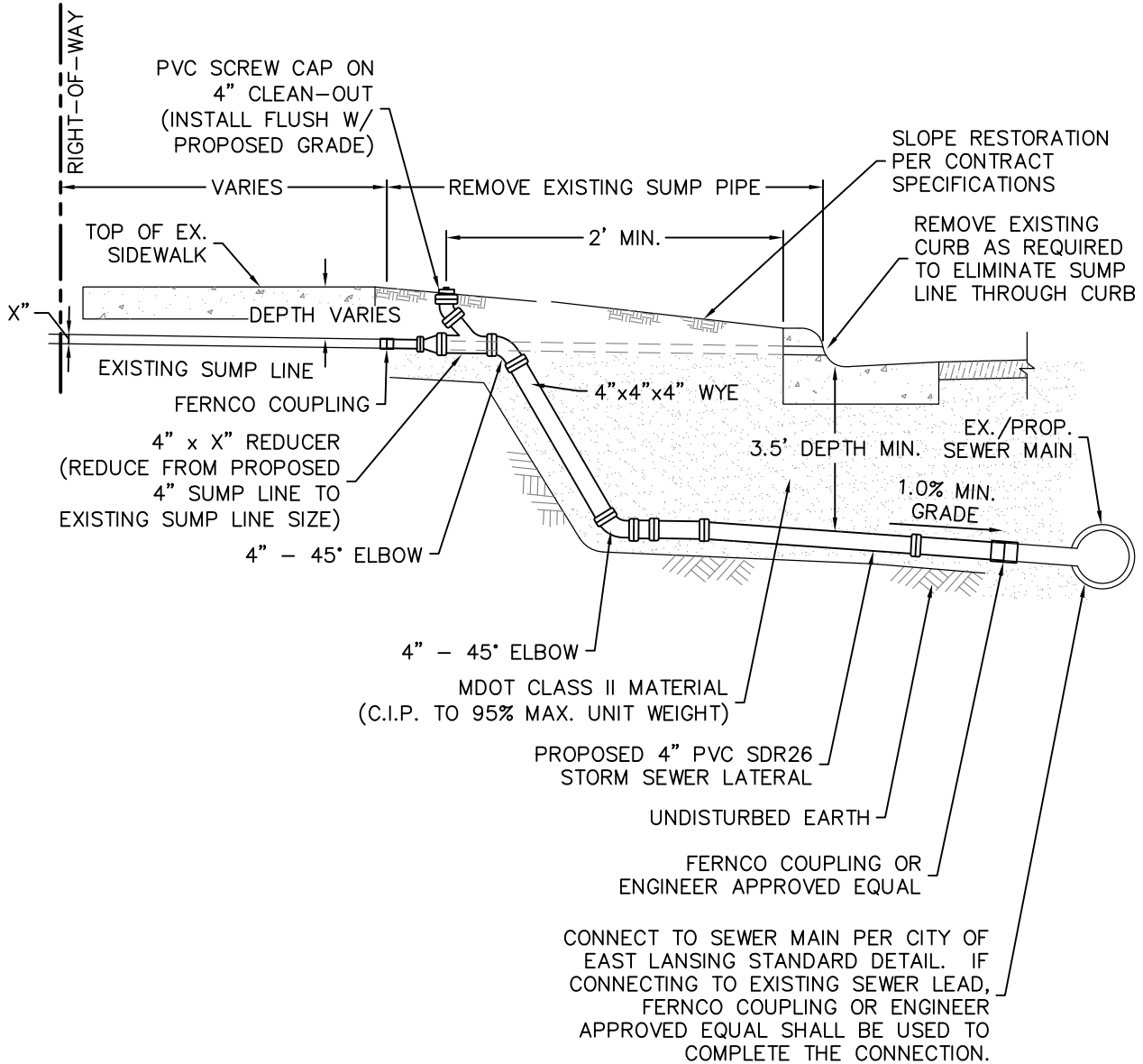
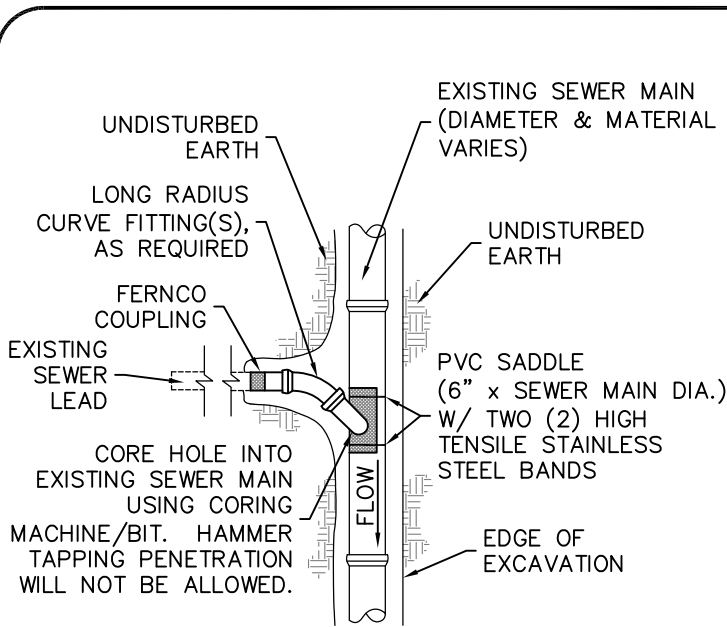


