

Section 13120

PRECAST CONCRETE BUILDING

PART 1 – GENERAL

1.01 SUMMARY

- A. Contractor shall erect a precast concrete 16'x24' building as shown on the drawings. Interior ceiling heights shall be 12' to provide adequate clearance for electrical controls. The building will be provided with all necessary openings as specified and shown on the drawings.

1.02 QUALITY ASSURANCE

- A. ACI-318, "Building Code Requirements for Reinforced Concrete". Concrete Reinforcing Institute, "Manual of Standard Practice".
- B. ANSI/ASCE-7-10 "Building Code Requirement for Minimum Design Loads in Buildings and Other Structures".
- C. International Building Code, 2018 Edition with Georgia Amendments.
- D. Concrete Reinforcing Institute, "Manual of Standard Practice".
- E. Fabricator shall be a certified producer/member of National Precast Concrete Association (NPCA) and/or PCI (Precast, Prestressed Concrete Institute) and have a central mix precast plant with covered production.
- F. Producer shall have a documented QA/QC program approved by NPCA or PCI.
- G. Building fabricator shall have 3 years minimum experience manufacturing and setting transportable precast concrete buildings and field assembled precast buildings.
- H. PCI 122- Fabrication Tolerance and PCI 117 for Erection Standards

1.03 DESIGN REQUIREMENTS

- A. Design Loads:
 - 1. Seismic Design Category 'C', Risk Category III
 - 2. Standard Live Roof Load – 60 PSF
 - 3. Standard Floor Load – 300 PSF
 - 4. Standard Wind Pressure for the geographic region under ASCE 7-10
- B. Roof: Roof panel shall maintain a 1/8" per linear foot slope on the 12' side. The roof shall extend a minimum of 3" beyond the wall panel on each side and

have a turndown design which extends 1/2" below the top edge of the wall panels to prevent water migration into the building along top of wall panels. All roof panels will have post tensioning with larger roof sections having two way post tensioning forming a monolithic diaphragm. Larger roof sections will be joined with a grouted keyway, welded imbedded connections as shown on the building plans.

If post-tensioning is not used in the roof panel, the following guidelines must be followed to ensure a watertight roof design:

1. The entire precast concrete roof panel surface must be cleaned and primed with a material that prepares the concrete surface for proper adherence to the coating material.
 2. The entire precast concrete roof panel surface shall be sealed with a .045 EPDM continuous membrane cemented to the concrete with a compound designed for this purpose.
 3. The concrete roof must be increased in thickness by 1" to gain the same punch shear capacity as post tensioning provides.
- C. Roof, floor, and wall panels must each be produced as single component monolithic panels. Roof and floor will be post tensioned. Wall panels shall be set on top of floor panel to prevent hydrostatic pressure on the floor to wall joint.
- D. Floor panel must have 1/2" step-down around the entire perimeter to prevent water migration into the building along the bottom of the wall panels.
- E. All panel joints will be caulked inside and out with Sikaflex A-1.

1.04 SUBMITTALS

- A. Engineering calculations signed and sealed by a Professional Engineer licensed in the state of Georgia shall be submitted for approval.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Concrete: Steel-reinforced, 5000 PSI minimum 28-day compressive strength, Optional air-entrained (ASTM C260) concrete where required. Test results showing conformance from a certified lab are required to be submitted.
- B. Reinforcing Steel: ASTM A615, grade 60 unless otherwise specified.
- C. Post-tensioning Strand: 41K Polystrand CP50, .50, 270 KSI, 7-wire strand, enclosed within a greased plastic sheath, (ASTM A416), roof and floor to be each post-tensioned by a single, continuous tendon in a loop. Said tendon shall form a substantially rectangular configuration having gently curving corners wherein the positioning of the cable member results in a pattern of one or more loops and a bisecting of the loop(s). The cable member starts from

one corner of the concrete building panel, forms a gentle perimeter loop(s) returning to a point where the cable member entered the concrete building panel. The tendon then turns 90 degrees and follows the cable member(s) to a point midway along the "Y" axis of the concrete building panel and then turns 90 degrees along the "X" axis of the concrete building panel. This bisects the concrete building panel and crosses the opposite parallel portion of the cable member and exits from an adjacent side of the concrete building panel.

- D. Caulking: All joints between panels shall be caulked on the exterior and interior surface of the joints. Caulking shall be SIKAFLEX-1A elastic sealant or equal. Exterior caulk joint to be 3/8" x 3/8" square so that sides of joint are parallel for correct caulk adhesion. Back of joint to be taped with bond breaking tape to ensure adhesion of caulk to parallel sides of joint and not the back.
- E. Panel Connections: All panels shall be securely fastened together with 3/8" thick steel brackets. Steel is to be of structural quality, hot-rolled carbon complying with ASTM A283, Grade C and hot dipped galvanized after fabrication. All fasteners to be 1/2" diameter bolts complying with ASTM A307 for low-carbon steel bolts. Cast-in anchors used for panel connections to be Dayton-Superior #F-63 or equal. All inserts for corner connections must be bolted directly to form before casting panels. No floating-in of connection inserts shall be allowed. Alternate welded plate connections may be used if shown in the drawings.
- F. ALTERNATE ACCEPTABLE PANEL CONNECTIONS: Precast panels may be welded together with 3/8" steel plates imbedded with galvanized nelson welded anchors using standard full length fillet welds ground smooth and then primed and epoxy painted as shown on the drawings where specified.

2.02 ACCESSORIES/OPENINGS

- A. Contractor shall coordinate all penetrations for piping, conduit, ventilation, etc. with the pre-cast building manufacturer.
- B. Shall be constructed of Fiberglass Reinforced Polymer (FRP) and rated for exterior installation. The access door and frame shall be a 72"x80" Double out swing exterior FRP molded doors. Doors shall be 1 3/4" in diameter with a 4" molded frame. all fasteners and finishings shall be stainless steel in material.
- C. Doors must have GA Approval number
- D. Ventilation shall meet the requirements of Georgia Building Code.

2.03 FINISHES

- A. Interior of Building: Troweled form finish on all interior panel surfaces.
- B. Exterior of Building: Architectural precast light broom grey concrete.

- C. 3 Coat Paint System by Sherwin Williams consisting of Base Loxon Conditioner/Primer and 2 Top Coats of DuraCraft (color TBD).

PART 3 – EXECUTION

3.01 SITE PREPARATION REQUIREMENTS

- A. The pre-cast concrete building shall bear fully on a crushed 3/8" stone base that is at least two feet larger than the length and width of building on the sides not trenched for plumbing and electrical access. Contractor is to verify requirements with governing local jurisdiction and geotechnical engineer.
- B. Stone shall be a minimum of 6" thick or down to firm subgrade or as required by the local governing jurisdiction or the geotechnical engineer. The vertical soil capacity under stone shall be compacted to have minimum bearing of 1,500 pounds per square foot. Stone shall be 3/8" or smaller and must be screeded level within 1/4" in both directions. Stone shall be placed within a perimeter form with flat and level top edge for screeding. Forming material shall remain around stone until after the building is set.
- C. The crushed stone base shall be kept within the confines of the soil or perimeter form. Do not allow the base to become unconfined so that it may wash, erode, or otherwise be undermined. Proper water drainage away from the building site is required.

END OF SECTION

SECTION 02555

PROTECTIVE COATING FOR EXISTING AND NEW
CONCRETE AND MASONRY SANITARY SEWER STRUCTURES

PART 1 – GENERAL

1.01 - GENERAL

- A. This specification covers labor, materials, and equipment required for protecting and/or rehabilitating the interior of concrete sanitary sewer structures by application of a coating to protect the concrete structure from hydrogen sulfide and acid generated by microbiological sources present in the municipal wastewater environment. The protective coating shall also eliminate infiltration, repair voids, and enhance the structural integrity of the sanitary sewer structure. Procedures for surface preparation, cleaning, application and testing are described herein.
- B. Cementitious material will not be allowed for the protective coating, however, it will be allowed for patching operations.
- C. For new sanitary sewer manholes and valve pits: The protective coating shall be an acrylic polymer-base concrete coating and sealant. Procedures for surface preparation and application are described herein.
- D. For force main discharge manholes (including the two (2) manholes downstream of the discharge manhole, for a total of three (3) manholes), drop manholes and lift station wetwells: The protective coating shall be a polymer based polyurethane or a high-build, solvent-free epoxy coating. For small lift stations and at the discretion of the City, the number of manholes requiring coating may be reduced.

For lift station wetwells, the coating limits shall include from the bottom of fillet, wetwell walls, and roof. Coating system shall overlap 1" to 2" where hatches sit on the roof; but shall exclude the wetwell floor. For manholes, the coating limits shall include from the flow line in the trough of the invert up to the ring with a 1" to 2" overlay on the ring.

- E. This specification also covers labor, materials, and equipment required for corrosion protection of the ductile iron discharge pipes and fittings within lift station wetwells.

1.02 - REFERENCES

- A. ASTM D638 - Tensile Properties of Plastics.
- B. ASTM D790 - Flexural Properties of Unreinforced/Reinforced Plastics.
- C. ASTM D695 - Compressive Properties of Rigid Plastics.
- D. ASTM D4414 - Standard Practice for Measurement of Wet Film Thickness of Organic Coatings by Notched Gauges
- E. ASTM D4541 - Pull-off Strength of Coatings Using a Portable Adhesion Tester.
- F. ASTM D2584 - Volatile Matter Content.
- G. ASTM D2240 - Durometer Hardness, Type D.
- H. ASTM D543 - Resistance of Plastics to Chemical Reagents.
- J. ASTM C109 - Compressive Strength Hydraulic Cement Mortars.
- K. ACI 506.2-77 - Specifications for Materials, Proportioning, and Application of Shotcrete.
- L. ASTM C478 - Bond Strength to Concrete: Concrete Failed.
- M. ASTM C496 - Tensile Strength of Chemically Setting Silicate and Silica Chemical Resistant Mortars.
- N. ASTM C579 - Compressive Strength of Chemically Setting Silicate and Silica Chemical Resistant Mortars.
- O. ASTM - The published standards of the American Society for Testing and Materials, West Conshohocken, PA.
- P. NACE - The published standards of National Association of Corrosion Engineers (NACE International), Houston, TX.
- Q. SSPC - The published standards of the Society of Protective Coatings, Pittsburgh, PA.
- R. ASTM C396 - Compressive Strength of Cement Mortars.
- S. ASTM C580 - Standard Test Method for Flexural Strength and Modulus of Elasticity of Chemical-Resistant Mortars, Grouts, Monolithic Surfacing, and Polymer Concrete.
- T. ASTM D4541 - Standard Test Method for Drying Shrinkage of Mortar Containing Hydraulic Cement.
- U. ASTM D4787 - Standard Practice for Continuity Verification of Liquid or Sheet Depth Applied to Concrete Substrates.

1.03 - SUBMITTALS

A. Product Data:

1. Technical data sheet on each product used, including ASTM test results indicating the product conforms to and is suitable for its intended use per these specifications.
2. Material Safety Data Sheets (MSDS) for each product used.
3. Project specific guidelines and recommendations.
4. Warranty Certificate in accordance with Part 1.08 of this Section.
5. For Lift Station Wetwells:
 - a. Provide reference documentation to confirm that the proposed coating system has a proven record of performance when used in the intended application, including a list of at least five (5) successful installations that have been in service for a period of ten (10) years. The reference list shall include the name of the facility, the application date, a contact person, and a telephone number.
 - b. Applicator Qualifications:
 - 1) Manufacturer certification that Applicator has been trained and approved in the handling, mixing and application of the products to be used.
 - 2) Certification that the equipment to be used for applying the products has been manufactured or approved by the concrete rehabilitation products manufacturer, protective coating manufacturer, and certified for proper use for this specific application.
 - 3) Written documentation of four (4) recent references of Applicator (involving wetwells with surface area of approximately 3,000 square feet) indicating successful application of a polyurethane or a high-build solvent-free epoxy coating.
 - 4) Applicator must provide written documentation of having installed a minimum of 40,000 square feet of protective coating similar to that specified within the last two (2) years.

- 5) Any project specific guidelines for the project.
- 6) Design details for any additional ancillary systems and equipment to be used in site and surfaced preparation, application and testing.

1.04 - QUALITY ASSURANCE

- A. Applicator shall initiate and enforce quality control procedures consistent with applicable ASTM, NACE and SSPC standards and the protective coating manufacturer's recommendations.
- B. Coating Manufacturer's authorized field representative shall be on site prior to the application of the coating system to verify that the substrate has been properly prepared, and during the application of the coating system to certify that the coating system has been properly applied. The authorized field representative will provide the Owner with an accurate and objective written report stating inspection observations on the preparation, application, and final inspection verifying adherence to coating manufacturer recommendations, industry standards, and the written specifications.

1.05 - DELIVERY, STORAGE, AND HANDLING

- A. All materials are to be kept dry, protected from weather and stored under cover.
- B. Protective coating materials are to be stored according to manufacturer's recommendations. Do not store near flame, heat or strong oxidants.
- C. Repair and protective coating materials are to be handled according to their material safety data sheets.

1.06 - SITE CONDITIONS

- A. Applicator shall conform with all local, state and federal regulations including those set forth by OSHA, RCRA and the EPA and any other applicable authorities.
- B. Method statements and design procedures are to be provided by the Contractor when confined space entry is required.
- C. During coating operations of existing manholes and lift station wetwells, Contractor shall provide temporary flow bypassing of the structure if required by the County.

1.07 - ACCESS TO THE WORK SITE

- A. Contractor shall provide proper facilities for such access and observation of the Work and also for any inspection or testing by others. If any Work is covered contrary to the request of the Effingham County Board Representative, it must, if requested by the Representative, be uncovered for observation and replaced at the Contractor's expense.
- B. Contractor shall provide access to site inspection.

1.08 - WARRANTY

- A. Sanitary Sewer Manholes and Valve Pits:

All materials and workmanship shall be warranted to the owner for a period of five (5) years.

- B. Force Main Discharge Manholes, Drop Manholes and Lift Station Wetwells:

- 1. Materials

The top coat manufacturer shall warrant the manufacturer's materials used on wastewater structures against failure of the system resulting in biogenic corrosion caused by exposure to sanitary sewer environment for the period of ten (10) years from the date of certified inspection and acceptance by the Owner. Within sixty (60) days of receiving written notice from the Owner, the manufacturer shall replace any defective product and the approved application contractor shall repair defects in materials and/or workmanship which may develop during the warranty period.

- 2. Application

The applicator shall warrant that all coating work performed shall be free of significant defects in materials and/or workmanship for a period of ten (10) years from the date of certified inspection and final acceptance by the Owner. Applicator shall remove, replace, or repair as he/she deems appropriate, such defective work.

- 3. Bypassing

In the event of liner failure, the Effingham County Conveyance Department shall assist application contractor make the necessary repairs by bypassing the structures to be repaired. The County shall not bear any additional costs of coating repairs, such

as dewatering and cleaning structures, providing coating underlayment or top coat materials, or applying the coating system.

PART 2 - PRODUCTS

2.01 - REPAIR MATERIALS

- A. Cementitious patching, repair, and structural restoration materials used shall be only those specified and pre-approved. Project specific submittals shall be provided including application, cure time and surface preparation procedures which permit optimum bond strength with protective coating.
- B. Repair materials shall be used to fill voids, structurally reinforce and/or rebuild substrate surfaces, etc. as determined necessary by the engineer and protective coating applicator. Quick blending, rapid setting, high early strength, fiber reinforced, non-shrink repair mortar that can be trowelled or pneumatically spray applied must be compatible with the specified protective coating and shall be applied in accordance with the manufacturer's recommendations.
- C. The following products are accepted and approved as compatible repair basecoat materials for protective topcoating for use within the specifications.

1. Infiltration Control

All fast setting materials furnished shall be applied directly to active leaks under hydrostatic pressure from the exterior of the concrete in wetwell structures or control by dewatering methods. Materials shall consist of rapid setting cements and various accelerating agents. Material shall not contain chlorides, gypsum, or metallic particles.

Should groundwater be encountered, Contractor shall be responsible for utilizing a dewatering system(s) to remove water from the excavations.

2. Repair, patching, and structural restoration

All material furnished shall be designed to fill voids and to repair or reconstruct where no hydrostatic pressure exists. Material shall consist of rapid setting cements, NSG aggregates, and various accelerating agents. Material shall not contain chlorides, gypsum, or metallic particles.

All structural restoration materials shall be specifically designed for the rehabilitation of wastewater pump station wetwells and other related concrete structures. Materials shall contain poly fiber reinforcement, fused calcium aluminate, and chemical admixtures.

D. Structural Restoration Material Properties:

Product types	Fused Calcium Aluminate Cement OR Underlayment concrete approved by top coat system manufacturer
Cure Time	< 48 hours
Curing gases	Non-toxic
Compressive Strength	5,000 psi
Tensile Strength	500 psi
Flexural Strength	600 psi
Shrinkage	0% at 90% Relative Humidity

2.02 - SANITARY SEWER MANHOLES AND VALVE PITS

A. Interior and Exterior Coating Material

The interior and exterior of all manhole and valve pit structures shall be coated with three coats of a factory or field applied acrylic polymer-base concrete coating and sealant that is neither asphalt nor coal tar based. Acceptable coating is ConSeal CS-55, colors gray or black, as manufactured by Concrete Sealants, New Carlisle, Ohio or equal. The total dry film thickness shall be 3.5 mils. Coating shall be applied to the tongue and groove area of the manhole and valve pit sections as well.

B. The coating manufacturer and applicator shall inspect and certify all coatings prior to the coated pre-cast structures leaving the precast facility.

2.03 - FORCE MAIN DISCHARGE MANHOLES, DROP MANHOLES, AIR RELEASE VALVE MANHOLES & LIFT STATION WETWELLS

A. Structural Restoration & Coating Products:

1. Raven Lining Systems Products
2. Or approved equal

B. Protective Coating Material:

Product type	Polyurethane or solid Epoxy
Color	Light
Compressive Strength	15,000 psi
Tensile Strength	1,500 psi
Hardness	Type D 60
Bond Strength – Concrete	> Tensile Strength of Concrete
Dry Film Thickness	125 mils

2.04 - APPLICATION EQUIPMENT

Structural restoration mortars and protective coatings shall be applied with manufacturer approved equipment.

