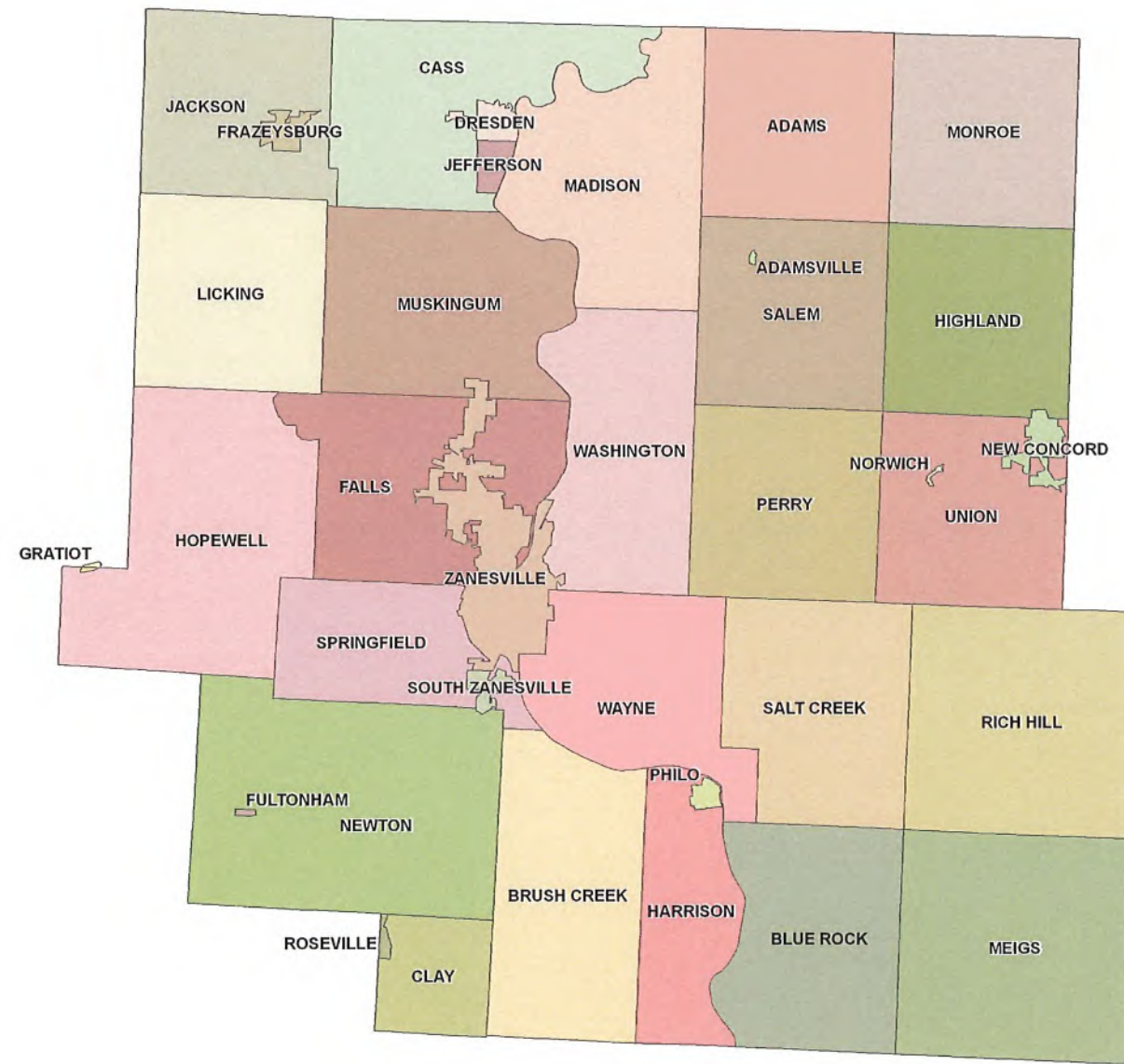


MUSKINGUM COUNTY SEWER DISTRICT



SANITARY SEWER STANDARDS

Muskingum County
Sewer Department
375 Richard Roads
Zanesville, Ohio 43701
Telephone (740) 452-4940
Fax (740) 453-6448



PREPARED BY:

PROJECT NAME:
MUSKINGUM COUNTY
SEWER STANDARDS

PROJECT LOCATION:
MUSKINGUM COUNTY, OHIO

PLANS APPROVED BY:
MJE

PLANS PREPARED BY:
HJ

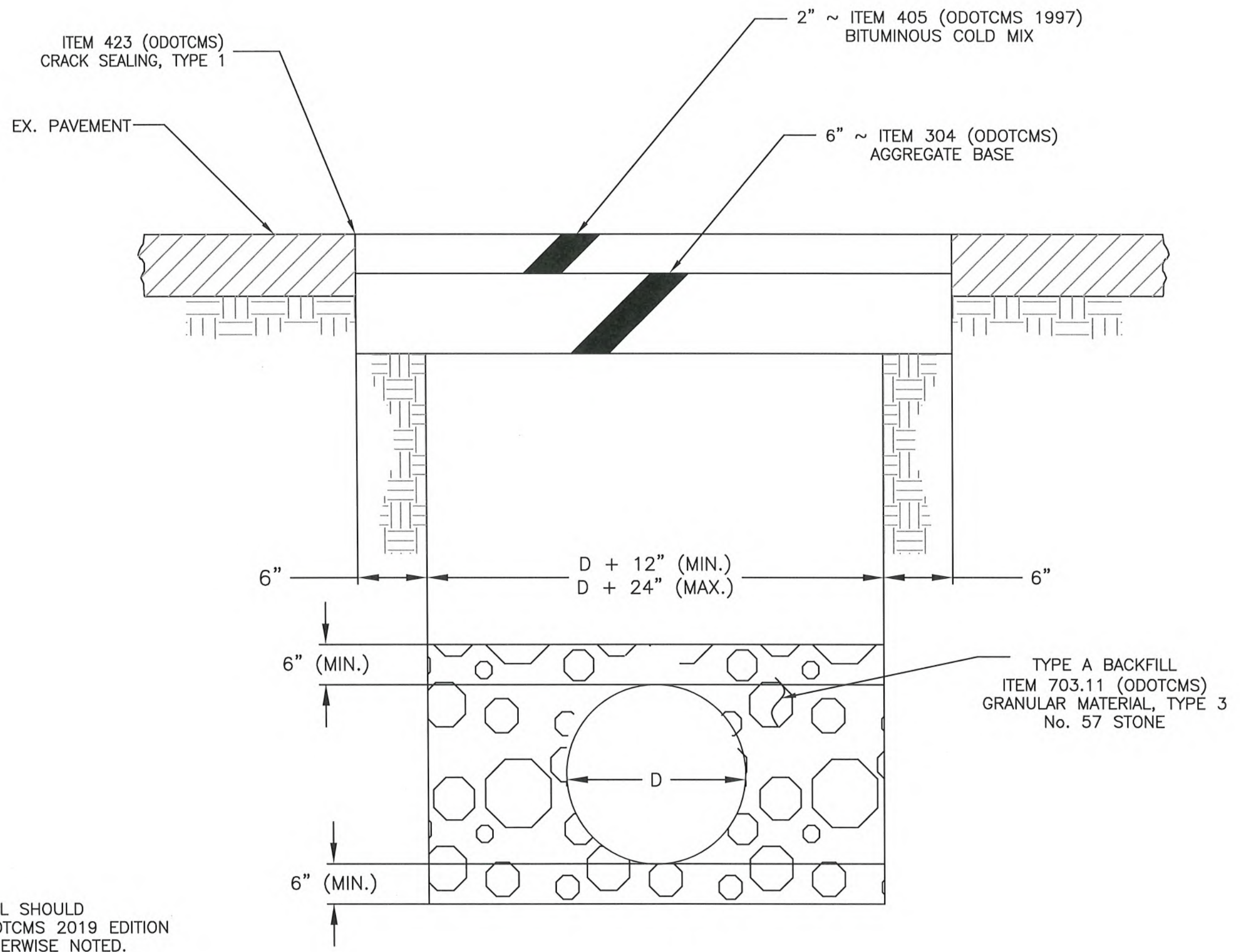
DATE:
06/22/2022

REVISED:

SHEET SIZE:
11"x17"

SHEET NAME:
TITLE SHEET

SHEET NUMBER:
1 / 40



NOTE:
ALL MATERIAL SHOULD
FOLLOW ODOTCMS 2019 EDITION
UNLESS OTHERWISE NOTED.

TEMPORARY PAVEMENT REPLACEMENT
NOT TO SCALE

Muskingum County
Sewer Department
375 Richard Roads
Zanesville, Ohio 43701
Telephone (740) 452-4940
Fax (740) 453-6448



PREPARED BY:

**MUSKINGUM COUNTY
SEWER STANDARDS**

PROJECT NAME:
PROJECT LOCATION:

PLANS APPROVED BY:
MJE

PLANS PREPARED BY:
HJ

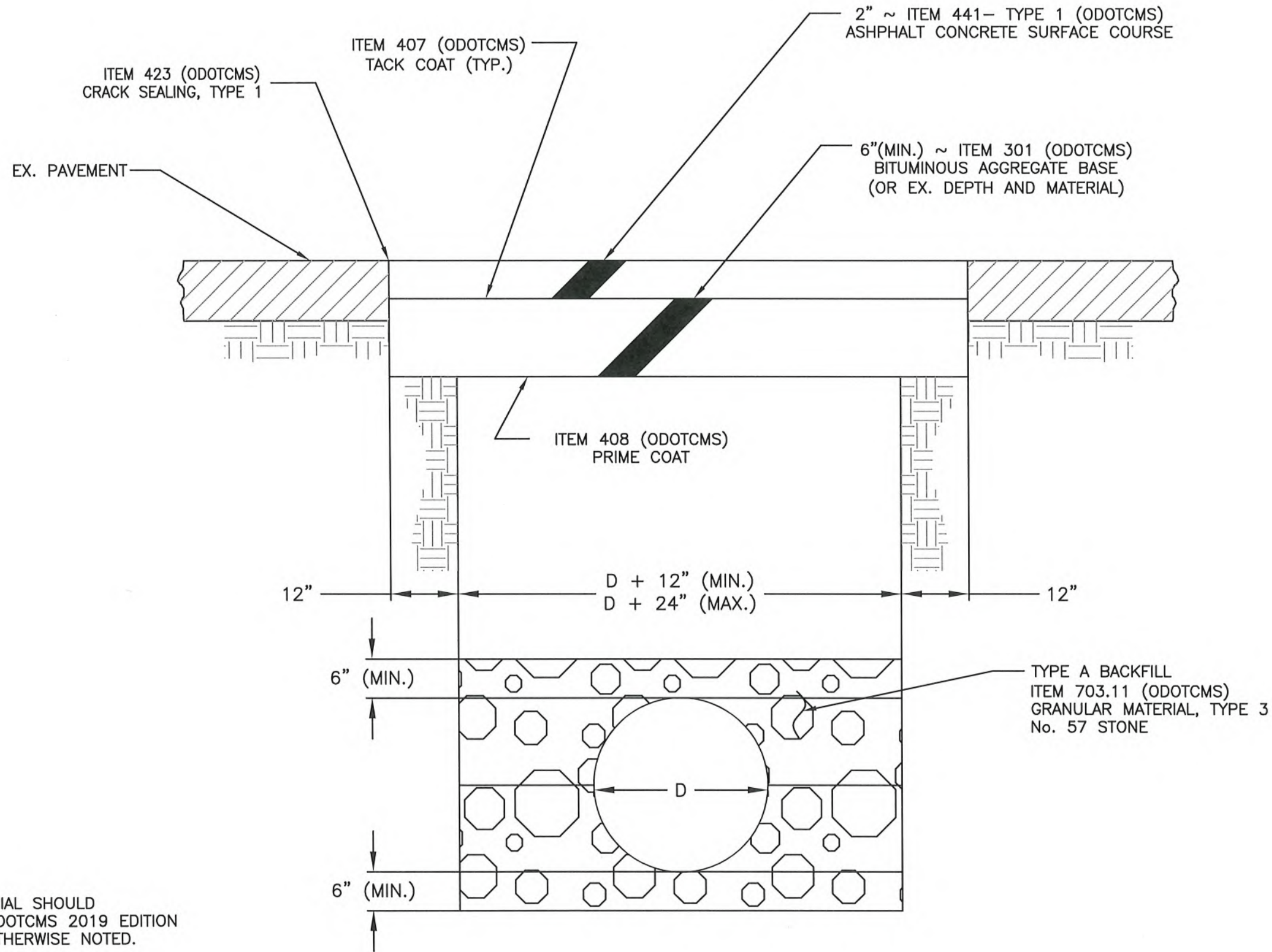
DATE:
06/22/2022

REVISED:

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11"x17"

SHEET NAME:
TEMP PAVE
REPLACEMENT

SHEET NUMBER:
2
40



NOTE:
ALL MATERIAL SHOULD
FOLLOW ODOTCMS 2019 EDITION
UNLESS OTHERWISE NOTED.

PERMANENT PAVEMENT REPLACEMENT

NOT TO SCALE

Muskingum County
Sewer Department
375 Richard Roads
Zanesville, Ohio 43701
Telephone (740) 452-4940
Fax (740) 453-6448



PREPARED BY:

PROJECT NAME:
MUSKINGUM COUNTY
SEWER STANDARDS

PROJECT LOCATION:
MUSKINGUM COUNTY, OHIO

PLANS APPROVED BY:
MJE

PLANS PREPARED BY:
HJ

DATE:
06/22/2022

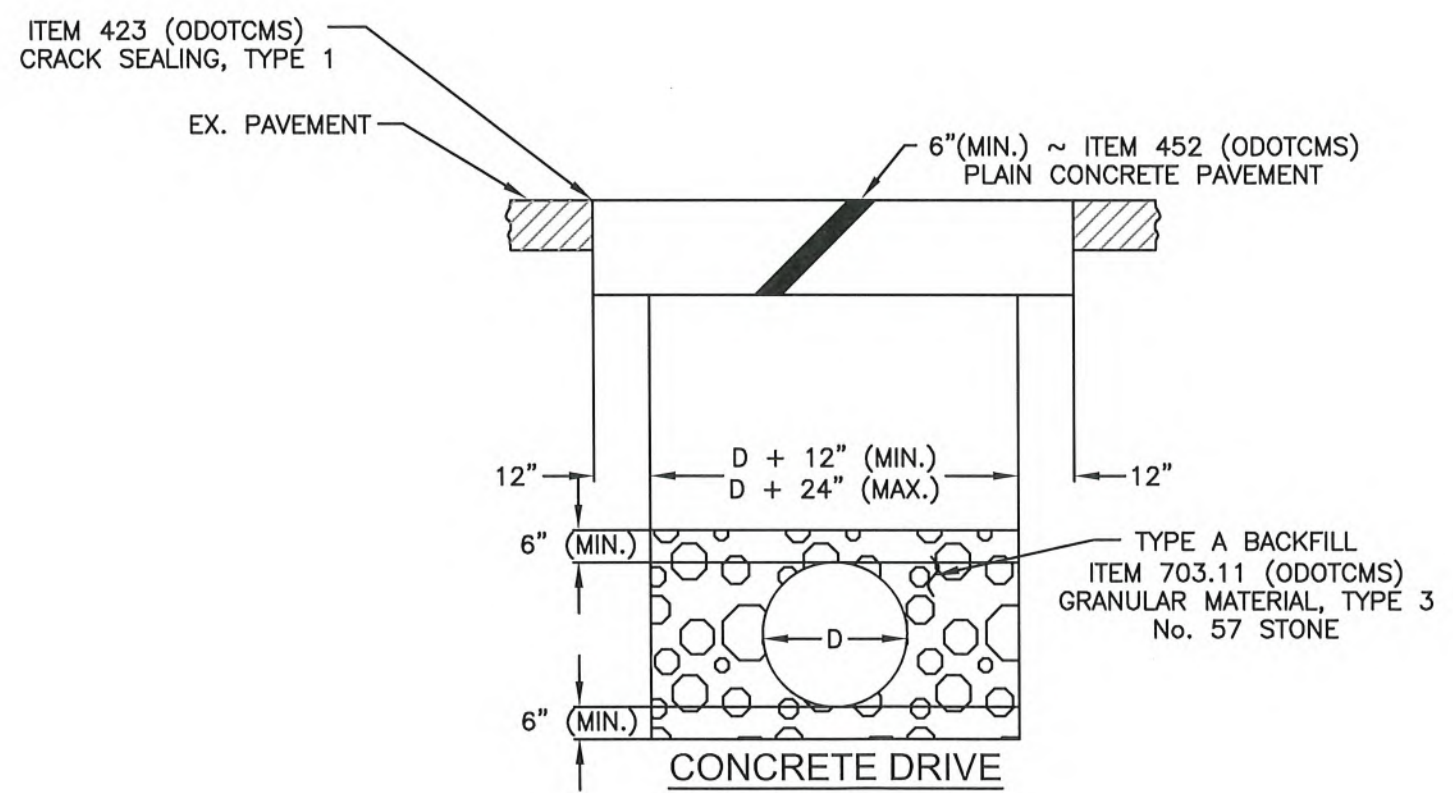
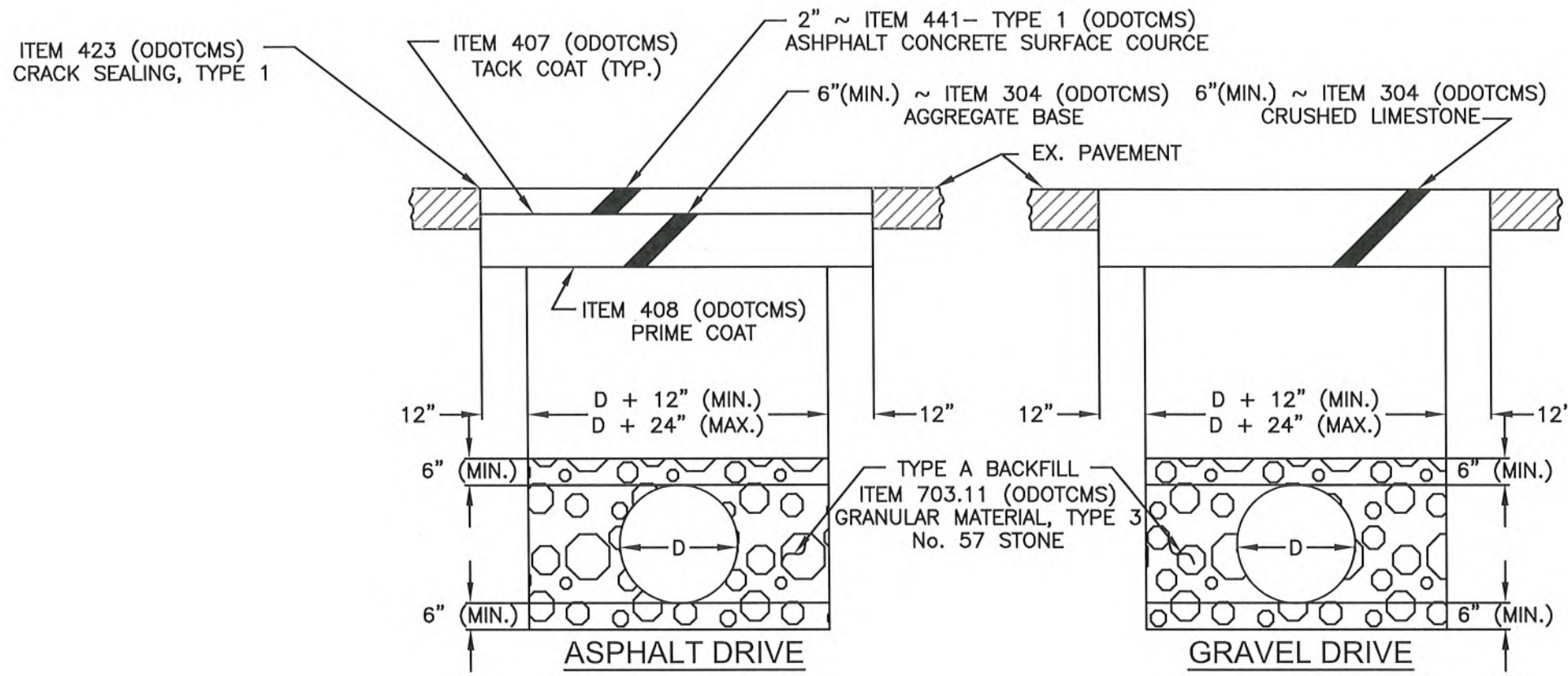
REVISED:

SHEET SIZE:
11"x17"

SHEET NAME:
PERMANENT
PAVE REPLACE

SHEET NUMBER:

3
40



NOTE:
ALL MATERIAL SHOULD
FOLLOW ODOTCMS 2019 EDITION
UNLESS OTHERWISE NOTED.

DRIVEWAY PAVEMENT REPLACEMENT
NOT TO SCALE

Muskingum County
Sewer Department
375 Richard Roads
Zanesville, Ohio 43701
Telephone (740) 452-4940
Fax (740) 453-6448



PREPARED BY:

PROJECT NAME:
MUSKINGUM COUNTY
SEWER STANDARDS

PROJECT LOCATION:
MUSKINGUM COUNTY, OHIO

PLANS APPROVED BY:
MJE

PLANS PREPARED BY:
HJ

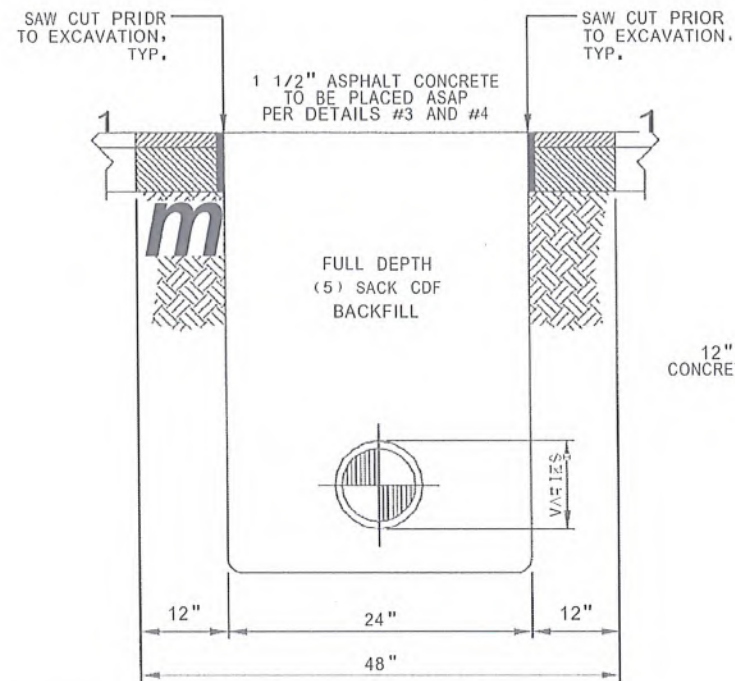
DATE:
06/22/2022

REVISED:

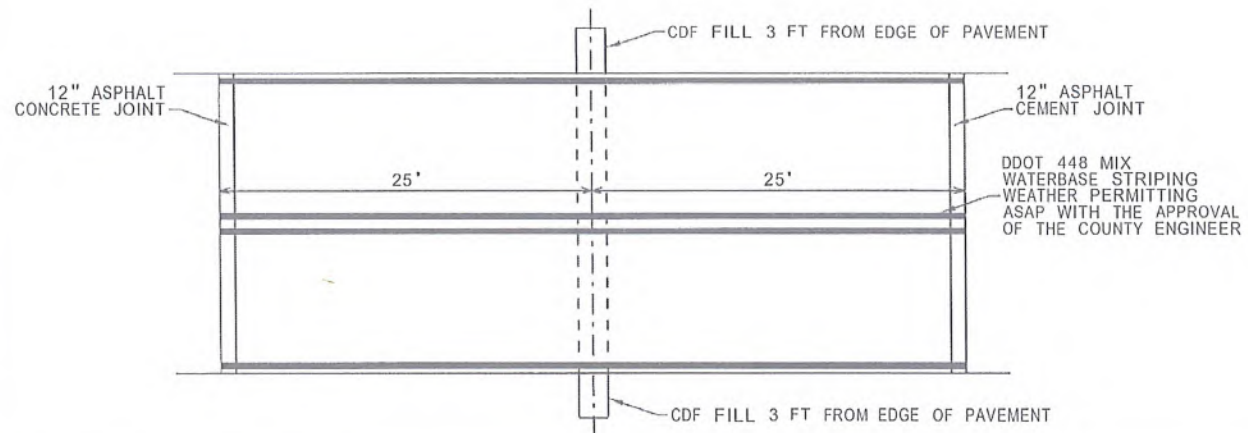
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SHEET NAME:
DRIVEWAY
PAVE REPLACE

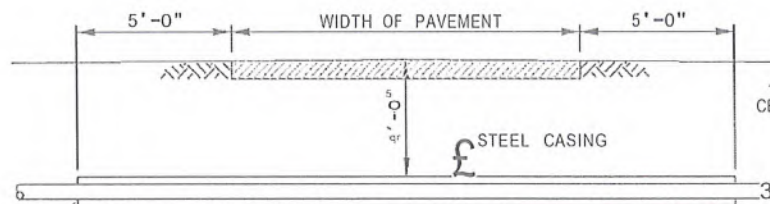
SHEET NUMBER:
4
40



TYPICAL ROAD CROSSING - DETAIL#2



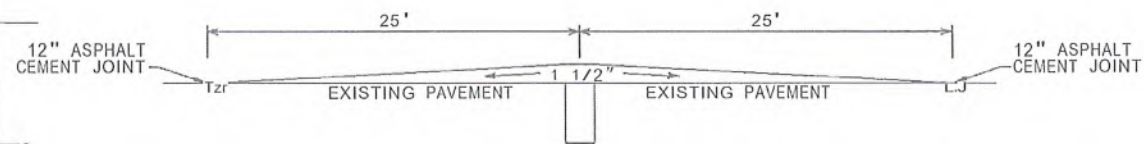
TYPICAL ROAD CROSSING - DETAIL#3



PLACE END SEAL ON BOTH ENDS OF CASING TYP. EACH END

OPEN TRENCH W/CASING NOTE:
IF INSTALLED BY OPEN CUT METHOD TRENCH SHALL BE BACKFILLED WITH (5) SACK CDF TO THE SURFACE.