- EXISTING SIDEWALKS, CURB & GUTTER AND DRIVE APPROACHES ARE NOT TO BE TUNNELED DURING THE INSTALLATION OF THE SUMP LEAD. THE FEATURE SHALL BE SAWCUT FULL DEPTH, REMOVED AND REPLACED PER THE CITY OF EAST LANSING STANDARD SPECIFICATIONS FOR CONSTRUCTION AND STANDARD DETAILS.
- SEE EAST LANSING ENGINEERING DEPARTMENT STANDARD DETAILS AND SPECIFICATIONS FOR INSTALLATION OF CONCRETE CURB & GUTTER, SIDEWALK AND SLOPE RESTORATION



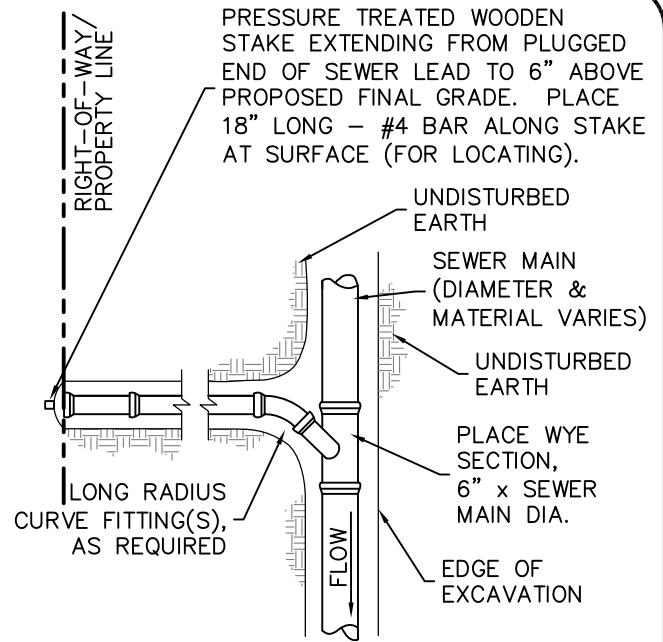
CONNECTION TO EXISTING SUMP LINE
PROFILE VIEW

© 2014 CITY OF EAST LANSING	CITY OF EAST LANSING DEPARTMENT OF ENGINEERING 410 ABBOT ROAD EAST LANSING, MI 48823 (517) 337-9459 FAX: (517) 337-3943			PROJECT	STANDARD DETAILS		REVISION	ENG. REVIEW	
	SHEET NAME						DATE		
	CONNECTION TO EXISTING SUMP LINE						03/01/16		
	DRAWN	CJM		CHECKED	RFS	APPROVED	RFS	SCALE	NONE
	DATE	02/20/14		DATE	03/14/14	DATE	03/14/14	SHEET NO.	1 OF 1



CONNECTION TO SEWER MAIN

SADDLE-TYPE CONNECTION - PLAN VIEW
(FOR CONNECTION TO EXISTING SEWER MAINS,
6" TO 24" DIAMETER)

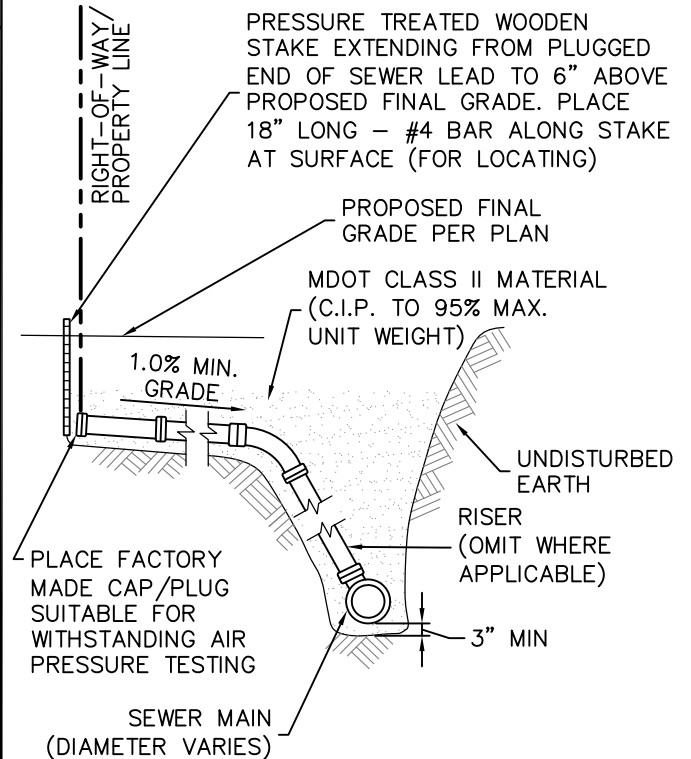


CONNECTION TO SEWER MAIN

WYE-TYPE CONNECTION - PLAN VIEW

NOTES:

- LEADS AND RISERS SHALL BE CONSTRUCTED OF MATERIALS AS SPECIFIED IN THE CITY OF EAST LANSING STANDARD SPECIFICATIONS FOR CONSTRUCTION.
- ALL LEADS SHALL BE CONNECTED TO MAIN LINE SEWERS WITH WYE BRANCHES, UNLESS OTHERWISE APPROVED BY THE CITY OF EAST LANSING ENGINEERING DEPARTMENT.
- ALL TRENCHES WITHIN THE INFLUENCE OF THE ROADWAY, SIDEWALK, OR OTHER PAVED SURFACES (1:1 SLOPE FROM BOTTOM OF TRENCH TO TOP OF EXISTING/PROPOSED FINISHED GRADE) SHALL BE BACKFILLED WITH MDOT CLASS II MATERIAL PLACED IN 12" LIFTS AND COMPACTED TO 95% OF THE MAXIMUM UNIT WEIGHT.
- NEW CONSTRUCTION:**
THE SEWER LEAD SHALL BE INSTALLED TO THE PROPERTY LINE WITH SUITABLE CAP/PLUG INSTALLED AT THE END OF THE LEAD.
- EXISTING SEWER:**
PIPE SHALL BE CUT WITH APPROVED PIPE CUTTERS. RECONNECT TO EXISTING SEWER(S) WITH FERNCO COUPLER OR ENGINEER APPROVED EQUAL.



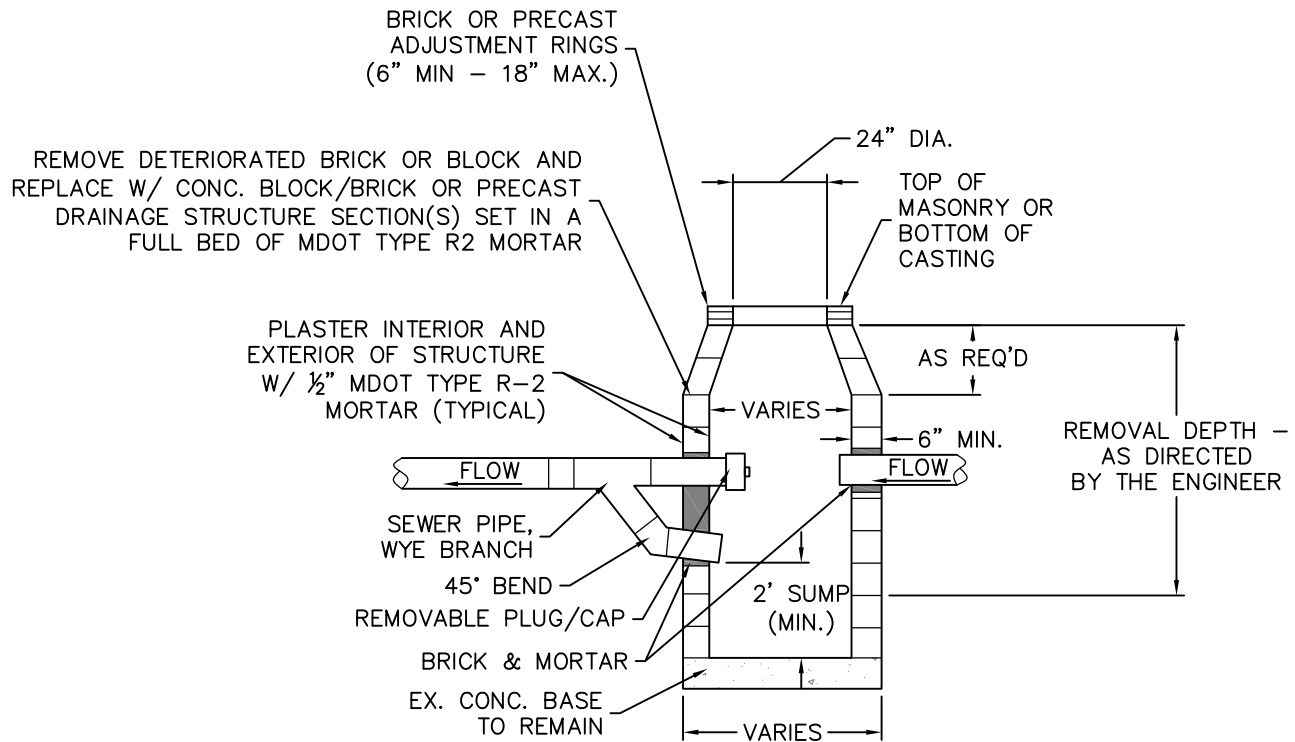
CONNECTION TO SEWER MAIN

ELEVATION VIEW

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PROJECT STANDARD DETAILS			REVISION ENG. REVIEW
SHEET NAME CONNECTION TO SEWER MAIN			DATE 03/01/16
DRAWN CJM	CHECKED RFS	APPROVED RFS	SCALE NONE
DATE 02/20/14	DATE 03/14/14	DATE 03/14/14	SHEET NO. 1 OF 1



