GREATER WENATCHEE IRRIGATION DISTRICT STANDARD DETAILS

SHEET INDEX

CONTACT INFORMATION

BUSINESS OFFICE
GREATER WENATCHEE IRRIGATION
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CALL 48 HOURS BEFORE YOU DIG
ONE CALL 1-800-424-5555

REPORT ALL SPILLS
DEPT. OF ECOLOGY 1-800-258-5990

ABBREVIATIONS

CB	CATCH BASIN	FG	FINISHED GRADE	PE	PLAIN END
CONC	CONCRETE	FW	FUSION WELD	PROP	PROPOSED
CL	CONSTRUCTION CENTERLINE	GALV	GALVANIZED	PSI	POUNDS PER SQUARE INCH
CSBC	CRUSHED SURFACING BASE COURSE	HDPE	HIGH-DENSITY POLYETHYLENE	PVC	POLYVINYL CHLORIDE
CSTC	CRUSHED SURFACING TOP COURSE	HMA	HOT MIXED ASPHALT	RS	RESILIENT SEAT
CTS	COPPER TUBE SIZE	ID	INSIDE DIAMETER	SPEC	SPECIFICATIONS
DI	DUCTILE IRON	IE	INVERT ELEVATION	SST	STAINLESS STEEL
DIAM	DIAMETER	LF	LINEAR FEET	STD	STANDARD
DWG	DRAWING	MH	MANHOLE	STL	STEEL
EEG	EXISTING GROUND	MIP	MALE IRON PIPE	SW	SOLVENT WELD
ELEV	ELEVATION	MJ	MECHANICAL JOINT FITTING	TEMP	TEMPORARY
EX	EXISTING	NO	NUMBER	TYP	TYPICAL
EW	EVEN WIDTH	OC	ON CENTER	WSDOT SS	WASHINGTON STATE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS
FL	FLANGED	OD	OUTSIDE DIAMETER		

IRRIGATION SYSTEM STANDARD DETAIL

COVER

FILE: GWID-D-COV.DWG | REVISED: 12/07/2021 | DWG NO.GWID01

GREATER WENATCHEE IRRIGATION DISTRICT

1. IRRIGATION WATER ALLOTMENT IS 7.3 GPM PER ACRE, THE SYSTEM SHALL BE SIZED TO DELIVER 130 PERCENT OF THE TOTAL ALLOTMENT. VELOCITIES SHALL NOT EXCEED FIVE FEET PER SECOND. THE MINIMUM PIPE SIZE (EXCEPT FOR SERVICE RISERS) SHALL BE 2" IN DIAMETER.
2. AN ELECTRONIC AS-BUILT RECORD MUST BE SUBMITTED TO THE DISTRICT BEFORE IRRIGATION SERVICE WILL BE PROVIDED.
3. CONSTRUCTION OF IMPROVEMENTS SHALL BE IN ACCORDANCE WITH THE GREATER WENATCHEE IRRIGATION DISTRICT (GWID) STANDARD SPECIFICATIONS AND THE SPECIAL PROVISIONS AND STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION, MOST CURRENT EDITION, AS ISSUED BY THE WA. STATE DEPT. OF TRANSPORTATION (WSDOT SS).
4. A PRECONSTRUCTION CONFERENCE IS REQUIRED PRIOR TO CONSTRUCTION AND 48 HOURS ADVANCE NOTIFICATION OF THE LOCAL MUNICIPALITY, GWID AND ALL AFFECTED UTILITY COMPANIES IS REQUIRED PRIOR TO THE ACTUAL START OF WORK.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH THE PROVISIONS OF THE RIGHT-OF-WAY /STREET CONSTRUCTION PERMIT AS ISSUED BY THE LOCAL TRANSPORTATION AGENCY, LOCAL CITY JURISDICTION, AND/OR WA. STATE DEPARTMENT OF TRANSPORTATION FRANCHISE FOR THIS PROJECT.
6. LOCATIONS OF EXISTING UTILITIES SHOWN ON THE PLANS ARE ESTIMATED UNLESS STATED OTHERWISE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY, LOCATE AND PROTECT ALL UTILITIES WITHIN THE PROJECT AREA. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING OR REPAIRING ANY UTILITIES DAMAGED DURING CONSTRUCTION. SHOW ENCOUNTERED UTILITIES ON THE AS-BUILTS.
7. LOCATION AND EXTENT OF UTILITIES WITHIN THE PROJECT LIMITS ARE UNKNOWN. CONTRACTOR SHALL CONTACT PROPERTY OWNERS ADJACENT TO THE PROJECT FOR LOCATING PRIVATE IRRIGATION SYSTEMS. CONTRACTOR IS RESPONSIBLE FOR LOCATING IRRIGATION MAINS AND REPLACING OR REPAIRING PIPELINES DAMAGED DURING CONSTRUCTION. SHOW THESE PIPELINES ON THE AS-BUILTS.
8. CONTRACTOR SHALL POTHOLE A SUFFICIENT DISTANCE AHEAD OF PIPELAYING TO VERIFY DEPTH OF EXISTING UTILITIES AND CROSSING UTILITIES TO ANTICIPATE ANY NECESSARY CHANGES IN FITTINGS OR ALIGNMENT.
9. CONTRACTOR SHALL ONLY DISPOSE OF WASTE MATERIAL AT APPROVED SITES.
10. CONTRACTORS WORKING WITHIN THE RIGHT OF WAY OR ON EXISTING GWID INFRASTRUCTURE SHALL BE LICENSED, BONDED AND HAVE EXPERIENCE INSTALLING IRRIGATION SYSTEMS AND BE PREPARED TO PRESENT EXAMPLES OF SUCH UPON REQUEST OF THE DISTRICT.
11. CONTRACTOR TO PROVIDE NO LESS THAN 48 HOURS AND NO MORE THAN 72 HOURS NOTICE TO THE DISTRICT PRIOR TO ANY SHUTDOWN OR CUSTOMER SERVICE OUTAGE. DISTRICT WILL PROVIDE NOTICE TO CUSTOMERS 24 HOURS IN ADVANCE OF OUTAGE.
12. TRENCH SECTION AND ALL EXCAVATED AREAS SHALL BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH THE STANDARD DETAILS AND WITH WSDOT SS 7-08. COMPACTION TESTING IS REQUIRED DURING BACKFILLING OPERATIONS AT THE DISCRETION OF THE DISTRICT. IF TRENCH BACKFILL DOES NOT MEET COMPACTION REQUIREMENTS, CONTRACTOR SHALL EXCAVATE, RECOMPACT AND RETEST MATERIAL AT CONTRACTOR'S EXPENSE.
13. AT THE END OF EACH WORKING DAY, A TEMPORARY PATCH OVER THE TRENCH CUTS SHALL BE PLACED SO THAT TRAFFIC IS NOT AFFECTED IN ANY WAY. MATERIAL FOR THESE TEMPORARY PATCHES SHALL BE CRUSHED SURFACING BASE COURSE OR COLD MIX.
14. ALL TRENCHING AND SHORING TO BE DONE IN ACCORDANCE WITH OSHA AND WISHA STANDARDS.

IRRIGATION SYSTEM STANDARD DETAIL

CONSTRUCTION NOTES PAGE 1 OF 3

FILE: GWID-D-CNOTE1.DWG | REVISED: 12/07/2021 | DWG NO.GWID02

GREATER WENATCHEE IRRIGATION DISTRICT

15. IF THE PLANNED IMPROVEMENTS UTILIZE FEDERAL FUNDING OR ARE OTHERWISE MANDATED BY PROJECT FUNDING REQUIREMENTS, ALL METAL PRODUCTS AND FITTING COMPONENTS (E.G. BOLTS, GASKETS, ETC) ARE TO BE OF DOMESTIC FABRICATION & CONSTRUCTION.
16. NO RESTRAINTS, GASKETS, OR PIPES (PORTIONS AFFECTED) MAY BE REUSED ONCE ASSEMBLED.
17. ALL PIPE SHALL BE HDPE 4710, MIN. SDR 11, IPS PIPE. SUBSTITUTION OF OTHER PIPE MATERIALS MAY BE ALLOWED WITH DISTRICT APPROVAL. ALL HDPE PIPING SHALL BE BUTT FUSED BY A CERTIFIED HDPE WELDER, HAVING TRAINING AT LEAST MEETING THE REQUIREMENTS OF PPI TN-42. THE FUSION EQUIPMENT SHALL BE EQUIPPED WITH A DATALOGGER FOR RECORDING HEATER TEMPERATURE AND FUSION PRESSURE. ALL JOINTS SHALL BE NUMBERED AND A DATALOG RECORDING SHALL BE MADE INDICATING THE JOINT NUMBER. THE JOINT NUMBER SHALL BE CLEARLY WRITTEN ON THE PIPELINE AT THE JOINT FOR FURTHER INSPECTION. A REPORT SHALL BE SUBMITTED TO THE DISTRICT PRIOR TO BACKFILL OF PIPING DETAILING THE DATALOGGER INFORMATION RECORDED FOR EACH JOINT.
18. ALL PVC FITTINGS 3 INCHES AND SMALLER SHALL BE SOLVENT WELDED OR THREADED. SOLVENT WELD FITTINGS MUST BE SCHEDULE 40 OR BETTER AND MEET OR EXCEED THE PRESSURE RATING OF THE PIPE. THREADED PVC FITTINGS SHALL BE SCHEDULE 80. TAPE OR JOINT COMPOUND SHALL BE USED ON THREADS. FITTINGS LARGER THAN 3 INCHES SHALL MEET OR EXCEED ALL STANDARD ENGINEERING REQUIREMENTS. FITTINGS FOR DUCTILE IRON PIPE OR C900 SHALL BE DUCTILE IRON MEETING THE REQUIREMENTS OF AWWA C153 (MJ) AND C110 (FL).
19. THRUST BLOCKS ARE REQUIRED AT TEES, BENDS AND DEAD ENDS EXCEPT TEES LEADING TO SINGLE SERVICE RISERS OF 3 INCH OR SMALLER. CONCRETE FOR THRUST BLOCKS SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4500 PSI. THRUST BLOCKS SHOULD MEET STANDARD ENGINEERING DESIGN FOR THE PIPE SIZE AND SOIL TYPE AND POURED AGAINST UNDISTURBED EARTH. THRUST BLOCKS SHALL HAVE A BEARING AREA AS REQUIRED FOR RESTRAINT OF TESTING AND WORKING PRESSURES. THRUST BLOCKS SHALL BE PLACED AT ALL DESIRED LOCATIONS DESCRIBED IN THIS DOCUMENT. THRUST BLOCKS SHALL BE PLACED SUCH THAT ACCESSIBILITY TO THE PIPE AND THE FITTINGS IS NOT IMPAIRED. THRUST RESTRAINT USING METHODS OTHER THAN STANDARD THRUST BLOCKS SHALL BE REVIEWED BY THE DISTRICT ON A CASE BY CASE BASIS.
20. IDENTIFYING TAPE SHALL BE INSTALLED AS SHOWN ON THE DETAIL FOR ALL PIPES. PIPE LOCATOR RIBBON SHALL BE 2 INCHES WIDE PLASTIC COATED ALUMINUM AND SHALL BE CLEARLY MARKED, "CAUTION BURIED IRRIGATION" CONTINUOUSLY ALONG THE LENGTH OF THE RIBBON WITH MINIMUM 1-1/4 INCH LETTERS. THE RIBBON SHALL BE PURPLE IN COLOR.
21. ALL PIPE SHALL BE ASSEMBLED ACCORDING TO THE PIPE MANUFACTURER'S RECOMMENDATIONS. PIPE INSTALLATION DONE WITHIN AND OUTSIDE OF THE STREET RIGHTS-OF-WAY SHALL BE IN ACCORDANCE WITH GWID'S STANDARD SPECIFICATIONS FOR PIPE INSTALLATION.
22. ALL FLANGED CONNECTIONS ON HDPE PIPE SHALL BE MADE BY FOLLOWING THE PROPER BOLT AND BOLT SEQUENCE PROCEDURE, APPLYING THE TORQUE PROGRESSION PROCEDURE, AND APPLYING THE MANDATORY 4-HOUR RE-TORQUING PROCEDURE DESCRIBED IN PLASTICS PIPE INSTITUTE'S TECHNICAL NOTE TN-38.
23. CONTRACTOR IS RESPONSIBLE FOR PRESSURE TESTING ALL NEW OR MODIFIED PORTIONS OF DISTRICT INFRASTRUCTURE. PRESSURE TESTING FOR HDPE PIPE SHALL BE PER ASTM F2164. PRESSURE TESTING FOR ALL OTHER IRRIGATION PIPING MATERIALS AND APPURTENANCES SHALL BE IN ACCORDANCE WITH THE HYDROSTATIC PRESSURE TEST REQUIREMENTS FOR WATER MAINS DESCRIBED IN THE LATEST VERSION OF THE WSDOT SS.
24. SERVICE RISERS FOR LID INSTALLATIONS SHALL MEET ALL OF THE MATERIAL REQUIREMENTS AS SPECIFIED IN THE GWID STANDARD SPECIFICATIONS.
25. BALL VALVES SHALL NOT BE ALLOWED ON THE CUSTOMER SIDE OF THE METER WITHIN 50' OF THE METER VAULT.

IRRIGATION SYSTEM STANDARD DETAIL

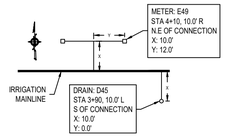
CONSTRUCTION NOTES PAGE 2 OF 3

FILE: GWID-D-CNOTE2.DWG | REVISED: 12/07/2021 | DWG NO.GWID03

GREATER WENATCHEE IRRIGATION DISTRICT

26. ALL GATE VALVES 3 INCHES AND SMALLER SHALL BE BRONZE OR CAST IRON GATE VALVES. ALL VALVES WILL HAVE A RESILIENT SEAT OR SINGLE BRONZE WEDGE GATE. THE OPERATOR WILL BE A 2 INCH CAST IRON SQUARE NUT FOR 2 AND 3 INCH VALVES AND A CAST IRON HANDLE FOR SMALLER VALVES. THE WORKING PRESSURE WILL BE 150 PSI OR GREATER. THREE INCH VALVES SHALL HAVE FLANGED CONNECTIONS WHILE 2 INCH AND SMALLER VALVES SHALL HAVE THREADED CONNECTIONS TO FLANGES. ALL VALVES MUST MEET OR EXCEED CURRENT AWWA STANDARDS. GATE VALVES 4 INCHES AND LARGER SHALL BE RESILIENT SEATED GATES MEETING AWWA C509 OR C515. BUTTERFLY VALVES SHALL HAVE A GEAR OPERATOR THAT REQUIRES A MINIMUM OF 15 TURNS TO REACH FULL CLOSURE, VALVES SHALL MEET AWWA C504.
27. VALVE BOXES SHALL BE CAST IRON, TWO-PIECE SLIP TYPE STANDARD DESIGN WITH BASE CORRESPONDING TO THE TOTAL SIZE OF THE VALVE. CAST IRON LID SHALL BE MARKED "IRRIGATION", "IRR", "I", "GWID" OR BLANK. A CONCRETE COLLAR AND VALVE IDENTIFIER TAG SHALL BE INSTALLED ON ALL VALVES.
28. ISOLATION VALVES SHALL BE INSTALLED WITHIN THE SYSTEM TO ALLOW THE PROPERTY OWNERS TO ISOLATE A SECTION OF THE SYSTEM SHOULD A BREAK OR OTHER SITUATION ARISE. THIS WILL ENSURE THE LEAST NUMBER OF LOTS ARE WITHOUT WATER. NUMBER AND LOCATIONS OF VALVES SHALL BE APPROVED BY THE DISTRICT.
29. ALL TRACER WIRES SHALL BE SURFACED IN AIRVACS, VALVE BOXES, OR OTHER DISTRICT INFRASTRUCTURE. CONTRACTOR SHALL PROVIDE CONTINUITY TEST OF ALL TRACER WIRING PRIOR TO ACCEPTANCE OF IMPROVEMENTS.
30. CONTRACTOR SHALL BE RESPONSIBLE FOR DISPOSAL OF ALL EXCAVATED PAVEMENT AND OTHER UNSUITABLE MATERIALS.
31. RESTORATION OF DAMAGED ROAD SURFACING SHALL BE IN ACCORDANCE WITH THE LOCAL MUNICIPALITY'S REQUIREMENTS. ALL OTHER AREAS SHALL BE RESTORED TO ORIGINAL CONDITION OR AS DIRECTED BY THE DISTRICT. THIS INCLUDES SHOULDERS, LANDSCAPING, WALLS, FENCES AND OTHER IMPROVEMENTS.
32. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL AND DISPOSAL OF PAVEMENT DAMAGED OUTSIDE OF LIMITS.
33. THE CONTRACTOR SHALL PERFORM PAVING ASSOCIATED WITH ROAD CROSSINGS WITHIN 10 CALENDAR DAYS OF INITIAL ROAD DISTURBANCE. THE CONTRACTOR SHALL USE CRUSHED ROCK FOR TEMPORARY TRENCH RESTORATION. THE CONTRACTOR SHALL MAINTAIN CRUSHED ROCK IN TRENCH REPAIR LOCATIONS UP TO THE TIME OF PAVING TO PREVENT DAMAGE TO EXISTING PAVEMENT RESULTING FROM VEHICLE TRAFFIC. THE CONTRACTOR SHALL CLEAN EXISTING PAVEMENT, PERFORM EXTRA SAW CUTS NECESSARY TO CREATE CLEAN PAVEMENT CUTS, REMOVE DAMAGED PAVEMENT, REGRADE, AND COMPACT ALL CRUSHED ROCK IN PREPARATION FOR PAVING.
34. ALL CONSTRUCTION PLANS AND ASBUILT DRAWINGS DEPICTING PROPOSED GWID INFRASTRUCTURE SHALL PROVIDE LOCATION CALLOUTS FOR ABOVE-GRADE OR AT-GRADE IRRIGATION FEATURES USING THE FOLLOWING CONVENTIONS:

THE CALLOUT SHALL IDENTIFY THE FEATURE TYPE I.E. METER, DRAIN, AIR-VAC, ETC.
THE LOCATION OF THE FEATURE SHALL BE REFERENCED VIA PROJECT STATIONING AND OFFSETS FROM THE CONNECTION POINT AT THE MAINLINE.
X: WILL IDENTIFY THE PARALLEL DISTANCE TO THE FEATURE FROM THE MAINLINE.
Y: WILL IDENTIFY THE PERPENDICULAR DISTANCE OF THE FEATURE FROM THE CONNECTION LOCATION.

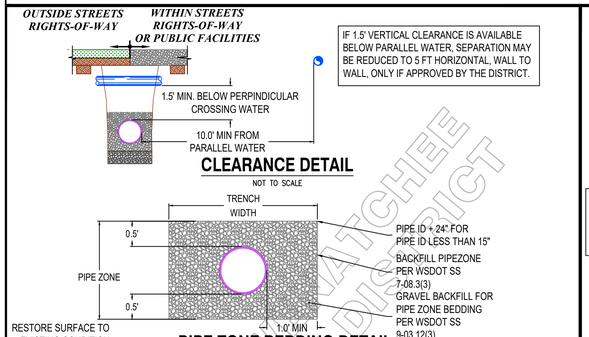


IRRIGATION SYSTEM STANDARD DETAIL

CONSTRUCTION NOTES PAGE 3 OF 3

FILE: GWID-D-CNOTE3.DWG | REVISED: 12/07/2021 | DWG NO. GWID04

GREATER WENATCHEE IRRIGATION DISTRICT

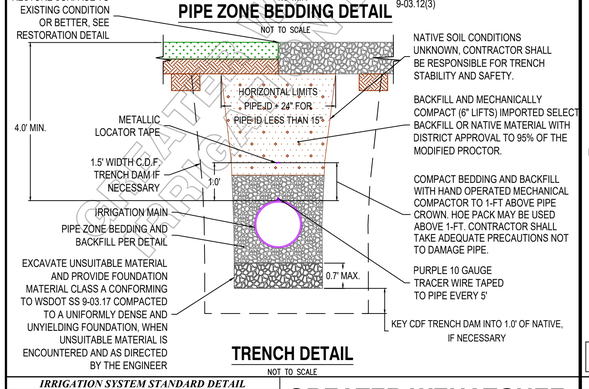


CLEARANCE DETAIL

NOT TO SCALE

PIPE ZONE BEDDING DETAIL

NOT TO SCALE



TRENCH DETAIL

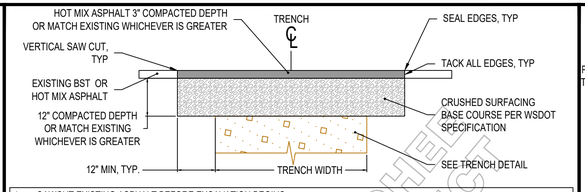
NOT TO SCALE

IRRIGATION SYSTEM STANDARD DETAIL

IRRIGATION TRENCH DETAIL

FILE: GWID-D-TRENCH.DWG | REVISED: 12/07/2021 | DWG NO.GWID05

GREATER WENATCHEE IRRIGATION DISTRICT



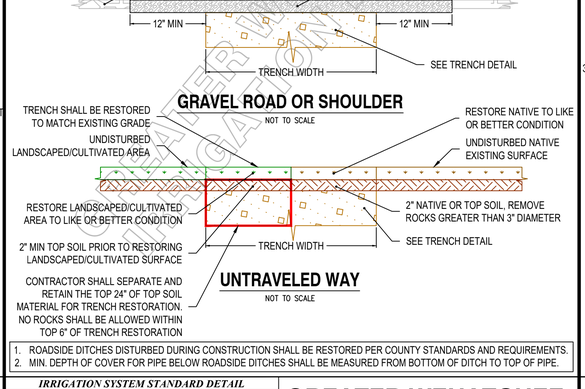
1. SAWCUT EXISTING ASPHALT BEFORE EXCAVATION BEGINS
2. REMOVE ADDITIONAL 12" OF ASPHALT OUTSIDE OF DISTURBED AREAS
3. PRIOR TO PAVING PREPARE SURFACE PER WSDOT SS 5-04.3(5)A
4. CUT AND PATCH ALL PAVEMENT DAMAGED DURING CONSTRUCTION. CDF MAY BE USED IN UNDERMINED AREAS ONLY WITH THE DISTRICT AND LOCAL STREET AGENCY APPROVAL

PAVEMENT

NOT TO SCALE

GRAVEL ROAD OR SHOULDER

NOT TO SCALE



UNTRAVELED WAY

NOT TO SCALE

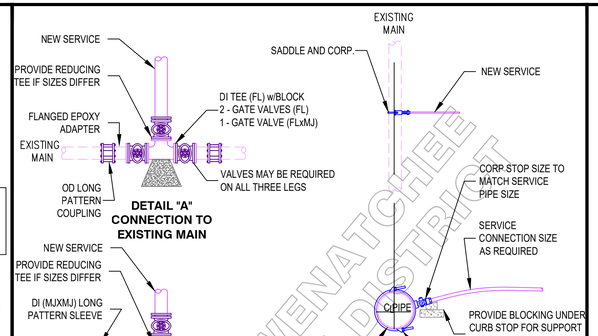
1. ROADSIDE DITCHES DISTURBED DURING CONSTRUCTION SHALL BE RESTORED PER COUNTY STANDARDS AND REQUIREMENTS.
2. MIN. DEPTH OF COVER FOR PIPE BELOW ROADSIDE DITCHES SHALL BE MEASURED FROM BOTTOM OF DITCH TO TOP OF PIPE.

IRRIGATION SYSTEM STANDARD DETAIL

TRENCH PATCH RESTORATION

FILE: GWID-D-REST1.DWG | REVISED: 12/07/2021 | DWG NO.GWID06

GREATER WENATCHEE IRRIGATION DISTRICT



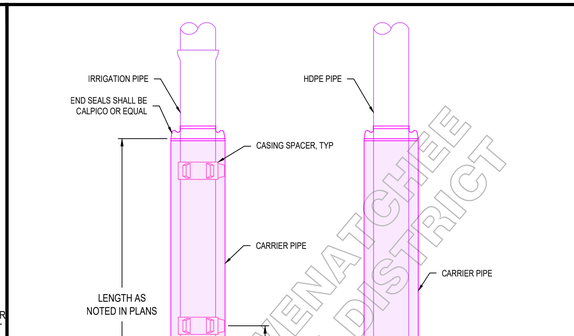
CONNECTION TO EXISTING INFRASTRUCTURE		
IRRIGATION MAIN TYPE	IRRIGATION MAIN MODIFICATION	APPROVED HARDWARE
STEEL	TAP FOR SERVICE (DETAIL "C")	ROMAC SADDLE
PVC	TAP FOR SERVICE (DETAIL "C")	ROMAC SADDLE
	RE-SECTION WITH TEE (DETAIL "A" OR "B")	ROMAC RIGID COUPLINGS
DUCTILE IRON	TAP FOR SERVICE (DETAIL "C")	ROMAC SADDLE
HDPE	CORE-DRILL	ELECTROFUSION SADDLE
PCCP CONCRETE PIPE/ASBESTOS CONCRETE	CORE-DRILL	ROMAC SADDLE
ALL CONNECTIONS TO CONCRETE STRUCTURES SHALL BE AT MANFUCATURED KNOCK-OUTS OR STRUCTURE SHALL BE CORE-DRILLED WITH A KOR-N-SEAL BOOT OR APPROVED EQUAL		

IRRIGATION SYSTEM STANDARD DETAIL

CONNECTION TO EXISTING MAIN

FILE: GWID-D-CONNEX.DWG | REVISED: 12/07/2021 | DWG NO.GWID07

GREATER WENATCHEE IRRIGATION DISTRICT



DETAIL 1 - NON HDPE PIPE **DETAIL 2 - HDPE PIPE**

NOTES:
1. ALL STREET CROSSINGS SHALL BE SLEEVED.
2. CASINGS SHALL BE NEW STEEL, DI OR C900 PVC; MATERIAL AND WALL THICKNESS AT THE DISCRETION OF THE DISTRICT. PIPE THROUGH CASINGS SHALL BE SUPPORTED WITH RUNNERS SPACED NO FARTHER THAN 6 FEET APART. RUNNERS SHALL BE MANUFACTURED PRODUCTS (PSI, CALPICO, OR APPROVED EQUAL). PIPE LINE AND GRADE SHALL BE MAINTAINED THROUGH THE CASING. RESTRAIN PIPE AS REQUIRED. CASING ENDS SHALL BE CAPPED WITH MANUFACTURED CASING END SEALS.

IRRIGATION SYSTEM STANDARD DETAIL

IRRIGATION CASING

FILE: GWID-D-CASING.DWG | REVISED: 12/07/2021 | DWG NO.GWID08

GREATER WENATCHEE IRRIGATION DISTRICT

DONALD G. POWERS — REGISTERED PROFESSIONAL ENGINEER — STATE OF WASHINGTON — SIGNED: 01/15/18

DAVID R. CROSS — REGISTERED PROFESSIONAL ENGINEER — STATE OF WASHINGTON — SIGNED: 01/15/18

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330 Elliott Avenue West, Suite 500
Seattle, WA 98119

GREATER WENATCHEE IRRIGATION DISTRICT

IRRIGATION STANDARD DETAILS

NO.	DESCRIPTION	DATE	BY
	REVISIONS		

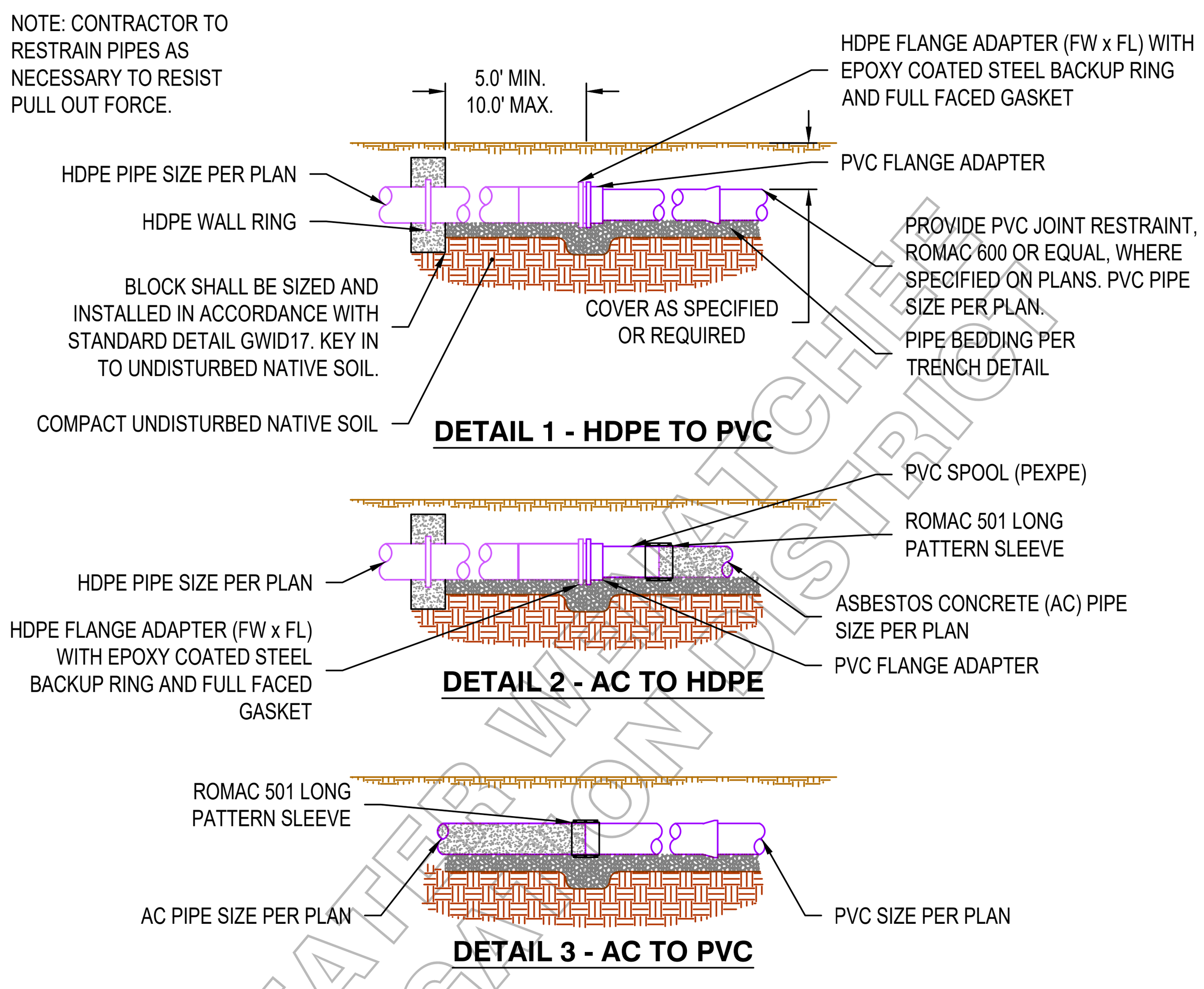
JOB NO.: -
CLIENT: GWI
FILENAME: GWID_BRDR_COMBINED.DWG
SAVE DATE: Dec 9, 2021
PLOT DATE: Dec 9, 2021
ENGINEER: JTR
REVIEWED: PRC

