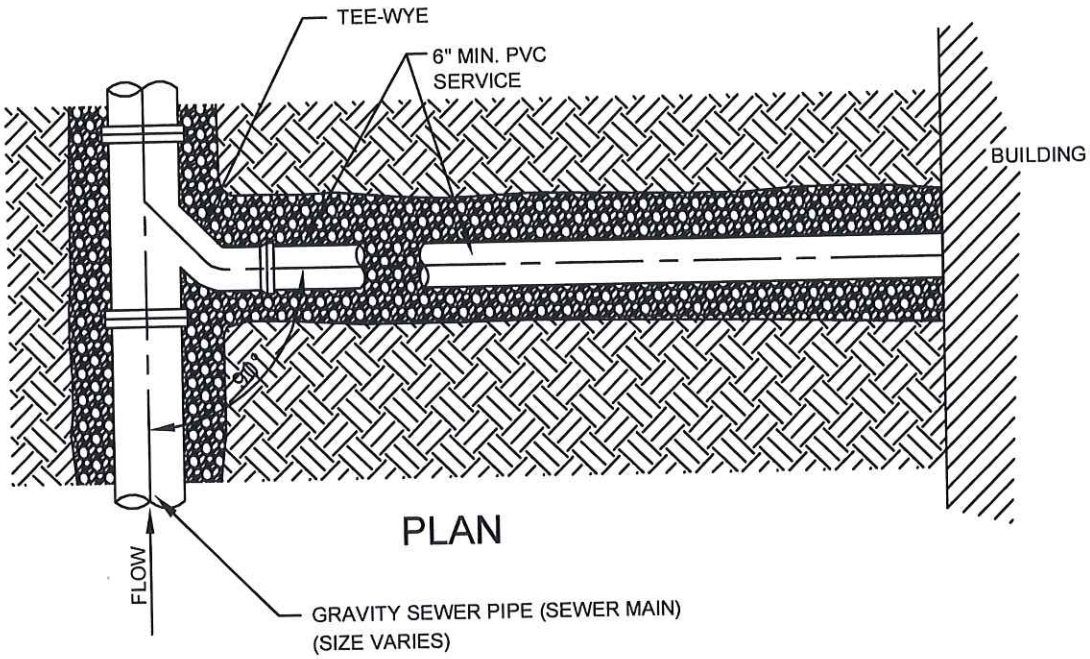
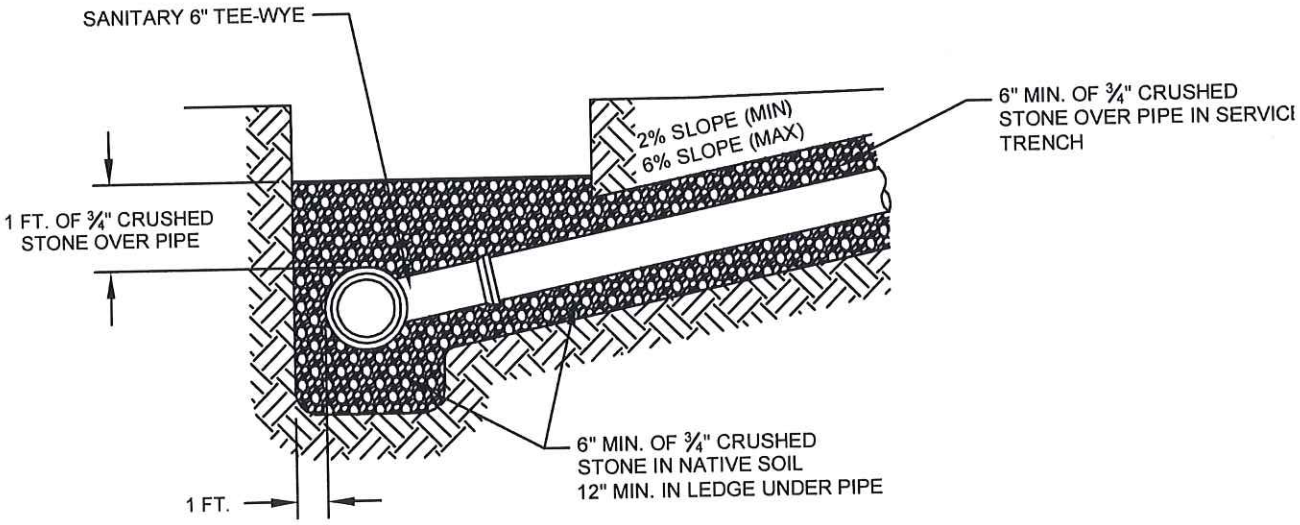


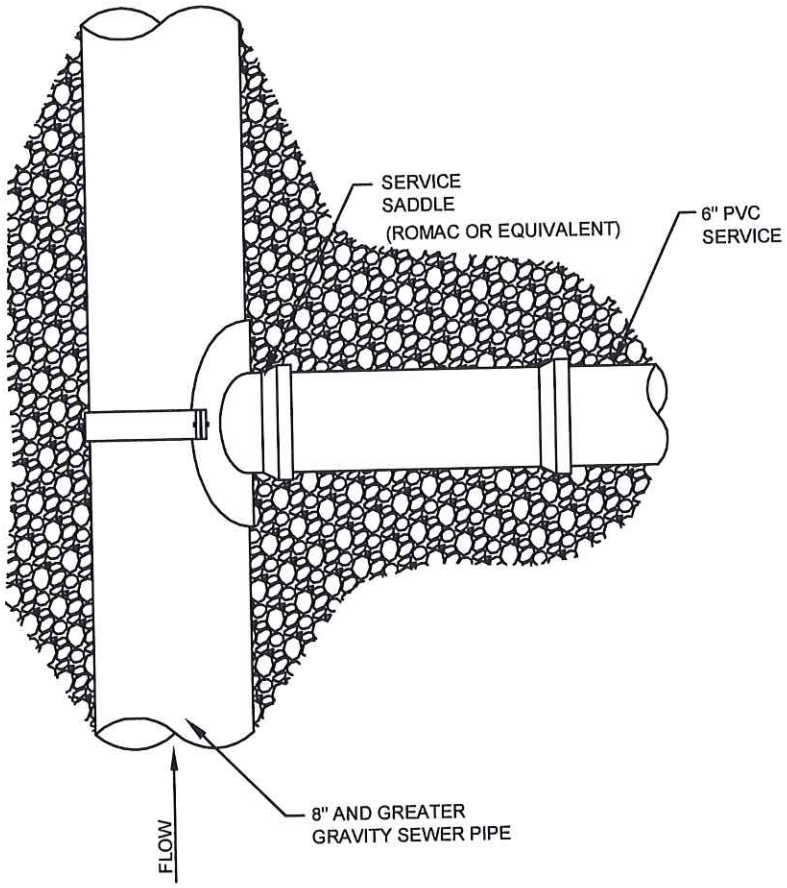
PLAN



ELEVATION

NOT TO SCALE

TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	SERVICE CONNECTION (GRAVITY)	DATE: SEPT. 2020 REV: 0	S-3.1.0

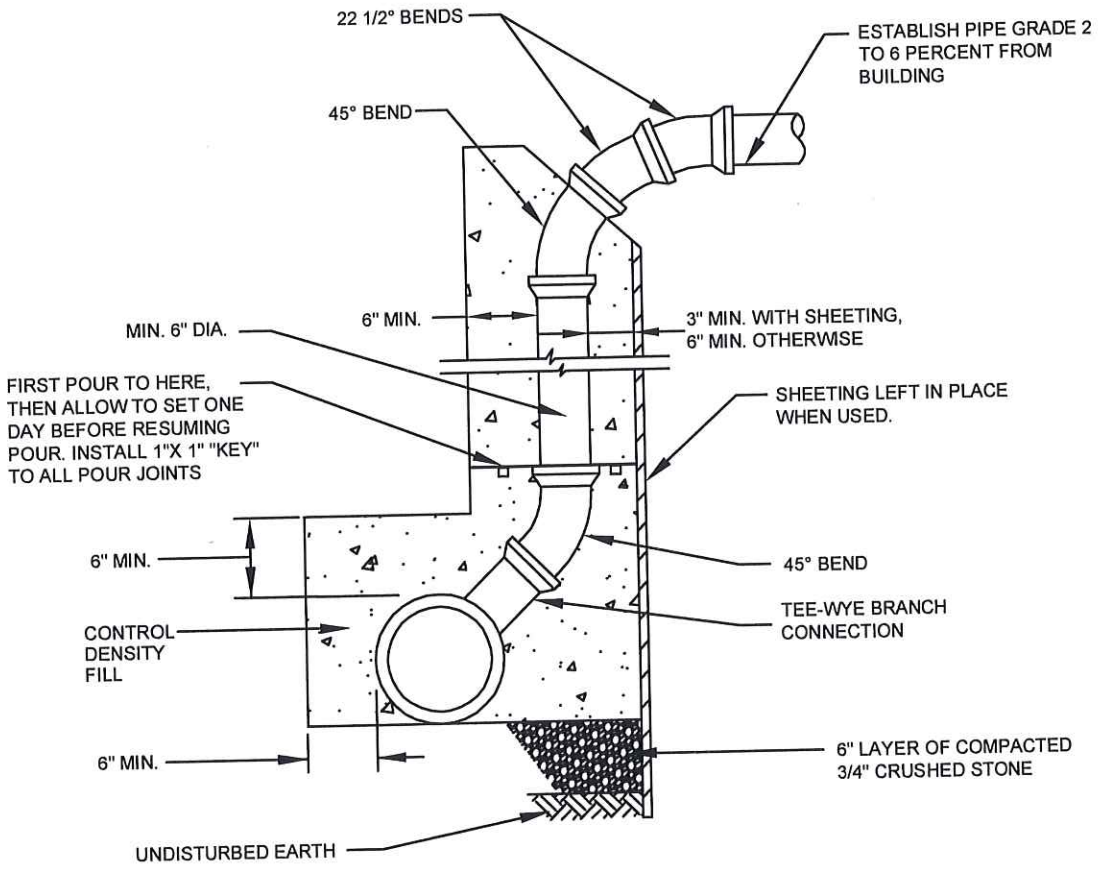


NOTES:

1. INSTALL SADDLE FIRST, THEN CORE HOLE.
2. INSERTA- TEE SERVICE CONNECTORS MAY BE ALLOWED UPON SPECIFIC DPW APPROVAL.

NOT TO SCALE

TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	SERVICE CONNECTION (SADDLE)	DATE: SEPT. 2020 REV: 0	S-3.1.1

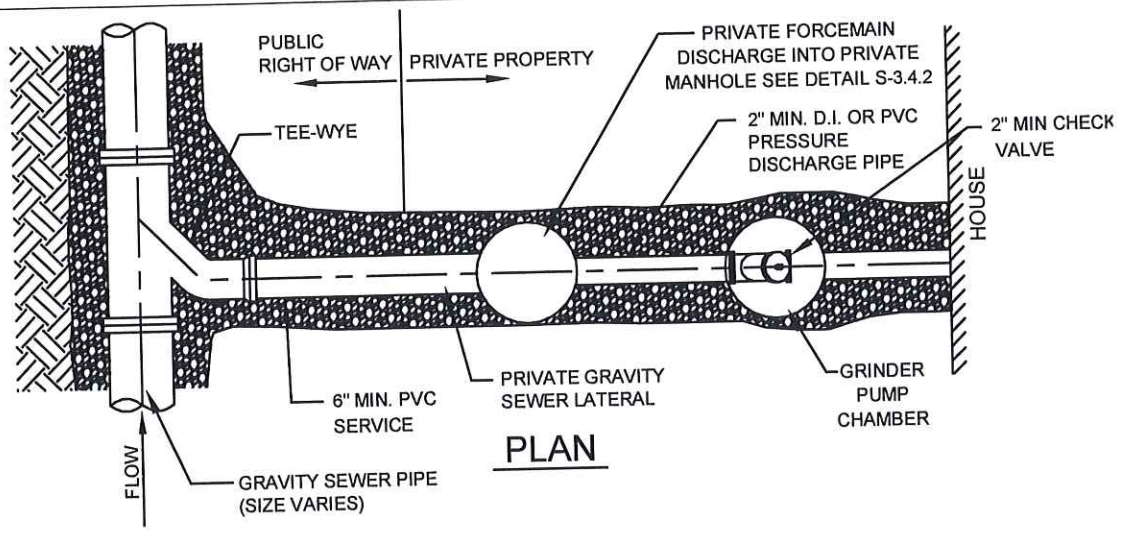


NOTE:

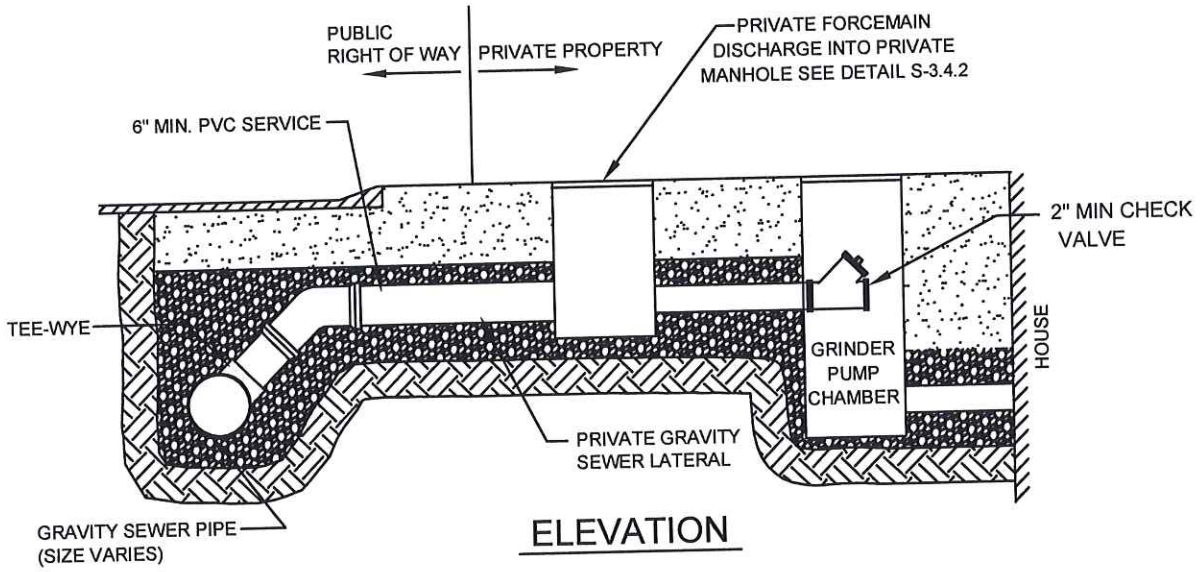
1. SEE SECTION 3.3.1.7.D.

NOT TO SCALE

TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	CHIMNEY CONNECTION	DATE: SEPT. 2020 REV: 0	S-3.1.2



PLAN



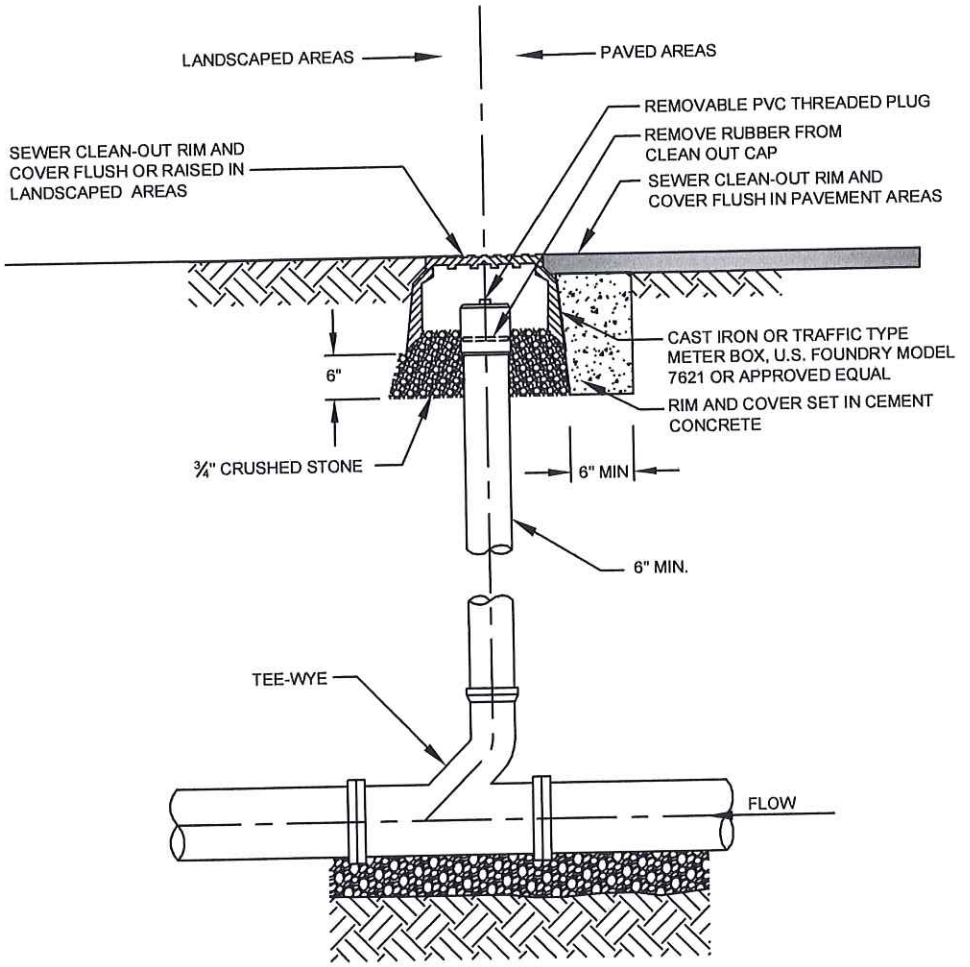
ELEVATION

NOTES:

1. PIPE SIZES AND DEPTHS VARY.

NOT TO SCALE

TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	SERVICE CONNECTION (GRINDER)	DATE: SEPT. 2020 REV: 0	S-3.1.3

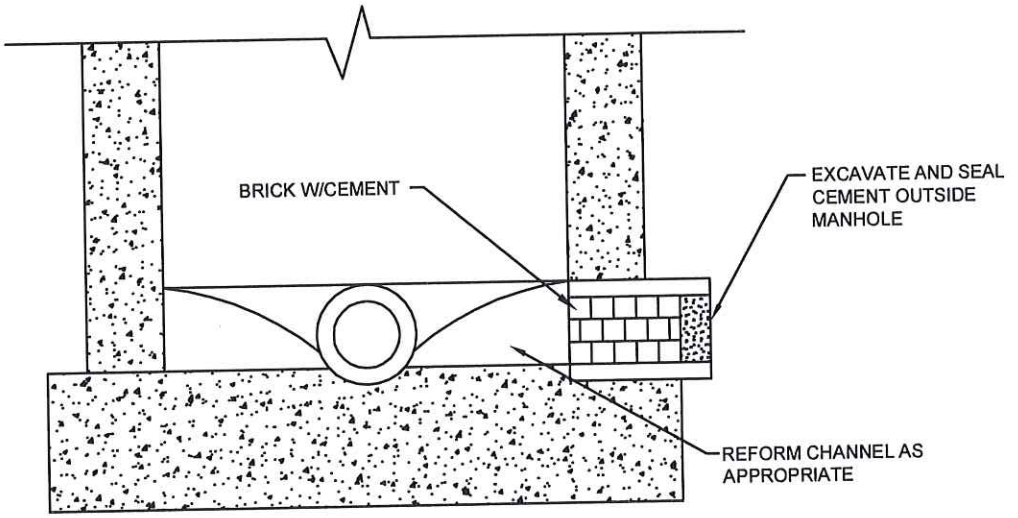


NOTES:

1. PLACE CLEAN OUT WITHIN 5 FEET OF HOUSE FOUNDATION.
2. CLEAN OUT SHALL BE ACCESSIBLE AT ALL TIMES.
3. 6" MIN. LAYER OF ¾" CRUSHED STONE 12" IN LEDGE.
4. FLUSH MOUNT BOLT-DOWN BOX ACCEPTABLE UPON SPECIFIC APPROVAL BY DPW.

NOT TO SCALE

TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	SEWER SERVICE CLEAN OUT	DATE: SEPT. 2020 REV: 0	S-3.2.0

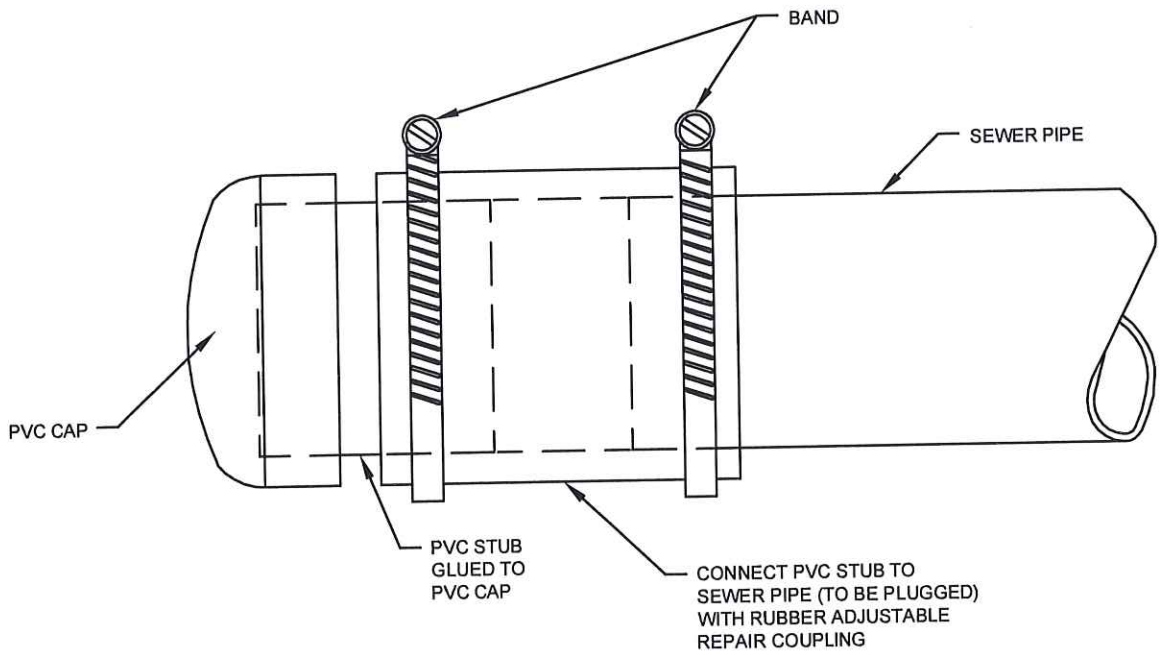


NOTES:

1. THIS DRAWING DEPICTS CONCRETE PIPE.
2. USE MECHANICAL PLUGS WHEN ABANDONING PLASTIC PIPES.

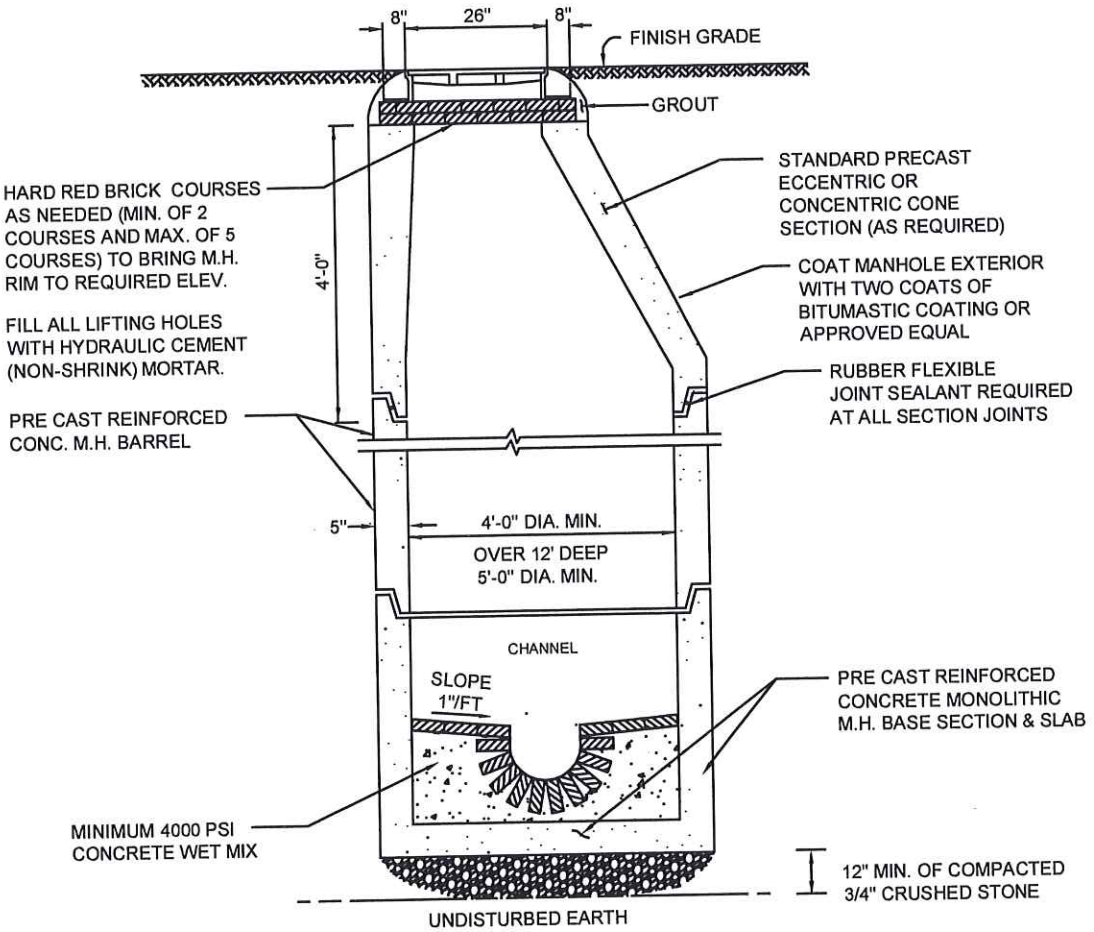
NOT TO SCALE

	TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	PLUG FOR ABANDONING SANITARY SEWER	DATE: SEPT. 2020 REV: 0	S-3.3.0



NOT TO SCALE

TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	PLUG FOR SANITARY SEWER	DATE: SEPT. 2020 REV: 0	S-3.3.1

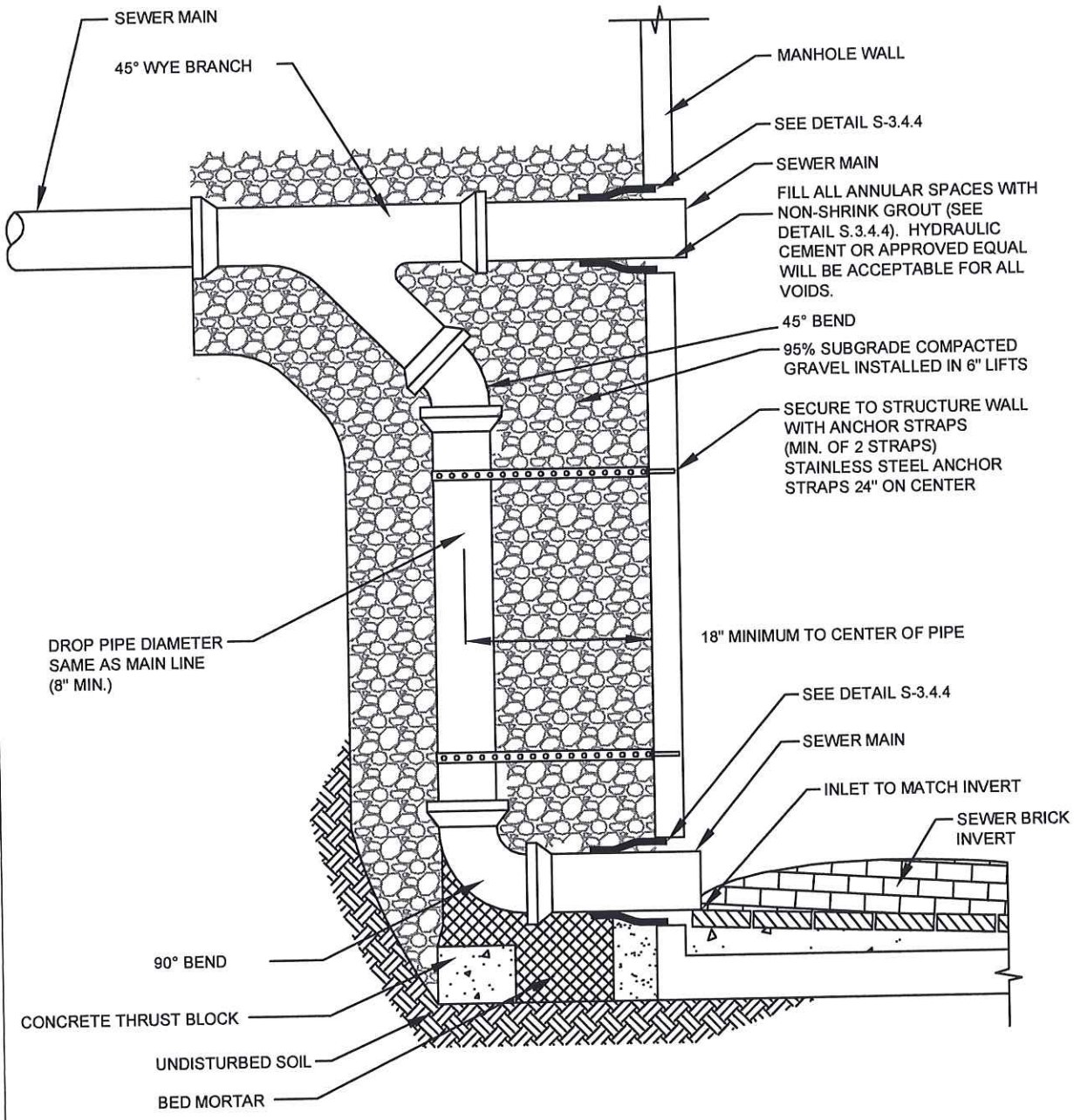


NOTES:

1. TYPICAL SANITARY MANHOLE TO BE 4 FEET IN DIAMETER.
2. 5'-0" DIAMETER FOR ALL MANHOLE DEPTHS GREATER THAN 12 FEET OR WHEN ORDERED BY THE ENGINEER.
3. 6" MIN. WALL THICKNESS AND 7" MIN. BASE THICKNESS WITH 5'-0" DIAMETER MANHOLES.
4. INNER EDGE OF BRICK TABLE TO BE AT ELEVATION OF CROWN OF TOP OF PIPE.
5. DESIGN LOAD - HS20.
6. ALL INVERTS SHALL BE 4,000 PSI CEMENT CONCRETE IN VOID AREAS AND RED SEWER BRICK CONSTRUCTION.
7. INVERTS SHALL NOT BE BUILT ABOVE GRADE. ALL INVERTS SHALL BE BUILT IN PLACE AFTER ALL PIPES HAVE BEEN INSTALLED.

