



**CITY OF CALLAWAY  
S. BERTHE AVENUE LIFT STATION &  
SEWER REHABILITATION  
BID NO.: CM2021-02**

**ADDENDUM #1**

Date Issued: May 12, 2021

\*\*\*\*\*

This addendum is being released due to the following:

- Extend the Date of the Bid Opening**
- A. Answer Questions for Clarification**
- B. Update of the Minimum Technical Specifications**
- C. Updated Construction Plans**

\*\*\*\*\*

**THE DATE OF THE BID OPENING IS HEREBY EXTENDED UNTIL  
MONDAY, MAY 24, 2021, AT 2:00 P.M.**

**A. QUESTIONS**

1. Is the sewer force main to be abandoned in place and grout filled?

The 4" sewer force main proposed to be abandoned, once the new 4" Directional Drill Force Main is installed, shall be capped on each end with mechanical joint plugs. Grout fill is not required as the abandoned pipe will be removed at a later date. It will be the responsibility of the CONTRACTOR to remove any excess sewage from the abandoned pipe via Means and Methods before installing the MJ plug fitting. Means and Method will need to comply with all regulatory authorities and the contract documents.

2. There are no electrical details for the lift station panel.

The lift station control panel requirements are specified under Section 40 9513 – Control Panel Construction. Shop drawings are specified under Section 40 9513-1.2 to include dimensioned elevations, sections and details for installation. Additional electrical details are represented in the electrical drawings.

3. Are there any special requirements such as generator plugs, telemetry, etc..?

The generator plug shall be Meltric and the RPT001 shall be used instead of the specified bubbler system in Specification 40 95 13. Additional lift stations components are specified under Specification 40 95 13 and the Power and Instrumentation Diagram on Sheet E-311 which include the generator plugs, telemetry, air conditioning unit, etc.

4. Is the temporary access road to the new lift station to be removed at the completion of the work or done by others at a later date?

The temporary access road to the new lift station will be removed by others at a later date.

5. Are there any costs to the contractor for electrical supply to the site by Gulf Power?

Gulf Power will require Contribution in Aid of Construction (CIAC) Costs as described under General Note 1 on Sheet E-311. The electrical drawings were emailed on 04/13/21 to Shane Boyett indicated as the Gulf Power point of contact under General Note 1, Sheet E-311. Shane responded to the email on 04/20/21 transferring the Gulf Power assignment to Conner Lichty (Conner.Lichty@nexteraenergy.com) as the Gulf Power Point of Contact.

6. Is a survey/AutoCAD drawings available for layout purposes?

A survey/AutoCAD drawing is available and can be distributed to the awarded Contractor.

7. Is any wet well lining required with this project.

The fiberglass wet well is not required to be lined.

8. Will WILO pumps be accepted for this project?

WILO pumps will be accepted for this project. Specification 33 32 13 was updated to allow WILO to be an approved pump manufacturer for this project.

9. The two (2) design pump conditions provided in the Drawings and Specifications vary. Please confirm the required design pump conditions for this project.

The design conditions for the pumps are as followed:

- High Condition (GPM – TDH): 113GPM @ 109' TDH
- Low Condition (GPM –TDH): 113GPM @ 40' TDH

10. Will a concrete wet well be considered on this project or is the Fiberglass basin a must?

Wet well shall be fiberglass as specified.

11. Please advise which material Specification 09 96 36 – Chemical-Resistant Coating for Materials in Wastewater Facilities applies to?

The interior and exterior of all Ductile Iron piping, fittings, and valves located above grade shall be coated with the product specified in Specification 09 96 36. The interior of all Ductile Iron piping, fittings, and valves located below grade shall be coated with the product specified in Specification 09 96 36. The product specified in Specification 09 96 36 does not apply to HDPE, PVC, CPVC, and Stainless Steel piping.

The following changes have been made to the plans & specifications for the project:

- B. DOCUMENTS/SPECIFICATIONS** – to ensure the correct technical specifications are used for the bidding process, if a section and/or sentence was modified within the specification, the entire specification was reissued in the Addendum. It's the responsibility of the **CONTRACTOR** to replace previously issued specifications with the reissued specification attached to this Addendum.
1. Table of Contents were updated accordingly. **Specification 33 12 16** was removed from the Technical Specifications. **Attachment 1 – FDEP Permit** and **Attachment 2 – USACE Permit** are attached to the Technical Specifications.
  2. **Specification 33 05 07.13** was updated accordingly. Sections updated include Section: 1.4.E, 1.5, 2.1.B.3, and 3.1.
  3. **Specification 33 05 19** was updated accordingly. Sections updated include: Section 1.2.B, 2.2, and 2.3. The previous Section 1.5.E – Delegated Design Submittal, Section 2.2.B.3, and Section 2.2.B.3 were removed from the Technical Specification.
  4. **Specification 33 11 16** was updated accordingly. Sections updated include: Section 1.1.A, 1.2, 1.5.C., Part 2 – Products, Section 3.1.B., and 3.3.B.4. Previous sections referring to “Concrete Thrust Restraints” were removed from the specification.
  5. **Specification 33 13 00** was updated accordingly. Sections updated include: Section 1.3.B – Submittals and Section 3.3.A.4.c. – Field Quality Control.
  6. **Specification 33 31 00** was updated accordingly. Sections updated include: Section 2.1.A. – Ductile Iron Piping, Section 2.1.C. – Coating System for Ductile Iron Pipe, Fittings, and Valves, Section 2.2 – Manholes, Section 2.3 – Manhole Protective Coating, and Part 3 – Execution.
  7. **Specification 33 32 13** was updated accordingly. Sections updated include: Section 1.3.A – Quality Assurance, Section 2.2 – Requirements, Section 2.4 – Pump Construction, and Section 2.11 – Impeller.
  8. **Specification 40 05 13** was updated accordingly. Sections updated include: Section 1.5 – Quality Assurance, Section 2.1 – HDPE DR11, Section 2.3 – PVC Schedule 80, Section 2.4.A – Lining and Coatings, Section 2.4.A.1., Section 2.4.A.3.7., and Section 3.1.H.
  9. **Specification 40 05 23.21** was updated accordingly. Sections updated include: Section 2.1.A., 2.1.C., Section 3.1.D. – Installation.
  10. **Specification 40 05 23.72** was updated accordingly. Sections updated include: Section 2.1.A. and Section 2.2 – Air and Vacuum Valves
  11. **Specification 40 95 13** was updated accordingly. The section updated includes: Section 2.8 – Bubbler System.

**DIVISION 03 - CONCRETE**

- 03 30 00 CAST IN PLACE CONCRETE
- 03 30 53 MISCELLANEOUS CAST IN PLACE CONCRETE

**DIVISION 09 - FINISHES**

- 09 96 36 CHEMICAL-RESISTANT COATINGS FOR MATERIALS IN WASTEWATER FACILITIES

**DIVISION 26 - ELECTRICAL**

- 26 05 00 COMMON WORK RESULTS FOR ELECTRICAL
- 26 05 19 LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES
- 26 05 23 CONTROL-VOLTAGE ELECTRICAL POWER CABLES
- 26 05 26 GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS
- 26 05 29 HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS
- 26 05 33 RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS
- 26 05 53 IDENTIFICATION FOR ELECTRICAL SYSTEMS
- 26 27 26 WIRING DEVICES
- 26 28 16 ENCLOSED SWITCHES AND CIRCUIT BREAKERS

**DIVISION 31 - EARTHWORK**

- 31 10 00 SITE CLEARING
- 31 20 00 EARTH MOVING
- 31 23 16 EXCAVATION
- 31 23 17 TRENCHING
- 31 23 18 DEWATERING
- 31 23 23 FILL
- 31 25 01 SEDIMENTATION AND EROSION CONTROL
- 31 50 00 EXCAVATION SUPPORT AND PROTECTION

**DIVISION 32 – EXTERIOR IMPROVEMENTS**

- 32 31 13 CHAIN LINK FENCES AND GATES

**DIVISION 33 - UTILITIES**

- 33 05 07.13 DIRECTIONAL BORING HDPE
- 33 05 19 PRESSURE PIPING TIED JOINT RESTRAINT SYSTEM
- 33 11 16 SITE WATER UTILITY DISTRIBUTION PIPING
- 33 13 00 DISINFECTION OF WATER UTILITY DISTRIBUTION
- 33 31 00 SANITARY SEWERAGE PIPING
- 33 32 13 SUBMERSIBLE CENTRIFUGAL PUMPS

**DIVISION 40 – PROCESS INTERCONNECTIONS**

- 40 05 13 LIFT STATION PROCESS PIPE AND FITTINGS
- 40 05 23-21 PLUG VALVES
- 40 05 23-72 MISCELLANEOUS PROCESS VALVES
- 40 05 53 IDENTIFICATION FOR PROCESS PIPING
- 40 95 13 CONTROL PANEL CONSTRUCTION

**DIVISION 43 – PROCESS GAS AND LIQUID HANDLING, PURIFICATION AND STORAGE  
EQUIPMENT**

43 41 45 FIBERGLASS REINFORCED PLASTIC TANKS

**DIVISION 46 – WATER AND WASTEWATER EQUIPMENT**

46 05 53 IDENTIFICATION FOR WATER AND WASTEWATER EQUIPMENT

**ATTACHMENTS**

Attachment 1 FDEP PERMIT

Attachment 2 USACE PERMIT

END OF TABLE OF CONTENTS

## SECTION 33 05 07.13 - HDPE PIPE INSTALLATION BY HORIZONTAL DIRECTIONAL DRILL (HDD)

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 DESCRIPTION OF WORK

- A. The extent of directional boring is shown on the drawings.
- B. The work included in this section covers the installation of carrier pipe for force mains by the directional boring (trenchless installation) method as described herein, within the limits indicated on the drawings. In general, include bore pit, pilot hole (as required), drilling fluids, carrier pipe, removal and disposal of drilling fluids and soil cuttings, soil reports as required by jurisdictional agencies, siltation and sediment control, and other work required to install the carrier pipe as specified herein and as shown on the drawings.
- C. Contractor shall furnish labor, equipment, materials, and supplies, and shall perform the work necessary to provide Owner with a complete, finished force main crossing via horizontal directional drilling.
- D. The proposed alignment length, profile and grade to which the force main shall be installed are noted on the applicable drawings. This profile indicates the minimum grade to which the pipe shall be installed.

#### 1.3 DESIGN/PERFORMANCE REQUIREMENTS

- A. Provide design engineering for the work as described in paragraph 1.2 and as described herein and on the contract drawings, including, but not limited to, the following elements:
  - 1. Bore hole diameter and length,
  - 2. Location of borehole entry and exit points,
  - 3. Drilling procedures,
  - 4. Pipeline pulling operations,
  - 5. Method of drilling fluid disposal,
  - 6. Area required for drilling operations and storage of pipe,
  - 7. Drilling fluids management plan, and

8. Review of plan and profile drawings and proposed horizontal and vertical alignment of the pipeline, with written certification of agreement with them, or recommended departure from them.
- B. Contractor's submitted design shall be signed and sealed by a Professional Engineer whose specialty includes design of horizontal drilling operations. The cost of these engineering services shall be included in the bid price.
- C. Contractor shall be responsible for conducting the job in accordance with applicable federal, state, and local permits, codes, and statutes.
- D. Contractor shall be responsible for keeping driveways and roadways accessible to traffic during the pipe joining and pulling operations by bridging over the area, providing ramps or other acceptable means approved by Engineer. This work shall be at no additional cost to Owner.

#### 1.4 SUBMITTALS

- A. Drawings: Working drawings showing in detail the size and location of boring pits together with sheeting and shoring to be used in supporting embankments and trench walls, and any other details of the proposed methods of installation required to allow adequate review by the Engineer. Contractor shall prepare a drilling plan indicating equipment proposed for each location, pull-back forces anticipated, and shall verify that the DR of the pipe specified is adequate to withstand the anticipated pull-back forces in addition to the earth, line, and groundwater loads.
- B. Shop Drawings: Complete layout and details for fabrication and installation of pipeline; including design data and calculations. Submittal shall include, but not be limited to, elements listed in paragraph 1.2 A.
- C. Task Schedule: Detailed schedule of tasks for each stage or operation involved in the work of this section. Include as a minimum the following major tasks:
  1. Preparatory earthwork operations,
  2. Drilling rig mobilization and set-up,
  3. Pipe delivery and on-site pipe joining operations,
  4. Pilot hole drilling and reaming operations,
  5. Pipeline pulling operations,
  6. Pipeline hydrostatic testing,
  7. Drilling fluid disposal, and
  8. Restoration and demobilization.
- D. Task Schedule shall conform to contract schedule as outlined in the General Provisions.
- E. On completion of pilot hole phase of each drill site, a complete set of "as-built" records shall be submitted in duplicate to the Engineer. Include copies of the plan and profile drawing, as well as directional survey reports as recorded during the drilling operation.

05/11/2021

L:\276 City of Callaway\27656.01 Berthe Lift Station and Sanitary Retrofit\Specifications\Addendum No. 1\330507.13 directional boring HDPE-Addendum No.1-jea-u.doc

27656.01

HDPE PIPE INSTALLATION BY  
HORIZONTAL DIRECTIONAL DRILL (HDD)

33 05 07.13 - 2

Upon completion, drawings shall be submitted to the Engineer in a CAD 2020 file format.

- F. Provide technical data of equipment to be utilized.
- G. Prior to approval, submit the names of supervisory field personnel and historical information of directional boring experience.
- H. Submit MSDS (Material Safety Data Sheets) information for the drilling slurry compounds.
- I. Disposal Plan: Describe Contractor's plans for disposal of the drilling fluid and the names, addresses, and telephone numbers of subcontractors who will be performing any portion of the disposal activities. At a minimum the plan shall include:
  - 1. Disposal method,
  - 2. Disposal hauler(s),
  - 3. Disposal locations,
  - 4. Estimated quantity to be disposed,
  - 5. Type of vehicle hauling drilling fluids,
  - 6. Signed statement that hauling equipment (ie., vehicle, tanker, dump truck, trailer, etc.) meets requirements of state agencies, and
  - 7. Letter from proposed disposal site(s) accepting material.
- J. Erosion Control Plan: Submit prior to the preconstruction conference. It shall be a written, detailed plan for the accomplishment of acceptable erosion control on the project. The plan shall describe necessary temporary measures to be implemented for preventing soil erosion from the construction site until permanent erosion control and finished surfaces are installed. The plan shall comply with federal (if applicable), state and local requirements.
- K. Pipe Connection Procedures: Submit to the Engineer prior to connecting any pipe. For plastic (HDPE) pipe, submit the pipe manufacturer's representative's written approval of his procedures.

## 1.5 PERMITS

- A. All work shall be performed according to the approved U.S. Army Corps permit and technical specifications. If additional permits are required, it will be the responsibility of the Contractor to obtain necessary permits prior to construction. Keep copies of the permits on site during construction operations.
- B. The cost for permits shall be included in the bid price.



## 1.6 QUALITY ASSURANCE

- A. Crossings must conform to applicable requirements of utility companies affected, State Highway Department, and environmental agencies.
- B. Qualifications: Contractor shall be thoroughly experienced in the type construction contemplated herein.
- C. Demonstrate expertise in trenchless methods by providing a list of five references for whom similar work has been performed within the last two years. Two of the references shall be from projects where the SAME SIZE OR LARGER pipe than the largest carrier pipe specified in the contract documents was successfully installed at a linear distance greater than or equal to the longest bore required by the contract documents. The references shall include a name and telephone number where contact can be made to verify capability. The subcontractor shall provide documentation showing successful completion of projects used for reference. Conventional trenching experience shall not be considered applicable.
- D. Upon completion of carrier pipe installation, pass a mandrel through the entire length of the bore in the presence of Owner's representative to inspect for roughness and necking. Mandrel shall not be more than two-inches in diameter smaller than the ID of the carrier pipe installed. Mandrel and towrope shall be constructed of materials that will not scar or harm the carrier pipe in any manner.
- E. Pipe Manufacturer's Quality Control: The pipe manufacturer shall have an ongoing Quality Control program for incoming and outgoing materials. High-density polyethylene (HDPE) resins for manufacturing of pipe shall be checked for density, melt flow rate, and contamination. NSF shall approve these incoming resins before being converted to pipe. Pipe shall be checked for outside diameter, wall thickness, length, roundness, and surface finish on the inside and outside and end cut.
- F. Fittings Manufacturer's Quality Control: The fitting manufacturer shall have an ongoing quality control program for incoming and outgoing materials. Molded fittings shall be inspected for voids and knit lines. Fabricated fittings shall be inspected for joint quality and alignment. Fabricated fitting welds shall be made using a Data Logger. The fitting manufacturer shall maintain a record of the temperature, pressure, and graph of the fusion cycle.

## 1.7 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. The pipe and fitting manufacturer shall package products for shipment in a manner suitable for safe transport on commercial carriers. When delivered, a receiving inspection shall be performed, and any shipping damage reported to the pipe and fittings manufacturer. Pipe and fittings shall be handled, installed, and tested in accordance with manufacturer's recommendations and the requirements of this specification.

- B. Deliver and store materials as directed by Owner.
- C. Secure project materials and bear the cost of replacing any materials that may become misplaced or stolen.

## 1.8 JOB CONDITIONS

- A. Protect against surface subsidence, damage, or disturbance of adjacent property and facilities from construction methods.
- B. Each directional boring crew shall have a reasonable proportion of experienced men. A superintendent and/or engineer experienced in directional boring methods and techniques, and who represents the boring contractor, shall be present at all times while work is proceeding. He shall also be responsible for the frequent checking of line and grade, if needed. Tolerances should be agreed to in the light gradient and easement requirements.
- C. Coordinate and schedule construction work.

## 1.9 SAFETY

- A. Drilling equipment shall have a permanent inherent alarm system capable of detecting an electrical current. Ground system shall be equipped with an audible alarm to warn the operator when the drill head nears electrified cable.
- B. Crews shall be provided with grounded safety mats, heavy gauge ground cables with connectors, and hot boots and gloves.
- C. Supervisory personnel shall be adequately trained and have direct supervisory experience in directional boring.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Drilling fluid shall be a gel-forming colloidal fluid consisting of at least 10% of high-grade bentonite, which is totally inert and contains no environmental risk, or equal.
- B. Carrier Pipe for Force Main:
  - 1. Pipe and fittings shall be high-density polyethylene manufactured from NSF approved PLEXCO P34CH compound, PE 4710, or equal.
  - 2. Pipe shall meet AWWA C-906, PE Pressure Pipe and Fittings 4" – 53" for Distribution and shall be marked with the NSF-pw logo. Force main shall be

- impregnated with three, 1” green stripes the length of the pipe, both equally spaced around the pipe.
3. Hydrostatic design stress (HDS) shall be 1600 psi at 73.4°F as determined in accordance with ASTM 02837.
  4. Pipe and fittings shall be produced by the same manufacturer from identical materials meeting the requirements of this specification.
  5. Molded fittings shall meet the requirements of ASTM D-3261 and this specification. At the point of fusion, the outside diameter and minimum wall thickness of fitting butt fusion outlets shall meet the outside diameter and minimum wall thickness specifications of ASTM F-714 for the same size of pipe.
  6. Pipe shall be manufactured in accordance with ASTM F-714, ASTM D-3035, or the applicable dedicated service specification. Print line markings shall include a production code from which the location and date of manufacture can be identified. Upon request, the manufacturer shall provide an explanation of his production code.
  7. Pipe Marking: HDPE color coding shall be in accordance with the marking requirements specified herein.

<b><u>Base Bid – High Density Polyethylene Pipe (HDPE) Pipe</u></b>						
<b><u>Pipe Description</u></b>	<b><u>AWWA</u></b>	<b><u>Outside Di- ameter (in.)</u></b>	<b><u>DR</u></b>	<b><u>Color</u></b>	<b><u>Pressure Class (psig)</u></b>	<b><u>Inner Diameter (in.)</u></b>
<b>4” HDPE FM (DIPS)</b>	<b>C-906</b>	<b>4.8</b>	<b>11</b>	<b>Green</b>	<b>200</b>	<b>3.875</b>

C. ACCEPTABLE PIPE MANUFACTURER

1. Performance Pipe, Driscoplex 4000, PE 3408, AWWA C-906, DIPS sizing, Richardson TX, (800) 527-0662; Supplier: ISCO Industries, Grand Bay, AL, 1-800-345-4726
2. JM Eagle, 5200 West Century Blvd, Los Angeles, CA 90045, 1-800-621-4404
3. Engineer approved equal.

D. Butt fusion Fittings: HDPE fittings shall be PE 4710 HDPE, Cell Classification of 345464C as determined by ASTM D3350-99, and approved for AWWA use. Butt fusion fittings shall have a manufacturing standard of ASTM D3261. Molded and fabricated fittings shall have a pressure rating equal to the pipe unless otherwise specified in the plans. Fabricated fittings shall be manufactured using Data Loggers. Temperature, fusion pressure, and a graphic representation of the fusion cycle shall be part of the Quality Control records. Fittings shall be suitable for use as pressure conduits, and per AWWA C906, shall have nominal burst values of three and one-half times the working pressure rating of the fitting.

E. Transition Fittings: Terminate HDPE pipe with fusion welded flanges (125 lb bolt pattern). See below for alternate fusion procedures.

F. Tracer wire shall be two strands of 6ga. Copper with green insulation.

05/11/2021

L:\276 City of Callaway\27656.01 Berthe Lift Station and Sanitary Retrofit\Specifications\Addendum No. 1\330507.13 directional boring HDPE-Addendum No.1-jea-u.doc

27656.01

HDPE PIPE INSTALLATION BY  
HORIZONTAL DIRECTIONAL DRILL (HDD)

33 05 07.13 - 6

## 2.2 EQUIPMENT

### A. Directional Drilling Equipment

1. General: The directional drilling equipment shall consist of a directional drilling rig of sufficient capacity to perform the bore and pull back the pipe, a drilling fluid mixing, delivery and recovery system of sufficient capacity to successfully complete the installation, a drilling fluid recycling system to remove solids from the drilling fluid so that the fluid can be reused (if required), a magnetic guidance system or walk over system to accurately guide boring operations, a vacuum truck of sufficient capacity to handle the drilling fluid volume, and trained and competent personnel to operate the system. Equipment shall be in good, safe condition with sufficient supplies, materials and spare parts on hand to maintain the system in good working order for the duration of the project.
2. Drilling Rig: The directional drilling machine shall consist of a hydraulically powered system to rotate and push hollow drilling pipe into the ground at a variable angle while delivering a pressurized fluid mixture to a guidable drill (bore) head. The machine shall be anchored to the ground to withstand the pulling, pushing, and rotating pressure required to complete the installation. The hydraulic power system shall be self-contained with sufficient pressure and volume to power drilling operations. Hydraulic system shall be free of leaks. Rig shall have a system to monitor and record maximum pullback pressure during pullback operations. There shall be a system to detect electrical current from the drill string and an audible alarm that automatically sounds when an electrical current is detected.
3. Drill Head: The drill head shall be steerable by changing its rotation and shall provide necessary cutting surfaces and drilling fluid jets.

### B. GUIDANCE SYSTEM

1. General: An electronic walkover tracking system or a Magnetic Guidance System (MGS) probe or proven gyroscopic probe and interface shall be used to provide a continuous and accurate determination of the location of the drill head during the drilling operation. The guidance shall be capable of tracking at depths up to fifty feet and in any soil condition, including hard rock. It shall enable the driller to guide the drill head by providing immediate information on the tool face, azimuth (horizontal direction), and inclination (vertical direction). The guidance system shall be accurate and calibrated to manufacturer's specifications of the vertical depth of the borehole at sensing position at depths up to fifty feet and accurate to 2-feet horizontally.
2. Components: Supply components and materials to install, operate, and maintain the guidance system.
3. Guidance System shall be of a proven type, and shall be set up and operated by personnel trained and experienced with the system. Operator shall be aware of any geo-magnetic anomalies and shall consider such influences in the operation of the guidance system.

## 2.3 JOINING METHODS

- A. Butt fusion joining: Plain end pipe and fittings shall be made using butt fusion. The butt fusion procedures shall be in accordance with the manufacturer or the PPI. The fusion equipment operator shall receive training using the recommended procedure. Contractor shall verify that the fusion equipment is in good operating condition and that the operator has been trained within the past twelve months. Fusion equipment shall be equipped with a Data Logger. Records of the welds (heater temperature, fusion pressure, and a graph of the fusion cycle) shall be maintained for five (5) years. Fusion beads shall not be removed.
- B. Mechanical Joining: Polyethylene pipe and fittings shall be joined together using flanges or mechanical joint adapters. These fittings shall be made from PE 3048 HDPE, with a Cell Classification of 345464C as determined by ASTM D3350-99. Flanged and MJ adapters shall have a manufacturing standard of ASTM D3261. They shall have a pressure rating equal to the pipe unless otherwise specified on the plans.
- C. Electrofusion couplings: Polyethylene pipe and fittings shall be joined using approved electrofusion couplings. Fittings shall be PE 3408 HDPE, Cell Classification of 345464C as determined by ASTM D3350-99. Electrofusion fittings shall have a manufacturing standard of ASTM F1055. Fittings shall have a pressure rating equal to the pipe unless otherwise specified on the plans. Electrofusion fittings shall be suitable for use as pressure conduits, and per AWWA C906, shall have nominal burst values of three and one-half times the working pressure rating of the fitting.

## PART 3 - EXECUTION

### 3.1 EXECUTION

- A. Locate and confirm existing tie-in pipe dimension before submitting submittal to the Engineer.
- B. Set grade stakes, lines, and levels.
- C. Coordinate the locations of underground utilities with appropriate companies. Advise Engineer immediately if conflict exists. Locate existing utilities using ground-penetrating radar.
- D. Operate and maintain equipment as required to keep the work free from excessive spoil and environmental risks.
- E. Install siltation fences, sediment barriers, etc. as required and shown on Contractor's Erosion Control Plan drawings.

- F. Perform the necessary general earthwork operations as required for the directional drilling and pipe pulling operations.
- G. Restore to pre-work conditions the areas impacted by Contractor's work effort.
- H. Construct appropriate means of temporary access to the designated work sites.
- I. Accept liability for damages caused as a result of the work.

### 3.2 INSTALLATION

- A. Installation shall be in a trenchless manner producing continuous bores. The entry point shall be where shown on the plan submitted as required in 1.2 above. The exit point for the drilled hole shall be within 5 feet laterally and within 10 feet longitudinally of where shown on the plan submitted as required in 1.2 above. No exception to this requirement shall be allowed.
- B. The tunneling system shall be remotely steerable and shall permit electronic monitoring of tunnel depth and location.
- C. Tunneling shall be performed by a fluid-cutting process (high pressure-low volume) utilizing a liquid clay, i.e., bentonite. The clay lining will maintain tunnel stability and provide lubrication in order to reduce frictional drag while the pipe is being installed. In addition, the clay fluid shall be totally inert and shall contain no environmental risk.
- D. Provide a mobile vacuum spoils recovery vehicle on site to remove the drilling spoils from the access pits. The spoils shall be transported from the job site and shall be properly disposed. Under no circumstances shall drilling spoils be permitted to be disposed into sanitary, storm, or other public or private drainage systems.
- E. Mechanical, pneumatic, or water-jetting methods are unacceptable due to the possibility of surface subsidence.
- F. After an initial bore has been completed, a reamer shall be installed at the termination pit and the pipe shall be pulled back to the starting pit. The reamer shall be capable of discharging liquid clay to facilitate the installation of the pipe into a stabilized and lubricated tunnel.
- G. Provide material, equipment, and facilities required for directional drilling. Proper alignment and elevation of the borehole shall be consistently maintained throughout the directional drilling operation. The method used to complete the directional drill shall conform to the requirements of applicable permits.
- H. The entire drill path shall be accurately surveyed with entry and exit stakes placed in the appropriate locations within the areas indicated on drawings. If Contractor is using a

magnetic guidance system, drill path shall be surveyed for any surface geo-magnetic variations or anomalies.

- I. Place a silt fence between drilling operations and drainage, well-fields, wetland, waterway or other area designated for such protection necessary by documents, state, federal, and local regulations. Additional environmental protection necessary to contain any hydraulic or drilling fluid spills shall be put in place, including berms, liners, turbidity curtains, and other measures. Fuel shall not be stored in bulk containers within 200 feet of any water body or wetland.
- J. Readings shall be recorded after advancement of each successive drill pipe, (no more than 15') and the readings plotted on a scaled drawing of 1" = 5', both vertical and horizontal. Access to recorded readings and plan and profile information shall be made available to the Engineer or his representative at all times. The deflection radius of the drill pipe shall not exceed the deflection limits of the carrier pipe as specified herein.
- K. A complete list of drilling fluid additives and mixtures to be used in the directional operation shall be submitted to the Engineer, along with their respective Material Safety Data Sheets. Drilling fluids and loose cuttings shall be contained in pits or holding tanks for recycling or disposal, and no fluids shall be allowed to enter any unapproved areas or natural waterways. Upon completion of the directional drill project, dispose of the drilling mud and cuttings at an approved dumpsite.
- L. The pilot hole shall be drilled on bore path with no deviations greater than 5% of depth over a length of 100-feet. In the event the pilot does deviate from the bore path more than 5-feet of depth in 100-feet, Contractor shall notify Engineer and Engineer may require Contractor to pullback and re-drill from the location along bore path before the deviation. In the event the drilling fluid fractures, inadvertent returns or returns loss occurs during pilot hole drilling operations, Contractor shall cease drilling, wait at least 30 minutes, inject a quantity of drilling fluid with a viscosity exceeding 120 seconds as measured by a March funnel, and wait another 30 minutes. If mud fracture or returns loss continues, Contractor shall discuss additional options with Engineer and work shall then proceed accordingly.
- M. Flange/MJ Adapter Installation: Flanges/MJ Adapters shall be attached to pipe and fittings using butt fusion. The flanges/MJ adapters shall be aligned and centered relative to the pipe. Flanges/MJ adapters shall be square with the valve or other flange before tightening of bolts. Bolts shall not be used to draw flanges into alignment. Bolt threads shall be lubricated, and flat washers shall be used under flange nuts. Bolts shall be tightened using a "star tightening pattern". See manufacturer's recommendations. Twenty-four hours after first tightening the flange bolts, they shall be re-tightened using the same "star tightening pattern" used above. The final tightening torque shall be as indicated by the manufacturer.

- N. Socket and saddle fusions shall be tested by a bent strap test as described by the pipe manufacturer. The pipe manufacturer shall provide visual guidelines for inspecting the butt, saddle, and socket fusions joints.
- O. Retrieve or seal any pipe that becomes lodged in the drill hole.

### 3.3 PIPE PULLING OPERATIONS

- A. The full length of the pipe to be installed shall be laid out, welded, and tested in one complete unit before being pulled back through the drilled hole. Once started, pipeline pullback shall be continuous unless approved otherwise in writing by Owner or Owner's designated representative.
- B. The pulling head shall be designed by Contractor to withstand the continuous tensile pull stresses with intermittent sudden occasional surges. Contractor shall be responsible for determining the pulling loads.
- C. The pipe shall be continuously lubricated with bentonite slurry and the assembled pipeline shall be laid on rollers, or other apparatus, to facilitate pullback and prevent damage to pipe.
- D. Tracer wire shall be pulled back with the pipe.
- E. Pull back until 10 linear feet (minimum) of pipe is above ground for the purpose of pipe inspection.
- F. A blind flange shall be bolted to the fusion-welded flange, and the pipe shall be marked and buried with a minimum cover of 36-inches. Connections will require the removal of the blind flange and a flanged ductile iron adapter shall be bolted to the fusion-welded flange suitable for the transitional material, if necessary. Provide restrained joints or Megalug joint restraint as required.

### 3.4 TESTING

- A. Conduct a low pressure air test of the HDPE force main above ground prior to pullback as follows:
  - 1. Secure and brace ends of pipe to be tested.
  - 2. Provide calibrated low range air pressure gauge on high end of pipe.
  - 3. Fill pipe to maximum pressure of 20.0 psig. Add air as necessary to compensate for internal/external pipe temperature and initial pipe expansion. Check pipe joints and test fittings with mild soap solution. Repair or replace leaking joints, pipe and/or fittings.
  - 4. Once air pressure has stabilized, pipe should hold constant air pressure for two hours. If pipe does not hold pressure, check joints and test fittings with soap solution.



5. Repair or replace sources of leakage and completely retest entire section.
- B. Conduct a hydrostatic test (in ground – after pipe pullback).
1. Fill the pipe with potable water and after free air is removed from the test section, raise the pressure at a steady rate to the required pressure. Measure pressure in the section with calibrated pressure gauges at each end of the pipe section.
  2. Test pressure shall not exceed 1.5 times the rated operating pressures (100 psi) of the pipe or the lowest rated component in the system. Apply initial pressure test and allow to stand without makeup water for a sufficient time to allow for diametric expansion or pipe stretching to stabilize. This usually occurs within 2-3 hours. After this equilibrium period, the test section can be returned to the 1.5 times operating pressure, the pump turned off, and a final test pressure held for three hours.
  3. Immediately following the pressure test, the results shall be furnished to the Engineer or Inspector. Leaking pipes that cannot be repaired to meet pressure test shall be removed, filled with concrete, or otherwise placed out of service.

### 3.5 DAMAGED OR IMPROPERLY INSTALLED PIPE

- A. If the pipe is damaged before installation, or does not meet the specifications, it shall be replaced at no expense to Owner. If the pipe is damaged during installation by Contractor's operations, placed at the improper grade or line, or cannot be advanced because of an unseen obstruction or any other reason, it shall, at the discretion of the Engineer, be retrieved or abandoned in place and the void filled with concrete by pressure grouting as soon as possible. If it becomes necessary to drill another hole, an alternate installation shall be made as directed by the Engineer. Contractor shall re-drill the hole and furnish additional labor and materials required to complete the job as indicated on the plans and specifications at no additional cost to Owner. The cost for retrieval or abandonment of pipe shall be at the expense of Contractor. No additional payment shall be made for pipe which is retrieved, abandoned, or damaged beyond use, including dewatering, excavation, drilling, backfilling, etc.
- B. Sections of pipe having been discovered with cuts or gouges in excess of 10% of the pipe wall thickness shall be cut out and removed. Undamaged portions of the pipe shall be rejoined using one of the joining methods allowed in the Section.

END OF SECTION 33 05 07.13

## SECTION 33 05 19 - PRESSURE PIPING TIED JOINT RESTRAINT SYSTEM

### PART 1 GENERAL

#### 1.1 SUMMARY

A. Section Includes:

1. Tied joint restraint system.

B. Related Requirements:

1. Section 31 23 17 - Trenching: Trenching and backfilling requirements for Site utilities.
2. Section 33 11 16 - Site Water Utility Distribution Piping: Execution requirements for piping Work as required by this Section.
3. Section 33 31 00 - Sanitary Utility Sewerage Piping: Pipe materials, manholes, and accessories from outside building to connection with municipal sewers.

#### 1.2 REFERENCE STANDARDS

A. American National Standards Institute:

1. ANSI B1.1 - Unified Inch Screw Threads, UN and UNR Thread Form.

B. ASTM International:

1. ASTM A123 - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
2. ASTM A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
3. ASTM A153 - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
4. ASTM A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
5. ASTM A325 - Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength.
6. ASTM A325M - Standard Specification for Structural Bolts, Steel, Heat Treated 830 MPa Minimum Tensile Strength.
7. ASTM A588 - Standard Specification for High-Strength Low-Alloy Structural Steel, up to 50 ksi Minimum Yield Point, with Atmospheric Corrosion Resistance.
8. ASTM A588M - Standard Specification for High-Strength Low-Alloy Structural Steel, up to 50 ksi Minimum Yield Point, with Atmospheric Corrosion Resistance.
9. ASTM B633 - Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel.
10. ASTM F436 - Standard Specification for Hardened Steel Washers.
11. ASTM F436M - Standard Specification for Hardened Steel Washers.

C. American Water Works Association:

1. AWWA C600 - Installation of Ductile-Iron Mains and Their Appurtenances.

### 1.3 COORDINATION

- A. Section 01 30 00 - Administrative Requirements: Requirements for coordination.
- B. Coordinate Work of this Section with installation of fittings and joints that require restraint.

### 1.4 PREINSTALLATION MEETINGS

- A. Section 01 30 00 - Administrative Requirements: Requirements for preinstallation meeting.
- B. Convene minimum one week prior to commencing Work of this Section.

### 1.5 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Product Data: Submit catalog data for restrained joint details and installation instructions.
- C. Shop Drawings:
  - 1. Indicate restrained joint details and materials being used.
  - 2. Submit layout drawings showing piece numbers and locations.
  - 3. Indicate restrained joint locations.
- D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- E. Manufacturer Instructions: Submit detailed instructions on installation requirements, including storage and handling procedures.
- F. Qualifications Statement:
  - 1. Submit qualifications for manufacturer, fabricator, and licensed professional.

### 1.6 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for submittals.
- B. Project Record Documents: Record actual locations of joint restraints.

### 1.7 QUALITY ASSURANCE

- A. Perform Work according to City of Callaway standards.
- B. Maintain 1 copy of each standard affecting Work of this Section on Site.

### 1.8 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years' documented experience.
- B. Fabricator: Company specializing in fabricating products specified in this Section with minimum three years' documented experience.

- C. Licensed Professional: Professional engineer experienced in design of specified Work and licensed at Project location.

## 1.9 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.
- B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.
- C. Store materials according to manufacturer instructions.

## PART 2 PRODUCTS

### 2.1 PERFORMANCE AND DESIGN CRITERIA

- A. Provide pressure pipeline with restrained joints at each bends, tees, and changes in direction.

### 2.2 TIED JOINT RESTRAINT SYSTEMS

- A. Furnish materials according to City of Callaway standards.
- B. Tie Bolts:
  - 1. Mechanical Joints, 2-inch and 3-inch:
    - a. 5/8 inch.
    - b. Comply with ASTM A588, Grade B.
    - c. Comply with ASTM A325, Type 3, except increase tensile strength of full-body threaded section to 40,000 lb. minimum for 5/8 inch and 60,000 lb. minimum for 3/4 inch by heat-treating (quenching and tempering) to manufacturer's reheat and hardness specifications.
  - 2. Mechanical and Flanged Joints, 4-inch to 12-inch:
    - a. 3/4 inch.
    - b. Comply with ASTM A588, Grade B.
    - c. Comply with ASTM A325, Type 3, except increase tensile strength of full-body threaded section to 40,000 lb. minimum for 5/8 inch and 60,000 lb. minimum for 3/4 inch by heat-treating (quenching and tempering) to manufacturer's reheat and hardness specifications.
- C. Tie Nut:
  - 1. Description: Hex nut for each tie bolt and tie rods.
  - 2. Comply with ASTM A325, ASTM A588 or ASTM A240.
  - 3. Zinc plated or Galvanized.
- D. Tiepin:
  - 1. Bends and Hydrants: 3/4 inch round bar stock.
  - 2. Size and Shape: 6 inch hairpin.
  - 3. Comply with ANSI B1.1 and ASTM A588 or ASTM A240.
  - 4. Finish: Zinc-plated or Galvanized.

- E. Tie Coupling:
  - 1. Description:
    - a. Extension of continuous-threaded rods.
    - b. Provide with center stop to aid installation.
  - 2. Comply with ASTM A588 or ASTM A240.
  - 3. Finish: Zinc plated or Galvanized.
  
- F. Tie Clamp:
  - 1. Description:
    - a. Retainer clamp for ductile iron, asbestos-cement, and polyvinyl chloride push-on pipe.
    - b. Locate in front of bell.
  - 2. Comply with ASTM A325, ASTM A588 or ASTM A240.
  - 3. Finish: Zinc plated or Galvanized.
  
- G. Tie Rod:
  - 1. Description: Continuous-threaded rod for cutting to desired lengths.
  - 2. Comply with ASTM A588, Grade B, ASTM A325, Type 3, and ANSI B1.1.
  - 3. Finish: Zinc plated or Galvanized.
  
- H. Tie Bar:
  - 1. Description: Steel bar used to restrain push-in plugs.
  - 2. Comply with ASTM A325, ASTM A588 or ASTM A240.
  - 3. Finish: Zinc plated or Galvanized.
  
- I. Tie Washer:
  - 1. Description: Round flat washers.
  - 2. ASTM A588, ASTM F436, Type 1.
  - 3. Finish: Zinc plated or Galvanized.

## 2.3 MATERIALS

- A. Steel:
  - 1. High Strength Low-Alloy Steel: Comply with ASTM A588, heat treated.
  - 2. High Strength Low-Alloy Steel: Comply with ASTM A588.
  - 3. 304 Stainless Steel: Comply with ASTM A240.

## 2.4 FINISHES

- A. Zinc-Plated or Galvanized Steel:
  - 1. Factory applied.
  - 2. Comply with ASTM B633 for electrodeposited coating of zinc on steel.
  - 3. Comply with ASTM A153 for galvanizing iron and steel hardware.
  - 4. Galvanizing:
    - a. Comply with ASTM A123.
    - b. Hot dip galvanize after fabrication.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for installation examination.
- B. Verify that pipe and fittings are ready to receive Work.
- C. Field measure and verify conditions for installation of Work.

### 3.2 PREPARATION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for installation preparation.
- B. Clean surfaces of pipe and fittings that are to receive tied joint restraint systems.

### 3.3 INSTALLATION

- A. Install pipe and fittings according to AWWA C600.
- B. Install joint restraint system such that joints are mechanically locked together to prevent joint separation.
- C. Installation Standards: Install Work according to City of Callaway standards.

### 3.4 TOLERANCES

- A. Section 01 40 00 - Quality Requirements: Requirements for tolerances.
- B. Torque nuts on mating threaded fasteners from 45 ft. lb. to 60 ft. lb. for 5/8 inch nuts.
- C. Torque nuts on mating threaded fasteners from 75 ft. lb. to 90 ft. lb. for 3/4 inch nuts.
- D. Torque 1 inch nuts from 100 ft. lb. to 120 ft. lb.

END OF SECTION 33 05 19

THIS PAGE LEFT BLANK INTENTIONALLY

## SECTION 33 11 16 - SITE WATER UTILITY DISTRIBUTION PIPING

### PART 1 - GENERAL

#### 1.1 SUMMARY

##### A. Section Includes:

1. Pipe and fittings for Site water line, including domestic water line.
2. Service Saddle.
3. Valves: Gate, ball, swing check, and butterfly.
4. Positive displacement meters.
5. Reduced-pressure backflow preventers.
6. Underground pipe markers.
7. Valve boxes.
8. Bedding and cover materials.

##### B. Related Requirements:

1. Section 03 30 00 - Cast-in-Place Concrete: Concrete.
2. Section 31 23 16 - Excavation: Product and execution requirements for excavation and backfill.
3. Section 31 23 17 - Trenching: Execution requirements for trenching.
4. Section 31 23 23 - Fill: Requirements for backfill to be placed by this Section.
5. Section 33 13 00 - Disinfecting of Water Utility Distribution: Disinfection of Site service utility water piping.

#### 1.2 REFERENCE STANDARDS

##### A. American Association of State Highway and Transportation Officials:

1. AASHTO T 180 - Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.

##### B. American Society of Sanitary Engineering:

1. ASSE 1012 - Performance Requirements for Backflow Preventers with an Intermediate Atmospheric Vent.
2. ASSE 1013 - Performance Requirements for Reduced Pressure Principle Backflow Preventers and Reduced Pressure Principle Fire Protection Backflow Preventers.

##### C. ASTM International:

1. ASTM A48 - Standard Specification for Gray Iron Castings.
2. ASTM A48M - Standard Specification for Gray Iron Castings.



3. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12 400 ft-lbf/ft<sup>3</sup> (600 kN-m/m<sup>3</sup>)).
4. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft<sup>3</sup> (2,700 kN-m/m<sup>3</sup>)).
5. ASTM D1785 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120.
6. ASTM 02737 – Standard Specification for Polyethylene (PE) Plastic Tubing.
7. ASTM D2466 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40.
8. ASTM D2855 - Standard Practice for Making Solvent-Cemented Joints with Poly(Vinyl Chloride) (PVC) Pipe and Fittings.
9. ASTM D3035 - Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Controlled Outside Diameter.
10. ASTM D3139 - Standard Specification for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals.
11. ASTM D6938 - Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

D. American Water Works Association:

1. AWWA C500 - Metal-Seated Gate Valves for Water Supply Service.
2. AWWA C504 - Rubber-Seated Butterfly Valves, 3 In. (75 mm) Through 72 In. (1,800 mm).
3. AWWA C508 - Swing-Check Valves for Waterworks Service, 2-In. Through 24-In. (50-mm Through 600-mm) NPS.
4. AWWA C509 - Resilient-Seated Gate Valves for Water Supply Service.
5. AWWA C600 - Installation of Ductile-Iron Mains and Their Appurtenances.
6. AWWA C606 - Grooved and Shouldered Joints.
7. AWWA C700 - Cold-Water Meters - Displacement Type, Bronze Main Case.
8. AWWA C701 - Cold-Water Meters - Turbine Type, for Customer Service.
9. AWWA C702 - Cold-Water Meters - Compound Type.
10. AWWA C706 - Direct-Reading, Remote-Registration Systems for Cold-Water Meters.
11. AWWA C900 - Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 In. Through 12 In. (100 mm Through 300 mm), for Water Transmission and Distribution.
12. AWWA C901 - Polyethylene (PE) Pressure Pipe and Tubing, 1/2 In. (13 mm) Through 3 In. (76 mm) for Water Service.
13. AWWA M6 - Water Meters - Selection, Installation, Testing, and Maintenance.

E. Manufacturers Standardization Society of the Valve and Fittings Industry:

1. MSS SP-60 - Connecting Flange Joints between Tapping Sleeves and Tapping Valves.

### 1.3 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Product Data: Submit data on pipe materials, pipe fittings, valves, and accessories.
- C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

- D. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.

#### 1.4 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for submittals.
- B. Project Record Documents: Record actual locations of piping mains, valves, connections, thrust restraints, and invert elevations.
- C. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

#### 1.5 QUALITY ASSURANCE

- A. Perform Work according to City of Callaway standards.
- B. Maintain 1 copy of each standard affecting Work of this Section on Site.
- C. All items in Part 2 – Products shall meet the NSF-61 requirement.

### PART 2 - PRODUCTS

#### A. HDPE Pipe:

- 1. Pipe: Comply with AWWA C901 and ASTM 02737.
  - a. Comply with AWWA C901.
  - b. Type: Molded or fabricated.
- 2. Joints: Butt fusion.

#### B. PVC Pipe (Service Casing):

- 1. ASTM D1785, Schedule 40.
- 2. Fittings: ASTM D2466, PVC.
- 3. Joints:
  - a. Comply with ASTM D2855.
  - b. Type: Solvent weld.

#### 2.2 SERVICE SADDLE

- A. Approved Manufacturer/Style:
  - 1. Ford F202.
  - 2. Romac 202NS.

B. Service Saddle:

1. Saddles shall have two stainless steel 2-inch straps.

C. Description:

1. Material: Ductile or cast iron.
2. Coating: Epoxy Nylon.

2.3 GATE VALVES

A. Approved Manufacturer: American Darling or M&H.

B. Furnish materials according to City of Callaway standards.

C. 2-1/2 Inch and Smaller: Brass or bronze body, non-rising stem, inside screw, single wedge or disc, IPS ends, with control rod, valve box, and valve key.

D. Mark manufacturer's name and pressure rating on valve body.

2.4 BALL VALVES

A. Approved Manufacturer: Ford #B-11-77W or A.Y. McDonald #4134-135.

B. Furnish materials according to City of Callaway standards.

C. 2 Inch and Smaller: Brass body, TEFC-coated brass ball, rubber seats and stem seals, tee stem pre-drilled for control rod, FIP inlet end, FIP outlet with electrical ground connector, with control rod, valve box, and valve key.

D. Mark manufacturer's name and pressure rating on valve body.

2.5 SWING CHECK VALVES

A. Furnish materials according to City of Callaway standards.

B. 2 Inches to 24 Inches: AWWA C508, iron body, bronze trim, 45-degree swing disc, renewable disc and seat, and flanged ends.

C. Mark manufacturer's name and pressure rating on valve body.

2.6 BUTTERFLY VALVES

A. Furnish materials according to City of Callaway standards.

B. 2 Inches to 24 Inches: AWWA C504, iron body, bronze disc, resilient replaceable seat, water or lug ends, 10-position lever handle.

- C. Mark manufacturer's name and pressure rating on valve body.

## 2.7 POSITIVE DISPLACEMENT METERS

- A. Furnish materials according to City of Callaway standards.

- B. Description:

1. Comply with AWWA C700 C701 or C702.
2. Type: Positive displacement disc.
3. Case Material: Bronze.
4. Bottom Cap:
  - a. Material: Cast iron.
  - b. Type: Frost-proof, breakaway.
5. Register: Hermetically sealed.
6. Remote Reading: Comply with AWWA C706.

- C. Meter:

1. Description: Brass body turbine meter with magnetic drive register.
2. Service: Cold water, 122 degrees F.

## 2.8 REDUCED-PRESSURE BACKFLOW PREVENTERS

- A. Furnish materials according to City of Callaway standards.

- B. Description:

1. Comply with ASSE 1013.
2. Materials:
  - a. Body: Bronze.
  - b. Internal Parts: Bronze.
  - c. Springs: Stainless steel.
3. Check Valves:
  - a. Quantity: Two.
  - b. Description: Independently operating, spring-loaded.
  - c. Type: Diaphragm type, differential pressure relief, located between check valves.
  - d. Provide third check valve opening under back pressure in case of diaphragm failure.
  - e. Vent Outlet: Non-threaded.
4. Provide two gate valves, one strainer, and four test cocks.

C. Double Check Valve Assemblies:

1. Comply with ASSE 1012.
2. Description: Two independently operating check valves, with intermediate atmospheric vent.
3. Materials:
  - a. Body: Bronze.
  - b. Internal Parts: Corrosion resistant.
  - c. Springs: Stainless steel.

2.9 UNDERGROUND PIPE MARKERS

A. Pipe markers shall be per City of Callaway standard detail.

B. Polyethylene Tape:

1. Conform to ASTM D1248 – Type I Class A, Grade E-1 for polyethylene plastic molding and extrusion material.
2. Brightly colored, continuously printed.
3. Minimum 6 inches wide by 4 mil thick.
4. Manufactured for direct burial service.

2.10 VALVE BOXES

A. Approved Manufacturer: Clow, Mueller, Tyler or Bailey.

B. Furnish materials according to City of Callaway standards.

C. Description:

1. Valve boxes and covers, including position indicators and valve extensions, and as indicated on Drawings.
2. Material: Cast iron with a minimum diameter of 4.5 inches.
3. Type: Extension, with slide adjustment.
4. Covers marked water to indicate utility.

2.11 MATERIALS

A. Bedding and Cover:

1. Bedding: Fill Type A1 A2 or A3, as specified in Section.
2. Cover: Fill Type A1 A2 or A3, as specified in Section.
3. Soil Backfill from Above Pipe to Finish Grade:
  - a. Soil Type S1, as specified in Section.
  - b. Subsoil with no rocks over 6 inches in diameter, frozen earth, or foreign matter.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for installation examination.
- B. Verify the existing utility water main sizes, locations, and elevations are as indicated on Drawings. Water main valve size shall be verified before product submittals are submitted to the Engineer.

### 3.2 PREPARATION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for installation preparation.
- B. Cut pipe ends square, ream pipe and tube ends to full pipe diameter, and remove burrs.
- C. Remove scale and dirt on inside and outside before assembly.
- D. Prepare pipe connections to equipment with flanges or unions.
- E. Protect and support existing distribution piping and appurtenances as Work progresses.

### 3.3 INSTALLATION

- A. Bedding:
  - 1. Excavate pipe trench as specified in Section 31 23 17 - Trenching.
  - 2. Place bedding material at trench bottom.
  - 3. Level fill materials in continuous layers not exceeding 8 inches compacted depth.
  - 4. Compact to 95 percent of maximum density.
  - 5. Backfill around sides and to top of pipe with cover fill, tamp in place, and compact to 95 percent of maximum density.
- B. Piping:
  - 1. Maintain separation of water main from sewer piping according to code.
  - 2. Group piping with other Site piping work whenever practical.
  - 3. Install pipe to elevations indicated on Drawings.
  - 4. Install piping and fittings according to AWWA C600.
  - 5. Route pipe in straight line.
  - 6. Install access fittings to permit disinfection of water system performed under Section 33 13 00 - Disinfecting of Water Utility Distribution.
  - 7. Establish elevations of buried piping with not less than 3 feet of cover.

8. Pipe Markers:
  - a. Install plastic ribbon tape and trace wire continuous over top of pipe.
  - b. Coordinate with trench Work as specified in Section 31 23 17 - Trenching.
9. Installation Standards: Install Work according to City of Callaway standards.

C. Meters:

1. Install positive displacement meters according to AWWA M6 with isolating valves on inlet and outlet.
2. Installation Standards: Install Work according to City of Callaway standards.

D. Service Connections:

1. Install water service according to utility company requirements with reduced-pressure backflow preventer double check valve backflow preventer, and water meter with bypass valves as required.
2. Install water meter and backflow preventer in concrete vault located on Site as specified in Section as shown on drawings.
3. Installation Standards: Install Work according to City of Callaway standards.

E. Disinfection:

1. Flush and disinfect system as specified in Section 33 13 00 - Disinfecting of Water Utility Distribution.

### 3.4 TOLERANCES

- A. Section 01 40 00 - Quality Requirements: Requirements for tolerances.
- B. Install pipe within tolerance of 5/8 inch.

### 3.5 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Requirements for inspecting and testing.
- B. Pressure test system according to AWWA C600 and following:
  1. Test Pressure: Not less than 200 psig or 50 psi in excess of maximum static pressure, whichever is greater.
  2. Conduct hydrostatic test for at least two hours.
  3. Slowly fill with water section to be tested and expel air from piping by installing corporation cocks at high points.
  4. Close air vents and corporation cocks after air is expelled and raise pressure to specified test pressure.
  5. Observe joints, fittings, and valves under test. Remove and renew cracked pipes, joints, fittings, and valves showing visible leakage and retest.
  6. Correct visible deficiencies and continue testing at same test pressure for additional two hours to determine leakage rate.

7. Maintain pressure within plus or minus 5 psi of test pressure.
8. Leakage is defined as quantity of water supplied to piping necessary to maintain test pressure during period of test.
9. Compute maximum allowable leakage using following formula:

$L = SD \times \sqrt{P}/C$
L = testing allowance, in gph
S = length of pipe tested, in feet
D = nominal diameter of pipe, in inches
P = average test pressure during hydrostatic test, in psig
C = 148,000
When pipe under test contains sections of various diameters, calculate allowable leakage from sum of computed leakage for each size.

10. When test of pipe indicates leakage greater than allowed, locate source of leakage, make corrections, and retest until leakage is within allowable limits.
  11. Correct visible leaks regardless of quantity of leakage.
  12. Testing shall be in accordance with City of Callaway standards.
- C. Compaction Testing for Bedding: Comply with ASTM D1557.
- D. When tests indicate Work does not meet specified requirements, remove Work, replace, and retest.
- E. Frequency of Compaction Tests: 1 every 2,000 Sq. Ft but not less than three.

END OF SECTION 33 11 16



THIS PAGE LEFT BLANK INTENTIONALLY

## SECTION 33 13 00 - DISINFECTING OF WATER UTILITY DISTRIBUTION

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Section Includes:
1. Disinfection of potable water distribution system.
  2. Testing and reporting of results.

