

Duck Valley Irrigation Project

Standard Detail Drawings for Construction of Irrigation Pipelines and Minor Structures

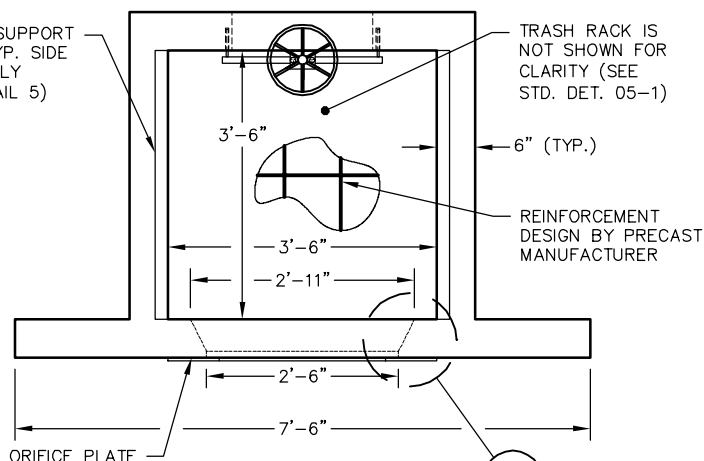
(Revised 11/17/2017)

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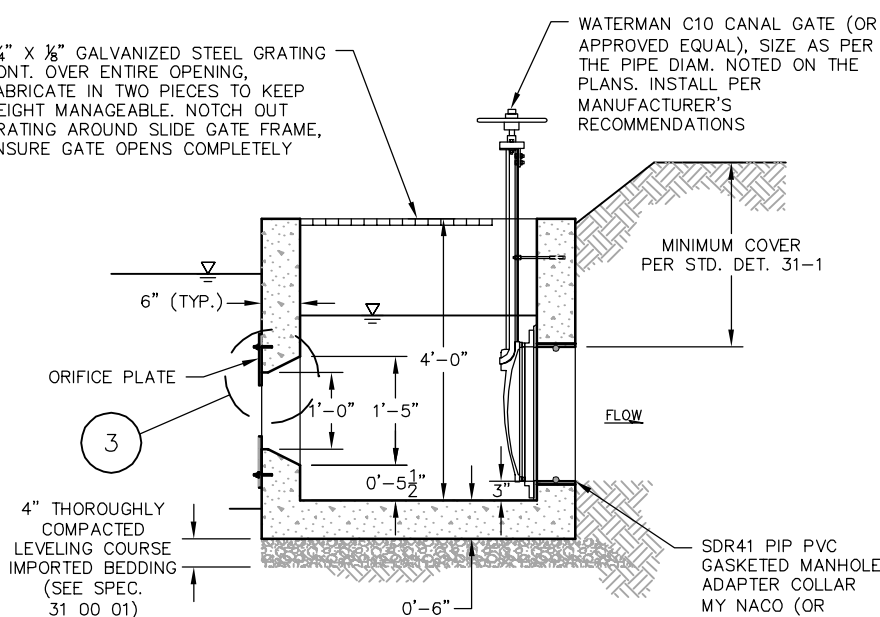
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GRATING SUPPORT
ANGLE, TYP. SIDE
WALLS ONLY
(SEE DETAIL 5)

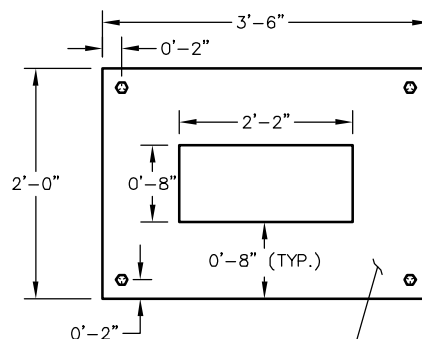


1 **DETAIL**
SUBMERGED ORIFICE IRRIGATION TURNOUT
SCALE : NONE

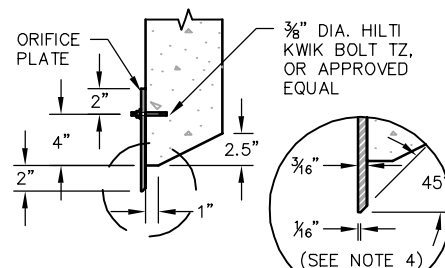
1¼" X ½" GALVANIZED STEEL GRATING
CONT. OVER ENTIRE OPENING,
FABRICATE IN TWO PIECES TO KEEP
WEIGHT MANAGEABLE. NOTCH OUT
GRATING AROUND SLIDE GATE FRAME,
ENSURE GATE OPENS COMPLETELY



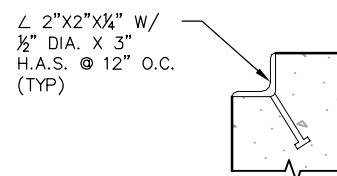
4 **DETAIL**
SUBMERGED ORIFICE IRRIGATION TURNOUT
SCALE : NONE



2 **DETAIL**
ORIFICE PLATE
SCALE : NONE



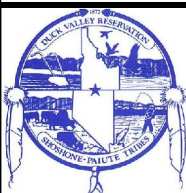
3 **DETAIL**
ORIFICE PLATE ANCHORS
SCALE : NONE



5 **DETAIL**
GRATING AND SUPPORT ANGLE
SCALE : NONE

NOTES:

- ORIFICE PLATE IS SIZED TO PROVIDE 6-INCHES OF HEAD DIFFERENTIAL ACROSS THE ORIFICE AT 5 CFS.
- SEE THE STANDARD SPECIFICATIONS FOR MATERIALS REQUIREMENTS.
- DESIGN OF REINFORCEMENT AND PICK POINTS IS THE RESPONSIBILITY OF THE PRECAST MANUFACTURER.
- THE EDGES OF THE ORIFICE SHOULD BE STRAIGHT, SHARP AND SMOOTH. CHAMFER THE DOWNSTREAM EDGE OF THE ORIFICE PLATE TO REDUCE PLATE THICKNESS. MACHINE OR FILE INTERIOR EDGES OF ORIFICE PLATE PERPENDICULAR TO THE PLATE TO REMOVE BURRS AND/OR SCRATCHES. DO NOT SMOOTH WITH ABRASIVE CLOTH OR PAPER.
- THE UPSTREAM WALL OF THE STRUCTURE SHALL BE INSTALLED VERTICAL.
- THE TOP AND BOTTOM EDGES OF THE ORIFICE OPENING SHALL BE INSTALLED LEVEL, WITH THE SIDES OF THE ORIFICE OPENING INSTALLED VERTICAL.
- SUBMIT SHOP DRAWINGS FOR PRECAST CONCRETE INLET AND METAL FABRICATIONS PRIOR TO CASTING OR FABRICATION.
- ESTIMATED CONCRETE QUANTITY IS 1.7 CY FOR THE DIMENSIONS SHOWN.
- TOTAL FINISHED WEIGHT OF MISCELLANEOUS METAL FABRICATIONS FOR WALKWAY GRATING IS ESTIMATED TO BE 110 LBS.

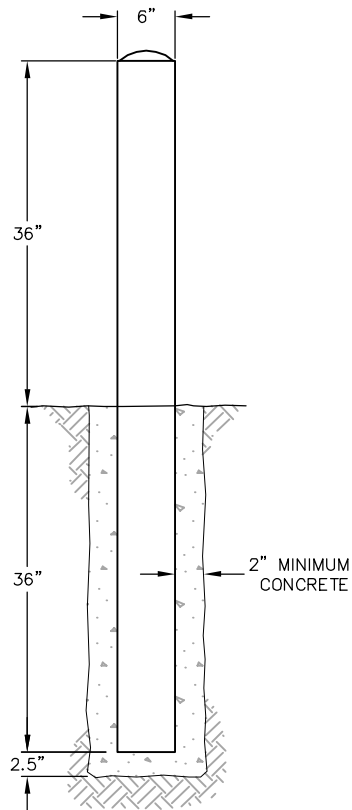


DUCK VALLEY IRRIGATION PROJECT
PRECAST SUBMERGED ORIFICE PIPE INLET

LAST REVISED 11/17/2017
BY DOWL

DETAIL 03-1

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SCALE : NONE

NOTES:

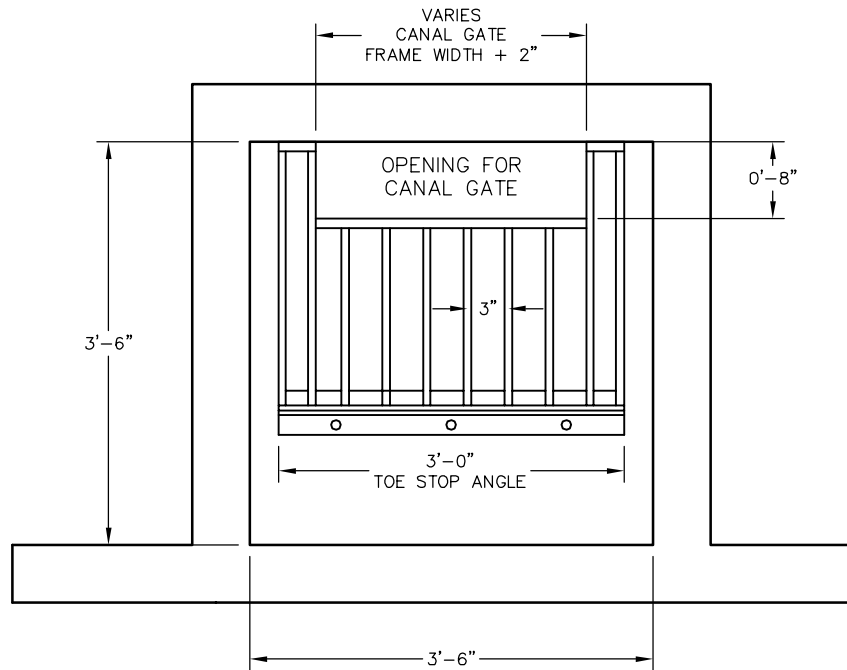
1. BOLLARDS SHALL BE 6"Ø HEAVY-DUTY STEEL PIPE FILLED WITH 2000 P.S.I. CONCRETE.
2. BOLLARDS SHALL BE SET AT A MINIMUM OF 3- FEET BELOW FINISHED GRADE.
3. PAINT POSTS YELLOW.