PART 3 - EXECUTION

3.01 - ACCEPTABLE APPLICATORS

- A. Repair mortar must be applied by manufacturer trained and approved applicators. The repair mortar shall be applied according to manufacturer's recommendations.
- B. Protective coating must be applied by a Certified Applicator of the protective coating manufacturer and according to manufacturer specifications.

3.02 - EXAMINATION

- A. Appropriate actions shall be taken to comply with local, state and federal regulatory and other applicable agencies with regard to environment, health and safety.
- B. All bidders are required to verify that they have visited the jobsite, and are familiar with the conditions and the entire scope of work. Bidders shall field verify the attached plans and perform their own quantity measurements prior to bidding.
- C. Contractor shall provide a minimum 24 hour notice to the County Inspector / Representative for the following conditions:

1. After final surface preparation is completed but before structure rehabilitation;
 2. After patching operations have cured, and
 3. After each coating layer is applied.
- D. Installation of the protective coating shall not commence until the concrete substrate has properly cured in accordance with these specifications.
- E. Temperature of the surface to be coated should be maintained between 60° F and 100° F during application. Prior to and during application, care should be taken to avoid exposure of direct sunlight or other intense heat source to the structure being coated. Where varying surface temperatures do exist, care should be taken to apply the coating when the temperature is falling versus rising (i.e., late afternoon into evening vs. morning into afternoon).

3.03 - SURFACE PREPARATION

- A. Applicator shall inspect all surfaces specified to receive a protective coating prior to surface preparation. The existing piping, valves, and appurtenances shall be protected during structural rehabilitation and protective coating application.

The pipes and connectors are to be top coated with 30-50 mils DFT nominal. The pipes and connectors are to be primed by the fabricator with epoxy primer (not cold-tar or asphaltic base) that is compatible with the protective coating. After installation, the pipes are to be pressure washed using at a minimum 5,000 PSI and 4 GPM washer and/or abrasive blast cleaned to an SSPC-SP7 'brush-off' specification as necessary for the window of overcoating of the primer.

Wetwell piping and connectors coated with the Zinc/Epoxy exterior coating system shall not require top coating unless otherwise directed by the Engineer or Owner.

- B. All contaminants including: oils, grease, incompatible existing coatings, waxes, form release, curing compounds, efflorescence, sealers, salts, or other contaminants shall be removed.
- C. All concrete or mortar that is not sound or has been damaged by chemical exposure shall be removed to a sound concrete surface or replaced.
- D. Old concrete must be firm and structurally sound as specified by the Engineer.

- E. Surface preparation method(s) should be based upon the conditions of the substrate, service environment and the requirements of the protective coating to be applied.
- F. Surfaces to receive protective coating shall be cleaned and abraded to produce a sound surface with adequate profile and porosity to provide a strong bond between the protective coating and the substrate. At a minimum, this will be achieved with a low pressure water cleaning equipment using a 0 degree rotating nozzle at a minimum 3,500 psi and 4 GPM. Other methods such as high pressure water jetting (refer to NACE Standard No. 6 /SSPC-SP 13), abrasive blasting, shot-blasting, grinding, scarifying and/or acid etching may also be used. In addition, detergent water cleaning and hot water blasting may be necessary to remove oils, grease or other hydrocarbon residues from the concrete. The method(s) used shall be performed in a manner that provides a uniform, sound clean, neutralized surface that is not excessively damaged.

3.04 - APPLICATION OF REPAIR MATERIALS

- A. Areas where structural steel has been exposed or removed shall be repaired in accordance with the Project Engineer's recommendations.
- B. Repair/Structural Restoration materials shall meet the specifications here and as described in part 2.01 A of these specifications. The materials shall be applied utilizing proper equipment on to specified surfaces. The structural restoration material shall match the original undamaged surface.
- C. Infiltration shall be stopped by using a material which is compatible with the specified repair mortar, waterproof quick setting mortar-type that is suitable for topcoating with the specified protective coating. Contractor shall completely identify the types of grout, mortar, and sealant for repair of leak defects and provide case histories of successful use.
- D. Infiltration areas that require crack injection shall be covered in this scope of work. Injection holes shall be drilled through the wetwell at 120° angles from each other at the same plane of elevation. Rows shall be separated no more than three vertical feet, and the holes shall be staggered with the holes in the rows above and below. Provide additional injection holes near observed defects and pipe seals. A minimum of 6 injection holes shall be provided per defect.

Grout shall be injected through holes under pressure with a suitable probe. Injection pressure shall not cause damage to the wetwell structure or surrounding surface

features. Grout shall be injected through the lowest holes first. Grouting from the ground surface will not be allowed. Provide additional injection holes if necessary to ensure grout travel, verified by field observation of grout at adjacent defects or holes. Patch injection holes using a waterproof quick setting mortar after cleaning with a drill.

- E. The approved repair materials shall provide a smooth surface with an average profile equivalent to coarse sandpaper to optimally receive the protective coating. No bug-holes or honeycomb surfaces should remain after the final trowel procedure of the repair mortar.
- F. The repair materials shall be permitted to cure according to manufacturer recommendations. Curing compounds should not be used unless approved for compatibility with the specified protective coating.
- G. After required cleaning and repair is performed, all surfaces shall be inspected for remaining laitance prior to protective coating application. Any evidence of remaining contamination or laitance shall be removed by additional abrasive blast, shot-blast or other approved method. If repair materials are used, refer to these specifications for surface preparation. Areas to be coated must also be prepared in accordance with these specifications after receiving a repair mortar and prior to application of the protective coating.

3.05 - APPLICATION OF PROTECTIVE COATING

- A. Application procedures shall conform to the recommendations of the protective coating manufacturer, including material handling, mixing, environmental controls during application, safety, and spray equipment.
- B. The equipment shall be specifically designed to accurately ratio and apply the specified protective coating materials and shall be regularly maintained and in proper working order.
- C. The protective coating material must be applied by an applicator certified by the protective coating manufacturer.
- D. Specified surfaces shall be coated by a moisture tolerant, solvent-free, protective coating properties as described in these specifications.
- E. Application equipment approved by the coating manufacturer shall be used to apply each coat of the protective coating.

- F. If necessary, subsequent topcoating or additional coats of the protective coating should occur as soon as the basecoat becomes tack free, ideally within 12 hours but no later than the recoat window for the specified products. Additional surface preparation procedures will be required if this recoat window is exceeded.

3.06 - TESTING AND INSPECTION

- A. During application a wet film thickness gage meeting ASTM D4414 - Standard Practice for Measurement of Wet Film Thickness of Organic Coatings by Notched Gages, shall be used to ensure a uniform thickness during application.
- B. After the protective coating has set hard to the touch it shall be inspected with high-voltage holiday detection equipment meeting ASTM D4787 – Standard Practice for Continuity Verification of Liquid or Sheet Depth Applied to Concrete Substrates. The spark tester shall be initially set at 100 volts per 1 mil (25 microns) of film thickness applied. All detected holidays shall be marked and repaired by abrading the coating surface with grit disk paper or other hand tooling method. After abrading and cleaning, additional protective coating material can be hand applied to the repair area. All touch-up/repair procedures, for areas that do not meet the specified thickness, shall follow the protective coating manufacturer's recommendations.

An SSPC Certified Coatings Inspector or NACE Certified Coatings Inspector must be present and monitor the holiday testing (and repairs, if necessary). The final inspection report is to include the holiday testing results.

- C. A final visual inspection shall be made by the Inspector and manufacturer's representative. Any deficiencies in the finished coating shall be marked and repaired according to the procedures set forth herein by Applicator.

END OF SECTION 02555

SECTION 44 22 23
HOIST AND MONORAIL SYSTEM

1. SCOPE:
Under this heading shall include the furnishing and adjustment of the electric chain hoist, monorail system and related items as shown on the Drawings.
2. CODES AND STANDARDS
 - ASME B30.16 Overhead Hoists
 - ASME HST-1M Performance Standard for Electric Chain Hoists
 - ASME B 30-11 Monorails and Underhung Cranes
3. ELECTRIC CHAIN HOIST AND TROLLEY REQUIREMENTS:
The electric chain hoist shall meet the following requirements:
 - Lifting Capacity: 2 Tons (4,000 lbs.) Min.
 - Motor Phase: 3 Phase
 - Hoist Type: Electric Chain Hoist
 - Suspension Type: Motorized
 - Brake Type: Single Brake
 - Voltage Type: 230V/460V Suitable
 - Hoist Horsepower: 2 HP
 - Trolley Motor Horsepower: 0.54 HP
 - Lifetime Lubricated Gears and Bearings
 - Sealed and UV Resistant Body Suitable for Outdoor Applications with Corrosion Resistant Coating
 - Heavy Duty, Wear Resistant Stainless Steel Load Chain Meeting Capacity Requirements
 - Drainer Chain Bag Suitable for Outdoor Applications
 - Single Fall and Load Chain
4. PENDANT CONTROL:
Electric chain hoist shall be equipped with a four-button pendant control station with an emergency stop button for the motorized trolley and hoist combination. Pendant shall operate vertical operations of hoist and horizontal operations of Trolley. Pendant shall be sealed and made of a UV resistant body suitable for outdoor applications.
5. MONORAIL DESIGN:
Monorail design parameters are as follows:
 - Monorail system shall conform to local building codes and ASME B 30-11 standards.
 - Monorail elevation shall account for a two-foot clearance between the bottom of the proposed lift station pump and proposed wet well handrail when pumps are to be pulled.
 - Monorail shall be constructed of stainless steel.
 - All exposed stainless steel shall receive a corrosion resistant coating applicable

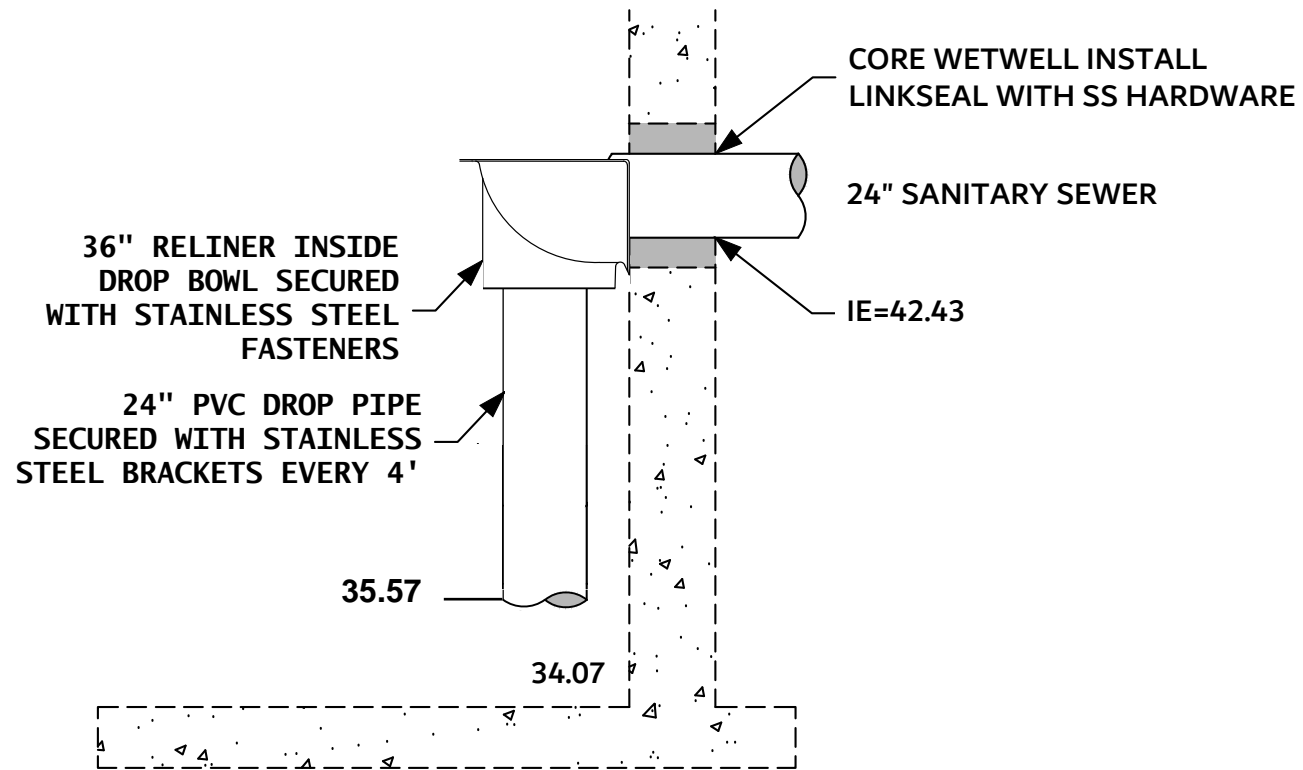
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6. **SUBMITTALS:**

The Manufacturer shall submit information as required to show complete compliance with these specifications. At a minimum this information should include the following:

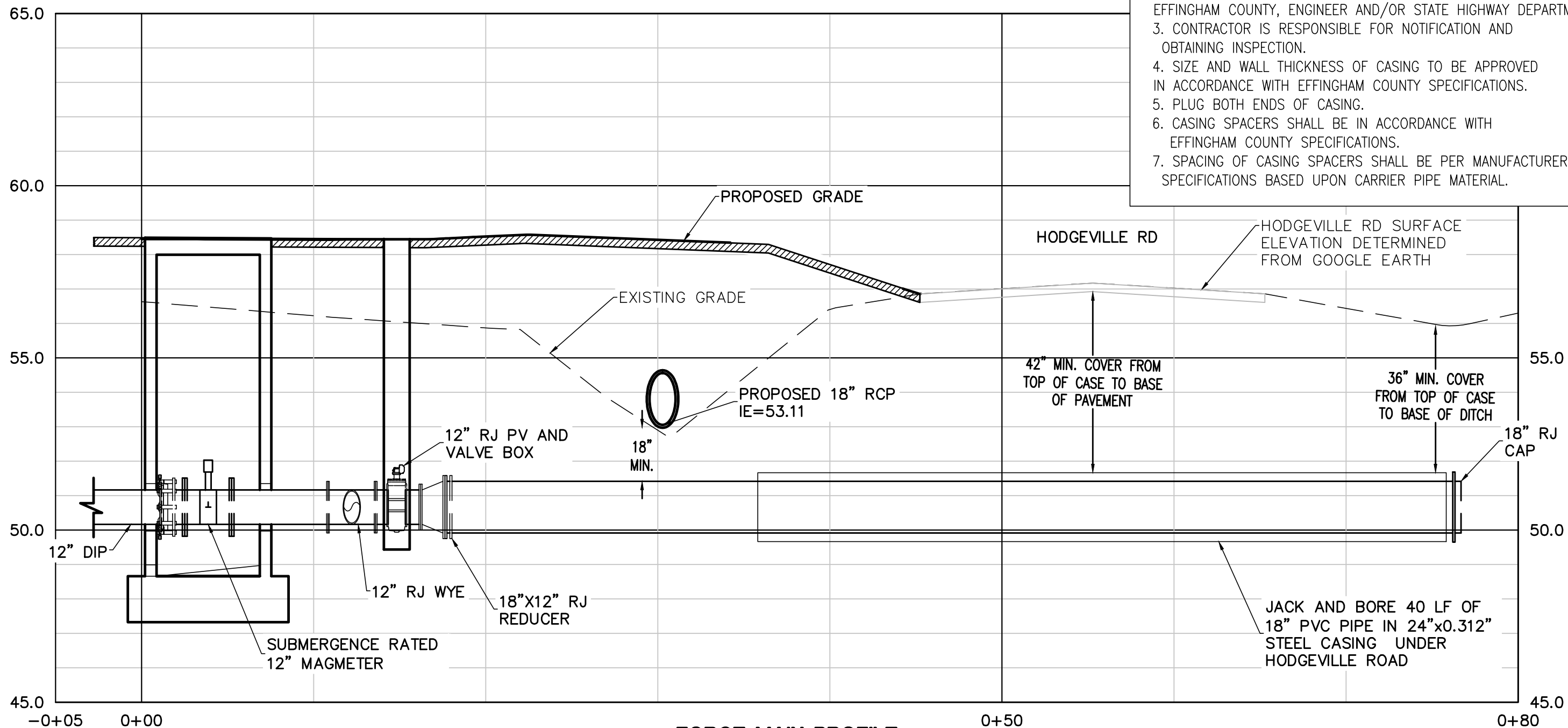
- Manufacturer's catalog/data sheets and descriptive literature for each piece of equipment supplied.
- Technical data on each major piece of equipment including weights of all items.
- Monorail dimensional drawings and structural calculations showing elevations and plan views sealed by a Georgia P.E.
- Equipment installation instructions to allow the Contractor to complete the mechanical and electrical installation of all System components.
- Statement of Manufacturer's Warranty
- Manufacturer's Maintenance Manuals

END OF SECTION 41 22 23



WETWELL INSIDE DROP DETAIL

SCALE: N.T.S.



- NOTES:
1. STEEL CASING TO EXTEND A MINIMUM OF 5' BEYOND EDGE OF PAVEMENT, 10 FEET ON STATE ROUTES.
 2. ALL CONSTRUCTION TO BE INSPECTED AND APPROVED BY EFFINGHAM COUNTY, ENGINEER AND/OR STATE HIGHWAY DEPARTMENT.
 3. CONTRACTOR IS RESPONSIBLE FOR NOTIFICATION AND OBTAINING INSPECTION.
 4. SIZE AND WALL THICKNESS OF CASING TO BE APPROVED IN ACCORDANCE WITH EFFINGHAM COUNTY SPECIFICATIONS.
 5. PLUG BOTH ENDS OF CASING.
 6. CASING SPACERS SHALL BE IN ACCORDANCE WITH EFFINGHAM COUNTY SPECIFICATIONS.
 7. SPACING OF CASING SPACERS SHALL BE PER MANUFACTURERS SPECIFICATIONS BASED UPON CARRIER PIPE MATERIAL.

