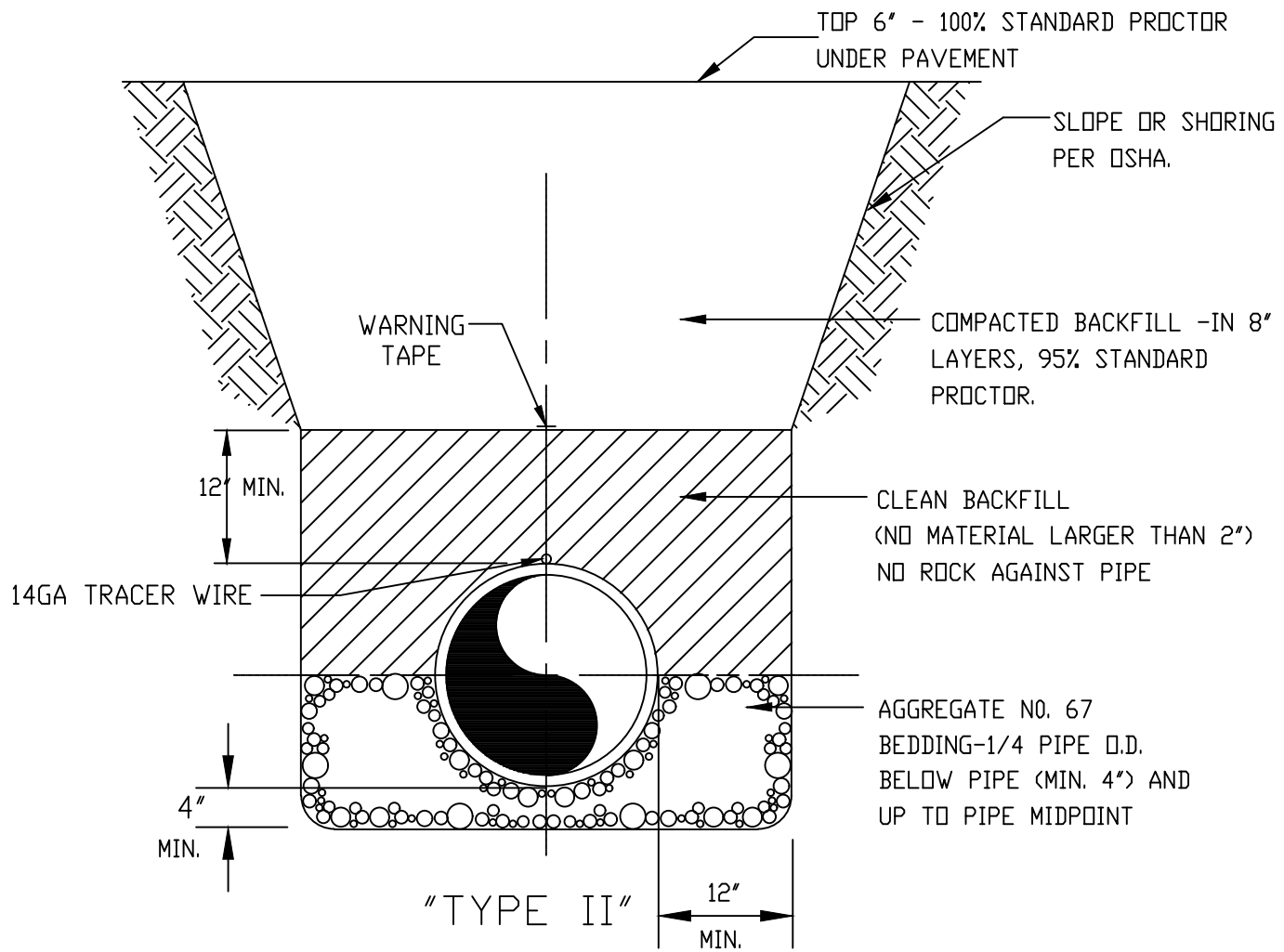


**NOTES:**

1. FOR USE WITH ALL DIP, RCP, VCP & PVC PIPE, EXCEPT GRAVITY SEWERS, UNLESS CONDITIONS OF POOR OR SATURATED SOIL OR ROCK ARE PRESENT.
2. EXCAVATE AT PIPE BELLS SO BELL DOES NOT SUPPORT PIPE.
3. TRENCH SIDE SLOPES SHALL BE IN ACCORDANCE WITH OSHA REQUIREMENTS. SUPPORT OR SHORE AS REQUIRED. BEGIN SIDE SLOPE, IF USED, APPROX. 18" ABOVE TOP OF PIPE.
4. BACKFILL OF TRENCHES SHALL BE ACCOMPLISHED IMMEDIATELY AFTER THE PIPE IS LAID. COMPACTION REQUIREMENTS SHALL BE ATTAINED BY THE USE OF MECHANICAL TAMPS ONLY. EACH AND EVERY LAYER OF BACKFILL SHALL BE PLACED LOOSE IN 8" LAYERS AND THOROUGHLY COMPACTED INTO PLACE.
5. UNDER NO CIRCUMSTANCES SHALL WATER BE PERMITTED TO RISE IN UNBACKFILLED TRENCHES AFTER THE PIPE HAS BEEN PLACED.
6. ALL MATERIAL UNDER PAVEMENT SHALL HAVE AN IN PLACE DENSITY OF 100% TO A DEPTH 6" BELOW SUBGRADE, AND 95% AT DEPTHS GREATER THAN 6".
7. 14GA TRACER WIRE AND WARNING TAPE ARE REQUIRED FOR ALL PUBLIC WATER AND SEWER MAINS.

TROUTMAN, NC STANDARD DETAIL	DATE: OCTOBER, 2021
PIPE INSTALLATION TYPE 1 BEDDING	SCALE: NONE
	STANDARD P-1



**NOTES:**

1. FOR USE WITH ALL SEWER PIPE, UNLESS CONDITIONS OF POOR OR SATURATED SOIL OR ROCK ARE PRESENT.
2. TRENCH SIDE SLOPES SHALL BE IN ACCORDANCE WITH OSHA REQUIREMENTS. SUPPORT OR SHORE AS REQUIRED. BEGIN SIDE SLOPE, IF USED, APPROX. 18" ABOVE TOP OF PIPE.
3. BACKFILLING OF TRENCHES SHALL BE ACCOMPLISHED IMMEDIATELY AFTER THE PIPE IS LAID. COMPACTION REQUIREMENTS SHALL BE ATTAINED BY THE USE OF MECHANICAL TAMPS ONLY. EACH AND EVERY LAYER OF BACKFILL SHALL BE PLACED LOOSE IN 8" LAYERS AND THOROUGHLY COMPACTED INTO PLACE.
4. UNDER NO CIRCUMSTANCES SHALL WATER BE PERMITTED TO RISE IN UNBACKFILLED TRENCHES AFTER THE PIPE HAS BEEN PLACED.
5. ALL MATERIAL UNDER PAVEMENT SHALL HAVE AN IN PLACE DENSITY OF 100% TO A DEPTH 6" BELOW SUBGRADE, AND 95% AT DEPTHS GREATER THAN 6".
6. 14GA TRACER WIRE AND WARNING TAPE ARE REQUIRED FOR ALL PUBLIC WATER AND SEWER MAINS.

TROUTMAN, NC STANDARD DETAIL

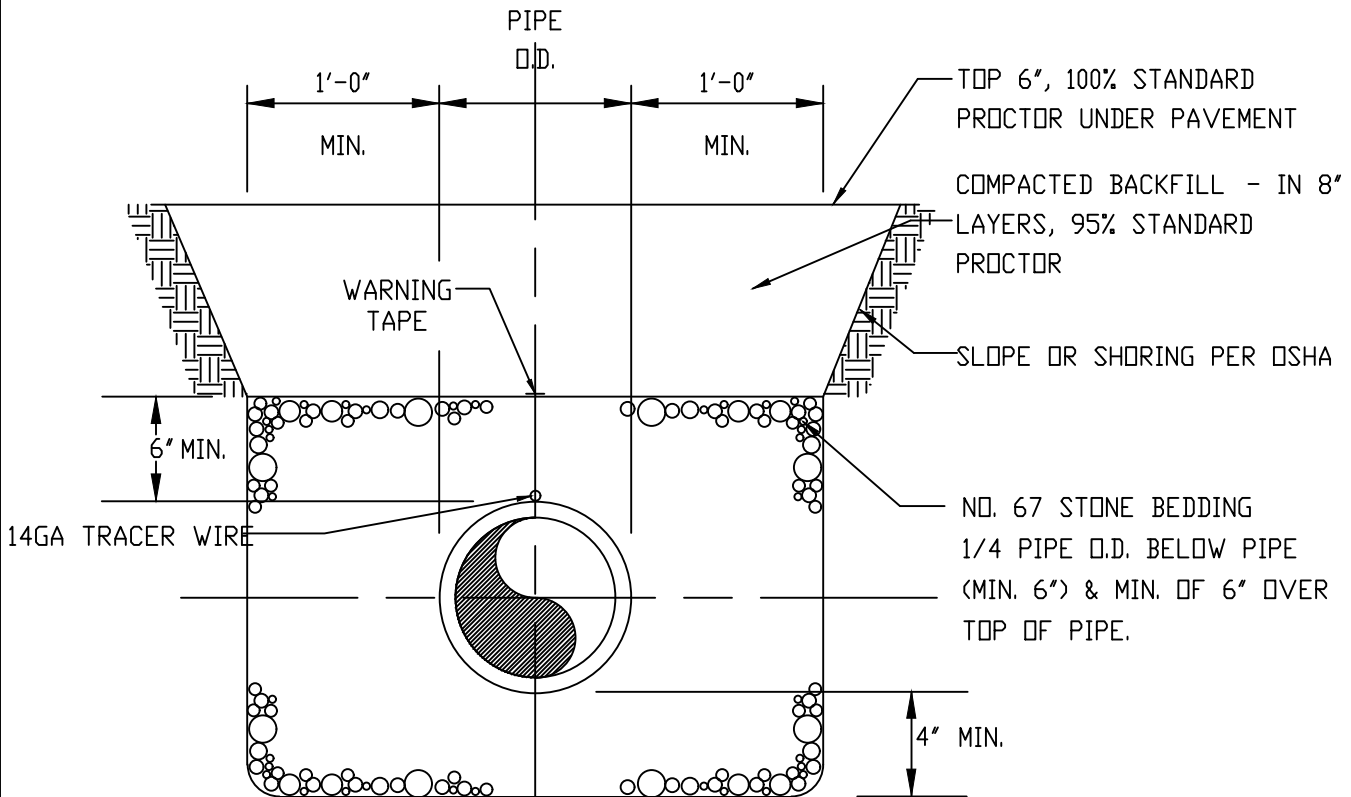
DATE: OCTOBER, 2021

PIPE INSTALLATION  
TYPE II BEDDING

SCALE: NONE

STANDARD

P-2



"TYPE III"

NOTES:

1. FOR USE WITH ALL GRAVITY SEWER PIPE WHEN CONDITIONS OF POOR OR SATURATED SOIL OR ROCK ARE PRESENT.
2. TRENCH SIDE SLOPES SHALL BE IN ACCORDANCE WITH OSHA REQUIREMENTS. SUPPORT OR SHORE AS REQUIRED. BEGIN SIDE SLOPE, IF USED, APPROX. 18" ABOVE TOP OF PIPE.
3. BACKFILLING OF TRENCHES SHALL BE ACCOMPLISHED IMMEDIATELY AFTER THE PIPE IS LAID. COMPACTION REQUIREMENTS SHALL BE ATTAINED BY THE USE OF MECHANICAL TAMPS ONLY. EACH AND EVERY LAYER OF BACKFILL SHALL BE PLACED LOOSE IN 8" LAYERS AND THOROUGHLY COMPACTED INTO PLACE.
4. UNDER NO CIRCUMSTANCES SHALL WATER BE PERMITTED TO RISE IN UNBACKFILLED TRENCHES AFTER THE PIPE HAS BEEN PLACED.
5. ALL MATERIAL UNDER PAVEMENT SHALL HAVE AN IN PLACE DENSITY OF 100% TO A DEPTH 6" BELOW SUBGRADE, AND 95% AT DEPTHS GREATER THAN 6".
6. 14GA TRACER WIRE AND WARNING TAPE ARE REQUIRED FOR ALL PUBLIC WATER AND SEWER MAINS.

TROUTMAN, NC STANDARD DETAIL

DATE: OCTOBER, 2021

PIPE INSTALLATION  
TYPE III BEDDING

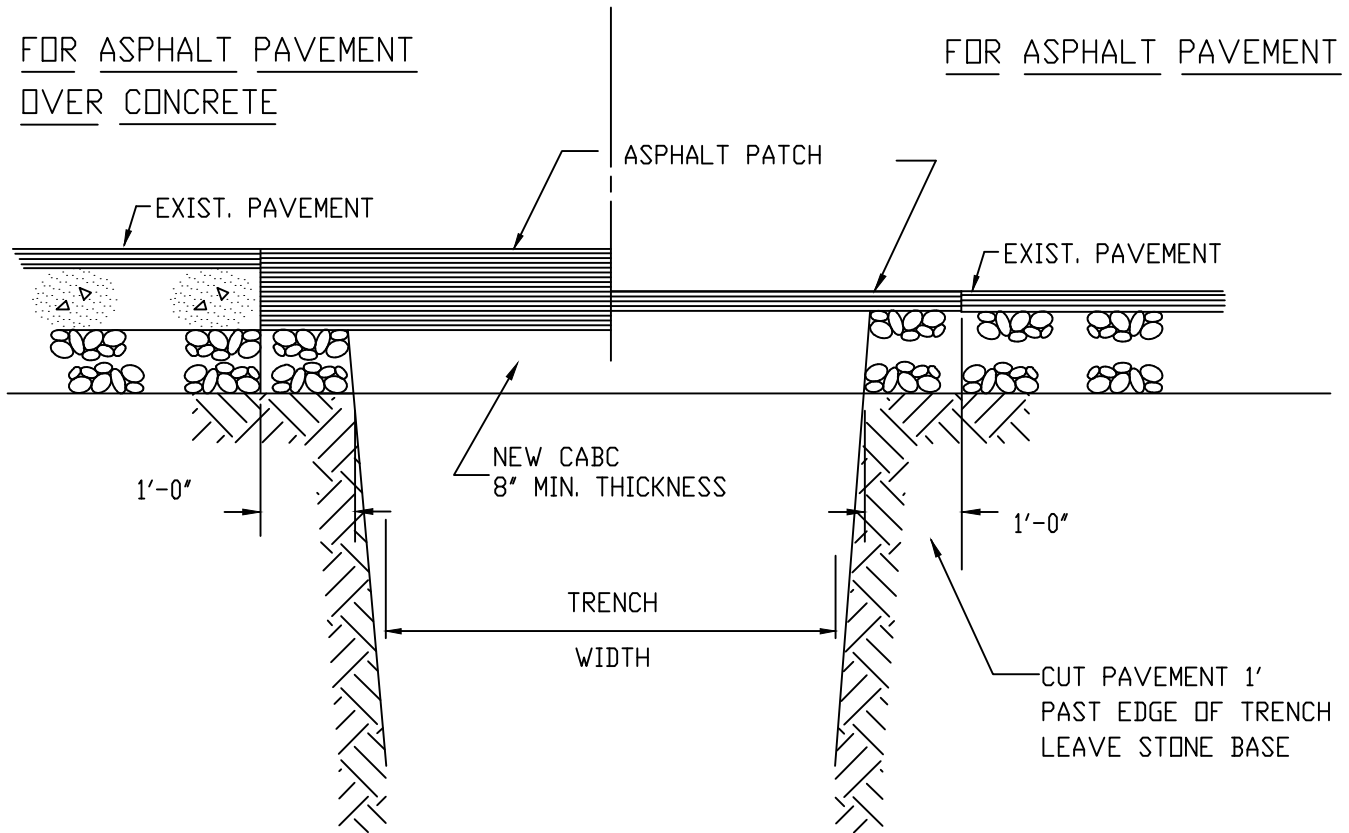
SCALE: NONE

STANDARD

P-3

FOR ASPHALT PAVEMENT  
OVER CONCRETE

FOR ASPHALT PAVEMENT



NOTES:

1. UNTIL ASPHALT PATCH HAS BEEN INSTALLED STONE BASE SHALL BE PLACED FLUSH WITH THE EXISTING SURFACE FOR A MINIMUM DEPTH OF 10 INCHES.
2. OPEN CUTTING OF STATE ROADS MUST BE APPROVED BY NCDOT, AND REPAIRS MUST BE MADE IN ACCORDANCE WITH NCDOT REQUIREMENTS.
3. EXISTING PAVEMENT SHALL BE REMOVED FOR A DISTANCE OF 1 FOOT BEYOND BOTH SIDES OF THE TRENCH OPENING.
4. ASPHALT PATCH TO BE TYPE S 9.5C ASPHALT.

TROUTMAN, NC STANDARD DETAIL

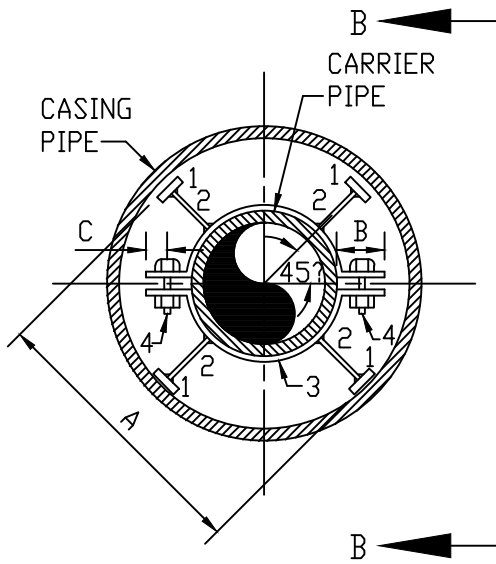
DATE: OCTOBER, 2021

PIPE INSTALLATION  
PAVEMENT REPAIR

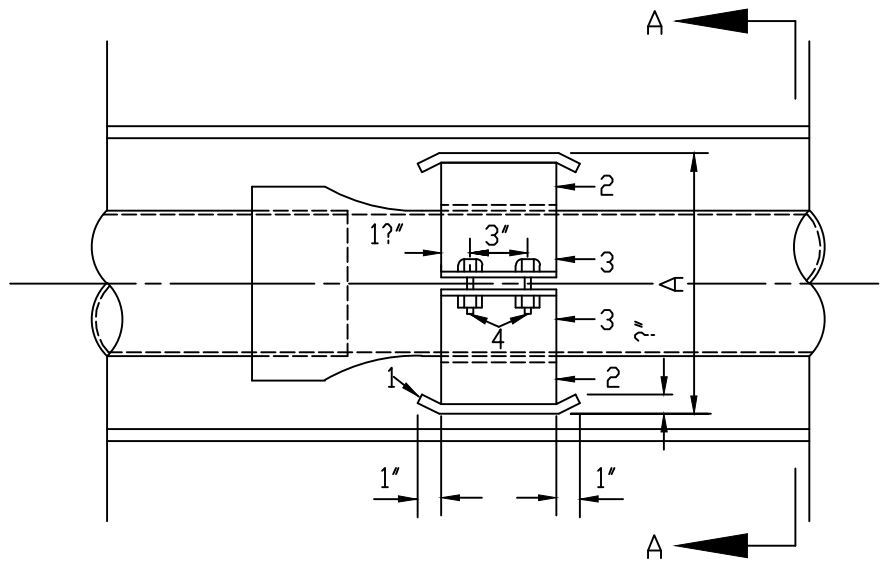
SCALE: NONE

STANDARD

P-4



SECTION A-A



SECTION B-B

CARRIER PIPE		CASING PIPE			PIPE SUPPORT ASSEMBLY MARK NUMBERS				DIMENSIONS		
		ID	OD	HWY	R/R	1	2	3	4	A	B
4"	4.80"	12.75"	0.188"	0.250"	8' x 2' x 1/4'	6' x 2 1/2' x 1/4'	6' x 1/4'	3/8"φ	10.80"	1 3/4"	3/4"
6"	6.90"	12.75"	0.188"	0.250"	8' x 2' x 1/4'	6' x 1 1/2' x 1/4'	6' x 1/4'	3/8"φ	10.90"	1 3/4"	3/4"
8"	9.05"	16.00"	0.250"	0.281"	8' x 2' x 1/4'	6' x 2' x 1/4'	6' x 1/4'	3/8"φ	14.05"	1 3/4"	3/4"
10"	11.10"	18.00"	0.250"	0.312"	8' x 2' x 1/4'	6' x 2' x 1/4'	6' x 1/4'	3/8"φ	16.10"	1 3/4"	3/4"
12"	13.20"	20.00"	0.250"	0.344"	8' x 2' x 1/4'	6' x 1 3/4' x 1/4'	6' x 1/4'	3/8"φ	17.70"	1 3/4"	3/4"
14"	15.30"	24.00"	0.250"	0.406"	8' x 3' x 1/4'	6' x 2 3/4' x 1/4'	6' x 1/4'	3/8"φ	21.80"	2 1/4"	1 1/4"
16"	17.40"	30.00"	0.312"	0.500"	8' x 3' x 3/8'	6' x 4 1/4' x 3/8'	6' x 3/8'	1/2"φ	27.40"	3"	1 3/8"
18"	19.50"	30.00"	0.312"	0.500"	8' x 3' x 3/8'	6' x 3 1/4' x 3/8'	6' x 3/8'	1/2"φ	27.50"	3"	1 3/8"
20"	21.60"	30.00"	0.312"	0.500"	8' x 3' x 3/8'	6' x 2 1/4' x 1/2'	6' x 3/8'	1/2"φ	27.60"	3"	1 3/8"
24"	25.80"	36.00"	0.375"	0.562"	8' x 4' x 3/8'	6' x 2 3/4' x 1/2'	6' x 1/2'	1/2"φ	33.05"	3"	1 3/8"

NOTE: DIMENSIONS FOR SUPPORT ASSEMBLY MEMBERS AND CASING PIPE BASED ON MJ DI PIPE. PIPE WITH OTHER TYPES OF JOINTS MAY REQUIRE DIFFERENT SIZES.

1. ENDS OF CASING TO HAVE MASONRY SEAL WITH MINIMUM 8" THICKNESS.
2. SPACERS AND RUNNERS FOR 24"φ PIPES AND SMALLER SHALL BE PLACED AT 10' ON CENTER AND NOT MORE THAN 5' FROM EACH END OF CASING PIPE.

TROUTMAN, NC STANDARD DETAIL

DATE: OCTOBER, 2021

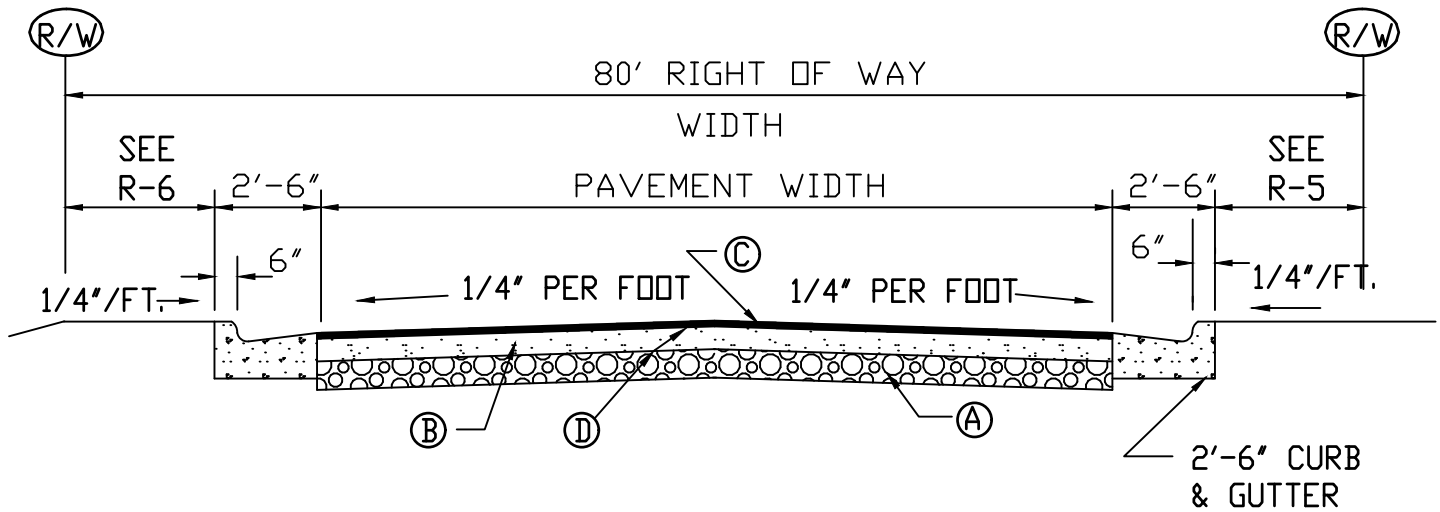
PIPE INSTALLATION

SCALE: NONE

STEEL ENCASED PIPE SUPPORT

STANDARD

P-5



TYPICAL CROSS SECTION  
 MAJOR THOROUGHFARES & MINOR THOROUGHFARES

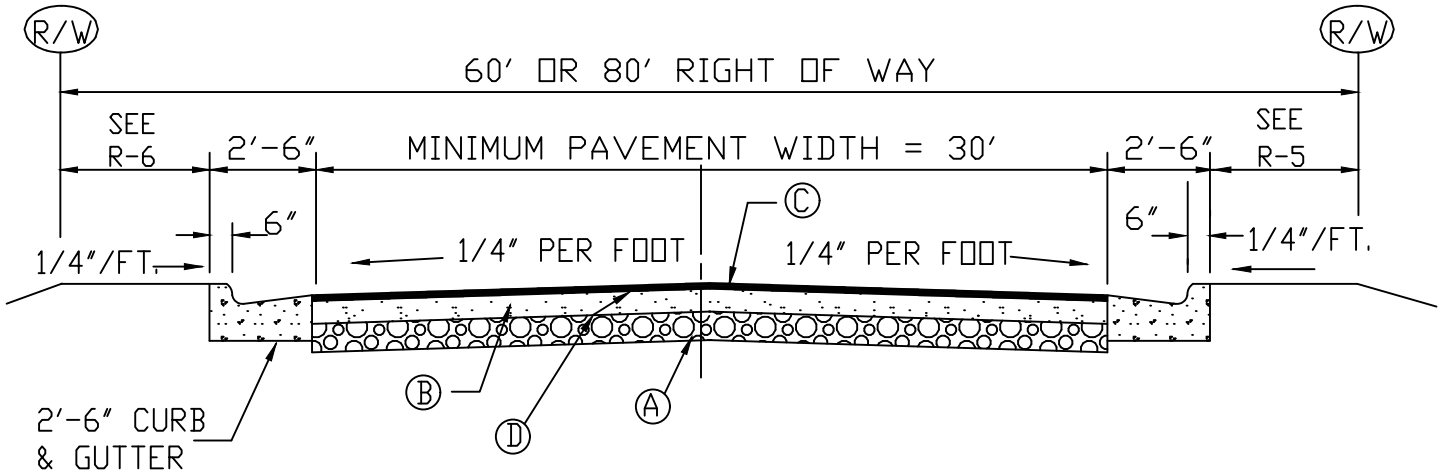
CLASSIFICATION OF STREET IS TO BE DETERMINED BY THE TOWN OR NCDOT. NCDOT MAY HAVE ADDITIONAL REQUIREMENTS FOR NCDOT MAINTAINED ROADS. THOROUGHFARES TO HAVE 5' SIDEWALK ON BOTH SIDES OF ROAD. MINIMUM RADIUS WITH INTERSECTING STREETS TO BE DETERMINED BY THE TOWN OR NCDOT.