SCALE: SHOWN

0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: D01
SHEET NO.: 1 4



PIPE TRANSITION NOTES

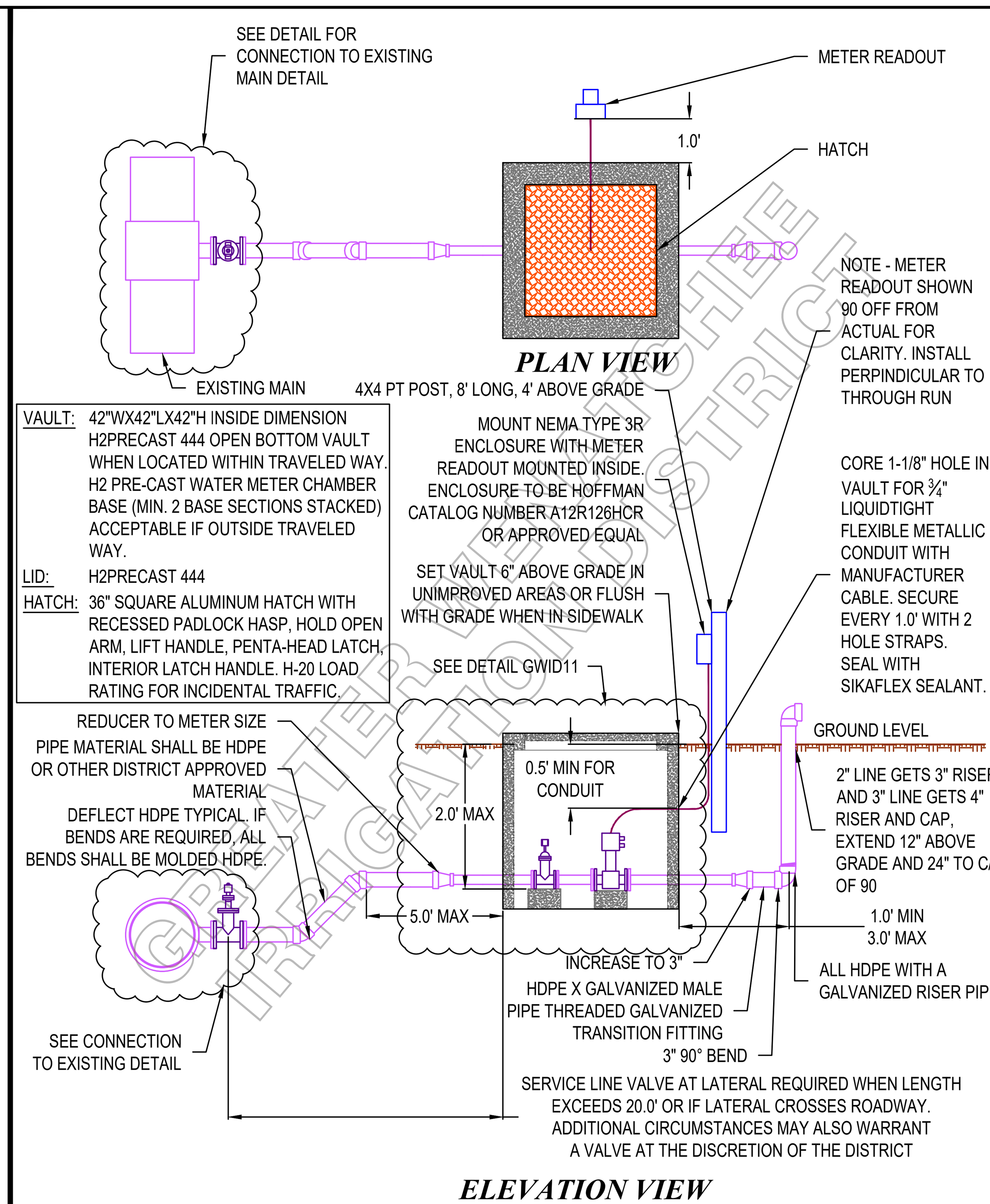
1. DETAILS 1 OR 2 SHALL BE USED WHERE SPECIFIED ON THE PLANS OR WHERE HDPE IS CONNECTED TO UNRESTRAINED GASKETED PIPE. WHERE HDPE IS CONNECTED TO FULLY RESTRAINED PIPING SYSTEM, NO PIPE ANCHOR IS REQUIRED.
2. CONCRETE BLOCK SHALL BE PER SECTION 7-09.3(21) OF THE WSDOT STANDARD SPECIFICATIONS.
3. MAINTAIN 18" MINIMUM COVER OVER THE TOP OF BLOCK.
4. IF BLOCK CANNOT BE KEYED INTO UNDISTURBED SOIL TO THE SATISFACTION OF THE DISTRICT OR ENGINEER, a) THE BLOCK LENGTH SHALL BE EXTENDED TO PROVIDE AN ADEQUATE KEY OR b) CDF SHALL BE USED TO FILL BACK TO NATIVE SOIL OR c) THE TRENCH SHALL BE BACKFILLED AND COMPACTED TO 95% DENSITY A MINIMUM DISTANCE OF 15 FEET IN FRONT OF THE BLOCK TO THE SATISFACTION OF THE DISTRICT OR ENGINEER.

IRRIGATION SYSTEM STANDARD DETAIL

PIPE TRANSITION

GREATER WENATCHEE IRRIGATION DISTRICT

FILE: GWID–D–PIPETRANS.DWG | REVISED: 12/07/2021 | DWG NO.GWID09

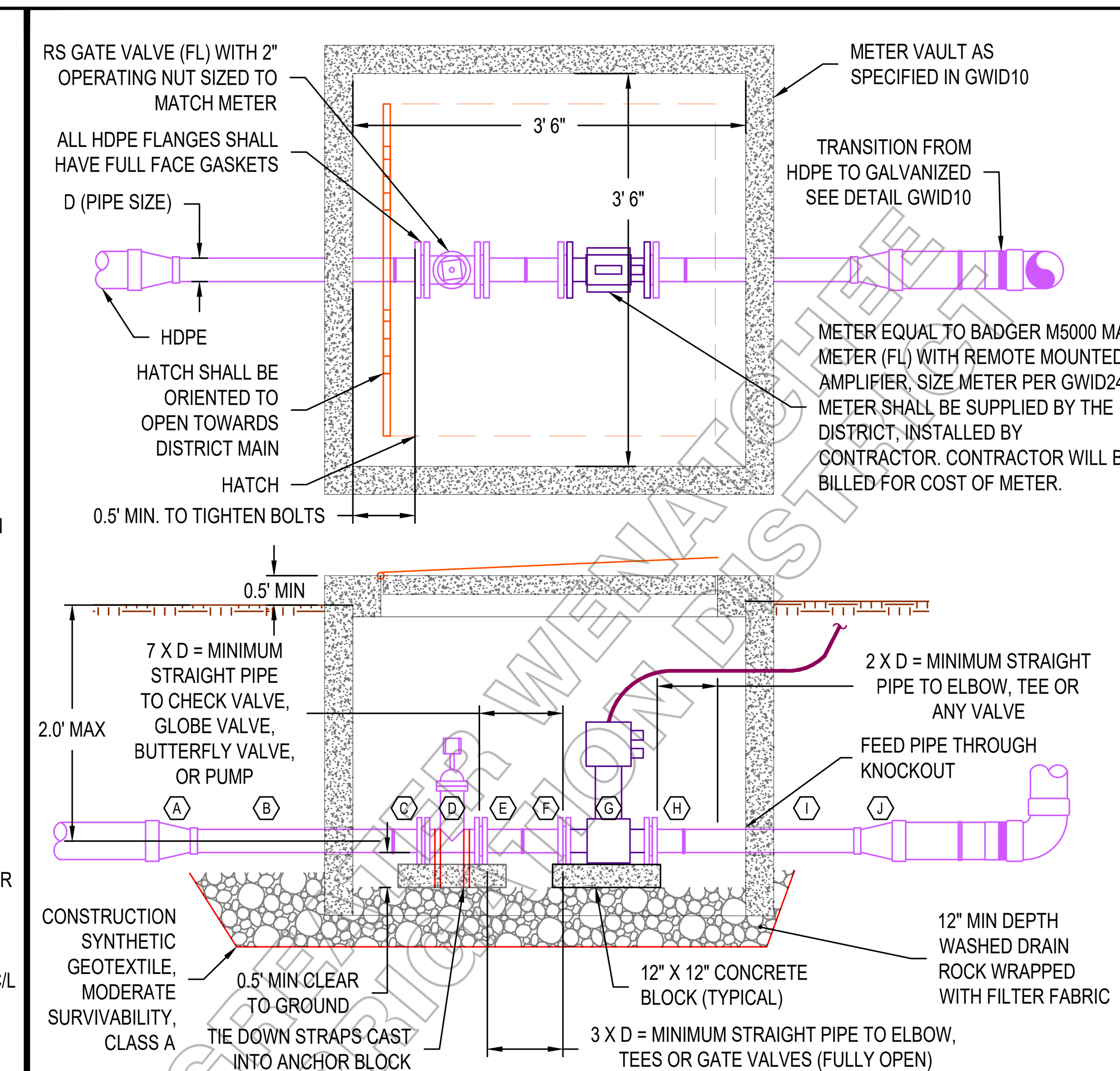


IRRIGATION SYSTEM STANDARD DETAIL

CUSTOMER TURNOUT PAGE 1 OF 2

GREATER WENATCHEE IRRIGATION DISTRICT

FILE: GWID–D–TURNOUT1.DWG | REVISED: 12/07/2021 | DWG NO.GWID10



COMPONENT LIST BY METER SIZE

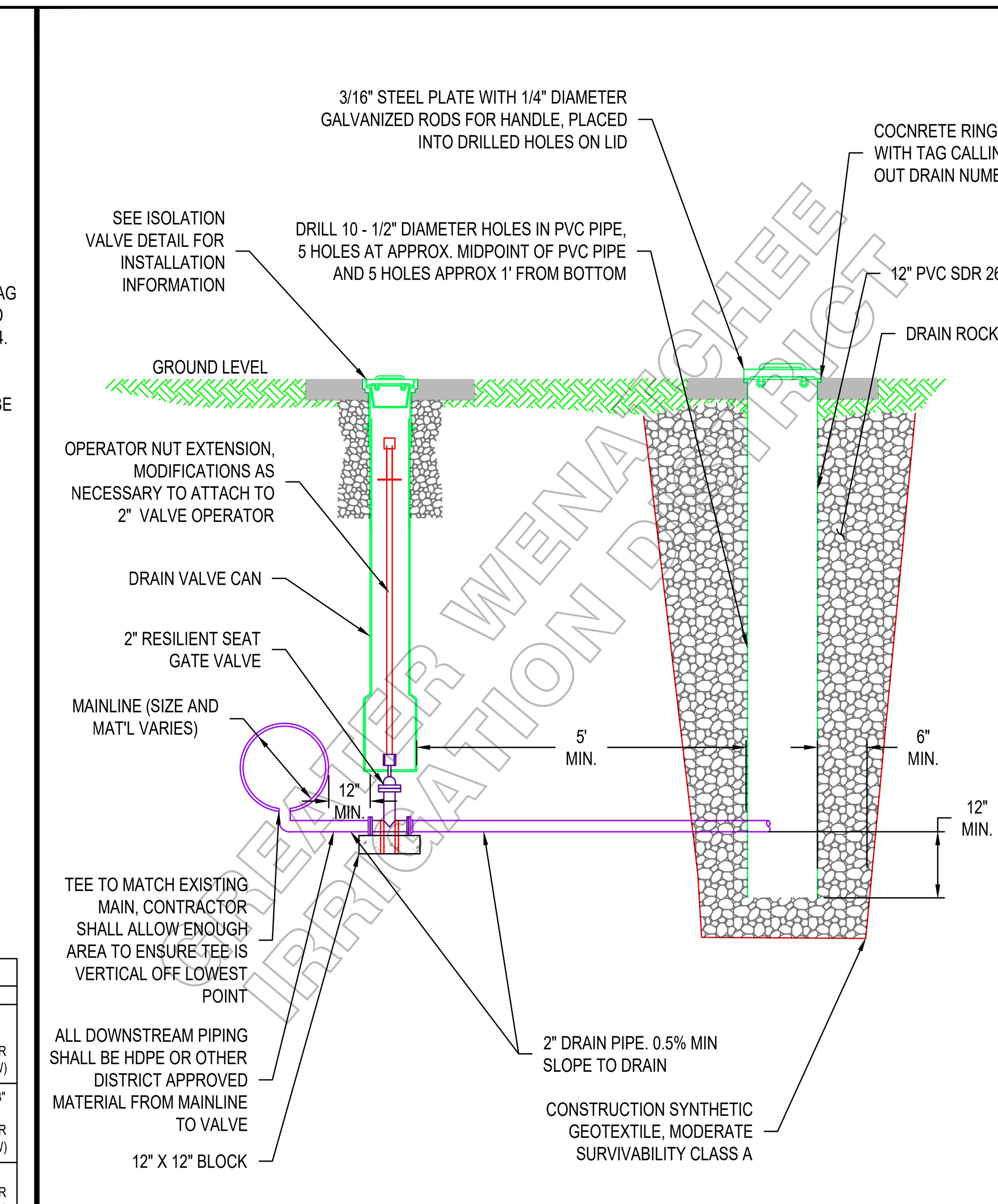
G	A	B	C	D	E	F	H	I	J
1" METER	3" X 2" REDUCER (FW X FW)	2" SDR11 HDPE (IPS)	2" HDPE FLANGE ADAPTER W/ DI BACKUP RING (FW)	2" GATE VALVE (FL)	2" X 1" REDUCING FLANGE W/ 1" HDPE THREADED TRANSITION FITTING (MIP X FW)	1" HDPE FLANGE ADAPTER W/ DI BACKUP RING (FW)	1" HDPE FLANGE ADAPTER W/ DI BACKUP RING (FW)	1" HDPE SDR11 (IPS)	1" X 3" HDPE REDUCER (FW X FW)
1-1/2" METER	3" X 2" REDUCER (FW X FW)	2" SDR11 HDPE (IPS)	2" HDPE FLANGE ADAPTER W/ DI BACKUP RING (FW)	2" GATE VALVE (FL)	2" X 1-1/2" REDUCING FLANGE W/ 1-1/2" HDPE THREADED TRANSITION FITTING (MIP X FW)	1-1/2" HDPE FLANGE ADAPTER W/ DI BACKUP RING (FW)	1-1/2" HDPE FLANGE ADAPTER W/ DI BACKUP RING (FW)	1-1/2" HDPE SDR11 (IPS)	1-1/2" X 3" HDPE REDUCER (FW X FW)
2" METER	4" X 2" REDUCER (FW X FW)	2" SDR11 HDPE (IPS)	2" HDPE FLANGE ADAPTER W/ DI BACKUP RING (FW)	2" GATE VALVE (FL)	2" HDPE FLANGE ADAPTER W/ DI BACKUP RING (FW)	2" HDPE FLANGE ADAPTER W/ DI BACKUP RING (FW)	2" HDPE FLANGE ADAPTER W/ DI BACKUP RING (FW)	2" SDR11 HDPE (IPS)	2" X 3" REDUCER (FW X FW)