NOT TO SCALE

TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	TYPICAL SEWER MANHOLE	DATE: SEPT. 2020 REV: 0	S-3.4.0

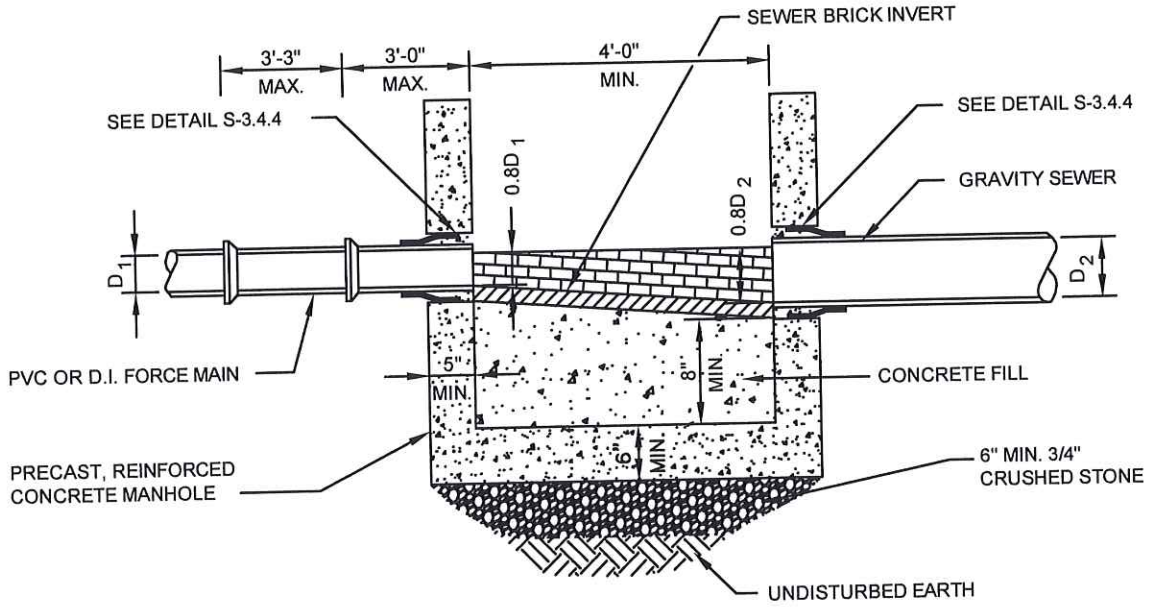


NOT TO SCALE

NOTES

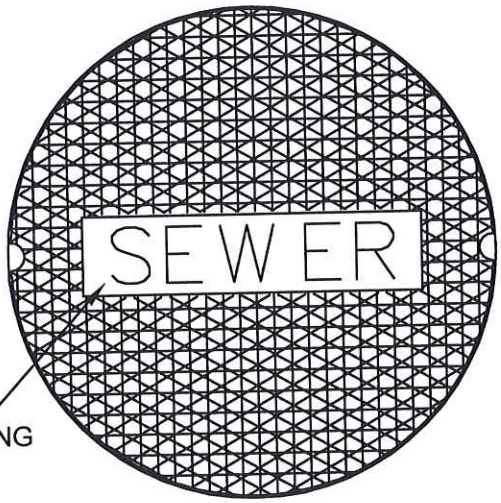
1. BOTH PVC PIPE OR DUCTILE IRON PIPE ARE ACCEPTABLE.
2. IF DUCTILE IRON PIPE IS USED, 90 ° BENDS SHALL BE POLY-WRAPPED WITHIN THE LIMITS OF THE MORTARED SECTION

TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	TYPICAL DROP MANHOLE (OUTSIDE)	DATE: SEPT. 2020 REV: 0	S-3.4.1



NOT TO SCALE

TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	FORCEMAIN DISCHARGE MANHOLE	DATE: SEPT. 2020 REV: 0	S-3.4.2



COVER SHALL READ
"SEWER" IN 3" LETTERING

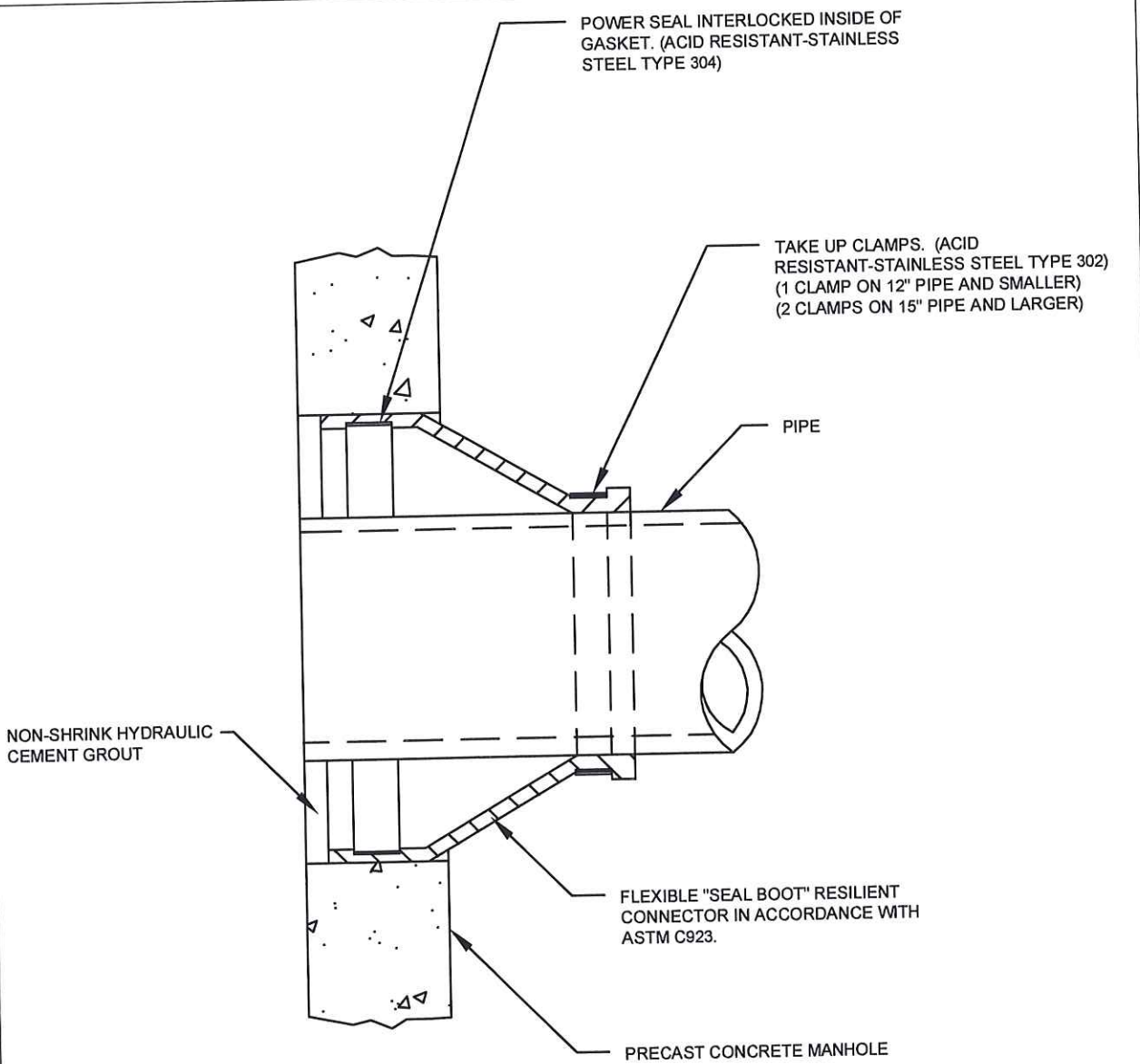
Public / Private Manhole

NOTES:

1. COVER LETTERING DETAIL APPLIES TO ALL COVER SIZES AND WATERTIGHT MANHOLE COVERS IN ACCORDANCE WITH NOTES IN TYPICAL MANHOLE DETAIL.
2. ALL COVERS MUST BE MIN. 26 INCH WIDE.
3. ALL FRAMES MUST BE MIN. 6 INCH HIGH.
4. WATER TIGHT MANHOLE COVERS SHALL UTILIZE STAINLESS STEEL BOLTS.

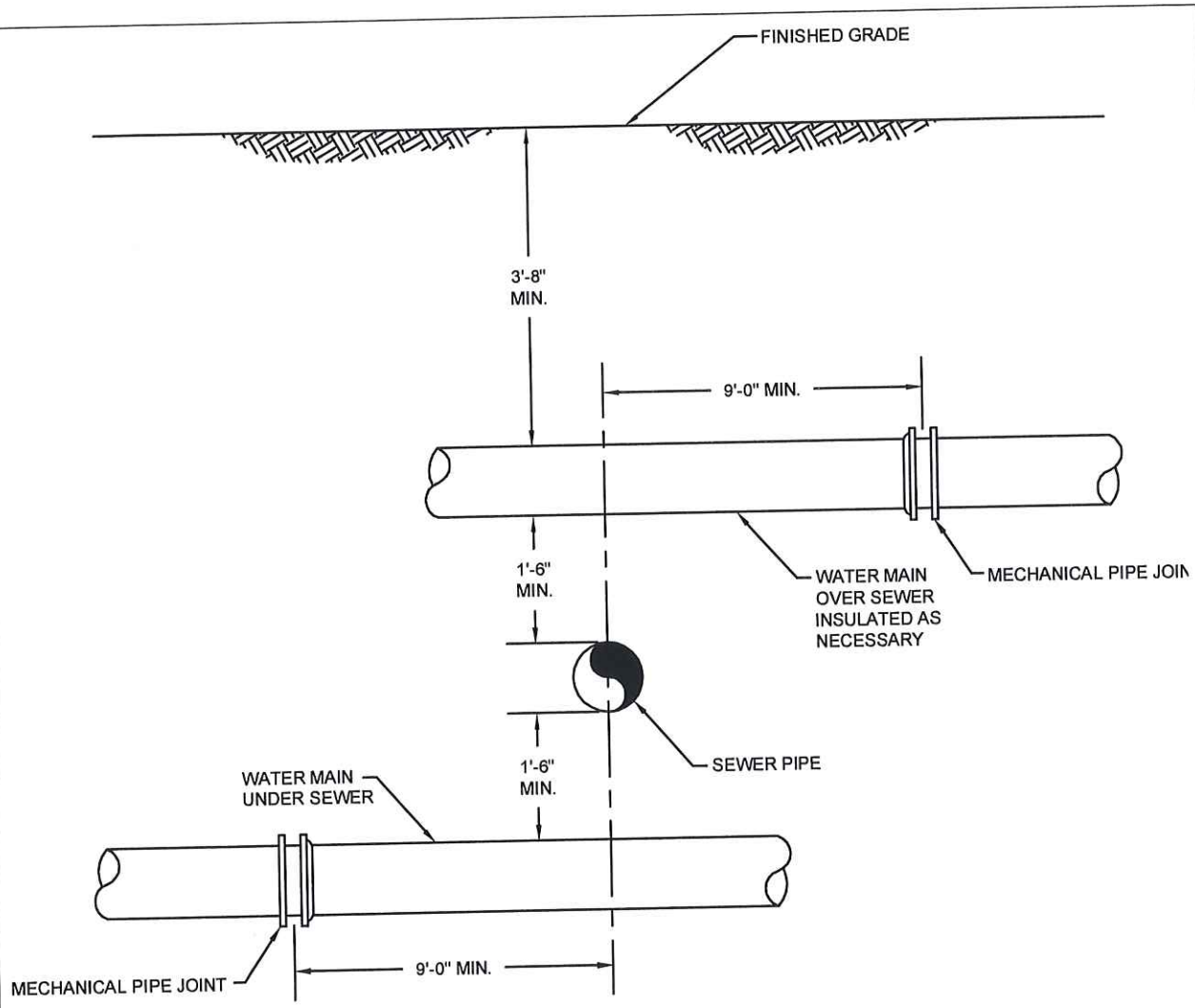
NOT TO SCALE

TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	SEWER MANHOLE COVERS	DATE: SEPT. 2020 REV: 0	S-3.4.3



NOT TO SCALE

TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	MANHOLE SEAL (TYPICAL)	DATE: SEPT. 2020 REV: 0	S-3.4.4

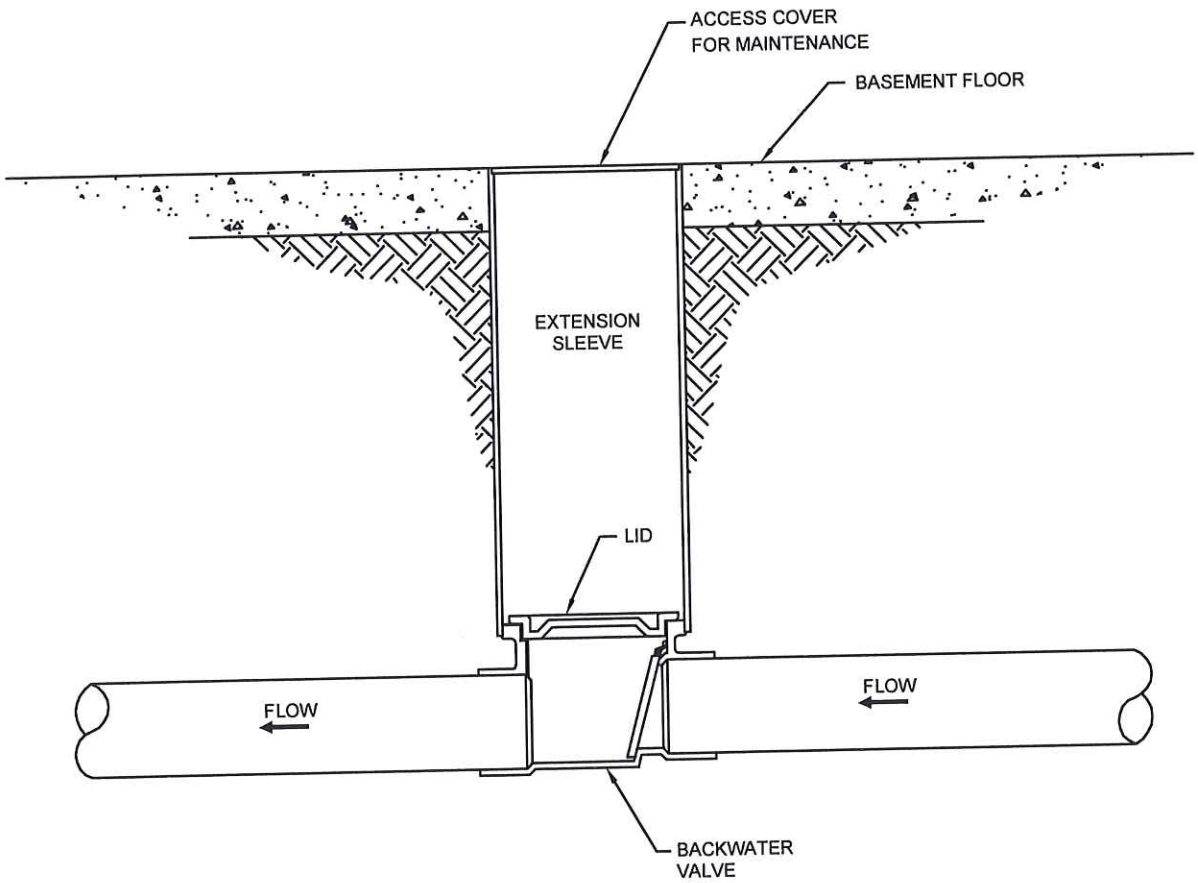


NOTES:

1. SEWERS SHALL BE KEPT REMOTE FROM WATER SUPPLY PIPING AND STRUCTURES. WHEREVER FEASIBLE, SEWERS SHOULD BE LAID AT A MINIMUM HORIZONTAL DISTANCE OF 10 FEET FROM WATER MAINS. IF LOCAL CONDITIONS PREVENT THIS, THE WATER MAIN SHOULD BE LAID IN A SEPARATE TRENCH, AND THE ELEVATIONS OF THE CROWN OF THE SEWER PLACED AT LEAST 18 INCHES BELOW THE INVERT OF THE WATER MAIN.
2. WHENEVER SEWERS MUST CROSS UNDER WATER MAINS, THE CROWN OF THE SEWER SHOULD BE PLACED A MINIMUM OF 18 INCHES BELOW THE INVERT OF THE WATER MAIN. IN ADDITION, THE WATER MAIN MUST BE CONSTRUCTED WITH ONE FULL LENGTH OF PIPE CENTERED ABOVE THE CROSSING. THE WATER PIPE SHALL HAVE MECHANICAL JOINTS FOR A MINIMUM DISTANCE OF 10 FEET ON EACH SIDE OF THE CROSSING.
3. WHEN IT IS IMPOSSIBLE TO OBTAIN HORIZONTAL OR VERTICAL SEPARATION AS STIPULATED ABOVE, BOTH THE WATER AND THE SEWER PIPING SHALL BE CONSTRUCTED SUCH THAT THE PIPE JOINTS ARE PLACED AS FAR AWAY FROM THE CROSSING AS POSSIBLE AND THE PIPE CROSSING SHALL BE ENCASED IN CONTROL DENSITY FILL FOR A DISTANCE OF 10 FEET ON ALL SIDES OF THE CROSSING.
4. SEE SECTION 3.3.1.2 PIPE INSTALLATION.

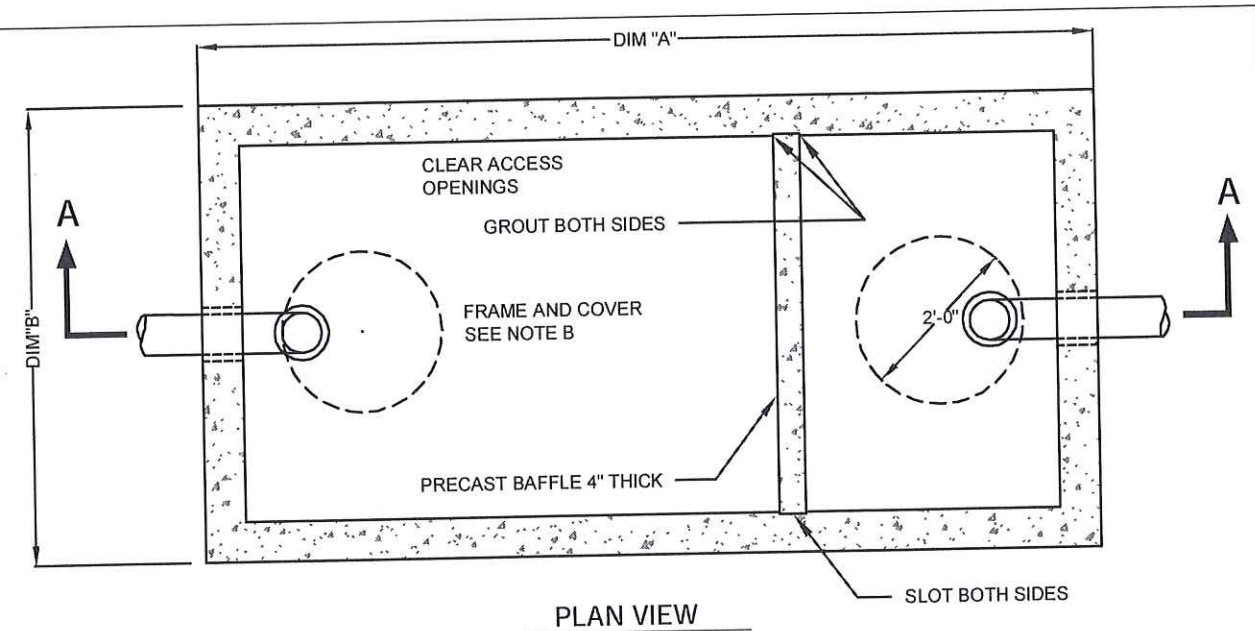
NOT TO SCALE

TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	SEWER CROSSING	DATE: SEPT. 2020 REV: 0	S-3.5.0



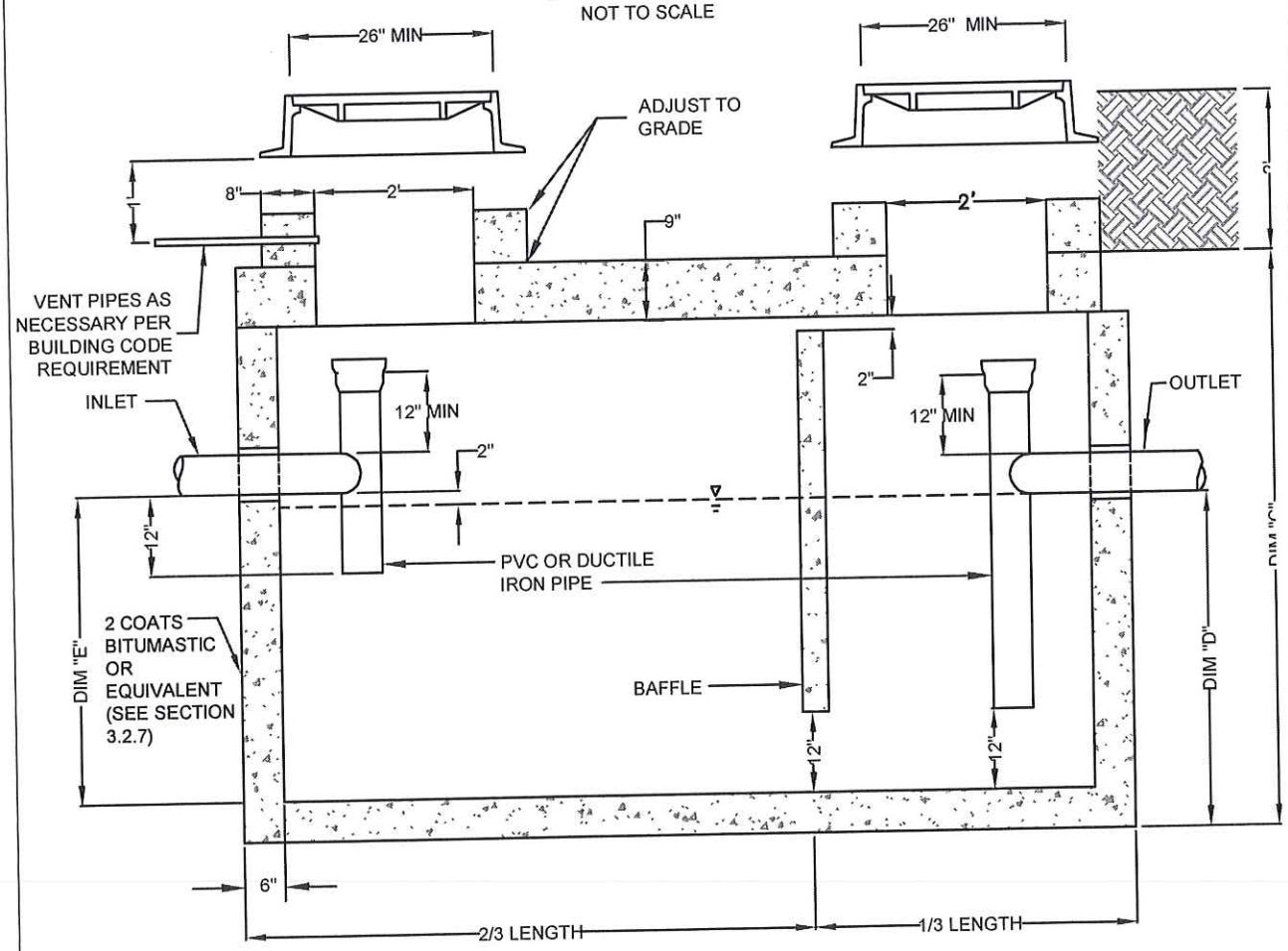
NOT TO SCALE

TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	BACKWATER VALVE ASSEMBLY	DATE: SEPT. 2020 REV: 0	S-3.6.0



PLAN VIEW

NOT TO SCALE



SECTION AA

NOT TO SCALE

TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	TYPICAL GREASE TRAP	DATE: SEPT. 2020 REV: 0	S-3.7.0

SIZING CHART					
GALLON CAPACITY	DIM "A"	DIM "B"	DIM "C"	DIM "D"	DIM "E"
1000	9'-0"	5'-0"	7'-2"	4'-2"	3'-10"
1250	9'-0"	5'-0"	7'-2"	5'-2"	4'-10"
1500	11'-2"	5'-8"	7'-2"	4'-4"	4'-0"
1750	11'-2"	5'-8"	7'-2"	4'-11"	4'-7"
2000	12'-8"	6'-8"	8'-0"	4'-7"	3'-10"
2500	12'-8"	6'-8"	8'-0"	5'-6"	4'-9"
2750	12'-8"	6'-8"	8'-0"	6'-0"	5'-3"
3000	15'-7"	9'-7"	8'-6.5"	5'-0"	3'-9"
4000	15'-7"	9'-7"	8'-6.5"	6'-3"	5'-0"
5000	19'-11"	9-11"	8'-11"	6'-2"	4'-9"
6000	19'-11"	9-11"	10'-5"	7'-2"	5'-9"

NOTES:
1. CONCRETE : 28 DAY F'c= 4500 psi
2. REBAR : ASTM A615 GRADE 60.
3. MESH : ASTM A-185 GRADE 65.
4. DESIGN : AC1318-83 BUILDING CODE
   ASTM C-857 MINIMUM STRUCTURAL DESIGN
   LOADING FOR UNDERGROUND PRECAST
   CONCRETE UTILITY STRUCTURES
5. LOADS : H-20 LOADING.
6. FILL w/CLEAN WATER PRIOR TO START UP OF SYSTEM.
7. LARGER SIZES MAY BE REQUIRED AS PER REVIEW OF FACILITY. TRAP SIZE WILL BE 1,000 GALLONS MINIMUM.
8. FRAME AND COVER SHALL BE PER TOWN OF HOLBROOK SEWER CONSTRUCTION STANDARDS 3.4 FOR PRIVATE PROPERTY INSTALLATIONS.
9. SEE GREASE TRAP CONSTRUCTION STANDARDS SECTION 3.7 FOR OTHER REQUIREMENTS.

