

Project:

WINGATE RESIDENCES
North Avenue Haverhill, MA

Weston & Sampson.
100 Foxborough Blvd., S250 Foxborough, MA
(508) 659-3034 (800) Sampson
www.westonandsampson.com

Consultants:

North:

Revisions:

Rev	Date	Description

Seal:

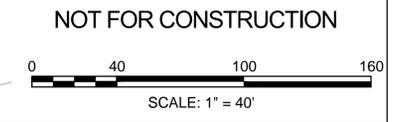
NOI SUBMISSION

Date: 6/20/16
Scale: 1:40
Drawn By: NAP
Reviewed By: LFK
Checked By: SRA
Approved By: SRA

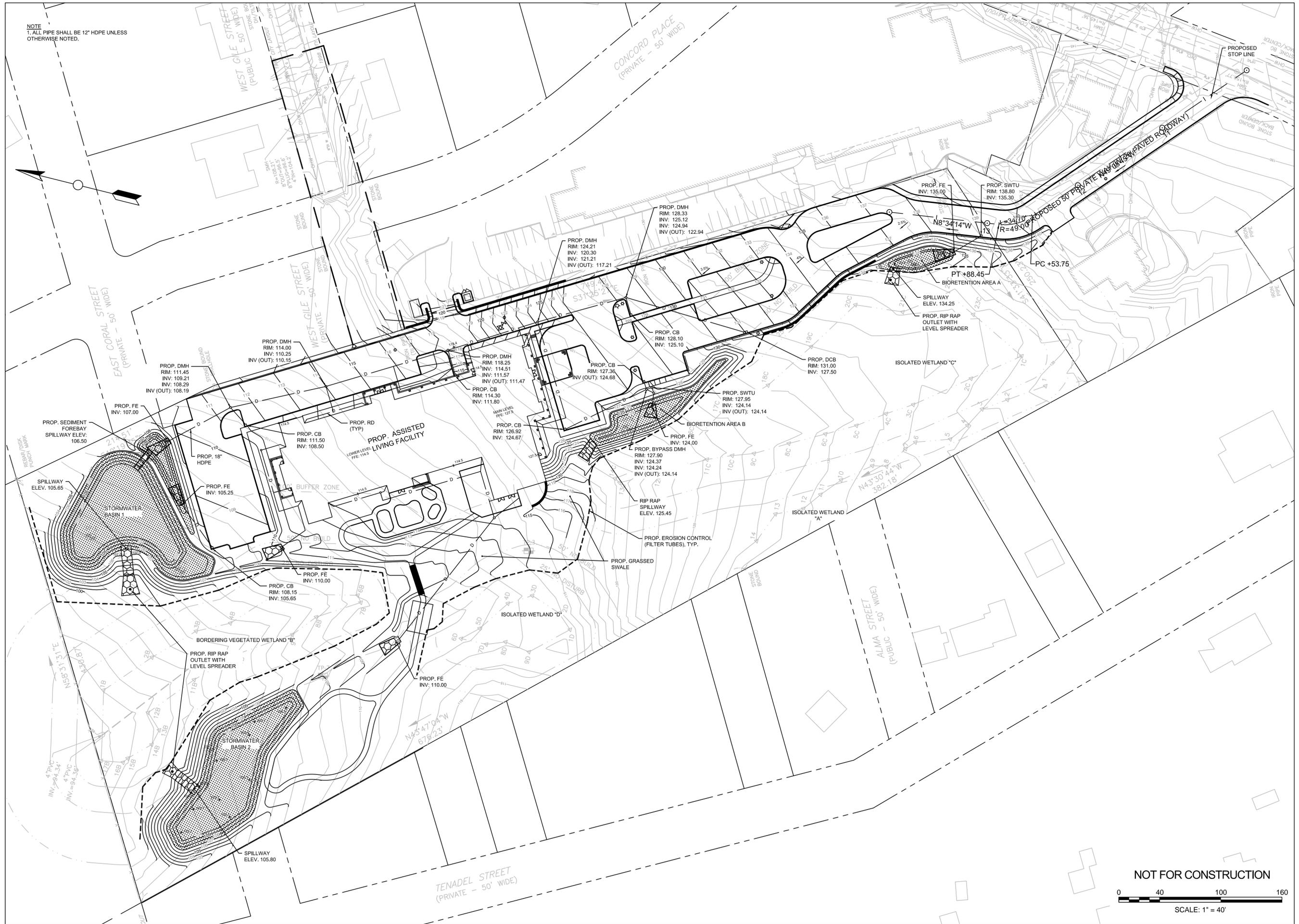
Drawing Title:
LAYOUT & MATERIALS PLAN

Sheet Number: SHEET 5 OF 12
C3.01

NOTES:
1. FUTURE NORTH AVENUE IMPROVEMENTS, INCLUDING NEW SIDEWALK AND TRAFFIC MITIGATION WILL BE FUNDED BY WHC HAVERHILL AL, LLC AND INSTALLED BY THE CITY OF HAVERHILL PER CONDITION OF THE CITY COUNCIL NOTICE OF DECISION, DATED JANUARY 12, 2016.



NOTE
 T, ALL PIPE SHALL BE 12" HDPE UNLESS OTHERWISE NOTED.



