

TYPICAL ROAD CONSTRUCTION DETAILS REFERENCE

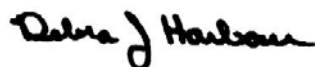
TOWN OF BOSCAWEN NEW HAMPSHIRE



Adopted June 12, 2012

History of amendments:

July 9, 2013: Detail Sheets R-1 and R-2 were modified to incorporate road construction details removed from the Subdivision Regulations and incorporated into the Typical Constructions Details document. Both documents were modified at a duly noticed public hearing of the Planning Board.



Adopted Certification: _____
(Town Clerk)

Date: July 10, 2013

NOTES TO SPECIFIER:

1. THE DETAILS PROVIDED IN THE FOLLOWING PAGES ARE INTENDED TO ILLUSTRATE MINIMUM CRITERIA FOR CONSTRUCTION OF INFRASTRUCTURE WHICH MAY BE ACCEPTED FOR OWNERSHIP BY THE TOWN OF BOSCAWEN. WHEN OWNERSHIP OF INFRASTRUCTURE IS NOT INTENDED, THE PLANNING BOARD MAY STILL DICTATE THE MINIMUM CRITERIA SHOWN IN THE DETAILS. CERTAIN MODIFICATIONS OR ADDITIONS MAY BE NECESSARY TO MEET SPECIFIC OR UNIQUE PROJECT REQUIREMENTS.
2. USE OF THESE STANDARD CONSTRUCTION DETAILS DOES NOT RELIEVE THE DESIGN ENGINEER OF THE RESPONSIBILITY TO DEVELOP A PROJECT DESIGN WHICH SATISFIES ALL NECESSARY TOWN REQUIREMENTS AND ANY STATE/FEDERAL AGENCIES.

DETAILS AND STANDARDS BY REFERENCE:

1. WATER SYSTEM: PENACOOK–BOSCAWEN WATER PRECINCT
2. STORMWATER BMP'S: NEW HAMPSHIRE STORMWATER MANUAL, VOL. 1–3, (DECEMBER 2008).
3. ROAD CONSTRUCTION: NHDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (CURRENT EDITION)

ACKNOWLEDGEMENTS:

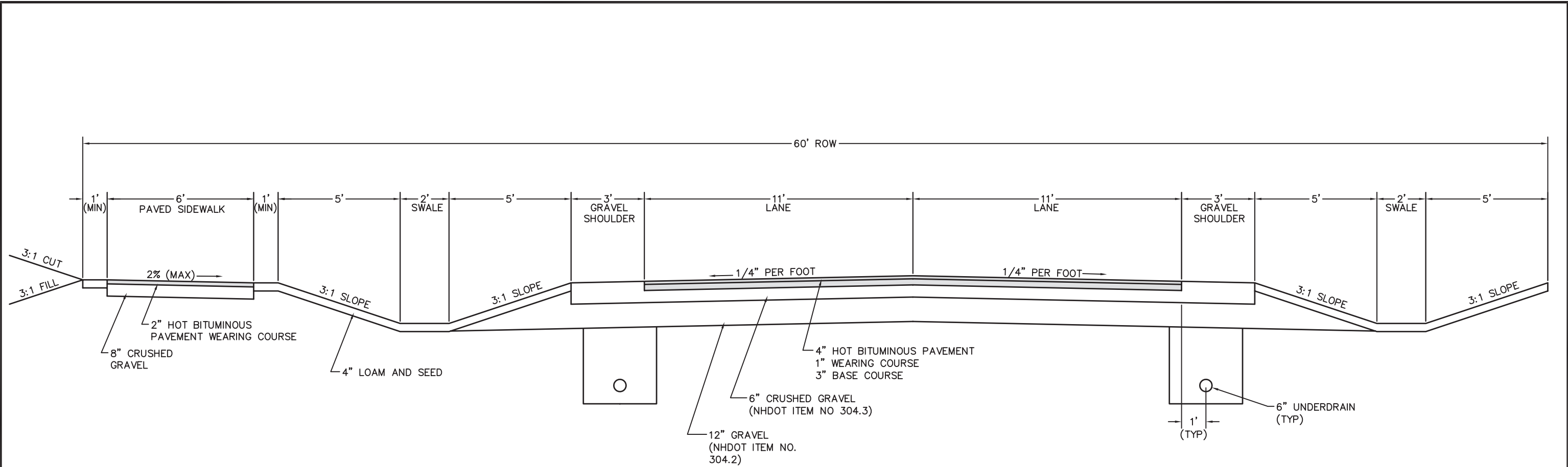
1. ROADWAY & DRAINAGE DETAILS INCORPORATED FROM TOWN OF LONDONDERRY, NH "TYPICAL DETAILS FOR SITE AND ROADWAY INFRASTRUCTURE" (MAY 2009). MODIFICATIONS MADE BY UNDERWOOD ENGINEERS AND TOWN OF BOSCAWEN MARCH 2012.
2. SEWER DETAILS INCORPORATED FROM CITY OF CONCORD, NH ENGINEERING SERVICES DIVISION (DECEMBER 2008).

TYPICAL CONSTRUCTION DETAILS
REFERENCE
BOSCAWEN, NEW HAMPSHIRE

DETAILS AND STANDARDS
BY REFERENCE

REF

6/12/12



NOTES:

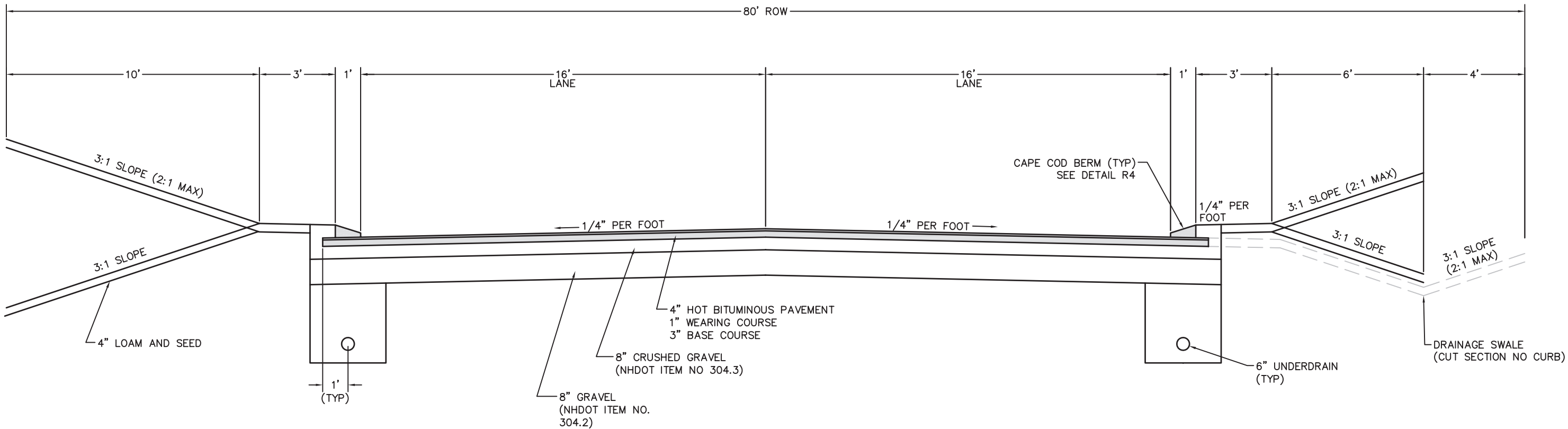
- ALL ROADWAY MATERIALS AND CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH STANDARD NHDOT SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (CURRENT EDITION), INCLUDING AMENDMENTS AND SPECIAL PROVISIONS.
- SUBGRADES: ALL TOPSOIL, STUMPS, BRUSH, ROOTS, BOULDERS, AND LIKE MATERIALS SHALL BE STRIPPED OR REMOVED FROM THE PROPOSED SUBGRADE AREA. THE SUBGRADE SHALL BE SHAPED AND COMPACTED EVENLY. ALL SOFT AND SPONGY PLACES SHALL BE EXCAVATED TO SUCH A DEPTH AS SHALL BE NECESSARY TO STABILIZE THE FOUNDATION OF THE ROAD AND REFILLED SOLIDLY WITH SUB BASE MATERIAL AS DIRECTED BY THE ENGINEER. COMPACTION IS TO BE OBTAINED BY USE OF APPROVED ROLLERS AND EQUIPMENT, TO AT LEAST NINETY-FIVE PERCENT (95%) OF THE STANDARD PROCTOR DENSITY (ASTM-698). SAID DENSITY TO BE CHECKED BY AN APPROVED TESTING SERVICE AND THE RESULTS OF ALL TESTS ARE TO BE PROVIDED TO THE TOWN FOR INCORPORATION INTO THE PROPER RECORDS. ALL COSTS INCURRED FOR THE CONDUCTION OF SUCH TESTS SHALL BE THE RESPONSIBILITY OF THE DEVELOPER/CONTRACTOR.
- EMBANKMENTS: EMBANKMENTS SHALL BE FORMED OF SUITABLE MATERIAL PLACED IN SUCCESSIVE LAYERS OF NOT MORE THAN TWELVE (12) INCHES IN DEPTH FOR THE FULL WIDTH OF THE ROADWAY CROSS-SECTION AND SHALL BE COMPACTED UNIFORMLY AND SUFFICIENTLY TO PREVENT SETTLEMENT. STUMPS, TREES, RUBBISH AND OTHER SUITABLE MATERIALS OF SUBSTANCE SHALL NOT BE PLACED IN THE FILL. THE FILL SHALL BE ALLOWED TO THOROUGHLY SETTLE BEFORE APPLYING GRAVEL. COMPACTION IS TO BE OBTAINED BY USE OF APPROVED ROLLERS AND EQUIPMENT, TO AT LEAST NINETY-FIVE PER CENT (95%) OF THE STANDARD PROCTOR DENSITY (ASTM-698). SAID DENSITY TO BE CHECKED BY AN APPROVED TESTING SERVICE AND THE RESULTS OF ALL TESTS ARE TO BE PROVIDED TO THE TOWN FOR INCORPORATION INTO THE PROPER RECORDS. ALL COSTS INCURRED FOR THE CONDUCTION OF SUCH TESTS SHALL BE THE RESPONSIBILITY OF THE DEVELOPER/CONTRACTOR.
- BASE COURSE: BASE COURSE SHALL BE LAID IN LAYERS NOT TO EXCEED SIX (6) INCHES. COMPACTION IS TO BE OBTAINED BY THE USE OF APPROVED ROLLERS AND EQUIPMENT, TO AT LEAST NINETY-FIVE PERCENT (95%) OF THE STANDARD PROCTOR DENSITY (ASTM-698). SAID DENSITY TO BE CHECKED BY AN APPROVED TESTING SERVICE AND THE RESULTS OF ALL TESTS ARE TO BE APPROVED BY THE TOWN FOR INCORPORATION INTO THE PROPER RECORDS. ALL COSTS INCURRED FOR THE CONDUCTION OF SUCH TESTS, SHALL BE THE RESPONSIBILITY OF THE DEVELOPER/CONTRACTOR.
- PROVIDE 4"(MIN) COMPACTED LOAM AND SEED ON ALL SIDE SLOPES AND DRAINAGE SWALES UNLESS OTHERWISE NOTED.
- ALL LEDGE AND ROCK SHALL BE REMOVED TO 6" BELOW SUBGRADE.
- ROADWAY UNDERDRAIN SHALL BE PROVIDED IN ALL CUT SECTIONS (AT SIDE WITH CUT) AND WHERE SEASONAL HIGH WATER IS WITHIN FOUR (4) FEET OF FINISHED GRADE IN ALL OTHER AREAS. UNDERDRAIN SHALL HAVE A MINIMUM OF FOUR (4) FEET OF COVER. UNDER-DRAINS SHALL CONSIST OF PERFORATED PLASTIC PIPE OF A MINIMUM SIX (6) INCHES IN DIAMETER AND LAID IN THE BOTTOM OF A TRENCH TO THE MAXIMUM DEPTHS SHOWN (DETAIL D2) OR AT SUCH DEPTH AND WIDTH AS MAY BE NECESSARY. THE TRENCH SHALL BE FILLED WITH COMPACTED 3/4" CRUSHED STONE, OR EQUIVALENT MATERIAL APPROVED BY THE ENGINEER.
- DRAINAGE IMPROVEMENTS SHALL MEET THE SPECIFICATION OF AASHTO (AMERICAN ASSOCIATION OF STATE HIGHWAY TRANSPORTATION OFFICIALS) IN REGARD TO MATERIAL AND STRENGTH REQUIREMENTS. CATCH BASINS AND DROP INLETS SHALL BE EQUAL TO NHDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION TYPE B OR ACCEPTABLE TO THE ENGINEER. STORM SEWER PIPES AND CULVERTS SHALL BE REINFORCED CONCRETE, PLASTIC (CPE), OR DUCTILE IRON AND SHALL HAVE A MINIMUM THREE (3) FEET OF COVER OVER ALL PIPES. HEADWALLS WHERE REQUIRED SHALL BE EITHER CONCRETE OR RUBBLE MASONRY.
- SIDEWALKS SHALL BE INCLUDED IN THE ROADWAY CROSS SECTION ONLY WHEN PROPOSED DIRECTLY ADJACENT (CONNECTING) TO OTHER EXISTING SIDEWALK NETWORKS OR WHEN REQUIRED BY THE PLANNING BOARD. FOR EXAMPLE, ESTABLISHED SIDEWALK NETWORKS EXIST IN THE VICINITY OF THE NORTHERN INTERSECTION OF ROUTE 4 (HIGH STREET) AND ROUTE 3 (DANIEL WEBSTER HIGHWAY) AND CONTINUE DOWN THE ROUTE 3 CORRIDOR TO THE PENACOOK VILLAGE AREA.
- GRANITE CURB SHALL BE PROVIDED ONLY WHERE SIDEWALK IS PROPOSED DIRECTLY ADJACENT TO THE PAVED TRAVEL WAY AND/OR IN AREAS DESIGNATED FOR NHDOT HIGHWAY WINTER MAINTENANCE (OR WHEN REQUIRED BY THE PLANNING BOARD). IF CURBING IS NECESSARY FOR DRAINAGE SYSTEMS BEYOND THESE LIMITS, THEN BITUMINOUS CURB SHALL BE USED (DETAIL R4).
- WHERE GUARDRAIL IS USED, MINIMUM WIDTH OF SHOULDER SHALL BE 6' WITH FACE OF GUARDRAIL AT 4' FROM EDGE OF TRAVELED WAY.

TYPICAL CONSTRUCTION DETAILS
ROADWAY
BOSCAWEN, NEW HAMPSHIRE

RESIDENTIAL ROADWAY
CROSS SECTION

R1

6/20/13



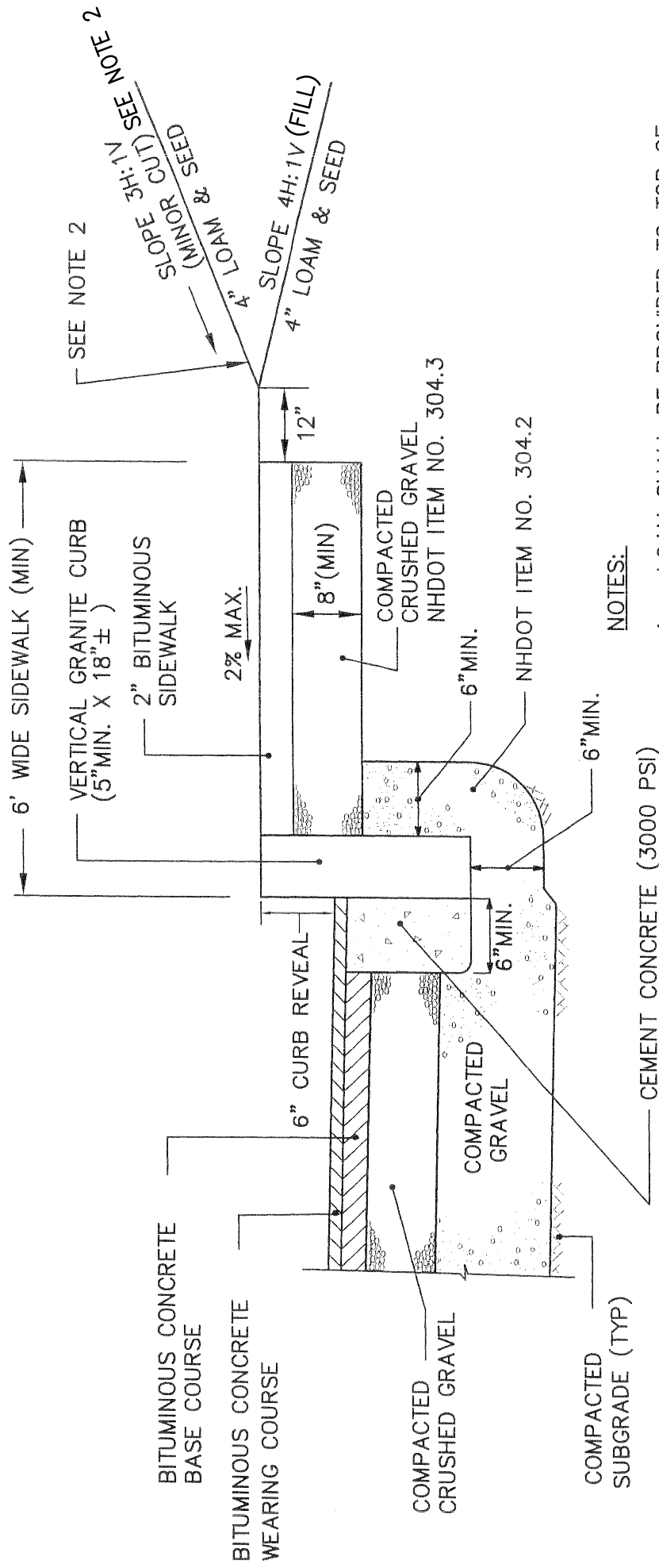
- NOTES:
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 9. SIDEWALKS SHALL BE INCLUDED IN THE ROADWAY CROSS SECTION ONLY WHEN PROPOSED DIRECTLY ADJACENT (CONNECTING) TO OTHER EXISTING SIDEWALK NETWORKS OR WHEN REQUIRED BY THE PLANNING BOARD. FOR EXAMPLE, ESTABLISHED SIDEWALK NETWORKS EXIST IN THE VICINITY OF THE NORTHERN INTERSECTION OF ROUTE 4 (HIGH STREET) AND ROUTE 3 (DANIEL WEBSTER HIGHWAY) AND CONTINUE DOWN THE ROUTE 3 CORRIDOR TO THE PENACOOK VILLAGE AREA.
 10. GRANITE CURB SHALL BE PROVIDED ONLY WHERE SIDEWALK IS PROPOSED DIRECTLY ADJACENT TO THE PAVED TRAVEL WAY AND/OR IN AREAS DESIGNATED FOR NHDOT HIGHWAY WINTER MAINTENANCE (OR WHEN REQUIRED BY THE PLANNING BOARD). IF CURBING IS NECESSARY FOR DRAINAGE SYSTEMS BEYOND THESE LIMITS, THEN BITUMINOUS CURB SHALL BE USED (DETAIL R4).
 11. WHERE GUARDRAIL IS USED, MINIMUM WIDTH OF SHOULDER SHALL BE 6' WITH FACE OF GUARDRAIL AT 4' FROM EDGE OF TRAVELED WAY.