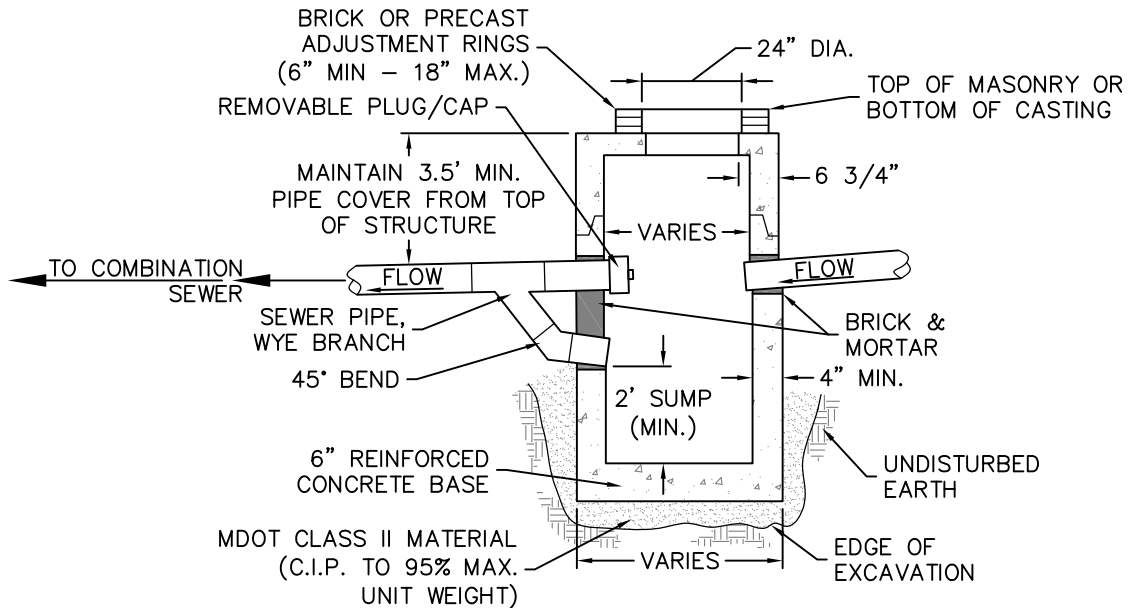
DRAINAGE STRUCTURE RECONSTRUCTION

RECONSTRUCTION OF EXISTING CATCH BASIN W/ TRAP SHOWN
(RECONSTRUCTION W/ CONCRETE BLOCK/BRICK OR PRECAST UNIT)

NOTES:

1. EXISTING PIPING/TRAPS SHALL BE SUPPORTED BY BLOCKING OR ANY OTHER MEANS UNTIL STRUCTURE IS COMPLETED AND CONCRETE MORTAR IS SET.
2. BACKFILL EXCAVATED AREAS WITH M.D.O.T. CLASS II MATERIAL AND COMPACT IN PLACE TO 95% MAXIMUM UNIT WEIGHT. COMPACTION SHALL BE COMPLETED IN A MANNER AS TO PROTECT THE STRUCTURE FROM DAMAGE. ANY DAMAGE SHALL BE IMMEDIATELY REMEDIED.
3. WATERTIGHT SEAL USING M.D.O.T. R-2 MORTAR WILL BE PROVIDED AROUND PIPES.
4. TRAPS ARE NOT REQUIRED FOR SEPARATED STORM SEWER SYSTEMS.
5. ALL TRAPS REQUIRED TO BE REMOVED SHALL BE REPLACED WITH SDR 26 PVC PIPING MATCHING THE SIZE OF THE EXISTING INCOMING SEWER AND CONNECTIONS SHALL BE MADE WITH FERNCO COUPLINGS OR ENGINEER APPROVED EQUAL. TRAPS SHALL BE CONSTRUCTED AS PER CITY OF EAST LANSING STANDARD DETAIL.
6. A REDUCER MAY BE REQUIRED TO RECONNECT THE TRAP TO THE EXISTING SEWER LEAD PIPE. THE CONTRACTOR SHALL FIELD VERIFY THE SIZE OF THE FITTINGS REQUIRED TO COMPLETE THE PROPOSED WORK.
7. DISTURBED TRAPS SHALL BE RECONSTRUCTED USING SDR-26 PVC PIPE WITH RUBBER O-RING JOINTS, AS DIRECTED BY THE CITY OF EAST LANSING ENGINEERING DEPARTMENT
8. SEE CITY OF EAST LANSING STANDARD SEWER SPECIFICATIONS FOR APPROVED DRAINAGE STRUCTURE CASTINGS.
9. INTERIOR OF ADJUSTMENT SHALL BE SEALED THE FULL DEPTH OF THE ADJUSTMENT USING MDOT R2 MORTAR. BROOMED FINISH SHALL BE APPLIED TO SURFACE. ANY DAMAGED TO INTERIOR SHALL BE IMMEDIATELY REMEDIED.

	CITY OF EAST LANSING			REVISION
	DEPARTMENT OF ENGINEERING			ENG. REVIEW
	410 ABBOT ROAD			DATE
	EAST LANSING, MI 48823			03/01/16
	(517) 337-9459 FAX: (517) 337-3943			SCALE
			NONE	
			SHEET NO.	
			1 OF 1	