IRRIGATION SYSTEM STANDARD DETAIL

CUSTOMER TURNOUT PAGE 2 OF 2

GREATER WENATCHEE IRRIGATION DISTRICT

FILE: GWID–D–TURNOUT2.DWG | REVISED: 12/07/2021 | DWG NO.GWID11

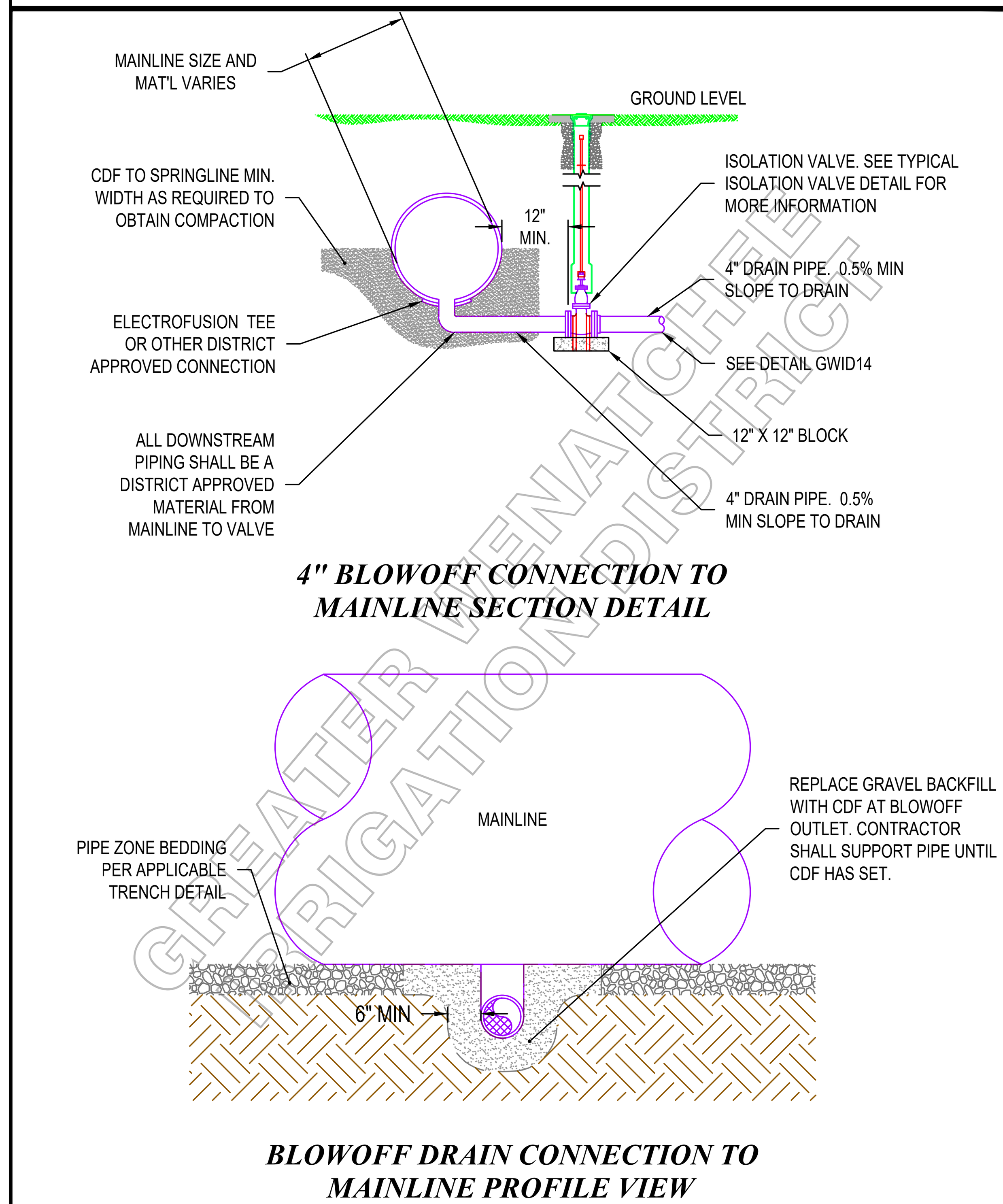


IRRIGATION SYSTEM STANDARD DETAIL

2 INCH BLOWOFF

GREATER WENATCHEE IRRIGATION DISTRICT

FILE: GWID–D–2BLOWOFF.DWG | REVISED: 12/07/2021 | DWG NO.GWID12



IRRIGATION SYSTEM STANDARD DETAIL

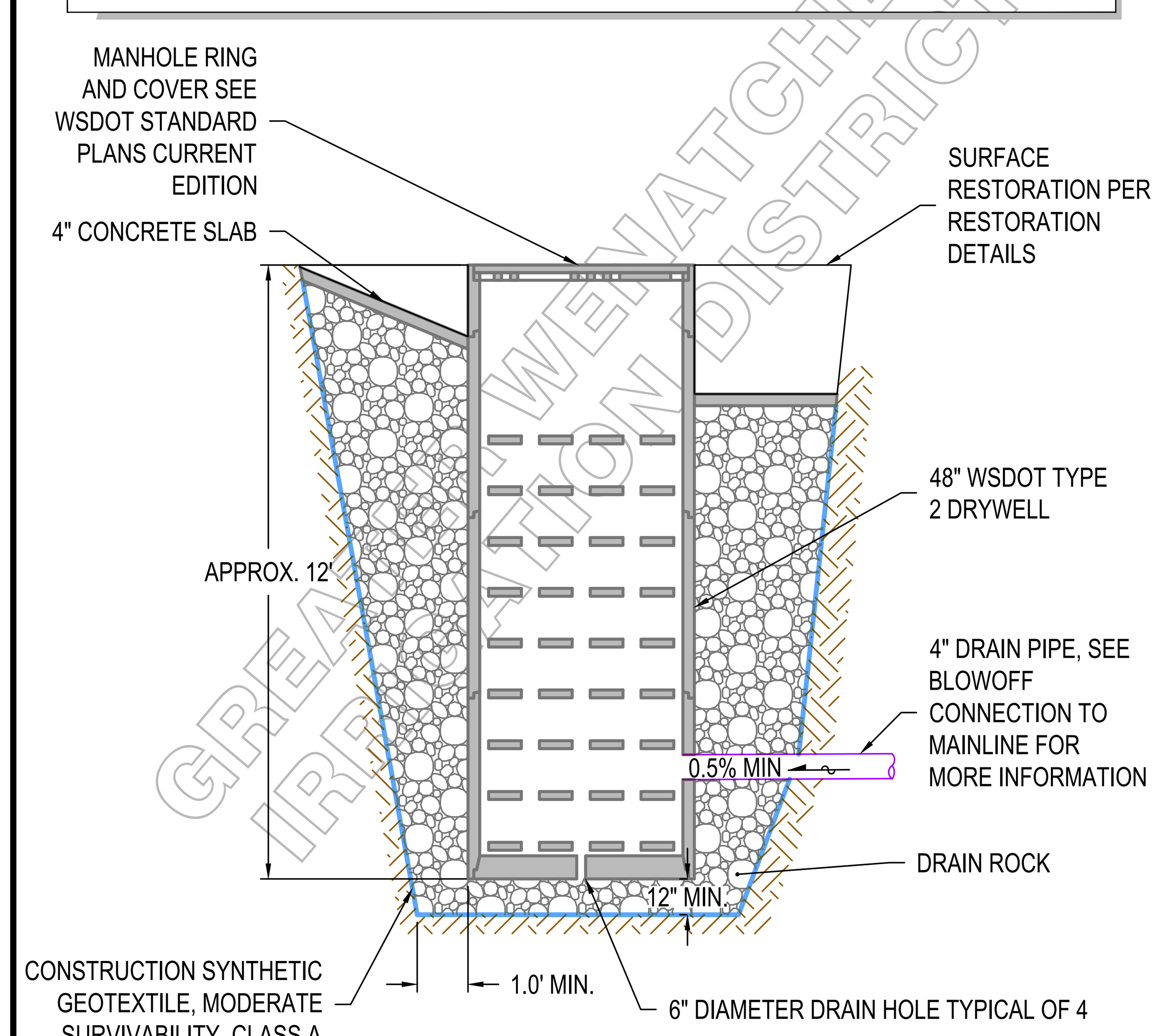
4 INCH BLOWOFF CONNECTION

GREATER WENATCHEE IRRIGATION DISTRICT

FILE: GWID–D–4BLOWOFF.DWG | REVISED: 12/07/2021 | DWG NO.GWID13

BLOWOFF/DRAIN NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL MATERIALS FOR BLOWOFF ASSEMBLIES, INCLUDING MAINLINE TEE OR SADDLE. CONTRACTOR SHALL TAKE EXTRA CARE TO ENSURE PROPER BEDDING AND COMPACTION SO THAT THE DRAIN DOES NOT ACT AS A POINT LOAD ON THE IRRIGATION MAIN DUE TO SETTLING OF THE SURROUNDING PIPE.
2. BLOWOFF STRUCTURE FOR 4" BLOW OFF AND LARGER. MUST BE INSTALLED AT ALL LOW POINTS, AS SPECIFIED ON PLANS.



IRRIGATION SYSTEM STANDARD DETAIL

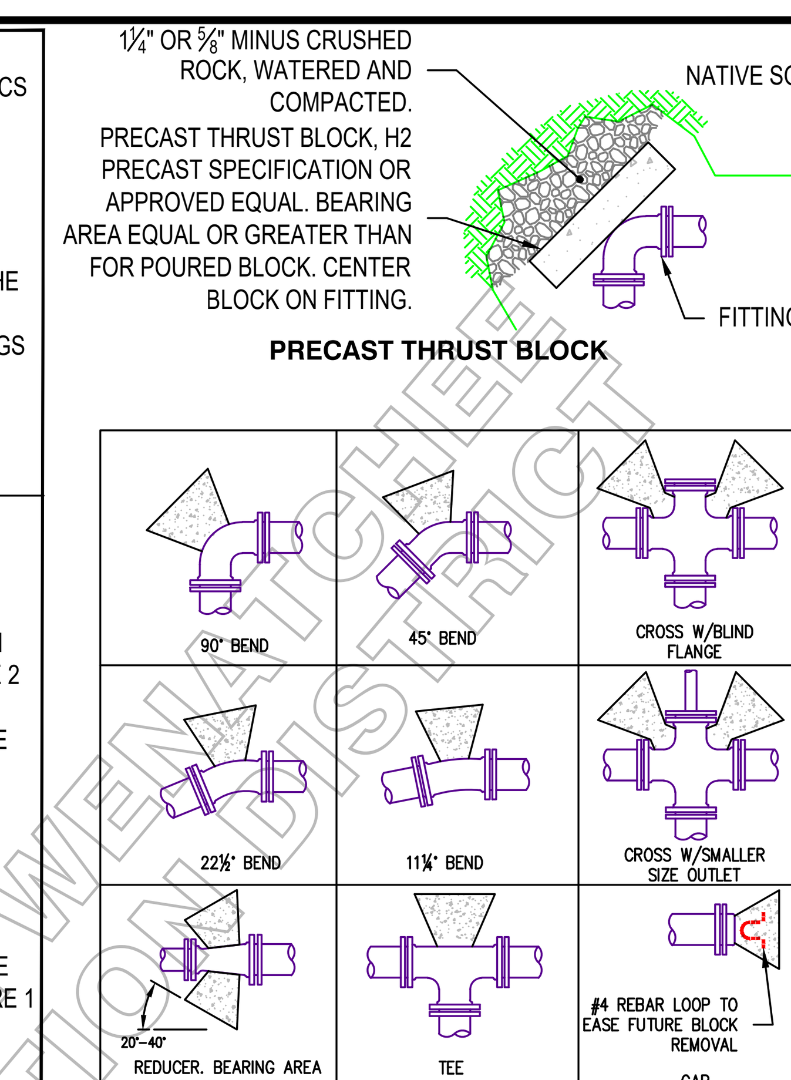
4 INCH BLOWOFF STRUCTURE

GREATER WENATCHEE IRRIGATION DISTRICT

FILE: GWID–D–4BLOWSTCR.DWG | REVISED: 12/07/2021 | DWG NO.GWID14

CONSTRAINTS
1. SOIL CONDITIONS AND BEARING CHARACTERISTICS ARE TO BE DETERMINED BY THE DISTRICT.
2. THIS STANDARD DETAIL IS FOR HORIZONTAL THRUST RESTRAINT ONLY.
3. CONCRETE BLOCKING SHALL BE PER DOT/APWA SPECIFICATION 7-09.3(21), CURRENT EDITION.
4. MAINTAIN 18" MINIMUM GROUND COVER OVER THE TOP OF ALL CONCRETE BLOCKING.
5. ALL THRUST BLOCKS TO BE FORMED AND FITTINGS COVERED IN PLASTIC.
6. ANY TEMPORARY BLOCKING USED TO SUPPORT FITTINGS DURING CONSTRUCTION SHALL BE REMOVED PRIOR TO BACKFILLING.

PROCEDURE
1. DETERMINE BEARING FACTOR IN TABLE 1 CORRESPONDING TO APPROPRIATE PIPE SIZE AND TYPE OF FITTING.
2. MULTIPLY THE BEARING FACTOR DETERMINED IN TABLE 1 BY THE MULTIPLICATION FACTOR IN TABLE 2 FOR THE APPROPRIATE SOIL CLASSIFICATION. THE RESULT IS THE REQUIRED AREA OF CONCRETE (IN SQ. FT.) WHICH MUST BEAR AGAINST UNDISTURBED SOIL.
3. USING TABLE 3 LOCATE THE MINIMUM DEPTH OF CONCRETE (Dmin) CORRESPONDING TO THE REQUIRED BEARING AREA.
4. USING Dmin, THE HEIGHT AND LENGTH OF THE THRUST BLOCKING CAN BE DETERMINED FROM THE DIMENSION RELATIONSHIPS ILLUSTRATED IN FIGURE 1 AND DESCRIBED BELOW:
A. "H" EQUALS "D" B. MAX. "L" EQUALS 2 x "H"
C. MIN. "L" EQUALS "H"



SIZE	TEST PRESSURE	TEES DEAD ENDS	90° BEND	45° BEND	22½° BEND	11¼° BEND
3	300	2.3	2.3	2.3	2.3	2.3
4	300	2.3	2.6	2.3	2.3	2.3
6	300	3.7	5.3	2.9	2.2	2.2
8	300	6.4	9.1	4.9	2.5	2.2
10	300	9.7	13.7	7.4	3.8	2.2
12	300	13.7	19.4	10.5	5.3	2.7
14	300	18.4	26.0	14.1	7.2	3.6
16	300	23.8	33.6	18.2	9.3	4.7
18	300	29.9	42.2	22.9	11.7	5.9
20	300	36.6	51.8	28.0	14.3	7.2
24	300	52.3	73.9	40.0	20.4	10.2

* 2.3 BASED ON GEOMETRIC FACTORS

TABLE 1 - BEARING FACTOR

SOIL CONDITION	MULTIPLICATION FACTOR
*MUCK, PEAT, etc.	–
SOFT CLAY	3.0
SAND	1.5
SAND AND GRAVEL	1.0
SAND AND GRAVEL CEMENTED W/ CLAY	0.75
HARD SHALE	0.30

* THRUST BLOCKING SHALL BE DESIGNED BY ENGINEER

TABLE 2 - MULTIPLICATION FACTOR

REQ'D BEARING AREA (SQ. FT.)	MINIMUM DEPTH Dmin
2.25 MIN.– 5.0	1.5'
5.01 – 10.0	2.3'
10.01 – 15.0	3.0'
15.01 – 30.0	4.0'
30.01 – 40.0	4.5'
40.01 – 50.0	5.0'
50.01 – 70.0	6.0'

