ADDENDUM #3

KITSAP COUNTY PUBLIC WORKS WASTEWATER DIVISION
SILVERDALE CONVEYANCE SYSTEM AND PUMP STATION 4 UPGRADES

February 14, 2023

TO: All Respondents

FROM: Glenn McNeill, Buyer

CLOSING DATE: February 23, 2023 at 3:00 p.m.

REF: Formal Bid Contract 2023-001

DATE: February 14, 2023

The purpose of this addendum is to modify the Contract Documents for the referenced project. This addendum shall become a part of these Contract Documents. Bidder shall acknowledge receipt of this 23-page addendum (including attachments) on the bid form.

VOLUME 1 OF 3 OF THE CONTRACT DOCUMENTS IS MODIFIED AS FOLLOWS:

SECTION 9-30.2(6) WATER DISTRIBUTION MATERIALS

Item 1. REVISE Section 9-30.2(6) Restrained Joints: Replace the third paragraph with the following paragraph:

Restraints for PVC pipe meeting the requirements of AWWA C900 or AWWA C905 shall be manufactured of ductile iron conforming to ASTM A536. A split serrated ring shall be used behind the pipe bell. A split serrated ring shall also be used to grip the pipe, and a sufficient number of bolts shall be used to connect the bell ring and the gripping ring. For larger pipe diameters where serrated rings are unavailable, a smooth backup ring shall be used behind the bell. The combination shall have a minimum working pressure rating at least equal to the pipe it is restraining. The restraint shall be designed for use with PVC pipe. Point loading restraints shall not be used on PVC pipe. All hardware and restraint rods shall be 316 SST.

SECTION 9-30.3(7) Combination Air Release/Air Vacuum Valves

Item 2. REVISE Section 9-30.3(7) Combination Air Release/Air Vacuum Valves: Replace the second paragraph with the following paragraph:

Valves shall consist of a single chamber conical body enclosing a control float to regulate passage of air between the pipeline and the atmosphere. The valve body shall have a threaded end connection, or an end flange as shown on the Drawings for connection to system piping, conforming to ANSI B16.1, Class 125, to meet operating and test pressures of pipe. The control float shall be connected to a rolling seal via a stainless-steel stem.

SECTION 22 13 11 PIPING SYSTEMS

Item 3. REVISE Section 22 13 11 Piping Specifications: Replace the tables for Sanitary Sewer (gravity) and Sanitary Sewer force main (pressure), Buried Exposure with the following tables.

PIPING SYSTEM SPECIFICATIONS			
System Sanitary Sewer (gravity)	**Background Color** Green	**Legend** SS	**Abbreviations** SS
Gasket: Rubber	**Test Medium:** ☒ Air ☐ Water		**Duration:** * Min

Pressure (PSIG)			**Temperature (°F)**	
Work: *_	Max: *_	Test: *_	Normal: 65	Max: 85

Pipe Size	**Exposure**	**Item**	Description
8” and larger	BURIED	Pipe	PVC: Conforming to AWWA C900 or C905, pressure Class 150 or ASTM D3034 SDR 35 as shown on the Drawings.
		Lining	Not Applicable
		Coating	No Applicable
		Joints	Bell-and-spigot, push-on type.
		Fittings	One-piece injection molded from a PVC compound conforming to ASTM D1784. Fittings shall be Class 150 conforming to DR 18. Fittings shall be gasket-end conforming to ASTM D3139 with gaskets conforming to F477. Cement-lined ductile iron fittings with mechanical or push-on joints conforming to AWWA C153 or C110 August be approved as an alternative when PVC pressure fittings of the required sizes are not available.
		Gaskets	Manufacturer’s standard.
		Joint Lubricant	Manufacturer’s standard.
6” and smaller	BURIED	Pipe	PVC: Conforming to ASTM D3034 SDR 35.
		Lining	Not Applicable
		Coating	No Applicable
		Joints	PVC: Conforming to ASTM D3212.
		Fittings	PVC: Injection molded, factory welded, or factory solvent cemented.

PIPING SYSTEM SPECIFICATIONS					
System Sanitary Sewer (gravity)		**Background Color** Green		**Legend** SS	**Abbreviations** SS
Gasket: Rubber		**Test Medium:** ☒ Air ☐ Water			**Duration:** * Min
Pressure (PSIG)				**Temperature (°F)**	
Work: *_	Max: *_	Test: *_		Normal: 65	Max: 85
Pipe Size	**Exposure**	**Item**	Description		
		Gaskets	Manufacturer's standard.		
		Joint Lubricant	Manufacturer's standard.		
Remarks: * In accordance with Section 7-17.3(2)F of the WSDOT Standard Specifications.					

PIPING SYSTEM SPECIFICATIONS				
System Sanitary Sewer Force Main (pressure)		**Background Color** Green	**Legend** SSFM	**Abbreviations** SSFM
Gasket: As specified		**Test Medium:** ☐ Air ☒ Water		**Duration:** * Min
Pressure (PSIG)			**Temperature (°F)**	
Work: 40-50	Max: 60	Test: 120	Normal: 65	Max: 85
Pipe Size	**Exposure**	**Item**	Description	
All	BURIED	Pipe	Pipe material shall be as indicated on the Drawings. PVC: Conforming to AWWA C900 or C905, DR 18, or DI: Conforming to AWWA C151/A21.51, pressure class 350.	
		Lining	PVC: Not Applicable. DI: Protecto 401 Ceramic Epoxy Lining or accepted equal. Apply in accordance with manufacturer's instructions.	

PIPING SYSTEM SPECIFICATIONS				
System Sanitary Sewer Force Main (pressure)		**Background Color** Green	**Legend** SSFM	**Abbreviations** SSFM
Gasket: As specified		**Test Medium:** ☐ Air ☒ Water		**Duration:** * Min
Pressure (PSIG)			**Temperature (°F)**	
Work: 40-50	Max: 60	Test: 120	Normal: 65	Max: 85
Pipe Size	**Exposure**	**Item**	Description	
		Coating	PVC: Not Applicable. DI: Asphaltic (bituminous) per AWWA C151/A21.51.	
		Joints	Proprietary restrained push-on type. **Ductile Iron** American Cast Iron Pipe Company – Flex-Ring; U.S. Pipe – TR Flex; or accepted equal. **PVC Pipe** **EBAA Iron Series 15MJ600, 15MJG00TD, 20000SV, 1500, 1600, or 1900, 2000, or 2500 restraints** **or accepted equal**	
		Fittings	As indicated on the Drawings. Lined and coated same as pipe. Mechanical Joint: Mechanical joint fittings conforming to AWWA C110/A21.10 or AWWA C153 with mechanical joint restraint assemblies Ebba Iron Series 1100 Megalug, or accepted equal. Joint restraint assemblies shall be rated for 250 psi working pressure minimum.	
		Couplings	As indicated on the Drawings and specified in Section 22 13 19 – Pipe Appurtenances.	
		Bolting	Mechanical and Push-on Joints: DI Manufacturer's standard.	
		Gaskets	Push-on and Mechanical: Rubber conforming to AWWA C111/A21.11. Gasket pressure rating to equal or exceed the system hydrostatic test pressure.	

PIPING SYSTEM SPECIFICATIONS				
System Sanitary Sewer Force Main (pressure)		**Background Color** Green	**Legend** SSFM	**Abbreviations** SSFM
Gasket: As specified		**Test Medium:** ☐ Air ☒ Water		**Duration:** * Min
Pressure (PSIG)			**Temperature (°F)**	
Work: 40-50	Max: 60	Test: 120	Normal: 65	Max: 85
Pipe Size	**Exposure**	**Item**	Description	
		Joint Lubricant	Manufacturer's standard.	
All	EXPOSED		Ductile iron pipe, pressure class 350, in accordance AWWA C151/A21.51.	
		Lining	Protecto 401 Ceramic Epoxy Lining or accepted equal. Apply in accordance with manufacturer's instructions.	
		Coating	Provide DI pipe and fittings bare (without exterior asphaltic coating) where sandblasting and painting of the pipe and fittings is specified in Section 09 96 00 – Painting and Protective Coatings.	
		Joints	As indicated on the Drawings, or same as specified for fittings. Grooved End: Rigid type radius cut conforming to AWWA C606, 250 psi minimum working pressure.	
		Fittings	As indicated on the Drawings. Lined and coated same as pipe. Flanged and Mechanical: AWWA C110/A21.10, AWWA C153 and ANSI B16.1, ductile iron, faced and drilled, 125-pound flat face. Gray cast iron will not be allowed. Grooved End: AWWA C606 and C110/A21.10, ductile iron, 250 psi minimum working pressure. Victaulic, or accepted equal.	
		Couplings	As indicated on the Drawings and specified in Section 22 13 19 – Pipe Appurtenances.	

<table>
<tr><th colspan="6">PIPING SYSTEM SPECIFICATIONS</th></tr>
<tr><td colspan="2">System
Sanitary Sewer Force Main (pressure)</td><td>Background Color
Green</td><td colspan="2">Legend
SSFM</td><td>Abbreviations
SSFM</td></tr>
<tr><td colspan="2">Gasket: As specified</td><td colspan="2">Test Medium: ☐ Air ☒ Water</td><td colspan="2">Duration: * Min</td></tr>
<tr><td colspan="3">Pressure (PSIG)</td><td colspan="3">Temperature (°F)</td></tr>
<tr><td>Work: 40-50</td><td>Max: 60</td><td>Test: 120</td><td colspan="2">Normal: 65</td><td>Max: 85</td></tr>
<tr><td>Pipe Size</td><td>Exposure</td><td>Item</td><td colspan="3">Description</td></tr>
<tr><td rowspan="3"></td><td rowspan="3"></td><td>Bolting</td><td colspan="3">125-Pound Flat Faced Flange ANSI Template: ASTM A193/A193M Type 316 stainless steel Grade B8M hex head bolts and ASTM A194/A194M Grade 8M hex head nuts. Washers shall be same material as nut. Nuts shall be Heavy hex-head, Type 2H.
Grooved End Joints:
Type 316 stainless steel Grade B8M, Class 2.</td></tr>
<tr><td>Gaskets</td><td colspan="3">Flanged: 1/8-inch thick, red rubber (SBR), hardness 80 (Shore A) rated for 200 degrees F, conforming to ASME B16.21, AWWA C207, and ASTM D1330, Grades 1 and 2. Full face for 125-pound flat-faced flanges.
Grooved End Joints: Halogenated butyl conforming to ASTM D2000 and AWWA C606.

Gasket pressure rating to equal or exceed the system hydrostatic test pressure.</td></tr>
<tr><td>Joint Lubricant</td><td colspan="3">Manufacturer’s standard.</td></tr>
<tr><td>Remarks:</td><td colspan="5">* In accordance with Section 7-09.3(23) of the Standard Specifications.</td></tr>
</table>

SECTION 22 13 15.33 Air Vacuum Valve Vault

Item 4. REVISE Section 22 13 15.33 Air Vacuum Valve Vault: Revise Paragraph 2.03.B.1 to read as follows:

1. Integral flanged end, flat faced and drilled per ANSI B16.1 Class 12 or threaded end connection as shown on the Drawings.

VOLUME 2 OF 3 OF THE CONTRACT DOCUMENTS IS MODIFIED AS FOLLOWS:

Item 5. REVISE Appendix D: Replace the PSE Preliminary Design with the attached revised Preliminary Design

VOLUME 3 OF 3 OF THE CONTRACT DOCUMENTS IS MODIFIED AS FOLLOWS:

Item 6. REVISE Detail 2 on Drawing C-3: Revise the Plastic foam Ring Detail as shown on the attached Revised Drawing C-3.

Item 7. REVISE: Air/Vacuum Vault Assembly Component #7 on Drawing C-5 is revised as follows:

~~"3" ARI D-26~~ ARI D-020 or D-025 3" Combination Air/Vacuum Valve, Threaded

Item 8. REVISE: Revise Detail 1 Bypass Connection on Drawing C-9 to clarify that the 20" Spool between the 20" Valve and the 20" x 14" Wye shall be PVC pipe, length as required.

Item 9. CLARIFICATION: Construction Note 3 on Drawing C-3A requires all joints within 60 feet of the bends on Drawing C-3A to be restrained in lieu of thrust blocks because thrust blocks would conflict with adjacent utilities. Pipe joints more than 60 feet from the bends do not need to be restrained unless specifically called out otherwise but may be restrained at the Contractor's option.

