

CITY OF MIDLAND STANDARD DETAILS

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC	
 MIDLAND Engineering Services	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
COVER SHEET			100

100 COVER SHEET

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CITY OF MIDLAND STANDARD DETAILS ARE TO SERVE AS THE TYPICAL STANDARDS FOR ALL PUBLIC INFRASTRUCTURE WITHIN THE MIDLAND CITY LIMITS AND EXTRATERRITORIAL JURISDICTION.

CITY OF MIDLAND STANDARD DETAILS ARE PUBLIC DETAILS, HOWEVER THE CITY OF MIDLAND ACCEPTS NO RESPONSIBILITY FOR THE USE OR MISUSE OF THESE DETAILS FOR ANY DESIGN OR CONSTRUCTION OF PRIVATE INFRASTRUCTURE OR PUBLIC INFRASTRUCTURE THAT IS NOT PART OF, OR TO BE ACCEPTED INTO, THE CITY OF MIDLAND'S PUBLIC INFRASTRUCTURE.

CITY OF MIDLAND STANDARD DETAILS HAVE BEEN CREATED WITH THE INTENT OF COMPLYING WITH ALL APPLICABLE FEDERAL AND STATE LAWS, STANDARDS, RULES, ETC. IF A DISCREPANCY EXISTS BETWEEN THE CITY OF MIDLAND STANDARD DETAILS AND FEDERAL OR STATE REQUIREMENTS THEN THE MORE RESTRICTIVE REQUIREMENT OR STANDARD WILL GOVERN.

DESIGN OR CONSTRUCTION ELEMENTS NOT COVERED BY THE CITY OF MIDLAND STANDARD DETAILS SHOULD BE ADDRESSED IN COMPLIANCE WITH ALL OTHER APPLICATION FEDERAL, STATE, AND CITY OF MIDLAND STANDARDS, SPECIFICATIONS, ORDINANCES, POLICIES, ETC.

ALL APPLICABLE CITY OF MIDLAND DETAILS ARE TO BE INCLUDED AS PART OF ANY DEVELOPMENT PLAN SET DESIGN SUBMITTED TO THE CITY FOR REVIEW. SUCH CITY DETAILS ARE TO BE SHOWN UNCHANGED AND TO THEIR FULL EXTENT ON THE DESIGN DRAWING SHEETS, INCLUDING THE DETAIL'S BORDER AND TITLEBLOCK.

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 MIDLAND Engineering Services	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
NOTES TO DESIGNER			102

MAIN - WHEN USED TO DESCRIBE A PUBLIC OR PRIVATE UTILITY THE TERM 'MAIN' REFERS TO A TRANSMISSION OR COLLECTION PIPE LINE SERVING ONE OR MORE SERVICE LATERALS.

SERVICE LATERAL - WHEN USED TO DESCRIBE A PUBLIC OR PRIVATE UTILITY THE TERM 'SERVICE LATERAL' REFERS TO A PIPE LINE EXTENDING FROM A MAIN TO SERVE A SINGLE LOT OR PROPERTY.

DRY UTILITY - WHEN USED TO DESCRIBE A UTILITY THE TERM 'DRY UTILITY ' REFERS TO PRIVATE PIPE LINES, MAINS, AND LATERALS THAT ARE NOT PART OF THE PUBLIC UTILITY INFRASTRUCTURE (I.E. WATER, WASTEWATER, AND STORM DRAINS) AND THAT DO NOT CARRY NATURAL GAS OR PETROLEUM PRODUCTS.

PETROLEUM AND NATURAL GAS - WHEN USED TO DESCRIBE A UTILITY THE TERM 'PETROLEUM AND NATURAL GAS' REFERS TO PRIVATE PIPE LINES, MAINS, AND LATERALS THAT ARE NOT PART OF THE PUBLIC UTILITY INFRASTRUCTURE (I.E WATER, WASTEWATER, AND STORM DRAINS) AND THAT CARRY NATURAL GAS OR PETROLEUM PRODUCTS.

CONCRETE CLASSES - WHEN USED TO DESCRIBE CONCRETE CLASSES, CITY OF MIDLAND CONCRETE CLASSES ARE TO BE CONSIDERED THE SAME AS 2004 TXDOT CONCRETE CLASSES UNLESS SPECIFICALLY NOTED OTHERWISE.

FIBER REINFORCED CONCRETE - WHEN USED TO DESCRIBE CONCRETE ELEMENTS THE TERM 'FIBER REINFORCED CONCRETE' REFERS TO CONCRETE PAVEMENT WITH FIBER REINFORCEMENT RATHER THAN REBAR REINFORCEMENT. THE FIBER REINFORCEMENT USED IN THIS INSTANCE IS TO BE FIBERMESH OR EQUIVALENT AND IS TO BE PLACED IN A RATIO OF 1.5 POUNDS OF FIBER REINFORCEMENT PER CUBIC YARD OF CONCRETE MATERIAL.

TYP - TYPICAL

USU - USUAL

MAX. - MAXIMUM

MIN. - MINIMUM

ROW - RIGHT OF WAY

PSI - POUNDS PER SQUARE INCH

PVC - POLYVINYL CHLORIDE PIPE

DIP - DUCTILE IRON PIPE

CIP - CAST IRON PIPE

MJ - MECHANICAL JOINT

FL - FLANGE JOINT

PE - PLAIN END

PL - PLASTIC LIMIT

LL - LIQUID LIMIT

PI - PLASTICITY INDEX

TAC - TEXAS ADMINISTRATIVE CODE

ADA - AMERICANS WITH DISABILITIES ACT

ASTM - AMERICAN SOCIETY FOR TESTING AND MATERIALS

HMAC - HOT MIX ASPHALT CONCRETE

DRAWN: DPM

CHECKED: JCF

APPROVED: MCC

EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

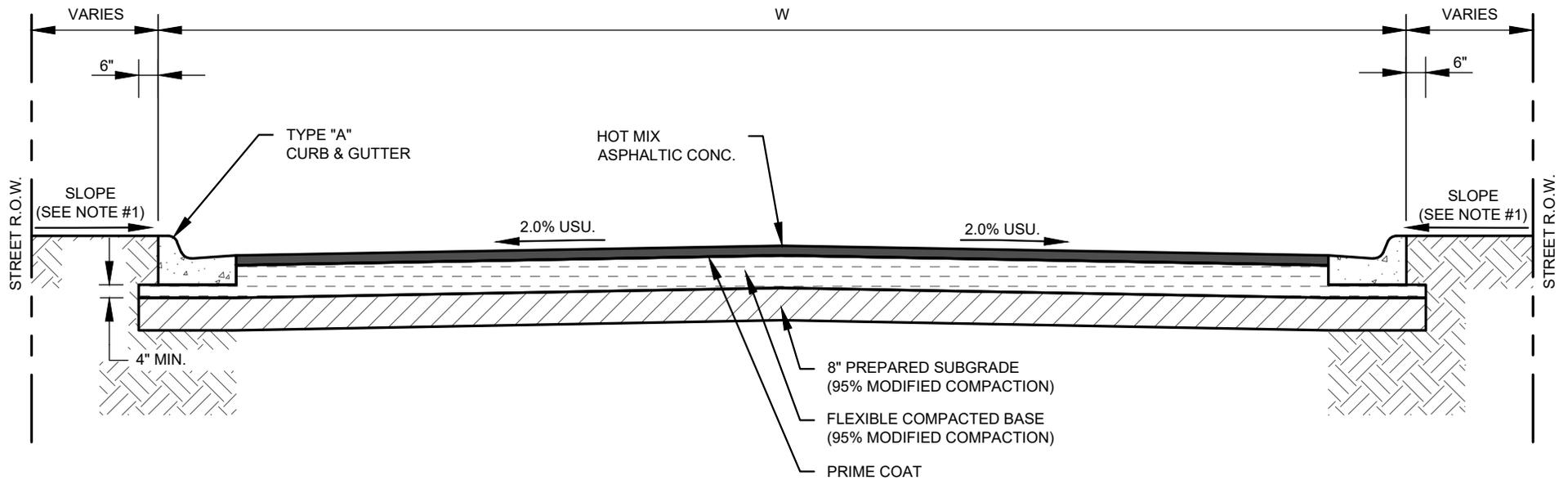


DEFINITIONS & ACRONYMS

103

PAVING DETAILS

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC	
 MIDLAND Engineering Services	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
			200



STREET DIMENSIONS			
W (FT)	ASPHALT THICKNESS (IN)	FLEXIBLE COMPACTED BASE THICKNESS (IN)	ASPHALT TYPE
*37	2D	8	TYPE "D"
*41	2D	8	
47	2D & 2C	8	TYPE "D" OVER TYPE "C"
77	2D & 3C	12	
79	2D & 3C	12	
113	2D & 3C	12	

TABLE THICKNESSES SHOWN ARE THE MINIMUM UNLESS OTHERWISE DIRECTED BY THE PLANS.

* REGARDLESS OF WIDTH, ROADS CLASSIFIED AS COLLECTOR ROADS MUST HAVE 2" TYPE "D" OVER 2" TYPE "C" ASPHALT WITH 8" BASE AND ROADS CLASSIFIED AS ARTERIAL ROADS MUST HAVE 2" TYPE "D" OVER 3" TYPE "C" ASPHALT WITH 12" BASE.

NOTES:

1. THE MAXIMUM SLOPE OF 1/4" / FT TO BE MEASURED FROM THE TOP OF CURB AND TO APPLY TO THE FULL WIDTH OF THE AREA BETWEEN THE BACK OF CURB AND THE R.O.W.
2. FLEXIBLE COMPACTED BASE TO BE PLACED IN LIFTS NO THICKER THAN 6".
3. WHEN MULTIPLE LAYERS OF ASPHALT ARE PLACED A TACK COAT MUST BE PLACED BETWEEN EACH PAIR OF ASPHALT LAYERS.
4. APPLY TACK COAT TO ALL CONCRETE SURFACES ADJACENT TO ASPHALT SURFACES AND TO ALL EXISTING ASPHALT SURFACES ADJACENT TO NEW ASPHALT SURFACES.
5. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO THE CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
6. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



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 APPROVED: MCC

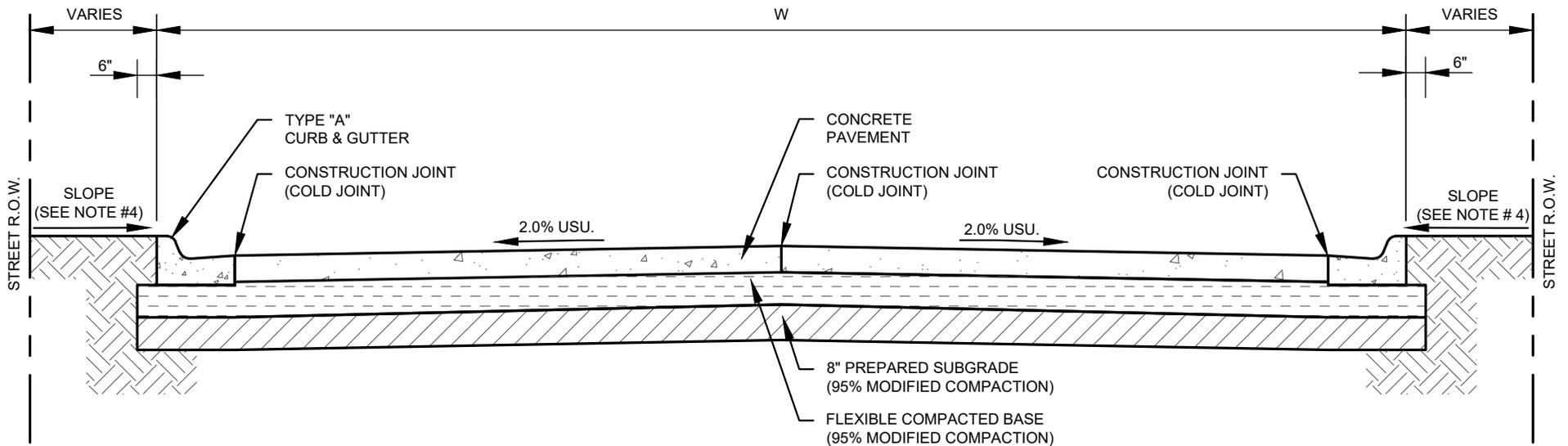
EFFECTIVE DATE: 10/01/2018

SCALE:

DETAIL:

STANDARD STREET CROWN CROSS SECTION

201



NOTES:

1. CONCRETE TO BE CITY OF MIDLAND CLASS "C", 3600 PSI. USE FIBER REINFORCED CONCRETE PAVEMENT THROUGHOUT.
2. TYPE "A" SAW-CUT JOINTS ARE TO BE LOCATED THROUGHOUT AT EQUIDISTANT SPACING TYPICALLY 10' x 10' OR NO GREATER THAN 15' x 15'. SEAL ALL CONCRETE JOINTS.
3. USE TYPE "B" CURB AND GUTTER WHEN CURB AND PAVEMENT ARE INTEGRAL.
4. THE MAXIMUM SLOPE OF 1/4" / FT TO BE MEASURED FROM THE TOP OF CURB AND TO APPLY TO THE FULL WIDTH OF THE AREA BETWEEN THE BACK OF CURB AND THE R.O.W.
5. FLEXIBLE COMPACTED BASE TO BE PLACED IN LIFTS NO THICKER THAN 6".
6. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO THE CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
7. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

STREET DIMENSIONS			
W (FT)	CONCRETE THICKNESS (IN)	FLEXIBLE COMPACTED BASE THICKNESS (IN)	CONCRETE TYPE
37	6	6	CLASS "C" 3600 PSI
41	7	6	
47	7	8	
77	8	12	
79	8	12	
113	8	12	

TABLE THICKNESSES SHOWN ARE THE MINIMUM UNLESS OTHERWISE DIRECTED BY THE PLANS.



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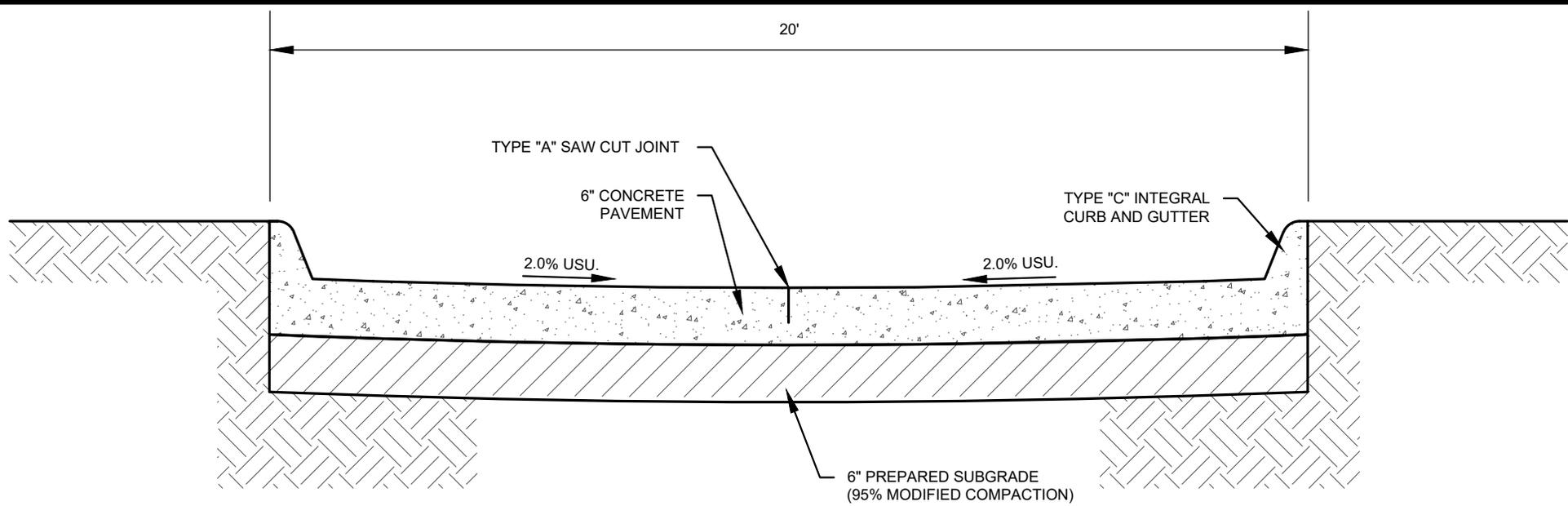
EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

CONCRETE PAVEMENT STREET CROWN CROSS SECTION

202



NOTES:

1. THIS DETAIL WILL BE THE STANDARD FOR ANY ALLEY ACCEPTING RUNOFF FROM A STREET, ROAD, OR DRAINAGE STRUCTURE.
2. CONCRETE TO BE CITY OF MIDLAND CLASS "C", 3600 PSI. USE FIBER REINFORCED CONCRETE PAVEMENT THROUGHOUT.
3. SAW-CUT JOINTS ARE TO BE LOCATED AT EVERY 10' SPACING ALONG THE CONCRETE PAVEMENT. SEAL ALL CONCRETE JOINTS.
4. EXPANSION JOINTS ARE TO BE LOCATED AT EVERY 200' SPACING ALONG THE CONCRETE PAVEMENT. SEAL ALL CONCRETE JOINTS.
5. FLEXIBLE COMPACTED BASE TO BE PLACED IN LIFTS NO THICKER THAN 6".
6. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO THE CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
7. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



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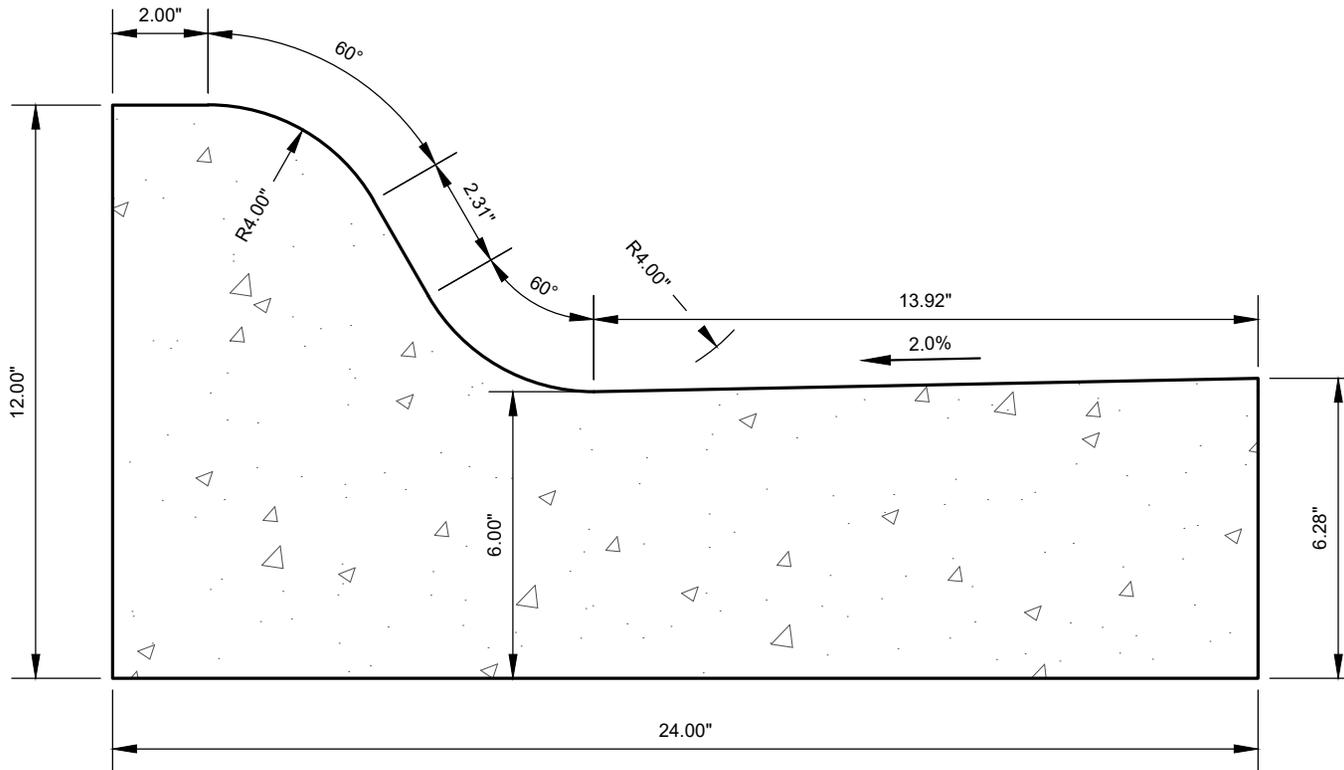
EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

**TYPICAL DRAINAGE
 ALLEY CROSS SECTION**

204



NOTES:

1. CONCRETE TO BE CITY OF MIDLAND CLASS "C", 3600 PSI. USE FIBER REINFORCED CONCRETE PAVEMENT THROUGHOUT.
2. SEAL CONCRETE JOINT AT FACE OF CURB WHEN ADJACENT TO CONCRETE PAVEMENT AND NOT INTEGRAL WITH THAT PAVEMENT.
3. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
4. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



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 APPROVED: MCC

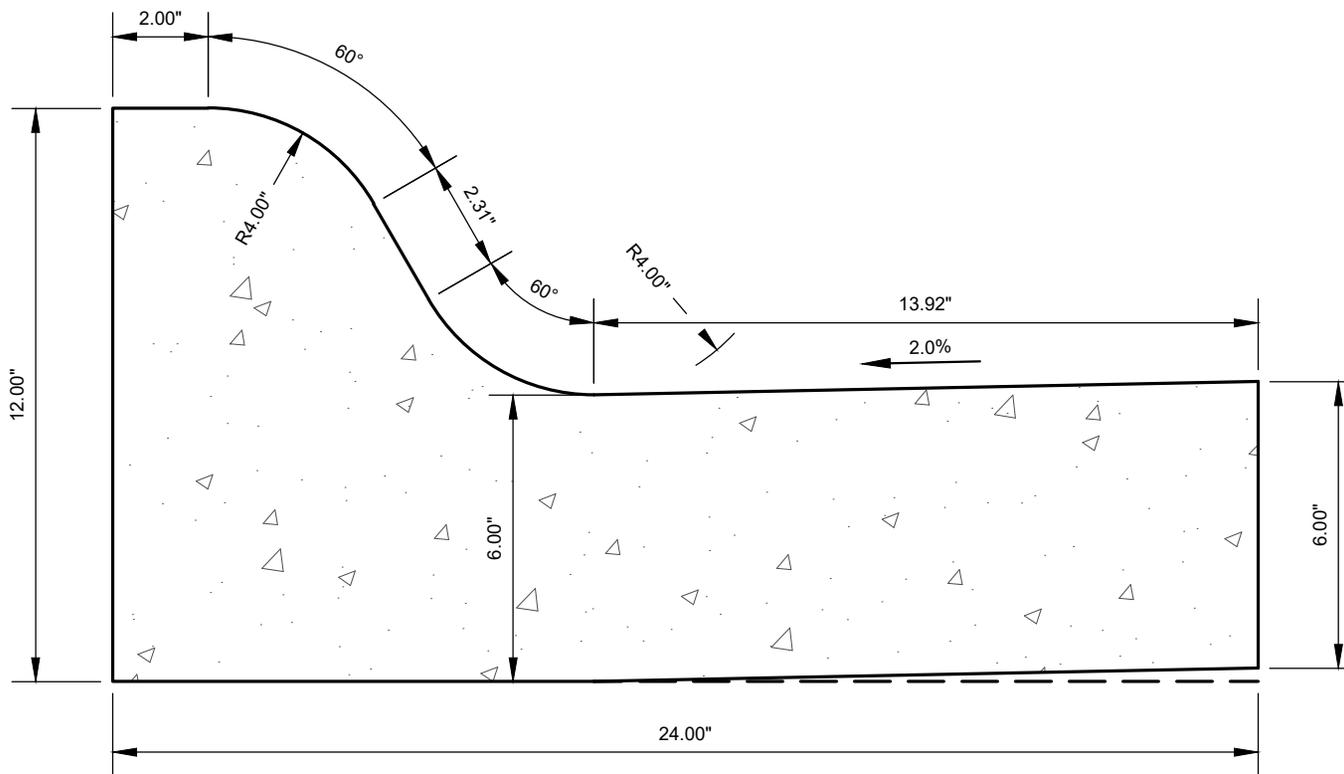
EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

**TYPE A STANDARD
 CURB AND GUTTER**

205



NOTES:

1. CONCRETE TO BE CITY OF MIDLAND CLASS "C", 3600 PSI. USE FIBER REINFORCED CONCRETE PAVEMENT THROUGHOUT.
2. SEAL CONCRETE JOINT AT FACE OF CURB WHEN ADJACENT TO CONCRETE PAVEMENT AND NOT INTEGRAL WITH THAT PAVEMENT.
3. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
4. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



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 APPROVED: MCC

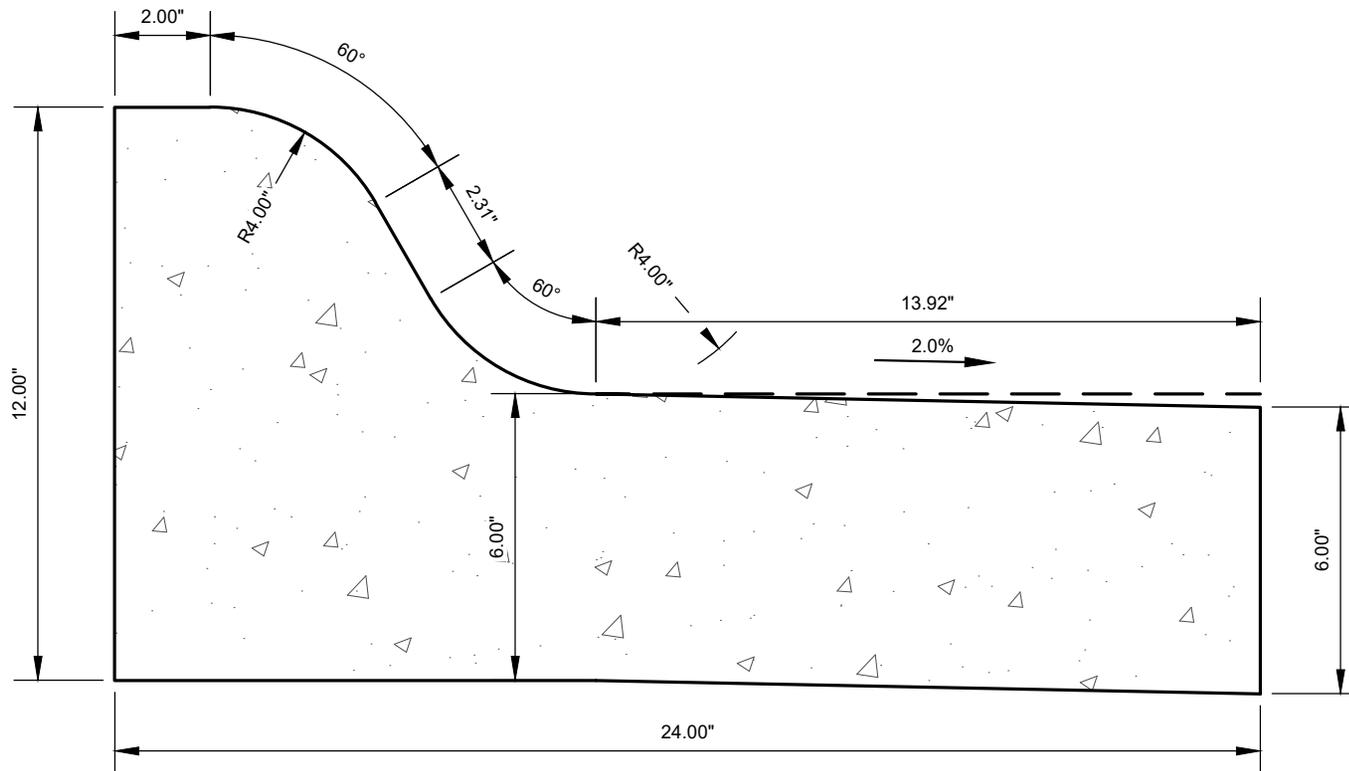
EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

**TYPE B INTEGRAL
 CURB AND GUTTER**

206



NOTES:

1. CONCRETE WILL BE THE CITY OF MIDLAND CLASS "C", 3600 PSI. USE FIBER REINFORCED CONCRETE PAVEMENT THROUGHOUT.
2. SEAL CONCRETE JOINT AT FACE OF CURB WHEN ADJACENT TO CONCRETE PAVEMENT AND NOT INTEGRAL WITH THAT PAVEMENT.
3. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
4. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



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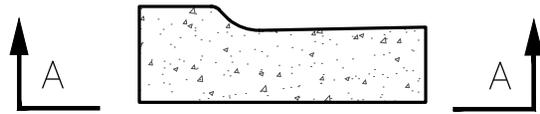
EFFECTIVE DATE: 10/01/2018

SCALE: NTS

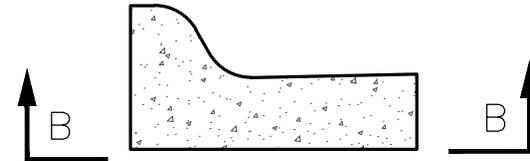
DETAIL:

**TYPE C INVERT
 CURB AND GUTTER**

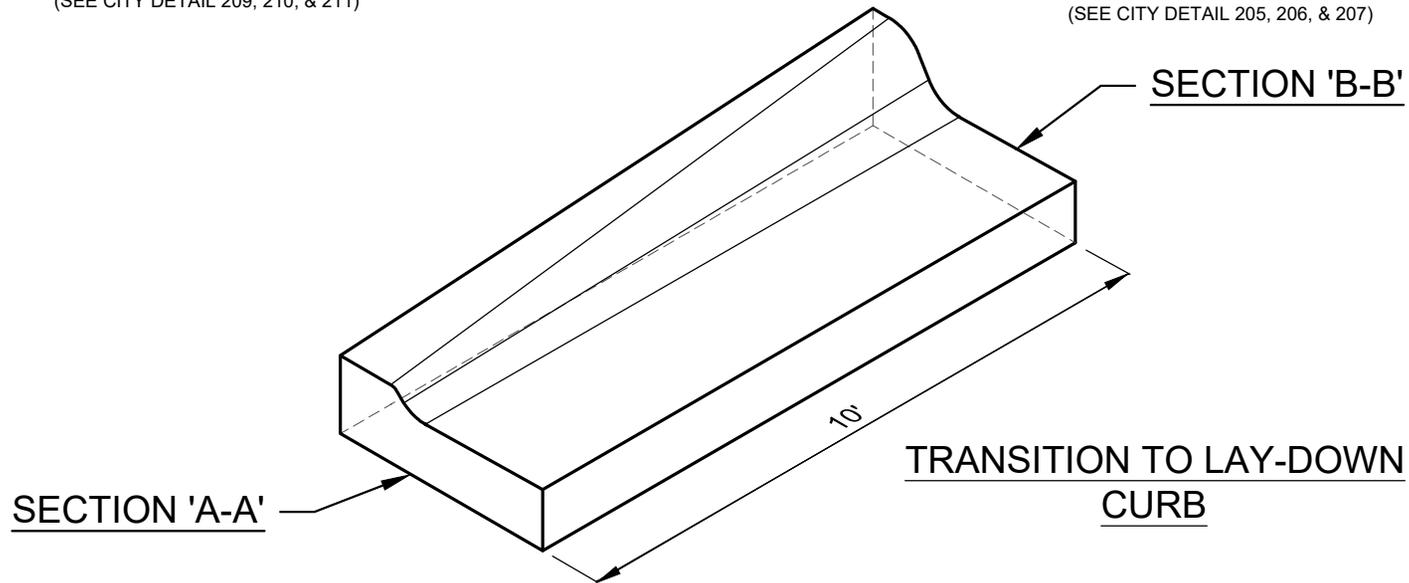
207



TYPE "D", "E", OR "F" LAY-DOWN
CURB & GUTTER
 (SEE CITY DETAIL 209, 210, & 211)



TYPE "A", "B", OR "C"
CURB & GUTTER
 (SEE CITY DETAIL 205, 206, & 207)



NOTES:

1. CONCRETE TO BE CITY OF MIDLAND CLASS "C", 3600 PSI. USE FIBER REINFORCED CONCRETE PAVEMENT THROUGHOUT.
2. SEAL CONCRETE JOINT AT FACE OF CURB WHEN ADJACENT TO CONCRETE PAVEMENT AND NOT INTEGRAL WITH THAT PAVEMENT.
3. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
4. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



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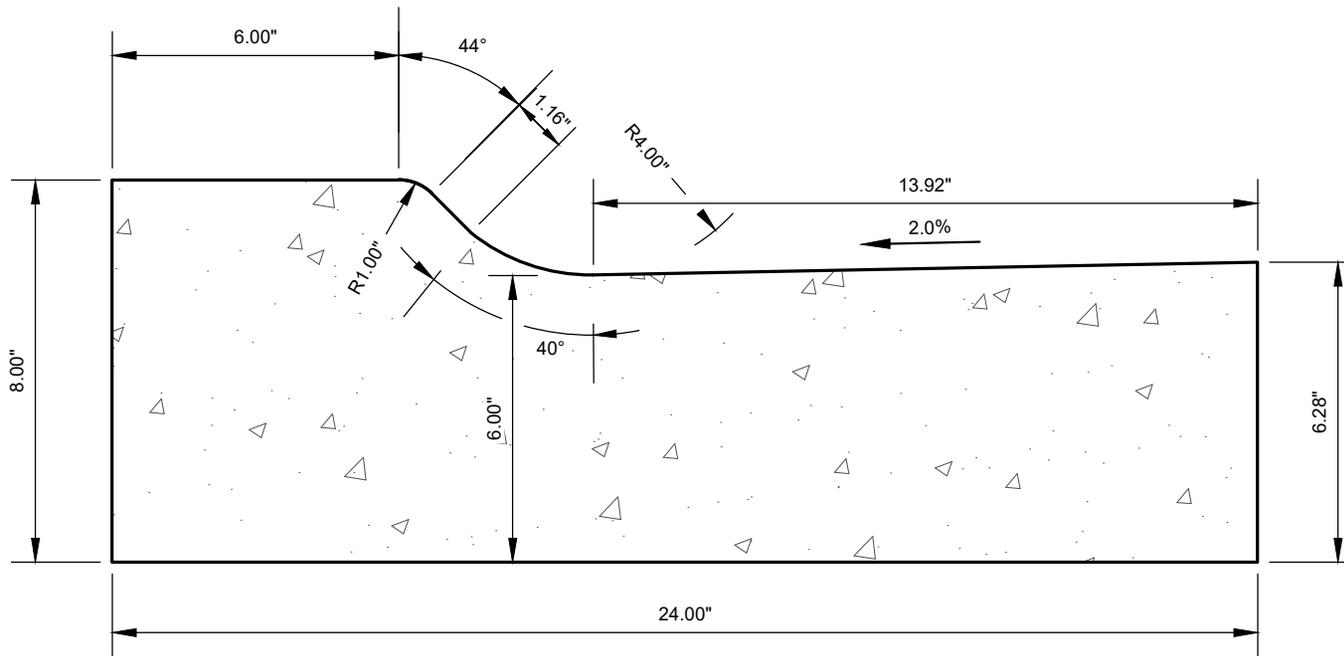
EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

TRANSITION TO LAY-DOWN CURB

208



NOTES:

1. CONCRETE WILL BE THE CITY OF MIDLAND CLASS "C", 3600 PSI. USE FIBER REINFORCED CONCRETE PAVEMENT THROUGHOUT.
2. SEAL CONCRETE JOINT AT FACE OF CURB WHEN ADJACENT TO CONCRETE PAVEMENT AND NOT INTEGRAL WITH THAT PAVEMENT.
3. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
4. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



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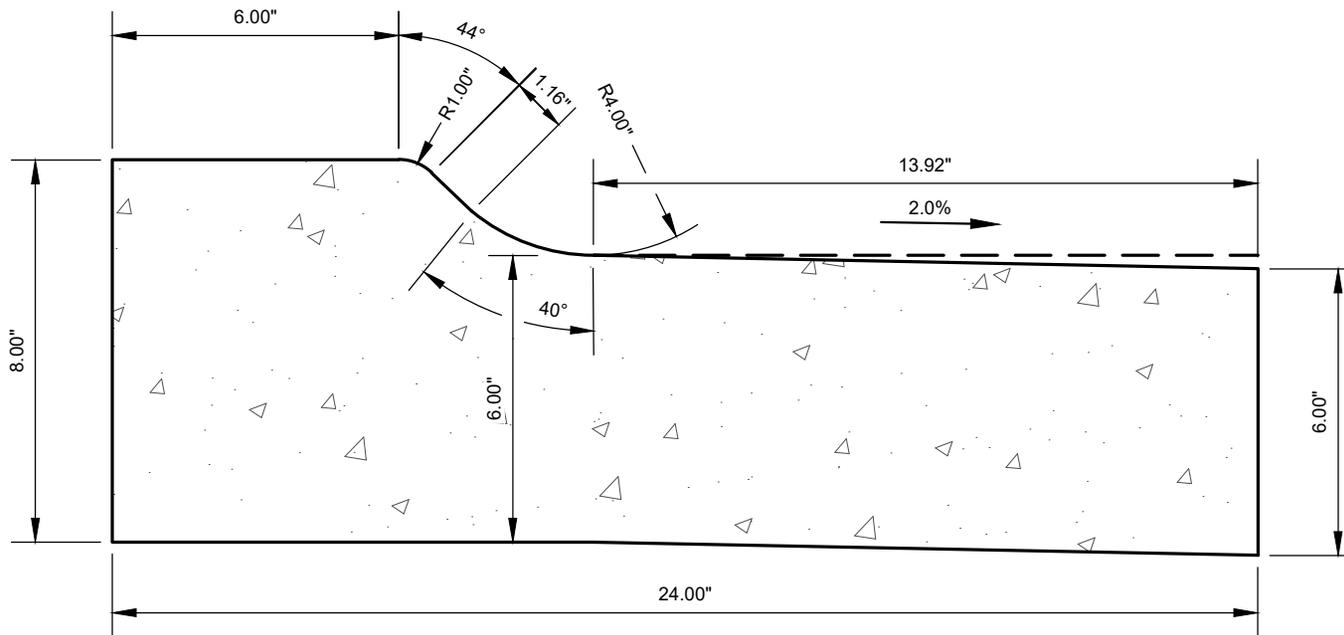
EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

**TYPE D LAY-DOWN
 CURB AND GUTTER**

209



NOTES:

1. CONCRETE WILL BE THE CITY OF MIDLAND CLASS "C", 3600 PSI. USE FIBER REINFORCED CONCRETE PAVEMENT THROUGHOUT.
2. SEAL CONCRETE JOINT AT FACE OF CURB WHEN ADJACENT TO CONCRETE PAVEMENT AND NOT INTEGRAL WITH THAT PAVEMENT.
3. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
4. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



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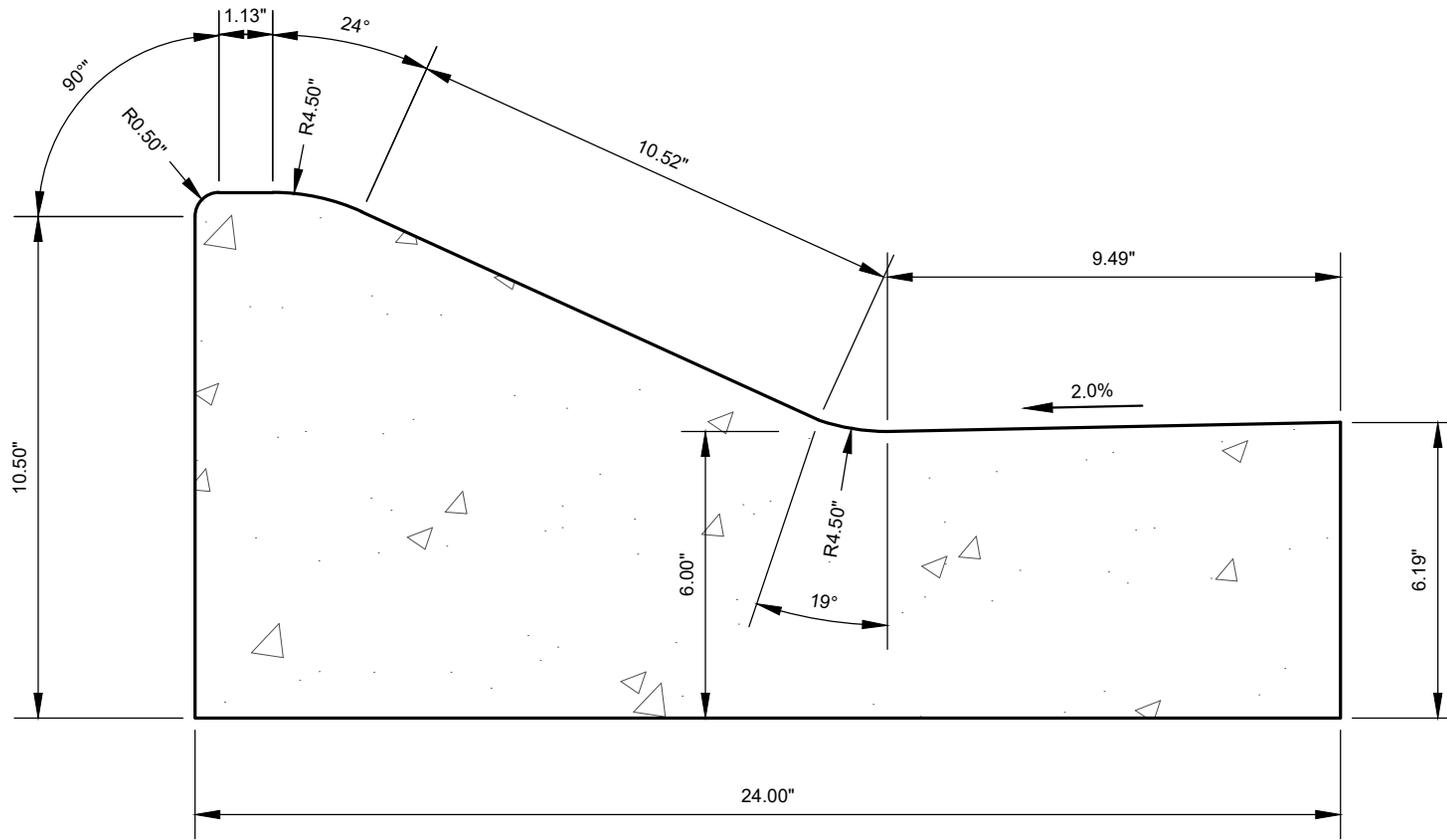
EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

**TYPE F INVERT LAY-DOWN
 CURB AND GUTTER**

211



NOTES:

1. CONCRETE WILL BE THE CITY OF MIDLAND CLASS "C", 3600 PSI. USE FIBER REINFORCED CONCRETE PAVEMENT THROUGHOUT.
2. SEAL CONCRETE JOINT AT FACE OF CURB WHEN ADJACENT TO CONCRETE PAVEMENT AND NOT INTEGRAL WITH THAT PAVEMENT.
3. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
4. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



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 APPROVED: MCC

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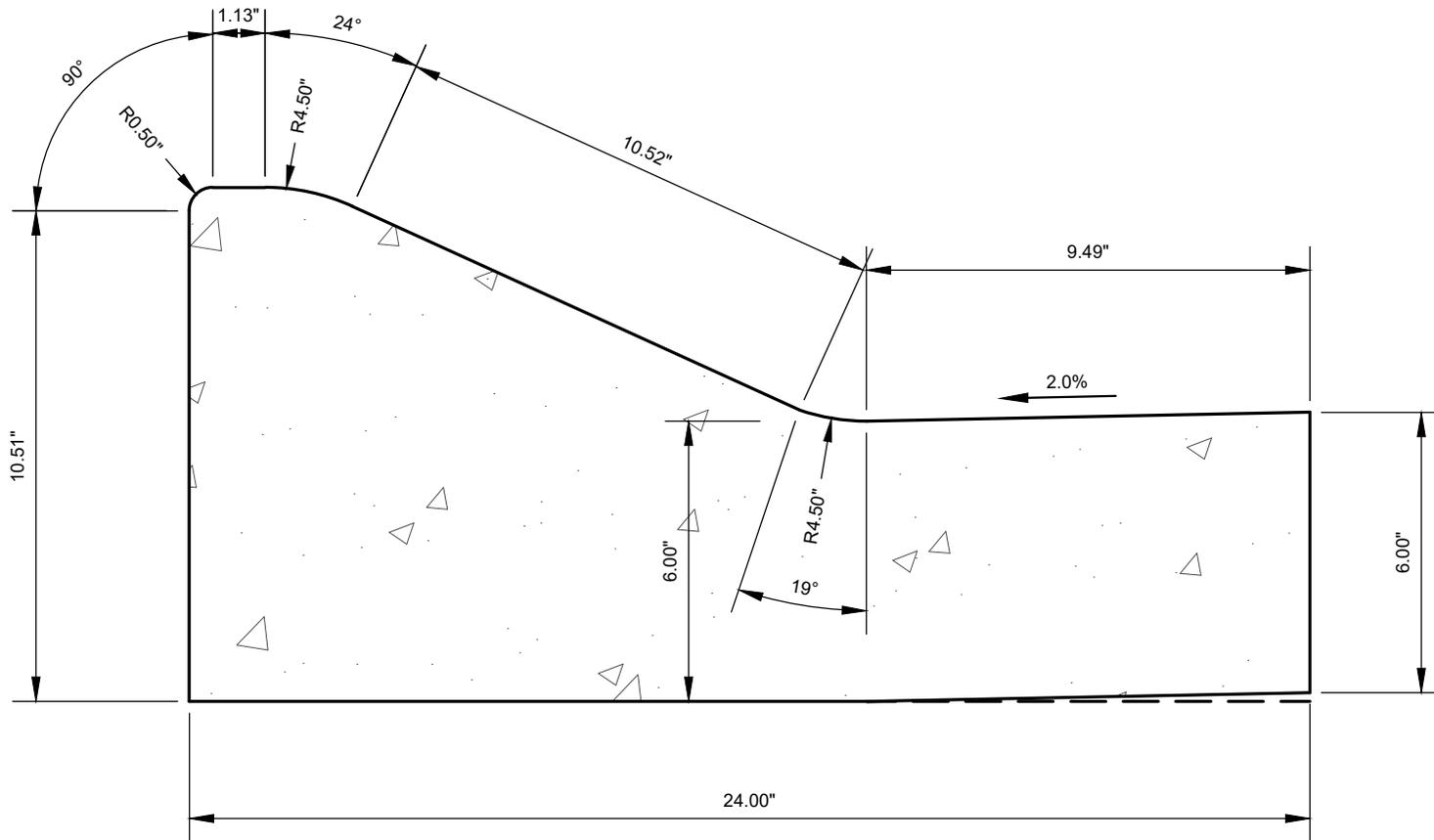
10/01/2018

SCALE: NTS

DETAIL:

**TYPE G MOUNTABLE
 CURB AND GUTTER**

212



NOTES:

1. CONCRETE WILL BE THE CITY OF MIDLAND CLASS "C", 3600 PSI. USE FIBER REINFORCED CONCRETE PAVEMENT THROUGHOUT.
2. SEAL CONCRETE JOINT AT FACE OF CURB WHEN ADJACENT TO CONCRETE PAVEMENT AND NOT INTEGRAL WITH THAT PAVEMENT.
3. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
4. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



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 APPROVED: MCC

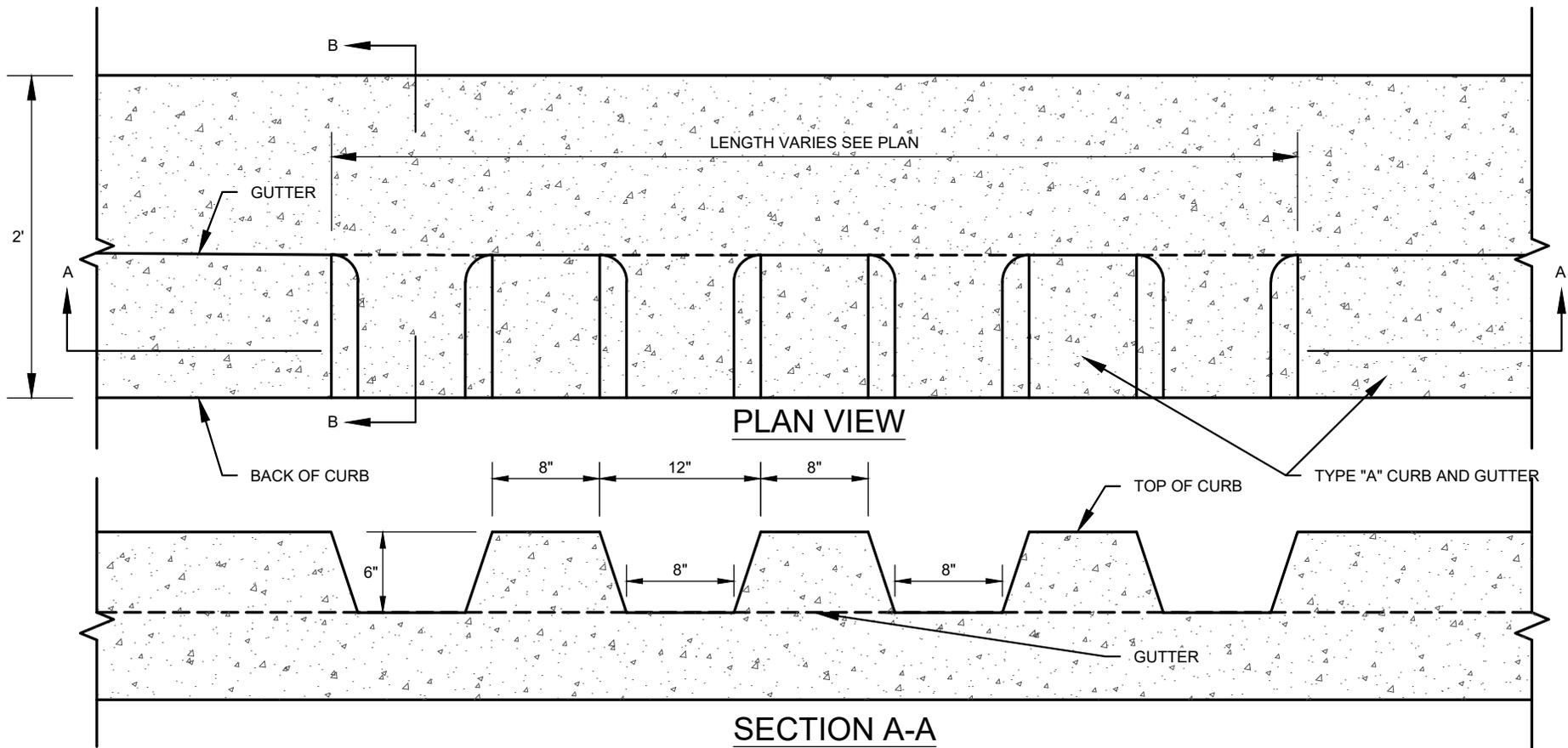
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SCALE: NTS

DETAIL:

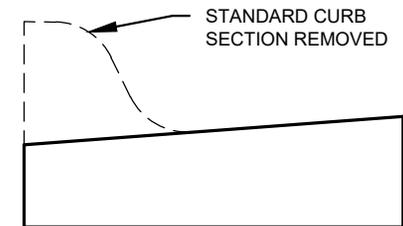
**TYPE H INTEGRAL MOUNTABLE
 CURB AND GUTTER**

213



NOTES:

1. CONCRETE TO BE THE CITY OF MIDLAND CLASS "C", 3600 PSI. USE FIBER REINFORCED CONCRETE PAVEMENT THROUGHOUT.
2. SEAL CONCRETE JOINT AT FACE OF CURB WHEN ADJACENT TO CONCRETE PAVEMENT AND NOT INTEGRAL WITH THAT PAVEMENT.
3. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO THE CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
4. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



SECTION B-B



DRAWN: DPM
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 APPROVED: MCC

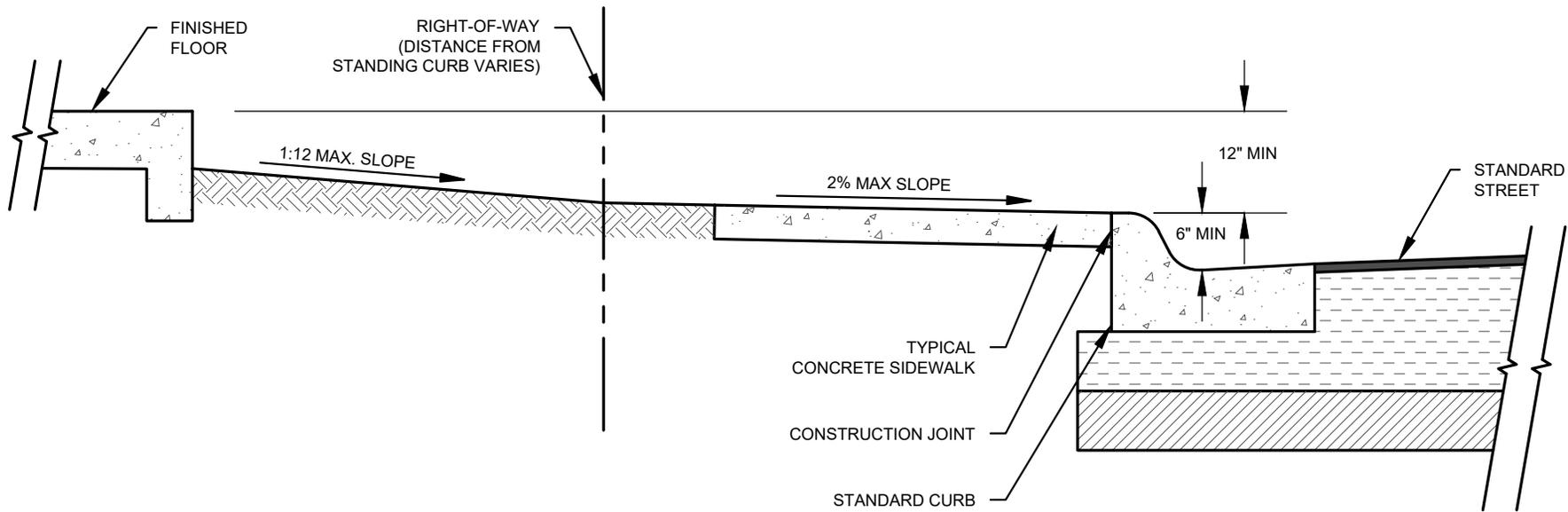
EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

**TYPE I SAW-TOOTH
 CURB AND GUTTER**

215



NOTES:

1. THE FINISHED FLOOR ELEVATION OF ANY BUILDING TO BE MINIMUM 12" ABOVE TOP OF CURB.
2. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO THE CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
3. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



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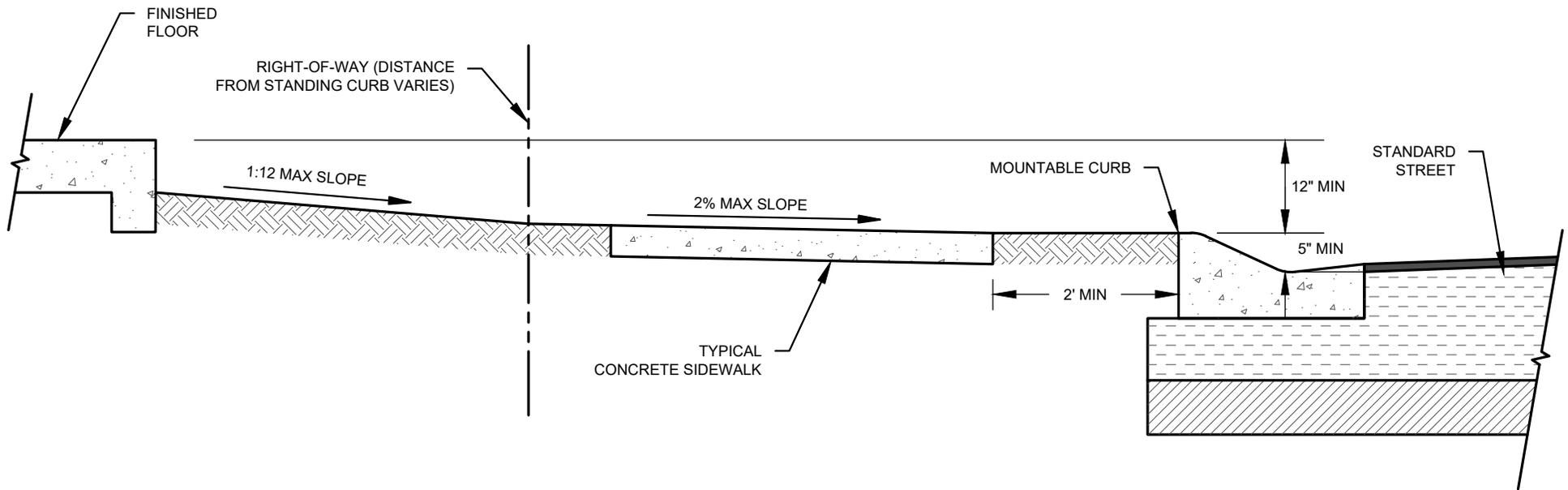
EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

**TYPICAL CURB, SIDEWALK,
 AND LOT CONFIGURATION**

216



NOTES:

1. MINIMUM 2' SEPARATION DISTANCE BETWEEN MOUNTABLE CURB AND SIDEWALK.
2. FINISHED FLOOR ELEVATION OF ANY BUILDING TO BE MINIMUM 12" ABOVE TOP OF CURB.
3. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO THE CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
4. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



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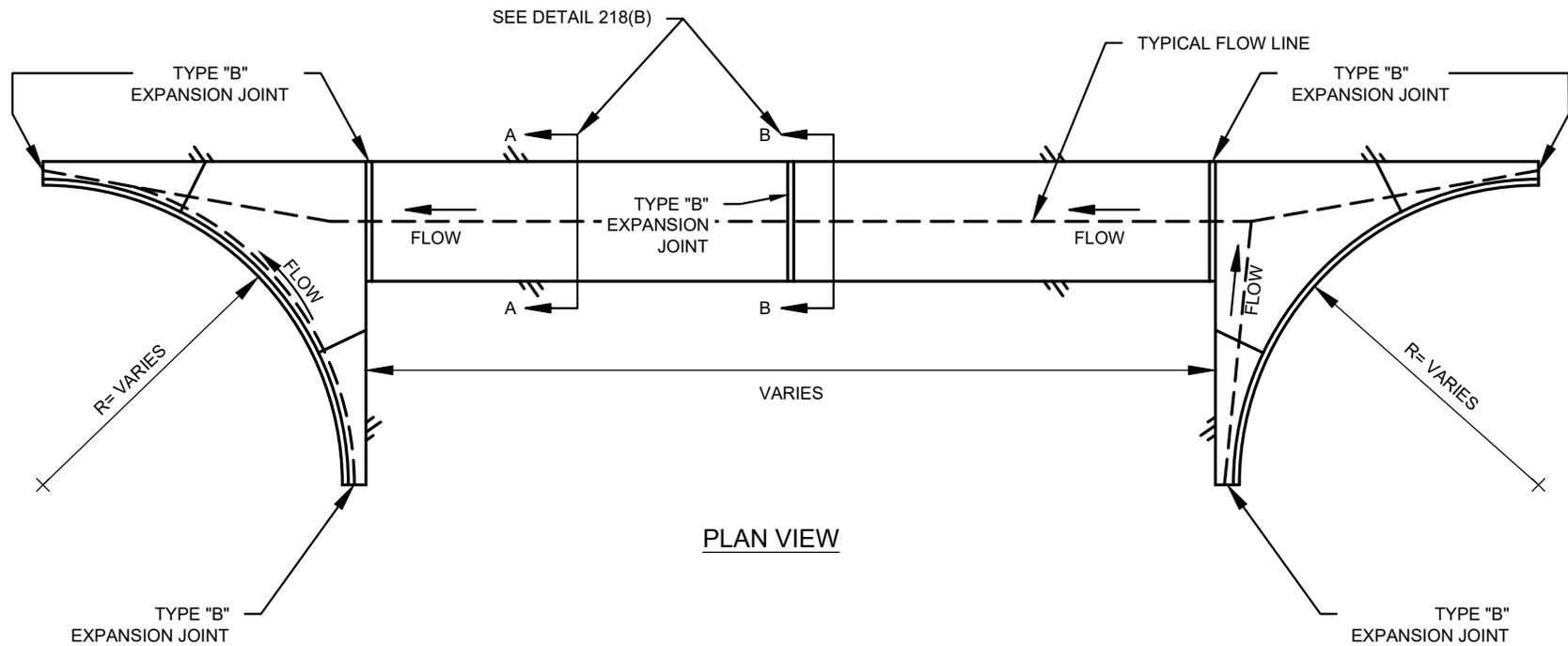
EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

**MOUNTABLE CURB, SIDEWALK
 AND LOT CONFIGURATION**

217



NOTES:

1. CONCRETE TO BE CITY OF MIDLAND CLASS "C", 3600 PSI. USE FIBER REINFORCED CONCRETE PAVEMENT THROUGHOUT.
2. CONCRETE FILLET AREA TO BE PLACED WITH INTEGRAL CURB.
3. SEAL ALL CONCRETE JOINTS.
4. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
5. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



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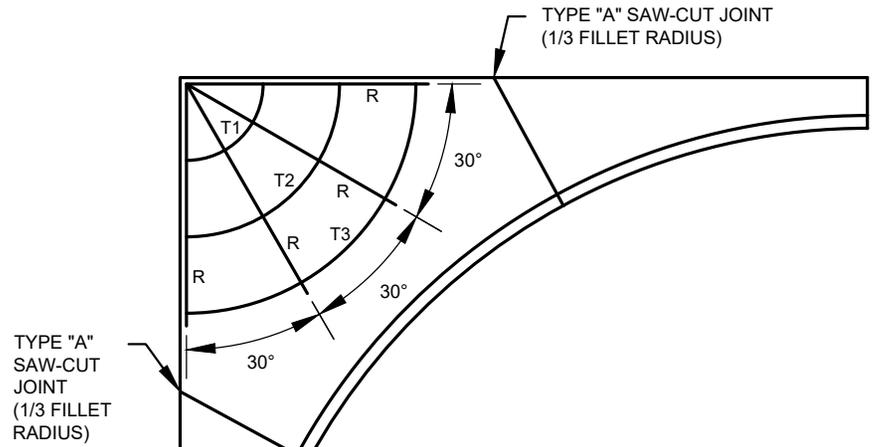
EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

**FILLET AND VALLEY
 GUTTER**

218(A)

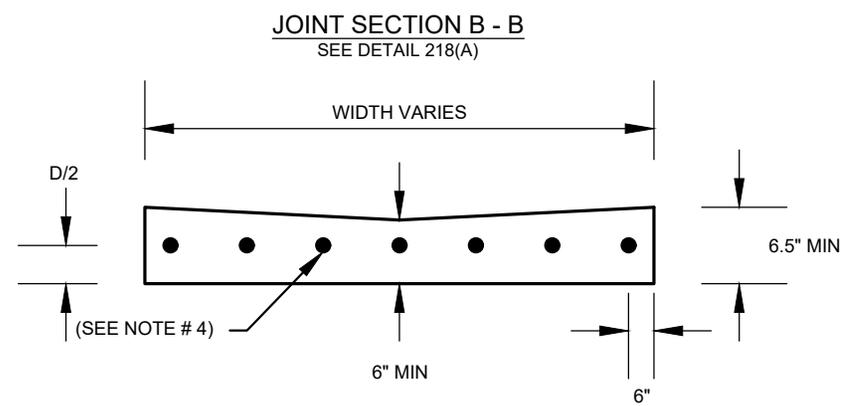
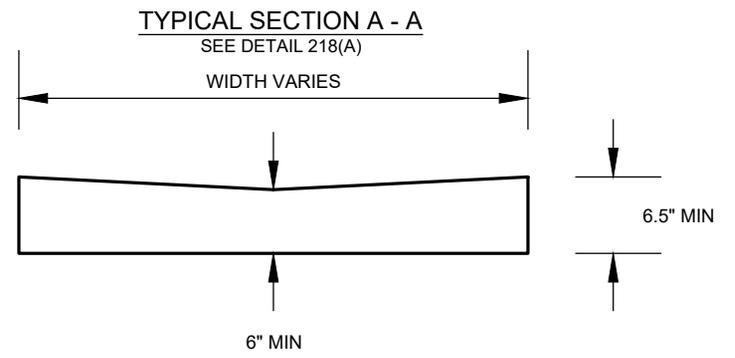


FILLET STEEL BAR REINFORCEMENT FOR FIBERMESH				
BAR	SIZE	LENGTH	NO.	BENDING R.
R	#4	4' - 0"	4	
T1	#3	1' - 3"	1	0' - 9"
T2	#3	3' - 7.5"	1	2' - 3"
T3	#3	6' - 0"	1	3' - 9"

VALLEY GUTTER DIMENSIONS			
VALLEY GUTTER	WIDTHS	THICKNESS	
		C.L.	EDGE
RESIDENTIAL ST.	10'	6"	6.5"
MINOR COLLECTOR	20'	6.5"	7.0"
MAJOR COLLECTOR	20'	6.5"	7.0"
MINOR ARTERIAL	20'	7.5"	8.0"
MAJOR ARTERIAL	SEE PLANS		

VALLEY GUTTER WIDTH BASED ON CATEGORY OF STREET BEING CROSSED

FILLET DIMENSIONS				
BACK OF CURB RADIUS	FILLET AREAS (90°)			CURB LENGTH
	COMPUTING R.	AREA S.F.	AREA S.Y.	L.F.
8	10	21.46	2.38	12.56
12	14	42.06	4.67	18.85
15	17	62.01	6.89	23.56
18	20	85.84	9.54	28.27
20	22	103.86	11.54	31.42
25	27	156.44	17.38	39.27
30	32	219.75	24.42	47.12
35	37	293.79	32.64	54.98
40	42	378.56	42.06	62.83
45	47	474.06	52.67	70.69
50	52	580.28	64.48	78.54



- NOTES:**
1. WHEN FILLET AREA IS TO BE PAVED WITH 8" THICK CONCRETE THE BOTTOM OF THE CURB AND GUTTER WILL BE EXTENDED TO MATCH THE FILLET THICKNESS.
 2. USE FIBER REINFORCED CONCRETE THROUGHOUT VALLEY GUTTER.
 3. STEEL BAR REINFORCEMENT TO BE USED IN FILLET, BUT NOT IN VALLEY GUTTER. STEEL BAR REINFORCEMENT TO BE PLACED AT THE BOTTOM 1/3 POINT OF SLAB CONCRETE ON GRADE AND TO HAVE A MINIMUM COVER OF 2" WHEN USED.
 4. UTILIZE SMOOTH DOWEL RODS CENTERED ON THE VALLEY GUTTER JOINT, EVENLY SPACED AT 12" INTERVALS FOR THE FULL WIDTH OF THE VALLEY GUTTER.
 5. SEAL ALL CONCRETE JOINTS.
 6. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
 7. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

EFFECTIVE DATE:

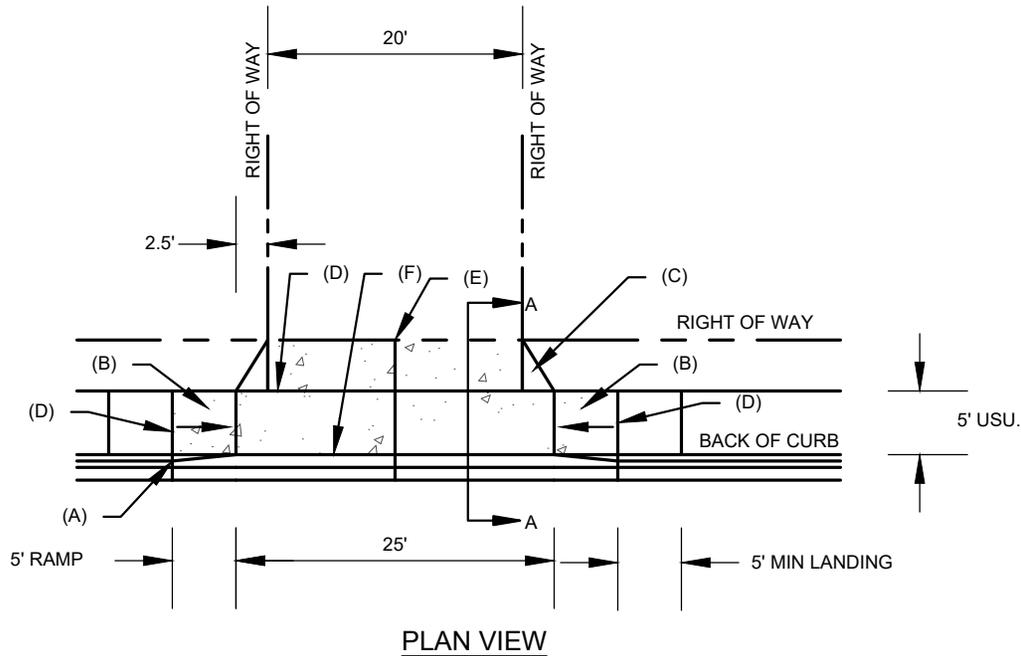
10/01/2018

SCALE: NTS

DETAIL:

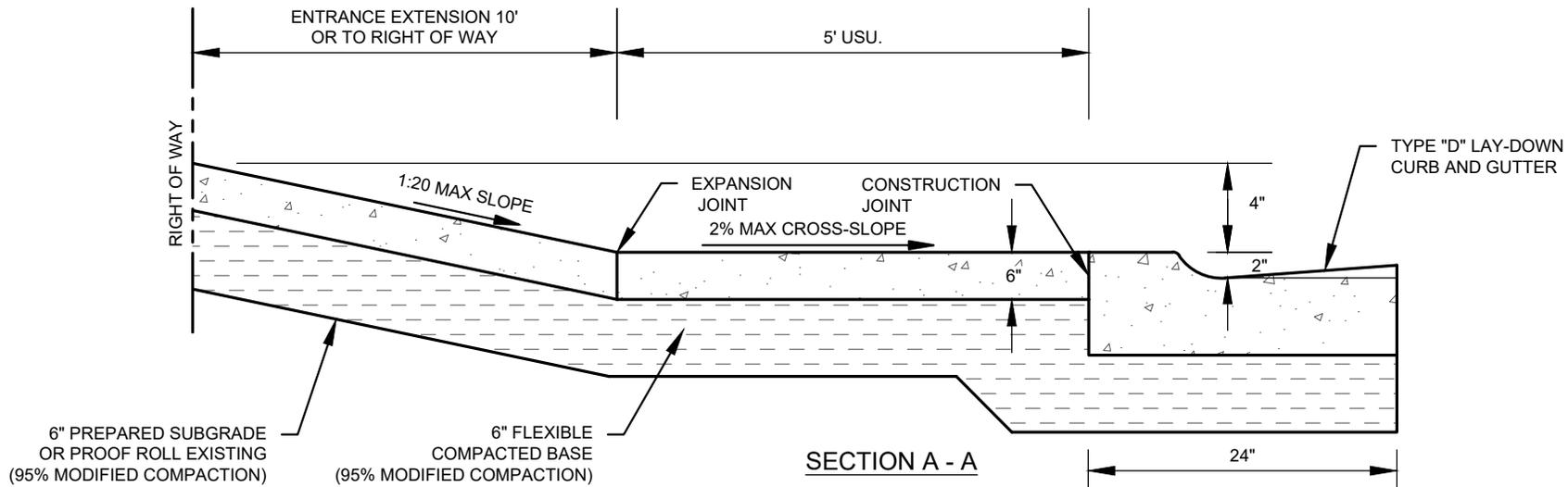
FILLET AND VALLEY GUTTER

218(B)



NOTES:

1. (A) = MATCH GUTTER
2. (B) = DIRECTIONAL CURB RAMP DETAIL 231 (8.33% MAX FOR HANDICAP RAMP)
3. (C) = CONCRETE FLARE
4. (D) = TYPE B EXPANSION JOINT
5. (E) = TYPE A SAW-CUT JOINT
6. (F) = CONSTRUCTION JOINT (COLD JOINT)



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

**STANDARD ALLEY
 APPROACH**

219(A)

NOTES:

1. REMOVE AND REPLACE EXISTING CURB AND GUTTER TO NEAREST JOINT IF LESS THAN 4' SECTION OF EXISTING CURB AND GUTTER REMAINS AFTER ALLEY APPROACH IS PLACED.
2. MATCH GUTTER/FLOWLINE ELEVATION ON EACH END OF ALLEY APPROACH. WATER MUST FLOW IN GUTTER ACROSS THE ALLEY APPROACH.
3. CONCRETE TO BE CITY OF MIDLAND CLASS "C", 3600 PSI. USE FIBER REINFORCED CONCRETE PAVEMENT THROUGHOUT.
4. 2" INVERT REQUIRED AT ALLEY APPROACH CENTER LINE WHEN ALLEY DRAINS TOWARDS STREET. IF ALLEY DRAINS AWAY FROM STREET THEN BACK OF APPROACH IS FLAT.
5. OVER-EXCAVATION BELOW THE GRADE REQUIRED TO BE CORRECTED BY PLACING EXTRA CONCRETE AT THE TIME THE ENTRANCE IS PLACED OR BY PLACING ADDITIONAL CITY STANDARD FLEXIBLE COMPACTED BASE.
6. FLEXIBLE COMPACTED BASE TO BE PLACED IN LIFTS NO THICKER THAN 6".
7. SIDEWALKS AND RAMPS TO HAVE COARSE BROOM FINISH.
8. SEAL ALL CONCRETE JOINTS.
9. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO THE CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
10. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



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CHECKED: JCF
APPROVED: MCC

EFFECTIVE DATE:

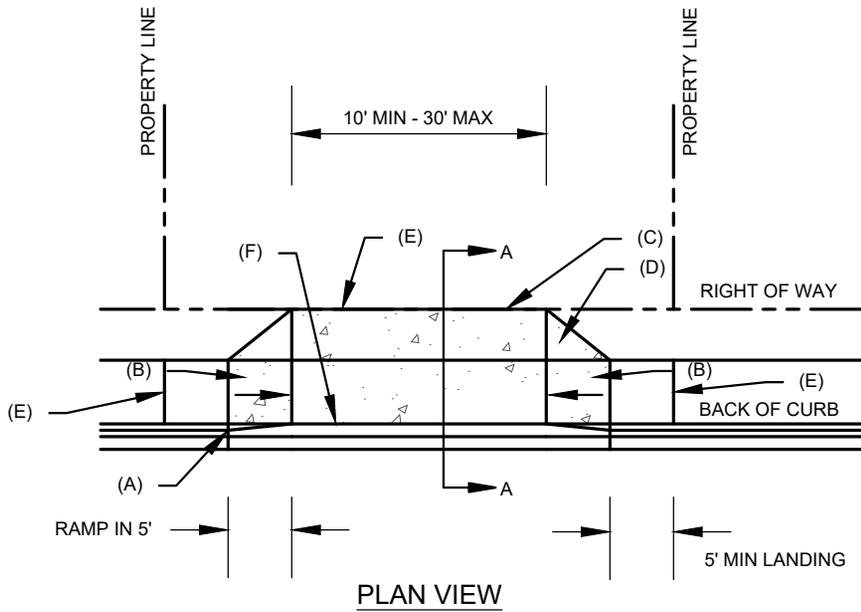
10/01/2018

SCALE: NTS

DETAIL:

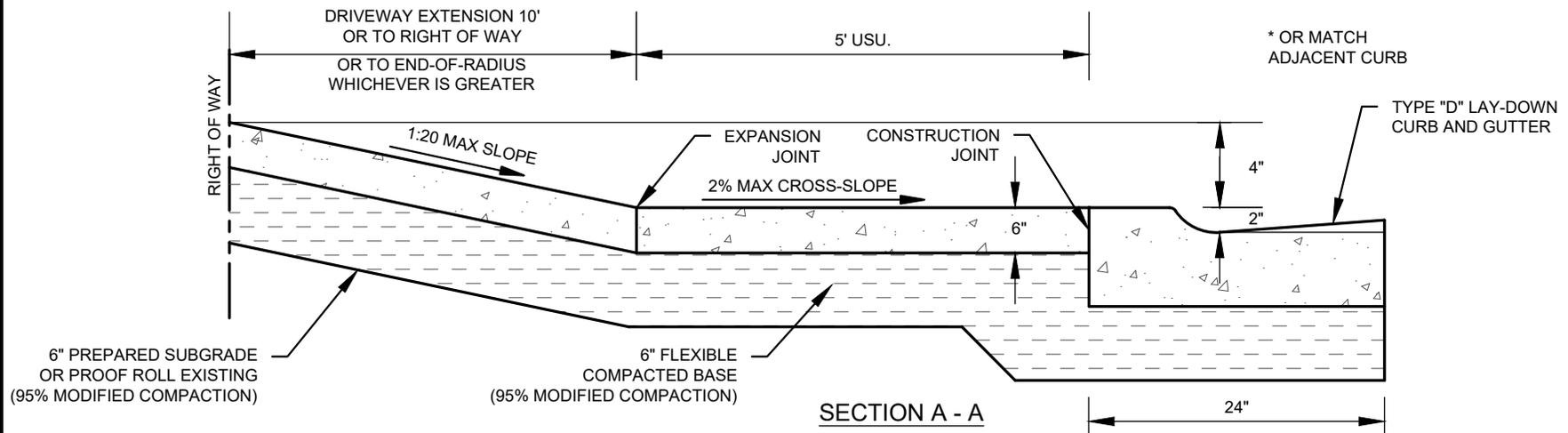
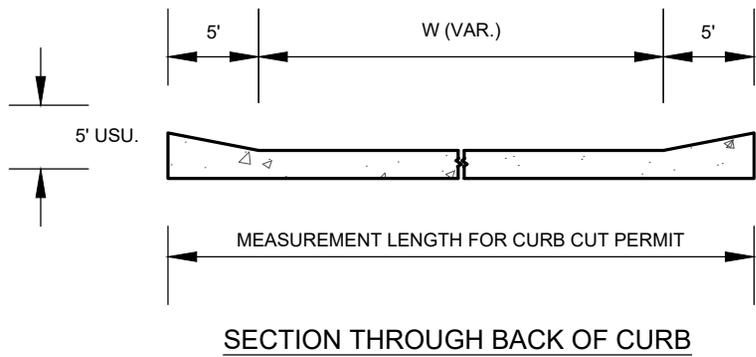
**STANDARD ALLEY
APPROACH**

219(B)



NOTES:

1. (A) = MATCH GUTTER
2. (B) = DIRECTIONAL CURB RAMP DETAIL 231 (8.33% MAX FOR HANDICAP RAMP)
3. (C) = DRIVEWAY EXTENSION
4. (D) = OPTIONAL CONCRETE FLARE
5. (E) = TYPE B EXPANSION JOINT
6. (F) = CONSTRUCTION JOINT (COLD JOINT)



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

SINGLE FAMILY AND DUPLEX DRIVEWAY APPROACH

220(A)

NOTES:

1. REMOVE AND REPLACE EXISTING CURB AND GUTTER TO NEAREST JOINT IF LESS THAN 4' SECTION OF EXISTING CURB AND GUTTER REMAINS AFTER DRIVEWAY APPROACH PLACED.
2. LANDING MAY BE CLOSER THAN 5' FROM PROPERTY LINE WITH ADJOINING PROPERTY OWNER'S CONSENT. CONSENT FORMS ARE AVAILABLE IN ENGINEERING SERVICES. APPROVAL FROM ADJOINING PROPERTY OWNER DOES NOT GUARANTEE ENGINEERING SERVICES APPROVAL.
3. THIS DETAIL ONLY APPLIES WHEN ADJACENT PROPERTY IS NOT AN ALLEY. A MINIMUM 10' IS REQUIRED BETWEEN DRIVEWAY CURB OPENING AND ALLEY PAVING.
4. MATCH GUTTER/FLOWLINE ELEVATION ON EACH END OF DRIVEWAY APPROACH. WATER MUST FLOW IN GUTTER ACROSS THE DRIVEWAY APPROACH.
5. CONCRETE TO BE CITY OF MIDLAND CLASS "C", 3600 PSI. USE FIBER REINFORCED CONCRETE PAVEMENT THROUGHOUT.
6. CONTRACTOR, AT THEIR OPTION, MAY ELECT TO PLACE 8" CONCRETE PAVEMENT WITHOUT FLEXIBLE COMPACTED BASE RATHER THAN 6" CONCRETE PAVEMENT WITH COMPACTED FLEXIBLE BASE.
7. OVER-EXCAVATION BELOW THE GRADE REQUIRED TO BE CORRECTED BY PLACING EXTRA CONCRETE AT THE TIME THE DRIVEWAY IS PLACED OR BY PLACING ADDITIONAL CITY STANDARD FLEXIBLE COMPACTED BASE.
8. FLEXIBLE COMPACTED BASE TO BE PLACED IN LIFTS NO THICKER THAN 6".
9. SIDEWALKS AND RAMPS TO HAVE COARSE BROOM FINISH.
10. SEAL ALL CONCRETE JOINTS.
11. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO THE CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
12. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



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APPROVED:	MCC

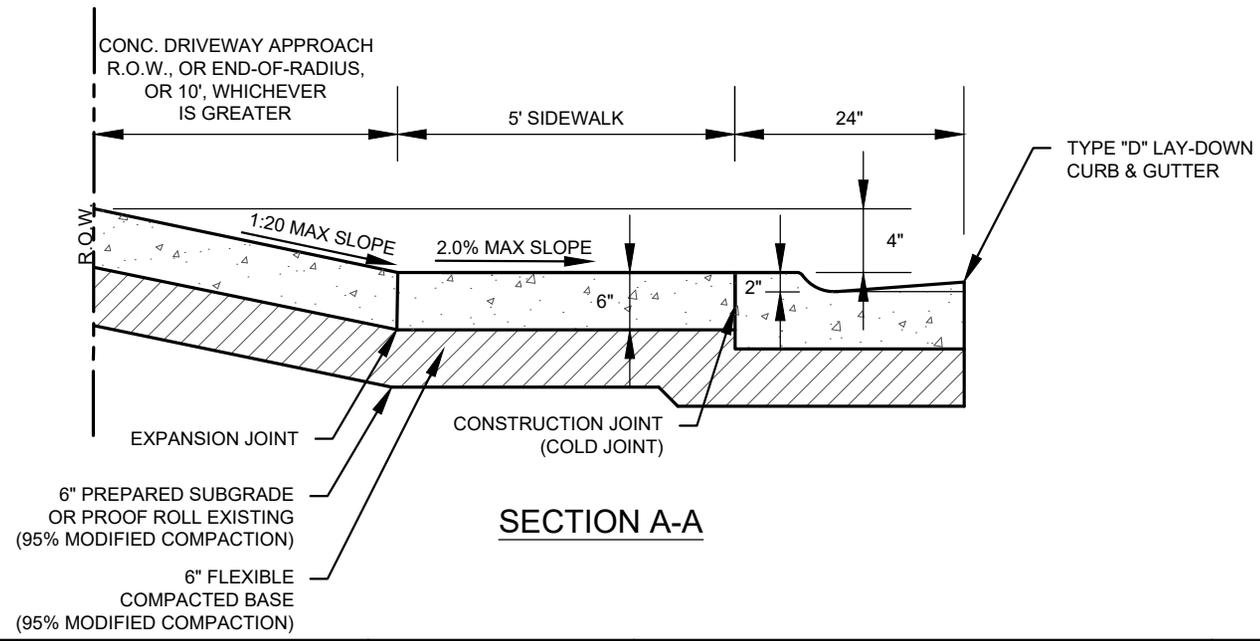
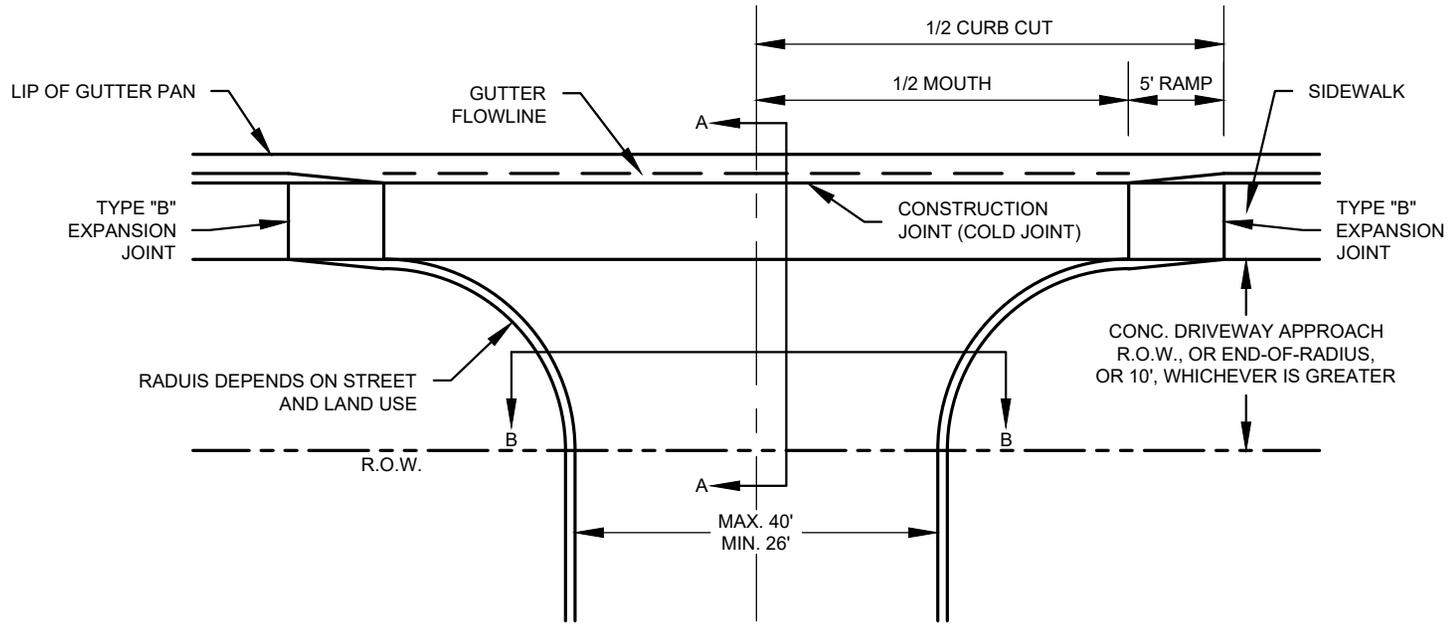
EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

**SINGLE FAMILY AND DUPLEX
DRIVEWAY APPROACH**

220(B)



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

EFFECTIVE DATE:

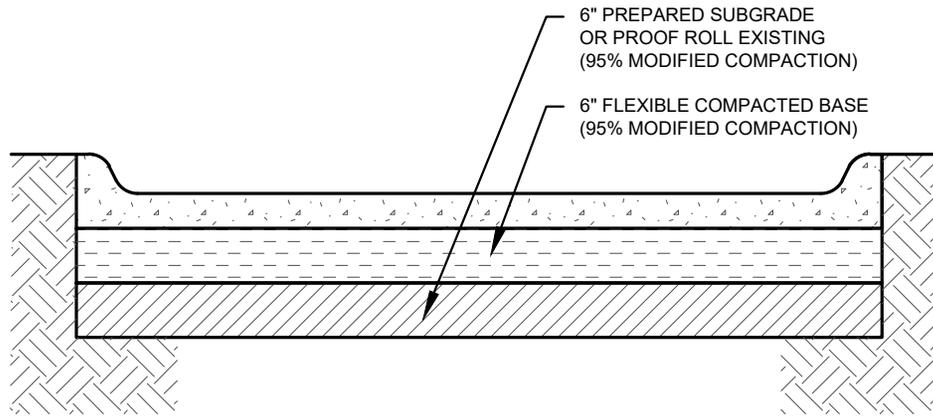
10/01/2018

SCALE: NTS

DETAIL:

MULTI-FAMILY & COMMERCIAL DRIVEWAY

221(A)



SECTION B-B

NOTES:

1. REMOVE AND REPLACE EXISTING CURB AND GUTTER TO NEAREST JOINT IF LESS THAN 4' SECTION OF EXISTING CURB AND GUTTER REMAINS AFTER DRIVEWAY APPROACH PLACED.
2. LANDING MAY BE CLOSER THAN 5' FROM PROPERTY LINE WITH ADJOINING PROPERTY OWNER'S CONSENT. CONSENT FORMS ARE AVAILABLE IN ENGINEERING SERVICES. APPROVAL FROM ADJOINING PROPERTY OWNER DOES NOT GUARANTEE ENGINEERING SERVICES APPROVAL.
3. THIS DETAIL ONLY APPLIES WHEN ADJACENT PROPERTY IS NOT AN ALLEY. A MINIMUM 10' IS REQUIRED BETWEEN DRIVEWAY CURB OPENING AND ALLEY PAVING.
4. MATCH GUTTER/ FLOWLINE ELEVATION ON EACH END OF DRIVEWAY APPROACH. WATER MUST FLOW IN GUTTER ACROSS THE DRIVEWAY APPROACH.
5. THE CITY ENGINEER OR TRAFFIC ENGINEER MAY APPROVE WIDER OPENINGS FOR COMMERCIAL DRIVES TO ACCOMMODATE DIVIDED ENTRY/EXIT AND ANGLED DRIVES OR HIGH VOLUME, HIGH SPEED STREETS.
6. CONCRETE TO BE CITY OF MIDLAND CLASS "C", 3600 PSI. USE FIBER REINFORCED CONCRETE PAVEMENT THROUGHOUT.
7. CONTRACTOR, AT THEIR OPTION, MAY ELECT TO PLACE 8" CONCRETE PAVEMENT WITHOUT FLEXIBLE COMPACTED BASE RATHER THAN 6" CONCRETE PAVEMENT WITH COMPACTED FLEXIBLE BASE.
8. OVER-EXCAVATION BELOW THE GRADE REQUIRED TO BE CORRECTED BY PLACING EXTRA CONCRETE AT THE TIME THE DRIVEWAY IS PLACED OR BY PLACING ADDITIONAL CITY STANDARD FLEXIBLE COMPACTED BASE.
9. FLEXIBLE COMPACTED BASE TO BE PLACED IN LIFTS NO THICKER THAN 6".
10. SIDEWALKS AND RAMPS TO HAVE COURSE BROOM FINISH.
11. SEAL ALL CONCRETE JOINTS.
12. MATERIAL AND CONSTRUCTION METHODS TO CONFORM TO THE CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
13. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



DRAWN: DPM
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 APPROVED: MCC

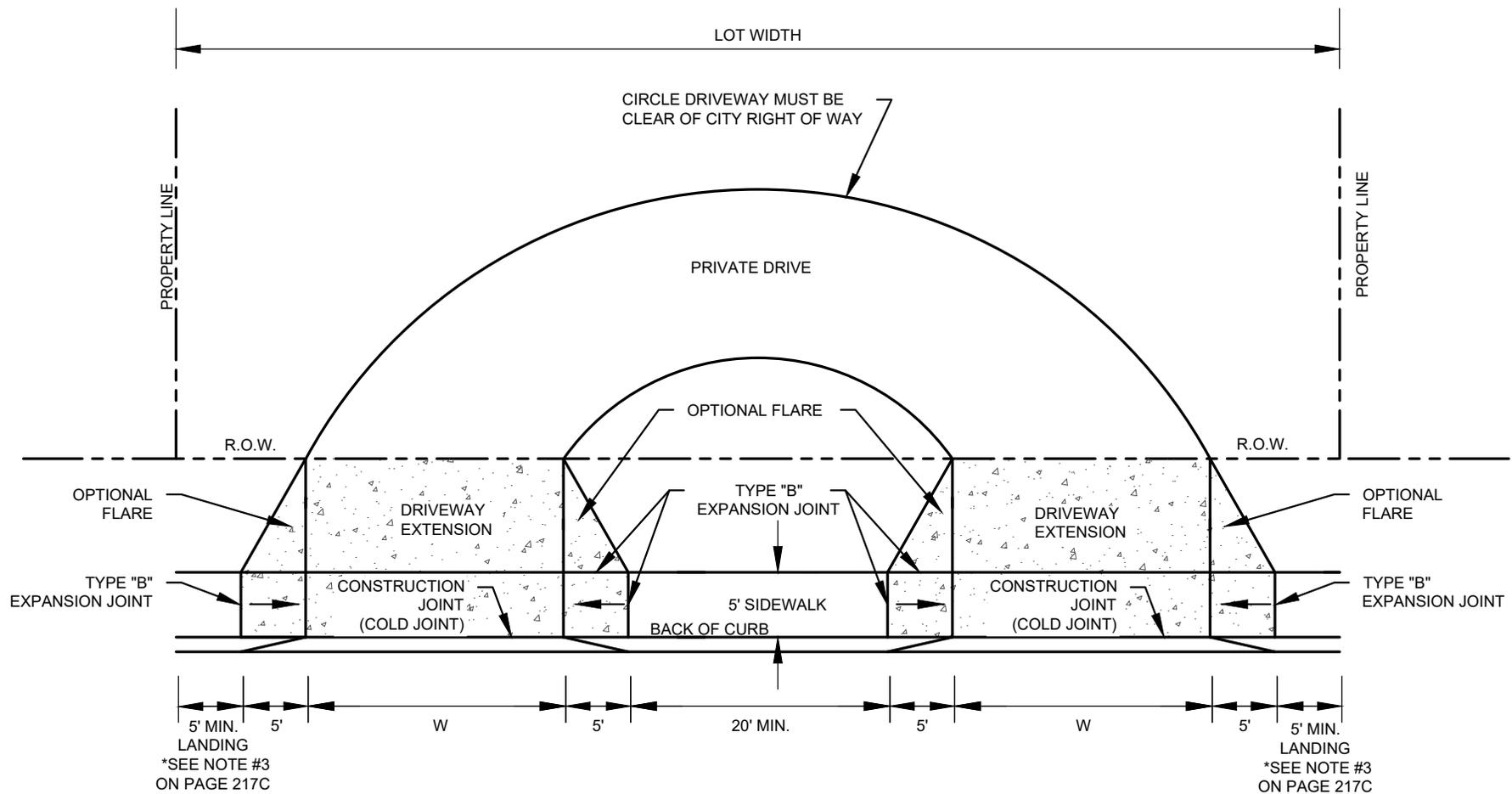
EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

**MULTI-FAMILY & COMMERCIAL
DRIVEWAY**

221(B)



SINGLE FAMILY AND DUPLEX CIRCLE DRIVEWAY APPROACH



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

CIRCLE DRIVEWAY

222(A)

MINIMUM LOT WIDTH FOR CIRCLE DRIVEWAYS			
DRIVEWAY WIDTH (FT) (W)	LOT WIDTH (FT): NO STANDUP CURB WAIVER AGREEMENT	LOT WIDTH (FT): 1 STANDUP CURB WAIVER AGREEMENT	LOT WIDTH (FT): 2 STANDUP CURB WAIVER AGREEMENT
10	70	65	60
11	72	67	62
12	74	69	64
13	76	71	66
14	78	73	68
15	80	75	70
16	82	77	72
17	84	79	74
18	86	81	76
19	88	83	78
20	90	85	80
21	92	87	82
22	94	89	84
23	96	91	86
24	98	93	88
25	100	95	90
26	102	97	92
27	104	99	94
28	106	101	96
29	108	103	98
30	110	105	100



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

EFFECTIVE DATE:

10/01/2018

SCALE: NTS

DETAIL:

**CIRCLE
DRIVEWAY**

222(B)

NOTES:

1. CONSTRUCT APPROACHES AS DETAILED ON SINGLE FAMILY & DUPLEX DRIVEWAY APPROACH DETAIL.
2. REMOVE AND REPLACE EXISTING CURB AND GUTTER TO NEAREST JOINT IF LESS THAN 4' SECTION OF EXISTING CURB AND GUTTER REMAIN AFTER DRIVEWAY APPROACH PLACED.
3. LANDING MAY BE CLOSER THAN 5' FROM PROPERTY LINE WITH ADJOINING PROPERTY OWNER'S CONSENT. CONSENT FORMS ARE AVAILABLE IN ENGINEERING SERVICES. APPROVAL FROM ADJOINING PROPERTY OWNER DOES NOT GUARANTEE ENGINEERING SERVICES APPROVAL.
4. THIS DETAIL ONLY APPLIES WHEN ADJACENT PROPERTY IS NOT AN ALLEY. A MINIMUM 10' IS REQUIRED BETWEEN DRIVEWAY CURB OPENING AND ALLEY PAVING.
5. MATCH GUTTER/FLOWLINE ELEVATION ON EACH END OF DRIVEWAY. WATER MUST FLOW IN GUTTER ACROSS THE DRIVEWAY APPROACH.
6. CONCRETE TO BE CITY OF MIDLAND CLASS "C", 3600 PSI. USE FIBER REINFORCED CONCRETE PAVEMENT THROUGHOUT.
7. CONTRACTOR, AT THEIR OPTION, MAY ELECT TO PLACE 8" CONCRETE PAVEMENT WITHOUT FLEXIBLE COMPACTED BASE RATHER THAN 6" CONCRETE PAVEMENT WITH COMPACTED FLEXIBLE BASE.
8. OVER-EXCAVATION BELOW THE GRADE REQUIRED TO BE CORRECTED BY PLACING EXTRA CONCRETE AT THE TIME THE DRIVEWAY IS PLACED OR BY PLACING ADDITIONAL CITY STANDARD FLEXIBLE COMPACTED BASE.
9. FLEXIBLE COMPACTED BASE TO BE PLACED IN LIFTS NO THICKER THAN 6".
10. SIDEWALKS AND RAMPS TO HAVE COARSE BROOM FINISH.
11. SEAL ALL CONCRETE JOINTS.
12. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO THE CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
13. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



DRAWN: DPM
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APPROVED: MCC

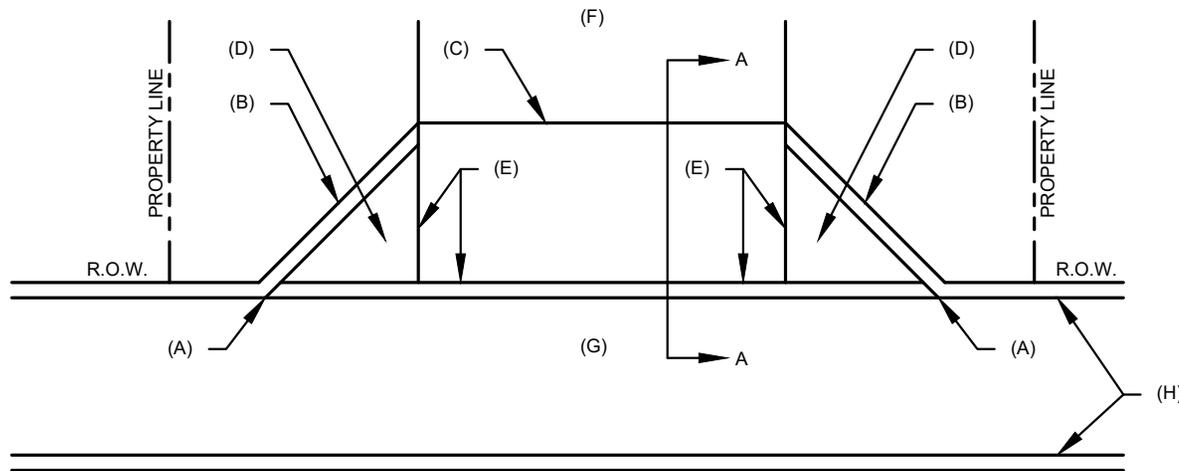
EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

CIRCLE
DRIVEWAY

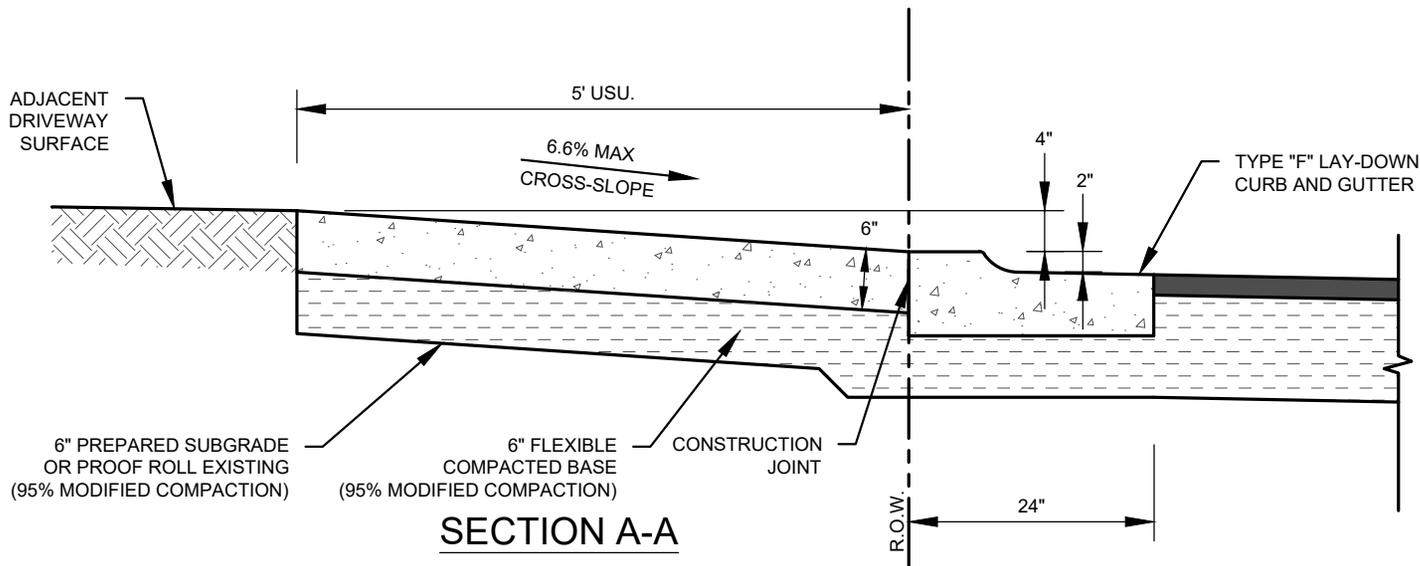
222(C)



PLAN VIEW

NOTES:

1. (A) = MATCH ADJACENT CURB
2. (B) = TRANSITION CURB TO MATCH ADJACENT DRAINAGE ALLEY TOP OF CURB TO END OF DRIVEWAY EXTENSION.
3. (C) = DRIVEWAY EXTENSION TO BE MINIMUM LENGTH OF 5'.
4. (D) = CONCRETE FLARE, 5' x 5'
5. (E) = CONSTRUCTION JOINT (COLD JOINT)
6. (F) = ADJACENT DRIVEWAY SURFACE
7. (G) = DRAINAGE ALLEY
8. (H) = DRAINAGE ALLEY CURB



SECTION A-A



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

**REAR YARD DRIVEWAY APPROACH
 TO TYPICAL DRAINAGE ALLEY**

223(A)

NOTES:

1. REMOVE AND REPLACE EXISTING CURB AND GUTTER TO NEAREST JOINT IF LESS THAN 4' SECTION OF EXISTING CURB AND GUTTER REMAINS AFTER DRIVEWAY APPROACH PLACED.
2. DRIVEWAY CURB OPENING MAY BE CLOSER THAN 5' FROM PROPERTY LINE WITH ADJOINING PROPERTY OWNER'S CONSENT. CONSENT FORMS ARE AVAILABLE IN ENGINEERING SERVICES. APPROVAL FROM ADJOINING PROPERTY OWNER DOES NOT GUARANTEE ENGINEERING SERVICES APPROVAL.
3. THIS DETAIL ONLY APPLIES WHEN ADJACENT PROPERTY IS NOT RIGHT OF WAY. A MINIMUM 10' IS REQUIRED BETWEEN RIGHT OF WAY AND DRIVEWAY CURB OPENING.
4. MATCH CURB/PAVEMENT EDGE ELEVATION ON EACH END OF DRIVEWAY APPROACH.
5. CONCRETE TO BE CITY OF MIDLAND CLASS "C", 3600 PSI. USE FIBER REINFORCED CONCRETE PAVEMENT THROUGHOUT.
6. CONTRACTOR, AT THEIR OPTION, MAY ELECT TO PLACE 8" CONCRETE PAVEMENT WITHOUT FLEXIBLE BASE RATHER THAN 6" CONCRETE WITH COMPACTED FLEXIBLE BASE.
7. OVER-EXCAVATION BELOW THE GRADE REQUIRED TO CORRECTED BY PLACING EXTRA CONCRETE AT THE TIME THE DRIVEWAY IS PLACED OR BY PLACING ADDITIONAL CITY STANDARD FLEXIBLE COMPACTED BASE.
8. FLEXIBLE COMPACTED BASE TO BE PLACE IN LIFTS NO THICKER THAN 6".
9. SEAL ALL CONCRETE JOINTS.
10. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
11. CONSTRUCT AS SHOWN UNLESS OTHER WISE APPROVED IN WRITING BY THE CITY ENGINEER.



DRAWN: DPM
CHECKED: JCF
APPROVED: MCC

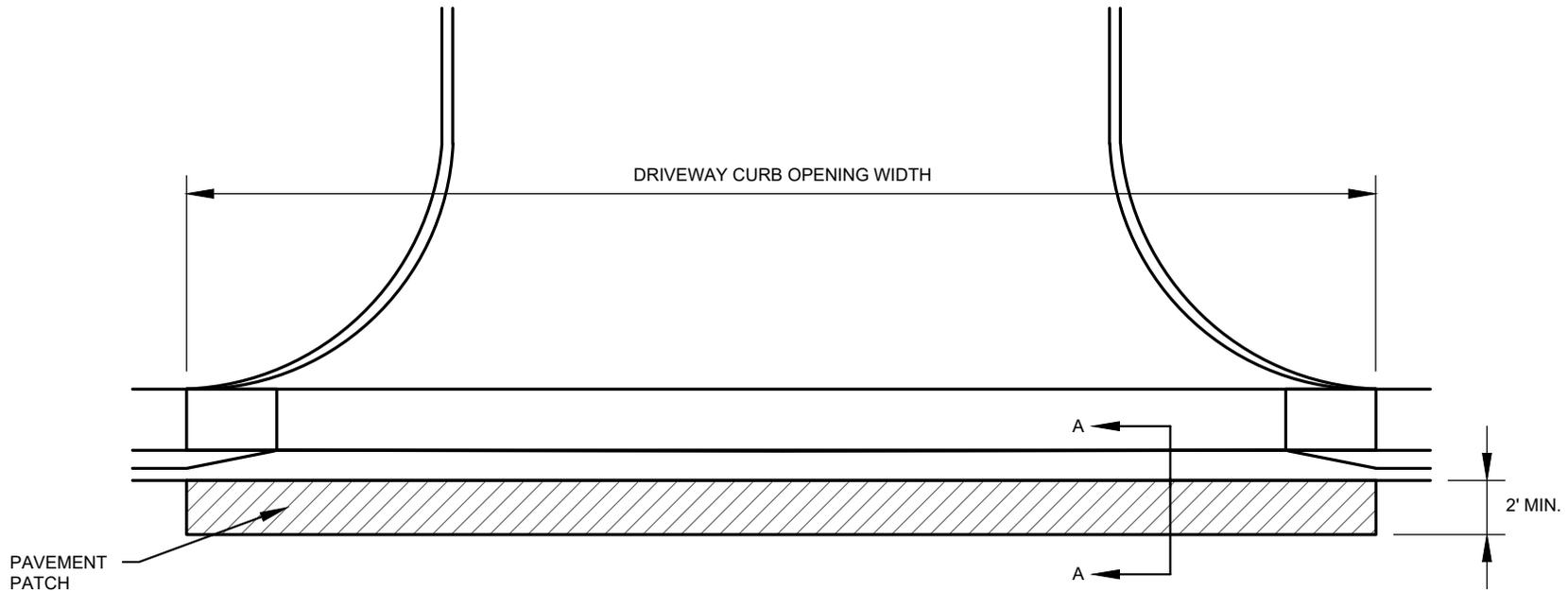
EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

REAR YARD DRIVEWAY APPROACH
TO TYPICAL DRAINAGE ALLEY

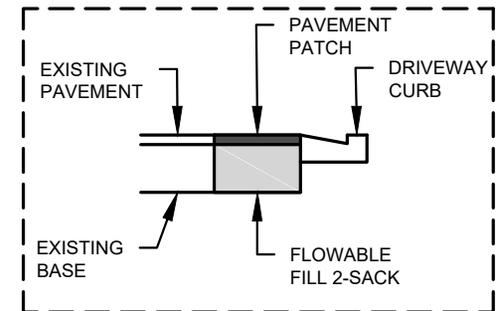
223(B)



PLAN VIEW

NOTES:

1. CLEANLY SAW-CUT PAVEMENT ACROSS FULL EXTENT OF DRIVEWAY CURB OPENING AND REMOVE.
2. ASPHALT PAVEMENT PATCHES TO BE MINIMUM OF 2" TYPE "D" HMAC OR MATCH EXISTING ASPHALT THICKNESS IF IT IS GREATER THAN 2" THICK, WITH 95% MODIFIED COMPACTION THROUGHOUT. TACK COAT ALL EXPOSED SURFACES PRIOR TO PLACING NEW ASPHALT PATCH.
3. CONCRETE PAVEMENT PATCHES TO BE MINIMUM OF 6" OR MATCH EXISTING CONCRETE THICKNESS IF IT IS GREATER THAN 6" THICK. CONCRETE PATCHES ARE TO EXTEND FROM JOINT-TO-JOINT IF EXISTING CONCRETE PAVEMENT IS JOINTED AND MATCH EXISTING PAVEMENT JOINTING. IF EXISTING CONCRETE PAVEMENT IS NOT JOINTED THEN CONCRETE PATCH IS TO BE JOINTED EVERY 10'. SEAL ALL CONCRETE JOINTS.
4. REMOVE AND REPLACE ALL BASE MATERIAL BENEATH PAVEMENT PATCH WITH FLOWABLE FILL 2-SACK (2-SACK=188 LBS/CY, PORTLAND CEMENT). PLACE ALL FLOWABLE FILL 2-SACK AS A SINGLE CONTINUOUS POUR.
5. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO THE CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
6. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



SECTION A-A



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

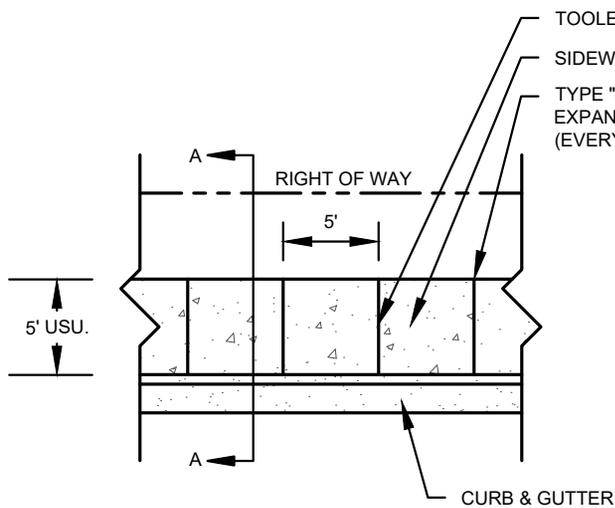
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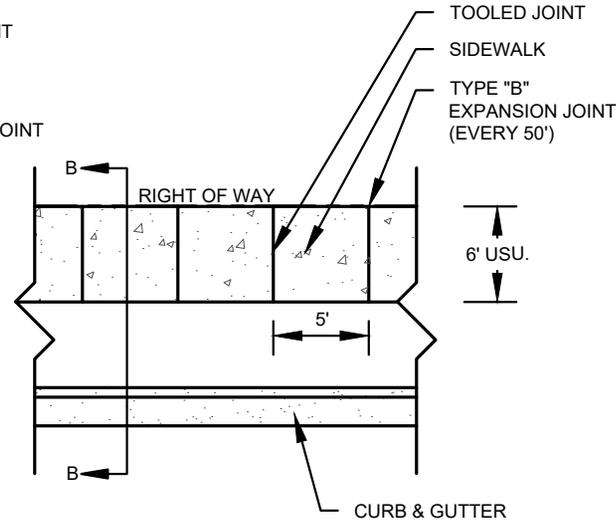
DETAIL:

**PAVEMENT PATCH FOR
NEW DRIVEWAYS**

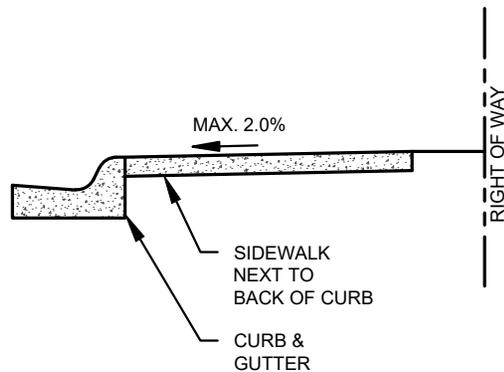
224



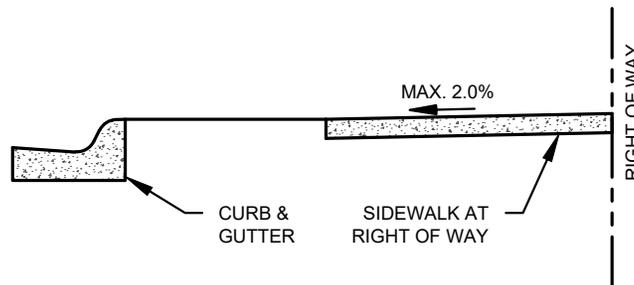
ATTACHED SIDEWALK PLACEMENT



DETACHED SIDEWALK PLACEMENT



SECTION A - A



SECTION B - B

NOTES:

1. CONCRETE TO BE CITY OF MIDLAND CLASS "A" AND HAVE A MINIMUM 28 DAY COMPRESSION STRENGTH OF 3000 PSI. USE FIBER REINFORCED CONCRETE PAVEMENT THROUGHOUT.
2. SIDEWALK TO BE A MINIMUM OF 5' WIDE AND 4" THICK.
3. SIDEWALKS TO HAVE TYPE A SAWCUT JOINTS OR TOOLED JOINTS EVERY 5'.
4. TYPE "B" EXPANSION JOINTS TO BE LOCATED AT ALL PEDESTRIAN ACCESS RAMP AND WHEREVER NEW SIDEWALK IS PLACED ADJACENT TO EXISTING CONCRETE.
5. ATTACHED SIDEWALK WILL BE LOCATED ADJACENT TO THE BACK OF CURB.
6. DETACHED SIDEWALK WILL BE LOCATED ADJACENT TO THE RIGHT-OF-WAY.
7. SIDEWALK CROSS-SLOPE MAY NOT EXCEED 2.0%.
8. ALL EXPOSED SIDEWALK EDGES TO HAVE A 1/2" RADIUS.
9. WHERE OBSTRUCTION IN SIDEWALK EXIST, THERE SHALL BE A 3' MINIMUM CLEARANCE. SIDEWALK LOCATION MAY BE SHIFTED WITH THE APPROVAL OF THE CITY ENGINEER.
10. ALL SIDEWALKS WITH A CONCRETE SURFACE SHALL HAVE A COURSE BROOM FINISH OR OTHER ROUGH NON-SKID TYPE FINISH AS APPROVED BY THE CITY ENGINEER.
11. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO THE CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
12. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.
13. SIDEWALKS IN DOWNTOWN PER CENTRAL BUSINESS DISTRICT POLICY.



DRAWN: DPM
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 APPROVED: MCC

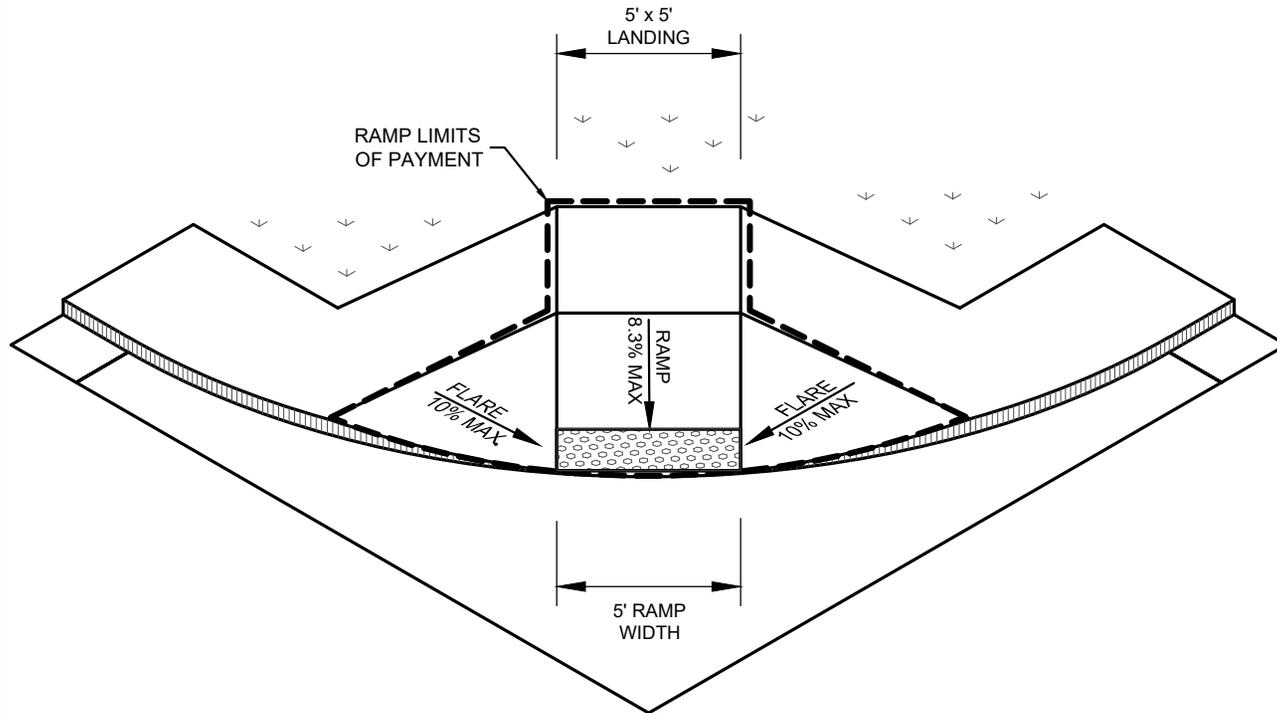
EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

**STANDARD
SIDEWALK**

225



TYPE 8
DIAGONAL CURB RAMP

CURB RAMP NOTES:

1. ADJUST CURB RAMP LOCATION AND OR TYPE SO THAT NO OBSTRUCTION IS LOCATED WITHIN THE LANDING AREA.
2. ALL SLOPES ARE MAXIMUM ALLOWABLE. THE LEAST POSSIBLE SLOPE THAT WILL STILL DRAIN PROPERLY SHOULD BE USED.
3. LANDINGS SHALL BE 5'X 5' MINIMUM WITH A MAXIMUM 2% SLOPE IN ANY DIRECTION. WHERE OBSTRUCTIONS EXIST, THERE SHALL BE A 3' MINIMUM CLEARANCE IN WIDTH AND LENGTH OF THE LANDING.
4. MANEUVERING SPACE AT THE BOTTOM OF CURB RAMP SHALL BE A MINIMUM OF 4'X4' WHOLLY CONTAINED WITHIN THE CROSSWALK AND TO THE ENTIRE OUTSIDE OF THE PARALLEL VEHICULAR TRAVEL PATH.
5. MAXIMUM ALLOWABLE CROSS SLOPE ON SIDEWALK AND CURB RAMP SURFACES IS 2%.
6. CURB RAMP WITH RETURNED CURBS MAY BE USED ONLY WHERE PEDESTRIANS WOULD NOT NORMALLY WALK ACROSS THE RAMP, EITHER BECAUSE THE ADJACENT SURFACE IS PLANTING OR OTHER NON-WALKING SURFACE OR BECAUSE THE SIDE APPROACH IS SUBSTANTIALLY OBSTRUCTED. OTHERWISE, PROVIDE FLARED SIDES.
7. ADDITIONAL INFORMATION ON CURB RAMP LOCATION, DESIGN, LIGHT REFLECTIVE VALUE AND TEXTURE MAY BE FOUND IN THE CURRENT EDITION OF THE TEXAS ACCESSIBILITY STANDARDS (TAS) AND 16 TAC 68.102.
8. AT INTERSECTIONS WHERE CROSSWALK MARKINGS ARE NOT REQUIRED, CURB RAMP SHALL BE ALIGNED WITH THEORETICAL CROSSWALKS, OR AS DIRECTED BY THE ENGINEER.
9. PROVIDE A SMOOTH TRANSITION WHERE THE CURB RAMP CONNECTS TO THE STREET.
10. FLARE SLOPE SHALL NOT EXCEED 10% MEASURED ALONG CURB LINE.
11. ALL RAMP AND LANDINGS WITH A CONCRETE SURFACE SHALL HAVE A COURSE BROOM FINISH OR OTHER ROUGH NON-SKID TYPE FINISH AS APPROVED BY THE ENGINEER.
12. PLACE 6" OF CONCRETE IN RAMP, LANDINGS, AND FLARES THAT ARE LOCATED AT THE RETURNS ADJACENT TO THE BACK OF CURB OF ARTERIAL STREETS AND COMMERCIAL SITES.

GENERAL NOTES:

1. CONCRETE TO BE CITY OF MIDLAND CLASS "A" WITH A MINIMUM 28 DAY COMPRESSION STRENGTH OF 3000 PSI. USE FIBER REINFORCED CONCRETE THROUGHOUT.
2. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO THE CITY OF MIDLAND STANDARDS AND SPECIFICATIONS UNLESS OTHERWISE DIRECTED BY ADA STANDARDS AND RESOURCES.



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

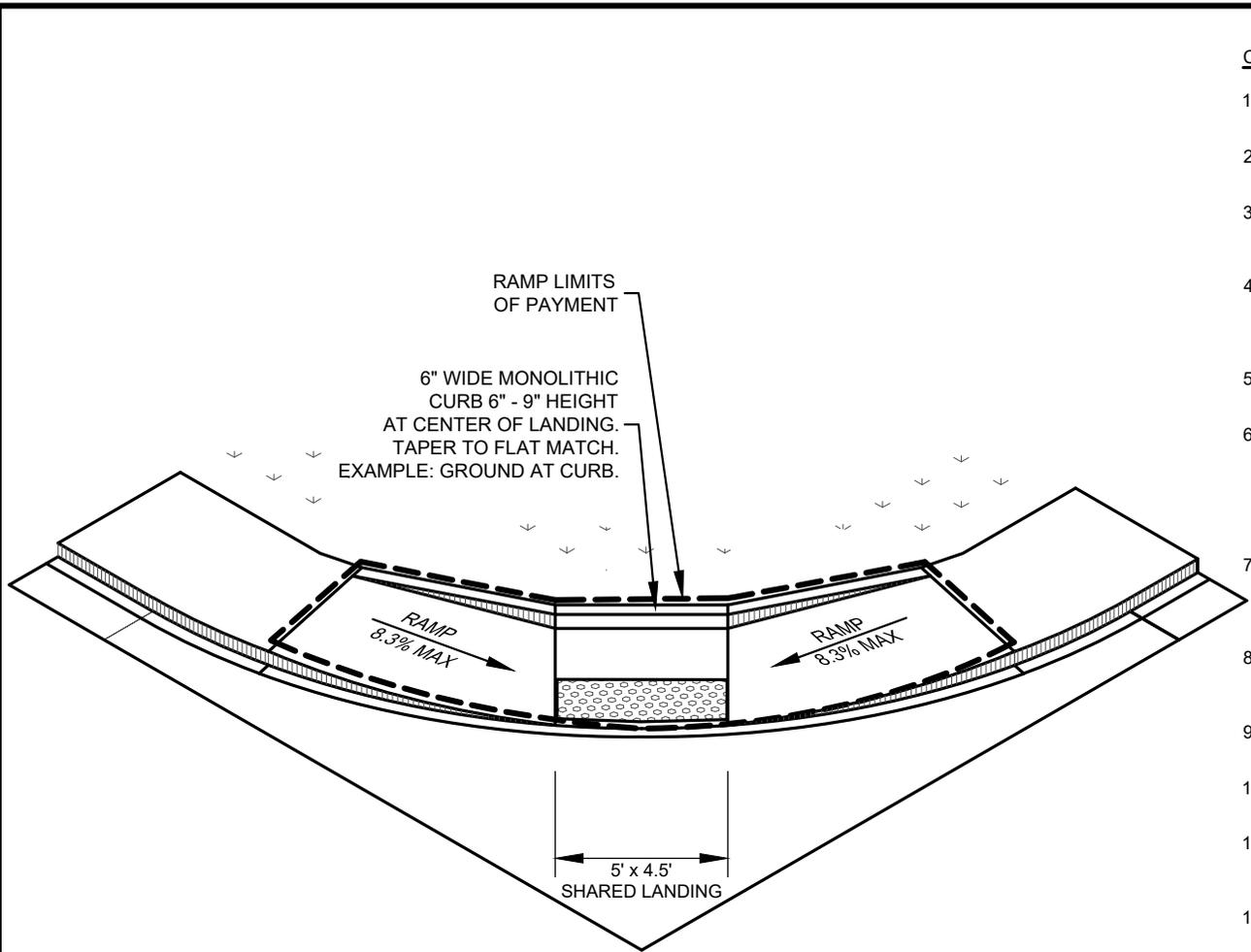
EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

DIAGONAL CURB RAMP

226



RAMP LIMITS OF PAYMENT

6" WIDE MONOLITHIC CURB 6" - 9" HEIGHT AT CENTER OF LANDING. TAPER TO FLAT MATCH. EXAMPLE: GROUND AT CURB.

5' x 4.5'
SHARED LANDING

TYPE 12
DIAGONAL CURB RAMP

CURB RAMP NOTES:

1. ADJUST CURB RAMP LOCATION AND OR TYPE SO THAT NO OBSTRUCTION IS LOCATED WITHIN THE LANDING AREA.
2. ALL SLOPES ARE MAXIMUM ALLOWABLE. THE LEAST POSSIBLE SLOPE THAT WILL STILL DRAIN PROPERLY SHOULD BE USED.
3. LANDINGS SHALL BE 5'X 5' MINIMUM WITH A MAXIMUM 2% SLOPE IN ANY DIRECTION. WHERE OBSTRUCTIONS EXIST, THERE SHALL BE A 3' MINIMUM CLEARANCE IN WIDTH AND LENGTH OF THE LANDING.
4. MANEUVERING SPACE AT THE BOTTOM OF CURB RAMP SHALL BE A MINIMUM OF 4'X4' WHOLLY CONTAINED WITHIN THE CROSSWALK AND TO THE ENTIRE OUTSIDE OF THE PARALLEL VEHICULAR TRAVEL PATH.
5. MAXIMUM ALLOWABLE CROSS SLOPE ON SIDEWALK AND CURB RAMP SURFACES IS 2%.
6. CURB RAMP WITH RETURNED CURBS MAY BE USED ONLY WHERE PEDESTRIANS WOULD NOT NORMALLY WALK ACROSS THE RAMP, EITHER BECAUSE THE ADJACENT SURFACE IS PLANTING OR OTHER NON-WALKING SURFACE OR BECAUSE THE SIDE APPROACH IS SUBSTANTIALLY OBSTRUCTED. OTHERWISE, PROVIDE FLARED SIDES.
7. ADDITIONAL INFORMATION ON CURB RAMP LOCATION, DESIGN, LIGHT REFLECTIVE VALUE AND TEXTURE MAY BE FOUND IN THE CURRENT EDITION OF THE TEXAS ACCESSIBILITY STANDARDS (TAS) AND 16 TAC 68.102.
8. AT INTERSECTIONS WHERE CROSSWALK MARKINGS ARE NOT REQUIRED, CURB RAMP SHALL BE ALIGNED WITH THEORETICAL CROSSWALKS, OR AS DIRECTED BY THE ENGINEER.
9. PROVIDE A SMOOTH TRANSITION WHERE THE CURB RAMP CONNECT TO THE STREET.
10. FLARE SLOPE SHALL NOT EXCEED 10% MEASURED ALONG CURB LINE.
11. ALL RAMP AND LANDINGS WITH A CONCRETE SURFACE SHALL HAVE A COURSE BROOM FINISH OR OTHER ROUGH NON-SKID TYPE FINISH AS APPROVED BY THE ENGINEER.
12. PLACE 6" OF CONCRETE IN RAMPS, LANDINGS, AND FLARES THAT ARE LOCATED AT THE RETURNS ADJACENT TO THE BACK OF CURB OF ARTERIAL STREETS AND COMMERCIAL SITES.

GENERAL NOTES:

1. CONCRETE TO BE CITY OF MIDLAND CLASS "A" WITH A MINIMUM 28 DAY COMPRESSION STRENGTH OF 3000 PSI. USE FIBER REINFORCED CONCRETE THROUGHOUT.
2. ALLOWED FOR NARROW OR CONSTRICTOR RIGHT OF WAY ONLY WITH PERMISSION OF CITY ENGINEER.
3. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO THE CITY OF MIDLAND STANDARDS AND SPECIFICATIONS UNLESS OTHERWISE DIRECTED BY ADA STANDARDS AND RESOURCES.



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

EFFECTIVE DATE:

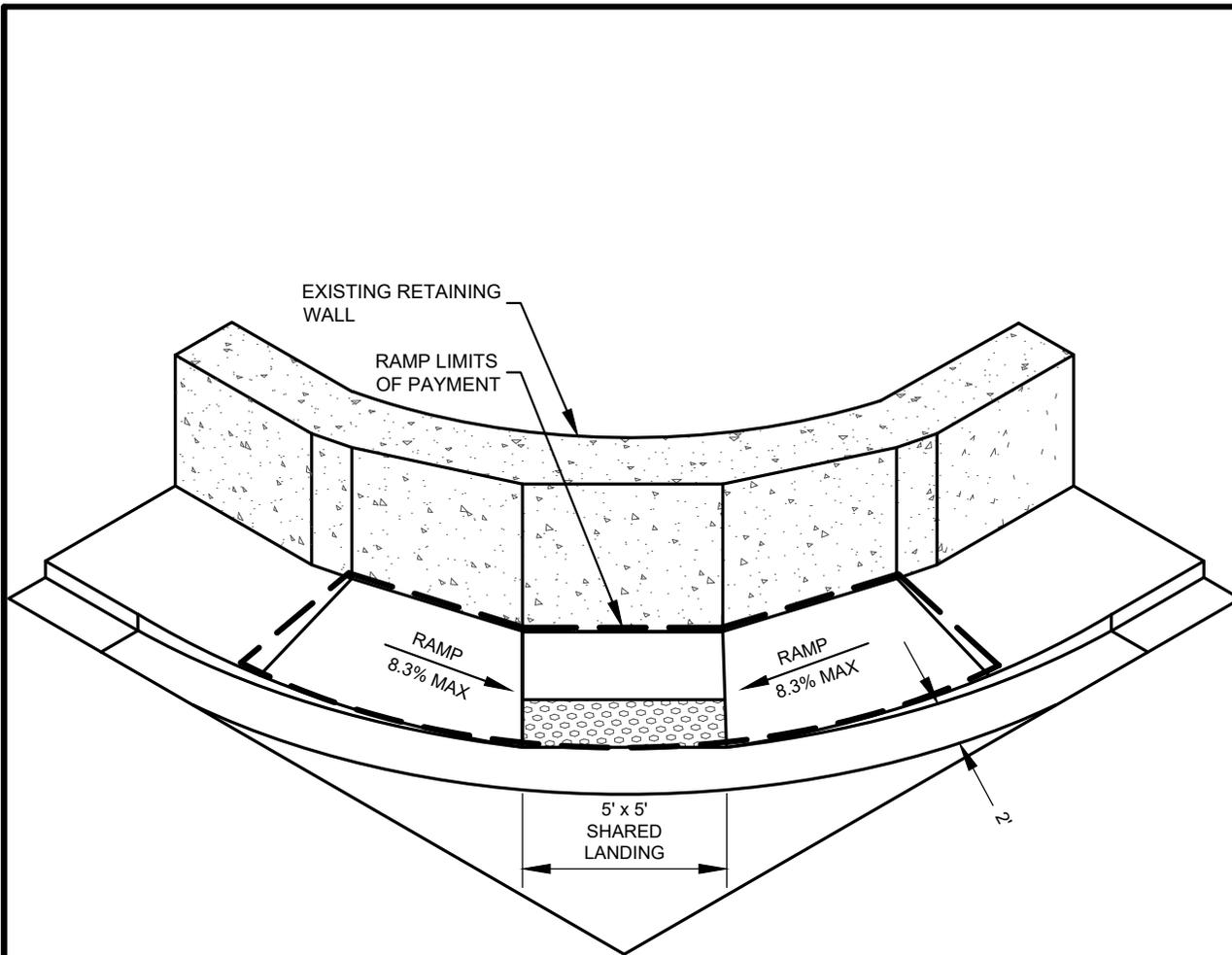
10/01/2018

SCALE: NTS

DETAIL:

DIAGONAL CURB RAMP

227



TYPE 12A
 DIAGONAL CURB RAMP
 NARROW OR OBSTRUCTED R.O.W.

CURB RAMP NOTES:

1. ADJUST CURB RAMP LOCATION AND OR TYPE SO THAT NO OBSTRUCTION IS LOCATED WITHIN THE LANDING AREA.
2. ALL SLOPES ARE MAXIMUM ALLOWABLE. THE LEAST POSSIBLE SLOPE THAT WILL STILL DRAIN PROPERLY SHOULD BE USED.
3. LANDINGS SHALL BE 5'X 5' MINIMUM WITH A MAXIMUM 2% SLOPE IN ANY DIRECTION. WHERE OBSTRUCTIONS EXIST, THERE SHALL BE A 3' MINIMUM CLEARANCE IN WIDTH AND LENGTH OF THE LANDING.
4. MANEUVERING SPACE AT THE BOTTOM OF CURB RAMP SHALL BE A MINIMUM OF 4'X4' WHOLLY CONTAINED WITHIN THE CROSSWALK AND TO THE ENTIRE OUTSIDE OF THE PARALLEL VEHICULAR TRAVEL PATH.
5. MAXIMUM ALLOWABLE CROSS SLOPE ON SIDEWALK AND CURB RAMP SURFACES IS 2%.
6. CURB RAMPS WITH RETURNED CURBS MAY BE USED ONLY WHERE PEDESTRIANS WOULD NOT NORMALLY WALK ACROSS THE RAMP, EITHER BECAUSE THE ADJACENT SURFACE IS PLANTING OR OTHER NON-WALKING SURFACE OR BECAUSE THE SIDE APPROACH IS SUBSTANTIALLY OBSTRUCTED. OTHERWISE, PROVIDE FLARED SIDES.
7. ADDITIONAL INFORMATION ON CURB RAMP LOCATION, DESIGN, LIGHT REFLECTIVE VALUE AND TEXTURE MAY BE FOUND IN THE CURRENT EDITION OF THE TEXAS ACCESSIBILITY STANDARDS (TAS) AND 16 TAC 68.102.
8. AT INTERSECTIONS WHERE CROSSWALK MARKINGS ARE NOT REQUIRED, CURB RAMPS SHALL BE ALIGNED WITH THEORETICAL CROSSWALKS, OR AS DIRECTED BY THE ENGINEER.
9. PROVIDE A SMOOTH TRANSITION WHERE THE CURB RAMPS CONNECT TO THE STREET.
10. FLARE SLOPE SHALL NOT EXCEED 10% MEASURED ALONG CURB LINE.
11. ALL RAMPS AND LANDINGS WITH A CONCRETE SURFACE SHALL HAVE A COURSE BROOM FINISH OR OTHER ROUGH NON-SKID TYPE FINISH AS APPROVED BY THE ENGINEER.
12. PLACE 6" OF CONCRETE IN RAMPS, LANDINGS, AND FLARES THAT ARE LOCATED AT THE RETURNS ADJACENT TO THE BACK OF CURB OF ARTERIAL STREETS AND COMMERCIAL SITES.

GENERAL NOTES:

1. CONCRETE TO BE CITY OF MIDLAND CLASS "A" WITH A MINIMUM 28 DAY COMPRESSION STRENGTH OF 3000 PSI. USE FIBER REINFORCED CONCRETE THROUGHOUT.
2. ALLOWED FOR NARROW OR CONSTRICTOR RIGHT OF WAY ONLY WITH PERMISSION OF CITY ENGINEER.
3. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO THE CITY OF MIDLAND STANDARDS AND SPECIFICATIONS UNLESS OTHERWISE DIRECTED BY ADA STANDARDS AND RESOURCES.



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

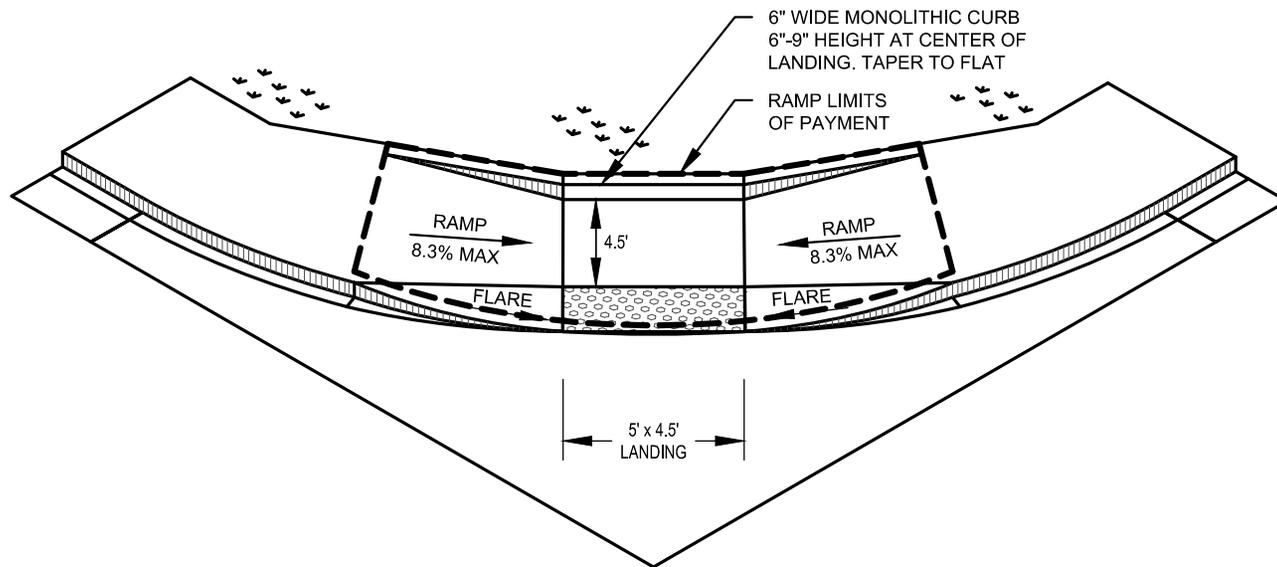
EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

**DIAGONAL CURB RAMP
 NARROW OR OBSTRUCTED R.O.W.**

228



TYPE 4:
DIAGONAL COMBINATION CURB RAMP

CURB RAMP NOTES:

1. ADJUST CURB RAMP LOCATION AND OR TYPE SO THAT NO OBSTRUCTION IS LOCATED WITHIN THE LANDING AREA.
2. ALL SLOPES ARE MAXIMUM ALLOWABLE. THE LEAST POSSIBLE SLOPE THAT WILL STILL DRAIN PROPERLY SHOULD BE USED.
3. LANDINGS SHALL BE 5'X 5' MINIMUM WITH A MAXIMUM 2% SLOPE IN ANY DIRECTION. WHERE OBSTRUCTIONS EXIST, THERE SHALL BE A 3' MINIMUM CLEARANCE IN WIDTH AND LENGTH OF THE LANDING.
4. MANEUVERING SPACE AT THE BOTTOM OF CURB RAMPS SHALL BE A MINIMUM OF 4'X4' WHOLLY CONTAINED WITHIN THE CROSSWALK AND TO THE ENTIRE OUTSIDE OF THE PARALLEL VEHICULAR TRAVEL PATH.
5. MAXIMUM ALLOWABLE CROSS SLOPE ON SIDEWALK AND CURB RAMP SURFACES IS 2%.
6. CURB RAMPS WITH RETURNED CURBS MAY BE USED ONLY WHERE PEDESTRIANS WOULD NOT NORMALLY WALK ACROSS THE RAMP, EITHER BECAUSE THE ADJACENT SURFACE IS PLANTING OR OTHER NON-WALKING SURFACE OR BECAUSE THE SIDE APPROACH IS SUBSTANTIALLY OBSTRUCTED. OTHERWISE, PROVIDE FLARED SIDES.
7. ADDITIONAL INFORMATION ON CURB RAMP LOCATION, DESIGN, LIGHT REFLECTIVE VALUE AND TEXTURE MAY BE FOUND IN THE CURRENT EDITION OF THE TEXAS ACCESSIBILITY STANDARDS (TAS) AND 16 TAC 68.102.
8. AT INTERSECTIONS WHERE CROSSWALK MARKINGS ARE NOT REQUIRED, CURB RAMPS SHALL BE ALIGNED WITH THEORETICAL CROSSWALKS, OR AS DIRECTED BY THE ENGINEER.
9. PROVIDE A SMOOTH TRANSITION WHERE THE CURB RAMPS CONNECT TO THE STREET.
10. FLARE SLOPE SHALL NOT EXCEED 10% MEASURED ALONG CURB LINE.
11. ALL RAMPS AND LANDINGS WITH A CONCRETE SURFACE SHALL HAVE A COURSE BROOM FINISH OR OTHER ROUGH NON-SKID TYPE FINISH AS APPROVED BY THE ENGINEER.
12. PLACE 6" OF CONCRETE IN RAMPS, LANDINGS, AND FLARES THAT ARE LOCATED AT THE RETURNS ADJACENT TO THE BACK OF CURB OF ARTERIAL STREETS AND COMMERCIAL SITES.

GENERAL NOTES:

1. CONCRETE TO BE CITY OF MIDLAND CLASS "A" WITH A MINIMUM 28 DAY COMPRESSION STRENGTH OF 3000 PSI. USE FIBER REINFORCED CONCRETE THROUGHOUT.
2. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO THE CITY OF MIDLAND STANDARDS AND SPECIFICATIONS UNLESS OTHERWISE DIRECTED BY ADA STANDARDS AND RESOURCES.



DRAWN: DPM
CHECKED: JCF
APPROVED: MCC

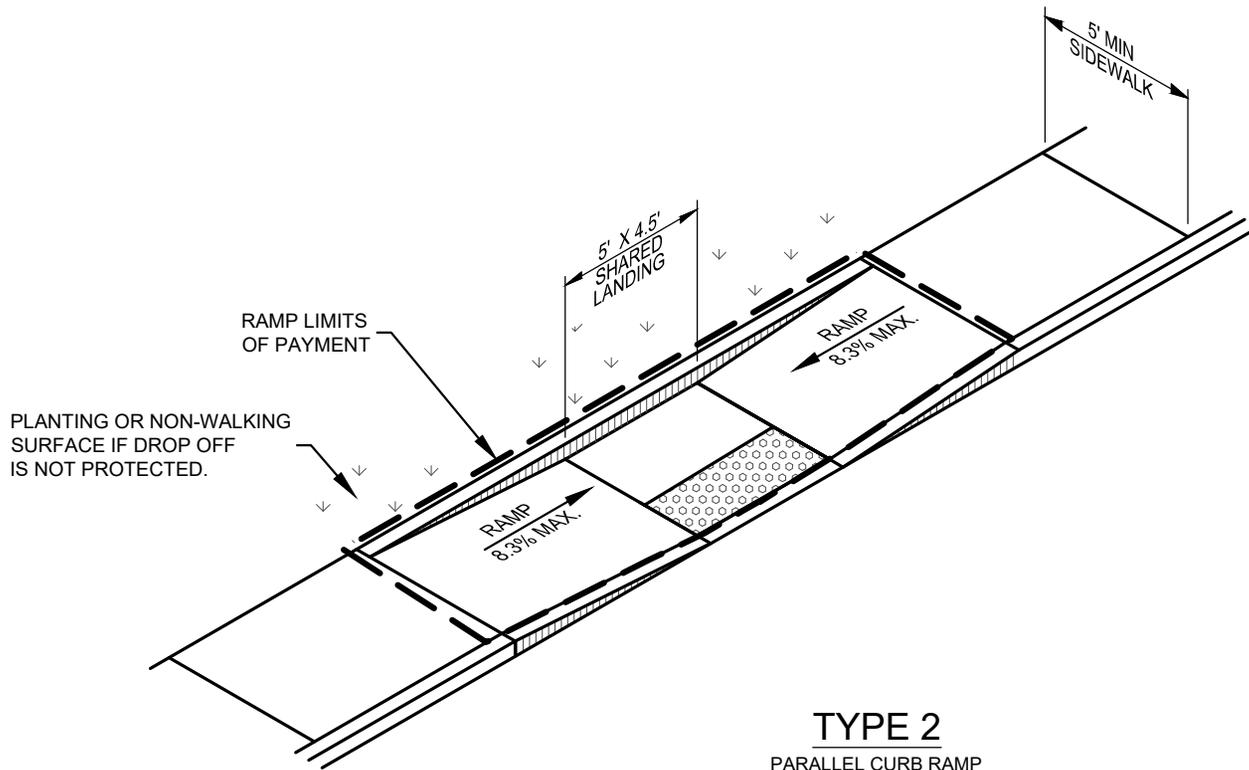
EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

**DIAGONAL COMBINATION
CURB RAMP**

229



TYPE 2
PARALLEL CURB RAMP

CURB RAMP NOTES:

1. ADJUST CURB RAMP LOCATION AND OR TYPE SO THAT NO OBSTRUCTION IS LOCATED WITHIN THE LANDING AREA.
2. ALL SLOPES ARE MAXIMUM ALLOWABLE. THE LEAST POSSIBLE SLOPE THAT WILL STILL DRAIN PROPERLY SHOULD BE USED.
3. LANDINGS SHALL BE 5'X 5' MINIMUM WITH A MAXIMUM 2% SLOPE IN ANY DIRECTION. WHERE OBSTRUCTIONS EXIST, THERE SHALL BE A 3' MINIMUM CLEARANCE IN WIDTH AND LENGTH OF THE LANDING.
4. MANEUVERING SPACE AT THE BOTTOM OF CURB RAMPS SHALL BE A MINIMUM OF 4'X4' WHOLLY CONTAINED WITHIN THE CROSSWALK AND TO THE ENTIRE OUTSIDE OF THE PARALLEL VEHICULAR TRAVEL PATH.
5. MAXIMUM ALLOWABLE CROSS SLOPE ON SIDEWALK AND CURB RAMP SURFACES IS 2%.
6. CURB RAMPS WITH RETURNED CURBS MAY BE USED ONLY WHERE PEDESTRIANS WOULD NOT NORMALLY WALK ACROSS THE RAMP, EITHER BECAUSE THE ADJACENT SURFACE IS PLANTING OR OTHER NON-WALKING SURFACE OR BECAUSE THE SIDE APPROACH IS SUBSTANTIALLY OBSTRUCTED. OTHERWISE, PROVIDE FLARED SIDES.
7. ADDITIONAL INFORMATION ON CURB RAMP LOCATION, DESIGN, LIGHT REFLECTIVE VALUE AND TEXTURE MAY BE FOUND IN THE CURRENT EDITION OF THE TEXAS ACCESSIBILITY STANDARDS (TAS) AND 16 TAC 68.102.
8. AT INTERSECTIONS WHERE CROSSWALK MARKINGS ARE NOT REQUIRED, CURB RAMPS SHALL BE ALIGNED WITH THEORETICAL CROSSWALKS, OR AS DIRECTED BY THE ENGINEER.
9. PROVIDE A SMOOTH TRANSITION WHERE THE CURB RAMPS CONNECT TO THE STREET.
10. FLARE SLOPE SHALL NOT EXCEED 10% MEASURED ALONG CURB LINE.
11. ALL RAMPS AND LANDINGS WITH A CONCRETE SURFACE SHALL HAVE A COURSE BROOM FINISH OR OTHER ROUGH NON-SKID TYPE FINISH AS APPROVED BY THE ENGINEER.
12. PLACE 6" OF CONCRETE IN RAMPS, LANDINGS, AND FLARES THAT ARE LOCATED AT THE RETURNS ADJACENT TO THE BACK OF CURB OF ARTERIAL STREETS AND COMMERCIAL SITES.