MINIMUM PAVEMENT SCHEDULE

- (A) 12" COMPACTED AGGREGATE BASE COURSE OR 6" BITUMINOUS CONCRETE BASE COURSE TYPE B-25.0C.
- (B) 3" BITUMINOUS CONCRETE INTERMEDIATE COURSE TYPE I-19.0C, PLACED IMMEDIATELY UPON FINAL PREPARATION OF ABC STONE BASE.
- (C) 2" BITUMINOUS CONCRETE SURFACE COURSE. TYPE S-9.5C, PLACED IN ONE LIFT.
- (D) TACK COAT SHALL BE APPLIED BETWEEN ASPHALT PLANT MIX COURSES. EXISTING SURFACE SHALL BE CLEANED PRIOR TO TACK COAT APPLICATION.

STREET TYPE	MINIMUM RIGHT OF WAY WIDTH (FEET)	MINIMUM PAVEMENT WIDTH (FEET)
MAJOR THOROUGHFARE	80'	48'-(60' IF CENTER TURN LANE)
MINOR THOROUGHFARE	80'	24'-(36' IF CENTER TURN LANE)

TROUTMAN, NC STANDARD DETAIL	DATE: SEPTEMBER 2021
ROADS	SCALE: NONE
CROSS SECTION STANDARD 1	STANDARD R-1



TYPICAL CROSS SECTION  
COMMERCIAL AND INDUSTRIAL STREETS

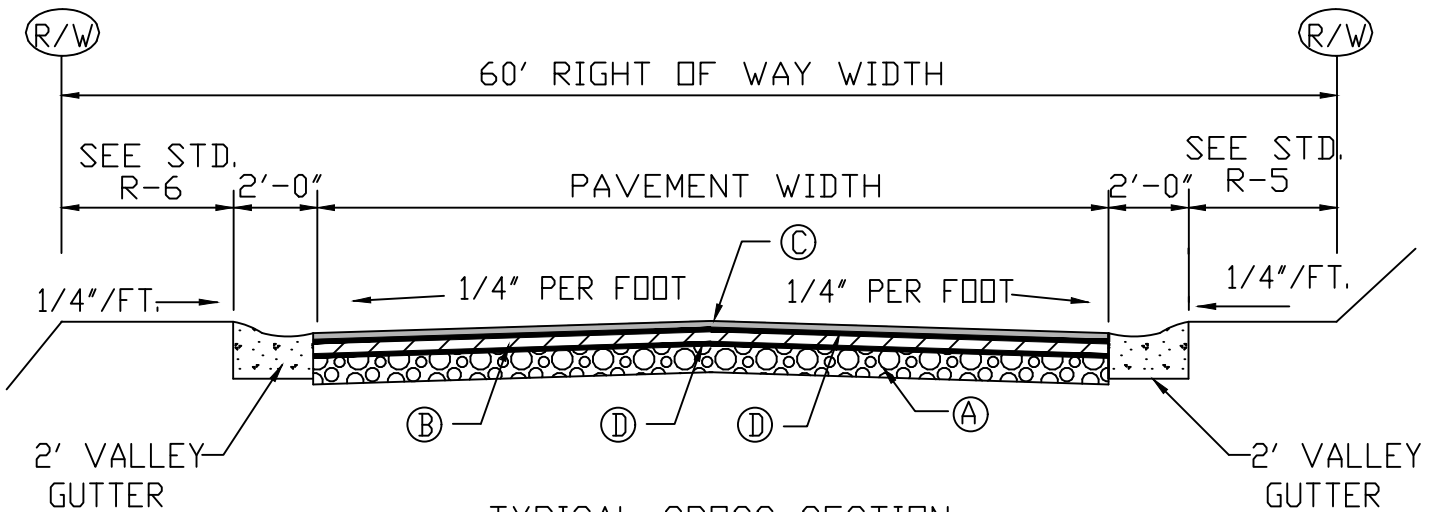
COMMERCIAL STREETS TO HAVE 5' SIDEWALK ON BOTH SIDES OF STREET. INDUSTRIAL STREETS MAY HAVE TO HAVE SIDEWALKS (MIN. 5' WIDE) ON ONE OR BOTH SIDES OF STREET AS DETERMINED BY THE TRC. MINIMUM RADIUS WITH INTERSECTING STREETS TO BE DETERMINED BY THE TOWN OR NCDOT.

PAVEMENT SCHEDULE

- (A) 10" COMPACTED AGGREGATE BASE COURSE OR 5" BITUMINOUS CONCRETE BASE COURSE TYPE B-25.0C.
- (B) 3" BITUMINOUS CONCRETE INTERMEDIATE COURSE TYPE I-19.0C, PLACED IMMEDIATELY UPON FINAL PREPARATION OF ABC STONE BASE.
- (C) 2" BITUMINOUS CONCRETE SURFACE COURSE. TYPE S-9.5C, PLACED IN ONE LIFT.
- (D) TACK COAT SHALL BE APPLIED BETWEEN ASPHALT PLANT MIX COURSES. EXISTING SURFACE SHALL BE CLEANED PRIOR TO TACK COAT APPLICATION.

<u>STREET TYPE</u>	<u>MIN. R/W WIDTH</u>	<u>MIN. PAVEMENT WIDTH</u>
STANDARD	60'	30'
COLLECTOR	80'	36', 48', OR 60' (BASED ON NUMBER OF LANES REQUIRED)

TROUTMAN, NC STANDARD DETAIL		DATE: SEPTEMBER 2021	
ROADS		SCALE: NONE	
CROSS SECTION STANDARD 2		STANDARD	R-2



TYPICAL CROSS SECTION  
RESIDENTIAL STREETS

MINIMUM PAVEMENT SCHEDULE

- (A) 8" COMPACTED AGGREGATE BASE COURSE OR 4" BITUMINOUS CONCRETE BASE COURSE, TYPE B-25.0C.
- (B) 3" TOTAL BITUMINOUS CONCRETE SURFACE COURSE: PLACE 2" OF TYPE S-9.5C, IMMEDIATELY AFTER PREPARATION OF BASE.
- (C) PLACE 1" OF S9.5B PLACED AFTER 90% DEVELOPMENT OCCUPANCY.
- (D) TACK COAT REQUIRED BETWEEN ALL BITUMINOUS COURSES, INCLUDING ON BASE COURSE IF TYPE B-25.0C IS USED. CLEAN EACH COURSE PRIOR TO TACK COAT APPLICATION.

NOTES

1. USE 2'-0" VALLEY GUTTER
2. TYPE OF STREET IS DETERMINED BY THE TOWN.
3. FOR LOCAL COMMERCIAL AND INDUSTRIAL STREETS - SEE R-2
4. RESIDENTIAL COLLECTOR STREETS TO HAVE SIDEWALK ON BOTH SIDES OF STREET. LOCAL RESIDENTIAL STREETS TO HAVE SIDEWALK ON ONE (WATERLINE SIDE) SIDE OF STREET. SIDEWALKS TO BE MIN. 5' WIDE.
5. INTERSECTING STREETS SHALL HAVE A MINIMUM RADIUS OF 20 FT AT THE BACK OF THE CURB.
6. IF ON STREET PARKING IS ALLOWED THE TOWN MAY REQUIRE ADDITIONAL PAVEMENT WIDTH.

MINIMUM WIDTH OF PAVEMENT

RESIDENTIAL COLLECTOR STREET	30'
LOCAL RESIDENTIAL STREET	24'

TROUTMAN, NC STANDARD DETAIL

DATE: SEPTEMBER 2021

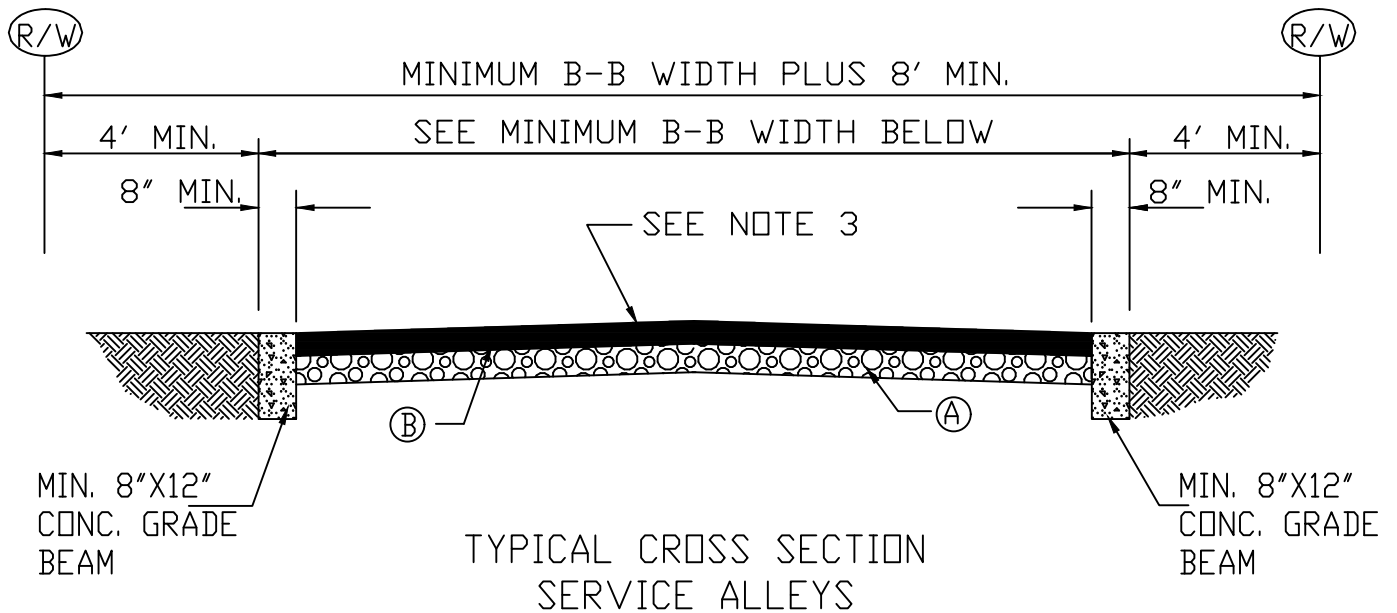
ROADS

SCALE: NONE

CROSS SECTION STANDARD 3

STANDARD R-3





MINIMUM PAVEMENT SCHEDULE

- (A) 6" COMPACTED AGGREGATE BASE COURSE.
- (B) 2" BITUMINOUS CONCRETE SURFACE COURSE, TYPE S-9.5C TO BE PLACED IMMEDIATELY UPON FINAL PREPARATION OF BASE.

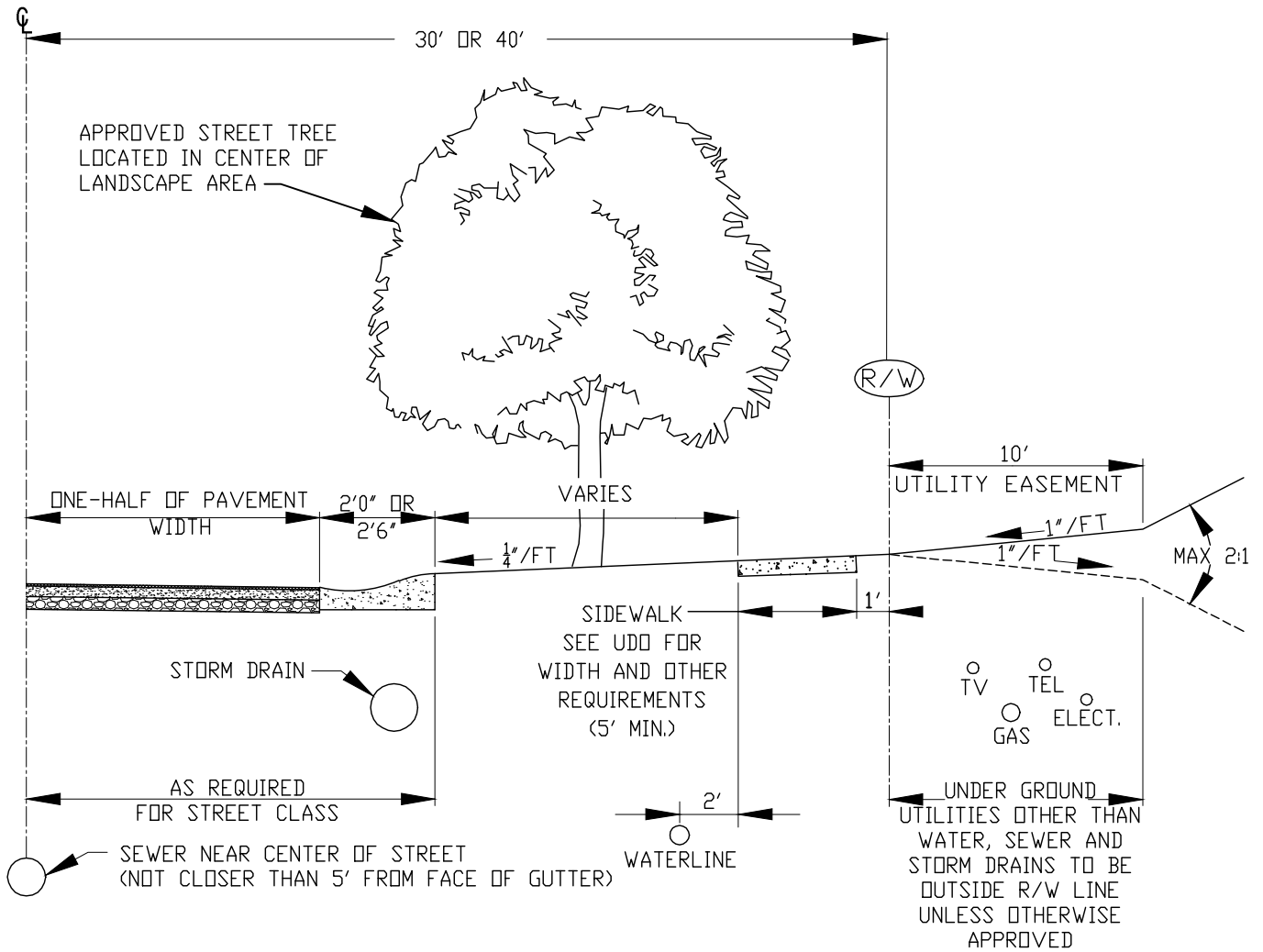
NOTES

1. CONCRETE GRADE BEAMS TO HAVE EXPANSION AND CONTRACTION JOINT SPACINGS THE SAME AS CONCRETE CURB AND GUTTER.
2. INTERSECTIONS WITH STREETS OR OTHER ALLEYS SHALL HAVE A MINIMUM RADIUS OF 15 FT AT THE BACK OF THE CONCRETE GRADE BEAM.
3. ROADWAY MAY BE CONSTRUCTED FLAT, WITH A CROWN OR WITH A VALLEY AS LONG AS RUNOFF IS DIRECTED TO THE STORM DRAINAGE SYSTEM. CROSS SLOPE FOR CROWN OR VALLEY SECTION SHALL BE 1/4"/FT.

MINIMUM WIDTH BACK TO BACK OF GRADE BEAM

ONE WAY TRAFFIC	12'
TWO WAY TRAFFIC	20'

TROUTMAN, NC STANDARD DETAIL	DATE: SEPTEMBER 2021
ROADS	SCALE: NONE
SERVICE ALLEY SECTION	STANDARD: R-4



NOTES:

1. REFER TO THE UNIFORM DEVELOPMENT ORDINANCE FOR SIDEWALK REQUIREMENTS.
2. FOR THOROUGHFARES AND COMMERCIAL/INDUSTRIAL STREETS  
SUBMIT PROPOSED TYPICAL SECTION TO TOWN AND N.C.D.O.T.  
FOR INDIVIDUAL REVIEW AND APPROVAL.
3. UNLESS OTHERWISE STATED IN THE UNIFORM DEVELOPMENT ORDINANCE, STREET TREE SHALL BE PLANTED AT A RATE OF 5 PER 200 FEET, PER SIDE.

RIGHT ROAD SHOULDER SECTION  
SHOWING UNDERGROUND UTILITIES

TROUTMAN, NC STANDARD DETAIL

DATE: SEPTEMBER 2021

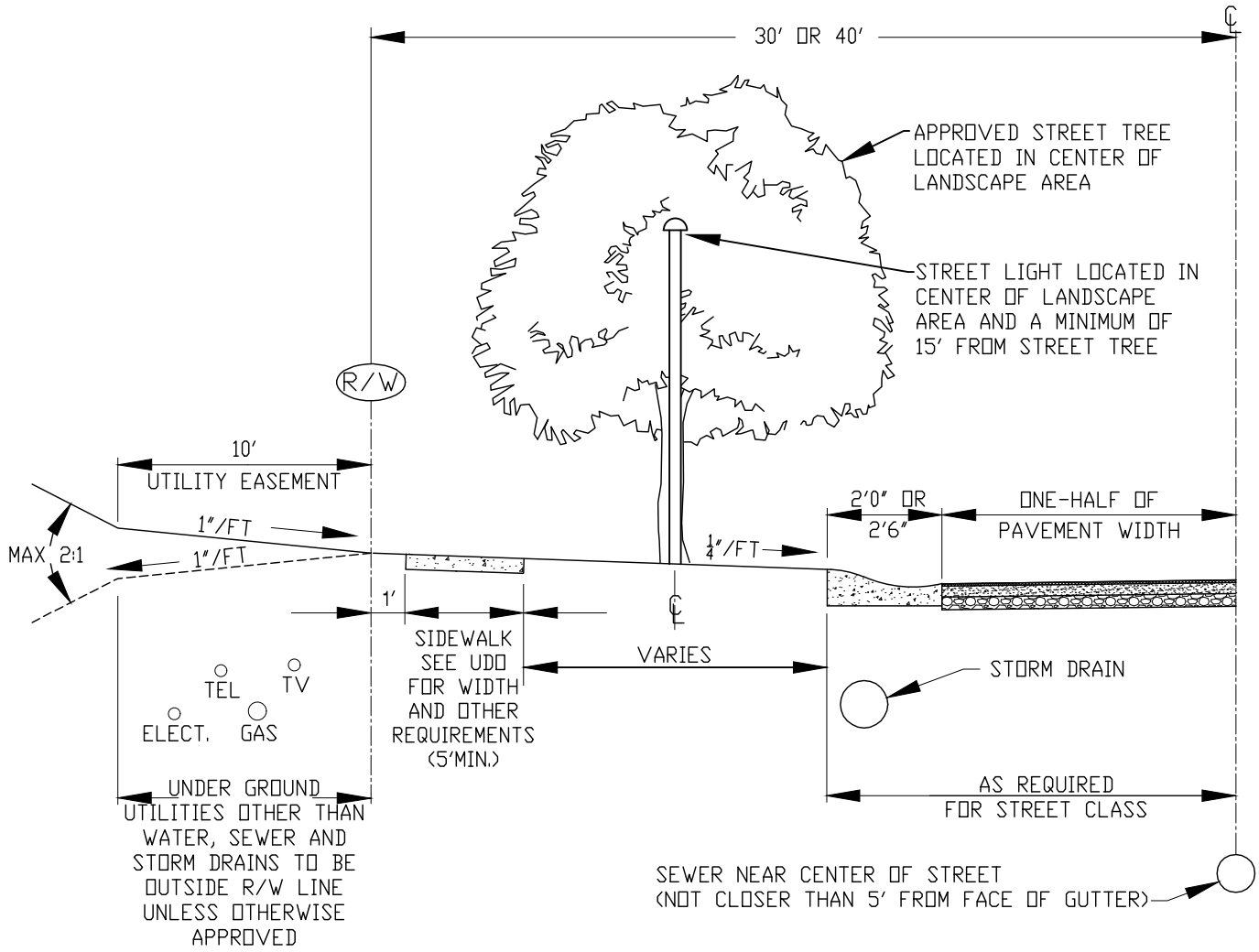
ROADS

SCALE: NONE

RIGHT SHOULDER SECTION

STANDARD:

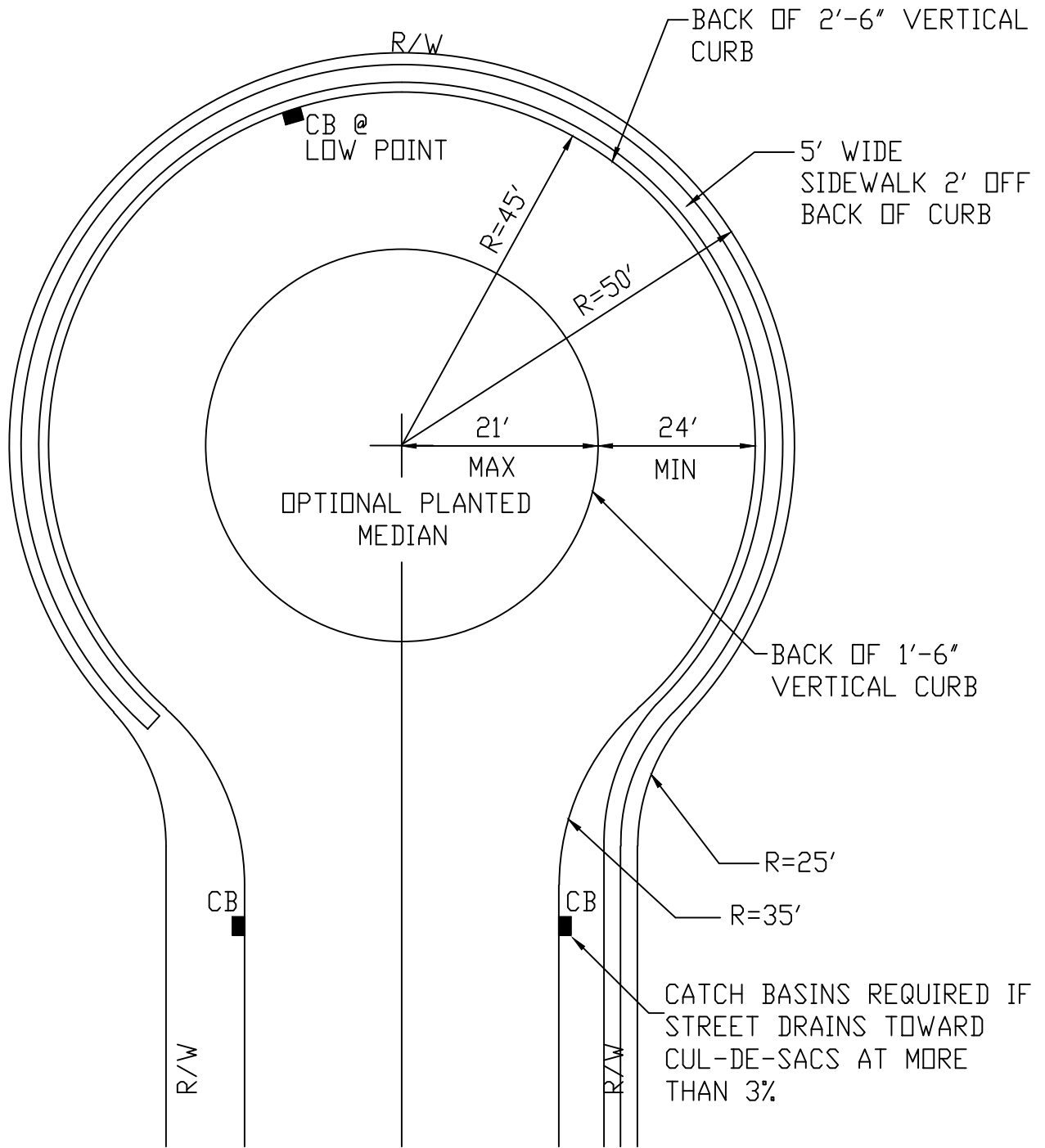
R-5



- NOTES:
1. REFER TO THE UNIFORM DEVELOPMENT ORDINANCE FOR SIDEWALK REQUIREMENTS.
  2. FOR THOROUGHFARES AND COMMERCIAL/INDUSTRIAL STREETS  
SUBMIT PROPOSED TYPICAL SECTION TO TOWN AND N.C.D.O.T.  
FOR INDIVIDUAL REVIEW AND APPROVAL.
  3. UNLESS OTHERWISE STATED IN THE UNIFORM DEVELOPMENT ORDINANCE, STREET TREE  
SHALL BE PLANTED AT A RATE OF 5 PER 200 FEET, PER SIDE.