Item 10. CLARIFICATION: Note 2 on Drawing C-2C refers to all pressurized pipe on Drawing C-2C. All joints from the piping room to the 45º bend located in Bucklin Hill Road south of SSMH 3 shall be restrained since thrust blocks are not being used onsite due to space restrictions. The 45º bend located in Bucklin Hill Road south of SSMH 3 shall have a thrust block.

Item 11. REVISE: Revise the callout for SSMH as shown on the attached revised Drawing C-2C.

Item 12. REVISE: Pump Station Component Callout No. 11 on Drawing C-3C is revised to as follows:

"12" ~~Knife~~ Gate Valve, FL x FL

ATTACHMENTS FOR ADDENDUM #2

Item 13. Revised Section 9-30.2(6), page 5.

Item 14. Revised Section 9-30.3(7), pages 7-8.

Item 15. Revised Section 22 13 11, pages 6-9.

Item 16. Revised Section 22 13 15.33, pages 2-3.

Item 17. Revised PSE Preliminary Design.

Item 18. Revised Drawing C-3.

Item 19. Revised Drawing C-5.

Item 20. Revised Drawing C-9.

Item 21. Revised Drawing C-2C.

Item 22. Revised Drawing C-3C.

End of Addendum #3

9-30.2(6) Restrained Joints

(Local Agency SP)
Section 9-30.2(6) is supplemented with the following:

Restrained joint systems used on ductile iron pipe shall have a 250 psi minimum working pressure conforming to AWWA C111/A21.11 and C153/A21.53. Restrained joints shall be American Cast Iron Pipe Co. Flex-Ring or Lok-Ring Joint; U.S. Pipe TR Flex; or accepted equal. Harnesses shall be of ductile iron material, equipped with teeth (not set screws) to engage the pipe barrel. Mechanical restrained joint system shall be Megalug, Series 1100 by Ebaa Iron, Inc., or equivalent.

Restraints for PVC pipe meeting the requirements of AWWA C900 or AWWA C905 shall be manufactured of ductile iron conforming to ASTM A536. A split serrated ring shall be used behind the pipe bell. A split serrated ring shall also be used to grip the pipe, and a sufficient number of bolts shall be used to connect the bell ring and the gripping ring. For larger pipe diameters where serrated rings are unavailable, a smooth backup ring shall be used behind the bell. The combination shall have a minimum working pressure rating at least equal to the pipe it is restraining. The restraint shall be designed for use with PVC pipe. Point loading restraints shall not be used on PVC pipe.

The restraint shall be processed through a phosphate wash, rinse, and drying operation prior to coating application. Casting bodies shall be surface treated with a sealer before the drying process. The coating shall consist of a minimum of two coats of liquid thermoset epoxy coating with heat cure to follow each coat. Coating shall be electrostatically applied and heat cured. The coating shall be a polyester based powder to provide corrosion, impact, and UV resistance. Coating shall be MEGA-BOND, by EBAA Iron, Inc., or accepted equal.

9-30.2(7) Bolted, Sleeve-Type Couplings for Plain End Pipe

(Local Agency SP)
Section 9-30.2(7) is supplemented with the following:

Sleeve-type couplings may be used as an option to provide flexible joints in buried, embedded, and encased piping. Sleeve-type couplings shall be provided as shown on the drawings, as required by the specifications, and as recommended by the manufacturer. Nuts and bolts shall be as specified in Section 9-30.2. Coupling gaskets shall be synthetic rubber gasket for wastewater service.

Unless otherwise indicated, sleeve-type mechanical pipe couplings not intended to take tension shall be Romac Style 400, Style 501 or accepted equal. Insulating sleeve couplings for connecting different metallic pipe materials shall be Romac Style IC400 or IC501 or accepted equal. The lining and coating shall be fusion bonded epoxy meeting the requirements of AWWA C550. Sleeve-type couplings shall allow minimum joint deflections as follows:

Nominal Diameter (inches)	Minimum Deflection (degrees)
Less than 18	5
18-30	4

Sleeve-type expansion couplings for ductile iron and steel piping shall be Romac Style EJ401 or accepted equal. Limit rods shall be provided on all expansion joints.

Flanged coupling adapters shall have ductile iron body with synthetic rubber gasket for wastewater service. The adaptor shall have 150-pound flange. Adapter shall be coated and lined with fusion bonded epoxy meeting the requirements of AWWA C550. Nuts and bolts shall be as specified in Section 9-30.2. Flanged coupling adaptors shall be Romac Style FCA 501, Romac Style FC400, EBAA Iron Series 2100 or accepted equal. Anchor pins shall not be used on PVC pipe.

Dismantling joint shall provide a minimum length adjustment of 3 inches. The joint shall have an ASTM A36 steel or ductile iron body with an ASTM A36 steel or ductile iron spool and shall be coated and lined with fusion bonded epoxy meeting the requirements of AWWA C550. Gaskets shall be synthetic rubber for wastewater service. The joint shall be restrained and rated to a minimum 150 psi working pressure.

24-inch through 36-inch valves shall include clean track technology. Clean track technology consists of bronze rollers housed in a bronze scraper on the bottom of the wedge, and travel in a 316 stainless steel track.

There shall be no moving bearing or contact surfaces of iron in contact with iron. Contact surfaces shall be machined and finished in the best workman like manner, and all wearing surfaces shall be easily renewable.

Nuts and bolts for connecting bonnet and body shall be ANSI 304 stainless steel. Bolts may be regular square or hexagonal heads confirming to ANSI B18.2.1. Metric size socket head cap screws are not allowed.

Interior lining and exterior coating shall be fusion bonded epoxy meeting the requirements of AWWA C550.

Subject to meeting the requirements of the Contract Documents, valves shall be as manufactured by M&H Valve, Mueller, Kennedy, Clow or accepted equal.

9-30.3(4) Valve Boxes

(Local Agency SP)
Section 9-30.3(4) is supplemented as follows:

Valve Boxes shall be installed on all buried valves. Provide valve boxes with heavy top sections with drop in covers. Valve boxes shall be screw or slide type adjustable cast iron valve box, 5-1/4 IN minimum diameter, 3/16-inch minimum thickness, and identifying cast iron cover rated for traffic load or as shown on the Drawings. Cover shall have applicable service designation (i.e. WATER, SEWER, etc.) cast in it. All parts of the valve boxes, bases, and covers shall be coated with hot bituminous varnish, except the parts set in concrete shall be galvanized. All valve boxes shall be set in a concrete pad as shown on the drawings, excepting those underneath concrete floors or walks.

9-30.3(7) Combination Air Release/Air Vacuum Valves

(Local Agency SP)
Section 9-30.3(7) is deleted and replaced with the following:

Combination air release/air vacuum valves shall be designed to operate with raw sewage under pressure to permit discharging of air from an empty line when filling and relieve a vacuum when pressure transients occur or while draining. The valves shall also release an accumulation of air when the system is under pressure. The valve body shall be designed to withstand 250 psi. Valve body shall be constructed of AISI 316 stainless steel.

Valves shall consist of a single chamber conical body enclosing a control float to regulate passage of air between the pipeline and the atmosphere. The valve body shall have a threaded end connection, or an end flange as shown on the Drawings for connection to system piping, conforming to ANSI B16.1, Class 125, to meet operating and test pressures of pipe. The control float shall be connected to a rolling seal via a stainless-steel stem.

The passage of air between the pipeline and the atmosphere shall be accomplished via a single orifice and an internal control float connected to a rolling seal. The valve shall be designed to prevent premature closing. At any time during system operation, should internal pressure of the system fall below atmospheric pressure, the valve shall admit air into the system.

The valves shall be designed and constructed to operate as specified for each of the following operational conditions:

1. Pipeline filling: During routine filling of the pipeline, valves shall vent air present in the pipeline through the orifice. High velocity air shall not blow the float shut. Sewage entry into the lower portion of the valve shall cause the control float to rise, sealing off the orifice. As pressure increases, the air trapped in the valve body shall compress. As air becomes dis-entrained and enters the valve body, sewage is displaced. Once sufficient sewage has been displaced so that the float is no longer supported, the float will lower

and open the orifice to release air. When sufficient air has been displaced and the sewer level rises, the float will raise and seal the orifice.

2. Normal system operation: During normal pipeline operation when the pipeline is flowing full under pressure, valves shall release air which becomes dis-entrained from the flow and collects in the valve body.

3. Transient conditions due to pump failure or valve closure: Upon development of negative pressures in the pipeline, as may occur during pipeline drainage or liquid column separation, the orifice shall open by the unrolling of the seal permitting free flow of air into the pipeline. The orifice shall remain open until vacuum conditions are relieved in the pipeline and the valve body refills with sewage.

Combination air release and vacuum valves shall be A.R.I. USA D-023 valves, size as noted on the Plans. Engineer knows of no equivalent product to the A.R.I. valve specified.

9-30.3(9) Stainless Steel Ball Valves

(Local Agency SP)
Section 9-30.3(9) is added as follows:

Ball valves shall be two way, full-port rated for vacuum to 1000 psi. Valves shall be the sizes shown on the Drawings and shall have threaded ends meeting ANSI B1.20.1. Valve shall be investment cast, two-piece stainless steel. Handles shall be locking type. All hardware shall be 304 or 316 stainless steel and all gaskets and seats shall be PTFE unless otherwise specified below.

Component	Materials
Valve Body	316 Stainless Steel
Ball	316 Stainless Steel, Teflon Fused
Stem	316 Stainless Steel
Seat	15% PTFE
Seat Ring	PTFE

9-30.4 Polyurethane Cleaning Pigs

(Local Agency SP)
Section 9-30.4 is added as follows:

Pigs for cleaning the pipeline shall be manufactured of 2 to 10 pound per cubic foot density polyurethane foam with an open cell structure. Pigs shall have a bullet shaped nose with an exterior coating of closed cell urethane suitable for use in raw wastewater systems. The peripheral surface on the pig shall be resilient and abrasive resistant and capable of maintaining a constant sliding seal against the interior wall of the pipeline. Pigs shall be capable of navigating the pipeline's bends and valves. Pigs shall be suitable for use in PVC and ductile iron pipelines and appropriate for the pipe's diameter (including welds and ovalness of pipe). Pigs shall be able to pass through reductions of up to 60 to 65 percent of nominal cross-sectional area of pipe. Excluding abrasive or scraper pigs, which shall not be used, Contractor shall provide and utilize a progressive approach and be responsible for selecting the size and type of pigs to systematically and properly clean the pipeline. At the completion of the work, one new pig of the recommended size and type for cleaning the sewage force main shall be provided to the Contracting Agency.

END OF SECTION 9-30

END OF DIVISION 9

PIPING SYSTEM SPECIFICATIONS					
System Sanitary Sewer (gravity)		**Background Color** Green	**Legend** SS		**Abbreviations** SS
Gasket: Rubber		**Test Medium:** ☒ Air ☐ Water			**Duration:** * Min
Pressure (PSIG)			**Temperature (°F)**		
Work: *_	Max: *_	Test: *_	Normal: 65		Max: 85
Pipe Size	**Exposure**	**Item**	Description		
8” and larger	BURIED	Pipe	PVC: Conforming to AWWA C900 or C905, pressure Class 150 or ASTM D3034 SDR 35 as shown on the Drawings.		
		Lining	Not Applicable		
		Coating	No Applicable		
		Joints	Bell-and-spigot, push-on type.		
		Fittings	One-piece injection molded from a PVC compound conforming to ASTM D1784. Fittings shall be Class 150 conforming to DR 18. Fittings shall be gasket-end conforming to ASTM D3139 with gaskets conforming to F477. Cement-lined ductile iron fittings with mechanical or push-on joints conforming to AWWA C153 or C110 August be approved as an alternative when PVC pressure fittings of the required sizes are not available.		
		Gaskets	Manufacturer’s standard.		
		Joint Lubricant	Manufacturer’s standard.		
6” and smaller	BURIED	Pipe	PVC: Conforming to ASTM D3034 SDR 35.		
		Lining	Not Applicable		
		Coating	No Applicable		
		Joints	PVC: Conforming to ASTM D3212.		
		Fittings	PVC: Injection molded, factory welded, or factory solvent cemented.		
		Gaskets	Manufacturer’s standard.		
		Joint Lubricant	Manufacturer’s standard.		
Remarks: * In accordance with Section 7-17.3(2)F of the WSDOT Standard Specifications.					