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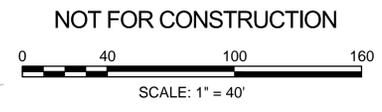
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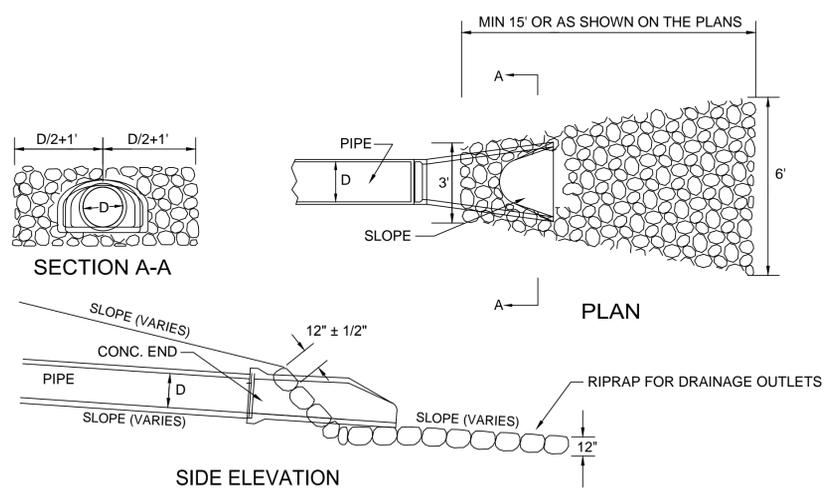
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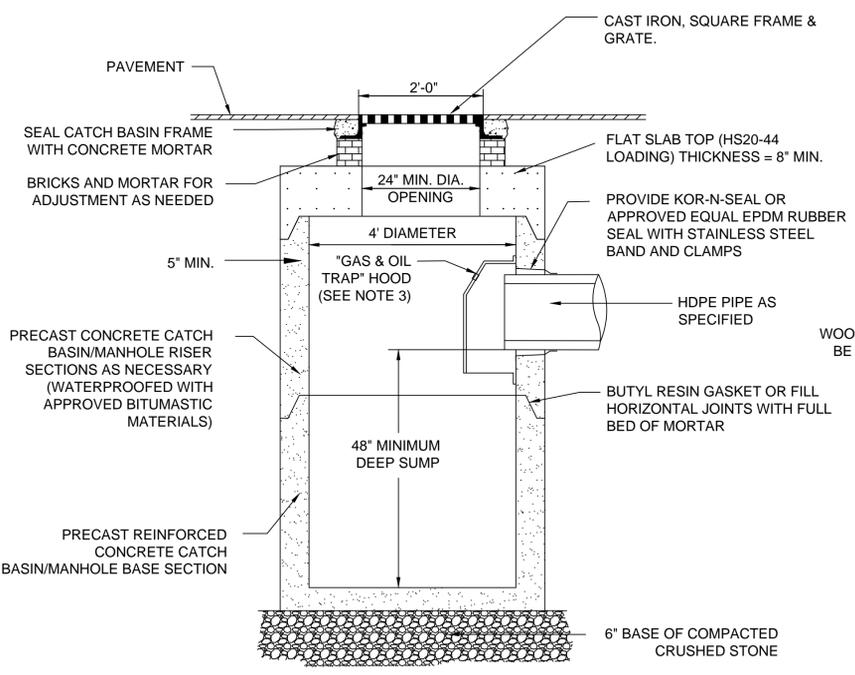
Drawing Title:
GRADING & DRAINAGE PLAN