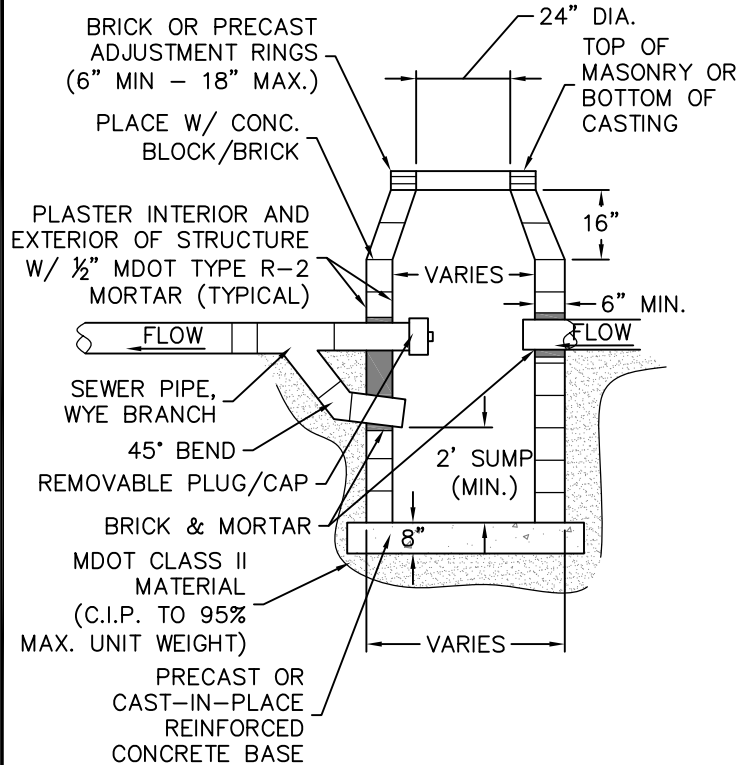


DRAINAGE STRUCTURES - CATCH BASIN

PRECAST REINFORCED CONCRETE CATCH BASIN W/ TRAP

NOTES:

1. TRAP SHALL BE SUPPORTED BY BLOCKING OR ANY OTHER MEANS UNTIL STRUCTURE IS COMPLETED AND CONCRETE MORTAR IS SET.
2. BACKFILL EXCAVATED AREAS WITH M.D.O.T. CLASS II MATERIAL AND COMPACT IN PLACE TO 95% MAXIMUM UNIT WEIGHT.
3. SET ALL CASTINGS AND ADJUSTMENT IN A FULL BED OF MDOT TYPE R2 MORTAR.
4. WATERTIGHT SEAL USING M.D.O.T. R-2 MORTAR WILL BE PROVIDED AROUND PIPES.
5. TRAPS ARE NOT REQUIRED FOR SEPARATED STORM SEWER ONLY SYSTEMS.
6. ALL TRAPS REQUIRED TO BE REMOVED WILL BE REPLACED WITH AN 8" TRAP.
7. A REDUCER MAY BE REQUIRED TO RECONNECT THE TRAP TO THE EXISTING SEWER LEAD PIPE.
8. TRAPS SHALL BE CONSTRUCTED USING PVC SDR 26 PIPE WITH RUBBER O-RING JOINTS.
8. SEE CITY OF EAST LANSING STANDARD SEWER SPECIFICATIONS FOR APPROVED DRAINAGE STRUCTURE CASTINGS.



DRAINAGE STRUCTURES - CATCH BASIN

CONCRETE BLOCK/BRICK & MORTAR CATCH BASIN W/ TRAP

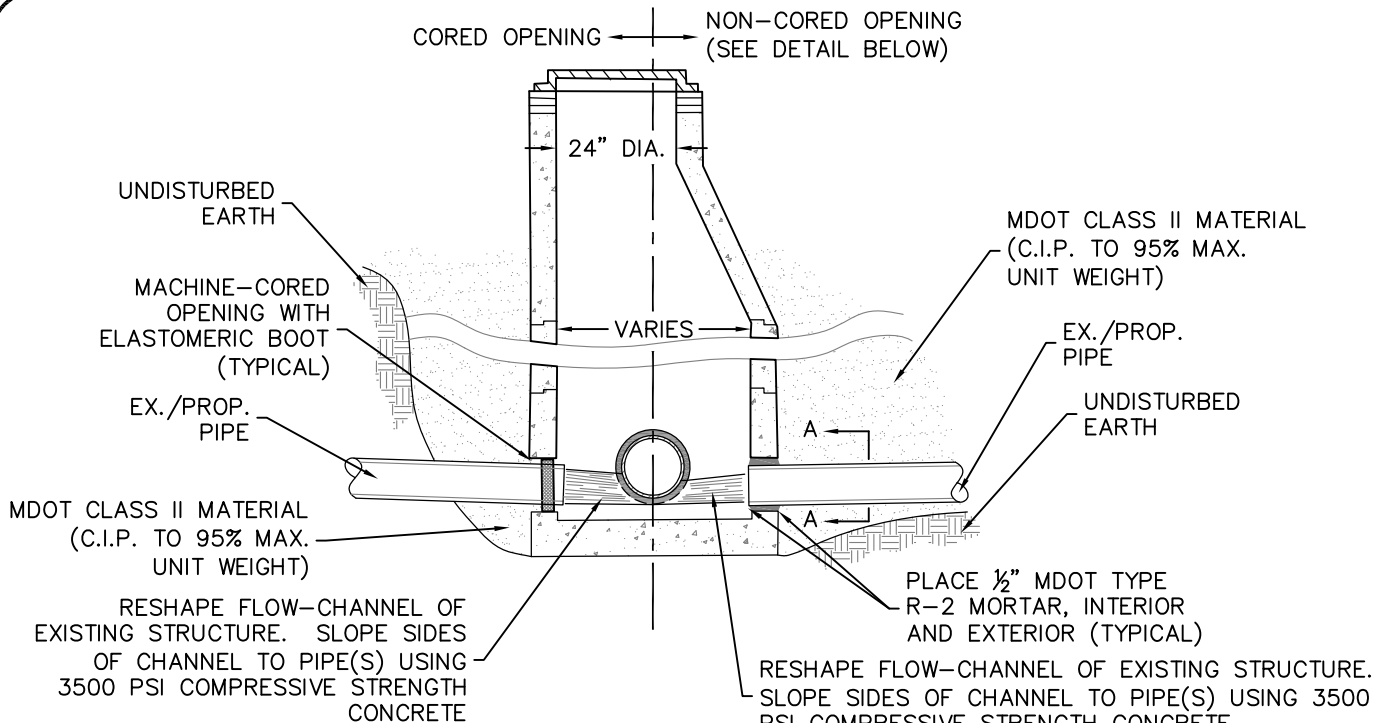
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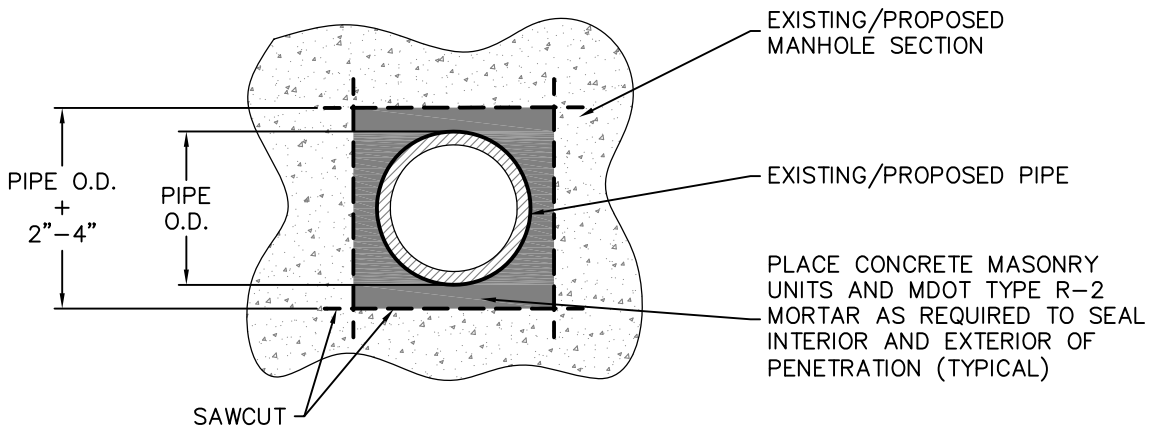


