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CITY
PLATE
NO.

SECTION 6 - PIPE BEDDING

BED-00
BED-01
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INDEX
PVC PIPE BEDDING
RCP AND DIP PIPE BEDDING
PIPE BEDDING IN ROCK



INDEX

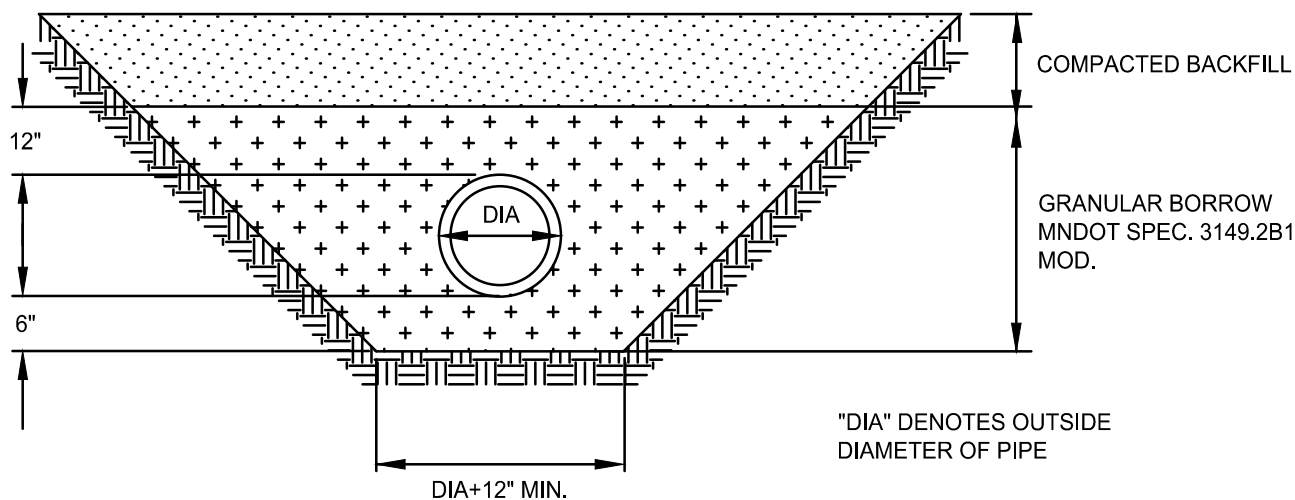
STANDARD DETAILS

Date:

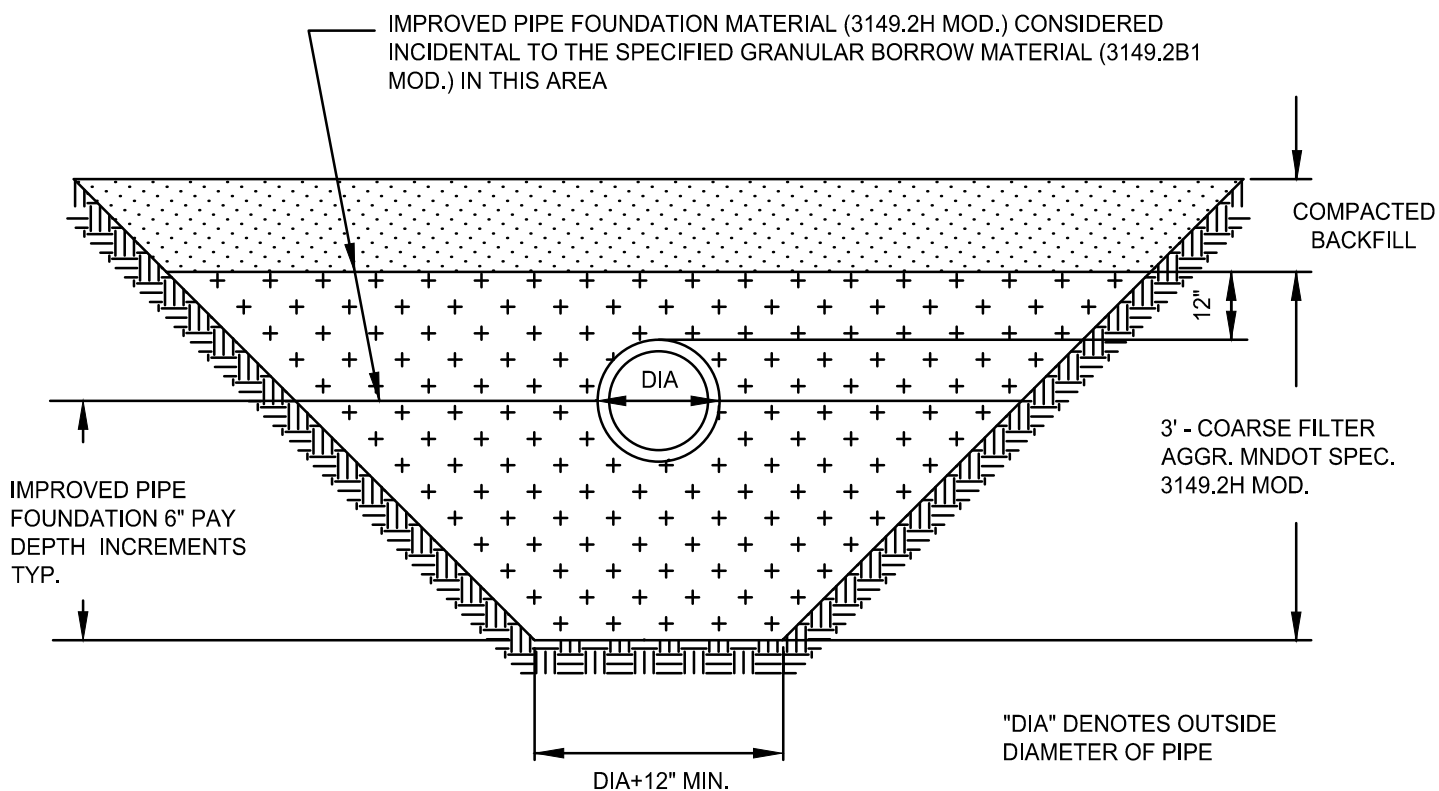
05/01/2020

Revised:

BED-00



PIPE FOUNDATION & BEDDING GOOD SOILS



IMPROVED PIPE FOUNDATION MATERIAL POOR SOILS



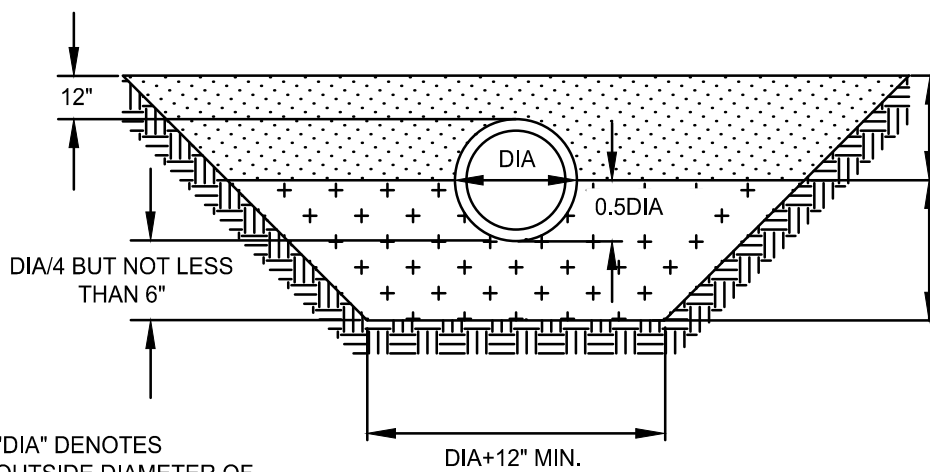
PVC PIPE BEDDING

STANDARD DETAILS

Date:
12/14/2020

Revised:

BED-01



"DIA" DENOTES
OUTSIDE DIAMETER OF
PIPE

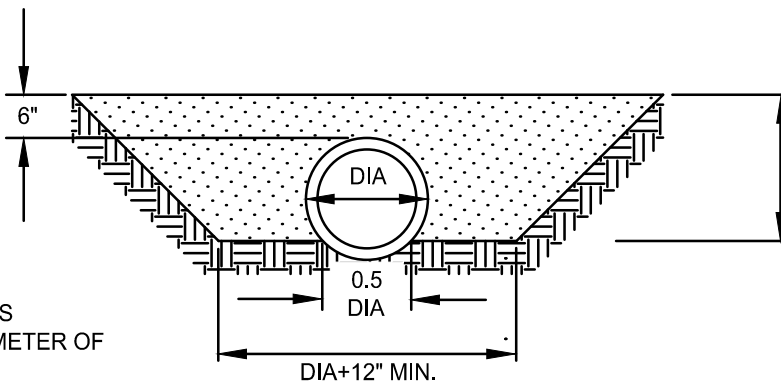
COMPACTED BACKFILL

COARSE FILTER AGGREGATE
MNDOT SPEC. 3149.2H MOD.

LOAD FACTOR 1.9

CLASS B

HAND SHAPED FROM
ANGULAR BEDDING MATERIAL



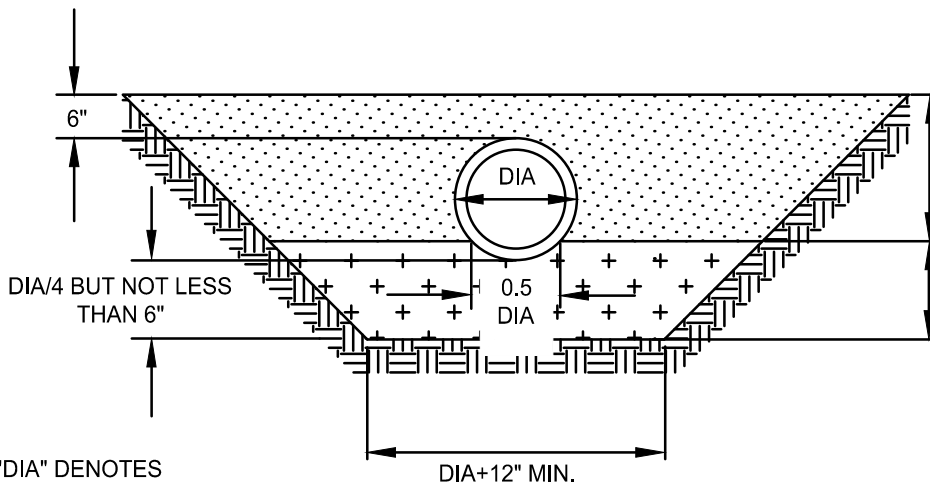
"DIA" DENOTES
OUTSIDE DIAMETER OF
PIPE

COMPACTED BACKFILL

LOAD FACTOR 1.5

CLASS C-1

HAND SHAPED FROM
FIRM UNDISTURBED SOIL



"DIA" DENOTES
OUTSIDE DIAMETER OF
PIPE

COMPACTED BACKFILL

COARSE FILTER AGGREGATE
MNDOT SPEC. 3149.2H MOD.

LOAD FACTOR 1.5

CLASS C-2

HAND SHAPED FROM
ANGULAR BEDDING
MATERIAL



RCP AND DIP PIPE BEDDING

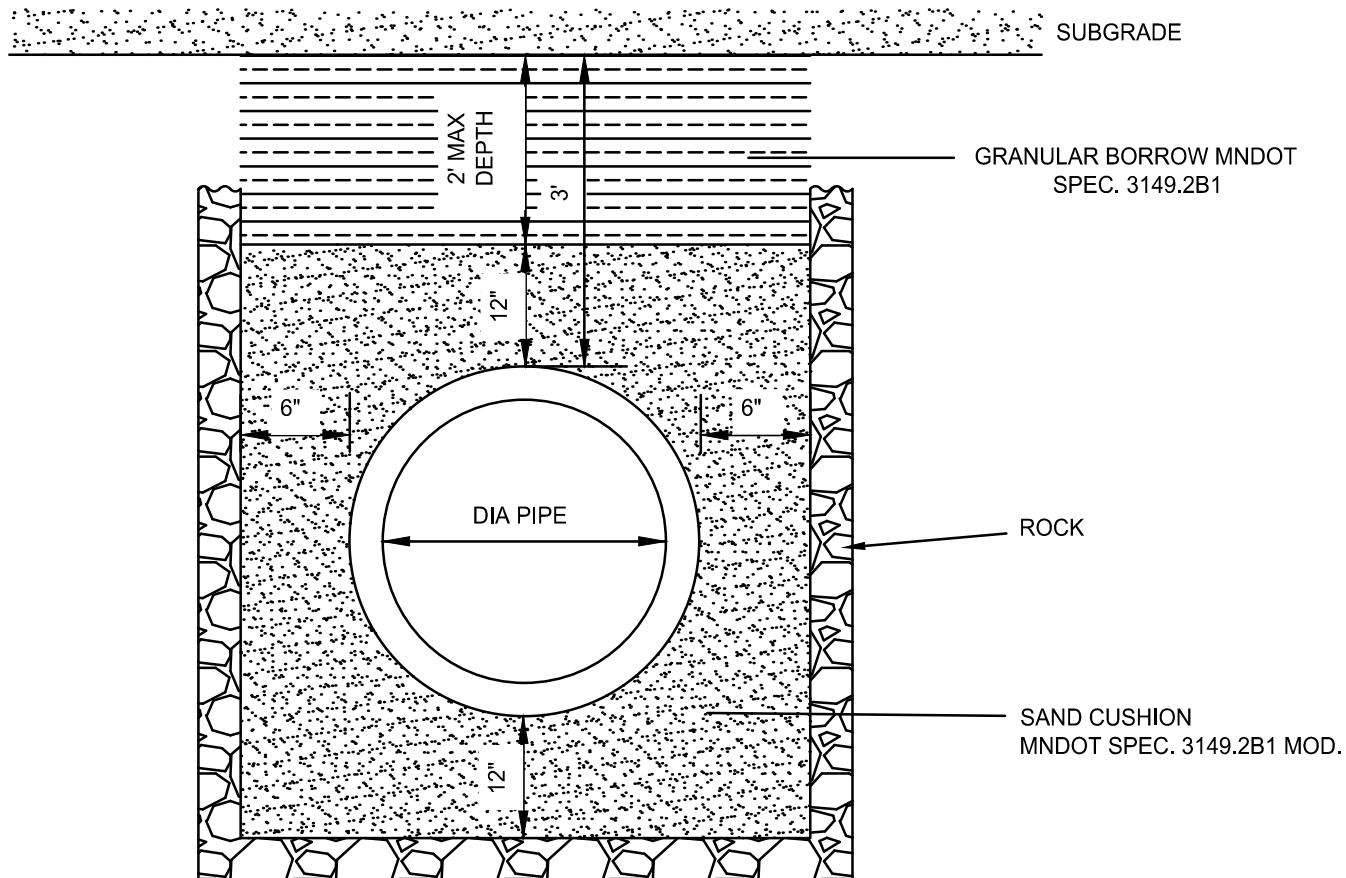
STANDARD DETAILS

Date: 05/01/2020

Revised:

BED-02

NOTE:
 USE GRANULAR BORROW WHEN TOP OF
 PIPE IS WITHIN 3 FEET OF SUBGRADE. IF
 GREATER THAN 3 FEET, USE SUITABLE
 EXISTING ONSITE BACKFILL.



PIPE BEDDING IN ROCK

STANDARD DETAILS

Date: 05/01/2020

Revised:

BED-03

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SECTION 7 - EROSION AND SEDIMENT CONTROL

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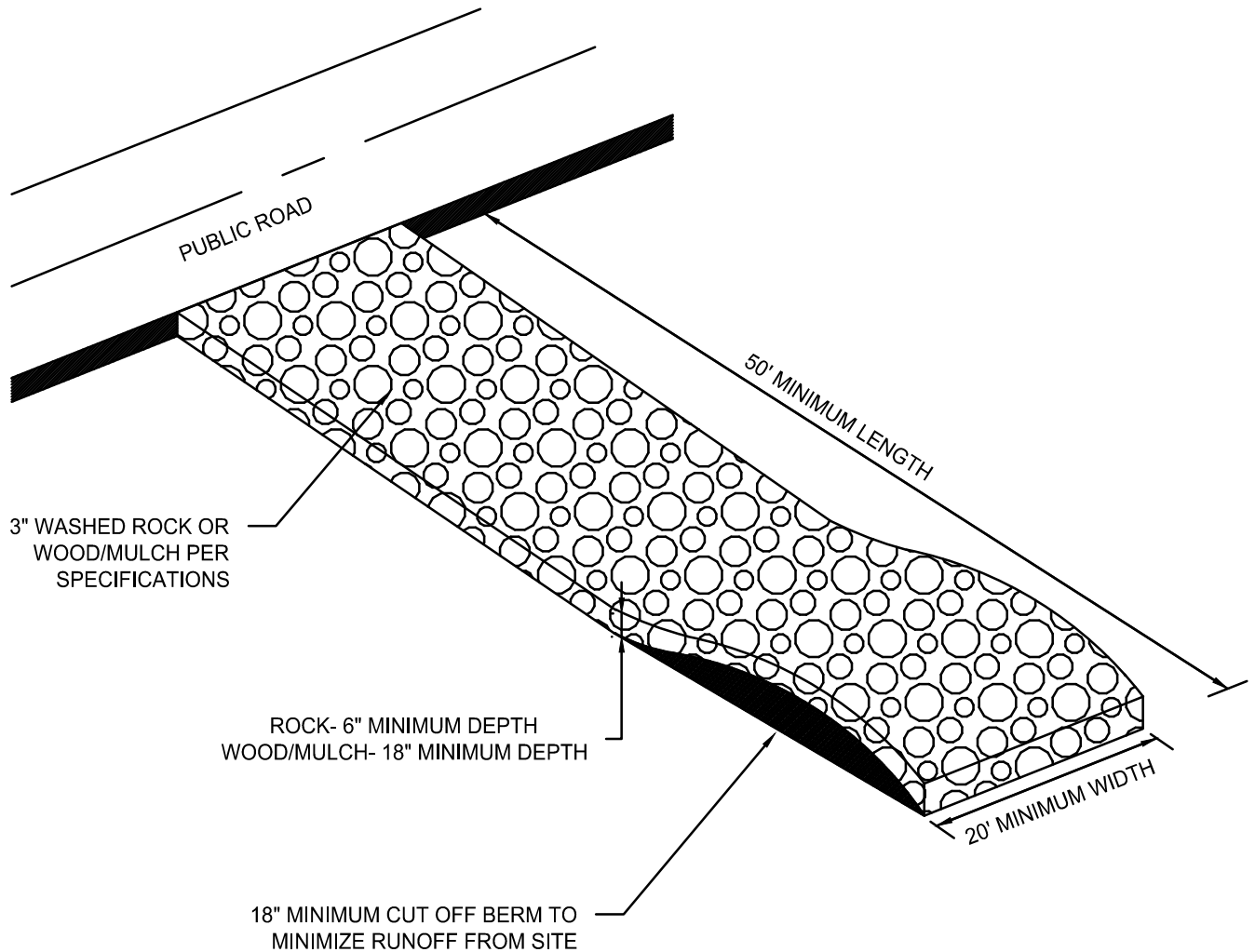
STANDARD DETAILS

Date:

01/12/2023

Revised:

ESC-00



NOTES:

1. FILTER FABRIC SHALL BE PLACED UNDER ROCK OR MULCH TO STOP MUD MIGRATION THROUGH MATERIAL.
2. ENTRANCE MUST BE MAINTAINED REGULARLY TO PREVENT SEDIMENTATION ON PUBLIC ROADWAYS. FUGITIVE ROCK OR MULCH WILL BE REMOVED FROM ADJACENT ROADWAYS DAILY OR MORE FREQUENTLY AS NECESSARY.



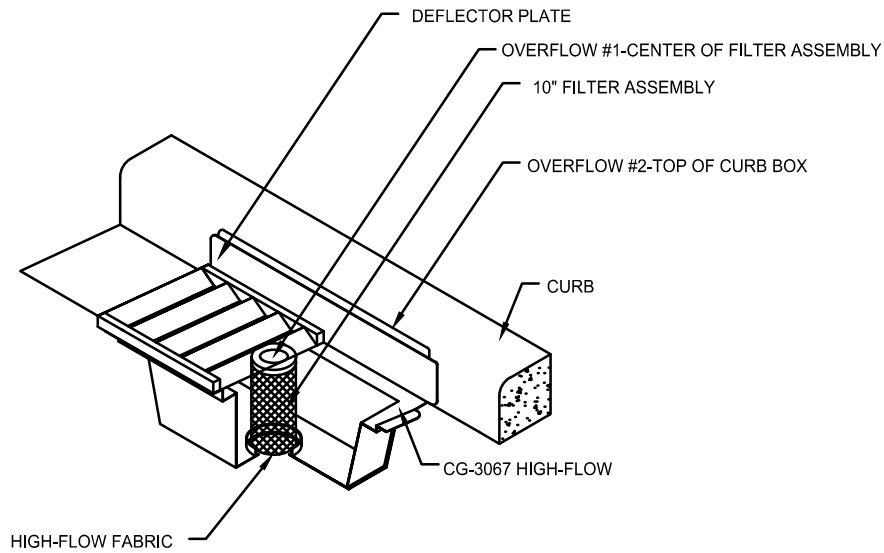
**STABILIZED
CONSTRUCTION EXIT**

STANDARD DETAILS

Date: 01/12/2023

Revised:

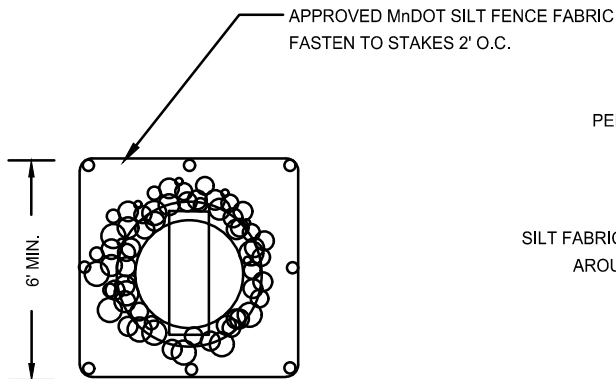
ESC-01



WIMCO MODEL # CG-3067 HIGH-FLOW
INLET PROTECTION OR APPROVED EQUAL

CURB AND GUTTER INLET PROTECTION

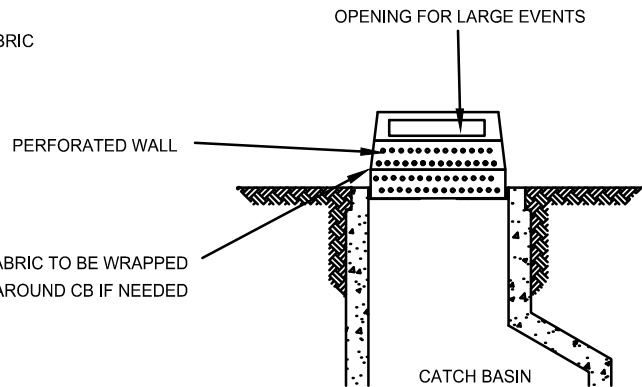
NO SCALE



TOP VIEW

SILT FABRIC TO BE WRAPPED
AROUND CB IF NEEDED

INFRA SAFE SEDIMENT CONTROL BARRIER
ROYAL ENVIRONMENTAL SERVICES OR AN
ENGINEER APPROVED EQUAL.



CROSS SECTION VIEW

REAR YARD INLET PROTECTION

NO SCALE



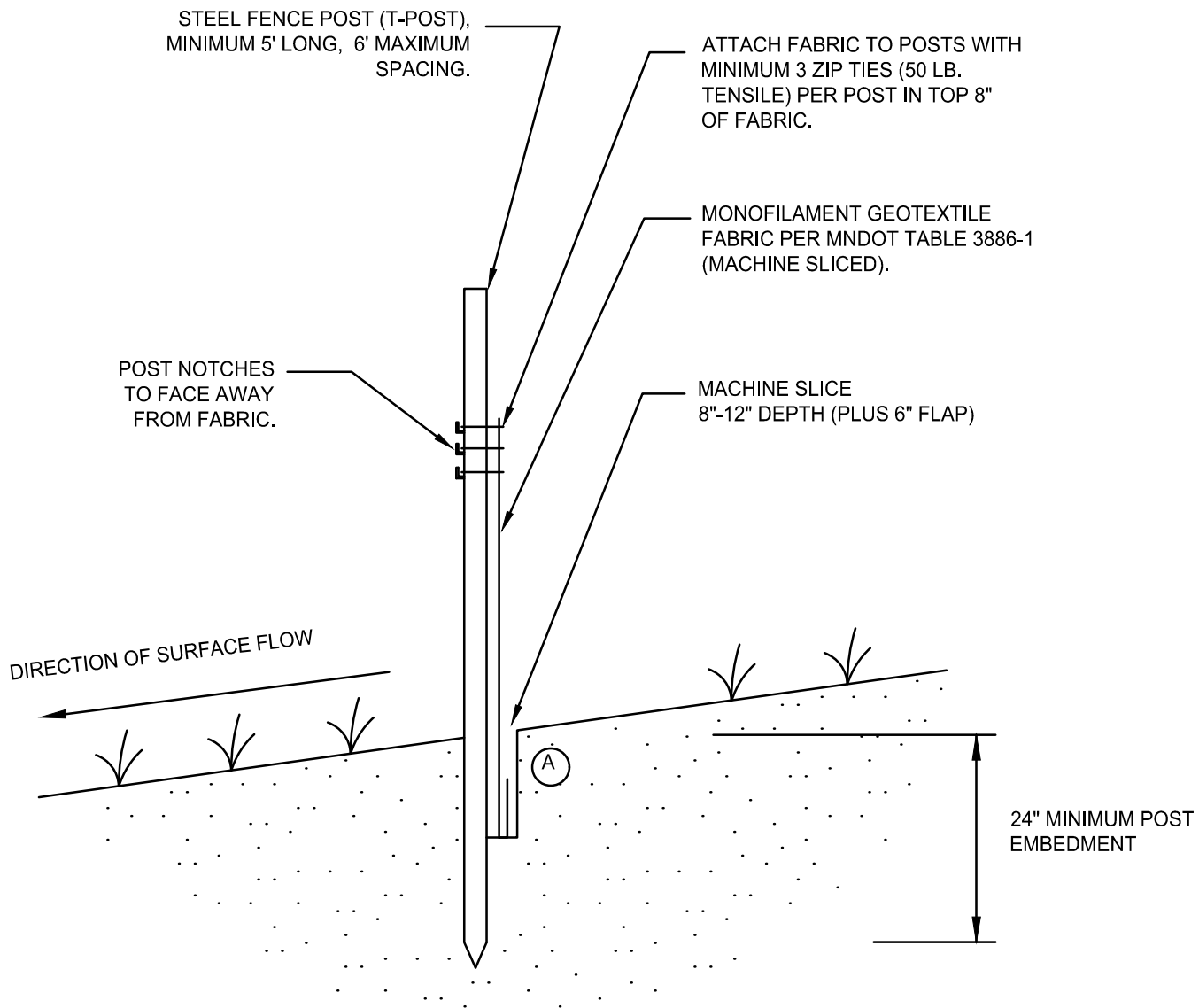
STORM DRAIN INLET PROTECTION

STANDARD DETAILS

Date: 05/01/2020

Revised:

ESC-02



NOTE:
THE MACHINE SLICED METHOD (THIS DETAIL) IS THE STANDARD SILT FENCE
INSTALLATION METHOD. HAND INSTALLED (ESC-04) OR SUPER DUTY (ESC-05) SILT
FENCE INSTALLATION METHODS SHOULD ONLY BE USED WHEN APPROVED OR
DIRECTED BY THE CITY.

(A) **COMPACTION:**
AFTER "SLICING" IN THE FABRIC AND *BEFORE* INSTALLATION
OF STEEL POSTS, DRIVE INSTALLATION EQUIPMENT OVER THE
"SLICE" WHILE FABRIC IS LAYING ON THE GROUND. *THEN*
INSTALL STEEL POSTS AND PULL UP FABRIC TO ATTACH AT
A UNIFORM HEIGHT.



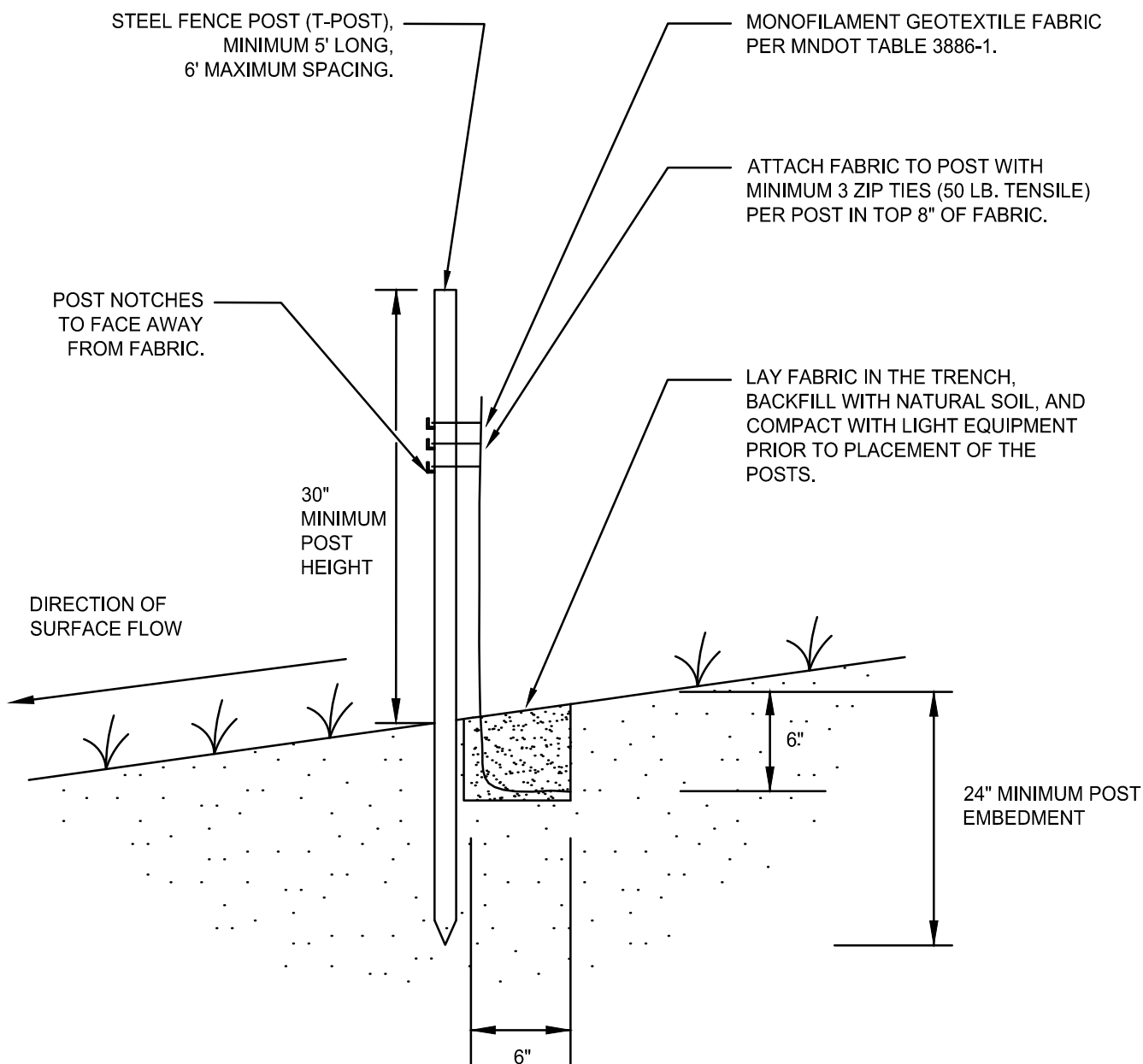
SILT FENCE TYPE MACHINE SLICED

STANDARD DETAILS

Date:
05/01/2020

Revised:

ESC-03



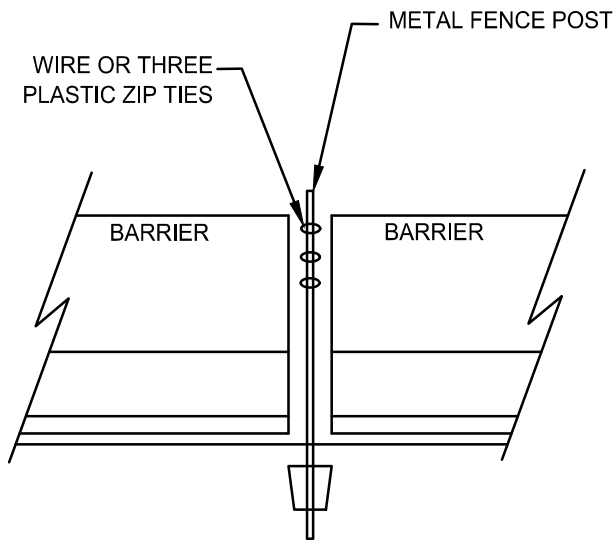
SILT FENCE TYPE HAND INSTALLED

STANDARD DETAILS

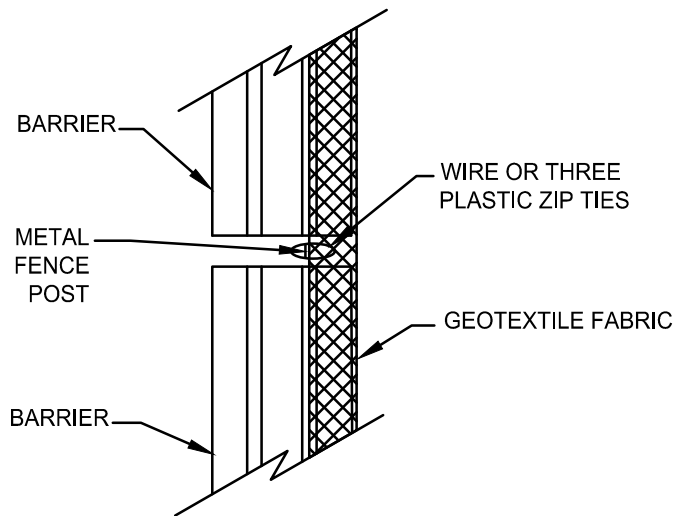
Date: 01/12/2023

Revised:

ESC-04

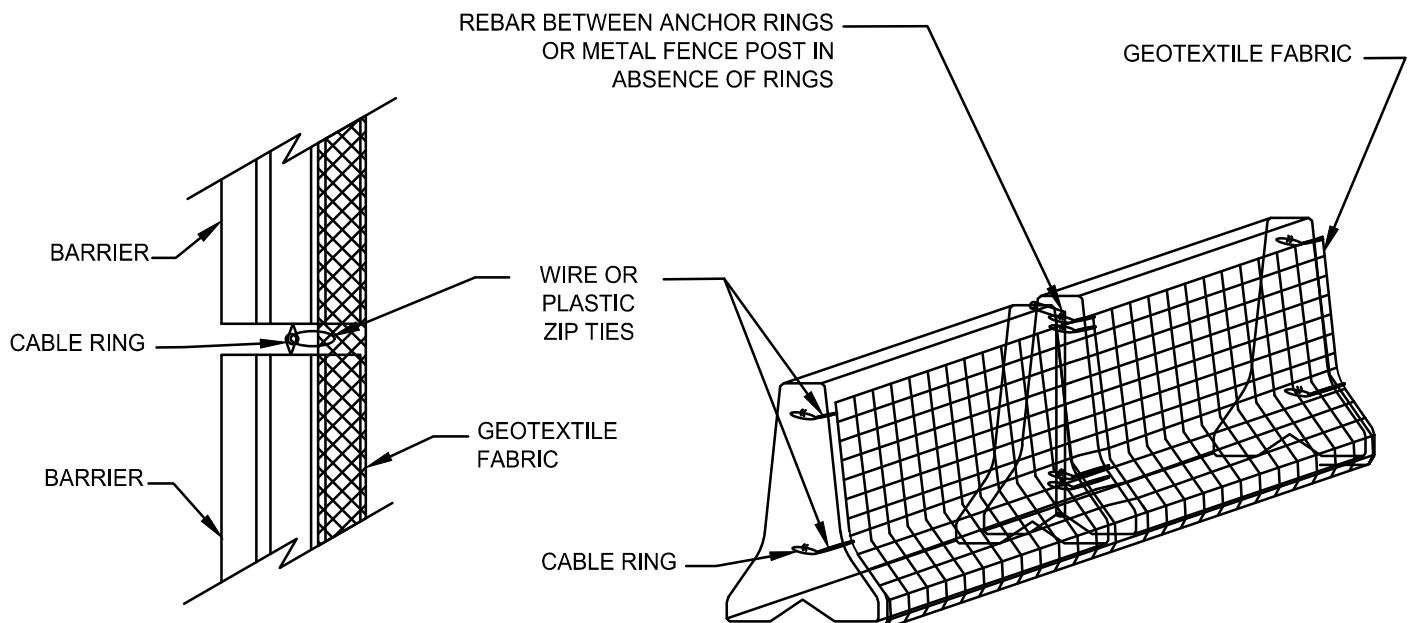


SIDE VIEW



TOP VIEW

BARRIER WITHOUT CABLE RINGS



TOP VIEW

3D VIEW

BARRIER WITH CABLE RINGS SILT FENCE, SUPER DUTY

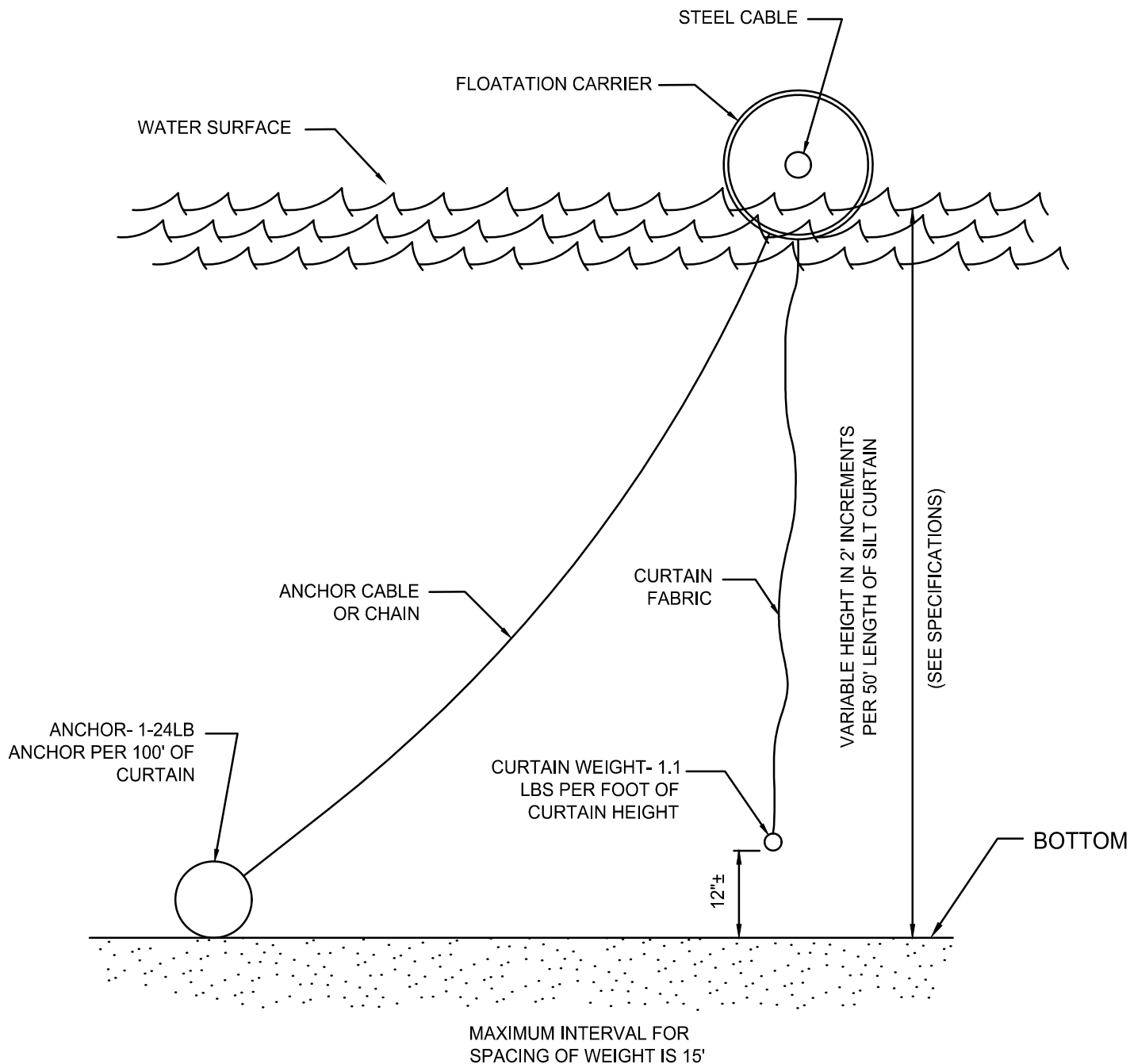


SILT FENCE
TYPE SUPER DUTY

STANDARD DETAILS

Date: 05/01/2020
Revised:

ESC-05



NOTES:

- DOUBLE SILT CURTAINS SHOULD BE SPACED 10' APART.
- CURTAIN LENGTH TO MATCH BOTTOM PROFILE AS CLOSELY AS POSSIBLE.



