material representation of fact relied upon by the Parish. If it is later determined that the contractor did not comply with 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C, in addition to remedies available to the Parish, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment.

(4) The bidder or proposer agrees to comply with the requirements of 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C while this offer is valid and throughout the period of any contract that may arise from this offer. The bidder or proposer further agrees to include a provision requiring such compliance in its lower tier covered transactions.

8. BYRD ANTI-LOBBYING ACT

The Contractor will be expected to comply with Federal statutes required in the Anti-Lobbying Act. Contractors who apply or bid for an award of more than \$100,000 shall file the required certification. Each tier certifies to the tier above that it will not and has not used federally appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant, or any other award covered by 31 U.S.C. § 1352. Each tier shall also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any federal award. Such disclosures are forwarded from tier to tier up to the recipient who in turn will forward the certification(s) to the federal awarding agency.

9. PROCUREMENT OF RECOVERED MATERIALS

In the performance of this Contract, the Contractor shall make maximum use of products containing recovered materials that are EPA-designated items unless the product cannot be acquired—

- i. Competitively within a timeframe providing for compliance with the Contract performance schedule;
- ii. Meeting Contract performance requirements; or
- iii. At a reasonable price.

Information about this requirement, along with the list of EPA-designate items, is available at EPA's Comprehensive Procurement Guidelines web site, <https://www.epa.gov/smm/comprehensive-procurement-guideline-cpg-program>.

10. PROHIBITION ON CONTRACTING FOR COVERED TELECOMMUNICATIONS EQUIPMENT OR SERVICES.

(a) *Definitions.* As used in this clause, the terms backhaul; covered foreign country; covered telecommunications equipment or services; interconnection arrangements; roaming; substantial or essential component; and telecommunications equipment or services have the meaning as defined in Public Law 115-232, section 889, Prohibitions on Expending ARPA Award Funds for Covered Telecommunications Equipment or Services (Interim), as used in this clause—

(b) *Prohibitions.*

(1) Section 889(b) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019, Pub. L. No. 115-232, and 2 C.F.R. § 200.216 prohibit the head of an executive agency on or after Aug. 13, 2020, from obligating or expending grant, cooperative agreement, loan, or loan guarantee funds on certain telecommunications products or from certain entities for national security reasons.

(2) Unless an exception in paragraph (c) of this clause applies, the contractor and its subcontractors may not use grant, cooperative agreement, loan, or loan guarantee funds from a federal Agency to:

- (i) Procure or obtain any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology of any system;
- (ii) Enter into, extend, or renew a contract to procure or obtain any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology of any system;
- (iii) Enter into, extend, or renew contracts with entities that use covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system as described in Public Law 115-232, section 889, covered telecommunications equipment is telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities). (a) For the purpose of public safety, security of government facilities, physical security surveillance of critical infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities). (b) Telecommunications or video surveillance services provided by such entities or using such equipment. (c) Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of the National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country;
- (iv) Provide, as part of its performance of this contract, subcontract, or other contractual instrument, any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system.

(3) In implementing the prohibition under Public Law 115-232, section 889, subsection (f), paragraph (1), heads of executive agencies administering loan, grant, or subsidy programs shall prioritize available funding and technical support to assist affected businesses, institutions and organizations as is reasonably necessary for those affected entities to transition from covered communications equipment and services, to procure replacement equipment and services, and to ensure that communications service to users and customers is sustained.

(4) See Public Law 115-232, section 889 for additional information.

(5) See also § 200.471.

(c) *Exceptions.*

(1) This clause does not prohibit contractors from providing—

- (i) A service that connects to the facilities of a third-party, such as backhaul, roaming, or interconnection arrangements; or
- (ii) Telecommunications equipment that cannot route or redirect user data traffic or permit visibility into any user data or packets that such equipment transmits or otherwise handles.

(2) By necessary implication and regulation, the prohibitions also do not apply to:

- (i) Covered telecommunications equipment or services that:
 - i. Are *not used* as a substantial or essential component of any system; *and*
 - ii. Are *not used* as critical technology of any system.
- (ii) Other telecommunications equipment or services that are not considered covered telecommunications equipment or services.