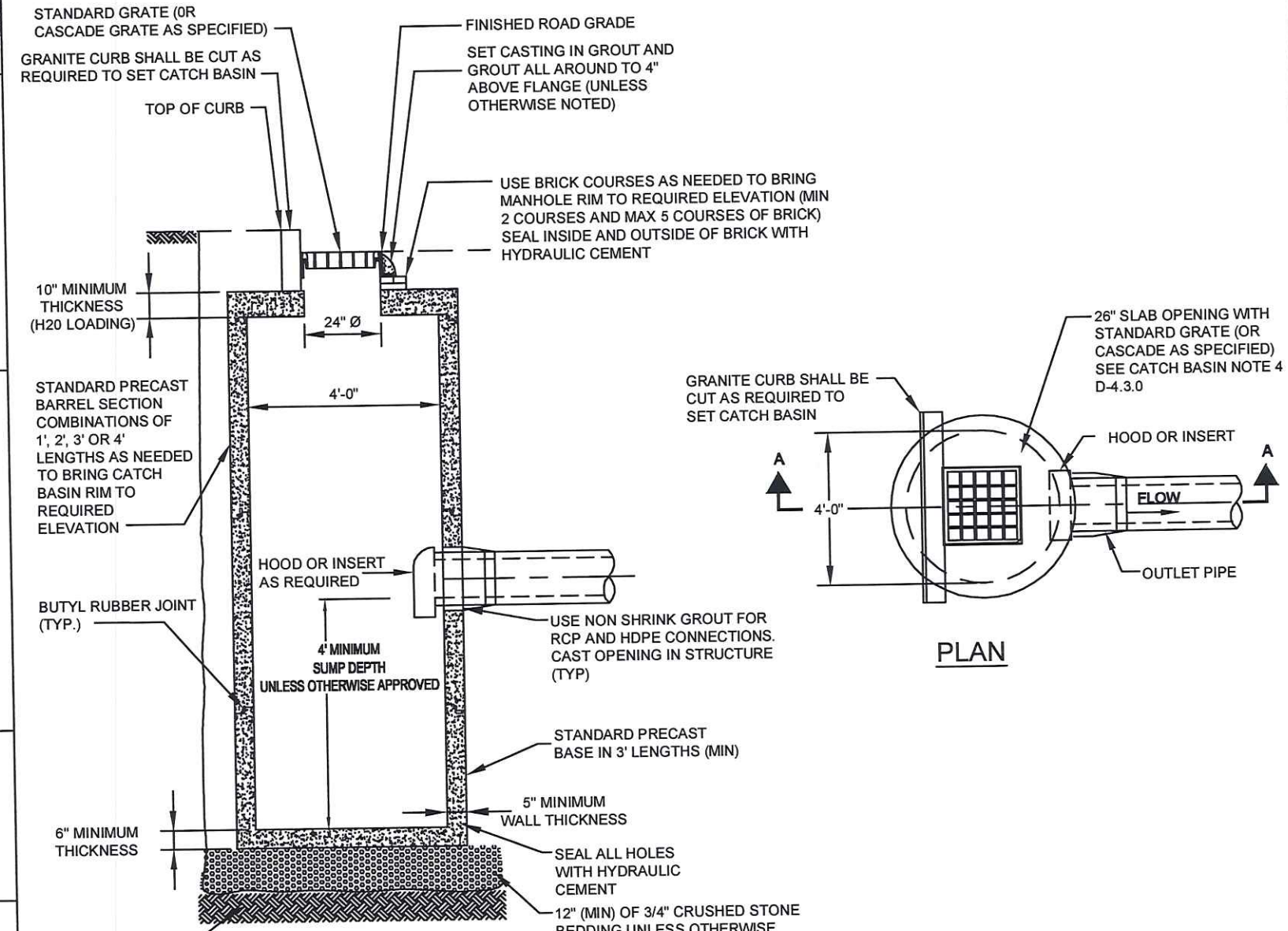
TOWN OF HOLBROOK MASS. INCORPORATED 1874	TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	TYPICAL GREASE TRAP SIZING AND NOTES	DATE: SEPT. 2020 REV: 0	S-3.7.1

TOWN OF HOLBROOK
DEPARTMENT OF PUBLIC WORKS

SINGLE GRATE CATCH BASIN

DATE: SEPT. 2020
REV: 0

D-4.1.0

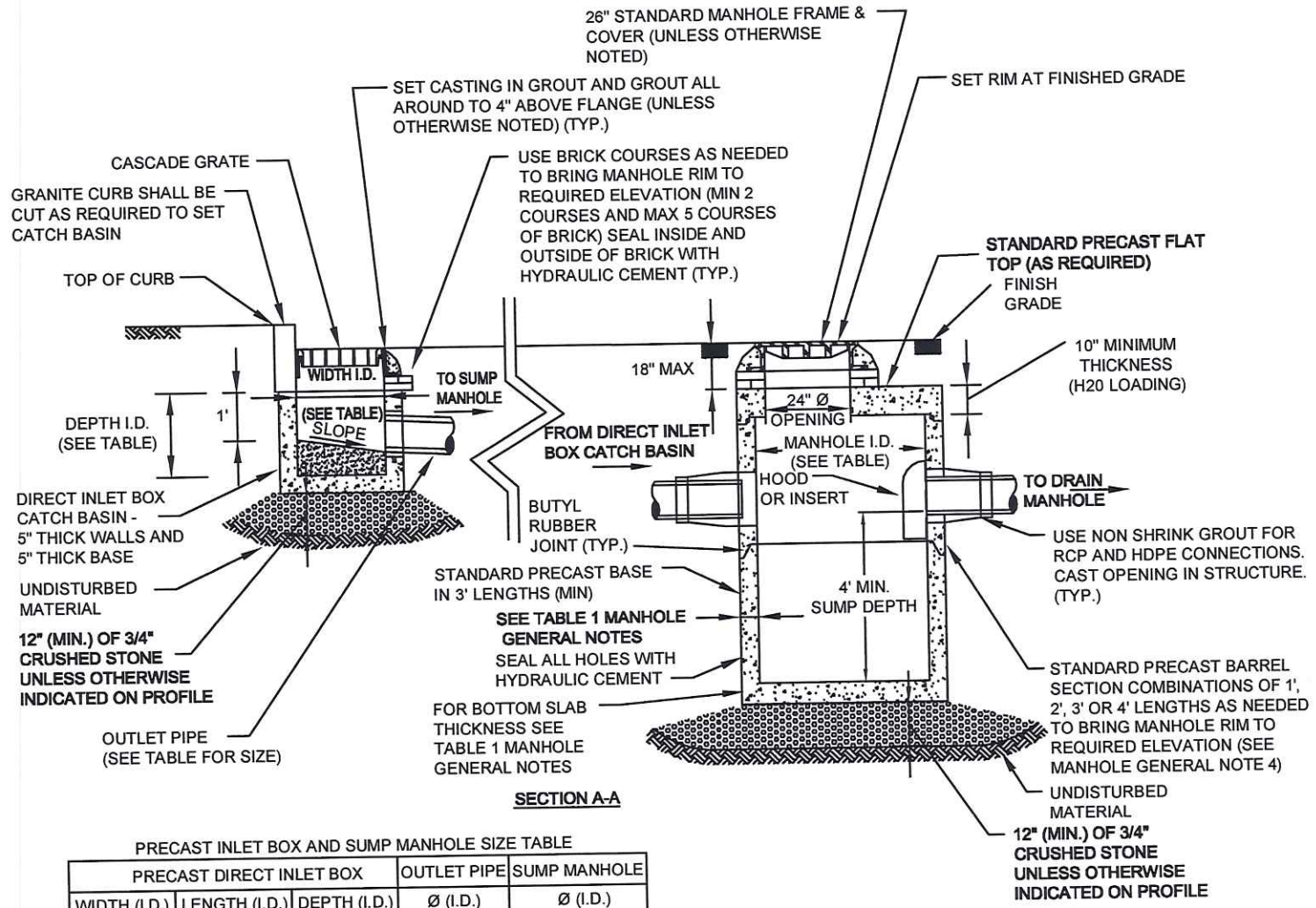


TOWN OF HOLBROOK
DEPARTMENT OF PUBLIC WORKS

DIRECT INLET CATCH BASIN

DATE: SEPT. 2020
REV: 0

D-4.1.1



SECTION A-A

PRECAST INLET BOX AND SUMP MANHOLE SIZE TABLE

	PRECAST DIRECT INLET BOX			OUTLET PIPE	SUMP MANHOLE
	WIDTH (I.D.)	LENGTH (I.D.)	DEPTH (I.D.)	Ø (I.D.)	Ø (I.D.)
SINGLE GRATE	24"	24"	24"	12"	4'
DOUBLE GRATE	24"	48"	36"	15"	5'

I.D. = INSIDE DIMENSION

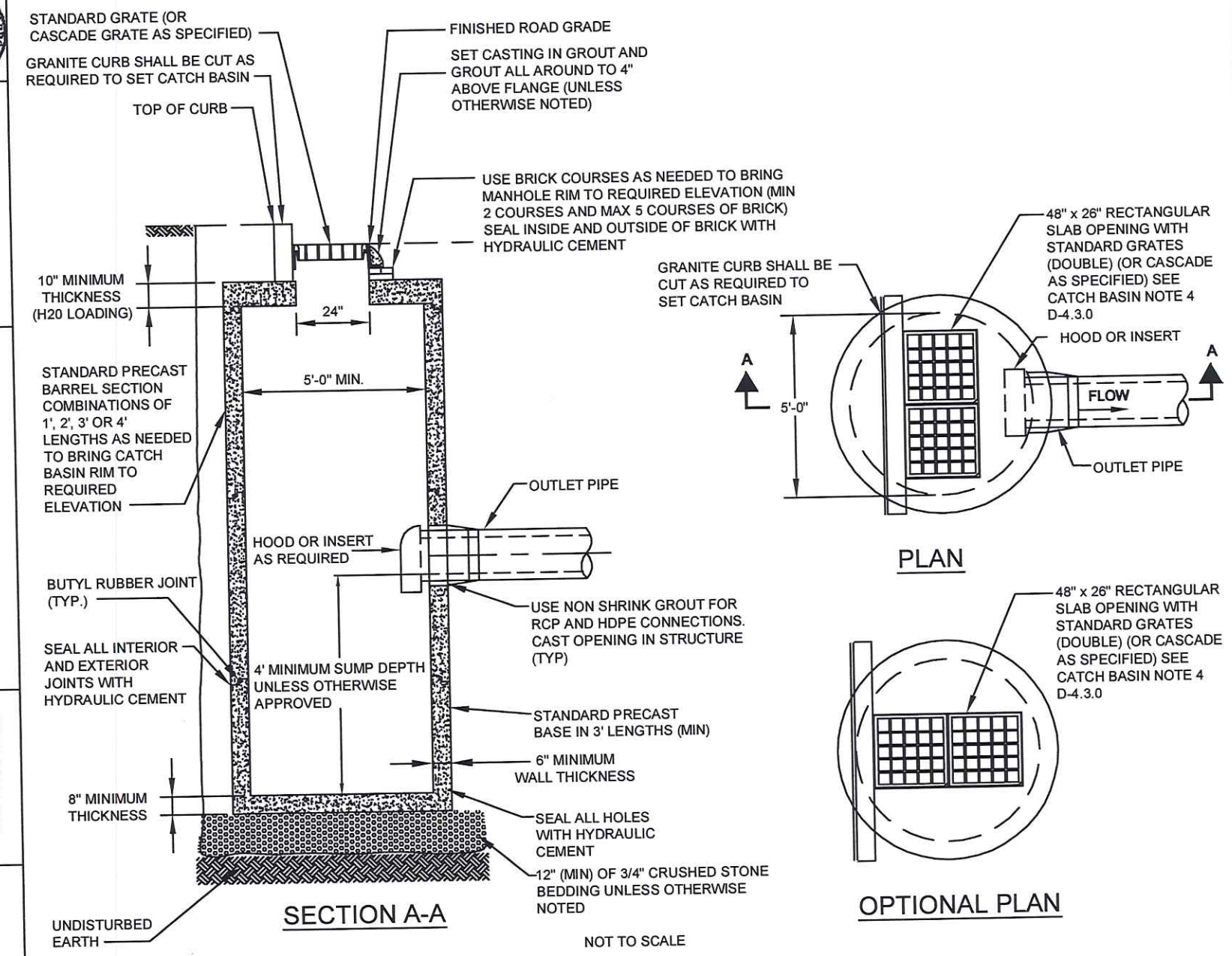
NOT TO SCALE

TOWN OF HOLBROOK
DEPARTMENT OF PUBLIC WORKS

DUAL GRATE CATCH BASIN

DATE: SEPT. 2020
REV: 0

D-4.1.2

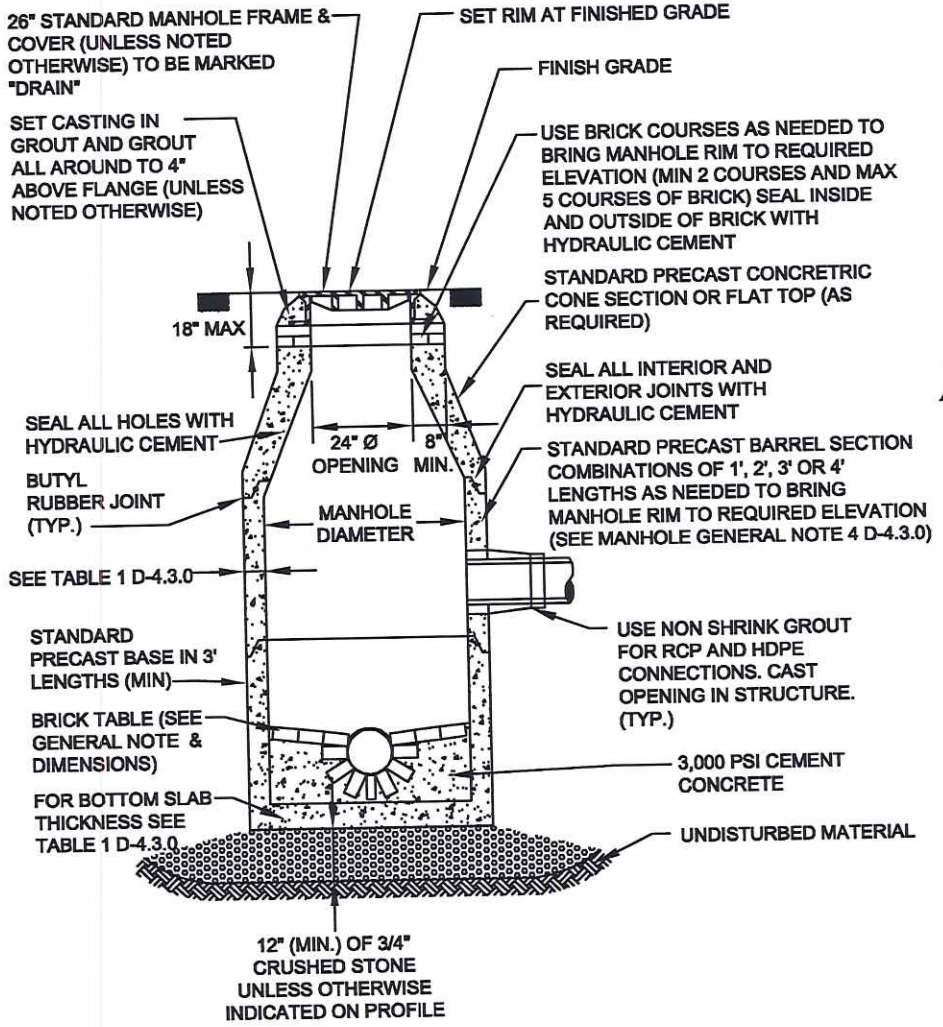


TOWN OF HOLBROOK
DEPARTMENT OF PUBLIC WORKS

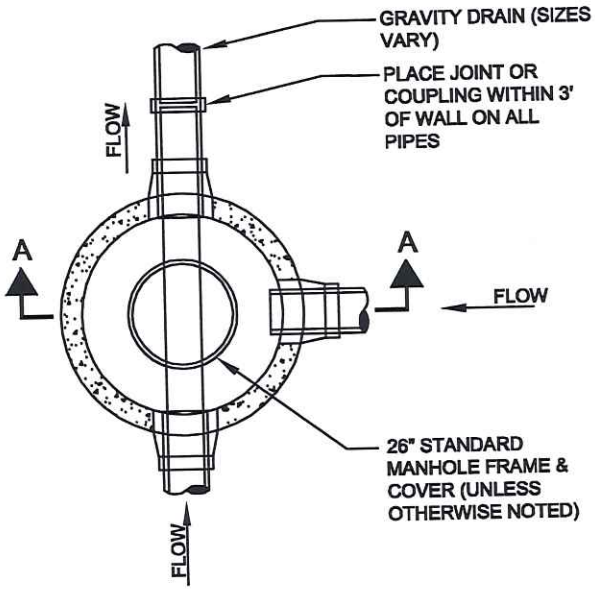
TYPICAL DRAIN MANHOLE

DATE: SEPT. 2020
REV: 0

D-4.2.0



SECTION A-A



PLAN

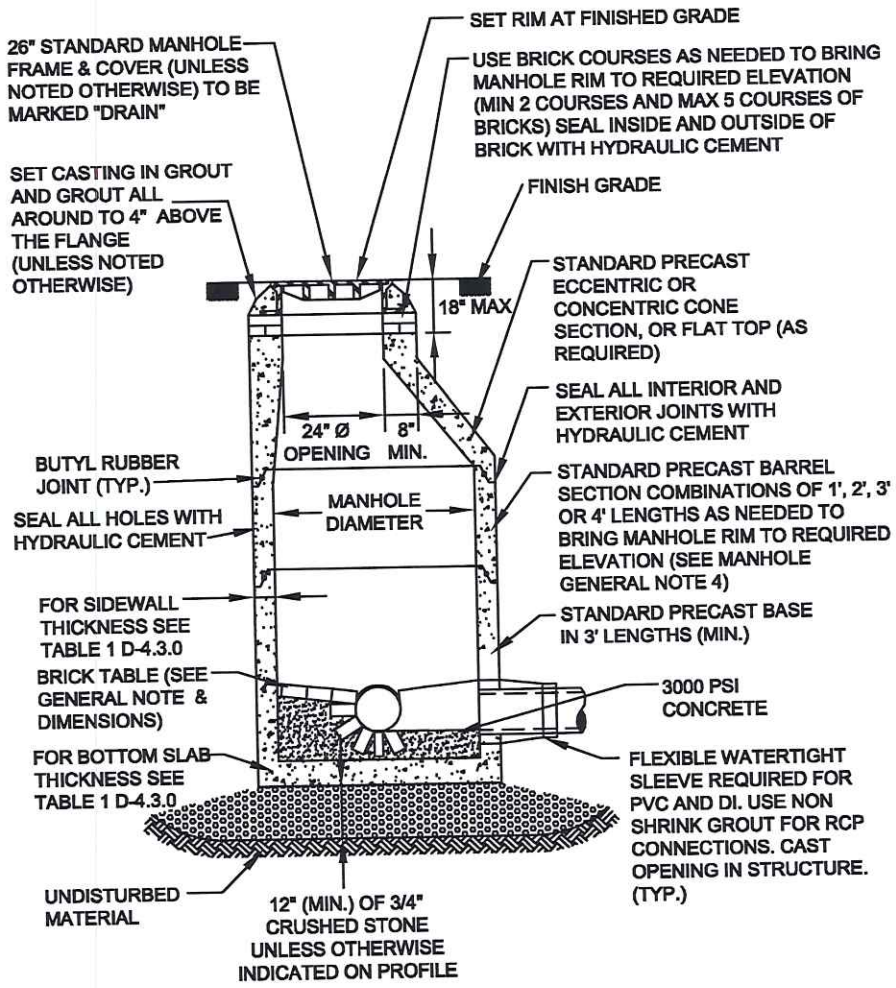
NOT TO SCALE

TOWN OF HOLBROOK
DEPARTMENT OF PUBLIC WORKS

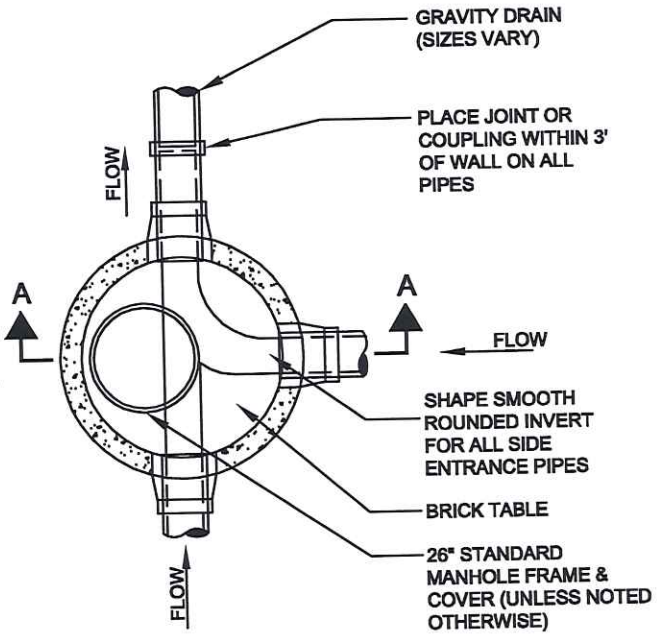
ELECTRIC MANHOLE

DATE: SEPT. 2020
REV: 0

D-4.2.1



SECTION A-A



PLAN

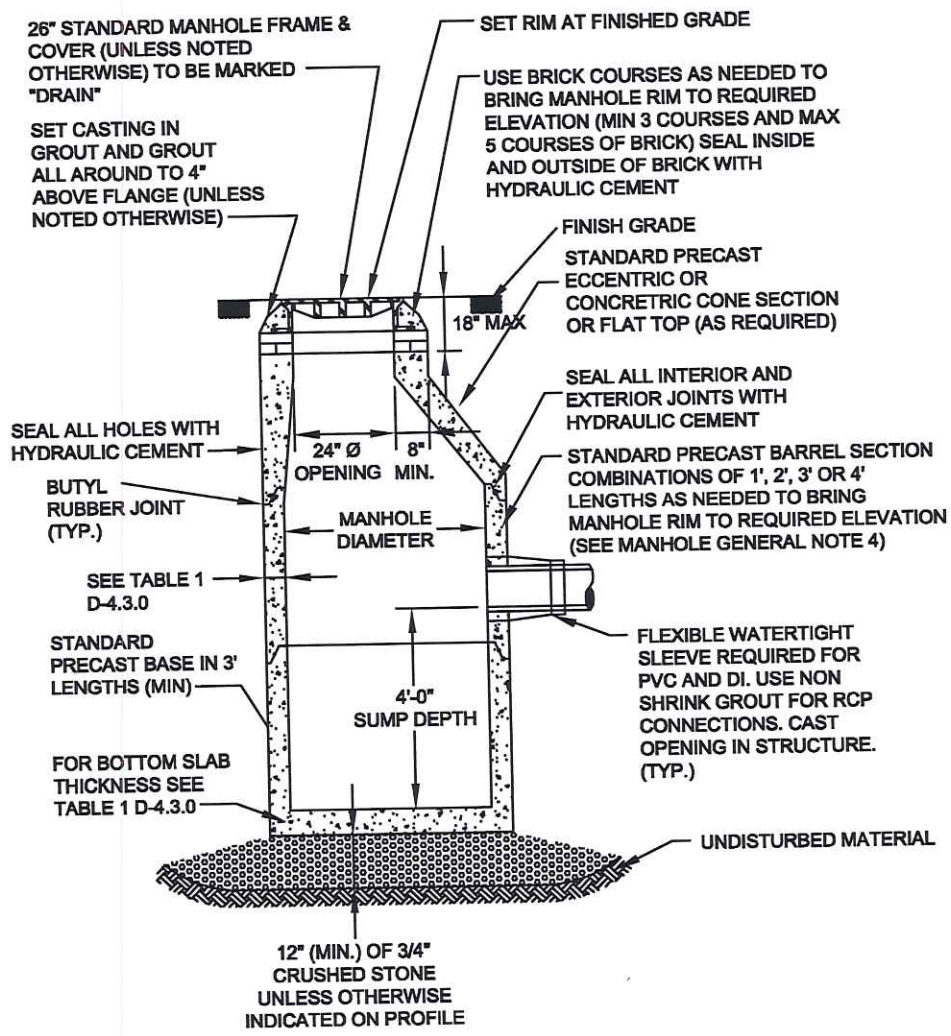
NOT TO SCALE

TOWN OF HOLBROOK
DEPARTMENT OF PUBLIC WORKS

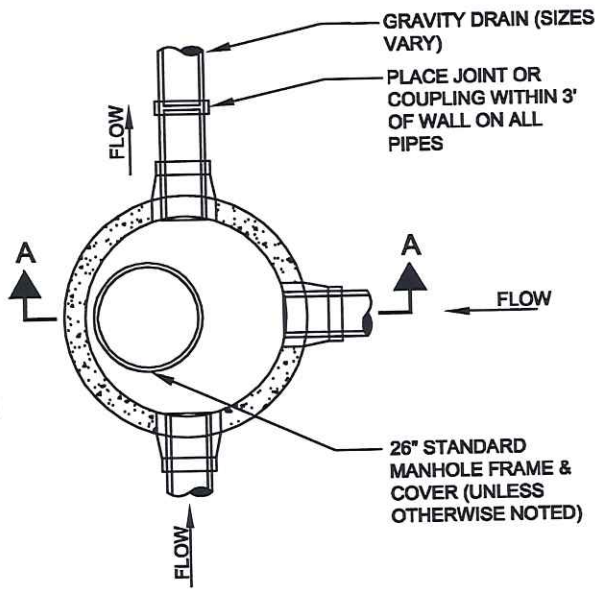
SUMP MANHOLE

DATE: SEPT. 2020
REV: 0

D-4.2.2



SECTION A-A



PLAN

NOT TO SCALE

TABLE 1				
MANHOLE DIAMETER	SIDE WALL MIN. THICKNESS	BOTTOM SLAB MIN. THICKNESS	MAX PIPE DIAMETER * RCP	DI/PVC
4'	5"	6"	24"	30"
5'	6"	8"	36"	42"
6'	6"	8"	48"	54"
8'	8"	8"	66"	72"
10'	10"	10"	72"	84"

* MAY VARY DEPENDING ON SIZE AND LOCATION OF ADDITIONAL PENETRATIONS OR RELATIONSHIP OF PENETRATIONS IN MANHOLE

GENERAL CATCH BASIN NOTES:

1. FACE OF PIPE SHALL NOT PROJECT MORE THAN 3-INCHES FROM FACE OF WALL ALONG CENTERLINE OF PIPE.
2. DESIGN PRECAST SECTIONS WITH FRAME AND GRATE FOR AASHTO H20 LOADING UNLESS OTHERWISE NOTED.
3. PRECAST TOP SLAB OPENING CAN BE CENTERED OR OFFSET AS NECESSARY.
4. GRATE VANES SHALL BE INSTALLED IN DIRECTION TO RECEIVE FLOWS.
5. CATCH BASIN BASE SHALL BE SOLID.

MANHOLE GENERAL NOTES:

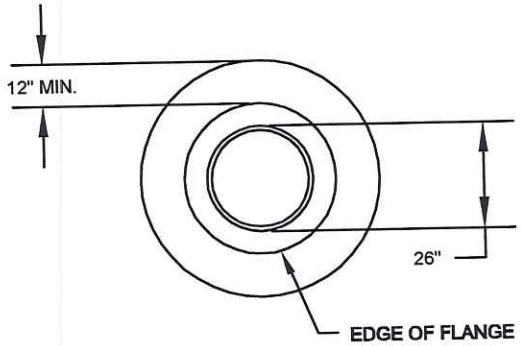
1. DRAIN MANHOLE DIAMETER SHALL BE 4', 5', 6', 8' OR 10' AS SHOWN ON PLAN/PROFILE VIEWS.
2. DESIGN PRECAST SECTIONS WITH FRAME AND COVER FOR AASHTO H20 LOADINGS UNLESS OTHERWISE NOTED.
3. MANHOLES LARGER THAN 4' IN DIAMETER AT THE BASE SHALL BE REDUCED IN DIAMETER TO 4' AT THE NEXT RISER SECTION UNLESS NOTED OTHERWISE ON PLANS.