Sheet Number: SHEET 7 OF 12
C6.01



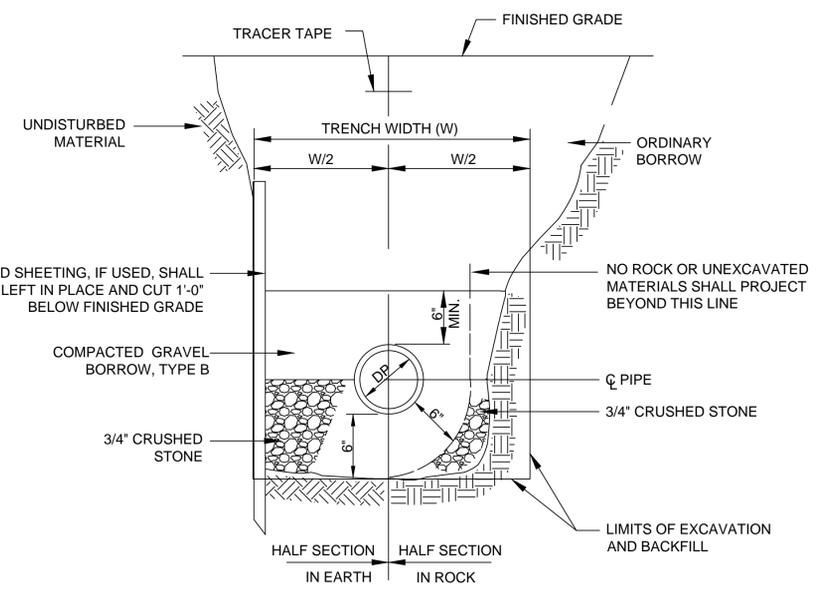


1 FLARED END PIPE DETAIL
SCALE: N.T.S.



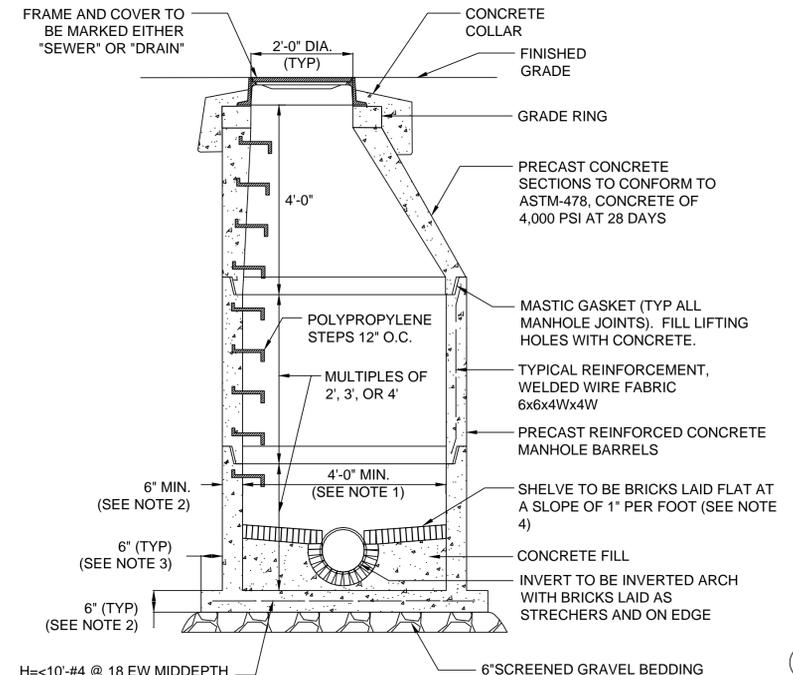
NOTES
1. FOR DOUBLE CATCH BASINS, STRUCTURE SHALL BE 6' IN DIAMETER.
2. ADJUSTMENT OF THE FRAME WITH BRICK SHALL BE A MAXIMUM HEIGHT OF 12 INCHES.
3. GAS & OIL HOOD SHALL BE THE SNUOT, AS MANUFACTURED BY BMP, INC., LYME, CT, THE ELIMINATOR, AS MANUFACTURED BY GROUND WATER RESCUE, INC., QUINCY, MA, OR APPROVED EQUAL.

3 STANDARD CATCH BASIN
SCALE: N.T.S.



DEPTH TO INVERT	DIAMETER OF PIPE (DP)	MAX. TRENCH WIDTH BELOW LINE OF NARROW TRENCH LIMIT (SHEETED OR UNSHEETED) (W)
0-12'	TO 4"	5'-0"

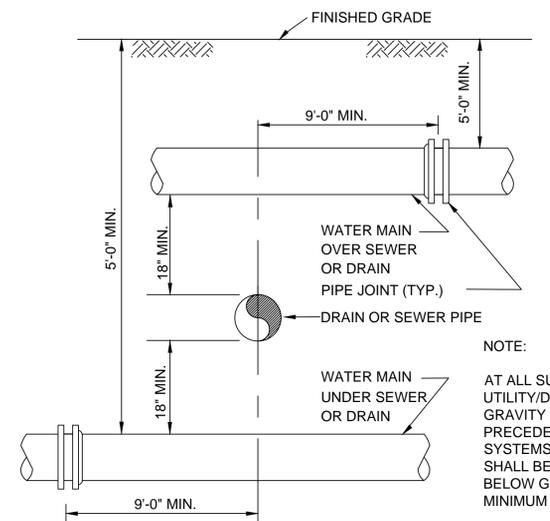
5 SEWER TRENCH DETAIL
SCALE: N.T.S.



H=<10'-#4 @ 18 EW MIDDEPTH
H=10' TO 20'-#4 @ 12 EW MIDDEPTH
H=20' TO 30'-#5 @ 12 EW MIDDEPTH
IN ADDITION TO WELDED WIRE FABRIC

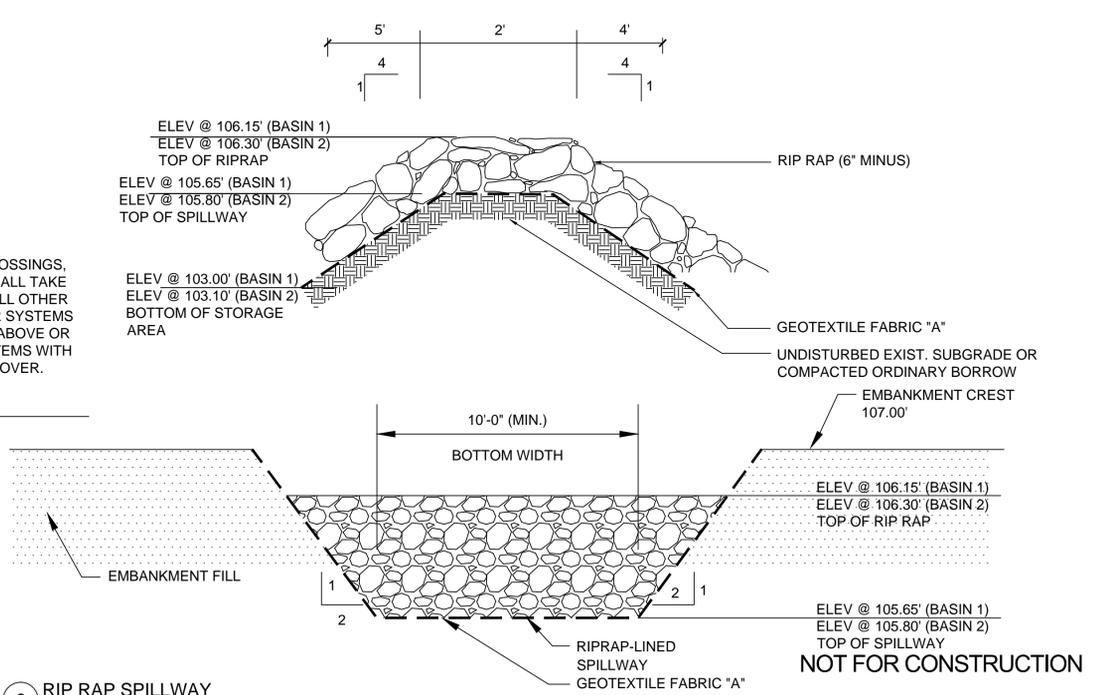
NOTES
1. 5'-0" DIAMETER FOR ALL MANHOLE DEPTHS GREATER THAN 20 FEET OR WHEN REQUESTED BY THE ENGINEER.
2. 6" MIN. WALL THICKNESS AND 7 INCH MIN. BASE THICKNESS WITH 5'-0" DIAMETER MANHOLES.
3. 6 INCH LIP OPTIONAL UNLESS OTHERWISE NOTED.
4. CONCRETE INVERT AND SHELF MAY BE SUBSTITUTED IN STORM DRAIN MANHOLES AS DIRECTED BY THE ENGINEER.
5. ADJUSTMENT OF THE FRAME WITH BRICK SHALL BE A MAXIMUM HEIGHT OF 12 INCHES.