FLOTATION SILT CURTAIN

STANDARD DETAILS

Date: 05/01/2020

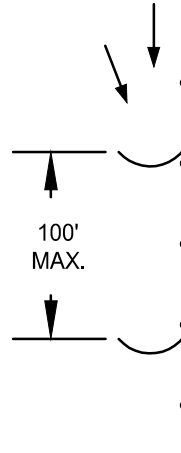
Revised:

ESC-06

PLAN VIEW

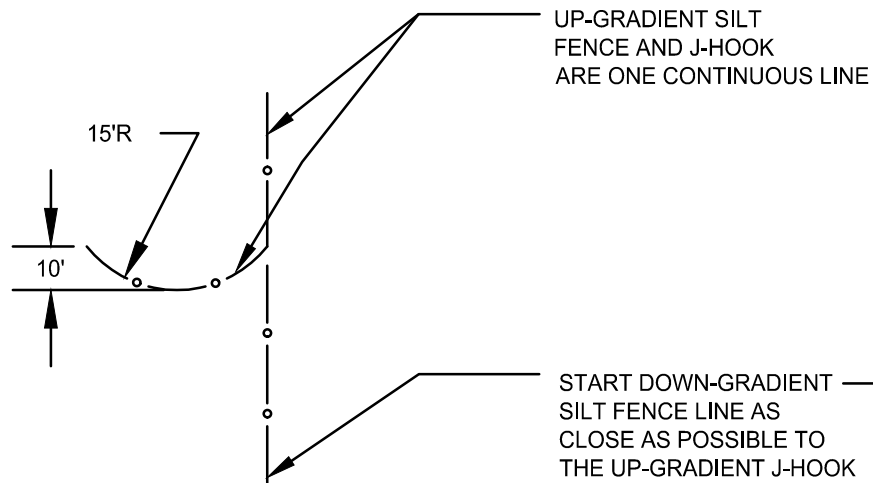
I. SPACING REQUIREMENTS

DIRECTION OF
SURFACE FLOW

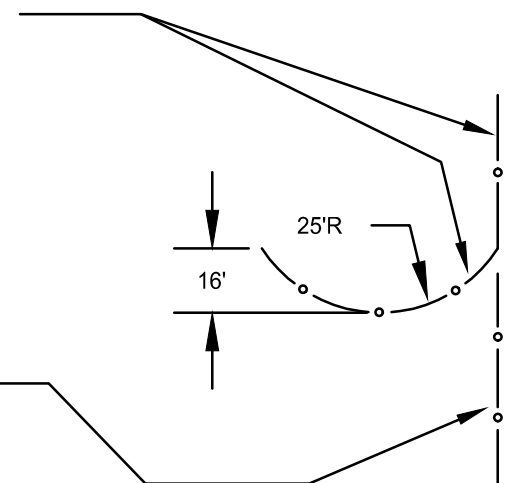


NOTE: SPACING DISTANCES WILL VARY,
BUT ARE NOT TO EXCEED 100 FEET.

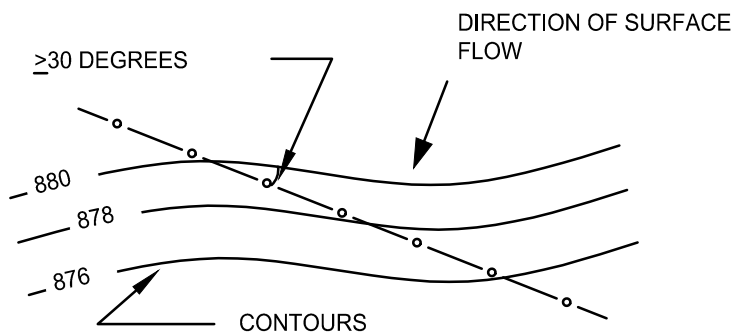
II. SIZING REQUIREMENTS: J15, J25



J15 - FOR CATCHMENT AREA <0.25
ACRES



J25 - FOR CATCHMENT AREA \geq 0.25
ACRES



NOTE:
J-HOOKS SHALL BE USED WHEN
THE SILT FENCE IS INSTALLED AT
AN ANGLE OF 30 DEGREES OR
GREATER FROM PARALLEL TO THE
CONTOURS.



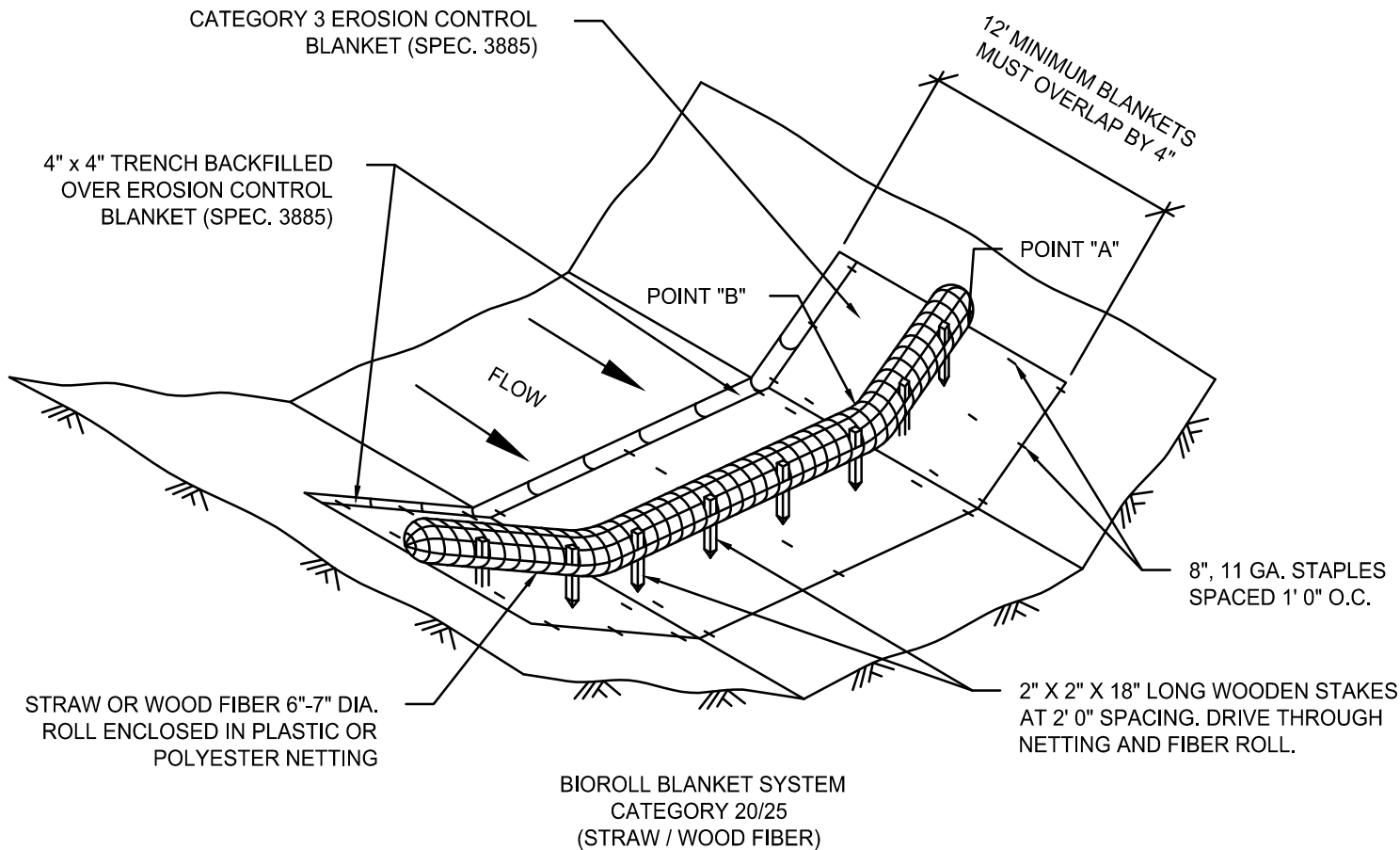
SILT FENCE
J-HOOK

STANDARD DETAILS

Date: 01/12/2023

Revised:

ESC-07



MAINTENANCE

1. FILTER BARRIERS SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
2. SHOULD THE BIOROLL DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USEABLE LIFE AND THE BARRIER STILL BE NECESSARY. THE BIOROLL SHALL BE REPLACED PROMPTLY.
3. SEDIMENT DEPOSITS MUST BE REMOVED WHEN

- DEPOSITS REACH APPROXIMATELY 1/3 HEIGHT OF THE BARRIER, OR AS DIRECTED BY THE ENGINEER.
4. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE OR FILTER BARRIER IS NO LONGER REQUIRED, SHALL BE DRESSED TO CONFORM WITH THE EXISTING GRADE, PREPARED AND SEEDED.
5. ALL MATERIAL & INSTALLATION MUST CONFORM TO THE REQUIREMENTS OF THE CURRENT EDITION OF THE MNDOT CONSTRUCTION SPECIFICATIONS SECTION 3897.



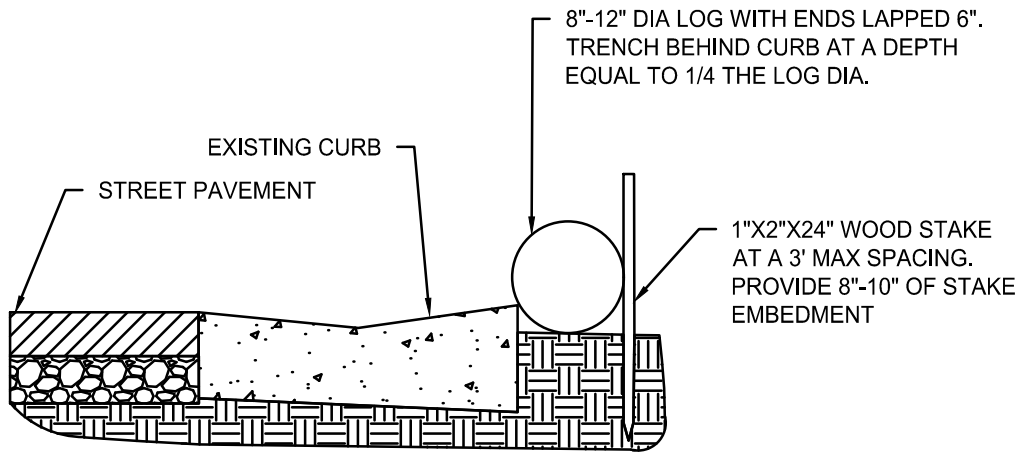
BIO-ROLL BLANKET

STANDARD DETAILS

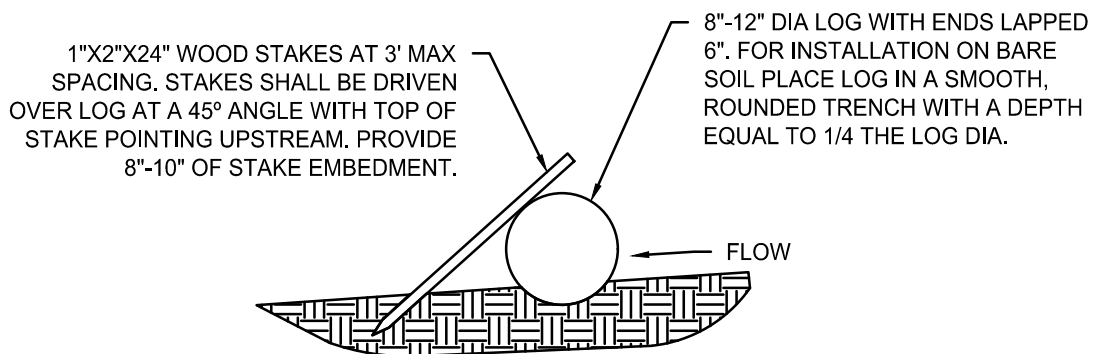
Date: 01/12/2023

Revised:

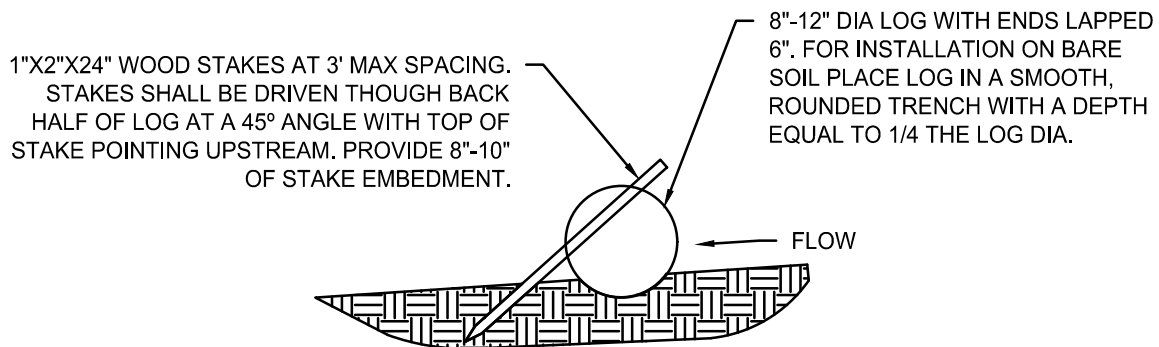
ESC-08



CURB INSTALLATION



FIELD INSTALLATION USING MULCH OR COMPOST



FIELD INSTALLATION USING STRAW OR WOOD FIBER

ANCHOR TRENCH
(SEE DETAIL AND NOTES BELOW)

OVERLAP END JOINTS MINIMUM OF 6" AND
STAPLE OVERLAP AT 1.5' INTERVALS.

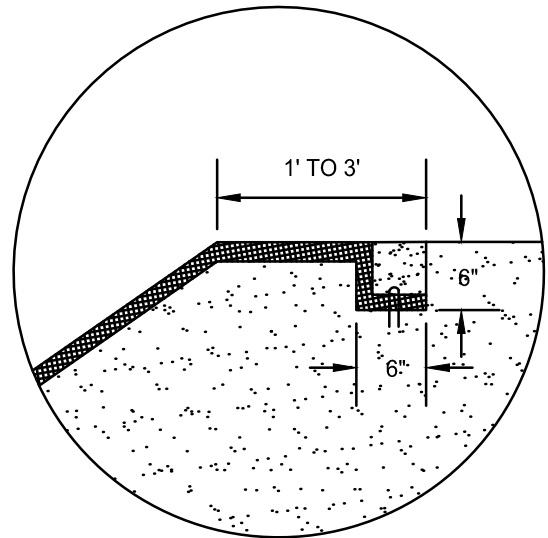
DIRECTION OF
SURFACE FLOW

STAPLE DENSITY SHALL BE A MINIMUM OF 3
U-SHAPED 8",
11 GAUGE METAL STAPLES PER SQUARE YARD
(THIS MAY VARY AS DIRECTED BY THE CITY).

OVERLAP LONGITUDINAL JOINTS
MINIMUM OF 6"

ANCHOR TRENCH

1. DIG 6" X 6" TRENCH
2. LAY BLANKET IN TRENCH
3. STAPLE AT 1.5' INTERVALS
4. BACKFILL WITH NATURAL SOIL AND COMPACT
5. BLANKET LENGTH SHALL NOT EXCEED 100' WITHOUT AN ANCHOR TRENCH



EROSION CONTROL BLANKET

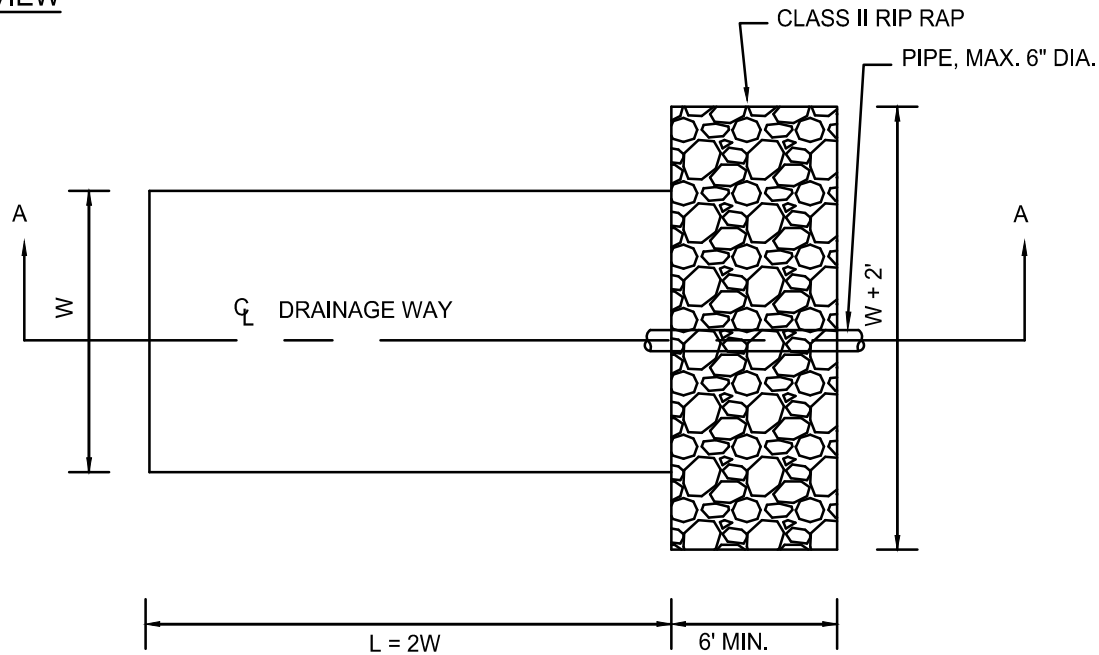
STANDARD DETAILS

Date: 01/12/2023

Revised:

ESC-10

I. PLAN VIEW

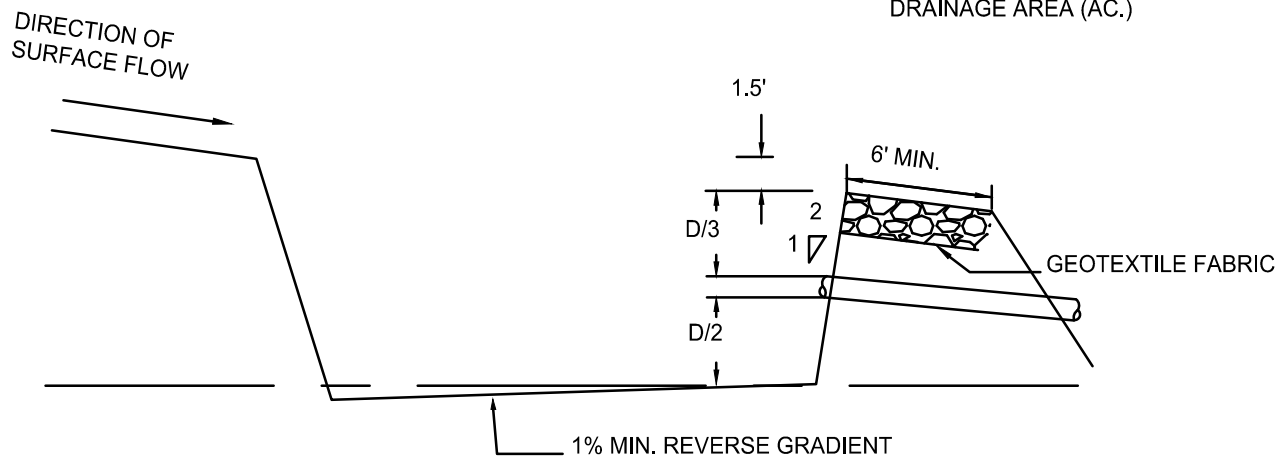


II. SECTION A-A

NOTE:

D=3' MIN, 5' MAX

W=10' MIN, 25' MAX W(FT.)= 10 X
DRAINAGE AREA (AC.)



TEMPORARY SEDIMENT TRAP

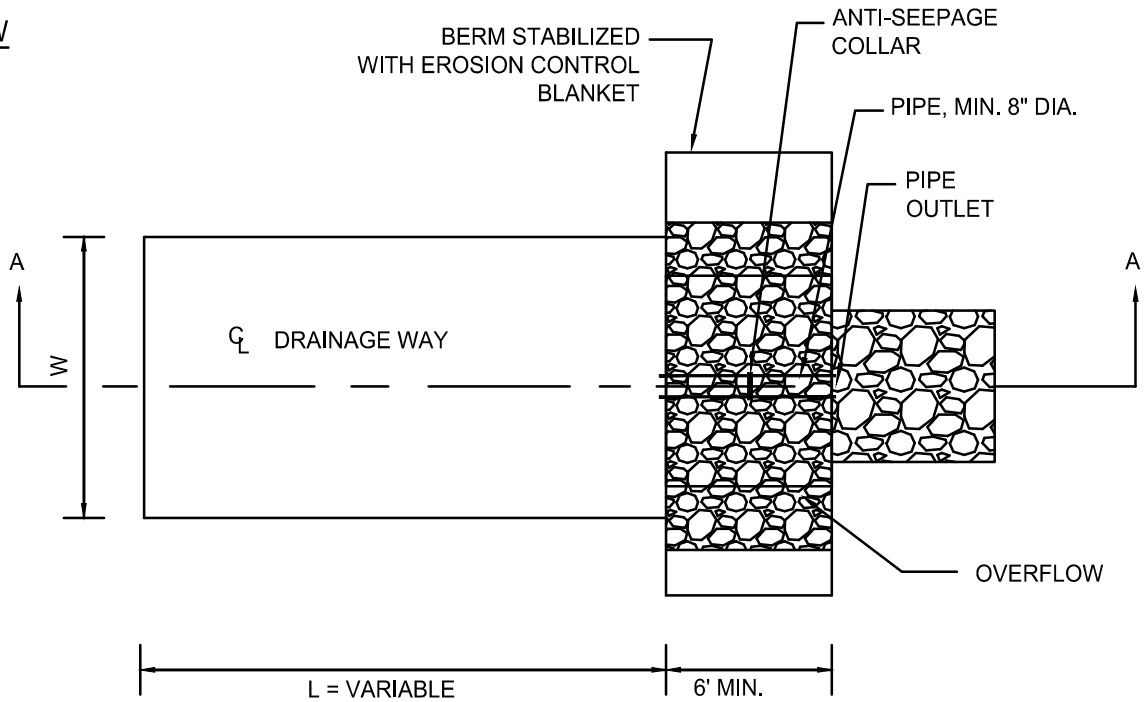
STANDARD DETAILS

Date: 01/12/2023

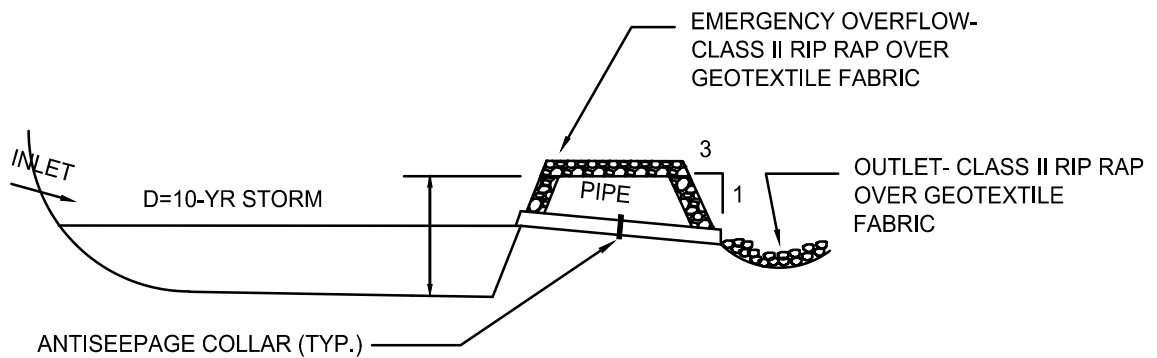
Revised:

ESC-11

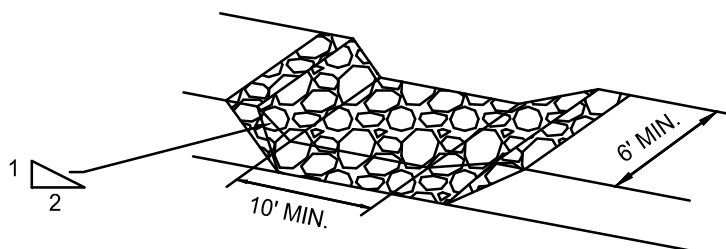
I. PLAN VIEW



II. SECTION A-A



III. BASIN EMERGENCY OVERFLOW



NOTES:

BASIN USED FOR 10 ACRES DRAINAGE AREA OR MORE. DESIGN RUNOFF VOLUME IS FROM A 2-YR, 24-HR STORM PER ACRE DRAINED TO THE BASIN. BASIN VOLUME MUST BE A MIN. OF 1800 CUBIC FEET/ACRE. SEE PLANS/SPECIFICATIONS FOR BASIN DIMENSIONS AND PIPE SIZE AND SLOPE.



TEMPORARY SEDIMENTATION BASIN

STANDARD DETAILS

Date: 01/12/2023

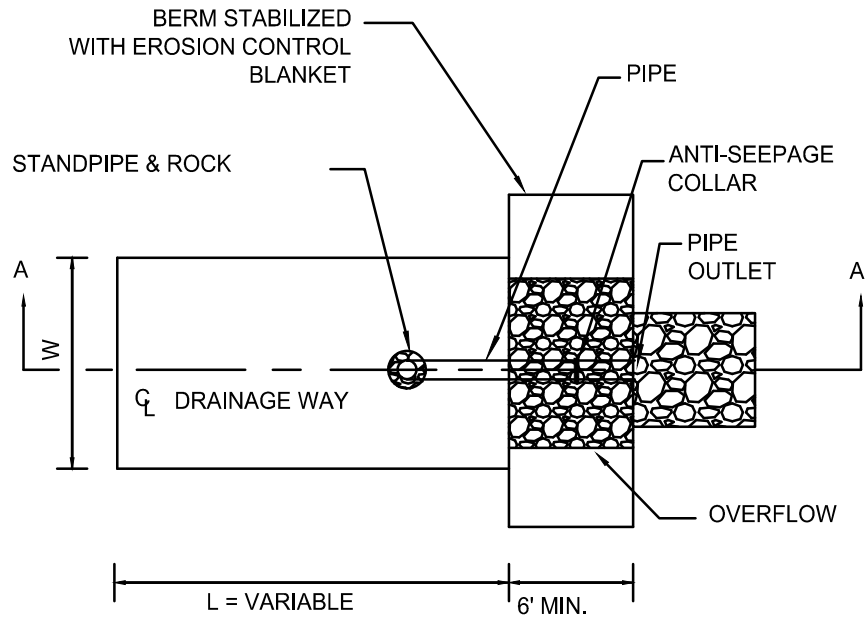
Revised:

ESC-12

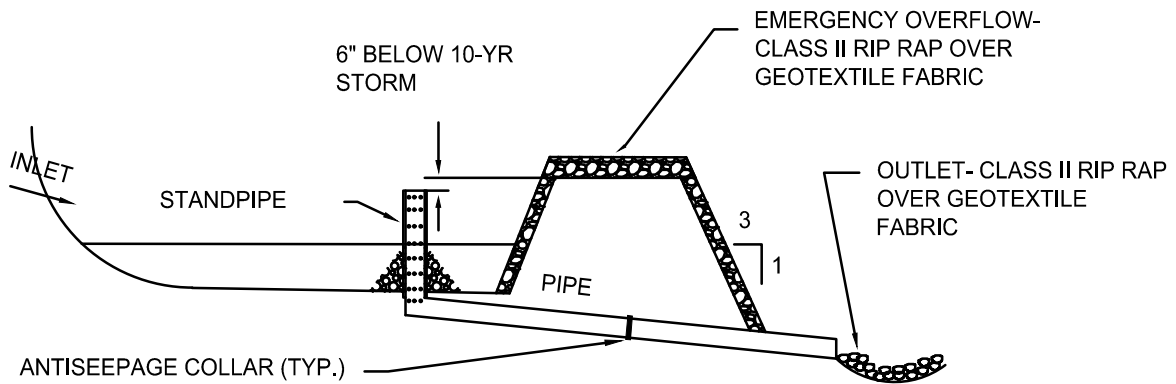
I. PLAN VIEW

NOTES:

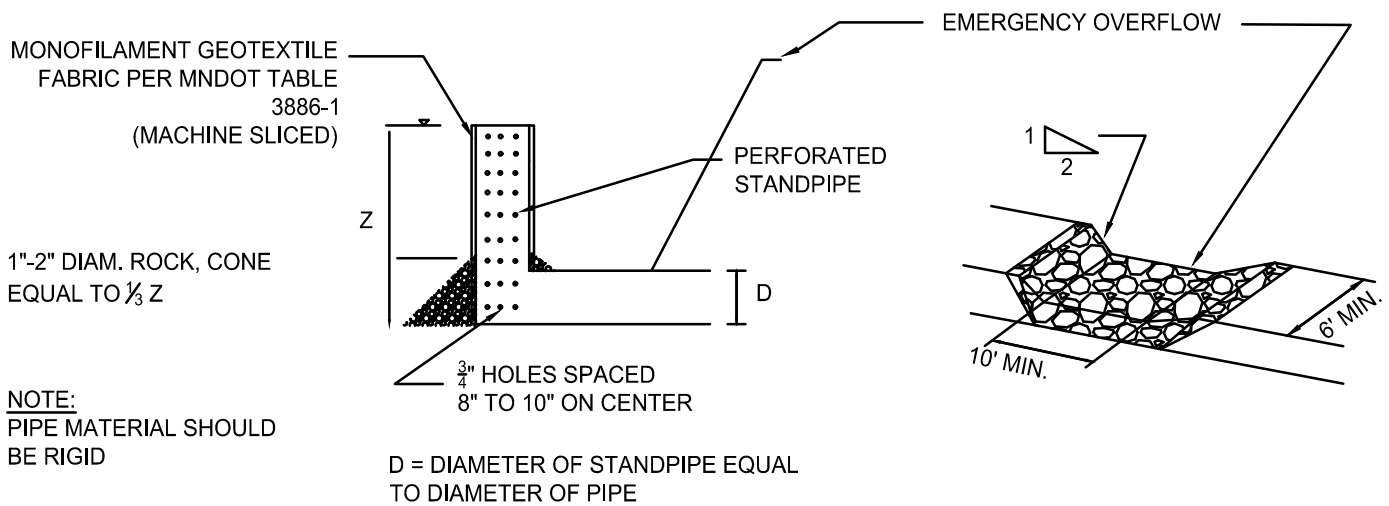
BASIN USED FOR 10 ACRES DRAINAGE AREA OR MORE. DESIGN RUNOFF VOLUME IS FROM A 2-YR, 24-HR STORM PER ACRE DRAINED TO THE BASIN. BASIN VOLUME MUST BE A MIN. OF 1800 CUBIC FEET/ACRE. SEE PLANS/SPECIFICATIONS FOR BASIN DIMENSIONS AND PIPE SIZE AND SLOPE.



II. SECTION A-A



III. BASIN STANDPIPE AND EMERGENCY OVERFLOW



TEMPORARY SEDIMENTATION BASIN WITH STANDPIPE OUTLET

STANDARD DETAILS

Date: 01/12/2023

Revised:

ESC-13

6" X 6" TRENCH WITH LEADING EDGE OF
TYPE IV GEOTEXTILE FABRIC STAPLED AT 1'
INTERVALS AND BACKFILLED WITH NATURAL
SOIL

MnDOT 3733
GEOTEXTILE
FABRIC

POINT 1

DITCH CHECK
ROCK/BIO WEEPER OR
CHECK DAM

FLOW
FLOW
FLOW

MIN. 6" OVERLAP
IF NECESSARY,
STAPLE 1' O.C.

NOTE:
POINT 1 MUST BE A MINIMUM OF
6" HIGHER THAN POINT 2 TO
ENSURE THAT WATER FLOWS
OVER THE DITCH CHECK AND
NOT AROUND THE ENDS.

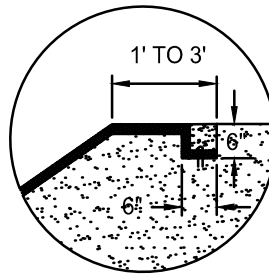
POINT 2

6" 11 GAUGE METAL
STAPLES SPACED 2' O.C.

	HEIGHT (INCHES)	WIDTH (INCHES)	MATERIAL
SMALL CHECK	24	12 - 18	MnDOT 3601 CLASS II RIP RAP
LARGE CHECK	36	24 - 30	MnDOT 3601 CLASS III RIP RAP
ROCK WEEPER	18	6 - 12	MnDOT 3882 TYPE 9 MULCH (1 1/2" WASHED ROCK)

ANCHOR TRENCH

1. DIG 6" X 6" TRENCH
2. LAY BLANKET IN TRENCH
3. STAPLE AT 1.5' INTERVALS
4. BACKFILL WITH NATURAL SOIL AND COMPACT



MATERIALS
(SEE TABLE)

WIDTH
(SEE TABLE)

≥1.5

1

DIRECTION OF
SURFACE FLOW

HEIGHT
(SEE TABLE)

TYPE IV GEOTEXTILE FABRIC ANCHORED IN 6" X
6" TRENCH WITH 6", 11 GAUGE METAL STAPLES
AT 1' INTERVALS

STAPLE DOWNSTREAM
SIDE OF FABRIC AT 2' INTERVALS



ROCK DITCH CHECK

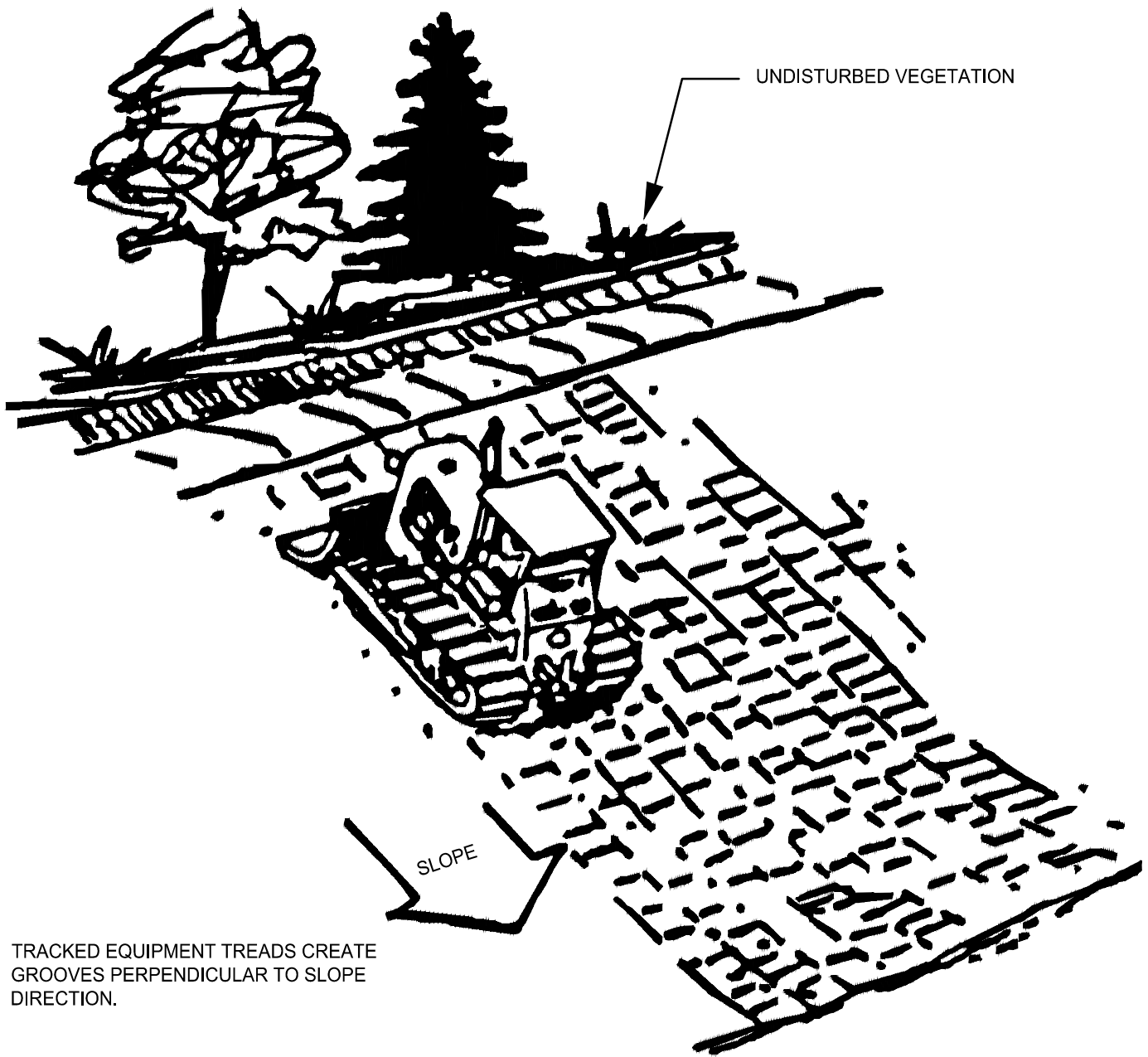
STANDARD DETAILS

Date:

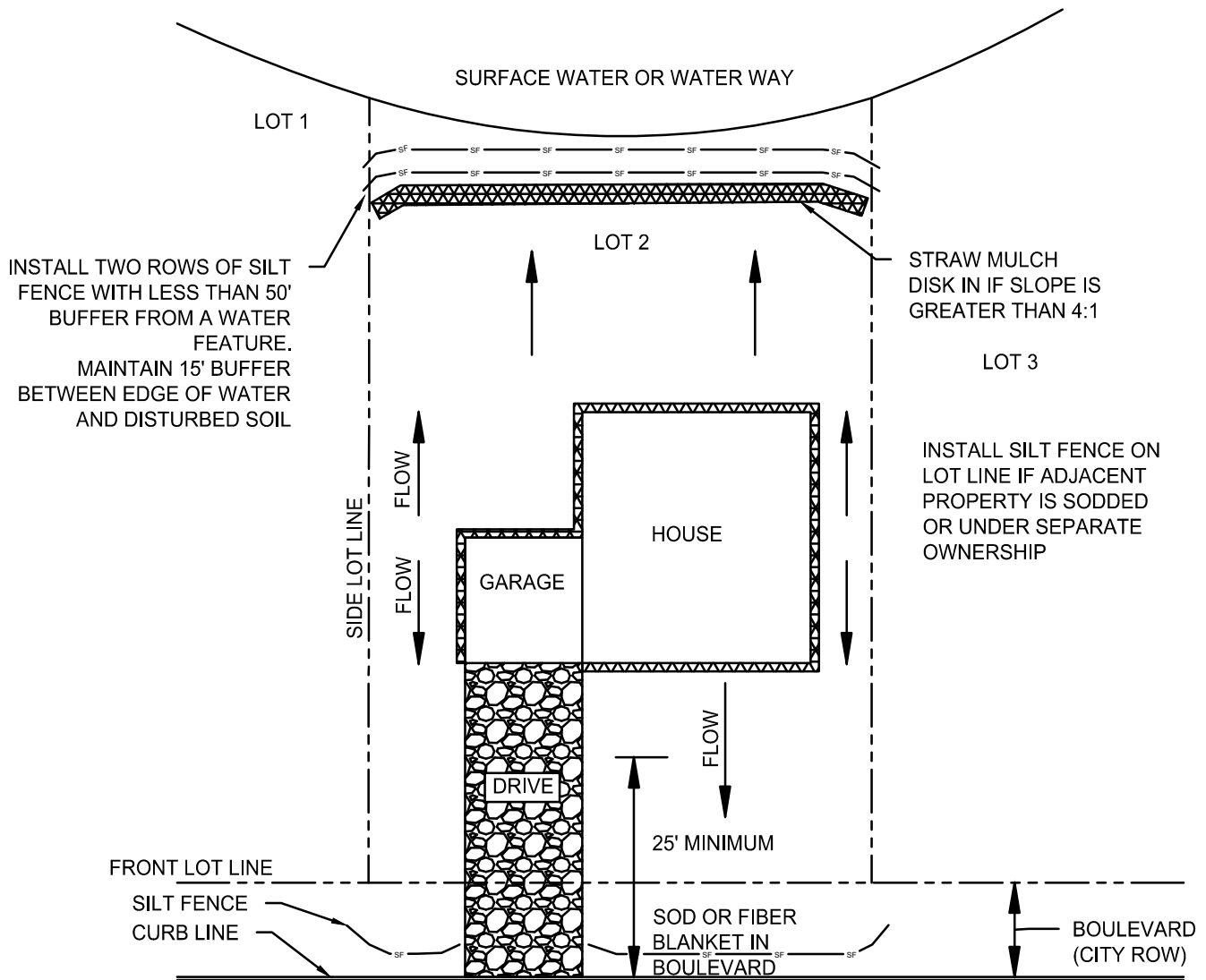
01/12/2023

Revised:

ESC-14



NOTE:
 ALL SLOPES WITH A GRADE EQUAL TO OR STEEPER THAN 3:1 REQUIRE SLOPE TRACKING. SLOPES WITH A GRADE MORE GRADUAL THAN 3:1 REQUIRE SLOPE TRACKING IF THE STABILIZATION METHOD IS EROSION CONTROL BLANKET OR HYDROMULCH.



SEDIMENT CONTROL NOTES:

1. PERIMETER SEDIMENT CONTROLS ARE NECESSARY AT DOWN SLOPING PROPERTY AND STREET EDGES. SEDIMENT CONTROLS MUST PROVIDE CONTAINMENT BY TURNING PERIMETER CONTROLS UPSLOPE INTO PROPERTY.
2. PERIMETER CONTROLS CAN INCLUDE MULCH SOCKS, MULCH BERMS AND/OR SILT FENCE PROPERTY TRENCHED IN AND STAKED OR STABILIZED.