GENERAL NOTES:

1. CONCRETE TO BE CITY OF MIDLAND CLASS "A" WITH A MINIMUM 28 DAY COMPRESSION STRENGTH OF 3000 PSI. USE FIBER REINFORCED CONCRETE THROUGHOUT.
2. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO THE CITY OF MIDLAND STANDARDS AND SPECIFICATIONS UNLESS OTHERWISE DIRECTED BY ADA STANDARDS AND RESOURCES.



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APPROVED: MCC

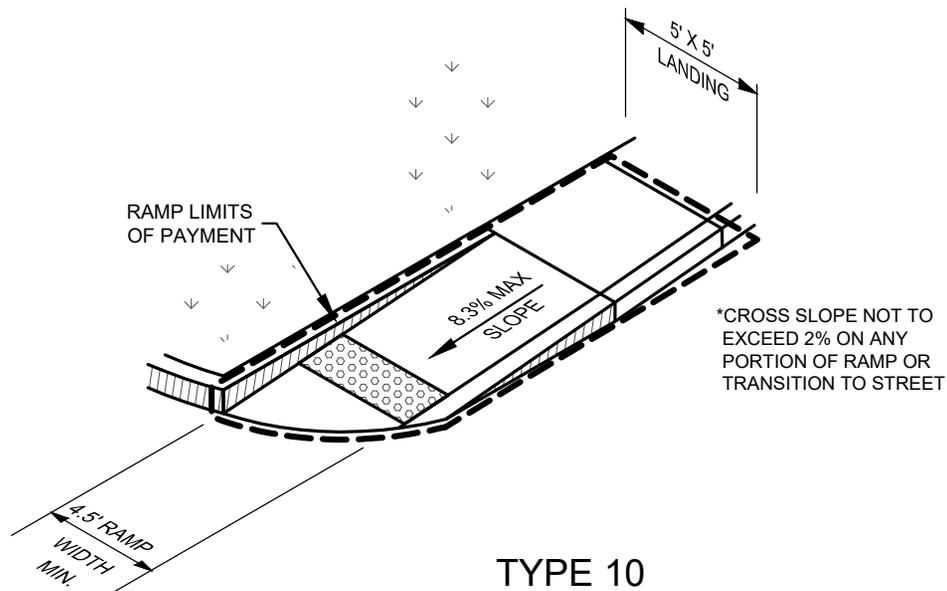
EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

PARALLEL CURB RAMP

230



TYPE 10
DIRECTIONAL RAMP WITHIN RADIUS

CURB RAMP NOTES:

1. ADJUST CURB RAMP LOCATION AND OR TYPE SO THAT NO OBSTRUCTION IS LOCATED WITHIN THE LANDING AREA.
2. ALL SLOPES ARE MAXIMUM ALLOWABLE. THE LEAST POSSIBLE SLOPE THAT WILL STILL DRAIN PROPERLY SHOULD BE USED.
3. LANDINGS SHALL BE 5' X 5' MINIMUM WITH A MAXIMUM 2% SLOPE IN ANY DIRECTION. WHERE OBSTRUCTIONS EXIST, THERE SHALL BE A 3' MINIMUM CLEARANCE IN WIDTH AND LENGTH OF THE LANDING.
4. MANEUVERING SPACE AT THE BOTTOM OF CURB RAMP SHALL BE A MINIMUM OF 4'X4' WHOLLY CONTAINED WITHIN THE CROSSWALK AND TO THE ENTIRE OUTSIDE OF THE PARALLEL VEHICULAR TRAVEL PATH.
5. MAXIMUM ALLOWABLE CROSS SLOPE ON SIDEWALK AND CURB RAMP SURFACES IS 2%.
6. CURB RAMP WITH RETURNED CURBS MAY BE USED ONLY WHERE PEDESTRIANS WOULD NOT NORMALLY WALK ACROSS THE RAMP, EITHER BECAUSE THE ADJACENT SURFACE IS PLANTING OR OTHER NON-WALKING SURFACE OR BECAUSE THE SIDE APPROACH IS SUBSTANTIALLY OBSTRUCTED. OTHERWISE, PROVIDE FLARED SIDES.
7. ADDITIONAL INFORMATION ON CURB RAMP LOCATION, DESIGN, LIGHT REFLECTIVE VALUE AND TEXTURE MAY BE FOUND IN THE CURRENT EDITION OF THE TEXAS ACCESSIBILITY STANDARDS (TAS) AND 16 TAC 68.102.
8. AT INTERSECTIONS WHERE CROSSWALK MARKINGS ARE NOT REQUIRED, CURB RAMP SHALL BE ALIGNED WITH THEORETICAL CROSSWALKS, OR AS DIRECTED BY THE ENGINEER.
9. PROVIDE A SMOOTH TRANSITION WHERE THE CURB RAMP CONNECT TO THE STREET.
10. FLARE SLOPE SHALL NOT EXCEED 10% MEASURED ALONG CURB LINE.
11. ALL RAMP AND LANDINGS WITH A CONCRETE SURFACE SHALL HAVE A COURSE BROOM FINISH OR OTHER ROUGH NON-SKID TYPE FINISH AS APPROVED BY THE ENGINEER.
12. PLACE 6" OF CONCRETE IN RAMPS, LANDINGS, AND FLARES THAT ARE LOCATED AT THE RETURNS ADJACENT TO THE BACK OF CURB OF ARTERIAL STREETS AND COMMERCIAL SITES.

GENERAL NOTES:

1. CONCRETE TO BE CITY OF MIDLAND CLASS "A" WITH A MINIMUM 28 DAY COMPRESSION STRENGTH OF 3000 PSI. USE FIBER REINFORCED CONCRETE THROUGHOUT.
2. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO THE CITY OF MIDLAND STANDARDS AND SPECIFICATIONS UNLESS OTHERWISE DIRECTED BY ADA STANDARDS AND RESOURCES.



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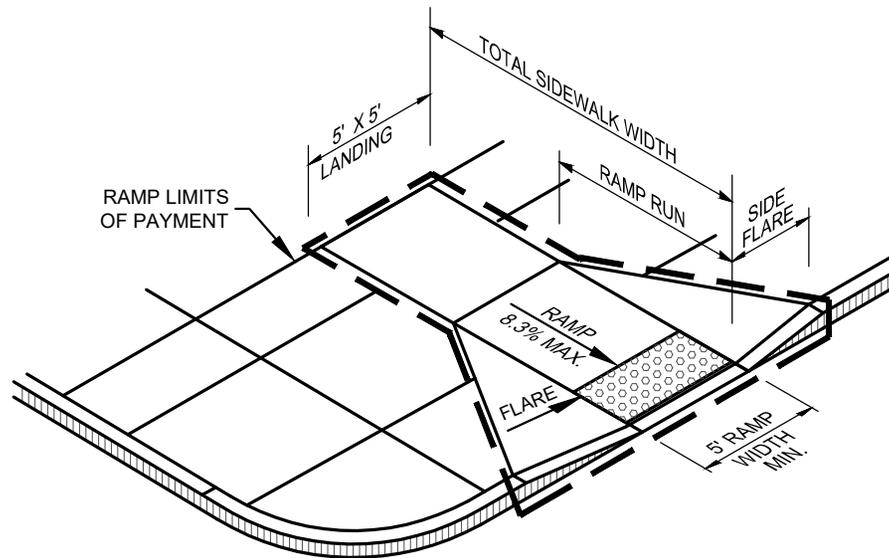
10/01/2018

SCALE: NTS

DETAIL:

DIRECTIONAL RAMP WITHIN RADIUS

231



TYPE 1
PERPENDICULAR CURB RAMP

CURB RAMP NOTES:

1. ADJUST CURB RAMP LOCATION AND OR TYPE SO THAT NO OBSTRUCTION IS LOCATED WITHIN THE LANDING AREA.
2. ALL SLOPES ARE MAXIMUM ALLOWABLE. THE LEAST POSSIBLE SLOPE THAT WILL STILL DRAIN PROPERLY SHOULD BE USED.
3. LANDINGS SHALL BE 5'X 5' MINIMUM WITH A MAXIMUM 2% SLOPE IN ANY DIRECTION. WHERE OBSTRUCTIONS EXIST, THERE SHALL BE A 3' MINIMUM CLEARANCE IN WIDTH AND LENGTH OF THE LANDING.
4. MANEUVERING SPACE AT THE BOTTOM OF CURB RAMPS SHALL BE A MINIMUM OF 4'X4' WHOLLY CONTAINED WITHIN THE CROSSWALK AND TO THE ENTIRE OUTSIDE OF THE PARALLEL VEHICULAR TRAVEL PATH.
5. MAXIMUM ALLOWABLE CROSS SLOPE ON SIDEWALK AND CURB RAMP SURFACES IS 2%.
6. CURB RAMPS WITH RETURNED CURBS MAY BE USED ONLY WHERE PEDESTRIANS WOULD NOT NORMALLY WALK ACROSS THE RAMP. EITHER BECAUSE THE ADJACENT SURFACE IS PLANTING OR OTHER NON-WALKING SURFACE OR BECAUSE THE SIDE APPROACH IS SUBSTANTIALLY OBSTRUCTED. OTHERWISE, PROVIDE FLARED SIDES.
7. ADDITIONAL INFORMATION ON CURB RAMP LOCATION, DESIGN, LIGHT REFLECTIVE VALUE AND TEXTURE MAY BE FOUND IN THE CURRENT EDITION OF THE TEXAS ACCESSIBILITY STANDARDS (TAS) AND 16 TAC 68.102.
8. AT INTERSECTIONS WHERE CROSSWALK MARKINGS ARE NOT REQUIRED, CURB RAMPS SHALL BE ALIGNED WITH THEORETICAL CROSSWALKS, OR AS DIRECTED BY THE ENGINEER.
9. PROVIDE A SMOOTH TRANSITION WHERE THE CURB RAMPS CONNECT TO THE STREET.
10. FLARE SLOPE SHALL NOT EXCEED 10% MEASURED ALONG CURB LINE.
11. ALL RAMPS AND LANDINGS WITH A CONCRETE SURFACE SHALL HAVE A COURSE BROOM FINISH OR OTHER ROUGH NON-SKID TYPE FINISH AS APPROVED BY THE ENGINEER.
12. PLACE 6" OF CONCRETE IN RAMPS, LANDINGS, AND FLARES THAT ARE LOCATED AT THE RETURNS ADJACENT TO THE BACK OF CURB OF ARTERIAL STREETS AND COMMERCIAL SITES.

GENERAL NOTES:

1. CONCRETE TO BE CITY OF MIDLAND CLASS "A" WITH A MINIMUM 28 DAY COMPRESSION STRENGTH OF 3000 PSI. USE FIBER REINFORCED CONCRETE THROUGHOUT.
2. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO THE CITY OF MIDLAND STANDARDS AND SPECIFICATIONS UNLESS OTHERWISE DIRECTED BY ADA STANDARDS AND RESOURCES.



DRAWN: DPM
CHECKED: JCF
APPROVED: MCC

EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

PERPENDICULAR CURB RAMP

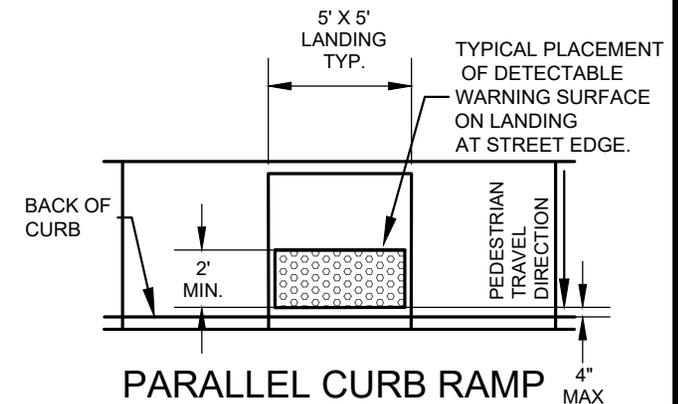
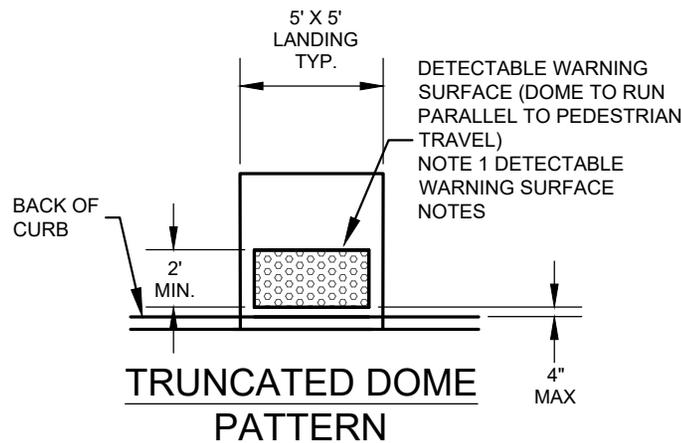
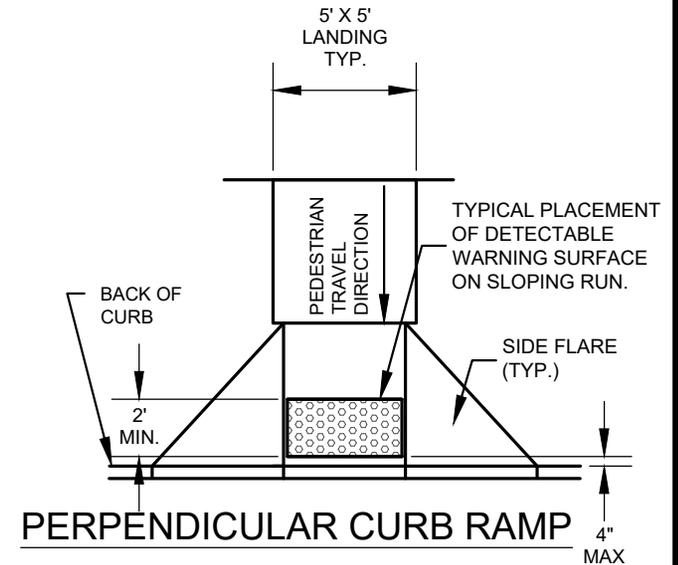
232

DETECTABLE WARNING SURFACE NOTES:

1. DETECTABLE WARNING SURFACE SUCH AS ARMOR-TILE ADA SOUND AMPLIFYING DETECTABLE/TACTILE WARNING SURFACE TILE OR EQUAL AND APPROVED BY THE ENGINEER AS MEETING ALL REQUIREMENTS OF ASTM C-936, C-33.
2. CURB RAMPS MUST CONTAIN A DETECTABLE WARNING SURFACE THAT CONSISTS OF RAISED TRUNCATED DOMES COMPLYING WITH SECTION 7.05 DETACHABLE WARNINGS OF THE TEXAS ACCESSIBILITY STANDARDS (TAS). THE SURFACE MUST CONTRAST VISUALLY WITH ADJOINING SURFACES, INCLUDING SIDE FLARES. FURNISH DARK BROWN OR DARK RED DETECTABLE WARNING SURFACE ADJACENT TO UNCOLORED CONCRETE, UNLESS SPECIFIED ELSEWHERE IN THE PLANS.
3. DETECTABLE WARNING SURFACES MUST BE SLIP RESISTANT AND NOT ALLOW WATER TO ACCUMULATE.
4. ALIGN TRUNCATED DOMES IN THE DIRECTION OF PEDESTRIAN TRAVEL WHEN ENTERING THE STREET.
5. SHADED AREAS INDICATE THE APPROXIMATE LOCATION FOR THE DETECTABLE WARNING SURFACE FOR EACH CURB RAMP TYPE.
6. DETECTABLE WARNING SURFACES SHALL BE A MINIMUM OF 24" IN DEPTH IN THE DIRECTION OF PEDESTRIAN TRAVEL.
7. DETECTABLE WARNING SURFACES SHALL BE LOCATED SO THAT THE EDGE NEAREST THE CURB LINE IS A MINIMUM OF 6" AND A MAXIMUM OF 10" FROM THE EXTENSION OF THE FACE OF CURB. DETECTABLE WARNING SURFACES MAY BE CURVED ALONG THE CORNER RADIUS.
8. SINGLE TILE PLATES COLONIAL RED COLOR.

GENERAL NOTES:

1. CONCRETE TO BE CITY OF MIDLAND CLASS "A" WITH A MINIMUM 28 DAY COMPRESSION STRENGTH OF 3000 PSI. USE FIBER REINFORCED CONCRETE THROUGHOUT.
2. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO THE CITY OF MIDLAND STANDARDS AND SPECIFICATIONS UNLESS OTHERWISE DIRECTED BY ADA STANDARDS AND RESOURCES.



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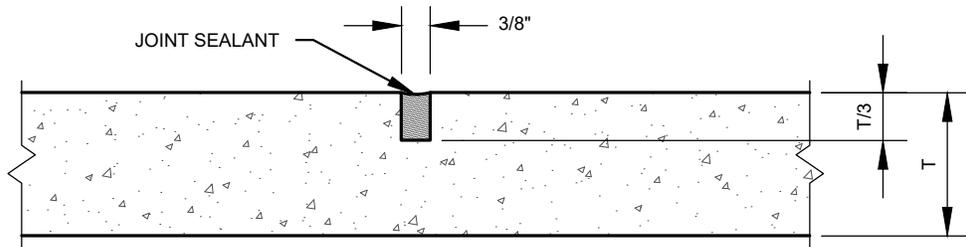
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SCALE: NTS

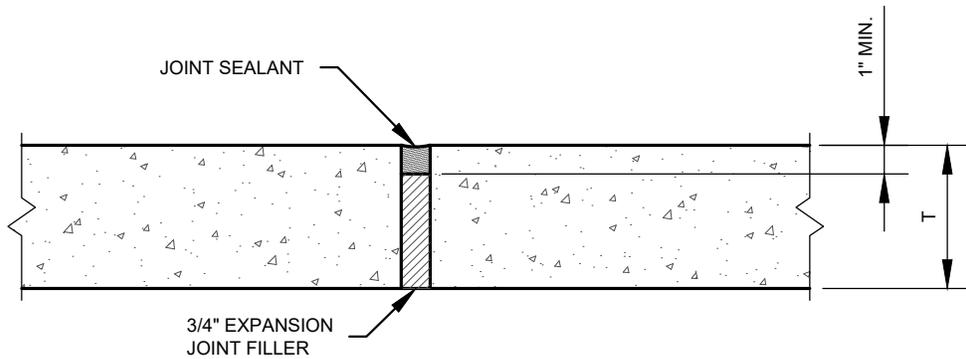
DETAIL:

DETECTABLE WARNING SURFACE

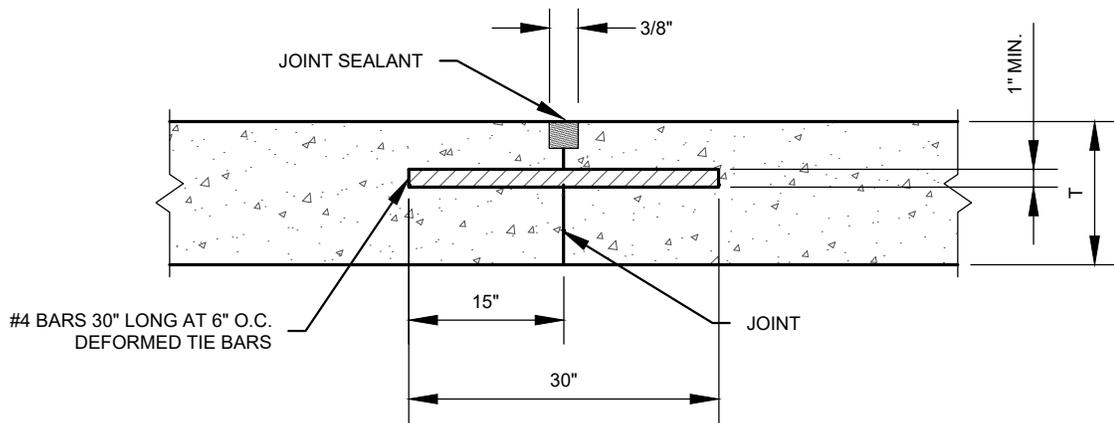
233



TYPE "A" SAW-CUT JOINT

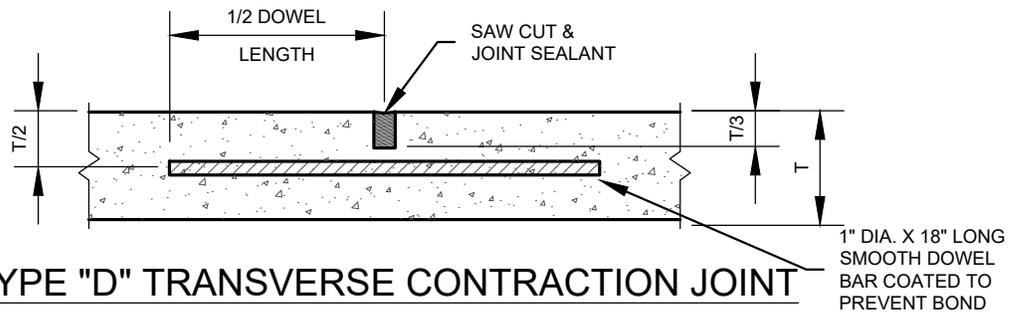


TYPE "B" DOWEL-LESS EXPANSION JOINT

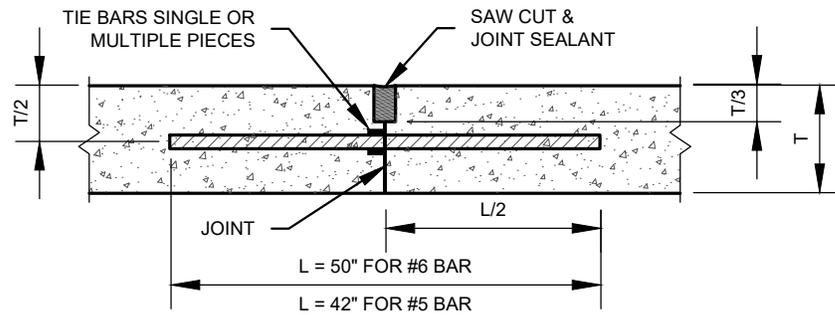


TYPE "C" CONSTRUCTION COLD JOINT

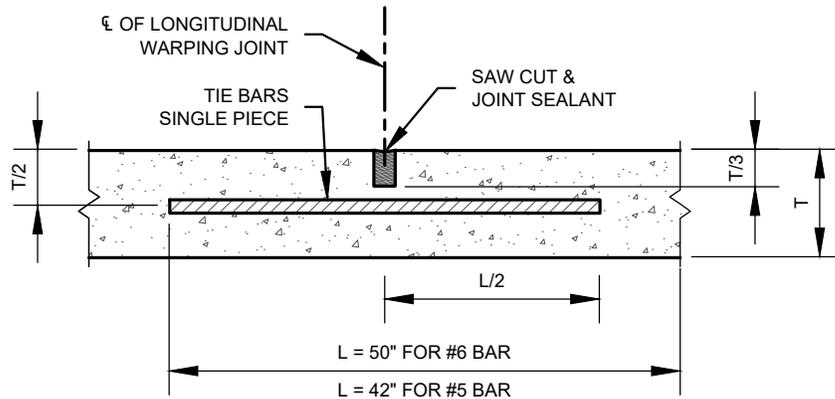
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EFFECTIVE DATE: 10/01/2018		SCALE: NTS	DETAIL:
 MIDLAND <i>Engineering Services</i>			<p style="text-align: center;">TYPICAL CONCRETE JOINTS</p> <p style="text-align: right; font-size: 24pt;">234(A)</p>



TYPE "D" TRANSVERSE CONTRACTION JOINT



TYPE "E" LONGITUDINAL CONTRACTION JOINT

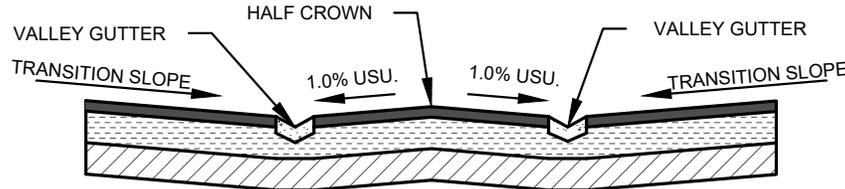
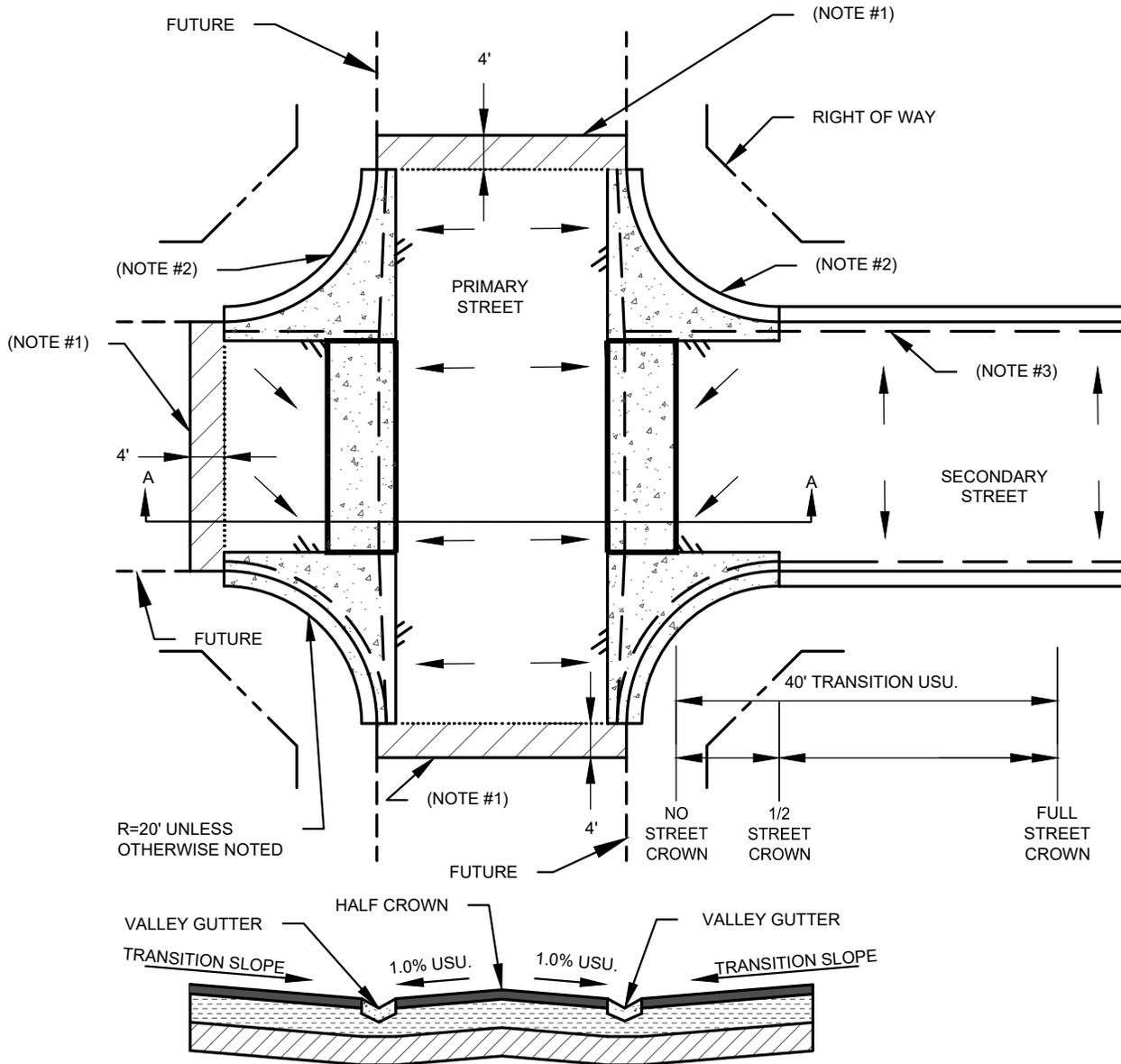


TYPE "F" LONGITUDINAL CONTRACTION SAW-CUT JOINT

NOTES:

1. JOINTING, DOWEL, AND TIE BAR DESIGN REQUIREMENTS ARE SUBJECT TO CHANGE FOR ARTERIAL OR HIGHER CLASSIFICATION ROADS IF DEEMED NECESSARY BY THE CITY ENGINEER.
2. TYPICAL CONCRETE PAVEMENT JOINT SPACING IS TO BE NO LESS THAN 10' X 10' AND NO MORE THAT 15' X 15'.
3. DOWELS ARE TO BE SPACED AT 12" INTERVALS WITH MINIMUM 18" SEPARATION FROM PARALLEL JOINTS OR EDGES OF PAVEMENT.
4. TIE BARS ARE TO BE SET AT 24" INTERVALS WITH MINIMUM 18" SEPARATION FROM PARALLEL JOINTS OR EDGES OF PAVEMENT.
5. ALL JOINT SEALANT TO BE TxDOT DMS-6310 SL-2 OR APPROVED EQUAL.
6. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
7. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC	
EFFECTIVE DATE: 10/01/2018		SCALE: NTS	DETAIL:
TYPICAL CONCRETE JOINTS			234(B)



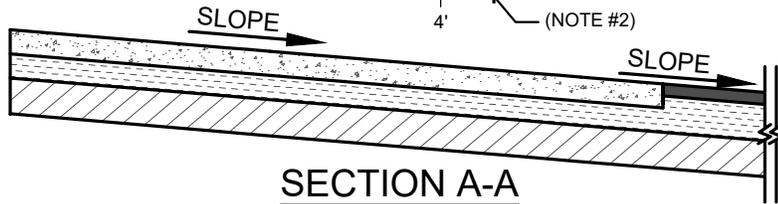
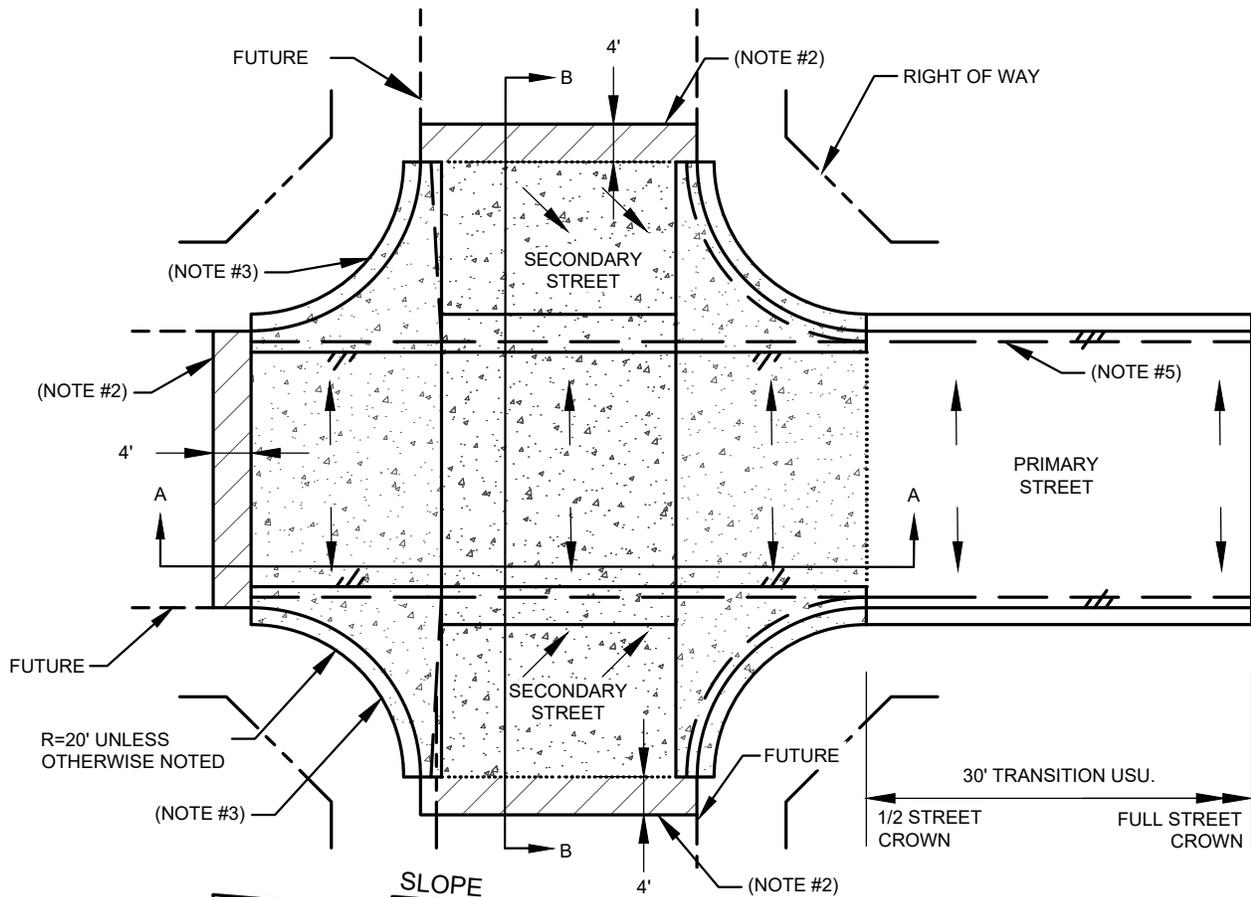
SECTION A-A
N.T.S.

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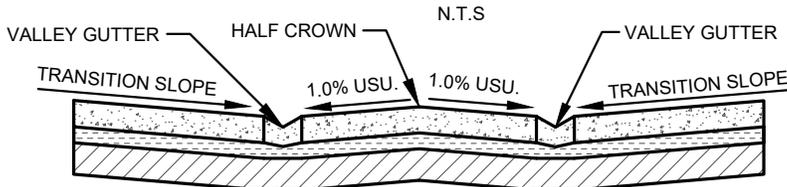
1. NO HEADER WILL BE USED IF ROAD ENDS AT INTERSECTION. INSTEAD EXTEND BASE AND SURFACE 4' BEYOND END OF CURB.
2. WARP GUTTER SO THAT IT SLOPES TOWARDS THE VALLEY GUTTER.
3. FLOW PATH LINES
4. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO THE CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
5. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC
EFFECTIVE DATE: 10/01/2018		SCALE: NTS
TYPICAL LOCAL /COLLECTOR CROWN TRANSITION		235





SECTION A-A

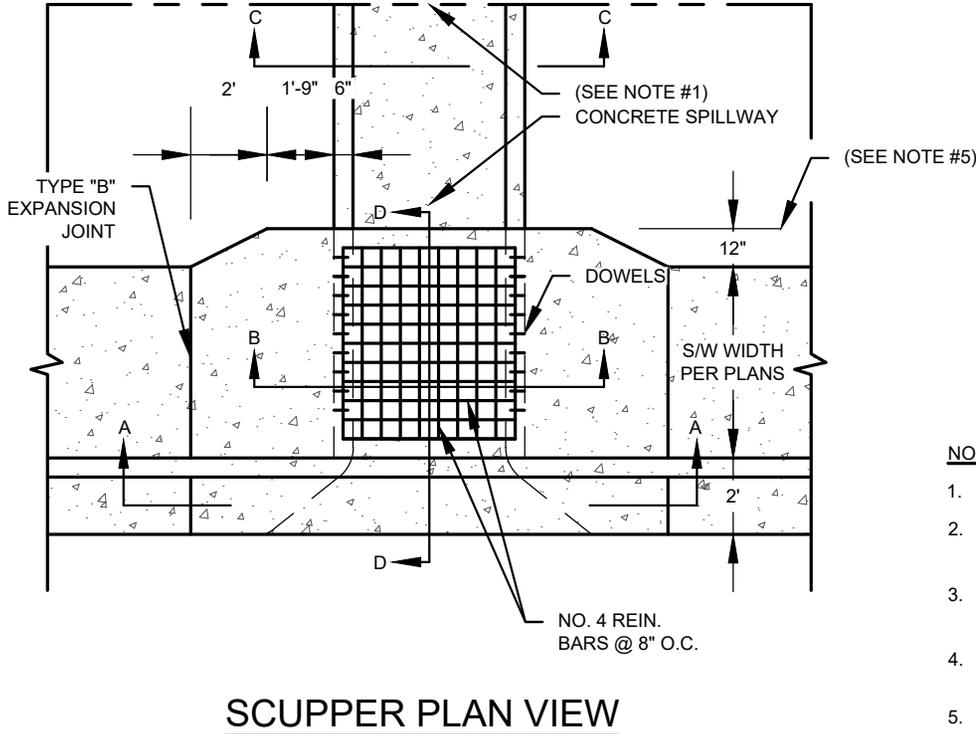
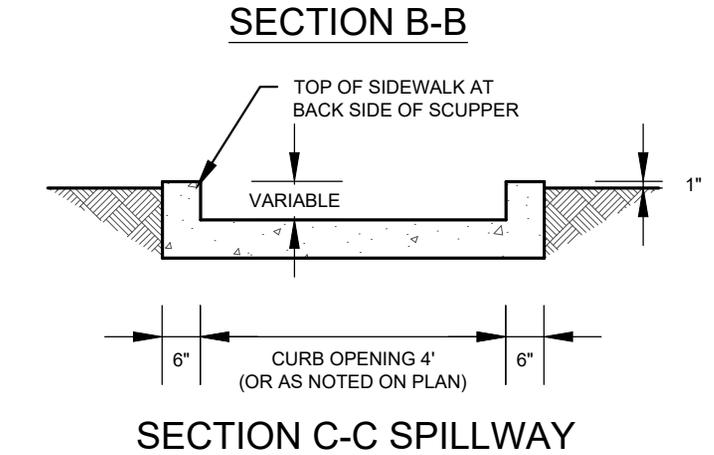
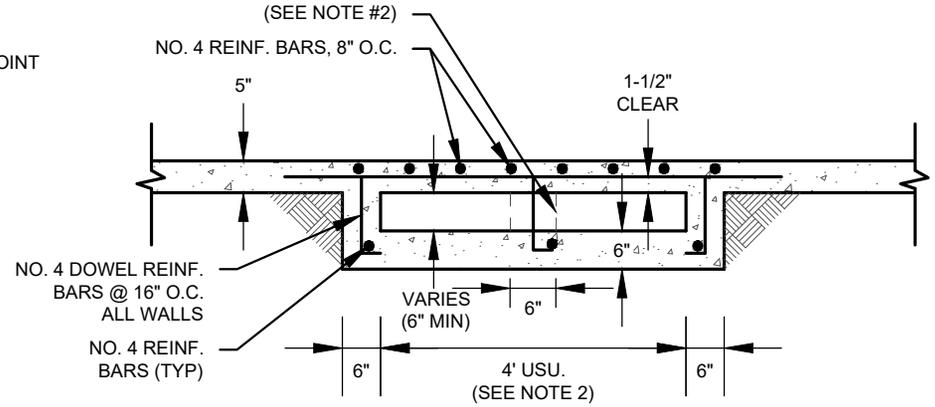
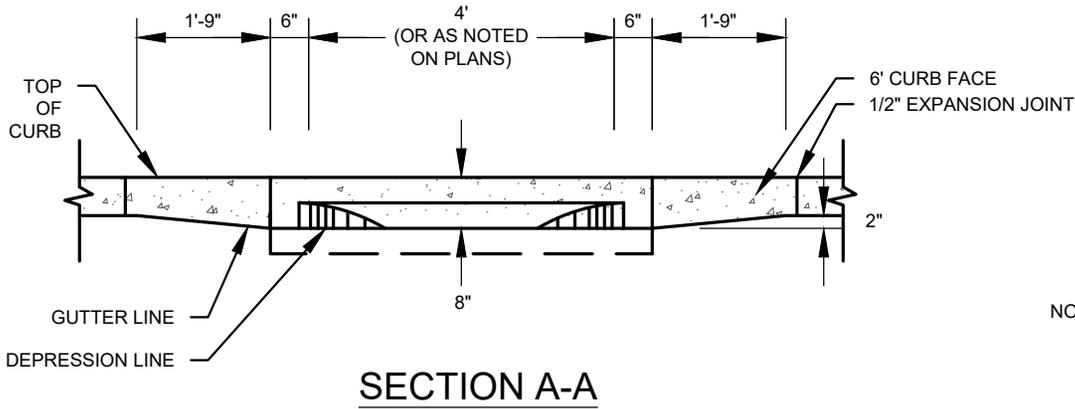


SECTION B-B

NOTES:

1. SAW-CUT JOINTS ARE TO LOCATED THROUGHOUT CONCRETE PAVEMENT AT EQUI-DISTANT SPACING TYPICALLY 10'x10' OR NO GREATER THAN 15'x15'.
2. NO HEADER WILL BE USED IF ROAD ENDS AT INTERSECTION. INSTEAD EXTEND BASE AND SURFACE 4' BEYOND END OF CURB.
3. WARP GUTTER SO THAT IT SLOPES TOWARDS THE VALLEY GUTTER.
4. USE FIBER REINFORCED CONCRETE PAVEMENT THROUGHOUT THE INTERSECTION.
5. FLOW PATH LINES.
6. SEAL ALL CONCRETE JOINTS.
7. CONCRETE INTERSECTION PAVEMENT TO EXTEND TO THE FILLET END-OF-RADIUS.
8. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO THE CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
9. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC
EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
		<p style="text-align: center;">TYPICAL LOCAL/COLLECTOR CROWN TRANSITION</p>
		236



NOTES:

1. TRANSITION TO SPILLWAY/CHANNEL AS PER APPROVED PLANS.
2. A CENTER WALL SHALL BE INSTALLED IN SCUPPERS WIDER THAN 4' OR IF MORE THAN 1 SCUPPER IS BUILT IN SERIES.
3. EXPANSION JOINT FILLER SHALL BE 1/2" BITUMINOUS TYPE PREFORMED EXPANSION JOINT, ASTM D-1751.
4. CONCRETE FOR THE SCUPPER SHALL BE CLASS "C", 3600 PSI. CONCRETE FOR THE SPILLWAY SHALL BE CLASS "C", 3600 PSI.
5. 12" OFFSET DISTANCE SHALL BE INCREASED TO 2'-6" FOR DESIGNATED BICYCLE PATHS.



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

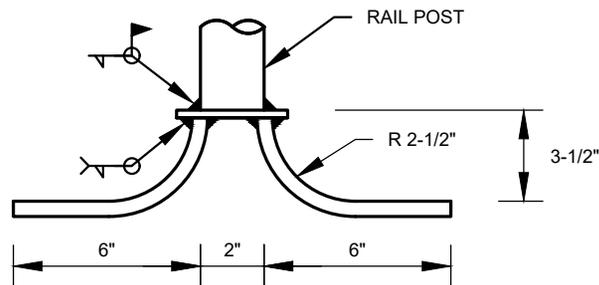
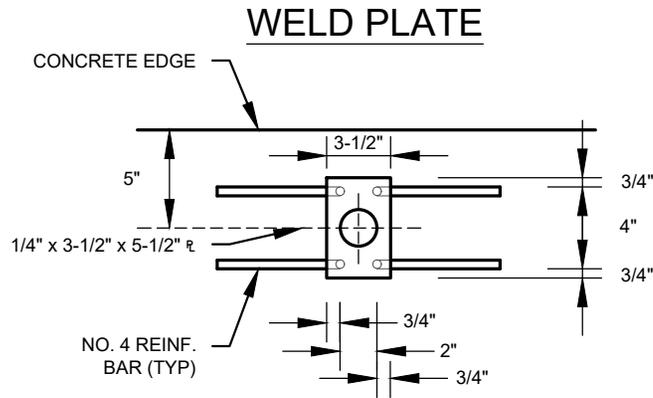
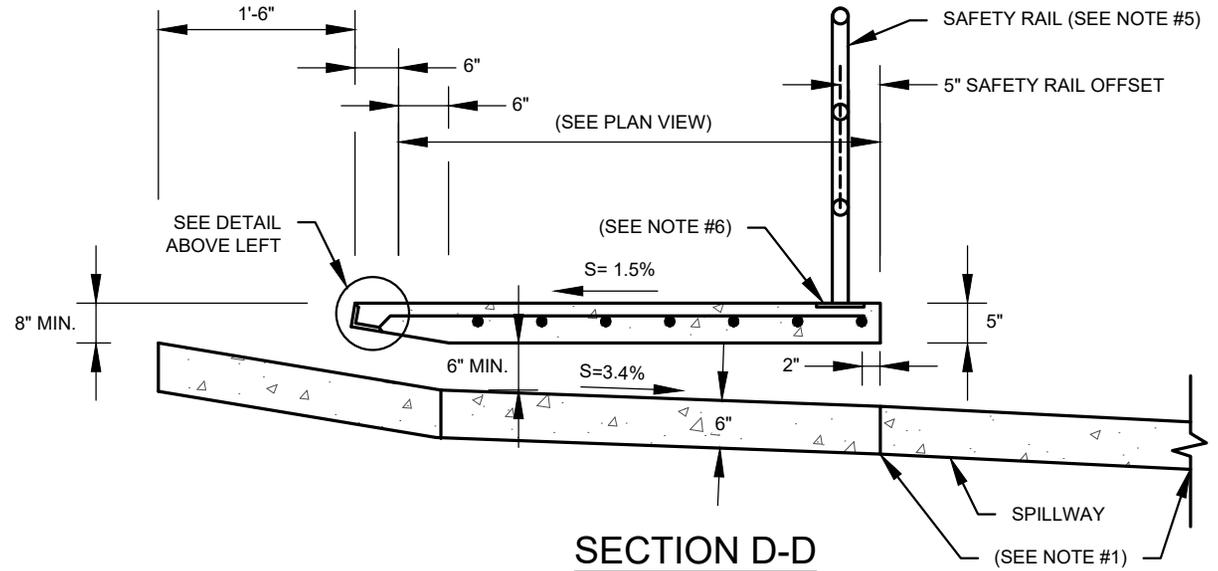
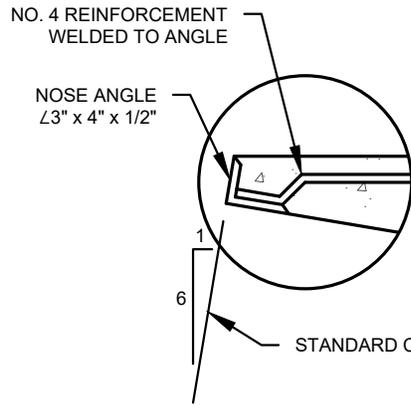
EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

CONCRETE SCUPPER

237(A)



NOTES:

1. TRANSITION TO SPILLWAY/CHANNEL AS PER APPROVED PLANS.
2. A CENTER WALL SHALL BE INSTALLED IN SCUPPERS WIDER THAN 4' OR IF MORE THAN 1 SCUPPER IS BUILT IN SERIES.
3. EXPANSION JOINT FILLER SHALL BE 1/2" BITUMINOUS TYPE PREFORMED EXPANSION JOINT, ASTM D-1751.
4. CONCRETE FOR THE SCUPPER AND SPILLWAY TO BE CLASS "C", 3600 PSI.
5. SAFETY RAIL SHALL BE CONTINUOUS BETWEEN THE SPILLWAY EXTERIOR WALLS. SAFETY RAIL TO BE USED ONLY WHEN VERTICAL DROP FROM SCUPPER PEDESTRIAN CROSSING TO SPILLWAY SURFACE EXCEEDS 18".
6. USE WELD PLATES FOR SAFETY RAIL ANCHORS LOCATED IN THE 5" THICK CONCRETE.
7. MATERIAL AND CONSTRUCTION METHODS TO CONFORM TO THE CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
8. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

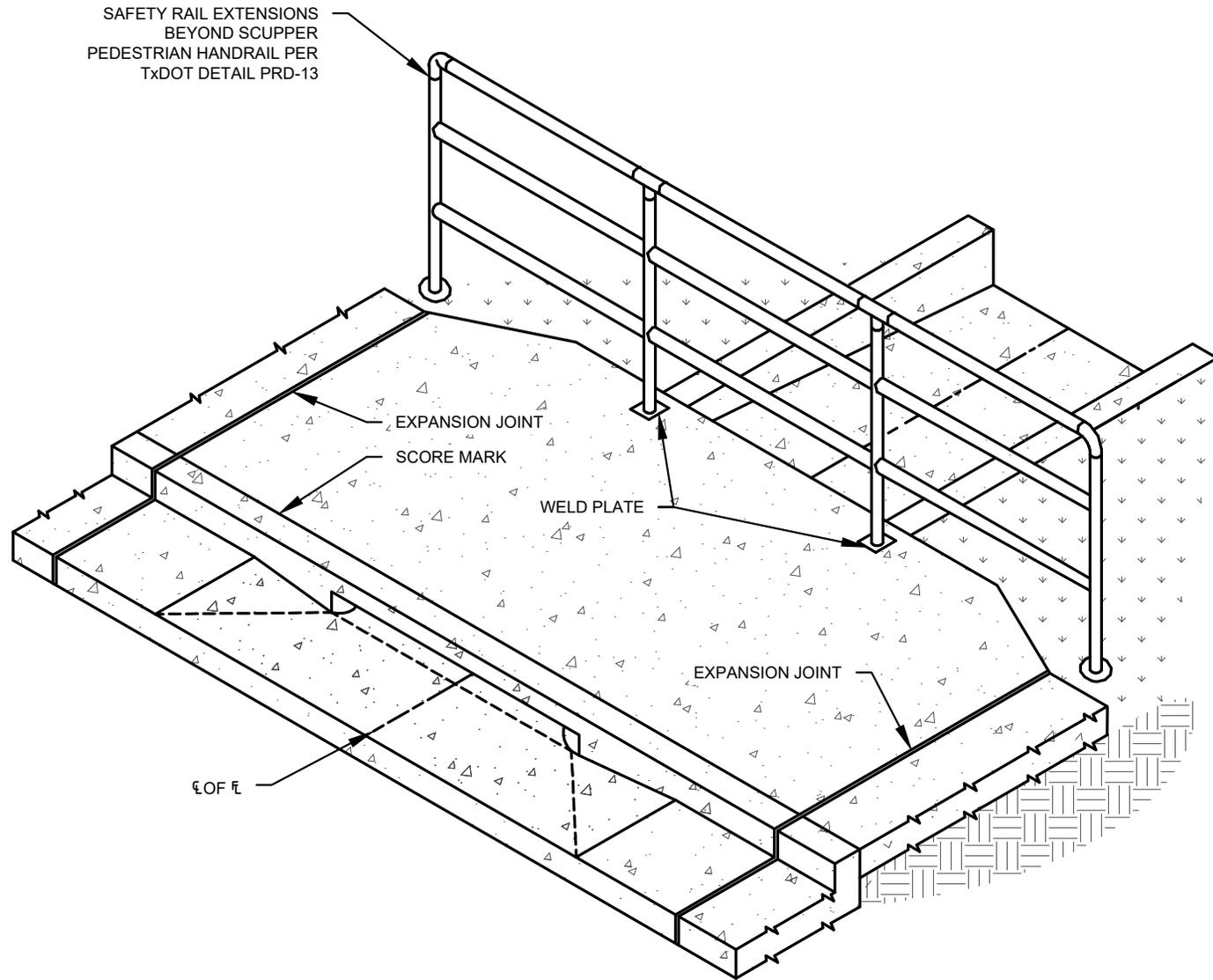
EFFECTIVE DATE: 10/01/2018

SCALE:

DETAIL:

CONCRETE SCUPPER

237(B)



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

EFFECTIVE DATE:

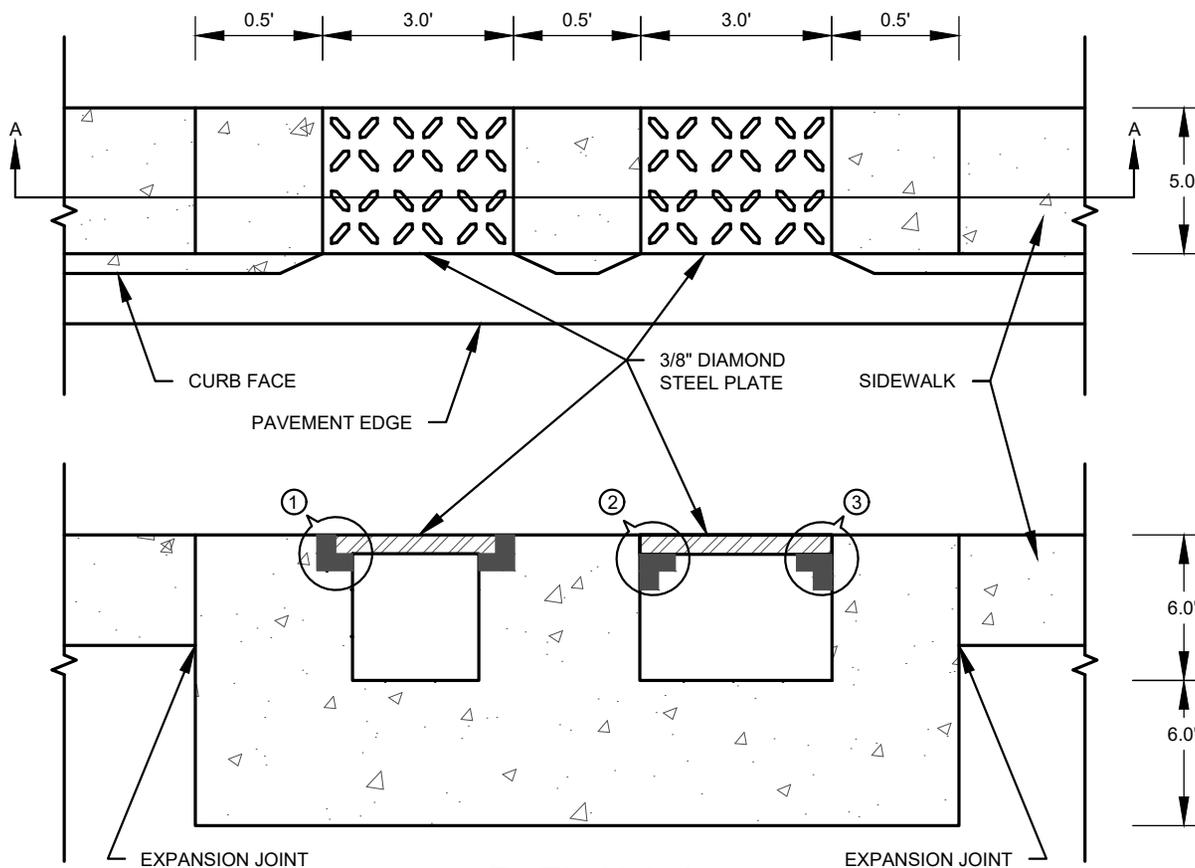
10/01/2018

SCALE: NTS

DETAIL:

CONCRETE SCUPPER

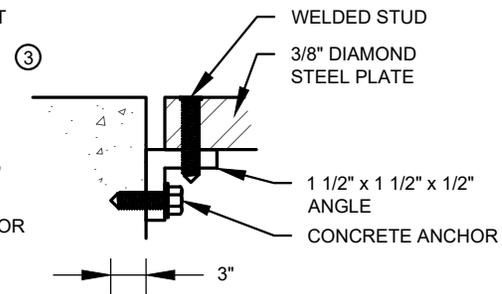
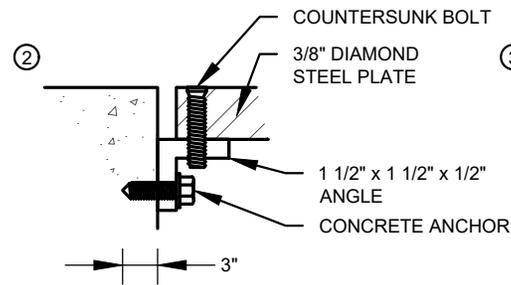
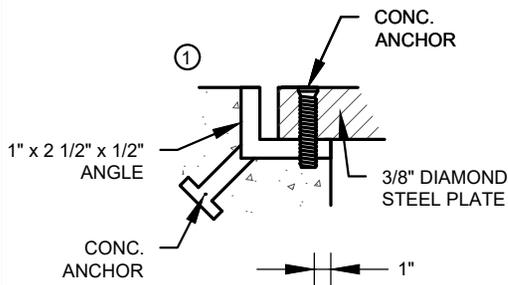
237(C)



SECTION A-A

NOTES:

1. CONCRETE TO BE CITY OF MIDLAND CLASS "C", 3600 PSI. USE FIBER REINFORCED CONCRETE PAVEMENT THROUGHOUT.
2. STEEL PLATE MUST BE FIXED UTILIZING ONE OF THE OPTIONS IN THIS DETAIL.
3. SEAL ALL CONCRETE JOINTS.
4. MATERIAL AND CONSTRUCTION METHODS TO CONFORM TO THE CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
5. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

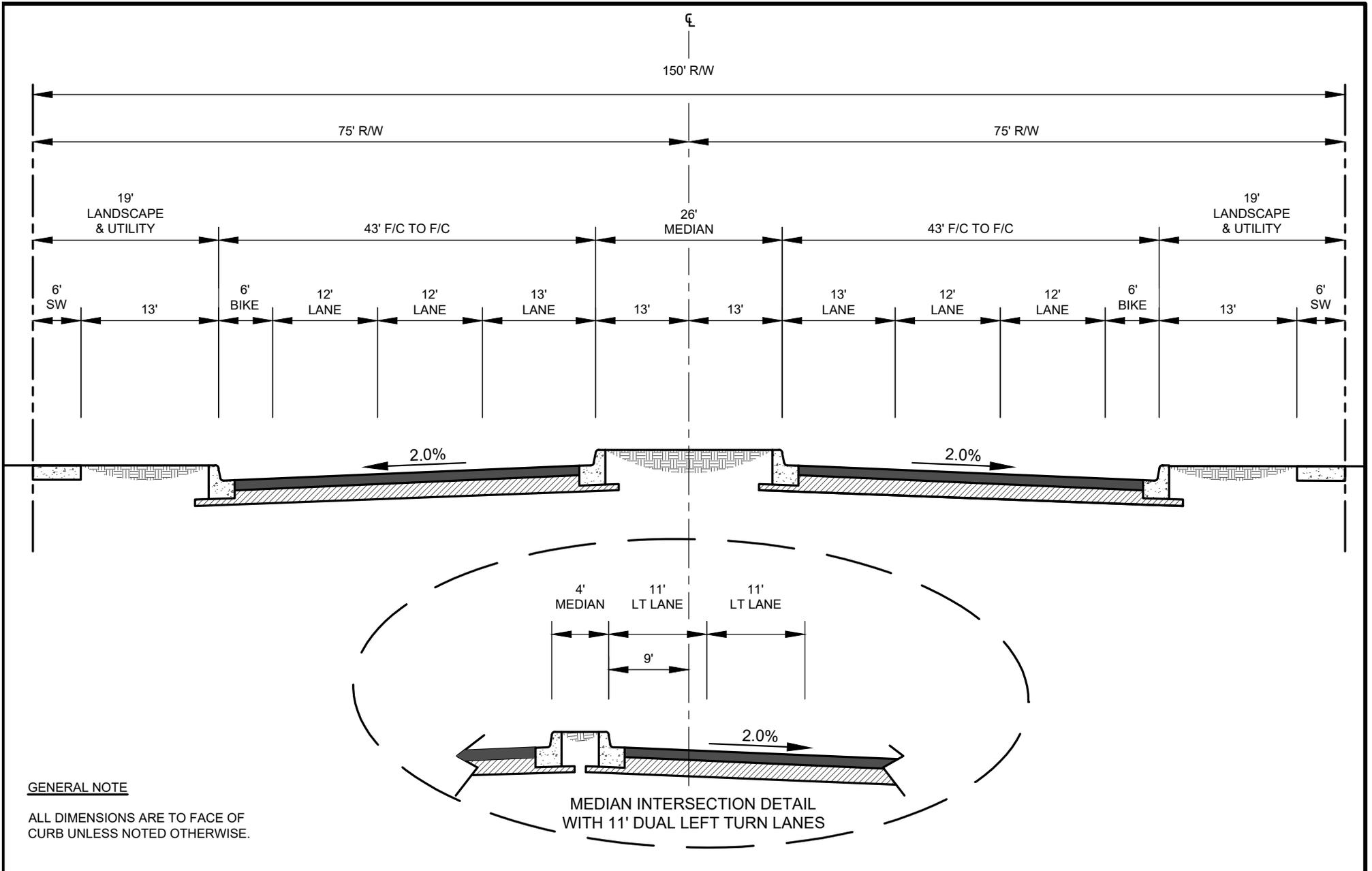
EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

**ELEVATED PEDESTRIAN STEEL
 PLATE FLUME CROSSING**

238



DRAWN: DPM
CHECKED: JCF
APPROVED: MCC

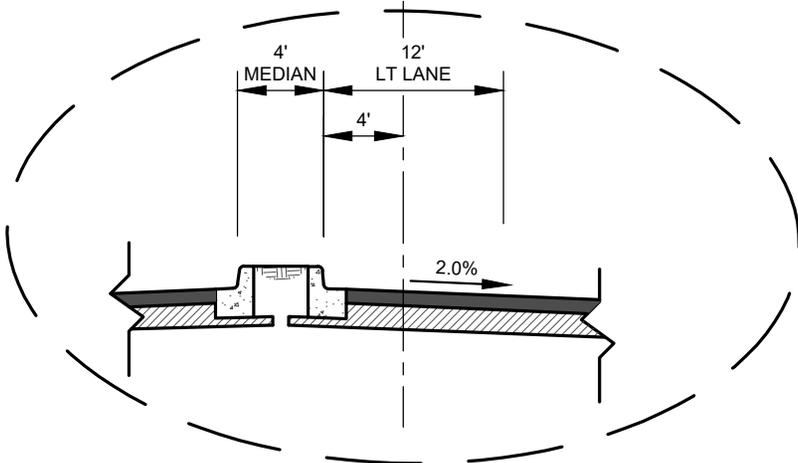
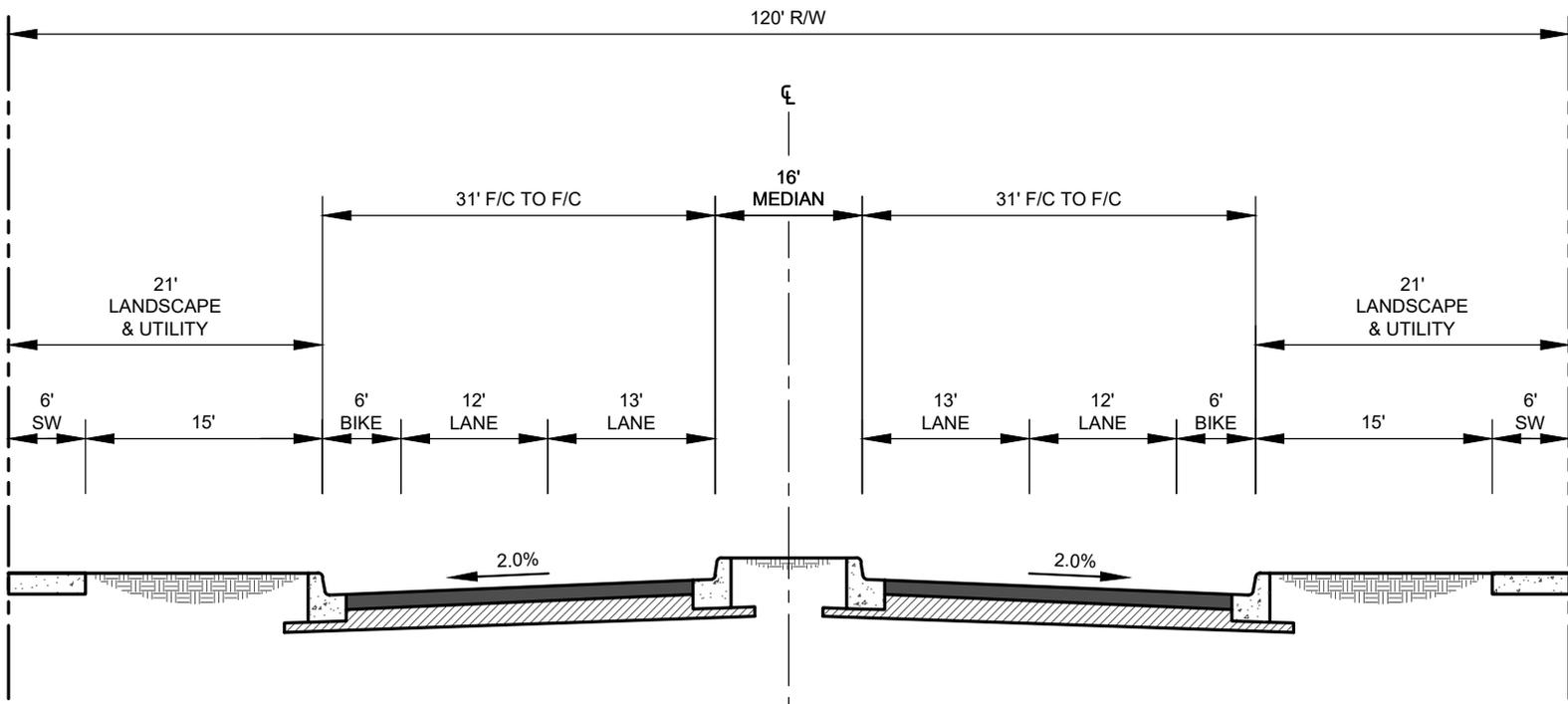
EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

**ROADWAY CROSS SECTION
MAJOR ARTERIAL**

T01



MEDIAN INTERSECTION DETAIL
WITH 12' LEFT TURN LANE

GENERAL NOTE

ALL DIMENSIONS ARE TO FACE OF CURB UNLESS NOTED OTHERWISE.



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

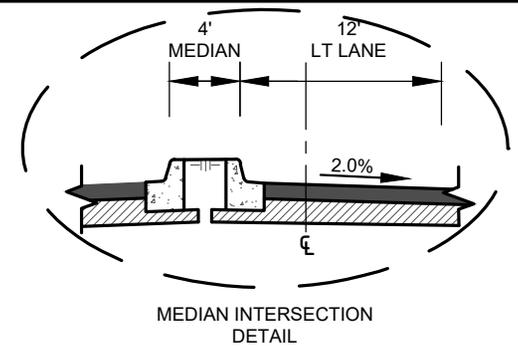
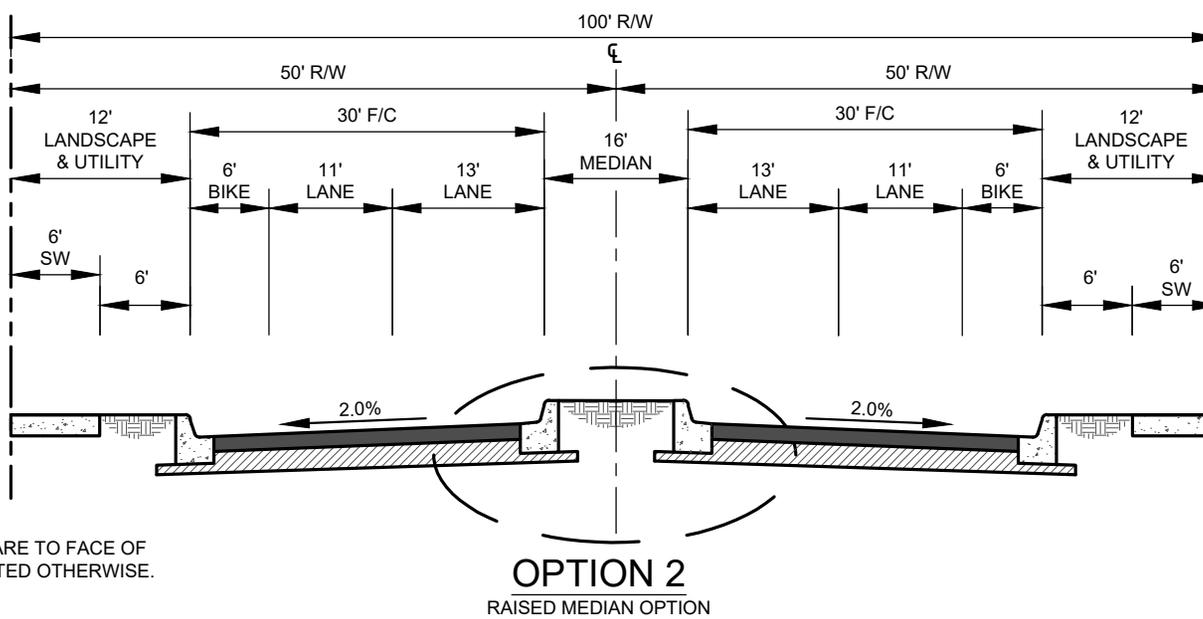
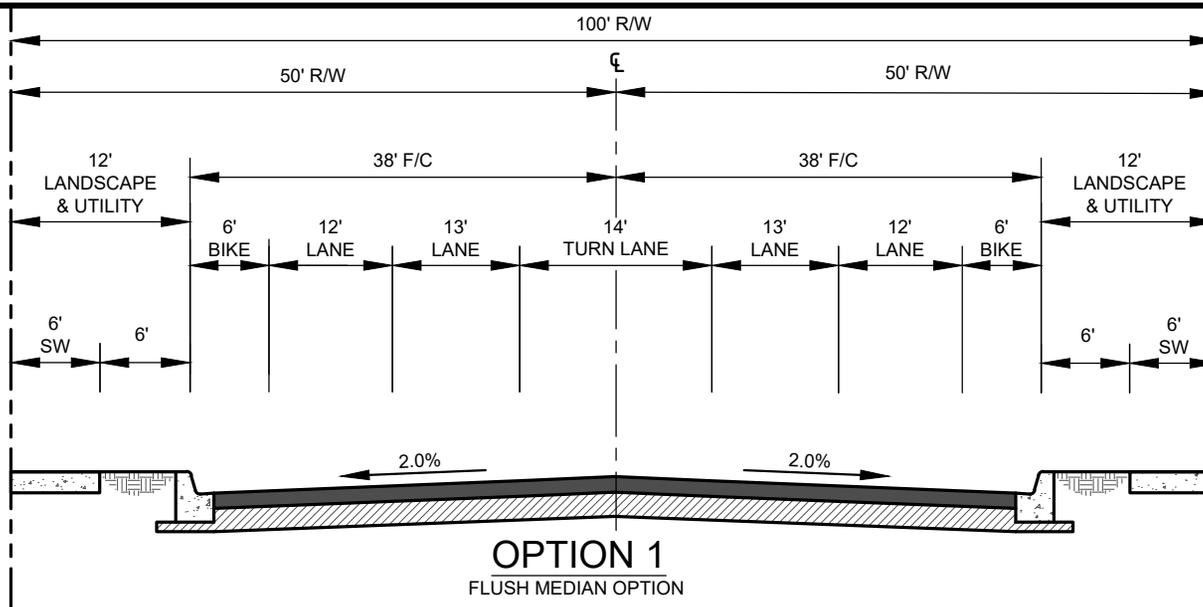
EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

**ROADWAY CROSS SECTION
MINOR ARTERIAL**

T02



GENERAL NOTE

ALL DIMENSIONS ARE TO FACE OF CURB UNLESS NOTED OTHERWISE.



