GWINNETT COUNTY
DEPARTMENT OF FINANCIAL SERVICES
PURCHASING DIVISION

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**December 18, 2023**

**Addendum No. 1**
**BL114-23**
**Turkey Crossing Pump Station and Force Main**
*****BID SUBMITTAL DEADLINE HAS BEEN POSTPONED UNTIL JANUARY 11, 2024, NO LATER THAN 2:50PM*****

*The following addition/changes modify the Bid No. BL114-23 "Turkey Crossing Pump Station and Force Main" Contract Documents, dated November 2023, as first advertised on November 22, 2023.*

## Clarifications

C1.1 In the Notice of Bid, under the paragraph Bid Submittal Date and Location, **CHANGE** the date shown from "December 28, 2023" to "January 11, 2024".

C1.2 In the Notice of Bid, under the paragraph Instructions on Submitting Questions and in section 5.1 of the Instructions to Bidders paragraph, **CHANGE** the date shown from "December 14, 2023" to "December 28, 2023".

C2. **REPLACE** Drawing Sheet 5 with the attached revised Drawing Sheet 5.

C3. On Drawing Sheet 6, **REVISE** the call out "Proposed 14' double leaf security gate" to "Future 14' double leaf security gate".

C4. **ADD** the following note to Drawing Sheets 8, 9, and 10.

1. The proposed 6-inch force main piping shall be ductile iron piping with Fastite or equivalent gasketed joints, except within 40 feet of a fitting, where the joints shall be restrained joints using Fast-Grip or equivalent gaskets. Fittings shall be mechanical joint fittings with Mega-Lug restrained glands.

C5. **ADD** the attched Specification Section 33 12 13.12 Air Release and Vacuum Valves – Sewer to the Volume 3 of 4 Technical Specifications for the Turkey Crossing Force Main.

C6. In Volume 2 Specification Section 01 22 15, **ADD** the following to the end of paragrpah 1.5.B.1.b:

The cost for mass rock excavation associated with the removal of rock for the future structures shall be covered using Bid Item 2.6 on the Bid Form. The cost for backfill of the areas where rock is removed shall be covered by Bid Item 2.3 on the Bid Form. Suitable, as determined by the Engineer, excavated material from the site shall be reused for backfill of mass excavations and around structures.

C7. In Volume 2 Specifications, **ADD** Section 32 15 45 Geogrid Pervious Paving System to the Table of Contents.

C8. **ADD** the attched Specification Section 32 15 45 Geogrid Pervious Paving System to the Volume 2 of 4 Technical Specifications for the Turkey Crossing Pump Station.

## Questions

Q1. Are there any license requirements for the GC on the BL114-23 NOT – Turkey Crossing Pump Station and Force Main project?

**A1. Contractor providing the utility work must have a current valid Utility Contractors License. See SECTION I, INSTRUCTION TO BIDDERS, 3. QUALIFICATIONS OF BIDDERS: 3.2 and SECTION I, INSTRUCTION TO BIDDERS, 28. GENERAL CONTRACTORS LICENSE.**

Q2. Please add Amtech to the VFD (variable frequency drive) section.

**A2. There are no VFDs on this project.**

Q3. Paragraph 3.2 of the Instructions to Bidders states, The Department may make any investigations deemed necessary to determine Bidder's ability to perform the Work, and Bidder shall furnish all information and data requested by the Department. Bidder's inclusion as a pre-qualified Bidder will not prohibit the Owner from reserving right to reject any bid from any Bidder that the Department considers not properly qualified to carry out Contract obligations or able to satisfactorily complete the Work on schedule. Contractor providing the utility work must have a current valid Utility Contractors License. In reading this response it appears to make a distinction between the "Bidder" and the "Contractor providing the utility work". If the utility work portion of the project is subcontracted out to a utility license holder that would appear to satisfy the requirements. Please clarify if this arrangement would satisfy the requirements.

**A3. See A1, above.**

Q4. We request the bid date be changed to after the first of the year as our office is closed between Christmas and New Year's. Can the bid date for this project be moved back at least 2 weeks due to Christmas Holidays?

