CITY OF TUSCALOOSA

OFFICE OF THE CITY ENGINEER

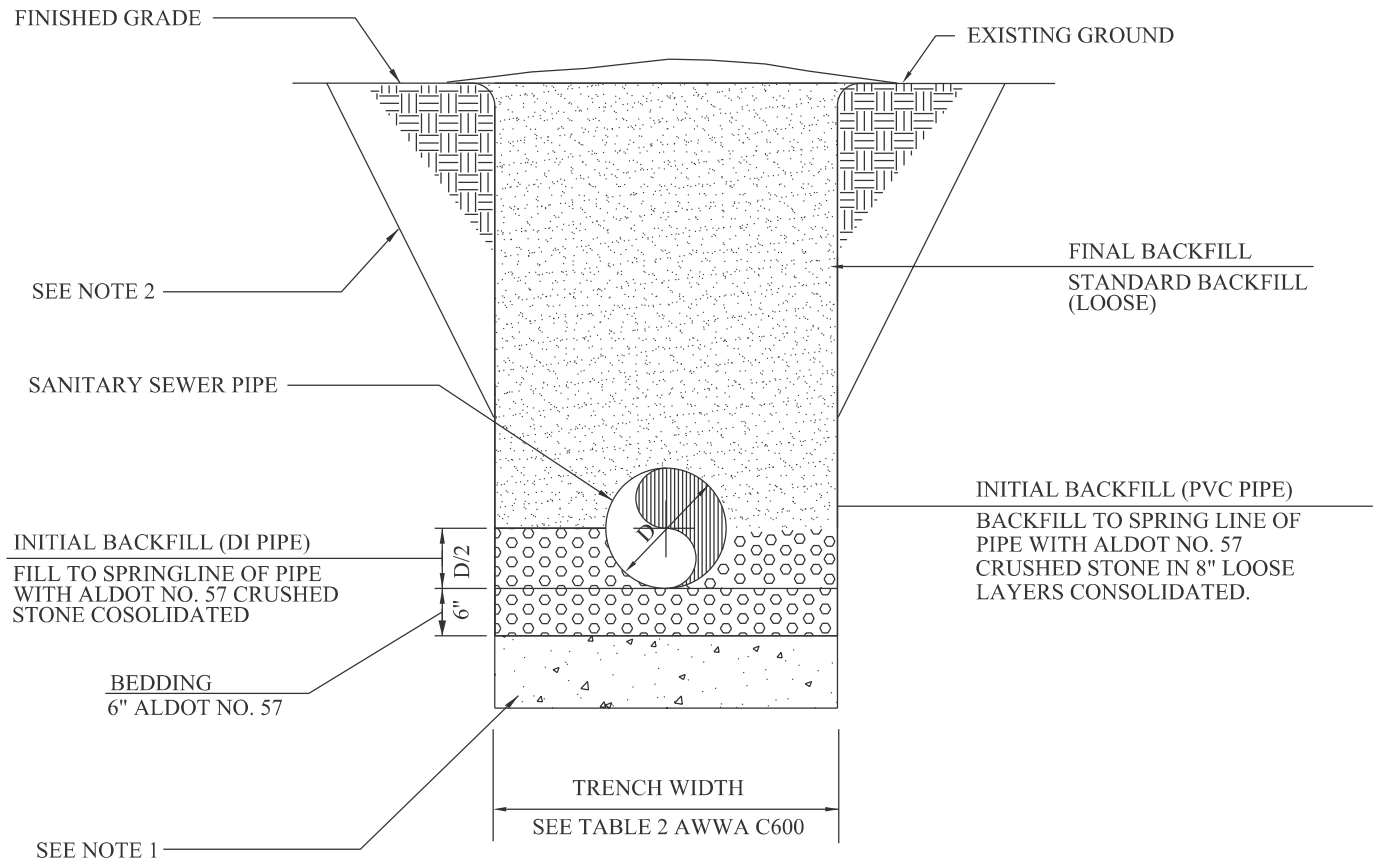
SANITARY SEWER STANDARD DETAILS

REVISION LOG

DATE	REVISION
12/20/2016	REVISION LOG CREATED
12/20/2016	REMOVAL OF SD-056 DOGHOUSE MANHOLE BASE FROM STANDARD DRAWINGS

E:\Standard_Forms_and_Documents\Sanitary Sewer Standard Details Revision Log.xlsx

IN UNIMPROVED AREAS TAMPING SHALL NOT BE
REQUIRED. EXCESS MATERIAL SHALL BE MOUNDED UP.



NOTES:

1.) TRENCH FOUNDATION REQUIRED IF DIRECTED BY ENGINEER. DEPTH VARIES.
2.) VERTICAL CUT TO EXTEND FROM TRENCH BOTTOM TO 1 FT ABOVE TOP OF PIPE.
SEE SPECIFICATIONS FOR SIDE SLOPE CONSTRUCTION OF ALL TRENCHES.
3.) STANDARD BACKFILL TO CONSIST OF NATIVE SOILS OF GOOD EARTH, SAND, AND GRAVEL,
AND SHALL BE FREE OF LARGE ROCKS AND OTHER DELETERIOUS SUBSTANCES.

AWWA C600 TABLE 2
TRENCH WIDTHS AT TOP OF PIPE

NOMINAL PIPE SIZE (INCHES)	TRENCH WIDTH (INCHES)
4	28
6	30
8	32
10	34
12	36
14	38
16	40
18	42

CITY OF TUSCALOOSA

TYPICAL TRENCH DETAIL
GRAVITY SEWERS - UNIMPROVED AREAS

WASTEWATER ENGINEERING STANDARD DETAILS

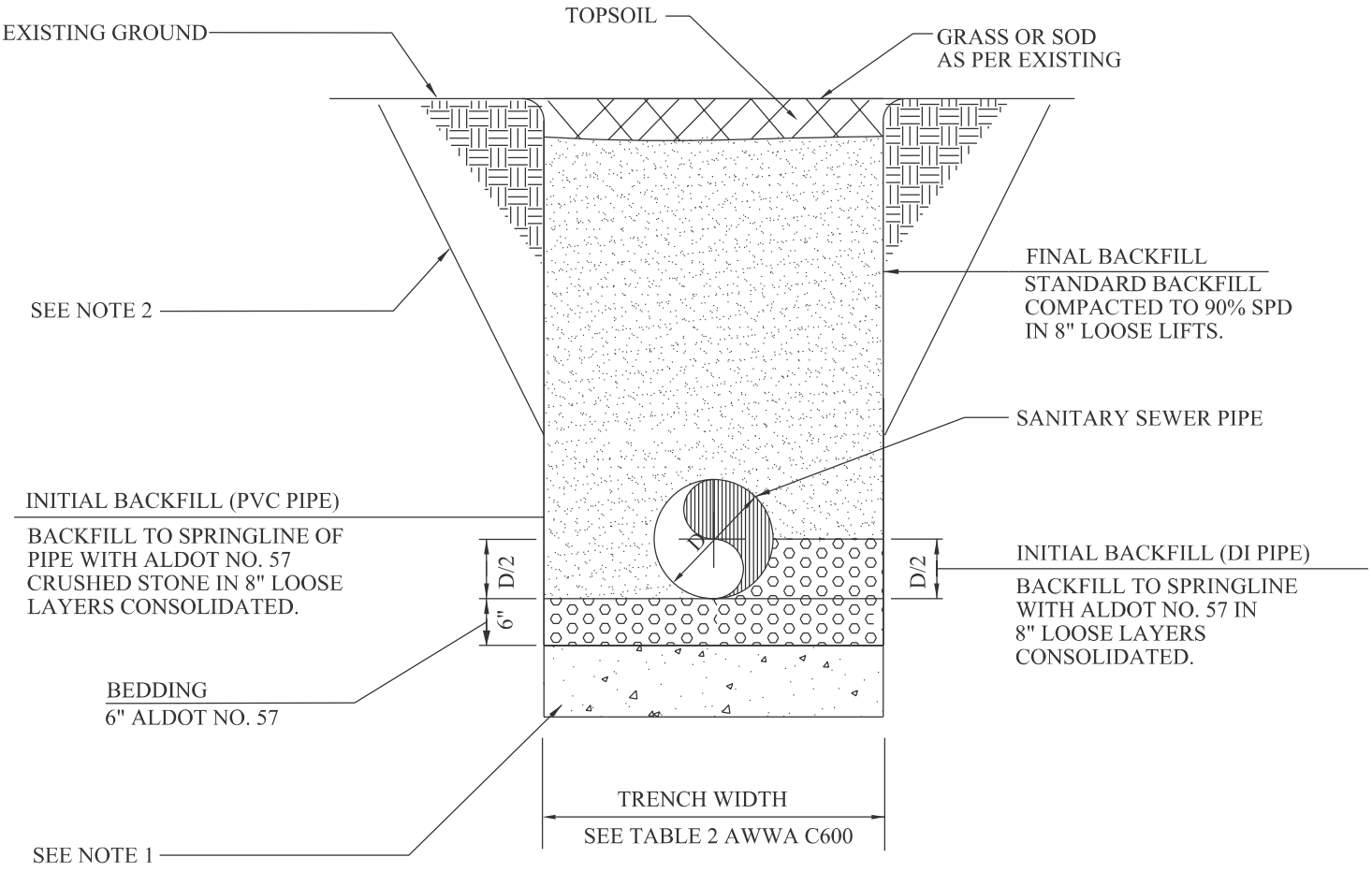
REVISION

DATE	DESCRIPTION	BY

FILE NAME:	
DRAWN BY:	FES
DATE:	2011.01.05
SCALE:	NOT TO SCALE

APPROVED BY:
Jarrod D. Milligan, PE
Wastewater Engineer
CITY OF TUSCALOOSA

PAGE NO.
SD-005



NOTES:

1.) TRENCH FOUNDATION REQUIRED IF DIRECTED BY ENGINEER. DEPTH VARIES.

2.) VERTICAL CUT TO EXTEND FROM TRENCH BOTTOM TO 1 FT ABOVE TOP OF PIPE. SEE SPECIFICATIONS FOR SIDE SLOPE CONSTRUCTION OF ALL TRENCHES.

3.) STANDARD BACKFILL TO CONSIST OF NATIVE SOILS OF GOOD EARTH, SAND, AND GRAVEL, AND SHALL BE FREE OF LARGE ROCKS AND OTHER DELETERIOUS SUBSTANCES.

4.) TOP 6" SHALL BE TOPSOIL FREE FROM ROCKS, ROOTS, ETC.

AWWA C600 TABLE 2
TRENCH WIDTHS AT TOP OF PIPE

NOMINAL PIPE SIZE (INCHES)	TRENCH WIDTH (INCHES)
4	28
6	30
8	32
10	34
12	36
14	38
16	40
18	42

CITY OF TUSCALOOSA

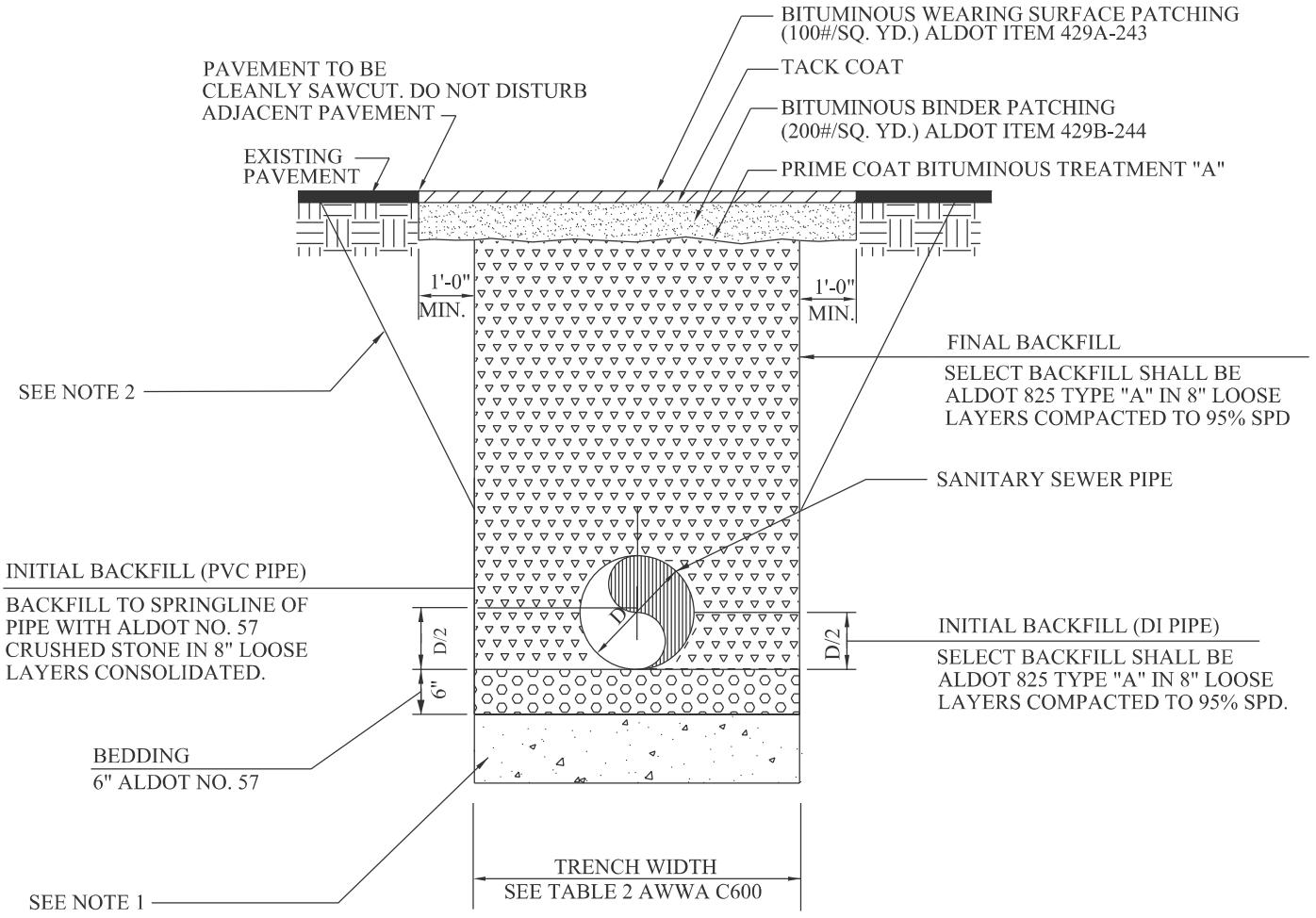
TYPICAL TRENCH DETAIL
GRAVITY SEWERS - IMPROVED AREAS

WASTEWATER ENGINEERING STANDARD DETAILS

REVISION

DATE	DESCRIPTION	BY

FILE NAME:		APPROVED BY:	PAGE NO.
DRAWN BY:	FES	Jarrod D. Milligan, PE	SD-010
DATE:	2011.01.05	Wastewater Engineer	
SCALE:	NOT TO SCALE	CITY OF TUSCALOOSA	



NOTES:

1.) TRENCH FOUNDATION REQUIRED IF DIRECTED BY ENGINEER. DEPTH VARIES.

2.) VERTICAL CUT TO EXTEND FROM TRENCH BOTTOM TO 1 FT ABOVE TOP OF PIPE. SEE SPECIFICATIONS FOR SIDE SLOPE CONSTRUCTION OF ALL TRENCHES.

3.) IF UTILITY RELOCATION FALLS WITHIN AN AREA THAT IS TO BE REMOVED DURING ROADWAY CONSTRUCTION, ELIMINATE THE WEARING SURFACE PATCHING AND MATCH THE BINDER PATCHING WITH EXISTING PAVEMENT.

AWWA C600 TABLE 2
TRENCH WIDTHS AT TOP OF PIPE

NOMINAL PIPE SIZE (INCHES)	TRENCH WIDTH (INCHES)
4	28
6	30
8	32
10	34
12	36
14	38
16	40
18	42

CITY OF TUSCALOOSA

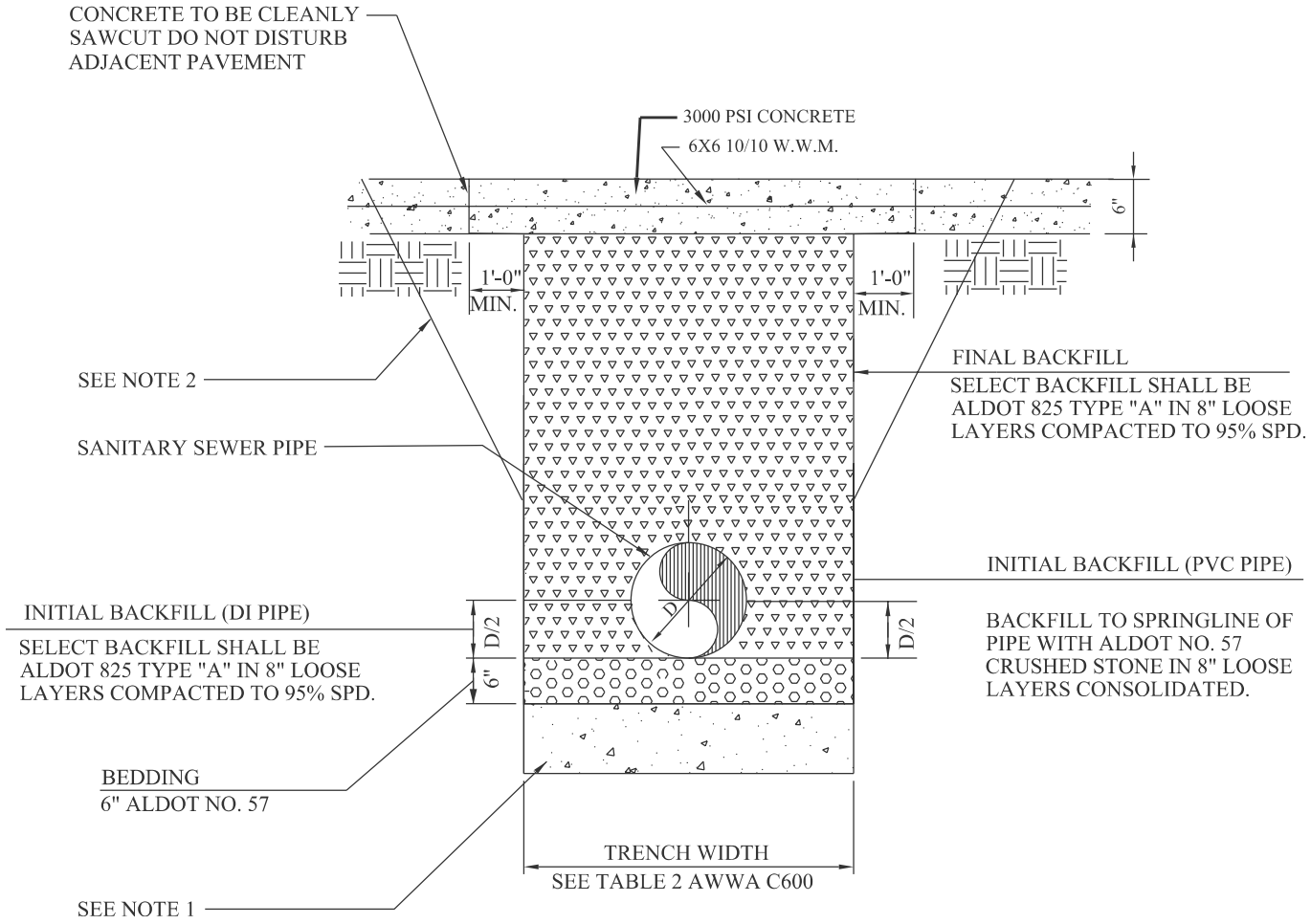
TYPICAL TRENCH DETAIL
GRAVITY SEWERS - ASPHALT PAVING

WASTEWATER ENGINEERING STANDARD DETAILS

REVISION

DATE	DESCRIPTION	BY

FILE NAME:		APPROVED BY:	PAGE NO.
DRAWN BY:	FES	Jarrod D. Milligan, PE	SD - 015
DATE:	2011.01.05	Wastewater Engineer	
SCALE:	NOT TO SCALE	CITY OF TUSCALOOSA	



NOTES:

1.) TRENCH FOUNDATION REQUIRED IF DIRECTED BY ENGINEER. DEPTH VARIES.

2.) VERTICAL CUT TO EXTEND FROM TRENCH BOTTOM TO 1 FT ABOVE TOP OF PIPE. SEE SPECIFICATIONS FOR SIDE SLOPE CONSTRUCTION OF ALL TRENCHES.

AWWA C600 TABLE 2
TRENCH WIDTHS AT TOP OF PIPE

NOMINAL PIPE SIZE (INCHES)	TRENCH WIDTH (INCHES)
4	28
6	30
8	32
10	34
12	36
14	38
16	40
18	42

CITY OF TUSCALOOSA

TYPICAL TRENCH DETAIL
GRAVITY SEWERS - CONCRETE PAVING

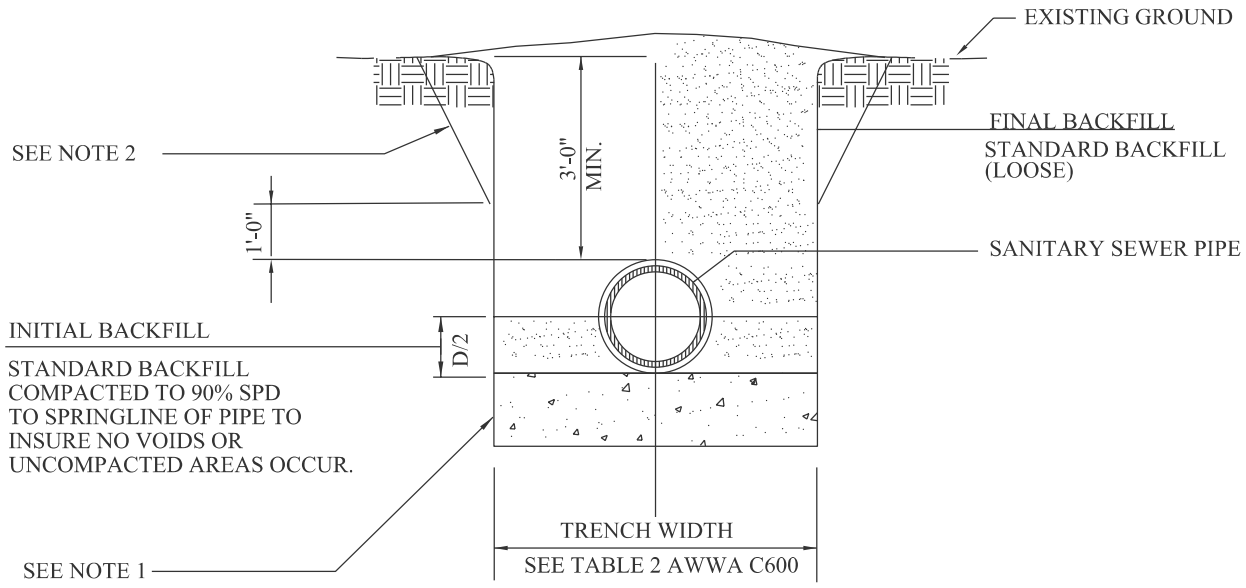
WASTEWATER ENGINEERING STANDARD DETAILS

REVISION

DATE	DESCRIPTION	BY

FILE NAME:		APPROVED BY:	PAGE NO.
DRAWN BY:	FES	Jarrod D. Milligan, PE	SD - 020
DATE:	2011.01.05	Wastewater Engineer	
SCALE:	NOT TO SCALE	CITY OF TUSCALOOSA	

IN UNIMPROVED AREAS TAMPING SHALL NOT BE
REQUIRED. EXCESS MATERIAL SHALL BE MOUNDED UP.