HODGEVILLE LIFT STATION #4 IMPROVEMENTS
 EFFINGHAM COUNTY BOARD OF COMMISSIONERS
 JACK AND BORE PROFILE

DATE: MAY, 2022

SCALE: AS SHOWN

HUSSEY GAY BELL
 Established 1958

329 COMMERCIAL DRIVE, SAVANNAH, GA 31406 / T:912.354.4626

REVISIONS:
rev
SHEET:
01 OF 01

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 P:\Effingham County\120224450 Hodgeville LS#4\EOM Comments\2022-04-28 Submittal 3\EXHIBIT\FM PROFILE.dwg\lay 03, 2022 - 2:02pm Printed By: gkimbrell

GSWCC Level II
Design Professional
Cert. #0000033989



HUSSEY GAY BELL
Established 1958
329 COMMERCIAL DRIVE, SAVANNAH, GA 31406 / T: 912.354.4626

REVISIONS:

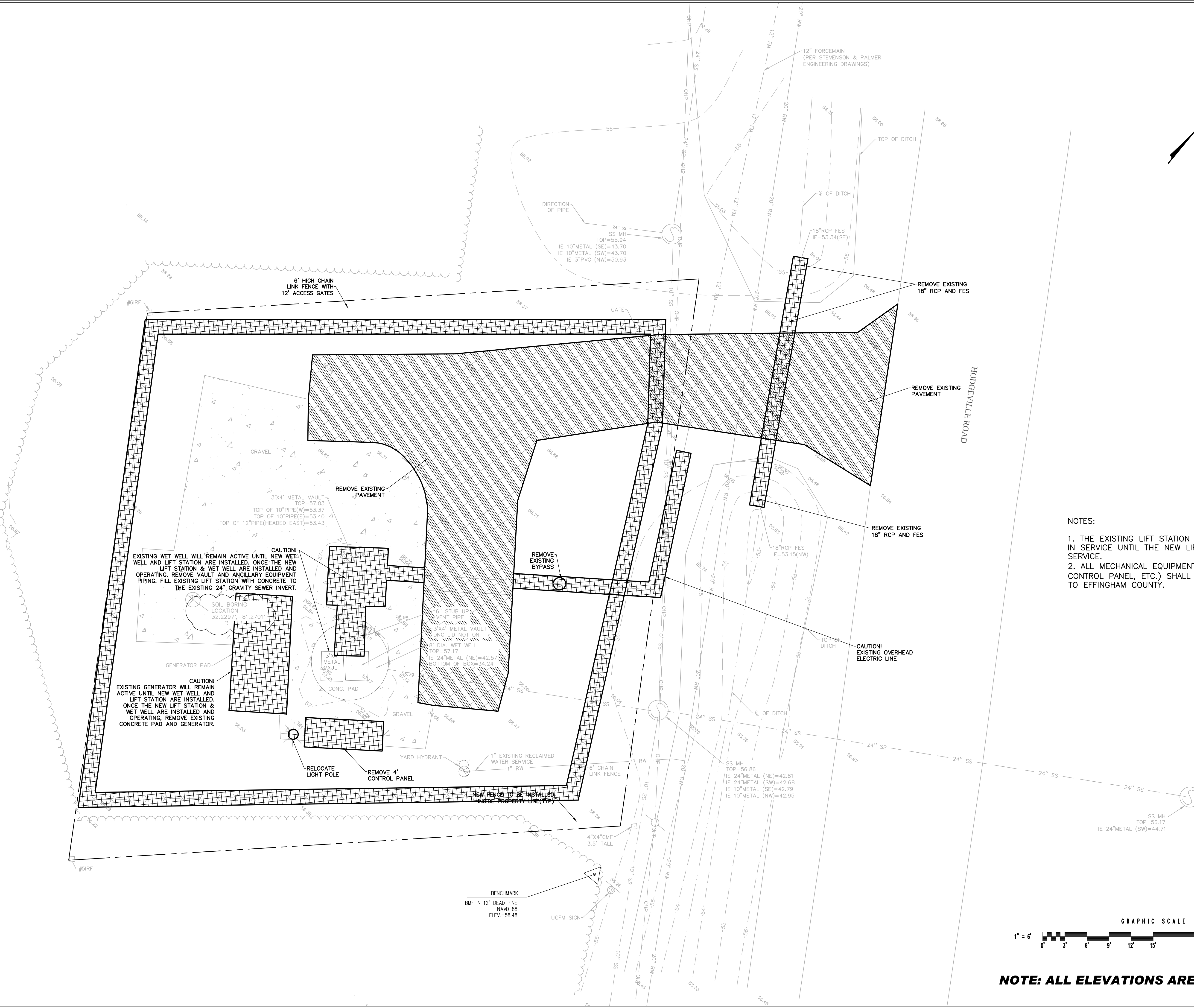
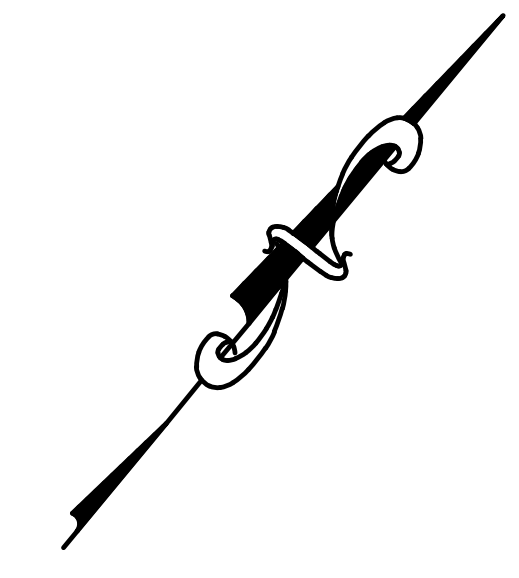
ADDENDUM NO. 1 - JUNE 1, 2022

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DATE: APRIL 2022		
JOB NO. 120004450		
SCALE: 1" = 6'		

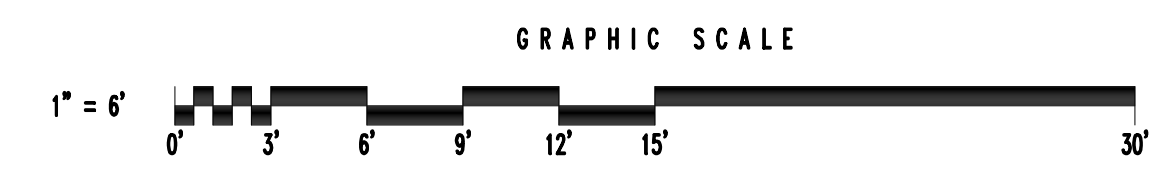
#4
HODGEVILLE LIFT STATION
IMPROVEMENTS
FOR THE
EFFINGHAM COUNTY
BOARD OF COMMISSIONERS
DEMOLITION PLAN

DRAWING NUMBER
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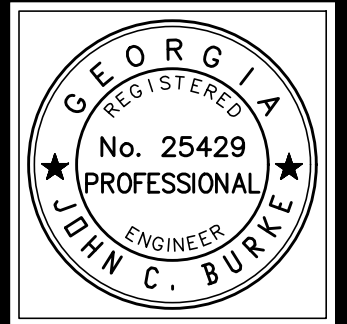
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- NOTES:
1. THE EXISTING LIFT STATION MUST REMAIN IN SERVICE UNTIL THE NEW LIFT STATION IS IN SERVICE.
 2. ALL MECHANICAL EQUIPMENT (PUMPS, CONTROL PANEL, ETC.) SHALL BE DELIVERED TO EFFINGHAM COUNTY.



NOTE: ALL ELEVATIONS ARE NAVD 1988.



HUSSEY GAY BELL
Established 1958
 329 COMMERCIAL DRIVE, SAVANNAH, GA 31406 / T: 912.354.4626

REVISIONS:

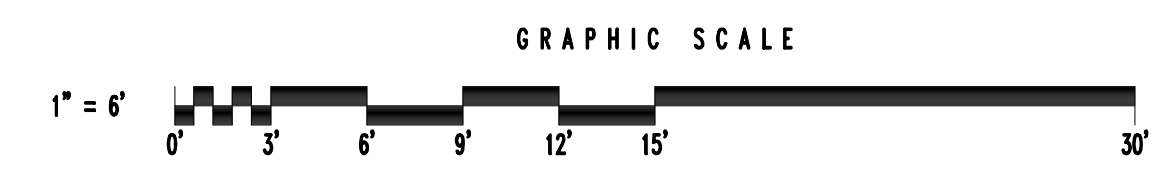
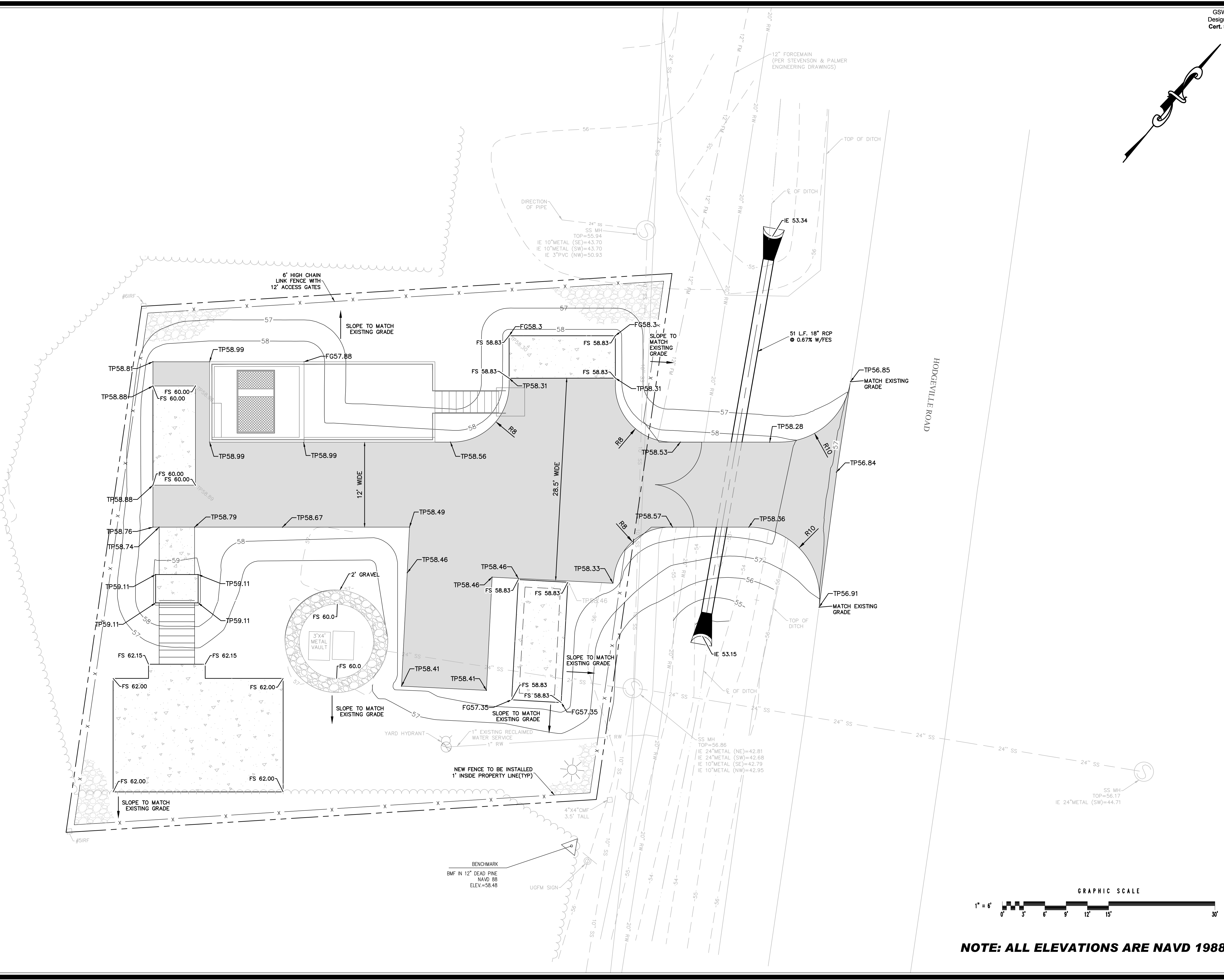
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DESIGNED	DRAWN	CHECKED
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DATE: APRIL 2022		
JOB NO. 120004450		
SCALE: 1" = 6'		

#4
HODGEVILLE LIFT STATION
IMPROVEMENTS
FOR THE
EFFINGHAM COUNTY
BOARD OF COMMISSIONERS
SITE GRADING PLAN

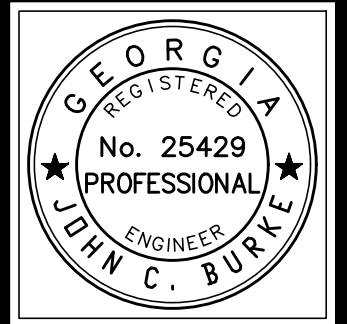
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NOTE: ALL ELEVATIONS ARE NAVD 1988.

GSWCC Level II
Design Professional
Cert. #0000033958



HUSSEY GAY BELL
Established 1958
329 COMMERCIAL DRIVE, SAVANNAH, GA 31406 / T: 912.354.4626

