

REQUEST FOR A WAIVER FROM THE AMERICAN IRON AND STEEL REQUIREMENT

This request for a waiver from the American Iron and Steel requirement is completed by a PENNVEST funding recipient when there is a need to use a foreign-made iron/steel component and the component is not expected to be placed on the De Minimus list.

PENNVEST Funding Recipient	<u>Independence-Cross Creek Joint Sewer Authority</u>
PENNVEST Project:	<u>Independence Village and Cross Creek Village Sanitary Sewer System</u>
ME Number:	<u>75308</u>
Recipient/Engineer Contact Name:	<u>Kevin L. Szakelyhidi, PE</u>
Telephone:	<u>(412) 767-5100</u>
Email:	<u>kevins@banksonengineers.com</u>

Waiver requested on the basis

of:

- Public Interest (complete sections A and B below)**
- Availability (complete sections A and C below)**
- Cost (complete sections A and D below)**

Waivers may be requested using more than one basis.

PLEASE SUBMIT WAIVER REQUEST TO:

Completed requests can be either mailed or emailed to:

Veronica Kasi
 Division of Technical and Financial Assistance
 P. O. Box 8774
 Harrisburg, PA 17105-8774

Email: vbkasi@pa.gov

Phone: 717.772.4053

A. General

Describe the unit process which contains the proposed foreign-made iron/steel component:

The project involves the installation of a large amount of pressure sewers 2", 3" and 4" diameter in size. The new pressure sewers facilities will include valves necessary for isolation, flushing and other maintenance activities. Some of these valves will be burried underground. The remainder of the valves will be located inside multi-purpose underground vaults which will, among other functions, provide sewage containment to enable continued provision of sanitary sewage services to most customers while portions of the pressure sewer collection system are temporarily removed from service for maintenance. Because of the small size of the valves and the characteristics needed for the proper flow of sewage, full port ball valves are required. Because of the aggressive nature of the environments where these valves will be installed and the needs for reliability, durability and longevity, the acceptable valve materials are limited to only cast iron, dutile iron, staniless steel or bronze.

Finally, valves and fittings having grooved ends have been used (1) to simplify piping arrangements, (2) to facilitate more rapid disassembly and reassembly during maintenance and (3) to enable more compact piping configurations and thus enable the use of smaller smaller, less expensive, underground vaults. There are no valves meeting all these criteria made in the USA. We have identified only two valves which meet these criteria, and both of those valves are made off shore.

Additional materials attached. ()

Describe the foreign-made iron/steel component:

The valve body is cast iron. The ball is PFA fused cast iron. The stem is stainless steel. The valve and all its components are made off shore.

Additional materials attached. ()

Proposed foreign-made manufacturer:

Name: American Valve

Address: 4321 Piedmont Parkway, Greensboro, NC 27410

B. Public Interest (N/A)

Why is the use of the product in the public interest? For example, is the use of a foreign-made iron/steel component necessary because of compatibility with existing components in the water or wastewater system, or other reason?

The use of these foreign made valves with their grooved ends will enable the simplification of the piping in underground vaults and thereby reduce the overall cost and complexity of the piping, reduce the size of the vaults and, thus, the overall cost of the project. Further, the foreign made valves having the grooved ends greatly facilitate maintenance of the piping systems within the vaults.

The only alternative to the foreign made valves is to use flanged end valves. We have identified one manufacturer who makes AIS compliant valves which would be suitable for the project except for the lack of grooved ends.

Conbraco Industries' Apollo Valves in the 2" size is made entirely of stainless steel and in the 3" and 4" sizes are made with bronze bodies and stainless steel balls and stems. All of the Apollo valves have flanged ends.

AIS compliant flanged ended, full port ball valves, may also be available from other manufacturers. While these alternative valves would function acceptably, their flanged ends are problematic. Some of the valves are to be buried in the earth, a somewhat problematic environment for flanged ends. Even more problematic is the use of flanged ends in the underground vaults. Flanged ends require a great deal more space and more complex piping incorporating sleeves to enable maintenance of the vault piping. By using grooved ended valves and fittings, the piping is more easily disassembled and reassembled, and does not require complex piping arrangements to include sleeves to enable disassembly and reassembly of piping. Thus, the space requirements for piping are kept to a minimum and the vaults can be smaller if grooved ended valves and fittings are used. The reduced amount and complexity of the piping and the smaller vaults, all made possible by using grooved ended valves and fittings, reduce the overall cost of the project and facilitate maintenance.

Additional materials attached. ()

C. Availability (N/A)

Describe requirements in the project plans, specifications or permits which describe the required quantity and quality of the product:

The project includes 28 underground vaults which serve various and multiple functions. All 28 vaults serve as containment chambers which enable continued sanitary sewage service to the majority of the utility's customers while portions of the sewage collection system are shut down for repairs and maintenance. All 28 vaults also serve as access points to flush the pressure sewer system. 7 of the vaults also contain isolation valves. 18 of the vaults house air release valves. Together, these 28 vaults contain 45 two-inch valves, 5 three-inch valves and 2 four-inch valves. Additionally, 15 two-inch valves to be buried underground will serve as cleanout/flushing ports on the pressure sewer system. Thus, a total of 67 full port ball valves having grooved ends are required for the project. Portions of the contract drawings showing various vault types and the terminal cleanout unit are attached. Also, Section D, Part 28 VALVES of the Specifications is attached which discusses the valve requirements.

Excerpts from plans, specifications and/or permits must be attached.

When is the product needed for installation: Month: November Year: 2017

Describe the efforts to use domestic suppliers: Both the engineer and the Mortimer Excavting, Inc., contractor for contract involving the largest share of pressure sewers for the project, have both conducted an in-depth internet search of ball valve manufacturers and have contacted several potential suppliers via chat function on manufacturers' websites and via telephone.

Additional materials attached. ()

Provide information from potential domestic suppliers:

Name Of Domestic Supplier Contacted	Supplier Contact Person/Email	Availability	Delivery Date (Month/Year)
Valtorc International	Tony Jackson, Vice President of Operations tonyjackson@valtorc.com 570-857-6100	Valtorc makes 2" and 3" full port valves with grooved ends, but they are not AIS compliant. Valtorc doe not make 4" full port ball valves with grooved ends.	NA
Jomar Valve	Matt B. (support agent) at www.jomarvalve.com 586-268-1220	They do not make grooved ended valves. They do make stainless steel full	NA

		ported valves, but they have flanged ends and they are made in Taiwan. None of Jomar's ball valves are AIS compliant.	
Conbraco Industries (Apollo Valves)	701 Matthews-Mint Hill road Matthews, NC 28105 Allana (704) 841-6111	Make AIS compliant full port ball valves, but with flanged ends, not grooved ends.	NA
Additional materials attached. (<input type="checkbox"/>)			

D. Cost (N/A)

Cost of project with domestic components: \$ _____

Cost of project with foreign-made components: \$ _____

Will the use of domestic components increase the project cost by more than 25%?

Yes No

If no, cost is not a valid basis.

If yes, attach a detailed cost comparison of the domestic and foreign-made options.

Mortimers Excavating Inc.

523 Lapin Lane, Pulaski PA 16143

Phone: 724-964-8264 Fax: 724-964-0607

Email ron@mortimerexcavating.com

Submittal Cover Sheet

Date 8/17/17

Project Independence Village And Cross Creek Village Sanitary Sewers Contract 16-1

Product VALVES 9A

Engineers Stamp

This furnish as corrected approval is conditioned upon the receipt of a waiver regarding AIS compliance.

<input type="checkbox"/> APPROVED	<input checked="" type="checkbox"/> FURNISH AS CORRECTED
<input type="checkbox"/> REJECTED	<input type="checkbox"/> REVISE AND RESUBMIT
	<input type="checkbox"/> SUBMIT SPECIFIED ITEM

This review is for general conformance with the design concept and the information given in the Construction Documents. Corrections or comments made on the shop drawings during this review do not relieve the contractor from compliance with the requirements of the plans and specifications. Approval of a special item shall not include an approval of an assembly of which the item is a component. The contractor is responsible for dimensions to be confirmed and correlated at the jobsite. Information that applies solely to the fabrication process, or to the means, methods, techniques, sequences and procedures of construction, coordination of the Work with that of all other trades and performing all Work in a safe and satisfactory manner.

By J. E. Bankson

Supplier: PIPELINES Date 8/17/2017

Manufacturer: AMERICAN VALVE

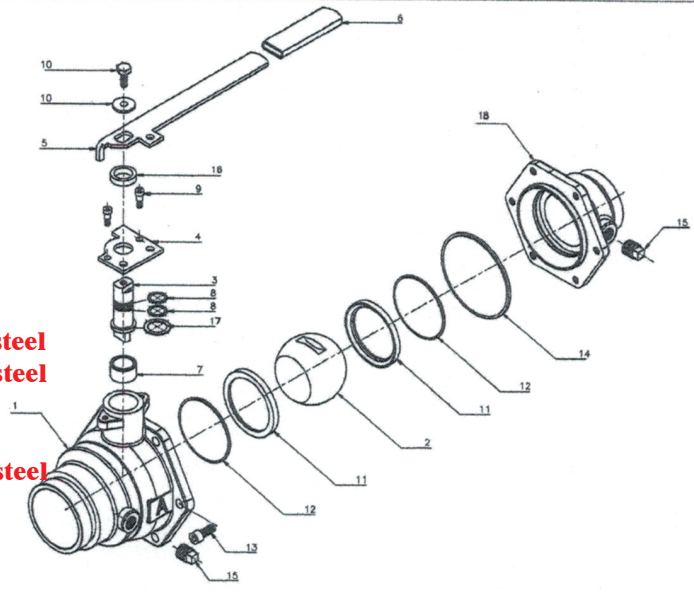
This furnish as corrected conditional approval supersedes and replaces all earlier correspondence for this item.

MODEL 3700V

Cast Iron Grooved-End Ball Valve

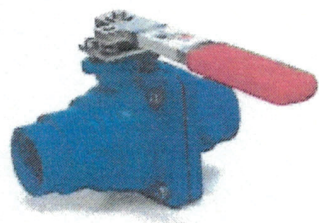
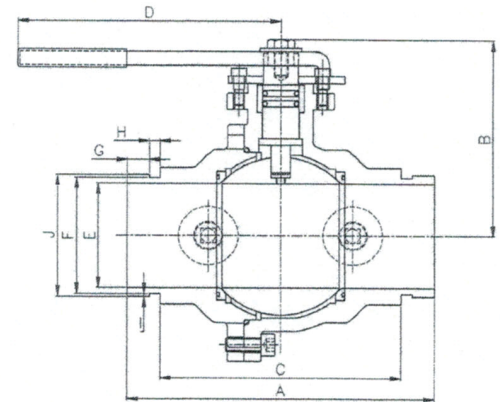


Part	Material
1 Body	Cast Iron/A48 Class 30
2 Ball	Cast Iron/PFA* Fused
3 Stem	Stainless Steel
4 Stop Plate	Steel- May be steel
5 Handle	Steel- May be steel
6 Handle Grip	Vinyl Dipped Plastisol
7 Sleeve	Stainless Steel
8 Stem O-Ring	Nitrile Rubber (Buna-N)
9 Shoulder Screw	Steel- Must be stainless steel
10 Stem Bolt/Washer	Steel- Must be stainless steel
11 Seat	Virgin PTFE
12 Back Seat O-Ring	Nitrile Rubber (Buna-N)
13 Socket Head Screw	Steel- Must be stainless steel
14 Body Gasket	Nitrile Rubber (Buna-N)
15 Body Plug	*
16 Collar	Steel- May be steel
17 Thrust Washer	PTFE
18 Body Cap	Cast Iron/A48 Class 30



*2" - 4" Steel; 6" Cast Iron

DIMENSIONS:	2	2 1/2	3	4	6
A End to End	7.80"	8.64"	8.68"	9.90"	12.56"
B Center of Port to Top	4.37"	5.31"	5.59"	6.34"	8.31"
C Face to Face	5.80"	6.77"	6.81"	7.90"	10.56"
D Center of Valve to Handle End	9.29"	9.76"	9.76"	10.67"	16.79"
E Port Diameter	2"	2.50"	3"	4"	6"
F Groove Diameter	2.24"	2.72"	3.34"	4.33"	6.45"
G Gasket Seat	0.63"	0.63"	0.63"	0.63"	0.63"
H Groove Width	0.31"	0.31"	0.31"	0.37"	0.38"
I Groove Depth	0.06"	0.08"	0.08"	0.08"	0.09"
J Grooved End OD	2.37"	2.87"	3.50"	4.5"	6.63"
Weight (lbs.)	12	19	26	45	105



- Certified to meet the requirements of NSF/ANSI 61 and NSF/ANSI 372
- PFA*- Fused Solid Ball
- Double tapped & plugged bosses allow for venting or draining downstream, or test port for backflow preventer
- Full Port in All Sizes
- Rated 200W @ 200°F
- Class VI Positive Shutoff
- 100% Lead-Free
- Low Torque
- Ideal for Liquid, Air, and Backflow applications
- Blowout Proof Stem
- Meets all State and Federal Lead-Free Laws

*PFA is an ingredient commonly branded as Teflon®.