NOTES:

1.) PIPE TO BE BEDDED IN NATIVE SOIL, UNLESS SITE CONDITIONS REQUIRE OTHERWISE OR IF DIRECTED BY THE ENGINEER.
2.) VERTICAL CUT TO EXTEND FROM TRENCH BOTTOM TO 1 FT ABOVE TOP OF PIPE. SEE SPECIFICATIONS FOR SIDE SLOPE CONSTRUCTION OF ALL TRENCHES.
3.) FOR ALL PVC PIPE, INITIAL BACKFILL SHALL BE PLACED IN APPROPRIATE THICKNESSES AND COMPACTED IN THE FOLLOWING SEQUENCE
    1. SPRINGLINE OF PIPE
    2. ONE FOOT ABOVE TOP OF PIPE
4.) STANDARD BACKFILL TO CONSIST OF NATIVE SOILS OF GOOD EARTH, SAND, AND GRAVEL, AND SHALL BE FREE OF LARGE ROCKS AND OTHER DELETERIOUS SUBSTANCES.

AWWA C600 TABLE 2
TRENCH WIDTHS AT TOP OF PIPE

NOMINAL PIPE SIZE (INCHES)	TRENCH WIDTH (INCHES)
4	28
6	30
8	32
10	34
12	36
14	38
16	40
18	42

CITY OF TUSCALOOSA

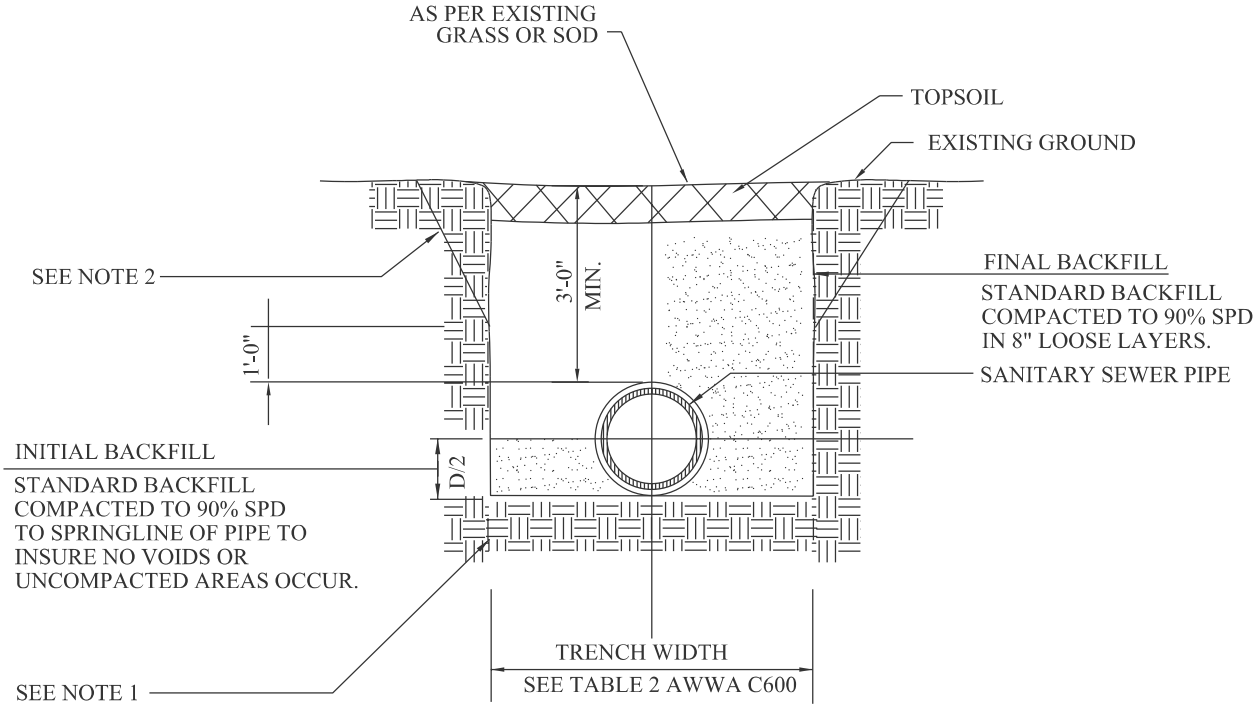
TYPICAL TRENCH DETAIL
PRESSURE PIPE - UNIMPROVED AREAS

WASTEWATER ENGINEERING STANDARD DETAILS

REVISION

DATE	DESCRIPTION	BY

FILE NAME:		APPROVED BY:	PAGE NO.
DRAWN BY:	FES	Jarrod D. Milligan, PE	SD - 025
DATE:	2011.01.05	Wastewater Engineer	
SCALE:	NOT TO SCALE	CITY OF TUSCALOOSA	



NOTES:

1.) PIPE TO BE BEDDED IN NATIVE SOIL, UNLESS SITE CONDITIONS REQUIRE OTHERWISE OR IF DIRECTED BY THE ENGINEER.
2.) VERTICAL CUT TO EXTEND FROM TRENCH BOTTOM TO 1 FT ABOVE TOP OF PIPE. SEE SPECIFICATIONS FOR SIDE SLOPE CONSTRUCTION OF ALL TRENCHES.
3.) FOR ALL PVC PIPE, INITIAL BACKFILL SHALL BE PLACED IN APPROPRIATE THICKNESSES AND COMPACTED IN THE FOLLOWING SEQUENCE
    1. SPRINGLINE OF PIPE
    2. ONE FOOT ABOVE TOP OF PIPE
4.) STANDARD BACKFILL TO CONSIST OF NATIVE SOILS OF GOOD EARTH, SAND, AND GRAVEL, AND SHALL BE FREE OF LARGE ROCKS AND OTHER DELETERIOUS SUBSTANCES.
5.) TOP 6" SHALL BE TOPSOIL FREE FROM ROCKS, ROOTS, ETC.

AWWA C600 TABLE 2
TRENCH WIDTHS AT TOP OF PIPE

NOMINAL PIPE SIZE (INCHES)	TRENCH WIDTH (INCHES)
4	28
6	30
8	32
10	34
12	36
14	38
16	40
18	42

CITY OF TUSCALOOSA

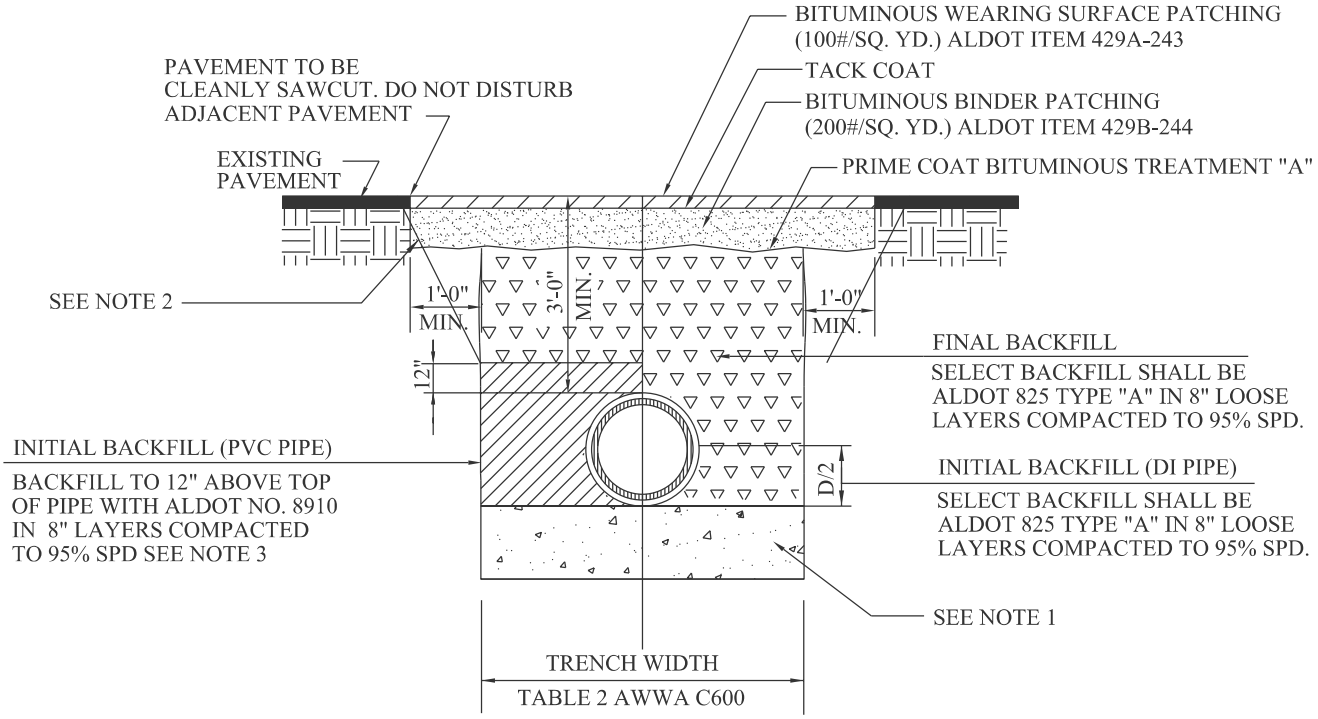
TYPICAL TRENCH DETAIL PRESSURE PIPE - IMPROVED AREAS

WASTEWATER ENGINEERING STANDARD DETAILS

REVISION

DATE	DESCRIPTION	BY

FILE NAME:		APPROVED BY: Jarrod D. Milligan, PE, Wastewater Engineer, CITY OF TUSCALOOSA	PAGE NO. SD - 030
DRAWN BY:	FES		
DATE:	2011.01.05		
SCALE:	NOT TO SCALE		



NOTES:

1.) PIPE TO BE BEDDED IN NATIVE SOIL, UNLESS SITE CONDITIONS REQUIRE OTHERWISE OR IF DIRECTED BY THE ENGINEER.
2.) VERTICAL CUT TO EXTEND FROM TRENCH BOTTOM TO 1 FT ABOVE TOP OF PIPE. SEE SPECIFICATIONS FOR SIDE SLOPE CONSTRUCTION OF ALL TRENCHES.
3.) FOR ALL PVC PIPE, INITIAL BACKFILL SHALL BE PLACED IN APPROPRIATE THICKNESSES AND COMPACTED IN THE FOLLOWING SEQUENCE
    1. SPRINGLINE OF PIPE
    2. ONE FOOT ABOVE TOP OF PIPE
4.) IF UTILITY LOCATION FALLS WITHIN AN AREA THAT IS TO BE REMOVED DURING ROADWAY CONSTRUCTION, ELIMINATE THE WEARING SURFACE ATCHING AND MATCH THE BINDER PATCHING WITH EXISTING PAVEMENT.

AWWA C600 TABLE 2
TRENCH WIDTHS AT TOP OF PIPE

NOMINAL PIPE SIZE (INCHES)	TRENCH WIDTH (INCHES)
4	28
6	30
8	32
10	34
12	36
14	38
16	40
18	42

CITY OF TUSCALOOSA

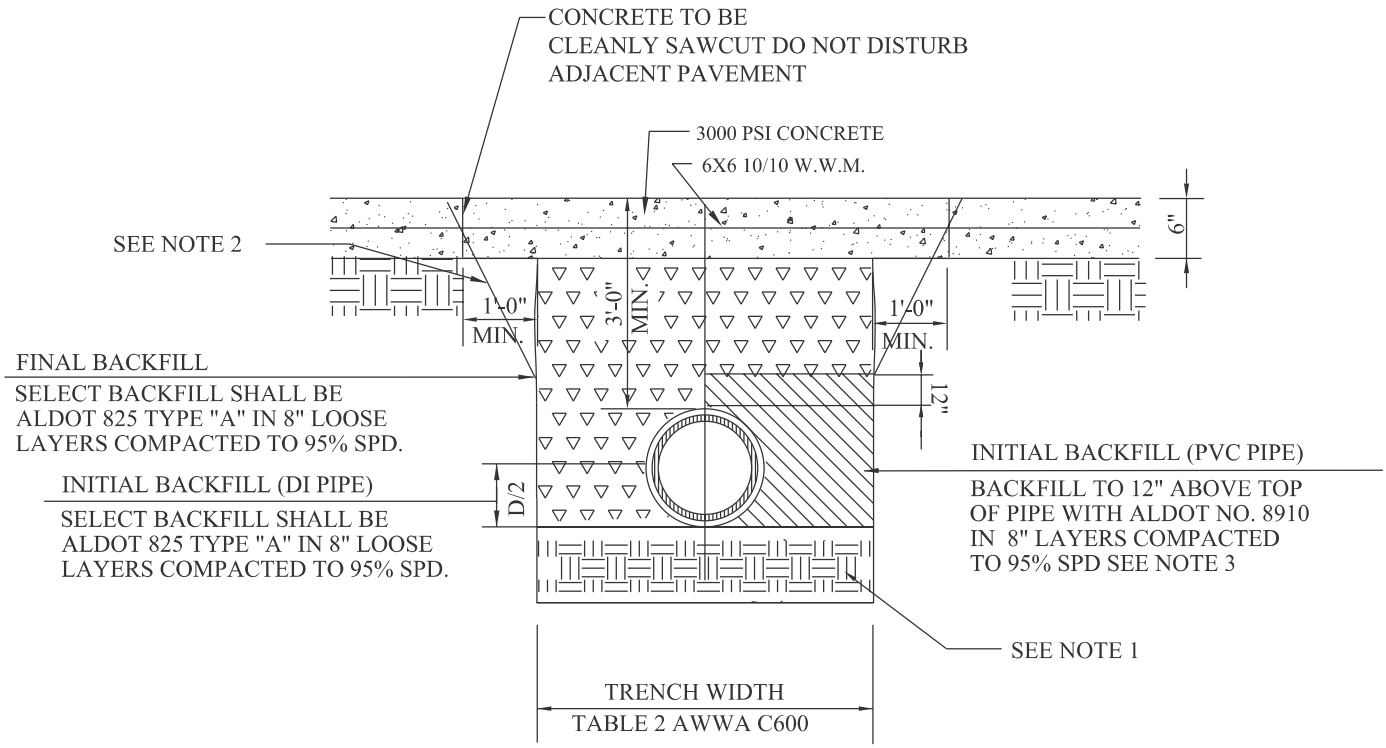
TYPICAL TRENCH DETAIL
PRESSURE PIPE - CUT PAVEMENT & DRIVE X-ING

WASTEWATER ENGINEERING STANDARD DETAILS

REVISION

DATE	DESCRIPTION	BY

FILE NAME:		APPROVED BY:	PAGE NO.
DRAWN BY:	FES	Jarrod D. Milligan, PE	SD - 035
DATE:	2011.01.05	Wastewater Engineer	
SCALE:	NOT TO SCALE	CITY OF TUSCALOOSA	



NOTES:

1.) PIPE TO BE BEDDED IN NATIVE SOIL, UNLESS SITE CONDITIONS REQUIRE OTHERWISE OR IF DIRECTED BY THE ENGINEER.

2.) VERTICAL CUT TO EXTEND FROM TRENCH BOTTOM TO 1 FT ABOVE TOP OF PIPE. SEE SPECIFICATIONS FOR SIDE SLOPE CONSTRUCTION OF ALL TRENCHES.

3.) FOR ALL PVC PIPE, INITIAL BACKFILL SHALL BE PLACED IN APPROPRIATE THICKNESSES AND COMPACTED IN THE FOLLOWING SEQUENCE
   1. SPRINGLINE OF PIPE
   2. ONE FOOT ABOVE TOP OF PIPE

AWWA C600 TABLE 2
TRENCH WIDTHS AT TOP OF PIPE

NOMINAL PIPE SIZE (INCHES)	TRENCH WIDTH (INCHES)
4	28
6	30
8	32
10	34
12	36
14	38
16	40
18	42

CITY OF TUSCALOOSA

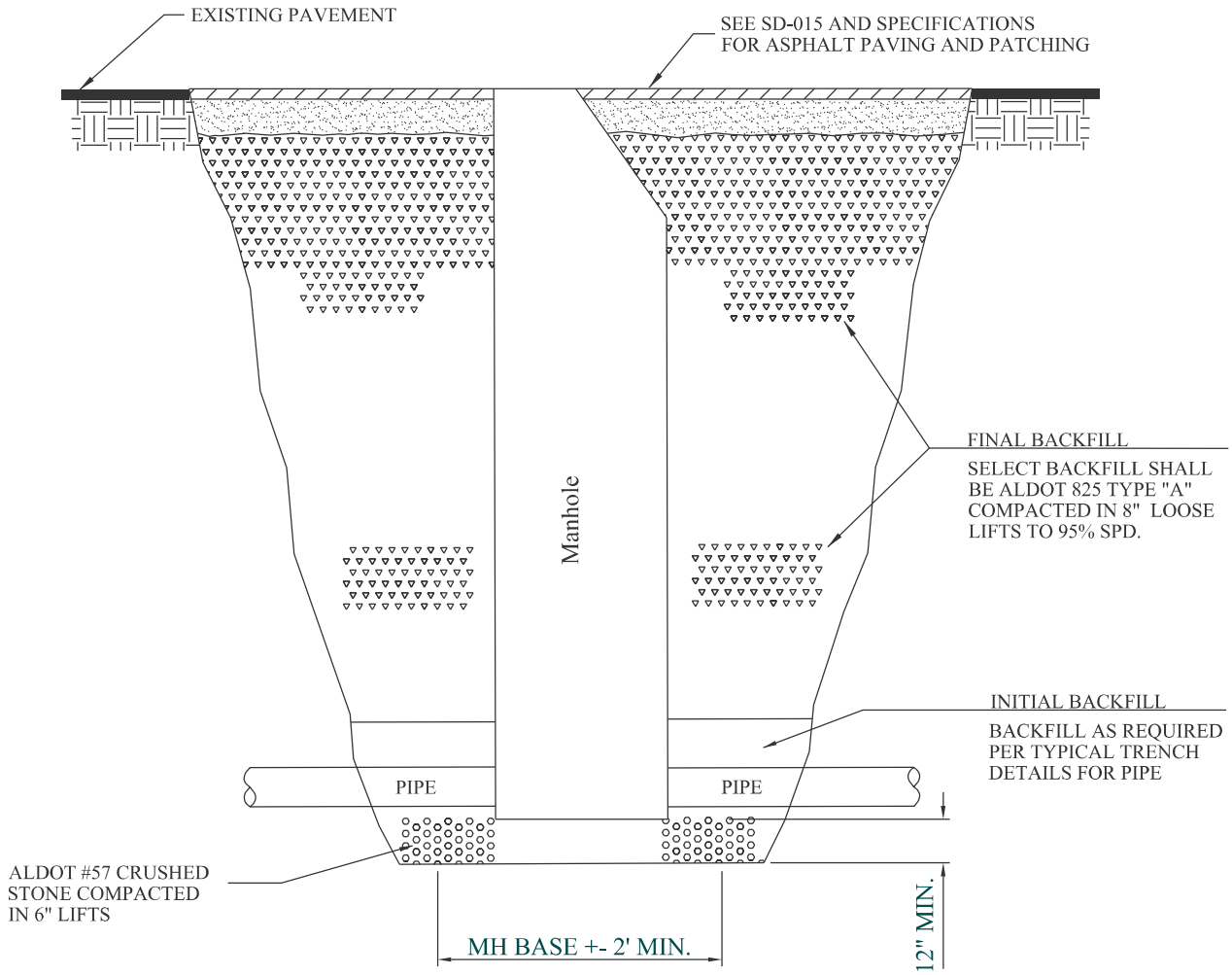
TYPICAL TRENCH DETAIL
PRESSURE PIPE - CONCRETE DRIVE REPLACEMENT

WASTEWATER ENGINEERING STANDARD DETAILS

REVISION

DATE	DESCRIPTION	BY

FILE NAME:		APPROVED BY: Jarrod D. Milligan, PE, Wastewater Engineer, CITY OF TUSCALOOSA	PAGE NO. SD - 040
DRAWN BY:	FES		
DATE:	2011.01.05		
SCALE:	NOT TO SCALE		



NOTES:

1) TRENCH FOUNDATION MATERIAL REQUIRED IF DIRECTED BY ENGINEER. MATERIAL TO BE ALDOT #57 STONE.