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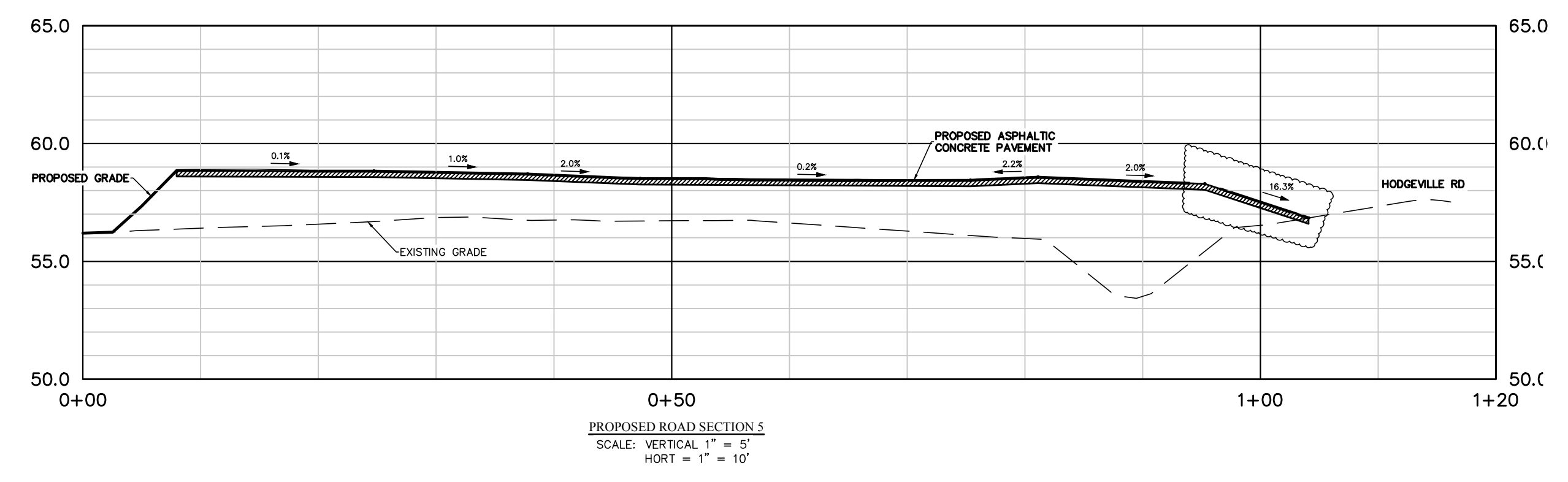
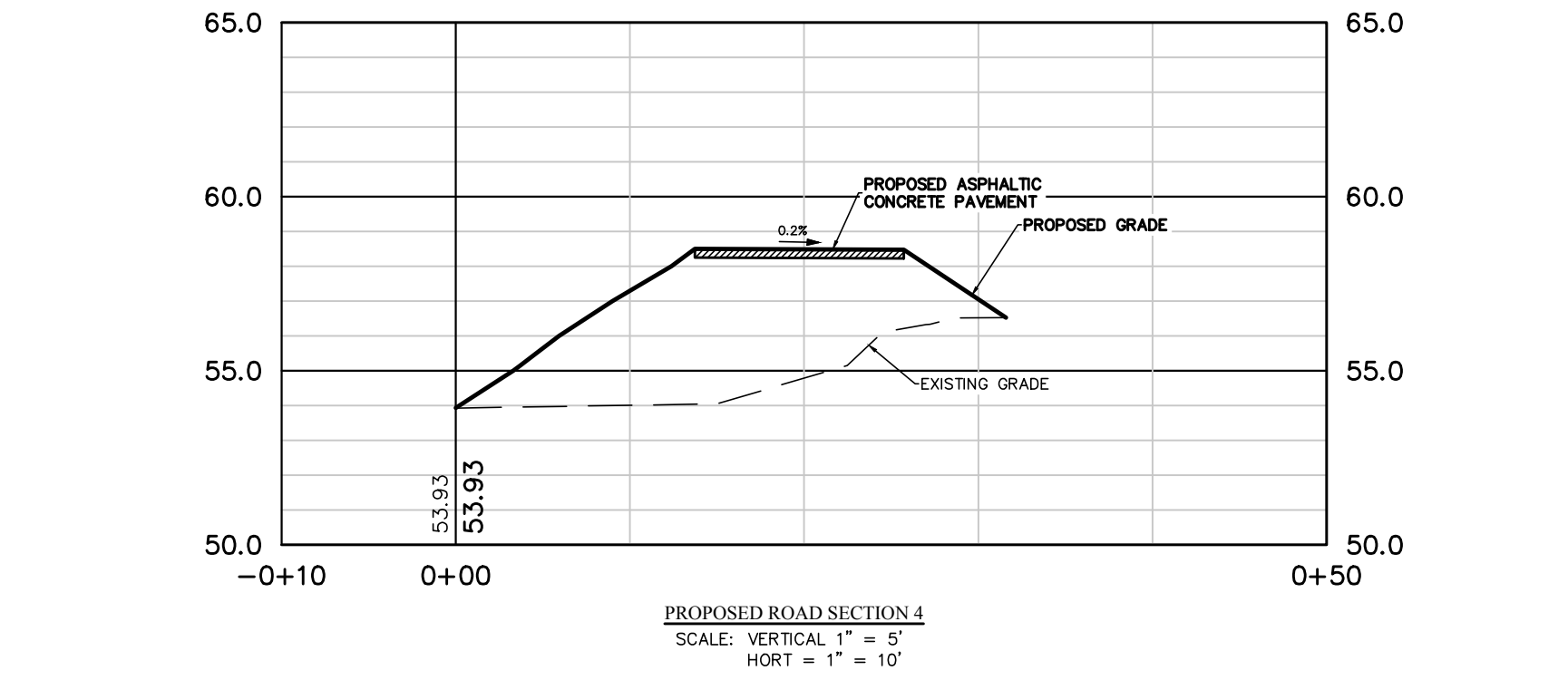
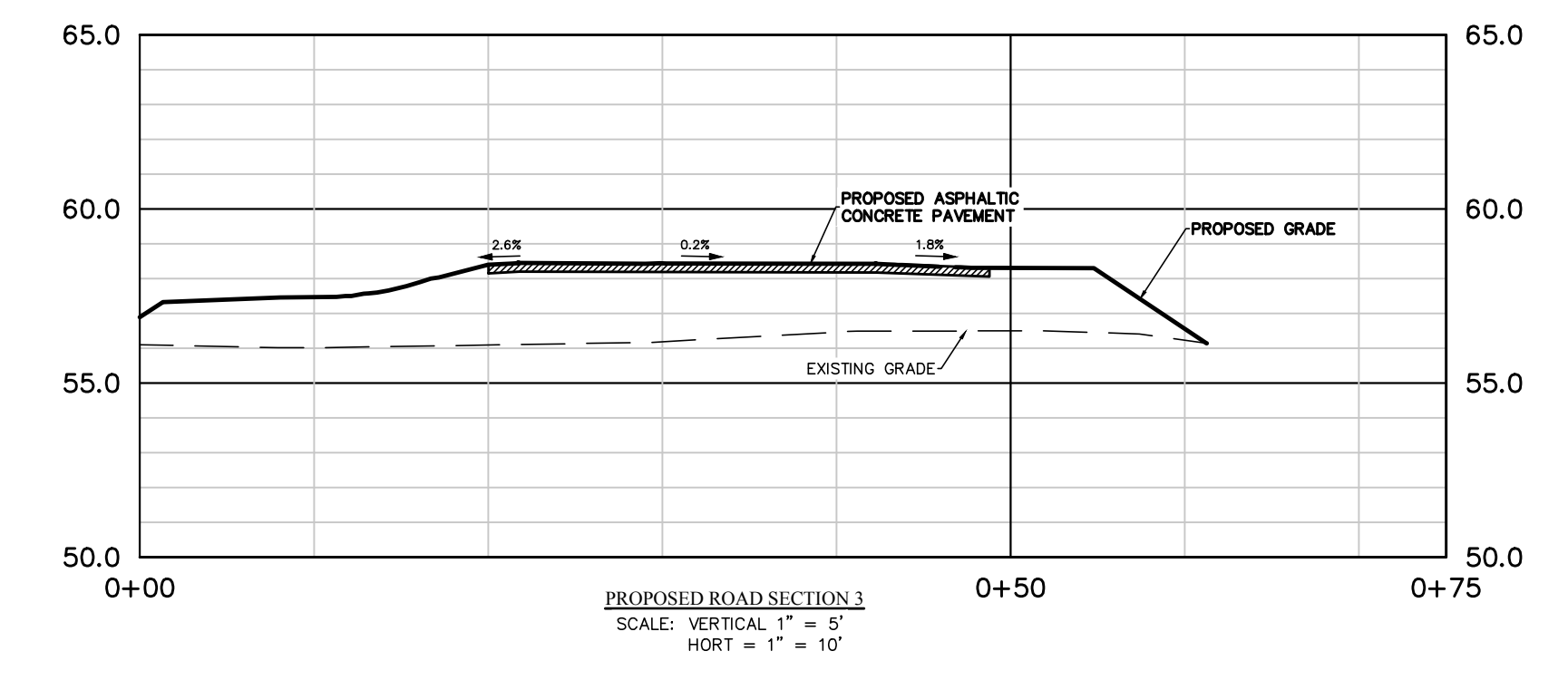
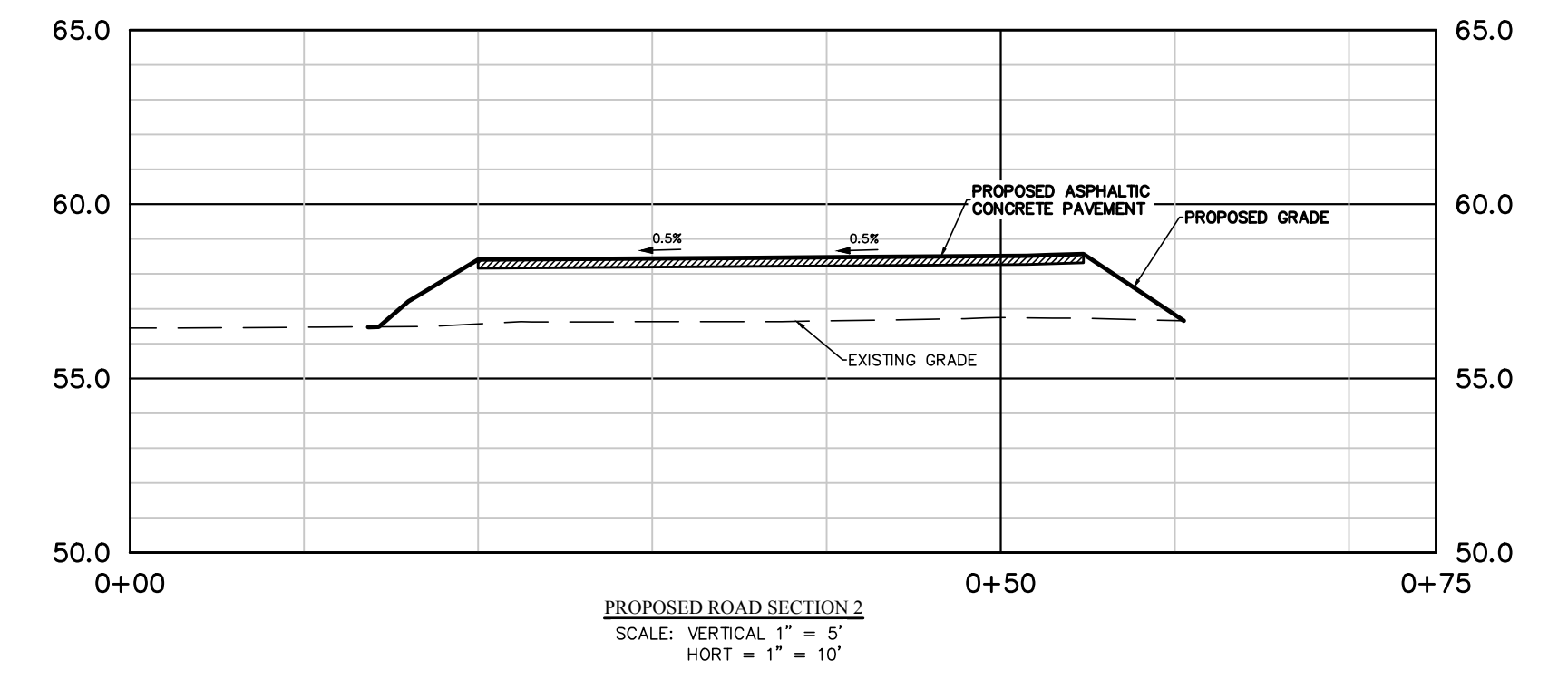
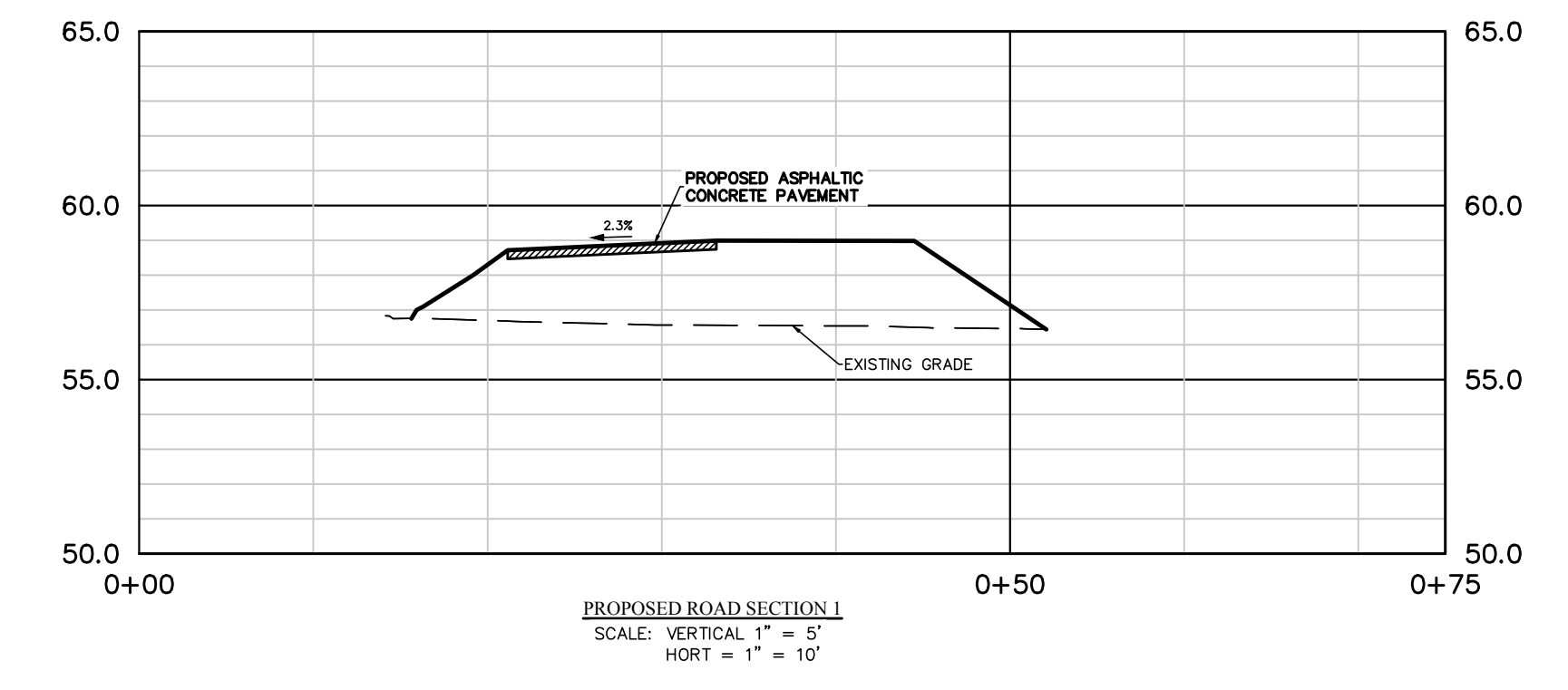
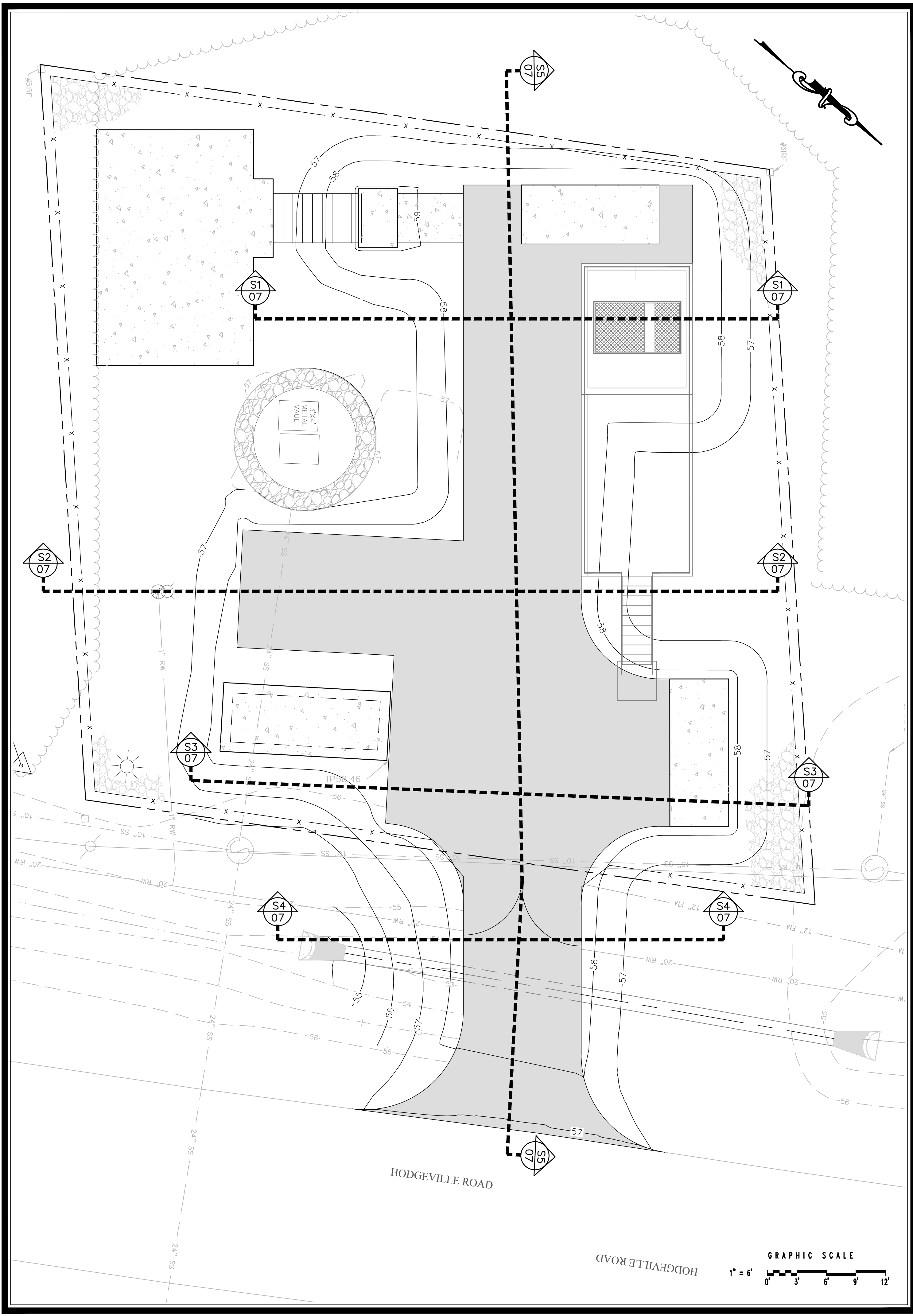
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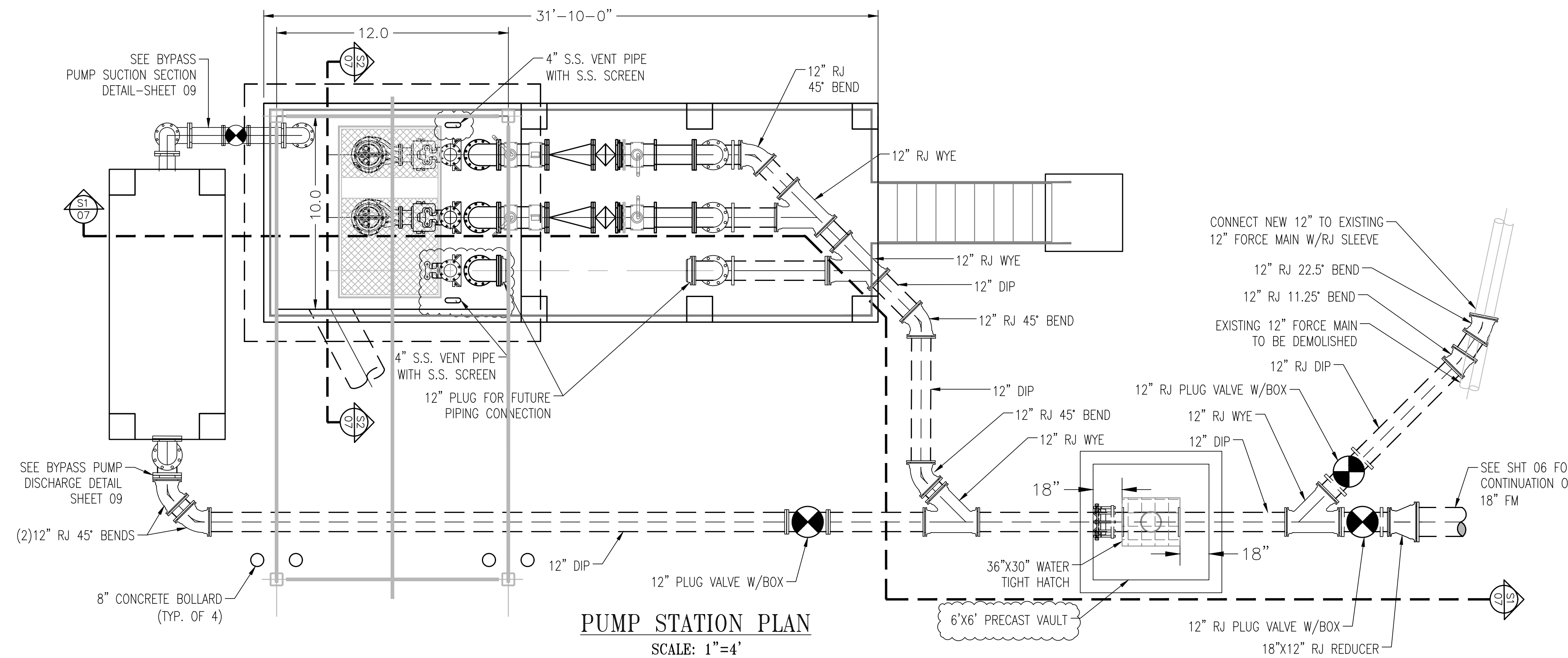
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#4
HODGEVILLE LIFT STATION
IMPROVEMENTS
FOR THE
EFFINGHAM COUNTY
BOARD OF COMMISSIONERS
PROPOSED ROAD SECTIONS