LEFT ROAD SHOULDER SECTION  
SHOWING UNDERGROUND UTILITIES

TROUTMAN, NC STANDARD DETAIL	DATE: SEPTEMBER, 2021
ROADS LEFT SHOULDER SECTION	SCALE: NONE
	STANDARD R-6



CUL-DE-SACS  
COMMERCIAL/INDUSTRIAL DEAD END STREETS

REVISED MAY 5, 2010

TROUTMAN, NC STANDARD DETAIL

DATE: APRIL 2006

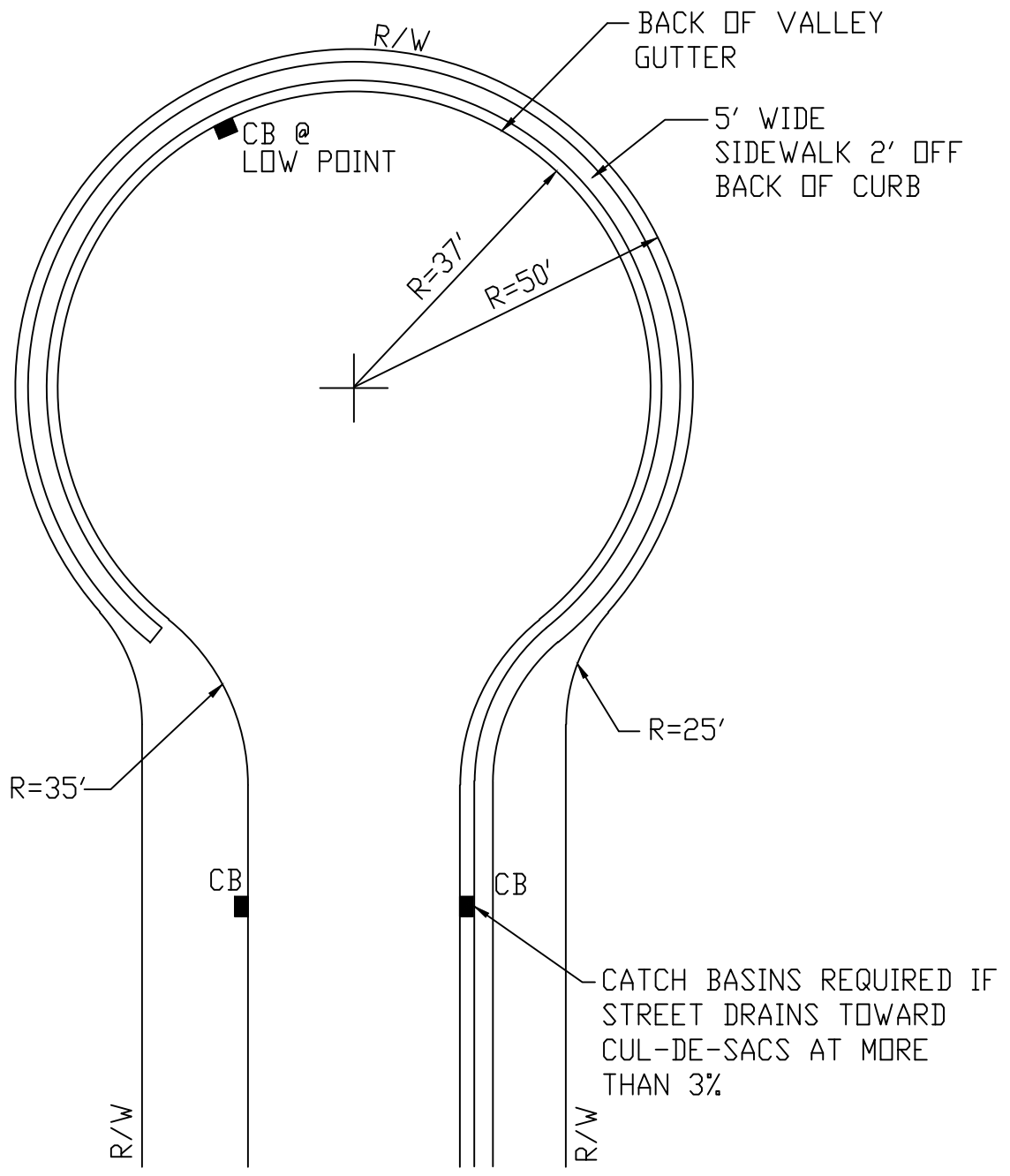
ROADS

SCALE: NONE

COMMERCIAL CUL-DE-SAC

STANDARD

R-7



CUL-DE-SACS  
RESIDENTIAL DEAD END STREETS

REVISED MAY 5, 2010

TROUTMAN, NC STANDARD DETAIL

DATE: APRIL 2006

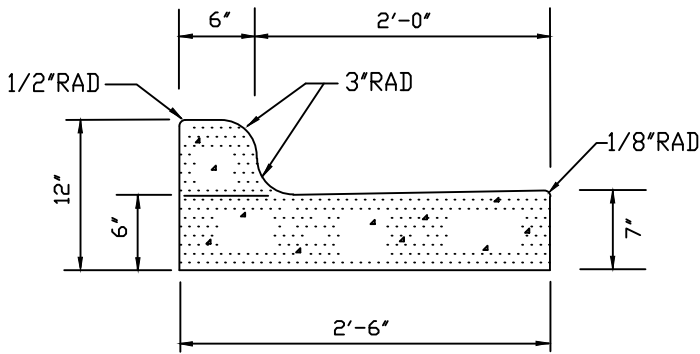
ROADS

SCALE: NONE

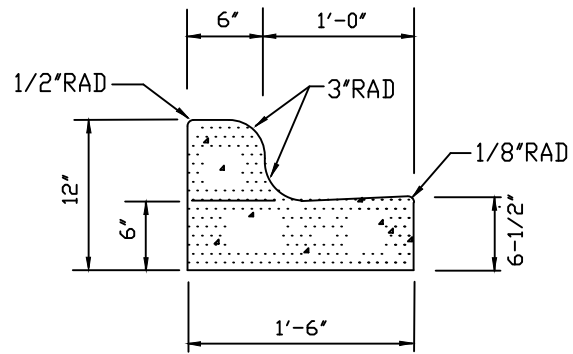
RESIDENTIAL CUL-DE-SAC

STANDARD

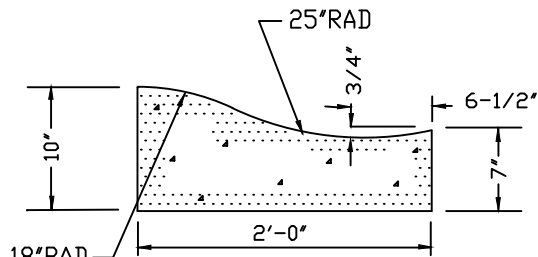
R-8



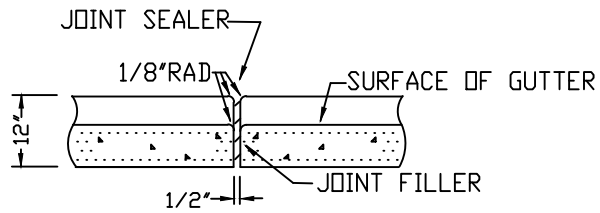
2'-6" CURB AND GUTTER



1'-6" CURB AND GUTTER



2'-0" VALLEY GUTTER



TRANSVERSE EXPANSION JOINT  
IN CURB AND GUTTER

GENERAL NOTES:

1. CONTRACTION JOINTS SHALL BE SPACED AT 10 FOOT INTERVALS, EXCEPT THAT A 15 FOOT SPACING MAY BE USED WHEN A MACHINE IS USED OR WHEN SATISFACTORY SUPPORT FOR THE FACE CAN BE OBTAINED WITHOUT THE USE OF TEMPLATES AT 10 FOOT INTERVALS.
2. JOINT SPACING SHALL BE PROVIDED TO PREVENT UNCONTROLLED CRACKING.
3. CONTRACTION JOINTS MAY BE INSTALLED WITH THE USE OF TEMPLATES OR FORMED BY OTHER NCDOT APPROVED METHODS. NON-TEMPLATE FORMED JOINTS SHALL BE A MINIMUM DEPTH OF 1-1/2".
4. ALL CONTRACTION JOINTS SHALL BE FILLED WITH JOINT SEALER.
5. EXPANSION JOINTS SHALL BE SPACED AT 90 FOOT INTERVALS, AND ADJACENT TO ALL RIGID OBJECTS.
6. EXPANSION AND CONSTRUCTION JOINTS SHALL BE FILLED WITH JOINT FILLER AND SEALER.

TROUTMAN, NC STANDARD DETAIL

DATE: APRIL 2006

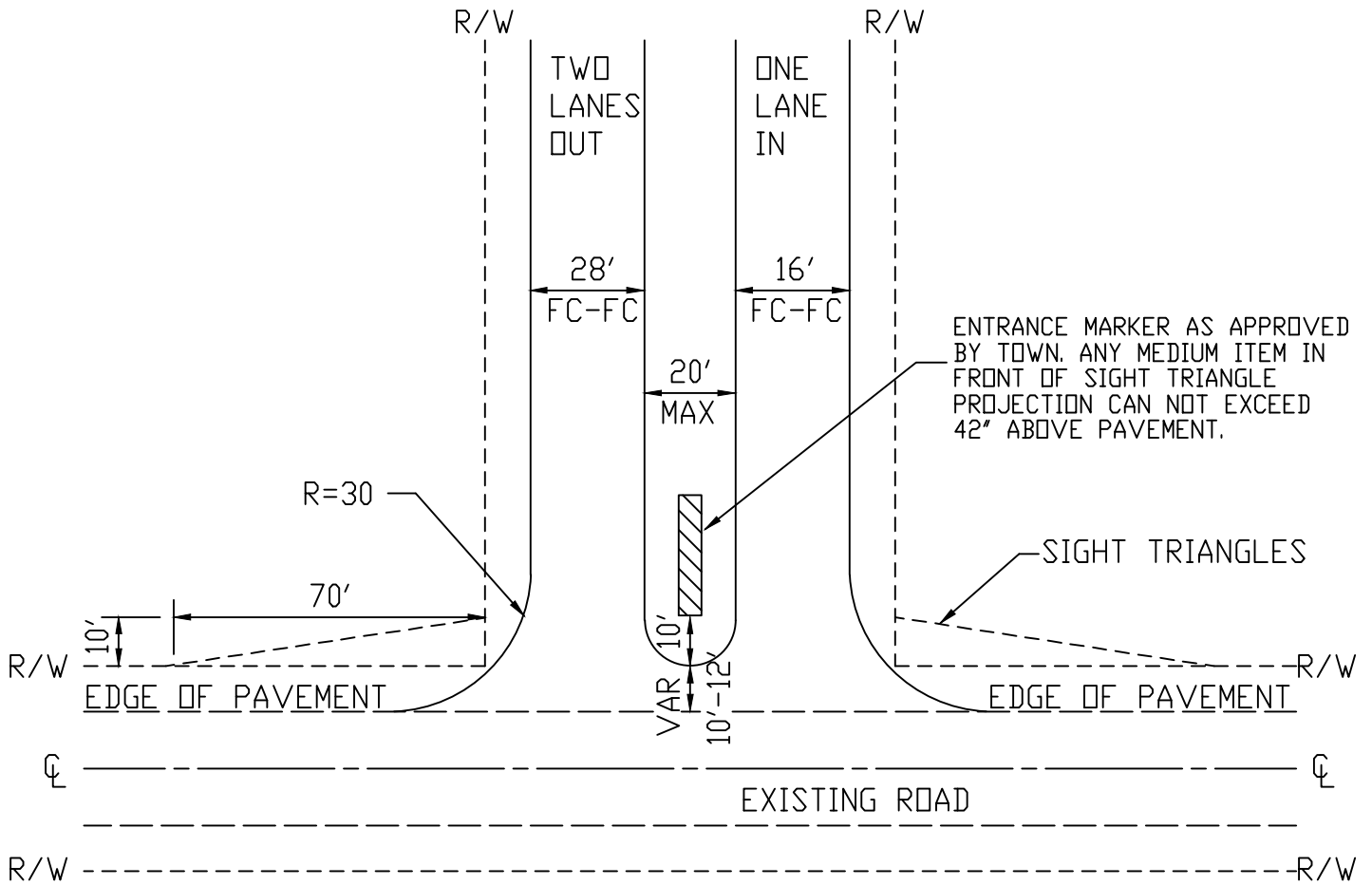
ROADS

SCALE: NONE

CURB AND GUTTER

STANDARD

R-9



**NOTES:**

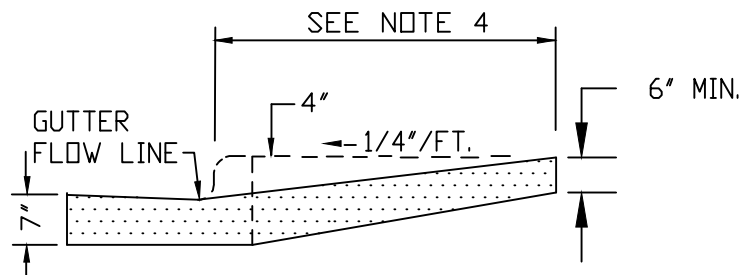
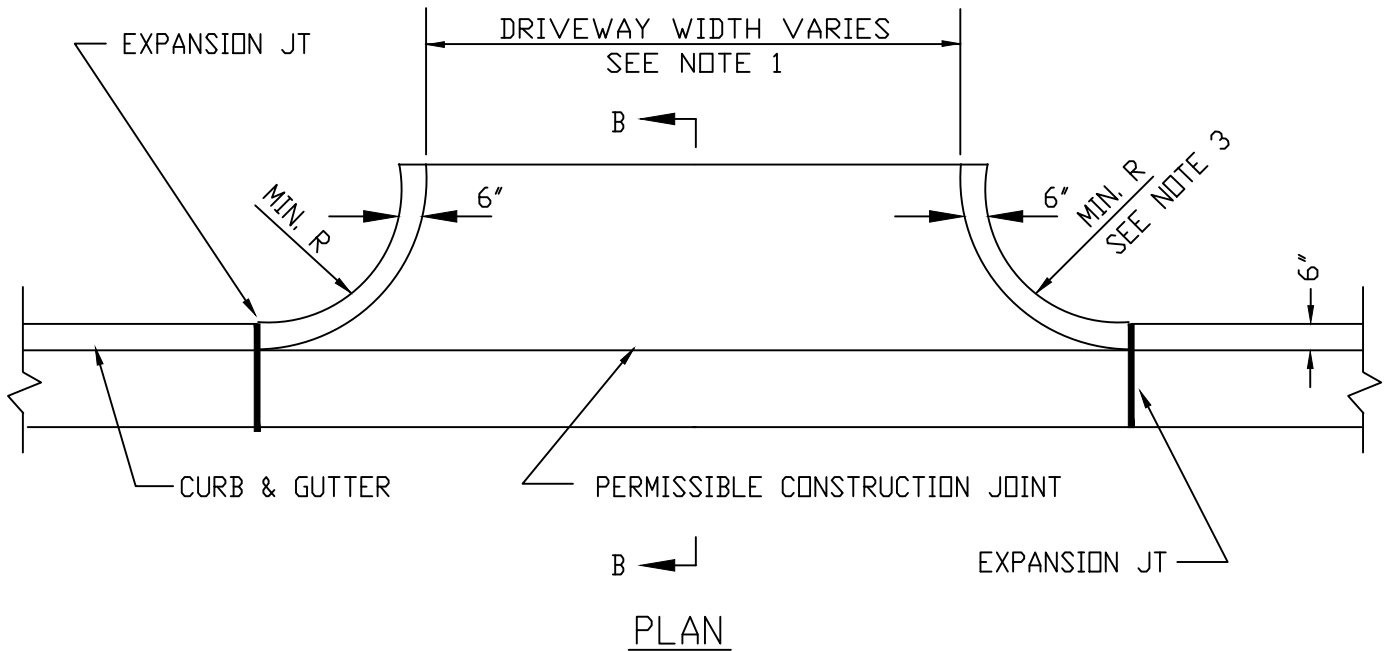
MINIMUM WIDTH OF SINGLE LANE IS 16 FEET, FACE OF CURB TO FACE OF CURB.

ALL DRIVEWAYS LOCATIONS, GRADES, AND CUTS SHALL BE AT A MINIMUM, IN ACCORDANCE WITH THE LATEST EDITION OF THE "POLICY ON STREET AND DRIVEWAY ACCESS TO NORTH CAROLINA HIGHWAYS", PUBLISHED BY THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION, TRAFFIC ENGINEERING BRANCH.

CURB AND GUTTER NOT SHOWN FOR CLARITY. ALL DIMENSIONS ARE TO FACE OF STD. 2'-6" CURB & GUTTER OR BACK TO BACK OF 2' VALLEY GUTTER.

MAINTENANCE OF MEDIAN IS THE RESPONSIBILITY OF THE DEVELOPER AND/OR HIS ASSIGNEES.

TROUTMAN, NC STANDARD DETAIL	DATE: APRIL 2006
ROADS DIVIDED ENTRANCE	SCALE: NONE
	STANDARD R-10



**NOTES:**

- 1) COMMERCIAL DRIVEWAYS SHALL BE AT A MINIMUM, IN ACCORDANCE WITH THE LATEST EDITION OF THE "POLICY ON STREET AND DRIVEWAY ACCESS TO NORTH CAROLINA HIGHWAYS", PUBLISHED BY THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION, TRAFFIC ENGINEERING BRANCH. RESIDENTIAL DRIVEWAYS SHALL BE: 12' MIN., 24' MAX..
- 2) ALL CONCRETE SHALL BE 6" DEEP, MINIMUM.
- 3) MINIMUM RADIUS: RESIDENTIAL 2'-6" MIN., 5' MAX.; COMMERCIAL 5' MIN., 30' MAX.
- 4) THE DRIVEWAY RAMP MUST RISE 4 INCHES ABOVE THE FLOW LINE OF THE GUTTER AT A POINT NO CLOSER THAN TWO FEET FROM THE GUTTER.

TROUTMAN, NC STANDARD DETAIL

DATE: APRIL 2006

ROADS

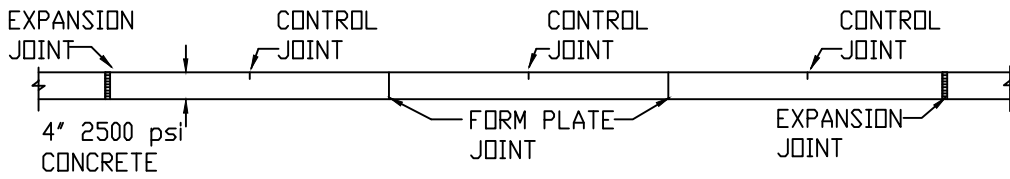
SCALE: NONE

DRIVEWAY RAMPS VERTICAL C & G

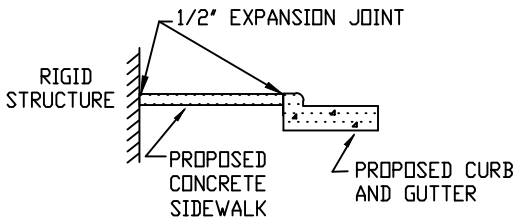
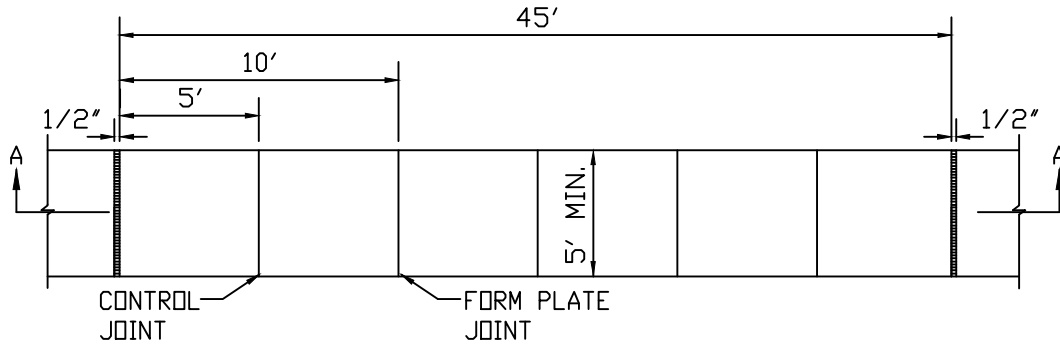
STANDARD

R-11

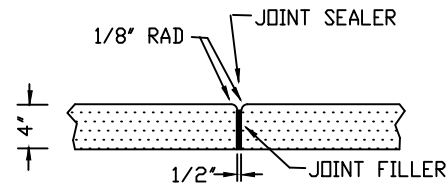
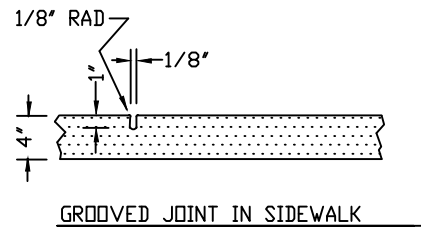




SECTION A-A



DETAILS SHOWING EXPANSION JOINTS IN CONCRETE SIDEWALK



TRANSVERSE EXPANSION JOINT IN SIDEWALK

**GENERAL NOTES:**

1. A GROOVE JOINT 1" DEEP WITH 1/8" RADIUS SHALL BE REQUIRED IN THE CONCRETE SIDEWALK AT 5' INTERVALS. ONE 1/2" EXPANSION JOINT WILL BE REQUIRED AT 45' INTERVALS. A 1/2" EXPANSION JOINT WILL BE REQUIRED WHERE THE SIDEWALK JOINS ANY RIGID STRUCTURE.
2. SIDEWALK AT DRIVEWAY ENTRANCES TO BE 6" THICK FOR FULL DRIVEWAY WIDTH.
3. REFER TO THE UNIFORM DEVELOPMENT ORDINANCE FOR SIDEWALK REQUIREMENTS.
4. SIDEWALKS TO BE POURED TO END OF RADIUS AT INTERSECTING STREETS, AND AROUND CUL-DE-SACS.

TROUTMAN, NC STANDARD DETAIL

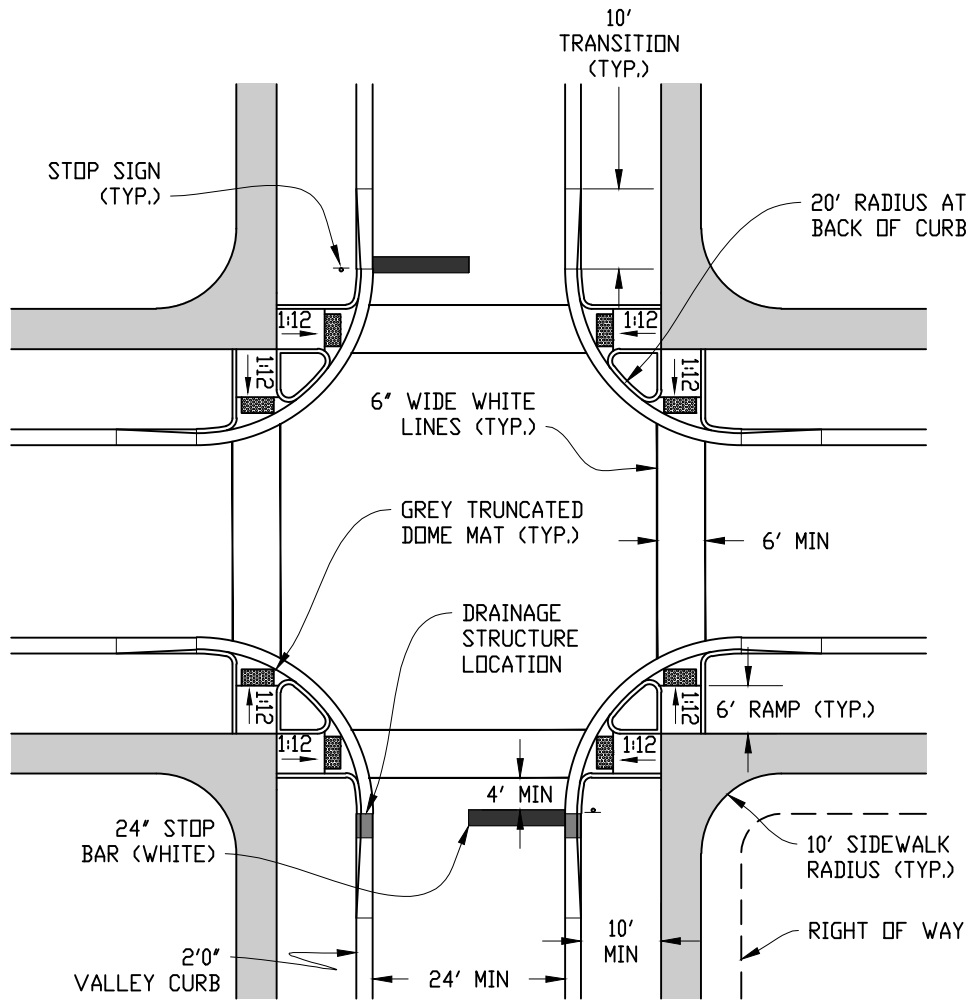
DATE: DECEMBER, 2021

ROADS  
SIDEWALKS

SCALE: NONE

STANDARD

R-12



GENERAL NOTES:

1. GREY TRUNCATED DOME MAT SHALL BE ORIENTED TO DIRECT PEDESTRIANS IN THE DIRECTION OF THE CROSSWALK.
2. ALL RAMPS SHALL BE INSTALLED PER ADA SPECIFICATIONS.
3. ALL STRIPING TO BE THERMOPLASTIC OR POLY-UREA.

TROUTMAN, NC STANDARD DETAIL

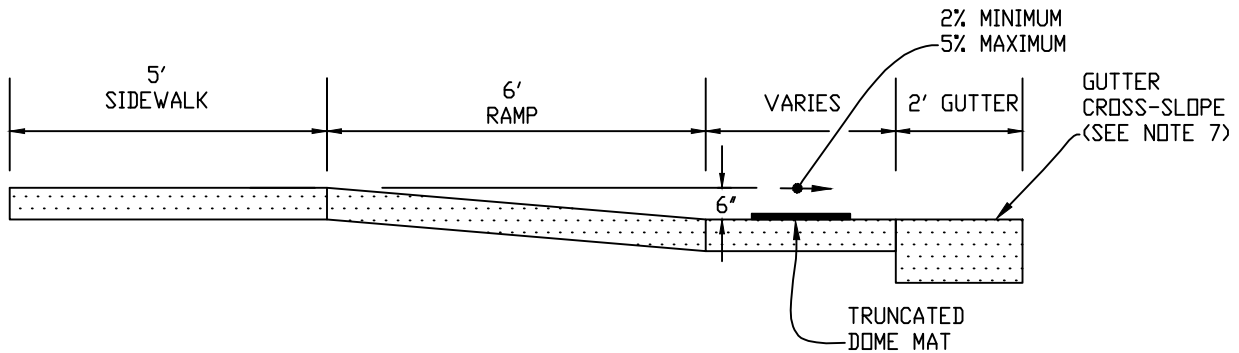
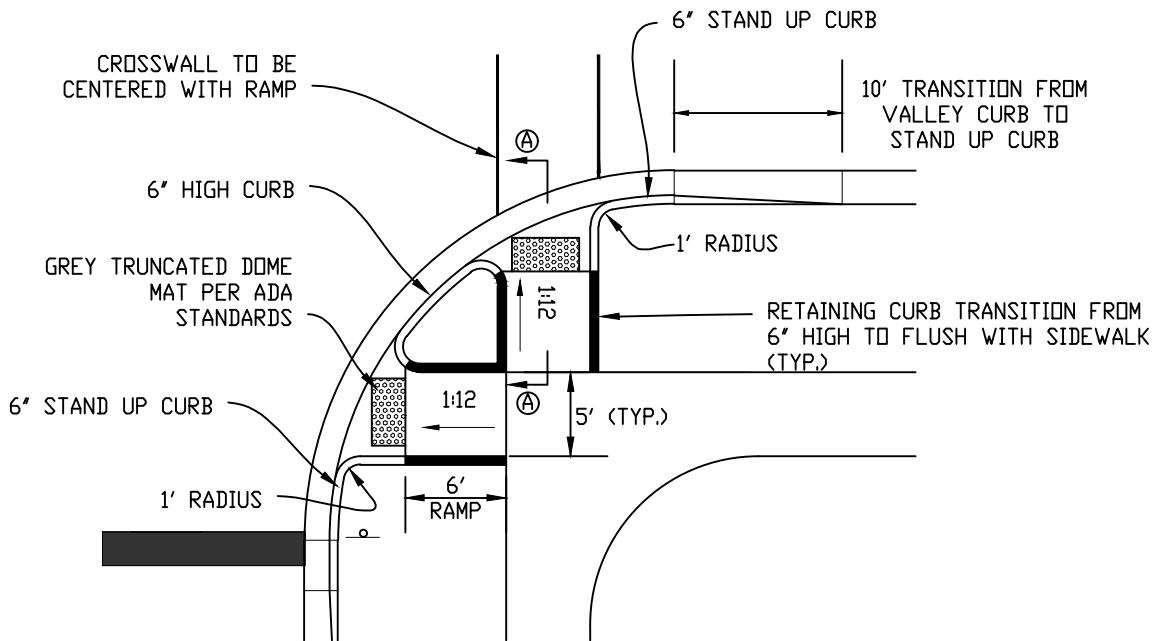
DATE: SEPTEMBER, 2021

ROADS  
CURB RAMPS

SCALE: NONE

STANDARD

R-13



SECTION A-A

**LOCATION OF WHEELCHAIR RAMPS**

ALL STREET CURBS BEING CONSTRUCTED OR RECONSTRUCTED OR ALTERED FOR ANY REASON, SHALL PROVIDE WHEELCHAIR RAMPS FOR THE PHYSICALLY HANDICAPPED AT ALL INTERSECTIONS WHERE BOTH CURB AND GUTTER AND SIDEWALK ARE PROVIDED AND AT OTHER MAJOR POINTS OF PEDESTRIAN FLOW. PROVISIONS FOR RAMPS SHALL BE MADE IN ALL CURB CONSTRUCTION WHERE SIDEWALKS ARE INITIALLY PLANNED OR MAY BE CONSTRUCTED IN THE FUTURE.