CITY OF TUSCALOOSA

BEDDING AND BACKFILL REQUIREMENTS AROUND MANHOLES IN TRAFFIC AREAS

WASTEWATER ENGINEERING STANDARD DETAILS

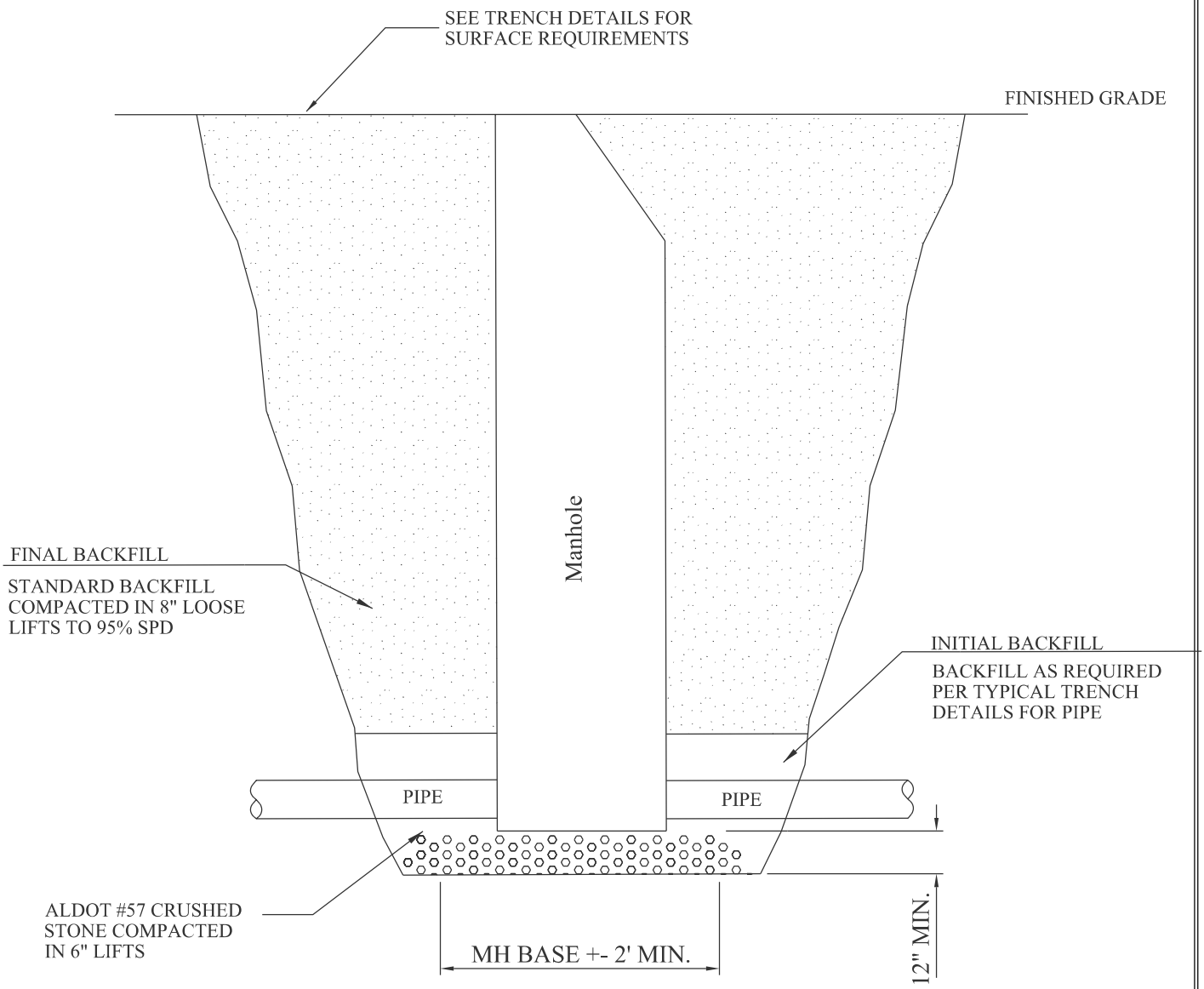
REVISION

DATE	DESCRIPTION	BY

FILE NAME:	
DRAWN BY:	FES
DATE:	2011.01.05
SCALE:	NOT TO SCALE

APPROVED BY:
Jarrod D. Milligan, PE
Wastewater Engineer
CITY OF TUSCALOOSA

PAGE NO.
SD-045



NOTES:

1) TRENCH FOUNDATION MATERIAL REQUIRED IF DIRECTED BY ENGINEER. MATERIAL TO BE ALDOT #57 STONE.
2) STANDARD BACKFILL SHALL BE NATIVE MATERIAL FREE OF LARGE ROCKS OR HARD MATERIAL.

OCE

CITY OF TUSCALOOSA

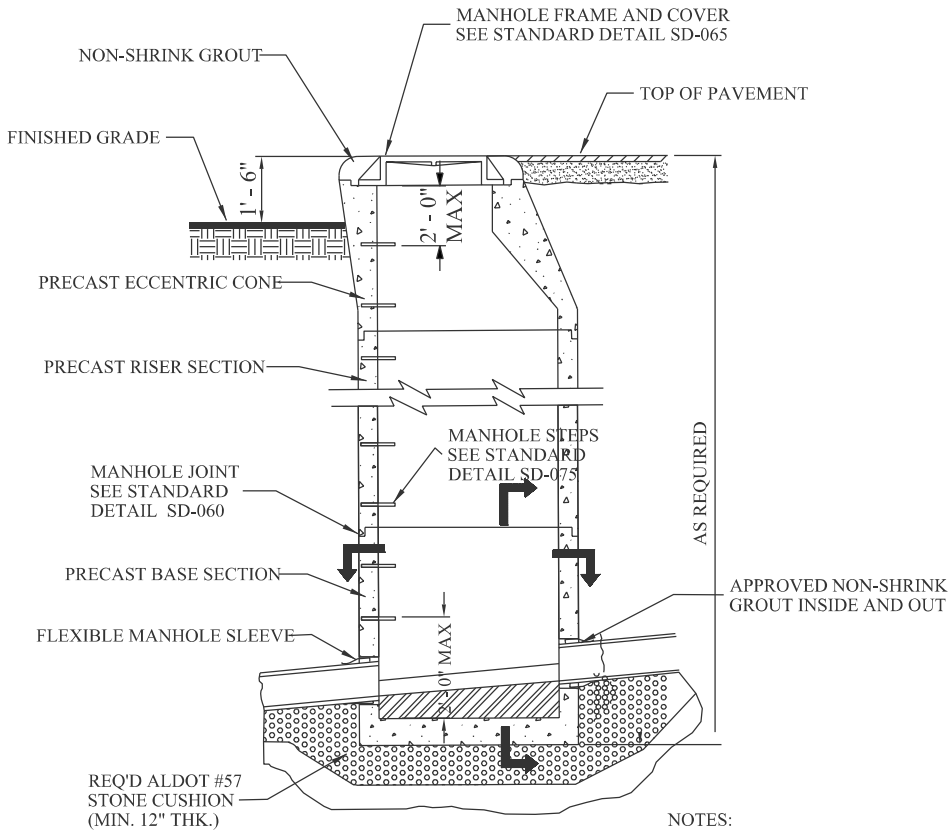
BEDDING AND BACKFILL REQUIREMENTS AROUND MANHOLES IN NON-TRAFFIC AREAS

WASTEWATER ENGINEERING STANDARD DETAILS

REVISION

DATE	DESCRIPTION	BY

FILE NAME:		APPROVED BY:	PAGE NO.
DRAWN BY:	FES	Jarrod D. Milligan, PE	SD-050
DATE:	2011.01.05	Wastewater Engineer	
SCALE:	NOT TO SCALE	CITY OF TUSCALOOSA	

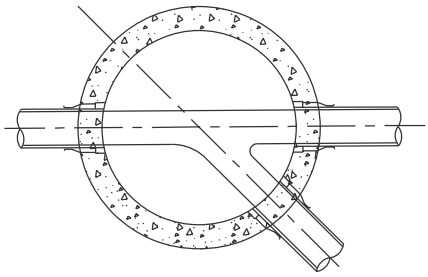


SECTION
N. T. S.

NOTES:

1) MANHOLES IN STREETS AND IMPROVED AREAS SHALL BE FINISHED FLUSH WITH FINISHED SURFACE. IN IMPROVED AREAS, 18" ABOVE FINISHED SURFACE OR AS DIRECTED BY ENGINEER.

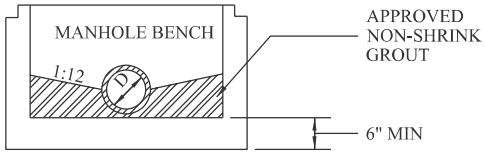
2) FOR MANHOLE BACKFILL REQUIREMENTS REFER TO STANDARD DETAILS SD-045 AND SD-050.



MANHOLE BASE PLAN
N. T. S.

NOTES:

1) PLACE STEPS ON LEAST OBSTRUCTED WALL.
2) MAX. DEFLECTION ANGLE OF SEWER ALIGNMENT = 90^
3) OPENINGS FOR PIPES TO BE FACTORY CAST OR CORED.



MANHOLE BASE SECTION
N. T. S.

NOTES:

1) BENCH REQUIRED FOR PIPE DIAMETER LESS THAN 48"
2) REFER TO STANDARD DETAIL SD-056 FOR DOGHOUSE MANHOLE BASE

CITY OF TUSCALOOSA

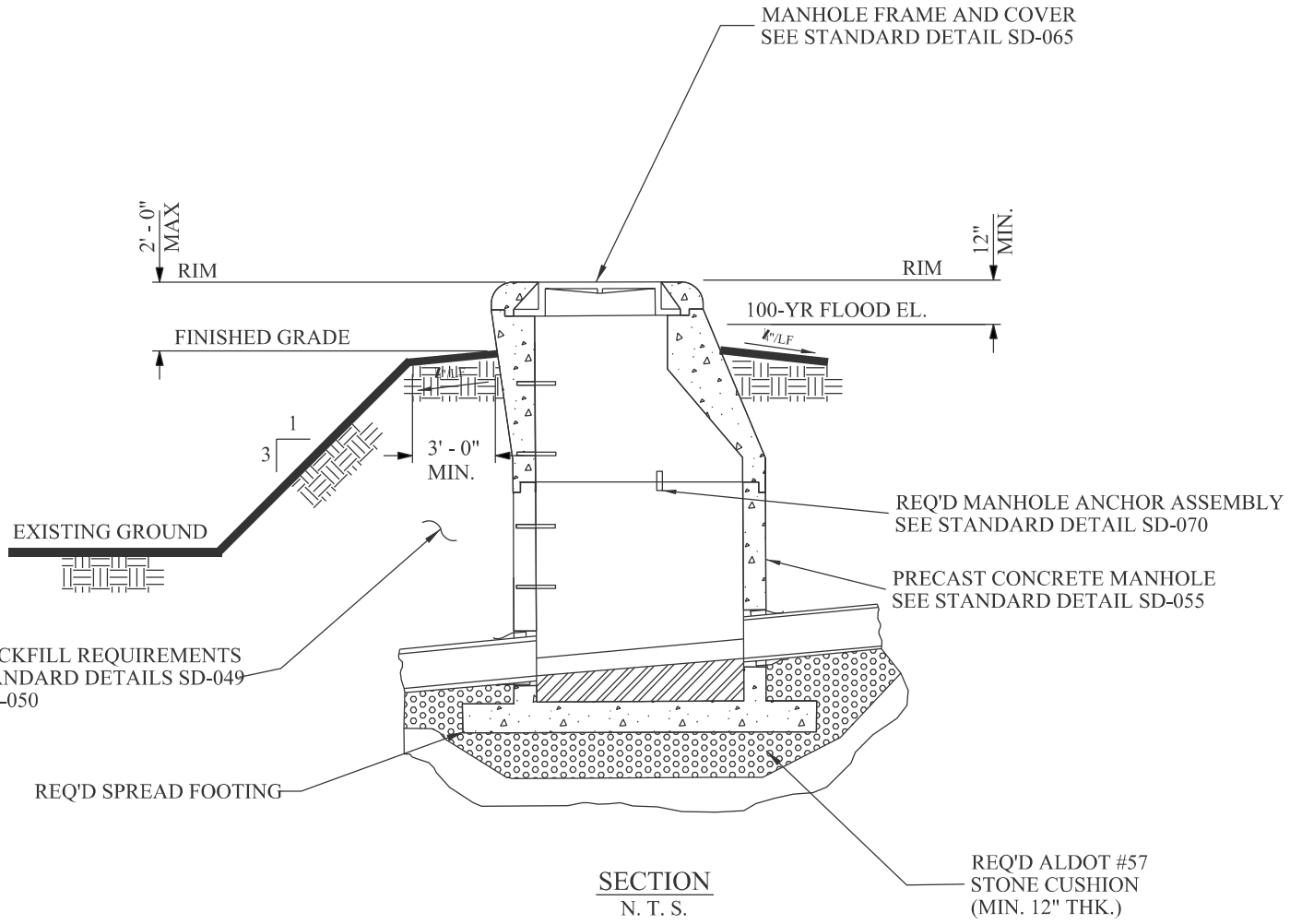
STD. PRECAST MANHOLE

WASTEWATER ENGINEERING STANDARD DETAILS

REVISION

DATE	DESCRIPTION	BY

FILE NAME:		APPROVED BY: Jarrod D. Milligan, PE Wastewater Engineer CITY OF TUSCALOOSA	PAGE NO. SD - 055
DRAWN BY:	FES		
DATE:	2011.01.05		
SCALE:	NOT TO SCALE		



SECTION
N. T. S.

NOTES:

1) FOR MANHOLE BACKFILL REQUIREMENTS REFER TO STANDARD DETAILS SD-045 AND SD-050.

2) WHERE REQUIRED BY OCE, AN ACCESS ROAD SHALL BE CONSTRUCTED TO ALLOW ACCESS TO ALL MANHOLES.

3) SPREAD FOOTING DESIGN SHALL BE PROJECT SPECIFIC AND SHALL BE SUBMITTED FOR APPROVAL BY OCE.

4) WHERE RAISED MANHOLES ARE NOT ALLOWED, MANHOLES SHALL BE EQUIPPED WITH WATERTIGHT FRAMES AND COVERS REFER TO STANDARD DETAIL SD-070.

OCE

CITY OF TUSCALOOSA

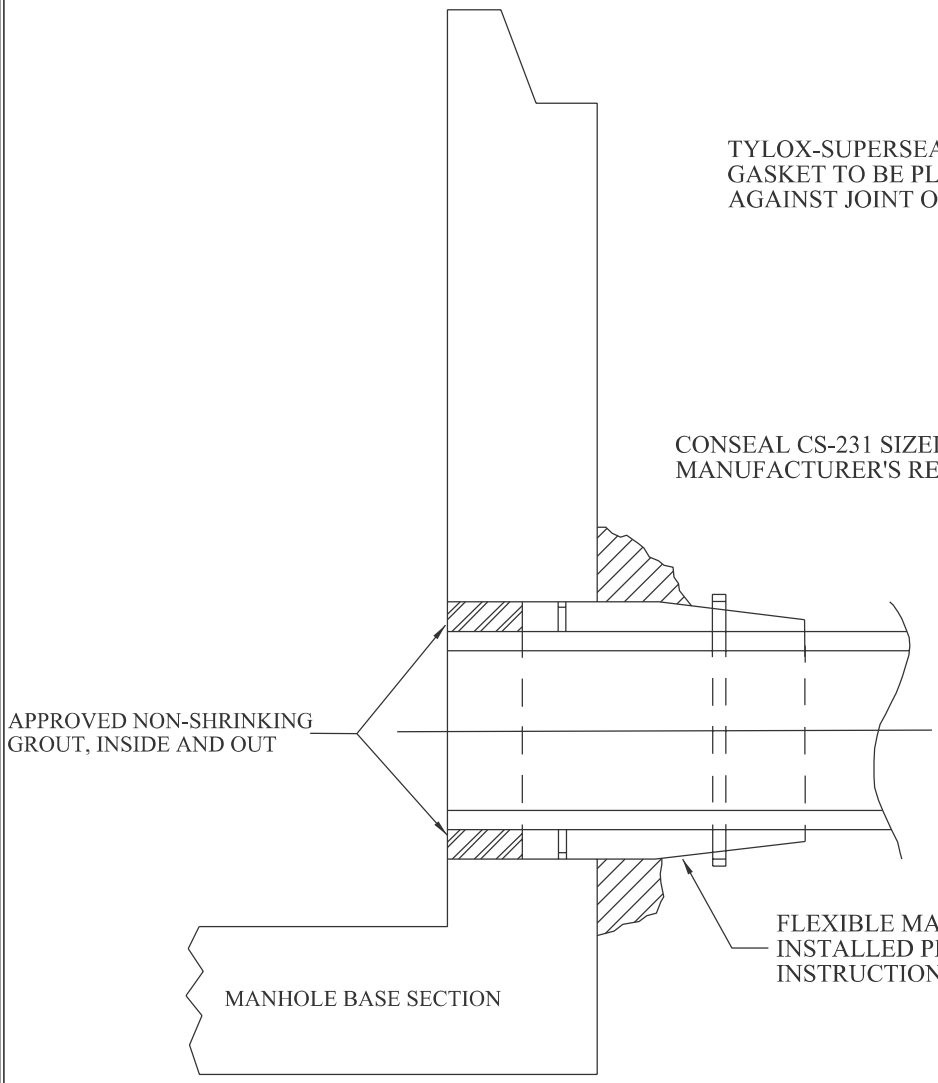
MANHOLE IN 100 YR FLOOD ZONE AND/OR FILL AREA

WASTEWATER ENGINEERING STANDARD DETAILS

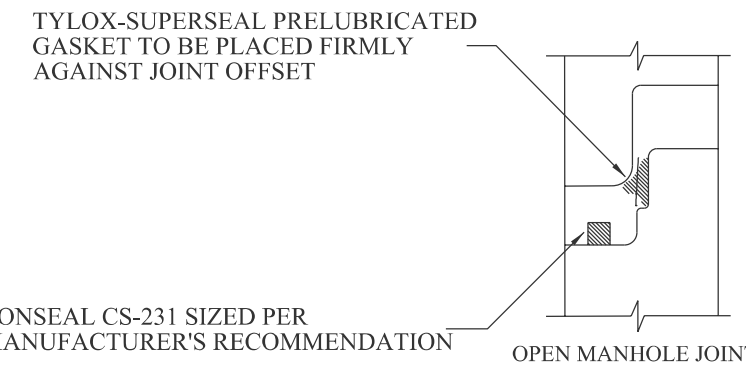
REVISION

DATE	DESCRIPTION	BY

FILE NAME:		APPROVED BY: Jarrod D. Milligan, PE, Wastewater Engineer, CITY OF TUSCALOOSA	PAGE NO. SD - 057
DRAWN BY:	FES		
DATE:	2011.01.05		
SCALE:	NOT TO SCALE		



FLEXIBLE MANHOLE SLEEVE DETAIL



MANHOLE JOINT DETAIL

CITY OF TUSCALOOSA

FLEXIBLE MANHOLE SLEEVE AND MANHOLE JOINT DETAILS

WASTEWATER ENGINEERING STANDARD DETAILS

REVISION

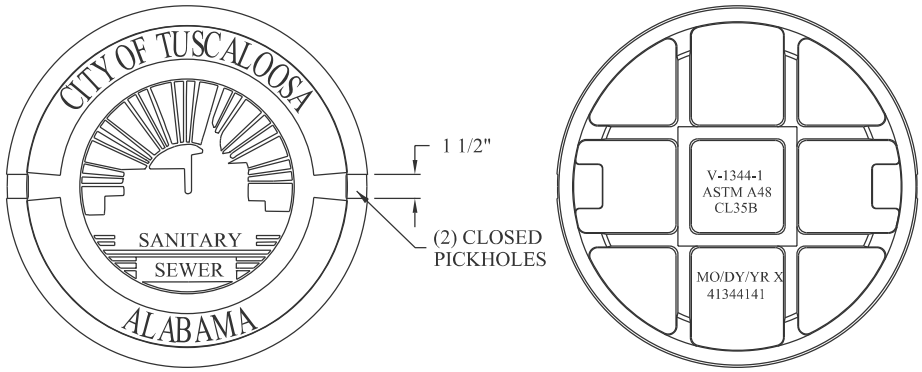
DATE	DESCRIPTION	BY

FILE NAME:		APPROVED BY: Jarrod D. Milligan, PE Wastewater Engineer CITY OF TUSCALOOSA	PAGE NO. SD - 060
DRAWN BY:	FES		
DATE:	2011.01.05		
SCALE:	NOT TO SCALE		

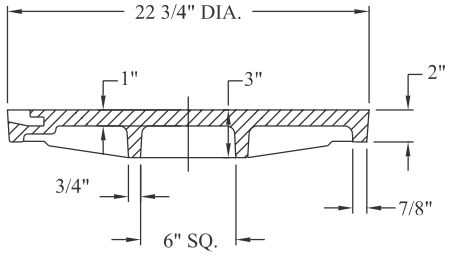
NOTE:

1. FRAME & COVER VULCAN FOUNDRY No. V-1344-1 OR U.S. FOUNDARY & MFG. CORP. CATALOG NUMBER USF 420 WITH CITY OF TUSCALOOSA LOGO OR APPROVED EQUAL

2. ALL CASTINGS SHALL BE CLEARLY MARKED WITH THE MANUFACTURER'S NAME, PRODUCT CATALOG NO. AND MADE IN THE U.S.A. IN CAST LETTERS

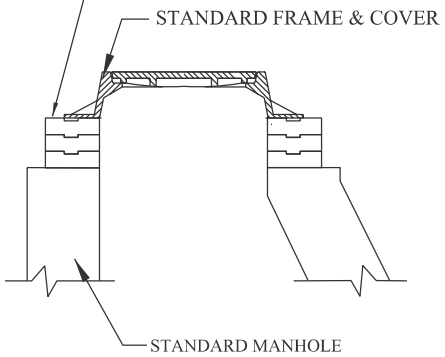


350 POUND RING AND COVER



SECTION

STANDARD CONCRETE ADJUSTING RINGS. PLACE MINIMUM ½ INCH BED OF NON-SHRINK GROUT WITH BUTYL SEALANT WATERSTOP BETWEEN EACH LAYER. MAXIMUM COMBINED HEIGHT OF ADJUSTING RINGS SHALL BE 8 INCHES.



