# **MODESTO IRRIGATION DISTRICT**



# IRRIGATION STANDARD CONSTRUCTION DETAILS

**April 2022** 

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## Drawing No. **Description** CL CANAL DETAILS CL 10.....Typical Canal Cross Section CL 15.....Canal Step Detail CR **CROSSING DETAILS** CR 01.....Boring General Notes CR 02.....Jack & Bore Pipeline Crossing Under M.I.D. Canal CR 03......Jack & Bore Pipeline Crossing Under M.I.D. Pipeline CR 04......Directional Boring Pipeline Crossing Under M.I.D. Canal CR 05......Directional Boring Pipeline Crossing Under M.I.D. Pipeline CR 10......Pipeline Crossing Over M.I.D. Pipeline Using Open-Cut Trench CR 11......Pipeline Crossing Under M.I.D. Pipeline Using Open-Cut Trench CR 15..... Headwall Setbacks On Road Crossing CR 20.....Utility Crossing Marker **MISCELLANEOUS DETAILS** M M 05..... Driveway Slab for Pipeline M 10.....Standard Redwood Deck Detail M 15.....Typical M.I.D. Canal Roadway Gate Detail M 20.....Barbed Wire Fence Detail M 25.....Typical Discharge Line Details M 45.....Structure Handrailing M 46.....Structure Ladder M 47.....Structure Grating M 50.....Inlet Grate M 55.....Private Irrigation Backflush Filter Discharge M 56.....Private Irrigation Backflush Filter Discharge into Standpipe M 57.....Private Irrigation Backflush Filter Discharge into Control Box M 60.....Standard Canal Gate With New Sump In Existing Headwall Ρ **P.V.C. PIPELINE DETAILS** P 01.....Starter Coupler for P.V.C. Pipeline P 05......P.V.C. Connection to Existing Structure P 10......Control Box for P.V.C. Pipeline P 15......Precast Control Box for P.V.C. Pipeline P 20.....Pressure Box for P.V.C. Pipeline P 25.....Pressure Manhole Box for P.V.C. Pipeline

# <u>Drawing No.</u> <u>Description</u>

Overpour Box for P.V.C. Pipeline
Standard Canal Gate for P.V.C. Pipeline
Standard Canal Gate for P.V.C. Pipeline With Sump
Dirt Ditch Standard Canal Gate for P.V.C. Pipeline
Air Vent for P.V.C. Pipeline
Inlet/Outlet Box Structure for P.V.C. Pipeline
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Field Valve Structures for P.V.C. Pipeline
Line Gate Structure for P.V.C. Pipeline
Line Gate Structure for Concrete Pipeline

V 45.....Offset – Arch / Alfalfa Valve Structure

				REV		CHANGE	DATE	ВУ
AB	AGGREGATE BASE	HD	HEAD	Â	RELEASE		06/17	
AC	ASPHALT CONCRETE	HDPE	HIGH DENSITY	2			1 7	1
ACI ADD'L	AMERICAN CONCRETE INSTITUTE	HGL	POLYETHYLENE HYDRAULIC GRADE LINE	<u>/3</u>			+	+
AGG.	ADDITIONAL AGGREGATE	HGL HORIZ.	HORIZONTAL	4			+	
AGG. AISC	AMERICAN INSTITUTE OF STEEL	HP	HINGE POINT					
AISC	CONSTRUCTION	HWL	HIGH WATER LEVEL		RGS	RIGID GALVANIZEI	STEEL	
ALIGN.	ALIGNMENT	IBC	INTERNATIONAL BUILDIN	G COI			JILLL	
AP	ANGLE POINT	ID	INSIDE DIAMETER	0 00.	RP	RADIUS POINT		
APPROX.	APPROXIMATE	iN	INCH		RR	RAILROAD		
ASTM	AMERICAN SOCIETY FOR TESTING	INV.	INVERT		RT	RIGHT		
	AND MATERIALS	IRR.	IRRIGATION		RTU	REMOTE TERMINA	L UNIT	
AV	AIR VENT	LB/LBS	POUND/POUNDS		S	SLOPE		
ВС	BEGIN CURVE	LC	LENGTH OF CURVE		SCH	. SCHEDULE		
BLDG	BUILDING	LCW	LONG CRESTED WEIR		SEC	SECTION		
BM	BENCHMARK	LF	LINEAR FEET		SF	SQUARE FEET/FOO	T	
BTM	BOTTOM	LT	LEFT		SP	SERVICE POLE		
С	CHANNEL	MAX.	MAXIMUM		SQ	SQUARE		
CA	CALIFORNIA	MH	MANHOLE		SS	STAINLESS STEEL		
CAL-OSHA	CALIFORNIA DIVISION OF	M.I.D.	MODESTO IRRIGATION DI			STRUCTURAL TUB	NG	
	OCCUPATIONAL SAFETY AND	MIL	THOUSANDTHS OF AN IN	CH	STA			
	HEALTH ADMINISTRATION	MIN.	MINIMUM		STD			
CFS	CUBIC FEET PER SECOND	MIPT	MALE IRON PIPE THREAD		SWI			
CIP	CAST IRON PIPE	MISC.	MISCELLANEOUS		STW			
C.I.P.C.P.	CAST-IN-PLACE CONCRETE PIPE	NAVD	NORTH AMERICAN VERTI	CAL	SYM			
C.I.P.P.	CURED-IN-PLACE PIPE	NCVD	DATUM	TIC 4 I	T&E			,
CL ©	CLASS CENTERLINE	NGVD	NATIONAL GEODETIC VER	KIICAL			HIVIAK	
CLR.	CLEAR, CLEARANCE	NIC	DATUM NOT IN CONTRACT		TC TCE	TOP OF CURB	CTDLICT	ION
CMLC	CEMENT MORTAR LINED &				ICE	TEMPORARY CON EASEMENT	SIRUCII	ION
CIVILC	COATED	NO./### NRCS	NUMBER NATURAL RESOURCES		TELI			
СМР	CORRUGATED METAL PIPE	INICS	CONSERVATION SERVICE		TL	TOP OF LINING		
CONC.	CONCRETE	NTS	NOT TO SCALE		TOE			
CONT.	CONTINUOUS	O.C.	ON CENTER		TOE			
CONST.	CONSTRUCT/CONSTRUCTION	OD.	OUTSIDE DIAMETER		TOP			
CP CP	CONTROL POINT	OH	OVERHEAD		TP	TELEPHONE POLE		
CY	CUBIC YARDS	OP	OPERATING		TR	TELEPHONE RISER		
Db	BAR DIAMETER	OSHA	OCCUPATIONAL SAFETY A	AND	TRA			
DEG	DEGREE		HEALTH ADMINISTRATION		TS	TOP OF STRUCTUR	RE	
DEMO	DEMOLISH/DEMOLITION	O&M	OPERATIONS AND MAINT	ENAN	ICE TYP	. TYPICAL		
DIA, Ø	DIAMETER	(P)	PROPOSED		TWI	L TOP OF WALL		
DIM.	DIMENSION	PĆ	POINT OF CURVATURE		UG	UNDERGROUND		
DIP	DUCTILE IRON PIPE	PCC	POINT OF COMPOUND		UP	UTILITY POLE		
D/S	DOWNSTREAM		CURVATURE		U/S	UPSTREAM		
DWG	DRAWING	PI	POINT OF INTERSECTION		VER	T VERTICAL		
EX.	EXISTING	PIP	PLASTIC IRRIGATION PIPE		WL	WATER LEVEL		
EA.	EACH	PLC	PROGRAMMABLE LOGIC		W/	WITH		
EC	END CURVE		CONTROLLER		W/C			
EF	EACH FACE	PL	PROPERTY LINE/PLATE		YD	YARD		
EG	EXISTING GRADE	POC	POINT ON CURVE		@	AT		
EL, ELEV.	ELEVATION	POL	POINT ON LINE		<	LESS THAN		
ELEC	ELECTRIC	POT	POINT ON TANGENT		>	GREATER THAN		
ELL, ELB	ELBOW EDGE OF DAY/ENAFNE	PP PRC	POWER POLE POINT OF REVERSE CURV	ATLIB	L	ANGLE		
EP	EDGE OF PAVEMENT	PSF	POUNDS PER SQUARE FO		Ε			
ESMT	EASEMENT	PSF PSI	POUNDS PER SQUARE IN					
EW F&I	EACH WAY FURNISH & INSTALL	PSI PT	POINT OF TANGENCY	J 1				
F&I FB	FURNISH & INSTALL FLAT BAR	PUE	PUBLIC UTILITY EASEMEN	т				
FF	FINISHED FLOOR	P.V.C.	POLYVINYL CHLORIDE	•				
FG	FINISHED FLOOR FINISHED GRADE	PVMT	PAVEMENT					
FIPT	FEMALE IRON PIPE THREAD	RAD, R	RADIUS					
FL	FLOW LINE	RC	RADIUS OF CURVE					
FT	FEET/FOOT	R.C.P.	REINFORCED CONCRETE	PIPE				
GA	GAUGE	REF	REFERENCE					
GALV.	GALVANIZED	REQ'D	REQUIRED					
GB	GRADE BREAK	REV	REVISION					
GPM	GALLONS PER MINUTE	R.G.R.C.P.	RUBBER GASKETED REINF	ORCE	D			
GUY	GUY WIRE		CONCRETE PIPE					

S?M	D	Modesto Irrigation District
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**ABBREVIATIONS** 

DATE: JUNE 2017

SCALE: NONE

STANDARD #: G 01

APPROVED BY:

CHAD J. TIENKEN, P.E., P.L.S. CIVIL ENGINEERING MANAGER

DATE: 9/7/17

#### **GENERAL NOTES:**

THE SIGNATURE OF THE MODESTO IRRIGATION DISTRICT (M.I.D.) ON <u> 4</u> DRAWINGS CONSTITUTES M.I.D.'S APPROVAL OF THE SAME AS TO THE ENGINEERING ASPECTS THEREOF ONLY AND DOES NOT AUTHORIZE, EXPRESSLY OR IMPLICITLY THE CONSTRUCTION OF ANY ASPECT HEREOF OR THE INTERFERENCE WITH ANY PROPERTY, EQUIPMENT, OR INTEREST OF THE M.I.D. NO SUCH CONSTRUCTION OR INTERFERENCE SHALL OCCUR UNTIL M.I.D. HAS OBTAINED, BY SEPARATE AGREEMENT SUCH

2. ALL CONSTRUCTION WITHIN THE M.I.D. RIGHT OF WAY SHALL BE DONE IN ACCORDANCE WITH THE APPROVED DRAWINGS AND THE CURRENT EDITION OF M.I.D. STANDARDS AND/OR STANDARD SPECIFICATIONS OF OTHER GOVERNING AGENCIES, AS APPLICABLE.

AGREEMENTS AS M.I.D. DEEMS NECESSARY FOR THE PROTECTION OF ITS FACILITIES.

- 3. CONSTRUCTION WITHIN THE M.I.D. RIGHT OF WAY WILL NOT BE ALLOWED DURING THE IRRIGATION SEASON UNLESS APPROVED BY M.I.D. (IRRIGATION SEASON TYPICALLY MARCH 1 TO OCTOBER 31).
- 4. CONTRACTOR SHALL PROVIDE AN ALTERNATE STORM WATER BYPASS DURING CONSTRUCTION UNLESS DIRECTED OTHERWISE BY M.I.D. ENGINEER. BYPASS PLAN SHALL BE SUBMITTED FOR M.I.D. ENGINEER APPROVAL PRIOR TO BEGINNING CONSTRUCTION.
- 5. WHERE THE PLANS OR SPECIFICATIONS DESCRIBE PORTIONS OF THE WORK IN GENERAL TERMS, BUT NOT IN COMPLETE DETAIL, IT IS UNDERSTOOD THAT ONLY THE BEST GENERAL PRACTICE IS TO PREVAIL AND THAT ONLY MATERIALS AND WORKMANSHIP OF THE FIRST QUALITY ARE TO BE USED.
- 6. M.I.D. STANDARD DETAILS MAY REQUIRE MODIFICATIONS BASED ON SITE SPECIFIC FIELD CONDITIONS. SUCH MODIFICATIONS SHALL BE REVIEWED AND PRE-APPROVED IN WRITING BY M.I.D. ENGINEER PRIOR TO CONSTRUCTION.
- 7. CONTRACTOR AGREES TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR THE JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.
- 8. CAL-OSHA SAFETY REQUIREMENTS SHALL BE IN EFFECT DURING ALL CONSTRUCTION. SPECIAL SAFETY PRECAUTIONS SHALL BE TAKEN WHEN WORKING IN THE VICINITY OF GAS, OIL, OR ELECTRICAL LINES.
- 9. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COMPLY WITH CALIFORNIA GOVERNMENT CODE 4216, AS APPLICABLE. TO OBTAIN A DIG ALERT IDENTIFICATION NUMBER, CALL 811 AT LEAST 2 WORKING DAYS BEFORE DIGGING UNDERGROUND.
- M.I.D. WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF APPROVED PLANS. ALL CHANGES TO THE PLANS MUST BE OBTAINED IN WRITING FROM M.I.D. ENGINEER, AND MUST BE APPROVED BY THE PREPARER OF THE PLANS.
- CONTRACTOR SHALL BE REQUIRED TO HAVE A PRE-CONSTRUCTION CONFERENCE WITH M.I.D. ENGINEER, PRIOR TO 11. STARTING ANY WORK WITHIN THE M.I.D. RIGHT OF WAY.
- BACKFILL AND SUBGRADES SHALL BE COMPACTED TO MINIMUM 90% RELATIVE DENSITY PER ASTM D-1557 WITHIN THE M.I.D. RIGHT OF WAY, UNLESS DIRECTED OTHERWISE BY M.I.D. ENGINEER. SEE M.I.D. STANDARD G 09 - TRENCH BACKFILL\* FOR ADDITIONAL BACKFILL REQUIREMENTS.
- 13. A SET OF APPROVED PLANS SHALL BE ON THE JOB SITE AT ALL TIMES DURING CONSTRUCTION.
- THE CONTRACTOR SHALL EXERCISE DUE CAUTION IN PROTECTING EXISTING FACILITIES. THE CONTRACTOR SHALL GIVE PARTICULAR CARE TO PROTECTING EXISTING PIPELINES DURING CONSTRUCTION. THE CONTRACTOR SHALL CAREFULLY PRESERVE BENCHMARKS, REFERENCE POINTS AND STAKES, AND SHALL BEAR ALL EXPENSES FOR REPLACEMENT AND/OR ERRORS CAUSED BY THEIR UNNECESSARY LOSS OR DISTURBANCE. ANY DAMAGES TO M.I.D. FACILITIES DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED IN A MANNER APPROVED BY M.I.D. ENGINEER AT THE SOLE COST OF THE CONTRACTOR.
- 15. TRACER WIRE SHALL BE REQUIRED IN ALL AREAS WHERE PIPELINE IS REPLACED, RELOCATED, UPGRADED OR INSTALLED UNLESS OTHERWISE PRE-APPROVED BY M.I.D. ENGINEER. THE TRACER WIRE SHALL BE PURPLE THWN (THERMOPLASTIC HEAT AND WATER RESISTANT NYLON) INSULATED SOLID COPPER, SOFT DRAWN WIRE NO. 10 AMERICAN WIRE GAUGE, ATTACHED TO THE TOP OF ALL PIPES WITH TAPE, AND CONTINUOUS ALONG PIPE. ALL ENDS SHALL BE ENCLOSED WITHIN A VALVE BOX, CENTERED ON THE PIPELINE.

\*REFERENCED STANDARD(S): G 09



**GENERAL NOTES** DATE: JUNE 2017

SCALE: NONE

STANDARD #: SHEET 1 OF 2

G 02

Daniel B. Bahrer DAVID B. BAKKER, P.E. SENIOR CIVIL ENGINEER

CHANGE

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RELEASE

REVISED

DATE

06/17

04/22

LH

LH

APPROVED BY:

#### **GENERAL NOTES (CONT.):**

16. ANY WORK WITHIN THE M.I.D. RIGHT OF WAY SHALL NOT BE DEEMED A COMPLETE UNTIL THE M.I.D. ENGINEERING DEPARTMENT HAS BEEN PROVIDED WITH A SET OF RECORD DRAWINGS IN HARD COPY AND PDF OR AS DIRCTED BY M.I.D. ENGINEER.

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- 17. CONTACT THE M.I.D. ENGINEERING DEPARTMENT AT LEAST TWO (2) WORKING DAYS PRIOR TO ANY CONSTRUCTION AND/OR NECESSARY INSPECTIONS. WORK WITHIN THE M.I.D. RIGHT OF WAY SHALL PROCEED IN A CONTINUOUS MANNER ONCE STARTED. M.I.D. ENGINEER SHALL BE NOTIFIED OF ANY WORK STOPPAGES. WHENEVER WORK IS TO RESTART, M.I.D. ENGINEER SHALL REQUIRE AN ADDITIONAL TWO (2) WORKING DAYS NOTICE. M.I.D. ENGINEER SHALL ALSO BE CONTACTED A MINIMUM OF TWO (2) WORKING DAYS PRIOR TO ALL CONSTRUCTION SCHEDULED ON A HOLIDAY OR WEEKEND. PHONE: 209-526-7563.
- 18. UNLESS OTHERWISE STATED, ALL STATIONS INDICATED ON THE PLANS ARE IN REFERENCE TO THE CENTERLINE OF THE PROPOSED STRUCTURE.
- 19. M.I.D. ENGINEER SHALL AT ALL TIMES HAVE ACCESS TO THE WORK WHEREVER IT IS IN PREPARATION AND PROGRESS.
- 20. IT IS INTENDED THAT THESE PLANS AND SPECIFICATIONS REQUIRE ALL LABOR AND MATERIALS NECESSARY AND PROPER FOR THE WORK CONTEMPLATED AND THAT THE WORK BE COMPLETED IN ACCORDANCE WITH THEIR TRUE INTENT AND PURPOSE. THE CONTRACTOR SHALL NOTIFY M.I.D. ENGINEER IMMEDIATELY REGARDING ANY DISCREPANCIES OR AMBIGUITIES, WHICH MAY EXIST IN THE PLANS OR SPECIFICATIONS. M.I.D. ENGINEER'S INTERPRETATION OR CORRECTION THEREOF SHALL BE CONCLUSIVE. M.I.D. ENGINEER WILL HAVE AUTHORITY TO REJECT WORK WHICH DOES NOT CONFORM TO THE PLANS AND SPECIFICATIONS.
- 21. THE CONTRACTOR SHALL NOT LEAVE "IN USE" M.I.D. PIPELINE PROJECTS INCOMPLETE FOR MORE THAN TWO (2) WEEKS. WHEN CONDITIONS REQUIRE, AND DETERMINED SOLELY BY M.I.D. ENGINEER, CONTRACTOR SHALL PROVIDE A TEMPORARY DIVERSION SYSTEM TO PROVIDE FOR IRRIGATION WATER DELIVERY OR STORM WATER REMOVAL.
- 22. ASTM C-361 RUBBER GASKETED REINFORCED CONCRETE PIPE (R.G.R.C.P.) WITH APPROPRIATE WALL THICKNESS FOR THE PRESSURE AND TRAFFIC LOADS IS REQUIRED FOR M.I.D. CONCRETE PIPELINES. CONTRACTOR SHALL SUBMIT FACTORY TEST DATA TO M.I.D. ENGINEER, VERIFYING THAT PIPE JOINTS CONFORM TO NO LEAKAGE AT HYDROSTATIC PRESSURES UP TO TWENTY-FIVE (25) FEET. FIELD TESTS, IF REQUIRED, SHALL BE PERFORMED IN THE PRESENCE OF M.I.D. ENGINEER.
- 23. POLYVINYL CHLORIDE (P.V.C.) PIPE SHALL BE A MINIMUM OF 100 PSI PIP WITHIN LIMITS OF M.I.D. RIGHT OF WAY, OR AS DIRECTED BY THESE STANDARDS OR M.I.D. ENGINEER.
- 24. 30 INCHES MINIMUM COVER SHALL BE PROVIDED OVER ALL PIPELINES UNLESS DIRECTED BY M.I.D. ENGINEER.
- 25. DIMENSIONS, ELEVATIONS, PIPE SIZES, AND STRUCTURE LOCATIONS SHALL BE DETERMINED BY M.I.D.
- 26. ALL DIMENSIONS ARE TO BE FIELD VERIFIED BY CONTRACTOR PRIOR TO COMMENCING WORK OR FABRICATION. IF ANY CONDITION EXISTS NOT AS SHOWN ON THE DRAWINGS, M.I.D. ENGINEER SHALL BE NOTIFIED IMMEDIATELY.
- 27. DO NOT SCALE DRAWINGS. WRITTEN DIMENSIONS SHALL HAVE PRECEDENCE OVER SCALED DRAWINGS. CONTRACTOR SHALL VERIFY DIMENSIONS AND MEASUREMENTS AT SITE.
- 28. ALL WORK SHALL BE PERFORMED USING MATERIALS AND METHODS IN ACCORDANCE WITH APPLICABLE SECTIONS OF THE CURRENT INTERNATIONAL BUILDING CODE (IBC), CALIFORNIA BUILDING CODE (CBC), ACI 318, LOCAL CODES AND ORDINANCES. REPORT ALL DISCREPANCIES TO M.I.D. ENGINEER IMMEDIATELY.
- 29. ANY CHANGES TO THE APPROVED SET OF PLANS WITHOUT NOTIFYING M.I.D. ENGINEER PRIOR TO SUCH CHANGES ABSOLVES SAID ENGINEER FROM ANY AND ALL RESPONSIBILITY WITH RESPECT TO THE LIABILITY, DAMAGE OR EXTRA WORK RESULTING FROM SAID CHANGES.
- 30. BUILDING PERMITS, IF REQUIRED, MUST BE OBTAINED BEFORE STARTING CONSTRUCTION.

SCALE: NONE

Modesto Irrigation District GENERAL NOTES (CONT.)

DATE: JUNE 2017 STANDARD #:

SHEET 2 OF 2

APPROVED BY:

DAVID B. BAKKER, P.E.
SENIOR CIVIL ENGINEER

DATE: 4/29/22

1. AGREEMENTS ARE REQUIRED FOR ANY EXISTING ENCROACHMENTS OR PROPOSED IMPROVEMENTS WITHIN THE CURRENT OR REQUESTED M.I.D. EASEMENT.

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- 2. M.I.D. MAY REQUIRE THAT ITS EASEMENTS, RIGHTS OF WAY, AND FEE TITLE PROPERTY BE FENCED TO M.I.D. STANDARDS. THE NEED FOR FENCING WILL BE EVALUATED ON A CASE BY CASE BASIS. THE COST OF FENCING SHALL BE BORNE BY THE DEVELOPER/LANDOWNER.
- 3. ACCESS GATES AND FENCING WHICH CROSS THE M.I.D. RIGHT OF WAY THAT DO NOT IMPACT M.I.D. OPERATIONS AND MAINTENANCE AND ARE NOT BURDENSOME ON M.I.D. MAY BE PERMITTED UNDER AN ENCROACHMENT AGREEMENT UPON APPROVAL BY M.I.D. ENGINEER.
- 4. EXISTING M.I.D. FACILITIES WITHIN A PUBLIC ROAD RIGHT OF WAY SHALL BE RELOCATED INTO A RIGHT OF WAY EASEMENT DEDICATED SOLELY TO M.I.D. AT THE COST OF THE DEVELOPER.
- 5. STANDARD EASEMENT WIDTHS FOR M.I.D. FACILITIES SHALL BE THE FOLLOWING UNLESS DIRECTED BY M.I.D. ENGINEER:

MAIN CANALS	VARIES	CENTERED ON CANAL
DRAINS	60 FT	CENTERED ON CANAL/DRAIN
PIPELINES	30 FT	CENTERED ON PIPELINE
PIPELINES ADJACENT TO ROADWAYS	20 FT	
PIPELINES ADJACENT TO PUE	15 FT	
PUMP SITES	40 FT	SQUARE CENTERED ON PUMP

- 6. STANDARD ROADWAY WIDTHS SHALL BE 16' MINIMUM.
- 7. EASEMENT WIDTHS FOR JOINT PROJECTS SHALL MEET THE ABOVE MINIMUM EASEMENT WIDTHS PLUS ANY ADDITIONAL EASEMENT WIDTH THAT MAY BE REQUIRED BASED ON THE SPECIFIC PROJECT USES OR AS APPROVED BY THE BOARD OF DIRECTORS.
- 8. IF AN EXISTING M.I.D. FACILITY IS NOT CENTERED ON THE PROPERTY BOUNDARY BETWEEN TWO (2) PROPERTIES, M.I.D. MAY REQUIRE AN EASEMENT WIDTH BASED ON THE DISTANCE TO THE CENTERLINE OF THE M.I.D. FACILITY.

Modesto Irrigation District **EASEMENTS AND ENCROACHMENTS** 

DATE: JUNE 2017

SCALE: NONE

STANDARD #:

G 03

APPROVED BY

DAVID B. BAKKER, P.E. SENIOR CIVIL ENGINEER

DATE: 4/29/22

#### **CAST-IN-PLACE CONCRETE NOTES**

- 1. UNLESS DIRECTED OTHERWISE BY M.I.D. ENGINEER, MINIMUM CONCRETE 28 DAY COMPRESSIVE STRENGTH SHALL BE 3.000 PSI. CEMENT SHALL BE ASTM TYPE II PORTLAND CEMENT AND BE FREE OF LUMPS AND PARTIALLY SET MASSES, AND PROPORTIONED TO INCLUDE NOT LESS THAN 6 SACKS OF CEMENT PER CUBIC YARD OF CONCRETE AND HAVE A MAXIMUM WATER-CEMENT RATIO OF 0.50. WATER SHALL BE FREE FROM ACID, ALKALI, OILS OR ORGANIC MATTER. AGGREGATE SHALL BE CLEAN, HARD, STRONG AND DURABLE, AND FREE FROM DIRT AND OTHER SUBSTANCES DELETERIOUS TO CONCRETE. THE FINE AND COARSE AGGREGATES SHALL BE A WELL GRADED MIX APPROVED BY M.I.D. ENGINEER. THE MAXIMUM SIZE OF AGGREGATE SHALL NOT EXCEED 3/4 INCH AND SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-33.
- 2. CONSISTENCY OF THE CONCRETE SHALL ALLOW IT TO BE WORKED INTO PLACE WITHOUT SEGREGATION. SLUMP SHALL BE 4 INCHES MAXIMUM. FORMS SHALL BE BRACED AND/OR TIED TOGETHER SO AS TO MAINTAIN POSITION AND SHAPE AND BE SUFFICIENTLY TIGHT TO PREVENT LEAKAGE OF CONCRETE.
- 3. ALL VERTICAL CONCRETE SURFACES SHALL BE POURED AGAINST FORMS IN ALL CASES. CONCRETE SHALL NOT BE DROPPED MORE THAN 5 FEET VERTICALLY UNLESS SUITABLE EQUIPMENT IS USED TO PREVENT SEGREGATION AND SHALL BE VIBRATED IN 18 INCH, HORIZONTAL LIFTS. CONCRETE SHALL NOT BE MOVED DISTANCES OVER 5 FEET HORIZONTALLY USING A VIBRATOR. CONSOLIDATION OF CONCRETE SHALL BE ACCOMPLISHED BY MEANS OF INTERNAL TYPE MECHANICAL VIBRATORS, OR AS PRE-APPROVED BY M.I.D. ENGINEER.
- 4. ALL CAST-IN-PLACE CONCRETE STRUCTURES SHALL BE FORMED INSIDE AND OUT AND CONCRETE VIBRATED SUFFICIENTLY TO PROVIDE FOR SMOOTH SURFACED WALLS/FLOORS WITHOUT VOIDS AND HONEYCOMBS.
- 5. REINFORCING STEEL SHALL BE IN ACCORDANCE WITH STRUCTURAL DETAILS AND NOTES. SEE M.I.D. STANDARD G 05 STEEL REINFORCEMENT\*.
- GUIDELINES FOR CONCRETING IN HOT AND COLD WEATHER AS SET FORTH IN NRCS CONSTRUCTION SPECIFICATION 901 SHALL BE FOLLOWED.
- 7. ALL SLABS SHALL BE SLOPED TO ALLOW DRAINAGE OF RUNOFF WATER TO PREVENT PONDING.
- 8. CONCRETE SHALL BE PREVENTED FROM PREMATURE DRYING FOR A CURING PERIOD OF AT LEAST SEVEN DAYS AFTER IT IS PLACED. EXPOSED SURFACES SHALL BE KEPT CONTINUOUSLY MOIST FOR THE ENTIRE PERIOD. IN LIEU OF WATER CURING, THE CONCRETE SHALL BE PROTECTED BY SPRAYING WITH A CURING COMPOUND PRE-APPROVED BY M.I.D. ENGINEER. ALL SURFACES SHALL BE KEPT MOIST UNTIL THE COMPOUND IS APPLIED.

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- 9. CONSTRUCTION JOINTS SHALL BE PLACED AS SHOWN ON THE PLANS OR AS PRE-APPROVED BY M.I.D. ENGINEER ONLY. ENTIRE SURFACE UNDER WALL TO BE ROUGHENED WHILE WET, TO 1/8 INCH MINIMUM AMPLITUDE/DEPTH. JOINTS SHALL BE THOROUGHLY CLEANED AND ALL LAITANCE REMOVED BEFORE EACH NEW POUR IS MADE. EACH JOINT SHALL BE WETTED IMMEDIATELY BEFORE THE PLACEMENT OF NEW CONCRETE. SEE M.I.D. STANDARDS G 07 NEW CONSTRUCTION JOINT\* AND G 12 CONNECTION TO EXISTING STRUCTURE\*.
- 10. 1 INCH OR 3/4 INCH CHAMFER SHALL BE PROVIDED ON ALL EXPOSED EDGES OF CONCRETE STRUCTURES.
- 11. ALL STRUCTURE SUBGRADES, FORMS, AND STEEL REINFORCEMENT SHALL BE INSPECTED AND APPROVED BY M.I.D. ENGINEER PRIOR TO CONRETE PLACEMENT OR BACKFILL. BACKFILL SHALL NOT OCCUR UNTIL 7 DAYS AFTER CONCRETE PLACEMENT.

\*REFERENCED STANDARD(S): G 05, G 07, G 12



**CONCRETE NOTES** 

DATE: JUNE 2017

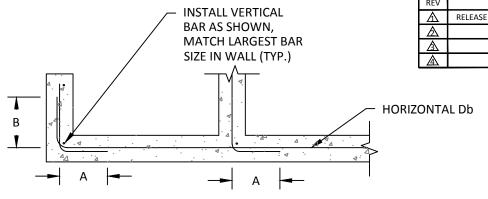
SCALE: NONE

STANDARD #: G 04

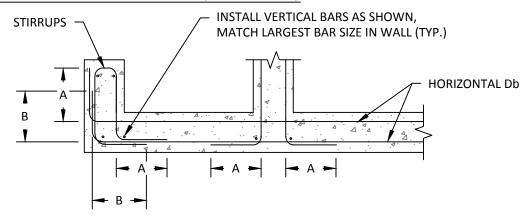
CHAD J. TIENKEN, P.E., P.L.S.
CIVIL ENGINEERING MANAGER

DATE: 9/7/17

APPROVED BY:



### SINGLE CURTAIN REINFORCEMENT (PLAN VIEW)



## DOUBLE CURTAIN REINFORCEMENT (PLAN VIEW)

TYPICAL ANGLE/CORNER REINFORCEMENT							
BAR SIZE #4 #5 #6 #7 #8 #9						#9	
GRADE 60	Α	1'-6"	1'-6"	2'-0"	2'-9"	3'-7"	4'-6"
GRADE 60	В	1'-9"	2'-6"	3'-6"	4'-9"	6'-2"	7'-8"

MINIMUM CONCRETE COVER, 2006 IBC, SECTION 3	1907.7.1
CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH	3"
CONCRETE EXPOSED TO EARTH OR WEATHER	
NO. 5 BAR OR SMALLER	1-1/2"
NO. 6 BAR OR LARGER	2"
CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND	
SLABS, WALLS AND JOISTS	3/4"
BEAMS AND COLUMNS	1-1/2"

Db = BAR DIAMETER

D = FINISHED INSIDE BEND DIA

D = 6Db FOR #3 THROUGH #8

SMI	Modesto Irrigation District
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STEEL REINFORCEMENT

DATE: JUNE 2017 STANDARD #:

G 05

SCALE: NONE SHEET 1 OF 2

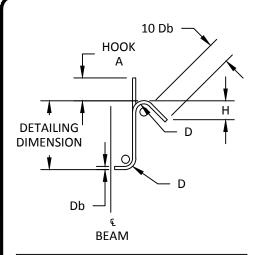
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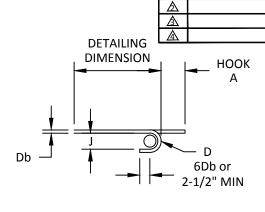
CHAD J. TIENKEN, P.E., P.L.S.
CIVIL ENGINEERING MANAGER

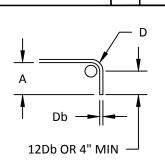
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DATE: 9/7/17 CI







DATE

06/17

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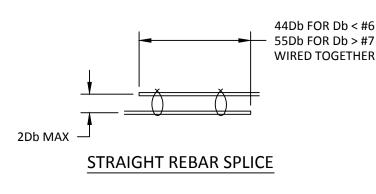
135° SEISMIC HOOK						
BAR SIZE	А	D	APPROX H			
#3	5"	1-1/2"	3-1/2"			
#4	6-1/2"	2"	4-1/2"			
#5	8"	2-1/2"	5-1/2"			
#6	11"	4-1/2"	6-1/2"			
#7	12-1/2"	5-1/4"	7-3/4"			
#8	14-1/2"	6"	9"			

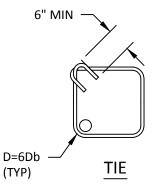
DIMENSIONS OF STANDARD 180° HOOKS						
BAR SIZE	А	J	D			
#3	5"	3"	2-1/4"			
#4	6"	4"	3"			
#5	7"	5"	3-3/4"			
#6	8"	6"	4-1/2"			
#7	10"	7"	5-1/4"			
#8	11"	8"	6"			

DIMENSIONS OF STANDARD 90° HOOKS			
А	D		
6"	2-1/4"		
8"	3"		
10"	3-3/4"		
12"	4-1/2"		
14"	5-1/4"		
16"	6"		

D = FINISHED INSIDE BEND DIA

#### REINFORCEMENT BEND





#### **REINFORCING STEEL NOTES**

- 1. ALL REBAR SHALL BE GRADE 60.
- 2. SPLICES AND HOOKS MADE IN REINFORCING STEEL SHALL BE STAGGERED AND LAPPED IN ACCORDANCE WITH ACI-318.
- 3. SLAB REINFORCING SHALL BE LOCATED IN THE CENTER OF THE SLAB, UNLESS NOTED OTHERWISE.
- 4. ALL BARS SHALL BE FREE OF EXCESSIVE RUST, MUD, OIL, AND GREASE.



STEEL REINFORCEMENT (CONT.)