The valve trim is to be stainless steel except that the (#4)stop plate, handle (#5) and collar (#16) may be carbon steel. To the extent that items are needed when the valve is equipped with a 2" square operating nut, the screws and other attachments are to be of stainless steel and not carbon steel. The 2" square operation nut, however, my be of steel.

American Valve's **3700 Series™** provides the best alternative to gate valves, exactly matching their end-to-end and flanged dimensions. **3700 Series™** valves also provide superior performance to butterfly and plug valves.

Unlike gate, plug, and butterfly valves, **3700 Series™** valves are designed to maintain a bubble-tight shut off that exceeds ANSI Class VI for many years, even if the valve has not been operated or maintained regularly.

The **3700 Series™** valves are certified to meet the requirements of NSF/ANSI 61 and NSF/ANSI 372. All **3700 Series™** valves are rated at 200 psig @ 200°F, and are full port in all sizes.

3700 Series™ features PFA* seats. It should not be used in steam, oil, or flammable gas applications, but is ideally suited for potable water, wastewater, or other liquids and compressed air.

3700 Series™ has no bronze parts, which contain lead. As regulatory agencies continue to reduce the allowable lead content of components in our drinking water supply, **3700 Series™** offers a safe alternative to IBBM gate valves and bronze disc butterfly valves. **3700 Series™** also features a VOC-free coating.

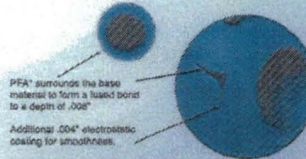
3700 Series™ valves are bi-directional; flow may go in either direction. They may be mounted horizontally, vertically, or at an angle.

3700 Series™ can be locked in either the open or closed position. 2" square operating nuts are available for underground service or hard-to-reach installations. Gear operators and actuators are available with our **4000 Series™** ball valve.

3700 Series™ features the fusion process developed by American Valve over 10 years ago.

This feature eliminates ball pitting, prevents build-up, lowers torque, and stops premature valve failure.

Since the PFA* is actually impregnated .008" into the metal, it can't wear, chip, or flake.



Together they produce the strength of steel with the corrosion resistance of PFA*. Our patented process has gained the best of both worlds...Strength, Lubricity, and Bonding.

*PFA is an ingredient commonly branded as Teflon®

Valves will be supplied with 2" operating nut

GATE VALVE COMPARISON	
Typical Gate Valve	3700 Series™
Class IV Allowable Leak-Rate	Positive Shutoff - Exceeds Class VI
Same End-to-End Dimensions as Model 3700 (ANSI B16.10)	Same End-to-End Dimensions as Class 125 or 150 Gate Valve (ANSI B16.10) or Plug Valve
Unprotected Metal Gate Notorious as a magnet for buildup and mineral deposits, making full shutoff impossible. Should come with a cheater bar	PFA*-Fused Ball Prevents Calcium, Lime, or any other buildup common in water applications, which often leads to premature valve failure
Heavy & Awkward - Requires "Big Joe" to install - Typical 3" Gate Valve = 72 lbs. - Typical 6" Gate Valve = 197 lbs.	Lightweight & Compact - Easy to install - 3" 3700 = 35 lbs. - 6" 3700 = 113 lbs.
Contains Bronze parts ...which contain Lead. (Lead has been shown to cause birth defects and damage to the nervous system- even in small doses)	100% Lead-Free -No bronze parts -No VOC's Certified to meet the requirements of NSF/ANSI 61 and NSF/ANSI 372

The 2" valves which are to be installed vertically below the air valves (currently a total of 18 two-inch valves) are to have lever operators. All other valves are to have 2" square operating nuts.

The Contractor will make arrangements with the electric utility company for the new service. The Contractor will pay all application fees, inspection fees and other charges of the electrical utility for the new service. The Contractor shall furnish and install all new wiring, conduit, service entrance, connections, re-connections, and new electric panel complete with circuit breakers as required for a new 200 Amp electrical service which conforms in all respects to applicable electrical codes and the requirements of the Electric utility.

To be clear, this Contract Work DOES include any assessment of the wiring within a home to determine its adequacy to accommodate the grinder pump. The new electric service(s) is to be made for the home(s) as specifically designated by the Owner during construction.

28. VALVES

A. Basic Valves - 2-inch, 3-inch and 4-inch nominal diameter

- 1) Type
 - a) Ball type
 - b) Full port
 - c) Teflon fused interior
 - d) Stainless steel stem and trim
- 2) Body
 - a) Cast iron with fused lining or stainless steel, Type 304 or Type 316
 - b) Grooved ends
 - c) Rated for no less than 200 psi
- 3) Operator - 2-inch-square operating nut (no lever operator)
- 4) Acceptable Valves
 - a) Model 3700V grooved ended, cast iron bodied, Teflon fused, full port ball valves manufactured by American Valve, or
 - b) No. 726D Super Duplex Ball Valve manufactured by Victaulic, or
 - c) Equivalent

B. Valve Stem Extensions

- 1) Furnish where shown
- 2) Furnish to lengths required
- 3) 2-inch-female x 2-inch male operating nut
- 4) 4-inch-diameter centering ring near top
- 5) Where shown, furnish with lever operator attached to stem near or at valve operator nut
- 6) Type 304 Stainless Steel

C. Air Valves

- 1) 2-inch nominal diameter
- 2) Type - Wastewater combination air valve (combination air release and air/vacuum relief)
- 3) Single body style
- 4) Full port orifice
- 5) Adjustable threaded orifice button

- 6) Double guided plug, having a precision orifice drilled through the center stem, protected against direct water impact by an internal baffle and an extended float stem
- 7) Connections
 - a) 2-inch NPT inlet
 - b) 1-inch NPT outlet
 - c) 1-inch MPT drain connection on side of casting
 - d) Three additional connections for backwashing accessories
- 8) Rated for no less than 150 psi
- 9) AWWA C512
- 10) Valve body and Cover to be Type 316 stainless steel
- 11) Furnish complete with all accessories including valves, rubber hoses quick disconnect couplings and all other items necessary for backwashing.
- 12) Acceptable Air Valves
 - a) Model 801ABW with stainless steel body manufactured by Val-Matic Valve and Manufacturing Corporation, or
 - b) Model X942SS manufactured by GA Industries, or
 - c) Equivalent

29. VALVE BOX

5¼-inch diameter screw-type shaft valve box having a round valve base, 8 inches in height with a 10⅞-inch diameter at the bottom. The valve box shall be entirely of cast iron and the word “SEWER” cast in the valve box lid.

30. TRACER WIRE

A. Use

Install along all pressure sewer mains, all pressure sewer service lines and all force mains.

