

-
- VARIES
- RIGHT-OF-WAY EASEMENT LINE
- PRIVATE PROPERTY
- 18" DIA.
- 12"-18"
- WATER MAIN
- SADDLE & STOP
- 1" SERVICE
- LOCKABLE SHUTOFF
- METER NUT
- METER SETTER & BOX TO BE SET AT FINAL GRADE OF SITE
- FINAL GRADE
- METER BY PARTICIPATING UTILITY
- 6" STONE VDOT 57
- 3'-0"
- 30"-45°
- 1" SERVICE
- 1" CORPORATION STOP WITH CTS COMPRESSION CONNECTION SEE NOTE #4
- 15"
- 2'-0"
- 15"
- CTS COMPRESSION CONNECTION
- EXISTING SERVICE LINE
- TRACER WIRE SEE GENERAL DETAIL

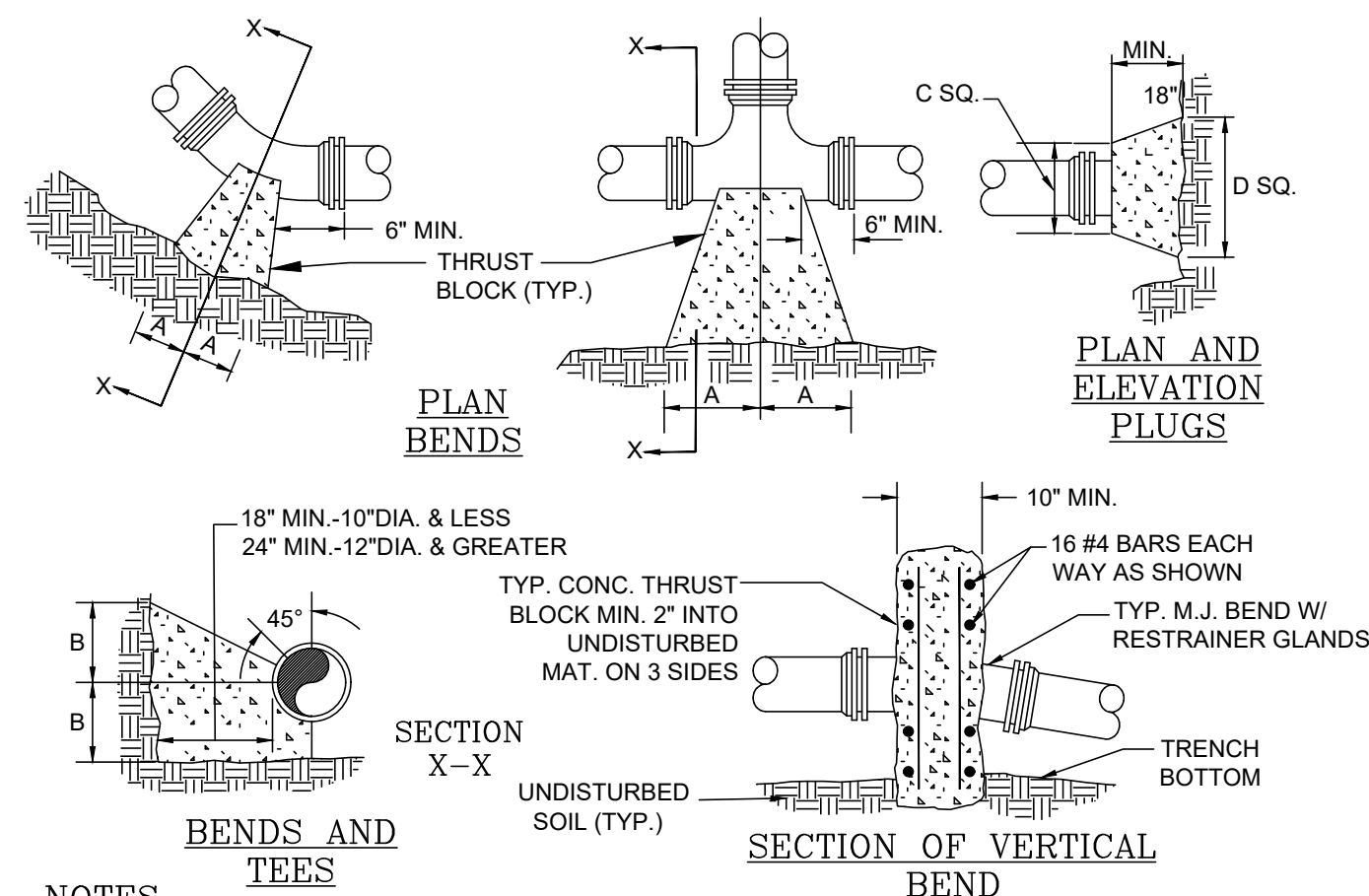
SINGLE RESIDENTIAL
WATER SERVICE
(REPLACEMENT OF EXISTING SERVICE)

