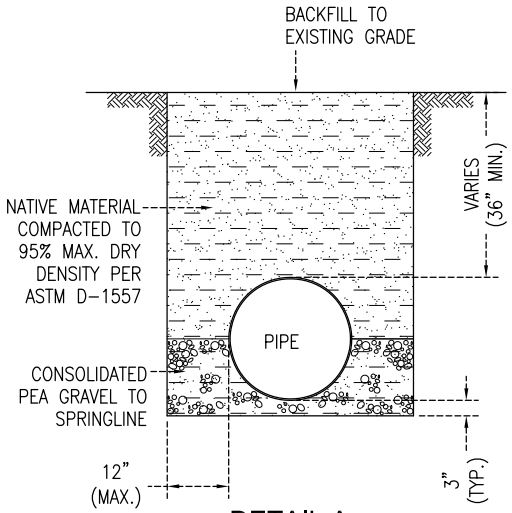
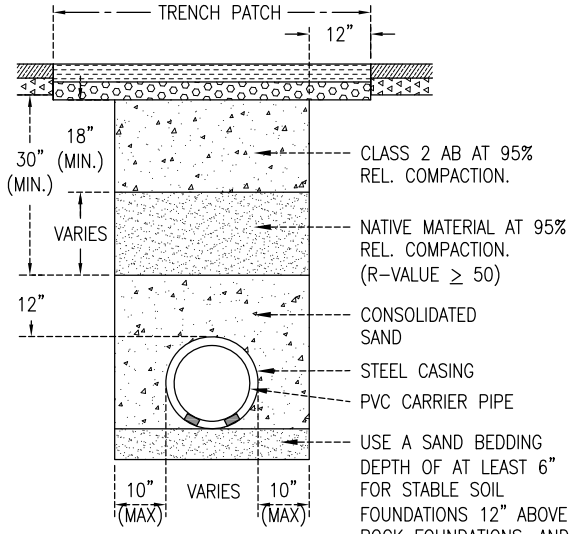
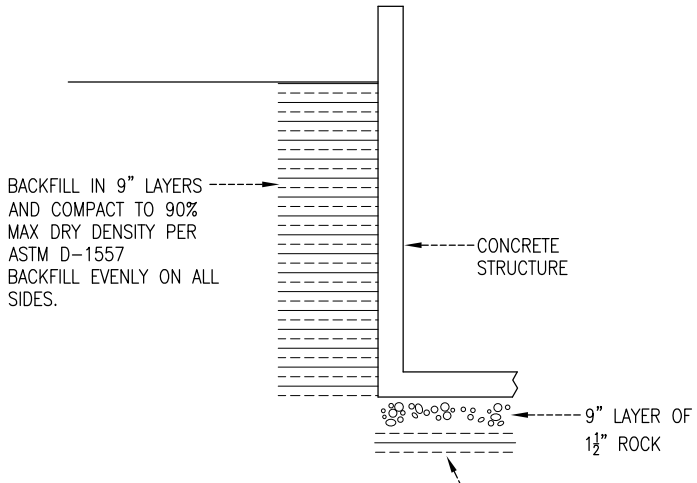


DETAIL A
BACKFILL DETAIL
FIELD ROAD INSTALLATION



DETAIL B
BACKFILL DETAIL
PAVED AREAS

NOTE: IF ONE EDGE OF THE TRENCH IS WITH IN 3' OF THE EDGE OF PAVEMENT, REPLACE STRUCTURAL SECTION OF PAVEMENT.



DETAIL C
BACKFILL DETAIL
STRUCTURES

NOTES: FOR PAVED AREAS

1. PROVIDE 95% COMPACTING IN 8" LAYERS FOR THE ENTIRE DEPTH OF TRENCH.
2. POUNDING OR JETTING WILL NOT BE ALLOWED.
3. IF SOIL R-VALUE IS LESS THAN 50, USE CLASS 2 AB VERSUS NATIVE MATERIAL.
4. COMPACTION TEST SHALL BE PERFORMED BY CONTRACTOR AND BE SUBMITTED TO (AND APPROVED) BY THE COUNTY INSPECTOR PRIOR TO PAVING, USING CALTRANS TEST METHOD NO. 216 AND NO. 231.

NOTE: USE A PAVEMENT AND BASE THICKNESS OF AT LEAST 3" AND 6" RESPECTIVELY OR 1" THICKER THAN THE EXISTING A.C., WHICHEVER IS GREATER. PRIME COAT IS REQUIRED ABOVE AGGREGATE BASE.

GENERAL NOTES

1. PIPE MATERIAL AND PRESSURE CLASS SHALL BE DIRECTED BY THE DISTRICT.
2. REINFORCED CONCRETE PIPELINES SHALL BE CLASS III RUBBER GASKET REINFORCED CONCRETE PIPE (RGRCP) MANUFACTURED IN ACCORDANCE WITH ASTM C-76 AND C-361.
3. PVC PIPE MAY BE MANUFACTURED IN ACCORDANCE WITH AWWA C-900, C-905 OR SHALL BE PLASTIC IRRIGATION PIPE (PIP) MANUFACTURED IN ACCORDANCE WITH ASTM D1784 AND SCS430DD. THE MINIMUM PRESSURE CLASS RATING SHALL BE 100 PSI UNLESS OTHERWISE REQUIRED BY THE DISTRICT OR BY STANISLAUS COUNTY.
4. ALL STEEL PIPE AND FITTING SHALL BE IN ACCORDANCE WITH AWWAC-200 ($\frac{1}{4}$" WALL, MINIMUM) AND SHALL BE FUSION BONDED EPOXY LINED AND COATED (12 MILS MIN.) IN ACCORDANCE WITH AWWA C-213. ALL EXPOSED PIPE SHALL BE COATED WITH 2 OR MORE COATS OF HIGH SOLIDS EPOXY IN ACCORDANCE WITH AWWA C-210. EXTERIOR TOP COAT SHALL BE A COMPATIBLE ALPHATIC POLYURETHANE.
5. CORRUGATED HIGH DENSITY POLYETHYLENE (HDPE) PIPE SHALL NOT BE ALLOWED.
6. PIPELINES WITHIN STANISLAUS COUNTY SHALL REQUIRE AN APPROVED ENCROACHMENT PERMIT FROM THE COUNTY.
7. CAST-IN-PLACE CONCRETE STRUCTURES SHALL CURE FOR A MINIMUM OF 14 DAYS PRIOR TO BACKFILL.

EXPLANATION OF SYMBOLS

(E)	EXISTING
SDN	SEE DRAWING NUMBER
RGRCP	RUBBER GASKET REINFORCED CONCRETE PIPE

REGISTERED PROFESSIONAL ENGINEER
JAMES C. LINNEMAN
NO. 59067
EXP. 6/30/24
CIVIL
STATE OF CALIFORNIA

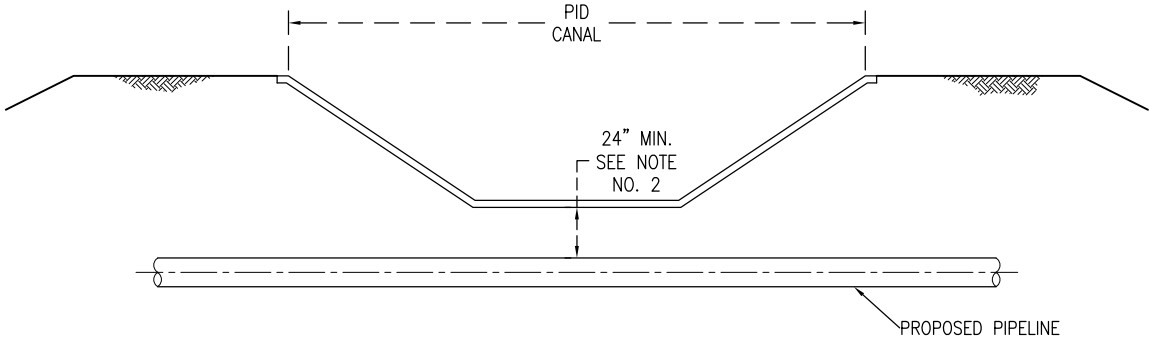
PATTERSON IRRIGATION DISTRICT
PATTERSON CALIFORNIA

STANDARD DETAILS

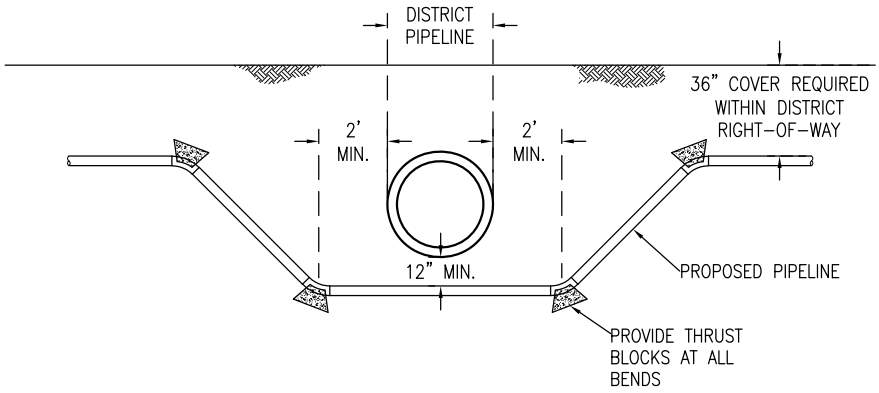
BACKFILL REQUIREMENTS

SUMMERS ENGINEERING INC.
HANFORD Consulting Engineers CALIFORNIA

PATTERSON IRRIGATION DISTRICT	DATE JUNE 2023	APPROVED	
APPROVED	DRAWN FJF/NV	DRAWING NO.	SD-M-1
DATE	CHECKED JCL	SHEET 1	OF 19
	DRAWING NAME : PID 20011.DWG		



CANAL CROSSING



PIPELINE CROSSING

GENERAL NOTES

1. PROVIDE ALL SHEETING, SHORING, BRACING, SLOPPING, OR OTHER METHODS FOR REQUIRED WORKER SAFETY AND PROTECTION.

2. MINIMUM CLEARANCE BETWEEN TOP OF THE PROPOSED PIPE AND INVERT OF LINED CANAL SHALL BE 24" UNLESS OTHERWISE NOTED IN WRITING BY THE DISTRICT.

3. PIPELINES SHALL BE PVC, SOLID-WALL HDPE, OR REINFORCED CONCRETE.

4. PVC PIPELINES SHALL BE CLASS 100 PSI AND MEET THE STANDARDS OF AWWA C-905, AWWA C-900, OR PIP.

5. PIPELINES SHALL BE BORE/JACKETED UNDER DISTRICT CANALS UNLESS PERMISSION TO OPEN CUT IS PROVIDED IN WRITING. BORE AND RECEIVING PITS TO BE 10' FROM CANAL LINING.

6. WHEN OPEN CUT CANAL ENCROACHMENTS ARE AUTHORIZED BY THE DISTRICT, OPEN CUT AND LINING REPLACEMENT SHALL BE DONE BY THE DISTRICT AT THE OWNERS EXPENSE.

7. SEE DRAWING NUMBER SD-M-1 FOR BACKFILL REQUIREMENTS.

EXPLANATION OF SYMBOLS

(E)	EXISTING
SDN	SEE DRAWING NUMBER
RGRCP	RUBBER GASKET REINFORCED CONCRETE PIPE

REGISTERED PROFESSIONAL ENGINEER
JAMES C. I. INNEMAN
NO. 59067
EXP. 6/30/24
CIVIL
STATE OF CALIFORNIA

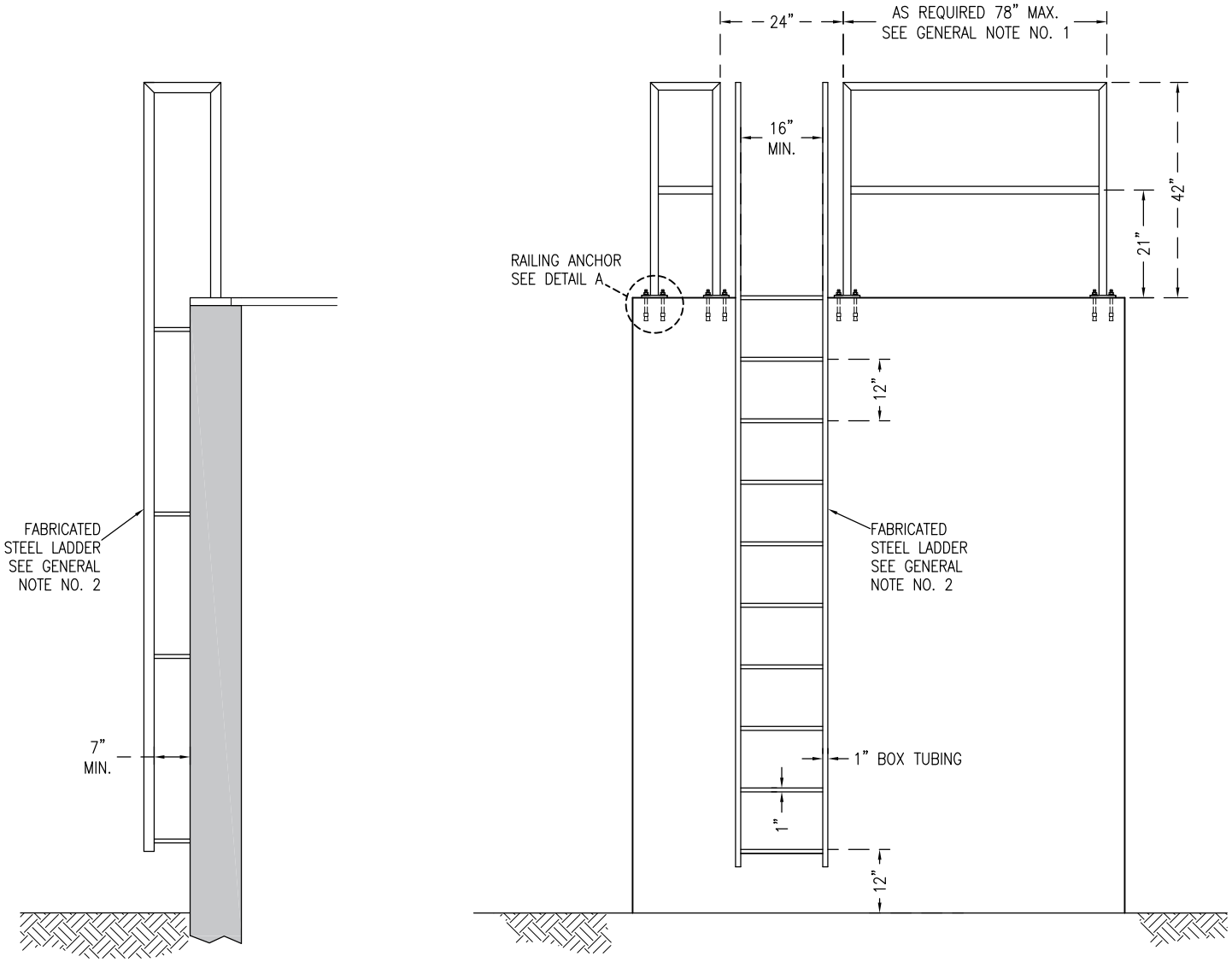
PATTERSON IRRIGATION DISTRICT
PATTERSON CALIFORNIA

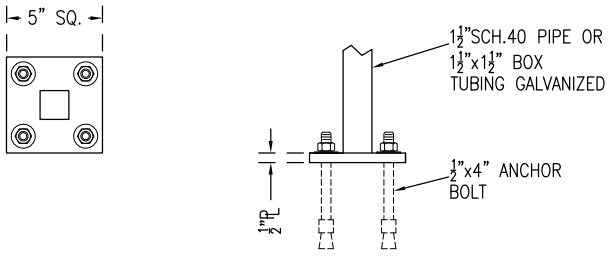
STANDARD DETAILS

PIPELINE ENCROACHMENT REQUIREMENTS

SUMMERS ENGINEERING INC.
HANFORD Consulting Engineers CALIFORNIA

PATTERSON IRRIGATION DISTRICT	DATE ---	APPROVED	
APPROVED	DRAWN NV	DRAWING NO.	SD-M-2
DATE	CHECKED JCL	SHEET 2	OF 19
	DRAWING NAME : PID 20011.DWG		





DETAIL A

GENERAL NOTES

▨ 1. RAILING IS REQUIRED AT THE TOP OF ALL STRUCTURES 2' IN HEIGHT AND HIGHER. RAILING SHALL BE PLACED ON ALL SIDES OF THE STRUCTURE EXCEPT FOR ACCESS POINTS. RAILINGS MAY BE FABRICATED FROM 1½" SCHEDULE 40 PIPE, 1½"X1½" BOX TUBING OR SIMILAR, WITH PANELS NO LONGER THAN 78". RAILING PANELS SHALL BE GALVANIZED AFTER FABRICATION.

▨ 2. FABRICATED ACCESS LADDERS SHALL BE GALVANIZED STEEL. ALTERNATE LADDER CONFIGURATIONS MAY BE PROPOSED PROVIDED THE LADDER MEETS APPLICATION CAL OSHA REGULATIONS. LADDERS SHALL BE GALVANIZED AFTER FABRICATION.

