

TRANSPORTATION IMPROVEMENT PROJECT

PLAN AND PROFILE OF
PARKER STREET TRAIL

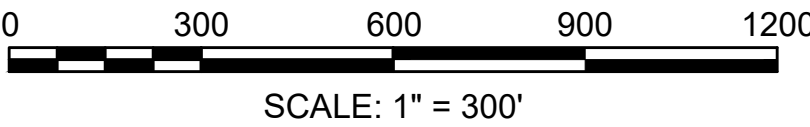
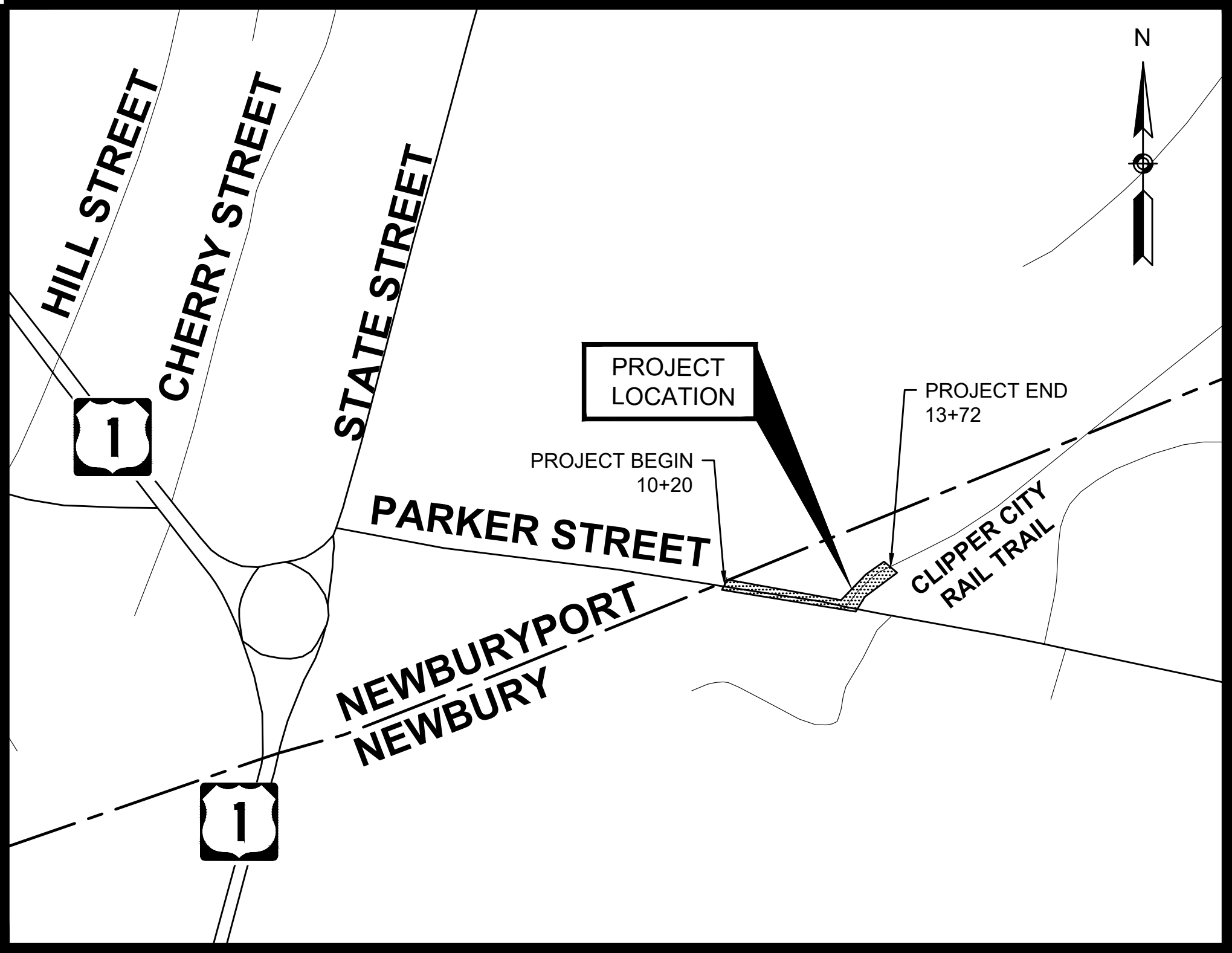
IN THE TOWN
NEWBURY
ESSEX COUNTY

NEWBURY
PARKER STREET TRAIL
TITLE SHEET & INDEX
SHEET 1 OF 15

THESE PLANS ARE SUPPLEMENTED BY THE OCTOBER 2017 CONSTRUCTION STANDARD DETAILS, THE MASSDOT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES DATED 2022, AS AMENDED BY THE SUPPLEMENTAL SPECIFICATIONS DATED MARCH 31, 2022, THE 2015 OVERHEAD SIGNAL STRUCTURE AND FOUNDATION STANDARD DRAWINGS, MASSDOT TRAFFIC MANAGEMENT PLANS AND DETAIL DRAWINGS, THE 1990 STANDARD DRAWINGS FOR SIGNS AND SUPPORTS, THE 1968 STANDARD DRAWINGS FOR TRAFFIC SIGNALS AND HIGHWAY LIGHTING, AND THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK.

100% SUBMITTAL

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LENGTH OF PROJECT = 352 FEET = 0.067 MILES

DESIGN DESIGNATION

	PARKER STREET
DESIGN SPEED	40 MPH
FUNCTIONAL CLASSIFICATION	URBAN MINOR ARTERIAL

6/9/2022	100% SUBMITTAL	1
1/31/2022	75% SUBMITTAL	-
DATE	DESCRIPTION	REV #
<div><div></div><div>282 Merrimack Street 2nd Floor Lawrence, MA 01843 978-794-1792</div><div>311 Main Street 2nd Floor Worcester, MA 01608 508-868-5104</div><div>169 Ocean Blvd, Unit 3 PO Box 249 Hampton, NH 03842 603-601-8154</div></div> <div>www.TheEngineeringCorp.com</div>		
DESIGNED BY RLC	CHECKED BY TFQ	DATE 06/09/2022
DRAWN BY DPS	APPROVED BY JAR	PROJECT NO. T1175

GENERAL SYMBOLS			TRAFFIC SYMBOLS			NEWBURY PARKER STREET TRAIL LEGEND & ABBREVIATIONS SHEET 2 OF 15		
EXISTING	PROPOSED	DESCRIPTION	EXISTING	PROPOSED	DESCRIPTION			
JB	JB	JERSEY BARRIER			CONTROLLER CABINET, FOUNDATION			
CB/GI	CB/GI	CATCH BASIN OR GUTTER INLET			CONTROLLER CABINET, FOUNDATION, CONC. PAD			
CBCI/GICI	CBCI/GICI	CATCH BASIN OR GUTTER INLET W/ CURB INLET			MAST ARM FOUNDATION (SCALE OF BLOCK = DIAMETER IN INCHES)			
FP	FP	FLAG POLE			MAST ARM (LENGTH NOTED)			
GP	GP	GAS PUMP			EMERGENCY PREEMPTION CONFIRMATION STROBE LIGHT			
MB	MB	MAIL BOX			VEHICULAR SIGNAL HEAD			
		POST SQUARE POST CIRCULAR			PEDESTRIAN SIGNAL HEAD			
WELL	WELL	WELL			MAST ARM OR TS POLE MOUNTED SIGN			
EHH	EHH	ELECTRIC HANDHOLE			EMERGENCY PRE-EMPTION RECEIVER			
		FENCE GATE POST			EMERGENCY PRE-EMPTION CONFIRMATION STROBE			
GG	GG	GAS GATE			PEDESTRIAN PUSH BUTTON			
BHL #	BHL #	BORING HOLE			YAGI ANTENNA			
MW #	MW #	MONITORING WELL			BICYCLE WIRE LOOP DETECTOR (SIZE AS NOTED)			
TP #	TP #	TEST PIT			WIRE LOOP DETECTOR (SIZE AND TYPE NOTED)			
		HYDRANT			TRAFFIC SIGN (1 POST)			
		LIGHT POLE			TRAFFIC SIGN (2 POST)			
CO.BD.		COUNTY BOUND			PULL BOX 12"x12" (OR AS NOTED)			
		GPS POINT			ELECTRIC HANDHOLE 12"x24" (OR AS NOTED)			
		CABLE MANHOLE			TRAFFIC SIGNAL CONDUIT			
		DRAINAGE MANHOLE						
		ELECTRIC MANHOLE						
		GAS MANHOLE						
		MISC MANHOLE						
		SEWER MANHOLE						
		TELEPHONE MANHOLE						
		WATER MANHOLE						
MHB	MHB	MASSACHUSETTS HIGHWAY BOUND MONUMENT						
SB		STONE BOUND						
TB		TOWN OR CITY BOUND						
		TRAVERSE OR TRIANGULATION STATION						
TPL or GUY	TPL or GUY	TROLLEY POLE OR GUY POLE						
HTP		TRANSMISSION POLE						
UFB	UFB	UTILITY POLE W/ FIREBOX						
UPDL	UPDL	UTILITY POLE WITH DOUBLE LIGHT						
ULT	ULT	UTILITY POLE W / 1 LIGHT						
UPL	UPL	UTILITY POLE						
		BUSH						
		TREE						
		STUMP						
		SWAMP / MARSH						
WG	WG	WATER GATE						
WSO	WSO	WATER SHUTOFF/CURB STOP						
PM	PM	PARKING METER						
		OVERHEAD CABLE/WIRE						
		CURBING						
		CONTOURS (ON-THE-GROUND SURVEY DATA)						
		CONTOURS (PHOTOGRAMMETRIC DATA)						
		UNDERGROUND DRAIN PIPE (DOUBLE LINE 24 INCH AND OVER)						
		UNDERGROUND ELECTRIC DUCT (DOUBLE LINE 24 INCH AND OVER)						
		UNDERGROUND GAS MAIN (DOUBLE LINE 24 INCH AND OVER)						
		UNDERGROUND SEWER MAIN (DOUBLE LINE 24 INCH AND OVER)						
		UNDERGROUND TELEPHONE DUCT (DOUBLE LINE 24 INCH AND OVER)						
		UNDERGROUND WATER MAIN (DOUBLE LINE 24 INCH AND OVER)						
		BALANCED STONE WALL						
		GUARD RAIL - STEEL POSTS						
		GUARD RAIL - WOOD POSTS						
		CHAIN LINK OR METAL FENCE						
		WOOD FENCE						
		SEDIMENT CONTROL BARRIER						
		TREE LINE						
		EDGE OF PAVEMENT						
		SAWCUT LINE						
		TOP OR BOTTOM OF SLOPE						
		LIMIT OF EDGE OF MICROMILLING AND OVERLAY						
		BANK OF RIVER OR STREAM						
		BORDER OF WETLAND						
		100 FT WETLAND BUFFER						
		200 FT RIVERFRONT BUFFER						
		STATE HIGHWAY LAYOUT						
		TOWN OR CITY LAYOUT						
		COUNTY LAYOUT						
		RAILROAD SIDELINE						
		TOWN OR CITY BOUNDARY LINE						
		PROPERTY LINE OR APPROXIMATE PROPERTY LINE						
		EASEMENT						

PAVEMENT NOTES

PROPOSED HMA SHARED USE PATH

SURFACE: 1½" SUPERPAVE SURFACE COURSE - 9.5 (SSC - 9.5) OVER
2½" SUPERPAVE INTERMEDIATE COURSE - 19.0 (SIC - 19.0)

BASE: 8" GRAVEL BORROW, TYPE b (SEE PAVEMENT NOTE 8 BELOW) OR STRUCTURAL SOIL
SUBBASE: EXISTING SUBGRADE OR GRANULAR FILL (SEE NOTE 1 BELOW)

PROPOSED MILL & HMA OVERLAY

SURFACE: 1½" SUPERPAVE SURFACE COURSE - 9.5 (SSC - 9.5) (PAID UNDER ITEM 451.) OVER
1½" PAVEMENT FINE MILLING

PROPOSED HMA DRIVEWAY

SURFACE: 1½" SUPERPAVE SURFACE COURSE - 9.5 (SSC - 9.5) OVER
2½" SUPERPAVE SURFACE COURSE - 12.5 (SSC - 12.5)

BASE: 8" GRAVEL BORROW, TYPE b (SEE PAVEMENT NOTE 8 BELOW)