PROJECT		STANDARD DETAILS		REVISION	ENG. REVIEW
SHEET NAME		DR. STRUCTURES - CATCH BASIN		DATE	03/01/16
DRAWN	CJM	CHECKED	RFS	APPROVED	RFS
DATE	02/20/14	DATE	03/14/14	DATE	03/14/14
				SCALE	NONE
				SHEET NO.	1 OF 1



CONNECTION OF SEWER TO DRAINAGE STRUCTURES

CORED AND NON CORED OPENINGS - PLAN VIEW



CONNECTION OF SEWER TO DRAINAGE STRUCTURES

NON-CORED OPENINGS - SECTION A-A
(REQUIRES CITY OF EAST LANSING
ENGINEERING DEPARTMENT APPROVAL)

NOTES:

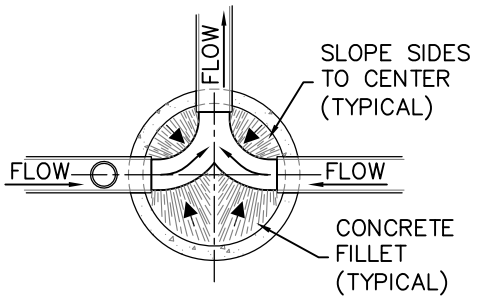
1. ALL MANHOLES & CATCH BASINS SHALL BE CORED UNLESS OTHERWISE APPROVED BY THE ENGINEER
2. DEBRIS/CONSTRUCTION MATERIALS SHALL BE KEPT FROM FALLING INTO THE STRUCTURE & OBSTRUCTING SEWER FLOWS. ALL DEBRIS OR MATERIAL SHALL BE CLEANED FROM WITHIN THE STRUCTURE AS IT OCCURS. STRUCTURES SHALL ALSO BE CLEANED FREE OF DEBRIS AND CONSTRUCTION MATERIALS UPON COMPLETION OF WORK

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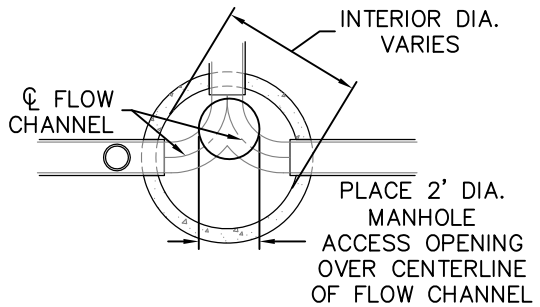
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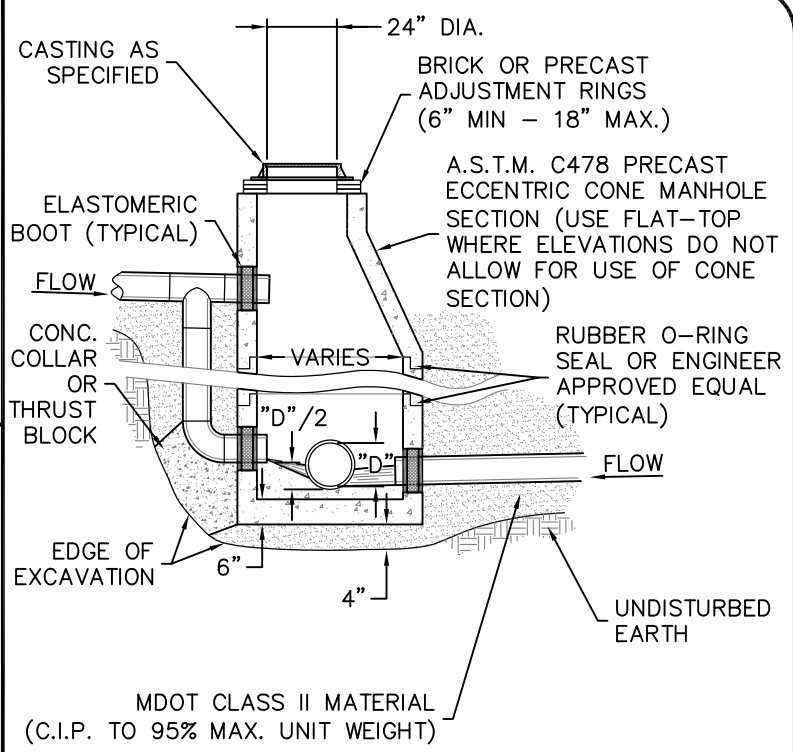
PROJECT		STANDARD DETAILS		REVISION
SHEET NAME		DRAINAGE STRUCTURE CONNECTIONS		ENG. REVIEW
DRAWN		CHECKED	APPROVED	DATE
CJM		RFS	RFS	03/01/16
DATE	DATE	DATE	SCALE	SHEET NO.
02/20/14	03/14/14	03/14/14	NONE	1 OF 1