TOWN OF HOLBROOK
DEPARTMENT OF PUBLIC WORKS

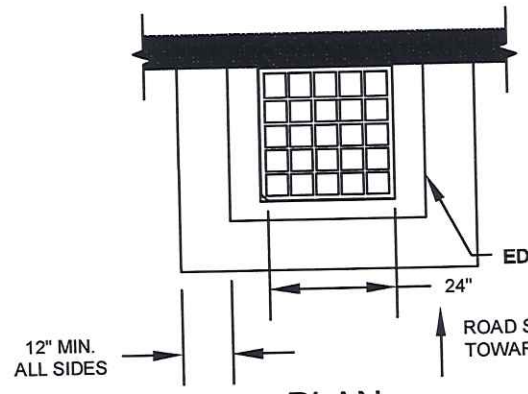
RAISING CASTINGS

DATE: SEPT. 2020
REV: 0

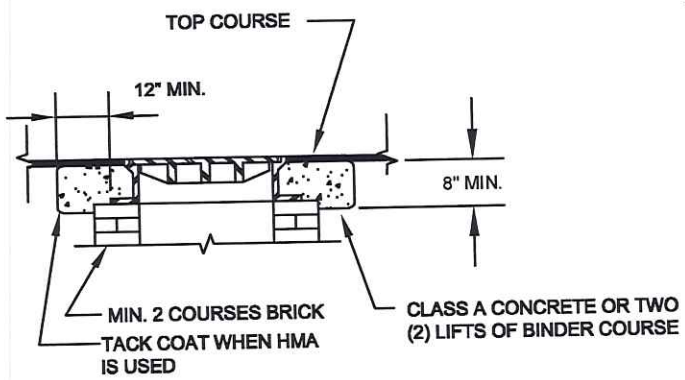
D-4.3.1



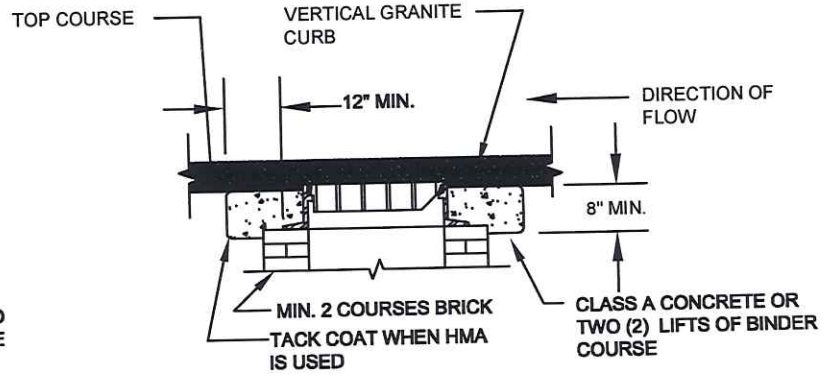
PLAN



PLAN

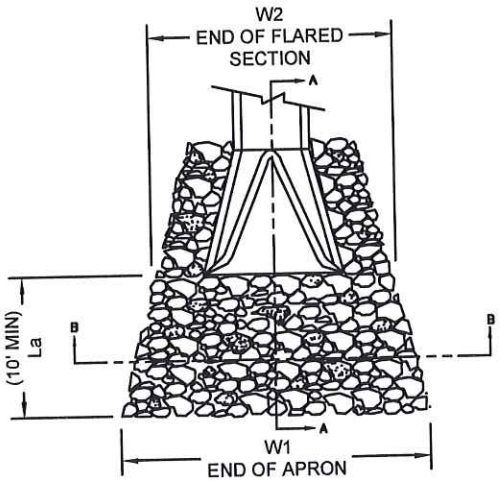


SECTION
MANHOLES

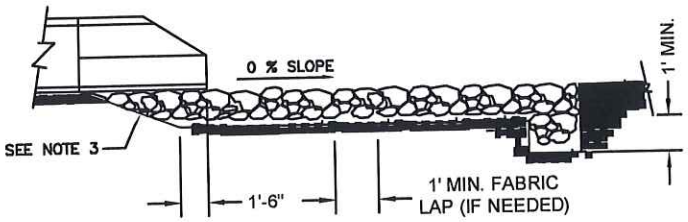


SECTION
CATCH BASINS

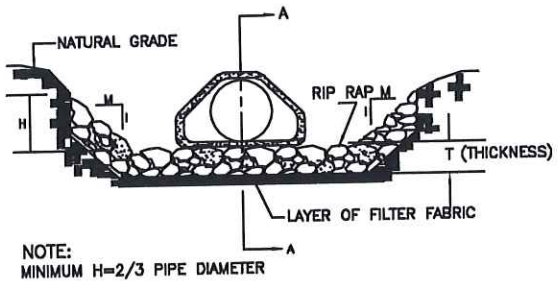
NOT TO SCALE



PLAN



SECTION A–A



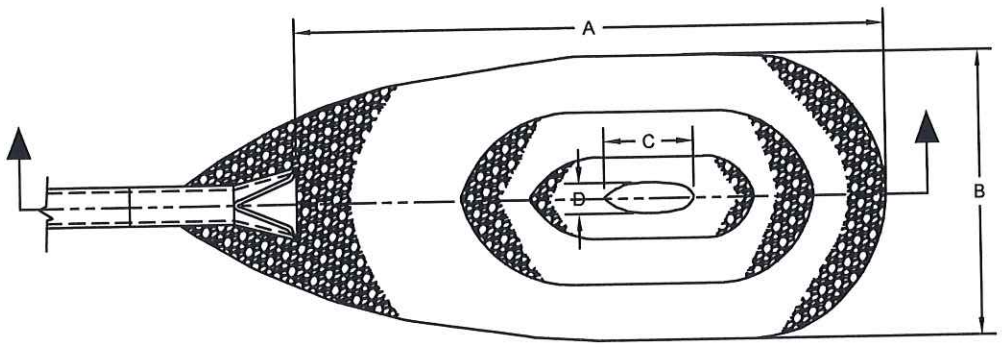
SECTION B–B

NOTES:

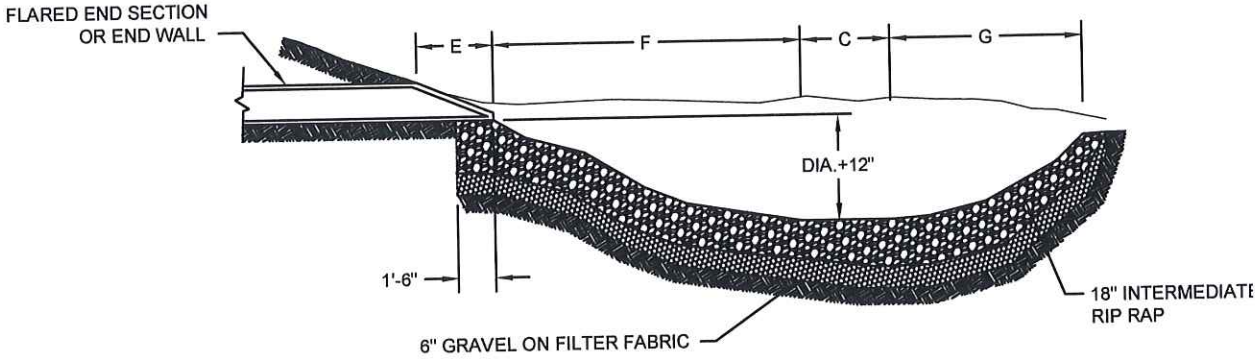
1. CLASS OR MEDIAN SIZE OF RIPRAP AND LENGTH, WIDTH AND DEPTH OF APRON TO BE DESIGNED BY THE ENGINEER.
2. REFER TO THE CONSTRUCTION STANDARDS FOR RIPRAP STANDARDS.
3. RIPRAP SHOULD EXTEND UP BOTH SIDES OF THE APRON AND AROUND THE END OF THE PIPE OR CULVERT AT THE DISCHARGE OUTLET AT A MAXIMUM SLOPE OF 2:1 AND A HEIGHT NOT LESS THAN TWO THIRDS THE PIPE DIAMETER OR CULVERT HEIGHT.
4. THERE SHALL BE NO OVERFLOW FROM THE END OF THE APRON TO THE SURFACE OF THE RECEIVING CHANNEL. THE AREA TO BE PAVED OR RIPRAPPED SHALL BE UNDERCUT SO THAT THE INVERT OF THE APRON SHALL BE AT THE SAME GRADE (FLUSH) WITH THE SURFACE OF THE RECEIVING CHANNEL. THE APRON SHALL HAVE A CUTOFF OR TOE WALL AT THE DOWNSTREAM END.
5. THE WIDTH W-1 OF THE END OF THE APRON SHALL BE EQUAL TO THE BOTTOM WIDTH OF THE RECEIVING CHANNEL. MAXIMUM TAPER TO RECEIVING CHANNEL 5:1.
6. ALL SUBGRADE FOR STRUCTURE TO BE COMPACTED TO 95 % OR GREATER.
7. THE PLACING OF FILL, EITHER LOOSE OR COMPACTED IN THE RECEIVING CHANNEL SHALL NOT BE ALLOWED.
8. NO BENDS OR CURVES IN THE HORIZONTAL ALIGNMENT OF THE APRON WILL BE PERMITTED.
9. FILTER FABRIC SHALL BE INSTALLED ON COMPACTED SUBGRADE PRIOR TO PLACEMENT OF RIP RAP.
10. ANY DISTURBED AREA FROM END OF APRON TO RECEIVING CHANNEL MUST BE STABILIZED.

NOT TO SCALE

TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	RIP RAP APRON AT PIPE OUTFALLS	DATE: SEPT. 2020 REV: 0	D-4.4.0



PLAN



SECTION VIEW

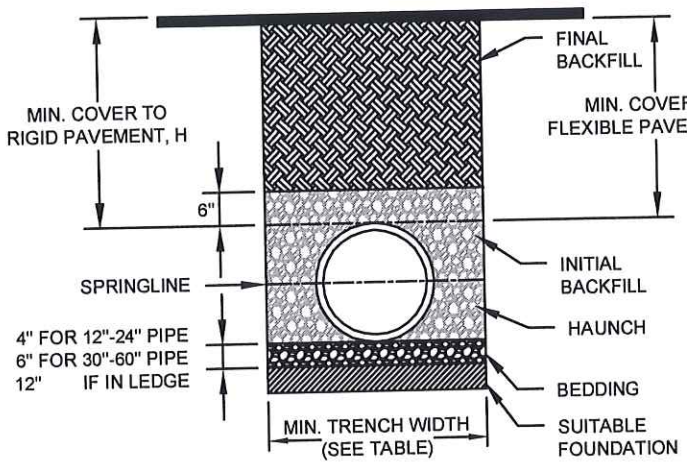
PIPE SIZE	A	B	C	D	E	F	G	WT. RIP RAP IN TONS
15"	10'	7'	1½'	1'	1'	4½'	3'	6
18"	12'	8'	2'	1'	1'	5'	4'	8
21"	15'	9'	2½'	1½'	1'	7'	4½'	12
24"	17'	10'	2½'	1½'	1'	8'	5½'	15
30"	20'	13'	3'	2'	2'	9'	6'	22
36"	24'	16'	3½'	2'	2'	9½'	7'	33

NOTES:

1. THIS DETAIL IS TO ONLY BE USED WHEN OUTFALL HAS A CONTINUOUS FLOW OF WATER AND WITH PRIOR APPROVAL OF THE ENGINEERING DIVISION.

NOT TO SCALE

TOWN OF HOLBROOK, MASS. INCORPORATED 1874	TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	RIP RAP PLUNGE POOL	DATE: SEPT. 2020 REV: 0	D-4.4.1



MINIMUM TRENCH WIDTHS

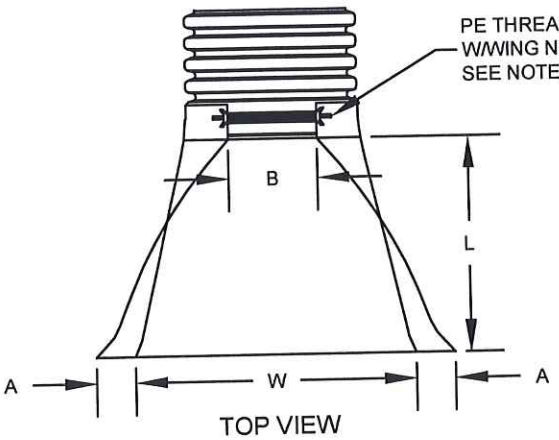
PIPE DIAM.	MIN. TRENCH WIDTH
12"	30"
15"	34"
18"	39"
24"	48"
30"	56"
36"	64"
42"	72"
48"	80"
54"	88"
60"	96"

NOTES:

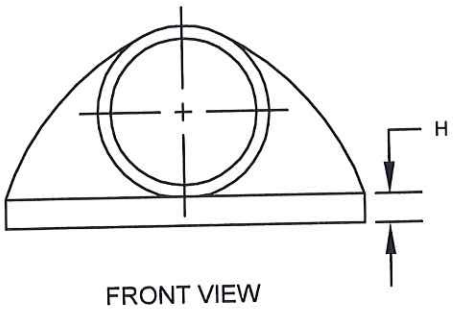
1. ALL PIPE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS", LATEST ADDITION.
2. MEASURES SHOULD BE TAKEN TO PREVENT MIGRATION OF NATIVE FINES INTO BACKFILL MATERIAL, WHEN REQUIRED.
3. FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH SUITABLE MATERIAL AS SPECIFIED BY THE ENGINEER. AS AN ALTERNATIVE AND AT THE DISCRETION OF THE DESIGN ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A GEOTEXTILE MATERIAL.
4. BEDDING: SUITABLE MATERIAL SHALL BE CLASS I, II OR III. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. UNLESS OTHERWISE NOTED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 4" FOR 12"-24"; 6" FOR 30"-60".
5. INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE CLASS I, II OR III IN THE PIPE ZONE EXTENDING NOT LESS THAN 6" ABOVE CROWN OF PIPE. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. MATERIAL SHALL BE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION.
6. MINIMUM COVER: MINIMUM COVER, H, IN NON-TRAFFIC APPLICATIONS (GRASS OR LANDSCAPE AREAS) IS 12" FROM THE TOP OF PIPE TO GROUND SURFACE. ADDITIONAL COVER MAY BE REQUIRED TO PREVENT FLOATION. FOR TRAFFIC APPLICATIONS, MINIMUM COVER, H, IS 36" MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OF RIGID PAVEMENT. MATERIAL PLACED SHALL BE COMPACTED IN LIFTS WITH A MAXIMUM THICKNESS OF 12".

NOT TO SCALE

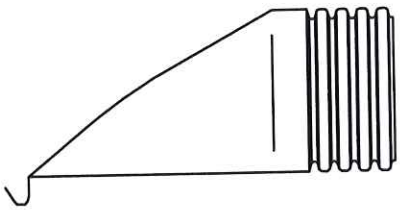
TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	TYPICAL HDPE PIPE TRENCH DETAIL	DATE: SEPT. 2020 REV: 0	D-4.5.0



TOP VIEW



FRONT VIEW



RIGHT SIDE VIEW

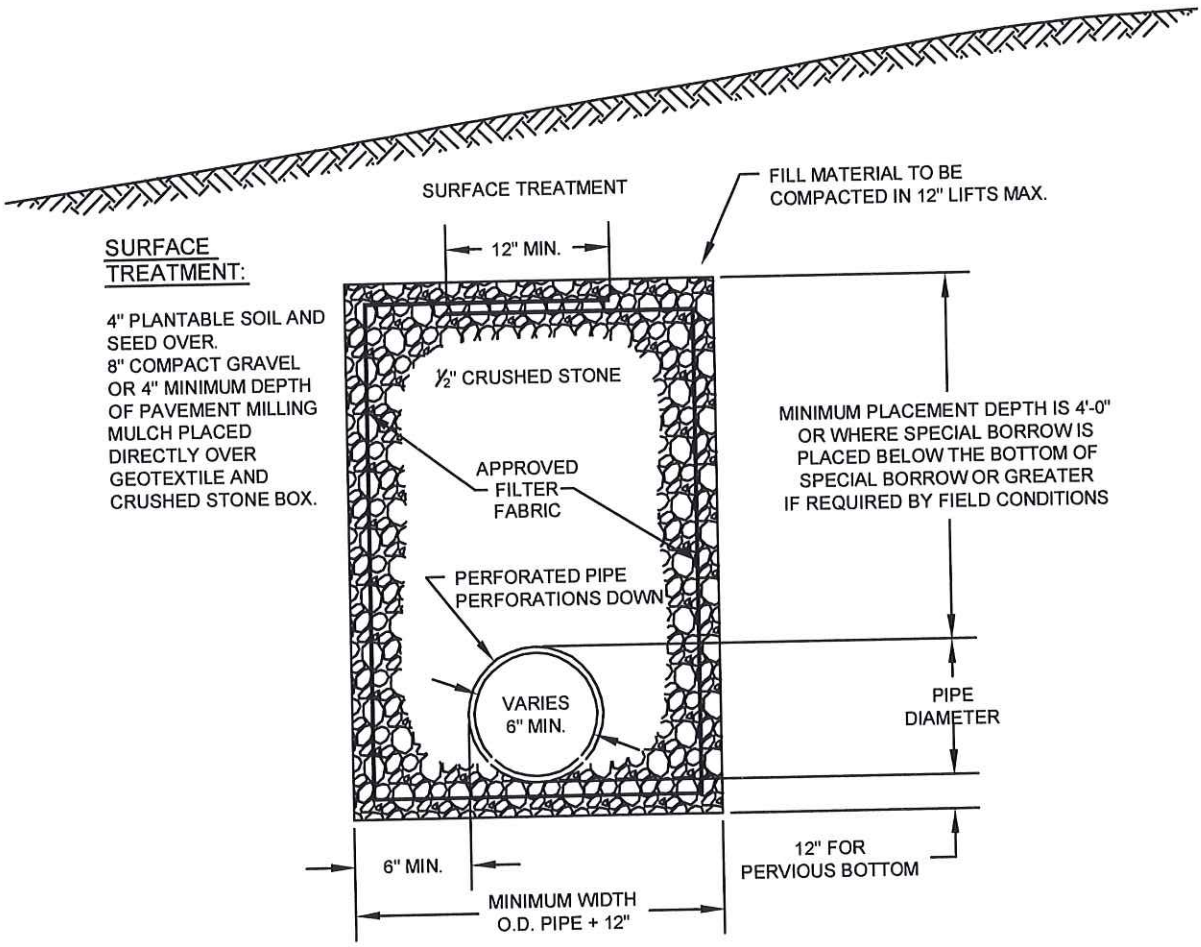
PIPE SIZE	A	B (MAX)	H	L	W
12 IN	6.50 IN	10.00 IN	6.50 IN	25.00 IN	29.00 IN
15 IN	6.5O IN	10.00 IN	6.50 IN	25.00 IN	29.00 IN
18 IN	7.50 IN	15.00 IN	6.50 IN	32.00 IN	35.00 IN
24 IN	7.50 IN	18.00 IN	6.50 IN	36.00 IN	45.00 IN
30 IN	7.50 IN	12.00 IN	8.60 IN	58.00 IN	63.00 IN
36 IN	7.50 IN	25.00 IN	8.60 IN	58.00 IN	63.00 IN

NOTES:

1. PE THREADED ROD W/WING NUTS PROVIDED FOR END SECTIONS 12"-24". 30" & 36" END SECTIONS REQUIRE TWO (2) THREADED RODS FOR ASSEMBLY.
2. ALL DIMENSIONS ARE NOMINAL.

NOT TO SCALE

TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	HDPE FLARED END SECTIONS	DATE: SEPT. 2020 REV: 0	D-4.6.0



SURFACE TREATMENT:

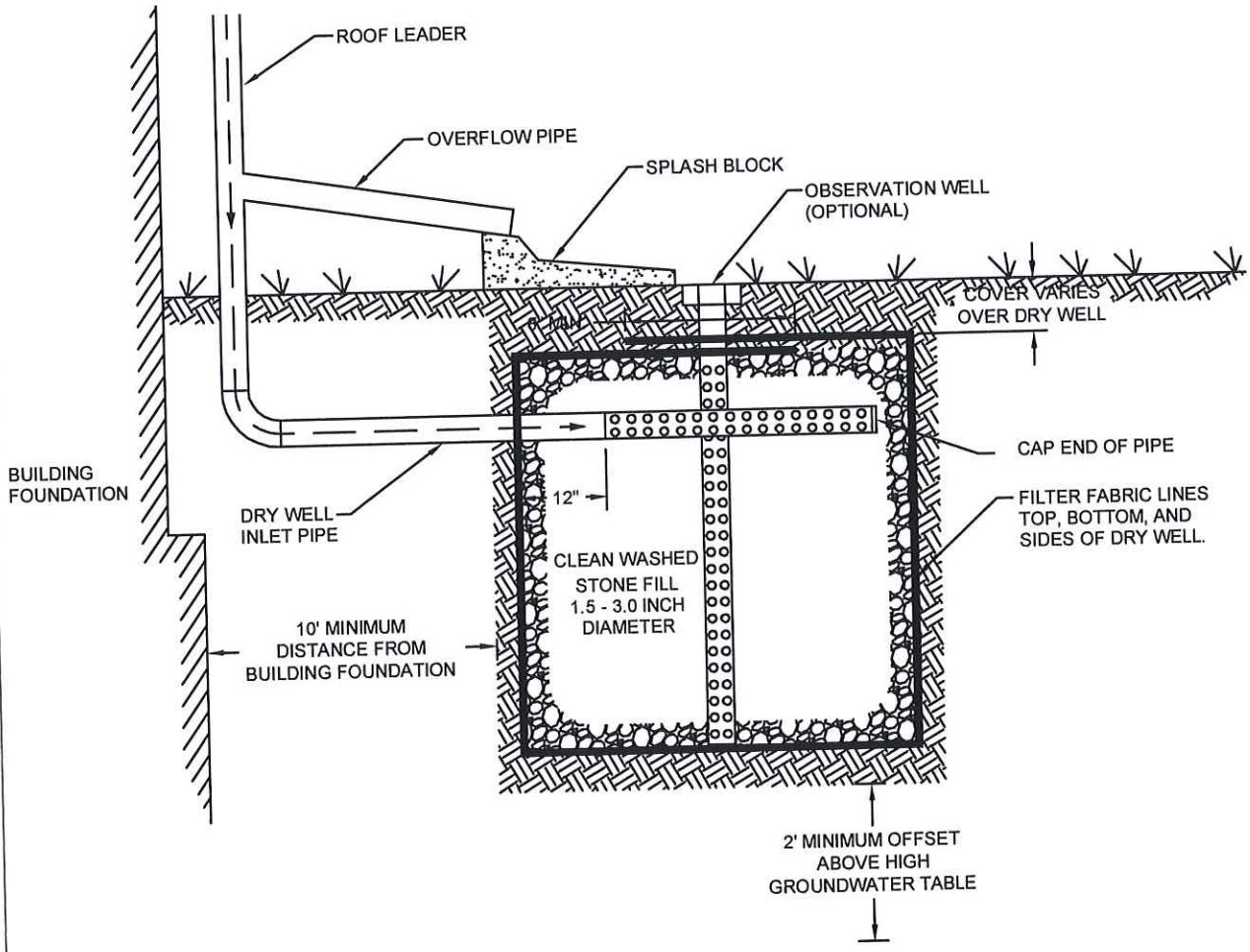
4" PLANTABLE SOIL AND SEED OVER.
8" COMPACT GRAVEL OR 4" MINIMUM DEPTH OF PAVEMENT MILLING MULCH PLACED DIRECTLY OVER GEOTEXTILE AND CRUSHED STONE BOX.

NOTES:

1. PIPE UNDER R.O.W. SCHEDULE 20 OR 40 PERFORATED PVC.
2. OUTLET PIPE UNDER ROADWAY SHALL BE SCHEDULE 80.
3. PIPE SHALL BE SET AT BOTTOM OF TRENCH FOR IMPERVIOUS BOTTOM.
4. SUBDRAIN LOCATED APPROXIMATELY AT INTERSECTION OF TANGENTS.
5. GRAVEL (AND SPECIAL BORROW WHERE REQUIRED) SHALL INTERSECT CRUSHED STONE FOR SUBDRAIN.
6. FILTER FABRIC SHALL BE APPROVED, MHD TYPE III WATER PERMEABLE SYNTHETIC FABRIC.

NOT TO SCALE

TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	SUBDRAIN	DATE: SEPT. 2020 REV: 0	D-4.7.0

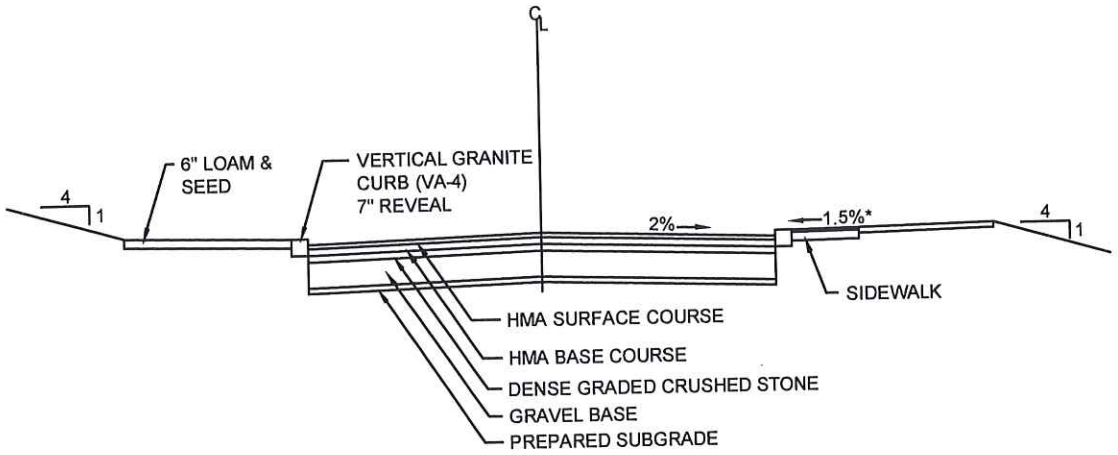


NOTES:

1. DRY WELL TO BE SIZED BY DESIGN ENGINEER FOR PROPOSED CONDITIONS.
2. OPTIONAL: INSTALL REINFORCED CONCRETE CHAMBER WITH HOLES, SURROUNDED WITH CLEAN WASHED STONE, AND FILTER FABRIC.

NOT TO SCALE

TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	DRY WELL	DATE: SEPT. 2020 REV: 0	D-4.8.0



HOT MIX ASPHALT (HMA) PAVEMENT SCHEDULE			
MINIMUM THICKNESS (INCH)	LOCAL	COLLECTOR	ARTERIAL
HMA SURFACE COURSE	1.5	2	3
HMA BASE COURSE	2.5	4	5
DENSE GRADED CRUSHED STONE	4	4	4
GRAVEL BASE	8	8	8
PREPARED SUBGRADE	-	4	4

NOTE:
ROADWAY CROSS SECTION DIMENSIONS, INCLUDING SIDEWALK(S), CURB(S), PARKING ACCOMMODATION, BIKE LANE(S), GRASS STRIP(S) AND OTHER ROADWAY ELEMENTS SHALL BE APPROVED BY THE DEPARTMENT OF PUBLIC WORKS OR OTHER APPLICABLE TOWN ENTITY.

NOT TO SCALE

*TOLERANCE FOR CONSTRUCTION: ±0.5%

TOWN OF HOLBROOK, MASS.	TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	TYPICAL ROADWAY CROSS-SECTION	DATE: SEPT. 2020 REV: 0	R-5.1.0

TOWN OF HOLBROOK
DEPARTMENT OF PUBLIC WORKS

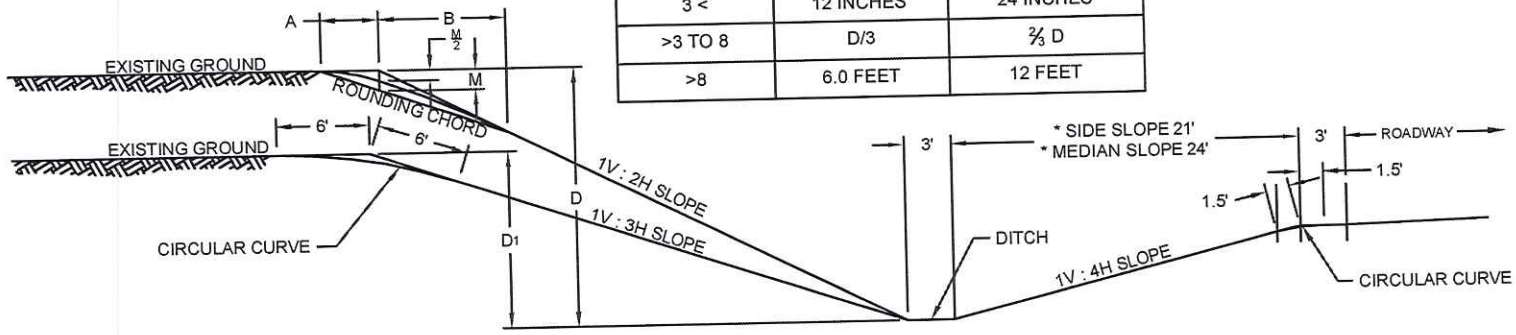
CUT AND FILL SLOPES

DATE: SEPT. 2020

REV: 0

R-5.1.1

ROUNDING TABLE FOR 1V : 2H SLOPE		
D (FEET)	A	B
3 <	12 INCHES	24 INCHES
>3 TO 8	D/3	⅔ D
>8	6.0 FEET	12 FEET

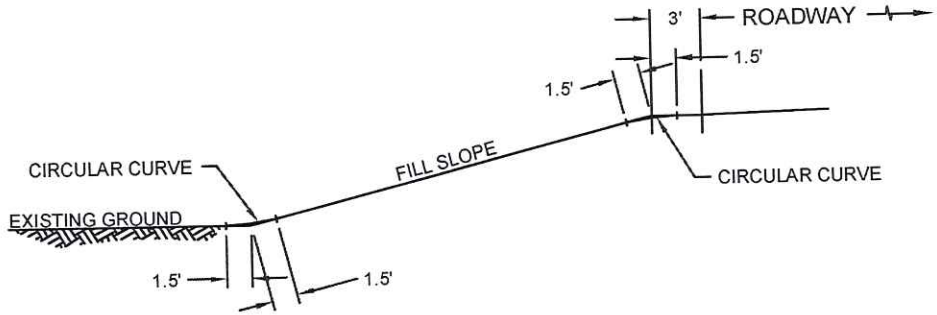


CUT SLOPES

1V : 3H SLOPE ROUNDING

1. WHEN "D_1" IS 1.5 FEET OR MORE ROUND AS SHOWN IN ROUNDING TABLE.
2. WHEN "D_1" IS LESS THAN 1.5 FEET ROUND FULL LENGTH OF SLOPE.

* USE SLOPE LENGTHS FOR LIMITED ACCESS OR HIGH SPEED ROADWAYS.

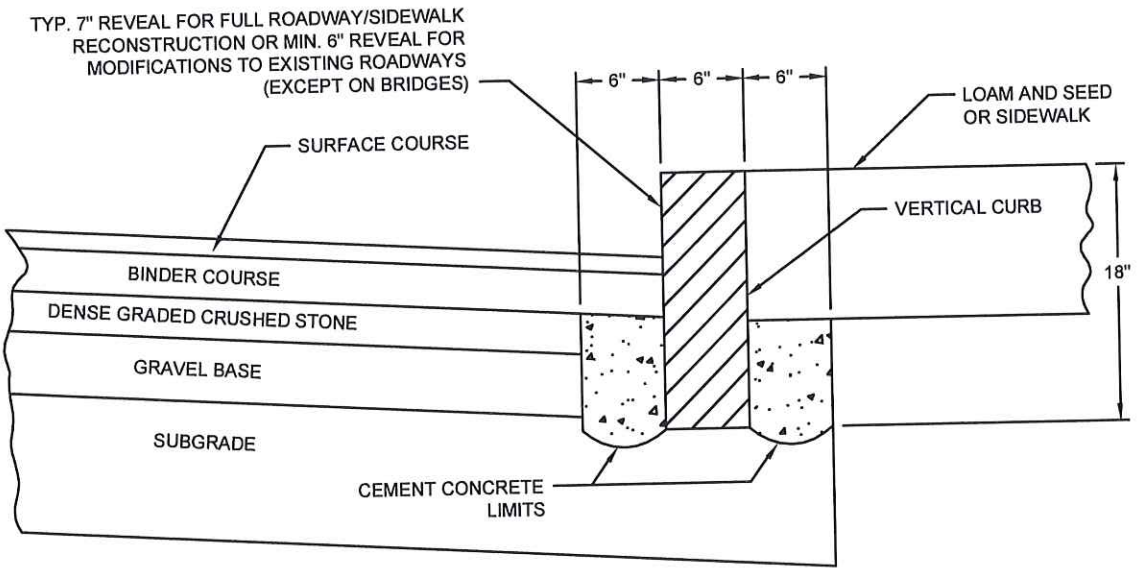


FILL SLOPES

NOTE:

1. THE DIMENSIONS SHOWN FOR ROUNDING CUT AND FILL SLOPES ARE APPROXIMATE, THEY ARE TO BE USED AS GUIDES.

NOT TO SCALE

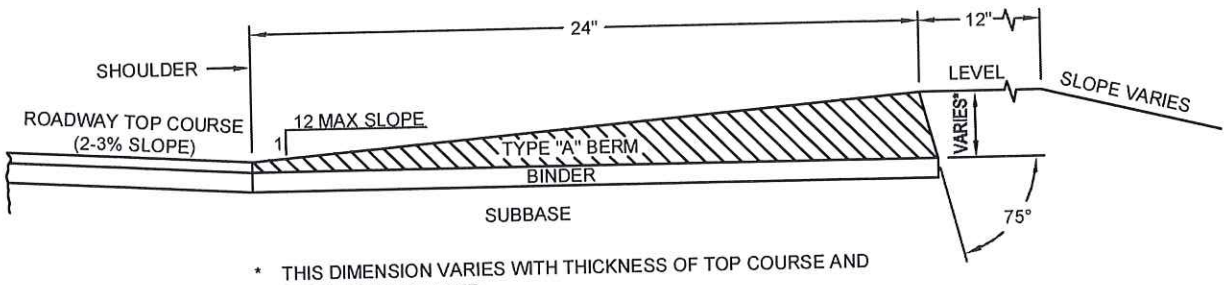


NOTES:

1. CUT NEAT LINE 6" FROM CURB LINE AND REMOVE BASE AND SUBGRADE, REPLACE WITH CEMENT CONCRETE. COVER WITH BINDER AND TOP COURSE TO CURB.
2. ANY DESIGNATED CEMENT CONCRETE THAT IS ACCEPTABLE UNDER SECTION M4 OF THE STANDARD MHD SPECIFICATIONS MAY BE USED; ALL TEST REQUIREMENTS ARE WAIVED. BITUMINOUS CONCRETE SHALL NOT BE USED AS A SUBSTITUTE.
3. GRANITE CURB TO BE USED IN ALL PUBLIC RIGHT OF WAY.