2 PRECAST CONCRETE MANHOLE
SCALE: N.T.S.



NOTE:
AT ALL SUBSURFACE UTILITY/DRAINAGE CROSSINGS, GRAVITY SYSTEMS SHALL TAKE PRECEDENCE OVER ALL OTHER SYSTEMS. ALL OTHER SYSTEMS SHALL BE INSTALLED ABOVE OR BELOW GRAVITY SYSTEMS WITH MINIMUM REQUIRED COVER.

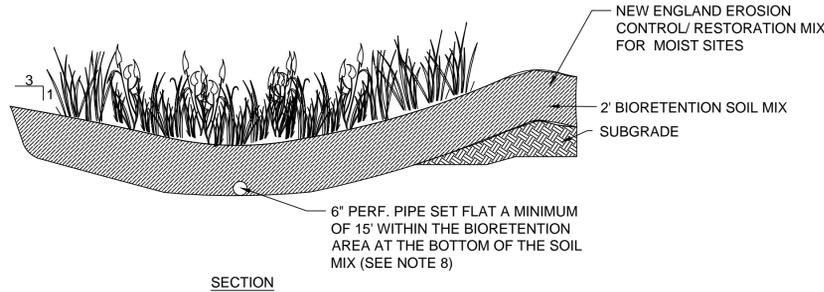
4 SEWER OR DRAIN CROSSING DETAIL
SCALE: N.T.S.



6 RIP RAP SPILLWAY
SCALE: N.T.S.

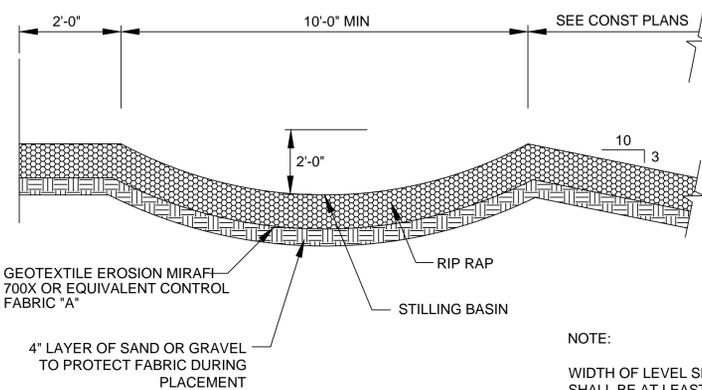
NOTES:

1. THE SOIL MIX FOR BIORETENTION AREAS SHOULD BE A MIXTURE OF SAND COMPOST AND SOIL. 40% SAND, 20-30% TOPSOIL, AND 30-40% COMPOST.
2. THE SOIL MIX MUST BE UNIFORM, FREE OF STONES, STUMPS, ROOTS OR SIMILAR OBJECTS LARGER THAN 2 INCHES. CLAY CONTENT SHOULD NOT EXCEED 5%.
3. SOIL PH SHOULD GENERALLY BE BETWEEN 5.5-6.5.
4. SOILS WITH 1.5% TO 3% ORGANIC CONTENT AND MAXIMUM 500-PPM SOLUBLE SALTS.
5. THE SAND COMPONENT SHOULD BE GRAVELLY SAND THAT MEETS ASTM D 422.
6. THE TOPSOIL COMPONENT SHALL BE A SANDY LOAM, LOAMY SAND OR LOAM TEXTURE.
7. THE COMPOST COMPONENT MUST BE PROCESSED FROM YARD WASTE IN ACCORDANCE WITH MASS DEP GUIDELINES. THE COMPOST SHALL NOT CONTAIN BIOSOLIDS.
8. 6" PERFORATED PIPE SHALL DAYLIGHT IN THE RIP RAP SPILLWAY AT THE ELEVATION OF THE BOTTOM OF THE BIORETENTION AREA (ELEV. 133.5 FOR AREA A; ELEV.124.0 FOR AREA B).