▨ 3. ALL NUTS, BOLTS, AND WASHER SHALL BE GALVANIZED UNLESS OTHERWISE NOTED.

EXPLANATION OF SYMBOLS

(E)	EXISTING
SDN	SEE DRAWING NUMBER
RGRCP	RUBBER GASKET REINFORCED CONCRETE PIPE

REGISTERED PROFESSIONAL ENGINEER
JAMES C. LINNEMAN
NO. 59067
EXP. 6/30/24
CIVIL
STATE OF CALIFORNIA

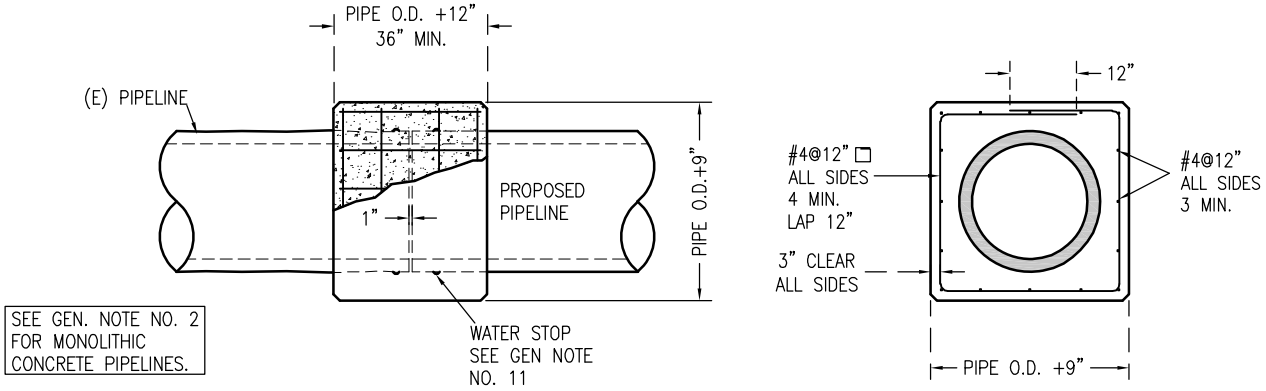
PATTERSON IRRIGATION DISTRICT
PATTERSON CALIFORNIA

STANDARD DETAILS

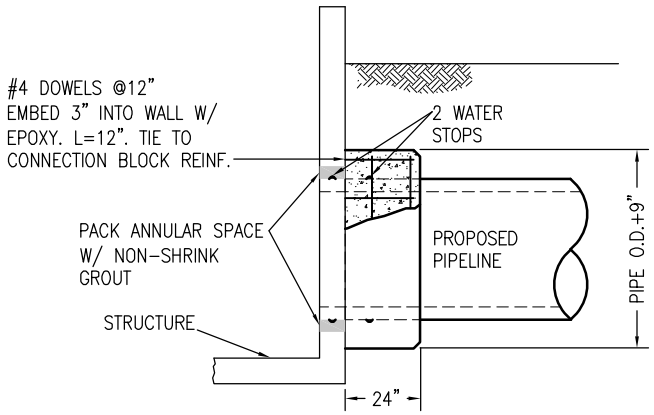
RAILING AND ACCESS LADDERS

SUMMERS ENGINEERING INC.
HANFORD Consulting Engineers CALIFORNIA

PATTERSON IRRIGATION DISTRICT	DATE ---	APPROVED	
APPROVED	DRAWN FJF	DRAWING NO.	SD-M-3
DATE	CHECKED JCL	SHEET 3	OF 19
	DRAWING NAME : PID 20011.DWG		



PIPELINE CONNECTION BLOCK DETAIL



HEADWALL CONNECTION BLOCK DETAIL

GENERAL NOTES

1. PROVIDE ALL SHEETING, SHORING, BRACING, SLOPPING, OR OTHER METHODS FOR REQUIRED WORKER SAFETY AND PROTECTION.

2. EXISTING PIPELINE TO BE SAW-CUT TO A CLEAN EDGE. EXISTING MONOLITHIC CONCRETE PIPELINES SHALL BE INSPECTED FOR LONGITUDINAL CRACKING PRIOR TO THE CONNECTION BLOCK CONSTRUCTION. IF LONGITUDINAL CRACKS ARE DISCOVERED, CONSTRUCTION SHALL STOP AND DISTRICT STAFF SHALL BE NOTIFIED IMMEDIATELY.

3. NEW PIPELINES SHALL BE RUBBER GASKET REINFORCED CONCRETE (RGRCP) OR STEEL.

4. THIS STANDARD DOES NOT APPLY TO PVC PIPE CONNECTIONS, SEE DWG. NO. SD-P-2 FOR PVC PIPE CONNECTIONS.

5. STEEL PIPE AND FITTINGS SHALL BE IN ACCORDANCE WITH AWWA C-200 ($\frac{1}{4}$" WALL MINIMUM). ALL STEEL FLANGES SHALL IN ACCORDANCE WITH AWWA C-207, CLASS D. ALL PIPE, FLANGES, AND MECHANICAL COUPLINGS SHALL BE FUSION BONDED EPOXY LINED AND COATED (12 MILS MIN.) IN ACCORDANCE WITH AWWA C-213. ALL EXPOSED PIPE SHALL BE COATED WITH 2 OR MORE COATS OF HIGH SOLIDS EPOXY IN ACCORDANCE WITH AWWA C-210. EXTERIOR TOP COAT SHALL BE A COMPATIBLE ALPHATIC POLYURETHANE.

6. CONCRETE PIPELINES SHALL BE CLASS III RUBBER GASKET REINFORCED CONCRETE PIPE (RGRCP) MANUFACTURED IN ACCORDANCE WITH ASTM C-76 AND 361.

7. REINFORCED CONCRETE SHALL DEVELOPED A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI. CEMENT SHALL BE TYPE II IN ACCORDANCE WITH ASTM C-150. A MINIMUM OF 5$\frac{1}{2}$ SACKS OF CEMENT TO EACH CUBIC YARDS TO EACH CUBIC YARD OF CONCRETE SHALL BE USED.

8. ALL REINFORCING BARS SHALL BE GRADE 60. CONFORMING TO ASTM A-615 OR A-706. ALL REINFORCING BARS BENDS SHALL HAVE A MINIMUM RADIUS OF FOUR BAR DIAMETERS AND SPLICES SHALL BE LAPPED FORTY BAR DIAMETERS.

9. CHAMFER ALL EXPOSED CORNERS OF CONCRETE 1"±. HAUNCH ALL INTERIOR CORNERS OF CONCRETE 1"± EXCEPT WHERE NOTED OTHERWISE.

10. SEE STANDARD DETAIL NO. SD-M-1 FOR BACKFILL REQUIREMENTS.

11. WATER STOP SHALL BE SIKA HYDROTITE HYDROLIC PLACED AROUND OUTSIDE OF ALL PENETRATING PIPES. WITH PRIMER. WATER STOPS SHALL BE PLACED BOTH WITHIN THE STRUCTURE WALL AND CONNECTION BLOCK.

EXPLANATION OF SYMBOLS

(E)	EXISTING
SDN	SEE DRAWING NUMBER
RGRCP	RUBBER GASKET REINFORCED CONCRETE PIPE

REGISTERED PROFESSIONAL ENGINEER
JAMES C. TINNEMAN
NO. 59067
EXP. 6/30/24
CIVIL
STATE OF CALIFORNIA

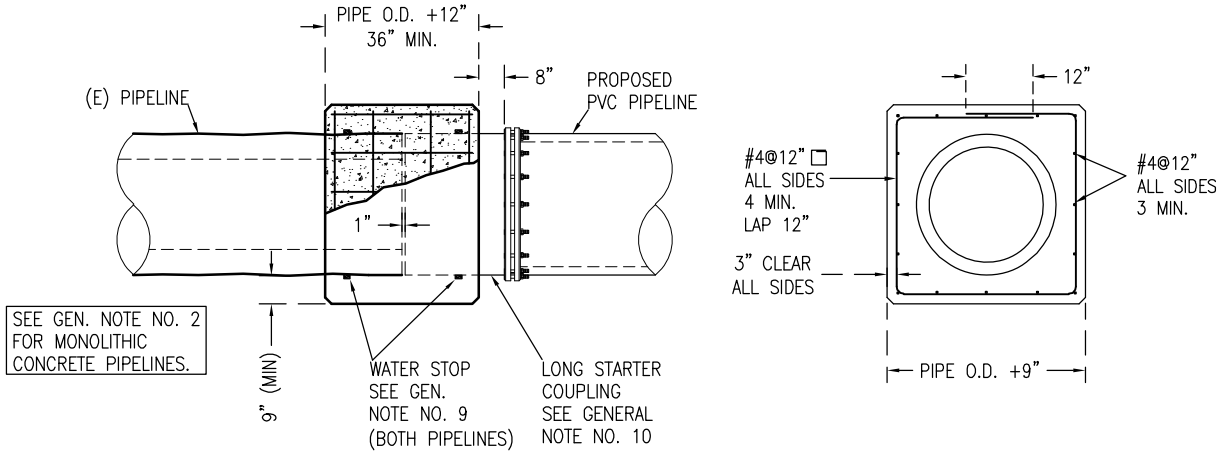
PATTERSON IRRIGATION DISTRICT
PATTERSON CALIFORNIA

STANDARD DETAILS

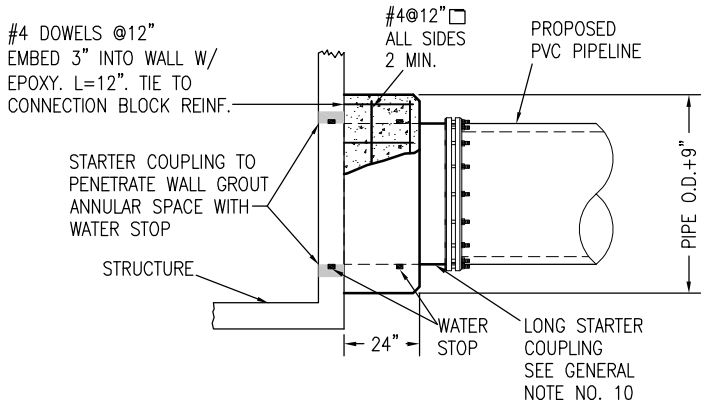
PIPELINE CONNECTION BLOCK DETAILS

SUMMERS ENGINEERING INC.
HANFORD Consulting Engineers CALIFORNIA

PATTERSON IRRIGATION DISTRICT		DATE ---	APPROVED
APPROVED		DRAWN NV	DRAWING NO. SD-P-1
DATE		CHECKED JCL	SHEET 4 OF 19
		DRAWING NAME : PID 20011.DWG	



PVC PIPELINE CONNECTION BLOCK DETAIL



PVC PIPE HEADWALL CONNECTION BLOCK DETAIL

GENERAL NOTES

1. PROVIDE ALL SHEETING, SHORING, BRACING, SLOPPING, OR OTHER METHODS FOR REQUIRED WORKER SAFETY AND PROTECTION.

2. EXISTING PIPELINE TO BE SAW-CUT TO A CLEAN EDGE. EXISTING MONOLITHIC PIPELINES SHALL BE INSPECTED FOR LONGITUDINAL CRACKING PRIOR TO THE CONNECTION BLOCK CONSTRUCTION. IF LONGITUDINAL CRACKS ARE DISCOVERED, CONSTRUCTION SHALL STOP AND DISTRICT STAFF SHALL BE NOTIFIED IMMEDIATELY.

3. NEW PIPELINES INSTALLED UNDER THIS STANDARD SHALL BE PVC.

4. PVC PIPE MAY BE MANUFACTURED IN ACCORDANCE WITH AWWA C-900, C-905 OR SHALL BE PLASTIC IRRIGATION PIPE (PIP) MANUFACTURED IN ACCORDANCE WITH ASTM D1784 AND SCS430DD. THE MINIMUM PRESSURE CLASS RATING SHALL BE 100 PSI UNLESS OTHERWISE REQUIRED BY THE DISTRICT.

5. REINFORCED CONCRETE SHALL DEVELOPED A MINIMUM COMPRESSIVE STRENGTH OF 3000PSI. CEMENT SHELL BE TYPE II IN ACCORDANCE WITH ASTM C-150. A MINIMUM OF 5½ SACKS OF CEMENT TO EACH CUBIC YARD OF CONCRETE SHALL BE USED.

6. ALL REINFORCING BARS SHALL BE GRADE 60, CONFORMING TO ASTM A-615 OR A-706. ALL REINFORCING BARS BENDS SHALL HAVE A MINIMUM RADIUS OF FOUR BAR DIAMETERS AND SPLICES SHALL BE LAPPED FORTY BAR DIAMETERS.

7. CHAMFER ALL EXPOSED CORNERS OF CONCRETE 1"±. HAUNCH ALL INTERIOR CORNERS OF CONCRETE 1"± EXCEPT WHERE NOTED OTHERWISE.

8. SEE STANDARD DETAIL NO. SD-M-1 FOR BACKFILL REQUIREMENTS.

9. WATER STOP SHALL BE SIKA HYDROTITE HYDROLIC PLACED AROUND OUTSIDE OF ALL PENETRATING PIPES. WITH PRIMER. WATER STOPS SHALL BE PLACED BOTH WITHIN THE STRUCTURE WALL AND CONNECTION BLOCK.

10. PVC PIPELINES SHALL BE CONNECTED TO THE CONNECTION BLOCK OR STRUCTURE WITH A MORRIL INDUSTRIES GALVANIZED STEEL LONG STARTER COUPLING.

EXPLANATION OF SYMBOLS

(E)	EXISTING
SDN	SEE DRAWING NUMBER
RGRCP	RUBBER GASKET REINFORCED CONCRETE PIPE

REGISTERED PROFESSIONAL ENGINEER
JAMES C. I. INNEWAH
NO. 59067
EXP. 6/30/24
CIVIL
STATE OF CALIFORNIA

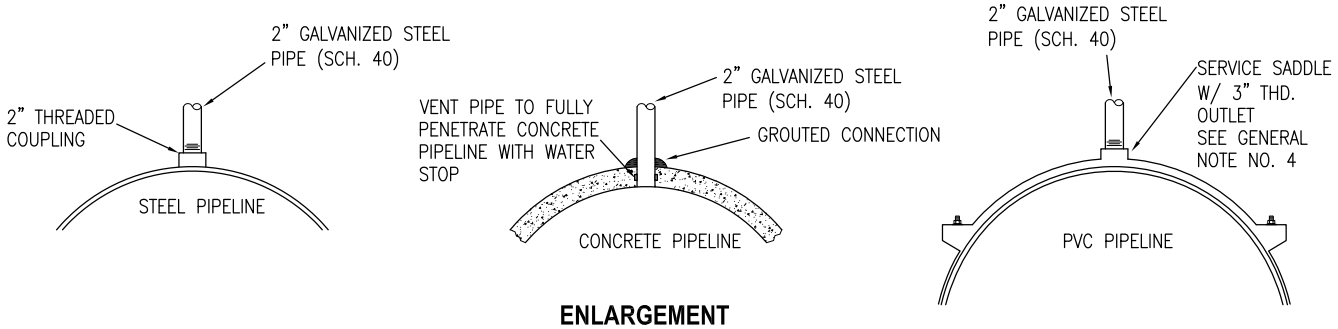
PATTERSON IRRIGATION DISTRICT
PATTERSON CALIFORNIA

STANDARD DETAILS

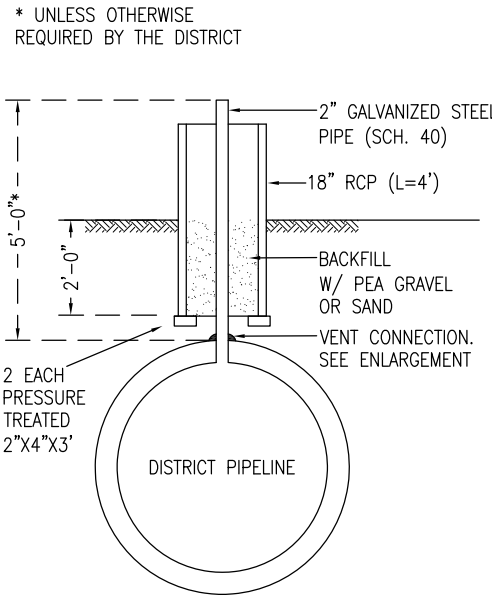
PVC PIPE CONNECTION BLOCK DETAILS

SUMMERS ENGINEERING INC.
HANFORD Consulting Engineers CALIFORNIA

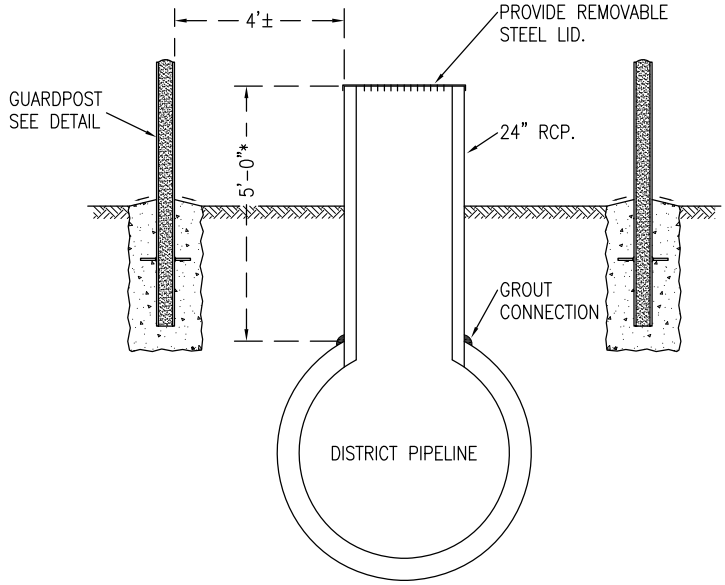
PATTERSON IRRIGATION DISTRICT	DATE ---	APPROVED	
APPROVED	DRAWN NV	DRAWING NO.	SD-P-2
DATE	CHECKED JCL	SHEET	5 OF 19
	DRAWING NAME : PID 20011.DWG		