**CONSTRUCTION NOTES**

1. NO SLOPE SHALL EXCEED 1'1' (12:1) ON THE RAMPS.
2. IN NO CASE SHALL THE WIDTH OF WHEELCHAIR RAMPS BE LESS THAN 5', WIDTHS MAY EXCEED 5'.
3. CONCRETE SURFACE SHALL HAVE A BROOMED, NON-SKID FINISH.
4. A 1/2" EXPANSION JOINT WILL BE REQUIRED WHERE THE CONCRETE WHEELCHAIR RAMP JOINS ANY RIGID PAVEMENT OR STRUCTURE.
5. ADDITIONAL REQUIREMENTS MAY APPLY. CONSTRUCTION SHALL COMPLY WITH LATEST EDITION OF ANSI A117.1 AND NCDOT STANDARD DRAWING 848.05
6. RAMP TO BE PLACED AT THE SAME ANGLE AS THE CROSSWALK TO DIRECT PEDESTRIANS IN THE DIRECTION OF CROSSWALK.
7. GUTTER TO SLOPE TOWARD OR AWAY FROM RAMP AS REQUIRED TO DIRECT STORMWATER TOWARD NEAREST DOWNSLOPE CATCH BASIN WITHOUT CAUSING PONDING.

TROUTMAN, NC STANDARD DETAIL

DATE: SEPTEMBER, 2021

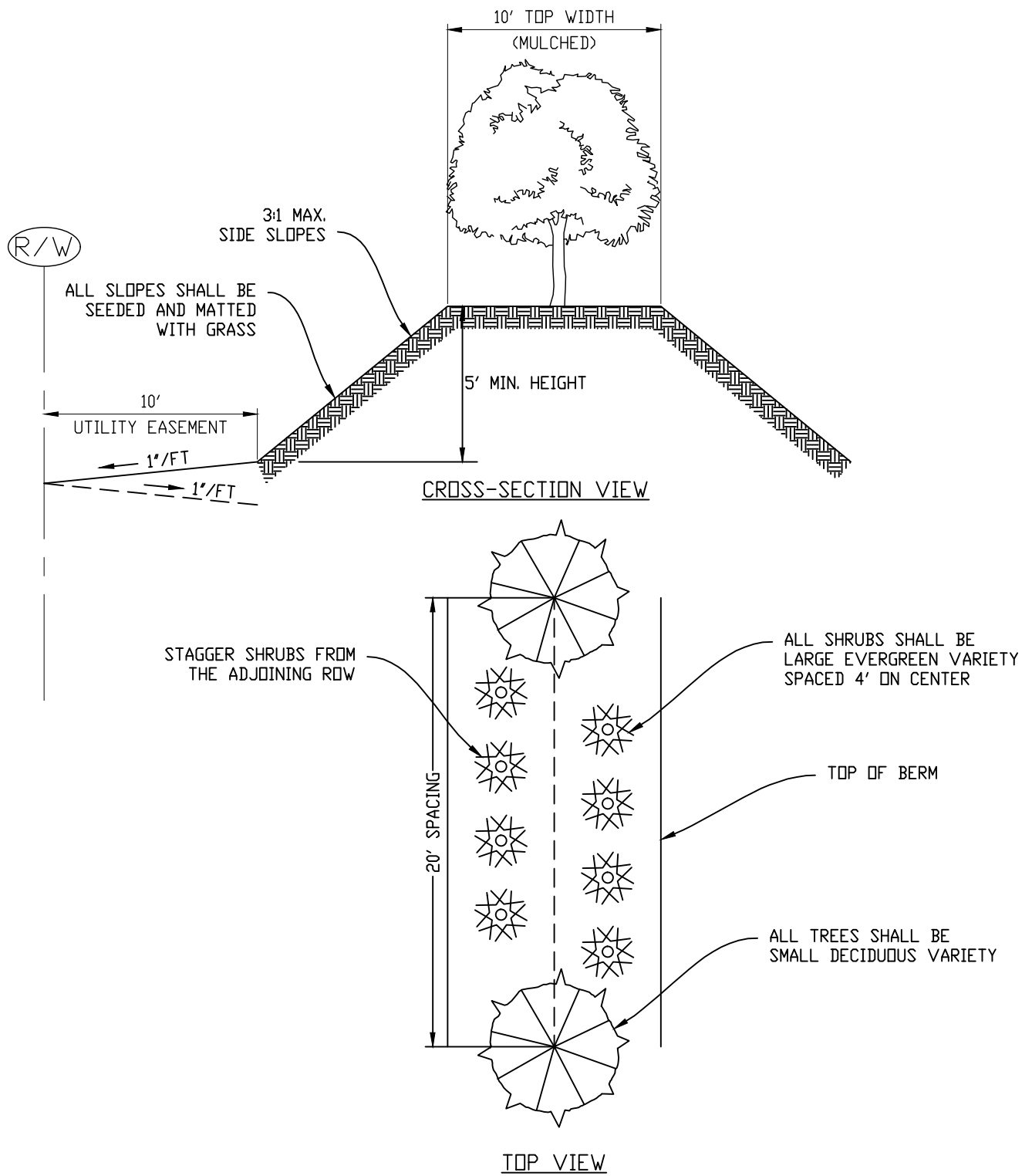
ROADS

SCALE: NONE

WHEELCHAIR RAMP

STANDARD

R-14



**CONSTRUCTION NOTES**

1. WHERE NO UTILITY EASEMENT IS REQUIRED, THE LANDSCAPE BERM MAY BE CONSTRUCTED STARTING AT THE RIGHT OF WAY.
2. A BERM IS REQUIRED ALONG EXTERIOR ROADS ADJACENT TO SINGLE FAMILY DEVELOPMENTS ONLY.
3. ALL PLANTINGS SHALL BE APPROVED BY THE TOWN OF TROUTMAN AND FROM THE LATEST APPROVED LIST.
4. MULCH ALONG TOP OF BERM SHALL BE 4" OF DOUBLE GROUND HARDWOOD MULCH.

TROUTMAN, NC STANDARD DETAIL

DATE: OCTOBER, 2023

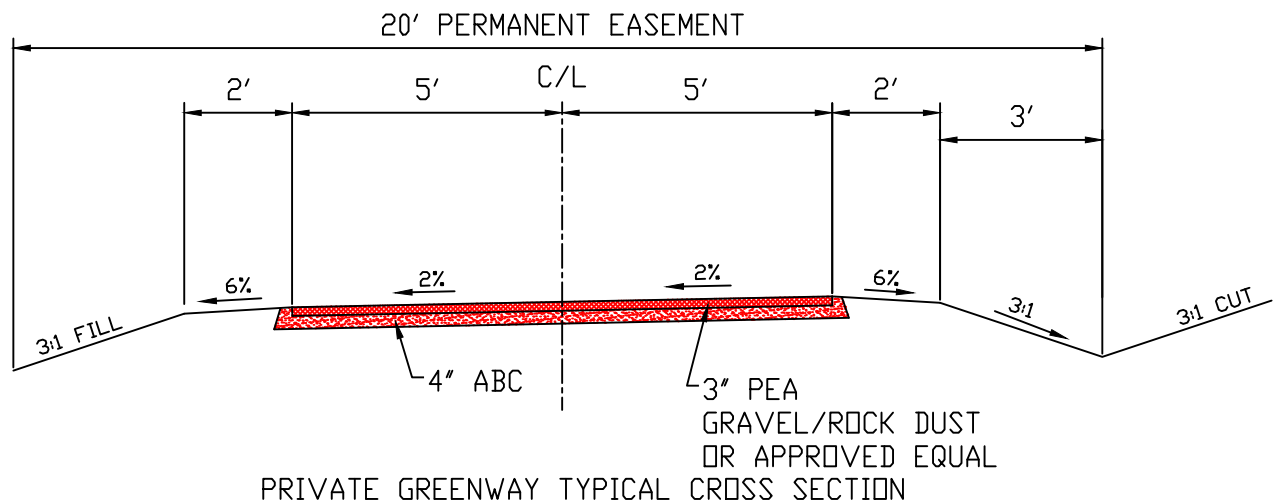
ROADS

SCALE: NONE

LANDSCAPE BERM

STANDARD

R-15



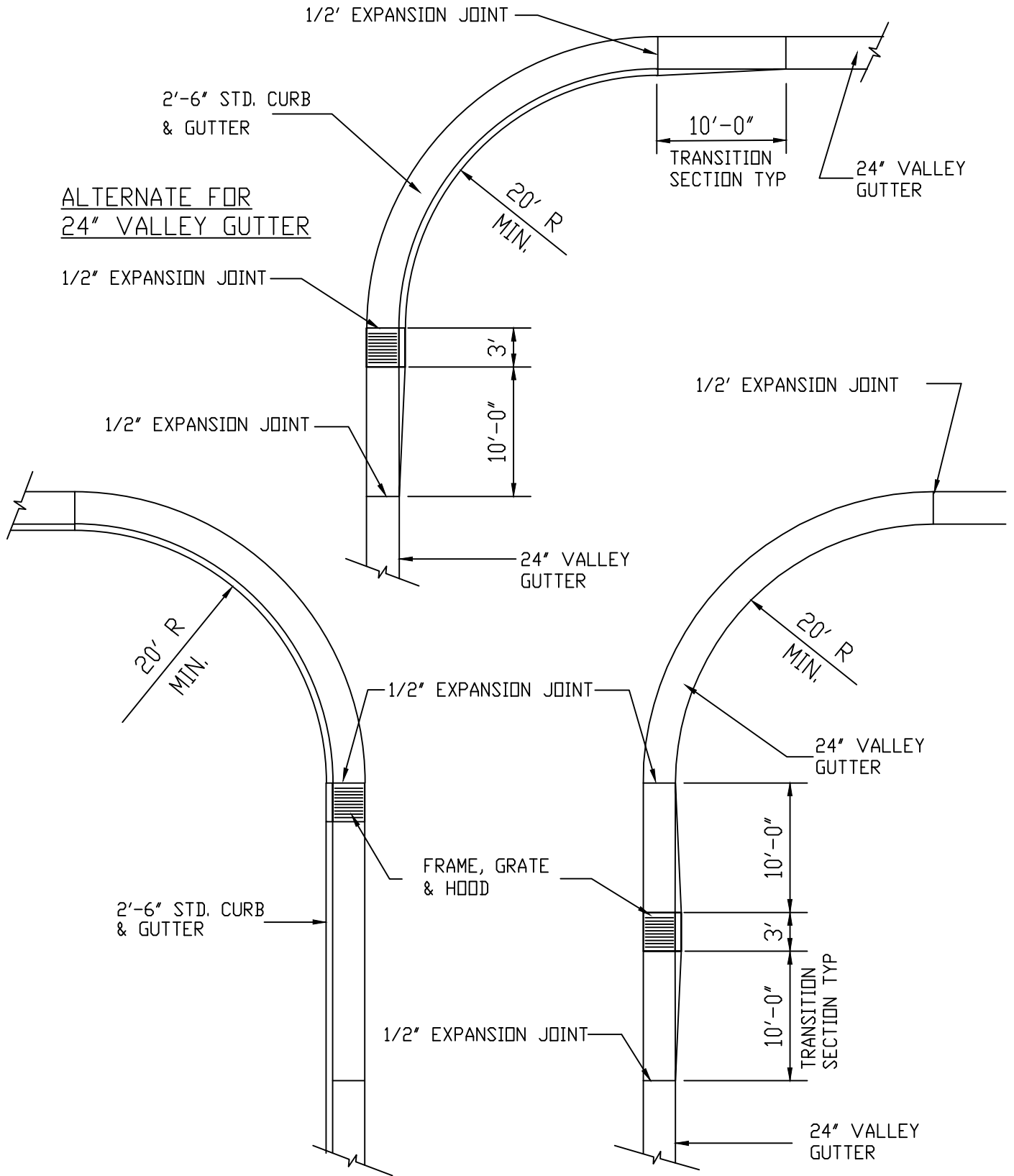
GENERAL NOTES:

1. GREENWAY TRAILS SHALL MEET ADA STANDARDS WHERE PRACTICAL. LONGITUDINAL SLOPES UP TO 8% ARE ACCEPTABLE FOR SHORT DISTANCES WHERE 5% GRADES ARE NOT POSSIBLE AS DETERMINED BY THE TRC.
2. SUBGRADE SHALL BE PROOFROLED AND APPROVED BY THE TOWN ENGINEER PRIOR TO PLACING TRAIL MATERIAL SUCH AS PEA GRAVEL, ROCK DUST OR EQUAL MATERIAL APPROVED BY THE TOWN.
3. THE EDGES OF THE TRAIL SHALL BE A MINIMUM DISTANCE OF 5 FEET FROM TREES, RAISED MANHOLES, AND OTHER RAISE UTILITIES.
4. THE MINIMUM CENTERLINE RADIUS SHALL BE 50 FEET.
5. TREE LIMBS SHALL BE TRIMMED UP TO 12 FEET ABOVE THE FINISHED TRAIL GRADE AND WITHIN 10 FEET HORIZONTALLY FROM THE TRAIL EDGES. DANGEROUS TREE LIMBS OVER THE TRAIL AND DEAD TREES NEAR THE TRAIL SHALL BE REMOVED AS DETERMINED BY THE TOWN.

GREENWAY BOARDWALKS

1. BOARDWALKS MAY BE USED TO CROSS WETLAND AREAS, POORLY DRAINED AREAS, ENVIRONMENTALLY SENSITIVE AREAS, CREEKS/STREAMS OR RAVINES.
2. BOARDWALKS SHALL HAVE A CLEAR DISTANCE OF 10 FEET BETWEEN SAFETY RAILS.
3. SAFETY RAILS SHALL BE A MINIMUM OF 42 INCHES TALL.
4. BOARDWALKS STRUCTURES SHALL BE LOCATED A MINIMUM OF 15 FEET FROM THE CENTER OF ALL SEWER LINES.
5. BOARDWALKS SHALL BE DESIGNED AND SEALED BY A PROFESSIONAL ENGINEER IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES (LATEST EDITION). A LIVE LOAD OF 85 POUNDS PER SQUARE FOOT SHALL BE USED.
6. CONSTRUCTION MATERIALS SHALL BE WEATHER RESISTANT AND WILL BE SUBJECT TO TOWN APPROVAL.
7. WHEN REQUIRED, BOARDWALKS MUST RECEIVE NECESSARY FEMA APPROVALS.

TROUTMAN, NC STANDARD DETAIL	DATE: PRELIMINARY 2020
ROADS	SCALE: NONE
GREENWAY STANDARD	STANDARD R-16



STD. FOR 2'-6" CURB & GUTTER

STD. FOR 24" VALLEY GUTTER

TROUTMAN, NC STANDARD DETAIL

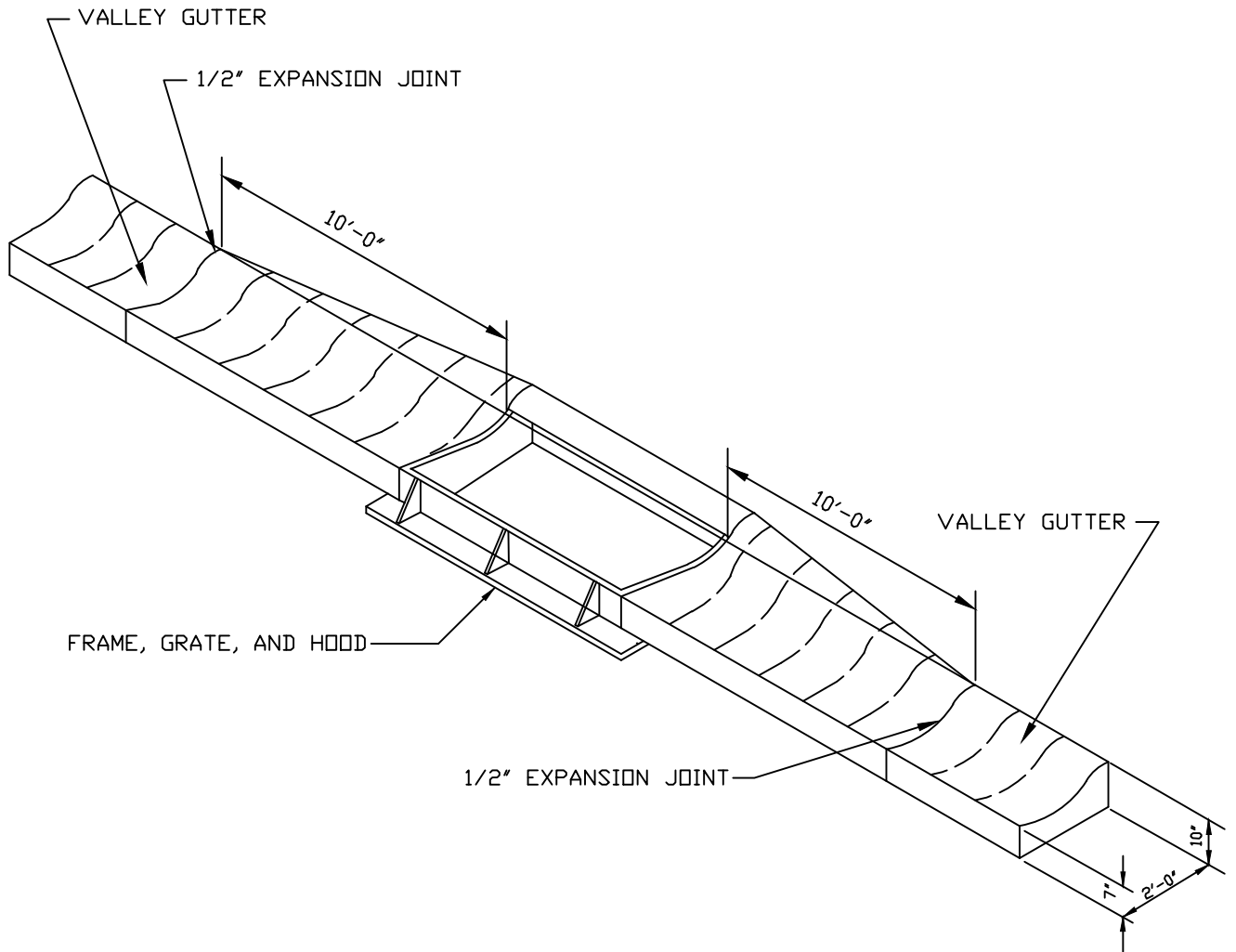
DATE: APRIL 2006

STORM DRAINAGE  
CATCH BASINS AT INTERSECTIONS

SCALE: NONE

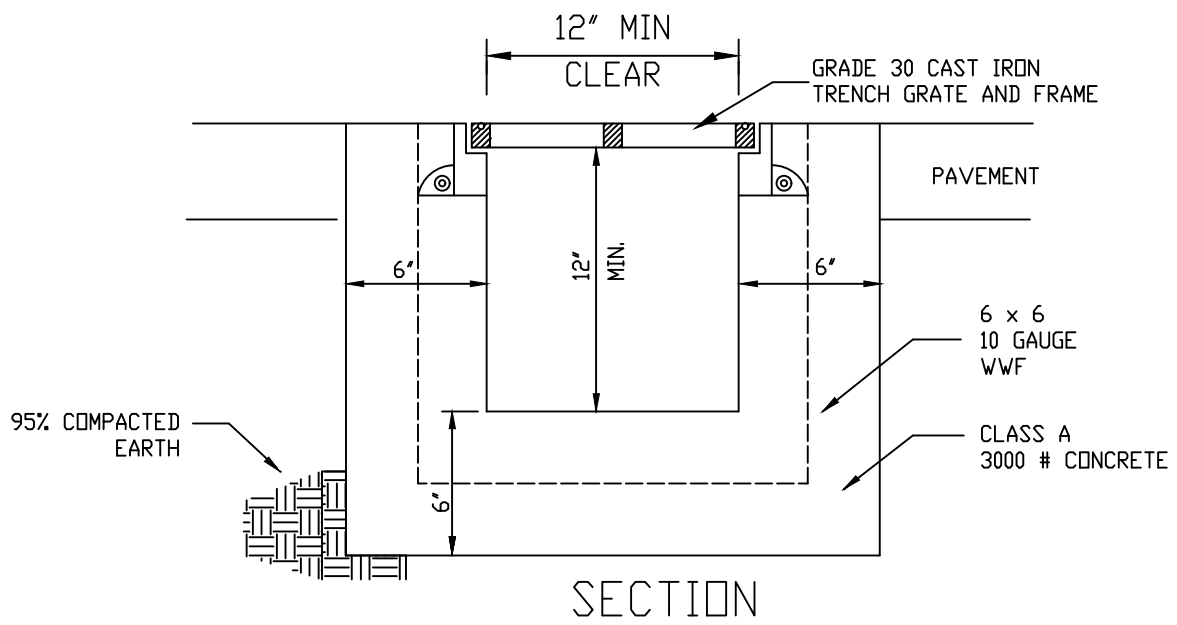
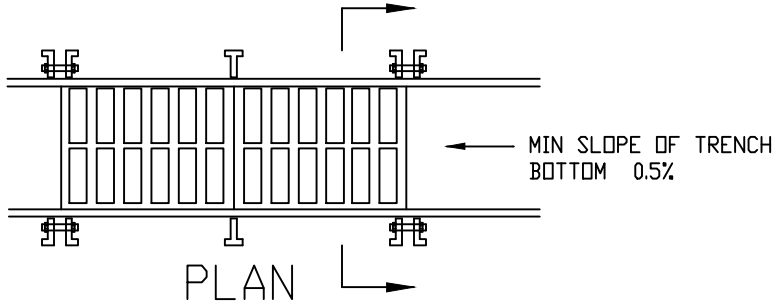
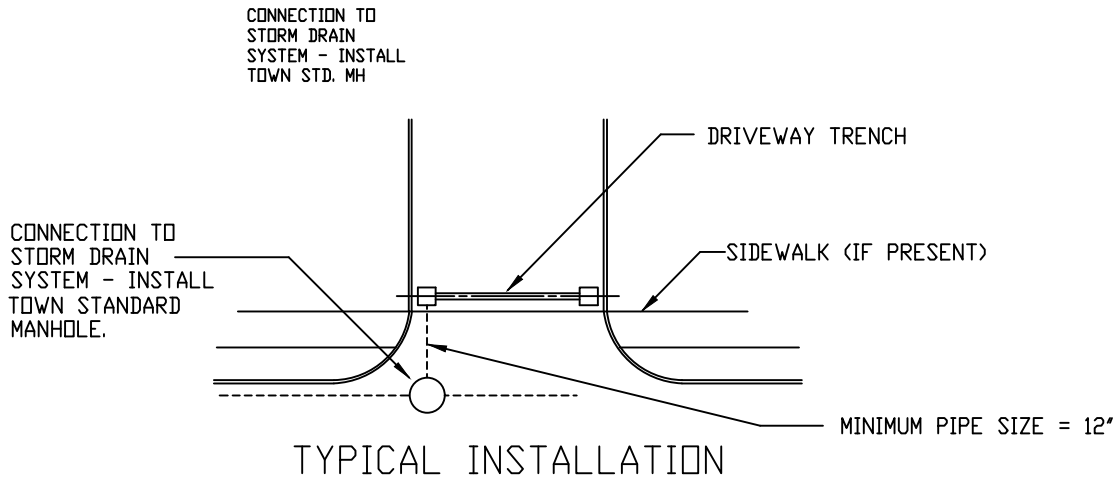
STANDARD

SD-1



MAINTAIN 10 FOOT TRANSITION SECTION EACH  
 SIDE OF CATCH BASIN.  
 FACE OF FRAME IS TO BE IN LINE WITH FACE  
 OF VALLEY GUTTER AND TRANSITION IS TO BE  
 TO BACK OF FRAME.