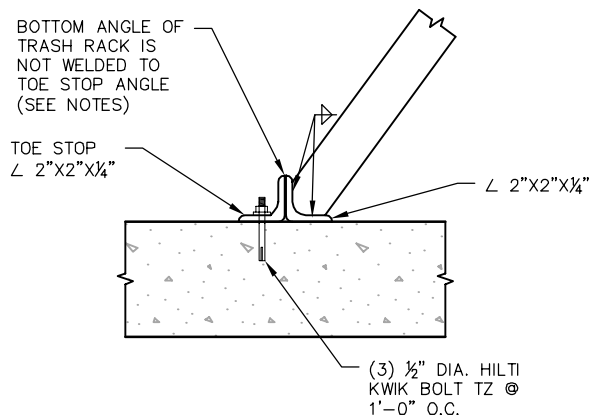
**DUCK VALLEY IRRIGATION PROJECT
PIPE BOLLARD**

LAST REVISED	10/06/2017
BY	DOWL

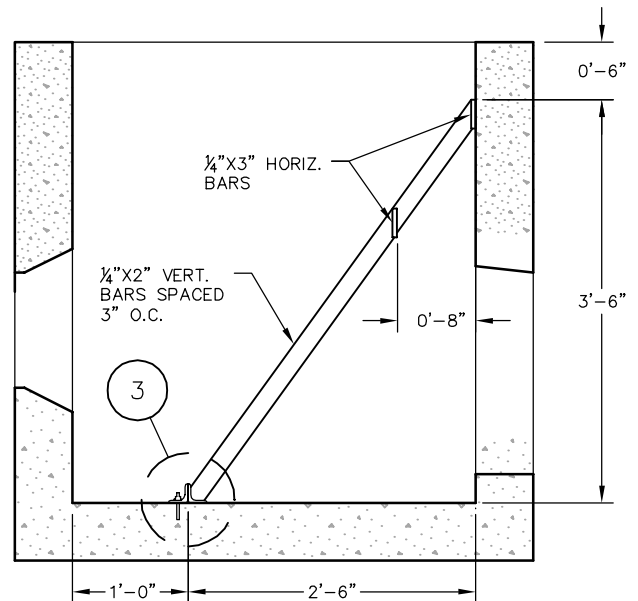
DETAIL 03-2



1 **DETAIL**
TRASH RACK PLAN
SCALE : NONE



3 **DETAIL**
TRASH RACK TOE STOP
SCALE : NONE



2 **DETAIL**
TRASH RACK SECTION
SCALE : NONE

NOTES:

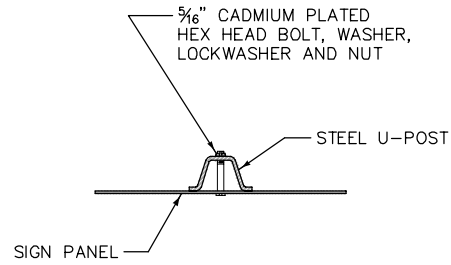
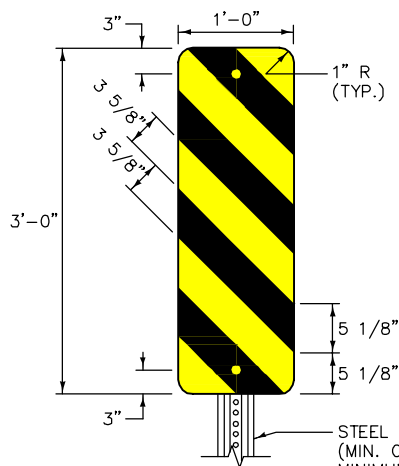
1. SEE STD. SPEC 05 50 01 MISCELLANEOUS METAL FABRICATIONS FOR MATERIAL REQUIREMENTS.
2. TRASH RACK AND TOE STOP ANGLE SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION. SEE STD. SPEC. 05 50 01.
3. THE TRASH RACK IS DESIGNED TO BE REMOVABLE. BOTTOM ANGLE OF TRASH RACK IS NOT WELDED TO TOE STOP ANGLE AND HORIZONTAL BAR AT THE TOP OF THE RACK IS NOT BOLTED TO THE BACK WALL OF THE STRUCTURE.
4. PROVIDE AN OPENING FOR THE GATE AND GATE FRAME THAT DOES NOT OBSTRUCT THE MOVEMENT OF THE GATE. GATE MUST OPEN COMPLETELY WITH THE TRASH RACK INSTALLED.
5. SUBMIT SHOP DRAWINGS PRIOR TO FABRICATION.
6. TOTAL FINISHED WEIGHT OF MISCELLANEOUS METAL FABRICATIONS FOR TRASH RACK AND TOE STOP IS ESTIMATED TO BE 131 LBS.



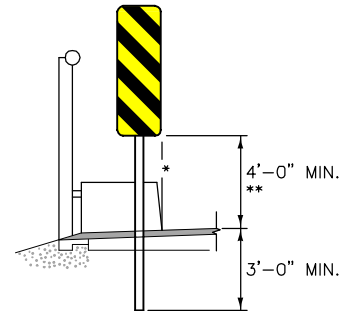
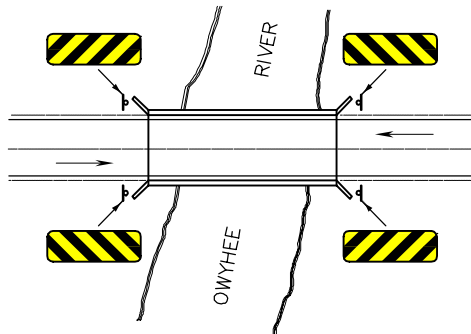
DUCK VALLEY IRRIGATION PROJECT
TRASH RACK FOR PRECAST PIPE INLET BOX

LAST REVISED 10/06/2017
BY DOWL

DETAIL 05-1



STEEL U-POST, 10' IN LENGTH (MIN. OF 2.0 LB./FT.) WITH A MINIMUM OF FORTY-TWO 3/8" MAX. DIA. HOLES DRILLED OR PUNCHED ON 1" CENTERS FROM THE TOP OF THE POST PRIOR TO GALVANIZING



* PLACE POST AND PANEL SO THAT PANEL EDGE IS FLUSH WITH FACE OF OBJECT NEAREST TRAVELED WAY.

** WHEN MOUNTED 8'-0" OR MORE FROM CURB OR SHOULDER, THE MOUNTING HEIGHT IS MEASURED FROM THE GROUND LINE INSTEAD OF THE EDGE OF PAVEMENT.

SCALE : NONE

NOTES:

1. INSTALL 2 OBJECT MARKERS EACH PER MUTCD NO OM-3L AND OM-3R.
2. MINIMUM WIDTH OF STRIPES SHALL BE 3". STRIPES TO SLOPE DOWNWARD TOWARD DIRECTION ON WHICH TRAFFIC IS TO PASS.

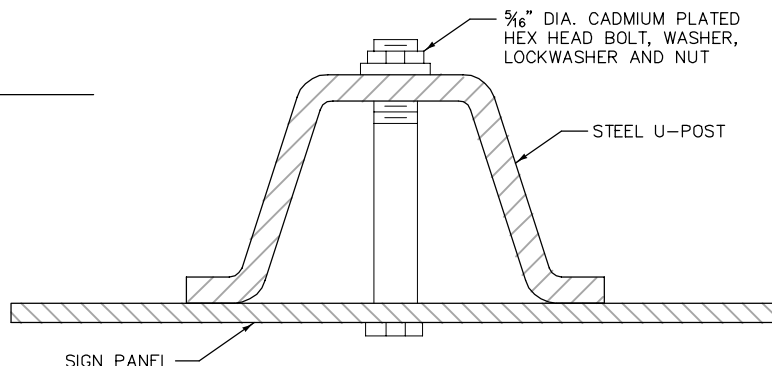
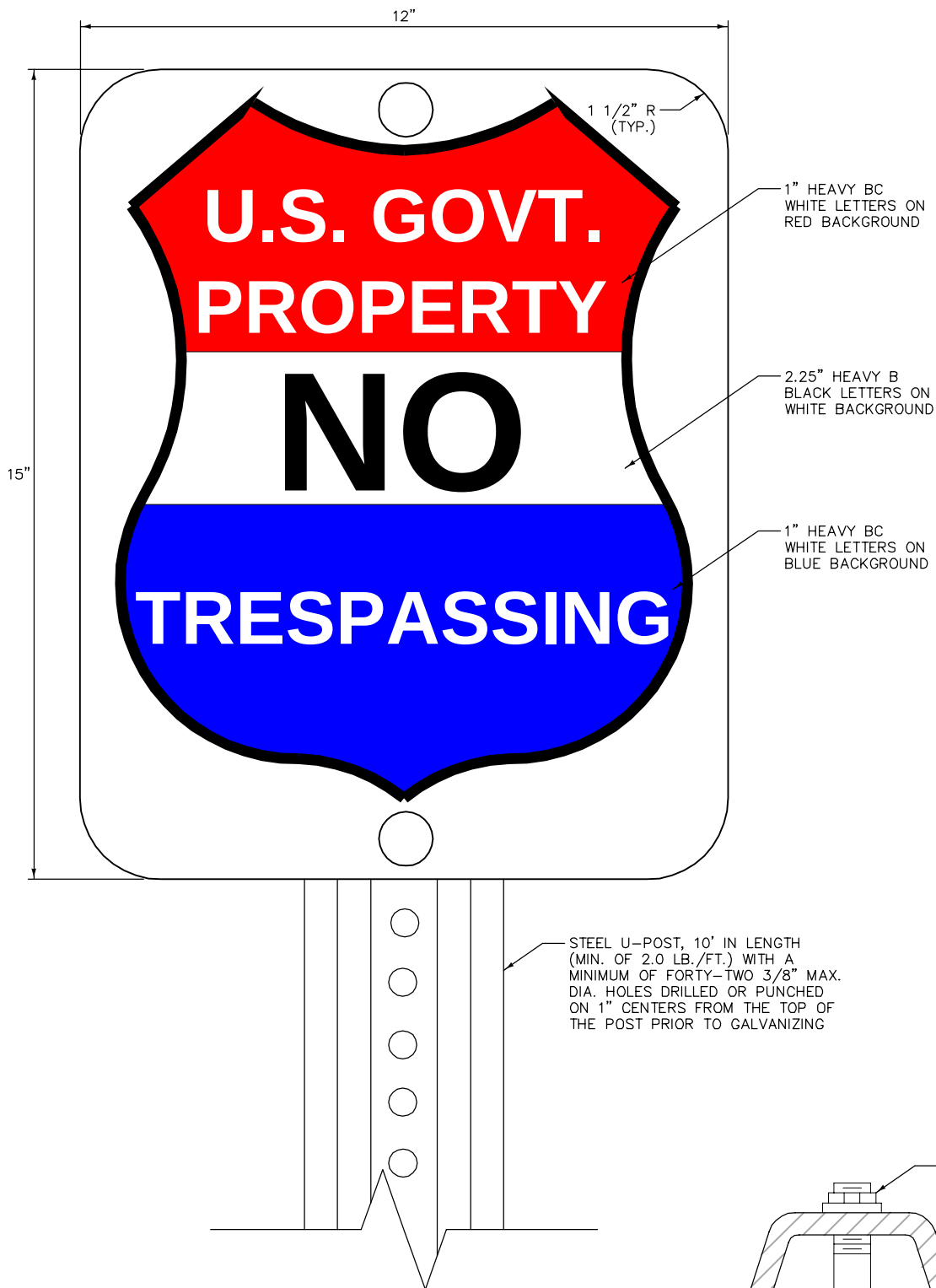