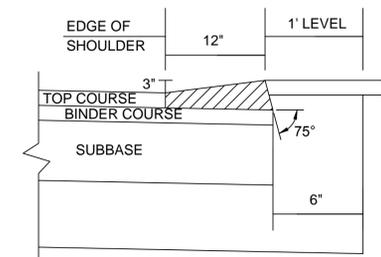
1 BIORETENTION AREA DETAIL

SCALE: N.T.S.



2 LEVEL SPREADER

SCALE: N.T.S.

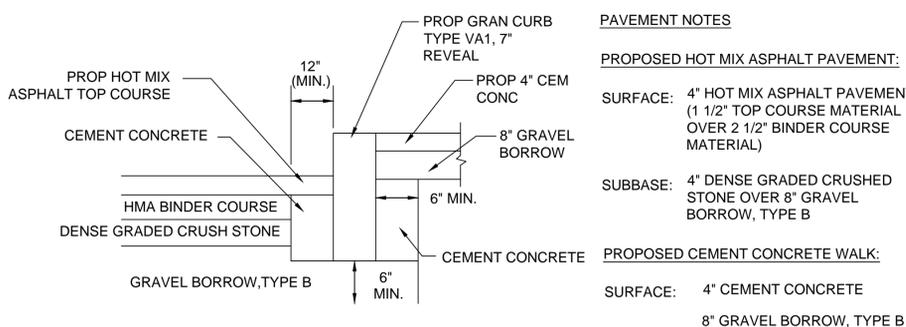


3 HMA BERM AND HOT MIX ASPHALT

SCALE: N.T.S.

4 DRAINAGE TRENCH DETAIL

SCALE: N.T.S.



PAVEMENT NOTES

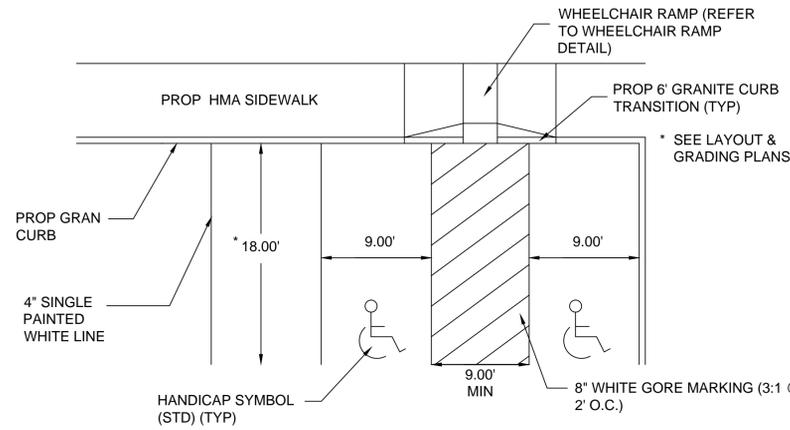
PROPOSED HOT MIX ASPHALT PAVEMENT:

SURFACE: 4" HOT MIX ASPHALT PAVEMENT (1 1/2" TOP COURSE MATERIAL OVER 2 1/2" BINDER COURSE MATERIAL)

SUBBASE: 4" DENSE GRADED CRUSHED STONE OVER 8" GRAVEL BORROW, TYPE B

PROPOSED CEMENT CONCRETE WALK:

SURFACE: 4" CEMENT CONCRETE
8" GRAVEL BORROW, TYPE B

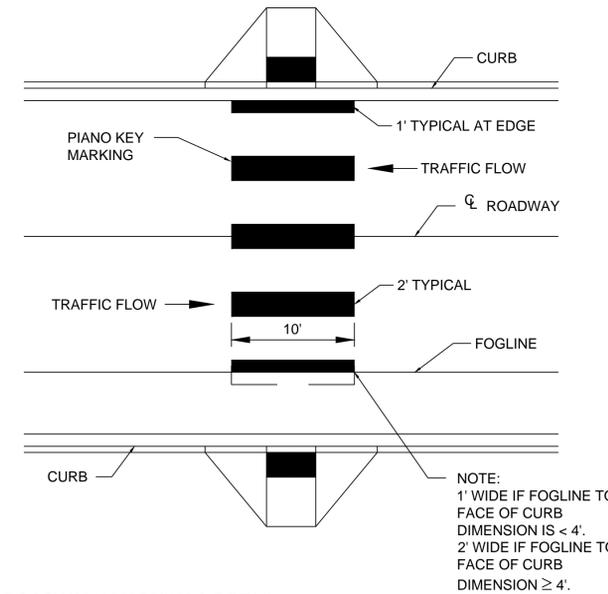


6 PARKING STALLS AND SYMBOLS

SCALE: N.T.S.

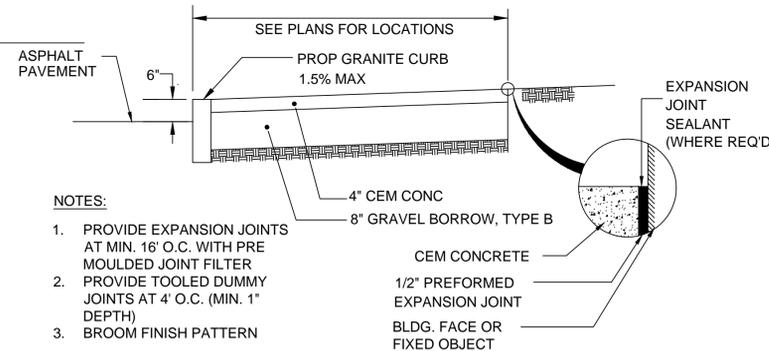
NOTES:

1. MATERIAL SHALL BE PAINTED OR THERMOPLASTIC, HOT APPLIED OR HEAT FUSED PREFORMED (90 MIL. MIN.), UNLESS OTHERWISE APPROVED BY THE ENGINEER. (SEE SHEET C3.01 & C3.02)
2. GAP WIDTH SHALL BE 2' MINIMUM.
3. CROSSWALK MARKING STYLE TO BE DETERMINED BY ENGINEER.