G 05

DATE: JUNE 2017 STANDARD #:

SCALE: NONE SHEET 2 OF 2

APPROVED BY:

CHAD J. TIENKEN, P.E., P.L.S. CIVIL ENGINEERING MANAGER

DATE: 9/7/17

#### REV CHANGE DATE BY CONSTRUCTION NOTES 06/17 LH RELEASE <u>/2</u>\ ALL OPENINGS (SQUARE AND CIRCULAR) INSTALL ADDITIONAL HORIZONTAL AND VERTICAL REINFORCEMENT ABOVE, BELOW, AND TO EACH SIDE OF THE OPENING. ADDITIONAL STEEL AREA SHALL BE EQUAL TO THE STEEL AREA CUT BY THE OPENING, AND SHALL BE EVENLY DIVIDED EACH SIDE OF THE OPENING. ALL CUT BARS SHALL BE CUT 2 INCHES FROM THE OPENING. ADDITIONAL BARS SHALL BE INSTALLED WITHIN 2 WALL THICKNESSES OF THE OPENING (INCREASE BAR SIZE AS REQUIRED). MAINTAIN MINIMUM 2 INCHES CLEARANCE BETWEEN BARS. IF THE OPENING IS WITHIN 1 WALL THICKNESS OF AN INTERSECTING (PERPENDICULAR) SLAB OR WALL, THE ADDITIONAL REINFORCEMENT ADJACENT TO INTERSECTING SLAB OR WALL MAY BE OMITTED. OPENINGS LESS THAN 12 INCHES IN DIAMETER OR MAXIMUM WIDTH DO NOT REQUIRE ADDITIONAL HORIZONTAL AND VERTICAL REINFORCEMENT, BUT ADDITIONAL DIAGONAL BARS OR HOOPS SHALL BE INSTALLED AROUND CIRCULAR OPENINGS AS SPECIFIED IN NOTE 2, BELOW. FOR MINIMUM LAP LENGTHS, REFER TO M.I.D. STANDARD G 05 - STEEL REINFORCEMENT\*. EXTEND REBAR INTO ADJACENT WALLS/SLABS AS REQUIRED TO MAINTAIN MINIMUM LAP LENGTHS. REFER TO M.I.D. STANDARD G 05 FOR HOOK REQUIREMENTS. REINFORCEMENT SHALL BE PLACED IN THE CENTER OF WALLS AND SLABS UNLESS SPECIFIED OTHERWISE. 2. CIRCULAR OPENINGS ONLY INSTALL ADDITIONAL HORIZONTAL AND VERTICAL REINFORCEMENT AS SPECIFIED IN NOTE 1. ABOVE. INSTALL EITHER DIAGONAL BARS OR HOOPS AS FOLLOWS: MIN. LAP 1) DIAGONAL BARS: INSTALL 4 LENGTH (TYP) 2" CLR DIAGONAL BARS PER MAT OF (TYP) STEEL. DIAGONAL BAR SIZE SHALL MATCH THE LARGEST BAR SIZE IN THE WALL OR SLAB. DIAGONAL BARS MAY BE BENT AND LAPPED WITH ADJACENT BARS NEAR INTERSECTING SLABS, WALLS, OR OTHER **OPENING** OBSTRUCTIONS. ADD'L HORIZ./ 2) HOOPS: INSTALL 1 HOOP PER VERT. BARS MAT OF STEEL. HOOP SIZE SHALL BE ONE BAR SIZE **GREATER THAN THE LARGEST** BAR SIZE IN THE WALL OR SLAB. 3. ALL STEEL REINFORCEMENT SHALL INTERSECTING CONFORM TO APPLICABLE PROVISIONS WALL/SLAB OF ACI-318. ADDITIONAL HORIZONTAL/VERTICAL BARS **OPTIONAL HOOP(S)** IN LIEU OF DIAGONAL BARS 2" CLR (TYP) MIN. LAP LENGTH (TYP) MIN. LAP LENGTH (TYP) **OPENING** DIAGONAL **BARS INTERSECTING DIAGONAL BARS/HOOPS** WALL/SLAB \*REFERENCED STANDARD(S): G 05 APPROVED BY: OPENING REINFORCEMENT Modesto

STANDARD #:

G 06

CHAD J. TIENKEN, P.E., P.L.S.

CIVIL ENGINEERING MANAGER

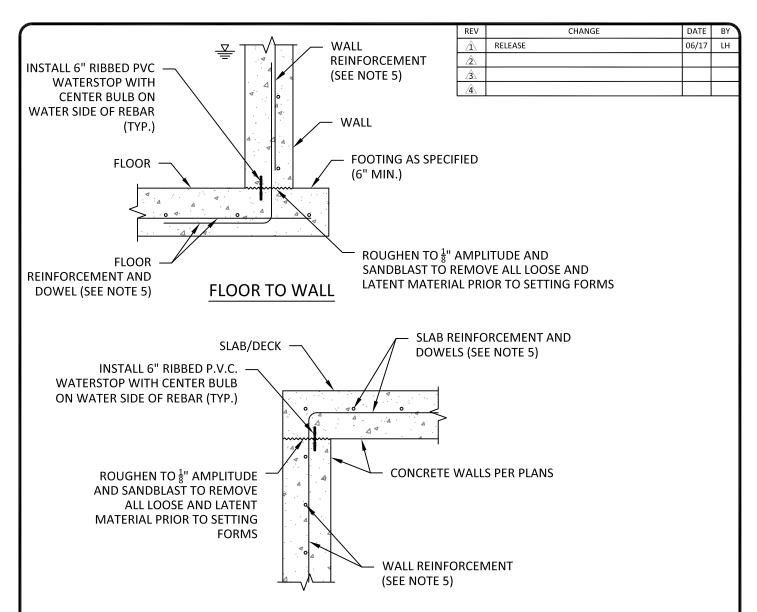
DATE: 9/7/17

**Irrigation** 

**District** 

DATE: JUNE 2017

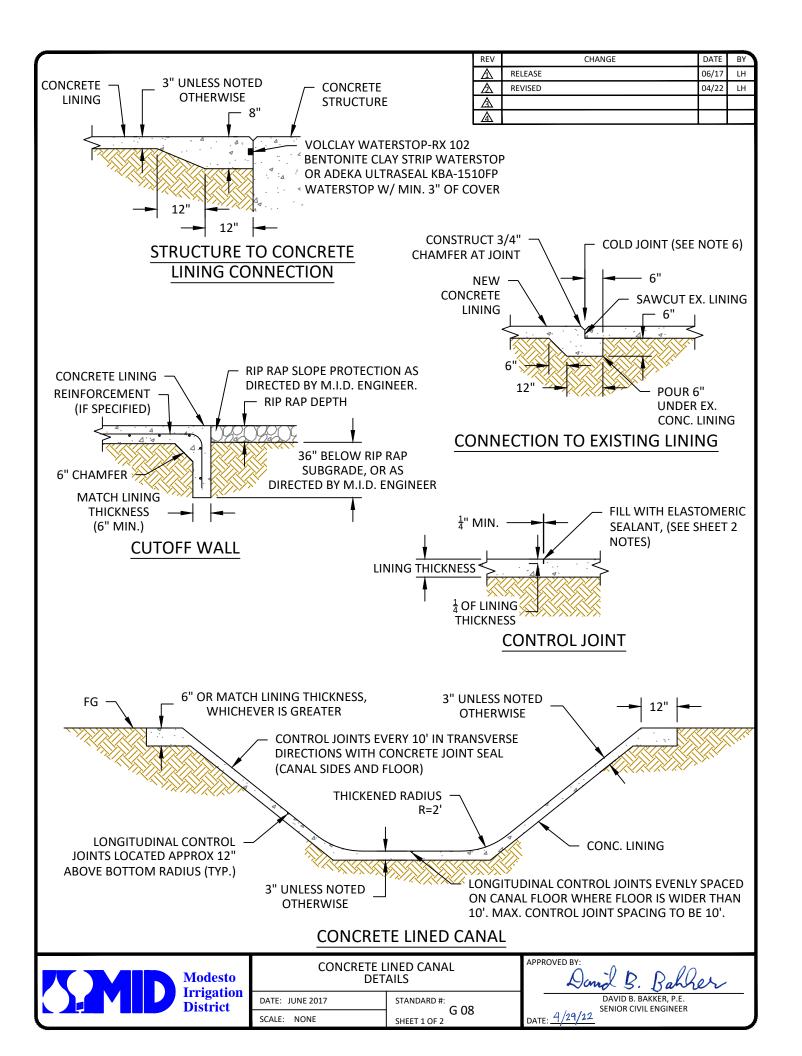
SCALE: NONE



#### WALL TO SLAB

#### NOTES:

- 1. ALL JOINTS BETWEEN CONCRETE POURS SHALL BE APPROVED CONSTRUCTION JOINTS. ALL CONSTRUCTION JOINTS SHALL CONFORM TO THIS STANDARD AND M.I.D. STANDARD G 04 CONCRETE NOTES\*.
- CONSTRUCTION JOINTS ARE REQUIRED FOR ALL FLOOR/SLAB TO WALL TRANSITIONS.
- CONSTRUCTION JOINTS SHALL BE PLACED AS SHOWN ON THE PLANS OR AS PRE-APPROVED BY M.I.D. ENGINEER. JOINTS SHALL BE THOROUGHLY CLEANED AND LAITANCE REMOVED BEFORE A NEW POUR IS MADE. EACH JOINT SHALL BE WETTED IMMEDIATELY BEFORE THE PLACING OF NEW CONCRETE.
- 4. WATERSTOP SHALL BE 6 INCH RIBBED PVC WATERSTOP WITH CENTER BULB.
- 5. REINFORCING STEEL SHALL JOIN THE CONCRETE BETWEEN POURS WITH A MINIMUM OVERLAP CONFORMING TO M.I.D. STANDARD G 05 STEEL REINFORCEMENT\*.
- THIS DETAIL INTENTIONALLY DOES NOT SPECIFY CONCRETE THICKNESS OR REINFORCEMENT SIZE WHICH SHOULD BE DESIGNED SEPARATELY.



 ALL WATERSTOPS SHALL HAVE MINIMUM 3 INCHES CONCRETE COVER ON ALL SIDES.

	REV	CHANGE	DATE	BY
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ı	Δ	REVISED	04/22	LH
	A			
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- BACKFILL AND SUBGRADES SHALL BE COMPACTED TO MINIMUM 90% RELATIVE DENSITY PER ASTM D-1557 AND SHALL BE MANUALLY COMPACTED A MINIMUM OF 8 INCHES OVER TOP OF PIPE OR AS DIRECTED BY M.I.D. ENGINEER. SEE M.I.D. STANDARD G 09 - TRENCH BACKFILL\*.
- 3. CONTROL JOINT DEPTH SHALL BE MINIMUM 1/4 OF LINING THICKNESS AND 1/4 INCH WIDE AS SHOWN IN THE CONTROL JOINT DETAIL, SHEET 1 AND SHALL BE LOCATED EVERY 10 FEET IN THE TRANSVERSE DIRECTION AND LONGITUDINALLY APPROXIMATELY 12 INCHES ABOVE THE BOTTOM RADIUS ON BOTH SIDES (SEE SHEET 1 DETAILS).
- 4. TRANSITIONS

#### A. CONCRETE LINED CANALS:

SAWCUT EXISTING LINING AT A LOCATION APPROVED BY AND AS DIRECTED BY M.I.D. ENGINEER. UNDERLAP EXISTING LINING A MINIMUM OF 6 INCHES UNDER THE SAWCUT EDGE (BOTH SIDES AND BOTTOM) AS SHOWN IN THE CONNECTION TO EXISTING LINING DETAIL, SHEET 1. DAMAGE TO THE EXISTING CONCRETE LINING WILL REQUIRE REPAIR OR REPLACEMENT AS DIRECTED BY M.I.D. ENGINEER.

#### B. EARTHEN CANAL:

NEW LINING SIDE SLOPES SHALL MATCH EXISTING CANAL SIDE SLOPES, OR AS DIRECTED BY M.I.D. ENGINEER. SIDE SLOPES SHALL BE NO STEEPER THAN 1-1/2 HORIZONTAL TO 1 VERTICAL UNLESS PRE-APPROVED BY M.I.D. ENGINEER. SIDE SLOPES SHALL BE FEATHERED BACK TO MATCH THE EXISTING CANAL BANKS FOR 10 LINEAR FEET UPSTREAM AND DOWNSTREAM OF THE CONCRETE LINING TRANSITION, OR AS DIRECTED BY M.I.D. ENGINEER. RIP RAP OR CONCRETE LINING SLOPE PROTECTION SHALL BE INSTALLED AS DIRECTED BY M.I.D. ENGINEER.

- 5. CONCRETE LINING SHALL BE POURED IN PLACE, AT MINIMUM 3 INCHES THICK. CEMENT SHALL BE TYPE II PORTLAND CEMENT. LINING CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 2,500 PSI. SLUMP SHALL BE A MAXIMUM OF 4 INCHES. CONCRETE SHALL BE PREVENTED FROM DRYING FOR A CURING PERIOD OF AT LEAST 7 DAYS AFTER IT IS PLACED. EXPOSED SURFACES SHALL BE KEPT CONTINUOUSLY MOIST FOR THE ENTIRE PERIOD, OR AN APPROVED CURING COMPOUND SHALL BE APPLIED AFTER FINISHING AT A RATE OF ONE GALLON PER 150 SQUARE FEET. REINFORCEMENT SHALL BE EITHER FIBERMESH "MD" AT 2.0 POUNDS PER CUBIC YARD OF CONCRETE OR 6"x6"-W2.1xW2.1 WELDED WIRE FABRIC AS DIRECTED BY M.I.D. ENGINEER.
- 6. ALL COLD JOINT INTERFACES BETWEEN CONCRETE SURFACES SHALL BE FILLED WITH BACKER ROD AND SIKAFLEX 1A ELASTOMERIC SEALANT OR PRE-APPROVED EQUIVALENT. CONCRETE SHALL CURE FOR AT LEAST 72 HOURS PRIOR TO SEALANT PLACEMENT. CLEAN OUT GAP PRIOR TO SEALANT PLACEMENT AND APPLY ACCORDING TO PRODUCT MANUFACTURER REQUIREMENTS. SEALANT SHALL FILL JOINT COMPLETELY. WHEN APPROVED BY M.I.D. ENGINEER, SEAL JOINT BY USING BRISTLE BRUSH TO BLEND NEW CONCRETE TO EXISTING LINING IN PLACE OF ELASTOMERIC SEALANT.
- 7. SHOTCRETE LINING MAY BE INSTALLED AS AN ALTERNATIVE TO CONCRETE LINING. DESIGN MIX SHALL BE PRE-APPROVED BY M.I.D. ENGINEER.
- 8. STRUCTURE TO LINING CONNECTIONS MAY REQUIRE REBAR DOWELS AS DIRECTED BY M.I.D. ENGINEER.

\*REFERENCED STANDARD(S): G 09



CONCRETE LINED CANAL NOTES

DATE: JUNE 2017 STANDARD #:

SCALE: NONE

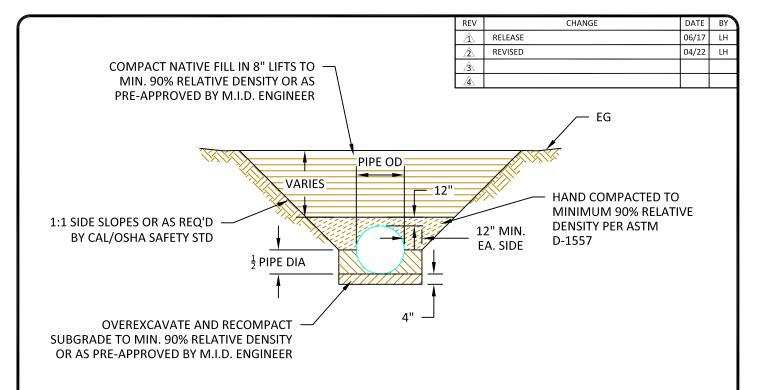
G 08
SHEET 2 OF 2

David B. Bahrer

SENIOR CIVIL ENGINEER

DATE: 4/29/22

APPROVED BY:



- 1. BACKFILL AND SUBGRADES SHALL BE COMPACTED TO MINIMUM 90% RELATIVE DENSITY PER ASTM D-1557 AND SHALL BE MANUALLY COMPACTED A MINIMUM DEPTH OF 12 INCHES OVER TOP OF PIPE OR AS DIRECTED BY M.I.D. ENGINEER. THE MAXIMUM LAYER THICKNESS SHALL BE 8 INCHES BEFORE COMPACTION.
- BACKFILL SHALL BE SELECT NATIVE MATERIAL, CONTAIN NO MATERIAL OVER 3 INCHES IN DIAMETER OR LENGTH, AND SHALL BE COMPACTED AGAINST UNDISTURBED EARTH. FILL MATERIAL SHALL CONTAIN NO SOD, BRUSH, ROOTS, OR OTHER ORGANIC OR OTHERWISE UNSUITABLE MATERIAL.
- 3. PIPELINE SHALL BE INSTALLED ACCORDING TO MANUFACTURER INSTRUCTIONS AND SPECIFICATIONS. MINIMUM DEPTH OF COVER SHALL BE 30 INCHES OR AS DIRECTED BY M.I.D. ENGINEER.
- 4. COMPACTION TESTS SHALL BE AT THE CONTRACTOR'S EXPENSE. FREQUENCY AND LOCATION OF THE TESTS SHALL BE AS DIRECTED BY M.I.D. ENGINEER.
- 5. DEWATERING DUE TO HIGH GROUNDWATER OR CANAL SEEPAGE MAY BE REQUIRED. DEWATERING METHODS SHALL BE PRE-APPROVED BY M.I.D. ENGINEER PRIOR TO COMMENCEMENT.
- 6. TRENCH WIDTHS SHALL BE AS SHOWN UNLESS THE PIPELINE SIZE IS 4 INCHES OR SMALLER, WHERE THE TRENCH SHALL HAVE A 12 INCH MINIMUM WIDTH.
- 7. BEDDING, IF REQUIRED, SHALL BE MINIMUM 4 INCHES AS PRE-APPROVED BY M.I.D. ENGINEER. BEDDING SHALL CONFORM TO THE SPECIFICATIONS BELOW:
  - A. ON SANDY SOIL (BEDDING & HAUNCHING):
    - NATIVE MATERIAL, IF SUITABLE, OR SAND AS PRE-APPROVED BY M.I.D. ENGINEER
  - B. ON CLAY SOIL (BEDDING & HAUNCHING);
    - SAND OR NATIVE MATERIAL AS PRE-APPROVED BY M.I.D. ENGINEER

DATE: JUNE 2017

SCALE: NONE

8. FLOODING OR JETTING SHALL ONLY BE USED ON SOILS PRE-APPROVED BY M.I.D. ENGINEER. WHEN FLOODING OR JETTING IS USED, THE AMOUNT OF WATER SHALL BE CONTROLLED TO INSURE THAT POOLING OF EXCESS WATER DOES NOT OCCUR. THE WETTED FILL MUST BE ALLOWED TO REACH OPTIMUM MOISTURE AND THEN MECHANICALLY COMPACTED TO MEET MINIMUM 90% RELATIVE DENSITY PER ASTM D-1557 BEFORE ADDITIONAL BACKFILLING IS DONE. CARE MUST BE EXERCISED TO PREVENT PIPE FLOTATION DURING FLOODING OR JETTING. MEASURES MUST BE PRE-APPROVED BY M.I.D. ENGINEER. NO FLOODING OR JETTING SHALL BE ALLOWED FOR P.C.V. OR HDPE PIPELINES.

Modesto Irrigation District TRENCH BACKFILL

STANDARD #:

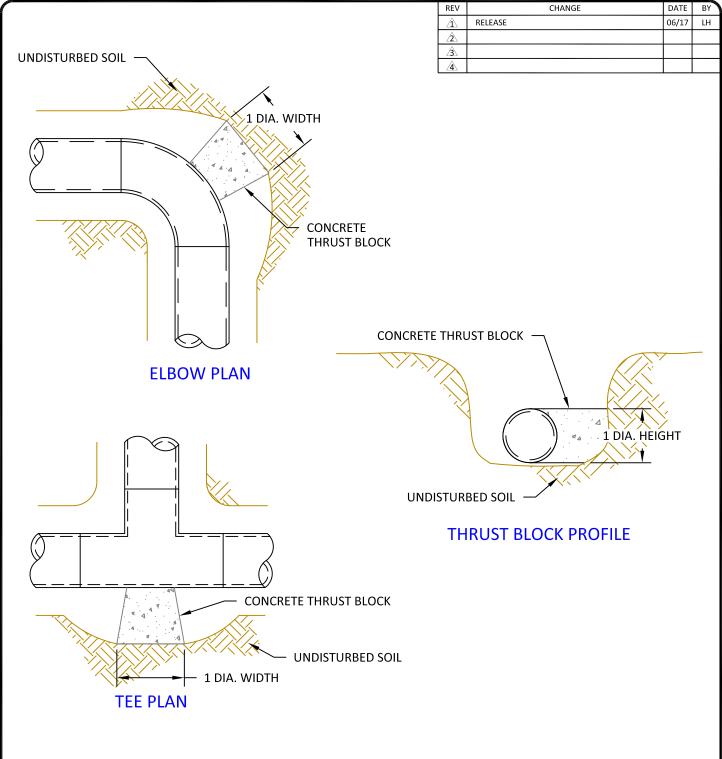
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Dand B. Bahler

DAVID B. BAKKER, P.E. SENIOR CIVIL ENGINEER

DATE: 4/29/22

APPROVED BY



- MAXIMUM WORKING PRESSURE: 7.5 PSI
- MAXIMUM PIPE HEAD: 17 FEET
- FOR GRAVITY FLOW PIPES ONLY
- MUST BE AGAINST UNDISTURBED SOIL
- ALL STEEL FITTINGS SHALL BE WRAPPED WITH 4 MIL POLYETHYLENE SHEETING AND SECURED WITH P.V.C. TAPE. CONCRETE SHALL NOT ENCROACH ON END FITTINGS.



CONCRETE PIPE THRUST BLOCK

DATE: JUNE 2017

STANDARD #:

G 10

CHAD J. TIENKEN, P.E., P.L.S. CIVIL ENGINEERING MANAGER

DATE: 9/7/17

APPROVED BY:

#### M.I.D. STANDARD MORTAR MIX (PREFERRED MORTAR MIX)

QUANTITY	DESCRIPTION
1	94LB BAG OF PORTLAND CEMENT
7	FULL SHOVELS OF SAND
2	FULL SHOVELS OF FIRECLAY

REV	CHANGE	DATE	ВҮ
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<u>^2</u> \			
<u>/3\</u>			
4			

- THE M.I.D. STANDARD MORTAR MIX MUST BE THOROUGHLY DRY MIXED BEFORE ADDING WATER.
- 2. USE A SOFT BRISTLE BRUSH TO BOND MORTAR AND EXISTING CONCRETE TOGETHER.
- 3. ALL MORTARED JOINTS AND REPAIRS EXPOSED TO SUNLIGHT MUST BE WRAPPED IN PLASTIC TO PREVENT CRACKING.
- 4. A MINIMUM OF 48 HOURS CURING TIME IS REQUIRED.

#### OTHER STANDARD DRYING MORTAR MIXES (ACCEPTABLE)

- ALL MANUFACTURED MORTAR MIX PRODUCTS SHALL HAVE CONSISTENT MIX PROPERTIES AS THE M.I.D. STANDARD
  MORTAR MIX. ALL MANUFACTURED MORTAR MIX PRODUCTS DRYING TIME MUST BE CONSISTENT WITH THE
  MANUFACTURERS RECOMMENDATIONS, BUT NOT LESS THAN 48 HOURS.
- 2. FOLLOW ALL MANUFACTURER GUIDELINES TO CREATE A SMOOTH SEALED BOND.
- 3. FOLLOW ALL MANUFACTURER GUIDELINES FOR PROPER SURFACE PREPARATION BEFORE MORTARING.

#### QUICK DRYING MORTAR PRODUCTS (ACCEPTABLE ONLY WHEN APPROVED)

- 1. USE ONLY CUSTOM-PLUG HYDRAULIC PATCHING AND ANCHORING CEMENT OR A PRE-APPROVED EQUIVALENT PRODUCT ONLY IN SITUATIONS WHERE 48 HOURS OF CURING TIME IS NOT POSSIBLE.
- ALL MANUFACTURED QUICK DRYING MORTAR MIX PRODUCTS MUST BE PRE-APPROVED BY M.I.D. ENGINEER.
- FOLLOW ALL MANUFACTURER GUIDELINES TO CREATE A SMOOTH SEALED BOND.
- FOLLOW ALL MANUFACTURER GUIDELINES FOR PROPER SURFACE PREPARATION BEFORE MORTARING.

MD	Modesto Irrigation District
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M.I.D. MORTAR MIX NOTES

STANDARD #:

SCALE: NONE

DATE: JUNE 2017

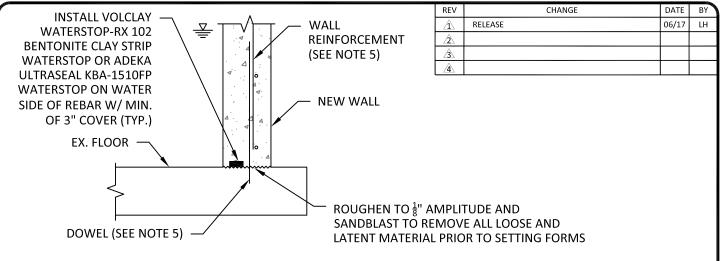
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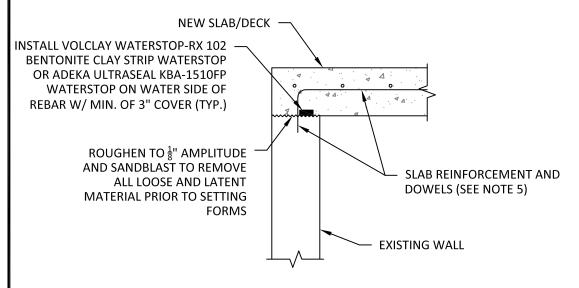
DATE: 9/7/17

APPROVED BY:

CHAD J. TIENKEN, P.E., P.L.S. CIVIL ENGINEERING MANAGER



#### **EXISTING FLOOR TO NEW WALL**



#### **EXISTING WALL TO NEW SLAB**

#### NOTES:

- 1. ALL JOINTS BETWEEN CONCRETE POURS SHALL BE APPROVED CONSTRUCTION JOINTS. ALL CONSTRUCTION JOINTS SHALL CONFORM TO THIS STANDARD AND M.I.D. STANDARD G 04 CONCRETE NOTES\*.
- CONSTRUCTION JOINTS ARE REQUIRED FOR ALL FLOOR/SLAB TO WALL TRANSITIONS.
- CONSTRUCTION JOINTS SHALL BE PLACED AS SHOWN ON THE PLANS OR AS PRE-APPROVED BY M.I.D. ENGINEER. JOINTS
   SHALL BE THOROUGHLY CLEANED AND LAITANCE REMOVED BEFORE A NEW POUR IS MADE. EACH JOINT SHALL BE
   WETTED IMMEDIATELY BEFORE THE PLACING OF NEW CONCRETE.
- 4. WATERSTOP SHALL BE VOLCLAY WATERSTOP RX 102 BENTONITE CLAY STRIP WATERSTOP OR ADEKA ULTRASEAL KBA-1510FP WATERSTOP.
- 5. REINFORCING STEEL SHALL JOIN THE CONCRETE BETWEEN POURS WITH A MINIMUM OVERLAP CONFORMING TO M.I.D. STANDARD G 05 STEEL REINFORCEMENT\*.
- 6. THIS DETAIL INTENTIONALLY DOES NOT SPECIFY CONCRETE THICKNESS OR REINFORCEMENT SIZE WHICH SHOULD BE DESIGNED SEPARATELY.

  \*REFERENCED STANDARD(S): G 04, G 05



#### CONSTRUCTION NOTES:

1.

CONCRETE STRENGTH TO BE 3,000 PSI @ 28 DAYS. NO ADMIXTURES SHALL BE INCORPORATED INTO CONCRETE MIX UNLESS PRE-APPROVED BY M.I.D. SEE M.I.D. STANDARD G 04 - CONCRETE NOTES\*.

1	REV	CHANGE	DATE	BY
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I	<u>^2</u> \	REVISED	04/22	LH
I	<u>3</u>			
I	4			

- 2. ALL PIPE SHALL ENTER HEADWALL AT OR NEAR PERPENDICULAR ANGLES TO THE HEADWALL.
- 3. SEE M.I.D. STANDARD G 08 CONCRETE LINED CANAL NOTES\* FOR LINING REPAIR.
- 4. ALL COLD JOINTS REQUIRE 6" CENTER BULB RUBBER WATER STOP EMBEDDED IN CENTER OF WALL AT COLD JOINT LOCATION PER MANUFACTURER'S RECOMMENDATIONS. SEE M.I.D. STANDARD G 07 NEW CONSTRUCTION JOINT\*.
- 5. GATE FRAME SHALL BE SECURELY BOLTED TO CONCRETE STRUCTURE WITH STAINLESS STEEL BOLTS. TOP ANCHORS SHALL BE INSTALLED WITHIN 8 TO 12 INCHES BELOW THE TOP OF CONCRETE WALL.
- 6. CANAL GATES SHALL BE WATERMAN C-10 CANAL GATE OR PRE-APPROVED EQUIVALENT WITH GALVANIZED FRAME.
- 7. SITE CONDITIONS MAY REQUIRE ADDITIONAL CUTOFF WALLS AND/OR COLLARS TO PREVENT SEEPAGE OR SLIDING, AS DIRECTED BY M.I.D.
- 8. UPSTREAM SUBMERGENCE SHOULD BE AT LEAST ONE PIPE DIAMETER ABOVE TOP OF PIPE.
- 9. SUFFICIENT SUBMERGENCE MUST OCCUR DOWNSTREAM TO ENSURE FULL PIPE FLOW SUCH THAT A READABLE WATER SURFACE IS PRESENT IN THE DOWNSTREAM AIR VENT (MINIMUM ONE FOOT ABOVE TOP OF PIPE DESIRED).
- 10. THE DIFFERENCE BETWEEN UPSTREAM AND DOWNSTREAM WATER SURFACE ELEVATIONS SHALL BE 12"-18" MAXIMUM.
- 11. THE GATE DISCHARGE TABLE BEING USED SHOULD BE VERIFIED TO ENSURE THAT IT APPLIES TO THE CONDITIONS ENCOUNTERED IN THE FIELD AND TO THE BRAND AND TYPE OF GATE BEING USED.
- 12. DISCHARGE TABLES FOR ROUND BOTTOM GATES MUST NOT BE USED FOR SQUARE BOTTOM GATES AND VICE VERSA. GATE SETTINGS MUST BE MADE AND READ ACCURATELY, WHICH REQUIRES THAT THE GATE POSITION INDICATORS BE IN GOOD CONDITION AND INDICATE THE TRUE OPENING.
- 13. STILLING WELLS AND VENTS SHALL BE PERIODICALLY FLUSHED TO MAKE SURE THEY ARE OPERATING PROPERLY AND ARE FREE OF OBSTRUCTIONS AND SILT. WEEDS, TRASH, AND SEDIMENT MUST BE REMOVED FROM THE APPROACH TO THE GATE BECAUSE THEY CAN CAUSE FLOW DISTURBANCES THAT MAY RESULT IN ERRONEOUS HEAD DIFFERENTIAL READINGS.
- 14. ALL VENT PIPE COVERS MUST BE REMOVABLE.
- 15. PROPERLY SEAL ALL HEADWALL JOINTS AND PIPES BY MORTARING. USE SOFT BRISTLE BRUSH TO BLEND MORTAR AND CONCRETE TOGETHER. SEE M.I.D. STANDARD G 11 M.I.D. MORTAR MIX NOTES\*.
- 16. WATERSTOP SURROUNDING OPENINGS SHALL BE VOLCLAY WATERSTOP-RX 102 BENTONITE CLAY STRIP OR ADEKA ULTRASEAL KBA-1510FP WATERSTOP, PLACED AROUND OUTSIDE OF PIPE (CONCRETE) OR STARTER COUPLER (P.V.C.) IN CENTER OF WALL.

\*REFERENCED STANDARD(S): G 04, G 07, G 08, G 11

Modesto Irrigation District STANDARD CANAL GATE NOTES

DATE: JUNE 2017

SCALE: NONE

STANDARD #:

G 13

DATE: 4/29/22

APPROVED BY

DAVID B. BAKKER, P.E.
SENIOR CIVIL ENGINEER

#### REV CHANGE NOTES: RELEASE <u>/2</u>\ CONCRETE STRENGTH TO BE 3,000 PSI @ 28 DAYS. NO ADMIXTURES <u>/3</u>\ SHALL BE INCORPORATED INTO CONCRETE MIX UNLESS PRE-APPROVED 4 BY M.I.D. SEE M.I.D. STANDARD G 04 - CONCRETE NOTES\*. 2. THOROUGHLY BRUSH ALL DEBRIS AND CLEAN EACH END OF PIPE AROUND THE ENTIRE CIRCUMFERENCE WITH WATER PRIOR TO PLACEMENT OF CONCRETE OR MORTAR.

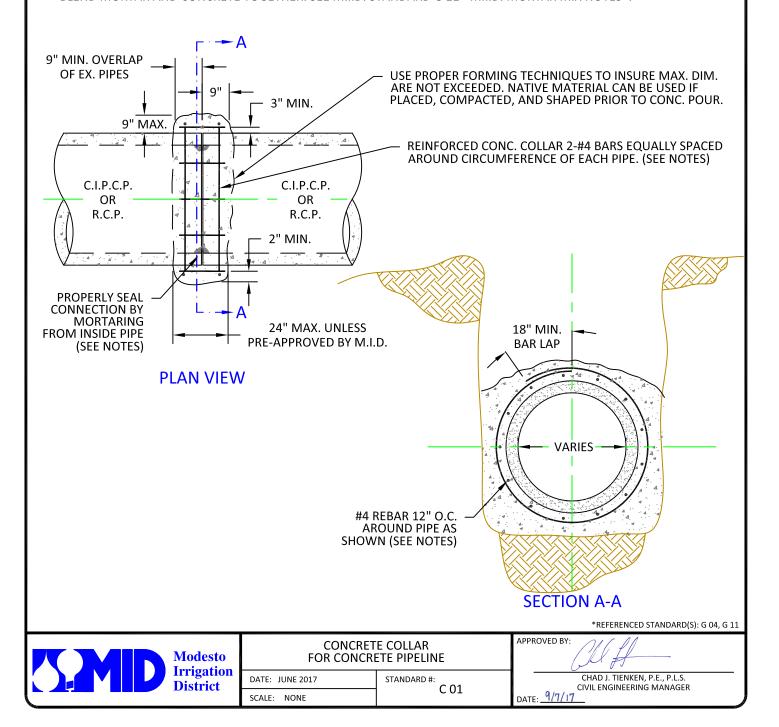
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06/17

BY

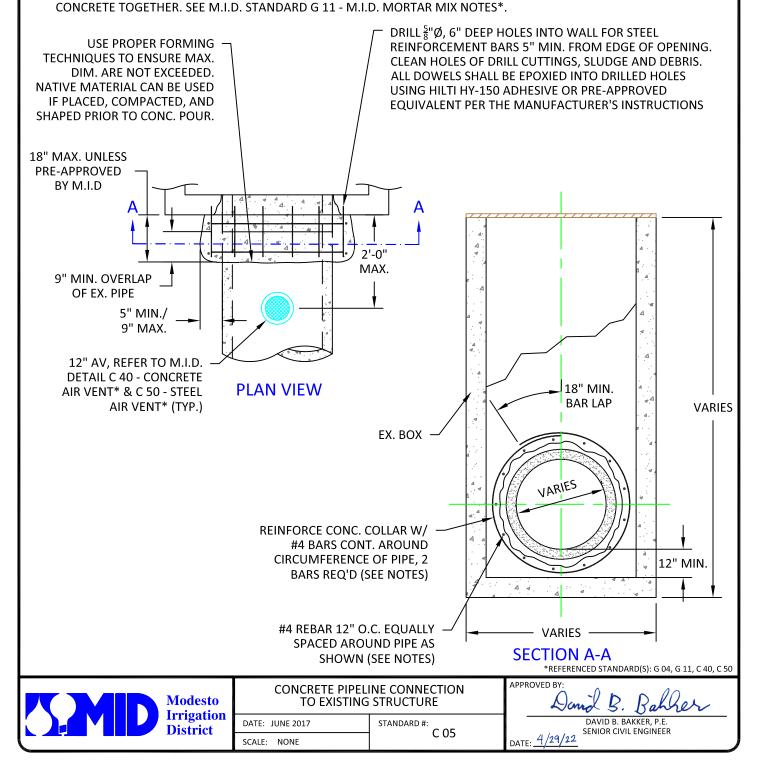
LH

- 3. REINFORCED COLLAR REQUIRED FOR ALL PIPELINES GREATER THAN 18" INSIDE DIAMETER OR FOR PIPE CONNECTIONS WITH A CHANGE IN DIAMETER GREATER THAN 5".
- 4. MINIMUM #4 BARS FOR ALL COLLAR REINFORCEMENT.
- A MINIMUM OF TWO CIRCUMFERENCE BARS REQUIRED, ONE BAR TO BE PLACED OVER THE END OF EACH PIPE WITH A 5. MINIMUM 18" BAR LAP. THE BARS MUST HAVE A MINIMUM OF 3" CLEAR FROM EACH PIPE O.D. AND 2" MINIMUM OF CONCRETE COVER.
- HORIZONTAL BARS SHALL BE PLACED AT 12" O.C. EQUALLY SPACED AROUND THE CIRCUMFERENCE OF THE PIPE WITH A MINIMUM OF SIX (6) HORIZONTAL BARS.
- 7. PROPERLY SEAL CONNECTION BY MORTARING FROM INSIDE PIPELINE AFTER PERMANENT PLACEMENT OF CONCRETE COLLAR AND PIPE SECTIONS. A MINIMUM MORTARED BAND WIDTH OF 5" IS REQUIRED. USE SOFT BRISTLE BRUSH TO BLEND MORTAR AND CONCRETE TOGETHER. SEE M.I.D. STANDARD G 11 - M.I.D. MORTAR MIX NOTES\*.