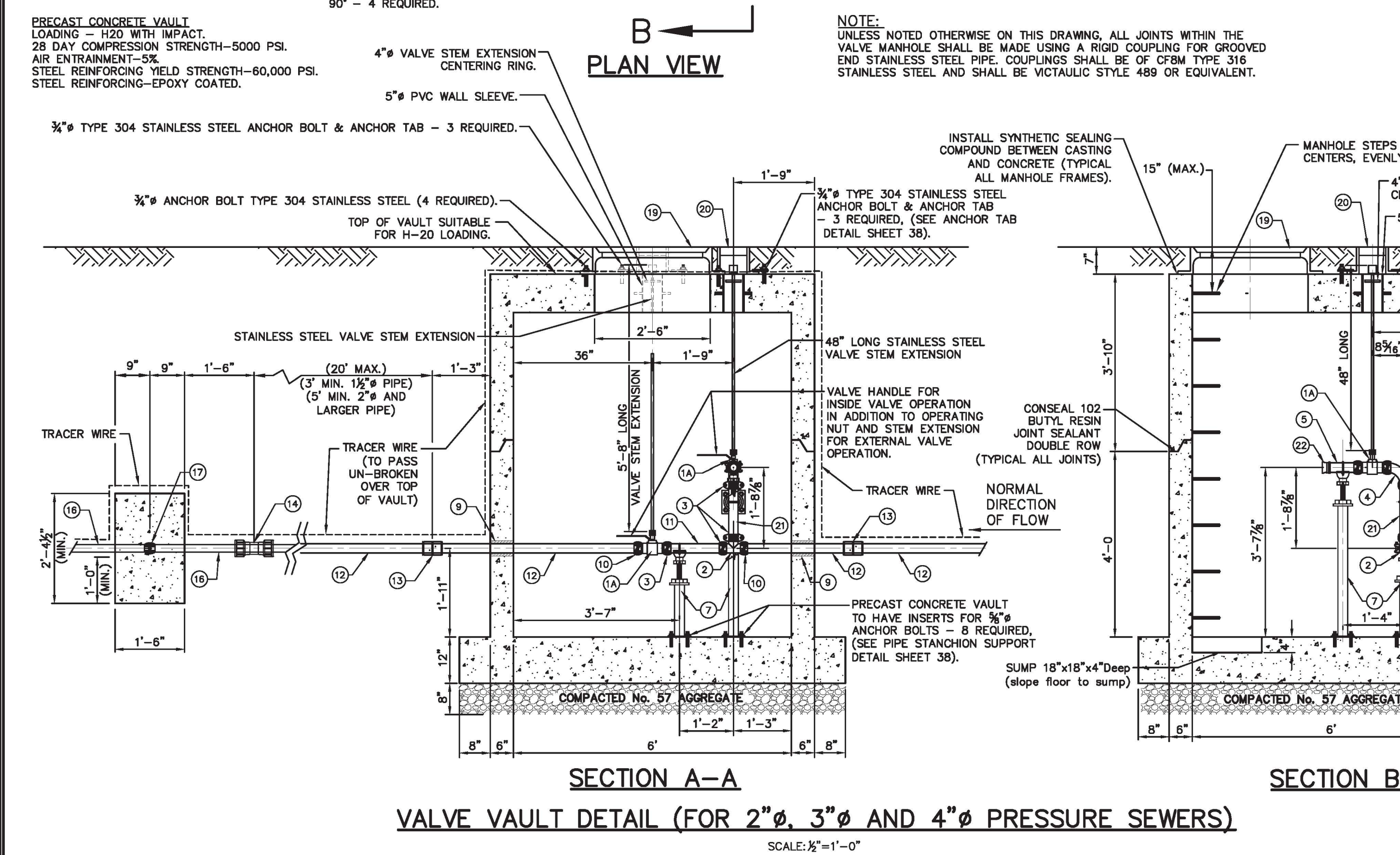
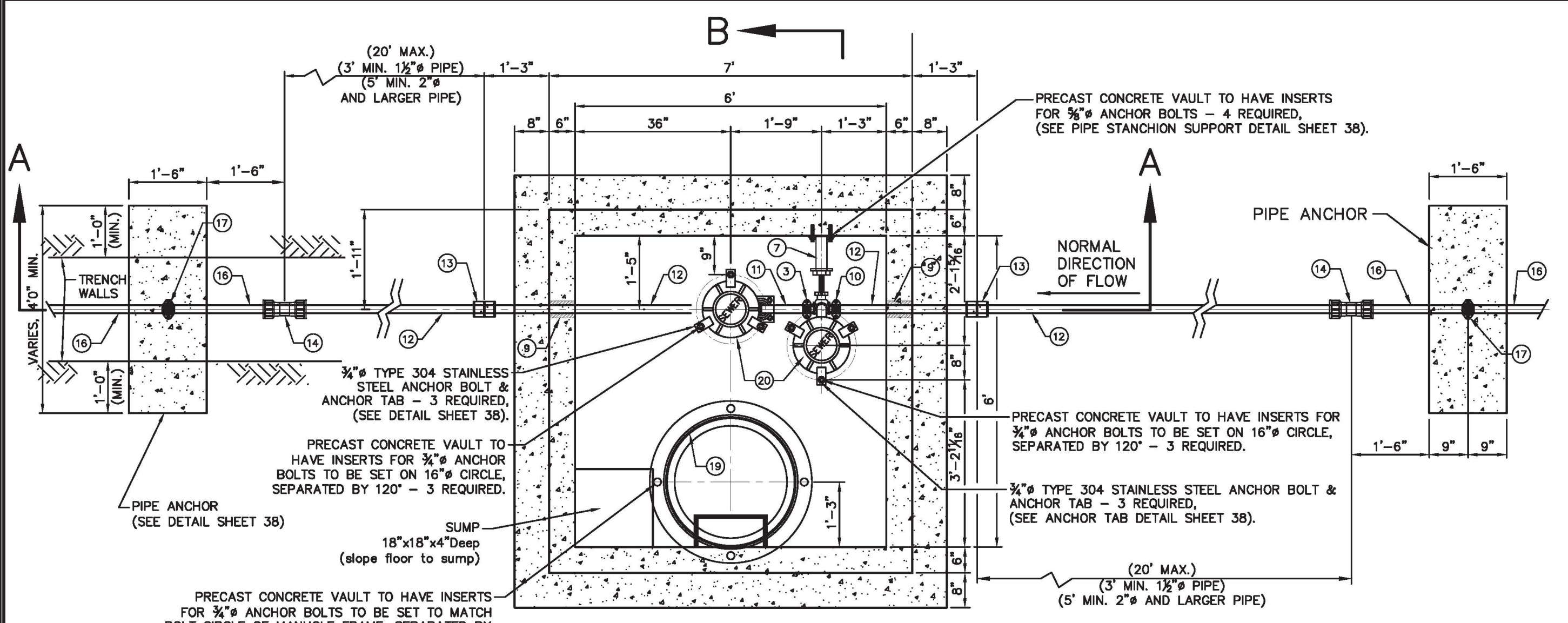
B. Material

Stranded, Type 304, or Type 316, annealed stainless steel wire having a rating of no less than 30 Volts, a tensile yield strength of no less than 1,720 pounds, and a 0.125” overall diameter (equivalent to #8 AWG) with a 45 mil HDPE insulating jacket manufactured and suitable for both direct burial and directional boring.

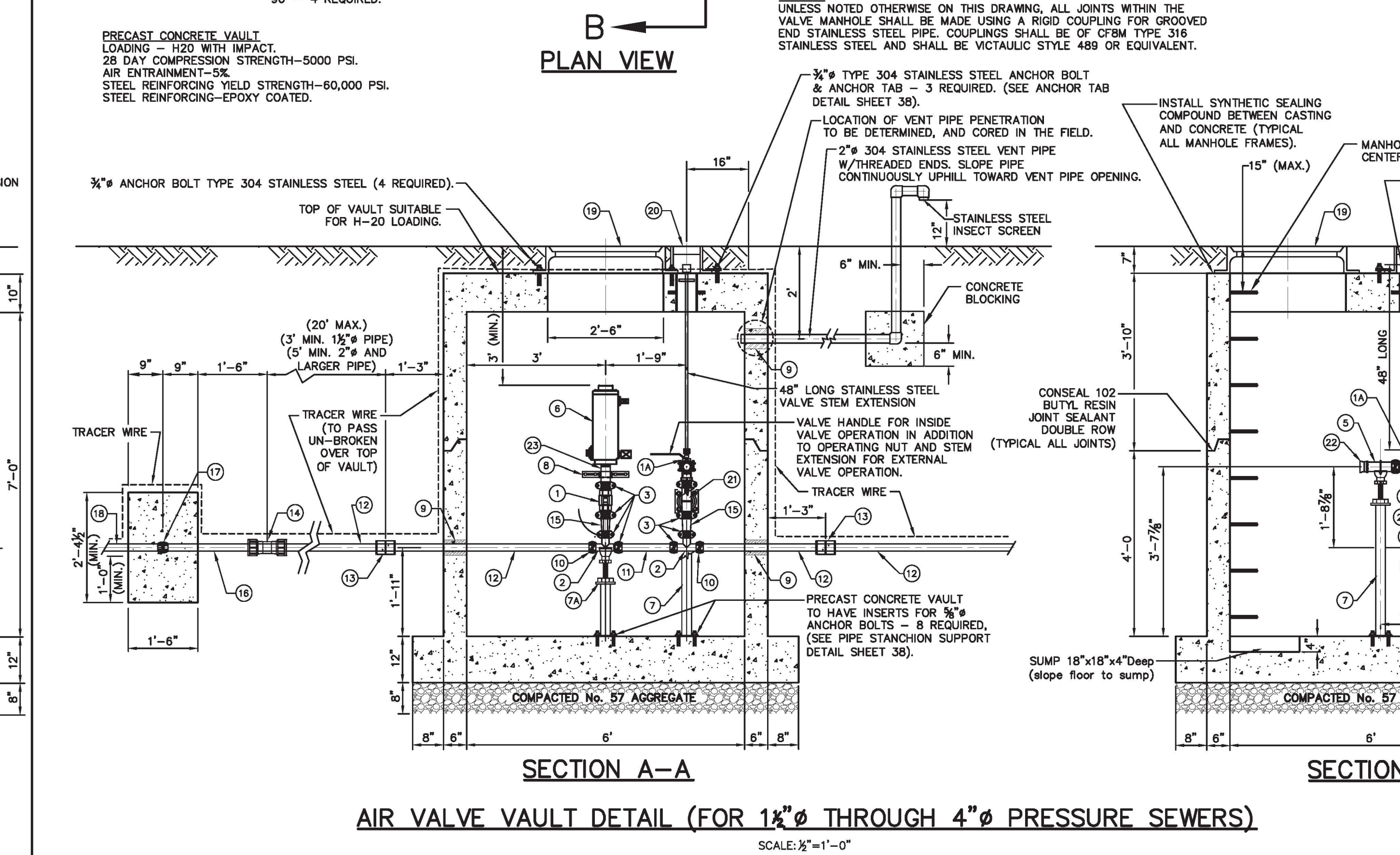
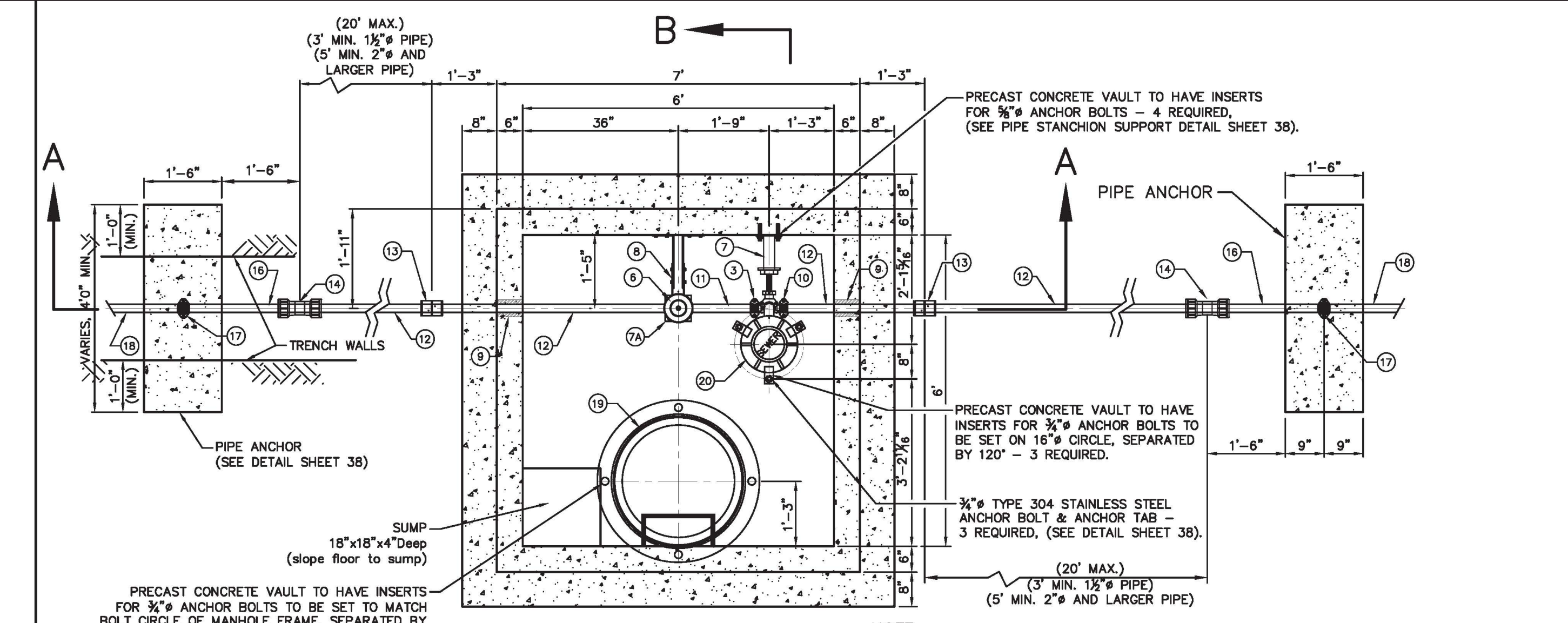
C. Manufacturers

- 1) Performance Wire and Cable Company, or
- 2) Copperhead Industries, or
- 3) Equivalent.