<table>
<tr><th colspan="6">PIPING SYSTEM SPECIFICATIONS</th></tr>
<tr><td colspan="2">System
Sanitary Sewer Force Main (pressure)</td><td>Background Color
Green</td><td colspan="2">Legend
SSFM</td><td>Abbreviations
SSFM</td></tr>
<tr><td colspan="2">Gasket: As specified</td><td colspan="2">Test Medium: ☐ Air ☒ Water</td><td colspan="2">Duration: * Min</td></tr>
<tr><td colspan="3">Pressure (PSIG)</td><td colspan="3">Temperature (°F)</td></tr>
<tr><td>Work: 40-50</td><td>Max: 60</td><td>Test: 120</td><td colspan="2">Normal: 65</td><td>Max: 85</td></tr>
<tr><td>Pipe Size</td><td>Exposure</td><td>Item</td><td colspan="3">Description</td></tr>
<tr><td rowspan="5">All</td><td rowspan="5">BURIED</td><td>Pipe</td><td colspan="3">Pipe material shall be as indicated on the Drawings.
PVC: Conforming to AWWA C900 or C905, DR 18, or
DI: Conforming to AWWA C151/A21.51, pressure class 350.</td></tr>
<tr><td>Lining</td><td colspan="3">PVC: Not Applicable.
DI: Protecto 401 Ceramic Epoxy Lining or accepted equal. Apply in accordance with manufacturer’s instructions.</td></tr>
<tr><td>Coating</td><td colspan="3">PVC: Not Applicable.
DI: Asphaltic (bituminous) per AWWA C151/A21.51.</td></tr>
<tr><td>Joints</td><td colspan="3">Proprietary restrained push-on type.
<u>Ductile Iron</u>
American Cast Iron Pipe Company – Flex-Ring;
U.S. Pipe – TR Flex;
or accepted equal.
<u>PVC Pipe</u>
<u>EBAA Iron Series 15MJ600, 15MJG00TD, 20000SV, 1500, 1600, or 1900, 2000, or 2500 restraints</u>
<u>or accepted equal</u></td></tr>
<tr><td>Fittings</td><td colspan="3">As indicated on the Drawings.
Lined and coated same as pipe.
Mechanical Joint: Mechanical joint fittings conforming to AWWA C110/A21.10 <u>or AWWA C153</u> with mechanical joint restraint assemblies Ebba Iron Series 1100 Megalug, or accepted equal. Joint restraint assemblies shall be rated for 250 psi working pressure minimum.</td></tr>
</table>

PIPING SYSTEM SPECIFICATIONS				
System Sanitary Sewer Force Main (pressure)		**Background Color** Green	**Legend** SSFM	**Abbreviations** SSFM
Gasket: As specified		**Test Medium:** ☐ Air ☒ Water		**Duration:** * Min
Pressure (PSIG)			**Temperature (°F)**	
Work: 40-50	Max: 60	Test: 120	Normal: 65	Max: 85
Pipe Size	**Exposure**	**Item**	Description	
		Couplings	As indicated on the Drawings and specified in Section 22 13 19 – Pipe Appurtenances.	
		Bolting	Mechanical and Push-on Joints: DI Manufacturer's standard.	
		Gaskets	Push-on and Mechanical: Rubber conforming to AWWA C111/A21.11. Gasket pressure rating to equal or exceed the system hydrostatic test pressure.	
		Joint Lubricant	Manufacturer's standard.	
All	EXPOSED		Ductile iron pipe, pressure class 350, in accordance AWWA C151/A21.51.	
		Lining	Protecto 401 Ceramic Epoxy Lining or accepted equal. Apply in accordance with manufacturer's instructions.	
		Coating	Provide DI pipe and fittings bare (without exterior asphaltic coating) where sandblasting and painting of the pipe and fittings is specified in Section 09 96 00 – Painting and Protective Coatings.	
		Joints	As indicated on the Drawings, or same as specified for fittings. Grooved End: Rigid type radius cut conforming to AWWA C606, 250 psi minimum working pressure.	

<table>
<tr><th colspan="6">PIPING SYSTEM SPECIFICATIONS</th></tr>
<tr><td colspan="2">System
Sanitary Sewer Force Main (pressure)</td><td colspan="2">Background Color
Green</td><td>Legend
SSFM</td><td>Abbreviations
SSFM</td></tr>
<tr><td colspan="2">Gasket: As specified</td><td colspan="2">Test Medium: ☐ Air ☒ Water</td><td colspan="2">Duration: * Min</td></tr>
<tr><td colspan="3">Pressure (PSIG)</td><td colspan="3">Temperature (°F)</td></tr>
<tr><td>Work: 40-50</td><td>Max: 60</td><td>Test: 120</td><td colspan="2">Normal: 65</td><td>Max: 85</td></tr>
<tr><td>Pipe Size</td><td>Exposure</td><td>Item</td><td colspan="3">Description</td></tr>
<tr><td rowspan="5"></td><td rowspan="5"></td><td>Fittings</td><td colspan="3">As indicated on the Drawings.
Lined and coated same as pipe.
Flanged and Mechanical: AWWA C110/A21.10, AWWA C153 and ANSI B16.1, ductile iron, faced and drilled, 125-pound flat face. Gray cast iron will not be allowed.
Grooved End: AWWA C606 and C110/A21.10, ductile iron, 250 psi minimum working pressure. Victaulic, or accepted equal.</td></tr>
<tr><td>Couplings</td><td colspan="3">As indicated on the Drawings and specified in Section 22 13 19 – Pipe Appurtenances.</td></tr>
<tr><td>Bolting</td><td colspan="3">125-Pound Flat Faced Flange ANSI Template: ASTM A193/A193M Type 316 stainless steel Grade B8M hex head bolts and ASTM A194/A194M Grade 8M hex head nuts. Washers shall be same material as nut. Nuts shall be Heavy hex-head, Type 2H.
Grooved End Joints:
Type 316 stainless steel Grade B8M, Class 2.</td></tr>
<tr><td>Gaskets</td><td colspan="3">Flanged: 1/8-inch thick, red rubber (SBR), hardness 80 (Shore A) rated for 200 degrees F, conforming to ASME B16.21, AWWA C207, and ASTM D1330, Grades 1 and 2. Full face for 125-pound flat-faced flanges.
Grooved End Joints: Halogenated butyl conforming to ASTM D2000 and AWWA C606.

Gasket pressure rating to equal or exceed the system hydrostatic test pressure.</td></tr>
<tr><td>Joint Lubricant</td><td colspan="3">Manufacturer’s standard.</td></tr>
<tr><td>Remarks:</td><td colspan="5">* In accordance with Section 7-09.3(23) of the Standard Specifications.</td></tr>
</table>

PART 2 : PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with the Contract Documents, manufacturers listed herein for each item are acceptable.

B. Submit request for substitution in accordance with the WSDOT Division 1 Special Provisions.

2.02 CONCRETE VAULT AND APPURTENANCES

A. Comply with Section 33 05 16.

2.03 COMBINATION AIR VACUUM VALVES

A. Comply with AWWA C512.

B. Acceptable valves:

1. A.R.I. Model D-020 or D-025.
2. Approved equal.

C. Materials:

1. Body and cover: Stainless Steel.
2. Internal metal parts: Corrosion resistant stainless steel.
3. Float: stainless steel.
4. Valve coating: fusion bonded epoxy according to DIN 30677-2.

D. Design requirements:

1. Integral flanged end, flat faced and drilled per ANSI B16.1 Class 125 or threaded end connection as shown on the Drawings.
2. Working pressure range: 3 to 250 psi.
3. Conical body shall be designed to maintain the maximum distance between the liquid and the sealing mechanism and still obtain minimum body length.
4. Independent spring-guided linkage between the lower float/rod assembly and the upper float sealing mechanism shall allow free movement of the float and rod. Vibrations and movement of the lower float due to turbulence shall not unseal the upper float sealing mechanism.

2.04 ACTIVATED CARBON ODOR CONTROL CANISTER

A. Activated Carbon Adsorber Cannister: Ventadsorb PE Stand Alone Canister by ECS Environmental Solutions or accepted equal. Canister shall be provided with the following:

1. PE construction with UV inhibitor.

2. Stainless Steel ground rod assembly.
3. Initial load of activated carbon.
4. Drain with ball PVC ball valve.
5. Lockable removable canister top.
6. 4” FNPT Inlet and Outlet connections.

2.05 PIPE APPURTENANCES

A. Conform to Section 22 13 19.

2.06 RETAINING WALL

A. Retaining walls shall comply with Section 32 32 23 Structural Earth Walls.

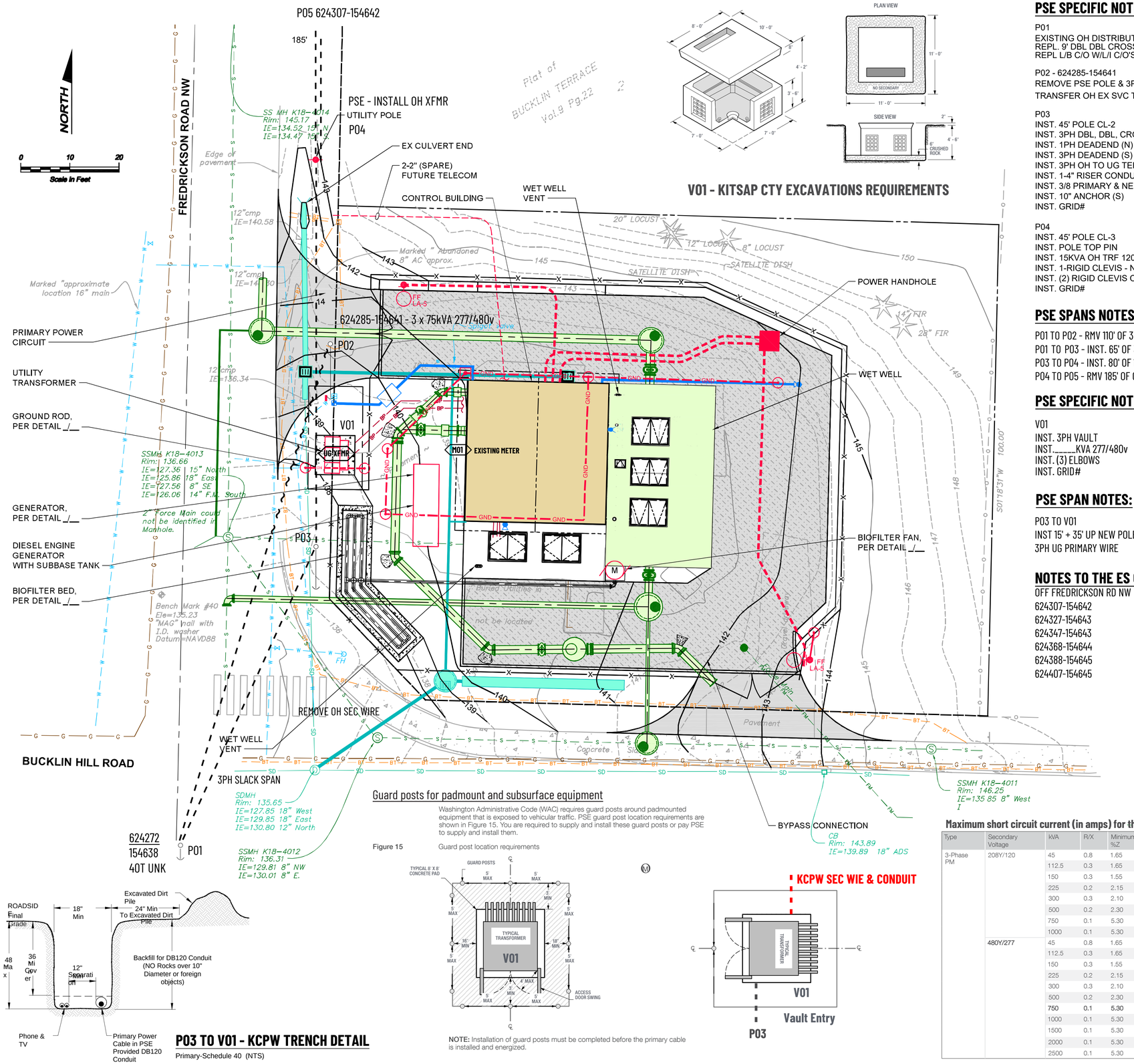
PART 3 : EXECUTION

3.01 INSTALLATION

A. See Specification Section 22 13 15 – Valves: Basic Requirements.

B. Install in accordance with manufacturer's instructions.

END OF SECTION



PSE SPECIFIC NOTES:

P01
EXISTING OH DISTRIBUTION POLE
REPL. 9' DBL DBL CROSSING ARM
REPL L/B C/O W/L/I C/O'S

P02 - 624285-154641
REMOVE PSE POLE & 3PH 225KVA OH TRF BANK 120/480V
TRANSFER OH EX SVC TO P04

P03
INST. 45' POLE CL-2
INST. 3PH DBL, DBL, CROSSARM DEADEND
INST. 1PH DEADEND (N)
INST. 3PH DEADEND (S)
INST. 3PH OH TO UG TERMINATION SWITCH
INST. 1-4" RISER CONDUIT
INST. 3/8 PRIMARY & NEUTRAL (S)
INST. 10" ANCHOR (S)
INST. GRID#

P04
INST. 45' POLE CL-3
INST. POLE TOP PIN
INST. 15KVA OH TRF 120/240V
INST. 1-RIGID CLEVIS - NEUTRAL
INST. (2) RIGID CLEVIS OH HSE 9607 & 9640
INST. GRID#

PSE SPANS NOTES:

P01 TO P02 - RMV 110' OF 3PH OH PRIMARY & NETURAL WIRE
P01 TO P03 - INST. 65' OF 3PH OH PRIMARY & NEUTRAL WIRE
P03 TO P04 - INST. 80' OF 1PH OH PRIMARY & NEUTRAL WIRE
P04 TO P05 - RMV 185' OF OH TRIPLEX WIRE

PSE SPECIFIC NOTES:

V01
INST. 3PH VAULT
INST._____KVA 277/480v
INST. (3) ELBOWS
INST. GRID#

PSE SPAN NOTES:

P03 TO V01
INST 15' + 35' UP NEW POLE
3PH UG PRIMARY WIRE

NOTES TO THE ES OUTAGES LOC.

OFF FREDRICKSON RD NW
624307-154642
624327-154643
624347-154643
624368-154644
624388-154645
624407-154645

Phenolic Nameplate requirement on the new 1200amp 277/480v meter base.

• Meter base/sockets shall be permanently labeled to indicate the address they serve.
PSE requires engraved phenolic nameplates or adhesive die-cut labels at least 1 inch high and lettering a minimum of 3/4 inches high. Service will not be established until marking is complete.

NOTE: Felt-tip pens and label maker tape are not considered permanent marking.

Table 8 Single-phase (nonresidential only) and all three-phase meter base/socket types

Voltage	Wires	Service Capacity Amp	No. of Terminals	Meter Socket Config.*	Manual Block Bypass Required?	Accessible Disconnect Ahead & Safety Socket Required?	Socket
Single-Phase Nonresidential							
120/240	3	up to 200	4	A	Yes	No	Self-contained socket
120/240	3	201 to 320	4	A	Yes	No	Self-contained 320 A socket
120/240	3	above 320	6	B	n/a	n/a	Instrument transformer rated with provision for test switch
120/208	3	up to 200	5	C	Yes	No	Preferred arrangement
120/240	3	up to 200	5	C	Yes	Safety socket allowed but not required	Streetlight applications only
240/480	3	up to 200	5	C	Yes	Yes - fused disconnect preferred	Streetlight applications only
All Three-Phase							
120/208	4	up to 200	7	D	Yes	No	Self-contained socket
120/208	4	above 200	13	E	n/a	n/a	Instrument transformer rated with provision for test switch
120/240	4	up to 200	7	D	Yes	No	Self-contained socket (RESTRICTED APPLICATION) — High leg on right terminals
120/240	4	above 200	13	E	n/a	n/a	Instrument transformer rated with provision for test switch (RESTRICTED APPLICATION)
277/480	4	up to 200	7	D	Yes	Yes - fused disconnect preferred	Self-contained safety socket
277/480	4	above 200	13	E	n/a	n/a	Instrument transformer rated with provision for test switch

* Meter Base/Socket Configurations

FOREMAN (CHECK BOX WHEN COMPLETED)

- ☐ PSE Equipment LOCKED/SECURED & Work Area left in CLEAN/SAFE Condition.
- ☐ Grid, Cable, and Switch numbers INSTALLED & VERIFIED.
- ☐ Field Changes RED-LINED on As-built.
- ☐ Material VERIFIED and CHANGES noted on Paperwork.
- ☐ Total PRIMARY Cable noted on As-built.
- ☐ Company ID#'s RECORDED in correct location on As-built.
- ☐ Indicate correct FUSE SIZE on As-built & VERIFY proper PHASE.
- ☐ Deviations noted on the As-built and their reason.

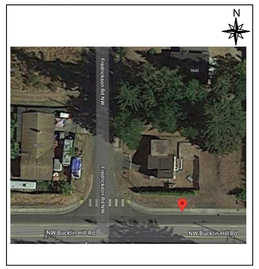
☐ I certify that the work performed meets PSE's standards and procedures and that all quality requirements are met.

Foreman's Signature _____

Print Name _____ Date _____

PROJECT PHASE	NOTIF#	ORDER#
SUPERIOR 3PH UG L/E	512649668	101158108
INST. NEW POLE		101158109
REMV POLE		108144327
OH MISC TRANSFER		593249883
REMV OH 3PH BANK		583072032
UG MODIFIED SVC		
CABLE TV		
PHONE		

Vicinity Map



Owner / Developer Contact Info

PRELIMINARY DESIGN

Project Manager Contact Information:

Manager: Victor Ibarra
Cell Phone: 425-429-4574
E-Mail: victor.ibarra@pse.com

PSE Locates Required	YES
Customer Locates Required	YES
Outages Required	YES
Flagging Required	YES

CALL (800) 424-5555
2 BUSINESS DAYS BEFORE YOU DIG
THIS SKETCH NOT TO BE RELIED UPON FOR EXACT LOCATION OF EXISTING FACILITIES

REAL ESTATE/EASEMENT	PERMIT
N/A	Kitsap County Permit

REV#	DATE	BY	DESCRIPTION
3	.	.	.
2	.	.	.
1	.	.	.

COUNTY	Emer Sect	Gas Wk Ctr	POWER WK CTR
KITSAP	N/A	N/A	QSSPE
1/4 SEC	OP MAP		PLAT MAP
25 - 01E - S16	N/A		N/A
U-MAP NO (POWER)	OH CKT MAP	UG CKT MAP	CIRCUIT NO
2501E064	2501E088	2501E064	BHL-16

FUNCTION	CONTACT	PHONE NO	DATE
PROJECT MGR	VIC IBARRA	425-429-4574	03-04
ENGR - POWER	VIC IBARRA	425-429-4574	03-22
ENGR - GAS			
DRAWN BY	VIC IBARRA	425-429-4574	04-04
CHECKED BY			
APPROVED BY			
FOREMAN #1			
FOREMAN #2			
MAPPING			

JOINT FACILITIES ARRANGEMENTS

UTILITIES	COMCAST	CENTURY LINK	CASCADE NATURAL GAS
CONTACT	JIM LECOMPTE	RAY JONES	-
PHONE#	253.896.5688	253.313.3666	-

PUGET SOUND ENERGY
DESIGNED BY

KCPW
Rpl B/O Pole, RMV OH Facilities, Inst. 3PH LE &
Modify EX. UG SEC SVC
9606 FREDRICKSON RD NW, STA4,
BREMERTON WA

INCIDENT	MAOP
N/A	N/A
Gas Order	Elect Order
N/A	101158108
SCALE	PAGE
1" = 50'	01 / 03

Maximum short circuit current (in amps) for three-phase

Type	Secondary Voltage	kVA	R/X	Minimum %Z	3 Phase &/or L-G Fault Current
3-Phase PM	208Y/120	45	0.8	1.65	7600
		112.5	0.3	1.65	19000
		150	0.3	1.55	26900
		225	0.2	2.15	29100
		300	0.3	2.10	39700
		500	0.2	2.30	60300
		750	0.1	5.30	39300
		1000	0.1	5.30	52400
	480Y/277	45	0.8	1.65	3300
		112.5	0.3	1.65	8200
		150	0.3	1.55	11600
		225	0.2	2.15	12600
		300	0.3	2.10	17200
		500	0.2	2.30	26100
		750	0.1	5.30	17000
		1000	0.1	5.30	22700
		1500	0.1	5.30	34000
		2000	0.1	5.30	45400
		2500	0.1	5.30	56700

Guard posts for padmount and subsurface equipment

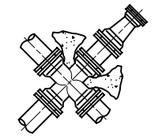
Washington Administrative Code (WAC) requires guard posts around padmounted equipment that is exposed to vehicular traffic. PSE guard post location requirements are shown in Figure 15. You are required to supply and install these guard posts or pay PSE to supply and install them.

Figure 15 Guard post location requirements

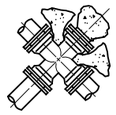
NOTE: Installation of guard posts must be completed before the primary cable is installed and energized.

P03 TO V01 - KCPW TRENCH DETAIL

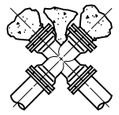
Primary-Schedule 40 (NTS)



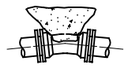
UNBALANCED CROSS
(USE COLUMN A)



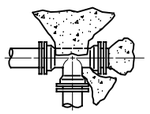
PLUGGED CROSS
(USE COLUMN A)



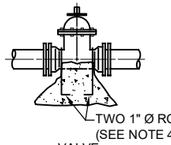
PLUGGED CROSS
(USE COLUMN B)



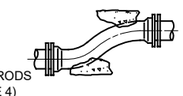
11 1/4° BEND



PLUGGED TEE
(USE COLUMN B)



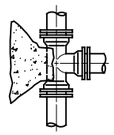
VALVE
(USE COLUMN A)



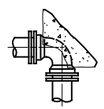
OFFSET
(USE COLUMN B - E)

22 1/2° BEND

CAP OR PLUG



TEE



90° BEND

45° BEND

THRUST BLOCKS
DETAIL 1
NTS TYP

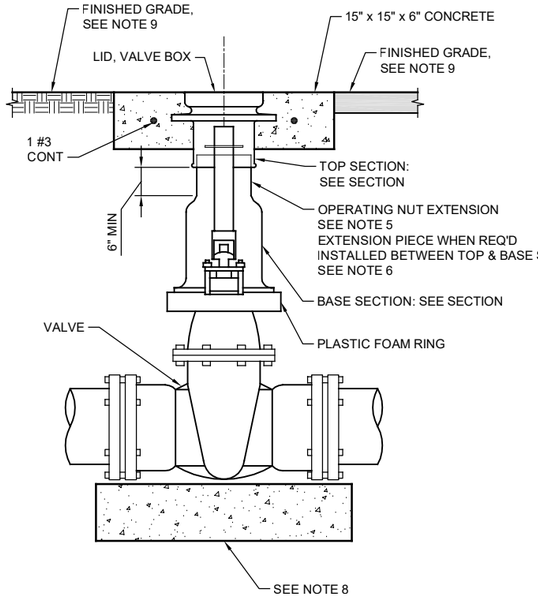
THRUST AT FITTINGS IN POUNDS

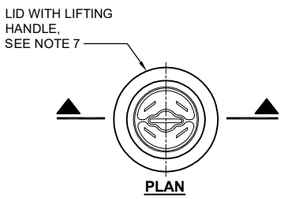
SIZE	TEST PRESSURE	A		B		C		D		E		F	G
		TEE AND DEAD ENDS		90° BEND		45° BEND		22.5° BEND		11.25° BEND		DIAMETER RESTRAINT ROD	ALLOWABLE THRUST PER RESTRAINT ROD (LBS)
		THRUST	CONC VOL	THRUST	CONC VOL	THRUST	CONC VOL	THRUST	CONC VOL	THRUST	CONC VOL		
(IN)	(PSI)	(PSI)	(CF)	(PSI)	(CF)	(PSI)	(CF)	(PSI)	(CF)	(PSI)	(CF)		
4	120	1,510	16	1,510	16	1,070	11	508	6	295	3	5/8"	3,450
6	120	3,395	34	3,395	34	2,405	25	1,300	13	665	7	3/4"	5,150
8	120	6,035	61	6,035	61	4,270	43	2,310	24	1,180	12	3/4"	5,150
10	120	9,425	95	9,425	95	6,665	67	3,610	37	1,840	19	7/8"	7,150
12	120	13,575	136	13,575	136	9,600	96	5,195	52	2,650	27	7/8"	7,150
14	120	18,475	185	18,475	185	13,065	131	7,075	71	3,605	37	1"	9,350
16	120	24,130	242	24,130	242	17,065	171	9,235	93	4,710	48	1"	9,350
18	120	30,540	306	30,540	306	21,600	216	11,690	117	5,960	60	1 1/8"	11,800
20	120	37,700	377	37,700	377	26,660	267	14,430	145	7,355	74	1 1/8"	11,800
24	120	54,290	543	54,290	543	38,390	384	20,780	208	10,595	106	1 1/4"	15,000
30	120	84,825	849	84,825	849	59,985	600	32,465	325	16,550	166	1 1/4"	15,000