TYPICAL ROAD CROSSING - DETAIL#1



TYPICAL ROAD CROSSING - DETAIL#4

COUNTY ROAD PAVEMENT REPLACEMENT
NOT TO SCALE

Muskingum County
Sewer Department
375 Richard Roads
Zanesville, Ohio 43701
Telephone (740) 452-4940
Fax (740) 453-6448



PREPARED BY:

MUSKINGUM COUNTY
SEWER STANDARDS

PROJECT NAME:
PROJECT LOCATION:

MUSKINGUM COUNTY, OHIO

PLANS APPROVED BY:

MJE

PLANS PREPARED BY:

HJ

DATE:

06/22/2022

REVISED:

SHEET SIZE:

11"x17"

SHEET NAME:

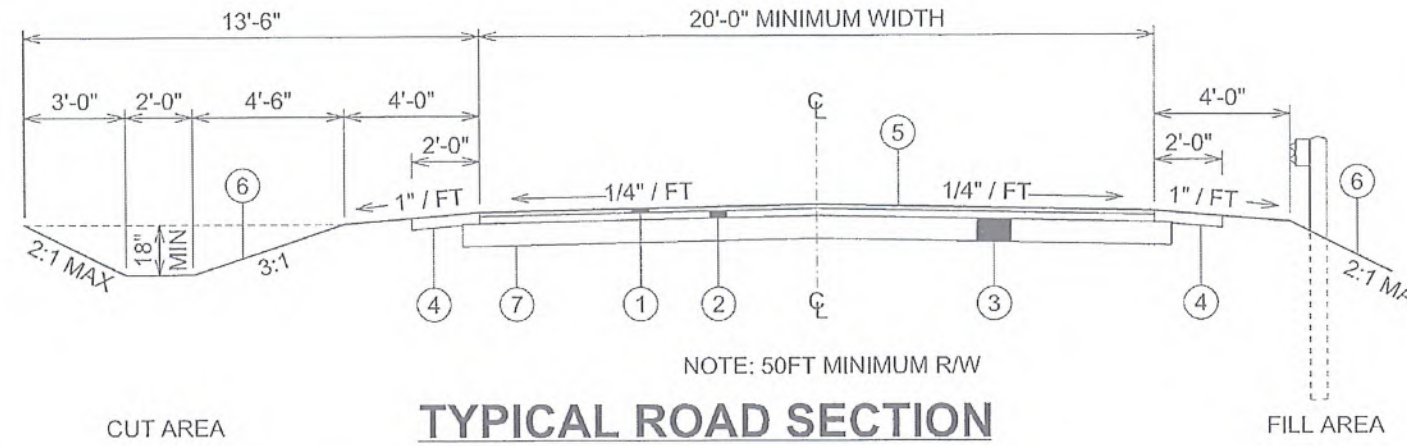
CRPR

SHEET NUMBER:

5
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ASPHALT SURFACE

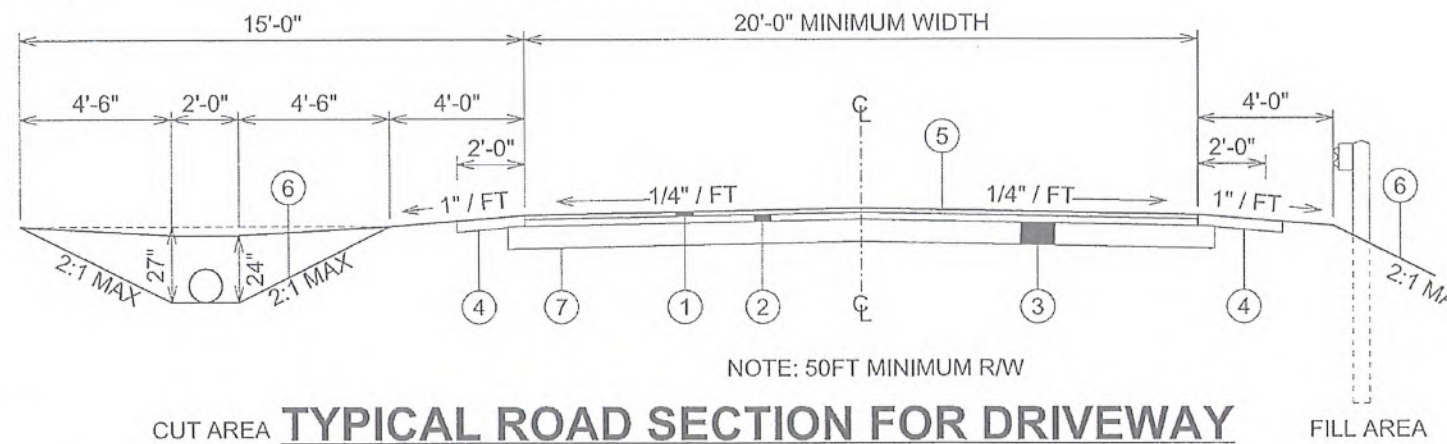
REF#	ITEM	DESCRIPTION
①	448	1 1/2" ASPHALT CONCRETE, SURFACE COURSE
②	448	2 1/2" ASPHALT CONCRETE, INTERMEDIATE COURSE
③	304	8" AGGREGATE BASE
④	411	4" AGGREGATE BERM
⑤	407	TACK COAT FOR INTERMEDIATE COURSE
⑥	659	SEEDING AND MULCHING
⑦	204	SUBGRADE COMPACTION



TYPICAL ROAD SECTION
NOT TO SCALE

ASPHALT SURFACE

REF#	ITEM	DESCRIPTION
①	448	1 1/2" ASPHALT CONCRETE, SURFACE COURSE
②	448	2 1/2" ASPHALT CONCRETE, INTERMEDIATE COURSE
③	304	8" AGGREGATE BASE
④	411	4" AGGREGATE BERM
⑤	407	TACK COAT FOR INTERMEDIATE COURSE
⑥	659	SEEDING AND MULCHING
⑦	204	SUBGRADE COMPACTION



TYPICAL ROAD SECTION FOR DRIVEWAY
NOT TO SCALE

COUNTY ROAD PAVEMENT REPLACEMENT
NOT TO SCALE

Muskingum County
Sewer Department
375 Richard Roads
Zanesville, Ohio 43701
Telephone (740) 452-4940
Fax (740) 453-6448



PREPARED BY:

MUSKINGUM COUNTY
SEWER STANDARDS

PROJECT NAME:
PROJECT LOCATION:

MUSKINGUM COUNTY, OHIO

PLANS APPROVED BY:

MJE

PLANS PREPARED BY:

HJ

DATE:

06/22/2022

REVISED:

SHEET SIZE:

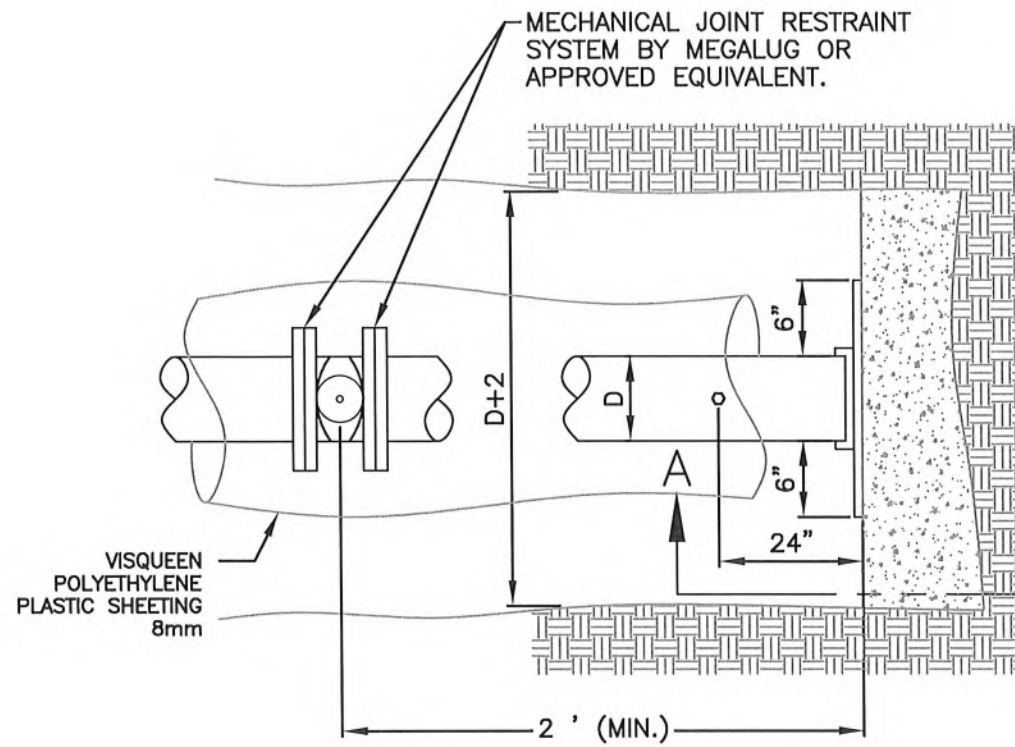
11"x17"

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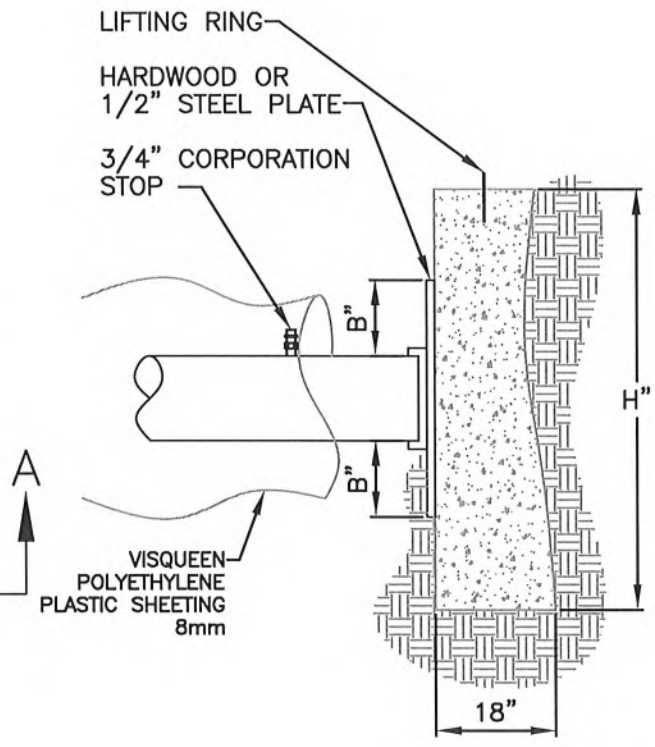
CRPR
SECTION VIEW

SHEET NUMBER:

6
40



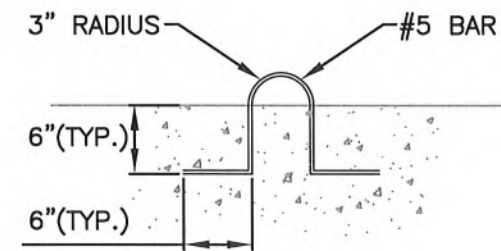
PLAN VIEW



SECTION A-A

SIZE OF PIPE	H	B	L (PVC)	L (DIP)	V
6"	8	1	20	18	2.52
8"	12	1	20	18	4.00
12"	23	3	20	18	8.64
16"	37	3	20	18	15.39

V = VOLUME OF CONCRETE IN CUBIC FEET.



LIFTING RING DETAIL

NOTES:

1. CONCRETE FOR BACKING SHALL BE CLASS "C", (ODTCMS 2010)
2. BACKING SHALL BE DESIGNED FOR 3000 PSF SOIL BEARING.
3. CONCRETE SHALL BE PLACED AGAINST UNDISTURBED EARTH.
4. PROVIDE CLEARANCE FOR REMOVAL OF BOLTS.
5. POLYETHYLENE PLASTIC SHALL BE PLACED IN A MANNER SUCH THAT CONCRETE BLOCKING DOES NOT HAVE DIRECT CONTACT WITH THE TEE AND OR FITTINGS.
6. END OF PIPE SHALL BE CAPPED OR PLUGGED.
7. STEEL PLATE SHALL BE GREASED WHERE IN CONTACT WITH CONCRETE BACKING.
8. PLUG POLES SHALL BE INSTALLED AT ALL END-OF-LINE STUBS AT THE THRUST BLOCK.
9. ALL MATERIAL SHOULD FOLLOW ODTCMS 2019 EDITION, UNLESS OTHERWISE NOTED.

THRUST BLOCK DETAIL

NOT TO SCALE

Muskingum County
Sewer Department
375 Richard Roads
Zanesville, Ohio 43701
Telephone (740) 452-4940
Fax (740) 453-6448



PREPARED BY:

MUSKINGUM COUNTY
SEWER STANDARDS

PROJECT NAME:
PROJECT LOCATION:

MUSKINGUM COUNTY, OHIO

PLANS APPROVED BY:

MJE

PLANS PREPARED BY:

HJ

DATE:

06/22/2022

REVISED:

SHEET SIZE:

11"x17"

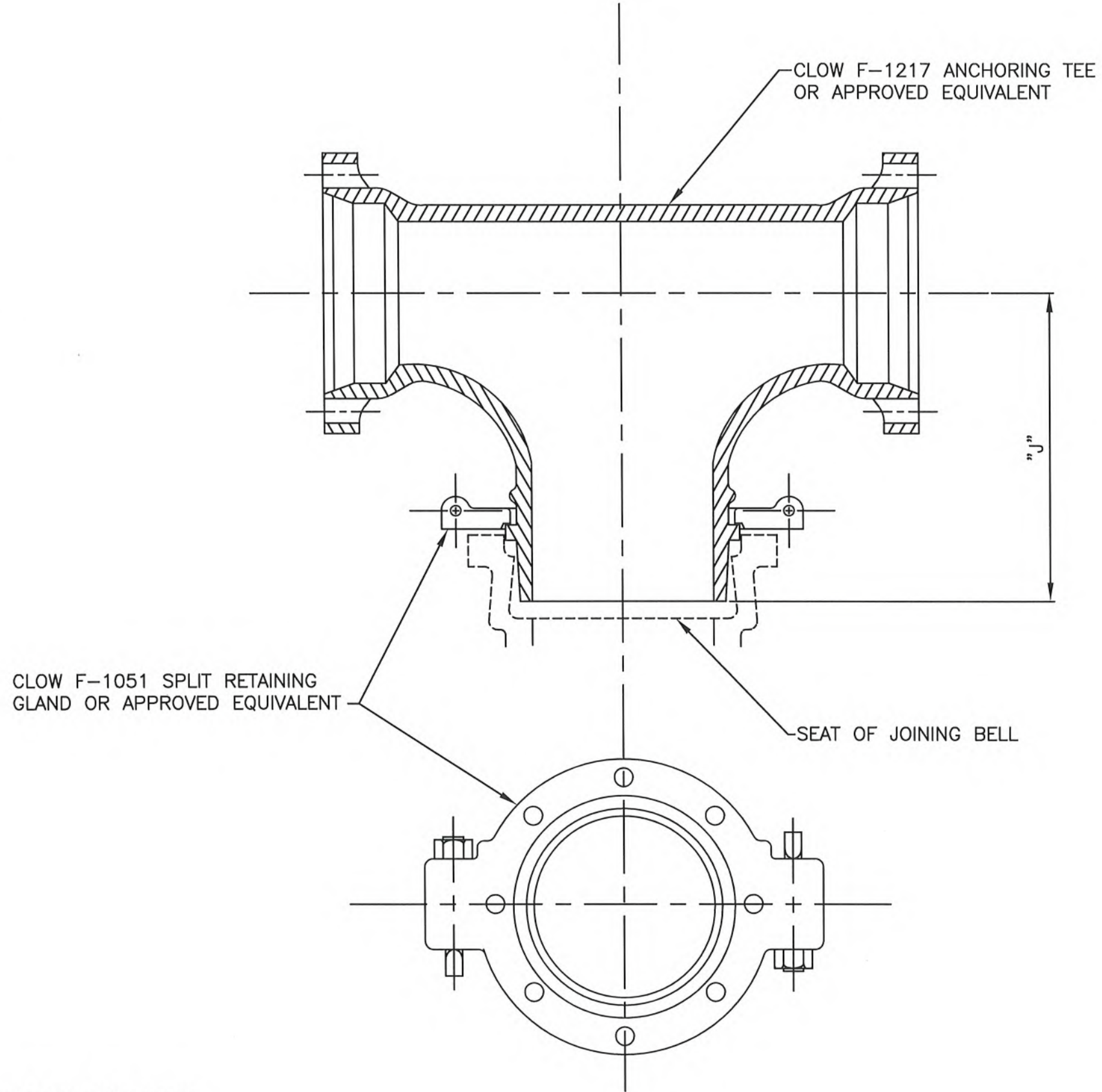
SHEET NAME:

THRUST BLOCK
DETAIL

SHEET NUMBER:

7
40

RUN	BRANCH	
	6"	8"
	J"	J"
6"	10 1/2"	
8"	11 1/2"	11"
10"	13 1/2"	13"
12"	14 1/2"	14"
16"	17"	17"



NOTE:
 1. ALL MATERIAL SHOULD FOLLOW ODOTCMS 2019 EDITION UNLESS OTHERWISE NOTED.

ANCHORING TEE
 NOT TO SCALE

Muskingum County
 Sewer Department
 375 Richard Roads
 Zanesville, Ohio 43701
 Telephone (740) 452-4940
 Fax (740) 453-6448



PREPARED BY:

PROJECT NAME: MUSKINGUM COUNTY SEWER STANDARDS
 PROJECT LOCATION: MUSKINGUM COUNTY, OHIO

PLANS APPROVED BY: MJE

PLANS PREPARED BY: HJ

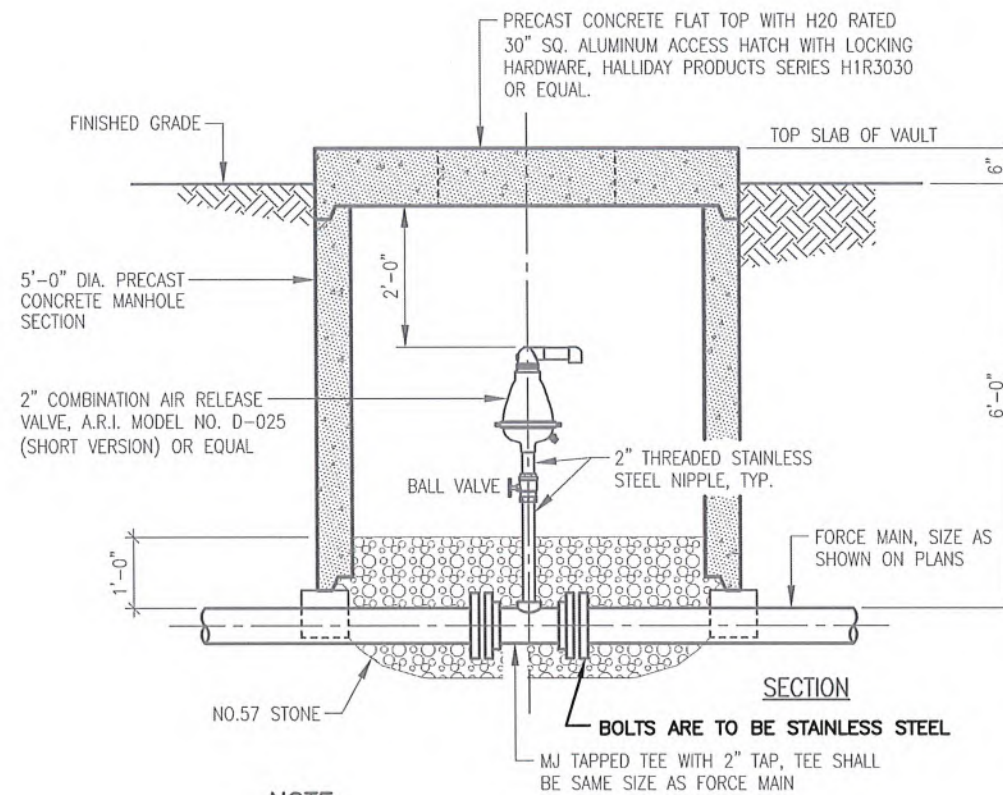
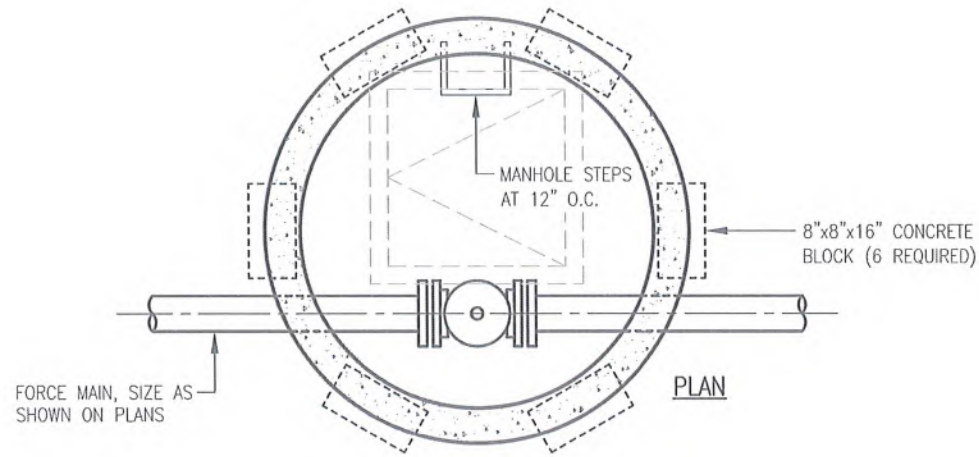
DATE: 06/22/2022

REVISED:

SHEET SIZE: 11"x17"

SHEET NAME: ANCHORING TEE

SHEET NUMBER: 8/40



NOTE:

MAIN LINE AND VALVE SHALL BE OFFSET FROM CENTER OF MANHOLE TO ALLOW ACCESS.

SEWAGE COMBINATION AIR RELEASE DETAIL

NO SCALE

TYPICAL AIR RELEASE (3/4" TO 2")

NOT TO SCALE

Muskingum County
Sewer Department
375 Richard Roads
Zanesville, Ohio 43701
Telephone (740) 452-4940
Fax (740) 453-6448



PREPARED BY:

MUSKINGUM COUNTY
SEWER STANDARDS

PROJECT NAME:
PROJECT LOCATION:

MUSKINGUM COUNTY, OHIO

PLANS APPROVED BY:

MJE

PLANS PREPARED BY:

HJ

DATE:

06/22/2022

REVISED:

SHEET SIZE:

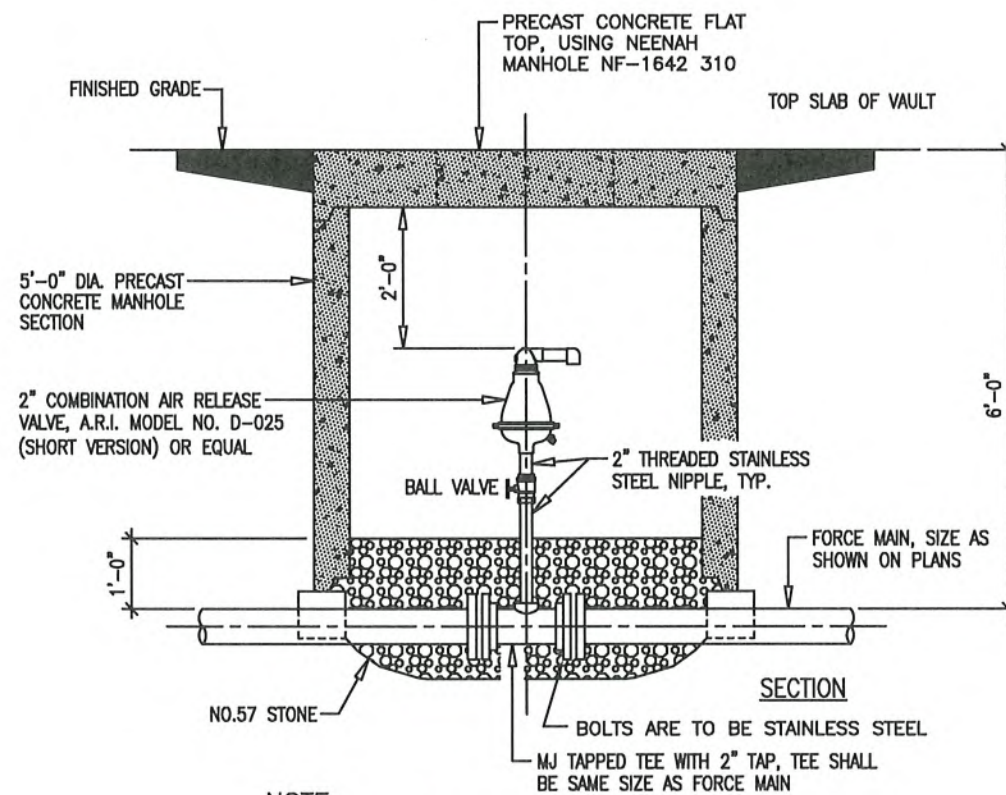
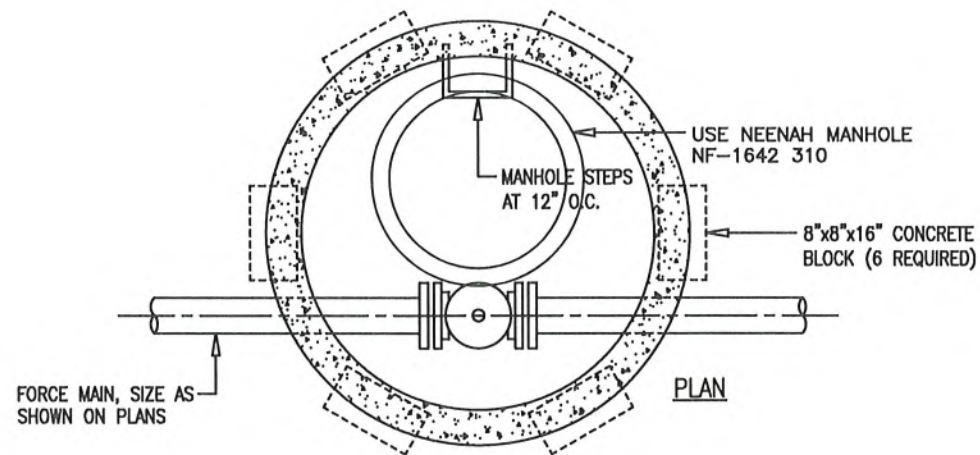
11"x17"

SHEET NAME:

TYPICAL
AIR RELEASE

SHEET NUMBER:

9
40



NOTE:
 MAIN LINE AND VALVE SHALL BE OFFSET FROM
 CENTER OF MANHOLE TO ALLOW ACCESS.