- 1 FULL PORT BALL VALVE WITH HAND OPERATOR ONLY, (AMERICAN VALVE MODEL #3700V W/CAST IRON BODY AND GROOVED VICTAULIC ENDS, OR No. 726D SUPER DUPLEX BALL VALVE BY VICTAULIC, OR EQUIVALENT).
- 1A FULL PORT BALL VALVE WITH OPERATING NUT FOR VALVE KEY OPERATION AND HANDLE OPERATOR FOR IN VAULT HAND OPERATION (AMERICAN VALVE MODEL #3700V W/CAST IRON BODY AND GROOVED VICTAULIC ENDS, OR No. 726D SUPER DUPLEX BALL VALVE BY VICTAULIC, OR EQUIVALENT).
- 2 STAINLESS STEEL TEE W/GROOVED ENDS, SCHEDULE 40S, TYPE 304 - VICTAULIC 420SS. 1 1/2" BRANCH (ON 1 1/2" PRESSURE MAIN) AND 2" BRANCH (ON 2" TO 4" PRESSURE MAINS).
- 3 RIGID GROOVED COUPLING, STAINLESS STEEL, SCHEDULE 40S, TYPE 316 - VICTAULIC 489.
- 4 2" x 90" STAINLESS STEEL W/GROOVED ENDS, SCHEDULE 40S, TYPE 304 - VICTAULIC 410SS.
- 5 2" x 8" LONG STAINLESS STEEL PIPE, GROOVED END x MALE THREADED END, SCHEDULE 40S TYPE 304.
- 6 COMBINATION AIR/VACUUM RELEASE VALVE.
- 7 STAINLESS STEEL PIPE STANCHION SUPPORT/THRUST BLOCK WITH U-BOLT (SEE DETAIL SHEET 38).
- 7A STAINLESS STEEL PIPE STANCHION SUPPORT WITHOUT U-BOLT (SEE DETAIL SHEET 38).
- 8 STAINLESS STEEL ADJUSTABLE PIPE WALL BRACKET.
- 9 LINK SEAL (SEE DETAIL SHEET 38).
- 10 1 1/2" RIGID GROOVED COUPLING, STAINLESS STEEL, SCHEDULE 40S, TYPE 316 - VICTAULIC 489; (AND FOR 2" OR LARGER PIPE) RESTRAINED TRANSITION COUPLING, GROOVED STEEL END x PVC PLAIN END, DUCTILE IRON BODY - VICTAULIC 2972.
- 11 STAINLESS STEEL PIPE W/GROOVED ENDS, SCHEDULE 40S.
- 12 1 1/2" STAINLESS STEEL PIPE, GROOVED END x MALE THREADED END SCHEDULE 40S; (OR FOR 2" OR LARGER PIPE) PVC PIPE, GROOVED END x PLAIN END, SDR 17 - AQUAMINE OR CERTA-LOK YELOMINE.
- 13 (REQUIRED ON 2" OR LARGER PIPE ONLY) COUPLING FOR PVC GROOVED END PIPE - AQUAMINE 2904 OR CERTA-LOK YELOMINE COUPLING.
- 14 1 1/2" SDR 9 HDPE, BUTT-FUSED x 304 STAINLESS STEEL, FEMALE THREADED END TRANSITION COUPLING; (OR FOR 2" OR LARGER PIPE) AQUAMINE TRANSITION COUPLING SERIES 2971, PVC PLAIN END x HDPE PLAIN END.
- 15 (REQUIRED ONLY WHEN JOINING TO 1 1/2" TEE), 2" x 1 1/2" STAINLESS STEEL CONCENTRIC REDUCER W/VICTAULIC ENDS, SCH. 40S, TYPE 304, VICTAULIC 450SS.
- 16 1 1/2" HDPE PIPE W/ BUTT FUSED ENDS; (OR FOR 2" OR LARGER PIPE) HDPE PIPE, PLAIN END x BUTT FUSED END, SDR 9.
- 17 1 1/2" FUSED END HDPE DR 9 WALL ANCHOR - ISCO ISFFWA0311PS; (OR FOR 2" OR LARGER PIPE) EITHER RESTRAINED SPLIT COUPLING FOR HDPE PIPE W/DUCTILE IRON BODY - VICTAULIC 995, OR FUSED END HDPE DR 9 WALL ANCHOR - ISCO ISFFWA0311PS.
- 18 HDPE PIPE, PLAIN END x BUTT-FUSED END, SDR 9.
- 19 MANHOLE FRAME AND COVER - EJ 1890Z1 FRAME & 1890A2G3K COVER, NEEHAH FOUNDRY R-1753A "SELF SEALING" FRAME & COVER, OR EQUIVALENT, LABELED "SANITARY SEWER".
- 20 SMALL MANHOLE FRAME AND COVER - (NEENAH R-1970) LABELED "SEWER".
- 21 2" STAINLESS STEEL PIPE NIPPLE, SCHEDULE 40S TYPE 304 W/GROOVED ENDS, ITS LENGTH SHALL BE DETERMINED BY THE ADJOINING TEE AS FOLLOWS: 1 1/2" x 1 1/2" TEE= 8" LONG NIPPLE, 2" x 2" TEE=13.63" LONG NIPPLE, 3" x 2" TEE=13.15" LONG NIPPLE, 4" x 2" TEE=12.56" LONG NIPPLE.
- 22 2" STAINLESS STEEL CAMLOCK ADAPTER, FEMALE THREADED x MALE.
- 23 2" STAINLESS STEEL PIPE NIPPLE, SCHEDULE 40S TYPE 304, GROOVED END x MALE THREADED END, TO LENGTH REQUIRED.



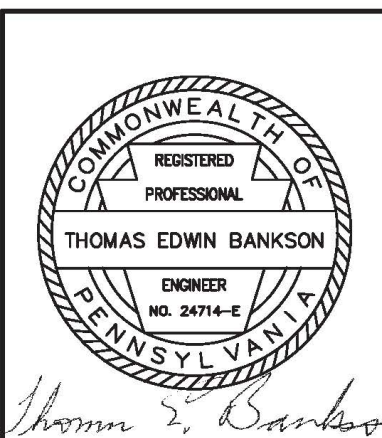
VALVE VAULT DETAIL (FOR 2" Ø, 3" Ø AND 4" Ø PRESSURE SEWERS)
SCALE: 1/2"=1'-0"



AIR VALVE VAULT DETAIL (FOR 1 1/2" Ø THROUGH 4" Ø PRESSURE SEWERS)
SCALE: 1/2"=1'-0"

ORIGINAL DRAWING
SCALE VERIFICATION

IF LINE IS NOT ONE INCH ON THIS DRAWING, ADJUST ALL SCALES AS REQUIRED



INDEPENDENCE-CROSS CREEK
JOINT SEWER AUTHORITY
WASHINGTON COUNTY, PENNSYLVANIA

INDEPENDENCE VILLAGE AND
CROSS CREEK VILLAGE SANITARY SEWERS
INDEPENDENCE VILLAGE SEWERS

(FOR 1 1/2", 2", 3" AND 4" PRESSURE SEWERS)
AND VALVE VAULT DETAIL (FOR 2", 3" AND 4" PRESSURE SEWERS)

CONTRACT NUMBER 16-1

This document, and the ideas and designs incorporated herein, as an instrument of professional service, is the property of Bankson Engineers, Inc., and is not to be used, in whole or in part, for any other project without the written authorization of Bankson Engineers, Inc.