DRAWING NUMBER
07
07 OF 16

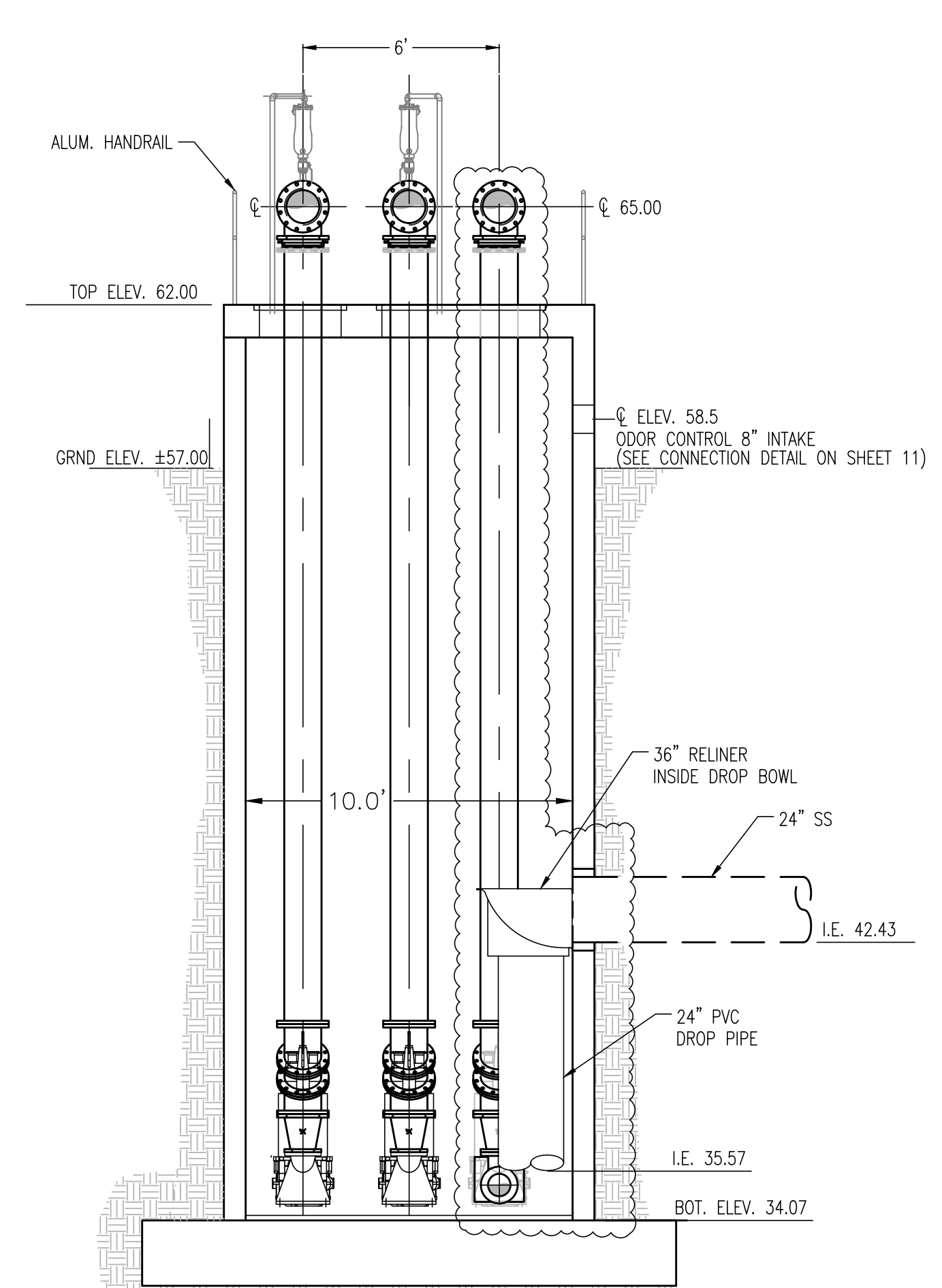
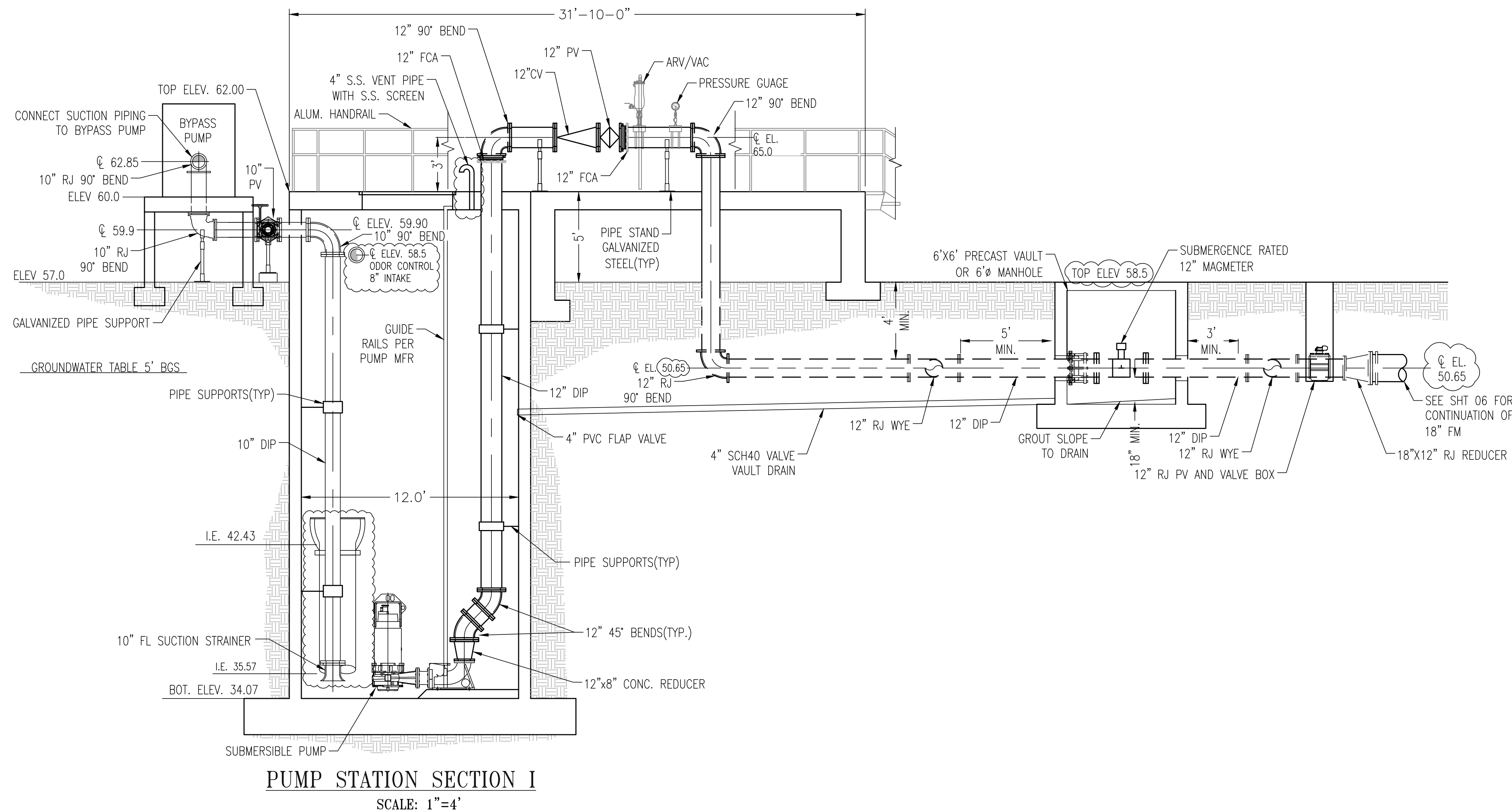
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GRUNDFOS MODEL
97660727 S2.35.A80.1270.4.70H.S.340.G.EX.D.611 60HZ
RPM: 1,778
PHASE: 3
VOLTAGE: 460V
HP: 127
SHUT OFF HEAD: 59.5

PHASE 1: (1) PUMP OPERATING W/ EXISTING 12" FM
1,250 GPM @ 125' TDH
PHASE 2: (1) PUMP OPERATING W/ NEW 18" FM
2,400 GPM @ 125' TDH
PHASE 3: (2) PUMPS OPERATING W/ NEW 18" FM
3,300 GPM @ 165' TDH



EROSION, SEDIMENTATION & POLLUTION CONTROL NOTES:

1 EROSION, SEDIMENTATION & POLLUTION CONTROL PLAN CHECKLIST
INFRASTRUCTURE CONSTRUCTION PROJECTS
SWDC-COASTAL

Project Name: HODGEVILLE LIFT STATION #4 IMPROVEMENTS Address: HODGEVILLE ROAD
City/County: EFFINGHAM COUNTY Date on Plans: OCTOBER 2020
Name & email of person filling out checklist: MICHAEL S. MIEYR, P.E. mmieyr@husseygaybell.com

Plan Page # Included Y/N TO BE SHOWN ON ES&PC PLAN

Plan Page #	Included Y/N	Notes
12	Y	1 The applicable Erosion, Sedimentation and Pollution Control Plan Checklist established by the Commission as of January 1 of the year in which the land-disturbing activity was permitted. (The completed Checklist must be submitted with the ES&PC Plan or the Plan will not be reviewed)
2-14	Y	2 Level II certification number issued by the Commission, signature and seal of the certified design professional. (Signature, seal and Level II number must be on each sheet pertaining to ES&PC Plan or the Plan will not be reviewed)
12	Y	3 The name and phone number of the 24-hour local contact responsible for erosion, sedimentation and pollution controls.
12	Y	4 Provide the name, address, email address and phone number of primary permittee.
12	Y	5 Note total and disturbed acreage of the project or phase under construction.
12	Y	6 Provide the GPS locations of the beginning and end of the Infrastructure project. Give the Latitude and Longitude in decimal degrees.
12	Y	7 Initial date of the Plan and the dates of any revisions made to the Plan including the entity who requested the revisions.
12	Y	8 Description of the nature of construction activity.
12	Y	9 Provide vicinity map showing site's relation to surrounding areas. Include designation of specific phase, if necessary.
12	Y	10 Identify the project receiving waters and describe all sensitive adjacent areas including streams, lakes, residential areas, wetlands, marshlands, etc. which may be affected.
12	Y	11 Design professional's certification statement and signature that the site was visited prior to development of the ES&PC Plan as stated on Part IV page 21 of the permit.
12	Y	12 Design professional's certification statement and signature that the permittee's ES&PC Plan provides for an appropriate and comprehensive system of BMPs and sampling to meet permit requirements as stated on Part IV page 20 of the permit.*
12	Y	13 Design professional certification statement and signature that the permittee's ES&PC Plan provides for representative sampling as stated on Part IV D.6.c(3) page 37 of the permit as applicable.*
12	Y	14 Clearly note the statement that "The design professional who prepared the ES&PC Plan is to inspect the installation of the initial sediment storage requirements and perimeter control BMPs within 7 days after installation." in accordance with Part IV A.5, page 20 of the permit.
12	Y	15 Clearly note the statement that "Non-exempt activities shall not be conducted within the 25 or 50-foot undisturbed stream buffers as measured from the point of westered vegetation or within 25-foot of the coastal marshland buffer as measured from the Jurisdictional Determination Line without first acquiring the necessary variances and permits."
	N/A	16 Provide a description of any buffer encroachments and indicate whether a buffer variance is required.
12	Y	17 Clearly note the statement that "Amendments/revisions to the ES&PC Plan which have a significant effect on BMPs with a hydraulic component must be certified by the design professional."
12	Y	18 Clearly note the statement that "Waste materials shall not be discharged to waters of the State, except as authorized by a section 404 permit."
12	Y	19 Clearly note statement that "The escape of sediment from the site shall be prevented by the installation of erosion and sediment control measures and practices prior to land disturbing activities."
12	Y	20 Clearly note statement that "Erosion control measures will be maintained at all times. If full implementation of the approved plan does not provide for effective erosion control, additional erosion and sediment control measures shall be implemented to control or treat the sediment source."
12	Y	21 Clearly note the statement "Any disturbed area left exposed for a period greater than 14 days shall be stabilized with mulch or temporary seeding."
	N/A	22 Any construction activity which discharges storm water into an Impaired Stream Segment, or within 1 linear mile upstream of and within the same watershed as, any portion of an Impaired Stream Segment must comply with Part III, C, of the Permit. Include the completed Appendix 1 listing all the BMPs that will be used for those areas of the site which discharge to the Impaired Stream Segment."
	N/A	23 If a TMDL Implementation Plan for sediment has been finalized for the Impaired Stream Segment (identified in item 22 above) at least six months prior to submittal of NOI, the ES&PC Plan must address any site-specific conditions or requirements included in the TMDL Implementation Plan."
12	Y	24 BMPs for concrete washdown of tools, concrete mixer chutes, hoppers and the rear of the vehicles. Washout of the drum at the construction site is prohibited."
	N/A	25 Provide BMPs for the remediation of all petroleum spills and leaks.
12	Y	26 Description of the measures that will be installed during the construction process to control pollutants in storm water that will occur after construction operations have been completed."
12	Y	27 Description of practices to provide cover for building materials and building products on site."
12	Y	28 Description of the practices that will be used to reduce the pollutants in storm water discharges."
12	Y	29 Description and chart or timeline of the intended sequence of major activities which disturb soils for the major portions of the site (i.e., initial paving and sediment storage BMPs, clearing and grubbing activities, excavation activities, utility activities, temporary and final stabilization)."
12	Y	30 Provide complete requirements of inspections and record keeping by the primary permittee."
13	Y	31 Provide complete requirements of sampling frequency and reporting of sampling results."
13	Y	32 Provide complete details for retention of records as per Part IV F. of the permit."
13	Y	33 Description of analytical methods to be used to collect and analyze the samples from each location."
	N/A	34 Appendix B rationale for NTU values at all outfall sampling points where applicable."
	N/A	35 Delineate all sampling locations, perennial and intermittent streams and other water bodies into which storm water is discharged also provide a summary chart of the justification and analysis for the representative sampling as applicable."
12	Y	36 A description of appropriate controls and measures that will be implemented at the construction site including: (1) initial sediment storage requirements and perimeter control BMPs, (2) intermediate grading and drainage BMPs, and (3) final BMPs. For construction sites where there will be no mass grading and the initial perimeter control BMPs, intermediate grading and drainage BMPs, and final BMPs are the same, the initial perimeter control BMPs into a single phase."

ALL	Y	37 Graphic scale and North arrow.
ALL	Y	38 Existing and proposed contour lines with contour lines drawn at an interval in accordance with the following: Existing Contours USGS 1" = 2000' Topographic Sheets Proposed Contours 1" = 400' Centerline Profile

	N/A	39 Use of alternative BMPs whose performance has been documented to be equivalent to or superior to conventional BMPs as certified by a Design Professional (unless disapproved by EPD or the Georgia Soil and Water Conservation Commission). Please refer to the Alternative BMP Guidance Document found at www.gswcc.org.
	N/A	40 Use of alternative BMP for application to the Equivalent BMP List. Please refer to Appendix A-2 of the Manual for Erosion & Sediment Control in Georgia 2016 Edition."
	N/A	41 Delineation of the applicable 25-foot or 50-foot undisturbed buffers adjacent to state waters and any additional buffers required by the Local Issuing Authority. Clearly note and delineate all areas of impact.
	N/A	42 Delineation of on-site wetlands and all state waters located on and within 200 feet of the project site.
	N/A	43 Delineation and acreage of contributing drainage basins on the project site.
	N/A	44 Delineate on-site drainage and off-site watersheds using USGS 1"=2000' topographical sheets.
13	Y	45 An estimate of the runoff coefficient or peak discharge flow of the site prior to and after construction activities are completed.
	N/A	46 Storm-drain pipe and weir velocities with appropriate outlet protection to accommodate discharges without erosion. Identify/Delineate all storm water discharge points.
13	Y	47 Soil series for the project site and their delineation.
13	Y	48 The limits of disturbance for each phase of construction.
13	Y	49 Provide a minimum of 67 cubic yards of sediment storage per acre drained using a temporary sediment basin, retrofitted detention pond, and/or excavated inlet sediment traps for each common drainage location. Sediment storage volume must be in place prior to and during all land disturbance activities until final stabilization of the site has been achieved. A written justification explaining the decision to use equivalent controls when a sediment basin is not attainable must be included in the plan for each common drainage location in which a sediment basin is not provided. A written justification as to why 67 cubic yards of storage is not attainable must also be given. Worksheets from the Manual included for structural BMPs and all calculations used by the storage design professional to obtain the required sediment when using equivalent controls. When discharging from sediment basins and impoundments, permittees are required to utilize outlet structures that withdraw water from the bottom, unless infeasible. If outlet structures that withdraw water from the surface are not feasible, a written justification explaining this decision must be included in the plan.
13	Y	50 Location of Best Management Practices that are consistent with and no less stringent than the Manual for Erosion and Sediment Control in Georgia. Use uniform coding symbols from the Manual, Chapter 6, with legend.
13	Y	51 Provide detailed drawings for all structural practices. Specifications must, at a minimum, meet the guidelines set forth in the Manual for Erosion and Sediment Control in Georgia.
13	Y	52 Provide vegetative plan, noting all temporary and permanent vegetative practices. Include species, planting dates and seeding, fertilize, lime and mulching rates. Vegetative plan shall be site specific for appropriate time of the year that seeding will take place and for the appropriate geographic region of Georgia.