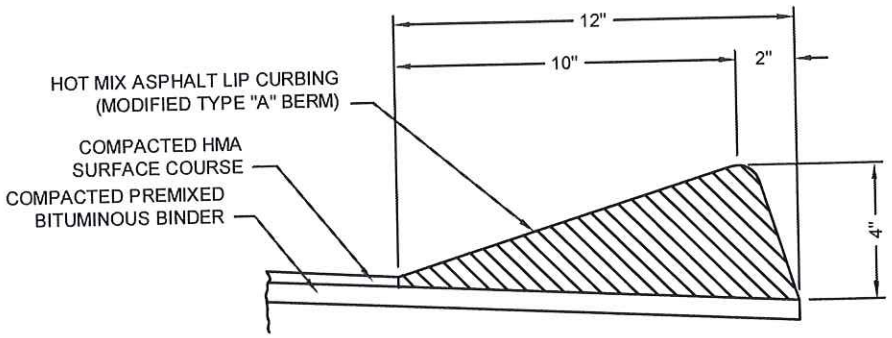
NOT TO SCALE

TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	GRANITE CURBS	DATE: SEPT. 2020 REV: 0	R-5.1.2

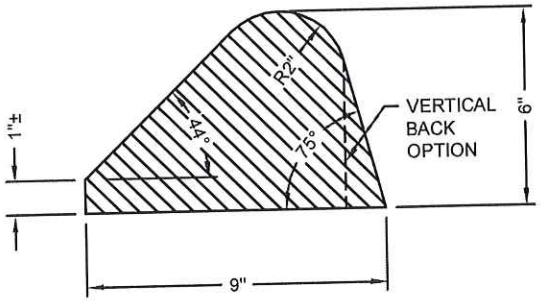


* THIS DIMENSION VARIES WITH THICKNESS OF TOP COURSE AND SLOPE OF SHOULDER.

TYPE "A" BERM



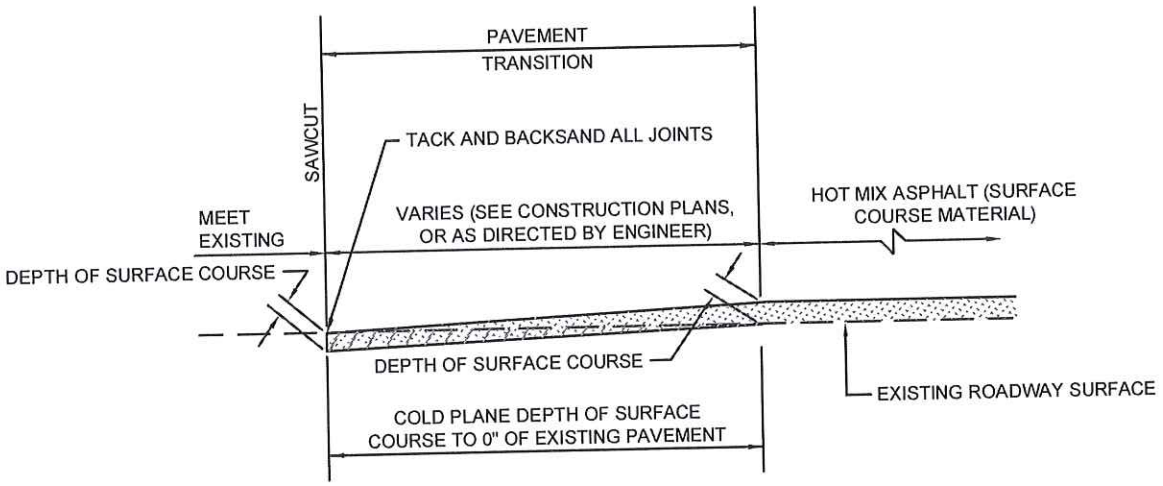
MODIFIED TYPE "A" BERM



TYPE - 2 BERM

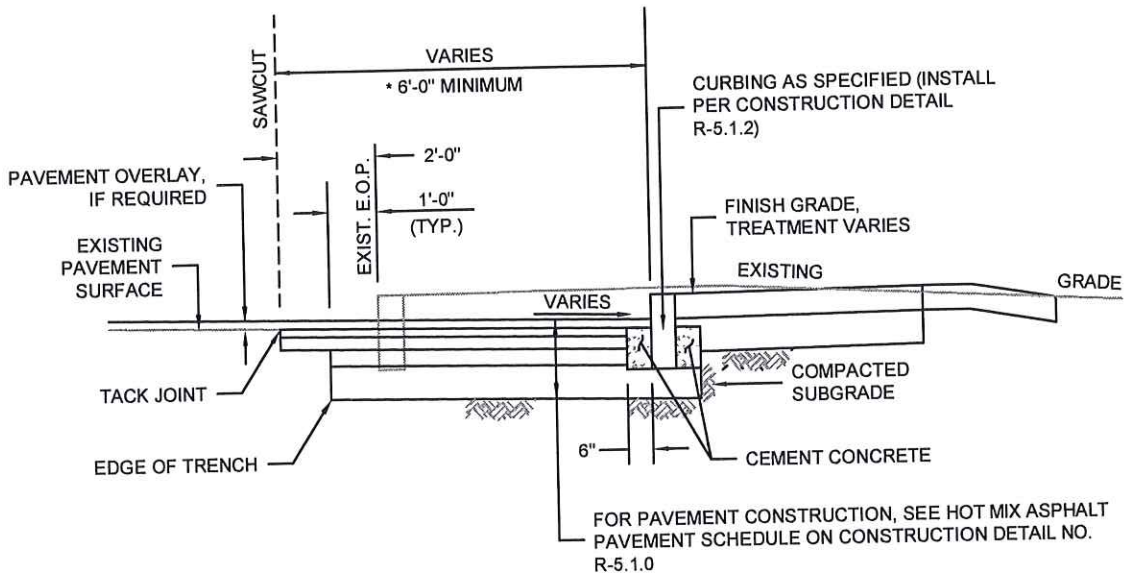
NOT TO SCALE

TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	HOT MIX ASPHALT BERMS	DATE: SEPT. 2020 REV: 0	R-5.1.3



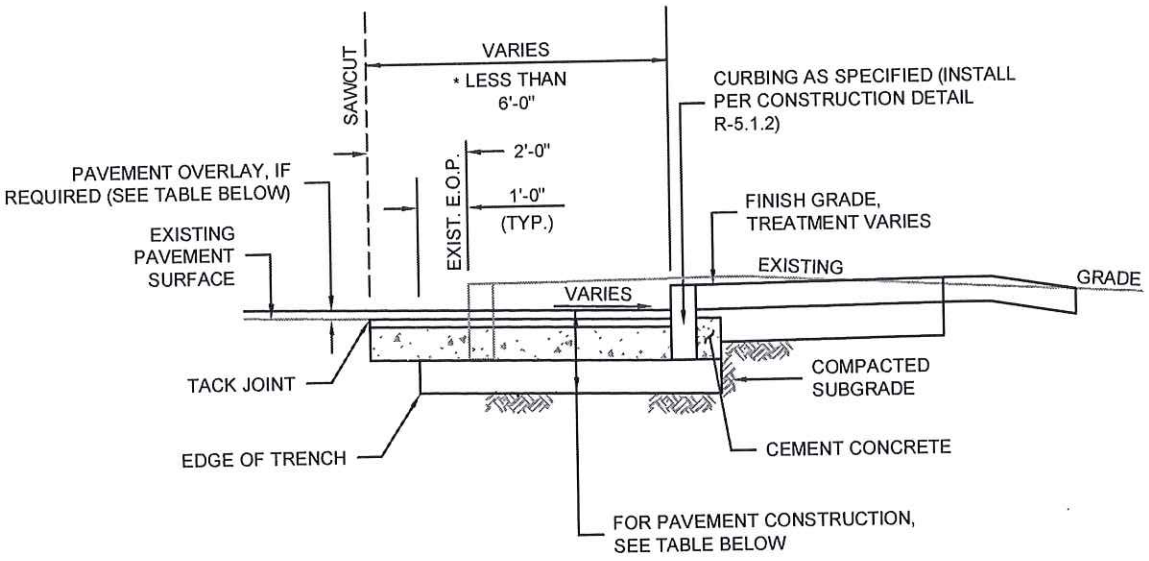
NOTE:
CLEAN SURFACE AND APPLY ASPHALT EMULSION TACK COAT PRIOR TO PLACING HOT MIX ASPHALT SURFACE OVERLAY.

	TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	PAVEMENT TRANSITION	DATE: SEPT. 2020 REV: 0	R-5.1.4



*NOTE: FOR PROPOSED WIDENING LESS THAN 6 FEET IN WIDTH, SEE CONSTRUCTION DETAIL R-5.1.6

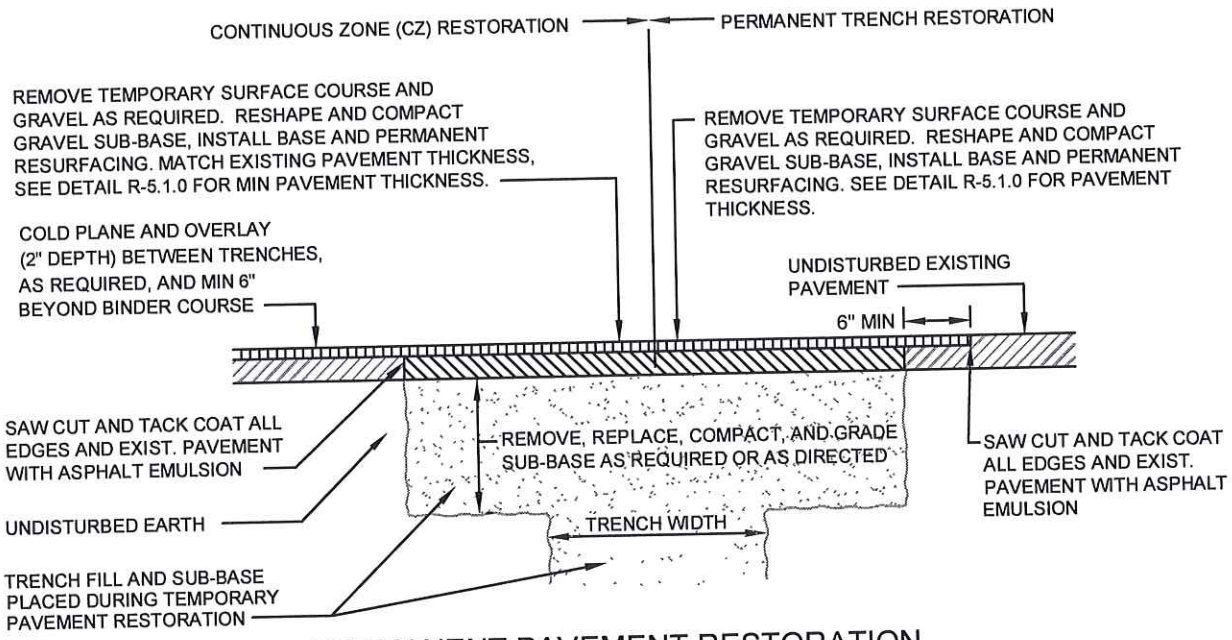
TOWN OF HOLBROOK, MASS. INCORPORATED 1872	TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	ROADWAY WIDENING AND OVERLAY 6 FT WIDE OR GREATER	DATE: SEPT. 2020 REV: 0	R-5.1.5



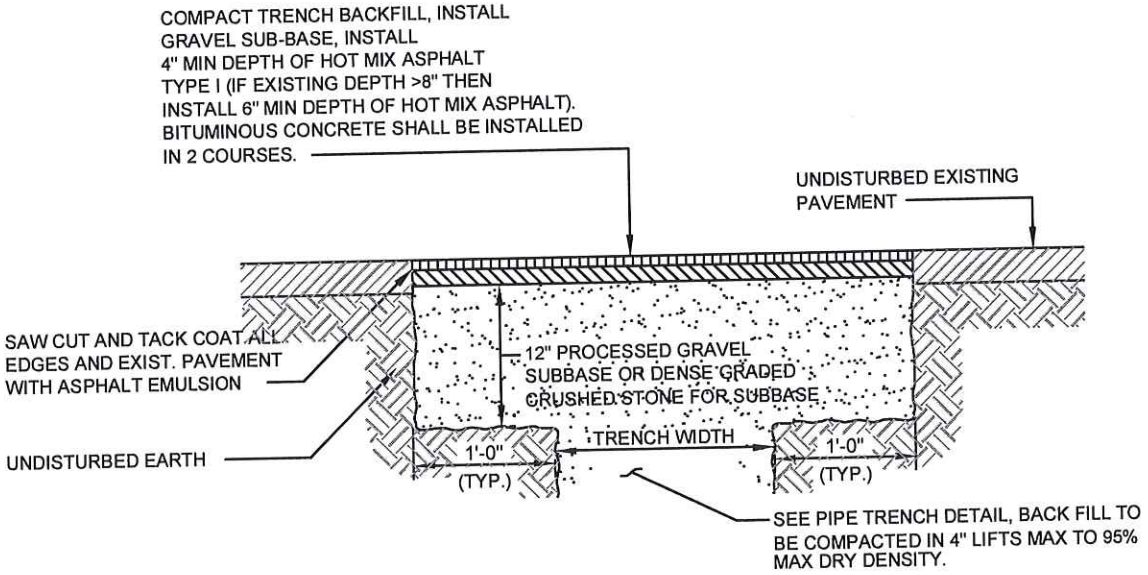
* NOTE: FOR PROPOSED WIDENING OF 6 FEET OR GREATER IN WIDTH, SEE CONSTRUCTION DETAIL R-5.1.5

PAVEMENT CONSTRUCTION FOR WIDENING 6 FEET OR LESS		
	FULL DEPTH CONSTRUCTION	PAVEMENT OVERLAY CONSTRUCTION
SURFACE:	4" HOT MIX ASPHALT (2" SURFACE COURSE MATERIAL OVER 2" BINDER COURSE MATERIAL)	2" HOT MIX ASPHALT, OR AS DIRECTED (SURFACE MATERIAL)
BASE:	8" HIGH-EARLY-STRENGTH CEMENT CONCRETE BASE COURSE	
SUBBASE:	8" GRAVEL BORROW (TYPE "B")	

TOWN OF HOLBROOK, MASS. INCORPORATED 1874	TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	ROADWAY WIDENING AND OVERLAY 6 FT WIDE OR LESS	DATE: SEPT. 2020 REV: 0	R-5.1.6



PERMANENT PAVEMENT RESTORATION

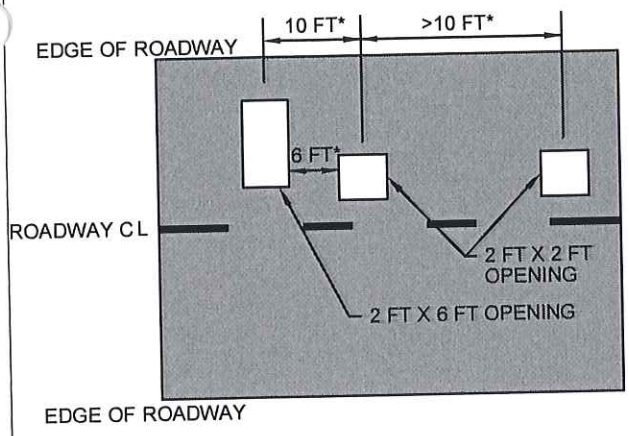


TEMPORARY PAVEMENT RESTORATION

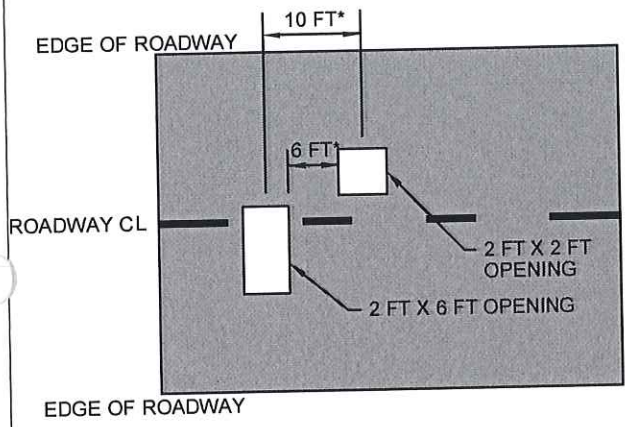
TOWN OF HOLBROOK MASS. INCORPORATED 1872	TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	PAVEMENT DETAILS FOR TRENCH RESTORATION	DATE: SEPT. 2020 REV: 0	R-5.1.7

TEMPORARY PAVEMENT RESTORATION

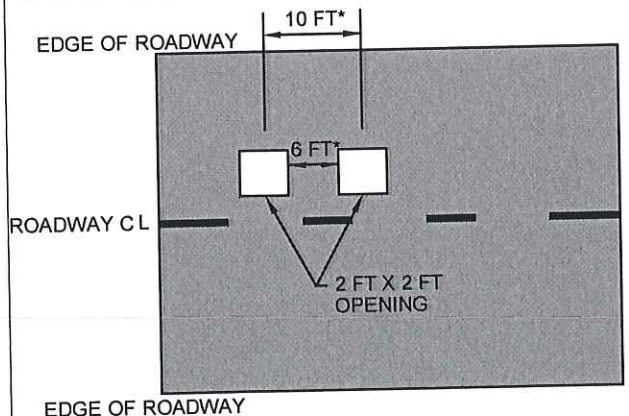
EXAMPLE OF THREE INDIVIDUAL EXCAVATIONS



EXAMPLE OF TWO INDIVIDUAL EXCAVATIONS

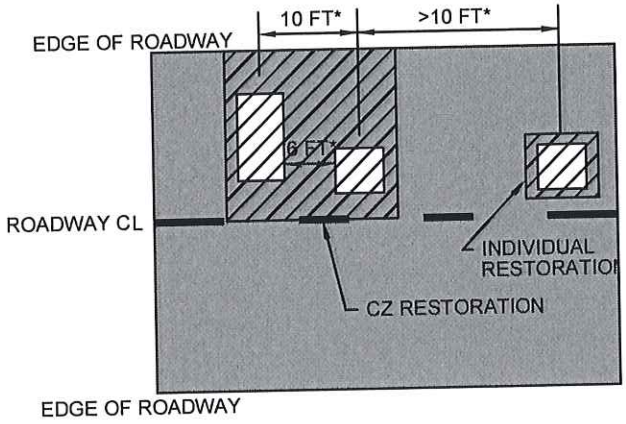


EXAMPLE OF TWO INDIVIDUAL EXCAVATIONS

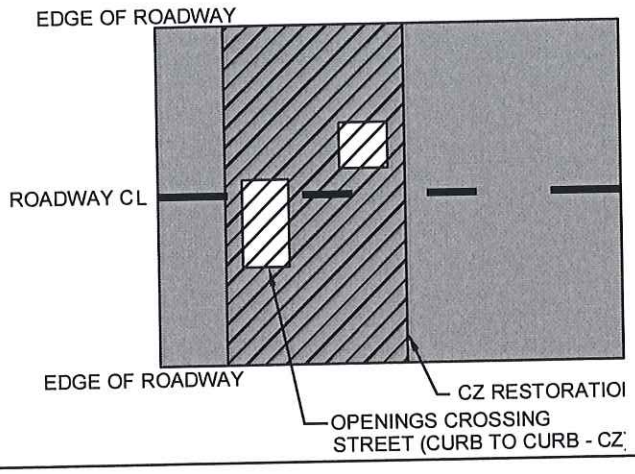


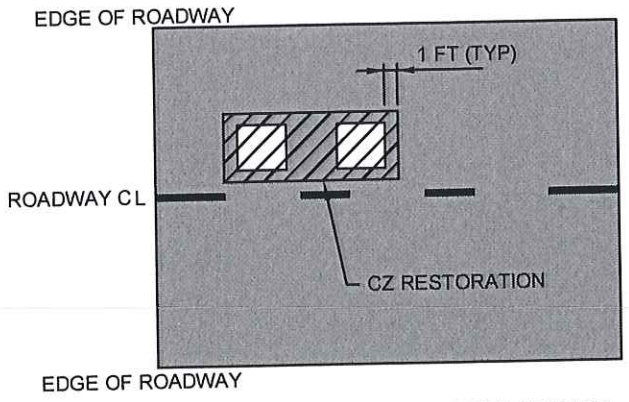
PERMANENT PAVEMENT RESTORATION

CONTINUOUS ZONE (CZ) RESTORATION: SAWCUT AND COLD PLANE MINIMUM 2 INCH DEPTH, REMOVE TEMPORARY PAVEMEN TO GRAVEL BASE UNLESS OTHERWISE APPROVED BY DPW, PLACE PERMANENT PAVEMENT.



CONTINUOUS ZONE (CZ) RESTORATION: SAWCUT AND COLD PLANE MINIMUM 2 INCH DEPTH, REMOVE TEMPORARY PAVEMEN TO GRAVEL BASE, PLACE PERMANENT PAVEMENT.

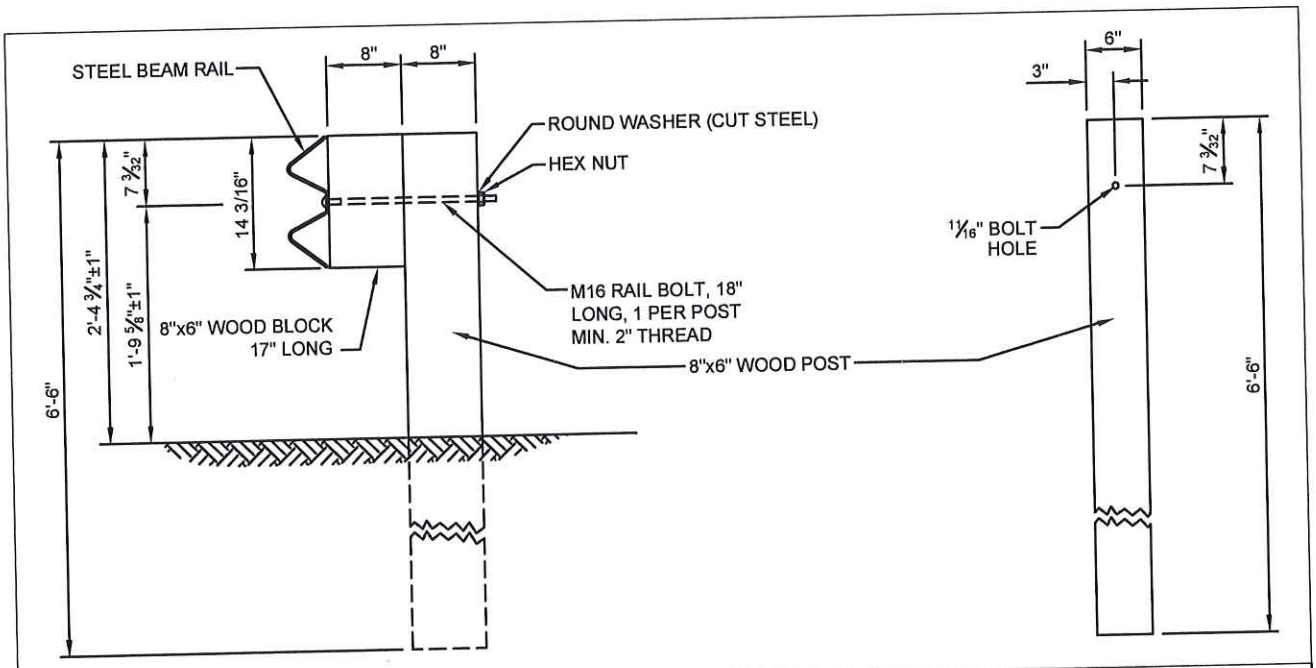




* CONTINUOUS ZONE (CZ) RESTORATION REQUIRED WHEN C OF TRENCH OPENINGS ARE <10 FEET APART OR IF OUTER EDGE OF TRENCH OPENINGS ARE <6 FEET APART.

** FOR PAVEMENTS RECENTLY REHABILITATED, THE TOWN MAY REQUIRE HIEGHTENED PAVEMENT RESTORATION REQUIREMENTS.

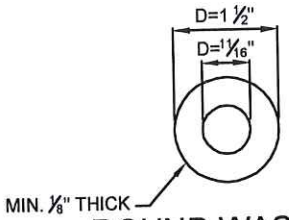
TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	CONTINUOUS ZONE (CZ) TRENCH RESTORATION	DATE: SEPT. 2020 REV: 0	R-5.1.8



SINGLE FACE*

POST DETAIL

* WHEN PLACED IN MEDIAN, CHANGE TO THRIE BEAM, AND CHANGE HEIGHT TO 2'-8 ½"±1"



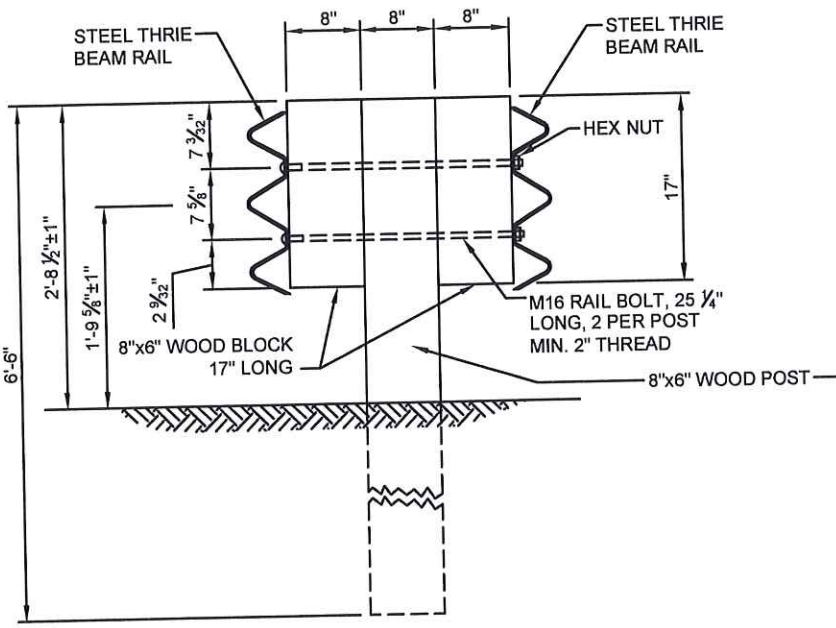
ROUND WASHER
(CUT STEEL)

NOTES:

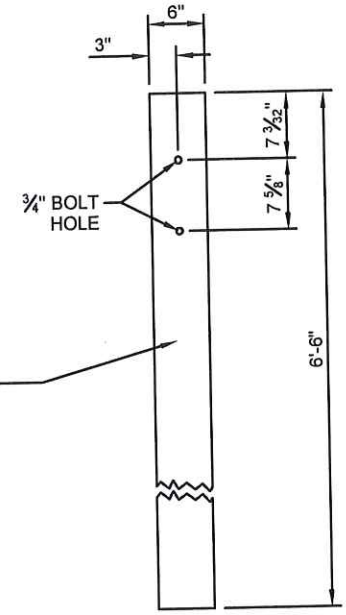
1. POST SPACING, APPROACH END & TRAILING ENDS ARE THE SAME AS THOSE SHOWN FOR STEEL "H" POSTS PER MASSDOT 401.9.0.
2. ALL NUTS, BOLTS & WASHERS ARE TO BE GALVANIZED.
3. ALL SPLICES ARE TO BE MADE AT POSTS.

NOT TO SCALE

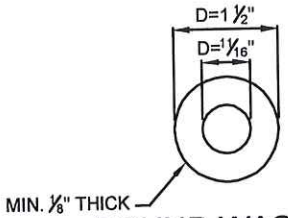
TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	GUARD RAIL (SINGLE FACE)	DATE: SEPT. 2020 REV: 0	R-5.2.0



DOUBLE FACE



POST DETAIL



ROUND WASHER
(CUT STEEL)

NOTES:

1. POST SPACING, APPROACH END & TRAILING ENDS ARE THE SAME AS THOSE SHOWN FOR STEEL "H" POSTS PER MASSDOT 401.9.0.
2. ALL NUTS, BOLTS & WASHERS ARE TO BE GALVANIZED.
3. ALL SPLICES ARE TO BE MADE AT POSTS.