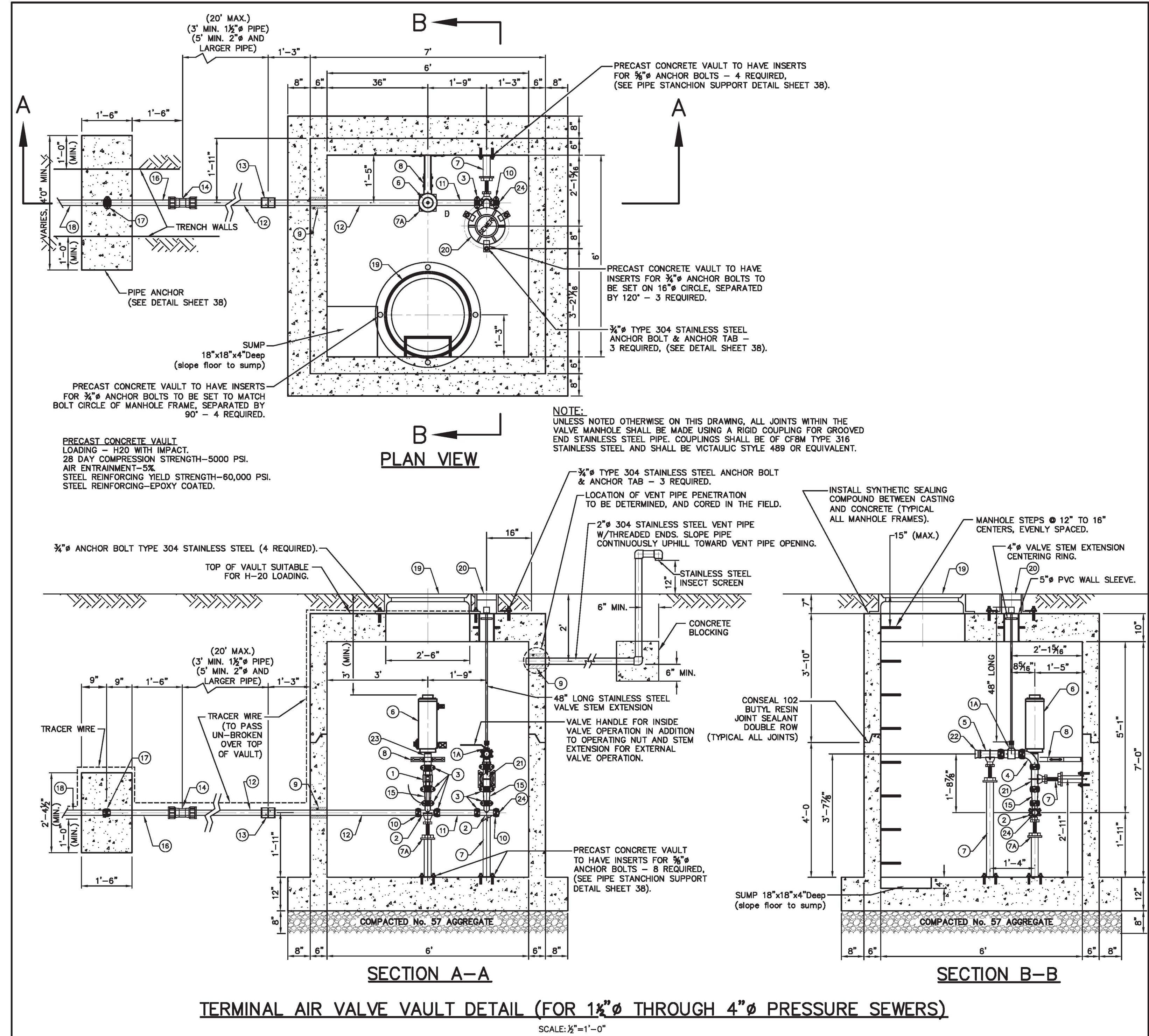
BE BANKSON ENGINEERS, INC.
CONSULTING ENGINEERS
CHESBACK, PA. 15024

AS SHOWN	DATE	APPROVED BY	DRAWING NUMBER
JULY 2016		T.E.B.	1-579-27-36

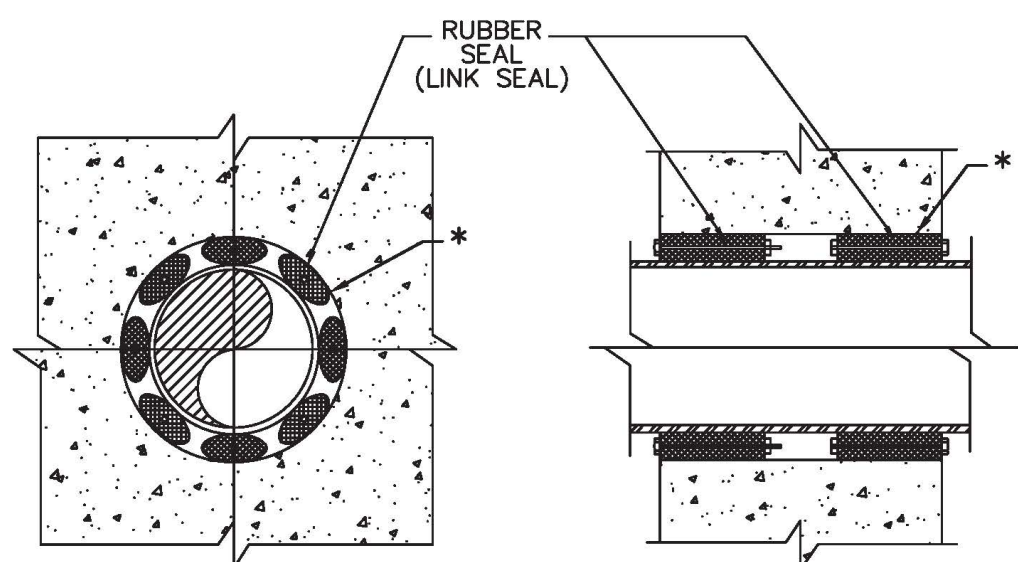
- 1 FULL PORT BALL VALVE WITH HAND OPERATOR ONLY, (AMERICAN VALVE MODEL #3700V W/CAST IRON BODY AND GROOVED VICTAULIC ENDS, OR No. 726D SUPER DUPLEX BALL VALVE BY VICTAULIC, OR EQUIVALENT).
- 1A FULL PORT BALL VALVE WITH OPERATING NUT FOR VALVE KEY OPERATION AND HANDLE OPERATOR FOR IN VAULT HAND OPERATION (AMERICAN VALVE MODEL #3700V W/CAST IRON BODY AND GROOVED VICTAULIC ENDS, OR No. 726D SUPER DUPLEX BALL VALVE BY VICTAULIC, OR EQUIVALENT).
- 2 STAINLESS STEEL TEE W/GROOVED ENDS, SCHEDULE 40S, TYPE 304 - VICTAULIC 420SS. 1½" BRANCH (ON 1½" PRESSURE MAIN) AND 2" BRANCH (ON 2" TO 4" PRESSURE MAINS).
- 3 RIGID GROOVED COUPLING, STAINLESS STEEL, SCHEDULE 40S, TYPE 316 - VICTAULIC 489.
- 4 2" x 90° STAINLESS STEEL W/GROOVED ENDS, SCHEDULE 40S, TYPE 304 - VICTAULIC 410SS.
- 5 2" x 8" LONG STAINLESS STEEL PIPE, GROOVED END x MALE THREADED END, SCHEDULE 40S TYPE 304.
- 6 COMBINATION AIR/VACUUM RELEASE VALVE.
- 7 STAINLESS STEEL PIPE STANCHION SUPPORT/THRUST BLOCK WITH U-BOLT (SEE DETAIL SHEET 38).
- 7A STAINLESS STEEL PIPE STANCHION SUPPORT WITHOUT U-BOLT (SEE DETAIL SHEET 38).
- 8 STAINLESS STEEL ADJUSTABLE PIPE WALL BRACKET.
- 9 LINK SEAL (SEE DETAIL SHEET 38).

- 10 1½" RIGID GROOVED COUPLING, STAINLESS STEEL, SCHEDULE 40S, TYPE 316 - VICTAULIC 489; (AND FOR 2" OR LARGER PIPE) RESTRAINED TRANSITION COUPLING, GROOVED STEEL END x PVC PLAIN END, DUCTILE IRON BODY - VICTAULIC 2972.
- 11 STAINLESS STEEL PIPE W/GROOVED ENDS, SCHEDULE 40S.
- 12 1½" STAINLESS STEEL PIPE, GROOVED END x MALE THREADED END SCHEDULE 40S; (OR FOR 2" OR LARGER PIPE) PVC PIPE, GROOVED END x PLAIN END, SDR 17 - AQUAMINE OR CERTA-LOK YELOWINE.
- 13 (REQUIRED ON 2" OR LARGER PIPE ONLY) COUPLING FOR PVC GROOVED END PIPE - AQUAMINE 2904 OR CERTA-LOK YELOWINE COUPLING.
- 14 1½" SDR 9 HDPE, BUTT-FUSED x 304 STAINLESS STEEL, FEMALE THREADED END TRANSITION COUPLING; (OR FOR 2" OR LARGER PIPE) AQUAMINE TRANSITION COUPLING SERIES 2971, PVC PLAIN END x HDPE PLAIN END.
- 15 (REQUIRED ONLY WHEN JOINING TO 1½" TEE), 2" x 1½" STAINLESS STEEL CONCENTRIC REDUCER W/VICTAULIC ENDS, SCH. 40S, TYPE 304, VICTAULIC 450SS.
- 16 1½" HDPE PIPE W/ BUTT FUSED ENDS; (OR FOR 2" OR LARGER PIPE) HDPE PIPE, PLAIN END x BUTT FUSED END, SDR 9.
- 17 1½" FUSED END HDPE DR 9 WALL ANCHOR - ISCO ISFFWA0311PS; (OR FOR 2" OR LARGER PIPE) EITHER RESTRAINED SPLIT COUPLING FOR HDPE PIPE W/DUCTILE IRON BODY - VICTAULIC 995, OR FUSED END HDPE DR 9 WALL ANCHOR - ISCO ISFFWA0311PS.

- 18 HDPE PIPE, PLAIN END x BUTT-FUSED END, SDR 9.
- 19 MANHOLE FRAME AND COVER - EJ 189021 FRAME & 1890A2G3K COVER, NEENAH FOUNDRY R-1753A "SELF SEALING" FRAME & COVER, OR EQUIVALENT, LABELED "SANITARY SEWER".
- 20 SMALL MANHOLE FRAME AND COVER - (NEENAH R-1970) LABELED "SEWER".
- 21 2" STAINLESS STEEL PIPE NIPPLE, SCHEDULE 40S TYPE 304 W/GROOVED ENDS, ITS LENGTH SHALL BE DETERMINED BY THE ADJOINING TEE AS FOLLOWS: 1½"x1½" TEE= 8" LONG NIPPLE, 2"x2" TEE=13.63" LONG NIPPLE, 3"x2" TEE=13.15" LONG NIPPLE, 4"x2" TEE=12.56" LONG NIPPLE.
- 22 2" STAINLESS STEEL CAMLOCK ADAPTER, FEMALE THREADED x MALE.
- 23 2" STAINLESS STEEL PIPE NIPPLE, SCHEDULE 40S TYPE 304, GROOVED END x MALE THREADED END, TO LENGTH REQUIRED.
- 24 STAINLESS STEEL CAP W/GROOVED END, SCHEDULE 40S, TYPE 304-VICTAULIC 460SS.



<p>ORIGINAL DRAWING SCALE VERIFICATION</p> <p>IF LINE IS NOT ONE INCH ON THIS DRAWING, ADJUST ALL SCALES AS REQUIRED.</p>		<p>INDEPENDENCE-CROSS CREEK JOINT SEWER AUTHORITY</p> <p>WASHINGTON COUNTY PENNSYLVANIA</p>	
		<p>INDEPENDENCE VILLAGE AND CROSS CREEK VILLAGE SANITARY SEWERS INDEPENDENCE VILLAGE SEWERS</p> <p>TERMINAL AIR VALVE VAULT DETAIL (FOR 1½", 2", 3" AND 4" PRESSURE SEWERS) AND VALVE VAULT DETAIL (FOR 2", 3" AND 4" PRESSURE SEWERS)</p> <p>CONTRACT NUMBER 16-1</p>	
<p>This document, and the ideas and designs incorporated herein, as an instrument of professional service, is the property of Bankson Engineers, Inc., and is not to be used, in whole or in part, for any other project without the written authorization of Bankson Engineers, Inc.</p>	<p>BANKSON ENGINEERS, INC. CONSULTING ENGINEERS CHESAUCK, PA. 15024</p>	<p>DATE: JULY 2016</p> <p>APPROVED BY: T.E.B.</p>	<p>DRAWN BY: T.F.</p> <p>SHEETS: 01 SET</p> <p>47</p> <p>DRAWING NUMBER: 1-579-27-37</p>



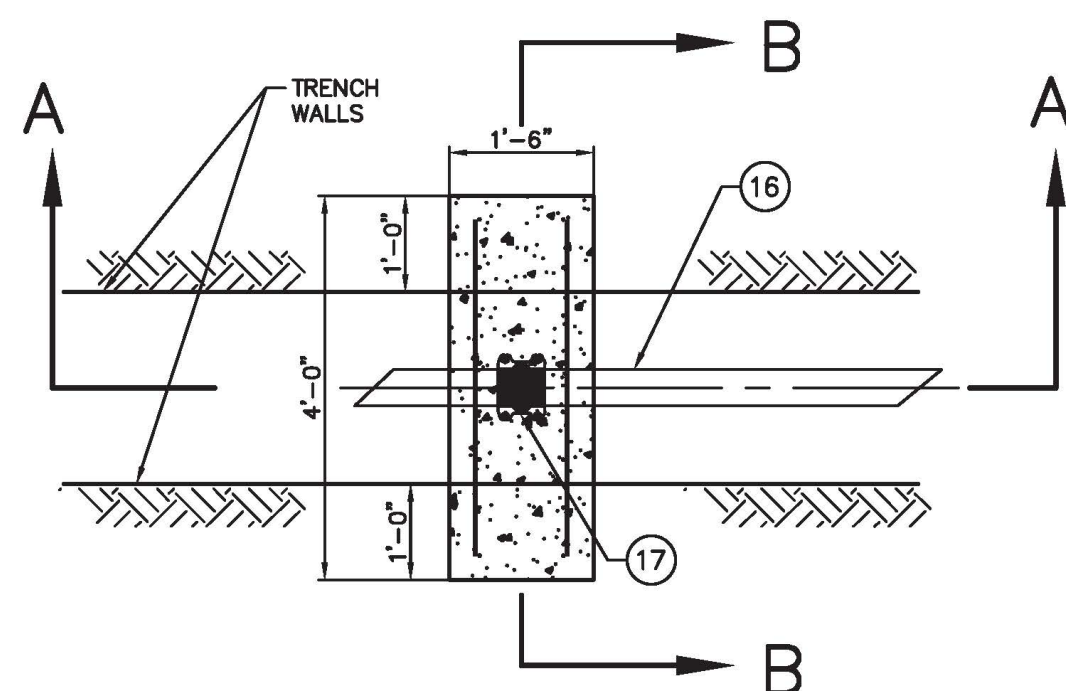
LINK SEAL DETAIL
NOT TO SCALE

LINK SEAL MODULAR SIZING CHART				
PIPE SIZE (inches)	PIPE O.D. (inches)	HOLE I.D. (inches)	LINK SEAL SIZE	LINKS PER SEAL
1 1/2	1.900	4.000	LS-315-S-316	6
2	2.375	4.000	LS-300-S-316	6
3	3.500	5.000	LS-300-S-316	8
4	4.500	6.000	LS-300-S-316	10