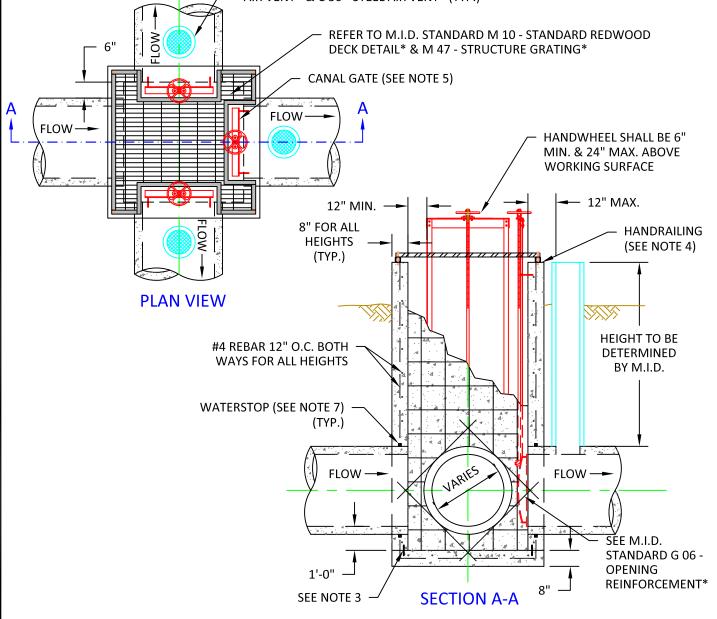


#### REV CHANGE DATE BY NOTES: 06/17 LH RELEASE REVISED 04/22 IΗ <u>/2</u>\ CONCRETE STRENGTH TO BE 3,000 PSI @ 28 DAYS. NO ADMIXTURES <u>/3</u>\ SHALL BE INCORPORATED INTO CONCRETE MIX UNLESS PRE-APPROVED BY M.I.D. SEE M.I.D. STANDARD G 04 - CONCRETE NOTES\*. ALL PIPE SHALL ENTER STRUCTURE AT OR NEAR PERPENDICULAR ANGLES TO THE WALL OF THE STRUCTURE. THOROUGHLY BRUSH ALL DEBRIS AND CLEAN BOTH PIPE AND STRUCTURE AROUND THE ENTIRE CIRCUMFERENCE WITH WATER PRIOR TO PLACEMENT OF CONCRETE OR MORTAR. MINIMUM #4 BARS FOR ALL COLLAR REINFORCEMENT. A MINIMUM OF TWO CIRCUMFERENCE BARS REQUIRED WITH A MINIMUM 18" BAR LAP. THE BARS MUST HAVE A MINIMUM OF 3" CLEAR FROM PIPE O.D. AND 2" MINIMUM OF CONCRETE COVER. HORIZONTAL BARS SHALL BE PLACED AT 12" O.C. EQUALLY SPACED AROUND THE CIRCUMFERENCE OF THE PIPE WITH A 6. MINIMUM OF SIX (6) HORIZONTAL BARS.

7. PROPERLY SEAL CONNECTION BY MORTARING FROM INSIDE PIPELINE AFTER PERMANENT PLACEMENT OF CONCRETE COLLAR. A MINIMUM MORTARED BAND WIDTH OF 5" IS REQUIRED. USE SOFT BRISTLE BRUSH TO BLEND MORTAR AND CONCRETE TO CETTURE.



#### REV CHANGE DATE BY NOTES: 06/17 LH RELEASE REVISED ΙH <u>/2</u>\ 04/22 CONCRETE STRENGTH TO BE 3.000 PSI @ 28 DAYS, NO ADMIXTURES <u>/3</u>\ SHALL BE INCORPORATED INTO CONCRETE MIX UNLESS PRE-APPROVED BY M.I.D. SEE M.I.D. STANDARD G 04 - CONCRETE NOTES\*. 2. ALL PIPE SHALL ENTER BOX AT OR NEAR PERPENDICULAR ANGLES TO THE BOX. 3. ALL COLD JOINTS REQUIRE 6" CENTER BULB RUBBER WATER STOP EMBEDDED IN CENTER OF WALL AT COLD JOINT LOCATION PER MANUFACTURER'S RECOMMENDATIONS. SEE M.I.D. STANDARD G 07 - NEW CONSTRUCTION JOINT\*. IF TOP OF STRUCTURE IS 4 FEET OR MORE ABOVE SURROUNDING GRADE, A LADDER SHALL BE REQUIRED. IF TOP OF 4. STRUCTURE IS 7.5 FEET OR MORE ABOVE SURROUNDING GRADE, HANDRAILING SHALL ALSO BE REQUIRED. REFER TO M.I.D. STANDARDS M 45 - STRUCTURE HANDRAILING\*, AND M 46 - STRUCTURE LADDER\*. 5. CANAL GATE TO BE WATERMAN C-10 CANAL GATE WITH GALVANIZED FRAME OR PRE-APPROVED EQUIVALENT. 6. PROPERLY SEAL ALL BOX JOINTS AND PIPES BY MORTARING FROM INSIDE OF BOX. USE SOFT BRISTLE BRUSH TO BLEND MORTAR AND CONCRETE TOGETHER. SEE M.I.D. STANDARD G 11 - M.I.D. MORTAR MIX NOTES\*. 7. WATERSTOP SURROUNDING OPENINGS SHALL BE VOLCLAY WATERSTOP-RX 102 BENTONITE CLAY STRIP OR ADEKA ULTRASEAL KBA-1510FP WATERSTOP, PLACED AROUND OUTSIDE OF PIPE IN CENTER OF WALL. 12" AV, REFER TO M.I.D. DETAIL C 40 - CONCRETE AIR VENT\* & C 50 - STEEL AIR VENT\* (TYP.) REFER TO M.I.D. STANDARD M 10 - STANDARD REDWOOD 8 DECK DETAIL\* & M 47 - STRUCTURE GRATING\* **CANAL GATE (SEE NOTE 5)**



\*REFERENCED STANDARD(S): G 06, G 07, G 11, C 40, C 50, M 10, M 45, M 46, M 47



**CONTROL BOX** FOR CONCRETE PIPELINE

DATE: JUNE 2017

STANDARD # C 10

APPROVED BY

DAVID B. BAKKER, P.E. SENIOR CIVIL ENGINEER

DATE: 4/29/22

#### REV CHANGE DATE BY NOTES: 06/17 LH RELEASE REVISED ΙH <u>/2</u>\ 04/22 CONCRETE STRENGTH TO BE 3,000 PSI @ 28 DAYS. NO ADMIXTURES <u>/3</u>\ SHALL BE INCORPORATED INTO CONCRETE MIX UNLESS PRE-APPROVED BY M.I.D. SEE M.I.D. STANDARD G 04 - CONCRETE NOTES\*. 2. ALL PIPE SHALL ENTER BOX AT OR NEAR PERPENDICULAR ANGLES TO THE BOX. PROPERLY SEAL ALL BOX JOINTS AND PIPES BY MORTARING FROM INSIDE OF BOX. USE SOFT BRISTLE BRUSH TO BLEND 3. MORTAR AND CONCRETE TOGETHER. SEE M.I.D. STANDARD G 11 - M.I.D. MORTAR MIX NOTES\*. IF TOP OF STRUCTURE IS 4 FEET OR MORE ABOVE SURROUNDING GRADE, A LADDER SHALL BE REQUIRED. IF TOP OF 4. STRUCTURE IS 7.5 FEET OR MORE ABOVE SURROUNDING GRADE, HANDRAILING SHALL ALSO BE REQUIRED. REFER TO M.I.D. STANDARDS M 45 - STRUCTURE HANDRAILING\*, AND M 46 - STRUCTURE LADDER\*. 5. CANAL GATE TO BE WATERMAN C-10 CANAL GATE WITH GALVANIZED FRAME OR PRE-APPROVED EQUIVALENT. 12" AV, REFER TO M.I.D. DETAIL C 40- CONCRETE AIR VENT\* & C 50 - STEEL AIR VENT\* (TYP.) **CANAL GATE (SEE NOTE 5) FLOW FLOW** REFER TO M.I.D. FLOW STANDARD M 10 -HANDWHEEL SHALL BE 6" **STANDARD** MIN. & 24" MAX. ABOVE **REDWOOD DECK WORKING SURFACE** 12" MIN. DETAIL\* & M 47 -**STRUCTURE** HANDRAILING -12" MAX. **PLAN VIEW GRATING\*** (SEE NOTE 4)

PROPERLY SEAL CONNECTION BY MORTARING FROM INSIDE AND **HEIGHT TO BE OUTSIDE OF BOX (SEE NOTES) DETERMINED** BY M.I.D. **HEIGHT TO BE DETERMINED** MORTAR ALL BY M.I.D. PIPE JOINTS FLOW FLOW 12" MIN. TYP. **SECTION A-A** #4 REBAR 12" O.C. BOTH WAYS \*REFERENCED STANDARD(S): G 04, G 11, C 40, C 50, M 10, M 45, M 46, M 47

Modesto Irrigation District PRECAST CONTROL BOX FOR CONCRETE PIPELINE

DATE: JUNE 2017

SCALE: NONE

STANDARD #: C 11

DAVID B. BAKKER, P.E.
SENIOR CIVIL ENGINEER

DATE: 4/29/22

APPROVED BY

#### REV CHANGE DATE BY NOTES: 06/17 LH RELEASE REVISED ΙH 04/22 <u>/2</u>\ CONCRETE STRENGTH TO BE 3,000 PSI @ 28 DAYS. NO ADMIXTURES <u>/3</u>\ SHALL BE INCORPORATED INTO CONCRETE MIX UNLESS PRE-APPROVED BY M.I.D. SEE M.I.D. STANDARD G 04 - CONCRETE NOTES\*. 2. ALL PIPE SHALL ENTER BOX AT OR NEAR PERPENDICULAR ANGLES TO THE BOX. ALL COLD JOINTS REQUIRE 6" CENTER BULB RUBBER WATER STOP EMBEDDED IN CENTER OF WALL AT COLD JOINT LOCATION PER MANUFACTURER'S RECOMMENDATIONS. SEE M.I.D. STANDARD G 07 - NEW CONSTRUCTION JOINT\*. WHEN AIR VENT IS WITHIN 5' OF TRAVELED WAY, AIR VENT SHALL BE BREAK AWAY TYPE. SEE DETAIL "A". WATERSTOP SURROUNDING OPENINGS SHALL BE VOLCLAY WATERSTOP-RX 102 BENTONITE CLAY STRIP OR ADEKA ULTRASEAL KBA-1510FP WATERSTOP, PLACED AROUND OUTSIDE OF PIPE IN CENTER OF WALL. PROPERLY SEAL ALL BOX JOINTS AND PIPES BY MORTARING FROM INSIDE OF BOX. USE SOFT BRISTLE BRUSH TO BLEND MORTAR AND CONCRETE TOGETHER. SEE M.I.D. STANDARD G 11 - M.I.D. MORTAR MIX NOTES\*. **INSTALL HOLLOW CORE POUR AV BASE INTO** 8" GALV. STEEL BREAK TOP OF BOX, (TYP.) AWAY BOLTS, POINTING SUPPORTED BY CROSS **DOWN (SEE NOTE 4)** BARS WELDED TO PIPE AND EMBEDDED IN CONC. (AS SHOWN) 2" MIN. 3" MAX. FLOW DETAIL A 5' MIN (TYP.) 3-#4 BARS ALL VERT. BARS TO BE BENT AT 90° ANGLE AND TIED/WELDED TO BOX COVER REBAR. 2' MIN. ABOVE MIN. BAR LAP TO BE 18" LONG **PLAN VIEW** STATIC WATER ELEV. 10"Ø SCH. 40 STEEL PIPE AV WITH OFFSET AV AS OPTION **EXPOSED METAL COVER WELDED** TO REPLACE STD VENT. **HEIGHT TO BE** TO TOP. USE RUST INHIBITING PAINT, STD OLIVE DRAB GREEN, SEE **DETERMINED** ALL OTHER COLORS TO BE NOTE 4 BY M.I.D. (5' MIN. PRE-APPROVED BY M.I.D. ABOVE GROUND) SIDEWALK MIN. 6" FROM **SIDEWALK** S=0.020 -FLOW -**VARIES** 12" MIN. WATERSTOP THRUST BLOCK. SEE M.I.D. (SEE NOTE 5) STANDARD G 10 - CONCRETE (TYP.) PIPE THRUST BLOCK\* SEE M.I.D. STANDARD G 06 -**OPENING REINFORCEMENT\*** 12" MIN. TYP. SEE NOTE 3 #4 REBAR 12" O.C. BOTH 8" FOR WAYS FOR ALL HEIGHTS **ALL HEIGHTS SECTION A-A** \*REFERENCED STANDARD(S): G 04, G 06, G 07, G 10, G 11 APPROVED BY PRESSURE BOX

Modesto **Irrigation District** 

FOR CONCRETE PIPELINE

DATE: JUNE 2017 STANDARD #: C 15 SCALE: NONE

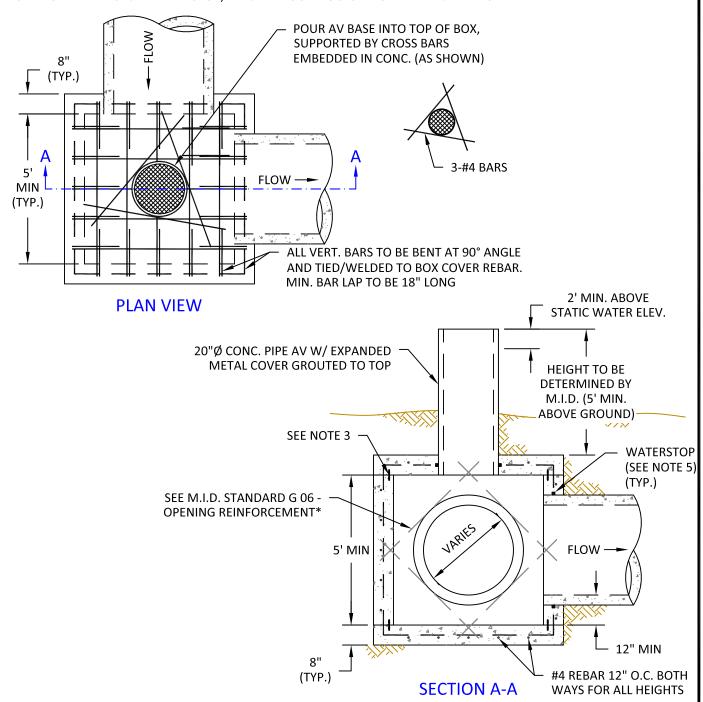
DAVID B. BAKKER, P.E. SENIOR CIVIL ENGINEER DATE: 4/29/22

NOTES.	ı	REV	CHANGE	DATE	ВУ			
NOTES:	}	1		06/17	LH BY			
1. CONCRETE STRENGTH TO BE 3,000 PSI @ 28 DAYS. NO ADMI	ixtures	2		04/22	LH			
SHALL BE INCORPORATED INTO CONCRETE MIX UNLESS PRE-	-APPROVED [	<u>/3\</u>						
BY M.I.D. SEE M.I.D. STANDARD G 04 - CONCRETE NOTES*.		4						
	LOCATION PER MANUFACTURER'S RECOMMENDATIONS. SEE M.I.D. STANDARD G 07 - NEW CONSTRUCTION JOINT*.							
4. STANDARD 24 INCH DIAMETER HEAVY DUTY PRESSURE TYPE MANHOLE FRAME AND COVER WITH MINIMUM 4-1/2 INCH								
SS BOLTS - SOUTH BAY FOUNDRY A1900-R3B, D&L SUPPLY CO					'' I			
MANHOLES TO BE INSTALLED WITH 5/16" SQUARE NEOPREN					R.			
5. WHEN AIR VENT IS WITHIN 5' OF TRAVELED WAY, AIR VENT S								
6. PROPERLY SEAL ALL BOX JOINTS AND PIPES BY MORTARING				.END				
MORTAR AND CONCRETE TOGETHER. SEE M.I.D. STANDARD 7. WATERSTOP SURROUNDING OPENINGS SHALL BE VOLCLAY N				·				
ULTRASEAL KBA-1510FP WATERSTOP, PLACED AROUND OUT				`				
OLINASLALIKBA ISIOT WATERSTOF, FLACED ARGUND GOT	13102 01 111 2		INSTALL HOLLOW -	_				
8" 9 ~ 24"Ø MANHOLE	EDAN4E		CORE GALV. STEEL					
(TYP.)			BREAK AWAY BOLTS,					
1 1 1 7 7 7 7 7 7 1 1 1 1 1 1 1 1 1 1 1	•	E DO	POINTING DOWN					
POUR AV BASE SUPPORTED BY								
PIPE AND EMB								
			·	<b>\</b>				
	X		<u> </u>	Ė	<b> </b>			
5' FLOW )			<u> </u>	<u></u>	<u>                                   </u>			
MIN	-/-	\	2" MIN.	ا .	8"			
(TYP.)   '   (A)	<b>,</b>	+	3" MAX.	$\Box$	-			
	\ _			ı	' † I			
	<u></u> 3.	-#4 B	ARS DETAIL A		' I			
ALL VEDT DA	DC TO DE DE							
ALL VERT. BA AND TIED/WI								
AMAL DAD LAS								
PLAN VIEW MIN. BAR LAF			. STATIC WATER ELI	٧.				
OFFSET AV AS OPTION 🔷 🔲 🦵 10"Ø SCH. 40 STEEL	DIDE AV WIT	ц —		_				
TO REPLACE STD VENT.   / EXPOSED METAL CO			\\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \					
TO TOP. USE RUST			HEIGHT	то в	E			
PAINT, STD OLIVE D	•		SEE DETERM					
ALL OTHER COLO			NOTE 5 BY M.I.D.	•				
PRE-APPROVED	BY M.I.D.		ABOVE G	ROU	ND)			
MIN. 6" FROM SIDEWALK			[ ]					
SIDEWALK	3"			_				
	- V 4	/4 -	4.	_				
S=0.020 → [Δ**]		\						
		. )	FLOW—					
WATERSTOP —	VARIL	7/	\.`\``\					
THRUST BLOCK. SEE M.I.D. (SEE NOTE 7)	1 1k		12" MIN. DETERM		BY			
STANDARD G 10 - CONCRETE (TYP.)			PIPE	iiv∨.	- 1			
PIPE THRUST BLOCK*		_/			- 1			
			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		- 1			
SEE M.I.D. STANDARD G 06 - OPENING REINFORCEMENT*	4	<u>/                                     </u>	<b>▼</b>	_	- 1			
Live Control of the C	· , · · · · · · ·	<del>7</del> ₹4						
SEE NOTE 3 8" FOR	1		#4 REBAR 12" O.C. B					
ALL HEIGHTS	SECTIO	N A	-A WAYS FOR ALL HEIGH	HTS				
			*REFERENCED STANDARD(S): G 04, G 06, G 0	7, G 10,	, G 11			
PRESSURE MA	NHOLE		APPROVED BY:					
Modesto FOR CONCRETE			Daniel B. Rahh	2				
Irrigation DATE: JUNE 2017 ST.	ANDARD #:		DAVID B. BAKKER, P.E.		_			
District SCALE: NONE	C 20		DATE: 4/29/22 SENIOR CIVIL ENGINEER					
			-···-					

I. CONCRETE STRENGTH TO BE 3,000 PSI @ 28 DAYS. NO ADMIXTURES SHALL BE INCORPORATED INTO CONCRETE MIX UNLESS PRE-APPROVED BY M.I.D. SEE M.I.D. STANDARD G 04 - CONCRETE NOTES\*.

REV	CHANGE	DATE	BY
î	RELEASE	06/17	LH
<u>^2</u> \			
<u> </u>			
4			

- 2. ALL PIPE SHALL ENTER BOX AT OR NEAR PERPENDICULAR ANGLES TO THE BOX.
- ALL COLD JOINTS REQUIRE 6" CENTER BULB RUBBER WATER STOP EMBEDDED IN CENTER OF WALL AT COLD JOINT LOCATION PER MANUFACTURER'S RECOMMENDATIONS. SEE M.I.D. STANDARD G 07 - NEW CONSTRUCTION JOINT\*.
- 4. PROPERLY SEAL ALL BOX JOINTS AND PIPES BY MORTARING FROM INSIDE OF BOX. USE SOFT BRISTLE BRUSH TO BLEND MORTAR AND CONCRETE TOGETHER. SEE M.I.D. STANDARD G 11 M.I.D. MORTAR MIX NOTES\*.
- 5. WATERSTOP SURROUNDING OPENINGS SHALL BE VOLCLAY WATERSTOP-RX 102 BENTONITE CLAY STRIP OR ADEKA ULTRASEAL KBA-1510FP WATERSTOP, PLACED AROUND OUTSIDE OF PIPE IN CENTER OF WALL.



\*REFERENCED STANDARD(S): G 04, G 06, G 07, G 11



PRESSURE BOX WITH 20" VENT FOR CONCRETE PIPELINE

DATE: JUNE 2017

SCALE: NONE

STANDARD #:

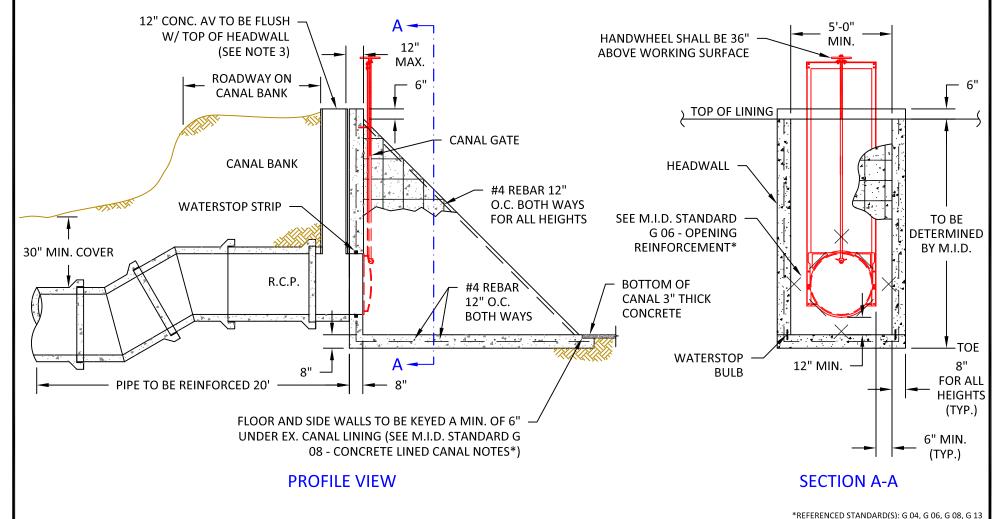
OARD #: C 25 CHAD J. TIENKEN, P.E., P.L.S.
CIVIL ENGINEERING MANAGER

DATE: 9/7/17

APPROVED BY:

NOTES:			REV	CHANGE	DATE	ВҮ
		A 413/T1 15.55	<u>^î</u>	RELEASE REVISED	06/17	LH LH
CONCRETE STRENGTH TO BE 3,000 PSI @ 28 D     SHALL BE INCORPORATED INTO CONCRETE M			<u>2</u>	NEVISED	04/22	LH
BY M.I.D. SEE M.I.D. STANDARD G 04 - CONCR			4			
2. ALL PIPE SHALL ENTER BOX AT OR NEAR PERP			E BO	· (.		
3. ALL COLD JOINTS REQUIRE 6" CENTER BULB R						
LOCATION PER MANUFACTURER'S RECOMME						
4. IF TOP OF STRUCTURE IS 4 FEET OR MORE ABO STRUCTURE IS 7.5 FEET OR MORE ABOVE SUR						MID
STANDARDS M 45 - STRUCTURE HANDRAILING						
5. CANAL GATE TO BE WATERMAN C-10 CANAL C				•		
6. PROPERLY SEAL ALL BOX JOINTS AND PIPES BY MORTAR AND CONCRETE TOGETHER. SEE M.I.					BLEND	1
7. WATERSTOP SURROUNDING OPENINGS SHAL					ÍΑ	
ULTRASEAL KBA-1015FP WATERSTOP, PLACED	AROUND C	UTSIDE OF PIP	E IN C	ENTER OF WALL.		
ATTACH GATE FRAME TO	A <del></del>	7				
GRATING/REDWOOD DECK FOR GATE STABILITY  5'-0"	3'-0	" <del></del>     <del></del> 8	" (TYF	?.)		
		!	_	WEIR BOARD SLOT 2½" WIDE, EMB	EDDE	O 2"
REFER TO M.I.D. STANDARD M 47 -				IN CONC. OR USE 2-GALV. L $\frac{1}{4}$ " X $2\frac{1}{2}$		
STRUCTURE GRATING*	H 6		<del></del> 71	BACK TO BACK ANGLES. OVERPOU 24" OR AS DETERMINED BY M.I.D.	R TO E	3E
		al .	.· 4	24 OR AS DETERMINED BY M.I.D.		
SEE M.I.D.				12" AV, REFER TO M.I.D. DETAI		
STANDARD G 06 -	1 1 1			CONCRETE AIR VENT* & C 50 - VENT*	STEEL	. AIR
OPENING			(Z)	VENT		
REINFORCEMENT*	1	-		12" MAX.		
	3"			<ul> <li>CANAL GATE (SEE NOTE 5)</li> </ul>		
Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y	MIN.	-		<u></u>		
FLOW -		51.01		— HANDWHEEL SI	1VII E	SE 6"
FLOW - VARIES	∠	FLOW	_	_/ / MIN. & 24" MA		
				/ WORKING SUR		
		75.75	-, <del></del>	<u></u> √?		
				12"	MIN.	
WATERSTOP —		4			IDRAII	
(SEE NOTE 7)	8"	(TYP.)		(SEI	NOTE	E 4)
(TYP.) 10'-0'	· <u> </u>	<u>-</u>	<b>A</b>		<u> </u>	
DI ANI VIIEVA	A <del></del>	J '		5'-0" MIN + -		
PLAN VIEW			<b>↓</b>			
		VARIES				
		2'-0" MIN.				
				HFIG	HT TC	) BF
				-1.19-1	ERMIN	
				B)	′ M.I.C	).
		2" O.C. BOTH - ALL HEIGHTS				
	VVATSFUK	ALL HEIGHIS		VARIES	<u> </u>	
		12" MIN	. TYP.			
		<b>A</b>		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	<u> </u>	
		SEE NOT	E 2	/ CECTION A   8	" (TYF	P.)
				SECTION A-A STANDARD(S): G 04, G 06, G 07, G 11, C 40, C 50, M	45, M 46,	, M 47
	OVERPO	UR BOX		APPROVED BY:	١	
		TE PIPELINE		Dand B. Bah	er	,
Irrigation District DATE: JUNE 201	7	STANDARD #:	`	DAVID B. BAKKER, P.E. SENIOR CIVIL ENGINEER		
SCALE: NONE		C 30		DATE: 4/29/22		

- 1. CONCRETE STRENGTH TO BE 3,000 PSI @ 28 DAYS. NO ADMIXTURES SHALL BE INCORPORATED INTO CONCRETE MIX UNLESS PRE-APPROVED BY M.I.D. SEE M.I.D. STANDARD G 04 CONCRETE NOTES\*.
- 2. SAW CUT, THOROUGHLY BRUSH AWAY DEBRIS AND CLEAN EXISTING LINING PRIOR TO CONCRETE PLACEMENT.
- 3. VENT COVER TO BE #3 OR #4 ROUND BARS WITH MAXIMUM SPACING BETWEEN BARS OF 2 INCHES AND WELDED TO #3 OR #4 CIRCUMFERENTIAL RING OR USE LIGHTWEIGHT FOUNDRY CASTING.
- 4. SEE M.I.D. STANDARD G 13 STANDARD CANAL GATE NOTES\* FOR STANDARD INSTALLATION AND CONSTRUCTION NOTES.



Modesto Irrigation District STANDARD CANAL GATE FOR CONCRETE PIPELINE

DATE: JUNE 2017

SCALE: NONE

STANDARD #: C 35

APPROVED BY:

DAVID B. BAKKER, P.E.

4/29/22

SENIOR CIVIL ENGINEER

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<u>3</u>

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RELEASE

REVISED

CHANGE

DATE

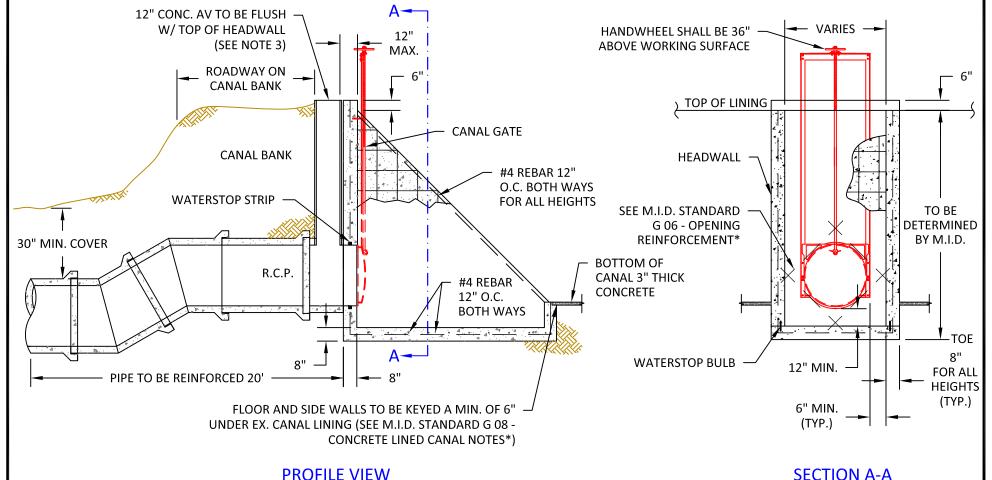
06/17

04/22

CONCRETE STRENGTH TO BE 3,000 PSI @ 28 DAYS. NO ADMIXTURES SHALL BE INCORPORATED INTO CONCRETE MIX

	UNLESS PRE-APPROVED BY M.I.D. SEE M.I.D. STANDARD G 04 - CONCRETE NOTES*.
2.	SAW CUT. THOROUGHLY BRUSH AWAY DEBRIS AND CLEAN EXISTING LINING PRIOR TO CONCRETE PLACEMENT.

- VENT COVER TO BE #3 OR #4 ROUND BARS WITH MAXIMUM SPACING BETWEEN BARS OF 2INCHES AND WELD TO #3 OR #4 CIRCUMFERENTIAL RING OR USE LIGHTWEIGHT FOUNDRY CASTING.
- SEE M.I.D. STANDARD G 13 STANDARD CANAL GATE NOTES\* FOR STANDARD INSTALLATION AND CONSTRUCTION NOTES.



**PROFILE VIEW** 

\*REFERENCED STANDARD(S): G 04, G 06, G 08, G 13



STANDARD CANAL GATE FOR CONCRETE PIPELINE WITH SUMP

DATE: JUNE 2017 SCALE: NONE

STANDARD #: C 36

DAVID B. BAKKER, P.E. SENIOR CIVIL ENGINEER

APPROVED BY:

REV

<u>2</u>

<u>3</u> 4 RELEASE

REVISED

CHANGE

DATE

06/17

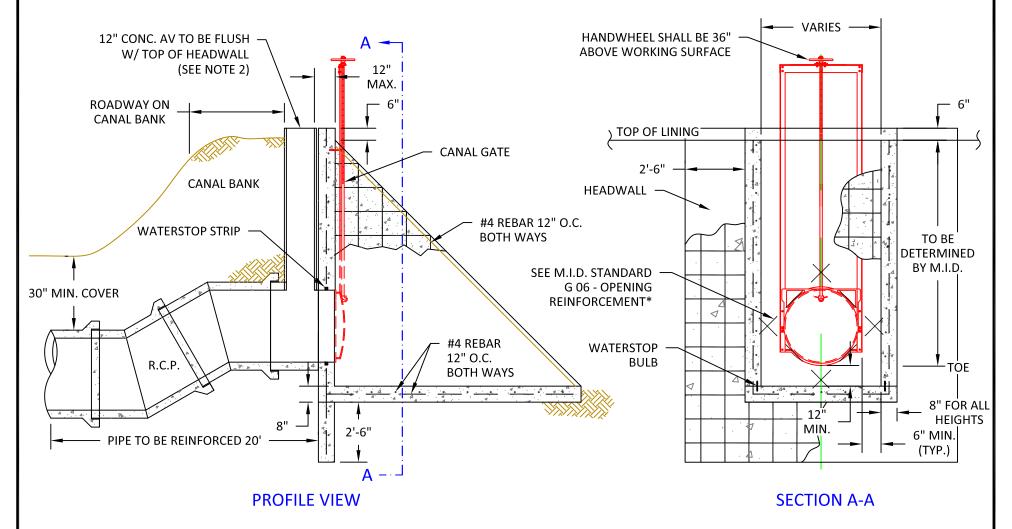
04/22

LH

1. CONCRETE STRENGTH TO BE 3,000 PSI @ 28 DAYS. NO ADMIXTURES SHALL BE INCORPORATED INTO CONCRETE MIX UNLESS PRE-APPROVED BY M.I.D. SEE M.I.D. STANDARD G 04 - CONCRETE NOTES\*.

REV	CHANGE	DATE	BY 🖥
À	RELEASE	06/17	Ţ
<u>^2</u> \	REVISED	04/22	LH
<u>3</u>			
À			

- 2. VENT COVER TO BE #3 OR #4 ROUND BARS WITH MAXIMUM SPACING BETWEEN BARS OF 2 INCHES AND WELD TO #3 OR #4 CIRCUMFERENTIAL RING OR USE LIGHTWEIGHT FOUNDRY CASTING.
- 3. SEE M.I.D. STANDARD G 13 STANDARD CANAL GATE NOTES\* FOR STANDARD INSTALLATION AND CONSTRUCTION NOTES.