MANHOLE FRAME AND ADJUSTING RING DETAILS

NO SCALE

MANHOLE COVER DETAILS

CITY OF TUSCALOOSA

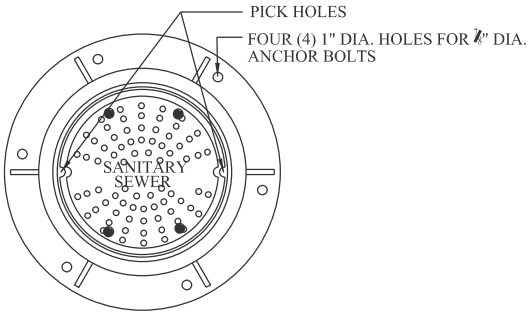
MANHOLE FRAME AND COVER AND ADJUSTING RING DETAILS

WASTEWATER ENGINEERING STANDARD DETAILS

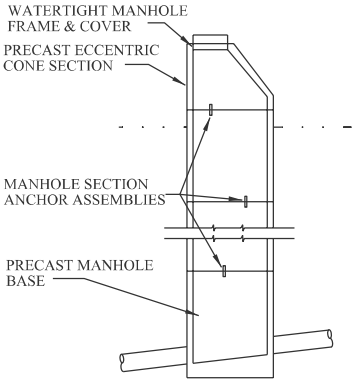
REVISION

DATE	DESCRIPTION	BY

FILE NAME:		APPROVED BY: Jarrod D. Milligan, PE, Wastewater Engineer, CITY OF TUSCALOOSA	PAGE NO. SD - 065
DRAWN BY:	FES		
DATE:	2011.01.05		
SCALE:	NOT TO SCALE		

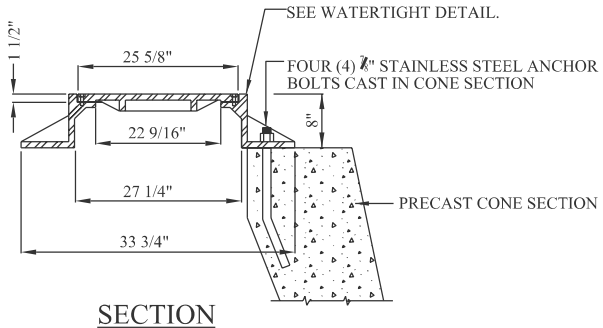


PLAN

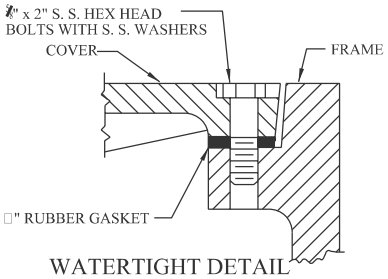


NOTE: MANHOLE COVER SHALL BE CAST IRON AS FURNISHED BY EJIW V-2358, USF 1452, OR APPROVED EQUAL. MANHOLE RIM AND COVER SHALL BE WATERTIGHT. APPROXIMATE WEIGHT OF FRAME & COVER - 350 LBS. MIN.

NOTE: MANHOLE SECTION ANCHOR ASSEMBLIES SHALL BE INSTALLED BETWEEN ALL PRECAST RISER SECTIONS AT EVERY MANHOLE WHERE WATERTIGHT MANHOLE FRAMES AND COVERS ARE SPECIFIED



SECTION

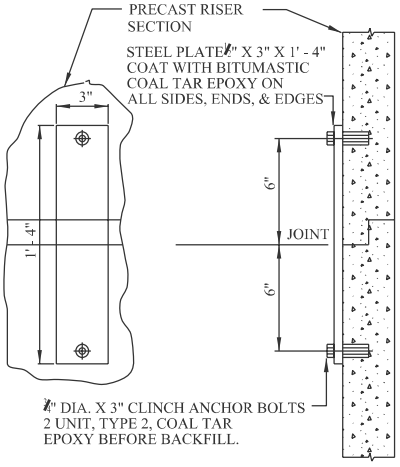


WATERTIGHT DETAIL

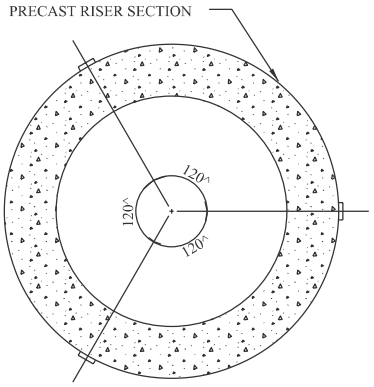
N. T. S.

WATERTIGHT MANHOLE COVER DETAILS

NO SCALE



NOTE: 3 ANCHOR ASSEMBLIES REQUIRED PER JOINT 120^ APART.



SECTION

CITY OF TUSCALOOSA

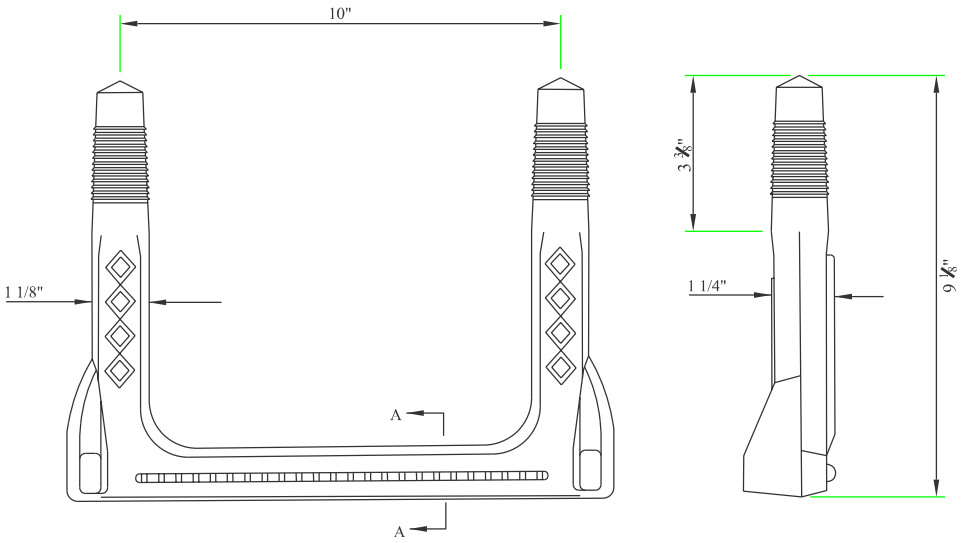
WATERTIGHT FRAME AND COVER DETAILS

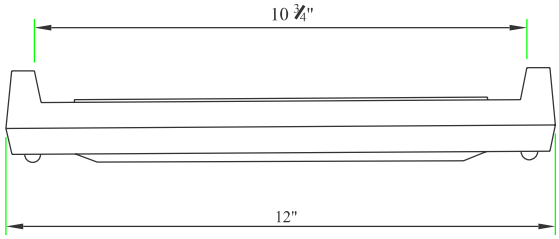
WASTEWATER ENGINEERING STANDARD DETAILS

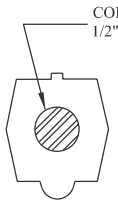
REVISION

DATE	DESCRIPTION	BY

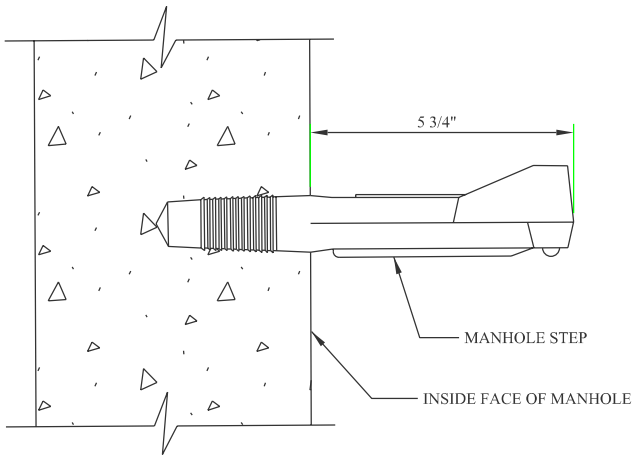
FILE NAME:		APPROVED BY: Jarrod D. Milligan, PE Wastewater Engineer CITY OF TUSCALOOSA	PAGE NO. SD - 070
DRAWN BY:	FES		
DATE:	2011.01.05		
SCALE:	NOT TO SCALE		







SECTION A



NOTES:

1. MANHOLE AND INLET STEPS SHALL BE PLASTIC COATED REINFORCED STEEL. PLASTIC COATED MANHOLE STEPS SHALL BE POLYPROPYLENE COATED STEEL REINFORCING RODS WITH ROD AND PULL OUT RATINGS MEETING OSHA STANDARDS.
2. MANHOLE AND INLET STEPS SHALL BE INSTALLED AT MAXIMUM 16" INTERVALS

CITY OF TUSCALOOSA

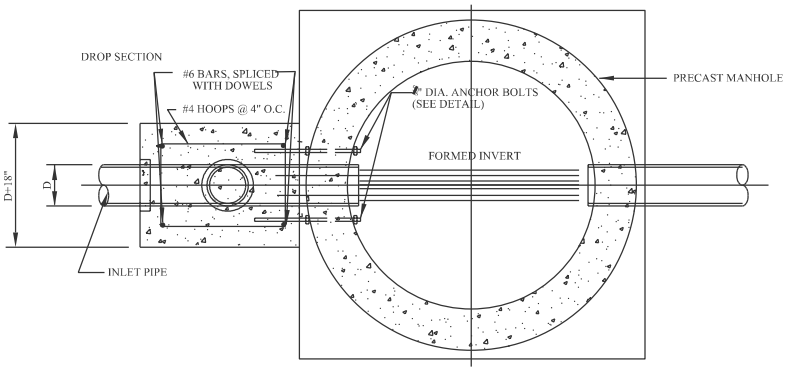
MANHOLE STEP DETAILS

WASTEWATER ENGINEERING STANDARD DETAILS

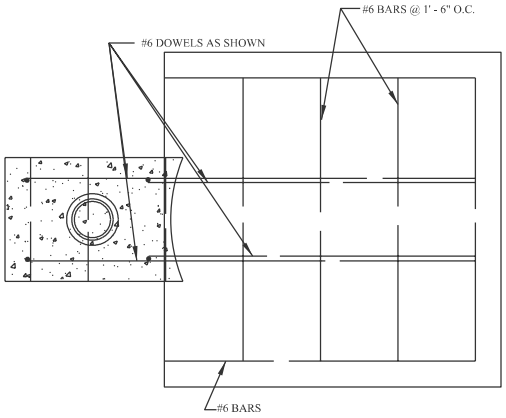
REVISION

DATE	*DESCRIPTION*	*BY*

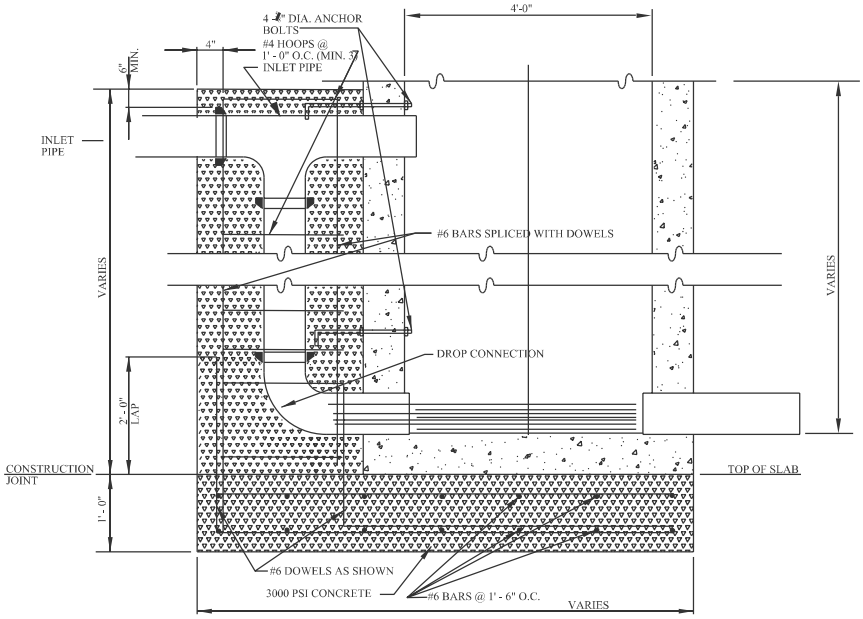
FILE NAME:		*APPROVED BY:*	*PAGE NO.*
DRAWN BY:	*FES*	*Jarrod D. Milligan, PE*	SD - 075
DATE:	*2011.01.05*	*Wastewater Engineer*	
SCALE:	*NOT TO SCALE*	*CITY OF TUSCALOOSA*	



SECTIONAL PLAN



SLAB SECTION



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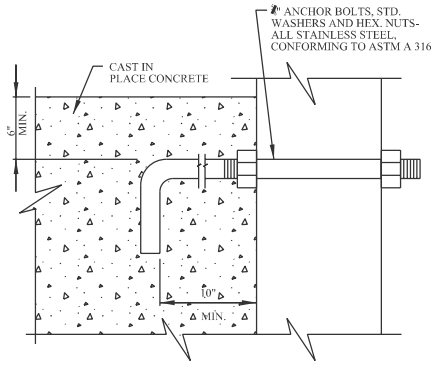

ANCHOR BOLT DETAIL

NOTES:

1. ALL BASES TO BE POURED MONOLITHICALLY.
2. PROVIDE 3" OF CLEAR CONCRETE COVER TO ALL REINFORCING BARS UNLESS OTHERWISE NOTED.
3. ALL CAST-IN-PLACE CONCRETE SHALL BE CLASS "A".

TYPICAL MEMPHIS TEE

NO SCALE

CITY OF TUSCALOOSA

MEMPHIS TEE AND ANCHOR BOLT DETAIL

WASTEWATER ENGINEERING STANDARD DETAILS

REVISION

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DRAWN BY:	FES		
DATE:	2011.01.05		
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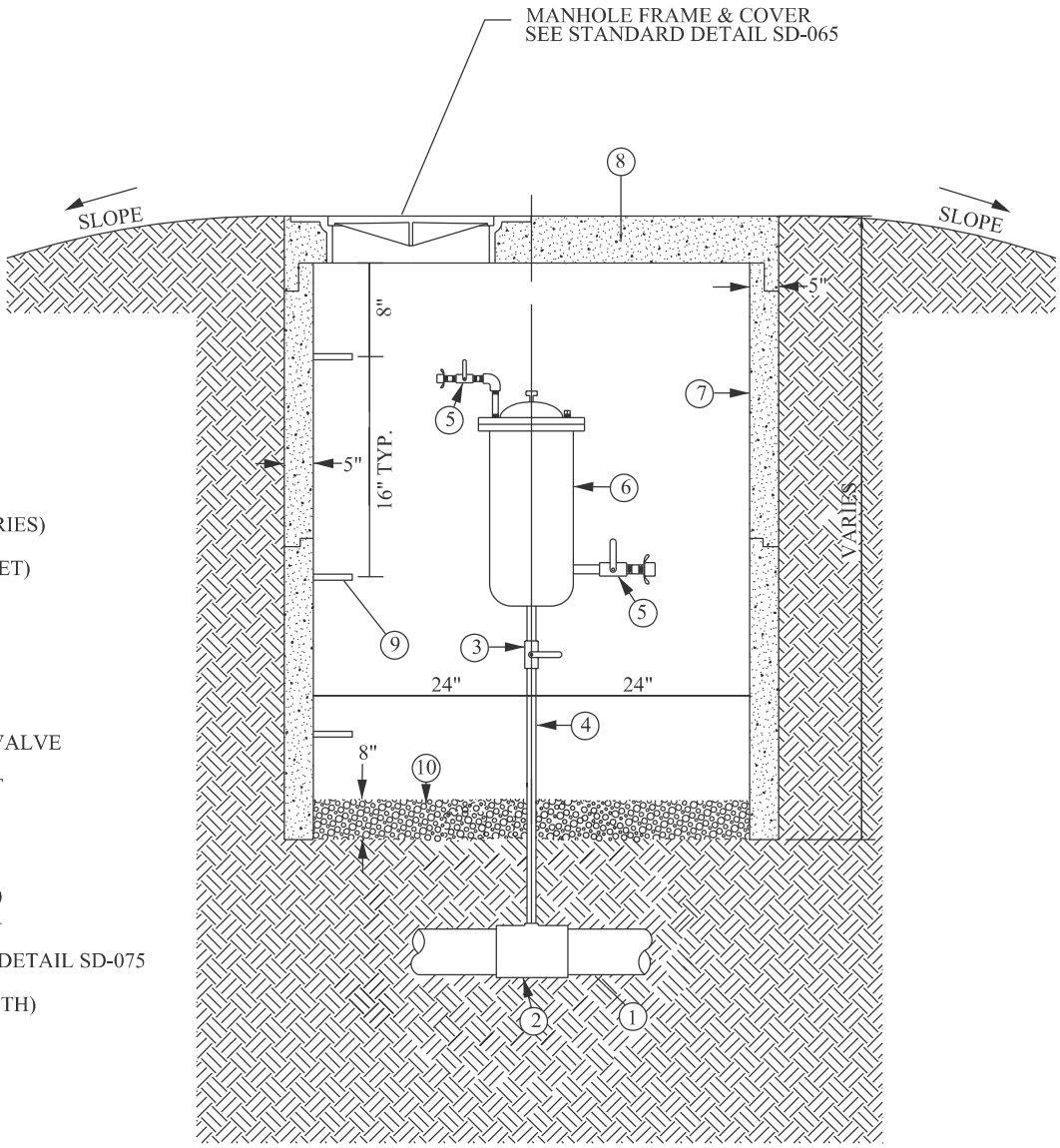

MATERIAL IDENTIFICATION

1. PRESSURE SEWER MAIN (SIZE VARIES)
2. THREADED TEE (SIZE TO SUIT INLET)
3. 2" SHUT OFF BRASS BALL VALVE
4. 2" THREADED BRASS NIPPLE
5. 1" BLOW OFF BRASS BALL VALVE
6. SEWAGE AIR/VACUUM RELEASE VALVE
7. STANDARD 4' DIAMETER PRECAST CONCRETE DOGHOUSE MANHOLE OR MANHOLE TOP SECTION, AS DIRECTED BY THE ENGINEER
8. PRECAST CONCRETE FLAT TOP (6") WITH MANHOLE RING AND COVER
9. MANHOLE STEPS, SEE STANDARD DETAIL SD-075
10. CRUSHED LIMESTONE (8" MIN. DEPTH)

AUTOMATIC VAC/AIR RELEASE VALVE DETAIL

NO SCALE

CITY OF TUSCALOOSA

AIR/VACUUM RELEASE VALVE MANHOLE DETAIL

WASTEWATER ENGINEERING STANDARD DETAILS

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DATE:	2011.01.05
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CITY OF TUSCALOOSA

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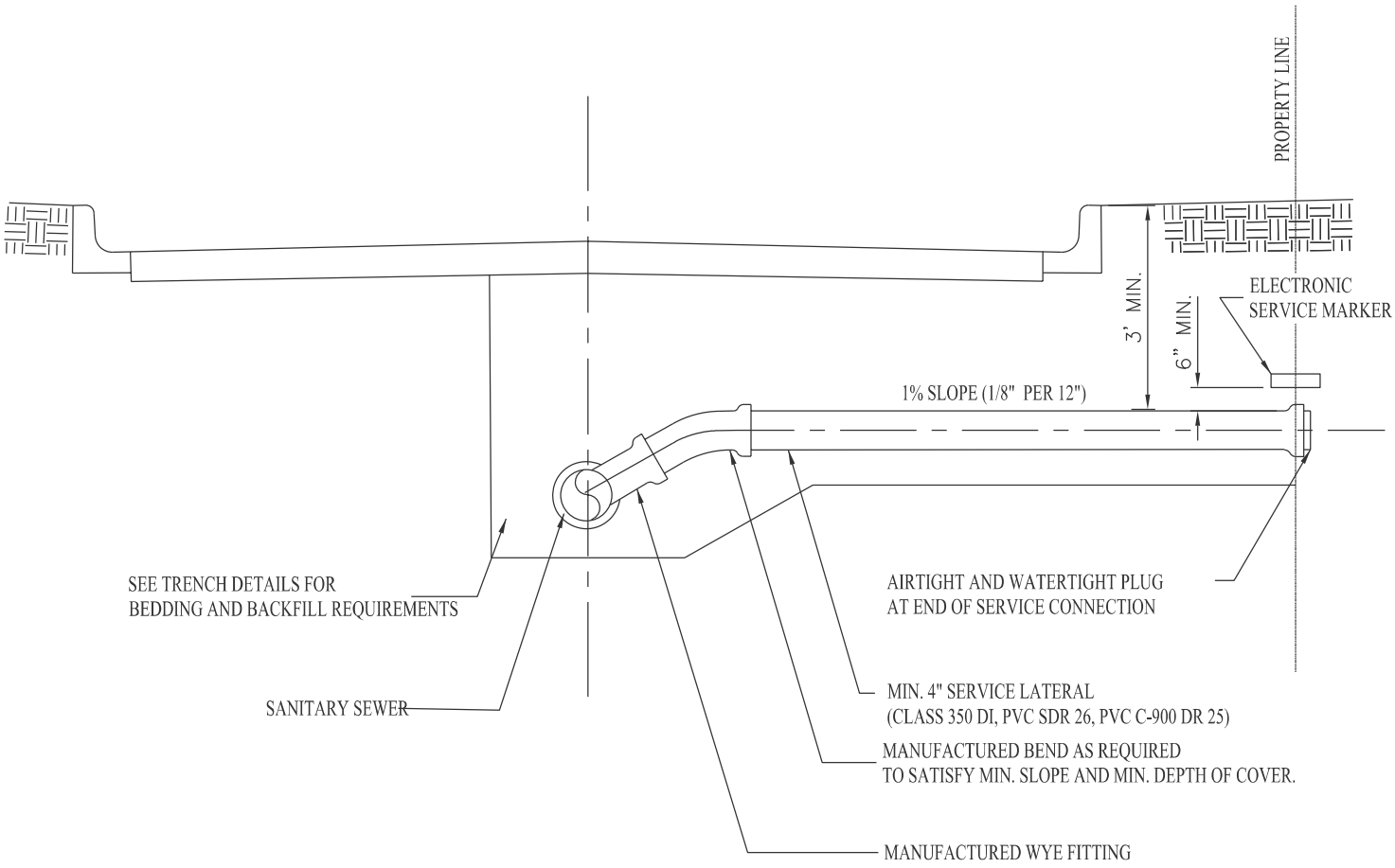

NOTES:

1. SERVICE LATERALS SHALL BE INSTALLED FOR EACH LOT AND EXTEND TO USER'S PROPERTY LINE.
2. MINIMUM DEPTH OF COVER FROM TOP OF CURB SHALL BE 3 FEET.
3. METALLIC TAPE OR WIRE SHALL BE INSTALLED ABOVE PVC SERVICE LATERALS.