#### 1.2 REFERENCE STANDARDS

- A. American Water Works Association:
1. AWWA B300 - Hypochlorites.

#### 1.3 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Contractor must submit plan for testing to the ENGINEER for review at least 10 days before start of testing.
- C. Product Data: Submit procedures, proposed chemicals, and treatment levels.

#### 1.4 CLOSEOUT SUBMITTALS

- A. Section 01 77 00 - Closeout Procedures: Requirements for submittals.
- B. Disinfection Report:
1. Type and form of disinfectant used.
  2. Date and time of disinfectant injection start and time of completion.
  3. Test locations.
  4. Name of person collecting samples.
  5. Initial and 24-hour disinfectant residuals in treated water in ppm for each outlet tested.
  6. Date and time of flushing start and completion.
  7. Disinfectant residual after flushing in ppm for each outlet tested.
- C. Bacteriological Report:
1. Date issued, project name, and testing laboratory name, address, and telephone number.
  2. Time and date of water sample collection.
  3. Name of person collecting samples.
  4. Test locations.
  5. Initial and 24-hour disinfectant residuals in ppm for each outlet tested.
  6. Coliform bacteria test results for each outlet tested.
  7. Submit bacteriologist's signature and authority associated with testing.

## 1.5 QUALITY ASSURANCE

- A. Perform Work according to AWWA C651.

## PART 2 PRODUCTS

### 2.1 DISINFECTION CHEMICALS

- A. Chemicals:
  - 1. Hypochlorite: Comply with AWWA B300.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Section 01 73 00 - Execution: Requirements for installation examination.
- B. Verify that piping system has been cleaned, inspected, and pressure tested.
- C. Perform scheduling and disinfecting activity with startup, water pressure testing, adjusting and balancing, and demonstration procedures, including coordination with related systems.

### 3.2 INSTALLATION

- A. Provide and attach required equipment to perform Work of this Section.
- B. Introduce treatment into piping system.
- C. Maintain disinfectant in system for 24 hours.
- D. Flush, circulate, and clean until required cleanliness is achieved using municipal domestic water.
- E. Replace permanent system devices that were removed for disinfection.

### 3.3 FIELD QUALITY CONTROL

- A. Disinfection, Flushing, and Sampling:
  - 1. Disinfect pipeline installation according to AWWA C651.
  - 2. Use of liquid chlorine is not permitted.
  - 3. Upon completion of retention period required for disinfection, flush pipeline until chlorine concentration in water leaving pipeline is no higher than that generally prevailing in existing system or is acceptable for domestic use.
  - 4. Disposal:
    - a. Legally dispose of chlorinated water.
    - b. When chlorinated discharge may cause damage to environment, apply neutralizing chemical to chlorinated water to neutralize chlorine residual remaining in water.

- c. All treated water flushed from the lines will be disposed by discharging to the nearest sanitary sewer or other approved methods. No discharge to any storm sewer or natural water courses will be allowed.

END OF SECTION 33 13 00

THIS PAGE LEFT BLANK INTENTIONALLY

## SECTION 33 31 00 - SANITARY SEWERAGE PIPING

### PART 1 - GENERAL

#### 1.1 SUMMARY

A. Section Includes:

1. Sanitary sewerage piping.
2. Bedding and cover materials.

#### 1.2 DEFINITIONS

- A. Bedding: Fill placed under, beside, and directly over pipe, prior to subsequent backfill operations.

#### 1.3 RELATED WORK (REQUIREMENTS)

- A. Construction Drawings, Agreement Declarations, Exhibits and other Technical Specification Sections apply to this Section.
- B. Section 40 05 13 - PROCESS PIPE AND FITTINGS

#### 1.4 REFERENCE STANDARDS

- A. American Association of State Highway and Transportation Officials:
1. AASHTO T 180 - Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.
- B. American Water Works Association:
1. AWWA C104 - Cement-Mortar Lining for Ductile-Iron Pipe and Fittings.
  2. AWWA C110 - Ductile-Iron and Gray-Iron Fittings.
  3. AWWA C111 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
  4. AWWA C150 - Thickness Design of Ductile-Iron Pipe.
  5. AWWA C151 - Ductile-Iron Pipe, Centrifugally Cast.
  6. AWWA C153 - Ductile-Iron Compact Fittings.
- C. ASTM International:
1. ASTM C923 - Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes, and Laterals.

2. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft<sup>3</sup>).
3. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft<sup>3</sup>).
4. ASTM D2729 - Standard Specification for Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings.
5. ASTM D6938 - Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).
6. ASTM F477 - Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.

#### 1.5 SUBMITTALS

- A. Product Data: Submit manufacturer information indicating pipe material to be used, pipe accessories.
- B. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- C. Source Quality-Control Submittals: Indicate results of factory tests and inspections.
- D. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.
- E. Qualifications Statement:
  1. Submit qualifications for manufacturer and installer.

#### 1.6 CLOSEOUT SUBMITTALS

- A. Project Record Documents: Record finished locations of pipe runs, connections, manholes, cleanouts, and invert elevations.
- B. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

#### 1.7 QUALITY ASSURANCE

- A. Perform Work according to specification and utility standards.
- B. Maintain one copy of each standard affecting Work of this Section on Site.

#### 1.8 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years' documented experience.

- B. Installer: Company specializing in performing Work of this Section with minimum three years' documented experience.

#### 1.9 DELIVERY, STORAGE, AND HANDLING

- A. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.
- B. Storage:
  - 1. Store materials according to manufacturer instructions.
  - 2. Store valves in shipping containers with labeling in place.
- C. Protection:
  - 1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
  - 2. Block individual and stockpiled pipe lengths to prevent moving.
  - 3. Provide additional protection according to manufacturer instructions.

#### 1.10 EXISTING CONDITIONS

- A. Field Measurements:
  - 1. Verify field measurements prior to fabrication.
  - 2. Indicate field measurements on Shop Drawings.

### PART 2 - PRODUCTS

#### 2.1 SANITARY SEWERAGE PIPING

- A. Ductile-Iron Pipe (Below Grade Piping):
  - 1. Comply with AWWA C150 or AWWA C151.
  - 2. Minimum Pressure Class: 150.
  - 3. End Connections: Bell and spigot.
  - 4. Outside Coating:
    - a. Type: Asphaltic.
    - b. Minimum Uniform Thickness: 1 mil.
    - c. Comply with AWWA C151
  - 5. Joints:
    - a. Rubber gasket joint devices.



- b. Comply with AWWA C111.

B. Plastic Pipe:

1. Material: PVC compliant with ASTM D1784.
2. Rating: Comply with ASTM F679, 115psi
3. End Connections: Bell and spigot with rubber-ring-sealed gasket joint compliant with ASTM D3212.
4. Fittings: Ductile-Iron.
5. Joints:
  - a. Elastomeric gaskets.
  - b. Comply with ASTM F477.

C. Coating System for Ductile Iron Pipe, Fittings, and Valves:

1. Refer to Specification 09 96 36 – Chemical-Resistant Coatings for Materials in Wastewater Facilities.

## 2.2 MANHOLES

- A. Precast Concrete Manholes: ASTM C 478 (ASTM C 478M), precast, reinforced concrete, of depth indicated, with provision for rubber gasket joints.
  1. Steps: No steps are required for any new manholes.
- B. Manhole Frames and Covers: ASTM A 536, Grade 60-40-18, heavy-duty ductile iron. Include 24-inch (610-mm) inside diameter by 7- to 9-inch (178- to 229-mm) riser with 4-inch (100-mm) minimum width flange, and 26-inch- (660-mm-) diameter cover. Include indented top design with lettering, equivalent to the following, cast into cover: “SEWER” The covers shall also be provided with watertight seals.
- C. Manhole covers shall have a diamond pattern, pickhole and the work “SEWER” cast in 3-inch letters. Manhole frames and covers shall be suitable for highway traffic, including H2O wheel loads.

## 2.3 MANHOLE PROTECTIVE COATINGS

- A. General: Include factory- or field-applied protective coatings to structures and appurtenances according to the following:
- B. New Precast Manholes: 1 or 2 coats, coat-tar epoxy, 15 mil. (0.381 mm) minimum thickness.

## 2.4 FLEXIBLE PIPE BOOTS FOR MANHOLE PIPE ENTRANCES

- A. Manufacturers:
  1. Trelleborg “Kor-N-Seal’ Boot.

2. A-Lok "Z-Loc" Connector
3. Substitutions: Engineer approved only.

B. Description:

1. Material: EPDM.
2. Comply with ASTM C923.
3. Attachment: Series-316 stainless-steel clamp and hardware.

## PART 3 - EXECUTION

### 3.1 EARTHWORK

- A. Excavating, trenching, and backfilling are specified in Division 31 "Earthwork."

### 3.2 SEWERAGE PIPING APPLICATIONS

- A. General: Include watertight joints.
- B. Refer to Part 2 of this Section for detailed specifications for pipe and fitting products listed below. Use pipe, fittings, and joining methods according to the following applications.

### 3.3 INSTALLATION, GENERAL

- A. General Locations and Arrangements: Drawings (plans and details) indicate the general location and arrangement of underground sewerage systems piping. Location and arrangement of piping layout take into account many design considerations. Install piping as indicated, to extent practical.
- B. Install piping beginning at low point of systems, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream. Install gaskets, seals, sleeves, and couplings according to manufacturer's recommendations for use of lubricants, cements, and other installation requirements. Maintain swab or drag in line and pull past each joint as it is completed.
- C. Use manholes for changes in direction, except where fittings are indicated. Use fittings for branch connections, except where direct tap into existing sewer is indicated.
- D. Use proper size increasers, reducers, and couplings, where different sizes or materials of pipes and fittings are connected. Reduction of the size of piping in the direction of flow is prohibited.
- E. Install gravity-flow-systems piping at constant slope between points and elevations indicated. Install straight piping runs at constant slope, not less than that specified, where slope is not indicated.

### 3.4 PIPE JOINT CONSTRUCTION AND INSTALLATION

- A. General: Join and install pipe and fittings according to the following.

### 3.5 MANHOLE INSTALLATION

- A. General: Install manholes, complete with accessories, as indicated.
- B. Form continuous concrete channels and benches between inlets and outlet, where indicated.
- C. Set tops of frames and covers flush with finished surface where manholes occur in pavements. Set tops 3 inches (76 mm) above finished surface elsewhere, except where otherwise indicated.

### 3.6 FIELD QUALITY CONTROL

- A. Clear interior of piping and structures of dirt and superfluous material as the work progresses. Maintain swab or drag in piping and pull past each joint as it is completed.
  - 1. In large, accessible piping, brushes and brooms may be used for cleaning.
  - 2. Place plug in end of incomplete piping at end of day and whenever work stops.
  - 3. Flush piping between manholes and other structures, if required by authorities having jurisdiction, to remove collected debris.
- B. Inspect interior of piping to determine whether line displacement or other damage has occurred. Inspect after approximately 24 inches (600 mm) of backfill is in place, and again at completion of the Project.
  - 1. Submit separate reports for each system inspection.
  - 2. Defects requiring correction include the following:
    - a. Alignment: Less than full diameter of inside of pipe is visual between structures.
    - b. Deflection: Flexible piping with deflection that prevents passage of a ball or cylinder of a size not less than 95 percent of piping diameter.
    - c. Crushed, broken, cracked, or otherwise damaged piping.
    - d. Infiltration: Water leakage into piping.
  - 3. Replace defective piping using new materials and repeat inspections until defects are within allowances specified.
  - 4. Reinspect and repeat procedure until results are satisfactory.
- C. Test new piping systems and parts of existing systems that have been altered, extended, or repaired for leaks and defects.
  - 1. Do not enclose, cover, or put into service before inspection and approval.
  - 2. Test completed piping systems according to authorities having jurisdiction.
  - 3. Schedule tests, and their inspections by authorities having jurisdiction, with at least 24 hours' advance notice.
  - 4. Submit separate reports for each test.
- D. Leakage Test: Low Pressure Air Method (Gravity Sewers):
  - 1. Test Procedure: The following test procedures shall be used in making each test:

- a. The section of sewer line to be tested shall be flushed and cleaned prior to conducting the low-pressure air test to clean out any debris, wet the pipe and produce more consistent results.
  - b. Isolate the section of sewer line to be tested by means of inflatable stoppers or other suitable test plugs. One of the plugs shall have an inlet tap, or other provision for connecting a hose to a portable air source.
  - c. If the test section is below the groundwater level, determine the height of the groundwater above the springline of the pipe at each end of the test section and compute the average. For every foot of groundwater above the pipe springline, increase the gauge test pressure by 0.43 pounds per square inch.
  - d. Connect the air hose to the inlet tap and a portable air source. The air equipment shall consist of necessary valves and pressure gauges to control the rate at which air flows into the test section and to enable monitoring of the air pressure within the test relief device to prevent the possibility of loading the test section with the full capacity of the compressor.
  - e. Add air slowly to the test section until the pressure inside the pipe is raised to 4.0 psig greater than the average back pressure of any groundwater that may be over the pipe.
  - f. After a pressure of 4.0 psig is obtained, regulate the air supply so that the pressure is maintained between 3.5 and 4.0 psig (above the average groundwater back pressure) for a period of two-minutes to allow the air temperature to stabilize in equilibrium with the temperature of the pipe walls.
  - g. Determine the rate of air loss by the time press drop method. After the two-minute air stabilization period, disconnect the air supply and adjust the pressure to 3.5 psig above the average to drop from 3.5 psig to 2.5 psig shall be determined by means of a stopwatch and this time interval will be compared to the required time in the tables to determine if the rate of air loss is within the allowable time limit. If the time is equal to or greater than the times indicated in the tables, the pipeline shall be deemed acceptable.
  - h. Defective joints, fittings and pipe shall be satisfactorily replaced.
2. The pipe shall be tested between adjacent manholes. The test time for the air pressure to drop the specified 0.5psig shall be as listed below:ASTM F 1417 – 92 (2005)

Pipe Diameter, In.	Minimum Time Min:s	Length for Minimum Time, ft	Time for Longer Length, s	Specification Time for Length (L) Shown, min:s								
				100 ft	150 ft	200 ft	250 ft	300 ft	350 ft	400 ft	450 ft	
4	1:53	597	0.190 L	1:53	1:53	1:53	1:53	1:53	1:53	1:53	1:53	1:53
6	2:50	398	0.427 L	2:50	2:50	2:50	2:50	2:50	2:50	2:51	3:12	
8	3:47	298	1.760 L	3:47	3:47	3:47	3:47	3:48	4:26	5:04	5:42	
10	4:43	239	1.187 L	4:43	4:43	4:43	4:57	5:56	6:55	7:54	8:54	
12	5:40	199	1.709 L	5:40	5:40	5:42	7:08	8:33	9:58	11:24	12:50	
15	7:05	159	2.671 L	7:05	7:05	8:54	11:08	13:21	15:35	17:48	20:02	
18	8:30	133	3.846 L	8:30	9:37	12:49	16:01	19:14	22:26	25:38	28:51	
21	9:55	114	5.235 L	9:55	13:05	17:27	21:49	26:11	30:32	34:54	39:16	
24	11:20	99	6.837 L	11:24	17:57	22:48	28:30	34:11	39:53	45:35	51:17	
27	12:45	88	8.653 L	14:25	21:38	28:51	36:04	43:16	50:30	57:42	64:54	
30	14:10	80	10.683 L	17:48	26:43	35:37	44:31	53:25	62:19	71:13	80:07	
33	15:35	72	12.926 L	21:33	32:19	43:56	53:52	64:38	75:24	86:10	96:57	
36	17:00	66	15.384 L	25:39	38:28	51:17	64:06	76:55	89:44	102:34	115:23	

05/11/2021

L:\276 City of Callaway\27656.01 Berthe Lift Station and Sanitary Retrofit\Specifications\Addendum No. 1\333100 sfl - sanitary sewerage piping-Addendum No.1-jea-u.doc

E. Final Sewer Cleaning

1. Prior to final acceptance and final manhole-to-manhole inspection of the sewer system by the ENGINEER, flush and clean all parts of the system. Remove all accumulated construction debris, rocks, gravel, sand, silt and other foreign material from the sewer system at or near the closest downstream manhole. If necessary, use mechanical rodding or bucketing equipment.
2. Upon the ENGINEER's final manhole-to-manhole inspection of the sewer system, if any foreign matter is still present in the system, reflush and clean the section and portions of the lines as required.

F. Vacuum Test of Manholes/Wet Wells

1. Pretest manhole/wet wells after connections have been completed but before backfilling. Results derived from this test will allow time for necessary repairs to be completed before further construction proceeds and hinders such repairs.
2. Plug all manhole/wet wells inverts and lift holes. Inverts shall be plugged using suitably-sized pneumatic or mechanical pipeline plugs. The plugs shall be placed a minimum of 6-inches beyond the manhole/wet wells wall to prevent temporary sealing of the inverts. Follow all MANUFACTURER'S recommendations and warnings for proper and safe installation of such plugs. Make sure such plugs are properly rated for the pressures required for the test. The standard test of 10-inch Hg (mercury) is equivalent to approximately 5 psig (0.3 bar) back pressure. Unless such plugs are mechanically restrained, it is recommended that the plugs used have a two-times (2X) safety factor or a minimum 10 psig (.7 bar) back pressure usage rating. Brace inverts if lines entering the manhole/wet wells have not been backfilled to prevent pipe from being dislodged and pulled into the manhole/wet wells.
3. Install the vacuum tester head assembly at the top access point of the manhole, preferably the ring area (Figures A and B). Adjust the cross brace to ensure that the inflatable sealing element inflates and seals against the straight top section of the manhole/wet wells structure.
4. Attach the vacuum pump assembly to the proper connection on the test head assembly. Make sure the vacuum inlet/outlet valve is in the closed position.
5. Following all safety precautions and MANUFACTURER'S instructions, inflate sealing element to the recommended maximum inflation pressure.
6. Start the vacuum pump assembly engine and allow present RPM to stabilize.
7. Open the inlet/outlet ball valve and evacuate the manhole to 10-inch Hg (0.3 bar).
8. Close vacuum inlet/outlet ball valve, disconnect vacuum pump, and monitor vacuum for the specified time period (see table below). If the vacuum does not drop in excess of 1-inch Hg over the specified time period, the manhole is considered acceptable and passes the test. If the manhole fails the test, identify the leaking areas by removing the head assembly, coating the interior surfaces of the manhole with a soap and water solution, and repeating the vacuum test for approximately thirty seconds. Leaking areas will have soapy bubbles. Once the leaks have been identified, complete all necessary repairs and repeat test procedures until satisfactory results are obtained.

9. Repeat the test procedure after backfilling for final acceptance test.

VACUUM TEST TIMETABLE			
Depth – Feet	48”	60”	72”
4’	10 sec.	13 sec.	16 sec.
8’	20 sec.	26 sec.	32 sec.
12’	30 sec.	39 sec.	48 sec.
16’	40 sec.	52 sec.	64 sec.
20’	50 sec.	65 sec.	80 sec.
24’	60 sec.	78 sec.	96 sec.
*	05 sec.	6.5 sec.	8.0 sec.

\*Add “T” times for each additional 2’ depth (The values listed above have been extrapolated from ASTM designation C924-85).

END OF SECTION 33 31 00

THIS PAGE LEFT BLANK INTENTIONALLY

## SECTION 33 32 13 - SUBMERSIBLE CENTRIFUGAL PUMPS

### PART 1 - GENERAL

#### 1.1 DESCRIPTION

- A. The Contractor shall furnish and install the submersible non-clog pumps, related piping, supports, and all other necessary appurtenances as shown on the drawings and specified in these specifications.

#### 1.2 SUBMITTALS

- A. Submit shop drawings, technical data, and pump curves in accordance with Section 01 33 00. Submit operation and maintenance data in accordance with Section 01 78 23.

#### 1.3 QUALITY ASSURANCE

- A. All pumps shall be furnished by a single manufacturer. Non-clog Pumps shall be Flygt or Wilo.

#### 1.4 PUMP WARRANTY

- A. The pump manufacturer shall warrant the units being supplied to the owner against defects in workmanship and material for a period of five (5) years. Warranty period shall begin on the date of project substantial completion.

### PART 2 - PRODUCTS

#### 2.1 GENERAL

- A. The Contractor shall furnish and install two (2) submersible non-clog sewage pumps for the lift station. The working load rating of the lifting system shall be a minimum of 50% greater than the pump weight. Each pump motor shall be equipped with 50 feet of power and control cable sized in accordance with NEC and CSA standards.

#### 2.2 REQUIREMENTS

Primary Design Point	High Condition: 113 GPM @ 109' TDH Low Condition: 113 GPM @ 40' TDH
Maximum Motor Horse Power	20
Voltage	230
Minimum Pump Solids Passing Capability	3"
Motor Rating	FM Explosion Proof



## 2.3 PUMP DESIGN

- A. The heavy duty submersible wastewater pumps shall be capable of handling raw unscreened sewage, storm water, and other similar solids-laden fluids without clogging. The pump shall be driven by a premium efficiency motor, providing the highest levels of operational reliability and energy efficiency.

## 2.4 PUMP CONSTRUCTION

- A. Major pump components shall be of gray cast iron, ASTM A-48, Class 35B with smooth surfaces devoid of porosity or other irregularities. All exposed fasteners shall be stainless steel AISI type 316 construction. All metal surfaces coming into contact with the pumped media (other than the stainless steel components) shall be protected by a factory applied spray coating of high solids two part epoxy paint finish on the exterior of the pump. The pump shall be equipped with an open lifting hoop suitable for attachment of standard chain fittings, or for hooking from the wet well surface. The hoop shall ductile cast iron ASTM A536; 60-40-18 with an option of 316 stainless steel, and shall be rated to lift a minimum of four times the pump weight.
- B. Sealing design for the pump/motor assembly shall incorporate machined surfaces fitted with Nitrile (Buna-N) rubber O-rings. Sealing will be the result of controlled compression of rubber O-rings in two planes of the sealing interface. Housing interfaces shall meet with metal to metal contact between machined surfaces, and sealing shall be accomplished without requiring a specific torque on the securing fasteners. Rectangular cross sectioned gaskets requiring specific torque limits to achieve compression shall not be considered equal. No secondary sealing compounds shall be required or used.

## 2.5 REQUIREMENTS GUIDE RAIL BASE ASSEMBLY

- A. There shall be no need for personnel to enter the wet well to remove or reinstall the pumps. In a wet pit installation, the discharge base & elbow assembly shall be permanently installed in the wet well and connected to the discharge piping. In order to prevent binding or separation of the pump from the guide rail system, the pumps shall connect to the guide rail base automatically and firmly, guided by one 2 inch guide pipe (two 2 inch pipes optional) extending from the base elbow to the top of the station. Systems using guide cable in lieu of rigid guide bars or pipes shall not be considered acceptable. The sliding guide bracket shall be a separate part of the pumping unit, capable of being attached to standard 6 inch ANSI class 125 or metric DN150 pump flanges, so that the pump mounting is nonproprietary, and any pump with a standard discharge flange can be mounted on the base assembly. Base or bracket assemblies with proprietary or nonstandard flange dimensions shall not be considered acceptable.

- B. A field replaceable Nitrile (Buna-N) rubber profile gasket or O-ring shall accomplish positive sealing of the pump flange/guide rail bracket to the discharge elbow. Base assemblies which rely solely on metal to metal contact between the pump flange and discharge base elbow as a means of sealing are inherently leak prone, and shall not be considered equal. No portion of the pump shall bear directly on the floor of the sump. The guide rail system shall be available in an optional non-sparking version, approved by Factory Mutual for use in NEC Class 1, Division 1, Group C&D hazardous locations.

## 2.6 MECHANICAL SEAL

- A. Each pump shall be equipped with a triple seal system consisting of tandem mechanical shaft seals, plus a radial lip seal; providing three complete levels of sealing between the pump wet end and the motor. The mechanical seal system shall consist of two totally independent seal assemblies operating in a lubricant reservoir that hydro-dynamically lubricates the lapped seal faces at a constant rate. The mechanical seals shall be of nonproprietary design, and shall be manufactured by a major independent manufacturer specializing in the design and manufacture of mechanical seals. The lower, primary seal unit, located between the pump and the lubricant chamber, shall contain one stationary industrial duty solid silicon-carbide seal ring and one rotating industrial duty solid silicon-carbide seal ring. The stationary ring of the primary seal shall be installed in a seal holding plate of gray cast iron ASTM A-48, Class 35B. The seal holding plate shall be equipped with swirl disruption ribs to prevent abrasive material from prematurely wearing the seal plate. The upper, secondary seal unit, located between the lubricant chamber and the sensing chamber, shall contain one stationary industrial duty solid silicon-carbide seal ring, and one rotating one rotating industrial duty solid silicon-carbide seal ring. Each seal interface shall be held in contact by its own spring system. A radial lip seal shall be positioned above the sensing chamber, preventing any liquid which accumulates in the sensing chamber from entering the lower bearing and motor. The seals shall not require routine maintenance, or adjustment, and shall not be dependent on the direction of rotation for proper sealing. Each pump shall be provided with a lubricant chamber for the shaft sealing system which shall provide superior heat transfer and maximum seal cooling. The lubricant chamber shall be designed to prevent overfilling, and to provide lubricant expansion capacity. The drain and inspection plug shall have a positive anti-leak seal, and shall be easily accessible from the outside of the pump. The seal system shall not rely upon the pumped media for lubrication and shall not be damaged when the pump is run dry. Lubricant in the chamber shall be environmentally safe nontoxic material.
- B. The following seal types shall not be considered equal: Seal systems with less than three complete levels of sealing between the pump wet end and the motor. Seals of proprietary design, or seals manufactured by other than major independent seal manufacturing companies. Seals requiring set screws, pins, or other mechanical locking devices to hold the seal in place, conventional double mechanical seals containing either a common single or double spring acting between the upper and

lower seal faces, any system requiring a pressure differential to seat the seal and ensure sealing.

## 2.7 MECHANICAL SEAL PROTECTION SYSTEM

- A. The primary mechanical seal shall be protected from interference by particles in the waste water, including fibrous materials, by an active Seal Protection System integrated into the impeller. The back side of the impeller shall be equipped with a sinusoidal cutting ring, forming a close clearance cutting system with the lower submersible motor housing or seal plate. This sinusoidal cutting ring shall spin with the pump impeller providing a minimum of 75 shearing actions per pump revolution. Large particles or fibrous material which attempt to lodge behind the impeller or wrap around the mechanical seal, shall be effectively sheared by the active cutting system into particles small enough to prevent interference with the mechanical seal. The Seal Protection System shall operate whenever the pump operates, and shall not require adjustment or maintenance in order to function. Submersible pump designs which do not incorporate an active cutting system to protect the primary mechanical seal shall not be considered acceptable for wastewater service.

## 2.8 SEAL FAILURE EARLY WARNING SYSTEM

- A. The integrity of the mechanical seal system shall be continuously monitored during pump operation and standby time. An electrical probe shall be provided in a sensing chamber positioned above the mechanical seals for detecting the presence of water contamination within the chamber. The sensing chamber shall be air filled, and shall have a drain / inspection plug with a positive anti-leak seal which is easily accessible from the outside of the pump. A solid-state relay mounted in the pump control panel or in a separate enclosure shall send a low voltage, low amperage signal to the probe, continuously monitoring the conductivity of the liquid in the sensing chamber. If sufficient water enters the sensing chamber through the mechanical seal system, the probe shall sense the increase in conductivity and signal the solid state relay in the control panel. The relay shall then energize a warning light on the control panel, or optionally, cause the pump shut down. This system shall provide an early warning of mechanical seal leakage, thereby preventing damage to the submersible pump, and allowing scheduled rather than emergency maintenance. Systems utilizing float switches or any other monitoring devices located in the stator housing rather than in a sensing chamber between the mechanical seals are not considered to be early warning systems, and shall not be considered equal or acceptable.
- B. As an option, two additional moisture sensing probes, one in the electrical connection chamber, and one in the motor chamber shall be available. These optional probes shall send separate signals to the control panel as described above, so that maintenance personnel are given an early warning of the presence of moisture in the respective sensing chambers.

## 2.9 BEARINGS

- A. Each pump shaft shall rotate on high quality permanently lubricated, greased bearings. The upper bearing shall be a cylindrical roller bearing and the lower bearings shall be a matched set of at least three heavy duty bearings, two angular contact ball bearings and one cylindrical roller bearing. All three lower bearings shall have identical outer race diameters to provide maximum bearing load capacity. Designs which utilize a roller bearing with a smaller outer diameter than the other bearings in the assembly do not provide maximum load capacity and shall not be considered equal. Bearings shall be of sufficient size and properly spaced to transfer all radial and axial loads to the pump housing and minimize shaft deflection. L-10 bearing life shall be a minimum of 100,000 hours at flows ranging from ½ of BEP flow to 1½ times BEP flow (BEP is best efficiency point). The bearings shall be manufactured by a major internationally known manufacturer of high quality bearings, and shall be stamped with the manufacturer's name and size designation on the race. Generic or unbranded bearings from other than major bearing manufacturers shall not be considered acceptable.
- B. Provide two totally independent mechanical shaft seals, installed in tandem, each with its own independent single spring system acting in a common direction. Install the upper seal in an oil-filled chamber with drain and inspection plug (with positive anti-leak seal) for easy access from external to the pump. Provide seals requiring neither routine maintenance nor adjustment, but capable of being easily inspected and replaced. Provide seals which are non-proprietary in design, with replacements available from a source other than the pump manufacturer or its distributors. Do not provide seals with the following characteristics: conventional double mechanical seals with single or multiple springs acting in opposed direction; cartridge-type mechanical seals; seals incorporating coolant circulating impellers, seals with face materials other than those specified.

## 2.10 PUMP SHAFT

- A. The pump shaft and motor shaft shall be an integral, one piece unit adequately designed to meet the maximum torque required at any normal start-up condition or operating point in the system. The shaft shall have a full shutoff head design safety factor of 1.7, and the maximum shaft deflection shall not exceed .05 mm (.002 inch) at the lower seal during normal pump operation. Each shaft shall be stainless steel AISI 420 material, and shall have a polished finish with accurately machined shoulders to accommodate bearings, seals and impeller. As an option, the shaft shall be available in stainless steel. Carbon steel, chrome plated, or multi piece welded shafts shall not be considered adequate or equal.

## 2.11 IMPELLER

- A. The impeller shall be high chrome cast iron. The impeller shall be of the semi-open, non-clogging, two vane design, meeting the Ten State Standards requirement for

minimum solids passage size of 3 inches. The impeller shall be capable of passing a minimum of 3x4 inch spherical solids as are commonly found in waste water. The impeller shall have a slip fit onto the motor shaft and drive key, and shall be securely fastened to the shaft by a stainless steel bolt which is mechanically prevented from loosening by a positively engaged ratcheting washer assembly. The head of the impeller bolt shall be effectively recessed within the impeller bore or supporting washer to prevent disruption of the flow stream and loss of hydraulic efficiency. The impeller shall be dynamically balanced to the ISO 10816 standard to provide smooth vibration free operation. Impeller designs which do not meet the Ten State Standards requirement for 3 inch solids passage size, those that rely on retractable impeller designs to pass 3 inch solids, or those that rely on fins or pins protruding into the suction path to assist in the handling of fibrous material shall not be considered equal.

## 2.12 VOLUTE

- A. The pump volute shall be single piece gray cast iron, ASTM A-48, Class 35B non-concentric design with centerline discharge. Passages shall be smooth and large enough to pass any solids which may enter the impeller. Discharge size shall be as specified on the pump performance curve. The discharge flange design shall permit attachment to standard ANSI or metric flanges/appurtenances. The discharge flange shall be drilled to accept both 6 inch ANSI class 125 and metric DN150 (PN 10) metric flanged fittings. Proprietary or nonstandard flange dimensions shall not be considered acceptable. The maximum working pressure of the volute and pump assembly shall be 145 psi.

## 2.13 REQUIREMENTS MOTOR DESIGN

- A. The premium efficiency motor shall meet efficiency standards in accordance with IEC 60034-30, level IE3 and NEMA Premium\*. Motor rating tests shall be conducted in accordance with IEC 60034-2-1 requirements and shall be certified accurate and correct by a third party certifying agency. A certificate shall be available upon request.

\* IE3 and NEMA premium efficiency levels are equivalent, however the NEMA Premium standard is intended to cover dry installed motors only, not integrated submersible motors.

- B. The motor shall be housed in a water tight gray cast iron, ASTM A-48, Class 35B enclosure capable of continuous submerged operation underwater to a depth of 65 feet, and shall have an IP68 protection rating. The motor shall be of the squirrel-cage induction design, NEMA type B, Premium Efficiency. The copper stator windings shall be insulated with moisture resistant Class H insulation material, rated for 356°F. The stator shall be press fitted into the stator housing. The use of bolts, pins or other fastening devices requiring penetration of the stator housing is unacceptable. The rotor bars and short circuit rings shall be made of cast aluminum

- C. The motor shall be designed for continuous duty. The maximum continuous temperature of the pumped liquid shall be 104°F, and intermittently up to 122°F. The motor shall be capable of handling up to 15 evenly spaced starts per hour without overheating. The service factor (as defined by the NEMA MG1 standard) shall be 1.3. The motor shall have a voltage tolerance of +/- 10% from nominal, and a phase to phase voltage imbalance tolerance of 1%. The motor shall have a NEMA Class A temperature rise, providing cool operation under all operating conditions. The premium efficiency motor shall be FM and CSA approved for use in NEC Class I, Division I, Groups C & D hazardous locations. The surface temperature rating shall be T3C. The motor shall meet the requirements of NEMA MG1 Part 30 and 31 for operation on PWM type Variable Frequency Drives.
- D. The motor shall be capable of operating, completely submerged, partially submerged, or unsubmerged. For submerged (wet pit) applications, the motor shall be self-cooling via the process fluid surrounding the motor.

## 2.14 THERMAL PROTECTION

- A. Each phase of the motor shall contain a normally closed bi-metallic temperature monitor switch imbedded in the motor windings. These thermal switches shall be connected in series and set to open at 140°C +/- 5°C (284°F). They shall be connected to the control panel to provide a high stator temperature shutdown signal, and are used in conjunction with external motor overload protection. As an option, bi-metallic temperature switches shall be available for the upper and lower bearings to provide high bearing temperature warning signals. As an alternate option, RTD (PT100) type temperature measuring devices shall be available for the motor winding and bearings to provide actual temperature measurement at these locations. When the RTD option is supplied for the motor winding, bi-metallic switches shall also be supplied in the winding. The bi-metallic system must be connected to the control to provide positive shutdown of the motor in the event of an overheat condition. This is required in order to conform to FM and CSA rules for explosion proof equipment.

## 2.15 POWER CABLE

- A. The power cables shall be sized according to NEC and CSA standards and shall be of sufficient length to reach the junction box without requiring splices. The outer jacket of the cable shall be oil, water, and UV resistant, and shall be capable of continuous submerged operation underwater to a depth of 65 feet.
- B. Provide motors which are FM listed for use in Class I Division 1 Groups C&D hazardous locations as defined by the National Electric Code.

## 2.16 CABLE ENTRY/JUNCTION CHAMBER

- A. The cable entry design shall not require a specific torque to insure a watertight seal. The cable entry shall consist of cylindrical elastomer grommets, flanked by stainless steel washers. A cable cap incorporating a strain relief and bend radius limiter shall

mount to the cable entry boss, compressing the grommet ID to the cable while the grommet OD seals against the bore of the cable entry. The junction chamber shall be isolated and sealed from the motor by means of sealing glands. Electrical connections between the power cables and motor leads shall be made via a compression or post type terminal board, allowing for easy disconnection and maintenance.

## PART 3 - EXECUTION

### 3.1 INSTALLATION OF EQUIPMENT

- A. The Contractor shall install equipment as required by the manufacturer's written installation instructions and approved shop drawings unless otherwise directed by the Engineer.
- B. Excess motor and control wire shall be carefully coiled and hung inside the wet well. These wires shall not be cut and all identification tags shall be in place. Cables shall be supported with S.S. basket weave type strain reliefs hung in wet well and be routed in a manner that will not interfere with access to any equipment or terminals in the control panels.

### 3.2 SPARE PARTS

- A. The following spare parts shall be supplied by the contractor for each of the pump stations:
  - (1) Set of upper and lower shaft seals
  - (1) Set of upper and lower bearings
  - (1) O-ring kit
  - (1) Volute wear ring
  - (1) Impeller wear ring
  - (1) Oil inspection port o-ring

### 3.3 PUMP TEST

- A. The pump manufacturer shall perform the following inspections and tests on each pump before shipment from factory:
  - 1. Impeller, motor rating and electrical connections shall first be checked for compliance to the customer's purchase order.
  - 2. A motor and cable insulation test for moisture content or insulation defects shall be made.
  - 3. Prior to submergence, the pump shall be run dry to establish correct rotation and mechanical integrity.
  - 4. The pump shall be run for 30 minutes submerged under a minimum of six (6)

- feet under water.
5. After operational test No. 4, the insulation test (No. 2) is to be performed again.
- B. A written report stating the foregoing steps have been done shall be supplied with each pump at the time of shipment upon request.
- C. The pump cable end will be sealed with a high quality protective covering, to make it impervious to moisture or water seepage prior to electrical installation.

END OF SECTION 33 32 13



THIS PAGE LEFT BLANK INTENTIONALLY

## SECTION 40 05 13 - LIFT STATION PROCESS PIPE AND FITTINGS

### PART 1 - GENERAL

#### 1.1 SCOPE OF WORK

- A. The CONTRACTOR shall furnish all labor, materials, equipment, and incidentals required to install ductile iron pipe and fittings complete, tested, and ready for use, as shown on the Drawings and/or as specified herein.

#### 1.2 RELATED WORK (REQUIREMENTS)

- A. Construction Drawings, Agreement Declarations, Exhibits and other Technical Specification Sections apply to this Section.

#### 1.3 SUBMITTALS

- A. The CONTRACTOR shall submit to the ENGINEER, within twenty (20) calendar days after receipt of Notice to Proceed, a list of materials to be furnished, and the names of the suppliers and the date of delivery of materials to the site.
- B. Submit shop drawings to the ENGINEER for review in accordance with Section 01 33 00 Submittal Procedure, showing the complete laying plan of all pipe, including all fittings, adapters, valves, and specials along with the MANUFACTURER's drawings and specifications indicating complete details of all items. The pipe details shall include a **pipe class laying schedule** which specifies pipe class, class coding, joints, station limits, and transition stations, and a list of abbreviated terms with their full meaning. The pipe class laying schedule shall also show the required bedding class as required for the pipes pressure class and bury depth according to the drawings and specifications herein. The CONTRACTOR shall provide details of fittings to be furnished. The above shall be submitted to the ENGINEER for approval before fabrication and shipment of these items. The locations of all pipes shall conform to the locations indicated on the Drawings. In most cases, a certain amount of flexibility in the positioning of pipes will be allowed. Horizontal and vertical deflections may require beveled, special deflection; or short pipes. The deflections at joints shall not exceed 75 percent of that recommended by the MANUFACTURER.
- C. Furnish in duplicate to the ENGINEER, prior to each shipment of pipe, submit MANUFACTURER's certification and certified test reports that the pipe and linings and coating for this contract was manufactured and tested in accordance with the ASTM and ANSI/AWWA Standards specified herein.

#### 1.4 QUALIFICATIONS

- A. All ductile iron pipe and fittings shall be furnished by MANUFACTURER's who are fully experienced in the U.S. for the manufacture of the material to be furnished. The pipe and fittings shall be designed, constructed, and installed in accordance with the best practices and methods and shall comply with these Specifications.
- B. All stainless steel pipe and fittings shall be furnished by MANUFACTURER's who are fully experienced in the U.S. for the manufacture of the material to be furnished. The pipe and fittings shall be designed, constructed, and installed in accordance with the best practices and methods and shall comply with these Specifications.

#### 1.5 QUALITY ASSURANCE

- A. All HDPE DR11 pipe, PVC Schedule 80 pipe, and fittings shall be from a single MANUFACTURER. All HDPE DR11 pipe and PVC Schedule 80 pipe to be installed under this contract may be inspected at the foundry for compliance with these specifications by an independent testing laboratory provided by the OWNER. The CONTRACTOR shall require the MANUFACTURER's cooperation in these inspections. The cost of foundry inspection of all pipe approved for this contract will be borne by the OWNER.
- B. Inspection of the pipe will also be made by the ENGINEER or other representatives of the OWNER after delivery. The pipe shall be subject to rejection at any time on account of failure to meet any of the specification requirements, even though pipes may have been accepted as satisfactory at the place of manufacture. Pipe rejected after delivery shall be marked for identification and shall immediately be removed from the job.
- C. Testing may be performed prior to machining bell and spigot. Failure of HDPE DR11 pipe and PVC Schedule 80 pipe shall be defined as any rupture of pipe wall. Certified test certificates shall be furnished in duplicate to the ENGINEER prior to time of shipment. The standard 500 psi hydro test will be performed on 24" and smaller pipe.

#### 1.6 CONNECTION TO EXISTING LINES

- A. For connections to the existing lines to which the piping of this Contract must connect, the following work shall be performed:
  - 1. Exposed buried lines to confirm or determine end connection, pipe material, and diameter.
  - 2. Furnish and install appropriate piping and make proper connections.

**PART 2 - PRODUCTS**

**2.1 HDPE DR11**

**A. Carrier Pipe for Force Main:**

1. Pipe and fittings shall be high-density polyethylene manufactured from NSF approved PLEXCO P34CH compound, PE 4710, or equal.
2. Pipe shall meet AWWA C-906, PE Pressure Pipe and Fittings 4” – 53” for Distribution and shall be marked with the NSF-pw logo. Force main shall be impregnated with three, 1” green stripes the length of the pipe, both equally spaced around the pipe.
3. Hydrostatic design stress (HDS) shall be 800 psi at 73.4°F with a minimum pipe DR of 11 and operating pressure of 160 psi at 73.4°F.
4. Pipe and fittings shall be produced by the same manufacturer from identical materials meeting the requirements of this specification.
5. Molded fittings shall meet the requirements of ASTM D-3261 and this specification. At the point of fusion, the outside diameter and minimum wall thickness of fitting butt fusion outlets shall meet the outside diameter and minimum wall thickness specifications of ASTM F-714 for the same size of pipe.
6. Pipe shall be manufactured in accordance with ASTM F-714, ASTM D-3035, or the applicable dedicated service specification. Print line markings shall include a production code from which the location and date of manufacture can be identified. Upon request, the manufacturer shall provide an explanation of his production code.
7. Pipe Marking: HDPE color coding shall be in accordance with the marking requirements specified herein.

<b>Base Bid – High Density Polyethylene Pipe (HDPE) Pipe</b>						
<b><u>Pipe Description</u></b>	<b><u>AWWA</u></b>	<b><u>Outside Di- ameter (in.)</u></b>	<b><u>DR</u></b>	<b><u>Color</u></b>	<b><u>Pressure Class (psig)</u></b>	<b><u>Inner Diameter (in.)</u></b>
<b>4” HDPE FM (DIPS)</b>	<b>C-906</b>	<b>4.8</b>	<b>11</b>	<b>Green</b>	<b>200</b>	<b>3.875</b>

**B. ACCEPTABLE PIPE MANUFACTURER**

1. Performance Pipe, Driscoplex 4000, PE 3408, AWWA C-906, DIPS sizing, Richardson TX, (800) 527-0662; Supplier: ISCO Industries, Grand Bay, AL, 1-800-345-4726
2. JM Eagle, 5200 West Century Blvd, Los Angeles, CA 90045, 1-800-621-4404
3. Engineer approved equal.

**C. Butt fusion Fittings: HDPE fittings shall be PE 4710 HDPE, Cell Classification of 345464C as determined by ASTM D3350-99, and approved for AWWA use. Butt fusion fittings shall have a manufacturing standard of ASTM D3261. Molded and fabricated fittings shall have a pressure rating equal to the pipe unless otherwise**

specified in the plans. Fabricated fittings shall be manufactured using Data Loggers. Temperature, fusion pressure, and a graphic representation of the fusion cycle shall be part of the Quality Control records. Fittings shall be suitable for use as pressure conduits, and per AWWA C906, shall have nominal burst values of three and one-half times the working pressure rating of the fitting.

- D. Transition Fittings: Terminate HDPE pipe with fusion welded flanges (125 lb bolt pattern). See below for alternate fusion procedures.

## 2.2 JOINING METHODS

- A. Butt fusion joining: Plain end pipe and fittings shall be made using butt fusion. The butt fusion procedures shall be in accordance with the manufacturer or the PPI. The fusion equipment operator shall receive training using the recommended procedure. Contractor shall verify that the fusion equipment is in good operating condition and that the operator has been trained within the past twelve months. Fusion equipment shall be equipped with a Data Logger. Records of the welds (heater temperature, fusion pressure, and a graph of the fusion cycle) shall be maintained for five (5) years. Fusion beads shall not be removed.
- B. Mechanical Joining: Polyethylene pipe and fittings shall be joined together using flanges or mechanical joint adapters. These fittings shall be made from PE 3048 HDPE, with a Cell Classification of 345464C as determined by ASTM D3350-99. Flanged and MJ adapters shall have a manufacturing standard of ASTM D3261. They shall have a pressure rating equal to the pipe unless otherwise specified on the plans.
- C. Electrofusion couplings: Polyethylene pipe and fittings shall be joined using approved electrofusion couplings. Fittings shall be PE 3408 HDPE, Cell Classification of 345464C as determined by ASTM D3350-99. Electrofusion fittings shall have a manufacturing standard of ASTM F1055. Fittings shall have a pressure rating equal to the pipe unless otherwise specified on the plans. Electrofusion fittings shall be suitable for use as pressure conduits, and per AWWA C906, shall have nominal burst values of three and one-half times the working pressure rating of the fitting.

## 2.3 Polyvinyl Chloride (PVC) Pipe Schedule 80

- A. Polyvinyl Chloride (PVC) Pipe (Class-Rated): PVC pressure pipe and accessories four to twelve inches (4"-12") in diameter, where shown or as specified on the Drawings, shall meet the requirements of AWWA Specification C-900 (DR 18) "Polyvinyl Chloride (PVC) Pressure Pipe". Each length of pipe shall be hydrotested to four (4) times its class pressure by the MANUFACTURER in accordance with AWWA C 900 and C 905. Pipe shall be listed by Underwriters Laboratories. Provisions shall be made for expansion and contraction at each joint with a elastomeric ring, and shall have an integral thickened bell as part of each joint. PVC Class pipe shall be installed in accordance with the Uni-Bell Plastic Pipe Association Guide Specification UNI-B-3-76,

and as recommended by the MANUFACTURER. Pipe shall be furnished in nominal lengths of approximately 20 feet, unless otherwise approved by the ENGINEER. Pipe and accessories shall bear the mark indicating pipe size, MANUFACTURER's name, AWWA and/or ASTM Specification number, working pressure, and production code. Pipe and couplings shall be made from Class 12454-A or Class 12454-B virgin compound, as designed in ASTM D 1784.

**B. Joints:**

1. The PVC line joints for below ground piping four to thirty-six inches (4"-36") in diameter shall be of the push-on type unless otherwise approved by the ENGINEER so that the pipe and fittings may be connected on the job without the use of solvent cement or any special equipment. The push-on joint shall be a single rubber gasket joint designed to be assembled by the positioning of a continuous, molded rubber ring gasket in annular recess in the pipe or fitting socket and the forcing of the plain end of the entering pipe into the socket, thereby compressing the gasket radially to the pipe to form a positive seal. The gasket and annular recess shall be designed and shaped so that the gasket is locked in place against displacement as the joint is assembled. The rubber ring joint shall be designed for thermal expansion or contraction with a total temperature change of at least 75°F in each joint per length of pipe. The bell shall consist of an integral wall section with a solid cross section elastomeric ring which shall meet requirements of ASTM D 1869. The thickened bell section shall be designed to be at least as strong as the pipe wall. Lubricant furnished for lubricating joints shall be nontoxic, shall not support the growth of bacteria, shall have no deteriorating effects on the gasket or pipe material, and shall not impart color, taste, or odor to the water.

**C. Fittings:** All fittings for pressure or class-rated PVC pipe for below ground piping of three to thirty-six inches (3"-36") in diameter shall be ductile iron with mechanical joints and shall conform to AWWA/ANSI specifications C110/A21.10 or C153/A21.53 for ductile iron fittings, unless otherwise approved by the ENGINEER.

1. The MANUFACTURER of the pipe shall supply all polyvinyl chloride accessories as well as any adaptors and/or specials required to perform the work as shown on the drawings and specified herein. Standard double bell couplings will not be accepted where the pipe will slip completely through the coupling.

**D. Restrained Joints:** Restrained joints and fittings for PVC reclaimed water irrigation mains, sewer force mains and water mains shall be EBAA Iron, Inc., Megalug Retainer Glands, Series 1600 for bell and spigot pipe (4-inch through 12-inch sizes) and Series 2000 PV for mechanical joint fittings (4-inch through 36-inch sizes). After installation, apply a heavy bitumastic coating to all bolts, nuts and accessories. Romac 600 Series pipe restraining systems can be used (4-inch through 12-inch sizes). The minimum number of restrained joints required for resisting forces at fittings and changes in direction of pipe shall be determined from the length of restrained pipe on each side of fittings and changes in direction necessary to develop adequate resisting friction with

the soil as shown on the drawings. All bolts and nuts for restrained joints shall be "Corten" type, low alloy, high strength steel.

## 2.4 LINING AND COATINGS

- A. All ductile fittings for wastewater service lines shall have a Sherwin Williams lining on the interior and bituminous coating on the exterior except for 6 inches back from the spigot end. The bituminous coating shall not be applied to the first 6 inches of the exterior of the spigot ends. All fittings shall be delivered to the application facility without asphalt, cement lining, or any other lining on the interior surface. Because removal of old linings may not be possible, the intent of this specification is that the entire interior of the fittings shall be as cast without ever having been lined with any substance prior to the application of the specified lining. Any fittings furnished for this project must not have been lined prior to the awarding of the contract for this project.
1. Lining Material – Refer to Specification 33 31 00 – Sanitary Sewerage Piping, Section 2.1.C. The following test requirements shall be certified by the material supplier, and a history of satisfactory performance for the material in the service required and upon the surface specified shall be submitted. The following are the minimum requirements to be met:
    - a. A permeability rating of zero permeance when a film of at least 40 mils is tested according to ASTM D1653 or a permeability rating of 0.0 perms when measured using Method A of ASTM E66 procedure A with a test duration of 42 days.
    - b. The material shall contain at least 20 percent by volume of ceramic quartz pigment in the dried film.
    - c. The following test and rating/method must be run on ductile iron panels with the results certified by the lining material supplier of the material being submitted.
      - 1) Direct Impact: ASTM D2794
      - 2) 3% Sulfuric Acid Immersion @ 120/F: ASTM D714
      - 3) 25% Sodium Hydroxide Immersion @ 140/ F: ASTM D714
      - 4) Deionized Water Immersion @ 160/ F: ASTM D714
      - 5) Moisture and Ultraviolet Light Cycle 8 Hours Light / 4 Hours 100% Humidity: ASTM G5377
  2. Application of Lining – The lining shall be applied by a competent firm with at least a five-year history of applying linings to the interior of ductile pipe and fittings.
    - a. Surface Preparation: Prior to abrasive blasting the entire area which will receive the protective compound shall be inspected for oil, grease, etc. Any areas where oil, grease, or any substance which can be removed by solvent is present shall be solvent cleaned using the guidelines outlined in SSPC-SP-1 Solvent Cleaning. After the surface has been made free of grease, oil, or other substances, all areas which are to receive the protective compounds shall be abrasive blasted using compressed air nozzles with sand or grit abrasive media. The blast media shall strike 100 percent of the

surface area at sufficient force to remove rust and oxides. The entire surface to be lined shall be struck with the blast media so that all rust, loose, oxides, etc., are removed from the surface. Only slight stains and specks of tightly adhering oxides may be left on the surface. Any area where rust appears before coating must be re-blasted to remove all rust.

- b. Lining: After surface preparation and within 8 hours of surface preparation, the fittings shall receive a minimum coating of 40 mils dry film thickness of the protective lining. If flange fittings are included in the project the linings must not be used on the face of the flange; however, full face gaskets must be used to protect the ends of the pipe. All fittings shall be lined with a minimum of 40 mils of the protective lining. Push-on type fittings shall be lined from the gasket groove to the gasket groove. The 40 mils system shall not be applied in the gasket grooves.
  - c. Coating of Gasket Groove and Spigot Ends: Due to the tolerances involved, the gasket groove and spigot end up to 6 inches back from the end of the spigot end must be coated with a minimum of 10 mils dry of the lining product. This coating shall be applied by brush to ensure coverage. Care should be taken that the coating is smooth without excess buildup in the gasket groove or on the spigot end. All materials for the gasket groove and spigot end shall be applied after the application of the lining.
  - d. Number of Coats: The number of coats of lining material applied shall be as recommended by the lining MANUFACTURER. However, in no case shall the material be applied above the dry thickness per coat recommended by the lining MANUFACTURER in printed literature. The time between coats shall never exceed that time recommended by the lining material MANUFACTURER. If at any time the lining must be recoated beyond the lining material MANUFACTURER's recommended recoat time, the surface of the existing lining shall be roughened sufficiently to prevent delamination between coats.
3. Inspection:
- a. All fittings shall be checked for thickness using a magnetic film thickness gauge. The thickness testing shall be done using the method outlined in SSPC-PA-2 film thickness testing.
  - b. The fittings shall be pinhole detected with a nondestructive 2,500-volt pinhole test.
  - c. Each fitting shall be marked with the date of application of the lining system and with its numerical sequence of application on that date.
4. Certification: The pipe or fitting MANUFACTURER must supply a certificate attesting to the fact that the Applicator met the requirements of this specification, that the material used was as specified, and that the material was applied as required by the specification.
5. Repair: All pinholes and damaged lined areas shall be repaired in accordance with written repair procedure furnished by the MANUFACTURER of the lining material so that the repaired area is equal in performance to the undamaged lined areas.



6. Fittings exposed to view in the finished work and to be painted shall not receive the standard tar or asphalt coat on the outside surfaces but shall be shop primed on the outside.
7. All exposed fittings shall be painted with the Owner's standard color for sewer.

## 2.5 IDENTIFICATION

- A. Each length of pipe and each fitting shall be marked with the name of the MANUFACTURER, size, and class. All gaskets shall be marked with the name of the MANUFACTURER, size, and proper insertion directions.
- B. All below ground PVC Schedule 80 pipe and fittings shall have an identification color code.
  1. Raw sewage force mains and gravity sewer pipe - Green.

## PART 3 - EXECUTION

### 3.1 INSTALLING OF PROCESS PIPE AND FITTINGS

- A. All mains shall be installed in accordance with recommendations of the pipe MANUFACTURER and as specified herein.
- B. Care shall be taken in the handling, storage, and installation of pipe and fittings to prevent injury to the pipe or coatings. All pipe and fittings shall be examined before installing, and no pipe shall be installed which is found to be defective. Pipe or fittings shall not be dropped. All damage to the pipe coatings shall be repaired according to the MANUFACTURER's recommendations.
- C. All pipe and fittings shall be kept clean and shall be thoroughly cleaned before installation.
- D. Pipe shall be laid to the lines and grades shown on the Drawings with bedding and backfill as shown on the Drawings. Blocking under the pipe will not be permitted.
- E. When installation is not in progress, including lunchtime, or the potential exists for dirt of debris to enter the pipe, the open ends of the pipe shall be closed with watertight plugs or other approved means.
- F. Under no circumstances shall the pipe or accessories be dropped into the trench.
- G. All plugs, caps, bends and other locations where unbalanced forces exist shall be anchored by restrained joints. The length of pipe for which restrained joints shall be used are shown on the Drawings.