TROUTMAN, NC STANDARD DETAIL		DATE: APRIL 2006	
STORM DRAINAGE CATCH BASIN IN VALLEY GUTTER		SCALE: NONE	
		STANDARD	SD-2



FRAME & GRATE SHALL BE HEAVY DUTY CAPABLE OF H-20 TRAFFIC LOADING

TROUTMAN, NC STANDARD DETAIL

DATE: APRIL 2006

STORM DRAINAGE

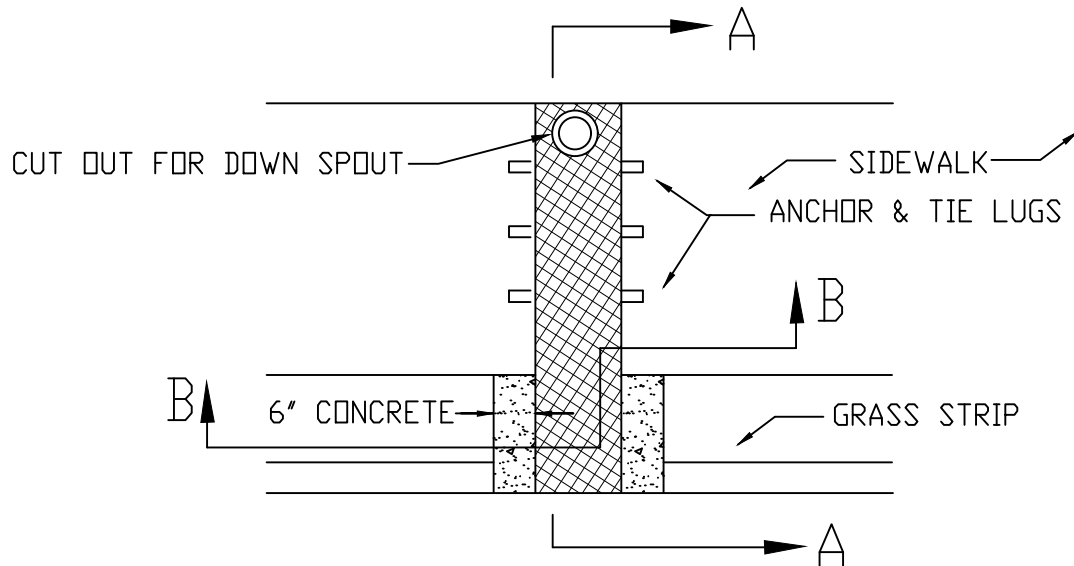
SCALE: NONE

TRENCH DRAINS ACROSS DRIVEWAYS

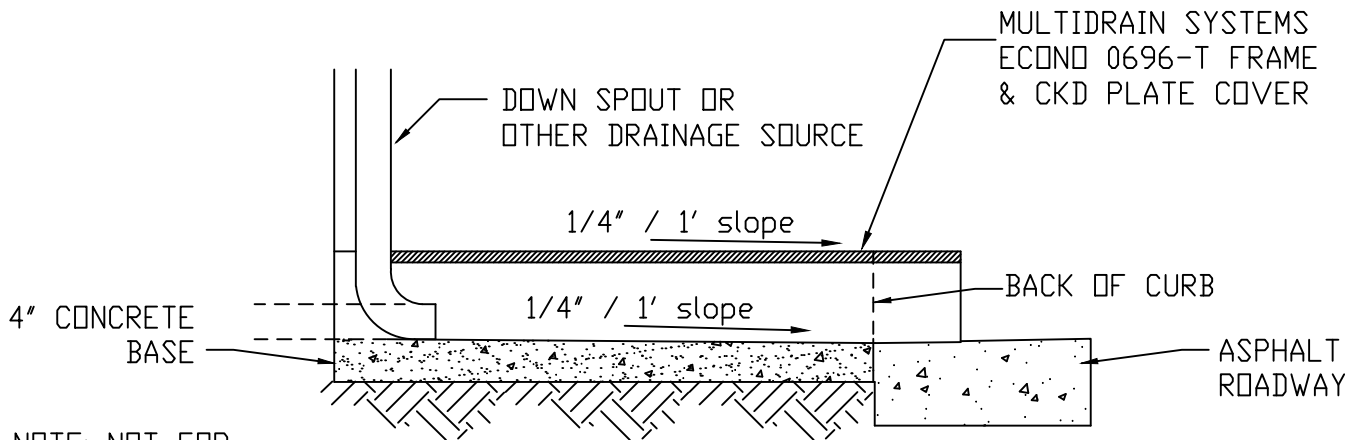
STANDARD

SD-3



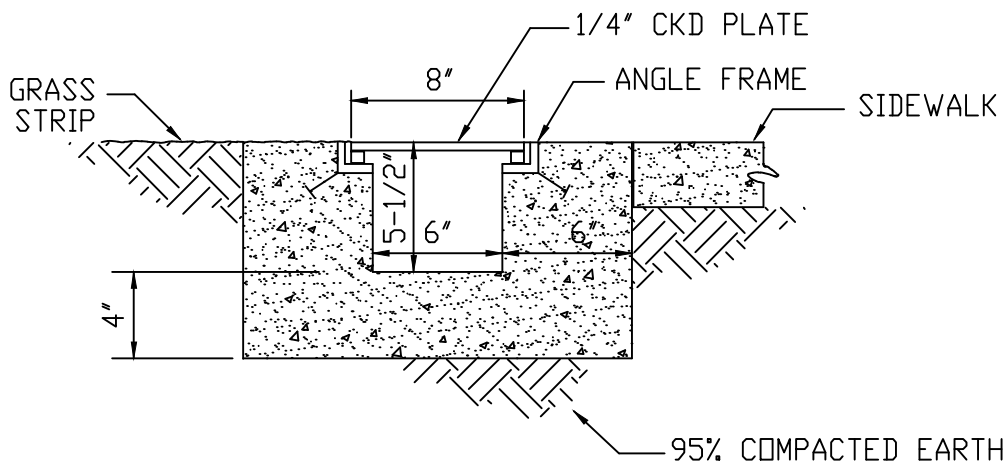


PLAN



NOTE: NOT FOR USE WITH VALLEY GUTTER

SECTION A-A



SECTION B-B

TROUTMAN, NC STANDARD DETAIL

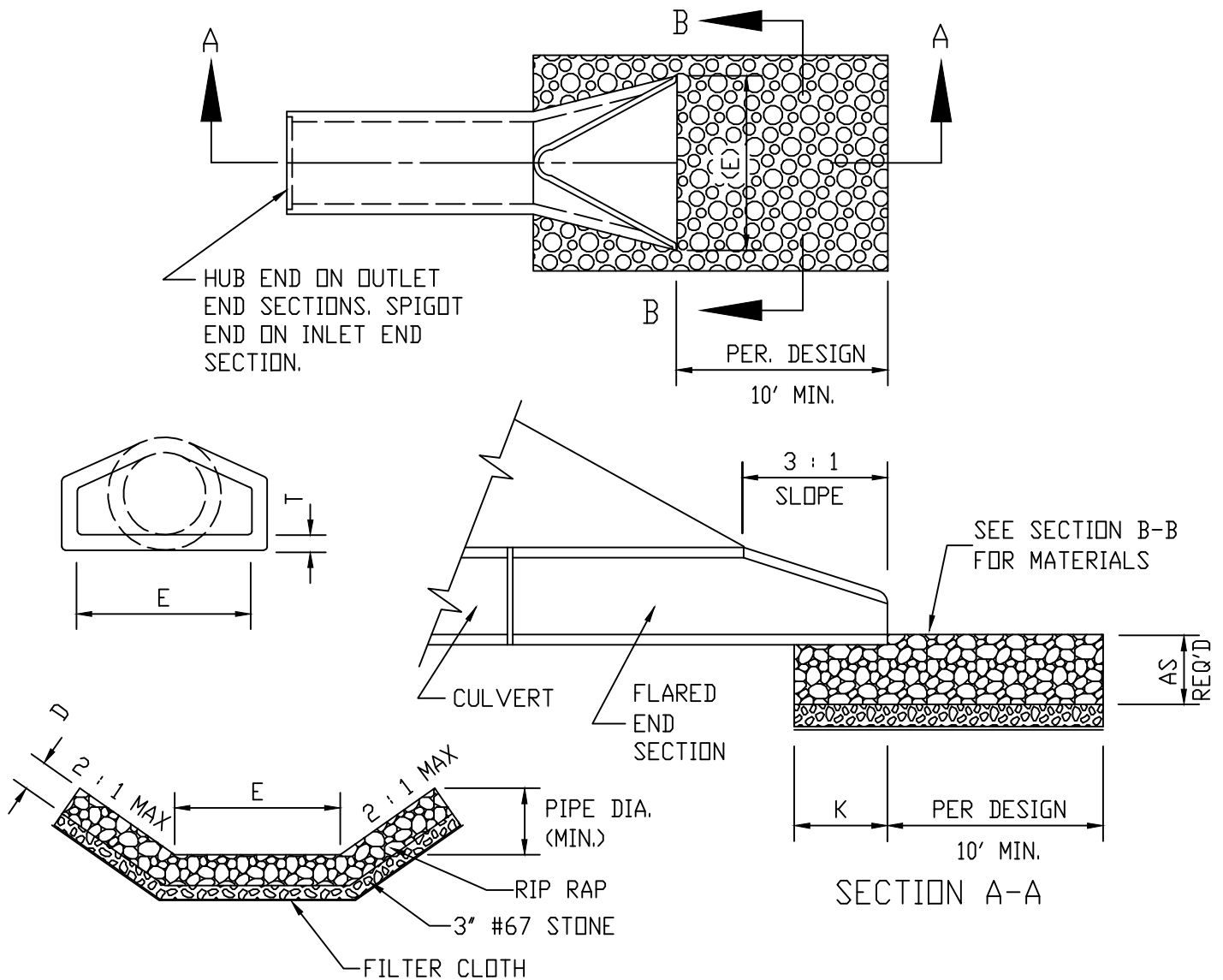
DATE: OCTOBER, 2021

STORM DRAINAGE  
SIDEWALK FLUME

SCALE: NONE

STANDARD

SD-4

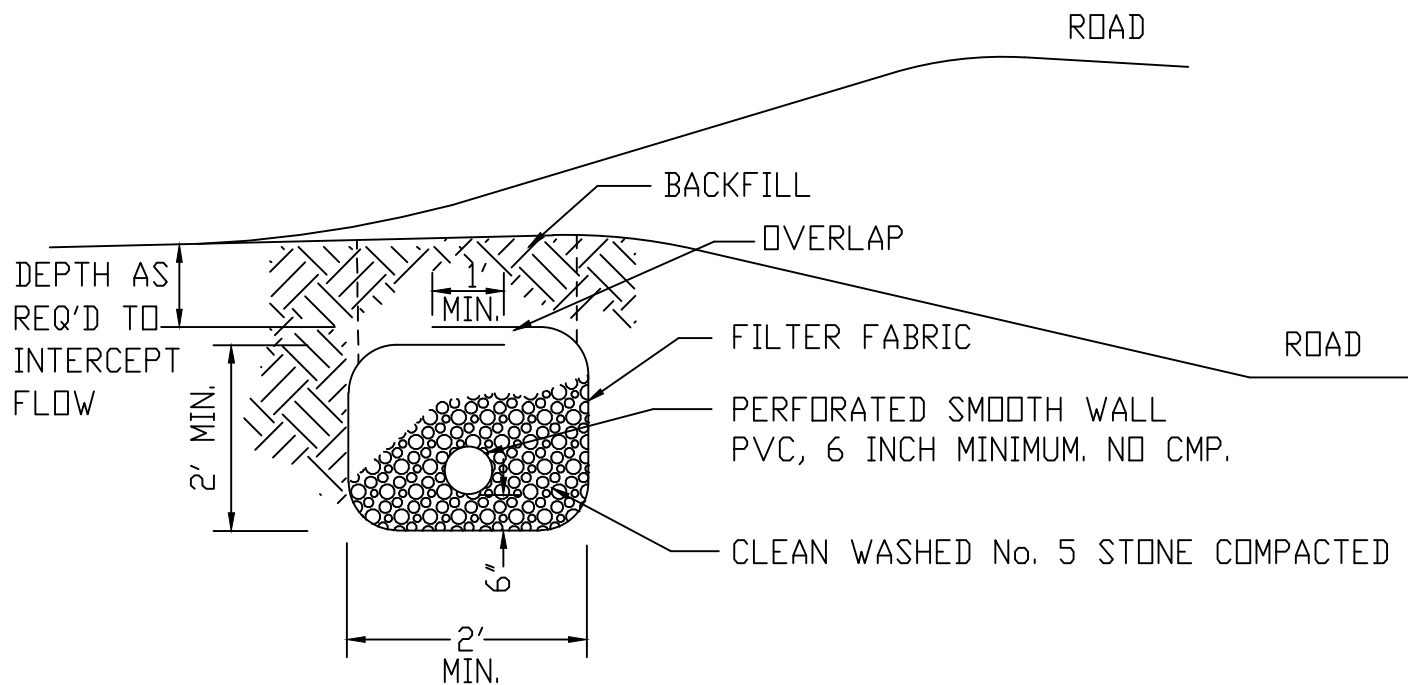


MINIMUM DEPTH D	
CLASS 1	2'
CLASS 11	2'-6"
CLASS A	1'
CLASS B	2'

DIA	E	T	K
15"	2' 6"	2-1/4"	12"
18"	3' 0"	2-1/2"	12"
24"	4' 0"	3"	12"
30"	5' 0"	3-1/2"	12"
36"	6' 0"	4"	15"
42"	6' 6"	4-1/2"	18"
48"	7' 0"	5"	18"

1. RIP-RAP SHALL BE NCDOT STANDARD AS DESCRIBED IN THE TOWN SPECIFICATIONS.
2. RIP-RAP SHALL BE SIZED AND PLACED IN ACCORDANCE WITH THE TOWN SPECIFICATIONS.
3. RIP-RAP IS NOT GENERALLY REQUIRED AT INLETS EXCEPT AS SLOPE PROTECTION.
4. FLARED END SECTIONS ARE REQUIRED ON ALL CULVERT INLETS AND OUTLETS WHERE HEADWALLS ARE NOT REQUIRED.
5. ON PIPES LARGER THAN 48", THE TOWN WILL REVIEW EACH LOCATION AND DETERMINE THE TYPE INLET AND OUTLET PROTECTION REQUIRED.

TROUTMAN, NC STANDARD DETAIL	DATE: APRIL 2006
STORM DRAINAGE FLARED END SECTION	SCALE: NONE
	STANDARD SD-5



1. ENGINEER SHOULD ENSURE STANDARD DESIGN IS ADEQUATE FOR INTENDED USE.
2. SLOPE DRAIN PIPE AT 1% TOWARD DISCHARGE
3. FILTER FABRIC TO BE NONWOVEN TYPE SUCH AS MIRAFI 140N OR APPROVED EQUAL (AVERAGE VALUES TENSILE STRENGTH 120 lbs, PUNCTURE STRENGTH 70 lbs, BURST STRENGTH 210 psi, COEFFICIENT OF PERMEABILITY,  $K = 0.2 \text{ cm/sec}$ , WATER FLOW RATE 285 gal/min/sf.
4. TRENCH SHALL BE CLEAR OF ALL ROOTS, BOULDERS AND OTHER OBSTACLES. VOIDS IN THE TRENCH WALL SHALL BE BACKFILLED, SO FABRIC CONFORMITY TO THE TRENCH SIDES IS ENSURED.
5. OVERLAPS BETWEEN ROLLS SHALL HAVE UPSTREAM ROLL OVERLAP OVER THE DOWN STREAM ROLL BY AT LEAST 2'.
6. PLACE AGGREGATE IN 12" LIFTS (MAXIMUM LOOSE DEPTH) AND COMPACT USING PLATE COMPACTORS.

TROUTMAN, NC STANDARD DETAIL

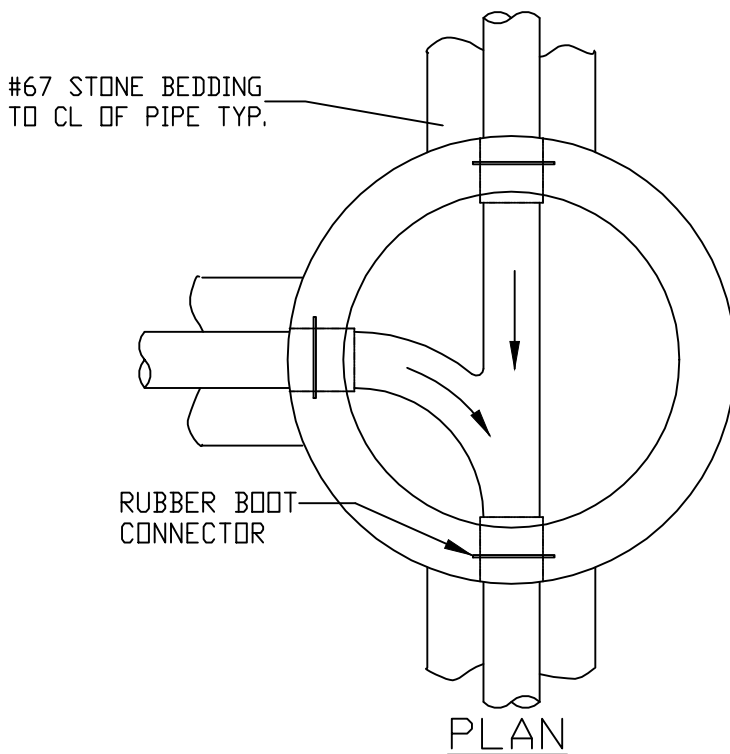
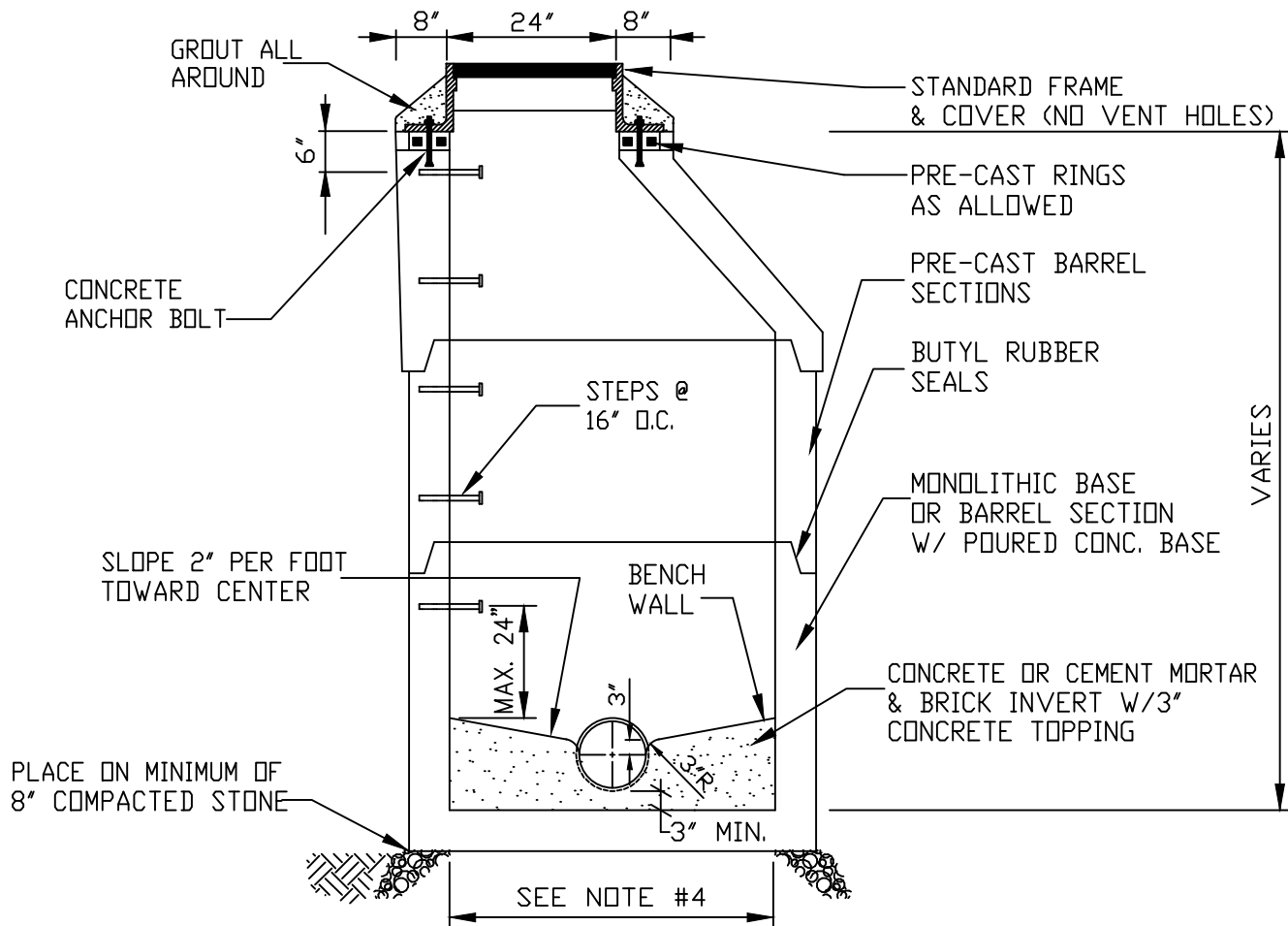
DATE: APRIL 2006

STORM DRAINAGE  
TYPICAL SUBSURFACE DRAIN

SCALE: NONE

STANDARD

SD-6



**NOTES:**

1. MANHOLE TO CONFORM WITH ASTM C478.
2. STEPS TO BE PLASTIC COATED REBAR
3. BUTYL RUBBER SEALANT TO MEET FEDERAL SPECIFICATION (GSA-FSS) SS-S-00210.
4. INSIDE DIA. AS REQUIRED BY PIPE SIZES & ANGLES (4'Ø MINIMUM)
5. LINE INTERIOR WITH 100% SOLIDS ULTRA-HIGH BUILD, SOLVENT FREE EPOXY COATING WHERE CORROSIVE GASES ARE LIKELY (SUCH AS AT FORCE MAIN DISCHARGE). USE RAVEN 405 OR EQUAL.

TROUTMAN, NC STANDARD DETAIL

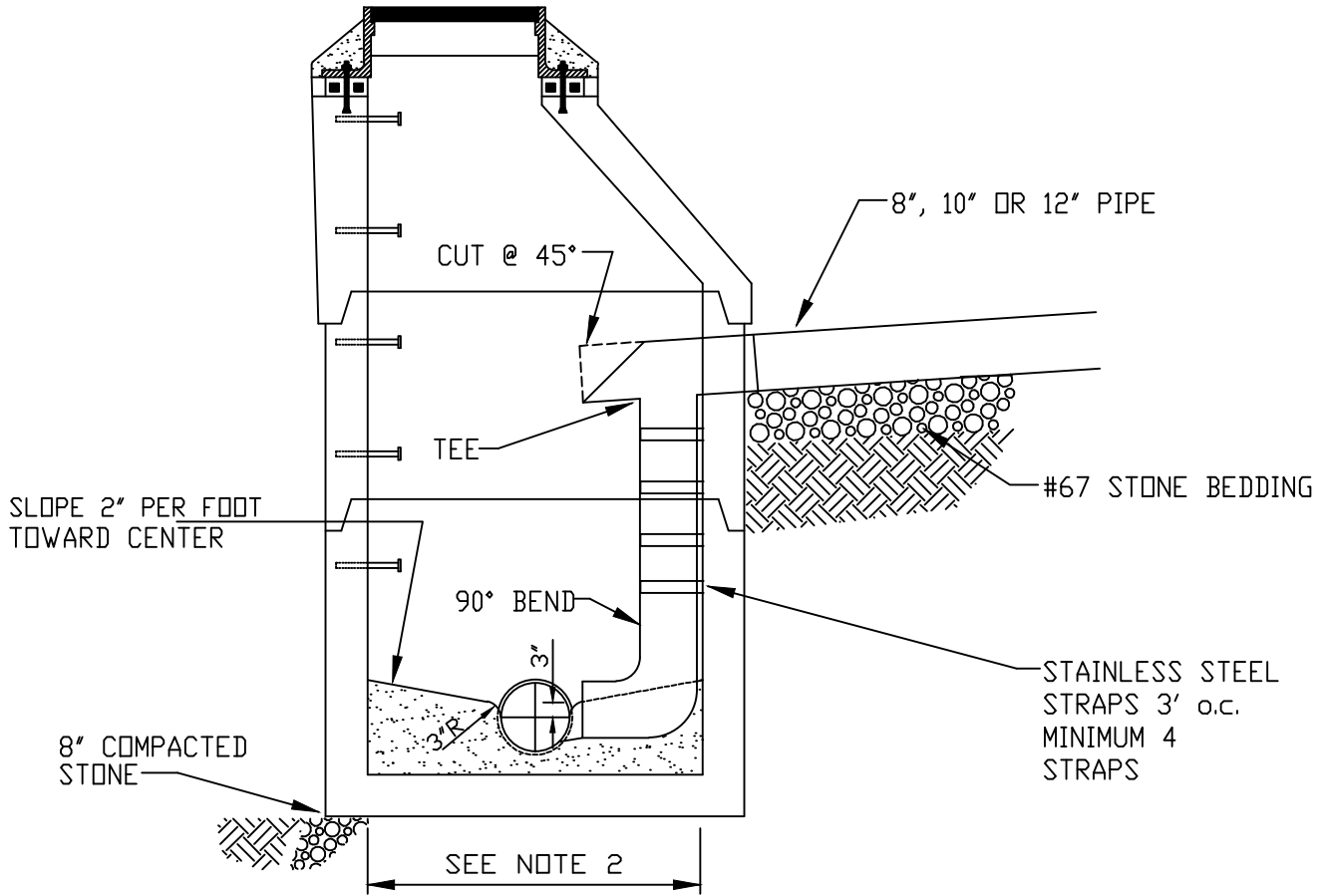
DATE: SEPTEMBER, 2021

SEWER SYSTEMS  
PRECAST MANHOLE

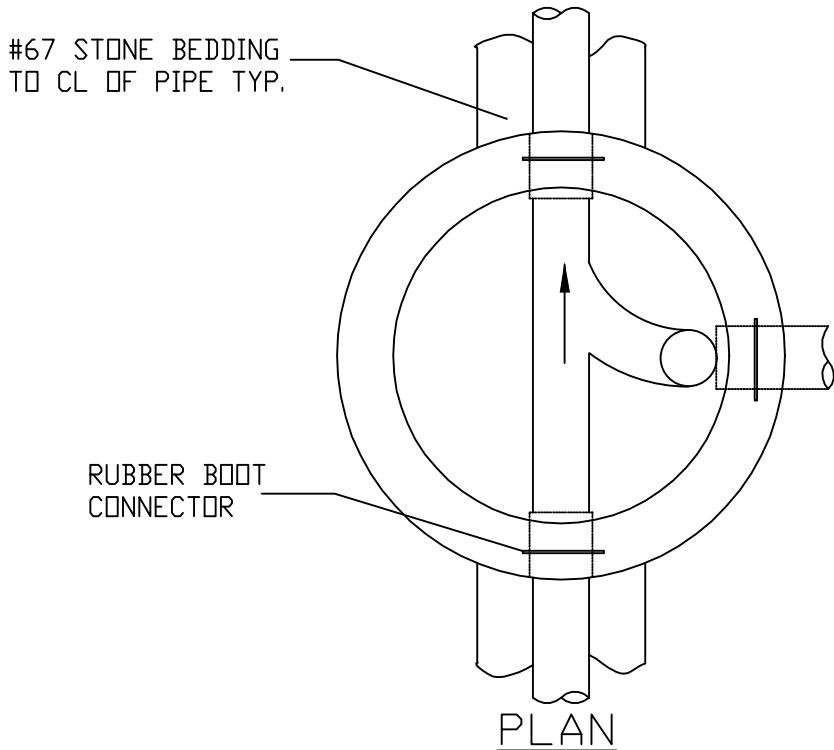
SCALE: NONE

STANDARD

SS-1



SECTION



PLAN

NOTES:

1. INSIDE DROPS TO BE USED FOR PIPE 12" AND SMALLER
2. MINIMUM MH DIA 5', MIN. 6' DIA FOR 10" & 12" PIPE UNLESS RUN FROM DROP IS STRAIGHT THROUGH MANHOLE
3. DROPS REQUIRED WHERE INVERT IN IS 30" OR MORE ABOVE INVERT OUT
4. TEE BRANCH THE SAME SIZE AS MAIN LINE
5. SEE SS-1 FOR ADDITIONAL MANHOLE DIMENSIONS & DETAILS