CITY OF TUSCALOOSA

SERVICE LATERAL CONNECTION SHALLOW SEWER

WASTEWATER ENGINEERING STANDARD DETAILS

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DATE:	2011.01.05
SCALE:	NOT TO SCALE

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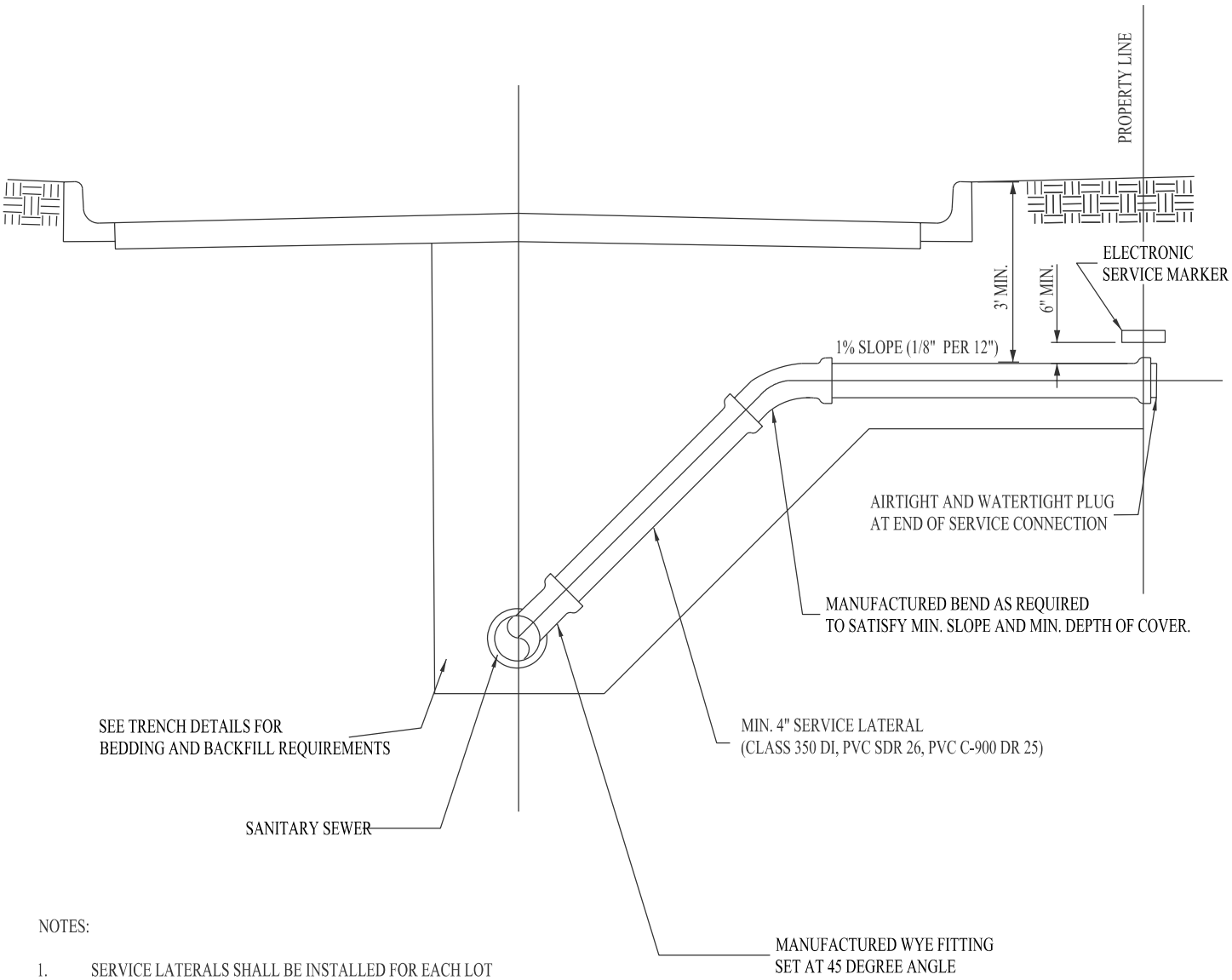

NOTES:

1. SERVICE LATERALS SHALL BE INSTALLED FOR EACH LOT AND EXTEND TO USER'S PROPERTY LINE.
2. MINIMUM DEPTH OF COVER FROM TOP OF CURB SHALL BE 3 FEET.
3. METALLIC TAPE OR WIRE SHALL BE INSTALLED ABOVE PVC SERVICE LATERALS.

CITY OF TUSCALOOSA

SERVICE LATERAL CONNECTION DEEP SEWER

WASTEWATER ENGINEERING STANDARD DETAILS

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DATE:	2011.01.05
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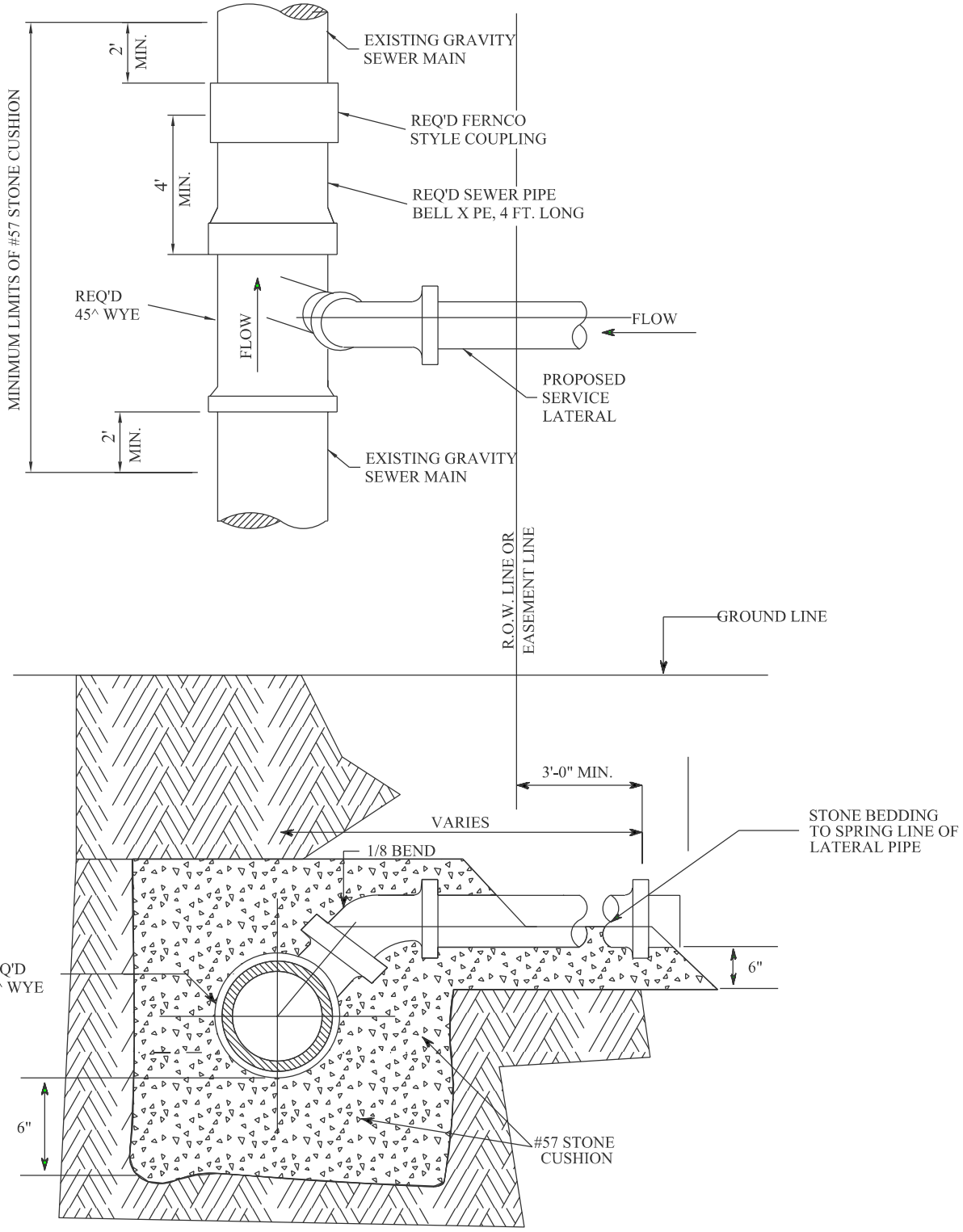

SERVICE LATERAL CONNECTION TO EXISTING GRAVITY SEWER

WASTEWATER ENGINEERING STANDARD DETAILS

CITY OF TUSCALOOSA

REVISION		
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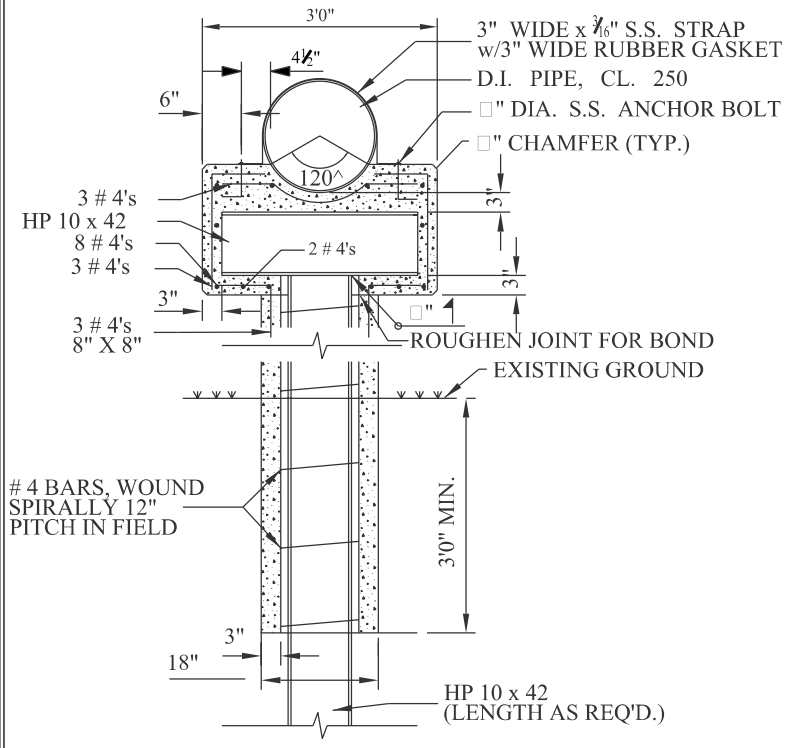
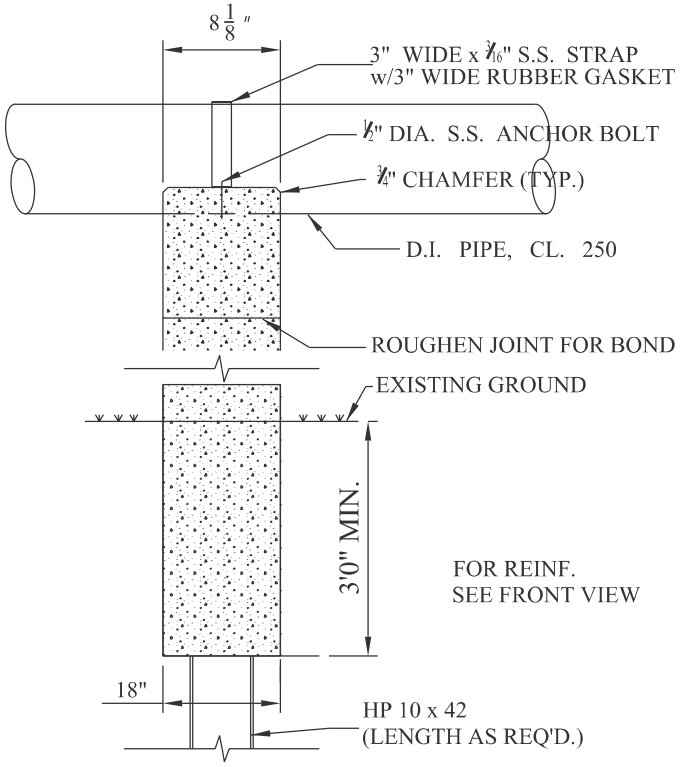


TYPICAL SECTION - FRONT VIEW

NO SCALE



TYPICAL SECTION - SIDE VIEW

NO SCALE

GENERAL NOTE:

1) H PILES SHALL BE FITTED WITH PILE POINTS.

2) H PILES SHALL BE DRIVEN TO SOUND SHALE ROCK. EXACT LINEAR FOOTAGE TO BE DETERMINED IN THE FIELD. LINEAR FOOT PRICE FOR H PILES SHALL INCLUDE REINFORCED CONCRETE WRAP FROM 3'-0" BELOW EXISTING GROUND TO THE SEAT OF THE HORIZONTAL H PILE.

3) ELEVATED SEWER PILE CAP SHALL BE PAID FOR PER EACH AND INCLUDE HORIZONTAL H PILE, CONCRETE REINFORCING, CONCRETE, STAINLESS STEEL PIPE STRAP AND ACCESSORIES AND ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY FOR A COMPLETE INSTALLATION.

CITY OF TUSCALOOSA

ELEVATED SANITARY SEWER

WASTEWATER ENGINEERING STANDARD DETAILS

REVISION

DATE	DESCRIPTION	BY

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DATE:	2011.01.05		
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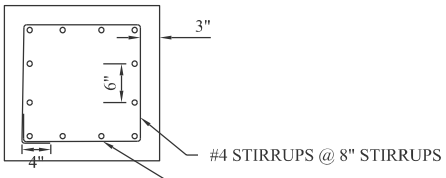
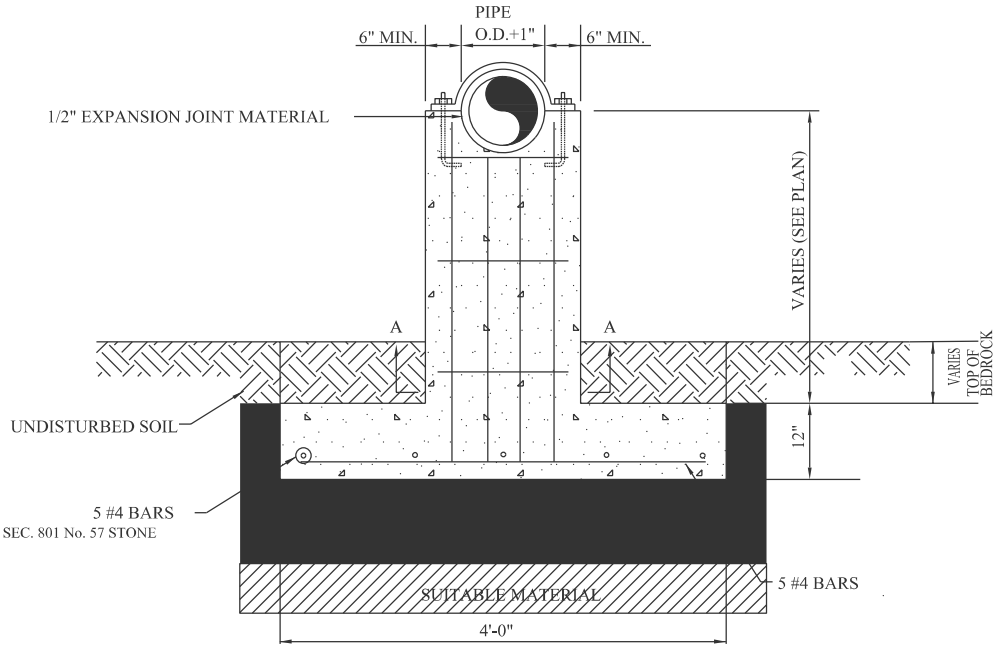
NOTES:

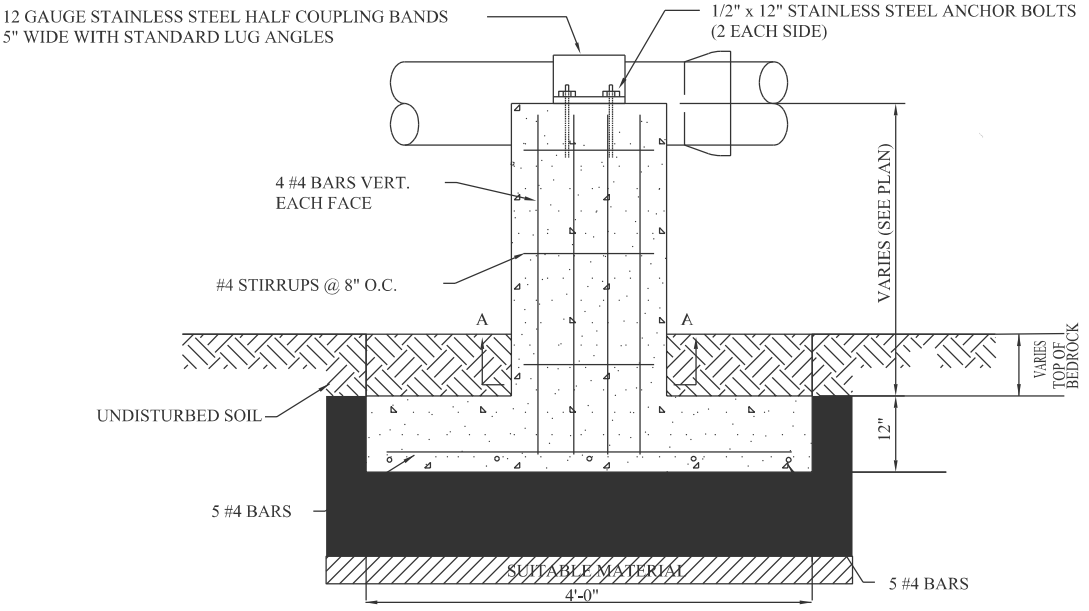
1. ALL CONCRETE SHALL BE PROPORTIONED TO PROVIDE A MINIMUM OF 4000 PSI COMPRESSIVE STRENGTH AT 28 DAYS.

2. REINFORCING STEEL USED IN CONCRETE SHALL CONFORM TO ASTM A 615 INCLUDING SI GRADE 60.



A-A





CITY OF TUSCALOOSA

CONCRETE PIER DETAIL

WASTEWATER ENGINEERING STANDARD DETAILS

REVISION

DATE	*DESCRIPTION*	*BY*

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Jarrod D. Milligan, PE
Wastewater Engineer
CITY OF TUSCALOOSA

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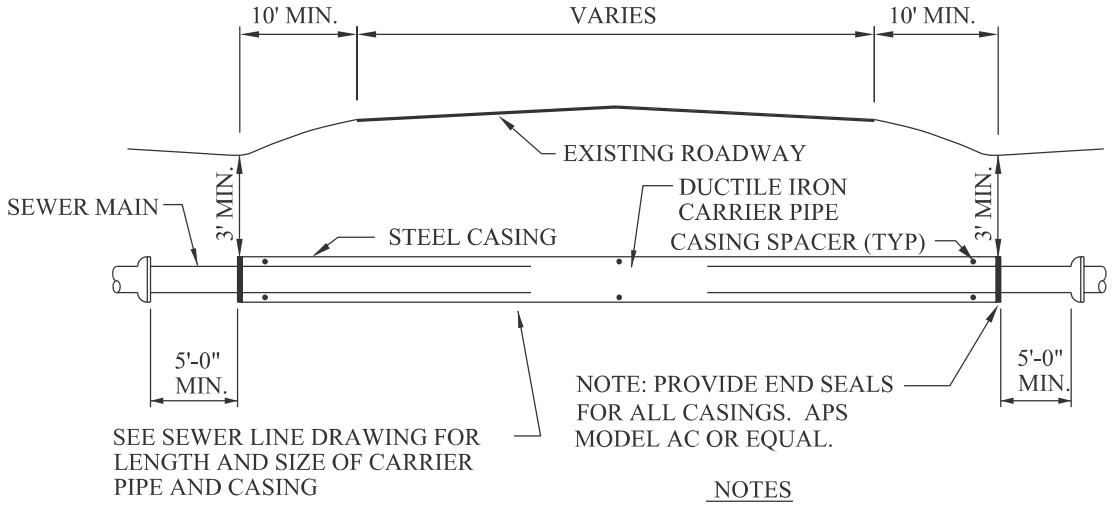
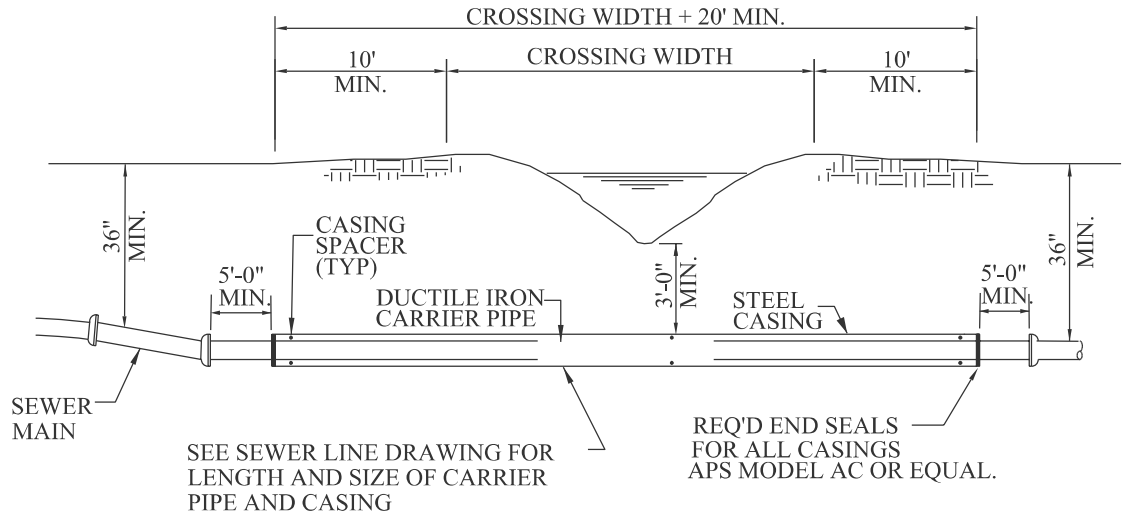


NOTES

1. 3- SPACERS PER JOINT OF PIPE
2. CARRIER PIPE SPACERS SHALL BE MODEL B-55 AS MANUFACTURED BY CONTRACTORS MANUFACTURING INC. OR EQUAL