TYPICAL CONSTRUCTION DETAILS
ROADWAY
BOSCAWEN, NEW HAMPSHIRE

INDUSTRIAL/COMMERCIAL ROADWAY
CROSS SECTION

R2

6/20/13



- NOTES:

1. LOAM SHALL BE PROVIDED TO TOP OF CURB WHERE THERE IS NO SIDEWALK.
2. DRAINAGE SWALE REQUIRED ADJACENT TO SIDEWALK ALONG ALL MAJOR CUTS.
3. DETECTABLE WARNING SURFACES (TRUNCATED DOMES) AND CURB RAMPS (INCLUDING TIP DOWNS) SHALL COMPLY WITH ADA STANDARDS.

TYPICAL CONSTRUCTION DETAILS
ROADWAY
BOSCAWEN, NEW HAMPSHIRE

SIDEWALK AND GRANITE CURB DETAIL

R3

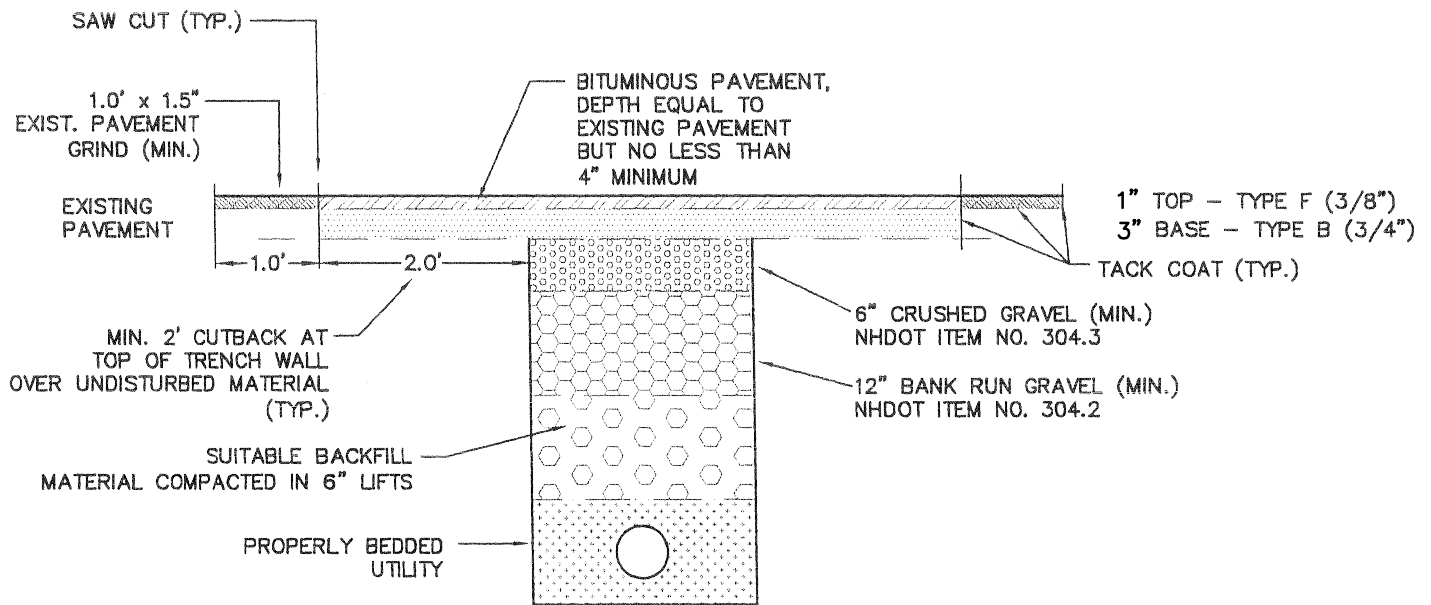
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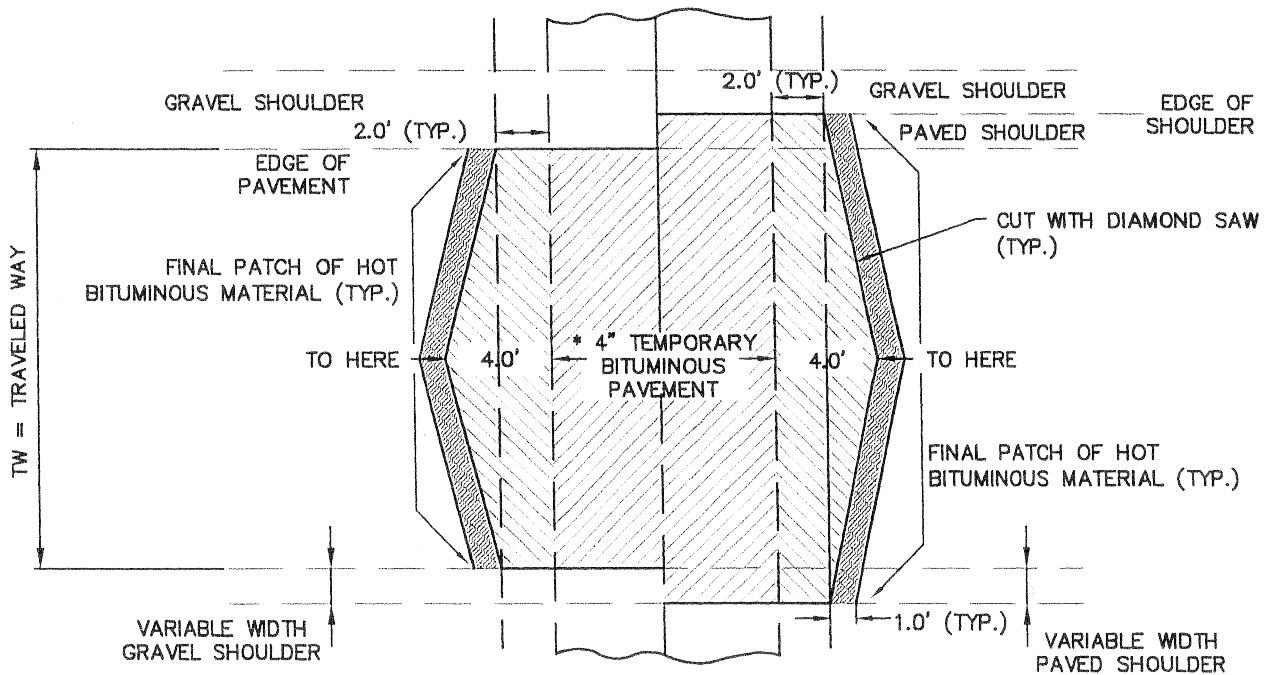
NOTES:

1. APPLY TACK COAT PRIOR TO PLACEMENT OF CURB
2. BITUMINOUS CURB MATERIAL SHALL MEET THE REQUIREMENTS OF NHDOT SECTION 609.
3. CAPE COD BERM DIMENSIONS SHALL MATCH THOSE GIVEN IN THIS DETAIL.

TYPICAL CONSTRUCTION DETAILS ROADWAY BOSCAWEN, NEW HAMPSHIRE	TYPICAL CAPE COD BERM	R4
		6/12/12



ELEVATION



PLAN

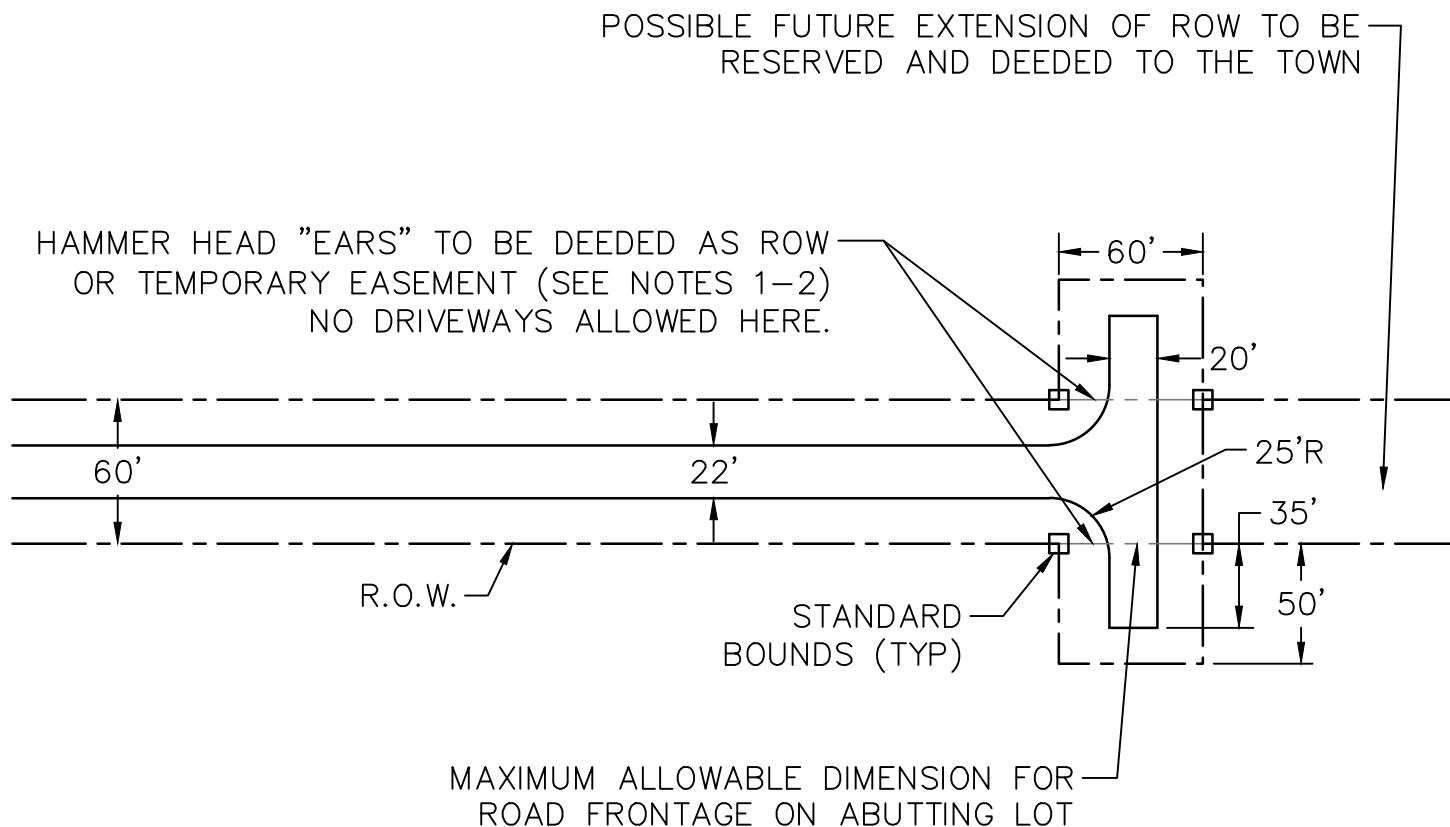
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TYPICAL CONSTRUCTION DETAILS
ROADWAY
BOSCAWEN, NEW HAMPSHIRE