- H. When cutting pipe is required, the cutting shall be done by machine, leaving a smooth cut at right angles to the axis of the pipe. Cut ends of pipe to be jointed with a bell shall be beveled to conform to the manufactured spigot end. Lining shall be undamaged.

### 3.2 PUSH-ON JOINTS

- A. Push-on joints shall be made in accordance with the MANUFACTURER's instructions. Pipe shall be laid with bell ends looking ahead. A rubber gasket shall be inserted in the groove of the bell end of the pipe, and the joint surfaces cleaned and lubricated. The plain end of the pipe to be laid shall then be aligned and inserted in the bell of the pipe to which it is to be joined, and pushed home with a jack or by other means. After joining the pipe, a metal feeler shall be used to make certain that the rubber gasket is correctly located.

### 3.3 MECHANICAL JOINTS

- A. Thoroughly clean and lubricate the joint surfaces and rubber gasket with soapy water before assembly. Bolts shall be tightened to the specified torques. Under no conditions shall extension wrenches or pipe over handle of ordinary ratchet wrench be used to secure greater leverage.

### 3.4 FLANGED JOINTS

- A. Flanged joints shall be installed where shown on the Drawings and as specified herein. Extreme care shall be exercised to insure that there is no restraint on opposite ends of pipe or fitting which will prevent uniform gasket compression, cause unnecessary stress, bending or torsional strains to flanges or flanged fittings. Adjoining push-on joints shall not be assembled until flanged joints have been tightened. Bolts shall be tightened alternately and evenly.

### 3.5 RESTRAINED JOINTS

- A. Restrained joints shall be installed at all fittings as shown on the Drawings and specified herein. The joint assemblies shall be made in accordance with the MANUFACTURER's recommendations. After installation, apply a heavy bitumastic coating to all bolts, nuts and accessories.

### 3.6 FLEXIBLE JOINT PIPE

- A. The flexible joint pipe shall be installed in accordance with the MANUFACTURER's recommendations. In addition, the installed deflection shall be limited to 15 deg. per joint and provisions shall be made where required to prevent flotation or buoyancy of the pipe.

### 3.7 SLEEVE TYPE COUPLINGS

- A. Couplings shall be installed where shown. Couplings shall not be assembled until adjoining push-on joints have been assembled. After installation, apply a heavy bitumastic coating to all bolts, nuts and accessories.

### 3.8 CLEANING

- A. At the conclusion of the work the CONTRACTOR shall thoroughly clean all of the new pipelines.

END OF SECTION 40 05 13

## SECTION 40 05 23.21 - PLUG VALVES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section Includes: Eccentric plug valves.

#### 1.2 REFERENCE STANDARDS

- A. American Society of Mechanical Engineers:
  - 1. ASME B16.1 - Gray Iron Pipe Flanges and Flanged Fittings.
  - 2. ASME B16.5 - Pipe Flanges and Flanged Fittings: NPS 1/2 through 24 - Metric/Inch Standard.
  - 3. ASME B16.42 - Ductile Iron Pipe Flanges and Flanged Fittings: Classes 150 and 300.
- B. ASME B1.20.1 - Pipe Threads, General Purpose (Inch).
- C. ASTM International:
  - 1. ASTM A536 - Standard Specification for Ductile Iron Castings.
  - 2. ASTM B62 - Standard Specification for Composition Bronze or Ounce Metal Castings.
- D. American Water Works Association:
  - 1. AWWA C517 - Resilient-Seated Cast-Iron Eccentric Plug Valves.

#### 1.3 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Product Data:
  - 1. Submit catalog information, indicating materials of construction and compliance with indicated standards.
- C. Source Quality-Control Submittals: Indicate results of factory tests and inspections.

## PART 2 - PRODUCTS

### 2.1 ECCENTRIC PLUG VALVES

#### A. Manufacturers:

1. Val-Matic
2. DeZurik
3. Keystone
4. Furnish materials according to City of Callaway standards.

#### B. Description:

1. Type: Non-lubricated, eccentric.
2. Minimum Working Pressure: 150 psig at 300 degrees F.
3. Ports: Port area shall be 100% of nominal pipe area.
4. Stem Bearings: Self-lubricating.
5. Stem Seals: Neoprene; V-ring type.
6. Packing and Gland: Accessible and externally adjustable.
7. End Connections: ASME B16.1, ASME B16.5, ASME B16.42, flanged.

#### C. Operation:

1. Greater than 3 inches: Worm gear manual operators with handwheel.
2. Valve shall have a minimum 100 percent open port area.

#### D. Materials:

1. Body: AWWA C517, cast iron, lined with elastomer as recommended by valve manufacturer for service conditions.
2. Plug: Hard Rubber, lined with resilient coating as recommended by valve manufacturer for service conditions.
3. Seats: Nickel.
4. Stem: Type 316 stainless steel.
5. Stem Bearings: Stainless steel.
6. Seals: PTFE.
7. Connecting Hardware: Type 316 stainless steel.

#### E. Valve Box

1. Furnish Materials according to City of Callaway standards.

#### F. Finishes: As specified in City of Callaway standards.

### 2.2 SOURCE QUALITY CONTROL

#### A. Section 01 40 00 - Quality Requirements: Requirements for testing, inspection, and analysis.

#### B. Performance Testing:

1. Operate each valve and actuator from fully CLOSED to fully OPEN to fully CLOSED under no-flow conditions.
- C. Leakage Testing:
1. Test at indicated working pressure to ensure valves are drip-tight. Test with pressure in both directions for five minutes each way.
- D. Hydrostatic Testing:
1. Perform test at twice rated pressure. Test for at least one minute to ensure no leakage.

### PART 3 - EXECUTION

#### 3.1 INSTALLATION

- A. Install valves according to AWWA C517 and as recommended by manufacturer.
- B. Install plug valves in horizontal piping with stem horizontal; install plug valves in vertical piping with plug at top when closed.
- C. Install such that plugs are on top when OPEN and on pressure side when CLOSED.
- D. Handwheel locations shall be accessible from all directions.

END OF SECTION 40 05 23.21

THIS PAGE LEFT BLANK INTENTIONALLY

## SECTION 40 05 23.72 - MISCELLANEOUS PROCESS VALVES

### PART 1 GENERAL

#### 1.1 SUMMARY

##### A. Section Includes:

1. Horizontal Swing Check Valves
2. Air & Vacuum Valves

#### 1.2 REFERENCE STANDARDS

##### A. American Society of Mechanical Engineers:

1. ASME B16.1 - Gray Iron Pipe Flanges and Flanged Fittings.
2. ASME B16.5 - Pipe Flanges and Flanged Fittings: NPS 1/2 through 24 - Metric/Inch Standard.
3. ASME B16.11 - Forged Fittings, Socket-Welding and Threaded.
4. ASME B16.42 - Ductile Iron Pipe Flanges and Flanged Fittings: Classes 150 and 300.
5. ASME B1.20.1 - Pipe Threads, General Purpose Inch.

##### B. ASTM International:

1. ASTM A126 - Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings.
2. ASTM A536 - Standard Specification for Ductile Iron Castings.
3. ASTM B62 - Standard Specification for Composition Bronze or Ounce Metal Castings.
4. ASTM D1784 - Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds.

#### 1.3 SUBMITTALS

##### A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

##### B. Product Data:

1. Submit catalog information, indicating materials of construction and compliance with indicated standards.

##### C. Source Quality-Control Submittals: Indicate results of factory tests and inspections.



## 1.4 WARRANTY

- A. Section 01 77 00 – Closeout Procedures.
- B. Furnish five-year manufacturer's warranty for pressure-reducing and pressure-sustaining valves, against cavitation damage.

## PART 2 PRODUCTS

### 2.1 HORIZONTAL SWING CHECK VALVES

- A. Manufacturers.
  - 1. Val-Matic
  - 2. DeZurik
  - 3. Keystone
  - 4. Mueller
  - 5. Furnish Materials According to City of Callaway Standards
- B. Swing-check valves shall be the clear waterway type - designed and fabricated in accordance with the current AWWA Standard C508
  - 1. Horizontal swing- check valves shall be iron body, bronze mounted with flanged ends rated for operation at 125 psi.
  - 2. The cover shall be cast iron with cover bolts of 316 stainless steel. The seating surface shall be bronze, and the disk shall be rubber-faced ductile or grey iron.
  - 3. The shaft shall be stainless steel with corrosion resistant bearing(s) at each end. Where extended outside the body, the shaft shall be sealed with double O-rings.
  - 4. There shall be a grease fitting between the O-rings. The check valve shall be of the lever and weight or adjustable external spring-loaded type, with springs made from 316 stainless steel. The Contractor shall adjust the tension in the spring as necessary to prevent slamming of the valve upon closing.

### 2.2 AIR & VACUUM VALVES

- A. Manufacturers
  - 1. ARI Flow Control Accessories, Product D-020.
- B. Product
  - 1. The valve shall be designed to operate with liquids carrying solid particles such as raw sewage. The air and vacuum air valve shall discharge air at high flow rates during the filling of the system and admit air into the force main at high flow rates during its drainage. High velocity air cannot blow the float shut. Sewage entry to the lower portion of the valve will cause the sealing of the valve. At any time during

system operation, should internal pressure of the system fall below atmospheric pressure, air will re-enter the system. The smooth release of air shall prevent pressure surges and other destructive phenomena to the force main. Admitting air in response to negative pressure protects the force main from destructive vacuum conditions and prevents damage caused by water column separation. Air re-entry is essential to efficiently drain the force main.

2. Working pressure range: 3 – 230 psi. Testing Pressure: 360 psi.
3. The valve's design shall prevent any contact between sewage and the sealing mechanism by creating an air gap at the top of the valve, under all operating conditions.
4. The conical body shape shall be designed to maintain the maximum distance between the liquid and the sealing mechanism.
5. A spring-loaded joint is to be furnished between the stem and the upper float. Vibrations of the lower float will not unseal the automatic valve. Release of air will occur only after enough air accumulates.
6. The funnel-shaped lower body shall be designed to ensure that residue sewage matter will re-enter the force main and will not remain in the valve.
7. Maintenance flushing shall be provided while the valve is under pressure, by opening a full port type 316 S.S. ball valve in the valve's lower body.
8. All inner metal parts of the valve shall be made of stainless steel SAE 316.
9. The valve shall be provided with an AWWA/ANSI C115 flanged joint at the base of the body. Option for threaded connections to comply per recommendations/specifications of the manufacturer.

### 2.3 SOURCE QUALITY CONTROL

A. Section 01 40 00 - Quality Requirements: Requirements for testing, inspection, and analysis.

B. Testing Pressure-Reducing and Pressure-Sustaining Valves:

1. Leakage Testing:
  - a. Test each assembled valve hydrostatically at 1-1/2 times rated working pressure for a minimum five minutes.
  - b. Test each valve for leakage at rated working pressure against closed valve.
  - c. Permitted Leakage: None.
2. Functional Testing:
  - a. Test each valve to verify specified performance.

## PART 3 EXECUTION

### 3.1 INSTALLATION

- A. Install in accordance with the drawings and manufacturer's recommendations and instructions.
- B. Install pipe supports as indicated and as required such that pipe loads are not transferred to the valve nor valve loads transferred to the piping.

END OF SECTION 40 05 23.72

## SECTION 40 95 13 – CONTROL PANEL CONSTRUCTION

### PART 1 - GENERAL

#### 1.1 SCOPE

- A. The Supplier shall furnish, test, and startup all furnished electrical control panels and control system components related to their furnished equipment.
- B. This section applies specifically to the Lift Station Control Panel, CP-LS

#### 1.2 SUBMITTALS

- A. Product Data: For each type of product supplied. Include rated capacities, weights, operating characteristics, furnished specialties, and accessories.
- B. Shop Drawings: Dimensioned plans, elevations, sections, and details showing minimum clearances, conductor entry provisions, gutter space, installed features and devices, and material lists for each switch specified.
- C. Additional Shop Drawing Requirements:
  - 1. Point - to - Point Wiring Drawings.
  - 2. Loop Drawings
  - 3. Fabrication and nameplate legend drawings
  - 4. Systems schematic drawings illustrating all components being supplied complete with electrical interconnections.
  - 5. Computer input/output lists and a written description of the control strategy to be applied.

### PART 2 - PRODUCTS

#### 2.1 GENERAL REQUIREMENTS FOR CONTROL PANELS

- A. Control panel shall be constructed in accordance with the following standards: National Electrical Manufacturers Association (NEMA), Institute of Electrical and Electronics Engineers (IEEE), Underwriter Laboratories (UL), Nation Fire Protection Association (NFPA), and Instrumentation Systems and Automation Society (ISA)
- B. Control panel shall be constructed in a UL approved production facility and bear all applicable UL labels for panel construction.

- C. The completed panel shall be factory tested prior to shipment. Field installation by the Contractor shall consist only of setting the panel in place and making necessary pneumatic and/or electrical connections.
- D. Control panel shall be designed to operate at the 208Y/120 service voltage.

## 2.2 CONTROL PANEL ENCLOSURES

- A. Control panels and associated hardware shall be constructed of 316L stainless steel.
- B. Interior components shall be mounted with stainless steel hardware and shall be clearly identified with plastic identification nametags. The tags shall be white with black lettering.
- C. Control panels shall be NEMA 4X construction with a 3-point steel latching mechanism and padlocking stainless steel handles. Latch rods to have rollers for easier door closing.
- D. Door shall be provided with heavy gauge continuous stainless steel hinges.
- E. Control panels shall be constructed of 14 gauge stainless steel. Control panels shall also include a 10 gauge mild steel sub-panel mounted on collar studs for equipment mounting.
- F. Control panel seams shall be continuously welded and ground smooth.
- G. Exterior control panel doors shall be removable by pulling the stainless steel hinge pin.
- H. Data pockets shall be provide on all interior panel doors. The equipment supplier shall provide laminated schematics in each pocket for the associated control panel.
- I. Control panels shall be sized to accommodate the equipment required plus 25% spare space.
- J. Control panels shall be provided with a mild steel or aluminum dead front panel capable of protecting the operator from a bolted fault within the control panel with the outer door open.
- K. Control panels shall be provided with a battery back-up system that consists of a power supply / battery charger and re-chargeable batteries. The use of an off the shelf UPS shall not be considered acceptable.

## 2.3 CONTROL PANEL COOLING REQUIREMENTS

- A. NEMA 4X air conditioner shall be supplied as required to keep the equipment mounted inside the control panels operating within the manufacturers operating temperature requirements. The air conditioner unit shall not exchange the air inside the control

panel with the air outside the control panel. The unit shall be coated to provide environmental protection.

- B. The manufacturer of the control panel and cabinet shall provide all necessary cooling/heating equipment required to maintain temperature and humidity within the operating requirements of all equipment located within panels and cabinets. Coordination for electrical/mechanical connection is the responsibility of the Contractor. At the time of submittals the Contractor shall submit calculations indicating that such requirements have been met.

## 2.4 SUPPORT BASE

- A. Control panel shall be mounted on a support base constructed of 2" stainless steel angle, welded to provide a 24" high support structure with stainless steel removable, ventilated panels on the front, rear and sides of the support structure. The maximum size of the removable panels shall be 24" x 24".
- B. Provide stainless steel fasteners to attached support base to the concrete housekeeping pad and the control panel enclosure.

## 2.5 POWER INFEED

- A. Provide main circuit breaker for the feeder conductors entering the control panel enclosure.
- B. Provide generator input circuit breaker with 200A generator input receptacle located on the side of the control panel enclosure to accommodate a temporary connection to a portable generator.
- C. The main circuit breaker and generator input circuit breaker shall be mechanically interlocked to ensure only one breaker is allowed to be closed at all times.
- D. Provide integral mounted surge protection device within the control panel enclosure.

## 2.6 MOTOR STARTER

- A. Provide Solid State Reduced Voltage (SSRV) type, Size 3 motor starter for each 20 HP submersible pump.
- B. Motor starters shall be provided with 120 VAC operating coils.
  - 1. A motor protection relay shall be furnished as part of the starting equipment. The motor protector shall be adjustable so that the range selected includes the motor nameplate listed FLA (full load amps) rating and the service factor.
  - 2. Repeated unsuccessful attempts to start the motor or a short circuit shall cause the motor protector to trip.

3. Tripping of the motor protector shall stop the motor and flash the trip light. Resetting the relay shall allow the alarm circuitry to be reset.
4. Output terminals shall be provided for connection of the motor leads exiting the enclosure.

## 2.7 TELEMETRY CONTROL UNIT (TCU)

- A. Control panel shall be provided with a telemetry control unit, Data Flow Systems Model TCU001, for monitoring and control of the lift station duplex submersible pump system and associated equipment as shown on drawings. Manufacturer representative contact information is:

Tom Hogeland  
Data Flow Systems  
Phone: 321.259.5009, ext. 1102  
Email: [tomh@dataflowsys.com](mailto:tomh@dataflowsys.com)

- B. The TCU shall be provided a Radio Telemetry System (RTS) consisting of 2W, synthesized 200 MHz, 9-18 VDC, 1.8A integrated radio and analog radio converter with Yagi antenna installed on concrete pole. Coordinate communication interface with the City of Callaway for connection to the City's control system network for remote monitoring and control of the lift station.
- C. The TCU input/outputs shall include the following:
1. Analog Inputs (4-20mA)
    - a. Bubbler Level Device (TCU360)
    - b. SPARE
  2. Digital Inputs (Intrinsically Safe)
    - a. Low Level Float Switch (Both pumps stopped with alarm)
    - b. Off Level Float Switch (All pumps stopped)
    - c. Lead Level Float Switch (Lead pump started)
    - d. Lag Level Float Switch (Lag pump started)
    - e. High Level Float Switch (All pumps stagger started with alarm)
  3. Digital Inputs (120V): The following motor protection and ground fault relay monitoring contacts shall be wired in parallel and monitored by a single digital input to provide a "Pump Fault Summary Alarm".
    - a. SP-1, Motor Protection Relay – Thermal and Moisture Seal (Alarm)
    - b. SP-1, Ground Fault Monitor Relay (Alarm)
    - c. SP-2, Motor Protection Relay – Thermal and Moisture Seal (Alarm)
    - d. SP-2, Ground Fault Monitor Relay (Alarm)
  4. Digital Outputs (120V)
    - a. Pump, SP-1, start command
    - b. Pump, SP-1, On pilot light
    - c. Pump, SP-2, start command
    - d. Pump, SP-2, On pilot light

- D. The TCU shall include 4-line x 20 character LCD with a 12-key keypad that allows the operator to configure the TCU, viewing and resetting alarms, and analyzing status information.
- E. Control panel shall include wireless industrial Ethernet connections and shall be provided with industrial wireless Ethernet access points. The Radio Telemetry Unit (RTU) shall be provided by Data Flow Systems.
- F. The TCU shall include Hand-Off-Automatic (H-O-A) switches for each pump.
- G. The TCU shall include an internal power monitor for a 208Y/120V electrical system with phase monitor to disconnect power to the pump motors upon loss of a phase.

## 2.8 BUBBLER SYSTEM – LIFT STATION BUBBLER LEVEL DEVICE (BLD)

- A. The primary lift station level monitoring device shall be a bubbler system, Data Flow Systems ModelRPT001, for monitoring and control of the lift station duplex submersible pumps. Manufacturer representative contact information is:

Tom Hogeland  
Data Flow Systems  
Phone: 321.259.5009, ext. 1102  
Email: [tomh@dataflowsys.com](mailto:tomh@dataflowsys.com)

- B. The bubbler system shall be monitored via a 4-20 mA signal to the analog input of the Telemetry Control Unit (TCU) and include the following components installed within the control panel enclosure:
  - 1. Bubbler Pressure Transducer
  - 2. Air Pump for Bubbler
  - 3. Check Valve
  - 4. Fittings and Adapters
  - 5. Tubing

## 2.9 CONTROL PANEL WIRING

- A. Wiring, where required, shall be general-purpose open type, neatly bundled and laced or installed in plastic wiring troughs. Wire shall be stranded No. 16 AWG minimum, with thermoplastic insulation rated for 600V and 90°C.
- B. All equipment mounting backboards shall be provided with nonmetallic slotted ducts. All nonmetallic slotted ducts shall have spare space equal to 40% of the depth of the duct.
- C. Wiring colors shall be as follows:
  - 1. All ungrounded AC conductors operating at the supply voltage shall be “Black”



2. All ungrounded AC control conductors operating at voltage less than supply shall be "RED"
  3. All ungrounded DC control conductors shall be "Blue"
  4. All ungrounded AC control conductors or wires that remain energized when the main disconnect is in the "OFF" position shall be "Yellow"
  5. All grounded AC current carrying conductors shall be "White"
  6. All grounded DC current carrying conductors shall be "White with a Blue stripe"
  7. All grounded AC current carrying conductors that remain energized when the main disconnect is in the "OFF" position shall be "White with a Yellow stripe"
  8. All ground conductors shall be "Green"
  9. A wiring color code legend shall be mounted inside the control panel door.
- D. All wires entering and leaving all panels shall be terminated at barrier type terminal strips with integral surge protection. All terminals shall be identified and labeled per the Owner's standard naming conventions. It shall be the Supplier's responsibility to coordinate with the Owner for the accepted naming conventions. (All terminal strips shall be designed for #12 AWG, XHHW-2, 90°C field wiring for terminations.)
- E. No terminal strip may be located closer than 8" from any side or bottom of the control panel. This is designed to allow for adequate wire bending radius for field terminations.
- F. All wiring shall be clearly marked with an identification number consistent with the wiring schematic.
- G. Devices mounted on the enclosure door or interior dead front panel shall be run in spiral wrap to avoid pinch points when opening and closing the enclosure door(s) or interior panels.

## 2.10 SURGE PROTECTION

- A. The main surge protective device shall be rated at 120 KA surge current per phase for 208Y/120V systems with L-L, L-N and L-G protection modes equal to Phoenix Contact "Trabtech" surge protectors.
- B. All control power and digital I/O signals shall be protected from surges at the control panel with suitable surge suppression devices. Panel mounted surge protection shall be Plug in Style & DIN rail mounted to allow for easy replacement. The power and digital I/O signals shall be protected with solid state surge suppression devices manufactured by Phoenix Contact or Engineer approved equal. MOV only type surge suppression is not acceptable.
- C. All analog I/O signals shall be protected by loop powered isolators manufactured by Phoenix Contact or Engineer approved equal.
- D. Lightning Protection and surge suppression devices shall be provided for all radio and telemetry equipment. The Lighting protection and surge suppression devices shall be manufactured by Phoenix Contact or Engineer approved equal.

## 2.11 PANEL MOUNTED DEVICES

- A. Pump run status indicating lights shall be provided on the control panel door and shall be heavy duty, push-to-test type, oil tight, industrial type for 120 VAC applications. Pump run pilot lights shall be red colored. Legend plates shall be factory engraved as required. – Allen-Bradley Bulletin 800T 30.5mm or approved equal.
- B. Current to voltage converters, 4-20mA<sub>dc</sub> to 1-5VDC shall be as manufactured by Phoenix Contact or Engineer approved equal.
- C. D.C. power supplies shall be as manufactured by PLC Manufacturer, Phoenix Contact, or approved equal and shall be sized for 1.5 times the application requirements. (No open power supplies will be allowed.)
- D. All relays shall Allen-Bradley. Units shall be hermetically sealed in metal can with octal plug. Contacts to be 120VAC/60Hz at 10 amps. Unit to incorporate lamp in parallel with relay coil. All relays to be DPDT. Provide hold down clamps for all relays.
- E. All circuit breakers shall have an Amp Interrupting Capacity (AIC) rating of 22,000 minimum.
- F. Provide ground fault monitoring relay connected to the TCU digital input to provide common alarm with the motor protection relay supervision.
- G. Runtimes for each motor starter located in the control panel shall be tracked in the TCU and the motor control shall be programmed to alternate pumps to ensure equal run time for each motor.
- H. Power distribution blocks shall be block style distribution blocks manufactured by Ferraz Shawmut or Engineer approved equal. All distribution blocks shall be provided with polycarbonate safety covers to provide dead front protection. The safety cover shall have a test prod hole for testing purposes
- I. Fuse blocks/holders shall be UL style fuse blocks manufactured by Ferraz Shawmut or Engineer approved equal.
- J. General purpose fuses shall be Ferraz Shawmut UL Power Fuse style or Engineer approved equal. Unless otherwise noted the fuse rating and type shall be determined based on the equipment (which the fuse is protecting) manufacturer's recommendations for overcurrent protection.
- K. Semiconductor fuses shall be Ferraz Shawmut Amp Trap series fuses or Engineer approved equal. Unless otherwise noted the fuse rating and type shall be determined based on the equipment (which the fuse is protecting) manufacturer's recommendations for overcurrent protection.

- L. All control transformers shall be sized to provide 25% spare capacity. The transformer connections shall be provided with protective covers to guard against accidental contact, and the transformer shall be provided with primary and secondary fusing per the manufacturer's recommendations.
- M. Each control panel shall be provided with a ground fault duplex service receptacle that is accessible from the interior dead-front panel. The service receptacle shall be capable of providing 15A at 125VAC
- N. Each control panel shall be provided with a series connected suppression filter system to protect the programmable logic controller and instrumentation power from high-frequency noise and electrical transients. The suppression filter shall be a current technology LoadGuard or Engineer approved equal.
- O. All intrinsically safe barrier relays shall be UL listed and shall be manufactured by Warrick or Engineer approved equal.
- P. Pilot lights shall be provided for each starter located inside the control panel. The lights shall be as follows: Red (Run), Green (Off), Amber (Fault).
- Q. Control power transformers shall be provided in each control panel with a supply voltage other than 120V or 120/208V. Control power transformers shall be manufactured by Square D company and provided with both primary and secondary fuses per the NEC.

## 2.12 MISCELLANEOUS

- A. Engraved laminated plastic nameplates shall be furnished for each front panel mounted instrument. The Contractor shall coordinate with the Owner for nameplate color and naming conventions. All instruments and components shall be tagged on rear with embossed plastic tape labels.
- B. Provide convenience GFCI receptacle mounted within the control panel enclosure and a GFCI receptacle mounted on the exterior of the control panel enclosure in a cast aluminum outlet box with a while in use, weatherproof coverplate.
- C. Provide button type photocell and 20A/1P switch in weatherproof cast aluminum outlet boxes mounted on the exterior of the control panel to control the area light.
- D. Provide LED strip lights mounted within each section of the Lift Station Control Panel, CP-LS, controlled via door switches.

## PART 3 - EXECUTION

### 3.1 CONTRACTOR'S RESPONSIBILITY

- A. The Contractor shall coordinate the work of the service personnel during construction, testing, and acceptance of the work.
- B. The Contractor shall receive final approval on all panel, enclosure, and equipment layouts by the Engineer prior to fabrication or installation.

### 3.2 QUALITY ASSURANCE

- A. All control panels shall be factory tested and certified prior to releasing for shipment. The testing shall consist of but not limited to the following:
  - 1. Point to point testing of all wiring prior to application of power.
  - 2. The intended supply voltage shall be applied to the control panel and all components shall be tested for proper operation and calibration.
  - 3. The Telemetry Control Unit and operator interface code shall be loaded, and shall be tested for functionality.
  - 4. All components shall be checked to confirm that each device has been installed per the plans and specifications as well as the Manufacturer's recommendations.
  - 5. The enclosure shall be inspected for defects and shall be repaired or replaced if necessary.
  - 6. All labeling and identification tags shall be verified and be clean and visible.
- B. An Electrical Engineer, registered in the state of Florida, shall be required to document the results of the control panel testing. The documentation shall contain the results of the tests listed above as well as any rework items and subsequent repairs that were required prior to shipment. In addition he/she must certify this document prior to the release for shipment. Prior to shipment all one copy of the applicable documentation shall be placed in the drawing pocket of each enclosure, and three copies shall be sent to the Engineer.

### 3.3 INSTALLATION

- A. All equipment and devices for the work shall be installed in the locations shown on the drawings, in accordance with the manufacturer's recommendations, and in compliance with the requirements of these specifications.
- B. The Contractor shall be responsible for coordinating the installation of all equipment in the proposed locations with all other trades performing work on the project that may be affected.

### 3.4 FINAL INSPECTION

- A. Include all changes and/or alterations in the control panels prior to final inspection and acceptance by the owner.
- B. Any changes and/or alterations in the Control Panels shall be reflected/updated in all Control Panel Schematics prior to acceptance by the Owner. This includes all electronic copies delivered to the Owner.

END OF SECTION 409513



# FLORIDA DEPARTMENT OF Environmental Protection

Northwest District  
160 W. Government Street, Suite 308  
Pensacola, FL 32502

Ron DeSantis  
Governor

Jeanette Nuñez  
Lt. Governor

Noah Valenstein  
Secretary

March 23, 2021

City of Callaway  
c/o Eddie Cook  
6601 E Highway 22  
Callaway, Florida 32404  
[citymanager@cityofcallaway.com](mailto:citymanager@cityofcallaway.com)

File No.: 0397436-001-EG/03, Bay County

Dear Mr. Cook:

On January 19, 2021, we received your notice of intent to use a General Permit (GP) pursuant to Rule 62-330.453, Florida Administrative Code (F.A.C.) to perform a horizontal directional drill within Callaway Bayou, Class II Florida Waters, Prohibited Shellfish Harvesting Area. The project is located within an existing Right-of-Way along S. Berthe Ave., Callaway, Florida 32404, in Section 17, Township 04 South, Range 13 West of Bay County; at approximately 30°8'18.2165" North Latitude, 85°34'28.2330" West Longitude.

Your intent to use a general permit has been reviewed by Department staff for three types of authorization: (1) regulatory authorization, (2) proprietary authorization (related to state-owned submerged lands), and (3) federal authorization. The authority for review and the outcomes of the reviews are listed below. Please read each section carefully.

**Your project did not qualify for the federal authorization, therefore additional authorization must be obtained prior to commencement of the proposed activity.** This letter does not relieve you from the responsibility of obtaining other federal, state, or local authorizations that may be required for the activity. Please refer to the specific section(s) dealing with that portion of the review below for advice on how to proceed.

If you change the project from what you submitted, the authorization(s) granted may no longer be valid at the time of commencement of the project. Please contact us prior to beginning your project if you wish to make any changes.

## 1. Regulatory Review – Approved

Based on the forms, drawings, and documents submitted with your notice, it appears that the project meets the requirements for the General Permit under Rule 62-330.453, F.A.C. Any activities performed under a general permit are subject to general conditions required in Rule 62-330.405, F.A.C. (attached) and the specific conditions of Rule 62-330.453, F.A.C. (attached). Any deviations from these conditions may subject the permittee to enforcement action and possible penalties.

Please be advised that the construction phase of the GP must be completed within five years from the date the notice to use the GP was received by the Department. If you wish to continue this GP beyond the expiration date, you must notify the Department at least 30 days before its expiration.

Authority for review – Part IV of Chapter 373, Florida Statutes (F.S.), Title 62, F.A.C., and in accordance with the operating agreements executed between the Department and the water management districts, as referenced in Chapter 62-113, F.A.C.

## **2. Proprietary Review – Pending**

The Department acts as staff to the Board of Trustees of the Internal Improvement Trust Fund (Board of Trustees) and issues certain authorizations for the use of sovereign submerged lands. The Department has the authority to review activities on sovereign submerged lands under Chapters 253 and 258, F.S. and Chapters 18-20 and 18-21, F.A.C.

The activity appears to be located on sovereign submerged lands owned by the Board of Trustees. The activity is not exempt from the need to obtain the applicable proprietary authorization. As staff to the Board of Trustees, the Department has reviewed the activity described above, and has determined that the activity requires a public easement for the use of sovereign submerged lands; you must make application to the Department for such authorization.

Based on the information submitted, we have begun processing your application to use sovereign submerged lands. Please contact Jacob Hullett at the letterhead address, at (850)595-0638, or at [Jacob.Hullett@FloridaDEP.gov](mailto:Jacob.Hullett@FloridaDEP.gov) for additional information.

Please be advised that any use of sovereign submerged lands without specific prior authorization from the Board of Trustees will be considered a violation of Chapter 253, F.S. and may subject the affected upland riparian property owners to legal action as well as potential fines for the prior unauthorized use of sovereign land.

Authority for review – Chapter 253, F.S., Chapter 18-21, F.A.C., and Section 62-330.075, F.A.C., as required.

## **3. Federal Review – SPGP Not Included**

Your proposed activity as outlined on your application and attached drawings **does not qualify** for Federal authorization pursuant to the State Programmatic General Permit and a **SEPARATE permit** or authorization **shall be required** from the Corps. You must apply separately to the Corps using their APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT, ENG FORM 4345, or alternative as allowed by their regulations. More information on Corps permitting may be found online in the Jacksonville District Regulatory Division Source Book at: <https://www.saj.usace.army.mil/Missions/Regulatory/Source-Book>.

Authority for review - an agreement with the USACOE entitled “Coordination Agreement Between the U.S. Army Corps of Engineers (Jacksonville District) and the Florida Department of Environmental Protection (or Duly Authorized Designee), State Programmatic General Permit”, Section 10 of the Rivers and Harbor Act of 1899, and Section 404 of the Clean Water Act.

### **Additional Information**

Please retain this general permit. The activities may be inspected by authorized state personnel in the future to ensure compliance with appropriate statutes and administrative codes. If the activities are not in compliance, you may be subject to penalties under Chapter 373, F.S. and Chapter 18-14, F.A.C.

### **NOTICE OF RIGHTS**

This action is final and effective on the date filed with the Clerk of the Department unless a petition for an administrative hearing is timely filed under Sections 120.569 and 120.57, F.S., before the deadline for filing a petition. On the filing of a timely and sufficient petition, this action will not be final and effective until a subsequent order of the Department. Because the administrative hearing process is designed to formulate final agency action, the subsequent order may modify or take a different position than this action.

#### Petition for Administrative Hearing

A person whose substantial interests are affected by the Department's action may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57, F.S. Pursuant to Rules 28-106.201 and 28-106.301, F.A.C., a petition for an administrative hearing must contain the following information:

- (a) The name and address of each agency affected and each agency's file or identification number, if known;
- (b) The name, address, and telephone number of the petitioner; the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests are or will be affected by the agency determination;
- (c) A statement of when and how the petitioner received notice of the agency decision;
- (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate;
- (e) A concise statement of the ultimate facts alleged, including the specific facts that the petitioner contends warrant reversal or modification of the agency's proposed action;
- (f) A statement of the specific rules or statutes that the petitioner contends require reversal or modification of the agency's proposed action, including an explanation of how the alleged facts relate to the specific rules or statutes; and
- (g) A statement of the relief sought by the petitioner, stating precisely the action that the petitioner wishes the agency to take with respect to the agency's proposed action.

The petition must be filed (received by the Clerk) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000, or via electronic correspondence at [Agency\\_Clerk@FloridaDEP.gov](mailto:Agency_Clerk@FloridaDEP.gov). Also, a copy of the petition shall be mailed to the applicant at the address indicated above at the time of filing.

#### Time Period for Filing a Petition

In accordance with Rule 62-110.106(3), F.A.C., petitions for an administrative hearing by the applicant and persons entitled to written notice under Section 120.60(3), F.S., must be filed within 21 days of receipt of this written notice. Petitions filed by any persons other than the applicant, and other than those entitled to written notice under Section 120.60(3), F.S., must be filed within 21 days of publication of the notice or within 21 days of receipt of the written



notice, whichever occurs first. You cannot justifiably rely on the finality of this decision unless notice of this decision and the right of substantially affected persons to challenge this decision has been duly published or otherwise provided to all persons substantially affected by the decision. While you are not required to publish notice of this action, you may elect to do so pursuant Rule 62-110.106(10)(a).

The failure to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention (in a proceeding initiated by another party) will be only at the discretion of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205, F.A.C. If you do not publish notice of this action, this waiver may not apply to persons who have not received a clear point of entry.

#### Extension of Time

Under Rule 62-110.106(4), F.A.C., a person whose substantial interests are affected by the Department's action may also request an extension of time to file a petition for an administrative hearing. The Department may, for good cause shown, grant the request for an extension of time. Requests for extension of time must be filed with the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000, or via electronic correspondence at [Agency\\_Clerk@FloridaDEP.gov](mailto:Agency_Clerk@FloridaDEP.gov), before the deadline for filing a petition for an administrative hearing. A timely request for extension of time shall toll the running of the time period for filing a petition until the request is acted upon.

#### Mediation

Mediation is not available in this proceeding.

#### FLAWAC Review

The applicant, or any party within the meaning of Section 373.114(1)(a) or 373.4275, F.S., may also seek appellate review of this order before the Land and Water Adjudicatory Commission under Section 373.114(1) or 373.4275, F.S. Requests for review before the Land and Water Adjudicatory Commission must be filed with the Secretary of the Commission and served on the Department within 20 days from the date when this order is filed with the Clerk of the Department.

#### Judicial Review

Once this decision becomes final, any party to this action has the right to seek judicial review pursuant to Section 120.68, F.S. by filing a Notice of Appeal pursuant to Florida Rules of Appellate Procedure 9.110 and 9.190 with the Clerk of the Department in the Office of General Counsel (Station #35, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399-3000) and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate district court of appeal. The notice must be filed within 30 days from the date this action is filed with the Clerk of the Department. If you have any questions regarding this matter, please contact Jacob Hullett at the letterhead address, at (850)595-0638, or at [Jacob.Hullett@FloridaDEP.gov](mailto:Jacob.Hullett@FloridaDEP.gov).

## EXECUTION AND CLERKING

Executed in Orlando, Florida.

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION



---

Jacob Hullett  
Environmental Specialist  
Submerged Lands and Environmental Resources Program

### Attachments:

1. Rule 62-330.453, F.A.C., 2 pages
2. General Conditions for All General Permits, Rule 62-330.405, F.A.C., 3 pages
3. Special Consent Conditions for Use of Sovereignty Submerged Lands, 1 page
4. General Consent Conditions for Use of Sovereignty Submerged Lands, 2 pages
5. Project Drawings, 2 pages

### CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this document and all attachments were sent on the filing date below to the following listed persons:

Kim Allen, DEP, [Kim.Allen@FloridaDEP.gov](mailto:Kim.Allen@FloridaDEP.gov)  
Jennifer Waltrip, DEP, [Jennifer.Waltrip@FloridaDEP.gov](mailto:Jennifer.Waltrip@FloridaDEP.gov)  
Bethany Womack, Agent, Cypress Environmental, [bethany@cypressenvironmental.com](mailto:bethany@cypressenvironmental.com)  
Bay County, [jcyr@baycountyfl.gov](mailto:jcyr@baycountyfl.gov) , [lpowell@baycountyfl.gov](mailto:lpowell@baycountyfl.gov), [agolden@baycountyfl.gov](mailto:agolden@baycountyfl.gov)

### FILING AND ACKNOWLEDGMENT

FILED, on this date, pursuant to Section 120.52, F.S., with the designated Department Clerk, receipt of which is hereby acknowledged.

Mandakini Patel      March 23, 2021  
Clerk                      Date

**62-330.453 General Permit for Installation, Maintenance, Repair, and Removal of Utility Lines.**

(1) A general permit is granted for the installation, maintenance, repair, and removal of underground utility lines, cable, conduit, or pipeline transmitting electricity, communication signals, potable water, raw water, reclaimed water, domestic wastewater, propane gas or natural gas.

(2) For the purposes of this general permit:

(a) “Directional drilling” means the linear or curvilinear excavation of a tunnel or conduit, in any direction, through the use of drilling equipment that can change direction during excavation; this also includes borehole reaming and pulling following primary drilling.

(b) “Jack-and-bore” means the linear, primarily lateral excavation of a tunnel, typically between excavated subgrade pits, through use of drilling equipment and encasement which is advanced under mechanical force, and includes similar methods commonly termed as “microtunneling.”

(c) “Frac-out” means any release of drilling fluid or slurry which results in above-grade discharge of drilling fluid or slurry or significant loss of such fluid or slurry into the surrounding parent material.

(3) This general permit is limited as follows:

(a) No work occurs within Outstanding Florida Waters, Aquatic Preserves, or Class I waters.

(b) The installation of conduit or pipeline to drain wetlands or other surface waters is not authorized.

(c) Prior to work, existing pipelines shall be evacuated of substances which, if released, could result in a violation of state water quality standards.

(d) The maximum width of the disturbed corridor in wetlands shall not exceed 30 feet.

(e) The total area of forested wetland disturbance shall not exceed 0.5 acre per ten miles of cable, conduit, or pipeline.

(f) Minor above-grade improvements may be constructed in uplands under this general permit, but shall be limited to vents, valves, meter assemblies, relays, junction boxes, pads or similar structures that are directly connected to the utility line, do not create discharges, and which cumulatively comprise no more than 100 square feet of impervious surfaces per mile of utility line.

(g) Installation, maintenance, repair, and removal activities performed via trenching or methods other than directional drilling or jack-and-bore, are subject to the following special conditions:

1. The maximum width of the excavated trench shall not exceed eight feet, with temporary spoil storage banks not to exceed ten feet in width;

2. For a trench with a top width greater than three feet in herbaceous wetlands, the upper layer of the soil horizon shall initially be scraped and segregated into a spoil bank that is separated from the spoil bank resulting from the excavation of the trench for the utility line. The upper layer of the soil horizon shall be replaced as the last step of restored grades to facilitate natural revegetation;

3. Trenching in surface waters shall be limited to wetlands, artificial waters, and residential canal systems; and

4. Temporary spoil banks shall contain breaches that prevent impoundment or restriction of surface water flows;

(h) Installation, maintenance, repair, and removal conducted using directional drilling or jack-and-bore methods are subject to the following special conditions:

1. The maximum outside diameter of the cable, conduit or pipeline, including encasement, shall not exceed 30 inches.

2. A minimum depth of cover, equal to the greater of either five feet, or five times the maximum encased diameter of the utility line to be installed, shall be maintained between the top of the utility line and casing and the soil surface or submerged bottom of any wetland or waterbody being crossed.

3. All work areas associated with directional drilling or jack-and-bore activities, including entrance and exit pits, drill rigs, tanks, pumps, drilling fluid mixing and settling pits, dewatering systems and staging areas for pipe, cables, and drill string, shall be located within uplands.

4. The use of drilling fluids shall not cause or contribute to a violation of state ground water quality criteria or standards, as defined in chapter 62-520, F.A.C.

5. The permittee shall, at least 48 hours prior to commencement of any directional drilling or jack-and-bore activities, submit to the agency the name, as registered with the Florida Department of State, and all-hours telephone contact information of all contractors responsible for drilling and for containment and cleanup in the event of a drilling fluid frac-out or spill.

6. The contractor shall, at all times during directional drilling activities, maintain appropriate equipment and materials in a readily-accessible location and condition, to effectively contain and clean up a drilling fluid frac-out or spill.

7. The permittee or the permittee's contractor shall, at all times during directional drilling activities, ensure that appropriately-trained personnel monitor downhole equipment position, drilling fluid circulation and pressures, and actively monitor the entire utility line route for surface frac-out of drilling fluids.

8. Drilling activities shall be discontinued and the drilling fluid or slurry shall be contained using appropriate methods as soon as possible, in the event of a drilling fluid frac-out or spill. Removal of drilling fluid or slurry from wetlands and other surface waters shall be initiated and completed in the most expeditious manner practicable. Removed drilling fluid shall be contained or disposed of in an appropriate upland location. Any frac-out or spill of drilling fluid into wetlands or other surface waters shall be reported to Agency staff within 24 hours following detection of the spill or frac-out.

(i) Utilities must be located a minimum of 14 feet below the authorized depth of a federal navigation channel.

*Rulemaking Authority 373.026(7), 373.043, 373.118(1), 373.406(5), 373.4131, 373.414(9), 373.418, 403.805(1) FS. Law Implemented 373.118(1), 373.406(5), 373.413, 373.4131, 373.414(9), 373.416, 373.418, 403.814(1) FS. History—New 10-3-95, Formerly 62-341.453, Amended 10-1-13, 6-1-18.*

### **62-330.405 General Conditions for All General Permits.**

The following general permit conditions are binding upon the permittee and are enforceable under chapter 373, F.S. These conditions do not apply to the general permit for stormwater management systems under section 403.814(12), F.S.

(1) The general permit is valid only for the specific activity indicated. Any deviation from the specified activity and the conditions for undertaking that activity shall constitute a violation of the permit and may subject the permittee to enforcement action and revocation of the permit under chapter 373, F.S.

(2) The general permit does not eliminate the necessity to obtain any required federal, state, local and special district authorizations prior to the start of any construction, alteration, operation, maintenance, removal or abandonment authorized by this permit; and it does not authorize any violation of any other applicable federal, state, local, or special district laws (including, but not limited to, those governing the “take” of listed species).

(3) The general permit does not convey to the permittee or create in the permittee any property right, or any interest in real property, nor does it authorize any entrance upon or activities on property which is not owned or controlled by the permittee, or convey any rights or privileges other than those specified in the general permit.

(4) The general permit does not relieve the permittee from liability and penalties when the permitted activity causes harm or injury to: human health or welfare; animal, plant or aquatic life; or property. It does not allow the permittee to cause pollution that violates state water quality standards.

(5) Section 253.77, F.S., provides that a person may not commence any excavation, construction, or other activity involving the use of state-owned or other lands of the state, the title to which is vested in the Board of Trustees of the Internal Improvement Trust Fund without obtaining the required consent, lease, easement, or other form of authorization authorizing the proposed use. Therefore, the permittee is responsible for obtaining any necessary authorizations from the Board of Trustees prior to commencing activity on state-owned lands.

(6) The authorization to conduct activities under a general permit may be modified, suspended or revoked in accordance with chapter 120, F.S., and section 373.429, F.S.

(7) The general permit is not transferable to a new third party. To be used by a different permittee, a new notice to use a general permit must be submitted in accordance with rule 62-330.402, F.A.C. Activities constructed in accordance with the terms and conditions of a general permit are automatically authorized to be operated and maintained by the permittee and subsequent owners in accordance with subsection 62-330.340(1), F.A.C. Any person holding the general permit, persons working under the general permit, and owners of land while work is conducted under the general permit shall remain liable for any corrective actions that may be required as a result of any permit violations prior to sale, conveyance, or other transfer of ownership or control of the permitted project, activity, or the real property at which the permitted project or activity is located.

(8) Upon reasonable notice to the permittee, Agency staff with proper identification shall have permission to enter, inspect, sample and test the permitted system to ensure conformity with the plans and specifications approved by the general permit.

(9) The permittee shall maintain any permitted project or activity in accordance with the plans submitted to the Agency and authorized in the general permit.

(10) A permittee's right to conduct a specific activity under the general permit is authorized for a duration of five years.

(11) Activities shall be conducted in a manner that does not cause or contribute to violations of state water quality standards. Performance-based erosion and sediment control best management practices shall be implemented and maintained immediately prior to, during, and after construction as needed to stabilize all disturbed areas, including other measures specified in the permit to prevent adverse impacts to the water resources and adjacent lands. Erosion and sediment control measures shall be installed and maintained in accordance with the *State of Florida Erosion and Sediment Control Designer and Reviewer Manual (Florida Department of Environmental Protection and Florida Department of Transportation, June 2007)*, available at <https://www.flrules.org/Gateway/reference.asp?No=Ref-04227>, and the *Florida Stormwater Erosion and Sedimentation Control Inspector's Manual (Florida Department of Environmental Protection, Nonpoint Source Management Section, Tallahassee, Florida, July 2008)*, available at [http://publicfiles.dep.state.fl.us/DEAR/Stormwater\\_Training\\_Docs/erosion-inspectors-manual.pdf](http://publicfiles.dep.state.fl.us/DEAR/Stormwater_Training_Docs/erosion-inspectors-manual.pdf).

(12) Unless otherwise specified in the general permit, temporary vehicular access within wetlands during construction shall be performed using vehicles generating minimum ground pressure to minimize rutting and other environmental impacts. Within forested wetlands, the permittee shall choose alignments that minimize the destruction of mature wetland trees to the greatest extent practicable. When needed to prevent rutting or soil compaction, access vehicles shall be operated on wooden, composite, metal, or other non-earthen construction mats. In all cases, access in wetlands shall comply with the following:

- (a) Access within forested wetlands shall not include the cutting or clearing of any native wetland tree having a diameter four inches or greater at breast height;
- (b) The maximum width of the construction access area shall be limited to 15 feet;
- (c) All mats shall be removed as soon as practicable after equipment has completed passage through, or work has been completed, at any location along the alignment of the project, but in no case longer than seven days after equipment has completed work or passage through that location; and
- (d) Areas disturbed for access shall be restored to natural grades immediately after the maintenance or repair is completed.

(13) Barges or other work vessels used to conduct in-water activities shall be operated in a manner that prevents unauthorized dredging, water quality violations, and damage to submerged aquatic communities.

(14) The construction, alteration, or use of the authorized project shall not adversely impede navigation or create a navigational hazard in the water body.

- (15) Except where specifically authorized in the general permit, activities must not:
- (a) Impound or obstruct existing water flow, cause adverse impacts to existing surface water storage and conveyance capabilities, or otherwise cause adverse water quantity or flooding impacts to receiving water and adjacent lands; or
  - (b) Cause an adverse impact to the maintenance of surface or ground water levels or surface water flows established pursuant to section 373.042, F.S., or a Works of the District established pursuant to section 373.086, F.S.

(16) If prehistoric or historic artifacts, such as pottery or ceramics, projectile points, stone tools, dugout canoes, metal implements, historic building materials, or any other physical remains that could be associated with Native American, early European, or American settlement are encountered at any time within the project site area, the permitted project shall cease all activities involving subsurface disturbance in the vicinity of the discovery. The permittee or other designee shall contact the Florida Department of State, Division of Historical Resources, Compliance Review Section (DHR), at (850)245-6333, as well as the appropriate permitting agency office. Project activities shall not resume without verbal or written authorization from the Division of Historical Resources. If unmarked human remains are encountered, all work shall stop immediately and the proper authorities notified in accordance with section 872.05, F.S.

(17) The activity must be capable, based on generally accepted engineering and scientific principles, of being performed and of functioning as proposed, and must comply with any applicable District special basin and geographic area criteria.

(18) The permittee shall comply with the following when performing work within waters accessible to federally- or state-listed aquatic species, such as manatees, marine turtles, smalltooth sawfish, and Gulf sturgeon:

- (a) All vessels associated with the project shall operate at “Idle Speed/No Wake” at all times while in the work area and where the draft of the vessels provides less than a four-foot clearance from the bottom. All vessels will follow routes of deep water whenever possible.
- (b) All deployed siltation or turbidity barriers shall be properly secured, monitored, and maintained to prevent entanglement or entrapment of listed species.
- (c) All in-water activities, including vessel operation, must be shut down if a listed species comes within 50 feet of the work area. Activities shall not resume until the animal(s) has moved beyond a 50-foot radius of the in-water work, or until 30 minutes elapses since the last sighting within 50 feet. Animals must not be herded away or harassed into leaving. All onsite project personnel are responsible for observing water-related activities for the presence of listed species.
- (d) Any listed species that is killed or injured by work associated with activities performed shall be reported immediately to the Florida Fish and Wildlife Conservation Commission (FWC) Hotline at 1(888)404-3922 and ImperiledSpecies@myFWC.com.
- (e) Whenever there is a spill or frac-out of drilling fluid into waters accessible to the above species during a directional drilling operation, the FWC shall be notified at ImperiledSpecies@myfwc.com with details of the event within 24 hours following detection of the spill or frac-out.

(19) The permittee shall hold and save the Agency harmless from any and all damages, claims, or liabilities which may arise by reason of the construction, alteration, operation, maintenance, removal, abandonment or use of any activity authorized by the general permit.

(20) The permittee shall immediately notify the Agency in writing of any submitted information that is discovered to be inaccurate.

*Rulemaking Authority 373.026(7), 373.043, 373.118(1), 373.406(5), 373.4131, 373.414(9), 373.4145, 373.418, 403.805(1) FS. Law Implemented 373.044, 373.118(1), 373.129, 373.136, 373.406(5), 373.413, 373.4131, 373.414(9), 373.4145, 373.416, 373.422, 373.423, 373.429, 403.814(1) FS. History—New 10-3-95, Amended 10-1-07, Formerly 62-341.215, Amended 10-1-13, 6-1-18.*



### **Special Consent Conditions**

1. The applicant agrees to indemnify, defend and hold harmless the Board of Trustees and the State of Florida from all claims, actions, lawsuits and demands in any form arising out of the authorization to use sovereignty submerged lands or the applicant's use and construction of structures on sovereignty submerged lands. This duty to indemnify and hold harmless will include any and all liabilities that are associated with the structure or activity including special assessments or taxes that are now or in the future assessed against the structure or activity during the period of the authorization.
2. Failure by the Board of Trustees to enforce any violation of a provision of the authorization or waiver by the Board of Trustees of any provision of the authorization will not invalidate the provision not enforced or waived, nor will the failure to enforce or a waiver prevent the Board of Trustees from enforcing the unenforced or waived provision in the event of a violation of that provision.
3. Applicant binds itself and its successors and assigns to abide by the provisions and conditions set forth in the authorization. If the applicant or its successors or assigns fails or refuses to comply with the provisions and conditions of the authorization, the authorization may be terminated by the Board of Trustees after written notice to the applicant or its successors or assigns. Upon receipt of such notice, the applicant or its successors or assigns will have thirty (30) days in which to correct the violations. Failure to correct the violations within this period will result in the automatic revocation of this authorization.
4. All costs incurred by the Board of Trustees in enforcing the terms and conditions of the authorization will be paid by the applicant. Any notice required by law will be made by certified mail at the address shown on page one of the authorization. The applicant will notify the Board of Trustees in writing of any change of address at least ten days before the change becomes effective.
5. This authorization does not allow any activity prohibited in a conservation easement or restrictive covenant that prohibits the activity.

**General Conditions for Authorizations for Activities on State-Owned Submerged Lands:**

All authorizations granted by rule or in writing under rule 18-21.005, F.A.C., except those for geophysical testing, shall be subject to the general conditions as set forth in paragraphs (a) through (j) below. The general conditions shall be part of all authorizations under this chapter, shall be binding upon the grantee, and shall be enforceable under chapter 253 or 258, part II, F.S.