DRAWN: DPM
CHECKED: JCF
APPROVED: MCC

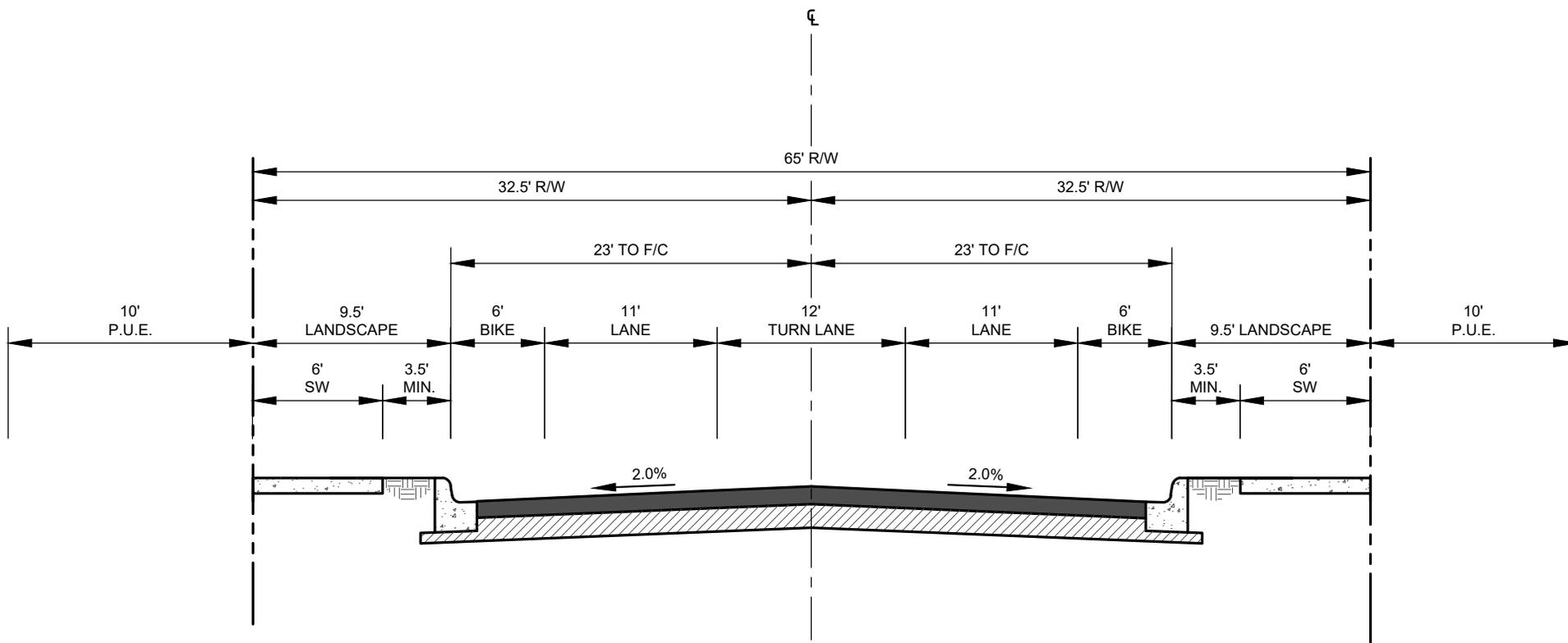
EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

**ROADWAY CROSS SECTION
MAJOR COLLECTOR**

T03



GENERAL NOTE

ALL DIMENSIONS ARE TO FACE OF CURB UNLESS NOTED OTHERWISE.



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

EFFECTIVE DATE:

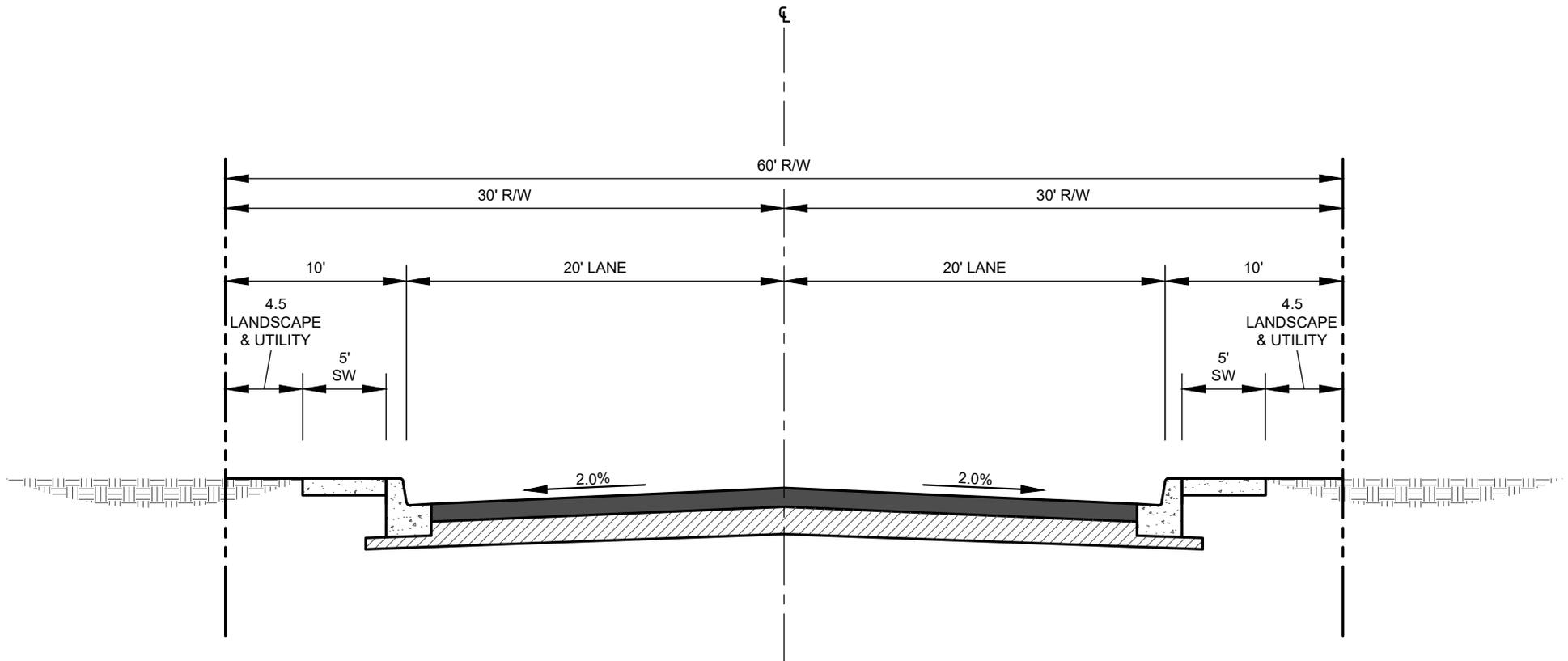
10/01/2018

SCALE: NTS

DETAIL:

**ROADWAY CROSS SECTION
 MINOR COLLECTOR**

T04



GENERAL NOTE

ALL DIMENSIONS ARE TO FACE OF CURB UNLESS NOTED OTHERWISE.



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

EFFECTIVE DATE: 10/01/2018

SCALE: NTS

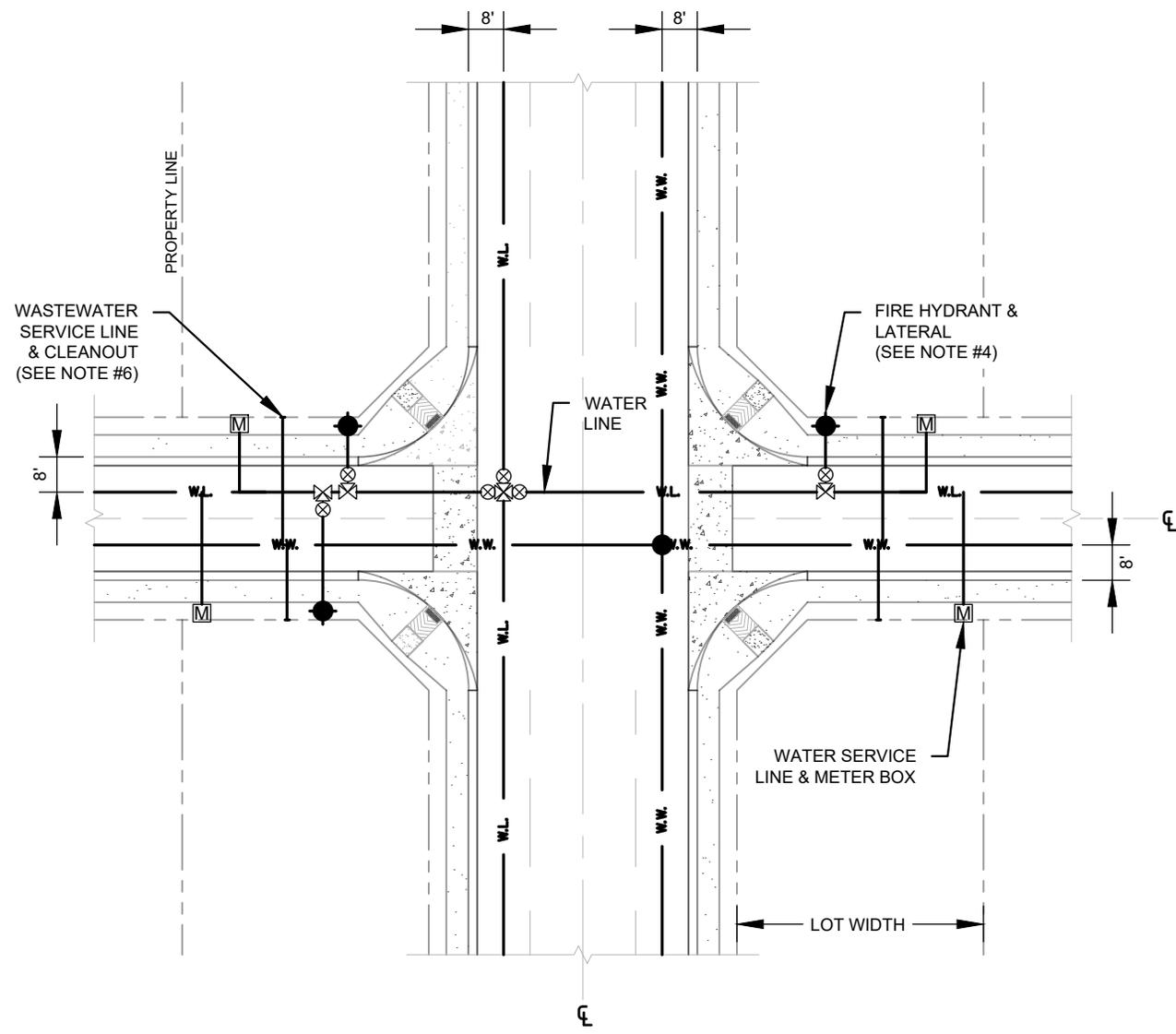
DETAIL:

**ROADWAY CROSS SECTION
 LOCAL STREET**

T05

MULTI-USE UTILITY DETAILS

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC	
 MIDLAND <i>Engineering Services</i>	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
			300



LEGEND

- W.L. — WATER MAIN
- W.W. — WASTE WATER MAIN
- ⊗ GATE VALVE
- ⊠ CROSS FITTING
- ⊞ TEE FITTING
- FIRE HYDRANT
- Ⓜ WATER METER
- MANHOLE

NOTES:

1. IF A SITE INCLUDES ALLEYS, OR IS ADJACENT TO EXISTING ALLEYS, THEN THE WASTEWATER MAIN IS TO BE LOCATED IN THE ALLEY AND NOT THE STREET RIGHT OF WAY.
2. ALL DIMENSIONS SHOWN ARE FROM BACK OF CURB. WHEN BIKE LANES ARE PRESENT CENTER UTILITIES IN THE OUTER VEHICLE TRAVEL LANE.
3. FIRE HYDRANTS PLACED AT INTERSECTIONS TO BE PLACED IN LINE WITH A FILLET BEGINNING-OF-RADIUS OR A FILLET END-OF-RADIUS.
4. FIRE HYDRANTS PLACED AT MID-BLOCK TO BE PLACED IN LINE WITH A LOT LINE.
5. FIRE HYDRANT COVERAGE DOES NOT EXTEND ACROSS ARTERIALS OR MAJOR COLLECTORS. FIRE HYDRANTS MAY BE REQUIRED ON BOTH SIDES OF A STREET OR INTERSECTION AT THESE LOCATIONS.
6. CLEANOUTS ARE TO BE INSTALLED BY THE PROPERTY OWNER.
7. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
8. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

EFFECTIVE DATE:

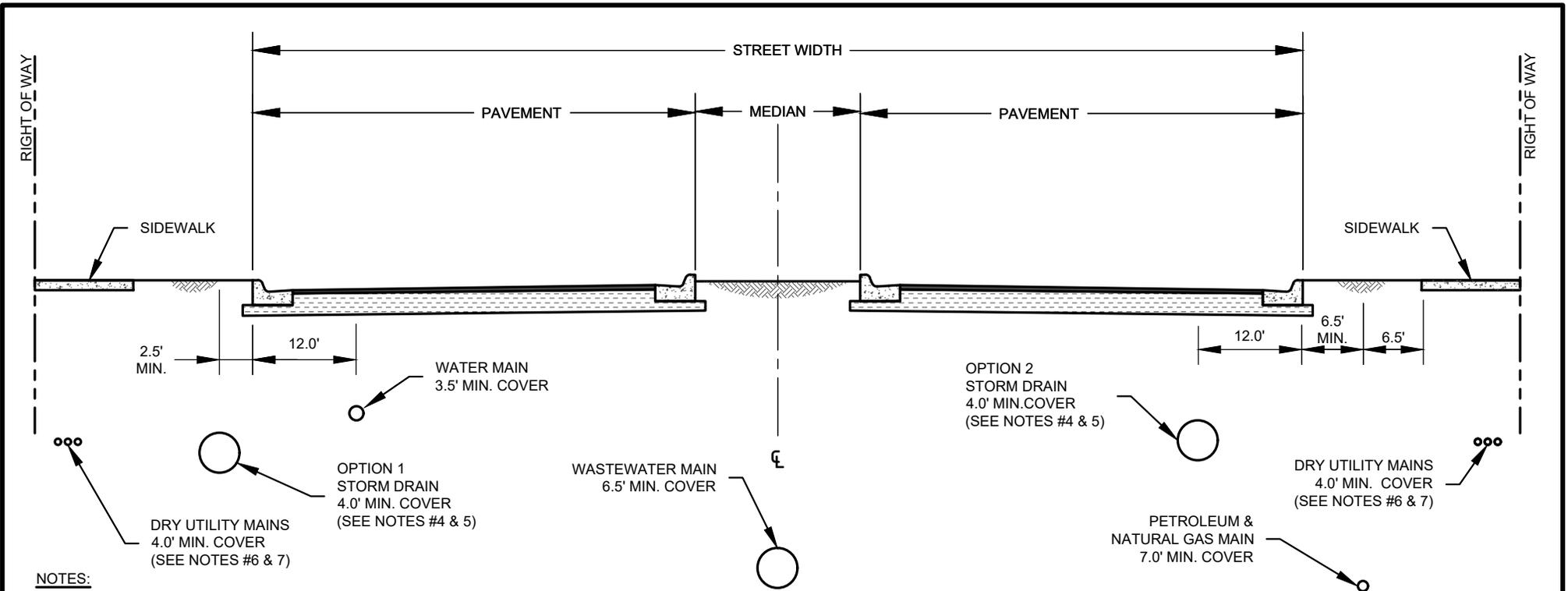
10/01/2018

SCALE: NTS

DETAIL:

TYPICAL UTILITY LAYOUT

301



NOTES:

1. IF A SITE INCLUDES ALLEYS, OR IS ADJACENT TO EXISTING ALLEYS, THEN THE WASTEWATER MAIN IS TO BE LOCATED IN THE ALLEY AND NOT THE STREET RIGHT OF WAY.
2. ALL COVERS ARE FROM THE GUTTER FLOWLINE TO THE TOP OF PIPE.
3. ADDITIONAL UTILITY DEPTH MAY BE REQUIRED TO ACCOMMODATE LATERALS.
4. STORM DRAINS MAY BE LOCATED ON EITHER SIDE OR BOTH SIDES OF STREET AS NEEDED.
5. LOCATE STORM DRAIN BENEATH PAVEMENT IF ON SAME SIDE OF STREET AS PETROLEUM & NATURAL GAS MAIN, OTHERWISE LOCATE STORM DRAIN BEHIND BACK-OF-CURB.
6. DRY UTILITY MAINS MUST MAINTAIN 7.0' MINIMUM COVER WHEN CROSSING ULTIMATE STREET WIDTH. DRY UTILITY SERVICE LATERALS MUST MAINTAIN 2.0' MINIMUM COVER IN THE RIGHT OF WAY.
7. ALL DRY UTILITY MAINS AND SERVICE LATERALS MUST BORE TO CROSS EXISTING ARTERIAL PAVEMENT. NO OPEN TRENCHING.
8. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
9. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



DRAWN: DPM
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 APPROVED: MCC

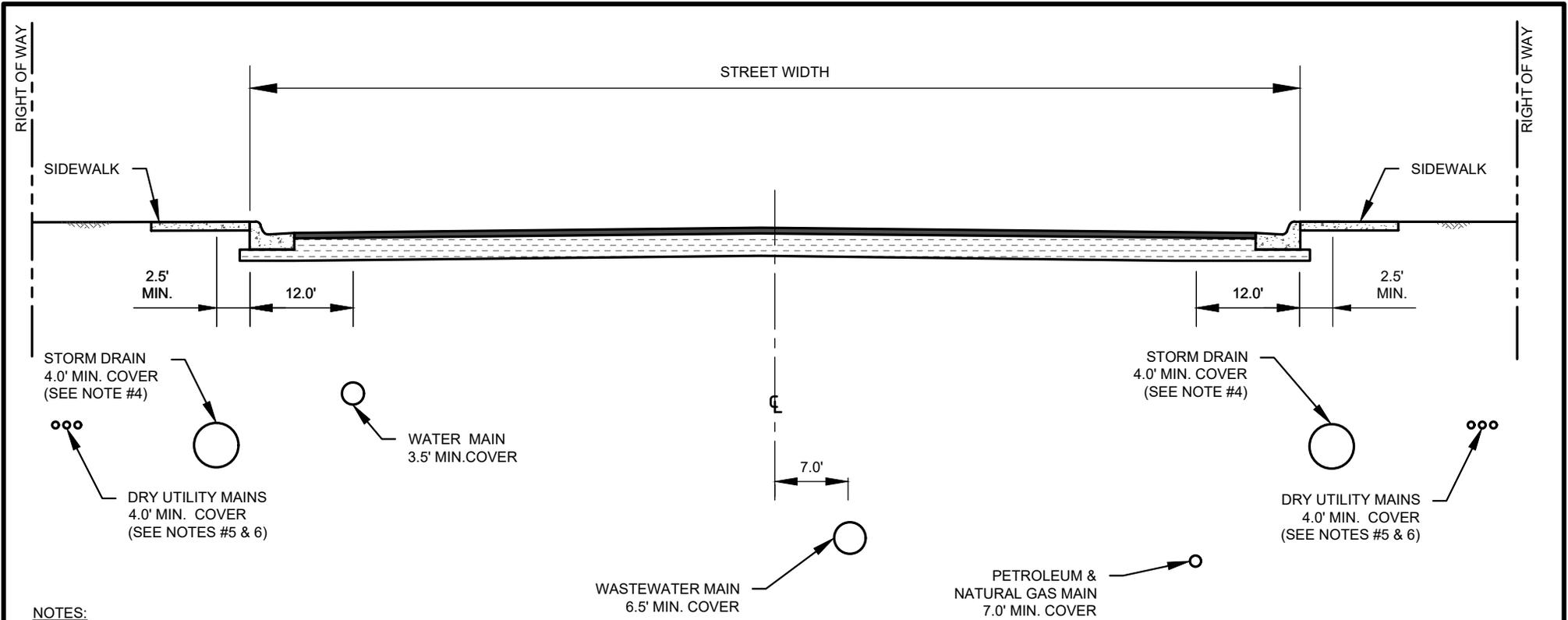
EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

ARTERIAL STREET UTILITY MAIN SPACING

302



NOTES:

1. IF A SITE INCLUDES ALLEYS, OR IS ADJACENT TO EXISTING ALLEYS, THEN THE WASTEWATER MAIN IS TO BE LOCATED IN THE ALLEY AND NOT THE STREET RIGHT OF WAY.
2. ALL COVERS ARE FROM THE GUTTER FLOWLINE TO THE TOP OF PIPE.
3. ADDITIONAL UTILITY DEPTH MAY BE REQUIRED TO ACCOMMODATE LATERALS.
4. STORM DRAINS MAY BE LOCATED ON EITHER SIDE OR BOTH SIDES OF STREET AS NEEDED.
5. DRY UTILITY MAINS MUST MAINTAIN 7.0' MINIMUM COVER WHEN CROSSING RIGHT OF WAY. DRY UTILITY SERVICE LATERALS MUST MAINTAIN 2.0' MINIMUM COVER IN THE RIGHT OF WAY.
6. ALL DRY UTILITY MAINS AND SERVICE LATERALS MUST BORE TO CROSS EXISTING MAJOR COLLECTOR PAVEMENT. NO OPEN TRENCHING.
7. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
8. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

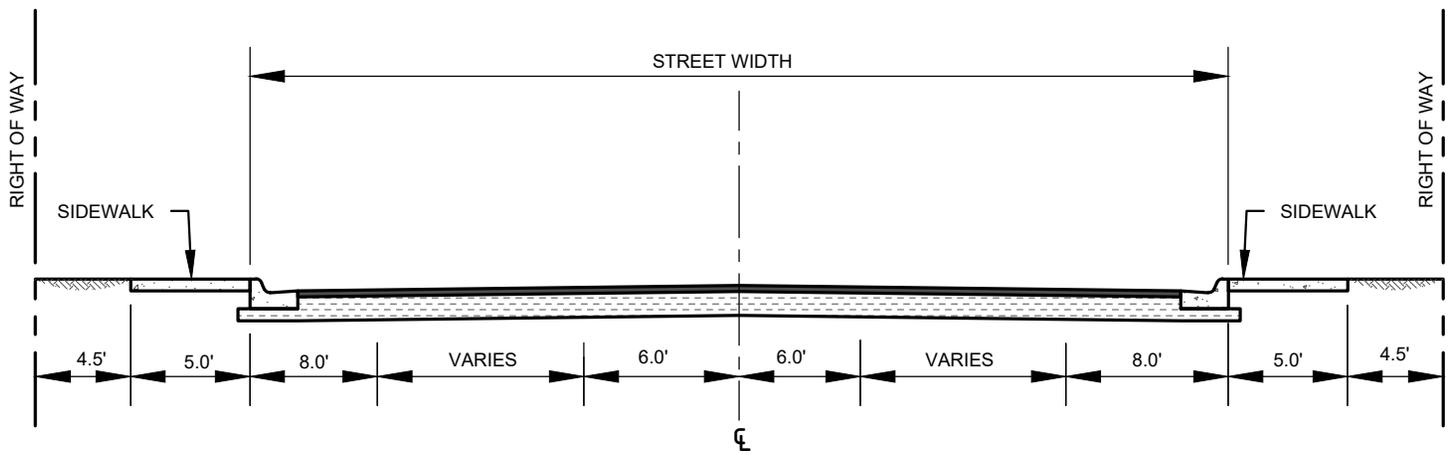
EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

COLLECTOR STREET UTILITY MAIN SPACING

303



DRY UTILITY MAINS
4.0' MIN. COVER
(SEE NOTE #4)

WATER MAIN
3.5' MIN. COVER

STORM DRAIN
3.5' MIN. COVER

DRY UTILITY MAINS
4.0' MIN. COVER
(SEE NOTE #4)

WASTEWATER MAIN
6.5' MIN. COVER

PETROLEUM &
NATURAL GAS MAIN
7.0' MIN. COVER

NOTES:

1. IF A SITE INCLUDES ALLEYS, OR IS ADJACENT TO EXISTING ALLEYS, THEN THE WASTEWATER MAIN IS TO BE LOCATED IN THE ALLEY AND NOT THE STREET RIGHT OF WAY.
2. ALL COVERS ARE FROM THE GUTTER FLOWLINE TO THE TOP OF PIPE.
3. ADDITIONAL UTILITY DEPTH MAY BE REQUIRED TO ACCOMMODATE LATERALS.
4. DRY UTILITY MAINS MUST MAINTAIN 7.0' MINIMUM COVER WHEN CROSSING RIGHT OF WAY. DRY UTILITY SERVICE LATERALS MUST MAINTAIN 2.0' MINIMUM COVER IN THE RIGHT OF WAY.
5. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
6. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



DRAWN: DPM
CHECKED: JCF
APPROVED: MCC

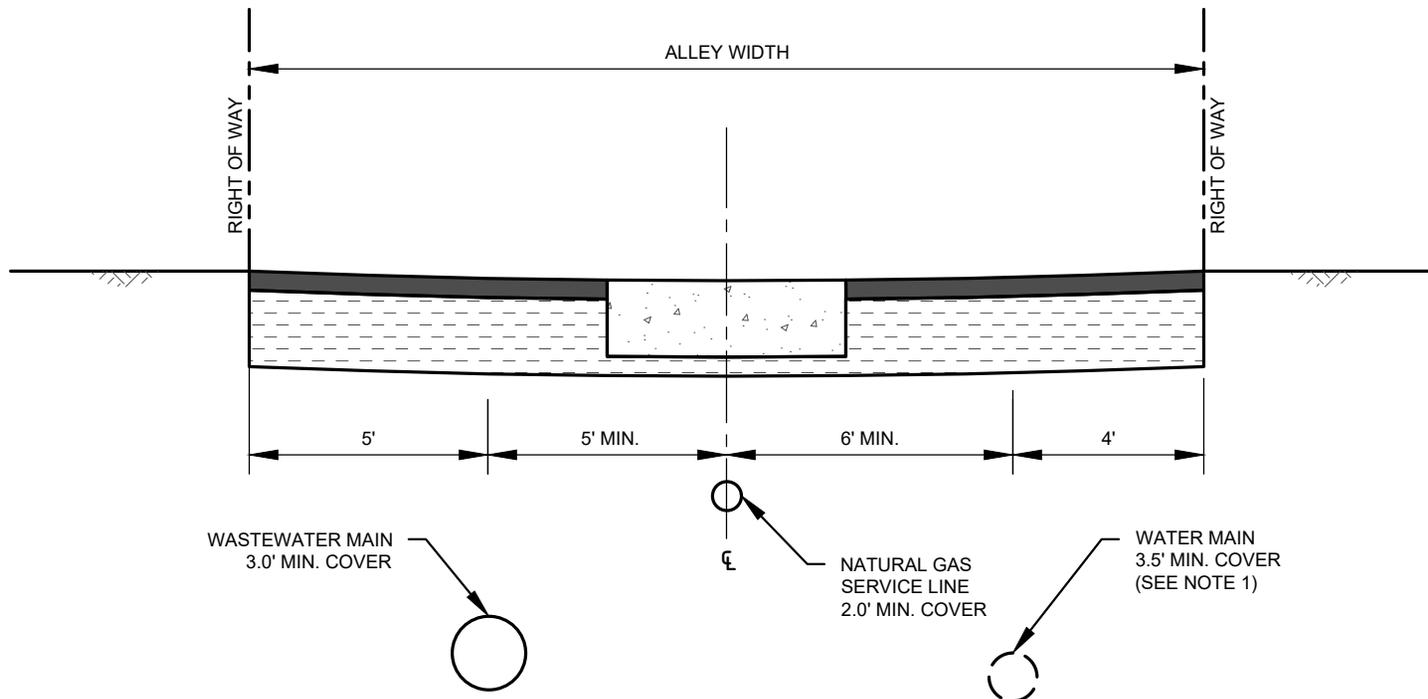
EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

LOCAL STREET UTILITY MAIN SPACING

304



NOTES:

1. WATER MAIN LOCATION APPLIES FOR EXCEPTIONS ONLY. THE CITY STANDARD REMAINS LOCATING WATER MAINS IN STREETS. WHEN WATER MAINS ARE NOT EXISTING OR PROPOSED IN AN ALLEY THE EXPECTATION IS FOR DRY UTILITIES TO UTILIZE THIS ALIGNMENT LOCATION.
2. ALL COVERS ARE FROM THE ALLEY INVERT TO THE TOP OF PIPE.
3. ADDITIONAL UTILITY DEPTH MAY BE REQUIRED TO ACCOMMODATE LATERALS.
4. ALL DRY UTILITY LINES MUST MAINTAIN 2.0' MINIMUM COVER WHEN CROSSING RIGHT OF WAY, AND MUST MAINTAIN 5.0' MINIMUM HORIZONTAL SEPARATION DISTANCE FROM ALL PUBLIC UTILITY MAINS.
5. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
6. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

EFFECTIVE DATE:

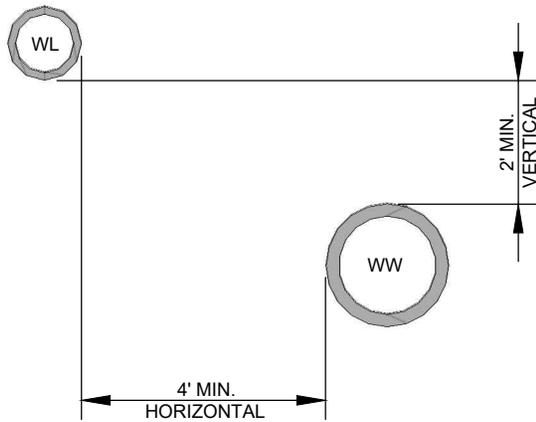
10/01/2018

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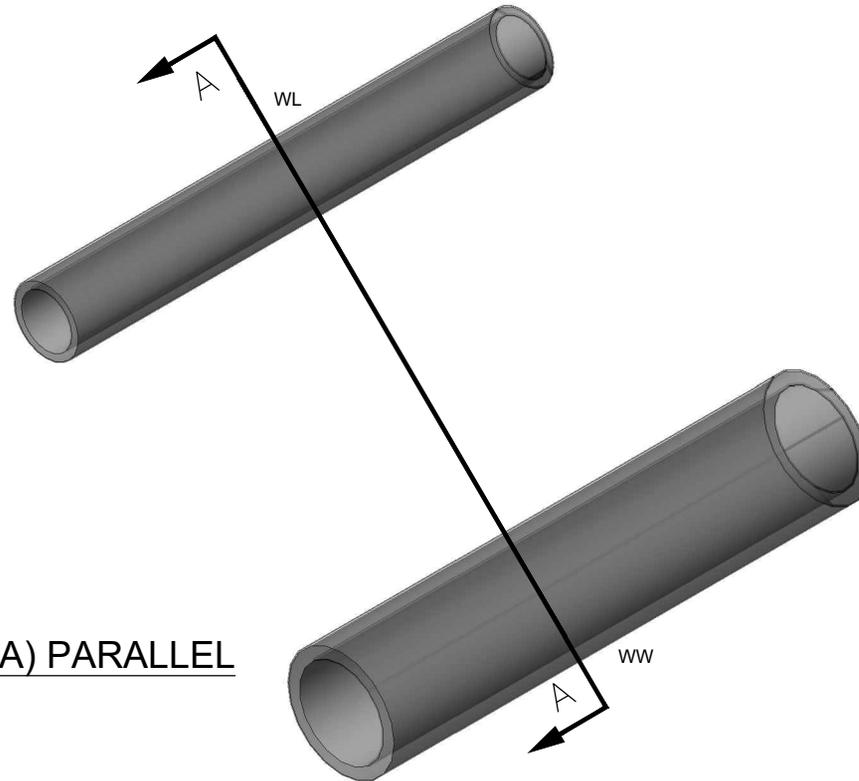
DETAIL:

**STANDARD ALLEY UTILITY
 MAIN SPACING**

305



SECTION 'A-A'



(A) PARALLEL

NOTES:

1. SEE CITY DETAIL 807 FOR NEW PETROLEUM OR NATURAL GAS LINE REQUIREMENTS WHEN IN PARALLEL WITH A WATER MAIN. REQUIREMENTS FOR WATER MAINS IN PARALLEL WITH PETROLEUM OR NATURAL GAS LINES ARE THE SAME AS WHEN THEY ARE PARALLEL WITH WASTEWATER MAINS UNLESS STATED OTHERWISE IN CITY DETAIL 807.
2. IF AN EXISTING PETROLEUM OR NATURAL GAS LINE PREDATES A PUBLIC ROW OR EASEMENT THAT THE WATER MAIN IS LOCATED IN THEN THE WATER MAIN DESIGN AND CONSTRUCTION MAY BE SUBJECT TO ADDITIONAL REQUIREMENTS AS PER THE PETROLEUM OR NATURAL GAS LINE OWNER'S STANDARDS.
3. WASTEWATER MAINS AND MANHOLES MUST BE LOCATED AT LEAST 9.0' FROM ALL WATER MAINS IN ALL DIRECTIONS. IF THIS IS NOT POSSIBLE THEN AN ENGINEERING REPORT IS REQUIRED PER TAC TO JUSTIFY WHY, AND THE REQUIREMENTS OF THIS DETAIL WILL APPLY. THIS DETAIL IS INTENDED TO COMPLY WITH TAC 217.53(d) AND TAC 290.44(e). IF TAC AND THIS DETAIL DIFFER THEN THE MORE RESTRICTIVE STANDARD GOVERNS.
4. WHERE WATER MAINS ARE LOCATED IN PARALLEL WITH NEW WASTEWATER MAINS, WASTEWATER MAINS MUST BE CONSTRUCTED AT LEAST 150 PSI PRESSURE CLASS, CORROSION RESISTANT, NON-BRITTLE PIPE SUCH AS CIP, DIP, OR PVC PIPE THAT IS DESIGNED TO SEAL AT ATMOSPHERIC PRESSURE. EXISTING WASTEWATER MAINS IN PARALLEL THAT ARE LEAKING OR ARE DISTURBED AND THEN BEGIN TO LEAK MUST BE REPLACED WITH 150 PSI PRESSURE-RATED PIPE.
5. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
6. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

EFFECTIVE DATE: 10/01/2018

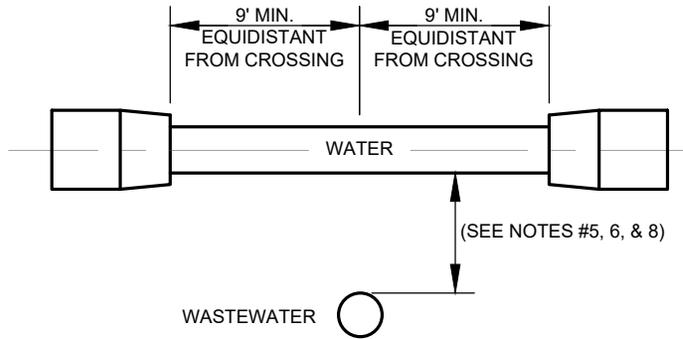
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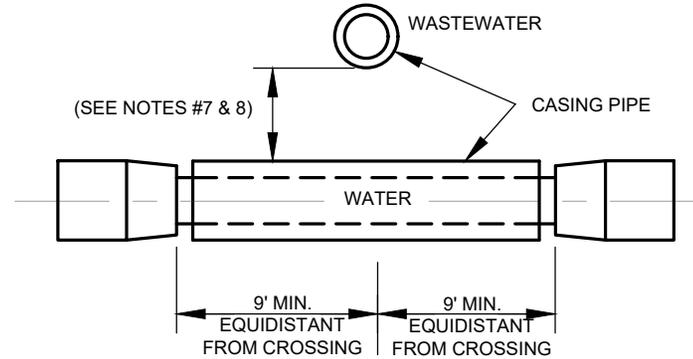
**PARALLEL WATER & WASTEWATER
 SPACING**

306

NEW WATER OVER WASTEWATER



NEW WATER UNDER WASTEWATER



NOTES:

1. SEE CITY DETAIL 309 FOR NEW WASTEWATER MAIN REQUIREMENTS AT WATER MAIN CROSSINGS.
2. WASTEWATER MAINS AND MANHOLES MUST BE LOCATED AT LEAST 9.0' FROM ALL WATER MAINS IN ALL DIRECTIONS. IF THIS IS NOT POSSIBLE THEN AN ENGINEERING REPORT IS REQUIRED PER TAC TO JUSTIFY WHY, AND THE REQUIREMENTS OF THIS DETAIL WILL APPLY.
3. THIS DETAIL IS INTENDED TO COMPLY WITH TAC 217.53(d) AND TAC 290.44(e). IF TAC AND THIS DETAIL DIFFER THEN THE MORE RESTRICTIVE STANDARD GOVERNS.
4. CENTER NEW WATER MAIN PIPE SEGMENT ON CROSSING SO THAT ALL PIPE SEGMENT JOINTS ARE EQUIDISTANT AND AT LEAST 9.0' HORIZONTALLY FROM THE CENTERLINE OF THE CROSSING. NEW WATER MAIN IS TO CROSS WASTEWATER MAIN AT 90° ANGLE.
5. NEW WATER MAINS ARE TO HAVE NO LESS THAN 2.0' VERTICAL SEPARATION OVER THE OUTER EDGE OF ANY EXISTING NON-PRESSURE RATED WASTEWATER MAIN, AND NO LESS THAN 0.5' VERTICAL SEPARATION OVER THE OUTER EDGE OF ANY EXISTING PRESSURE-RATED (150 PSI) WASTEWATER MAIN.
6. VERTICAL SEPARATION DIMENSION REQUIREMENTS FOR NEW WATER MAINS CROSSING OVER NEW WASTEWATER MAINS ARE COVERED IN CITY DETAIL 309.
7. NEW WATER MAIN CROSSING BENEATH NEW OR EXISTING WASTEWATER MAIN TO HAVE NO LESS THAN 2.0' VERTICAL SEPARATION FROM WASTEWATER MAIN WITH MINIMUM 18.0' LONG PIPE ENCASEMENT CENTERED ON THE CROSSING. SEE CITY DETAIL 805 FOR PIPE CASING.
8. VERTICAL SEPARATION DIMENSIONS TO BE MEASURED FROM OUTER EDGE OF ALL PIPE ENCASEMENTS..
9. WHEN CROSSING AN EXISTING WASTEWATER MAIN AND IT IS DISTURBED OR SHOW SIGNS OF LEAKING, THE WASTEWATER MAIN MUST BE REPLACED AT LEAST 9.0' IN BOTH DIRECTIONS FROM THE CROSSING WITH AT LEAST 150 PSI PRESSURE-RATED PIPE EMBEDDED IN CEMENT STABILIZED SAND ENCASEMENT (2.5 SACKS / CUBIC YARD) FOR A TOTAL LENGTH OF ONE PIPE SEGMENT PLUS 1.0' BEYOND THE JOINT ON EACH END.
10. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
11. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

EFFECTIVE DATE: 10/01/2018

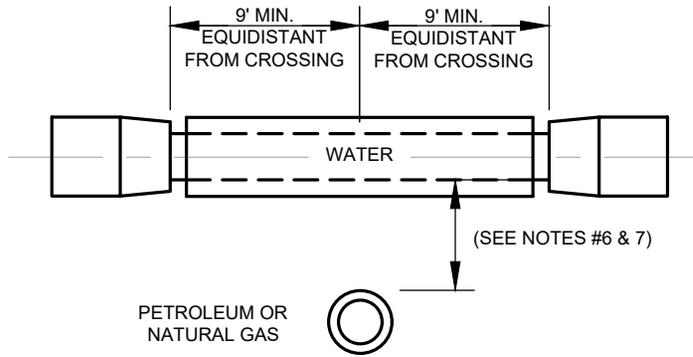
SCALE: NTS

DETAIL:

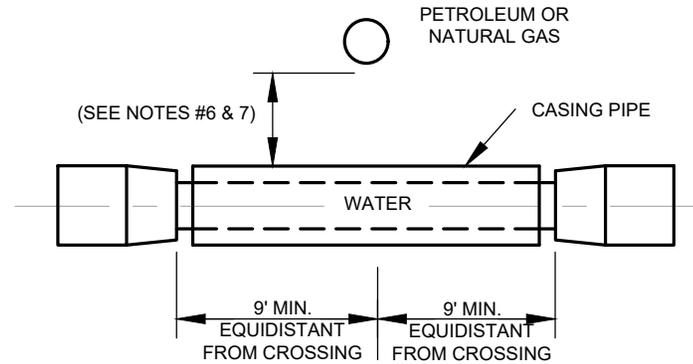
**NEW WATER MAIN CROSSING
 WASTEWATER MAIN**

307

NEW WATER OVER PETROLEUM & NATURAL GAS



NEW WATER UNDER PETROLEUM & NATURAL GAS



NOTES:

1. SEE CITY DETAIL 808 FOR NEW PETROLEUM OR NATURAL GAS LINE REQUIREMENTS AT WATER MAIN CROSSINGS. REQUIREMENTS FOR WATER MAINS CROSSING WITH PETROLEUM OR NATURAL GAS LINES ARE THE SAME AS WHEN THEY ARE CROSSING WASTEWATER MAINS UNLESS STATED OTHERWISE IN CITY DETAIL 808.
2. IF AN EXISTING PETROLEUM OR NATURAL GAS LINE PREDATES A PUBLIC ROW OR EASEMENT THAT THE WATER MAIN IS LOCATED IN THEN THE WATER MAIN DESIGN AND CONSTRUCTION MAY BE SUBJECT TO ADDITIONAL REQUIREMENTS AS PER THE PETROLEUM OR NATURAL GAS LINE OWNER'S STANDARDS.
3. PETROLEUM OR NATURAL GAS LINES AND MUST BE LOCATED AT LEAST 9.0' FROM ALL WATER MAINS IN ALL DIRECTIONS. IF THIS IS NOT POSSIBLE THEN AN ENGINEERING REPORT IS REQUIRED PER TAC TO JUSTIFY WHY, AND THE REQUIREMENTS OF THIS DETAIL WILL APPLY.
4. THIS DETAIL IS INTENDED TO COMPLY WITH TAC 217.53(d) AND TAC 290.44(e). IF TAC AND THIS DETAIL DIFFER THEN THE MORE RESTRICTIVE STANDARD GOVERNS.
5. CENTER NEW WATER MAIN PIPE SEGMENT ON CROSSING SO THAT ALL PIPE SEGMENT JOINTS ARE EQUIDISTANT AND AT LEAST 9.0' HORIZONTALLY FROM THE CENTERLINE OF THE CROSSING. WATER MAIN TO CROSS PETROLEUM OR NATURAL GAS LINE AT 90° ANGLE.
6. NEW WATER MAIN CROSSING OVER OR BENEATH NEW OR EXISTING PETROLEUM OR NATURAL GAS LINES TO BE ENCASED IN MINIMUM 18'.0' LONG PIPE ENCASEMENT CENTERED ON THE CROSSING. SEE CITY DETAIL 805 FOR PIPE CASING. VERTICAL SEPARATION FROM OUTER EDGE OF PETROLEUM OR NATURAL GAS LINES TO BE NO LESS THAN 2.0'.
7. VERTICAL SEPARATION DIMENSIONS TO BE MEASURED FROM OUTER EDGE OF ALL PIPE ENCASEMENTS.
8. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
9. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

EFFECTIVE DATE: 10/01/2018

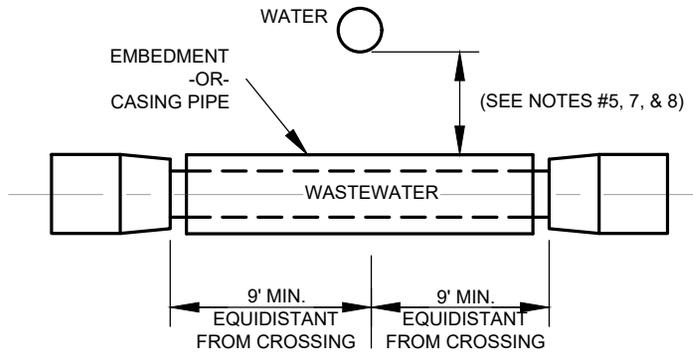
SCALE: NTS

DETAIL:

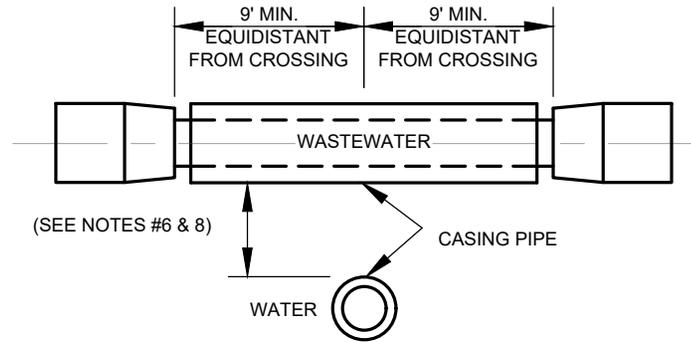
**NEW WATER MAIN CROSSING
 PETROLEUM AND NATURAL GAS LINE**

308

NEW WASTEWATER UNDER WATER



NEW WASTEWATER OVER WATER



NOTES:

1. SEE CITY DETAIL 307 FOR NEW WATER MAIN REQUIREMENTS AT WASTEWATER MAIN CROSSINGS.
2. WASTEWATER MAINS AND MANHOLES MUST BE LOCATED AT LEAST 9.0' FROM ALL WATER MAINS IN ALL DIRECTIONS. IF THIS IS NOT POSSIBLE THEN AN ENGINEERING REPORT IS REQUIRED PER TAC TO JUSTIFY WHY, AND THE REQUIREMENTS OF THIS DETAIL WILL APPLY.
3. THIS DETAIL IS INTENDED TO COMPLY WITH TAC 217.53(d) AND TAC 290.44(e). IF TAC AND THIS DETAIL DIFFER THEN THE MORE RESTRICTIVE STANDARD GOVERNS.
4. CENTER NEW WASTEWATER MAIN PIPE SEGMENT ON CROSSING SO THAT ALL PIPE SEGMENT JOINTS ARE EQUIDISTANT AND AT LEAST 9.0' HORIZONTALLY FROM THE CENTERLINE OF THE CROSSING. WASTEWATER MAIN IS TO CROSS WATER MAIN AT 90° ANGLE.
5. NEW WASTEWATER MAIN CROSSING BENEATH NEW OR EXISTING WATER MUST COMPLY WITH ONE OF THE FOLLOWING:
 - A. WASTEWATER MAIN PIPE TO BE PRESSURE RATED SDR-26 D2241 PIPE OR APPROVED EQUAL FROM MANHOLE TO MANHOLE WITH MINIMUM 18.0' LONG CEMENT STABILIZED SAND ENCASEMENT (2.5 SACKS/CUBIC YARD) CENTERED ON THE CROSSING. VERTICAL SEPARATION FROM OUTER EDGE OF WATER MAIN TO BE NO LESS THAN 2.0'.
 - B. WASTEWATER MAIN PIPE TO BE HEAVY-WALL GRAVITY PIPE SDR-26 D3034 OR APPROVED EQUAL FROM MANHOLE TO MANHOLE WITH MINIMUM 18.0' LONG PIPE ENCASEMENT CENTERED ON THE CROSSING. SEE CITY DETAIL 805 FOR PIPE CASING. VERTICAL SEPARATION FROM OUTER EDGE OF WATER MAIN TO BE NO LESS THAN 0.5'.
6. NEW WASTEWATER MAIN CROSSING OVER NEW OR EXISTING WATER MAIN TO BE PRESSURE RATED SDR-26 D2241 PIPE OR APPROVED EQUAL FROM MANHOLE TO MANHOLE WITH MINIMUM 18.0' LONG PIPE ENCASEMENT CENTERED ON THE CROSSING. SEE CITY DETAIL 805 FOR PIPE CASING. VERTICAL SEPARATION FROM OUTER EDGE OF WATER MAIN TO BE NO LESS THAN 2.0'.
7. NEW WATER MAINS CROSSING OVER EXISTING WASTEWATER MAINS ARE COVERED IN CITY DETAIL 307.
8. VERTICAL SEPARATION DIMENSIONS TO BE MEASURED FROM OUTER EDGE OF ALL PIPE ENCASEMENTS.
9. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
10. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

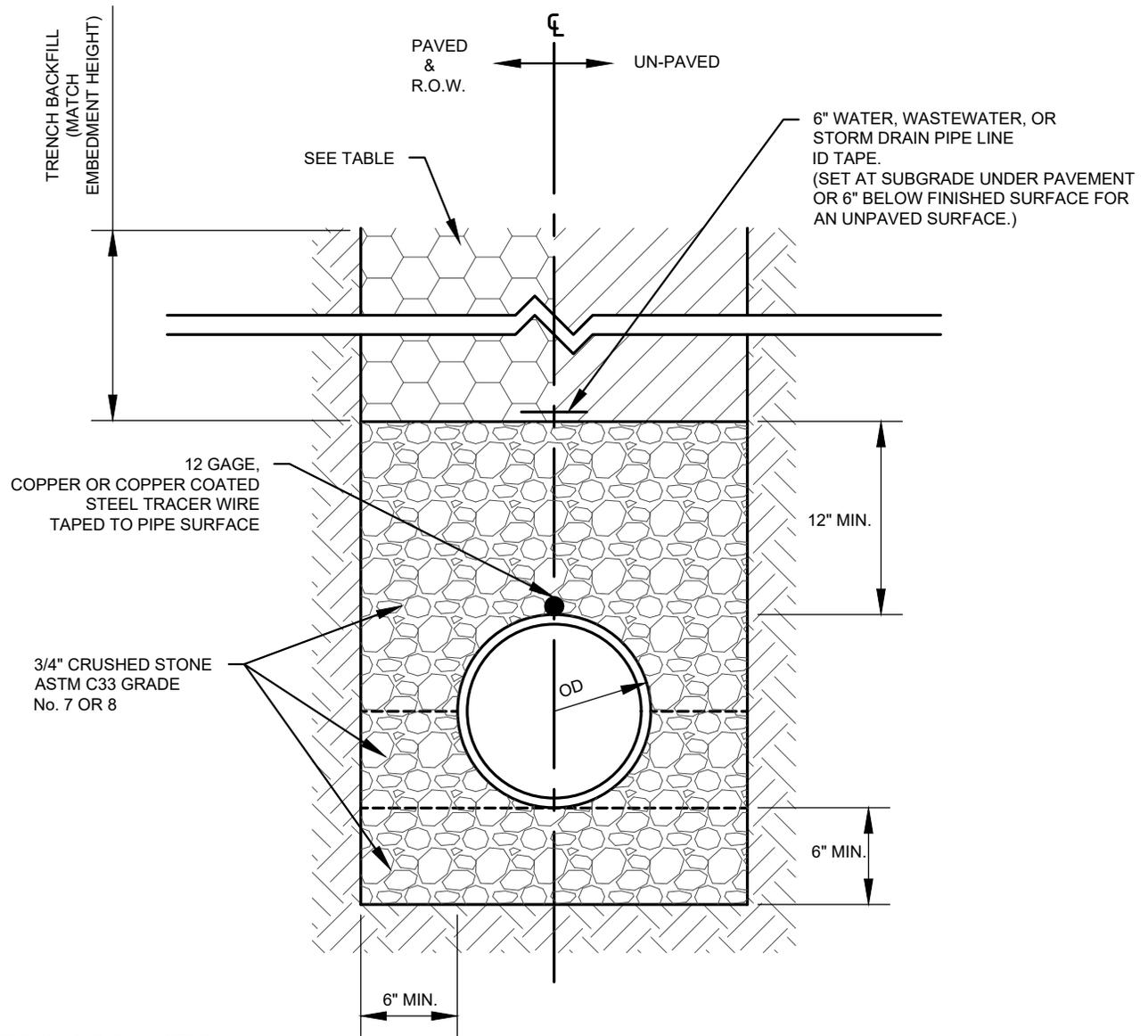
EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

**NEW WASTEWATER MAIN CROSSING
 WATER MAIN**

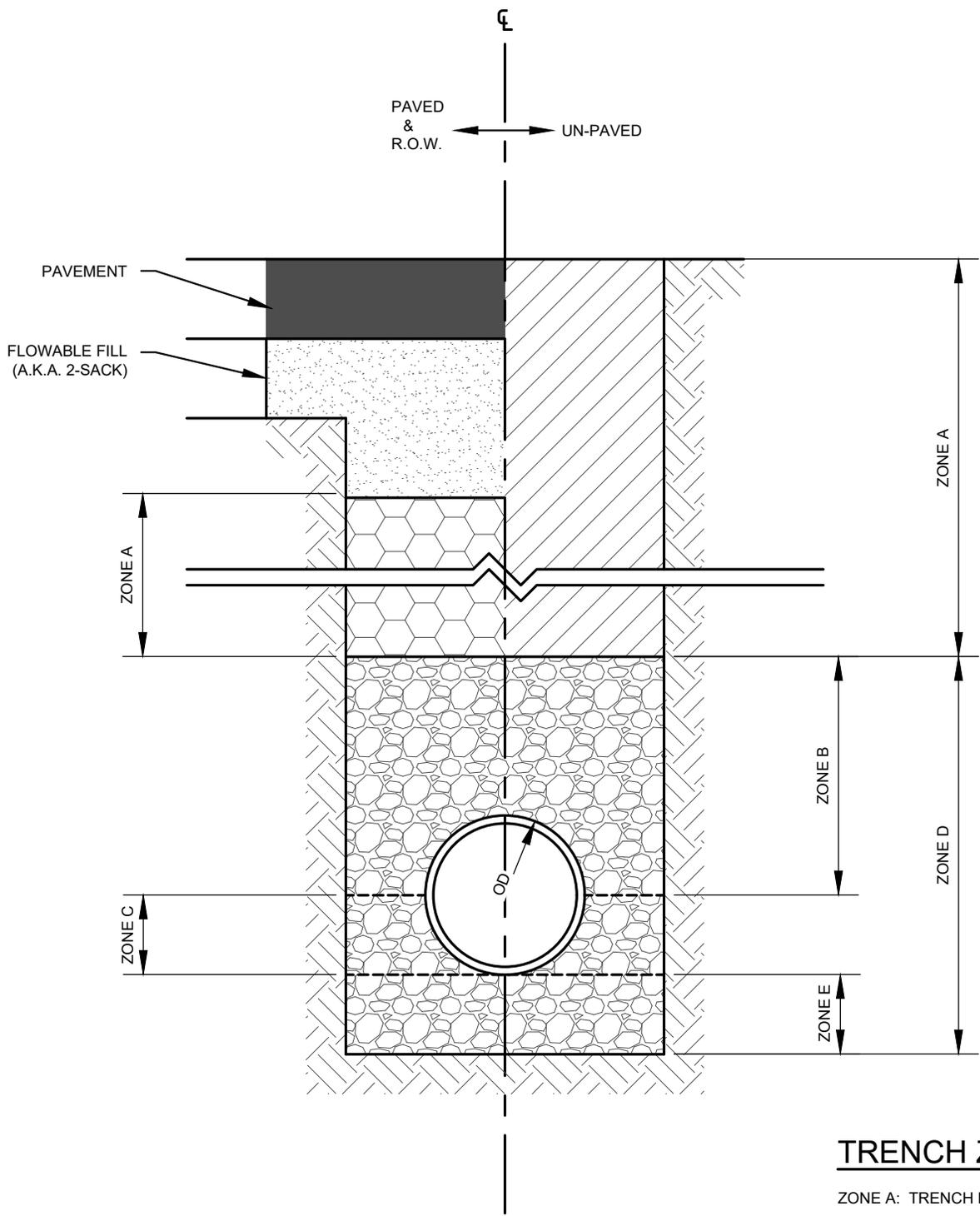
309



TRENCH BACKFILL NOTES:

1. APPLIES TO ALL PIPE TYPES. (DUCTILE IRON, PVC, ETC.)
2. UTILIZE SELECT FILL BACKFILL BENEATH ALL PAVED SURFACES. NATIVE MATERIAL BACKFILL CAN ONLY BE USER FOR UNPAVED TRENCH CONDITIONS IF BACKFILL MATERIAL IS $\leq 30LL$ AND $\leq 15 PI$.
3. NATIVE MATERIAL TO BE EXISTING EXCAVATED SOIL FROM TRENCH WITH ALL MATERIAL BROKEN DOWN $\leq 2"$.
4. MOISTURE CONDITION ALL BACKFILL MATERIAL PRIOR TO PLACING IN TRENCH.
5. PLACE TRENCH BACKFILL MATERIAL IN MAXIMUM 12" LOOSE LIFTS AND COMPACT TO MAXIMUM 8" COMPACTED LIFTS.
6. REFER TO CITY DETAILS 311 AND 312 FOR TRENCH PAVEMENT REPLACEMENT REQUIREMENTS.
7. PLACE LAYERS B, C, AND E FOUND ON CITY DETAIL 310(B) AS SEPARATE LAYERS.
8. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
9. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

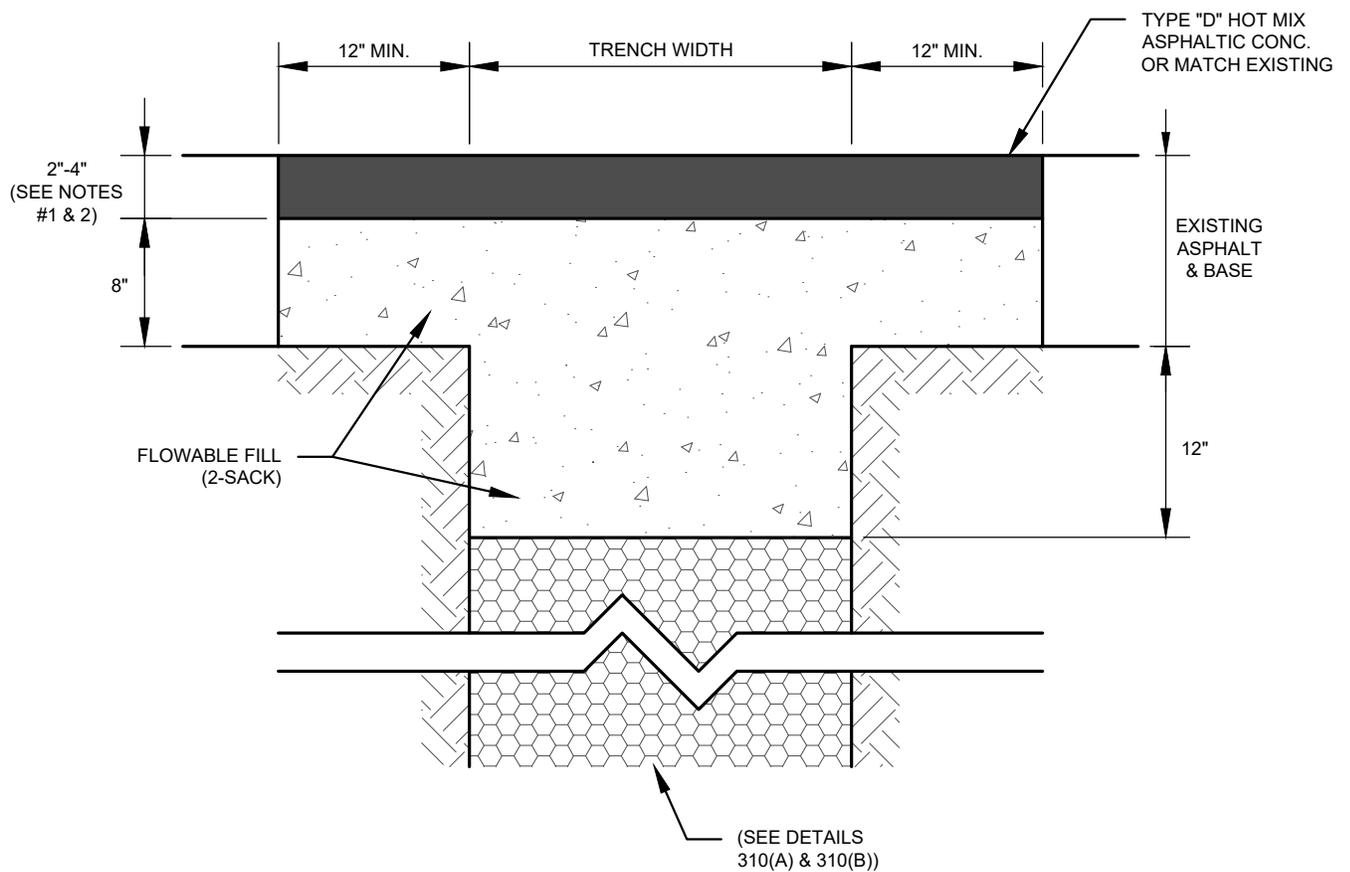
DRAWN: DPM	CHECKED: JCF	APPROVED: MCC
EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
		<p style="text-align: center; font-size: 24pt; font-weight: bold;">TRENCHING AND BEDDING</p> <p style="font-size: 24pt; font-weight: bold;">310(A)</p>



TRENCH ZONES:

- ZONE A: TRENCH BACKFILL
- ZONE B: PIPE BACKFILL
- ZONE C: HAUNCHING
- ZONE D: PIPE EMBEDMENT
- ZONE E: BEDDING

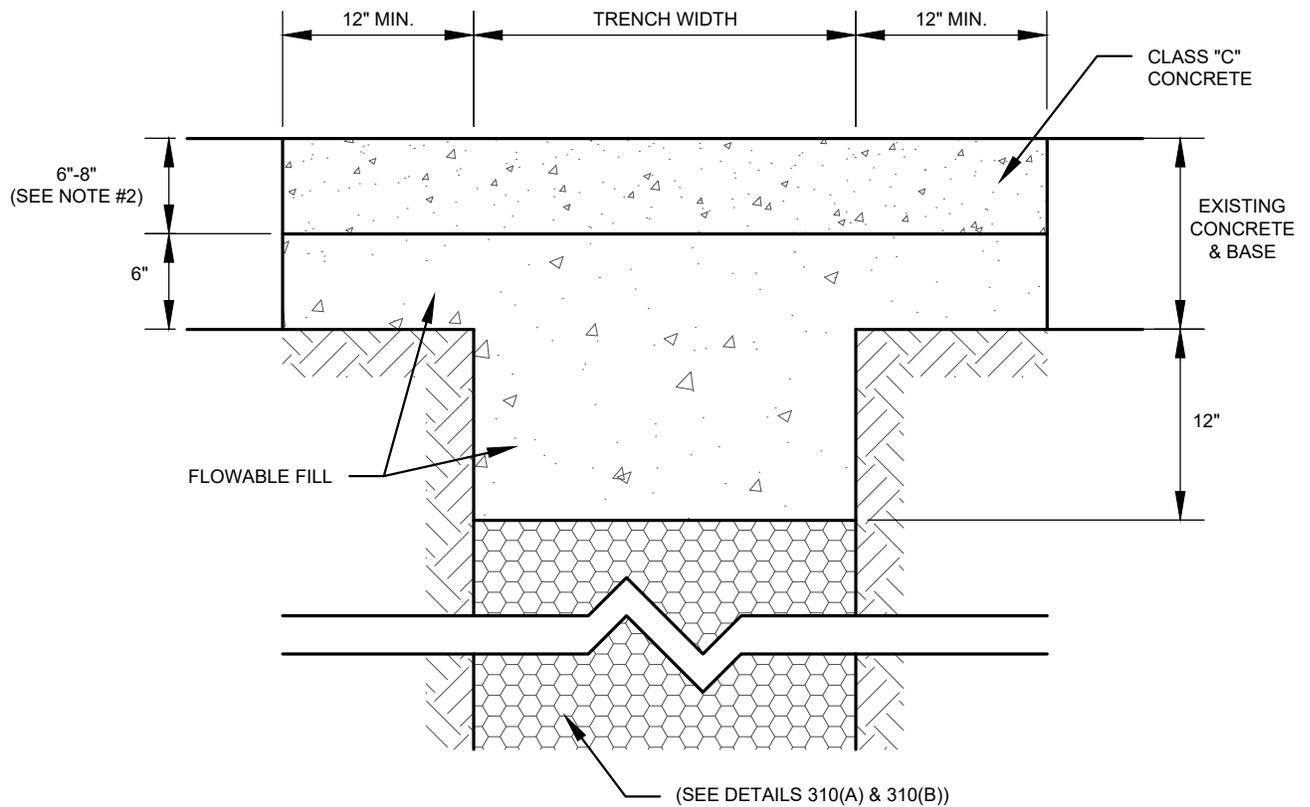
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		<p style="text-align: center;">TRENCHING AND BEDDING</p> <p style="text-align: right; font-size: 24pt;">310(B)</p>



NOTES:

1. ASPHALT PAVEMENT THICKNESS TO BE A MINIMUM OF 2" OR MATCH THE EXISTING ASPHALT THICKNESS IF IT IS GREATER THAN 2" THICK.
2. PLACE ASPHALT PAVEMENT IN MAXIMUM 2" LIFTS, 95% MODIFIED COMPACTION.
3. PLACE ALL FLOWABLE FILL 2-SACK (2 SACK = 188 LBS/CY, PORTLAND CEMENT) AS A SINGLE CONTINUOUS POUR.
4. EXTEND BOTH ASPHALT AND FLOWABLE FILL 12" BEYOND THE EDGE OF THE TRENCH ON BOTH SIDES.
5. SEE DETAILS 310(A) AND 310(B) REGARDING TRENCH BACKFILL REQUIREMENTS BENEATH THE FLOWABLE FILL.
6. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
7. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC
EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
ASPHALT TRENCH PAVEMENT REPLACEMENT		311

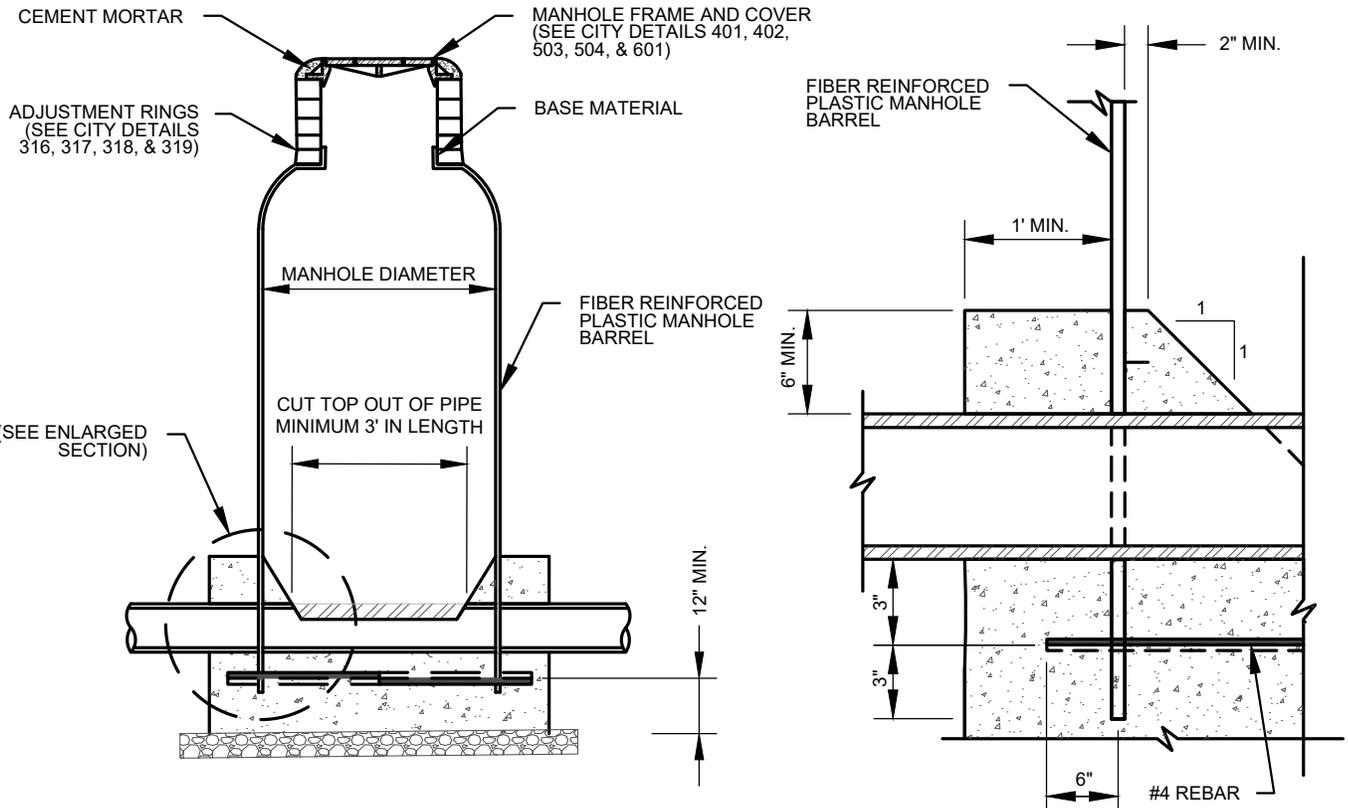


NOTES:

1. CONCRETE TO BE CITY OF MIDLAND CLASS "C" CONCRETE, 3600 PSI. USE FIBER REINFORCED CONCRETE PAVEMENT THROUGHOUT.
2. CONCRETE PAVEMENT THICKNESS TO BE A MINIMUM OF 6" OR MATCH THE EXISTING CONCRETE THICKNESS IF IT IS GREATER THAN 6" THICK. CONCRETE PAVEMENT THICKNESS TO BE MINIMUM 8" FOR ARTERIAL PAVEMENT.
3. PLACE ALL FLOWABLE FILL 2-SACK (2 SACK = 188 LBS/CY, PORTLAND CEMENT) AS A SINGLE CONTINUOUS POUR.
4. EXTEND BOTH CONCRETE AND FLOWABLE FILL 12" BEYOND THE EDGE OF THE TRENCH ON BOTH SIDES.
5. SEE DETAILS 310(A) AND 310(B) REGARDING TRENCH BACKFILL REQUIREMENTS BENEATH THE FLOWABLE FILL.
6. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
7. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

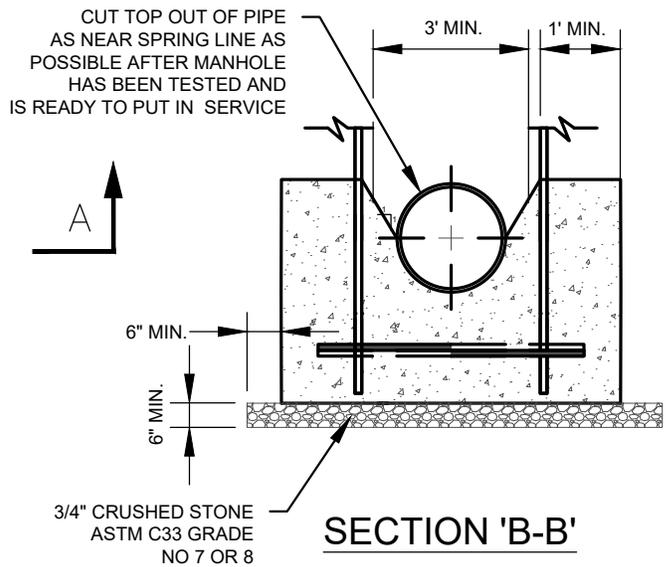
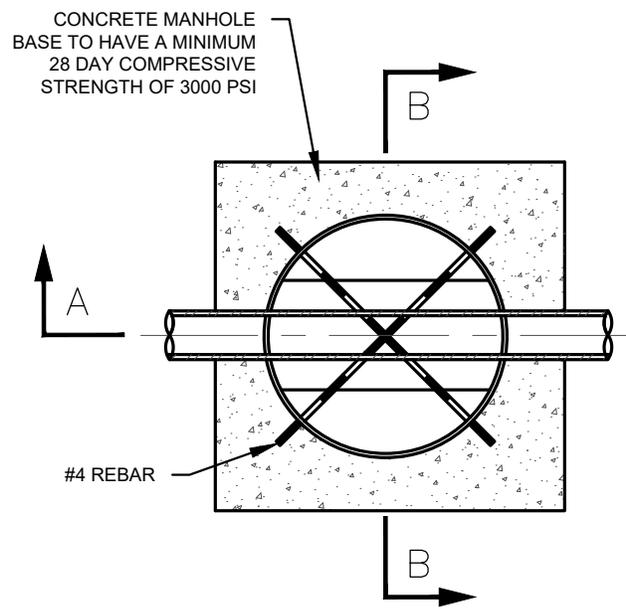
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EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
CONCRETE TRENCH PAVEMENT REPLACEMENT		312