TABLE 3 - BLOCK SHAPE

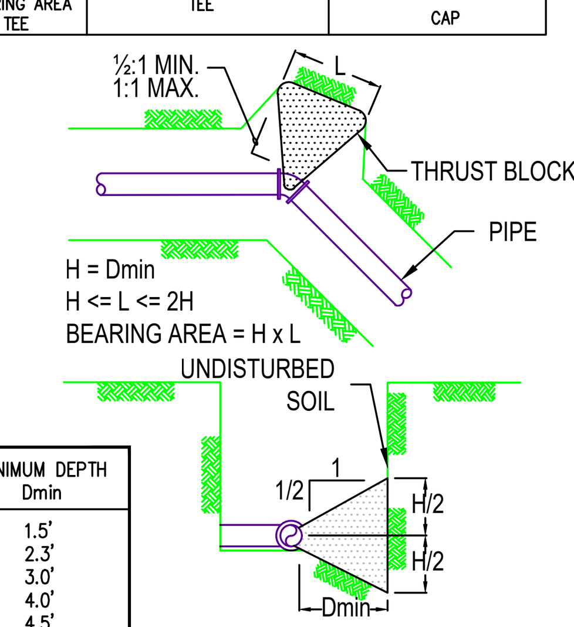


FIGURE 1

IRRIGATION SYSTEM STANDARD DETAIL

HORIZONTAL CONCRETE BLOCKING

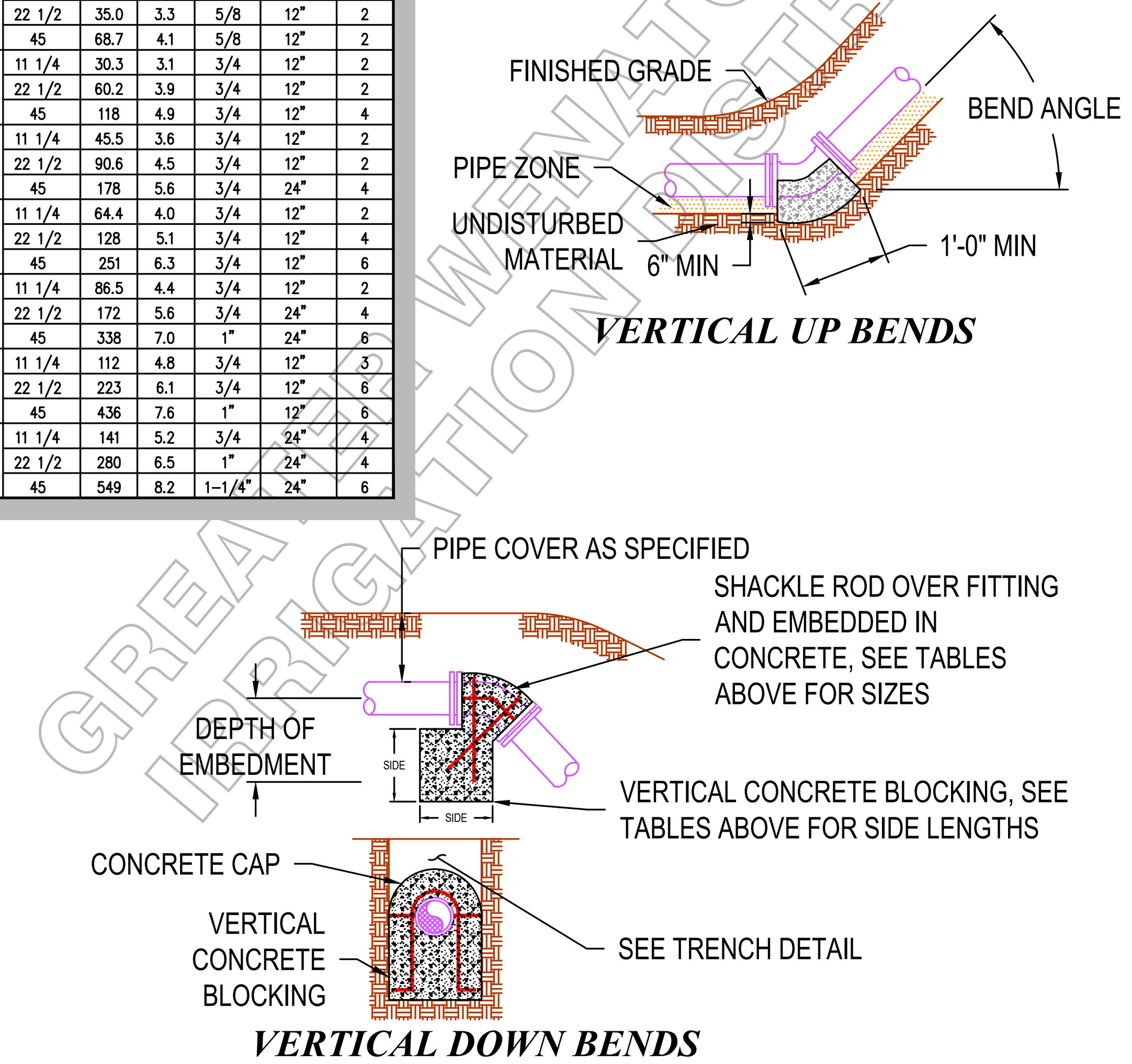
GREATER WENATCHEE IRRIGATION DISTRICT

FILE: GWID–D–THRSTH.DWG | REVISED: 12/07/2021 | DWG NO.GWID15

VERTICAL THRUST BLOCKING FOR 11.25°, 22.5°, AND 45° BENDS							NUMBER OF TIE ROD SETS (2 EMBEDDED RODS PER SET)
		VB		S	d	L	
PIPE SIZE NOM. DIAMETER - INCHES	TEST PRESSURE PSI	VERTICAL BEND DEGREES	AMOUNT CONCRETE BLOCKING - CU FT	LENGTH OF SIDE FEET	SHACKLE ROD DIA. INCHES	DEPTH OF ROD IN CONCRETE INCHES	
3"	300	11 1/4	5.8	1.8	5/8	12"	2
		22 1/2	11.5	2.3	5/8	12"	2
		45	22.6	2.8	5/8	12"	2
4"	300	11 1/4	8.5	2.0	5/8	12"	2
		22 1/2	17.0	2.6	5/8	12"	2
		45	33.2	3.2	5/8	12"	2
6"	300	11 1/4	17.6	2.6	5/8	12"	2
		22 1/2	35.0	3.3	5/8	12"	2
		45	68.7	4.1	5/8	12"	2
8"	300	11 1/4	30.3	3.1	3/4	12"	2
		22 1/2	60.2	3.9	3/4	12"	2
		45	118	4.9	3/4	12"	4
10"	300	11 1/4	45.5	3.6	3/4	12"	2
		22 1/2	90.6	4.5	3/4	12"	2
		45	178	5.6	3/4	24"	4
12"	300	11 1/4	64.4	4.0	3/4	12"	2
		22 1/2	128	5.1	3/4	12"	4
		45	251	6.3	3/4	12"	6
14"	250	11 1/4	86.5	4.4	3/4	12"	2
		22 1/2	172	5.6	3/4	24"	4
		45	338	7.0	1"	24"	6
16"	250	11 1/4	112	4.8	3/4	12"	3
		22 1/2	223	6.1	3/4	12"	6
		45	436	7.6	1"	12"	6
18"	250	11 1/4	141	5.2	3/4	24"	4
		22 1/2	280	6.5	1"	24"	4
		45	549	8.2	1-1/4"	24"	6

NOTES:

1. PROVIDE A 1-INCH MIN. CLEARANCE BETWEEN PIPE FITTINGS AND RODS. MIN. LENGTH OF ROD HOOK SHALL BE 6 INCHES.
2. MIN. CONCRETE COVER OVER ROD SHALL BE 3 INCHES, ALL EDGES.
3. CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4500 PSI.
4. KEEP CONCRETE CLEAR OF JOINT AND JOINT ACCESSORIES.
5. POUR CONCRETE THRUST BLOCKS AGAINST UNDISTURBED EARTH.

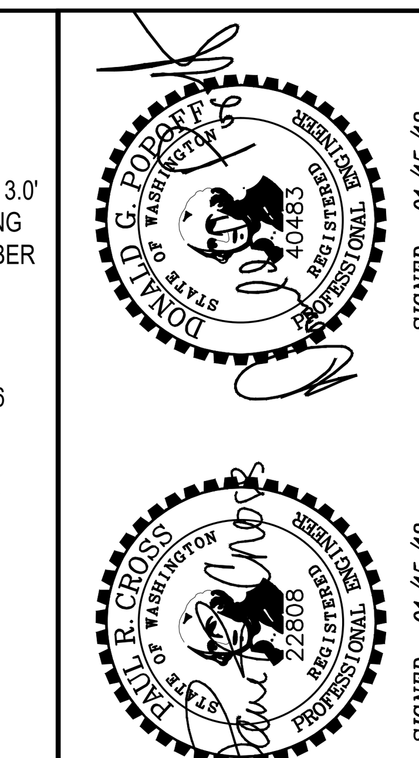


IRRIGATION SYSTEM STANDARD DETAIL

VERTICAL CONCRETE BLOCKING

GREATER WENATCHEE IRRIGATION DISTRICT

FILE: GWID–D–THRSTV1.DWG | REVISED: 12/07/2021 | DWG NO.GWID16



RH2 ENGINEERING, INC.
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EAST WENATCHEE, WA
300 Simon Street, Suite 5

GREATER WENATCHEE IRRIGATION DISTRICT

IRRIGATION STANDARD DETAILS

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW

ENGINEER: JTR | REVIEWED: PRC | SAVE DATE: Dec 9, 2021 | PLOT DATE: Dec 9, 2021 | CLIENT: GWI | FILENAME: GWID_BRDR_COMBINED.DWG | JOB NO.: -

SCALE: SHOWN

0" 1" 2"
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: D02 | SHEET NO.: 2 / 4

MIN. BLOCK LENGTH (L)

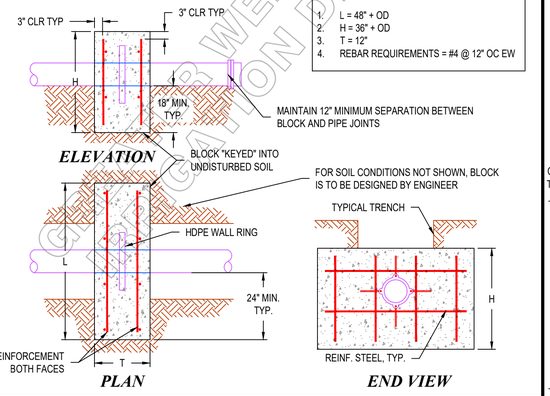
PIPE DIA	SOIL CONDITION: SOFT CLAY	SILT	SANDY SILT	SAND	SAND & GRAVEL	SAND & GRAVEL CEMENTED W/ HARD CLAY
6"	36"	36"	36"	36"	36"	36"
8"	60"	60"	42"	36"	36"	36"
10"	84"	84"	60"	42"	42"	42"
12"	84"	84"	60"	42"	42"	36"
14"	84"	84"	60"	42"	42"	36"
16"	96"	96"	72"	72"	54"	36"
18"	144"	120"	86"	86"	66"	36"
20"	144"	120"	100"	86"	86"	42"
22"	174"	120"	120"	86"	86"	48"
24"	174"	134"	134"	100"	100"	56"
26"	192"	144"	134"	120"	120"	60"
28"	240"	180"	144"	134"	134"	68"
30"	240"	180"	144"	134"	134"	72"

BLOCK SIZES BASED ON 200 psi HYDROSTATIC TEST PRESSURE

SIZING TABLE

PIPE DIA	T (min)	H (min)	REINFORCING
6"	12"	42"	#4 @ 12" OC EW
8"	12"	44"	#4 @ 12" OC EW
10"	12"	46"	#4 @ 12" OC EW
12"	12"	48"	#4 @ 12" OC EW
14"	12"	78"	#4 @ 12" OC EW
16"	12"	78"	#4 @ 12" OC EW
18"	12"	78"	#4 @ 12" OC EW
20"	12"	84"	#4 @ 12" OC EW
22"	12"	84"	#4 @ 8" OC EW
24"	12"	84"	#4 @ 8" OC EW
26"	12"	90"	#4 @ 6" OC EW
28"	12"	90"	#4 @ 6" OC EW
30"	12"	90"	#4 @ 6" OC EW

NOTE:
FOR PIPE SIZES LESS THAN 22" DIAMETER, THE FOLLOWING CONDITIONS APPLY:
1. L = 48" + OD
2. H = 36" + OD
3. T = 12"
4. REBAR REQUIREMENTS = #4 @ 12" OC EW

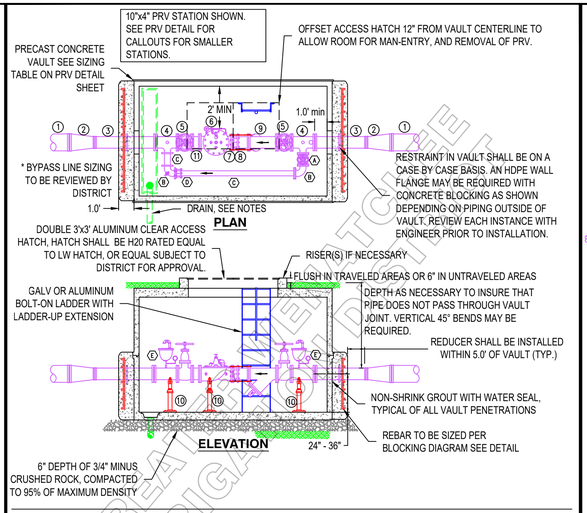


IRRIGATION SYSTEM STANDARD DETAIL

PIPE TRANSITION ANCHOR

FILE: GWD-D-ANCHOR.DWG | REVISED: 12/07/2021 | DWG NO.GWD17

GREATER WENATCHEE IRRIGATION DISTRICT



① PIPE (MATERIAL AND SIZE PER PLAN)
② MOLDED HDPE REDUCER (BFXBF)
③ HDPE SPOOL W/ BF FLANGE ADAPTER W/ BACK UP RING
④ DI TEE w/ 1" TAP ON TOP
⑤ RS GATE VALVE (FLxFL) w/ HAND WHEEL
⑥ PRESSURE REDUCING VALVE (FLxFL).
⑦ FCA w/ SHACKLE RESTRAINT
⑧ DI PIPE (FLxPE), LENGTH TO FIT
⑨ STRAINER (FLxFL), BRASS BALL VALVE FOR BLOW OUT
⑩ ADJUSTABLE SADDLE PIPE SUPPORT
⑪ FLxFL SPOOL, LENGTH TO FIT

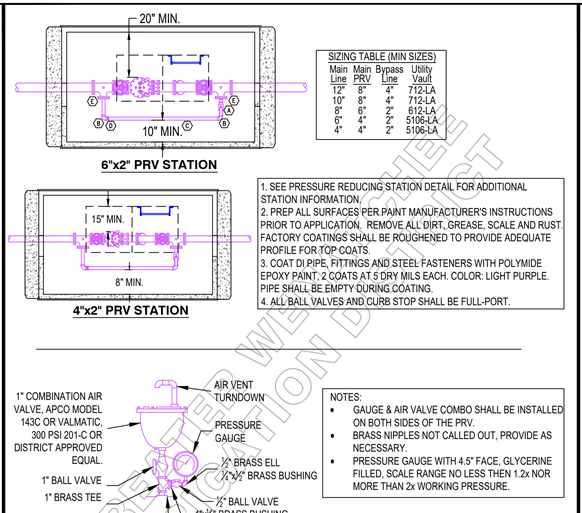
Ⓐ 4" RS GATE VALVE (FL)
Ⓑ 4" DI 90° BEND (FL) W/1" TAP ON SIDE AND HOSE BIB
Ⓒ 4" DI PIPE (FLxPE) LTF
Ⓓ FCA
Ⓔ PRESSURE GAUGE AND COMB. AIR VALVE, SEE PRV DETAIL SHEET

IRRIGATION SYSTEM STANDARD DETAIL

10 INCH PRESSURE REDUCING STATION

FILE: GWD-D-PRV.DWG | REVISED: 12/07/2021 | DWG NO.GWD18

GREATER WENATCHEE IRRIGATION DISTRICT



SIZING TABLE (MIN SIZES)			
Main Line	Main PRV	Bypass Line	Utility Vault
12"	8"	4"	712-LA
10"	8"	4"	712-LA
8"	6"	2"	612-LA
6"	4"	2"	5106-LA
4"	4"	2"	5106-LA

1. SEE PRESSURE REDUCING STATION DETAIL FOR ADDITIONAL STATION INFORMATION.
2. PREP ALL SURFACES PER PAINT MANUFACTURER'S INSTRUCTIONS PRIOR TO APPLICATION. REMOVE ALL DIRT, GREASE, SCALE AND RUST. FACTORY COATINGS SHALL BE ROUGHENED TO PROVIDE ADEQUATE PROFILE FOR TOP COATS.
3. COAT DI PIPE, FITTINGS AND STEEL FASTENERS WITH POLYMIDE EPOXY PAINT, 2 COATS AT 5 DRY MILS EACH. COLOR: LIGHT PURPLE. PIPE SHALL BE EMPTY DURING COATING.
4. ALL BALL VALVES AND CURB STOP SHALL BE FULL-PORT.