DUCK VALLEY IRRIGATION PROJECT OBJECT MARKERS

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DETAIL 10-1

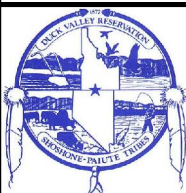
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NOTES:

1. SIGN IS AVAILABLE AS A CUSTOM SIGN FROM NEWMAN SIGNS, SAVED AS AZ-USGP-1215.

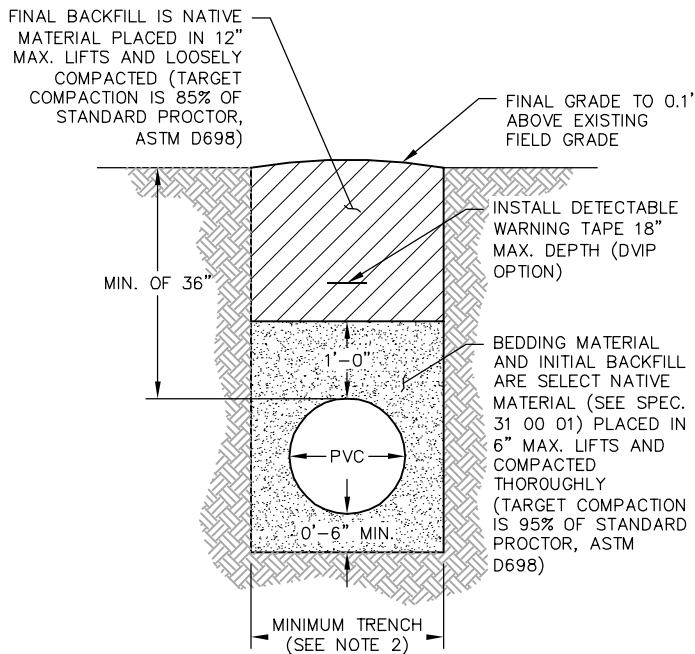
SCALE : NONE



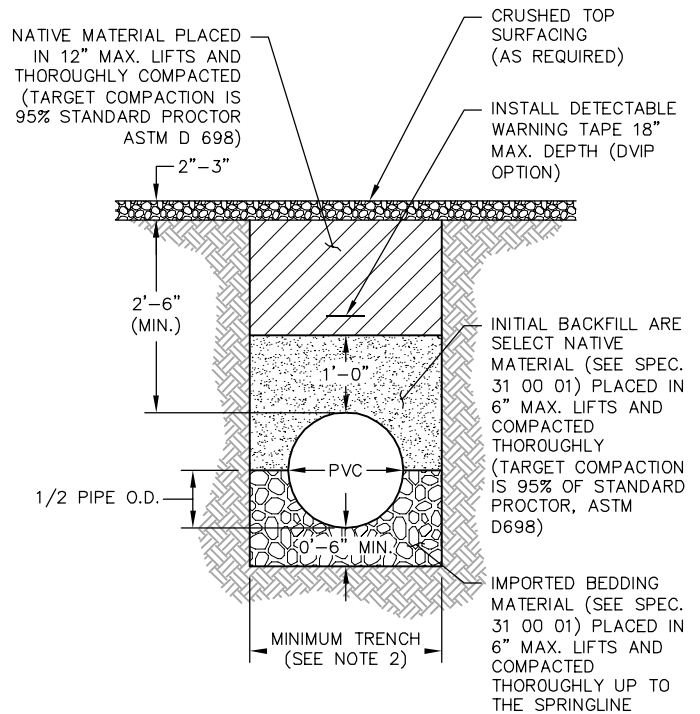
DUCK VALLEY IRRIGATION PROJECT
U.S. GOVERNMENT PROPERTY
NO TRESPASSING SIGN

LAST REVISED	11/17/2017
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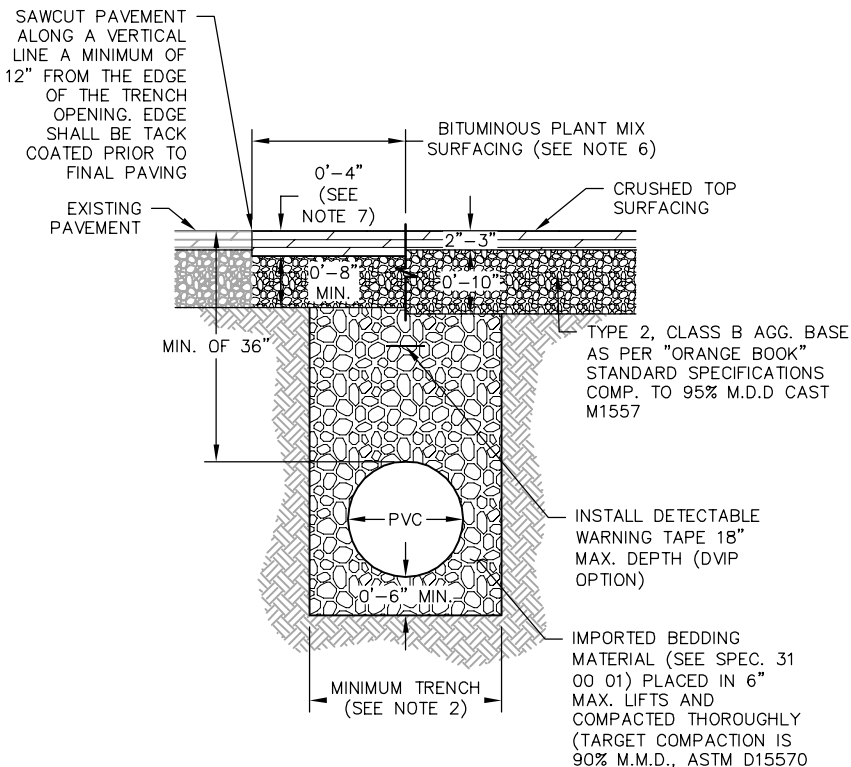
DETAIL 10-2



1 DETAIL
TRENCH IN OPEN AREAS
SCALE : NONE



2 DETAIL
TRENCH AT FARM ACCESS CROSSINGS AND FITTINGS
SCALE : NONE



3 DETAIL
TRENCH AT EXISTING ROAD CROSSINGS
SCALE : NONE

NOTES:

- MEET CURRENT OSHA SAFETY AND HEALTH STANDARDS FOR ALL EXCAVATION TRENCHING, SHORING, AND RELATED WORK.
- MINIMUM TRENCH WIDTH IS THE GREATER OF THE FOLLOWING, WHERE "O.D." IS THE OUTSIDE DIAMETER OF THE PIPE:

$$\text{MINIMUM TRENCH} = \text{O.D.} + 16"$$

$$\text{MINIMUM TRENCH} = 1.25 \times \text{O.D.} + 12"$$
- TRENCH WIDTH AT GROUND SURFACE MAY VARY WITH DEPTH, TYPE OF SOIL, AND POSITION OF STRUCTURES. MINIMUM TRENCH WIDTH IS MEASURED AT THE SPRINGLINE OF THE PIPE.
- SUBGRADE. WHEN UNSTABLE CONDITIONS OR BEDROCK, BOULDERS, OR LARGE STONES ARE ENCOUNTERED AT THE BOTTOM OF THE TRENCH, ADDITIONAL TRENCH DEPTH SHOULD BE EXCAVATED AND REFILLED WITH THOROUGHLY COMPACTED SELECT NATIVE MATERIAL.
- WATER SHALL NOT BE ALLOWED TO ACCUMULATE IN THE TRENCH DURING THE LAYING OF THE PIPE OR BACKFILL OPERATIONS.
- HOT MIX ASPHALT SHALL BE TYPE THREE, PG 64-28 (OR APPROVED EQUAL) AS PER "ORANGE BOOK" STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, 3% VOIDS, 50 BLOWS PER SIDE MIX WITH LIVE AND NO MORE THAN 15% RECYCLED ASPHALT PAVEMENT COMPACTED TO A MINIMUM OF 93% RICE RELATIVE COMPACTION.
- PERMANENT BITUMINOUS PLANT MIX SURFACING SHALL BE 1" THICKER THAN EXISTING PAVEMENT, WITH A MINIMUM THICKNESS OF 4 INCHES.
- ALTERNATE ROADWAY DESIGN SECTION IS ALLOWED IF REQUIRED BY LOCAL AGENCY.