SECTION 'A-A'

ENLARGED SECTION

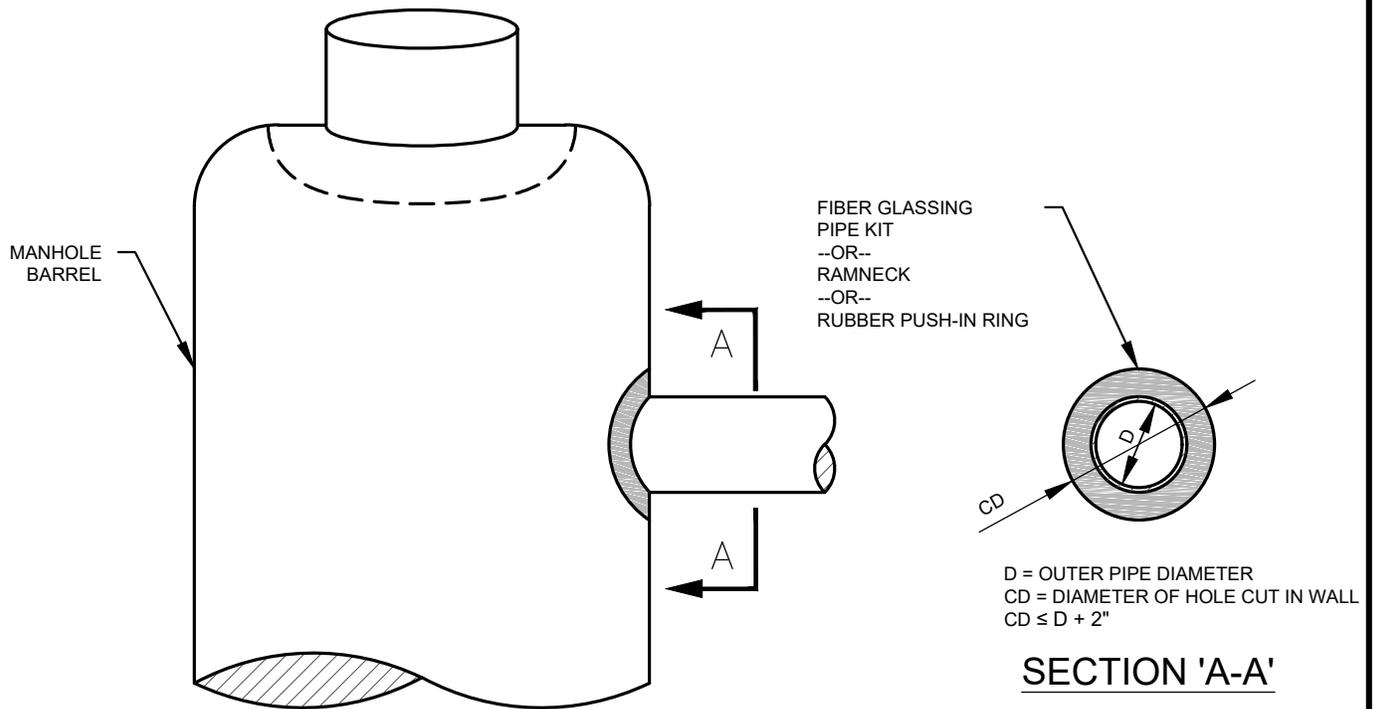


DRAWN: DPM	CHECKED: JCF	APPROVED: MCC
EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
		<p>TYPICAL FIBERGLASS MANHOLE</p>
		313(A)

NOTES:

1. 48" DIAMETER MANHOLES TO BE USED FOR PIPE DIAMETERS OF 24" OR SMALLER ONLY.
2. INSTALL DROPS AND INTERSECTING PIPES ONLY WHEN CALLED FOR IN CONSTRUCTION DRAWINGS.
3. SET MANHOLE FRAME IN SEALANT PER CITY OF MIDLAND STANDARD SPECIFICATIONS.
4. NEW MANHOLE TO HAVE SEAMLESS AND CONTINUOUS NECK, SHOULDER, AND BARREL.
5. ALL CONCRETE TO BE CLASS "A" CONCRETE.
6. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
7. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

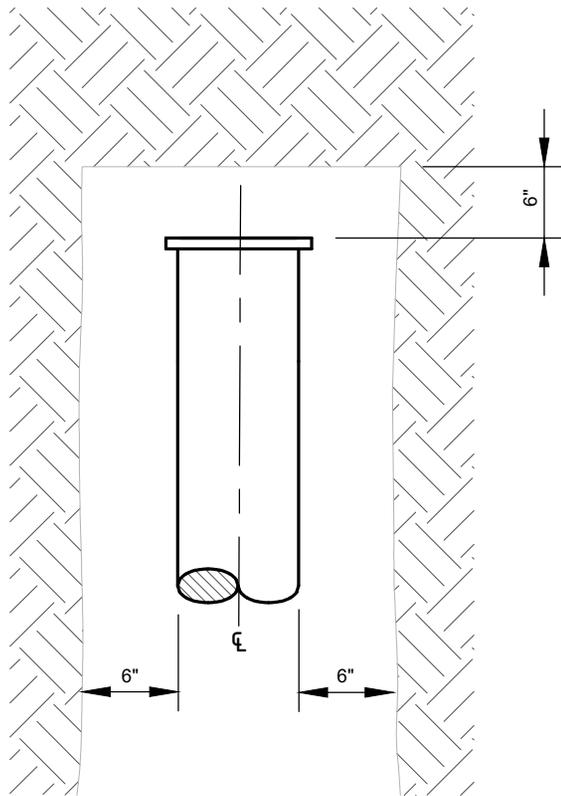
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	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
TYPICAL FIBERGLASS MANHOLE			313(B)



NOTES:

1. THE DIAMETER OF THE CUTOUT IN THE MANHOLE BARREL IS TO BE NO MORE THAN 2.0" WIDER THAN THE OUTER WALL DIAMETER OF THE PENETRATING PIPE.
2. THE PENETRATING PIPE IS TO BE CENTERED IN THE MANHOLE BARREL CUTOUT.
3. PIPES PENETRATING MANHOLE MUST BE MINIMUM 6" DIAMETER, AND SERVICE LINES MUST BE CONSTRUCTED TO CITY WASTEWATER MAIN OR STORM DRAIN STANDARDS WITHIN PUBLIC RIGHT OF WAY OR EASEMENT.
4. FORM FLOW SURFACE AND MOUND CONCRETE AROUND PIPE PENETRATIONS, TO FORM A SEAL, IN ONE CONTINUOUS PLACEMENT OPERATION.
5. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
6. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC
EFFECTIVE DATE: 10/01/2018		SCALE:
		DETAIL:
TYPICAL FIBERGLASS MANHOLE PIPE PENETRATION		314



PLUG BLOCKING

NOTES:

1. PLUG ALL WASTEWATER MAIN AND STORM DRAIN STUB OUTS. SECURE PLASTIC PLUG TO END OF STORM DRAIN.
2. FITTINGS TO BE POLY WRAPPED BEFORE BACKFILLING.
3. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
4. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



DRAWN: DPM
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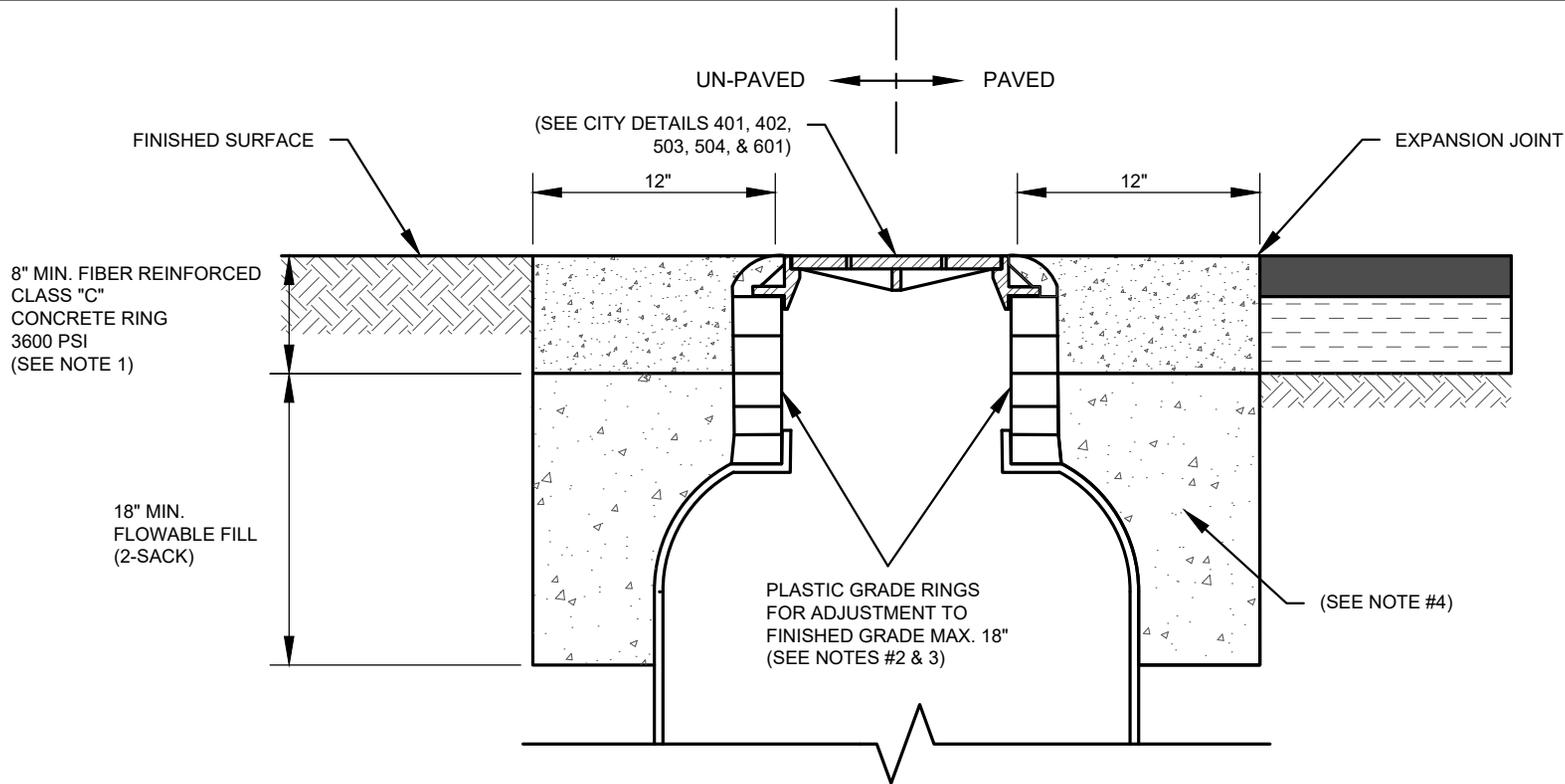
EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

GRAVITY MAIN PLUG

315



NEW MANHOLE ADJUSTMENT

NOTES:

1. INSTALL 12" MIN. FIBER REINFORCED CLASS "C" CONCRETE RING, 3600 PSI, WHEN MANHOLE IS LOCATED IN AN ARTERIAL R.O.W.
2. GRADE RINGS TO MEET ASTM STANDARD A48 AND TO BE 2", 4", OR 6" THICKNESS AS REQUIRED. INSTALL ASPHALT TAR IN THICK, UNIFORM COATING OVER ALL OUTER ADJUSTMENT RING SURFACES AND JOINTS.
3. ENGINEERING SERVICES REPRESENTATIVE AND UTILITY SERVICES REPRESENTATIVE MAY ALLOW GREATER ADJUSTMENT RING DEPTH TO ACCOMMODATE PAVING STRUCTURES.
4. REMOVE ALL MATERIAL EXCAVATED FROM SITE AND EXCAVATION, AND FILL TO FINISHED BASE ELEVATION WITH FLOWABLE FILL 2-SACK (2 SACK = 188 LBS/CY, PORTLAND CEMENT).
5. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
6. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



DRAWN: DPM
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 APPROVED: MCC

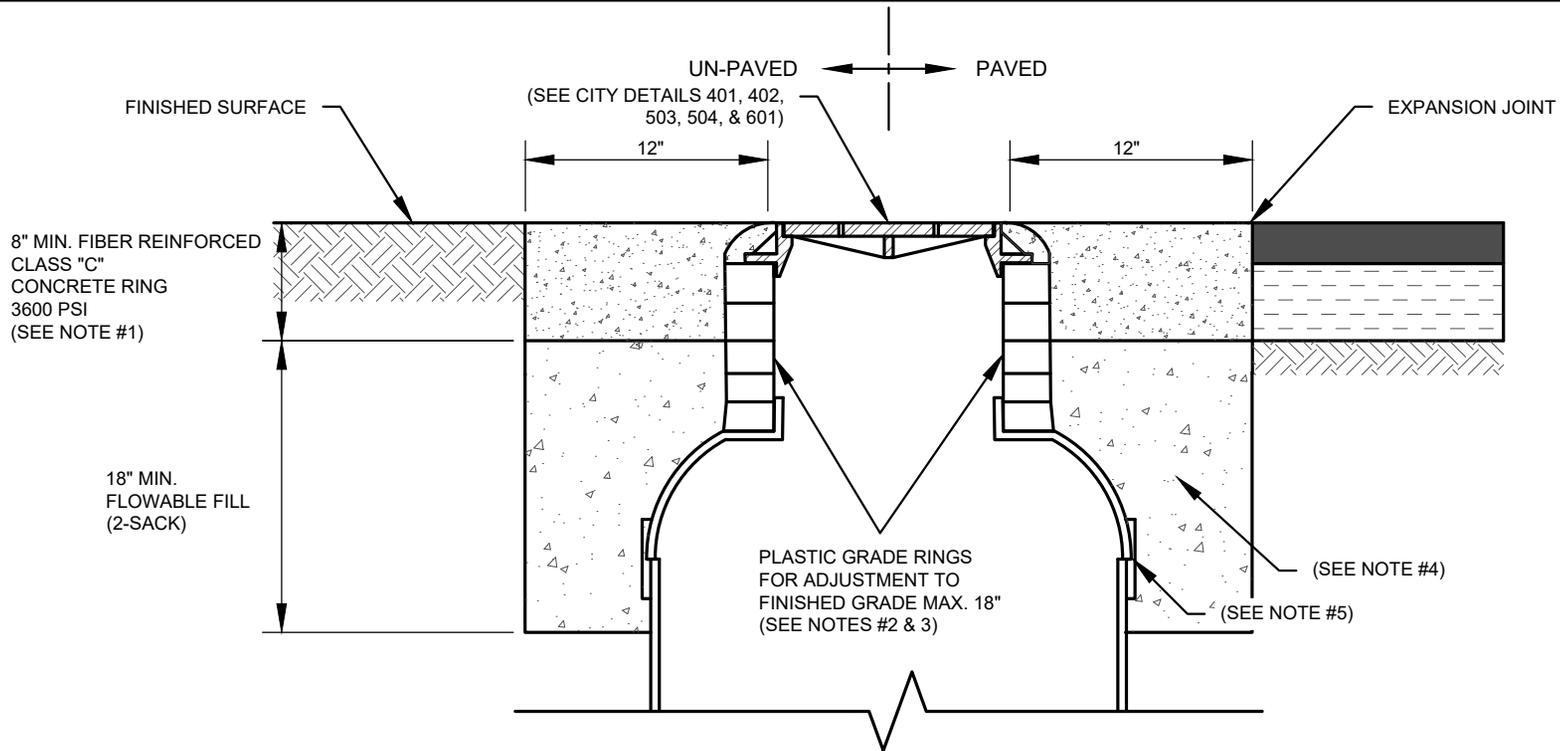
EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

NEW MANHOLE ADJUSTMENT

316



EXISTING MANHOLE BARREL ADJUSTMENT

NOTES:

1. INSTALL 12" MIN. FIBER REINFORCED CLASS "C" CONCRETE RING, 3600 PSI, WHEN MANHOLE IS LOCATED IN AN ARTERIAL R.O.W.
2. GRADE RINGS TO MEET ASTM STANDARD A48 AND TO BE 2", 4", OR 6" THICKNESS AS REQUIRED. INSTALL ASPHALT TAR IN THICK, UNIFORM COATING OVER ALL OUTER ADJUSTMENT RING SURFACES AND JOINTS.
3. ENGINEERING SERVICES REPRESENTATIVE AND UTILITY SERVICES REPRESENTATIVE MAY ALLOW GREATER ADJUSTMENT RING DEPTH TO ACCOMMODATE PAVING STRUCTURES.
4. REMOVE ALL MATERIAL EXCAVATED FROM SITE AND EXCAVATION, AND FILL TO FINISHED BASE ELEVATION WITH FLOWABLE FILL 2-SACK (2 SACK = 188 LBS/CY, PORTLAND CEMENT).
5. MANUFACTURED WATERTIGHT CONNECTOR, CORE DRILL AND INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
6. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
7. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



DRAWN: DPM
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 APPROVED: MCC

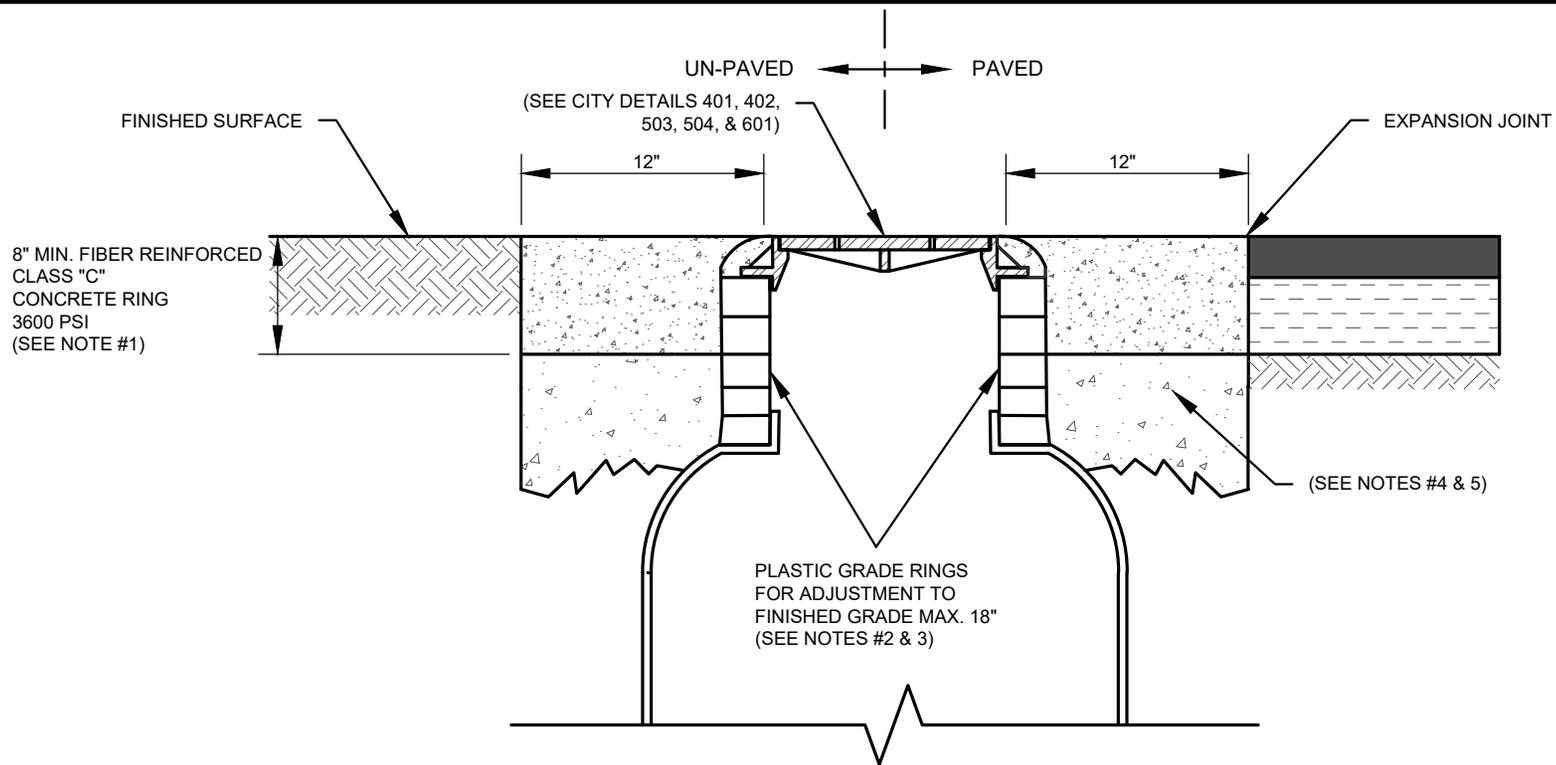
EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

EXISTING MANHOLE BARREL ADJUSTMENT

317



NEW MANHOLE RING & COVER ADJUSTMENT

NOTES:

1. INSTALL 12" MIN. FIBER REINFORCED CLASS "C" CONCRETE RING, 3600 PSI, WHEN MANHOLE IS LOCATED IN AN ARTERIAL R.O.W.
2. GRADE RINGS TO MEET ASTM STANDARD A48 AND TO BE 2", 4", OR 6" THICKNESS AS REQUIRED. INSTALL ASPHALT TAR IN THICK, UNIFORM COATING OVER ALL OUTER ADJUSTMENT RING SURFACES AND JOINTS.
3. ENGINEERING SERVICES REPRESENTATIVE AND UTILITY SERVICES REPRESENTATIVE MAY ALLOW GREATER ADJUSTMENT RING DEPTH TO ACCOMMODATE PAVING STRUCTURES.
4. REMOVE ALL MATERIAL EXCAVATED FROM SITE AND EXCAVATION.
5. FILL ANY OVER-EXCAVATION WITH FLOWABLE FILL 2-SACK (2-SACK = 188 LBS/CY, PORTLAND CEMENT).
6. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
7. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



DRAWN: DPM
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 APPROVED: MCC

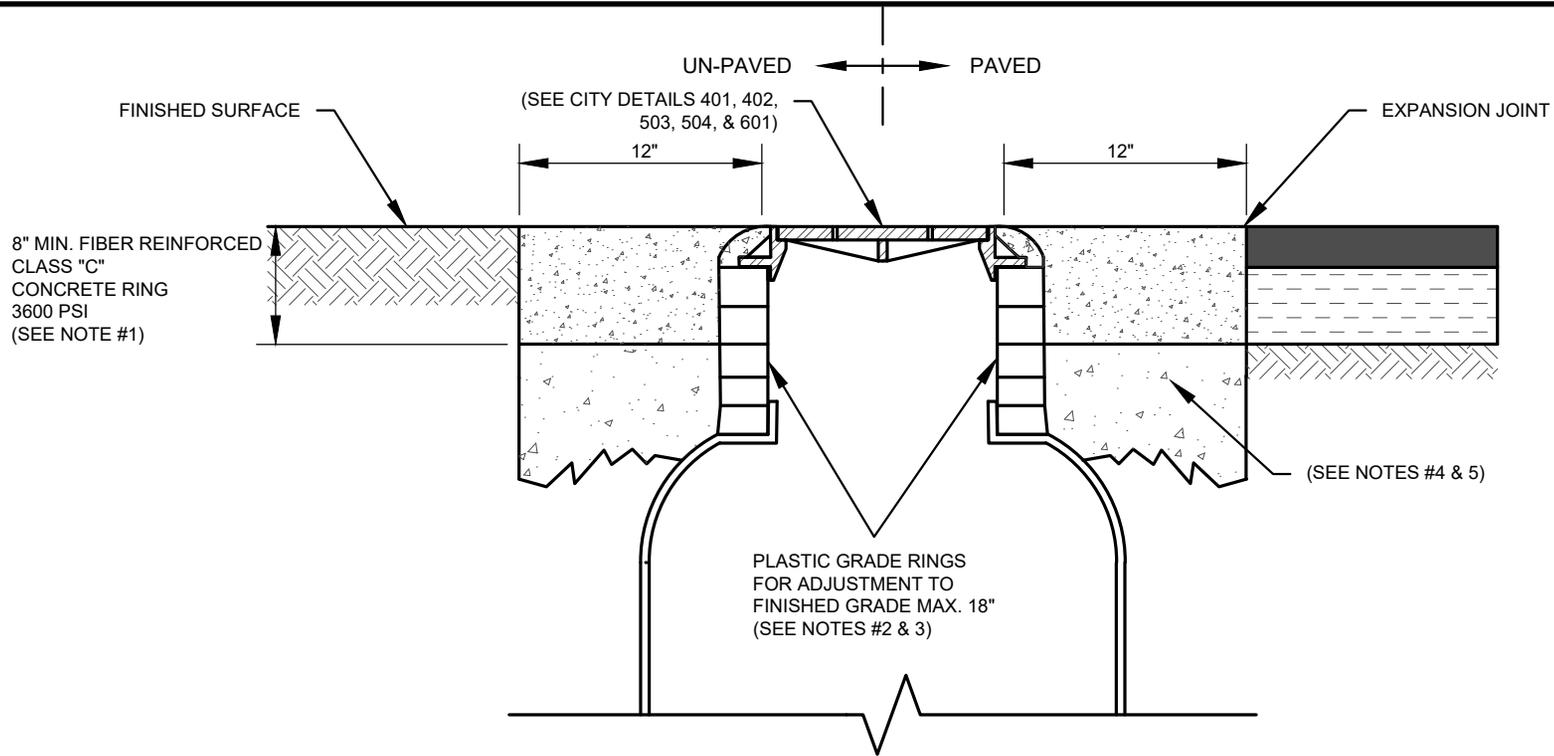
EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

NEW MANHOLE RING & COVER ADJUSTMENT

318



EXISTING MANHOLE RING & COVER ADJUSTMENT

NOTES:

1. INSTALL 12" MIN. FIBER REINFORCED CLASS "C" CONCRETE RING, 3600 PSI, WHEN MANHOLE IS LOCATED IN AN ARTERIAL R.O.W.
2. GRADE RINGS TO MEET ASTM STANDARD A48 AND TO BE 2", 4", OR 6" THICKNESS AS REQUIRED. INSTALL ASPHALT TAR IN THICK, UNIFORM COATING OVER ALL OUTER ADJUSTMENT RING SURFACES AND JOINTS.
3. ENGINEERING SERVICES REPRESENTATIVE AND UTILITY SERVICES REPRESENTATIVE MAY ALLOW GREATER ADJUSTMENT RING DEPTH TO ACCOMMODATE PAVING STRUCTURES.
4. REMOVE ALL MATERIAL EXCAVATED FROM SITE AND EXCAVATION.
5. FILL ANY OVER-EXCAVATION WITH FLOWABLE FILL 2-SACK (2-SACK = 188 LBS/CY, PORTLAND CEMENT).
6. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
7. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



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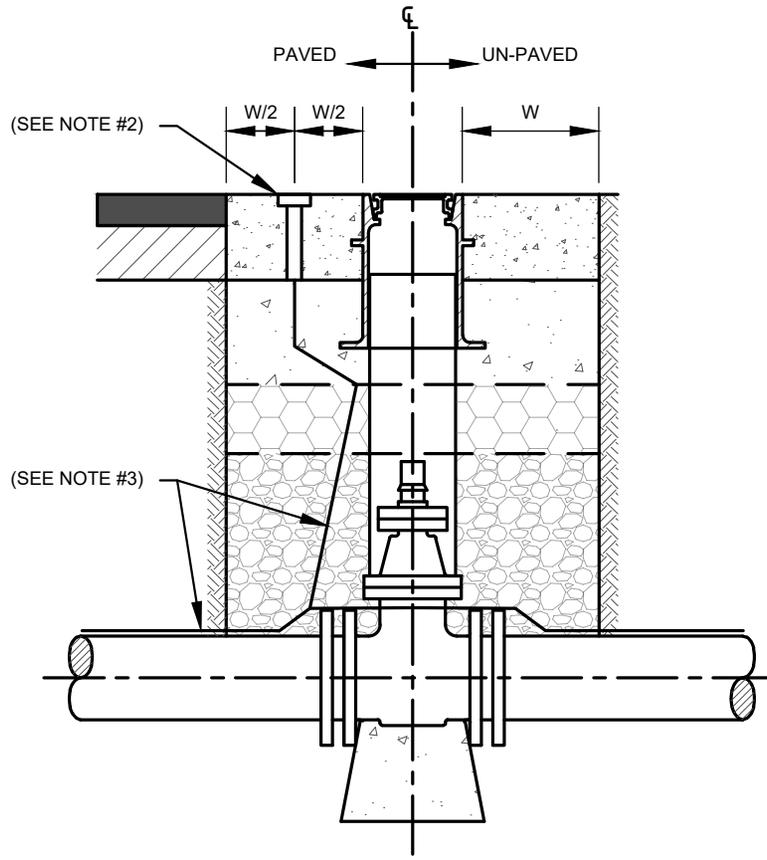
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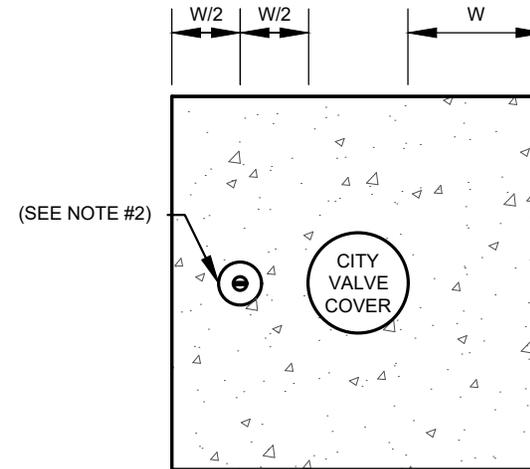
DETAIL:

**EXISTING MANHOLE RING
& COVER ADJUSTMENT**

319



CROSS SECTION VIEW



PLAN VIEW

NOTES:

1. SEE OTHER CITY STANDARD DETAILS FOR INFORMATION REGARDING VALVES, COVERS, CONCRETE RINGS, ETC.
2. TRAFFIC RATED COPPERHEAD SNAKEPIT TEST STATION OR APPROVED EQUAL. SET FLUSH WITH FINISHED SURFACE OF CONCRETE RING.
3. TRACER WIRE PER DETAIL 310 (A) TO BE TAPED TO SIDE OF VALVE BOX AND FASTENED SECURELY TO END OF TEST STATION. TRACER WIRE TO REMAIN ENTIRELY COVERED.
4. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
5. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



DRAWN: DPM
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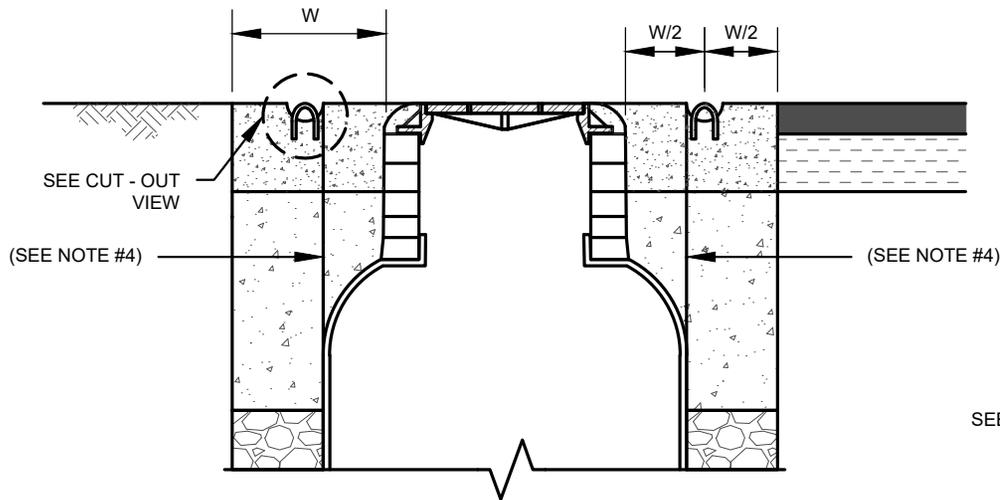
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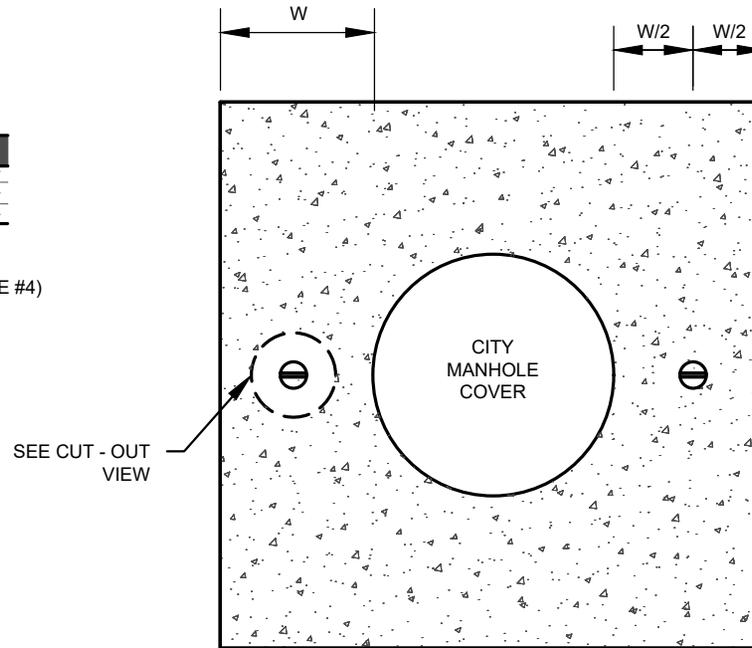
DETAIL:

VALVE DETECTOR WIRE END

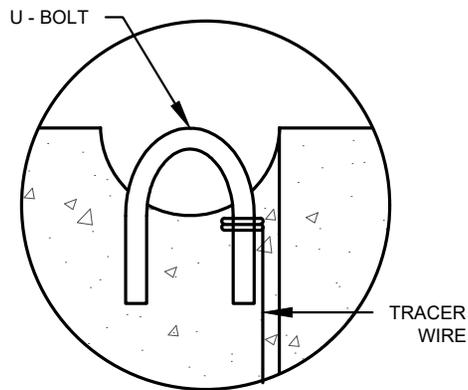
320



CROSS SECTION VIEW



PLAN VIEW



CUT - OUT VIEW

NOTES:

1. SEE OTHER CITY STANDARD DETAILS FOR INFORMATION REGARDING MANHOLES, COVERS, CONCRETE RINGS, ETC.
2. U - BOLT IS TO BE GALVANIZED STEEL RATED FOR OUDOOR EXPOSURE, 1.0" DIAMETER.
3. U - BOLT IS TO BE SET FLUSH WITH FINISHED SURFACE OF CONCRETE RING. THERE IS TO BE A SMALL DEPRESSION IN THE CONCRETE SUFFICIENT TO ALLOW A CLAMP OR WIRE TO BE PLACED AROUND THE EXPOSED METAL.
4. TRACER WIRE PER DETAIL 310(A) TO BE TAPED TO SIDE OF MANHOLE AND WRAPPED SECURELY TO END OF U-BOLT WHEN INSTALLED. TRACER WIRE IS TO REMAIN ENTIRELY COVERED.
5. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
6. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



DRAWN: DPM
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 APPROVED: MCC

EFFECTIVE DATE: 10/01/2018

SCALE: NTS

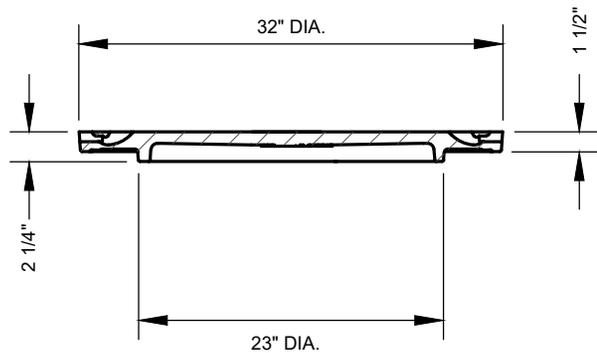
DETAIL:

MANHOLE DETECTOR WIRE END

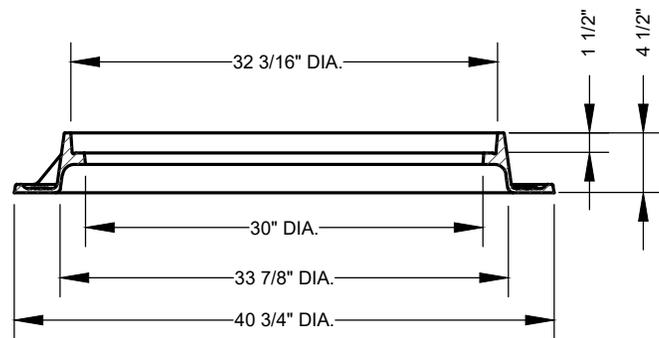
321

STORM DRAIN DETAILS

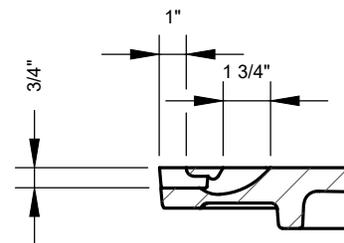
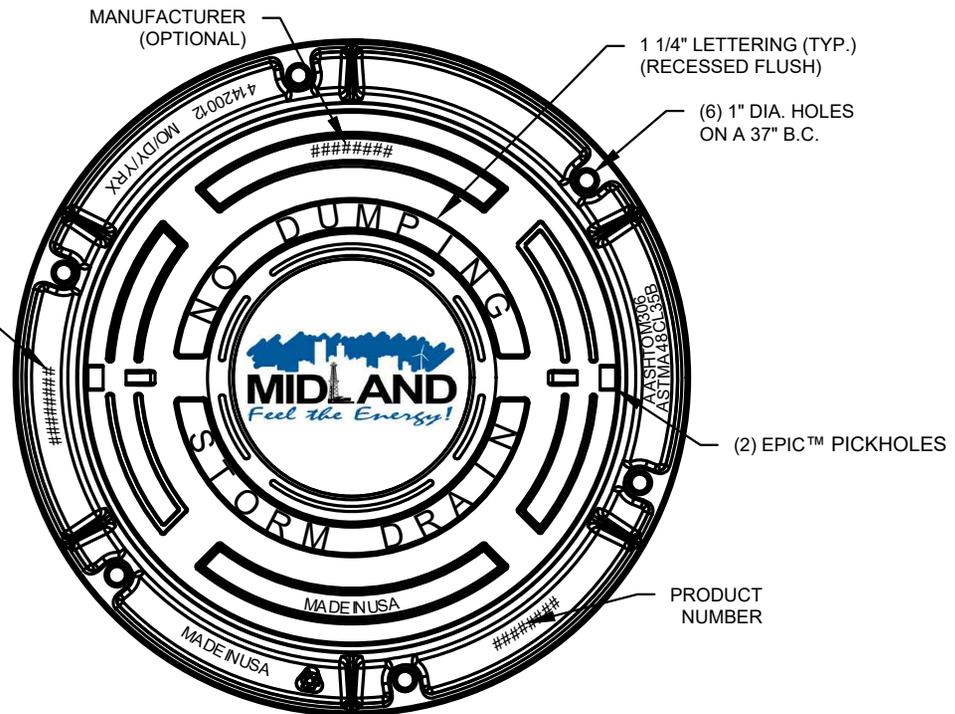
DRAWN: DPM	CHECKED: JCF	APPROVED: MCC	
 MIDLAND Engineering Services	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
			400



COVER SECTION



FRAME SECTION



PICKHOLE DETAIL

NOTES:

- MANHOLE COVERS TO BE CAST WITH THE FOLLOWING
"NO DUMPING"
CITY OF MIDLAND LOGO
"STORM DRAIN"

EAST JORDAN V1420Z1/V1430A ASSEMBLY OR
APPROVED EQUAL.
- MATERIALS AND CONSTRUCTION METHODS TO
CONFORM TO CITY OF MIDLAND STANDARDS AND
SPECIFICATIONS.
- CONSTRUCT AS SHOWN UNLESS OTHERWISE
APPROVED IN WRITING BY THE CITY ENGINEER.



DRAWN: DPM
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APPROVED: MCC

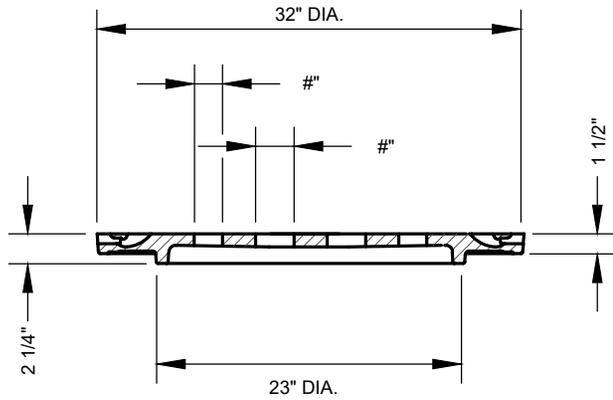
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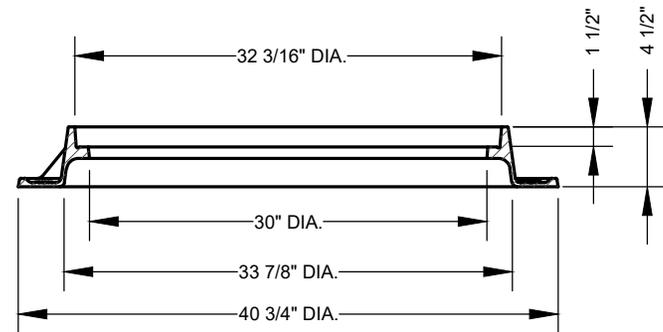
DETAIL:

TYPICAL STORM DRAIN COVER

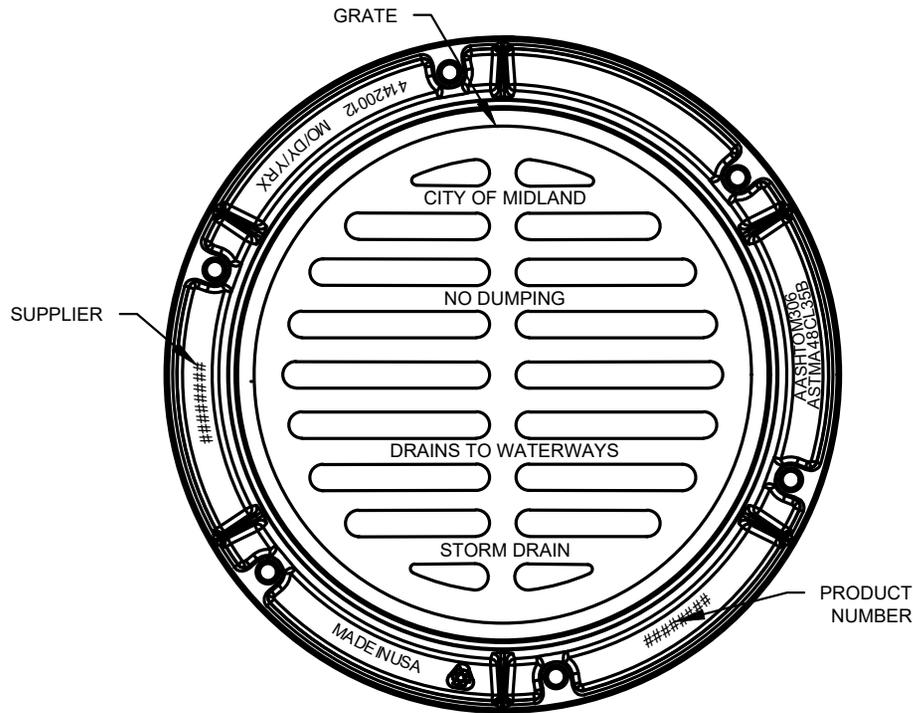
401



COVER SECTION



FRAME SECTION



NOTES:

1. GRATED MANHOLE COVERS TO BE CAST WITH THE FOLLOWING:
 "CITY OF MIDLAND"
 "NO DUMPING"
 "DRAINS TO WATERWAYS"
 "STORM DRAIN"
 EAST JORDAN "STORM DRAIN"/1040N ASSEMBLY OR APPROVED EQUAL
2. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
3. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

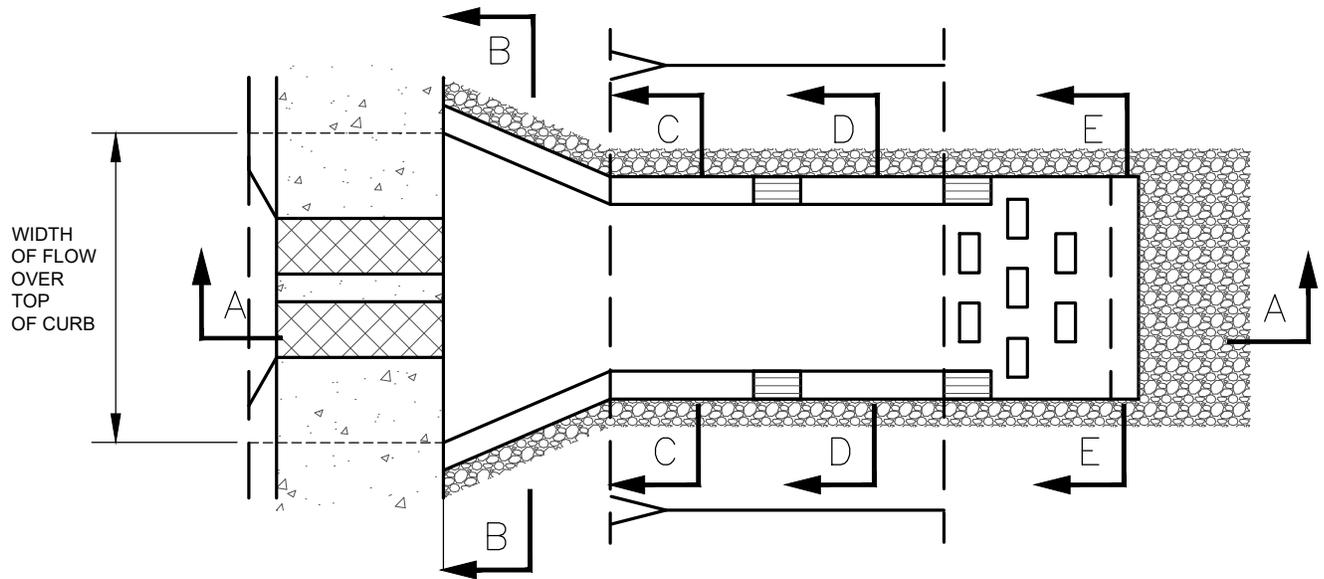
EFFECTIVE DATE: 10/01/2018

SCALE: NTS

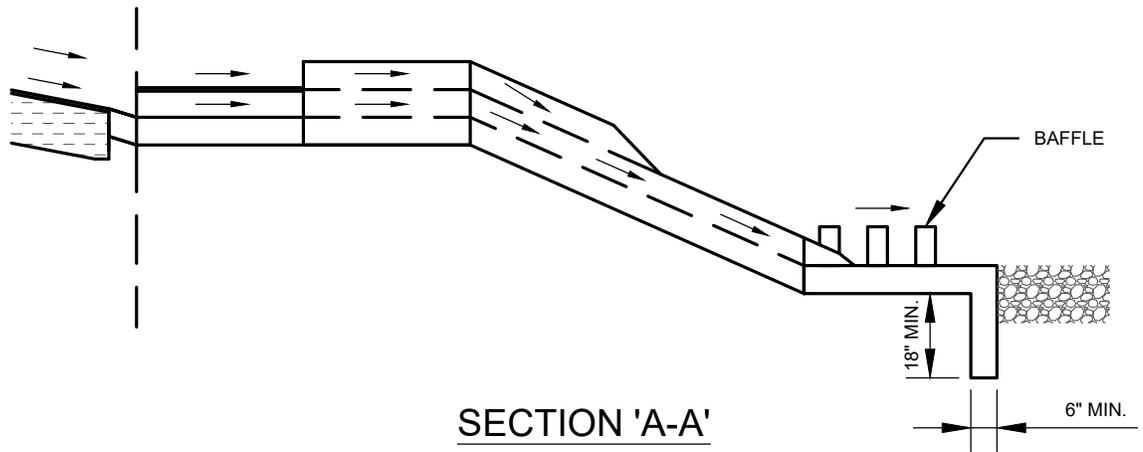
DETAIL:

GRATED STORM DRAIN COVER

402



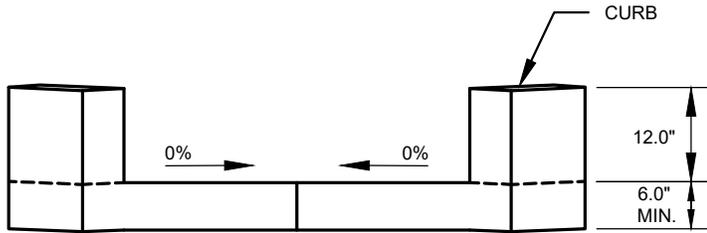
SIDEWALK/ SCUPPER/ ELEVATED CROSSING	FLARED FLUME	TALL CURB FLUME	STANDARD CURB FLUME	FLUME TOE	ROCK RIP-RAP
SLIGHT SLOPE (0.2% MIN.)	SLOPE (4:1 MAX.)	SLOPE (4:1 MAX.)	SLOPE (4:1 MAX.)	FLAT -OR- SLOPE	10' MIN.



SECTION 'A-A'

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC
EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
TYPICAL CONCRETE DRAINAGE FLUME		403(A)

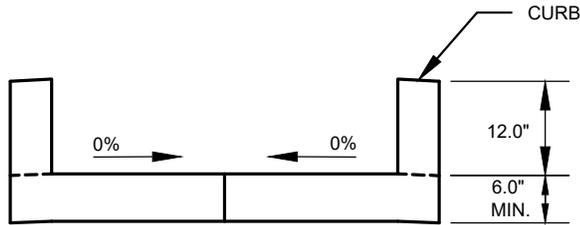




SECTION 'B-B'

SECTION 'B-B' NOTES:

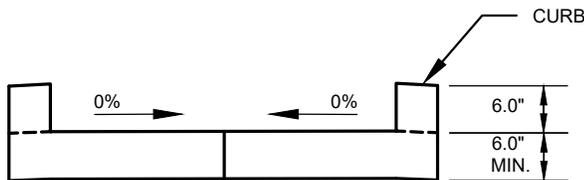
1. CURB TO BE 12.0" TALL.
2. PROVIDE SAW-CUT JOINTS.
3. PROVIDE TRANSVERSE SAW-CUT JOINTS EVERY 10.0'



SECTION 'C-C'

SECTION 'C-C' NOTES:

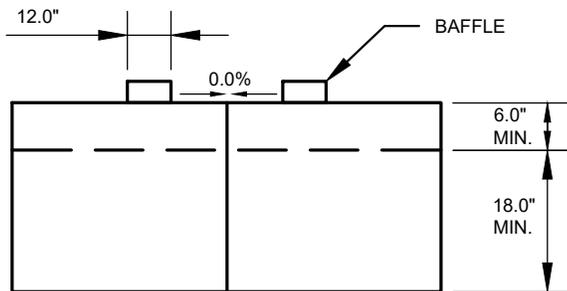
1. CURB TO BE 12.0" TALL.
2. PROVIDE SAW-CUT JOINTS.
3. PROVIDE TRANSVERSE SAW-CUT JOINTS EVERY 10.0'



SECTION 'D-D'

SECTION 'D-D' NOTES:

1. CURB TO BE NO LESS THAN 6.0" OR MATCH EXISTING STREET CURB HEIGHT.
2. PROVIDE SAW-CUT JOINTS.
3. PROVIDE TRANSVERSE SAW-CUT JOINTS EVERY 10.0'



SECTION 'E-E'

SECTION 'E-E' NOTES:

2. PROVIDE SAW-CUT JOINTS.
3. BAFFLES ARE TO BE 12.0" X 6.0" X 6.0" PLACED IN STAGGERED PATTERN NO FURTHER THAN 18.0" APART.

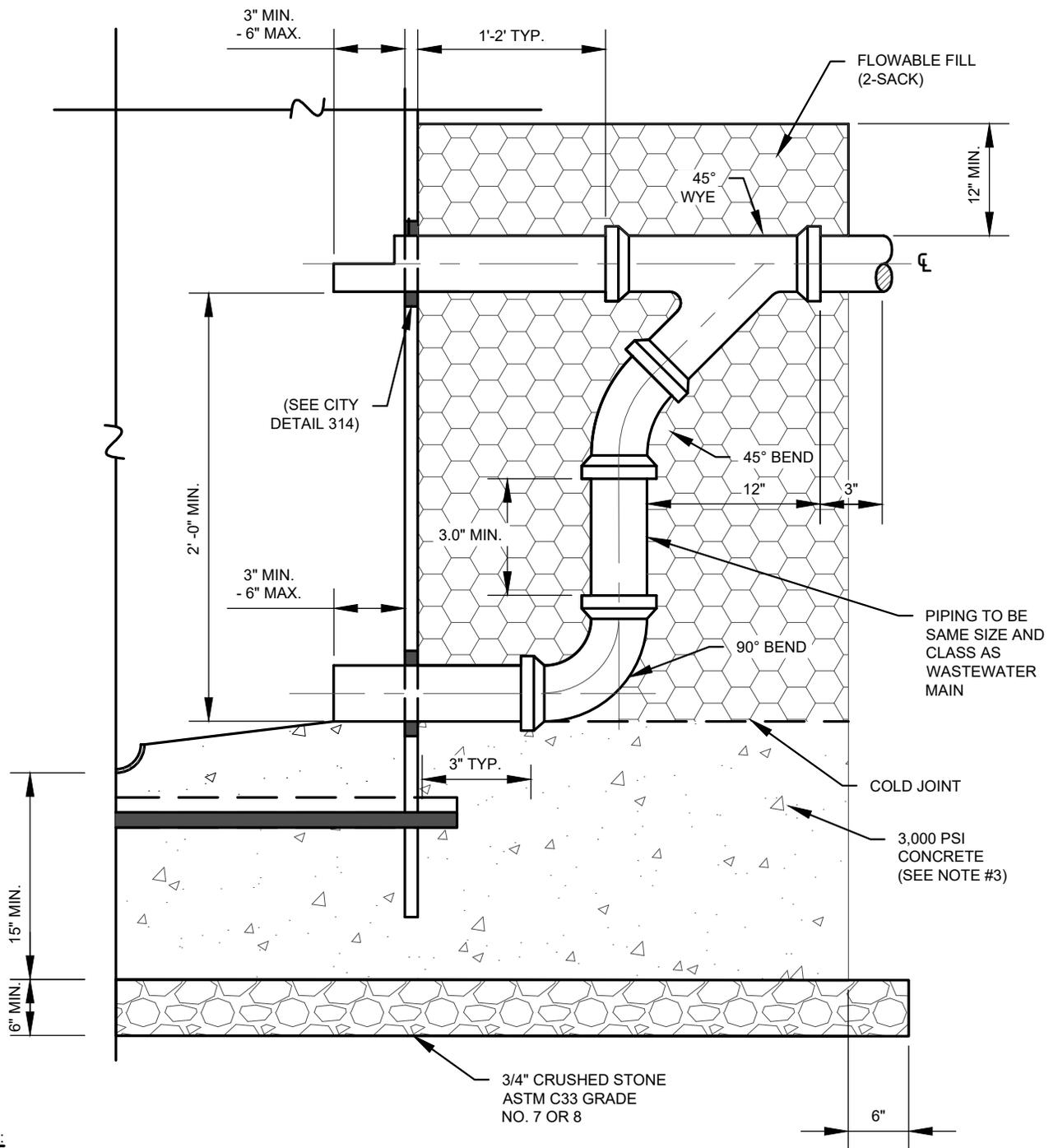
NOTES:

1. CONCRETE TO BE CITY OF MIDLAND CLASS "C" CONCRETE, 3600 PSI. USE REBAR REINFORCED OR FIBER REINFORCED CONCRETE PAVEMENT THROUGHOUT AS INDICATED BY THE DESIGN DRAWINGS. FLARED FLUME MOUTH TO BE NO LESS THAN DESIGN WIDTH OF RUNOFF PASSING OVER SCUPPER, ELEVATED CROSSING, OR SIDEWALK DURING THE 100-YR STORM EVENT.
2. SEAL ALL CONCRETE JOINTS.
3. FLARED FLUME AND TALL CURB FLUME SECTIONS NOT REQUIRED IF ALTERNATE DESIGN CAN BE PROVEN TO CONTAIN 100-YR RUNOFF WITHIN THE DRAINAGE EASEMENT LIMITS.
3. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
4. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC
EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
		<p>TYPICAL CONCRETE DRAINAGE FLUME</p>
		403(B)

WASTEWATER DETAILS

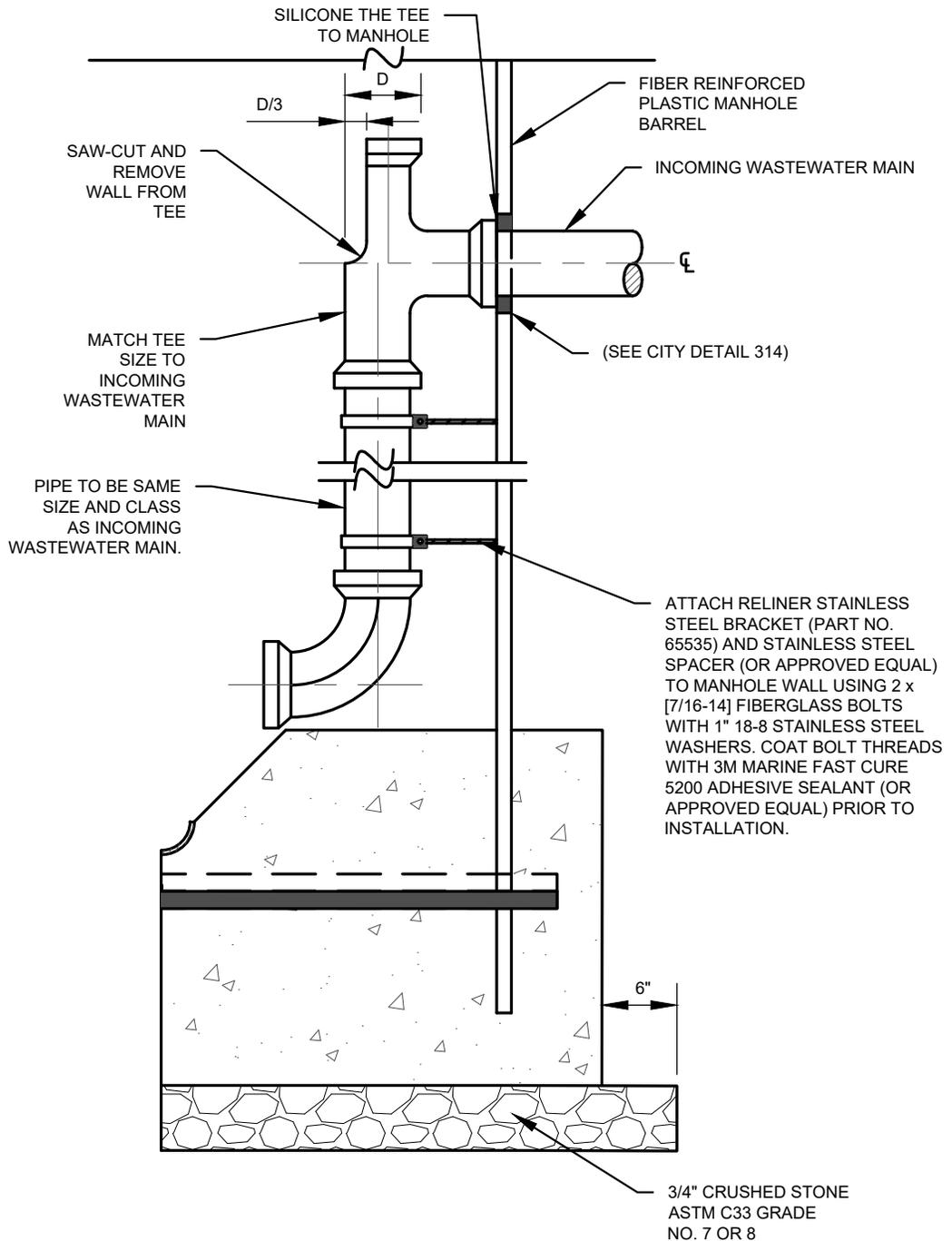
DRAWN: DPM	CHECKED: JCF	APPROVED: MCC	
 MIDLAND <i>Engineering Services</i>	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
			500



NOTES:

1. FLOWABLE FILL 2-SACK (2 SACK = 188 LBS/CY, PORTLAND CEMENT). REQUIRED FOR ALL OVER EXCAVATION BACKFILL.
2. INSTALL BEND AND WYE AS NEAR TO MANHOLE WALL AS PRACTICAL, USUALLY 3"-4" FROM THE BEND AT THE BOTTOM.
3. ALL CONCRETE TO BE CLASS "A" CONCRETE.
4. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
5. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

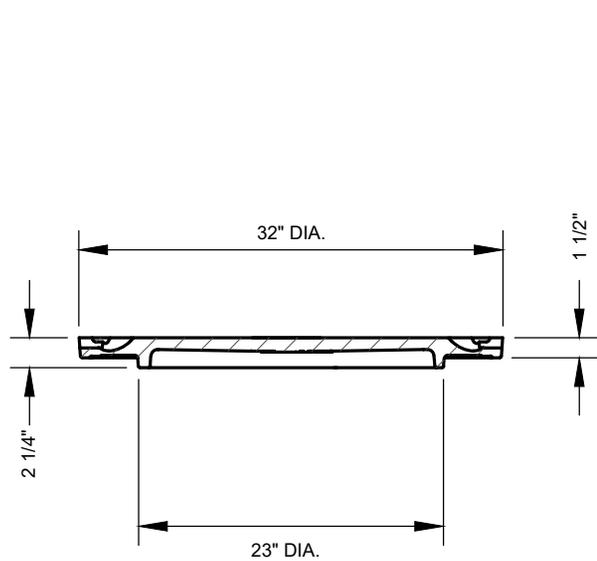
DRAWN: DPM	CHECKED: JCF	APPROVED: MCC
EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
		EXTERNAL DROP STRUCTURE 501



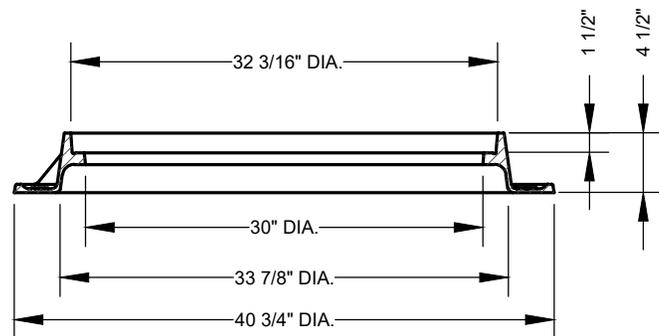
NOTES:

1. THIS DETAIL MAY ONLY BE USED WHEN CONNECTING TO AN EXISTING MANHOLE AND WITH THE PERMISSION OF BOTH THE CITY ENGINEER AND UTILITY DEPARTMENT REPRESENTATIVE.
2. FLOWABLE FILL 2-SACK (2 SACK = 188 LBS/CY, PORTLAND CEMENT). REQUIRED FOR ALL OVER EXCAVATION BACKFILL.
3. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
4. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

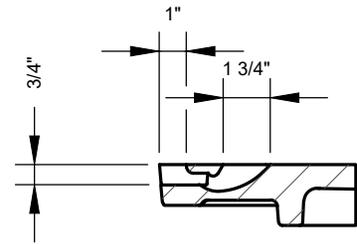
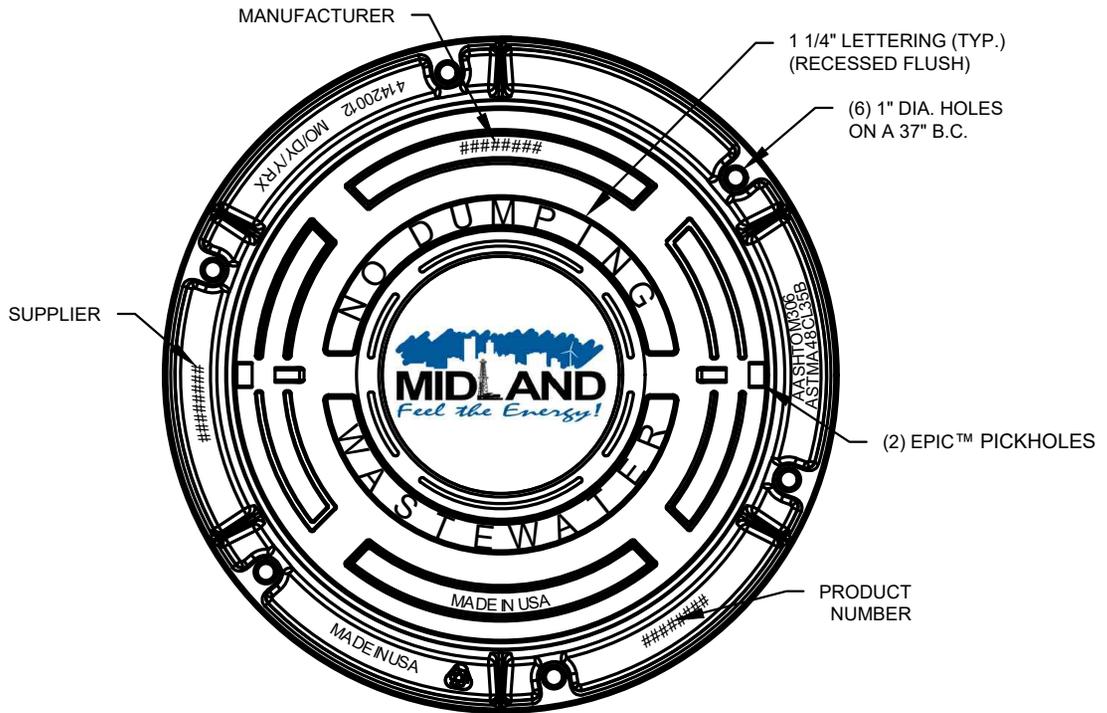
DRAWN: DPM	CHECKED: JCF	APPROVED: MCC
EFFECTIVE DATE: 10/01/2018		SCALE:
MIDLAND <i>Engineering Services</i>		INTERNAL DROP STRUCTURE
		502



COVER SECTION



FRAME SECTION



PICKHOLE DETAIL

NOTES:

1. MANHOLE COVERS TO BE CAST WITH THE FOLLOWING:
"NO DUMPING"
CITY OF MIDLAND LOGO
"WASTEWATER"
2. EAST JORDAN V1420Z1/V1430A ASSEMBLY OR APPROVED EQUAL
3. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
3. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

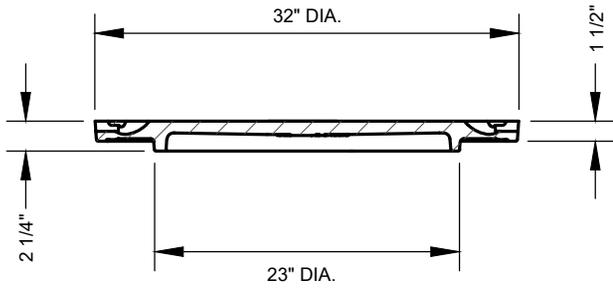
EFFECTIVE DATE: 10/01/2018

SCALE: NTS

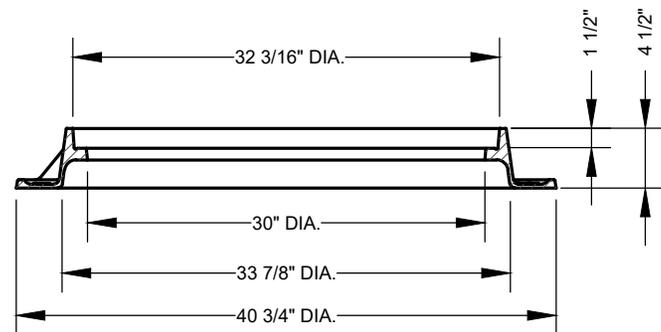
DETAIL:

TYPICAL WASTEWATER MANHOLE COVER

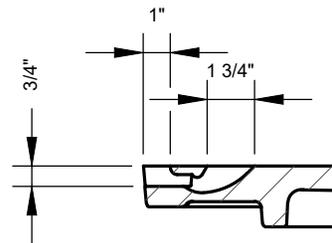
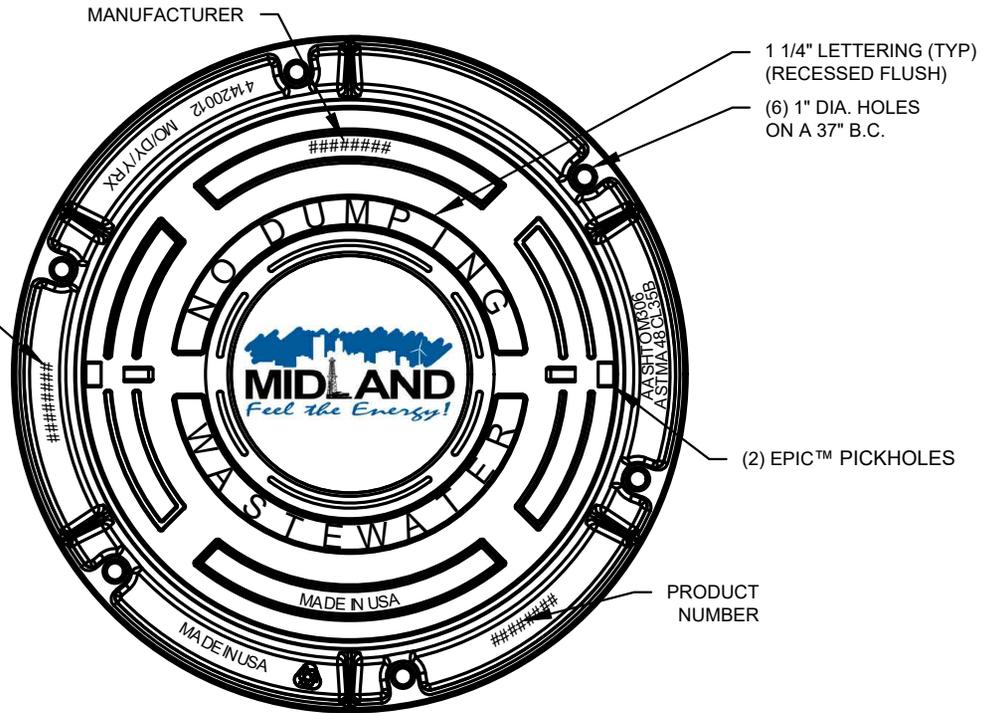
503



COVER SECTION



FRAME SECTION



PICKHOLE DETAIL

NOTES:

- MANHOLE COVERS TO BE CAST WITH THE FOLLOWING:
"NO DUMPING"
CITY OF MIDLAND LOGO
"WASTEWATER"
- EAST JORDAN V1420ZPT/V1430APT ASSEMBLY OR APPROVED EQUAL
- MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
- CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