NOT TO SCALE

TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	GUARD RAIL (DOUBLE FACE)	DATE: SEPT. 2020 REV: 0	R-5.2.1

1. ROADWAY SIDEWALK CROSS SLOPES, FOR BRICK, CEMENT CONCRETE, AND HOT MIX ASPHALT, AS INDICATED IN THE CONSTRUCTION STANDARDS, WILL BE 1.5 %. A CONSTRUCTION TOLERANCE OF ±0.5% IS ACCEPTABLE ON ROADWAY SIDEWALKS. SIDEWALKS ON BRIDGES SHALL BE CONSTRUCTED TO A CROSS SLOPE OF 1.0 % IN ACCORD WITH MASSDOT BRIDGE POLICY. IN ACCORDANCE WITH 521 CMR THE RULES AND REGULATIONS OF THE ARCHITECTURAL ACCESS BOARD (AAB), THE SIDEWALK CROSS SLOPE CANNOT EXCEED 2.0 %.

2. AN UNOBSTRUCTED PATH OF TRAVEL WITH A MINIMUM WIDTH OF 3'-3" (PREFERED MINIMUM WIDTH OF 5'-0" FOR SIDEWALK MAINTENANCE) SHALL BE MAINTAINED PAST ALL OBSTRUCTIONS (UTILITY POLES, SIGNS, SIGNAL FOUNDATIONS, MASTS, MAILBOXES, ALONG DRIVE OPENINGS, ETC.).

3. THE WHEELCHAIR RAMP SLOPES AND SIDE SLOPES (TRANSITIONS) SHALL BE MAXIMUM OF 7.5 % WITH A CONSTRUCTION TOLERANCE OF ±0.5%. HOWEVER THESE SLOPES MAY BE FLATTER WHEN WARRANTED BY SURROUNDING CONDITIONS.

4. WHERE THE ROADWAY PROFILE EXCEEDS 4 %, THE HIGH SIDE TRANSITION LENGTH UNDER ANY CONDITIONS NEED NOT EXCEED 15'-0" FOR A 6" CURB REVEAL.

5. IN NO CASE WHERE A STOP LINE IS WARRANTED, SHALL A RAMP BE PLACED ON THE TRAFFIC APPROACH SIDE OF THAT STOP LINE.

6. FIXED OBJECTS (I.E. UTILITY POLES, HYDRANTS, SIGNS, SIGNAL FOUNDATIONS, ETC.) MUST NOT ENCROACH ON ANY PART OF THE WHEELCHAIR RAMP INCLUDING TRANSITION SLOPES.

7. AT NO TIME IS ANY PART OF THE WHEELCHAIR RAMP, EXCLUDING CURB TRANSITIONS TO BE LOCATED OUTSIDE THE CROSSWALK. THE WHEELCHAIR RAMP ENTRANCE IS TO BE CENTERED IN THE CROSSWALK WHENEVER POSSIBLE.

8. CATCH BASINS WHICH ARE TO BE LOCATED IN THE VICINITY OF A WHEELCHAIR RAMP SHALL BE LOCATED UPGRADE OF THE RAMP ENTRANCE.

9. THE ENTRANCE OF A WHEELCHAIR RAMP SHALL BE FLUSH WITH THE ROADWAY.

10. TESTING SURFACE: WHEN TESTING WITH A STRAIGHTEDGE PLACED PARALLEL TO THE LINE OF THE SLOPE THERE SHALL BE NO DEVIATION FROM A TRUE SURFACE IN EXCESS OF $\frac{1}{4}$".

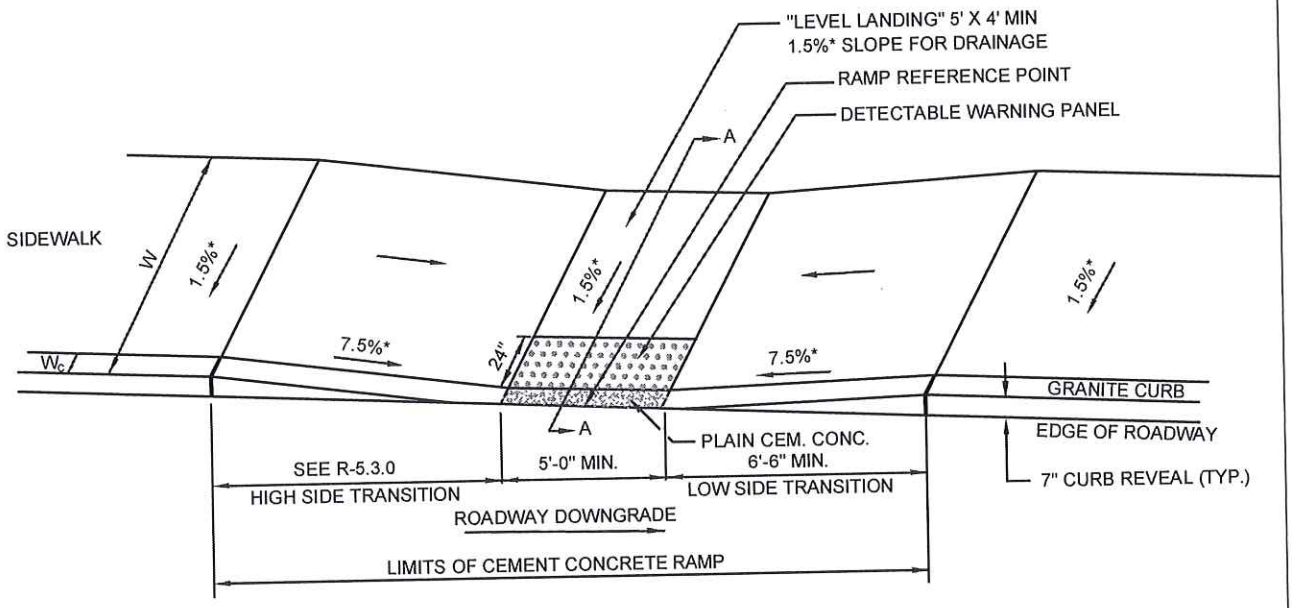
11. WHEELCHAIR RAMPS ON BRIDGES SHOULD BE AVOIDED. IF A WHEELCHAIR RAMP IS REQUIRED TO BE PLACED ON A BRIDGE, PRIOR WRITTEN APPROVAL IS REQUIRED. SPECIAL DETAILING OF THE REINFORCEMENT AND CURB SYSTEM WILL BE REQUIRED TO MAINTAIN THE PREFORMANCE OF THE RAILING/BARRIER SYSTEM.

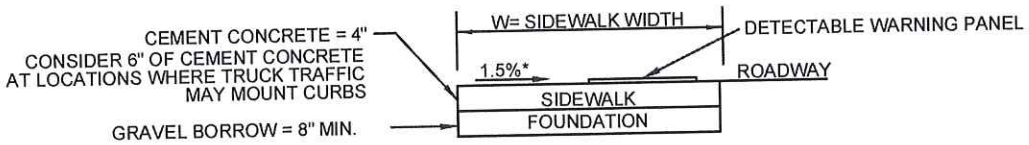
CURB TRANSITION LENGTH FOR WHEELCHAIR RAMPS		
ROADWAY PROFILE GRADE	*HIGH SIDE TRANSITION LENGTH (HST) 6" REVEAL	*HIGH SIDE TRANSITION LENGTH (HST) 7" REVEAL
%		
0	6'-6"	7'-10"
> 0 TO 1	7'-8"	9'-0"
> 1 TO 2	9'-0"	10'-8"
> 2 TO 3	11'-0"	13'-0"
> 3 TO 4	14'-0"	16'-8"
> 4	15'-0" MAX	17'-0" MAX

* BASED ON A DESIGN SLOPE OF 7.5 %. VARING CURB REVEAL MAY ALTER HST LENGTH.

TOWN OF HOLBROOK, MASS. INCORPORATED 1872	TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	WHEELCHAIR RAMP NOTES	DATE: SEPT. 2020 REV: 0	R-5.3.0

WHEELCHAIR RAMPS SHALL BE CONSTRUCTED IN CONFORMANCE WITH THE CURRENT REGULATIONS OF THE ARCHITECTURAL ACCESS BOARD, THE AMERICANS WITH DISABILITIES ACT AND THE CURRENT MASSDOT CONSTRUCTION STANDARDS.





SECTION A-A

WHEELCHAIR RAMP TYPE A

NOT TO SCALE

LEGEND:

W = SIDEWALK WIDTH

W_c = CURB WIDTH

* = TOLERANCE FOR CONSTRUCTION ±0.5%

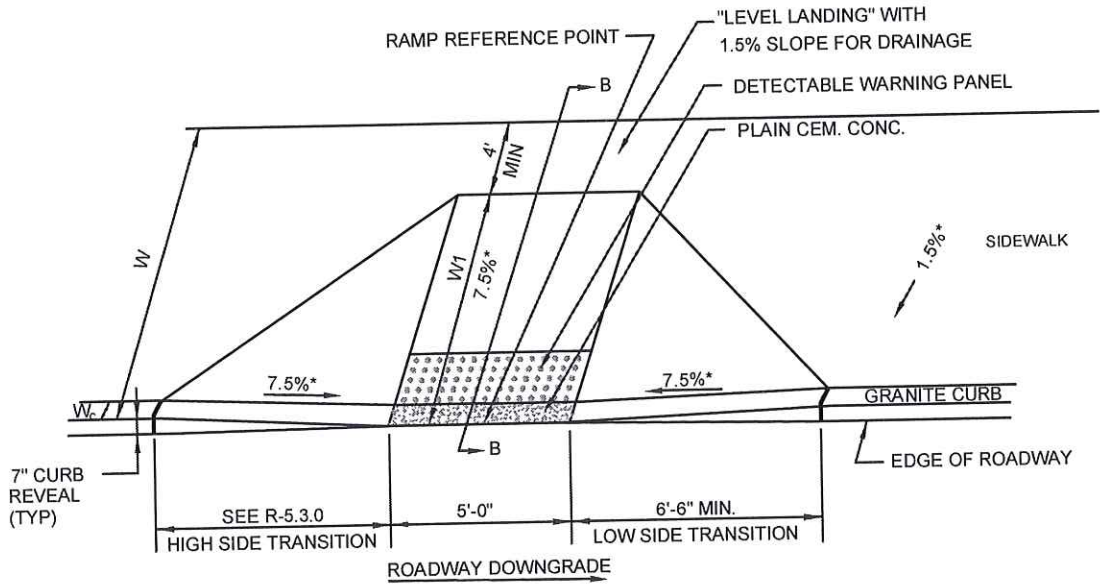
USABLE SIDEWALK WIDTH PER AAB = $W-W_c$

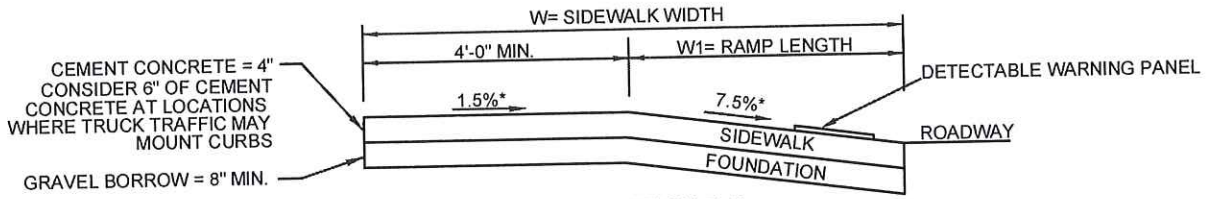
USABLE SIDEWALK WIDTH PER AAB IS NOT TO BE LESS THAN 4'-0"

NOTE:
FOR DETECTABLE WARNING PANEL DETAIL SEE STANDARD DRAWING R-5.3.6

TOWN OF HOLBROOK, MASS. INCORPORATED 1872	TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	WHEELCHAIR RAMP TYPE A	DATE: SEPT. 2020 REV: 0	R-5.3.1

WHEELCHAIR RAMPS SHALL BE CONSTRUCTED IN CONFORMANCE WITH THE CURRENT REGULATIONS OF THE ARCHITECTURAL ACCESS BOARD, THE AMERICANS WITH DISABILITIES ACT AND THE CURRENT MASSDOT CONSTRUCTION STANDARDS.





SECTION B-B

WHEELCHAIR RAMP TYPE B

NOT TO SCALE

LEGEND:

W = SIDEWALK WIDTH

W_c = CURB WIDTH

* = TOLERANCE FOR CONSTRUCTION ±0.5%

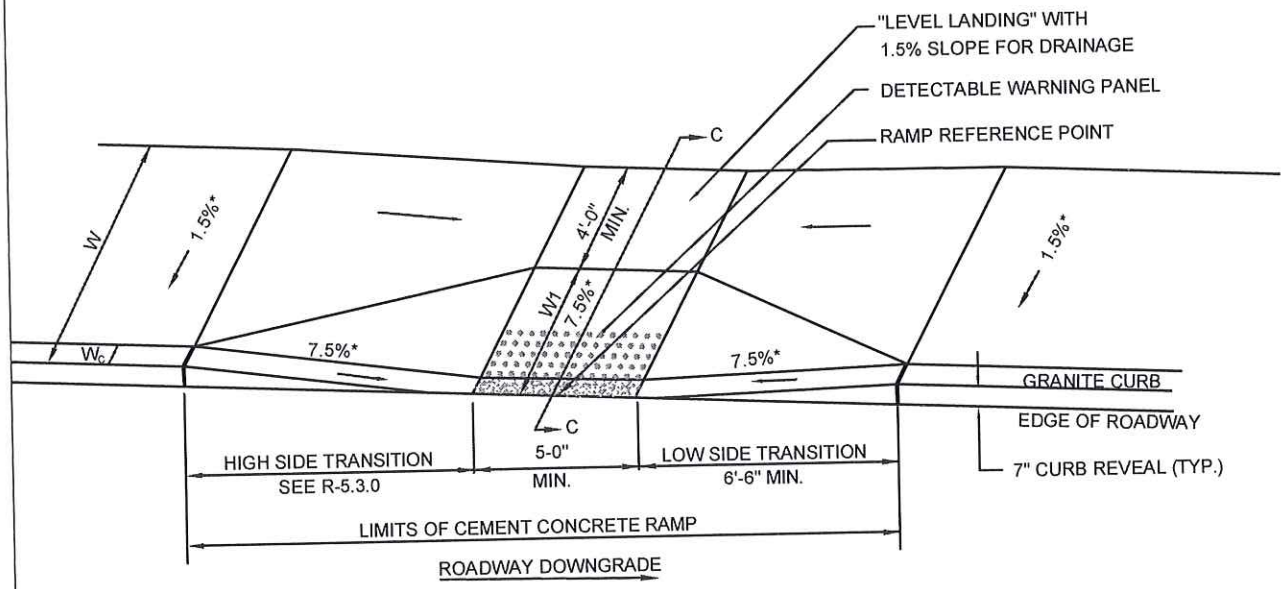
USABLE SIDEWALK WIDTH PER AAB = $W-W_c$

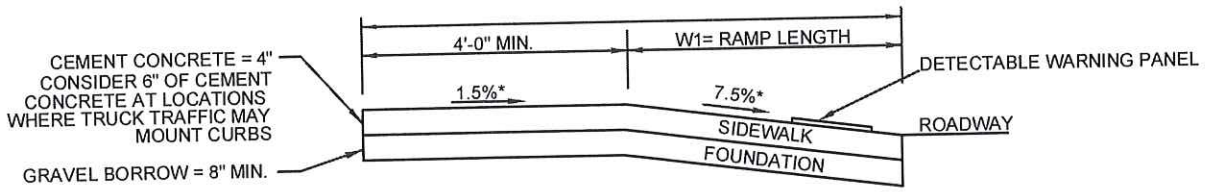
USABLE SIDEWALK WIDTH PER AAB IS NOT TO BE LESS THAN 4'-0"

NOTE:
FOR DETECTABLE WARNING PANEL DETAIL SEE STANDARD DRAWING R-5.3.1

TOWN OF HOLBROOK MASS INCORPORATED 1872	TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	WHEELCHAIR RAMP TYPE B	DATE: SEPT. 2020 REV: 0	R-5.3.2

WHEELCHAIR RAMPS SHALL BE CONSTRUCTED IN CONFORMANCE WITH THE CURRENT REGULATIONS OF THE ARCHITECTURAL ACCESS BOARD, THE AMERICANS WITH DISABILITIES ACT AND THE CURRENT MASSDOT CONSTRUCTION STANDARDS.





SECTION C-C

WHEELCHAIR RAMP TYPE C

NOT TO SCALE

LEGEND:

W = SIDEWALK WIDTH

W_c = CURB WIDTH

* = TOLERANCE FOR CONSTRUCTION ±0.5%

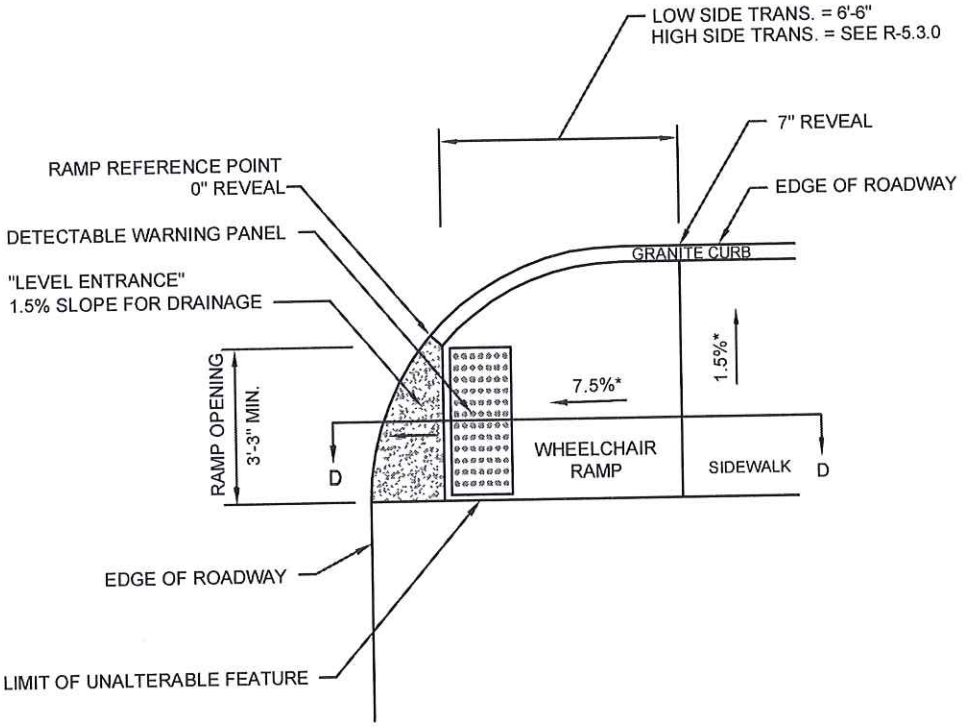
USABLE SIDEWALK WIDTH PER AAB = $W-W_c$

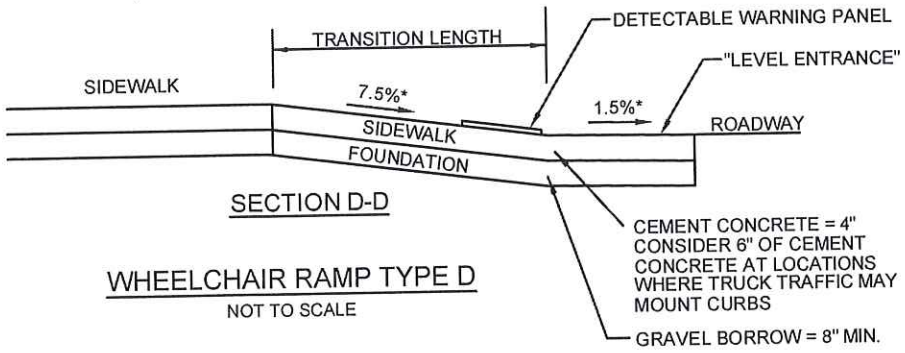
USABLE SIDEWALK WIDTH PER AAB IS NOT TO BE LESS THAN 4'-0"

NOTE:
FOR DETECTABLE WARNING PANEL DETAIL SEE STANDARD DRAWING R-5.3.

TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	WHEELCHAIR RAMP TYPE C	DATE: SEPT. 2020 REV: 0	R-5.3.3

WHEELCHAIR RAMPS SHALL BE CONSTRUCTED IN CONFORMANCE WITH THE CURRENT REGULATIONS OF THE ARCHITECTURAL ACCESS BOARD, THE AMERICANS WITH DISABILITIES ACT AND THE CURRENT MASSDOT CONSTRUCTION STANDARDS.





SECTION D-D

WHEELCHAIR RAMP TYPE D

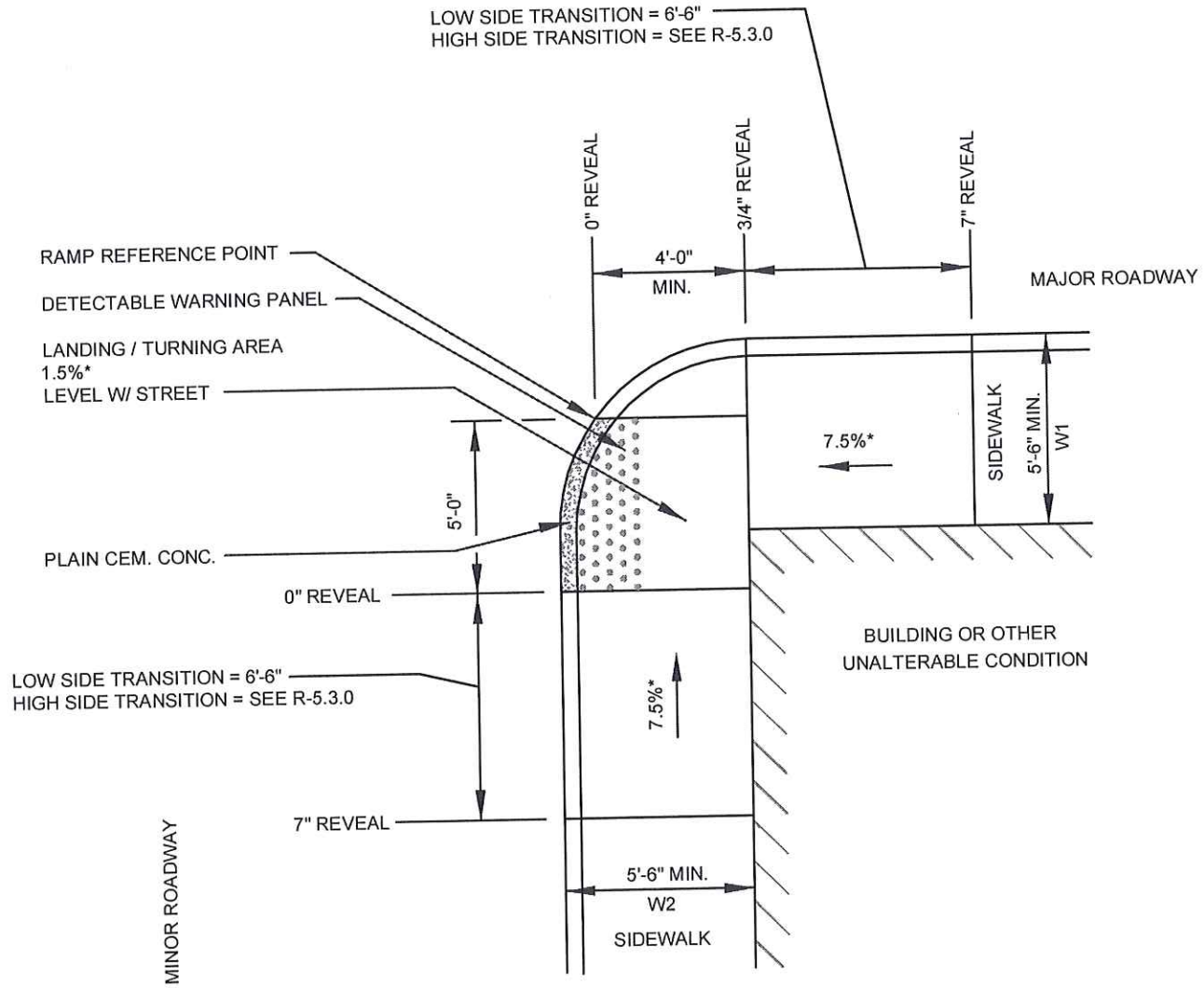
NOT TO SCALE

NOTE:
FOR DETECTABLE WARNING PANEL DETAIL SEE STANDARD DRAWING R-5.3.

* = TOLERANCE FOR CONSTRUCTION ±0.5%

TOWN OF HOLBROOK — INCORPORATED 1874	TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	WHEELCHAIR RAMP TYPE D	DATE: SEPT. 2020 REV: 0	R-5.3.4

WHEELCHAIR RAMPS SHALL BE CONSTRUCTED IN CONFORMANCE WITH THE CURRENT REGULATIONS OF THE ARCHITECTURAL ACCESS BOARD, THE AMERICANS WITH DISABILITIES ACT AND THE CURRENT MASSDOT CONSTRUCTION STANDARDS.



WHEELCHAIR RAMP TYPE E

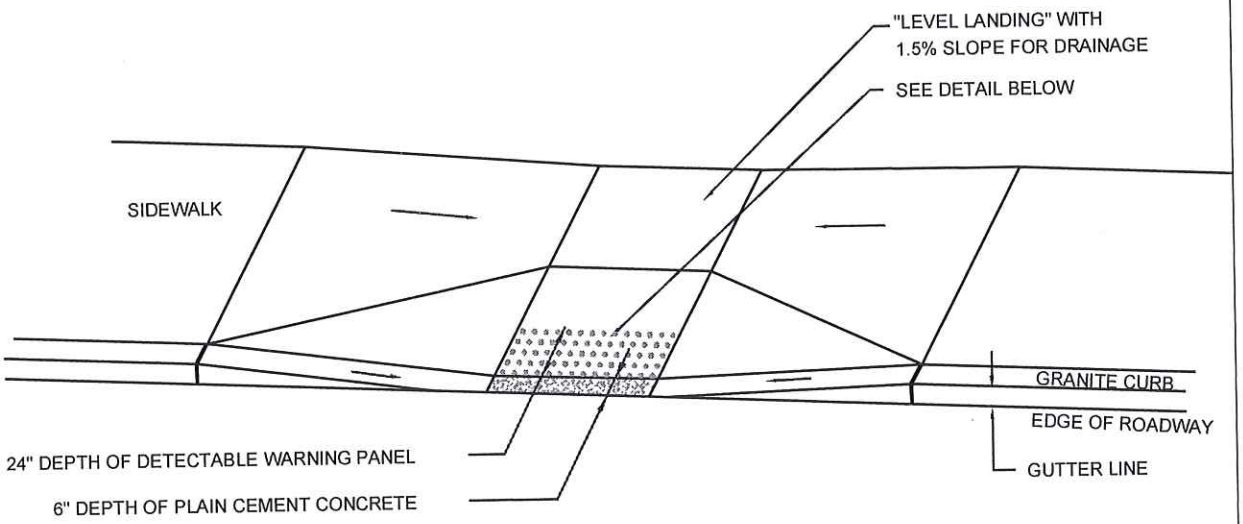
NOT TO SCALE

* = TOLERANCE FOR CONSTRUCTION ±0.5%

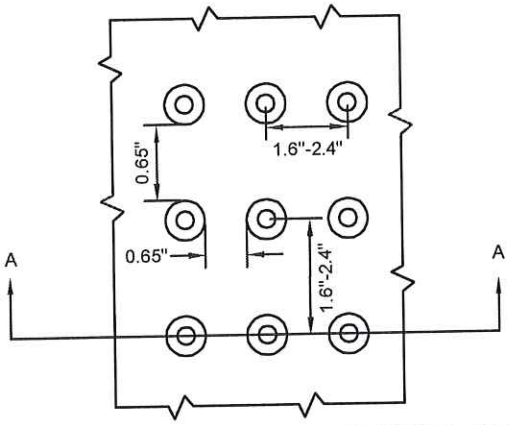
NOTE:
FOR DETECTABLE WARNING PANEL DETAIL SEE STANDARD DRAWING R-5.3.6

TOWN OF HOLBROOK MASS. INCORPORATED 1872	TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	WHEELCHAIR RAMP TYPE E	DATE: SEPT. 2020 REV: 0	R-5.3.5

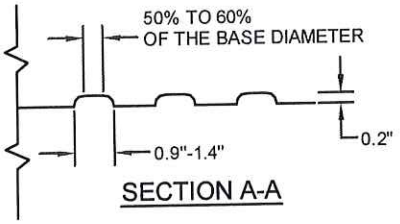
WHEELCHAIR RAMPS SHALL BE CONSTRUCTED IN CONFORMANCE WITH THE CURRENT REGULATIONS OF THE ARCHITECTURAL ACCESS BOARD, THE AMERICANS WITH DISABILITIES ACT AND THE CURRENT MASSDOT CONSTRUCTION STANDARDS.