ENLARGEMENT



AIR VENT DETAIL



MANHOLE DETAIL

GENERAL NOTES

1. AIR VENT AND MANHOLES SHALL BE INSTALLED WHERE REQUIRED BY THE DISTRICT.

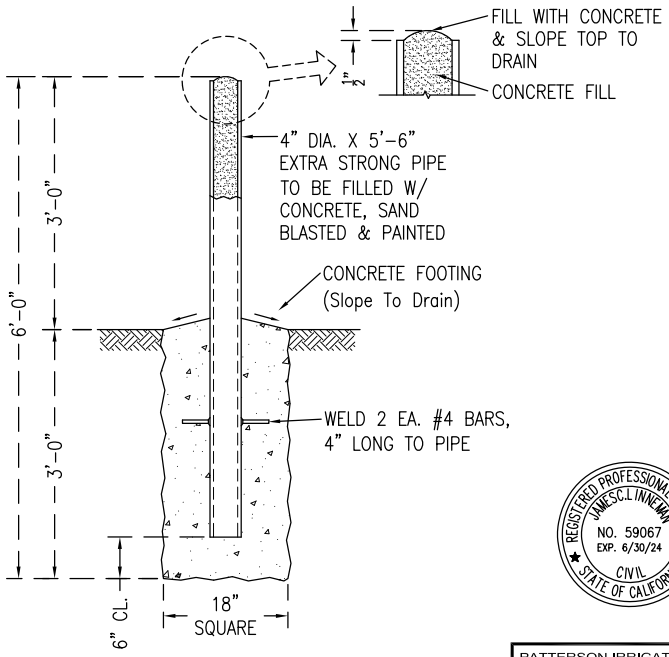
2. ALL VENT PIPE AND MANHOLE CONNECTIONS SHALL BE WATER TIGHT.

3. WATERSTOP SHALL BE SIKA HYDROTITE HYDROPHALIC PLACED AROUND OUTSIDE OF ALL PENETRATING PIPES.

4. SERVICE SADDLE SHALL BE MODEL 101NS, 202NS, OR FTS20T BY ROMAC OR APPROVED EQUAL.

EXPLANATION OF SYMBOLS

(E)	EXISTING
SDN	SEE DRAWING NUMBER
RGRCP	RUBBER GASKET REINFORCED CONCRETE PIPE



GUARD POST DETAIL

REGISTERED PROFESSIONAL ENGINEER
JAMES C. I. INNEMAN
NO. 59067
EXP. 6/30/24
CIVIL
STATE OF CALIFORNIA

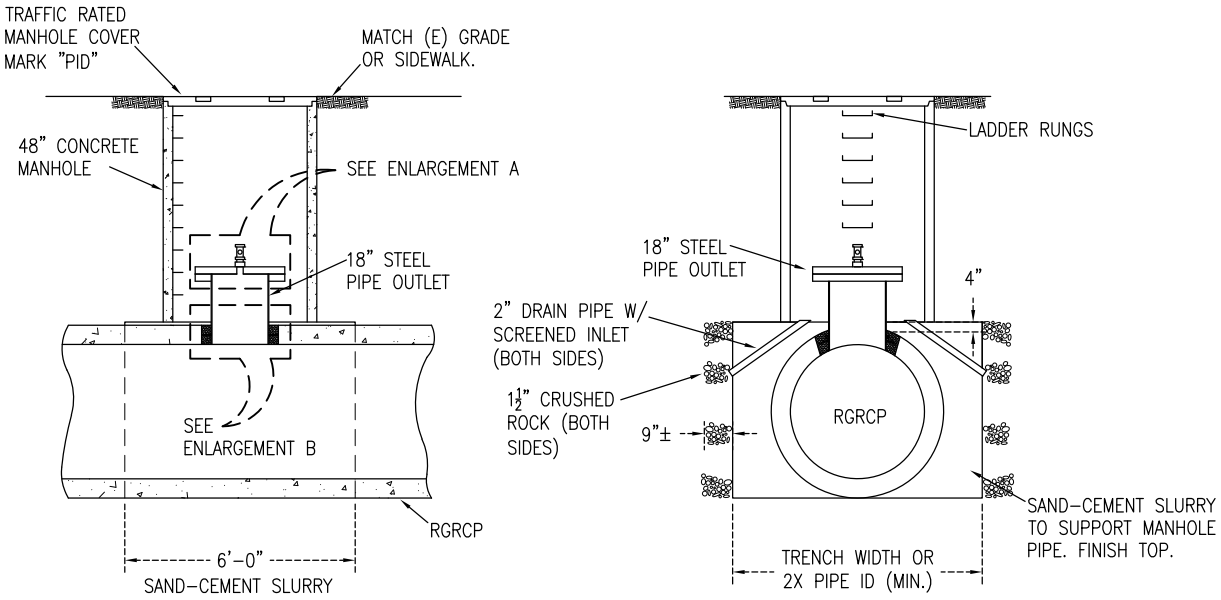
PATTERSON IRRIGATION DISTRICT
PATTERSON CALIFORNIA

STANDARD DETAILS

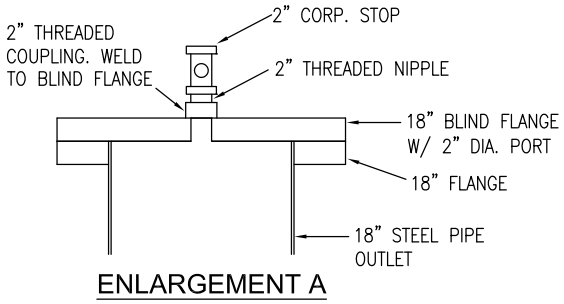
PIPELINE VENT & MANHOLE DETAIL

SUMMERS ENGINEERING INC.
HANFORD Consulting Engineers CALIFORNIA

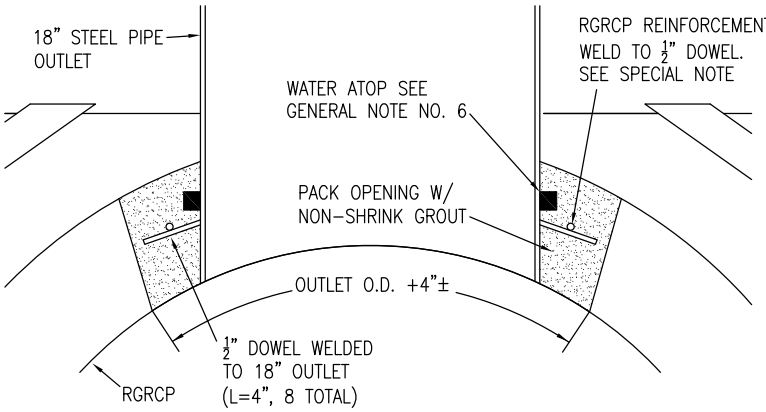
PATTERSON IRRIGATION DISTRICT	DATE JUNE 2023	APPROVED	
APPROVED	DRAWN NV	DRAWING NO.	SD-P-3
DATE	CHECKED JCL	SHEET 6	OF 19
	DRAWING NAME : PID 20011.DWG		



PRESSURE MANHOLE DETAIL



ENLARGEMENT A



ENLARGEMENT B

SPECIAL NOTE: INSTALLATION OF A PRESSURE MANHOLE ON AN EXISTING RGRCP SHALL BE AS FOLLOWS:

1. CUT OPENING IN (E) RGRCP AT OUTLET OD+4". RETAIN RGRCP REINFORCEMENT.
2. CUT AND PULL BACK RGRCP REINFORCEMENT.
3. PLACE STEEL OUTLET IN OPENING & WELD RGRCP REINFORCEMENT TO OUTLET DOWELS.
4. PACK OPENING W/ NON-SHRINK GROUT. MANHOLE CONNECT SHALL BE WATER-TIGHT.

GENERAL NOTES

1. ALL CONNECTIONS SHALL BE WATER TIGHT.
2. THIS STANDARD DOES NOT APPLY TO MONOLITHIC CONCRETE PIPE.
3. ALL STEEL PIPE AND FITTINGS SHALL BE IN ACCORDANCE WITH AWWA C-200 (¼" WALL, MINIMUM). ALL STEEL FLANGES SHALL BE IN ACCORDANCE WITH AWWA C-207, CLASS D. ALL PIPES & FLANGES SHALL BE FUSION BONDED EPOXY LINED AND COATED (12 MILS MIN.) IN ACCORDANCE WITH AWWA C-213 AND INCLUDE NUT/BOLT & GASKET KITS. ½" DOWELS SHALL BE BARE STEEL.
4. DRAIN PIPE INLET SHALL BE FLUSH W/ FINISHED SLURRY SURFACE. PLACE DRAIN ROCK FROM TOP OF SLURRY TO BOTTOM FOR FULL WIDTH OF SLURRY BLOCK.
5. SEE STANDARD DETAIL NO. SD-M-1 FOR BACKFILL REQUIREMENTS.
6. WATERSTOP SHALL BE SIKA HYDROTITE HYDROPHALIC PLACED AROUND OUTSIDE OF ALL PENETRATING PIPES.

EXPLANATION OF SYMBOLS

(E)	EXISTING
SDN	SEE DRAWING NUMBER
RGRCP	RUBBER GASKET REINFORCED CONCRETE PIPE

REGISTERED PROFESSIONAL ENGINEER
JAMES C. I INNEMAN
NO. 59067
EXP. 6/30/24
CIVIL
STATE OF CALIFORNIA

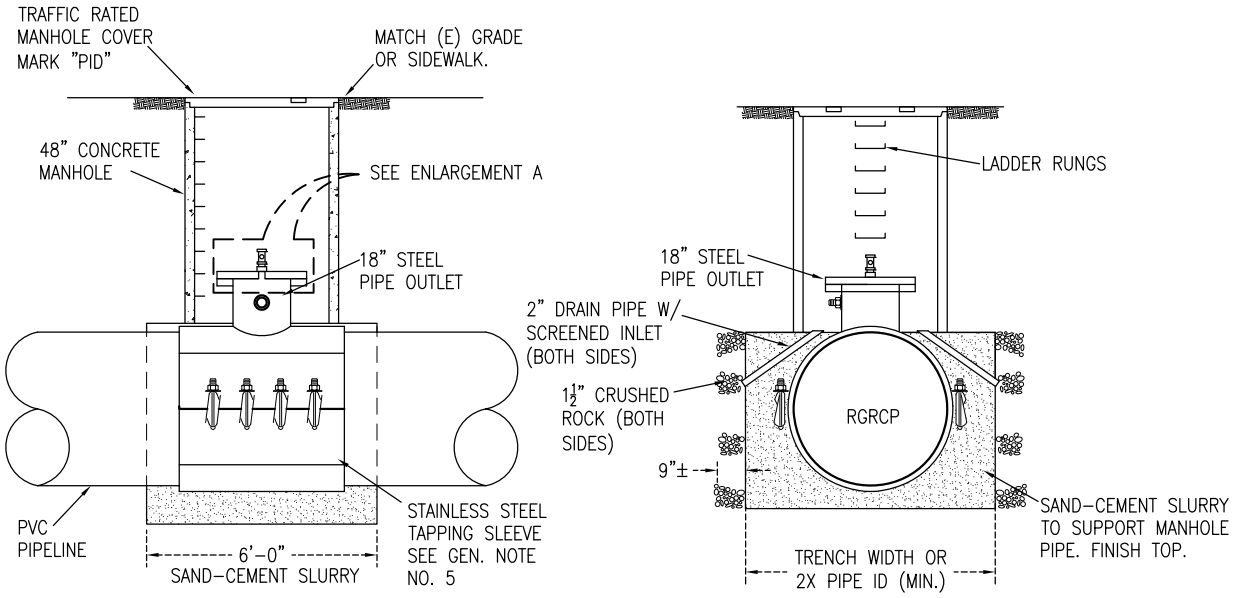
PATTERSON IRRIGATION DISTRICT
PATTERSON CALIFORNIA

STANDARD DETAILS

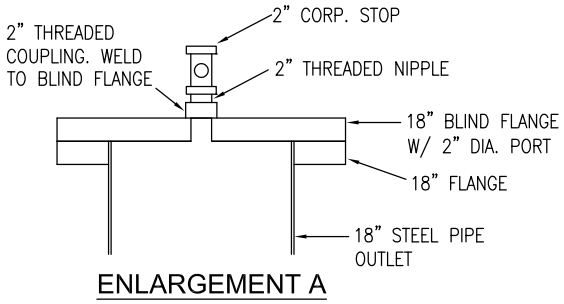
CONCRETE PIPE PRESSURE MANHOLE DETAIL

SUMMERS ENGINEERING INC.
HANFORD Consulting Engineers CALIFORNIA

PATTERSON IRRIGATION DISTRICT		DATE ---	APPROVED
APPROVED		DRAWN NV	DRAWING NO. SD-P-4
DATE		CHECKED JCL	SHEET 7 OF 19
		DRAWING NAME : PID 20011.DWG	



PRESSURE MANHOLE DETAIL



ENLARGEMENT A

GENERAL NOTES

1. ALL CONNECTIONS SHALL BE WATER TIGHT.
2. THIS STANDARD DOES NOT APPLY TO MONOLITHIC CONCRETE PIPE.
3. ALL STEEL PIPE AND FITTINGS SHALL BE IN ACCORDANCE WITH AWWA C-200 ($\frac{1}{4}$" WALL, MINIMUM). ALL STEEL FLANGES SHALL BE IN ACCORDANCE WITH AWWA C-207, CLASS D. ALL PIPES & FLANGES SHALL BE FUSION BONDED EPOXY LINED AND COATED (12 MILS MIN.) IN ACCORDANCE WITH AWWA C-213 AND SHALL INCLUDE NUT/BOLT & GASKET KITS. $\frac{1}{2}$" DOWELS SHALL BE BARE STEEL.
4. DRAIN PIPE INLET SHALL BE FLUSH W/ FINISHED SLURRY SURFACE. PLACE DRAIN ROCK FROM TOP OF SLURRY TO BOTTOM FOR FULL WIDTH OF SLURRY BLOCK.
5. THE STAINLESS STEEL TAPPING SLEEVE SHALL BE MODEL SST III OR STS420 BY ROMAC OR APPROVED EQUAL. ALL NUTS BOLTS AND WASHERS SHALL BE STAINLESS.
6. SEE STANDARD DETAIL NO. SD-M-1 FOR BACKFILL REQUIREMENTS.

EXPLANATION OF SYMBOLS

(E)	EXISTING
SDN	SEE DRAWING NUMBER
RGRCP	RUBBER GASKET REINFORCED CONCRETE PIPE

REGISTERED PROFESSIONAL ENGINEER
JAMES C. I. INNEMAN
NO. 59067
EXP. 6/30/24
CIVIL
STATE OF CALIFORNIA

PATTERSON IRRIGATION DISTRICT
PATTERSON CALIFORNIA

STANDARD DETAILS

PVC PIPE PRESSURE MANHOLE DETAIL

SUMMERS ENGINEERING INC.
HANFORD Consulting Engineers CALIFORNIA

PATTERSON IRRIGATION DISTRICT		DATE ---	APPROVED
APPROVED		DRAWN NV	DRAWING NO. SD-P-5
DATE		CHECKED JCL	SHEET 8 OF 19
		DRAWING NAME : PID 20011.DWG	

GENERAL NOTES

1. REINFORCED CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI. CEMENT SHALL BE TYPE II IN ACCORDANCE WITH ASTM C–150. A MINIMUM OF 5 $\frac{1}{2}$ SACKS OF CEMENT TO EACH CUBIC YARD OF CONCRETE SHALL BE USED.

2. ALL REINFORCING BARS SHALL BE GRADE 60, CONFORMING TO ASTM A–615 OR A–706. ALL REINFORCING BAR BENDS SHALL HAVE A MINIMUM RADIUS OF FOUR BAR DIAMETERS AND SPLICES SHALL BE LAPPED FORTY BAR DIAMETERS.

3. TYPE I TURNOUT BOX MAY BE STACKED NO HIGHER THAN 6 FEET ABOVE GROUND LEVEL. SEE DWG. NO. SD–12 FOR BOXES TALLER THEN 6 FEET ABOVE GROUND LEVEL.