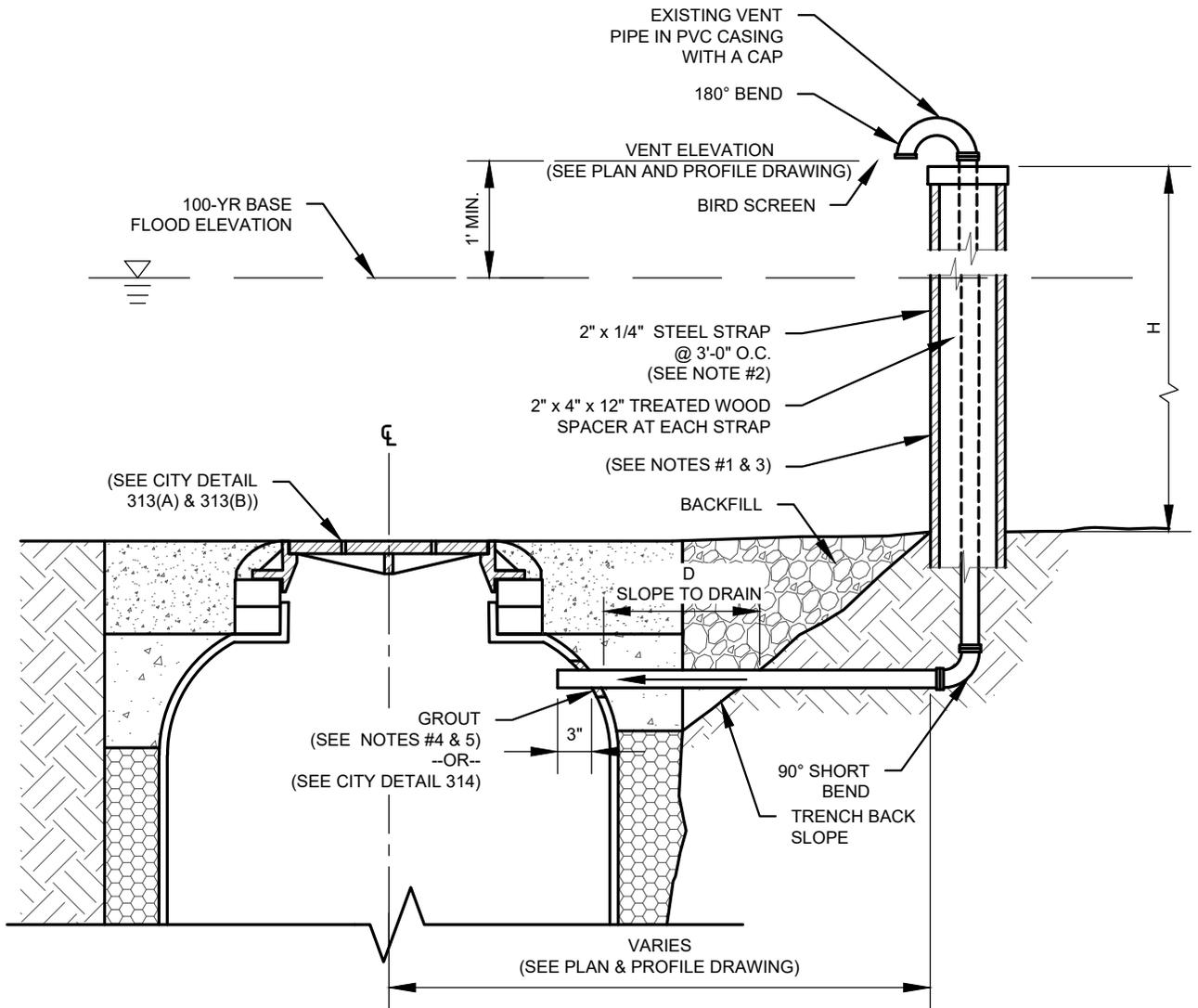
EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

**WATER TIGHT WASTEWATER
 MANHOLE COVER**

504



REMOTE VENT PIPE

NOTES:

1. ALL PIPING TO BE 3" DIA. DUCTILE IRON WITH FLANGED JOINTS COATED INSIDE AND OUTSIDE.
2. PAINT ALL STRAPPING WITH 2 COATS OF ALL WEATHER EPOXY.
3. PAINT ALL EXPOSED PIPING WITH 2 COATS OF ALL WEATHER EPOXY.
4. APPROVED WATER TIGHT MANHOLE CONNECTOR INSTALLED PER SPECIFICATION AND/OR MANUFACTURER'S INSTRUCTIONS.
5. GROUT TO BE APPROVED NON-SHRINK TYPE.
6. MANHOLE VENT TO BE USED IN CONJUNCTION WITH WATER TIGHT MANHOLE RINGS AND COVERS SPACED EVERY THIRD MANHOLE OR AS SHOWN ON THE PLANS.
7. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
8. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM

CHECKED: JCF

APPROVED: MCC

EFFECTIVE DATE: 10/01/2018

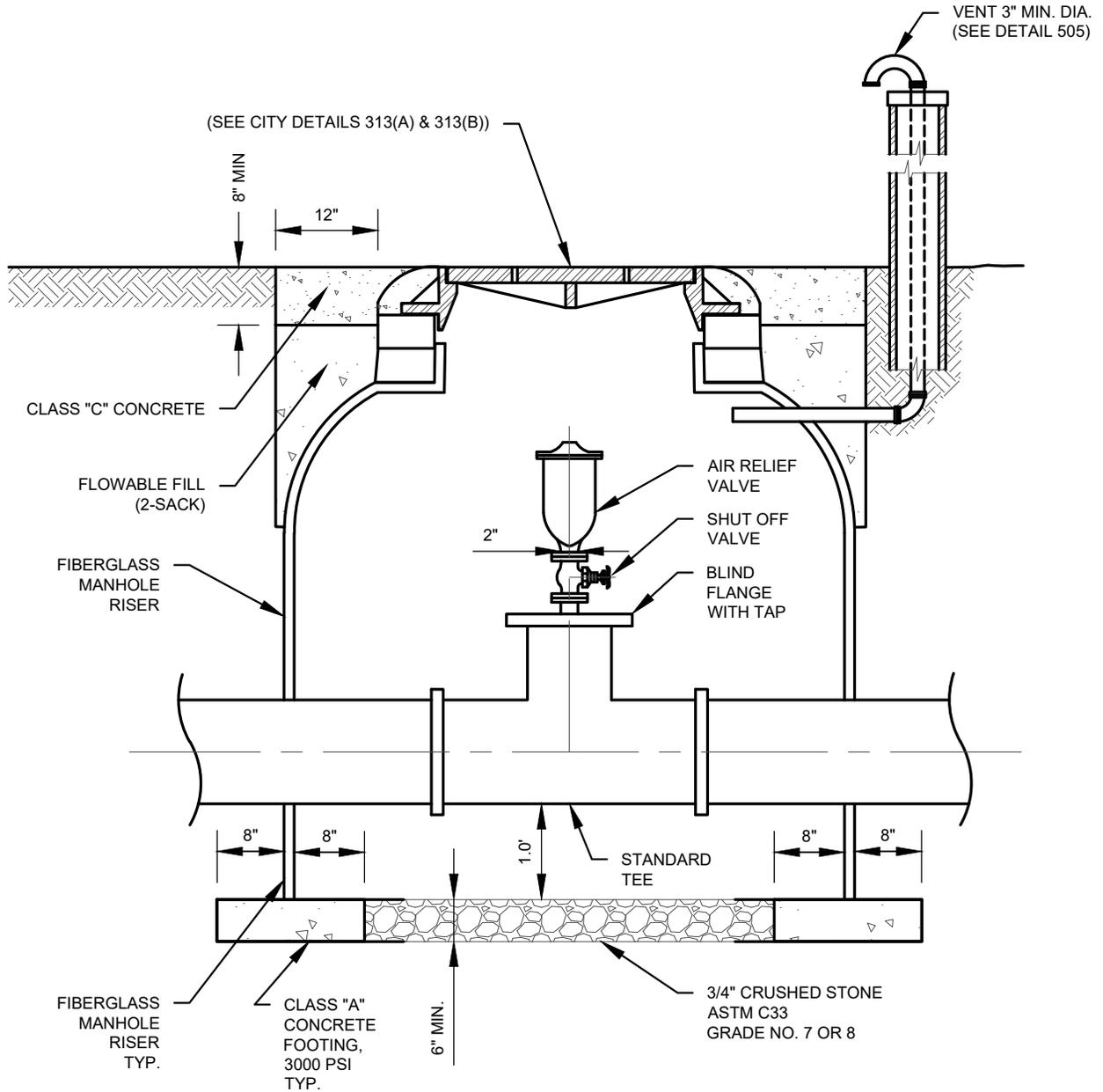
SCALE: NTS

DETAIL:



REMOTE VENT PIPE

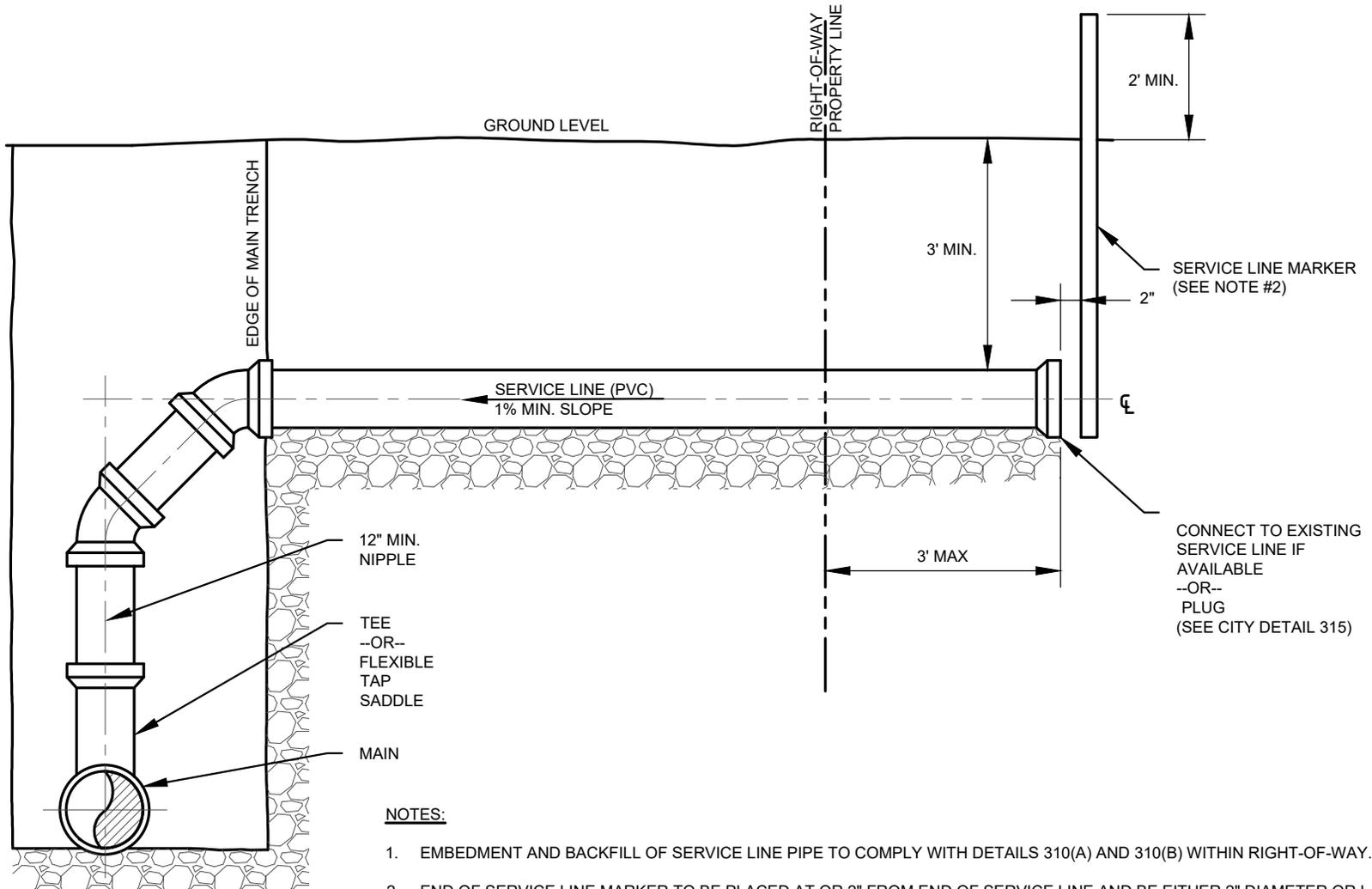
505



NOTES:

1. IF AIR RELIEF VALVE IS LOCATED IN PAVEMENT THE COVER IS TO BE A GRATE COVER AND NO VENT PIPES ARE TO BE UTILIZED.
2. ALL CONCRETE PAVEMENT TO BE CLASS "C" CONCRETE, 3600 PSI.
3. PLACE ALL FLOWABLE FILL 2-SACK (2 - SACK = 188 LBS/CY, PORTLAND CEMENT) AS A SINGLE CONTINUOUS POUR.
4. MATERIAL AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
5. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC
EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
		<p style="text-align: center;">FORCE MAIN RELIEF VALVE</p> <p style="text-align: right; font-size: 24pt;">506</p>



NOTES:

1. EMBEDMENT AND BACKFILL OF SERVICE LINE PIPE TO COMPLY WITH DETAILS 310(A) AND 310(B) WITHIN RIGHT-OF-WAY.
2. END OF SERVICE LINE MARKER TO BE PLACED AT OR 2" FROM END OF SERVICE LINE AND BE EITHER 2" DIAMETER OR LARGER PVC OR FLEXIBLE POLYETHYLENE PIPE.
3. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
4. CONSTRUCT AS SHOWN UNLESS OTHER WISE APPROVED IN WRITING BY THE CITY ENGINEER.



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

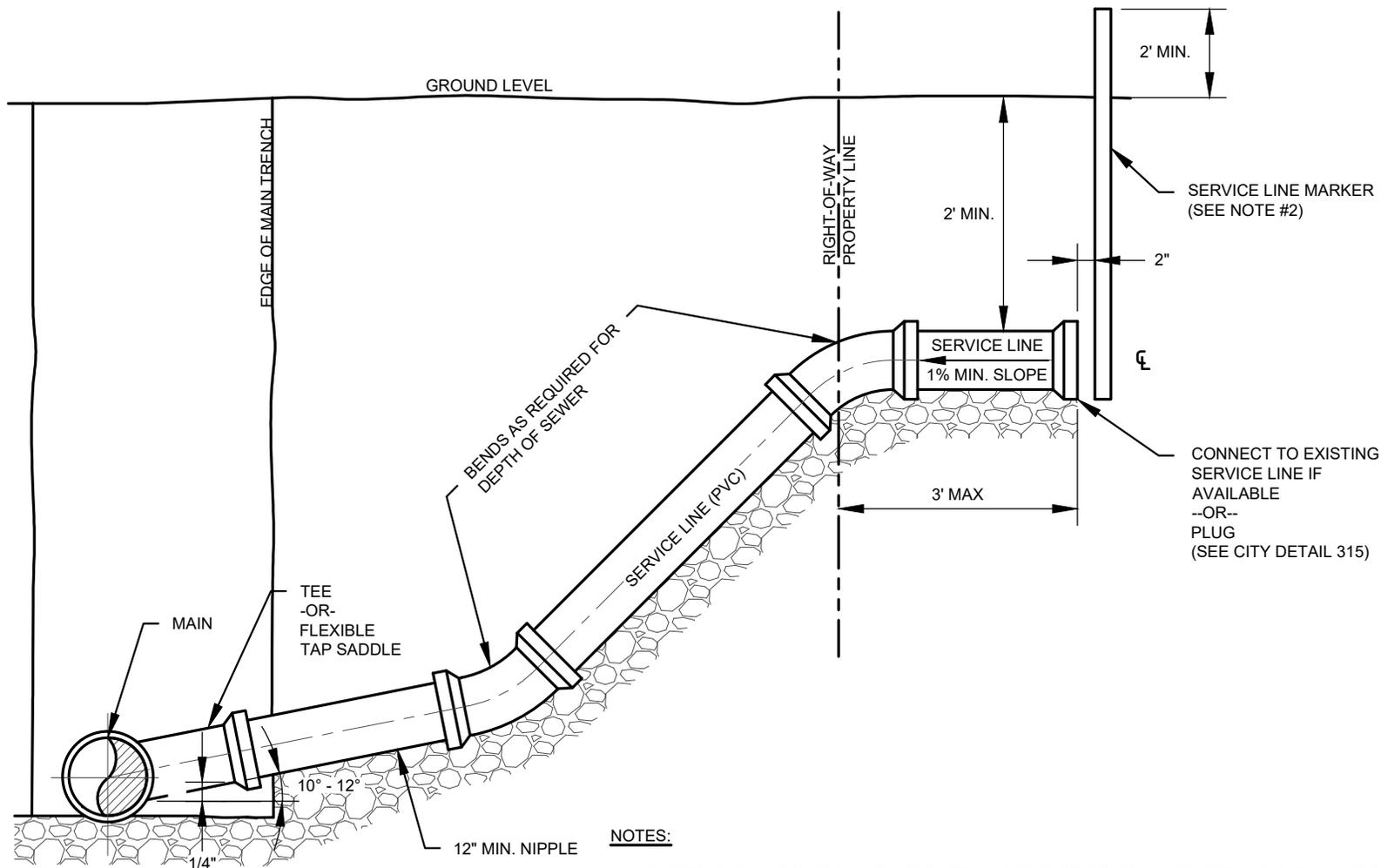
EFFECTIVE DATE: 10/01/2018

SCALE:

DETAIL:

**4" AND 6" WASTEWATER SERVICE
 LATERAL TAP OPTION 1**

507



NOTES:

1. EMBEDMENT AND BACKFILL OF SERVICE LINE PIPE TO COMPLY WITH DETAILS 310(A) AND 310(B) WITHIN RIGHT-OF-WAY.
2. END OF SERVICE LINE MARKER TO BE PLACED 2" FROM END OF SERVICE LINE AND BE EITHER 2" DIAMETER OR LARGER PVC OR FLEXIBLE POLYETHYLENE PIPE.
3. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
4. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

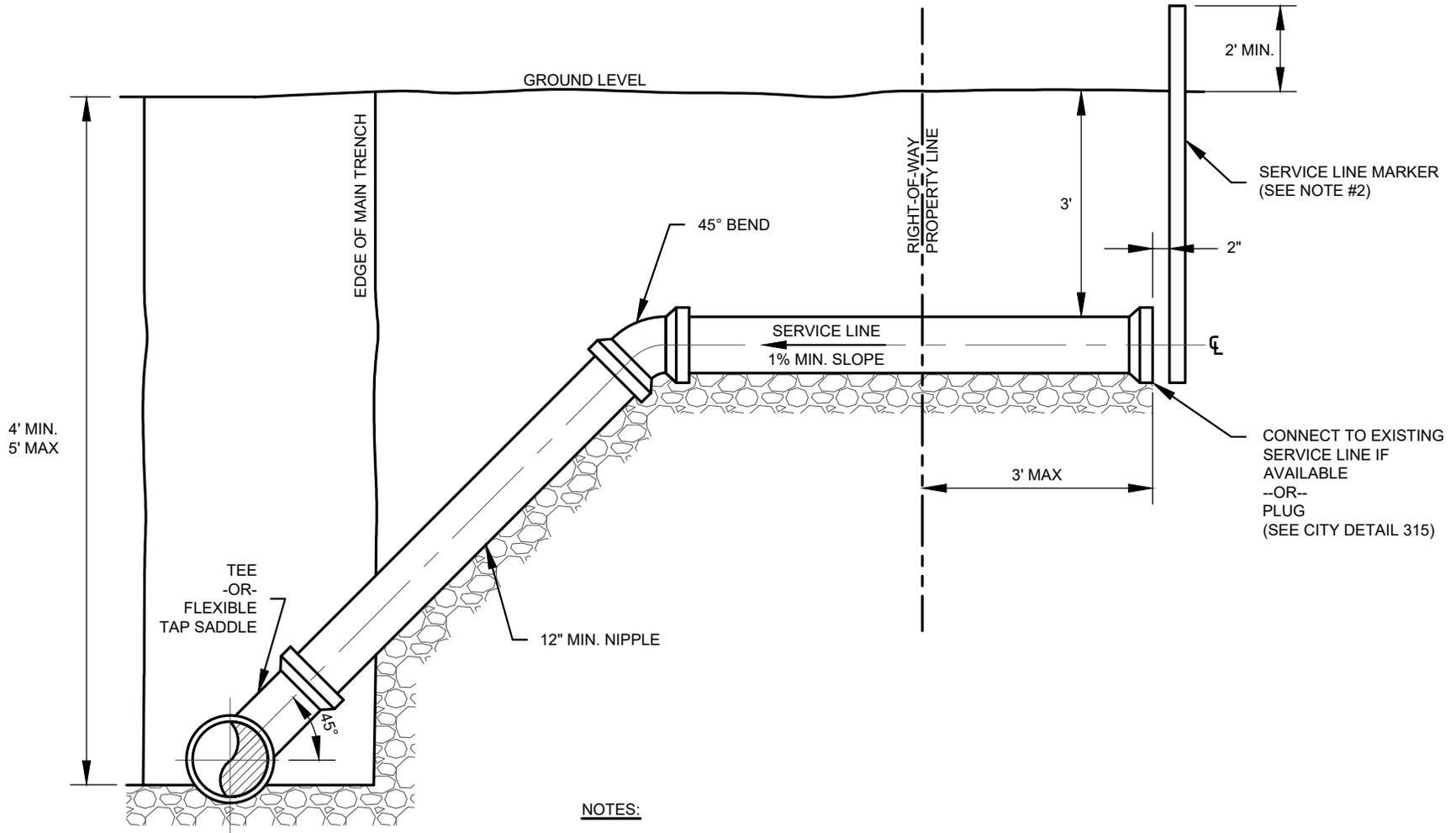
EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

**4" AND 6" WASTEWATER SERVICE
 LATERAL TAP OPTION 2**

508



NOTES:

1. EMBEDMENT AND BACKFILL OF SERVICE LINE PIPE TO COMPLY WITH DETAILS 310(A) AND 310(B) WITHIN RIGHT-OF-WAY.
2. END OF SERVICE LINE MARKER TO BE PLACED 2" FROM END OF SERVICE LINE AND BE EITHER 2" DIAMETER OR LARGER PVC OR FLEXIBLE POLYETHYLENE PIPE.
3. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
4. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

**4" AND 6" WASTEWATER SERVICE
 LATERAL TAP OPTION 3**

509

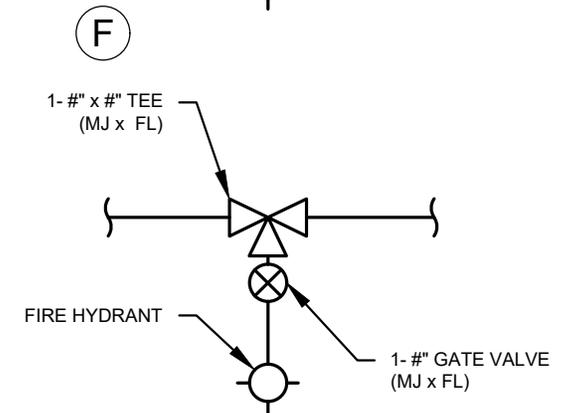
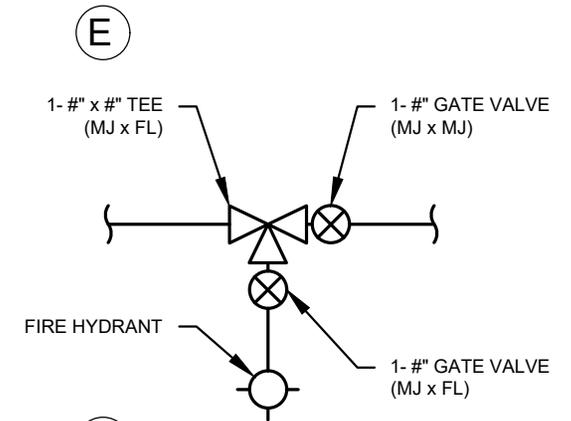
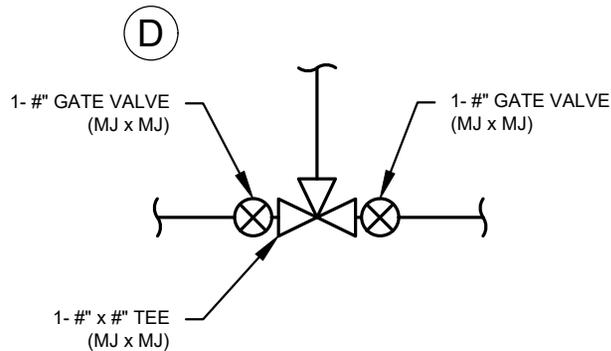
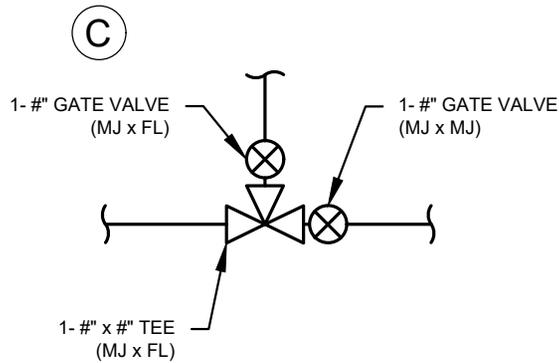
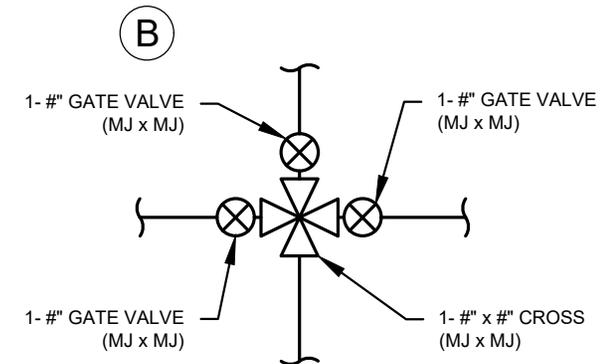
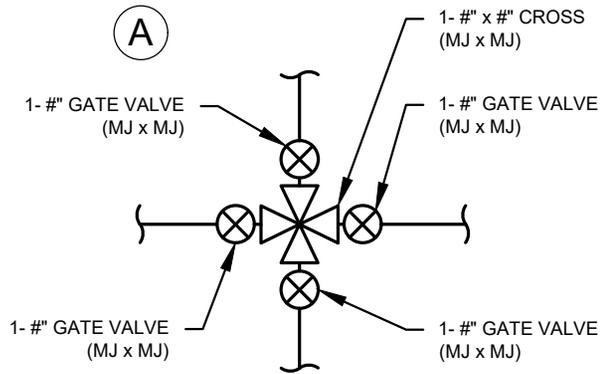
WATER DETAILS

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC	
 MIDLAND <i>Engineering Services</i>	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
			600

CROSS FITTING RESTRAINTS

TEE FITTING RESTRAINTS

FIRE HYDRANT RESTRAINTS



NOTES:

1. ALL MECHANICAL JOINT (MJ) FITTINGS TO BE RESTRAINED.
2. ALL FLANGES (FL) TO BE ON THE BRANCH SIDE OF TEE FITTINGS.
3. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
4. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

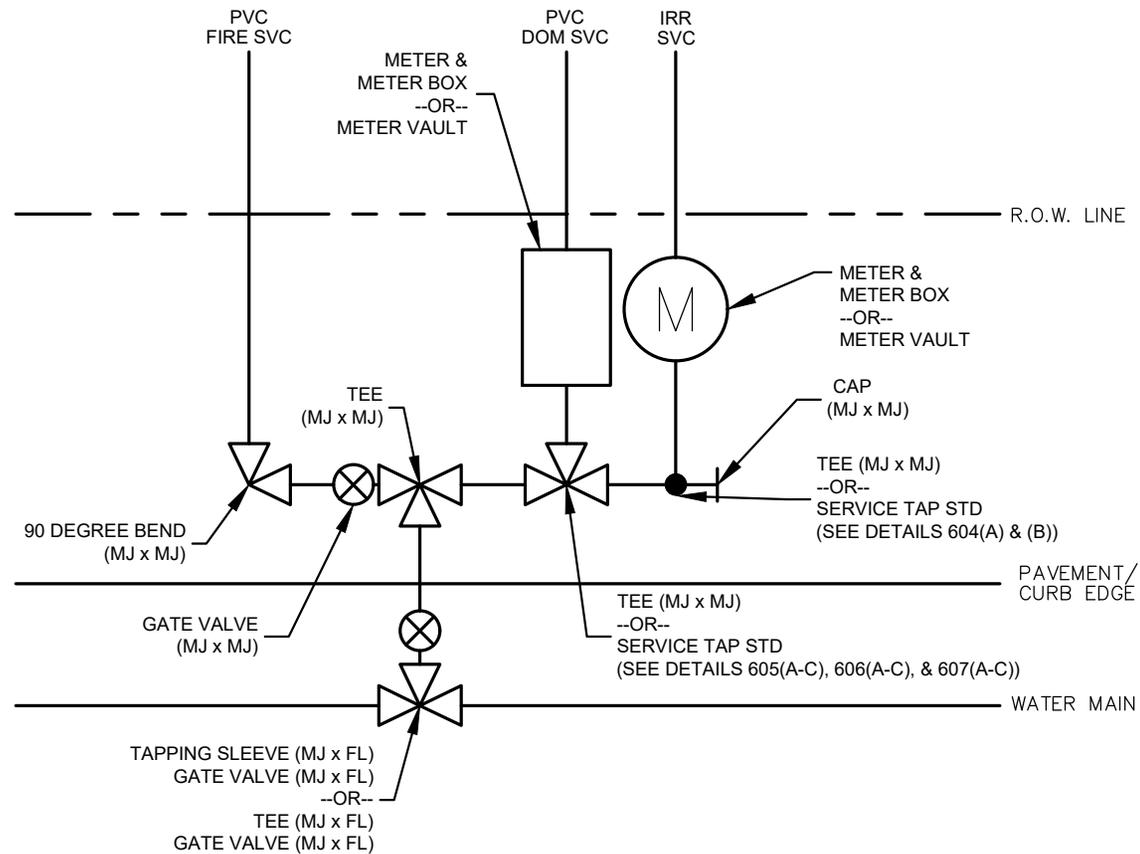
EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

TYPICAL FITTING RESTRAINT CONFIGURATIONS

601



NOTES:

1. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
2. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

EFFECTIVE DATE: 10/01/2018

SCALE:

DETAIL:

**STANDARD MULTI-FAMILY & COMMERCIAL
 WATER SERVICE MANIFOLD**

602

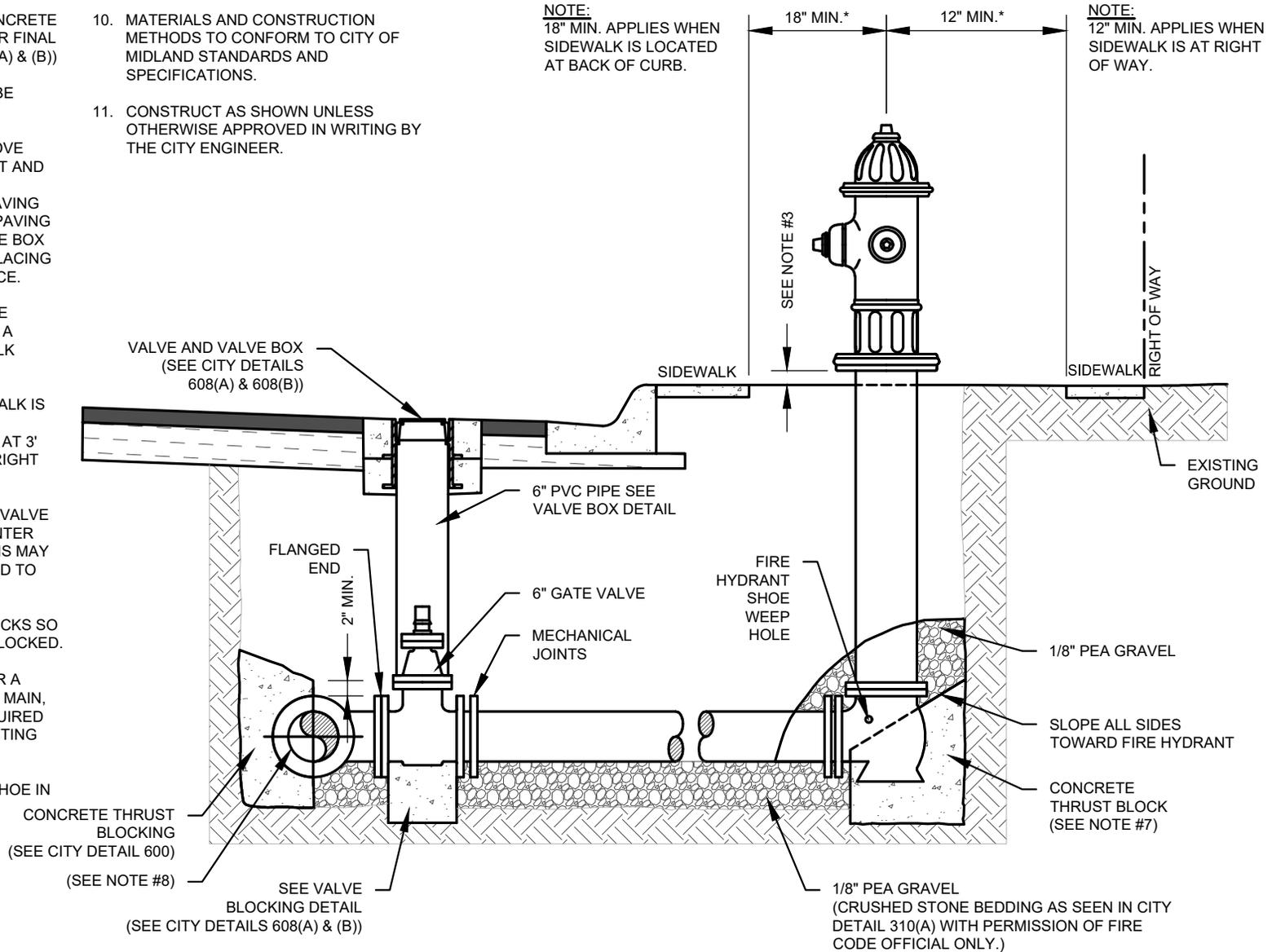
NOTES:

1. SET ALL VALVE BOXES IN A CONCRETE COLLAR WHEN PLACED AT THEIR FINAL GRADE. (SEE CITY DETAILS 608(A) & (B))
2. ALL CONCRETE PAVEMENT TO BE CLASS "C" CONCRETE, 3600 PSI.
3. LEAVE VALVE BOX 6" TO 10" ABOVE GRADE FOR NEW DEVELOPMENT AND OTHER STREETS AND ALLEYS SCHEDULED FOR IMMEDIATE PAVING UNTIL STREET WORK IS DONE. PAVING CONTRACTOR TO ADJUST VALVE BOX TO FINISHED GRADE BEFORE PLACING LAST COURSE OF HMA SURFACE.
4. SET FRANGIBLE FLANGE OF FIRE HYDRANT A MINIMUM OF 2" AND A MAXIMUM OF 6" ABOVE SIDEWALK ELEVATION.
5. ON STREETS WHERE NO SIDEWALK IS TO BE CONSTRUCTED, SET CENTERLINE OF FIRE-HYDRANT AT 3' FROM PROPERTY LINE WITHIN RIGHT OF WAY.
6. PLACE FIRE HYDRANT CUT-OFF VALVE A MINIMUM OF 3' FROM THE CENTER LINE OF THE FIRE HYDRANT. THIS MAY REQUIRE THE USE OF A 90° BEND TO OFFSET THE FIRE HYDRANT.
7. SHAPE CONCRETE THRUST BLOCKS SO THAT NO WATER DRAINS ARE BLOCKED.
8. A TEE FITTING IS REQUIRED FOR A CONNECTION TO A NEW WATER MAIN, AND A TAPPING SLEEVE IS REQUIRED FOR A CONNECTION TO AN EXISTING WATER MAIN.
9. DO NOT WRAP FIRE HYDRANT SHOE IN PLASTIC.

10. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
11. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

NOTE:
18" MIN. APPLIES WHEN SIDEWALK IS LOCATED AT BACK OF CURB.

NOTE:
12" MIN. APPLIES WHEN SIDEWALK IS AT RIGHT OF WAY.



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

EFFECTIVE DATE:

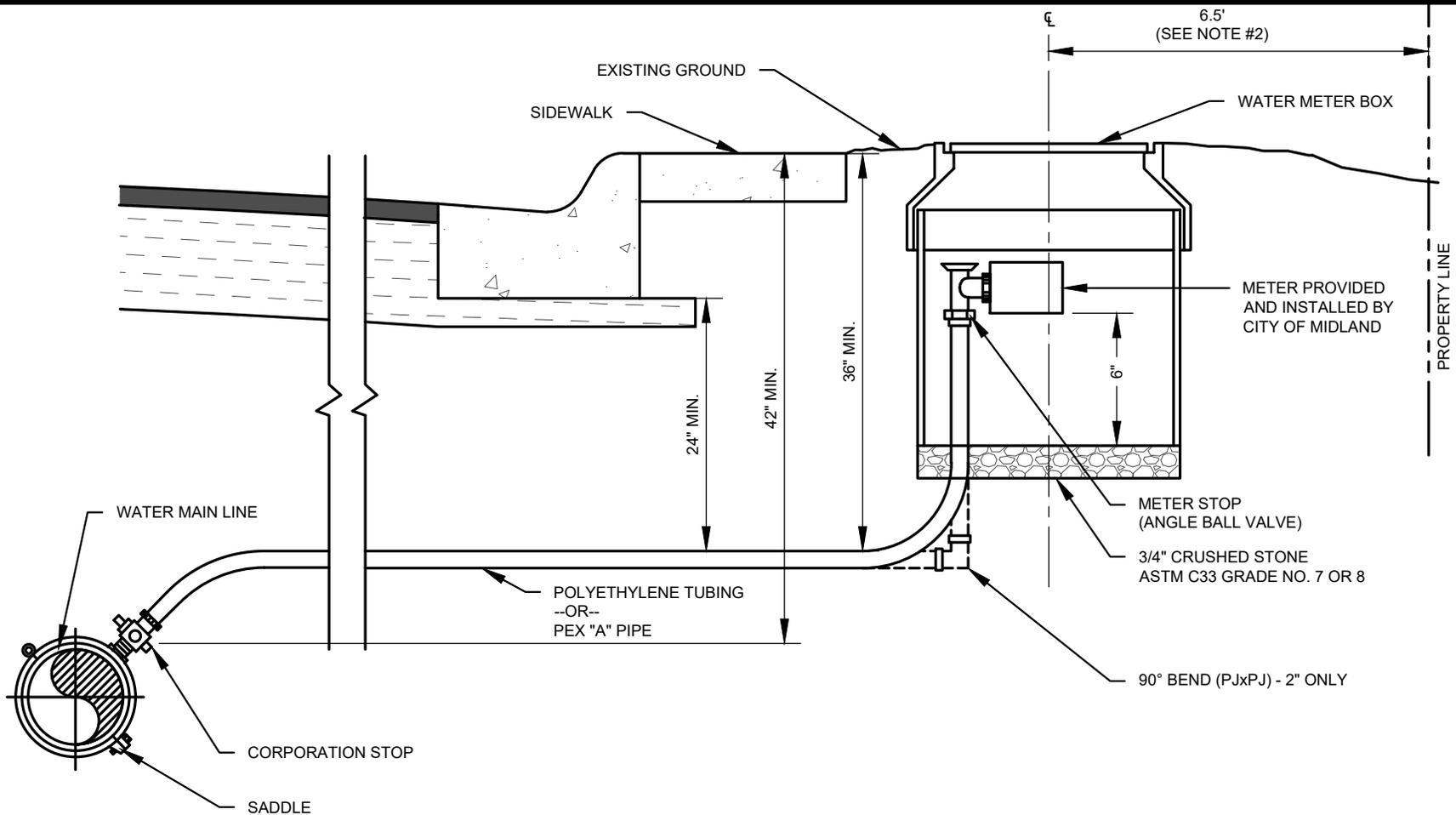
10/01/2018

SCALE: NTS

DETAIL:

**FIRE HYDRANT
 NEW WATER MAIN**

603



NOTES:

1. ALL WATER SERVICES TO BE 1" OR 2" DIAMETER.
2. THE DISTANCE FROM PROPERTY LINE SHOWN IS FOR 5' SIDEWALK AT THE PROPERTY LINE. WHEN 5' SIDEWALK IS PLACED AT THE BACK OF CURB, PLACE METER BOXES A MINIMUM OF 6.5' FROM THE BACK OF CURB.
3. TWO ADJACENT SERVICE LATERALS MAY BE PLACED IN THE SAME TRENCH. EACH TAP MUST BE SEPARATE AND HAVE BOTH A CORPORATION STOP AND A METER STOP. ("BULLHEAD TAPS ARE NOT PERMITTED".)
4. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
5. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

EFFECTIVE DATE:

10/01/2018

SCALE: NTS

DETAIL:

1" AND 2" WATER METER AND SERVICE CONNECTION

604(A)

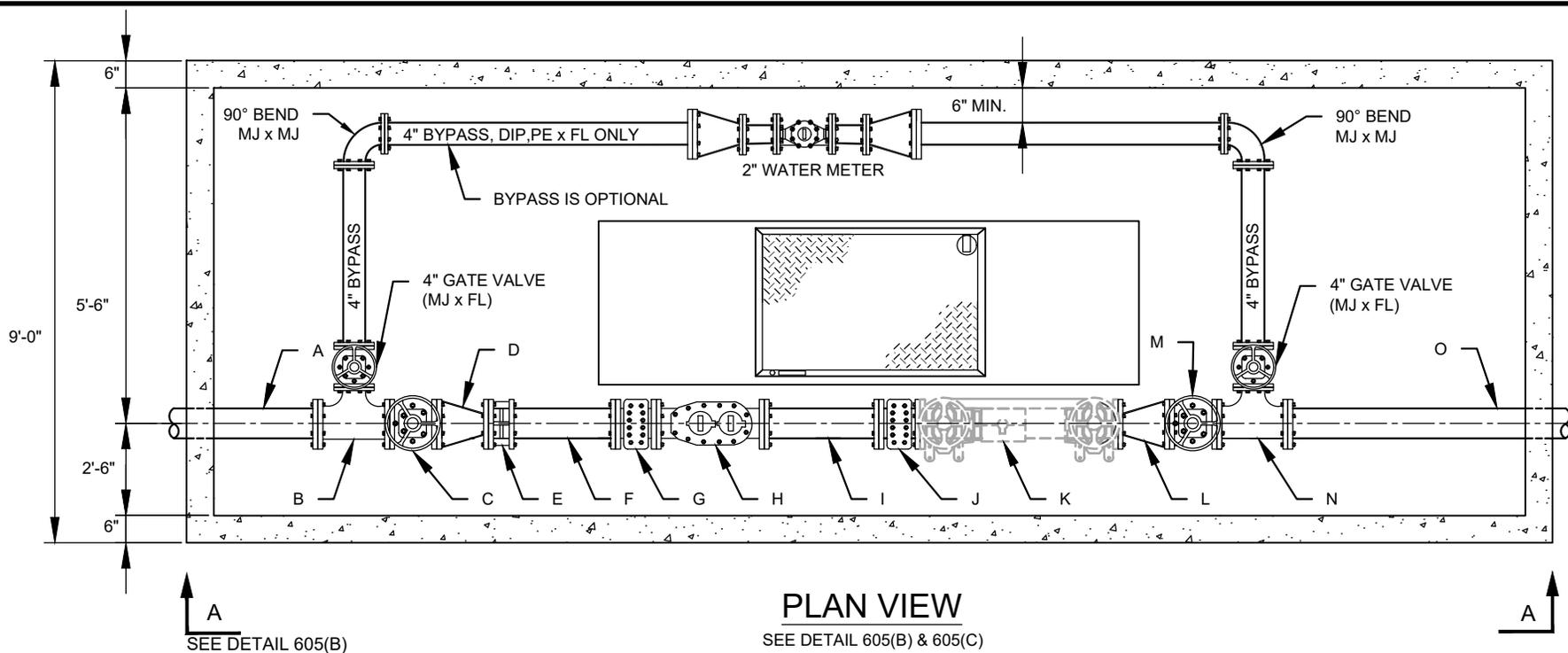
APPROVED COMPONENT LIST

<p>1" WATER METER SERVICE</p> <hr/> <p><u>SADDLE OPTION 1: DUCTILE IRON W/DUAL BAND CC THREAD STEEL STRAP</u></p> <ol style="list-style-type: none"> 1. FORD FCD202 SADDLE 2. MUELLER DR 2 S SERIES 3. A.Y. MCDONALD SERIES 4855A 4. OR APPROVED EQUAL <p><u>SADDLE OPTION 2: BRASS W/DUAL BAND CC THREAD STEEL STRAP</u></p> <ol style="list-style-type: none"> 1. FORD 202BSD SADDLE 2. MUELLER BR 2 S SERIES 3. A.Y. MCDONALD SERIES 3855 4. OR APPROVED EQUAL 	<p>2" WATER METER SERVICE</p> <hr/> <p><u>SADDLE OPTION 1: DUCTILE IRON W/DUAL BAND CC THREAD STEEL STRAP</u></p> <ol style="list-style-type: none"> 1. FORD FCD202 SADDLE 2. MUELLER DR 2 S SERIES 3. A.Y. MCDONALD SERIES 4855A 4. OR APPROVED EQUAL <p><u>SADDLE OPTION 2: BRASS W/DUAL BAND CC THREAD STEEL STRAP</u></p> <ol style="list-style-type: none"> 1. FORD 202BSD SADDLE 2. MUELLER BR 2 S SERIES 3. A.Y. MCDONALD SERIES 3855 4. OR APPROVED EQUAL
<p><u>CORPORATION STOP</u></p> <ol style="list-style-type: none"> 1. FORD FB1000-4-G-NL 2. MUELLER B-25008N 3. A.Y. MCDONALD SERIES 74701B-22 1 4. OR APPROVED EQUAL 	<p><u>CORPORATION STOP</u></p> <ol style="list-style-type: none"> 1. FORD FB1000-7-G-NL 2. MUELLER B-25008N 3. A.Y. MCDONALD SERIES 74701B-22 2 4. OR APPROVED EQUAL
<p><u>CURB STOP METER VALVE</u></p> <ol style="list-style-type: none"> 1. FORD BA43-444W-G-NL 2. MUELLER B-25172N 3. A.Y. MCDONALD SERIES 74602B-22 1 4. OR APPROVED EQUAL 	<p><u>CURB STOP METER VALVE</u></p> <ol style="list-style-type: none"> 1. FORD BFA43-777W-G-NL 2. MUELLER B-25172N 3. A.Y. MCDONALD SERIES 74602B-22 2 4. OR APPROVED EQUAL
<p><u>WATER METER BOX</u></p> <ol style="list-style-type: none"> 1. EAST JORDAN 32197099A02 2. OR APPROVED EQUAL 	<p><u>WATER METER BOX</u></p> <ol style="list-style-type: none"> 1. EAST JORDAN 32244000A01 2. OR APPROVED EQUAL
<p><u>SERVICE LINE PIPE</u></p> <ol style="list-style-type: none"> 1. ASTM D-2737 POLYETHYLENE TUBING 2. MUNICI PEX 'A' PIPE 3. OR APPROVED EQUAL 	<p><u>SERVICE LINE PIPE</u></p> <ol style="list-style-type: none"> 1. ASTM D-2737 POLYETHYLENE TUBING 2. MUNICI PEX 'A' PIPE 3. OR APPROVED EQUAL

NOTES:

1. ALL COMPONENTS OF ANY WATER METER SERVICE LINE MUST COME FROM THE SAME BRAND WHENEVER POSSIBLE.
2. PLASTIC WRAP ALL SADDLES.
3. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
4. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC
	EFFECTIVE DATE: 10/01/2018	SCALE: NTS
1" AND 2" WATER METER AND SERVICE CONNECTION		604(B)



NOTES:

1. ALL FITTINGS COMPACT OR STD DUCTILE IRON.
2. ALL MJ FITTING TO BE RESTRAINED.
3. CLASS I/II CONCRETE WITH DESIGN STRENGTH OF 4500 PSI AT 28 DAYS . UNIT IS OF MONOLITHIC CONSTRUCTION AT FLOOR AND FIRST STAGE OF WALL WITH SECTIONAL RISER TO REQUIRED LENGTH.
4. GRADE 60 REINFORCED STEEL REBAR CONFORMING TO ASTM A615 ON REQUIRED CENTERS OR EQUAL.
5. ALUMINUM DIAMOND PLATE COVER WITH EXTRUDED ALUMINUM FRAME. HATCH TO BE FURNISHED WITH STAINLESS STEEL SLAM LOCK AND HINGES. (300 P S.F. LIVE LOAD)
6. UNISTRUT CHANNEL SUPPORT AND END BRACKET.
7. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
8. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



DRAWN: DPM
 CHECKED: JHC
 APPROVED: MCC

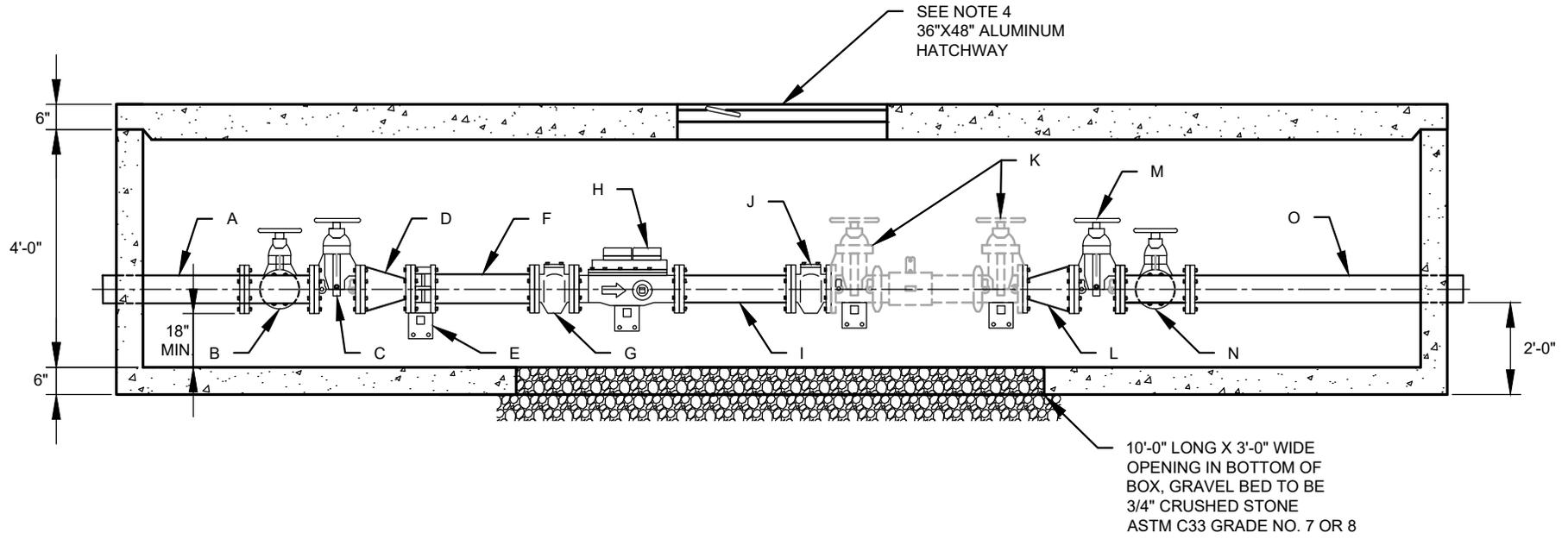
EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

**3 INCH DOMESTIC COMPOUND
 WATER METER ASSEMBLIES**

605(A)



SECTION VIEW 'A-A'

SEE DETAIL 605(A) & 605(C)



DRAWN: DPM
CHECKED: JHC
APPROVED: MCC

EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

**3 INCH DOMESTIC COMPOUND
WATER METER ASSEMBLIES**

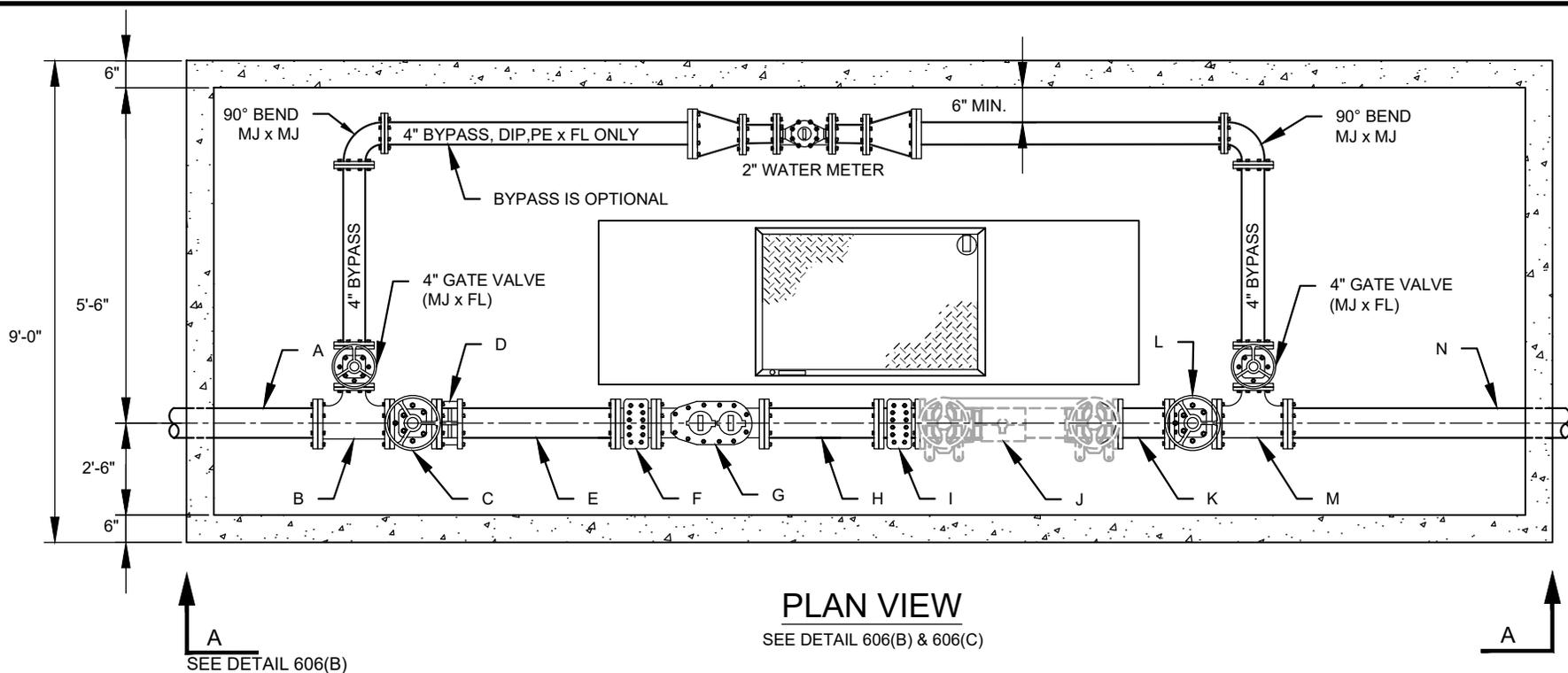
605(B)

NO	DESCRIPTION	LENGTH
..... VAULT WALL		
A	CLEARANCE SPACE	12"
B	TYLER UNION 4" x 4" TEE (MJ x FL)	8"
C	MUELLER 4" GATE VALVE (MJ x MJ)	8"
D	TYLER UNION 4" X 3" REDUCER (MJ X FL)	7"
E	JCM #304 3" DISMANTLING JOINT	12"
F	DUCTILE IRON PIPE SPOOL	12"
G	NEPTUNE 3" DIA. STRAINER	6"
H	NEPTUNE 3" TRU/FLO METER	17"
I	DUCTILE IRON PIPE SPOOL (FL x FL)	12"
J	WATTS #77F 3" DIA. STRAINER	10"
K	WATTS #757 3" DIA. DCVA	32"
L	TYLER UNION 4" X 3" REDUCER (MJ x FL)	7"
M	MUELLER 4" GATE VALVE (MJ x MJ)	8"
N	TYLER UNION 4" X 3" TEE (MJ x FL)	8"
O	CLEARANCE SPACE	12"
..... VAULT WALL		
* THESE COMPONENTS ARE SET BY THE CITY		
** DCVA - DOUBLE CHECK VALVE ASSEMBLY		
*** TOTAL INSIDE VAULT LENGTH WITH BACKFLOW PREVENTER = 171.0" - OR - 14.25'		
**** TOTAL INSIDE VAULT LENGTH WITHOUT BACKFLOW PREVENTER = 129.0" - OR 10.75'		

NOTES:

1. ALL PIPE WITHIN VAULT STRUCTURE TO BE DUCTILE IRON PIPE.
2. APPROVED EQUAL COMPONENTS MAY BE USED UNLESS OTHERWISE NOTED.
3. DOUBLE CHECK VALVE ASSEMBLY BACKFLOW PREVENTION ONLY REQUIRED FOR METER VAULTS ON LOOPED WATER MAIN/LINES.
4. BYPASS PIPE MAY BE LOCATED INSIDE VAULT STRUCTURE IF DESIRED. VAULT WALL TO BE LOCATED A MINIMUM 12" FROM INSIDE VAULT WALL EDGE TO OUTSIDE EDGE OF BYPASS PIPE, WITH NO CHANGE TO OTHER VAULT DETAIL DIMENSIONS.
5. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
6. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC
	EFFECTIVE DATE: 10/01/2018	SCALE: NTS
3 - INCH COMPOUND METER & VAULT		DETAIL: 605(C)



NOTES:

1. ALL FITTINGS COMPACT OR STD DUCTILE IRON.
2. ALL MJ FITTING TO BE RESTRAINED.
3. CLASS I/II CONCRETE WITH DESIGN STRENGTH OF 4500 PSI AT 28 DAYS . UNIT IS OF MONOLITHIC CONSTRUCTION AT FLOOR AND FIRST STAGE OF WALL WITH SECTIONAL RISER TO REQUIRED LENGTH.
4. GRADE 60 REINFORCED STEEL REBAR CONFORMING TO ASTM A615 ON REQUIRED CENTERS OR EQUAL.
5. ALUMINUM DIAMOND PLATE COVER WITH EXTRUDED ALUMINUM FRAME. HATCH TO BE FURNISHED WITH STAINLESS STEEL SLAM LOCK AND HINGES. (300 P S.F. LIVE LOAD)
6. UNISTRUT CHANNEL SUPPORT AND END BRACKET.
7. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
8. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



DRAWN: DPM
 CHECKED: JHC
 APPROVED: MCC

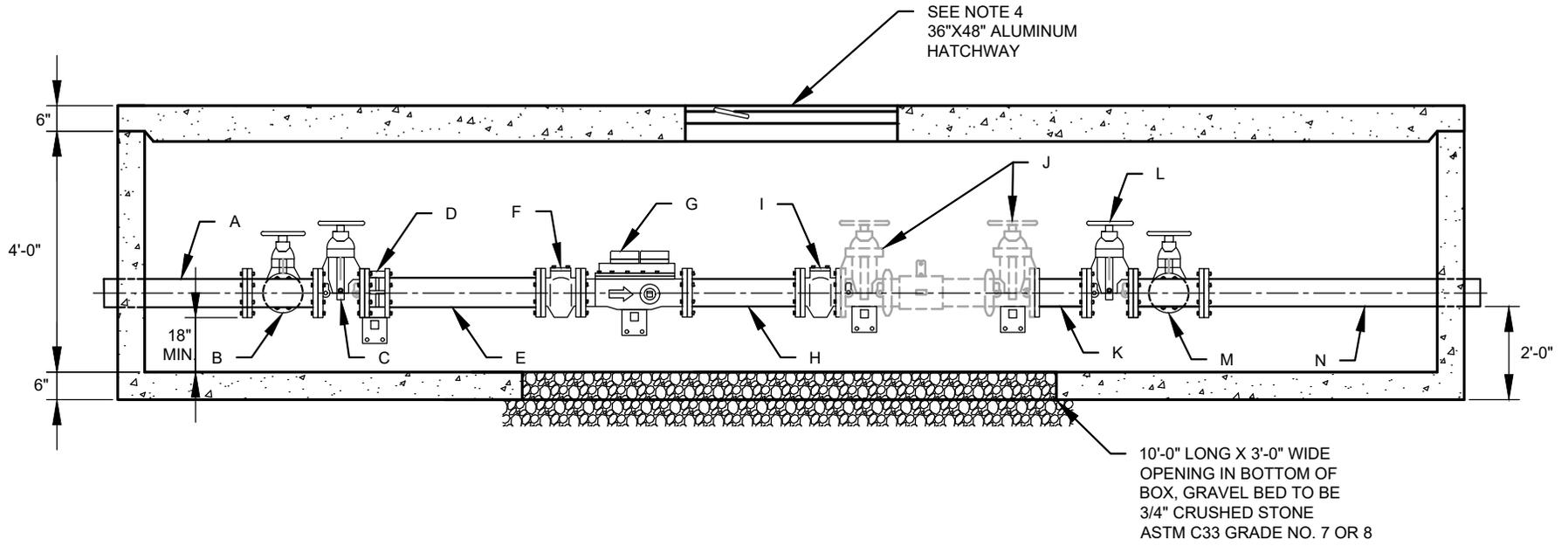
EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

**4 INCH DOMESTIC COMPOUND
 WATER METER ASSEMBLIES**

606(A)



SECTION VIEW 'A-A'
SEE DETAIL 606(A) & 606(C)



DRAWN: DPM
CHECKED: JHC
APPROVED: MCC

EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

**4 INCH DOMESTIC COMPOUND
WATER METER ASSEMBLIES**

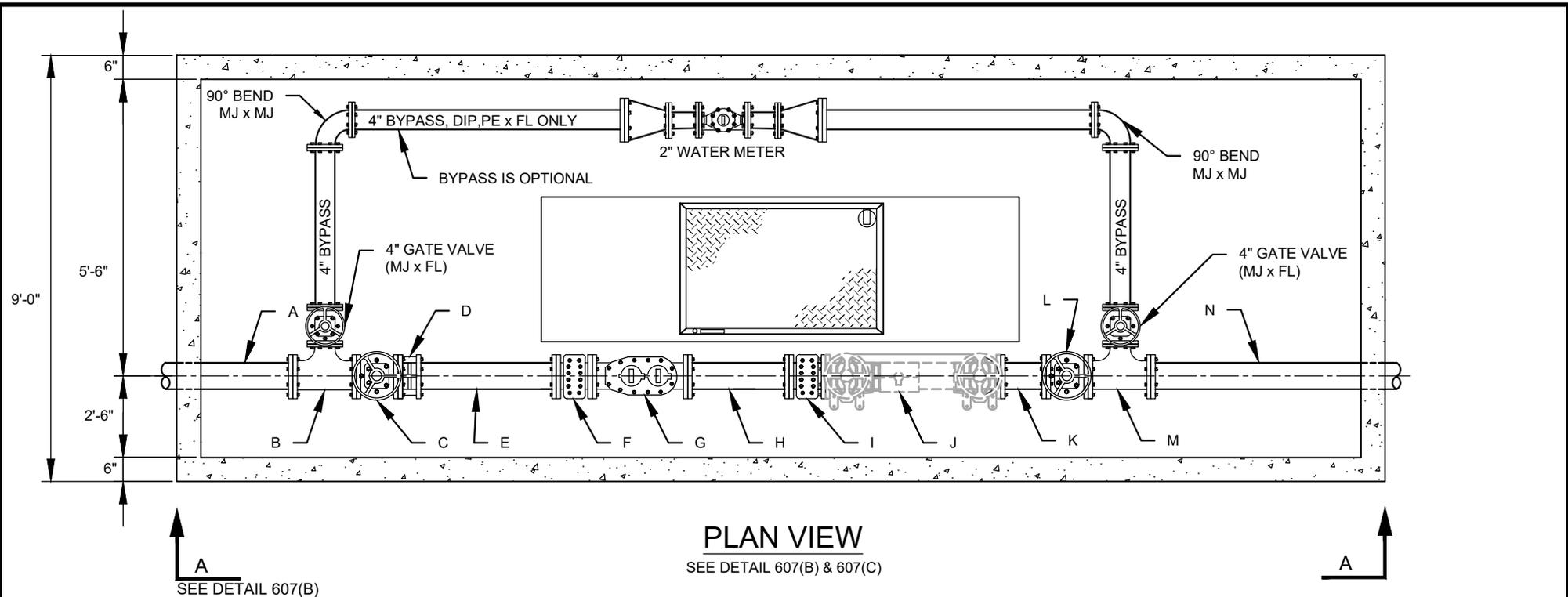
606(B)

NO	DESCRIPTION	LENGTH
..... VAULT WALL		
A	CLEARANCE SPACE	12"
B	TYLER UNION 4" x 4" TEE (MJ x FL)	8"
C	MUELLER 4" GATE VALVE (MJ x MJ)	9"
D	JCM #304 4" DISMANTLING JOINT	12"
E	DUCTILE IRON PIPE SPOOL	16"
F	NEPTUNE 4" DIA. STRAINER	8"
G	NEPTUNE 4" TRU/FLO METER	20"
H	DUCTILE IRON PIPE SPOOL (FL X FL)	16"
I	WATTS #77F 4" DIA. STRAINER	12"
J	WATTS #757 4" DIA. DCVA	34"
K	DUCTILE IRON PIPE SPOOL	12"
L	MUELLER 4" GATE VALVE (MJ X MJ)	9"
M	TYLER UNION 4" X 4" TEE (MJ x FL)	8"
N	CLEARANCE SPACE	12"
..... VAULT WALL		
* THESE COMPONENTS ARE SET BY THE CITY		
** DCVA - DOUBLE CHECK VALVE ASSEMBLY		
*** TOTAL INSIDE VAULT LENGTH WITH BACKFLOW PREVENTER = 188.0" - OR - 15.67'		
**** TOTAL INSIDE VAULT LENGTH WITHOUT BACKFLOW PREVENTER = 142.0" - OR - 11.83'		

NOTES:

1. ALL PIPE WITHIN VAULT STRUCTURE TO BE DUCTILE IRON PIPE.
2. APPROVED EQUAL COMPONENTS MAY BE USED UNLESS OTHERWISE NOTED.
3. DOUBLE CHECK VALVE ASSEMBLY BACKFLOW PREVENTION ONLY REQUIRED FOR METER VAULTS ON LOOPED WATER MAIN/LINES.
4. BYPASS PIPE MAY BE LOCATED INSIDE VAULT STRUCTURE IF DESIRED. VAULT WALL TO BE LOCATED A MINIMUM 12" FROM INSIDE VAULT WALL EDGE TO OUTSIDE EDGE OF BYPASS PIPE, WITH NO CHANGE TO OTHER VAULT DETAIL DIMENSIONS.
5. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
6. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC
	EFFECTIVE DATE: 10/01/2018	SCALE: NTS
4 - INCH COMPOUND METER & VAULT		DETAIL: 606(C)



NOTES:

1. ALL FITTINGS COMPACT OR STD DUCTILE IRON.
2. ALL MJ FITTING TO BE RESTRAINED.
3. CLASS I/II CONCRETE WITH DESIGN STRENGTH OF 4500 PSI AT 28 DAYS . UNIT IS OF MONOLITHIC CONSTRUCTION AT FLOOR AND FIRST STAGE OF WALL WITH SECTIONAL RISER TO REQUIRED LENGTH.
4. GRADE 60 REINFORCED STEEL REBAR CONFORMING TO ASTM A615 ON REQUIRED CENTERS OR EQUAL.
5. ALUMINUM DIAMOND PLATE COVER WITH EXTRUDED ALUMINUM FRAME. HATCH TO BE FURNISHED WITH STAINLESS STEEL SLAM LOCK AND HINGES. (300 P S.F. LIVE LOAD)
6. UNISTRUT CHANNEL SUPPORT AND END BRACKET.
7. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
8. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



DRAWN: DPM
 CHECKED: JHC
 APPROVED: MCC

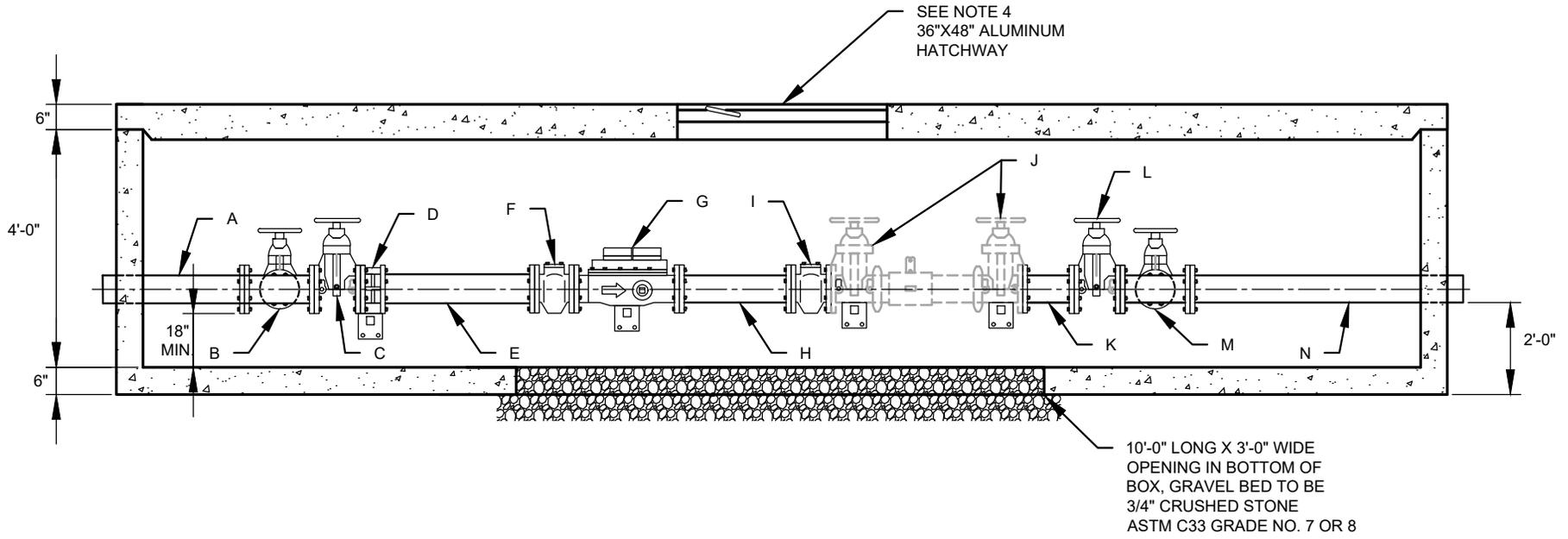
EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

**6 INCH DOMESTIC COMPOUND
 WATER METER ASSEMBLIES**

607(A)



SECTION VIEW 'A-A'

SEE DETAIL 607(B) & 607(C)



DRAWN: DPM
CHECKED: JHC
APPROVED: MCC

EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

**6 INCH DOMESTIC COMPOUND
WATER METER ASSEMBLIES**

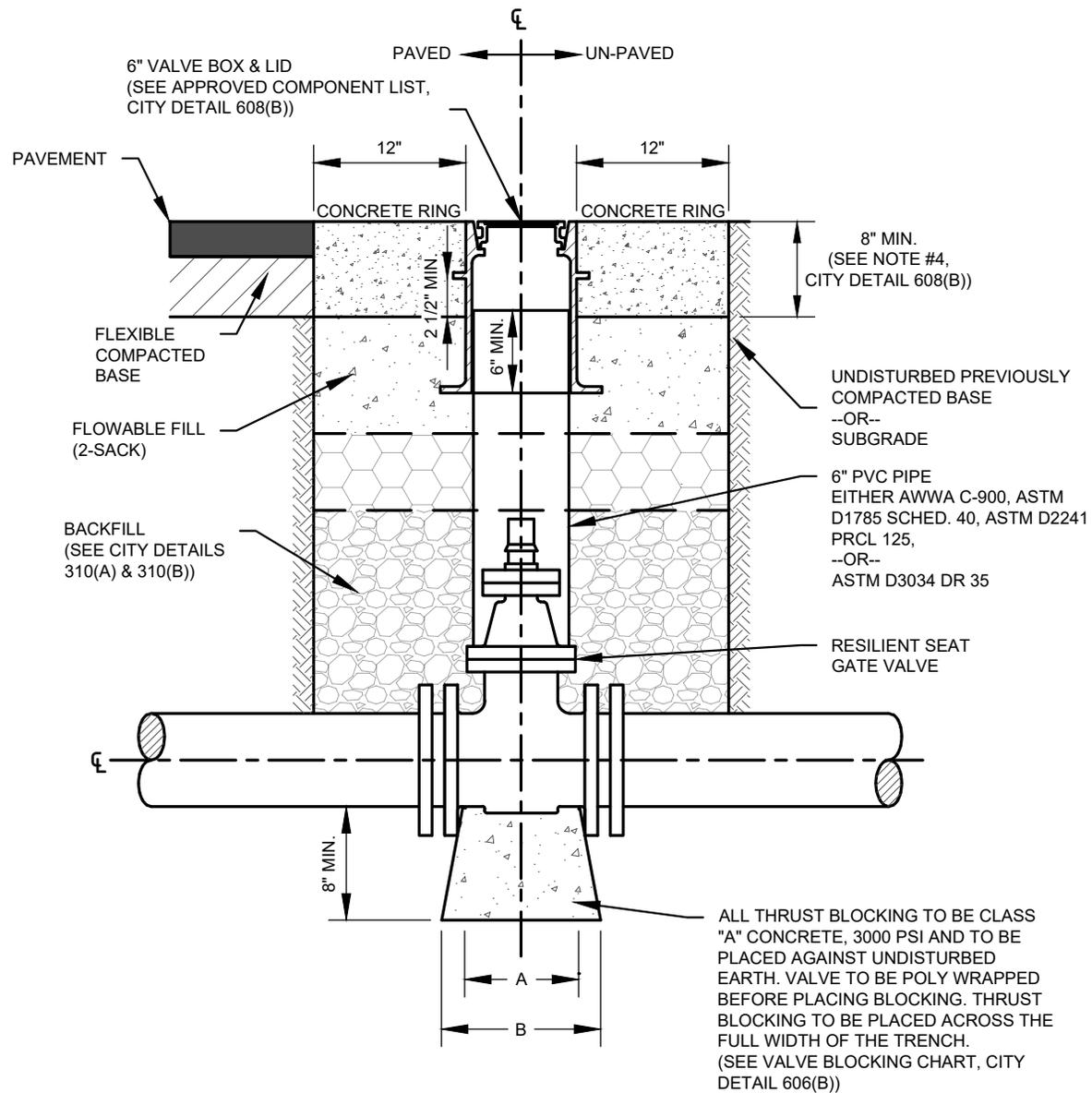
607(B)