**A4. See C1.1, above.**

Q5. Drawing Sheet 5, Note 4 requires rock removal of future structures to a depth 18" below elevation identified. What is the required horizontal distance outside the footprint of the future structure the rock must be removed? Please clarify.

**A51. See C2, above.**

Q6. Bid Item 1.1 is a lump sum for all items associated with the Turkey Crossing PS including excavation and fill placement. Bid Item 2.6 Rock Excavation appears to be a unit price for rock excavation encountered within the pump station site. Please confirm that the rock excavation within the pump station site will be paid for under Bid Item 2.6.

**A6. See C6, above.**

Q7. Bid Item 1.1 includes erosion control for the pump station site in the lump sum item. Erosion control items for the force main appears to be paid at the unit price bid items under 3.5. What is the dividing line or station number where this transition takes place. Please clarify.

**A7. See C2, above.**

Q8. Drawing Sheet 6 calls out a “proposed 14’ double leaf security gate” and a “future 10’ chain link security fence”. Is the gate to be installed but the fence is not? Please clarify.

**A8. See C3, above.**

Q9. Drawing Sheet 8, calls out “6” RJ DIP Force Main” please confirm that the entire length of the proposed force main is to be restrained joint.

**A9. See C4, above.**

Q10. There appears to be two separate specification volumes, one for the pump station and one for the force main. Bid Item 3.12 Combination Air and Vacuum Valve Assembly does not have a specification section listed in the force main specifications. Is the Contractor to use Section 33 34 16 Sanitary Utility Sewerage Valves from the Pump Station Specifications for this bid item? If so, 2.6 Sewage Air Release Valves, only lists Vent-O Mat Series RGX as an approved manufacture. This contradicts Detail PS-10A that also includes ARI Model D025, please clarify.

**A10. See C5, above.**

Q11. Will ceramic epoxy coating lining (P-401) be required on the force main?

**A11 See specification Section 33 31 00, paragraph 2.6.I.**

**Attachments**

- Revised Drawing Sheet 5
- Specification Section 32 15 45 Geogrid Pervious Paving System
- Specification Section 33 12 13.12 Air Release and Vacuum Valves – Sewer

Acknowledge receipt of this addendum on the firm information page of the request for proposal.

Sincerely,

Brittany Bryant, Purchasing Associate II
Purchasing

| Future Point Table | | | |
|---|---|---|---|
| Point # | Raw Description | Northing | Easting |
| F1 | CENTER WET WELL | 1448440.5494 | 2389345.7239 |
| F2 | NW CORNER VALVE VAULT | 1448454.9869 | 2389356.3061 |
| F3 | SE CORNER VALVE VAULT | 1448424.4869 | 2389373.8061 |
| F4 | NW CORNER GRINDER VAULT | 1448449.5505 | 2389312.6406 |
| F5 | SE CORNER GRINDER VAULT | 1448431.5505 | 2389335.6406 |
| F6 | NW CORNER STORAGE TANK | 1448555.1532 | 2389214.8825 |
| F7 | SE CORNER STORAGE TANK | 1448465.4866 | 2389294.5491 |

0 20' 40'

NOTES:

1. A TEMPORARY GATE SHALL BE INSTALLED AT THE HEAD OF THE ACCESS ROAD TO PREVENT THE PUBLIC FROM ACCESSING THE AREA UNTIL THE PERMANENT GATE IS INSTALLED. THE GATE SHALL BE LOCATED FAR ENOUGH FROM OLD FREEMAN'S MILL ROAD TO ALLOW A VEHICLE TO PULL OFF AND UNLOCK THE GATE.
2. ONLY THE PORTIONS OF THE SITE REQUIRED FOR CONSTRUCTION OF THE PUMP STATION SHALL BE CLEARED, AS SHOWN BY THE CLEARING LIMITS. IF ADDITIONAL CLEARING IS REQUIRED, CONTRACTOR SHALL OBTAIN APPROVAL FROM THE ENGINEER AND LOCAL ISSUING AUTHORITY.
3. THE INFLUENT GRAVITY SEWER TO THE PUMP STATION IS BEING INSTALLED BY OTHERS. THE PUMP STATION CONTRACTOR SHALL CONNECT TO THE FINAL MANHOLE INSTALLED ON THE WESTERN SIDE OF THE SITE AND EXTEND THE SEWER AS SHOWN.
4. PRIOR TO INSTALLING THE PROPOSED GRAVITY SEWER, MANHOLES, AND PUMP STATION, THE CONTRACTOR SHALL REMOVE ALL ROCK WITHIN THE FOOT PRINTS OF THE FUTURE STRUCTURES TO A DEPTH OF A MINIMUM OF 18 INCHES BELOW THE IDENTIFIED BOTTOM OF STRUCTURE AND A MINIMUM OF SIX FEET OUTSIDE THE EXTENTS OF THE FOOTING ON ALL SIDES. THE ROCK SHALL BE BROKEN, EXCAVATED, AND HAULED OFF SITE FOR DISPOSAL IN A LEGAL MANNER. THE EXCAVATED AREA SHALL BE BACKFILLED WITH SUITABLE MATERIAL APPROVED BY GCDWR AND THE ENGINEER. BACKFILL SHALL BE PLACED IN 8- TO 12-INCH LIFTS AND COMPACTED TO A MINIMUM OF 95% STANDARD PROCTOR.
5. A 2-INCH HDPE WATER SERVICE LINE SHALL BE INSTALLED ALONG THE INFLUENT SEWER EASEMENT TO THE PUMP STATION SITE BY THE PUMP STATION CONTRACTOR. A TAP SHALL BE MADE ON THE EXISTING WATER MAIN ALONG THE NEW ROWEN DEVELOPMENT ROAD WITH A 2-INCH METER AND BACKFLOW PREVENTER INSTALLED AT THE RIGHT-OF-WAY LINE. THE HDPE WATER LINE SHALL BE INSTALLED WITH A MINIMUM OF TWO FEET OF COVER AND HAVE LOCATOR WIRE AND TAPE INSTALLED SIX (6) INCHES ABOVE IT WHEN THE TRENCH IS BEING BACKFILLED.
6. ALL UTILITIES SERVING THE PUMP STATION SITE SHALL BE UNDERGROUND.
7. GWINNETT COUNTY ASSUMES NO RESPONSIBILITY FOR OVERFLOW OR EROSION OF NATURAL OR ARTIFICIAL DRAINS BEYOND THE EXTENT OF THE STREET RIGHT-OF-WAY, OR FOR THE EXTENSION OF CULVERTS BEYOND THE POINT SHOWN ON THE APPROVED AND RECORDED PLAT.
8. STREAM BUFFERS ARE TO REMAIN IN A NATURAL UNDISTURBED CONDITION.
9. STRUCTURES ARE NOT ALLOWED IN DRAINAGE EASEMENTS.
10. MAXIMUM HEIGHT FOR DWELLINGS IS 35 FEET. THERE ARE NO BUILDINGS ON THE SITE.
11. PARKING LOTS SHALL BE MAINTAINED IN GOOD CONDITION, FREE OF POT HOLES, WEEDS, DUST, TRASH, AND DEBRIS.
12. ALL EROSION CONTROL MEASURES WITHIN THE PROPERTY LINES OF THE PROPOSED PUMP STATION SITE AND TEMPORARY CONSTRUCTION EASEMENT TO THE WEST OF THE SITE SHALL BE INCLUDED IN THE LUMP SUM COST FOR THE PUMP STATION WORK. ALL OTHER EROSION CONTROL ITEMS, INCLUDING THE CHANNEL STABILIZATION AT THE STREAM CROSSING SHALL BE INCLUDED IN THE UNIT PRICE WORK FOR THE FORCE MAIN.

CERTIFIED EROSION CONTROL DESIGN
PROFESSIONAL NUMBER 0000000103

ESI
ENGINEERING STRATEGIES, INC.