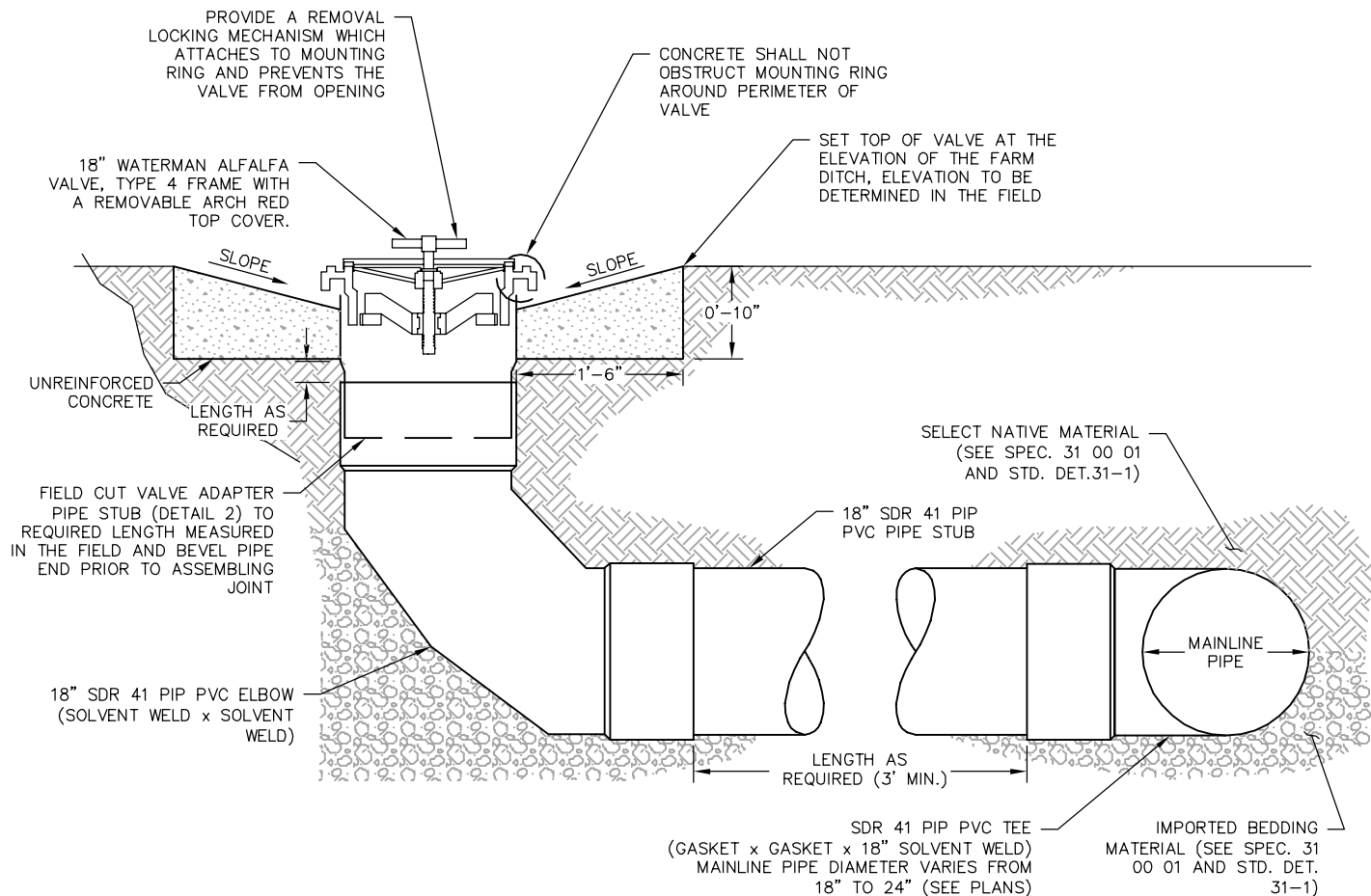
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BY DOWL

DETAIL 31-1

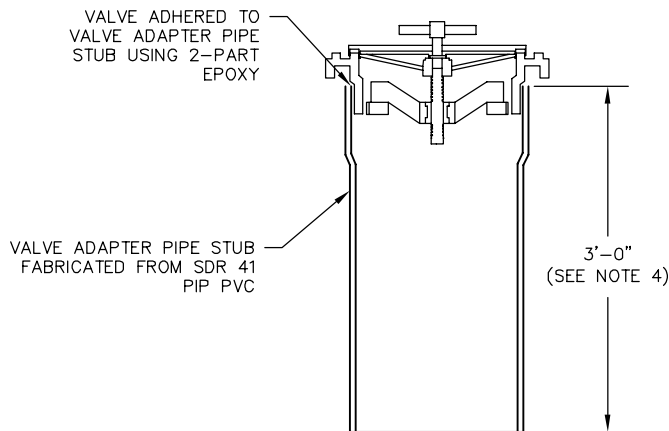
DUCK VALLEY IRRIGATION PROJECT
TYPICAL PVC PIPE TRENCH DETAILS



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1 **DETAIL**
TYPICAL TURNOUT TYPE 1
SCALE : NONE



2 **DETAIL**
VALVE ADAPTER PIPE STUB
SCALE : NONE

NOTES:

- ALL JOINTS BETWEEN THE MAINLINE PIPE AND THE OVERFLOW VALVE ARE SOLVENT WELD JOINTS. ALL PIPE BETWEEN THE MAINLINE PIPE AND THE OVERFLOW VALVE IS SDR41 PIP PVC.
- USE IMPORTED BEDDING MATERIAL (SPEC. 31 00 01) THOROUGHLY COMPACTED UP THROUGH THE SPRING LINE (1/2 PIPE DIAMETER) AROUND ALL FITTINGS AS PER STD. DET. 31-1. USE SELECT NATIVE MATERIAL (SPEC. 31 00 01) AS INITIAL AND FINAL BACKFILL.
- LONG DELIVERIES MAY REQUIRE ADDITIONAL VALVING OR VENTING OTHER THAN SHOWN IN THIS STANDARD DETAIL. REFER TO THE PLANS.
- A 3'-0" PIPE STUB IS SUITABLE WHEN THE ELEVATION DIFFERENCE FROM THE DELIVERY VALVE TO THE CENTERLINE OF THE MAINLINE PIPE IS BETWEEN 40 AND 65 INCHES. ADDITIONAL AND/OR CUSTOM FITTINGS OR A LONGER PIPE STUB MAY BE REQUIRED FOR CONDITIONS OUTSIDE OF THIS RANGE.

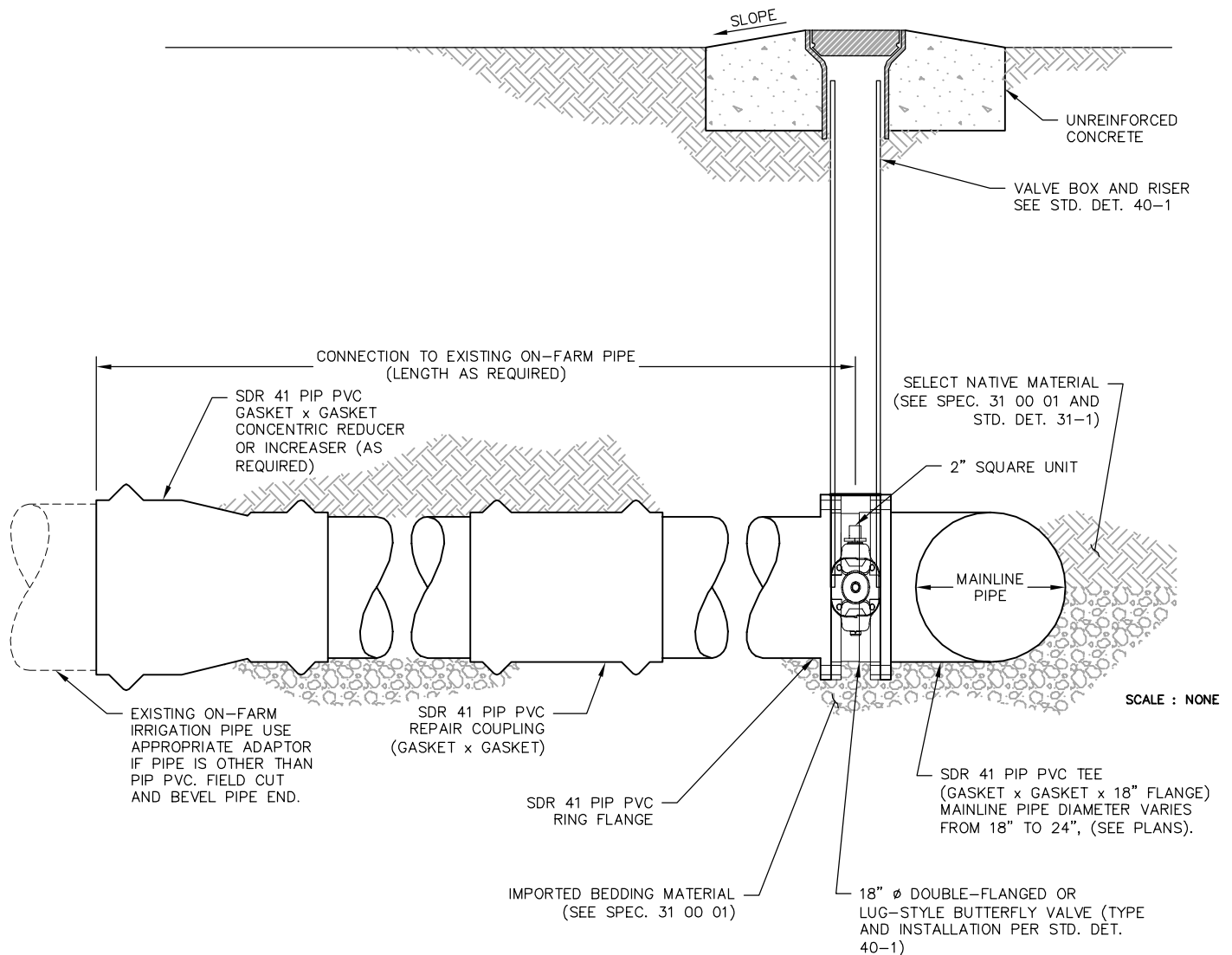


DUCK VALLEY IRRIGATION PROJECT
TURNOUT TYPE 1
DELIVERY TO ON-FARM FLOOD DITCH

LAST REVISED 10/06/2017
BY DOWL

DETAIL 33-1

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NOTES:

1. WAFER STYLE BUTTERFLY VALVES ARE NOT ALLOWED.
2. USE IMPORTED BEDDING MATERIAL (STD. SPEC. 31 00 01) THOROUGHLY COMPACTED UP THROUGH THE SPRING LINE (1/2 PIPE DIAMETER) AROUND ALL FITTINGS AS PER STD. DET. 33-1. USE SELECT NATIVE MATERIAL (STD. SPEC. 31 00 01) AS INITIAL AND FINAL BACKFILL.
3. THIS STANDARD DETAIL IS SUFFICIENT WHEN THE ELEVATION AT THE CENTER OF THE ON-FARM PIPE IS APPROXIMATELY EQUAL TO THE CENTERLINE ELEVATION OF THE MAINLINE PIPE. FOR MINOR ELEVATION DIFFERENCES THE ON-FARM PIPE ELEVATION MAY BE ADJUSTED BY EXCAVATING BACK SEVERAL PIPE JOINTS. FOR SIGNIFICANT DIFFERENCES IN ELEVATION OR UNKNOWN DIFFERENCES THE DELIVERY TEE CAN BE LOCATED UPSTREAM OF THE ON-FARM PIPELINE ALIGNMENT TO ALLOW INSTALLATION OF TWO ANGLED PIPE BENDS ROTATED VERTICALLY TO PROVIDE A SWING JOINT TO ALLOW MATCHING PIPE GRADES.
4. AIR VALVES AND VENTING ARE NOT SHOWN. REFER TO THE PLANS FOR THE LOCATION AND TYPE OF AIR RELEASE AND/OR VACUUM RELIEF VALVES.
5. A CONCENTRIC REDUCER OR INCREASER IS NEEDED IF THE EXISTING ON-FARM IRRIGATION PIPELINE IS OTHER THAN 18" DIAMETER. ADDITIONAL COUPLINGS MAY BE REQUIRED IF PIPE TYPE IS OTHER THAN PIP PVC.
6. A REPAIR COUPLING IS INCLUDED IN THE DETAIL FOR EASE OF ASSEMBLING THE DELIVERY AFTER THE MAINLINE PIPE IS INSTALLED. THE REPAIR COUPLING MAY BE INSTALLED UPSTREAM OR DOWNSTREAM OF THE REDUCER/INCREASER; CONSIDER AVAILABLE PIPE SIZES.
7. THIS STANDARD DETAIL UTILIZES STANDARD, OFF-THE-SHELF FITTINGS. IN SOME CASES IT MAY BE POSSIBLE TO ORDER CUSTOM FITTINGS TO ELIMINATE ONE OR MORE FITTINGS, SUCH AS A CUSTOM INCREASER THAT IS A FLANGE X GASKET FITTING TO ELIMINATE THE FLANGE ADAPTER. CONSULT WITH FITTINGS MANUFACTURER.

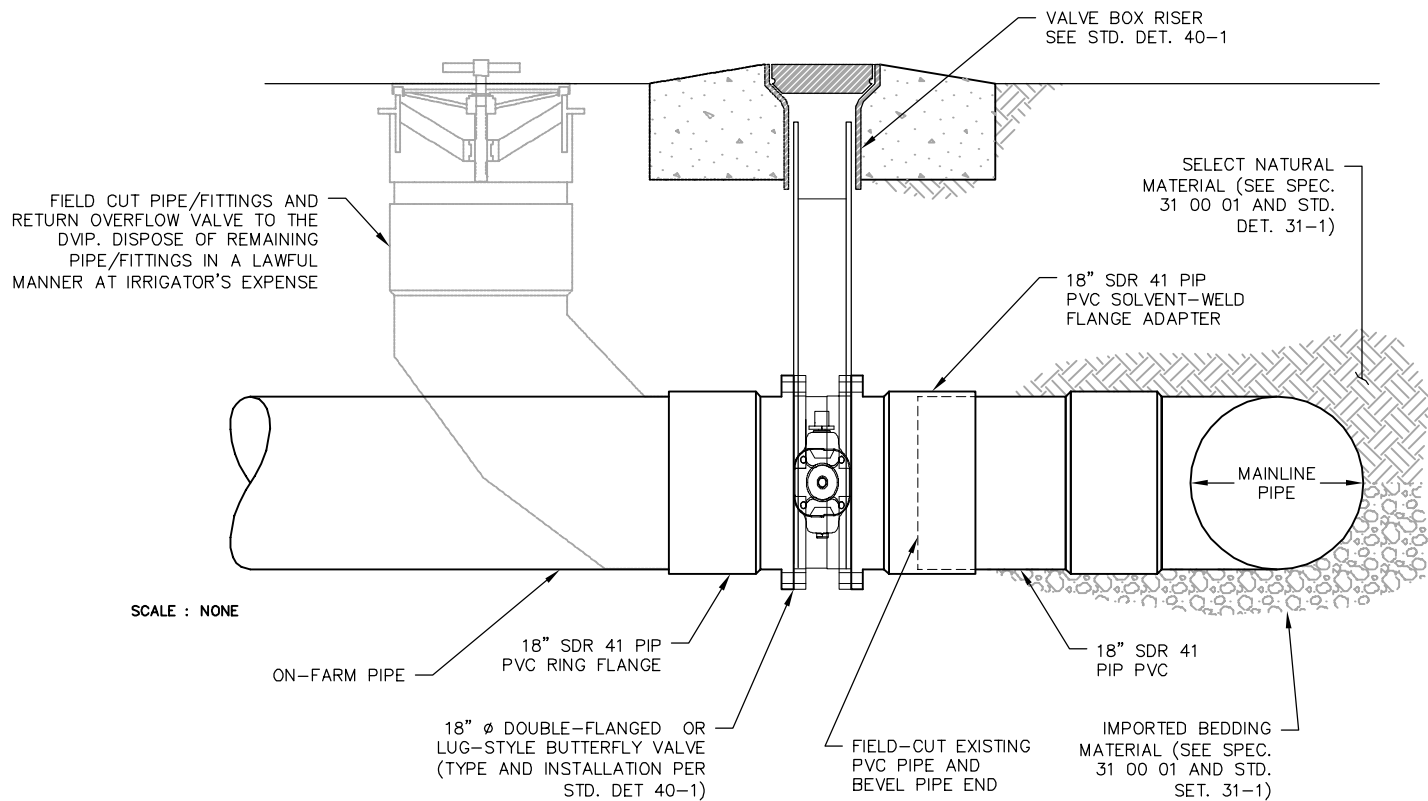


DUCK VALLEY IRRIGATION PROJECT TURNOUT TYPE 2 CONNECTION TO ON-FARM IRRIGATION PIPE

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DETAIL 33-2

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NOTES:

1. CONVERSION FROM OVERFLOW VALVE SUPPLIED BY THE DVIP TO ON-FARM PIPE IS AT THE IRRIGATOR'S EXPENSE.
2. ALL JOINTS BETWEEN THE MAINLINE PIPE AND THE DELIVERY VALVE ARE SOLVENT WELD JOINTS.
3. WAFER STYLE VALVES ARE NOT ALLOWED
4. USE IMPORTED BEDDING MATERIAL (STD. SPEC. 31 00 01) THOROUGHLY COMPACTED UP THROUGH THE SPRING LINE (1/2 PIPE DIAMETER) AROUND ALL FITTINGS AS PER STD. DET. 33-1. USE SELECT NATIVE MATERIAL (STD. SPEC. 31 00 01) AS INITIAL AND FINAL BACKFILL.
5. ALL VALVES AND OTHER EQUIPMENT PURCHASED AND INSTALLED BY THE DVIP REMAIN THE PROPERTY OF THE DVIP AND ARE TO BE RETURNED AFTER REMOVAL.



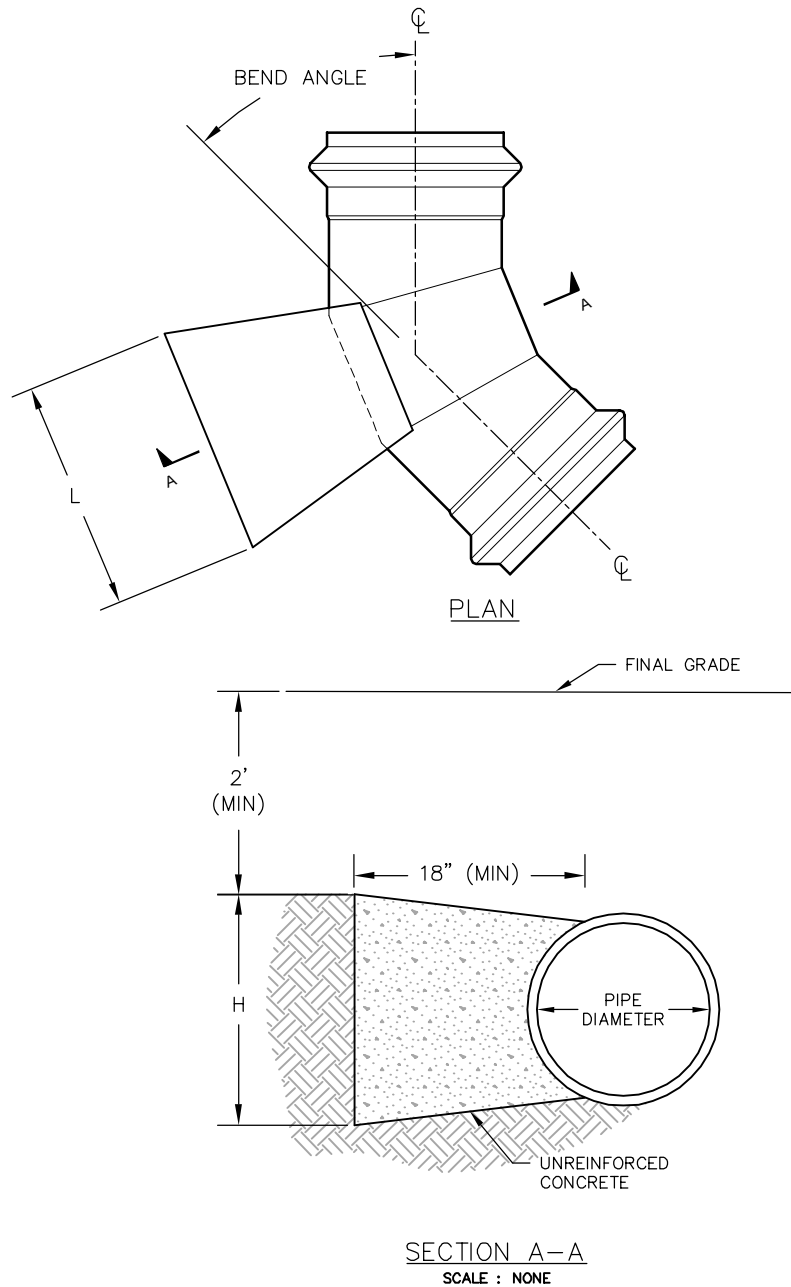
DUCK VALLEY IRRIGATION PROJECT

REQUIREMENTS FOR CONVERTING FROM TYPE 1 TURNOUT (OVERFLOW VALVE) TO TYPE 2 TURNOUT (ON-FARM PIPE)