EROSION CONTROL NOTES:

1. SITE HAS A MINIMUM OF 4" TOPSOIL FOR FINAL STABILIZATION.
2. CONSTRUCTION ENTRANCE SHALL BE 3" CLEAN ROCK OR WOOD/MULCH PER SPECIFICATIONS AT A MINIMUM DEPTH OF 6" FOR ROCK AND 18" FOR WOOD/MULCH PER DETAIL ESC-01.
3. SLOPES GREATER THAN 4:1 NEED FIBER BLANKETS AND TEMPORARY OR PERMANENT SEEDING.
4. SWALES NEED CHECK DAMS OR BLANKETS.



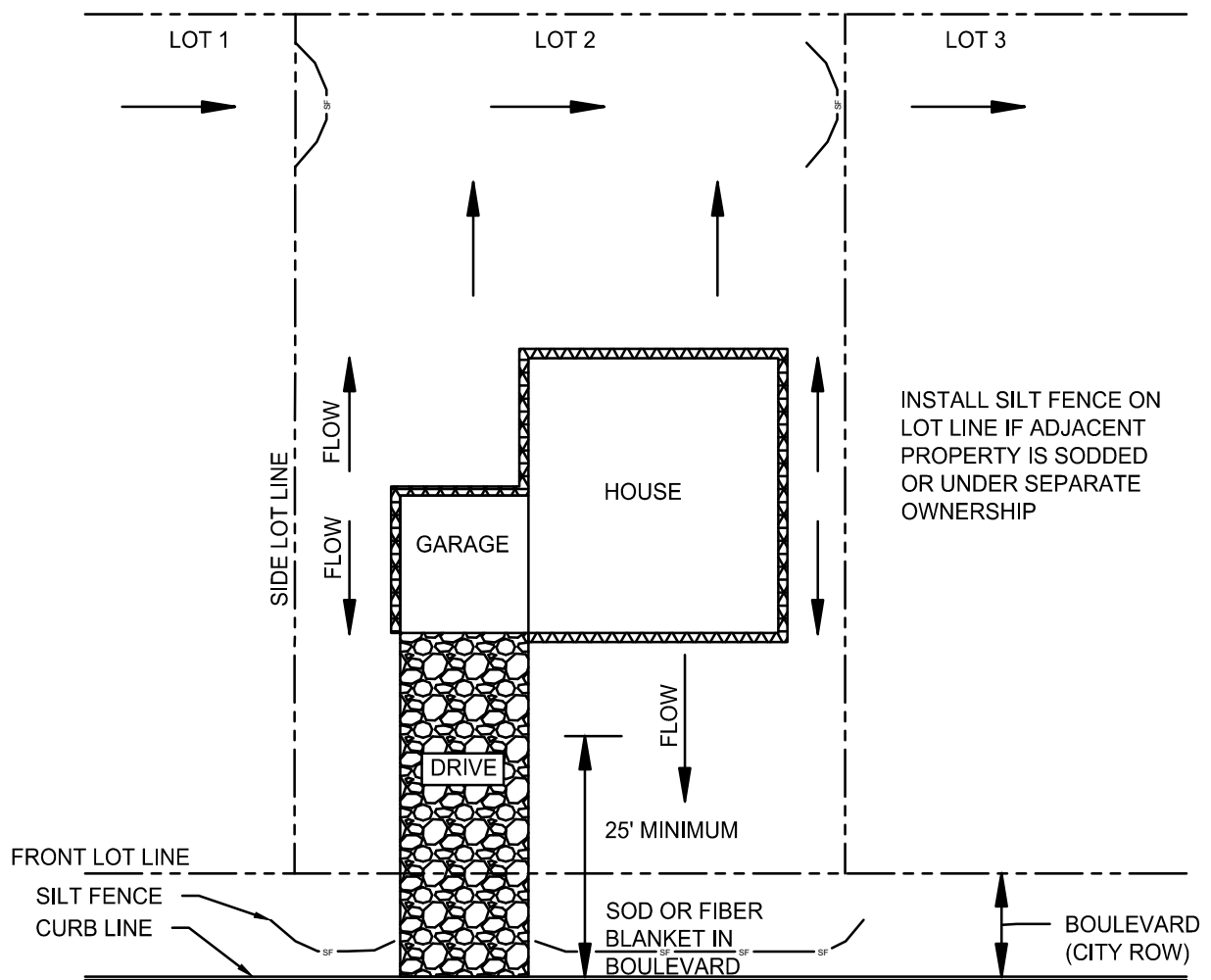
EROSION CONTROL FOR RESIDENTIAL LOTS WITH WATERS

STANDARD DETAILS

Date: 01/12/2023

Revised:

ESC-16



SEDIMENT CONTROL NOTES:

1. PERIMETER SEDIMENT CONTROLS ARE NECESSARY AT DOWN SLOPING PROPERTY AND STREET EDGES. SEDIMENT CONTROLS MUST PROVIDE CONTAINMENT BY TURNING PERIMETER CONTROLS UPSLOPE INTO PROPERTY.
2. PERIMETER CONTROLS CAN INCLUDE MULCH SOCKS, MULCH BERMS AND/OR SILT FENCE PROPERTY TRENCHED IN AND STAKED OR STABILIZED.

EROSION CONTROL NOTES:

1. SITE HAS A MINIMUM OF 4" TOPSOIL FOR FINAL STABILIZATION.
2. CONSTRUCTION ENTRANCE SHALL BE 3" CLEAN ROCK OR WOOD/MULCH PER SPECIFICATIONS AT A MINIMUM DEPTH OF 6" FOR ROCK AND 18" FOR WOOD/MULCH PER DETAIL ESC-01.
3. SLOPES GREATER THAN 4:1 NEED FIBER BLANKETS AND TEMPORARY OR PERMANENT SEEDING.
4. SWALES NEED CHECK DAMS OR BLANKETS.



EROSION CONTROL FOR RESIDENTIAL LOTS

STANDARD DETAILS

Date: 01/12/2023

Revised:

ESC-17

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SECTION 8 - MISCELLANEOUS

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MSC-02	STREET LIGHT - TYPE 2 (ARLINGTON LANTERN)
MSC-03	MAILBOX TYPE SPECIAL
MSC-04	SINGLE MAILBOX
MSC-05	CLUSTER MAILBOX



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STANDARD DETAILS

Date:

01/12/2023

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MSC-00

NOTES:

- 1) CONTRACTOR SHALL VISIT SITE & BECOME FAMILIAR WITH EXISTING CONDITIONS PRIOR TO BIDDING.
- 2) CONDUCTOR INSULATION SHALL BE RED, BLACK, WHITE, OR GREEN AS SHOWN. THE USE OF TAPE SLEEVES OR OTHER TYPES OF COLOR IDENTIFICATION IS NOT PERMITTED.
- 3) ALL RACEWAYS SHALL HAVE MINIMUM BURIAL DEPTH OF 24" & SHALL HAVE YELLOW WARNING TAPE INSTALLED 6" ABOVE RACEWAY.
- 4) 2" SCHEDULE 80 PVC TO BE PLACED UNDER DRIVEWAYS, TRAILS, BOULEVARDS, SIDEWALKS, AND ROADWAYS.
- 5) ALL LIGHT FOUNDATIONS AND CABINETS MUST BE PLACED A MINIMUM OF 2 FEET CLEAR OF ALL TRAILS/WALKS.
- 6) COORDINATE CONDUIT CROSSING INSTALLATION WITH ROADWAY CONSTRUCTION

ROADWAY STYLE LUMINAIRES WITH
FULL-CUTOFF OPTICS 250W HP. 120 V
HOLOPHANE MONGOOSE MEDIUM LED
MGLEDM P1 30K MVOLT MG UN BZSD PR7 SH
COLOR DARK BRONZE.

SQUARE STRAIGHT STEEL POLE
HOLOPHANE SSS 3055G D1 W5 BZ.
COLOR DARK BRONZE.

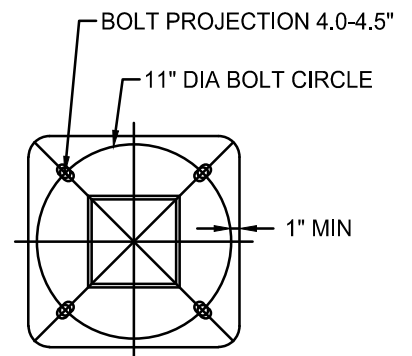
MOUNT TO LIGHT
FOUNDATION DESIGN E
MODIFIED.
USE 11" BOLT CIRCLE

LOCATED BY
FIELD ENGINEER

2' MIN. AS LOCATED
BY FIELD ENGINEER

TRAIL/WALK

LIGHTING UNIT TYPE SPECIAL 1
(1X-30 SHOE BOX)



LIGHTING FOUNDATION BOLT CIRCLE



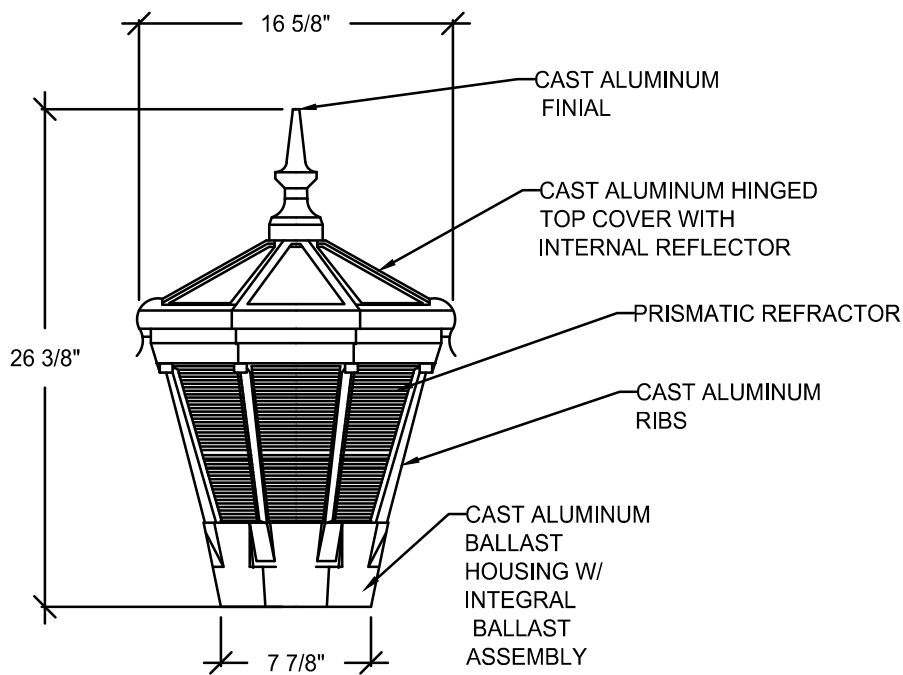
STREET LIGHT - TYPE 1
(30' SHOEBOX)

STANDARD DETAILS

Date: 01/12/2023

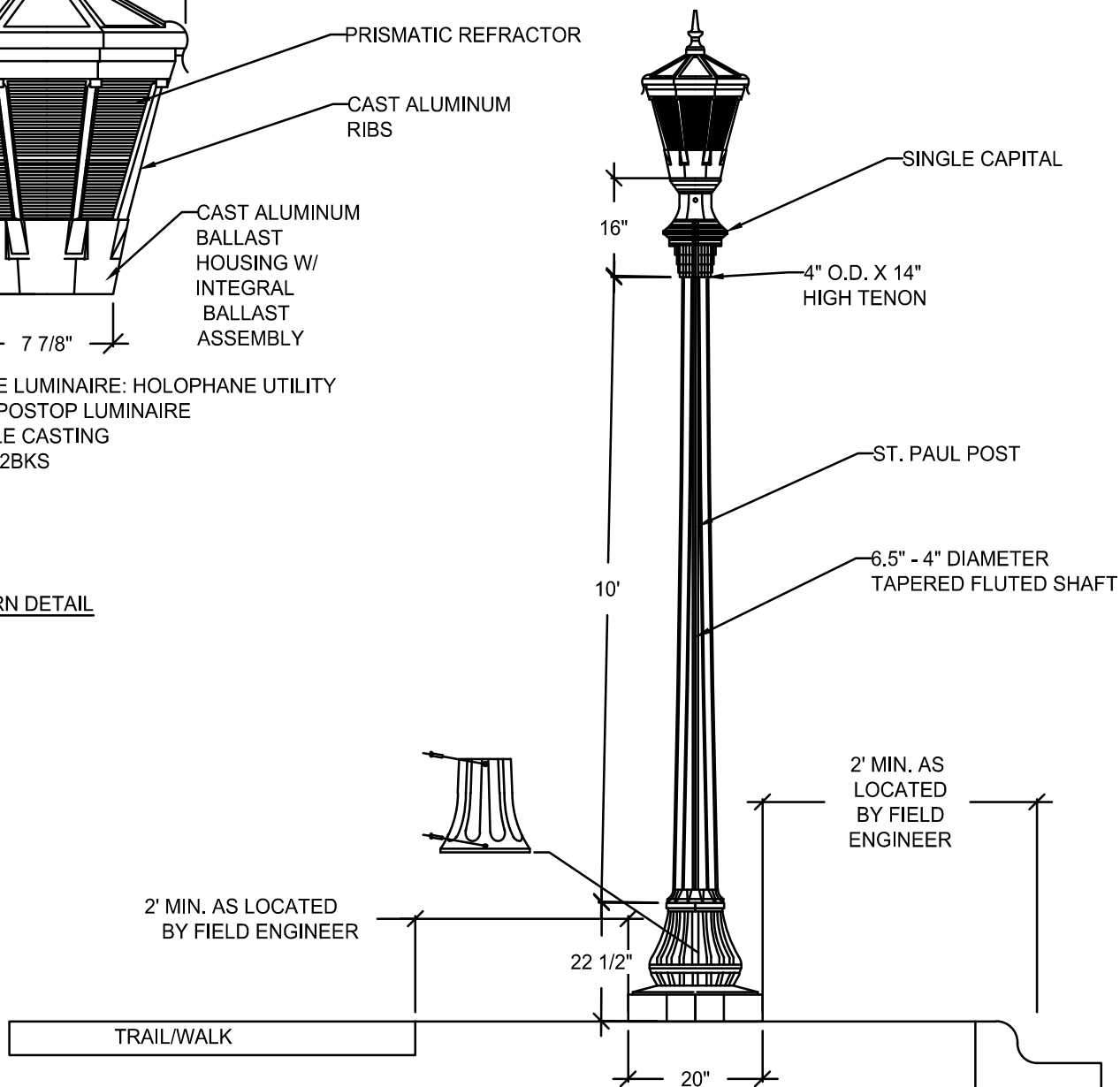
Revised:

MSC-01



ARLINGTON STYLE LUMINAIRE: HOLOPHANE UTILITY
ST. PAUL SERIES POSTOP LUMINAIRE
OCTAGONAL STYLE CASTING
ARE2P2030KASGL2BK5
COLOR BLACK
3000K
55 WATTS

LANTERN DETAIL



NOTES:

1. ENGINEER TO DETERMINE LOCATION IN FIELD
2. MOUNT TO: LIGHT FOUNDATION DESIGN E MODIFIED
3. CAST ALUMINUM POST TYPE HOLOPHANE: ST. PAUL STYLE - DARK BRONZE - SUPPLIED BY THE CITY

LIGHTING UNIT TYPE SPECIAL 2



STREET LIGHT - TYPE 2 (ARLINGTON LANTERN)

STANDARD DETAILS

Date: 01/12/2023

Revised:

MSC-02



NOTES:

1. MAIL BOXES SHALL BE SALVAGED AND TEMPORARILY RELOCATED AT A LOCATION DESIGNATED BY THE POST OFFICE FOR USE DURING CONSTRUCTION.
2. AT COMPLETION OF CONSTRUCTION REINSTALL MAIL BOX AS DIRECTED BY THE ENGINEER.
3. INSTALL MAIL BOX WITH 4' FOOTING USING AN 18" SAND TUBE OR MATCH EXISTING FOOTING.



MAILBOX TYPE SPECIAL

STANDARD DETAILS

Date: 01/12/2023

Revised:

MSC-03

19" L x 6 1/2" W x 8 3/4" H BLACK GALVANIZED
RUST-RESISTANT STEEL MAILBOX, FULLY
ASSEMBLED WITH FLAG AND DOOR CLIPS

WHITE VINYL
ADDRESS LABEL

12956

BLACK PLASTIC
NEWSPAPER HOLDER

BLACK PLASTIC
NEWSPAPER HOLDER

(2) 4" x 4" XGUARD BROWN
PRESSURE TREATED WOOD

6" x 6" x 7' XGUARD
BROWN PRESSURE
TREATED WOOD

45"

10"

NOTES:

1. MAILBOX SHOULD NOT EXTEND TOWARDS STREET,
BEYOND BACK OF CURB.
2. ADDRESS MUST BE ON SIDE OF BOX FROM WHICH
CARRIER APPROACHES IN LETTERS A MINIMUM OF
ONE INCH HIGH (OR ON THE FRONT WHERE BOXES
ARE CLUSTERED).
3. MAILBOX MUST BE LOCATED SO CARRIER CAN
SERVE WITHOUT LEAVING VEHICLE.
4. ALL POSTS TO BE A MINIMUM OF 10" BEHIND BACK OF
CURB.



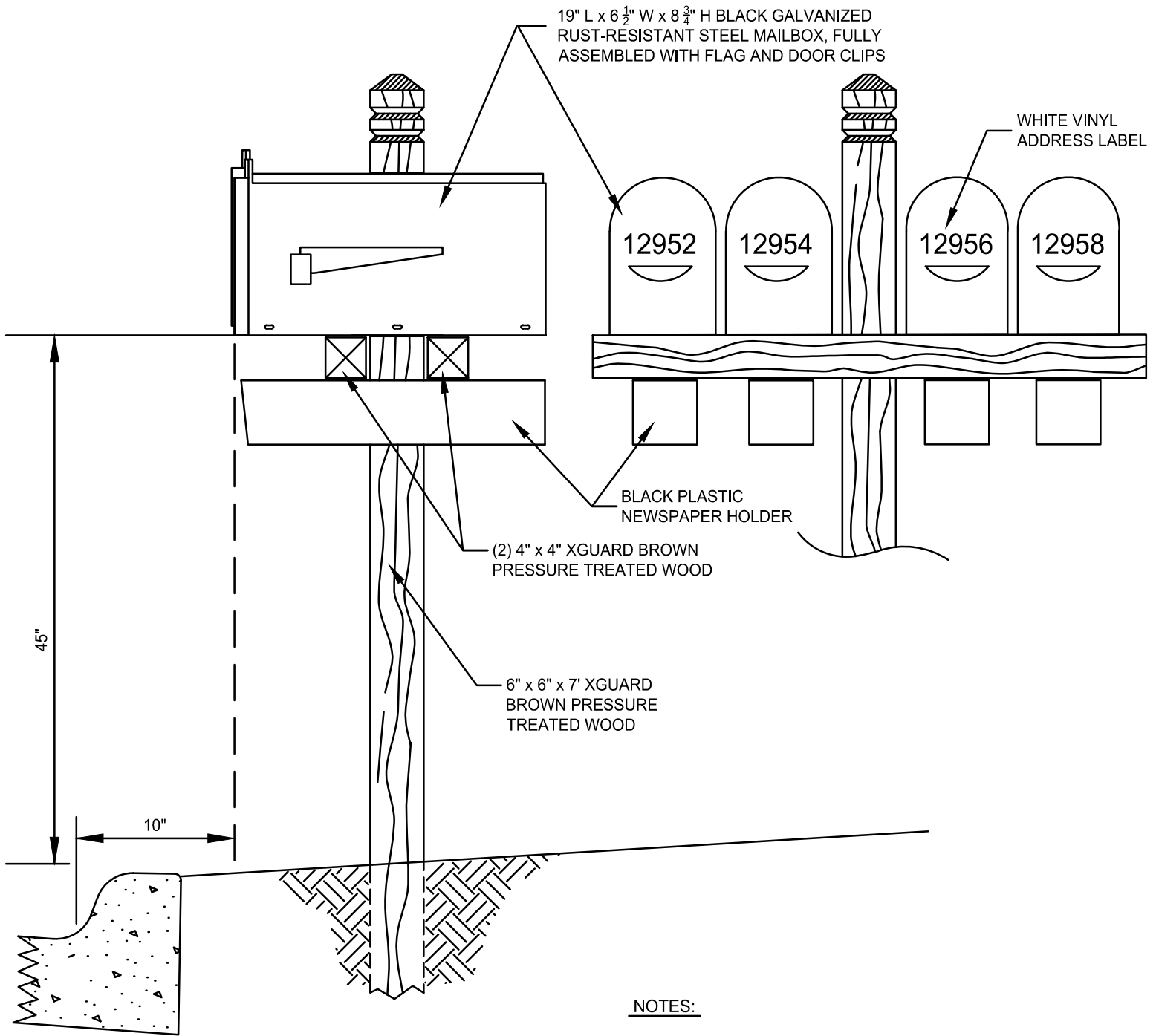
SINGLE MAILBOX

STANDARD DETAILS

Date: 01/12/2023

Revised:

MSC-04



NOTES:

1. MAILBOX SHOULD NOT EXTEND TOWARDS STREET, BEYOND BACK OF CURB.
2. ADDRESS MUST BE ON SIDE OF BOX FROM WHICH CARRIER APPROACHES IN LETTERS A MINIMUM OF ONE INCH HIGH (OR ON THE FRONT WHERE BOXES ARE CLUSTERED).
3. MAILBOX MUST BE LOCATED SO CARRIER CAN SERVE WITHOUT LEAVING VEHICLE.
4. ALL POSTS TO BE A MINIMUM OF 10" BEHIND BACK OF CURB.



CLUSTER MAILBOX

STANDARD DETAILS

Date: 01/12/2023

Revised:

MSC-05

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SECTION 2 - SANITARY SEWER

SAN-00	INDEX
SAN-01	SANITARY SEWER MANHOLE - STANDARD
SAN-02	MANHOLE TOP SLAB
SAN-03	SANITARY SEWER MANHOLE - DROP INLET
SAN-04	WATERTIGHT CASTING
SAN-05	SANITARY SEWER SERVICE



INDEX

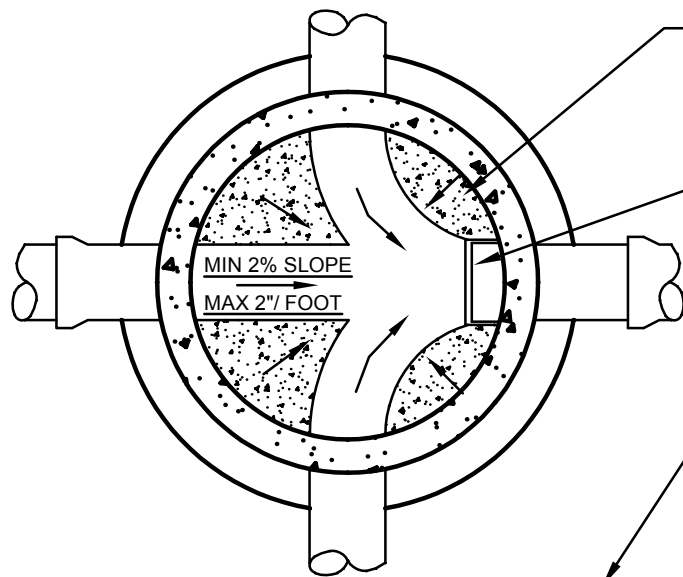
STANDARD DETAILS

Date:

1/12/2023

Revised:

SAN-00



PLAN

PRECAST INVERT MUST BE $\frac{1}{2}$ DIAMETER OF PIPE AND BRANCHES SHOULD BE SLOPED 2" TOWARD INVERT.

MANHOLE STEPS SHALL BE PLACED SO THAT OFFSET VERTICAL PORTION OF CONE IS FACING DOWNSTREAM

RUBBER EXTERNAL SEAL SHALL BE INSTALLED IN CONJUNCTION WITH ADJUSTING RINGS AND CASTING ASSEMBLY PLATE STM-18

NEENAH MANHOLE FRAME AND CASTING R-1733, SELF SEALING B LID, WITH SOLID COVER AND TWO CONCEALED PICK HOLES OR APPROVED EQUAL. LID SHALL BE LABELED "SANITARY SEWER" WITH 2" RAISED LETTERS

CONCRETE ADJUSTING RINGS ARE REQUIRED. CONCRETE ADJUSTMENT RINGS SHALL BE SEALED TO THE CASTING, AND ONE ANOTHER BY USING A PREPACKAGED MOTOR MIX. CONTRACTOR WILL INSTALL MINIMUM NUMBER OF CONCRETE RINGS BY THE USE OF 2", 6" OR 1' ADJUSTING RINGS. THE MAXIMUM HEIGHT OF RINGS IS 2' AND MINIMUM HEIGHT IS 4".

PRECAST ECCENTRIC CONE SECTION & RISER SECTIONS AS CONFORMING TO ASTM C478

MANHOLE STEPS, NEENAH R-1981-N OR APPROVED EQUAL, 16" ON CENTER. COPOLYMER POLYPROPYLENE PLASTIC (PSI-PF) AND ALUMINUM STEPS APPROVED.

JOINTS BETWEEN PRECAST SECTIONS SHALL USE PRELUBRICATED PROFILE GASKETS CONFORMING TO ASTM C443. WRAP EXTERIOR BARREL JOINT WITH 6" RUBBER MASTIC SEALER (GATOR WRAP OR APPROVED EQUAL)

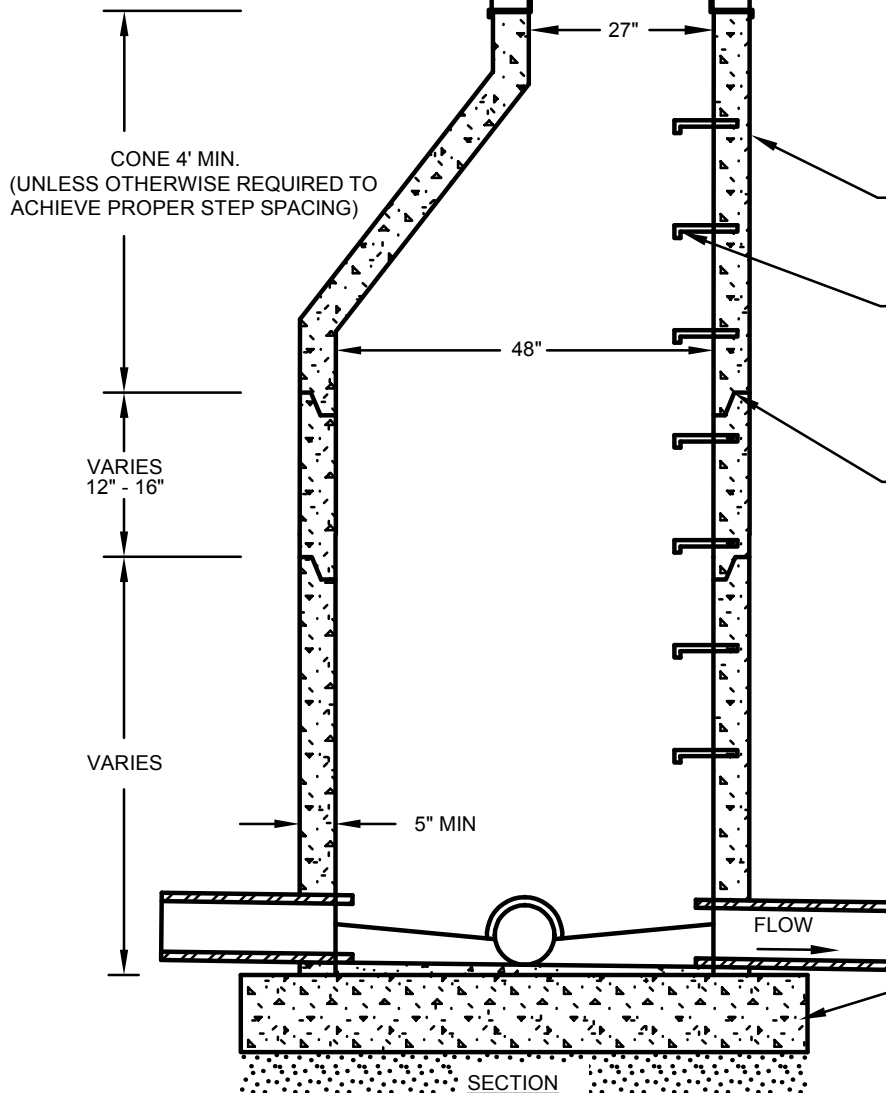
NOTES:

ALL WATER TIGHT PIPE CONNECTIONS SHALL CONFORM TO ASTM C923 FOR CONNECTIONS BETWEEN MAINTENANCE HOLE STRUCTURES AND PIPES.

POSITIVE MECHANICAL SEALS SHALL BE KOR-N-SEAL FOR PIPES 24" AND SMALLER. GREATER THAN 24" SHALL BE A-LOK X-CEL.

ALL DOG HOUSES SHALL BE GROUTED ON BOTH INSIDE AND OUTSIDE

MINIMUM THICKNESS OF PRECAST BASE IS 6" FOR 14' DEEP OR LESS, AND INCREASES 1" IN THICKNESS FOR EVERY 4' OF DEPTH GREATER THAN 14'. REINFORCE AS PER MN/DOT STD PLATE 4011.



SECTION



SANITARY SEWER MANHOLE - STANDARD

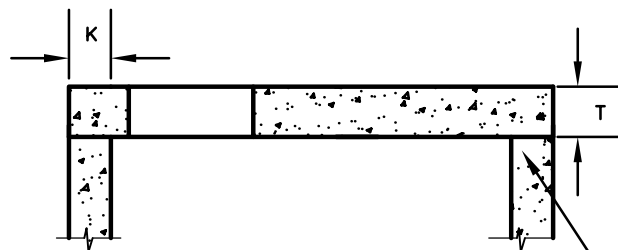
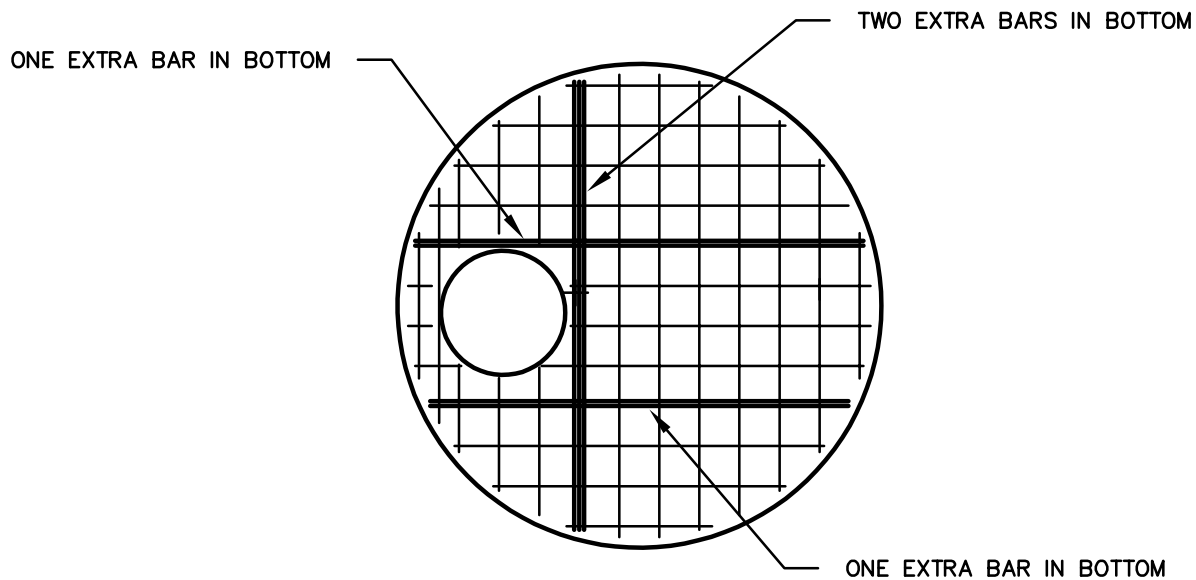
STANDARD DETAILS

Date:

01/12/2023

Revised:

SAN-01



JOINTS BETWEEN PRECAST
SECTIONS SHALL USE
PRELUBRICATED PROFILE
RUBBER GASKETS
CONFORMING TO ASTM C443.

COVER REQUIREMENTS				
COVER DIAMETER	T	K	BOTTOM BARS	TOP BARS
56"	6"	6"	NO. 5 - 6"	X
65"	8"	6"	NO. 5 - 6"	X
72"	8"	7"	NO. 5 - 4"	NO. 3 - 6"
79"	8"	7"	NO. 5 - 4"	NO. 3 - 6"
85"	8"	8"	NO. 5 - 4"	NO. 3 - 6"
93"	8"	8"	NO. 5 - 4"	NO. 5 - 4"
100"	8"	9"	NO. 5 - 4"	NO. 5 - 4"
106"	8"	9"	NO. 5 - 4"	NO. 5 - 4"
113"	8"	9"	NO. 5 - 4"	NO. 5 - 4"
119"	8"	9"	NO. 5 - 4"	NO. 5 - 4"

1" MINIMUM COVER ON REBAR



MANHOLE TOP SLAB

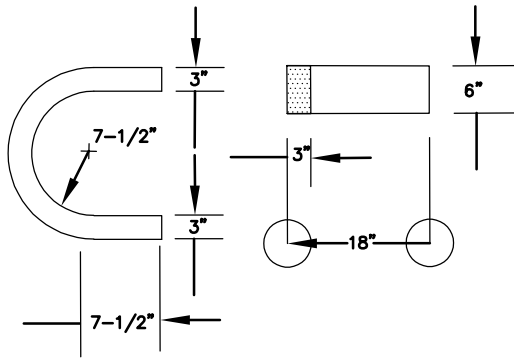
STANDARD DETAILS

Date: 01/12/2023

Revised:

SAN-02

HORSESHOE DETAILS



TEE AND 90 DEGREE BEND SHALL BE DIP.

FULL LENGTH OF DIP PIPE

CONNECTION TO EXISTING PIPE TO BEAR ON UNDISTURBED SOIL.

DIP PIPE AND FITTINGS TO BE USED FOR DROP SECTION. DROP SECTION PIPE SIZE TO BE EQUIVALENT TO INLET PIPE SIZE.

INSTALL HORSESHOES AROUND DROP AND FILL WITH MIXED CONCRETE MORTAR OR DRY MIX AROUND ALL SIDES.

NEENAH MANHOLE FRAME AND CASTING R-1733, SELF SEALING B LID, WITH SOLID COVER AND TWO CONCEALED PICK HOLES OR APPROVED EQUAL. LID SHALL BE LABELED "SANITARY SEWER" WITH 2" RAISED LETTERS

RUBBER EXTERNAL SEAL SHALL BE INSTALLED IN CONJUNCTION WITH ADJUSTING RINGS AND CASTING ASSEMBLY PLATE STM-18

CONCRETE ADJUSTING RINGS ARE REQUIRED. CONCRETE ADJUSTMENT RINGS SHALL BE SEALED TO THE CASTING, AND ONE ANOTHER BY USING A PREPACKAGED MOTOR MIX. CONTRACTOR WILL INSTALL MINIMUM NUMBER OF CONCRETE RINGS BY THE USE OF 2", 6" OR 1' ADJUSTING RINGS. THE MAXIMUM HEIGHT OF RINGS IS 2' AND MINIMUM HEIGHT IS 4".

PRECAST REINFORCED ECCENTRIC CONE & RISER SECTIONS AS CONFORMING TO ASTM C478.

JOINTS BETWEEN PRECAST SECTIONS SHALL USE PRELUBRICATED PROFILE GASKETS CONFORMING TO ASTM C443. WRAP EXTERIOR BARREL JOINT WITH 6" RUBBER MASTIC SEALER (GATOR WRAP OR APPROVED EQUAL)

MANHOLE STEPS, NEENAH R-1981-N OR APPROVED EQUAL, 16" ON CENTER. COPOLYMER POLYPROPYLENE PLASTIC (PSI-PF) AND ALUMINUM STEPS APPROVED.

POSITIVE MECHANICAL SEAL STAINLESS STEEL EXTERNAL CLAMP WITH DRAW NUTS AND BOLTS

MINIMUM SLAB THICKNESS IS 6" FOR 14' DEPTH. INCREASE THICKNESS 1" FOR EVERY 4' OF DEPTH GREATER THAN 14'. REINFORCE AS PER MN/DOT STD PLATE 4011.

NOTES:

ALL WATER TIGHT PIPE CONNECTIONS SHALL CONFORM TO ASTM C923 FOR CONNECTIONS BETWEEN MAINTENANCE HOLE STRUCTURES AND PIPES.

POSITIVE MECHANICAL SEALS SHALL BE KOR-N-SEAL FOR PIPES 24" AND SMALLER. GREATER THAN 24" SHALL BE A-LOK X-CEL.