- 1 FULL PORT BALL VALVE WITH HAND OPERATOR ONLY, (AMERICAN VALVE MODEL #3700V W/CAST IRON BODY AND GROOVED VICTAULIC ENDS, OR No. 726D SUPER DUPLEX BALL VALVE BY VICTAULIC, OR EQUIVALENT).
- 1A FULL PORT BALL VALVE WITH OPERATING NUT FOR VALVE KEY OPERATION AND HANDLE OPERATOR FOR IN VAULT HAND OPERATION (AMERICAN VALVE MODEL #3700V W/CAST IRON BODY AND GROOVED VICTAULIC ENDS, OR No. 726D SUPER DUPLEX BALL VALVE BY VICTAULIC, OR EQUIVALENT).
- 1B FULL PORT BALL VALVE, AMERICAN VALVE MODEL #3700V W/CAST IRON BODY, GROOVED VICTAULIC ENDS, OPERATING NUT FOR VALVE KEY OPERATION.
- 2 STAINLESS STEEL TEE W/GROOVED ENDS, SCHEDULE 40S, TYPE 316 - VICTAULIC 420SS. 1 1/2" BRANCH (ON 1 1/2" PRESSURE MAIN) AND 2" BRANCH (ON 2" TO 4" PRESSURE MAINS).
- 3 RIGID GROOVED COUPLING, STAINLESS STEEL, SCHEDULE 40S, TYPE 316 - VICTAULIC 489.
- 4 2" x 90° STAINLESS STEEL W/GROOVED ENDS, SCHEDULE 40S, TYPE 304 - VICTAULIC 410SS.
- 5 2" x 8" LONG STAINLESS STEEL PIPE, GROOVED END x MALE THREADED END, SCHEDULE 40S TYPE 304.
- 6 COMBINATION AIR/VACUUM RELEASE VALVE.
- 7 STAINLESS STEEL PIPE STANCHION SUPPORT/THRUST BLOCK WITH U-BOLT (SEE DETAIL THIS SHEET).
- 7A STAINLESS STEEL PIPE STANCHION SUPPORT WITHOUT U-BOLT (SEE DETAIL THIS SHEET).
- 8 STAINLESS STEEL ADJUSTABLE PIPE WALL BRACKET.

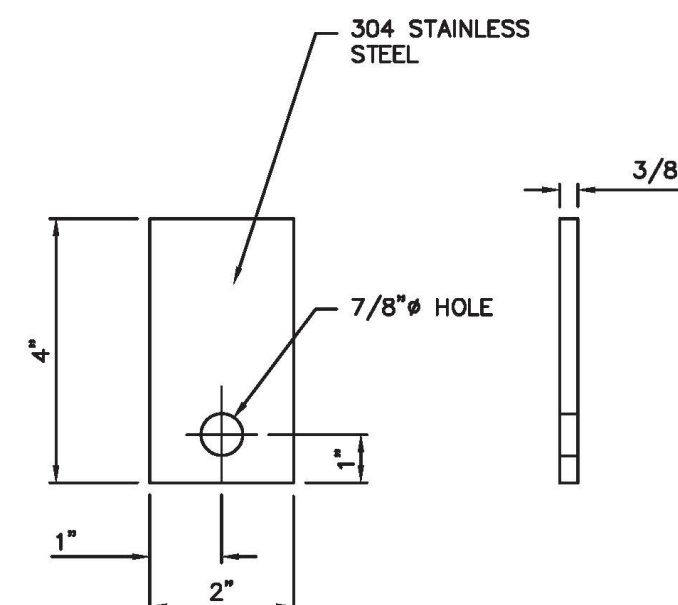
- 9 LINK SEAL (SEE DETAIL THIS SHEET).
- 10 1 1/2" RIGID GROOVED COUPLING, STAINLESS STEEL, SCHEDULE 40S, TYPE 316 - VICTAULIC 489; (AND FOR 2" OR LARGER PIPE) RESTRAINED TRANSITION COUPLING, GROOVED STEEL END x PVC PLAIN END, DUCTILE IRON BODY - VICTAULIC 2972.
- 11 STAINLESS STEEL PIPE W/GROOVED ENDS, SCHEDULE 40S.
- 12 1 1/2" STAINLESS STEEL PIPE, GROOVED END x MALE THREADED END SCHEDULE 40S; (OR FOR 2" OR LARGER PIPE) PVC PIPE, GROOVED END x PLAIN END, SDR 17 - AQUAMINE OR CERTA-LOK YELOMINE.
- 13 (REQUIRED ON 2" OR LARGER PIPE ONLY) COUPLING FOR PVC GROOVED END PIPE - AQUAMINE 2904 OR CERTA-LOK YELOMINE COUPLING.
- 14 1 1/2" SDR 9 HDPE, BUTT-FUSED x 304 STAINLESS STEEL, FEMALE THREADED END TRANSITION COUPLING; (OR FOR 2" OR LARGER PIPE) AQUAMINE TRANSITION COUPLING SERIES 2971, PVC PLAIN END x HDPE PLAIN END.
- 15 2" x 1 1/2" STAINLESS STEEL CONCENTRIC REDUCER W/VICTAULIC ENDS, SCH. 40S, TYPE 304, VICTAULIC 450SS.
- 16 1 1/2" HDPE SDR 9 PIPE W/ BUTT FUSED ENDS; (OR FOR 2" OR LARGER PIPE) HDPE PIPE, PLAIN END x BUTT FUSED END, SDR 9.
- 17 1 1/2" FUSED END HDPE SDR 9 WALL ANCHOR - ISCO ISFFWA0311IPS; (OR FOR 2" OR LARGER PIPE) EITHER RESTRAINED SPLIT COUPLING FOR HDPE PIPE W/DUCTILE IRON BODY - VICTAULIC 995, OR FUSED END HDPE DR 9 WALL ANCHOR - ISCO ISFFWA0311IPS, OR ELECTRO-FUSED COUPLING.

- 18 HDPE PIPE, PLAIN END x BUTT-FUSED END, SDR 9.
- 19 MANHOLE FRAME AND COVER - E.J. 189021 FRAME & 1890A263K COVER, NEENAH FOUNDRY R-1753A "SELF SEALING" FRAME & COVER, OR EQUIVALENT, LABELED "SANITARY SEWER".
- 20 SMALL MANHOLE FRAME AND COVER - (NEENAH R-1970) LABELED "SEWER".
- 21 2" STAINLESS STEEL PIPE NIPPLE, SCHEDULE 40S TYPE 304 W/GROOVED ENDS, ITS LENGTH WILL BE DETERMINED BY THE ADJOINING TEE AS FOLLOWS: 1 1/2" x 1 1/2" TEE = 8" LONG NIPPLE, 2" x 2" TEE = 13.63" LONG NIPPLE, 3" x 2" TEE = 13.15" LONG NIPPLE, 4" x 2" TEE = 12.56" LONG NIPPLE.
- 22 2" STAINLESS STEEL CAMLOCK ADAPTER, FEMALE THREADED x MALE.
- 23 2" STAINLESS STEEL PIPE, SCHEDULE 40S TYPE 304, GROOVED END x MALE THREADED END, TO LENGTH REQUIRED.
- 24 VALVE BOX.
- 25 E.J. FOUNDRY MODEL #1564A SOLID CLEANOUT/MONUMENT BOX LID WITH CAMLOCK (PRODUCT 00156440), LID SHALL BE LETTERED "SANITARY SEWER", OR "SEWER". FRAME TO BE E.J. FOUNDRY MODEL #1564Z, 8" TALL CLEANOUT/MONUMENT BOX FRAME (PRODUCT 00156411) WITH ADDITIONAL 1/2" BOLT HOLE IN FRAME BY E.J. FOUNDRY.
- 26 2" x 90° LONG RADIUS/LONG TANGENT ELBOW, STAINLESS STEEL W/GROOVED ENDS, No. 100 SSLT, SCHEDULE 10S TYPE 304L BY VICTAULIC.

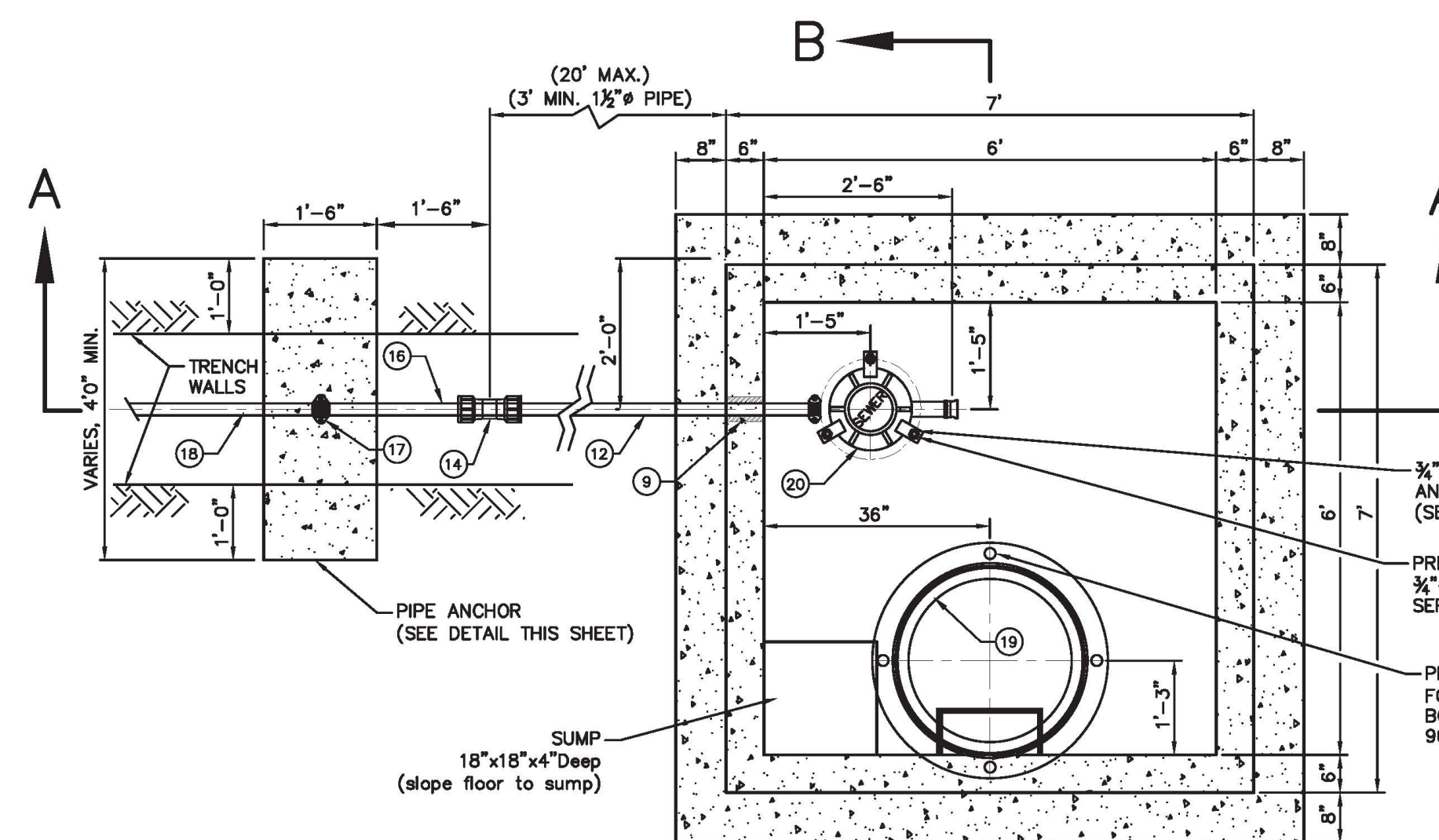


PLAN VIEW

NOTE:
WHEREVER A VICTAULIC 995 COUPLING IS USED IN THE CONSTRUCTION OF A PIPE ANCHOR, IT IS TO BE INSTALLED ON A SOLID PIPE AND NOT AT A PIPE JOINT.