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DETAIL 33-3

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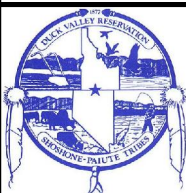


MINIMUM THRUST BLOCK DIMENSIONS (FEET) FOR HORIZONTAL BENDS				
BEND ANGLE	11.25°	22.5°	45°	90°
PIPE DIAM. (IN)	H x L	H x L	H x L	H x L
18	1 x 2	1.5 x 2	2 x 2.5	2.5 x 3.5
21	1 x 2	1.5 x 2	2 x 3	2.5 x 4.5
24	1 x 2	2 x 2	2 x 4	3.0 x 4.5

H = HEIGHT L = LENGTH

NOTES:

1. DIMENSION CALCULATIONS ARE BASED ON 20 PSI MAXIMUM PRESSURE, 950 PSF ALLOWABLE SOIL BEARING PRESSURE AND 1.0 SAFETY FACTOR.
2. THRUST BLOCK DIMENSIONS MAY BE MODIFIED, AS DETERMINED BY THE ENGINEER, BASED ON ACTUAL SOIL CONDITIONS ENCOUNTERED IN THE FIELD.
3. ALL CONCRETE THRUST BLOCKS SHALL BE FORMED AND POURED AGAINST UNDISTURBED EARTH.
4. ALL PIPE JOINTS AND BOLTS SHALL STILL BE ACCESSABLE AFTER THE THRUST BLOCK IS POURED.
5. CONCRETE FOR THRUST BLOCKS IS AS INDICATED IN SPEC. 03 30 01.

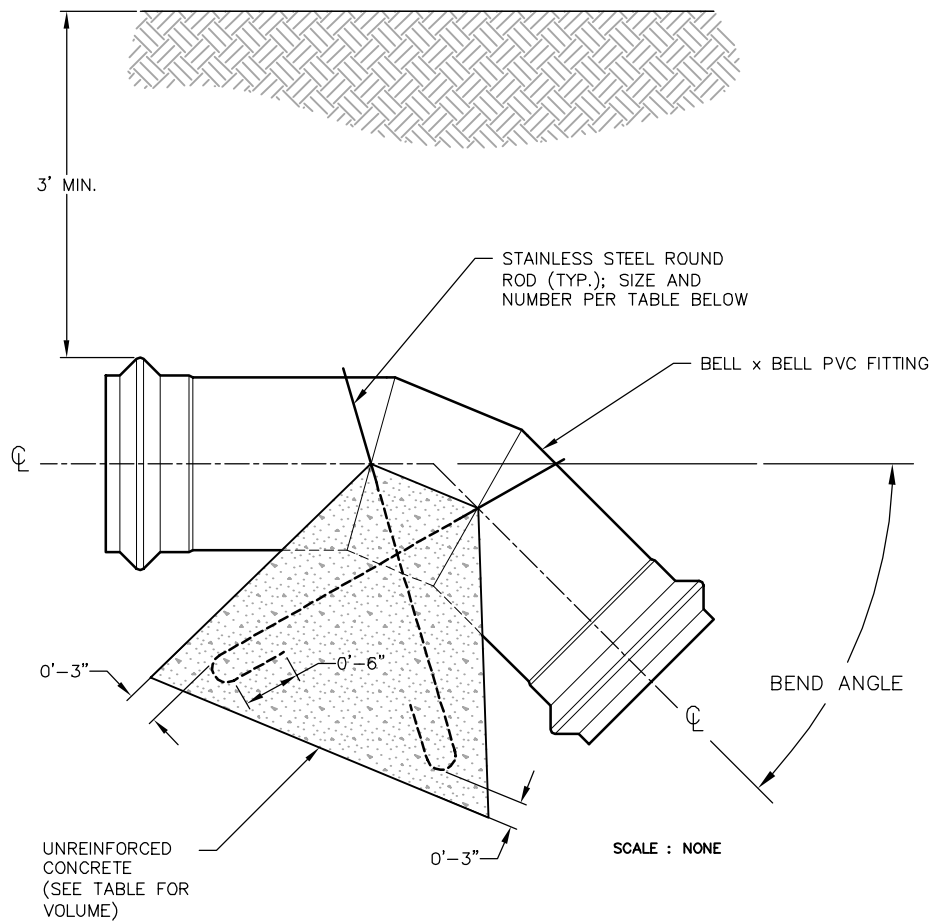


DUCK VALLEY IRRIGATION PROJECT
THRUST BLOCKS FOR
HORIZONTAL PVC PIPE BENDS

LAST REVISED	10/06/2017
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DETAIL 33-4

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VERTICAL DOWNWARD BENDS					
MINIMUM VALUE (CUBIC FEET)					
PIPE DIAM. (IN)	RODS	11.25°	22.5°	45°	90°
18	2-#8	11	21	38	53
21	2-#8	14	28	51	72
24	4-#8	19	36	67	94

NOTES:

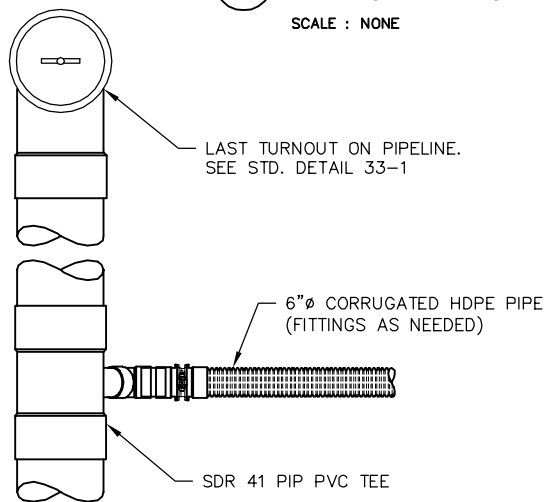
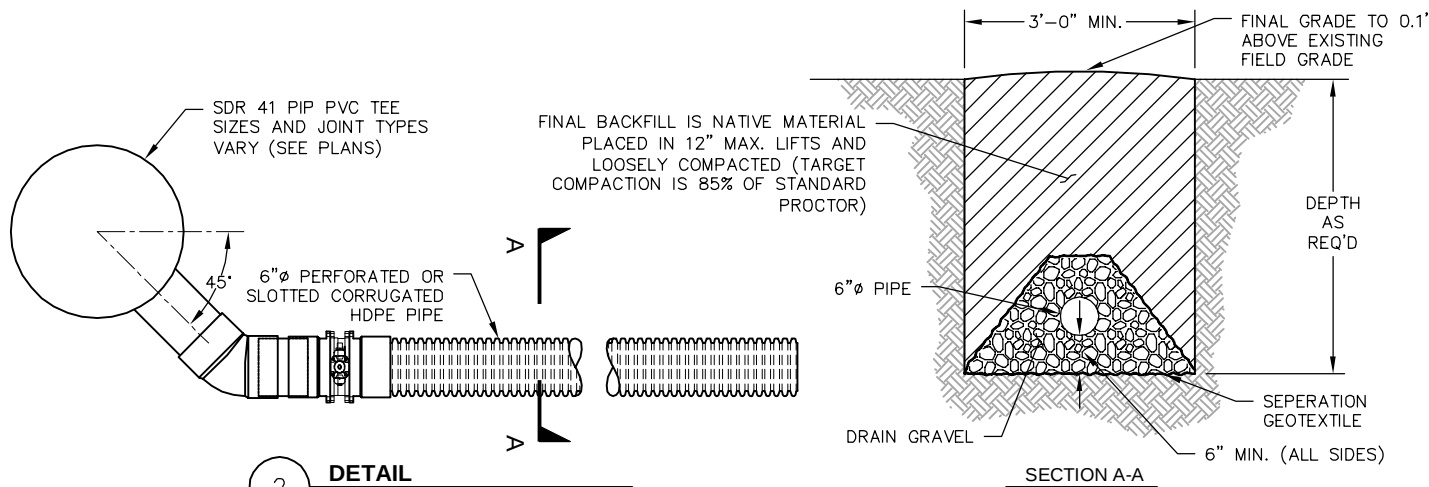
1. DIMENSION CALCULATIONS ARE BASED ON 20 PSI MAXIMUM PRESSURE AND 1.5 SAFETY FACTOR.
2. ALL CONCRETE THRUST BLOCKS SHALL BE FORMED AND POURED AGAINST UNDISTURBED EARTH.
3. ALL PIPE JOINTS AND BOLTS SHALL STILL BE ACCESSIBLE AFTER THE THRUST BLOCK IS POURED.
4. GRAVITY BLOCK TO HAVE APPROXIMATELY EQUAL DIMENSIONS (BASE LENGTH, BASE WIDTH, HEIGHT).
5. TIE FITTING TO GRAVITY BLOCK WITH NUMBER AND SIZE OF REBAR SHOWN WITH SUFFICIENT DEVELOPMENT LENGTH AND STANDARD HOOKS PER ACI CODE.
6. CONCRETE FOR THRUST BLOCKS IS AS INDICATED IN THE SPECIFICATIONS 03 30 01.