- (a) Authorizations are valid only for the specified activity or use. Any unauthorized deviation from the specified activity or use and the conditions for undertaking that activity or use shall constitute a violation. Violation of the authorization shall result in suspension or revocation of the grantee's use of the sovereignty submerged land unless cured to the satisfaction of the Board.
- (b) Authorizations convey no title to sovereignty submerged land or water column, nor do they constitute recognition or acknowledgment of any other person's title to such land or water.
- (c) Authorizations may be modified, suspended or revoked in accordance with their terms or the remedies provided in sections 253.04 and 258.46, F.S., or chapter 18-14, F.A.C.
- (d) Structures or activities shall be constructed and used to avoid or minimize adverse impacts to sovereignty submerged lands and resources.
- (e) Construction, use, or operation of the structure or activity shall not adversely affect any species which is endangered, threatened or of special concern, as listed in rules 68A-27.003, 68A-27.004 and 68A-27.005, F.A.C.
- (f) Structures or activities shall not unreasonably interfere with riparian rights. When a court of competent jurisdiction determines that riparian rights have been unlawfully affected, the structure or activity shall be modified in accordance with the court's decision.
- (g) Structures or activities shall not create a navigational hazard.
- (h) Activities shall not interfere with the public easement for traditional uses of the sandy beaches provided in section 161.141, F.S.
- (i) Structures shall be maintained in a functional condition and shall be repaired or removed if they become dilapidated to such an extent that they are no longer functional. This shall not be construed to prohibit the repair or replacement subject to the provisions of rule 18-21.005, F.A.C., within one year, of a structure damaged in a discrete event such as a storm, flood, accident, or fire.
- (j) Structures or activities shall be constructed, operated, and maintained solely for water dependent purposes, or for non-water dependent activities authorized under paragraph 18-21.004(1)(g), F.A.C., or any other applicable law.

*Rulemaking Authority 253.03(7), 253.73 FS. Law Implemented 253.001, 253.03, 253.141, 253.0347, 253.665, 253.71, 253.68, 253.72, 253.74, 253.75, 253.77 FS. History—New 3-27-82, Amended 8-1-83, Formerly 16Q-21.04, 16Q-21.004, Amended 12-25-86, 1-25-87, 3-15-90, 8-18-92, 10-15-98, 12-11-01, 10-29-03, 12-16-03, 3-8-04, 10-27-05, 4-14-08, 9-1-09, 3-21-19.*



REPLY TO  
ATTENTION OF

**DEPARTMENT OF THE ARMY**  
**JACKSONVILLE DISTRICT CORPS OF ENGINEERS**  
**415 RICHARD JACKSON BOULEVARD, SUITE 411**  
**PANAMA CITY BEACH, FLORIDA 32407**

**April 14, 2021**

Regulatory Division  
North Permits Branch  
Panama City Permits Section  
SAJ-2021-00200(GP-KAB)

Mr. Eddie Cook  
City of Callaway  
6601 State Highway 22  
Panama City, FL 32404

Dear Mr. Cook:

The U.S. Army Corps of Engineers (Corps) assigned your application for a Department of the Army permit, which the Corps received on January 19, 2021, the file number SAJ-2021-00200. A review of the information and drawings provided indicates that the proposed work will result in replacement of a failing force main line with a new 4" wide main line via upland-to-upland directional bore (horizontal directional drill, or HDD). The line will follow the existing line underneath Callaway Bayou, which is approximately 36 feet wide at the site of impact. The activities subject to this permit are authorized pursuant to authorities under Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. § 403). The project is located at South Berthe Blvd., in Section 17, Township 4 South, Range 13 West, Panama City, Bay County, Florida..

Your project, as depicted on the enclosed drawings, is authorized by Regional General Permit (RGP) Number 14. In addition, project specific conditions have been enclosed. This verification is valid until **February 22, 2024**. Please access the Corps' Jacksonville District Regulatory Division Internet page to view the special and general conditions for SAJ-20, which apply specifically to this authorization. The Internet URL address is:

<http://www.saj.usace.army.mil/Missions/Regulatory.aspx>

Please be aware this Internet address is case sensitive; and, you will need to enter it exactly as it appears above. Once there you will need to click on "Source Book"; and, then click on "General Permits." Then you will need to click on the specific SAJ permit noted above. Enclosed is a list of the six General Conditions, which apply to all Department of the Army authorizations. You must comply with all of the special and general conditions and any project specific condition of this authorization or you may be subject to enforcement action. In the event you have not completed construction of

your project within the specified time limit, a separate application or re-verification may be required.

**1. Reporting Address:** The Permittee shall submit all reports, notifications, documentation and correspondence required by the general and special conditions of this permit to either (not both) of the following addresses:

a. For electronic mail (preferred): [SAJ-RD-Enforcement@usace.army.mil](mailto:SAJ-RD-Enforcement@usace.army.mil) (not to exceed 15 MB).

b. For standard mail: U.S. Army Corps of Engineers, Regulatory Division, Enforcement Section, P.O. Box 4970, Jacksonville, FL 32232-0019.

The Permittee shall reference this permit number, SAJ-2021-00200(GP-KAB), on all submittals.

**2. Commencement Notification:** Within 10 days from the date of initiating the work authorized by this permit the Permittee shall submit a completed "Commencement Notification" Form (Attachment A).

**3. As-Built Certification:** Within 60 days of completion of the work authorized by this permit, the Permittee shall submit as-built drawings of the authorized work and a completed "As-Built Certification By Professional Engineer" form (Attachment B) to the Corps. The as-built drawings shall be signed and sealed by a registered professional engineer and include the following:

- a. A plan view drawing of the location of the authorized work footprint, as shown on the permit drawings, with transparent overlay of the work as constructed in the same scale as the permit drawings on 8½-inch by 11-inch sheets. The plan view drawing should show all "earth disturbance," including wetland impacts and water management structures.
- b. A list of any deviations between the work authorized by this permit and the work as constructed. In the event that the completed work deviates, in any manner, from the authorized work, describe on the attached "As-Built Certification By Professional Engineer" form the deviations between the work authorized by this permit and the work as constructed. Clearly indicate on the as-built drawings any deviations that have been listed. Please note that the depiction and/or description of any deviations on the drawings and/or "As-Built Certification By Professional Engineer" form does not constitute approval of any deviations by the Corps.

- c. Include the Department of the Army permit number on all sheets submitted.

**4. Agency Changes/Approvals:** Should any other agency require and/or approve changes to the work authorized or obligated by this permit, the Permittee is advised a modification to this permit instrument is required prior to initiation of those changes. It is the Permittee's responsibility to request a modification of this permit from the Panama City Permits Section. The Corps reserves the right to fully evaluate, amend, and approve or deny the request for modification of this permit.

**5. Posting of Permit:** The Permittee shall have available and maintain for review a copy of this permit and approved plans at the construction site.

**6. Cultural Resources/Historic Properties:**

- a. No structure or work shall adversely affect impact or disturb properties listed in the National Register of Historic Places (NRHP) or those eligible for inclusion in the NRHP.

- b. If during the ground disturbing activities and construction work within the permit area, there are archaeological/cultural materials encountered which were not the subject of a previous cultural resources assessment survey (and which shall include, but not be limited to: pottery, modified shell, flora, fauna, human remains, ceramics, stone tools or metal implements, dugout canoes, evidence of structures or any other physical remains that could be associated with Native American cultures or early colonial or American settlement), the Permittee shall immediately stop all work and ground-disturbing activities within a 100-meter diameter of the discovery and notify the Corps within the same business day (8 hours). The Corps shall then notify the Florida State Historic Preservation Officer (SHPO) and the appropriate Tribal Historic Preservation Officer(s) (THPO(s)) to assess the significance of the discovery and devise appropriate actions.

- c. Additional cultural resources assessments may be required of the permit area in the case of unanticipated discoveries as referenced in accordance with the above Special Condition ; and if deemed necessary by the SHPO, THPO(s), or Corps, in accordance with 36 CFR 800 or 33 CFR 325, Appendix C (5). Based, on the circumstances of the discovery, equity to all parties, and considerations of the public interest, the Corps may modify, suspend or revoke the permit in accordance with 33 CFR Part 325.7. Such activity shall not resume on non-federal lands without written authorization from the SHPO for finds under his or her jurisdiction, and from the Corps.

d. In the unlikely event that unmarked human remains are identified on non-federal lands, they will be treated in accordance with Section 872.05 Florida Statutes. All work and ground disturbing activities within a 100-meter diameter of the unmarked human remains shall immediately cease and the Permittee shall immediately notify the medical examiner, Corps, and State Archeologist within the same business day (8-hours). The Corps shall then notify the appropriate SHPO and THPO(s). Based, on the circumstances of the discovery, equity to all parties, and considerations of the public interest, the Corps may modify, suspend or revoke the permit in accordance with 33 CFR Part 325.7. Such activity shall not resume without written authorization from the State Archeologist and from the Corps.

**7. Erosion Control:** Prior to the initiation of any work authorized by this permit, the Permittee shall install erosion control measures along the perimeter of all work areas to prevent the displacement of fill material outside the work area into waters of the United States. Immediately after completion of the final grading of the land surface, all slopes, land surfaces, and filled areas shall be stabilized using sod, degradable mats, barriers, or a combination of similar stabilizing materials to prevent erosion. The erosion control measures shall remain in place and be maintained until all authorized work is completed and the work areas are stabilized.

**8. Turbidity Barriers:** Prior to the initiation of any of the work authorized by this permit, the Permittee shall install floating turbidity barriers with weighted skirts that extend to the bottom around all work areas that are in, or adjacent to, surface waters. The turbidity barriers shall remain in place and be maintained until the authorized work has been completed and all suspended and erodible materials have been stabilized. Turbidity barriers shall be removed upon stabilization of the work area.

**9. Manatee Conditions:** The Permittee shall comply with the “Standard Manatee Conditions for In-Water Work – 2011” (Attachment C).

**10. Jacksonville District Programmatic Biological Opinion (JAXBO), November 2017, Project Design Criteria (PDCs):** Structures authorized under this permit must comply with all applicable PDCs, based on the permitted activity, as required by JAXBO. Please note that failure to comply with the applicable PDCs, where a take of listed species occurs, would constitute an unauthorized take, and noncompliance with this permit. The NMFS is the appropriate authority to enforce the terms and conditions of JAXBO. The most current version of JAXBO can be accessed at the Jacksonville District Regulatory Division internet webpage in the Endangered Species section of the Sourcebook located at:

<http://www.saj.usace.army.mil/Missions/Regulatory/SourceBook.aspx>

Note - JAXBO may be subject to revision at any time. The most recent version of these conditions must be utilized during the design and construction of the permitted work. In accordance with the Endangered Species Act, and for those projects which do not comply with JAXBO, the Corps will seek individual consultation with the NMFS.

Note - some authorized activities may deviate from the PDCs. In cases, where the activity (i.e., structure dimensions, length, etc.) deviates from the PDCs, the permit drawings shall supersede the PDCs.

For each of the following authorized activities subject of this permit, the permittee shall adhere to the following PDCs, which are attached to, and made part of, this authorization/verification letter:

Activity 8 – Transmission and Utility Line Activities: (AP.1-17; A8.1-11) (Attachment D)

**11. Eastern Indigo Snake Protection Measures and Inspection:** Permittee shall comply with U.S. Fish and Wildlife Service's "Standard Protection Measures for the Eastern Indigo Snake" dated August 12, 2013, as provided in Attachment E of this permit. All gopher tortoise burrows, active or inactive, shall be evacuated prior to site manipulation in the vicinity of the burrow. If excavating potentially occupied burrows, active or inactive, individuals must first obtain state authorization via a Florida Fish and Wildlife Conservation Commission (FWC) Authorized Gopher Tortoise Agent permit. The excavation method selected shall minimize the potential for injury of an indigo snake. The Permittee shall follow the excavation guidance provided in the most current FWC Gopher Tortoise Permitting Guidelines found at <http://myfwc.com/gophertortoise>. If an indigo snake is encountered, the snake must be allowed to vacate the area prior to additional site manipulation in the vicinity. Holes, cavities, and snake refugia other than gopher tortoise burrows shall be inspected each morning before planned site manipulation of a particular area, and if occupied by an indigo snake, no work shall commence until the snake has vacated the vicinity of the proposed work.

**12. In the Event of a Frac-Out:** Should a frac-out and release of drilling fluids occur within navigable waters of the U.S., and in-water work is required to remediate the action, the permittee shall comply with the following special conditions:

a. Frac-Out Contingency Plan: The permittee shall comply with the frac-out contingency plan (Attachment F).

b. Manatee Conditions: The permittee shall comply with the "Standard Manatee Conditions for In-Water Work – 2011" (Attachment C).

c. JAXBO Project Design Criteria (PDCs) for In-Water Activities: The permittee shall comply with National Marine Fisheries Service's "PDCs for In-Water Activities" dated November 20, 2017 (Attachment D).

**13. Sea Turtle/Sawfish/Sturgeon Guidelines:** The Permittee shall comply with the National Marine Fisheries Service's "Sea Turtle and Smalltooth Sawfish Construction Conditions", which also applies to sturgeon (Attachment G).

This letter of authorization does not give absolute Federal authority to perform the work as specified on your application. The proposed work may be subject to local building restrictions mandated by the National Flood Insurance Program. You should contact your local office that issues building permits to determine if your site is located in a flood-prone area, and if you must comply with the local building requirements mandated by the National Flood Insurance Program.

If you are unable to access the internet or require a hardcopy of any of the conditions, limitations, or expiration date for the above referenced NWP, please contact me by telephone at 850-362-8150.

Thank you for your cooperation with our permit program. The Corps Jacksonville District Regulatory Division is committed to improving service to our customers. We strive to perform our duty in a friendly and timely manner while working to preserve our environment. We invite you to complete our automated Customer Service Survey at [http://corpsmapu.usace.army.mil/cm\\_apex/f?p=regulatory\\_survey](http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey). Please be aware this Internet address is case sensitive; and, you will need to enter it exactly as it appears above. Your input is appreciated – favorable or otherwise.

Sincerely,



Kelly Bunting  
Project Manager

cc: Bethany Womack, Cypress Environmental  
Enclosures



GENERAL CONDITIONS  
33 CFR PART 320-330

1. The time limit for completing the work authorized ends on **February 22, 2024**.
2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.
3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.
4. If you sell the property associated with this permit you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.
5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.
6. You must allow a representative from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

**DEPARTMENT OF THE ARMY PERMIT TRANSFER REQUEST**

**PERMIT NUMBER: SAJ-2021-00200(GP-KAB)**

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. Although the construction period for works authorized by Department of the Army permits is finite, the permit itself, with its limitations, does not expire.

To validate the transfer of this permit and the associated responsibilities associated with compliance with its terms and conditions, have the transferee sign and date below and mail to the U.S. Army Corps of Engineers, Enforcement Section, Post Office Box 4970, Jacksonville, FL 32232-0019 or electronic mail at [saj-rd-enforcement@usace.army.mil](mailto:saj-rd-enforcement@usace.army.mil).

\_\_\_\_\_  
**(TRANSFEREE-SIGNATURE)**

\_\_\_\_\_  
**(SUBDIVISION)**

\_\_\_\_\_  
**(DATE)**

\_\_\_\_\_  
**(LOT)**

\_\_\_\_\_  
**(BLOCK)**

\_\_\_\_\_  
**(NAME-PRINTED)**

\_\_\_\_\_  
**(STREET ADDRESS)**

\_\_\_\_\_  
**(MAILING ADDRESS)**

\_\_\_\_\_  
**(CITY, STATE, ZIP CODE)**

**COMMENCEMENT NOTIFICATION**

*Within ten (10) days of initiating the authorized work, submit this form via electronic mail to [saj-rd-enforcement@usace.army.mil](mailto:saj-rd-enforcement@usace.army.mil) (preferred, not to exceed 15 MB) **or** by standard mail to U.S. Army Corps of Engineers, Enforcement Section, P.O. Box 4970, Jacksonville, FL 32232-0019.*

**1. Department of the Army Permit Number:** SAJ-2021-00200(GP-KAB)

**2. Permittee Information:**

Name: \_\_\_\_\_

Email: \_\_\_\_\_

Address: \_\_\_\_\_

Phone: \_\_\_\_\_

**3. Construction Start Date:** \_\_\_\_\_

**4. Contact to Schedule Inspection:**

Name: \_\_\_\_\_

Email: \_\_\_\_\_

Phone: \_\_\_\_\_

\_\_\_\_\_  
Signature of Permittee

\_\_\_\_\_  
Printed Name of Permittee

\_\_\_\_\_  
Date

**AS-BUILT CERTIFICATION BY PROFESSIONAL ENGINEER**

Submit this form and one set of as-built engineering drawings to the U.S. Army Corps of Engineers, Enforcement Section, 41 North Jefferson Street, Suite 301, Pensacola, Florida, 32502. If you have questions regarding this requirement, please contact the Enforcement Branch at 904-232-3131.

1. Department of the Army Permit Number: SAJ-2021-00200(GP-KAB)

2. Permittee Information:

Name: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

3. Project Site Identification (physical location/address):

\_\_\_\_\_

\_\_\_\_\_

4. As-Built Certification: I hereby certify that the authorized work, including any mitigation required by Special Conditions to the permit, has been accomplished in accordance with the Department of the Army permit with any deviations noted below. This determination is based upon on-site observation, scheduled, and conducted by me or by a project representative under my direct supervision. I have enclosed one set of as-built engineering drawings.

\_\_\_\_\_  
Signature of Engineer

\_\_\_\_\_  
Name (*Please type*)

\_\_\_\_\_  
(FL, PR, or VI) Reg. Number

\_\_\_\_\_  
Company Name

\_\_\_\_\_  
City

\_\_\_\_\_  
State

\_\_\_\_\_  
ZIP

(Affix Seal)

\_\_\_\_\_  
Date

\_\_\_\_\_  
Telephone Number



## STANDARD MANATEE CONDITIONS FOR IN-WATER WORK

2011

The permittee shall comply with the following conditions intended to protect manatees from direct project effects:

- a. All personnel associated with the project shall be instructed about the presence of manatees and manatee speed zones, and the need to avoid collisions with and injury to manatees. The permittee shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Marine Mammal Protection Act, the Endangered Species Act, and the Florida Manatee Sanctuary Act.
- b. All vessels associated with the construction project shall operate at "Idle Speed/No Wake" at all times while in the immediate area and while in water where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will follow routes of deep water whenever possible.
- c. Siltation or turbidity barriers shall be made of material in which manatees cannot become entangled, shall be properly secured, and shall be regularly monitored to avoid manatee entanglement or entrapment. Barriers must not impede manatee movement.
- d. All on-site project personnel are responsible for observing water-related activities for the presence of manatee(s). All in-water operations, including vessels, must be shutdown if a manatee(s) comes within 50 feet of the operation. Activities will not resume until the manatee(s) has moved beyond the 50-foot radius of the project operation, or until 30 minutes elapses if the manatee(s) has not reappeared within 50 feet of the operation. Animals must not be herded away or harassed into leaving.
- e. Any collision with or injury to a manatee shall be reported immediately to the Florida Fish and Wildlife Conservation Commission (FWC) Hotline at 1-888-404-3922. Collision and/or injury should also be reported to the U.S. Fish and Wildlife Service in Jacksonville (1-904-731-3336) for north Florida or in Vero Beach (1-772-562-3909) for south Florida, and emailed to FWC at [ImperiledSpecies@myFWC.com](mailto:ImperiledSpecies@myFWC.com).
- f. Temporary signs concerning manatees shall be posted prior to and during all in-water project activities. All signs are to be removed by the permittee upon completion of the project. Temporary signs that have already been approved for this use by the FWC must be used. One sign which reads *Caution: Boaters* must be posted. A second sign measuring at least 8½" by 11" explaining the requirements for "Idle Speed/No Wake" and the shut down of in-water operations must be posted in a location prominently visible to all personnel engaged in water-related activities. These signs can be viewed at [http://www.myfwc.com/WILDLIFEHABITATS/manatee\\_sign\\_vendors.htm](http://www.myfwc.com/WILDLIFEHABITATS/manatee_sign_vendors.htm). Questions concerning these signs can be forwarded to the email address listed above.

**AP.1.** The applicant must agree to adhere to PDCs for *In-Water Activities* (provided below).

**AP.2.** All projects involving the installation of piles or sheet piles shall follow the PDCs for *In-Water Noise from Pile and Sheet Pile Installation* (Section 2.2). This Opinion does not cover projects that use seismic surveys, low frequency sonar, explosions, and seismic air guns.

**AP.3.** All projects proposed in or near areas with mangroves, seagrasses, corals, or hard bottom habitat must refer to PDCs for *Mangroves, Seagrasses, Corals, and Hard Bottom for All Projects* (provided below) to determine whether the project is covered under the Opinion and, if it is covered, to ensure it is sited, designated, and implemented following all of the PDCs in that section.

**AP.4.** For every project, the USACE must determine if the project is located within:

- Smalltooth sawfish critical habitat limited exclusion zones (Section 2.1.1.1)
- Gulf sturgeon critical habitat migratory restriction zones (Section 2.1.1.2)
- Atlantic sturgeon critical habitat exclusion zone (St. Marys River) (Section 2.1.1.3)
- North Atlantic right whale educational sign zones (Section 2.1.1.4)
- U.S. Caribbean sea turtle critical habitat restriction zones (Section 2.1.1.5)
- Bryde's whale exclusion zone (Section 2.1.1.6)

Where the activity is excluded from the Opinion within a particular zone, the application must be processed under a separate consultation. Where additional restrictions apply to activities within that zone, the USACE or other authorizing entity must ensure that the project meets the requirements for that zone.

**AP.5.** This Opinion only covers new construction (i.e., installation, repair, replacement) and does not apply to after-the-fact consultations or enforcement actions handled by the USACE.

**AP.6.** All activities must be completed during daylight hours.

For an activity to be covered under this Opinion, the USACE authorization must include the following conditions. Failure to comply with these conditions could result in enforcement action by the USACE and/or NMFS.

**AP.7. Education and Observation:** The permittee must ensure that all personnel associated with the project are instructed about the potential presence of species protected under the ESA and the Marine Mammal Protection Act (MMPA). All on-site project personnel are responsible for observing water-related activities for the presence of protected species. All personnel shall be advised that there are civil and criminal penalties for harming, harassing, or killing ESA-listed species or marine mammals. To determine which species may be found in the project area, please review the relevant Protected Species List at: [http://sero.nmfs.noaa.gov/protected\\_resources/section\\_7/threatened\\_endangered/index.html](http://sero.nmfs.noaa.gov/protected_resources/section_7/threatened_endangered/index.html)

**AP.8. Reporting** of interactions with protected species:

- a) Any collision(s) with and/or injury to any sea turtle, sawfish, whale, or sturgeon occurring during the construction of a project, shall be reported immediately to NMFS's Protected Resources Division (PRD) at (1-727-824-5312) or by email to [takereport.nmfs@noaa.gov](mailto:takereport.nmfs@noaa.gov) and [SAJ-RD-Enforcement@usace.army.mil](mailto:SAJ-RD-Enforcement@usace.army.mil).
- b) Smalltooth sawfish: Report sightings to 1-844-SAWFISH or email [Sawfish@MyFWC.com](mailto:Sawfish@MyFWC.com)
- c) Sturgeon: Report dead sturgeon to 1-844-STURG 911 (1-844-788-7491) or email [nmfs.ser.sturgeonnetwork@noaa.gov](mailto:nmfs.ser.sturgeonnetwork@noaa.gov)
- d) Sea turtles and marine mammals: Report stranded, injured, or dead animals to 1-877-WHALE HELP (1-877-942-5343).
- e) North Atlantic right whale: Report injured, dead, or entangled right whales to the USCG via VHF Channel 16.

**AP.9. Vessel Traffic and Construction Equipment:** All vessel operators must watch for and avoid collision with species protected under the ESA and MMPA. Vessel operators must avoid potential interactions with protected species and operate in accordance with the following protective measures:

- a) *Construction Equipment:*
  - i) All vessels associated with the construction project shall operate at "Idle Speed/No Wake" at all times while operating in water depths where the draft of the vessel provides less than a 4-foot (ft) clearance from the bottom, and in all depths after a protected species has been observed in and has departed the area.
  - ii) All vessels will follow marked channels and/or routes using the maximum water depth whenever possible.
  - iii) Operation of any mechanical construction equipment, including vessels, shall cease immediately if a listed species is observed within a 50-ft radius of construction equipment and shall not resume until the species has departed the area of its own volition.



- iv) If the detection of species is not possible during certain weather conditions (e.g., fog, rain, wind), then in-water operations will cease until weather conditions improve and detection is again feasible.
- b) *All Vessels:*
  - i) Sea turtles: Maintain a minimum distance of 150 ft.
  - ii) North Atlantic right whale: Maintain a minimum 1,500-ft distance (500 yards).
  - iii) Vessels 65 ft in length or longer must comply with the Right Whale Ship Strike Reduction Rule (50 CFR 224.105) which includes reducing speeds to 10 knots or less in Seasonal Management Areas (<http://www.fisheries.noaa.gov/pr/shipstrike/>).
  - iv) Mariners shall check various communication media for general information regarding avoiding ship strikes and specific information regarding right whale sightings in the area. These include NOAA weather radio, USCG NAVTEX broadcasts, and Notices to Mariners.
  - v) Marine mammals (i.e., dolphins, whales [other than North Atlantic right whales], and porpoises): Maintain a minimum distance of 300 ft.
  - vi) When these animals are sighted while the vessel is underway (e.g., bow-riding), attempt to remain parallel to the animal's course. Avoid excessive speed or abrupt changes in direction until they have left the area.
  - vii) Reduce speed to 10 knots or less when mother/calf pairs or groups of marine mammals are observed, when safety permits.

**AP.10. Turbidity Control Measures during Construction:** Turbidity must be monitored and controlled. Prior to initiating any of the work covered under this Opinion, the Permittee shall install turbidity curtains as described below. In some instances, the use of turbidity curtains may be waived by the USACE project manager if the project is deemed too minimal to generate turbidity (e.g., certain ATON installation, scientific survey device placement, marine debris removal) or if the current is too strong for the curtains to stay in place. Turbidity curtains specifications:

- a) Install floating turbidity barriers with weighted skirts that extend to within 1 ft of the bottom around all work areas that are in, or adjacent to, surface waters.
- b) Use these turbidity barriers throughout construction to control erosion and siltation and ensure that turbidity levels within the project area do not exceed background conditions.
- c) Position turbidity barriers in a way that does not block species' entry to or exit from designated critical habitat.
- d) Monitor and maintain turbidity barriers in place until the authorized work has been completed and the water quality in the project area has returned to background conditions.
- e) In the range of ESA-listed corals (St. Lucie Inlet, Martin County south to the Dry Tortugas and the U.S. Caribbean) and Johnson's seagrass (Turkey Creek/Palm Bay south to central Biscayne Bay in the lagoon systems on the east coast of Florida):
  - Projects that include upland earth moving (e.g., grading to install a building or parking lot associated with a dock and seawall project), must install sediment control barriers to prevent any upland sediments from reaching estuarine or marine waters.
  - The turbidity curtain requirement cannot be waived for any project that moves or removes sediment (e.g., dredging, auger to create a pile, trenching to install a cable line). If turbidity curtains are not feasible in an area based on site conditions such as water current, high wave action, or stormy conditions, the project must undergo individual Section 7 consultation and is not covered under this Programmatic Opinion.

**AP.11. Entanglement:** All turbidity curtains and other in-water equipment must be properly secured with materials that reduce the risk of entanglement of marine species (described below). Turbidity curtains likewise must be made of materials that reduce the risk of entanglement of marine species.

- a) In-water lines (rope, chain, and cable, including the lines to secure turbidity curtains) must be stiff, taut, and non-looping. Examples of such lines are heavy metal chains or heavy cables that do not readily loop and tangle. Flexible in-water lines, such as nylon rope or any lines that could loop or tangle, must be enclosed in a plastic or rubber sleeve/tube to add rigidity and prevent the line from looping and tangling. In all instances, no excess line is allowed in the water.
- b) Turbidity curtains and other in-water equipment must be placed in a manner that does not entrap species within the construction area or block access for them to navigate around the construction area.

Note: **For projects authorized in reliance on this Opinion only**, the PDCs below supercede any other guidance documents otherwise applicable to reduce or avoid impacts to mangroves, seagrasses, and corals. This includes the NMFS's *Construction Guidelines in Florida for Minor Piling-Supported Structures Constructed in or over Submerged Aquatic Vegetation, Marsh, or Mangrove Habitat* dated August 2001, and NMFS's *Key for Construction Conditions for Docks or Other Minor Structures Constructed in or over Johnson's Seagrass (Halophila johnsonii)*, dated October 2002. NMFS may still apply these guidance documents in other consultations, including consultations on Essential Fish Habitat under the Magnuson-Stevens Fishery Conservation and Management Act, as appropriate.

**AP.12. Mangroves**

- To qualify for coverage under this Opinion, all projects must be sited and designed to avoid or minimize impacts to mangroves.
  
- Mangrove removal must be conducted in a manner that avoids any unnecessary removal and is limited to the following instances:
  - Removal to install up to a 4-ft-wide walkway for a dock.
  - Removal to install up to an 8-ft-wide walkway for public docks, where the walkway is necessary to address compliance with the Americans with Disability Act (ADA).
  - Removal to install culverts necessary to improve water quality or restore hydrology between 2 water bodies. Such mangrove removal is limited to a maximum of 20 linear feet (lin ft) of shoreline per culvert opening.
  - Removal of mangroves above mean high water (MHW) provided that the tree does not have any prop roots that extend into the water below the MHWL.
  
- Mangrove Trimming. Mangrove trimming is regulated by FDEP, Puerto Rico Department of Natural and Environmental Resources, and U.S. Virgin Islands Department of Planning and Natural Resources. Consistent with those authorities, when used in this Opinion, mangrove trimming refers to the removal (using hand equipment such as chain saws and/or machetes) of lateral branches (i.e., no alteration of the trunk of the tree) in a manner that ensures survival of the tree. This Opinion does not limit or supersede any restrictions on mangrove removal required under any federal, state, or local law.
  - This Opinion only covers projects with associated mangrove trimming occurring waterward of MHW if such trimming (1) occurs within the area where the authorized structures are placed or will be placed (e.g., removal of branches that overhang a dock), (2) is necessary to provide temporary construction access, and (3) is conducted in a manner that avoids any unnecessary trimming.
  - The Opinion does not apply to projects proposing to remove red mangrove prop roots waterward of MHW, except for removal to install the dock walkways, as described above (up to a 4-ft walkway and up to a 8-ft ADA compliant walkway) and to install culverts necessary to improve water quality or restore hydrology between 2 water bodies.

**AP.13. Seagrass:**

- Pile-supported structures must follow the PDCs for *Docks or Other Minor Structures* (PDC A2.17, Section 2.2.2)

**Johnson's seagrass:**

- This Opinion does not apply to projects where Johnson's seagrass is found within the project footprint except for:
  - Installation of pile-supported structures that meet the PDCs for *Docks or Other Minor Structures* (PDC A2.17, Section 2.2.2).
  - Maintenance dredging of previously authorized areas. This is limited to the removal of no more than 0.1 acre (ac) (4,356 ft<sup>2</sup>) of Johnson's seagrass per year (Activity 3; see Section 2.2.3)
  - Transmission/utility line repairs within the same footprint of the lines being repaired (Activity 8; see Section 2.2.8).

**Non-listed seagrasses:**

- All impacts to non-ESA listed native, non-invasive seagrasses should be avoided and minimized to the extent practicable.
- This Opinion does not apply to projects located within the geographic boundary of U.S. Caribbean sea turtle critical habitat (hawksbill, leatherback, and the NA DPS of green sea turtle critical habitat identified in Section 2.1.1.5) if non-ESA listed, native, non-invasive seagrasses are found within the project footprint.

**AP.14. Coral and Hard Bottom Habitat**

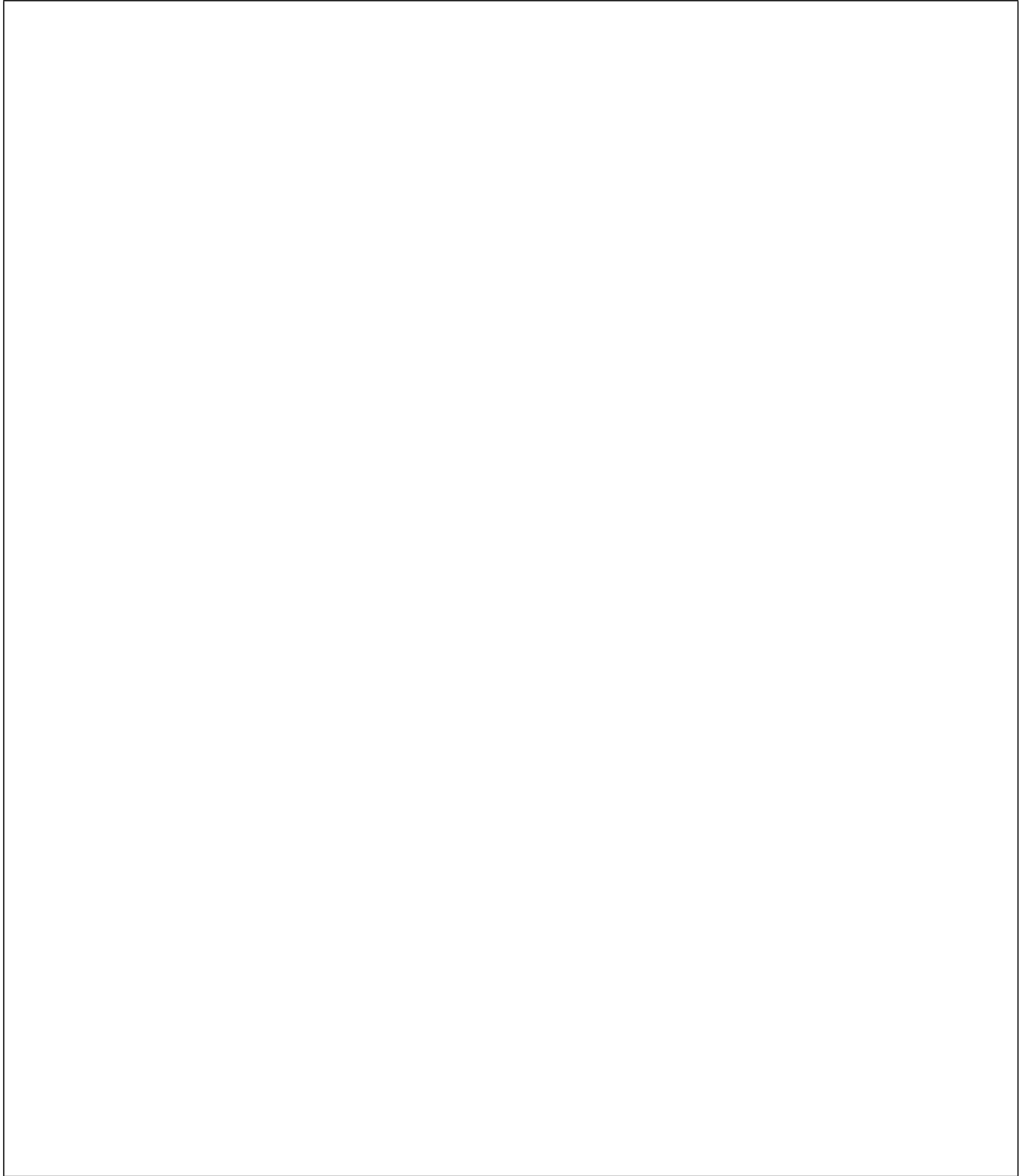
- This Opinion does not apply to projects that may affect, directly or indirectly, ESA-listed corals.
- Projects occurring within in the Florida Keys National Marine Sanctuary (FKNMS) may require separate consultation or authorization from NOAA's FKNMS. Projects authorized to occur in the FKNMS shall comply with any measures NOAA FKNMS has developed to avoid, minimize, and/or mitigate any effects on non-listed corals. For projects occurring outside of the FKNMS, if non-listed corals are found within the project footprint, we recommend relocating all non-listed corals, when possible, in a manner that is protective of the corals.
- This Opinion does not apply to projects where hard bottom habitat is found within the project footprint, except for the temporary placement (up to 24 months) of scientific survey devices (Activity 5) that have a footprint of less than 1 square foot (ft<sup>2</sup>) per device and are installed in a manner that does not permanently alter the hardbottom (e.g., the devices are not installed by drilling). For this Opinion, we define hard bottom in 2 ways:
  - Natural consolidated hard substrate that is suitable to support corals, coral larval settlement, reattachment and recruitment of asexual coral fragments. These areas of hard bottom or dead coral skeleton must be free from fleshy or turf macroalgae cover and sediment cover.

- Nearshore and surf-zone, low-profile hard bottom outcroppings (e.g., worm-rock reef [sabellariid worm reefs] and eolianite, granodiorite). This habitat can be persistent or ephemeral, cycling through periods of exposure and cover by sand. The range of this hard bottom habitat extends along the southeastern coast of Florida from Cape Canaveral to Miami-Dade County and in the U.S. Caribbean. It is an important developmental habitat for juvenile hawksbill and green sea turtles, which use it for both foraging and refuge.

## **Project Design Criteria (PDCs) specific to Activity 8 for Transmission and Utility Line Activities**

- A8.1.** Activity 8 includes the installation, repair, replacement, and removal of support structures, footers, foundations, as well as the placement of riprap or concrete mat for pipeline protection. The USACE defines a “utility/transmission line” as any pipe or pipeline for the transportation of any gaseous, liquid, liquescent, or slurry substance, for any purpose, and any cable, line, wire or optical fiber for the transmission for any purpose of electrical energy, telephone, telegraph messages, digital signal, Internet, and radio or television communication.
- A8.2.** Structures permanently placed on the waterbottom (e.g., foundations, piles, and footings) to support aerial transmission lines must total less than a 0.5 ac for all structures combined. Because permanent structures have the potential to interfere with or impede sea turtles from entering or exiting the beach, they cannot be placed on or near beaches used for sea turtle nesting.
- A8.3.** Subaqueous utility and transmission lines may be installed (including as part of a repair/replacement project) using horizontal directional drilling, if the drilling originates and terminates on the uplands (i.e., no in-water work). For subaqueous transmission lines installed, repaired, or replaced using horizontal directional drilling, the applicant must provide and follow a frac-out contingency plan in Appendix D or another plan with at a minimum the same level of information as is provided in the plan contained in Appendix D.
- A8.4.** Subaqueous utility and transmission lines may be installed (including as part of a repair/replacement project) by trenching. When excavating the trench, the bottom sediments may be temporarily sidecast into areas devoid of submerged aquatic vegetation and mangroves. Immediately upon completing the excavation and placing the transmission or utility line into the trench, the trench must be filled and the bottom contours must be restored to pre-construction conditions. The District Engineer may allow the trench to remain open and temporary sidecasting to continue after the excavation is complete, as long as the total time the trench is open and the material is sidecast during and after excavation does not exceed 180 days.
- A8.5.** New subaqueous transmission and utility lines shall not be placed on the sea floor (i.e., pinned or anchored and not buried) under this Opinion. Sections of existing buried lines may be repaired or replaced above the sea floor by pinning or anchoring the new section of line in place to ensure that it does not move and damage surrounding seagrasses, hardbottom, coral, or coral reef habitat.

**A8.6.** When repairing existing transmission or utility lines, riprap and articulated mats may be placed on subaqueous lines that are buried in trenches or on lines that are attached to the sea floor (in accordance with A8.5) to stabilize the line. Riprap and articulated mats may also be used to stabilize new subaqueous lines placed in high erosion areas. These stabilization materials are limited to the minimum amount necessary to stabilize and protect the lines existing lines (which may have been exposed by scouring) and cannot be placed on seagrasses, hardbottom, corals, or coral reef habitat.





### **Additional PDCs specific to Activity 8 for Transmission and Utility Line Activities if in Critical Habitat**

- A8.7.** *Acropora* critical habitat: This Opinion does not apply to the new installation of transmission and utility lines within the geographic boundary of *Acropora* critical habitat. This Opinion covers the repair and replacement of transmission and utility lines in *Acropora* critical habitat, but only if the essential feature is not present, and only if the placement meets the measures described in PDC A8.5 to limit movement of the lines.
- A8.8.** Smalltooth sawfish critical habitat: Structures supporting aerial transmission or utility lines, such as foundation towers and transmission line poles, cannot be placed in smalltooth sawfish critical habitat in areas where the essential features are present. Transmission or utility line projects are not allowed in areas identified as smalltooth sawfish limited exclusion zones, as defined in Section 2.1.1.1, above.
- A8.9.** Johnson's seagrass critical habitat: All newly installed subaqueous transmission or utility lines must be placed using horizontal directional drilling from the uplands. Repair and replacement of existing subaqueous lines, whether the existing lines are buried within trenches or placed on the sea floor outside of trenches, is allowed in the same footprint as the existing line. Structures supporting aerial transmission or utility lines, such as foundation towers and transmission line poles, cannot be placed in Johnson's seagrass critical habitat in waters shallower than -13 ft deep.
- A8.10.** Gulf sturgeon: No new transmission and utility line activities installation are allowed in the Gulf sturgeon critical habitat migratory restriction zones (defined in Section 2.1.1.2) between September and March, when sturgeon are likely to be present in these areas. Repair/replacement activities may occur in Gulf sturgeon critical habitat migratory restriction zones at any time of year as long as the repair or replacement is accomplished without the use of heavy in-water equipment (i.e., if the repair or replacement does not require trenching). Additional noise restrictions are required for pile and sheet pile installation in the Gulf sturgeon critical habitat migratory restriction zones defined in Section 2.1.1.2.
- A8.11.** U.S. Caribbean sea turtle critical habitat (hawksbill, leatherback, and the NA DPS of green sea turtle critical habitat): Under this Opinion, the only transmission and utility line projects that can occur in U.S. Caribbean sea turtle critical habitat are repair and replacement projects.

**STANDARD PROTECTION MEASURES FOR THE EASTERN INDIGO SNAKE**  
**U.S. Fish and Wildlife Service**  
**August 12, 2013**

The eastern indigo snake protection/education plan (Plan) below has been developed by the U.S. Fish and Wildlife Service (USFWS) in Florida for use by applicants and their construction personnel. At least **30 days prior** to any clearing/land alteration activities, the applicant shall notify the appropriate USFWS Field Office via e-mail that the Plan will be implemented as described below (North Florida Field Office: [jaxregs@fws.gov](mailto:jaxregs@fws.gov); South Florida Field Office: [verobeach@fws.gov](mailto:verobeach@fws.gov); Panama City Field Office: [panamacity@fws.gov](mailto:panamacity@fws.gov)). As long as the signatory of the e-mail certifies compliance with the below Plan (including use of the attached poster and brochure), no further written confirmation or “approval” from the USFWS is needed and the applicant may move forward with the project.

If the applicant decides to use an eastern indigo snake protection/education plan other than the approved Plan below, written confirmation or “approval” from the USFWS that the plan is adequate must be obtained. At least 30 days prior to any clearing/land alteration activities, the applicant shall submit their unique plan for review and approval. The USFWS will respond via e-mail, typically within 30 days of receiving the plan, either concurring that the plan is adequate or requesting additional information. A concurrence e-mail from the appropriate USFWS Field Office will fulfill approval requirements.

The Plan materials should consist of: 1) a combination of posters and pamphlets (see **Poster Information** section below); and 2) verbal educational instructions to construction personnel by supervisory or management personnel before any clearing/land alteration activities are initiated (see **Pre-Construction Activities** and **During Construction Activities** sections below).

**POSTER INFORMATION**

Posters with the following information shall be placed at strategic locations on the construction site and along any proposed access roads (a final poster for Plan compliance, to be printed on 11” x 17” or larger paper and laminated, is attached):

**DESCRIPTION:** The eastern indigo snake is one of the largest non-venomous snakes in North America, with individuals often reaching up to 8 feet in length. They derive their name from the glossy, blue-black color of their scales above and uniformly slate blue below. Frequently, they have orange to coral reddish coloration in the throat area, yet some specimens have been reported to only have cream coloration on the throat. These snakes are not typically aggressive and will attempt to crawl away when disturbed. Though indigo snakes rarely bite, they should NOT be handled.

**SIMILAR SNAKES:** The black racer is the only other solid black snake resembling the eastern indigo snake. However, black racers have a white or cream chin, thinner bodies, and WILL BITE if handled.

**LIFE HISTORY:** The eastern indigo snake occurs in a wide variety of terrestrial habitat types throughout Florida. Although they have a preference for uplands, they also utilize some wetlands

and agricultural areas. Eastern indigo snakes will often seek shelter inside gopher tortoise burrows and other below- and above-ground refugia, such as other animal burrows, stumps, roots, and debris piles. Females may lay from 4 - 12 white eggs as early as April through June, with young hatching in late July through October.

**PROTECTION UNDER FEDERAL AND STATE LAW:** The eastern indigo snake is classified as a Threatened species by both the USFWS and the Florida Fish and Wildlife Conservation Commission. “Taking” of eastern indigo snakes is prohibited by the Endangered Species Act without a permit. “Take” is defined by the USFWS as an attempt to kill, harm, harass, pursue, hunt, shoot, wound, trap, capture, collect, or engage in any such conduct. Penalties include a maximum fine of \$25,000 for civil violations and up to \$50,000 and/or imprisonment for criminal offenses, if convicted.

Only individuals currently authorized through an issued Incidental Take Statement in association with a USFWS Biological Opinion, or by a Section 10(a)(1)(A) permit issued by the USFWS, to handle an eastern indigo snake are allowed to do so.

**IF YOU SEE A LIVE EASTERN INDIGO SNAKE ON THE SITE:**

- Cease clearing activities and allow the live eastern indigo snake sufficient time to move away from the site without interference;
- Personnel must NOT attempt to touch or handle snake due to protected status.
- Take photographs of the snake, if possible, for identification and documentation purposes.
- Immediately notify supervisor or the applicant’s designated agent, **and** the appropriate USFWS office, with the location information and condition of the snake.
- If the snake is located in a vicinity where continuation of the clearing or construction activities will cause harm to the snake, the activities must halt until such time that a representative of the USFWS returns the call (within one day) with further guidance as to when activities may resume.

**IF YOU SEE A DEAD EASTERN INDIGO SNAKE ON THE SITE:**

- Cease clearing activities and immediately notify supervisor or the applicant’s designated agent, **and** the appropriate USFWS office, with the location information and condition of the snake.
- Take photographs of the snake, if possible, for identification and documentation purposes.
- Thoroughly soak the dead snake in water and then freeze the specimen. The appropriate wildlife agency will retrieve the dead snake.

**Telephone numbers of USFWS Florida Field Offices to be contacted if a live or dead eastern indigo snake is encountered:**

**North Florida Field Office – (904) 731-3336**  
**Panama City Field Office – (850) 769-0552**  
**South Florida Field Office – (772) 562-3909**

## **PRE-CONSTRUCTION ACTIVITIES**

1. The applicant or designated agent will post educational posters in the construction office and throughout the construction site, including any access roads. The posters must be clearly visible to all construction staff. A sample poster is attached.
2. Prior to the onset of construction activities, the applicant/designated agent will conduct a meeting with all construction staff (annually for multi-year projects) to discuss identification of the snake, its protected status, what to do if a snake is observed within the project area, and applicable penalties that may be imposed if state and/or federal regulations are violated. An educational brochure including color photographs of the snake will be given to each staff member in attendance and additional copies will be provided to the construction superintendent to make available in the onsite construction office (a final brochure for Plan compliance, to be printed double-sided on 8.5" x 11" paper and then properly folded, is attached). Photos of eastern indigo snakes may be accessed on USFWS and/or FWC websites.
3. Construction staff will be informed that in the event that an eastern indigo snake (live or dead) is observed on the project site during construction activities, all such activities are to cease until the established procedures are implemented according to the Plan, which includes notification of the appropriate USFWS Field Office. The contact information for the USFWS is provided on the referenced posters and brochures.

## **DURING CONSTRUCTION ACTIVITIES**

1. During initial site clearing activities, an onsite observer may be utilized to determine whether habitat conditions suggest a reasonable probability of an eastern indigo snake sighting (example: discovery of snake sheds, tracks, lots of refugia and cavities present in the area of clearing activities, and presence of gopher tortoises and burrows).
2. If an eastern indigo snake is discovered during gopher tortoise relocation activities (i.e. burrow excavation), the USFWS shall be contacted within one business day to obtain further guidance which may result in further project consultation.
3. Periodically during construction activities, the applicant's designated agent should visit the project area to observe the condition of the posters and Plan materials, and replace them as needed. Construction personnel should be reminded of the instructions (above) as to what is expected if any eastern indigo snakes are seen.

## **POST CONSTRUCTION ACTIVITIES**

Whether or not eastern indigo snakes are observed during construction activities, a monitoring report should be submitted to the appropriate USFWS Field Office within 60 days of project completion. The report can be sent electronically to the appropriate USFWS e-mail address listed on page one of this Plan.

**CITY OF CALLAWAY  
BERTHE AVE UTILITY REPLACEMENT**

**FRAC-OUT CONTINGENCY PLAN**

# Horizontal Directional Drill (HDD) Frac-Out Plan

## **Introduction**

Controlling and maintaining fluid flow within the HDD bore during all installation stages is critical to the success of an HDD installation. While the HDD method is a proven technology, there are certain impacts that could occur as a result of the drilling, such as the inadvertent release of drilling fluid, which is a slurry of bentonite clay and drinking water which is classified as non-toxic to the aquatic environment and is a non-hazardous substance. Drilling fluids that are released typically contain a lower concentration of bentonite when they surface because the bentonite is filtered out as it passes through existing sediments of varying types. However, if released into water bodies, bentonite has the potential to adversely impact fish and invertebrates. All drilling fluid components will be approved by the FDEP and the USACE prior to use on the HDD installation. Drilling fluid components shall be NSF-61, food grade or non-toxic/hazardous rated where applicable.

While drilling fluid seepage associated with an inadvertent return is most likely to occur near the HDD bore entry and exit points, where the drill head is shallow, inadvertent returns can occur in any location along a HDD bore. This HDD Frac-Out Plan establishes operational procedures and responsibilities for the prevention, containment, and clean-up of inadvertent returns associated with the HDD for the Project. The HDD Contractor is responsible for the work and must adhere to this Plan during the HDD process.

The Contractor shall perform the project specific work in accordance with the regulatory permits.

- A. **BMPs:** The Contractor will implement the following Best Management Practices (BMPs) to minimize the potential for adverse environmental impacts during HDD activities.
1. BMPs for erosion control within the staging area shall be implemented at the start of Contractor mobilization and maintained at all times especially during the drilling, over reaming, and utility pipe pull-in operations to prevent off-site siltation and turbid discharges in excess of State Water Quality Standards pursuant to Rule 62-302, F.A.C. BMP methods shall include, but are not limited to, the immediate placement of turbidity containment devices such as turbidity screens, silt containment fence, hay bales, sand bags, earthen and stone berms, temporary containment swales, etc. to contain the drilling fluid. Earthen berms or swales shall not be utilized where they may impact wetlands or other surface waters.
  2. Drilling fluids for the HDD shall be a project specific homogenous mixture of non-toxic, non-environmentally hazardous, bentonite clay, potable water and polymer additive(s).
-

- B. **Frac-Out Prevention:** To provide an additional level of resource protection, the following measures shall be taken to monitor any potential releases of drilling fluid:
1. Measures used to prevent frac-out during the drilling operation include maintaining the proper depth for the soil conditions along the drilling route as well as proper management of drilling fluids circulation pressure. Under the waterway, the minimum distance between the pipe and the bottom of the waterway will be 50 ft as shown on the cross section. This is expected to be sufficient to prevent frac-out when drilling under the waterway.
  2. Non-toxic fluorescent dyes will be added to the drilling lubricant as a method for monitoring bentonite releases in the underwater portions of this drilling. Details of the fluorometry monitoring method shall be submitted to the FDEP and the USACE prior to the preconstruction meeting.
  3. The volume of bentonite in the drill string will be monitored at all times during the directional drilling operation. Should a drop in volume of bentonite occur, immediately conduct a visual inspection of both terrestrial and subaqueous portions of the horizontal directional drilling corridor.
  4. Should the detection of dye or a drop in volume of bentonite occur, the Contractor will follow the Release Procedures outlined below.
  5. The Contractor will identify prior to commencement of construction an environmental scientist/biologist with experience in-water quality monitoring and habitat protection to be used in the event of a frac-out. The biologist will supervise the implementation of the Frac-Out Plan, Release Procedure, and Containment Plan outlined below. Divers shall be present during drilling operations in order to respond to a potential frac-out release.
  6. All drilling fluids associated with the horizontal directional drilling operation will be contained on site. The volume of the drilling fluids recirculation/solids settlement pit will be determined by the Contractor at the Pre-Construction meeting. Periodically during the drilling process settled solids will be removed from the pit by a backhoe and disposed of at a site of the Contractor's choice in accordance with applicable regulations. At the conclusion of drilling operations, drilling fluid remaining in the pit will be settled and hauled to a disposal site of the Contractor's choice in accordance with applicable regulations. After back-reaming, drilling materials will be removed from the inside of the pipeline by pigging it from the exit point towards the rig area.
  7. At all times, adequate protection will be taken to avoid impacts to the surface water and /or contiguous wetlands. This shall include, but is not limited to halting of construction/drilling and/or placement of turbidity containment devices.
  8. A Vactor Truck shall be onsite and available at all times.
  9. A Spill Kit (i.e., absorbent pads/brooms, goggles, gloves) shall be on-site and available at all times.
-

**C. Release Response Procedure:**

1. If the bore pressure is observed to be abnormally high or fluid loss is apparent and a release has occurred, the HDD Contractor has the following options (or any combination of these options):
    - a. Temporarily cease drilling operations and shut down mud pump delivering drilling fluids downhole;
    - b. Restart pump and stroke bore hole in 30-foot (+/-) lengths to restore circulation ("swab" the hole) as many as six times but no fewer than two times;
    - c. Introduce additional flow along the borehole starting at the entry/exit using "weeper" subs; and
    - d. Modify the drilling mud with a change in viscosity and/or lost circulation additives.
  2. If the return drilling fluid is less than the projected amount to be recovered, the HDD Contractor shall immediately begin its search for the missing material in accordance with Section B.3. Once the drilling fluid and frac-out is located, then the drilling mud containment plan shall be immediately implemented.
  3. If a frac-out is confirmed, all construction activity contributing to the frac-out shall cease immediately.
  4. The Contractor shall notify the FDEP, the USACE, and the Owner/Permittee upon confirmation of the occurrence. The notification shall include the time of the frac-out, location and extent of impact, and the environmental conditions of the impacted area.
  5. If the frac-out is observed during pull-back of the utility pipe, the following procedures will be followed:
    - The HDD Contractor shall implement all drilling fluid containment measures before continuing pull-back; and
    - The HDD Contractor will ensure all reasonable measures within the limitations of current technology have been taken to re-establish circulation; and
    - Continue the HDD utilizing a minimal amount of drilling fluid as required to penetrate the formation or to maintain a successful utility pipe pull back.
  6. If the loss of drilling fluid or excess fluid pumping/recirculation pressure results in the heaving and/or settlement of pavement, curb, sidewalk and/or other infrastructure, the HDD Contractor shall immediately mobilize all equipment, manpower and devices to recover the drilling fluid, relieve the fluid pressure, stop any heaving or settlement of infrastructure and protect the public. The HDD Contractor shall prepare a remediation plan to repair, replace, or restore the affected infrastructure for FDEP and USACE approval prior to implementation.
  7. Before continuing with the HDD operation, the HDD Contractor shall prepare and submit for FDEP, USACE, and Owner/Permittee approval a revised plan for successful completion of the required project. The plan shall identify the manpower, equipment, drilling fluid, additives, pump pressures, original bore hole sealing, and bore path modifications that may be required.
-



**D. Drilling Mud Containment:**

1. Should the release of drilling materials occur on land, a sediment fence shall be constructed around the site and the material shall be removed by vacuum truck.
2. Should the release of drilling materials occur in-water, clean-up with a vacuum system shall commence within 24 hours.
3. The scientist/biologist underwater divers will guide the suction hose of the pump to minimize both the removal of natural bottom material and the disturbance of any existing vegetation.
4. Any escaped drilling lubricant must be pumped into filter bags or directly into a vac-truck.
5. A barge company will be contacted to transport a vac-truck should it be needed to respond "in-water."
6. Once the spill is contained, the escaped drilling lubricant shall be properly disposed of in an approved upland disposal site.
7. Clean-up with a vacuum system shall commence within 24 hours.
8. After containment/recovery of the drilling material/resources, a detailed written report shall be submitted to the FDEP and the USACE, within 10 business days, indicating the location of the frac-out, amount of drilling material discharged and the amount of drilling mud recovered, the process in which the drilling mud was recovered, and the area that was affected by the drilling discharge.