NOTES:
- GAUGE & AIR VALVE COMBO SHALL BE INSTALLED ON BOTH SIDES OF THE PRV.
- BRASS NIPPLES NOT CALLED OUT, PROVIDE AS NECESSARY.
- PRESSURE GAUGE WITH 4.5" FACE, GLYCERINE FILLED, SCALE RANGE NO LESS THEN 1.2x NOR MORE THAN 2x WORKING PRESSURE.

Ⓐ 2" BRASS BALL VALVE (THREADED)
Ⓑ 2" BRASS 90° BEND (THREADED)
Ⓒ 2" COPPER PIPE, LTF
Ⓓ 2" BRASS UNION
Ⓔ 4" DI BLIND FLANGE w/2" TAP

USE THREADED BRASS NIPPLES (NOT CALLED OUT) ON BYPASS PIPING. USE CLOSE NIPPLES WHEREVER POSSIBLE.

IRRIGATION SYSTEM STANDARD DETAIL

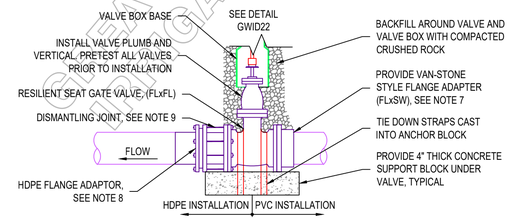
PRESSURE REDUCING STATION DETAIL

FILE: GWD-D-PRV-DETAIL.DWG | REVISED: 12/07/2021 | DWG NO.GWD19

GREATER WENATCHEE IRRIGATION DISTRICT

ISOLATION VALVE NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL FITTINGS REQUIRED TO TRANSITION BETWEEN PIPE AND VALVE AND PIPES OF VARYING MATERIALS.
2. UNLESS DIRECTED OTHERWISE CONTRACTOR SHALL NOT REDUCE MAINLINE INTERNAL DIAMETER AT VALVE. MEETING THIS REQUIREMENT MAY REQUIRE ADDITIONAL FITTINGS BEYOND WHAT IS SHOWN ON THE PLANS AND DETAILS.
3. THE CONTRACTOR SHALL CONFIRM THE PROPER OPERATION OF ALL VALVES PRIOR TO FINAL CONNECTION OF VALVE. CONTRACTOR SHALL OPERATE VALVES WITH GWID REPRESENTATIVE PRESENT TO VERIFY CORRECT OPERATION. GWID REPRESENTATIVE SHALL RECORD NECESSARY TURNS AND COMPARE WITH SUBMITTED SPECIFICATIONS.
4. ALL VALVES SHALL BE WRAPPED IN PLASTIC AND TAPED PRIOR TO BURIAL.
5. EXTENSIONS ARE REQUIRED WHEN THE VALVE NUT IS MORE THAN 3.5-FT BELOW FINISHED GRADE. EXTENSIONS ARE TO BE A MIN. OF 1-FT LONG, ONLY ONE EXTENSION PER VALVE. ALL EXTENSIONS ARE TO MADE OF STEEL SIZED AS NOTED, AND COATED TO PREVENT CORROSION.
6. USE MARKER POST WHEN VALVE IS LOCATED OUT OF TRAVELED WAY OR AT THE DIRECTION OF THE DISTRICT.
7. FOR PVC, PROVIDE VAN-STONE STYLE FLANGE ADAPTER (FLxSW).
8. FOR HDPE, PROVIDE HDPE FLANGE ADAPTER (FLxFW). FLANGE ADAPTORS SHALL HAVE AN EPOXY COATED STEEL BACKUP RING AND FULL FACED FLANGE GASKET. INSTALL PER MANUFACTURER'S RECOMMENDATION.
9. WHERE PIPE UPSTREAM AND DOWNSTREAM OF VALVE IS STEEL, DUCTILE IRON, OR HDPE, CONTRACTOR SHALL PROVIDE DISMANTLING JOINT TO FACILITATE VALVE REMOVAL AND INSTALLATION. DISMANTLING JOINT SHALL BE ROMAC DJ400 OR APPROVED EQUAL. LOCATE DISMANTLING JOINT ON DOWNSTREAM SIDE OF VALVE.

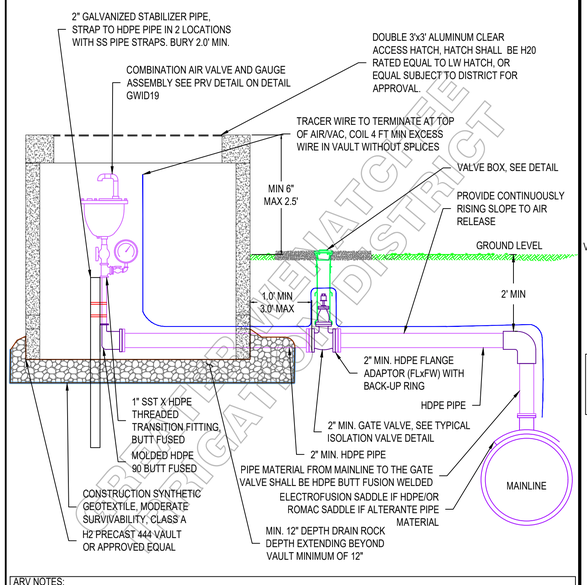


IRRIGATION SYSTEM STANDARD DETAIL

ISOLATION VALVE

FILE: GWD-D-ISOVALVE.DWG | REVISED: 12/07/2021 | DWG NO.GWD20

GREATER WENATCHEE IRRIGATION DISTRICT



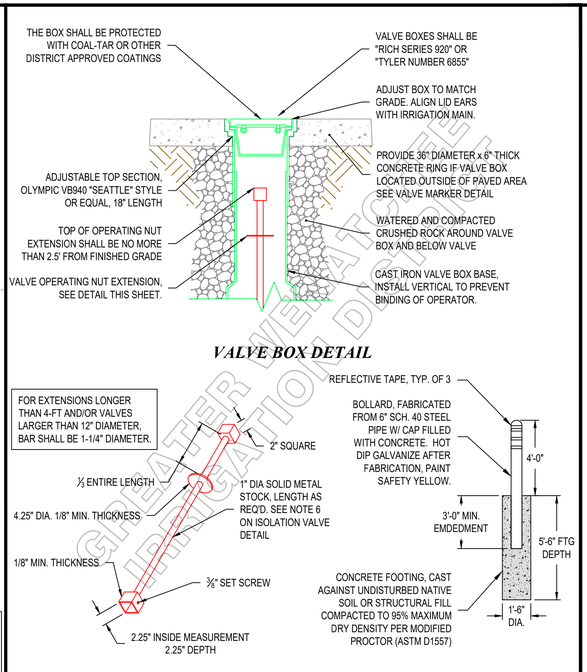
ARV NOTES:
1. ALL GALVANIZED STEEL FITTINGS SHALL BE THREADED OR FLANGED. ENSURE ALL THREADED FITTINGS OR FLANGED FITTINGS HAVE PTFE TAPE OR GASKETS AND ARE AIR AND WATER TIGHT.
2. VAULT SHALL BE SIZED SUFFICIENTLY FOR AIR VALVES TO HAVE A MINIMUM 12" CLEARANCE BETWEEN VALVE AND VAULT WALL.
3. AIR RELEASE AND VACUUM VALVE ASSEMBLY SHALL BE INSTALLED AT ALL HIGH POINTS, AS SPECIFIED ON PLANS.
4. SIZING OF AIR VALVES SHALL BE DETERMINED FROM MAINLINE PIPE SIZING. 1" AIR VALVES REQUIRED FOR 8" AND SMALLER MAINS. 2" AIR VALVES REQUIRED FOR 10" AND 12" MAINS. GREATER THAN 12" MAINS SIZING SHALL BE REVIEWED BY DISTRICT ENGINEER.

IRRIGATION SYSTEM STANDARD DETAIL

AIR RELEASE & VACUUM VALVE ASSEMBLY

FILE: GWD-D-AIRVALVE.DWG | REVISED: 12/07/2021 | DWG NO.GWD21

GREATER WENATCHEE IRRIGATION DISTRICT

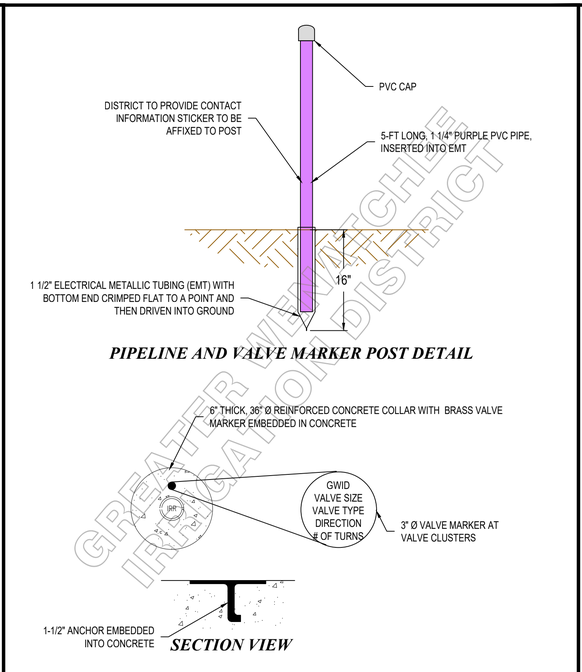


IRRIGATION SYSTEM STANDARD DETAIL

VALVE BOX, OPERATOR NUT EXTENSION, & BOLLARD

FILE: GWD-D-VALVE1.DWG | REVISED: 12/07/2021 | DWG NO.GWD22

GREATER WENATCHEE IRRIGATION DISTRICT



IRRIGATION SYSTEM STANDARD DETAIL

VALVE MARKER & POST

FILE: GWD-D-VALVE2.DWG | REVISED: 12/07/2021 | DWG NO.GWD23

GREATER WENATCHEE IRRIGATION DISTRICT

BADGER M5000

METER SIZING CRITERIA

LAND AREA APPLIED (ACRES)		FLOW RATE (GPM)		MIN. METER SIZE (INCH)	TURNOUT TEE AND PIPE SIZE (INCH)
min	max	min	max		HDPE
5	9	40	70	1	3 - MIN SIZE
9	25	70	184	1 1/2	3
25	42	184	315	2	4
42	73	315	544	2 1/2	4
73	98	544	736	3	6
98	147	736	1,100	4	6
147	236	1,100	1,763	5	8
236	350	1,763	2,617	6	8
350	699	2,617	5,232	8	12

NOTE: THE DISTRICT'S TYPICAL RULE OF THUMB FOR REPLACING CONVENTIONAL TURBINE OR PROPELLER METERS OR OTHER OLDER METERS (NON-MAGMETERS) WOULD PROVIDE THE NEW MAG METER ONE NOMINAL SIZE SMALL.

FOR EXAMPLE:
3" METER (TURBINE OR PROPELLER) WOULD BE REPLACED WITH 2" MAG METER.
4" METER (TURBINE OR PROPELLER) WOULD BE REPLACED WITH 3" MAG METER.

ACTUAL ACREAGE AND FLOW CAN BE REVIEWED ON A CASE BY CASE BASIS.

IRRIGATION SYSTEM STANDARD DETAIL

METER SIZING CRITERIA

FILE: GWD-D-METER.DWG | REVISED: 12/07/2021 | DWG NO.GWD24

GREATER WENATCHEE IRRIGATION DISTRICT

RH2 ENGINEERING, INC.
www.rh2.com | 1.800.720.8052
Ellensburg, WA | Lynnwood, WA
302 Sinclair Street, Suite 1

SIGNED: 01/15/18

SIGNED: 01/15/18

GREATER WENATCHEE IRRIGATION DISTRICT

IRRIGATION STANDARD DETAILS

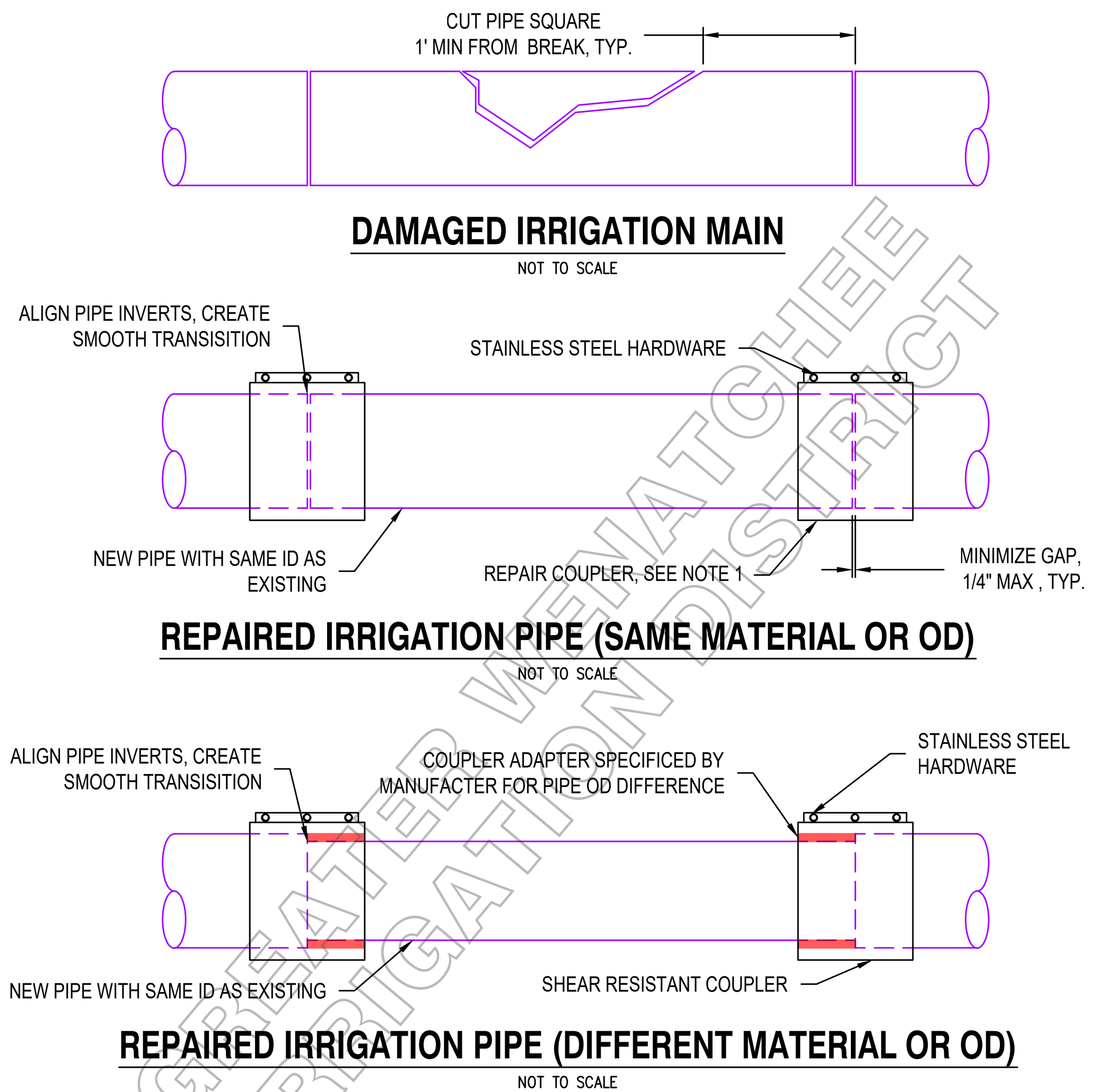
JOB NO.: -
CLIENT: GWI
FILENAME: GWID_BRDR_COMBINED.DWG
SAVE DATE: Dec 9, 2021
PLOT DATE: Dec 9, 2021
ENGINEER: JTR
REVIEWED: PRC