SEWAGE COMBINATION AIR RELEASE DETAIL
 NO SCALE

TYPICAL AIR RELEASE FOR ROADWAY
 NOT TO SCALE

Muskingum County
 Sewer Department
 375 Richard Roads
 Zanesville, Ohio 43701
 Telephone (740) 452-4940
 Fax (740) 453-6448



PREPARED BY:

MUSKINGUM COUNTY
 SEWER STANDARDS

MUSKINGUM COUNTY, OHIO

PLANS APPROVED BY:

MJE

PLANS PREPARED BY:

HJ

DATE:

06/22/2022

REVISED:

SHEET SIZE:

11"x17"

SHEET NAME:

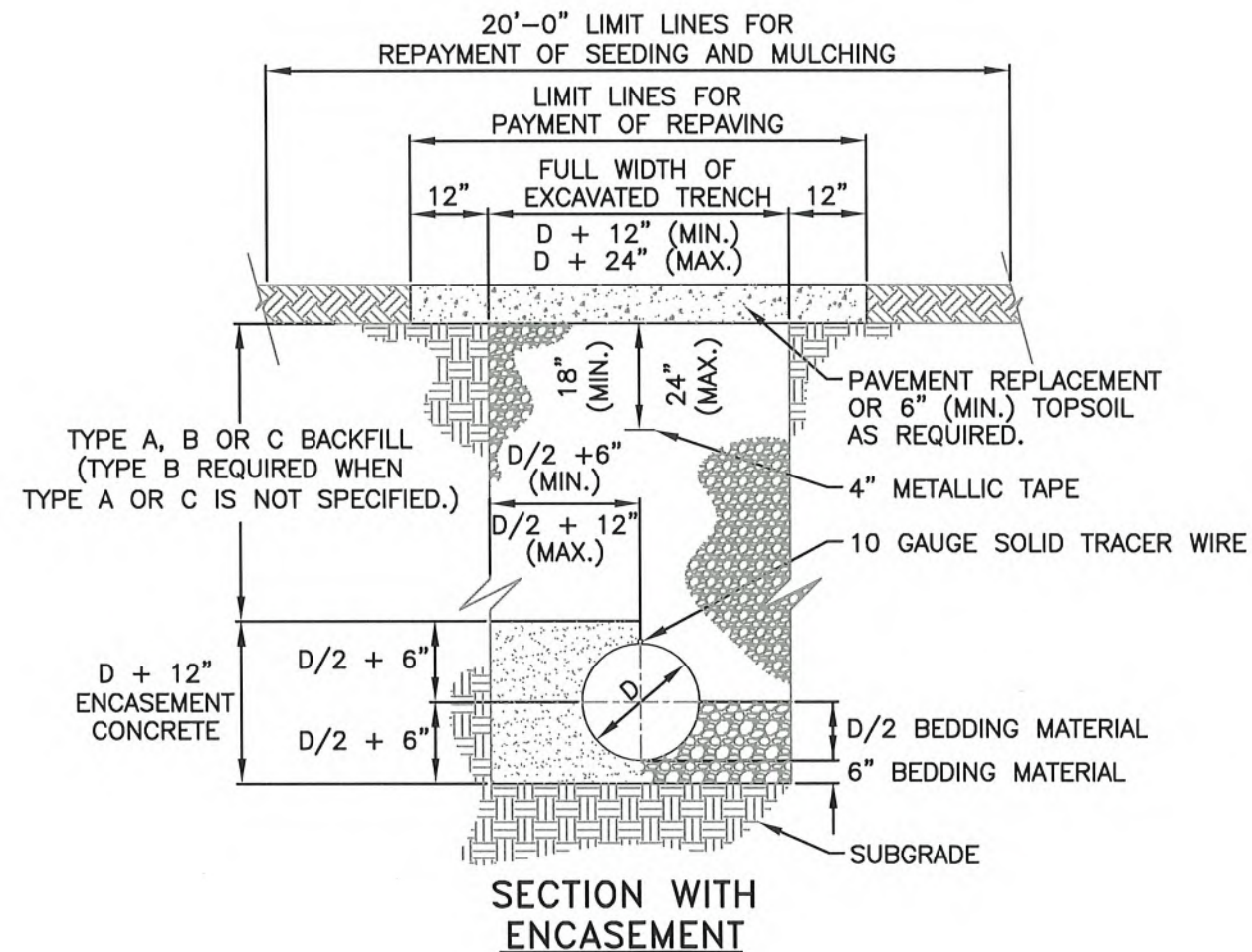
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SHEET NUMBER:

10
40

NOTES:

1. ITEM NUMBERS REFER TO THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS CMS 2019 EDITION UNLESS OTHERWISE NOTED.
2. AGGREGATE FOR BEDDING SHALL BE NO. 57 ODOT CCS
3. MCWS TYPE A BACKFILL FOR TYPE B CONDUITS SHALL BE GRANULAR MATERIAL AS SPECIFIED IN ITEM 703.11, GRANULAR MATERIAL, TYPE 3 NO. 57 STONE. TYPE A BACKFILL SHALL BE USED WHEN THE TRENCH IS 5' OR LESS FROM ANY PAVED OR GRAVEL SURFACE OR BENEATH THE PAVEMENT OR GRAVEL COMPACTION SHALL MEET THE REQUIREMENTS OF ITEM 203.
4. MCWS TYPE B BACKFILL FOR TYPE C CONDUITS SHALL BE NATURAL SOIL FREE FROM STONES LARGER THAN 2" ACROSS THEIR GREATEST DIMENSION, TOPSOIL, VEGETATION, DEBRIS, RUBBISH OR FROZEN MATERIAL, COMPACTED TO 95% OF ITS MAXIMUM LABORATORY DRY WEIGHT.
5. MCWS TYPE C BACKFILL FOR TYPE C CONDUITS SHALL BE NATURAL SOIL FREE FROM STONES LARGER THAN 2" ACROSS THEIR GREATEST DIMENSION, VEGETATION, DEBRIS, RUBBISH OR FROZEN MATERIAL, COMPACTED TO 90% OF ITS MAXIMUM LABORATORY DRY WEIGHT, WHEN APPROVED BY THE CONTRACT ADMIN., STONES NO LARGER THAN ONE CUBIC FOOT MAY BE DEPOSITED AT LEAST 3' ABOVE THE TOP OF THE PIPE.
6. THE EXCAVATED TRENCH WIDTH 12" ABOVE THE CONDUIT MAY BE INCREASED WITHOUT ADDITIONAL COMPENSATION.
7. RIGID PIPE SHALL INCLUDE DUCTILE IRON D.I. WITH PE ENCASEMENT.
8. ENCASEMENT SHALL BE CLASS C CONCRETE (ODOTCMS 2010).
9. SECTIONS ARE SYMMETRICAL ABOUT THE CENTERLINE.



TYPICAL TRENCH FOR RIGID PIPE (DUCTILE IRON)
NOT TO SCALE

Muskingum County
Sewer Department
375 Richard Roads
Zanesville, Ohio 43701
Telephone (740) 452-4940
Fax (740) 453-6448



PREPARED BY:

PROJECT NAME:
MUSKINGUM COUNTY
SEWER STANDARDS

PROJECT LOCATION:
MUSKINGUM COUNTY, OHIO

PLANS APPROVED BY:

MJE

PLANS PREPARED BY:

HJ

DATE:

06/22/2022

REVISED:

SHEET SIZE:

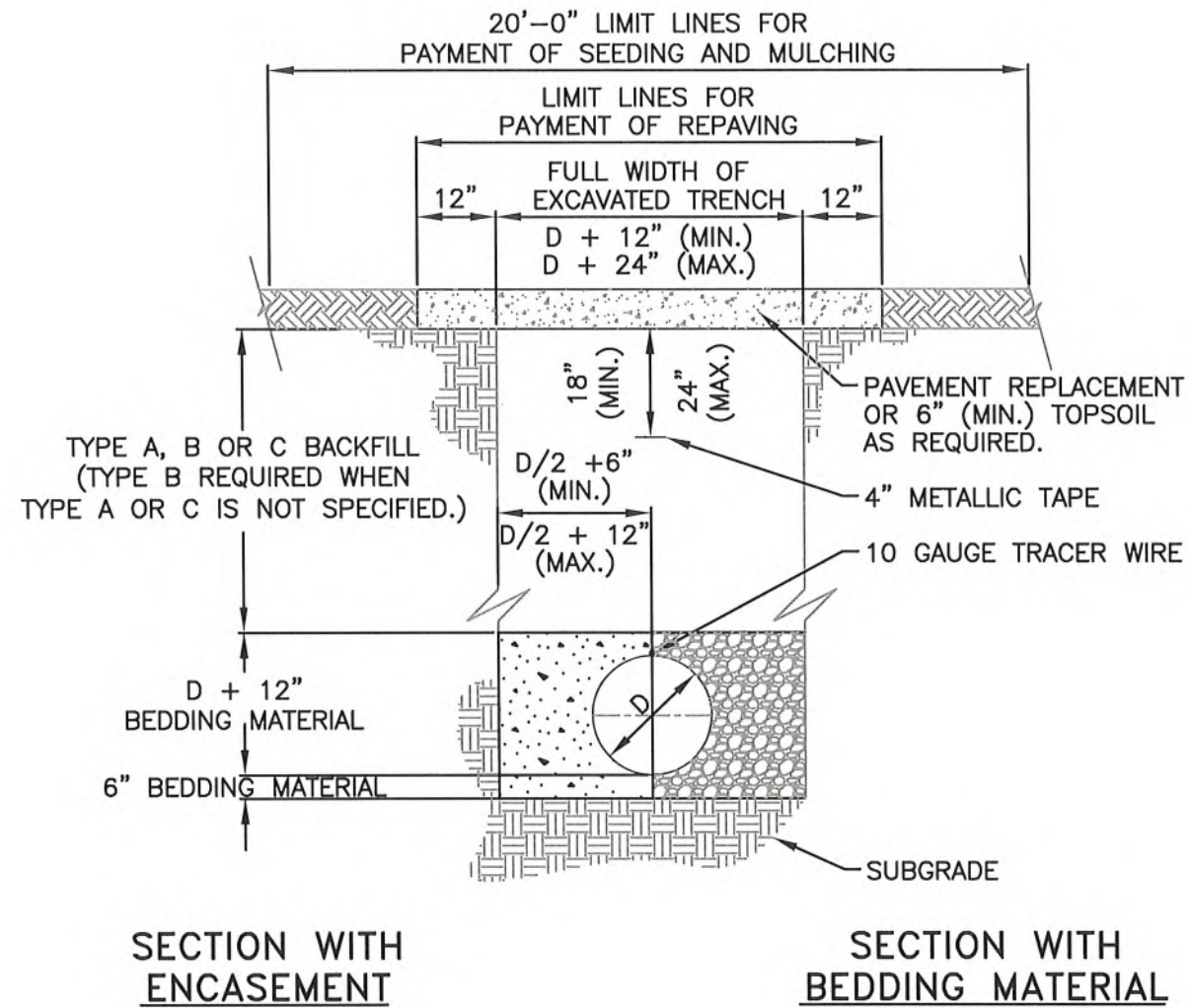
11"x17"

SHEET NAME:

TYP. TRENCH
RIDGE PIPE

SHEET NUMBER:

11
40



NOTES:

1. ITEM NUMBERS REFER TO THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS CMS 2019 EDITION UNLESS OTHERWISE NOTED.
2. AGGREGATE FOR BEDDING SHALL BE NO. 57 ODOT CCS
3. MCWS TYPE A BACKFILL FOR TYPE B CONDUITS SHALL BE GRANULAR MATERIAL AS SPECIFIED IN ITEM 703.11, GRANULAR MATERIAL, TYPE 3 NO. 57 STONE. TYPE A BACKFILL SHALL BE USED WHEN THE TRENCH IS 5' OR LESS FROM ANY PAVED OR GRAVEL SURFACE OR BENEATH THE PAVEMENT OR GRAVEL. COMPACTION SHALL MEET THE REQUIREMENTS OF ITEM 203.
4. MCWS TYPE B BACKFILL FOR TPE C CONDUIT SHALL BE NATURAL SOIL FREE FROM STONES LARGER THAN 2" ACROSS THEIR GREATEST DIMENSION, TOPSOIL, VEGETATION, DEBRIS, RUBBISH OR FROZEN MATERIAL, COMPACTED TO 95% OF ITS MAXIMUM LABORATORY DRY WEIGHT.
5. MCWS TYPE C BACKFILL FOR TYPE C CONDUIT SHALL BE NATURAL SOIL FREE FROM STONES LARGER THAN 2" ACROSS THEIR GREATEST DIMENSION, VEGETATION, DEBRIS, RUBBISH OR FROZEN LARGER MATERIAL, COMPACTED TO 90% OF ITS MAXIMUM LABORATORY DRY WEIGHT. WHEN APPROVED BY THE CONTRACT ADMINISTRATOR, STONES NO LARGER THAN ONE CUBIC FOOT MAY BE DEPOSITED AT LEAST 3' ABOVE THE TOP OF THE PIPE.
6. THE EXCAVATED TRENCH WIDTH 12" ABOVE THE CONDUIT MAY BE INCREASED WITHOUT ADDITIONAL COMPENSATION.
7. FLEXIBLE PIPE SHALL INCLUDE PVC AND HDPE.
8. ENCASEMENT SHALL BE CLASS C CONCRETE (ODOTCMS 2010).

TYPICAL TRENCH FOR FLEXIBLE PIPE (PVC & HDPE)
NOT TO SCALE

Muskingum County
Sewer Department
375 Richard Roads
Zanesville, Ohio 43701
Telephone (740) 452-4940
Fax (740) 453-6448



PREPARED BY:

MUSKINGUM COUNTY
SEWER STANDARDS

PROJECT NAME:
PROJECT LOCATION:

MUSKINGUM COUNTY, OHIO

PLANS APPROVED BY:

MJE

PLANS PREPARED BY:

HJ

DATE:

06/22/2022

REVISED:

SHEET SIZE:

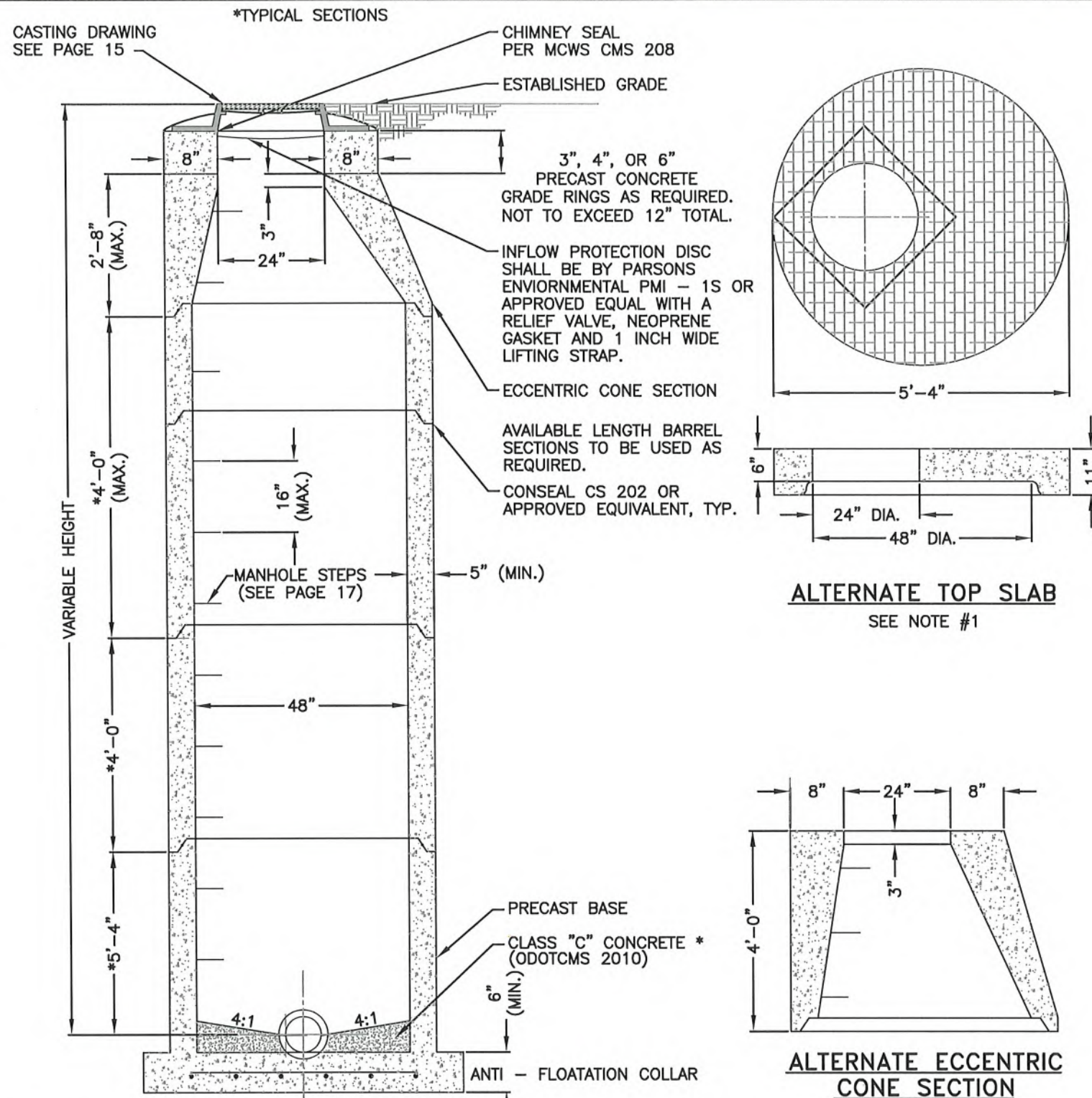
11"x17"

SHEET NAME:

TYP. TRENCH
FOR FLEX PIPE

SHEET NUMBER:

12
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- NOTES:
1. WHEN SHOWN IN TRAFFIC AREAS, THE ALTERNATE TOP SLAB SHALL BE DESIGNED FOR HS-25 TRAFFIC LOADING.
 2. ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO ASTM C478-20 UNLESS OTHERWISE SHOWN.
 3. ALL CORE DRILLED OPENINGS SHALL BE DONE ONLY AS APPROVED AND DIRECTED BY THE ENGINEER.
 4. PRECAST CONCRETE GRADE RINGS, SEALED WITH CONSEAL, SHALL BE USED BETWEEN THE SLAB OR CONE TOP AND THE ACCESS FRAME CASTING AND COVER. NO MANHOLE BRICK SHALL BE PERMITTED FOR USE.
 5. SEWER PIPE SHALL BE SECURED THROUGH THE MANHOLE WALL BY KOR-N-SEAL BOOT, PRESS WEDGE 2 GASKET OR APPROVED EQUIVALENT MEETING ASTM C923.
 6. ALL MATERIAL SHOULD FOLLOW ODOTCMS 2019 EDITION UNLESS OTHERWISE NOTED.

PRECAST CONCRETE MANHOLE (24" PIPE AND SMALLER)
NOT TO SCALE

Muskingum County
Sewer Department
375 Richard Roads
Zanesville, Ohio 43701
Telephone (740) 452-4940
Fax (740) 453-6448



PREPARED BY:

PROJECT NAME: MUSKINGUM COUNTY SEWER STANDARDS
PROJECT LOCATION: MUSKINGUM COUNTY, OHIO

PLANS APPROVED BY: MJE

PLANS PREPARED BY: HJ

DATE: 06/22/2022

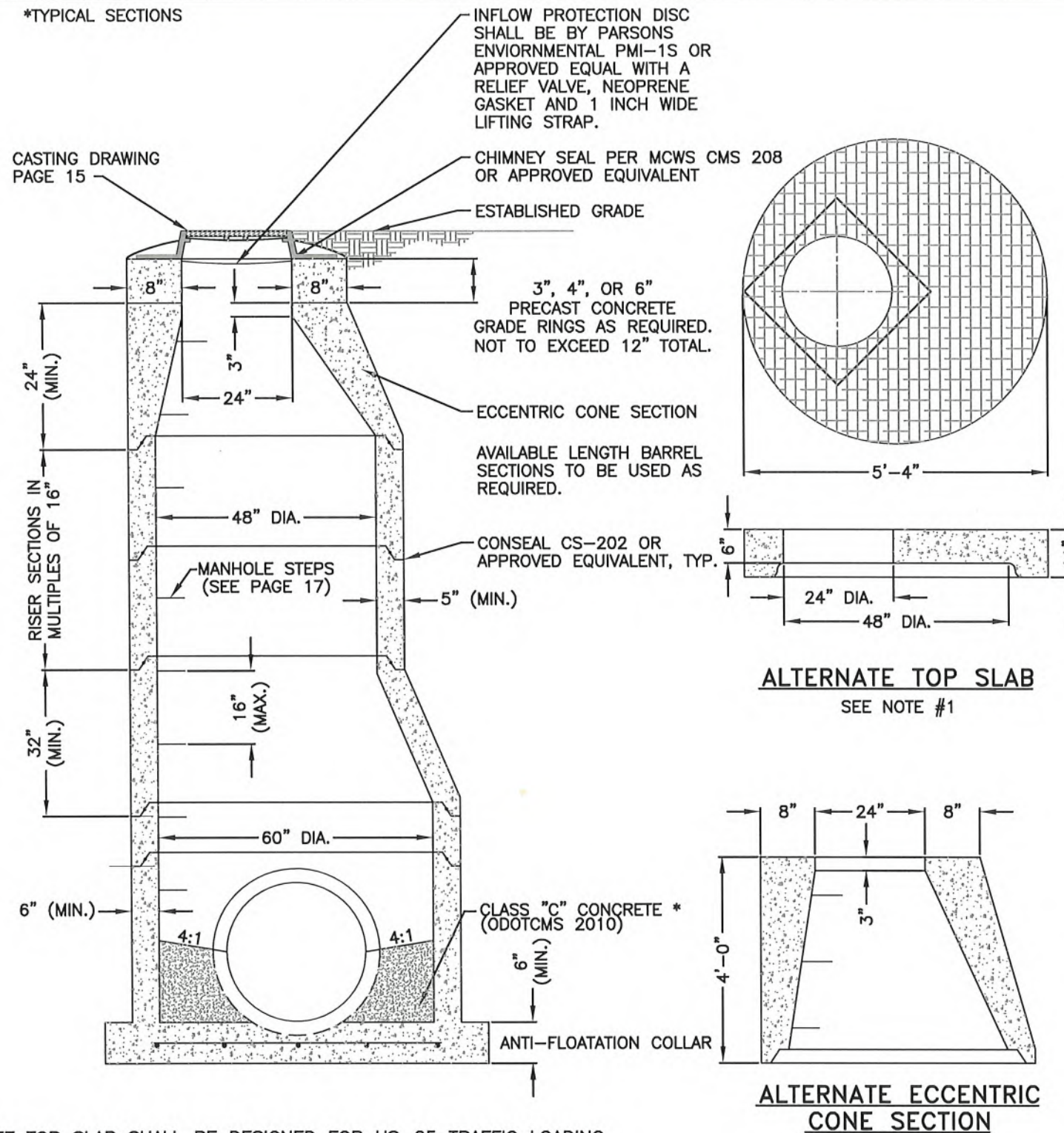
REVISED:

SHEET SIZE: 11"x17"

SHEET NAME: PRECAST CON. MH 24" - SM

SHEET NUMBER: 13/40

*TYPICAL SECTIONS



- NOTES:
1. WHEN SHOWN IN TRAFFIC AREAS, THE ALTERNATE TOP SLAB SHALL BE DESIGNED FOR HS-25 TRAFFIC LOADING.
 2. ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO ASTM C478-20 UNLESS OTHERWISE SHOWN.
 3. ALL CORE DRILLED OPENINGS SHALL BE DONE ONLY AS APPROVED AND DIRECTED BY THE ENGINEER.
 4. PRECAST CONCRETE GRADE RINGS, SEALED WITH CONSEAL, SHALL BE USED BETWEEN THE SLAB OR CONE TOP AND THE ACCESS FRAME CASTING AND COVER. NO MANHOLE BRICK SHALL BE PERMITTED FOR USE.
 5. SEWER PIPE SHALL BE SECURED THROUGH THE MANHOLE WALL BY KOR-N-SEAL BOOT, PRESS WEDGE 2 GASKET OR APPROVED EQUIVALENT MEETING ASTM C923.
 6. ALL MATERIAL SHOULD FOLLOW ODOTCMS 2019 EDITION UNLESS OTHERWISE NOTED.