**DI. Final Clean-Up:**

After completion of the HDD installation, site-specific clean-up measures will be developed by the HDD Contractor for approval by FDEP, the USACE, and Owner/Permittee. Potential for secondary impact from the clean-up process will be evaluated, along with the benefits of clean-up activities.

1. The following measures are to be considered:
    - All materials and any rubbish-construction debris shall be removed from the construction zone at the end of each workday;
    - Drilling mud will be removed by hand using shovels, buckets, and soft bristled brooms to minimize damage to existing vegetation;
    - Freshwater washes may be employed if deemed beneficial and feasible;
    - Containment structures will be pumped out and the ground surface scraped to bare topsoil, thereby minimizing loss of topsoil or damage to adjacent vegetation;
    - The recovered drilling fluid will be recycled or disposed of at an approved upland location or disposal facility. No recovered drilling fluid will be disposed of in streams or storm drains;
    - All protective BMP measures (fiber rolls, straw bale, silt fence, etc.) will be removed unless otherwise specified by the FDEP, the USACE and/or Owner/Permittee; and
    - All containment structures, containers and tanks will be removed.
-

**F. Failed HDD Installation**

While not anticipated, if an attempted HDD installation is unsuccessful, the proposed HDD alignment may be modified using the same general location to accommodate an additional HDD attempt, depending on the conditions that resulted in the HDD failure.

Prior to attempting a second HDD crossing, a risk mitigation meeting shall be held with the FDEP, the USACE, and Owner/Permittee to determine the cause of the initial failure and any mitigation measures that could be adopted to reduce the risk(s) during the second HDD attempt.

Potential causes that may lead to a failed HDD installation include:

1. Stuck or damaged utility pipe during pullback operations. This risk may be mitigated by:
    - Completing swab pass or passes to gauge the condition of the HDD bore by evaluating the drill rig effort required to pull tooling through the HDD bore;
    - Only commencing pullback operations after verification that the bore is adequately conditioned; and Minimizing the amount of downtime associated with delays during pullback operations.
    - Bore instability/collapse. This risk may be mitigated by:
    - Confirmation the alignment of the HDD profile is in favorable ground materials along the alignment that are not amenable to raveling causing collapse of the bore.
    - Excess loss of drilling fluids and inability to remove cuttings from the bore. This risk is mitigated by:
    - Confirmation the alignment of the HDD profile is in favorable ground materials along the alignment;
    - Evaluating the required and allowable drilling fluid pressures for the installation and providing sufficient separation between the required and allowable drilling fluid pressures; and
    - Incorporating temporary casing pipe to support shallow soils.
    - If the HDD bore could not be advanced and abandonment is required, the bore hole will be grouted with an approved cement-based or bentonite material to fill the excavation and minimize risks of a potential groundwater flow pathway starting at the low point or end of the drill hole in accordance with 62-532.500(4), Florida Administrative Code.
    - If an HDD installation is completed and the installed utility pipe was damaged to the point it could not be used for its intended purpose, the inside of the utility pipe shall be grouted with a cement based grout and the annular space around the pipe grouted for a distance of approximately 200 feet at each HDD entry and exit location. The above approach is as outlined in the US Army Corps of Engineers' "Guidelines for Installation of Utilities Beneath Corps of Engineers Levees Using Horizontal Directional Drilling" (Latorre et al. 2002) that requires backfilling with grout or bentonite.
    - In addition, any additional requirements set forth in permits for this HDD installation will be met in terms of abandonment
-



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
**NATIONAL MARINE FISHERIES SERVICE**  
Southeast Regional Office  
263 13th Avenue South  
St. Petersburg, FL 33701

## **SEA TURTLE AND SMALLTOOTH SAWFISH CONSTRUCTION CONDITIONS**

The permittee shall comply with the following protected species construction conditions:

- a. The permittee shall instruct all personnel associated with the project of the potential presence of these species and the need to avoid collisions with sea turtles and smalltooth sawfish. All construction personnel are responsible for observing water-related activities for the presence of these species.
- b. The permittee shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing sea turtles or smalltooth sawfish, which are protected under the Endangered Species Act of 1973.
- c. Siltation barriers shall be made of material in which a sea turtle or smalltooth sawfish cannot become entangled, be properly secured, and be regularly monitored to avoid protected species entrapment. Barriers may not block sea turtle or smalltooth sawfish entry to or exit from designated critical habitat without prior agreement from the National Marine Fisheries Service's Protected Resources Division, St. Petersburg, Florida.
- d. All vessels associated with the construction project shall operate at "no wake/idle" speeds at all times while in the construction area and while in water depths where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will preferentially follow deep-water routes (e.g., marked channels) whenever possible.
- e. If a sea turtle or smalltooth sawfish is seen within 100 yards of the active daily construction/dredging operation or vessel movement, all appropriate precautions shall be implemented to ensure its protection. These precautions shall include cessation of operation of any moving equipment closer than 50 feet of a sea turtle or smalltooth sawfish. Operation of any mechanical construction equipment shall cease immediately if a sea turtle or smalltooth sawfish is seen within a 50-ft radius of the equipment. Activities may not resume until the protected species has departed the project area of its own volition.
- f. Any collision with and/or injury to a sea turtle or smalltooth sawfish shall be reported immediately to the National Marine Fisheries Service's Protected Resources Division (727-824-5312) and the local authorized sea turtle stranding/rescue organization.
- g. Any special construction conditions, required of your specific project, outside these general conditions, if applicable, will be addressed in the primary consultation.

Revised: March 23, 2006

O:\forms\Sea Turtle and Smalltooth Sawfish Construction Conditions.doc



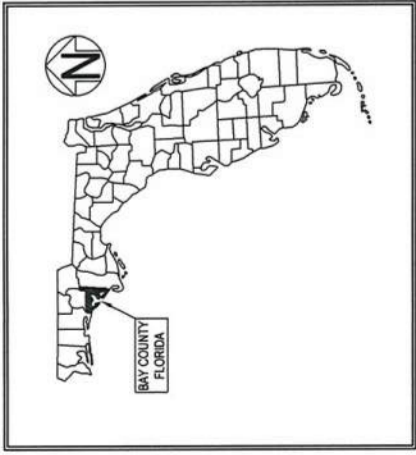
**C. UPDATED CONSTRUCTION PLANS - It's the responsibility of the CONTRACTOR to replace previously issued construction plans with the reissued construction plans attached to this Addendum.**

1. **Sheet G-001:** Additional General Notes were incorporated.
2. **Sheet C-102:** The overall directional drill length of the 4" FM was updated accordingly.
3. **Sheet C-104:** A 2" Ball Valve and 6"x2" Service Saddle was incorporated into the DWGs and replaced the previously shown 2" Gate Valve and 6"x2" Tee.
4. **Sheet C-105:** A 2" Ball Valve and 6"x2" Service Saddle was incorporated into the DWGs and replaced the previously shown 2" Gate Valve and 6"x2" Tee.
5. **Sheet C-200:** The Directional Drill Standard Detail chart was updated to represent the directional drill length for this project.
6. **Sheet C-900:** Detail A1, Note 5 was updated to match the Technical Specifications.
7. **Sheet M-100:** Construction Key Note 1 was updated accordingly. A minimum of 6" granite #57 stone shall be used instead of 4" as previously stated.
8. **Sheet M-101:** Detail A3 and A1 were updated. General Note 16 was removed.
9. **Sheet M-900:** Detail A1 and D1 were updated.
10. **Sheet M-901:** Detail A1 was updated. Detail C1 was included to sheet M-901.
11. **Sheet M-902:** Detail C1 was updated.
12. **E sheets:** Electrical sheets were not attached to the initial Bid Drawing set as indicated on the Project Cover Page. E sheets include: E-001, E-101, E-111, E-311, and E-411.

<b>SHEET NO.</b>	<b>CHANGE</b>
G-001	Additional General Notes were added to the drawing sheet.
C-102	The overall Directional Drill length was updated.
C-104	Water Service Line connection to the Lift Station site was updated.
C-105	Water Service Line connection to the Lift Station site was updated.
C-200	The chart associated with Detail C1 was updated accordingly.
C-900	Detail A1, Note 5 was updated.
M-100	Construction Key Note #5 was updated to 6" of granite #57 stone.
M-101	Detail A1- piping centerline was updated. Detail A1- piping centerline was updated and ARV piping connection was update to 2" SCH 80 CPVC. General Note 16 was removed from the drawing sheet.
M-900	Detail A1 – piping transition was updated. Detail D1 – ARV piping strut and material was included into the detail
M-901	Detail A1 – service line connection to the turbine meter was updated. Detail C1 – detail was incorporated into the drawing set and shall be used for the 2" water service line serving the lift station site.
M-902	Detail C1 – restraint joint information was updated.
E-001	Included into Construction Documents
E-101	Included into Construction Documents
E-111	Included into Construction Documents
E-311	Included into Construction Documents
E-411	Included into Construction Documents

# CONSTRUCTION PLANS FOR

# THE CITY OF CALLAWAY S. BERTHE AVENUE LIFT STATION & SEWER REHABILITATION



PREPARED FOR:  
**CITY OF CALLAWAY**

JANUARY 2021



CITY OF CALLAWAY  
CITY COMMISSION

PAMN HENDERSON	MAYOR
SCOTT DAVIS	WARD I COMMISSIONER
DAVID GRIGGS	WARD II COMMISSIONER
BOB PELLETIER	WARD III COMMISSIONER
FRANK MANCINELLI	WARD IV COMMISSIONER
EDDIE COOK	CITY MANAGER
BILL FRYE	PUBLIC WORKS DIRECTOR

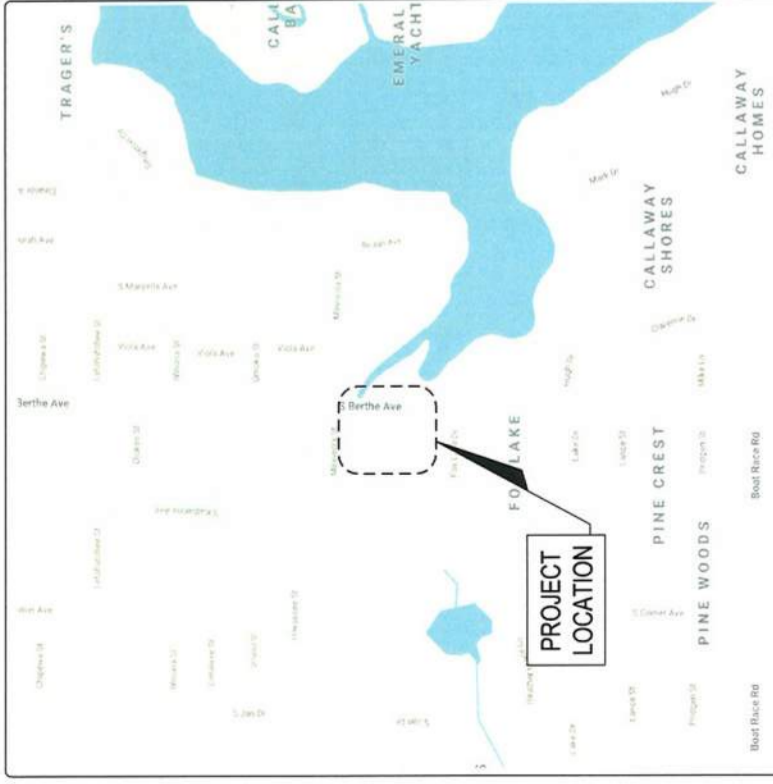
PREPARED BY:

**BASKERVILLE-DONOVAN, INC.**  
Innovative Infrastructure Solutions

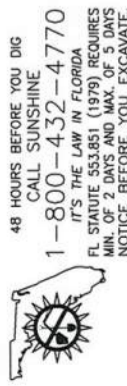
14101 PANAMA CITY BEACH PARKWAY, SUITE 110  
PANAMA CITY BEACH, FLORIDA 32413 (850) 230-6150  
PENSACOLA - PANAMA CITY BEACH - TALLAHASSEE - MOBILE

ENGINEERING BUSINESS: EB-0000340

ENGINEER'S PROJECT NO.: 27653.01



LOCATION MAP  
NOT TO SCALE



## SHEET INDEX

G-000	COVER SHEET
G-001	GENERAL NOTES AND LEGEND
C-001	CIVIL LEGEND AND SYMBOL
C-100	EXISTING CONDITIONS PLAN
C-101	DEMOLITION & EROSION CONTROL PLAN
C-102	OVERALL PLAN
C-103	CONTROL PLAN
C-104	SANITARY SEWER PLAN AND PROFILE
C-105	LIFT STATION SITE DETAILS
C-200	DIRECTIONAL DRILL DETAIL AND SCHEDULE
C-900	DETAILS
M-100	PROPOSED LIFT STATION SITE PLAN
M-101	PROPOSED LIFT STATION EQUIPMENT & PIPING PLAN & SECTIONS
M-900	LIFT STATION DETAILS
M-901	LIFT STATION DETAILS
M-902	LIFT STATION DETAILS

100% FOR PERMITTING ONLY

UTILITY CONTACT INFORMATION	
UTILITY	CONTACT
WATER - CITY OF CALLAWAY	DAVID KUBAN 850-871-1033
SEWER - CITY OF CALLAWAY	JOHN FRANKLIN 850-215-7232 JEFFREY SMITH 850-770-8056
COMCAST	4001 W. 23RD ST. SUITE A, PANAMA CITY, FL 32405
GULF POWER	SANDRA PERRY 850-872-3315
AT&T DISTRIBUTION	12425 HUTCHINSON BLVD, PANAMA CITY BEACH, FL 32407 AL RUDOLPH 850-436-1488
TECO	MIKE MCQUIRE 850-914-6104 3706 W. 23RD ST., PANAMA CITY, FL 32405

GENERAL NOTES:

- THE CONTRACTOR IS CAUTIONED TO VISIT THE SITE AND FAMILIARIZE HIMSELF WITH THE PROJECT PRIOR TO BIDDING.
- B.M. DATUM IS 1988 NAVD.
- THE CONTRACTOR IS RESPONSIBLE TO DETERMINE THE EXACT LOCATIONS AND DEPTHS OF ALL UTILITIES INCLUDING, BUT NOT LIMITED TO, WATER LINES, FORCEMAINS, BURIED TELEPHONE LINES, BURIED ELECTRICAL LINES AND GAS MAINS PRIOR TO COMMENCEMENT OF CONSTRUCTION. CONTRACTOR IS TO COORDINATE WITH UTILITY COMPANIES FOR REMOVAL AND/OR RELOCATION OF EXISTING UTILITY POLES, AERIAL LINES, BURIED CABLE AND OTHER UTILITIES.
- THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY CONFLICTS BETWEEN CONTRACT DOCUMENTS AND EXISTING CONDITIONS. THESE DRAWINGS REPRESENT KNOWN STRUCTURES AND UTILITIES LOCATED IN THE PROJECT AREA. THE CONTRACTOR IS CAUTIONED THAT OTHER STRUCTURES AND UTILITIES, ABOVE OR BELOW GROUND, MAY BE ENCOUNTERED DURING THE COURSE OF THE PROJECT. THE CONTRACTOR SHOULD NOTIFY THE UTILITY, THEN THE ENGINEER, IMMEDIATELY UPON ENCOUNTERING ANY UNEXPECTED STRUCTURE, UTILITY LINE, OR OTHER UNUSUAL CONDITION.
- CONTRACTOR SHALL SAFETY-BARRICADE ALL EXCAVATIONS AND OTHER HAZARDS.
- CONTRACTOR SHALL PROVIDE ACCESS TO PROPERTIES ADJACENT TO THE CONSTRUCTION AREAS. ADEQUATE BARRICADES, CONSTRUCTION SIGNAGE AND OTHER TRAFFIC CONTROL DEVICES SHALL BE PROVIDED IN ACCORDANCE WITH FOOT CONSTRUCTION STANDARDS.
- THE CONTRACTOR SHALL EMPLOY THE USE OF SILT FENCES, HAY BALES, DITCHES OR WHATEVER MEANS NECESSARY TO CONTROL EROSION AND SEDIMENTATION AT ALL TIMES. WATERS OF THE STATE, ADJACENT PROPERTIES, AND ANY NEW DRAINAGE CONSTRUCTION SHALL BE PROTECTED DURING THE CONSTRUCTION PERIOD. EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE START OF CONSTRUCTION AND SHALL REMAIN UNTIL THE COMPLETION OF CONSTRUCTION AND ACCEPTANCE BY THE OWNER.
- ADEQUATE PROVISIONS SHALL BE MADE FOR THE FLOW OF SEWERS, DRAINS, WATER COURSES AND OTHER UTILITIES ENCOUNTERED DURING CONSTRUCTION.
- ALL PAVEMENT CUTS SHALL BE SAW CUT.
- ALL NEW CONCRETE FOR SITE WORK SHALL ACHIEVE A 28 DAY STRENGTH OF 3000 PSI (MIN.), UNLESS OTHERWISE SPECIFIED.
- ON-SITE GRADING, DRAINAGE AND PAVEMENT WORK SHALL BE IN ACCORDANCE WITH FOOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION.
- THE CONTRACTOR IS SOLELY RESPONSIBLE FOR DUST CONTROL.
- THE CONTRACTOR SHALL RESTORE ALL DISTURBED RIGHTS-OF-WAY IN ACCORDANCE WITH THE EDITION OF THE FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.
- THE CONTRACTOR SHALL HIRE A SURVEYOR LICENSED IN THE STATE OF FLORIDA IN ACCORDANCE WITH SECTION 12.0 OF THE GENERAL CONDITIONS.
- THE CONTRACTOR SHALL ENSURE THAT ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL LAWS.
- CONTRACTOR SHALL COMPLY FULLY WITH ALL PERMIT REQUIREMENTS IMPOSED BY THE REGULATORY AUTHORITIES.
- NOTIFY SUNSHINE UTILITIES TWO FULL BUSINESS DAYS IN ADVANCE PRIOR TO DIGGING WITHIN THE RIGHT-OF-WAY: 1-800-432-4770. CONTRACTOR SHALL VERIFY DEPTH AND LOCATION AND IMMEDIATELY NOTIFY ENGINEER OF CONFLICTS.
- THE CONTRACTOR SHALL NOTIFY THE CITY OF CALLAWAY 48 HOURS PRIOR TO INITIATING ANY WORK IN THE CITY OF CALLAWAY RIGHTS-OF-WAY.
- TYPE B STABILIZATION IS INCIDENTAL TO EARTHWORK.
- ALL PIPE JOINTS, INCLUDING CONNECTIONS TO STRUCTURES, SHALL BE WRAPPED WITH FILTER FABRIC IN ACCORDANCE WITH FOOT DESIGN STANDARDS AND THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.

GENERAL NOTES  
AND LEGEND

100-G

PROJECT NO.	27656.01	
DESIGNED BY:	JCP	
DRAWN BY:	RGG	
CHK'D BY:	BAH	
PROJ. MGR:	JCP	
DATE:	MARCH 2021	
NOT RELEASED FOR CONSTRUCTION BY	DATE	
REVISION/ACTION TAKEN		
NO.	DATE	APPR.
1	MAY 2021	JCP
ADDENDUM 1		

S. BERTHE AVUE  
LIFT STATION AND  
SEWER REHABILITATION

JAMES ERIC ANDERSON, P.E.  
Fl. Reg. Engineer #67494

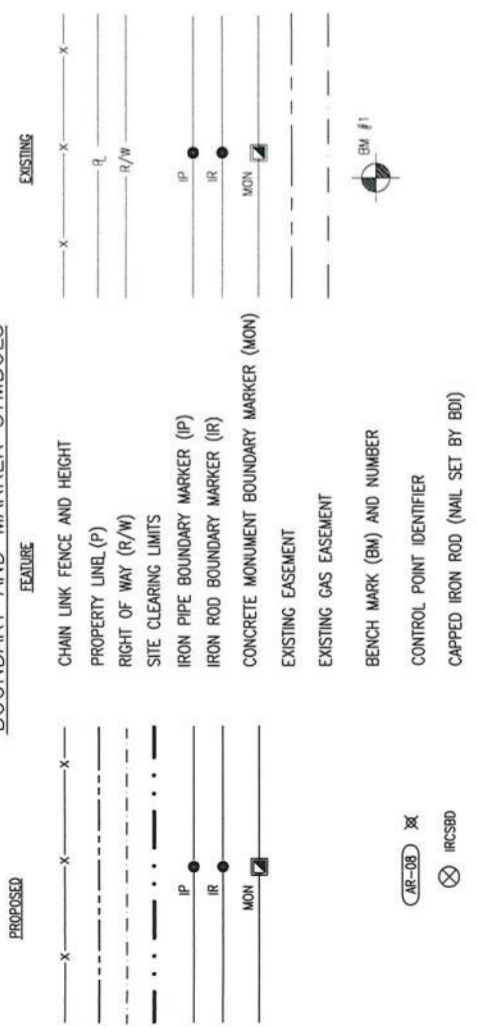
14101 PANAMA CITY BEACH PARKWAY, SUITE 110 PANAMA CITY BEACH, FL 32413 (850) 230-6150  
ENGINEERING BUSINESS: EB-0000340  
PanamaCityBeach\_Tallahassee\_Mobile  
This drawing is the property of BASKERVILLE-DONOVAN, INC. and is not to be reproduced in whole or in part. It is not to be used on any other project and is to be returned upon request.

- THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF ALL STRUCTURES, EQUIPMENT, AND UTILITIES NOT MARKED FOR REMOVAL OR DEMOLITION AND SHALL PROMPTLY REPAIR ANY DAMAGE AS DIRECTED BY THE ENGINEER.
- THE CONTRACTOR SHALL REMOVE ALL DEMOLITION DEBRIS, AND WASTE FROM THE SITE AND DISPOSE OF IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.
- ALL DISTURBED UNPAVED AREAS SHALL BE HYDRO SEEDED UNLESS SHOWN AS SODDED OR LANDSCAPED ON THE PLANS AND RESTORED TO THEIR EXISTING PRE CONSTRUCTION CONDITION OR BETTER UNLESS SPECIFICALLY NOTED OTHERWISE.
- CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FROM BAY COUNTY, FLORIDA. CONTRACTOR SHALL PROVIDE PROPER NOTICE TO THE COUNTY IN ACCORDANCE WITH THE PERMIT REQUIREMENTS.
- THE CONTRACTOR SHALL REPLACE ALL PAVING, STABILIZING EARTH, DRIVEWAYS, SIDEWALKS, ETC. WITH THE SAME TYPE OF MATERIAL THAT WAS REMOVED DURING CONSTRUCTION OR AS DIRECTED BY THE ENGINEER AT NO ADDITIONAL COST TO THE OWNER.
- TRAFFIC MUST BE MAINTAINED DURING CONSTRUCTION AT ALL TIMES, AS APPROVED BY BAY COUNTY, AND THE FLORIDA DEPARTMENT OF TRANSPORTATION AT NO ADDITIONAL COST TO THE OWNER.
- DEWATERING DURING EXCAVATION AND BACKFILLING OPERATIONS SHOULD BE ANTICIPATED. SHOULD CONTINUOUS DEWATERING BECOME NECESSARY, A WELL POINT SYSTEM MAY BE REQUIRED. CONTRACTOR IS RESPONSIBLE FOR PROCURING ALL PERMITS ASSOCIATED WITH DEWATERING DURING CONSTRUCTION.
- IF ADDITIONAL SPACE IS REQUIRED, THE CONTRACTOR IS RESPONSIBLE TO FIND AND MAINTAIN A SECURE EQUIPMENT, STORAGE AND STAGING AREA AT NO ADDITIONAL COST TO THE OWNER. THE CONTRACTOR SHALL SUBMIT THE PROPOSED STAGING AREA TO THE OWNER FOR APPROVAL.
- CONTRACTOR TO DISPOSE OF EXCESS EXCAVATED MATERIAL AT NO ADDITIONAL COST TO THE OWNER.
- CONTRACTOR SHALL MAINTAIN RECORD DRAWINGS DURING CONSTRUCTION WHICH SHOW "AS-BUILT" CONDITIONS OF ALL WORK. RECORD DRAWINGS SHALL BE PROVIDED TO THE ENGINEER OF RECORD PRIOR TO REQUESTING FINAL INSPECTION. RECORD DRAWINGS SHALL INCLUDE X, Y, & Z COORDINATES OF ALL MANHOLES, FITTINGS, VALVES AND OTHER BURIED COMPONENTS ON THE SAME COORDINATE SYSTEM AS THE CONTRACT DRAWINGS SUFFICIENT TO IDENTIFY THEIR LOCATIONS.
- AS A PRECONDITION TO THE PROCESSING OF EACH MONTHLY PAYMENT REQUEST, THE ENGINEER SHALL REVIEW THE CONSTRUCTION RECORD DRAWINGS AND CONFIRM THAT THEY ARE MARKED TO REFLECT ALL CURRENTLY AVAILABLE INFORMATION.
- ANY DEVIATIONS FROM THE APPROVED PLANS WILL REQUIRE APPROVAL FROM THE PROJECT ENGINEER, AND THE OWNER.
- ANY TREE REMOVAL AS REQUIRED FOR CONSTRUCTION, SHALL INCLUDE REMOVAL OF STUMP AND GRUBBING OF ROOTS.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO SURVEY AND STAKE THE ENTRY AND EXISTING LOCATION OF THE 4" PM DIRECTIONAL DRILL.
- THE CONTRACTOR SHALL PROVIDE ALL NECESSARY BYPASS PUMPING FOR THE GRAVITY SEWER AND FORCEMAIN CONNECTIONS.

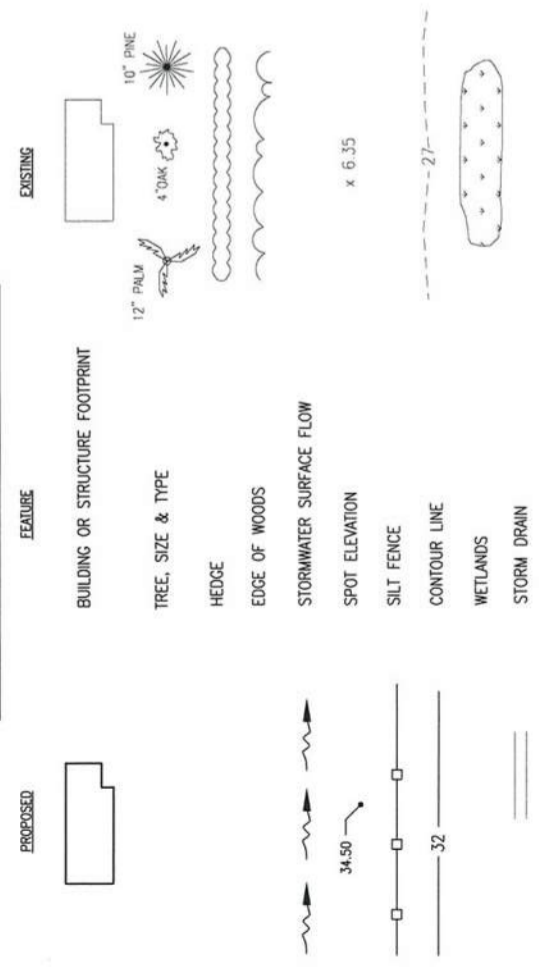
1

# CIVIL LEGEND

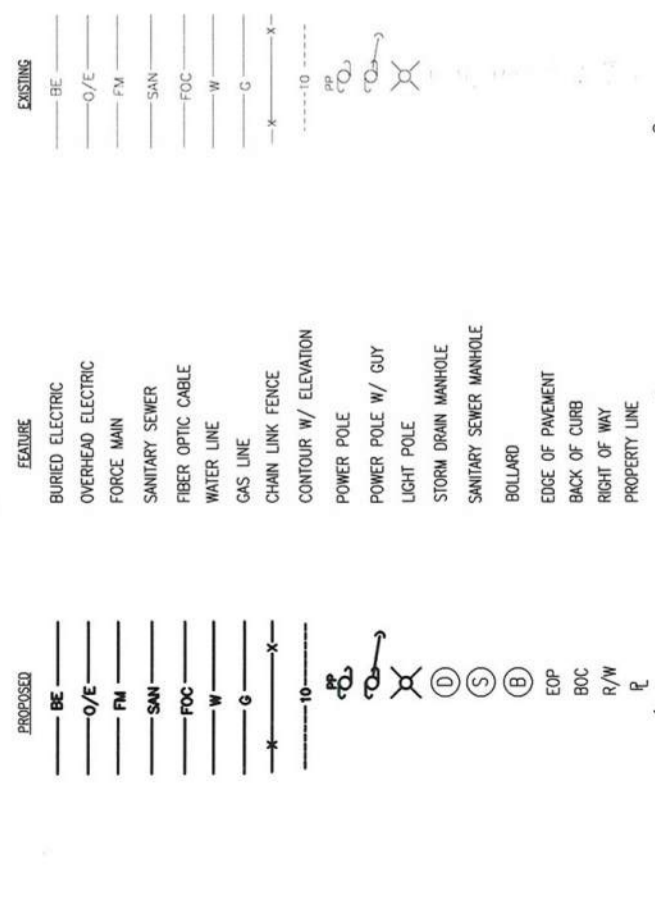
## BOUNDARY AND MARKER SYMBOLS



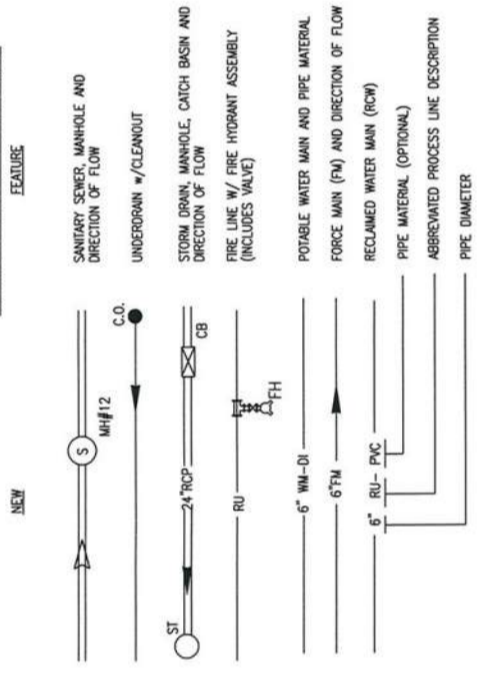
## LANDSCAPE AND DRAINAGE SYMBOLS



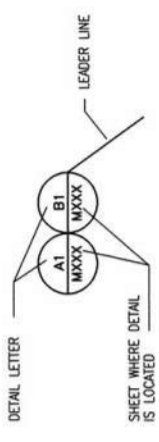
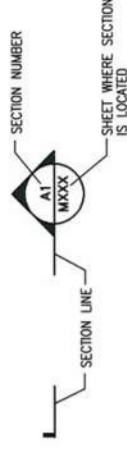
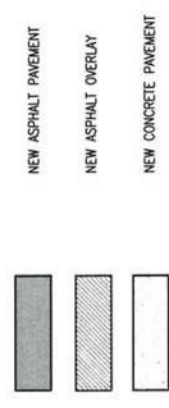
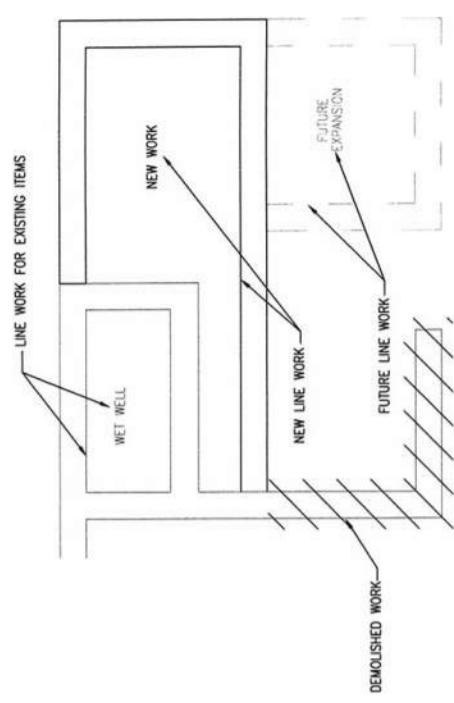
## UNDERGROUND/OVERHEAD UTILITY SYMBOLS



## YARD PIPING SYMBOLS



## EXISTING, FUTURE OR DEMOLISHED CONDITION DESIGNATION



S. BERTHE AVENUE  
LIFT STATION AND  
SEWER REHABILITATION

NO.	DATE	APPR.	REVISION/ACTION TAKEN

PROJECT NO. 27653.01  
DESIGNED BY: JEA  
DRAWN BY: THO  
CHK'D BY: TTL  
PROJ. MGR: JCP  
DATE: JANUARY 2021

CIVIL  
LEGEND AND  
SYMBOLS

C-001

**BASKERVILLE-DONOVAN, INC.**  
Innovative Infrastructure Solutions  
449 W. MAIN ST., PENSACOLA, FL 32502 (850)438-9661  
ENGINEERING BUSINESS: EB-0000340  
Pensacola - Panama City Beach - Tallahassee - Mobile

This drawing is the property of BASKERVILLE-DONOVAN, INC. and is not to be reproduced in whole or in part, in any form, without the prior written consent of BASKERVILLE-DONOVAN, INC.

FL Reg. Engineer #67494  
JAMES ERIC ANDERSON, P.E.

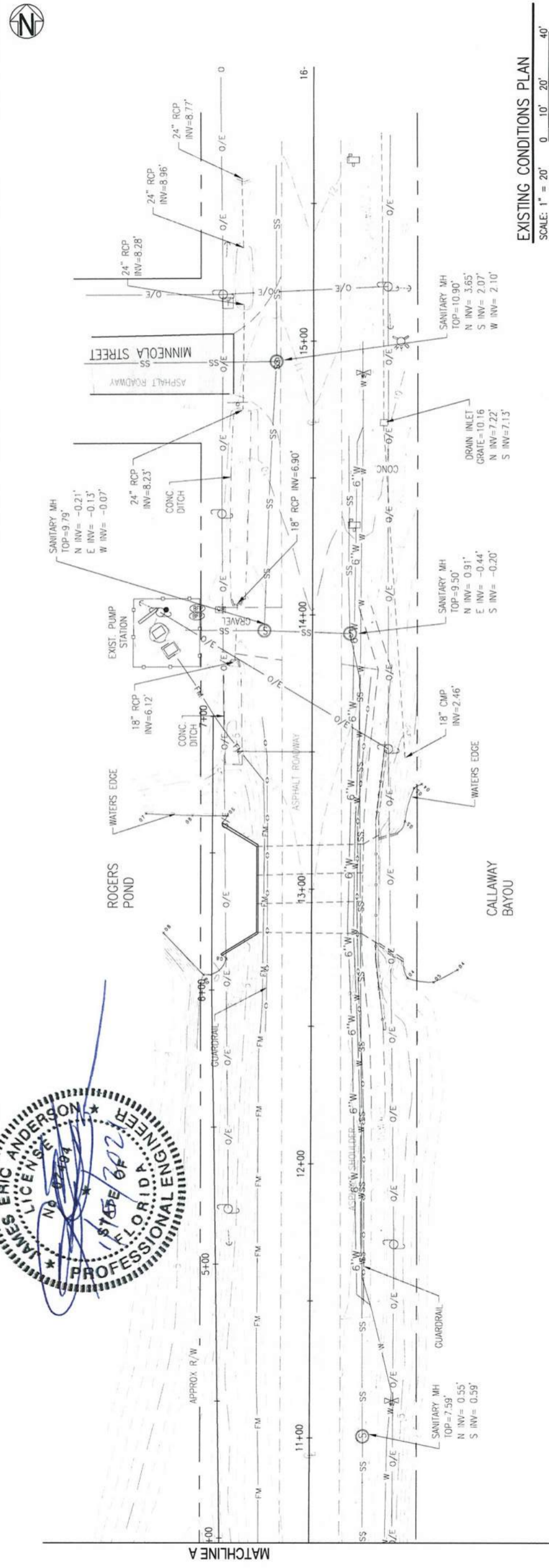
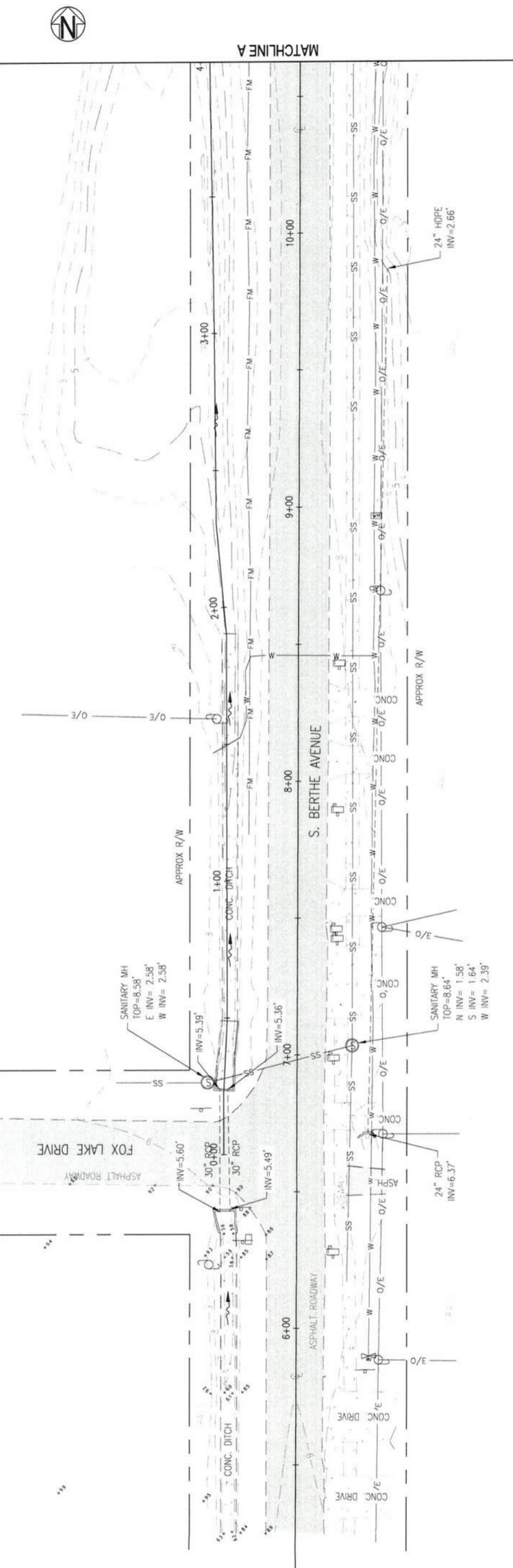
EXISTING CONDITIONS PLAN

PROJECT NO.	27653.01
DESIGNED BY:	JCP
DRAWN BY:	RG
CH'D BY:	BAH
PROJ. MGR:	JCP
DATE:	JANUARY 2021
NOT RELEASED FOR CONSTRUCTION BY DATE / /	
NO.	DATE
APPR.	REVISION/ACTION TAKEN

S. BERTHE AVENUE  
LIFT STATION AND  
SEWER REHABILITATION

JAMES ERIC ANDERSON, P.E.  
FL Reg. Engineer #67494

**BASKERVILLE-DONOVAN, INC.**  
Innovative Infrastructure Solutions  
14101 PANAMA CITY BEACH PARKWAY, SUITE 110 PANAMA CITY BEACH, FL 32413 (850) 230-6150  
ENGINEERING BUSINESS: EB-0000340  
Panama City Beach, Tallahassee - Mobile





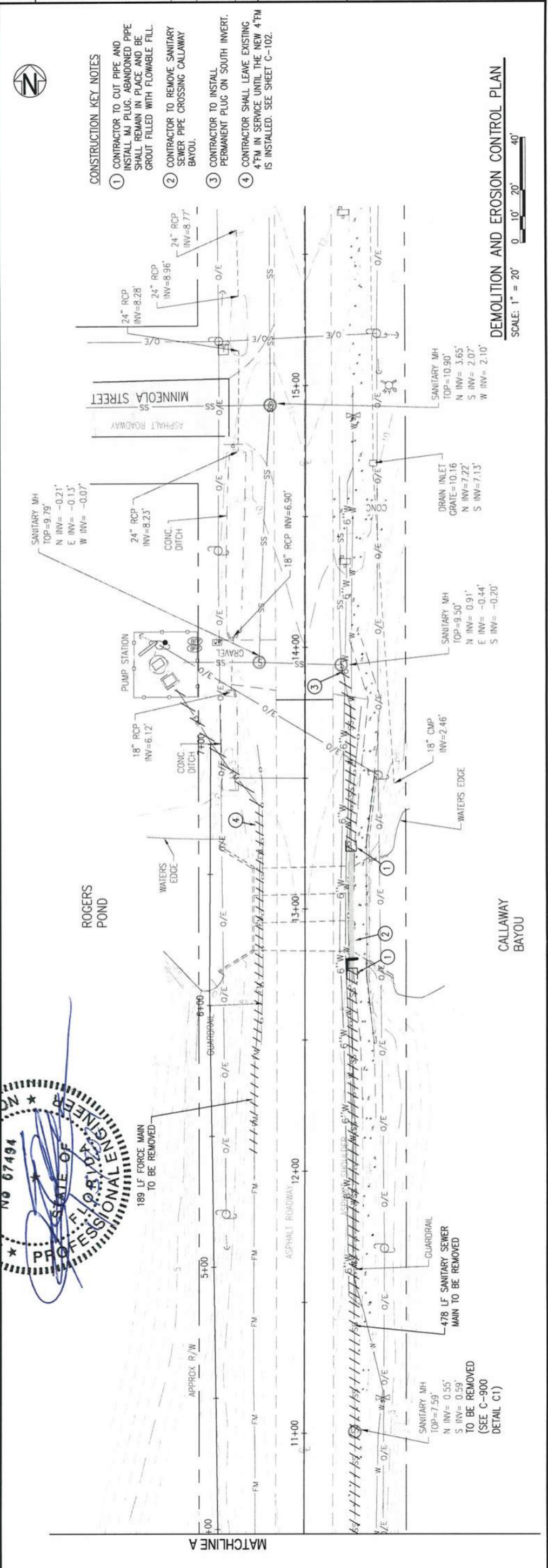
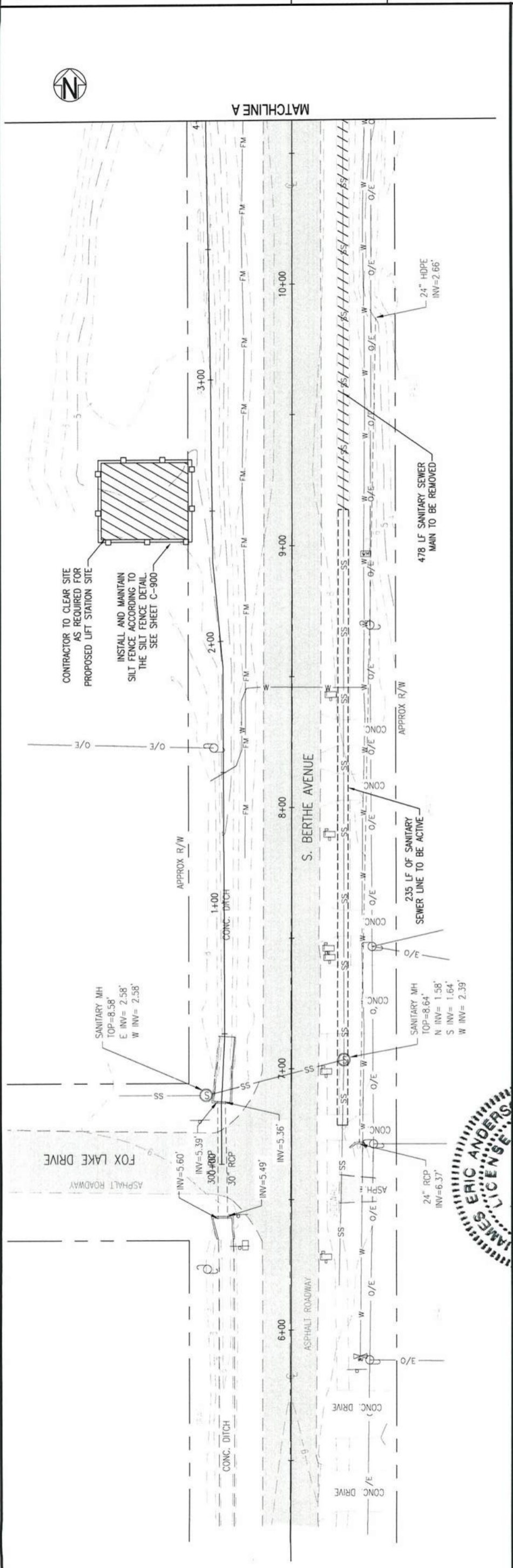
DEMOLITION AND EROSION CONTROL PLAN

PROJECT NO.	27653.01
DESIGNED BY:	JCP
CHECKED BY:	BAH
PROJ. MGR:	JCP
DATE:	JANUARY 2021
NOT RELEASED FOR CONSTRUCTION BY DATE	
REVISION/ACTION TAKEN	
NO.	
DATE	
APPR.	

S. BERTHE AVENUE  
LIFT STATION AND  
SEWER REHABILITATION

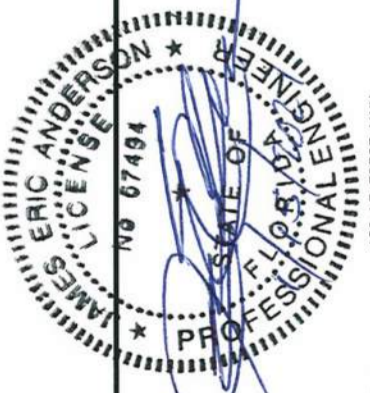
JAMES ERIC ANDERSON, P.E.  
FL Reg. Engineer #57494

**BASKERVILLE-DONOVAN, INC.**  
Innovative Infrastructure Solutions  
14101 PANAMA CITY BEACH PARKWAY, SUITE 110 PANAMA CITY BEACH, FL 32413 (850) 220-6150  
ENGINEERING BUSINESS: EB-0000340  
Panama City Beach - Tallahassee - Mobile



- CONSTRUCTION KEY NOTES**
- 1 CONTRACTOR TO CUT PIPE AND INSTALL MJ PLUG. ABANDONED PIPE SHALL REMAIN IN PLACE AND BE GROUT FILLED WITH FLOWABLE FILL.
  - 2 CONTRACTOR TO REMOVE SANITARY SEWER PIPE CROSSING CALLAWAY BAYOU.
  - 3 CONTRACTOR TO INSTALL PERMANENT PLUG ON SOUTH INVERT.
  - 4 CONTRACTOR SHALL LEAVE EXISTING 4" FM IN SERVICE UNTIL THE NEW 4" FM IS INSTALLED. SEE SHEET C-102.

DEMOLITION AND EROSION CONTROL PLAN  
SCALE: 1" = 20' 0' 10' 20' 40'



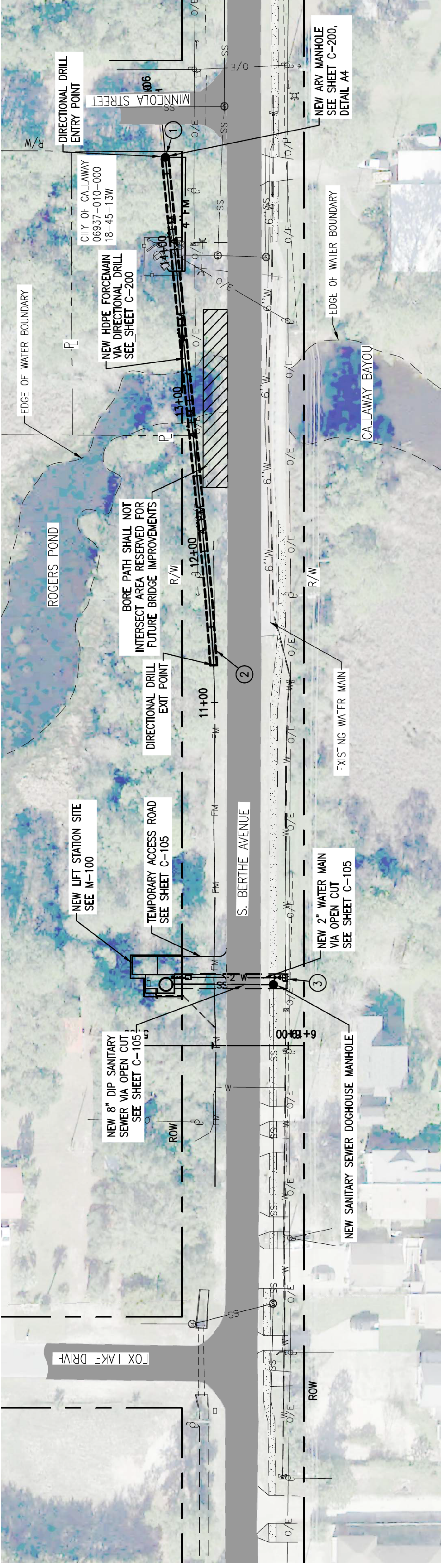
OVERALL PLAN

PROJECT NO.	27656.01
DESIGNED BY:	JCP
DRAWN BY:	RGJ
CHK'D BY:	BAH
PROJ. MGR:	JCP
DATE:	MARCH 2021
NOT RELEASED FOR CONSTRUCTION BY	DATE
REVISION/ ACTION TAKEN	
NO.	DATE
1	MAY 2021
APPR.	JCP
ADDENDUM	1

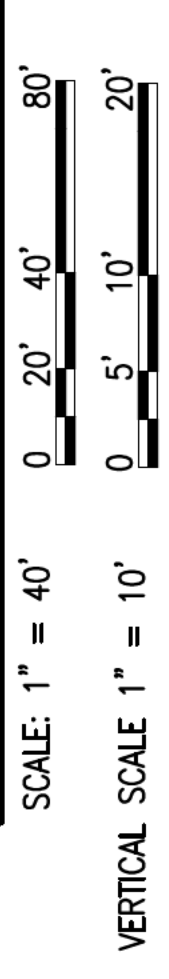
S. BERTHE AVENUE  
LIFT STATION AND  
SEWER REHABILITATION

JAMES ERIC ANDERSON, P.E.  
FL Reg. Engineer #67494

**BASKERVILLE-DONOVAN, INC.**  
Innovative Infrastructure Solutions  
14101 PANAMA CITY BEACH PARKWAY, SUITE 110 PANAMA CITY BEACH, FL 32413 (850) 230-6150  
ENGINEERING BUSINESS: EB-0000340  
PanamaCity Beach - Tallahassee - Mobile

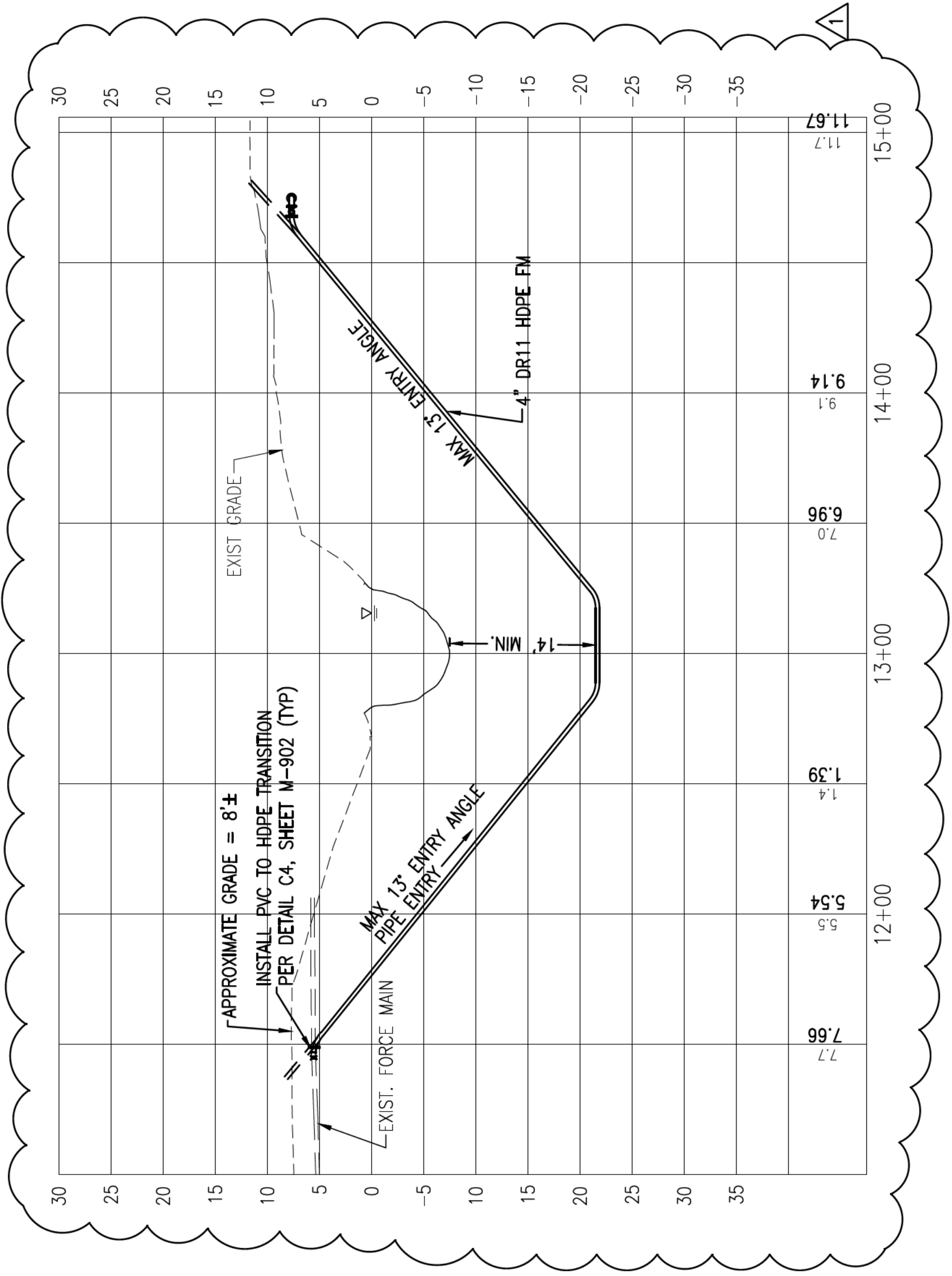


OVERALL PLAN



CONSTRUCTION KEY NOTES

- CONTRACTOR TO PROVIDE NECESSARY PIPING AND FITTINGS TO CONNECT THE NEW 4" FM TO THE EXISTING LIFT STATION VALVE BOX. CONTRACTOR TO COORDINATE WITH THE CITY OF CALLAWAY PRIOR TO CONNECTING THE 4"FM TO THE EXISTING LIFT STATION.
- CONTRACTOR TO FIELD VERIFY THE LOCATION OF THE EXISTING 4" FM PRIOR TO DIRECTIONAL DRILLING.
- CONTRACTOR TO COORDINATE WITH THE CITY OF CALLAWAY WHEN CONNECTING 2" WATER MAIN TO THE EXISTING 6" WATER MAIN.