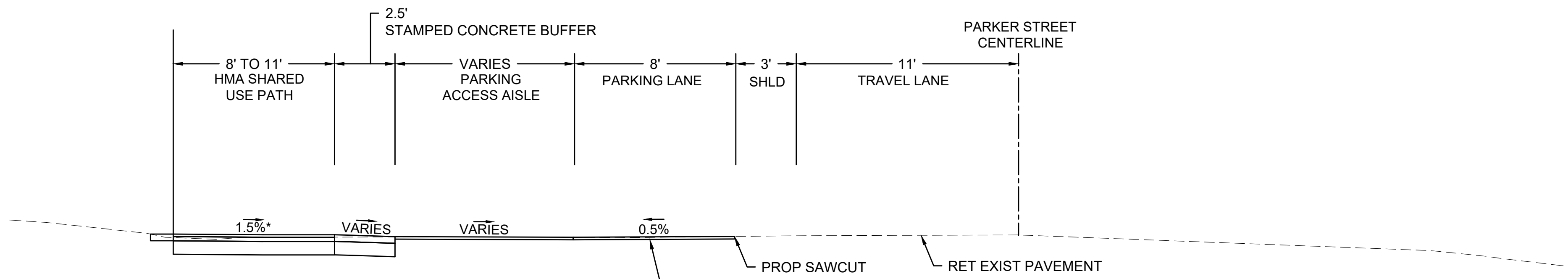
PROPOSED CEMENT CONCRETE PEDESTRIAN CURB RAMP / STAMPED CONCRETE BUFFER

SURFACE: 4" CEMENT CONCRETE (AIR ENTRAINED, 4000 PSI, ¾", 610)

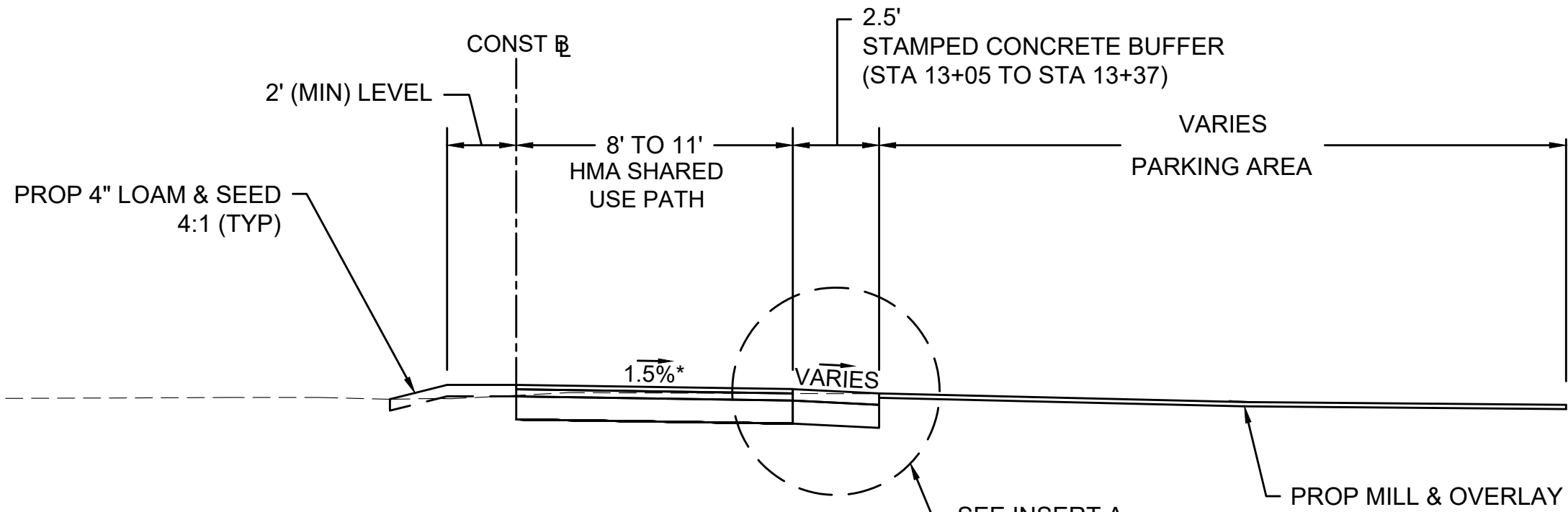
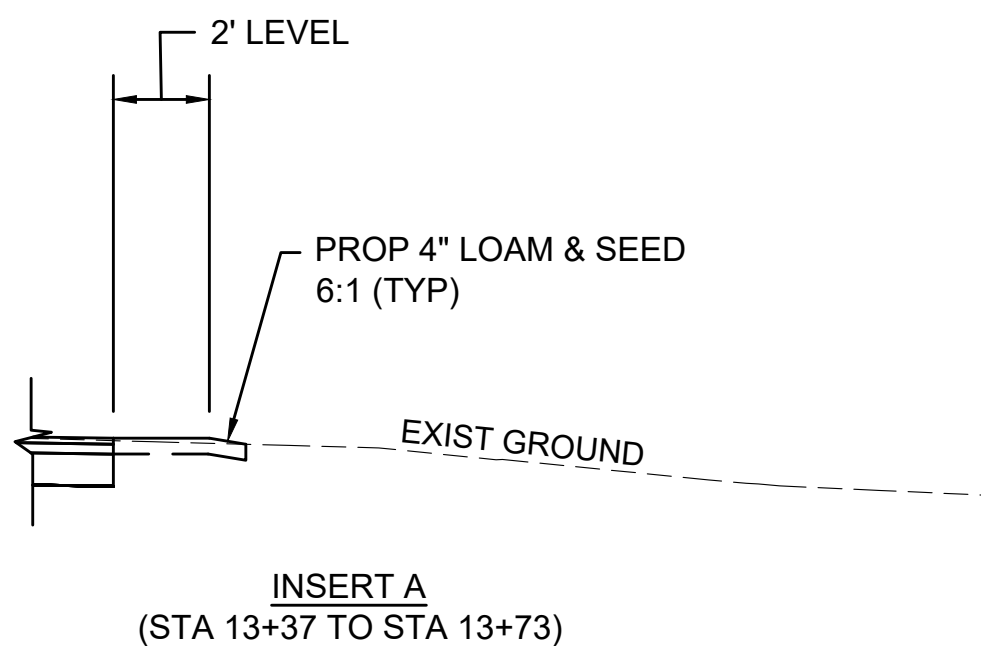
BASE: 8" GRAVEL BORROW, TYPE b

GENERAL PAVEMENT NOTES:

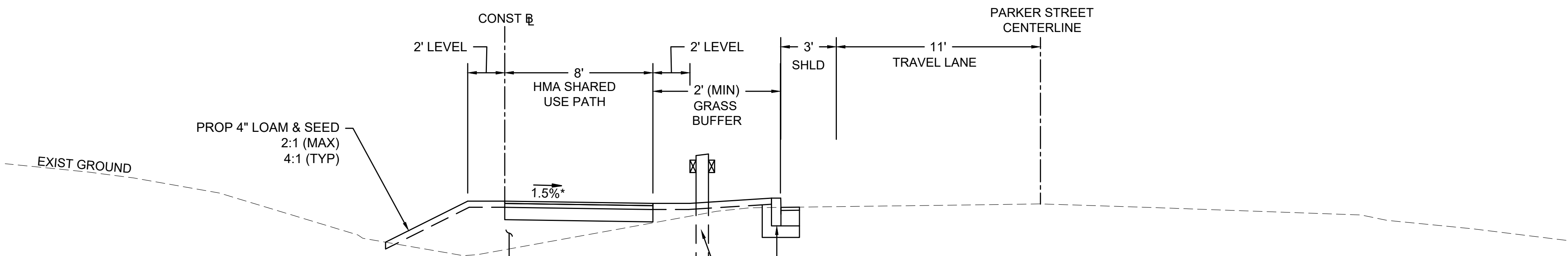
1. REMOVE ALL LOAM, CLAY, MULCH, STUMPS, AND OTHER IMPROPER ROAD FOUNDATION MATERIAL WITHIN 3' OF SUBGRADE. REPLACE WITH COMPACTED GRANULAR FILL MATERIAL ACCEPTABLE TO THE DIRECTOR OF PUBLIC SERVICES. COMPACTION TO BE AT LEAST 95% OF THE DRY WEIGHT AS DETERMINED BY MODIFIED PROCTOR TESTING (ASTM 1557).
2. ALL MATERIALS AND CONSTRUCTION SHALL MEET AND BE COMPLETED IN STRICT ACCORDANCE WITH THE TOWN OF NEWBURY'S CURRENT ROAD AND DRAINAGE SPECIFICATIONS.
3. ASPHALT EMULSION FOR TACK COAT SHALL BE APPLIED BETWEEN ALL ASPHALT SURFACES AND SAWCUT JOINTS BEFORE PAVING. HMA JOINT ADHESIVE SHALL BE APPLIED TO ALL COLD JOINTS (LONGITUDINAL AND TRANSVERSE) BEFORE PAVING SURFACE COURSE. ASPHALT EMULSION FOR TACK COAT SHALL BE APPLIED AT A RATE CONSISTENT WITH STANDARD SPECIFICATION 450.43G2. ALL SURFACES SHALL BE CLEAN OF ALL ORGANICS, DEBRIS, AND SAND PRIOR TO PAVING.
4. ALL HMA SHALL BE IN ACCORDANCE WITH SECTION 450.
5. ASPHALT EMULSION FOR TACK COAT SHALL BE RS-1H TO RESIST TRACKING OF TACK BY HAUL VEHICLES.
6. HMA FOR WALKS AND DRIVEWAYS SHALL BE IN ACCORDANCE WITH SECTION 700.
7. ALL GRAVEL BORROW MEETING SPECIFICATION SHALL BE RETAINED IN PLACE, COMPACTED, AND LEVELED AS REQUIRED.



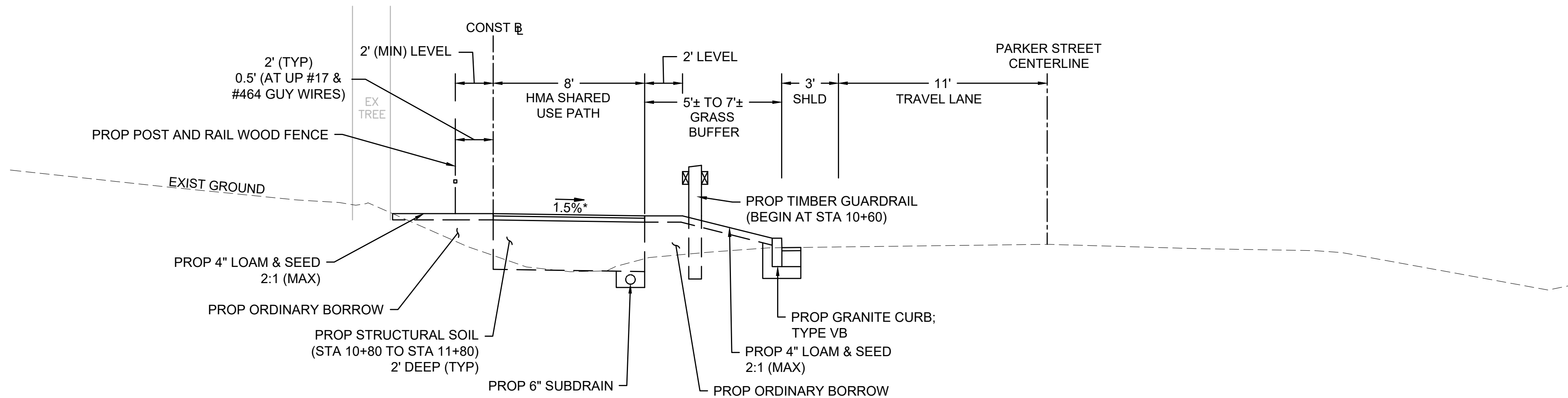
PARKER STREET PARKING AREA
TYPICAL SECTION
STA 23+40± TO 24+06±
*TOLERANCE FOR CONSTRUCTION ±0.5%