W-2

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- VARIES
- RIGHT-OF-WAY EASEMENT LINE
- PRIVATE PROPERTY
- PROPERTY CORNER
- 18" DIA
- 12"-18"
- WATER MAIN
- SADDLE & STOP
- U BRANCH
- LOCKABLE SHUTOFF (TYP.)
- METER NUT
- METER SETTER & BOX TO BE SET AT FINAL GRADE OF SITE
- FINAL GRADE
- METER BY PARTICIPATING UTILITY
- 6" STONE VDOT 57
- 15"
- 2'-0"
- 15"
- CTS COMPRESSION CONNECTION
- 30°-45°
- 1" SERVICE
- TRACER WIRE SEE GENERAL DETAIL
- EXISTING SERVICE LINE
- 1" CORPORATION STOP WITH CTS COMPRESSION

DOUBLE RESIDENTIAL
WATER SERVICE
(REPLACEMENT OF EXISTING SERVICE)

W-4E



1.	FOR VERT. BEND DOWN IN EXCESS OF 11 1/4" BEND, ANCHORAGE SHALL BE DESIGNED BY ENGINEER.	5.	THRUST BLOCKS WITH "B" DIMENSION GREATER THAN 30" SHALL HAVE THE RESTRAINED PIPE INSTALLED WITH A MINIMUM OF 4" OF COVER.
2.	FOR VERT. BEND UPWARD, BLOCKING TO BE SIMILAR TO THAT FOR HORIZ. BEND.	6.	PIPE TO BE "MINIMUM" DESIGN TREAT OF PIPE JOINTS DESIGN LENGTHS' DETAIL FOR WHEN THRUST BLOCKS ARE REQUIRED TO BE USED.
3.	GLAND & BOLTS SHALL BE PROTECTED FROM CORROSION WITH PLASTIC SHEETING WHEN POURING THRUST BLOCKS.	7.	WHEN THRUST BLOCK IS REQUIRED BUT NOT FEASIBLE TO CONSTRUCT, THRUST COLLAR SHALL BE USED. SEE 'THRUST COLLAR' DETAIL.
4.	ALL THRUST BLOCK & SUPPORT CONCRETE SHALL BE 3000 PSI READY MIX CONCRETE.		