PRECAST INVERT SHOULD BE $\frac{1}{2}$ ϕ OF PIPE SLOPED 2" TOWARD INVERT

ALL DOG HOUSES SHALL BE GROUTED ON THE INSIDE AND THE OUTSIDE



SANITARY SEWER MANHOLE - DROP INLET

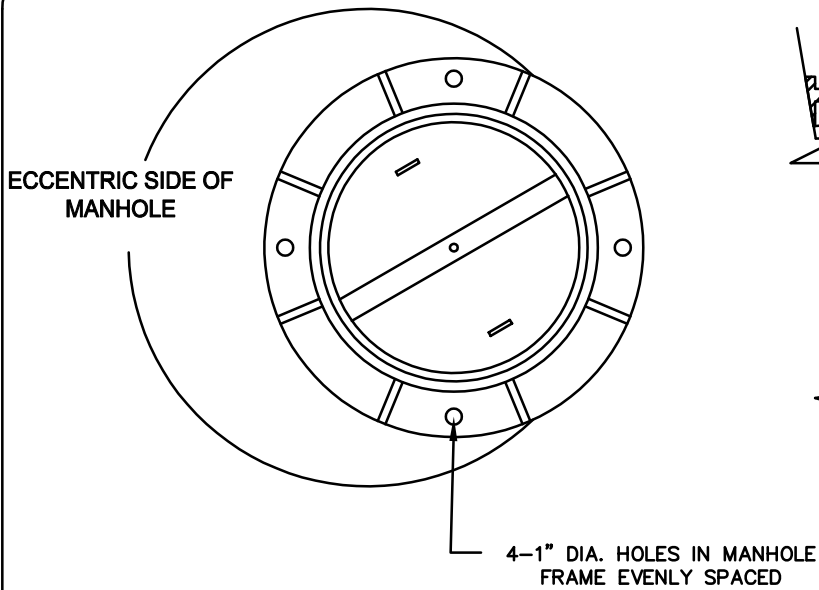
STANDARD DETAILS

Date:

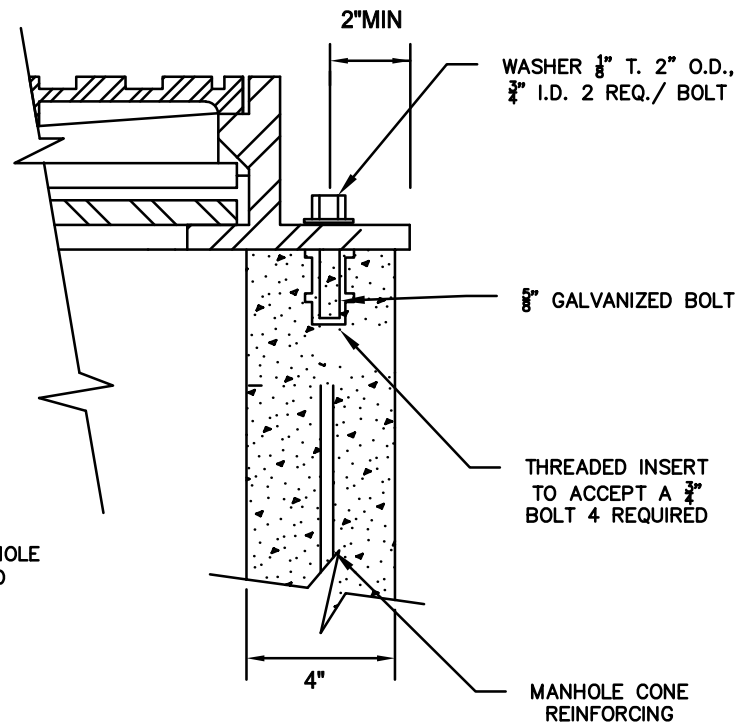
01/12/2023

Revised:

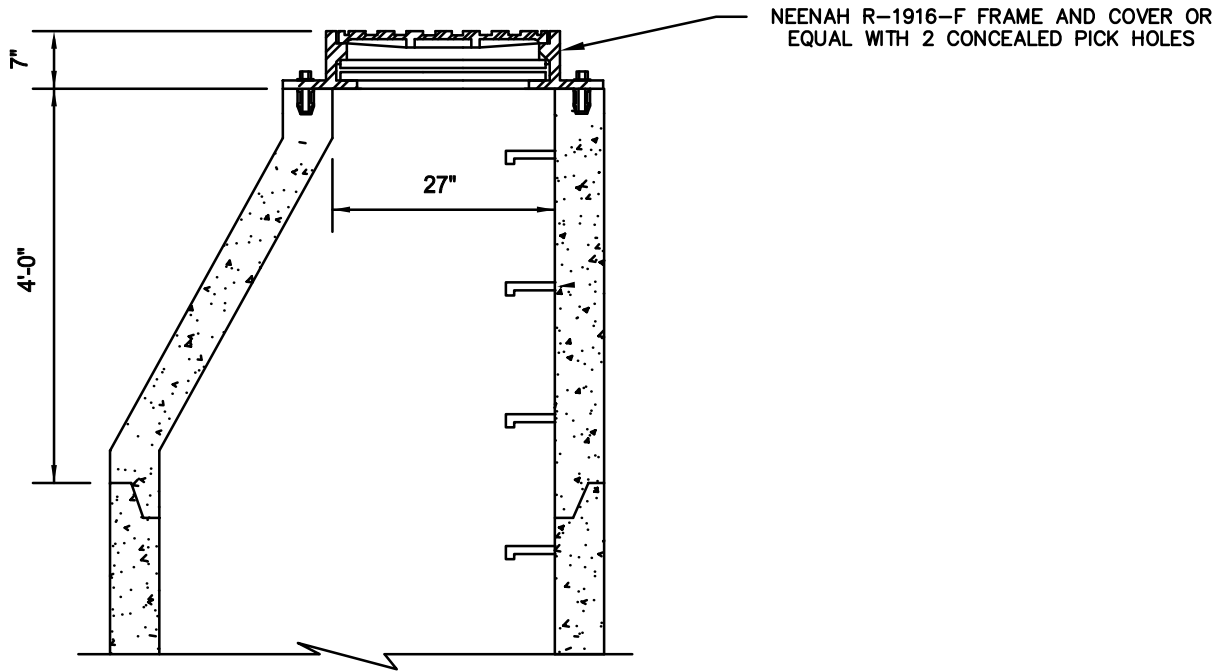
SAN-03



PLAN VIEW TOP COVER REMOVED



TIE DOWN DETAIL



ECCENTRIC WATERTIGHT MANHOLE



WATERTIGHT CASTING

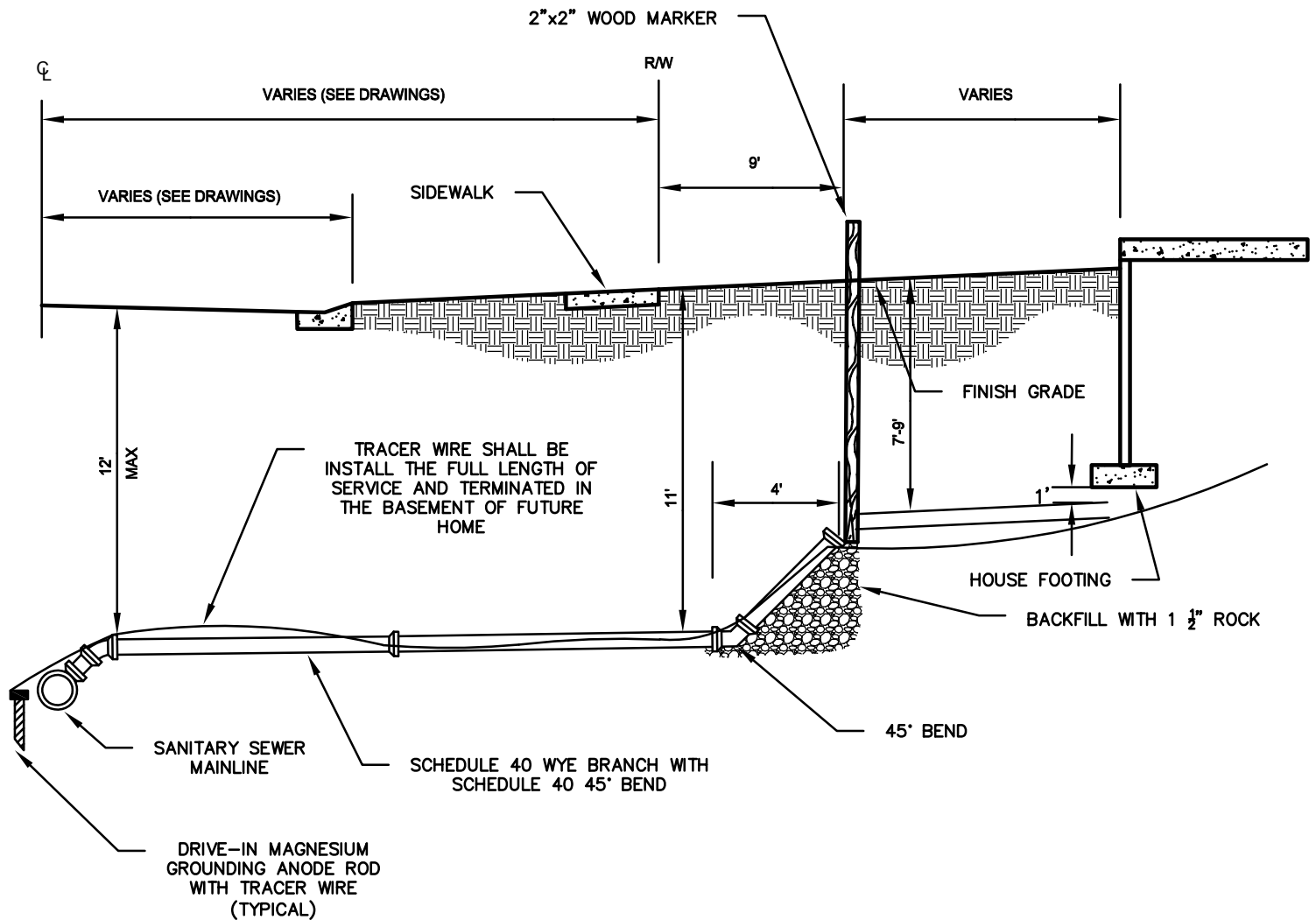
STANDARD DETAILS

Date:

1/12/2023

Revised:

SAN-04



NOTES:

SANITARY AND WATER SERVICES LINES SHALL BE INSTALLED IN THE SAME TRENCH WITH MAXIMUM OF 3' OF SEPARATION. THE SANITARY SHALL BE DOWNSTREAM OF THE WATER.

SEWER SERVICE, PVC SCHEDULE 40 4" OR 6" AS SPECIFIED

2% MINIMUM SLOPE OR 12% MAXIMUM SLOPE, 1/4" PER FOOT

ALL PIPE SHALL BEDDED IN GRANULAR BORROW 3149 B.1 OR COURSE FILTER AGGREGATE 3149H

END OF SERVICE SHALL BE 7' TO 9' DEEP AT END OF SERVICE OR GIVEN IN THE PLANS BY THE ENGINEER. THE END SHALL BE A FACTORY JOINT WITH PLUG, USING A FACTORY MANUFACTURED ADAPTOR WHERE NECESSARY

TRACER WIRE SHALL BE COILED UP AT RIGHT OF WAY FOR FUTURE USE. WHEN CONTRACTOR CONNECTS TO SERVICE FOR FUTURE HOME THEY SHALL RUN A NEW GREEN WIRE INTO THE BASEMENT AND TERMINATE AT CITY WATER METER. ALL SPLICES SHALL BE WATER TIGHT



SANITARY SEWER SERVICE

STANDARD DETAILS

Date:

1/12/2023

Revised:

SAN-05

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SECTION 5 - STORM SEWER

STM-00	INDEX
STM-01	FLARED END SECTION
STM-02	PIPE APRON - SHEET PILING (HEADWALL)
STM-03	SUBSURFACE DRAIN
STM-04	SUBSURFACE DRAIN EXISTING CURB AND GUTTER
STM-05	DRAIN TILE - STUB FOR RESIDENTIAL SERVICE
STM-06	SUMP DISCHARGE TO STORM SEWER
STM-07	CATCH BASIN - 2X3
STM-08	CATCH BASIN - MANHOLE
STM-09	STORM SEWER MANHOLE
STM-10	MANHOLE - WITH SUMP
STM-11	ADJUST FRAME & RING CASTING



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STANDARD DETAILS

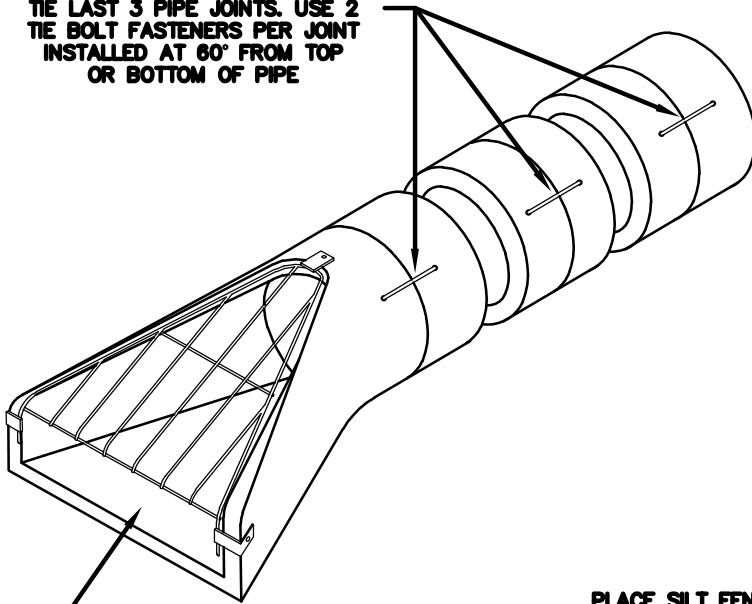
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05/01/2020

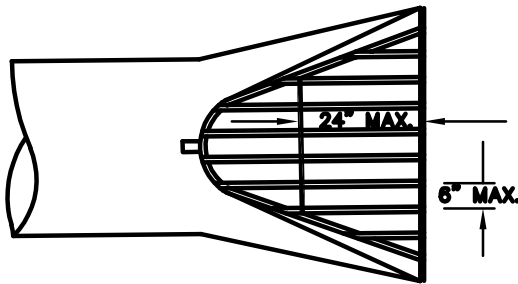
Revised:

STM-00

TIE LAST 3 PIPE JOINTS. USE 2 TIE BOLT FASTENERS PER JOINT INSTALLED AT 60° FROM TOP OR BOTTOM OF PIPE

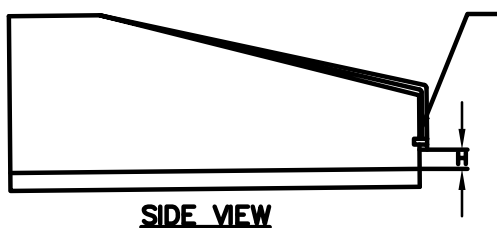


CONTRACTOR WILL NEED TO REMOVE THE VERTICAL BARS FROM THE TRASH GUARD ON ALL OUTLET FES. LEAVE THE TRASH GUARD AS NORMAL ON ALL INLET FES



PIPE SIZE	RIP RAP
12" TO 18"	4 CUBIC YARDS CL. 3
21" TO 27"	8 CUBIC YARDS CL. 3
30" TO 36"	12 CUBIC YARDS CL. 3
42" TO 48"	16 CUBIC YARDS CL. 3
54" AND UP	20 CUBIC YARDS CL. 4

PIPE SIZE	BAR SIZE	"H"	BOLT SIZE
12" TO 18"	3/4"	6"	5/8"
21" TO 42"	1"	6"	3/4"
48" TO 72"	1 1/4"	12"	1"



SIDE VIEW

ANCHOR BOTH SIDES

NOTES:

RIP RAP AS SPECIFIED IN MNDOT STANDARD SPECS. 2511.3 AND 3601.2.

RIP RAP QUANTITY SHALL BE IN ACCORDANCE WITH MNDOT STANDARD PLATE 3133.

PROVIDE 3 CLIPS TO FASTEN TRASH GUARD TO FLARED END.

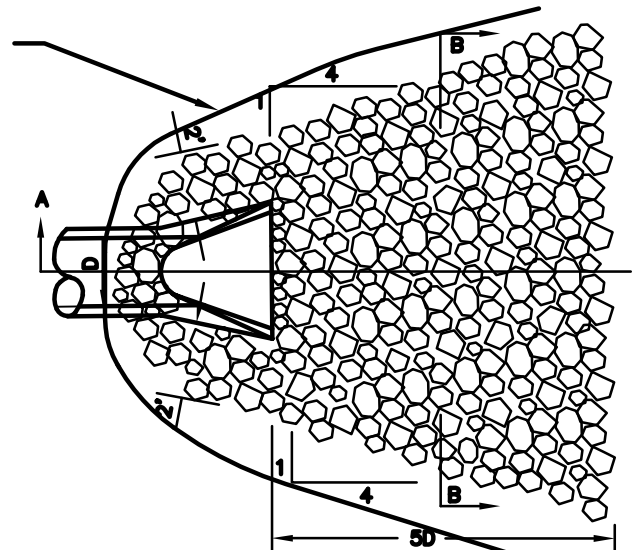
TRASH GUARD TO BE HOT DIP GALVANIZED AFTER FABRICATION.

SIZED OUTLETS AT THE DISCRETION OF THE ENGINEER.

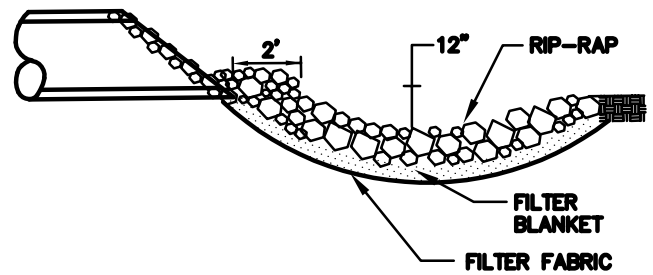
IF THE PLANS CALL FOR A HDPE FLARED END SECTION THE CONTRACTOR SHALL SUPPLY A STAINLESS STEEL THREADED ROD, WASHERS AND WING NUTS INSTEAD OF THE PLASTIC ONES THAT COME WITH THE FES.

TRASH GUARDS TO BE INSTALLED ON 18" OR LARGER SIZE INLETS AND OUTLETS. IF ON OUTLETS CONTRACTOR SHALL REMOVE VERTICAL BARS TO ALLOW LARGER OPENING

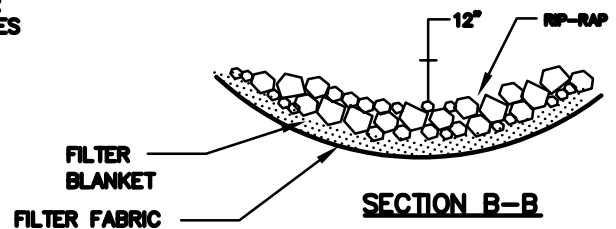
PLACE SILT FENCE



PLAN VIEW



SECTION A-A



SECTION B-B



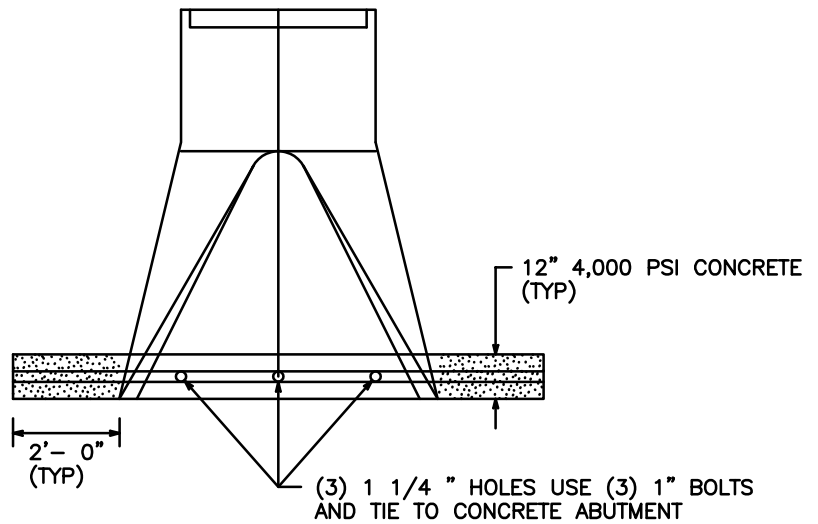
FLARED END SECTION

STANDARD DETAILS

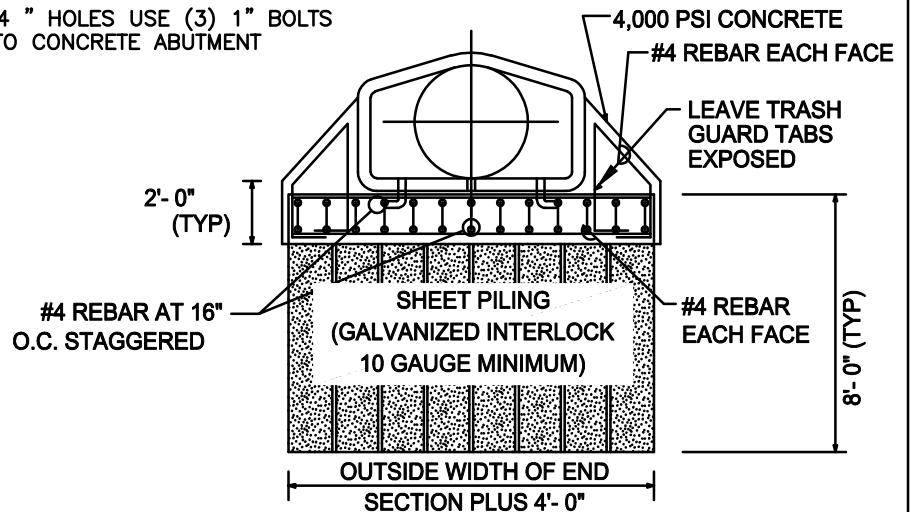
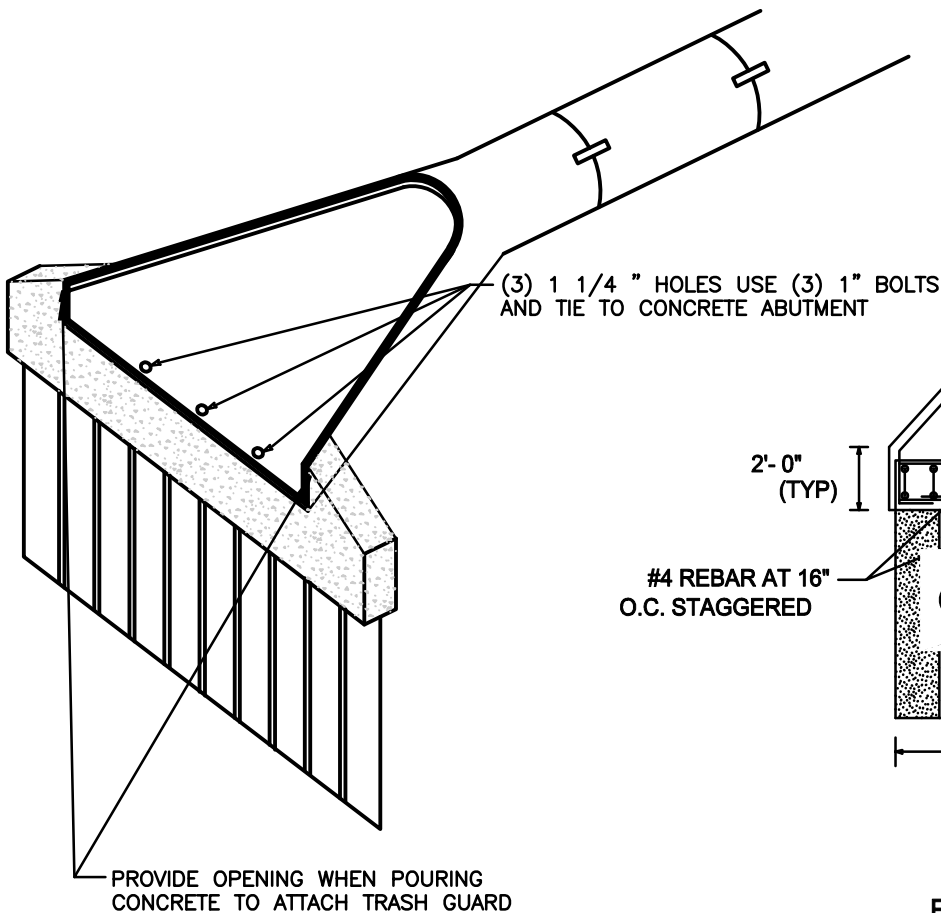
Date: 01/23/2023

Revised:

STM-01



PLAN



ELEVATION
PILING FOR
FLARED END SECTION
NO SCALE

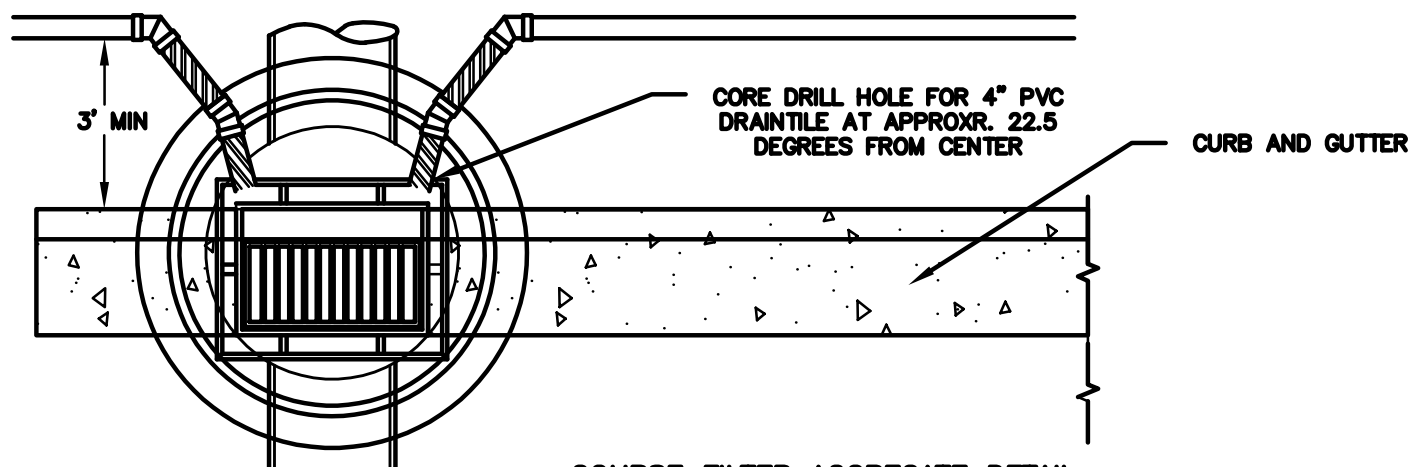
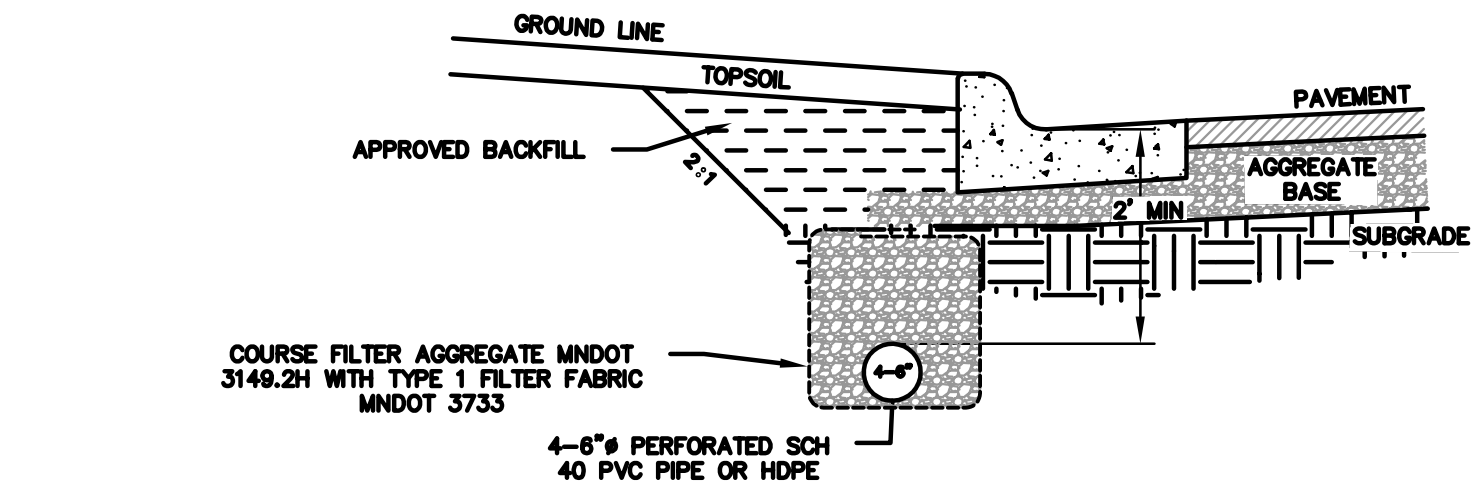


**PIPE APRON - SHEET
PILING (HEADWALL)**

STANDARD DETAILS

Date: 1/23/2023
Revised:

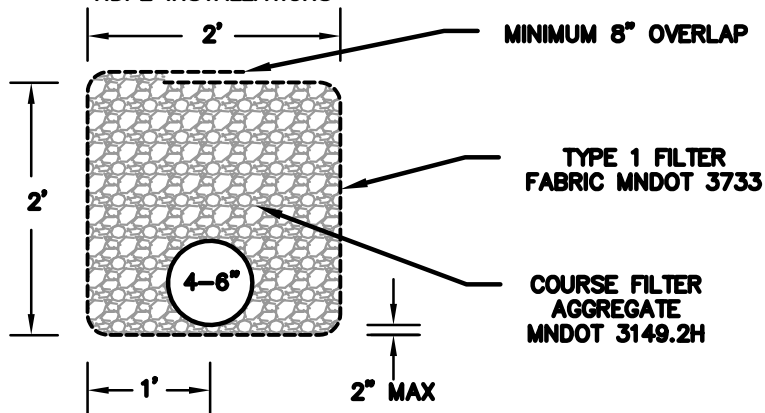
STM-02



ANIMAL GUARD
8" STAINLESS STEEL



COURSE FILTER AGGREGATE DETAIL
HDPE INSTALLATIONS



NOTES:

2" MAX. DEPTH OF FINE (OR COURSE) FILTER AGGREGATE AT ALL POINTS BELOW PIPE.

THE PIPE FOR BOTH INSTALLATIONS MUST BE A 4" OR 6" PERFORATED PIPE (SCH 40 PVC OR HDPE).

WHEN USING THE COURSE FILTER AGGREGATE BASE THE TRENCH MUST BE LINED WITH TYPE I FILTER FABRIC MEETING MN/DOT SPEC. 3733

CONTRACTOR SHALL INSTALL ANIMAL GUARDS AT ALL CONNECTIONS TO THE STORM SEWER SYSTEM



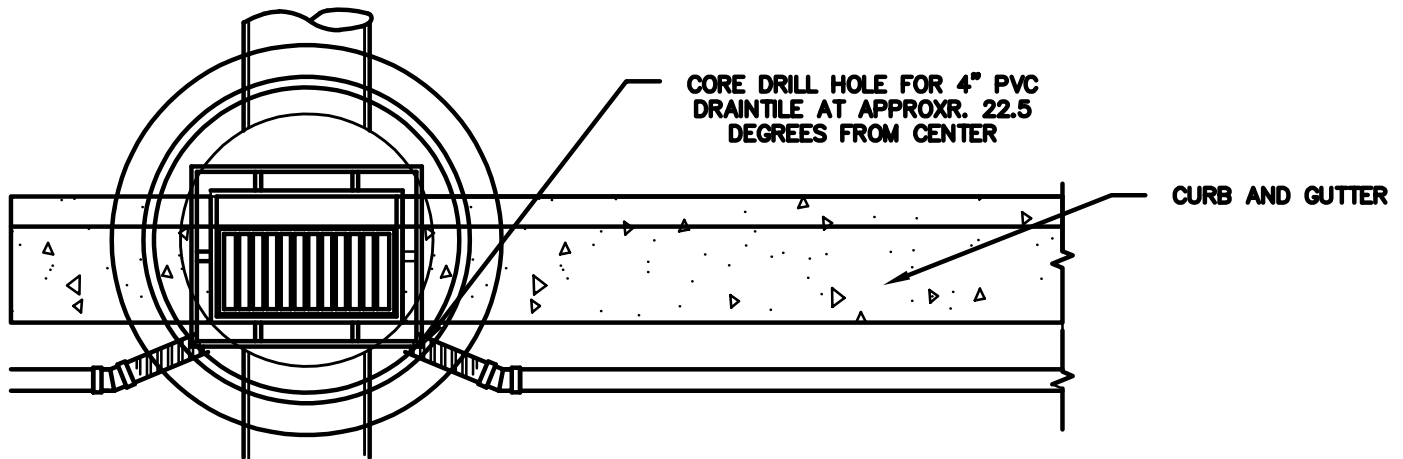
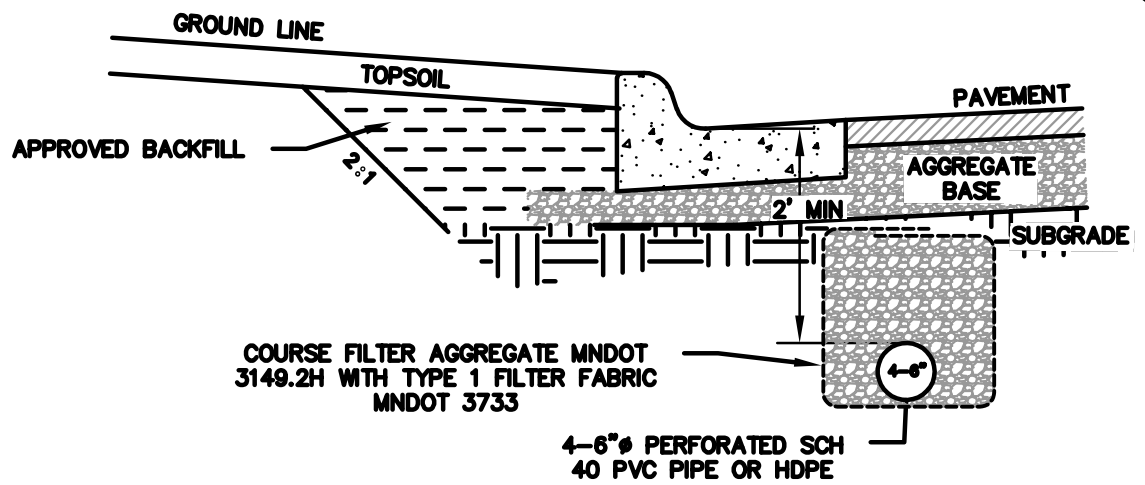
SUBSURFACE DRAINS

STANDARD DETAILS

Date: 1/23/2023

Revised:

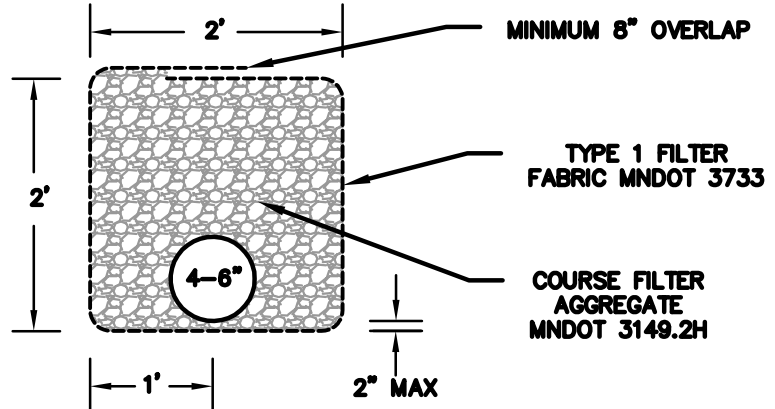
STM-03



ANIMAL GUARD 8" STANLESS STEEL



COURSE FILTER AGGREGATE DETAIL HDPE INSTALLATIONS



NOTES:

2" MAX. DEPTH OF FINE (OR COURSE) FILTER AGGREGATE AT ALL POINTS BELOW PIPE.

THE PIPE FOR BOTH INSTALLATIONS MUST BE A 4" OR 6" PERFORATED PIPE (SCH 40 PVC OR HDPE).

WHEN USING THE COURSE FILTER AGGREGATE BASE THE TRENCH MUST BE LINED WITH TYPE I FILTER FABRIC MEETING MN/DOT SPEC. 3733

CONTRACTOR SHALL INSTALL ANIMAL GUARDS AT ALL CONNECTIONS TO THE STORM SEWER SYSTEM



SUBSURFACE DRAINS (EXISTING CURB IN PLACE)

STANDARD DETAILS

Date: 1/23/2023

Revised:

STM-04

NOTES:

INSTALL CLEANOUTS AT 300 FOOT INTERVALS AND AT DEAD ENDS.
CLEAN OUT SERVICE TIES SHALL BE RECORDED WITH CITY
PROPERTY RECORDS AND UTILITY AS BUILT RECORDS.

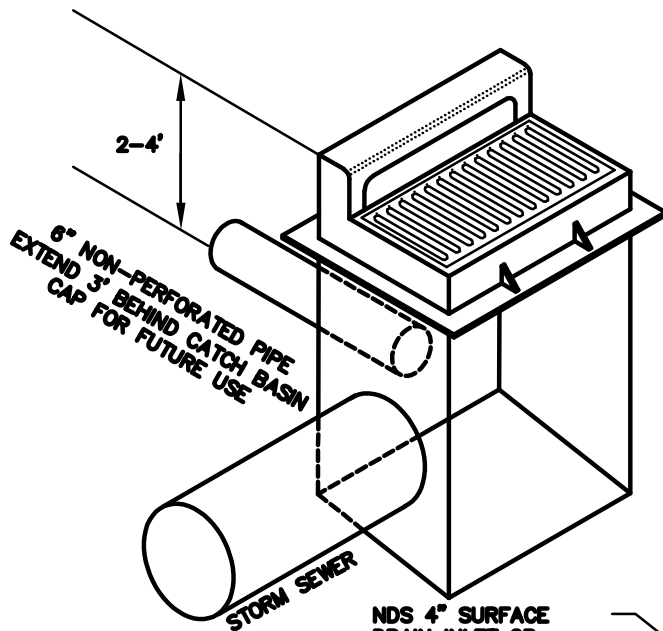
SCH 40 PVC SHALL BE USED FOR SUMP DRAIN, WYES/TEES.

A FLEXIBLE SADDLE TEE/WYE SHALL BE A FERNCO BRAND OR
APPROVED EQUAL WHEN HDPE PIPE IS USED FOR SUMP DRAIN.
WHEN A FERNCO IS INSTALLED THE CONTRACTOR SHALL INSTALL
A CONCRETE COLLAR AROUND THE ENTIRE FERNCO AT NO
ADDITIONAL COST TO THE CITY.

CONTRACTOR SHALL INSTALL ANIMAL GUARDS AT ALL CATCH BASIN
CONNECTIONS

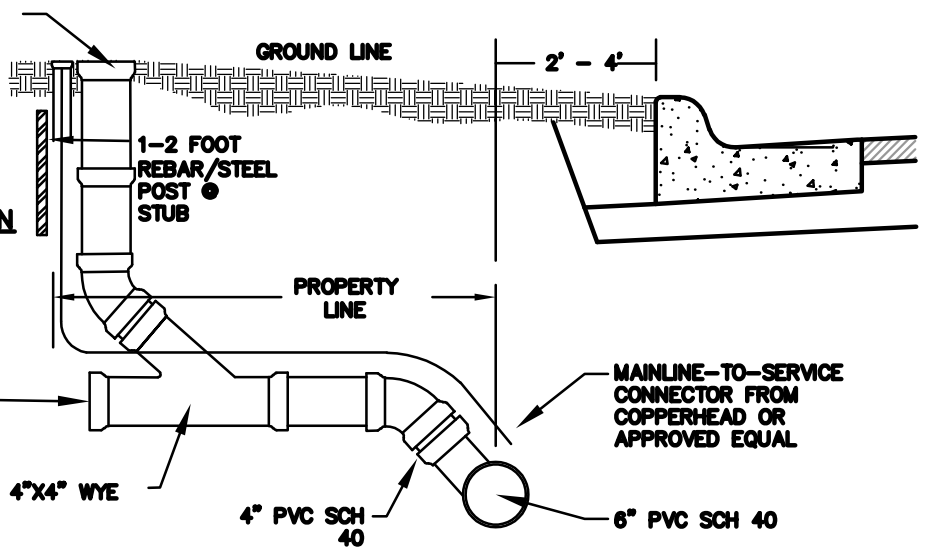
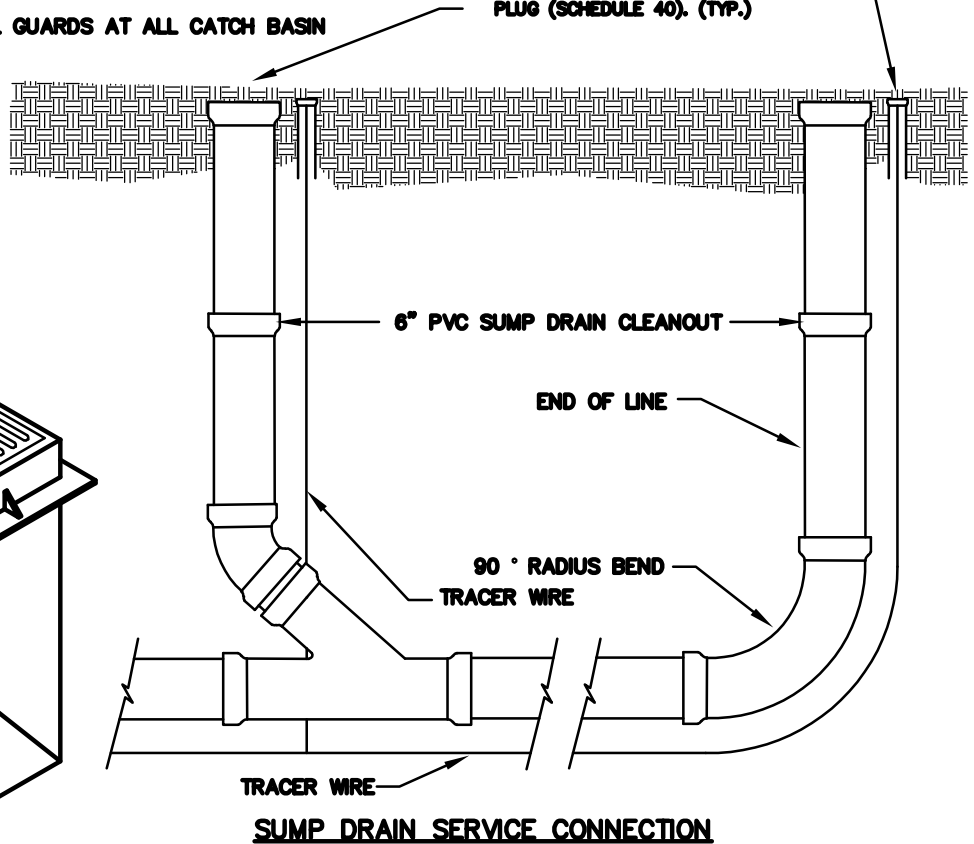
TRACER WIRE SHALL RUN THE
FULL LENGTH OF CLEANOUT
AND BE INSTALLED IN A
TRACER WIRE ACCESS BOX
CONFORMING TO MAPLE GROVE
STANDARD PLATE STS-8. (TYP.)

ALL PVC CLEANOUTS SHALL BE
3 INCHES BELOW FINISHED
GRADE AND HAVE A FITTING
CLEANOUT - WITH THREADED
PLUG (SCHEDULE 40). (TYP.)



TYPICAL SUMP TO CATCH BASIN CONNECTION

WHERE NOTED, INSTALL 6" PIPE INTO BACK OF
CATCH BASIN FOR SUMP CONNECTIONS. IF NOT
USED, CAP FOR FUTURE CONNECTION. FUTURE
CONNECTIONS TO EXTEND 3' BEHIND CATCH BASIN.