TYPICAL ROAD BORE DETAIL

NO SCALE



TYPICAL WET DITCH/CREEK CROSSING

NO SCALE

NOTES

1. 3- SPACERS PER JOINT OF PIPE
2. CARRIER PIPE SPACERS SHALL BE MODEL B-55 AS MANUFACTURED BY CONTRACTORS MANUFACTURING INC. OR EQUAL

CITY OF TUSCALOOSA

TYPICAL WET DITCH/CREEK CROSSING AND BORE DETAILS

WASTEWATER ENGINEERING STANDARD DETAILS

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FILE NAME:		APPROVED BY:	PAGE NO.
DRAWN BY:	FES	Jarrod D. Milligan, PE	SD - 105
DATE:	2011.01.05	Wastewater Engineer	
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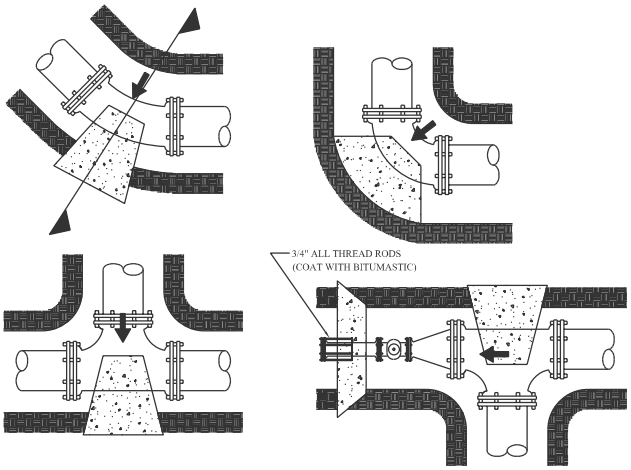
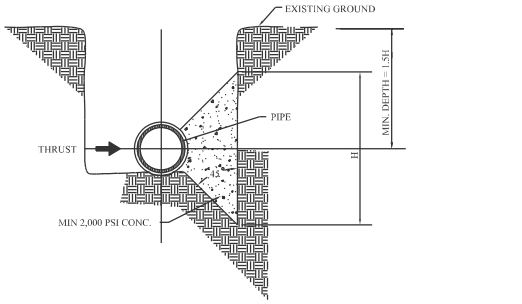
THRUST BLOCKING FOR HORIZONTAL BENDS



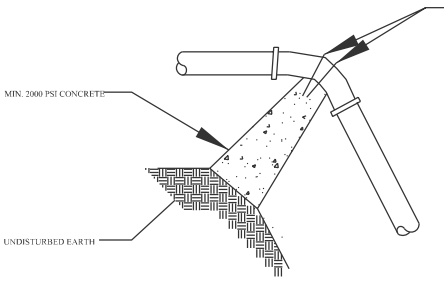


TYP. SECTION @ THRUST BLOCK
NO SCALE

PIPE DIA. (IN.)	MINIMUM BEARING AREA OF THRUST BLOCKS FOR HORIZONTAL BENDS (SQ. FT.)				
	TEE, WYE PLUG, CAP	90 DEG. BEND PLUGGED CROSS	45 DEG. BEND	22 1/2 DEG. BEND	11 1/4 DEG. BEND
4	1.3	2.0	1.0	—	—
6	2.8	4.0	2.0	1.0	—
8	4.8	6.8	3.7	1.9	1.0
10	7.3	10.3	5.5	2.8	1.4
12	10.3	14.5	7.8	4.0	2.0
14	13.8	19.5	10.6	5.4	2.7
16	17.8	25.2	13.6	6.9	3.5
18	22.4	31.7	17.1	8.7	4.4
20	27.5	38.9	21.0	10.7	5.4
24	39.2	55.4	30.0	15.3	7.7
30	60.3	85.3	46.2	23.5	11.8
36	86.4	122.2	66.1	33.7	16.9
42	116.6	164.9	89.3	45.5	22.8
48	152.0	214.9	116.3	59.3	29.7
54	192.0	271.6	147.0	74.9	37.6

THRUST BLOCKING FOR VERTICAL BENDS

FITTING SIZE	MINIMUM VOLUME OF THRUST BLOCK IN CUBIC YARDS (VERTICAL BENDS) BEND ANGLE		
	45 DEGREE	22 1/2 DEGREE	11 1/4 DEGREE
4	1.1	0.4	0.2
6	2.7	1.0	0.4
8	4.0	1.5	0.7
10	6.0	2.3	0.9
12	8.5	3.2	1.3
14	11.5	4.3	1.8
16	14.8	5.6	2.3



FITTING SIZE	ROD SIZE	EMBEDMENT
12"andless	#6	30"
14" - 16"	#8	36"

GENERAL NOTES FOR HORIZONTAL AND VERTICAL BLOCKING

1. ALL PRESSURE PIPE 4 INCHES IN DIAMETER AND LARGER SHALL BE PROVIDED WITH CONCRETE THRUST RESTRAINT.
2. THRUST BLOCKING SHALL BE POURED AGAINST UNDISTURBED EARTH.
3. CONCRETE SHALL BE KEPT CLEAR OF JOINT AND JOINT ACCESSORIES.
4. BEARING AREA OF THRUST BLOCKS ARE BASED ON 150 PSI TEST PRESSURE AND AN ALLOWABLE SOIL BEARING OF 2000 PSF. BEARING AREA VALUES SHALL BE ADJUSTED IF THE SPECIFICATIONS REQUIRE A DIFFERENT TEST PRESSURE OR ALLOWABLE SOIL BEARING. PROVIDE ADDITIONAL AREA IF DICTATED BY THE CONDITIONS ACTUALLY ENCOUNTERED.
5. ANY SPECIAL THRUST BLOCKING DETAILED ON THE PLANS SHALL SUPERCEDE THIS DETAIL.
6. VERTICAL BENDS THAT REQUIRE A THRUST BLOCK VOLUME GREATER THAN 5 C.Y. REQUIRE SPECIAL BLOCKING DETAILS.

CITY OF TUSCALOOSA

THRUST RESTRAINT - CONCRETE BLOCKING

WASTEWATER ENGINEERING STANDARD DETAILS

REVISION

DATE	DESCRIPTION	BY

FILE NAME:	
DRAWN BY:	FES
DATE:	2011.01.05
SCALE:	NOT TO SCALE

APPROVED BY:
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Wastewater Engineer
CITY OF TUSCALOOSA

PAGE NO.
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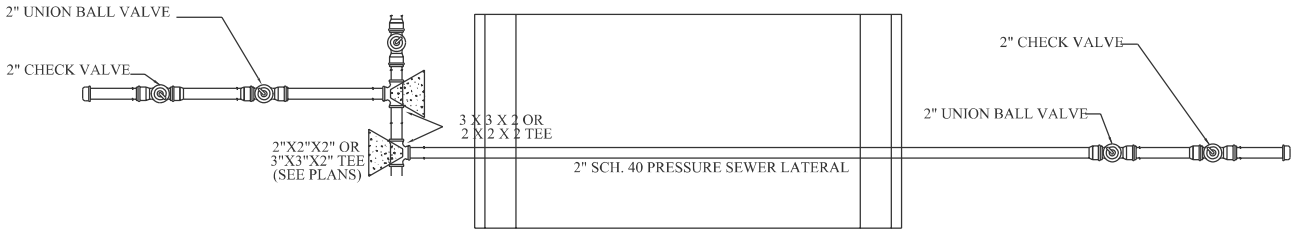
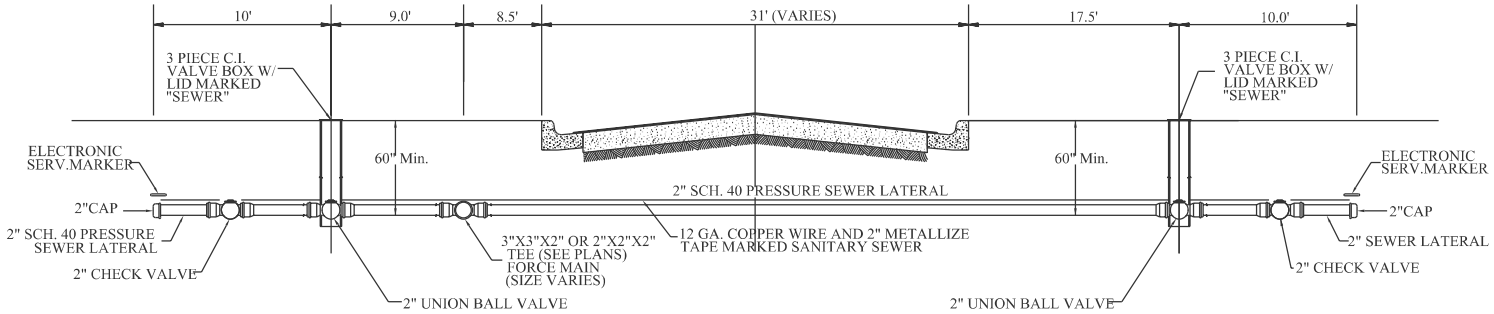


PLAN

N.T.S.



ALL PIPE AND FITTINGS
SHALL BE SCH. SDR 26, SCH. 40 OR 80 P.C.V.

ELEVATION

N.T.S.

CITY OF TUSCALOOSA

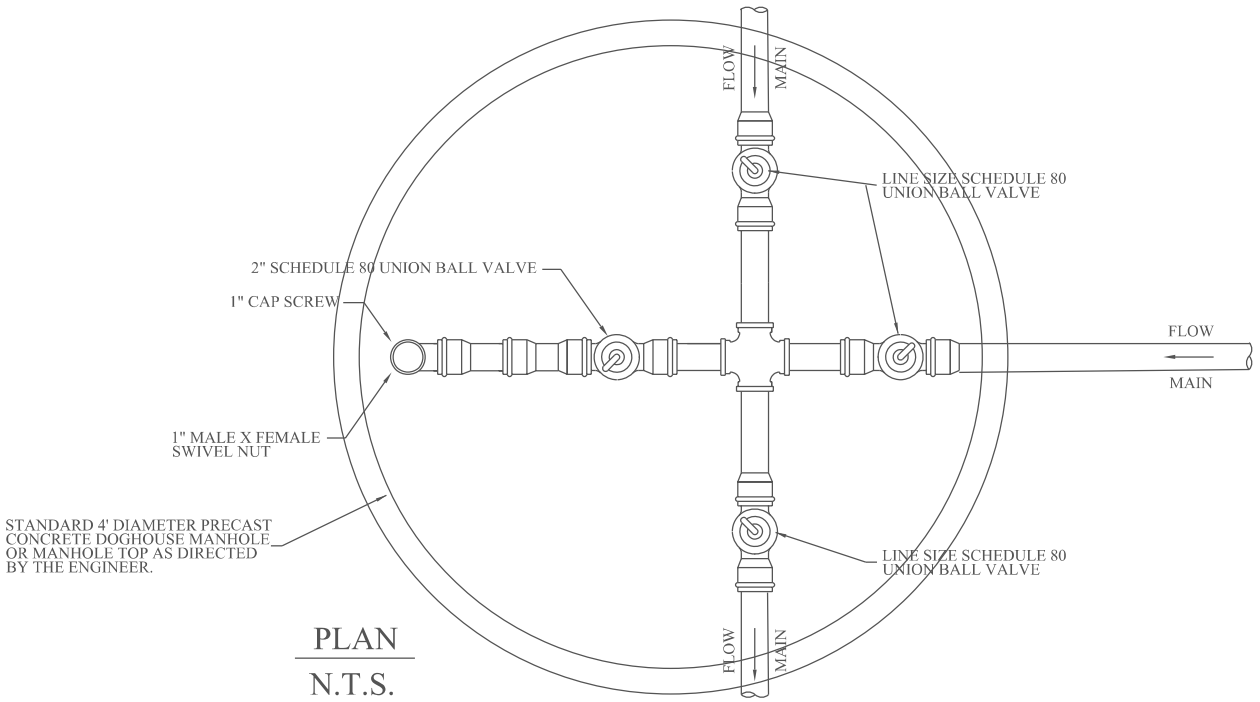
LOW PRESSURE SERVICE LATERAL

WASTEWATER ENGINEERING STANDARD DETAILS

REVISION

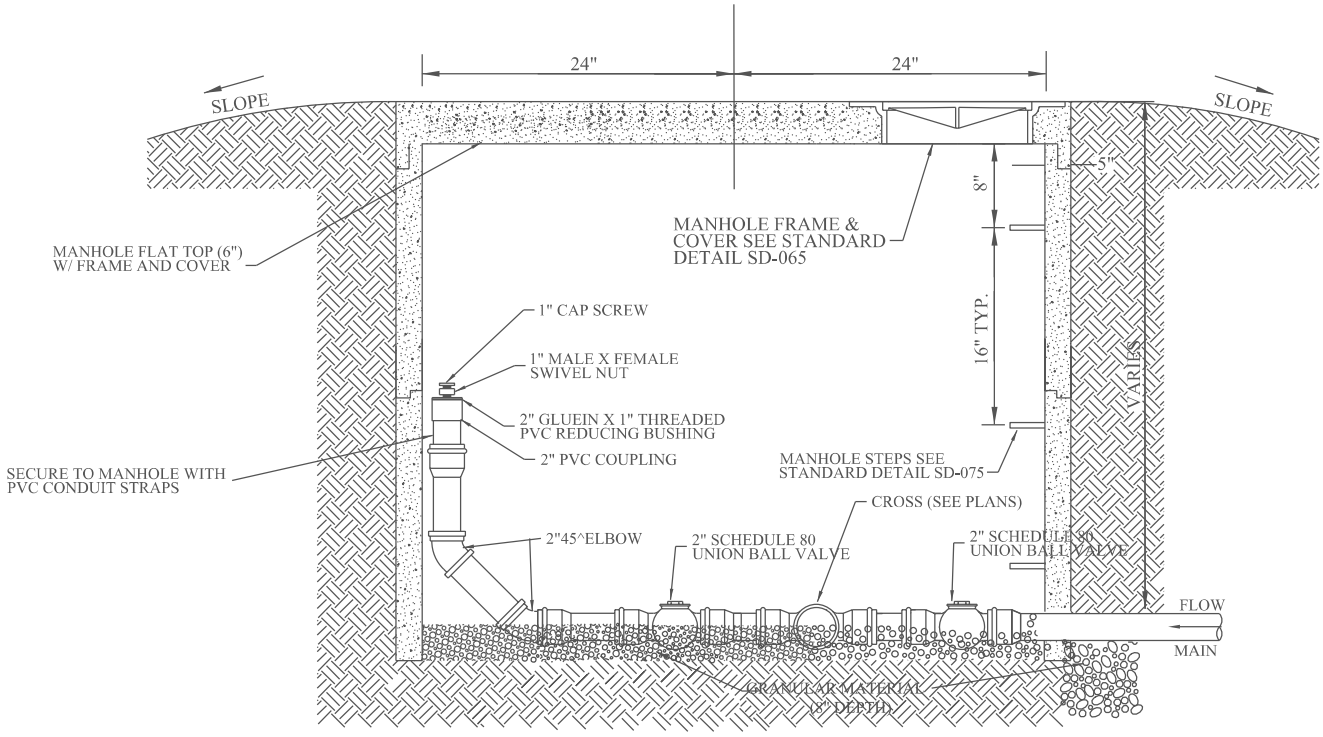
DATE	DESCRIPTION	BY

FILE NAME:		APPROVED BY: Jarrod D. Milligan, PE Wastewater Engineer CITY OF TUSCALOOSA	PAGE NO. SD - 120
DRAWN BY:	FES		
DATE:	2011.01.05		
SCALE:	NOT TO SCALE		



PLAN

N.T.S.



ELEVATION

N.T.S.

ALL PIPE AND FITTINGS
SHALL BE P.V.C. SDR 26, SCH. 40 OR 80

CITY OF TUSCALOOSA

LOW PRESSURE JUNCTION FLUSHING CONNECTION

WASTEWATER ENGINEERING STANDARD DETAILS

REVISION

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FILE NAME:	
DRAWN BY:	FES
DATE:	2011.01.05
SCALE:	NOT TO SCALE

APPROVED BY:
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Wastewater Engineer
CITY OF TUSCALOOSA

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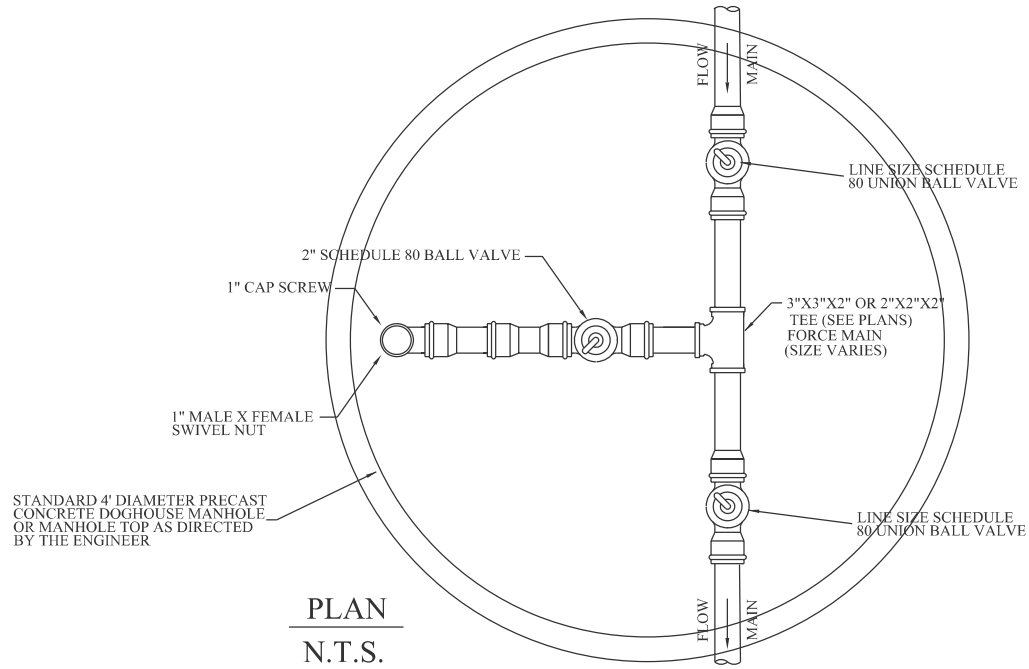
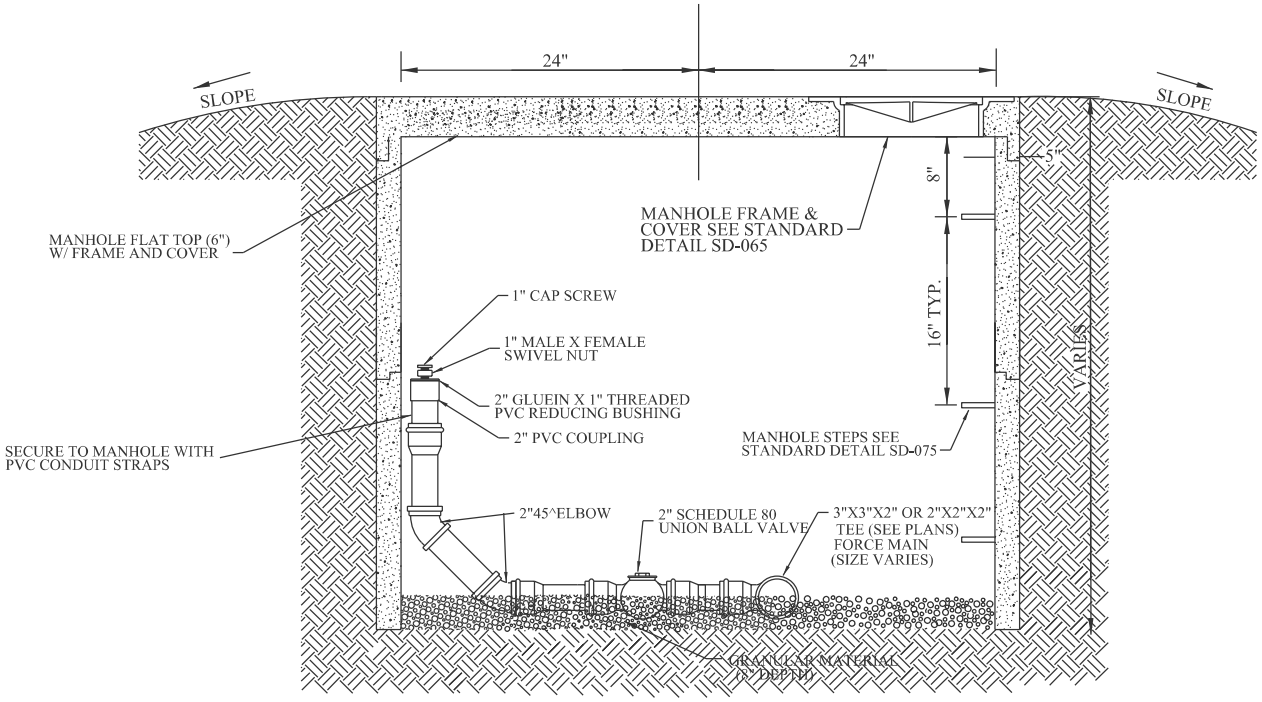


PLAN

N.T.S.



ELEVATION

N.T.S.