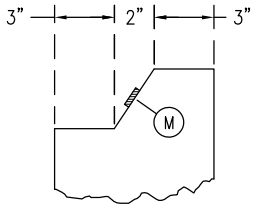
4. ALTERNATE END JOINT DETAILS MAY BE PROPOSED FOR REVIEW.

5. WATERSTOP SHALL BE SIKA HYDROTITE HYDROPHALIC PLACED AROUND OUTSIDE OF ALL PENETRATING PIPES.

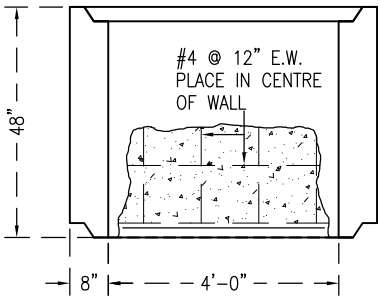
6. SEE DWG. NO. SD–P–1 AND SD–P–2 FOR CONNECTION BLOCK REQUIREMENTS.

7. PRE–CAST CONCRETE TURNOUT BOXES BY MACHADO BACKHOE, INC. ARE ACCEPTABLE FOR THE TYPE I TURNOUT BOX.

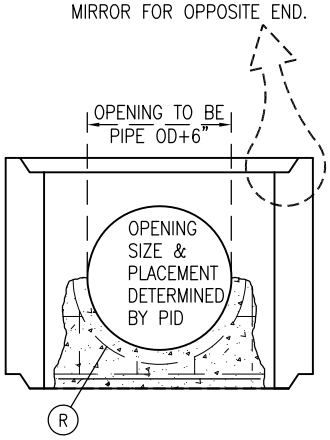
8. SEE DRAWING NUMBER SD–M–1 FOR BACKFILL REQUIREMENTS.



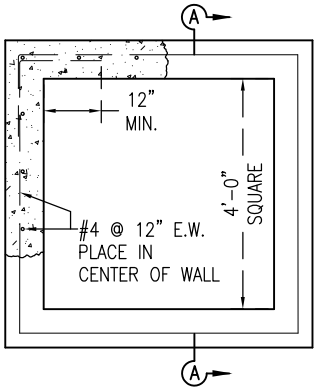
END JOINT DETAIL
MIRROR FOR OPPOSITE END.



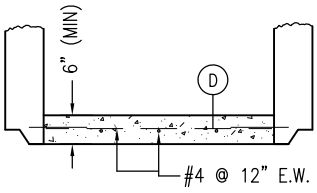
SECTION A-A: NO OPENING



SECTION A-A: WITH OPENING



STANDARD BOX SECTION



FLOOR DETAIL

EXPLANATION OF SYMBOLS

(E)	EXISTING
(M)	1$\frac{1}{2}$" WIDE MASTIC GASKET STRIP BY RAM–NEK OR APPROVED EQUAL
(R)	#5 BAR RING. WELD TO INTERSECTING REINF.
RGRCP	RUBBER GASKET REINFORCED CONCRETE PIPE
SDN	SEE DRAWING NUMBER

REGISTERED PROFESSIONAL ENGINEER
JAMES C. I. INNEMAN
NO. 59067
EXP. 6/30/24
CIVIL
STATE OF CALIFORNIA

PATTERSON IRRIGATION DISTRICT
PATTERSON CALIFORNIA

STANDARD DETAILS

TURNOUT BOX TYPE I

SUMMERS ENGINEERING INC.
HANFORD Consulting Engineers CALIFORNIA

PATTERSON IRRIGATION DISTRICT	DATE ---	APPROVED	
APPROVED	DRAWN FJF	DRAWING NO.	SD–T–1
DATE	CHECKED JCL	SHEET	9 OF 19
	DRAWING NAME : PID 20011.DWG		

GENERAL NOTES

1. REINFORCED CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI. CEMENT SHALL BE TYPE II IN ACCORDANCE WITH ASTM C–150. A MINIMUM OF 5 $\frac{1}{2}$ SACKS OF CEMENT TO EACH CUBIC YARD OF CONCRETE SHALL BE USED.

2. ALL REINFORCING BARS SHALL BE GRADE 60, CONFORMING TO ASTM A–615 OR A–706. ALL REINFORCING BAR BENDS SHALL HAVE A MINIMUM RADIUS OF FOUR BAR DIAMETERS AND SPLICES SHALL BE LAPPED FORTY BAR DIAMETERS.

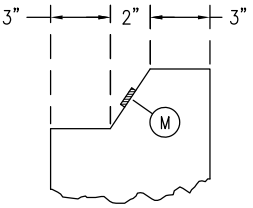
3. TYPE II TURNOUT BOX MAY BE STACKED NO HIGHER THAN 20 FEET ABOVE GROUND LEVEL.

4. ALTERNATE END JOINT DETAILS MAY BE PROPOSED FOR REVIEW.

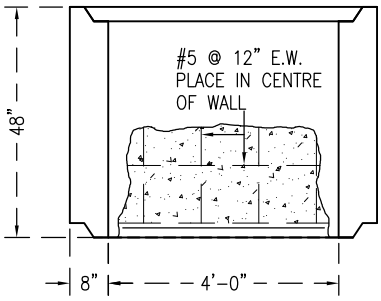
5. WATERSTOP SHALL BE SIKA HYDROTITE HYDROPHALIC PLACED AROUND OUTSIDE OF ALL PENETRATING PIPES.

6. SEE DWG. NO. SD–P–1 AND SD–P–2 FOR CONNECTION BLOCK REQUIREMENTS.

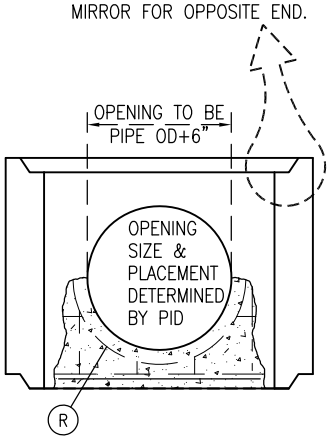
7. SEE DRAWING NUMBER SD–M–1 FOR BACKFILL REQUIREMENTS.



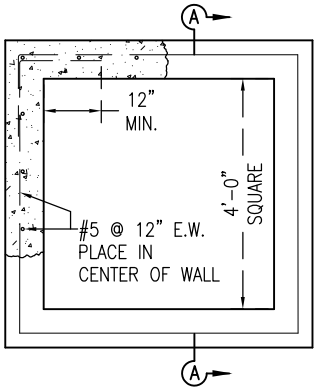
END JOINT DETAIL
MIRROR FOR OPPOSITE END.



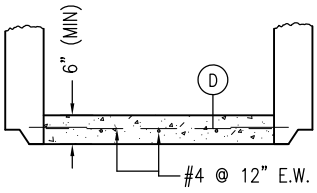
SECTION A-A: NO OPENING



SECTION A-A: WITH OPENING



STANDARD BOX SECTION



FLOOR DETAIL

EXPLANATION OF SYMBOLS

(E)	EXISTING
(M)	$1\frac{1}{2}$" WIDE MASTIC GASKET STRIP BY RAM–NEK OR APPROVED EQUAL
(R)	#5 BAR RING. WELD TO INTERSECTING REINF.
RGRCP	RUBBER GASKET REINFORCED CONCRETE PIPE
SDN	SEE DRAWING NUMBER

REGISTERED PROFESSIONAL ENGINEER
JAMES C. I. INNEMAN
NO. 59067
EXP. 6/30/24
CIVIL
STATE OF CALIFORNIA

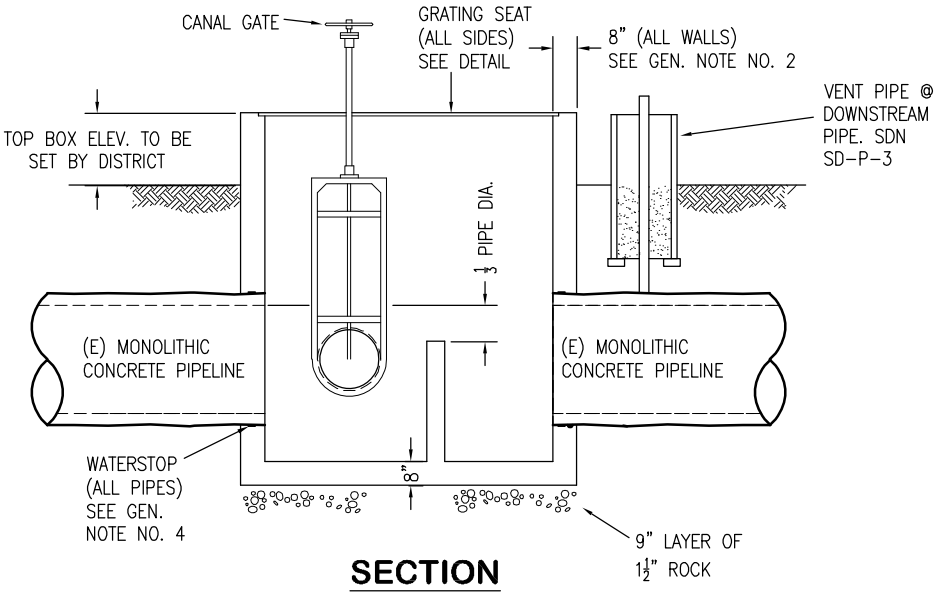
PATTERSON IRRIGATION DISTRICT
PATTERSON CALIFORNIA

STANDARD DETAILS

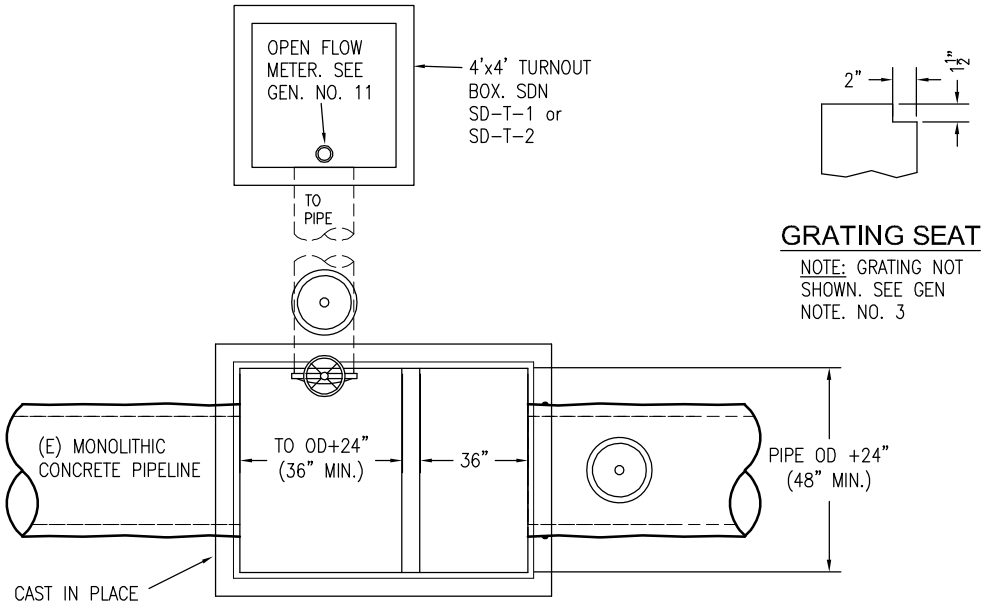
TURNOUT BOX TYPE II

SUMMERS ENGINEERING INC.
HANFORD Consulting Engineers CALIFORNIA

PATTERSON IRRIGATION DISTRICT	DATE ---	APPROVED	
APPROVED	DRAWN FJF	DRAWING NO.	SD–T–2
DATE	CHECKED JCL	SHEET 10	OF 19
	DRAWING NAME : PID 20011.DWG		



SECTION



PLAN

GRATING SEAT

NOTE: GRATING NOT SHOWN. SEE GEN NOTE. NO. 3

GENERAL NOTES

1. REINFORCED CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI. CEMENT SHALL BE TYPE II IN ACCORDANCE WITH ASTM C-150. A MINIMUM OF 6 SACKS OF CEMENT TO EACH CUBIC YARD OF CONCRETE SHALL BE USED.

2. REINF. SHALL BE #5@12" E.W. PLACED IN CTR OF WALLS. ALL REINFORCING BARS SHALL BE GRADE 60, CONFORMING TO ASTM A-615 OR A-706. ALL REINFORCING BAR BENDS SHALL HAVE A MINIMUM RADIUS OF FOUR BAR DIAMETERS AND SPLICES SHALL BE LAPPED FORTY BAR DIAMETERS.

3. GRATING (NOT SHOWN) SHALL BE 19-W-4 W/ 1½" BEARING BARS BY GRATING PACIFIC OR APPROVED EQUAL. GRATING SHALL BE GALVANIZED W/ BANDED ENDS. SLOTS FOR GATE FRAMES SHALL BE PRECUT W/ 1" CLEARANCE ON ALL SIDES.

4. WATERSTOP SHALL BE SIKA HYDROTITE HYDROPHALIC PLACED AROUND OUTSIDE OF ALL PENETRATING PIPES.

5. SUBGRADE TO BE COMPACTED TO 90% MAX DRY DENSITY PER ASTM D-1557 PRIOR TO PLACEMENT OF ROCK.

6. CANAL GATES SHALL BE SUPPLIED BY THE DISTRICT AT THE OWNER'S EXPENSE AND INSTALLED BY THE OWNER.

7. PVC PIPE LATERALS SHALL BE CONNECTED TO CONTROL STRUCTURES WITH A MORRIL INDUSTRIES GALV. STEEL STARTER COUPLING. STARTER COUPLING SHALL BE CAST INTO THE CONTROL BOX.

8. WALL OPENINGS SHALL BE REINFORCED WITH #6 BAR CIRCULAR RING AT OPENING DIA. +6" AND TIED TO WALL REINF.

9. (E) MONOLITHIC PIPE SHALL BE SAW-CUT AND INSPECTED FOR LONGITUDINAL CRACKING PRIOR TO CONSTRUCTION OF THE TURNOUT BOX. IF LONGITUDINAL CRACKS ARE DISCOVERED, CONSTRUCTION SHALL STOP AND THE DISTRICT SHALL BE NOTIFIED.

10. TURNOUT BOX SHALL BE POURED IN PLACE AROUND THE (E) MONOLITHIC PIPE. PRE-CAST BOXES SHALL NOT BE ALLOWED W/O WRITTEN PERMISSION FROM THE DISTRICT.

11. THE OPEN FLOW METER SHALL BE OF-12D BY WATER SPECIALTIES. THE METER SHALL INDICATE IN CUBIC FEET PER SECOND AND TOTALIZE IN ACRE FEET. METER LENGTH SHALL BE SET SO THAT PROPELLER IS CENTERED IN THE PIPE AND THE METER HEAD IS READABLE FROM THE TOP OF THE BOX.