DRAINTILE - STUB FOR RESIDENTIAL SERVICE

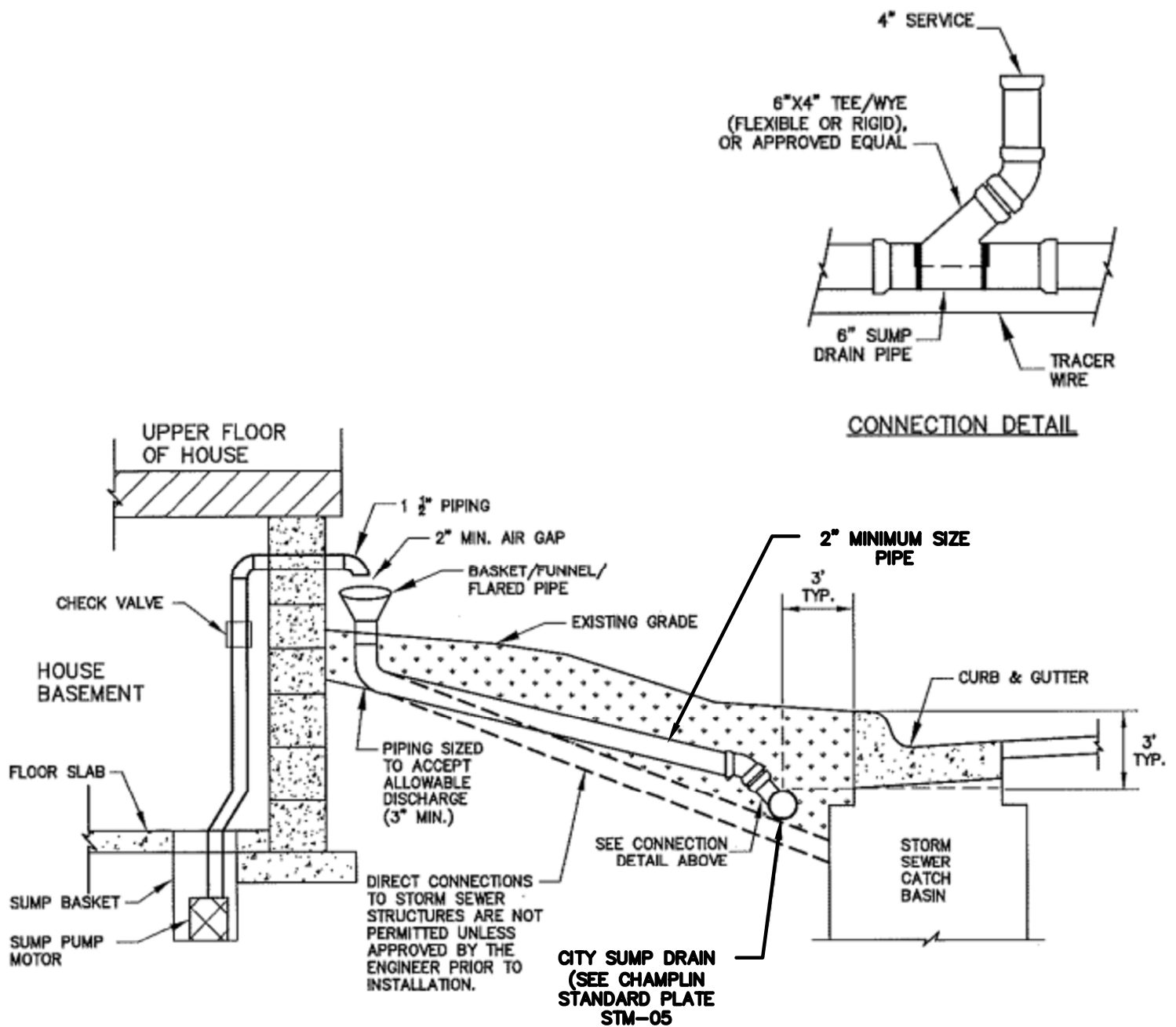
STANDARD DETAILS

Date:

1/23/2023

Revised:

STM-05



NOTES:

STORM SEWER CONNECTION PERMIT REQUIRED PRIOR TO EXCAVATION

CONNECTION SHALL BE INSPECTED AND APPROVED BY CITY STAFF PRIOR TO BACKFILLING



RESIDENTIAL SUMP DRAIN SERVICE CONNECTION

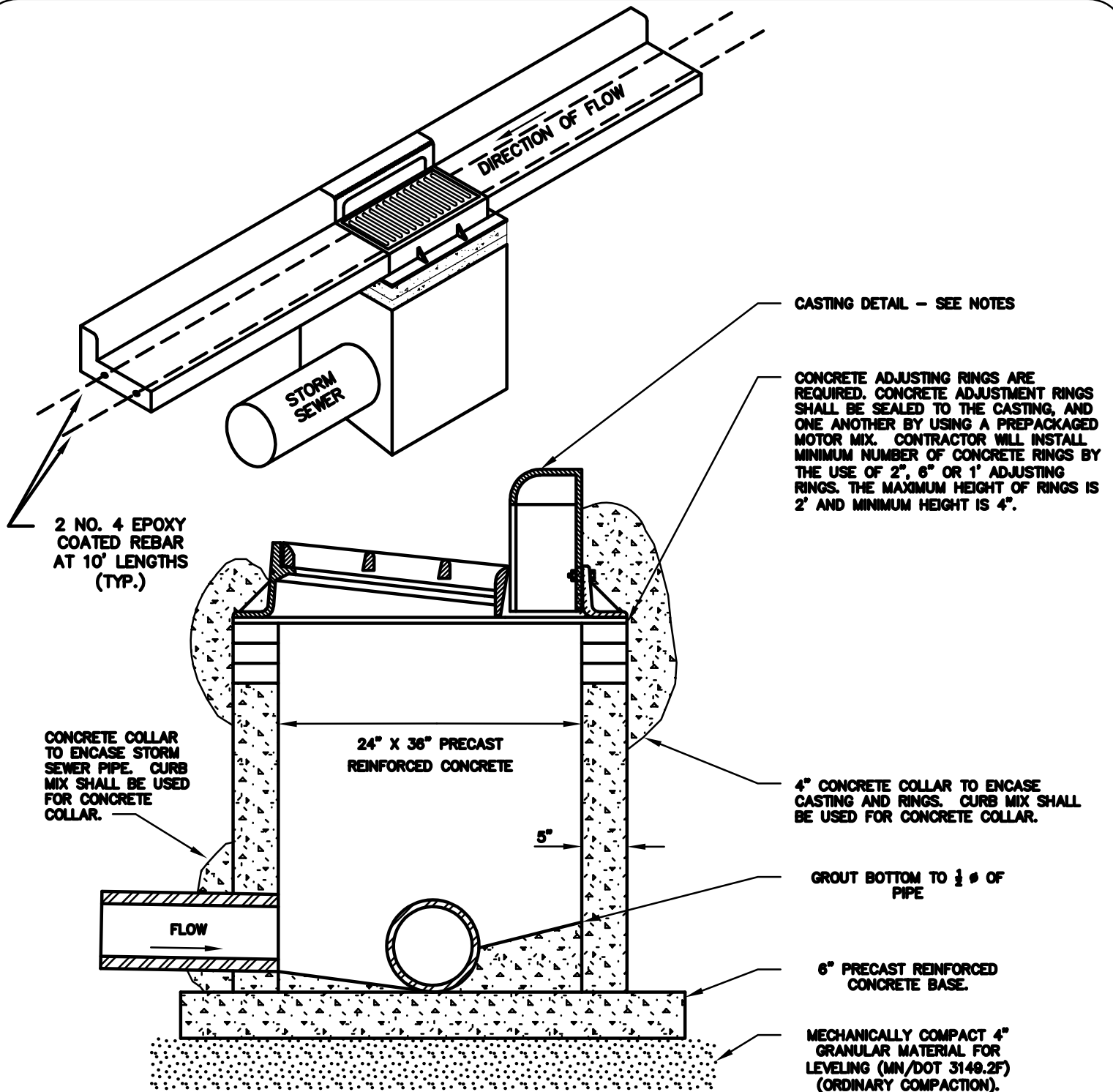
STANDARD DETAILS

Date:

1/23/2023

Revised:

STM-06



NOTES:

FRAME AND GRATE FOR BULKHEAD STYLE CURB SHALL BE A NEENAH R-3067-V OR NEENAH R-3067-VB

FRAME AND GRATE FOR SURMOUNTABLE STYLE CURB OR DRIVEWAYS SHALL BE A NEENAH R-3501-TR OR R-3501-TL. LOW POINTS SHALL BE R-3501-TB

FRAME AND GRATE FOR OFF ROAD LOCATION (DITCH GRATE, STOOL TYPE) R-4342

FRAME AND GRATE FOR BIKE LANE FACILITY SHALL BE R-3295-2-(L OR R)

DOG HOUSES SHALL BE GROUTED ON BOTH THE OUTSIDE AND INSIDE OF THE STRUCTURE



CATCH BASIN - 2X3

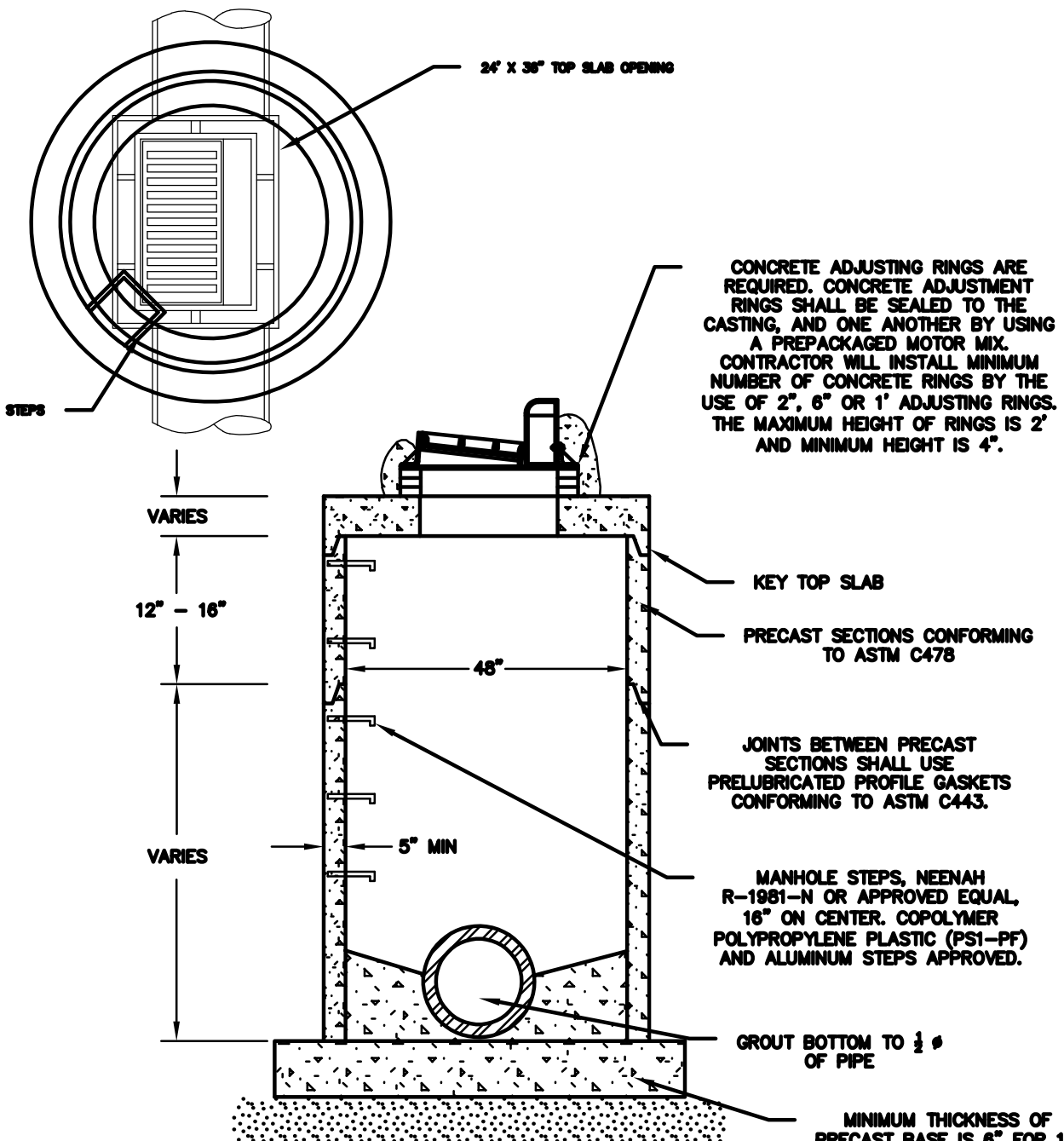
STANDARD DETAILS

Date:

1/23/2023

Revised:

STM-07



NOTES:

FRAME AND GRATE FOR BULKHEAD STYLE CURB SHALL BE A NEENAH R-3067-V OR NEENAH R-3067-VB

FRAME AND GRATE FOR SURMOUNTABLE STYLE CURB OR DRIVEWAYS SHALL BE A NEENAH R-3501-TR OR R-3501-TL LOW POINTS 3501-TB

FRAME AND GRATE FOR OFF ROAD LOCATION (DITCH GRATE, STOOL TYPE) R-4342

ALL MANHOLES WITH FRAME AND LID IN A PAVED AREA SHALL USE A NEENAH R-1733 WITH SOLID B LID WITH 2 CONCEALED PICK HOLES OR APPROVED EQUAL. LID SHALL BE LETTERED "STORM SEWER" WITH 2" RAISED LETTERS

FRAME AND GRATE FOR BIKE LANE FACILITY SHALL BE R-3295-2-(L OR R)

DOG HOUSES SHALL BE GROUTED ON BOTH THE OUTSIDE AND INSIDE OF THE STRUCTURE

MINIMUM THICKNESS OF PRECAST BASE IS 6" FOR 14' DEEP OR LESS, AND INCREASES 1" IN THICKNESS FOR EVERY 4' OF DEPTH GREATER THAN 14', AND REINFORCE AS PER MN/DOT STD PLATE 4011



CATCH BASIN - MANHOLE

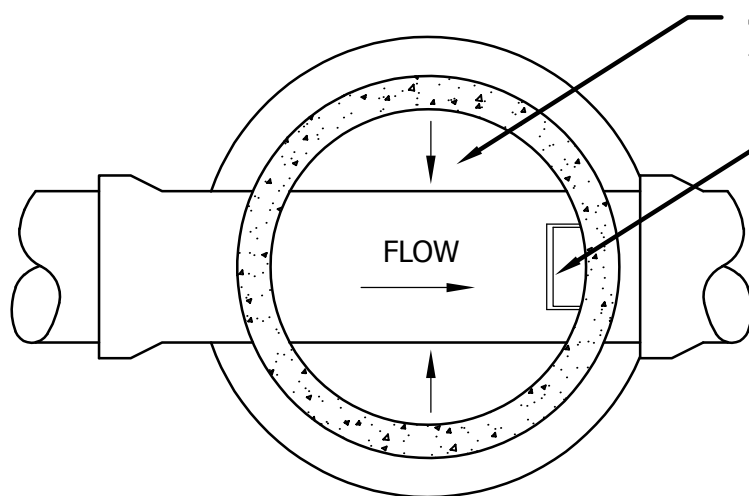
STANDARD DETAILS

Date:

1/23/2023

Revised:

STM-08



PLAN

NOTES:

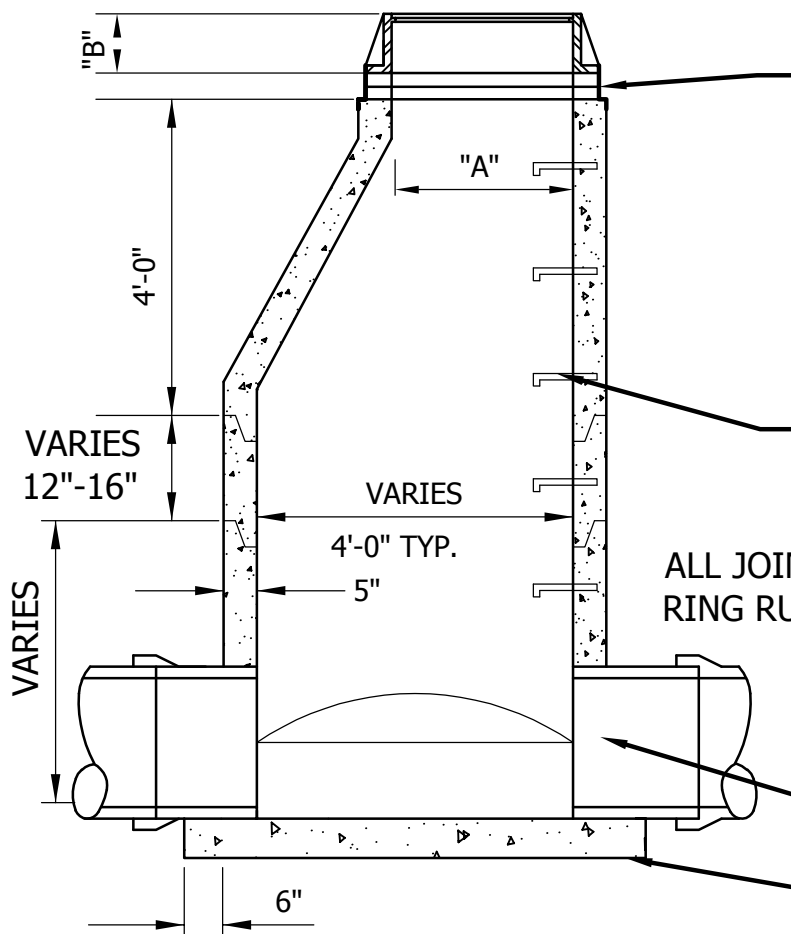
FRAME AND GRATE FOR OFF ROAD LOCATION (DITCH GRATE, STOOL TYPE) R-4342

ALL MANHOLES WITH FRAME AND LID SHALL USE A NEENAH R-1733 WITH SOLID B LID WITH 2 CONCEALED PICK HOLES OR APPROVED EQUAL. LID SHALL BE LETTERED "STORM SEWER" WITH 2" RAISED LETTERS

DOG HOUSES SHALL BE GROUTED ON BOTH THE OUTSIDE AND INSIDE OF THE STRUCTURE

ALL CASTINGS INSTALLED IN PAVED SURFACES SHALL BE INSTALLED 1/4" BELOW FINISHED PAVED SURFACE

MORTAR SHALL BE PURE PORTLAND SPEC MIX OR APPROVED EQUAL.



SECTION

ALL JOINTS IN MANHOLE TO HAVE "O" RING RUBBER GASKETS.

PIPE SHALL BE CUT OFF FLUSH WITH INSIDE FACE OF WALL

MINIMUM THICKNESS OF PRECAST BASE IS 6" FOR 14' DEEP OR LESS, AND INCREASES 1" IN THICKNESS FOR EVERY 4' OF DEPTH GREATER THAN 14', AND REINFORCE AS PER MN/DOT STD PLATE 4011



STORM SEWER MANHOLE

STANDARD DETAILS

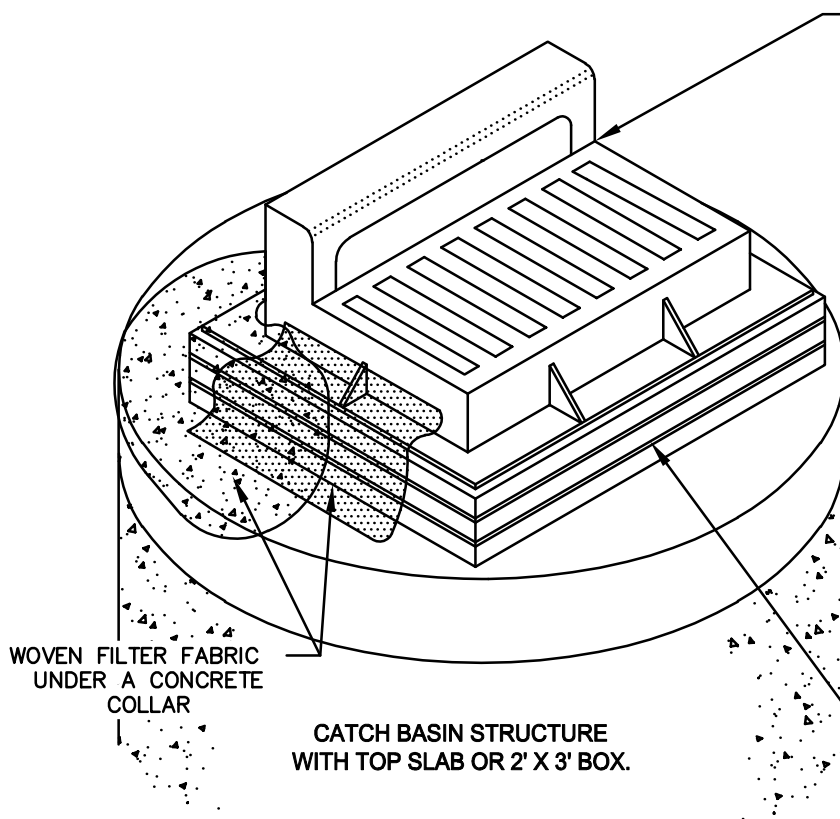
Date: 1/25/2023

Revised:

STM-09



STM-10



WOVEN FILTER FABRIC
UNDER A CONCRETE
COLLAR

CATCH BASIN STRUCTURE
WITH TOP SLAB OR 2' X 3' BOX.

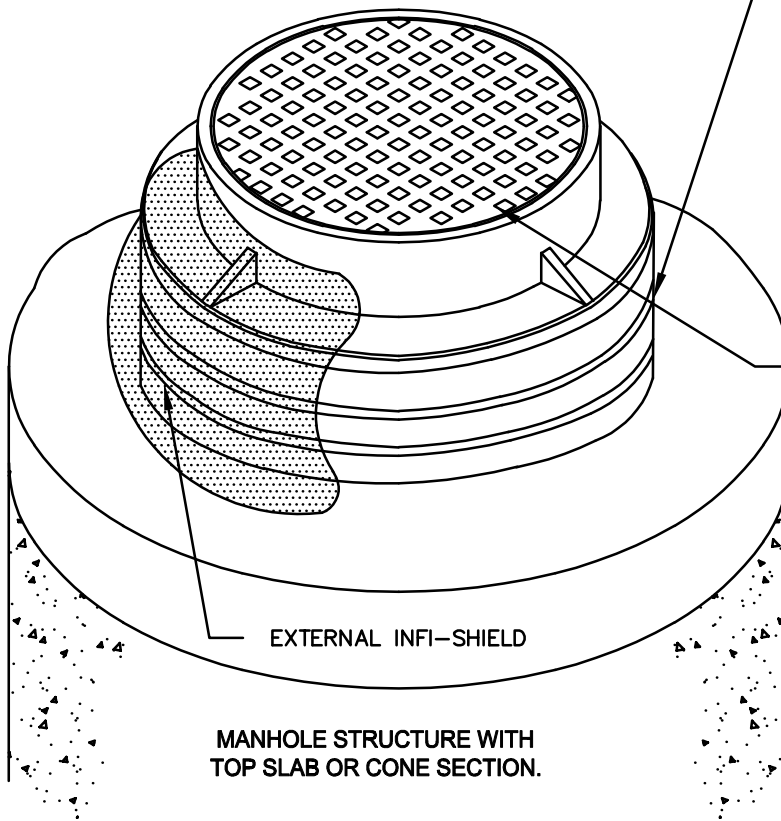
FRAME AND GRATE FOR BULKHEAD STYLE CURB SHALL
BE A NEENAH R-3067-V OR NEENAH R-3067-VB

FRAME AND GRATE FOR SURMOUNTABLE STYLE CURB
OR DRIVEWAYS SHALL BE A NEENAH R-3501-TR OR
R-3501-TL LOW POINTS 3501-TB

FRAME AND GRATE FOR OFF ROAD LOCATION (DITCH
GRATE, STOOL TYPE) R-4342

FRAME AND GRATE FOR BIKE LANE FACILITY SHALL BE
R-3295-2-(L OR R)

2 - #4 REBAR EMBEDDED IN THE CONCRETE COLLAR
AND THE CURB EXTENDED 10' BEYOND EACH SIDE OF
THE CASTING



MANHOLE STRUCTURE WITH
TOP SLAB OR CONE SECTION.

EXTERNAL INFI-SHIELD

CONCRETE ADJUSTING RINGS ARE REQUIRED.
CONCRETE ADJUSTMENT RINGS SHALL BE
SEALED TO THE CASTING, AND ONE ANOTHER
BY USING A PREPACKAGED MOTOR MIX.
CONTRACTOR WILL INSTALL MINIMUM NUMBER
OF CONCRETE RINGS BY THE USE OF 2", 6"
OR 1' ADJUSTING RINGS. THE MAXIMUM
HEIGHT OF RINGS IS 2' AND MINIMUM HEIGHT
IS 4".

SANITARY SEWER
NEENAH MANHOLE FRAME ANDCASTING R-1733,
SELF SEALING B LID, WITH SOLID COVER
AND TWO CONCEALED PICK HOLES OR
APPROVED EQUAL. LID SHALL BE LABELED
"SANITARY SEWER" WITH 2" RAISED
LETTERS

STORM SEWER
ALL MANHOLES WITH FRAME AND LID IN A PAVED
AREA SHALL USE A NEENAH R-1733 WITH
SOLID B LID WITH 2 CONCEALED PICK
HOLES OR APPROVED EQUAL. LID SHALL
BE LETTERED "STORM SEWER" WITH 2"
RAISED LETTERS

ALL CASTINGS SET IN PAVED SURFACES SHALL BE
INSTALL $\frac{1}{4}$ " BELOW FINISHED PAVED
SURFACE



ADJUST FRAME & RING CASTING

STANDARD DETAILS

Date:

1/25/2023

Revised:

STM-11

INDEX

CITY
PLATE
NO.

SECTION 4 - STREET

STR-00	INDEX
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STR-02	STREET LAYOUT - URBAN RESIDENTIAL, SIDEWALK BOTH SIDES
STR-03	STREET LAYOUT - RURAL RESIDENTIAL
STR-04	CUL-DE-SAC LAYOUT - WITH ISLAND, NO SIDEWALK
STR-05	CUL-DE-SAC LAYOUT - NO ISLAND, WITH SIDEWALK
STR-06	CURB AND GUTTER
STR-07	CURB AND GUTTER TRANSITION
STR-08	CONCRETE VALLEY GUTTER
STR-09	RESIDENTIAL DRIVEWAY PLACEMENT
STR-10	CURB AND GUTTER REPLACEMENT - AT BITUMINOUS DRIVEWAY
STR-11	CURB AND GUTTER REPLACEMENT - AT CONCRETE DRIVEWAY
STR-12	CURB AND GUTTER REPLACEMENT - AT NON-DRIVEWAY
STR-13	CURB CUT
STR-14	CONCRETE DRIVEWAY APRON - COMMERCIAL
STR-15	CONCRETE DRIVEWAY APRON - RESIDENTIAL
STR-16	STREET LAYOUT - NEW DEVELOPMENT, SIDEWALK ONE SIDE
STR-17	STREET NAME BLADE INSTALLATION WITH TRAFFIC SIGN
STR-18	TRAFFIC SIGN INSTALLATION
STR-19	SQUARE TUBULAR SIGN POST BREAKAWAY
STR-20	BARRICADE



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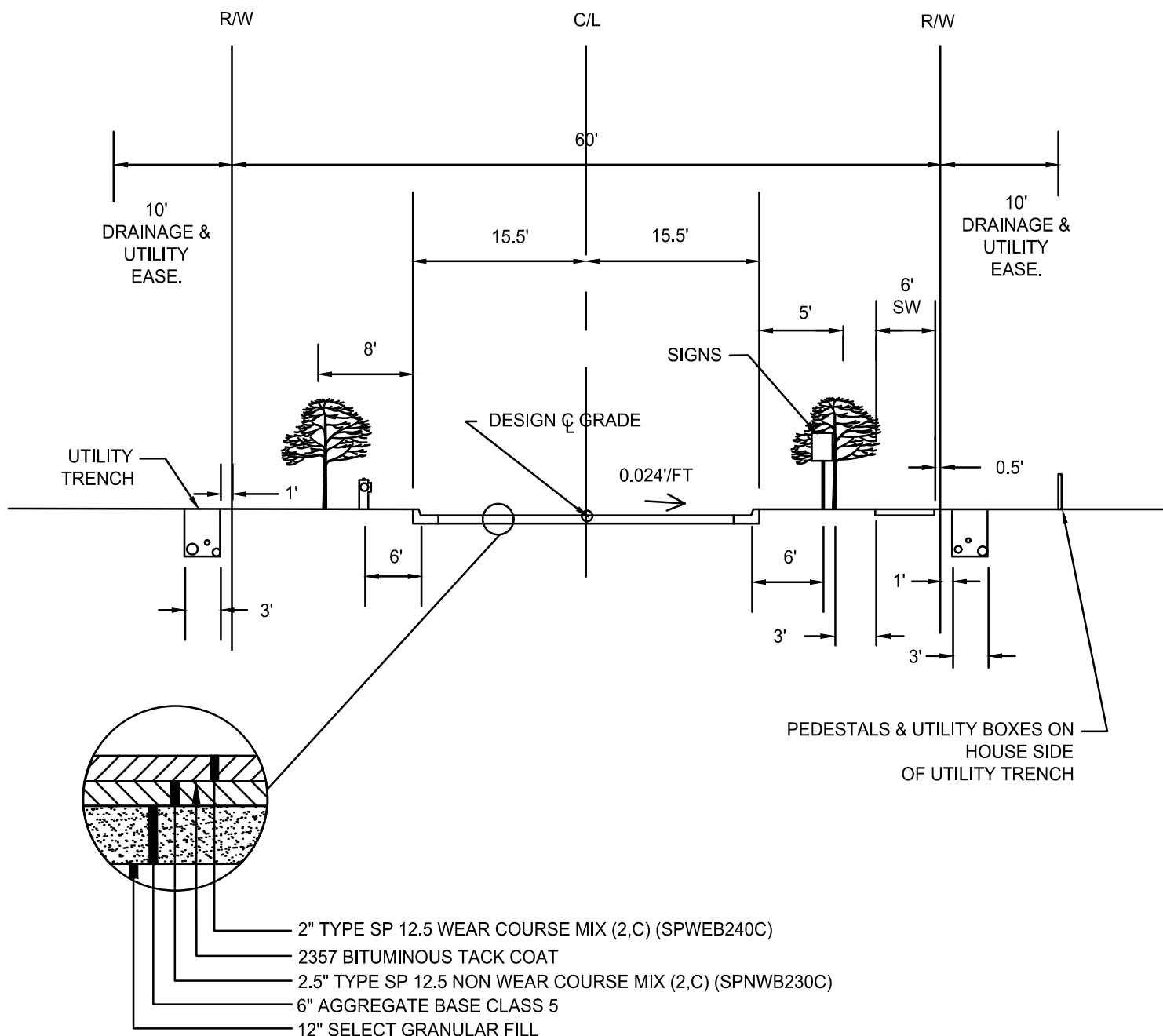
STANDARD DETAILS

Date:

01/12/2023

Revised:

STR-00



NOTES:

1. WHERE PATHWAYS ARE PROVIDED, INSTEAD OF SIDEWALKS, ADDITIONAL WIDTH MUST BE ADDED TO ACCOMMODATE THE PATH AND ALLOW 5' TO THE R/W FOR SNOW STORAGE.
2. 2% BOULEVARD CROSS-SLOPE WITHOUT SIDEWALK 5% BOULEVARD CROSS-SLOPE WITH SIDEWALK.
3. SIGNS, HYDRANTS, AND STREET LIGHTS AT 6' BEHIND FACE OF CURB.
4. ALL DIMENSIONS ARE FROM FACE OF CURB.

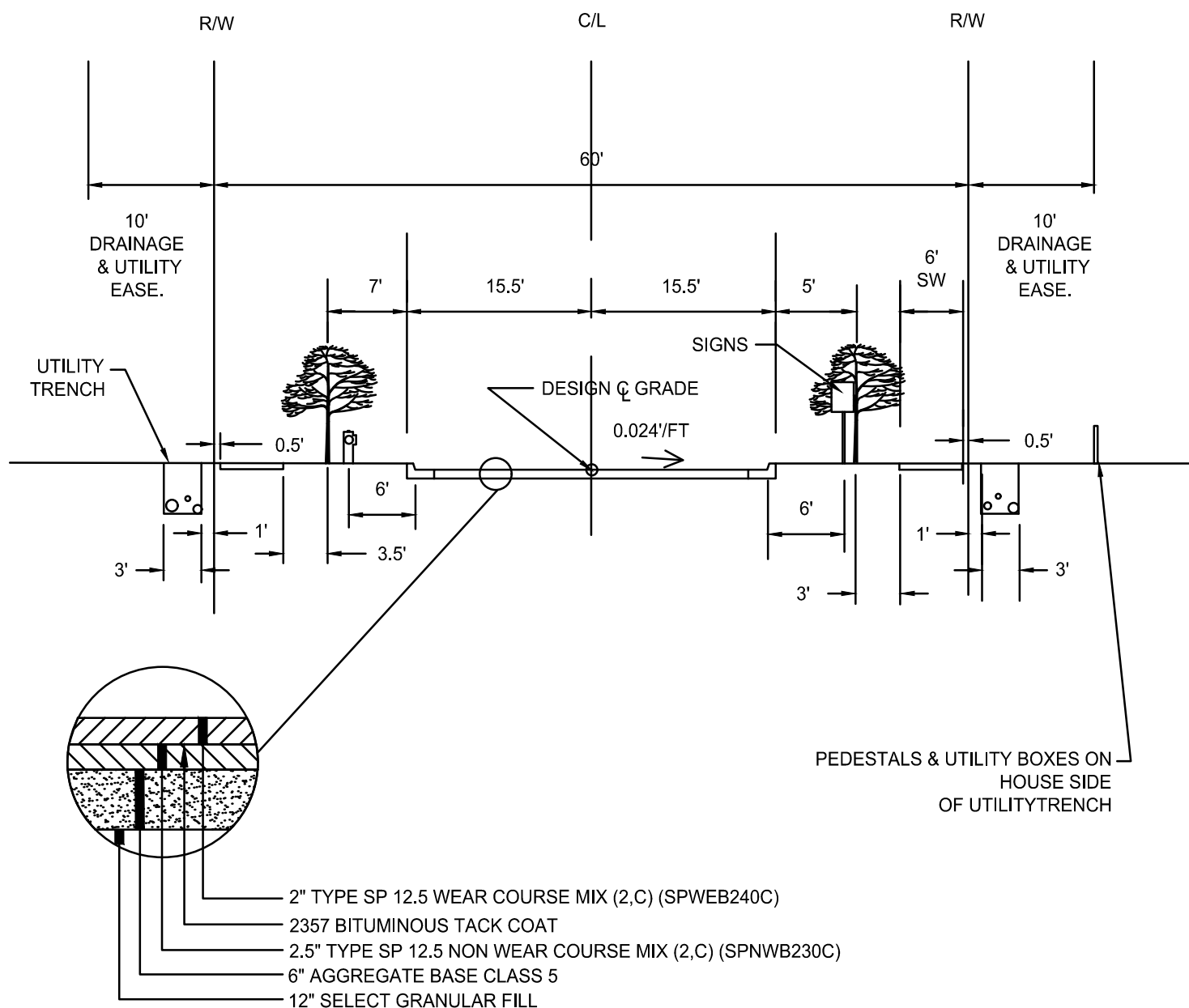


STREET LAYOUT - URBAN RESIDENTIAL, SIDEWALK ONE SIDE

STANDARD DETAILS

Date: 12/01/2020
Revised:

STR-01



NOTES:

1. WHERE PATHWAYS ARE PROVIDED, INSTEAD OF SIDEWALKS, ADDITIONAL WIDTH MUST BE ADDED TO ACCOMMODATE THE PATH AND ALLOW 5' TO THE ROW FOR SNOW STORAGE.
2. 2% BOULEVARD CROSS-SLOPE WITHOUT SIDEWALK 5% BOULEVARD CROSS-SLOPE WITH SIDEWALK.
3. SIGNS, HYDRANTS, AND STREET LIGHTS AT 6' BEHIND FACE OF CURB.
4. ALL DIMENSIONS ARE FROM FACE OF CURB.



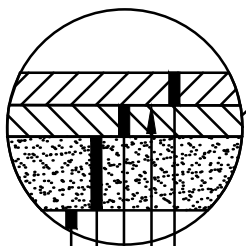
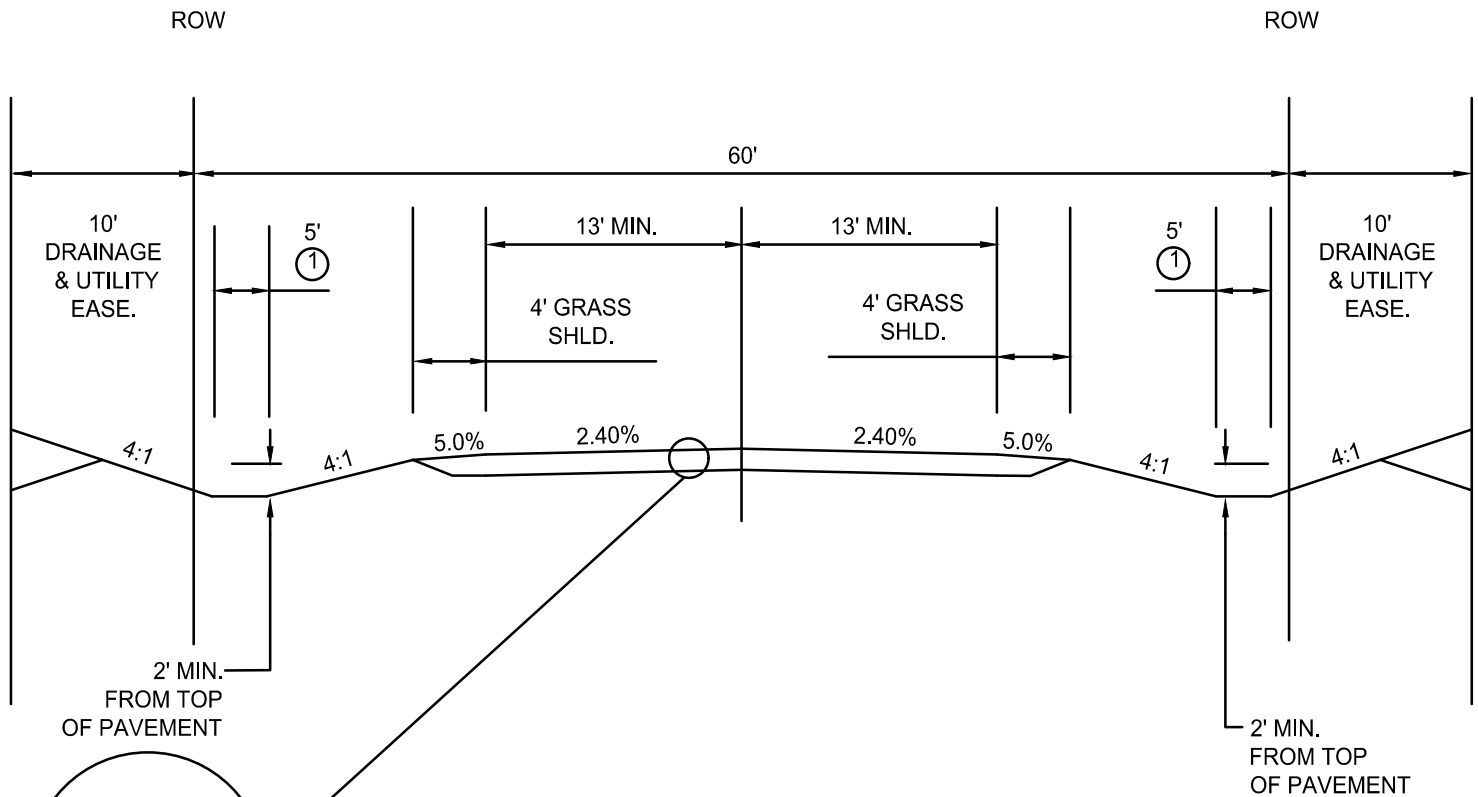
STREET LAYOUT - URBAN RESIDENTIAL, SIDEWALK BOTH SIDES

STANDARD DETAILS

Date: 12/01/2020

Revised:

STR-02



- 1.5" TYPE SP 12.5 WEAR COURSE MIX (2,C) (SPWEB240C)
- 2357 BITUMINOUS TACK COAT
- 2" TYPE SP 12.5 NON WEAR COURSE MIX (2,C) (SPNWB230C)
- 6" AGGREGATE BASE CLASS 5
- 12" SELECT GRANULAR FILL

① DITCH

NOTES/RECOMMENDATIONS

1. 7 TON ROAD DESIGN
2. DRIVEWAY CULVERTS SHALL BE MINIMUM 18" CMP, 30' LENTH WITH APRONS
(HOMEOWNER RESPONSIBLE FOR CULVERT MAINT, UNLESS PART OF CITY'S DRAINAGE SYSTEM).