ALL PIPE AND FITTINGS
SHALL BE P.V.C. SDR 26, SCH. 40 OR 80

CITY OF TUSCALOOSA

LOW PRESSURE INTERMEDIATE FLUSHING CONNECTION (A)

WASTEWATER ENGINEERING STANDARD DETAILS

REVISION

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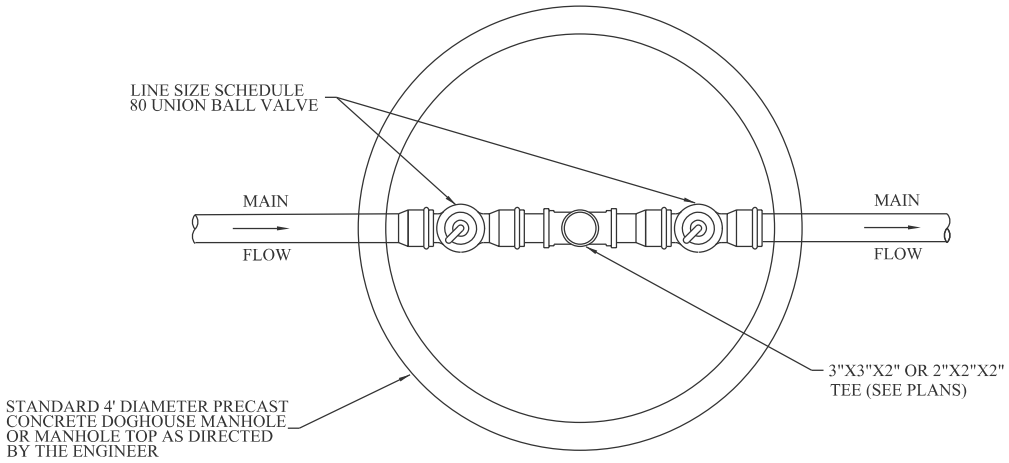
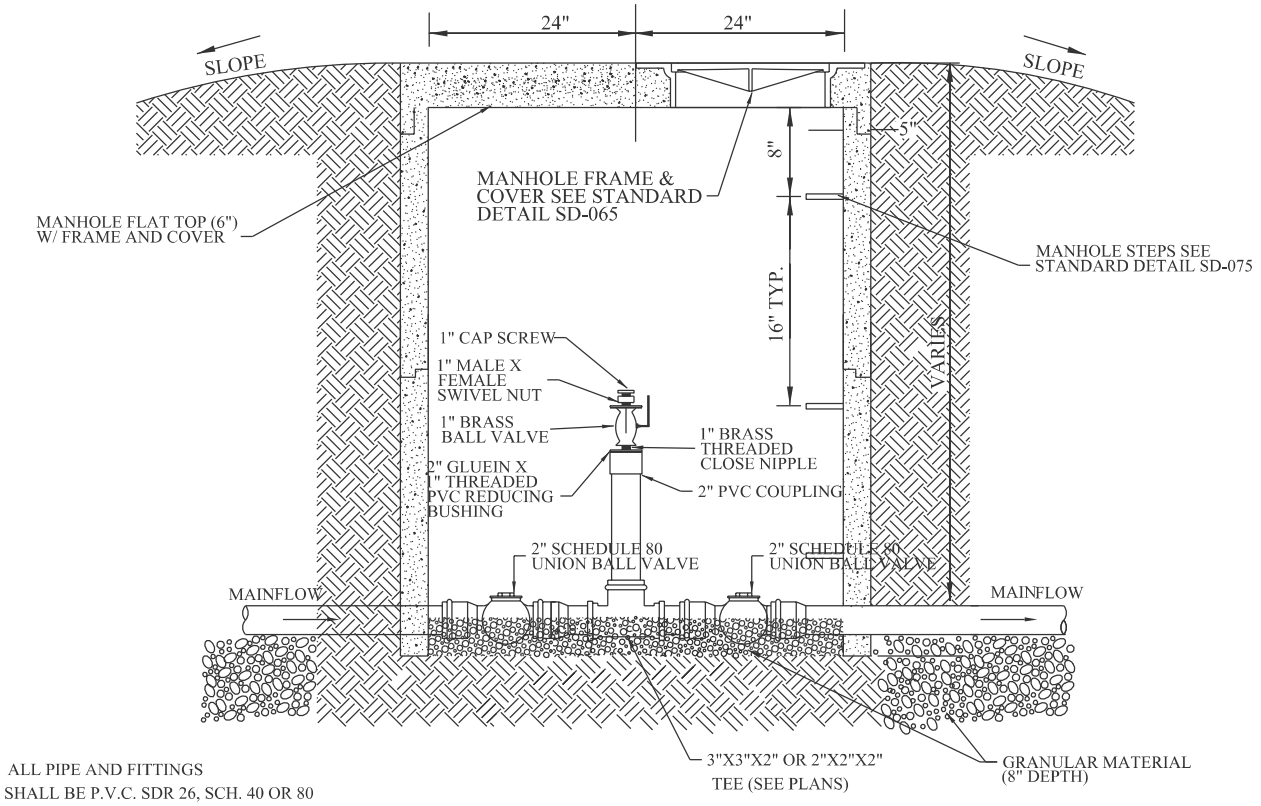
FILE NAME:		APPROVED BY: Jarrod D. Milligan, PE, Wastewater Engineer, CITY OF TUSCALOOSA	PAGE NO. SD - 130
DRAWN BY:	FES		
DATE:	2011.01.05		
SCALE:	NOT TO SCALE		



PLAN

N.T.S.



ALL PIPE AND FITTINGS
SHALL BE P.V.C. SDR 26, SCH. 40 OR 80

ELEVATION

N.T.S.

CITY OF TUSCALOOSA

LOW PRESSURE INTERMEDIATE FLUSHING CONNECTION (B)

WASTEWATER ENGINEERING STANDARD DETAILS

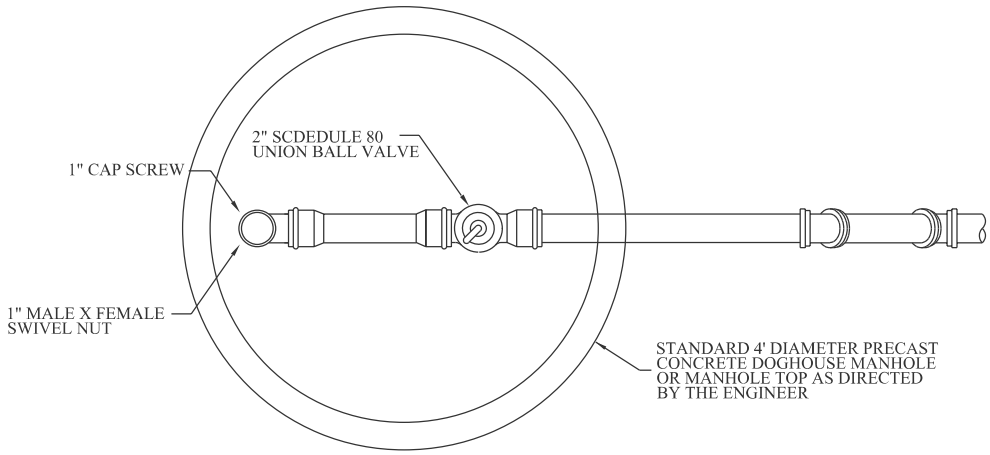
REVISION

DATE	DESCRIPTION	BY

FILE NAME:	
DRAWN BY:	FES
DATE:	2011.01.05
SCALE:	NOT TO SCALE

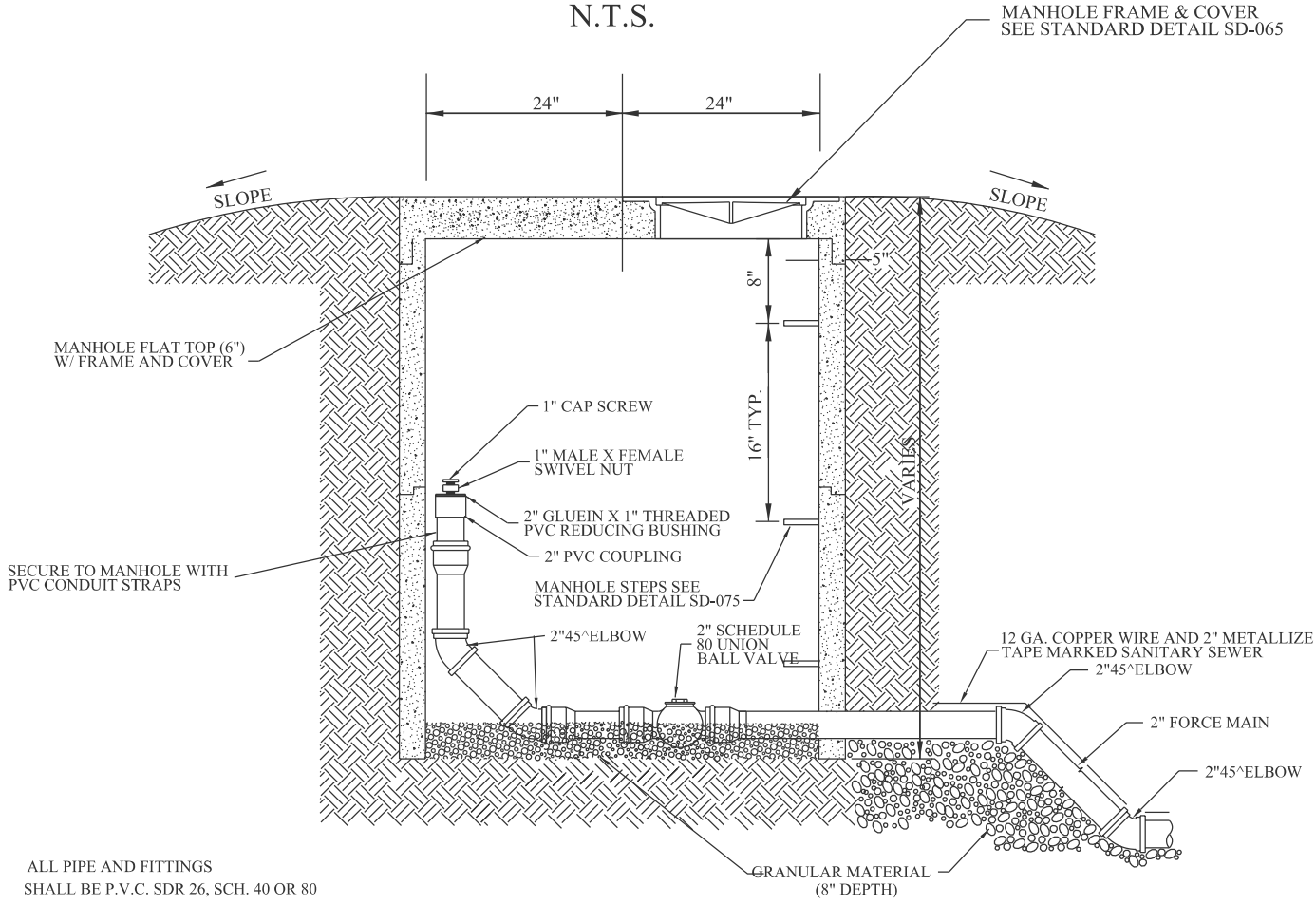
APPROVED BY:
Jarrod D. Milligan, PE
Wastewater Engineer
CITY OF TUSCALOOSA

PAGE NO.
SD - 131



PLAN

N.T.S.



ALL PIPE AND FITTINGS
SHALL BE P.V.C. SDR 26, SCH. 40 OR 80

ELEVATION

N.T.S.

CITY OF TUSCALOOSA

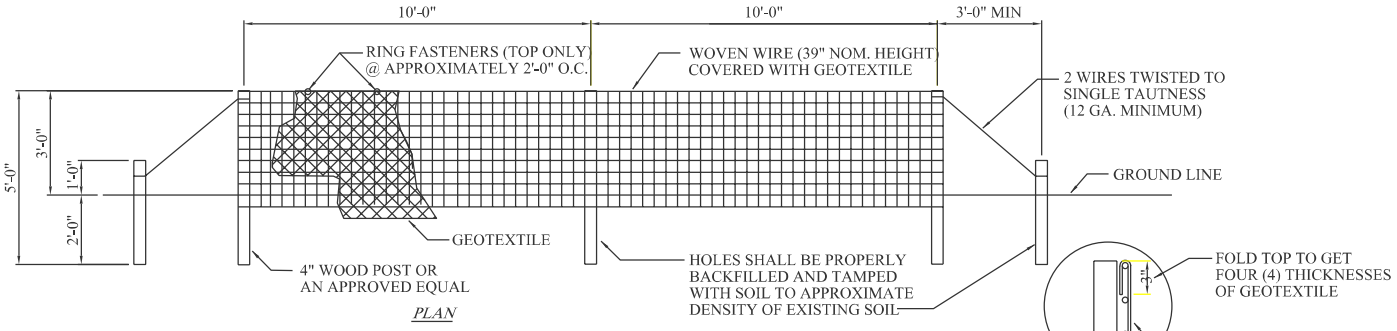
LOW PRESSURE TERMINAL FLUSHING CONNECTION

WASTEWATER ENGINEERING STANDARD DETAILS

REVISION

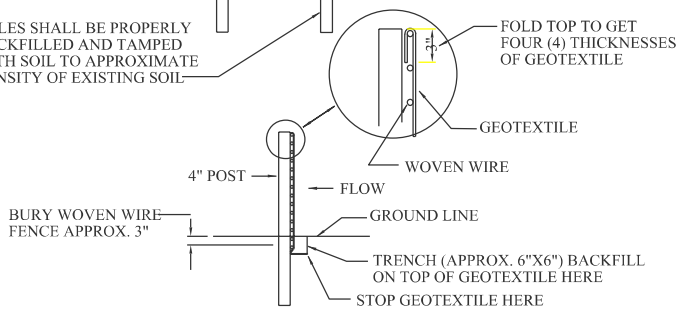
DATE	DESCRIPTION	BY

FILE NAME:		APPROVED BY: Jarrod D. Milligan, PE, Wastewater Engineer, CITY OF TUSCALOOSA	PAGE NO. SD - 135
DRAWN BY:	FES		
DATE:	2011.01.05		
SCALE:	NOT TO SCALE		



SILT FENCE - TYPE "A"

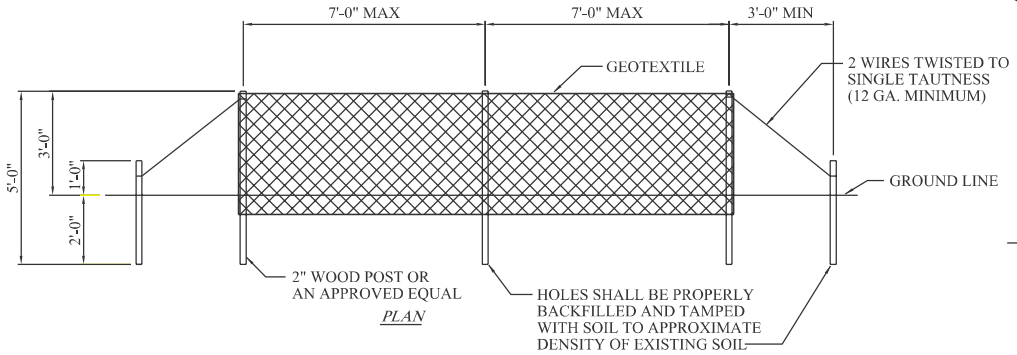
NOT TO SCALE



SECTION (METHOD I)

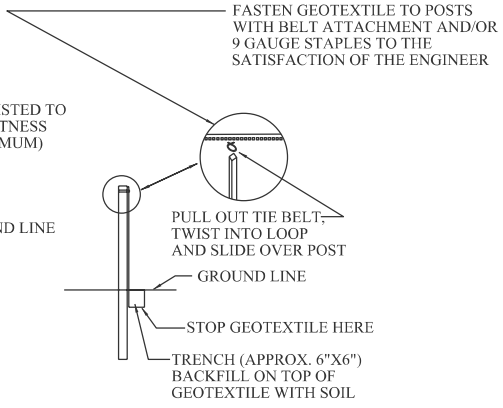
NOTES:

1. SILT FENCES ARE TEMPORARY EROSION CONTROL ITEMS, THAT SHALL BE ERECTED OPPOSITE ERODABLE AREAS SUCH AS NEWLY GRADED FILL SLOPES AND ADJACENT TO STREAMS AND CHANNELS.
2. SILT FENCE SHOULD BE PLACED WELL INSIDE RIGHT OF WAY AND ALONG EDGE OF CLEARING LIMITS, THIS WILL ALLOW ROOM FOR A BACK UP FENCE IF FIRST BECOMES FULL. SILT FENCES SHALL BE IN PLACE PRIOR TO ANY CONSTRUCTION OPERATION.
3. WHEREVER POSSIBLE SILT FENCES SHALL BE CONSTRUCTED ACROSS A FLAT AREA IN THE SHAPE OF A HORSESHOE. THIS AIDS IN PONDING OF RUNOFF AND FACILITATES SEDIMENTATION.
4. AFTER THE CONSTRUCTION AREA IS STABILIZED AND EROSION ACTIVITY CURTAILED, SILT FENCES SHALL BE REMOVED.
5. RING FASTENERS USED TO SECURE GEOTEXTILES TO WOVEN WIRE SHALL BE 13 GA. (AMERICAN).
6. IF WOOD POSTS ARE USED, STAPLES FOR SECURING WOVEN WIRE TO POSTS SHALL BE (9) GAUGE, GALVANIZED, 1-1/2" LONG, 5 PER POST AT APPROX. 1"-0" O.C.
7. WOVEN WIRE TO BE 12-1/2 GAUGE (MIN.).



SILT FENCE - TYPE "B"

NOT TO SCALE



SECTION (METHOD I)

CITY OF TUSCALOOSA

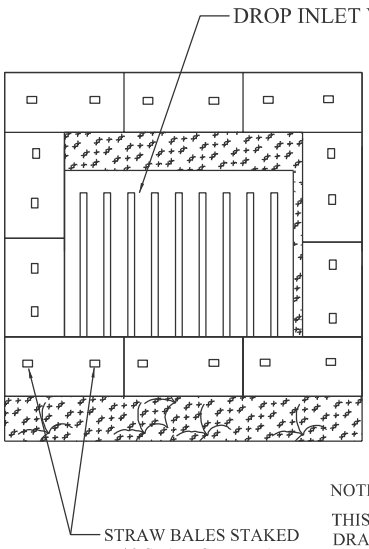
EROSION CONTROL
SILT FENCE - TYPES "A" & "B"

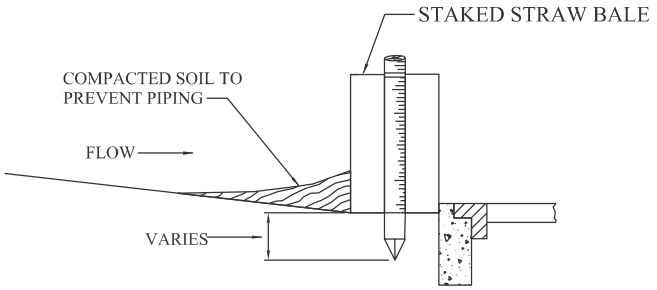
WASTEWATER ENGINEERING STANDARD DETAILS

REVISION

DATE	DESCRIPTION	BY

FILE NAME:		APPROVED BY:	PAGE NO.
DRAWN BY:	FES	Jarrod D. Milligan, PE	SD - 150
DATE:	2011.01.05	Wastewater Engineer	
SCALE:	NOT TO SCALE	CITY OF TUSCALOOSA	



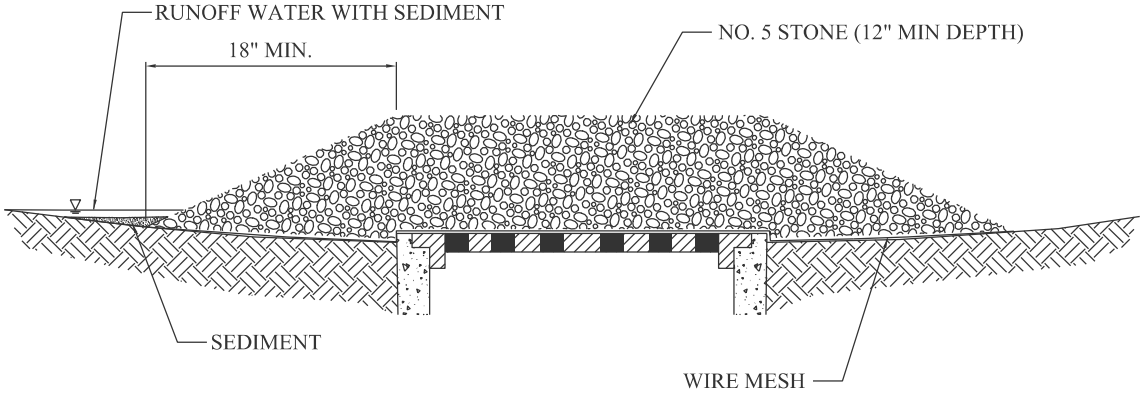


NOTE:

THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE THE INLET DRAINS A RELATIVELY FLAT AREA (SLOPES NO GREATER THAN 5%) WHERE SHEET OR OVERLAND FLOWS (NOT EXCEEDING 0.5 CFS) ARE TYPICAL. THE METHOD SHALL NOT APPLY TO INLETS RECEIVING CONCENTRATED FLOWS, SUCH AS IN STREETS OR HIGHWAY MEDIANS.

SEDIMENT CONTROL STRUCTURE
STRAW BALE DROP INLET SEDIMENT FILTER

NOT TO SCALE



NOTE:

THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE HEAVY CONCENTRATED FLOWS ARE EXPECTED, BUT NOT WHERE PONDING AROUND THE STRUCTURE MIGHT CAUSE EXCESSIVE INCONVENIENCE OR DAMAGE TO ADJACENT STRUCTURES AND UNPROTECTED AREAS.