PRESSURE = 200psi
BEARING = 2000psf
FACTOR OF SAFETY = 1.5

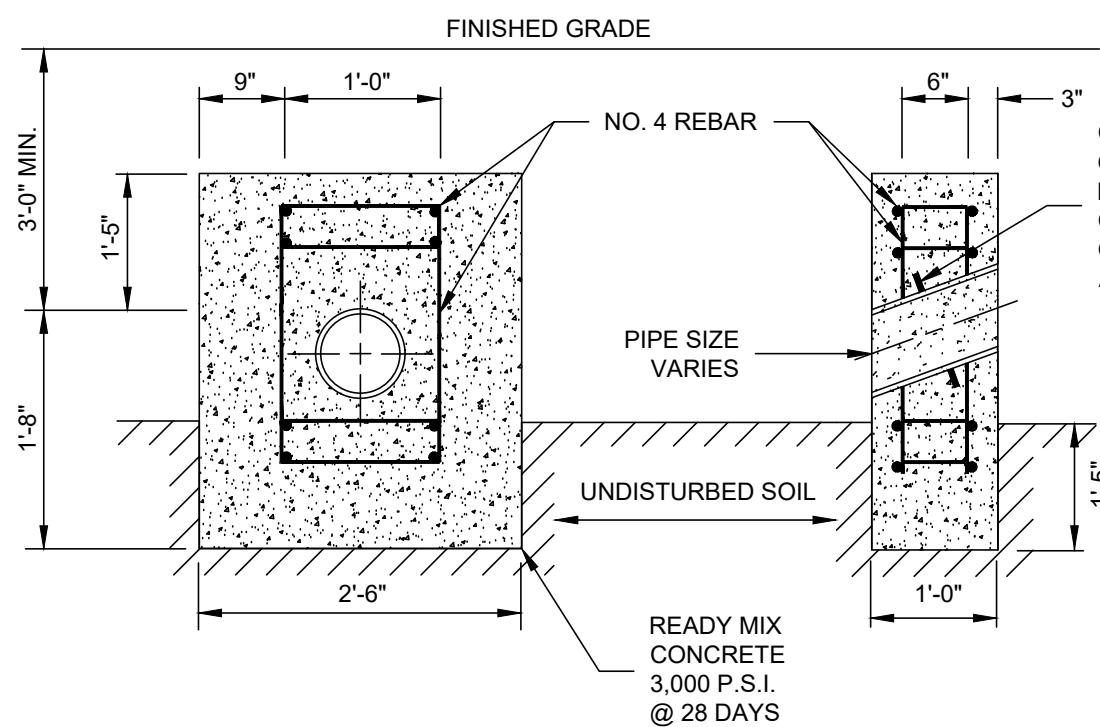
PIPE SIZE	90° BEND		45° BEND		22 1/2° BEND		11 1/2° BEND		TEE		PLUG	
	A	B	A	B	A	B	A	B	A	B	C	D
4"	8"	12"	8"	8"	6"	6"	6"	6"	11"	9"	10"	6"
6"	18"	12"	8"	10"	8"	8"	8"	8"	11"	10"	12"	18"
8"	18"	13"	10"	10"	8"	8"	8"	8"	11"	12"	12"	24"
10"	20"	16"	12"	14"	8"	12"	8"	12"	14"	16"	16"	30"
12"	20"	16"	12"	14"	8"	12"	8"	12"	14"	16"	16"	30"
16"	26"	20"	16"	18"	11"	13"	11"	13"	18"	20"	20"	36"
24"	82"	42"	62"	30"	44"	22"	22"	16"	82"	42"	82"	42"
30"	185"	42"	100"	42"	52"	42"	40"	30"	185"	42"	185"	42"

THRUST BLOCK REQUIREMENTS

02/10/15

- SLOPES 20% TO 35% -- NO MORE THAN 36 FT ON CENTER
* SLOPES 35% TO 50% -- NO MORE THAN 24 FT ON CENTER
* SLOPES 50% TO 60% -- NO MORE THAN 16 FT ON CENTER

* ONLY ALLOWED WITH WRITTEN APPROVAL OF PARTICIPATING UTILITY



ANCHOR BLOCK

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- Diagram illustrating the trench excavation details for a pipe installation, showing various layers and dimensions:
- FINISHED GRADE**: The top surface of the excavation.
 - NORMAL SOIL CONDITIONS**: The upper layer of soil above the bedding.
 - 3" MIN.**: Minimum thickness of the normal soil layer.
 - (4" MIN. - 6" IN ROCK CONDITIONS)**: Minimum thickness of the rock layer below the normal soil.
 - WIDTH OF TRENCH EXCAVATION PIPE DIA. + 6" EACH SIDE (MINIMUM)**: The required width of the trench excavation.
 - THICKNESS, TO BE INSTALLED APPROX. 24" ABOVE PIPE AND AT A MINIMUM OF 6" BELOW GRADE (ALL PIPE)**: Thickness of the backfill material above the pipe.
 - BACKFILL ONLY WITH APPROVED MATERIAL PER APPLICABLE LOCALITY OR VDOT STANDARDS**: Material used for backfilling the trench.
 - PIPE SIZE & MATERIAL AS SHOWN ON PLAN**: Specification for the pipe size and material.
 - FOR WATERLINES INSTALL BEDDING STONE TO SPRING LINE OF PIPE AT A MINIMUM, OR PER MANUFACTURER'S RECOMMENDATION**: Requirement for bedding stone for waterlines.
 - FOR SEWER LINES BEDDING SHALL BE MIN. 6" ABOVE PIPE**: Requirement for bedding for sewer lines.
 - LOCATION OF TRACER WIRE WITH NON-METALLIC PRESSURE PIPE. TRACER WIRE NOT REQUIRED FOR TYPICAL GRAVITY SANITARY SEWER. SEE DETAIL G-4 FOR ADDITIONAL REQUIREMENTS**: Location of tracer wire for non-metallic pressure pipes.