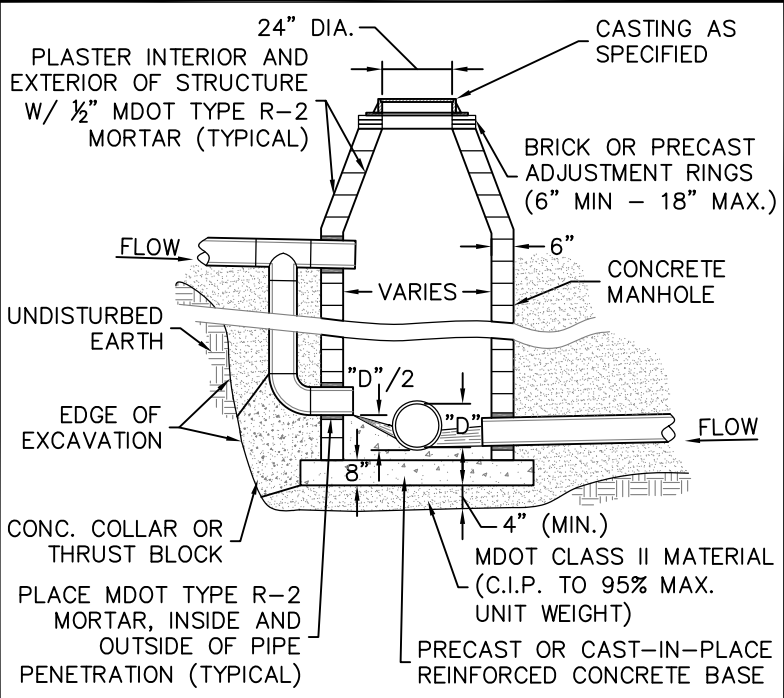
DRAINAGE STRUCT. - MANHOLE
FLOW CHANNEL CONSTRUCTION - PLAN VIEW



DRAINAGE STRUCT. - MANHOLE
MANHOLE ACCESS OPENING INSTALLATION - PLAN VIEW



DRAINAGE STRUCTURES - MANHOLE
PRECAST REINFORCED CONCRETE MANHOLE



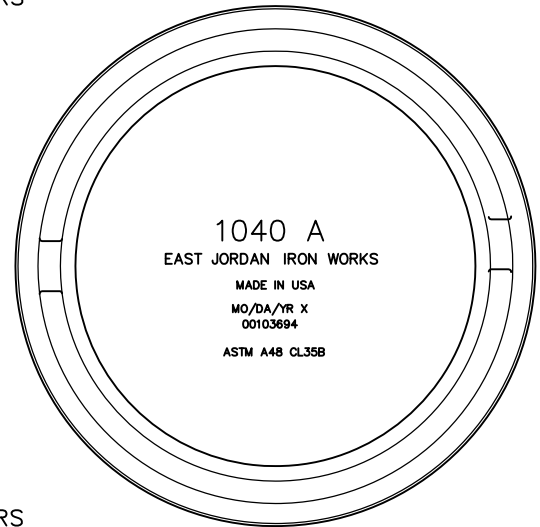
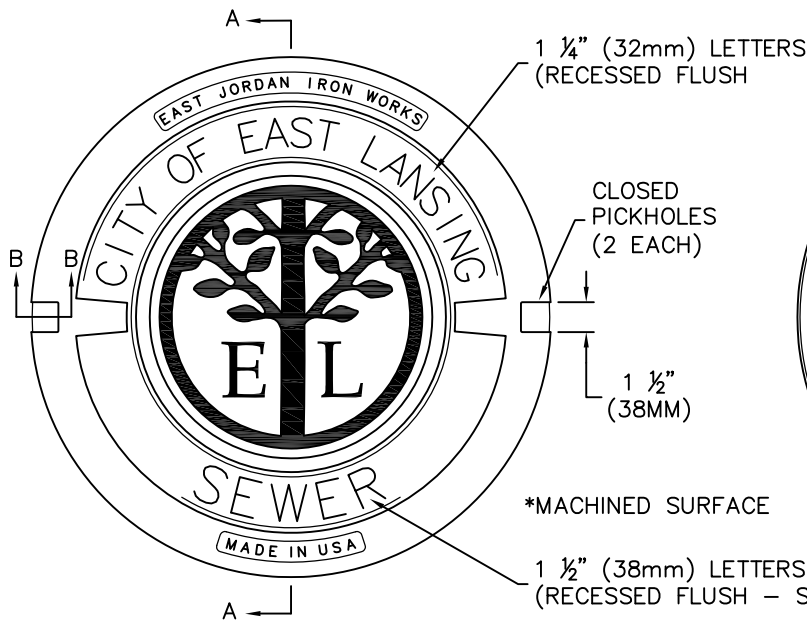
DRAINAGE STRUCTURES - MANHOLE
CONCRETE BLOCK/BRICK & MORTAR MANHOLE