SEDIMENT CONTROL STRUCTURE
GRAVEL AND WIRE MESH DROP INLET FILTER

NOT TO SCALE

CITY OF TUSCALOOSA

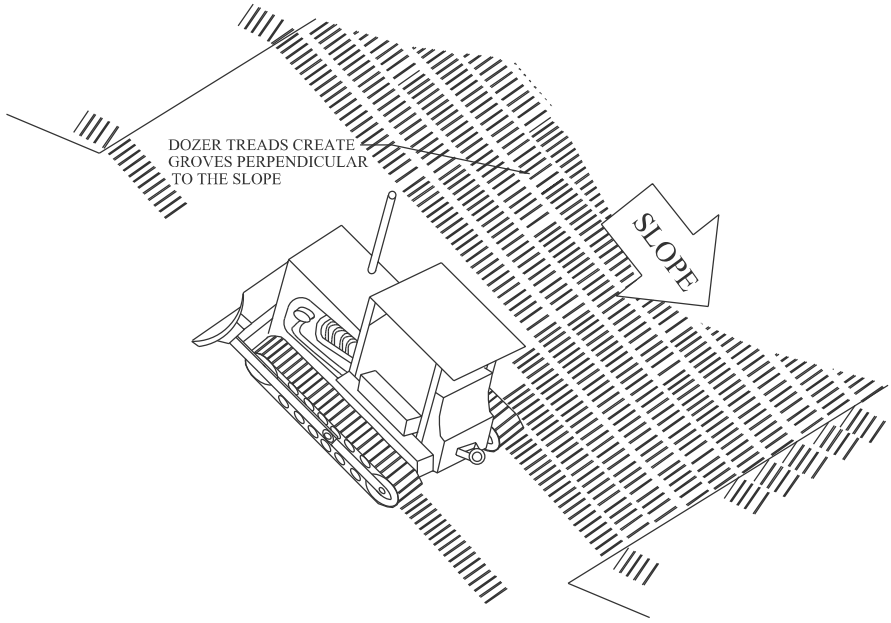
EROSION CONTROL
DROP INLET SEDIMENT FILTERS

WASTEWATER ENGINEERING STANDARD DETAILS

REVISION

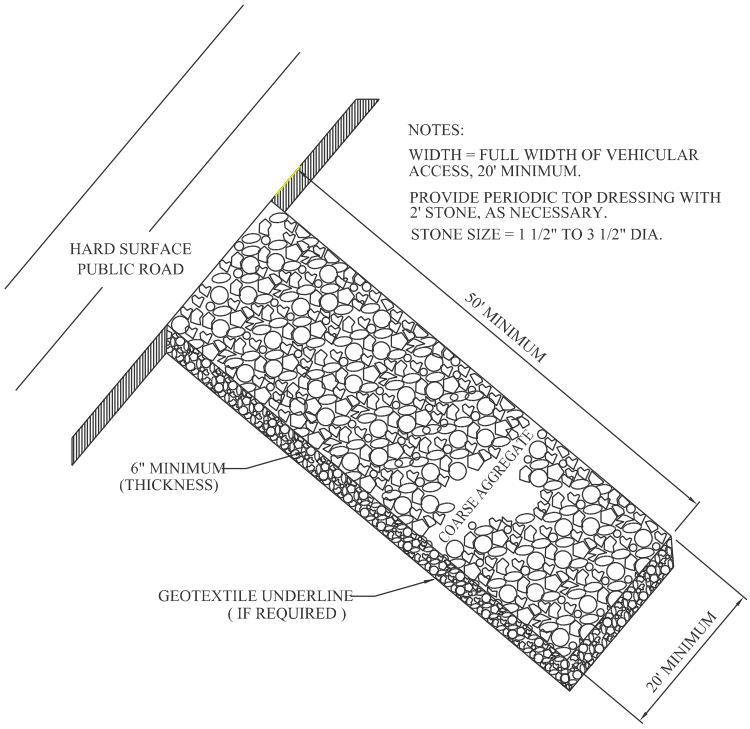
DATE	*DESCRIPTION*	*BY*

FILE NAME:		*APPROVED BY:*	*PAGE NO.*
DRAWN BY:	*FES*	*Jarrod D. Milligan, PE*	SD - 155
DATE:	*2011.01.05*	*Wastewater Engineer*	
SCALE:	*NOT TO SCALE*	*CITY OF TUSCALOOSA*	



SURFACE ROUGHENING

NOT TO SCALE



STONE PAD CONSTRUCTION EXIT

NOT TO SCALE

CITY OF TUSCALOOSA

EROSION CONTROL
SURFACE ROUGHENING AND STONE PAD

WASTEWATER ENGINEERING STANDARD DETAILS

REVISION

DATE	DESCRIPTION	BY

FILE NAME:	
DRAWN BY:	FES
DATE:	2011.01.05
SCALE:	NOT TO SCALE

APPROVED BY:
Jarrod D. Milligan, PE
Wastewater Engineer
CITY OF TUSCALOOSA

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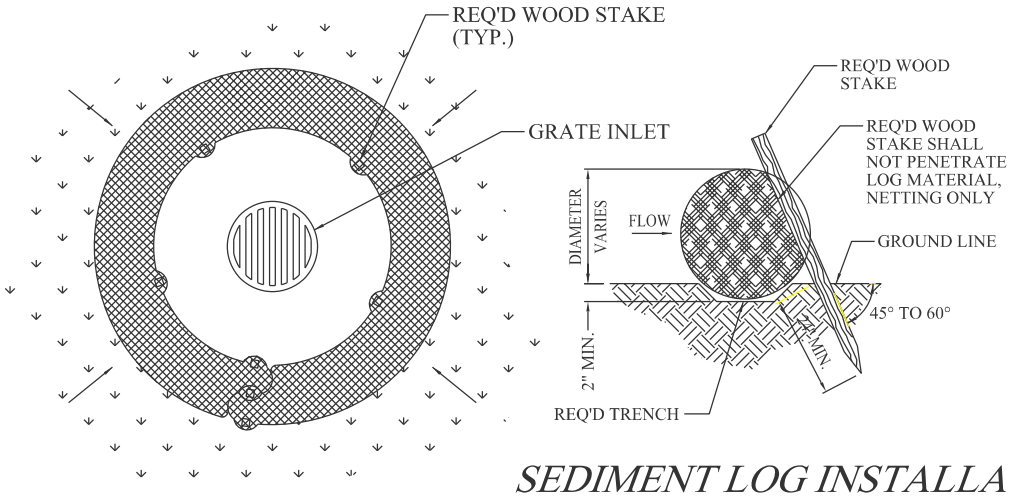
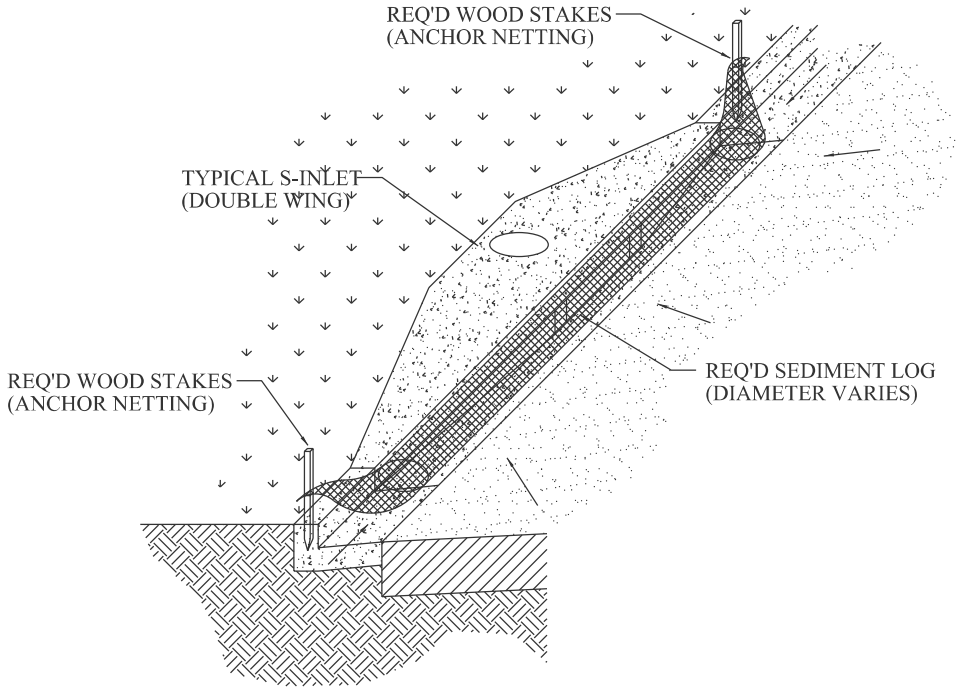


GRATE INLET PROTECTION

NOT TO SCALE

SEDIMENT LOG INSTALLATION

NOT TO SCALE



CURB INLET PROTECTION

NOT TO SCALE

NOTES:

1. WHEN STAKING THE SEDIMENT LOG THE WOODEN STAKES SHALL NOT PENETRATE THE SEDIMENT LOG MATERIAL. THE WOODEN STAKES SHALL ONLY EXTEND THROUGH THE SEDIMENT LOG NETTING.
2. SEDIMENT CONTROL LOGS SHALL BE CURLEX SEDIMENT LOGS AS MANUFACTURED BY AMERICAN EXCELSIOR COMPANY (AEC) OR APPROVED EQUAL.

CITY OF TUSCALOOSA

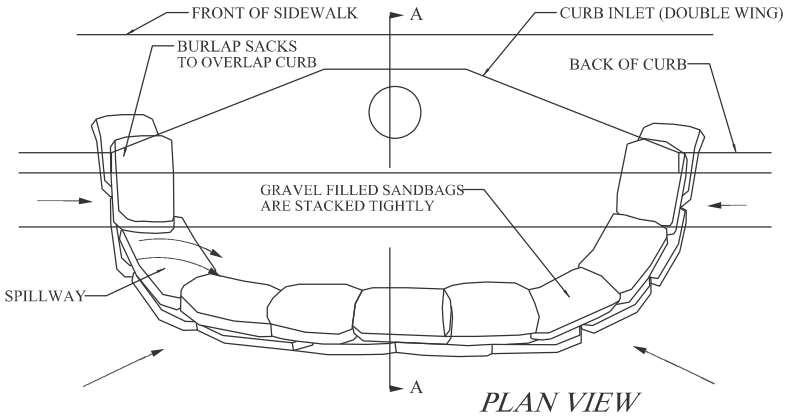
EROSION CONTROL
SEDIMENT CONTROL LOG

WASTEWATER ENGINEERING STANDARD DETAILS

REVISION

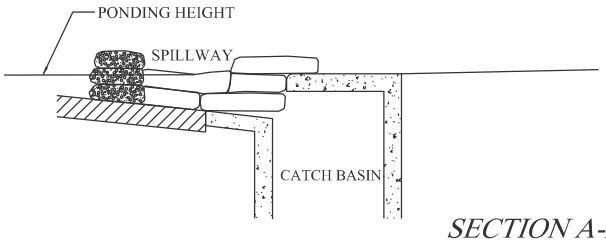
DATE	DESCRIPTION	BY

FILE NAME:		APPROVED BY:	PAGE NO.
DRAWN BY:	FES	Jarrod D. Milligan, PE	SD - 165
DATE:	2011.01.05	Wastewater Engineer	
SCALE:	NOT TO SCALE	CITY OF TUSCALOOSA	



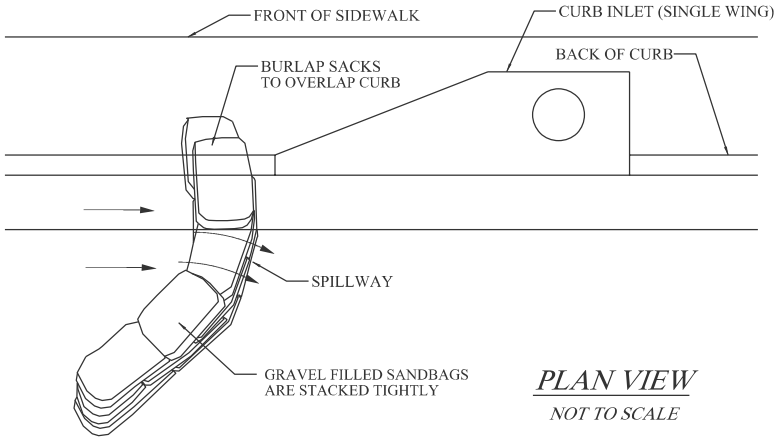
PLAN VIEW

NOT TO SCALE



SECTION A-A

NOT TO SCALE



PLAN VIEW

NOT TO SCALE

NOTES:

1. PLACE CURB TYPE SEDIMENT BARRIERS ON GENTLY SLOPING STREET SEGMENTS, WHERE WATER CAN POND AND ALLOW SEDIMENT TO SEPARATE FROM RUNOFF.
2. SANDBAGS OF EITHER BURLAP OR WOVEN `GEOTEXTILE' FABRIC, ARE FILLED WITH GRAVEL, LAYERED AND PACKED TIGHTLY.
3. LEAVE A ONE SANDBAG GAP IN THE TOP ROW TO PROVIDE A SPILLWAY FOR OVERFLOW.
4. INSPECT BARRIERS AND REMOVE SEDIMENT AFTER EACH STORM EVENT. SEDIMENT AND GRAVEL MUST BE REMOVED FROM THE TRAVELED WAY IMMEDIATELY.

OCE

CITY OF TUSCALOOSA

EROSION CONTROL
CURB INLET PROTECTION (SANDBAGS)

WASTEWATER ENGINEERING STANDARD DETAILS

REVISION

DATE	*DESCRIPTION*	*BY*

FILE NAME:		*APPROVED BY:*	*PAGE NO.*
DRAWN BY:	*FES*	*Jarrod D. Milligan, PE*	SD - 170
DATE:	*2011.01.05*	*Wastewater Engineer*	
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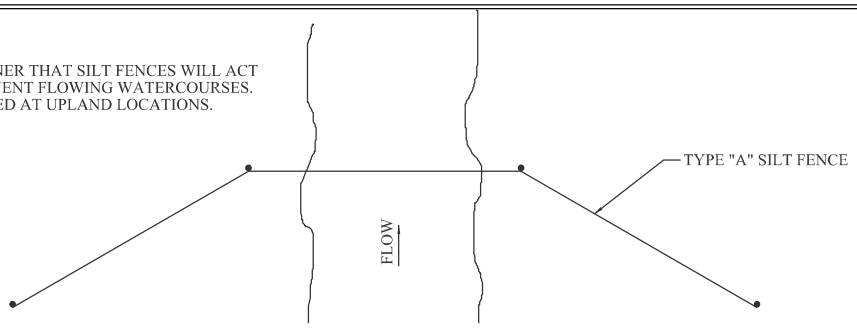
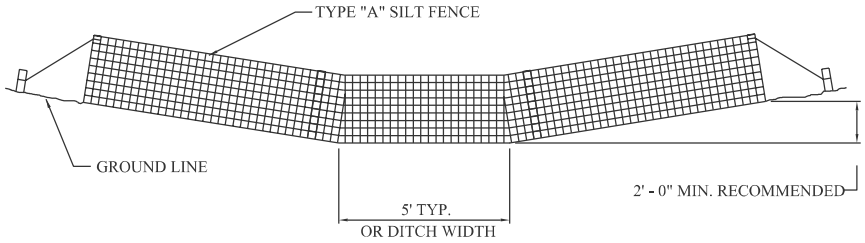
DO NOT DEPLOY IN A MANNER THAT SILT FENCES WILL ACT AS A DAM ACROSS PERMANENT FLOWING WATERCOURSES. SILT FENCES ARE TO BE USED AT UPLAND LOCATIONS.



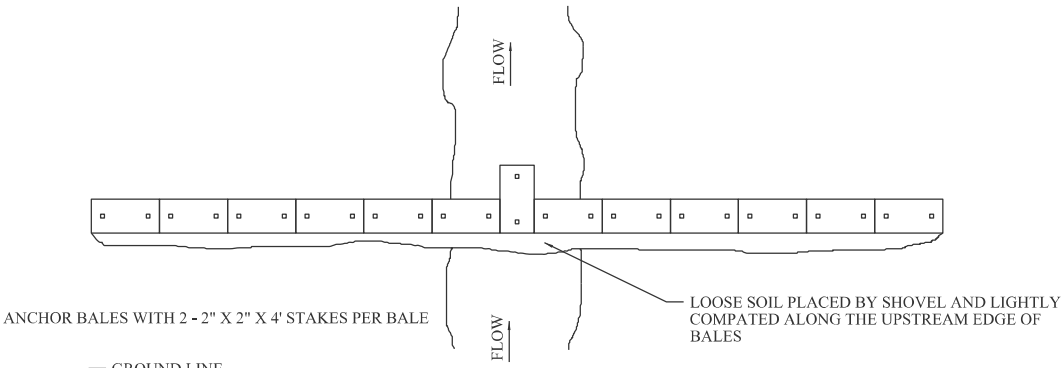
PLAN



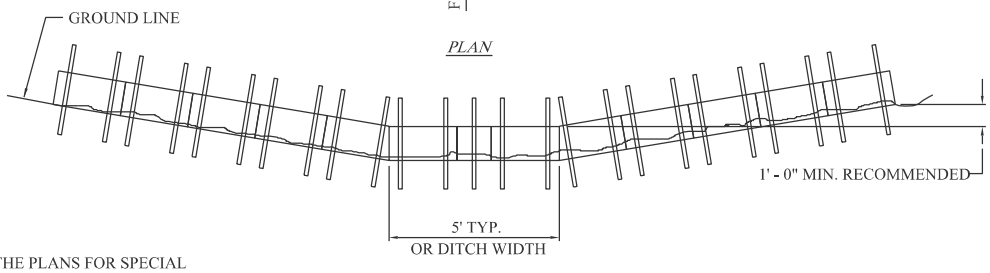
ELEVATION

SILT FENCE DITCH CHECK

NOT TO SCALE



PLAN



ELEVATION

BALED HAY DITCH CHECK

NOT TO SCALE

NOTES:

1. SPACING SHALL BE AS SHOWN ON THE PLANS FOR SPECIAL AREA'S, OR AS DETERMINED BY THE ACTUAL PROJECT NEEDS TO MINIMIZE EROSION.
2. ADDITIONAL EROSION CONTROL METHODS WILL BE REQUIRED AT THE DITCH OUTLET TO CONTAIN SEDIMENT.

CITY OF TUSCALOOSA

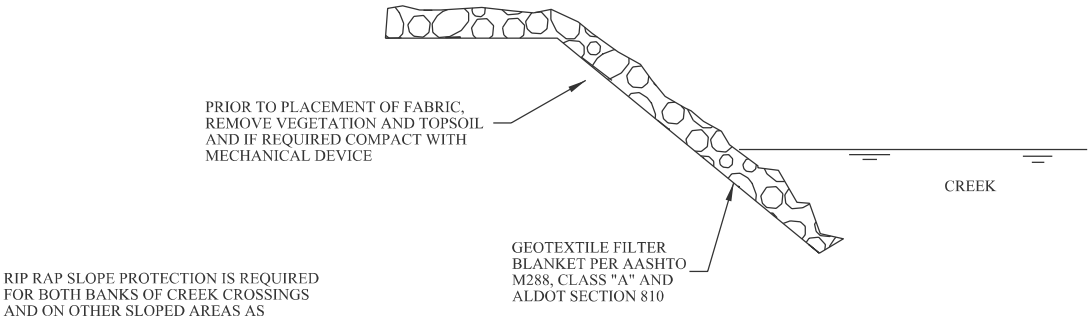
EROSION CONTROL
SILT FENCE & BALED HAY DITCH CHECK

WASTEWATER ENGINEERING STANDARD DETAILS

REVISION

DATE	*DESCRIPTION*	*BY*

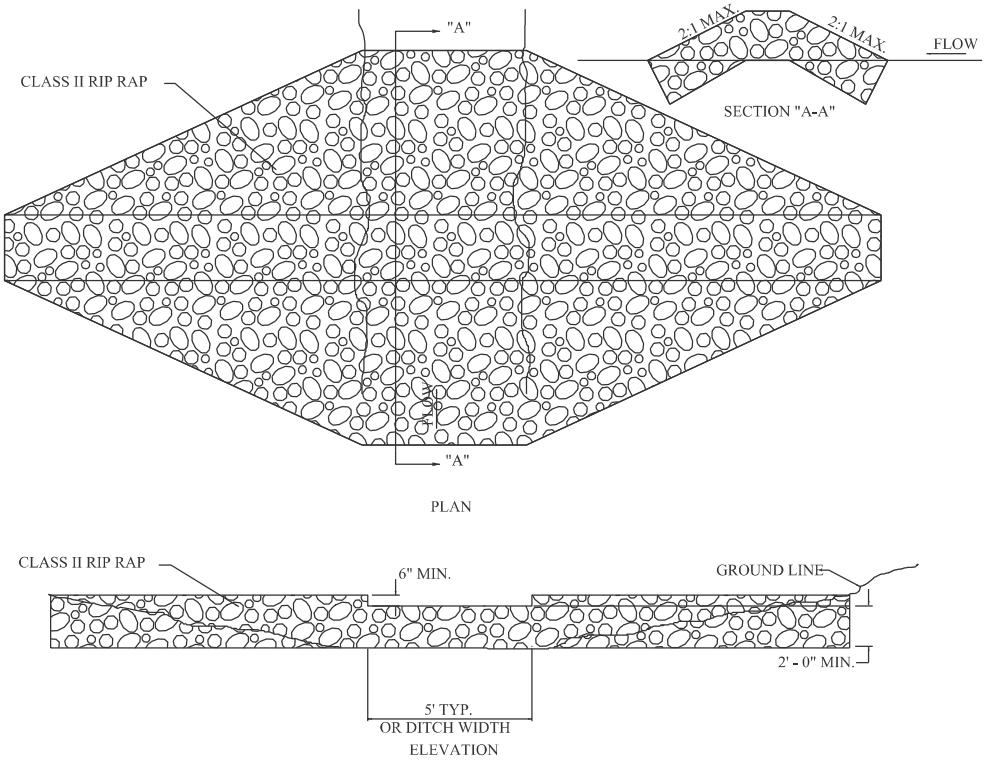
FILE NAME:		*APPROVED BY:*	*PAGE NO.*
DRAWN BY:	*FES*	*Jarrod D. Milligan, PE*	SD - 175
DATE:	*2011.01.05*	*Wastewater Engineer*	
SCALE:	*NOT TO SCALE*	*CITY OF TUSCALOOSA*	



RIP RAP SLOPE PROTECTION IS REQUIRED FOR BOTH BANKS OF CREEK CROSSINGS AND ON OTHER SLOPED AREAS AS DIRECTED BY THE OCE.

RIP RAP SLOPE PROTECTION

NOT TO SCALE



RIP RAP DITCH CHECK

NOT TO SCALE

NOTES:

1. SPACING SHALL BE AS SHOWN ON THE PLANS FOR SPECIAL AREA'S, OR AS DETERMINED BY THE ACTUAL PROJECT NEEDS TO MINIMIZE EROSION.
2. ADDITIONAL EROSION CONTROL METHODS WILL BE REQUIRED AT THE DITCH OUTLET TO CONTAIN SEDIMENT.

OCE

CITY OF TUSCALOOSA

EROSION CONTROL
RIPRAP DITCH CHECK / SLOPE PROTECTION

WASTEWATER ENGINEERING STANDARD DETAILS

REVISION

DATE	*DESCRIPTION*	*BY*

FILE NAME:		*APPROVED BY:*	*PAGE NO.*
DRAWN BY:	*FES*	*Jarrod D. Milligan, PE*	SD - 180
DATE:	*2011.01.05*	*Wastewater Engineer*	
SCALE:	*NOT TO SCALE*	*CITY OF TUSCALOOSA*	