TROUTMAN, NC STANDARD DETAIL

DATE: SEPTEMBER, 2021

SEWER SYSTEMS

SCALE: NONE

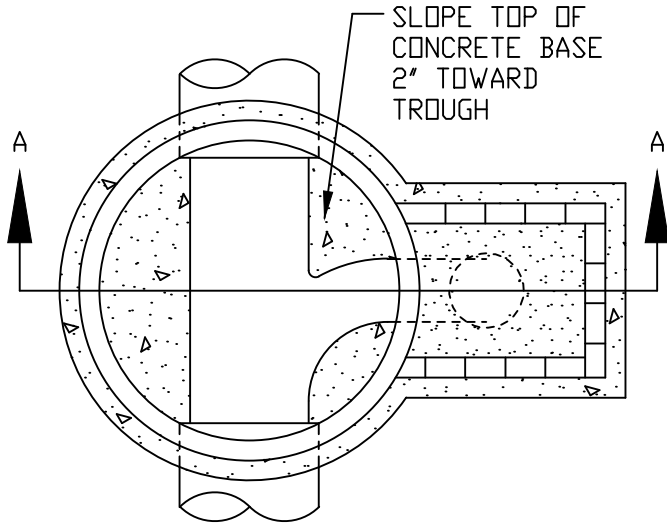
PRECAST MH W/INSIDE DROP

STANDARD

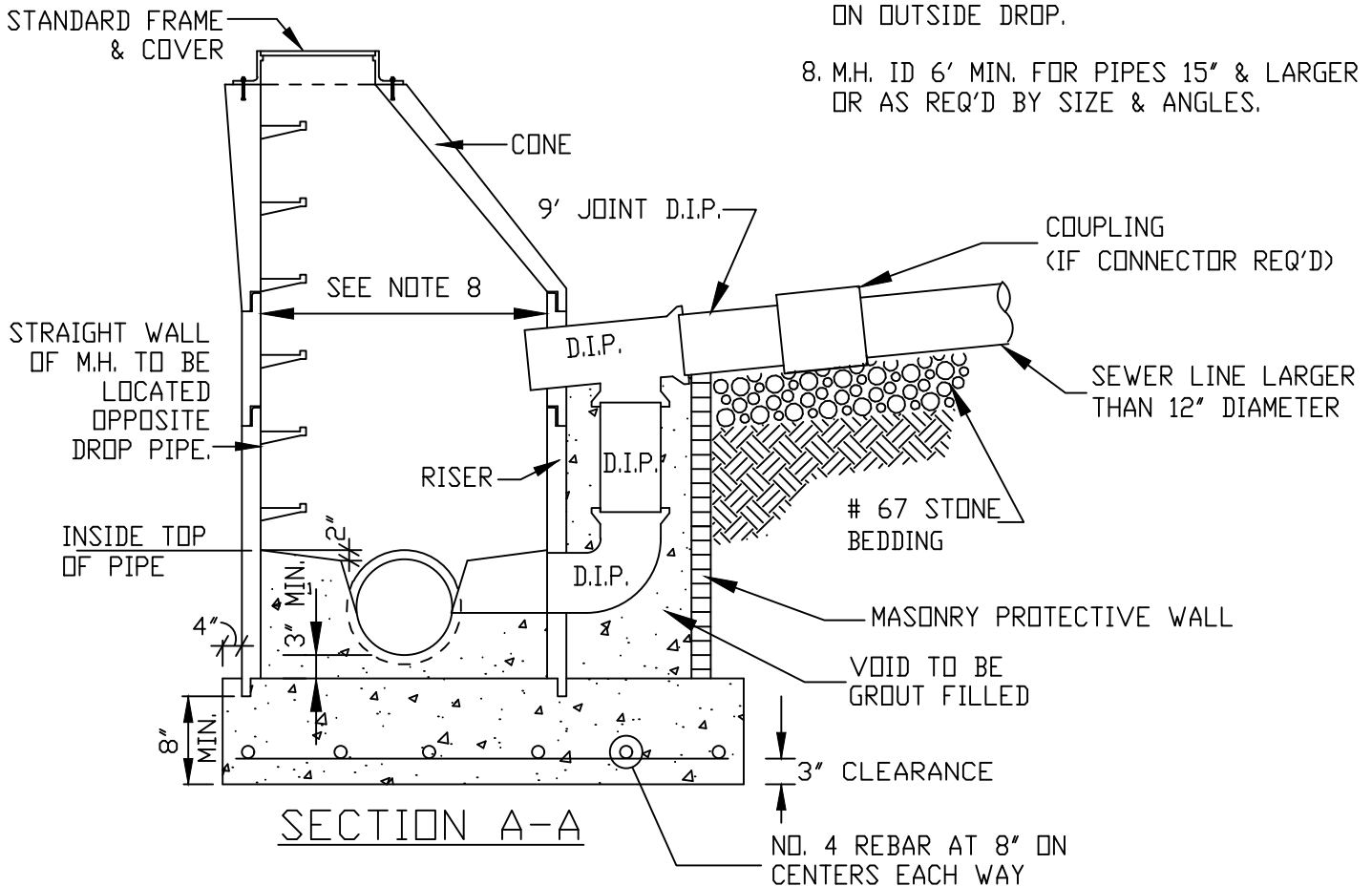
SS-2

**NOTES:**

1. MANHOLE BASE SHALL BE 3000 P.S.I. CONCRETE PLACED ON UNDISTURBED EARTH AND MAY BE PLACED AGAINST SHAPED BANKS IN LIEU OF FORMS.
2. ALL MASONRY MORTAR SHALL BE PORTLAND CEMENT 1:3 MIX.
3. CARE MUST BE TAKEN TO FORM A SMOOTH FINISH TROUGH FROM ENTRANCE PIPES TO EXIT PIPE, AND IN CURVED MANHOLES THE TROUGH MUST BE A SMOOTH CIRCULAR ARC TANGENT TO THE INSIDE WALLS OF THE PIPES AT THEIR ENDS.
4. PROTECTIVE WALL FOR OUTSIDE DROP SHALL BE A MINIMUM OF 8" MASONRY.
5. THE SLOPE OF THE OUTSIDE DROP TROUGH SHALL BE 1/4" PER FOOT.
6. MANHOLE TO CONFORM WITH ASTM C478 AND PRECAST MANHOLE STD.
7. RAMSET MASONRY TIES EVERY 12 INCHES ON OUTSIDE DROP.
8. M.H. ID 6' MIN. FOR PIPES 15" & LARGER OR AS REQ'D BY SIZE & ANGLES.



**PLAN**



**SECTION A-A**

TROUTMAN, NC STANDARD DETAIL

DATE: SEPTEMBER, 2021

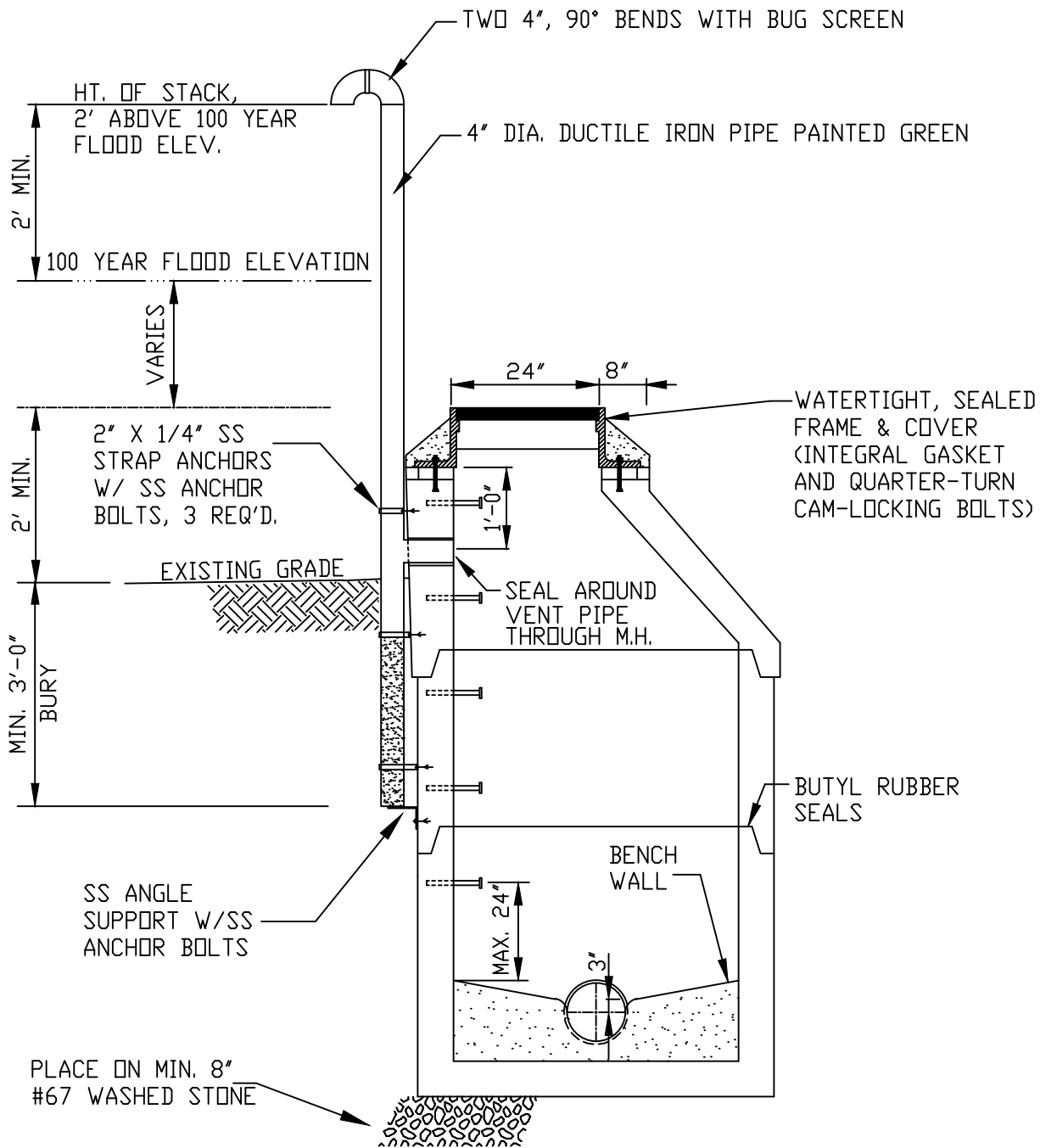
SEWER SYSTEMS

SCALE: NONE

PRECAST MH W/OUTSIDE DROP

STANDARD

SS-3



M.H. SECTION

NOTE:

STEEL PIPE TO HAVE AN INSIDE COAL-TAR LINING, 3/32 INCH MINIMUM THICKNESS. THE OUTSIDE SHALL BE SAND OR GRIT BLASTED AND COATED WITH TWO COATS OF URETHANE PAINT SUCH AS TNE MEC 73-ENDURA SHIELD FOR A TOTAL DRY FILM THICKNESS OF 5 MILS. COLOR TO BE "OLIVE GREEN"

TROUTMAN, NC STANDARD DETAIL

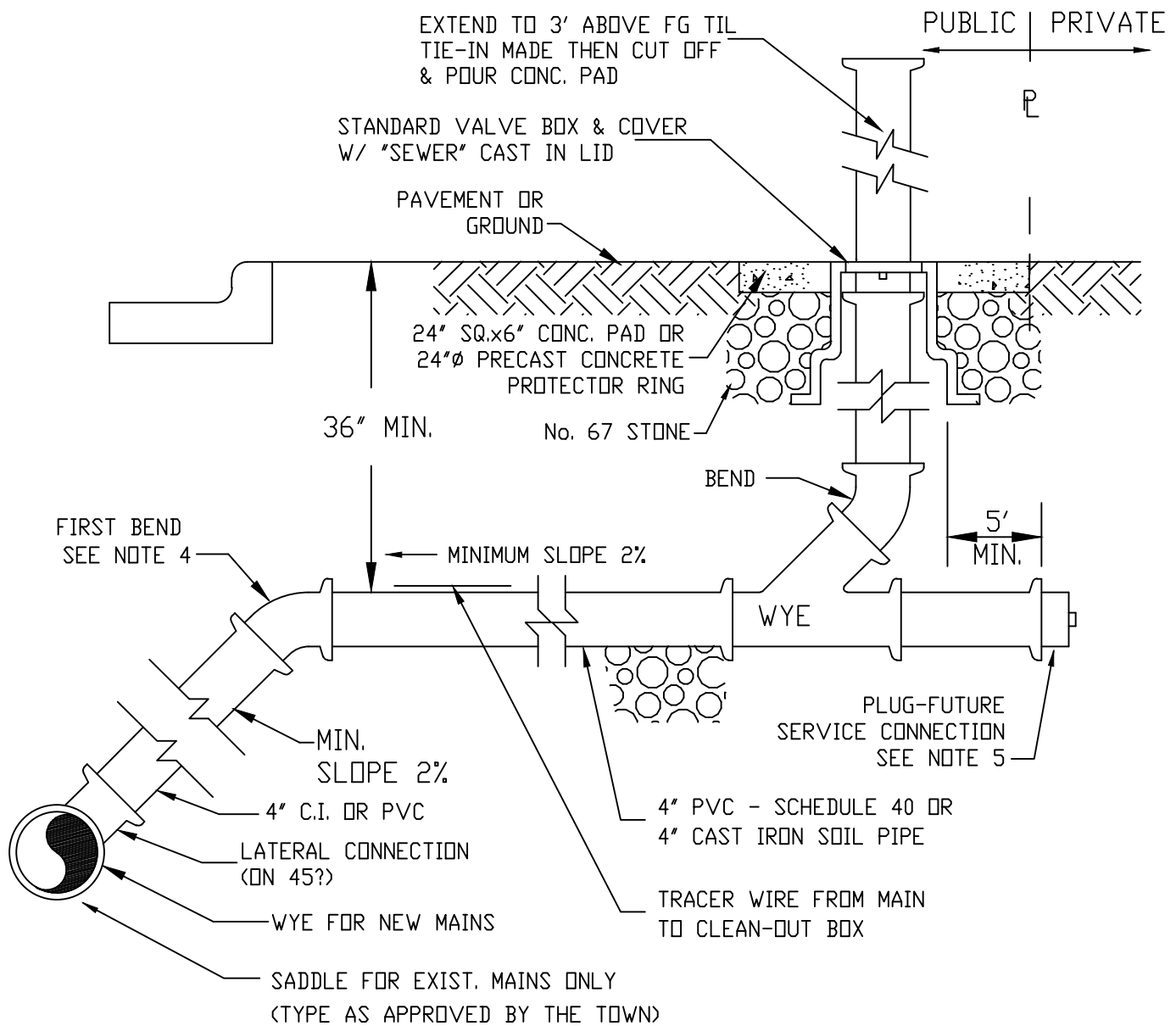
DATE: OCTOBER, 2021

SEWER SYSTEMS  
MANHOLE VENT

SCALE: NONE

STANDARD

SS-4



**NOTES:**

1. THE FULL LENGTH OF THE SERVICE DITCH SHALL BE COMPACTED IN 8" LOOSE LAYERS WITH MECHANICAL TAMPS, TO 95% STANDARD PROCTOR.
2. THE TOWN SHALL MAKE TAPS ON EXISTING LINES UNLESS OTHERWISE APPROVED.
3. BENDS 1/16, 1/8, 1/4 AS REQUIRED.
4. FIRST BEND SHALL OCCUR BEHIND BACK OF CURB UNLESS SPECIFICALLY APPROVED BY THE UTILITIES DIRECTOR.
5. IF SERVICE LINE TO MAIN AT CLEAN-OUT IS DEEP, FUTURE CONNECTION MAY BE TIED TO VERTICAL CLEAN-OUT STACK W/ WYE & BEND AND STACK TO SERVICE LINE WITH LONG SWEEP 90° ELL IN LIEU OF WYE & BEND.

TROUTMAN, NC STANDARD DETAIL

DATE: OCTOBER, 2021

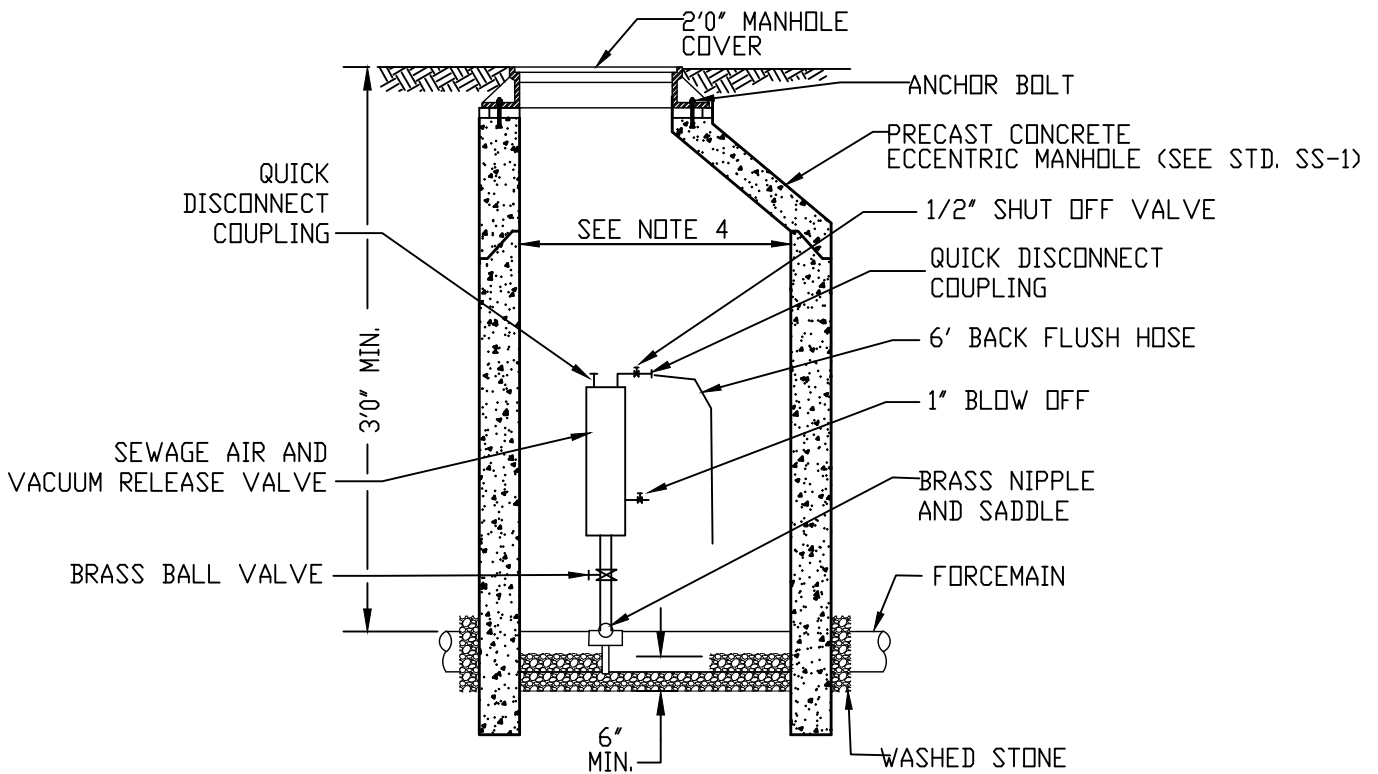
SEWER SYSTEMS  
TAP & STUB-OUT

SCALE: NONE

STANDARD

SS-5





**NOTES:**

1. MANHOLE TO CONFORM WITH ASTM C478.
2. STEPS TO BE PLASTIC COATED REBAR (NOT SHOWN)
3. BUTYL RUBBER SEALANT TO MEET FEDERAL SPECIFICATION (GSA-FSS) SS-S-00210.
4. INSIDE DIA. AS REQUIRED BY VALVE SIZE & ANGLES

TROUTMAN, NC STANDARD DETAIL

DATE: OCTOBER, 2021

SEWER SYSTEMS  
AIR VALVE MANHOLE

SCALE: NONE

STANDARD

SS-6

FINISHED GRADE

12" MIN.

CONNECT EACH TRACER WIRE TO GROUND ROD WITH GROUND ROD CLAMP WITH STAINLESS STEEL SCREWS (SEE DETAIL). WRAP ALL EXPOSED METAL WITH RUBBER ELECTRICAL SPLICING TAPE.

ALL VERTICAL WIRE SHALL BE PLACED IN 1" ID PVC CONDUIT

NO. 12 GAUGE SOLID COPPER TRACER WIRE (TYP.)

SEWER SADDLE TAP

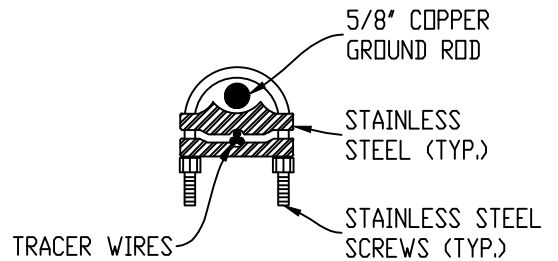
SEWER LATERAL

5/8" COPPER GROUND ROD CAST OR CORED IN MANHOLE 1" BELOW STEP IN CENTERLINE OF STEP. DO NOT PROTRUDE PAST INSIDE EDGE OF STEP. IF CORED, SEAL AROUND THE GROUND ROD WITH CONCRETE CAULK.

WRAP EACH TRACER WIRE AROUND OUTSIDE OF MANHOLE AND CONNECT TO GROUND ROD

NOTES:

1. WHERE LATERAL TAPS ARE MADE BY SERVICE SADDLES THE TRACER WIRE SHALL NOT BE ALLOWED TO BE PLACED BETWEEN THE SADDLE AND MAIN.
2. SPLICES IN THE PRIMARY TRACER WIRE ALONG THE SEWER MAIN SHALL INCLUDE 3 FEET OF SLACK WIRE ON EACH SIDE OF EACH SPLICE.
3. FOR INSTALLING A NEW LATERAL ON AN EXISTING MAIN WITH TRACER WIRE, ONLY SPLICE TO EXISTING WIRE WITH 3 FEET OF SLACK ON NEW LATERAL.



GROUND ROD CLAMP

TROUTMAN, NC STANDARD DETAIL

DATE: OCTOBER, 2021

SEWER SYSTEMS

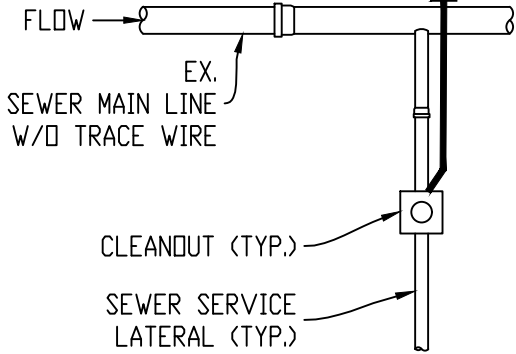
SCALE: NONE

MANHOLE TRACER WIRE

STANDARD

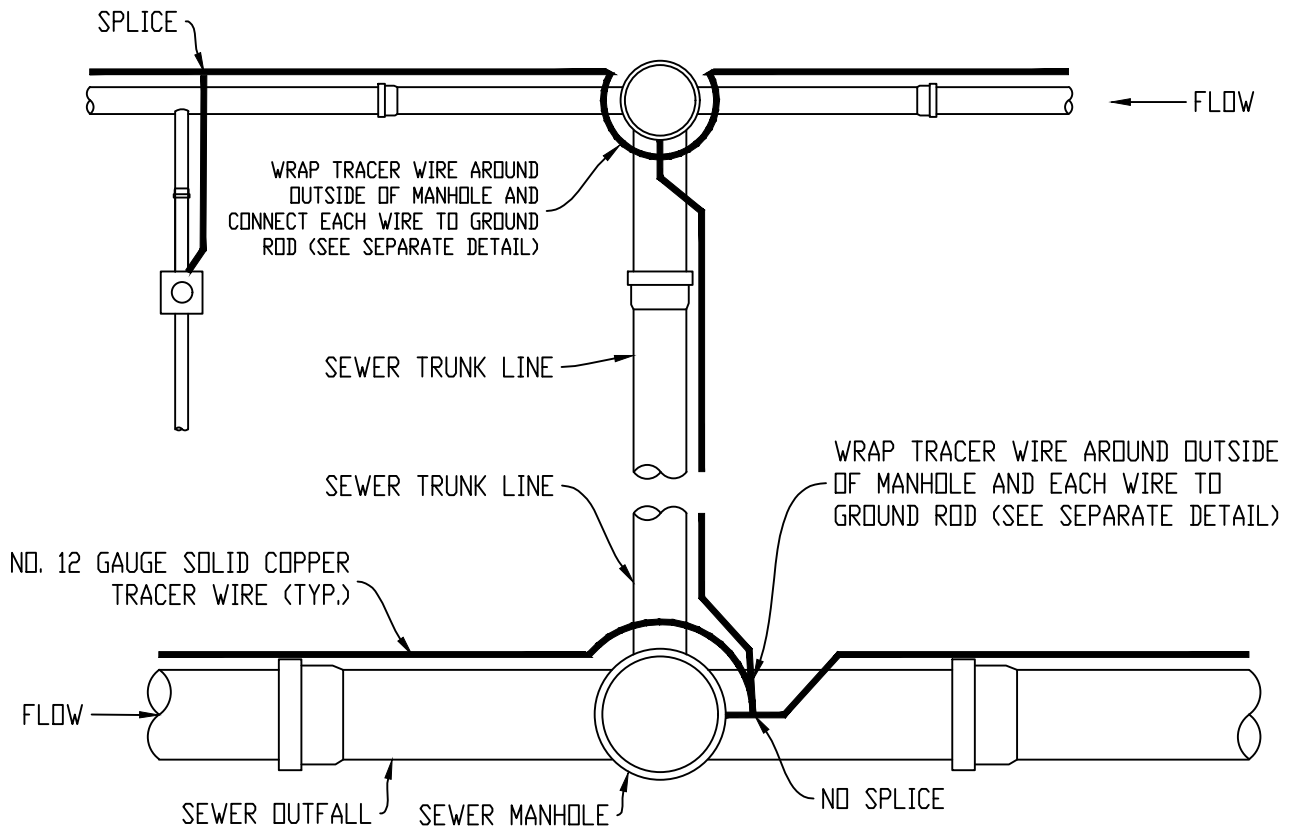
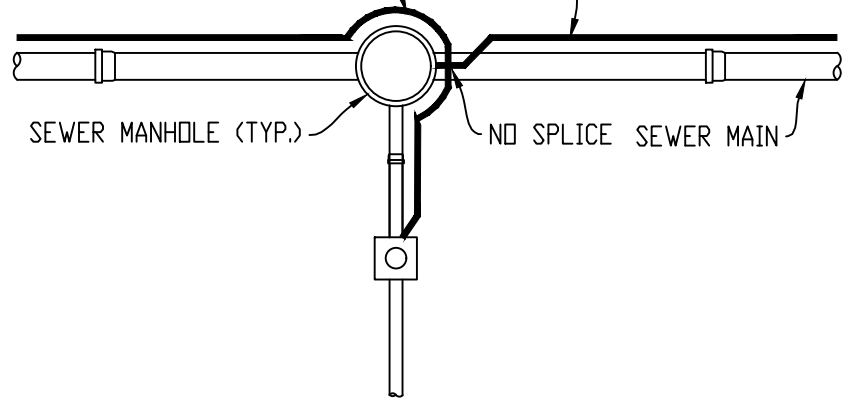
SS-7

NEW SERVICE ON EXISTING MAIN.  
MAGNESIUM ANODE (1 LB. MIN.)  
REQUIRED WHERE NO TRACER WIRE  
IS LOCATED ON SEWER MAIN (TYP.)



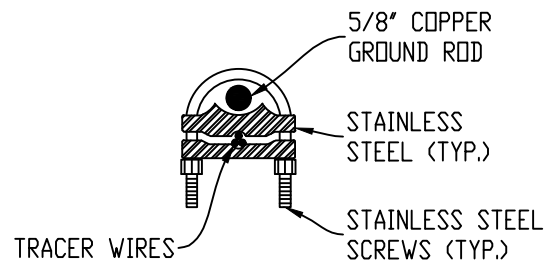
WRAP TRACE WIRE AROUND  
OUTSIDE OF MANHOLE AND CONNECT  
EACH WIRE TO GROUND ROD

NO. 12 GAUGE SOLID  
COPPER TRACE WIRE  
(TYP.)



NOTES:

1. TRACER WIRE SHOWN AWAY FROM PIPE FOR CLARITY. TRACER WIRE SHALL BE INSTALLED IMMEDIATELY ADJACENT TO THE SEWER PIPE. TRACER WIRE SHALL BE FASTENED TO THE PIPE WITH ZIP TIES OR 2" PVC TAPE AT 10 FOOT INTERVALS.
2. TRACER WIRE SHALL BE COPPER NO. 12 GAUGE WITH 30 MILS GREEN HDPE INSULATION.