*If using this checklist for a project that is less than 1 acre and not part of a common development but within 200 ft of a perennial stream the "checklist items would be N/A."
Effective January 1, 2020

2 LEVEL II CERTIFICATION:
LEVEL II CERTIFICATION NUMBER ISSUED BY THE COMMISSION, SIGNATURE AND SEAL OF THE CERTIFIED DESIGN PROFESSIONAL. (SEE PROFESSIONAL SEAL)

3 24-HOUR LOCAL EROSION AND SEDIMENTATION CONTROL CONTACT:
ERIC LARSON (912) 754-8000

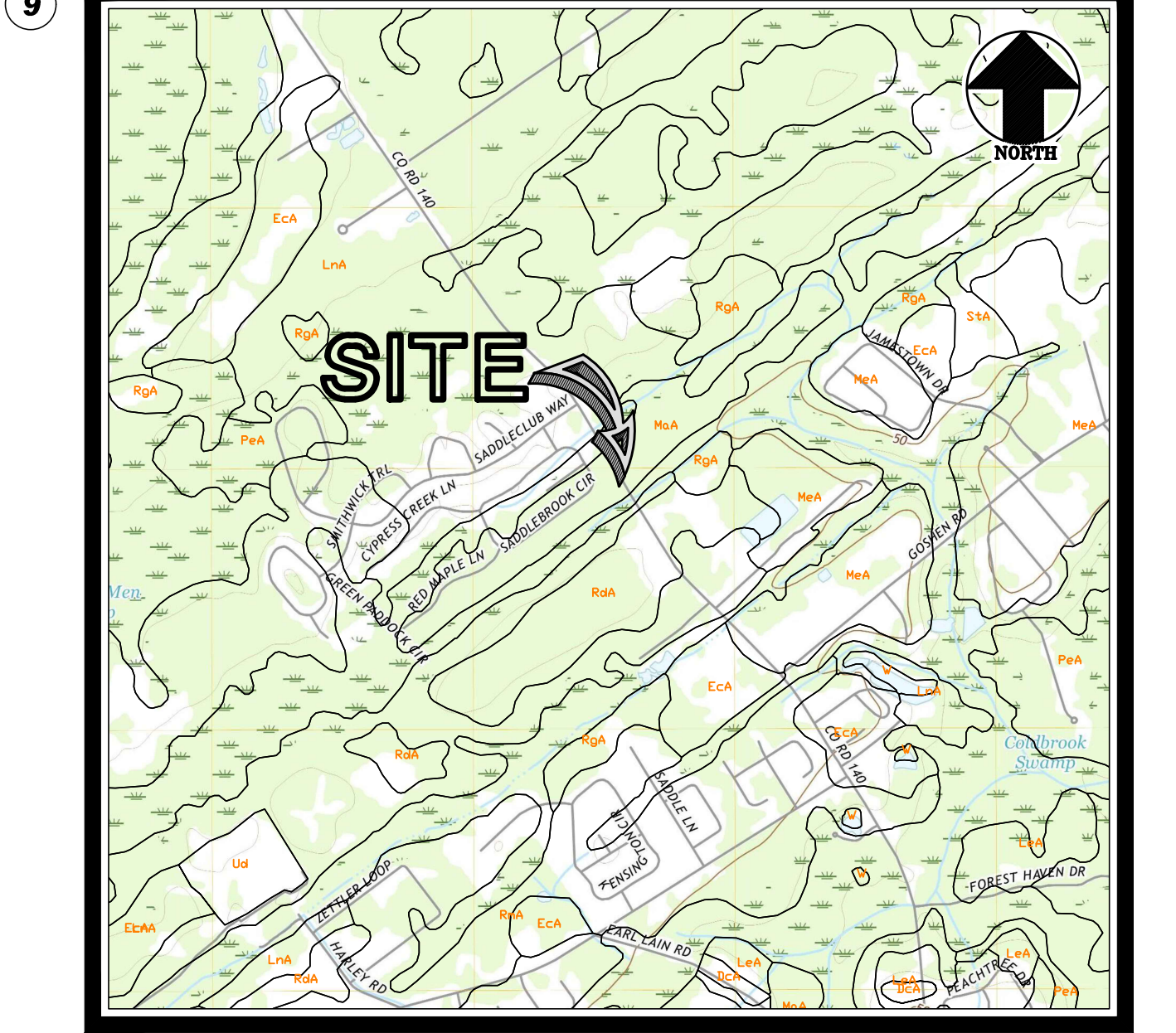
4 PRIMARY PERMITTEE INFORMATION:
ERIC LARSON
DIRECTOR OF DEVELOPMENT SERVICES/COUNTY ENGINEER
601 N LAUREL ST, SPRINGFIELD, GA 31329
(912)754-8000
ELarson@effinghamcounty.org

5 TOTAL ACREAGE / DISTURBED ACREAGE
ESTIMATED TOTAL SITE ACREAGE: 0.13 ACRES
TOTAL DISTURBED AREA DEVELOPMENT: 0.13 ACRES

6 PROJECT START LOCATION
LATITUDE: 32°13'47.6663" NORTH
LONGITUDE: 81°16'11.6797" WEST

7 PROJECT END LOCATION
LATITUDE: 32°13'47.6663" NORTH
LONGITUDE: 81°16'11.6797" WEST

8 DESCRIPTION OF THE NATURE OF CONSTRUCTION ACTIVITY:
THE PROJECT INCLUDES THE DEMOLITION OF EXISTING LIFT STATION PUMPS, PIPING, ELECTRICAL AND THE CONSTRUCTION OF A NEW WETWELL, FORCEMAIN, CONNECTION TO EXISTING FORCE MAIN, BYPASS PUMP, BIOFILTER, ELECTRICAL BUILDING TO INCLUDE SCADA, EMERGENCY DIESEL GENERATOR, AND ASPHALT DRIVEWAY.



9 THE PROJECTS RECEIVING WATERS INCLUDE TRIBUTARY TO COLD BROOK SWAMP. STATE WATERS, ARE NOT LOCATED ON OR WITHIN 200' OF THE PROJECT SITE.

10 DESCRIPTION OF SENSITIVE AREAS:
N/A

11 "I CERTIFY UNDER PENALTY OF LAW THAT THIS PLAN WAS PREPARED AFTER A SITE VISIT TO THE LOCATIONS DESCRIBED HEREIN BY MYSELF OR MY AUTHORIZED AGENT, UNDER MY SUPERVISION."

ENGINEER'S SIGNATURE GSWCC CERTIFICATION NO. 0000013979 06/2022

12 "I CERTIFY THAT THE PERMITTEE'S EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN PROVIDES FOR AN APPROPRIATE AND COMPREHENSIVE SYSTEM OF BEST MANAGEMENT PRACTICES REQUIRED BY THE GEORGIA WATER QUALITY CONTROL ACT AND THE DOCUMENT "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA (MANUAL)" PUBLISHED BY THE GEORGIA SOIL AND WATER CONSERVATION COMMISSION AS OF JANUARY 1 OF THE YEAR IN WHICH THE LAND-DISTURBING ACTIVITY WAS PERMITTED, PROVIDES FOR THE SAMPLING OF THE RECEIVING WATER(S) OR THE SAMPLING OF THE STORM WATER OUTFALLS AND THAT THE DESIGNED SYSTEM OF BEST MANAGEMENT PRACTICES AND SAMPLING METHODS IS EXPECTED TO MEET THE REQUIREMENTS CONTAINED IN THE GENERAL NPDES PERMIT NO. GAR 100002."

ENGINEER'S SIGNATURE GSWCC CERTIFICATION NO. 0000013979 06/2022

13 "I CERTIFY THAT THE PERMITTEE'S EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN PROVIDES FOR THE MONITORING OF: (A) ALL PERENNIAL AND INTERMITTENT STREAMS AND OTHER WATER BODIES SHOWN ON THE USGS TOPOGRAPHIC MAP AND ALL OTHER FIELD VERIFIED PERENNIAL AND INTERMITTENT STREAMS AND OTHER WATER BODIES, OR (B) WHERE ANY SUCH SPECIFIC IDENTIFIED PERENNIAL OR INTERMITTENT STREAM AND OTHER WATER BODY IS NOT PROPOSED TO BE SAMPLED, I HAVE DETERMINED IN MY PROFESSIONAL JUDGEMENT, UTILIZING THE FACTORS REQUIRED IN THE GENERAL NPDES PERMIT NO. GAR 100002, THAT THE INCREASE IN THE TURBIDITY OF EACH SPECIFIC IDENTIFIED SAMPLED RECEIVING WATER WILL BE REPRESENTATIVE OF THE INCREASE IN THE TURBIDITY OF A SPECIFIC IDENTIFIED UN-SAMPLED RECEIVING WATER."

ENGINEER'S SIGNATURE GSWCC CERTIFICATION NO. 0000013979 06/2022

14 THE DESIGN PROFESSIONAL WHO PREPARED THE ES&PC PLAN IS TO INSPECT THE INSTALLATION OF THE INITIAL SEDIMENT STORAGE REQUIREMENTS AND PERIMETER CONTROL BMPs WITHIN 7 DAYS AFTER INSTALLATION.

15 NON-EXEMPT ACTIVITIES SHALL NOT BE CONDUCTED WITHIN ANY 25 OR 50-FOOT UNDISTURBED STREAM BUFFERS AS MEASURED FROM THE POINT OF WRESTED VEGETATION OR WITHIN 25-FEET OF THE COASTAL MARSHLAND BUFFER AS MEASURED FROM THE JURISDICTIONAL DETERMINATION LINE WITHOUT FIRST ACQUIRING THE NECESSARY VARIANCES AND PERMITS.

16 DESCRIPTION OF BUFFER ENCROACHMENT:
NO BUFFER ENCROACHMENTS ARE PROPOSED FOR THIS PROJECT.

17 AMENDMENTS/REVISIONS TO THE ES&PC PLAN WHICH HAVE A SIGNIFICANT EFFECT ON BMPs WITH A HYDRAULIC COMPONENT MUST BE CERTIFIED BY THE DESIGN PROFESSIONAL.

18 WASTE MATERIALS SHALL NOT BE DISCHARGED TO WATERS OF THE STATE, EXCEPT AS AUTHORIZED BY A SECTION 404 PERMIT.

19 THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO LAND DISTURBING ACTIVITIES.

20 EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES, IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE.

21 ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING.

22 THIS PROJECT DOES NOT DISCHARGE INTO AN IMPAIRED STREAM SEGMENT, OR WITHIN 1 LINEAR MILE UPSTREAM OF AND WITHIN THE SAME WATERSHED AS ANY PORTION OF A BIOTA IMPAIRED STREAM SEGMENT. ANY PROJECT DISCHARGING INTO A BIOTA IMPAIRED STREAM SEGMENT, OR WITHIN 1 MILE UPSTREAM AND WITHIN SAME WATERSHED MUST COMPLY WITH PART III, C, OF THE PERMIT.

23 IF A TMDL IMPLEMENTATION PLAN FOR SEDIMENT HAS BEEN FINALIZED FOR THE IMPAIRED STREAM SEGMENT (IDENTIFIED IN ITEM 22 ABOVE) AT LEAST SIX MONTHS PRIOR TO SUBMITTAL OF NOI, THE ES&PC PLAN MUST ADDRESS ANY SITE-SPECIFIC CONDITIONS OR REQUIREMENTS INCLUDED IN THE TMDL IMPLEMENTATION PLAN.

24 BMPs FOR CONCRETE WASHDOWN OF TOOLS, CONCRETE MIXER CHUTES, HOPPERS AND THE REAR OF THE VEHICLES. WASHOUT OF THE DRUM AT THE CONSTRUCTION SITE IS PROHIBITED.

25 SPILL CLEANUP AND CONTROL PRACTICES
1. LOCAL, STATE AND MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEANUP SHALL BE CLEARLY POSTED AND PROCEDURES SHALL BE MADE AVAILABLE TO SITE PERSONNEL.
2. MATERIAL AND EQUIPMENT NECESSARY FOR SPILL CLEANUP SHALL BE KEPT IN THE MATERIAL STORAGE AREAS. TYPICAL MATERIALS AND EQUIPMENT INCLUDES, BUT IS NOT LIMITED TO, BROOMS, DUSTPANS, MOPS, RAGS, GLOVES, GOGGLES, CAT LITTER, SAND, SAND/OUT AND PROPERLY LABELED PLASTIC AND METAL WASTE CONTAINERS.
3. SPILL PREVENTION PRACTICES AND PROCEDURES SHALL BE REVIEWED AFTER A SPILL AND ADJUSTED AS NECESSARY PRIOR TO FUTURE SPILLS.
4. ALL SPILLS SHALL BE CLEANED UP IMMEDIATELY UPON DISCOVERY. ALL SPILLS SHALL BE REPORTED AS REQUIRED BY LOCAL, STATE AND FEDERAL REGULATIONS.
5. FOR SPILLS THAT IMPACT SURFACE WATER (LEAVE A SHEEN ON SURFACE WATER), AND FOR SPILLS OF AN UNKNOWN AMOUNT, THE NATIONAL RESPONSE CENTER (NRC) SHALL BE CONTACTED WITHIN 24 HOURS AT 1-800-424-8802.
6. FOR SPILLS GREATER THAN 25 GALLONS AND NO SURFACE WATER IMPACT, THE GEORGIA EPD SHALL BE CONTACTED WITHIN 24 HOURS AT 1-800-424-8802.
7. FOR SPILLS LESS THAN 25 GALLONS AND NO SURFACE WATER IMPACTS, THE SPILL SHALL BE CLEANED UP AND LOCAL AGENCIES WILL BE CONTACTED AS REQUIRED. THE CONTRACTOR SHALL NOTIFY THE LICENSED PROFESSIONAL PREPARED THIS PLAN MORE THAN 300 GALLONS OF PETROLEUM IS STORED ONSITE (THIS INCLUDES CAPACITIES OF EQUIPMENT) OR IF ANY ONE PIECE OF EQUIPMENT HAS A CAPACITY GREATER THAN 660 GALLONS, THE CONTRACTOR WILL NEED A SPILL PREVENTION CONTAINMENT AND COUNTERMEASURES PLAN PREPARED BY THAT LICENSED PROFESSIONAL.

26 DESCRIPTIONS OF THE MEASURES THAT WILL BE INSTALLED DURING CONSTRUCTION PROCESS TO CONTROL POLLUTANTS IN STORM WATER THAT WILL OCCUR AFTER CONSTRUCTION OPERATIONS HAVE BEEN COMPLETE.
THE SITE WILL BE RETURNED TO ITS PRE-CONSTRUCTION CONDITION AFTER CONSTRUCTION IS COMPLETE. PERMANENT GRASSING WITH MULCH WILL BE THE ONLY STORM WATER POLLUTANT CONTROL REMAINING AFTER CONSTRUCTION.

27 DESCRIPTION OF PRACTICES TO PROVIDE COVER FOR BUILDING MATERIALS AND BUILDING PRODUCTS ON SITE:
BUILDING MATERIALS AND BUILDING PRODUCTS ON SITE WILL BE PROVIDED TEMPORARY COVER IN THE FORM OF PLASTIC SHEETING.

28 DESCRIPTION OF PRACTICES THAT WILL BE USED TO REDUCE THE POLLUTANTS IN STORMWATER DISCHARGES:
THE FOLLOWING POTENTIAL POLLUTANTS ARE EXPECTED ON-SITE DURING INFRASTRUCTURE CONSTRUCTION: SILT, SEDIMENT, CONCRETE PRODUCTS, ASPHALT, PETROLEUM BASED FUEL AND LUBRICANTS FOR EQUIPMENT, PESTICIDES, FERTILIZERS, HERBICIDES, CRUSHED STONE, PLASTIC AND METAL. THE CONTROL OF THESE POLLUTANTS WILL BE ACCOMPLISHED WITH BEST MANAGEMENT PRACTICES AS SET FORTH IN THE GEORGIA'S MANUAL FOR EROSION AND SEDIMENT CONTROL.

PRODUCT SPECIFIC PRACTICES
• **PETROLEUM BASED PRODUCTS** - CONTAINERS FOR PRODUCTS SUCH AS FUELS, LUBRICANTS, AND TARS SHALL BE INSPECTED DAILY FOR LEAKS AND SPILLS. THIS INCLUDES ON-SITE VEHICLE AND MACHINERY DAILY INSPECTIONS AND REGULAR PREVENTATIVE MAINTENANCE OF SUCH EQUIPMENT. EQUIPMENT MAINTENANCE AREAS SHALL BE LOCATED AWAY FROM STATE WATER, NATURAL DRAINS AND STORM WATER DRAINAGE INLETS. IN ADDITION, TEMPORARY FUELING TANKS SHALL HAVE A SECONDARY CONTAINMENT LINER TO PREVENT/MINIMIZE SITE CONTAMINATION. METHODS SHALL INCLUDE COLLECTION IN A SUITABLE CONTAINER FOR DISPOSAL AS REQUIRED BY LOCAL AND STATE REGULATIONS.
• **CONCRETE TRUCK WASHING** - NO CONCRETE TRUCKS SHALL BE ALLOWED TO WASH OUT OR DISCHARGE SURPLUS CONCRETE OR DRUM WASH WATER ONSITE.
• **FERTILIZER/HERBICIDES** - THESE PRODUCTS SHALL BE APPLIED AT RATES THAT DO NOT EXCEED THE MANUFACTURER'S SPECIFICATIONS OR ABOVE THE GUIDELINES SET FORTH IN THE CROP ESTABLISHMENT OR IN THE GSWCC MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA. ANY STORAGE OF THESE MATERIALS SHALL BE UNDER ROOF IN SEALED CONTAINERS.
• **BUILDING MATERIALS** -NO BUILDING OR CONSTRUCTION MATERIALS SHALL BE BURIED OR DISPOSED OF ONSITE. ALL SUCH MATERIAL SHALL BE DISPOSED OF OFFSITE USING APPROPRIATE AND LAWFUL WASTE DISPOSAL PROCEDURES.

TENTATIVE ACTIVITY SCHEDULE

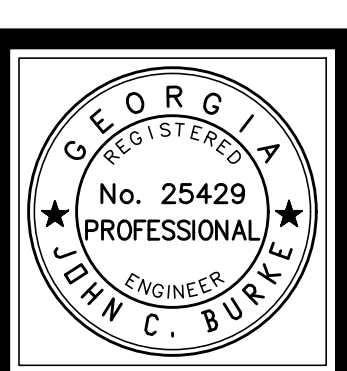
	MONTH No. 1	MONTH No. 2	MONTH No. 3	MONTH No. 4	MONTH No. 5
INSTALLATION OF SEDIMENT CONTROLS AND TREE PROTECTION BARRICADES					
DEMOLITION, CLEARING, GRUBBING & STRIPPING TOPSOIL					
UTILITY INSTALLATION					
GRASSING / LANDSCAPING					
MAINTENANCE OF SEDIMENT CONTROLS & TEMPORARY GRASSING (AS REQUIRED)					
REMOVAL OF SEDIMENT CONTROLS					

29 "I CERTIFY THAT THE PERMITTEE'S EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN PROVIDES FOR THE MONITORING OF: (A) ALL PERENNIAL AND INTERMITTENT STREAMS AND OTHER WATER BODIES SHOWN ON THE USGS TOPOGRAPHIC MAP AND ALL OTHER FIELD VERIFIED PERENNIAL AND INTERMITTENT STREAMS AND OTHER WATER BODIES, OR (B) WHERE ANY SUCH SPECIFIC IDENTIFIED PERENNIAL OR INTERMITTENT STREAM AND OTHER WATER BODY IS NOT PROPOSED TO BE SAMPLED, I HAVE DETERMINED IN MY PROFESSIONAL JUDGEMENT, UTILIZING THE FACTORS REQUIRED IN THE GENERAL NPDES PERMIT NO. GAR 100002, THAT THE INCREASE IN THE TURBIDITY OF EACH SPECIFIC IDENTIFIED SAMPLED RECEIVING WATER WILL BE REPRESENTATIVE OF THE INCREASE IN THE TURBIDITY OF A SPECIFIC IDENTIFIED UN-SAMPLED RECEIVING WATER."