PARKER STREET TRAIL
TYPICAL SECTION
STA 13+05± TO 13+73±
*TOLERANCE FOR CONSTRUCTION ±0.5%

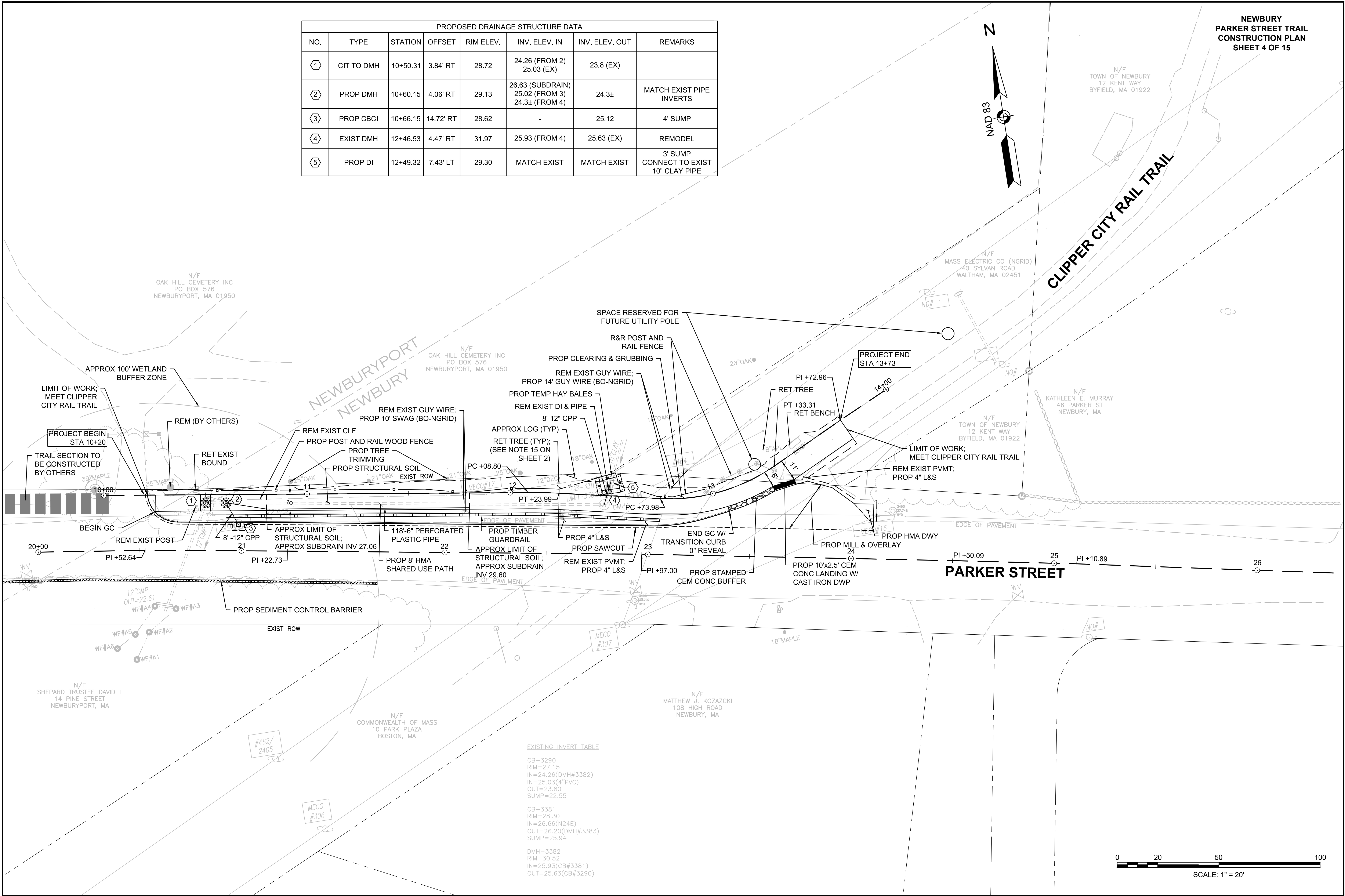


PARKER STREET TRAIL
TYPICAL SECTION
STA 12+24± TO 13+05±
*TOLERANCE FOR CONSTRUCTION ±0.5%

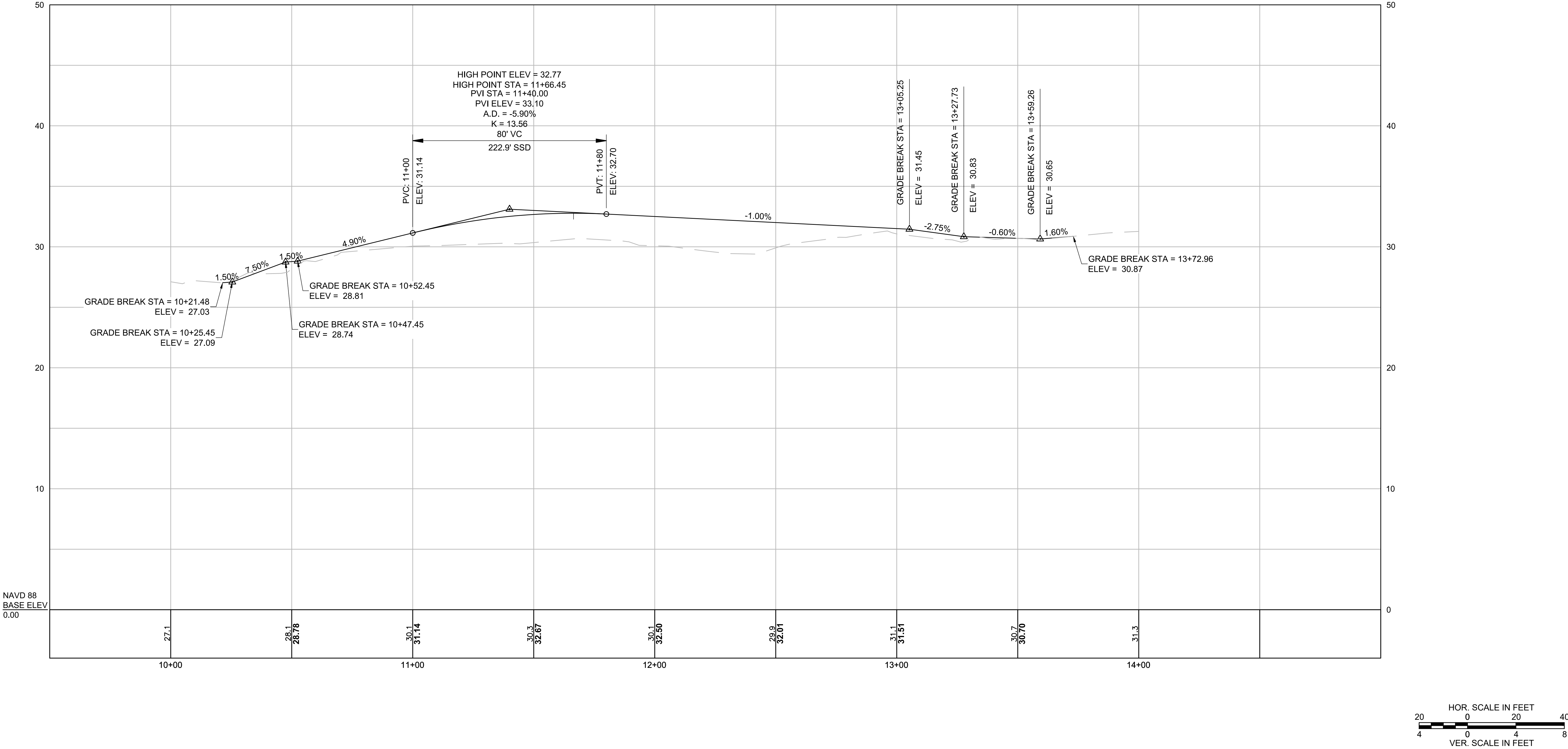


PARKER STREET TRAIL
TYPICAL SECTION
STA 10+26± TO 12+24±
*TOLERANCE FOR CONSTRUCTION ±0.5%

PROPOSED DRAINAGE STRUCTURE DATA							
NO.	TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
①	CIT TO DMH	10+50.31	3.84' RT	28.72	24.26 (FROM 2) 25.03 (EX)	23.8 (EX)	
②	PROP DMH	10+60.15	4.06' RT	29.13	26.63 (SUBDRAIN) 25.02 (FROM 3) 24.3± (FROM 4)	24.3±	MATCH EXIST PIPE INVERTS
③	PROP CBCI	10+66.15	14.72' RT	28.62	-	25.12	4' SUMP
④	EXIST DMH	12+46.53	4.47' RT	31.97	25.93 (FROM 4)	25.63 (EX)	REMODEL
⑤	PROP DI	12+49.32	7.43' LT	29.30	MATCH EXIST	MATCH EXIST	3' SUMP CONNECT TO EXIST 10" CLAY PIPE



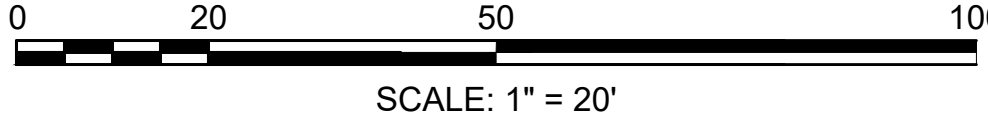
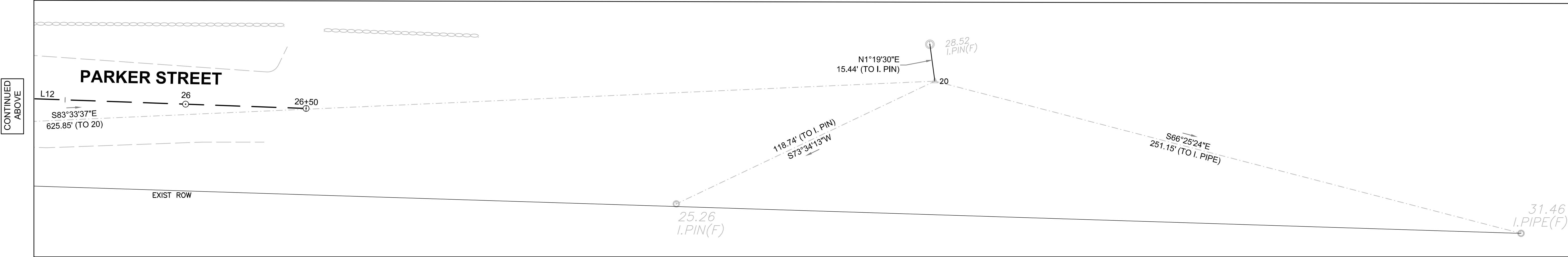
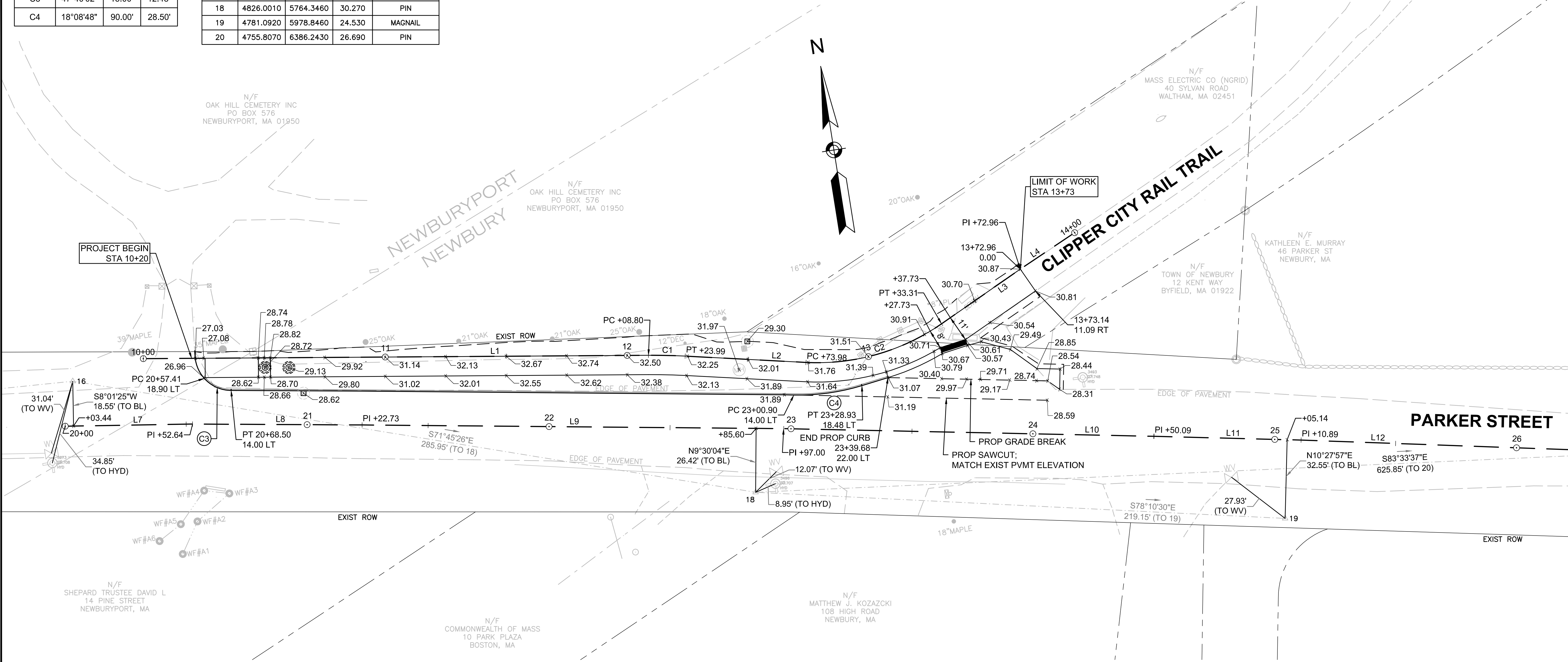
PARKER STREET TRAIL



Curve Table			
Curve #	Delta	Radius	Length
C3	47°40'02"	15.00'	12.48'
C4	18°08'48"	90.00'	28.50'