PROJECT NUMBER: F-1458-02 & F-1458-03
PROJECT DATE: NOVEMBER 2023

| | REVISION | DATE |
|---|---|---|
| 1 | ADDENDUM #1 | 12/18/23 |

DESIGNED BY: JRF
DRAWN BY: AHW
REVIEWED BY: JRF

BAR BELOW IS 1" LONG FOR SCALES SHOWN ON THIS SHEET. IF NOT 1" LONG ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

0 1"

TURKEY CROSSING PUMP STATION AND FORCE MAIN

PROPOSED SITE PLAN

5

L:\GCDP\JR\owen Phase I Infrastructure\Dwg\Sheets\Phase I\CS- PROPOSED SITE PLAN.dwg - 12/18/2023 8:31 AM BY: AWATERS

SECTION 32 15 45

# GEOGRID PERVIOUS PAVING SYSTEM

Add. #1

## PART 1 GENERAL

### 1.1 SUMMARY

A. Section Includes

| Paragraph | Title |
|---|---|
| 1.2 | References |
| 1.3 | Submittals |
| 1.4 | Delivery, Storage, and Handling |
| 1.5 | Warranty |
| 2.1 | Manufacturers |
| 2.2 | Materials |
| 3.1 | Subgrade Preparation |
| 3.2 | Geogrid Installation |
| 3.3 | Surface Maintenance |

B. Scope

1. The work required under this section includes providing all labor, equipment, and materials necessary for the preparation, installation, and maintenance of the georgrid permeable paving system, subgrade preparation, compacted sub-surface and fine grading as shown on the Drawings or specified herein.

### 1.2 REFERENCES

A. Reference Standards

1. All materials used shall meet the appropriate physical test requirements of the latest edition and/or revision of State of Georgia Department of Transportation Standard Specifications for Highway Construction.
2. Gravel paving material shall be crushed stone meeting the requirements for granular fill described in Section 815, Type II of Georgia DOT Standard Specifications.
3. Drainage stone shall conform to requirements for drainage fill described in Section 806, “Aggregate for Drainage” of Georgia DOT Standard Specifications.

### 1.3 SUBMITTALS

A. Action Submittals/Informational Submittals

1. Product Data: Submit manufacturer’s product data.
   a. Preparation instructions and recommendations
   b. Description of proposed method of deployment, installation equipment and methods, and provisions for holding geogrid temporarily in place until permanently secured.
2. Shop Drawings
   a. Installation drawings showing geogrid layout, location of connections, and direction of overlap.

3. Source Quality Control Submittals
    a. Certified Test Results on Source Materials: Submit copies from commercial testing laboratory 20 days prior to delivery of material to Project showing materials meeting the physical qualities specified.
    b. Certifications from each manufacturer that furnished products meet or exceed the specified requirements.
4. Field Quality Control Submittals
    a. Certified results of in-place density tests from independent testing agency.
    b. Field seam efficiency test results.

## 1.4 DELIVERY, STORAGE, AND HANDLING

A. Delivery and Acceptance Requirements
    1. Deliver each roll with sufficient information attached to identify it for inventory and quality control.
B. Storage and Handling Requirements
    1. Handle products in manner that maintains undamaged condition.
    2. Store products in manufacturer's unopened packaging until ready for installation.
    3. Protect porous paver units from damage during delivery and store under tarp when the time from delivery to installation exceeds 30 days.
    4. Protect materials during handling and installation to prevent damage.

## 1.5 QUALITY ASSURANCE

A. Manufacturer's Qualifications: Manufacturer with a minimum of five years documented experience with products specified.

B. Installer Qualifications: Installer experienced in performing work of this section that has specialized in installation of work similar to that required for this project. Installer must also be able to provide skilled workman with satisfactory record of performance on landscaping or paving projects of comparable size and quality.

## 1.6 PROJECT CONDITIONS

A. Maintain environmental conditions recommended by manufacturer for desired results. Do not install products under conditions outside manufacturer's absolute limits.

B. Do not begin installation of porous pavements until all hard surface paving adjacent to porous pavement areas, including concrete walks and asphalt paving, is completed.