GROUND ROD CLAMP

TROUTMAN, NC STANDARD DETAIL

DATE: OCTOBER, 2021

SEWER SYSTEMS

SCALE: NONE

GRAVITY SEWER TRACER WIRE

STANDARD

SS-8

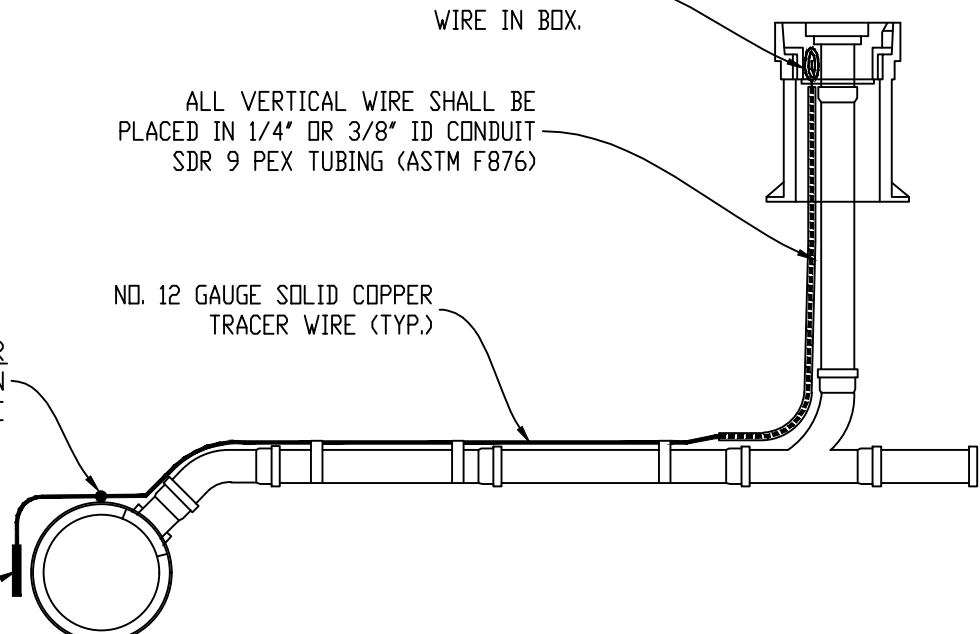
EXTEND TRACER WIRE TO JUST ABOVE CLEANOUT. PROVIDE 24" OF COILED WIRE IN BOX.

ALL VERTICAL WIRE SHALL BE PLACED IN 1/4" OR 3/8" ID CONDUIT SDR 9 PEX TUBING (ASTM F876)

NO. 12 GAUGE SOLID COPPER TRACER WIRE (TYP.)

FOR NEW SEWER SPLICE TO MAIN TRACER WIRE

FOR NEW SERVICE ON EX. MAIN MAGNESIUM ANODE (1 LB. MIN.) REQUIRED WHERE NO TRACER WIRE IS LOCATED ON SEWER MAIN



NOTES:

1. THE TRACER WIRE SHALL BE CONTINUOUS TO THE GREATEST EXTENT POSSIBLE. WHERE SPLICES ARE NEEDED IN THE WIRE, THE SPLICES SHALL BE SECURELY BONDED TOGETHER WITH AN APPROVED INDUSTRIAL CONNECTOR TO PROVIDE ELECTRICAL CONTINUITY. CONNECTOR SHALL BE COPPER AND INSULATION SHALL BE REPAIRED TO SEAL OUT MOISTURE AND CORROSION AND SHALL BE INSTALLED IN A MANNER SO AS TO PREVENT AN UNINSULATED WIRE EXPOSURE.
2. THE CLEANOUT AT THE RIGHT OF WAY OR EASEMENT SHALL SERVE AS THE TEST PORT.
3. SPLICED CONNECTIONS SHALL BE ALLOWED BETWEEN THE MAIN LINE TRACER WIRE AND THE LATERAL TRACER WIRE.
4. FOR NEW SEWER TAPS ON EXISTING MAINS VOID OF ANY TRACER WIRE, PROVIDE A 1 LB. MAGNESIUM ANODE FOR THE TRACING WIRE TERMINATION AT THE POINT OF THE NEW TAP ON THE EXISTING SEWER MAIN. PLACE ANODE AT BOTTOM EDGE OF TRENCH AWAY FROM MAIN AND LATERAL.
5. PRIOR TO ACCEPTANCE, EACH WIRE SEGMENT SHALL PASS A CONDUCTIVITY TEST, WITNESSED BY THE ENGINEER OR OWNER.

TROUTMAN, NC STANDARD DETAIL

DATE: OCTOBER, 2021

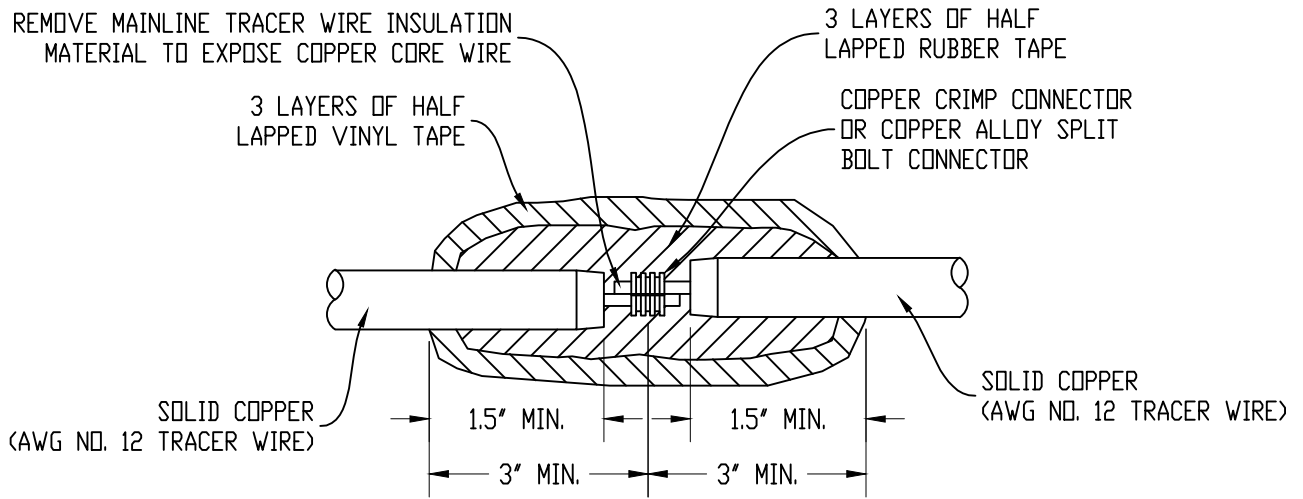
SEWER SYSTEMS

SCALE: NONE

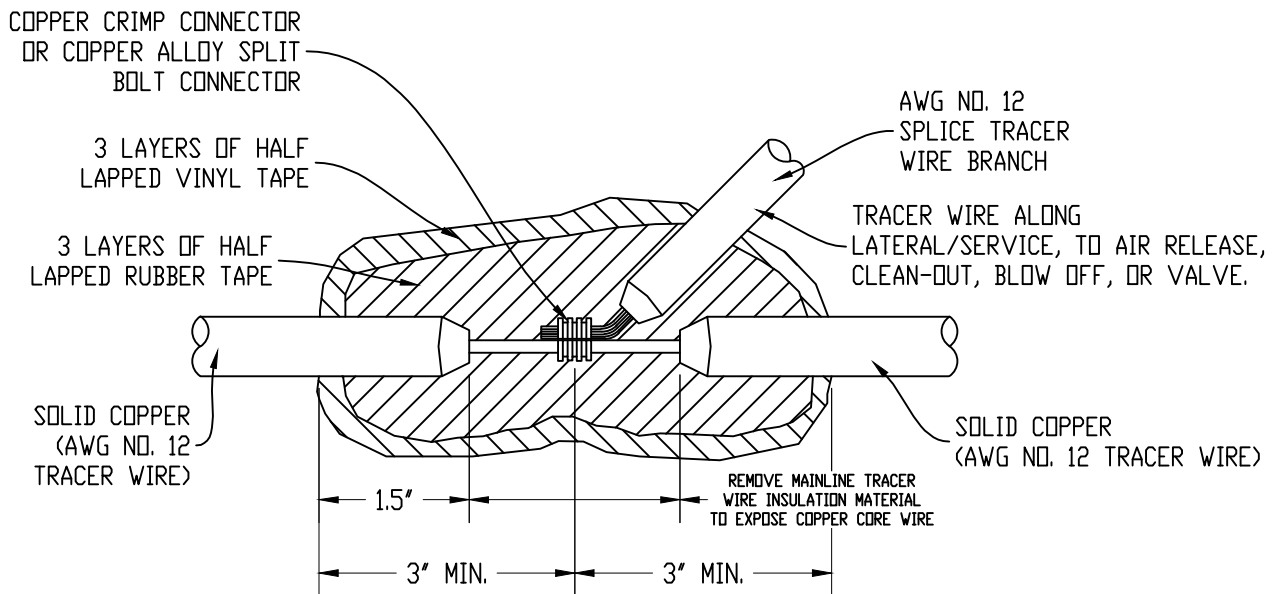
SERVICE LATERAL TRACER WIRE

STANDARD

SS-9



### IN-LINE OR REPAIR SPLICE



#### NOTES:

1. IN LINE SPLICES SHALL BE LIMITED TO THE GREATEST EXTENT POSSIBLE. TRACER WIRE SHALL BE AS CONTINUOUS AS POSSIBLE WITHOUT SPLICES.
2. INLINE SPLICES SHALL INCLUDE 3 FEET OF SLACK WIRE ON EACH SIDE OF EACH SPLICE.
3. BRANCH SPLICES ON EXISTING WIRE SHALL INCLUDE 3 FEET OF SLACK WIRE ON THE NEW BRANCH WIRE.
4. BRANCH SPLICES ON NEW MAIN INSTALLATION SHALL INCLUDE 3 FEET OF SLACK WIRE ON EACH SIDE OF THE SPLICE IN EACH DIRECTION.

TROUTMAN, NC STANDARD DETAIL

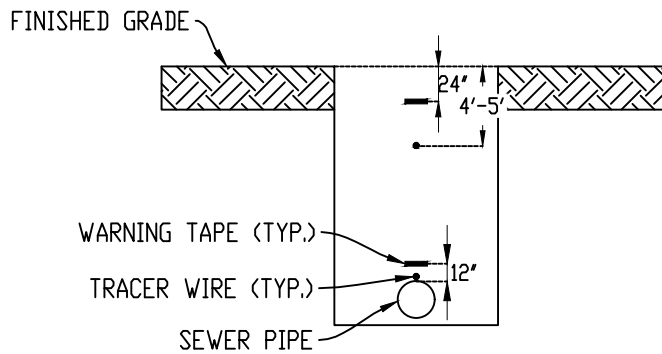
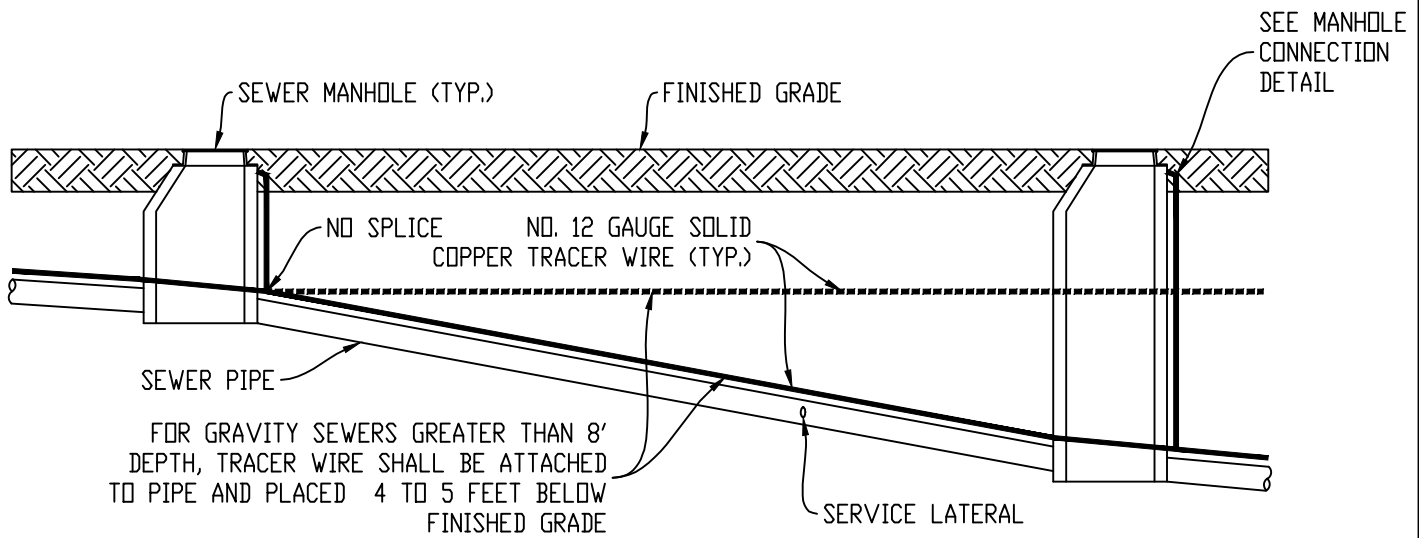
DATE: OCTOBER, 2021

SEWER SYSTEMS  
BRANCH IN-LINE SPLICE

SCALE: NONE

STANDARD

SS-10

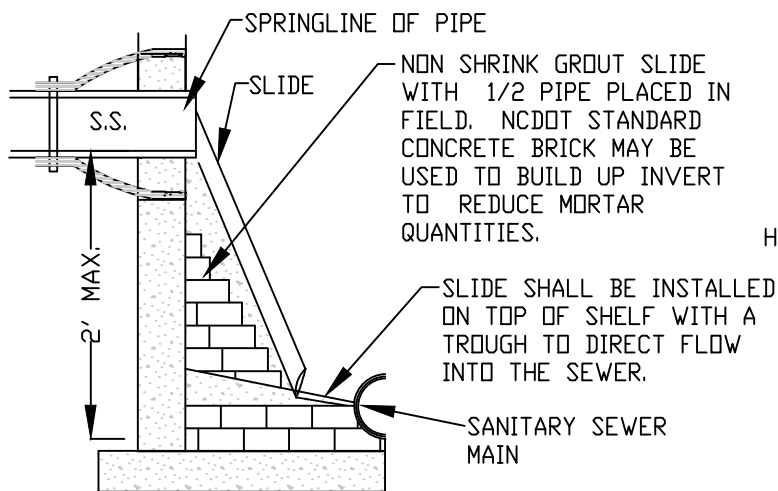
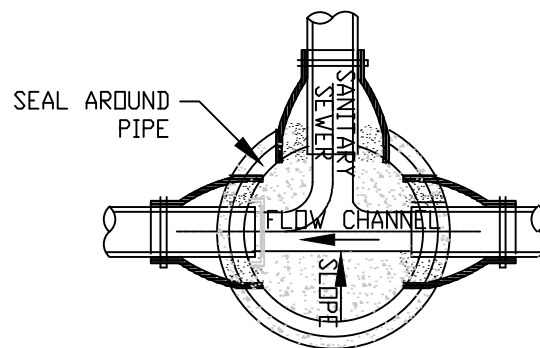
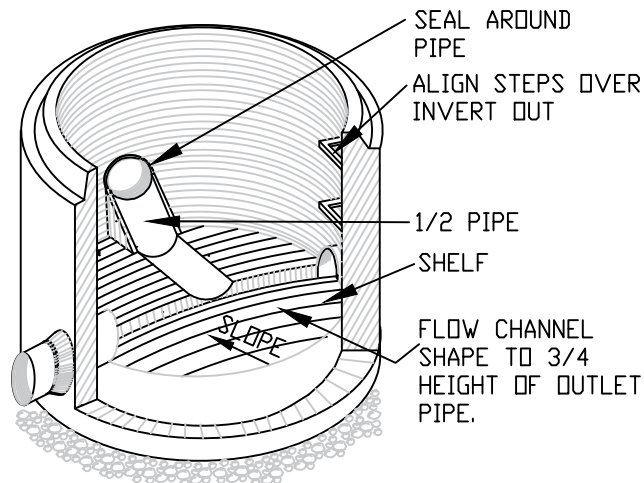


NOTES:

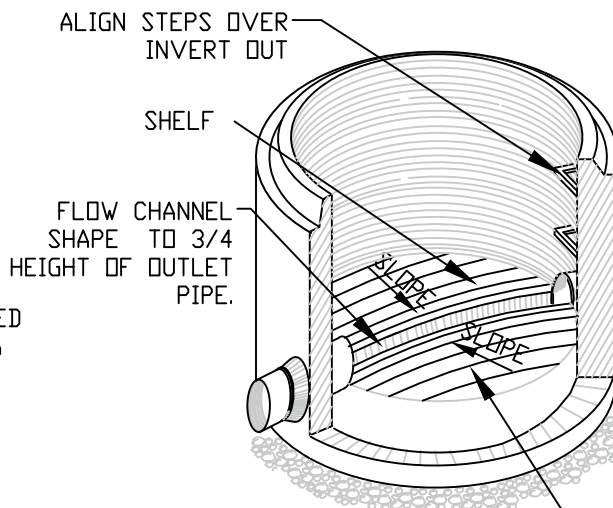
1. TRACER WIRE ATTACHED TO THE SEWER PIPE IS SUFFICIENT FOR GRAVITY SEWER SEGMENTS THAT ARE INSTALLED DEEPER THAN 8 FEET, BUT ARE LESS THAN 8 FEET DEEP AT BOTH THE UPSTREAM AND DOWNSTREAM MANHOLES.

<DEPTH > 8 FT

TROUTMAN, NC STANDARD DETAIL	DATE: OCTOBER, 2021
SEWER SYSTEMS	SCALE: NONE
GRAVITY SEWER TRACER WIRE	STANDARD SS-11



PIPE SLIDE DETAIL  
N.T.S.



SLOPE TOP OF CONCRETE SHELF 1:12 MIN./2:12 MAX. TOWARD TROUGH.

SHELF DETAIL  
N.T.S.

NOTES:

1. PIPE SLIDE REQUIRED WHERE VERTICAL SEPARATION BETWEEN PIPE INVERTS IS LESS THAN 2'. FOR LATERAL INVERTS AT OR WITHIN FOUR (4) INCHES OF THE SHELF, CONSTRUCT BENCH AND INVERT AS DIRECTED BY THE TOWN OF TROUTMAN PROJECT COORDINATOR.
2. INTERIOR DROP STRUCTURE REQUIRED WHERE VERTICAL SEPARATION BETWEEN INVERTS EQUALS OR EXCEEDS 2'. FOR INTERIOR DROP STRUCTURE SEE TOWN OF TROUTMAN DETAIL S.5.
3. VERIFY SLIDE INSTALLATION WITH PROJECT COORDINATOR PRIOR TO CONSTRUCTION.
4. MANHOLE AND CONNECTIONS SHALL BE IN ACCORDANCE WITH TOWN OF TROUTMAN REQUIREMENTS.
5. BRICK USED FOR INVERT AND SHELF CONSTRUCTION SHALL BE NCDOT STANDARD CONCRETE BRICK.
6. MANHOLES GREATER THAN 12' IN DEPTH SHALL HAVE MINIMUM 6" EXTENDED BASE.
7. THE MINIMUM SLOPE ACROSS THE INVERT OF THE MANHOLE SHALL BE 1% UNLESS OTHERWISE APPROVED BY TOWN OF TROUTMAN.
8. DROP AND/OR SLIDE REQUIREMENTS SHALL APPLY TO ALL LATERALS ENTERING MANHOLES AS OUTLINED IN NOTES 1, 2, AND 3. NO MORE THAN 4, FOUR INCH LATERALS OR 3, SIX INCH LATERALS SHALL ENTER A 4' DIAMETER TERMINAL MANHOLE. NO MORE THAN 2 LATERALS (REGARDLESS OF SIZE) SHALL ENTER ALL OTHER 4' DIAMETER MANHOLES. ALL LATERALS SHALL HAVE AN INDIVIDUAL TROUGH. 5' DIAMETER MANHOLES SHALL BE USED IF THE ABOVE CONDITIONS ARE NOT MET. THE INVERT OF THE LATERAL SHALL BE A MINIMUM OF 1" ABOVE THE SHELF.
9. NO MORE THAN 5 LATERALS SHALL ENTER A 5' DIAMETER TERMINAL MANHOLE.
10. USE OF TEE-WYES ON LATERALS IS NOT ALLOWED.

TROUTMAN, NC STANDARD DETAIL

DATE: OCTOBER, 2023

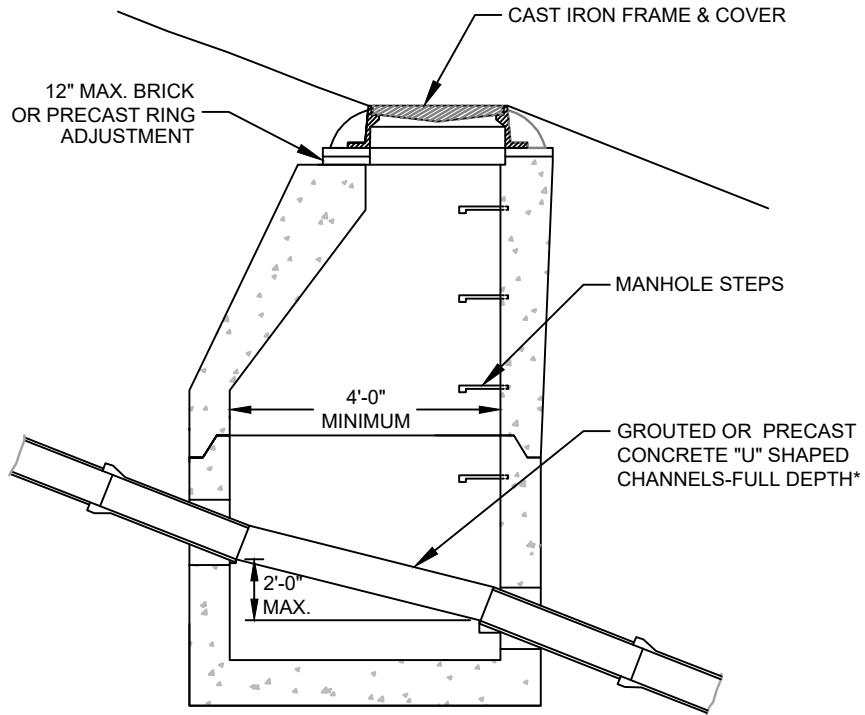
SEWER SYSTEMS

SCALE: NONE

PIPE SLIDE AND SHELF

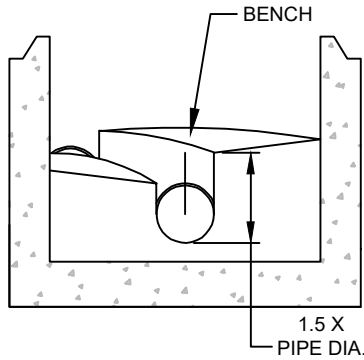
STANDARD

SS-12



**\*INVERT CHANNELS FOR MANHOLES WHERE ALIGNMENT CHANGES SHALL BE "STEPPED" SUCH THAT THE BENCH HEIGHT ON THE OUTSIDE RADIUS OF THE CHANNEL IS 1.5 x THE DIA. OF THE PIPE**

**SECTION THRU SLOPED MANHOLE**  
N.T.S.



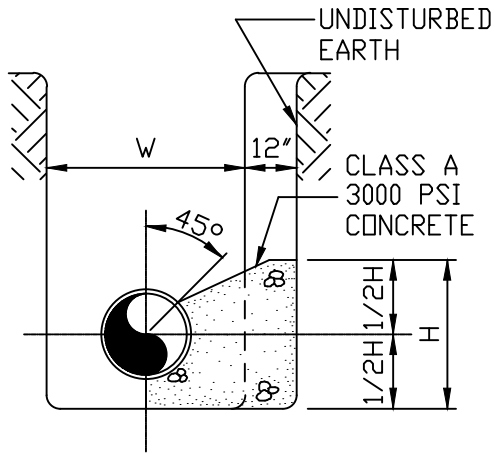
**BENCH DETAIL**  
N.T.S.

NOTE:

MANHOLE STEPS TO BE VERTICALLY IN LINE WITH "INVERT OUT" FOR PIPE 18" AND LESS. OVER 18" TO BE LOCATED IN LINE WITH BENCH. FOR THRU MANHOLES ONLY

TROUTMAN, NC STANDARD DETAIL	DATE: JUNE, 2024
SEWER SYSTEMS SLOPED MANHOLE	SCALE: NONE
	STANDARD                      SS-13



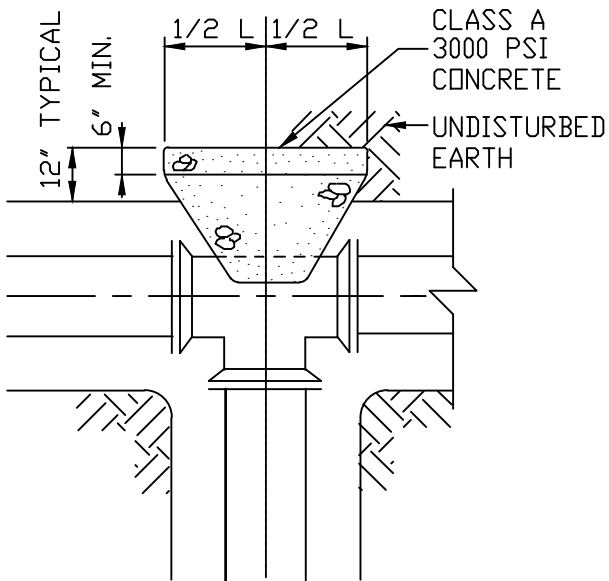


TYPICAL SECTION  
TEE OR BEND

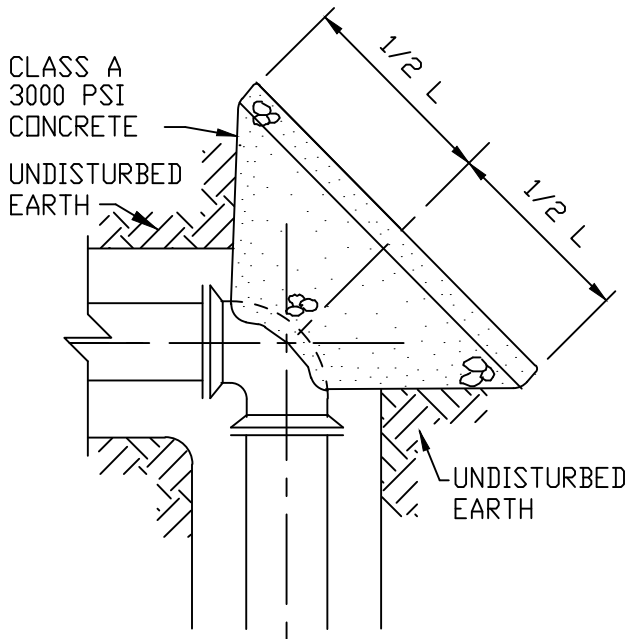
CONCRETE THRUST BLOCK SCHEDULE								
PIPE SIZE INCHES	BEND							
	90 (TEE)		45°		22 1/2°		11 1/4°	
	H	L	H	L	H	L	H	L
2"	.75'	1.5'	.50'	1.0'	.50'	.75'	.50'	.50'
4"	1.5'	3.0'	1.0'	2.5'	1.0'	1.5'	1.0'	1.0'
6"	2.0'	4.0'	1.5'	3.5'	1.0'	3.0'	1.0'	1.5'
8"	2.5'	5.0'	2.5'	4.0'	1.5'	3.5'	1.0'	2.5'
10"	3.0'	6.5'	2.5'	5.0'	2.0'	4.0'	1.0'	3.0'
12"	3.5'	8.0'	3.0'	5.0'	2.5'	5.0'	1.5'	3.5'

\* FOR DESIGN PRESSURE=200 PSI  
FOR PIPE SIZES LARGER THAN 12"  
DESIGN FOR ACTUAL THRUST FOR  
PRESSURE = 200 PSI

SIZE SCHEDULE



PLAN - TEE



PLAN - BEND

TROUTMAN, NC STANDARD DETAIL

DATE: APRIL 2006

WATER SYSTEMS  
THRUST BLOCKING

SCALE: NONE

STANDARD

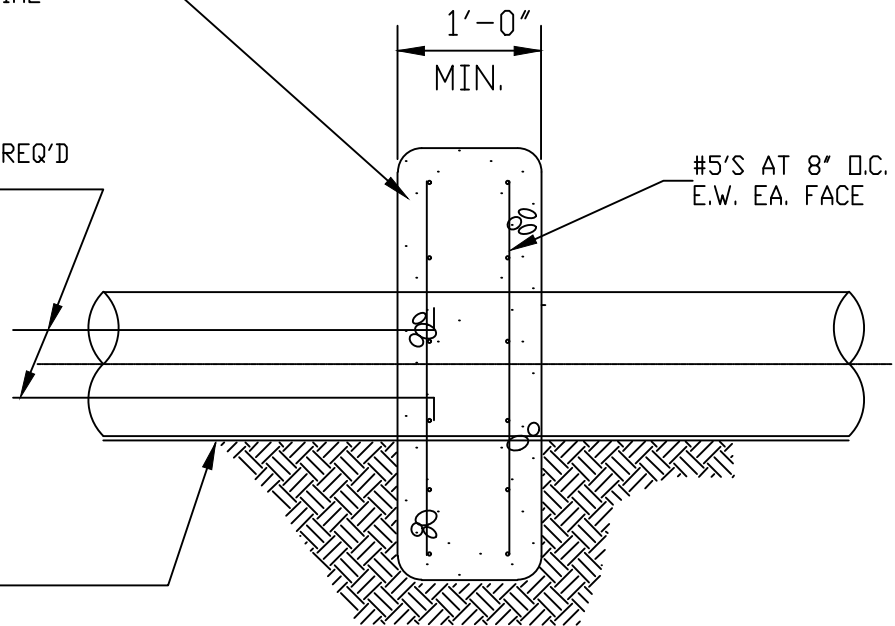
W-1

TYPICAL CONCRETE THRUST COLLAR, MIN. OF 12" INTO UNDISTURBED MATERIAL ALL AROUND.