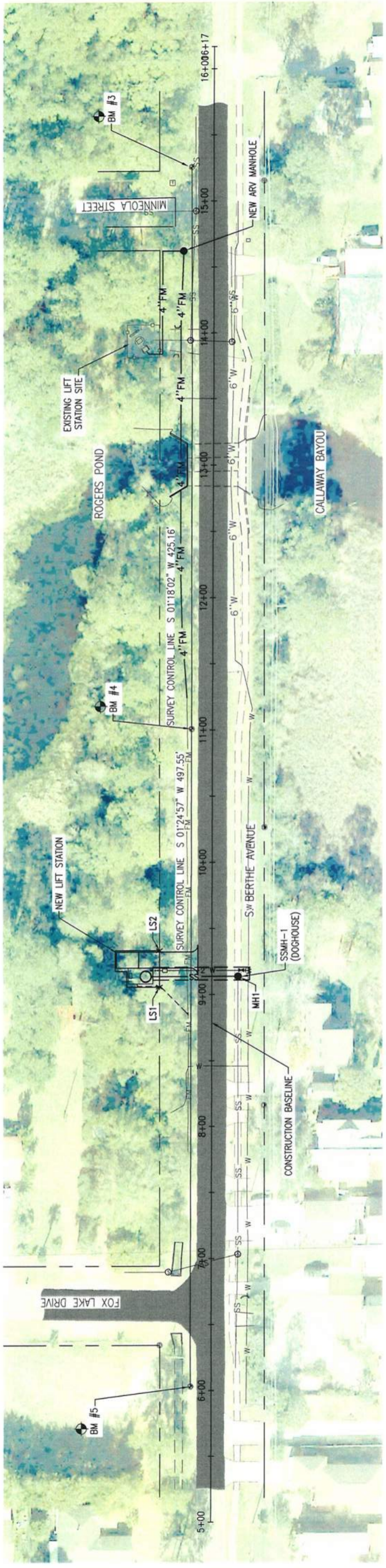


CONTROL PLAN

PROJECT NO.	27653.01
DESIGNED BY:	JCP
DRAWN BY:	RG6
CHK'D BY:	BAH
PROJ. MGR:	JCP
DATE:	JANUARY 2021
NOT RELEASED FOR CONSTRUCTION BY	DATE
REVISION/ACTION TAKEN	NO. DATE APPR

S. BERTHE AVENUE  
LIFT STATION AND  
SEWER REHABILITATION

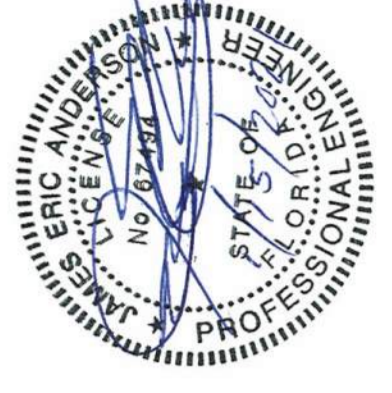
JAMES ERIC ANDERSON, P.E.  
FL Reg. Engineer #57494  
This drawing is the property of BASKERVILLE-DONOVAN, INC. and is not to be reproduced in whole or in part. It is not to be used on any other project and is to be returned upon request.  
BASKERVILLE-DONOVAN, INC.  
Innovative Infrastructure Solutions  
1401 PANAMA CITY BEACH PARKWAY, SUITE 110 PANAMA CITY BEACH, FL 32413 (850) 230-6150  
ENGINEERING BUSINESS EB-0000340  
Panama City Beach - Panama City Beach - Tallahassee - Moultrie



CONTROL PLAN  
SCALE: 1" = 40' 0' 20' 40' 80'

CONTROL POINT	DESCRIPTION	STATION	OFFSET
LS1	SOUTH CORNER OF LIFT STATION SITE	9+5.65	40.25'L
LS2	NORTH CORNER OF LIFT STATION SITE	9+33.15	40.32'L
MH1	CENTER OF PROPOSED MANHOLE	9+13.74	19.97'R

BENCH MARK DATA  
 BM #3  
 STA 15+25.76, OFF 16.86' LT  
 SET CAPPED IRON ROD No. 0304  
 ELEVATION = 11.42  
 BM #4  
 STA 11+00.60, OFF 16' LT  
 SET CAPPED IRON ROD No. 0304  
 ELEVATION = 7.83  
 BM #5  
 STA 15+25.76, OFF 16' LT  
 SET CAPPED IRON ROD No. 0304  
 ELEVATION = 8.85



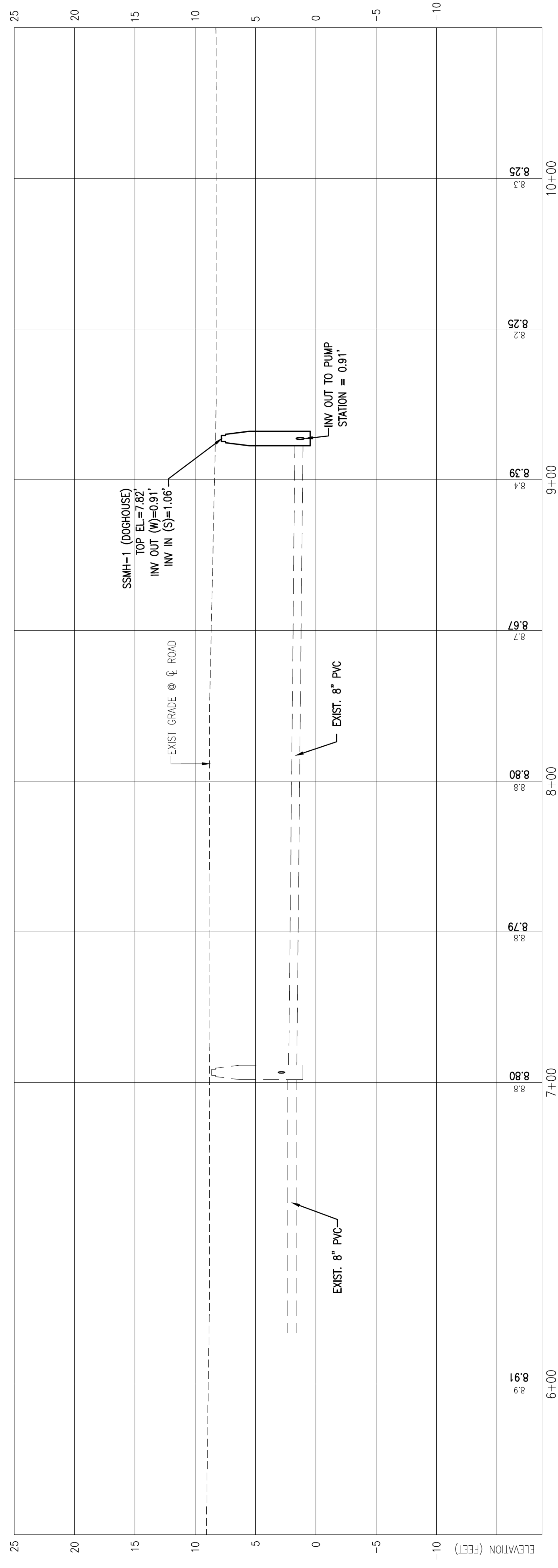
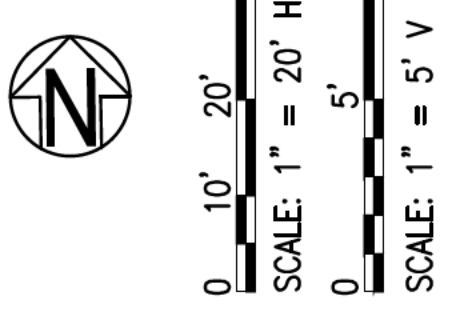
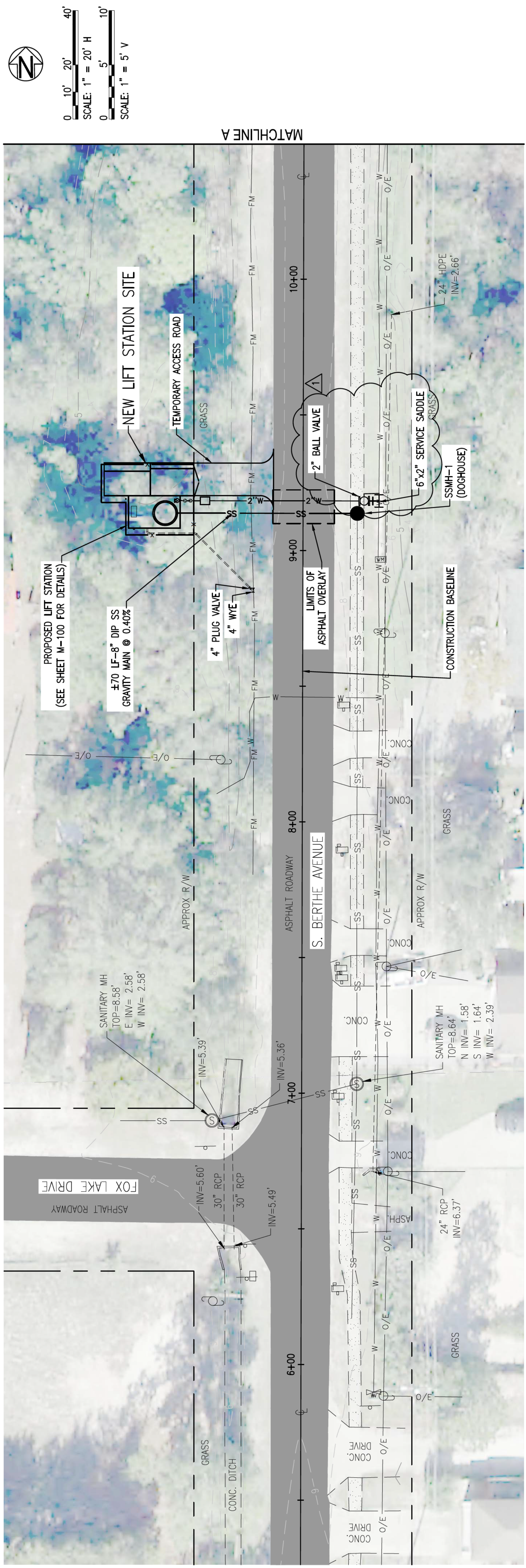
SANITARY SEWER  
PLAN AND PROFILE

PROJECT NO:	27656.01
NO.	1
DATE	MAY 2021
APPR.	JCP
REVISION/ACTION TAKEN	ADDENDUM 1
NOT RELEASED FOR CONSTRUCTION BY	DATE

S. BERTHE AVENUE  
LIFT STATION AND  
SEWER REHABILITATION

JAMES ERIC ANDERSON, P.E.  
Reg. Engineer #67494

BASKERVILLE-DONOVAN, INC.  
Innovative Infrastructure Solutions  
14101 PANAMA CITY BEACH PARKWAY, SUITE 110 PANAMA CITY BEACH, FL 32413 (850) 230-6150  
ENGINEERING BUSINESS: EB-0000340  
Panama City Beach - Tallahassee - Mobile



**NOTE:**  
 1. CONTRACTOR SHALL MATCH DISTURBED ASPHALT AND SIDEWALK TO EXISTING CONDITIONS.

LIFT STATION  
SITE DETAILS

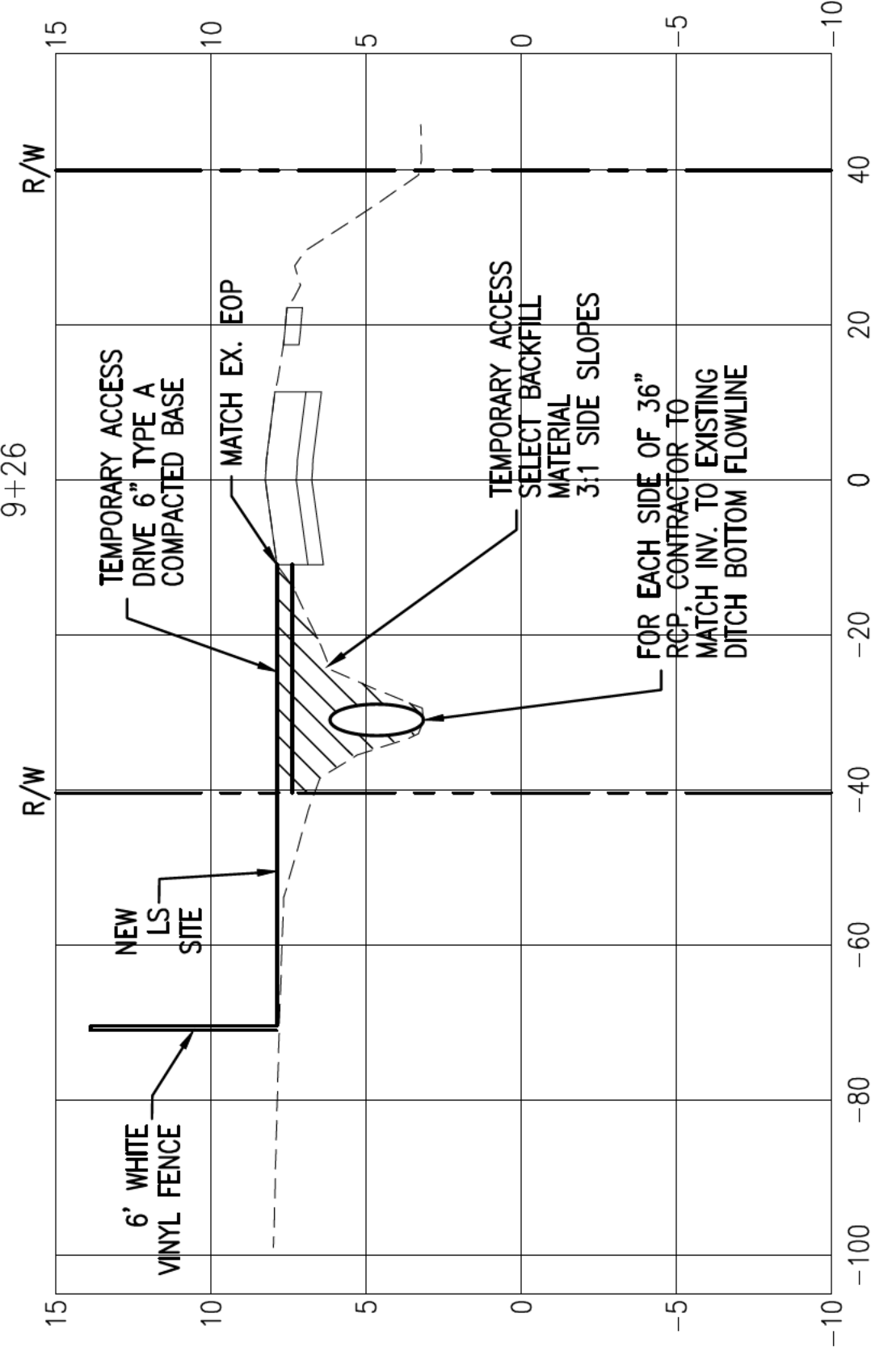
PROJECT NO:	27656.01	DESIGNED BY:	JCP	DATE:	MAY 2021
NO.	1	APPR.	JCP	REVISION/ACTION TAKEN	
NOT RELEASED FOR CONSTRUCTION BY DATE / /					
DRAWN BY: RGG					
CHK'D BY: BAH					
PROJ. MGR: JCP					
DATE: MARCH 2021					

S. BERTHE AVUE  
LIFT STATION AND  
SEWER REHABILITATION

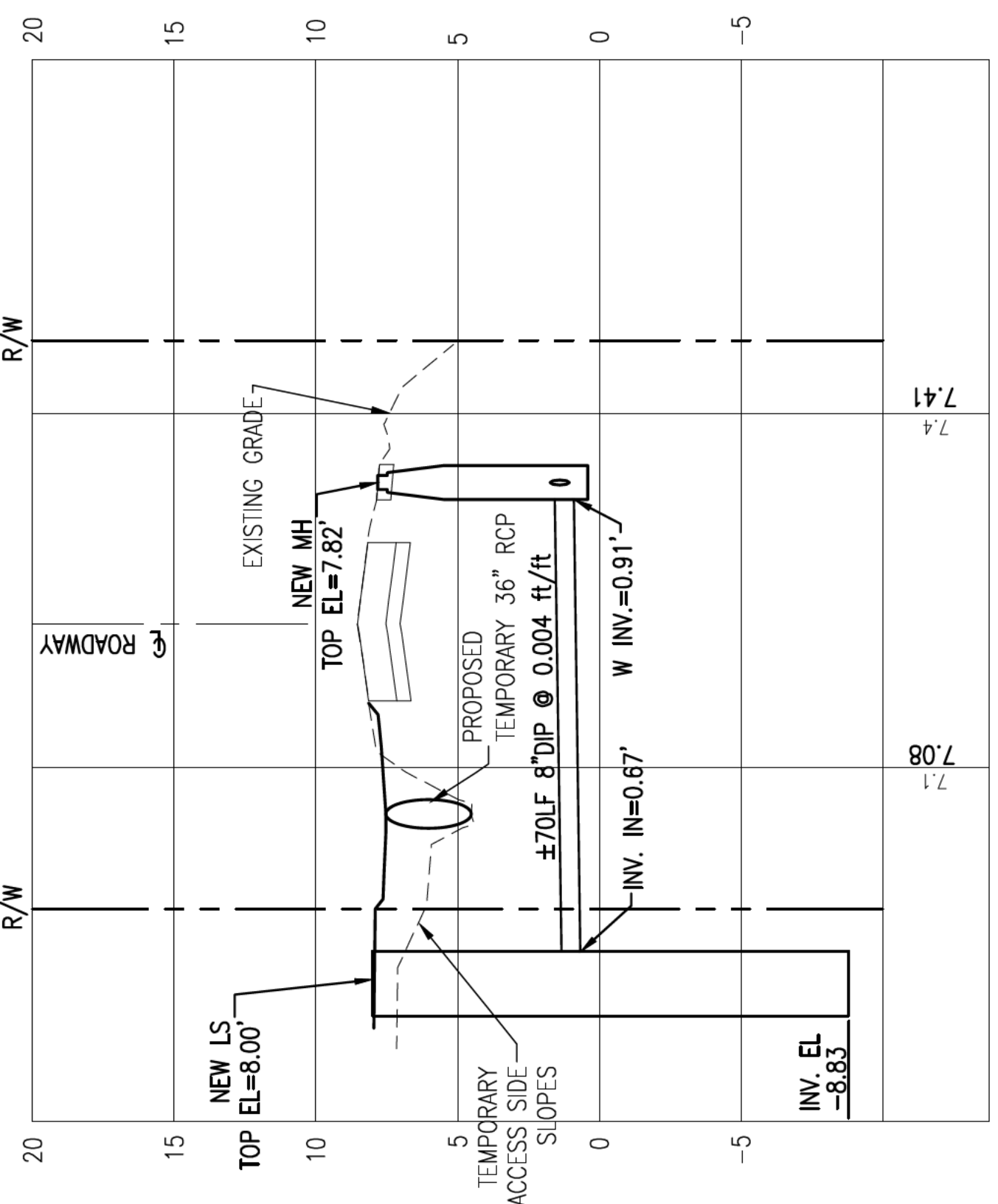
JAMES ERIC ANDERSON, P.E.  
FL Reg. Engineer #67494

**BASKERVILLE-DONOVAN, INC.**  
Innovative Infrastructure Solutions  
14101 PANAMA CITY BEACH PARKWAY, SUITE 110 PANAMA CITY BEACH, FL 32413 (850) 230-6150  
ENGINEERING BUSINESS: EB-0000340  
Panama City Beach - Tallahassee - Mobile

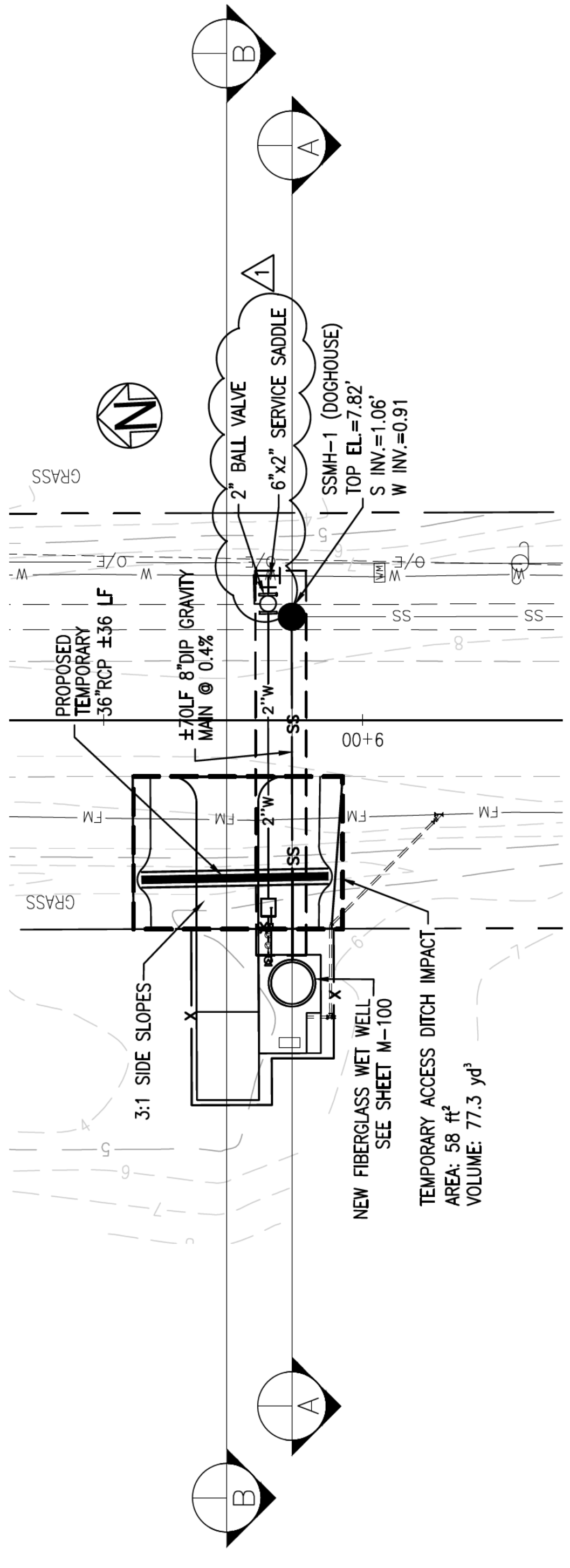
K:\276\27656.01\DWG\C-105 LS Pp.dwg, May 10, 2021 - 4:38:31PM, toverton



**B-B CROSS SECTION**  
SCALE: 1" = 20' H 0 10' 20' 40'  
SCALE: 1" = 5' V 0 5' 10'

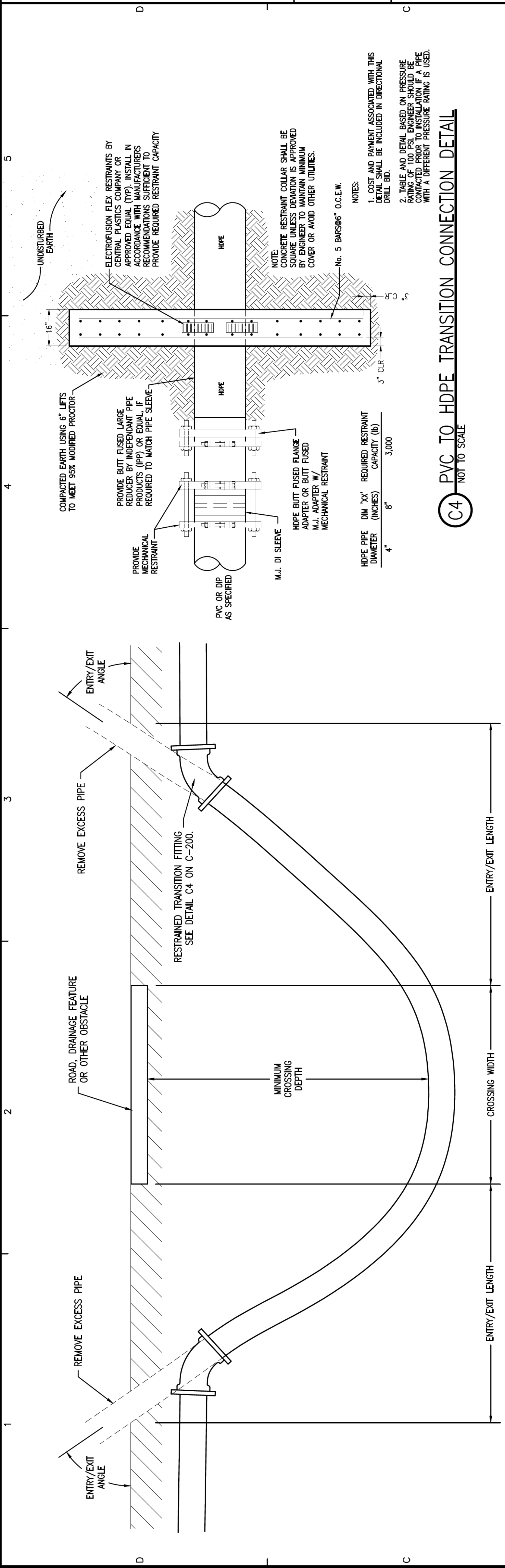


**A-A CROSS SECTION**  
SCALE: 1" = 20' H 0 10' 20' 40'  
SCALE: 1" = 5' V 0 5' 10'



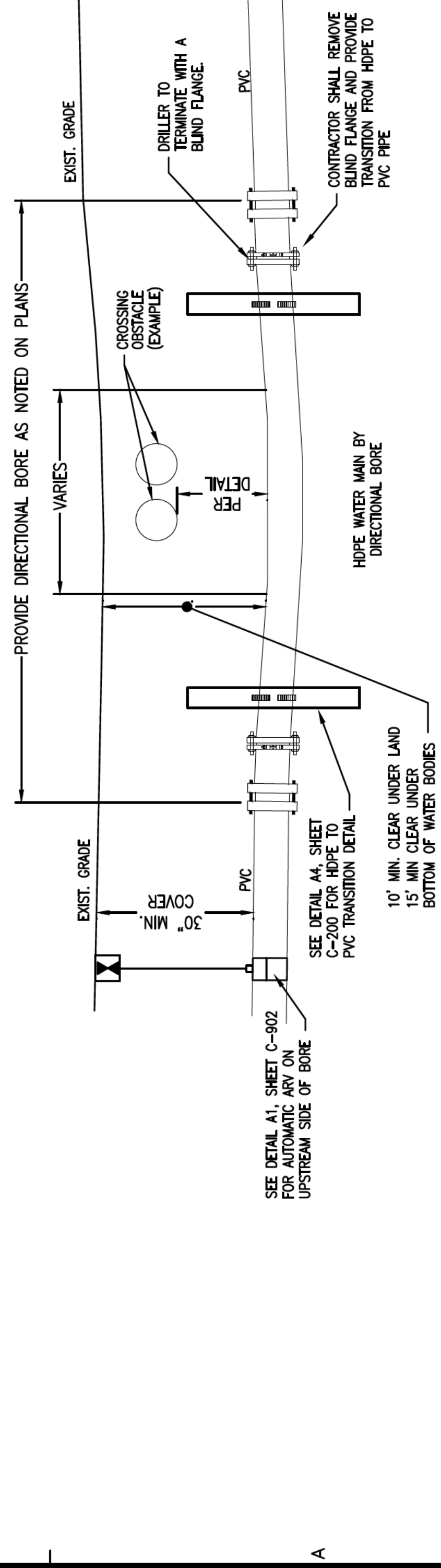
PROJECT NO:	27656.01
DESIGNED BY:	JEA
DRAWN BY:	THO
CHK'D BY:	JEA
PROJ. MGR:	JCP
DATE:	MARCH 2021
NOT RELEASED FOR CONSTRUCTION BY:	DATE
REVISION/ACTION TAKEN	NO. DATE APPR.
ADDENDUM 1	MAY 2021 JCP

**DIRECTIONAL DRILL  
 DETAIL AND SCHEDULE**

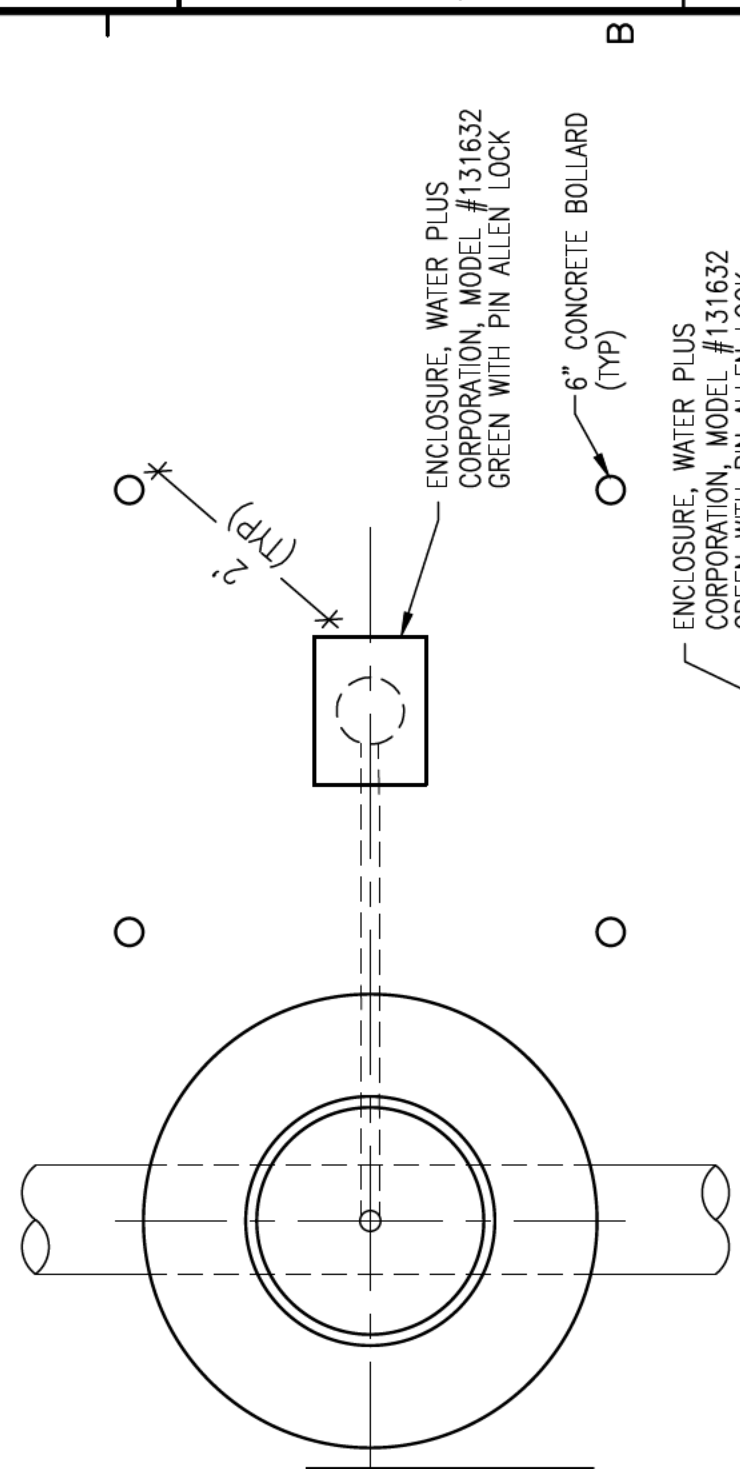


**C1** TYPICAL DIRECTIONAL DRILL STANDARD DETAIL  
 SCALE: N.T.S.

- NOTES:
- FOR RODGERS POND DIRECTIONAL-DRILL DETAILS SEE SHEET C-102
  - LENGTHS GIVEN ARE HORIZONTAL DISTANCES AS MEASURED AT SURFACE
  - RESTRAINED TRANSITION FITTINGS SHALL BE UTILIZED FOR CONNECTION TO PIPING INSTALLED VIA OTHER METHODS
  - MINIMUM DEPTH SHALL BE CONFIRMED OR INCREASED BASED ON DRILLER'S SUBMITTED FRAC-OUT ANALYSIS AND PREVENTION PLAN
  - CONTRACTOR SHALL POSITIVELY LOCATE CONFLICTING UTILITIES AND OBSTACLES PRIOR TO BEGINNING DRILLING ACTIVITIES.
  - WHERE DIRECTIONAL DRILLS ARE INSTALLED WITHOUT AN UPSTREAM MECHANICAL ARV, CONTRACTOR TO UTILIZE MANUAL ARV FOR AIR PURGING DURING PIPE FILL.

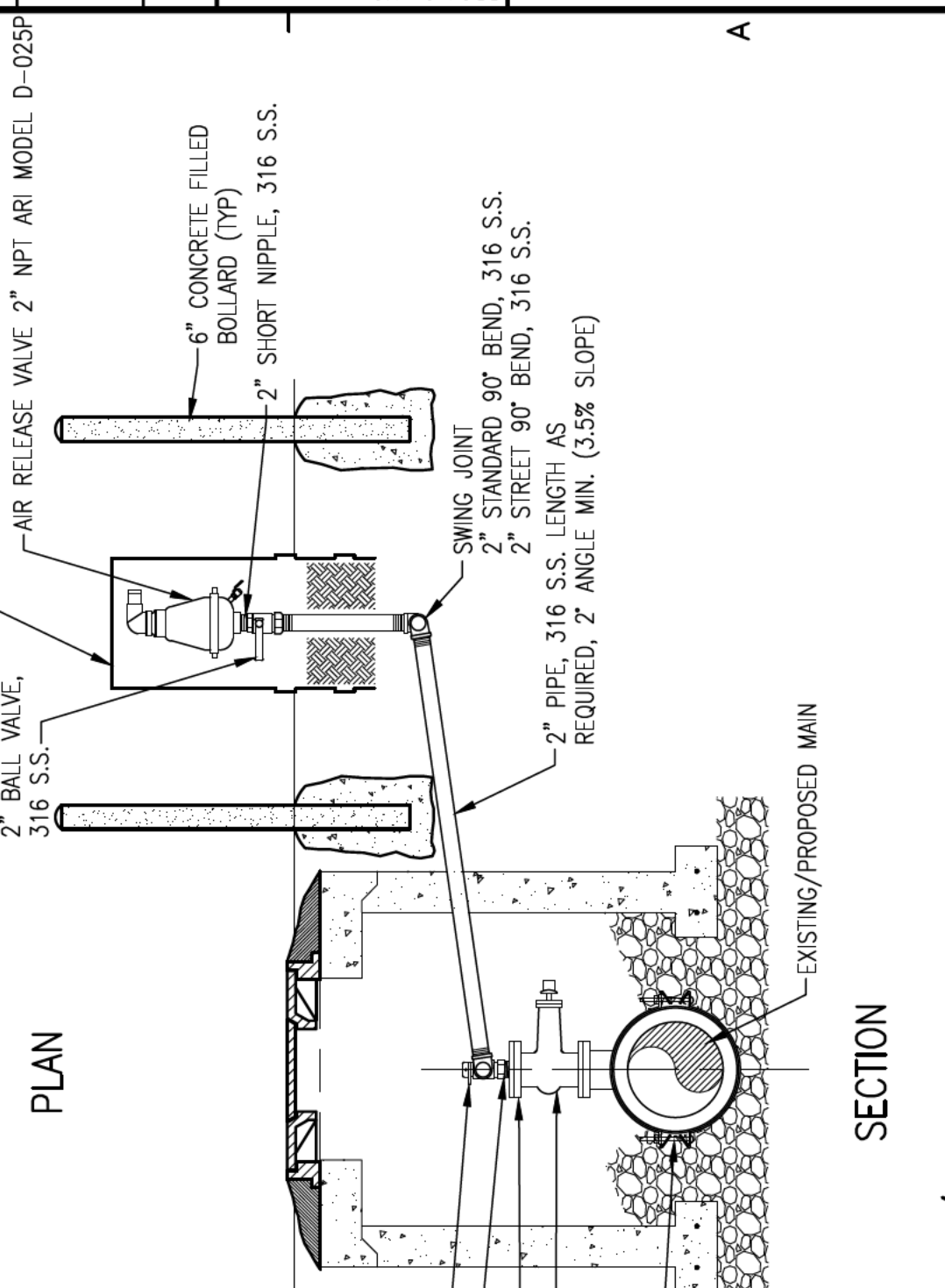


**A2** DIRECTIONAL DRILL GENERAL DETAIL  
 NOT TO SCALE

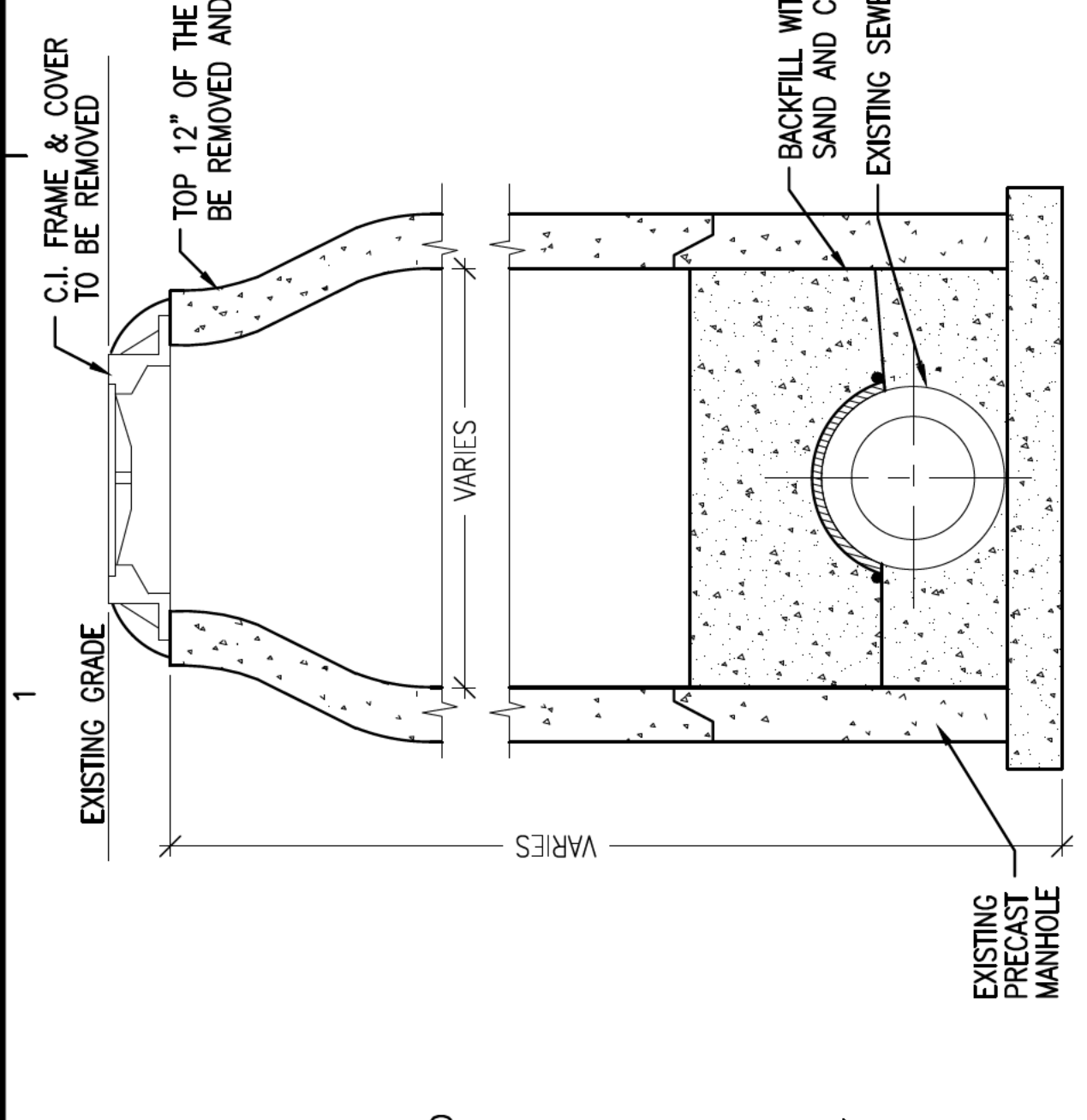


**C4** PVC TO HDPE TRANSITION CONNECTION DETAIL  
 NOT TO SCALE

- NOTES:
- COST AND PAYMENT ASSOCIATED WITH THIS DETAIL SHALL BE INCLUDED IN DIRECTIONAL DRILL BID.
  - TABLE AND DETAIL BASED ON PRESSURE RATING OF 100 PSI. ENGINEER SHOULD BE CONTACTED PRIOR TO INSTALLATION IF A PIPE WITH A DIFFERENT PRESSURE RATING IS USED.



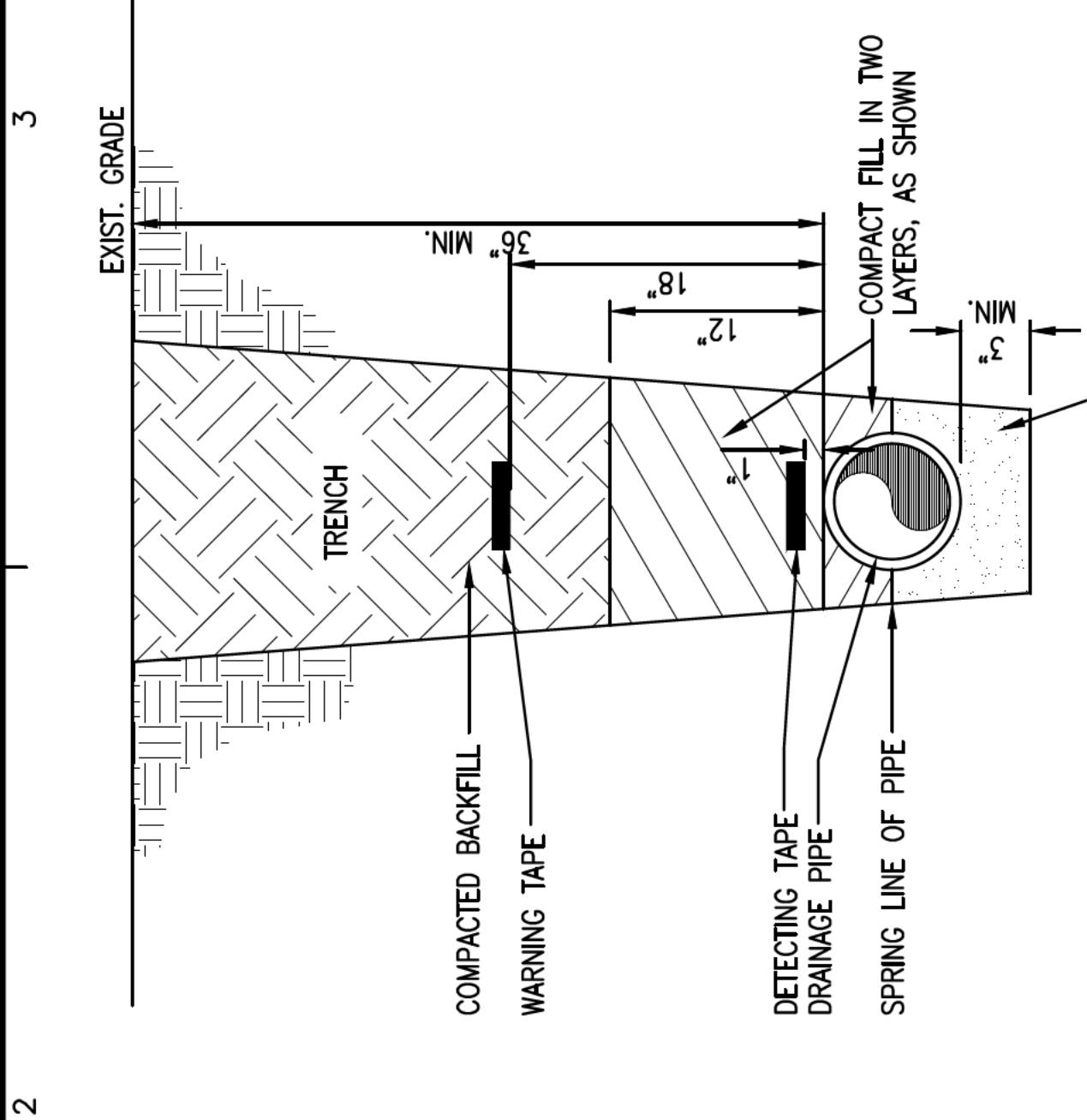
**A4** AIR/VACUUM RELEASE VALVE IN MANHOLE  
 NOT TO SCALE



**C1** NOT TO SCALE  
**DETAIL ON ABANDONMENT OF EXISTING MANHOLE ON EXISTING SEWER (NOT TO REMAIN IN SERVICE)**

NOTE:

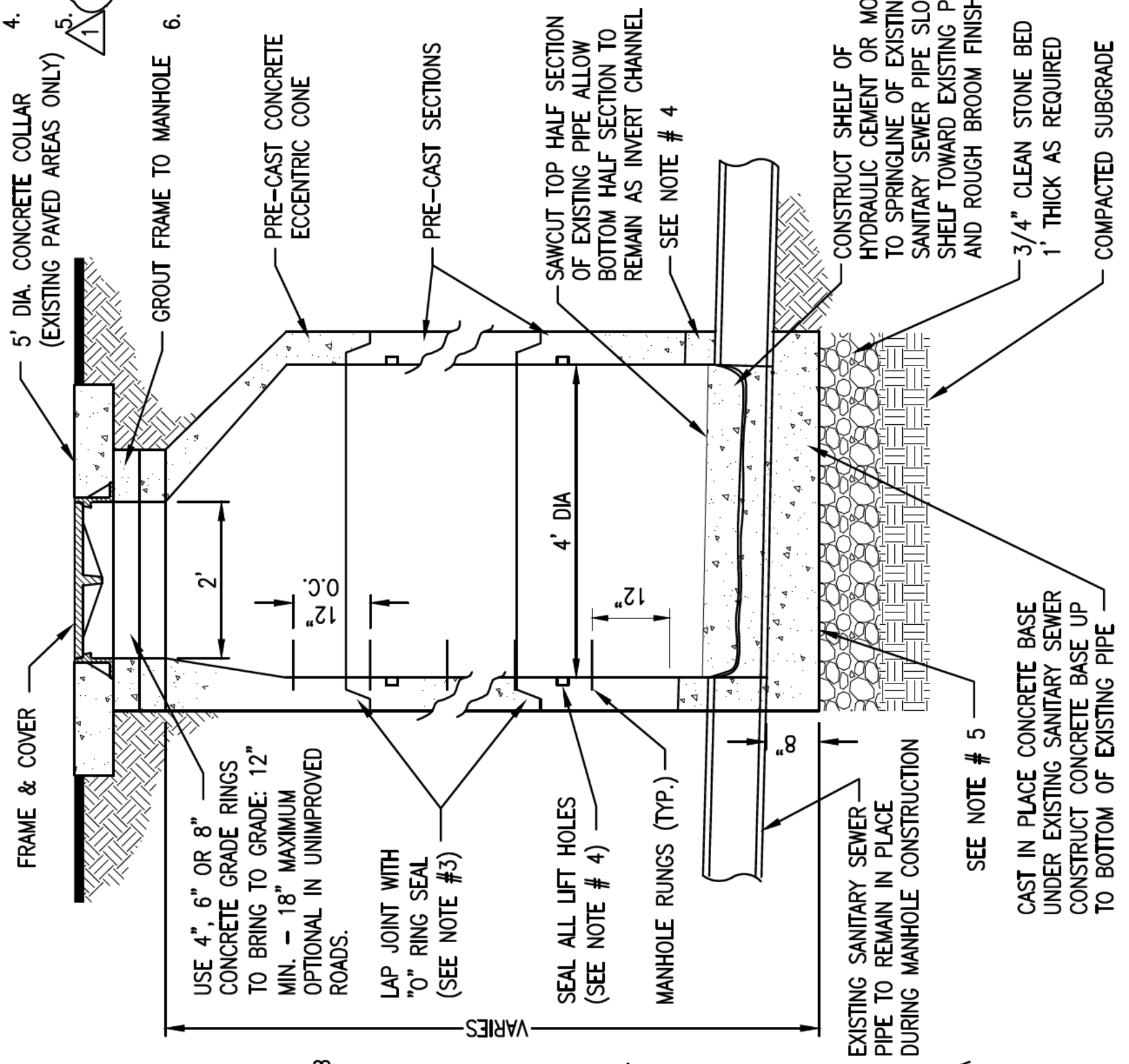
- EXISTING STRUCTURE WALLS THAT REMAIN SHALL BE PORTED TO ALLOW INFILTRATION OF NATURAL GROUNDWATER BY CREATING OPENINGS AT THE STRUCTURE BOTTOM AND PERIMETER. THE OPENINGS SHALL BE AT LEAST 12" DIAMETER IN SIZE AND SPACED AT NOT GREATER THAN 10' CENTERS ALONG THE STRUCTURE PERIMETER.



**C2** NOT TO SCALE  
**TYPICAL PIPE BEDDING**

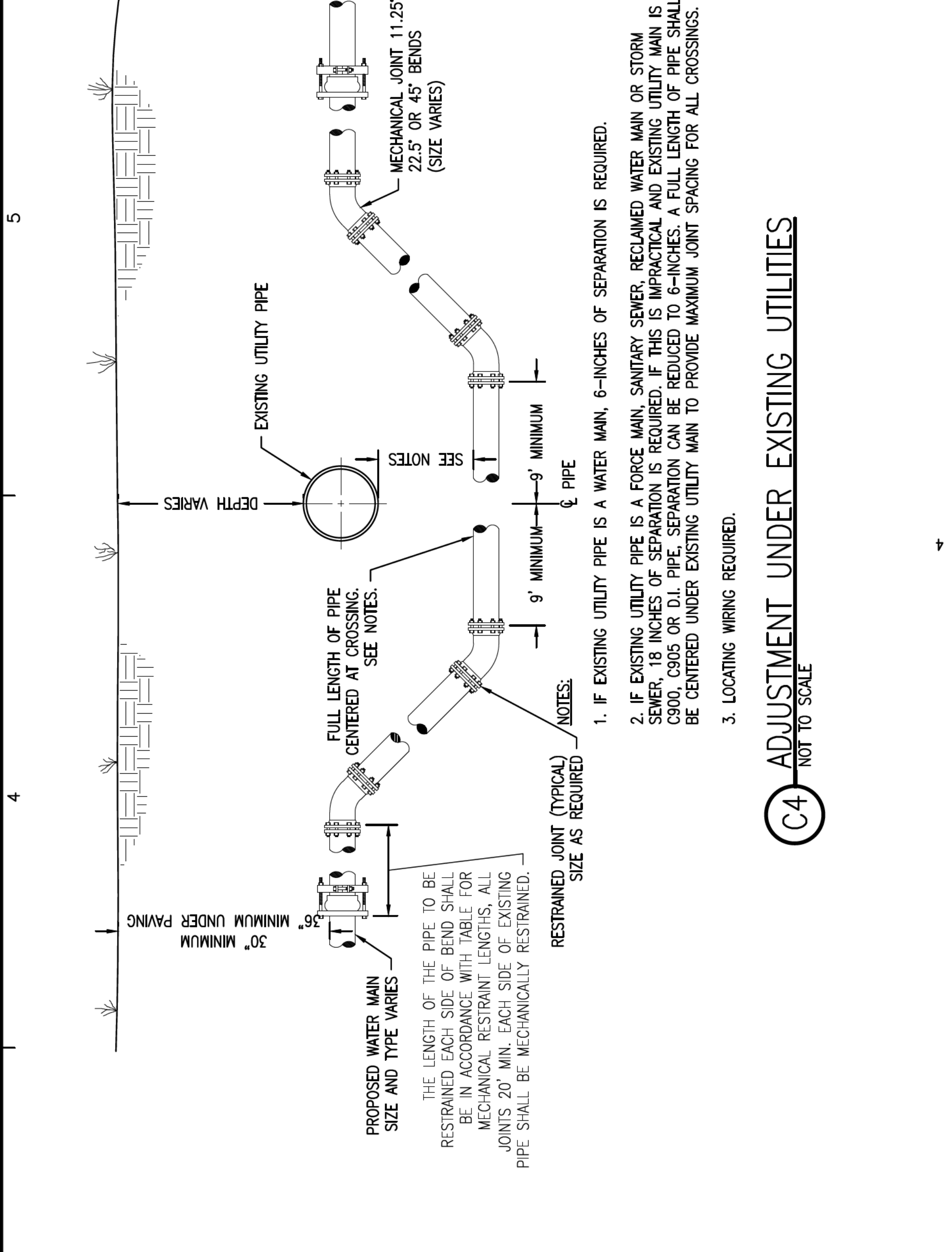
COMPACT GRANULAR MATERIAL (EXISTING GRANULAR MATERIAL MAY BE USED IF IT IS A SANDY, GRANULAR MATERIAL. IF EXISTING MATERIAL IS UNSUITABLE, SUCH AS MUCK OR SILT, A SANDY, GRANULAR MATERIAL MUST BE PROVIDED FOR BACKFILL)

- NOTES FOR A1 THIS SHEET:
- MANHOLE SHALL CONFORM TO SPECIFICATIONS WITH 4000 P.S.I. CONCRETE. DIAMETER OF OPENING FOR PIPE SHALL BE 1" LARGER DIAMETER THAN BELL OF THE PIPE BEING USED.
  - JOINTING COMPOUND SHALL BE RAM NECK, TYPE 1, ROPE, FORM PLASTIC GASKET OR EQUAL.
  - ALL PATCHING TO BE DONE WITH HYDRAULIC CEMENT, NO MORTAR REPAIRS PERMITTED.
  - EAST-IN-PLACE CONCRETE TO BE 2500 P.S.I., REINFORCING STEEL TO BE A.S.T.M. ASTM C478. CAST IN PLACE BASE SECTION TO BE CONSTRUCTED ON 12-INCH LAYER OF 3/4" CLEAN STONE MATERIAL. PRE-CAST SECTIONS MAY BE INSTALLED AFTER CONCRETE BASE HAS ATTAINED 75% OF DESIGN STRENGTH.
  - INTERIOR AND EXTERIOR OF MANHOLE TO HAVE 2 COATS OF SHOP APPLIED PROTECTIVE HIGH MIL EPOXY COATING. FIELD APPLY 2 COATS OF THE EPOXY COATING TO ALL EXPOSED MORTAR OR CEMENT AND DAMAGED SHOP AREAS AFTER MANHOLE INSTALLATION AND PRIOR TO BACKFILLING.