12. SEE DRAWING NO. SD-M-1 FOR BACKFILL REQUIREMENTS.

13. SEE DRAWING NO. SD-M-3 FOR RAILING AND LADDER REQUIREMENTS.

REGISTERED PROFESSIONAL ENGINEER JAMES C. LINNEMAN NO. 59067 EXP. 6/30/24 CIVIL STATE OF CALIFORNIA

EXPLANATION OF SYMBOLS

(E)	EXISTING
SDN	SEE DRAWING NUMBER
RGRCP	RUBBER GASKET REINFORCED CONCRETE PIPE

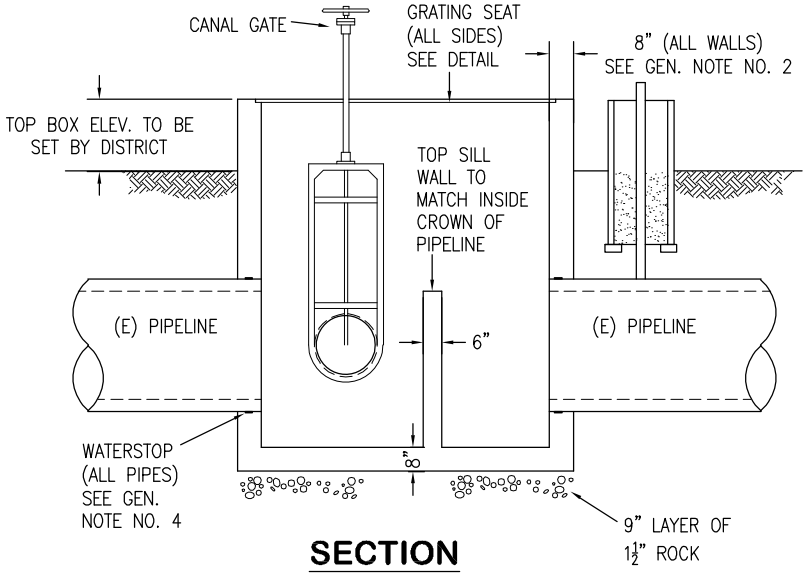
PATTERSON IRRIGATION DISTRICT
PATTERSON CALIFORNIA

STANDARD DETAILS

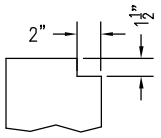
MONOLITHIC CONCRETE PIPE TURNOUT INSTALLATION

SUMMERS ENGINEERING INC.
HANFORD Consulting Engineers CALIFORNIA

PATTERSON IRRIGATION DISTRICT		DATE ---	APPROVED
APPROVED		DRAWN FJF	DRAWING NO. SD-T-3
DATE		CHECKED JCL	SHEET 11 OF 19
		DRAWING NAME : PID 20011.DWG	

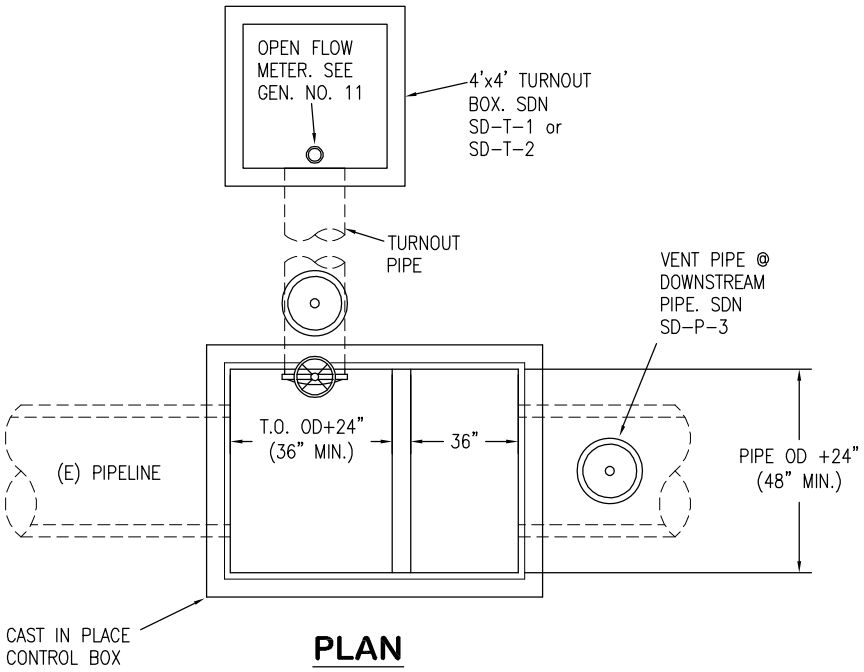


SECTION



GRATING SEAT

NOTE: GRATING NOT SHOWN. SEE GEN NOTE. NO. 3



PLAN

GENERAL NOTES

1. REINFORCED CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI. CEMENT SHALL BE TYPE II IN ACCORDANCE WITH ASTM C-150. A MINIMUM OF 6 SACKS OF CEMENT TO EACH CUBIC YARD OF CONCRETE SHALL BE USED.

2. REINF. SHALL BE #5@12" E.W. PLACED IN CTR OF WALLS. ALL REINFORCING BARS SHALL BE GRADE 60, CONFORMING TO ASTM A-615 OR A-706. ALL REINFORCING BAR BENDS SHALL HAVE A MINIMUM RADIUS OF FOUR BAR DIAMETERS AND SPLICES SHALL BE LAPPED FORTY BAR DIAMETERS.

3. GRATING (NOT SHOWN) SHALL BE 19-W-4 W/ 1½" BEARING BARS BY GRATING PACIFIC OR APPROVED EQUAL. GRATING SHALL BE GALVANIZED W/ BANDED ENDS. SLOTS FOR GATE FRAMES SHALL BE PRECUT W/ 1" CLEARANCE ON ALL SIDES.

4. WATERSTOP SHALL BE SIKA HYDROTITE HYDROPHALIC PLACED AROUND OUTSIDE OF ALL PENETRATING PIPES.

5. SUBGRADE TO BE COMPACTED TO 90% MAX DRY DENSITY PER ASTM D-1557 PRIOR TO PLACEMENT OF ROCK.

6. CANAL GATES SHALL BE SUPPLIED BY THE DISTRICT AT THE OWNER'S EXPENSE AND INSTALLED BY THE OWNER.

7. PVC PIPELINES SHALL BE CONNECTED TO STRUCTURES WITH A MORRIL INDUSTRIES GALV. STEEL STARTER COUPLING. STARTER COUPLING SHALL BE CAST INTO THE STRUCTURE.

8. WALL OPENINGS SHALL BE REINFORCED WITH #6 BAR CIRCULAR RING AT OPENING DIA. +6" AND TIED TO WALL REINF.

9. THIS STNADARD DOES NOT APPLY TO MONOLITHIC CONCRETE PIPELINES. SEE DWG. NO. SD-8 FOR MONOLITHIC CONCRETE PIPE TURNOUTS.

10. TURNOUT BOX SHALL BE POURED IN PLACE AROUND THE (E) PIPELINE. PRE-CAST BOXES SHALL NOT BE ALLOWED W/O WRITTEN PERMISSION FROM THE DISTRICT.

11. THE OPEN FLOW METER SHALL BE OF-12D BY WATER SPECIALTIES. THE METER SHALL INDICATE IN CUBIC FEET PER SECOND AND TOTALIZE IN ACRE FEET. METER LENGTH SHALL BE SET SO THAT PROPELLER IS CENTERED IN THE PIPE AND THE METER HEAD IS READABLE FROM THE TOP OF THE BOX.

12. SEE DRAWING NO. SD-M-1 FOR BACKFILL REQUIREMENTS.

13. SEE DRAWING NO. SD-M-3 FOR RAILING AND LADDER REQUIREMENTS.

REGISTERED PROFESSIONAL ENGINEER JAMES C. LINNEMAN NO. 59067 EXP. 6/30/24 CIVIL STATE OF CALIFORNIA

EXPLANATION OF SYMBOLS

(E)	EXISTING
SDN	SEE DRAWING NUMBER
RGRCP	RUBBER GASKET REINFORCED CONCRETE PIPE

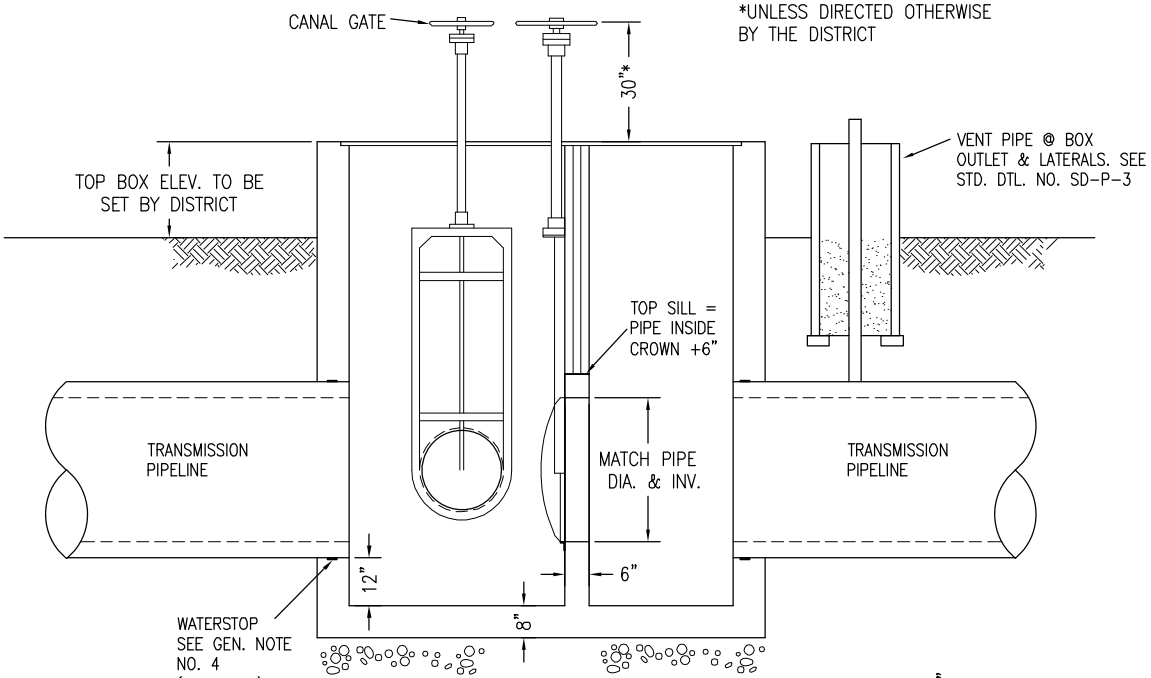
PATTERSON IRRIGATION DISTRICT
PATTERSON CALIFORNIA

STANDARD DETAILS

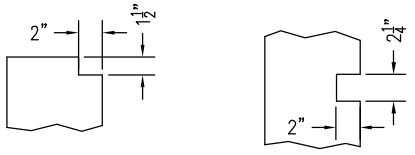
PIPELINE TURNOUT INSTALLATION

SUMMERS ENGINEERING INC.
HANFORD Consulting Engineers CALIFORNIA

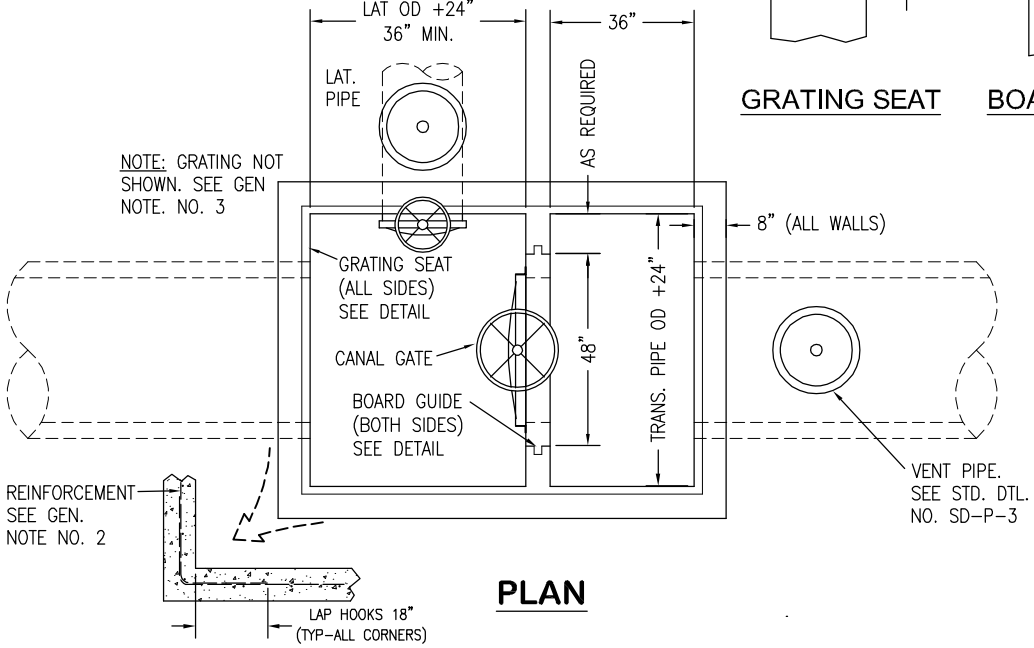
PATTERSON IRRIGATION DISTRICT		DATE ---	APPROVED
APPROVED		DRAWN FJF	DRAWING NO. SD-T-4
DATE		CHECKED JCL	SHEET 12 OF 19
		DRAWING NAME : PID 20011.DWG	



SECTION



GRATING SEAT BOARD GUIDE



PLAN

REGISTERED PROFESSIONAL ENGINEER JAMES C. TINNEMAN NO. 59067 EXP. 6/30/24 CIVIL STATE OF CALIFORNIA

GENERAL NOTES

1. REINFORCED CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI. CEMENT SHALL BE TYPE II IN ACCORDANCE WITH ASTM C-150. A MINIMUM OF 6 SACKS OF CEMENT TO EACH CUBIC YARD OF CONCRETE SHALL BE USED.
2. REINF. SHALL BE #5@12" E.W. PLACED IN CTR OF WALLS. ALL REINFORCING BARS SHALL BE GRADE 60, CONFORMING TO ASTM A-615 OR A-706. ALL REINFORCING BAR BENDS SHALL HAVE A MINIMUM RADIUS OF FOUR BAR DIAMETERS AND SPLICES SHALL BE LAPPED FORTY BAR DIAMETERS.
3. GRATING (NOT SHOWN) SHALL BE 19-W-4 W/1½" BEARING BARS BY GRATING PACIFIC OR APPROVED EQUAL. GRATING SHALL BE GALVANIZED W/ BANDED ENDS. SLOTS FOR GATE FRAMES AND METER SHALL BE PRECUT W/ 1" CLEARANCE ON ALL SIDES.
4. WATERSTOP SHALL BE SIKA HYDROTITE HYDROPHALIC PLACED AROUND OUTSIDE OF ALL PENETRATING PIPES & AT ALL COLD JOINTS.
5. SUBGRADE TO BE COMPACTED TO 90% MAX DRY DENSITY PER ASTM D-1557 PRIOR TO PLACEMENT OF ROCK.
6. SEE STANDARD DETAIL NO. SD-M-1 FOR BACKFILL REQUIREMENTS.
7. CANAL GATES SHALL BE SUPPLIED & INSTALLED BY THE DISTRICT AT THE OWNER'S EXPENSE. CANAL GATES SHALL BE 101-C BY FRESNO VALVES & CASTINGS.
8. PVC PIPE LATERALS SHALL BE CONNECTED TO CONTROL STRUCTURES WITH A MORRIL INDUSTRIES GALV. STEEL STARTER COUPLING. STARTER COUPLING SHALL BE CAST INTO THE CONTROL BOX.
9. WALL OPENINGS SHALL BE REINFORCED WITH #6 BAR CIRCULAR RING AT OPENING DIA. +6" AND TIED TO WALL REINF.
10. SEE DWG. NO. SD-P-1 AND SD-P-2 FOR CONNECTION BLOCKS AS REQUIRED.
11. CONTROL BOX MAX. DEPTH UNDER THIS STANDARD SHALL NOT EXCEED 10 FEET BELOW GROUND NOR 6 FEET ABOVE GROUND. SEE SD-6 FOR LARGE CONTROL BOX REQUIREMENTS.
12. PROVIDE RAILING & LADDERS TO ALL CONTROL BOXES THAT EXTEND 2' OR MORE ABOVE GRADE. SEE DWG. NO. SD-M-3

EXPLANATION OF SYMBOLS

(E)	EXISTING
SDN	SEE DRAWING NUMBER
RGRCP	RUBBER GASKET REINFORCED CONCRETE PIPE

PATTERSON IRRIGATION DISTRICT
PATTERSON CALIFORNIA

STANDARD DETAILS

STANDARD PIPELINE CONTROL BOX

SUMMERS ENGINEERING INC.
HANFORD Consulting Engineers CALIFORNIA

PATTERSON IRRIGATION DISTRICT		DATE ---	APPROVED
APPROVED		DRAWN FJF	DRAWING NO. SD-S-1
DATE		CHECKED JCL	SHEET 13 OF 19
		DRAWING NAME : PID 20011.DWG	

GENERAL NOTES

1. REINFORCED CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI. CEMENT SHALL BE TYPE II IN ACCORDANCE WITH ASTM C-150. A MINIMUM OF 6 SACKS OF CEMENT TO EACH CUBIC YARD OF CONCRETE SHALL BE USED.

2. ALL REINFORCING BARS SHALL BE GRADE 60, CONFORMING TO ASTM A-615 OR A-706. ALL REINFORCING BAR BENDS SHALL HAVE A MINIMUM RADIUS OF FOUR BAR DIAMETERS AND SPLICES SHALL BE LAPPED FORTY BAR DIAMETERS.

3. CONTROL BOXES EXCEEDING ANY OF THE DIMENSIONS LIMITS SHOWN REQUIRE ANALYSIS BY A LICENSED ENGINEER AND APPROVAL FROM THE DISTRICT.

4. GRATING (NOT SHOWN) SHALL BE 19-W-4 W/ 1½" BEARING BARS BY GRATING PACIFIC OR APPROVED EQUAL. GRATING SHALL BE GALVANIZED W/ BANDED ENDS. SLOTS FOR GATE FRAMES AND METER SHALL BE PRECUT W/ 1" CLEARANCE ON ALL SIDES.