\*REFERENCE STANDARD(S): G 04, G 06, G 13



DIRT DITCH STANDARD CANAL GATE FOR CONCRETE PIPELINE

DATE: JUNE 2017

SCALE: NONE

STANDARD #: C 37

DAVID B. BAKKER, P.E.
SENIOR CIVIL ENGINEER

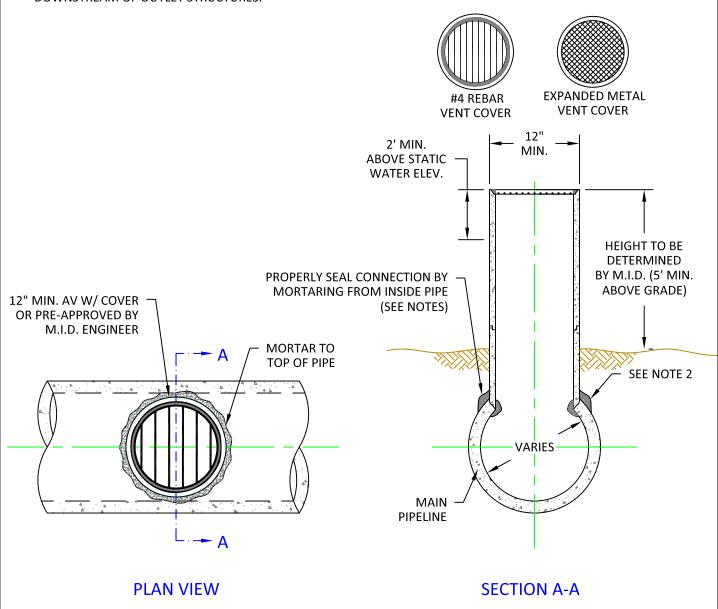
APPROVED BY:

4/29/22

 THOROUGHLY BRUSH ALL DEBRIS AND CLEAN EACH END OF PIPE AROUND THE ENTIRE CIRCUMFERENCE WITH WATER PRIOR TO PLACEMENT OF CONCRETE COLLAR OR MORTAR.

REV	CHANGE	DATE	ВҮ
À	RELEASE	06/17	LH
2	REVISED	04/22	LH
3			
4			

- 2. PROPERLY SEAL CONNECTION BY MORTARING FROM INSIDE PIPELINE AFTER PERMANENT PLACEMENT OF VENT PIPE. A MINIMUM MORTARED BAND WIDTH OF 5" IS REQUIRED. USE SOFT BRISTLE BRUSH TO BLEND MORTAR AND CONCRETE TOGETHER. SEE M.I.D. STANDARD G 11- M.I.D. MORTAR MIX NOTES\*.
- 3. IMMEDIATELY AFTER PLACEMENT OF MORTAR AND BEFORE BACKFILLING, COVER EXPOSED MORTAR WITH PLASTIC TO AVOID CRACKING.
- 4. VENT COVER SHALL BE EXPANDED METAL COVER, REBAR COVER OR LIGHTWEIGHT FOUNDRY COVER. REBAR COVER SHALL BE #3 OR #4 BARS WITH MAXIMUM SPACING BETWEEN BARS OF 2" AND WELD TO #3 OR #4 CIRCUMFERENTIAL RING.
- 5. AIR VENTS SHALL BE INSTALLED AT 500' INTERVALS, AT PIPELINE GRADE CHANGES, AT HIGH POINTS AND IMMEDIATELY DOWNSTREAM OF OUTLET STRUCTURES.



\*REFERENCED STANDARD(S): G 11



CONCRETE AIR VENT FOR CONCRETE PIPELINE

DATE: JUNE 2017

SCALE: NONE

STANDARD #:

C 40

APPROVED BY:

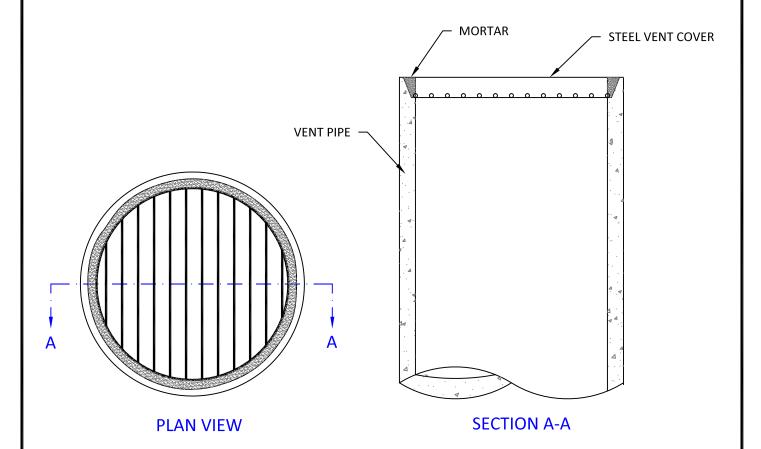
DAVID B. BAKKER, P.E. SENIOR CIVIL ENGINEER

DATE: 4/29/22

1. USE #3 OR #4 ROUND BARS WITH MAXIMUM SPACING BETWEEN BARS OF 2" AND WELD TO #3 OR #4 CIRCUMFERENTIAL RING OR USE LIGHTWEIGHT FOUNDRY CASTING.

REV	CHANGE	DATE	BY
Â	RELEASE	06/17	TH
<u>^</u> 2			
<u>/3</u>			
4			

- 2. WELD END OF BARS SECURELY TO #3 OR #4 ROUND BAR RING.
- 3. VENT INSTALLED WITH BELL END AT TOP.
- 4. COVER TO FIT INTO BELL AND THOROUGHLY GROUT AROUND ENTIRE CIRCUMFERENCE. SEE M.I.D. STANDARD G 11 M.I.D. MORTAR MIX NOTES\*.
- 5. IMMEDIATELY AFTER PLACEMENT OF MORTAR COVER EXPOSED MORTAR WITH PLASTIC TO AVOID CRACKING.



\*REFERENCED STANDARD(S): G 11



CONCRETE AIR VENT COVER FOR CONCRETE PIPELINE

DATE: JUNE 2017 SCALE: NONE

STANDARD #:

C 45

CHAD J. TIENKEN, P.E., P.L.S.
CIVIL ENGINEERING MANAGER

DATE: 9/7/17

APPROVED BY:

 THOROUGHLY BRUSH ALL DEBRIS AND CLEAN EACH END OF PIPE AROUND THE ENTIRE CIRCUMFERENCE WITH WATER PRIOR TO PLACEMENT OF VENT.

Modesto

**Irrigation** 

District

DATE: JUNE 2017

SCALE: NONE

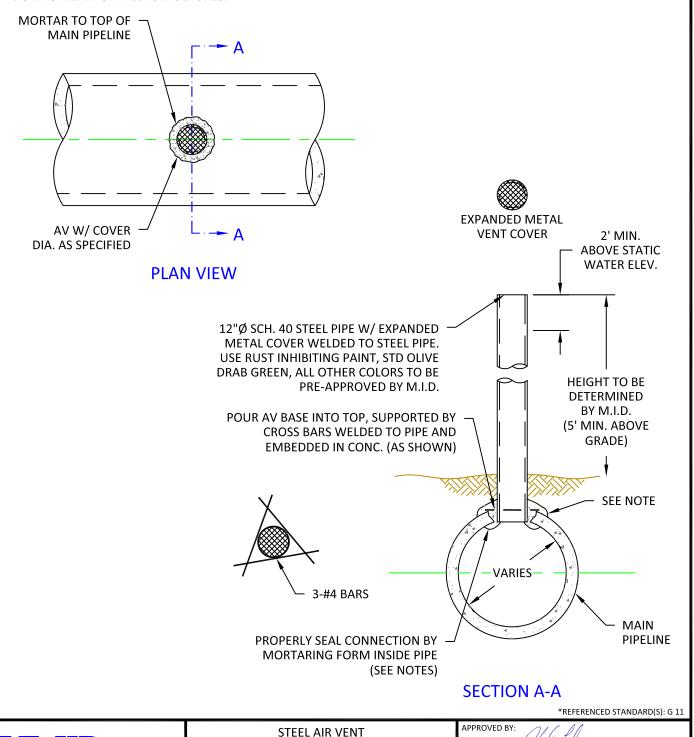
REV	CHANGE	DATE	ВҮ
<u> </u>	RELEASE	06/17	LH
<u>^</u> 2			
<u>/3</u>			
4			

CHAD J. TIENKEN, P.E., P.L.S.

CIVIL ENGINEERING MANAGER

DATE: 9/7/17

- 2. PROPERLY SEAL CONNECTION BY MORTARING FROM INSIDE PIPELINE AFTER PERMANENT PLACEMENT OF VENT PIPE. USE SOFT BRISTLE BRUSH TO BLEND MORTAR AND CONCRETE TOGETHER. USE M.I.D. STANDARD G 11- M.I.D. MORTAR MIX NOTES\*.
- 3. IMMEDIATELY AFTER PLACEMENT OF MORTAR AND BEFORE BACK FILLING, COVER EXPOSED MORTAR WITH PLASTIC TO AVOID CRACKING.
- 4. AIR VENTS SHALL BE INSTALLED AT 500' INTERVALS, AT PIPELINE GRADE CHANGES, AT HIGH POINTS AND IMMEDIATELY DOWNSTREAM OF INLET STRUCTURES.



FOR CONCRETE PIPELINE

STANDARD #:

C 50

#### REV CHANGE DATE NOTES: RELEASE 06/17 LH <u>/2</u>\ CONCRETE STRENGTH TO BE 3,000 PSI @ 28 DAYS. NO ADMIXTURES <u>/3</u>\ SHALL BE INCORPORATED INTO CONCRETE MIX UNLESS PRE-APPROVED BY M.I.D. SEE M.I.D. STANDARD G 04 - CONCRETE NOTES\*. 2. THOROUGHLY BRUSH ALL DEBRIS AND CLEAN EACH END OF PIPE AROUND THE ENTIRE CIRCUMFERENCE WITH WATER PRIOR TO PLACEMENT OF CONCRETE OR MORTAR. 3. PROPERLY SEAL CONNECTION BY MORTARING FROM INSIDE PIPELINE AFTER PERMANENT PLACEMENT OF PIPELINE PLUG. A MINIMUM MORTARED BAND WIDTH OF 5" IS REQUIRED. USE SOFT BRISTLE BRUSH TO BLEND MORTAR AND CONCRETE TOGETHER. SEE M.I.D. STANDARD G 11 - M.I.D. MORTAR MIX NOTES\*. ALL PIPELINES MUST BE PLUGGED USING FORMWORK OR PRECAST PLUGS (NO SUBSTITUTIONS). 2' MIN. 3-#4 BARS ABOVE STATIC WATER ELEV. POUR AV BASE INTO TOP OF INSTALL 12" Ø SCH. 40 STEEL AV PIPE, SUPPORTED BY CROSS W/IN 5' FROM PLUG. AV MUST BARS WELDED TO PIPE AND INCLUDE EXPANDED METAL COVER EMBEDDED IN CONC. (AS WELDED TO TOP OF PIPE. **HEIGHT TO BE** SHOWN) **DETERMINED** BY M.I.D. (5' MIN. ABOVE GROUND) **WEDGES TO** HOLD PLUG IN PLACE PRIOR TO **MORTARING** 3" MIN. C.I.P.C.P. REINFORCED PRE-FAB **CONCRETE DISK** OR FABRICATED **DISK AS SHOWN** PLUG TO BE REINFORCED W/A PROPERLY SEAL MIN. OF 1-#3 **CONNECTION BY** CIRCUMFERENTIAL MORTARING FROM BAR AND #3 BARS @ INSIDE AND OUTSIDE 9" O.C. BOTH WAYS PIPELINE (SEE NOTES) **PLAN VIEW SECTION A-A** \*REFERENCED STANDARD(S): G 04, G 11 APPROVED BY: **CONCRETE PLUG** Modesto FOR CONCRETE PIPELINE **Irrigation** CHAD J. TIENKEN, P.E., P.L.S. DATE: JUNE 2017 STANDARD #: District CIVIL ENGINEERING MANAGER C 55 DATE: 9/7/17 SCALE: NONE

OTES:		REV	CHANGE	DATE	ВҮ
·		Â	RELEASE	06/17	LH
	BE 3,000 P.S.I. @ 28 DAYS. NO ADMIXTURES	<u>/2\</u>	REVISED	04/22	Lŀ
	INTO CONCRETE MIX UNLESS PRE-APPROVE	) 3			
	DARD G 04 - CONCRETE NOTES*. K AT OR NEAR PERPENDICULAR ANGLES TO T		/		
	6" CENTER BULB RUBBER WATER STOP EME			OINT	
	TURER'S RECOMMENDATIONS. SEE M.I.D. ST				
GRATE REQUIRED ONLY FO					
	DINTS AND PIPES BY MORTARING FROM INS			TO BLEND	
	ΓOGETHER. SEE M.I.D. STANDARD G 11 - M.I IG OPENINGS SHALL BE VOLCLAY WATERSTO			DEKV	
	ATERSTOP, PLACED AROUND OUTSIDE OF P			DENA	
			- 5"d v 6" c	S "I " ANC	нс
	$L^{\frac{1}{4}}X4X^{4}$		ONG / OP DDE AL		
	G	ALV A	NGLE / EQUIVALE		
2"Ø SCH 40 GALV PIPE —	$\frac{1}{4}$ " X 3" STRAP WELDED TO				
@ 8" O.C. SPACING	ANGLE IRON AS GRATE HINGE	$\nearrow$			
	8" (TYP.)				
	5'-0"	//			
		$\vee$			
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A DITCH		A			
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			5'-0"	8"	
	12" MIN			YP.)	
TWINT.	(TTP.)		91		
	2" Ø SCH 40				
<i>`'\\\</i>	GALV. PIPE				
2'-6" MIN. BEYOND					
TOP OF DITCH	_				
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PLAN VI	EVV				
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	6" MIN. 🍑	````		* * * * * * * * * * * * * * * * * * *	~

Modesto Irrigation District

INLET / OUTLET BOX STRUCTURE FOR CONCRETE PIPELINE

#4 REBAR 12" O.C. EACH WAY

DATE: JUNE 2017

SCALE: NONE

STANDARD #: C 60

SEE NOTE 3 -

APPROVED BY: Dand B. Bahle

DAVID B. BAKKER, P.E. SENIOR CIVIL ENGINEER

\*REFERENCED STANDARD(S): G 04, G 07, G 11

12" MIN. TYP.

DATE: 4/29/22

**SECTION A-A** 

#### REV CHANGE DATE BY NOTES: 06/17 LH RELEASE REVISED ΙH 04/22 <u>/2</u>\ CONCRETE STRENGTH TO BE 3,000 PSI @ 28 DAYS. NO ADMIXTURES <u>/3</u>\ SHALL BE INCORPORATED INTO CONCRETE MIX UNLESS PRE-APPROVED BY M.I.D. SEE M.I.D. STANDARD G 04 - CONCRETE NOTES\*. 2. ALL PIPE SHALL ENTER BOX AT OR NEAR PERPENDICULAR ANGLES TO THE BOX. 3. ALL COLD JOINTS REQUIRE 6" CENTER BULB RUBBER WATER STOP EMBEDDED IN CENTER OF WALL AT COLD JOINT LOCATION PER MANUFACTURER'S RECOMMENDATIONS. SEE M.I.D. STANDARD G 07 - NEW CONSTRUCTION JOINT\*. CANAL GATE TO BE WATERMAN C-10 CANAL GATE WITH GALVANIZED FRAME OR PRE-APPROVED EQUIVALENT. 4. 5. PROPERLY SEAL ALL BOX JOINTS AND PIPES BY MORTARING FROM INSIDE OF BOX. USE SOFT BRISTLE BRUSH TO BLEND MORTAR AND CONCRETE TOGETHER. SEE M.I.D. STANDARD G 11 - M.I.D. MORTAR MIX NOTES\*. WATERSTOP SURROUNDING OPENINGS SHALL BE VOLCLAY WATERSTOP-RX 102 BENTONITE CLAY STRIP OR ADEKA 6. ULTRASEAL KBA-1510FP WATERSTOP, PLACED AROUND OUTSIDE OF PIPE IN CENTER OF WALL. 7. IF TOP OF STRUCTURE IS 4 FEET OR MORE ABOVE SURROUNDING GRADE, A LADDER SHALL BE REQUIRED. IF TOP OF STRUCTURE IS 7.5 FEET OR MORE ABOVE SURROUNDING GRADE, HANDRAILING SHALL ALSO BE REQUIRED. REFER TO M.I.D. STANDARDS M 45 - STRUCTURE HANDRAILING\* AND M 46 STRUCTURE LADDER\*. REFER TO M.I.D. STANDARD M 47 - STRUCTURE GRATING\* **FLOW** HANDWHEEL SHALL BE 6" **FLOW** MIN. & 24" MAX. ABOVE WORKING SURFACE 11'-1" 8" FOR ALL А **HEIGHTS** (TYP.) **FLOW** 12" MAX. FLOW **CANAL GATE** (SEE NOTE 4) HEIGHT TO BE **HANDRAILING DETERMINED** (SEE NOTE 7) **PLAN VIEW** BY M.I.D.

12" AV, REFER TO M.I.D. DETAIL C 40 - CONCRETE AIR VENT\* & C 50 - STEEL AIR VENT\*

VARIES FLOW · FLOW SEE NOTE 6 SEE NOTE 3 12" MIN. TYP.

\*REFERENCED STANDARD(S): G 04, G 07, G 11, C 40, C 50, M 45, M 46, M 47

8" TYP. -

**SECTION A-A** 



LONG CONTROL BOX FOR CONCRETE PIPELINE

#4 REBAR 12" O.C. BOTH

WAYS FOR ALL HEIGHTS

DATE: JUNE 2017

STANDARD # C 75

DAVID B. BAKKER, P.E. SENIOR CIVIL ENGINEER

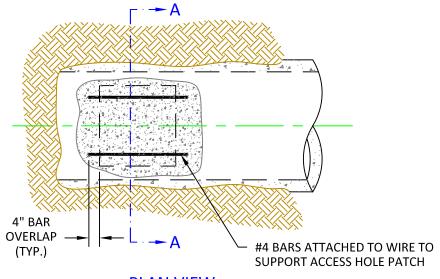
DATE: 4/29/22

APPROVED BY

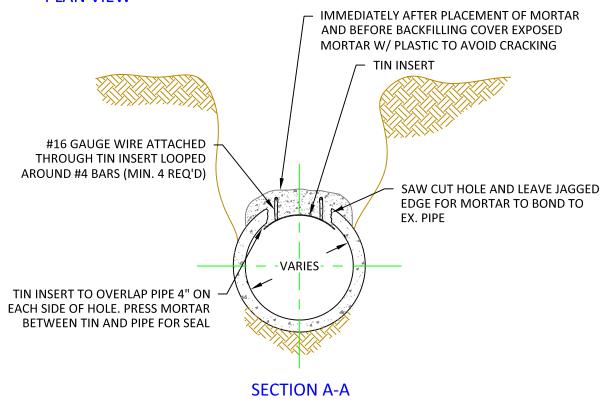
 ONLY TO BE USED WHEN AN EXISTING ACCESS POINT IS NOT IN PROXIMITY OF THE AREA OF PIPELINE REPAIR OR ONE CANNOT BE CONSTRUCTED. PRE-APPROVAL BY M.I.D. ENGINEER REQUIRED FOR ALL APPLICATIONS.

REV	CHANGE	DATE	ВҮ
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<u>^</u> 2	REVISED	04/22	LH
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- 2. THOROUGHLY BRUSH ALL DEBRIS AND CLEAN AROUND ACCESS HOLE WITH WATER PRIOR TO PLACEMENT OF PATCH AND MORTAR.
- MINIMUM #4 BARS FOR ACCESS HOLE PATCH REINFORCEMENT.
- TWO BARS REQUIRED TO BE PLACED OVER PATCH. BARS MUST EXTEND 4" PAST EDGE OF ACCESS HOLE.
- 5. MINIMUM #16 GAUGE WIRES TO BE USED TO ATTACH TIN INSERT TO EACH #4 REINFORCEMENT BAR.
- 6. PROPERLY SEAL ACCESS HOLE PATCH AND REBAR REINFORCEMENT BY MORTARING. USE SOFT BRISTLE BRUSH TO BLEND MORTAR AND CONCRETE TOGETHER. SEE M.I.D. STANDARD G 11 M.I.D. MORTAR MIX NOTES\*.



#### **PLAN VIEW**



\*REFERENCED STANDARD(S): G 11



ACCESS HOLE FOR CONCRETE PIPELINE

DATE: JUNE 2017

SCALE: NONE

STANDARD #:

C 99

APPROVED BY:

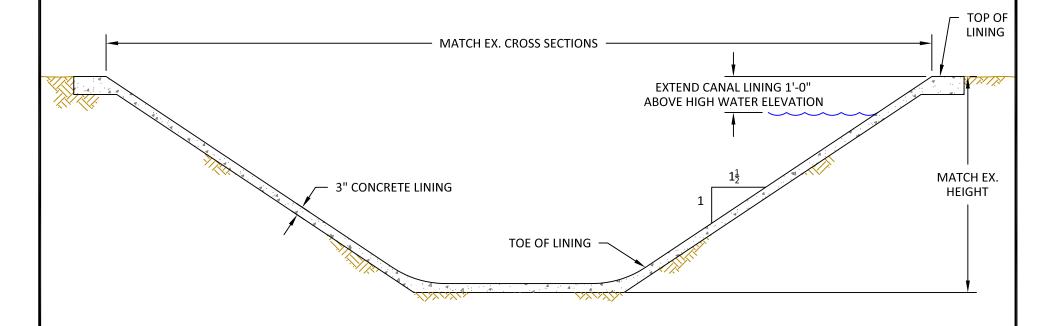
DAVID B. BAKKER, P.E. SENIOR CIVIL ENGINEER

DATE: 4/29/22

1. CONCRETE STRENGTH TO BE 3,000 PSI @ 28 DAYS. NO ADMIXTURES SHALL BE INCORPORATED INTO CONCRETE MIX UNLESS PRE-APPROVED BY M.I.D. SEE M.I.D. STANDARD G 04 - CONCRETE NOTES\*.

2.	SEE M.I.D. STANDARD	G 08 - CONCRETE LINED	CANAL NOTES*.

REV	CHANGE	DATE	BY
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<u>3</u>			
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Modesto Irrigation District TYPICAL CANAL CROSS SECTION

DATE: JUNE 2017

SCALE: NONE

STANDARD #:

CL 10

APPROVED BY:

CHAD J. TIENKEN, P.E., P.L.S.
CIVIL ENGINEERING MANAGER

9/7/17

\*REFERENCED STANDARD(S): G 04, G 08

DATE

	T.C.			REV	CHANGE	DATE	ВҮ
NO.	TES:			À	RELEASE	06/17	LH
1.	CONCRETE STRENGTH TO BE 3,0			2			
	SHALL BE INCORPORATED INTO	CONCRETE MIX UNLESS PRE-AF					
		CONCRETE MIX UNLESS PRE-AF G 04 - CONCRETE NOTES*.	PPROVED  OF BRIDG		CANAL LINING	Y M.I.D.	
	3'-0" WIDE	O FI	RAME 6" N ANAL SLO	MIN. S PES S	ES 2:1 OR LESS STEP THICKNESS. ON TEEPER THAN 2:1 STEP THICKNESS		
		CROSS SECTIO	ON VIEV	V			
					*REFERENCEI	D STANDARD(S)	
							: G 04
		CANAL STEP DE	TAIL		APPROVED BY:		: G 04
	Modesto Lyrigation	CANAL STEP DE	TAIL		APPROVED BY:		: G 04
	Modesto Irrigation District		TAIL  DARD #:  CL 1	Г	CHAD J. TIENKEN, P.E. CIVIL ENGINEERING MA		: G 04

 THIS STANDARD APPLIES TO PROPOSED UTILITIES CROSSING M.I.D. FACILITIES LYING WITHIN M.I.D. PROPERTY OR M.I.D. EASEMENTS.

REV	CHANGE	DATE	BY
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- 2. IN ALL CASES THERE SHALL BE NO LESS THAN 30 INCHES OF COVER OVER THE CASING PIPE EXCEPT UNDER THE M.I.D. PIPELINE OR CANAL.
- 3. ALL UTILITY CROSSINGS SHALL BE A MINIMUM OF SCHEDULE 40 PIPE, 100 PSI PVC, WELDED HDPE PIPE OR REINFORCED CONCRETE PIPE (RCP). ALL AGRICULTURAL CROSSINGS SHALL BE A MINIMUM OF SCHEDULE 40 PIPE OR 100 PSI PVC. CLASS OF PIPE MAY BE INCREASED AS DIRECTED BY M.I.D. ENGINEER. ALL PIPE JOINTS SHALL BE WELDED OR GLUED, NO GASKETED JOINTS SHALL BE ALLOWED UNLESS PRE-APPROVED BY M.I.D. ENGINEER. ALL OTHER PIPE AND PIPE CLASSES SHALL BE PRE-APPROVED BY M.I.D. ENGINEER.
- 4. WHENEVER ANY PROPOSED UTILITY IS TO CROSS EXISTING M.I.D. FACILITIES (PIPELINE, UNLINED DITCH OR LINED CANAL) LYING WITHIN M.I.D. PROPERTY OR M.I.D. EASEMENTS/RIGHT OF WAY, IT SHALL BE ACCOMPLISHED BY HORIZONTAL AUGER BORING OF A STEEL CASING PIPE RUNNING CONTINUOUSLY THE FULL WIDTH OR BY DIRECTIONAL DRILLING.
- 5. BORE PITS AND RECEIVING PITS SHALL ONLY BE PLACED OUTSIDE OF M.I.D. PROPERTY OR EASEMENTS/RIGHTS OF WAY. BORE PITS SHALL COMPLY WITH CAL-OSHA CONSTRUCTION SAFETY REQUIREMENTS. BORE PITS AND RECEIVING PITS SHALL BE SECURELY FENCED OR COVERED DURING NON-WORKING HOURS.
- 6. JACKING OF CASING PIPES WILL BE PERMITTED ONLY BY SPECIAL PERMISSION FROM M.I.D. ENGINEER.
- 7. ONCE THE BORING OPERATION HAS COMMENCED, IT SHALL BE CONTINUED, UNINTERRUPTED, AROUND THE CLOCK, UNTIL THE CASING PIPE HAS BEEN INSTALLED TO THE SPECIFIED LIMITS. ONCE BORING WORK IS COMPLETE BORE PIT AND RECEIVING PIT SHALL BE BACKFILLED AND COMPACTED IN 8" LIFTS.
- 8. THE INSIDE DIAMETER OF THE CASING PIPES SHALL BE AS LARGE AS NECESSARY FOR THE INSTALLATION OF THE CARRIER PIPE AND SKIDS. IN NO CASE SHALL IT BE LESS THAN 2 INCHES LARGER THAN THE LARGEST OUTSIDE DIAMETER OF THE CARRIER PIPE. CASING PIPES SHALL CONFORM TO THE TABLE BELOW AND SHALL BE SEAMLESS OR WELDED SEAM PIPE AND SHALL BE COATED INSIDE WITH A BITUMINOUS COATING. IF A BITUMINOUS COATING CANNOT BE USED ON THE INSIDE OF THE CASING PIPE, THE CASING PIPE MINIMUM THICKNESS SHALL BE INCREASED 1/16 INCH.

#### **CASING THICKNESS:**

MINIMUM THICKNESS
1/4"
3/8"
1/2"
TO BE DETERMINED BY M.I.D. ENGINEER

- CARRIER PIPES SHALL BE SUITABLE FOR TRANSPORTING THE PRODUCT INTENDED AND SHALL HAVE COMPRESSION SEALING JOINTS AT EACH END OF THE CROSSING.
- 10. CASING PIPES FOR CARRIER PIPES SHALL BE SEALED (PLUGGED) AT EACH END. CASING PIPES CARRYING ELECTRICAL CONDUCTORS SHALL BE GROUNDED WITH A GROUNDING ROD IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE.
- 11. ALL VENT PIPES & APPURTENANCES TO BE LOCATED OUTSIDE OF M.I.D. RIGHT-OF-WAY.
- 12. BORINGS SHALL NOT BE PERFORMED DURING THE IRRIGATION SEASON (TYPICALLY MARCH 1 TO OCTOBER 30) OR IN SATURATED GROUND WITHOUT SPECIFIC WRITTEN PERMISSION FROM M.I.D. ENGINEER.
- 13. THE DIAMETER OF THE BORED HOLE SHALL NOT BE MORE THAN 0.1 FEET GREATER THAN THE CASING PIPE OUTSIDE DIAMETER. A SHIELD OR BAND MAY BE USED ON THE FIRST SECTION OF PIPE. VOIDS RESULTING FROM CAVING OR EXCAVATING OUTSIDE OF THE ABOVE LIMITS SHALL BE BACKFILLED WITH SAND OR GROUT BY AN APPROPRIATE METHOD WHICH WILL FILL THE VOIDS. AS PRE-APPROVED BY M.I.D. ENGINEER.
- 14. WHERE THE DEPTH OF AN M.I.D. PIPELINE IS UNKNOWN, IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE THE PIPELINE. ONLY HAND AUGERING SHALL BE PERMITTED. ALLOW ADEQUATE DEPTH OF CASING PIPE TO INSURE THE SPECIFIED MINIMUM CLEARANCE.
- 15. M.I.D. ENGINEER SHALL CONFIRM THAT THERE ARE NO SIGNS OF LEAKAGE AT M.I.D. FACILITY PRIOR TO CROSSING WORK. IF LEAKAGE BECOMES APPARENT AFTER THE CROSSING WORK IS PERFORMED AND IT IS DETERMINED, SOLELY BY THE M.I.D. ENGINEER, THAT THE LEAKAGE IS A RESULT OF DAMAGE TO THE FACILITY IN CONNECTION WITH THE CROSSING PROJECT THEN REPAIR OF THE FACILITY WILL BE PERFORMED SOLELY AT THE EXPENSE OF THE CONTRACTOR OR PROJECT PROPONENT. M.I.D. SHALL BEAR NO EXPENSE IN RELATION TO THE PROJECT OR REPAIR.
- 16. AT THE COMPLETION OF WORK UTILITY CROSSING MARKERS SHALL BE INSTALLED. SEE M.I.D. STANDARD CR 20 UTILITY CROSSING MARKER\*.

\*REFERENCED STANDARD(S): CR 20

M	Modesto Irrigation District
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**BORING GENERAL NOTES** 

DATE: JUNE 2017 STANDARD #:

SCALE: NONE

CR 01

DAVID B. BAKKER, P.E. SENIOR CIVIL ENGINEER

DATE: 4/29/22

APPROVED BY:

\*REFERENCED STANDARD(S): CR 20

#### REV CHANGE DATE NOTES: /î\ 04/22 RELEASE <u>2</u> 1. SEE M.I.D. STANDARD CR 01 - BORING GENERAL NOTES\*. <u>3</u> 2. MINIMUM CLEARANCE BETWEEN BOTTOM OF CANAL AND CARRIER PIPE TO BE OBSERVED DURING INSTALLATION: 4 4'-0" MIN. FOR GAS, FIBER OPTIC, ELECTRICAL AND CABLE UTILITIES; 2'-0" FOR IRRIGATION, WATER, SEWER AND STORM DRAIN LINES. ALL DEPTHS TO BE APPROVED BY M.I.D. 3. BORE PIT AND RECEIVING PIT SHALL ONLY BE PLACED OUTSIDE OF M.I.D. PROPERTY OR EASEMENTS/RIGHTS-OF-WAY. BORE PIT SHALL COMPLY WITH CAL/OSHA CONSTRUCTION SAFETY REQUIREMENTS. BORE PIT AND RECEIVING PIT SHALL BE SECURELY FENCED DURING NON-WORKING HOURS AND BACKFILLED WITH ENGINEERED FILL WHEN NO LONGER REQUIRED. 4. CASING PIPE SHALL EXTEND 5' MINIMUM OUTSIDE OF M.I.D. RIGHT-OF-WAY. 5. NOTIFY OWNERS OF SUBSURFACE UTILITIES ALONG AND ON EITHER SIDE OF THE PROPOSED DRILL PATH OF THE IMPENDING WORK THROUGH UNDERGROUND SERVICE ALERT. ALL UTILITIES ALONG AND ON EITHER SIDE OF THE PROPOSED DRILL PATH ARE TO BE LOCATED. CONTRACTOR/LANDOWNER SHALL OBTAIN ALL NECESSARY PERMITS OR AUTHORIZATIONS TO PERFORM THE BORING WORK. 6.1. NOTE: A TUNNEL IS DEFINED AS ANY INSTALLATION THAT IS 30" OR LARGER IN DIAMETER AND IS SUBJECT TO ADDITIONAL PERMIT REQUIREMENTS AND INSPECTION BY CAL/OSHA. 7. ALL VENT PIPES AND APPURTENANCES TO BE LOCATED OUTSIDE OF M.I.D. RIGHT-OF-WAY. - M.I.D. RIGHT-OF-WAY -TOP OF LINING **EDGE OF** 15'-0" MIN. EX. CROSS SECTION -**BORE PIT CANAL BANK** RECEIVING PIT **BORE PIT** MATCH EX. HEIGHT BOTTOM OF COMPACTED FILL (TYP.) LINING MIN. CLR. SEE NOTE 2 CASING PIPE PLUG. AS DIRECTED BY M.I.D. MAINTAIN PIPE DEPTH ACROSS M.I.D. RIGHT-OF-WAY **ENGINEER (TYP. BOTH ENDS)** CARRIER PIPE

	Modesto
	<b>Irrigation</b>
Y I	District

JACK & BORE PIPELINE CROSSING UNDER M.I.D. CANAL

DATE: APRIL 2022

SCALE: NONE

STANDARD #: CR 02

**ELEVATION VIEW** 

APPROVED BY:

David B. Bahker

4/29/22

\*REFERENCED STANDARD(S): CR 01

SENIOR CIVIL ENGINEER

DATE

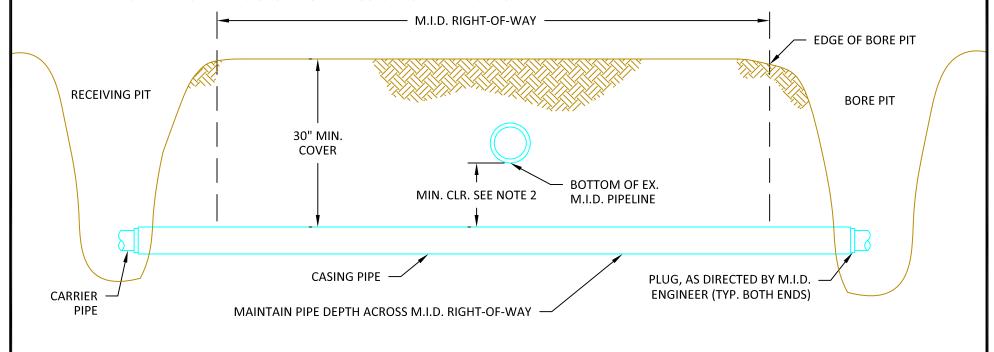
- 1. SEE M.I.D. STANDARD CR 01 BORING GENERAL NOTES\*.
- 2. MINIMUM CLEARANCE BETWEEN BOTTOM OF M.I.D. PIPELINE AND CARRIER PIPE TO BE OBSERVED DURING INSTALLATION: 4'-0" MIN. FOR GAS, FIBER OPTIC, ELECTRICAL AND CABLE UTILITIES; 2'-0" FOR IRRIGATION, WATER, SEWER AND STORM DRAIN LINES. ALL DEPTHS TO BE APPROVED BY M.I.D.
- REV
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- 3. BORE PIT AND RECEIVING PIT SHALL ONLY BE PLACED OUTSIDE OF M.I.D. PROPERTY OR EASEMENTS/RIGHTS-OF-WAY. BORE PIT SHALL COMPLY WITH CAL/OSHA CONSTRUCTION SAFETY REQUIREMENTS. BORE PIT AND RECEIVING PIT SHALL BE SECURELY FENCED DURING NON-WORKING HOURS AND BACKFILLED WITH ENGINEERED FILL WHEN NO LONGER REQUIRED.
- 4. CASING PIPE SHALL EXTEND 5' MINIMUM OUTSIDE OF M.I.D. RIGHT-OF-WAY.
- 5. NOTIFY OWNERS OF SUBSURFACE UTILITIES ALONG AND ON EITHER SIDE OF THE PROPOSED DRILL PATH OF THE IMPENDING WORK THROUGH UNDERGROUND SERVICE ALERT. ALL UTILITIES ALONG AND ON EITHER SIDE OF THE PROPOSED DRILL PATH ARE TO BE LOCATED.
- 6. CONTRACTOR/LANDOWNER SHALL OBTAIN ALL NECESSARY PERMITS OR AUTHORIZATIONS TO PERFORM THE BORING WORK.
- 6.1. NOTE: A TUNNEL IS DEFINED AS ANY INSTALLATION THAT IS 30" OR LARGER IN DIAMETER AND IS SUBJECT TO ADDITIONAL PERMIT REQUIREMENTS AND INSPECTION BY CAL/OSHA.
- 7. ALL VENT PIPES AND APPURTENANCES TO BE LOCATED OUTSIDE OF M.I.D. RIGHT-OF-WAY.