TYPICAL PERMANENT
PAVEMENT REPAIR

R5

6/12/12



NOTES:

THE FOLLOWING NOTES ARE PROVIDED TO DEFINE THE INTENT OF HAMMERHEAD DESIGN RELATED TO PHASED DEVELOPMENT AND FUTURE EXPANSION:

1. WHEN **PERMANENT HAMMERHEAD** CONSTRUCTION IS PROPOSED, THE "EARS" OF HAMMERHEAD SHALL BE INCLUDED IN THE ROW. IF IN THE FUTURE A SUBSEQUENT PHASE IS CONSIDERED, FINAL ACCEPTANCE OF INFRASTRUCTURE SHALL BE CONTINGENT TO TRANSFER OF THE TOWN'S ROW AREAS FOR HAMMERHEAD "EARS" TO THE IMPACTED PROPERTY OWNER(S).

HAMMERHEADS WILL BE CONSIDERED PERMANENT WHEN:

- A. NO DESIGN FOR ADDITIONAL ROADWAY INFRASTRUCTURE IS PROPOSED
- B. PHASING WILL OCCUR IN EXCESS OF A ONE YEAR PERIOD

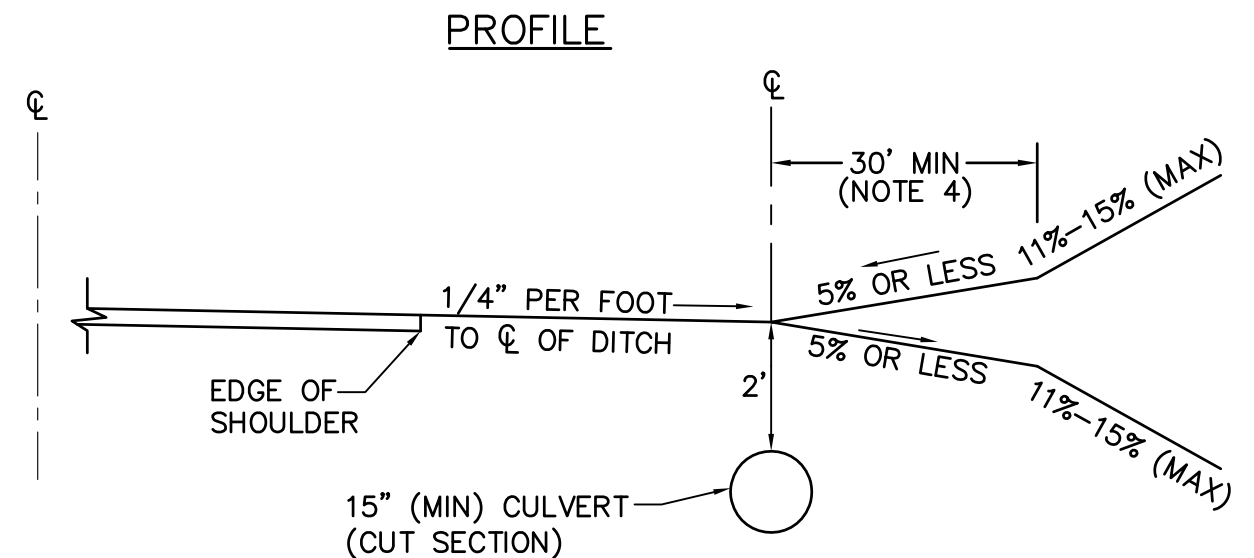
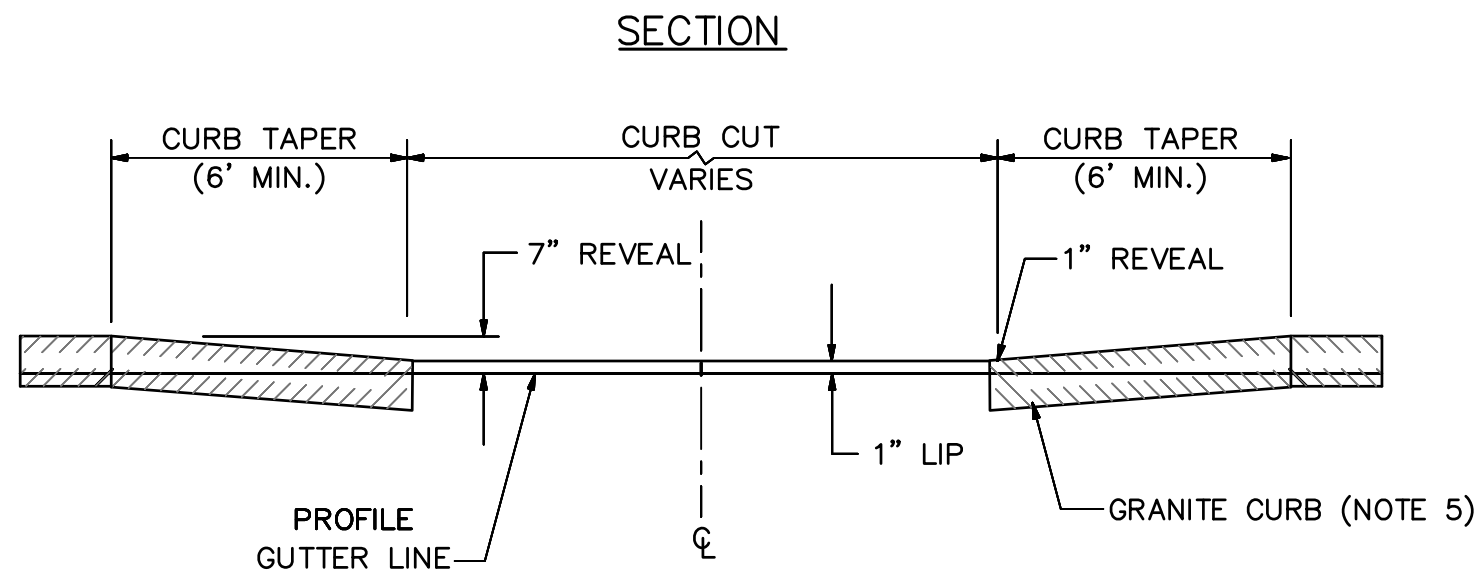
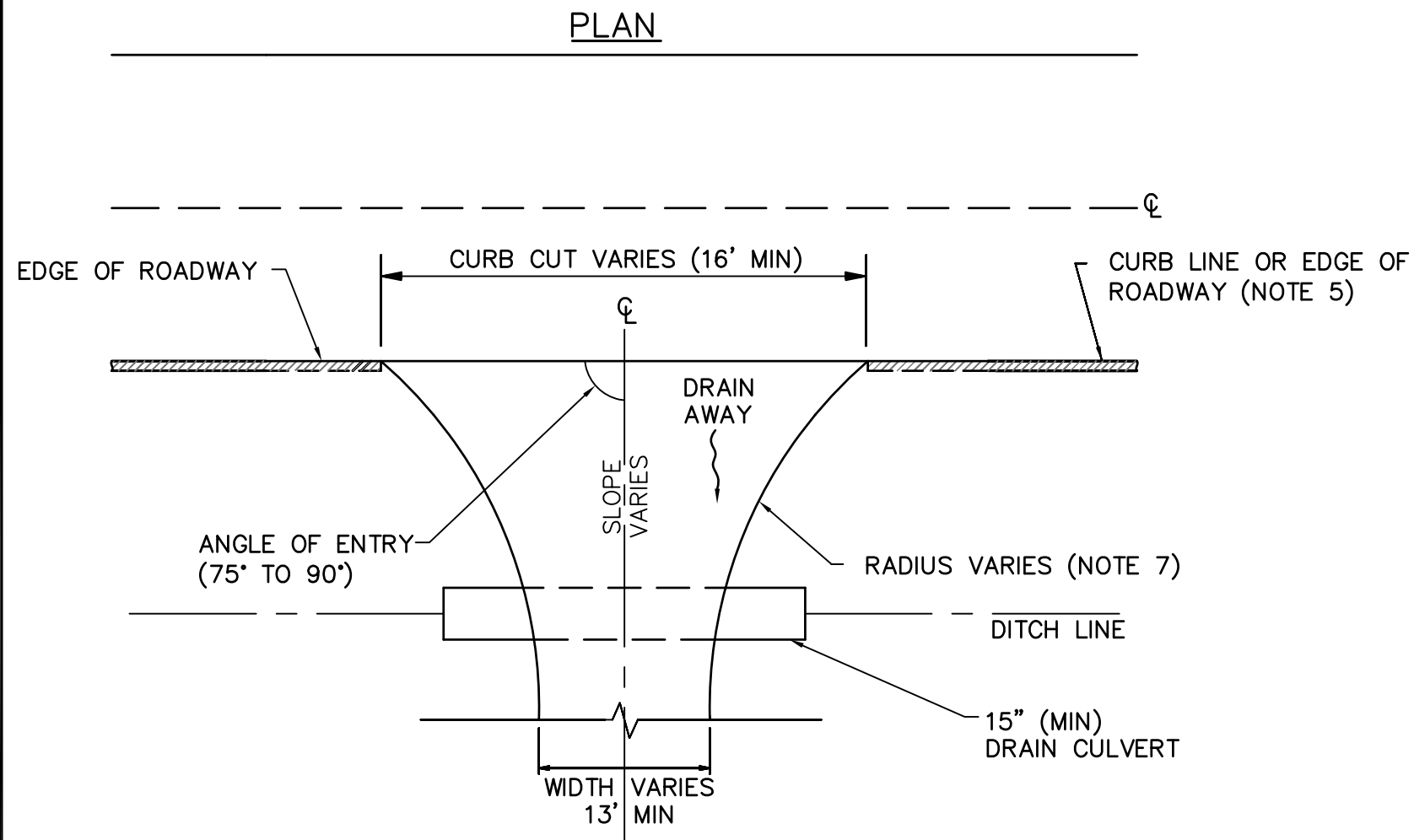
2. WHEN **TEMPORARY HAMMERHEAD** CONSTRUCTION IS PROPOSED, THE "EARS" OF THE HAMMERHEAD SHALL BE DEFINED BY A TEMPORARY EASEMENT. CONSTRUCTION OF APPROVED ROADWAY DESIGN PLANS SHALL BE IN SUCCESSIVE PHASES WITHOUT DELAY. ONE YEAR FOLLOWING COMPLETION OF THE SUBSEQUENT PHASE (INCLUDING RESTORATION OF EASEMENT AREAS TO ORIGINAL CONDITION) THE EASEMENT RIGHTS SHALL BE RELINQUISHED GRANTING THE PROPERTY OWNER FULL RIGHTS TO THE LAND AND TERMINATING THE TOWN'S RIGHTS FOR ACCESS AND CONTROL IN SAID AREA. RELINQUISHING OF THE TEMPORARY EASEMENT WILL BE AT THE SOLE DISCRETION OF THE TOWN.