C. Install turf when ambient air temperature is at least 55 degrees F.

D. In wet weather, do not build on wet, saturated or muddy subgrade.

E. In cold weather, do not use frozen materials or materials coated with ice or frost, and do not build on frozen base or wet, saturated or muddy subgrade.

F. Protect partially completed porous paving against damage from other construction traffic when work is in progress.

G. Protect grass fill / sodded paving areas from traffic until grass root system has matured for at least 3 to 4 weeks. Use barricades to only permit access by emergency and fire equipment.

## 1.7 WARRANTY

A. Provide guarantee against defective or deficient products or workmanship in accordance with the requirements of the section titled "Warranties and Bonds" of these Specifications.

B. Provide the manufacturer's 10-year warranty.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

A. Airlite Plastics Co., DBA TRUEGRID Pavers

B. Engineer Approved Equal

### 2.2 MATERIALS

A. Permeable Pavers shall meet the following:

1. AASHTO H20, HS20 Rated.
2. High density polyethylene (HDPE): 100 percent post-consumer recycled materials
3. Recycled and recyclable content: 100 percent.
4. S-Flexural joints molded in for soil seasonal expansion and contraction.
5. Color: black- carbon black additive for long-term UV stabilization.
6. Paver size: 24 inches by 24 inches by 1.8 inches.
7. Pre-assembled: 4-foot by 4-foot sections.
8. Cylindrical cell design for column strength. Reinforced Concrete pavement shall be in accordance with Section 430 of the DOT Standard Specifications.
9. Cell size: 3.30 inch inside diameter.
10. Co-joined cells at 48 places for strength.
11. Wall thickness: 0.150 inches /.250-inch nominal.
12. A minimum of 2 co-joined common walls per cell for structural integrity.
13. Connections:
    a. No clips or stakes necessary.
    b. No additional parts or tools needed.
    c. Integral male-female three-point locking system.
    d. Wall thickness at tabs: 0.290 inch.
14. Molded in X-anchors to stabilize pavers: no stakes necessary.
15. Nominal Coverage per Paver: 4 square feet.
16. Weight per paver: 5.25 lbs.
17. Permeability of System: 100 percent.
18. Compressive Strength (filled): 1,152,000 psf; 8000 psi.
19. Material Safety: Groundwater neutral, 100 percent inert.
20. Chemical Resistant: Excellent: highly resistant to hydrocarbons, oils.

B. Base Material

1. Locally sourced angular stone/clean for base material. Acceptable materials include, crushed granite, sandy gravel material, and limestone rock. Common base materials include:
    a. Hard, clean, angular, and open-graded (uniform size) drain rock -- from 1" to 1-1/2" (19mm to 38mm). Commonly #4 stone when size limits are met.
    b. Base Course: Graded aggregate base course conforming to the following sieve analysis and requirements:
        1) Percent Passing: 100 - Sieve Size: 3⁄4 – 1 inch
        2) Percent Passing: 85 - Sieve Size: 3/8 inch
        3) Percent Passing: 60 - Sieve Size: #4
        4) Percent Passing: 30 - Sieve Size: #40
        5) Percent Passing: <3 - Sieve Size: #200, or 3 to 8 Percent for Grass Infill

C. Gravel Fill
1. Obtain clean, washed angular rock to fill the paving system's cells and spaces between. Grid should be filled level to the top of the cells or only slightly above for compaction and settling. Fill rock should be 5/8-inch to 3/4-inch diameter.

## PART 3 EXECUTION

### 3.1 EXAMINATION

A. Before beginning installation, verify site conditions are as indicated on the drawings. Notify the Architect if site conditions are not acceptable. Do not begin preparation or installation until unacceptable conditions have been corrected.

B. Ensure that adjacent hard-surfaced paving work is completed before installing porous pavement system.

### 3.2 PREPARATION

A. Subgrade
1. Prepare subgrade as specified in Section 31 23 00. Verify subgrade in accordance with porous paving system manufacturer's instructions.
2. Excavate area allowing for unit thickness and the engineered base depth (where required).
3. Provide adequate drainage from excavated area if area has potential to collect water when working with in-place soils that have poor permeability.
4. Ensure in-place soil is relatively dry and free from standing water.
5. Uniformly grade base.
6. Level and clear base of large objects, such as rocks and pieces of wood.
7. Install and secure geotextile fabric, geomembrane, or geogrid mesh as needed for soil stabilization and loading requirements.