Point Table				
Point #	Northing	Easting	Elevation	Raw Description
16	4915.5150	5492.7720	26.320	PIN
18	4826.0010	5764.3460	30.270	PIN
19	4781.0920	5978.8460	24.530	MAGNAIL
20	4755.8070	6386.2430	26.690	PIN

NEWBURY
PARKER STREET TRAIL
CURB TIE AND GRADING PLAN
SHEET 6 OF 15



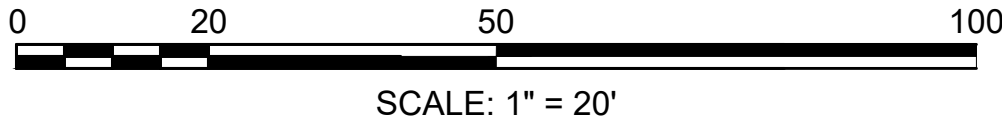
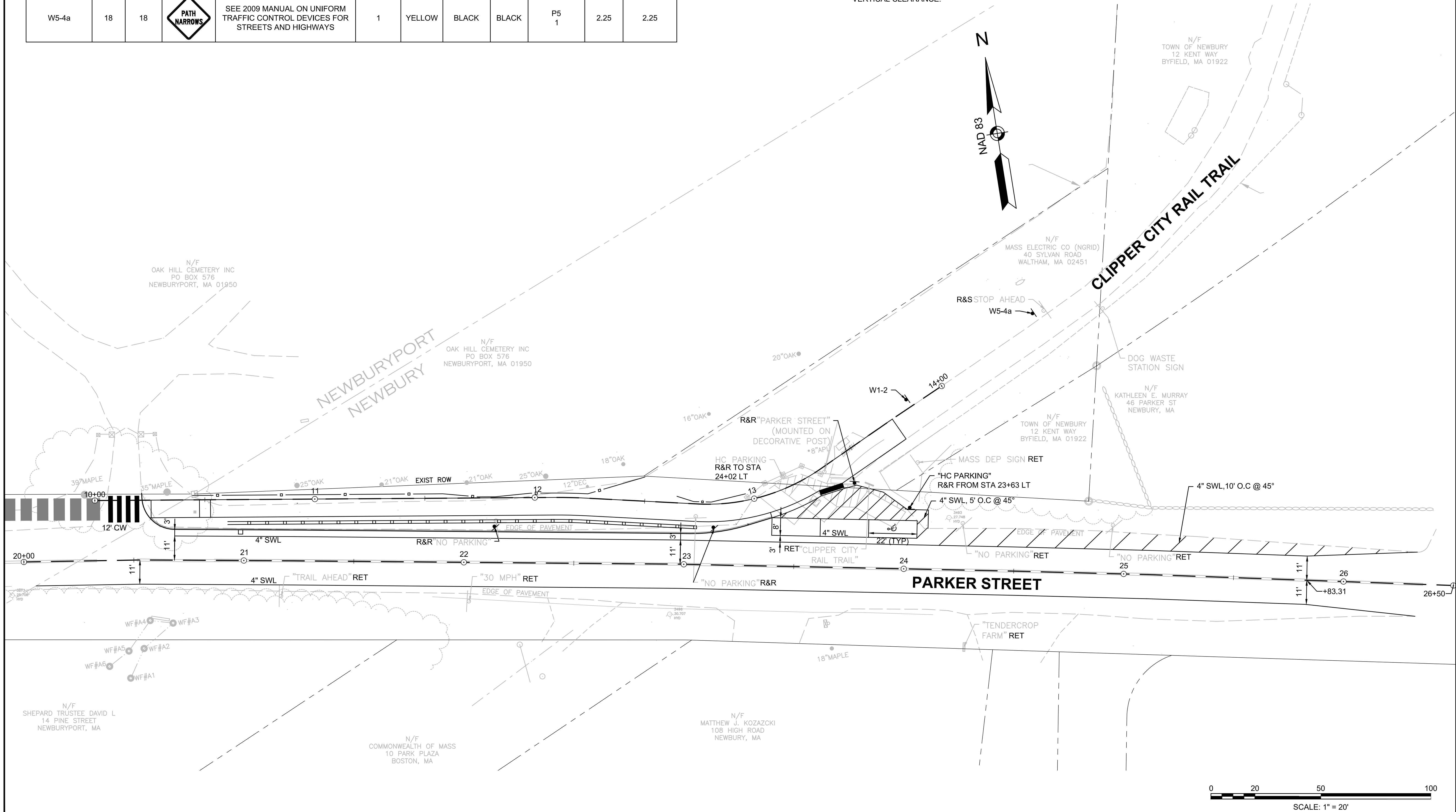
NEWBURY TRAIL CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L1	10+00.00	4920.1651	5523.0193		S81°23'04"E 208.80'	12+08.80	4888.8853	5729.4655
C1	12+08.80	4888.8853	5729.4655	R=258.00' Δ=3°22'22" L=15.19' T=7.60'		12+23.99	4886.1696	5744.4063
L2	12+23.99	4886.1696	5744.4063		S78°00'41"E 49.99'	12+73.98	4875.7857	5793.3067
C2	12+73.98	4875.7857	5793.3067	R=90.00' Δ=37°46'20" L=59.33' T=30.79'		13+33.31	4882.7828	5851.1487
L3	13+33.31	4882.7828	5851.1487		N64°12'59"E 39.65'	13+72.96	4900.0279	5886.8478
L4	13+72.96	4900.0279	5886.8478		N65°09'59"E 27.04'	14+00.00	4911.3845	5911.3880

PARKER STREET CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L7	20+00.00	4897.6240	5486.7785		S81°58'35"E 52.64'	20+52.64	4890.2770	5538.8983
L8	20+52.64	4890.2770	5538.8983		S80°41'48"E 70.09'	21+22.73	4878.9460	5608.0680
L9	21+22.73	4878.9460	5608.0680		S80°29'56"E 174.27'	22+97.00	4850.1800	5779.9480
L10	22+97.00	4850.1800	5779.9480		S79°48'40"E 153.09'	24+50.09	4823.0990	5930.6250
L11	24+50.09	4823.0990	5930.6250		S79°32'03"E 60.80'	25+10.89	4812.0540	5990.4180
L12	25+10.89	4812.0540	5990.4180		S78°57'05"E 139.11'	26+50.00	4785.3953	6126.9465

TRAFFIC SIGN SUMMARY													
IDENTIFICATION NUMBER	SIZE OF SIGN (in)		LEGEND	TEXT DIMENSIONS (in)			NUMBER OF SIGNS REQUIRED	COLOR			NUMBER OF POSTS REQUIRED	UNIT AREA (SF)	TOTAL AREA (SF)
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR		BACK- GROUND	LEGEND	BORDER			
W1-2	18	18		SEE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS			1	YELLOW	BLACK	BLACK	P5 1	2.25	2.25
W5-4a	18	18		SEE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS			1	YELLOW	BLACK	BLACK	P5 1	2.25	2.25

- NOTES:
1. ALL EXISTING SIGNS WITHIN PROJECT LIMITS SHALL BE RETAINED UNLESS OTHERWISE NOTED.
 2. ALL PROPOSED PAVEMENT MARKINGS WITHIN PROJECT LIMITS SHALL BE THERMOPLASTIC MATERIALS.
 3. A MINIMUM 3'-0" PATH OF TRAVEL CLEARANCE, EXCLUDING CURB, IS REQUIRED WHEN PLACING SIGNS. SIGN POSTS SHALL NOT BE LOCATED CLOSER THAN 3 FEET TO THE EDGE OF THE SHARED USE PATH.
 4. THE MINIMUM MOUNTING HEIGHT OF POST MOUNTED SIGNS, MEASURED VERTICALLY FROM THE BOTTOM OF THE SIGN TO THE TOP OF THE CURB OR SIDEWALK SHALL BE 7 FEET. SIGNS WITHIN 3 FEET OF THE SHARED USE PATH SHALL BE MOUNTED WITH 8 FOOT MINIMUM VERTICAL CLEARANCE.

NEWBURY
PARKER STREET TRAIL
TRAFFIC SIGN & PAVEMENT MARKING PLAN
SHEET 8 OF 15



NOTES:

- ALL TEMPORARY TRAFFIC CONTROL WORK SHALL CONFORM TO THE LATEST EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) AND ALL REVISIONS, UNLESS SUPERCEDED BY THESE PLANS.
- ALL SIGN LEGENDS, BORDERS, AND MOUNTING SHALL BE IN ACCORDANCE WITH THE MUTCD.
- TEMPORARY CONSTRUCTION SIGNING AND ALL OTHER TRAFFIC CONTROL DEVICES SHALL BE IN PLACE PRIOR TO THE START OF ANY WORK.
- TEMPORARY CONSTRUCTION SIGNING, BARRICADES, AND ALL OTHER NECESSARY WORK ZONE TRAFFIC CONTROL DEVICES SHALL BE REMOVED FROM THE HIGHWAY OR COVERED WHEN THEY ARE NOT REQUIRED FOR CONTROL OF TRAFFIC.
- SIGNS AND SIGN SUPPORTS LOCATED ON OR NEAR THE TRAVELED WAY, CHANNELIZING DEVICES, BARRIERS, AND CRASH ATTENUATORS MUST PASS THE CRITERIA SET FORTH IN THE "MANUAL FOR ASSESSING SAFETY HARDWARE" (MASH).
- CONTRACTORS SHALL NOTIFY EACH ABUTTER AT LEAST 24 HOURS IN ADVANCE OF THE START OF ANY WORK THAT WILL REQUIRE THE TEMPORARY CLOSURE OF ACCESS, SUCH AS CONDUIT INSTALLATION, EXISTING PAVEMENT EXCAVATION, TEMPORARY DRIVEWAY PAVEMENT PLACEMENT, AND SIMILAR OPERATIONS.
- THE FIRST TEN PLASTIC DRUMS OF A TAPER SHALL BE MOUNTED WITH SEQUENTIAL FLASHING LIGHTS.
- THE ADVISORY SPEED LIMIT, IF REQUIRED, SHALL BE DETERMINED BY THE ENGINEER.
- DISTANCES ARE A GUIDE AND MAY BE ADJUSTED IN THE FIELD BY THE ENGINEER.
- MAXIMUM SPACING OF TRAFFIC DEVICES IN A TAPER (DRUMS OR CONES) IS EQUAL IN FEET TO THE SPEED LIMIT IN MPH.
- MINIMUM LANE WIDTH IS TO BE 11 FEET UNLESS OTHERWISE SHOWN. MINIMUM LANE WIDTH TO BE MEASURED FROM THE EDGE OF DRUMS OR MEDIAN BARRIER.
- ALL SIGNS SHALL BE MOUNTED ON THEIR OWN STANDARD SIGN SUPPORTS.

LEGEND:

- REFLECTORIZED PLASTIC DRUM OR 36" CONE
- WORK ZONE
- WORK VEHICLE
- P/F POLICE/FLAGGER DETAIL
- DIRECTION OF TRAFFIC
- TRUCK MOUNTED ATTENUATOR
- TYPE III BARRICADE
- IMPACT ATTENUATOR
- TRAFFIC OR PEDESTRIAN SIGNAL
- CHANGEABLE MESSAGE SIGN
- TEMPORARY BARRIER (TL-2)
- SIGN
- ARROW BOARD
- MEDIAN BARRIER WITH WARNING LIGHTS

SUGGESTED WORK ZONE WARNING SIGN SPACING

ROAD TYPE	DISTANCE BETWEEN SIGNS (FEET)		
	A	B	C
LOCAL OR LOW VOLUME ROADWAYS	350	350	350
MOST OTHER ROADWAYS	500	500	500
FREEWAYS AND EXPRESSWAYS	1,000	1,500	2,640

TAPER LENGTH CRITERIA FOR TEMPORARY TRAFFIC CONTROL ZONES

TYPE OF TAPER	TAPER LENGTH (L)
MERGING TAPER	AT LEAST L
SHIFTING TAPER	AT LEAST 0.5L
SHOULDER TAPER	AT LEAST 0.33L
ONE-LANE, TWO-WAY TRAFFIC TAPER	50 FT MIN. 100 FT MAX.
DOWNSTREAM TAPER	50 FT MIN. 100 FT MAX. PER LANE