SOIL TYPE	SAFE BEARING LOAD PSF
MUCK, PEAT, ETS.	0
SOFT CLAY	1,000
SAND	2,000
SAND AND GRAVEL	3,000
SAND AND GRAVEL CEMENTED WITH CLAY	4,000
HARD SHALE	10,000

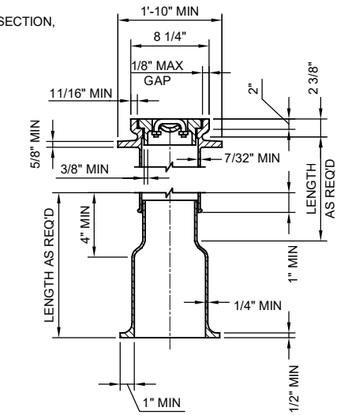
NOTES:

1. CONTRACTOR TO PROVIDE BLOCKING ADEQUATE TO WITHSTAND FULL TEST PRESSURE.
2. DIVIDE THRUST BY SAFE BEARING LOAD TO DETERMINE REQUIRED AREA (IN SQUARE FEET) OF CONCRETE TO DISTRIBUTE LOAD.
3. AREAS TO BE ADJUSTED FOR OTHER PRESSURE CONDITIONS.
4. RESTRAINT RODS, NUTS, WASHERS AND APPURTENANCES SHALL BE CONSTRUCTED OF 304 SST. RODS SHALL BE ALL-THREAD DESIGN.
5. JOINTS USING RODS FOR RESTRAINT SHALL NOT EXCEED ALLOWABLE THRUST PER RESTRAINT ROD AS SHOWN IN COLUMN G. IN NO CASE SHALL LESS THAN 2 RODS BE USED.

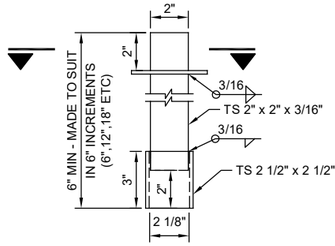




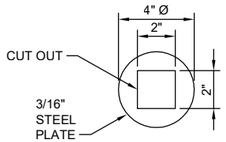
PLAN



SECTION

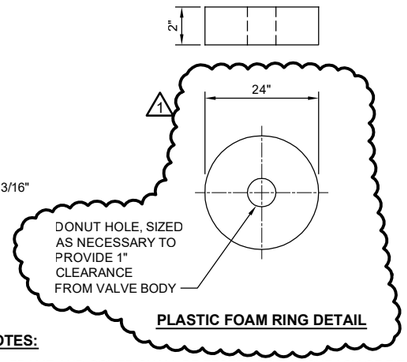


OPERATING NUT EXTENSION DETAIL

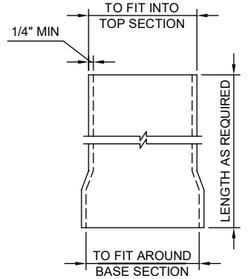


SECTION

VALVE AND VALVE BOX
DETAIL 2
NTS TYP



PLASTIC FOAM RING DETAIL



EXTENSION PIECE

NOTES:

1. FRAME AND COVER SHALL BE TESTED FOR ACCURACY OF FIT AND SHALL BE MARKED IN SETS FOR DELIVERY.
2. CASTINGS AND EXTENSIONS SHALL BE HOT-DIPPED IN ASPHALTIC VARNISH ROYSTON ROSKOTE #612XM OR 2 COATS OF MASTIC ROYSTON INSIDE AND OUT.
3. VALVE BOXES SHALL BE RICH #045: TOP SECTION, LID AND BASE; OR OLYMPIC FOUNDRY: LID #1908-33, TOP SECTION #1106-33, BASE SECTION #1301-33 OR APPROVED EQUAL.
4. ALL CASTINGS SHALL BE DUCTILE OR GREY CAST IRON.
5. AN OPERATING NUT EXTENSION SHALL BE INSTALLED WHEN THE GROUND SURFACE IS MORE THAN 2'-6" ABOVE THE VALVE OPERATING NUT. THE OPERATING NUT EXTENSION SHALL EXTEND INTO THE TOP SECTION OF THE STANDARD VALVE BOX AND SHALL CLEAR THE BOTTOM OF THE LID BY 6" MINIMUM.
6. EXTENSION PIECES (WHEN USED) SHALL CONFORM TO MINIMUM THICKNESS REQUIREMENTS AND SHALL FIT INTO THE TOP SECTION AND OVER THE BOTTOM SECTION.
7. LID SHALL BE STAMPED "SEWER".
8. PLACE 16" - 24" GATE VALVES ON COMMERCIAL CLASS CONCRETE PAD. (12" D x 42" W x 30" L).
9. SURFACE RESTORATION SHALL BE IN ACCORDANCE WITH LOCAL REGULATORY REQUIREMENTS AND AS SHOWN ON THE SITE RESTORATION DRAWINGS.

Call 48 Hours Before You Dig
1-800-424-5555
UNDERGROUND SERVICE

TONY FISHER — STATE OF WASHINGTON — 19009 — REGISTERED PROFESSIONAL ENGINEER
01/06/2023

No.	Revision	Date	By	App'd
1	ADDENDUM #3	02-2023	TF	RAD
	ISSUED FOR BID	01-2023	TF	RAD

BHC CONSULTANTS
BHC Consultants, LLC
1601 Fifth Avenue, Suite 500
Seattle, Washington 98101
206.505.3400
206.505.3406 (fax)
www.bhcconsultants.com

Designed: T. Fisher, P.E.
Drawn: P. Simon
Checked: R. Dorn, P.E.

Scale: NTS
One Inch at Full Scale
If Not One Inch Scale Accordingly

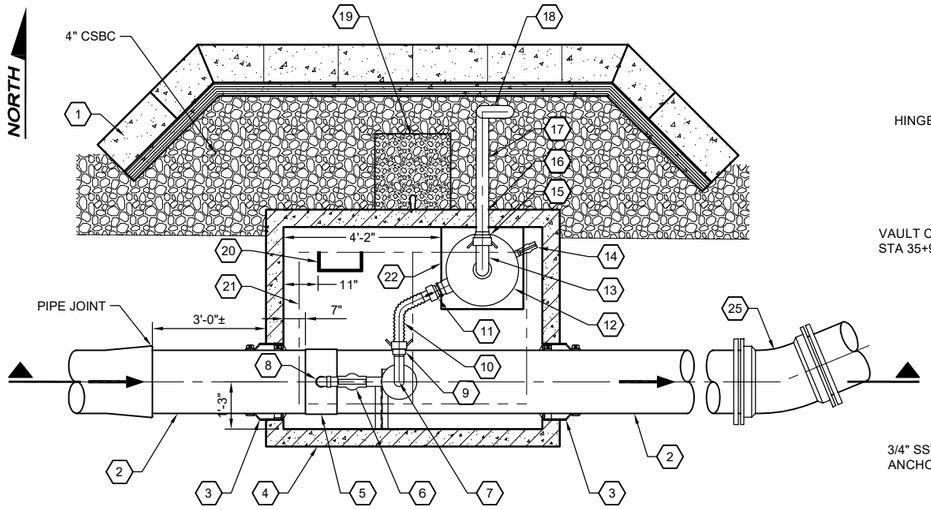
Kitsap County Public Works
614 Division Street, MS 26
Port Orchard, WA 98366

SILVERDALE CONVEYANCE SYSTEM AND PUMP STATION 4 UPGRADES

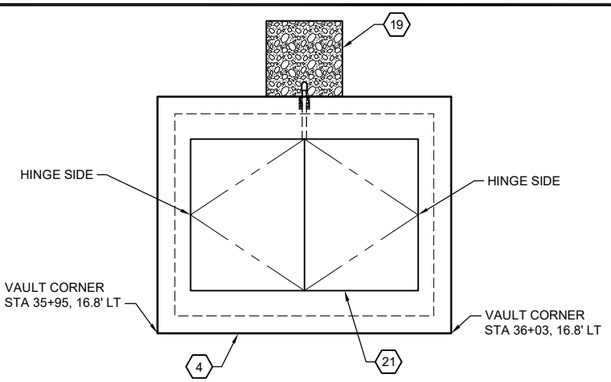
THRUST BLOCK AND VALVE BOX DETAILS

Drawing: C-3
Sheet: 8 of 117
File: P21-10530-PS4_C-3
Date: January 2023

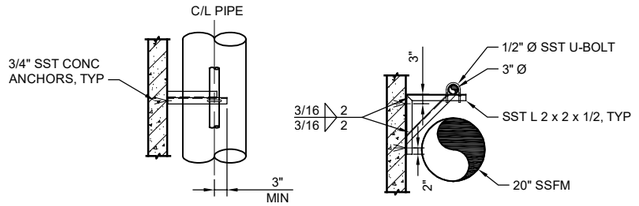
Path: S:\Cad\Kitsap County\21-10530 Silverdale Convey-PS 4 Upgr\Design\d Filename: P21-10530_C-3 Plot date: Feb 13, 2023-04:41:56pm CAD User: abradley.
Xref Filename: | Fisher | X21-10530_TB | Dahl | Palmatier |



PLAN

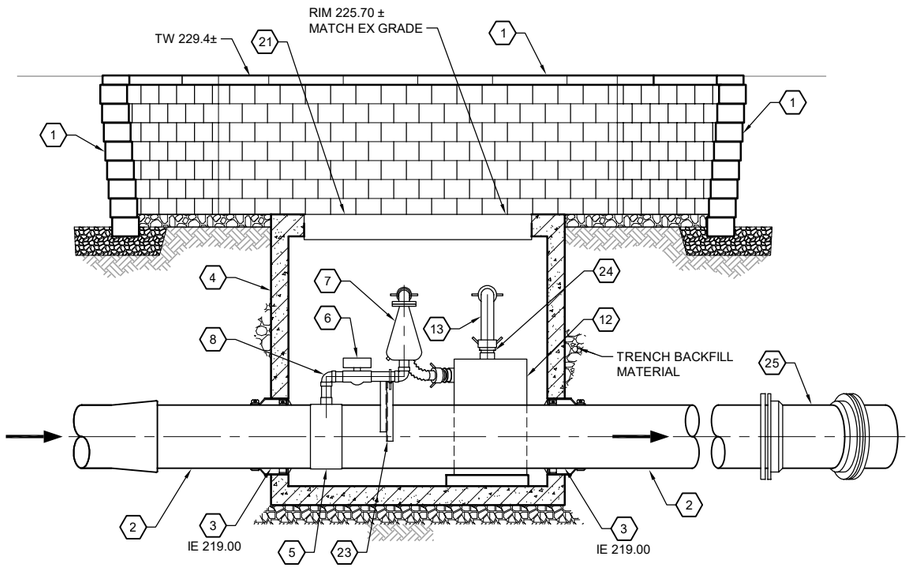


ACCESS HATCH PLAN



PLAN **ELEVATION**

AIR VAC PIPE SUPPORT



SECTION A-A

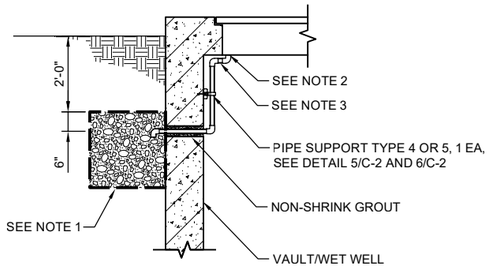
AIR/VACUUM VAULT ASSEMBLY
DETAIL 1
NTS C-1A

NOTES:

1. ROUTE FLEX HOSE FROM AIR/VACUUM VALVE DISCHARGE TO CARBON CANISTER INTAKE, DEFLECTING VERTICALLY AND HORIZONTALLY AS NECESSARY.
2. VAULT WALLS SHALL BE FULL WIDTH THICKNESS AT ALL PIPE PENETRATIONS.