TYPICAL CONSTRUCTION DETAILS
ROADWAY
BOSCAWEN, NEW HAMPSHIRE

TYPICAL PERMANENT
TURNAROUND

R6

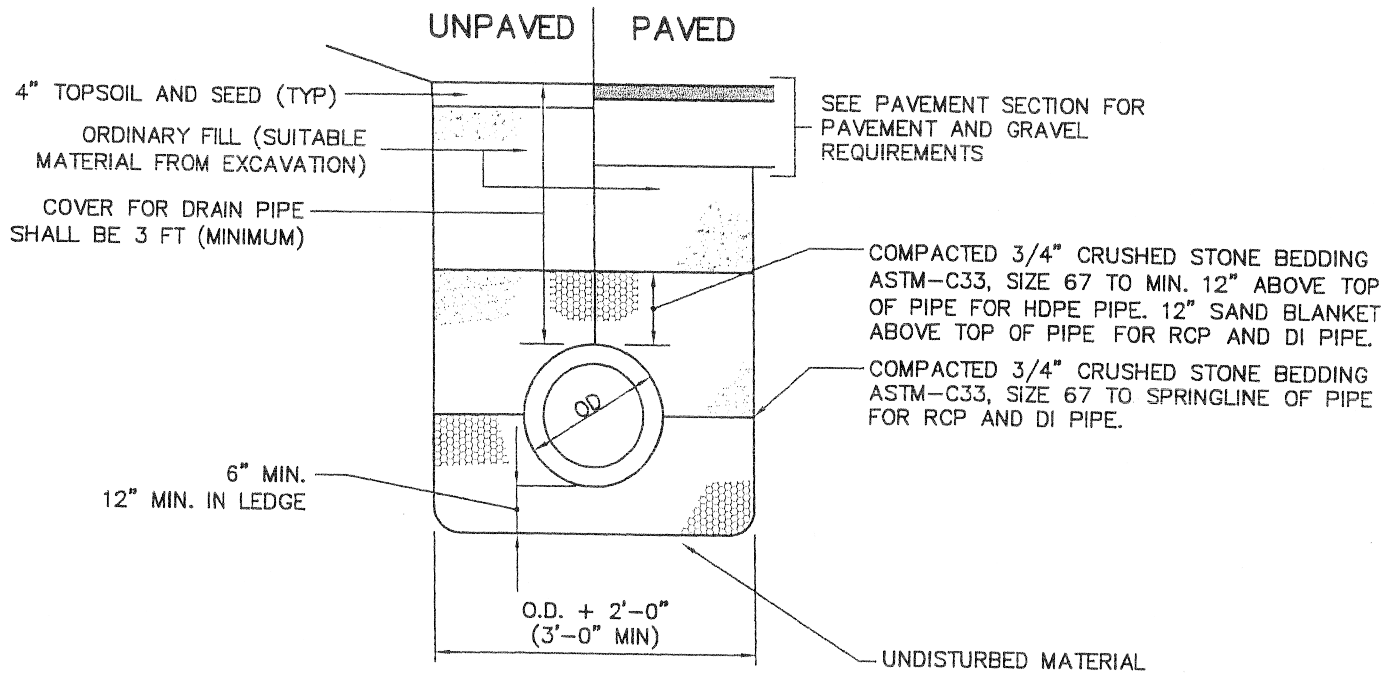
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NOTES:

1. CONSTRUCT DRIVEWAY APRONS TO THE LIMITS SHOWN, UNLESS OTHERWISE DIRECTED BY PUBLIC WORKS DIRECTOR.
2. DRIVEWAYS SHALL BE CONSTRUCTED WITHIN THE LOT FRONTAGE AND HAVE A MINIMUM 10' CLEARANCE FROM SIDE LOT LINES.
3. FOR NEW SUBDIVISIONS, CORNER LOT DRIVEWAYS MUST BE A MINIMUM OF 100' FROM ADJACENT ROADWAY. FOR DRIVEWAY CONSTRUCTION ON EXISTING LOTS, THE INTENT OF THE 100' SETBACK MAY APPLY TO THE EXTENT PRACTICAL AS DIRECTED BY THE PLANNING BOARD.
4. WHEN THE PROPOSED CENTERLINE DRIVEWAY GRADE EXCEEDS 10%, A PLATFORM SHALL BE CONSTRUCTED AT A MAXIMUM OF 5% GRADE OVER 30' (MIN) STARTING AT THE CENTER OF THE DITCH LINE. MINIMUM CENTERLINE GRADE SHALL BE 0.5% FOR DRIVEWAYS.
5. GRANITE CURB SHALL BE PROVIDED ONLY WHERE SIDEWALK IS PROPOSED DIRECTLY ADJACENT TO THE PAVED TRAVEL WAY AND/OR IN AREAS DESIGNATED FOR NHDOT HIGHWAY WINTER MAINTENANCE (OR WHEN REQUIRED BY THE PLANNING BOARD). FOR EXAMPLE, ESTABLISHED SIDEWALK NETWORKS EXIST IN THE VICINITY OF THE NORTHERN INTERSECTION OF ROUTE 4 (HIGH STREET) AND ROUTE 3 (DANIEL WEBSTER HIGHWAY) AND CONTINUE DOWN THE ROUTE 3 CORRIDOR TO THE PENACOOK VILLAGE AREA. IF CURBING IS NECESSARY FOR DRAINAGE SYSTEMS BEYOND THESE LIMITS, THEN BITUMINOUS CURB SHALL BE USED (DETAIL R4).
6. WHEN PRESENT, CURBING SHALL BE ENDED AS SHOWN. CURB TIP DOWN SHALL BE A MINIMUM OF ONE 6' CURB LENGTH. WHERE APPROPRIATE CURB MAY BE FLARED TO FIT DRIVE RADII.
7. DRIVEWAY RADII SHALL COMPLY WITH THE FOLLOWING TABLE:

ANGLE OF ENTRY	DRIVEWAY WIDTH VS. RADIUS				
	13'	14'	16'	18'	20-24'
90°	15'	10'	10'	5'	5'
75°	20'	15'	10'	10'	5'



NOTE:

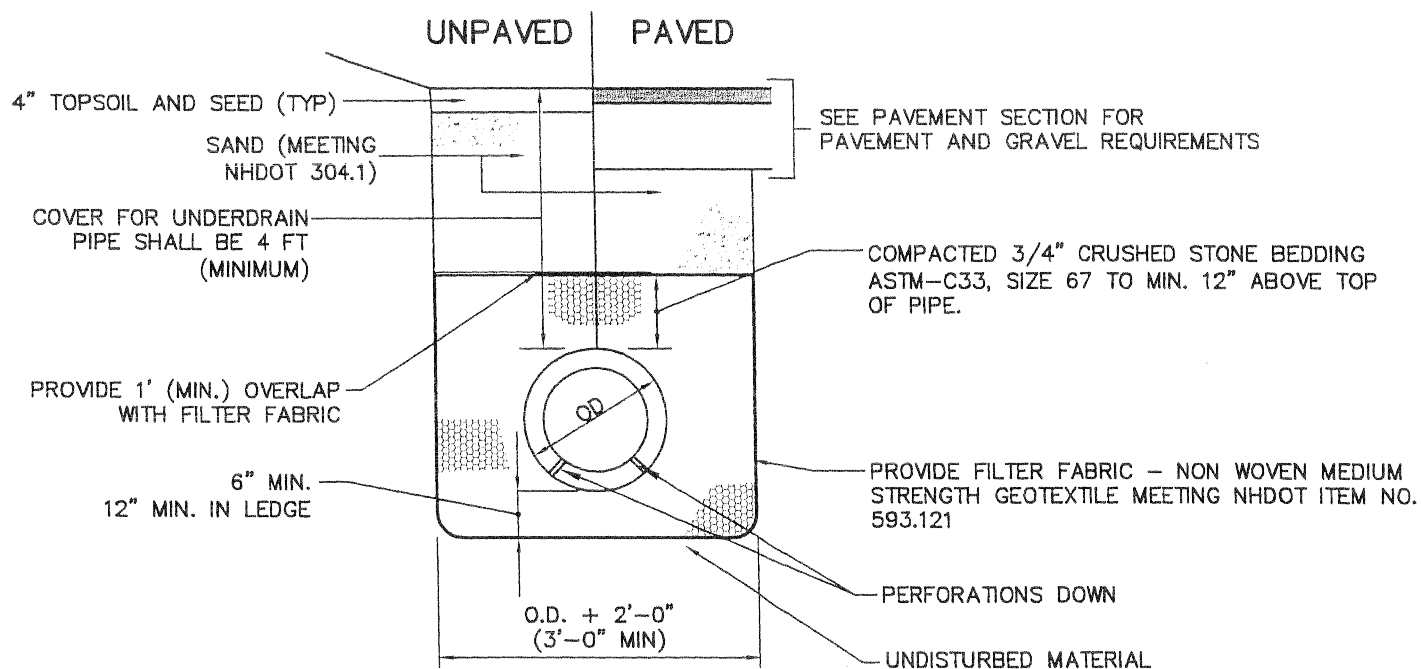
1. DRAIN PIPE SHALL BE 15" DIAMETER MIN.
2. PLASTIC DRAIN PIPE (HDPE) SHALL BE ADS N-12 (CORRUGATED EXTERIOR/SMOOTH INTERIOR) OR EQUAL MEETING AASHTO M-252 AND H-20 LOADING.
3. DI DRAIN PIPE SHALL BE CL. 50.
4. RC DRAIN PIPE SHALL BE CLASS III UNLESS OTHERWISE NOTED.

TYPICAL CONSTRUCTION DETAILS
DRAIN
BOSCAWEN, NEW HAMPSHIRE

TYPICAL DRAIN
PIPE TRENCH

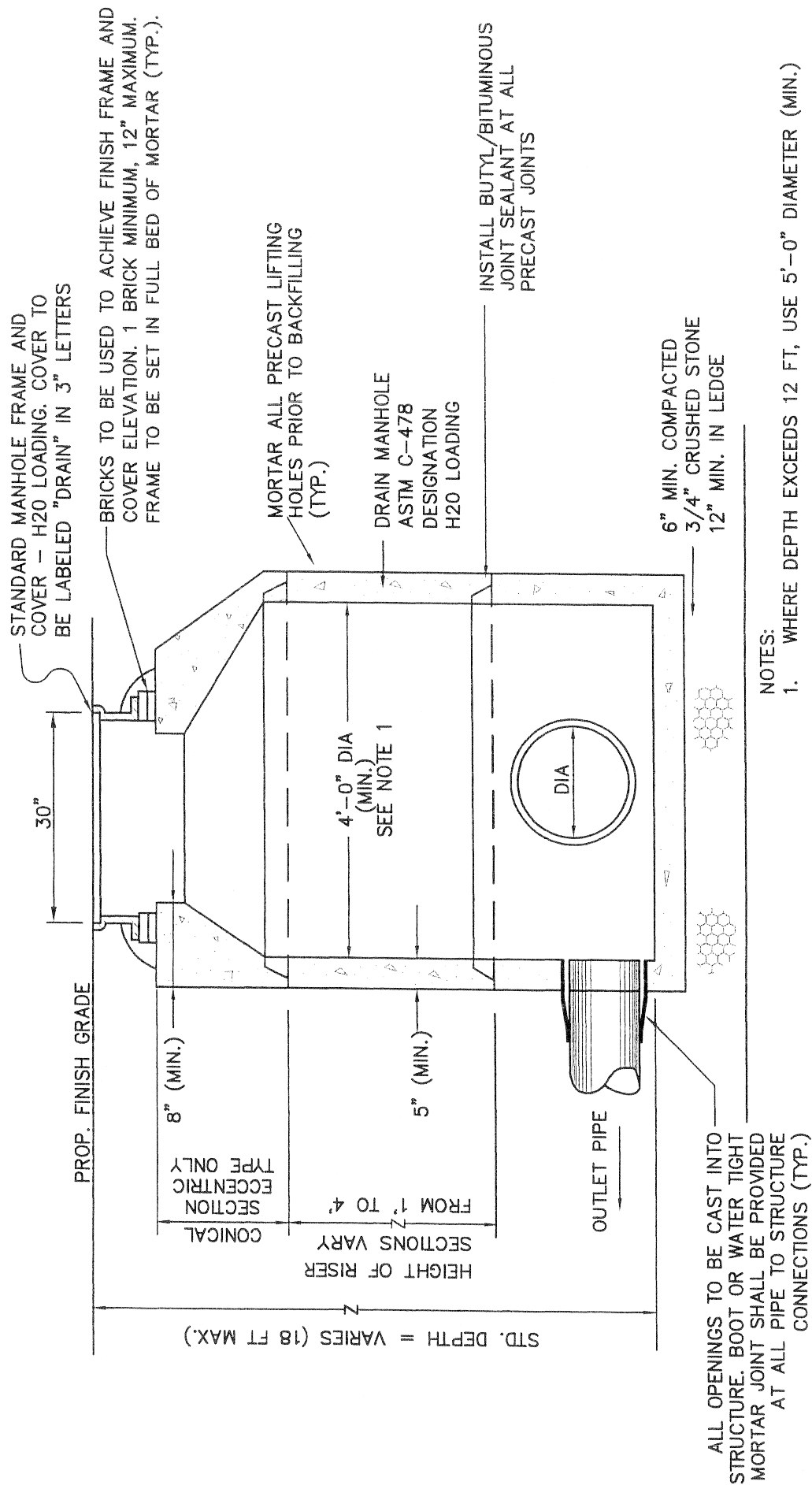
D1

6/12/12



NOTE:

1. PLASTIC UNDERDRAIN PIPE (HDPE) SHALL BE 6" DIAMETER (MIN.) ADS N-12 (CORRUGATED EXTERIOR/SMOOTH INTERIOR) OR EQUAL MEETING AASHTO M-252 AND H-20 LOADING.

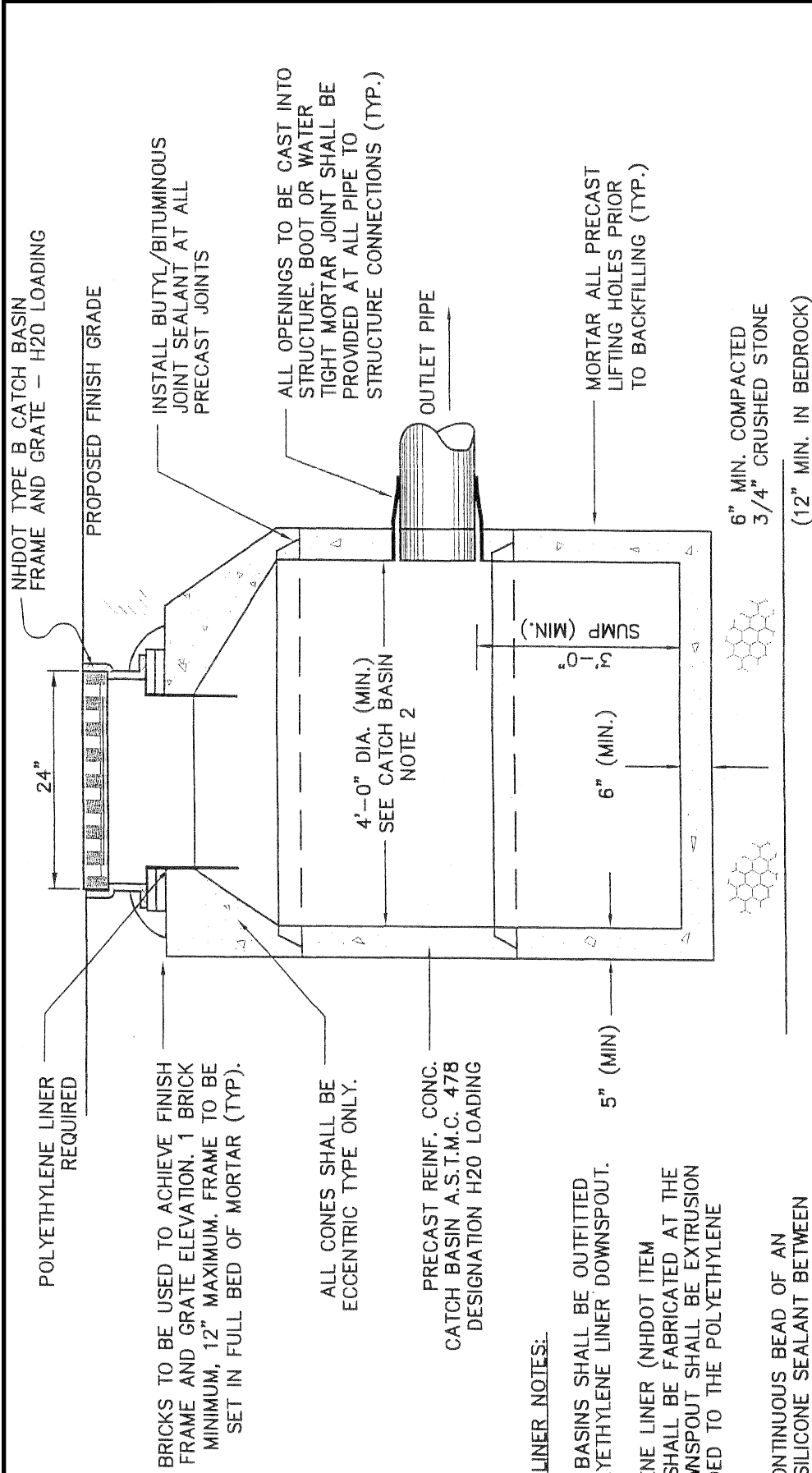


TYPICAL CONSTRUCTION DETAILS
DRAIN
BOSCAWEN, NEW HAMPSHIRE

PRECAST DRAIN
MANHOLE DETAIL

D3

6/12/12



POLYETHYLENE LINER NOTES:

1. ALL CATCH BASINS SHALL BE OUTFITTED WITH A POLYETHYLENE LINER DOWNSPOUT.
2. POLYETHYLENE LINER (NHDOT ITEM 604.0007) SHALL BE FABRICATED AT THE SHOP. DOWNSPOUT SHALL BE EXTRUSION FILLET WELDED TO THE POLYETHYLENE SHEET.
3. PLACE A CONTINUOUS BEAD OF AN APPROVED SILICONE SEALANT BETWEEN FRAME AND POLYETHYLENE SHEET.
4. PLACE CLASS AA CONCRETE TO 2" BELOW THE TOP OF GRATE ELEVATION (SUBSIDIARY TO DRAINAGE STRUCTURE).
5. TRIM POLYETHYLENE SHEET A MAXIMUM OF 4" OUTSIDE THE FLANGE ON THE FRAME FOR THE CATCH BASIN BEFORE PLACING CONCRETE (EXCEPT AS SHOWN WHEN USED WITH CURB).
6. THE CENTER OF THE GRATE & FRAME MAY BE SHIFTED A MAXIMUM OF 3" FROM THE CENTER OF THE DOWNSPOUT IN ANY DIRECTION.

CATCH BASIN NOTES:

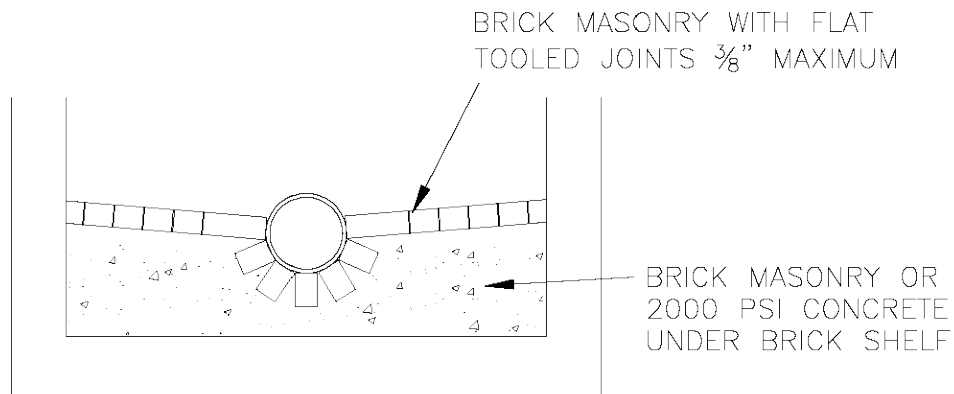
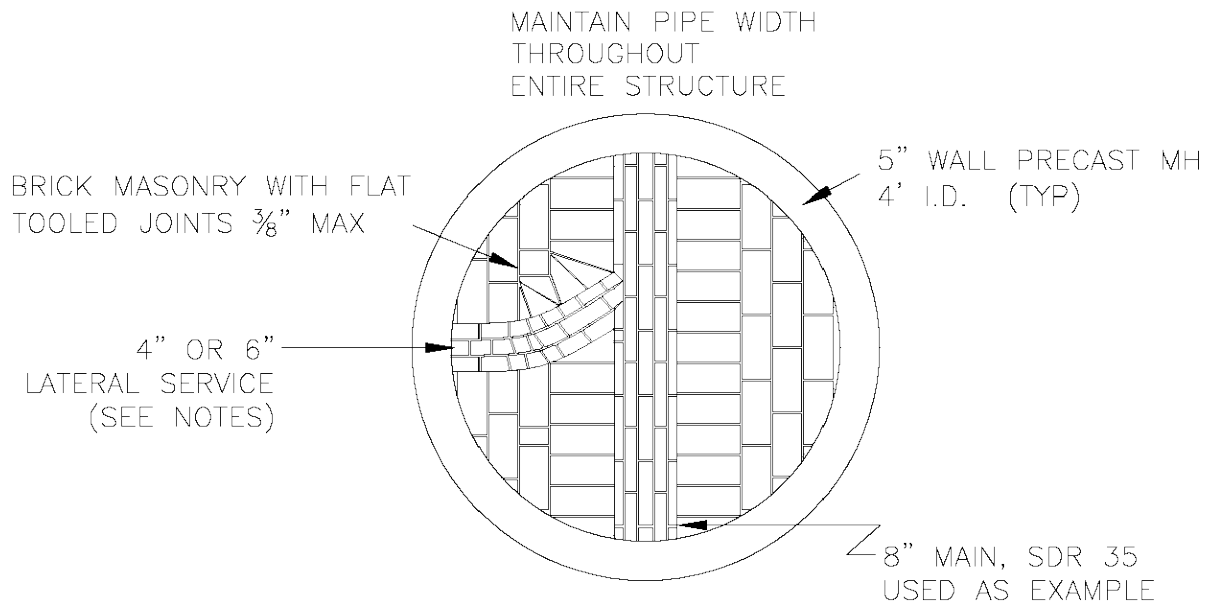
1. WHERE DEPTH EXCEEDS 12 FT, USE 5'-0" DIAMETER (MIN.) MAXIMUM DEPTH = 18 FEET
2. MINIMUM PIPE DROP (INLET TO OUTLET) SHALL BE 3" UNLESS OTHERWISE APPROVED BY THE DEPARTMENT OF PUBLIC WORKS
3. ALL BOOTS, GASKETS AND SEALANTS SHALL BE IN ACCORDANCE WITH MANUFACTURES WRITTEN INSTRUCTIONS
4. WHEN SUMP (36" MINIMUM) IS NOT PROVIDED, BRICK INVERT CONSTRUCTION IS REQUIRED.

TYPICAL CONSTRUCTION DETAILS
DRAIN
BOSCAWEN, NEW HAMPSHIRE

CATCH BASIN
DETAIL

D4

6/12/12



8" PIPE — 7 BRICK MINIMUM (THIS WILL
BE JUST ABOVE THE MIDPOINT)