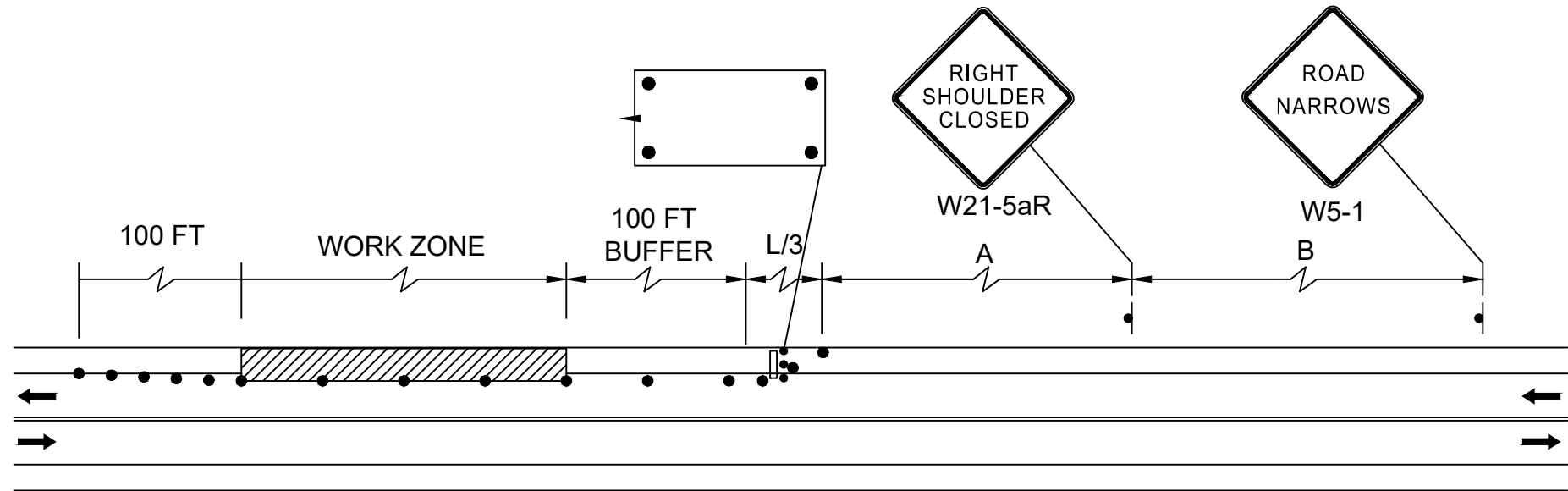
FORMULAS FOR DETERMINING TAPER LENGTHS

SPEED LIMIT (S)	TAPER LENGTH (L) FEET
40 MPH OR LESS	$L = \frac{WS^2}{60}$
45 MPH OR MORE	$L = WS$

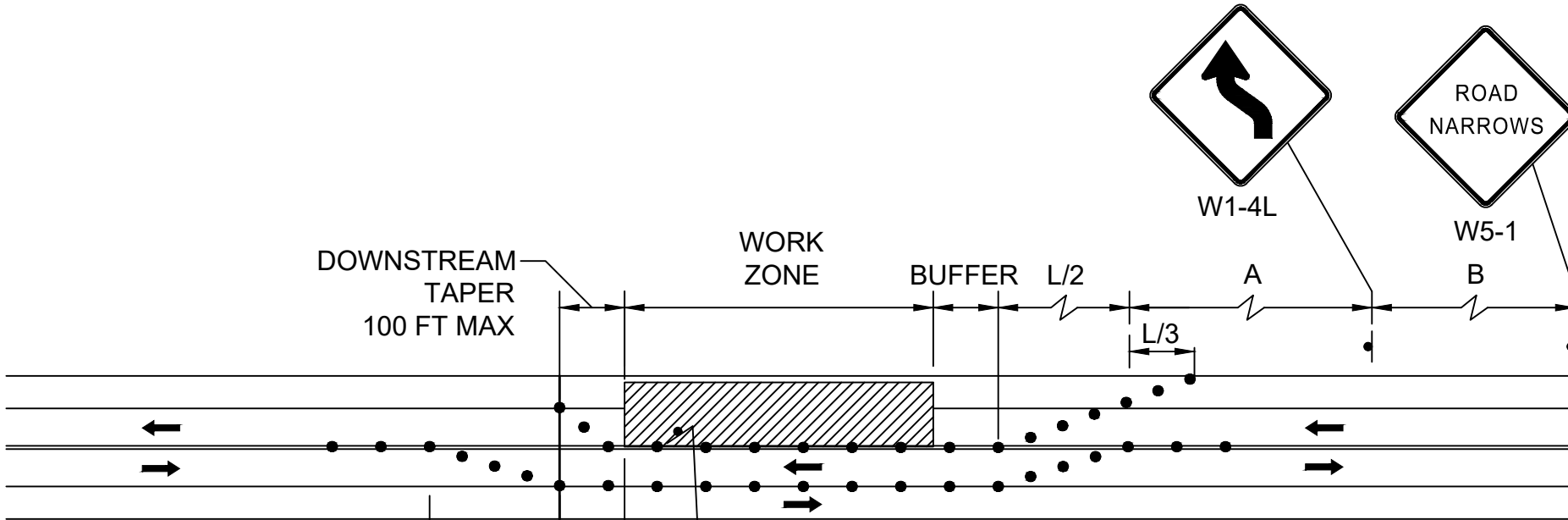
WHERE: L = TAPER LENGTH IN FEET

W = WIDTH OF OFFSET IN FEET

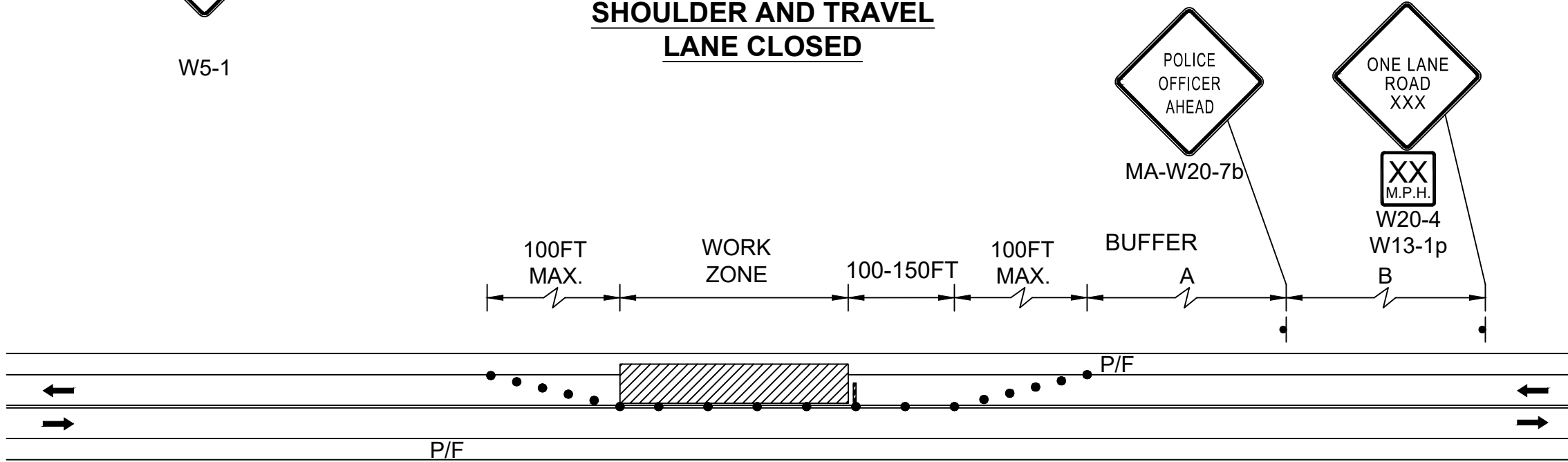
S = POSTED SPEED LIMIT, OR OFF-PEAK 85TH-PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICIPATED OPERATING SPEED IN MPH



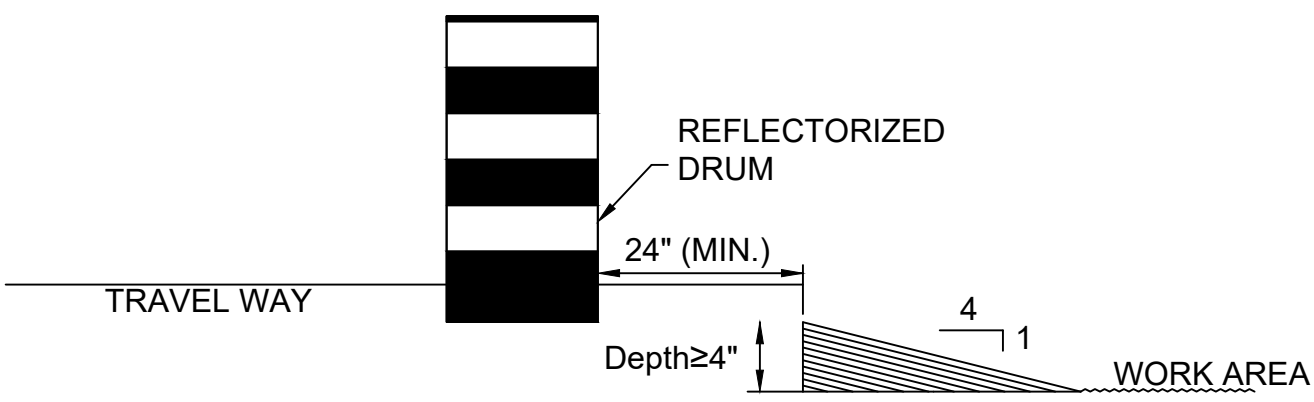
TWO LANE ROAD
SHOULDER CLOSED



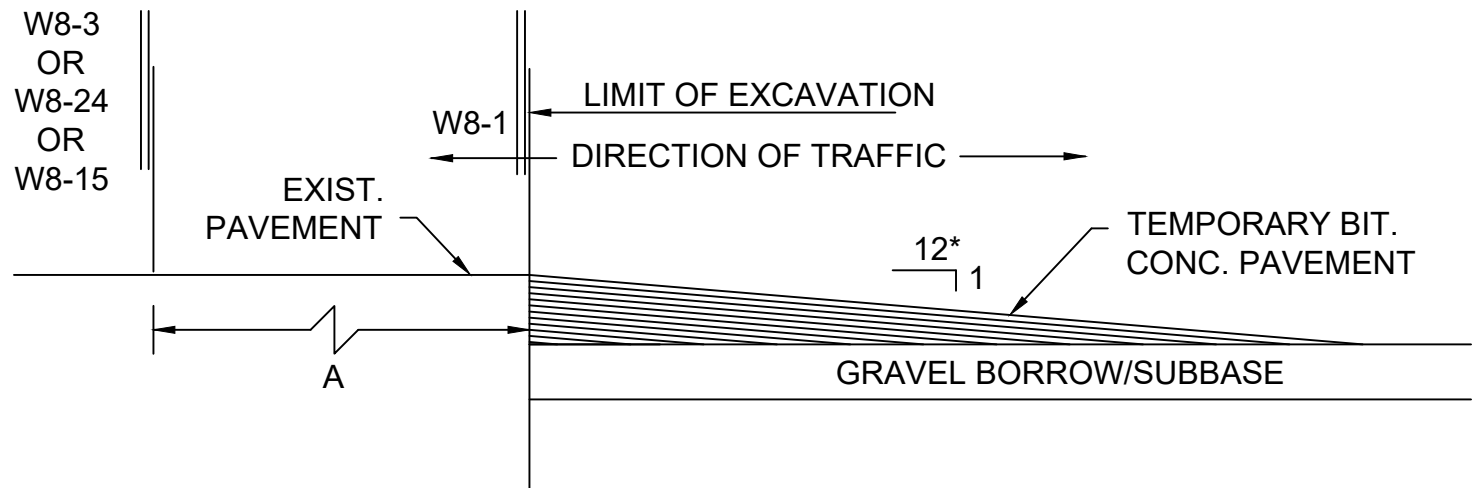
TWO LANE ROAD
SHOULDER AND TRAVEL
LANE CLOSED



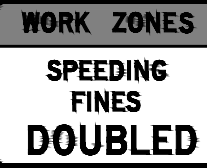
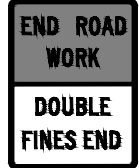