30 PRIMARY PERMITTEE IS RESPONSIBLE FOR REGULAR INSPECTIONS AND RECORD KEEPING AS REQUIRED BY THE GEORGIA EPD NPDES PERMIT. INSPECTIONS TO BE COMPLETED BY PRIMARY PERMITTEE

PERMITTEE REQUIREMENTS

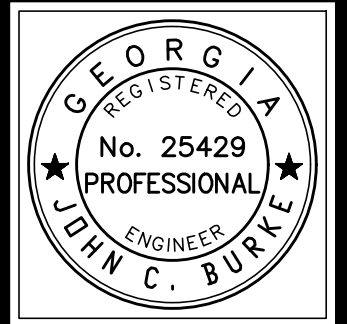
- EACH DAY WHEN ANY TYPE OF CONSTRUCTION ACTIVITY HAS TAKEN PLACE AT A PRIMARY PERMITTEE'S SITE, CERTIFIED PERSONNEL PROVIDED BY THE PRIMARY PERMITTEE SHALL INSPECT: (A) ALL AREAS AT THE PRIMARY PERMITTEE'S SITE WHERE PETROLEUM PRODUCTS ARE STORED, USED, OR HANDLED FOR SPILLS AND LEAKS FROM VEHICLES AND EQUIPMENT AND (B) ALL LOCATIONS AT THE PRIMARY PERMITTEE'S SITE WHERE VEHICLES ENTER OR EXIT THE SITE FOR EVIDENCE OF OFF-SITE SEDIMENT TRACKING... THESE INSPECTIONS MUST BE CONDUCTED UNTIL A NOTICE OF TERMINATION IS SUBMITTED.
- MEASURE AND RECORD RAINFALL WITHIN DISTURBED AREAS OF THE SITE THAT HAVE NOT MET FINAL STABILIZATION EVERY 24 HOURS EXCEPT ANY NON-WORKING SATURDAY, NON-WORKING SUNDAY AND NON-WORKING FEDERAL HOLIDAY. THE DATA COLLECTED FOR THE PURPOSE OF COMPLIANCE WITH THIS PERMIT SHALL BE REPRESENTATIVE OF THE MONITORED ACTIVITY. MEASUREMENT OF RAINFALL MAY BE SUSPENDED IF ALL AREAS OF THE SITE HAVE UNDERGONE FINAL STABILIZATION OR ESTABLISHED A CROP OF ANNUAL VEGETATION AND A SEEDING OF TARGET PERENNIALS APPROPRIATE FOR THE REGION.
- CERTIFIED PERSONNEL (PROVIDED BY THE PRIMARY PERMITTEE) SHALL INSPECT THE FOLLOWING AT LEAST ONCE EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A STORM THAT IS 0.5 INCHES RAINFALL OR GREATER (UNLESS SUCH STORM ENDS AFTER 5:00 PM ON ANY FRIDAY OR ON ANY NON-WORKING SATURDAY, NON-WORKING SUNDAY OR ANY NON-WORKING FEDERAL HOLIDAY IN WHICH CASE THE INSPECTION SHALL BE COMPLETED BY THE END OF THE NEXT BUSINESS DAY AND/OR WORKING DAY, WHICHEVER OCCURS FIRST): (A) DISTURBED AREAS OF THE PRIMARY PERMITTEE'S CONSTRUCTION SITE; (B) AREAS USED BY THE PRIMARY PERMITTEE FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION; AND (C) STRUCTURAL CONTROL MEASURES. EROSION AND SEDIMENT CONTROL MEASURES IDENTIFIED IN THE PLAN APPLICABLE TO THE PRIMARY PERMITTEE'S SITE SHALL BE OBSERVED TO ENSURE THAT THEY ARE OPERATING CORRECTLY. WHERE DISCHARGE LOCATIONS OR POINTS ARE ACCESSIBLE, THEY SHALL BE INSPECTED TO ASCERTAIN WHETHER EROSION CONTROL MEASURES ARE EFFECTIVE IN PREVENTING SIGNIFICANT IMPACTS TO RECEIVING WATER(S). FOR AREAS OF A SITE THAT HAVE UNDERGONE FINAL STABILIZATION OR ESTABLISHED A CROP OF ANNUAL VEGETATION AND A SEEDING OF TARGET PERENNIALS APPROPRIATE FOR THE REGION, THE PERMITTEE MUST COMPLY WITH PART IV.D.4.A.(4). THESE INSPECTIONS MUST BE CONDUCTED UNTIL A NOTICE OF TERMINATION IS SUBMITTED.
- CERTIFIED PERSONNEL (PROVIDED BY THE PRIMARY PERMITTEE) SHALL INSPECT AT LEAST ONCE PER MONTH DURING THE TERM OF THIS PERMIT (I.E., UNTIL A NOTICE OF TERMINATION HAS BEEN SUBMITTED) THE AREAS OF THE SITE THAT HAVE UNDERGONE FINAL STABILIZATION OR ESTABLISHED A CROP OF ANNUAL VEGETATION AND A SEEDING OF TARGET PERENNIALS APPROPRIATE FOR THE REGION. THESE AREAS SHALL BE INSPECTED FOR EVIDENCE OF, OR THE POTENTIAL FOR, POLLUTANTS ENTERING THE DRAINAGE SYSTEM AND THE RECEIVING WATER(S). EROSION AND SEDIMENT CONTROL MEASURES IDENTIFIED IN THE PLAN SHALL BE OBSERVED TO ENSURE THAT THEY ARE OPERATING CORRECTLY. WHERE DISCHARGE LOCATIONS OR POINTS ARE ACCESSIBLE, THEY SHALL BE INSPECTED TO ASCERTAIN WHETHER EROSION CONTROL MEASURES ARE EFFECTIVE IN PREVENTING SIGNIFICANT IMPACTS TO RECEIVING WATER(S).
- BASED ON THE RESULTS OF EACH INSPECTION, THE SITE DESCRIPTION AND THE POLLUTION PREVENTION AND CONTROL MEASURES IDENTIFIED IN THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN, THE PLAN SHALL BE REVISED AS APPROPRIATE NOT LATER THAN SEVEN (7) CALENDAR DAYS FOLLOWING EACH INSPECTION. IMPLEMENTATION OF SUCH CHANGES SHALL BE MADE AS SOON AS PRACTICAL BUT IN NO CASE LATER THAN SEVEN (7) CALENDAR DAYS FOLLOWING EACH INSPECTION.
- A REPORT OF EACH INSPECTION THAT INCLUDES THE NAME(S) OF CERTIFIED PERSONNEL MAKING EACH INSPECTION, THE DATE(S) OF EACH INSPECTION, CONSTRUCTION PHASE (I.E., INITIAL, INTERMEDIATE OR FINAL), MAJOR OBSERVATIONS RELATING TO THE IMPLEMENTATION OF THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN, AND ACTIONS TAKEN IN ACCORDANCE WITH PART IV.D.4.A.(5) OF THE PERMIT SHALL BE MADE AND RETAINED AT THE SITE OR BE READILY AVAILABLE AT A DESIGNATED ALTERNATE LOCATION UNTIL THE ENTIRE SITE OR THAT PORTION OF A CONSTRUCTION SITE THAT HAS BEEN PHASED HAS UNDERGONE FINAL STABILIZATION AND A NOTICE OF TERMINATION IS SUBMITTED TO EPD. SUCH REPORTS SHALL BE READILY AVAILABLE BY END OF THE SECOND BUSINESS DAY AND/OR WORKING DAY AND SHALL IDENTIFY ALL INCIDENTS OF BEST MANAGEMENT PRACTICES THAT HAVE NOT BEEN PROPERLY INSTALLED AND/OR MAINTAINED AS DESCRIBED IN THE PLAN. WHERE THE REPORT DOES NOT IDENTIFY ANY INCIDENTS, THE INSPECTION REPORT SHALL CONTAIN A CERTIFICATION THAT THE BEST MANAGEMENT PRACTICES ARE IN COMPLIANCE WITH THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN. THE REPORT SHALL BE SIGNED IN ACCORDANCE WITH PART V.G.2. OF THIS PERMIT.



HUSSEY GAY BELL
Established 1958
329 COMMERCIAL DRIVE, SAVANNAH, GA 31406 / T:912.354.4626

DESIGNED	DRAWN	CHECKED
JLO/JCB	SKK	JCB
DATE: APRIL 2022		
JOB NO. 120004450		
SCALE: 1" = 6'		

#4 HODGEVILLE LIFT STATION IMPROVEMENTS FOR THE EFFINGHAM COUNTY BOARD OF COMMISSIONERS EROSION SEDIMENT CONTROL NOTES



HUSSEY GAY BELL
Established 1958
329 COMMERCIAL DRIVE, SAVANNAH, GA 31406 / T: 912.354.4626

REVISIONS:
ADDENDUM NO. 1 - JUNE 1, 2022

DESIGNED	DRAWN	CHECKED
JLO/JCB	SKK	JCB

DATE: APRIL 2022
JOB NO. 120004450
SCALE: 1" = 6'

MONTH OF PLANTING	TEMPORARY GRASS	RATE	MONTH OF PLANTING	PERMANENT GRASS	RATE
MARCH - JUNE	SUDANGRASS	60 Lbs./Ac	MARCH - JUNE	COMMON BERMUDA (HULLED)	10 Lbs./Ac
APRIL - AUGUST	BROWN TOP MILLET	40 Lbs./Ac	JULY - AUGUST	COMMON BERMUDA (HULLED) & BROWN TOP MILLET	6 Lbs./Ac 10 Lbs./Ac
SEPTEMBER - FEBRUARY	RYE GRASS	40 Lbs./Ac	SEPTEMBER - FEBRUARY	COMMON BERMUDA (UNHULLED) & TALL FESCUE	6 Lbs./Ac 30 Lbs./Ac

#4 HODGEVILLE LIFT STATION IMPROVEMENTS FOR THE EFFINGHAM COUNTY BOARD OF COMMISSIONERS
EROSION SEDIMENT CONTROL NOTES

DRAWING NUMBER
15
15 OF 16

EROSION, SEDIMENTATION & POLLUTION CONTROL NOTES:

31 SAMPLING FREQUENCY

- THE PRIMARY PERMITTEE MUST SAMPLE IN ACCORDANCE WITH THE PLAN AT LEAST ONCE FOR EACH RAINFALL EVENT DESCRIBED BELOW. FOR A QUALIFYING EVENT, THE PERMITTEE SHALL SAMPLE AT THE BEGINNING OF ANY STORM WATER DISCHARGE TO A MONITORED RECEIVING WATER AND/OR FROM A MONITORED OUTFALL LOCATION WITHIN IN FORTY-FIVE (45) MINUTES OR AS SOON AS POSSIBLE.
- HOWEVER, WHERE MANUAL AND AUTOMATIC SAMPLING ARE IMPOSSIBLE (AS DEFINED IN THIS PERMIT), OR ARE BEYOND THE PERMITTEE'S CONTROL, THE PERMITTEE SHALL TAKE SAMPLES AS SOON AS POSSIBLE, BUT IN NO CASE MORE THAN TWELVE (12) HOURS AFTER THE BEGINNING OF THE STORM WATER DISCHARGE.
- SAMPLING BY THE PERMITTEE SHALL OCCUR FOR THE FOLLOWING QUALIFYING EVENTS:
 - FOR EACH AREA OF THE SITE THAT DISCHARGES TO A RECEIVING WATER OR FROM AN OUTFALL, THE FIRST RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH WITH A STORM WATER DISCHARGE THAT OCCURS DURING NORMAL BUSINESS HOURS AS DEFINED IN THIS PERMIT AFTER ALL CLEARING AND GRUBBING OPERATIONS HAVE BEEN COMPLETED, BUT PRIOR TO COMPLETION OF MASS GRADING OPERATIONS, IN THE DRAINAGE AREA OF THE LOCATION SELECTED AS THE REPRESENTATIVE SAMPLING LOCATION;
 - IN ADDITION TO (A) ABOVE, FOR EACH AREA OF THE SITE THAT DISCHARGES TO A RECEIVING WATER OR FROM AN OUTFALL, THE FIRST RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH WITH A STORM WATER DISCHARGE THAT OCCURS DURING NORMAL BUSINESS HOURS AS DEFINED IN THIS PERMIT EITHER 90 DAYS AFTER THE FIRST SAMPLING EVENT OR AFTER ALL MASS GRADING OPERATIONS HAVE BEEN COMPLETED, BUT PRIOR TO COMPLETION OF MASS GRADING OPERATIONS, IN THE DRAINAGE AREA OF THE LOCATION SELECTED AS THE REPRESENTATIVE SAMPLING LOCATION, WHICHEVER COMES FIRST;
 - AT THE TIME OF SAMPLING PERFORMED PURSUANT TO (A) AND (B) ABOVE, IF BMPs IN ANY AREA OF THE SITE THAT DISCHARGES TO A RECEIVING WATER OR FROM AN OUTFALL ARE NOT PROPERLY DESIGNED, INSTALLED AND MAINTAINED, CORRECTIVE ACTION SHALL BE DEFINED AND IMPLEMENTED WITHIN TWO (2) BUSINESS DAYS, AND TURBIDITY SAMPLES SHALL BE TAKEN FROM DISCHARGES FROM THAT AREA OF THE SITE FOR EACH SUBSEQUENT RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH DURING NORMAL BUSINESS HOURS UNTIL THE SELECTED TURBIDITY STANDARD IS ATTAINED, OR UNTIL POST-STORM EVENT INSPECTIONS DETERMINE THAT BMPs ARE PROPERLY DESIGNED, INSTALLED AND MAINTAINED;
 - WHERE SAMPLING PURSUANT TO (A), (B) OR (C) ABOVE IS REQUIRED BUT NOT POSSIBLE (OR NOT REQUIRED BECAUSE THERE WAS NO DISCHARGE), THE PERMITTEE, IN ACCORDANCE WITH PART IV.D.4.A.(6), MUST INCLUDE A WRITTEN JUSTIFICATION IN THE INSPECTION REPORT OF WHY SAMPLING WAS NOT PERFORMED. PROVIDING THIS JUSTIFICATION DOES NOT RELIEVE THE PERMITTEE OF ANY SUBSEQUENT SAMPLING OBLIGATIONS UNDER (A), (B) OR (C) ABOVE; AND
 - EXISTING CONSTRUCTION ACTIVITIES, I.E., THOSE THAT ARE OCCURRING ON OR BEFORE THE EFFECTIVE DATE OF THIS PERMIT, THAT HAVE MET THE SAMPLING REQUIRED BY (A) ABOVE SHALL SAMPLE IN ACCORDANCE WITH (B). THOSE EXISTING CONSTRUCTION ACTIVITIES THAT HAVE MET THE SAMPLING REQUIRED BY (B) ABOVE SHALL NOT BE REQUIRED TO CONDUCT ADDITIONAL SAMPLING OTHER THAN AS REQUIRED BY (C) ABOVE.

*NOTE THAT THE PERMITTEE MAY CHOOSE TO MEET THE REQUIREMENTS OF (A) AND (B) ABOVE BY COLLECTING TURBIDITY SAMPLES FROM ANY RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH AND ALLOWS FOR SAMPLING AT ANY TIME OF THE DAY OR WEEK.

REPORTING
THE APPLICABLE PERMITTEES ARE REQUIRED TO SUBMIT THE SAMPLING RESULTS TO THE EPD BY THE FIFTEENTH DAY OF THE MONTH FOLLOWING THE REPORTING PERIOD. REPORTING PERIODS ARE MONTHS DURING WHICH SAMPLES ARE TAKEN IN ACCORDANCE WITH THIS PERMIT. SAMPLING RESULTS SHALL BE IN A CLEARLY LEGIBLE FORMAT. UPON WRITTEN NOTIFICATION, EPD MAY REQUIRE THE APPLICABLE PERMITTEE TO SUBMIT THE SAMPLING RESULTS ON A MORE FREQUENT BASIS. SAMPLING AND ANALYSIS OF ANY STORM WATER DISCHARGE(S) OR THE RECEIVING WATER(S) BEYOND THE MINIMUM FREQUENCY STATED IN THIS PERMIT MUST BE REPORTED IN A SIMILAR MANNER TO THE EPD. SAMPLING REPORTS MUST BE SUBMITTED TO EPD USING THE ELECTRONIC SUBMITTAL SERVICE PROVIDED BY EPD. SAMPLING REPORTS MUST BE SUBMITTED TO EPD UNTIL SUCH TIME AS A NOT IS SUBMITTED IN ACCORDANCE WITH PART VI.

- ALL SAMPLING REPORTS SHALL INCLUDE THE FOLLOWING INFORMATION:
 - THE RAINFALL AMOUNT, DATE, EXACT PLACE AND TIME OF SAMPLING OR MEASUREMENTS;
 - THE NAME(S) OF THE CERTIFIED PERSONNEL WHO PERFORMED THE SAMPLING AND MEASUREMENTS;
 - THE DATE(S) ANALYSES WERE PERFORMED;
 - THE TIME(S) ANALYSES WERE INITIATED;
 - THE NAME(S) OF THE CERTIFIED PERSONNEL WHO PERFORMED THE ANALYSES;
 - REFERENCES AND WRITTEN PROCEDURES, WHEN AVAILABLE, FOR THE ANALYTICAL TECHNIQUES OR METHODS USED;
 - THE RESULTS OF SUCH ANALYSES, INCLUDING THE BENCH SHEETS, INSTRUMENT READOUTS, COMPUTER DISKS OR TAPES, ETC., USED TO DETERMINE THESE RESULTS;
 - RESULTS WHICH EXCEED 1000 NTU SHALL BE REPORTED AS "EXCEEDS 1000 NTU;" AND CERTIFICATION STATEMENT THAT SAMPLING WAS CONDUCTED AS PER THE PLAN.
- ALL WRITTEN CORRESPONDENCE REQUIRED BY THIS PERMIT SHALL BE SUBMITTED BY RETURN RECEIPT CERTIFIED MAIL (OR SIMILAR SERVICE) TO THE APPROPRIATE DISTRICT OFFICE OF THE EPD ACCORDING TO THE SCHEDULE IN APPENDIX A OF THIS PERMIT. THE PERMITTEE SHALL RETAIN A COPY OF THE PROOF OF SUBMITTAL AT THE CONSTRUCTION SITE OR THE PROOF OF SUBMITTAL SHALL BE READILY AVAILABLE AT A DESIGNATED LOCATION FROM COMMENCEMENT OF CONSTRUCTION UNTIL SUCH TIME AS A NOT IS SUBMITTED IN ACCORDANCE WITH PART VI.