B. Install Base as specified in Section 32 15 40. Verify engineered base is installed in accordance with porous paving system manufacturer's instructions.
1. If required, place a geotextile separation layer between the natural ground and the engineered base.

2. Place base course material over prepared sub base to grades indicated on the drawings or from manufacturer's recommended depths per application type.
3. Place in lifts not to exceed 4 inches, compacting each lift separately to 95 percent Modified Proctor for non-open grade material. Open grade base material to be leveled and heavily compacted in 4-inch lifts to settle and lock in angular stone.
4. Leave minimum 1.8 inches for Permeable Paver unit for final elevation.

C. The entire surface of the subgrade shall be plowed, harrowed, and mixed to a depth of 6 inches minimum. Stabilization stone shall be mixed into the subgrade at this time at the specified rate. After the material has been thoroughly mixed, the subgrade shall be brought to line and grade and compacted to 100 percent of the maximum laboratory dry density as determined by the Standard Proctor test. Surface of the finished subgrade shall be bladed to a smooth and uniform texture.

D. The contractor shall protect subgrade from damage and maintain it in a smooth, compact, and rut-free condition until the geogrid course has been placed.

## 3.3 INSTALLATION

A. Install Permeable Paver, or equal, units by placing cells face up. Cut units around curves and organic shapes with an electrical handsaw. Place units to maintain a 1-inch clearance to any pre-installed object or surface structure. Top of cells shall be between 0.25 inch to 0.5 inch below the surface of adjacent hard-surface pavements. Utilize flexural joints for undulations or grade reversals when required by design or in freeze-thaw climates for expansion and contraction.

B. Gravel Surfacing: Install gravel into cavities by back dumping directly from dump truck or from buckets mounted to tractors. Hand shoveling fill gravel into the cells is also acceptable for smaller jobs.

1. Direct vehicles to exit the site by driving forward. Avoid sharp turns over unfilled rings.
2. Spread gravel fill using steer loaders, power brooms, blades, flat-bottomed shovels, and/or wide "asphalt rakes" to fill the cells.
3. Compact gravel when the cells are at capacity with a roller for larger areas or vibrating plate for smaller areas.
4. If fully covering cells, typical coverage is 0.25 inch to 0.5 inch above cells.

## 3.4 SURFACE MAINTENANCE

1. Until the project is accepted, the Contractor shall maintain a 0.5" surcharge of aggregate wear course over the geogrid drive.

END OF SECTION

SECTION 33 12 16.12

Add. #1

# AIR RELEASE AND VACUUM VALVES - SEWER

## PART 1 - GENERAL

### 1.1 SUMMARY

A. SECTION INCLUDES:

| Section | Title |
|---|---|
| 1.2 | References |
| 1.3 | Work Included |
| 1.4 | Submittals |
| 2.1 | Materials |
| 3.1 | Workmanship |

B. RELATED SECTIONS

The following listed sections do not purport to be all inclusive, as it is the Contractor's responsibility to do all the Work in accordance with the Contract Documents.

1. Cast-in-Place Concrete (03 30 00).
2. Excavation and Fill (31 23 00).
3. Precast Concrete Utility Structures (33 05 16.13).

### 1.2 REFERENCES

A. Drawings and general provisions of the Contract, including general and supplementary conditions and Division 1 Specification Sections, apply to this section.

### 1.3 WORK INCLUDED

A. The Contractor, under this item, shall furnish all material, tools, labor, and equipment necessary to properly install, including excavation, adjust, test, and place in successful service, at the locations indicated on the Drawings or as directed by GCDWR, all air release and vacuum valves required for the proper completion of the Work included under this Contract.

B. The Work shall include, in general but without limitation, all air release and vacuum valves, all valves with extended 2" nut operator shaft to top slab, standard valve box in top slab, piping, and saddles indicated on the Drawings, pre-cast manhole base or vault, riser, and slab top with cast iron frame and cover or hatch, including excavation and backfill, together with all accessories and appurtenances required for a complete installation.