**A1** NTS  
**DOGHOUSE MANHOLE**

- SEE NOTE # 5
- CAST IN PLACE CONCRETE BASE UNDER EXISTING SANITARY SEWER. CONSTRUCT CONCRETE BASE UP TO BOTTOM OF EXISTING PIPE



**C4** NOT TO SCALE  
**ADJUSTMENT UNDER EXISTING UTILITIES**

- NOTES:
- IF EXISTING UTILITY PIPE IS A WATER MAIN, 6-INCHES OF SEPARATION IS REQUIRED.
  - IF EXISTING UTILITY PIPE IS A FORCE MAIN, SANITARY SEWER, RECLAIMED WATER MAIN OR STORM SEWER, 18 INCHES OF SEPARATION IS REQUIRED. IF THIS IS IMPRACTICAL AND EXISTING UTILITY MAIN IS C900, C905 OR D.I. PIPE, SEPARATION CAN BE REDUCED TO 6-INCHES. A FULL LENGTH OF PIPE SHALL BE CENTERED UNDER EXISTING UTILITY MAIN TO PROVIDE MAXIMUM JOINT SPACING FOR ALL CROSSINGS.
  - LOCATING WIRING REQUIRED.

THE LENGTH OF THE PIPE TO BE RESTRAINED EACH SIDE OF BEND SHALL BE IN ACCORDANCE WITH TABLE FOR MECHANICAL RESTRAINT LENGTHS. ALL JOINTS 20' MIN. EACH SIDE OF EXISTING PIPE SHALL BE MECHANICALLY RESTRAINED.

RESTRAINED JOINT (TYPICAL) SIZE AS REQUIRED

PROPOSED WATER MAIN SIZE AND TYPE VARIES

30" MINIMUM UNDER PAVING

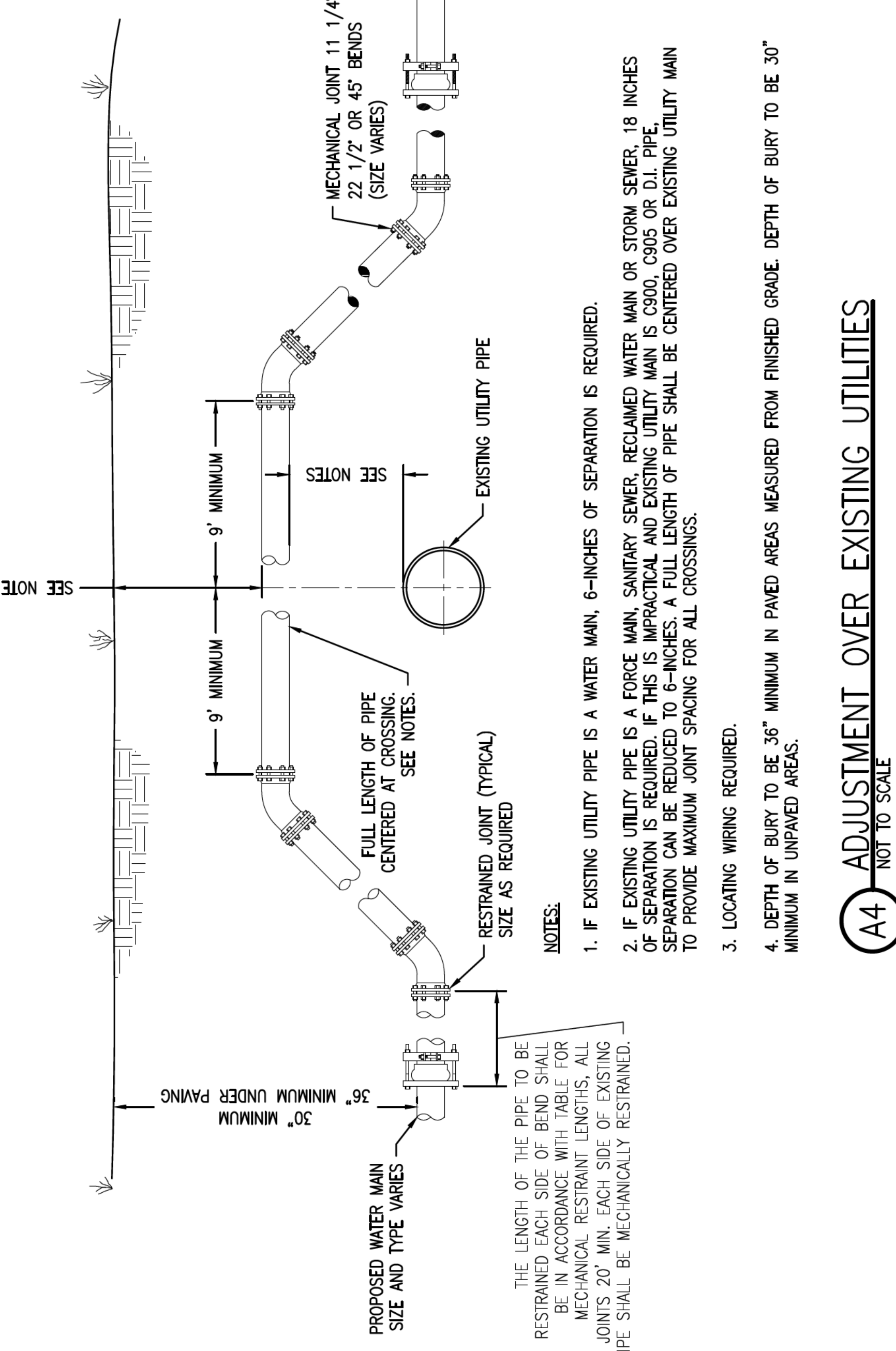
36" MINIMUM UNDER PAVING

DEPTH VARIES

EXISTING UTILITY PIPE

FULL LENGTH OF PIPE CENTERED AT CROSSING. SEE NOTES.

MECHANICAL JOINT 11.25', 22.5' OR 45' BENDS (SIZE VARIES)



**A4** NOT TO SCALE  
**ADJUSTMENT OVER EXISTING UTILITIES**

- NOTES:
- IF EXISTING UTILITY PIPE IS A WATER MAIN, 6-INCHES OF SEPARATION IS REQUIRED.
  - IF EXISTING UTILITY PIPE IS A FORCE MAIN, SANITARY SEWER, RECLAIMED WATER MAIN OR STORM SEWER, 18 INCHES OF SEPARATION IS REQUIRED. IF THIS IS IMPRACTICAL AND EXISTING UTILITY MAIN IS C900, C905 OR D.I. PIPE, SEPARATION CAN BE REDUCED TO 6-INCHES. A FULL LENGTH OF PIPE SHALL BE CENTERED OVER EXISTING UTILITY MAIN TO PROVIDE MAXIMUM JOINT SPACING FOR ALL CROSSINGS.
  - LOCATING WIRING REQUIRED.
  - DEPTH OF BURY TO BE 36" MINIMUM IN PAVED AREAS MEASURED FROM FINISHED GRADE. DEPTH OF BURY TO BE 30" MINIMUM IN UNPAVED AREAS.

THE LENGTH OF THE PIPE TO BE RESTRAINED EACH SIDE OF BEND SHALL BE IN ACCORDANCE WITH TABLE FOR MECHANICAL RESTRAINT LENGTHS. ALL JOINTS 20' MIN. EACH SIDE OF EXISTING PIPE SHALL BE MECHANICALLY RESTRAINED.

RESTRAINED JOINT (TYPICAL) SIZE AS REQUIRED

PROPOSED WATER MAIN SIZE AND TYPE VARIES

30" MINIMUM UNDER PAVING

36" MINIMUM UNDER PAVING

DEPTH VARIES

EXISTING UTILITY PIPE

FULL LENGTH OF PIPE CENTERED AT CROSSING. SEE NOTES.

MECHANICAL JOINT 11 1/4', 22 1/2' OR 45' BENDS (SIZE VARIES)

PROJECT NO. 27656.01		DATE: MARCH 2021	
DESIGNED BY: JCP		PROJ. MGR: JCP	
DRAWN BY: RGG		C.H.D. BY: JCP	
REVISION/ACTION TAKEN		NOT RELEASED FOR CONSTRUCTION BY DATE	
NO.	DATE	APPR.	DATE
1	MAY 2021	JCP	
ADDENDUM 1			

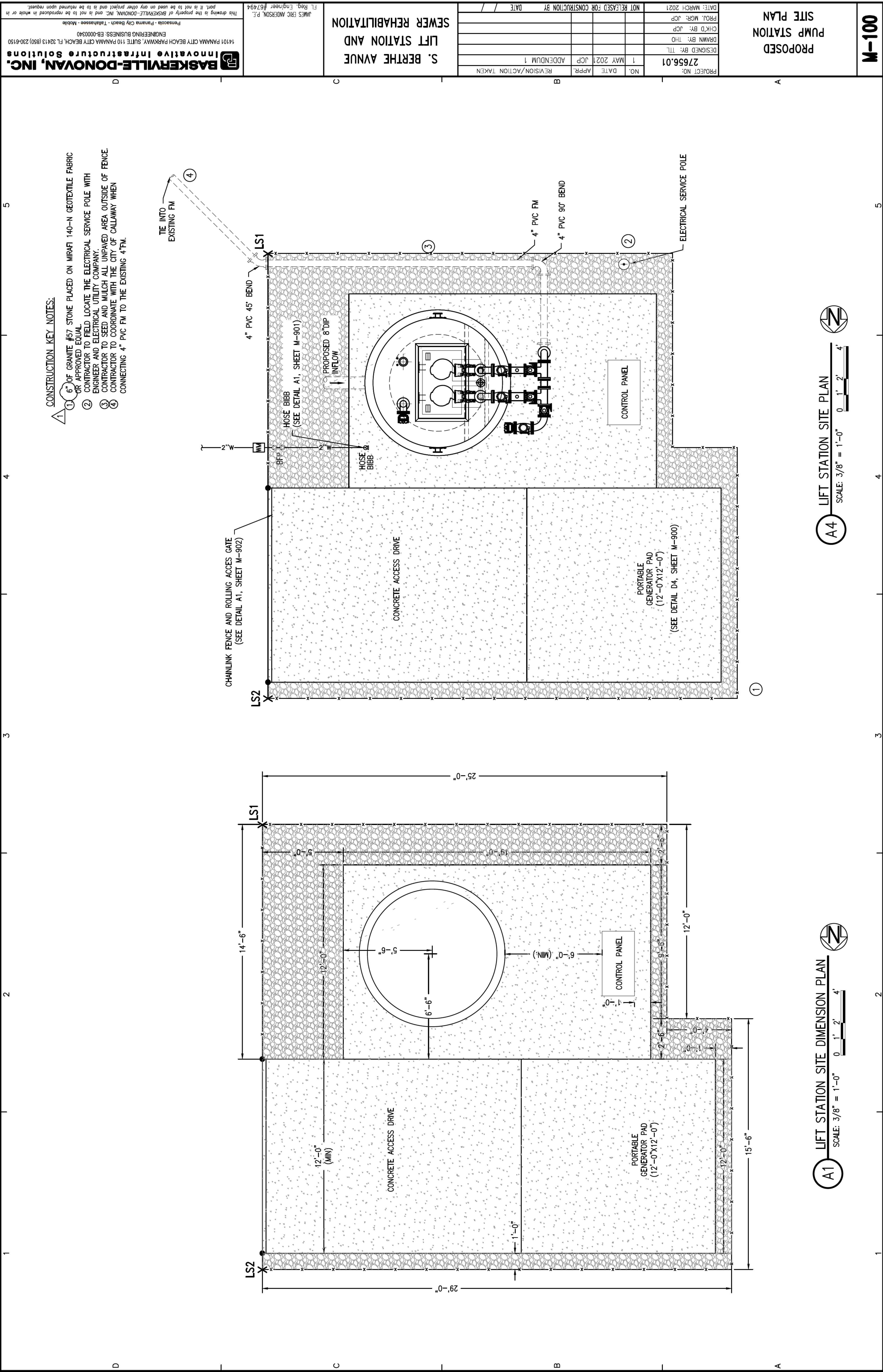
**S. BERTHE AVUE  
 LIFT STATION AND  
 SEWER REHABILITATION**

**BASKERVILLE-DONOVAN, INC.**  
 INNOVATIVE INFRASTRUCTURE SOLUTIONS  
 14101 PANAMA CITY BEACH PARKWAY, SUITE 110 PANAMA CITY BEACH, FL 32413 (850) 230-6150  
 ENGINEERING BUSINESS: EB-0000340  
 Pensacola - Panama City Beach - Tallahassee - Mobile

JAMES ERIC ANDERSON, P.E.  
 FL Reg. Engineer #67494

**DETAILS**

**C-900**



- CONSTRUCTION KEY NOTES:**
- ① 6" OF GRANITE #57 STONE PLACED ON MIRAFI 140-N GEOTEXTILE FABRIC OR APPROVED EQUAL.
  - ② CONTRACTOR TO FIELD LOCATE THE ELECTRICAL SERVICE POLE WITH ENGINEER AND ELECTRICAL UTILITY COMPANY.
  - ③ CONTRACTOR TO SEED AND MULCH ALL UNPAVED AREA OUTSIDE OF FENCE.
  - ④ CONTRACTOR TO COORDINATE WITH THE CITY OF CALLAWAY WHEN CONNECTING 4" PVC FM TO THE EXISTING 4" FM.

**A4 LIFT STATION SITE PLAN**  
 SCALE: 3/8" = 1'-0" 0 1' 2' 4'

**A1 LIFT STATION SITE DIMENSION PLAN**  
 SCALE: 3/8" = 1'-0" 0 1' 2' 4'

PROJECT NO: 27656.01		NO. 1	DATE MAY 2021	JCP	REVISION/ACTION TAKEN
DESIGNED BY: TLL		APPR. _____			
DRAWN BY: THO		ADDENDUM 1			
CHK'D BY: JCP		NOT RELEASED FOR CONSTRUCTION BY DATE / /			
PROJ. MGR: JCP		DATE / /			
DATE: MARCH 2021		JAMES ERIC ANDERSON, P.L.C. Reg. Engineer #67494			

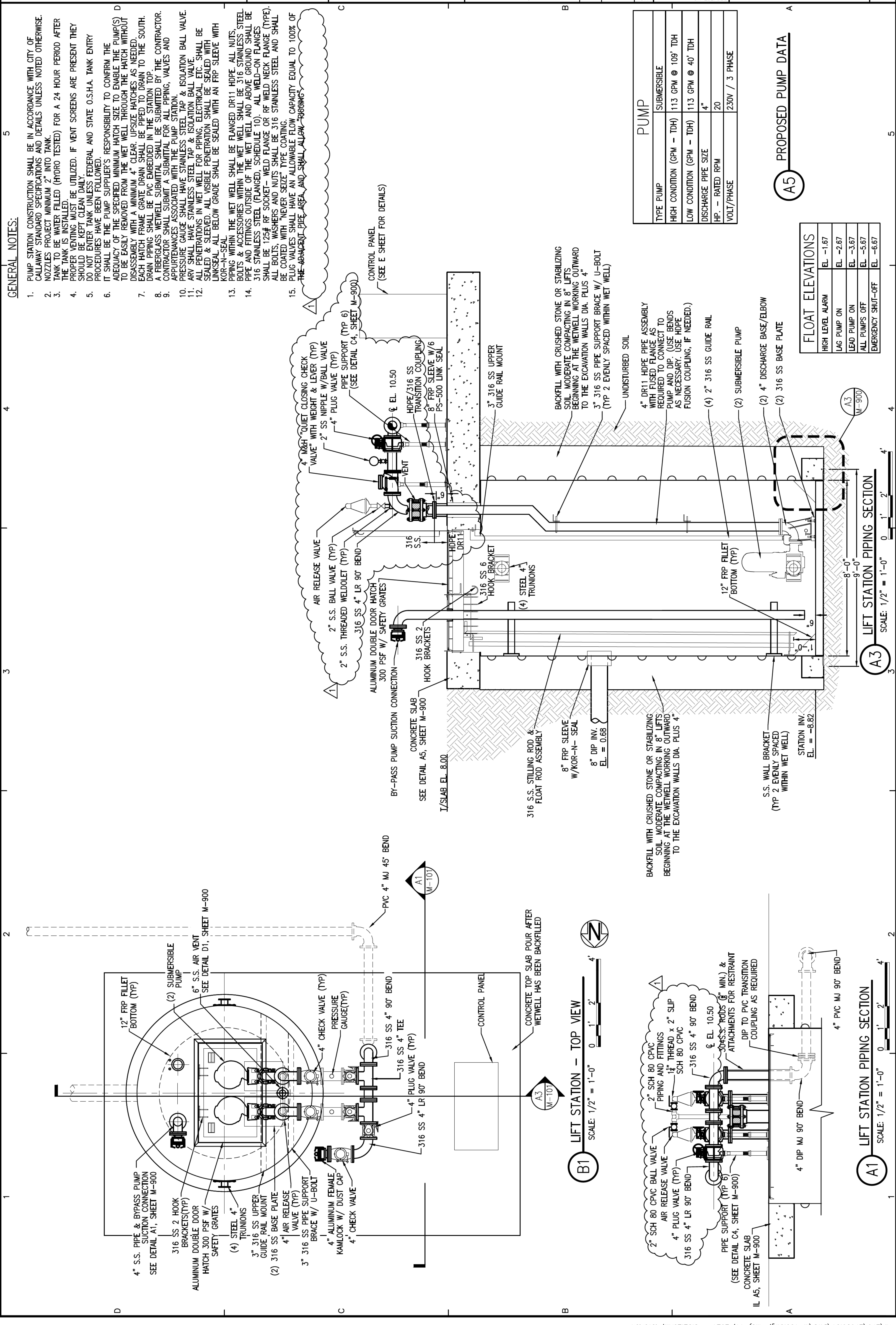
**PROPOSED PUMP STATION SITE PLAN**

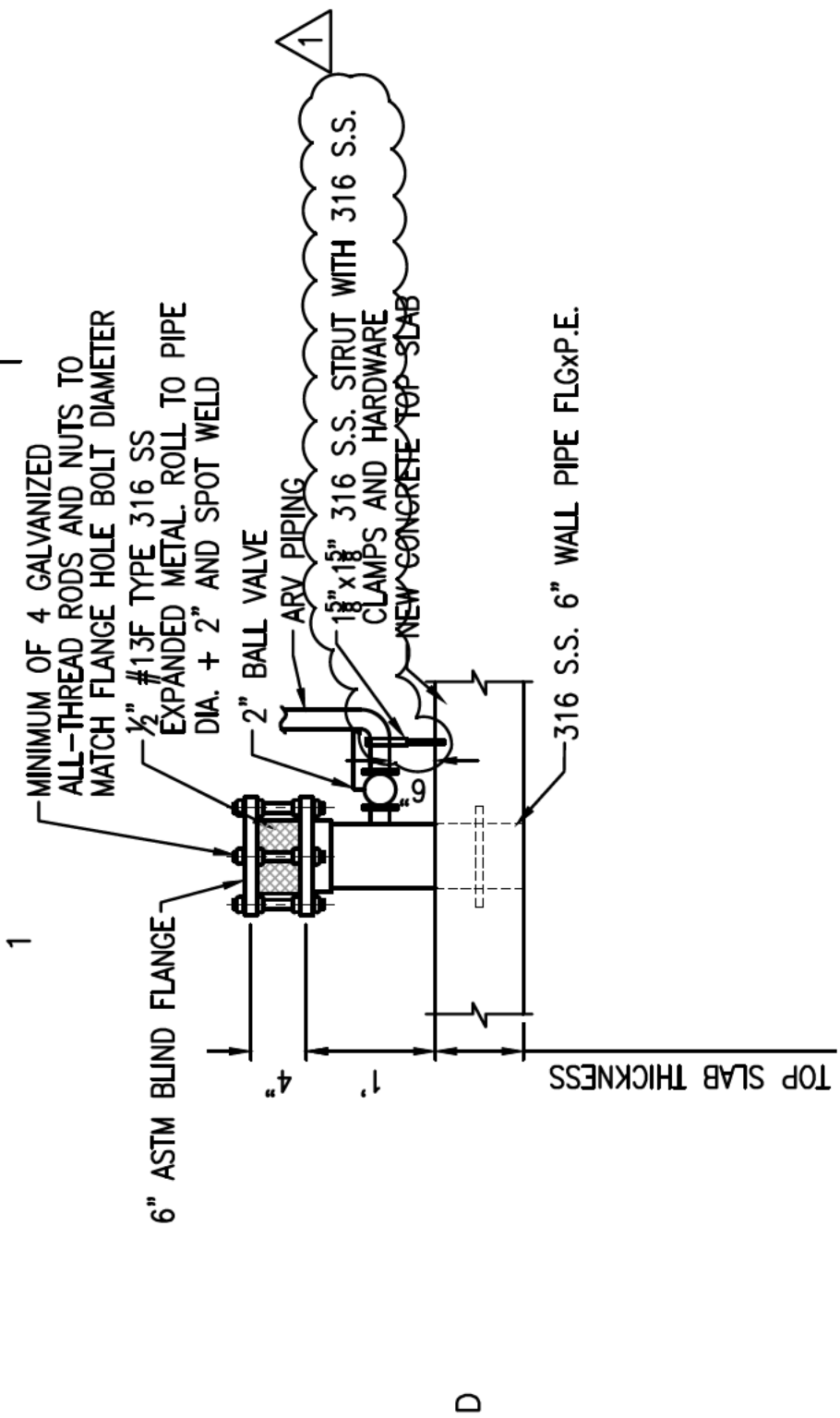
**S. BERTHE AVUE LIFT STATION AND SEWER REHABILITATION**

14101 PANAMA CITY BEACH PARKWAY, SUITE 110 PANAMA CITY BEACH, FL 32413 (850) 230-6150  
**BASKERVILLE-DONOVAN, INC.**  
 Innovative Infrastructure Solutions  
 Panama City Beach, Tallahassee - Mobile

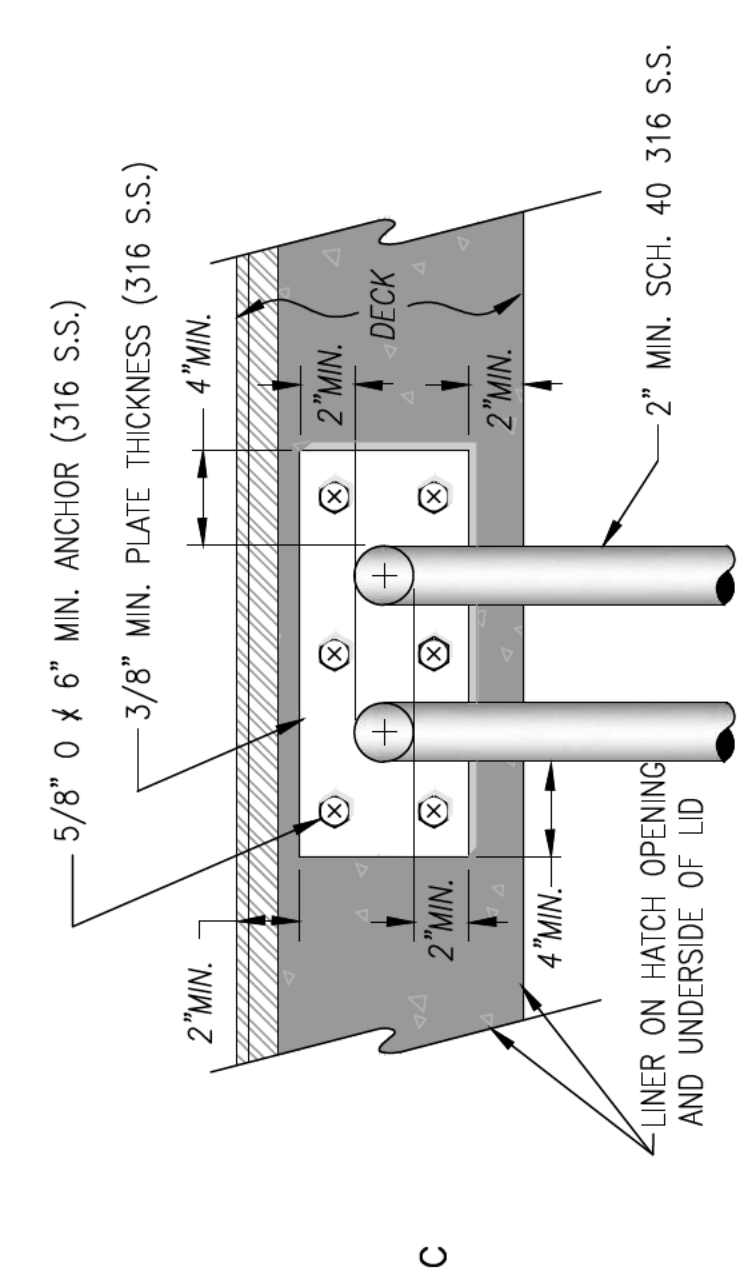
**M-100**





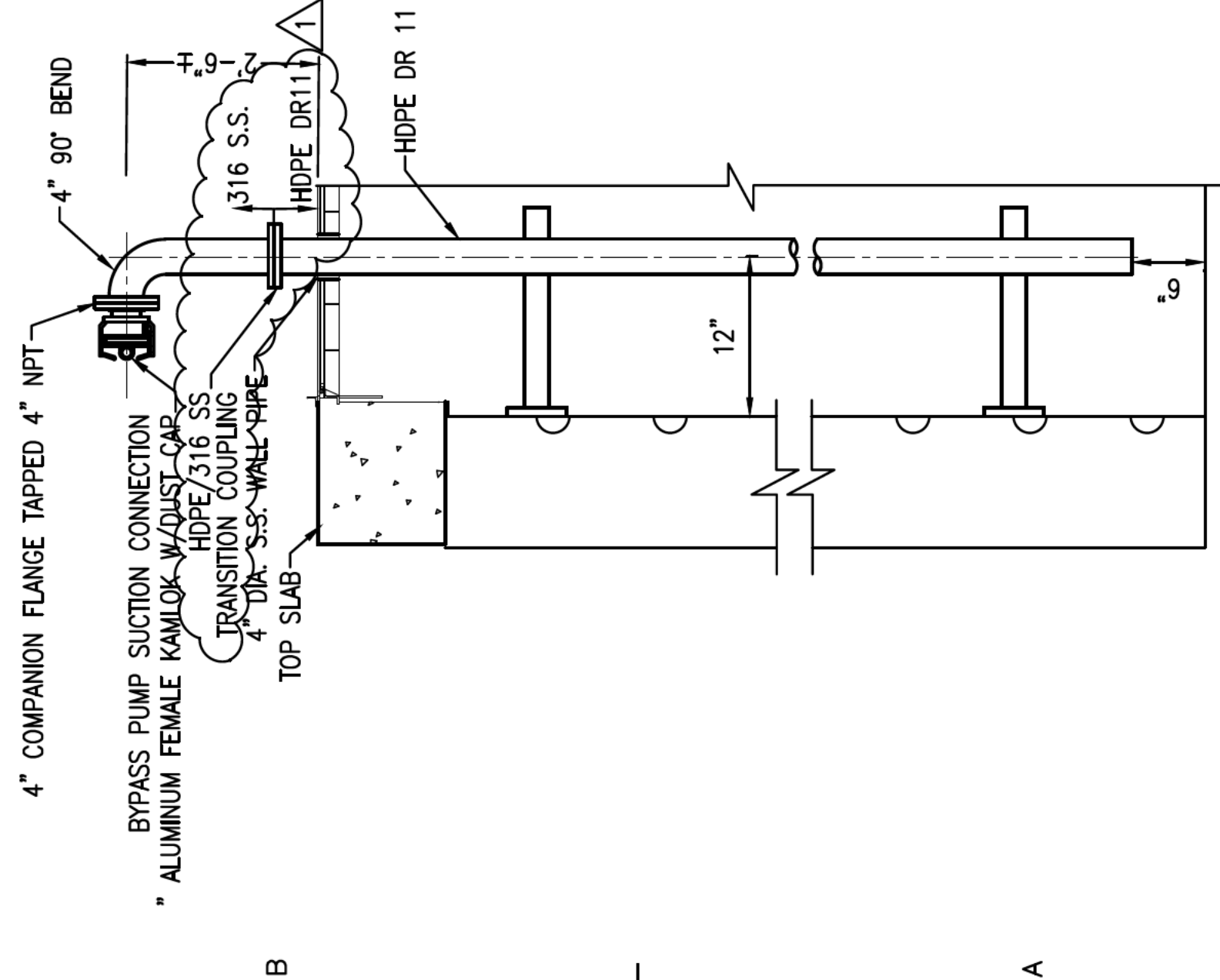


**D1**  
TYPICAL VENT PIPE DETAIL  
NOT TO SCALE

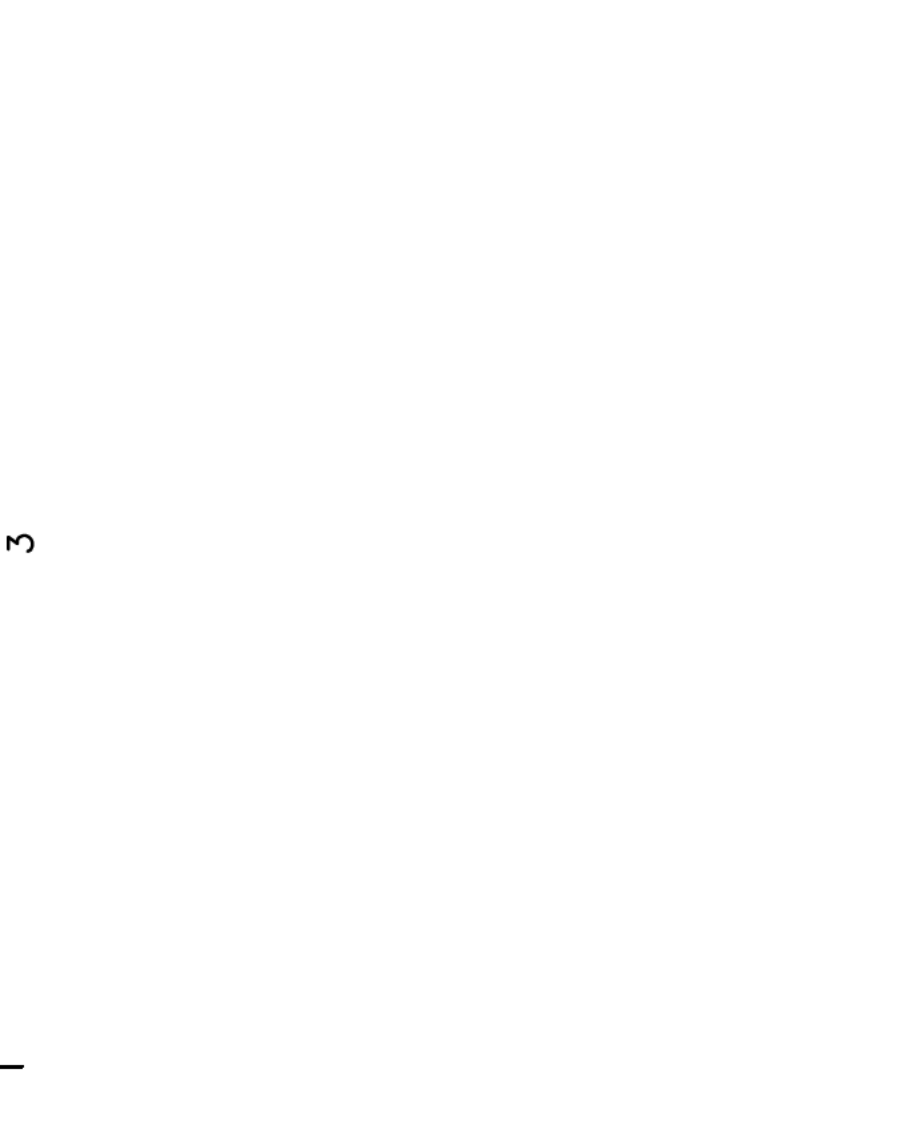


— REQUIRE SUBMITTAL FOR "STYLE" OF RAIL ATTACHMENT.  
 — PUMP RAILS TO BE WELDED TO PLATE IN A MANNER ACCEPTABLE TO THE CITY OF CALLAWAY.

**B1**  
GUIDE RAIL  
SCALE: N.T.S.

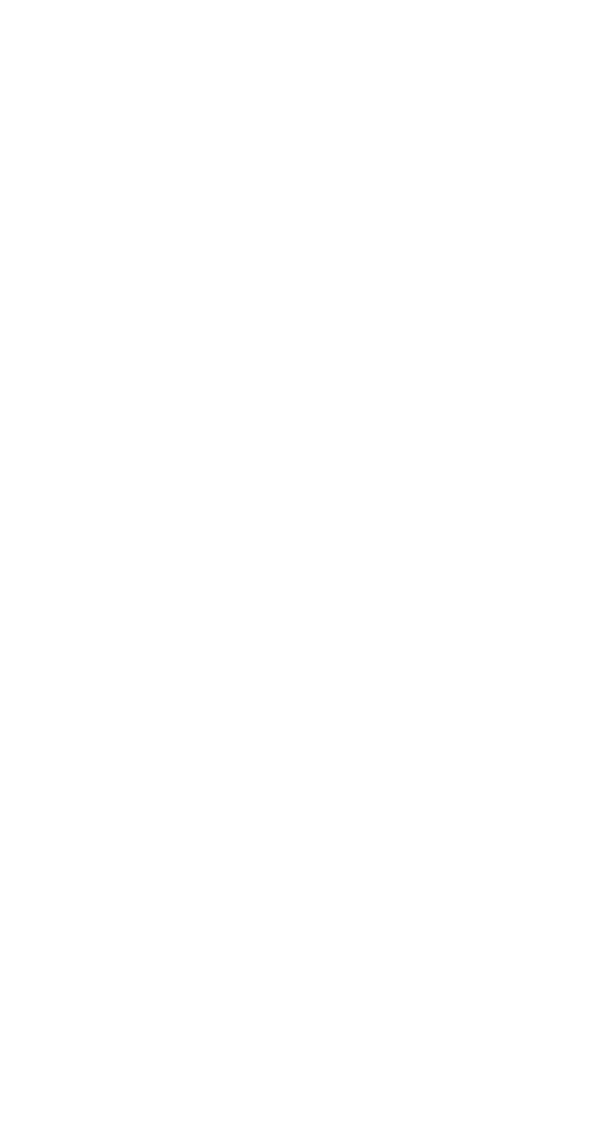


**A1**  
TYPICAL BYPASS PUMP SUCTION CONNECTION DETAIL  
SCALE: 1/2" = 1'-0" 0 1' 2' 4'

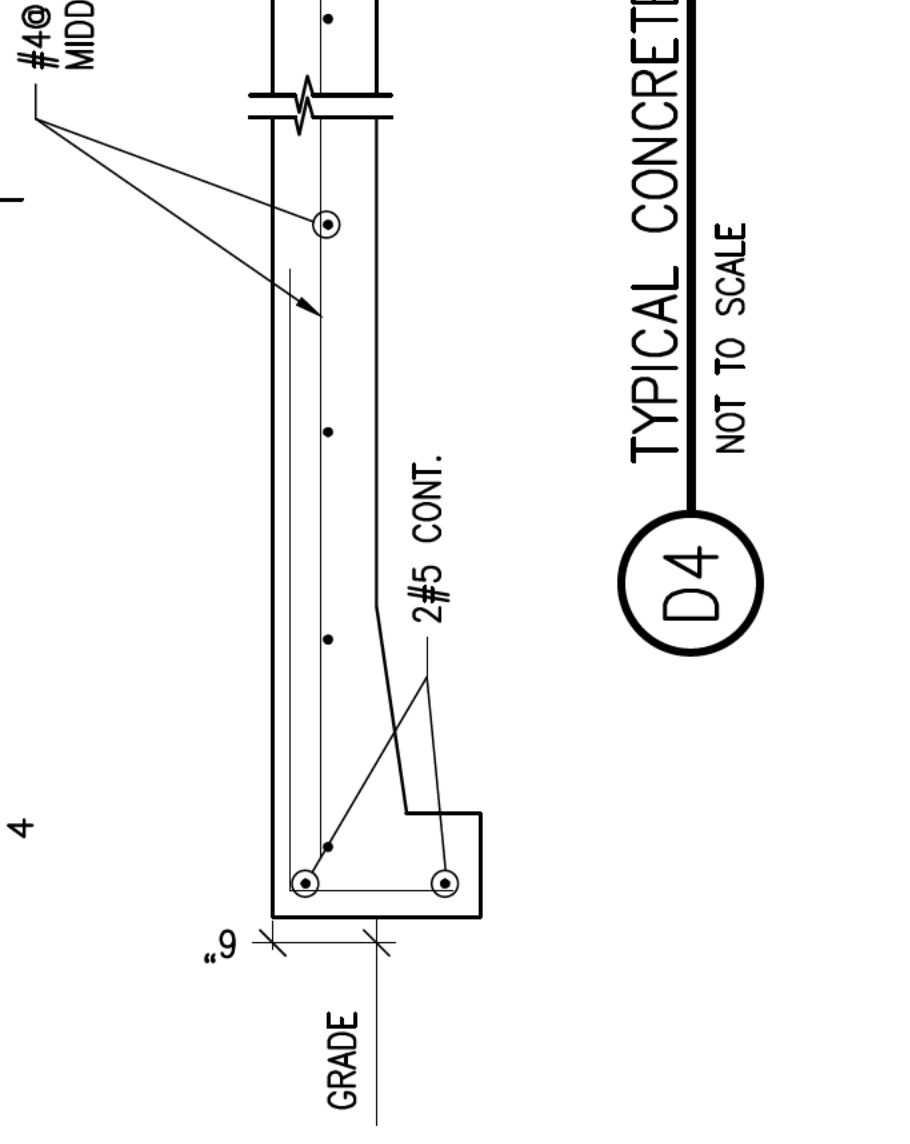


**A3**  
PUMP STATION  
BUOYANCY COLLAR DETAIL  
SCALE: 3/4" = 1'-0" 0 6' 1' 2'

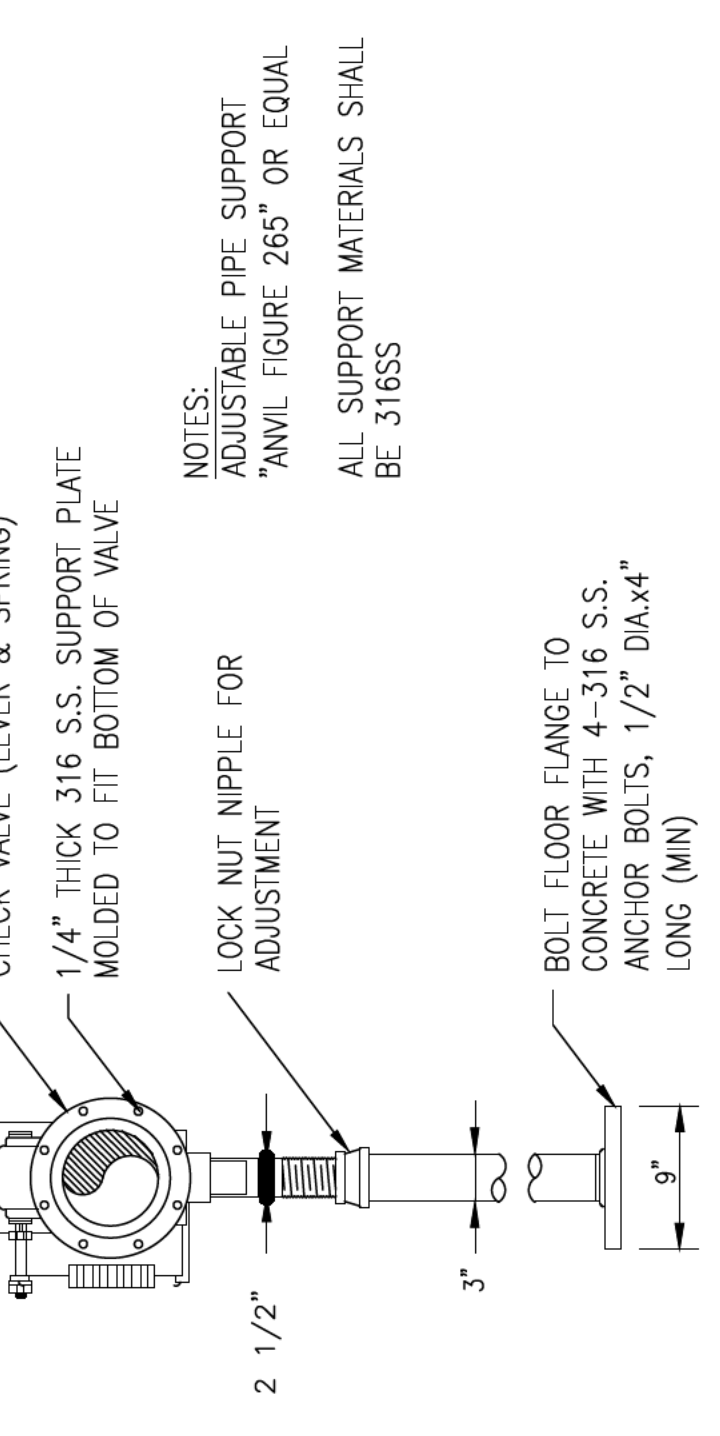
**SOIL BACKFILL PLACEMENT SEQUENCE**  
 1. MAINTAIN DEWATERING DURING COLLAR PLACEMENT.  
 2. PLACE BACKFILL ABOVE COLLAR IN 8" LIFTS, COMPACT TO 95% MODIFIED PROCTOR TO SURFACE.  
 3. CEASE DEWATERING OPERATION, WITHDRAW WELL POINTS.



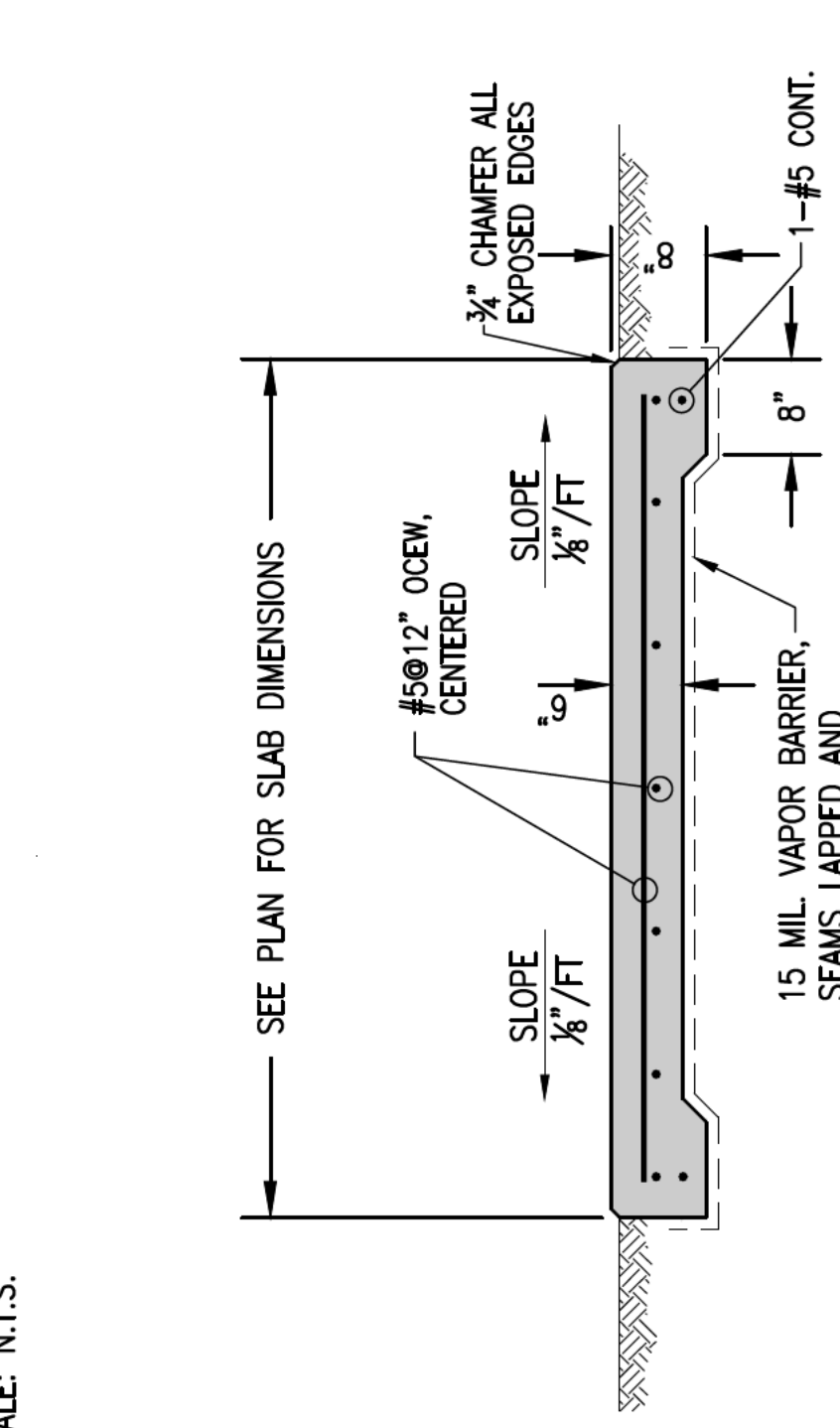
**A5**  
TYPICAL CONCRETE SLAB DETAIL  
SCALE: 1/2" = 1'-0" 0 1' 2' 4'



**C4**  
ADJUSTABLE PIPE STAND DETAIL  
SCALE: N.T.S.



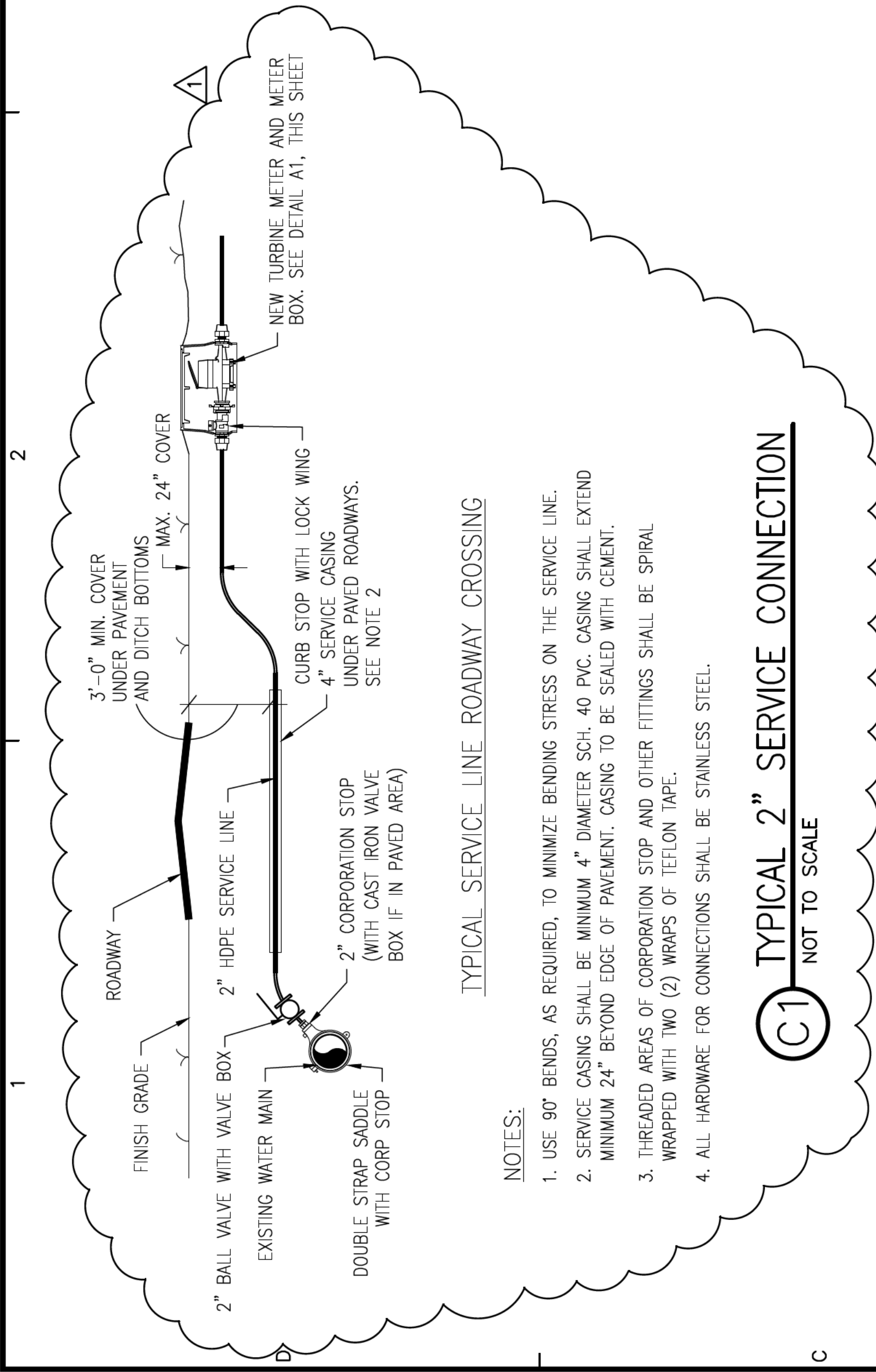
**D4**  
TYPICAL CONCRETE PAD DETAIL  
NOT TO SCALE



**B**  
TYPICAL CONCRETE PAD DETAIL  
NOT TO SCALE

- GENERAL NOTES**
1. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS = 3000 PSI, THE BATCH MIX DESIGN SHALL BE SUBMITTED FOR APPROVAL BY THE ENGINEER.
  2. REINFORCING SHALL BE GRADE 60, SUBMIT REINFORCING SHOP DRAWINGS FOR APPROVAL.
  3. WET CURE ALL CAST CONCRETE FOR A MINIMUM OF 7 DAYS, PROVIDE MEDIUM BROOM FINISH TO ALL EXPOSED SURFACES, CHAMFER ALL CORNERS 3/4"
  4. SLAB CONSTRUCTION: COMPACT EXISTING EXPOSED SUBGRADE TO 95% MAXIMUM DRY DENSITY TO A DEPTH OF 12" (MODIFIED PROCTOR). BACKFILL IN 6" LIFTS TO BEARING ELEVATION WITH CLEAN SANDY SOIL SUITABLE TO THE OWNER'S TESTING LAB TO 95% MAXIMUM DRY DENSITY PER MODIFIED PROCTOR METHOD.

**B**  
TYPICAL CONCRETE PAD DETAIL  
NOT TO SCALE



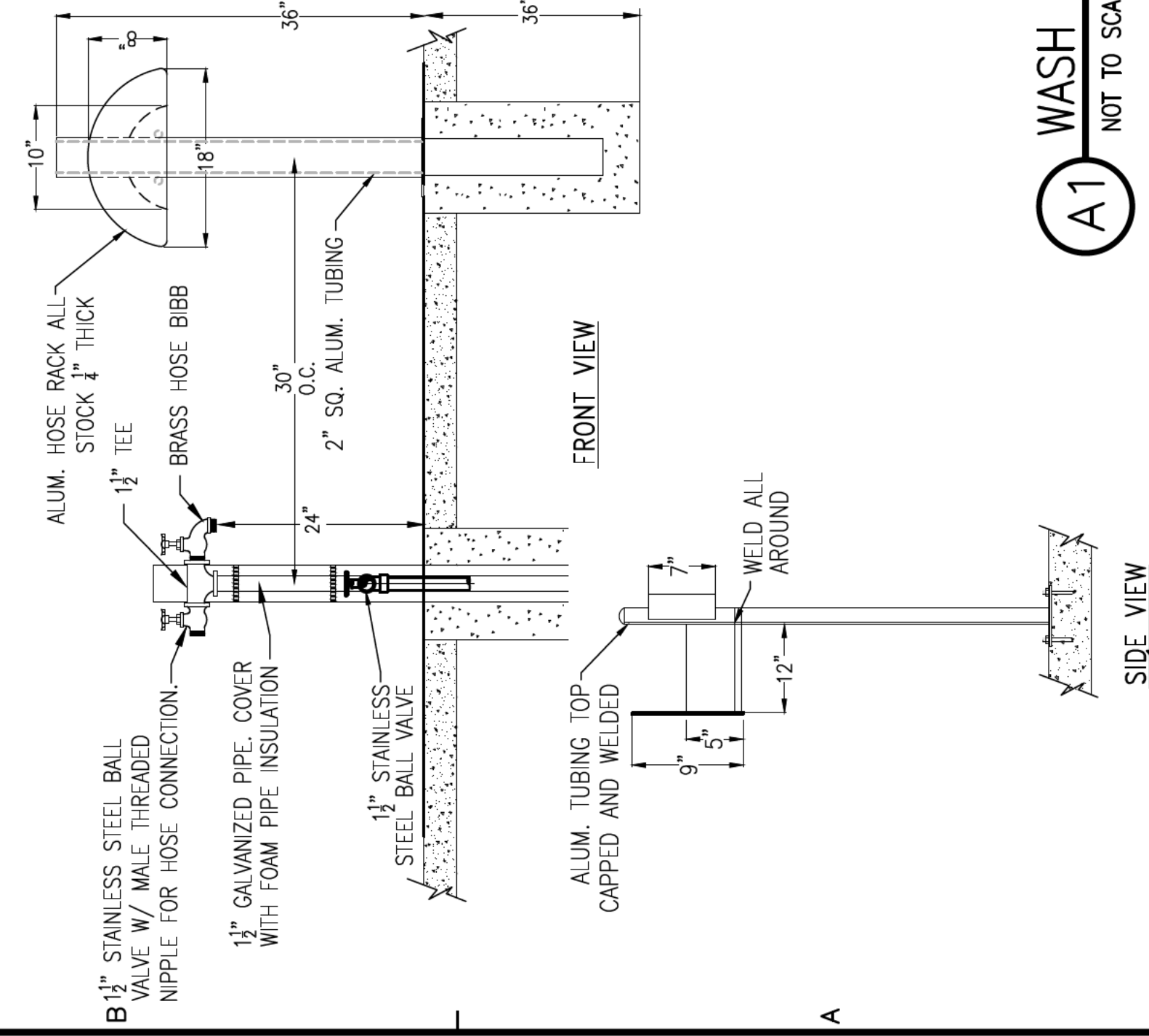
TYPICAL SERVICE LINE ROADWAY CROSSING

NOTES:

1. USE 90° BENDS, AS REQUIRED, TO MINIMIZE BENDING STRESS ON THE SERVICE LINE.
2. SERVICE CASING SHALL BE MINIMUM 4" DIAMETER SCH. 40 PVC. CASING SHALL EXTEND MINIMUM 24" BEYOND EDGE OF PAVEMENT. CASING TO BE SEALED WITH CEMENT.
3. THREADED AREAS OF CORPORATION STOP AND OTHER FITTINGS SHALL BE SPIRAL WRAPPED WITH TWO (2) WRAPS OF TEFLON TAPE.
4. ALL HARDWARE FOR CONNECTIONS SHALL BE STAINLESS STEEL.