PRECAST CONCRETE MANHOLE (27"-42" PIPE)
NOT TO SCALE

Muskingum County
Sewer Department
375 Richard Roads
Zanesville, Ohio 43701
Telephone (740) 452-4940
Fax (740) 453-6448



PREPARED BY:

MUSKINGUM COUNTY
SEWER STANDARDS

PROJECT NAME:
PROJECT LOCATION:

PLANS APPROVED BY:

MJE

PLANS PREPARED BY:

HJ

DATE:

06/22/2022

REVISED:

SHEET SIZE:

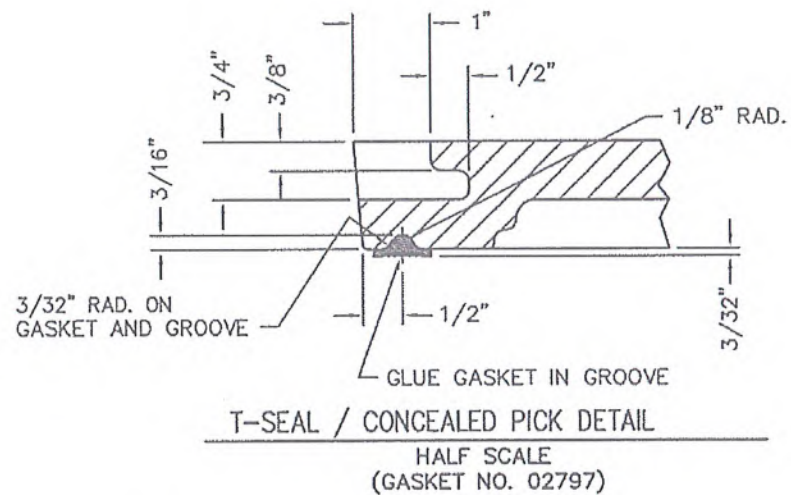
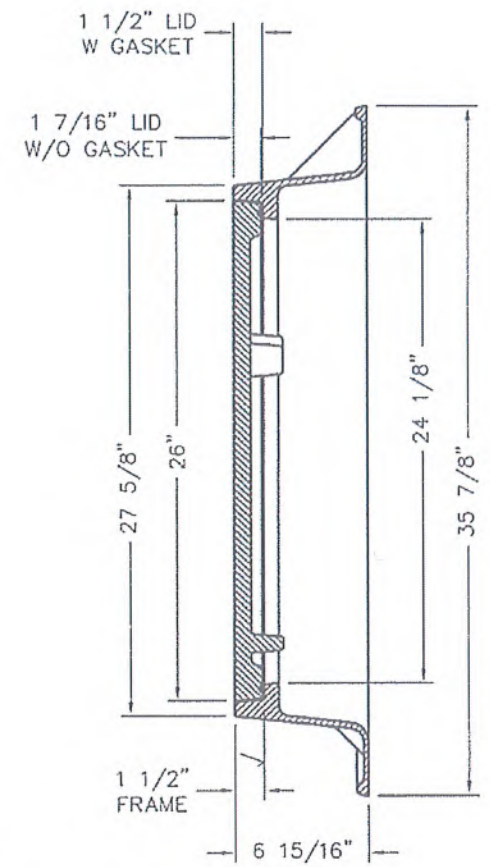
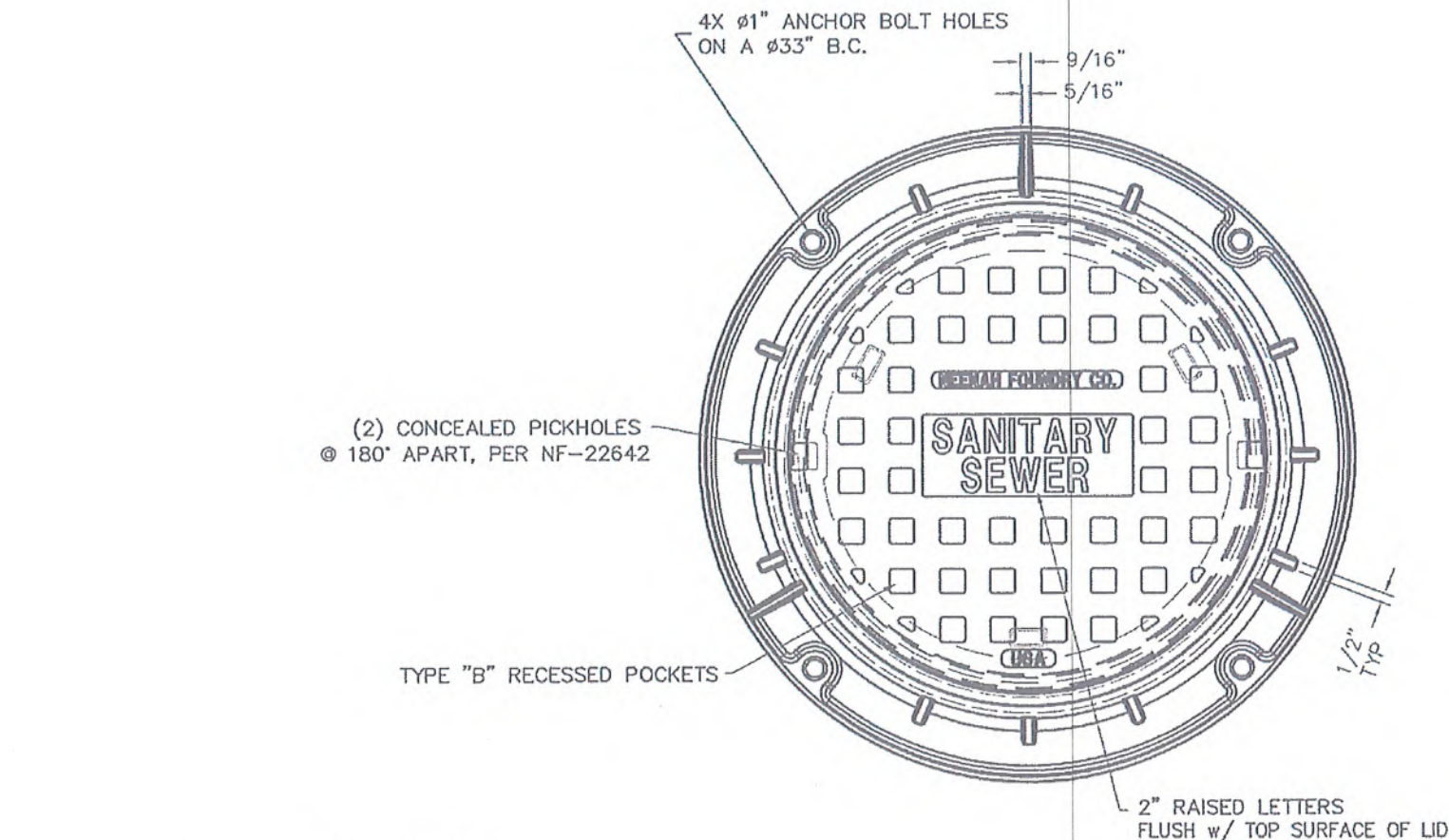
11"x17"

SHEET NAME:

PRECAST CON.
MH 27-42"

SHEET NUMBER:

14
40



NOTE: ALL DIMENSIONS SHOWN ARE IN ENGLISH
 COMPONENT NOS.: FRAME 1642-2310, LID 1642-5001
 MATERIAL: FRAME - CAST GRAY IRON ASTM A-48, CLASS 40A
 LID - CAST GRAY IRON ASTM A-48, CLASS 35B
 FINISH: NO PAINT
 WEIGHT: FRAME-126#, LID-120#

DR.	CAG	SCALE	TITLE:
CH.	RKB	1/8"=1"	R-1642 FRAME AND LID, LTRD. "SANITARY SEWER"
APP.	SPT	NEENAH FOUNDRY NEENAH WISCONSIN 54958 PHONE 800-558-5075 LINCOLN, NEBRASKA 68529 PHONE 800-234-7486	
DATE	1/22/2014		
www.neenahfoundry.com		NF-1642 310 B	

CAD DWG. REF: 1642 310.DWG- 1

26" MANHOLE FRAME & COVER CASTING
 NOT TO SCALE

Muskingum County
 Sewer Department
 375 Richard Roads
 Zanesville, Ohio 43701
 Telephone (740) 452-4940
 Fax (740) 453-6448



PREPARED BY:

MUSKINGUM COUNTY
 SEWER STANDARDS
 PROJECT LOCATION:
 MUSKINGUM COUNTY, OHIO

PLANS APPROVED BY:
 MJE

PLANS PREPARED BY:
 HJ

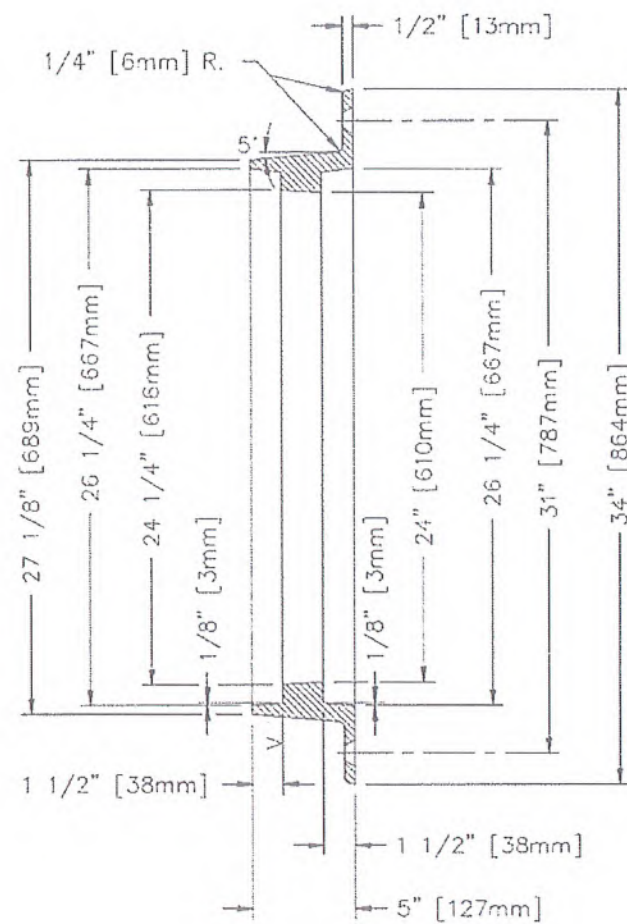
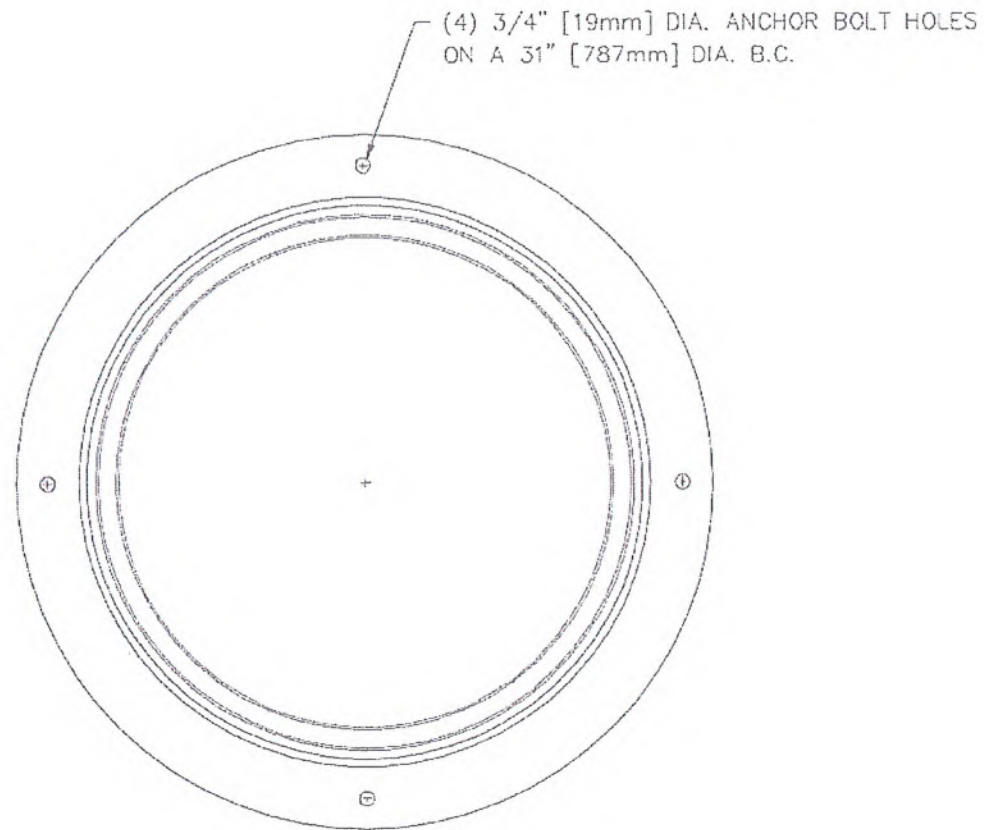
DATE:
 06/22/2022

REVISED:

SHEET SIZE:
 11"x17"

SHEET NAME:
 26" MANHOLE

SHEET NUMBER:
 15
 40



Frame is reversible

NOTE: ALL DIMENSIONS SHOWN ARE IN ENGLISH AND [METRIC].
 MATERIAL: CAST GRAY IRON ASTM A-48, CLASS 35B
 FINISH: NO PAINT
 WEIGHT: APPROX. 151#

DR.	CSK	SCALE	1/8"=1"	TITLE:	R-1642-A FRAME
CH.		D/M CHK.		NEENAH FOUNDRY COMPANY NEENAH WISCONSIN 54956	NF-16422000 B
APP.		DATE	02-09-95		

CAD DWG. REF: 16422000.DWG-1
 NOTES:
 1. FOR COVER DETAILS, SEE PAGE 15
 2. CASTING TO BE NEENAH FRAME AND LID MODEL #NF-1642 310.

LOW PROFILE CASTING
 NOT TO SCALE

Muskingum County
 Sewer Department
 375 Richard Roads
 Zanesville, Ohio 43701
 Telephone (740) 452-4940
 Fax (740) 453-6448



PREPARED BY:

MUSKINGUM COUNTY
 SEWER STANDARDS
 MUSKINGUM COUNTY, OHIO

PLANS APPROVED BY:

MJE

PLANS PREPARED BY:

HJ

DATE:

06/22/2022

REVISED:

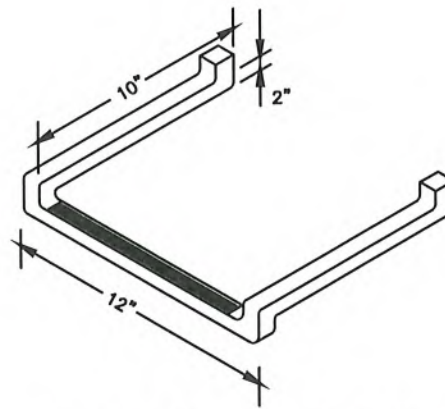
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11"x17"

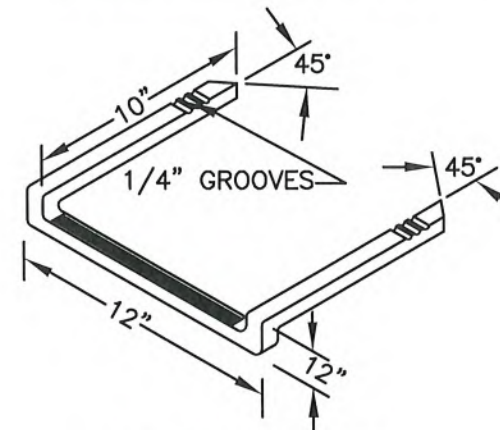
SHEET NAME:
 LOW PROFILE
 CASTING

SHEET NUMBER:

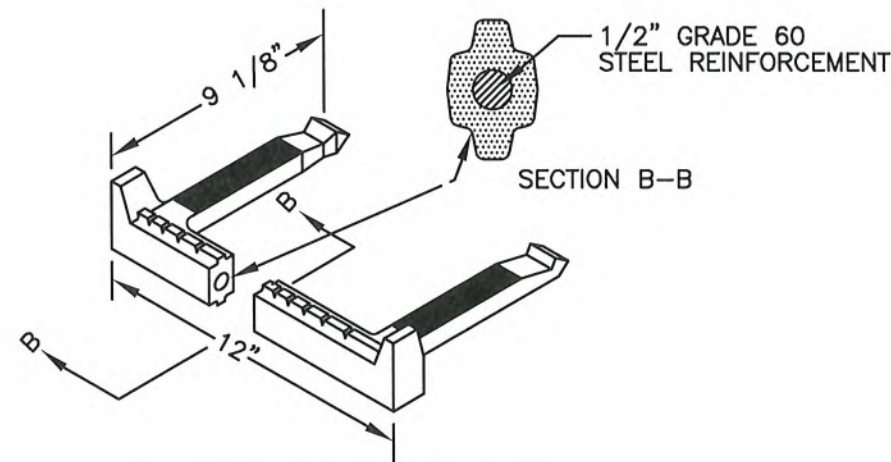
16
 40



FERROUS METAL STEP



ALUMINUM STEP



POLYPROPYLENE STEP

NOTES

1. STEPS SHALL BE CAREFULLY DRIVEN INTO THE STRUCTURE BY PRESSURE OR VIBRATION BEFORE INITIAL SET OCCURS. CAST IN PLACE OR MORTARED WITH A NON-SHRINKING GROUT.
2. SEE PAGE 13 & 14 FOR SPACING REQUIREMENTS.
3. PER MCWS CMS 206.02

MANHOLE STEPS
NOT TO SCALE

Muskingum County
Sewer Department
375 Richard Roads
Zanesville, Ohio 43701
Telephone (740) 452-4940
Fax (740) 453-6448



PREPARED BY:

MUSKINGUM COUNTY
SEWER STANDARDS

PROJECT NAME:
PROJECT LOCATION:

MUSKINGUM COUNTY, OHIO

PLANS APPROVED BY:

MJE

PLANS PREPARED BY:

HJ

DATE:

06/22/2022

REVISED:

SHEET SIZE:

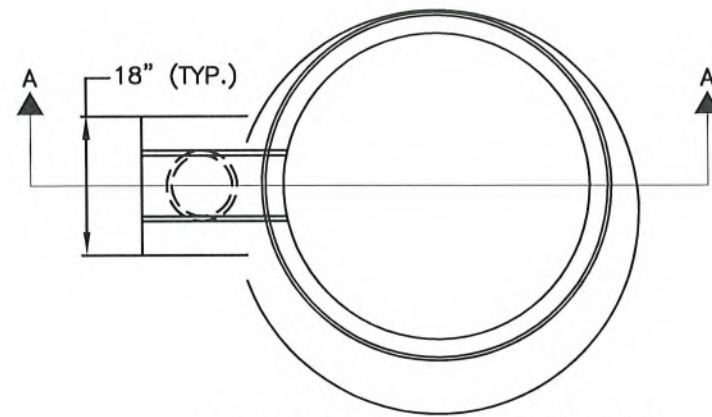
11"x17"

SHEET NAME:

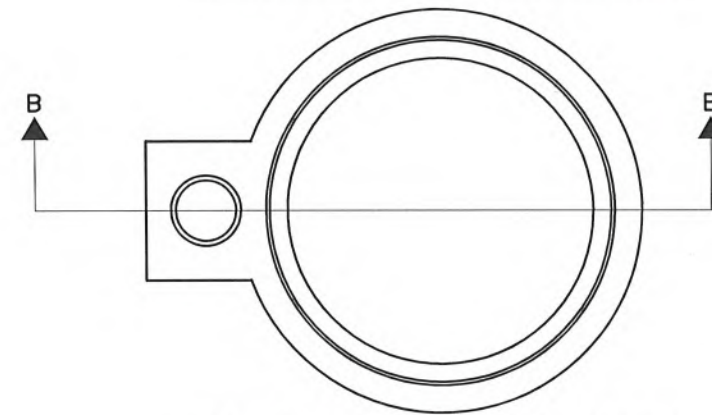
MANHOLE
STEPS

SHEET NUMBER:

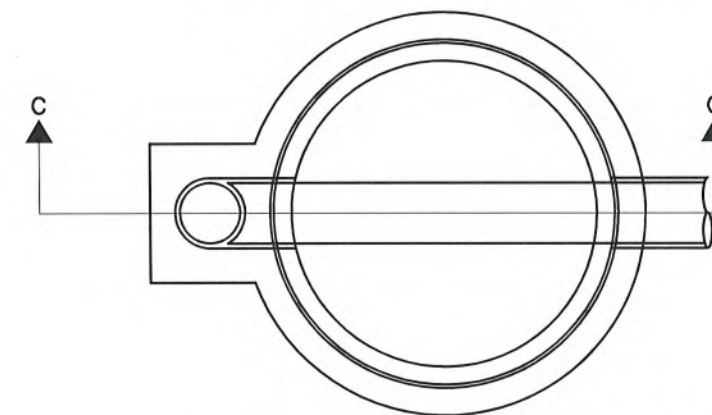
17
40



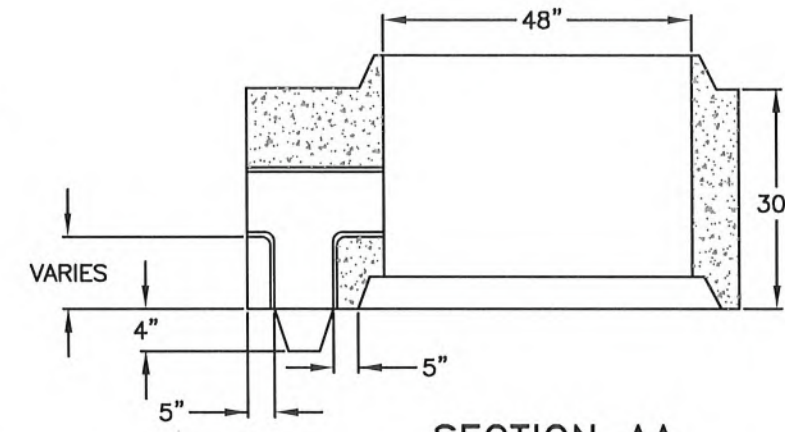
PRECAST DROP BARREL



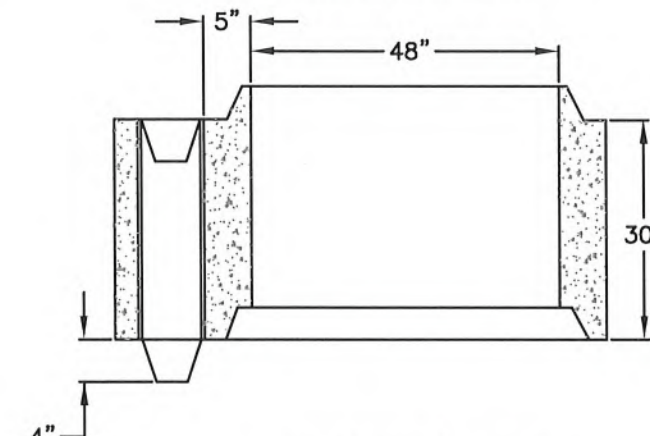
PRECAST CENTER DROP



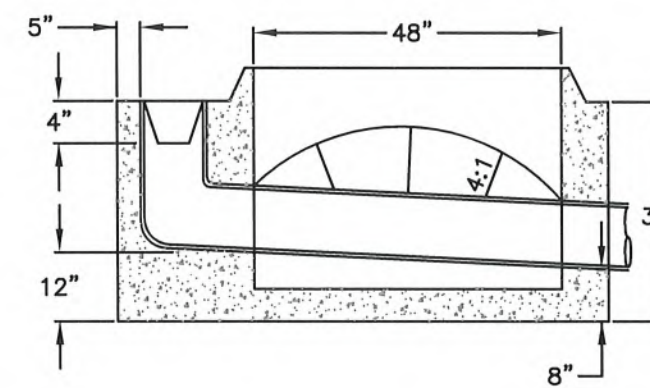
PRECAST BASE DROP



SECTION AA



SECTION BB



SECTION CC

NOTE:

1. FOR SECTIONS ABOVE THE DROP BARREL SECTION, SEE PAGE 14
2. SEWER PIPE SHALL BE SECURED THROUGH THE MANHOLE WALL BY KOR-N-SEAL BOOT OR APPROVED EQUIVALENT MEETING ASTM C 923
3. ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO ASTM C 478-20
4. FOR MANHOLE STEP SPACING AND DETAILS, SEE PAGE 13, 14 & 17.
5. ALL MATERIAL SHOULD FOLLOW ODOTCMS 2019 EDITION OTHERWISE NOTED.

DROP PIPE AT MANHOLE

NOT TO SCALE

Muskingum County
Sewer Department
375 Richard Roads
Zanesville, Ohio 43701
Telephone (740) 452-4940
Fax (740) 453-6448



PREPARED BY:

MUSKINGUM COUNTY
SEWER STANDARDS

PROJECT NAME:
PROJECT LOCATION:

MUSKINGUM COUNTY, OHIO

PLANS APPROVED BY:

MJE

PLANS PREPARED BY:

HJ

DATE:

06/22/2022

REVISED:

SHEET SIZE:

11"x17"

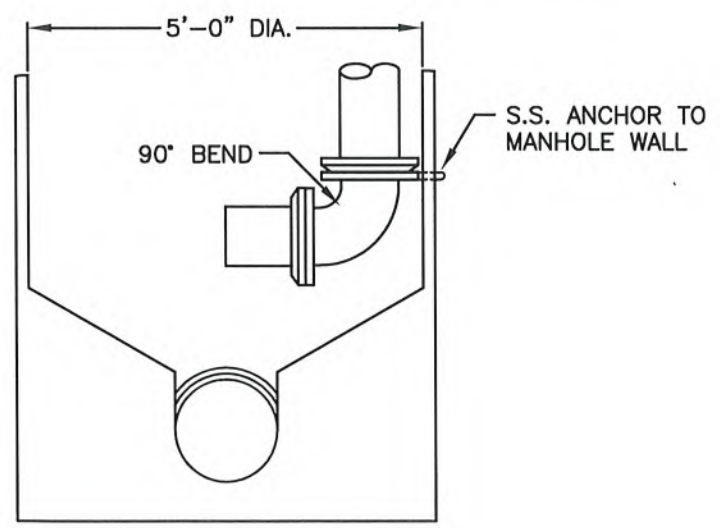
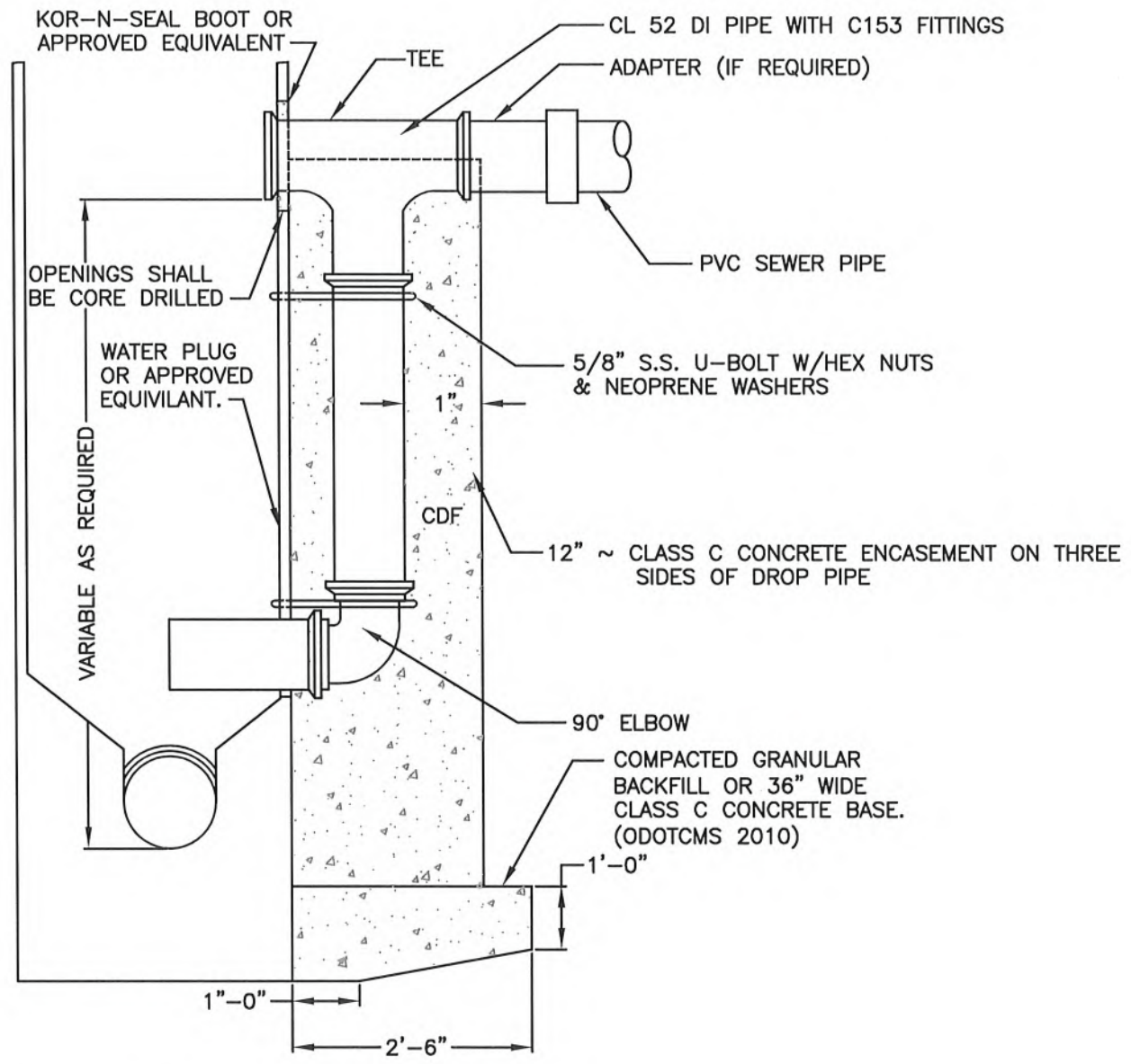
SHEET NAME:

DROP PIPE AT
MANHOLE

SHEET NUMBER:

18
40

CARRIER	CASING	
	INSIDE DIAMETER	MINIMUM WALL THICKNESS
2"	8"	0.188"
3"	10"	0.188"
4"	10"	0.188"
6"	14"	0.219"
8"	16"	0.219"
10"	18"	0.250"
12"	20"	0.281"
15"	24"	0.344"
16"	24"	0.344"
18"	28"	0.406"
20"	28"	0.406"
24"	36"	0.469"
27"	42"	0.500"
30"	42"	0.500"
36"	48"	0.675"



NOTE:
ALL MATERIAL SHOULD FOLLOW ODOTCMS 2019 EDITION UNLESS OTHERWISE NOTED.