7 CROSSWALK MARKINGS DETAIL

SCALE: N.T.S.

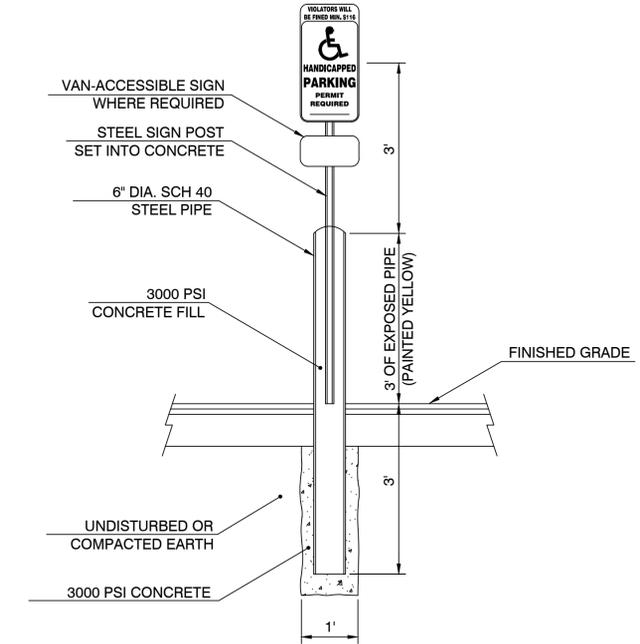


NOTES:

1. PROVIDE EXPANSION JOINTS AT MIN. 16' O.C. WITH PRE MOULDED JOINT FILTER
2. PROVIDE TOOLED DUMMY JOINTS AT 4' O.C. (MIN. 1" DEPTH)
3. BROOM FINISH PATTERN

8 CEMENT CONCRETE WALK

SCALE: N.T.S.

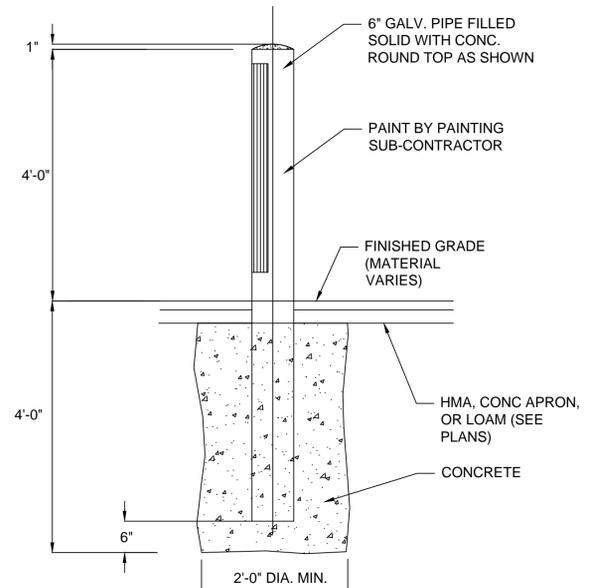


NOTE:

1. LOCATE CENTER OF 6" STEEL PIPE 1' FROM EDGE OF PARKING.
2. ALL SIGNS TO BE CENTERED ON PARKING SPACE.

9 ACCESSIBLE SIGN AND POST DETAIL

SCALE: N.T.S.



BOLLARD NOTES:

1. SEE C3.01 & EQUIPMENT DRAWINGS FOR EXTERIOR BOLLARD LOCATIONS.
2. BOLLARD FOUNDATION CONCRETE TO BE 3000 PSI MIN.
3. 6" GALVANIZED PIPE PROVIDED BY MISC. METAL CONTRACTOR. INSTALLATION & CONC. FOR ALL EXTERIOR BOLLARDS BY GENERAL CONTRACTOR.
4. BOLLARDS @ OVERHEAD DOORS SHALL BE LOCATED SO THAT THE FACE OF BOLLARD IS EVEN WITH DOOR JAMB. BOLLARD SHALL BE LOCATED A MINIMUM OF 2' FROM FACE OF BUILDING. EXACT LOCATION TO BE DETERMINED IN THE FIELD AND APPROVED BY CITY BEFORE INSTALLATION.
5. BOLLARDS TO BE PAINTED BY PAINTING CONTRACTOR.
6. COORDINATE LOCATION OF BOLLARDS AROUND TRANSFORMER W/UTILITY COMPANY REQUIREMENTS.

10 METAL PIPE BOLLARD DETAIL

SCALE: N.T.S.