## **ELEVATION VIEW**

\*REFERENCED STANDARD(S): CR 01



JACK & BORE PIPELINE CROSSING UNDER M.I.D. PIPELINE

STANDARD #:

DATE: APRIL 2022

SCALE: NONE

CR 03

DAVID B. BAKKER, P.E. SENIOR CIVIL ENGINEER

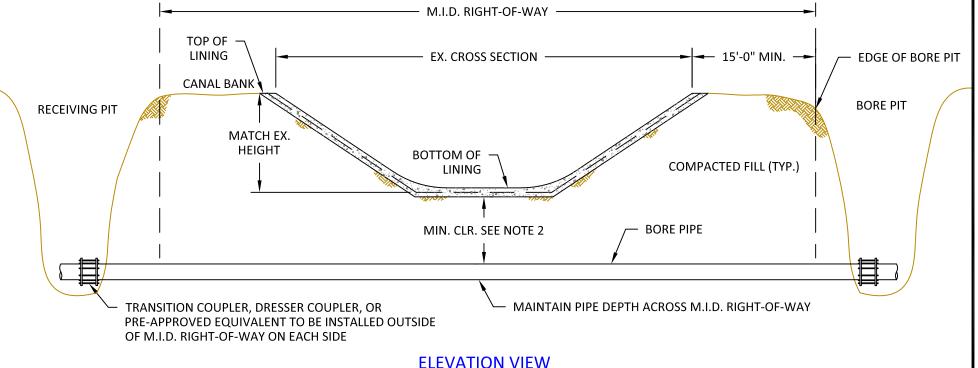
APPROVED BY:

4/29/22

- 1. SEE M.I.D. STANDARD CR 01 BORING GENERAL NOTES\*.
- 2. MINIMUM CLEARANCE BETWEEN BOTTOM OF CANAL AND CARRIER PIPE TO BE OBSERVED DURING INSTALLATION: 4'-0" MIN. FOR GAS, FIBER OPTIC, ELECTRICAL AND CABLE UTILITIES; 2'-0" FOR IRRIGATION, WATER, SEWER AND STORM DRAIN LINES. ALL DEPTHS TO BE APPROVED BY M.I.D.

REV	CHANGE	DATE	BY
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4			

- 3. BORE PIT AND RECEIVING PIT SHALL ONLY BE PLACED OUTSIDE OF M.I.D. PROPERTY OR EASEMENTS/RIGHTS-OF-WAY. BORE PIT SHALL COMPLY WITH CAL/OSHA CONSTRUCTION SAFETY REQUIREMENTS. BORE PIT AND RECEIVING PIT SHALL BE SECURELY FENCED DURING NON-WORKING HOURS AND BACKFILLED WITH ENGINEERED FILL WHEN NO LONGER REQUIRED.
- 4. BORE PIPE SHALL EXTEND 5' MINIMUM OUTSIDE OF M.I.D. RIGHT-OF-WAY.
- 5. NOTIFY OWNERS OF SUBSURFACE UTILITIES ALONG AND ON EITHER SIDE OF THE PROPOSED DRILL PATH OF THE IMPENDING WORK THROUGH UNDERGROUND SERVICE ALERT. ALL UTILITIES ALONG AND ON EITHER SIDE OF THE PROPOSED DRILL PATH ARE TO BE LOCATED.
- CONTRACTOR/LANDOWNER SHALL OBTAIN ALL NECESSARY PERMITS OR AUTHORIZATIONS TO PERFORM THE BORING WORK.
- 6.1. NOTE: A TUNNEL IS DEFINED AS ANY INSTALLATION THAT IS 30" OR LARGER IN DIAMETER AND IS SUBJECT TO ADDITIONAL PERMIT REQUIREMENTS AND INSPECTION BY CAL/OSHA.
- 7. ALL VENT PIPES AND APPURTENANCES TO BE LOCATED OUTSIDE M.I.D. RIGHT-OF-WAY.



\*REFERENCED STANDARD(S): CR 01



DIRECTIONAL BORING PIPELINE CROSSING UNDER M.I.D. CANAL

DATE: APRIL 2022 SCALE: NONE

STANDARD #:

CR 04

APPROVED BY:

DAVID B. BAKKER. P.E.

SENIOR CIVIL ENGINEER

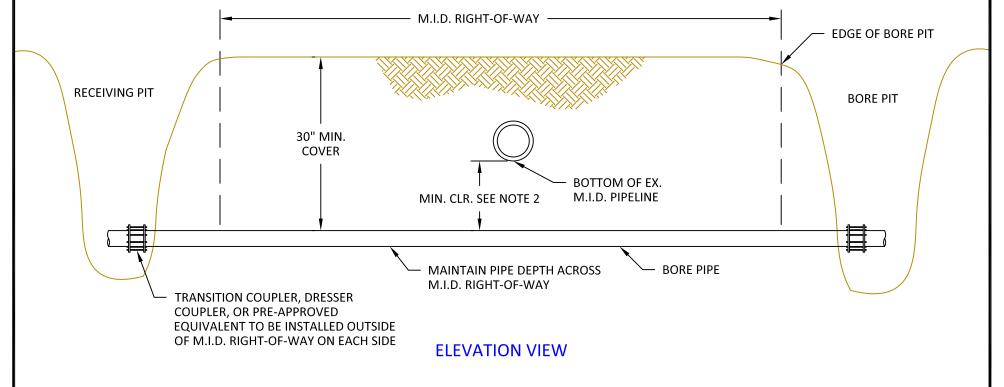
- 1. SEE M.I.D. STANDARD CR 01 BORING GENERAL NOTES\*.
- 2. MINIMUM CLEARANCE BETWEEN BOTTOM OF M.I.D. PIPELINE AND CARRIER PIPE TO BE OBSERVED DURING INSTALLATION: 4'-0" MIN. FOR GAS, FIBER OPTIC, ELECTRICAL AND CABLE UTILITIES; 2'-0" FOR IRRIGATION, WATER, SEWER AND STORM DRAIN LINES. ALL DEPTHS TO BE APPROVED BY M.I.D.
- REV
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- 3. BORE PIT AND RECEIVING PIT SHALL ONLY BE PLACED OUTSIDE OF M.I.D. PROPERTY OR EASEMENTS/RIGHTS-OF-WAY. BORE PIT SHALL COMPLY WITH CAL/OSHA CONSTRUCTION SAFETY REQUIREMENTS. BORE PIT AND RECEIVING PIT SHALL BE SECURELY FENCED DURING NON-WORKING HOURS AND BACKFILLED WITH ENGINEERED FILL WHEN NO LONGER REQUIRED.
- 4. BORE PIPE SHALL EXTEND 5' MINIMUM OUTSIDE OF M.I.D. RIGHT-OF-WAY.
- 5. NOTIFY OWNERS OF SUBSURFACE UTILITIES ALONG AND ON EITHER SIDE OF THE PROPOSED DRILL PATH OF THE IMPENDING WORK THROUGH UNDERGROUND SERVICE ALERT. ALL UTILITIES ALONG AND ON EITHER SIDE OF THE PROPOSED DRILL PATH ARE TO BE LOCATED.
- 6. CONTRACTOR/LANDOWNER SHALL OBTAIN ALL NECESSARY PERMITS OR AUTHORIZATIONS TO PERFORM THE BORING WORK.
- 6.1. NOTE: A TUNNEL IS DEFINED AS ANY INSTALLATION THAT IS 30" OR LARGER IN DIAMETER AND IS SUBJECT TO ADDITIONAL PERMIT REQUIREMENTS AND INSPECTION BY CAL/OSHA.
- 7. ALL VENT PIPES AND APPURTENANCES TO BE LOCATED OUTSIDE OF M.I.D. RIGHT-OF-WAY.



\*REFERENCED STANDARD(S): CR 01



DIRECTIONAL BORING PIPELINE CROSSING UNDER M.I.D. PIPELINE

DATE: APRIL 2022 SCALE: NONE

STANDARD #: CR 05

DAVID B. BAKKER, P.E. SENIOR CIVIL ENGINEER

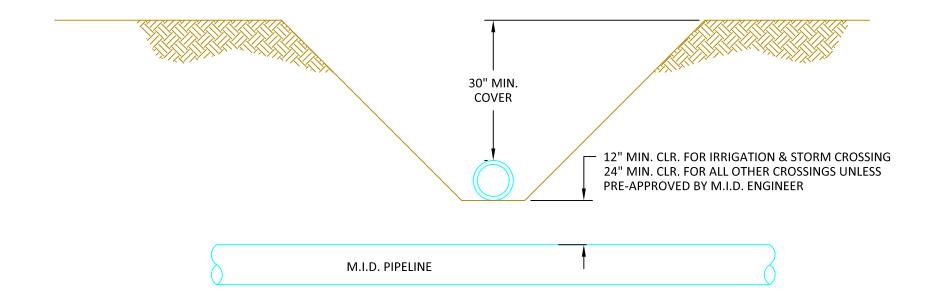
APPROVED BY:

4/29/22

1. WHERE DEPTH OF AN M.I.D. PIPELINE IS UNKNOWN, IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE THE PIPELINE. ONLY HAND AUGURING SHALL BE PERMITTED.

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- 2. TRENCH WORK SHALL COMPLY WITH CAL/OSHA CONSTRUCTION SAFETY REQUIREMENTS. SEE M.I.D. STANDARD G 09 TRENCH BACKFILL\*.
- 3. IF LEAKAGE BECOMES APPARENT AFTER THE CROSSING WORK IS PERFORMED AND IT IS DETERMINED, SOLELY BY THE M.I.D. ENGINEER, THAT THE LEAKAGE IS A RESULT OF DAMAGE TO THE FACILITY IN CONNECTION WITH THE CROSSING PROJECT THEN REPAIR OF THE FACILITY WILL BE PERFORMED SOLELY AT THE EXPENSE OF THE CONTRACTOR OR PROJECT PROPONENT. M.I.D. SHALL BEAR NO EXPENSE IN RELATION OF THE PROJECT OR REPAIR.
- 4. CONTRACTOR SHALL INSTALL A CONTINUOUS FULL SECTION OF PIPE, CENTERED OVER THE M.I.D. PIPELINE BEING CROSSED TO ENSURE JOINTS WILL NOT AFFECT M.I.D. PIPELINE.
- 5. ALL UTILITY CROSSINGS SHALL BE A MINIMUM OF SCHEDULE 40 PIPE, 100 PSI PVC, WELDED HDPE PIPE OR REINFORCED CONCRETE PIPE (RCP). ALL AGRICULTURAL CROSSINGS SHALL BE A MINIMUM OF SCHEDULE 40 PIPE OR 100 PSI PVC. CLASS OF PIPE MAY BE INCREASED AS DIRECTED BY M.I.D. ENGINEER. ALL OTHER PIPE AND PIPE CLASSES SHALL BE PRE-APPROVED BY M.I.D. ENGINEER.
- 6. ALL VENT PIPES AND APPURTENANCES TO BE LOCATED OUTSIDE OF M.I.D. RIGHT-OF-WAY.
- 7. AT THE COMPLETION OF WORK UTILITY CROSSING MARKERS SHALL BE INSTALLED. SEE M.I.D. STANDARD CR 20 UTILITY CROSSING MARKER\*.



### **ELEVATION VIEW**

\*REFERENCED STANDARD(S): G 09, CR 20



PIPELINE CROSSING OVER M.I.D. PIPELINE USING OPEN-CUT TRENCH

DATE: JUNE 2017

SCALE: NONE

STANDARD #:

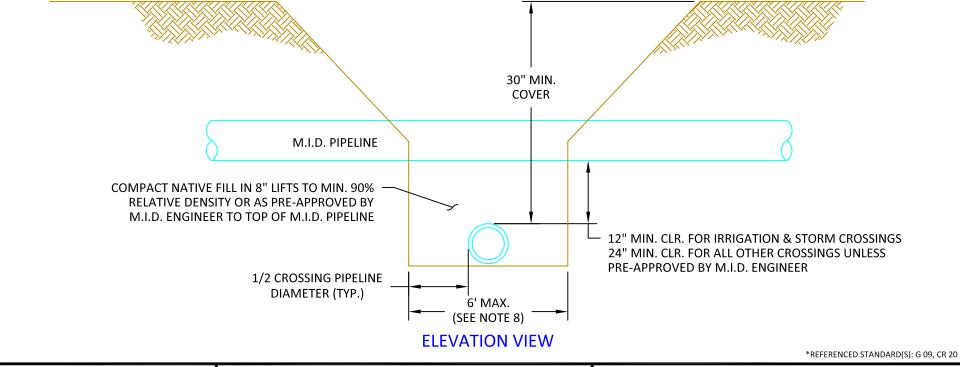
CR 10

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APPROVED BY:

DAVID B. BAKKER, P.E. SENIOR CIVIL ENGINEER 4/29/22

- 1. WHERE DEPTH OF AN M.I.D. PIPELINE IS UNKNOWN, IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE THE PIPELINE. ONLY HAND AUGURING SHALL BE PERMITTED.
- 2. TRENCH WORK SHALL COMPLY WITH CAL/OSHA CONSTRUCTION SAFETY REQUIREMENTS. SEE M.I.D. STANDARD G 09 - TRENCH BACKFILL\*.
- 3. IF LEAKAGE BECOMES APPARENT AFTER THE CROSSING WORK IS PERFORMED AND IT IS DETERMINED, SOLELY BY THE M.I.D. ENGINEER, THAT THE LEAKAGE IS A RESULT OF DAMAGE TO THE FACILITY IN CONNECTION WITH THE CROSSING PROJECT THEN REPAIR OF THE FACILITY WILL BE PERFORMED SOLELY AT THE EXPENSE OF THE CONTRACTOR OR PROJECT PROPONENT. M.I.D. SHALL BEAR NO EXPENSE IN RELATION OF THE PROJECT OR REPAIR.
- 4. CONTRACTOR SHALL INSTALL A CONTINUOUS FULL SECTION OF PIPE. CENTERED OVER THE M.I.D. PIPELINE BEING CROSSED TO ENSURE JOINTS WILL NOT AFFECT M.I.D. PIPELINE.
- 5. ALL UTILITY CROSSINGS SHALL BE A MINIMUM OF SCHEDULE 40 PIPE, 100 PSI PVC, WELDED HDPE PIPE OR REINFORCED CONCRETE PIPE (RCP). ALL AGRICULTURAL CROSSINGS SHALL BE A MINIMUM OF SCHEDULE 40 PIPE OR 100 PSI PVC. CLASS OF PIPE MAY BE INCREASED AS DIRECTED BY M.I.D. ENGINEER. ALL OTHER PIPE AND PIPE CLASSES SHALL BE PRE-APPROVED BY M.I.D. ENGINEER.
- 6. ALL VENT PIPES AND APPURTENANCES TO BE LOCATED OUTSIDE OF M.I.D. RIGHT-OF-WAY.
- 7. AT THE COMPLETION OF WORK UTILITY CROSSING MARKERS SHALL BE INSTALLED. SEE M.I.D. STANDARD CR 20 UTILITY CROSSING MARKER\*.
- 8. MAXIMUM 6' CROSSING CUT UNLESS PRE-APPROVED BY M.I.D. ENGINEER



Modesto **Irrigation** District

PIPELINE CROSSING UNDER M.I.D. PIPELINE **USING OPEN-CUT TRENCH** 

DATE: JUNE 2017

SCALE: NONE

STANDARD #: CR 11

APPROVED BY:

DAVID B. BAKKER, P.E.

SENIOR CIVIL ENGINEER

CHANGE

DATE

06/17

04/22

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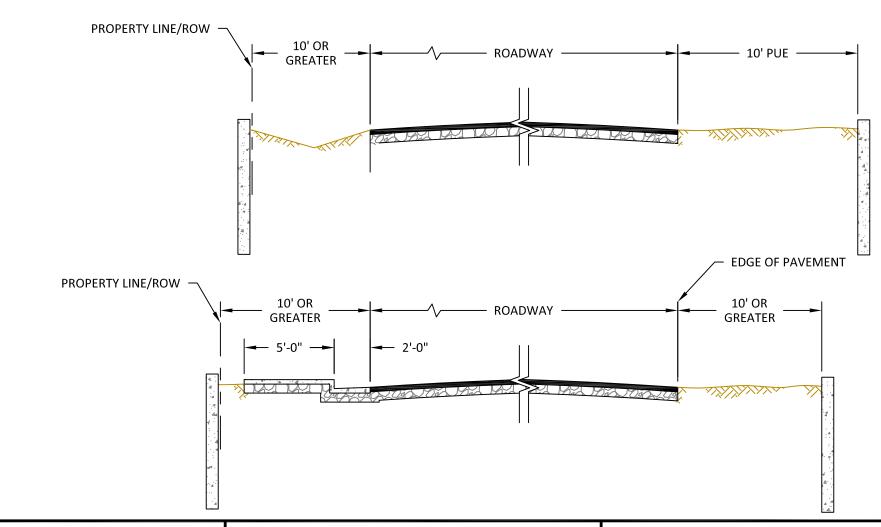
4

RELEASE REVISED

- 1. HEADWALLS SHALL BE CONSTRUCTED PERPENDICULAR TO M.I.D. LATERAL.
- 2. MINIMUM CLEAR DISTANCE SHALL BE MEASURED FROM THE EDGE OF PAVEMENT TO THE CLOSEST POINT ON THE HEADWALL.

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- 3. HEADWALLS SHALL BE INSTALLED AT PROPERTY LINE, ROAD RIGHT OF WAY, PUBLIC UTILITY EASEMENT, OR 8 FEET FROM EDGE OF PAVEMENT, WHICHEVER IS GREATER.
- 4. UPSTREAM HEADWALLS MAY REQUIRE ADDITIONAL CLEARANCE FOR M.I.D. OPERATIONS.





HEADWALL SETBACKS ON ROAD CROSSINGS

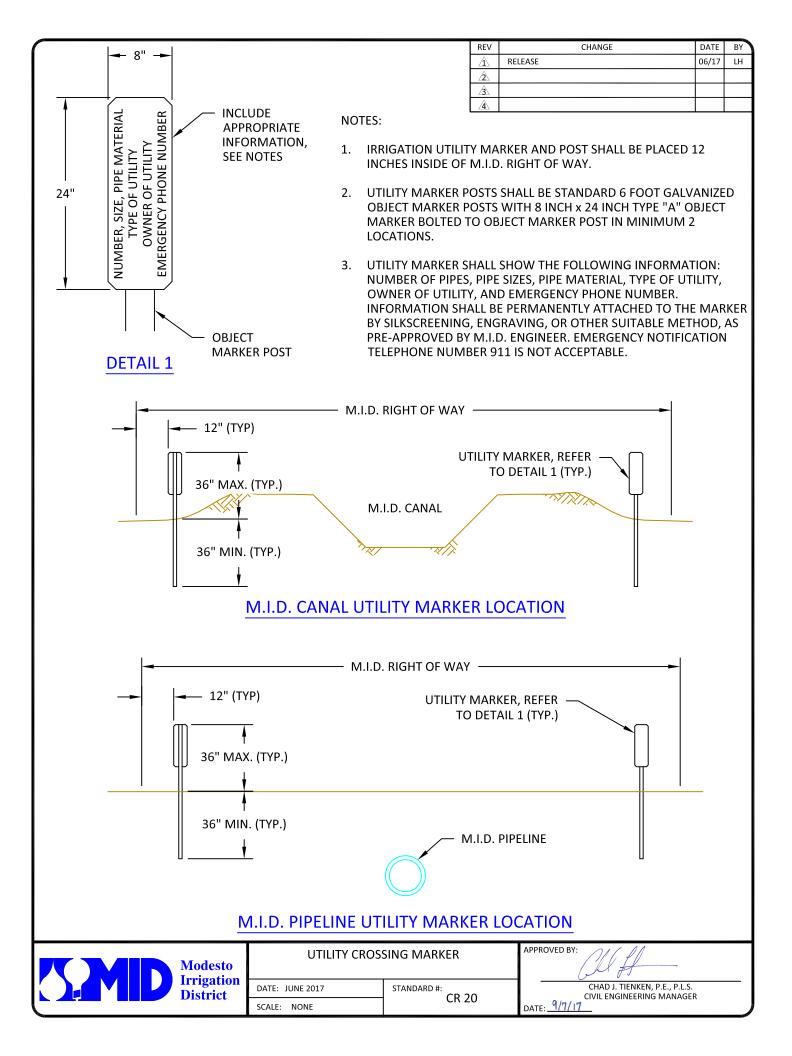
DATE: JUNE 2017

SCALE: NONE

STANDARD #: CR 15

APPROVED BY:

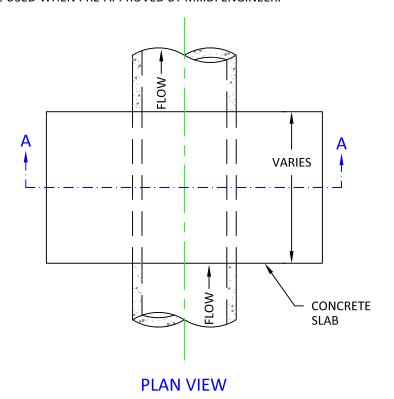
DAVID B. BAKKER, P.E. SENIOR CIVIL ENGINEER 4/29/22

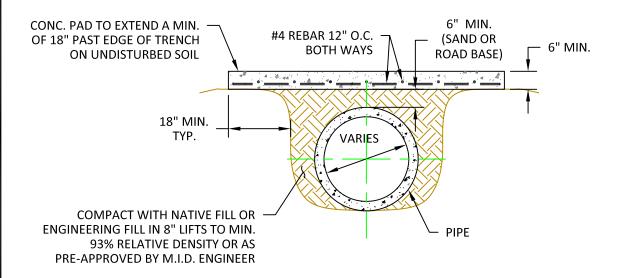


 CONCRETE STRENGTH TO BE 3,000 PSI @ 28 DAYS. NO ADMIXTURES SHALL BE INCORPORATED INTO CONCRETE MIX UNLESS PRE-APPROVED BY M.I.D. SEE M.I.D. STANDARD G 04 - CONCRETE NOTES\*.

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- 2. THIS DETAIL IS NOT TO BE USED AS AN ALTERNATIVE TO PIPELINE REPLACEMENT.
- 3. THIS DETAIL IS ONLY TO BE USED WHEN PRE-APPROVED BY M.I.D. ENGINEER.





#### **SECTION A-A**

\*REFERENCED STANDARD(S): G 04



DRIVEWAY SLAB FOR PIPELINE

DATE: APRIL 2022

SCALE: NONE

STANDARD #:

M 05

APPROVED BY:

David B. Bakker, P.E.

SENIOR CIVIL ENGINEER

DATE: 4/29/22

REV CHANGE DATE NOTE: 06/17 LH RELEASE REVISED 04/22 LH <u>/2</u>\ CANAL GATE TO BE WATERMAN C-10 CANAL GATE OR PRE-APPROVED <u>/3</u>\ EQUIVALENT WITH GALVANIZED FRAME. 4 2. THIS STANDARD MAY BE USED FOR A MAXIMUM SPAN OF 5'-0". FOR SPANS GREATER THAN 5'-0" SEE M.I.D. STANDARD M 47 - STRUCTURE GRATING\*.  $L^{\frac{1}{4}}$ " X 3" X 3" X 6'-0" LONG GALV ANGLE REQ'D FOR REDWOOD DECK SUPPORT IF ANY TWO GATES ARE PERPENDICULAR IN BOX STRUCTURE ₹ Ø X 8" LONG GALV A307 BOLT 5" MIN. EMBEDDMENT INTO CONCRETE. FOR (E) STRUCTURES USE \( \frac{3}{8} \) \( \tilde{\tilde{Q}} \) GALV DROP-IN ANCHORS W/ GALV CAP SCREW OR THREADED BOLT (4 REQ'D) CANAL GATE (SEE NOTE 1) **INLET WALL** §"Ø X 5" LONG GRADE 2 GALV CARRIAGE BOLT W/ 2 FLAT WASHERS AND BOLT (TYP.) 2" X 6" ROUGH SAWN REDWOOD **PLAN VIEW ROUGH SAWN** REDWOOD 2" X 6" BOLT -**GALV ANGLE SECTION A-A** \*REFERENCED STANDARD(S): M 47 APPROVED BY: STANDARD REDWOOD DECK DETAIL Modesto **Irrigation** DAVID B. BAKKER, P.E. DATE: JUNE 2017 STANDARD #: District SENIOR CIVIL ENGINEER M 10 DATE: 4/29/22 SCALE: NONE

#### REV CHANGE DATE BY 06/17 LH RELEASE REVISED LH 04/22 <u>/2</u>\ <u>/3</u>\

#### NOTES:

**GATES:** 12', 14' OR 16' X 52" POWDER RIVER "CLASSIC HEAVY DUTY GATE" WITH GATE SUPPORT AND GATE

STOP, OR PRE-APPROVED EQUIVALENT. GATE OPENING VARIES BY LOCATION. REFLECTIVE TAPE TO

BE PLACED ON TWO HORIZONTAL GATE MEMBERS.

3" X 3" X 3/16" SQUARE TUBING. **VERTICAL POSTS:** 

**HORIZONTAL POSTS:** 1-1/2" X 1-1/2" X 3/32" SQUARE TUBING.

LOCATION: TYPICAL GATE INSTALLATION WILL BE SET BACK APPROXIMATELY 50' FROM CURB OR ROAD

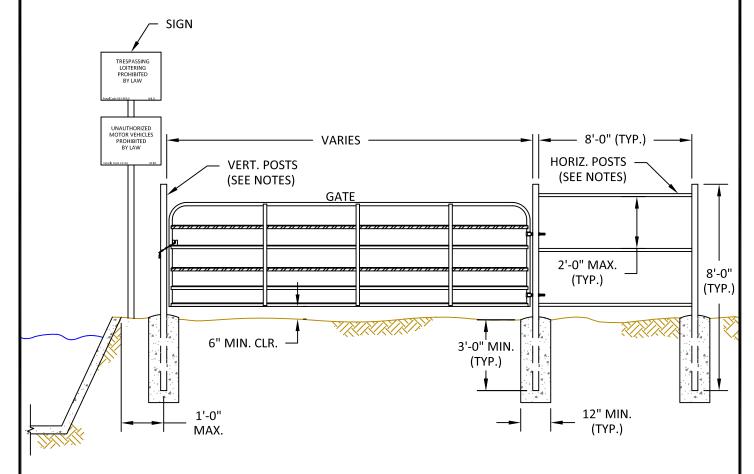
RIGHT-OF-WAY.

SIGNS: SIGNS WILL BE INSTALLED ON A STEEL POST AND LOCATED 8' BEHIND GATE (OTHER LOCATIONS AS

APPLICABLE).

LOCKS: LOCKS SHALL BE M.I.D. D-219 PADLOCKS (PRIVATE LOCKS MAY BE AUTHORIZED).

\*FOR HIGH SECURITY LOCATIONS CONSULT M.I.D. ENGINEER.



#### **ELEVATION VIEW**



TYPICAL M.I.D. CANAL **ROADWAY GATE DETAIL** 

DATE: JUNE 2017

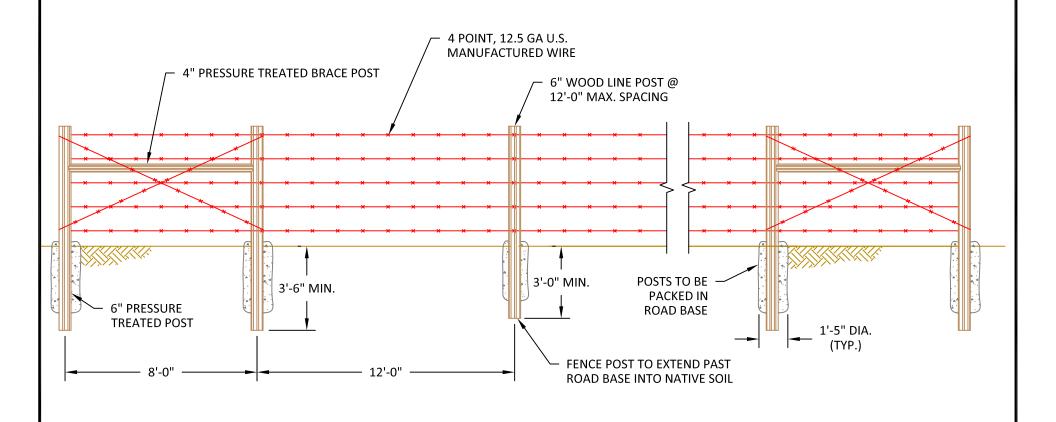
SCALE: NONE STANDARD #: M 15 APPROVED BY:

DAVID B. BAKKER, P.E. SENIOR CIVIL ENGINEER

DATE: 4/29/22

- 1. H-BRACE UNITS SHALL BE INSTALLED PRIOR TO CUTTING EXISTING FENCE.
- 2. HEIGHT OF POSTS TO MATCH EXISTING POSTS.
- 3. NUMBER OF STRANDS TO MATCH EXISTING FENCE, 5 STRAND MINIMUM.
- 4. FENCE HEIGHT TO BE DETERMINED BY LANDOWNER (4'-6" TO 5'-0")
- 5. MINIMUM 6" DIAMETER PRESSURE TREATED POST.

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BARBED WIRE FENCE DETAIL

DATE: JUNE 2017

SCALE: NONE

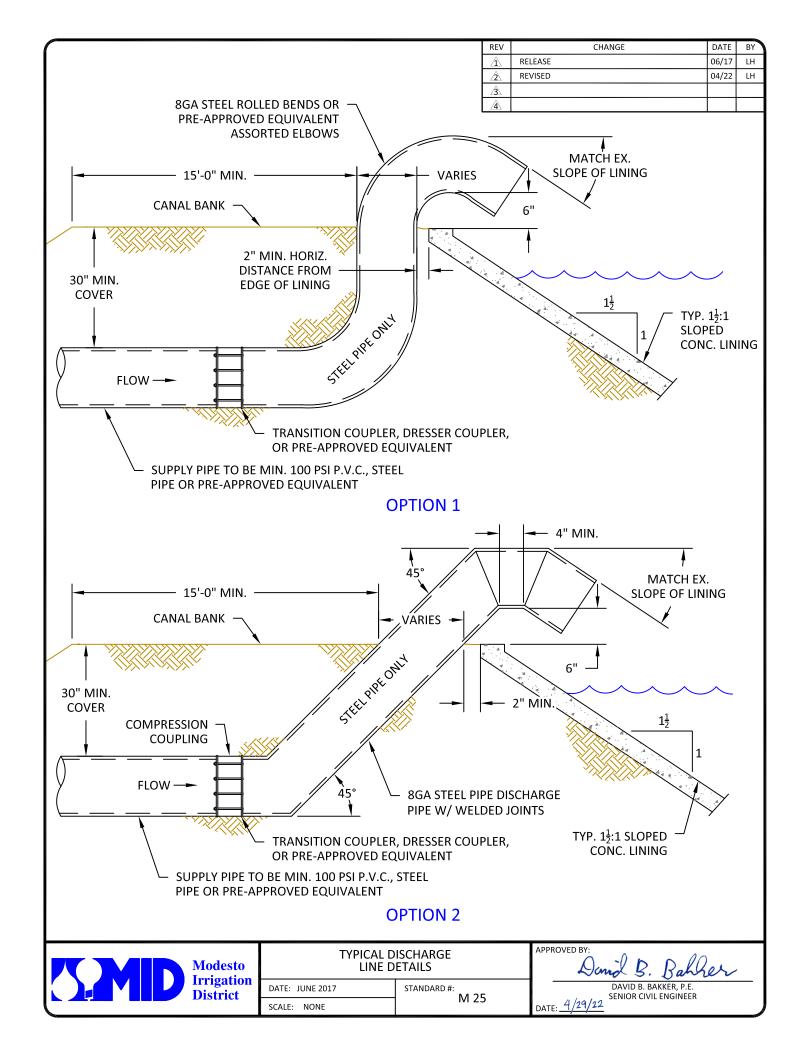
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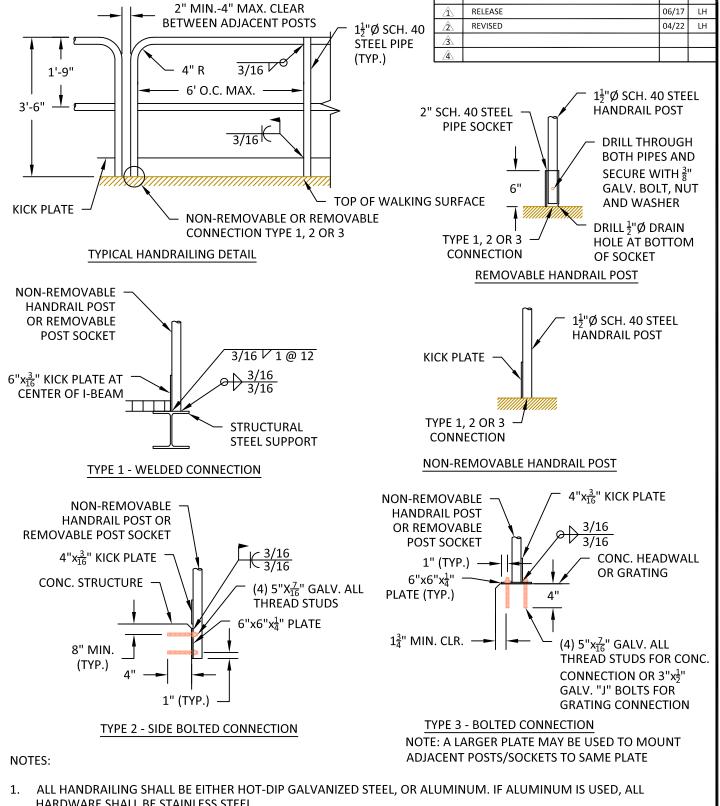
M 20

APPROVED BY:

David B. Bahler

DAVID B. BAKKER, P.E. SENIOR CIVIL ENGINEER 4/29/22



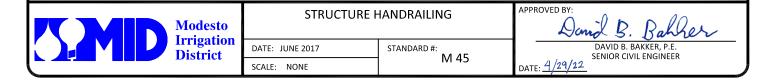


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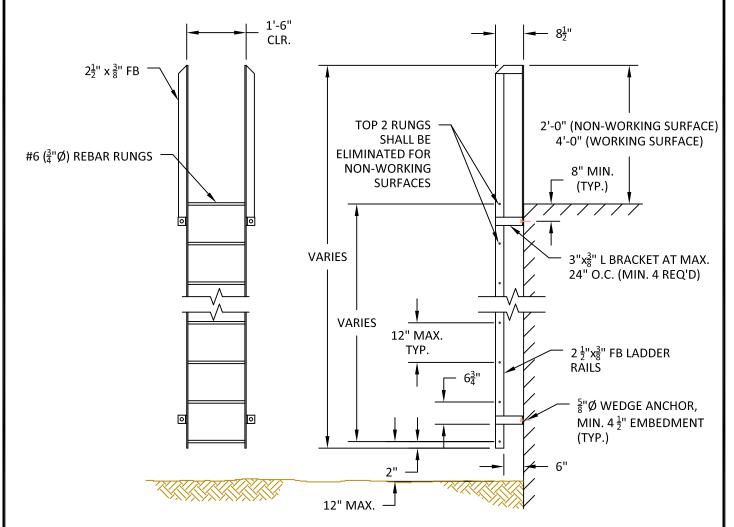
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DATE

- HARDWARE SHALL BE STAINLESS STEEL.
- IF HOT DIP GALVANIZED. ALL VENT HOLES SHALL BE PLUGGED WITH RUBBER GROMMETS FOLLOWING GALVANIZING.
- REMOVABLE HANDRAILING PANELS SHALL HAVE A MAX TOTAL LENGTH OF 12' PER PANEL.