DROP PIPE AT MANHOLE
NOT TO SCALE

Muskingum County
Sewer Department
375 Richard Roads
Zanesville, Ohio 43701
Telephone (740) 452-4940
Fax (740) 453-6448



PREPARED BY:

PROJECT NAME: MUSKINGUM COUNTY SEWER STANDARDS
PROJECT LOCATION: MUSKINGUM COUNTY, OHIO

PLANS APPROVED BY: MJE

PLANS PREPARED BY: HJ

DATE: 06/22/2022

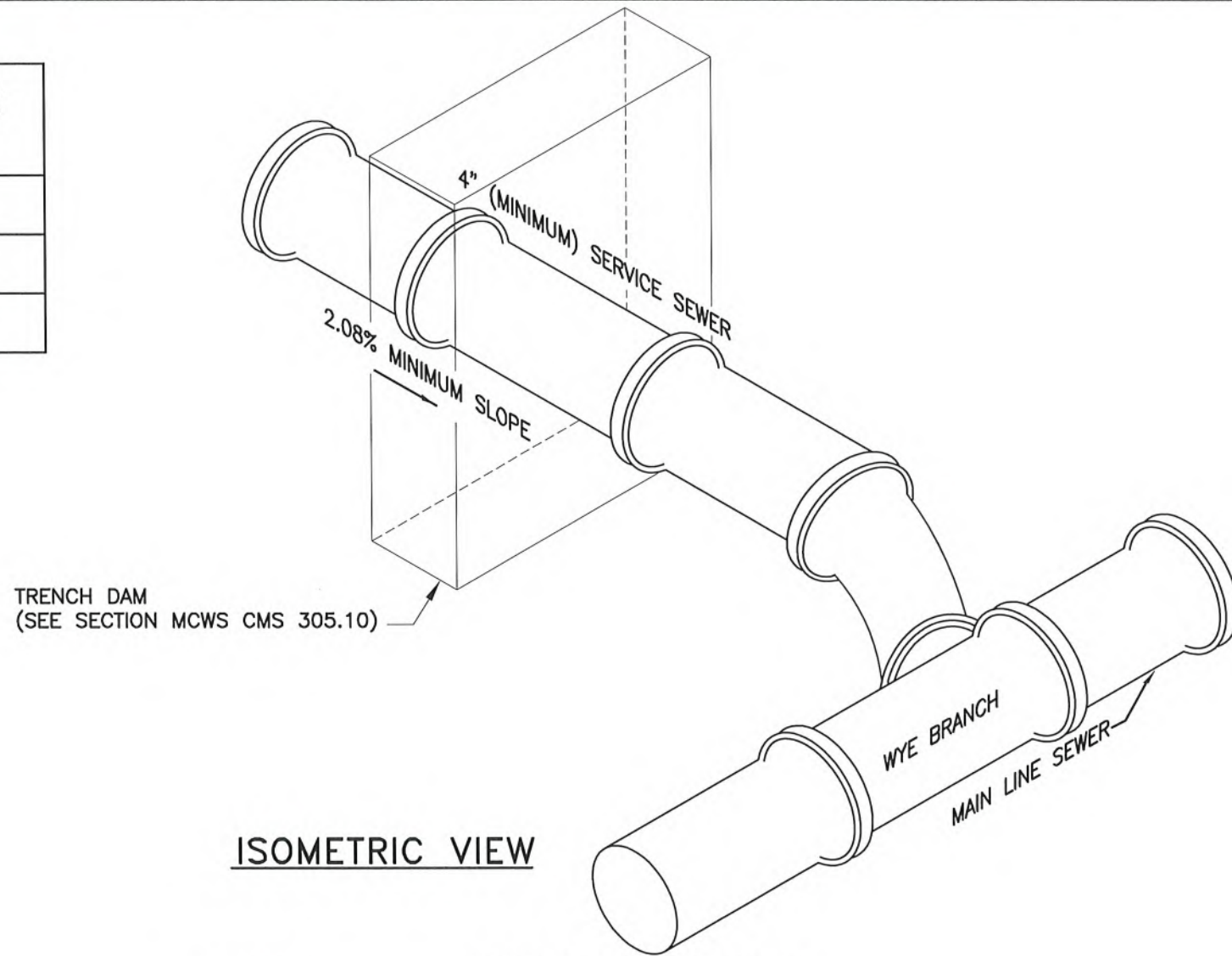
REVISED:

SHEET SIZE: 11"x17"

SHEET NAME: DROP PIPE AT MANHOLE

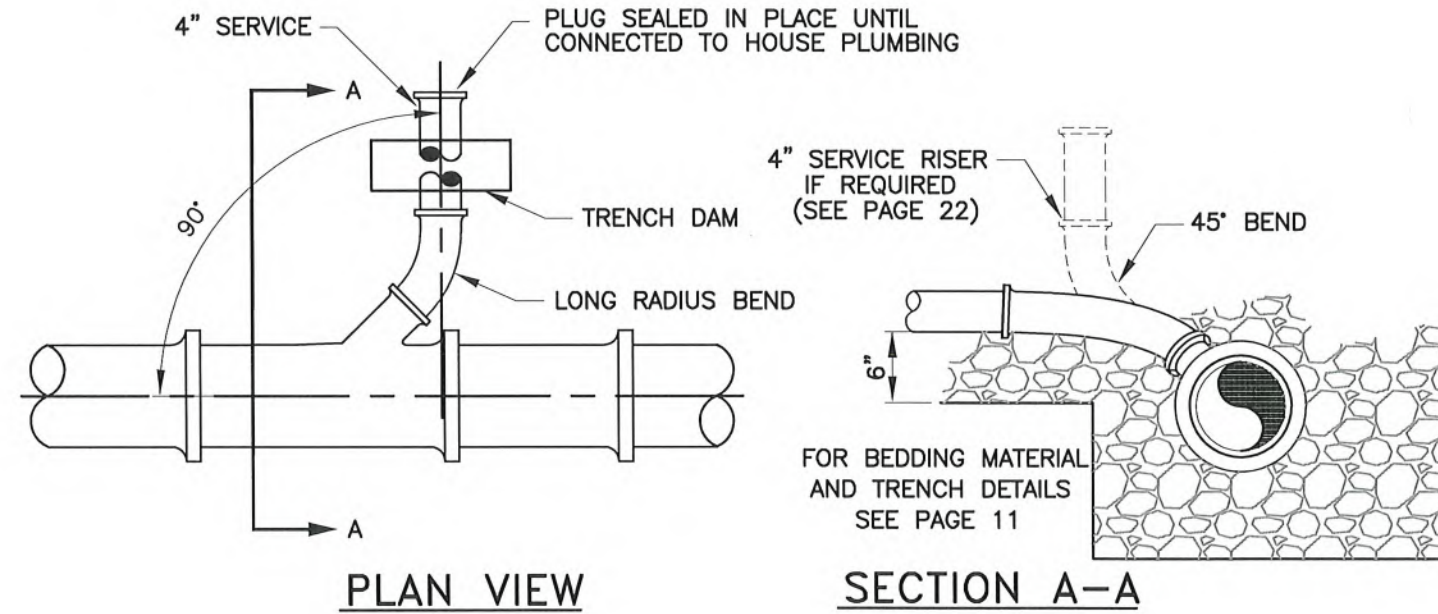
SHEET NUMBER:

SERVICE TAP DIAMETER	SERVICE	MINIMUM SLOPE
4"	RESIDENTIAL	2.08
6"	COMMERCIAL	1.04
8"	COMMERCIAL	0.4



TRENCH DAM
(SEE SECTION MCWS CMS 305.10)

ISOMETRIC VIEW



PLAN VIEW

SECTION A-A

NOTE:
ALL MATERIAL SHOULD FOLLOW ODOTCMS 2019 EDITION UNLESS OTHERWISE NOTED.

4" SANITARY SEWER SERVICE (MAIN LINE TO R/W)
NOT TO SCALE

Muskingum County
Sewer Department
375 Richard Roads
Zanesville, Ohio 43701
Telephone (740) 452-4940
Fax (740) 453-6448



PREPARED BY:

MUSKINGUM COUNTY
SEWER STANDARDS
MUSKINGUM COUNTY, OHIO

PLANS APPROVED BY:
MJE

PLANS PREPARED BY:
HJ

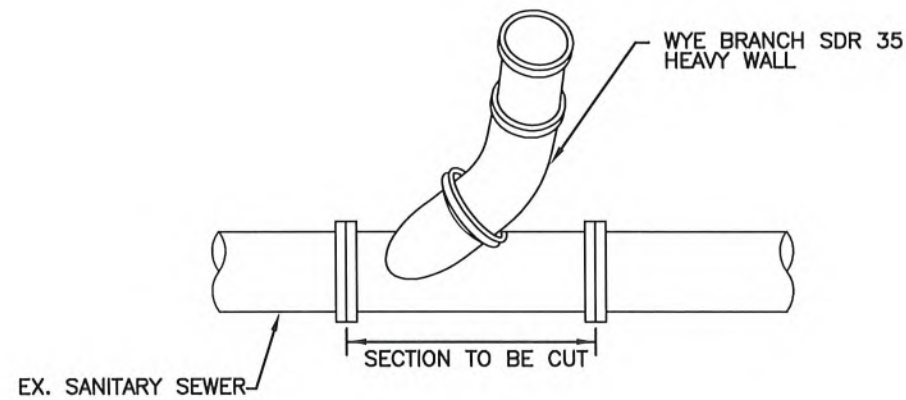
DATE:
06/22/2022

REVISED:

SHEET SIZE:
11"x17"

SHEET NAME:
6" SAN. SEWER SERVICE

SHEET NUMBER:
20
40



NOTE:

1. BYPASS PUMP OR PLUG UPSTREAM INVERT; CONDITIONS VARY AND APPROVAL BY COUNTY REQUIRED.
2. CUT OUT PIPE SECTION; INSTALL SDR35 HEAVY WALL WYE BRANCH; BEVEAL EDGES ON EXISTING PIPE; SDR35 GASKETED HARD COUPLERS REQUIRED FOR CONNECTION OF THE WYE TO THE MAIN LINE.
3. BEDDING AROUND CONNECTION SHALL BE 6" BELOW AND 6" ABOVE PIPE USING 57 STONE OR COUNTY APPROVAL EQUAL.
4. FOR SIZES UP TO AND INCLUDING 15" IN DIAMETER AT LESS THAN 20FT. OF DEPTH, PVC PIPE SHALL CONFIRM TO ASTM D 3034 SDR35, WITH A CELL CLASSIFICATION OF ASTM B OR C 12454 AND JOINTS MEETING ASTM D 3212 AND GASKETS MEETING ASTM F 477.
5. FOR SIZES UP TO AND INCLUDING 15" IN DIAMETER AT GREATER THAN 20FT. OF DEPTH, THE PVC PIPE SHALL CONFORM TO ASTM D 3034 SDR26, WITH A CELL CLASSIFICATION OF ASTM B OR C 12454 AND JOINTS MEETING ASTM D 3212 AND GASKETS MEETING ASTM F 477.
6. ALL MATERIAL SHOULD FOLLOW ODOTCMS 2019 EDITION UNLESS OTHERWISE NOTED.

SERVICE CONNECTION FOR EXISTING SANITARY SEWER PIPE

NOT TO SCALE

Muskingum County
Sewer Department
375 Richard Roads
Zanesville, Ohio 43701
Telephone (740) 452-4940
Fax (740) 453-6448



PREPARED BY:

PROJECT NAME: MUSKINGUM COUNTY SEWER STANDARDS	PROJECT LOCATION: MUSKINGUM COUNTY, OHIO
--	---

PLANS APPROVED BY:
MJE

PLANS PREPARED BY:
HJ

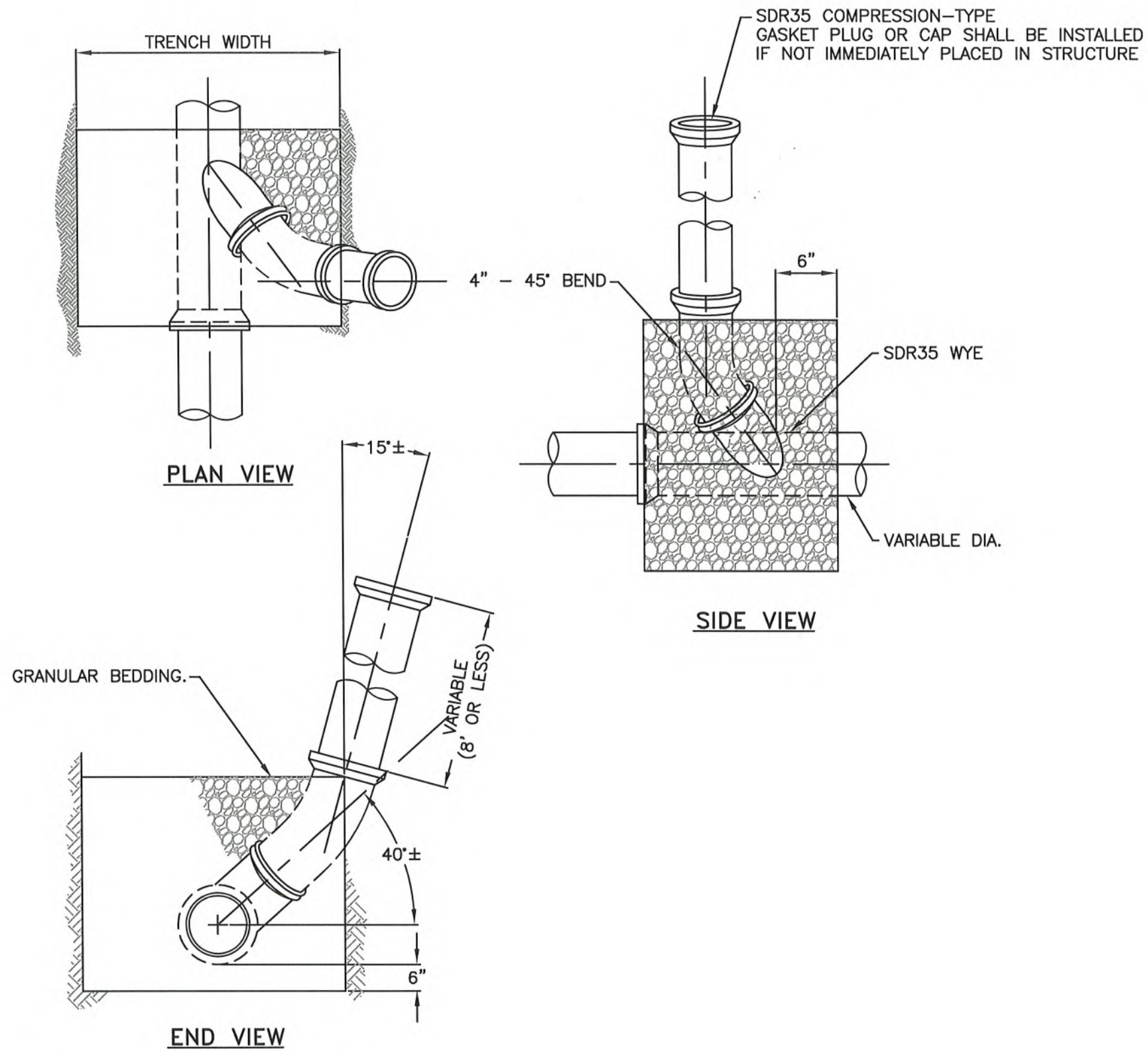
DATE:
06/22/2022

REVISED:

SHEET SIZE:
11"x17"

SHEET NAME:
SERVICE CONN.
FOR EX/ SAN.

SHEET NUMBER:
21
40



NOTES:

1. FOR WYE BRANCH INSTALLATION, SEE PAGE 20.
2. ALL MATERIAL SHOULD FOLLOW ODOTCMS 2019 EDITION UNLESS OTHERWISE NOTED.

TYPICAL RISER
NOT TO SCALE

Muskingum County
Sewer Department
375 Richard Roads
Zanesville, Ohio 43701
Telephone (740) 452-4940
Fax (740) 453-6448



PREPARED BY:

MUSKINGUM COUNTY
SEWER STANDARDS

PROJECT NAME:
PROJECT LOCATION:

MUSKINGUM COUNTY, OHIO

PLANS APPROVED BY:

MJE

PLANS PREPARED BY:

HJ

DATE:

06/22/2022

REVISED:

SHEET SIZE:

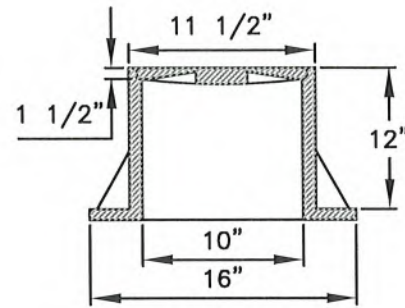
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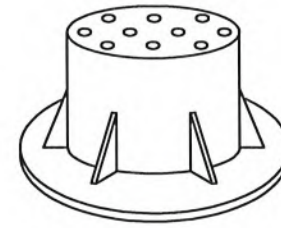
TYPICAL RISER

SHEET NUMBER:

22
40

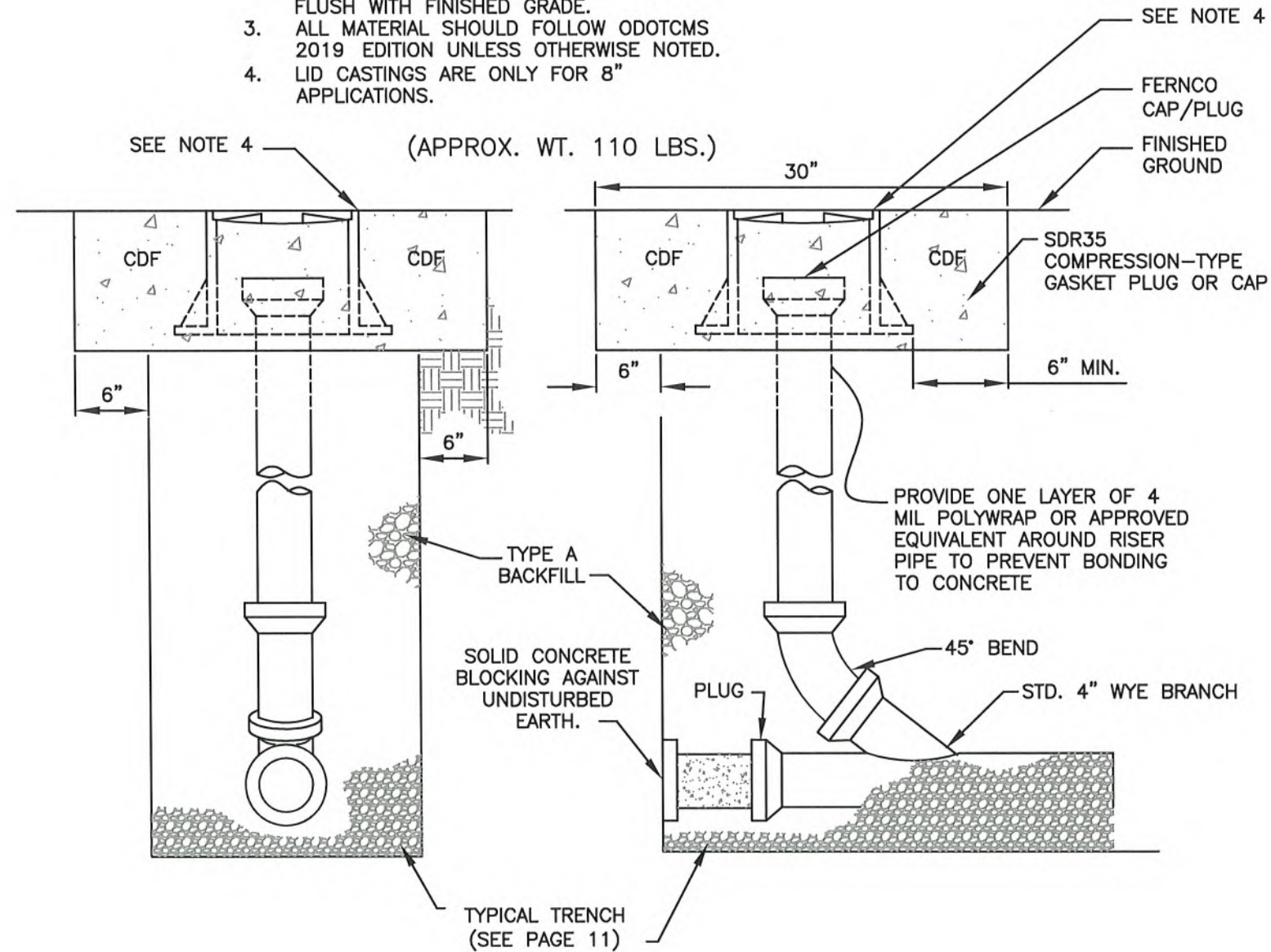


DIMENSIONS MAY VARY



NOTES

1. CLEANOUT FRAME AND LID SHALL BE NEENAH R-1977 SERIES OR APPROVED EQUIVALENT.
2. CLEANOUT TOP OF CASTING SHALL BE SET FLUSH WITH FINISHED GRADE.
3. ALL MATERIAL SHOULD FOLLOW ODOTCMS 2019 EDITION UNLESS OTHERWISE NOTED.
4. LID CASTINGS ARE ONLY FOR 8" APPLICATIONS.



TYPICAL CLEANOUT DETAIL
NOT TO SCALE

Muskingum County
Sewer Department
375 Richard Roads
Zanesville, Ohio 43701
Telephone (740) 452-4940
Fax (740) 453-6448



PREPARED BY:

MUSKINGUM COUNTY
SEWER STANDARDS

PROJECT NAME:
PROJECT LOCATION:

MUSKINGUM COUNTY, OHIO

PLANS APPROVED BY:

MJE

PLANS PREPARED BY:

HJ

DATE:

06/22/2022

REVISED:

SHEET SIZE:

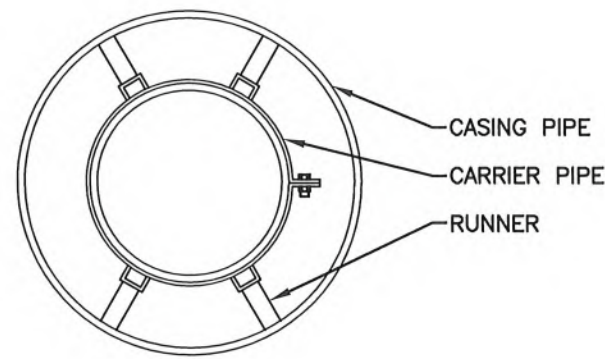
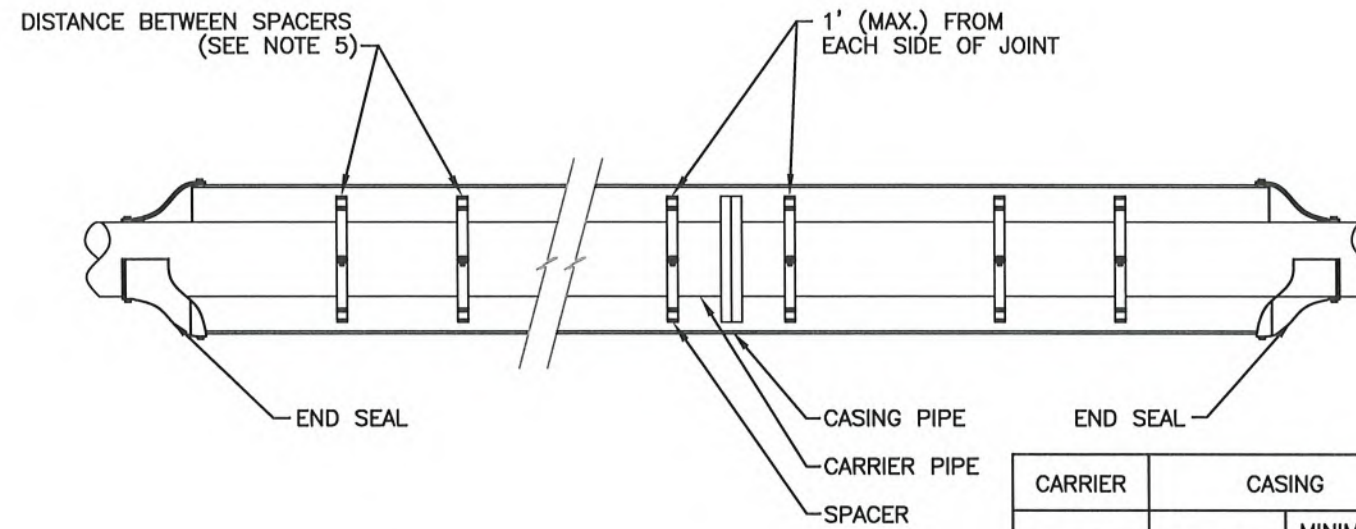
11"x17"

SHEET NAME:

TYP.
CLEANOUT

SHEET NUMBER:

23
40



SECTION

CARRIER INSIDE DIAMETER	CASING	
	MINIMUM DIAMETER	MINIMUM WALL THICKNESS
2"	8"	0.188"
3"	10"	0.188"
4"	10"	0.188"
6"	14"	0.219"
8"	16"	0.219"
10"	18"	0.250"
12"	20"	0.281"
15"	24"	0.344"
16"	24"	0.344"
18"	28"	0.406"
20"	28"	0.406"
24"	36"	0.469"
27"	42"	0.500"
30"	42"	0.500"
36"	48"	0.675"

NOTES:

- CARRIER PIPE SHALL BE CERTA-LOK SDR21 OR HDPE DR11 FOR FORCE MAINS AND YELOMINE SDR26 FOR GRAVITY SEWERS.
- CASING PIPE SHALL BE INSTALLED BY JACKING OR DIRECTIONAL DRILL WITH A MINIMUM WALL THICKNESS AS SHOWN IN THE TABLE OR MEETING THE REQUIREMENTS IF THE RECEIVING AUTHORITY.
- CASING SPACERS AND END SEALS SHALL BE ADVANCE PRODUCTS & SYSTEMS, INC. OR APPROVED EQUIVALENT.
- WHEN HDPE PIPE IS USED, THE PIPE SHALL BE DR11 WITH AN INTERNAL DIAMETER EQUAL TO OR GREATER THAN THAT OF THE OPEN CUT EXCAVATION MATERIAL IN WHICH THE CONNECTION WAS MADE.
- DIMENSIONS BETWEEN SPACERS FOR PVC PIPE SHALL BE 6 FEET MINIMUM.
- THE QUANTITY OF RUNNERS IS IN ACCORDANCE WITH THE SIZE OF THE CARRIER PIPE AS FOLLOWS:
 TO 14" DIA. - 4 RUNNERS 16"
 TO 36" DIA. - 6 RUNNERS 38"
 TO 48" DIA. - 8 RUNNERS
- WITH HDPE, MECHANICAL RESTRAINTS MUST BE USED 3 JOINTS FROM BOTH ENDS OF THE BORE.
- ALL MATERIAL SHOULD FOLLOW ODOTCMS 2019 EDITION, UNLESS OTHERWISE NOTED.