AIR/VACUUM VAULT ASSEMBLY COMPONENTS:

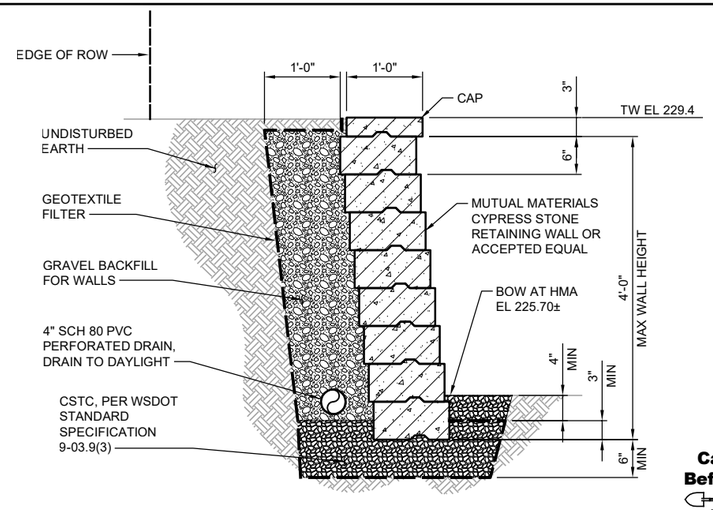
1. RETAINING WALL, PER DETAIL 3/-
2. 20" C905 PVC PIPE
3. WALL PENETRATION TYPE 1 PER DETAIL 7/C-9D
4. PRECAST CONCRETE VAULT (7'-0" L x 5'-6" W X 6'-0" H, INSIDE DIM), SEE NOTE 2
5. 20" x 3" SST SERVICE SADDLE
6. 3" PVC BALL VALVE W/ 3" SCH 80 NIPPLE (PE x PE, LENGTH AS REQ'D)
7. 3" ARI D-020 OR D-025 COMBINATION AIR/VACUUM VALVE, THREADED
8. 3" SCH 80 PVC 90° ELBOW (FIPT x FIPT) W/ ONE 3" SCH 80 PVC NIPPLE (THREADED x PE, LENGTH AS REQ'D) & ONE 3" SCH 80 PVC NIPPLE (PE x PE, LENGTH AS REQ'D)
9. 3" TYPE F ADAPTOR (ALUM CAM/GROOVE x MALE NPT)
10. 3" FLEXIBLE URETHANE HOSE WITH TYPE C CAMLOCK ADAPTORS ON BOTH ENDS, SEE NOTE 2
11. 4" x 3" SST NIPPLE (MIPT x MIPT), 3" TYPE A ADAPTOR (ALUM CAM/GROOVE x FIPT)
12. ECS VENTADSORB PE STAND ALONE CANISTER OR ACCEPTED EQUAL
13. 4" FLEXIBLE URETHANE HOSE WITH TYPE C CAMLOCK ADAPTORS ON BOTH ENDS
14. 2" DRAIN WITH PVC BALL VALVE
15. 4" TYPE A ADAPTOR (ALUM CAM/GROOVE x FIPT)
16. CORE HOLE FOR PIPE, FILL ANNULAR SPACE WITH NON-SHRINK GROUT
17. 4" SCH 80 PVC PIPE (THREADED x PE), 4" SCH 80 PVC 90° ELBOW (SOCKET x SOCKET), 4" SCH 80 PVC PIPE (PE x PE)
18. 4" PVC GOOSE NECK WITH BUG SCREEN
19. HATCH DRAIN, PER DETAIL 2/--
20. ALUMINUM LADDER ATTACHED TO SIDE FRAME OF HATCH
21. 72" x 48" DOUBLE LEAF ALUM ACCESS HATCH, H-30 RATED
22. 26" x 26" x 3.5" CONCRETE PAD
23. AIR VAC PIPE SUPPORT. SEE DETAIL
24. 4" TYPE F ADAPTOR (ALUM CAM/GROOVE x MALE NPT)
25. 20" DI 22.5° BEND, MJ x MJ



NOTES:

1. 2' x 2' x 2' SUMP FILLED WITH GEOTEXTILE WRAPPED DRAIN ROCK.
2. CONNECT TO HATCH DRAIN PER MANUFACTURER'S RECOMMENDATIONS.
3. SCH 80 PVC PIPE SIZED PER HATCH MANUFACTURERS RECOMMENDATIONS, MAINTAIN 2% MINIMUM SLOPE.

HATCH DRAIN
DETAIL 2
NTS TYP



RETAINING WALL
DETAIL 3
NTS TYP

Call 48 Hours Before You Dig
1-800-424-5555
UNDERGROUND SERVICE

TONY FISHER STATE OF WASHINGTON 19900 REGISTERED PROFESSIONAL ENGINEER
01/06/2023

No.	Revision	Date	By	App'd
1	ADDENDUM #3	02-2023	TF	RAD
	ISSUED FOR BID	01-2023	TF	RAD

BHC Consultants, LLC
1601 Fifth Avenue, Suite 500
Seattle, Washington 98101
206.505.3400
206.505.3406 (fax)
www.bhcconsultants.com

Designed: T. Fisher, P.E.
Drawn: P. Simon
Checked: R. Dorn, P.E.

Scale: As Shown
One Inch at Full Scale
If Not One Inch Scale Accordingly

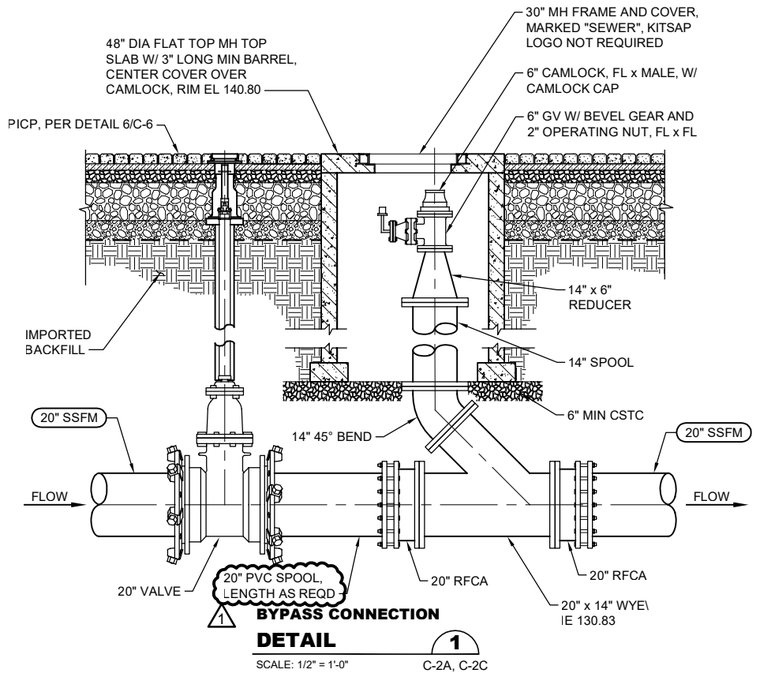
Kitsap County Public Works
614 Division Street, MS 26
Port Orchard, WA 98366

SILVERDALE CONVEYANCE SYSTEM AND PUMP STATION 4 UPGRADES

AIR/VACUUM VALVE VAULT DETAILS

Drawing: C-5
Sheet: 10 of 117
File: P21-10530_C-5
Date: January 2023

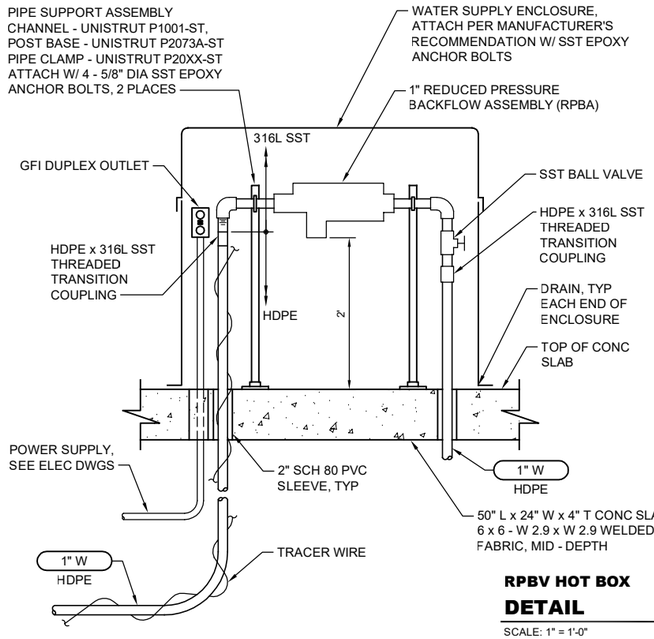
Path: S:\Cad\Kitsap County\21-10530 Silverdale Convey-PS 4 Upgr\Design\d Filename: P21-10530_C-5 Plot date: Feb 13, 2023-04:43:22pm CAD User: abradley.
Xref Filename: | Fisher | X21-10530_TB | Dahl | Palmatier |



BYPASS CONNECTION

DETAIL 1

SCALE: 1/2" = 1'-0" C-2A, C-2C



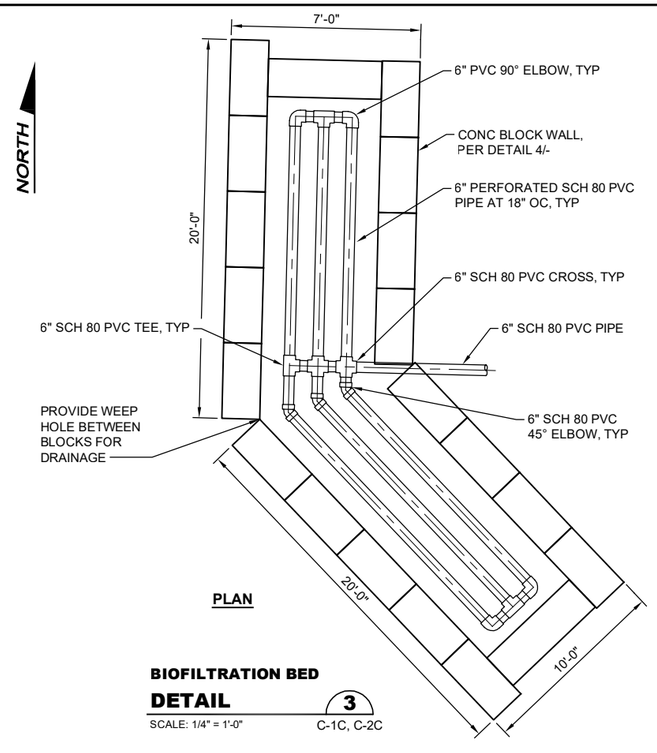
RPBV HOT BOX

DETAIL 2

SCALE: 1" = 1'-0" C-2C

NOTES:

1. ALL PIPE AND FITTINGS SHALL BE TYPE 316L STAINLESS STEEL, EXCEPT AS NOTED.
2. ATTACH SIGN TO INSIDE OF WATER SUPPLY ENCLOSURE STATING "CAUTION NON-POTABLE WATER DO NOT DRINK".
3. MAINTAIN 6" MIN CLEARANCE BETWEEN WATER PIPE/ FIXTURES AND FACE OF ENCLOSURE.
4. SEE CIVIL DWGS FOR ACTUAL ORIENTATION OF ENCLOSURE AND PIPING ON SLAB.
5. APPLY HEATING CABLE, PROVIDED WITH THE WATER SUPPLY ENCLOSURE, TO PIPE AS RECOMMENDED BY WATER SUPPLY ENCLOSURE MANUFACTURER. CONNECT HEATING CABLE TO RECEPTACLE WITHIN ENCLOSURE.