REVISIONS

NO.	DESCRIPTION	DATE	BY	REVIEW

SCALE: SHOWN
0" 1" 2"
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: D03
SHEET NO.: 3 of 4



IRRIGATION PIPE REPAIR NOTES:

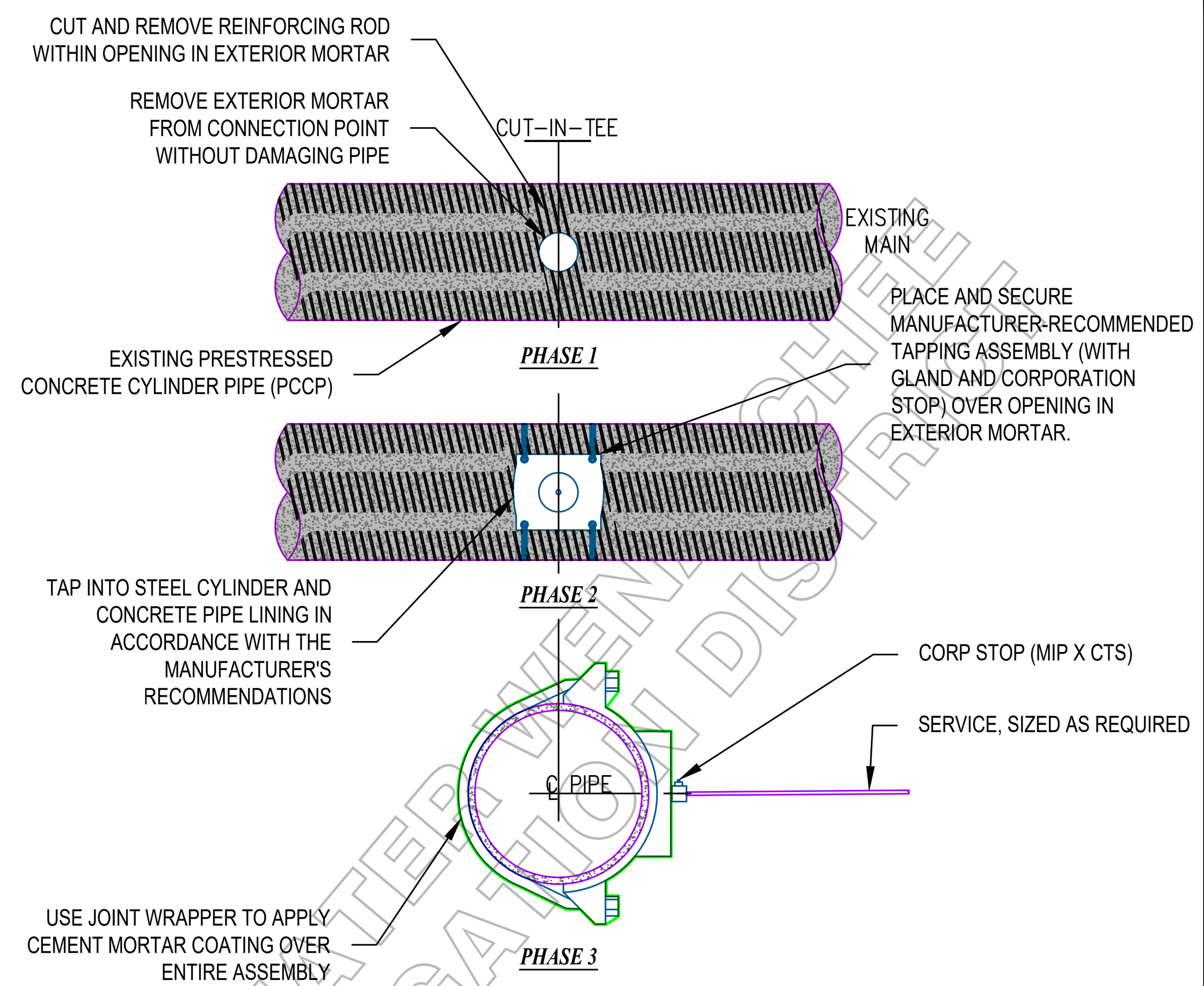
1. REPAIRS SHALL BE MADE WITH SHEAR RESISTANT COUPLINGS, ROMAC 501 LONG PATTERN SLEEVES OR EQUAL. COUPLER SHALL HAVE WATER TIGHT SEAL.
2. COUPLING BETWEEN DIFFERENT PIPE MATERIALS OR OUTSIDE DIAMETERS SHALL BE MADE USING ADAPTERS SPECIFIED BY THE COUPLER MANUFACTURER.
3. ALL HARDWARE (INCLUDING BANDING) SHALL BE STAINLESS STEEL.
4. IN THE CASE OF A DAMAGED PIPE THE GWID SHALL BE IMMEDIATELY NOTIFIED. GWID SHALL INSPECT AND APPROVE REPAIR BEFORE BACKFILLED.
5. HDPE SHALL BE REPAIRED WITH ELECTROFUSION COUPLINGS.

IRRIGATION SYSTEM STANDARD DETAIL

IRRIGATION PIPE REPAIR

FILE: GWID–D–REPAIR.DWG | REVISED: 12/07/2021 | DWG NO.GWID25

GREATER WENATCHEE IRRIGATION DISTRICT



STEPS:

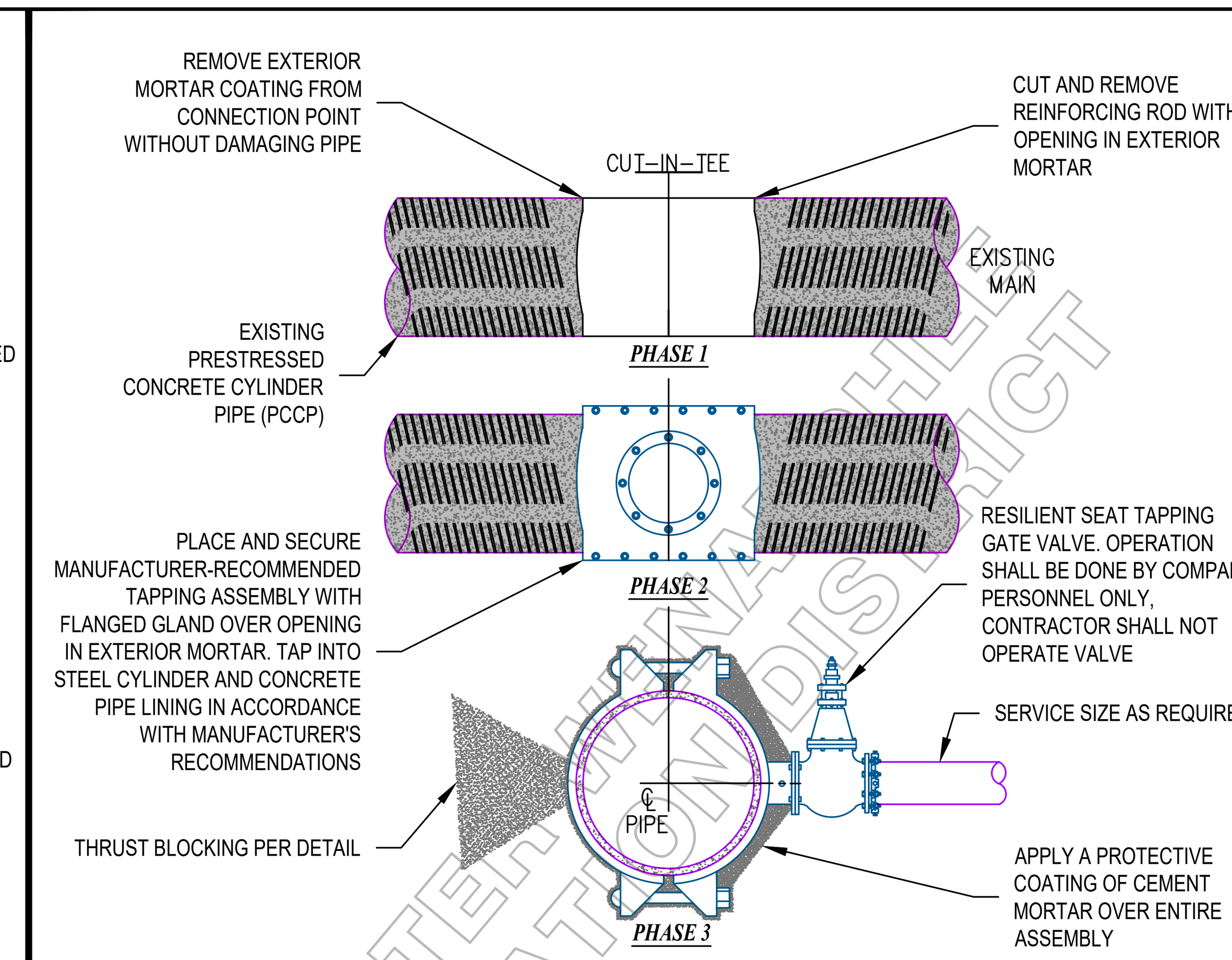
1. VERIFY EXISTING PIPE DIAMETER, AND PROVIDE MANUFACTURER-RECOMMENDED TAPPING ASSEMBLY (WITH GLAND AND CORPORATION STOP).
2. REMOVE EXTERIOR MORTAR COATING FROM AN AREA SLIGHTLY LARGER THAN THE BASE OF THE TAPPING ASSEMBLY GLAND. EXPOSE THE REINFORCING ROD AND STEEL CYLINDER.
3. CUT AND REMOVE THE REINFORCING ROD FROM THE OPENING IN THE MORTAR COATING.
4. POSITION THE RUBBER GASKET OF THE GLAND AGAINST THE EXPOSED STEEL CYLINDER. POSITION THE SADDLE OVER THE GLAND, SECURE THE SADDLE AROUND THE PIPE, TIGHTEN THE SADDLE TO COMPRESS THE RUBBER GASKET AGAINST THE STEEL CYLINDER FOR A WATER TIGHT SEAL.
5. TIGHTEN THE CORPORATION STOP INTO THE FACTORY CUT THREADS OF THE GLAND AND CONNECT A TAPPING MACHINE TO THE CORPORATION STOP.
6. OPEN THE CORPORATION STOP AND ADVANCE THE DRILL THROUGH THE STEEL CYLINDER AND CONCRETE LINING OF THE PIPE.
7. RETRACT THE DRILL AND CLOSE THE CORPORATION STOP. REMOVE THE TAPPING MACHINE AND STRAP A JOINT WRAPPER AROUND THE PIPE.
8. POUR CEMENT MORTAR INTO THE PREPARED OPENING IN THE SADDLE, FILLING THE SPACE BETWEEN THE SADDLE AND GLAND. APPLY COATING OVER ENTIRE ASSEMBLY.

IRRIGATION SYSTEM STANDARD DETAIL

¾"-2" SERVICE CONNECTION ON PCCP

FILE: GWID–D–TEE&TAP1.DWG | REVISED: 12/07/2021 | DWG NO.GWID26

GREATER WENATCHEE IRRIGATION DISTRICT



STEPS:

1. VERIFY EXISTING PIPE DIAMETER, AND PROVIDE MANUFACTURER-RECOMMENDED TAPPING ASSEMBLY (WITH GLAND).
2. REMOVE EXTERIOR MORTAR COATING FROM AN AREA WHERE THE TAP IS TO BE MADE. EXPOSE THE REINFORCING ROD AND STEEL CYLINDER.
3. POSITION THE SADDLE OVER THE OPENING IN THE MORTAR COATING AND SECURELY ATTACH IT TO THE PIPE WITH U-BOLTS.
4. CUT AND REMOVE THE REINFORCING ROD FROM THE OPENING IN THE MORTAR COATING, EXPOSING THE OUTER SURFACE OF THE STEEL CYLINDER.
5. THE FLANGED TAPPING GLAND SHALL BE FACED AND DRILLED TO MATCH THE SADDLE FLANGE. PLACE AN O-RING RUBBER GASKET IN THE GROOVE PROVIDED. POSITION THE GLAND IN THE SADDLE WITH ITS RUBBER GASKET AGAINST THE STEEL CYLINDER OF THE PIPE. TIGHTEN THE OUTER CIRCLE OF BOLTS CONNECTING THE TWO FLANGES, COMPRESSING THE RUBBER GASKET AGAINST THE CYLINDER FOR A PERMANENT, WATERTIGHT SEAL.
6. CONNECT A STANDARD TAPPING VALVE TO THE GLAND FLANGE WITH THE INNER CIRCLE OF BOLTS.
7. BRING THE POWER-OPREATED TAPPING MACHINE INTO POSITION.
8. CONNECT THE TAPPING MACHINE TO THE TAPPING VALVE, OPEN THE VALVE AND AIR TEST THE ENTIRE ASSEMBLY TO ASSURE WATERTIGHTNESS.
9. DISCONNECT THE TAPPING MACHINE, OPEN THE VALVE SLIGHTLY TO FLUSH SMALL CUTTINGS. POUR CEMENT MORTAR INTO PREPARED OPENINGS IN THE SADDLE, FILLING THE SPACE BETWEEN SADDLE AND GLAND. APPLY A PROTECTIVE COATING OF CEMENT MORTAR OVER THE ENTIRE ASSEMBLY.

IRRIGATION SYSTEM STANDARD DETAIL

4" OR LARGER CONNECTION ON PCCP

FILE: GWID–D–TEE&TAP2.DWG | REVISED: 12/07/2021 | DWG NO.GWID27

GREATER WENATCHEE IRRIGATION DISTRICT

ABANDONMENT AND TERMINATION NOTES

DISTRICT SHALL BE SOLE DETERMINER OF APPROPRIATE ABANDONMENT PROCEDURES AND METHODS. RESTORE ALL DISTURBED SURFACES TO ORIGINAL CONDITION AND TO THE SATISFACTION OF THE DISTRICT. RETURN ALL UNDAMAGED REMOVED FACILITIES TO THE DISTRICT AT THE DISCRETION OF THE DISTRICT. THE DISTRICT OWNS ALL EXISTING MATERIALS AND HAS THE RIGHT TO SALVAGE FOR ANY EQUIPMENT AT THEIR DISCRETION. ANY EQUIPMENT THE DISTRICT DOES NOT WISH RETURNED SHALL BE DISPOSED OF BY THE CONTRACTOR. SHOULD THE CONTRACTOR UNNECESSARILY DAMAGE ANY EXISTING FUNCTIONAL EQUIPMENT, SAID EQUIPMENT SHALL BE REPLACED BY THE CONTRACTOR AT THEIR COST. THE FOLLOWING METHODS ARE APPROVED ABANDONMENT PROCEDURES FOR TERMINATED FACILITIES.

EXISTING IRRIGATION MAINS, SERVICES, CONNECTIONS, ETC. SHALL BE TERMINATED AT THE FACILITY LOCATION AND AT THE MAINLINE. THE LATERAL SHALL NOT BE LEFT CONNECTED TO THE MAINLINE.

VALVES

1. REMOVE VALVES AND VALVE BOXES. PLUG OR BLIND FLANGE THE IRRIGATION MAIN.
2. AN ALTERNATIVE METHOD OF ABANDONMENT IS ACCEPTABLE IF, AT THE DISCRETION OF THE DISTRICT, THE VALVE CANNOT BE REMOVED. PLUG AND CLOSE THE VALVE, THEN REMOVE THE VALVE BOX.

IRRIGATION MAINS

1. CUT AND DRAIN THE ABANDONED IRRIGATION MAIN WHERE EXPOSED DURING CONSTRUCTION.
2. REMOVE MAINS IN THE WAY OF NEW CONSTRUCTION. SAW CUT AND REMOVE SHORT SECTIONS OF PIPE. MAINS SHALL NOT BE FORCIBLY REMOVED WITH HEAVY EQUIPMENT DUE TO POTENTIAL DAMAGE TO SURROUNDING UTILITIES.
3. MAINS THAT WILL BE TERMINATED BUT NOT ENCOUNTERED DURING NEW TRENCHING MAY BE LEFT IN PLACE, BUT ALL VALVES MUST BE ABANDONED AS DESCRIBED UNDER "VALVES".
4. PLUG ENDS OF ABANDONED MAINS EXPOSED DURING CONSTRUCTION WITH GROUT PLUG, BLIND FLANGE, OR CAP AS DIRECTED BY THE DISTRICT DEPENDING ON THE TYPE OF PIPE AND SOIL CONDITIONS.