- ## 32 RETENTION OF RECORDS
- THE PRIMARY PERMITTEE SHALL RETAIN THE FOLLOWING RECORDS AT THE CONSTRUCTION SITE OR THE RECORDS SHALL BE READILY AVAILABLE AT A DESIGNATED ALTERNATE LOCATION FROM COMMENCEMENT OF CONSTRUCTION UNTIL SUCH TIME AS A NOT IS SUBMITTED IN ACCORDANCE WITH PART VI:
 - A COPY OF ALL NOTICES OF INTENT SUBMITTED TO EPD;
 - A COPY OF THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN REQUIRED BY THIS PERMIT;
 - THE DESIGN PROFESSIONAL'S REPORT OF THE RESULTS OF THE INSPECTION CONDUCTED IN ACCORDANCE WITH PART IV.A.5. OF THIS PERMIT;
 - A COPY OF ALL SAMPLING INFORMATION, RESULTS, AND REPORTS REQUIRED BY THIS PERMIT;
 - A COPY OF ALL INSPECTION REPORTS GENERATED IN ACCORDANCE WITH PART IV.D.4.A. OF THIS PERMIT;
 - A COPY OF ALL VIOLATION SUMMARIES AND VIOLATION SUMMARY REPORTS GENERATED IN ACCORDANCE WITH PART III.D.2. OF THIS PERMIT; AND
 - DAILY RAINFALL INFORMATION COLLECTED IN ACCORDANCE WITH PART IV.D.4.A.(2). OF THIS PERMIT.
 - COPIES OF ALL NOTICES OF INTENT, NOTICES OF TERMINATION, INSPECTION REPORTS, SAMPLING REPORTS (INCLUDING ALL CALIBRATION AND MAINTENANCE RECORDS AND ALL ORIGINAL STRIP CHART RECORDINGS FOR CONTINUOUS MONITORING INSTRUMENTATION) OR OTHER REPORTS REQUESTED BY THE EPD, EROSION, SEDIMENTATION AND POLLUTION CONTROL PLANS, RECORDS OF ALL DATA USED TO COMPLETE THE NOTICE OF INTENT TO BE COVERED BY THIS PERMIT AND ALL OTHER RECORDS REQUIRED BY THIS PERMIT SHALL BE RETAINED BY THE PERMITTEE WHO EITHER PRODUCED OR USED IT FOR A PERIOD OF AT LEAST THREE YEARS FROM THE DATE THAT THE NOT IS SUBMITTED IN ACCORDANCE WITH PART VI. OF THIS PERMIT. THESE RECORDS MUST BE MAINTAINED AT THE PERMITTEE'S PRIMARY PLACE OF BUSINESS OR AT A DESIGNATED ALTERNATE LOCATION ONCE THE CONSTRUCTION ACTIVITY HAS CEASED AT THE PERMITTED SITE. THIS PERIOD MAY BE EXTENDED BY REQUEST OF THE EPD AT ANY TIME UPON WRITTEN NOTIFICATION TO THE PERMITTEE.

33 STORMWATER SAMPLING

ALL SAMPLING SHALL BE COLLECTED BY "GRAB SAMPLES" AND THE ANALYSIS OF THESE SAMPLES MUST BE CONDUCTED IN ACCORDANCE WITH METHODOLOGY AND TEST PROCEDURES ESTABLISHED BY 40 CFR PART 136 (UNLESS OTHER TEST PROCEDURES HAVE BEEN APPROVED). THE GUIDANCE DOCUMENT TITLED "NPDES STORM WATER SAMPLING GUIDANCE DOCUMENT, EPA 833-B-92-001" AND GUIDANCE DOCUMENTS THAT MAY BE PREPARED BY THE EPD.

STORM WATER IS TO BE SAMPLED FOR NEPHELOMETRIC TURBIDITY UNITS (NTU) AT THE OUTFALL LOCATION. A DISCHARGE OF STORM WATER RUNOFF FROM DISTURBED AREAS WHERE BEST MANAGEMENT PRACTICES HAVE NOT BEEN PROPERLY DESIGNED, INSTALLED, AND MAINTAINED SHALL CONSTITUTE A SEPARATE VIOLATION FOR EACH DAY ON WHICH SUCH CONDITION RESULTS IN THE TURBIDITY OF THE DISCHARGE EXCEEDING 75, THE VALUE THAT WAS SELECTED FROM APPENDIX B IN PERMIT NO. GAR 100002. THIS NTU IS BASED UPON THE TOTAL PROJECT ACRES (0.13) VS. DISTURBED ACREAGE (0.13) FOR THE PROJECT SITE AND THE SURFACE WATER DRAINAGE AREA OF 0.0002 SQUARE MILES, AND RECEIVING WATER WHICH SUPPORTS WARM WATER FISHERIES.

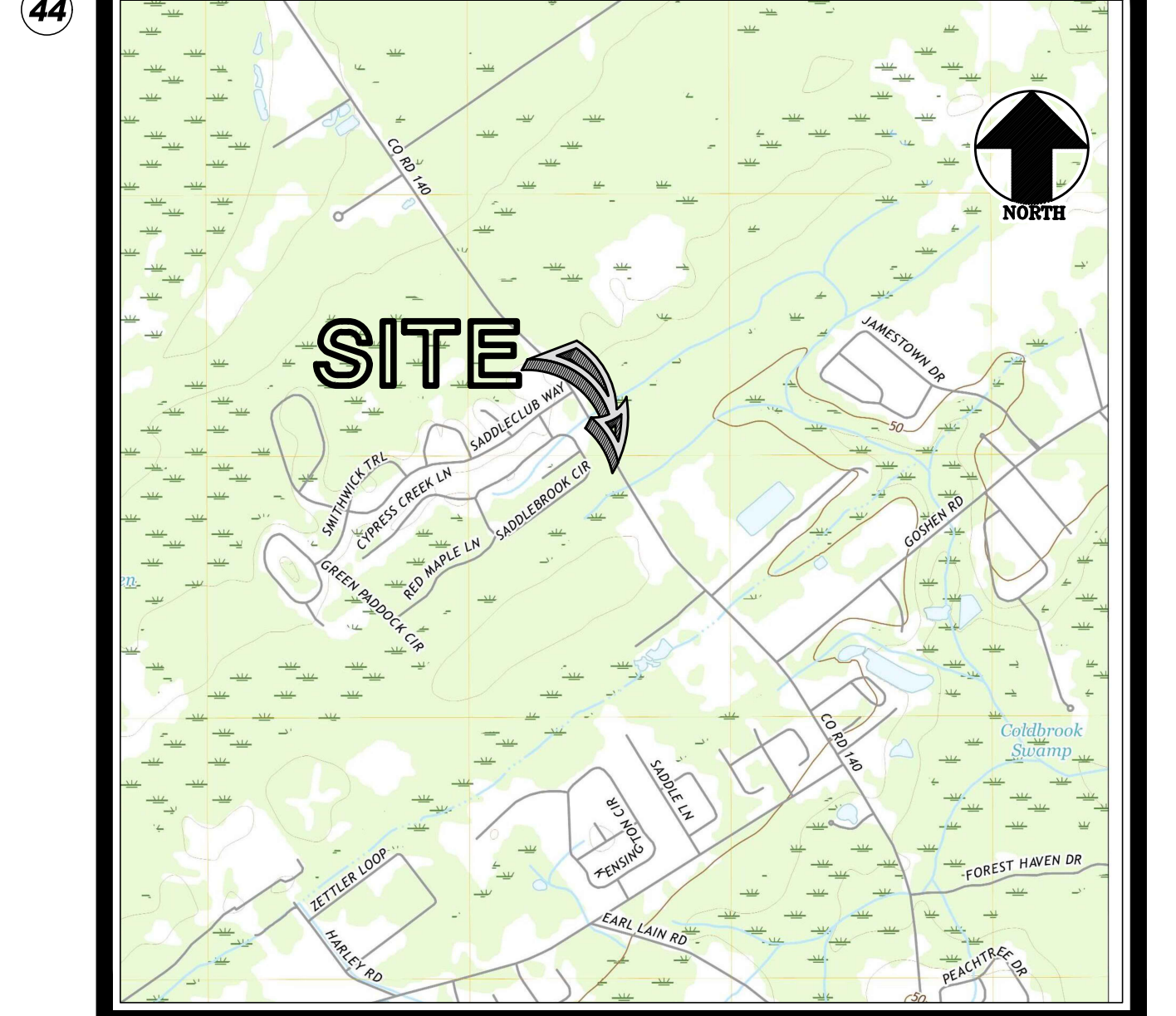
APPENDIX B
Nephelometric Turbidity Unit (NTU) Tables

Warm Water (Supporting Warm Water Fisheries)
Surface Water Drainage Area, Square Miles

Site Size Acres	0-4.99	5-9.99	10-24.99	24-49.99	50-99.99	100-249.99	250-499.99	500+
1.00-10	75	150	200	400	750	750	750	750
10.01-25	50	100	100	200	300	500	750	750
24.01-50	50	50	100	100	200	300	750	750
50.01-100	50	50	50	100	100	150	300	600
100.01+	50	50	50	50	50	100	200	100

To use these table, select the size (acres) of the facility or common development. Then, select the surface water drainage area (square miles). The NTU matrix value arrived at from the above tables is one to use in Part

- SEE PAGE 07 FOR SAMPLING POINT LOCATIONS, PERENNIAL AND INTERMITTENT STREAM AND OTHER WATER BODIES INTO WHICH STORM WATER IS DISCHARGED.
- SEE PLAN SHEETS AND SOIL EROSION CONTROL DETAIL SHEET FOR A DESCRIPTION OF APPROPRIATE CONTROLS AND MEASURES THAT WILL BE IMPLEMENTED AT THE CONSTRUCTION SITE.
- INITIAL PHASE: IMPLEMENTING SEDIMENT BARRIERS IN THE FORM OF SENSITIVE (WHERE APPLICABLE) AND NON-SENSITIVE SILT FENCE.
- INTERMEDIATE PHASE: MAINTENANCE OF SILT FENCES AND GRASSING, FERTILIZING, AND MULCHING AS LINEAR PROJECT PROGRESSES.
- FINAL PHASE: REMOVAL OF SILT FENCES AND MAINTENANCE OF PERMANENT GRASS.
- N/A
- SEE PAGES 3 - 12 FOR A DESCRIPTION OF APPROPRIATE CONTROLS AND MEASURES THAT WILL BE IMPLEMENTED AT THE CONSTRUCTION SITE.
- APPLICABLE 25-FOOT OR 50-FOOT UNDISTURBED BUFFERS ADJACENT TO STATE WATERS AND ANY ADDITIONAL BUFFERS AS REQUIRED BY THE LOCAL ISSUING AUTHORITY ARE SHOWN IF APPLICABLE. AREAS OF IMPACT ARE SHOWN AND LABELED ON THE PLAN IF REQUIRED.
- ON SITE WETLANDS AND WATERS OF THE STATE ARE NOT LOCATED ON OR WITHIN 200 FEET OF THE PROJECT SITE.
- NOT APPLICABLE FOR THIS PROJECT. DRAINAGE BASINS WILL NOT BE ALTERED DUE TO THE LINEAR NATURE OF THE PROJECT.
- NOT APPLICABLE FOR THIS PROJECT. DRAINAGE BASINS WILL NOT BE ALTERED DUE TO THE LINEAR NATURE OF THE PROJECT.



DRAINAGE BASIN MAP
SCALE: 1" = 2,000'

45 THE SOIL HYDROLOGIC SOIL GROUP FOR THE SITE IS GROUP A. THE MAJORITY OF SOILS WITHIN THE PROJECT SITE ARE MASCOTTE SAND. CONSTRUCTION OF THIS PROJECT TAKES PLACE ON AN EXISTING SITE. THEREFORE THE PRE AND POST RUNOFF WILL BE EQUAL.

46 CONSTRUCTION OF THIS PROJECT TAKES PLACE ON AN EXISTING SITE. THEREFORE THERE WILL BE NO CONCENTRATED DISCHARGE POINT. THERE WILL BE NO STORM DRAIN OUTLETS INSTALLED ON THIS PROJECT.

47 SOIL TYPE: Msa - MASCOTTE SAND (HSG A)

SEE PAGE 13 FOR DELINEATION.

48 REFER TO EROSION AND SEDIMENT CONTROL PLAN SHEETS FOR THE LIMITS OF DISTURBANCE FOR EACH PHASE OF CONSTRUCTION.

49 **TEMPORARY SEDIMENT STORAGE.**
THE TOTAL ACRES DRAINED TO THE PROJECT IS 0.13 ACRES, THEREFORE, THE REQUIRED SEDIMENT STORAGE VOLUME IS 0.13 ACRES X 67 CY PER ACRE = 8.71 CY OF STORAGE REQUIRED.
THE PROJECT WILL TAKE PLACE ON AN EXISTING SITE, THEREFORE SEDIMENT STORAGE IS BETTER ACHIEVED BY THE USE OF SILT FENCE RATHER THAN A TEMPORARY SEDIMENT BASIN. A TEMPORARY SEDIMENT BASIN WOULD CAUSE ADDITIONAL LAND DISTURBANCE AND WOULD NOT ACHIEVE A COMPREHENSIVE METHOD OF CONTROLLING SEDIMENT.

SEDIMENT STORAGE COMPUTATION (INITIAL PHASE)

STORAGE METHOD	RATE	QUANTITY	VOLUME
TEMPORARY SEDIMENT BARRIER	0.78 C.Y./FT.	271 LF.	= 212 C.Y.
PROVIDED (EXCEEDS REQUIRED)			212 C.Y.

THE PROVIDED STORAGE METHOD BEING UTILIZED FOR THIS PROJECT WILL BE 271 LF (SENSITIVE/DOUBLE) BARRIER, THEREFORE THE VOLUME WILL BE 271 LF X 0.78 CY/LF = 212 CY OF STORAGE PROVIDED.

50 REFER TO EROSION AND SEDIMENT CONTROL PLAN SHEETS FOR SPECIFIED LOCATIONS OF BMPs.

- LEGEND:**
- CONSTRUCTION EXIT
 - DUST CONTROL ON DISTURBED AREAS
 - DISTURBED AREA STABILIZATION (WITH MULCHING ONLY)
 - DISTURBED AREA STABILIZATION (WITH TEMPORARY SEEDING)
 - DISTURBED AREA STABILIZATION (WITH PERMANENT VEGETATION)
 - TEMPORARY SEDIMENT SINGLE BARRIER - SILT FENCE, TYPE "NON-SENSITIVE"
 - TEMPORARY SEDIMENT DOUBLE BARRIER - SILT FENCE, TYPE "SENSITIVE"
 - INLET SEDIMENT TRAP
 - SLOTTED BOARD DAM WITH STONE FILTER
 - STORM DRAINAGE OUTLET PROTECTION
 - DIVERSIONS
 - STONE CHECK DAM
 - TEMPORARY SEDIMENT TRAP
 - STORM WATER DISCHARGE SAMPLING POINT
 - TREE PROTECTION BARRICADE
 - SOILS
 - LIMITS OF DISTURBANCE & STORMWATER MANAGEMENT AREA
 - SILT FENCE PROTECTION (SINGLE)
 - SILT FENCE PROTECTION (DOUBLE)

51 REFER TO EROSION AND SEDIMENT CONTROL DETAIL SHEETS FOR DETAILED DRAWINGS FOR ALL STRUCTURAL PRACTICES.

52 **VEGETATIVE METHODS.**
A. A VEGETATIVE COVER SHALL BE ESTABLISHED AND MAINTAINED OVER ALL FINAL GRADING AND OTHER DISTURBED AREAS OF THE SITE. SEE COASTAL PLAIN VEGETATIVE COVERS FOR AN OUTLINE OF THE ESTABLISHMENT OF VEGETATIVE COVERS.
B. WEEKLY INSPECTION OF THE GRASS COVER SHALL BE PERFORMED TO IDENTIFY AREAS REQUIRING RE-ESTABLISHMENT OF GRASS.
C. LIME RATE: 1 TO 2 TONS/ACRE.
FERTILIZER: 1500 LBS. OF 6-12-12 PER ACRE.

COASTAL PLAIN VEGETATIVE COVERS

MONTH OF PLANTING	TEMPORARY GRASS	RATE	MONTH OF PLANTING	PERMANENT GRASS	RATE
MARCH - JUNE	SUDANGRASS	60 Lbs./Ac	MARCH - JUNE	COMMON BERMUDA (HULLED)	10 Lbs./Ac
APRIL - AUGUST	BROWN TOP MILLET	40 Lbs./Ac	JULY - AUGUST	COMMON BERMUDA (HULLED) & BROWN TOP MILLET	6 Lbs./Ac 10 Lbs./Ac
SEPTEMBER - FEBRUARY	RYE GRASS	40 Lbs./Ac	SEPTEMBER - FEBRUARY	COMMON BERMUDA (UNHULLED) & TALL FESCUE	6 Lbs./Ac 30 Lbs./Ac

MULCH:
MULCH, IF REQUIRED, SHALL BE UNCHOPPED, UNROTTED, DRY STRAW, HAY, OR WOOD WASTE SHALL BE APPLIED TO A DEPTH OF 2-3 INCHES PROVIDING COMPLETE SOIL COVERAGE IN AREAS TO BE EVENTUALLY COVERED BY PERENNIAL VEGETATION THE CONTRACTOR SHALL APPLY 20-30 POUNDS OF NITROGEN/AC. IN ADDITION TO THE NORMAL AMOUNT.

MULCHING RATE FOR STRAW SHALL BE 2 TONS/AC. AND FOR HAY 2 1/2 TONS/AC. MULCH MATERIAL SHALL BE RELATIVELY FREE FROM ALL KINDS OF WEEDS AND SHALL BE FREE OF PROHIBITED NOXIOUS WEEDS WHICH ARE: CANADA THISTLE, JOHNSONGRASS AND QUACKGRASS. SPREAD MULCH MECHANICALLY OR UNIFORMLY BY HAND; MULCH ANCHORING SHALL BE ACCOMPLISHED IMMEDIATELY AFTER MULCH PLACEMENT TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY PEG AND TWINE METHOD, MULCH ANCHORING TOOL, NETTING OR LIQUID MULCH BINDERS.