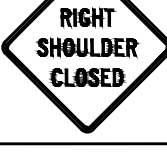
TWO LANE ROAD ONE
LANE ALTERNATING
TRAFFIC

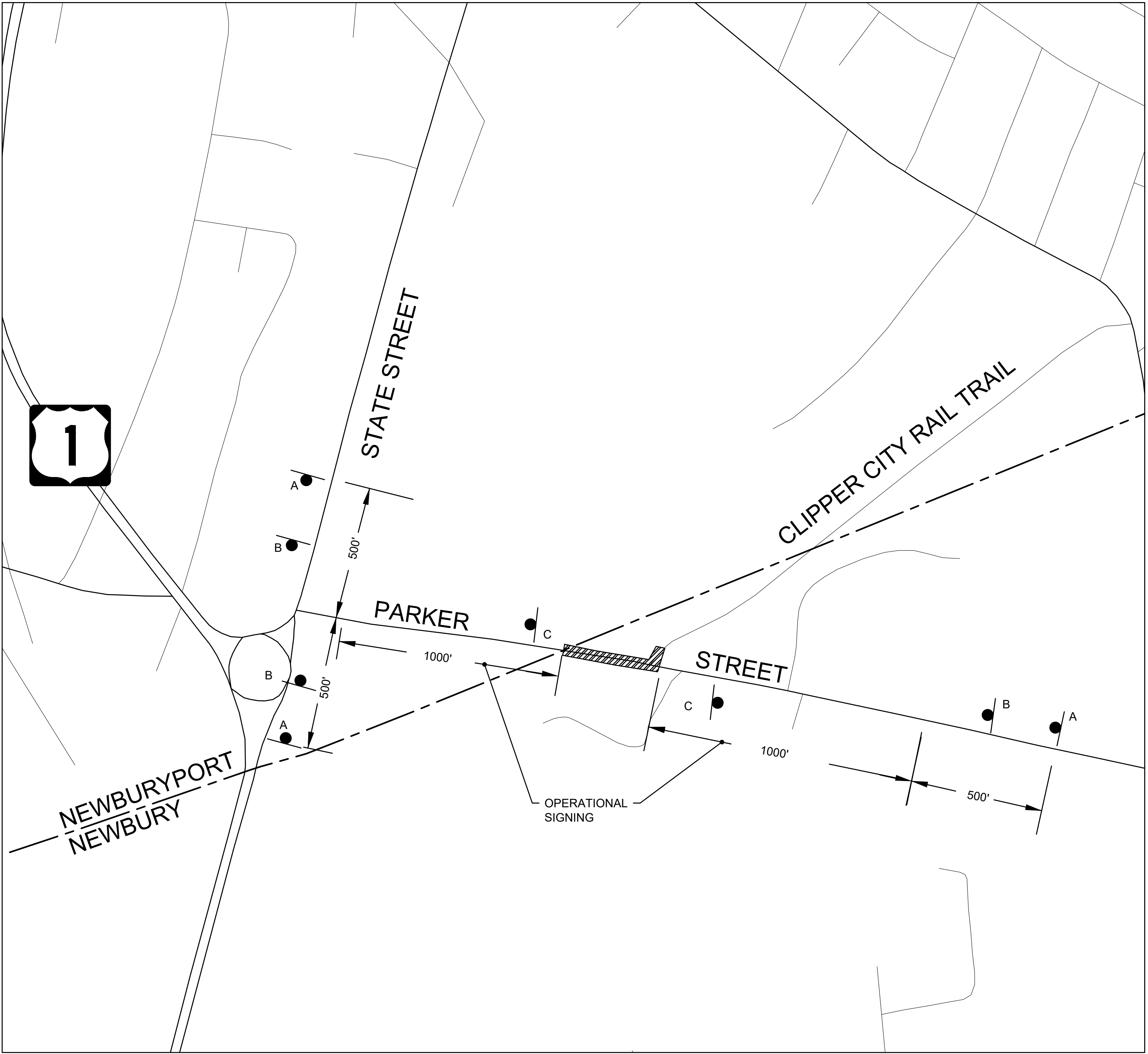


LATERAL DROP-OFF DETAIL
NOT TO SCALE




LONGITUDINAL DROP-OFF DETAIL
NOT TO SCALE
* - INCREASE SLOPE RATIO FOR HIGHER SPEEDS

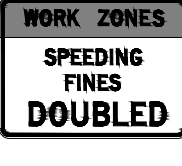
TRAFFIC SIGN SUMMARY												
IDENTIFICATION NUMBER	SIZE OF SIGN (in)		LEGEND	TEXT DIMENSIONS (in)			COLOR			NUMBER OF SIGNS REQUIRED	UNIT AREA (SF)	TOTAL AREA (SF)
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR	BACK-GROUND	LEGEND	BORDER			
MA-R2-10a	48	36		MASSDOT STANDARD SIGN			FL. ORANGE WHITE	BLACK BLACK	BLACK BLACK	3	12.00	36.00
MA-R2-10e	36	48					FL. ORANGE WHITE	BLACK BLACK	BLACK BLACK	3	12.00	36.00
W1-4L	36	36		SEE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS			FL. ORANGE	BLACK	BLACK	2	9.00	18.00
W1-4R	36	36					FL. ORANGE	BLACK	BLACK	2	9.00	18.00
W5-1	36	36					FL. ORANGE	BLACK	BLACK	2	9.00	18.00
W13-1p	24	24					FL. ORANGE	BLACK	BLACK	2	4.00	8.00
W20-1	36	36					FL. ORANGE	BLACK	BLACK	3	9.00	27.00
W20-4	36	36					FL. ORANGE	BLACK	BLACK	2	9.00	18.00
MA-W20-7b	36	36		MASSDOT STANDARD SIGN			FL. ORANGE	BLACK	BLACK	2	9.00	18.00
W21-5aR	36	36		SEE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS			FL. ORANGE	BLACK	BLACK	1	9.00	9.00

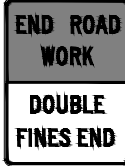


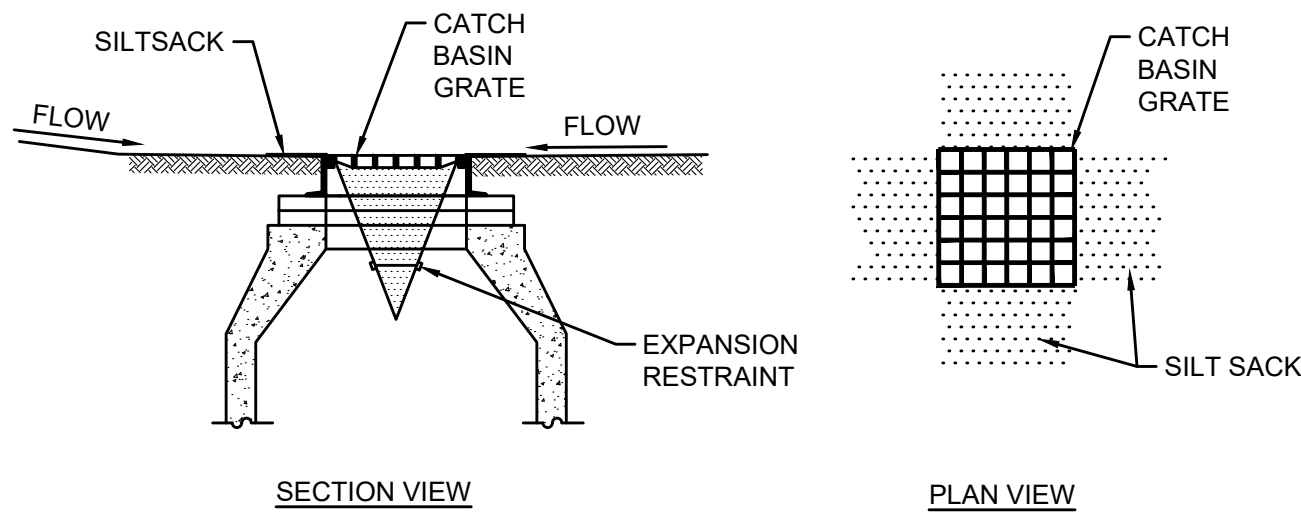
ADVANCED SIGNING SCHEMATIC
N.T.S.

LEGEND:


W20-1


MA-R2-10a

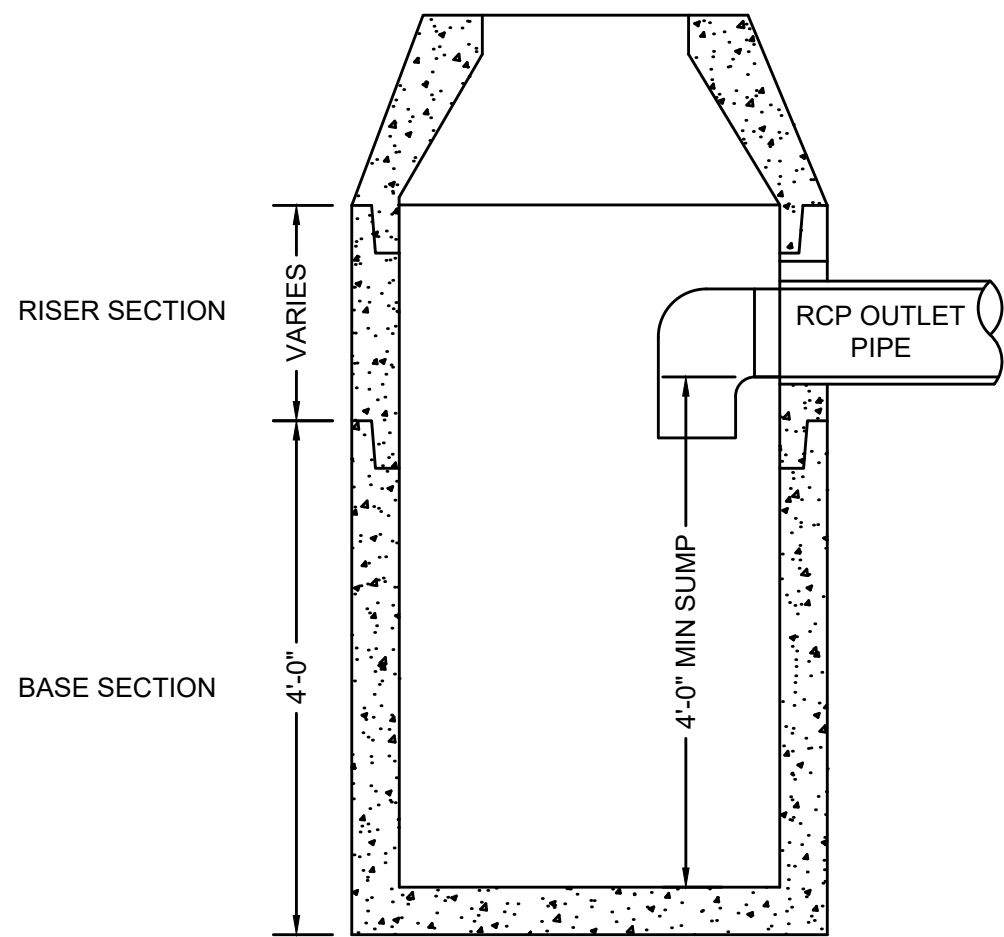

MA-R2-10e



NOTES:

1. INSTALL SILT SACK IN EXISTING CATCH BASINS BEFORE COMMENCING WORK, AND IN NEW CATCH BASINS IMMEDIATELY AFTER INSTALLATION OF STRUCTURE. MAINTAIN UNTIL BINDER COURSE PAVING IS COMPLETE OR A PERMANENT STAND OF GRASS HAS BEEN ESTABLISHED.
2. GRATE TO BE PLACED OVER SILT SACK.
3. SILT SACK SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS AND CLEANING OR REPLACEMENT SHALL BE PERFORMED PROMPTLY AS NEEDED.

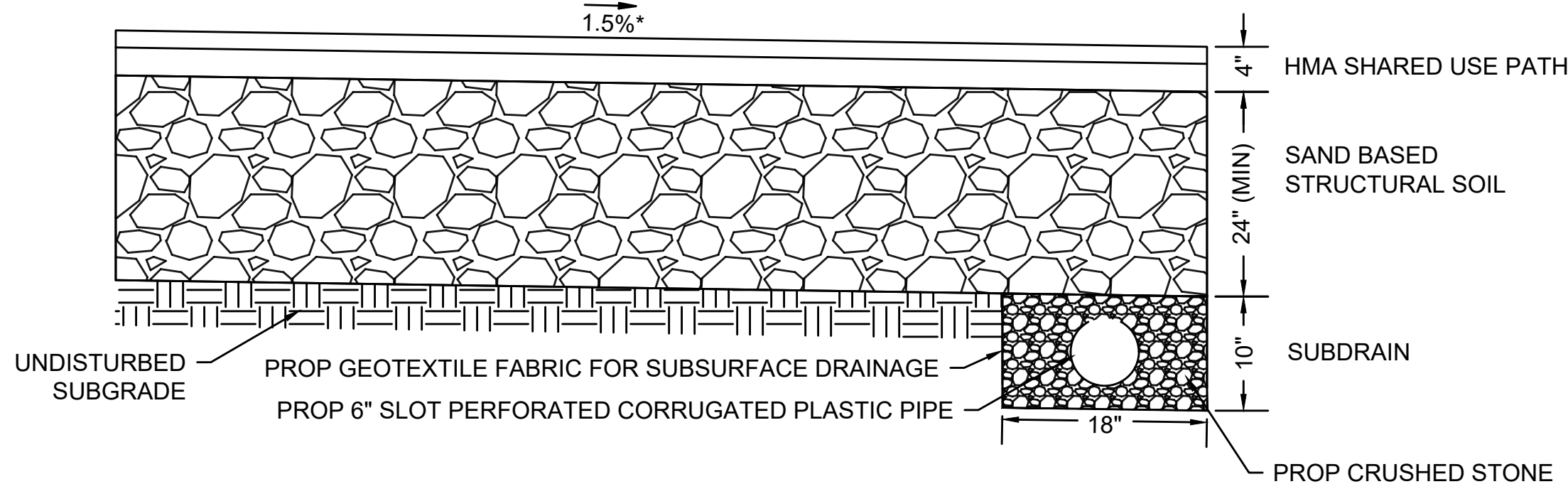
INLET PROTECTION SILT SACK IN CATCH BASIN
N.T.S.