5. WATERSTOP SHALL BE SIKA HYDROTITE HYDROPHALIC PLACED AROUND OUTSIDE OF ALL PENETRATING PIPES & AT ALL COLD JOINTS.

6. SUBGRADE TO BE COMPACTED TO 90% MAX DRY DENSITY PER ASTM D-1557 PRIOR TO PLACEMENT OF ROCK.

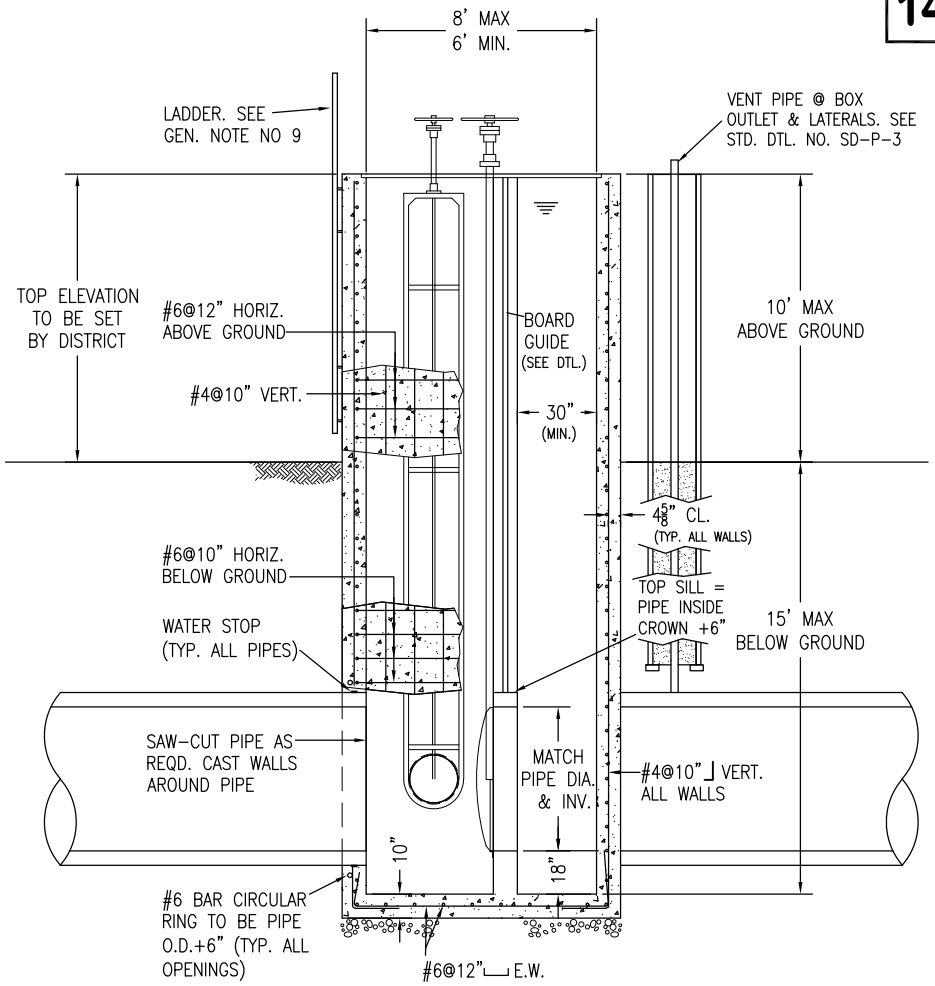
7. CANAL GATES SHALL BE SUPPLIED & INSTALLED BY THE DISTRICT AT THE OWNER'S EXPENSE.

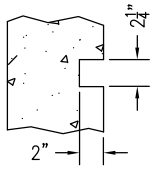
8. PVC PIPE LATERALS SHALL BE CONNECTED TO CONTROL STRUCTURES WITH A MORRIL INDUSTRIES GALV. STEEL STARTER COUPLING. STARTER COUPLING SHALL BE CAST INTO THE CONTROL BOX.

9. LADDERS AND RAILING ARE REQUIRED. SEE DWG. NO SD-M-3.

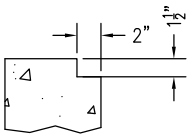
10. SEE DRAWING NO. SD-M-1 FOR BACKFILL REQUIREMENTS.

11. SEE DRAWING NO. SD-P-1 AND SD-P-2 FOR CONNECTION BLOCK DETAILS AS REQUIRED.

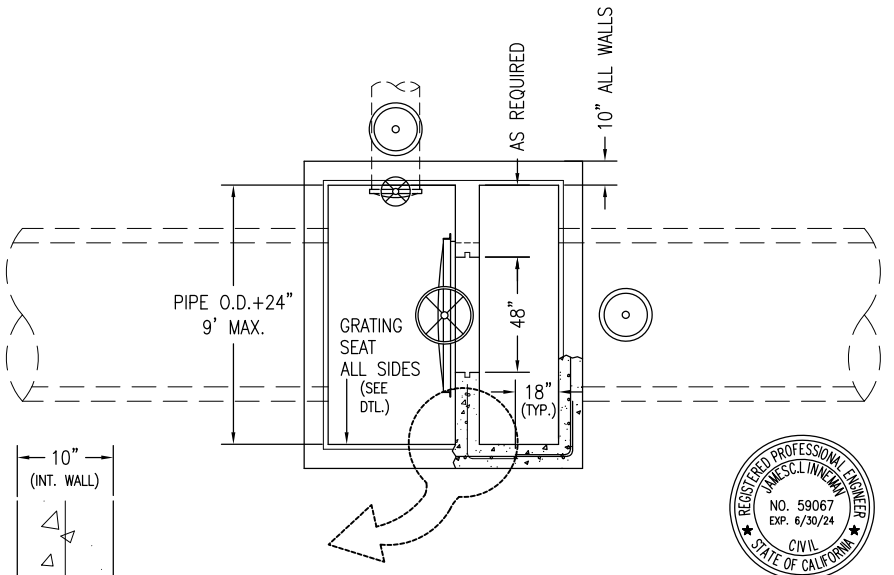


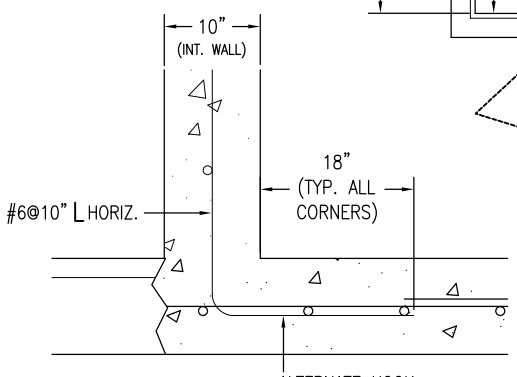


BOARD GUIDE



GRATING SEAT





REGISTERED PROFESSIONAL ENGINEER JAMES C. L. INNCMAN NO. 59067 EXP. 6/30/24 CIVIL STATE OF CALIFORNIA

EXPLANATION OF SYMBOLS

(E)	EXISTING
SDN	SEE DRAWING NUMBER
RGRCP	RUBBER GASKET REINFORCED CONCRETE PIPE

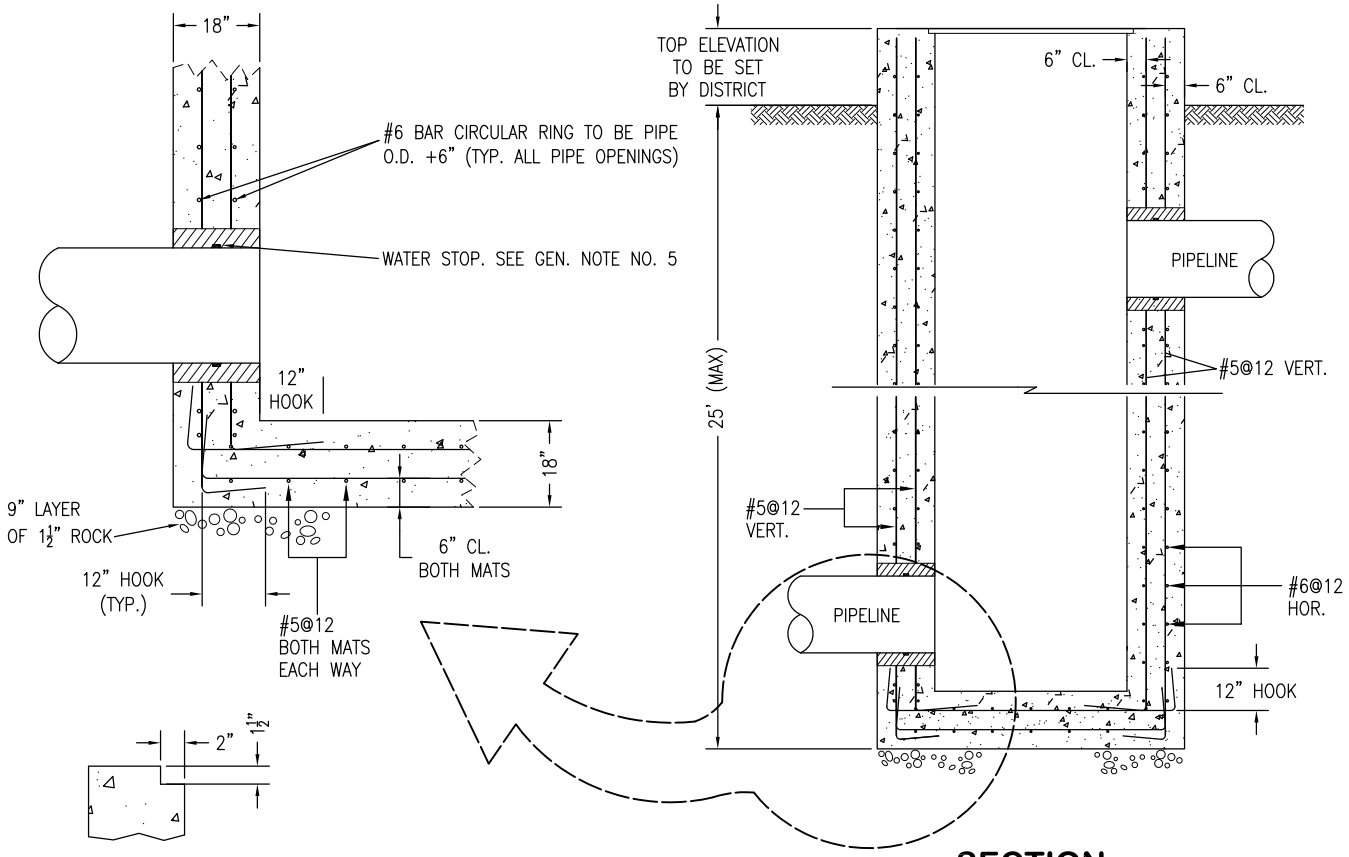
PATTERSON IRRIGATION DISTRICT
PATTERSON CALIFORNIA

STANDARD DETAILS

LARGE CONTROL BOX

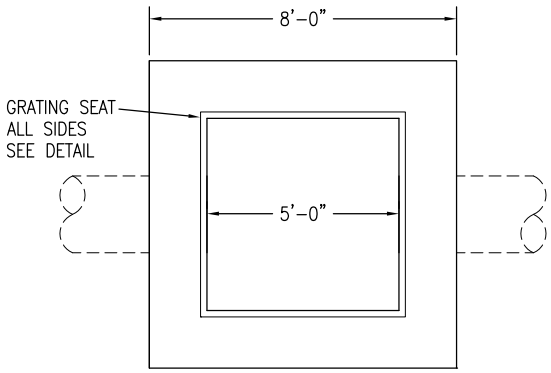
SUMMERS ENGINEERING INC.
HANFORD Consulting Engineers CALIFORNIA

PATTERSON IRRIGATION DISTRICT		DATE ---	APPROVED
APPROVED		DRAWN FJF	DRAWING NO. SD-S-2
DATE		CHECKED JCL	SHEET 14 OF 19
		DRAWING NAME : PID 20011.DWG	



GRATING SEAT

SECTION



PLAN

GENERAL NOTES

1. REINFORCED CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI. CEMENT SHALL BE TYPE II IN ACCORDANCE WITH ASTM C-150. A MINIMUM OF 6 SACKS OF CEMENT TO EACH CUBIC YARD OF CONCRETE SHALL BE USED.

2. ALL REINFORCING BARS SHALL BE GRADE 60, CONFORMING TO ASTM A-615 OR A-706. ALL REINFORCING BAR BENDS SHALL HAVE A MINIMUM RADIUS OF FOUR BAR DIAMETERS AND SPLICES SHALL BE LAPPED FORTY BAR DIAMETERS.

3. STRUCTURES EXCEEDING ANY OF THE DIMENSIONS LIMITS SHOWN REQUIRE ANALYSIS BY A LICENSED ENGINEER AND APPROVAL FROM THE DISTRICT.

4. GRATING (NOT SHOWN) SHALL BE 19-W-4 W/ 1½" BEARING BARS BY GRATING PACIFIC OR APPROVED EQUAL. GRATING SHALL BE GALVANIZED W/ BANDED ENDS. SLOTS FOR GATE FRAMES AND METER SHALL BE PRECUT W/ 1" CLEARANCE ON ALL SIDES.

5. WATERSTOP SHALL BE SIKA HYDROTITE HYDROPHALIC PLACED AROUND OUTSIDE OF ALL PENETRATING PIPES & AT ALL COLD JOINTS.

6. SUBGRADE TO BE COMPACTED TO 90% MAX DRY DENSITY PER ASTM D-1557 PRIOR TO PLACEMENT OF ROCK SDN SD-M-1.

7. CANAL GATES SHALL BE SUPPLIED & INSTALLED BY THE DISTRICT AT THE OWNER'S EXPENSE.

8. SEE DWG. NO. SD-P-1 OR SD-P-2 FOR CONNECTION DETAILS.

9. PROVIDE RAILING & LADDERS TO ALL CONTROL BOXES THAT EXTEND 2' OR MORE ABOVE GRADE. SEE DWG. NO. SD-M-3.

EXPLANATION OF SYMBOLS

(E)	EXISTING
SDN	SEE DRAWING NUMBER
RGRCP	RUBBER GASKET REINFORCED CONCRETE PIPE

REGISTERED PROFESSIONAL ENGINEER JAMES C. LINNEMAN NO. 59067 EXP. 6/30/24 CIVIL STATE OF CALIFORNIA

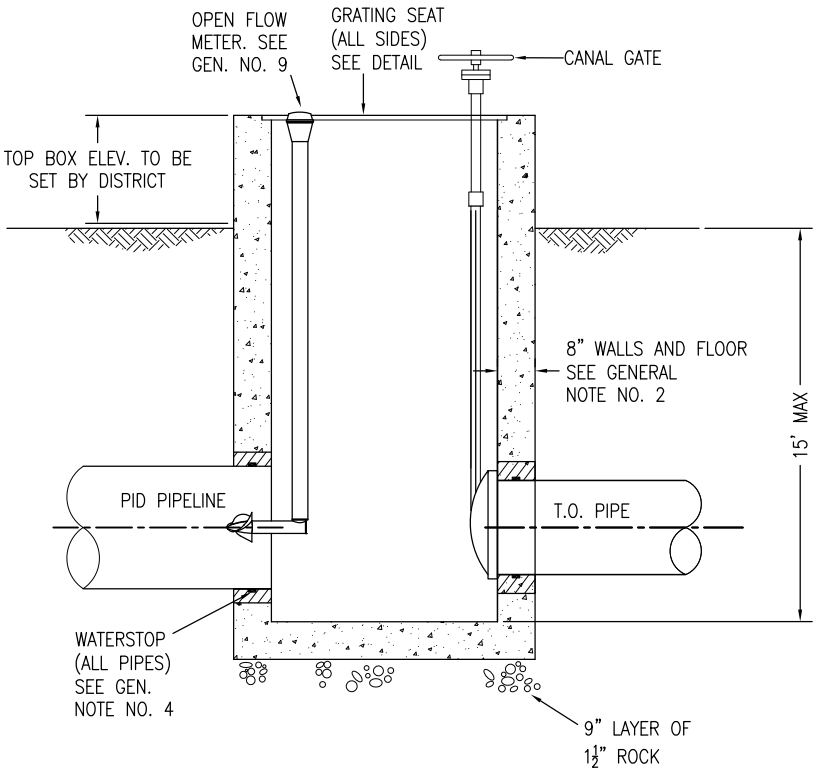
PATTERSON IRRIGATION DISTRICT
PATTERSON CALIFORNIA

STANDARD DETAILS

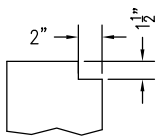
DEEP BOX DETAILS

SUMMERS ENGINEERING INC.
HANFORD Consulting Engineers CALIFORNIA

PATTERSON IRRIGATION DISTRICT	DATE AUG 2023	APPROVED
APPROVED	DRAWN NV	DRAWING NO. SD-S-3
DATE	CHECKED JCL	SHEET 15 OF 19
	DRAWING NAME : PID 20011.DWG	

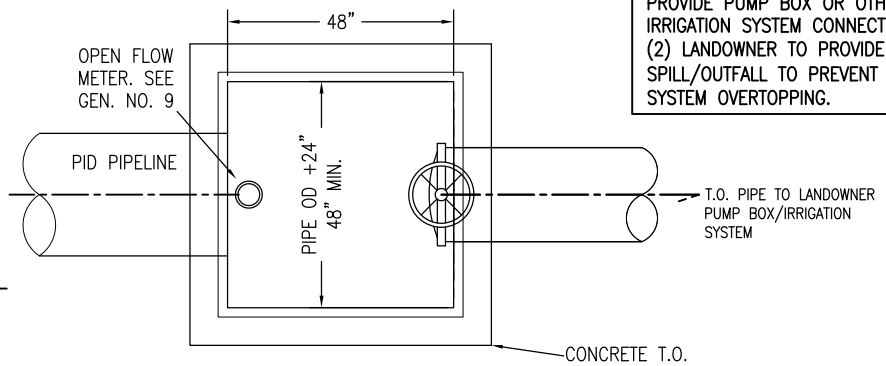


SECTION



GRATING SEAT

NOTE: GRATING NOT SHOWN. SEE GEN NOTE. NO. 3



PLAN

NOTE: (1) LANDOWNER TO PROVIDE PUMP BOX OR OTHER IRRIGATION SYSTEM CONNECTION. (2) LANDOWNER TO PROVIDE SPILL/OUTFALL TO PREVENT SYSTEM OVERTOPPING.