TYPICAL 2" SERVICE CONNECTION

NOT TO SCALE



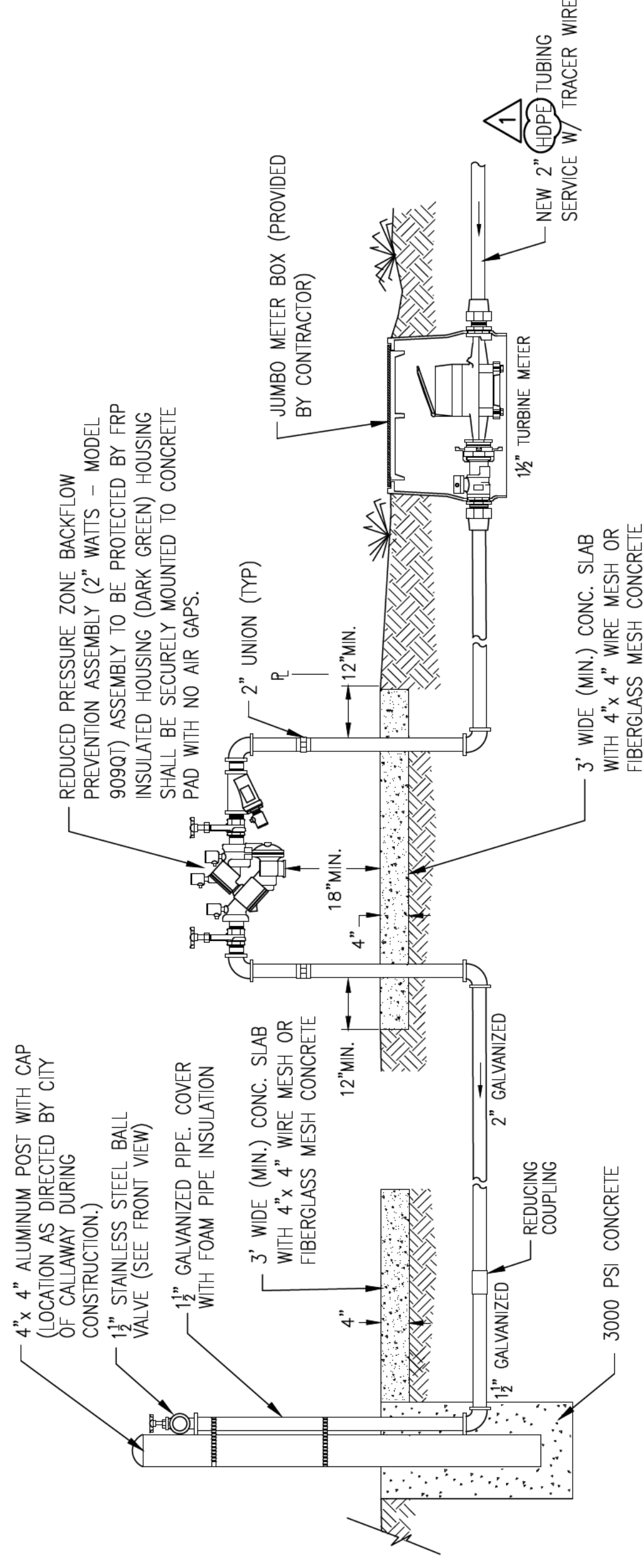
WASH DOWN STATION AND METER DETAIL

NOT TO SCALE



NOTES:

1. LOCATE AS FIELD DIRECTED BY CITY OF CALLAWAY DURING CONSTRUCTION.
2. CONTRACTOR SHALL PROVIDE 50' OF 1 1/2" RED RUBBER HOSE WITH THREADED FEMALE AND MALE ENDS.

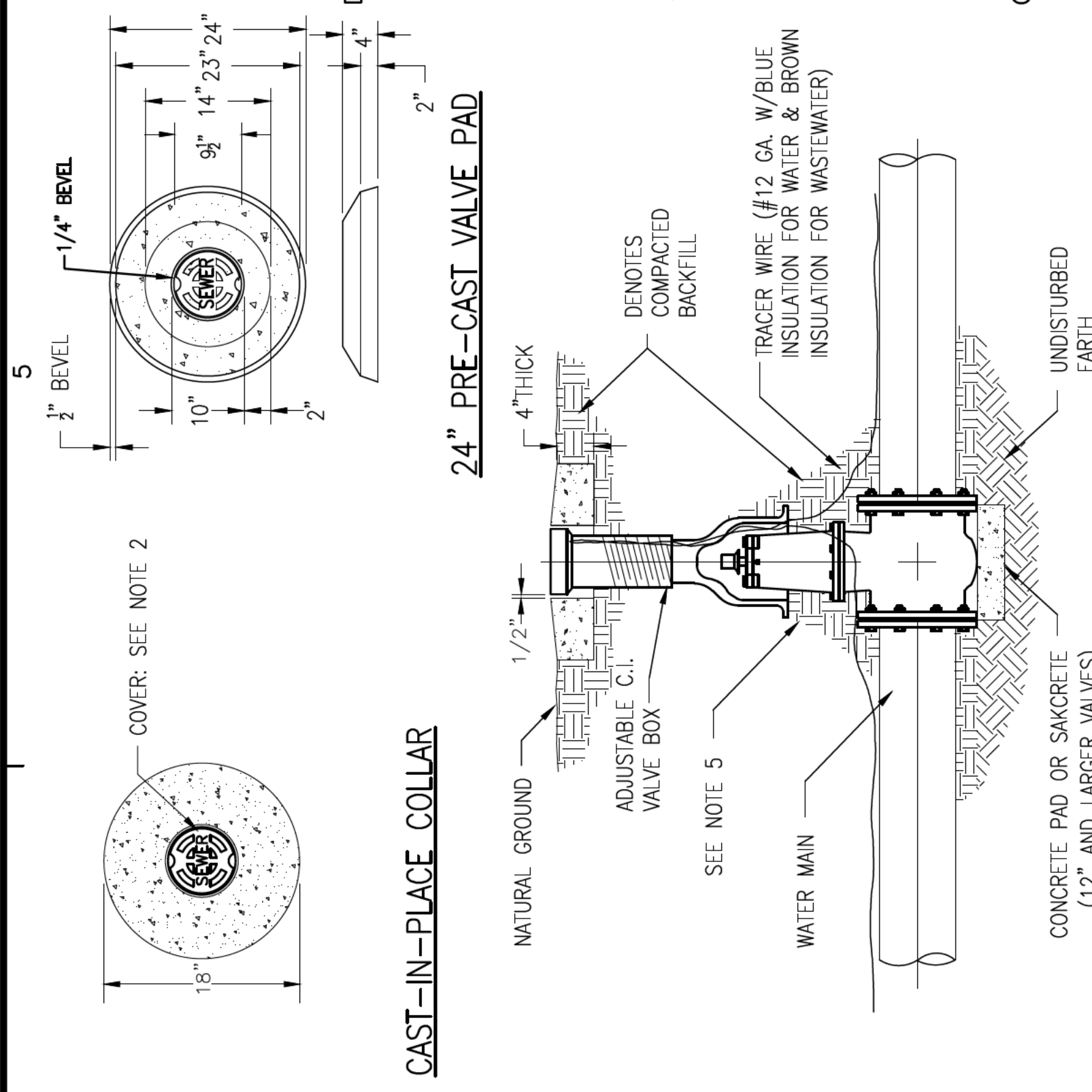


B4 VERTICAL PLUG VALVE & BOX INSTALLATION

NOT TO SCALE



- NOTES:
1. VALVE BOX AND BOOT SHALL BE CAST IRON.
  2. VALVE COVER SHALL BE MARKED "SEWER".
  3. VALVE BOX TOP SHALL BE FLUSH WITH FINISHED GRADE OR 1/2" ABOVE NATURAL GROUND LEVEL.
  4. PLUG VALVE SHALL BE RESILIENT SEAT WITH MECHANICAL JOINT ENDS OR APPROVED EQUAL.
  5. EARTH UNDER FLANGE OF VALVE BOX & COLLAR TO BE FIRM AND WELL TAMPED TO ENSURE AGAINST VALVE BOX SETTLING.



CAST-IN-PLACE COLLAR

24" PRE-CAST VALVE PAD

S. BERTHE AVENUE  
LIFT STATION AND  
SEWER REHABILITATION

LIFT STATION  
DETAILS

M-901

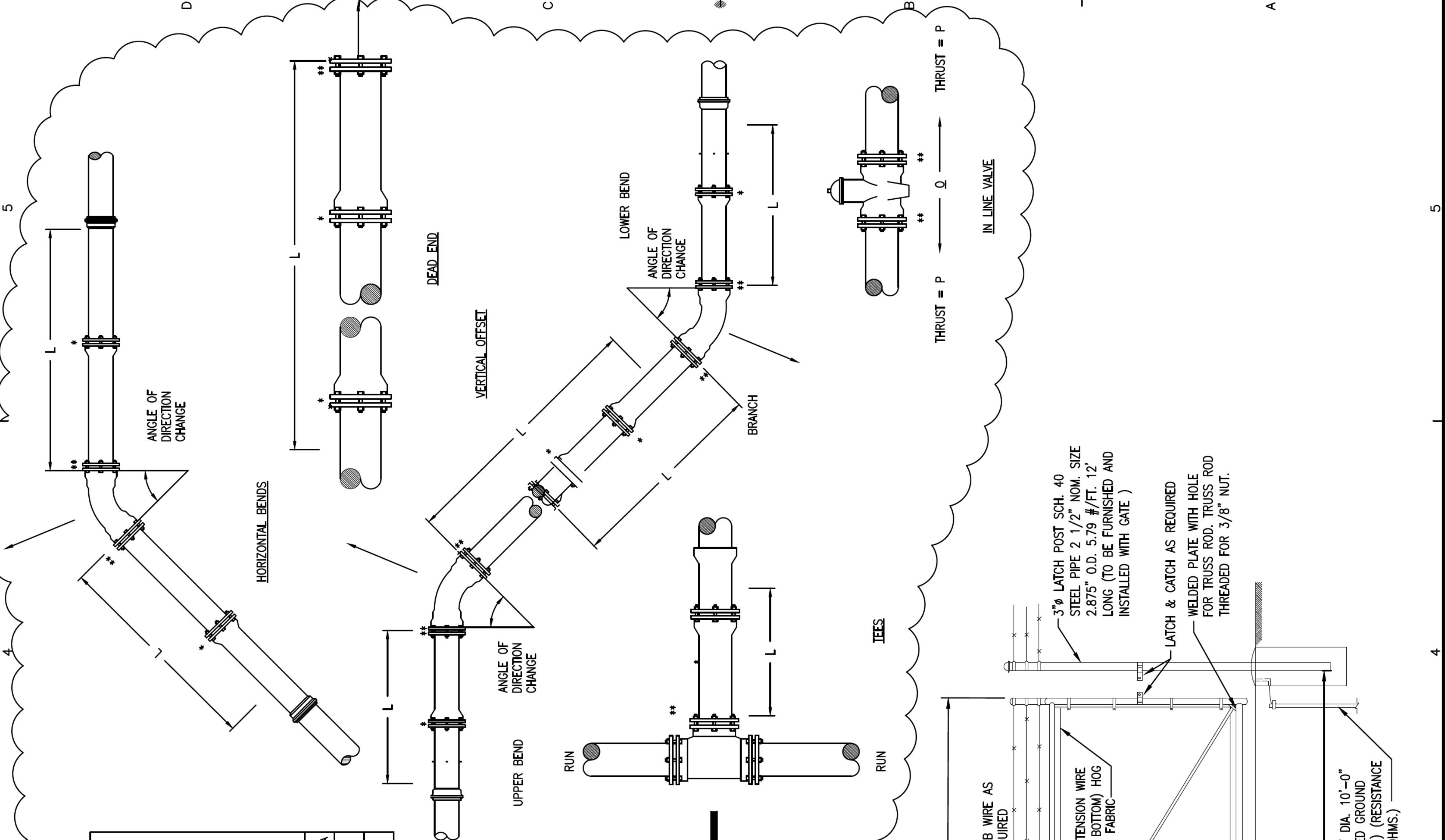
**BASKERVILLE-DONOVAN, INC.**  
Innovative Infrastructure Solutions  
14101 PANAMA CITY BEACH PARKWAY, SUITE 110 PANAMA CITY BEACH, FL 32413 (850) 230-6150  
ENGINEERING BUSINESS: EB-0000340  
Panama City Beach - Tallahassee - Mobile

JAMES ERIC ANDERSON, P.E.  
FL Reg. Engineer #67494  
This drawing is the property of BASKERVILLE-DONOVAN, INC. and is not to be reproduced in whole or in part. It is not to be used on any other project and is to be returned upon request.

PROJECT NO:	27656.01
DESIGNED BY:	TTL
DRAWN BY:	THO
CHK'D BY:	JCP
PROJ. MGR:	JCP
DATE:	MARCH 2021
NOT RELEASED FOR CONSTRUCTION BY:	DATE

NO.	DATE	APPR.	REVISION/ACTION TAKEN
1	MAY 2021	JCP	ADDENDUM 1

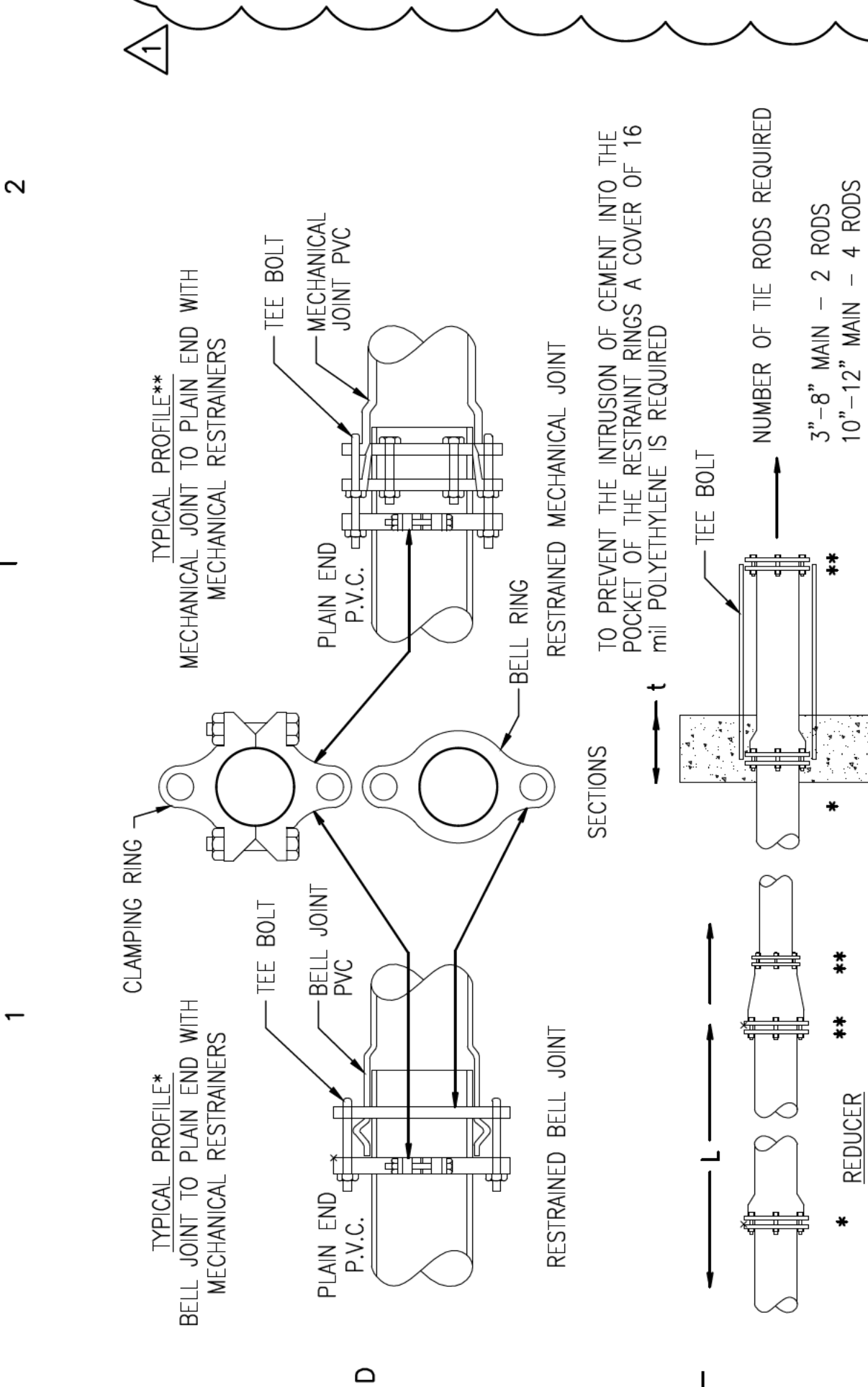
**LIFT STATION DETAILS**



**MINIMUM LENGTH TO BE RESTRAINED ON EACH SIDE OF FITTING (FEET)**

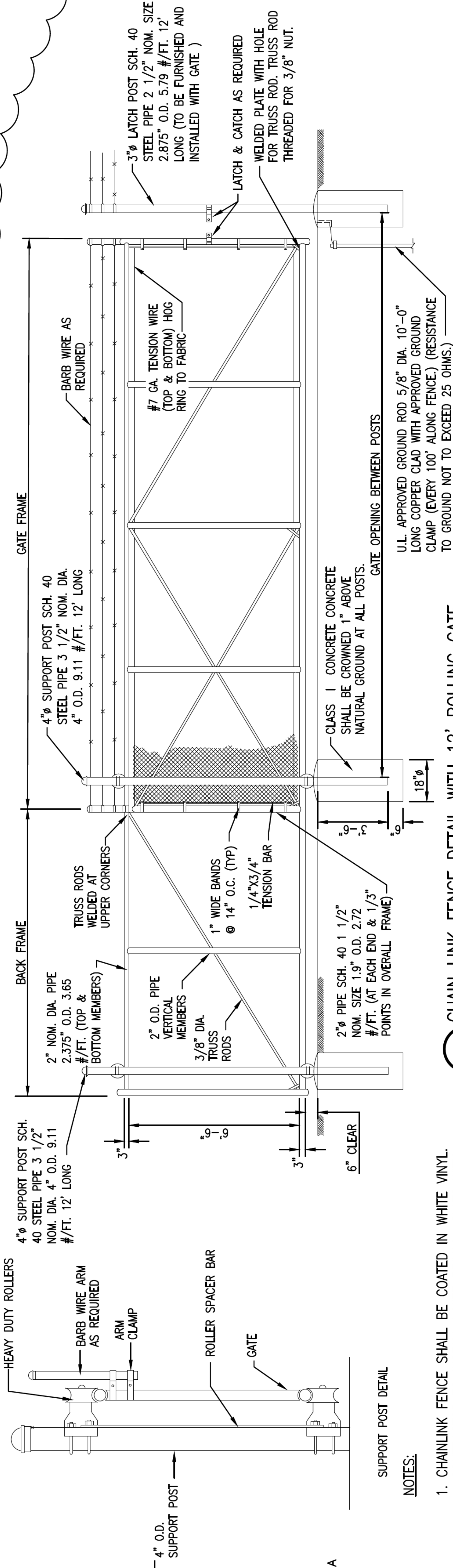
NOMINAL PIPE SIZE (INCHES)	1 1/4" HORIZONTAL ELBOW	22 1/2" HORIZONTAL ELBOW	45" HORIZONTAL ELBOW	90" HORIZONTAL ELBOW	HORIZONTAL TEES	HORIZONTAL PLUGS & VALVES (SEE NOTE 3)	45" VERTICAL OFFSET UPPER LENGTH	45" VERTICAL OFFSET LOWER LENGTH	22 1/2" VERT. OFFSET UPPER LENGTH	22 1/2" VERT. OFFSET LOWER LENGTH	REDUCER TO 1 SIZE SMALLER	REDUCER TO 1 SIZE SMALLER LENGTH ON LARGER SIZE SIDE
4	2	4	7	18	20 - RUN 1 - BRANCH	39	16 / 3	8 / 1	8 / 1	N/A	N/A	N/A
6	2	5	10	25	20 - RUN 1 - BRANCH	55	23 / 4	11 / 2	11 / 2	28	28	28
8	3	6	13	32	20 - RUN 1 - BRANCH	72	30 / 5	14 / 3	14 / 3	30	30	30

- NOTES**
- TABLE ASSUMPTIONS: PVC PIPE, SAFETY FACTOR = 1.5, TEST PRESSURE = 150PSI SOIL = 6M OR SM, 3 FT. BURY DEPTH TO TOP OF PIPE, TRENCH TYPE 3, BRANCH ON TEE IS ONE SIZE SMALLER THAN RUN OF TEE SIZE AND 20 FEET OF PIPE IS INSTALLED PAST THE TEE ON THE RUN SIDE (SMALLER BRANCH SIZES MUST BE CALCULATED BY THE ENGINEER). VERTICAL OFFSETS ARE 3 FEET DEEP ON TOP AND 8 FEET DEEP ON BOTTOM. REDUCERS ARE CALCULATED FOR ONE SIZE REDUCTION. OTHER CONDITIONS WILL REQUIRE ADDITIONAL CALCULATIONS.
  - ALL FITTINGS MUST BE RESTRAINED. ONE OF THE FOLLOWING METHODS MAY BE USED:
    - MECHANICAL RESTRAINTS AT FITTING AND AT ADJACENT JOINTS TO A LENGTH AS SPECIFIED IN CHART.
    - TIE RODS AT FITTING AND THROUGH JOINTS TO A LENGTH AS SPECIFIED IN CHART.
    - NOT APPLICABLE TO IN LINE VALVES UNDER 12 INCHES IN DIAMETER.



**C1 PIPE RESTRAINT JOINT DETAILS**

NOT TO SCALE



**A1 CHAIN LINK FENCE DETAIL WITH 12' ROLLING GATE**

NOT TO SCALE

- NOTES:**
- CHAINLINK FENCE SHALL BE COATED IN WHITE VINYL. CONTRACTOR TO INSTALL WHITE PRIVACY SLATS WITH THE CHAINLINK FENCE.



OVERALL  
SITE PLAN

PROJECT NO:	27656.01
DESIGNED BY:	JJT
DRAWN BY:	JLB
CHK'D BY:	JJT
PROJ. MGR:	JCP
DATE:	FEBRUARY 2021

NO.	DATE	APPR.	REVISION/ACTION TAKEN

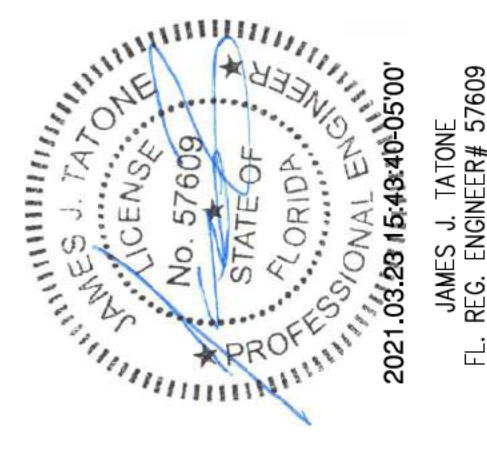
BERTHE BRIDGE &  
ASSOCIATED  
INFRASTRUCTURE

This drawing is the property of BASKERVILLE-DONOVAN, INC. and is not to be reproduced in whole or in part. It is not to be used on any other project and is to be returned upon request.

Penascola - Panama City Beach - Tallahassee - Mobile

449 W. MAIN ST. PENASCOLA, FL 32502 (850)938-9681  
ENGINEERING BUSINESS: EB-0000340

**BASKERVILLE-DONOVAN, INC.**  
Innovative Infrastructure Solutions



JAMES J. TATONE  
FL. REG. ENGINEER # 57609

**Ruby Engineering, Inc**  
ENGINEERING, INC  
RUBY ENGINEERING, INC  
3000 W. BAYVIEW ST., SUITE 104  
PENSACOLA, FL 32503  
PHONE: (850) 455-5540  
CERTIFICATE NO. CA-31884

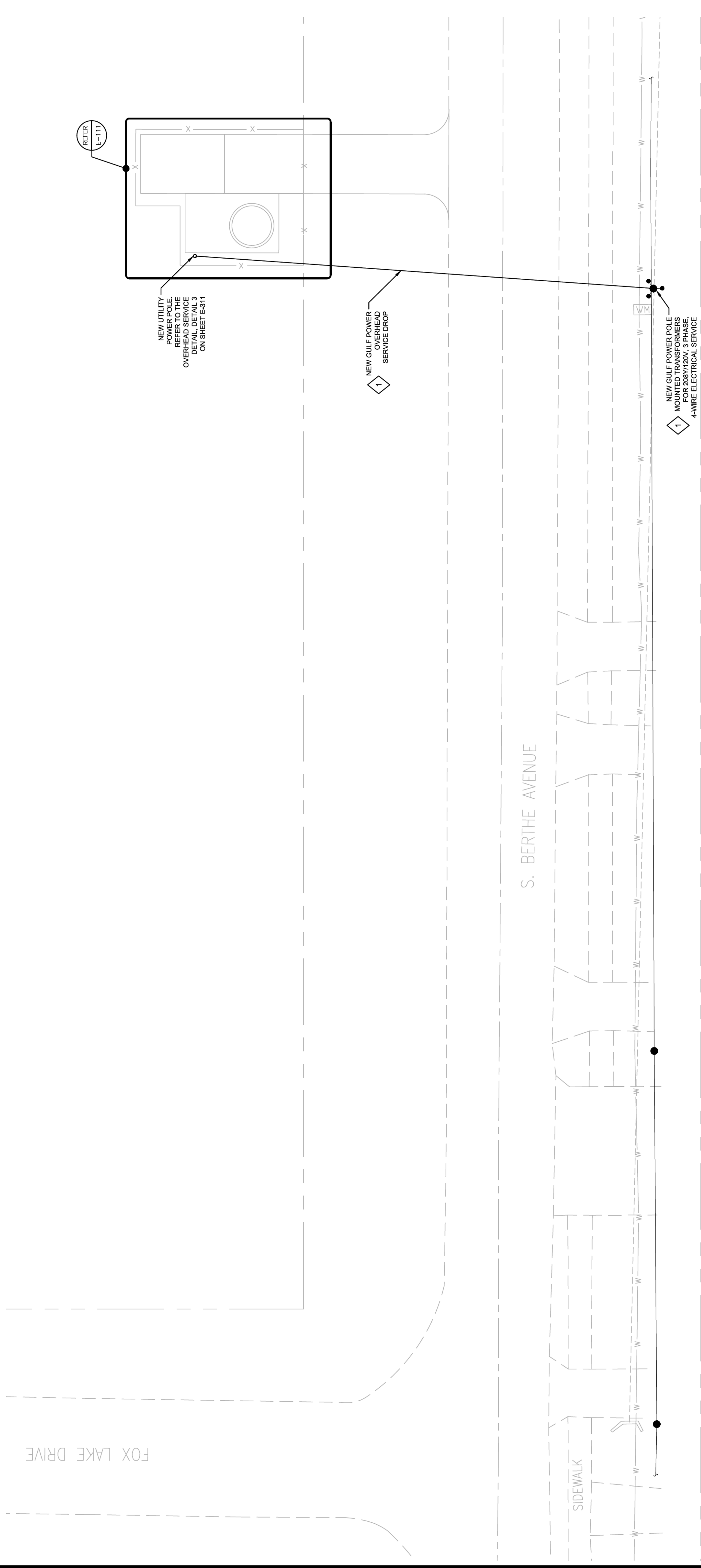
James J. Tatone, State of Florida, Professional Engineer, License No. 57609.

This item has been electronically signed and sealed by James J. Tatone, PE. On 03/23/2021 using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

KEYED NOTES

1 CORRELATE THE LOCATION OF THE UTILITY POLE WITH GULF POWER TO ENSURE THE OVERHEAD ELECTRICAL SERVICE FEEDERS ARE NOT ROUTED ABOVE THE LIFT STATION PAD.



1 OVERALL SITE PLAN  
SCALE: 3/32" = 1'-0" 0' 4' 8' 16'

1 NEW GULF POWER POLE MOUNTED TRANSFORMERS FOR 208Y/120V, 3 PHASE, 4-WIRE ELECTRICAL SERVICE

1 NEW GULF POWER OVERHEAD SERVICE DROP

NEW UTILITY POWER POLE. REFER TO THE OVERHEAD ELECTRICAL SERVICE DETAIL, DETAIL 3 ON SHEET E-311

REFER E-111

Type	Manufacturer	Model Series	Lamps No. & Type	Volts	Input Watts	Remarks
SL	Lithonia or Approved Equal	RSX1 LED Series	70 CRI, 3000K TYPE III B2-UC-G3 14,880 LUMENS	120	133	EXTERIOR SINGLE HEAD AREA LUMINAIRE, UL LISTED FOR WET LOCATIONS IN DARK BRONZE HOUSING MOUNTED ON A 25' DIRECT BURIED, SQUARE CONCRETE POLE RATED FOR <math>60\text{ MPH}</math> WIND SPEED. PROVIDE 20KV/10KA SURGE PROTECTIVE DEVICE AND IN-LINE FUSING WITHIN HANDHOLE AT BASE OF POLE.

TAG	HP (KW)	VOLTS	FLA	PHASE	KVA	SPECIFIED UNDER DIVISION 26 - ELECTRICAL	REMARKS
SP							SUBMERSIBLE PUMP
1	20	208	59.4	3	21.4	PROVIDE 125A 3P MAGNETIC ONLY CIRCUIT BREAKER, GROUND FAULT MONITOR (ALARM ONLY), NEMA SIZE 5 SRRV MOTOR STARTER MOUNTED WITHIN THE LIFT STATION CONTROL PANEL AS SHOWN ON DRAWINGS.	
2	20	208	59.5	3	21.4	PROVIDE 125A 3P MAGNETIC ONLY CIRCUIT BREAKER, GROUND FAULT MONITOR (ALARM ONLY), NEMA SIZE 5 SRRV MOTOR STARTER MOUNTED WITHIN THE LIFT STATION CONTROL PANEL AS SHOWN ON DRAWINGS.	

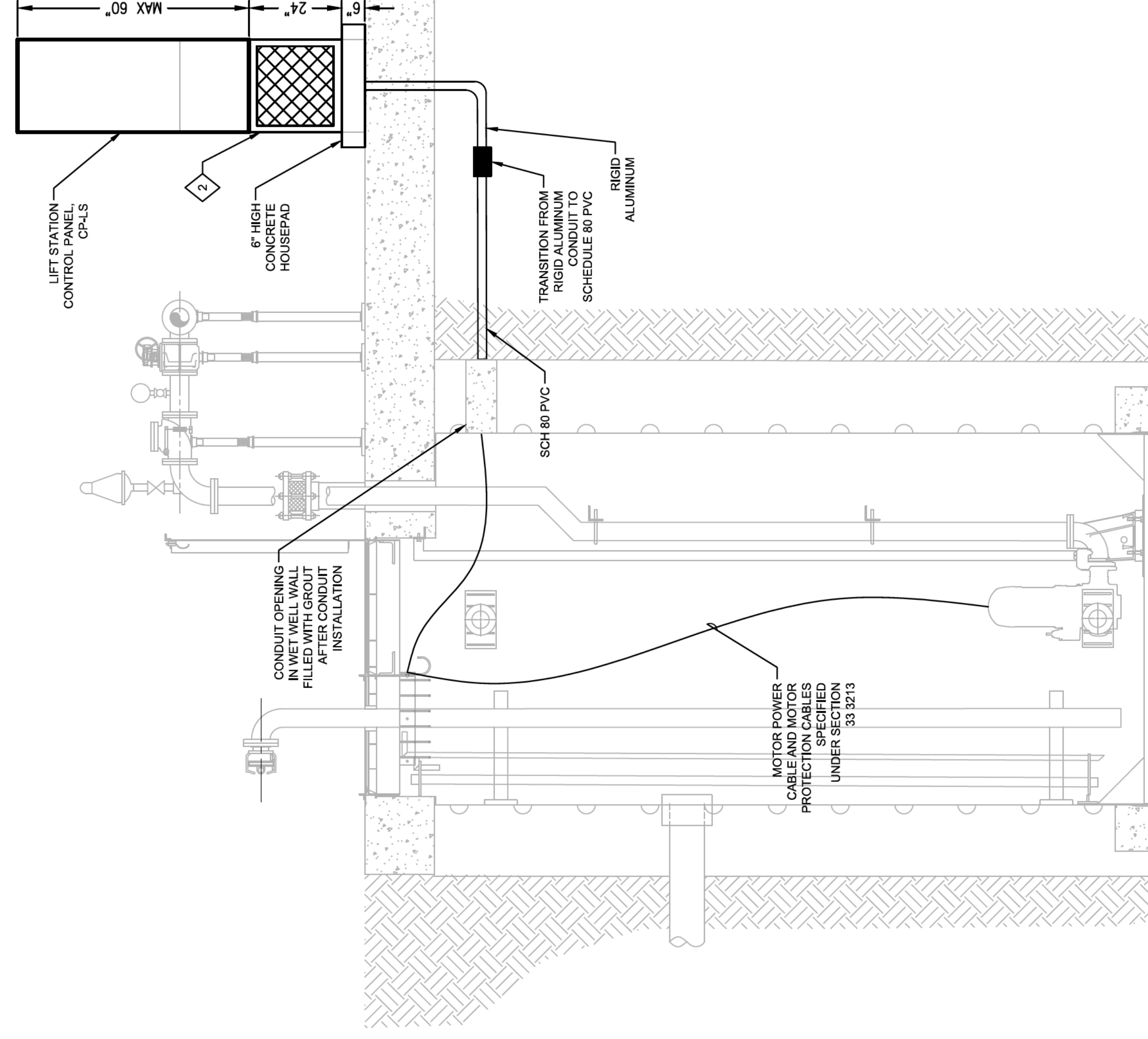
### KEYED NOTES

- 1 COORDINATE THE LOCATION OF THE UTILITY POLE WITH GULF POWER TO ENSURE THE OVERHEAD ELECTRICAL SERVICE FEEDERS ARE NOT ROUTED ABOVE THE LIFT STATION PAD.
- 2 THE LIFT STATION CONTROL PANEL, CP-LS, SHALL BE INSTALLED ON A 24" HIGH STAINLESS STEEL BASE WITH VENTILATED, REMOVABLE PANELS PROVIDED AS AN AIR BREAK FOR ALL CONDUITS ENTERING THE LIFT STATION. PROVIDE CABLE CLAMP FITTING ON TOP AND BOTTOM OF THE SUPPORT BASE AS SHOWN IN DETAIL 4 ON SHEET E-411.
- 3 REFER TO SHEET 14-101 FOR FLOAT ELEVATIONS.

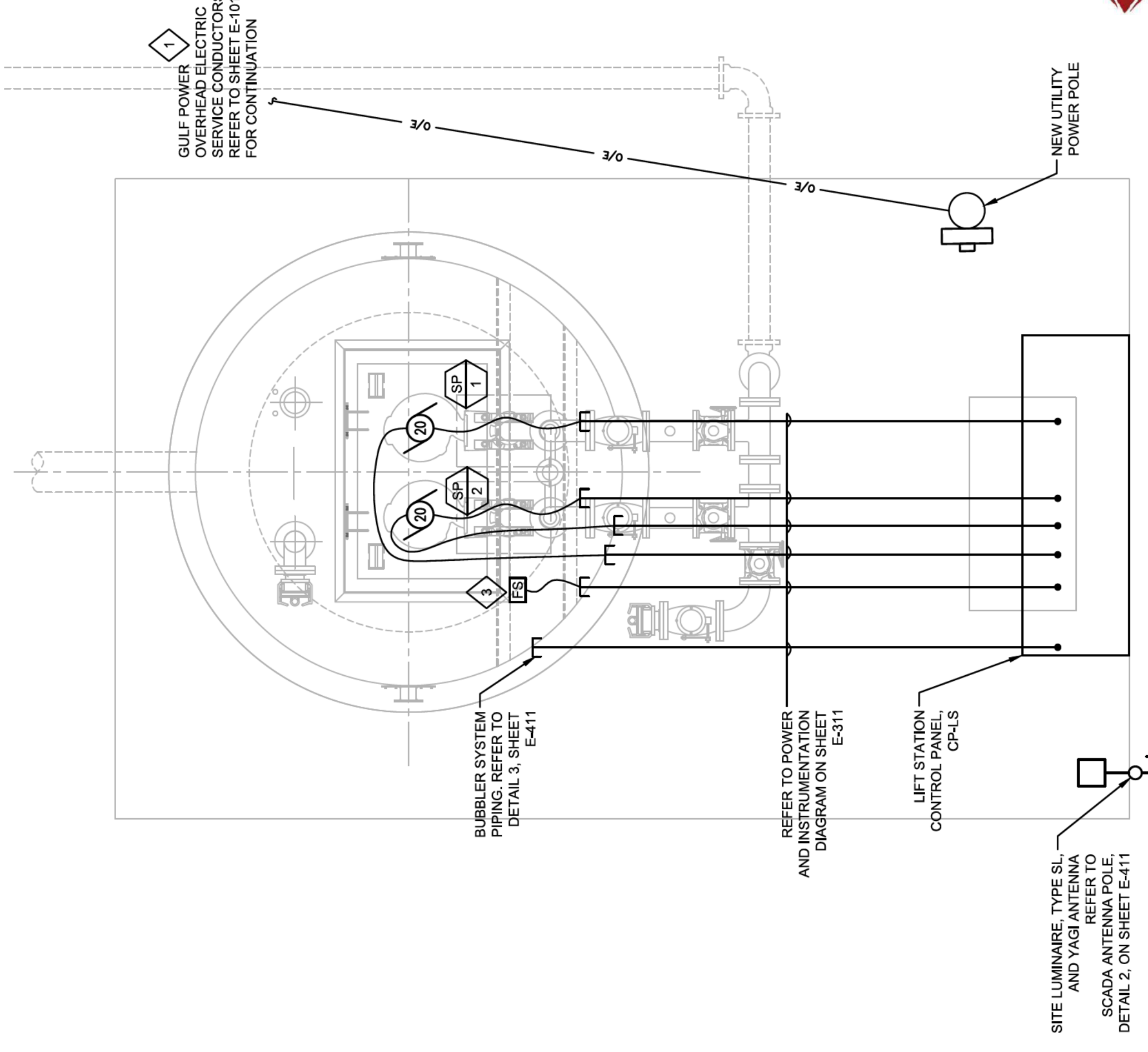
James J. Tatone, State of Florida, Professional Engineer, License No. 57609.

This item has been electronically signed and sealed by James J. Tatone, PE, On 03/23/2021 using a Digital Signature.

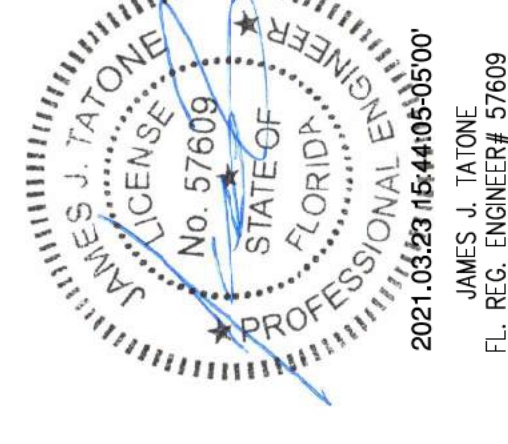
Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.



2 LIFT STATION SECTION  
SCALE: 1/2" = 1'-0" 0 1' 2' 4'



1 LIFT STATION - PLAN VIEW  
SCALE: 1/2" = 1'-0" 0 1' 2' 4'



BERTHE BRIDGE & ASSOCIATED  
INFRASTRUCTURE

BASKERVILLE-DONOVAN, INC.  
Innovative Infrastructure Solutions  
449 W. MAIN ST., PENSACOLA, FL 32502 (850)938-9681  
PENSACOLA - Panama City Beach - Tallahassee - Mobile

PROJECT NO:	27656.01		
DESIGNED BY:	JJT		
DRAWN BY:	JLB		
CHK'D BY:	JJT		
PROJ. MGR:	JCP		
DATE:	FEBRUARY 2021		
NOT RELEASED FOR CONSTRUCTION BY JT DATE	/ /		
NO.	DATE	APPR.	REVISION/ACTION TAKEN

LIFT STATION  
AREA PLAN

E-111

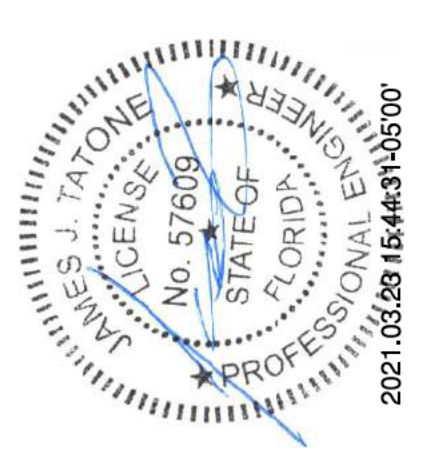
DIAGRAMS

PROJECT NO.	27656.01		
DESIGNED BY:	JLT		
DRAWN BY:	JLB		
CHK'D BY:	JLT		
PROJ. MGR:	JCP		
DATE:	FEBRUARY 2021		
NOT RELEASED FOR CONSTRUCTION BY JLT DATE			
NO.	DATE	APPR.	REVISION/ACTION TAKEN

BERTHE BRIDGE & ASSOCIATED INFRASTRUCTURE

**BASKERVILLE-DONOVAN, INC.**  
 Innovative Infrastructure Solutions  
 449 W. MAIN ST. PENSACOLA, FL 32502 (850)438-9681  
 ENGINEERING BUSINESS: EB-0000340  
 Pensacola - Panama City Beach - Tallahassee - Mobile

This drawing is the property of BASKERVILLE-DONOVAN, INC. and is not to be reproduced in whole or in part. It is not to be used on any other project and is to be returned upon request.



**Ruby Engineering, Inc.**  
 RUBY ENGINEERING, INC.  
 3000 W. GARDEN ST., SUITE 14  
 PENSACOLA, FL 32502  
 PHONE: (850) 455-5540  
 CERTIFICATE NO. CA-31884

James J. Tatone  
 FL. REG. ENGINEER # 57609

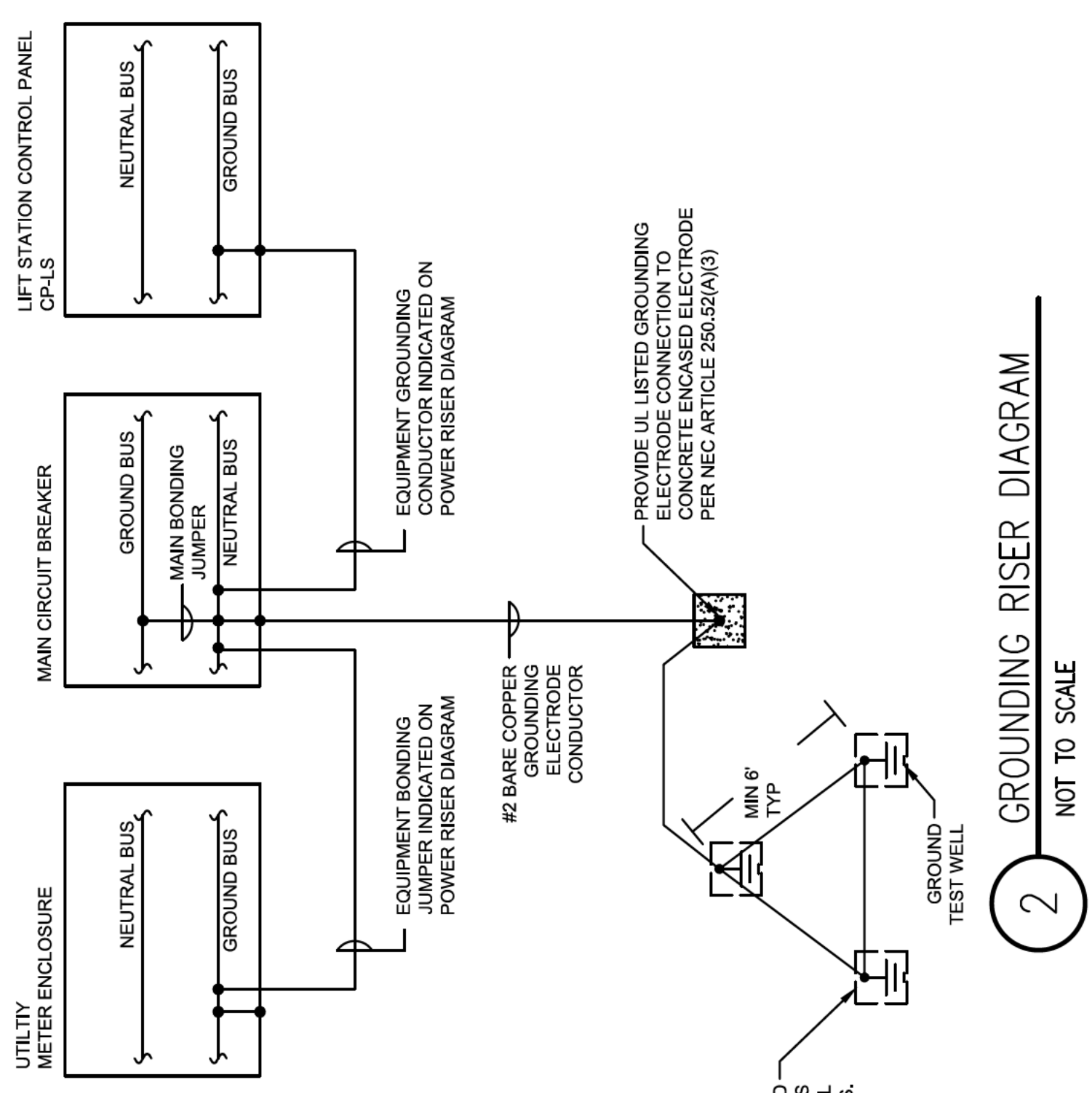
James J. Tatone, State of Florida, Professional Engineer, License No. 57609.  
 This item has been electronically signed and sealed by James J. Tatone, PE. On 03/23/2021 using a Digital Signature.  
 Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

**GENERAL NOTES**

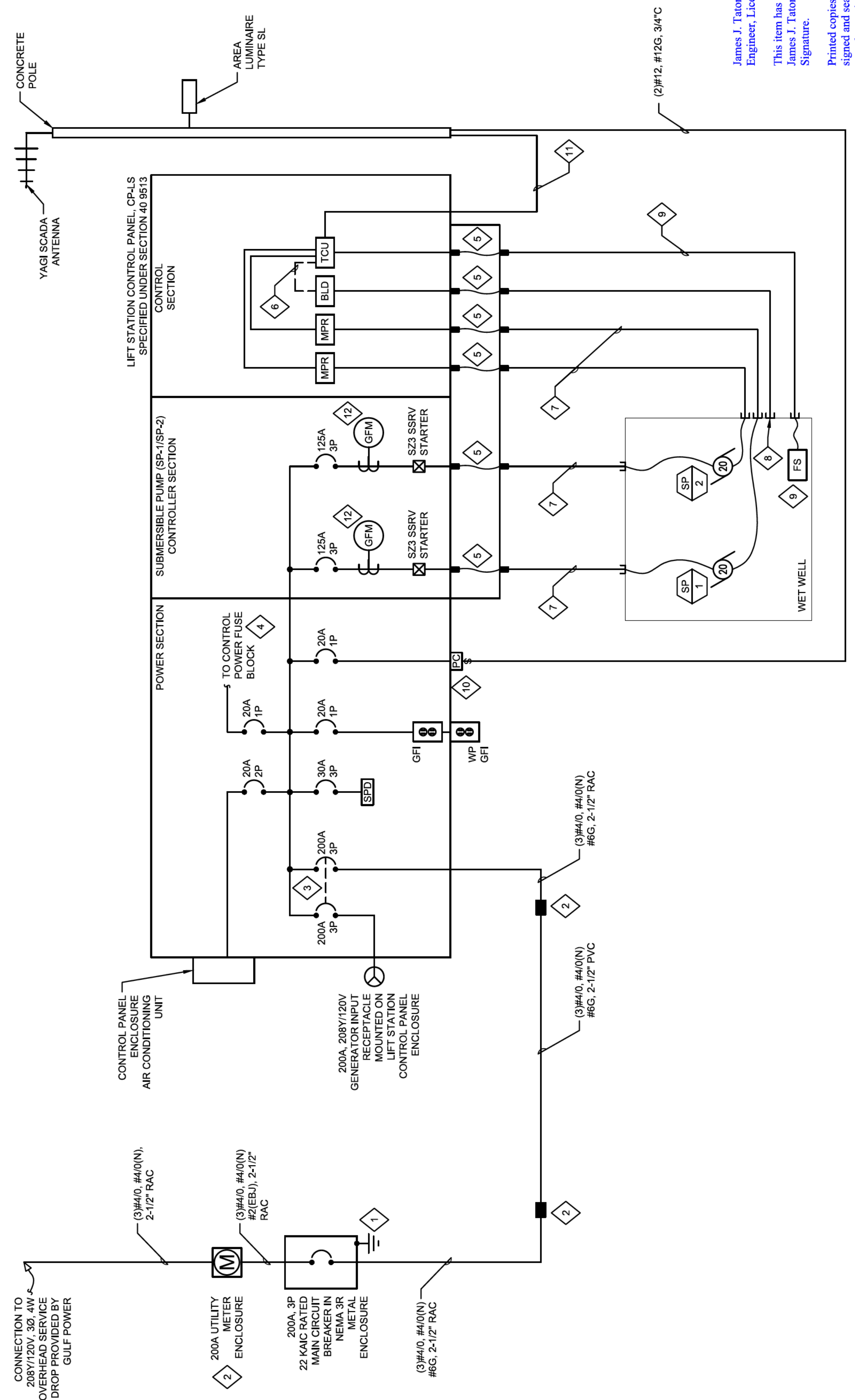
- THE ELECTRIC SERVICE INSTALLATION SHALL COMPLY WITH THE CITY OF PENSACOLA REQUIREMENTS. MULTIPLE FEES TO PROVIDE ELECTRIC SERVICE SHALL BE INCLUDED IN THE BID.  
 GULF POWER CONTACT INFORMATION:  
 PH: 850.528.3834  
 EMAIL: CHARLES.BOYETT@NEXTENERGY.COM
- VOLTAGE DROP CALCULATIONS HAVE BEEN VERIFIED TO BE LESS THAN 2% VOLTAGE DROP FOR FEEDERS AND LESS THAN 3% VOLTAGE DROP FOR BRANCH CIRCUITS.

**KEYED NOTES**

- REFER TO GROUNDING RISER DIAGRAM SHOWN ON THIS SHEET.
- PROVIDE 200A SELF CONTAINED METER ENCLOSURE AS SPECIFIED UNDER UTILITY COORDINATION ON SHEET E-001.
- THE MAIN BREAKER AND GENERATOR INPUT BREAKER SHALL BE MECHANICALLY INTERLOCKED.
- LOCATE CONTROL POWER FUSE BLOCK IN THE LIFT STATION CONTROL PANEL. CP-LS. CONTROL SECTION TO SERVE CONTROL POWER FOR THE TELEMETRY CONTROL UNIT, BUBBLER SYSTEM EQUIPMENT, MOTOR PROTECTION RELAYS AND RADIO TELEMETRY UNIT.
- PROVIDE CABLE GLAND CONNECTOR AT THE TOP AND BOTTOM OF THE AIR BREAK SUPPORT BASE FOR ALL CONDUITS ENTERING THE WET WELL (CLASS 1, DIVISION 1 LOCATION) AS SHOWN IN DETAIL 4 ON SHEET E-411.
- PROVIDE 1/2 TWISTED SHIELDED PAIR TO THE ANALOG INPUT OF THE TELEMETRY CONTROL UNIT.
- PROVIDE 1/2" CONDUIT STUBBED INTO WET WELL TO ACCOMMODATE THE MOTOR POWER AND MOTOR PROTECTION CABLES SPECIFIED UNDER SECTION 33 3213.
- REFER TO DETAIL 3 ON SHEET E-411 FOR THE INSTALLATION OF BUBBLER AND PIPE REQUIREMENTS. CONTRACTOR SHALL NOTIFY THE CITY TWO WEEKS IN ADVANCE OF THE BUBBLER SYSTEM PIPING INSTALLATION. THE CITY OF CALLAWAY WILL PROVIDE ON-SITE OBSERVATION DURING THE BUBBLER SYSTEM INSTALLATION. BUBBLER SYSTEM PIPING SHALL NOT BE INSTALLED UNTIL ON-SITE APPROVAL IS PROVIDED BY THE CITY.
- PROVIDE (6) 1" CONDUITS TO ACCOMMODATE FLOAT SWITCH CABLES FOR HIGH ALARM/LAG, LEAD, OFF AND LOW ALARM) ROUTED TO THE INTRINSICALLY SAFE DIGITAL INPUTS OF THE TELEMETRY CONTROL UNIT. REFER TO SHEET M-101 FOR FLOAT ELEVATIONS.
- PROVIDE BUTTON TYPE PHOTOCELL AND 20A/1P SWITCH IN WEATHER PROOF CAST ALUMINUM ENCLOSURES MOUNTED TO SIDE OF THE LIFT STATION CONTROL PANEL.
- PROVIDE 1/4" O.D. OUTDOOR WATER TIGHT COAXIAL CABLE INSTALLED IN 1/4" CONDUIT ROUTED TO THE YAGI ANTENNA COORDINATE TERMINATION PROVISION REQUIREMENTS WITH THE TELEMETRY CONTROL UNIT AND SCADA ANTENNA MANUFACTURER'S SHOP DRAWINGS. CONDUIT ROUTING TO ANTENNA SHALL UTILIZE SMOOTH RADIUS BENDS. CONDUIT BODIES OR PULLING ELLS SHALL NOT BE PERMITTED.
- PROVIDE (2) #14 XHHW ROUTED FROM THE GROUND FAULT MONITOR RELAY TO THE 120V DIGITAL INPUT OF THE TELEMETRY CONTROL UNIT TO PROVIDE A COMMON ALARM FOR THE THERMAL OVERLOAD AND MOISTURE SEAL PROTECTIVE RELAY OUTPUTS.



SERVICE ENTRANCE CALCULATIONS					
Load Description	General		Fixed Space		A/C
	Lighting Connected Load (KVA)	Receptacle Connected Load (KVA)	Appliance Connected Load (KVA)	Heating Connected Load (KVA)	
Submersible Pump No. 1 (20 HP)	0.0	0.0	0.0	0.0	21.4
Submersible Pump No. 2 (20 HP)	0.0	0.0	0.0	0.0	21.4
Miscellaneous Electrical	0.5	0.4	1.0	0.0	0.0
<b>TOTAL</b>	<b>0.5</b>	<b>0.4</b>	<b>1.0</b>	<b>0.0</b>	<b>42.8</b>
General Lighting Load per NEC Article 220.12 and 220.42 (See Note 2): 0.5 KVA					
NEC Computed Receptacle Load per NEC Article 220.44: 0.4 KVA					
Specific Appliance Load per NEC Article 220.14(A): 1.0 KVA					
NEC Computed Fixed Space Heating Load per NEC Article 220.51: 0.0 KVA					
Refrigerant Compressor Connected Load per NEC Article 440.6: 0.0 KVA					
Motor Computed Loads per NEC Article 430.24: 42.8 KVA					
Total NEC Computed Load: 44.7 KVA					
NEC Computed Amperacity @ 208V, 3 Phase: 124.1 A					







Janice L. Peters  
Janice L. Peters, City Clerk

\*\*\*\*\*

This Addendum must be acknowledged and included with the bid packet submission.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Company Name

\_\_\_\_\_  
Date