ANCHOR TAB DETAIL
N.T.S.

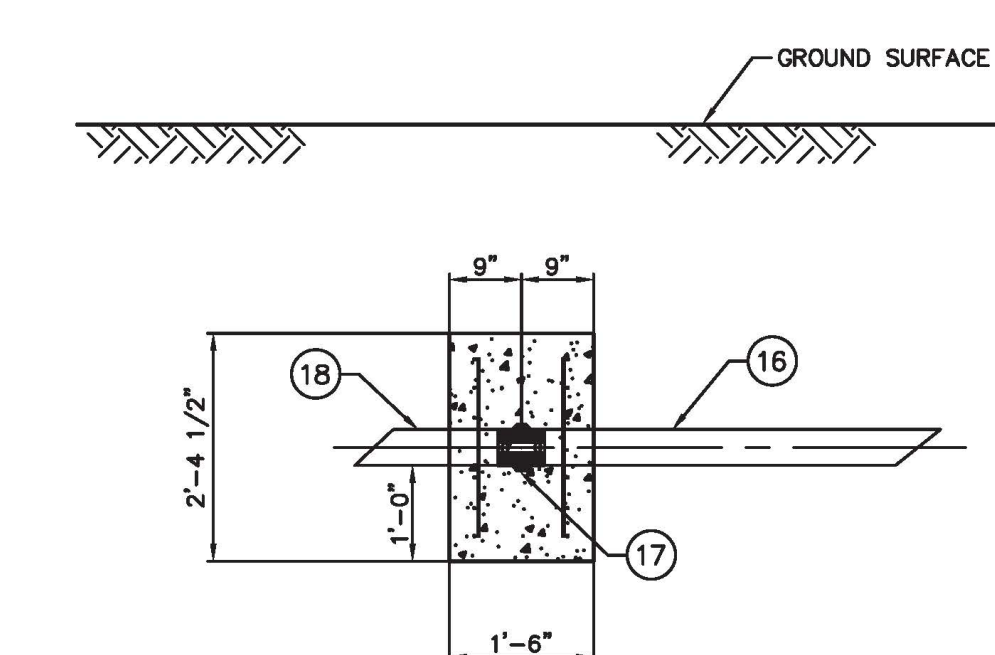


PLAN VIEW

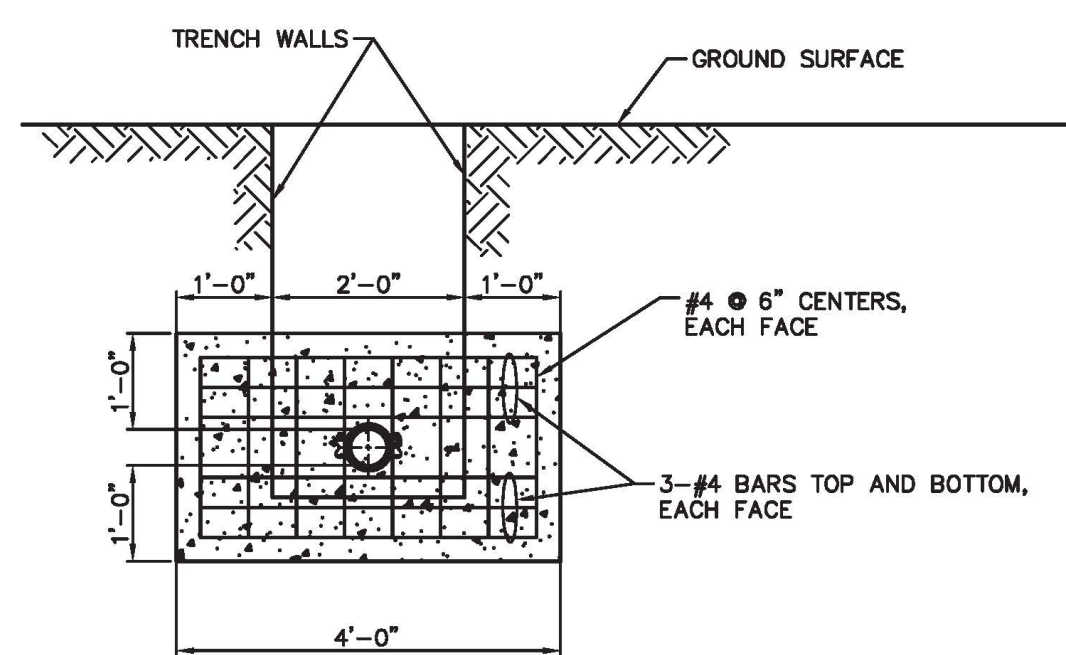
PRECAST CONCRETE VAULT
LOADING - H20 WITH IMPACT.
28 DAY COMPRESSION STRENGTH-5000 PSI.
AIR ENTRAINMENT-5%.
STEEL REINFORCING YIELD STRENGTH-60,000 PSI.
STEEL REINFORCING-EPOXY COATED.

NOTE:
UNLESS NOTED OTHERWISE ON THIS DRAWING, ALL JOINTS WITHIN THE VALVE MANHOLE SHALL BE MADE USING A RIGID COUPLING FOR GROOVED END STAINLESS STEEL PIPE. COUPLINGS SHALL BE OF CF8M TYPE 316 STAINLESS STEEL AND SHALL BE VICTAULIC STYLE 489 OR EQUIVALENT.

3/4" TYPE 304 STAINLESS STEEL ANCHOR BOLT & ANCHOR TAB - 3 REQUIRED, (SEE DETAIL THIS SHEET).
PRECAST CONCRETE VAULT TO HAVE INSERTS FOR 3/4" ANCHOR BOLTS TO BE SET ON 16" CIRCLE, SEPARATED BY 120" - 3 REQUIRED.
PRECAST CONCRETE VAULT TO HAVE INSERTS FOR 3/4" ANCHOR BOLTS TO BE SET TO MATCH BOLT CIRCLE OF MANHOLE FRAME, SEPARATED BY 90" - 4 REQUIRED.