EXPLANATION OF SYMBOLS

(E)	EXISTING
SDN	SEE DRAWING NUMBER
RGRCP	RUBBER GASKET REINFORCED CONCRETE PIPE

REGISTERED PROFESSIONAL ENGINEER JAMES C. LINNEMAN NO. 59067 EXP. 6/30/24 CIVIL STATE OF CALIFORNIA

GENERAL NOTES

1. REINFORCED CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI. CEMENT SHALL BE TYPE II IN ACCORDANCE WITH ASTM C-150. A MINIMUM OF 6 SACKS OF CEMENT TO EACH CUBIC YARD OF CONCRETE SHALL BE USED.

2. REINF. SHALL BE #5@12" E.W. PLACED IN CTR OF WALLS. ALL REINFORCING BARS SHALL BE GRADE 60, CONFORMING TO ASTM A-615 OR A-706. ALL REINFORCING BAR BENDS SHALL HAVE A MINIMUM RADIUS OF FOUR BAR DIAMETERS AND SPLICES SHALL BE LAPPED FORTY BAR DIAMETERS.

3. GRATING (NOT SHOWN) SHALL BE 19-W-4 W/ 1½" BEARING BARS BY GRATING PACIFIC OR APPROVED EQUAL. GRATING SHALL BE GALVANIZED W/ BANDED ENDS. SLOTS FOR GATE FRAMES SHALL BE PRECUT W/ 1" CLEARANCE ON ALL SIDES.

4. WATERSTOP SHALL BE SIKA HYDROTITE HYDROPHALIC PLACED AROUND OUTSIDE OF ALL PENETRATING PIPES & COLD JOINTS.

5. SUBGRADE TO BE COMPACTED TO 90% MAX DRY DENSITY PER ASTM D-1557 PRIOR TO PLACEMENT OF ROCK.

6. CANAL GATES SHALL BE SUPPLIED BY THE DISTRICT AT THE OWNER'S EXPENSE AND INSTALLED BY THE OWNER.

7. PVC PIPE LATERALS SHALL BE CONNECTED TO CONTROL STRUCTURES WITH A MORRIL INDUSTRIES GALV. STEEL STARTER COUPLING. STARTER COUPLING SHALL BE CAST INTO THE CONTROL BOX.

8. WALL OPENINGS SHALL BE REINFORCED WITH #6 BAR CIRCULAR RING AT OPENING DIA. +6" AND TIED TO WALL REINF.

9. THE OPEN FLOW METER SHALL BE OF-12D BY WATER SPECIALTIES. THE METER SHALL INDICATE IN CUBIC FEET PER SECOND AND TOTALIZE IN ACRE FEET. METER LENGTH SHALL BE SET SO THAT PROPELLER IS CENTERED IN THE PIPE AND THE METER HEAD IS READABLE FROM THE TOP OF THE BOX.

10. IF (E) PIPELINE IS 24" OR SMALLER, TURNOUT BOX TYPE I OR II MAY BE USED. SEE DWG. NO. SD-T-1 & SD-T-2.

11. SEE DWG. NO. SD-M-1 FOR BACKFILL REQUIREMENTS.

12. PROVIDE RAILING & LADDERS TO ALL BOXES THAT EXTEND 2' OR MORE ABOVE GRADE. SEE DWG. NO. SD-M-3

13. BOXES EXCEEDING ANY OF THE DIMENSIONS LIMITS SHOWN REQUIRE ANALYSIS BY A LICENSED ENGINEER AND APPROVAL FROM THE DISTRICT.

SPECIAL NOTE: THIS DETAIL APPLIES ONLY TO TURNOUTS AT THE END OF A PIPELINE.

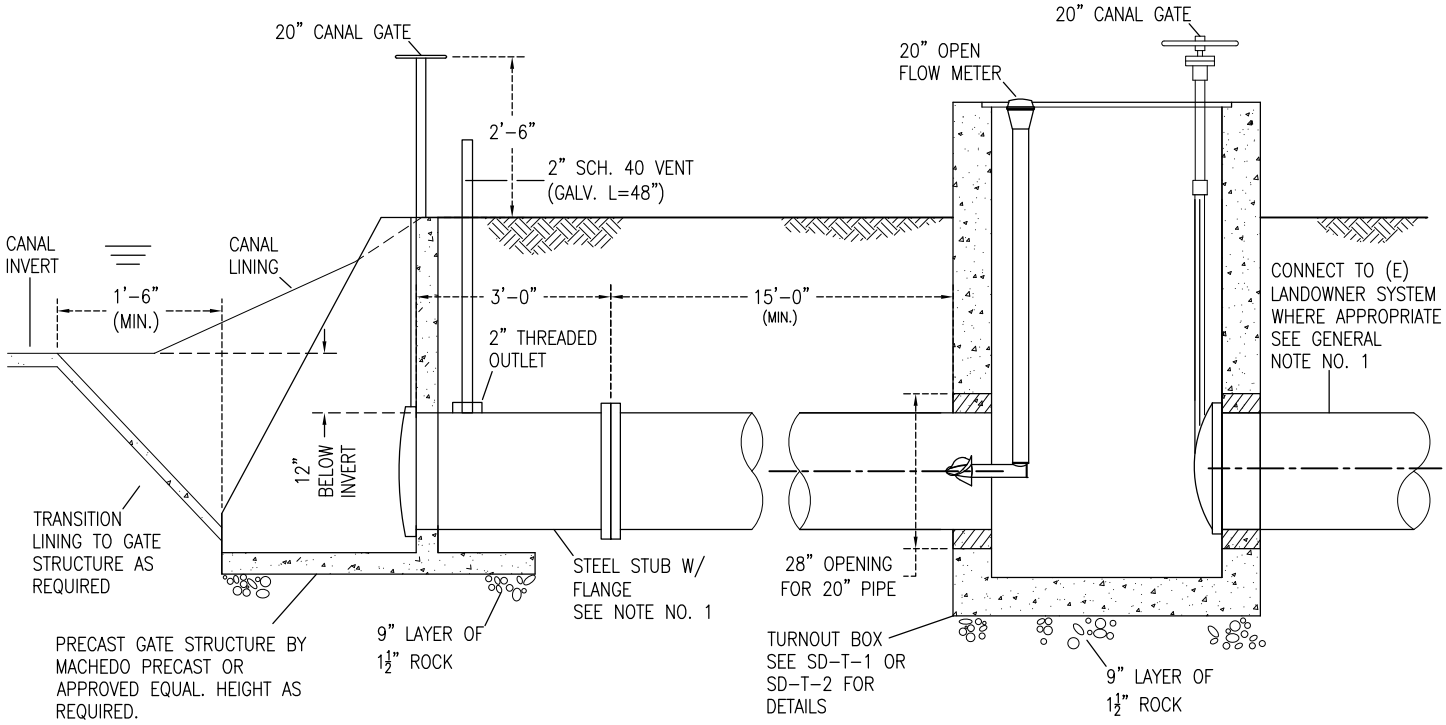
PATTERSON IRRIGATION DISTRICT
PATTERSON CALIFORNIA

STANDARD DETAILS

END OF PIPELINE TURNOUT INSTALLATION

SUMMERS ENGINEERING INC.
HANFORD Consulting Engineers CALIFORNIA

PATTERSON IRRIGATION DISTRICT	DATE ---	APPROVED	
APPROVED	DRAWN FJF	DRAWING NO.	SD-S-4
DATE	CHECKED JCL	SHEET 16	OF 19
	DRAWING NAME : PID 20011.DWG		



CANAL TURNOUT DETAIL

GENERAL NOTES

1. TURNOUT METER BOXES SHALL BE CONNECTED TO (E) LANDOWNER IRRIGATION SYSTEMS. CONTRACTOR SHALL MATCH THE EXISTING SYSTEM PIPE MATERIAL AND DIMENSIONS. WHERE METER BOX CONNECTIONS ARE BELOW GROUND, THE DISTRICT SHALL PROVIDE CANAL GATES FOR THE CONTRACTOR TO INSTALL.

2. LANDOWNER TO PROVIDE FLOW METER. OPEN FLOW METER SHALL BE OF-12 BY WATER SPECIALTIES OR APPROVED EQUAL. THE METER SHALL INDICATE IN CUBIC FEET PER SECOND AND TOTALIZE IN ACRE FEET.

3. ALL CONNECTIONS TO STRUCTURES SHALL BE WATER-TIGHT.

4. ALL STEEL PIPE AND FITTINGS SHALL BE IN ACCORDANCE WITH AWWA C-200 ($\frac{1}{4}$" WALL, MINIMUM). ALL STEEL FLANGES SHALL BE IN ACCORDANCE WITH AWWA C-207, CLASS D. ALL PIPES, FLANGES, AND MECHANICAL COUPLINGS SHALL BE FUSION BONDED EPOXY LINED AND COATED (12 MILS MIN.) IN ACCORDANCE WITH AWWA C-213 AND ENCASED IN A POLYETHYLENE BAG.

5. REPLACEMENT CONCRETE LINING SHALL DEVELOP MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI. A MINIMUM OF 5$\frac{1}{2}$ SACKS OF CEMENT TO EACH CUBIC YARD OF CONCRETE SHALL BE USED. CEMENT SHALL BE TYPE II AND CONFORM TO ASTM C-150. THE MAXIMUM NOMINAL SIZE OF THE COARSE AGGREGATE SHALL BE $\frac{3}{4}$". NOVAMESH 950, NYCONXL OR APPROVED EQUAL SHALL BE ADDED TO EACH CUBIC YARD OF CONCRETE AT THE RATE RECOMMENDED BY THE MANUFACTURER. REPLACEMENT CONCRETE LINING SHALL BE 3" THICK, MINIMUM.

6. COMPACT SUBGRADE TO 90% MAX. DRY DENSITY PER ASTM D-1557 PRIOR TO THE PLACEMENT OF ROCK.

7. SEE STANDARD DETAIL NO. SD-M-1 FOR BACKFILL REQUIREMENTS.

EXPLANATION OF SYMBOLS

(E)	EXISTING
SDN	SEE DRAWING NUMBER
RGRCP	RUBBER GASKET REINFORCED CONCRETE PIPE

REGISTERED PROFESSIONAL ENGINEER
JAMES C. LINNEMAN
NO. 59067
EXP. 6/30/24
CIVIL
STATE OF CALIFORNIA

PATTERSON IRRIGATION DISTRICT
PATTERSON CALIFORNIA

STANDARD DETAILS

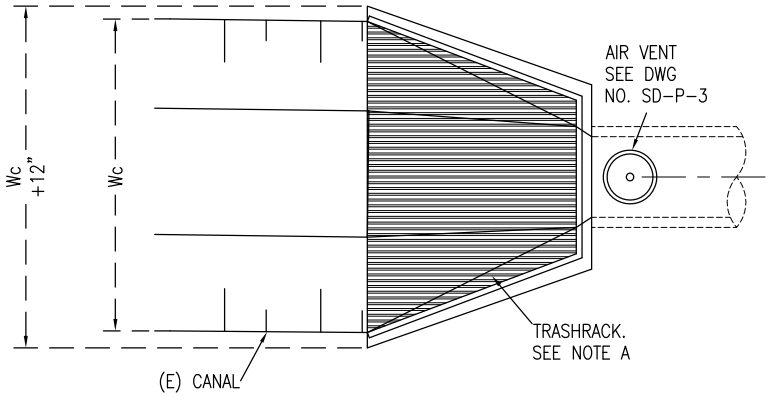
CANAL TURNOUT DETAIL

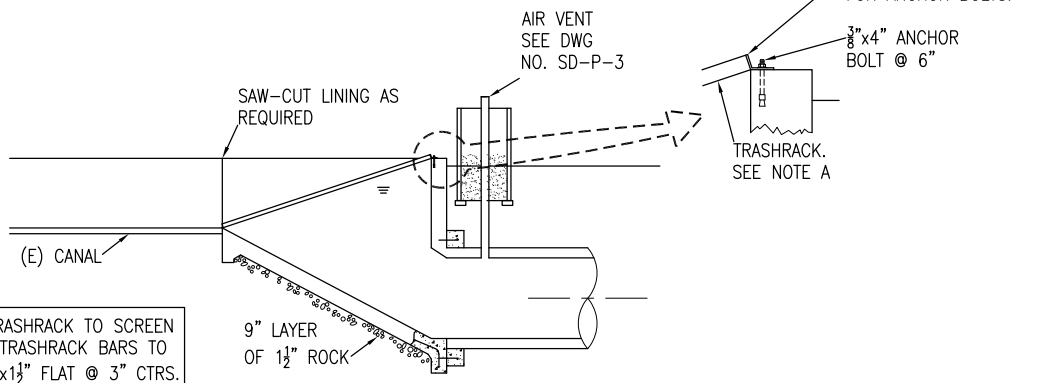
SUMMERS ENGINEERING INC.
HANFORD Consulting Engineers CALIFORNIA

PATTERSON IRRIGATION DISTRICT	DATE ---	APPROVED	
APPROVED	DRAWN FJF	DRAWING NO.	SD-C-1
DATE	CHECKED JCL	SHEET 17	OF 19
	DRAWING NAME : PID 20011.DWG		

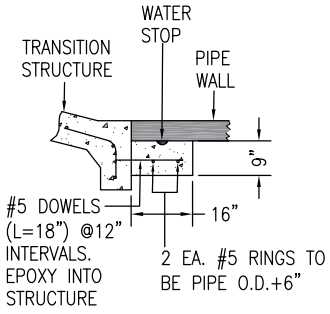
GENERAL NOTES

1. PROVIDE ALL SHEETING, SHORING, BRACING, SLOPPING, OR OTHER METHODS FOR REQUIRED WORKER SAFETY AND PROTECTION.
2. REINFORCED CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI. CEMENT SHALL BE TYPE II IN ACCORDANCE WITH ASTM C-150. A MINIMUM OF 5 $\frac{1}{2}$ SACKS OF CEMENT TO EACH CUBIC YARD OF CONCRETE SHALL BE USED.
3. ALL REINFORCING BARS SHALL BE GRADE 60, CONFORMING TO ASTM A-615. ALL REINFORCING BAR BENDS SHALL HAVE A MINIMUM RADIUS OF FOUR BAR DIAMETERS AND SPLICES SHALL BE LAPPED FORTY BAR DIAMETERS.
4. CHAMFER ALL EXPOSED CORNERS OF CONCRETE 1"±. HAUNCH ALL INTERIOR CORNERS OF CONCRETE 1"± EXCEPT WHERE NOTED OTHERWISE.
5. SAW-CUT AND REMOVE EXISTING LINING AS REQUIRED. REPLACEMENT LINING SHALL BE 4" THICK (MIN.) AND REINFORCED WITH FIBER MESH (OR APPROVED EQUAL) TO MANUFACTURER'S STANDARDS.
6. WATER STOP SHALL BE SIKA HYDROTITE HYDROPHALIC PLACED AROUND OUTSIDE OF ALL PENETRATING PIPES.
7. SEE STANDARD DETAIL NO. SD-M-1 FOR BACKFILL REQUIREMENTS.

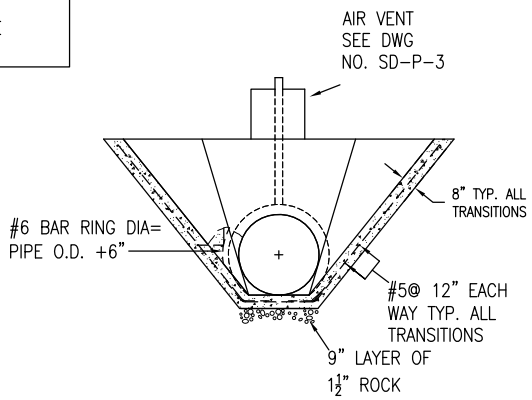




NOTE A: PROVIDE TRASHRACK TO SCREEN INLET TO PIPELINE. TRASHRACK BARS TO BE ½" ROUND OR ⅜"x1½" FLAT @ 3" CTRS. BARS TO BE WELDED TO STEEL FRAME AND ANCHORED TO TRANSITION STRUCTURE. TRASHRACK SHALL BE GALVANIZED AFTER FABRICATION.