- 1. ALL METAL SURFACES TO BE HOT DIP GALVANIZED OR BRUSH PAINTED WITH ONE COAT RED RUSTOLEUM PRIMER, SECOND COAT GREEN RUSTOLEUM, FINAL COAT SAND OR TAN EXTERIOR GLOSS FINISH OR PRE-APPROVED EQUIVALENT.
- 2. ALL FLAT BAR CONNECTIONS SHALL BE WELDED. LADDER RUNGS SHALL BE WELDED TO FLAT BAR. WELDS SHALL BE GROUND SMOOTH AND WIRE BRUSHED CLEAN. ALL WELDS TO BE 1/4 INCH CONTINUOUS FILLET.
- 3. ATTACH TO CONCRETE STRUCTURE WITH 5/8 INCH DIAMETER WEDGE ANCHORS (TYP) PER MANUFACTURER SPECIFICATIONS. MIN 4-1/2 INCHES EMBEDMENT.

DATE: JUNE 2017

NONE

SCALE:

- 4. MUST CONFORM TO CAL/OSHA STANDARDS, REFER TO CAL/OSHA SPECIFICATIONS FOR ELEVATED PLATFORMS.
- 5. IF TOP OF STRUCTURE IS 7.5 FEET OR MORE ABOVE SURROUNDING GRADE, HANDRAILING SHALL BE REQUIRED. REFER TO M.I.D. DETAIL M 45, STRUCTURE HANDRAILING\*.

M 46

STRUCTURE LADDER

APPROVED BY:

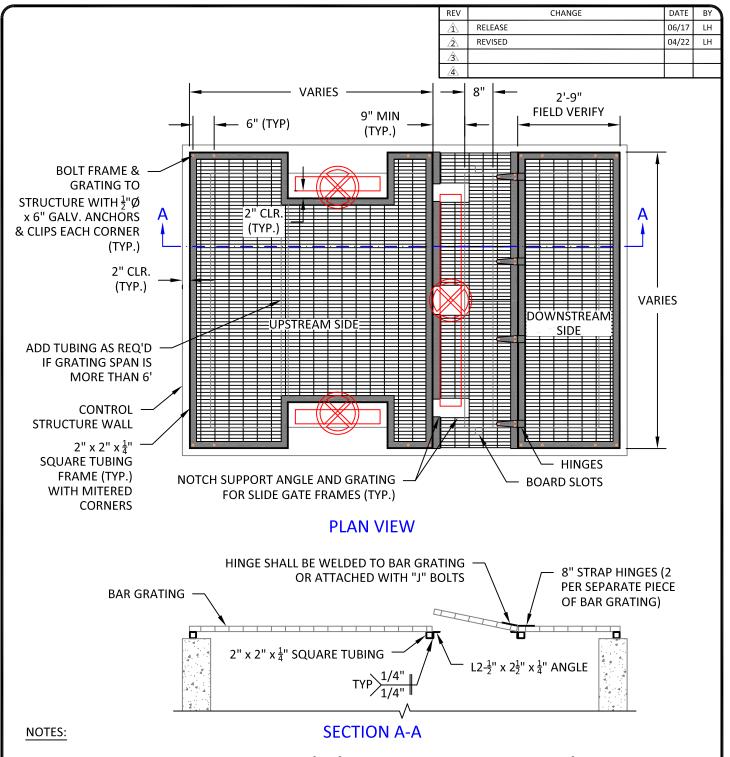
Daniel B. Bahher

DAVID B. BAKKER, P.E.

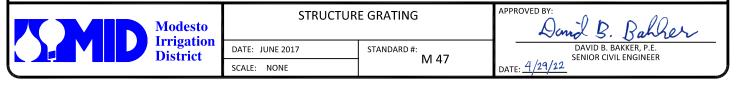
DATE: 4/29/22 SENIOR CIVIL ENGINEER

\*REFERENCED STANDARD(S): M 45

Modesto Irrigation District



- 1. BAR GRATING SHALL BE MCNICHOLS GW-175  $1\frac{3}{4}$ " X  $\frac{3}{16}$ " GALVANIZED STEEL BARS SPACED AT  $1\frac{3}{16}$ " CENTERS WITH CROSS BARS AT 4" CENTERS, OR PRE-APPROVED EQUIVALENT. MAXIMUM SPAN SHALL BE 6'. GRATING SHALL BE BANDED ALL AROUND INCLUDING NOTCHED AREAS.
- 2. UNLESS OTHERWISE NOTED, ALL STEEL SURFACES SHALL BE HOT DIP GALVANIZED OR BRUSH PAINTED WITH ONE COAT RE RUSTOLEUM PRIMER, SECOND COAT GREEN RUSTOLEUM. FINAL COAT SAND OR TAN EXTERIOR GLOSS FINISH, OR PRE-APPROVED EQUIVALENT.
- 3. PROVIDE REMOVABLE (BOLTED DOWN) GRATING SECTIONS ON UPSTREAM SIDE OF CONTROL STRUCTURE (MAXIMUM 2' WIDTH EACH)



#### REV CHANGE DATE BY NOTES: RELEASE 06/17 LH <u>/2</u>\ ALL STEEL MEMBERS AND MATERIALS SHALL BE A-36 GALVANIZED <u>/3</u>\ AND SHALL BE CONSTRUCTED WITH STAINLESS STEEL BOLTS, NUTS 4 AND WASHERS WHEN GRATING IS TO BE FABRICATED IN PARTS AND SPLICED AT THE WORK SITE, GALVANIZED PAINT IS TO BE APPLIED 2. ON ALL WELDS. END GRATE SPLICE (SEE DETAIL) 2"Ø SCH. 80 GALV. STEEL 3" X 3" X 10" GALV. PLATE W/ SS WASHERS (TYP.) PIPE @ 8" O.C. (TYP.) $\frac{3}{4}$ "Ø X 12" LONG SS **BOLTS BOLTED** THROUGH \(\frac{3}{8}\)" GALV. PLATE (TYP.) Y/2 ΈΥΡ **CENTER GRATE** C5 X 6.7 SPLICE (SEE **CHANNEL** DETAIL) CONC. **HEADWALL** END GRATE SPLICE (SEE DETAIL) **PLAN VIEW** В C5 X 6.7 **CHANNEL** 3" 4" TYP. TYP. 8" TYP. $L 3\frac{1}{2}$ " $X 3\frac{1}{2}$ " $X \frac{1}{2}$ " X 24" LONG ANGLE SUPPORT BRACKETS W/ **CENTER GRATE** 통"Ø DRILL THRU HOLES, **SPLICE** ANCHORED TO CONC. SIDEWALL **CANAL FLOOR** $W/\frac{1}{2}$ "Ø X 4" LONG HILTI MECHANICAL ANCHOR BOLTS. **SECTION A-A** §"Ø DRILL THRU 욹"Ø DRILL THRU HOLES FOR ½"Ø X HOLES FOR $\frac{1}{2}$ " X $2\frac{1}{2}$ " 2½" LONG SS BOLTS LONG SS BOLTS W/ W/LOCK NUTS LOCK NUTS FOR EACH FOR EACH SPLICE. SPLICE. (4 REQ'D) C5 X 6.7 (8 REQ'D) (1'-8" LONG) $6\frac{1}{2}$ " TYP. **SECTION B-B** 2½" X 20" X ½" **GALV. STEEL PLATE END GRATE SECTION C-C SPLICE** APPROVED BY: **INLET GRATE** Modesto **Irrigation** CHAD J. TIENKEN, P.E., P.L.S. DATE: JUNE 2017 STANDARD #: District CIVIL ENGINEERING MANAGER M 50 DATE: 9/7/17 SCALE: NONE

# CHANGE REV DATE NOTES: RELEASE 06/17 LH REVISION 04/22 LH PRIVATE IRRIGATION BACKFLUSH FILTER DISCHARGE TO BE LOCATED <u>/3</u>\ UPSTREAM OF ALL CHEMICAL INJECTION SYSTEMS AND MUST BE FREE OF ANY CHEMICALS OR FERTILIZERS. IF BACKFLUSH WATER DOES NOT MEET M.I.D. WATER QUALITY STANDARDS THE BACKFLUSH LINE MAY BE REMOVED AND TERMINATED BY M.I.D. COMPACT NATIVE FILL IN 8" LOOSE LIFTS TO MIN. 90% RELATIVE DENSITY OR AS DIRECTED BY M.I.D. ENGINEER. MIN. 5' D/S FROM EDGE OF GATE ТО **PUMP** FLOW --**FILTER STATION PLAN VIEW** 12" MIN. 16" MAX. 90° ELL. SEE NOTE 2 12" MIN. FOR AIR GAP 6" HWL MAX. **VARIES** 30" MIN. EX. LINING (PROTECT IN PLACE) TO **PUMP** FLOW -**FILTER STATION** 90° ELL. SCH 40 P.V.C. PIPE OR PRE-APPROVED EQUIVALENT **SECTION A-A** APPROVED BY: PRIVATE IRRIGATION Modesto BACKFLUSH FILTER DISCHARGE **Irrigation** DAVID B. BAKKER, P.E. DATE: JUNE 2017 STANDARD #: District SENIOR CIVIL ENGINEER M 55 DATE: 4/29/22 SCALE: NONE

# CHANGE REV DATE BY NOTES: RELEASE 04/22 LH <u>/2</u>\ PRIVATE IRRIGATION BACKFLUSH FILTER DISCHARGE TO BE LOCATED ∕3\ UPSTREAM OF ALL CHEMICAL INJECTION SYSTEMS AND MUST BE FREE OF ANY CHEMICALS OR FERTILIZERS. IF BACKFLUSH WATER DOES NOT MEET M.I.D. WATER QUALITY STANDARDS THE BACKFLUSH LINE MAY BE REMOVED AND TERMINATED BY M.I.D. COMPACT NATIVE FILL IN 8" LOOSE LIFTS TO MIN. 90% RELATIVE DENSITY OR AS DIRECTED BY M.I.D. ENGINEER. APPROXIMATE PROPERTY OWNERSHIP LINE DISCHARGE PIPE MUST INTERSECT PERPENDICULARLY TO **PUMP** FLOW -**FILTER STATION PLAN VIEW BACKFLUSH LINE TO BE PLACED** ON INTERIOR AND EXTERIOR OF SAME WALL. 2" MAX. ON 12" MIN. INTERIOR AND 6" MAX. ON EXTERIOR. 12" MIN. AIR GAP 2" MAX. **HWL** 2" MAX. 6" MAX. SEE NOTE 2 -30" MIN. 90° ELL. (TYP.) TO **PUMP** FLOW → **FILTER STATION** SCH 40 P.V.C. PIPE OR PRE-APPROVED EQUIVALENT **SECTION A-A** APPROVED BY: PRIVATE IRRIGATION BACKFLUSH FILTER DISCHARGE INTO STANDPIPE Modesto **Irrigation** DAVID B. BAKKER, P.E. DATE: APRIL 2022 STANDARD #: District SENIOR CIVIL ENGINEER M 56 DATE: 4/29/22 SCALE: NONE

# CHANGE REV DATE NOTES: RELEASE 04/22 LH <u>/2</u>\ PRIVATE IRRIGATION BACKFLUSH FILTER DISCHARGE TO BE LOCATED <u>/3</u>\ UPSTREAM OF ALL CHEMICAL INJECTION SYSTEMS AND MUST BE FREE OF ANY CHEMICALS OR FERTILIZERS. IF BACKFLUSH WATER DOES NOT MEET M.I.D. WATER QUALITY STANDARDS THE BACKFLUSH LINE MAY BE REMOVED AND TERMINATED BY M.I.D. COMPACT NATIVE FILL IN 8" LOOSE LIFTS TO MIN. 90% RELATIVE DENSITY OR AS DIRECTED BY M.I.D. ENGINEER. BACKFLUSH LINE TO ENTER CONTROL **BOX AT A CORNER FOR FUTURE GATE MAINTENANCE** TO PUMP FLOW -**FILTER STATION** APPROXIMATE PROPERTY OWNERSHIP LINE DISCHARGE PIPE MUST INTERSECT PERPENDICULARLY **PLAN VIEW** 12" MIN. 12" MIN. AIR GAP 2" MAX. **HWL** 2" MAX. SEE NOTE 2 6" MAX. 30" MIN. 90° ELL. (TYP.) TO **PUMP** FLOW -**FILTER STATION** SCH 40 P.V.C. PIPE OR PRE-APPROVED EQUIVALENT Å **SECTION A-A** APPROVED BY: PRIVATE IRRIGATION BACKFLUSH FILTER DISCHARGE INTO CONTROL BOX Modesto **Irrigation** DAVID B. BAKKER, P.E. DATE: APRIL 2022 STANDARD #: District SENIOR CIVIL ENGINEER M 57 DATE: 4/29/22 SCALE: NONE

NOTES:	REV	CHANGE	DATE	
	1	RELEASE	06/17	7 LH
1. CONCRETE STRENGTH TO BE 3,000 PSI @ 28 DAYS. NO ADMIXTURES SHALL BE INCORPORATED INTO CONCRETE MIX	<u>/2\</u>			+
UNLESS PRE-APPROVED BY M.I.D. SEE M.I.D. STANDARD G 04 - CONCRETE NOTES*.	3			+
2. SAW CUT, THOROUGHLY BRUSH AWAY DEBRIS AND CLEAN EXISTING LINING PRIOR TO CONCRETE PLACEMENT.	4			
3. PROPERLY SEAL ALL JOINTS AND PIPES BY MORTARING. USE SOFT BRISTLE BRUSH TO BLEND MORTAR AND CONCRETE				
TOGETHER. SEE M.I.D. STANDARD G 11 - M.I.D. MORTAR MIX NOTES*.				
4. WATERSTOP TO SURROUND ENTIRE CONNECTION TO EXISTING HEADWALL SHALL BE VOLCLAY WATERSTOP-RX 102 BE	ENTO	NITE CLAY STRIP OR ADEKA	ULTRASEAL	
KBA-1510FP WATERSTOP. SEE M.I.D. STANDARD G 12 - CONNECTION TO EXISTING STRUCTURE*				
handwheel sh	ALL B	E 36" —		
ABOVE WORKING	SUR	FACE		
		i i		
i i				
TOP OF LIN	IING [			
CANAL GATE			k 1	
			V 4	
		9.]	:	
		.1   <b> </b>	[:]	
EX. HEADWALL -	\		[1]	
FOR PIPE CONNECTION TO —			4 .	
HEADWALL SEE C 35 - STANDARD				
CANAL GATE FOR CONCRETE			4	
PIPELINE* AND P 45 - STANDARD			4	
CANAL GATE FOR P.V.C. PIPELINE*				
DOTTOM OF CAMAL		4		
BOTTOM OF CANAL —				
3" THICK CONC. (TYP.)			1 6" MIN	NI.
PIPE	\		(TYP)	
PIPE			(116)	,
#4 REBAR 12" O.C.	N. C.			
BOTH WAYS			•	
WATERSTOP (SEE NOTE 3) VARIES		di .		
VAILES			#II	
		4.	+	
8" TYP. — 7'-6" MIN.		12"		
7 0 WIIV.		MIN.		
A -		→ 5'-0" MIN. →	-	
FLOOR AND SIDE WALLS TO BE KEYED A MIN. OF 3" —		·	•	
UNDER EX. CANAL LINING (SEE M.I.D. STANDARD G 08 -				
CONCRETE LINED CANAL DETAILS*)				
PROFILE VIEW		SECTION A-A		
		*REFERENCED STANDARD(S): G 04,	G 08, G 11, G 12, C 3	85, P 45
STANDARD CANAL GATE APPROVED BY:	01	C 11		
Modesto WITH NEW SUMP IN EXISTING HEADWALL		()		
	# X	*	9/7/1	
Irrigation		// /	1/1/1	7
Irrigation District DATE: JUNE 2017 STANDARD #: M 60	CHAD	J. TIENKEN, P.E., P.L.S.	DATE	

NOTES:	REV	CHANGE	DATE	E BY
	/î	RELEASE	06/17	7 LH
1. CONCRETE STRENGTH TO BE 3,000 PSI @ 28 DAYS. NO ADMIXTURES SHALL BE INCORPORATED INTO CONCRETE MIX	<u>^2</u>			
UNLESS PRE-APPROVED BY M.I.D. SEE M.I.D. STANDARD G 04 - CONCRETE NOTES*.	3			+
2. REINFORCED COLLAR REQUIRED FOR ALL PIPELINES GREATER THAN 18" OR FOR ALL PIPE CONNECTIONS WITH A	4			
CHANGED I.D. GREATER THAN 5".				
3. THOROUGHLY BRUSH ALL DEBRIS AND CLEAN EACH END OF PIPE AROUND THE ENTIRE CIRCUMFERENCE WITH WATER MORTAR.	PRIO	R TO PLACEMENT OF CONCR	ETE COLLAR	≀ OR
4. MINIMUM #4 BARS FOR ALL COLLAR REINFORCEMENT.				
5. A MINIMUM OF TWO CIRCUMFERENCE BARS REQUIRED, ONE BAR TO BE PLACED OVER THE END OF EACH PIPE WITH A	NIM A	IIMUM 18" BAR LAP. THE BAR	S MUST HA	VE A
MINIMUM OF 3" CLEAR FROM EACH PIPE O.D. AND 2" MINIMUM OF CONCRETE COVER.				
6. HORIZONTAL BARS SHALL BE PLACED AT 12" O.C. EQUALLY SPACED AROUND CIRCUMFERENCE OF PIPE WITH A MINIM				
7. PROPERLY SEAL CONNECTION BY MORTARING FROM INSIDE PIPELINE AFTER PERMANENT PLACEMENT OF CONCRETE				
MINIMUM MORTARED BAND WIDTH OF 5" IS REQUIRED. USE SOFT BRISTLE BRUSH TO BLEND MORTAR AND CONCRET	E TO	GETHER. SEE M.I.D. STANDAR	D G 11 - M.I	I.D.
MORTAR MIX NOTES*.	RETE	COLLAR 2-#4 BARS –		
EQUALLY SPACED AR	OUNE	O CIRCUMFERENCE		
	EACH	⊣ PIPE (SEE NOTES) \		
BEFORE COLLAR PLACEMENT (SEE NOTES)	<b>X</b>		(XXXXX	
STEEL REINFORCEMENT TO BE ¬ \		1011 04101		
PLACED AS SHOWN (SEE NOTES) \ \ \ \ \ \ \ \ \ \ 9" MIN. OVERLAP	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	18" MIN. BAR LAP		
PROPERLY SEAL CONNECTION BY — OF EX. PIPES		BAN LAP		<b>%</b>
MORTARING FROM INSIDE PIDE (SEE NOTES)			W/K/V	
MORTALING FROM INSIDE FIFE (SEE NOTES)  A GALV. STARTER COUPLER				ļ
OR PRE-APPROVED	\	A A A A A		
EQUIVALENT	4			
CONC. C.I.P.C.P. P.V.C. P.V.C.			3	
OR R.C.P. PIPE I.D.	ā	VARIES +	ă.	_
VARIES			. 4	
			. 4	
	.4	a d		
USE PROPER FORMING TECHNIQUES TO INSURE MAX. DIM. — 12" MIN. FOR PIPELINES >20" I.D.	\.	44 4		
ARE NOT EXCEEDED. NATIVE MATERIAL CAN BE USED IF 10" MIN. FOR PIPELINES <20" I.D.	\	Winter Million Williams	/	
PLACED, COMPACTED AND SHAPED PRIOR TO CONC. POUR  24" MAX. UNLESS				
VOLCLAY WATERSTOP-RX 102 BENTONITE CLAY STRIP PRE-APPROVED BY M.I.D.		17.77.77.77.77.77. #	44 REBAR 12	2"
WATERSTOP OR ADEKA ULTRASEAL KBA-1510FP WATERSTOP		( )	D.C. AROUN	1D
AROUND ENTIRE PIPE PERIMETER, CLEAN SURFACES BEFORE		F	PIPE AS SHO	)WN
DIACENTAL		CECTION A	SEE NOTES)	)
PLAN VIEW		SECTION A-A		
		*REFERENCED S	TANDARD(S): G 0	)4, G 11

	Modesto Irrigation District
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STARTER COUPLER
FOR P.V.C. PIPELINE

STANDARD #:
P 01

DATE: JUNE 2017 STANDARD #:

SCALE: NONE

APPROVED BY:

CHAD J. TIENKEN, P.E., P.L.S.
CIVIL ENGINEERING MANAGER

9/7/17 DATE

#### REV CHANGE DATE BY NOTES: RELEASE 06/17 LH REVISED 04/22 IΗ <u>/2</u>\ CONCRETE STRENGTH TO BE 3,000 PSI @ 28 DAYS. NO ADMIXTURES <u>/3</u>\ SHALL BE INCORPORATED INTO CONCRETE MIX UNLESS PRE-APPROVED BY M.I.D. SEE M.I.D. STANDARD G 04 - CONCRETE NOTES\*. ALL PIPE SHALL ENTER STRUCTURE AT OR NEAR PERPENDICULAR ANGLES TO THE WALL OF THE STRUCTURE. 2. THOROUGHLY BRUSH ALL DEBRIS AND CLEAN BOTH PIPE AND STRUCTURE AROUND THE ENTIRE CIRCUMFERENCE WITH 3 WATER PRIOR TO PLACEMENT OF CONCRETE OR MORTAR. 4. MINIMUM #4 BARS FOR ALL COLLAR REINFORCEMENT. A MINIMUM OF TWO CIRCUMFERENCE BARS REQUIRED WITH A MINIMUM 18" BAR LAP. THE BARS MUST HAVE A 5. MINIMUM OF 3" CLEAR FROM PIPE O.D. AND 2" MINIMUM OF CONCRETE COVER. HORIZONTAL BARS SHALL BE PLACED AT 12" O.C. EQUALLY SPACED AROUND THE CIRCUMFERENCE OF THE PIPE WITH A MINIMUM OF SIX (6) HORIZONTAL BARS. 7. PROPERLY SEAL BY MORTARING FROM INSIDE PIPELINE AFTER PERMANENT PLACEMENT OF CONCRETE COLLAR. A MINIMUM MORTARED BAND WIDTH OF 5" IS REQUIRED. USE SOFT BRISTLE BRUSH TO BLEND MORTAR AND CONCRETE TOGETHER. SEE M.I.D. STANDARD G 11 - M.I.D. MORTAR MIX NOTES\*. 8. CANAL GATE TO BE WATERMAN C-10 CANAL GATE WITH GALVANIZED FRAME OR PRE-APPROVED EQUIVALENT. DRILL 5"Ø, 4" DEEP HOLES INTO WALL FOR STEEL REINFORCEMENT BARS 3" MIN. FROM EDGE OF OPENING. CLEAN HOLES OF DRILL CUTTINGS, SLUDGE AND DEBRIS. ALL REBAR SHALL BE EPOXIED INTO DRILLED HOLES USING HILTI HY-150 ADHESIVE OR PRE-APPROVED EQUIVALENT PER THE MANUFACTURER'S INSTRUCTIONS. PROPERLY SEAL CONNECTION BY MORTARING FROM INSIDE OF PIPE (SEE NOTE 7) USE PROPER FORMING TECHNIQUES TO ENSURE MAX. DIM. CANAL GATE (SEE NOTE 8) -ARE NOT EXCEEDED. NATIVE MATERIAL CAN BE USED IF PLACED. COMPACTED AND SHAPED PRIOR TO CONC. POUR. 9" MIN. HANDWHEEL SHALL BE 36" ABOVE **WORKING SURFACE** 5" MIN./ 6" MAX. 5'-0" LEAVE FLANGED AREA EXPOSED FOR 10'-0" **BOLT ACCESS** 18" MIN. **MORRILL MID-2005 HEIGHT BAR LAP GALV. STARTER** TO BE **COUPLER OR DETERMINED** PRE-APPROVED BY M.I.D. **EQUIVALENT** EX. BOX PLACE SAND BAGS **PLAN VIEW** UNDER PIPELINE TO **AVOID SETTLEMENT** REINFORCED CONCRETE COLLAR 2-#4 **EQUALLY SPACED AROUND** 12" MIN CIRCUMFERENCE OF PIPE (SEE NOTES) 4 #4 REBAR 12" O.C. AROUND PIPE AS SHOWN (SEE NOTES) VARIES SECTION A-A \*REFERENCED STANDARD(S): G 04, G 11 APPROVED BY: P.V.C. CONNECTION TO EXISTING STRUCTURE Modesto **Irrigation** DAVID B. BAKKER, P.E. DATE: JUNE 2017 STANDARD #: SENIOR CIVIL ENGINEER P 05 DATE: 4/29/22 SCALE: NONE

NOTES:			REV	CHANGE	DATE	ВҮ	
			<u> î</u>	RELEASE	06/17	LH	
1. CONCRETE STRENGTH TO BE 3,00			<u>^2</u>	REVISED	04/22	LH	
SHALL BE INCORPORATED INTO			3				
BY M.I.D. SEE M.I.D. STANDARD			4				
2. ALL PIPE SHALL ENTER BOX AT O							
•				WALL AT COLD JOINT LOCATION F	ER		
MANUFACTURER'S RECOMMENI							
				LENT WITH GALVANIZED FRAME.	0.5		
				IDDER SHALL BE REQUIRED. IF TOP IG SHALL ALSO BE REQUIRED. REFE		415	
STANDARDS M 45 - STRUCTURE I		•			K IU I	۷۱.۱.D.	
				BOX. USE SOFT BRISTLE BRUSH TO E	SLEVID		
MORTAR AND CONCRETE TOGET					LLIND		
				D2 BENTONITE CLAY STRIP OR ADEK	Ά		
ULTRASEAL KBA-1510FP WATERS							
CANAL GATE 🖳	A /	ER TO M.I.D. ST IT FOR P.V.C. PII					
(SEE NOTE 4)		II FOR P.V.C. PII	PELIIN	E '			
	N N	ORRILL MID-20	05 G	ALV COUPLER			
	J. V.	R PRE-APPROVI					
F 6"				(01111)			
<u> </u>							
1 .							
A							
FLOW —		() 1					
						I	
		FLOW —					
				/ HANDWHEEL SH			
				/ MIN. & 24" MAX		/E	
	011 500	A 1 1		/ WORKING SURFA	ACE		
REFER TO M.I.D. PLAN	8" FOR I <b>VIEW</b> HEIGH		2'-6"	$\frac{2'-6''}{1}$ 12" MAX	ζ.		
STANDARD M 47 -	TYP			(TYP.)			
STRUCTURE GRATING*	(111	''	:				
	HANDRAILI	NG —					
	(SEE NOTE	: 5)	Щ				
	#4 REBAR 12"	<b>W</b> I I		Tail I			
	BOTH W	AYS					
			$\parallel$				
			<u> </u>				
\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	VATERSTOP (SEE NOTE 7		4	HEIGHT TO	BE		
	(TYP.	)		DETERMINE	D		
	4000UU 200E N48 N4 CAU	, \ \ \		BY M.I.D.			
IV IV	ORRILL 2005 M&M GAL' STARTER COUPLER O	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \					
PRI	E-APPROVED EQUIVALEN	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	· 4 4 ·				
1	_ , I NOVED EQUIVALEN	N N N	* :J`	a 1		l	
	FLOW —		· /	ARIES	Λ		
	TEOW -		Z \	ARI	<u> </u>	_	
	lack			FLOW -	-		
	V	//////////////////////////////////////				l	
SEE M.I.D. STANDARD G 06 -							
	NAINI 4011/T	VD.) † 1/	. 4	12" OPENING		,5 -	
MIN REINFORC					NT*		
	SEE NOTE 3 — SECTION A-A						
*REFERENCED STANDARD(S): G 04, G 06, G 07, G 11, M 45, M 46, M 47, P 50							
			MEFERE	APPROVED BY:	1 70, IVI 4	,,, 50	
Modesto	CONTR			0 -0 h n 00	)		
Irrigation	FOR P.V.C			Dand S. Bah	er	,	
District	DATE: JUNE 2017	STANDARD #: P 10	ı	DAVID B. BAKKER, P.E. SENIOR CIVIL ENGINEER			
District	SCALE: NONE	P 10	1	DATE: 4/29/22			

#### REV CHANGE DATE BY NOTES: 06/17 LH RELEASE REVISED 04/22 ΙH <u>/2</u>\ CONCRETE STRENGTH TO BE 3,000 PSI @ 28 DAYS. NO ADMIXTURES <u>/3</u>\ SHALL BE INCORPORATED INTO CONCRETE MIX UNLESS PRE-APPROVED BY M.I.D. SEE M.I.D. STANDARD G 04 - CONCRETE NOTES\*. 2. ALL PIPE SHALL ENTER BOX AT OR NEAR PERPENDICULAR ANGLES TO THE BOX. PROPERLY SEAL ALL BOX JOINTS AND PIPES BY MORTARING FROM INSIDE OF BOX. USE SOFT BRISTLE BRUSH TO BLEND 3. MORTAR AND CONCRETE TOGETHER. SEE M.I.D. STANDARD G 11 - M.I.D. MORTAR MIX NOTES\*. 4. CANAL GATE TO BE WATERMAN C-10 CANAL GATE OR PRE-APPROVED EQUIVALENT WITH GALVANIZED FRAME. IF TOP OF STRUCTURE IS 4 FEET OR MORE ABOVE SURROUNDING GRADE, A LADDER SHALL BE REQUIRED. IF TOP OF STRUCTURE IS 7.5 FEET OR MORE ABOVE SURROUNDING GRADE, HANDRAILING SHALL ALSO BE REQUIRED. REFER TO M.I.D. STANDARDS M 45 - STRUCTURE HANDRAILING\* AND M 46 - STRUCTURE LADDER\*. PLACE SAND BAGS UNDER PIPELINE TO **AVOID SETTLEMENT** 10'-0" CANAL GATE (SEE NOTE 4) MORRILL MID-2005 GALV. COUPLER 5'-0" REFER TO M.I.D. OR PRE-APPROVED EQUIVALENT STANDARD M 47 -STRUCTURE GRATING\* Α FLOW -FLOW -HANDWHEEL SHALL BE 6" MIN. & 24" MAX. ABOVE **WORKING SURFACE PLAN VIEW** 12" MAX. **HANDRAILING** (TYP.) (SEE NOTE 5)

**HEIGHT TO BE** 

**DETERMINED** 

BY M.I.D.

**FLOW** 

#4 REBAR 12" O.C. BOTH WAYS

DATE: JUNE 2017

SCALE: NONE

8"

PRECAST CONTROL BOX

FOR P.V.C. PIPELINE

STANDARD #:

P 15

HEIGHT TO BE

**DETERMINED** 

BY M.I.D.

**FLOW** 

12" MIN. TYP.

\*REFERENCED STANDARD(S): G 04, G 11, M 45, M 46, M 47

DAVID B. BAKKER, P.E.

SENIOR CIVIL ENGINEER

40.