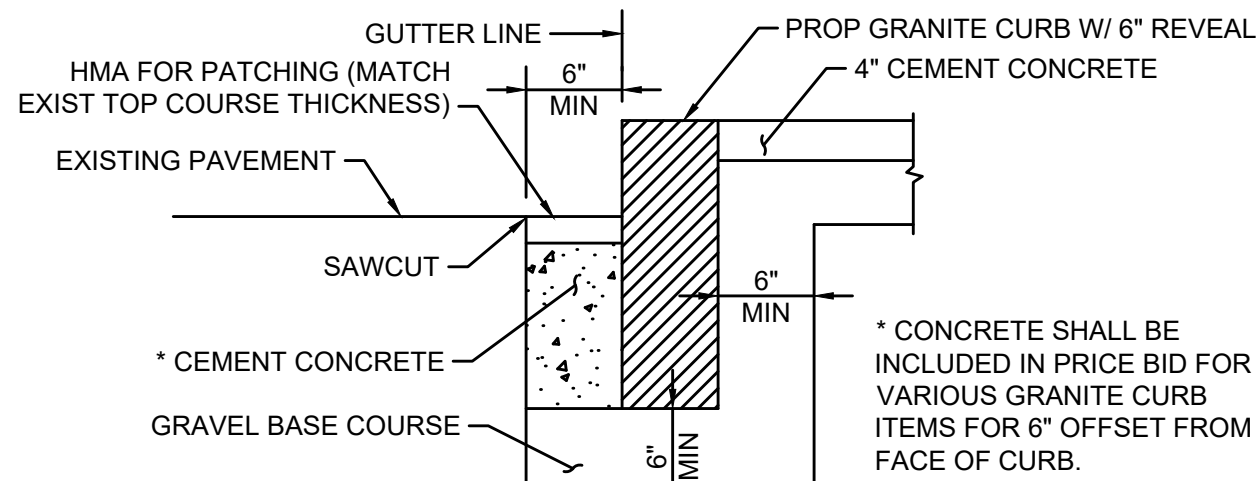
NOTE:

ALL CATCH BASINS SHALL CONFORM TO MASSDOT CONSTRUCTION STANDARD E 201.4.0 EXCEPT FOR 4' SUMP DEPTH AS SHOWN

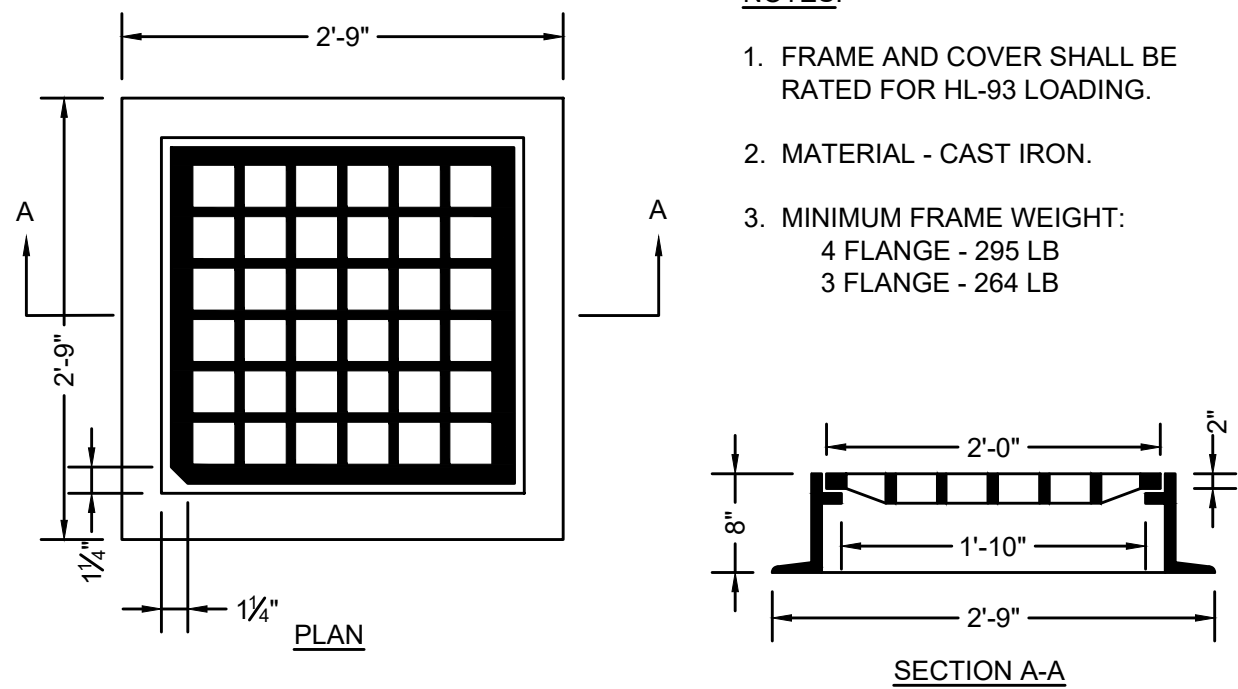
DEEP SUMP CATCH BASIN WITH HOOD
N.T.S.



STRUCTURAL SOIL
N.T.S.



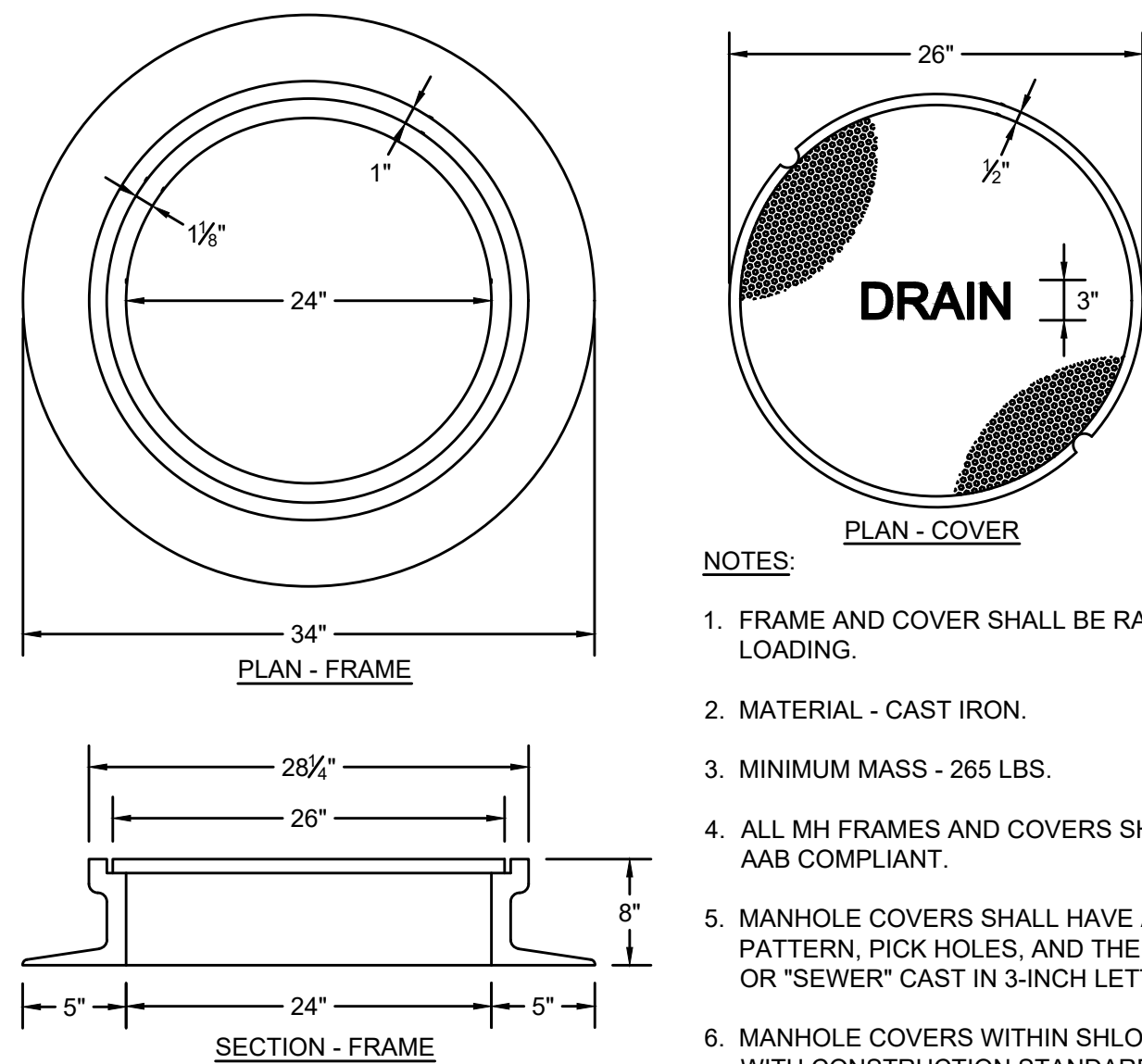
GRANITE CURB IN EXISTING PAVEMENT
N.T.S.



NOTES:

1. FRAME AND COVER SHALL BE RATED FOR HL-93 LOADING.
2. MATERIAL - CAST IRON.
3. MINIMUM FRAME WEIGHT:
4 FLANGE - 295 LB
3 FLANGE - 264 LB

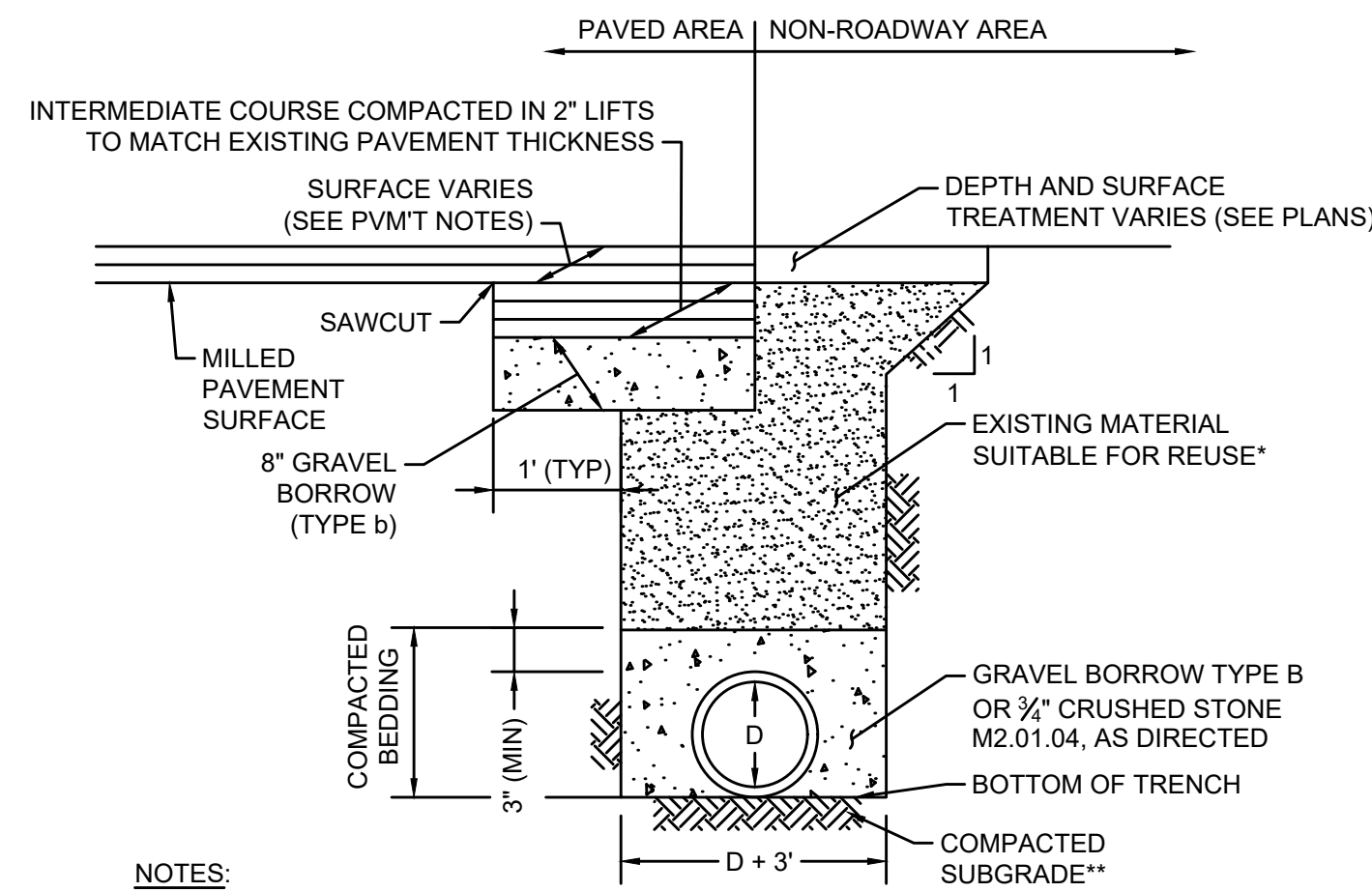
CATCH BASIN FRAME & GRATE (MUNICIPAL STANDARD)
N.T.S.