TRANSITION STRUCTURE



EXPLANATION OF SYMBOLS

(E)	EXISTING
SDN	SEE DRAWING NUMBER
RGRCP	RUBBER GASKET REINFORCED CONCRETE PIPE

TRANSITION STRUCTURE DETAILS

REGISTERED PROFESSIONAL ENGINEER JAMES C. LINNEMAN NO. 59067 EXP. 6/30/24 CIVIL STATE OF CALIFORNIA

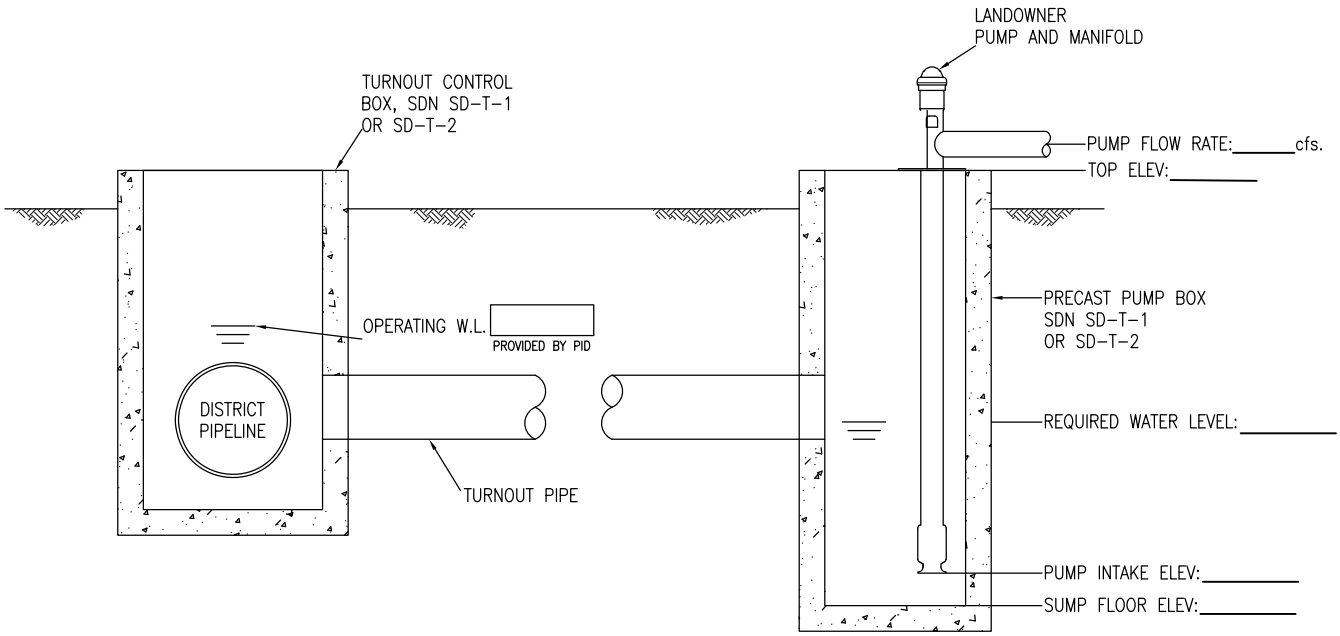
PATTERSON IRRIGATION DISTRICT
PATTERSON CALIFORNIA

STANDARD DETAILS

CANAL TO PIPELINE TRANSITION STRUCTURE

SUMMERS ENGINEERING INC.
HANFORD Consulting Engineers CALIFORNIA

PATTERSON IRRIGATION DISTRICT		DATE ---	APPROVED
APPROVED		DRAWN FJF	DRAWING NO. SD-C-2
DATE		CHECKED JCL	SHEET 18 OF 19
		DRAWING NAME : PID 20011.DWG	



INSTRUCTIONS:

1. LANDOWNER SHALL COMPLETE AND SUBMIT THIS FORM TO PATTERSON IRRIGATION DISTRICT (PID) FOR APPROVAL.
2. PID SHALL PROVIDE THE OPERATING WATER LEVEL FOR THE SYSTEM.
3. THE LANDOWNER SHALL PROVIDE THE TOP SUMP ELEVATION, THE REQUIRED WATER LEVEL TO PROVIDE SUFFICIENT PUMP SUBMERGENCE, AND INVERT ELEVATION.
4. THE LANDOWNER PUMP SHALL INCLUDE A FLOW METER THAT INDICATES IN CUBIC FEET PER SECOND (CFS) AND TOTALIZES IN ACER-FEET.
5. THE LANDOWNER IS RESPONSIBLE FOR THE ACCURACY OF ALL INDICATED ELEVATIONS AND PUMP DATA.
6. THE PUMP TURNOUT INSTALLATION SHALL CONFORM TO ALL APPLICABLE PID STANDARDS.

EXPLANATION OF SYMBOLS

(E)	EXISTING
SDN	SEE DRAWING NUMBER
RGRCP	RUBBER GASKET REINFORCED CONCRETE PIPE

REGISTERED PROFESSIONAL ENGINEER
JAMES C. LINNEMAN
NO. 59067
EXP. 6/30/24
CIVIL
STATE OF CALIFORNIA

PATTERSON IRRIGATION DISTRICT
PATTERSON CALIFORNIA

STANDARD DETAILS

PUMP TURNOUT APPLICATION

SUMMERS ENGINEERING INC.
HANFORD Consulting Engineers CALIFORNIA

PATTERSON IRRIGATION DISTRICT	DATE ---	APPROVED
APPROVED	DRAWN NV	DRAWING NO. SD-A-1
DATE	CHECKED JCL	SHEET 19 OF 19
	DRAWING NAME : PID 20011.DWG	

GENERAL NOTES

1. PROVIDE ALL SHEETING, SHORING, BRACING, SLOPING, OR OTHER METHODS REQUIRED FOR WORKER SAFETY AND PROTECTION.

2. THRUST BLOCKS SHALL BE REQUIRED ON ALL TEES AND BENDS GREATER THAN 5°.

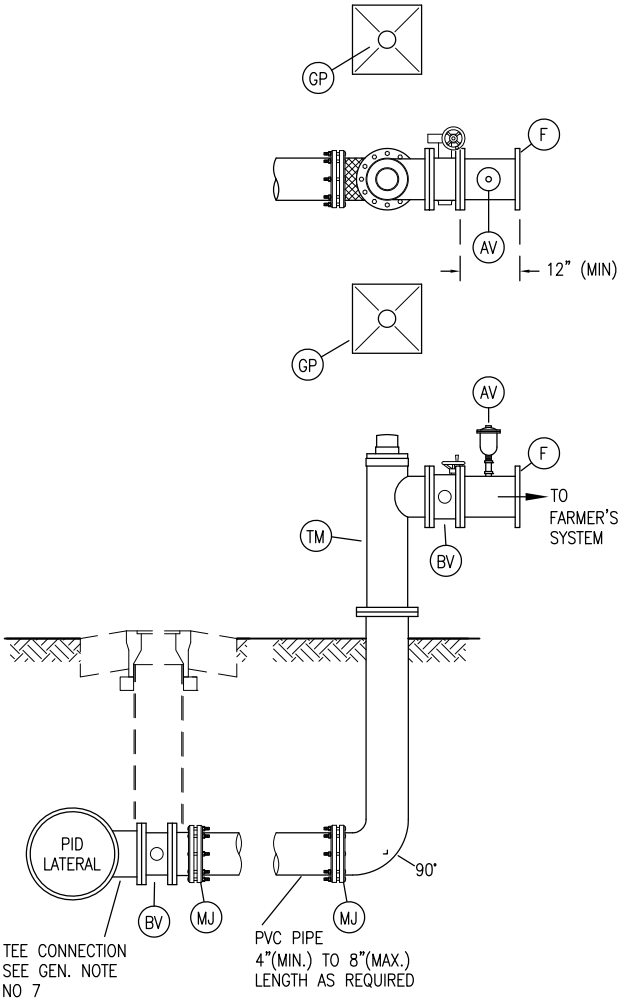
3. ALL STEEL PIPE AND FITTINGS SHALL BE IN ACCORDANCE WITH AWWA C-200 ($\frac{1}{4}$" WALL, MINIMUM). ALL STEEL FLANGES SHALL BE IN ACCORDANCE WITH AWWA C-207, CLASS D. ALL PIPE, FLANGES, AND MECHANICAL COUPLINGS SHALL BE FUSION BONDED EPOXY LINED AND COATED (12 MILS MIN.) IN ACCORDANCE WITH AWWA C-213. ALL EXPOSED PIPE SHALL BE COATED WITH 2 OR MORE COATS OF HIGH SOLIDS EPOXY IN ACCORDANCE WITH AWWA C-210. EXTERIOR TOP COAT SHALL BE A COMPATIBLE ALPHATIC POLYURETHANE.

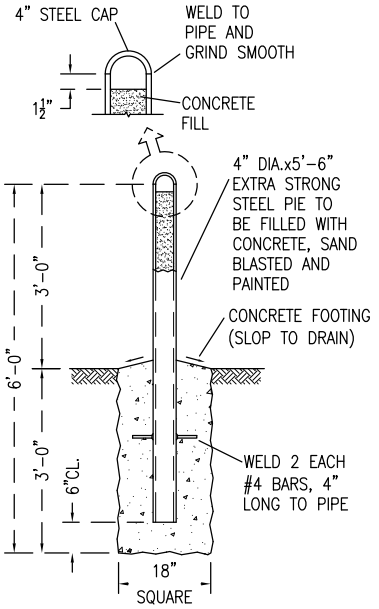
4. BURRIED BUTTERFLY VALVES SHALL BE PRATT GROUNDHOG OR APPROVED EQUAL. BUTTERFLY VALVE INSTALLED ABOVE GROUND SURFACE SHALL BE MONOFLANGE MKII WAVER BUTTERFLY VALVE BY PRATT OR APPROVED EUQAL. ALL BUTTERFLY VALVES SHALL MEET THE APPLICABLE SPECIFICATIONS OF AWWA C504.

5. THE VERTICAL UPFLOW TEE METER SHALL BE MODEL VF30 BY WATER SPECIALTIES, OR APPROVED EQUAL. THE METER SHALL INDICATE IN CFS AND TOTALIZE IN ACRE FEET.

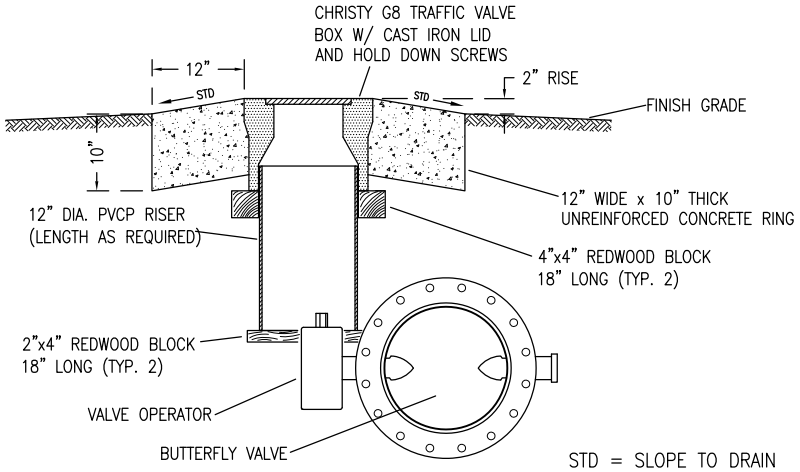
6. THE AIR RELEASE VALVE SHALL BE MODEL CR-101 BY WATERMAN INDUSTRIES OR APPROVED EQUAL.

7. THE TEE SHALL BE A STANDARD TEE CONNECTION OF SAME MATERIAL AND RATING OF THE TRANSMISSION PIPE OR TAPPING SLEEVE, AS REQUIRED BY THE DISTRICT. TAPPING SLEEVES SHALL BE MODEL SST III OR STS420 BY ROMAC OR APPROVED EQUAL. ALL NUTS BOLTS AND WASHERS SHALL BE STAINLESS.





TYPICAL GUARD POST INSTALLATION (GP)



TYPICAL BUTTERFLY VALVE INSTALLATION (BV)

EXPLANATION OF SYMBOLS

(AV)	1" AIR VALVE W/ NIPPLE AND HALF COUPLING
(BV)	BUTTERFLY VALVE INSTALLATION SEE DETAIL.
(F)	FLANGE. SEE GEN. NOTE NO. 3
(GP)	GUARD POST INSTALLATION SEE DETAIL.
(MJ)	MECHANICAL JOINT ADAPTOR
(TM)	TEE METER

PATTERSON IRRIGATION DISTRICT
PATTERSON CALIFORNIA

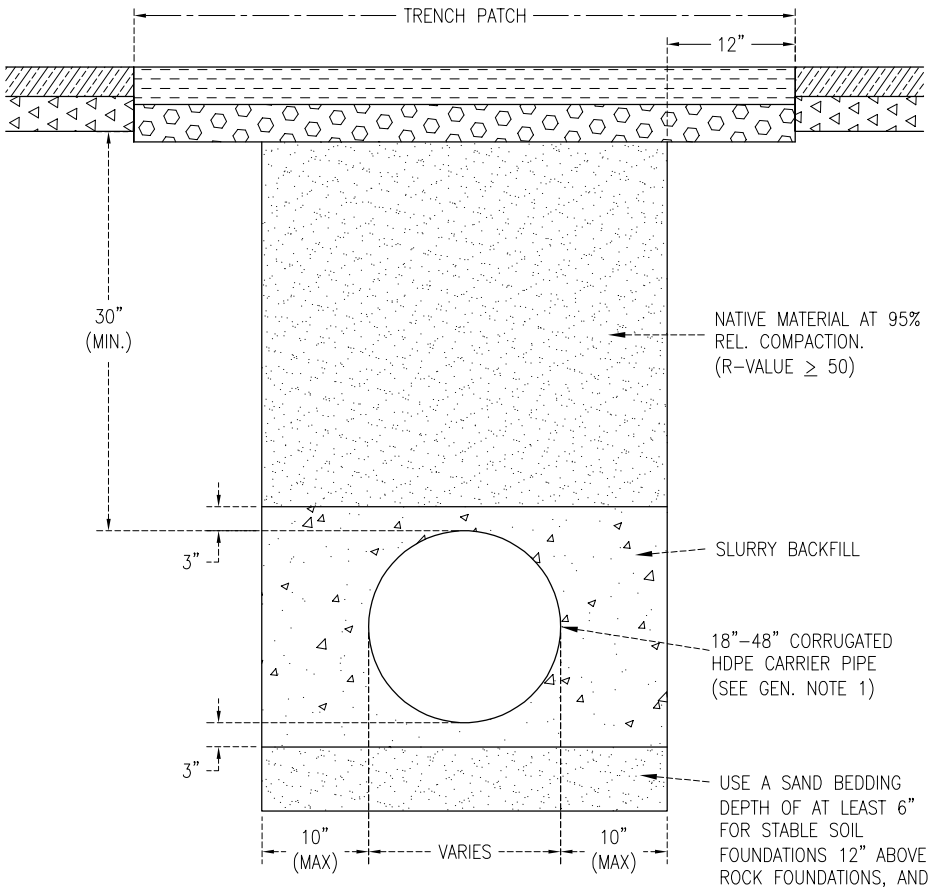
STANDARD DETAILS

FIRE HYDRANT TURNOUT DETAIL

REGISTERED PROFESSIONAL ENGINEER
JAMES C. LINGMAN
NO. 59067
EXP. 6/30/24
CIVIL
STATE OF CALIFORNIA

SUMMERS ENGINEERING INC.
HANFORD Consulting Engineers CALIFORNIA

PATTERSON IRRIGATION DISTRICT	DATE JUNE 2023	APPROVED	
APPROVED	DRAWN NV	DRAWING NO.	SD-P-20
DATE	CHECKED JCL	SHEET 20	OF 20
	DRAWING NAME : PID 20011.DWG		



DETAIL A

BACKFILL DETAIL
PAVED AREAS

GENERAL NOTES

1. PIPE TO BE ADS N-12 DUAL WALL WTIB CORRUGATED HDPE PIPE OR APPROVED EQUIVALENT.
2. PROVIDE 95% COMPACTING IN 8" LAYERS FOR THE ENTIRE DEPTH OF TRENCH.
3. POUNDING OR JETTING WILL NOT BE ALLOWED.
4. IF SOIL R-VALUE IS LESS THAN 50, USE CLASS 2 AB VERSUS NATIVE MATERIAL.
5. COMPACTION TEST SHALL BE PERFORMED BY CONTRACTOR AND BE SUBMITTED TO (AND APPROVED) BY THE COUNTY INSPECTOR PRIOR TO PAVING, USING CALTRANS TEST METHOD NO. 216 AND NO. 231.
6. USE A PAVEMENT AND BASE THICKNESS OF AT LEAST 3" AND 6" RESPECTIVELY OR 1" THICKER THAN THE EXISTING A.C., WHICHEVER IS GREATER. PRIME COAT IS REQUIRED ABOVE AGGREGATE BASE.
7. PIPELINES WITHIN STANISLAUS COUNTY SHALL REQUIRE AN APPROVED ENCROACHMENT PERMIT FROM THE COUNTY.

EXPLANATION OF SYMBOLS

(E)	EXISTING
SDN	SEE DRAWING NUMBER
RGRCP	RUBBER GASKET REINFORCED CONCRETE PIPE

REGISTERED PROFESSIONAL ENGINEER
JAMES C. LINNEMAN
NO. 59067
EXP. 6/30/24
CIVIL
STATE OF CALIFORNIA

PATTERSON IRRIGATION DISTRICT
PATTERSON CALIFORNIA

STANDARD DETAILS

HDPE PAVED AREA BACKFILL REQUIREMENTS

SUMMERS ENGINEERING INC.
HANFORD Consulting Engineers CALIFORNIA

PATTERSON IRRIGATION DISTRICT	DATE FEB 2025	APPROVED	
APPROVED	DRAWN FJF/NV/ARA	DRAWING NO.	SD-M-21
DATE	CHECKED JCL	SHEET 21	OF 21
	DRAWING NAME : PID 20011.DWG		