TYPICAL INSTALLATION



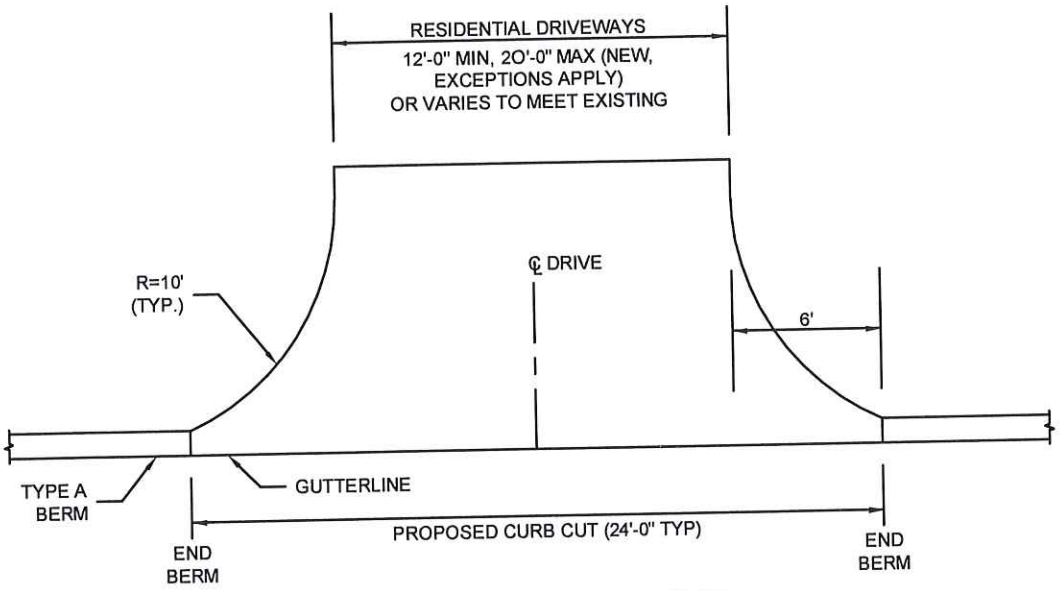
DETAIL OF DETECTABLE WARNING PANEL



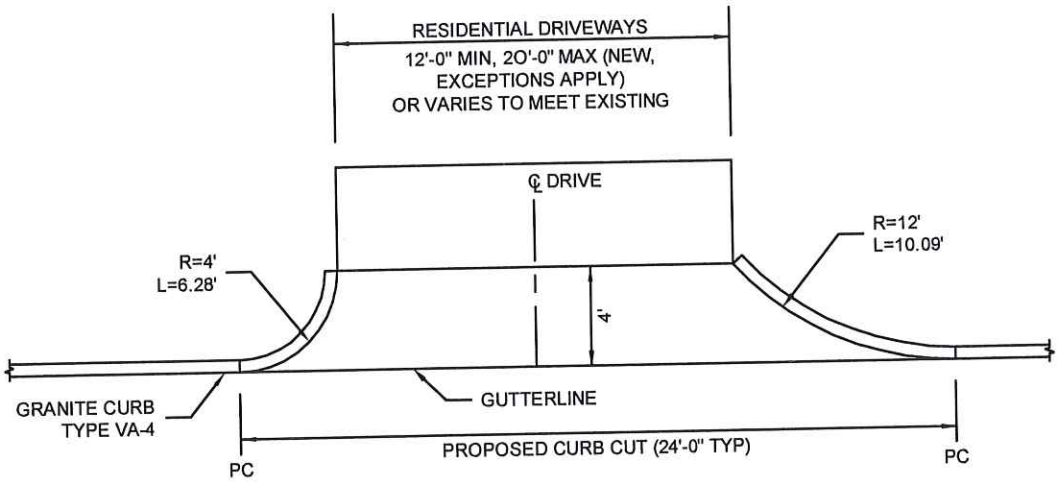
SECTION A-A

NOTE:
PANELS SHALL BE "BRICK RED" IN COLOR AND SHALL BE CAST-IN-PLACE WITH WHEELCHAIR RAMP CEMENT CONCRETE.
SURFACE APPLIED TACTILE PANELS SHALL NOT BE UTILIZED.

TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	DETECTABLE WARNING PANEL	DATE: SEPT. 2020 REV: 0	R-5.3.6

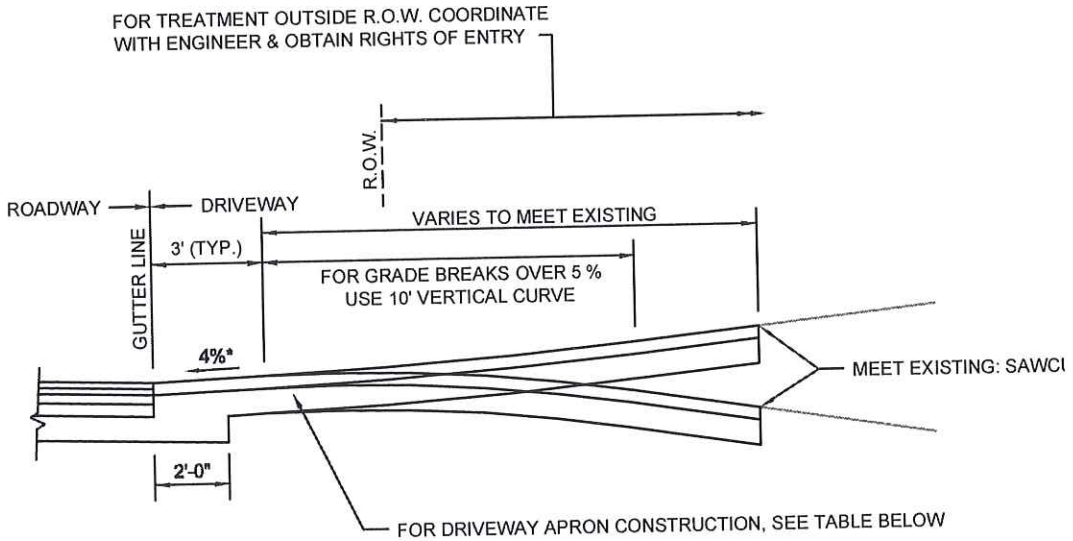


TYPE "A" HOT MIX ASPHALT BERM



GRANITE CURB OR TYPE 2 HOT MIX ASPHALT BERM

TOWN OF HOLBROOK, MASS.	TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	TYPICAL CURB CUT PLAN - RESIDENTIAL DRIVEWAYS NO SIDEWALK	DATE: SEPT. 2020 REV: 0	R-5.4.0



NOTE: FOR PLAN, SEE DRAWING RS.09

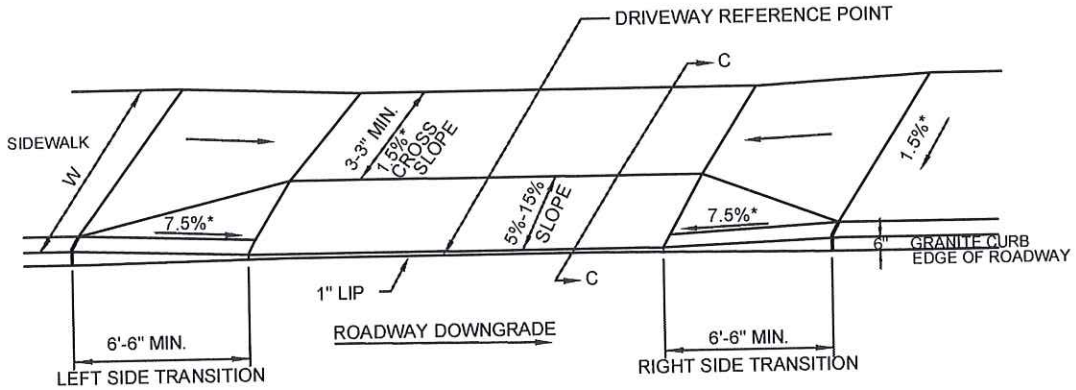
	DRIVEWAY APRON CONSTRUCTION	
	CEMENT CONCRETE CONSTRUCTION	HOT MIX ASPHALT
SURFACE:	6" CEMENT CONCRETE, 4,000 PSI, FIBER MESH PER CONSTRUCTION STANDARDS SECTION 5.2.10	4" HOT MIX ASPHALT (2" TOP COURSE MATERIAL OVER 2" BINDER COURSE MATERIAL)
SUBBASE:	8" GRAVEL BORROW (TYPE "B")	8" GRAVEL BORROW (TYPE "B")

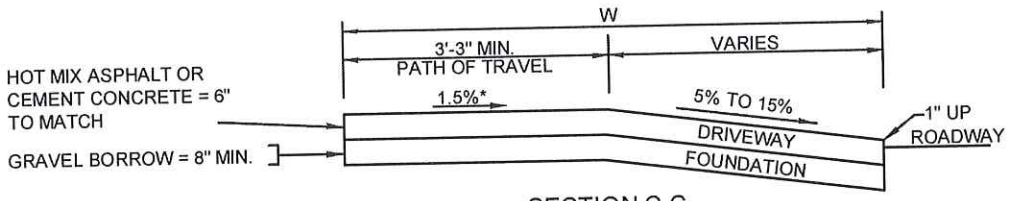
R.O.W. = RIGHT OF WAY

* - DRIVEWAY APRON SLOPE TOWARDS ROADWAY MAY VARY TO MEET FIELD CONDITIONS; 1" LIP FOR CEMENT CONCRETE DRIVEWAYS

DRIVEWAY APRONS SHALL BE CONSTRUCTED OF HOT MIX ASPHALT OR CEMENT CONCRETE, UNLESS PRIOR WRITTEN APPROVAL IS GRANTED BY DPW.

TOWN OF HOLBROOK, MASS. INCORPORATED 1874	TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	FULL DEPTH DRIVEWAY APRON - SECTION NO SIDEWALK	DATE: SEPT. 2020 REV: 0	R-5.4.1





SECTION C-C

SIDEWALK THROUGH DRIVEWAYS WITHOUT CURB RETURNS (PREFERRED)

NOT TO SCALE

LEGEND:

HSL = HIGH SIDE TRANSITION LENGTH (AS REQUIRED TO MEET 7.5 % MAX SLOPE)

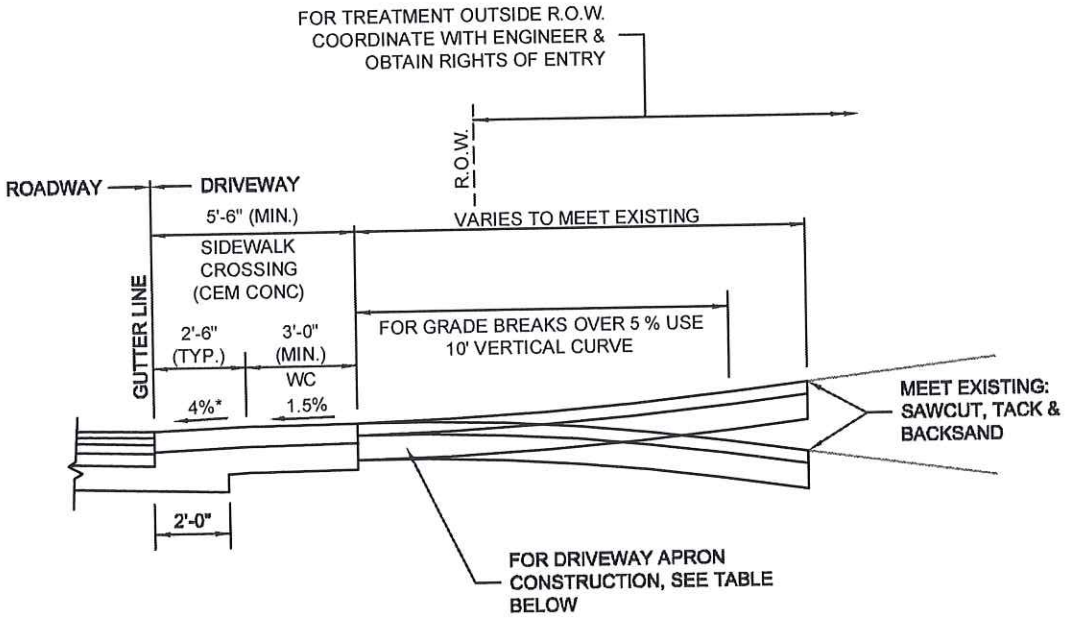
W = SIDEWALK WIDTH

* = TOLERANCE FOR CONSTRUCTION ±0.5%

NOTES:

1. DRIVEWAYS SHALL BE CONSTRUCTED IN CONFORMANCE WITH THE CURRENT REGULATIONS OF THE ARCHITECTURAL ACCESS BOARD, THE AMERICANS WITH DISABILITIES ACT AND THE CURRENT MASSDOT CONSTRUCTION STANDARDS.
2. WHERE NEW DRIVEWAYS CROSS EXISTING SIDEWALKS, THE SIDEWALK PORTION SHALL MATCH EXISTING.

TOWN OF HOLBROOK MASS. INCORPORATED 1872	TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	SIDEWALK THROUGH DRIVEWAY	DATE: SEPT. 2020 REV: 0	R-5.4.2



NOTES:

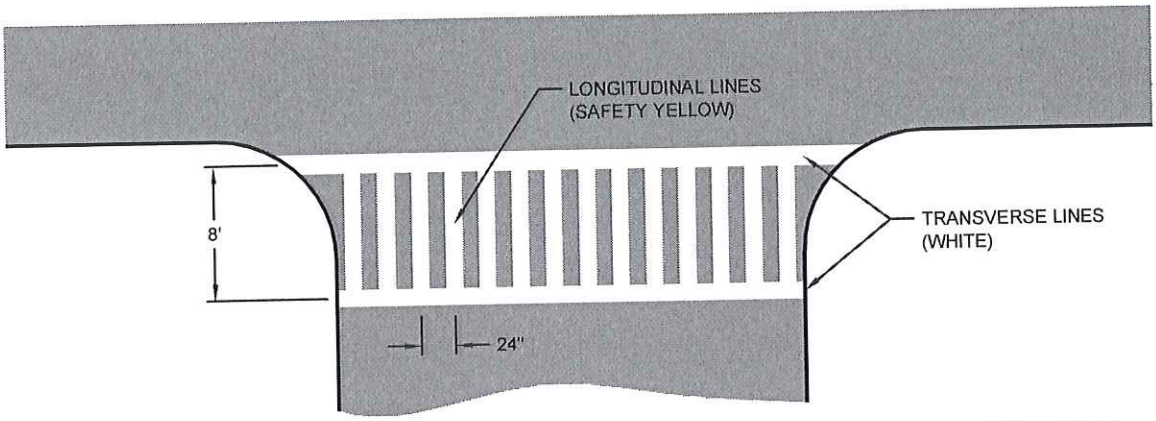
1. FOR PLAN, SEE DRAWING R-5.4.2.
2. FOR CEMENT CONCRETE SIDEWALK SEE DRAWING R5.4.2

DRIVEWAY APRON CONSTRUCTION	
SURFACE:	4" HOT MIX ASPHALT (2" TOP COURSE MATERIAL OVER 2" BINDER COURSE MATERIAL)
SUBBASE:	8" GRAVEL BORROW (TYPE "B")

WC = WHEELCHAIR (PATHWAY)
R.O.W. = RIGHT OF WAY
* - DRIVEWAY APRON SLOPE TOWARDS ROADWAY MAY VARY TO MEET FIELD CONDITIONS

DRIVEWAY APRONS SHALL BE CONSTRUCTED OF HOT MIX ASPHALT OR CEMENT CONCRETE, UNLESS PRIOR WRITTEN APPROVAL IS GRANTED BY DPW.

	TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	FULL DEPTH DRIVEWAY - SECTION CEMENT CONCRETE SIDEWALK CROSSING	DATE: SEPT. 2020 REV: 0	R-5.4.3



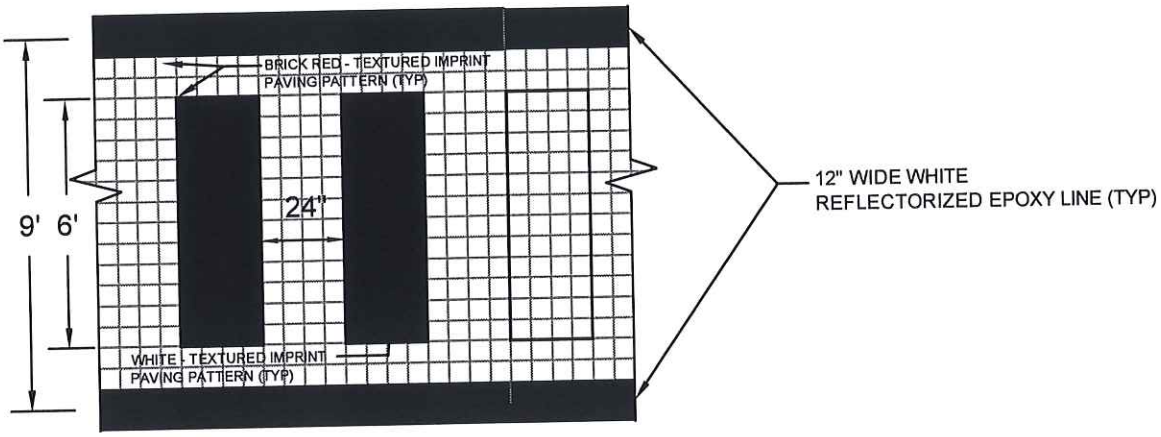
PAVEMENT MARKING - FAST DRYING WATER-BORNE OR OTHER TRAFFIC PAINT

NOT TO SCALE

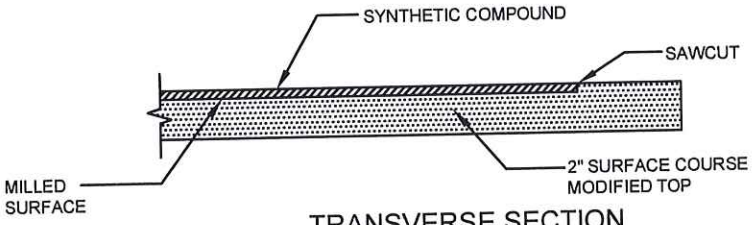
NOTES:

1. CROSSWALK MARKINGS SHALL CONSIST OF SOLID WHITE OR YELLOW (AS INDICATED) LINES (BOTH TRANSVERSE AND LONGITUDINAL) 12 INCHES IN WIDTH.
2. CROSSWALKS SHALL BE 8 FEET WIDE.
3. LONGITUDINAL LINES SHALL BE SPACED 24" APART ON CENTER FOR ALL NEW CROSSWALKS. EXISTING CROSSWALK REPAIRS SHALL MATCH EXISTING SPACING.
4. CROSSWALK LINES SHALL EXTEND ACROSS THE FULL WIDTH OF PAVEMENT OR TO THE EDGE OF THE INTERSECTING CROSSWALK.
5. CROSSWALKS SHALL BE MARKED AT ALL INTERSECTIONS WHERE THERE IS SUBSTANTIAL CONFLICT BETWEEN VEHICULAR AND PEDESTRIAN MOVEMENT.
6. CROSSWALK MARKINGS FOR NEW ROADWAYS SHALL BE INSTALLED USING EPOXY PAVING MARKING MATERIAL CONFORMING TO MASSDOT ENGINEERING DIRECTIVE E-05-003, DATED JUNE 16, 2005 AND TO MASSDOT STANDARD SECTION 860.
7. CROSSWALK MARKINGS FOR EXISTING ROADWAYS SHALL BE INSTALLED USING FAST DRYING WATER-BORNE TRAFFIC PAINT PAVING MARKING MATERIAL TO MEET MASSDOT SPECIFICATIONS M07.01.23 (WHITE) AND M07.01.24 (YELLOW).
8. THERMOPLASTIC SHALL NOT BE USED FOR ANY PAVEMENT MARKINGS.

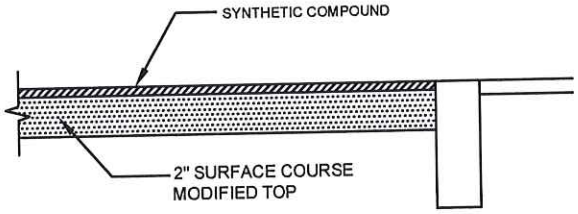
TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	CROSS WALK	DATE: SEPT. 2020 REV: 0	R-5.5.0



PLAN



TRANSVERSE SECTION

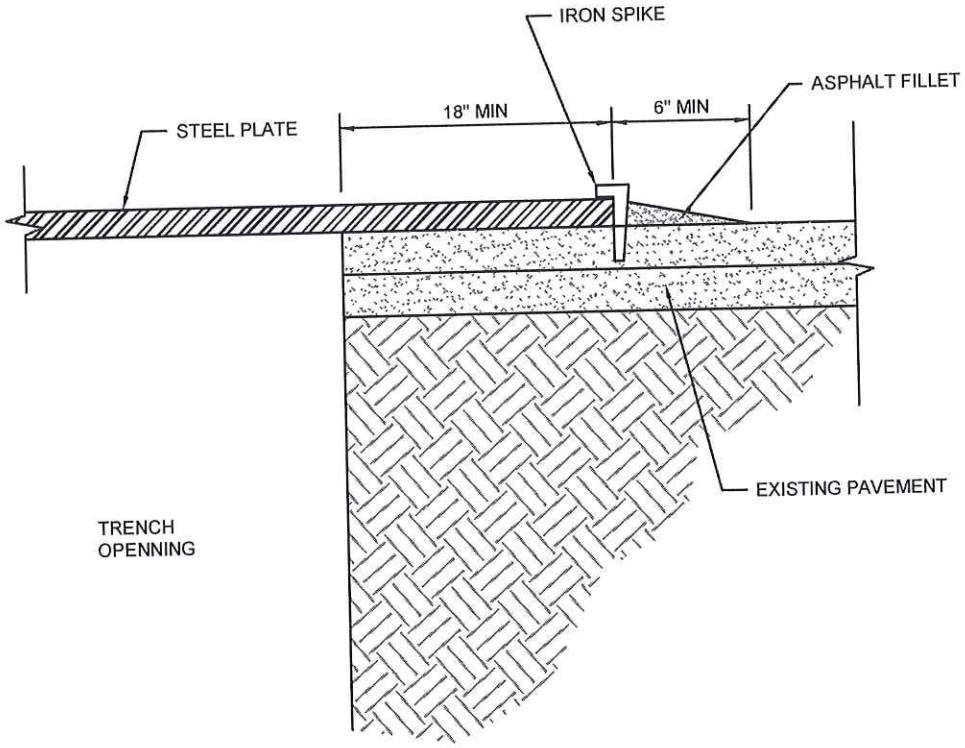


LONGITUDINAL SECTION

NOTES:

1. BRICK PATTERN TO BE STAMPED INTO MECHANICALLY HEATED SYNTHETIC COMPOUND.
2. REFER TO ITEM 706.9 FOR SPECIFICATIONS FOR TEXTURED DECORATIVE PAVEMENT CROSSWALK WHICH IS ON FILE WITH THE TOWN OF HOLBROOK DPW.

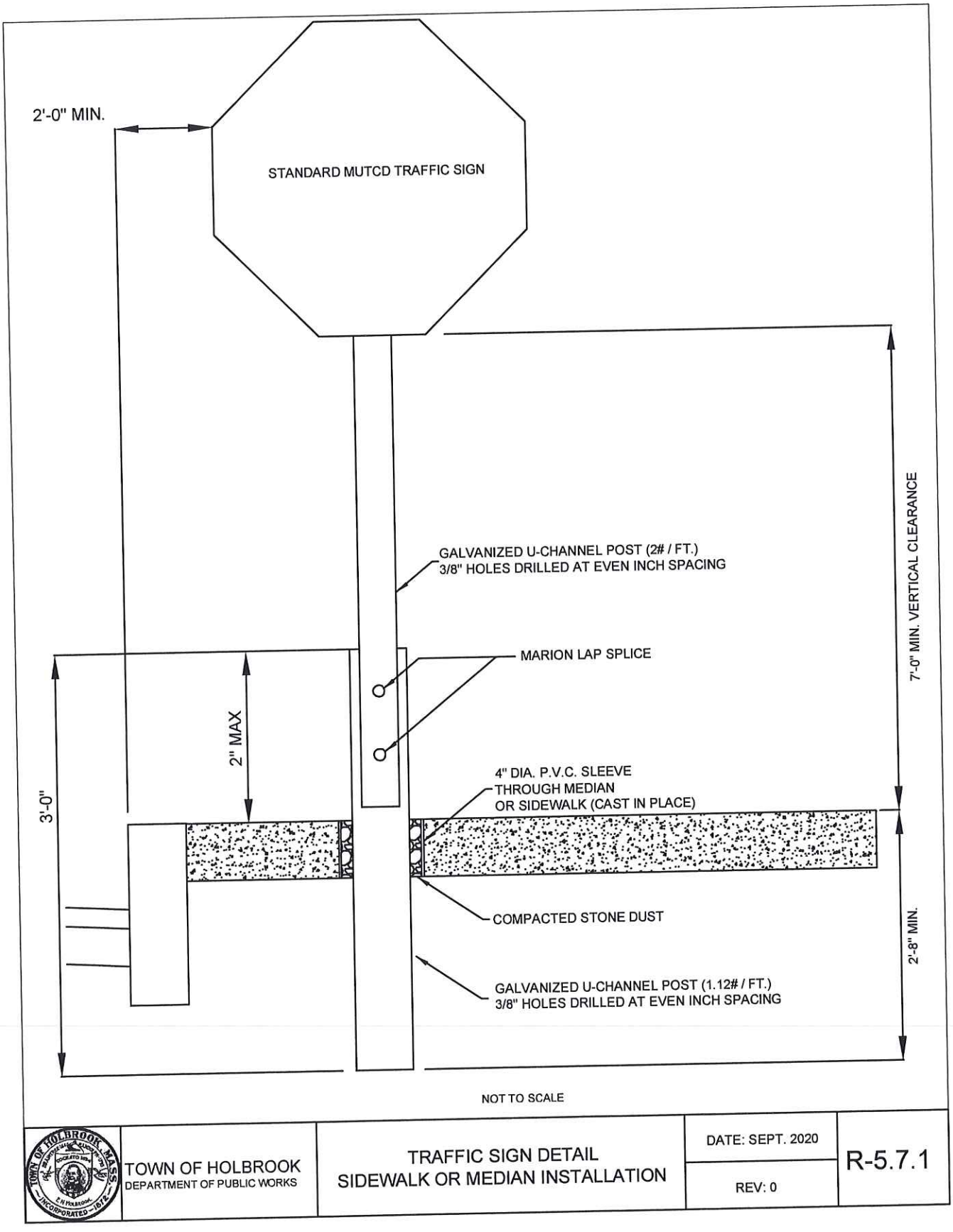
TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	DECORATIVE CROSS WALK	DATE: SEPT. 2020 REV: 0	R-5.5.1



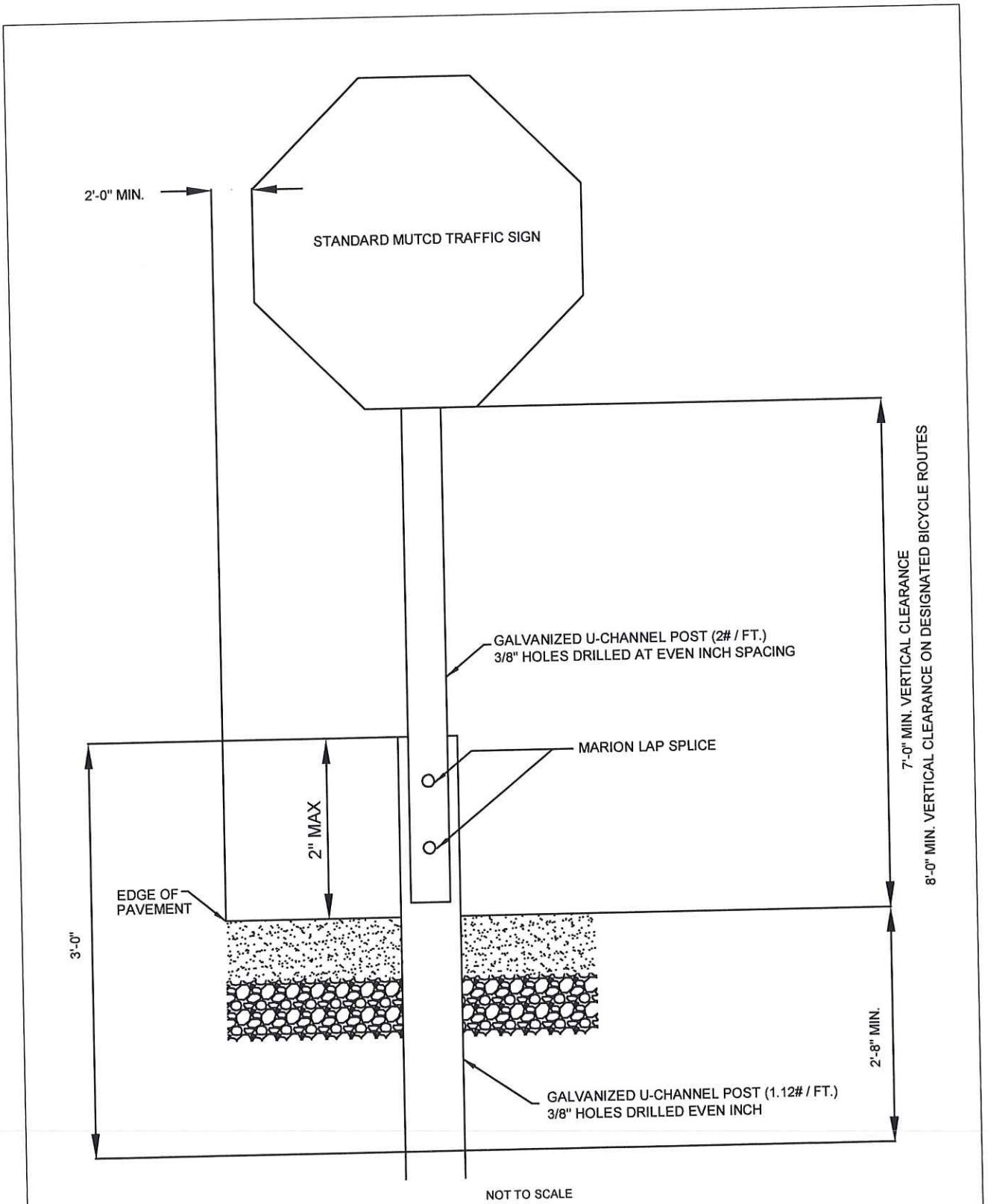
NOTES:

1. USE OF STEEL PLATES ALLOWED ON A CASE BY CASE BASIS, PENDING WRITTEN APPROVAL BY TOWN.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGES OR CLAIMS RESULTING FROM THE USE OF STEEL PLATES.
3. MUTCD COMPLIANT RETROREFLECTIVE ORANGE CONSTRUCTION WARNING SIGNS (48"X48") WITH WORDING "STEEL PLATE AHEAD" SHALL BE INSTALLED IN ADVANCE OF STEEL PLATE INSTALLATION.
4. THE CONTRACTOR SHALL DESIGN AND UTILIZE STEEL PLATES OF ADEQUATE DIMMENSIONS AND THICKNESS FOR INTENDED USE AND VEHICLE LOADING. MAXIMUMUM ALLOWABLE DEFLECTION SHALL BE 0.025". IRON SPIKE FASTENERS SHALL BE INSTALLED AROUND THE PERIMETER OF THE STEEL PLATE.

TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	STEEL PLATE INSTALLATION	DATE: SEPT. 2020 REV: 0	R-5.6.0



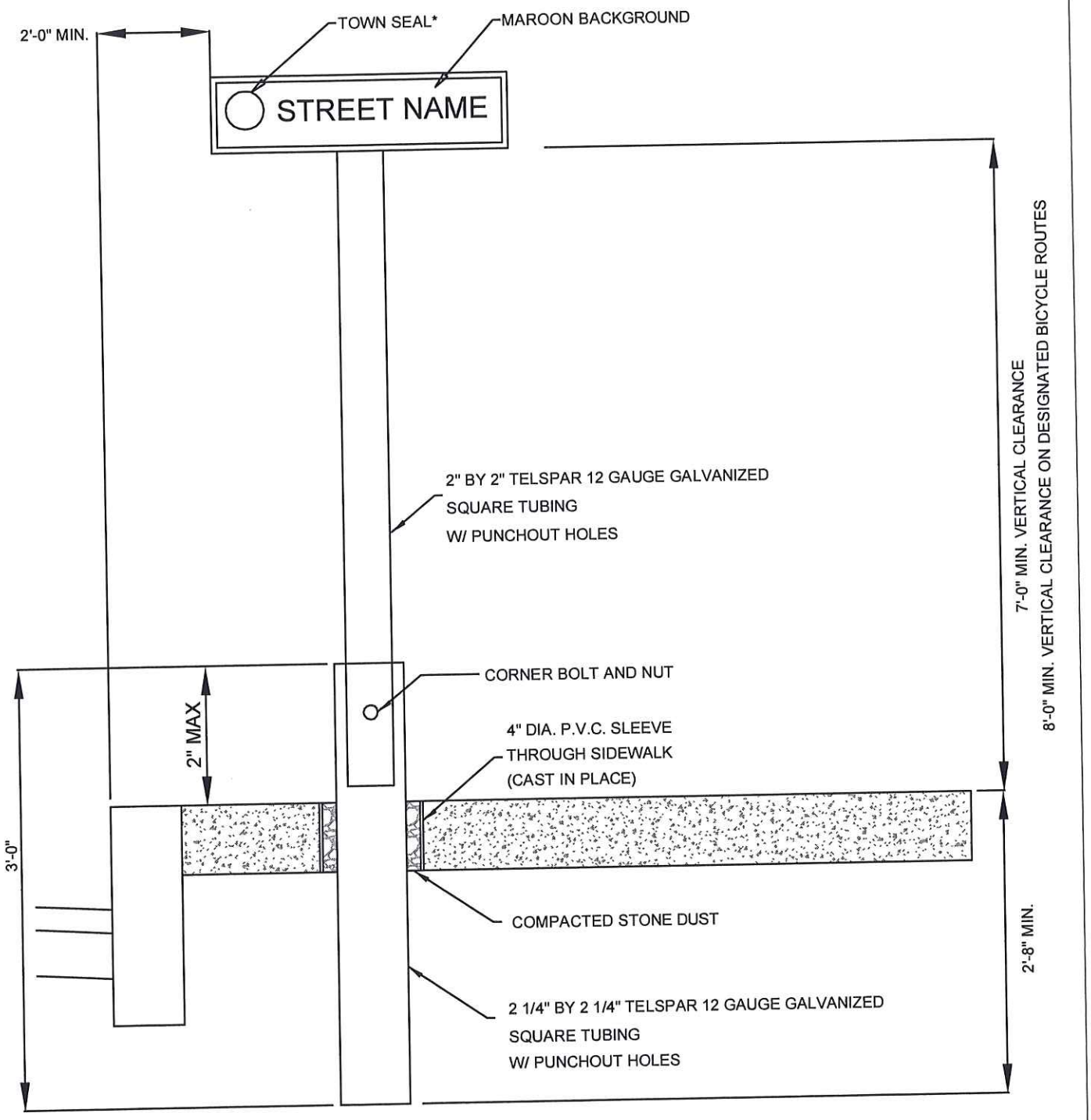
TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	TRAFFIC SIGN DETAIL SIDEWALK OR MEDIAN INSTALLATION	DATE: SEPT. 2020 REV: 0	R-5.7.1



TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	TRAFFIC SIGN DETAIL NON-SIDEWALK INSTALLATION	DATE: SEPT. 2020 REV: 0	R-5.7.2

1. EACH SIGN SHALL CONSIST OF (2) SINGLE SIDED PLATES USING DRIVE PINS TO SECURE PLATES TO POST.
2. OUTER EDGE OF SIGN SHALL BE SECURED WITH POP RIVETS AND 2" SPACER BETWEEN THE 2 PLATES.
3. FONT SHALL BE HIGHWAY GOTHIC B IN UPPER CASE ONLY.
4. PLATES SHALL HAVE ROUNDED CORNERS.
5. WHITE AVERY-DENNISON PRISMATIC PLATE SHALL BE UTILIZED.
6. THE SIGNS SHALL INCLUDE 5.5" TOWN SEALS (2 REQUIRED).
7. THE SIGNS SHALL INCLUDE A 0.5" WHITE BORDER.

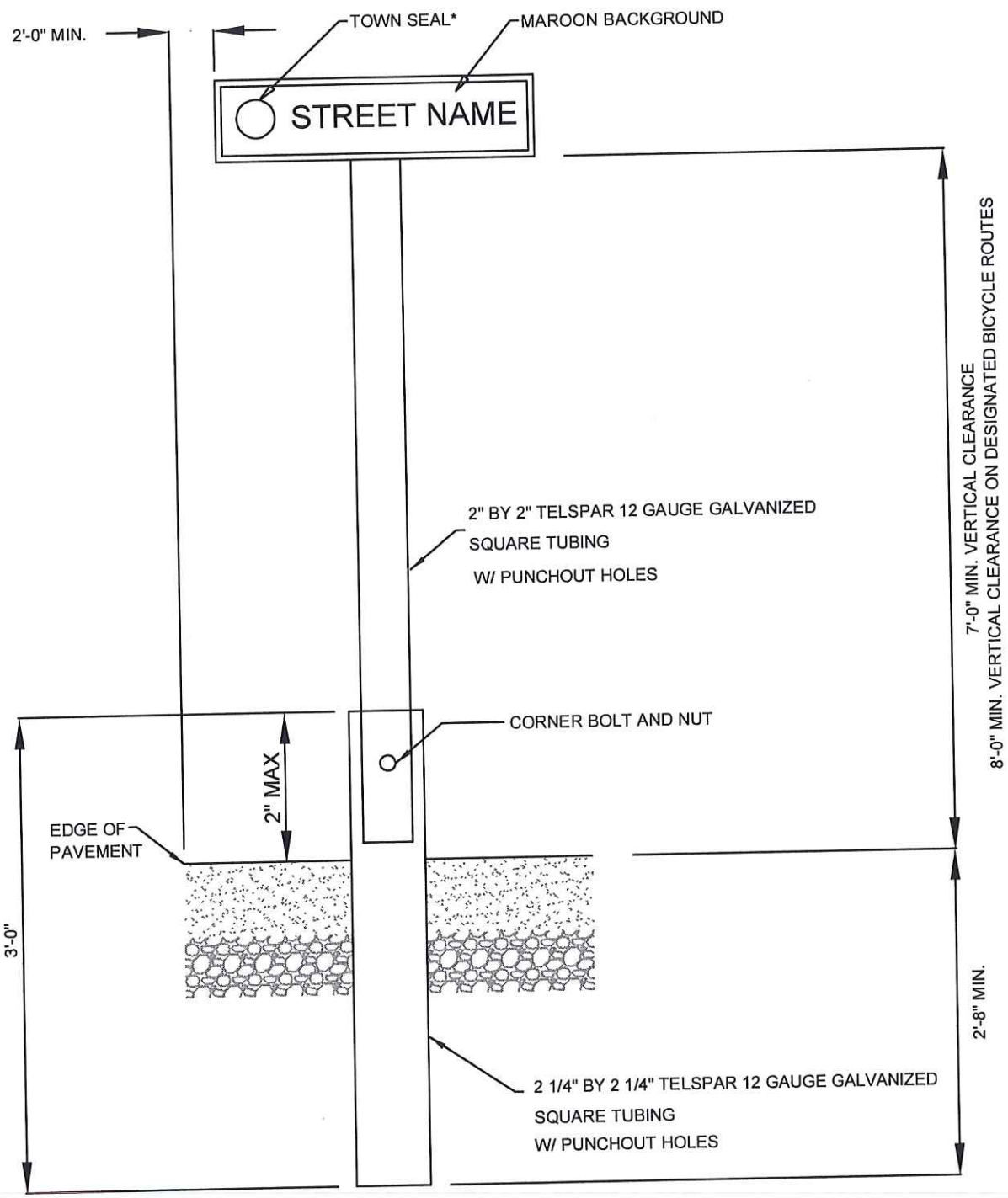
	TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	STREET NAME SIGN INSTALLATION NOTES	DATE: SEPT. 2020 REV: 0	R-5.7.3



NOT TO SCALE

*OMIT CITY SEAL IF SIGN IS LABELING A PRIVATE ROAD

TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	STREET SIGN DETAIL SIDEWALK INSTALLATION	DATE: SEPT. 2020 REV: 0	R-5.7.4

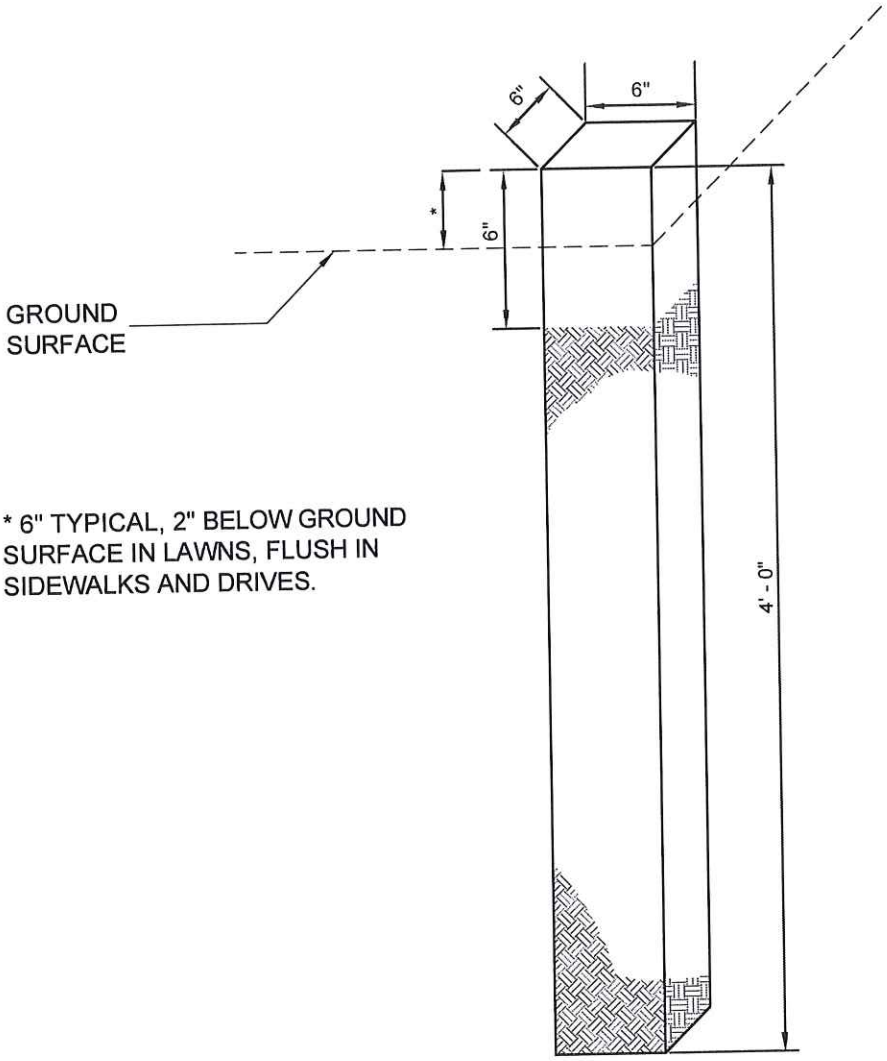


NOT TO SCALE

*OMIT CITY SEAL IF SIGN IS LABELING A PRIVATE ROAD

TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	STREET SIGN DETAIL NON-SIDEWALK INSTALLATION	DATE: SEPT. 2020 REV: 0	R-5.7.5

REPLACEMENT AND NEW BOUND INSTALLATION SHALL BE DIRECTLY OVERSEEN BY A PROFESSIONAL LAND SURVEYOR LISCENSED IN THE COMMONWEALTH. SURVEYOR'S NOTES AND SETTING DATA SHALL BE PROVIDED TO THE TOWN.



* 6" TYPICAL, 2" BELOW GROUND SURFACE IN LAWNS, FLUSH IN SIDEWALKS AND DRIVES.

NOTES

1. TOP AND 4 SIDES FOR A DISTANCE OF 6" FROM TOP SHALL BE HAMMERED SMOOTH.
2. FOR DESCRIPTIONS, MATERIALS AND CONSTRUCTION METHOODS SEE STANDARD SPECIFICATIONS
3. ALL EXISTING ROADWAY MONUMENTATION SHALL BE INVENTORIED AND PROTECTED. ANY AND ALL PROPOSED IMPACTS SHALL BE BROUGHT TO THE ATTENTION OF THE TOWN IMMEDIATELY,

NOT TO SCALE

TOWN OF HOLBROOK DEPARTMENT OF PUBLIC WORKS	GRANITE BOUND DETAIL	DATE: SEPT. 2020 REV: 0	R-5.7.6

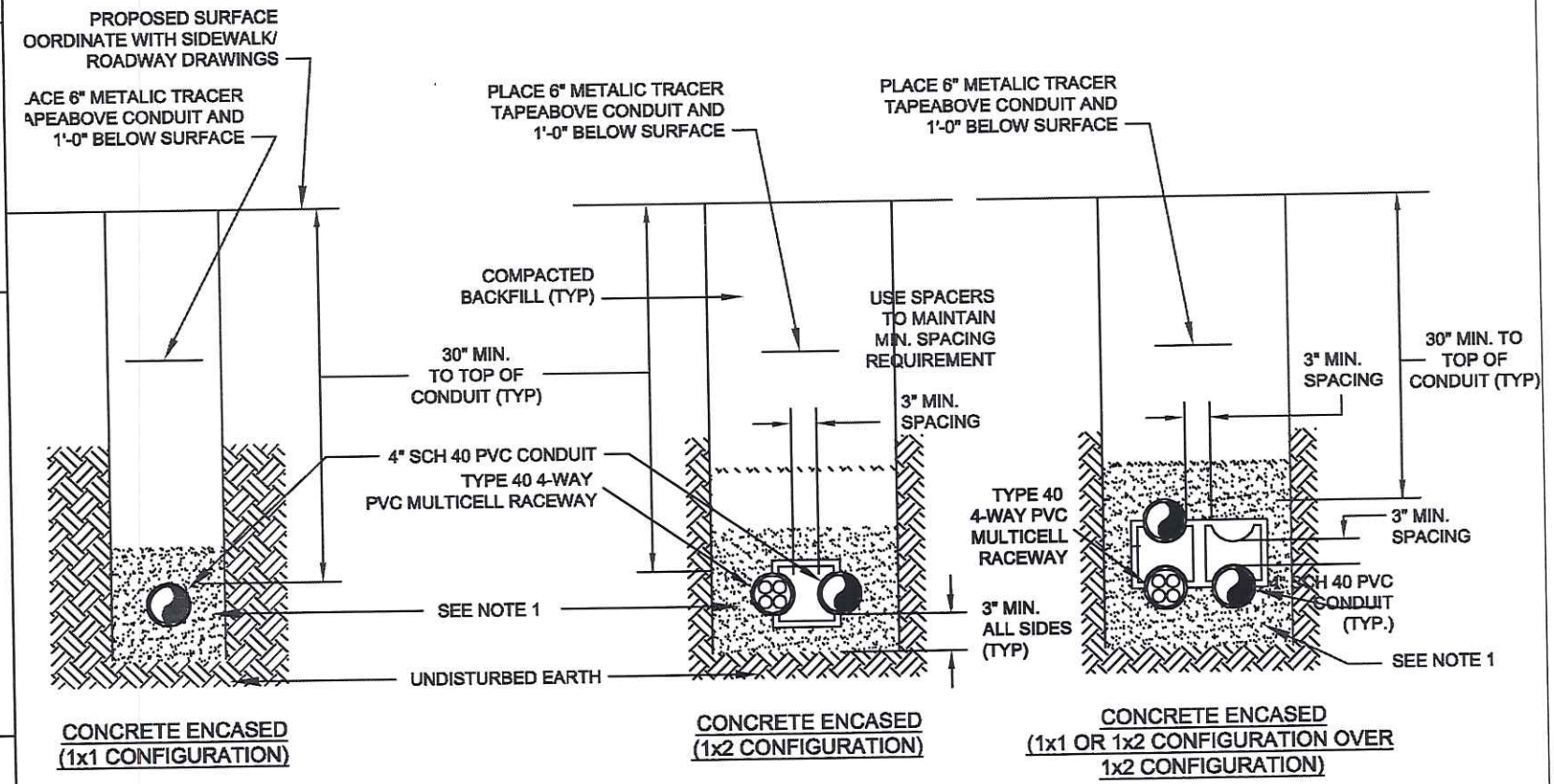
TOWN OF HOLBROOK
DEPARTMENT OF PUBLIC WORKS

TRENCH DETAIL FOR COMMUNICATIONS CONDUIT

DATE: SEPT. 2020

REV: 0

R-5.8.0



NOTE:

1. CONDUIT TO BE ENCASED IN CEMENT CONCRETE WITH 3" MINIMUM COVER ON ALL SIDES.
2. COVERS SHALL BE STEEL.

NOT TO SCALE

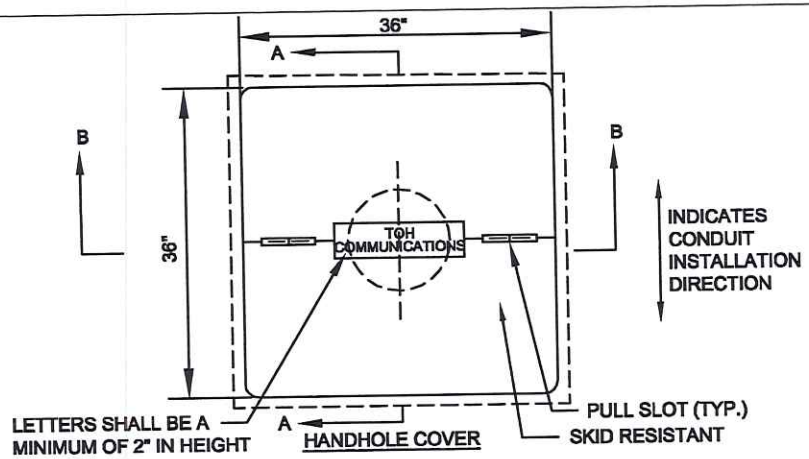
TOWN OF HOLBROOK
DEPARTMENT OF PUBLIC WORKS

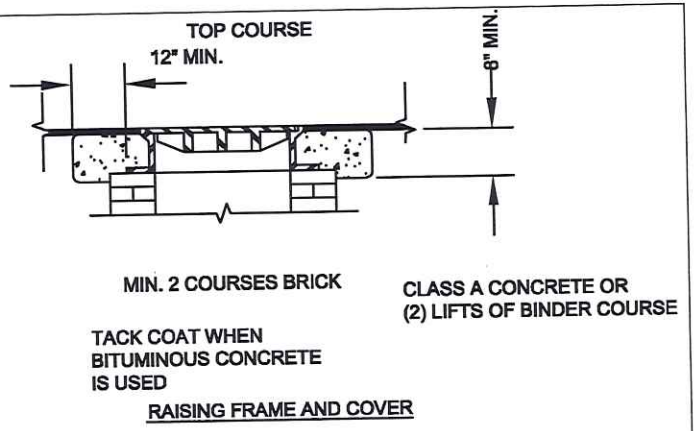
HAND HOLE FOR COMMUNICATIONS CONDUIT

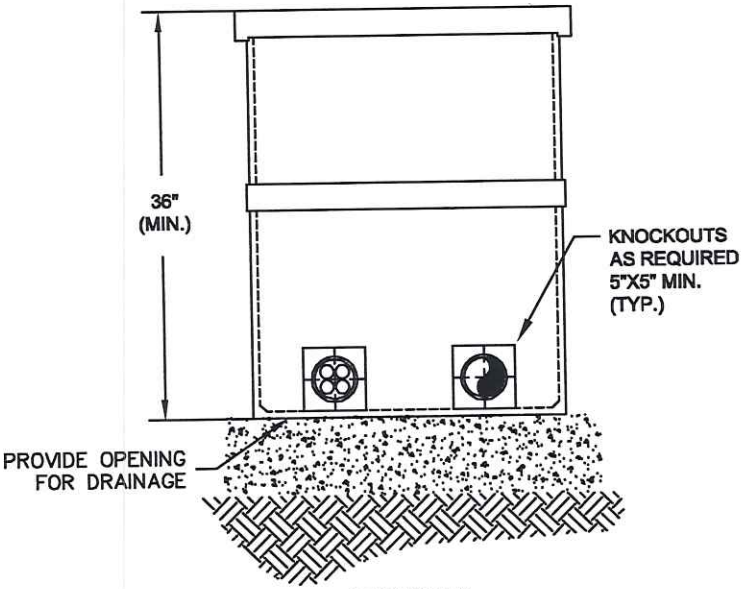
DATE: SEPT. 2020

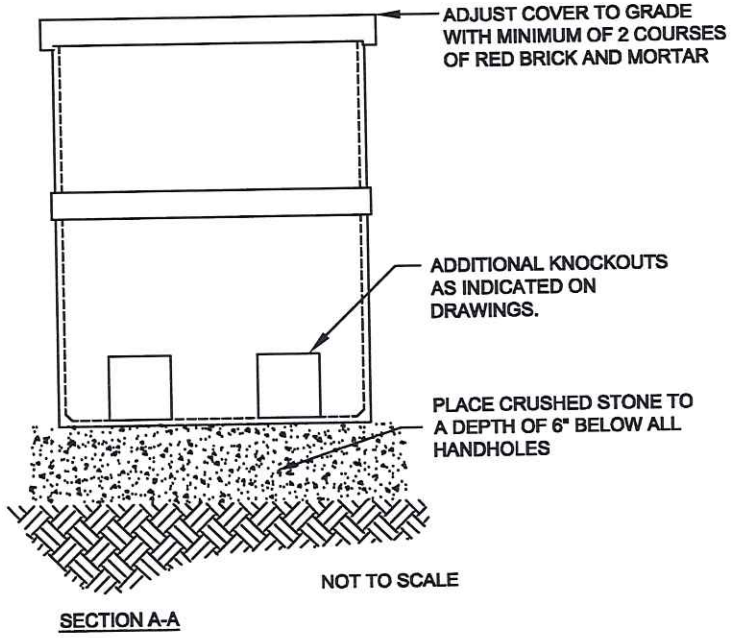
REV.: 0

R-5.8.1









NOTES:

1. HANDHOLES SHALL BE DESIGNED TO MEET ASTM C-858 AND ACI 318 WITH AASHTO HS-20 HIGHWAY LOADING. HANDHOLES SHALL BE OF PRECAST CONCRETE WITH CAST IRON FRAME AND COVERS. CONCRETE SHALL HAVE 5,000PSI STRENGTH AFTER 28 DAYS, REINFORCING STEEL SHALL BE ASTM A-615 GRADE 60 WITH A MIMIMUM COVER OF 1".
2. FRAME AND COVERS SHALL BE 36-INCH BY 36-INCH SQUARE WITH THE WORDS "TOH COMMUNICATIONS" WRITTEN ON THEIR TOPS. HANDHOLE FRAME, COVERS, AND BOX SHALL BE QUAZITE PG STYLE (STACKABLE) ASSEMBLY.
3. PULL BOXES SHALL BE PROVIDED WITH 5" KNOCKOUTS AS REQUIRED AND SHOWN ON DRAWINGS. UNUSED KNOCKOUTS SHALL BE PLUGGED.

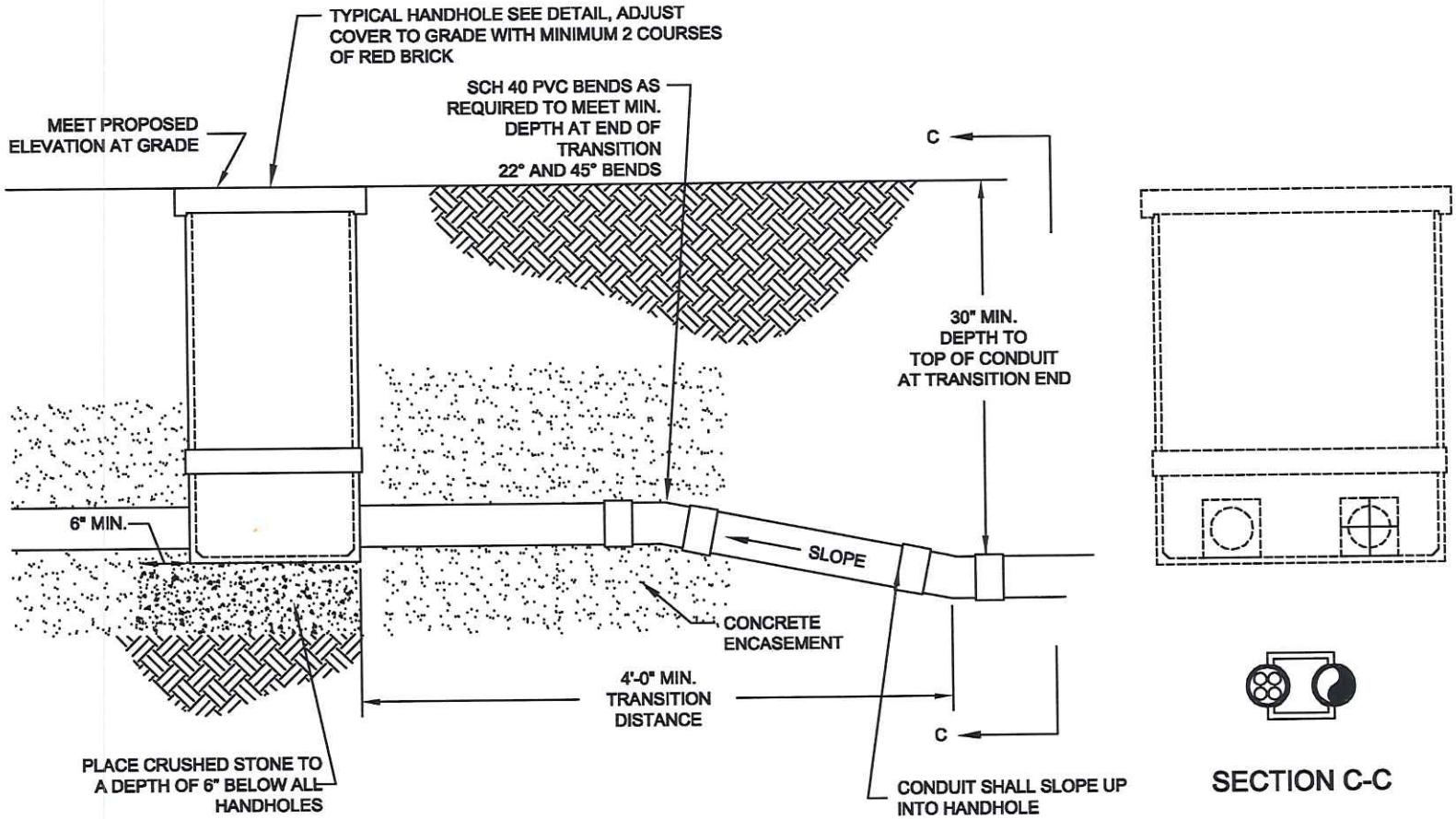
TOWN OF HOLBROOK
DEPARTMENT OF PUBLIC WORKS

TRANSITION FROM COMMUNICATIONS HAND HOLE TO TRENCH

DATE: SEPT. 2020

REV: 0

R-5.8.2



NOT TO SCALE

NOTES:

1. CONDUIT HAND HOLES SHALL BE INSTALLED EVERY 600 FEET (MAX) OF LENGTH.
2. 90° BENDS MAY BE USED IF DEEMED NECESSARY AT THE TOWN'S DISCRETION AND SHALL BE COMPOSED OF GALVANIZED METAL.