DUCK VALLEY IRRIGATION PROJECT
THRUST BLOCK FOR
VERTICAL DOWNWARD PVC PIPE BENDS

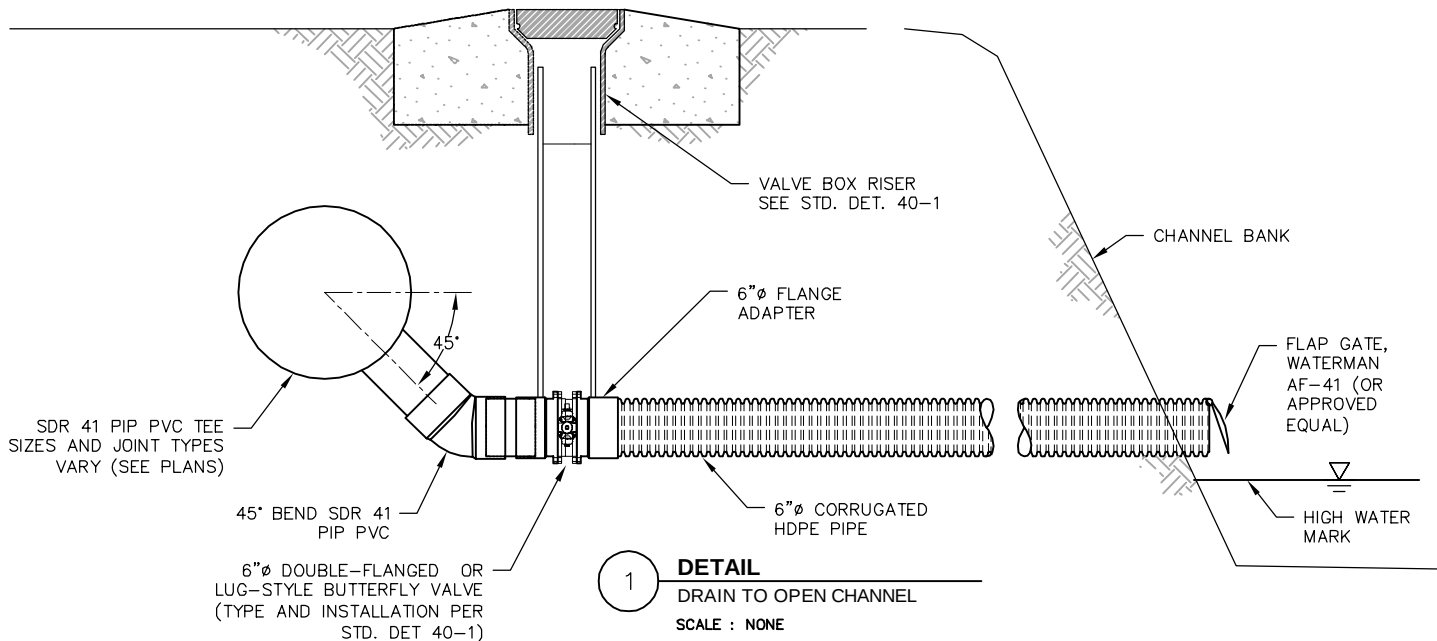
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DETAIL 33-5



NOTES:

1. WAFER STYLE BUTTERFLY VALVES ARE NOT ALLOWED.
2. USE IMPORTED BEDDING MATERIAL (STD. SPEC. 31 00 01) THOROUGHLY COMPACTED UP THROUGH THE SPRING LINE (1/2 PIPE DIAMETER) AROUND ALL FITTINGS AS PER STD. DET. 33-1. USE SELECT NATIVE MATERIAL (STD. SPEC. 31 00 01) AS INITIAL AND FINAL BACKFILL.
3. AIR VALVES AND VENTING ARE NOT SHOWN. REFER TO THE PLANS FOR THE LOCATION AND TYPE OF AIR RELEASE AND/OR VACUUM RELIEF VALVES.
4. WHEN THE DRAIN LINE IS IN LINE WITH THE MAINLINE PIPE (THE LAST DELIVERY ON THE PIPELINE IS ON THE TEE LEG OF THE PIPE TEE), USE AN ECCENTRIC REDUCER TO MAINTAIN THE FLOWLINE OF THE MAINLINE PIPE INTO THE DRAIN PIPE.

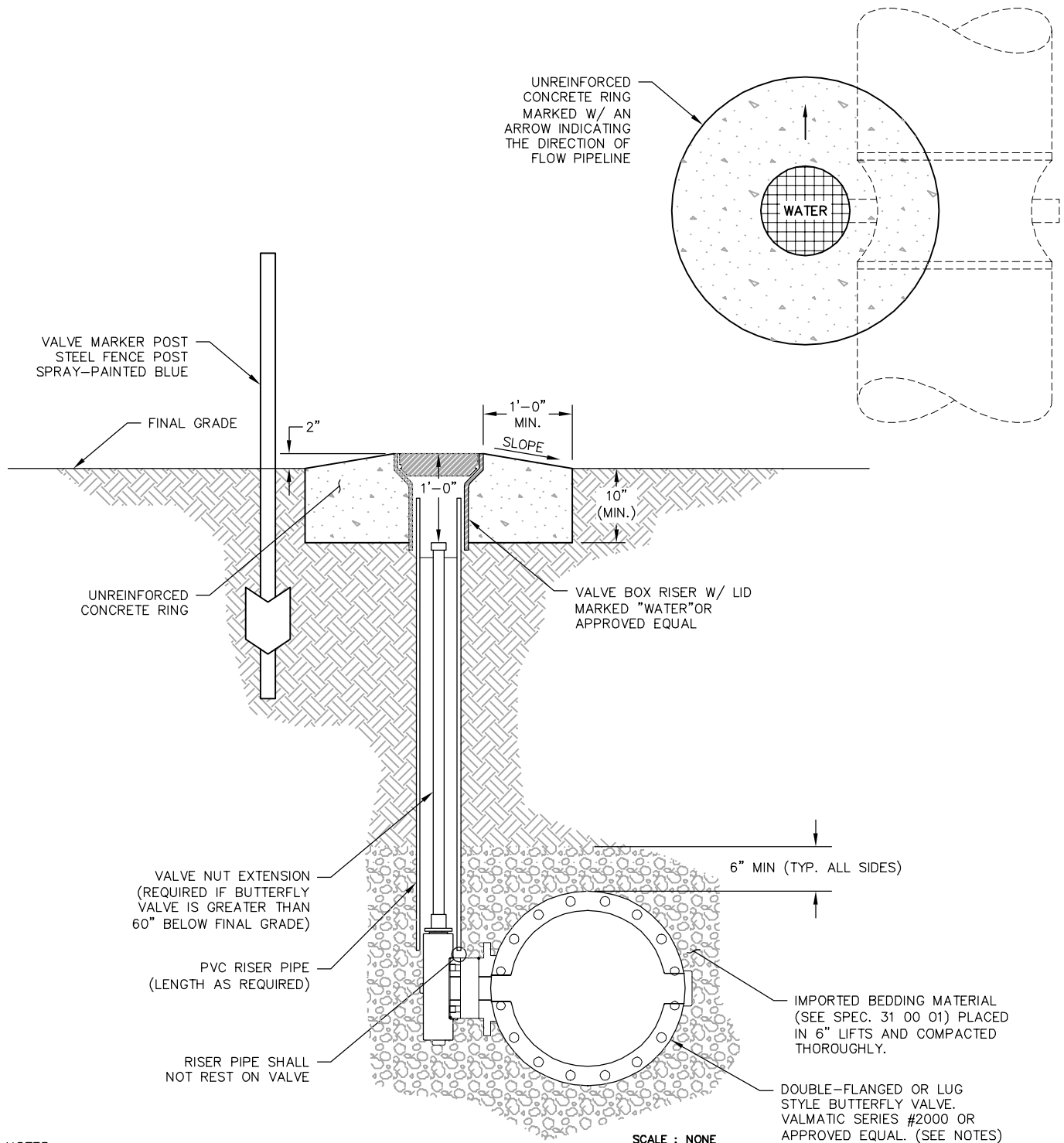


**DUCK VALLEY IRRIGATION PROJECT
DRAINS FOR PVC PIPELINES**

LAST REVISED 10/06/2017
BY DOWL

DETAIL 33-6

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NOTES:

1. VALVES SHALL BE AWWA CLASS 150B AND CONFORM TO AWWA C504.
2. MANUAL ACTUATORS SHALL BE 2" SQUARE BURIED NUT ACTUATORS, CLOCKWISE TO CLOSE, AND EQUIPPED WITH EXTERNALLY ADJUSTABLE CLOSED POSITION STOPS.
3. RESILIENT SEATS SHALL BE LOCATED ON THE VALVE DISC AND SHALL PROVIDE A 360° CONTINUOUS, UNINTERRUPTED SEATING SURFACE. RESILIENT SEATS SHALL BE FIELD ADJUSTABLE AND REPLACEABLE AND SHALL NOT REQUIRE EPOXY, SYRINGES, NEEDLES OR PRESSURE VESSELS TO REPLACE OR ADJUST.
4. ALL FASTENERS SHALL BE STAINLESS STEEL AND ALL EXPOSED INPUT SHAFTS SHALL BE ELECTROLESS NICKEL PLATED OR STAINLESS STEEL.
5. COATINGS SHALL BE LIQUID EPOXY APPLIED IN TWO COATS WITH A TOTAL THICKNESS OF 12 MILS.