3/4" TIE RODS, NUMBER AS REQ'D FOR 200 PSI THRUST LOAD (MIN. OF 2 REQ'D) TO PLUG, VALVE OR FITTING.

#5'S AT 8" O.C. E.W. EA. FACE

TRENCH BOTTOM

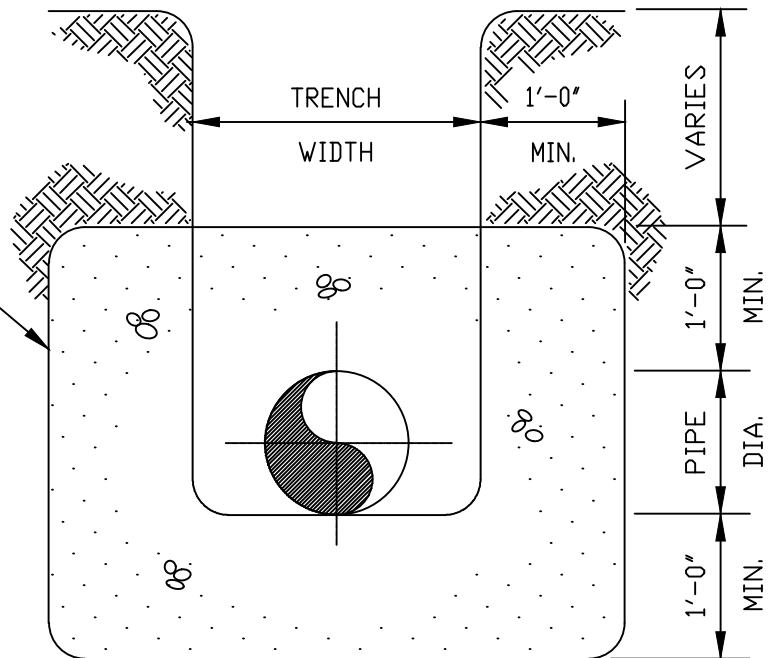


SIDE ELEVATION

TYPICAL CONCRETE THRUST COLLAR, MIN. OF 12" INTO UNDISTURBED SOIL.

RESTRAINED JOINT PIPE MAY BE USED IN PLACE OF THRUST COLLAR WHERE APPROVED BY THE TOWN ENGINEER.

COLLAR SHOWN IS MIN SIZE. COLLAR TO BE DESIGNED FOR ACTUAL CONDITIONS AT MIN PRESSURE = 200 PSI



END ELEVATION

TROUTMAN, NC STANDARD DETAIL

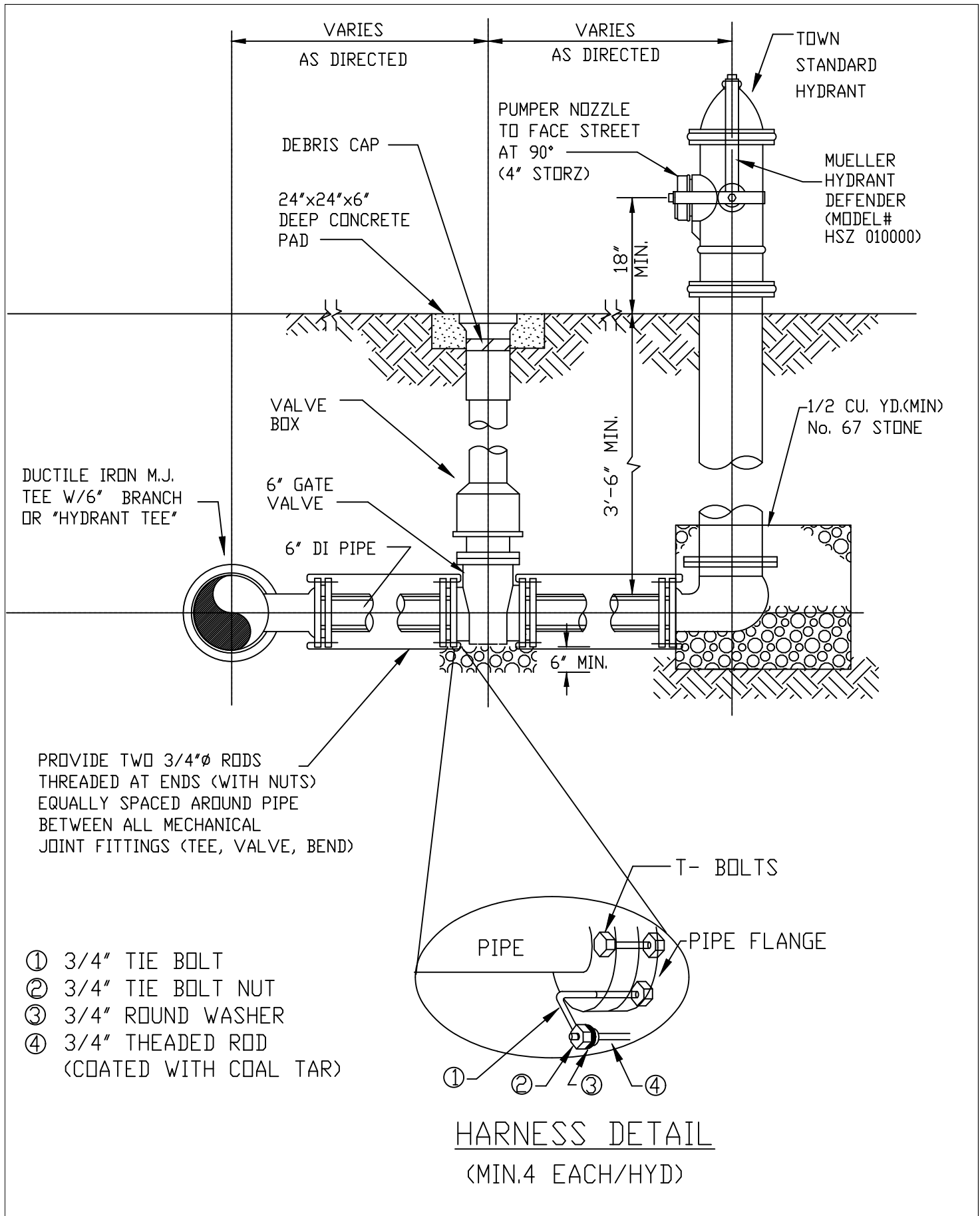
DATE: APRIL 2006

WATER SYSTEMS  
THRUST COLLAR

SCALE: NONE

STANDARD

W-2

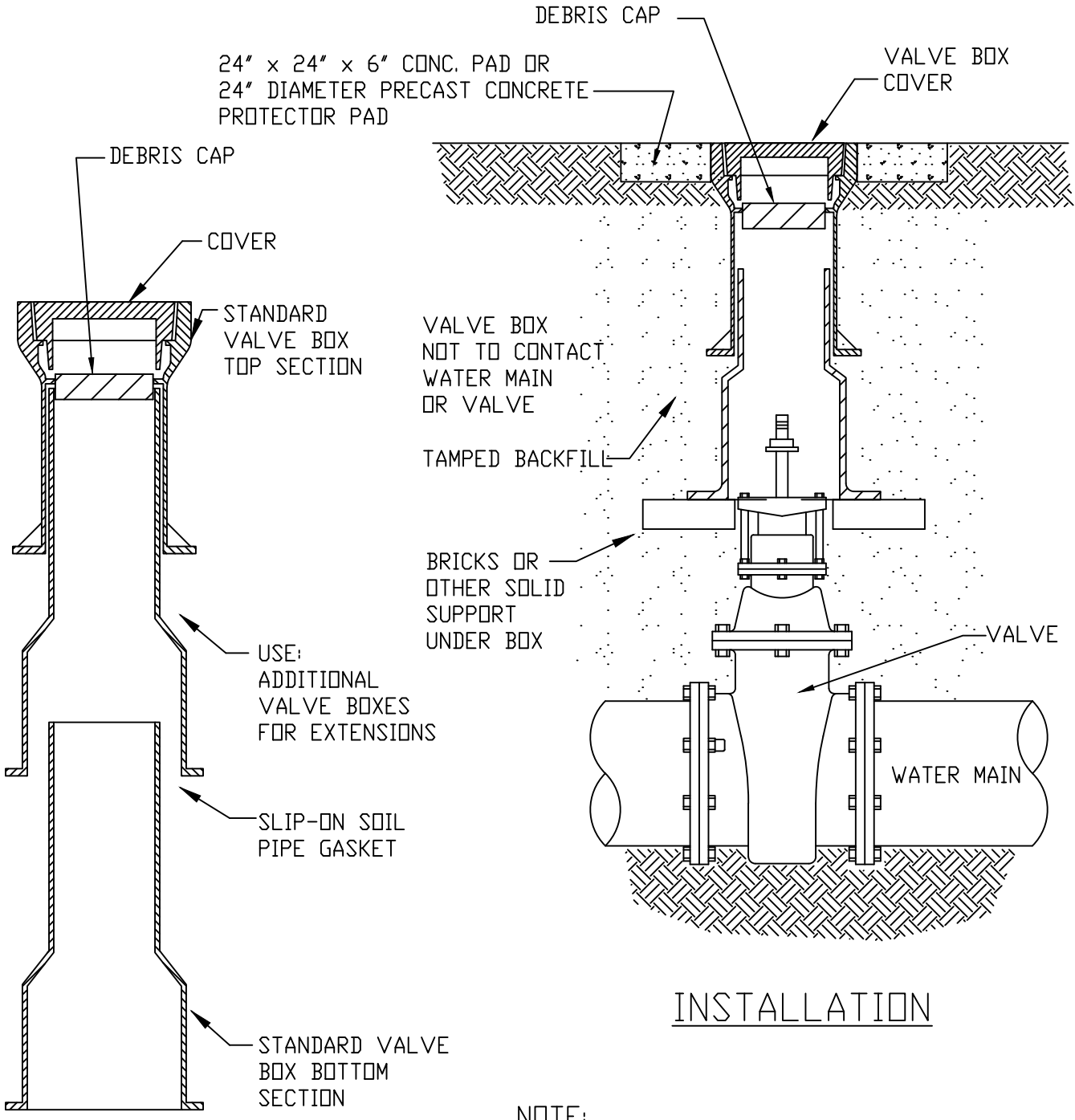


PROVIDE TWO 3/4"Ø RODS THREADED AT ENDS (WITH NUTS) EQUALLY SPACED AROUND PIPE BETWEEN ALL MECHANICAL JOINT FITTINGS (TEE, VALVE, BEND)

- ① 3/4" TIE BOLT
- ② 3/4" TIE BOLT NUT
- ③ 3/4" ROUND WASHER
- ④ 3/4" THEADED ROD (COATED WITH COAL TAR)

**HARNESS DETAIL**  
(MIN.4 EACH/HYD)

TROUTMAN, NC STANDARD DETAIL		DATE: SEPTEMBER 2021	
WATER SYSTEMS FIRE HYDRANT ASSEMBLY		SCALE: NONE	
		STANDARD	W-3



EXTENSION

INSTALLATION

NOTE:  
 INSTALLATION IN UNPAVED AREA SHOWN.  
 IN PAVED AREAS USE SCREW TYPE BOX  
 AND PLACE TOP OF CONC. PAD FLUSH  
 WITH TOP OF STONE BASE

TROUTMAN, NC STANDARD DETAIL

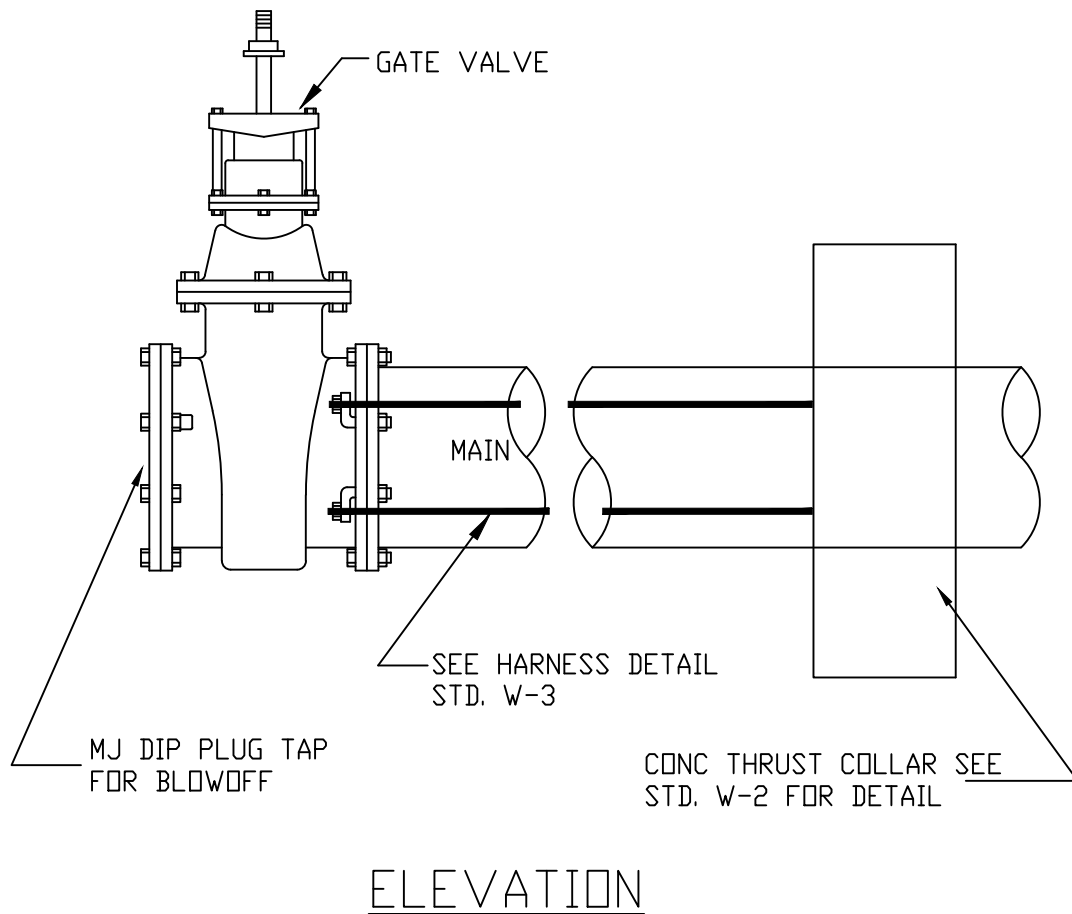
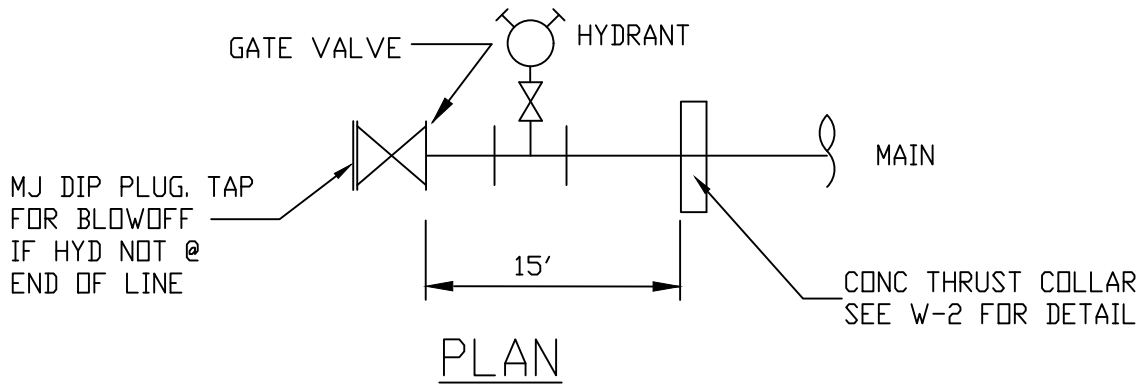
DATE: SEPTEMBER, 2021

WATER SYSTEMS  
 VALVE BOX INSTALLATION

SCALE: NONE

STANDARD

W-4



TROUTMAN, NC STANDARD DETAIL

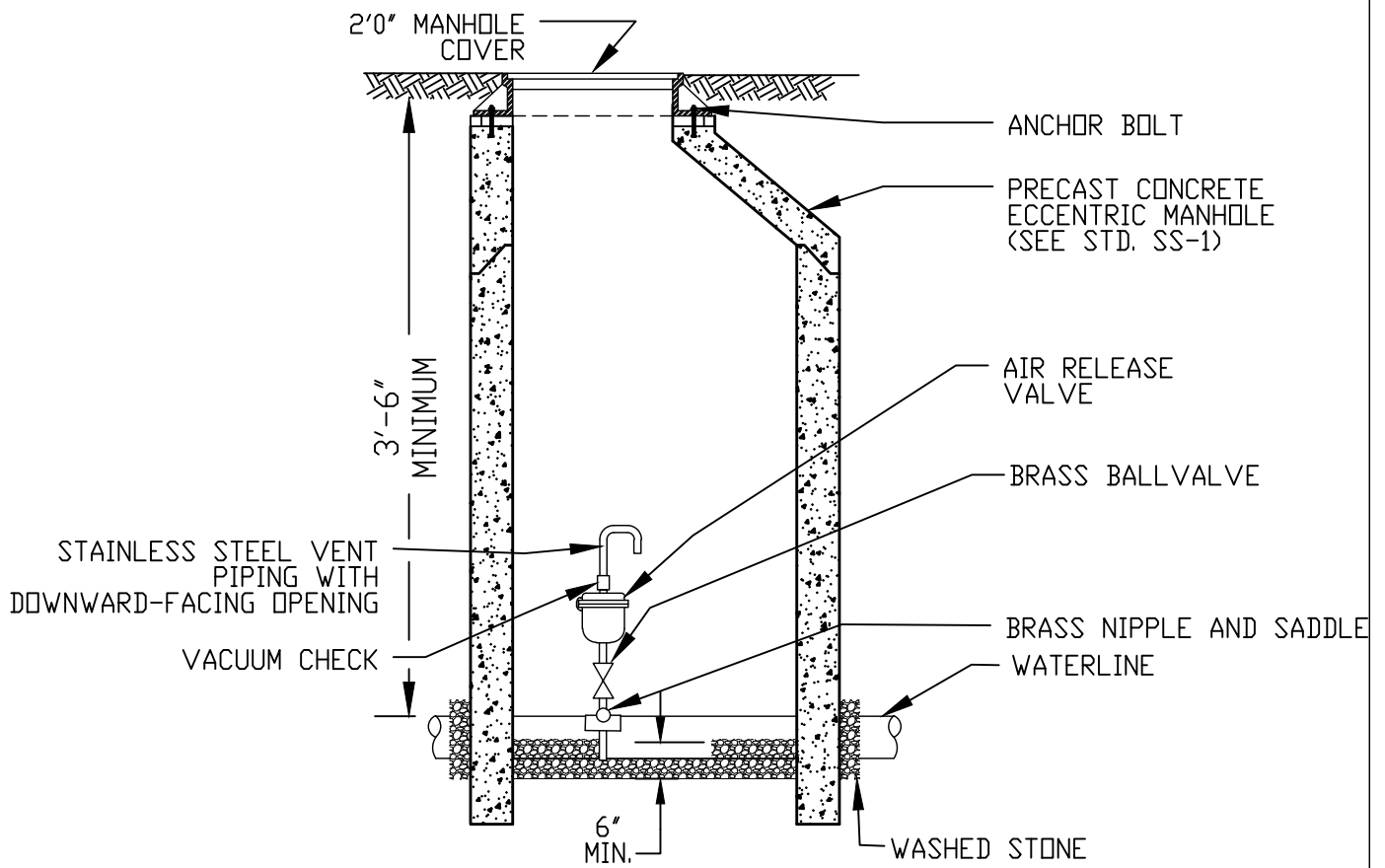
DATE: APRIL 2006

WATER SYSTEMS  
DEAD END LINES

SCALE: NONE

STANDARD

W-5



NOTE: STEPS NOT SHOWN

TROUTMAN, NC STANDARD DETAIL

DATE: SEPTEMBER, 2021

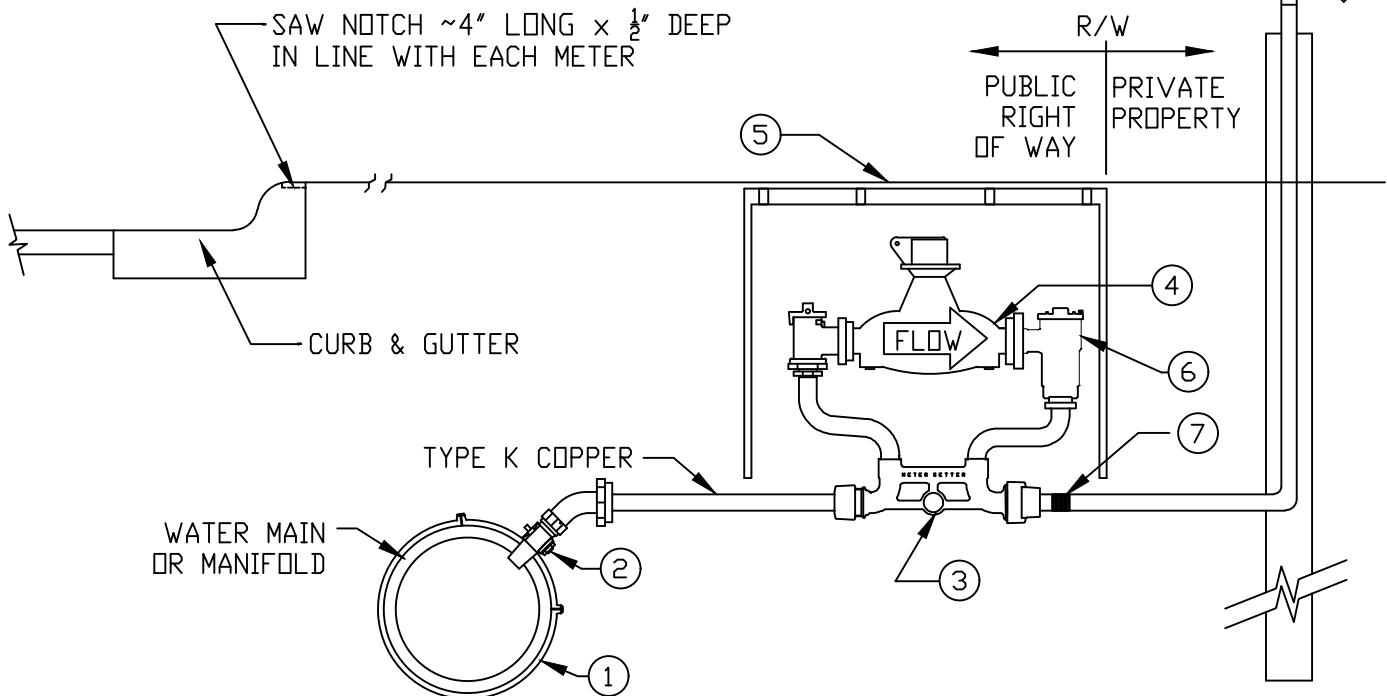
WATER SYSTEMS  
AIR RELEASE VALVE

SCALE: NONE

STANDARD

W-6

CONSTRUCTION FAUCET CONNECTED TO SETTER & MOUNTED TO 4X4 SUPPORT



	3/4"	1"
1. Brass Tapping Saddle-Required for taps on all existing 2" PVC & galvanized pipe. AWWA thread.	A.Y. McDonald 3891	A.Y. McDonald 3891
1. Tapping Saddle- All other pipe thread AWWA tap.	A.Y. McDonald 4855A	A.Y. McDonald 4855A
2. Corporation cock- Inlet AWWA Thread Outlet CT PJ	A.Y. McDonald 74701Q	A.Y. McDonald 74701Q (Equal Mueller, Ford, & Hayes Models are acceptable)
3. Meter Setter	A.Y. McDonald 723-207 WDTP 33 (3/4")	A.Y. McDonald 723-407 WDTP 44 (1")
4. Meter (See Note Below)	Neptune Mach 10 Ultrasonic with R900 radio read assembly (5/8" x 3/4")	Neptune Mach 10 Ultrasonic with R900 radio read assembly (1" x 1")
5. Meter Box	NDS D-1200-DICIR 12" meter box with drop in top mount cover and cast-iron reader lid.	NDS D-1200-DICIR 12" meter box with drop in top mount cover and cast-iron reader lid.
6. Dual Check Valve	Built into Setter	Built into Setter
7. Temporary Brass Plug- For services not to be immediately connected.		
8. All items as specified or approved equal.		

**Notes:**

All materials except for the meter, shall be purchased and installed by the developer. Town will provide and install meter after service connection fee is paid by home builder or home owner.

TROUTMAN, NC STANDARD DETAIL

DATE: OCTOBER, 2022

WATER SYSTEMS

SCALE: NONE

3/4" & 1" METER CONNECTION

STANDARD

W-7