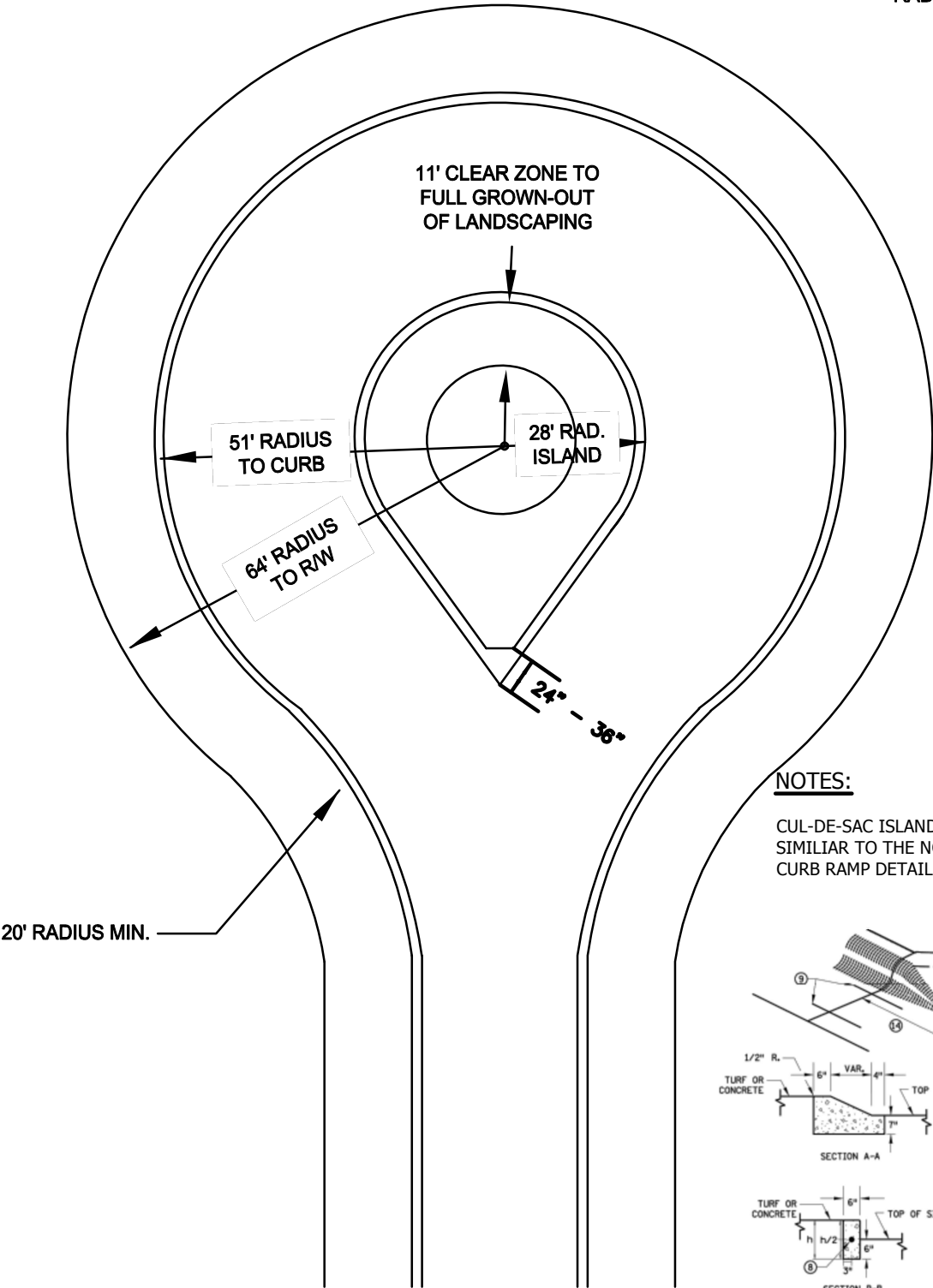
STREET LAYOUT - RURAL RESIDENTIAL

STANDARD DETAILS

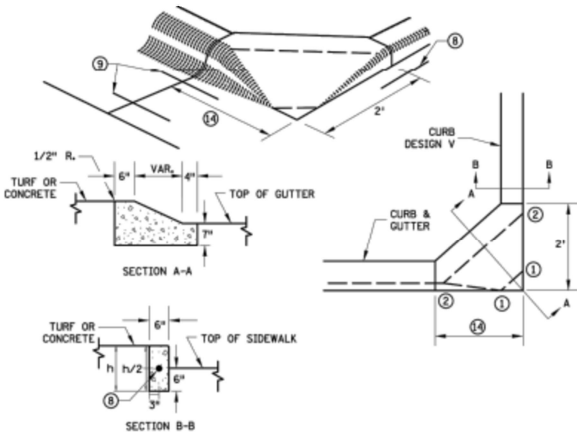
Date: 05/01/2020
Revised:

STR-03

NO CENTER ISLAND
46' RADIUS TO FACE OF CURB (60'
RADIUS TO RW)



NOTES:
CUL-DE-SAC ISLAND NOSE WILL BE CONSTRUCTED
SIMILIAR TO THE NOSE DETAIL IN MN/DOTS PEDESTRIAN
CURB RAMP DETAILS ON SHEET 4 OF 6. SEE BELOW

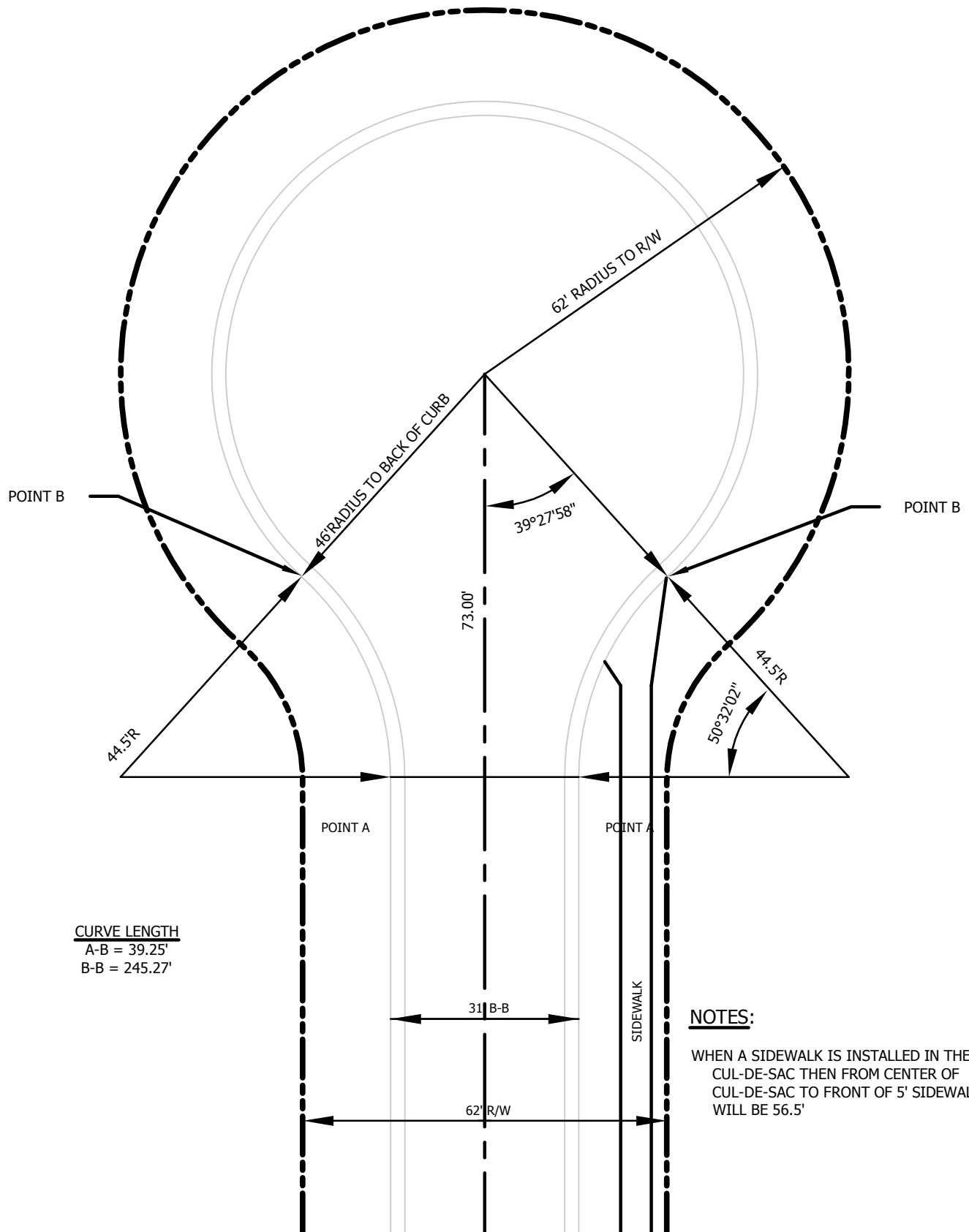


CUL-DE-SAC LAYOUT -
WITH ISLAND, NO
SIDEWALK

STANDARD DETAILS

Date:
1/13/2023
Revised:

STR-04



NOTES:

WHEN A SIDEWALK IS INSTALLED IN THE CUL-DE-SAC THEN FROM CENTER OF CUL-DE-SAC TO FRONT OF 5' SIDEWALK WILL BE 56.5'



**CUL-DE-SAC LAYOUT -
NO ISLAND, WITH
SIDEWALK**

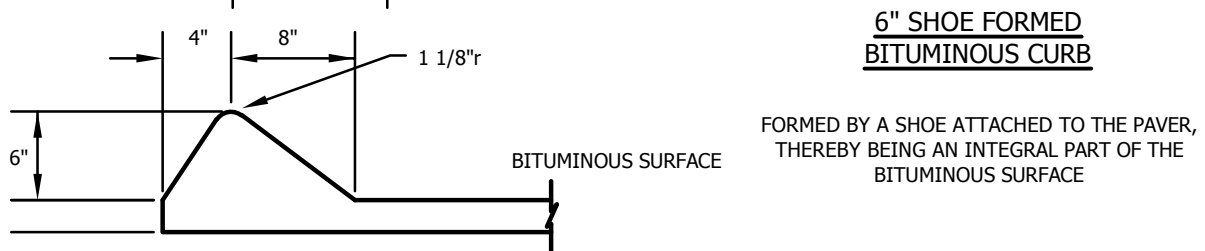
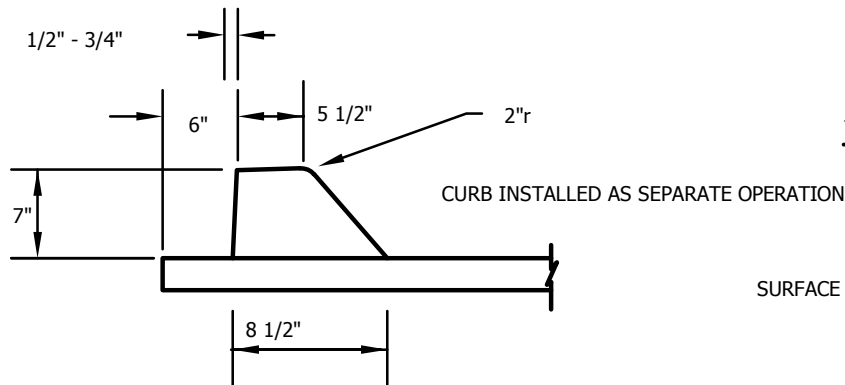
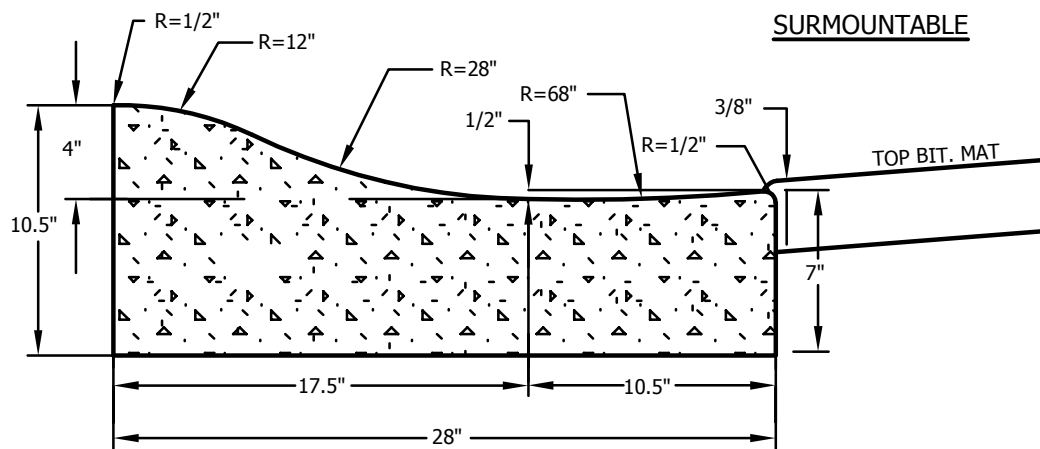
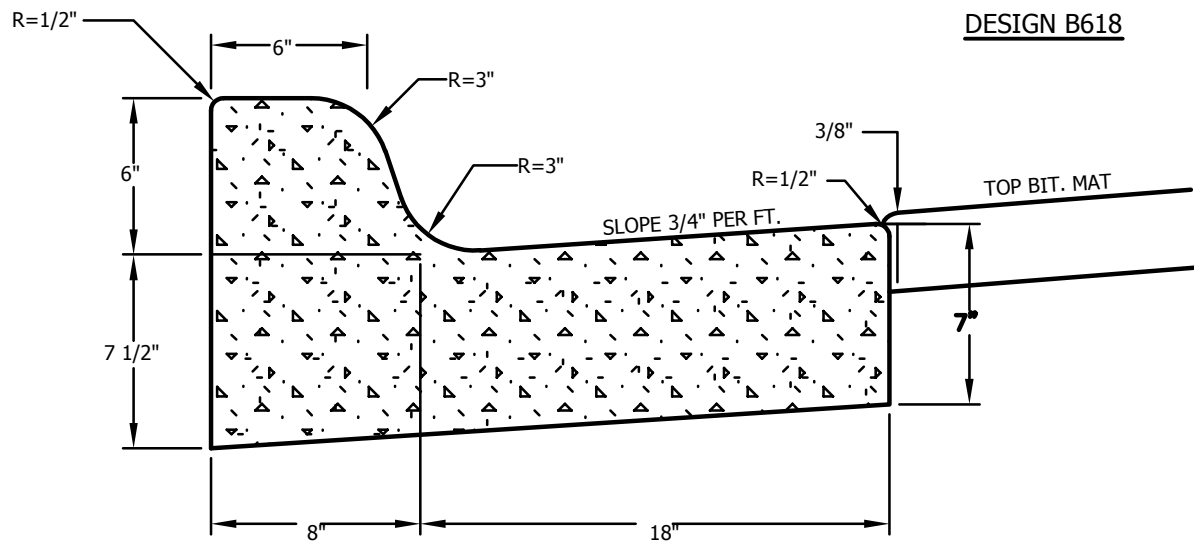
STANDARD DETAILS

Date:

1/13/2023

Revised:

STR-05

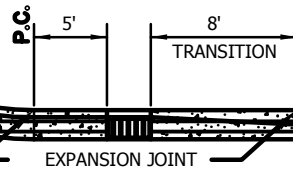


B618 CURB & GUTTER (TYP.)

15' RADIUS RESIDENTIAL
25' RADIUS COLLECTOR (TYP.)

CATCH BASIN AT P.C.

2 NO. 4 EPOXY
COATED SMOOTH
REBARS AT 6' LENGTH

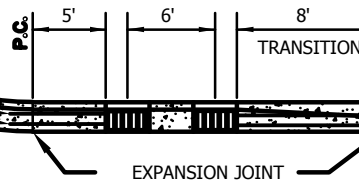


2 NO 4 EPOXY COATED
SMOOTH REBARS AT
10' LENGTH

SURMOUNTABLE
CURB & GUTTER
(TYP.)

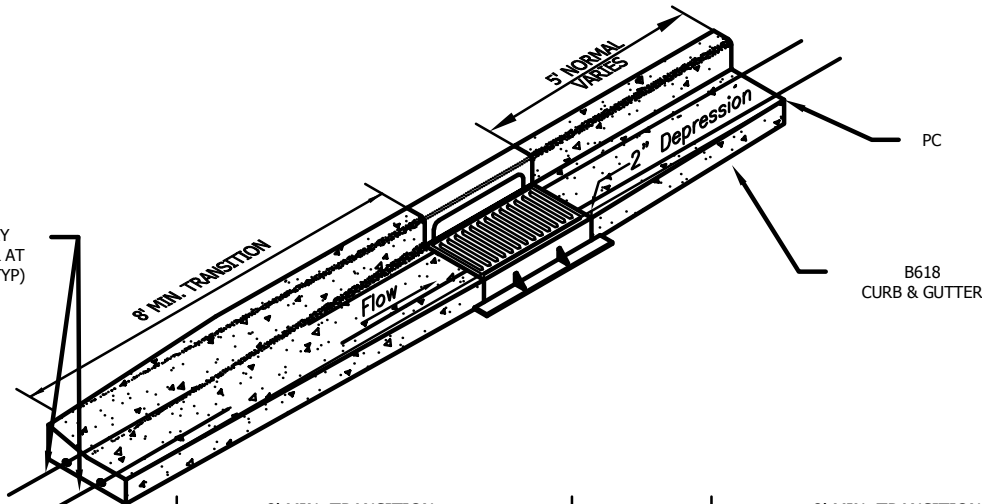
DOUBLE CATCH BASIN

2 NO. 4 EPOXY
COATED SMOOTH
REBARS AT 6' LENGTH

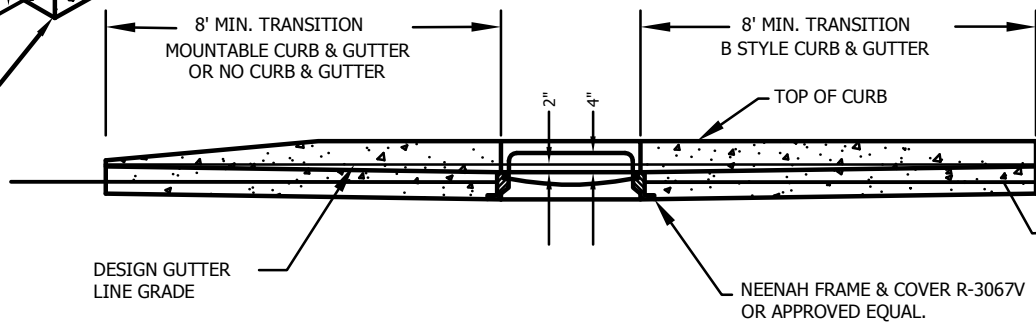


2 NO 4 EPOXY COATED
SMOOTH REBARS AT
10' LENGTH

2 NO. 4 EPOXY
COATED REBAR AT
10' LENGTHS (TYP)



SURMOUNTABLE
CURB & GUTTER



NOTES:

SECTION A-A

EXPANSION JOINT MATERIAL SHALL BE CLOSED CELL POLYETHYLENE

THE CONCRETE ADJUSTMENT RINGS SHALL BE SEALED TO THE CONE, CASTING AND ONE ANOTHER BY USING A PREPACKAGED MORTAR MIX IN ACCORDANCE WITH PROPORTIONS OF MNDOT SPECIFICATION 2506.2B AND ASTM C 270. THIS WILL ALSO BE USED FOR ALL "MUD WORK" INSIDE OF CONCRETE STRUCTURES



CURB AND GUTTER TRANSITION

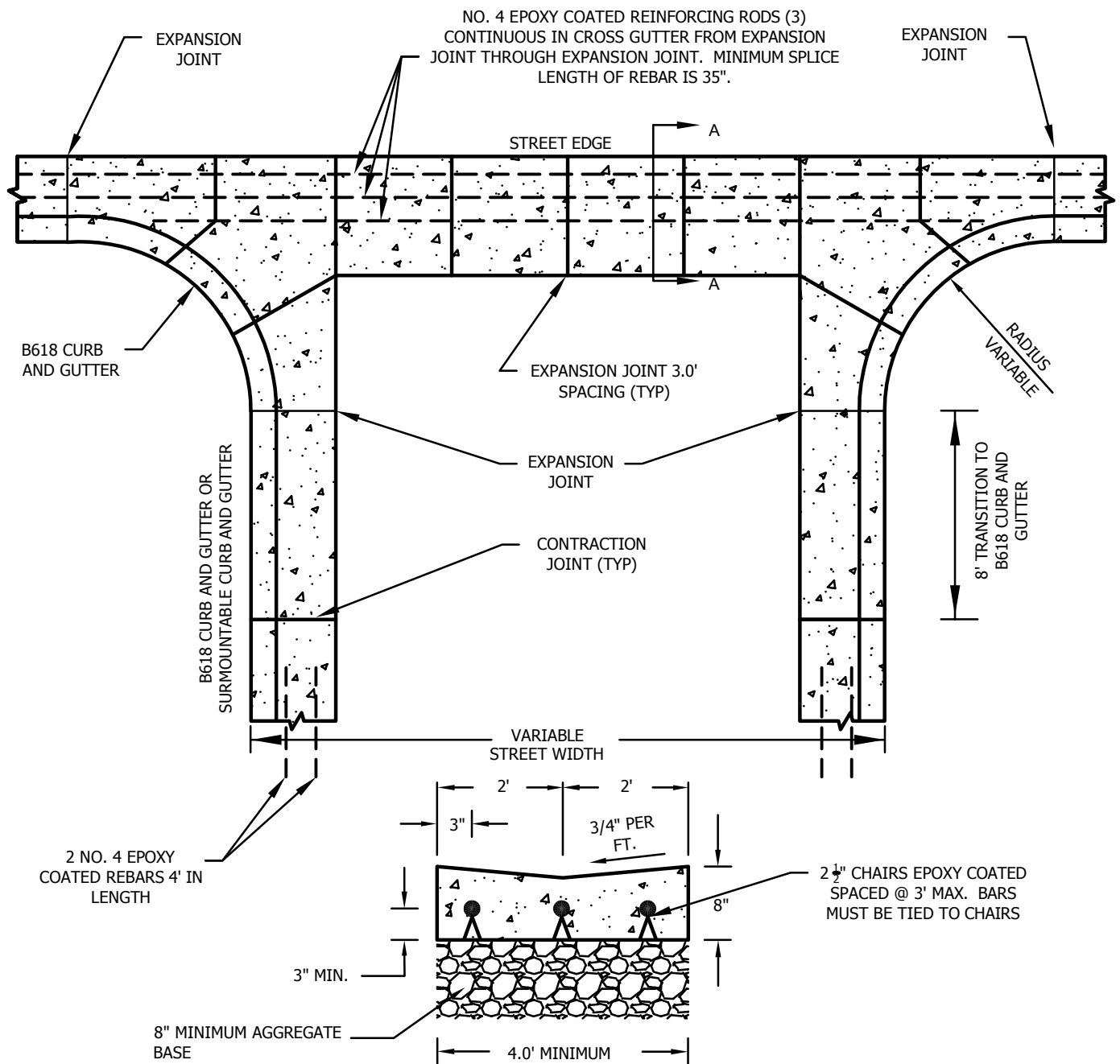
STANDARD DETAILS

Date:

1/16/2023

Revised:

STR-07



SECTION A-A

NOTES:

WHEN INSTALLING A VALLEY GUTTER NEXT TO EXISTING BITUMINOUS ROADWAY, THE CONTRACTOR MUST SAWCUT AND REPLACE A MINIMUM 18" STRIP OF STREET SECTION WITH THE SAME PAVEMENT TYPE TO MATCH EXISTING STREET SECTION

VALLEY GUTTER TO BE PAID BY THE SQUARE YARD FROM RADII TO RADII OF B618 CURB AND GUTTER

WHEN INSTALLING A VALLEY GUTTER OVER A CATCH BASIN USING NEENAH FRAME AND CASTING R-3290-A

EXPANSION JOINT MATERIAL SHALL BE CLOSED CELL POLYETHYLENE



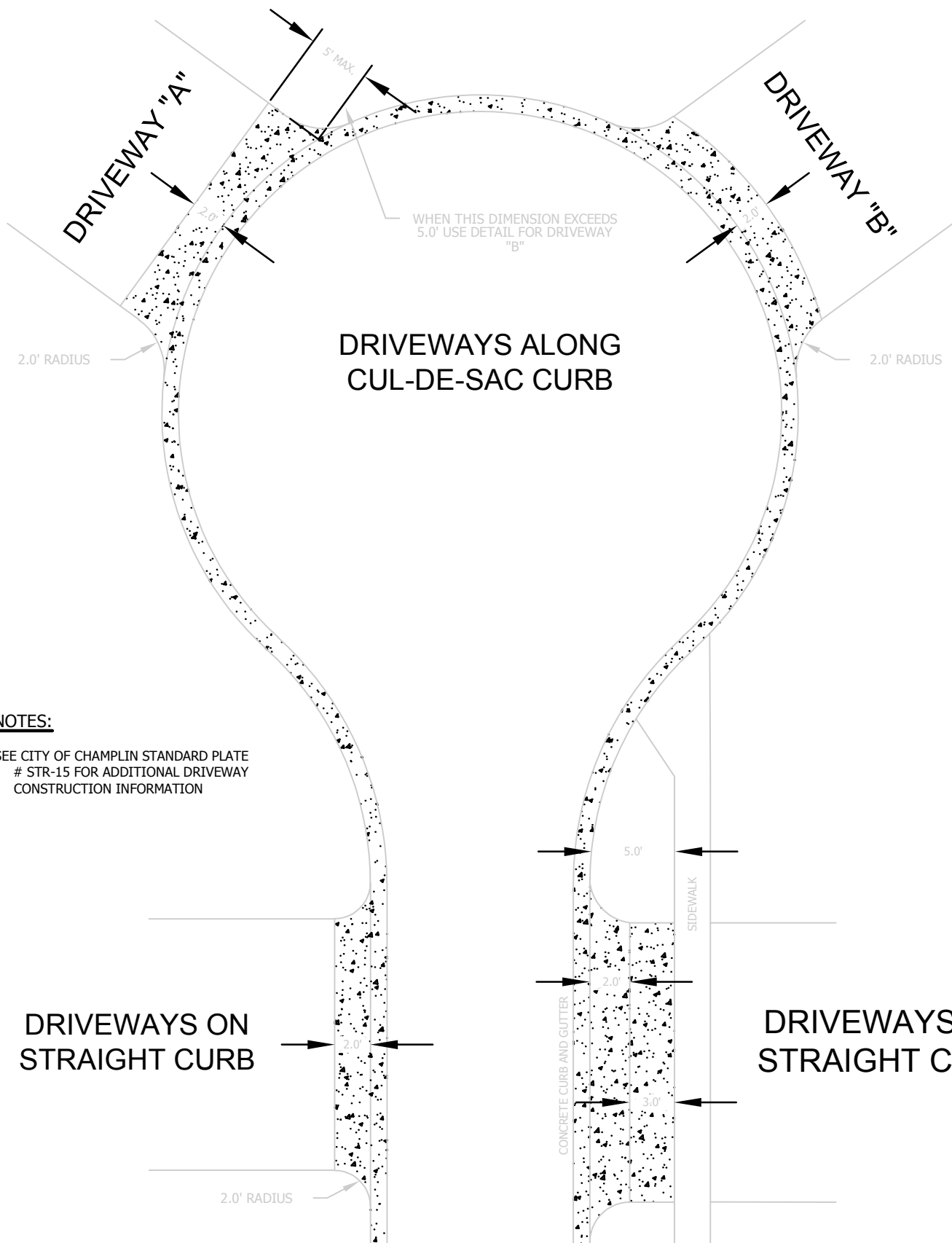
**CONCRETE VALLEY
GUTTER**

STANDARD DETAILS

Date:
1/20/2023

Revised:

STR-08



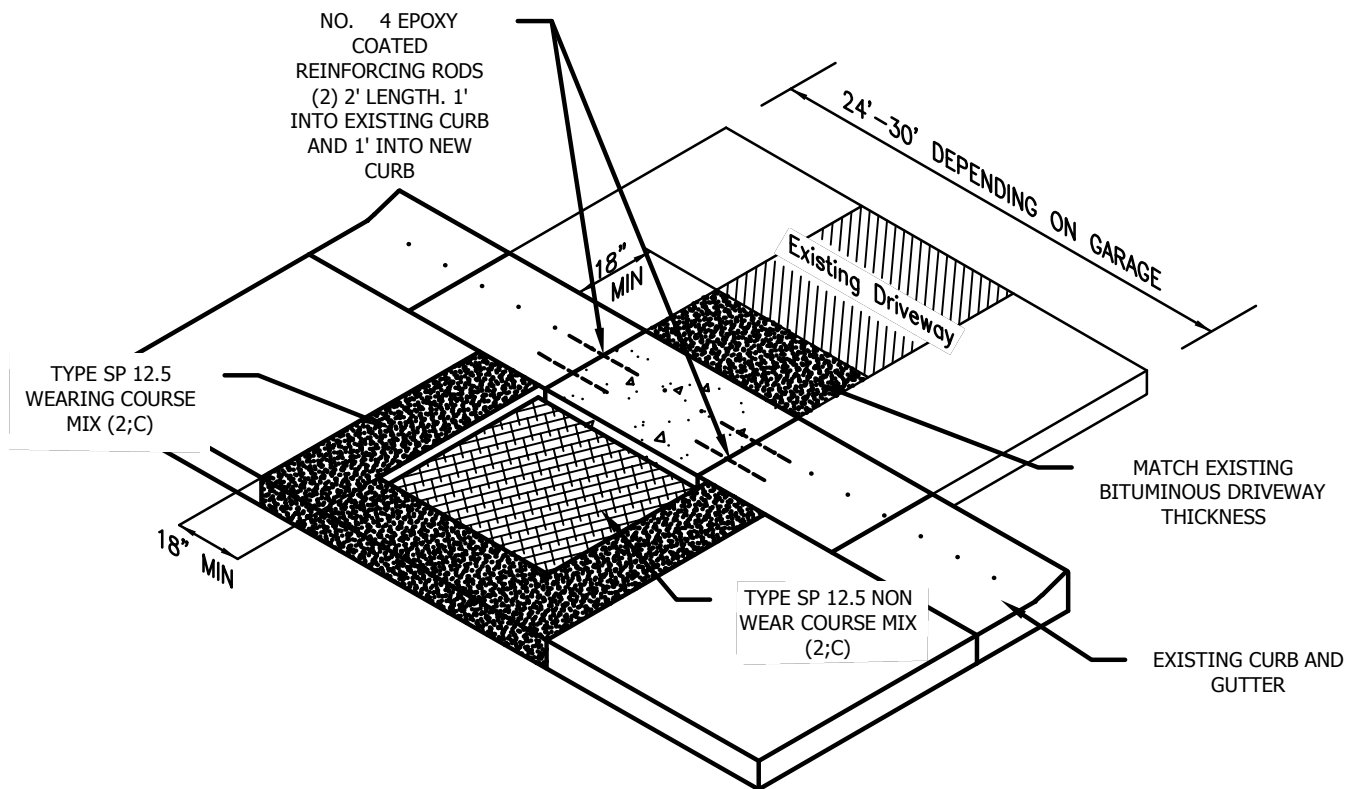
**RESIDENTIAL DRIVEWAY
PLACEMENTS ON CITY
STREETS AND
CUL-DE-SACS**

STANDARD DETAILS

Date:
1/13/2023

Revised:

STR-09

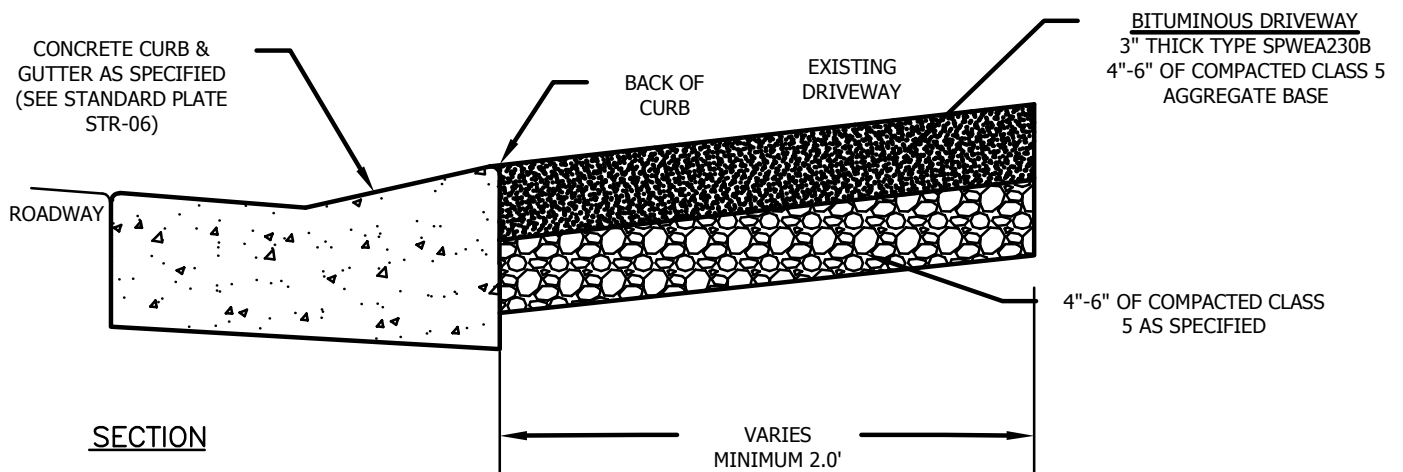


NOTES:

CONTRACTOR WILL REMOVE 18" MINIMUM OF BITUMINOUS PAVEMENT FROM EXISTING DRIVEWAY TO TIE CURB AND GUTTER IN. THIS WILL BE INSTALLED TO MATCH EXISTING PAVEMENT THICKNESS

CONTRACTOR WILL REMOVE AS MUCH PAVEMENT AS NECESSARY TO COMPLETE THE TASK.

CONTRACTOR WILL MILL 2" OFF EXISTING WEAR COURSE AT A MINIMUM OF 18" WIDE AROUND ALL SIDE OF EXCAVATION AND PATCH WITH WEAR COARSE



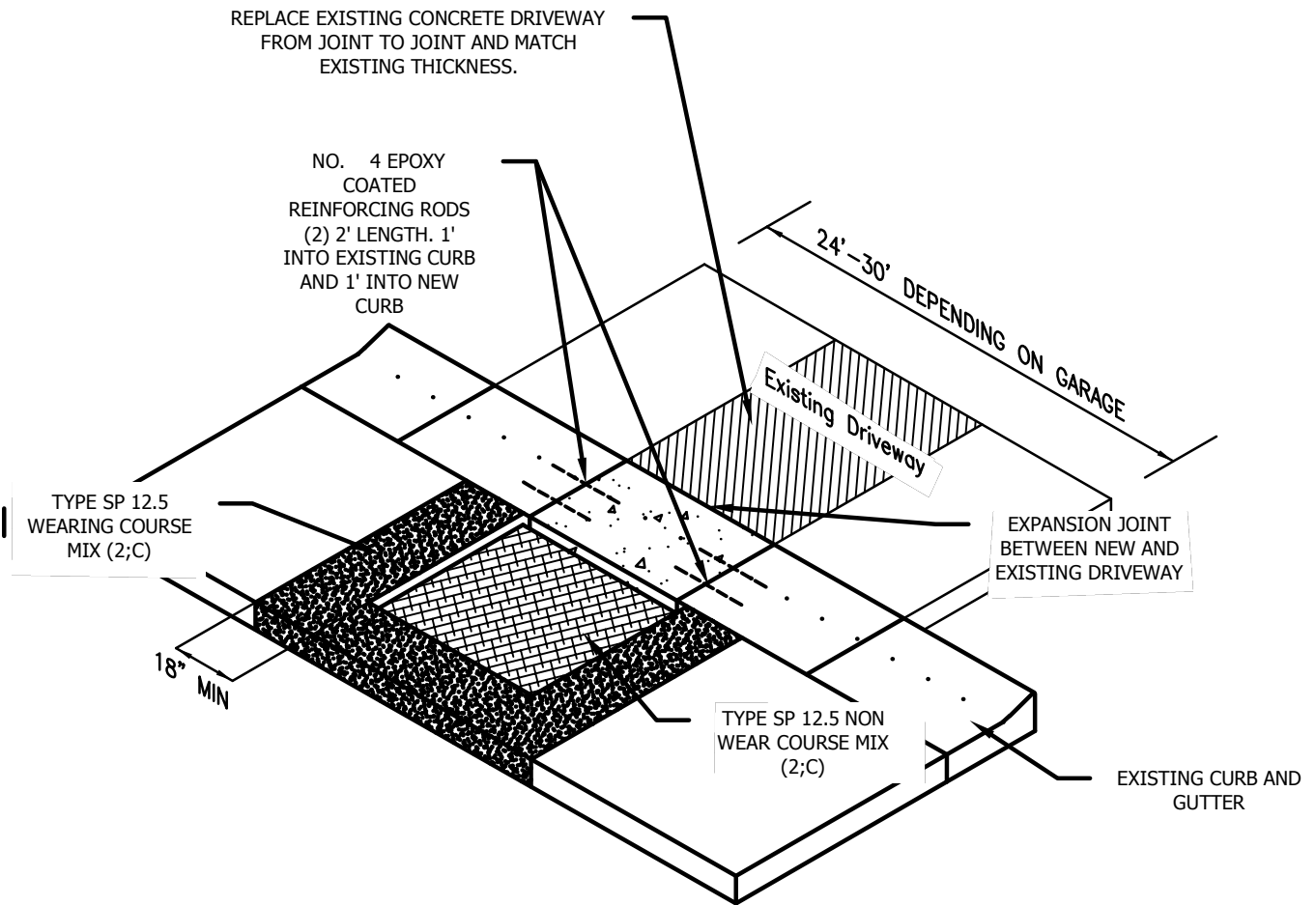
**CURB AND GUTTER
REPLACEMENT - AT
BITUMINOUS DRIVEWAY**

STANDARD DETAILS

Date: 1/20/2023

Revised:

STR-10



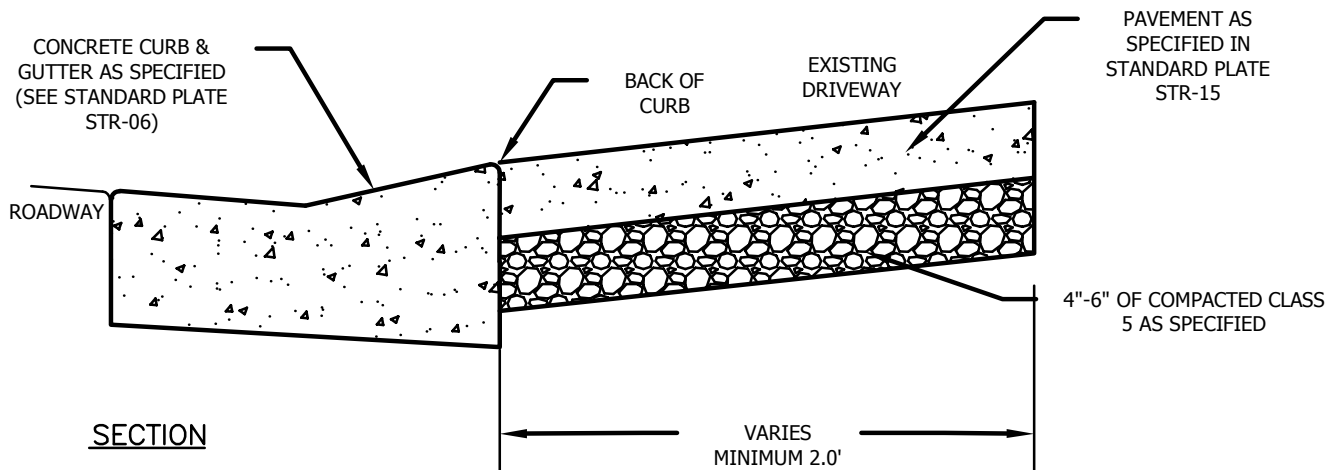
NOTES:

EXPANSION JOINT MATERIAL SHALL BE CLOSED CELL POLYETHYLENE

IF EXISTING CONCRETE DRIVEWAY IS 4" THICK THEN CONTRACTOR WILL TIE NEW PANEL INTO EXISTING PANEL WITH #4 REBAR

CONTRACTOR WILL REMOVE AS MUCH PAVEMENT AS NECESSARY TO COMPLETE THE TASK.

CONTRACTOR WILL MILL 2" OFF EXISTING WEAR COURSE AT A MINIMUM OF 18" WIDE AROUND ALL SIDE OF EXCAVATION AND PATCH WITH WEAR COARSE

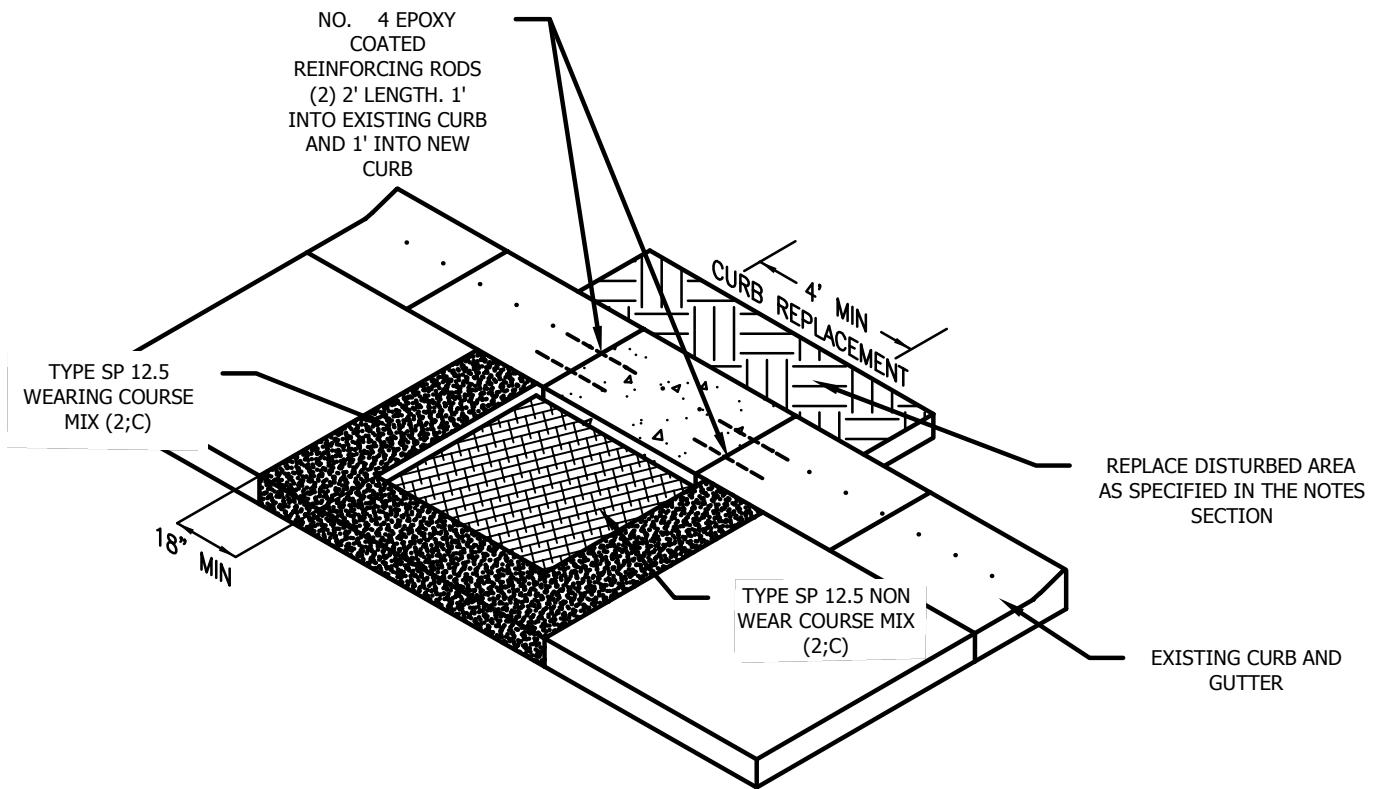


CURB AND GUTTER REPLACEMENT - AT CONCRETE DRIVEWAY

STANDARD DETAILS

Date: 1/20/2023
Revised:

STR-11



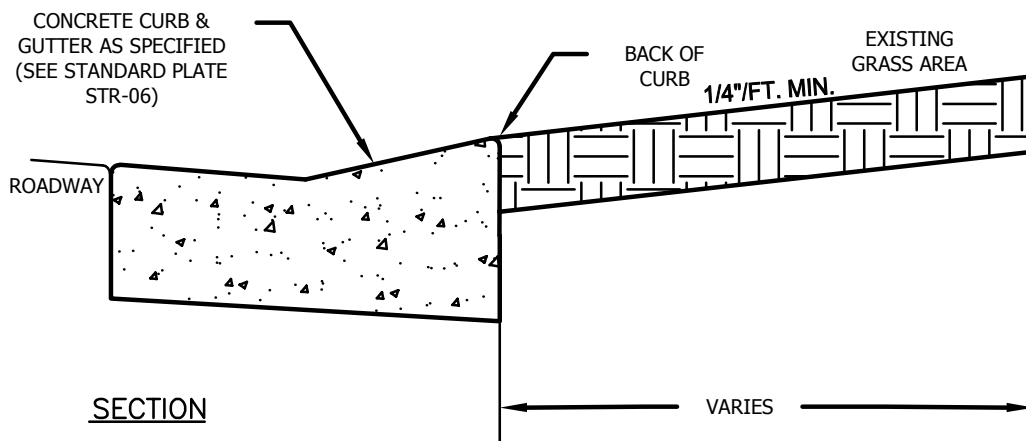
NOTES:

IF DISTURBED AREA IS LESS THAN 2'X2' THEN THE CONTRACTOR SHALL REPLACE WITH A SEED MIX THAT MATCHES EXISTING. IF AREA IF LARGER THEN A 2'X2' THEN CONTRACTOR SHALL REPLACE WITH KENTUCKY BLUEGRASS SOD.