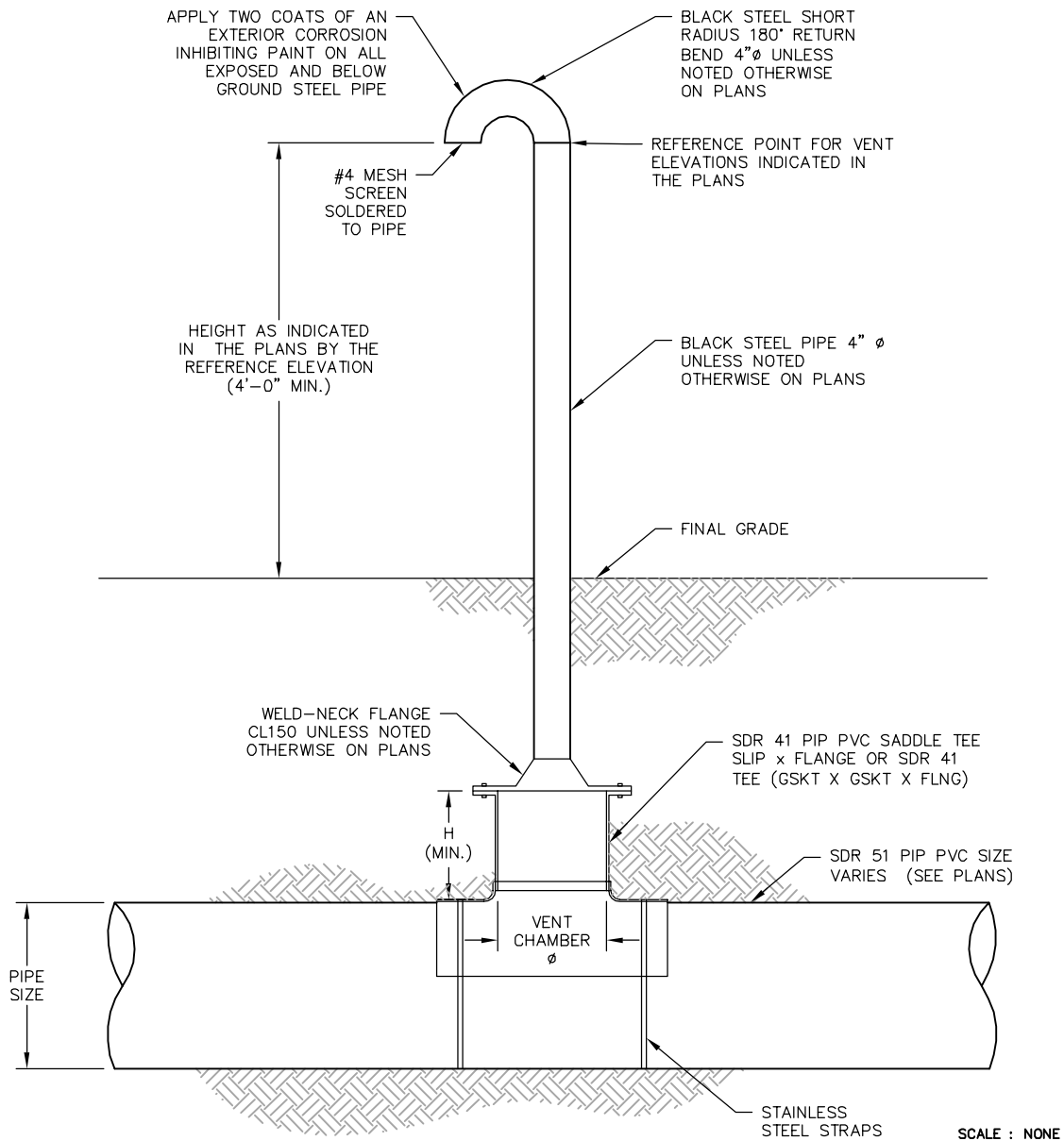


**DUCK VALLEY IRRIGATION PROJECT
BUTTERFLY VALVE, VALVE BOX, AND RISER**

LAST REVISED 10/06/2017
BY DOWL

DETAIL 40-1

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NOTES:

1. USE IMPORTED BACKFILL THOROUGHLY COMPACTED UP THROUGH THE SPRING LINE (1/2 PIPE DIAMETER) AROUND ALL FITTINGS AS PER STD. DET. 33-1 REGARDLESS OF WHETHER A TAPPING SADDLE OR TEE FITTING IS USED.
2. INSTALL A PROTECTIVE ENCLOSURE A MINIMUM OF 30" IN ALL DIRECTIONS AROUND AIR VENTS THAT ARE LOCATED IN PASTURES, CORRALS, OR OTHER AREAS WHERE IN THE OPINION OF THE DVP THEY MAY BE SUBJECT TO LIVESTOCK EXPOSURE/DAMAGE. PROTECTIVE ENCLOSURE SHALL CONSIST OF FOUR 4"x4"x8' PRESSURE TREATED WOODEN POSTS OR STEEL EQUIVALENT AND STANDARD LIVESTOCK FENCING MATERIAL.

PIPE SIZE (IN)	VENT CHAMBER DIMENSIONS	
	H (IN)	Ø (IN)
18	12	12
21	14	14
24	16	16

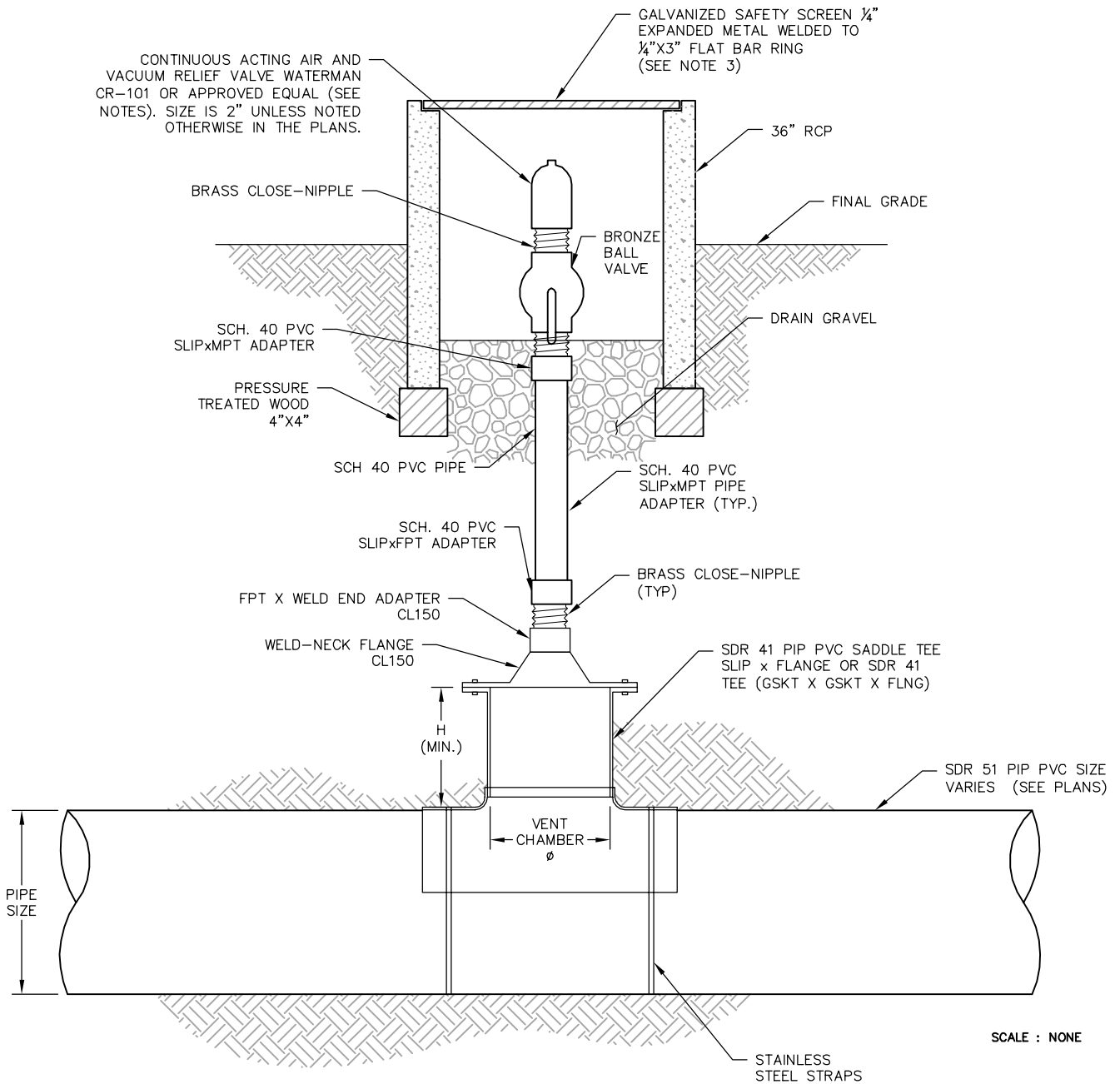


DUCK VALLEY IRRIGATION PROJECT

AIR VENT PIPE

LAST REVISED 10/06/2017
BY DOWL

DETAIL 40-2



NOTES:

1. IF AN ALTERNATE AIR VALVE IS PROPOSED, THE VALVE MUST PROVIDE SEALING AT PIPING PRESSURE OF 2 PSI OR LOWER.
2. USE IMPORTED BACKFILL THOROUGHLY COMPACTED UP THROUGH THE SPRING LINE (1/2 PIPE DIAMETER) AROUND ALL FITTINGS AS PER STD. DET. 33-1 REGARDLESS OF WHETHER A TAPPING SADDLE OR TEE FITTING IS USED.
3. SAFETY SCREEN SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION. SEE STD. SPEC. 05 50 01. THE OUTSIDE DIMENSIONS SHALL BE 1" LESS THAN THE RECESS FOR INSTALLATION ON STRUCTURES WITH AN INNER GROOVE, THE OUTSIDE DIMENSIONS SHALL BE 1" MORE THAN THE OUTSIDE DIAMETER OF THE STRUCTURE FOR STRUCTURES THAT DO NOT HAVE A RECESSED CHANNEL FOR THE SCREEN TO REST IN. SAFETY SCREEN SHALL BE SECURELY MOUNTED TO THE STRUCTURE. SUBMIT SHOP DRAWINGS PRIOR TO FABRICATION.
4. A FPT FLANGE MAY BE SUBSTITUTED FOR THE WELD-NECK FLANGE AND WELD END ADAPTER X FPT.

PIPE SIZE	VENT CHAMBER DIMENSIONS	
	H (IN)	Ø (IN)
18	12	12
21	14	14
24	16	16



DUCK VALLEY IRRIGATION PROJECT COMBINATION AIR VENT AND VACUUM RELIEF VALVE

LAST REVISED 11/17/2017
BY DOWL

DETAIL 40-3