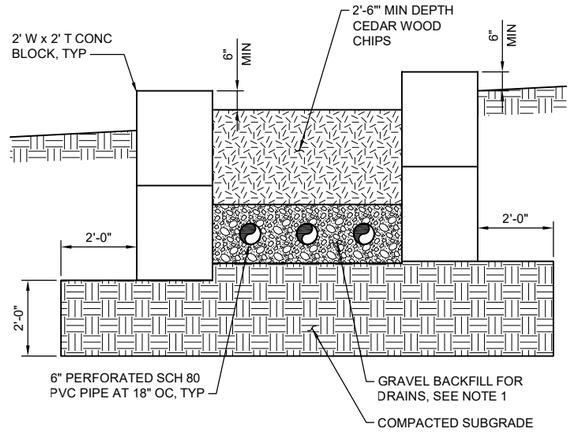


PLAN

BIOFILTRATION BED

DETAIL 3

SCALE: 1/4" = 1'-0" C-1C, C-2C



NOTE:

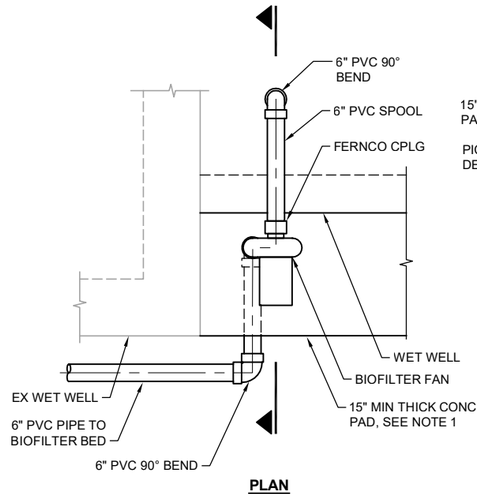
1. GRAVEL BACKFILL SHALL EXTEND 6" ABOVE AND BELOW PIPE.

SECTION

BIOFILTRATION BED

DETAIL 4

SCALE: 1/2" = 1'-0" C-1C, C-2C



PLAN

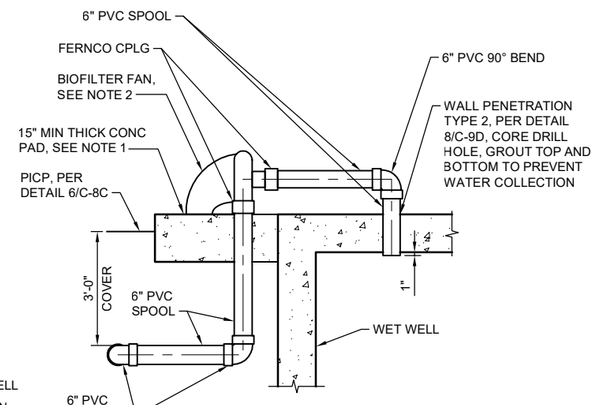
NOTE:

1. CONCRETE PAD SHALL EXTEND TO BOTTOM OF OPEN GRADED BASE UNDER PICP. REINFORCE PER DETAIL 5/S-13C.
2. BIOFILTER FAN SHALL BE MODEL CMVECO 160 BY INDUSTRIAL PLASTIC FAN OR ACCEPTED EQUAL AND SHALL INCLUDE SUPPORTS TO MOUNT TO CONCRETE PAD

BIOFILTER FAN

DETAIL 5

NTS C-2C, C-7C



SECTION

Call 48 Hours Before You Dig

1-800-424-5555

UNDERGROUND SERVICE

ANTONY FISHER STATE OF WASHINGTON REGISTERED PROFESSIONAL ENGINEER

01/06/2023

No.	Revision	Date	By	App'd
1	ADDENDUM #3	02-2023	TF	RAD
	ISSUED FOR BID	01-2023	TF	RAD

BHC Consultants, LLC
1601 Fifth Avenue, Suite 500
Seattle, Washington 98101
206.505.3400
206.505.3406 (fax)
www.bhcconsultants.com

Designed: T. Fisher, P.E.
Drawn: A. Cariaso
Checked: R. Dorn, P.E.

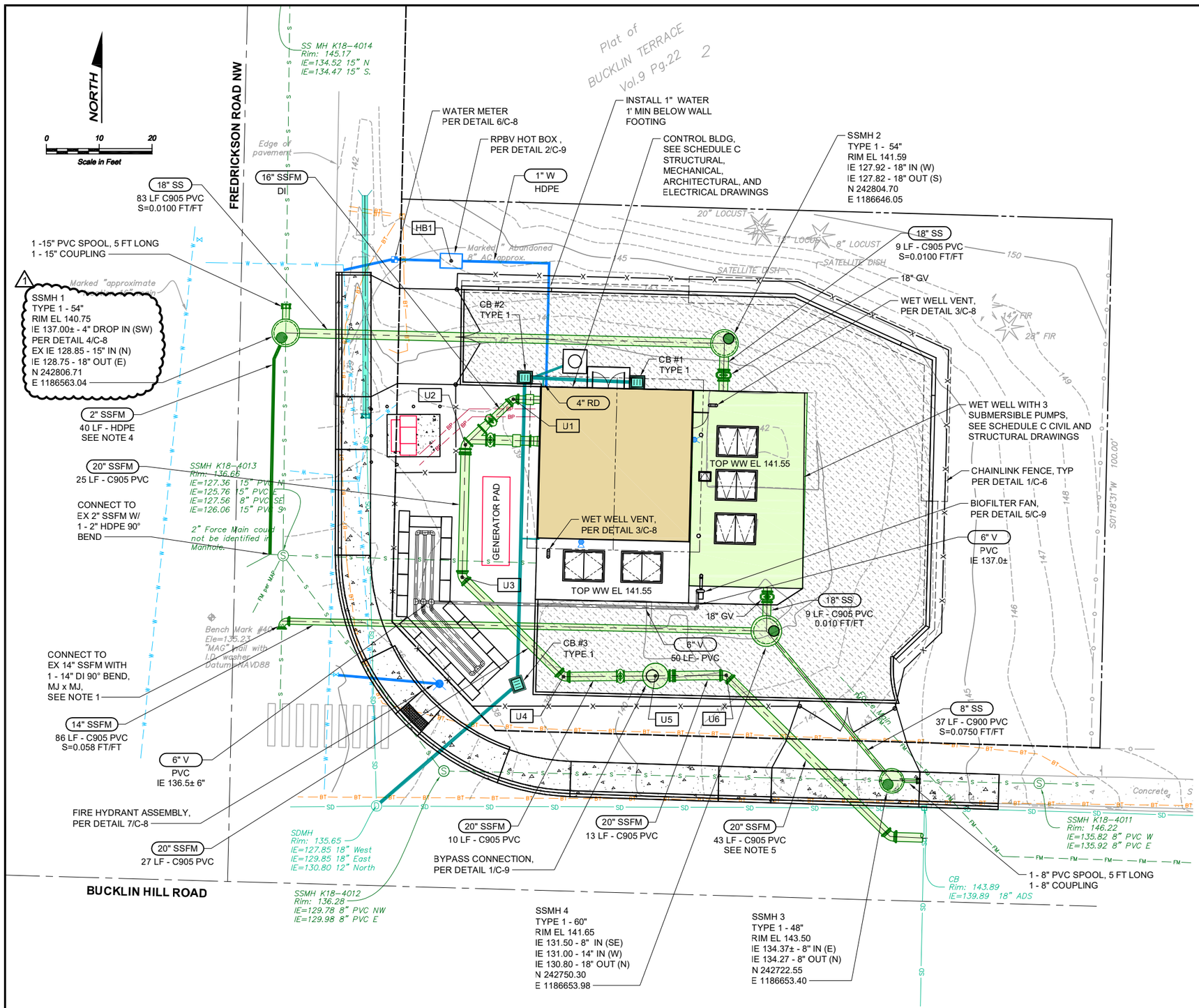
Scale: As Shown
One Inch at Full Scale
If Not One Inch Scale Accordingly

Kitsap County Public Works
614 Division Street, MS 26
Port Orchard, WA 98366

SILVERDALE CONVEYANCE SYSTEM AND PUMP STATION 4 UPGRADES

CIVIL DETAILS 4 OF 4

Drawing: C-9
Sheet: 14 of 117
File: P21-10530_C-9
Date: January 2023



NOTES:

1. POTHOLE EXISTING SSFM AT CONNECTION POINT TO VERIFY ELEVATIONS.
2. ALL NEW PIPE JOINTS ON PRESSURIZED PIPE AND ALL BURIED FITTINGS WITHIN THE PROJECT AREA SHALL BE RESTRAINED UNLESS NOTED OTHERWISE.
3. SEE DRAWING C-8C FOR GRADING AND DRAINAGE PLAN AND DRAWING C-9C FOR RETAINING WALL AND SIDEWALK PLAN.
4. MAINTAIN CONSTANT UPWARD SLOPE FROM CONNECTION POINT NEAR SSMH K18-4013 TO NEW SSMH. BEND PIPE PER MANUFACTURER'S RECOMMENDATIONS TO MAKE ENTRANCE INTO SSMH.
5. SEE SCHEDULE A FOR 20" SSFM DOWNSTREAM OF BYPASS CONNECTION.

COORDINATE CONTROL NOTES:

1. SEE DWGS D-1C, C-1C, C-8C, AND C-9C FOR ADDITIONAL COORDINATE POINTS.

PIPE - COORDINATE CONTROL

PT #	NORTHING	EASTING	INVERT/ ELEVATION	DESCRIPTION
U1	242794.16	1186606.11	130.69	16" 45° BEND, MJ x MJ
U2	242785.52	1186597.03	130.52	20" 45° BEND, MJ x MJ
U3	242760.47	1186596.43	130.64	20" 45° BEND, MJ x MJ
U4	242741.66	1186615.61	130.78	20" 45° BEND, MJ x MJ
U5	242741.81	1186632.99	130.83	BYPASS STRUCTURE
U6	242741.92	1186646.40	130.87	20" 45° BEND, MJ x MJ
HB1	242820.32	1186594.36	143.0±	RPBV HOT BOX (TOP OF SLAB)

Call 48 Hours Before You Dig
1-800-424-5555
UNDERGROUND SERVICE

TONY FISHER STATE OF WASHINGTON 19999 REGISTERED PROFESSIONAL ENGINEER
01/06/2023

No.	Revision	Date	By	App'd
1	ADDENDUM #3	02-2023	TF	RAD
	ISSUED FOR BID	01-2023	TF	RAD

BHC Consultants, LLC
1601 Fifth Avenue, Suite 500
Seattle, Washington 98101
206.505.3400
206.505.3406 (fax)
www.bhcconsultants.com

Designed: T. Fisher, P.E.
Drawn: P. Simon
Checked: R. Dorn, P.E.