NOT FOR CONSTRUCTION

5 CURB INSTALLATION IN FULL DEPTH PAVEMENT

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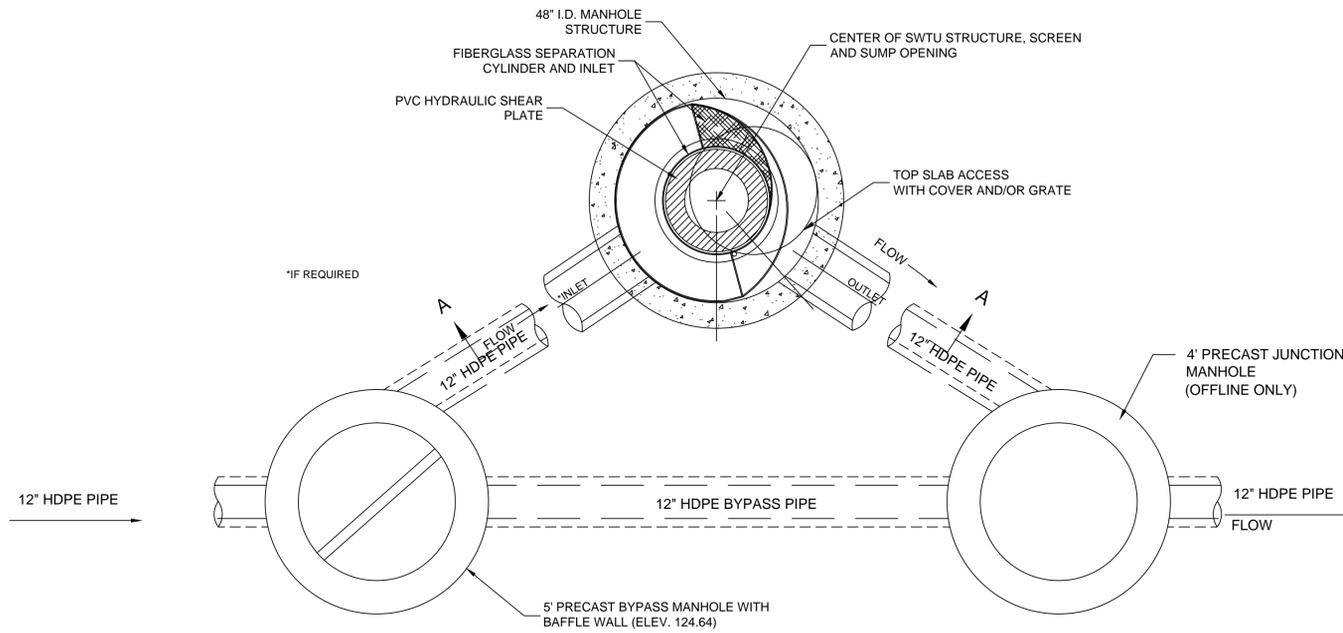
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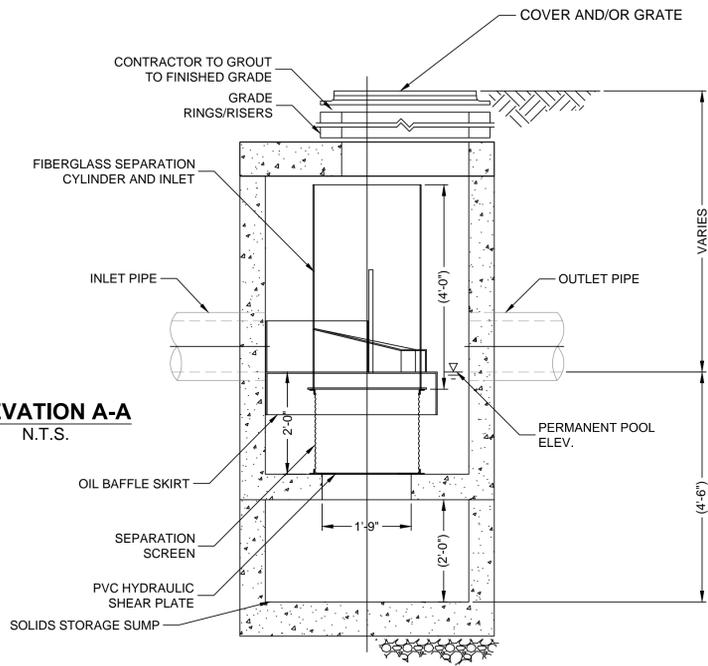
Drawing Title:
DETAILS
Sheet Number: SHEET 11 OF 12
C8.03



PLAN VIEW

NOTES:

1. DIMENSIONS MARKED WITH () ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
2. WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATE AND INFORMATION CONTAINED IN THE SPECIFICATIONS.
3. STRUCTURE SHALL MEET AASHTO HS20 AND CASTINGS SHALL MEET AASHTO M306 LOAD RATING.
4. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE SWTU MANHOLE STRUCTURE (LIFTING CLUTCHES PROVIDED).
5. CONTRACTOR TO ADD JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS, AND ASSEMBLE STRUCTURE.
6. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS BE GROUTED.
7. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. SEE SHEET C6.01 FOR LOCATION, MATERIAL AND INVERT DATA.
8. THE COVER AND/OR GRATE SHALL BE POSITIONED OVER THE CLEANOUT OPENING.



ELEVATION A-A
N.T.S.