DISTURBED AREA WILL BE REPLACED WITH 4" OF PULVERIZED BLACK DIRT

CONTRACTOR WILL REMOVE AS MUCH PAVEMENT AS NECESSARY TO COMPLETE THE TASK.

CONTRACTOR WILL MILL 2" OFF EXISTING WEAR COURSE AT A MINIMUM OF 18" WIDE AROUND ALL SIDE OF EXCAVATION AND PATCH WITH WEAR COARSE



SECTION

VARIES



CURB AND GUTTER REPLACEMENT - AT NON - DRIVEWAY

STANDARD DETAILS

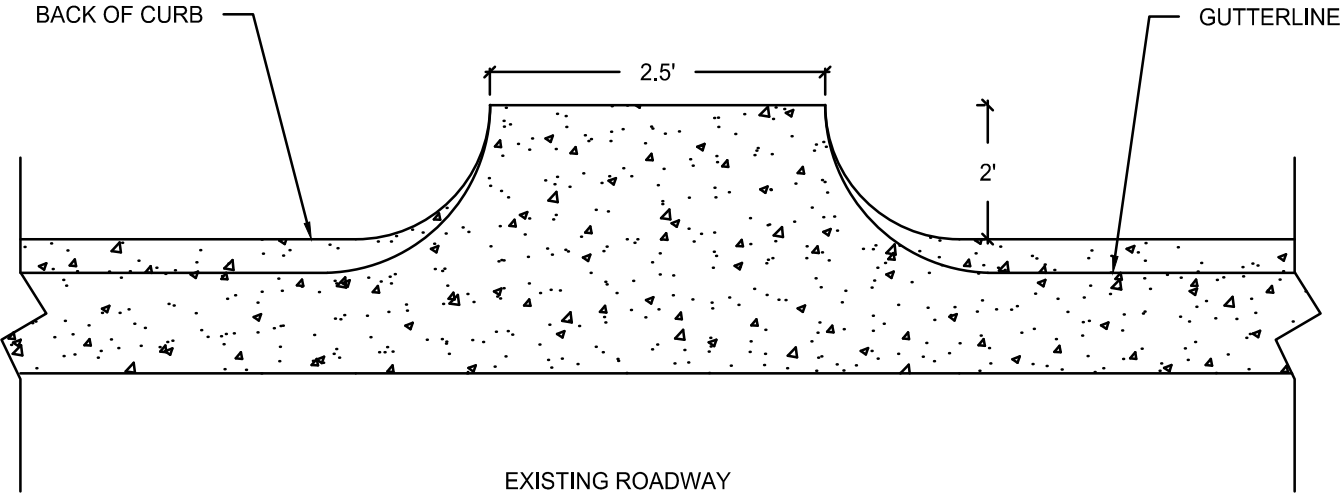
Date:

1/20/2023

Revised:

STR-12

DRAIN TO PERVIOUS SURFACE (RAIN GARDEN, YARD, ETC).
SEE PLANS FOR MORE INFORMATION



CURB CUT

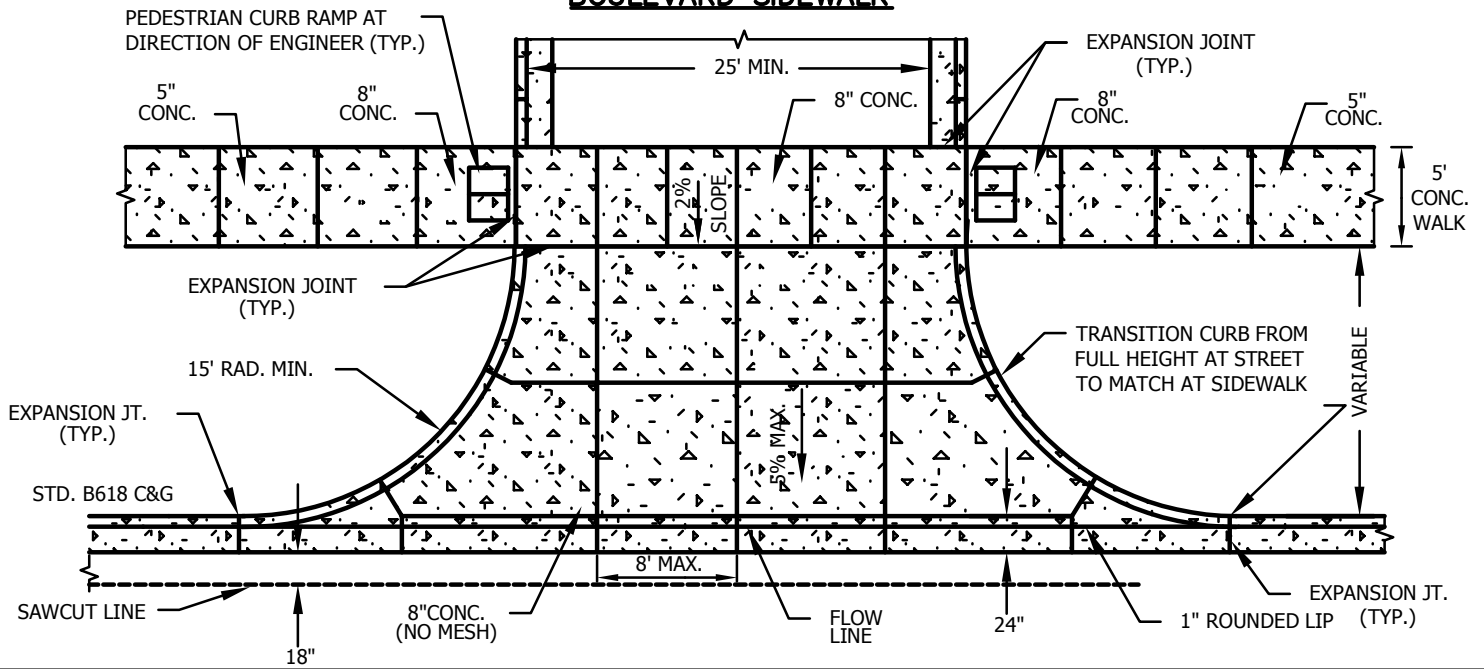
STANDARD DETAILS

Date:
12/14/2020

Revised:

STR-13

COMMERCIAL DRIVEWAY WITH BOULEVARD SIDEWALK



NOTES:

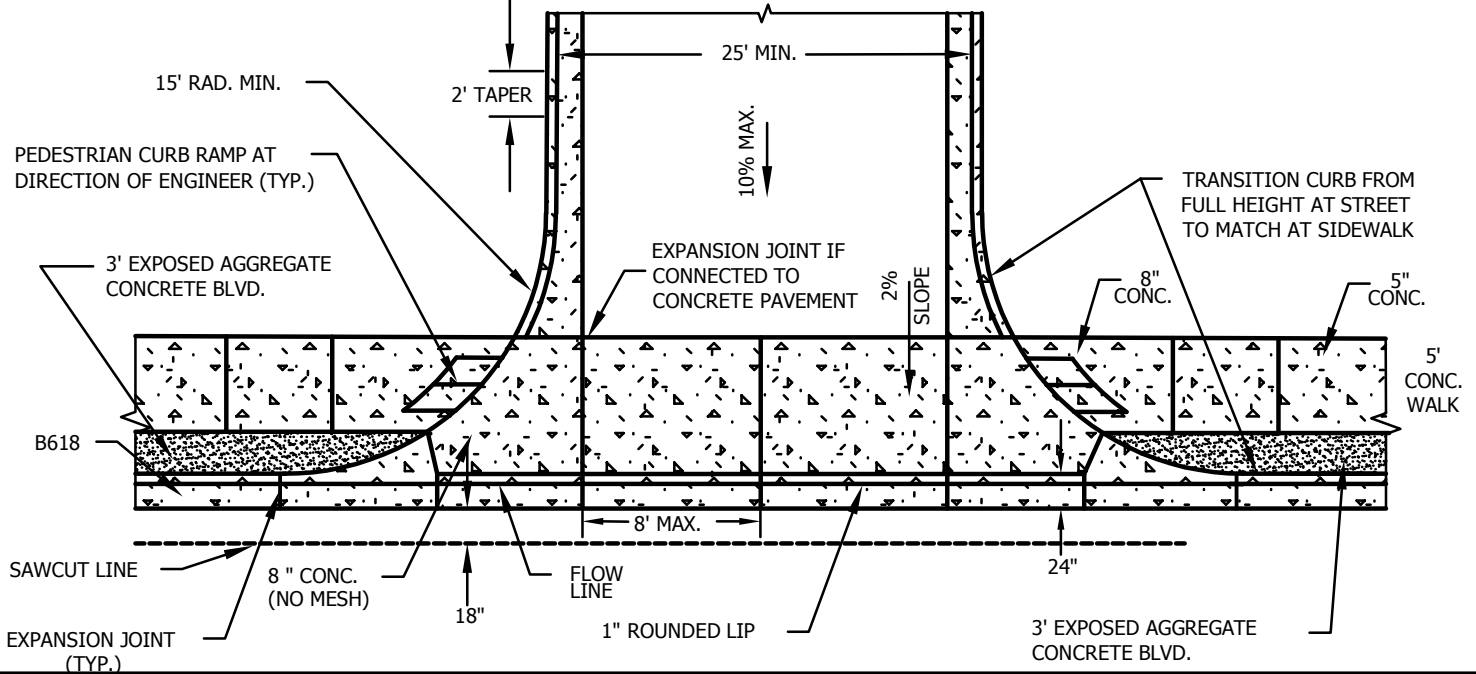
FORM CONTRACTION JOINT AS NEEDED TO PRODUCE APPROXIMATELY SQUARE PANELS (MAX. AREA OF 64 S.F.)

8" CLASS 5 BASE UNDER ALL CONCRETE

4" BIT PAVEMENT IN 2 - 2" LIFTS OR MATCH EXISTING THICKNESS ON CITY STREET OF PROPERTY

EXPANSION JOINT MATERIAL SHALL BE CLOSED CELL POLYETHYLENE

COMMERCIAL DRIVEWAY WITH SIDEWALK



COMMERCIAL CONCRETE DRIVEWAY APRON

STANDARD DETAILS

Date:

1/20/2023

Revised:

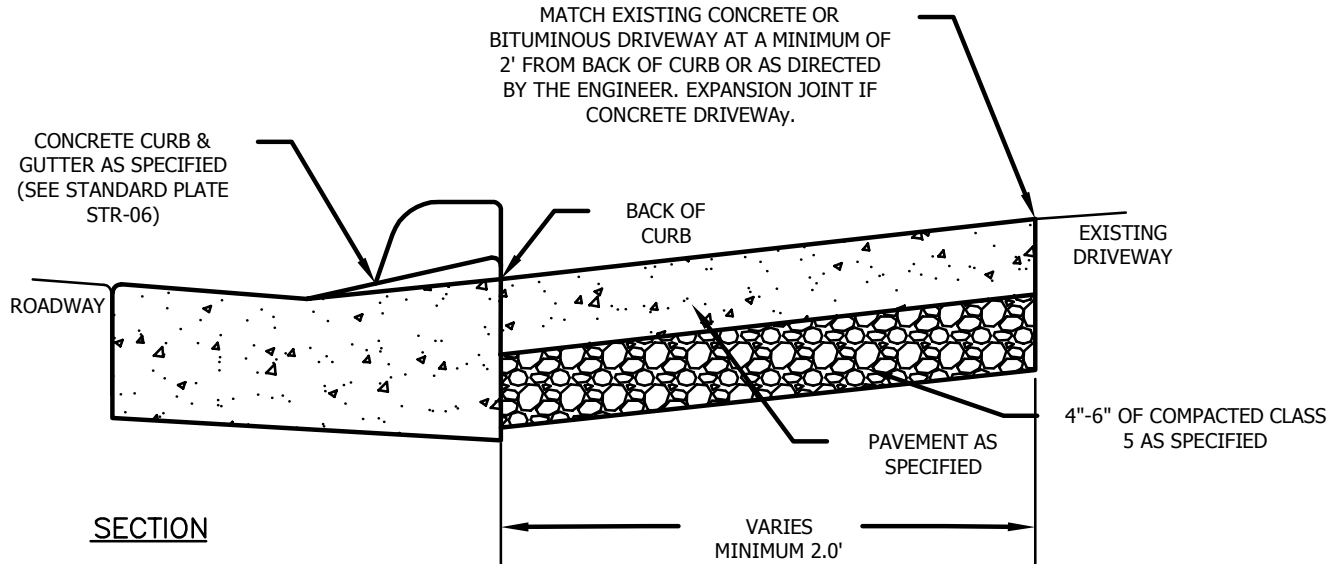
STR-14

CONCRETE

6" THICK (RESIDENTIAL) OR
8" THICK (COMMERCIAL)
6" OF COMPACTED CLASS 5 AGGREGATE
BASE

BITUMINOUS DRIVEWAY

3" THICK TYPE SPWEA230B
4"-6" OF COMPACTED CLASS 5
AGGREGATE BASE



SECTION

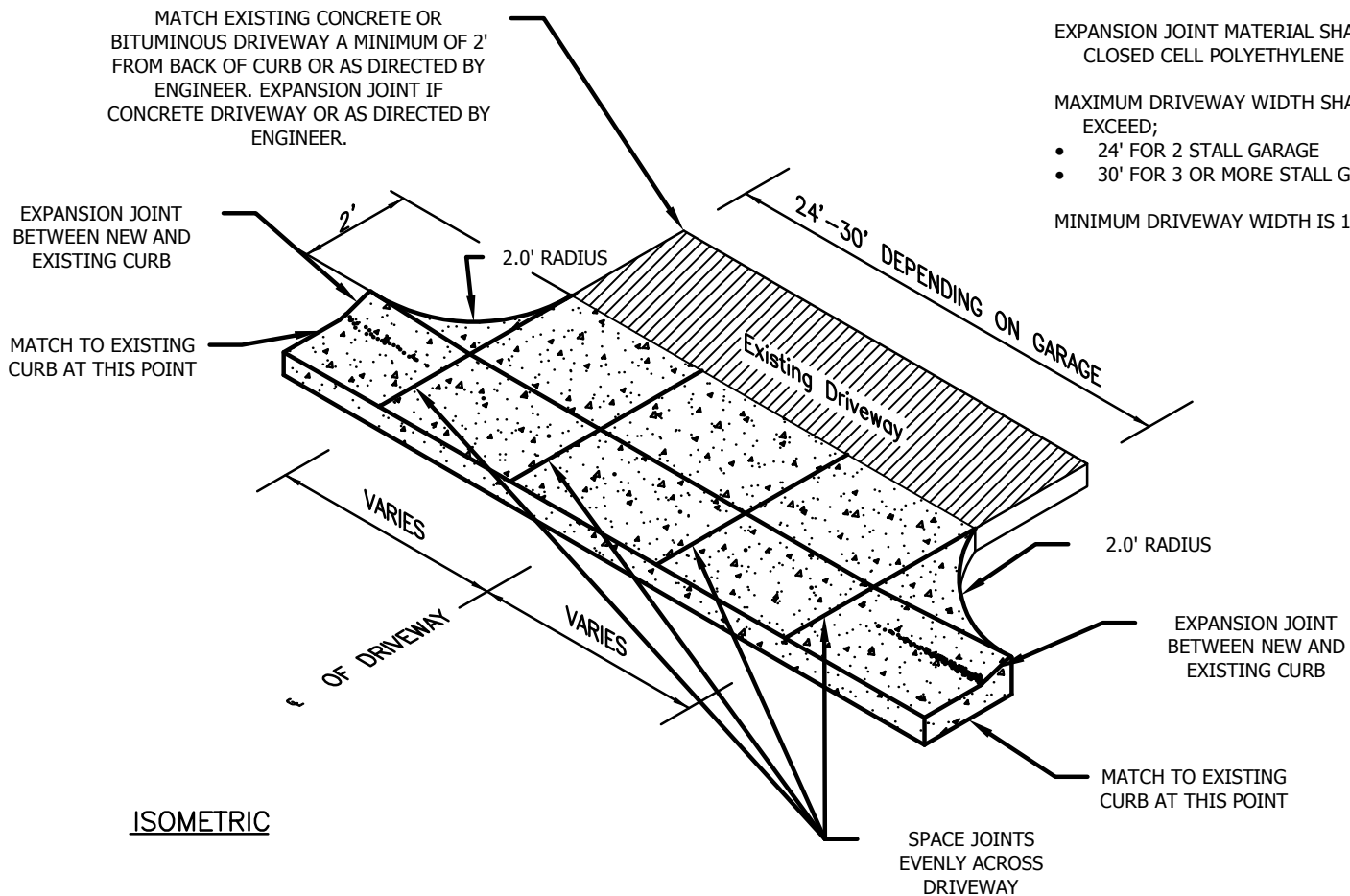
NOTES:

EXPANSION JOINT MATERIAL SHALL BE
CLOSED CELL POLYETHYLENE

MAXIMUM DRIVEWAY WIDTH SHALL NOT
EXCEED;

- 24' FOR 2 STALL GARAGE
- 30' FOR 3 OR MORE STALL GARAGE

MINIMUM DRIVEWAY WIDTH IS 12'



ISOMETRIC



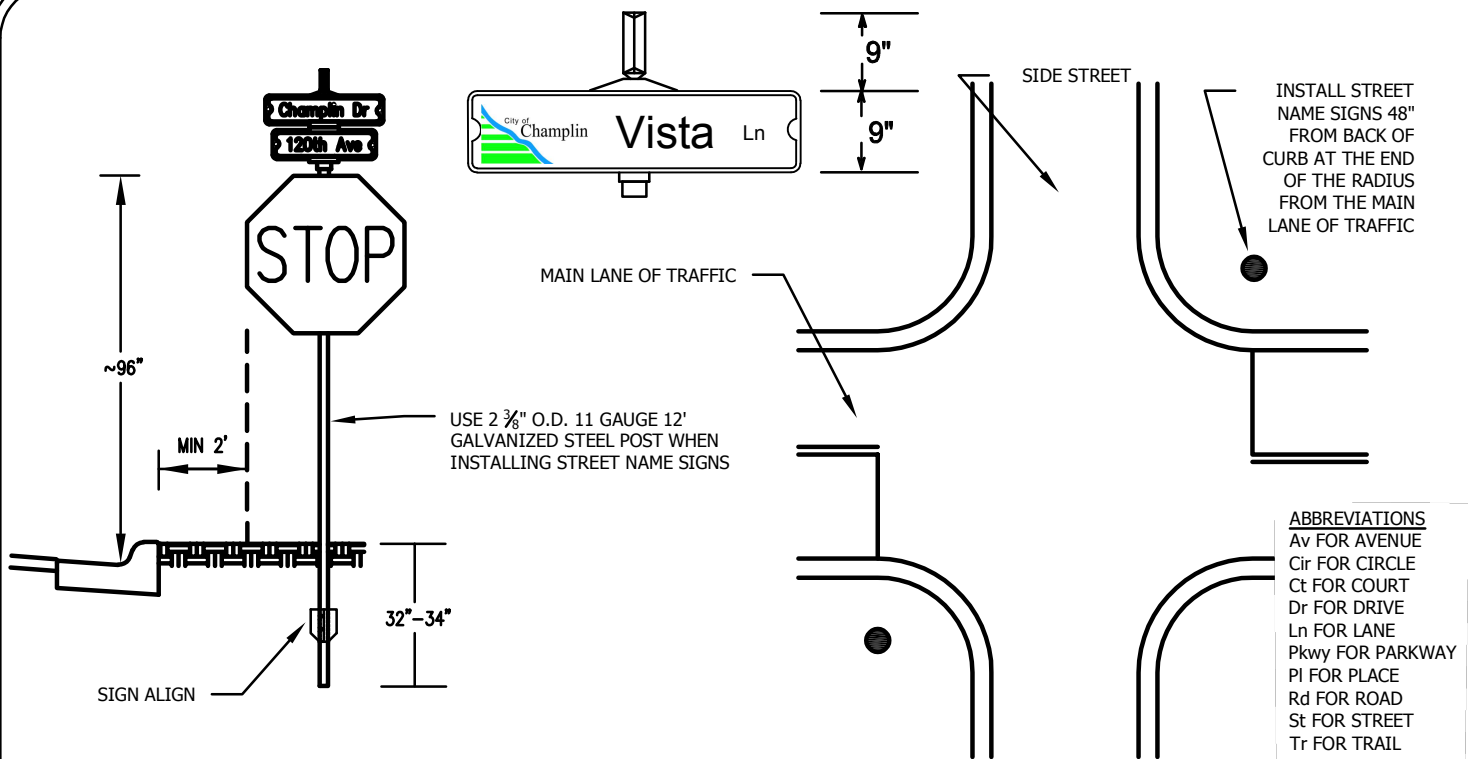
**CONCRETE DRIVEWAY
APRON - RESIDENTIAL**

STANDARD DETAILS

Date:
02/01/2022

Revised:

STR-15



BLADE SPECIFICATION -

- ALUMINUM BLANKS SHALL BE CONSTRUCTED OF 052-H38 ALLOY
- HAVE A GAUGE OF .080
- BE NOTCHED FOR USE WITH E-450 BRACKETS
- HAVE HOLES PUNCHED AT EACH END FOR BOLTING TOGETHER AND BE 9" AS REQUIRED
- BLANKS SHALL HAVE 1 1/2" ROUND CORNERS.
- LETTERING
 - SERIES C
 - SIZE - 6" UPPER CASE, 4" LOWER CASE, 3" FOR ABBREVIATIONS
- 3M DIAMOND GRADE DG3 REFLECTIVE SHEETING
- WHITE ON MNDOT GREEN BACKGROUND WITH WHITE TRIM FOR PUBLIC STREETS
- WHITE ON MNDOT BROWN BACKGROUND WITH WHITE TRIM FOR PRIVATE STREETS
- FIRST LETTER OF EACH WORD TO BE "CAPITAL" LETTERS; REMAINING LETTERS OF EACH WORD TO BE LOWER CASE
- MAXIMUM OF 2 STREET NAME BLADES PER POLE, IF MORE STREET NAME BLADES ARE REQUIRED. CONTRACTOR WILL NEED TO INSTALL ANOTHER POLE ON OPPOSITE CORNER
- ALWAYS INSTALL THE CROSS STREET NAME BLADE ON THE BOTTOM

NOTES:

ALL REGULATORY AND STREET SIGNS MUST BE MAINTAINED THROUGHOUT CONSTRUCTION. TEMPORARY SIGNAGE MAY BE REQUIRED AND IS CONSIDERED INCIDENTAL.

ALL IN-PLACE SIGNS NOT SHOWN IN PLANS SHALL BE MAINTAINED IN-PLACE THROUGHOUT CONSTRUCTION, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

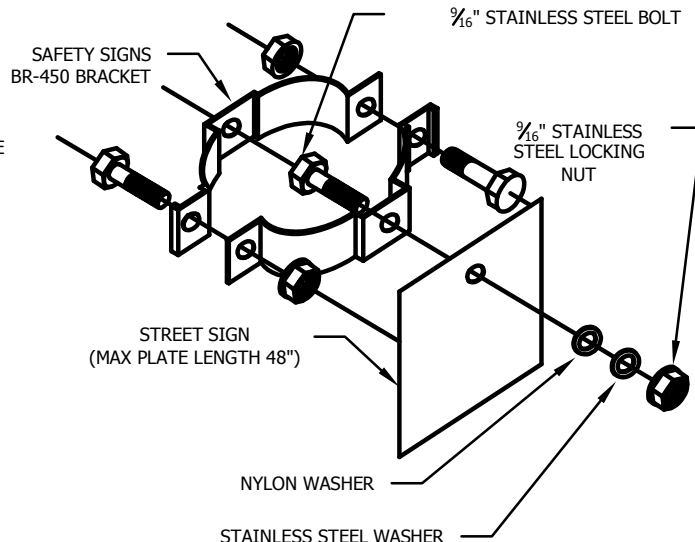
LOCATION OF ALL PROPOSED SIGNS ARE APPROXIMATE AND SHALL BE LOCATED BY THE ENGINEER IN THE FIELD PRIOR TO INSTALLATION.

SIGN PANELS-REFLECTIVE SHEETING WILL BE DG3 MATERIAL.

ALL TYPE C SIGN PANELS SHALL BE SUPPLIED AND INSTALLED BY THE CONTRACTOR. THE CONTRACTOR SHALL PROVIDE THE SIGN, SIGN POST, MOUNTING HARDWARE, SIGN AND LABOR FOR THE INSTALLATION OF ALL TYPE C SIGNS.

WHEN CONTRACTOR IS INSTALLING TYPE C SIGNS THEY MUST USE A E-450 BRACKET

A SIGN PLAN SHOWING SIGN COLORS, SIZES AND LETTERING MUST BE SUBMITTED TO THE CITY OF CHAMPLIN ENGINEERING DEPARTMENT FOR REVIEW AND APPROVAL PRIOR TO SIGN INSTALLATION.



STREET NAME BLADE INSTALLATION WITH TRAFFIC SIGN

STANDARD DETAILS

Date:

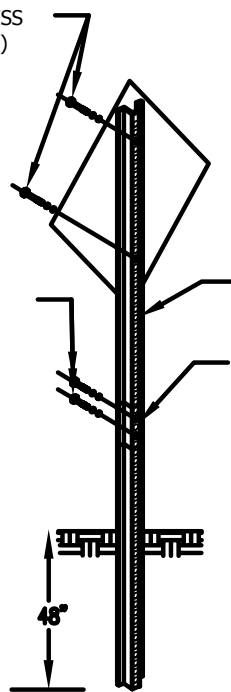
1/20/2023

Revised:

STR-17

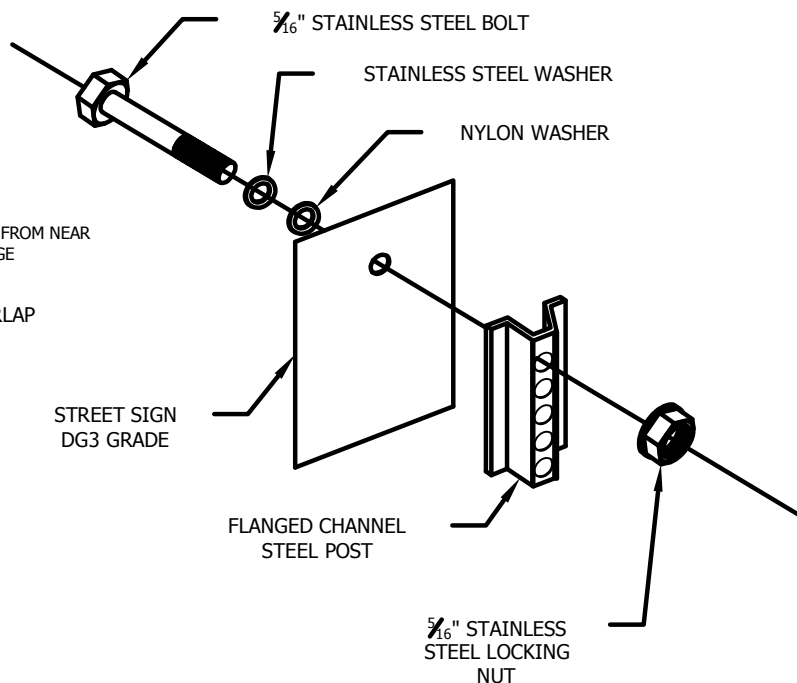
$\frac{5}{16}$ " X $2\frac{1}{2}$ " STAINLESS
STEEL BOLT (X2)

$\frac{5}{16}$ " X 1" STAINLESS
STEEL BOLT (X2)

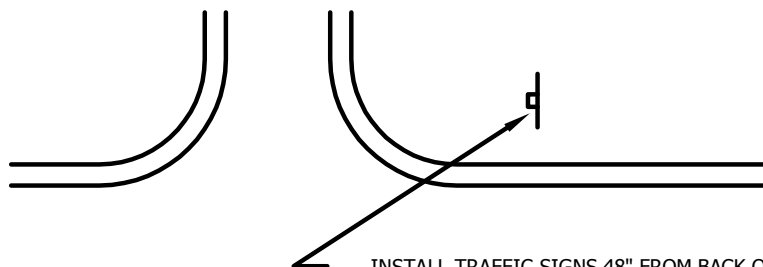


MAXIMUM HEIGHT OF 8' FROM NEAR
PAVEMENT EDGE

12" MINIMUM OVERLAP



- 3M DIAMOND GRADE DG3 REFLECTIVE SHEETING
- UPPER SIGN POST SHALL BE A 7' 2 LBS/FT GALVANIZED WHEN THE SIGN BEING INSTALLED IS 30" STOP SIGN OR SMALLER TRAFFIC SIGN
- UPPER SIGN POST SHALL BE A 8' 2 LBS/FT GALVANIZED WHEN THE SIGN BEING INSTALLED IS 30" W-SERIES DIAMOND OR LARGER TRAFFIC SIGN
- SIGN INSTALLED IN CONCRETE SHALL BE INSTALLED PER THE CITY OF CHAMPLIN DETAILED PLATE STR-XXX
- WHEN TRAFFIC SIGNS ARE INSTALLED BETWEEN A SIDEWALK AND THE BACK OF CURB SPLIT THE DISTANCE.
- KEEP ALL TRAFFIC SIGNS 4' AWAY IN ALL DIRECTIONS FROM PEDESTRIAN RAMPS



INSTALL TRAFFIC SIGNS 48" FROM BACK OF
CURB TO CENTER OF POST

48" FROM BACK OF CURB TO CENTER OF POST OR 33"
FROM BACK OF CURB TO NEAR EDGE OF SIGN
WHICHEVER IS GREATER. THIS DISTANCE CAN BE LESS
IN THE CASE OF A SIDEWALK RUNNING PARALLEL TO
THE ROAD. IN THIS CASE THE SIGN POST SHOULD BE
INSTALLED MIDWAY BETWEEN SIDEWALK EDGE AND
BACK OF CURB.

NOTES:

ALL REGULATORY AND STREET SIGNS MUST BE MAINTAINED THROUGHOUT CONSTRUCTION. TEMPORARY SIGNAGE MAY BE REQUIRED AND IS CONSIDERED INCIDENTAL.

ALL IN-PLACE SIGNS NOT SHOWN IN PLANS SHALL BE MAINTAINED IN-PLACE THROUGHOUT CONSTRUCTION, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

LOCATION OF ALL PROPOSED SIGNS ARE APPROXIMATE AND SHALL BE LOCATED BY THE ENGINEER IN THE FIELD PRIOR TO INSTALLATION.

SIGN PANELS-REFLECTIVE SHEETING WILL BE DG3 MATERIAL.

ALL TYPE C SIGN PANELS SHALL BE SUPPLIED AND INSTALLED BY THE CONTRACTOR. THE CONTRACTOR SHALL PROVIDE THE SIGN, SIGN POST, MOUNTING HARDWARE, SIGN AND LABOR FOR THE INSTALLATION OF ALL TYPE C SIGNS.

A SIGN PLAN SHOWING SIGN COLORS, SIZES AND LETTERING MUST BE SUBMITTED TO THE CITY OF CHAMPLIN ENGINEERING DEPARTMENT FOR REVIEW AND APPROVAL PRIOR TO SIGN INSTALLATION.



TRAFFIC SIGN INSTALLATION

STANDARD DETAILS

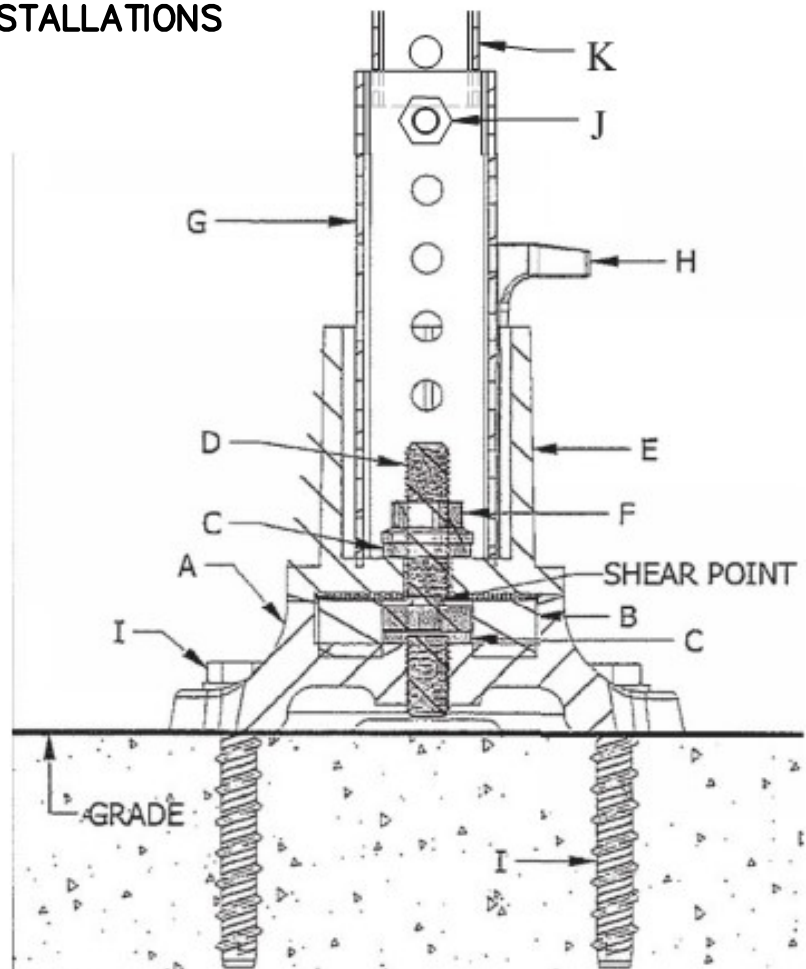
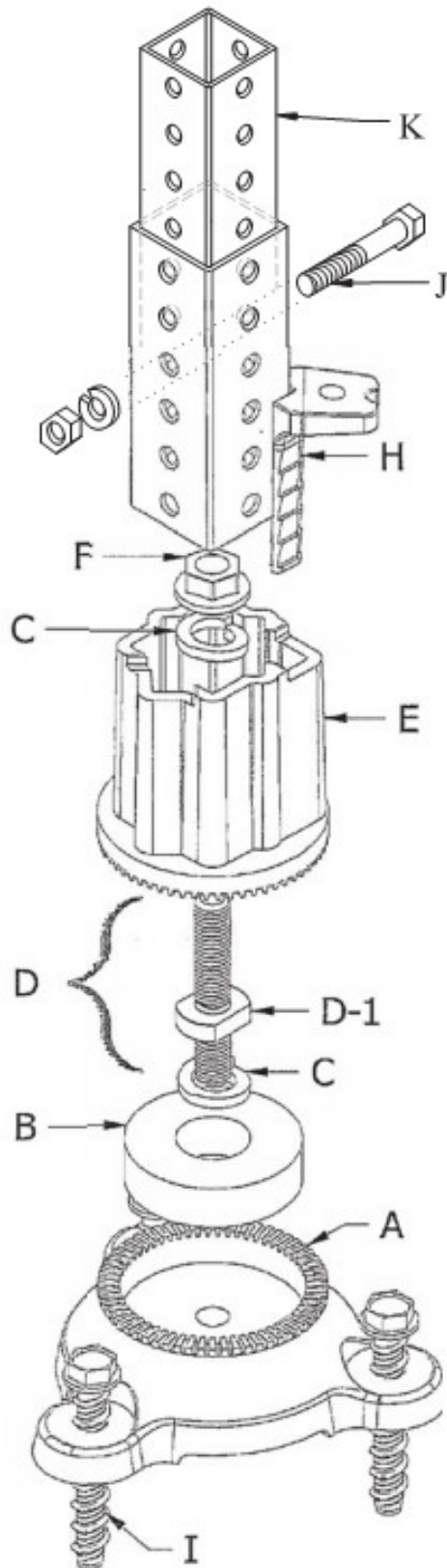
Date:

1/20/2023

Revised:

STR-18

KLEEN BREAK MODEL 425 FOR SURFACE MOUNT CONCRETE INSTALLATIONS



INSET A

PARTS LIST

A.	SURFACE MOUNT ANCHOR BASE	A.	SMK83-G
B.	RUBBER BUSHING	B.	RB30-EPDM
C.	LOCK WASHERS	C.	SBH5848-Z
D.	5/8"-11 x 4" SHEAR BOLT	D.	SBH5848-Z
D-1	SHOULDER	D-1	SBH5848-Z
E.	TOP HALF COUPLER	E.	TX175-200-G
F.	5/8"-11 SERRATED FLANGE NUT	H.	LWX35-G
G.	SIGN SUPPORT (12 GAUGE SQUARE POST 2" X 2")		
H.	SIGN SUPPORT LOCKING WEDGE		
I.	CONCRETE MOUNTING FASTENER (NOT INCLUDED)		
J.	1/4" X 2-1/2" GALVANIZED BOLT, LOCK WASHER & NUT. (LOCATED TWO BOLT HOLES ABOVE TOP OF LOCKING WEDGE)		
k	3" PIECE OF 1-3/4" X 1-3/4" SQUARE SIGN SUPPORT INSIDE 2" SUPPORT.		

NOTES

1. BREAKAWAY ANCHORS WILL BE INSTALLED ON ALL SIGNS THAT ARE PLACED IN CONCRETE.
2. PROVIDE EXTRA SHEAR BOLTS & LOCK WASHERS TO THE CITY OF CHAMPLIN
3. REFER TO SIGN PLAN SHEETS FOR SIGN SIZE AND INSTALLATION LOCATIONS.
4. SEE MnDOT 2564 FOR FURTHER INFORMATION



SQUARE TUBULAR SIGN POST BREAKAWAY

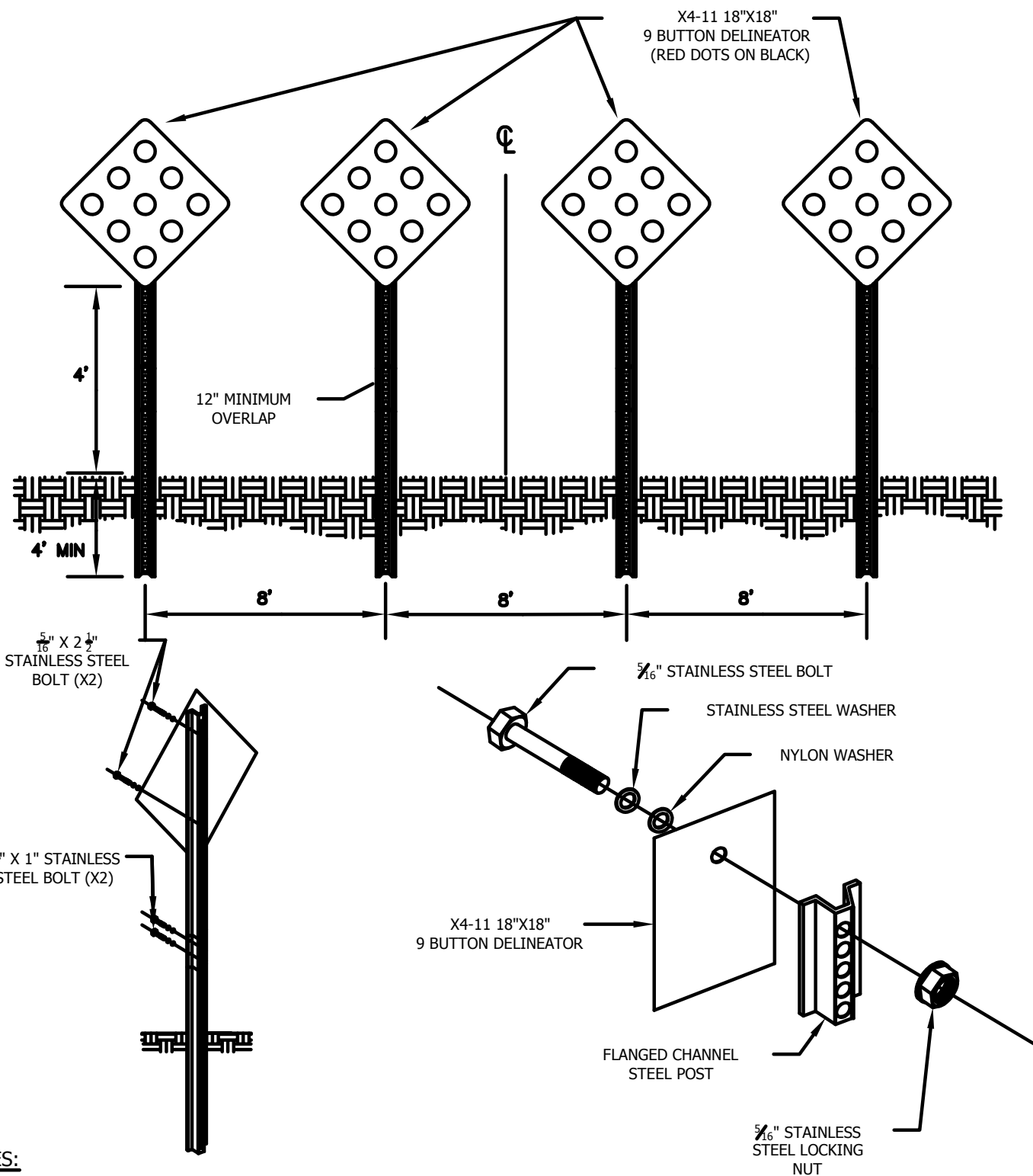
STANDARD DETAILS

Date:

1/20/2023

Revised:

STR-19



NOTES:

THE PLACEMENT OF THE BARRICADES SHALL BE 10' FROM THE EDGE OF THE BITUMINOUS ROADWAY WITH THE BARRICADE CENTERED ON THE ROADWAY FACING THE FLOW OF TRAFFIC

SIGN SHALL BE MADE OF 3M DIAMOND GRADE DG3 REFLECTIVE SHEETING

UPPER SIGN POST SHALL BE A 4' 2 LBS/FT GALVANIZED POST

LOWER SIGN POST SHALL BE A 8' 2 LBS/FT GALVANIZED POST



BARRICADE

STANDARD DETAILS

Date:
 1/20/2023
 Revised:

STR-20

INDEX

CITY
PLATE
NO.