CASING PIPE
NOT TO SCALE

Muskingum County
Sewer Department
375 Richard Roads
Zanesville, Ohio 43701
Telephone (740) 452-4940
Fax (740) 453-6448



PREPARED BY:

MUSKINGUM COUNTY
SEWER STANDARDS
MUSKINGUM COUNTY, OHIO

PLANS APPROVED BY:
MJE

PLANS PREPARED BY:
HJ

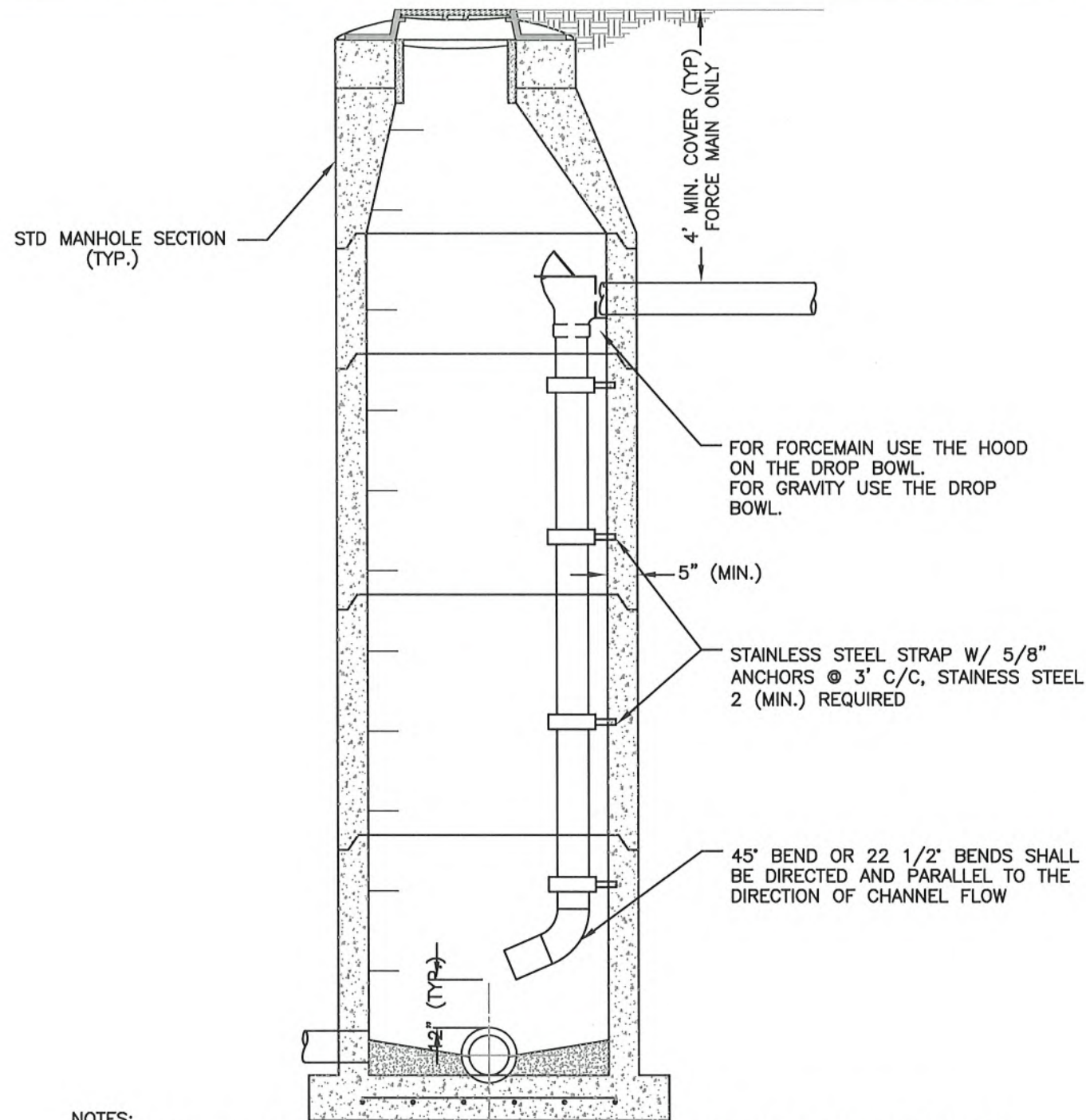
DATE:
06/22/2022

REVISED:

SHEET SIZE:
11"x17"

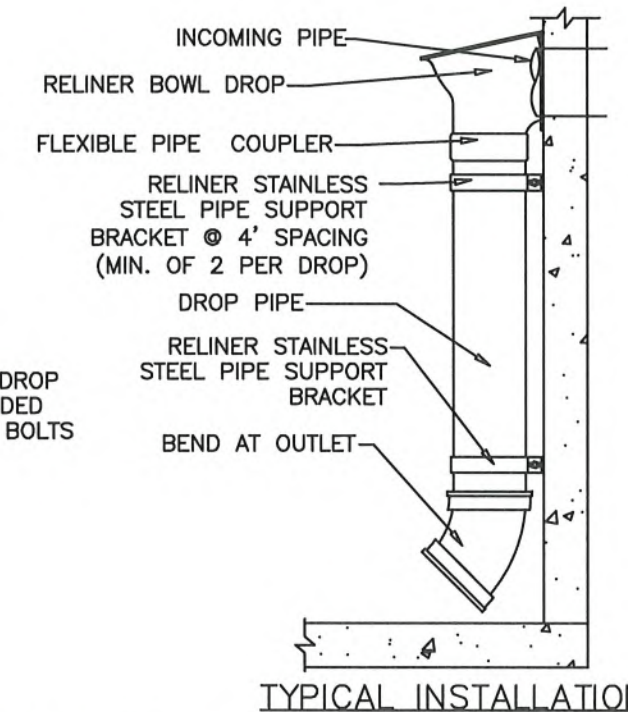
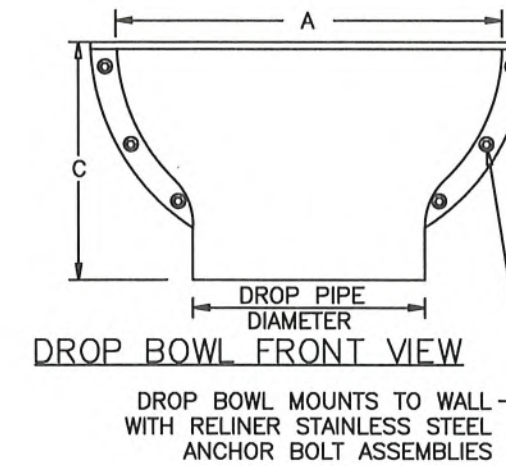
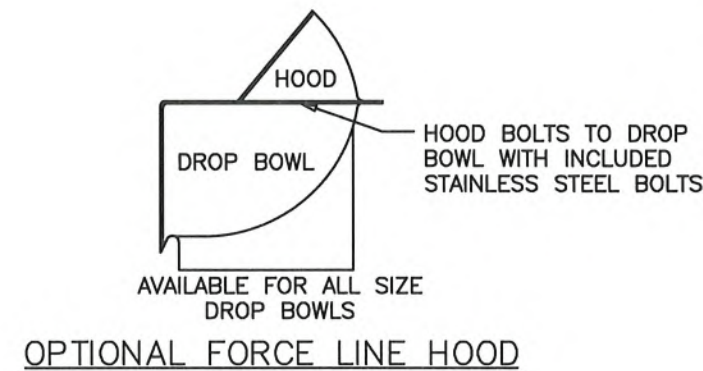
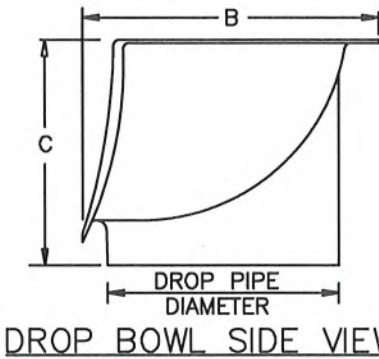
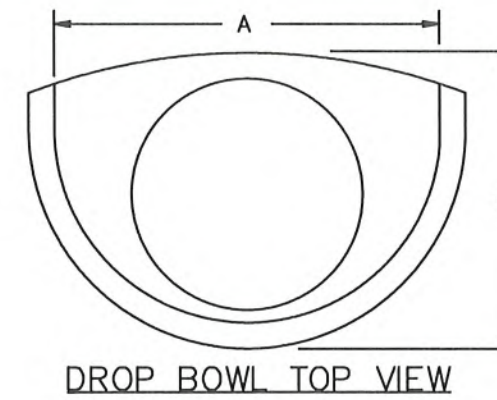
SHEET NAME:
CASING PIPE

SHEET NUMBER:
24
40



NOTES:

1. FORCE MAIN OR SERVICE DROP PIPE SHALL IN NO WAY INTERFERE WITH THE STEPS OR OTHER ACCESS TO THE BOTTOM OF THE STRUCTURE.
2. THE VERTICLE SECTION OF PIPE SHALL BE ONE CONTINUOUS LENGTH.
3. PIPE SHALL BE PVC (ASTM 2241 SDR21) FOR FORCEMAIN WITH UNIFLANGE OR APPROVED EQUIVALENT AT ALL INTERIOR OR VERTICAL JOINTS OR PVC SDR35 D3034 FOR SERVICE LINE.
4. STRUCTURE PENETRATIONS SHALL BE WATERTIGHT WITH FLEXIBLE CONNECTION METTING ASTM C 923.
5. WHEN CONNECTING FORCE MAIN OR SERVICE LINE TO AN EXISTING MANHOLE, THE WALL PENETRATION SHALL BE A KOR-N-SEAL BOOT.
6. A INSIDE DROP ON SERVICE LINES IS ONLY REQUIRED IF THE PROPOSED CONNECTION IS 2 FEET OR GREATER ABOVE THE CHANNEL.
7. FORCEMAIN CONTRACTOR TO RELINE COATING WITH SPECTRASHIELD OR SPRAYROQ SPRAYWALL EPOXY ON MAN HOLES THAT CONTAIN A DROP OR FORCEMAIN DISCHARGE.
8. FOR LINES GREATER THAN 10" AND LARGER, INCREASE MANHOLE TO 60" DIAMETER.
9. ALL MATERIAL SHOULD FOLLOW ODOTCMS 2019 EDITION UNLESS OTHERWISE NOTED.



RELINER INSIDE DROP BOWLS ARE FABRICATED IN MARINE GRADE FIBERGLASS AND FINISHED IN BRIGHT WHITE COAT.

USE RELINER STAINLESS STEEL PIPE BRACKETS TO SUPPORT DROP PIPE. EXTERNAL PIPE COUPLER REQUIRED. PROVIDE SWEEP AT DROP PIPE OUTLET.

FORCE MAIN & SERVICE LINE DROP PIPE DETAIL

NOT TO SCALE

Muskingum County
Sewer Department
375 Richard Roads
Zanesville, Ohio 43701
Telephone (740) 452-4940
Fax (740) 453-6448



PREPARED BY:

MUSKINGUM COUNTY
SEWER STANDARDS

PROJECT NAME:

PLANS APPROVED BY:

MJE

PLANS PREPARED BY:

HJ

DATE:

06/22/2022

REVISED:

SHEET SIZE:

11"x17"

SHEET NAME:

FM & SERVICE
LINE DROP PIPE

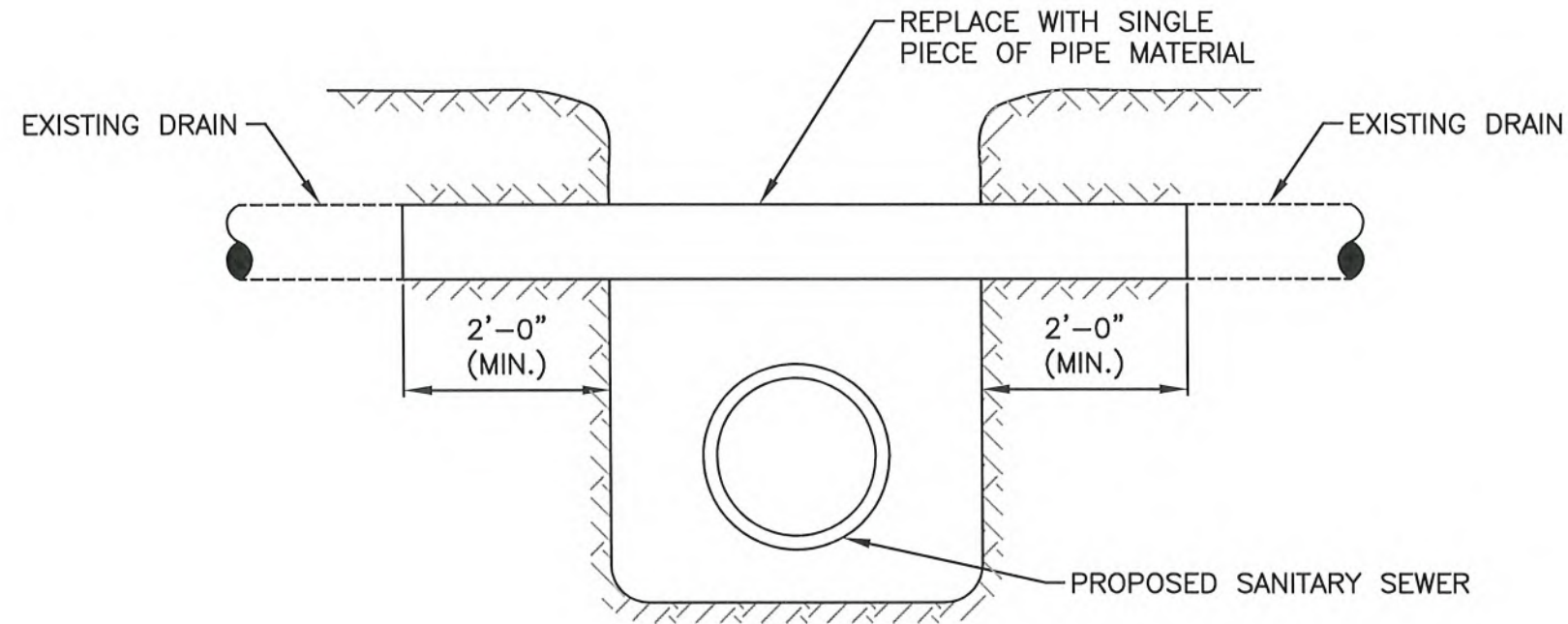
SHEET NUMBER:

25
40

MUSKINGUM COUNTY, OHIO

MINIMUM ROAD AND CURB UNDERDRAIN
REPLACEMENT MATERIAL SHALL BE:
PERFORATED CONCRETE: ITEM 706.06 (ODOTCMS)
CONCRETE DRAIN TILE: ITEM 706.07 (ODOTCMS)
PERFORATED PVC: ITEM 707.41 (ODOTCMS)
HEAVY DUTY CORRUGATED POLYETHYLENE
SLOTTED DRAIN: ITEM 707.32 (ODOTCMS)

MINIMUM DRAIN TILE REPLACEMENT MATERIAL SHALL
BE:
PVC: ASTM 2241, SDR 21 OR SDR 35 D3034.
CONCRETE: ITEM 706.02 (ODOTCMS)
POLYETHYLENE: ITEM 707.33 (ODOTCMS)



NOTE:

1. INSIDE DIAMETER OF REPLACEMENT PIPE SHALL BE EQUAL TO OR GREATER THAN INSIDE DIAMETER OF EXISTING TILE OR UNDERDRAIN.
2. REPLACEMENT MATERIAL USED SHALL BE EQUAL TO OR BETTER THAN THE EXISTING TILE OR UNDERDRAIN AS DIRECTED BY THE ENGINEER.
3. PROVIDED FERNCO FITTING OR APPROVED EQUIVALENT WHERE EXISTING TILE OR UNDERDRAIN HAS WATERTIGHT JOINT WHERE OPEN JOINTS ARE ENCOUNTERED.
4. BACKFILL BETWEEN SANITARY SEWER PIPE AND REPLACEMENT TILE OR UNDERDRAIN SHALL BE GRANULAR BACKFILL.
5. SANITARY SEWER SHALL BE INSTALLED IN ACCORDANCE WITH PAGE 11.
6. ALL MATERIAL SHOULD FOLLOW ODOTCMS 2019 EDITION, UNLESS OTHERWISE NOTED.

DRAIN TILE AND UNDERDRAIN REPLACEMENT

NOT TO SCALE

Muskingum County
Sewer Department
375 Richard Roads
Zanesville, Ohio 43701
Telephone (740) 452-4940
Fax (740) 453-6448



PREPARED BY:

MUSKINGUM COUNTY
SEWER STANDARDS

PROJECT NAME:

PLANS APPROVED BY:

MJE

PLANS PREPARED BY:

HJ

DATE:

06/22/2022

REVISED:

SHEET SIZE:

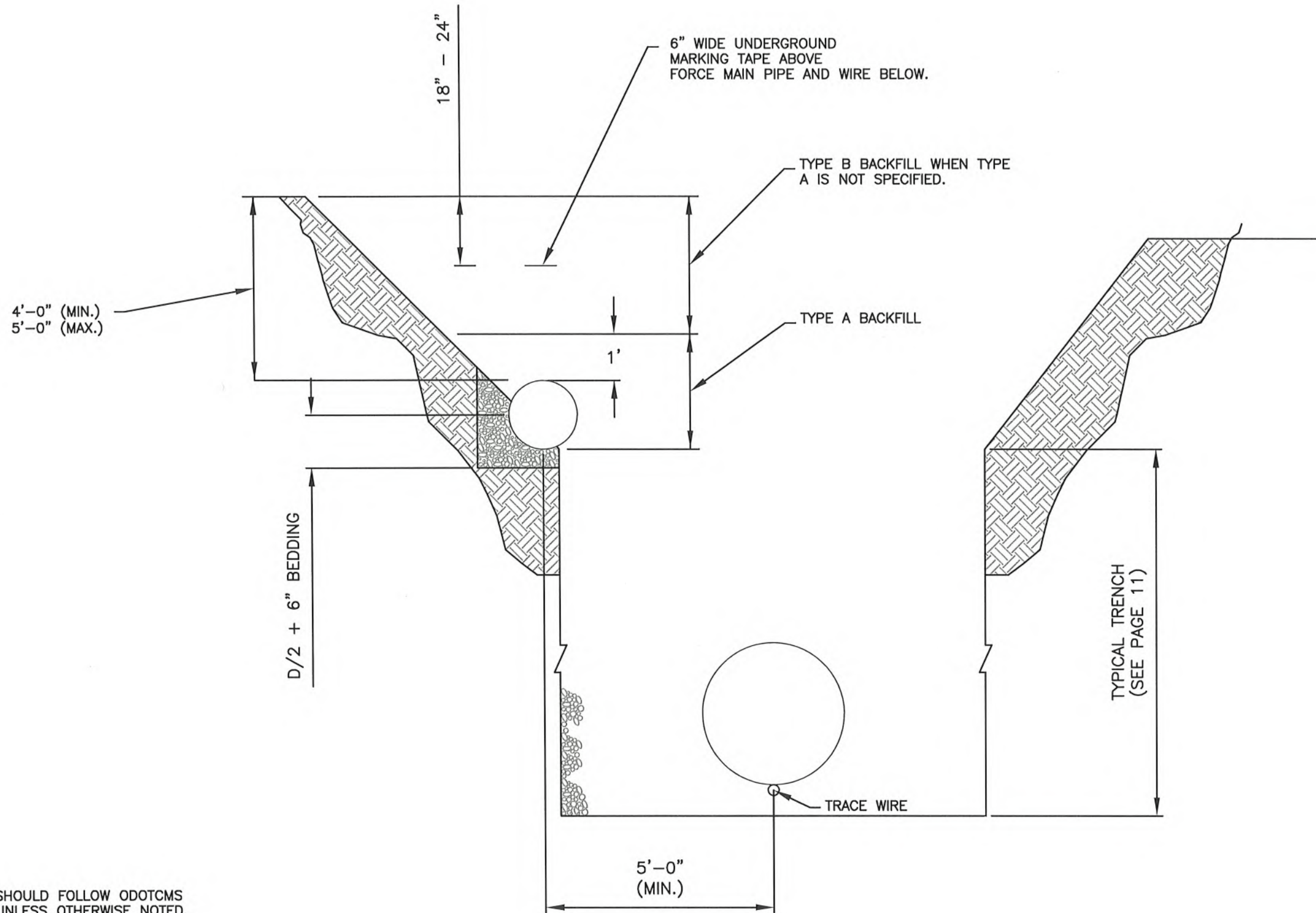
11"x17"

SHEET NAME:

DRAIN TILE &
UNDERDRAIN REP.

SHEET NUMBER:

26
40



NOTES:
1. ALL MATERIAL SHOULD FOLLOW ODOTCMS 2019 EDITION UNLESS OTHERWISE NOTED.

FORCE MAIN AND SANITARY SEWER TRENCH
NOT TO SCALE



PREPARED BY:

MUSKINGUM COUNTY
SEWER STANDARDS
MUSKINGUM COUNTY, OHIO

PLANS APPROVED BY:

MJE

PLANS PREPARED BY:

HJ

DATE:

06/22/2022

REVISED:

SHEET SIZE:

11"x17"

SHEET NAME:

FM & SAN
SEWER TRENCH

SHEET NUMBER:

27
40

Muskingum County
Sewer Department
375 Richard Roads
Zanesville, Ohio 43701
Telephone (740) 452-4940
Fax (740) 453-6448

ALLOWABLE LEAKAGE PER 1000 FEET OF PIPELINE* IN GALLONS PER HOUR														
AVG. TEST PRESSURE (PSI)	3	4	6	8	10	12	14	16	18	20	24	30	36	42
250	0.36	0.47	0.71	0.95	1.19	1.42	1.66	1.9	2.14	2.37	2.85	3.56	4.27	4.99
225	0.34	0.45	0.68	0.9	1.13	1.35	1.58	1.8	2.03	2.25	2.7	3.38	4.05	4.73
200	0.32	0.43	0.64	0.85	1.06	1.28	1.48	1.7	1.91	2.12	2.55	3.19	3.82	4.46
175	0.3	0.4	0.59	0.8	0.99	1.19	1.39	1.59	1.79	1.98	2.38	2.98	3.58	4.17
150	0.28	0.37	0.55	0.74	0.92	1.1	1.29	1.47	1.66	1.84	2.21	2.76	3.31	3.86
125	0.25	0.34	0.5	0.67	0.84	1.01	1.18	1.34	1.51	1.68	2.01	2.52	3.02	3.53
100	0.23	0.3	0.45	0.6	0.75	0.9	1.05	1.2	1.35	1.5	1.8	2.25	2.7	3.15

*IF THE PIPELINE UNDER TEST CONTAINS SECTIONS OF VARIOUS DIAMETERS, THE ALLOWABLE LEAKAGE WILL BE THE SUM OF THE COMPUTED LEAKAGE FOR EACH SIZE.

FORMULA:
$$L = \frac{SD \times (P)^{1/2}}{133,200}$$

WHERE

L= LEAKAGE (GAL./HR.)
S= LENGTH OF PIPELINE TESTED, IN FEET.
D= NOMINAL DIAMETER (IN.)
P= TEST PRESSURE (150 PSI)

THESE CALCULATIONS ARE BASED ON CURRENT AWWA C600 SPECIFICATIONS, SECTION 4.1 HYDROSTATIC TESTING SHALL BE MAINTAINED AT - PSI AS SHOWN HEREIN OR AT ONE AND HALF TIMES THE WORKING PRESSURE, WHICHEVER IS GREATER

ALLOWABLE LEAKAGE PER HOUR (SEWER FORCE MAIN)
NOT TO SCALE

Muskingum County
Sewer Department
375 Richard Roads
Zanesville, Ohio 43701
Telephone (740) 452-4940
Fax (740) 453-6448



PREPARED BY:

MUSKINGUM COUNTY
SEWER STANDARDS

PROJECT NAME:

PLANS APPROVED BY:

MJE

PLANS PREPARED BY:

HJ

DATE:

06/22/2022

REVISED:

SHEET SIZE:

11"x17"

SHEET NAME:

LEAKAGE PER HOUR

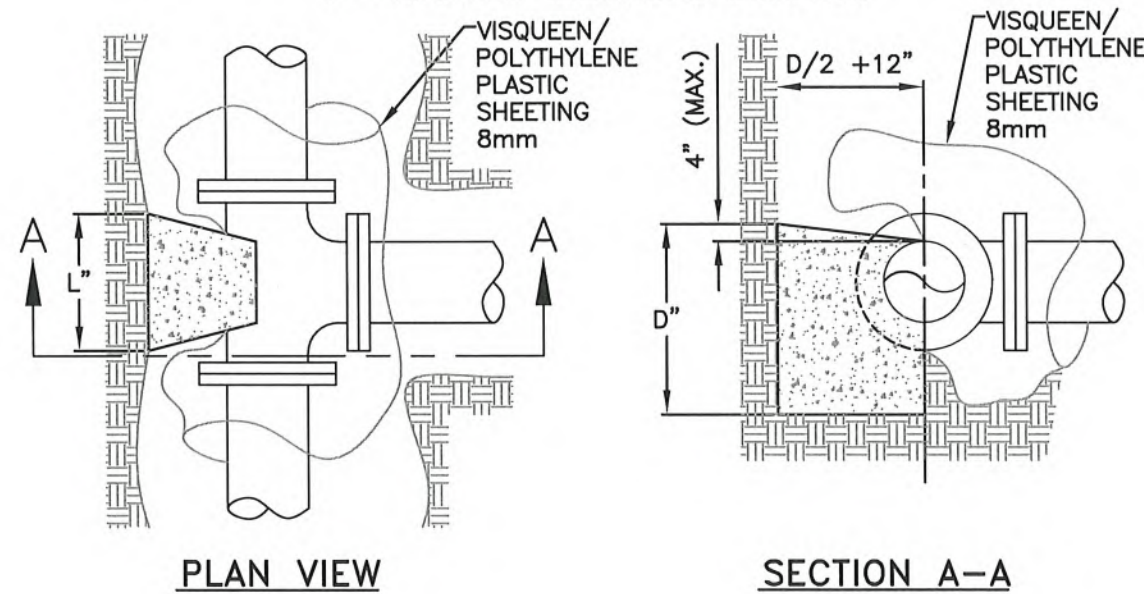
SHEET NUMBER:

28
40

RUN	BRANCH											
	3"			4"			6"			8"		
	L	D	V	L	D	V	L	D	V	L	D	V
3"	12	5	0.5									
4"	10	6	0.5	11	8	0.8						
6"	9	7	0.5	11	8	0.8	18	12	1.9			
8"	8	8	0.5	10	9	0.7	18	12	1.9	23	16	3.5
12"	6	12	0.6	8	12	0.8	18	12	1.9	23	16	3.5
16"	6	16	0.8	6	16	0.8	14	16	2.0	20	18	3.3
20"	6	20	1.0	6	20	1.0	11	20	1.9	18	20	3.3
24"	6	24	1.2	6	24	1.2	9	24	1.9	15	24	3.3

RUN	BRANCH											
	12"			16"			20"			24"		
	L	D	V	L	D	V	L	D	V	L	D	V
3"												
4"												
6"												
8"												
12"	38	22	8.7									
16"	36	23	8.7	49	30	13.6						
20"	35	24	8.7	46	32	13.6	60	38	26.5			
24"	30	28	8.7	42	36	14.0	54	42	26.3	68	48	45.4

V = VOLUME OF CONCRETE IN CUBIC FEET



NOTES:

1. CONCRETE FOR BACKING SHALL BE CLASS "C", (ODOTCMS 2010)
2. BACKING SHALL BE DESIGNED FOR 3000 PSF SOIL BEARING.
3. REINFORCING STEEL SHALL BE USED AS DIRECTED BY THE DISTRICT.
4. CONCRETE SHALL BE PLACED AGAINST UNDISTURBED EARTH.
5. PROVIDE CLEARANCE FOR REMOVAL OF BOLTS.
6. VISQUEEN SHALL BE PLACED IN A MANNER SUCH THAT CONCRETE BLOCKING DOES NOT HAVE DIRECT CONTACT WITH TEE AND OR FITTINGS.
7. ALL MATERIAL SHOULD FOLLOW ODOTCMS 2019 EDITION, UNLESS OTHERWISE NOTED.