C. Wherever the Work disturbs existing structures or landscaping, the Contractor shall replace same to no less than original condition.

D. It is the intent of this contract to require an installation under this item, complete in every detail whether or not indicated on the Drawings, or specified. Consequently, the

Contractor shall be responsible for all details, devices, accessories, and special construction necessary to properly install, adjust, test, and place in successful service a complete installation as specified herein.

1.4 SUBMITTALS

A. Submittals shall be in accordance with Section 01 33 00 SUBMITTAL PROCEDURES, and shall show in detail the size and location of all air and vacuum valves and accessories to be used in construction. Product data shall be submitted including materials of construction, dimensional drawings, installation requirements, and operation and maintenances manuals for each size and type of valve being provided.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Furnish materials which are new, unused, and as specified.

B. Air Release and Vacuum Relief Valves shall consist of a compact tubular all stainless steel fabricated body, hollow direct acting float, and solid large orifice float in H.D.P.E.- stainless steel nozzle and woven dirt inhibitor screen, nitrile rubber seals and natural rubber seat.

C. Sewage Air and Vacuum Release Valves shall be Vent-O-Mat Series RGX, ARI, or approved equal.

D. The valve shall have an integral anti-surge orifice mechanism, which shall operate automatically to limit surge pressure rise or shock induced by closure to less than 2 times the valve rated working pressure. The intake orifice area shall be equal to the nominal size of the valve (i.e., a 6” valve shall have a 6” intake orifice).

E. Large orifice sealing shall be effected by the flat face of the control float seating against a nitrile rubber “O” ring housed in a dovetail groove circumferentially surrounding the orifice. Discharge of pressurized air shall be controlled by the seating and unseating of a small orifice nozzle on a natural rubber seal affixed into the control float. The nozzle shall have a flat seating land surrounding the orifice so that damage to the rubber seal is prevented.

F. The valve construction shall be proportioned with regard to material strength characteristics, so that deformation, leaking or damage of any kind does not occur by submission to twice the designed working pressure. Connection to the valve inlet shall be facilitated by flanged ends conforming ANSI Class 250 or ANSI Class 300 Standards. Flanged ends shall be fastened with ASTM A-193,Grade B8M, 316 stainless steel, heavy hex bolts and ASTM A-194, Grade 8M, 316 stainless steel, heavy hex nuts inserted for alignment to the specified size of, nuts, washers, and gaskets.

G. Operation of the valve shall be as follows:

1. Prior to the ingress of liquid into the valve chamber, as when the pipeline is being filled, valves shall vent through the large orifice when sewage/effluent approach

velocities are relative to a transient pressure rise, on valve closure, of < 2-times valve rated pressure.
At higher sewage/effluent velocities, which have a potential to induce transient pressure rises greater than 2-times valve rated pressure on valve closure the valve shall automatically discharge air/gas through the anti-shock orifice and reduce sewage/effluent approach velocity, so that on closure a maximum transient pressure rise of less than 2-times valve rated pressure is realized.

2. Valves shall not exhibit leaks or weeping of liquid past the large orifice seal at operating pressures of 7.3 psi to twice (2) the rated working pressure.

3. Valves shall respond to the presence of air/gas by discharging it through the small orifice at any pressures within a specified design range, 7.3 psi to 250 psi and shall remain leak tight in the absence of air.

4. Valves shall react immediately to pipeline drainage or liquid column separation by the full opening of the large orifice so as to allow unobstructed air intake at the lowest possible negative internal pipeline pressure.

5. Provide a heavy duty vented cast iron manhole frame and cover, East Jordan Iron Works 2603, or equal, or an aluminum hatch, whichever is indicated on the Drawings.

## PART 3 - EXECUTION

### 3.1 WORKMANSHIP

A. Provide workmanship, which is first class in every respect. Have installation performed by workers thoroughly experienced in such Work.

B. The Work shall meet all requirements of pertinent laws, codes and regulations.

END OF SECTION 33 12 16.12