BEDDING AND BACKFILL OUTSIDE OF PAVED AREAS

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- EXISTING PAVEMENT SECTION
- LIMITS OF OPEN CUT
- SURFACE MIX ASPHALT
- BASE MIX ASPHALT
- SUBBASE
- NOTE #2
- NOTE #2
- BACKFILL ONLY WITH APPROVED MATERIAL PER APPLICABLE LOCALITY OR VDOT STANDARDS
- PIPE SIZE & MATERIAL AS SHOWN ON PLAN
- SEE BEDDING NOTE BELOW
- (6" IN ROCK CONDITIONS)
- 4"
- WIDTH OF TRENCH EXCAVATION PIPE DIA. + 6" EACH SIDE (MINIMUM)
- NON-DETECTABLE WARNING TAPE: 3 TO 5 MILS IN THICKNESS, TO BE INSTALLED APPROX. 24" ABOVE PIPE AND AT A MINIMUM OF 6" BELOW GRADE (ALL PIPE)
- DEPTH VARIES
- LOCATION OF TRACER WIRE WITH NON-METALLIC PRESSURE PIPE
- TRACER WIRE NOT REQUIRED FOR TYPICAL GRAVITY SANITARY SEWER. SEE DETAIL G-4
- BEDDING: FOR WATERLINES, INSTALL BEDDING STONE TO SPRING LINE OF PIPE AT A MINIMUM, OR PER MANUFACTURER'S RECOMMENDATION. FOR SEWER LINES, BEDDING SHALL BE MINIMUM 6" ABOVE PIPE

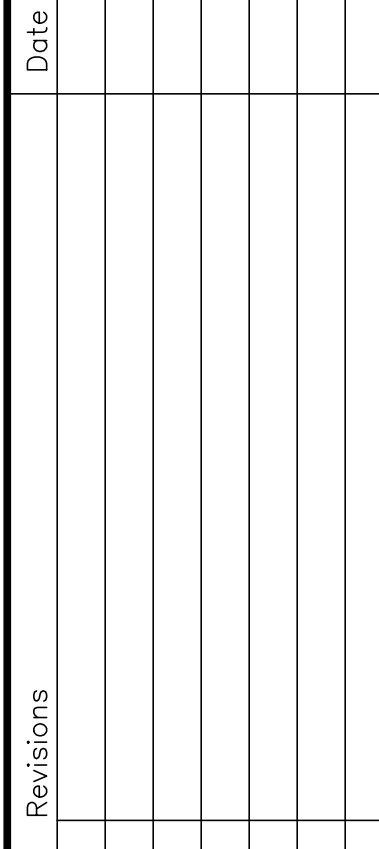
BEDDING AND BACKFILL
UNDER PAVEMENT AND IN RIGHT-OF-WAY

08/01/15

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DOUBLE LATERAL
COMBINED 6" BY TWO 4" LATERALS

01/01/1.



Issue Date: **MAR. 31, 2023**

Drawn By: WTA
Designed By: APP

Checked By: WTA
Date: 3/31/23

Mattern & Craig
ENGINEERS/SURVEYORS

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**STORMWATER DRAINAGE IMPROVEMENT PROJECT
FOR 1600 BLOCK 24TH ST. NE**

WWW DETAIL SHEET

ROANOKE. VIRGINIA

Vertical Scale:
N/A

Horizontal Scale:
N/A

Commission Number:
3991C

Sheet No.:

C3.4