APPROVED BY

DATE: 4/29/22

**SECTION A-A** 

MORTAR ALL PIPE JOINTS

PROPERLY SEAL CONNECTION BY MORTARING FROM INSIDE AND OUTSIDE OF BOX (SEE NOTES)

MORRILL 2005 M&M GALV. STARTER COUPLER OR PRE-APPROVED EQUIVALENT

Modesto

**Irrigation** 

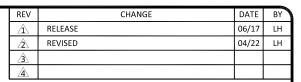
District

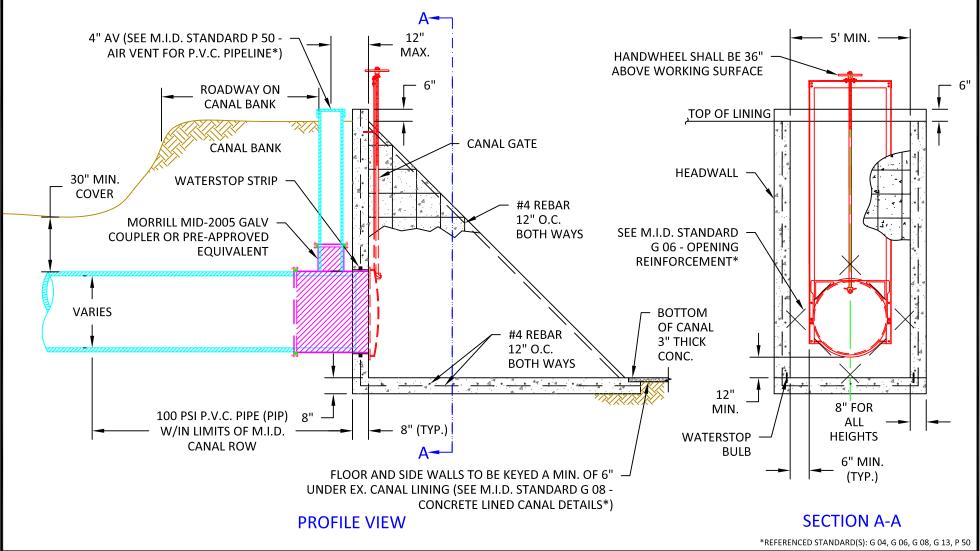
NOTES:	REV	CHANGE DATE BY
NOTES:	Â	RELEASE 06/17 LH
1. CONCRETE STRENGTH TO BE 3,000 PSI @ 28 DAYS. NO ADMIXTURES	2	REVISED 04/22 LH
SHALL BE INCORPORATED INTO CONCRETE MIX UNLESS PRE-APPROVED	<u>3</u>	
BY M.I.D. SEE M.I.D. STANDARD G 04 - CONCRETE NOTES*.		
2. ALL PIPE SHALL ENTER BOX AT OR NEAR PERPENDICULAR ANGLES TO TH 3. ALL COLD JOINTS REQUIRE 6" RUBBER WATER STOP EMBEDDED IN CENT		
MANUFACTURER'S RECOMMENDATIONS. SEE M.I.D. STANDARD G 07 - N		
4. WHEN AIR VENT IS WITHIN 5' OF TRAVELED WAY, AIR VENT SHALL BE BR		
5. PROPERLY SEAL ALL BOX JOINTS AND PIPES BY MORTARING FROM INSID		
MORTAR AND CONCRETE TOGETHER. SEE M.I.D. STANDARD G 11 - M.I.D.		
6. WATERSTOP SURROUNDING OPENINGS SHALL BE VOLCLAY WATERSTOP		
ULTRASEAL KBA-1510FP WATERSTOP, PLACED AROUND OUTSIDE OF CO	UPLEI	R AND AIR VENT BASE IN CENTER OF WALL.
POUR AV BASE INTO TOP OF BOX,	T	
일 / SUPPORTED BY CROSS BARS WELD 8" / PIPE AND EMBEDDED IN CONC. (AS		
	300	INSTALL HOLLOW CORE —
(TYP.) — MORRILL M&M 2005 GAI	.V.	GALV. STEEL BREAK AWAY
▼ STARTER COUPLER REQ'D	@	BOLTS, POINTING DOWN
ALL PIPE CONNECTIONS		(SEE NOTE 4)
A		<u> </u>
		<u> </u>
5'		2" MIN. 3" 8"
MIN FLOW -		3" MAX. —
(TYP.) 3-#4 BA	RS	DETAILA
		DETAIL A
ALL VERT. BARS TO BE BENT	@ 9	0° ANGLE
AND TIED/WELDED TO BOX		ER REBAR.
MIN. BAR LAP TO BE 18" LO	NG.	2' MIN. ABOVE
PLAN VIEW		STATIC WATER ELEV.
OFFSET AV AS OPTION — 10"Ø SCH. 40 STEEL PIPE AV W		
TO REPLACE STD VENT.  EXPOSED METAL COVER WELL TO TOP. USE RUST INHIBITIN		\
PAINT, STD OLIVE DRAB GREE		SEE HEIGHT TO BE
ALL OTHER COLORS TO BE	,	NOTE 4 DETERMINED
PRE-APPROVED BY M.I.D.		BY M.I.D. (5' MIN ABOVE GROUND
SIDEWALK	187	
MIN. 6" FROM	~\\	
SIDEWALK	40.10	
	4	4 1
S=0.020 - (4)	` \	12" MIN
	m	
	٠.	
WATERSTOP VA	RIES	HEIGHT TO BE
THRUST BLOCK. SEE M.I.D. (SEE NOTE 6)		DETERMINED BY PIPE INV.
STANDARD G 10 - CONCRETE (TYP.)		PIPE IIV.
PIPE THRUST BLOCK*	· · · · · · · · · · · · · · · · · · ·	
SEE M.I.D. STANDARD G 06 - 🖊 🚶 📗	/	12" MIN
OPENING REINFORCEMENT*	<del>X .</del>	
SEE NOTE 3 (TYP.)		A 4 4 4 1
8" FOR		#4 REBAR 12" O.C. BOTH
ALL HEIGHTS SECTI	ON	
SECTI		*REFERENCED STANDARD(S): G 04, G 06, G 07, G 10, G 1:
PRESSURE BOX		APPROVED BY:
Modesto FOR P.V.C. PIPELINE		Dand B. Rahler
Irrigation DATE: JUNE 2017 STANDARD #:		DAVID B. BAKKER, P.E.
District SCALE: NONE P 20	)	SENIOR CIVIL ENGINEER DATE: 4/29/22
SCALE: NOINE		DATE: 1/2 year

1. CONCRETE STRENGTH TO BE 3,000 PSI @ 28 DAYS. NO ADMIXTURES SHALL BE INCORPORATED INTO CONCRETE MIX UNLESS PRE-APPROVED BY M.I.D. SEED M.D. STANDARD G O4 - CONCRETE MIX UNLESS PRE-APPROVED BY M.I.D. SEED M.D. STANDARD G O4 - CONCRETE MIX UNLESS PRE-APPROVED BY M.I.D. SEED M.D. STANDARD G O4 - CONCRETE NOTES' .  2. ALL IPPE SHALL ENTER BOX AT OR NEAR PERPENDICULAR ANGLES TO THE BOX.  3. ALL COED INTO SERVINE FOR PROBER'S WATER STOP EMBEDDED IN CENTER OF WALL AT COLD JOINT LOCATION PER CONTROL OF THE STANDARD 24 INCH DAWLETER HEAVY DUTY PRESSURE TYPE MAINFOLD FRAME AND COVER WITH MINIMUM 4-1/2 INCH SS BOLTS. SOUTH BAY FOUNDRY ASSOCIATED AND AND STANDARD 24 INCH DAWLETER HEAVY DUTY PRESSURE TYPE MAINFOLD FRAME AND COVER WITH MINIMUM 4-1/2 INCH SS BOLTS. SOUTH BAY FOUNDRY ASSOCIATED AND AND STANDARD 24 INCH DAWLETER HEAVY DUTY PRESSURE TYPE MAINFOLD FRAME AND COVER WITH MINIMUM 4-1/2 INCH SS BOLTS. SOUTH BAY FOUNDRY ASSOCIATED AND AND STANDARD 24 INCH DAWLETER HEAVY DUTY PRESSURE TYPE MAINFOLD FRAME AND COVER WITH MINIMUM 4-1/2 INCH SS BOLTS. SOUTH BAY FOUNDRY ASSOCIATED AND AND STANDARD 24 INCH DAWLETS HEAVY DUTY PRESSURE TO PRESSURE THE AND AND STANDARD SOUTH AND AND STANDARD SOUTH AND AND STANDARD SOUTH AND AND STANDARD SOUTH A	NOTES:	REV	CHANGE	DATE	ВҮ
SHALL BE INCORPORATED INTO CONCRETE MIX UNLESS PRE-APPROVED 3.  SHALL BE INCORPORATED INTO CONCRETE MIX UNLESS PRE-APPROVED 3.  SHALL BE SEM JLD. STANDARD GO 4- CONCRETE MOTES".  ALL COLD IONITS REQUIRE 6 "RUBBER WATES TOP EMBEDDED IN CENTER OF WALL AT COLD IONIT LOCATION PER MANUFACTURER'S RECOMMENDATIONS. SEE M.I.D. STANDARD GO 7- NEW CONSTRUCTION JOINT*.  ATAINADA 21 INCH DIMMETRE HEAVY DUTY PRESSURE TYPE MANHOLE FRAME AND COVER THIM MINIMUM 4-1/2 INCH SS BOLTS - SOUTH BAY FOUNDRY ALSOOR BAD BE SEM ALD. STANDARD GO 7- NEW CONSTRUCTION JOINT*.  ATAINADA 21 INCH DIMMETRE HEAVY DUTY PRESSURE TYPE MANHOLE FRAME AND CONCRETE TO BE INSTALLED WITH 9/10" SQUARE NEOPERNE GASKET AND BOIL GASKETS AND TIAL.O" CAST INCH MILD." CAST INCOVER. WHEN ARE YEAT IS WITHIN 5' OF TRAVELED WAY, AIR YENT SHALL BE BREAK AWAY TYPE, SEE DETAIL 14".  PROPERTY SEAL ALL BOX JOINTS AND PIPES SOM MONTARING FROM INSIDE OF BOX. USE SOTT BRISTLE BRUSH TO BLEND MORTAR AND CONCRETE TOGETHER. SEE M.I.D. STANDARD G 11- M.I.D. MORTAR MIX NOTES!*.  WATERSTOP SURROUNDING OPENINGS SHALL BE VOLCLAY WATERSTOP, AND INCOME. (AS SHOWN)  PROPERTY SEAL ALL BOX JOINTS AND PIPES AND MONTARING FRAME AND COVER (SEE NOTES)  POUR AVERAGE OF A SOCIETY OF BOX.  SUPPORTED BY CROSS BARS WELDED TO TOP OF BOX.  SUPPORTED BY CROSS BARS WELDED TO TOP OF BOX.  SUPPORTED BY CROSS BARS WELDED TO TOP OF BOX.  SUPPORTED BY CROSS BARS WELDED TO TOP OF BOX.  SUPPORTED BY CROSS BARS WELDED TO TOP OF BOX.  SUPPORTED BY CROSS BARS WELDED TO TOP OF BOX.  SUPPORTED BY CROSS BARS WELDED TO TOP OF BOX.  SUPPORTED BY CROSS BARS WELDED TO TOP OF BOX.  SUPPORTED BY CROSS BARS WELDED TO TOP OF BOX.  SUPPORTED BY CROSS BARS WELDED TO TOP OF BOX.  SUPPORTED BY CROSS BARS WELDED TO TOP OF BOX.  SUPPORTED BY CROSS BARS WELDED TO TOP OF BOX.  SUPPORTED BY CROSS BARS WELDED TO TOP OF BOX.  SUPPORTED BY CROSS BARS WELDED TO TOP OF BOX.  SUPPORTED BY CROSS BARS WELDED TO TOP OF BOX.  SUPPORTED BY CROSS BARS WELDED TO TOP OF BOX.  SUPPORTED BY CROSS BARS WELDED TO TOP OF BOX.  SUPPORTED BY CROSS BA			RELEASE		LH
2 ML PDE STANLARD STANLARD GO 4- CONCRETE NOTES*  2 ALL POER SHALL ENTER BOX AT OR NEAR PREPRIODICULAR ANGLES TO THE BOX.  3. ALL COLD JOINTS REQUIRE 6" RUBBER WATER STOP EMBEDDED IN CENTER OF WALL AT COLD JOINT LOCATION PER MANUFACTURER'S RECOMMENDATIONS. SEE MILD. STANDARD GO 7- NEW CONSTRUCTION JOINT*.  4. STANDARD 24 INCH DIAMETER HEAVY DUTY PRESSURE TYPE MANHOLE FRAME AND COVER WITH MINIMUM 4-1/2 INCH SS BOLTS. SOUTH BAY FOUNDRY 41900-883, BOLL SUPPLY COMPANY A-1094 OF PRE-APPROVED EQUIVALENT. ALL MINIMUM 4-1/2 INCH SS BOLTS. SOUTH BAY FOUNDRY 41900-883, BOLL SUPPLY COMPANY A-1094 OF PRE-APPROVED EQUIVALENT. ALL MINIMUM 4-1/2 INCH SS BOLTS. SOUTH BAY FOUNDRY 41900-883, BOLL SUPPLY SHALL BE STANLAR AWAY TYPE. SEE DETAIL "A".  5. WHEN ARE VERT IS WITHIN 510" SO TRANLELED WAY, AIR VERT SHALL BE BOXED AND SUPPLY AND AND PIES BY MORTARING FROM INSIDE OF BOX. USE SOFT BRISTLE BRUSH TO BLEND MORTAR AND CONCRETE FOOLEHER. SEE MILD. STANDARD FROM INSIDE OF BOX. USE SOFT BRISTLE BRUSH TO BLEND MORTAR AND CONCRETE TO ESTENDED BY CROSS BARS WELLDED TO DESTRUCTION OF BOX. SUPPORTED BY CROSS BARS WELLDED TO SUPPORT BASIC CONTROL OF SUPPORT BY CROSS BARS WELLDED TO SUPPORT BY CROSS BARS WELLD BY THE SUPPORT BY CROSS BARS B			REVISED	04/22	LH
2. ALL OPPE SHALL ENTER BOX AT OR NEAR PERPENDICULAR ANGLES TO THE BOX.  ALL COLD JOINTS REQUIME 6" RUBBER WATERS TOP EMBEDDED IN CENTER OF WALL AT COLD JOINT LOCATION PER MANUFACTURES RECOMMENDATIONS. SEE M.I.D. STANDARD GO 7". NEW CONSTRUCTION JOINT".  4. STANDARD 24 INCH DIMERTER HEAVY DUTY PRESSURE TYPE MANNIFOLE FRAME AND COVER WITH MINIMUM 4-1/2 INCH SS BOLTS - SOUTH BAY FOUNDRY A1900-R3B, DAL SUPPLY COMPANY A-1094 OR PRE-APPROVED EQUIVALENT. ALL MANHOLES TO BE INSTALLED WITH 5/16" SQUARE NEOPRENE GASKET AND BOLT GASKETS AND "M.I.D." CASTS IN COVER.  5. WHEN AIR VENT IS WITHIN 5" OF TRAVELED WAY, AIR VENT SHALL BE BREAK AWAY TYPE. SEE DETAIL."  5. WHEN AIR VENT IS WITHIN 5" OF TRAVELED WAY, AIR VENT SHALL BE BREAK AWAY TYPE. SEE DETAIL."  6. PROPERTY SEAL ALL BOX JOINTS AND PIPES BY MORTARING FROM INSIDE OF BOX. USE SOFT BRISTIE BRUSH TO BLEND MORTAR AND CONCRETE TOGETHER. SEE M.I.D. STANDARD G 11 - MI.D. MORTAR MIN NOTES".  7. WATERSTOP SURROUNDING OPENINGS SHALL BE VOLCLAY WATERSTOP, AND 26 BENTOME CLAY STRIP OR ADEXA  1. ULTRASEAL KBA-1510F WATERSTOP, PLACED AROUND OUTSIDE OF COUPLER AND AIR VENT BASE IN CENTER OF WALL  1. POPENTY SEAL ALL BOX JOINTS AND PIPES AND EMBEDDED IN CONC. (AS SHOWN)  1. POPENTY SEAL ALL BOX JOINTS AND PIPES AND EMBEDDED IN CONC. (AS SHOWN)  1. POPENTY SEAL ALL BOX JOINTS AND PIPES AND ARD SEAL AND		· .			
3. ALL COLD JOINTS REQUIRE 6" RUBBER WATER STOP EMBEDDED IN CENTER OF WALL AT COLD JOINT LOCATION PER MANUFACTURES'S RECUMEN'S SECTION AND MEMBERS HEAVY DUTY PRESSURE TYPE MAINFULE FRAME AND COVER WITH MINIMUM 4-1/2 INCH SS BOLTS. SOUTH BAY FOUNDRY A1900-883, BOIL SUPPLY COMPANY A-109 dA PRE-APPROVED EQUIVALENT. ALL WATER STOP SOUTH BAY FOUNDRY A1900-883, BOIL SUPPLY COMPANY A-109 dA PRE-APPROVED EQUIVALENT. ALL WATER STOP SOUTH BAY FOUNDRY A1900-883, BOIL SUPPLY COMPANY A-109 dA PRE-APPROVED EQUIVALENT. ALL MAIN HIS SECTION AND AND STANDARD OF SOUTH STANDARD AND PRESSURE WAS A PROPERLY SEAL ALL BOX JOINTS AND PIPES BY MORTARING FROM MINIOR OF BOX. USE SOFT BRISTIC BRUSH TO BLEND MORTAR AND CONCRETE TOGETHER. SEE MILD. STANDARD G 11- MILD MORTAR MIN NOTES 'PROPERLY SEAL ALL BOX JOINTS AND PIPES BY MORTARING FROM MORTAR MORTAR MIN NOTES SHORT AND STANDARD AND CONCRETE TOGETHER. SEE MILD. STANDARD G 11- MILD MORTAR MIN NOTES 'PROPERLY SEAL ALL BOX JOINTS AND PIPES BY MORTARING FROM MORTAR MIN NOTES SHORT AND CONCRETE FOR HEAD AND STANDARD AND S			<u> </u>		
4. STANDARD 20 AINCH DIMBERER HEAVY DUTY PRESSURE TYPE PRANHOLE FRAME AND COVER WITH MINIMUM 4-1/2 INCH SS BOLTS - SOUTH BAY FOUNDRY A1900-R3B, DBL SUPPLY COMPANY A-1094 OR PRE-APPROVED EQUIVALENT. ALL MANHOLES TO BE INSTALLED WITH 5/16" SQUARE NEOPRENE GASKET AND BOLT GASKETS AND "M.I.D." CAST INC OVER.  5. WHEN AIR VENT IS WITHIN 5' OF TRAVELED WAY, AIR VENT SHALL BE BREAK AWAY TYPE. SEE DETAIL "A".  6. PROPERLY SEAL ALL BOX, JOINTS AND PIPSE BY MORTARING FROM INSIDE OF BOX. USE SOFT BRISTLE BRUSH TO BLEND MORTAR AND CONCRETE TOGETHER. SEE MI.D. STANDARD G 11 - MI.D. MORTAR MIN NOTES?  7. WATERSTOP SURROUNDING OPENINGS SHALL BE VOLCARY WATERSTOP, PART 102 SENTONIE CLAY STRIP OR ADEKA ULTRASEAL KBA-1510FP WATERSTOP, PLACED AROUND OUTSIDE OF COUPLER AND AIR VENT BASE IN CENTER OF WALL.  8" POPERLY SEAL ALL BOX, JOINTS AND PIPSE BY GORTARING TOP OF BOX.  9" FOUR AV BASE INTO TOP OF BOX.  SUPPORTED BY CROSS BARS WELDED TO DETAIL AND				ER	
SS BOLTS - SOUTH BAY FOUNDRY A1900-R3B, DAI SUPPLY COMPANY A-1094 OR PRE-APPROVED EQUIVALENT, ALL MANHOLES TO BE INSTALLED WITH 5,10° SOURAE NEOPENE GASKET AND "MLD" "CAST IN COVER 5. WHEN AIR VENT IS WITHIN 5' OF TRAVELED WAY, AIR VENT SHALL BE BREAK AWAY TYPE. SEE DETAIL "A". 6. PROPERLY SEAL ALL BOX JOINTS AND PIPES BY MORTARING FROM INSIDE OF BOX. USE SOFT RRISTSE BUSH TO BLEND MORTAR AND CONCRETE TOGETHER. SEE M.I.D. STANDARO G. 11 - M.I.D. MORTAR MIX NOTES". 7. WATERSTOP PUATERSTOP, PLACED AROUND OUTSIDE OF COUPLER AND AIR VENT BASE IN CENTER OF WALL.  1. WATERSTOP WATERSTOP, PLACED AROUND OUTSIDE OF COUPLER AND AIR VENT BASE IN CENTER OF WALL.  1. WATERSTOP WATERSTOP, PLACED AROUND OUTSIDE OF COUPLER AND AIR VENT BASE IN CENTER OF WALL.  1. WATERSTOP WATERSTOP, PLACED AROUND OUTSIDE OF COUPLER AND AIR VENT BASE IN CENTER OF WALL.  1. WATERSTOP WATERSTOP, PLACED AROUND OUTSIDE OF COUPLER AND AIR VENT BASE IN CENTER OF WALL.  1. WATERSTOP OF BOX.  2. MIN.  3. "MAX.  2. MIN.  3. "MAX.  4. VENT. BARS TO BE BENT @ 90" ANGLE AND THE CLAY STRIP OR ADEXA  WATERSTOP ON THE AND					
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7. WATERSTOP SURROUNDING OPENINGS SHALL BE VOLCLAY WATERSTOP-RX 102 BENTONITE CLAY STRIP OR ADEKA ULTRASEAL KRA-1510PF WATERSTOP, PLACED AROUND OUTSIDE OF COUPLER RAND AIR VENT BASE IN CENTER OF WALL.  2" MANHOLE FRAME AND COVER (SEE NOTES) POUR AV BASE INTO TOP OF BOX, SUPPORTED BY CROSS BARS WELDED TO PIPE AND EMBEDDED IN CONC. (AS SHOWN) PIPE AND EMBEDDED IN CONC. (AS SHOWN) MORRILL M&M 2005 GALV. STARTER COUPLER REQ'D @ ALL PIPE CONNECTIONS  ALL VERT. BARS TO BE BENT @ 90' ANGLE AND TIED/WELDED TO BOX COVER REBAR. MIN. BAR LAP TO BE 18" LONG.  TO REPLACE STD VENT.  10" Ø SCH. 40 STEEL IPIE AV WITH EXPOSED METAL COVER WELDED TO TOP. USE RUST INHIBITION PAINT, STD OLIVE DRAB GREEN, ALL OVER WELDED TO TOP. USE RUST INHIBITION PAINT, STD OLIVE DRAB GREEN, ALL OTHER COLORS TO BE PRE-APPROVED BY M.I.D.  STANDARD G 10 - CONCRETE PIPE THRUST BLOCK. SEE M.I.D. STANDARD G 06 OPENING REINFORCEMENT* SEE NOTE 3 (TYP.)  8" FOR ALL HEIGHTS  PRESSURE MANHOLE BOX FOR P.V.C. PIPELINE  DATE: RNE 2017  STANDARD B. D. B. BALLAY DAVY B. MARKER, F.E.  DAVY B. BARKER, F.E.  DAVY B.				LLIND	
24"Ø MANHOLE FRAME AND COVER (SEE NOTES) POUR AV BASE INTO TOP OF BOX, SUPPORTED BY CROSS BARS WELDED TO PIPE AND EMBEDDED IN CONC. (AS SHOWN) MORRILL M&M 2005 GALV. STARTER COUPER REC'D @ ALL PIPE CONNECTIONS  AMAY BOLTS, POINTING DOWN STARTER COUPER REC'D @ ALL PIPE CONNECTIONS  ALL VERT. BARS TO BE BENT @ 90" ANGLE AND TIED/WELDED TO BOX COVER REBAR. MIN. BAR LAP TO BE 18" LONG. TO REPLACE STD VENT.  TO REPLACE STD VENT.  STEEN AND AND THE PIPE AV WITH EXPOSED METAL COVER WELDED TO TOP, USE RUST INHIBITING PAINT, STD OLIVE DABS GREEN, ALL OTHER COLORS TO BE PRE-APPROVED BY M.I.D. STANDARD G 10 - CONCRETE PIPE THRUST BLOCK. SEE M.I.D. STANDARD G 06 OPENING REINFORCEMENT* SEE NOTE 3 (TYP.)  WATERSTOP  8" FOR ALL HEIGHTS  SECTION A-A WAY FOR A LL HEIGHTS  **REFERENCES TANDARDS; COM, COM, COM, COM, COM, COM, COM, COM,				Α	
POUR AV BASE INTO TOP OF BOX.  SUPPORTED BY CROSS BASE WELDED TO PIPE AND EMBEDDED IN CONC. (AS SHOWN) MORRILL M&M 2005 GALV.  STARTER COUPLER REQU'® ALL PIPE CONNECTIONS  ALL VERT. BARS TO BE BENT ® 90' ANGLE AND TIED/WELDED TO BOX COVER REBAR. MIN. BAR LAP TO BE 18" LONG.  2' MIN. ABOVE STATIC WATER ELEV.  PLAN VIEW  OFFSET AV AS OPTION TO REPLACE STD VENT.  10"Ø SCH. 40 STEEL PIPE AV WITH EXPOSED METAL COVER WELDED TO TOP USE RUST INHIBITING PAINT, STD OLIVE DRAB GREEN, ALL OTHER COLORS TO BE PREAPPROVED BY M.I.D. SEE M.I.D. STANDARD G 06- OPENING REINFORCEMENT* SEE M.I.D. STANDARD G 06- OPENING REINFORCEMENT* SEE NOTE 3 (TYP.)  8" FOR ALL HEIGHTS  SEE TOR P.V. C. PIPELINE DATE MANDARD BY  MOdesto Irrigation  DATE JUNE 2017  STANDARD B DE  MODES BASKARE, P.E.  DAVE B. BALLAC  DAVE B.	ULTRASEAL KBA-1510FP WATERSTOP, PLACED AROUND OUTSIDE OF COL	JPLEF	R AND AIR VENT BASE IN CENTER OF	WAL	L.
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PIPE AND EMBEDDED IN CONC. (AS SHOWN)  MORRILL M&M 2005 GALV.  STARTER COUPLER REQU'® ALL  PIPE CONNECTIONS  3" MAX.  2" MIN.  STARTER COUPLER REQU'® ALL  PIPE CONNECTIONS  4" MIN. 6" FROM  STATIC WATER ELEV.  DETAIL A  AND TIED/WELDED TO BOX COVER REBAR.  MIN. BAR LAP TO BE 18" LONG.  2' MIN. ABOVE  STATIC WATER ELEV.  2' MIN. ABOVE  STATIC WATER ELEV.  DETAIL A  AND TIED/WELDED TO BOX COVER REBAR.  MIN. BAR LAP TO BE 18" LONG.  2' MIN. ABOVE  STATIC WATER ELEV.  2' MIN. ABOVE  STATIC WATER ELEV.  DETERMINED  BY M.I.D. (5' MIN. ABOVE  STATIC WATER ELEV.  THRUST BLOCK. SEE M.I.D.  SIDEWALK  SIDEWALK  SIDEWALK  SIDEWALK  SIDEWALK  SIDEWALK  SEE M.I.D. STANDARD G 06-  OPENING REINFORCEMENT*  SEE M.I.D. STANDARD G 06-  OPENING REINFORCEMENT*  SEE NOTE 3 (TYP.)  B" FOR ALL HEIGHTS  SEE NOTE 3 (TYP.)  B" FOR ALL HEIGHTS  SECTION A-A  APPROVED BY  APPROVED BY  APPROVED BY  B. BALLAT  CONDER MEXCRE P.E.  ANDROSE BANGER P.E.  CONDER BANGER	The state of the s				
MORRILL MRM 2005 GALV. STARTER COUPLER REQ'D @ ALL PIPE CONNECTIONS  3"MAX.  3"MAX.  3"MAX.  3"MAX.  3"MAX.  4.  4.  4.  4.  4.  5.  6.  6.  6.  6.  6.  7.  7.  8"FOR ALL HEIGHTS  SEE NOTE 3  10"Ø SCH. 40 STEEL PIPE AV WITH  EXPOSED METAL COVER WELDED  TO TOP. USE RUST INHIBITING  PAINT, STO DUIVE DRAB GREEN,  ALL OTHER COLORS TO BE  ROTE 5  8"FOR ALL OTHER COLORS TO BE  ROTE 5  MATERIAN BEAR 12"O.C. BOTH  WATERSTOP  8"FOR ALL HEIGHTS  SEE NOTE 3 (TYP.)  8"FOR ALL HEIGHTS  SECTION A-A  MAYS FOR ALL HEIGHTS  **REPHENICED STANDANDIS)** 601. 600, 607, 6 10. 611  **REPHENICED STANDANDIS  **REPHENICE	W//////// / / SOLLOWIED BY CHOSS BAILS WEE				
STARTER COUPLER REQ'D @ ALL PIPE CONNECTIONS  ALL VERT. BARS TO BE BENT @ 90° ANGLE AND TIED/WELDED TO BOX COVER REBAR. MIN. BAR LAP TO BE 18" LONG.  2" MIN. ABOVE STATIC WATER ELEV.  OFFSET AV AS OPTION TO REPLACE STD VENT.  10"Ø SCH. 40 STEEL PIPE AV WITH EXPOSED METAL COVER WELDED TO TOP. USE RUST INHIBITING PAINT, 3TO OLIVE DRAB GREEN, ALL OTHER COLORS TO BE PRE-APPROVED BY M.I.D. STANDARD G 10 - CONCRETE PIPE THRUST BLOCK  SEE M.I.D. STANDARD G 06 OPENING REINFORCEMENT* SEE NOTE 3 (TYP.)  8" FOR ALL HEIGHTS SECTION A-A  *REFERENCED STANDANDIS; GO 4, G 06, G 07, G 30, G 11  PRESSURE MANHOLE BOX FOR P.V.C. PIPELINE INTEGRATED  AND TIED/WALE STANDARD GO 4, G 06, G 07, G 30, G 11  PRESSURE MANHOLE BOX FOR P.V.C. PIPELINE INTEGRATED  AND TIED/WALE STANDARD GO 4, G 06, G 07, G 30, G 11  PRESSURE MANHOLE BOX FOR P.V.C. PIPELINE INTEGRATED  AND TIED/WALE STANDARD GO 4, G 06, G 07, G 30, G 11  PRESSURE MANHOLE BOX FOR P.V.C. PIPELINE INTEGRATED  AND TIED/WALE STANDARD GO 4, G 06, G 07, G 30, G 11  PRESSURE MANHOLE BOX FOR P.V.C. PIPELINE INTEGRATED  AND TIED/WALE STANDARD GO 4, G 06, G 07, G 30, G 11  AND TIED/WALE STANDARD GO 4, G 06, G 07, G 30, G 11  AND TIED/WALE STANDARD GO 4, G 07, G 30, G 11  AND TIED/WALE STANDARD GO 4, G 07, G 30, G 11  AND TIED/WALE STANDARD GO 4, G 07, G 30, G 11  AND TIED/WALE STANDARD GO 4, G 07, G 30, G 11  AND TIED/WALE STANDARD GO 4, G 07, G 30, G 11  AND TIED/WALE STANDARD GO 4, G 07, G 30, G 11  AND TIED/WALE STANDARD GO 4, G 07, G 30, G 11  AND TIED/WALE STANDARD GO 4, G 07, G 30, G 11  AND TIED/WALE STANDARD GO 4, G 07, G 30, G 11  AND TIED/WALE STANDARD GO 4, G 07, G 30, G 11  AND TIED/WALE STANDARD GO 4, G 07, G 30, G 11  AND TIED/WALE STANDARD GO 4, G 07, G 30, G 11  AND TIED/WALE STANDARD GO 4, G 07, G 30, G 11  AND TIED/WALE STANDARD GO 4, G 07, G 30, G 11  AND TIED/WALE STANDARD GO 4, G 07, G 30, G 11  AND TIED/WALE STANDARD GO 4, G 07, G 30, G 11  AND TIED/WALE STANDARD GO 4, G 07, G 30, G 11  AND TIED/WALE STANDARD GO 4, G 07, G 30, G 11  AND TIED/WALE STANDARD GO 4, G 0			,		<sub>MN</sub>
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THRUST BLOCK. SEE M.I.D.  SIDEWALK  SIDEWALK  SEE NOTE 3 (TYP.)  8" FOR ALL HEIGHTS  STANDARD 6:  DATE: JUME 2012  DATE: JUME 2012  STANDARD 6:  DATE: JUME 2012	PIPE CONNECTIONS	_		,	
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SIDEWALK  SEE NOTE 3 (TYP.)  WATERSTOP PIPE THRUST BLOCK*  SEE M.I.D. STANDARD G 06  OPENING REINFORCEMENT*  SEE NOTE 3 (TYP.)  B" FOR ALL HEIGHTS  PRESSURE MANHOLE BOX  PRESSURE MANHOLE BOX  PRESSURE MANHOLE BOX  FOR P.V.C. PIPELINE  PAINT STANDARD G 10  PRESSURE MANHOLE BOX  FOR P.V.C. PIPELINE  PRESSURE MANHOLE BOX  FOR P.V.C. PIPELINE  DATION BANGKER, PIE  DATION BANGKER, PIE  DATION BANGKER, PIE  DAVIOR BANGKER, PIE  DAV			<u> </u>		
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OFFSET AV AS OPTION TO REPLACE STD VENT.  10"Ø SCH. 40 STEEL PIPE AV WITH EXPOSED METAL COVER WELDED TO TOP. USE RUST INHIBITING PAINT, STD OLIVE DRAB GREEN, ALL OTHER COLORS TO BE PRE-APPROVED BY M.I.D. SEE NOTE 5  SIDEWALK  3"  WATERSTOP (SEE NOTE 7) (TYP.)  STANDARD G 10 - CONCRETE PIPE THRUST BLOCK*  SEE M.I.D. STANDARD G 06- OPENING REINFORCEMENT* SEE NOTE 3 (TYP.)  8" FOR ALL HEIGHTS  SECTION A-A  WAYS FOR ALL HEIGHTS  "REFERENCED STANDARD(S): G 04, G 06, G 07, G 10, G 11  PRESSURE MANHOLE BOX FOR P.V.C. PIPELINE  PRESSURE MANHOLE BOX FOR P.V.C. PIPELINE  SANDE BALKER, R.E. SANDE BAKKER, R		G.	2' MIN. ABOVE		
TO REPLACE STD VENT.  10° S SCH. 40 STEEL PIPE A WITH EXPOSED METAL COVER WELDED TO TOP. USE RUST INHIBITING PAINT, STD OLIVE DRAB GREEN, ALL OTHER COLORS TO BE PRE-APPROVED BY M.I.D. (5° MIN. ABOVE GROUND)  SIDEWALK  S=0.020  WATERSTOP (SEE NOTE 5)  STANDARD G 10 - CONCRETE PIPE THRUST BLOCK*  SEE M.I.D. STANDARD G 06- OPENING REINFORCEMENT*  SEE NOTE 3 (TYP.)  WAYS FOR ALL HEIGHTS  SECTION A-A  WAYS FOR ALL HEIGHTS  SECTION A-A  WAYS FOR ALL HEIGHTS  PRESSURE MANHOLE BOX FOR P.V.C. PIPELINE  Intrigation District DATE: JUNE 2017  STANDARD #: DATE: SANDARD GO HERE SENING CAUGHTER SECTION BY: SERVICE MANHOLE BOX FOR P.V.C. PIPELINE  DATE: JUNE 2017  STANDARD #: DATE: SANDARD GO HERE SENING COUNTERGREE SENING	PLAN VIEW		STATIC WATER ELE	V.	
EXPOSED METAL COVER WELDED TO TOP. USE RUST INHIBITING PAINT, STD OLIVE DRAB GREEN, ALL OTHER COLORS TO BE PRE-APPROVED BY M.I.D. (5' MIN. ABOVE GROUND)  SEE NOTE 5  SIDEWALK  S=0.020  WATERSTOP (SEE NOTE 7) STANDARD G 10 - CONCRETE PIPE THRUST BLOCK*  SEE M.I.D. STANDARD G 06 - OPENING REINFORCEMENT* SEE NOTE 3 (TYP.)  WAYS FOR ALL HEIGHTS  SECTION A-A  WAYS FOR ALL HEIGHTS  SECTION A-A  WAYS FOR ALL HEIGHTS  PRESSURE MANHOLE BOX FOR P.V.C. PIPELINE  Intrigation District  DATE: JUNE 2017  STANDARD #: DATE: SANDARD #: DATE: SCHOOL COLUMN COLU	OFFSET AV AS OPTION — ACUA SOLVA AS STEEL PURE AVAILABLE	<b>-</b>		$\overline{}$	
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PAINT, STD OLIVE DRAB GREEN, ALL OTHER COLORS TO BE PRE-APPROVED BY M.I.D.  SEE M.I.D. SIDEWALK	lı 11 /				
THRUST BLOCK. SEE M.I.D.  SIDEWALK  S=0.020  WATERSTOP (SEE NOTE 7)  STANDARD G 10 - CONCRETE PIPE THRUST BLOCK*  SEE M.I.D. STANDARD G 06 - OPENING REINFORCEMENT*  SEE NOTE 3 (TYP.)  8" FOR ALL HEIGHTS  SECTION A-A  WAYS FOR ALL HEIGHTS  SECTION A-A  WAYS FOR ALL HEIGHTS  PRESSURE MANHOLE BOX FOR P.V.C. PIPELINE  DATE: JUNE 2017  STANDARD #:  DATE: JUNE 2017  STA					
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THRUST BLOCK. SEE M.I.D. (SEE NOTE 7) STANDARD G 10 - CONCETE PIPE THRUST BLOCK*  SEE M.I.D. STANDARD G 06 - (TYP.)  SEE NOTE 3 (TYP.)  PRESSURE MANHOLE BOX FOR P.V.C. PIPELINE  PRESSURE MANHOLE BOX FOR P.V.C. PIPELINE  DATE: JUNE 2017  STANDARD #: DATE: SENING RIMER P.E.  SENIN	PRE-APPROVED BY M.I.D.			. GROC	ויטאול
MIN. 6" FROM SIDEWALK  S=0.020  WATERSTOP (SEE NOTE 7)  STANDARD G 10 - CONCRETE PIPE THRUST BLOCK*  SEE M.I.D. STANDARD G 06 - OPENING REINFORCEMENT*  SEE NOTE 3 (TYP.)  8" FOR ALL HEIGHTS  SECTION A-A  WAYS FOR ALL HEIGHTS  *REFERENCED STANDARD(S): G 04, G 06, G 07, G 10, G 11  PRESSURE MANHOLE BOX FOR P.V.C. PIPELINE  DATE: JUNE 2017  STANDARD #: DATE: JUNE 2017	SIDEWALK 3"		I I	<b>\</b>	
SIDEWALK  S=0.020  WATERSTOP (SEE NOTE 7)  STANDARD G 10 - CONCRETE PIPE THRUST BLOCK*  SEE M.I.D. STANDARD G 06 - OPENING REINFORCEMENT*  SEE NOTE 3 (TYP.)  8" FOR ALL HEIGHTS  SECTION A-A  WAYS FOR ALL HEIGHTS  *REFERENCED STANDARD(S): G 04, G 06, G 07, G 10, G 11  PRESSURE MANHOLE BOX FOR P.V.C. PIPELINE  DAVID B. BAKKER, P.E. SENDER DAYLO B. B. B. CHARLER DESSINE CIVIL FROGINEFER  SENDER DAYLO B. B. B. CHARLER DESSINE CIVIL FROGINEFER  SENDER CIVIL FROGINEFER  SE		10/			
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PIPE THRUST BLOCK*  SEE M.I.D. STANDARD G 06 - OPENING REINFORCEMENT*  SEE NOTE 3 (TYP.)  8" FOR ALL HEIGHTS  SECTION A-A  WAYS FOR ALL HEIGHTS  *REFERENCED STANDARD(S): G 04, G 06, G 07, G 10, G 11  PRESSURE MANHOLE BOX FOR P.V.C. PIPELINE  Irrigation District  DATE: JUNE 2017  STANDARD #: DAYLO B. BAKKER, P.E. SENIOR CIVIL ENGINEER	THRUST BLOCK, SEE M.I.D. — (SEE NOTE 7)				
SEE M.I.D. STANDARD G 06 - OPENING REINFORCEMENT* SEE NOTE 3 (TYP.)  8" FOR ALL HEIGHTS  SECTION A-A  WAYS FOR ALL HEIGHTS  *REFERENCED STANDARD(S): G 04, G 06, G 07, G 10, G 11  PRESSURE MANHOLE BOX FOR P.V.C. PIPELINE  Irrigation District  DATE: JUNE 2017  STANDARD #: DAYID B. BAKKER, P.E. SENIOR CIVIL ENGINEER	3771127112 G 10 GG11G11212			1	
OPENING REINFORCEMENT*  SEE NOTE 3 (TYP.)  8" FOR ALL HEIGHTS  SECTION A-A  WAYS FOR ALL HEIGHTS  *REFERENCED STANDARD(S): G 04, G 06, G 07, G 10, G 11  PRESSURE MANHOLE BOX FOR P.V.C. PIPELINE  Irrigation District  DATE: JUNE 2017  STANDARD #:  DAYID B. BAKKER, P.E. SENIOR CIVIL ENGINEER  DAYID B. BAKKER, P.E. SENIOR CIVIL ENGINEER			-4		
SEE NOTE 3 (TYP.)  8" FOR ALL HEIGHTS  SECTION A-A  WAYS FOR ALL HEIGHTS  *REFERENCED STANDARD(S): G 04, G 06, G 07, G 10, G 11  PRESSURE MANHOLE BOX FOR P.V.C. PIPELINE  DATE: JUNE 2017  STANDARD #:  DAYID B. BAKKER, P.E. SENIOR CIVIL ENGINEER			12" MIN	ţ	
#4 REBAR 12" O.C. BOTH WAYS FOR ALL HEIGHTS  *REFERENCED STANDARD(S): G 04, G 06, G 07, G 10, G 11  PRESSURE MANHOLE BOX FOR P.V.C. PIPELINE    DAVID B. BAKKER, P.E.		X 4	4 4 4		]
*REFERENCED STANDARD(S): G 04, G 06, G 07, G 10, G 11  PRESSURE MANHOLE BOX FOR P.V.C. PIPELINE    DAYLD B. BAKKER, P.E.	SEE NOTE 3 (TYP.)	4	HA DEDAD 13" O C DOT	_	]
*REFERENCED STANDARD(S): G 04, G 06, G 07, G 10, G 11  PRESSURE MANHOLE BOX FOR P.V.C. PIPELINE    DATE: JUNE 2017   STANDARD #: D 25    DATE: JUNE 2017   STANDARD #: D 25    DATE: JUNE 2017   STANDARD #: D 25	8" FOR ALL HEIGHTS —	ION			]
PRESSURE MANHOLE BOX FOR P.V.C. PIPELINE  District  DATE: JUNE 2017  PRESSURE MANHOLE BOX FOR P.V.C. PIPELINE  DAVID B. BAKKER, P.E. SENIOR CIVIL ENGINEER	SECT	IUN			, G 11
Modesto Irrigation District  Date: June 2017  Date: June	DDECCUDE MANUALE DOV			.,510	
Irrigation District Date: June 2017  Date: June 2017  Date: June 2017  STANDARD #:  Date: June 2017  Date: June 2017  Date: June 2017  STANDARD #:  STANDARD #:  Date: June 2017  Date: June 2017			Dan O D D D	01	_
District Senior Civil Engineer	Irrigation DATE, HINE 2017 STANDARD #.		DAVID R RAKKER DE	w	_ [
DATE: 1/27/22	District P 25	;	SENIOR CIVIL ENGINEER		J
	SCALE: NONE		DATE: 1/4 1/44		