(d) *Reporting requirement.*

(1) In the event the contractor identifies covered telecommunications equipment or services used as a substantial or essential component of any system, or as critical technology as part of any system, during contract performance, or the contractor is notified of such by a subcontractor at any tier or by any other source, the contractor shall report the information in paragraph (d)(2) of this clause to the recipient or subrecipient, unless elsewhere in this contract are established procedures for reporting the information.

(2) The Contractor shall report the following information pursuant to paragraph (d)(1) of this clause:

(i) Within one business day from the date of such identification or notification: The contract number; the order number(s), if applicable; supplier name; supplier unique entity identifier (if known); supplier Commercial and Government Entity (CAGE) code (if known); brand; model number (original equipment manufacturer number, manufacturer part number, or wholesaler number); item description; and any readily available information about mitigation actions undertaken or recommended.

(ii) Within 10 business days of submitting the information in paragraph (d)(2)(i) of this clause: Any further available information about mitigation actions undertaken or recommended. In addition, the contractor shall describe the efforts it undertook to prevent use or submission of covered telecommunications equipment or services, and any additional efforts that will be incorporated to prevent future use or submission of covered telecommunications equipment or services.

(e) *Subcontracts*. The Contractor shall insert the substance of this clause, including this paragraph (e), in all subcontracts and other contractual instruments.

11. DOMESTIC PREFERENCES FOR PROCUREMENTS.

As appropriate, and to the extent consistent with law, the contractor should, to the greatest extent practicable, provide a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States. This includes, but is not limited to iron, aluminum, steel, cement, and other manufactured products.

For purposes of this clause:

Produced in the United States means, for iron and steel products, that all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States.

Manufactured products mean items and construction materials composed in whole or in part of non-ferrous metals such as aluminum; plastics and polymer-based products such as polyvinyl chloride pipe; aggregates such as concrete; glass, including optical fiber; and lumber.

12. COMPLIANCE WITH FEDERAL EXECUTIVE ORDERS

This is an acknowledgement that American Rescue Plan Act will be used to fund the Contract only. The Contractor will comply with all applicable federal law, regulations, executive orders, policies, procedures, and directives.

13. NO OBLIGATION BY THE FEDERAL GOVERNMENT

The Federal Government is not a party to this Contract and is not subject to any obligations or liabilities to the non-Federal entity, Contractor, or any other party pertaining to any matter resulting from the Contract.

14. PROGRAM FRAUD AND FALSE OR FRAUDULENT STATEMENTS OR RELATED ACTS

The Contractor acknowledges that 31 U.S.C. Chap. 38 (Administrative Remedies for False Claims and Statements) applies to the Contractor's actions pertaining to this contract.

15. CONTRACTING WITH SMALL AND MINORITY BUSINESSES, WOMEN'S BUSINESS ENTERPRISES, AND LABOR SURPLUS AREA FIRMS.

(a) Any party to this contract must take all necessary affirmative steps to assure that minority businesses, women's business enterprises, and labor surplus area firms are used when possible. These steps are also required for the hiring of any subcontractors under this contract.

(b) Affirmative steps must include:

(1) Placing qualified small and minority businesses and women's business enterprises on solicitation lists;

(2) Assuring that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources;

(3) Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses, and women's business enterprises;

- (4) Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority businesses, and women's business enterprises; and
- (5) Using the services and assistance, as appropriate, of such organizations as the Small Business Administration and the Minority Business Development Agency of the Department of Commerce.

16. COPYRIGHT AND DATA RIGHTS

The Contractor grants to the Parish, a paid-up, royalty-free, nonexclusive, irrevocable, worldwide license in data first produced in the performance of this contract to reproduce, publish, or otherwise use, including prepare derivative works, distribute copies to the public, and perform publicly and display publicly such data. For data required by the contract but not first produced in the performance of this contract, the Contractor will identify such data and grant to the Parish or acquires on its behalf a license of the same scope as for data first produced in the performance of this contract. Data, as used herein, shall include any work subject to copyright under 17 U.S.C. § 102, for example, any written reports or literary works, software and/or source code, music, choreography, pictures or images, graphics, sculptures, videos, motion pictures or other audiovisual works, sound and/or video recordings, and architectural works. Upon or before the completion of this contract, the Contractor will deliver to the Parish data first produced in the performance of this contract and data required by the contract but not first produced in the performance of this contract in formats acceptable by the Parish.

Note:

Davis-Bacon Act is NOT applicable to this project.