BACKING FOR TEES
NOT TO SCALE

Muskingum County
Sewer Department
375 Richard Roads
Zanesville, Ohio 43701
Telephone (740) 452-4940
Fax (740) 453-6448



PREPARED BY:

MUSKINGUM COUNTY
SEWER STANDARDS

PROJECT NAME:
PROJECT LOCATION:

MUSKINGUM COUNTY, OHIO

PLANS APPROVED BY:

MJE

PLANS PREPARED BY:

HJ

DATE:

06/22/2022

REVISED:

SHEET SIZE:

11"x17"

SHEET NAME:

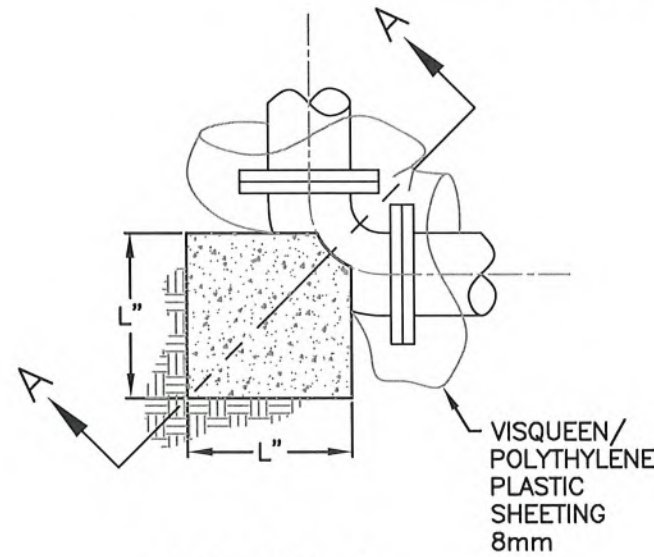
BACKING FOR
TEES

SHEET NUMBER:

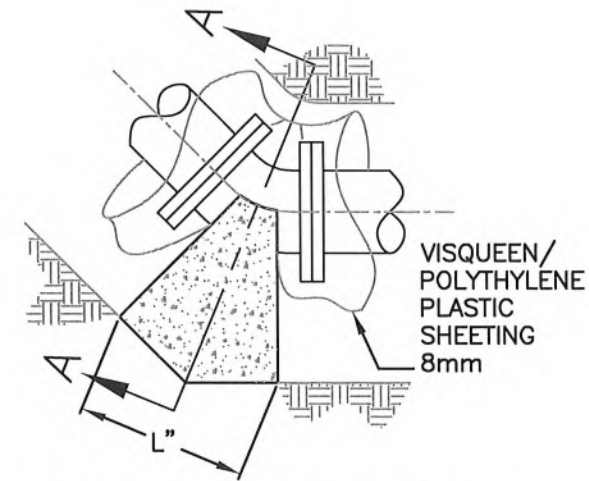
29
40

PIPE SIZE	DEGREE OF BEND											
	11 1/4°			22 1/2°			45°			90°		
	L	D	V	L	D	V	L	D	V	L	D	V
3"	4	3	0.1	6	4	0.2	10	4	0.3	10	4	0.3
4"	5	4	0.2	9	5	0.4	14	5	0.6	14	5	0.6
6"	8	6	0.5	12	7	0.7	20	8	1.4	18	9	1.7
8"	9	8	0.7	16	9	1.4	24	12	2.7	25	11	4.0
12"	14	12	1.8	24	14	3.6	36	18	6.8	32	18	10.7
16"	18	16	3.4	32	18	6.7	36	32	13.4	41	26	25.4
20"	25	20	6.4	30	30	11.5	49	36	20.5	50	32	46.5
24"	27	24	9.0	39	34	18.4	60	42	35.0	58	40	77.7

V = VOLUME OF CONCRETE IN CUBIC FEET

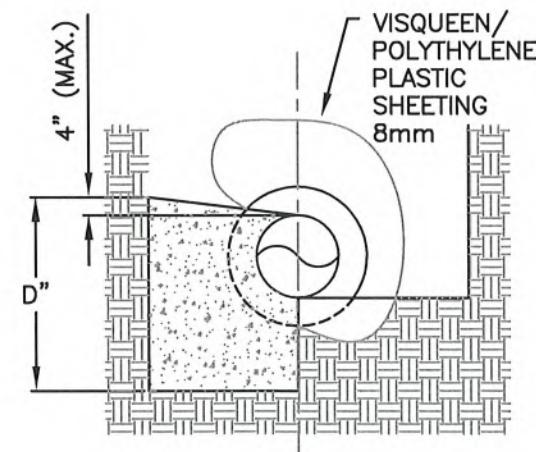


90° BENDS



BENDS LESS THAN 90°

PLAN VIEWS



SECTION A-A

NOTES:

1. CONCRETE FOR BACKING SHALL BE CLASS "C", (ODOTCMS 2010)
2. BACKING SHALL BE DESIGNED FOR 3000 PSF SOIL BEARING.
3. REINFORCING STEEL SHALL BE USED AS DIRECTED BY THE DISTRICT.
4. CONCRETE SHALL BE PLACED AGAINST UNDISTURBED EARTH.
5. PROVIDE CLEARANCE FOR REMOVAL OF BOLTS.
6. VISQUEEN SHALL BE PLACED IN A MANNER SUCH THAT CONCRETE BLOCKING DOES NOT HAVE DIRECT CONTACT WITH TEE AND OR FITTINGS.
7. ALL MATERIAL SHOULD FOLLOW ODOTCMS 2019 EDITION, UNLESS OTHERWISE NOTED.

BACKING FOR BENDS

NOT TO SCALE

Muskingum County
Sewer Department
375 Richard Roads
Zanesville, Ohio 43701
Telephone (740) 452-4940
Fax (740) 453-6448



PREPARED BY:

MUSKINGUM COUNTY
SEWER STANDARDS

MUSKINGUM COUNTY, OHIO

PROJECT NAME:

PLANS APPROVED BY:

MJE

PLANS PREPARED BY:

HJ

DATE:

06/22/2022

REVISED:

SHEET SIZE:

11"x17"

SHEET NAME:

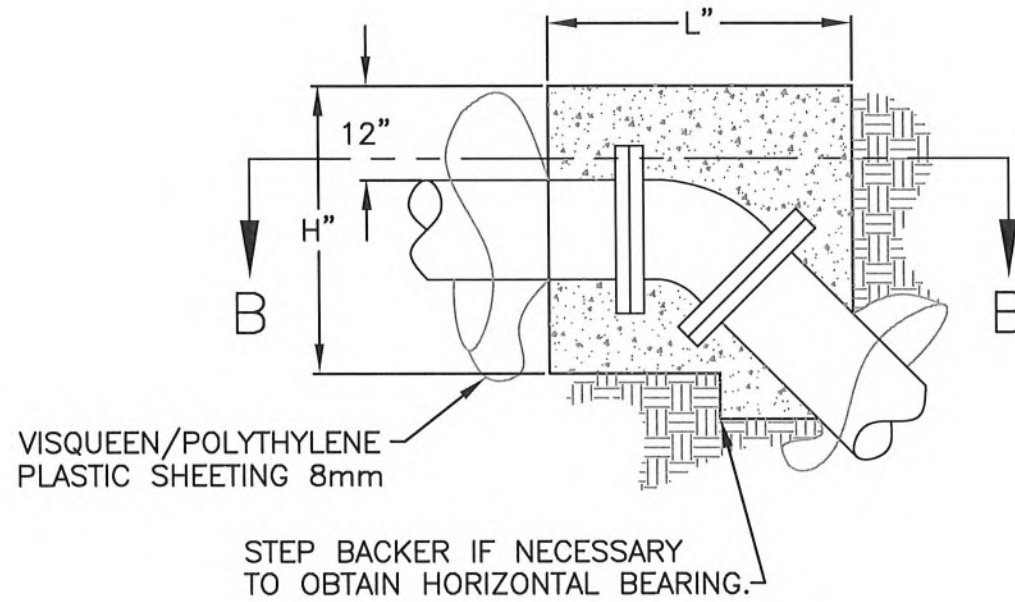
BACKING FOR BENDS

SHEET NUMBER:

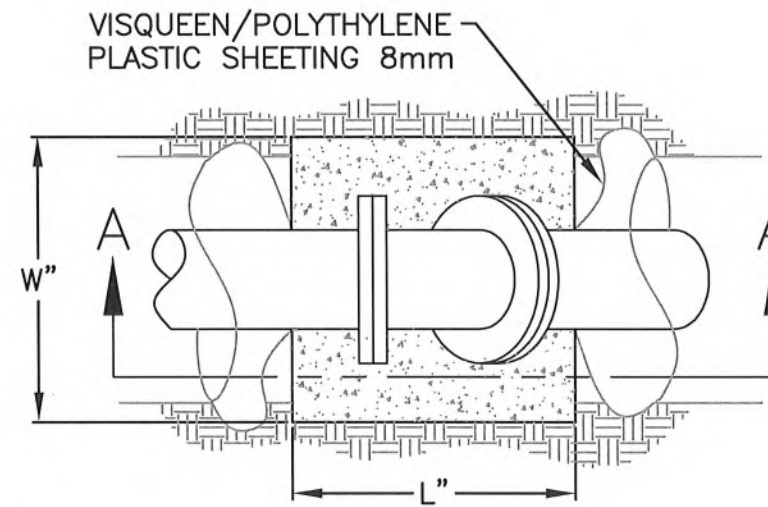
30
40

PIPE SIZE	DEGREE OF BEND															
	11 1/4°				22 1/2°				45°				90°			
	L	W	H	V	L	W	H	V	L	W	H	V	L	W	H	V
3"	12	18	12	1.5	13	25	16	3.0	18	30	19	5.9	25	30	24	10.4
4"	12	24	16	2.6	16	30	18	5.0	22	36	24	11.0	27	48	25	18.7
6"	12	48	18	6.0	15	43	36	13.4	30	55	24	22.9	37	54	36	41.6
8"	12	63	24	10.5	18	57	34	20.2	36	57	33	39.2	47	60	46	75.0
12"	20	54	36	22.6	37	62	37	49.0	48	62	51	87.9	66	66	66	166.4
16"	31	65	38	44.3	60	65	39	88.1	65	65	65	159.2	72	96	72	288.0
20"	45	70	40	72.8	56	70	60	136.2	72	76	78	247.0	86	108	84	451.8
24"	41	72	54	92.3	67	74	69	198.0	88	84	84	359.1	96	120	96	640.0

V = VOLUME OF CONCRETE IN CUBIC FEET



SECTION A-A



SECTION B-B

NOTES:

1. CONCRETE FOR BACKING SHALL BE CLASS "C", (ODOTCMS 2010)
2. BACKING SHALL BE DESIGNED FOR 3000 PSF SOIL BEARING.
3. REINFORCING STEEL SHALL BE USED AS DIRECTED BY THE DISTRICT.
4. CONCRETE SHALL BE PLACED AGAINST UNDISTURBED EARTH.
5. PROVIDE CLEARANCE FOR REMOVAL OF BOLTS.
6. VISQUEEN SHALL BE PLACED IN A MANNER SUCH THAT CONCRETE BLOCKING DOES NOT HAVE DIRECT CONTACT WITH TEE AND OR FITTINGS.
7. ALL MATERIAL SHOULD FOLLOW ODOTCMS 2019 EDITION, UNLESS OTHERWISE NOTED.

BACKING FOR VERTICAL BENDS (OVER BENDS ONLY)

NOT TO SCALE

Muskingum County
Sewer Department
375 Richard Roads
Zanesville, Ohio 43701
Telephone (740) 452-4940
Fax (740) 453-6448



PREPARED BY:

MUSKINGUM COUNTY
SEWER STANDARDS

MUSKINGUM COUNTY, OHIO

PLANS APPROVED BY:

MJE

PLANS PREPARED BY:

HJ

DATE:

06/22/2022

REVISED:

SHEET SIZE:

11"x17"

SHEET NAME:

BACKING FOR
VERT. BENDS

SHEET NUMBER:

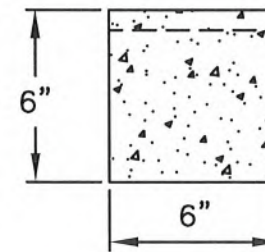
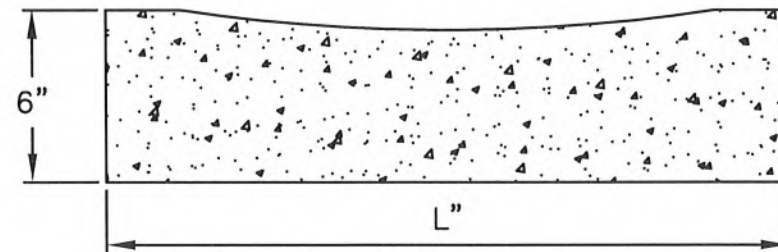
31
40

	SIZE	L	V
GATE VALVES	3"	15	0.31
	4"	16	0.33
	6"	17	0.36
	8"	20	0.42
	12"	24	0.50
	16"	30	0.63
BUTTRFLY VALVES	20"	36	0.75
	24"	42	0.88
	30"	48	1.00

V = VOLUME OF CONCRETE IN CUBIC FEET

NOTES:

1. CONCRETE FOR SUPPORTS SHALL BE CLASS C. (ODOTCMS 2010)
2. BACKING SHALL BE DESIGNED FOR 3000 PSF SOIL BEARING.
3. CONCRETE SHALL BE PLACED AGAINST UNDISTURBED EARTH.
4. PROVIDE CLEARANCE FOR REMOVAL BOLTS.
5. VISQUEEN SHALL BE PLACED IN A MANNER SUCH THAT CONCRETE BACKING DOES NOT HAVE DIRECT CONTACT WITH VALVE.
6. ALL MATERIAL SHOULD FOLLOW ODOTCMS 2019 EDITION UNLESS OTHERWISE NOTED.



CONCRETE VALVE SUPPORTS

NOT TO SCALE

Muskingum County
Sewer Department
375 Richard Roads
Zanesville, Ohio 43701
Telephone (740) 452-4940
Fax (740) 453-6448



PREPARED BY:

MUSKINGUM COUNTY
SEWER STANDARDS

PROJECT NAME:

MUSKINGUM COUNTY, OHIO

PROJECT LOCATION:

PLANS APPROVED BY:

MJE

PLANS PREPARED BY:

HJ

DATE:

06/22/2022

REVISED:

SHEET SIZE:

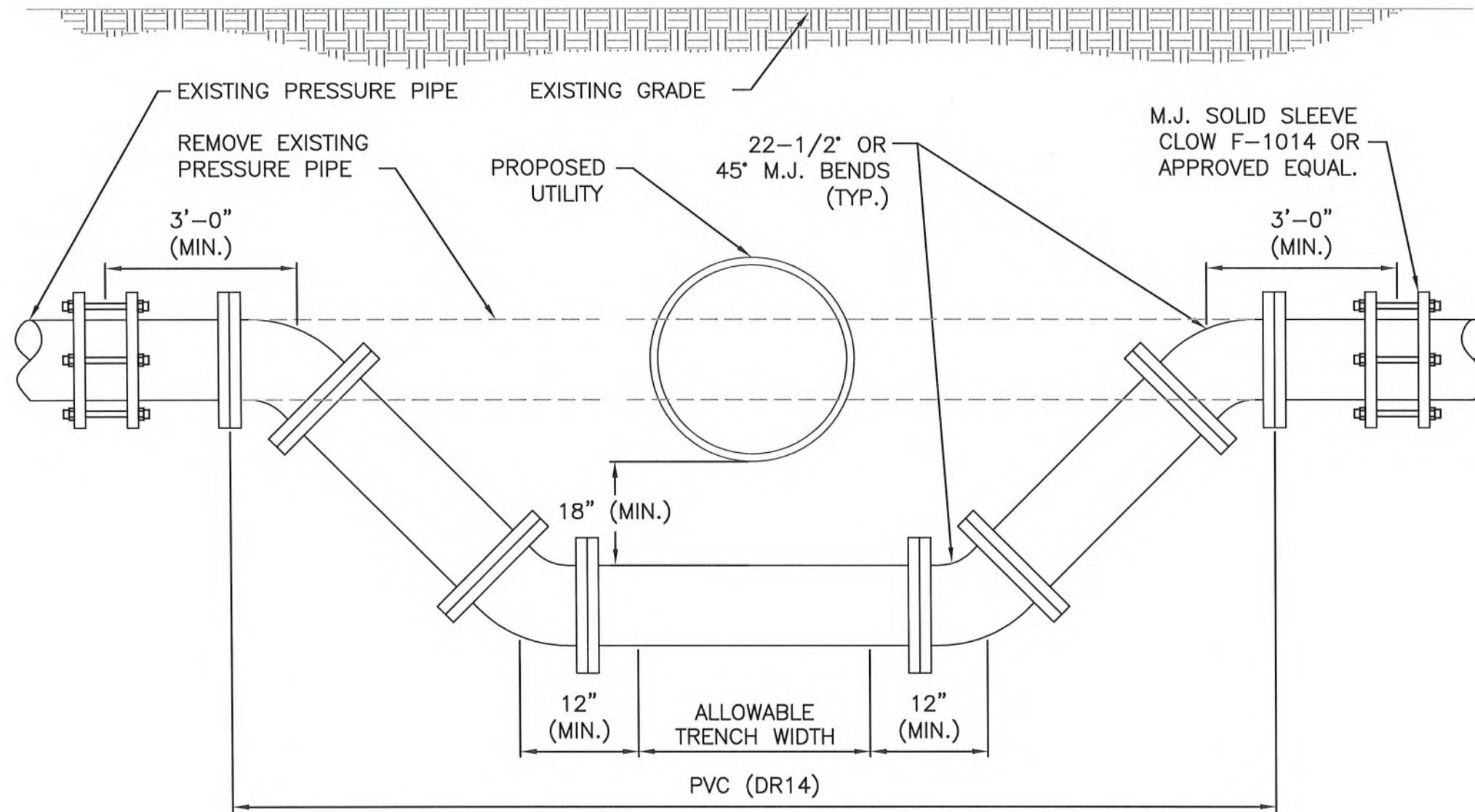
11"x17"

SHEET NAME:

CON. VALVE
SUPPORT

SHEET NUMBER:

32
40



NOTES:

1. TIME AND DURATION OF SHUTDOWN SHALL BE DETERMINED OR APPROVED BY THE COUNTY.
2. THE CONTRACTOR SHALL NOTIFY ANY CUSTOMERS AFFECTED BY THE PROPOSED WORK AT LEAST 48 HOURS IN ADVANCE OF SHUTDOWN.
3. ALL SLEEVES AND BENDS SHALL BE SECURED BY RESTRAINING GLANDS OR OTHER METHODS AS APPROVED BY THE ENGINEER TO RESTORE MAIN SERVICE AS SOON AS POSSIBLE.
4. THE RELOCATED LINES SHALL BE LAID TO THE NEW LINE AND GRADE, TESTED AND DISINFECTED AS REQUIRED PRIOR TO THE SHUTDOWN OF EXISTING MAIN AND CONNECTION OF THE RELOCATED LINES TO THE EXISTING MAIN.
5. ALL MATERIAL SHOULD FOLLOW ODOTCMS 2019 EDITION UNLESS OTHERWISE NOTED.
6. REFER TO PAGE 30 FOR BACKING SPECIFICATIONS FOR PIPE BENDS.

TYPICAL PRESSURE PIPE LOWERING

NOT TO SCALE

Muskingum County
Sewer Department
375 Richard Roads
Zanesville, Ohio 43701
Telephone (740) 452-4940
Fax (740) 453-6448



PREPARED BY:

MUSKINGUM COUNTY
SEWER STANDARDS

PROJECT NAME:

PLANS APPROVED BY:

MJE

PLANS PREPARED BY:

HJ

DATE:

06/22/2022

REVISED:

SHEET SIZE:

11"x17"

SHEET NAME:

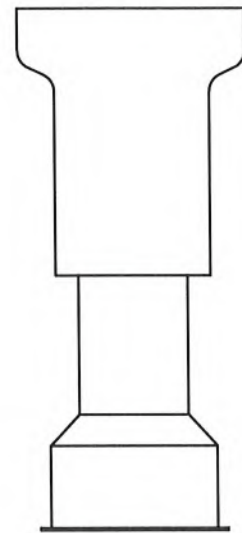
TYP. PRESS.
PIPE LOWERING

SHEET NUMBER:

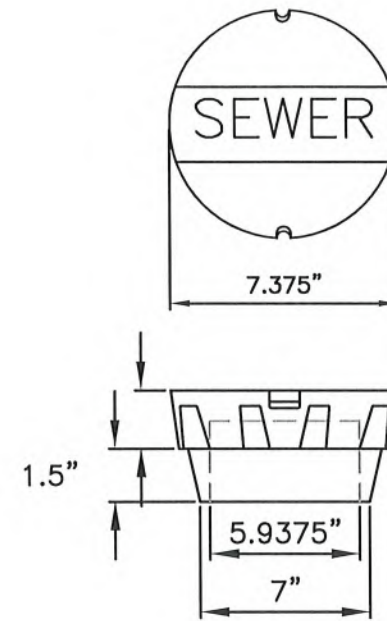
33

40

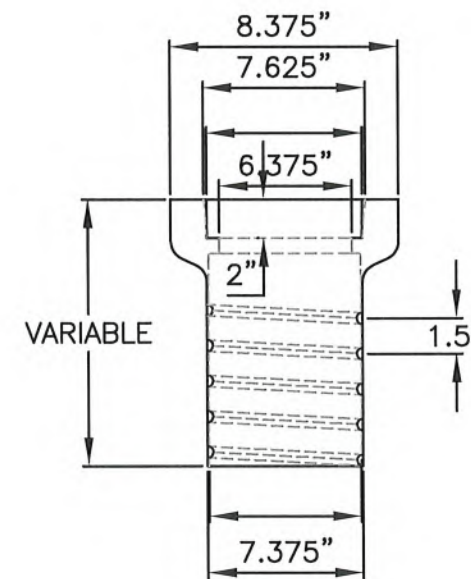
MUSKINGUM COUNTY, OHIO



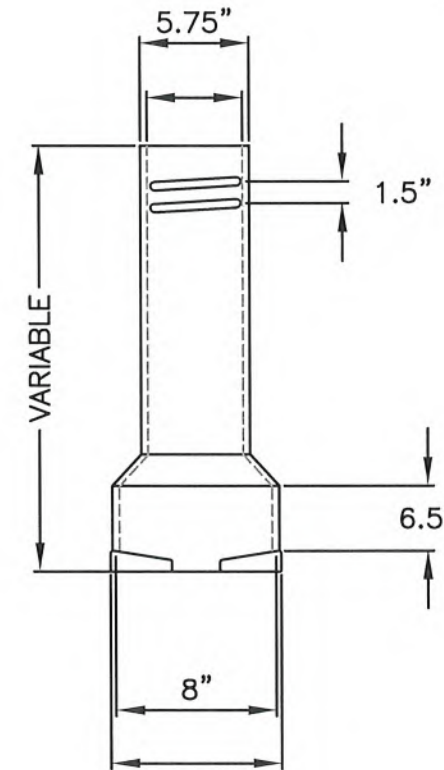
BOX COMPLETE



LID



TOP



BOTTOM

NOTES:

1. VALVE BOX TO BE STAR ITEM NO 1B664A, BINGHAM & TAYLOR NO. 8000 CIP 22 OR COUNTY APPROVED
2. ALL MATERIAL SHOULD FOLLOW ODOTCMS 2019 EDITION UNLESS OTHERWISE NOTED.