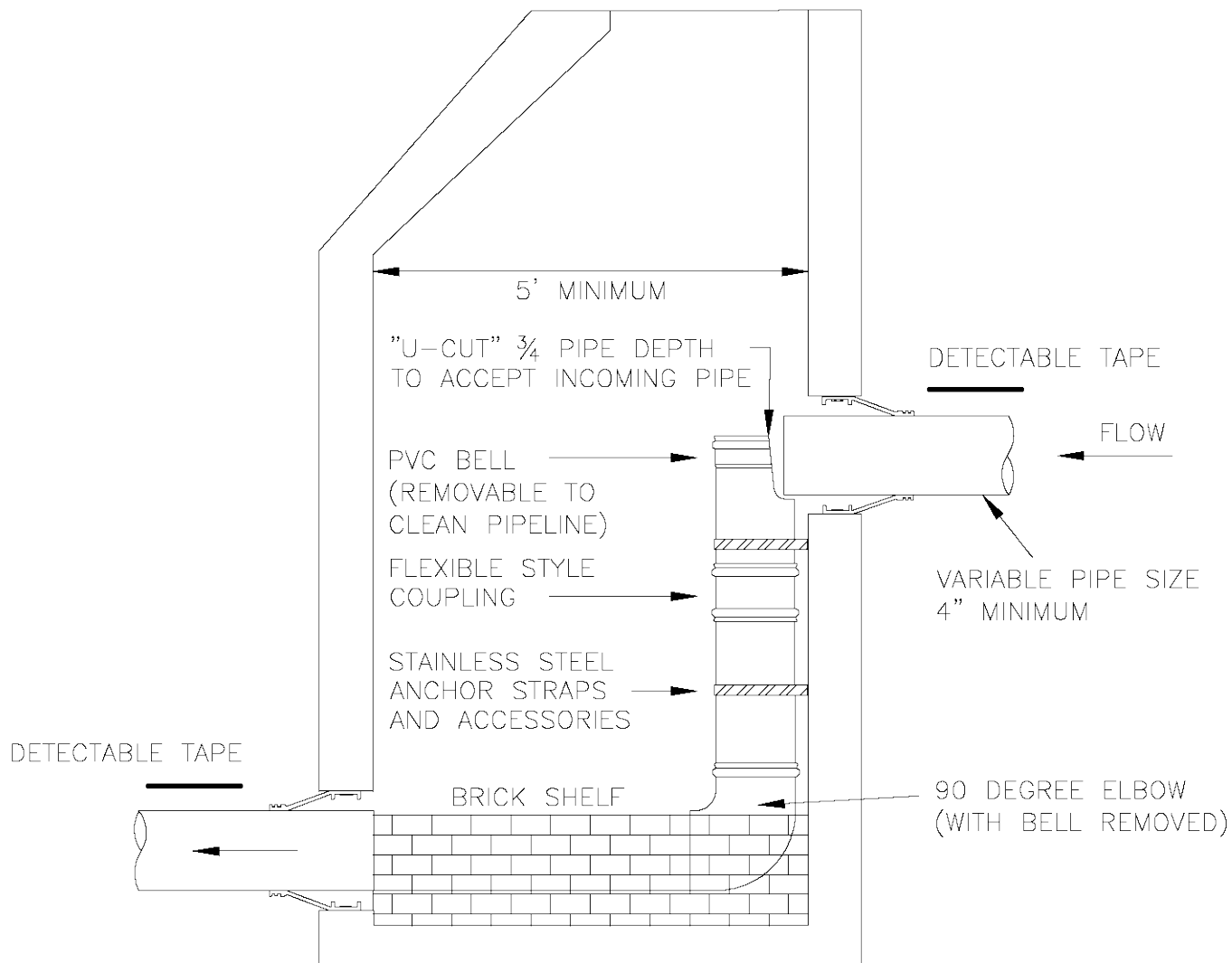
10" PIPE — 7 BRICK MINIMUM

12" PIPE — 9 BRICK MINIMUM

15" PIPE — 11 BRICK MINIMUM

NOTES:

1. FOR MAINS 8" TO 15", CONSTRUCT INVERT THROUGH LOWER HALF OF PIPE (MINIMUM) (8" PVC SHOWN AS AN EXAMPLE)
2. FOR MAINS GREATER THAN 15", CONSTRUCT INVERT TO TOP OF PIPE
3. MAINTAIN TROUGH WIDTH THROUGH STRUCTURE
4. TYPICAL BRICK, ASTM DESIGNATION: C 321-93
5. SERVICE CONNECTIONS SHOULD BE PER THE "SEWER SERVICE CONNECTION / INSIDE DROP MANHOLE" DETAIL. WHERE GRADES PROHIBIT SUCH A CONNECTION THE CONNECTION SHOULD BE AS SHOWN WITH THE SERVICE INVERT 2" ABOVE THE INVERT OF THE MAIN WHERE IT ENTERS THE MANHOLE.



NOTES:

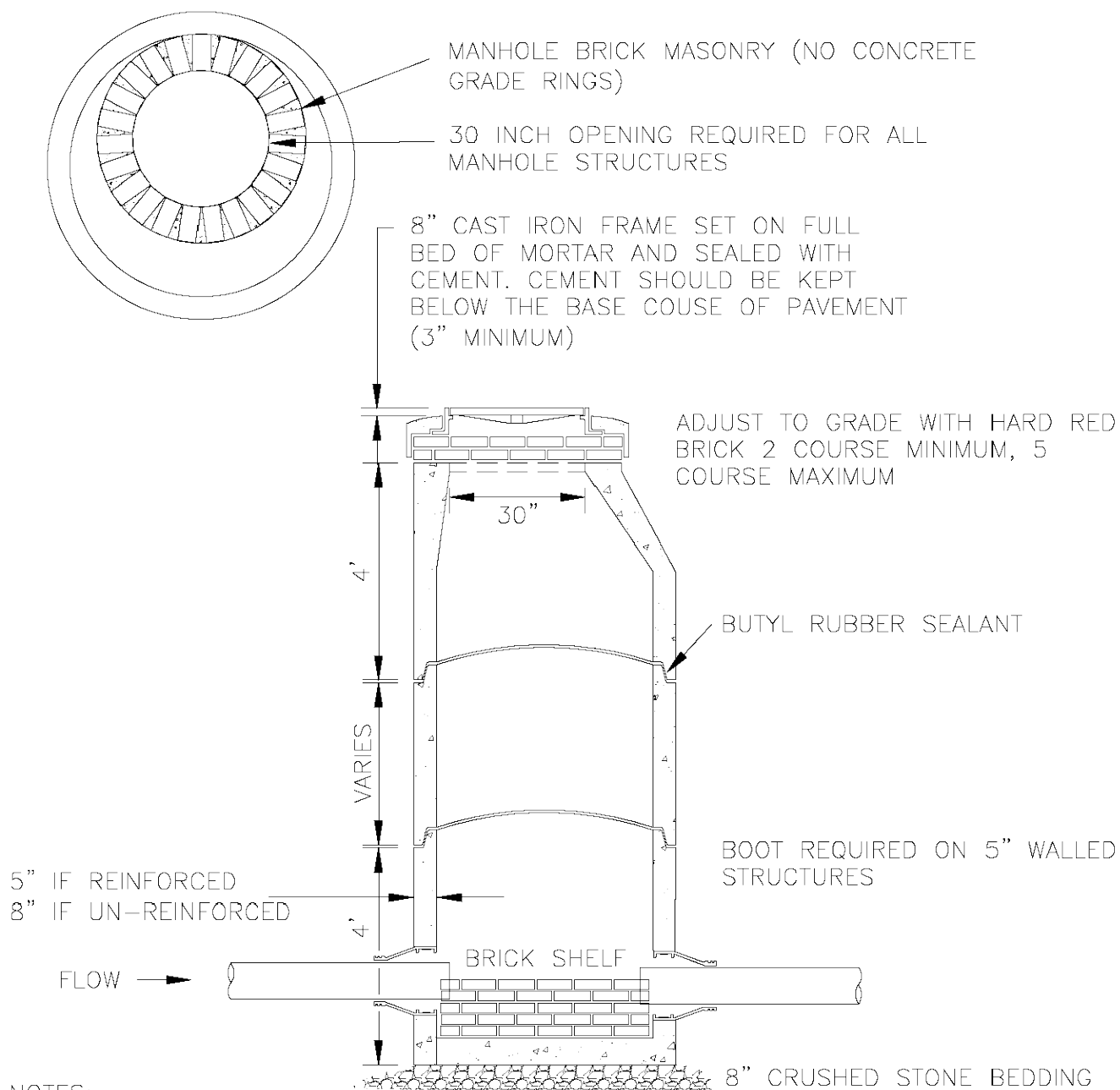
1. IF DISTANCE FROM SERVICE TO MAIN IS $\geq 2'$ AN INSIDE DROP IS REQUIRED. OTHERWISE INVERT OF SERVICE MUST MATCH INVERT OF MAIN
2. 4" SERVICES REQUIRE A 6" DIAMETER DROP. OTHERWISE, DROP DIAMETER TO MATCH INLET DIAMETER
3. MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE TO THE CITY OF CONCORD STANDARDS FOR SANITARY MANHOLE CONSTRUCTION
4. INSIDE DROP MANHOLES SHALL HAVE A MINIMUM 5' INSIDE DIAMETER FOR 8" PIPE
5. ANCHOR STRAPS (MINIMUM OF 2) AND BOLTS TO BE 304 OR 316 STAINLESS STEEL AND NOT MORE THAN 3' ON CENTER. SECURE AS DIRECTED: STRAPS - 1" WIDE, BOLTS - $\frac{3}{8}$ " X $2\frac{1}{2}$ " LONG

TYPICAL CONSTRUCTION DETAILS
SEWER
BOSCAWEN, NEW HAMPSHIRE

SEWER MAIN
INSIDE DROP MANHOLE

S2

6/12/12



NOTES:

1. CONCRETE: 4,000 PSI AFTER 28 DAYS
2. H-20 LOADING REQUIRED
3. ON INSIDE OF STRUCTURE, PRE-CAST JOINTS AND LADDER RUNG HOLES TO BE SEALED WITH PORTLAND CEMENT
4. LIFT HOLES ARE TO BE SEALED WITH PORTLAND CEMENT FLUSH TO THE OUTSIDE STRUCTURE WALL PRIOR TO BACKFILLING
5. ALL STRUCTURES WITH MULTIPLE PIPES SHALL HAVE A MINIMUM OF 12" OF INSIDE SURFACE BETWEEN HOLES. NO MORE THAN 75% OF A HORIZONTAL CROSS-SECTION SHALL BE HOLES, AND THERE SHALL BE NO HOLES CLOSER THAN 3" TO JOINTS
6. MANHOLES AND TRAFFIC SIGNAL LOOPS SHALL BE SEPARATED BY A MINIMUM OF 2' TO ALLOW FOR MAINTENANCE OF STRUCTURE

TYPICAL CONSTRUCTION DETAILS
SEWER
BOSCAWEN, NEW HAMPSHIRE

SEWER MANHOLE

S3

6/12/12

SAW CUT EXISTING PAVEMENT

2'

CRUSHED GRAVEL

GRAVEL

UNDISTURBED EARTH OR LEDGE

1.5:1 SLOPE

TRENCH BOX OR OTHER SUITABLE SHORING

18" MIN

PIPE COVER LAYER TO BE CLEAN GRANULAR FILL, FREE OF STONES OR PAVEMENT DEBRIS AND COMPACTED IN 1' LAYERS TO 95% (MIN)

1' MIN SAND

6" MIN BEDDING

DETECTABLE TAPE FOR MAINLINES AND SERVICE LATERALS

2' MAX BELOW TRENCH BOX

1' MIN

3/4" CRUSHED STONE BEDDING TO 1/2" OD FOR SMALL DIAMETER PIPE (ID < 24"), AND TOP OF PIPE FOR LARGE DIAMETER PIPE (ID ≥ 24")

TYPICAL CONSTRUCTION DETAILS
SEWER
BOSCAWEN, NEW HAMPSHIRE

SANITARY SEWER AND STORM DRAIN PIPE INSTALLATION

45

6/12/12