1 STORMWATER TREATMENT UNIT (SWTU)

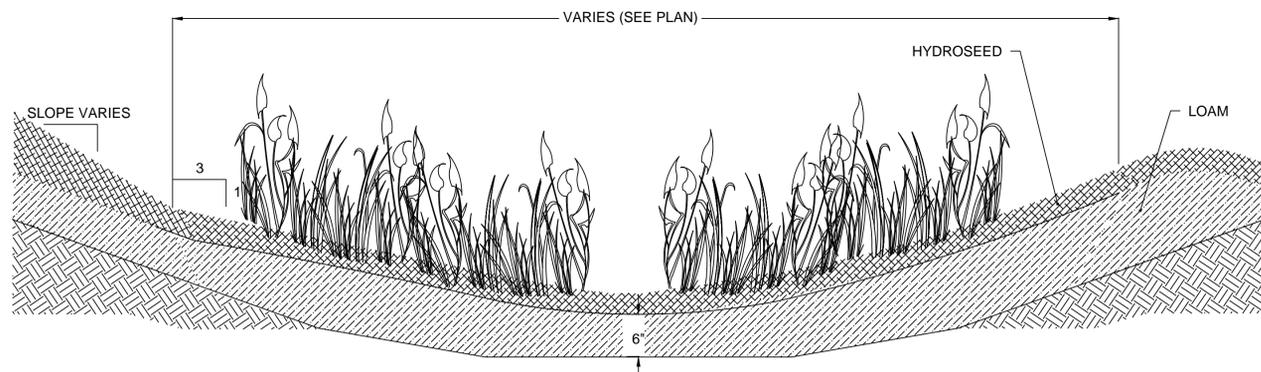
SCALE: N.T.S.

IDENTIFICATION NUMBER	TEXT	PANEL SIZE			NUMERALS & LETTERS				COLOR COMB.	NUMBER OF SIGNS REQUIRED	TOTAL AREA SQ. FT.	POST SIZE AND NUMBER REQUIRED
		WIDTH	HEIGHT	CORNER RADII	BORDER WIDTH	MARGIN WIDTH	NUM. IN.	UPPER CASE				
R1-1	STOP	30"	30"							WHITE ON RED		P5-1 x
R1-2	YIELD	30"	30"							RED ON WHITE		P5-1
R7-8	RESERVED PARKING	12"	18"							WHITE ON BLUE		P5-1
R6-1	ONE WAY	54"	18"							BLACK ON WHITE		P5-1
R5-1	DO NOT ENTER	36"	36"							WHITE ON RED		P5-1
V-1	VISITOR PARKING	12"	18"							WHITE ON BLUE		P5-1 x

SEE MUTCD, INCLUDING STANDARD HIGHWAY SIGNS, LATEST EDITION

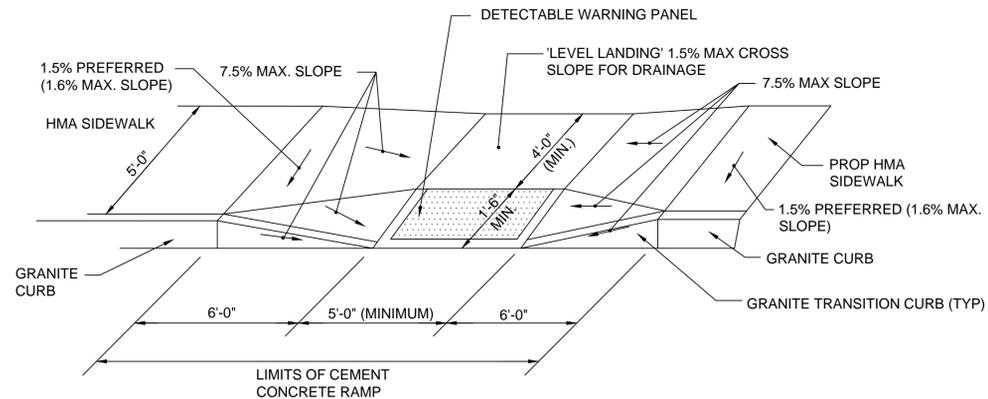
2 PERMANENT TRAFFIC SIGN SUMMARY

SCALE: N.T.S.



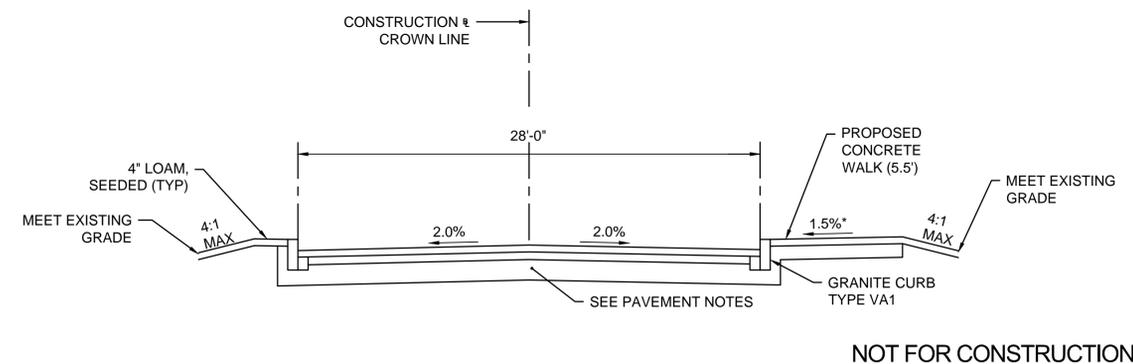
3 GRASS SWALE

SCALE: N.T.S.



5 WHEELCHAIR RAMP DETAIL

SCALE: N.T.S.



6 TYPICAL ROADWAY SECTION

SCALE: N.T.S.

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C8.04