- NOTES:**
1. AN EXTERNAL DROP PIPE IS REQUIRED WHERE THE INCOMING PIPE INVERT IS GREATER THAN 2 FEET ABOVE THE MANHOLE INVERT.
 2. SET ALL CASTINGS AND ADJUSTMENT IN A FULL BED OF M.D.O.T. TYPE R-2 MORTAR.
 3. DROP PIPE INVERT SHALL BE PLACED AT 1/2 OF DIAMETER ABOVE THE OUTLET PIPE ("R" DIMENSION).
 4. CONCRETE FILLET FOR FLOW CHANNEL SHALL BEGIN AT 1/2 OF THE PIPE DIAMETER AND SLOPE UPWARD AT A 1/2" PER FOOT TO THE INSIDE WALL OF THE MANHOLE.
 5. CONCRETE FILLET FOR FLOW CHANNEL SHALL BE CONSTRUCTED USING M.D.O.T. 3500 PSI COMPRESSIVE STRENGTH CONCRETE.
 6. WATERTIGHT SEAL USING ELASTOMERIC BOOT (PRECAST) OR M.D.O.T. R-2 MORTAR (BLOCK & MORTAR) SHALL BE PROVIDED AROUND ALL PIPES.
 7. CASTING COVERS SHALL BE PER CITY OF EAST LANSING STANDARD SPECIFICATIONS AND DETAILS.

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PROJECT STANDARD DETAILS			REVISION ENG. REVIEW
SHEET NAME DR. STRUCTURES - MANHOLES			DATE 03/01/16
DRAWN CJM	CHECKED RFS	APPROVED RFS	SCALE NONE
DATE 02/20/14	DATE 03/14/14	DATE 03/14/14	SHEET NO. 1 OF 1

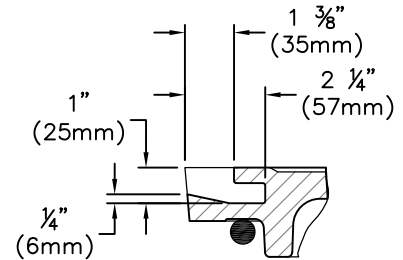
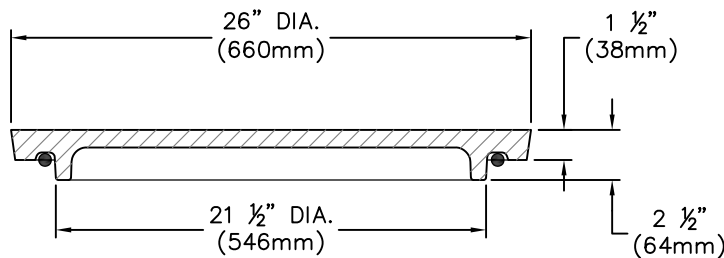


DR. STRUCTURE COVER, TYPE Q, MODIFIED

SPECIAL LETTERED COVER, SEWER & WATER - TOP VIEW
(SEWER SHOWN)
FRAME SHALL BE EJIW 1045

DR. STRUCTURE COVER, TYPE Q, MODIFIED

SPECIAL LETTERED COVER, SEWER & WATER - BOTTOM VIEW
(SEWER SHOWN)
FRAME SHALL BE EJIW 1045



DR. STRUCTURE COVER, TYPE Q, MODIFIED

SPECIAL LETTERED COVER, SEWER & WATER - SECTION A-A

DR. STRUCTURE COVER, TYPE Q, MODIFIED

SPECIAL LETTERED COVER, SEWER & WATER - SECTION B-B
(PICK-HOLE DETAIL)

EAST JORDAN IRON WORKS, INC. P.O. BOX 439 EAST JORDAN, MI. 49727 1-800-874-4100 FAX 231-536-4458		SPECIAL LETTERED COVER		REF. LOGO DRAWING 00103694	MAT'L SPEC. COVER- GRAY IRON ASTM A48 CL35B
DRAWN SMH	DATE 04/06/06			PRODUCT NO. 00103694 (SEWER)	
APPROVED	DATE	CATALOG NO. 1040A		OPEN AREA	LOAD RATING HEAVY DUTY
				NOT APPLICABLE	

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PROJECT STANDARD DETAILS	REVISION ENG. REVIEW
SHEET NAME DR. STRUCTURE COVER. - TYPE Q, MODIFIED	DATE 03/01/16
DRAWN CJM	CHECKED CF
APPROVED CF	SCALE NONE
DATE 06/22/15	DATE 06/22/15
DATE 06/22/15	SHEET NO. 1 OF 1