Scale: 1" = 10'-0"
One Inch at Full Scale
If Not One Inch Scale Accordingly

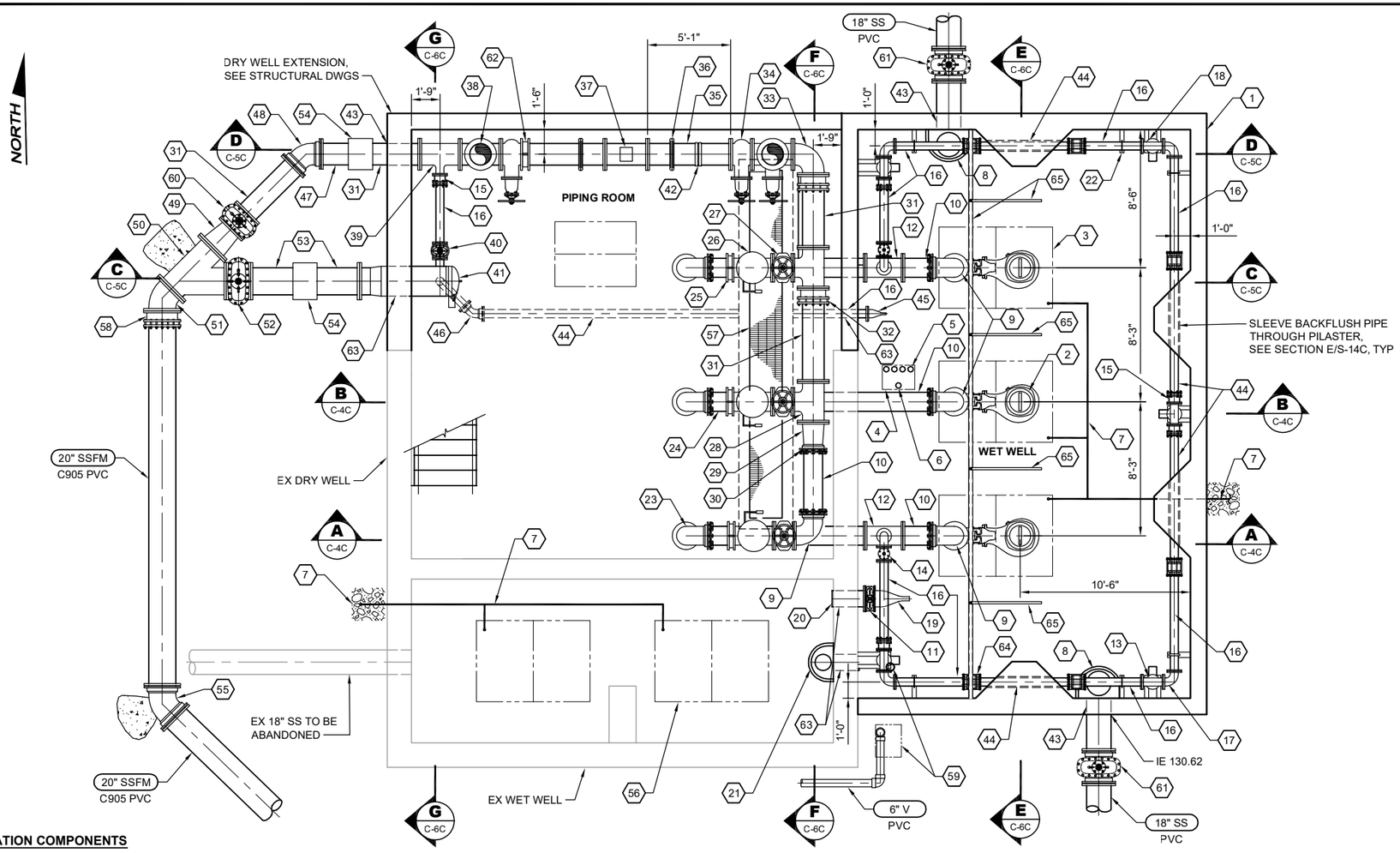
Kitsap County Public Works
614 Division Street, MS 26
Port Orchard, WA 98366

SILVERDALE CONVEYANCE SYSTEM AND PUMP STATION 4 UPGRADES
SCHEDULE C

SITE PIPING PLAN

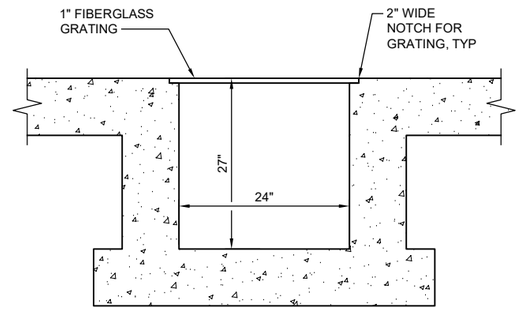
Drawing: C-2C
Sheet: 40 of 117
File: P21-10530_C-2C
Date: January 2023

Path: S:\Cad\Kitsap County\21-10530 Silverdale Convey-PS 4 Upgr\Design\d Filename: P21-10530_C-2C Plot date: Feb 14, 2023-09:10:48am CAD User: abradley.
Xref Filename: | Fisher | X21-10530_TB | X21-10530-PS4_Ex Topo | X21-10530-PS4_Prop Site | X21-10530-PS4_Prop HMA | X21-10530-SCU_Ex Topo | Dahl | Palmatier |



NOTES:

1. ALL DUCTILE IRON PIPE AND FITTINGS SHALL BE CLASS 52 AND LINED WITH PROTECTO 401.
2. ALL BOLTED CONNECTIONS IN THE WET WELL SHALL BE CONSTRUCTED WITH DOUBLE 316L SST NUTS.
3. ALL BELL AND SPIGOT, MECHANICAL, AND PLAIN END JOINTS SHALL BE RESTRAINED. ALL BURIED FITTINGS SHALL ALSO HAVE THRUST BLOCKS, UNLESS NOTED OTHERWISE.
4. COORDINATE HATCH LOCATION WITH PUMP MANUFACTURER AND GUIDE RAILS TO AVOID CONFLICTS.
5. ALL ACCESS HATCHES SHALL HAVE A SAFETY GRATE BY HATCH MANUFACTURER, UNLESS NOTED OTHERWISE. SAFETY GRATE SWING SHALL BE THE SAME AS THE HATCH DOOR.
6. SEE STRUCTURAL DRAWINGS FOR LOCATIONS AND DETAILING OF LIFT/PULL POINTS IN CEILING OF PIPE ROOM THAT WILL BE USED TO FACILITATE MAINTENANCE ON THE MECHANICAL EQUIPMENT IN THE PIPE ROOM.



NOTES:

1. SEE STRUCTURAL DWGS FOR REINFORCING AND WALL THICKNESS.

TRENCH DRAIN
SECTION 1
SCALE: 1/2" = 1'-0"

PUMP STATION COMPONENTS

1. NEW WET WELL, SEE STRUCTURAL DRAWINGS
2. SUBMERSIBLE PUMP, TYP OF 3
3. 84" x 60" DOUBLE LEAF ALUM ACCESS HATCH, H-30 RATED, TYP OF 3, SEE NOTES 4 AND 5, DWG C-7C, AND STRUCTURAL DWGS
4. 18" x 24" SINGLE LEAF ALUM ACCESS HATCH WITH REMOVABLE SAFETY NET, BUT NO SLAM LOCK, SPRING ASSIST CYLINDER, OR PADLOCK HASP, H-30 RATED
5. FLOAT SWITCH ASSEMBLY, SEE ELECTRICAL DRAWINGS FOR DETAILS
6. PRESSURE SENSING LEVEL PROBE, SEE ELECTRICAL DRAWINGS FOR DETAILS
7. HATCH DRAIN, 1 ½" SCH 80 PVC, PER DETAIL 2/C-5
8. 18" INSIDE DROP CONNECTION, PER DETAIL 4/C-8
9. 14" DI 90° BEND, FL x MJ
10. 14" DI SPOOL, FL x PE, LENGTH AS REQUIRED
11. 12" GATE VALVE, FL x FL (1)
12. 14" x 6" DI VERTICAL TEE, FL x FL, TYP OF 2
13. 6" x 6" DI TEE, FL x FL, TYP OF 5
14. 6" GV WITH VALVE BOX, FL x FL, TYP OF 2
15. 6" RESTRAINED FLANGE COUPLING ADAPTOR, TYP OF 5
16. 6" DI SPOOL, FL x PE, LENGTH AS REQUIRED
17. 6" DI 90° BEND, FL x FL, TYP OF 6
18. 6" BACKFLUSH PIPE, PER DETAIL 1/C-7, TYP OF 5
19. 12" DUCKBILL TYPE CHECK VALVE, FL CONNECTION
20. 12" DI SPOOL, FL x PE, LENGTH AS REQUIRED
21. 12" INSIDE DROP, SEE DETAIL 4/C-8
22. PIPE SUPPORT TYPE 2, SEE DETAIL 3/C-7, TYP OF 6
23. 14" DI 90°BEND, MJ x MJ, TYP OF 3
24. 14" DI SPOOL, FL x PE, LENGTH AS REQUIRED, TYP OF 3
25. 14" PRESSURE INDICATOR, PER DETAIL 1/C-8, TYP OF 3
26. 14" CHECK VALVE, FL x FL, TYP OF 3
27. 14" GV WITH HANDWHEEL, FL x FL, TYP OF 3
28. 16" x 14" DI TEE, FL x FL, TYP OF 2
29. 16" x 14" DI REDUCER, FL x FL
30. 14" RESTRAINED FLANGE COUPLING ADAPTOR
31. 16" DI SPOOL, FL x PE, LENGTH AS REQUIRED
32. 16" RESTRAINED FLANGE COUPLING ADAPTOR, TYP OF 2
33. 16" DI 90° BEND, FL x FL
34. 16" GV WITH HANDWHEEL, FL x FL, TYP OF 3
35. 16" DI SPOOL, FL x GRV, LENGTH AS REQUIRED, TYP OF 4
36. 16" VICTAULIC COUPLING, TYP OF 2
37. 16" MAGNETIC FLOW METER, FL x FL WITH 16" DI SPOOL, FL x FL SPOOL TO MATCH LAY LENGTH OF FLOW METER
38. 16" x 16" DI VERTICAL TEE, TYP OF 2
39. 16" x 6" DI TEE, FL x FL
40. 6" GV WITH HANDWHEEL, FL x FL
41. 20" PIG LAUNCH, PER DETAIL 5/C-8
42. 16" DOUBLE STRAP SERVICE SADDLE WITH 2" OUTLET AND BRASS BALL VALVE, PLUMB AS NEEDED TO DRAIN TO TRENCH GRATE
43. WALL PENETRATION TYPE 1, PER DETAIL 7/C-7, CORE DRILL HOLE, MATCH PIPE SIZE
44. 6" DI SPOOL, PE x PE, LENGTH AS REQUIRED
45. 6" DUCKBILL TYPE CHECK VALVE, FL CONNECTION
46. 6" DI 45° BEND, MJ x MJ
47. 16" DI SPOOL, PE x PE, LENGTH AS REQUIRED
48. 16" DI 45° BEND, MJ x MJ
49. 20" x 16" DI REDUCER, FL x FL
50. 20" x 20" DI WYE, FL x FL
51. 20" DI 45° BEND, FL x FL
52. 20" GV WITH VALVE BOX, FL x FL
53. 20" DI SPOOL, FL x PE, LENGTH AS REQUIRED
54. ROMAC ALPHA RESTRAINED FLEXIBLE COUPLING OR ACCEPTED EQUAL, MATCH PIPE SIZE
55. 20" DI 45° BEND, MJ x MJ
56. 72" x 48" DOUBLE LEAF ALUMINUM ACCESS HATCH, H-30 RATED, TYP OF 2, SEE NOTE 5, DWG C-7C, AND STRUCTURAL DWGS
57. TRENCH DRAIN, SEE DETAIL 1/-
58. 20" RESTRAINED FLANGE COUPLING ADAPTOR
59. 6" C900 PVC VENT PIPE AND BIOFILTER FAN (ABOVE), PER DETAIL 5/C-9
60. 16" GV WITH VALVE BOX, FL x FL
61. 18" GV WITH VALVE BOX, MJ x MJ
62. 16" PRESSURE INDICATOR, PER DETAIL 1/C-8
63. WALL PENETRATION TYPE 2, PER DETAIL 8/C-7, CORE DRILL HOLE, MATCH PIPE SIZE, TYP OF 5
64. 6" RESTAINED COUPLING, TYP OF 6
65. INTERMEDIATE GUIDE RAIL SUPPORTS, SEE STRUCTURAL DRAWINGS

Call 48 Hours Before You Dig
1-800-424-5555
UNDERGROUND SERVICE

TONY FISHER — STATE OF WASHINGTON — 21607 — REGISTERED PROFESSIONAL ENGINEER
01/06/2023

No.	Revision	Date	By	App'd
1	ADDENDUM #3	02-2023	TF	RAD
	ISSUED FOR BID	01-2023	TF	RAD

BHC Consultants, LLC
1601 Fifth Avenue, Suite 500
Seattle, Washington 98101
206.505.3400
206.505.3406 (fax)
www.bhcconsultants.com

Designed: T. Fisher, P.E.
Drawn: P. Simon
Checked: R. Dorn, P.E.

Scale: 1/4" = 1'-0"
One Inch at Full Scale
If Not One Inch Scale Accordingly

Kitsap County Public Works
614 Division Street, MS 26
Port Orchard, WA 98366

SILVERDALE CONVEYANCE SYSTEM AND PUMP STATION 4 UPGRADES
SCHEDULE C

CONTROL BUILDING
PIPING ROOM AND WET WELL PLAN

Drawing: C-3C
Sheet: 41 of 117
File: P21-10530_C-3C
Date: January 2023

Path: S:\Cad\Kitsap County\21-10530 Silverdale Convey-PS 4 Upgr\Design\4 Filename: P21-10530_C-3C Plot date: Feb 13, 2023-03:48:45pm CAD User: abradley.
Xref Filename: | X21-10530_TB | Fisher | X21-10530-PS4_Ex Bldg | X21-10530-PS4_Prop Bldg | X21-10530-PS4_Prop Mech | Dahl | Palmatier |