NO	DESCRIPTION	LENGTH
..... VAULT WALL		
A	CLEARANCE SPACE	12"
B	TYLER UNION 6" x 4" TEE (MJ x FL)	8"
C	MUELLER 6" GATE VALVE (MJ x MJ)	10.5"
D	JCM #304 4" DISMANTLING JOINT	16"
E	DUCTILE IRON PIPE SPOOL	24"
F	NEPTUNE 6" DIA. STRAINER	9"
G	NEPTUNE 6" TRU/FLO METER	24"
H	DUCTILE IRON PIPE SPOOL (FL X FL)	24"
I	WATTS #77F 6" DIA. STRAINER	18.5"
J	WATTS #757 6" DIA. DCVA	44"
K	DUCTILE IRON PIPE SPOOL	12"
L	MUELLER 6" GATE VALVE (MJ X MJ)	10.5"
M	TYLER UNION 6" X 4" TEE (MJ x FL)	8"
N	CLEARANCE SPACE	12"
..... VAULT WALL		
* THESE COMPONENTS ARE SET BY THE CITY		
** DCVA - DOUBLE CHECK VALVE ASSEMBLY		
*** TOTAL INSIDE VAULT LENGTH WITH BACKFLOW PREVENTER = 232.5" - OR - 19.38'		
**** TOTAL INSIDE VAULT LENGTH WITHOUT BACKFLOW PREVENTER = 170.0" - OR - 14.17'		

NOTES:

1. ALL PIPE WITHIN VAULT STRUCTURE TO BE DUCTILE IRON PIPE.
2. APPROVED EQUAL COMPONENTS MAY BE USED UNLESS OTHERWISE NOTED.
3. DOUBLE CHECK VALVE ASSEMBLY BACKFLOW PREVENTION ONLY REQUIRED FOR METER VAULTS ON LOOPED WATER MAIN/LINES.
4. BYPASS PIPE MAY BE LOCATED INSIDE VAULT STRUCTURE IF DESIRED. VAULT WALL TO BE LOCATED A MINIMUM 12" FROM INSIDE VAULT WALL EDGE TO OUTSIDE EDGE OF BYPASS PIPE, WITH NO CHANGE TO OTHER VAULT DETAIL DIMENSIONS.
5. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
6. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC
	EFFECTIVE DATE: 10/01/2018	SCALE: NTS
6 - INCH COMPOUND METER & VAULT		DETAIL: 607(C)



DRAWN: DPM
CHECKED: JCF
APPROVED: MCC

EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

TYPICAL VALVE AND VALVE BOX

608(A)

<u>APPROVED COMPONENT LIST</u>			
<u>NO.</u>	<u>VALVES</u>	<u>VALVE COVERS</u>	<u>VALVE BOX</u>
1	MUELLER 2360 M/J	MUELLER 2360 FL X FL	BASS & HAYS STANDARD 390-1 "SHORTY"
2	M & H 4067 M/J	M & H 4067-0	OR APPROVED EQUAL
3	CLOW 2838 M/J	CLOW 2840 FL X FL	
4	OR APPROVED EQUAL	OR APPROVED EQUAL	

<u>VALVE BLOCKING CHART</u>		
<u>PIPE SIZE</u>	<u>A</u>	<u>B</u>
4"	5.0"	10.5"
6"	6.5"	1'-0"
8"	6.5"	1'-0"
10"	8.0"	1'-1.0"
12"	8.5"	1'-2.0"

NOTES:

- FOR VALVES ON WATER MAIN PIPES LARGER THAN 12" SEE CITY DETAIL 609.
- SETTING VALVE BOX TO GRADE MAY REQUIRE ADDING PVC PIPE. IF ADDITIONAL PIPE IS REQUIRED, USE BELL SECTION WITH GASKET AND SET BELL DOWN OVER EXISTING PIPE RISER. A GASKETED SELF CENTERING COLLAR MAY BE USED IN LIEU OF THE BELL SECTION.
- CONCRETE RING TO BE CITY OF MIDLAND CLASS "C", 3600 PSI, UNLESS OTHERWISE NOTED.
- USE FIBER REINFORCEMENT FOR ALL CONCRETE , WHETHER PAVEMENT OR THRUST BLOCKING.
- 12" MINIMUM FOR CONCRETE RING IN AN ARTERIAL ROADWAY.
- FLOWABLE FILL 2-SACK (2 SACK = 188 LBS/CY, PORTLAND CEMENT.) REQUIRED BENEATH ALL CONCRETE RINGS.
- FLOWABLE FILL 2-SACK (2 SACK = 188 LBS/CY, PORTLAND CEMENT.) REQUIRED FOR ALL OVER EXCAVATION BACKFILL.
- MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
- CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

EFFECTIVE DATE:

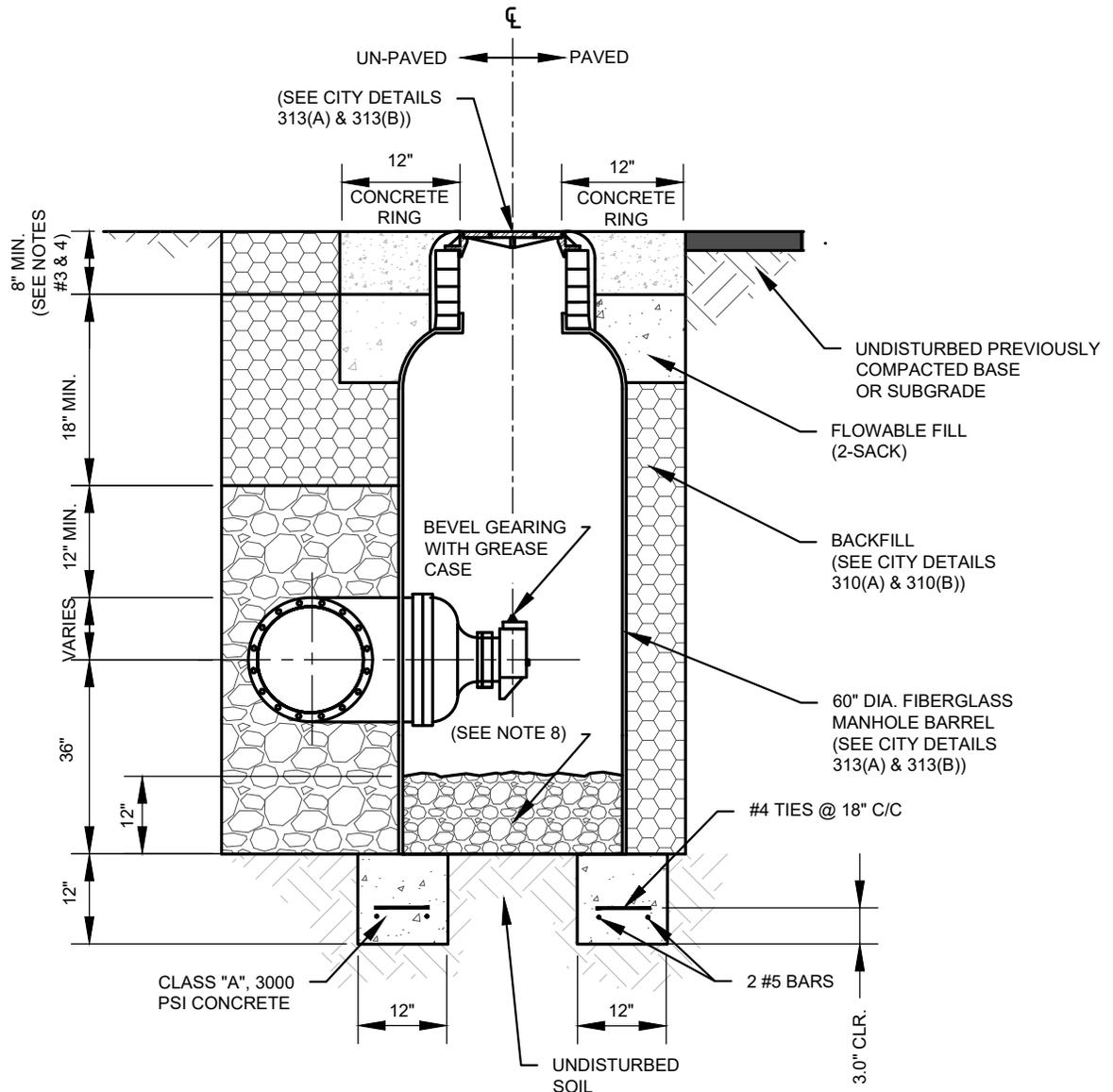
10/01/2018

SCALE: NTS

DETAIL:

TYPICAL VALVE AND VALVE BOX DETAILS

608(B)

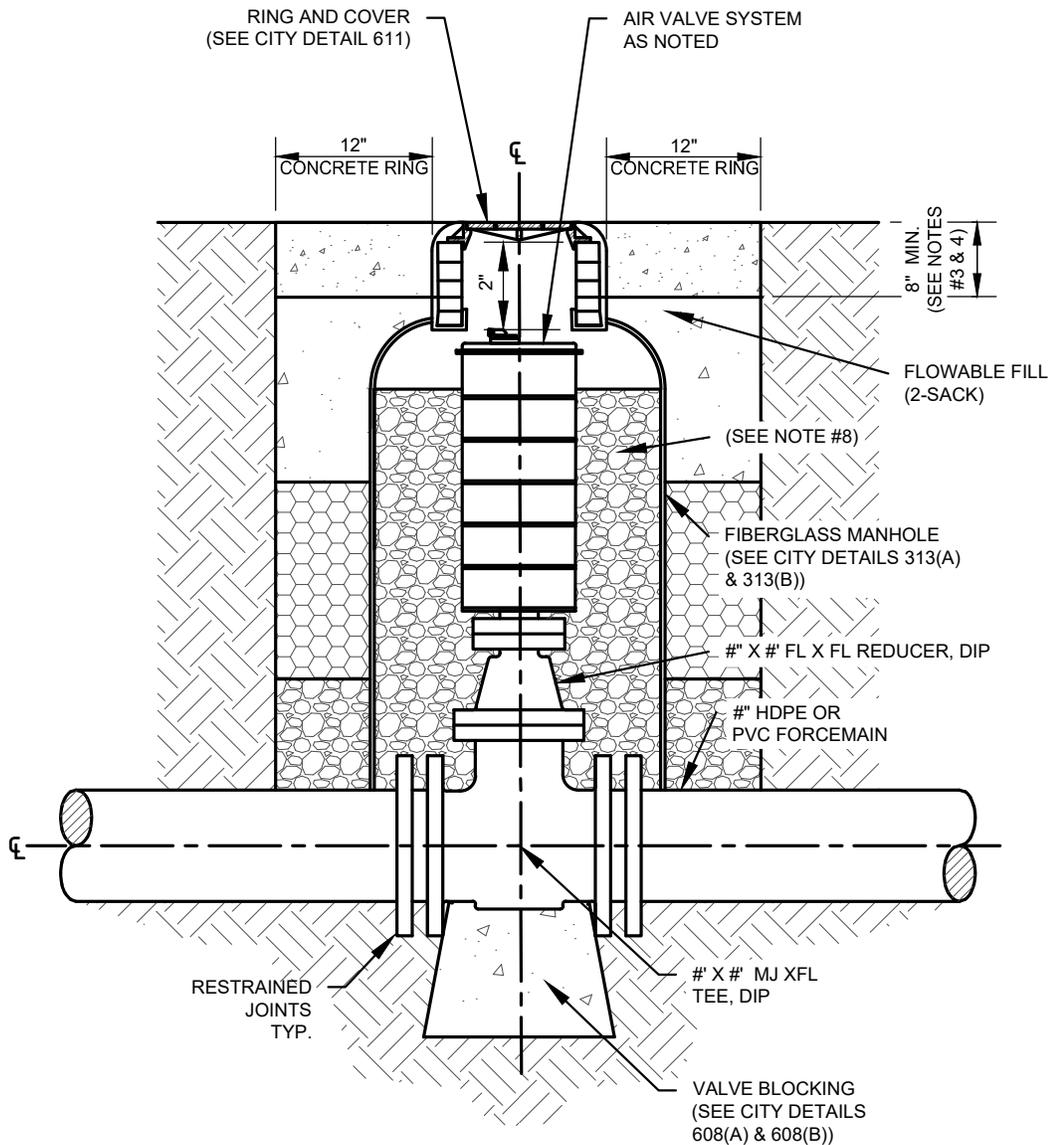


NOTES:

1. THIS DETAIL IS FOR 16" GATE VALVES AND LARGER. SEPARATE DESIGN FOR GATE VALVES LARGER THAT 16" MUST BE PROVIDED AT THE DISCRETION OF THE CITY ENGINEER.
2. ALL GATE VALVES ARE TO BE RESILIENT WEDGE TYPE, HORIZONTAL MOUNTED, MECHANICAL JOINT, BEVEL GEAR OPERATOR. ALL FITTINGS ARE TO BE RESTRAINED JOINTS.
3. CONCRETE RING TO BE CITY OF MIDLAND CLASS "C" CONCRETE, 3600 PSI.
4. 12" MINIMUM FOR CONCRETE RING IN AN ARTERIAL ROADWAY.
5. USE FIBER REINFORCEMENT FOR ALL CONCRETE, WHETHER PAVEMENT OR THRUST BLOCKING.
6. FLOWABLE FILL 2-SACK (2 SACK = 188 LBS/CY, PORTLAND CEMENT). REQUIRED BENEATH ALL CONCRETE RINGS.
7. FLOWABLE FILL 2-SACK (2 SACK = 188 LBS/CY, PORTLAND CEMENT). REQUIRED FOR ALL OVER EXCAVATION BACKFILL.
8. WASHED PEA GRAVEL OR WASHED 3/4" CRUSHED STONE ASTM C33 GRADE NO. 7 OR 8.
9. MATERIAL AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
10. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC
EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
HORIZONTAL GATE VALVE AND VAULT		609

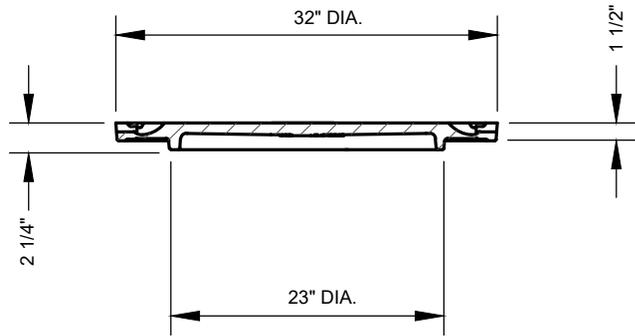




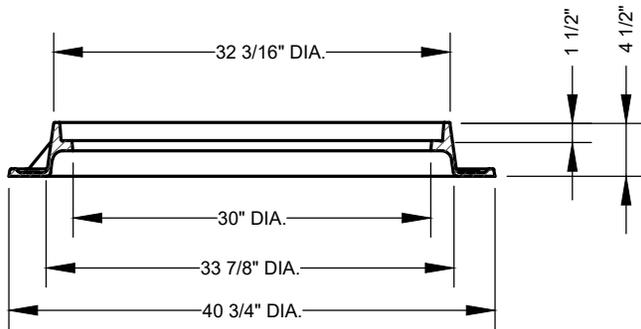
NOTES:

1. USE AN A.R.I. D-025 SB WITH A 4" TUBE LENGTH OR APPROVED EQUAL FOR ALL AIR VALVE INSTALLATIONS.
2. EQUIP EACH AIR VALVE SYSTEM WITH A NON-SLAM, DISCHARGE THROTTLING ATTACHMENT (SLOW RELEASE ONE WAY ATTACHMENT).
3. CONCRETE RING TO BE CITY OF MIDLAND CLASS "C" CONCRETE, 3600 PSI.
4. 12" MINIMUM FOR CONCRETE RING IN AN ARTERIAL ROADWAY.
5. USE FIBER REINFORCEMENT FOR ALL CONCRETE, WHETHER PAVEMENT OR THRUST BLOCKING.
6. FLOWABLE FILL 2-SACK (2 SACK = 188 LBS/CY, PORTLAND CEMENT). REQUIRED BENEATH ALL CONCRETE RINGS.
7. FLOWABLE FILL 2-SACK (2 SACK = 188 LBS/CY, PORTLAND CEMENT). REQUIRED FOR ALL OVER EXCAVATION BACKFILL.
8. MAY BE EITHER PEA GRAVEL OR 3/4" CRUSHED STONE ASTM C33 GRADE N. 7 OR 8
9. MATERIAL AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
10. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

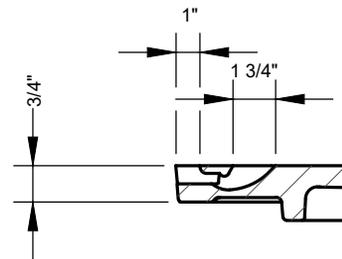
DRAWN: DPM	CHECKED: JCF	APPROVED: MCC
EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
MIDLAND <i>Engineering Services</i>		WATER AIR RELIEF VALVE
		610



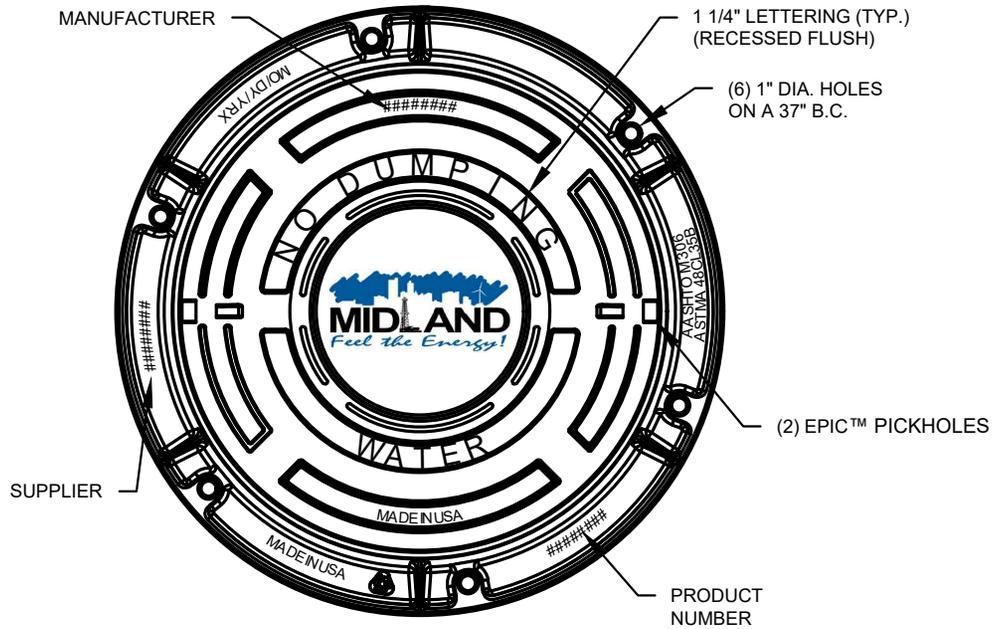
COVER SECTION



FRAME SECTION



PICKHOLE DETAIL



NOTES:

1. MANHOLE COVERS TO BE CAST WITH THE FOLLOWING:
"NO DUMPING"
CITY OF MIDLAND LOGO
"WATER"

EAST JORDAN V1420Z1/V1430A ASSEMBLY OR APPROVED EQUAL
2. MATERIAL AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
3. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



DRAWN: DPM
CHECKED: JCF
APPROVED: MCC

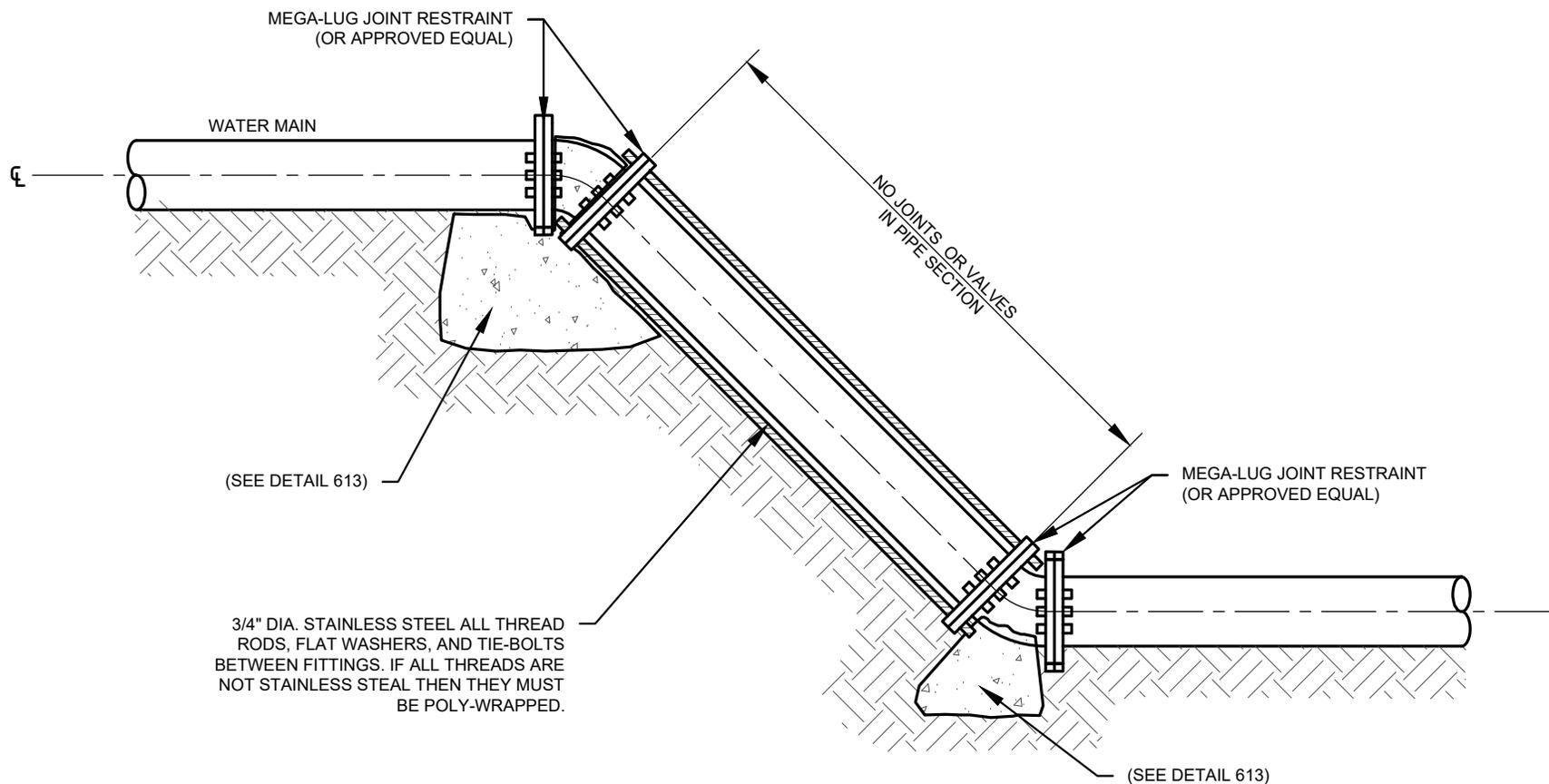
EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

**WATER HORIZONTAL
& AIR RELIEF VALVE COVER**

611



NOTES:

1. FORM ALL CONCRETE THRUST BLOCKING. DO NOT PLACE UN-FORMED THRUST BLOCKING.
2. ALL THRUST BLOCKING TO BE CLASS "A" CONCRETE, 3000 PSI, AND TO BE PLACED AGAINST UNDISTURBED EARTH. USE FIBER REINFORCEMENT THROUGHOUT.
3. FITTINGS TO BE POLY WRAPPED BEFORE BLOCKING IS PLACED.
4. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
5. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

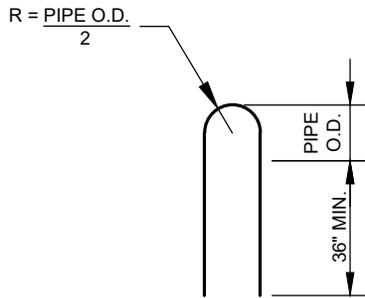
**WATER MAIN
 VERTICAL OFFSET**

612

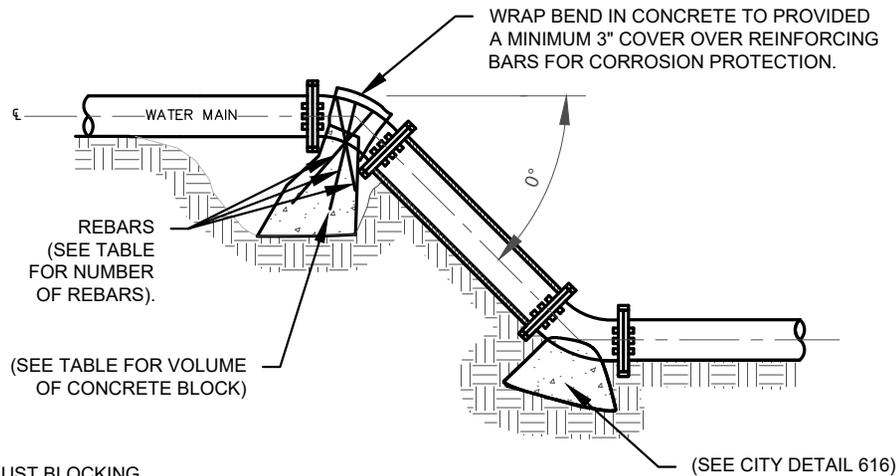
DIA. OF PIPE	DEGREE OF BEND θ							
	11 1/4°		22 1/2°		45°		90°	
	VOLUME BLOCK	REBAR NO. SIZE	VOLUME BLOCK	REBAR NO. SIZE	VOLUME BLOCK	REBAR NO. SIZE	VOLUME BLOCK	REBAR NO. SIZE
4"	3 C.F.	2-#3	6 C.F.	2-#3	12 C.F.	2-#3	22 C.F.	2-#3
6"	7 C.F.	2-#3	13 C.F.	2-#3	26 C.F.	2-#3	1.0 C.Y.	2-#3
8"	12 C.F.	2-#3	24 C.F.	2-#3	2.0 C.Y.	2-#4	3.0 C.Y.	2-#4
10"	19 C.F.	2-#3	1.5 C.Y.	2-#4	3.0 C.Y.	2-#4	5.0 C.Y.	2-#6
12"	1.0 C.Y.	2-#3	2.0 C.Y.	2-#4	4.0 C.Y.	2-#6	7.0 C.Y.	2-#8
14"	1.5 C.Y.	2-#4	3.0 C.Y.	2-#4	5.5 C.Y.	2-#6	*	*
16"	2.0 C.Y.	2-#4	3.5 C.Y.	2-#4	7.0 C.Y.	2-#7	*	*

BLOCK FOR EXTERNAL VERTICAL BENDS
DESIGN PRESSURE 180 PSI

* BLOCKING FOR 14" AND 16" 90° BENDS AND FOR ALL BENDS LARGER THAN 16" WILL BE SHOWN ON THE PLANS.



BAR BEND DETAIL



NOTES:

1. FORM ALL CONCRETE THRUST BLOCKING. DO NOT PLACE UN-FORMED THRUST BLOCKING.
2. ALL THRUST BLOCKING TO BE CLASS "A" CONCRETE, 3000 PSI, AND TO BE PLACED AGAINST UNDISTURBED EARTH. USE FIBER REINFORCEMENT THROUGHOUT.
3. FITTINGS TO BE POLY WRAPPED BEFORE BLOCKING IS PLACED.
4. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
5. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



DRAWN: DPM
CHECKED: JCF
APPROVED: MCC

EFFECTIVE DATE: 10/01/2018

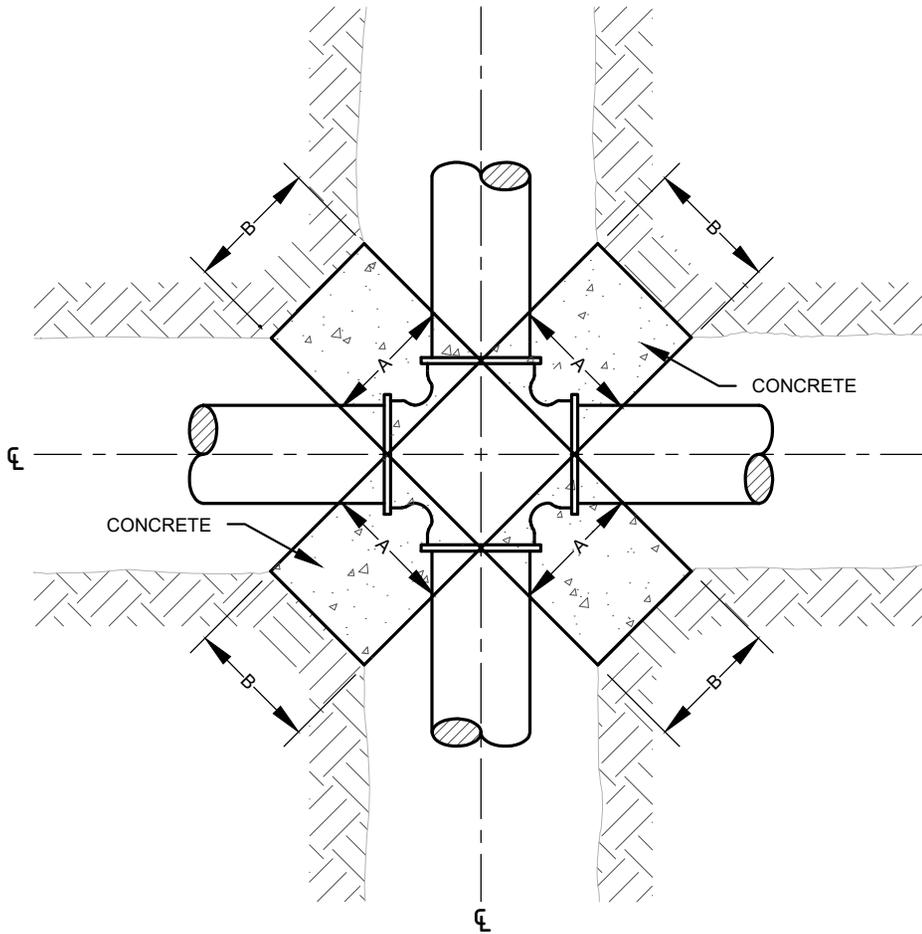
SCALE: NTS

DETAIL:

BLOCKING FOR VERTICAL BEND

613

CROSS BLOCKING
 DESIGN 180 PSI LINE PRESSURE
 SOIL BEARING CAP 2K/SF



CROSS BLOCKING

CROSS DIA.	BLOCKING DIMENSIONS		
	A	B	*C
4"x 4"	0'-11"	1'-0"	1'-0"
6"x 6"	1'-2"	1'-7"	1'-0"
8"x 8"	1'-4"	2'-2"	2'-2"
10"x 10"	1'-8"	2'-8"	2'-8"
12"x 12"	1'-10"	3'-2"	3'-2"
14"x 14"	2'-2"	3'-8"	3'-8"
16"x 16"	2'-4"	4'-3"	4'-3"

*C - VERTICAL DEPTH OF CONCRETE BEARING ON UNDISTURBED EARTH

NOTES:

1. FORM ALL CONCRETE THRUST BLOCKING. DO NOT PLACE UN-FORMED THRUST BLOCKING
2. BLOCK CROSSES WITH DIFFERENT SIZE RUNS FOR THE LARGER RUN IN ALL DIRECTIONS.
3. BLOCKING FOR CROSSES LARGER THAN 16" WILL BE AS SHOWN ON THE PLANS.
4. ALL THRUST BLOCKING TO BE CLASS "A" CONCRETE, 3000 PSI, AND TO BE PLACED AGAINST UNDISTURBED EARTH. USE FIBER REINFORCEMENT THROUGHOUT.
5. FITTINGS TO BE POLY WRAPPED BEFORE BLOCKING IS PLACED.
6. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
7. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

EFFECTIVE DATE: 10/01/2018

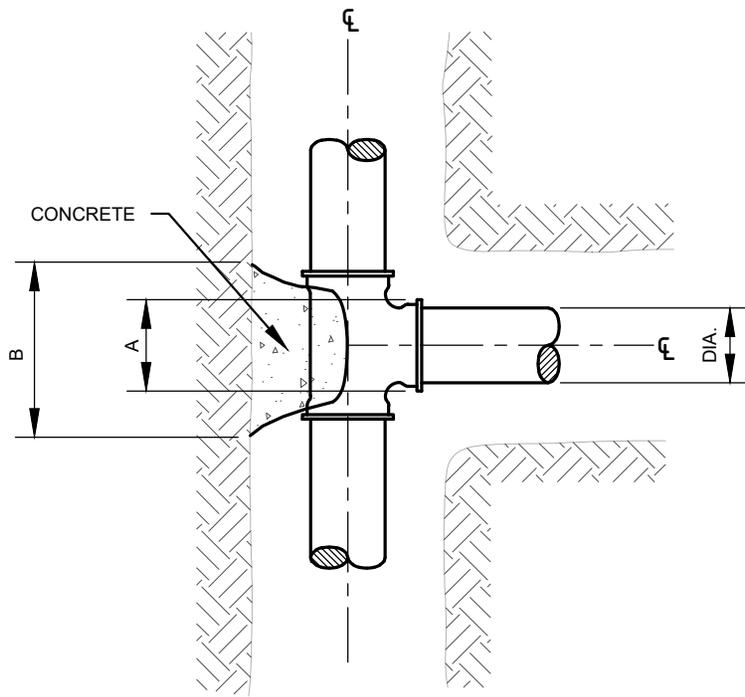
SCALE: NTS

DETAIL:

BLOCKING FOR CROSS

614

"T" BLOCKING
 DESIGN 180 PSI LINE PRESSURE
 SOIL BEARING CAP 2K/SF



TEE

"T" RUN DIA.	STEM DIA.	BLOCKING DIMENSIONS		
		A	B	*C
TEE				
4"	ALL	11"	1'-0"	1'-0"
6"	ALL	1'-2"	1'-7"	1'-0"
8"	ALL	1'-4"	2'-2"	2'-2"
10"	ALL	1'-8"	2'-8"	2'-8"
1'-0"	THRU 6"	1'-10"	1'-10"	1'-8"
1'-0"	OVER 6"	1'-10"	3'-2"	3'-2"
1'-2"	THRU 8"	2'-2"	2'-2"	1'-11"
1'-2"	OVER 8"	2'-2"	3'-8"	3'-8"
1'-4"	THRU 8"	2'-4"	2'-4"	2'-2"
1'-4"	OVER 8"	2'-4"	4'-3"	4'-3"

*C - VERTICAL DEPTH OF CONCRETE BEARING ON UNDISTURBED EARTH

NOTE:

1. FORM ALL CONCRETE THRUST BLOCKING. DO NOT PLACE UN-FORMED THRUST BLOCKING.
2. BLOCKING FOR TEES LARGER THAN 16" RUN TO BE SHOWN ON THE PLANS.
3. ALL THRUST BLOCKING TO BE CLASS "A" CONCRETE, 3000 PSI, AND TO BE PLACED AGAINST UNDISTURBED EARTH. USE FIBER REINFORCEMENT THROUGHOUT.
4. FITTING TO BE POLY WRAPPED BEFORE BLOCKING IS PLACED.
5. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
6. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

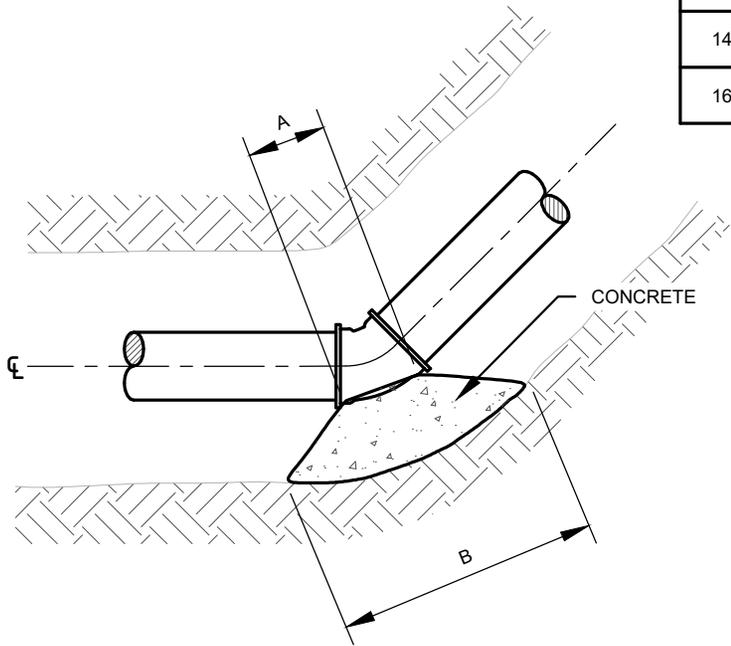
BLOCKING FOR TEE

615

BLOCKING FOR HORIZONTAL BENDS
 DESIGN 180 PSI LINE PRESSURE
 SOIL BEARING CAP 2K/SF

DIA. OF PIPE	DEGREE OF BEND											
	11 1/4°			22 1/2°			45°			90°		
	A	B	*C	A	B	*C	A	B	*C	A	B	*C
4"	0'-4"	1'-0"	1'-0"	0'-5"	1'-0"	1'-0"	0'-6"	1'-0"	1'-0"	0'-11"	1'-3"	1'-3"
6"	0'-7"	1'-0"	1'-0"	0'-7"	1'-0"	1'-0"	0'-8"	1'-5"	1'-5"	1'-3"	1'-11"	1'-11"
8"	0'-8"	0'-10"	1'-2"	0'-9"	1'-4"	1'-4"	0'-10"	1'-10"	1'-10"	1'-6"	2'-6"	2'-6"
10"	0'-10"	1'-0"	1'-5"	0'-11"	1'-8"	1'-8"	1'-1"	2'-4"	2'-4"	1'-11"	3'-2"	3'-2"
12"	1'-0"	1'-3"	1'-8"	1'-1"	2'-0"	2'-0"	1'-3"	2'-10"	2'-10"	2'-2"	3'-10"	3'-10"
14"	0'-11"	1'-5"	1'-11"	1'-1"	2'-4"	2'-4"	1'-3"	3'-3"	3'-3"			
16"	1'-1"	1'-8"	2'-2"	1'-2"	2'-8"	2'-8"	1'-5"	3'-9"	3'-9"			

*C - VERTICAL DEPTH OF CONCRETE BEARING ON UNDISTURBED EARTH



NOTES:

1. FORM ALL CONCRETE THRUST BLOCKING. DO NOT PLACE UN-FORMED THRUST BLOCKING.
2. ALL THRUST BLOCKING TO BE CLASS "A" CONCRETE, 3000 PSI, AND TO BE PLACED AGAINST UNDISTURBED EARTH. USE FIBER REINFORCEMENT THROUGHOUT.
3. FITTING TO BE POLY WRAPPED BEFORE BLOCKING IS PLACED.
4. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
5. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

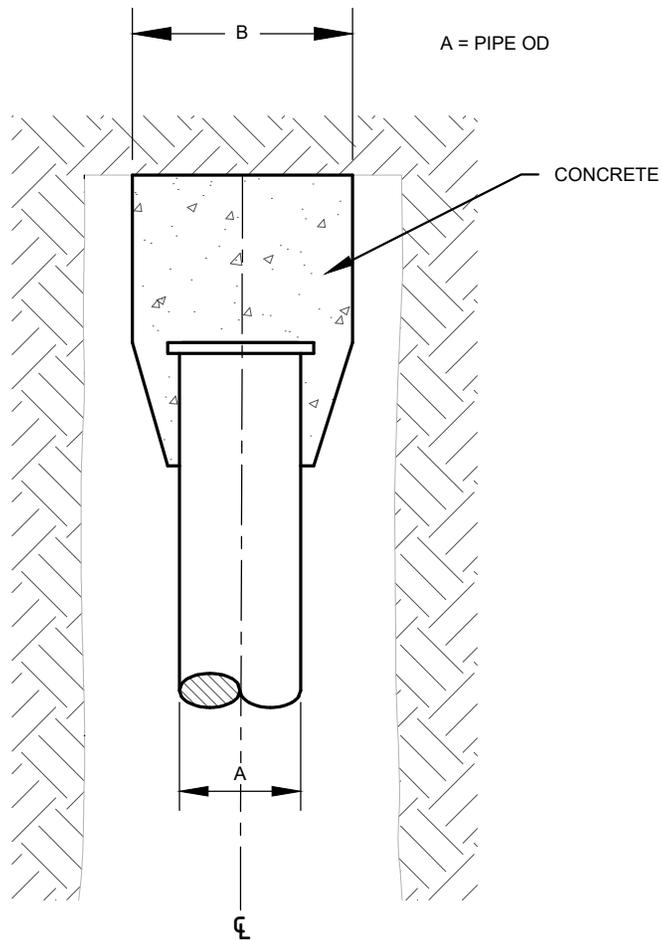
EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

BLOCKING FOR HORIZONTAL BENDS

616



CAP BLOCKING

PIPE OD A	BLOCKING DIMENSIONS	
	B	*C
4"	1'-0"	1'-0"
6"	1'-7"	1'-0"
8"	2'-2"	2'-2"
10"	2'-8"	2'-8"
12"	3'-2"	3'-2"
14"	3'-8"	3'-8"
16"	4'-3"	4'-3"

*C - VERTICAL DEPTH OF CONCRETE BEARING ON UNDISTURBED EARTH

NOTES:

1. CAP ALL WATER MAIN STUB OUTS.
2. FORM ALL CONCRETE THRUST BLOCKING . DO NOT PLACE UN-FORMED THRUST BLOCKING.
3. ALL THRUST BLOCKING TO BE CLASS "A" CONCRETE, 3000 PSI, AND TO BE PLACED AGAINST UNDISTURBED EARTH. USE FIBER REINFORCEMENT THROUGHOUT.
4. FITTINGS TO BE POLY WRAPPED BEFORE BLOCKING IS PLACED.
5. THRUST BLOCKING DESIGN TO BE PROVIDED IN CONSTRUCTION DRAWINGS FOR PIPES LARGER THAN 16" DIAMETER.
6. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
7. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

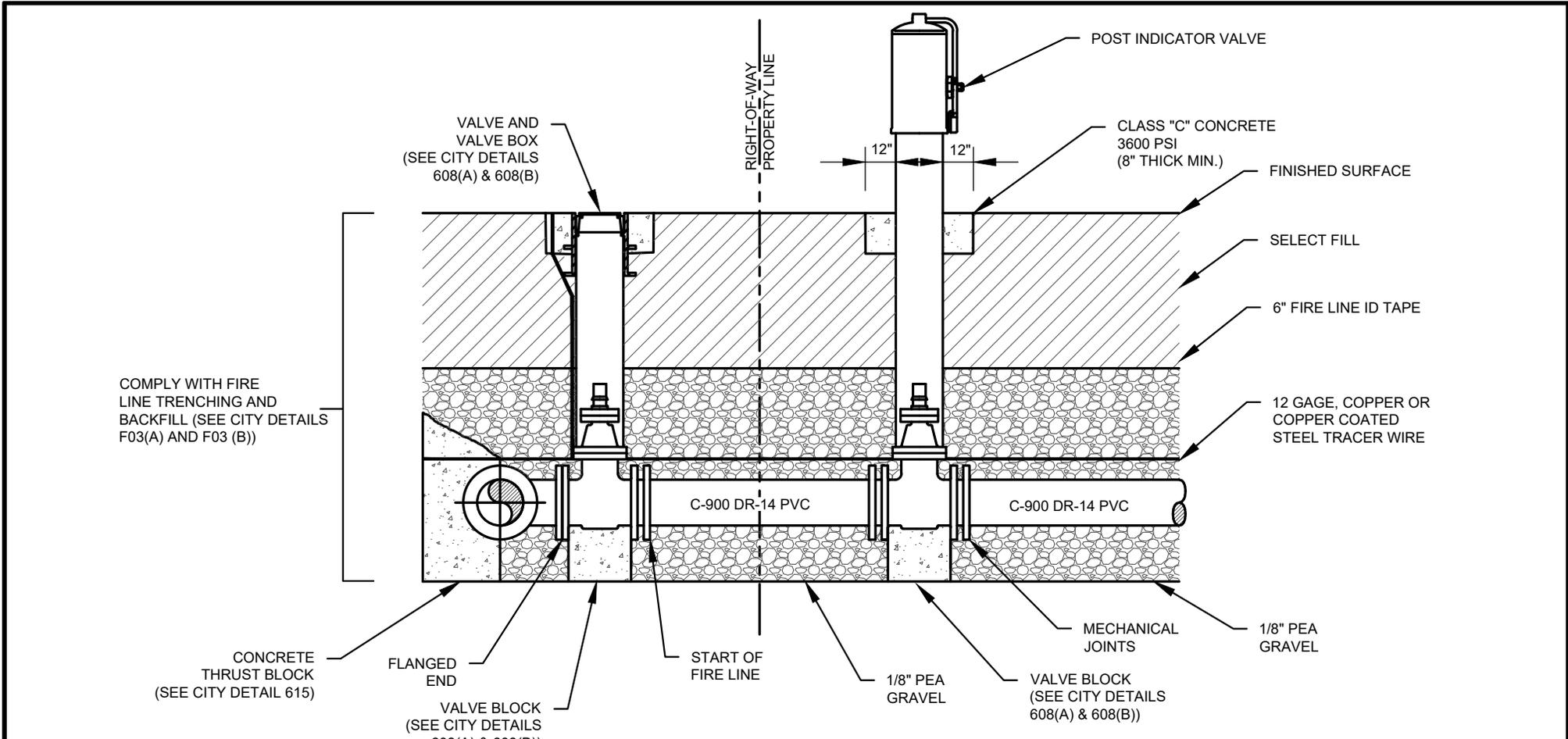
EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

BLOCKING FOR CAP

617



NOTES:

1. ALL VALVE BOXES TO BE SET IN CONCRETE COLLARS AND BE FLUSH WITH THE FINAL SURFACE GRADE.
2. A TEE FITTING IS REQUIRED FOR A CONNECTION TO A NEW WATER MAIN, AND A TAPPING SLEEVE IS REQUIRED FOR A CONNECTION TO AN EXISTING WATER MAIN.
3. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
4. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE FIRE CODE OFFICIAL.

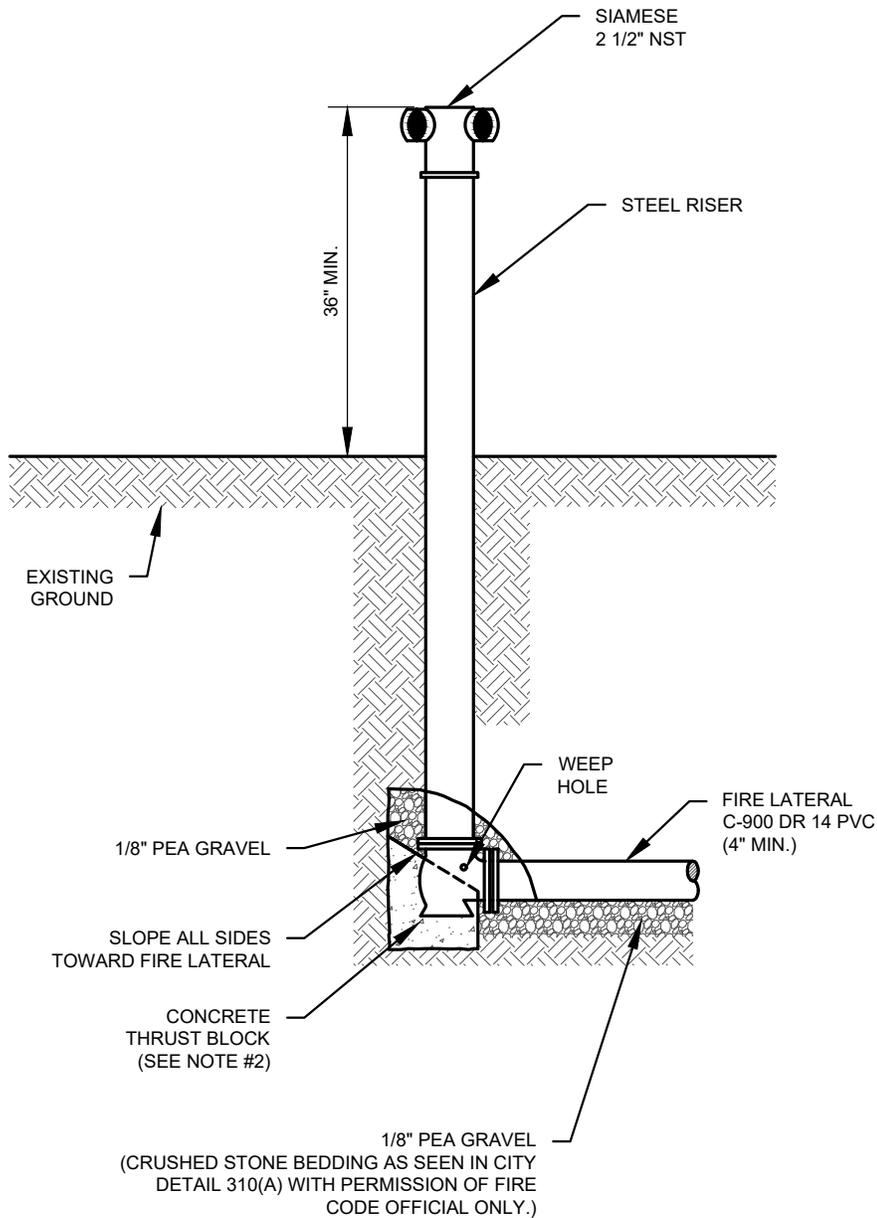


DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

EFFECTIVE DATE: 10/01/2018 SCALE: NTS DETAIL:

FIRE SERVICE LINE

F01

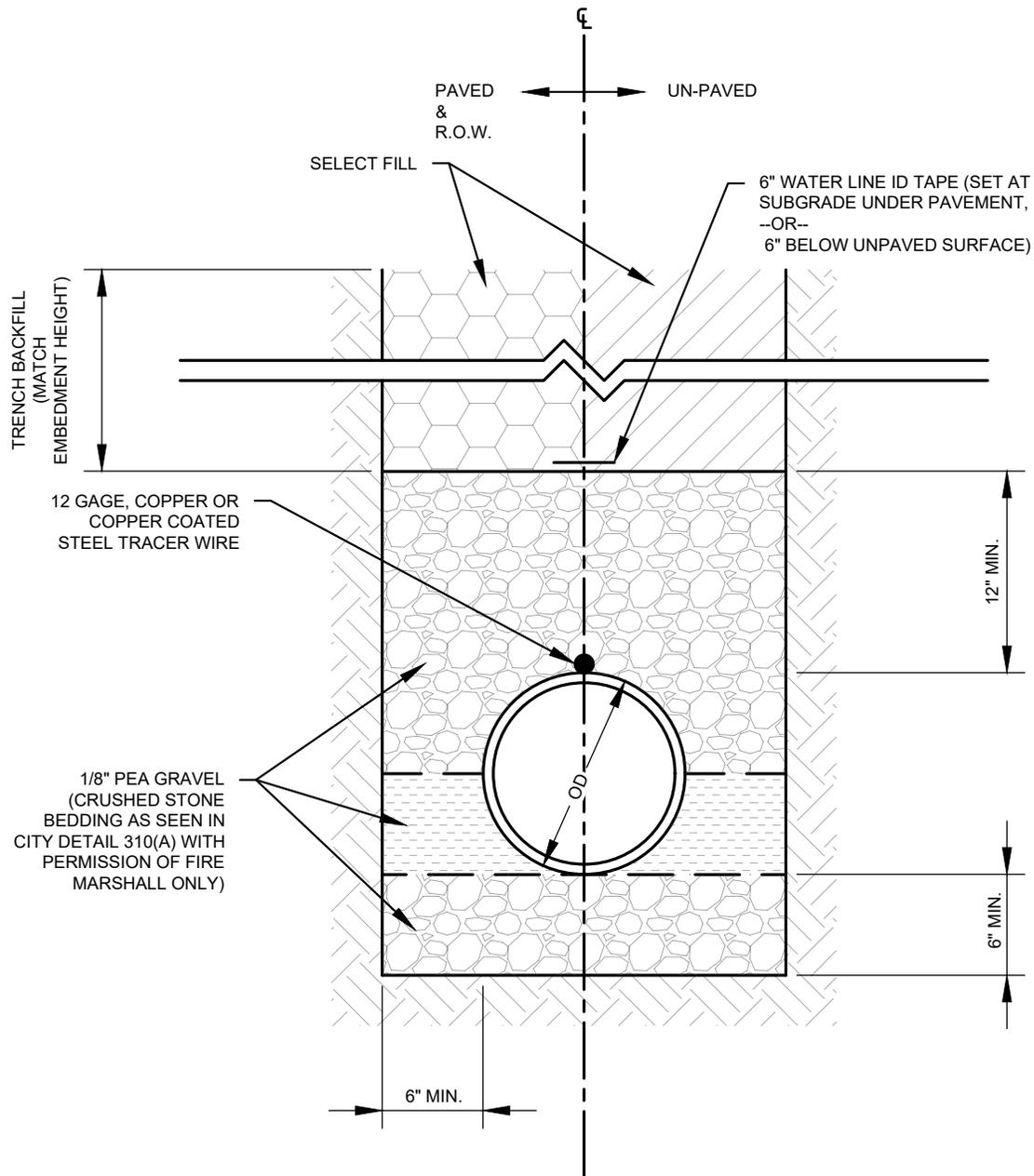


NOTES:

1. FDC SHOE TO BE SAME AS TYPICAL FIRE HYDRANT SHOE. DO NOT WRAP SHOE IN PLASTIC.
2. SHAPE CONCRETE THRUST BLOCKS SO THAT NO WATER DRAINS ARE BLOCKED.
3. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
4. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE FIRE CODE OFFICIAL.

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC
EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
REMOTE FDC		F02



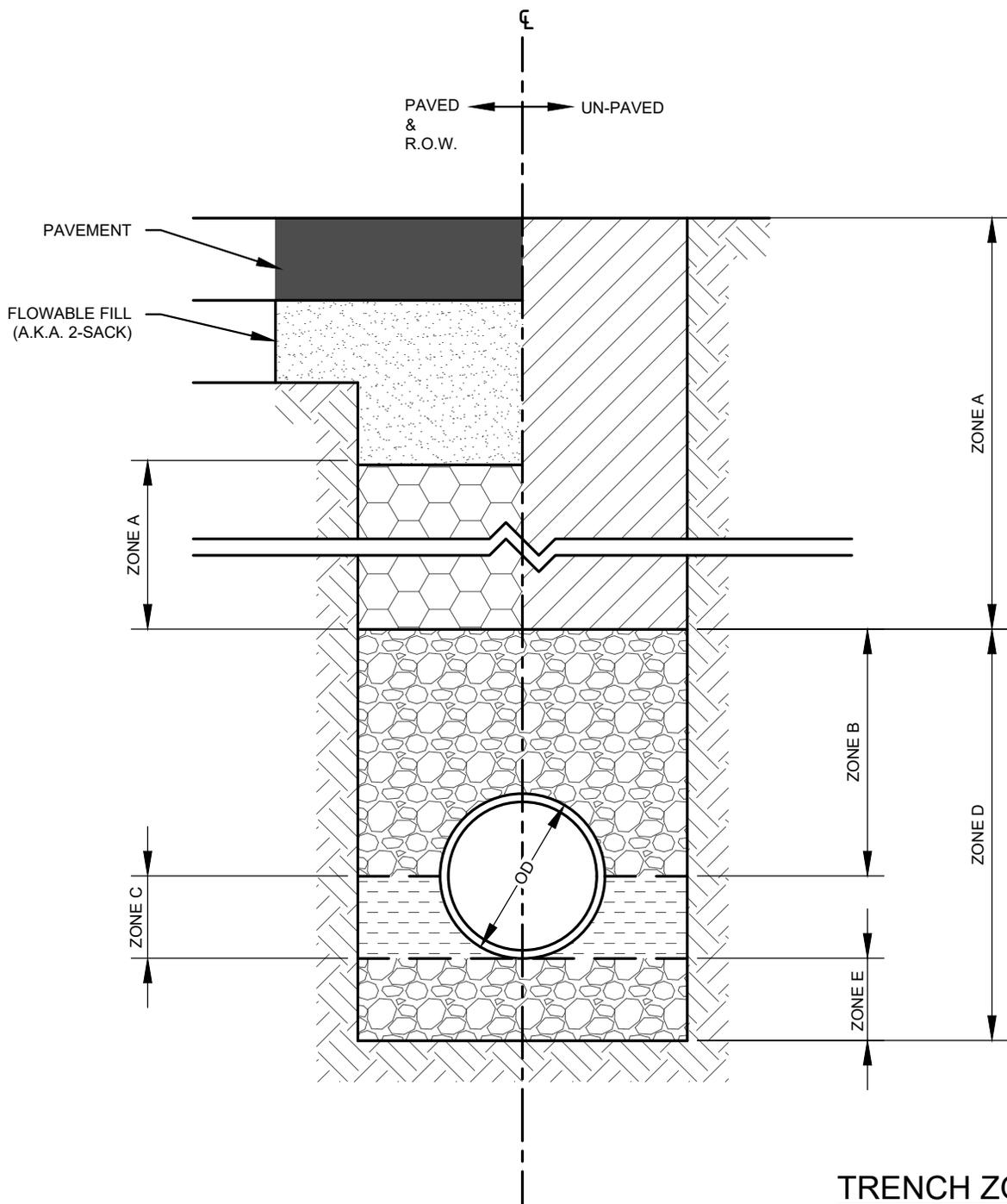


NOTES:

1. APPLIES TO ALL PIPE TYPES. (DUCTILE IRON, PVC, ETC.)
2. USE SELECT FILL FOR ALL BACKFILL MATERIAL.
3. MOISTURE CONDITION ALL BACKFILL MATERIAL PRIOR TO PLACING IN TRENCH.
4. PLACE BACKFILL MATERIAL IN MAXIMUM 12" LOOSE LIFTS AND COMPACT TO MAXIMUM 8" COMPACTED LIFTS.
5. REFER TO CITY DETAILS 311 AND 312 FOR TRENCH PAVEMENT REPLACEMENT REQUIREMENTS
6. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
7. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE FIRE CODE OFFICIAL.

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC
EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
FIRE LINE TRENCHING AND BEDDING		F03(A)





TRENCH ZONES:

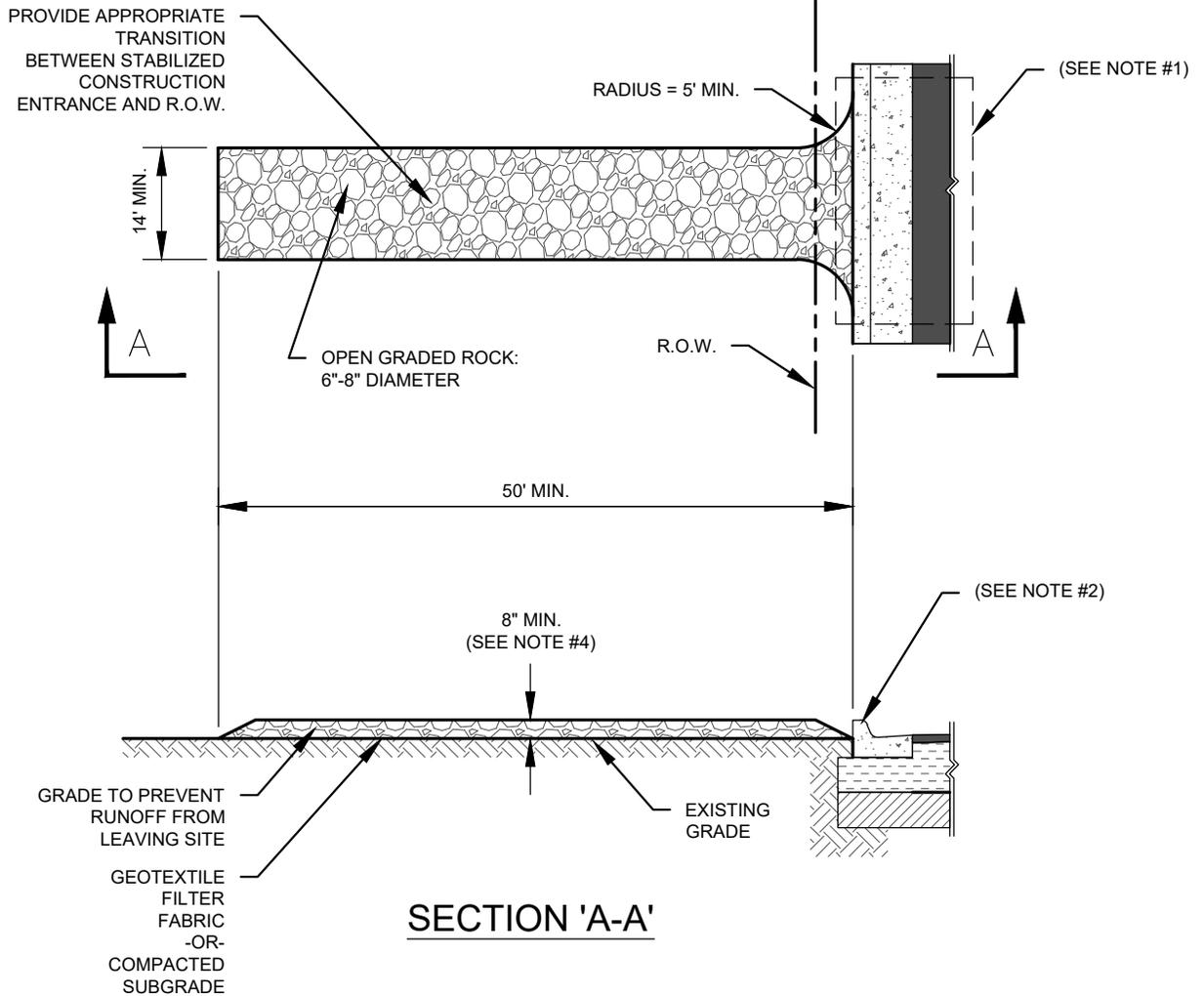
- ZONE A: TRENCH BACKFILL
- ZONE B: PIPE BACKFILL
- ZONE C: HAUNCHING
- ZONE D: PIPE EMBEDMENT
- ZONE E: BEDDING

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC
EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
FIRE LINE TRENCHING AND BEDDING		F03(B)



EROSION CONTROL DETAILS

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC	
 MIDLAND Engineering Services	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
			700

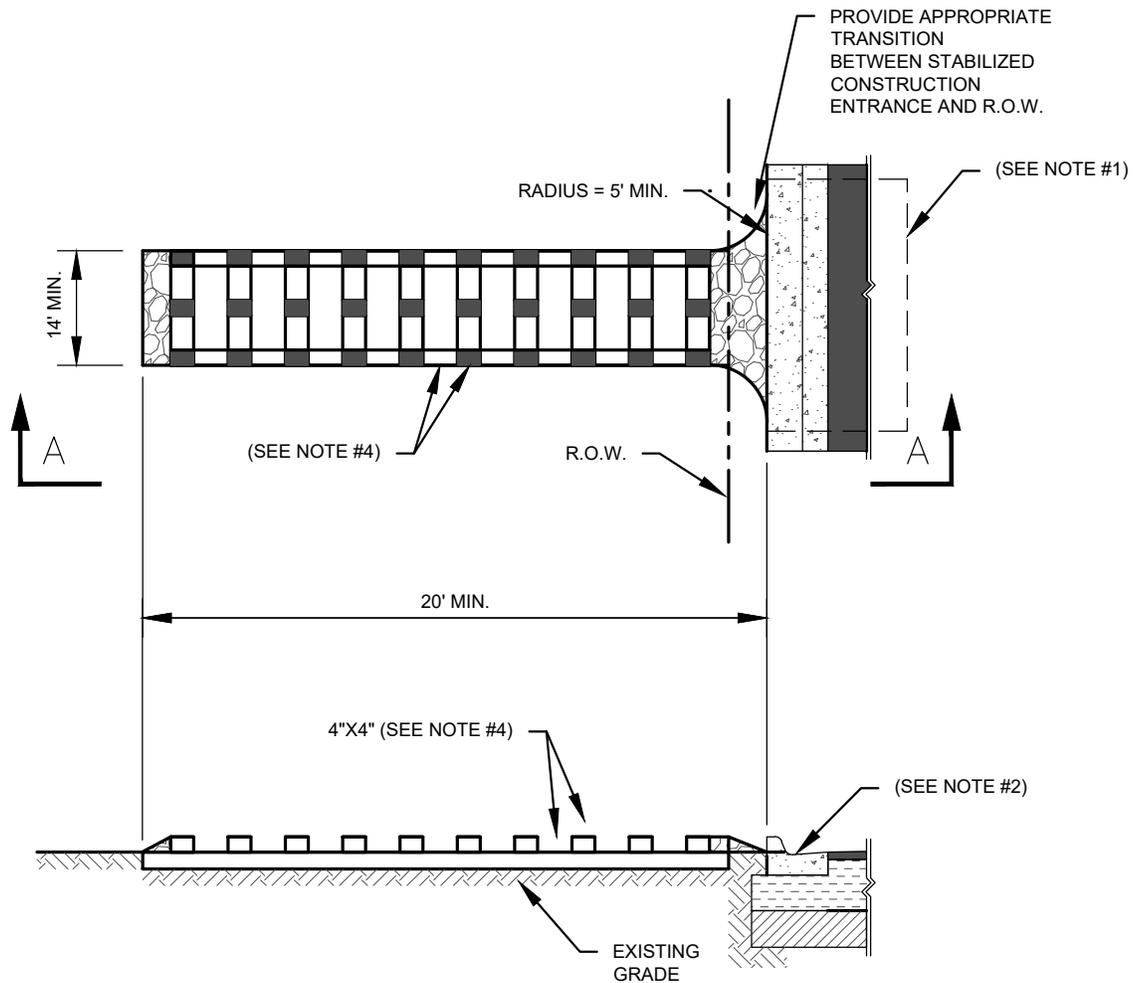


NOTES:

1. IF CURB DOES NOT EXIST OR IF EXISTING CURB IS REMOVED DURING CONSTRUCTION THEN STABILIZED CONSTRUCTION ENTRANCE IS TO EXTEND TO THE EDGE OF PAVEMENT.
2. IF CURB IS LEFT IN PLACE DURING CONSTRUCTION THEN INSTALL TEMPORARY CURB PROTECTION AS PER CITY DETAIL 713.
3. LENGTH SHALL BE AS SHOWN ON THE CONSTRUCTION DRAWINGS, BUT NOT LESS THAN FIFTY (50) FEET.
4. THICKNESS OF OPEN GRADED ROCK TO BE NO LESS THAN EIGHT (8) INCHES.
5. WIDTH SHALL BE NO LESS THAN FOURTEEN (14) FEET OR THE FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS, WHICHEVER IS WIDER.
6. STABILIZED CONSTRUCTION ENTRANCE TO BE REMOVED UPON COMPLETION OF CONSTRUCTION.
7. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS
8. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC
EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
STABILIZED CONSTRUCTION ENTRANCE OPTION 1		701





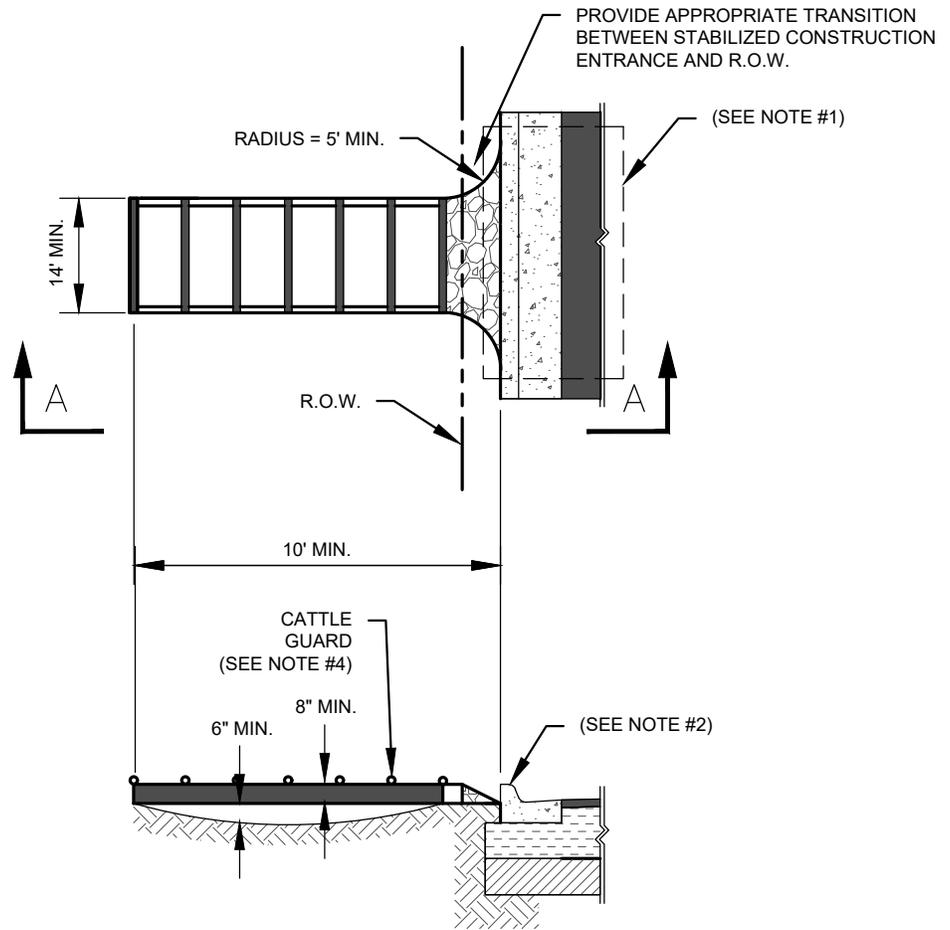
SECTION 'A-A'

NOTES:

1. IF CURB DOES NOT EXIST OR IF EXISTING CURB IS REMOVED DURING CONSTRUCTION THEN STABILIZED CONSTRUCTION ENTRANCE IS TO EXTEND TO THE EDGE OF PAVEMENT.
2. IF CURB IS LEFT IN PLACE DURING CONSTRUCTION THEN INSTALL TEMPORARY CURB PROTECTION AS PER CITY DETAIL 713.
3. LENGTH SHALL BE AS SHOWN ON THE CONSTRUCTION DRAWINGS, BUT NOT LESS THAN TWENTY (20) FEET.
4. BOARDS TO ALL BE 4"X4" WOOD BOARDS IN GOOD CONDITION. PLACE BOARDS ON BOTTOM LAYER TO RUN ALONG ENTRYWAY WITH 2.0' SPACING BETWEEN BOARDS. PLACE BOARDS ON TOP LAYER TO RUN ACROSS ENTRYWAY WITH 4.0" SPACING BETWEEN BOARDS. BOLT BOARDS ON TOP LAYER TO BOARDS ON BOTTOM LAYER.
5. WIDTH SHALL BE NO LESS THAN FOURTEEN (14) FEET OR THE FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS, WHICHEVER IS WIDER.
6. STABILIZED CONSTRUCTION ENTRANCE TO BE REMOVED UPON COMPLETION OF CONSTRUCTION.
7. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS
8. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC
EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
STABILIZED CONSTRUCTION ENTRANCE OPTION 2		702





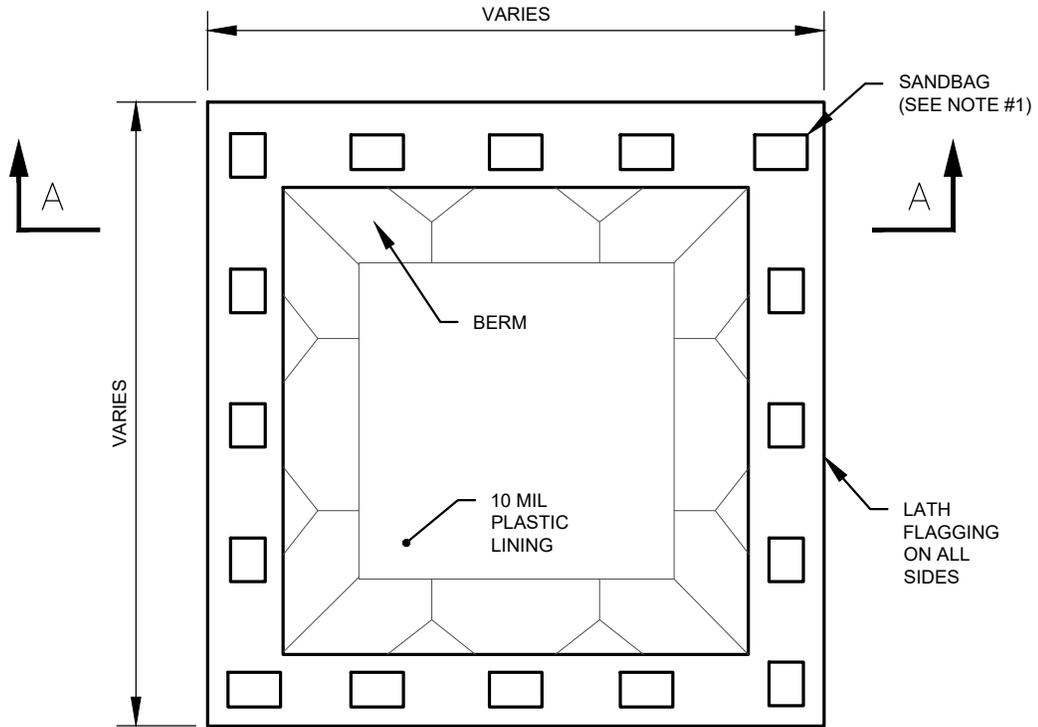
SECTION 'A-A'

NOTES:

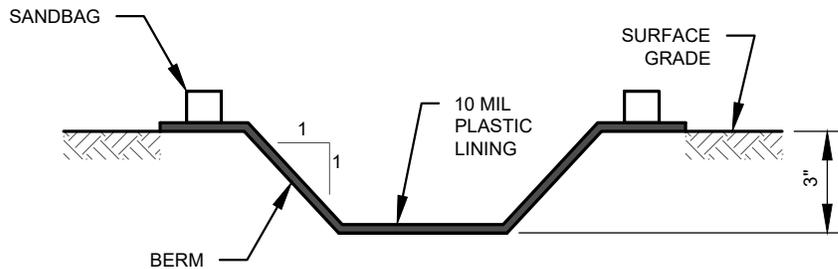
1. IF CURB DOES NOT EXIST OR IF EXISTING CURB IS REMOVED DURING CONSTRUCTION THEN STABILIZED CONSTRUCTION ENTRANCE IS TO EXTEND TO THE EDGE OF PAVEMENT.
2. IF CURB IS LEFT IN PLACE DURING CONSTRUCTION THEN INSTALL TEMPORARY CURB PROTECTION AS PER CITY DETAIL 713.
3. LENGTH SHALL BE AS SHOWN ON THE CONSTRUCTION DRAWINGS, BUT NOT LESS THAN TEN (10) FEET.
4. CATTLE GUARD TO BE STEEL, HEAVY VEHICLE LOAD RATED, AND UTILIZE TOP LEVEL BEAM OR PIPE CROSSINGS OF 4"-6" DIAMETER SPACED NO MORE THAN 8.0' APART. STRUCTURE MAY BE PRE-FABRICATED.
5. WIDTH SHALL BE NO LESS THAN FOURTEEN (14) FEET OR THE FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS, WHICHEVER IS WIDER.
6. STABILIZED CONSTRUCTION ENTRANCE TO BE REMOVED UPON COMPLETION OF CONSTRUCTION.
7. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS
8. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC
EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
STABILIZED CONSTRUCTION ENTRANCE OPTION 3		703





DEPRESSED WASHOUT

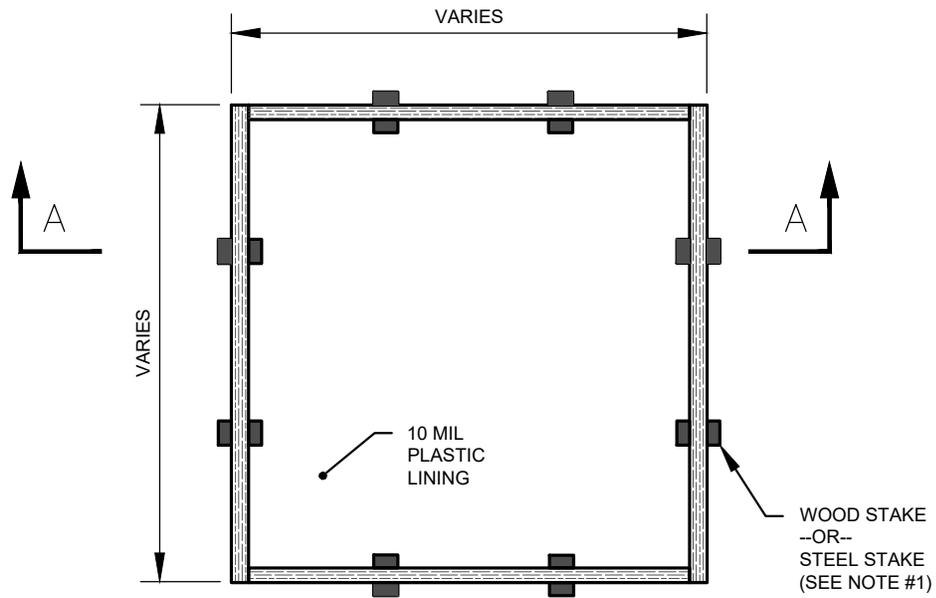


SECTION 'A-A'

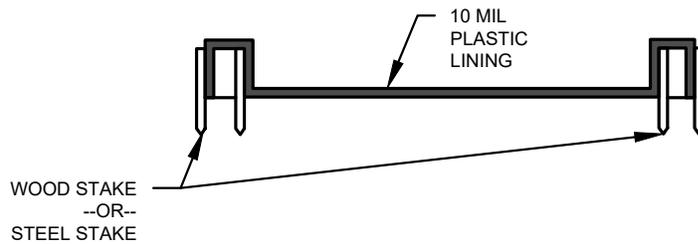
NOTES:

1. SECURE WASHOUT STRUCTURES AND LININGS WITH SANDBAGS OR TWO SECURELY FASTENED STAKES AROUND ENTIRE WASHOUT PERIMETER.
2. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
3. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC
EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
		<p>CONCRETE WASHOUT OPTION 1</p> <p>704</p>



ELEVATED WASHOUT

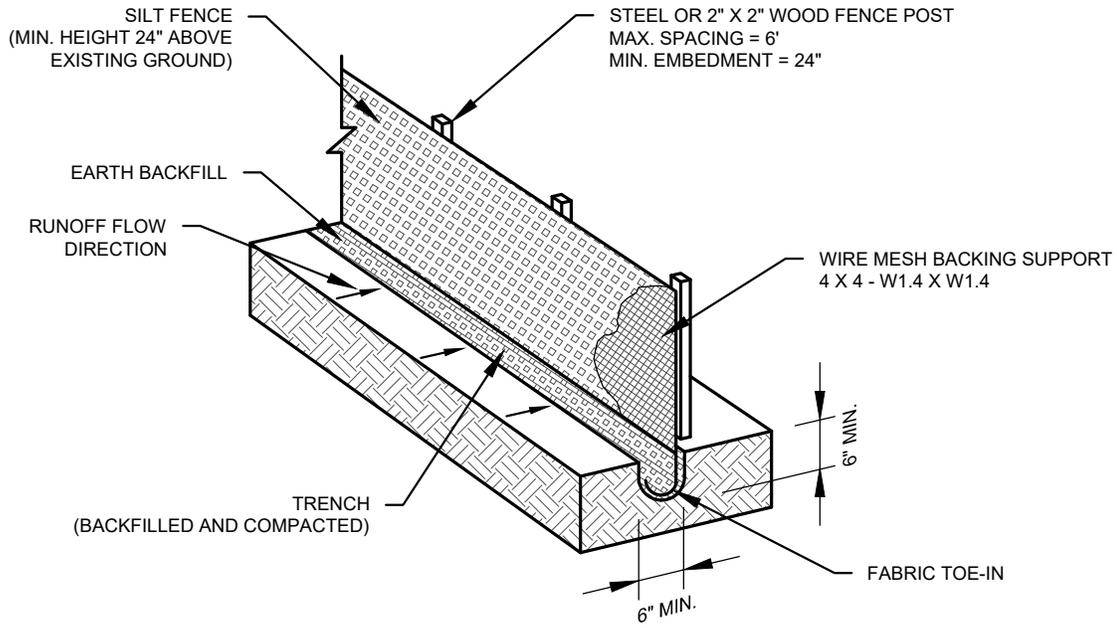


SECTION 'A-A'

NOTES:

1. THIS WASHOUT CONFIGURATION MAY NOT BE USED IN PAVED AREAS.
2. WOOD FRAME IS TO BE EQUAL TO OR BETTER THAN TWO-STACKED 2X12 ROUGH WOOD FRAME.
3. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
4. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEERING.