SECTION 3 - WATERMAIN

WAT-00	INDEX
WAT-01	HYDRANT AND GATE VALVE INSTALLATION
WAT-02	GATE VALVE & BOX
WAT-03	BUTTERFLY VALVE & BOX
WAT-04	1" WATER SERVICE WITH PVC WATERMAIN
WAT-05	POLYSTYRENE INSULATION
WAT-06	WATERMAIN OFFSET
WAT-07	WATERMAIN WET TAP
WAT-08	CONCRETE THRUST BLOCKING
WAT-09	IRRIGATION SYSTEM



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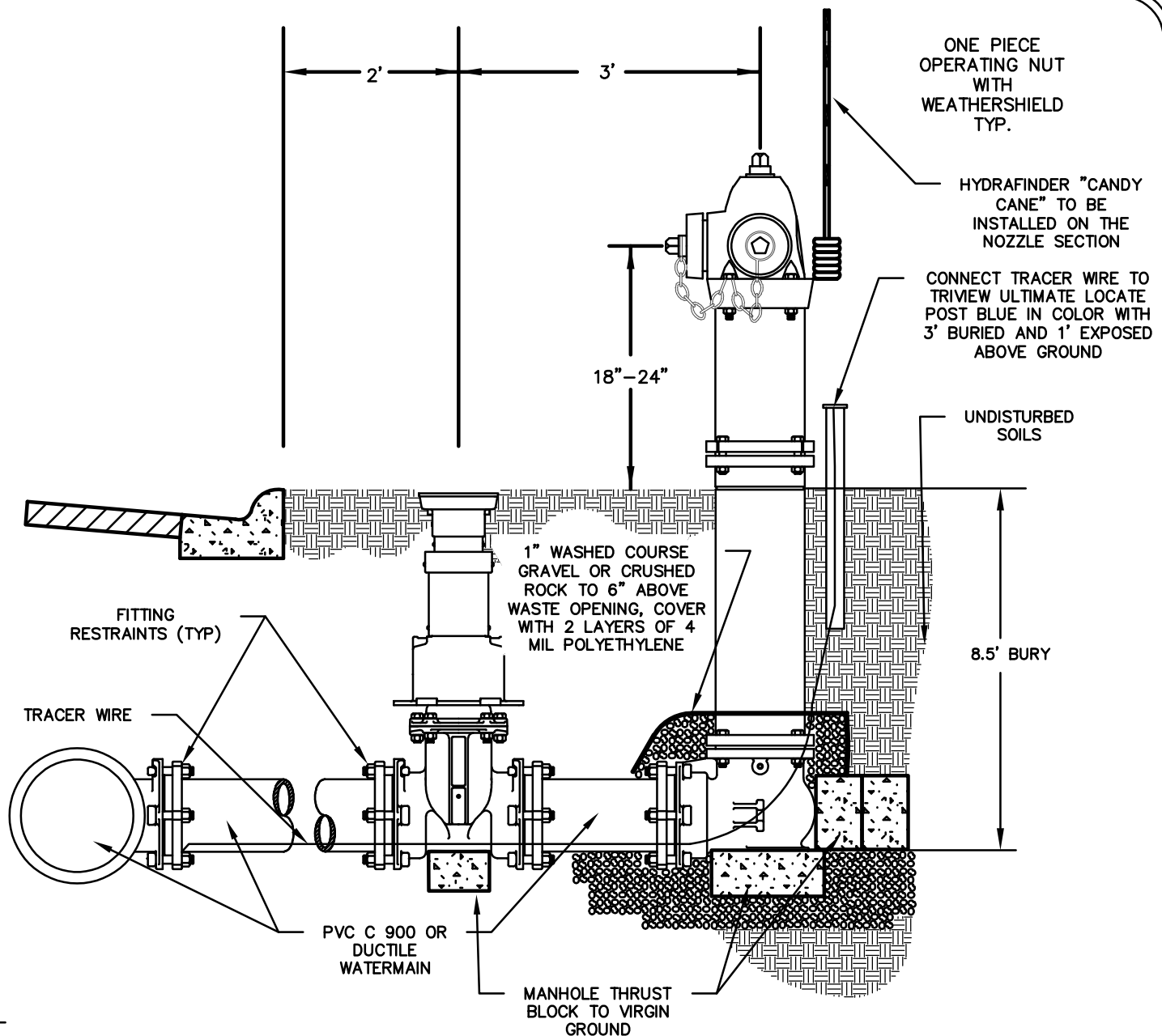
STANDARD DETAILS

Date:

1/12/2023

Revised:

WAT-00



NOTES:

HYDRANT SHALL BE WATEROUS PACER MODEL WB67-250.

HYDRANT SHOULD HAVE TWO (2)-2 ½ INCH AND ONE-HALF (4 ½") PUMPER CONNECTIONS WITH NATIONAL STANDARD THREADS AND A 16" BREAK OFF TRAFFIC FLANGE.

ALL HYDRANTS AND GATE VALVES SHALL HAVE MECHANICAL JOINT CONNECTIONS.

ALL VALVES TO OPEN COUNTER-CLOCKWISE.

ALL BACKFILL SHALL BE PROPERLY COMPACTED.

FIRE HYDRANTS SHALL BE PAINTED RED AT THE FACTORY.

WEEP HOLES LOCATED ABOVE NORMAL WATER TABLE TO BE LEFT OPEN, DRAIN HOLES BELOW WATER TABLE SHALL BE PLUGGED AT THE DISCRETION OF THE ENGINEER AND NOZZLES PAINTED YELLOW.

ALL RODS AND RETAINERS TO BE COATED WITH BITUMASTIC

ALL HYDRANT LEADS SHALL BE TIED WITH ¾" TIE RODS. TIE ROD SHALL EXTEND FROM TEE TO VALVE AND VALVE TO HYDRANT. MEGA LUGS OR ALPHA CLAMPS MAY BE USED IN LIEU OF TIE RODS.



HYDRANT AND GATE VALVE INSTALLATION

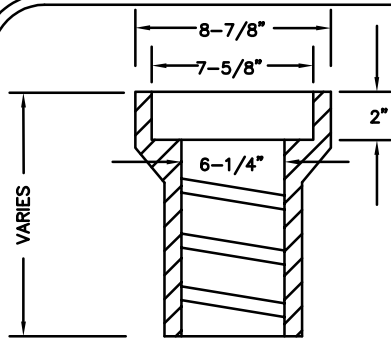
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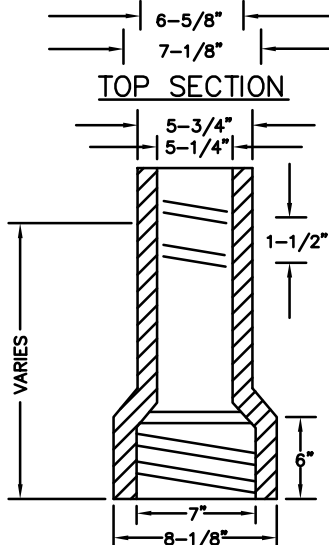
1/12/2023

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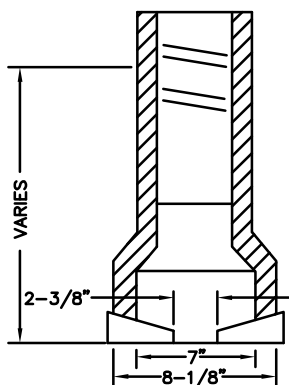
WAT-01



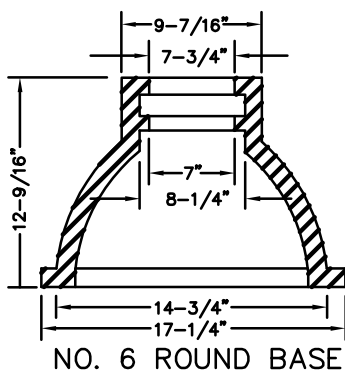
TOP SECTION



EXTENSIONS

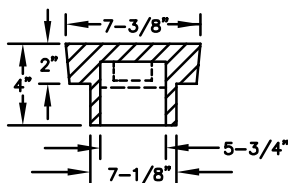
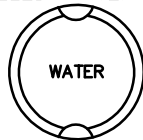


MIDDLE SECTION



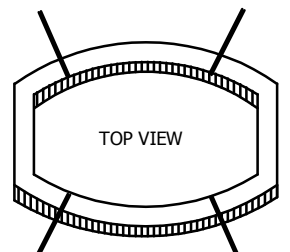
NO. 6 ROUND BASE

TYLER DROP LID NO. 6865 OR
MUELLER COVER NO.
H-10361 OR APPROVED EQUAL
LABELED WATER



GATE VALVE ADAPTOR:

1/4" STEEL WITH
PROTECTIVE COATING
1/2" RUBBER GASKET
INSTALLED BETWEEN
GATE VALVE AND
ADAPTOR



TOP VIEW



SIDE VIEW

FINISHED GRADE

ADJUST TOP TO 1/4" BELOW
BLACKTOP GRADE OR 3/4" BELOW
FINISHED BOULEVARD GRADE AND
SHALL BE SET SO AS TO PROVIDE
12" OF UPWARD ADJUSTMENT.

GATE VALVE BOX, SCREW TYPE,
THREE PIECE, 5 1/4" SHAFT, SIZE G
BOX 7'-6" EXTENDED NO. 6 ROUND
BASE

GATE VALVE AND BOXES SHALL BE:
TYLER SERIES NO. 6860
MUELLER NO. H-10357 OR
APPROVED EQUAL.

G.V. ADAPTOR AS
MANUFACTURED BY
ADAPTOR INC. OR
APPROVED EQUAL.
SEE ABOVE DETAILS

NOTES:

ALL BOLTS INCLUDING T-BOLTS
SHALL BE 316 STAINLESS STEEL.

OPERATING ROD EXTENSION SHALL
BE INSTALLED ON ALL GATE
VALVES DEEPER THAN 10'.

GATE VALVE AND BOX SHALL BE
STRAIGHT, ALLOWING A 4" PVC
PIPE TO SLIDE DOWN THE BOX
AND OVER THE GATE OPERATING
NUT

ALL GATE VALVES SHALL BE
DUCTILE IRON

MEGALUG OR ALPHA CLAMPS ARE
ACCEPTABLE

7.5' MINIMUM COVER

PROTECTO CAP

8" CONCRETE BLOCK

ALL GATE VALVES SHALL BE OF
RESILIENT WEDGE TYPE CONFORMING
TO AWWA C515 STANDARDS.



GATE VALVE & BOX

STANDARD DETAILS

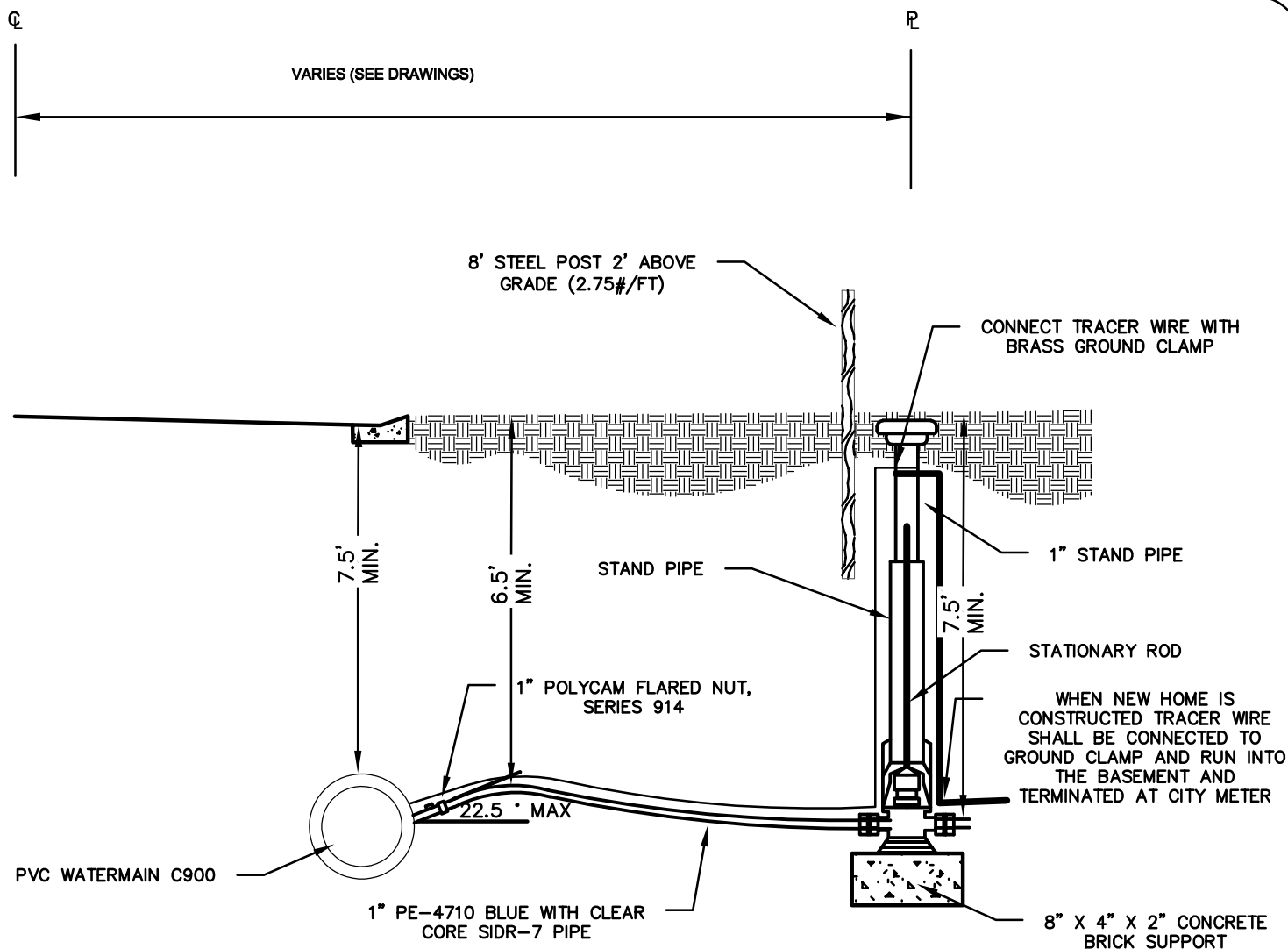
Date:

1/12/2023

Revised:

WAT-02





NOTES:

ANY CURB STOP LOCATED IN BLACKTOP OR CONCRETE DRIVEWAY OR SIDEWALK SHALL BE COVERED WITH A FORD A-1 METER BOX WITH "WATER" INSCRIBED ON IT.

ALL WATER SERVICES SHALL BE 1" PE-4710 BLUE WITH CLEAR CORE SIDR-7 PIPE.

TRACER WIRE INSTALLATION SHALL MEET MN RURAL WATER SPECIFICATION.

ALL NEW WATER SERVICES INSTALLED SHALL USE A SMITH-BLAIR 372 STAINLESS STEEL SADDLE.

CORPORATION SHALL BE A 1" FORD FB 1001-4-NL, MCDONALD 74701-B-33, OR OWNER APPROVED ALTERNATE.

CURB STOP AND BOX SHALL BE 1" FORD B22-444-M-NL WITH C06-44-NL PACK JOINT COUPLING, MCDONALD 76104 WITH 74755-33 NL SERVICE FITTING, OR OWNER APPROVED ALTERNATE WITH A STATIONARY ROD AND BE ABLE TO ADJUST FROM 84" TO 96".

STIFFENERS REQUIRED ON ALL FLEXIBLE PLASTIC CONNECTIONS.

WATER SERVICE MUST BE CONTINUOUS WITH NO JOINTS.

SANITARY AND WATER SERVICE LINES SHALL BE INSTALLED IN THE SAME TRENCH WITH 3 FEET OF SEPARATION, WATER SERVICE ON UPSTREAM SIDE OF SANITARY SERVICE.

WHEN HOME IS BEING CONSTRUCTED THE CONTRACTOR SHALL CONNECT A NEW WIRE TO THE GROUND CLAMP AND RUN A TRACER WIRE INTO THE BASEMENT AND TERMINATE THE WIRE AT THE CITY WATER METER.



1" WATER SERVICE WITH PVC WATERMAIN

STANDARD DETAILS

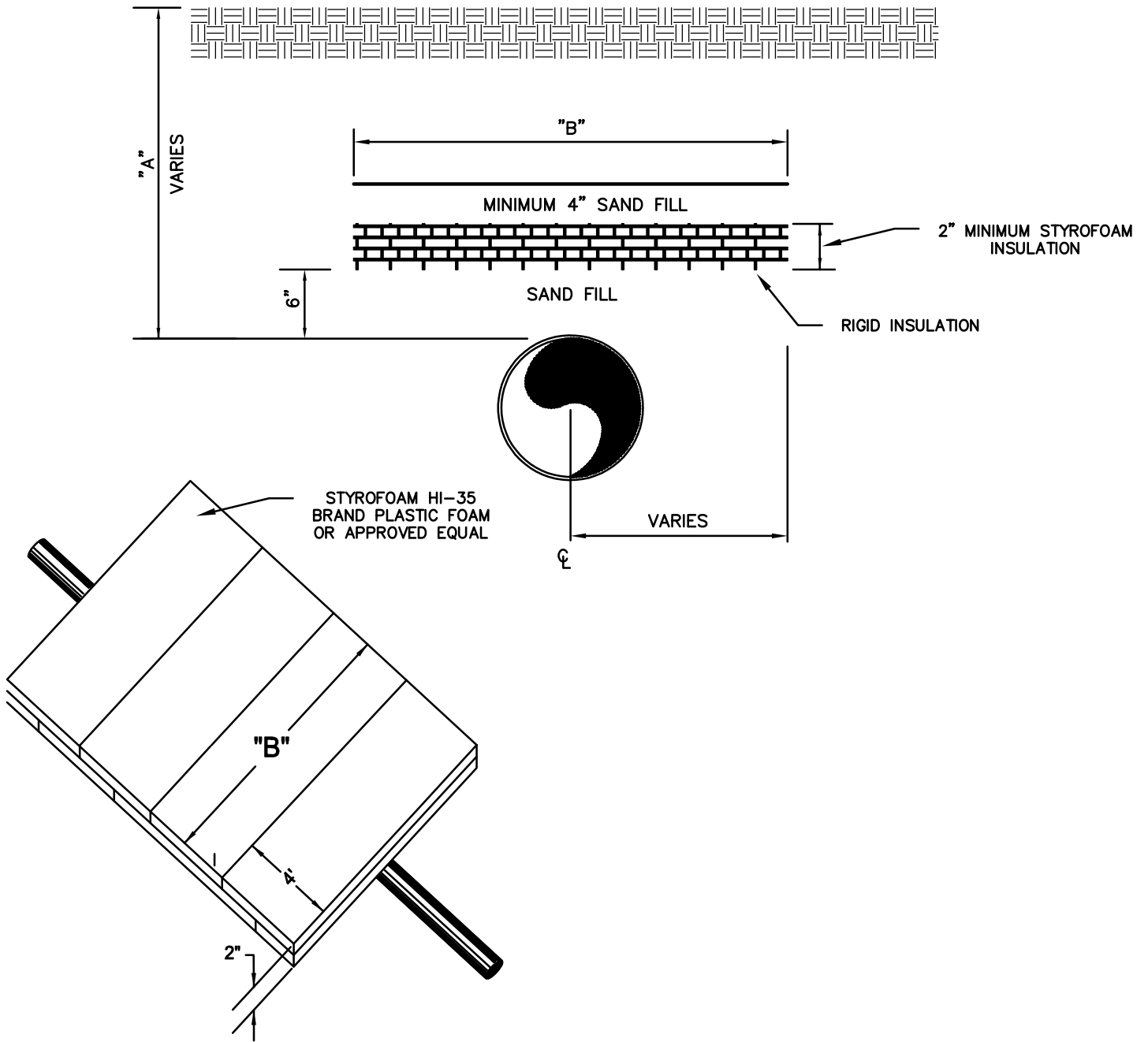
Date:

2/1/2023

Revised:

WAT-04

DESIGN OR EXISTING GRADE



NOTES:

PIPE SHALL BE CENTERED UNDER INSULATION UNLESS OTHERWISE SPECIFIED

COVER OVER PIPE – "A"

2'
3'
4'
5'
6'

WIDTH OF INSULATION BOARD – "B"

12'
10'
8'
6'
4'

2" OF INSULATION = 2' OF COVER



POLYSTYRENE INSULATION

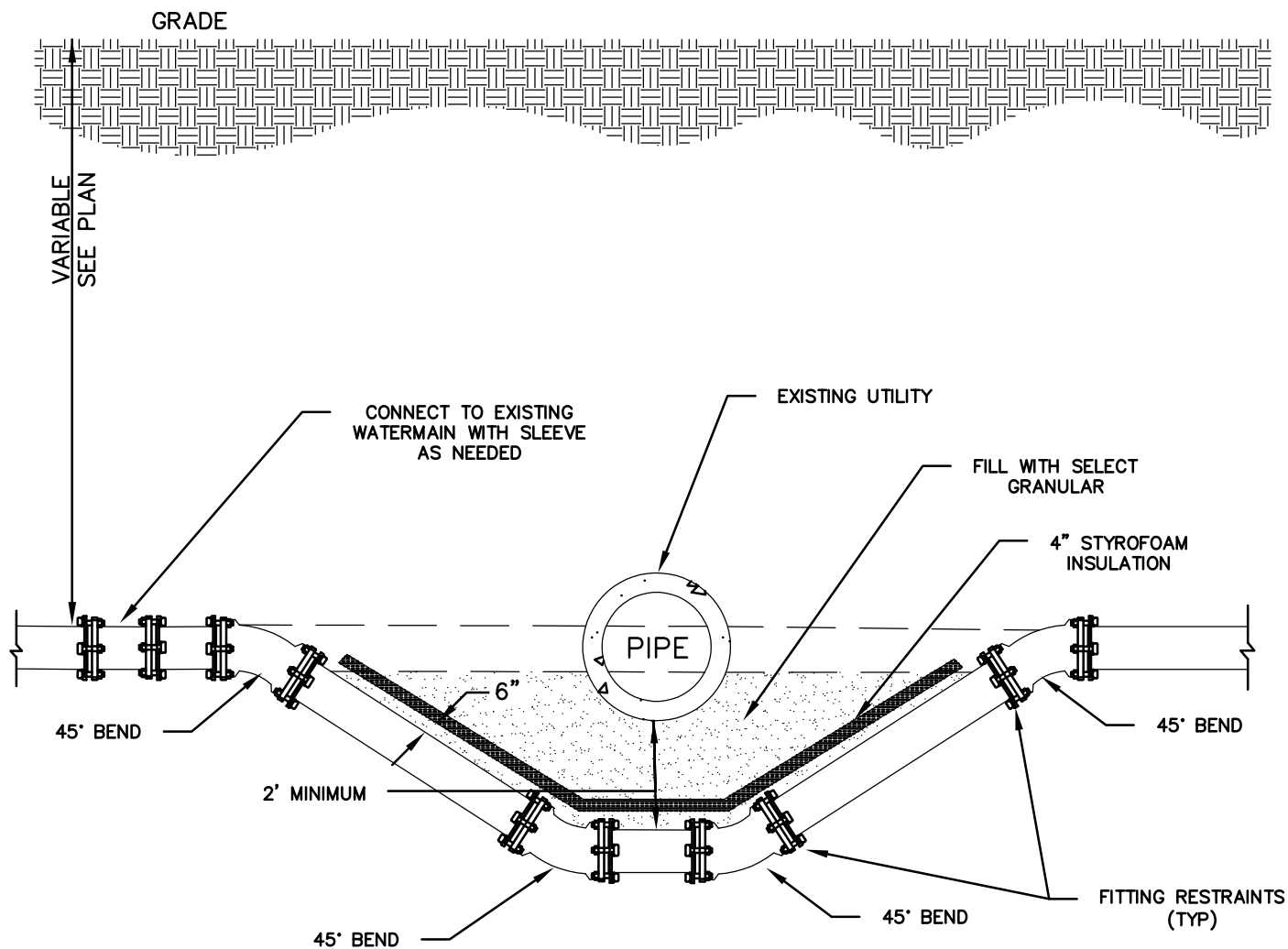
STANDARD DETAILS

Date:

1/12/2023

Revised:

WAT-05



NOTES:

PREFERRED METHOD OF OFFSET WATERMAIN IS OVER DEPTH EXCAVATION.

PLACE 6" COMPACTED SAND BELOW INSULATION

ALL NUTS AND BOLTS TO BE 316 STAINLESS STEEL

MAINTAIN A 2.0' MINIMUM CLEAR ZONE SEPARATION BETWEEN CONFLICTING UTILITIES

ON NEW WATERMAIN DIVE WATERMAIN UNDER CONFLICTING PIPE

CONTRACTOR SHALL INSTALL CONDUCTIVITY STRAPS AT ALL FITTING LOCATIONS.

TIE ALL JOINTS WITH MEGALUG OR ALPHA CLAMPS



WATERMAIN OFFSET

STANDARD DETAILS

Date:

2/1/2023

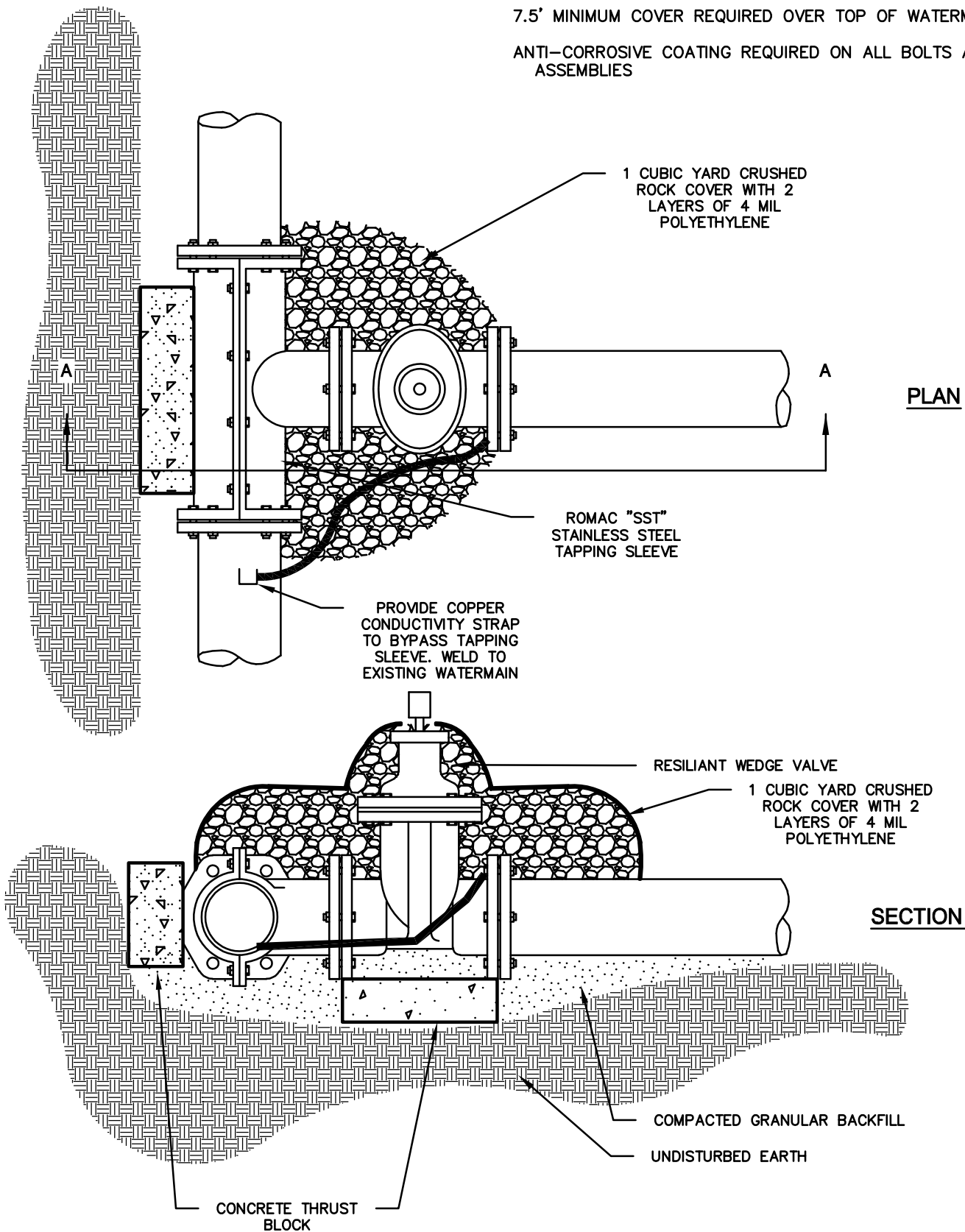
Revised:

WAT-06

NOTES:

7.5' MINIMUM COVER REQUIRED OVER TOP OF WATERMAIN

ANTI-CORROSIVE COATING REQUIRED ON ALL BOLTS AND RESTRAINT ASSEMBLIES



WATERMAIN WET TAP

STANDARD DETAILS

Date:
1/12/2023

Revised:

WAT-07

NOTES:

DIMENSIONS IN TABLE ARE BASED ON A WATER PRESSURE OF 150 PSI AND AN EARTH RESISTANCE OF 1 TON PER SQ. FT.

DIMENSIONS C1, C2 AND C3 SHOULD BE AS LARGE ENOUGH TO MAKE ANGLE $\geq 45^\circ$

DIMENSION A1, A2 AND A3 SHOULD BE AS LARGE AS POSSIBLE WITHOUT INTERFERING WITH M.J. BOLTS.

SHAPE OF BACK OF BUTTRESS MAY VARY AS LONG AS POUR IS AGAINST FIRM UNDISTURBED EARTH.

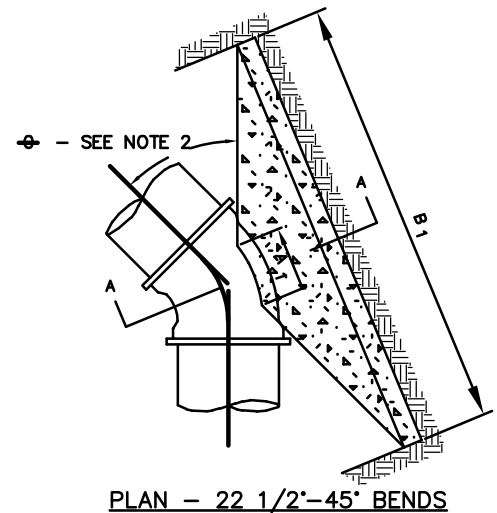
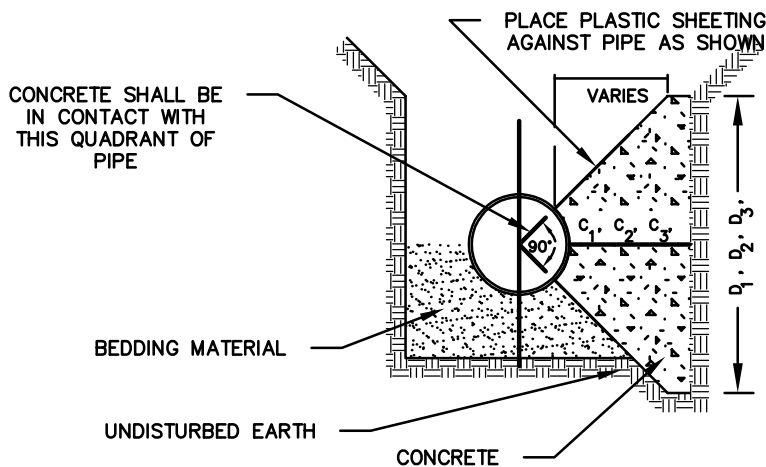
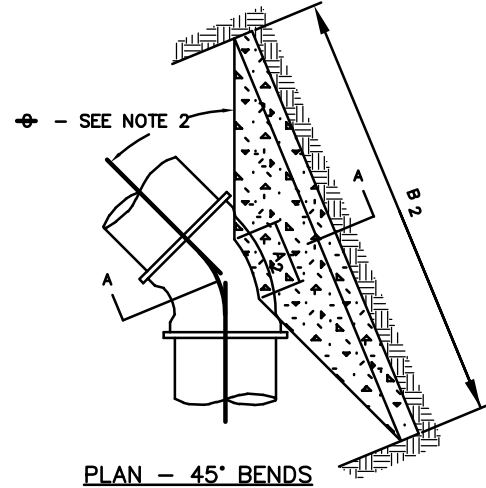
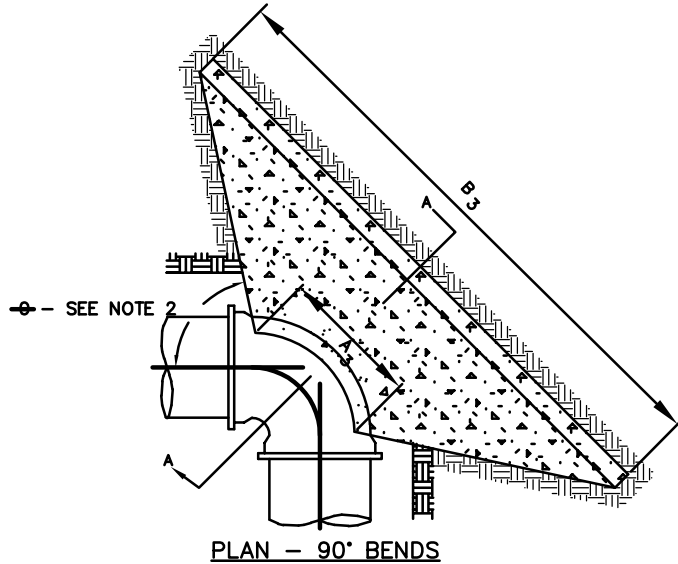
MEGA LUGS OR ALPHA CLAMPS MAY BE USED IN CONJUNCTION WITH MIXED CONCRETE THRUST BLOCKING

READY MIX CONCRETE ONLY MAYBE USED (MnDOT SPEC. 2461, GRADE "B")

SECTION A-A

BUTTRESS DIMENSIONS

PIPE SIZE	22 1/2° BEND		45° BEND		TEES/90° BEND	
	B ₁	D ₁	B ₂	D ₂	B ₃	D ₃
6"	1'-5"	1'-5"	1'-5"	1'-5"	2'-1"	1'-6"
8"	1'-5"	1'-5"	2'-1"	1'-6"	2'-8"	2'-0"
12"	1'-10"	1'-10"	3'-4"	2'-0"	4'-9"	2'-6"
16"	3'-0"	2'-0"	3'-10"	3'-0"	6'-2"	3'-6"
20"	3'-6"	2'-8"	5'-6"	3'-4"	8'-4"	4'-0"
24"	4'-4"	3'-0"	6'-10"	3'-10"	9'-8"	5'-0"



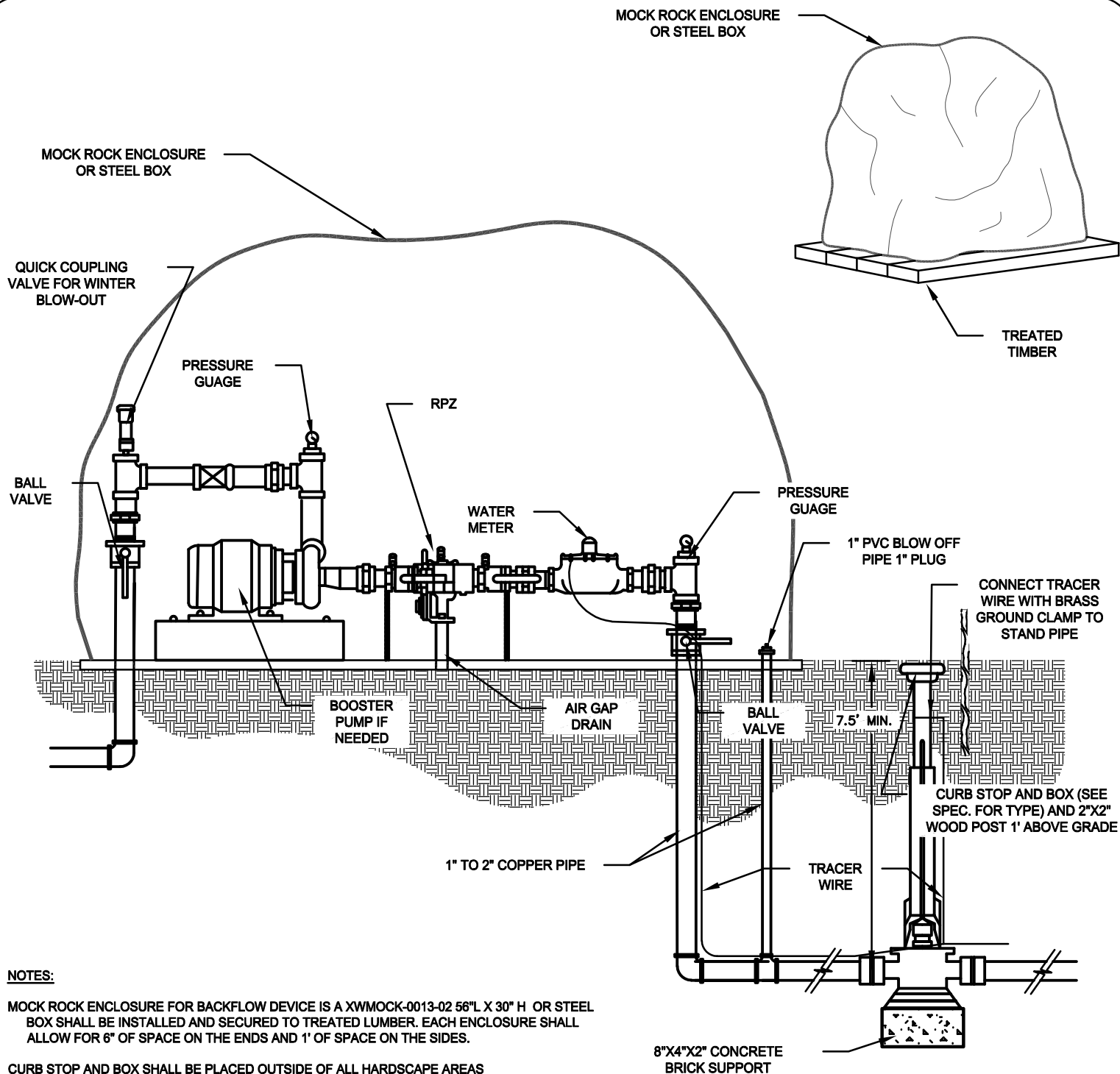
CONCRETE THRUST BLOCKING

STANDARD DETAILS

Date: 1/12/2023

Revised:

WAT-08



NOTES:

MOCK ROCK ENCLOSURE FOR BACKFLOW DEVICE IS A XWMOCK-0013-02 56"L X 30" H OR STEEL BOX SHALL BE INSTALLED AND SECURED TO TREATED LUMBER. EACH ENCLOSURE SHALL ALLOW FOR 6" OF SPACE ON THE ENDS AND 1" OF SPACE ON THE SIDES.

CURB STOP AND BOX SHALL BE PLACED OUTSIDE OF ALL HARDSCAPE AREAS

ALL PIPE, FITTINGS AND CONNECTIONS AND ANY OTHER WORK ASSOCIATED WITH THE INSTALLATION SHALL BE INCLUDED IN THE BID ITEM IRRIGATION SYSTEM.

CURB BOX SHALL HAVE A STATIONARY ROD

CURB BOX SHALL EXTEND FROM 84" TO 96"

SERVICE SHALL BE BEDDED IN GRANULAR BORROW

CURB STOP SHALL BE INSTALLED AT LEAST 9' FROM PROPERTY LINE (IN GREEN SPACE)



IRRIGATION SYSTEM

STANDARD DETAILS

Date:

1/31/2023

Revised:

WAT-09