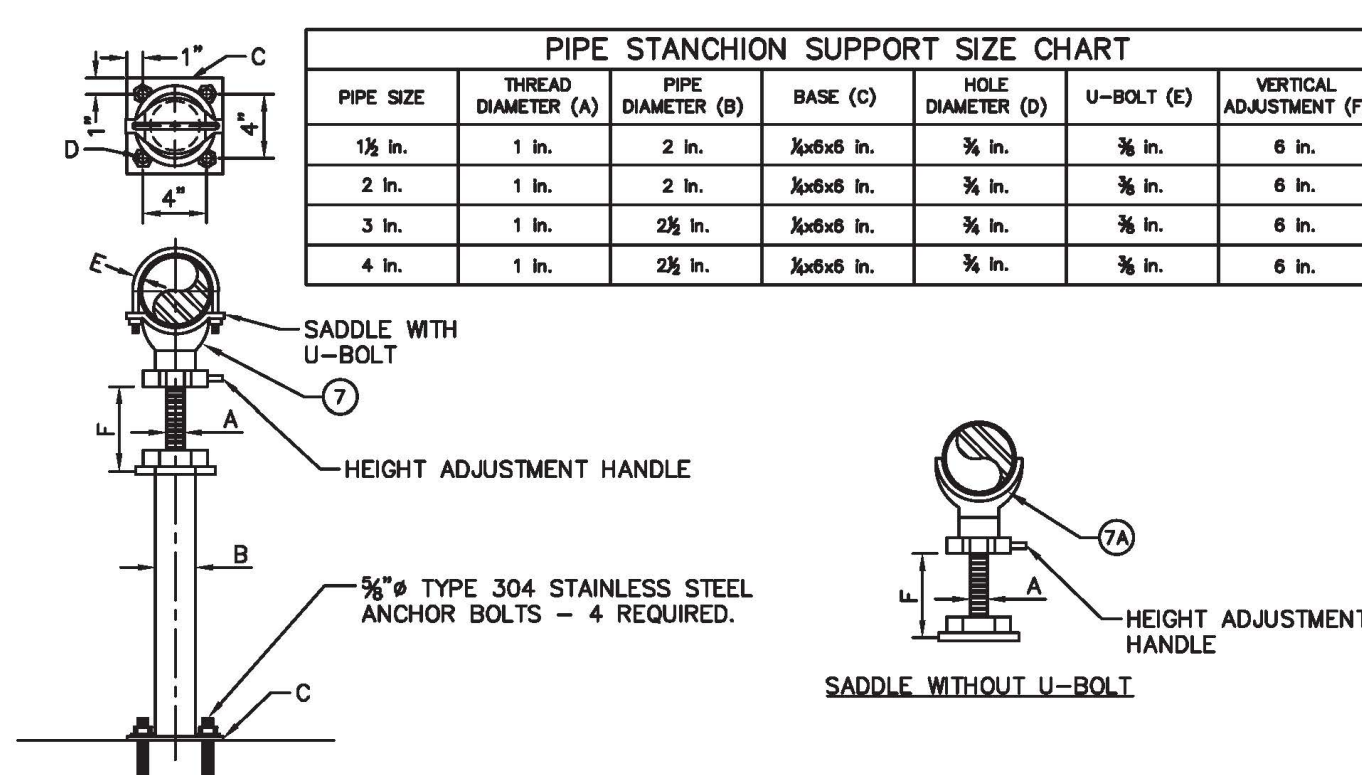


SECTION A-A

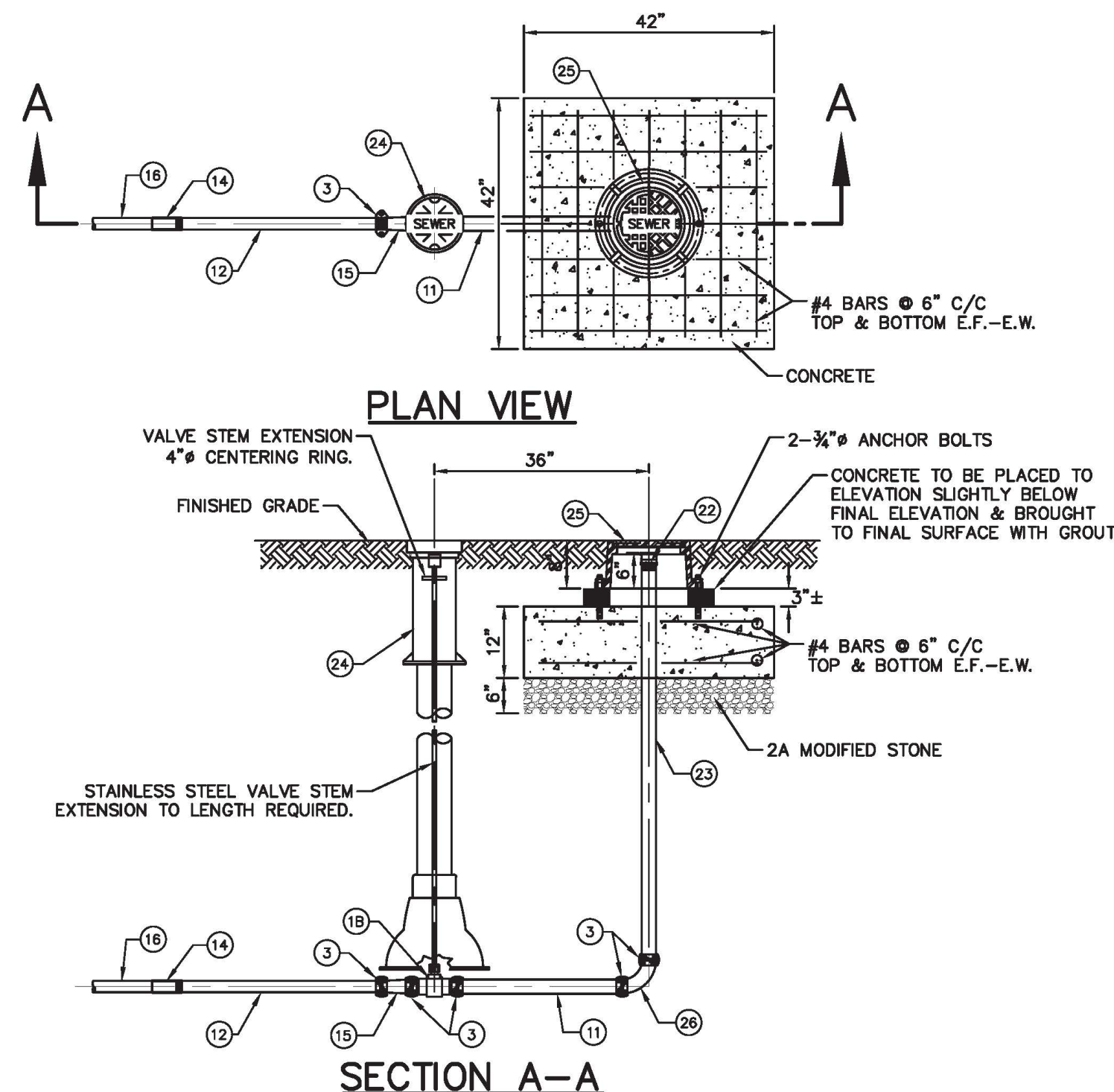


SECTION B-B

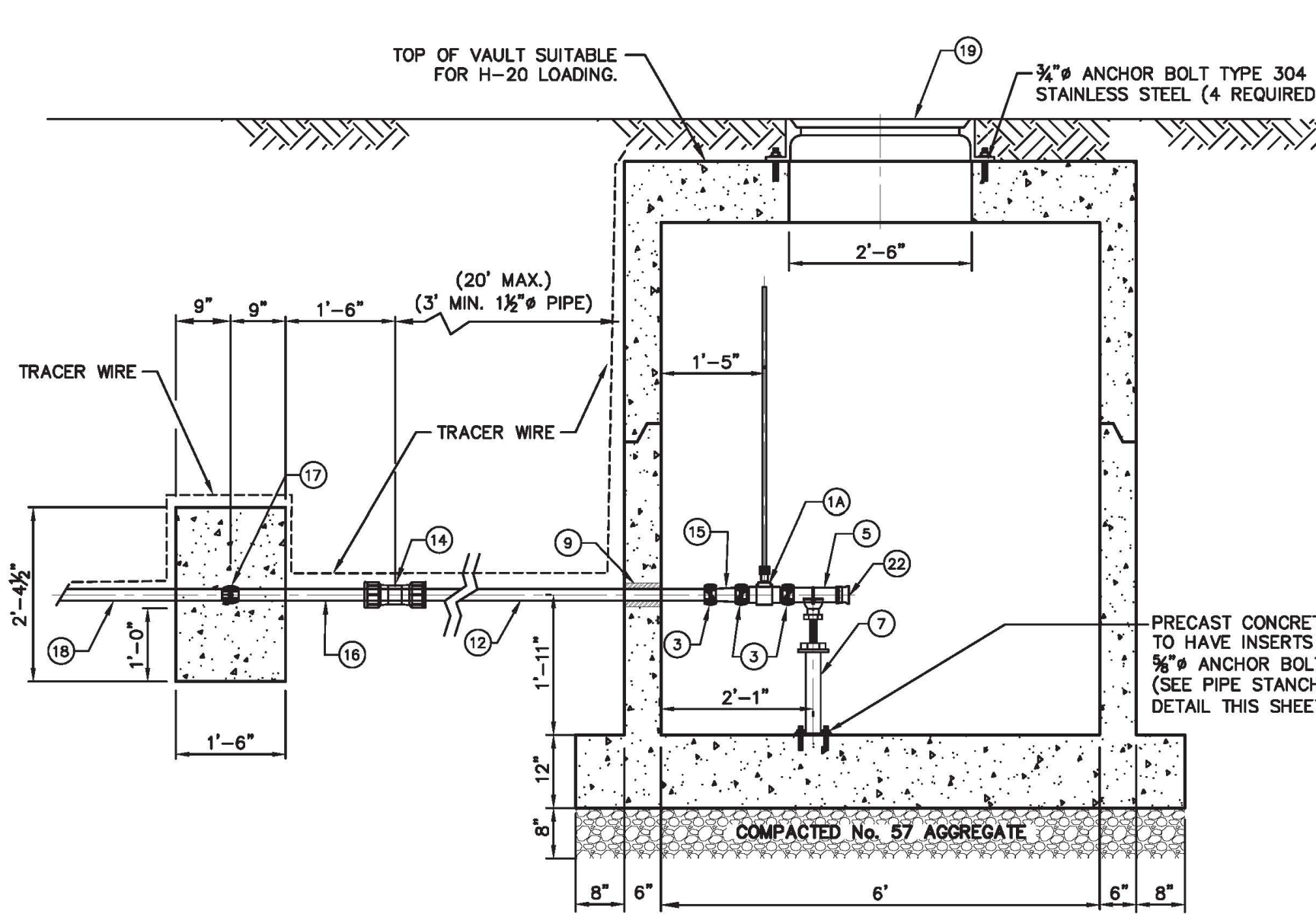
PIPE ANCHOR
SCALE: 1/2"=1'-0"



STAINLESS STEEL PIPE STANCHION SUPPORT/THRUST BLOCK DETAIL
N.T.S.

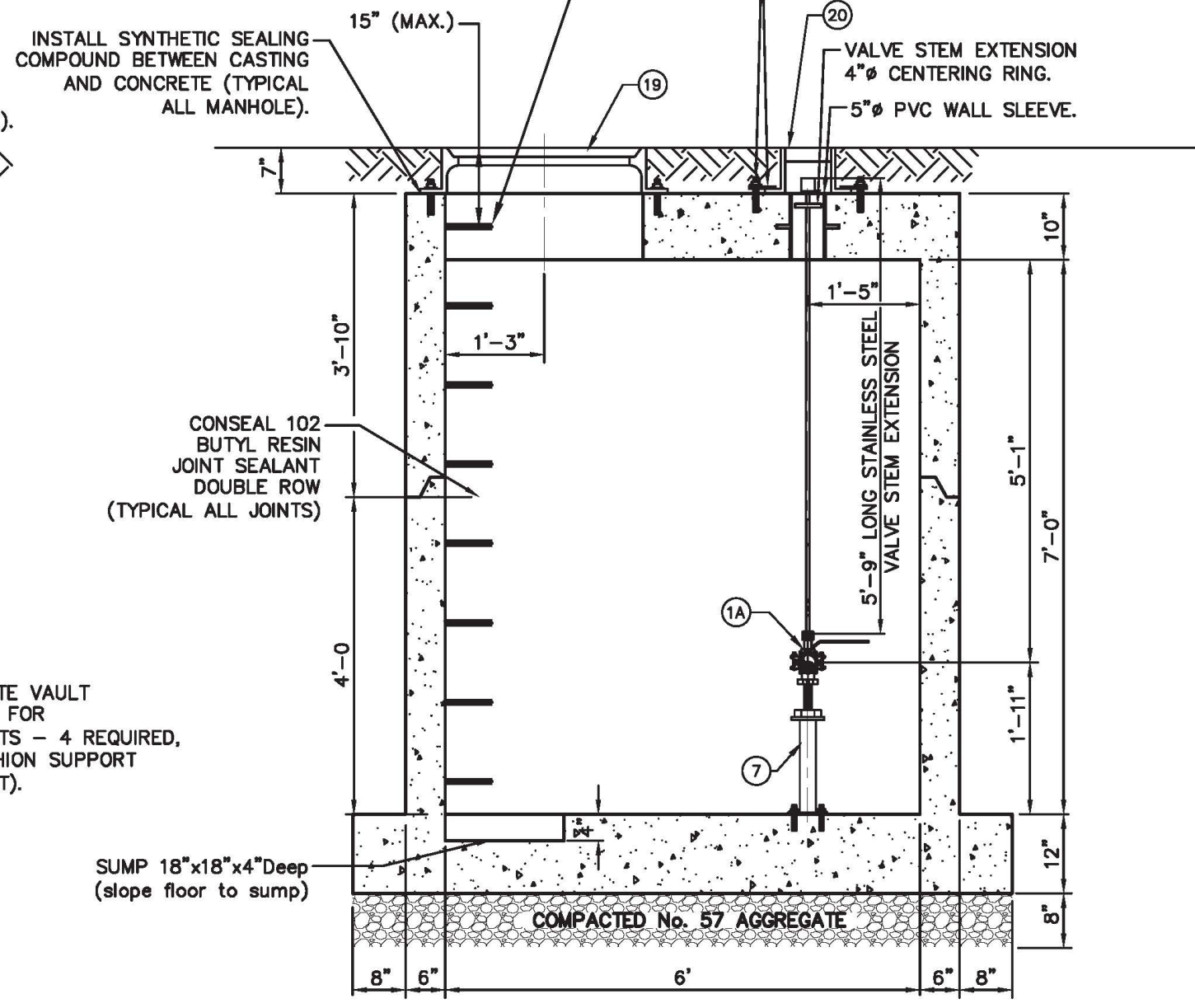


TERMINAL CLEANOUT UNIT DETAIL
SCALE: 1/2"=1'-0"

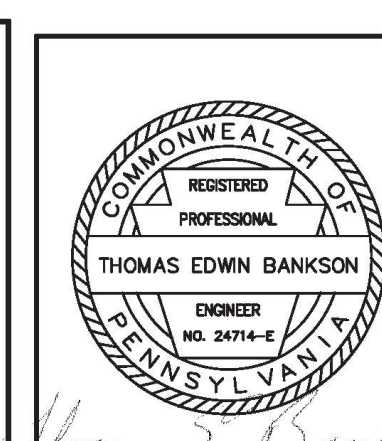
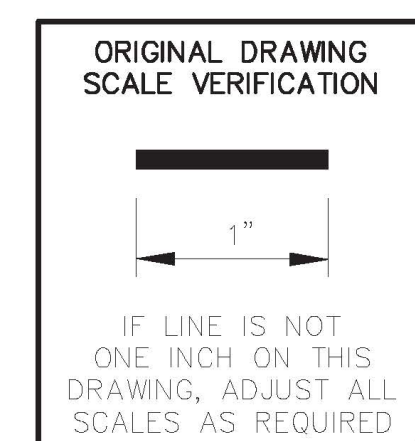


SECTION A-A

TERMINAL CLEANOUT/CONTAINMENT VAULT DETAIL
SCALE: 1/2"=1'-0"



SECTION B-B



INDEPENDENCE-CROSS CREEK JOINT SEWER AUTHORITY
WASHINGTON COUNTY, PENNSYLVANIA
INDEPENDENCE VILLAGE AND CROSS CREEK VILLAGE SANITARY SEWERS INDEPENDENCE VILLAGE SEWERS
TERMINAL CLEANOUT/CONTAINMENT VAULT, TERMINAL CLEANOUT UNIT, ANCHOR TAB, LINK SEAL, PIPE ANCHOR AND PIPE STANCHION SUPPORT/THRUST BLOCK DETAILS
CONTRACT NUMBER 16-1