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC
EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
		<p>CONCRETE WASHOUT OPTION 2</p> <p>705</p>

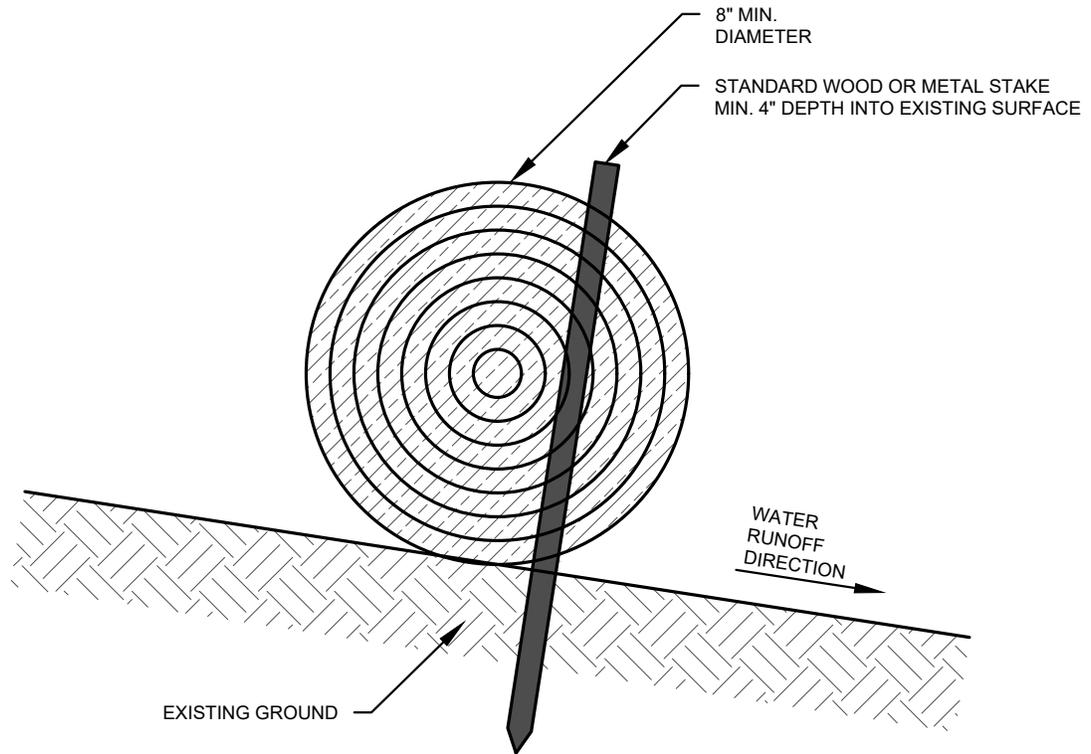


NOTES:

1. THIS DETAIL IS TO BE USED FOR SHEET FLOW CONDITIONS ONLY. DO NOT USE SILT FENCE FOR POINT FLOW OR CONCENTRATED FLOW CONDITIONS.
2. INSTALL STEEL OR WOOD POSTS, WHICH SUPPORT THE SILT FENCE, WITH A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POSTS MUST BE EMBEDDED A MINIMUM OF ONE (1) FOOT.
3. TRENCH THE TOE OF THE SILT FENCE IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. WHERE THE FENCE CANNOT BE TRENCHED IN (E.G.PAVEMENT), WEIGHT DOWN FABRIC FLAP WITH WASHED GRAVEL ON UPHILL SIDE TO PREVENT FLOW UNDER FENCE.
4. THE TRENCH MUST BE A MINIMUM OF SIX (6) INCHES DEEP AND SIX (6) INCHES WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.
5. SECURELY FASTEN SILT FENCE TO EACH STEEL SUPPORT POST OR TO WOVEN WIRE, WHICH IN TURN IS TO BE ATTACHED TO THE STEEL OR WOOD FENCE POST. INCLUDE A SIX (6) INCH DOUBLE OVERLAP, SECURELY FASTENED, WHERE ENDS OF FABRIC MEET.
6. REMOVE SILT FENCE WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
7. REMOVE ACCUMULATED SILT WHEN IT REACHES A DEPTH OF SIX (6) INCHES. DISPOSE OF THE SILT ONSITE IN AN APPROVED LOCATION AND IN SUCH A MANNER AS TO NOT CONTRIBUTE TO ADDITIONAL SILTATION.
8. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
9. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC
EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
SILT FENCE		706



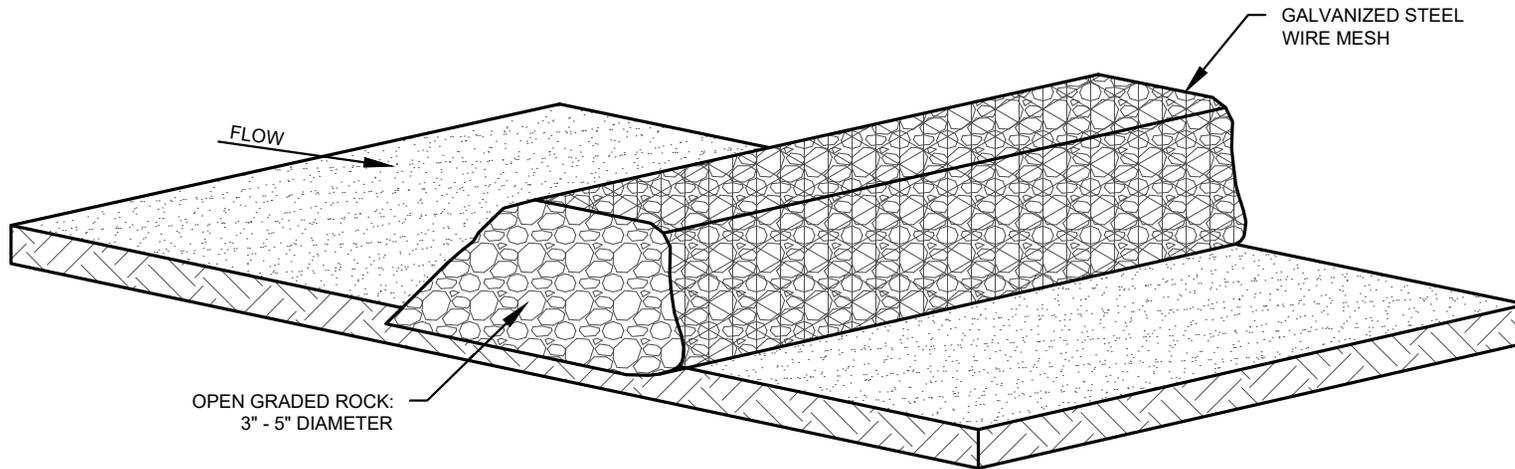


NOTES:

1. THIS DETAIL IS TO USED FOR SHEET FLOW CONDITIONS ONLY. DO NOT USE FILTER SOCK FOR POINT FLOW OR CONCENTRATED FLOW CONDITIONS.
2. DO NOT USE FILTER SOCK FOR SHEET FLOW WATERSHEDS LARGER THAN ONE (1) ACRE.
3. USE POLYPROPYLENE NETTING, BURLAP, OR JUTE FABRIC TO CONSTRUCT THE FILTER SOCK.
4. FILL FILTER SOCK WITH STRAW, HAY, COCONUT FIBER, OR COMPOSITE MATERIAL.
5. PLACE STAKING EVERY THREE (3) TO FOUR (4) FEET AT A MINIMUM.
6. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
7. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC
EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
FILTER SOCK		707



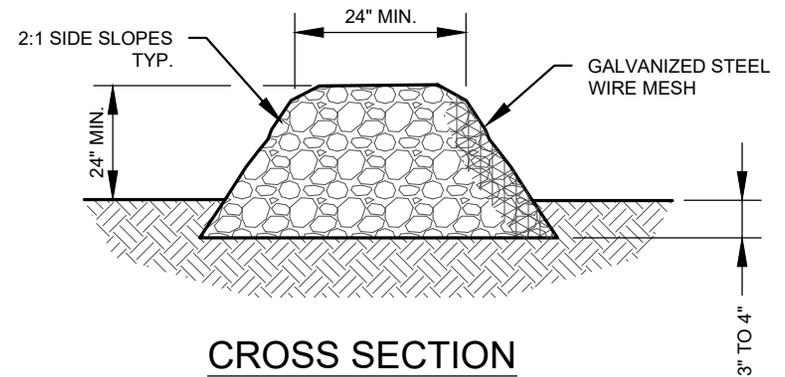


OPEN GRADED ROCK:
3" - 5" DIAMETER

GALVANIZED STEEL
WIRE MESH

FLOW

ISOMETRIC VIEW



2:1 SIDE SLOPES
TYP.

24" MIN.

GALVANIZED STEEL
WIRE MESH

24" MIN.

3" TO 4"

CROSS SECTION

NOTES:

1. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
2. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



DRAWN: DPM
CHECKED: JCF
APPROVED: MCC

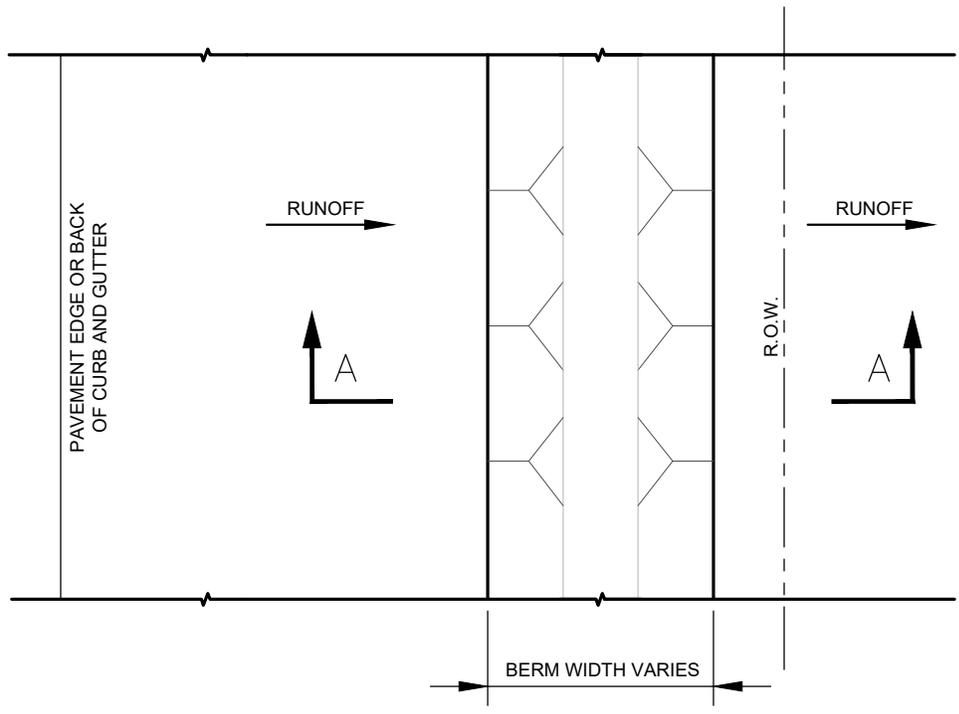
EFFECTIVE DATE: 10/01/2018

SCALE: NTS

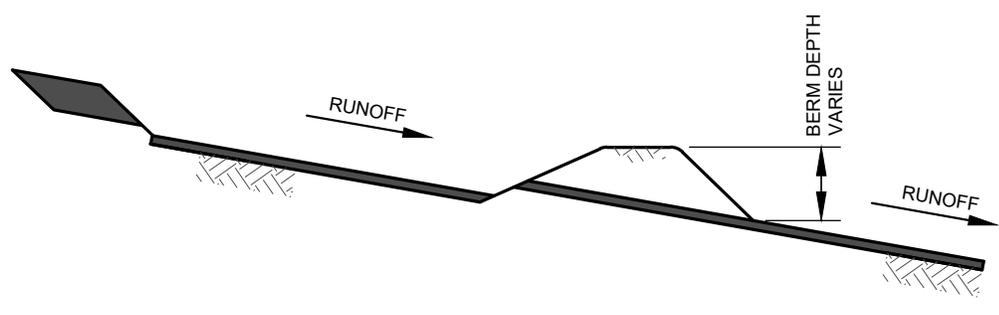
DETAIL:

**ROCK FILTER
DAM**

708



PLAN

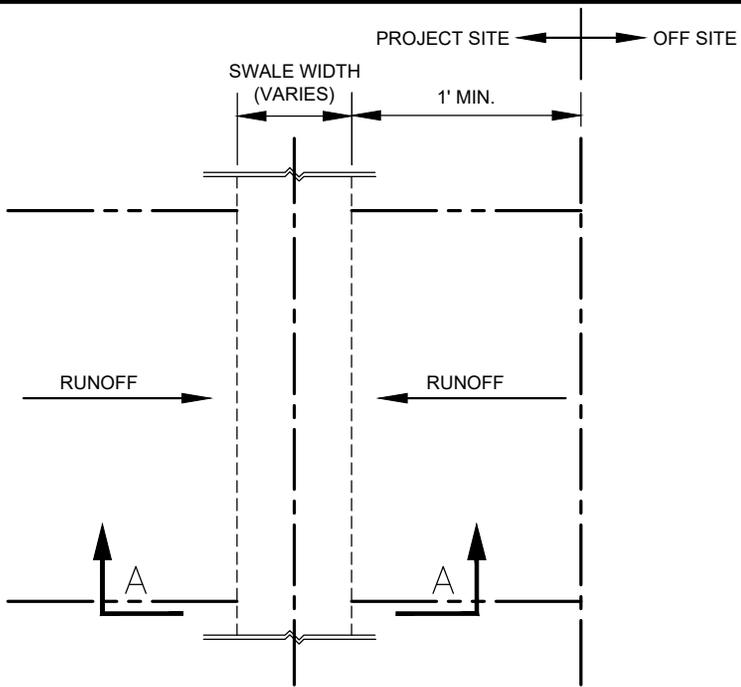


SECTION 'A-A'

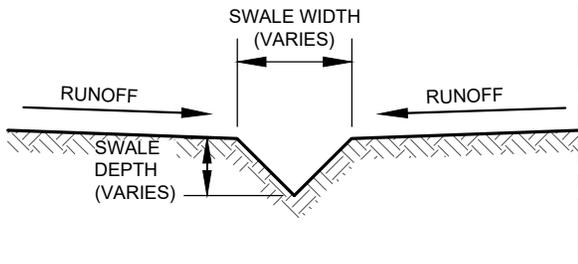
NOTES:

1. CONSTRUCT WIND ROW BERM FROM EXISTING TOPSOIL (4" TO 6" USUAL) TO INTERCEPT RUNOFF.
2. WHERE OVERTOPPING OF BERM OCCURS, PLACE ADDITIONAL EROSION CONTROL DEVICES AS REQUIRED BY THE ENGINEER.
3. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
4. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC
EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
		<p style="text-align: center;">WIND ROW BERM</p> <p style="text-align: right; font-size: 24pt;">709</p>



DRAINAGE SWALE BUFFER



SECTION 'A-A'

NOTES:

1. SIZE DRAINAGE SWALE BUFFER TO CONTAIN ALL RUNOFF DIRECTED TOWARDS IT SO THAT NO OVERTOPPING OF SWALE OCCURS.
2. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS
3. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

DRAINAGE SWALE BUFFER

710

BACKFILL AND COMPACT DIRT IN THE 6 INCH X 6 INCH TRENCH AFTER INSERTING STAPLES THROUGH THE MATERIAL.

AS AN ALTERNATIVE TO TRENCHING WHEN TOP OF SLOPE IS RELATIVELY FLAT, EXTEND MATERIAL ABOUT 40 INCHES ON TOP OF THE GROUND AND RANDOMLY INSERT STAPLES THROUGH THE MATERIAL ABOUT 20 INCHES APART.

INSERT STAPLES THROUGH THE BLANKET IN A 6 INCH X 6 INCH TRENCH WITH EACH PATTERN OF 3 STAPLES BEING ABOUT 20 INCHES APART.

DIRECTION OF FLOW

STAPLES MUST BE INSERTED THROUGH OVERLAP MATERIAL.

BLANKET MATERIAL MUST OVERLAP AT LEAST 6 INCHES AND STAPLES INSERTED THROUGH BOTH FABRICS AT A MAXIMUM SPACING OF 40 INCHES APART.

MAXIMUM STAPLE SPACING.

DIRECTION OF FLOW

AT END OF SLOPE, SECURE BLANKET MATERIAL BY INSERTING STAPLES ABOUT 20 INCHES APART THROUGH THE FABRIC.

BLANKET MATERIAL MUST OVERLAP AT LEAST 6 INCHES AND STAPLES INSERTED THROUGH BOTH FABRICS AT A MAXIMUM SPACING OF 20 INCHES APART.

NOTES:

1. THE FOLLOWING PRODUCTS, OR AN EQUAL APPROVED BY THE ENGINEERING SERVICES REPRESENTATIVE MAY BE USED:
ECS S-1 STANDARD STRAW
ECS HIGH VELOCITY STRAW
LANDLOK BON-TERRA S2, ENS2 OR ENCS2
NORTH AMERICAN GREEN S75, S75BN, S150, S150BN, OR SC150
2. APPLY SEED AS RECOMMENDED BY MANUFACTURER'S SPECIFICATIONS.
3. LAY BLANKETS PARALLEL TO THE DIRECTION OF WATER FLOW. SPREAD BLANKETS EVENLY WITHOUT STRETCHING SO FIBERS ARE IN DIRECT CONTACT WITH THE SOIL.
4. BURY THE UPSLOPE END OF EACH BLANKET AT LEAST 6 INCHES IN A VERTICAL TRENCH WITH THE SOIL PRESSED FIRMLY AGAINST THE EMBEDDED MAT. ADDITIONAL CHECK TRENCHES AT 50 FEET INTERVALS MAY BE DESIRABLE ON STEEP GRADES OR LONG FLOW AREAS.
5. STAPLE STRIP ENDS AND END OVERLAPS WITH NOT MORE THAN 20 INCHES BETWEEN STAPLES. STAPLE ALL OTHER JOINTS AND EDGES AT 40 INCH INTERVALS.
6. USE U-SHAPED STAPLES TO ANCHOR BLANKETS THAT ARE 11 GAUGE OR HEAVIER STEEL WIRE HAVING A SPAN WIDTH OF 1 INCH AND A LENGTH OF 6 INCHES OR MORE FROM TOP TO BOTTOM AFTER BENDING.
7. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
8. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



DRAWN: DPM
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APPROVED: MCC

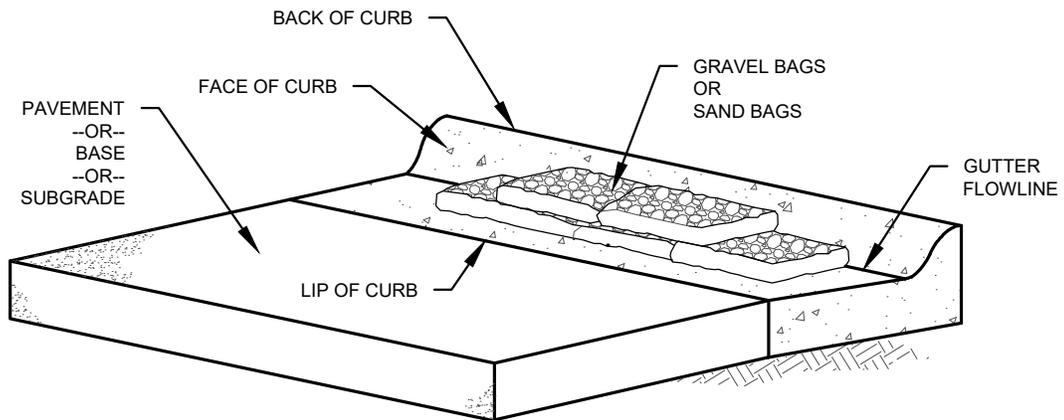
EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

**EROSION CONTROL
BLANKET AND VEGETATION**

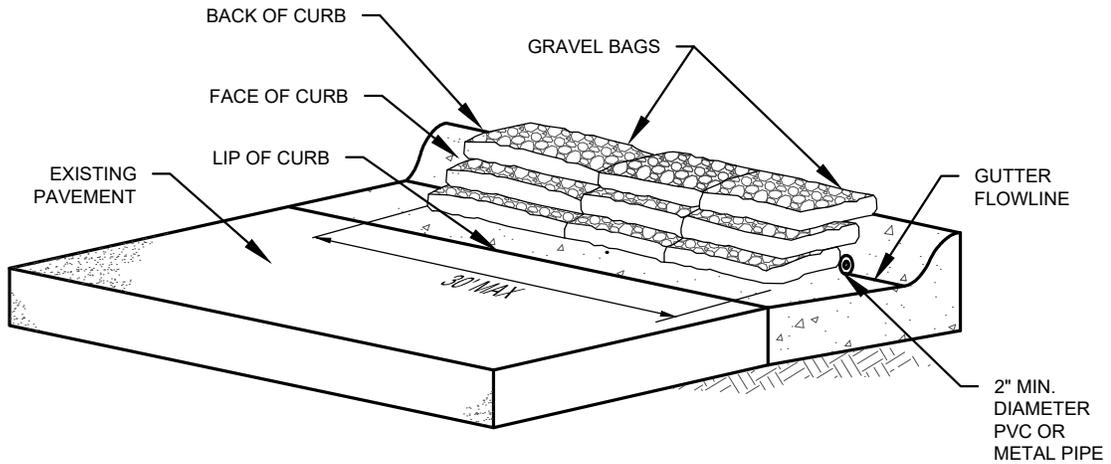
711



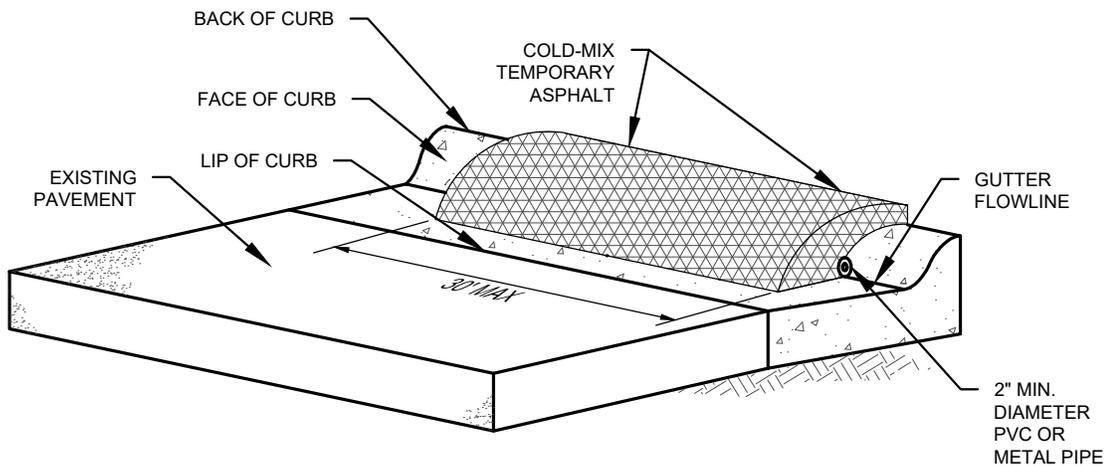
NOTES:

1. FILL BAGS TO 60% CAPACITY WITH EITHER CLEAN GRAVEL OR CLEAN SAND.
2. GRAVEL TO BE NO LESS THAN 1" DIAMETER OR GREATER THAN 2" DIAMETER.
3. PLACE BAGS WITH BAG OPENINGS SECURED AND FACE UP, AND SO THAT EACH BAG IS FLAT AND HAS THE GREATEST POSSIBLE SURFACE AREA CONTACT WITH THE CURB.
4. PLACE BAGS AGAINST THE FACE-OF-CURB AND DO NOT PLACE BAGS BEYOND THE LIP-OF-CURB.
5. DO NOT BLOCK ADA RAMPS OR WALKWAYS WITH BAGS.
6. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
7. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC
EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
		<p style="text-align: center;">CURB GRAVEL OR SAND BAGS</p> <p style="text-align: right; font-size: 24pt;">712</p>



CURB GRAVEL BAG

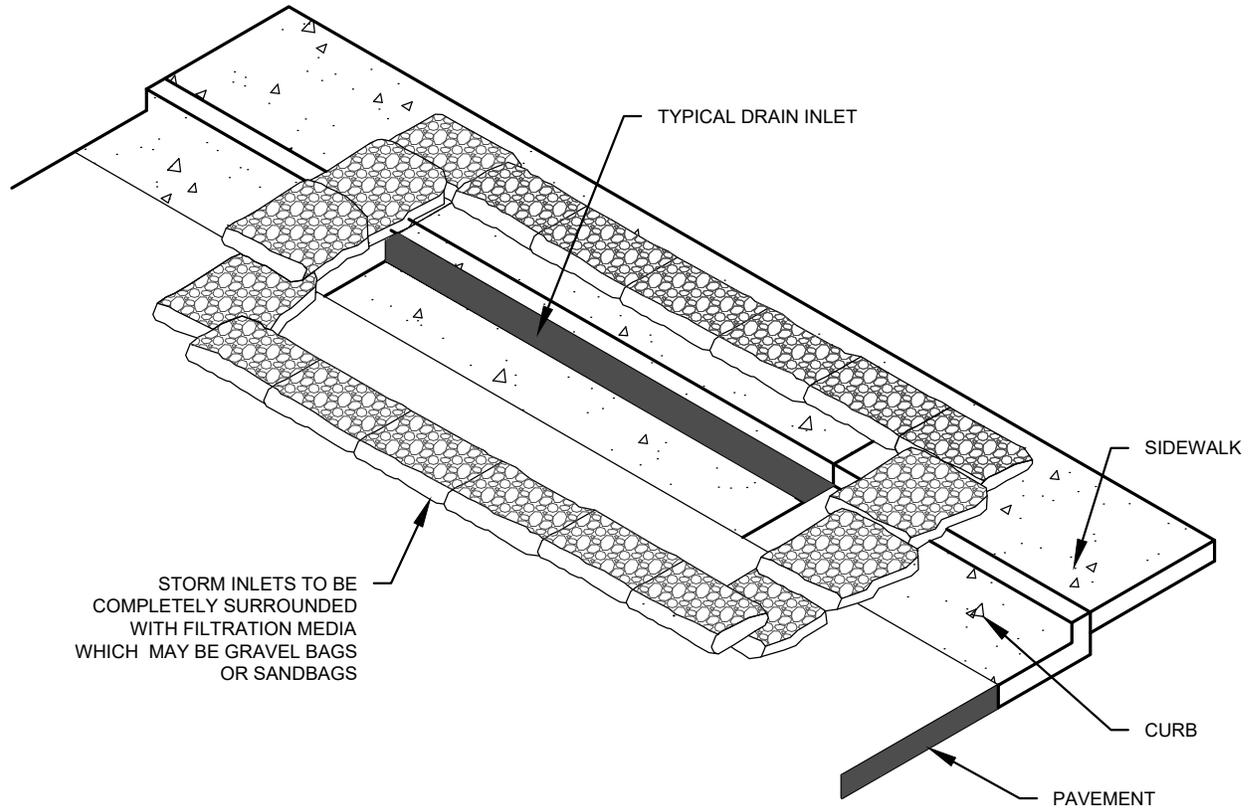


**CURB COLD-MIX
TEMPORARY ASPHALT**

NOTES:

1. UTILIZE THIS DETAIL WHEN ACCESSING PROJECT SITE OVER EXISTING CURB ONLY IF NO USABLE CURB OPENING EXISTS.
2. FILL BAGS TO 60% CAPACITY WITH CLEAN GRAVEL NO LESS THAN 1" DIAMETER AND NO GREATER THAN 2" DIAMETER.
3. PLACE BAGS WITH BAG OPENINGS SECURED AND FACE UP, AND SO THAT EACH BAG IS FLAT AND HAS THE GREATEST POSSIBLE SURFACE AREA CONTACT WITH THE CURB.
4. PLACE BAGS AGAINST THE PIPE AND FACE-OF-CURB . DO NOT PLACE BAGS BEYOND THE LIP-OF-CURB.
5. DO NOT BLOCK ADA RAMPS OR WALKWAYS WITH BAGS.
6. DO NOT PLACE TEMPORARY ASPHALT BEYOND LIP-OF-CURB.
7. PIPE MUST EXTEND ACROSS FULL LENGTH OF TEMPORARY CURB PROTECTION AND BE COMPLETELY EXPOSED AT BOTH ENDS.
8. MINIMUM 4" THICK LAYER OF GRAVEL OR ASPHALT REQUIRED OVER ALL PARTS OF AFFECTED CURB.
9. MAXIMUM WIDTH OF CURB PROTECTION IS 30'.
10. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
11. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC
EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
		TEMPORARY CURB PROTECTION
		713



GRAVEL BAGS OR SANDBAGS

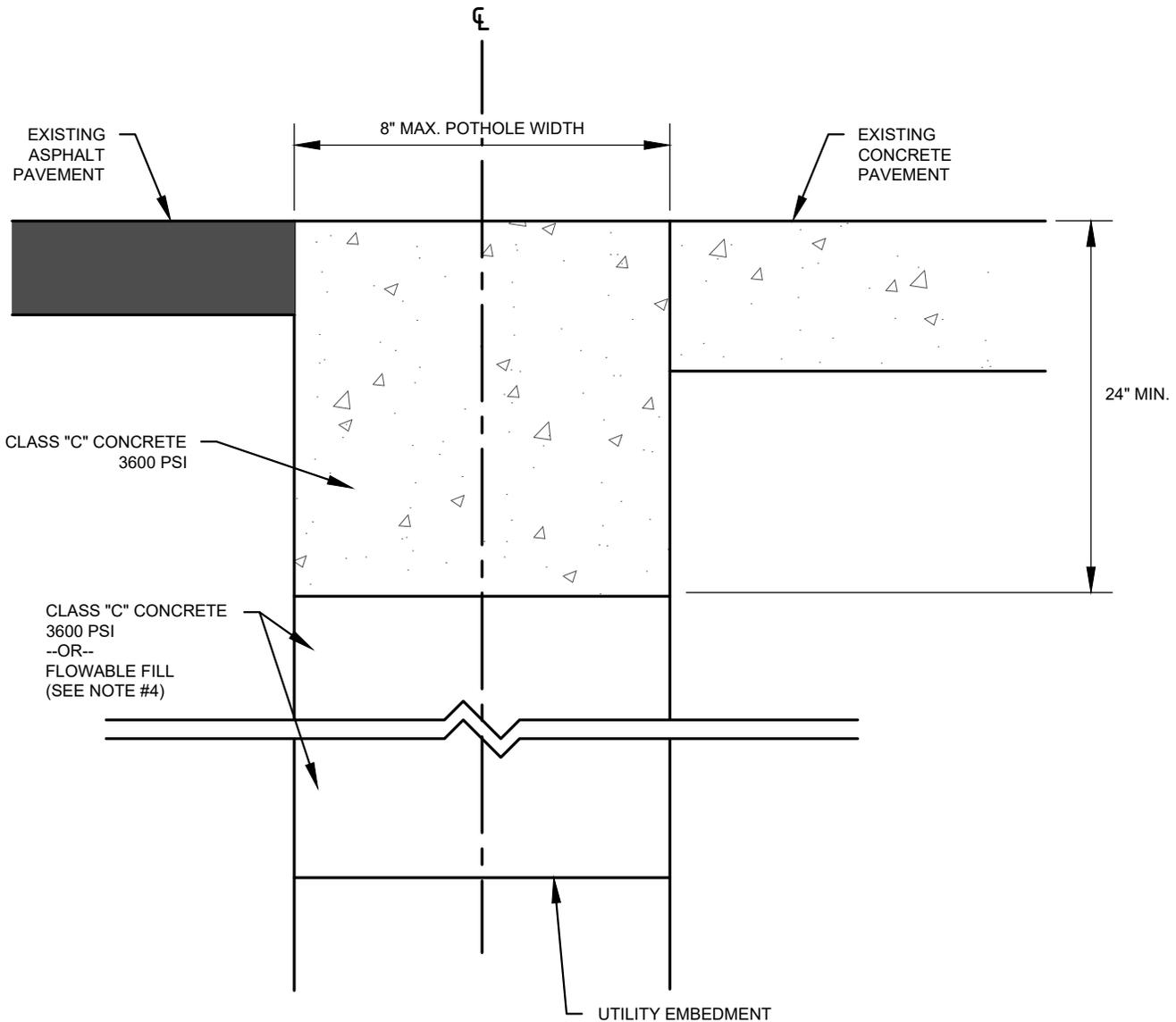
NOTES:

1. FILL BAGS TO 60% CAPACITY WITH CLEAN GRAVEL OR CLEAN SAND.
2. PLACE BAGS WITH BAG OPENINGS SECURED AND FACE UP, AND SO THAT EACH BAG IS FLAT AND HAS THE GREATEST POSSIBLE SURFACE AREA CONTACT WITH THE SURFACE.
3. GRAVEL TO BE NO LESS THAN 1" DIAMETER OR GREATER THAN 2" DIAMETER.
4. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS
5. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC	
EFFECTIVE DATE: 10/01/2018		SCALE: NTS	DETAIL:
MIDLAND <i>Engineering Services</i>			CURB INLET PROTECTION
			714

MISCELLANEOUS DETAILS

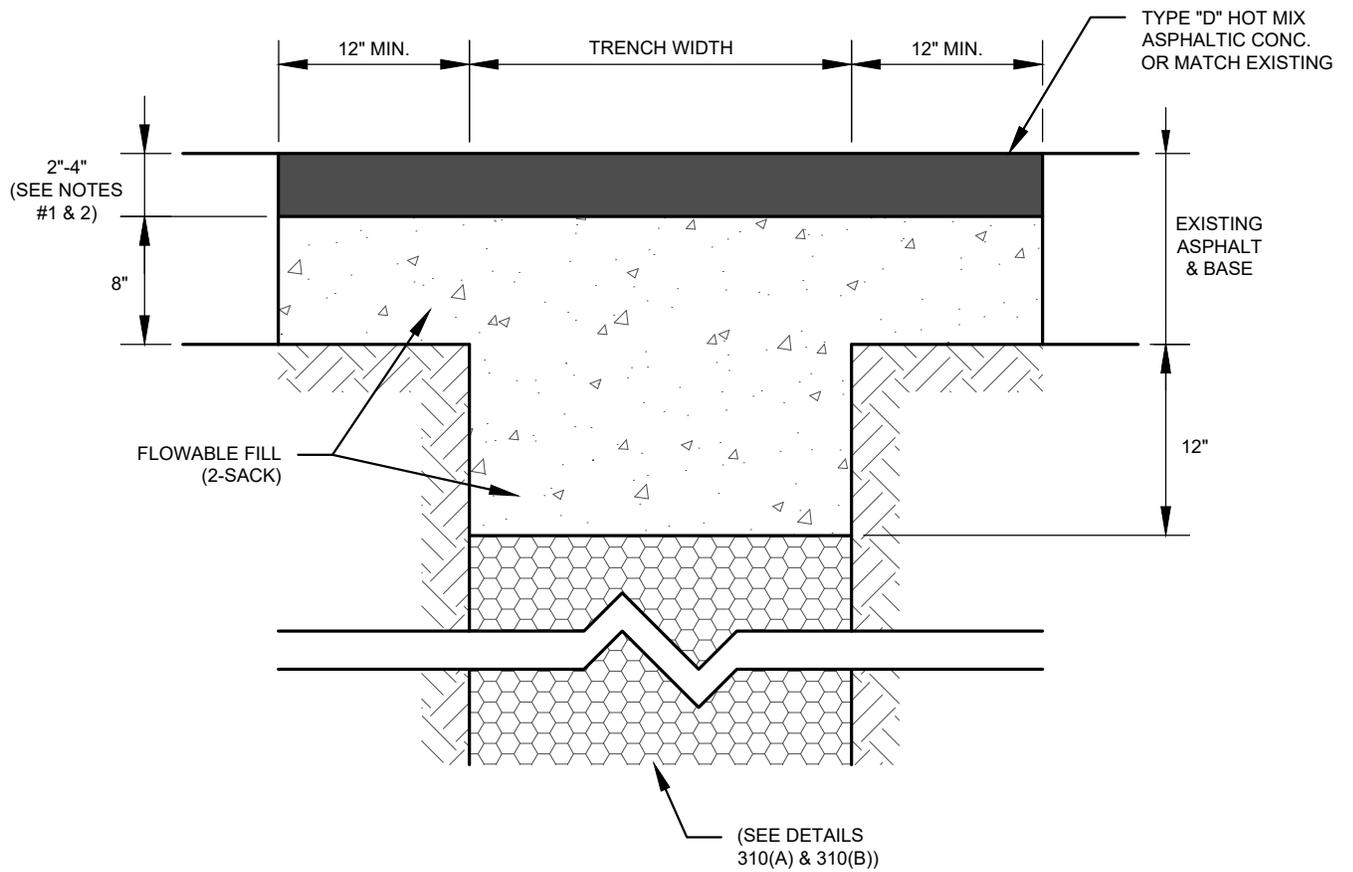
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 MIDLAND <i>Engineering Services</i>	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
			800



NOTES:

1. UTILITY EMBEDMENT TO BE REPLACED TO ORIGINAL CONDITION AND DEPTH OVER UTILITY.
2. PLACE ALL CONCRETE AS A SINGLE CONTINUOUS POUR. PLACE CONCRETE SEPARATELY FROM FLOWABLE FILL.
3. CONCRETE TO BE CITY OF MIDLAND CLASS "C" CONCRETE, 3600 PSI. USE FIBER REINFORCED CONCRETE PAVEMENT THROUGHOUT.
4. PLACE ALL FLOWABLE FILL 2-SACK (2 SACK = 188 LBS/CY, PORTLAND CEMENT) AS A SINGLE CONTINUOUS POUR. FLOWABLE FILL MUST CURE FOR MINIMUM OF ONE (1) DAY PRIOR TO PLACING CONCRETE PAVEMENT OVER IT.
5. ALL CUT OR EXCAVATED MATERIAL MUST BE REMOVED FROM SITE AND MUST NOT BE USED FOR BACKFILL OR PAVEMENT REPAIR.
6. ALL POTHOLE PAVEMENT CUTS MUST BE CLEANLY CUT.
7. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
8. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

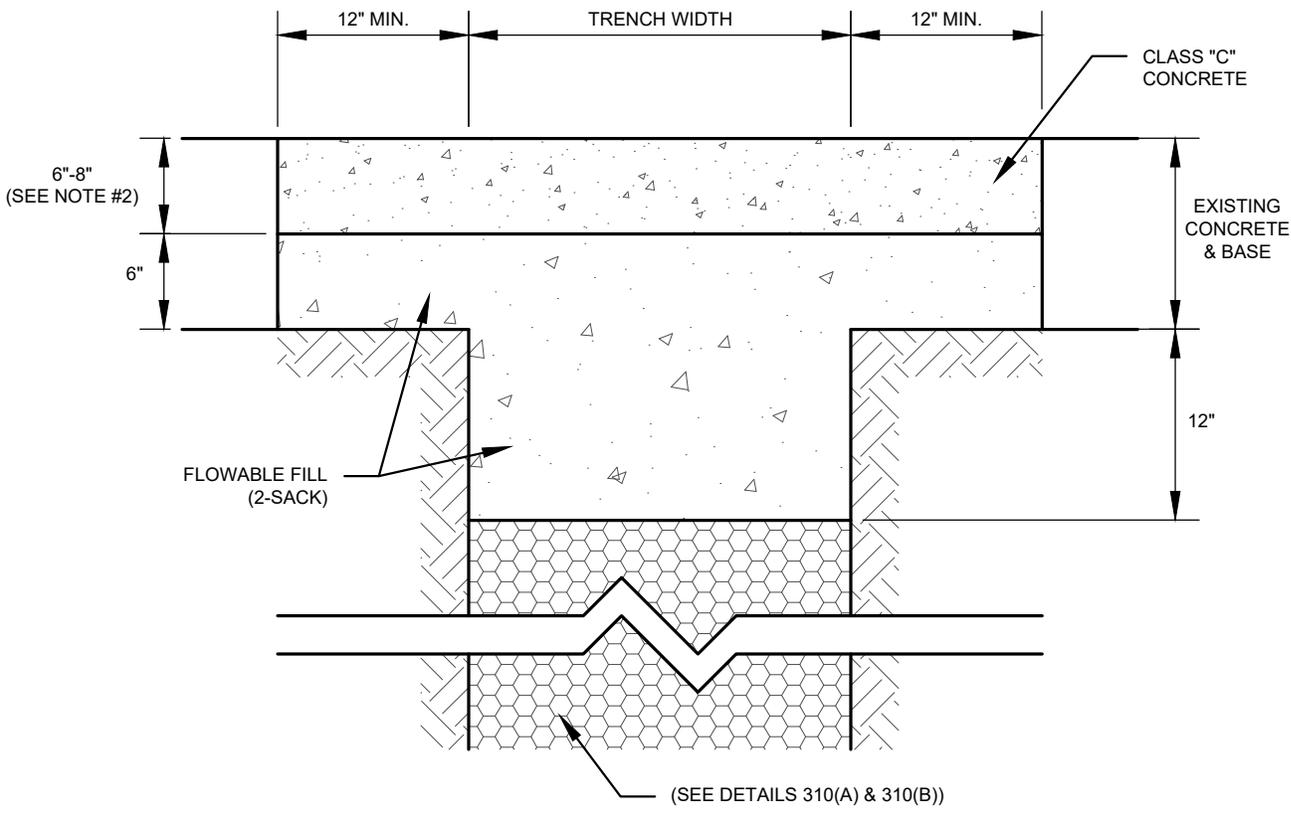
DRAWN: DPM	CHECKED: JCF	APPROVED: MCC
EFFECTIVE DATE: 10/01/2018		SCALE: NTS
DRY UTILITY POTHOLE REPAIR DETAIL		DETAIL: 801



NOTES:

1. ASPHALT PAVEMENT THICKNESS TO BE A MINIMUM OF 2" OR MATCH THE EXISTING ASPHALT THICKNESS IF IT IS GREATER THAN 2" THICK.
2. PLACE ASPHALT PAVEMENT IN MAXIMUM 2" LIFTS, 95% MODIFIED COMPACTION.
3. PLACE ALL FLOWABLE FILL 2-SACK (2 SACK = 188 LBS/CY, PORTLAND CEMENT) AS A SINGLE CONTINUOUS POUR.
4. EXTEND BOTH ASPHALT AND FLOWABLE FILL 12" BEYOND THE EDGE OF THE TRENCH ON BOTH SIDES.
5. SEE DETAILS 310(A) AND 310(B) REGARDING TRENCH BACKFILL REQUIREMENTS BENEATH THE FLOWABLE FILL.
6. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
7. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

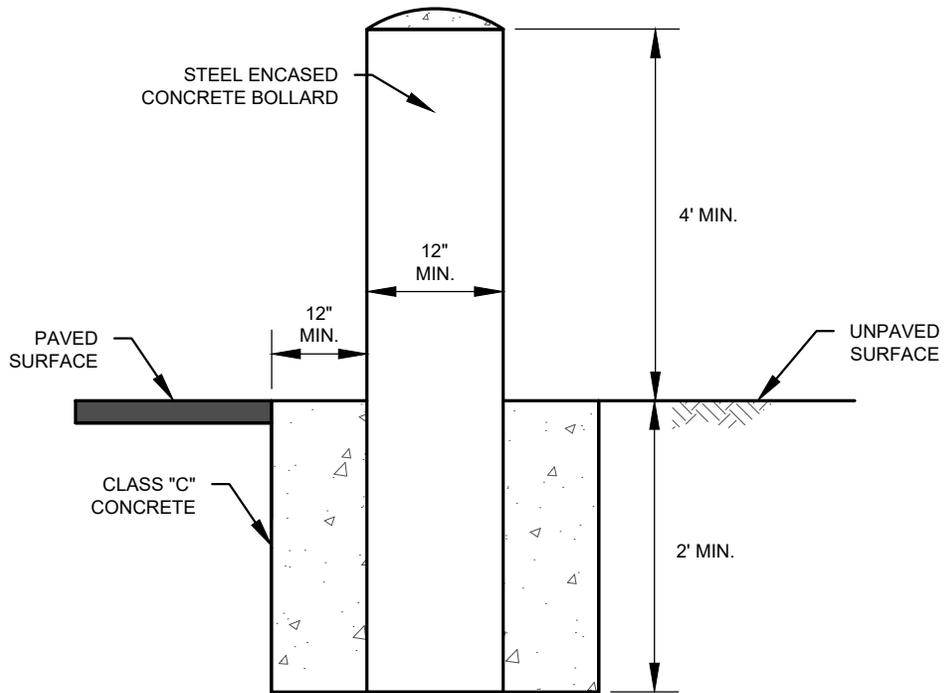
DRAWN: DPM	CHECKED: JCF	APPROVED: MCC
EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
		<p style="text-align: center;">DRY UTILITY ASPHALT TRENCH PAVEMENT REPLACEMENT</p>
		802



NOTES:

1. CONCRETE TO BE CITY OF MIDLAND CLASS "C" CONCRETE, 3600 PSI. USE FIBER REINFORCED CONCRETE PAVEMENT THROUGHOUT.
2. CONCRETE PAVEMENT THICKNESS TO BE A MINIMUM OF 6" OR MATCH THE EXISTING CONCRETE THICKNESS IF IT IS GREATER THAN 6" THICK. CONCRETE PAVEMENT THICKNESS TO BE MINIMUM 8" FOR ARTERIAL PAVEMENT.
3. PLACE ALL FLOWABLE FILL 2-SACK (2 SACK = 188 LBS/CY, PORTLAND CEMENT) AS A SINGLE CONTINUOUS POUR.
4. EXTEND BOTH CONCRETE AND FLOWABLE FILL 12" BEYOND THE EDGE OF THE TRENCH ON BOTH SIDES.
5. SEE DETAILS 310(A) AND 310(B) REGARDING TRENCH BACKFILL REQUIREMENTS BENEATH THE FLOWABLE FILL.
6. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
7. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC	
EFFECTIVE DATE: 10/01/2018		SCALE: NTS	DETAIL:
DRY UTILITY CONCRETE TRENCH PAVEMENT REPLACEMENT			803

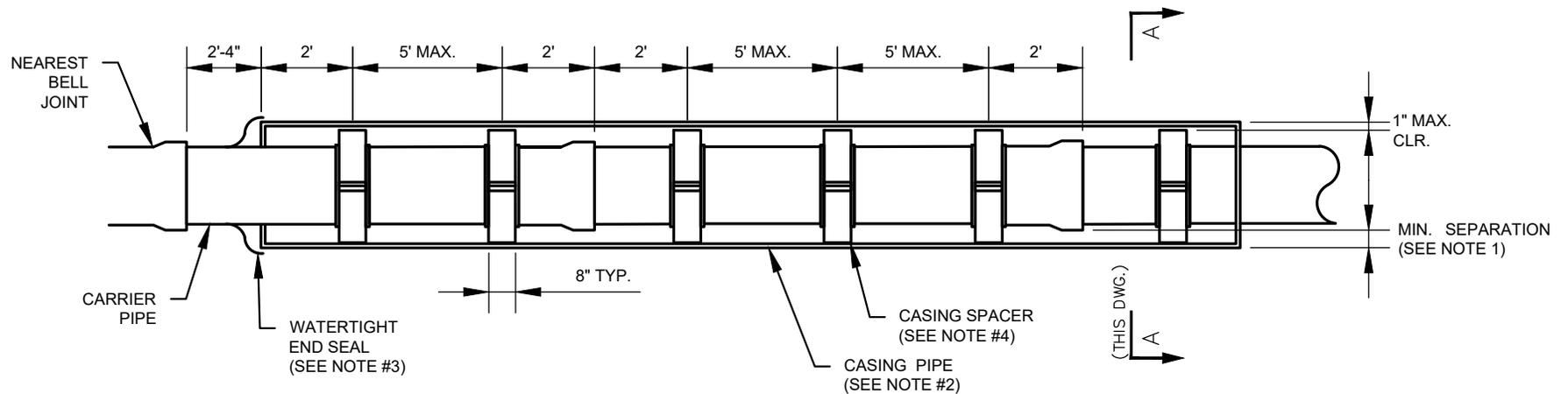


NOTES:

1. CONCRETE TO BE CITY OF MIDLAND CLASS "C" CONCRETE, 3600 PSI, USE FIBER REINFORCED CONCRETE PAVEMENT THROUGHOUT.
2. PAINT BOLLARD YELLOW.
3. BOLLARDS PLACED IN SERIES TO BE SPACED FIVE (5) FEET APART MEASURED FROM BOLLARD CENTER TO CENTER.
4. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
5. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC
EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
TYPICAL BOLLARD		804

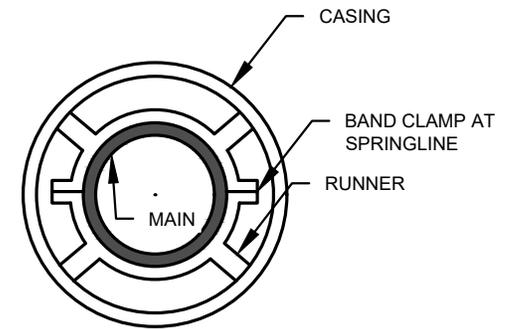




CROSS SECTION VIEW

NOTES:

1. CASING PIPE TO BE MINIMUM TWO (2) NOMINAL SIZES LARGER IN DIAMETER THAN CARRIER PIPE.
2. CASING PIPE TO BE NO LESS THAN 12" DIAMETER PIPE. 12"-16" DIAMETER CASING PIPE MAY BE STEEL OR PVC PIPE. CASING PIPE LARGER THAN 16" DIAMETER MUST BE STEEL PIPE. STEEL CASING PIPE TO BE MINIMUM 1/4" WALL THICKNESS. PVC CASING PIPE TO BE SDR-26 D2241 OR C-900.
3. CASING PIPE TO BE STEEL OR PVC.
4. WATER TIGHT END SEAL TO BE GROUT OR APPROVED MANUFACTURED SEAL.
5. CASING SPACERS TO BE HDPE OR APPROVED EQUAL, MINIMUM FOUR (4) EQUALLY SPACED RUNNERS, WITH BAND CLAMP JOINT LOCATED AT SPRINGLINE. SPACERS FOR CASING PIPE LARGER THAN 24" DIAMETER REQUIRE MINIMUM SIX (6) EQUALLY SPACED RUNNERS.
6. CASING INSTALLED IN OPEN TRENCH IS TO BE BACKFILLED PER CURRENT CITY STANDARDS FOR AN UN-ENCASED MAIN.
7. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
8. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



SECTION 'A-A'



DRAWN: DPM
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 APPROVED: MCC

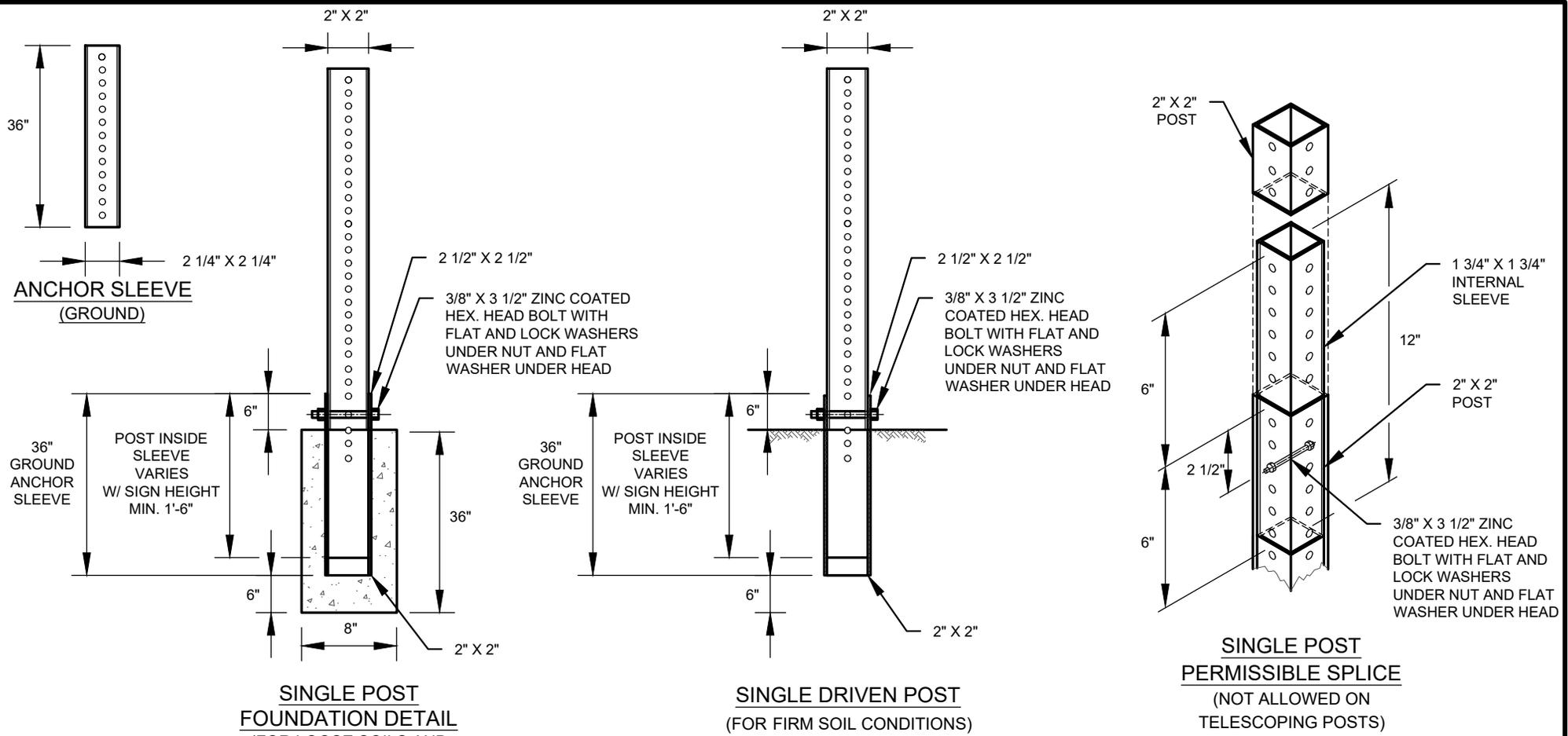
EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

TYPICAL PIPE CASING DETAIL

805



NOTES:

1. ALL DIMENSIONS ARE IN INCHES, EXCEPT AS NOTED.
2. ALL SQUARE PERFORATED POSTS SHALL BE 2" X 2" TYPICALLY 12' LONG
3. FOR ESTIMATING PURPOSES, CONCRETE QUANTITY PER POST IS 1.0 CU/FT.
4. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO THE CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
5. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

NOTES:

1. ALL DIMENSIONS ARE IN INCHES, EXCEPT AS NOTED.
2. ALL SQUARE PERFORATED POSTS SHALL BE 2" X 2" TYPICALLY 12' LONG
3. FOR ESTIMATING PURPOSES, CONCRETE QUANTITY PER POST IS 1.0 CU/FT.
4. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO THE CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
5. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

NOTES:

1. IF ANY POST SECTION IS SHORTER THAN THE PANEL HEIGHT, THE FIELD SPLICE SHALL BE BEHIND THE PANEL
2. FIELD SPLICES ARE NOT PERMITTED ON TELESCOPING POSTS.
3. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO THE CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
4. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



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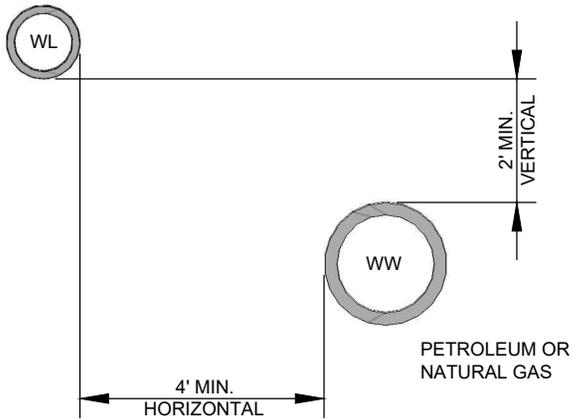
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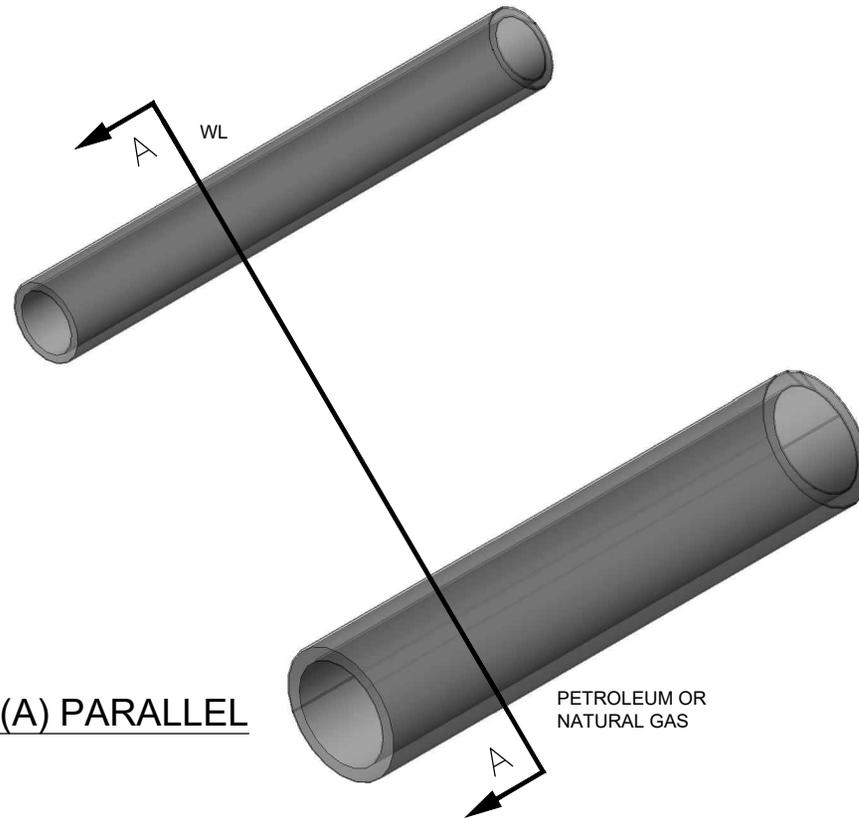
DETAIL:

SQUARE PERFORATED SIGN POST, FOUNDATION, & SPLICE DETAILS

806



SECTION 'A-A'



(A) PARALLEL

NOTES:

1. SEE CITY DETAIL 306 FOR NEW WATER MAIN LINE REQUIREMENTS WHEN IN PARALLEL WITH PETROLEUM OR NATURAL GAS LINES.
2. MUST COMPLETE AND FOLLOW CONSENT AND CROSSING AGREEMENT FOR CROSSING CITY OF MIDLAND UTILITY LINES, AS PER ROW MANAGER.
3. PETROLEUM OR NATURAL GAS LINES MUST BE LOCATED AT LEAST 9.0' FROM ALL WATER MAINS IN ALL DIRECTIONS. IF THIS IS NOT POSSIBLE THEN AN ENGINEERING REPORT IS REQUIRED PER TAC TO JUSTIFY WHY, AND THE REQUIREMENTS OF THIS DETAIL WILL APPLY. THIS DETAIL IS INTENDED TO COMPLY WITH TAC 217.53(d) AND TAC 290.44(e). IF TAC AND THIS DETAIL DIFFER THEN THE MORE RESTRICTIVE STANDARD GOVERNS.
4. PETROLEUM OR NATURAL GAS LINES RUNNING IN PARALLEL TO A WATER MAIN MUST BE LOCATED BELOW THE WATER MAIN ELEVATION AND MAINTAIN THE MINIMUM SEPARATION DISTANCES SHOWN ON THIS DETAIL.
5. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
6. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



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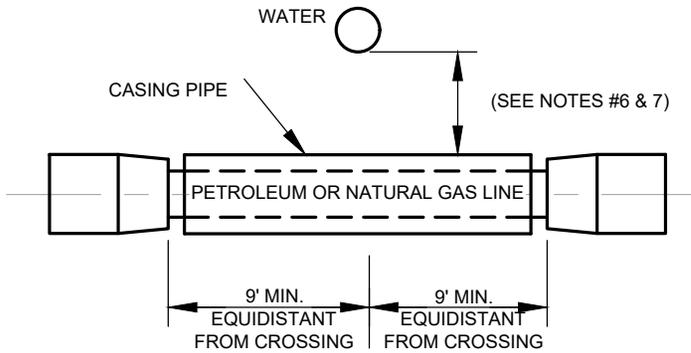
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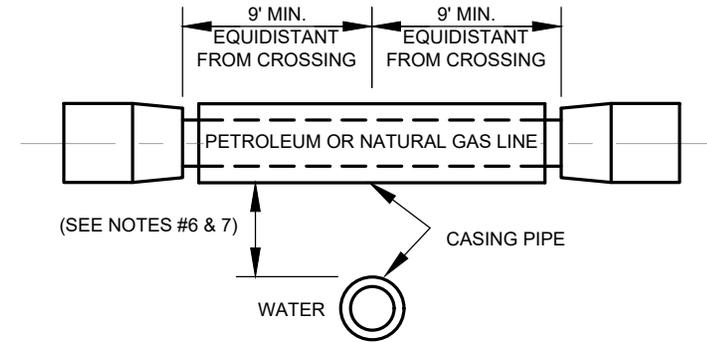
**PETROLEUM AND NATURAL GAS LINES
 PARALLEL WATER MAIN**

807

NEW PETROLEUM OR NATURAL GAS UNDER WATER



NEW PETROLEUM OR NATURAL GAS OVER WATER



NOTES:

1. SEE CITY DETAIL 308 FOR NEW WATER MAIN REQUIREMENTS AT PETROLEUM OR NATURAL GAS CROSSINGS.
2. MUST COMPLETE AND FOLLOW CONSENT AND CROSSING AGREEMENT FOR CROSSING CITY OF MIDLAND UTILITY LINES, AS PER ROW MANAGER.
3. PETROLEUM OR NATURAL GAS LINES MUST BE LOCATED AT LEAST 9.0' FROM ALL WATER MAINS IN ALL DIRECTIONS. IF THIS IS NOT POSSIBLE THEN AN ENGINEERING REPORT IS REQUIRED PER TAC TO JUSTIFY WHY, AND THE REQUIREMENTS OF THIS DETAIL WILL APPLY.
4. THIS DETAIL IS INTENDED TO COMPLY WITH TAC 217.53(d) AND TAC 290.44(e). IF TAC AND THIS DETAIL DIFFER THEN THE MORE RESTRICTIVE STANDARD GOVERNS.
5. CENTER NEW PETROLEUM OR NATURAL GAS PIPE SEGMENT ON CROSSING SO THAT ALL PIPE SEGMENT JOINTS ARE EQUIDISTANT AND AT LEAST 9.0' HORIZONTALLY FROM THE CENTERLINE OF THE CROSSING. PETROLEUM OR NATURAL GAS LINE TO CROSS WATER MAIN AT 90° ANGLE.
6. NEW PETROLEUM OR NATURAL GAS LINE CROSSING OVER OR BENEATH WATER MAIN TO BE ENCASED IN MINIMUM 18'.0' LONG PIPE ENCASEMENT CENTERED ON THE CROSSING. SEE CITY DETAIL 805 FOR PIPE CASING. VERTICAL SEPARATION FROM OUTER EDGE OF WATER MAIN TO BE NO LESS THAN 2.0'.
7. VERTICAL SEPARATION DIMENSIONS TO BE MEASURED FROM OUTER EDGE OF ALL PIPE ENCASEMENTS.
8. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
9. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL:

**PETROLEUM AND NATURAL GAS LINES
 CROSSING WATER MAIN**

808