IRRIGATION SERVICES AND AIR VALVE ASSEMBLIES

1. REMOVE ALL VAULTS, SETTERS AND MISCELLANEOUS FITTINGS. BACKFILL WITH CRUSHED ROCK AND COMPACT. NATIVE SOILS MAY BE USED FOR BACKFILL ONLY IF APPROVED BY THE DISTRICT.
2. CUT SERVICE AT MAIN AND REMOVE STUB FROM CORP STOP. CLOSE AND PLUG CORP STOP.
3. REMOVE ENTIRE SERVICE LINE BACK TO IRRIGATION MAIN (EXCAVATE OR PULL).
4. AT THE DISCRETION OF THE DISTRICT, THE SERVICE LINE MAY REMAIN IN PLACE, BUT MUST BE TERMINATED AT THE MAINLINE AS DESCRIBED IN ITEM 2.

IRRIGATION SYSTEM STANDARD DETAIL

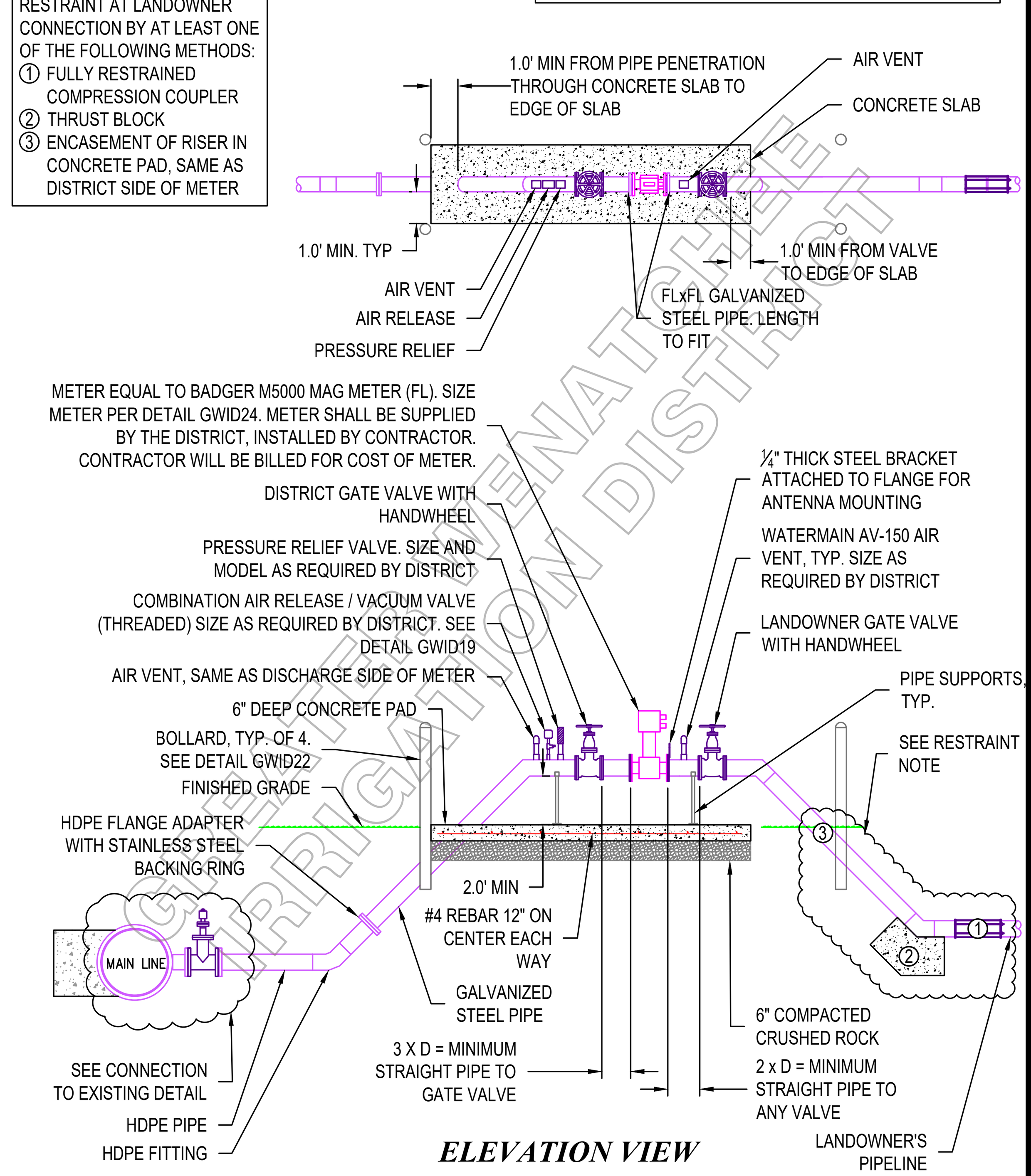
ABANDONMENT OF TERMINATED FACILITIES

FILE: GWID–D–ABANDONMENT.DWG | REVISED: 12/07/2021 | DWG NO.GWID28

GREATER WENATCHEE IRRIGATION DISTRICT

RESTRAINT NOTE:
CONTRACTOR SHALL PROVIDE RESTRAINT AT LANDOWNER CONNECTION BY AT LEAST ONE OF THE FOLLOWING METHODS:
① FULLY RESTRAINED COMPRESSION COUPLER
② THRUST BLOCK
③ ENCASEMENT OF RISER IN CONCRETE PAD, SAME AS DISTRICT SIDE OF METER

USE OF ABOVE GRADE TURNOUT IS RESTRICTED TO AREAS WITH AGRICULTURAL ZONING



IRRIGATION SYSTEM STANDARD DETAIL

CUSTOMER ABOVE GRADE TURNOUT PAGE 1 OF 1

FILE: GWID–D–ACTURNOUT.DWG | REVISED: 12/07/2021 | DWG NO.GWID29

GREATER WENATCHEE IRRIGATION DISTRICT

REVISIONS:

MAY 2019

- GWID01 - REVISED TABLE OF CONTENTS AND DWG. NUMBERS FOR DETAILS. ADDED "ABOVE GRADE TURNOUT" AND "ABANDONMENT OF TERMINATED FACILITIES" DETAILS TO TABLE OF CONTENTS. REMOVED "ROADSIDE RESTORATION" DETAIL FROM TABLE OF CONTENTS. UPDATED LIST OF ABBREVIATIONS ON COVER PAGE. (JRS)
- GWID02 - ORGANIZED WRITTEN COMMENTS. GRAMMATICAL REVISION TO NOTE 4. (JRS)
- GWID03 - ORGANIZED WRITTEN COMMENTS. REVISED NOTE 15 TO CLARIFY WHEN STANDARD IS REQUIRED. REMOVED NOTE 16 FROM THIS DETAIL AND MOVED IT TO CASING DETAIL. ADDED ADDITIONAL REQUIREMENTS TO NOTE 17 FOR HDPE WELDER TRAINING AND DATALOGGER REPORTS. ADDED NOTE 22 REGARDING REQUIREMENTS FOR FLANGED HDPE CONNECTIONS. ADDED NOTE 23 REGARDING PRESSURE TESTING OF NEW AND MODIFIED DISTRICT INFRASTRUCTURE. ADDED NOTE 25 REGARDING BALL VALVE PLACEMENT ON CUSTOMER SIDE OF METERS. SHIFTED REMAINING NOTES TO PAGE 3 OF CONSTRUCTION NOTES.
- GWID04 - REVISED NOTE 26 TO SPECIFY 2" AND SMALLER CONNECTIONS SHALL BE THREADED TO FLANGES. ADDED DETAIL "CONSTRUCTION NOTES PAGE 3 OF 3". (JKK)
- GWID05 - ADDED NOTE ABOUT COMPACTION WITHIN 1.0 FT ABOVE THE PIPE. (JRS)
- GWID06 - REVISED DETAIL LAYOUT TO ACCOMMODATE ADDITIONAL NOTES AND CALLOUTS. REVISED UNTRAVELED WAY DETAIL CALLOUTS TO REFERENCE LANDSCAPED/CULTIVATED AREAS INSTEAD OF GRASS. ADDED CALLOUTS SPECIFYING RESTORED AREA SHALL MATCH EXISTING GRADE, CONTRACTOR SHALL RETAIN 24" OF TOPSOIL INCL. NO ROCKS WITHIN TOP 6", AND ADDED ROADSIDE DITCH NOTES THAT WERE PULLED FROM ORIGINAL ROADSIDE DITCH RESTORATION DETAIL. (JRS)
- GWID06 (old) - REMOVED "ROADSIDE RESTORATION" DETAIL FROM STANDARD DETAILS. MOVED RELEVANT INFORMATION TO "TRENCH PATCH RESTORATION" DETAIL, GWID06. (JRS)
- GWID07 - REMOVED REDUNDANT NOTE FROM TEE ON DETAIL B. REVISED TABLE TO INCLUDE REFERENCES TO DETAILS AND MODIFIED TABLE FORMAT. (JRS)
- GWID08 - REVISED DETAIL LAYOUT. ADDED NEW NOTE TO DETAIL FROM CONSTRUCTION NOTES PAGE (JRS)
- GWID09 - REMOVED REDUNDANT CALLOUT FROM DETAIL 1 SHOWING DEPTH OF COVER FOR CONCRETE BLOCK. REVISED HDPE FLANGE ADAPTER CALLOUTS IN DETAILS 1 AND 2. REMOVED NOTES 4, 5, AND 6 SINCE REDUNDANT TO INFO LOCATED IN OTHER DETAILS. (JRS)
- GWID10 - SPECIFIED HATCH SHALL BE ALUMINUM. ADDED CALLOUT FOR METAL BOX ON METER READOUT. REVISED CALLOUT ON ELEVATION VIEW TO REFER TO GWID11 INSTEAD OF CUSTOMER TURNOUT DETAIL 2. REVISED DIMENSION FOR DEPTH OF PIPING WITHIN VAULT FROM 2.0' MIN TO 2.0' MAX. REVISED CALLOUT FOR SERVICE LINE VALVE AT MAIN IF LENGTH EXCEEDS 20' TO METER. (JKK)
- GWID11 - MODIFIED METER CALLOUT TO SPECIFY THAT CONTRACTOR PAYS FOR AND DISTRICT SUPPLIES METERS; RE-ARRANGED DETAIL LAYOUT. REVISED DETAIL TO SHOW VALVE STRAPPED TO BLOCK. REVISED DIMENSION FOR DEPTH OFPIPING WITHIN VAULT FROM 2.0' MIN TO 2.0' MAX. GRAMATICAL REVISION TO DIMENSIONS ON ELEVATION VIEW, REVISION TO BLOCK CALLOUT BENEATH VALVE AND METER TO SPECIFY BLOCK TO BE CONCRETE. ADDED TABLE FOR COMPONENT LIST. ADDED VISUAL LAYOUT OF PIPING ON DOWNSTREAM SIDE OF TURNOUT STRUCTURE AND NOTE REGARDING HDPE TO GALVANIZED TRANSITION. (JKK/JRS)
- GWID13 - REVISED CALLOUT TO REFER TO GWID14 INSTEAD OF BLOWOFF STRUCTURE DETAIL. GRAMMATICAL REVISION TO ISOLATION VALVE CALLOUT. (JRS)
- GWID18 - ADDED HOSE BIB TO ITEM B. CHANGED FORMATTING FOR NOTE AT TOP OF PAGE. SPECIFIED HATCH SHALL BE ALUMINUM. EXAGGERATED VISUAL FOR ROCK BENEATH PRV, MODIFIED NOTE DESCRIBING COMPACTION. (JRS)
- GWID19 - REVISED FORMATTING STYLE OF DETAIL CALLOUTS, DIMENSIONS, AND NOTES. (JRS)
- GWID20 - REMOVED NOTE 6 AND MOVED TO GWID22. REVISED REFERENCES TO NOTES IN DETAIL CALLOUTS. REVISED CALLOUT TO REFER TO GWID22 INSTEAD OF VALVE BOX DETAIL. REVISED DETAIL TO SHOW VALVE STRAPPED TO BLOCK. (JRS)
- GWID21 - REVISED ABBREVIATION FOR STAINLESS STEEL FROM SS TO SST. REVISED REFERENCE TO PRV DETAIL FROM DWG. NO. GWID 19 TO DETAIL GWID19. SPECIFIED HATCH SHALL BE ALUMINUM. (JRS)
- GWID22 - CHANGED DETAIL TITLE. ADDED BOLLARD DETAIL. ADDED NOTE FROM GWID20 SPECIFYING 1-1/4" BAR FOR EXTENSIONS LONGER THAN 4-FT OR VALVES LARGER THAN 12" (JRS)
- GWID23 - MODIFIED PVC CAP CALLOUT LEADER TO POINT TO CAP. (JRS)

IRRIGATION SYSTEM STANDARD DETAIL

REVISIONS

FILE: GWID–D–REV.DWG | REVISED: 12/07/2021 | DWG NO.REV 1

GREATER WENATCHEE IRRIGATION DISTRICT

- GWID24 - REMOVED 1-1/4 METER - ONLY 1 AND 1-1/2. REVISED THE ACREAGE RANGES AND UPDATED LINE SIZES. ADDED NOTE ON FLOW TABLE ABOUT TURBINE/PROPELLER METERS BEING CONVERTER TO MAG METERS. ADDED DESIGNATION FOR HDPE. CHANGED MIN. SIZE OF TURNOUT TEE AND PIPE TO 3". ADDED ADDITIONAL METER NOTES.ADDED STANDARD DETAIL "ABANDONMENT OF TERMINATED FACILITIES" AS GWID30. (JKK)
- GWID28 - ADDED "ABANDONMENT OF TERMINATED FACILITIES" DETAIL. (JKK)
- GWID29 - ADDED "CUSTOMER ABOVE GRADE TURNOUT" DETAIL. (JRS)

SEPTEMBER 2021

- GWID10 - REPLACED "OR APPROVED EQUAL" WITH "VAULT WHEN LOCATED WITHIN TRAVELED WAY. H2 PRE-CAST WATER METER CHAMBER BASE (MIN. 2 BASE SECTIONS STACKED) ACCEPTABLE IF OUTSIDE TRAVELED WAY." (JG)
- GWID11 - REPLACED "H2 PRECAST 444 VAULT OR APPROVED EQUAL" WITH "METER VAULT AS SPECIFIED IN GWID10." (JG)

DECEMBER 2021

- GWID04 - ADDED CONSTRUCTION NOTE 34 ABOUT PROVIDING LOCATION CALLOUTS FOR ABOVE-GRADE OR AT-GRADE IRRIGATION FEATURES WHERE PROPOSED GWID INFRASTRUCTURE IS BEING DEPICTED. (JG)

IRRIGATION SYSTEM STANDARD DETAIL

REVISIONS (CONT'D)

FILE: GWID–D–REV.DWG | REVISED: 12/07/2021 | DWG NO.REV 2

GREATER WENATCHEE IRRIGATION DISTRICT

SIGNED: 01/15/18

SIGNED: 01/15/18

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EAST WENATCHEE, WA
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GREATER WENATCHEE IRRIGATION DISTRICT

IRRIGATION STANDARD DETAILS

JOB NO.: -
CLIENT: GWI
FILENAME: GWID_BRDR_COMBINED.DWG
SAVE DATE: Dec 9, 2021
PLOT DATE: Dec 9, 2021
ENGINEER: JTR
REVIEWED: PRC

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW

SCALE: SHOWN
0" 1" 2"
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: D04
SHEET NO.: 4 4