STANDARD VALVE BOX
NOT TO SCALE

Muskingum County
Sewer Department
375 Richard Roads
Zanesville, Ohio 43701
Telephone (740) 452-4940
Fax (740) 453-6448



PREPARED BY:

MUSKINGUM COUNTY
SEWER STANDARDS

PROJECT NAME:
PROJECT LOCATION:

MUSKINGUM COUNTY, OHIO

PLANS APPROVED BY:

MJE

PLANS PREPARED BY:

HJ

DATE:

06/22/2022

REVISED:

SHEET SIZE:

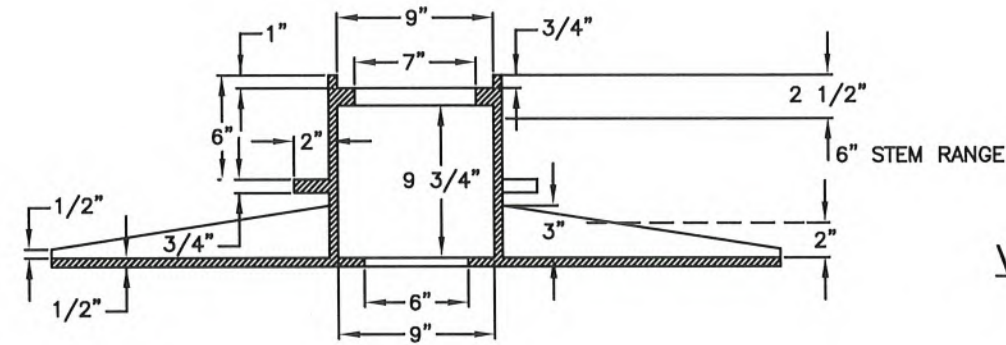
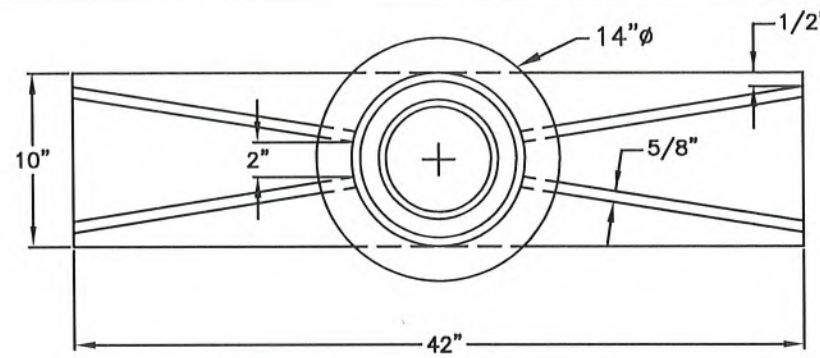
11"x17"

SHEET NAME:

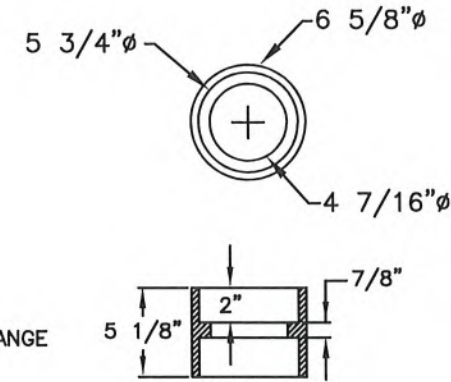
STANDARD
VLAVE BOX

SHEET NUMBER:

34
40

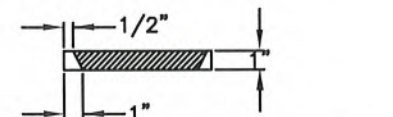
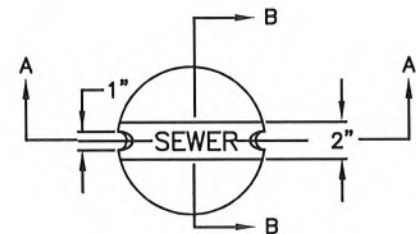


VALVE BOX
133 LBS.

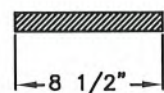


VALVE STEM SLEEVE
14 LBS.

NOTE:
AVERAGE WEIGHTS ARE TO THE NEAREST
EVEN POUND CALCULATED USING
0.26 LBS. PER CUBIC INCH.

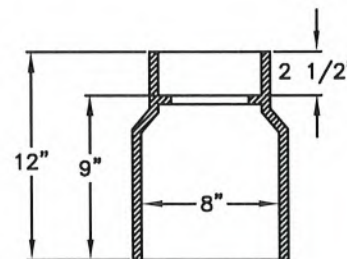
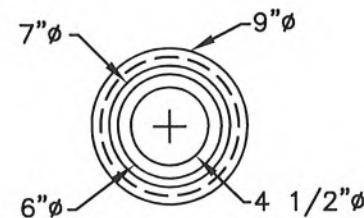


SECTION AA

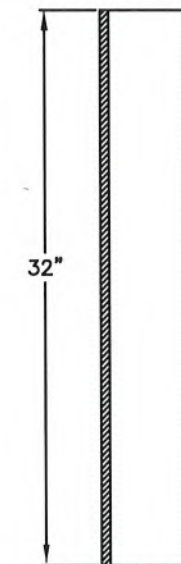
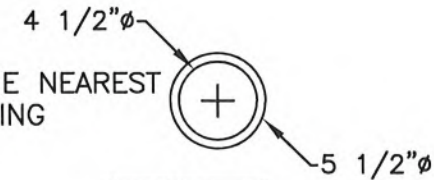


SECTION BB

VALVE BOX LID
15 LBS.



VALVE BOX BASE
41 LBS.



VALVE STEM
65 LBS.

NOTE:
ALL MATERIAL SHOULD FOLLOW ODOTCMS 2019
EDITION UNLESS OTHERWISE NOTED.

HEAVY DUTY VALVE BOX (TRAFFIC TYPE)
NOT TO SCALE

Muskingum County
Sewer Department
375 Richard Roads
Zanesville, Ohio 43701
Telephone (740) 452-4940
Fax (740) 453-6448



PREPARED BY:

MUSKINGUM COUNTY
SEWER STANDARDS

PROJECT NAME:
PROJECT LOCATION:

MUSKINGUM COUNTY, OHIO

PLANS APPROVED BY:

MJE

PLANS PREPARED BY:

HJ

DATE:

06/22/2022

REVISED:

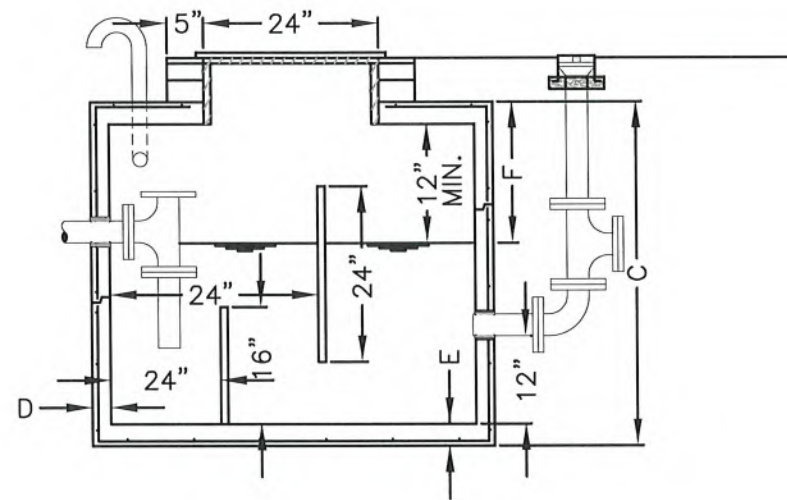
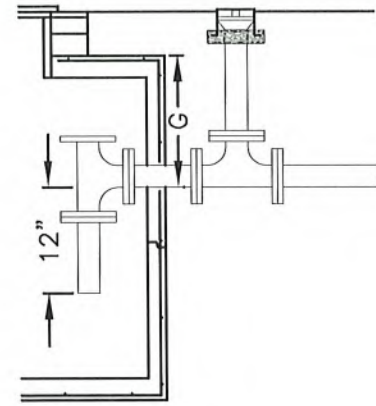
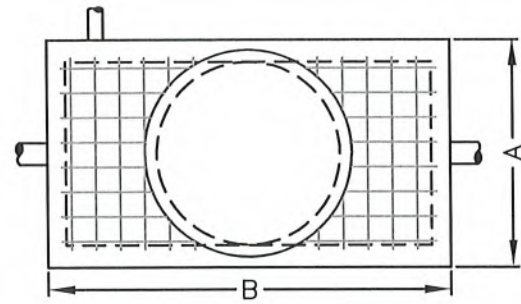
SHEET SIZE:

11"x17"

SHEET NAME:
HEAVY DUTY
VALVE BOX

SHEET NUMBER:

35
40



MODEL	G 2	G 5	G 10	G 15	G 20	G 35
CAPACITY (gal)	208	500	1000	1500	2000	3500
A	31"	40"	49"	66"	66"	82"
B	55"	78"	96"	126"	126"	154"
C	47"	64"	68"	62"	88"	95"
D	2 1/2"	2 1/2"	2 1/2"	3"	3"	5"
E	3"	3"	3"	4"	4"	4"
F	14"	12"	13"	14"	14"	16"
G	14"	12"	13"	14"	14"	16"
MINIMUM EXCAVATION	4' x 6'	4' x 8'	5' x 9'	7' x 12'	7' x 12'	8' x 14'

NOTE:

1. OPTIONAL FRAME & COVER, HEAVY DUTY O-RING NEENAH R6461EH. ALLOW 3/4" ABOVE RISER TO TOP OF FRAME & COVER.
2. RISER RINGS TO BE ORDERED IN 2,3,& 6 INCH DEPTHS. CRETEX CHIMNEY SEALS REQUIRED WITH RISER RINGS.
3. OUTLET AND/OR INLET TEES TO BE INSTALLED. PIPE SIZE AS REQUIRED BY FIXTURE LOAD.
4. CONSEAL CS-202 REQUIRED AT ALL JOINTS.
5. ALL MATERIAL SHOULD FOLLOW ODOTCMS 2019 EDITION UNLESS OTHERWISE NOTED.

GREASE TRAP
NOT TO SCALE

Muskingum County
Sewer Department
375 Richard Roads
Zanesville, Ohio 43701
Telephone (740) 452-4940
Fax (740) 453-6448



PREPARED BY:

MUSKINGUM COUNTY
SEWER STANDARDS

PROJECT NAME:
PROJECT LOCATION:

MUSKINGUM COUNTY, OHIO

PLANS APPROVED BY:

MJE

PLANS PREPARED BY:

HJ

DATE:

06/22/2022

REVISED:

SHEET SIZE:

11"x17"

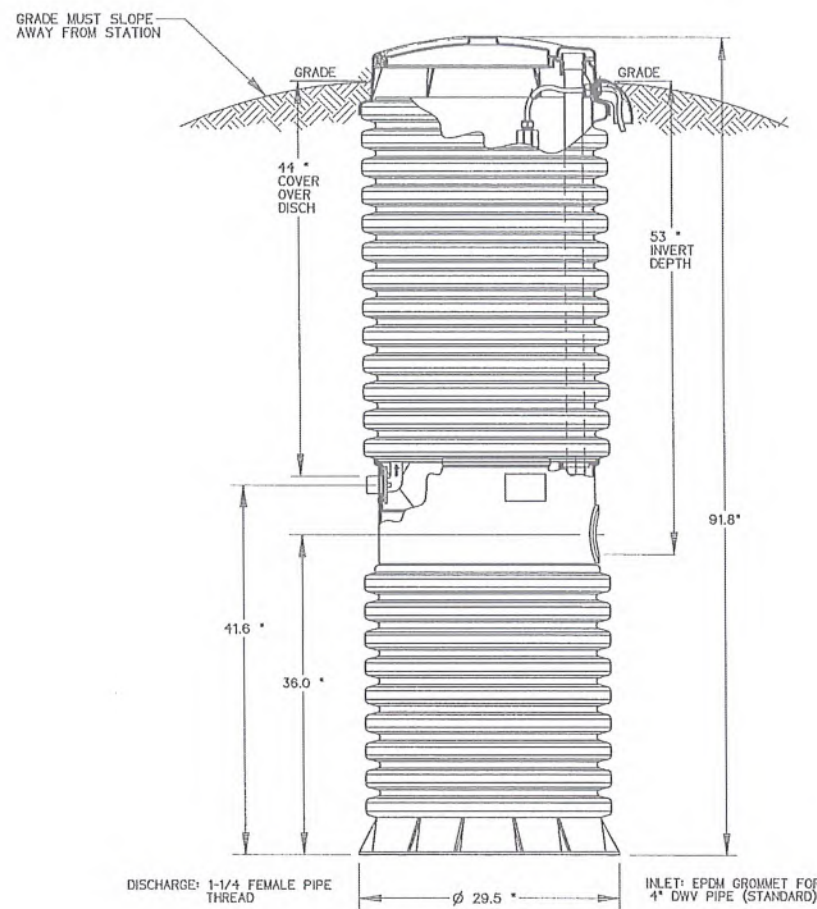
SHEET NAME:

GREASE TRAP

SHEET NUMBER:

36
40

OPTIONS : DH071-93 (HARD WIRED LEVEL CONTROLS)
 DR071-93 (WIRELESS LEVEL CONTROLS)



CONCRETE BALLAST MAY BE REQUIRED
 SEE INSTALLATION INSTRUCTIONS
 FOR DETAILS

NOTE: DIMENSIONS ARE FOR REF ONLY



AD	CAH	07/12/07	B	1/16
DR BY	CHK'D	DATE	ISSUE	SCALE



MODEL DH071-93 / DR071-93

NA0050P06

GRINDER PUMP
 NOT TO SCALE

Muskingum County
 Sewer Department
 375 Richard Roads
 Zanesville, Ohio 43701
 Telephone (740) 452-4940
 Fax (740) 453-6448



PREPARED BY:

PROJECT NAME: MUSKINGUM COUNTY SEWER STANDARDS
 PROJECT LOCATION: MUSKINGUM COUNTY, OHIO

PLANS APPROVED BY:
 MJE

PLANS PREPARED BY:
 HJ

DATE:
 06/22/2022

REVISED:

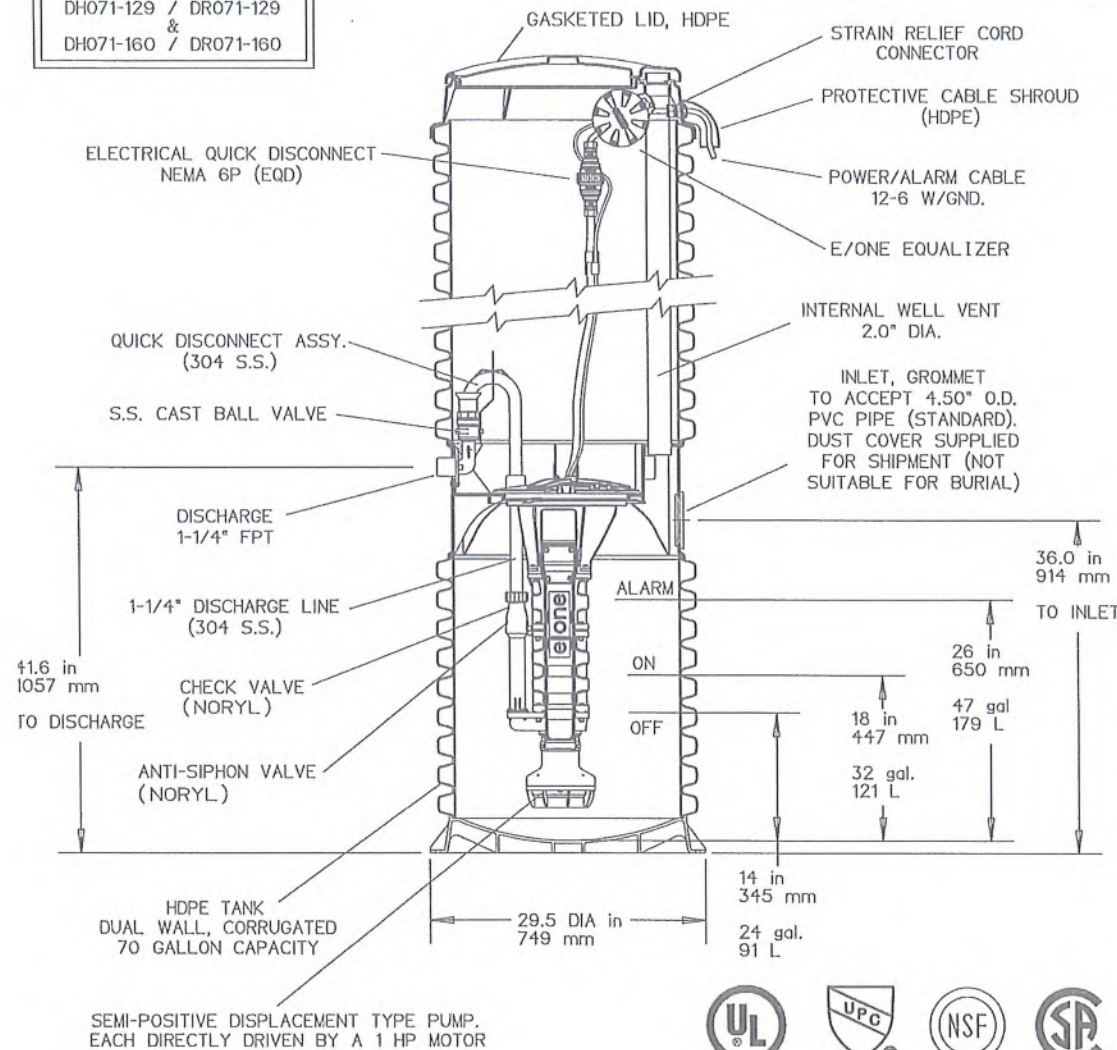
SHEET SIZE:
 11"x17"

SHEET NAME:
 GRINDER PUMP

SHEET NUMBER:
 37 / 40

FIELD JOINT REQUIRED
FOR MODELS
DH071-129 / DR071-129
&
DH071-160 / DR071-160

OPTIONS : **DH071** (HARD WIRED LEVEL CONTROLS)
 DR071 (WIRELESS LEVEL CONTROLS)



AD	CH	10/20/10	E	
DR BY	CHK'D	DATE	ISSUE	SCALE



MODEL DH071 / DR071
DETAIL SHEET

NA0050P02

CONCRETE BALLAST MAY BE REQUIRED
SEE INSTALLATION INSTRUCTION
FOR DETAILS

NOTE: DIMENSIONS ARE FOR REF ONLY

Muskingum County
Sewer Department
375 Richard Roads
Zanesville, Ohio 43701
Telephone (740) 452-4940
Fax (740) 453-6448



PREPARED BY:

MUSKINGUM COUNTY
SEWER STANDARDS

PROJECT NAME:
PROJECT LOCATION:

MUSKINGUM COUNTY, OHIO

PLANS APPROVED BY:

MJE

PLANS PREPARED BY:

HJ

DATE:

06/22/2022

REVISED:

SHEET SIZE:

11"x17"

SHEET NAME:

GRINDER
PUMP SPECS

SHEET NUMBER:

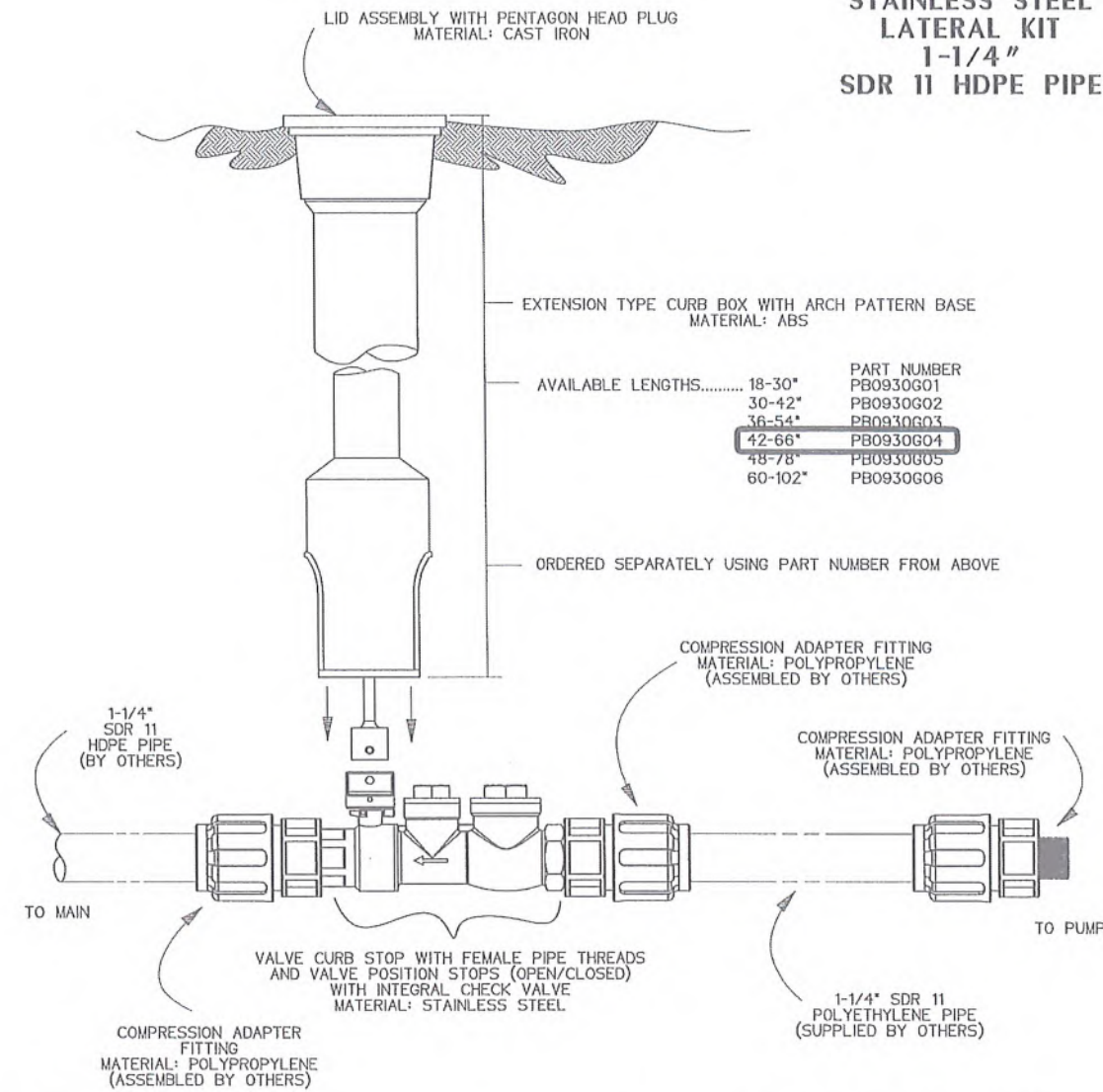
38

40

GRINDER PUMP SPECIFICATIONS

NOT TO SCALE

**STAINLESS STEEL
LATERAL KIT
1-1/4"
SDR 11 HDPE PIPE**



NOTES:

1. SS CURB STOP/CHECK VALVE AND FITTINGS ARE PROVIDED SEPARATELY, TO BE ASSEMBLED BY OTHERS
2. TO ASSEMBLE, APPLY A DOUBLE LAYER OF TEFLON TAPE, AND A LAYER OF PIPE DOPE (SUPPLIED BY OTHERS) TO THE THREADS ON THE PLASTIC FITTINGS AND INSTALL PER THE MANUFACTURER'S INSTRUCTIONS
*FOR SS FITTING INTO SS THREAD, USE PIPE DOPE OR TEFLON TAPE, NOT BOTH
3. ASSEMBLY IS TO BE PRESSURE TESTED (BY OTHERS)
4. ASSEMBLY IS TO BE USED WITH SDR11 HDPE PIPE
5. TO ORDER SS LATERAL KIT, USE PART NUMBER NC0193G01
6. CURB BOX IS TO BE ORDERED SEPARATELY, SEE ABOVE

KIT PARTS ARE NOT ASSEMBLED

SGS	DN	11/02/11	B	3/16
DR BY	CHK'D	DATE	ISSUE	SCALE



STAINLESS STEEL LATERAL KIT
1-1/4" SDR 11 HDPE PIPE

NA0330P02

LATERAL KIT HDPE PIPE
NOT TO SCALE

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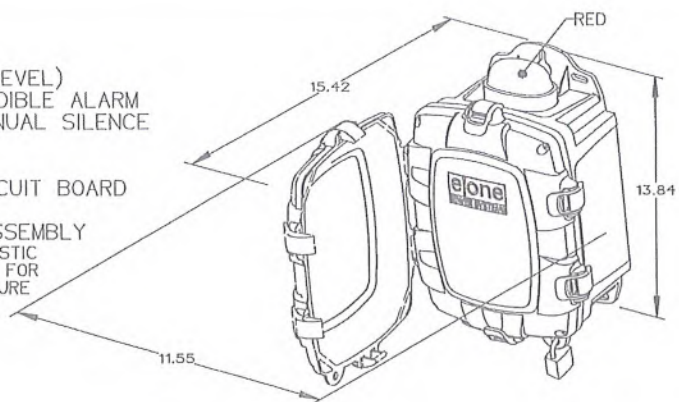
LATERAL KIT

SHEET NUMBER:

39
40

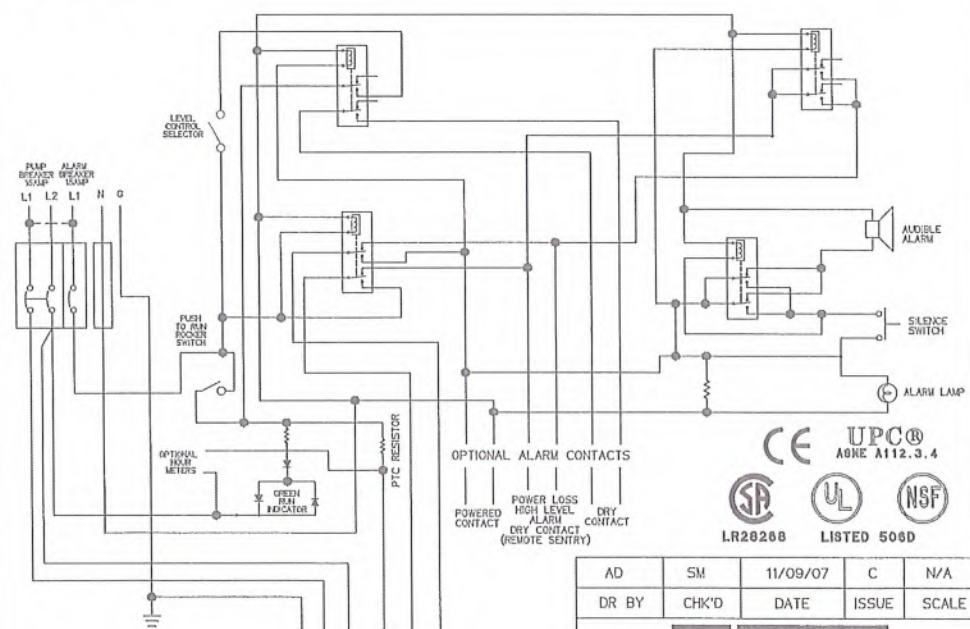
**SIMPLEX
SENTRY**

REDUNDANT RUN (HIGH LEVEL)
EXTERNAL VISUAL & AUDIBLE ALARM
EXTERNAL LATCHING MANUAL SILENCE
MANUAL RUN
PUMP RUN INDICATOR
CONFORMAL COATED CIRCUIT BOARD
PADLOCK
NEMA 4X ENCLOSURE ASSEMBLY
CORROSION PROOF THERMOPLASTIC
POLYESTER APPROVED BY UL FOR
ELECTRICAL CONTROL ENCLOSURE



OPTIONS:

- ALARM CONTACTS
- HOUR METER



PIN	FUNCTION	2000S	EXTREME
1	MANUAL RUN	RED	BROWN
2	L1	BLACK	RED
3	L2	WHITE	BLACK
4	GND	GREEN	GRN/YEL
5	ALARM FEED	ORANGE	YELLOW
6	ALARM RETURN	BLUE	BLUE

CONTROL CABLE:
TYPE TC: DIRECT BURIAL, 12AWG,
SIX CONDUCTOR

AD	SM	11/09/07	C	N/A
DR BY	CHK'D	DATE	ISSUE	SCALE



SIMPLEX SENTRY, 240V 60Hz.
DOUBLE POLE POWER

LM000326

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SHEET SIZE:

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SHEET NAME:

ALARM BOX

SHEET NUMBER:

40
40

ALARM BOX FOR GRINDER PUMP

NOT TO SCALE