NOTES:	REV	CHANGE	DATE	ВҮ
<del></del>	Â	RELEASE	06/17	LH
1. CONCRETE STRENGTH TO BE 3,000 PSI @ 28 DAYS. NO ADMIXTURES	<u>2</u>	REVISED	04/22	LH
SHALL BE INCORPORATED INTO CONCRETE MIX UNLESS PRE-APPROVED	<u>3</u>		1	
BY M.I.D. SEE M.I.D. STANDARD G 04 - CONCRETE NOTES*.		,		-
2. ALL PIPE SHALL ENTER BOX AT OR NEAR PERPENDICULAR ANGLES TO THE			- CD	
3. ALL COLD JOINTS REQUIRE 6" RUBBER WATER STOP EMBEDDED IN CENT MANUFACTURER'S RECOMMENDATIONS. SEE M.I.D. STANDARD G 07 - N			EK	
4. CANAL GATE TO BE WATERMAN C-10 CANAL GATE OR PRE-APPROVED EC				
5. IF TOP OF STRUCTURE IS 4 FEET OR MORE ABOVE SURROUNDING GRADE	-		OF	
STRUCTURE IS 7.5 FEET OR MORE ABOVE SURROUNDING GRADE, HANDR				/l.l.D.
STANDARDS M 45 - STRUCTURE HANDRAILING* AND M 46 - STRUCTURE	LADD	ER*.		
6. PROPERLY SEAL ALL BOX JOINTS AND PIPES BY MORTARING FROM INSIDI			BLEND	
MORTAR AND CONCRETE TOGETHER. SEE M.I.D. STANDARD G 11 - M.I.D.			· A	
7. WATERSTOP SURROUNDING OPENINGS SHALL BE VOLCLAY WATERSTOP- ULTRASEAL KBA-1510FP WATERSTOP, PLACED AROUND OUTSIDE OF COL			A	
	PLEF	TIN CENTER OF WALL.		
ATTACH GATE FRAME TO  GRATING/REDWOOD DECK  5'-0"  4  3'-0"  8'				
GRATING/REDWOOD DECK 5'-0" 3'-0" 8'	' FOR	ALL HEIGHTS		
	- wı	EIR BOARD SLOT 2½" WIDE, EMBEDE	DED 2"	
REFER TO M.I.D. STANDARD M 47 -		CONC. OR USE 2-GALV. L ½" X 2½" X :		
STRUCTURE GRATING*	ВА	CK TO BACK ANGLES. OVERPOUR TO	O BE	
I STROCTORE GRATING	24	' OR AS DETERMINED BY M.I.D.		
	13	LBAAN		
	- 12	'MAX.		
	1271			
SEE M.I.D.	\$₹\C\	ANAL GATE (SEE NOTE 4)		
STANDARD G 06 -	<i>_</i>	MORRILL MID-2005 STD GALV. ST.	ΔRTFR	
OPENING 3" MIN.		COUPLER OR PRE-APPROVED EQU		
REINFORCEMENT*	/			
FLOW—	<b>1</b>			
FLOW	<b>%</b>	— HANDWHEEL SI		
	الما	→ / MIN. & 24" MA WORKING SURI		)VE
	ØW-	working suri	ACE	
	-11	<b>/</b> →   ← 12"	MIN.	
MORRILL M&M 2005 — 1			NDRAII	
GALV. STARTER		/ (SEI	E NOTE	5)
COUPLER OR / - 8" (TYP.) PRE-APPROVED / 10'-0"	$\overline{}$	r	_	
PRE-APPROVED / 10'-0"	Î		Î	
/ A				
WATERSTOP (SEE — PLAN VIEW				
NOTE 7) (TYP.)  VARIES 2'-0" MIN.				
2 -0 IVIIIN.		HEIGI	TT TO	RE
			RMIN	
		1 30 k   7 //	M.I.D.	
	_		1	
#4 REBAR 12" O.C. —		VARIES		
BOTH WAYS —		AMILIA AMILIA	-	
<u>'</u>				
12" MIN.	TYP.			
<u> </u>		1 1 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	ţ	
	/	CECTION A		
SEE NOTE 3 —		SECTIÓN A-A		
	*RI	EFERENCED STANDARD(S): G 04, G 06, G 07, G 11, M	45, M 46,	M 47
OVERPOUR BOX		APPROVED BY:		
Modesto FOR P.V.C. PIPELINE		Daniel B. Bahl	01	
Irrigation DATE: HINE 2017 STANDARD #:		DAVID B. BAKKER, P.E.		— <b>I</b>
District Scale: NONE		DATE: 4/29/22 SENIOR CIVIL ENGINEER		
SCALE: INUINE		DATE: 1/- 1/		

- 1. CONCRETE STRENGTH TO BE 3,000 PSI @ 28 DAYS. NO ADMIXTURES SHALL BE INCORPORATED INTO CONCRETE MIX UNLESS PRE-APPROVED BY M.I.D. SEE M.I.D. STANDARD G 04 CONCRETE NOTES\*.
- 2. SAW CUT, THOROUGHLY BRUSH AWAY DEBRIS AND CLEAN EXISTING LINING PRIOR TO CONCRETE PLACEMENT.
- 3. SEE M.I.D. STANDARD G 13 STANDARD CANAL GATE NOTES\* FOR STANDARD INSTALLATION AND CONSTRUCTION NOTES.





Modesto Irrigation District STANDARD CANAL GATE FOR P.V.C. PIPELINE

DATE: JUNE 2017

SCALE: NONE

STANDARD #: P 45

APPROVED BY:

DAVID B. BAKKER, P.E. SENIOR CIVIL ENGINEER 4/29/22

# NOTES: 1. CONCRETE STRENGTH TO BE 3,000 PSI @ 28 DAYS. NO ADMIXTURES SHALL BE INCORPORATED INTO CONCRETE MIX UNLESS PRE-APPROVED BY M.I.D SEE M.I.D. STANDARD G 04 - CONCRETE NOTES\*. SAW CUT, THOROUGHLY BRUSH AWAY DEBRIS AND CLEAN EXISTING LINING PRIOR TO CONCRETE PLACEMENT. 3. SEE M.I.D. STANDARD G 13 - STANDARD CANAL GATE NOTES\* FOR STANDARD INSTALLATION AND CONCRETE NOTES. 4" AV (SEE M.I.D. STANDARD P 50 -AIR VENT FOR P.V.C. PIPELINE\*) **ROADWAY ON CANAL BANK CANAL GATE CANAL BANK** 30" MIN. #4 REBAR 12" O.C. COVER **BOTH WAYS** WATERSTOP STRIP

			200
REV	CHANGE	DATE	BY
Â	RELEASE	06/17	LH
<u>^2</u> \	REVISED	04/22	LH
<u>3</u>			
4			

5' MIN. HANDWHEEL SHALL BE 36" ABOVE WORKING SURFACE TOP OF LINING HEADWALL SEE M.I.D. STANDARD G 06 - OPENING **REINFORCEMENT\*** TO BE **DETERMINED** BOTTOM BY M.I.D. OF CANAL 3" THICK CONC. #4 REBAR 12" O.C. BOTH WAYS **VARIES** 12" 8" FOR MIN. ALL WATERSTOP **HEIGHTS** FLOOR AND SIDE WALLS TO BE KEYED A MIN. OF 6"

Modesto **Irrigation** District

**VARIES** 

MORRILL MID-2005 GALV.

100 PSI P.V.C. PIPE (PIP)

W/IN LIMITS OF M.I.D. **CANAL ROW** 

**EQUIVALENT** 

**COUPLER OR PRE-APPROVED** 

STANDARD CANAL GATE FOR P.V.C. PIPELINE WITH SUMP

UNDER EX. CANAL LINING (SEE M.I.D. STANDARD G 08 -

DATE: JUNE 2017 SCALE: NONE

**PROFILE VIEW** 

8" TYP.

STANDARD #:

7'-6" MIN.

P 46

CONCRETE LINED CANAL DETAILS\*)

APPROVED BY:

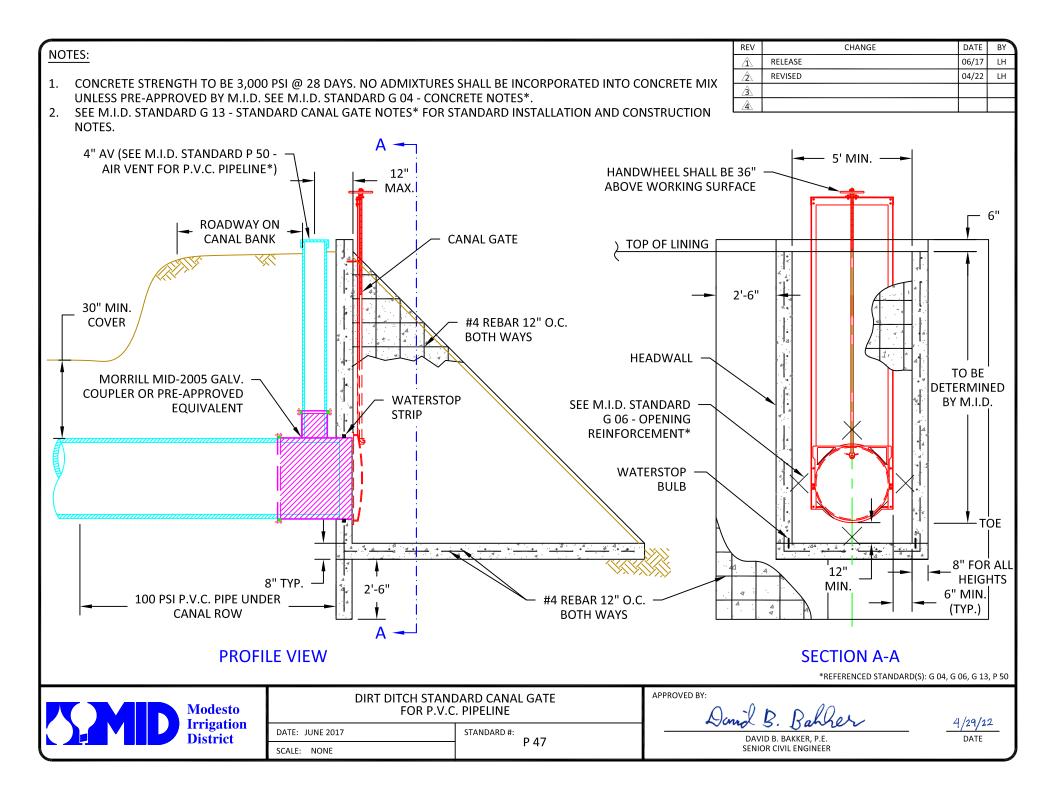
**BULB** 

DAVID B. BAKKER, P.E. SENIOR CIVIL ENGINEER 6" MIN.

(TYP)

**SECTION A-A** 

\*REFERENCED STANDARD(S): G 04, G 06, G 08, G 13, P 50



NOTES:	REV	CHANGE	DATE	вү
THOROUGHLY PRINCIPALL DEPRICAND CLEAN EACH END OF DIRE	<u> </u>	RELEASE	06/17	LH
THOROUGHLY BRUSH ALL DEBRIS AND CLEAN EACH END OF PIPE     AROUND THE ENTIRE CIRCUMFERENCE PRIOR TO PLACEMENT OF	<u>3</u>			
SADDLE.	4			
<ol> <li>USE WELD-ON P-68 PURPLE PRIMER AND WELD-ON 2719 HIGH STREN EQUIVALENT FOR CEMENTING SADDLE TO PIPE.</li> </ol>	IGTH SO	LVENT CEMENT OR PRE-APPROVED	)	
3. AFTER PLACEMENT OF SADDLE WITH GLUE AND STRAPS, USE WELD-0	N 810 T	WO PART EPOXY OR PRE-APPROVE	D	
EQUIVALENT. EPOXY TO BE PLACED IN GAP BETWEEN INSIDE OF SAD	DLE AND	TOP OF MAIN PIPELINE.		
4. MINIMUM 10" DIAMETER FOR ALL VENT PIPES. ALL PIPE COVERS MU: 5. AIR VENTS SHALL BE INSTALLED AT 500 FT INTERVALS, AT PIPELINE GI			4ΕDIΔ	TFLY
D/S OF INLET STRUCTURES.	WIDE CIT	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	12017	
C DRILL HOLES IN CA	P OF VEI	NT	_	
PIPE. 40% OF MATI		WATER ELEV		
MUST BE REMOVE	· T	<del></del>		
EXPANDED METAL P.V.C. COVER		TO DE		
COVER	HEIGHT ' DETERM	IINIED         F.V.C. OR		
	M.I.D. (		-D	
HOLE INTO MAIN PIPELINE A	BOVE GR	ROUND) BY M.I.D.		
PRIOR TO PLACING SADDLE.  DIA. OF HOLE MUST BE	1/2			
SMALLER THAN SADDLE DIA.				
	_ 🖠	P.V.C. SAE	DLE	
ATTACH AV W/				
SADDLE AND STRAPS \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		VARIES		
<u> </u>		VAN:		
V		SECTION A-A		
└ <del>-</del> A		2'	MIN. ε sta <sup>.</sup>	TIC
SADDLE PLAN VIEW		l l	ER ELE	
SADDLE PLAIN VIEW		<del></del>		
		HEIGHT TO BE		
		SETERNALNIER / / P.V.V	C. OR El pipe	<u>.</u>
	BY	M.I.D. (5' MIN.	PPRO	
D.V.C. STD.TEE	AB		1.I.D.	
P.V.C. STD TEE —			•	
\				
			/.C. D TEE	
/ <del> </del>			J 122	
		VARIES		
		VAN		
V		William Control of the Control of th		
L→ B		ı		
TEE PLAN VIEW		SECTION B-B		
AIR VENT		APPROVED BY:		-
Modesto FOR P.V.C. PIPELINE		(II) II		
Irrigation District  DATE: JUNE 2017  STANDARD #: P		CHAD J. TIENKEN, P.E., P.L.S.		— I
District Scale: NONE	50	CIVIL ENGINEERING MANAGE DATE: 9/7/17	К	J
		-		

#### REV CHANGE DATE BY NOTES: 06/17 LH RELEASE REVISED LH <u>/2</u>\ 04/22 CONCRETE STRENGTH TO BE 3,000 PSI @ 28 DAYS. NO ADMIXTURES <u>/3</u>\ SHALL BE INCORPORATED INTO CONCRETE MIX UNLESS PRE-APPROVED BY M.I.D. SEE M.I.D. STANDARD G 04 - CONCRETE NOTES\*. 2. ALL PIPE SHALL ENTER BOX AT OR NEAR PERPENDICULAR ANGLES TO THE BOX. ALL COLD JOINTS REQUIRE 6" RUBBER WATER STOP EMBEDDED IN CENTER OF WALL AT COLD JOINT LOCATION PER 3. MANUFACTURER'S RECOMMENDATIONS. SEE M.I.D. STANDARD G 07 - NEW CONSTRUCTION JOINT\*. 4. GRATE REQUIRED ONLY FOR INLET STRUCTURE. PROPERLY SEAL ALL BOX JOINTS AND PIPES BY MORTARING FROM INSIDE OF BOX. USE SOFT BRISTLE BRUSH TO BLEND 5. MORTAR AND CONCRETE TOGETHER. SEE M.I.D. STANDARD G 11 - M.I.D. MORTAR MIX NOTES\*. 6. WATERSTOP SURROUNDING OPENINGS SHALL BE VOLCLAY WATERSTOP-RX 102 BENTONITE CLAY STRIP OR ADEKA ULTRASEAL KBA-1510FP WATERSTOP, PLACED AROUND OUTSIDE OF COUPLER IN CENTER OF WALL. L <sup>1</sup>/<sub>4</sub>" X 4" X 4" X 5" LONG **GALV. ANGLE** §"Ø X 6" SS "L" ANCHOR OR PRE-APPROVED EQUIVALENT 3" TUBE WELDED TO ANGLE -(2 REQ'D) 2"Ø SCH 40 GALV. PIPE IRON AS GRATE HINGE @ 8" O.C. SPACING 8" (TYP.) SLEEVED HINGE JOINT Α DITCH 8" (TYP.) 12" MIN. (TYP.) 2" Ø SCH 40

**PLAN VIEW** TOE OF DITCH STARTER COUPLER OR PRE-APPROVED 6" MIN. **EQUIVALENT** #4 REBAR 12" O.C. **VARIES EACH WAY** SEE NOTE 3 12" MIN.

**SECTION A-A** 

\*REFERENCED STANDARD(S): G 04, G 07, G 11

**SEE NOTE 6** 

**MORRILL M&M** 2005 STD GALV.



2'-6" MIN. BEYOND TOP OF DITCH

> **INLET / OUTLET BOX STRUCTURE** FOR P.V.C. PIPELINE

GALV. PIPE

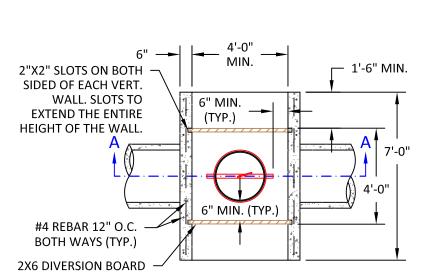
DATE: JUNE 2017 STANDARD #:

P 55

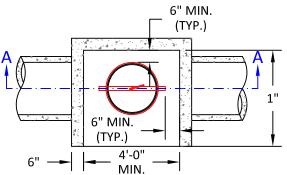
DATE: 4/29/22

APPROVED BY DAVID B. BAKKER, P.E. SENIOR CIVIL ENGINEER

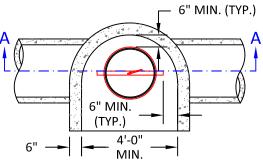
#### REV CHANGE DATE BY NOTES: RELEASE LH 06/17 REVISED LH <u>/2</u>\ 04/22 CONCRETE STRENGTH TO BE 3,000 PSI @ 28 DAYS. NO ADMIXTURES <u>/3</u>\ SHALL BE INCORPORATED INTO CONCRETE MIX UNLESS PRE-APPROVED BY M.I.D. SEE M.I.D. STANDARD G 04 - CONCRETE NOTES\*. PROPERLY SEAL CONNECTION BY MORTARING FROM INSIDE PIPELINE AFTER PERMANENT PLACEMENT OF FIELD VALVE OPENING. USE SOFT BRISTLE BRUSH TO BLEND MORTAR AND CONCRETE TOGETHER. SEE M.I.D. STANDARD G 11 - M.I.D. MORTAR MIX NOTES\*. TWO WAY VALVE STRUCTURE NOT TO BE SUBSTITUTED FOR ONE WAY VALVE STRUCTURE OR HORSE SHOE VALVE 3. STRUCTURE WHEN WATER FLOW IS TO BE DIVERTED IN ONLY ONE DIRECTION. 6" MIN. (TYP.)



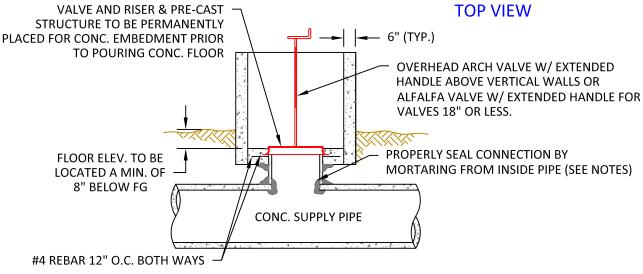
TWO WAY CAST VALVE STRUCTURE **TOP VIEW** 



ONE WAY VALVE STRUCTURE **TOP VIEW** 



HORSE SHOE VALVE STRUCTURE **TOP VIEW** 



**SECTION A-A** 

\*REFERENCED STANDARD(S): G 04, G 11



FIELD VALVE STRUCTURE FOR CONCRETE PIPELINE

DATE: JUNE 2017 NONE

STANDARD #: V 01

DATE: 4/29/22

APPROVED BY DAVID B. BAKKER, P.E.

SENIOR CIVIL ENGINEER

#### REV CHANGE DATE BY **NOTES:** LH RELEASE 06/17 REVISED 04/22 LH <u>/2</u>\ CONCRETE STRENGTH TO BE 3,000 PSI @ 28 DAYS. NO ADMIXTURES <u>/3</u>\ SHALL BE INCORPORATED INTO CONCRETE MIX UNLESS PRE-APPROVED BY M.I.D. SEE M.I.D. STANDARD G 04 - CONCRETE NOTES\*. PROPERLY SEAL PIPES BY MORTARING FROM INSIDE BOX. USE SOFT BRISTLE BRUSH TO BLEND MORTAR AND CONCRETE 2. TOGETHER. SEE M.I.D. STANDARD G 11 - M.I.D. MORTAR MIX NOTES\*. USE WELD-ON P-68 PURPLE PRIMER AND WELD-ON 810 2-PART ADHESIVE TO ATTACH IRON GATE TO P.V.C. PIPE. 3. TWO WAY VALVE STRUCTURE NOT TO BE SUBSTITUTED FOR ONE WAY VALVE STRUCTURE OR HORSE SHOE VALVE STRUCTURE WHEN WATER FLOW IS TO BE DIVERTED IN ONLY ONE DIRECTION. 6" MIN. (TYP.) 4'-0" MIN. 2"X2" SLOTS IN BOTH 6" MIN SIDES OF EACH VERT. (TYP.) WALL FROM FLOOR TO 6" MIN. 4'-0" TOP FOR BOARD SILLS (TYP.) MIN. HORSE SHOE VALVE STRUCTURE 2" **TOP VIEW** 1" 6" MIN. (TYP.) #4 REBAR 12" O.C. 6" MIN. (TYP.) **BOTH WAYS** 2X6 DIVERSION BOARD TWO WAY CAST VALVE STRUCTURE **TOP VIEW** 1" 6" MIN. (TYP.) MIN. ONE WAY VALVE STRUCTURE **TOP VIEW VALVE AND RISER & PRE-CAST VALVE** STRUCTURE TO BE PERMANENTLY WATERMAN ALFALFA VALVE FOR PLACED FOR CONC. EMBEDMENT P.V.C. "EASY MOUNT" W/ EXTENDED PRIOR TO POURING CONC. FLOOR HANDLE OR PRE-APPROVED EQUIVALENT. 18" MAX. FLOOR ELEV. TO BE LOCATED A MIN. OF 8" BELOW FG USE P.V.C. TEE #4 REBAR 12" O.C. BOTH WAYS **SECTION A-A** \*REFERENCED STANDARD(S): G 04, G 11 APPROVED BY: FIELD VALVE STRUCTURES Modesto FOR P.V.C. PIPELINE **Irrigation** DAVID B. BAKKER, P.E.

STANDARD #:

V 20

SENIOR CIVIL ENGINEER

DATE: 4/29/22

DATE: JUNE 2017

NONE

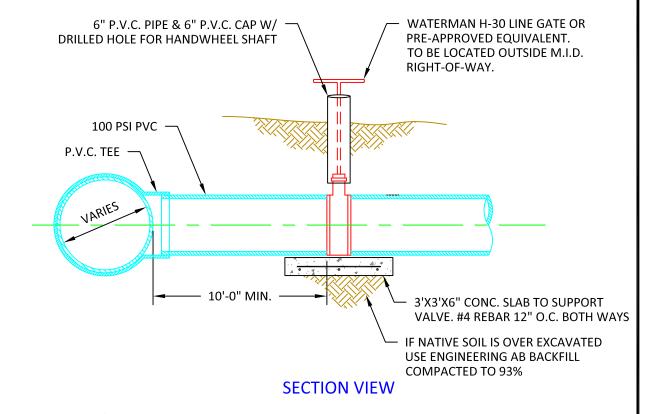
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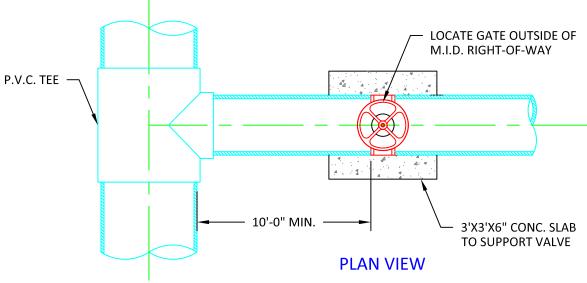
**District** 

 THOROUGHLY BRUSH ALL DEBRIS AND CLEAN EACH END OF PIPE AROUND THE ENTIRE CIRCUMFERENCE PRIOR TO PLACEMENT OF TEE.

REV	CHANGE	DATE	ВҮ
Â	RELEASE	04/22	LH
<u>^</u> 2			
<u>/3\</u>			
4			

- 2. USE WELD-ON P-68 PURPLE PRIMER AND WELD-ON 2719 HIGH STRENGTH SOLVENT CEMENT OR PRE-APPROVED EQUIVALENT FOR CEMENTING TEE TO PIPE.
- 3. USE WELD-ON 810 2-PART ADHESIVE TO ATTACH LINE GATE TO P.V.C. PIPE.







LINE GATE STRUCTURE FOR P.V.C. PIPELINE

DATE: APRIL 2022 SCALE: NONE STANDARD #:

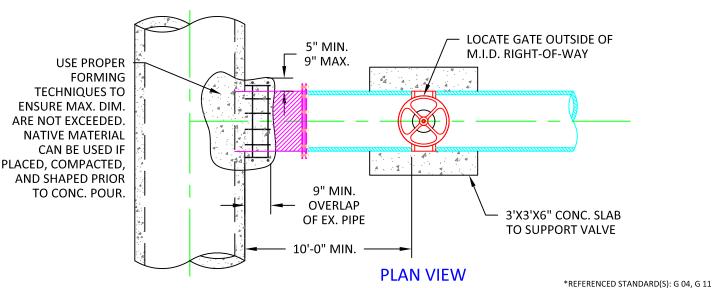
V 40

APPROVED BY:

DATE: 4/29/22

DAVID B. BAKKER, P.E. SENIOR CIVIL ENGINEER

#### REV CHANGE DATE BY **NOTES:** 04/22 LH RELEASE <u>/2</u>\ CONCRETE STRENGTH TO BE 3,000 PSI @ 28 DAYS. NO ADMIXTURES <u>/3</u>\ SHALL BE INCORPORATED INTO CONCRETE MIX UNLESS PRE-APPROVED BY M.I.D. SEE M.I.D. STANDARD G 04 - CONCRETE NOTES\*. ALL PIPE SHALL ENTER STRUCTURE AT OR NEAR PERPENDICULAR ANGLES TO THE WALL OF THE STRUCTURE. THOROUGHLY BRUSH ALL DEBRIS AND CLEAN BOTH PIPE AND STRUCTURE AROUND THE ENTIRE CIRCUMFERENCE WITH WATER PRIOR TO PLACEMENT OF CONCRETE OR MORTAR. MINIMUM #4 BARS FOR ALL COLLAR REINFORCEMENT. 4. A MINIMUM OF TWO CIRCUMFERENCE BARS REQUIRED WITH A MINIMUM 18" BAR LAP. THE BARS MUST HAVE A MINIMUM OF 3" CLEAR FROM PIPE O.D. AND 2" MINIMUM OF CONCRETE COVER. HORIZONTAL BARS SHALL BE PLACED AT 12" O.C. EQUALLY SPACED AROUND THE CIRCUMFERENCE OF THE PIPE WITH A 6. MINIMUM OF SIX (6) HORIZONTAL BARS. PROPERLY SEAL CONNECTION BY MORTARING FROM INSIDE PIPELINE AFTER PERMANENT PLACEMENT OF CONCRETE COLLAR. A MINIMUM MORTARED BAND WIDTH OF 5" IS REQUIRED. USE SOFT BRISTLE BRUSH TO BLEND MORTAR AND CONCRETE TOGETHER. SEE M.I.D. STANDARD G 11 - M.I.D. MORTAR MIX NOTES\*. 100 PSI PVC WATERMAN H-30 LINE GATE OR PRE-APPROVED EQUIVALENT. MORRILL M&M 2005 STD TO BE LOCATED OUTSIDE M.I.D. GALV. STARTER COUPLER OR RIGHT-OF-WAY. PRE-APPROVED EQUIVALENT POUR COLLAR TO MAKE SURE **BOLTS AREN'T BLOCKED** 6" P.V.C. PIPE & 6" P.V.C. CAP W/ DRILLED HOLE FOR HANDWHEEL SHAFT COVE COUPLER TO . MATCH INSIDE OF PIPE VARIES 10'-0" MIN. 3'X3'X6" CONC. SLAB TO SUPPORT VALVE. #4 REBAR 12" O.C. BOTH WAYS IF NATIVE SOIL IS OVER EXCAVATED USE ENGINEERING AB BACKFILL **SECTION VIEW COMPACTED TO 93%**



Modesto Irrigation District LINE GATE STRUCTURE FOR CONCRETE PIPELINE

DATE: APRIL 2022

SCALE: NONE

STANDARD #: V 41

APPROVED BY:

David B. Bahker

DAVID B. BAKKER, P.E.

DATE: 4/29/22

SENIOR CIVIL ENGINEER

#### REV CHANGE DATE NOTES: RELEASE 06/17 LH REVISED 04/22 IΗ <u>/2</u>\ CONCRETE STRENGTH TO BE 3,000 PSI @ 28 DAYS. NO ADMIXTURES <u>/3</u>\ SHALL BE INCORPORATED INTO CONCRETE MIX UNLESS PRE-APPROVED BY M.I.D. SEE M.I.D. STANDARD G 04 - CONCRETE NOTES\*. 2. ALL PIPE SHALL ENTER STRUCTURE AT OR NEAR PERPENDICULAR ANGLES TO THE WALL OF THE STRUCTURE. THOROUGHLY BRUSH ALL DEBRIS AND CLEAN BOTH PIPE AND STRUCTURE AROUND THE ENTIRE CIRCUMFERENCE WITH WATER PRIOR TO PLACEMENT OF CONCRETE OR MORTAR. 4. MINIMUM #4 BARS FOR ALL COLLAR REINFORCEMENT. A MINIMUM OF TWO CIRCUMFERENCE BARS REQUIRED WITH A MINIMUM 18" BAR LAP. THE BARS MUST HAVE A 5. MINIMUM OF 3" CLEAR FROM PIPE O.D. AND 2" MINIMUM OF CONCRETE COVER. HORIZONTAL BARS SHALL BE PLACED AT 12" O.C. EQUALLY SPACED AROUND THE CIRCUMFERENCE OF THE PIPE WITH A 6. MINIMUM OF SIX (6) HORIZONTAL BARS. 7. PROPERLY SEAL CONNECTION BY MORTARING FROM INSIDE PIPELINE AFTER PERMANENT PLACEMENT OF CONCRETE COLLAR. A MINIMUM MORTARED BAND WIDTH OF 5" IS REQUIRED. USE SOFT BRISTLE BRUSH TO BLEND MORTAR AND CONCRETE TOGETHER, SEE M.I.D. STANDARD G 11 - M.I.D. MORTAR MIX NOTES\*. USE WELD-ON P-68 PURPLE PRIMER AND WELD-ON 2717 HIGH STRENGTH SOLVENT CEMENT OR PRE-APPROVED 8. EQUIVALENT FOR CEMENTING PIPE AND CONNECTIONS FOR P.V.C. PIPELINE. 9. USE WELD-ON 810 2-PART ADHESIVE TO ATTACH VALVE TO P.V.C. PIPELINE. WATERMAN ALFALFA VALVE FOR P.V.C. "EASY MOUNT" W/ EXTENDED HANDLE OR PRE-APPROVED EQUIVALENT. 18" MAX. VALVE AND RISER & PRE-CAST VALVE STRUCTURE TO BE PERMANENTLY PLACED FOR CONC. EMBEDMENT PRIOR TO POURING CONC. FLOOR. FLOOR ELEV. TO #4 REBAR 12" O.C. BOTH WAYS FOR BE LOCATED 30" MIN. **ALL POURED STRUCTURES** A MIN. OF MORRILL M&M 2005 STD FINISHED GRADE 8" BELOW FG GALV. STARTER COUPLER OR PRE-APPROVED EQUIVALENT POUR COLLAR TO MAKE SURE 5" MIN. **BOLTS AREN'T BLOCKED** 9" MAX CONC. SLAB GROUND TO BE **COMPACTED TO 90%** VARIES CONC. RELATIVE COMPACTION P.V.C. PIPELINE MAINLINE CONC. THRUST BOX REQ'D, NO EXCEPTIONS **COVE COUPLER TO** USE PROPER FORMING TECHNIQUES TO INSURE MAX. DIM. MATCH INSIDE OF PIPE ARE NOT EXCEEDED. NATIVE MATERIAL CAN BE USED IF 9" MIN. PLACED, COMPACTED, AND SHAPED PRIOR TO CONC. POUR. OVERLAP P.V.C. TO CONCRETE CONNECTION P.V.C. TEE VARIES P.V.C. MAINLINE P.V.C. PIPELINE P.V.C. TO P.V.C. CONNECTION \*REFERENCED STANDARD(S): G 04, G 11 APPROVED BY: OFFSET - ARCH / ALFALFA VALVE STRUCTURE Modesto **Irrigation** DAVID B. BAKKER, P.E. STANDARD #: DATE: JUNE 2017 SENIOR CIVIL ENGINEER V 45 SCALE: NONE DATE: 4/29/22