NOTES:

1. FRAME AND COVER SHALL BE RATED FOR HL-93 LOADING.
2. MATERIAL - CAST IRON.
3. MINIMUM MASS - 265 LBS.
4. ALL MH FRAMES AND COVERS SHALL BE ADA AND AAB COMPLIANT.
5. MANHOLE COVERS SHALL HAVE A DIAMOND PATTERN, PICK HOLES, AND THE WORD "DRAIN" OR "SEWER" CAST IN 3-INCH LETTERS.
6. MANHOLE COVERS WITHIN SHLO SHALL COMPLY WITH CONSTRUCTION STANDARD E202.6.0.

MANHOLE FRAME & COVER (MUNICIPAL STANDARD)
N.T.S.

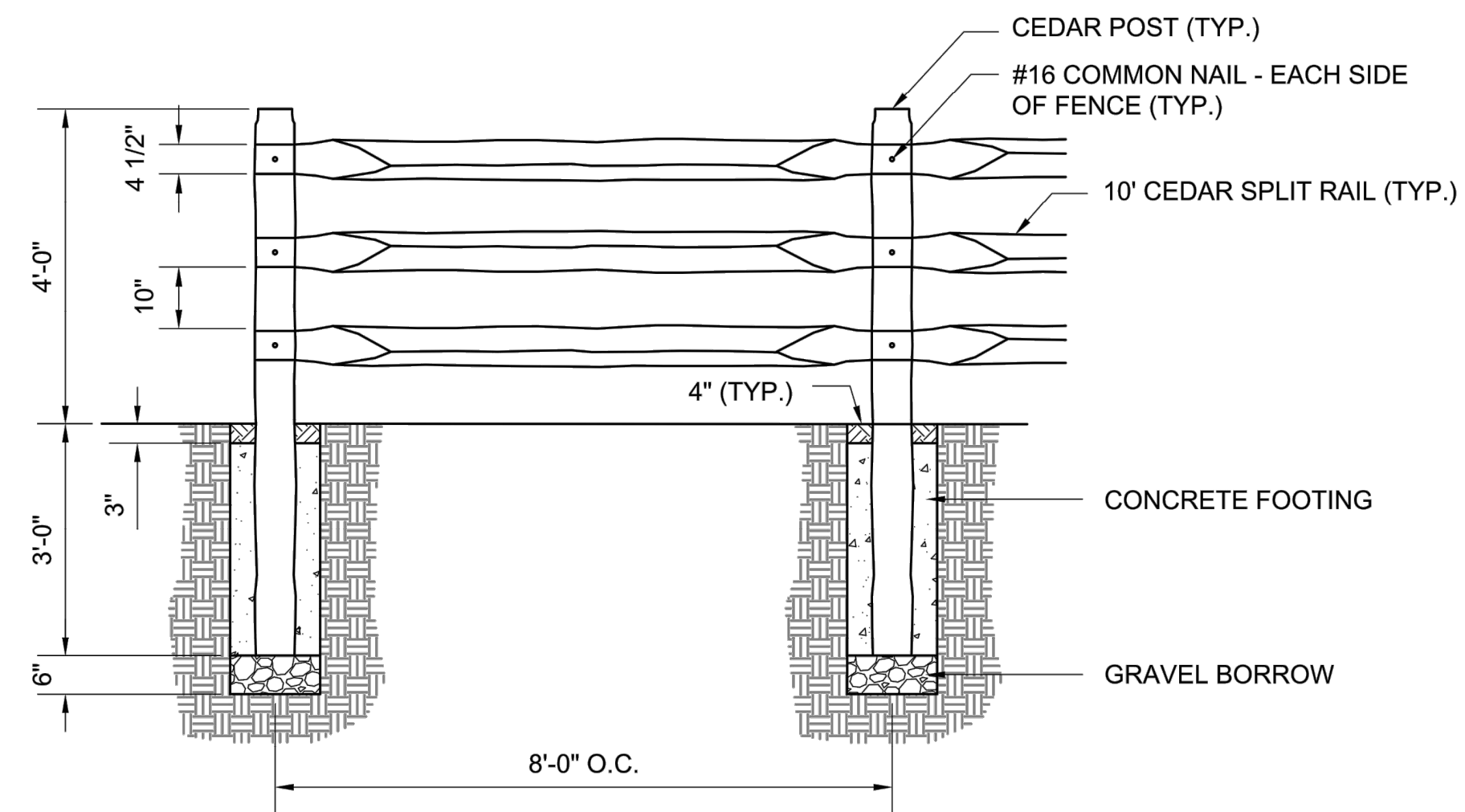


NOTES:

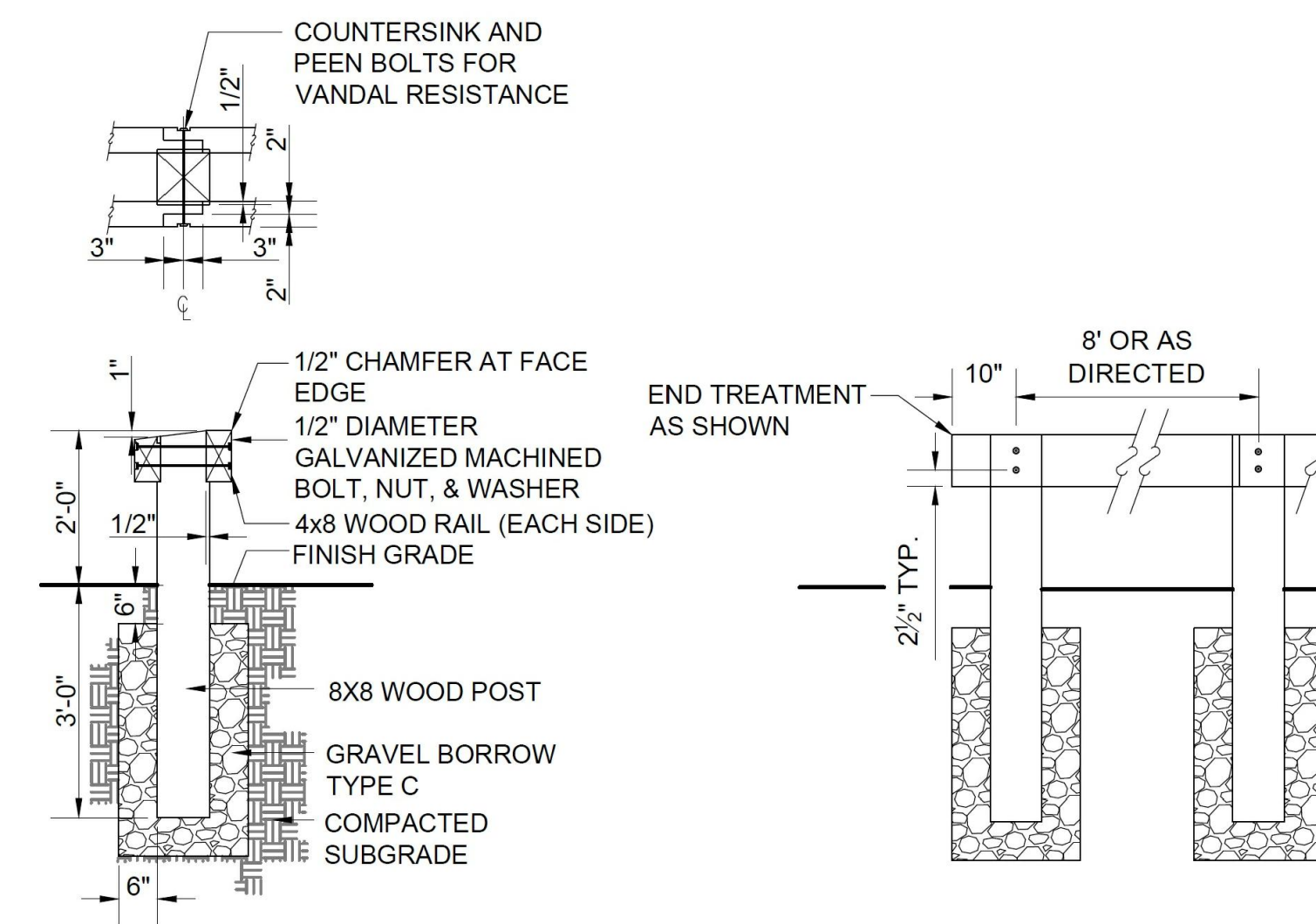
* EXISTING MATERIAL OBTAINED FROM EXCAVATION THAT IS DETERMINED TO BE SUITABLE, AND APPROVED BY THE ENGINEER SHALL BE USED. BACKFILL SHALL BE PLACED IN LAYERS NO MORE THAN 6" IN DEPTH AND THOROUGHLY COMPACTED. BACKFILLING TO A POINT 2' OVER THE PIPE SHALL CONTAIN NO STONES LARGER THAN 3".

**SOFT OR UNSUITABLE MATERIAL EXISTING BELOW THE REQUIRED BEDDING GRADE SHALL BE REMOVED AS DIRECTED AND REPLACED WITH SAND, GRAVEL, CRUSHED STONE OR OTHER SUITABLE MATERIAL AND THOROUGHLY COMPACTED.

UTILITY TRENCH
N.T.S.



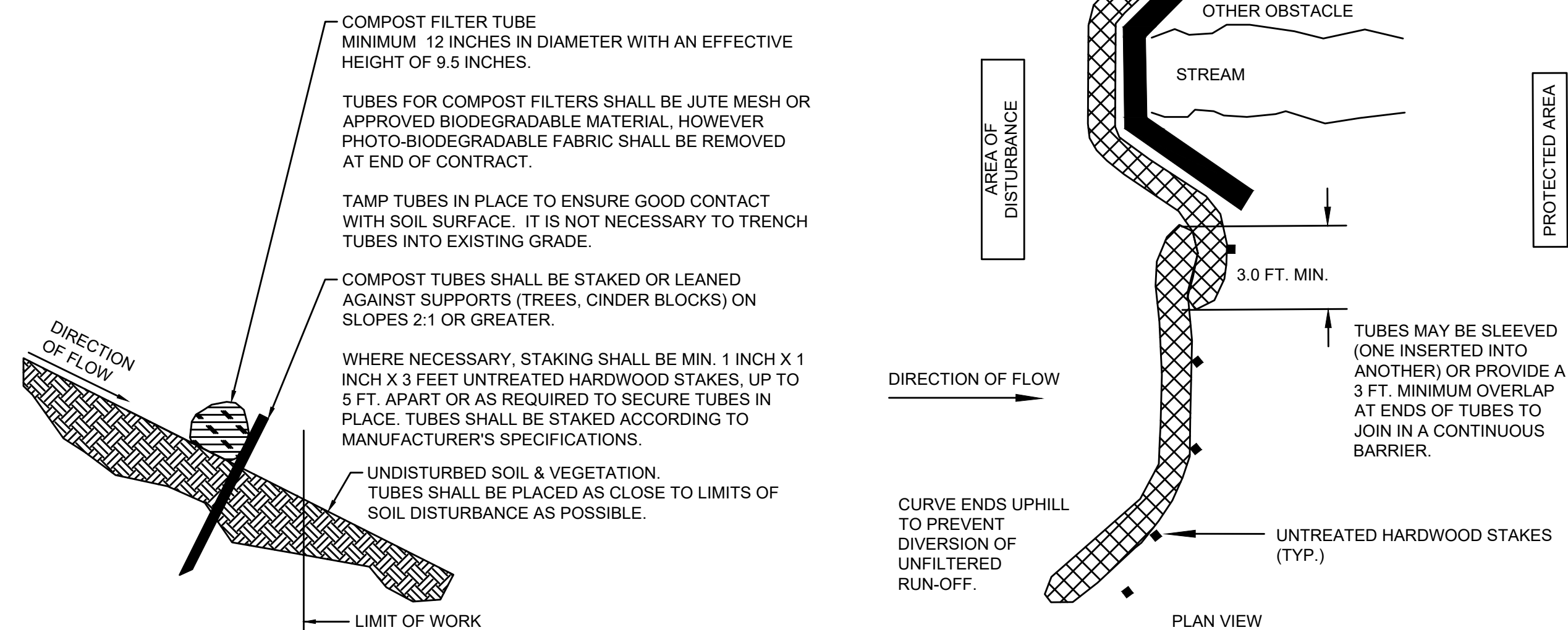
POST AND RAIL WOOD FENCE
N.T.S.



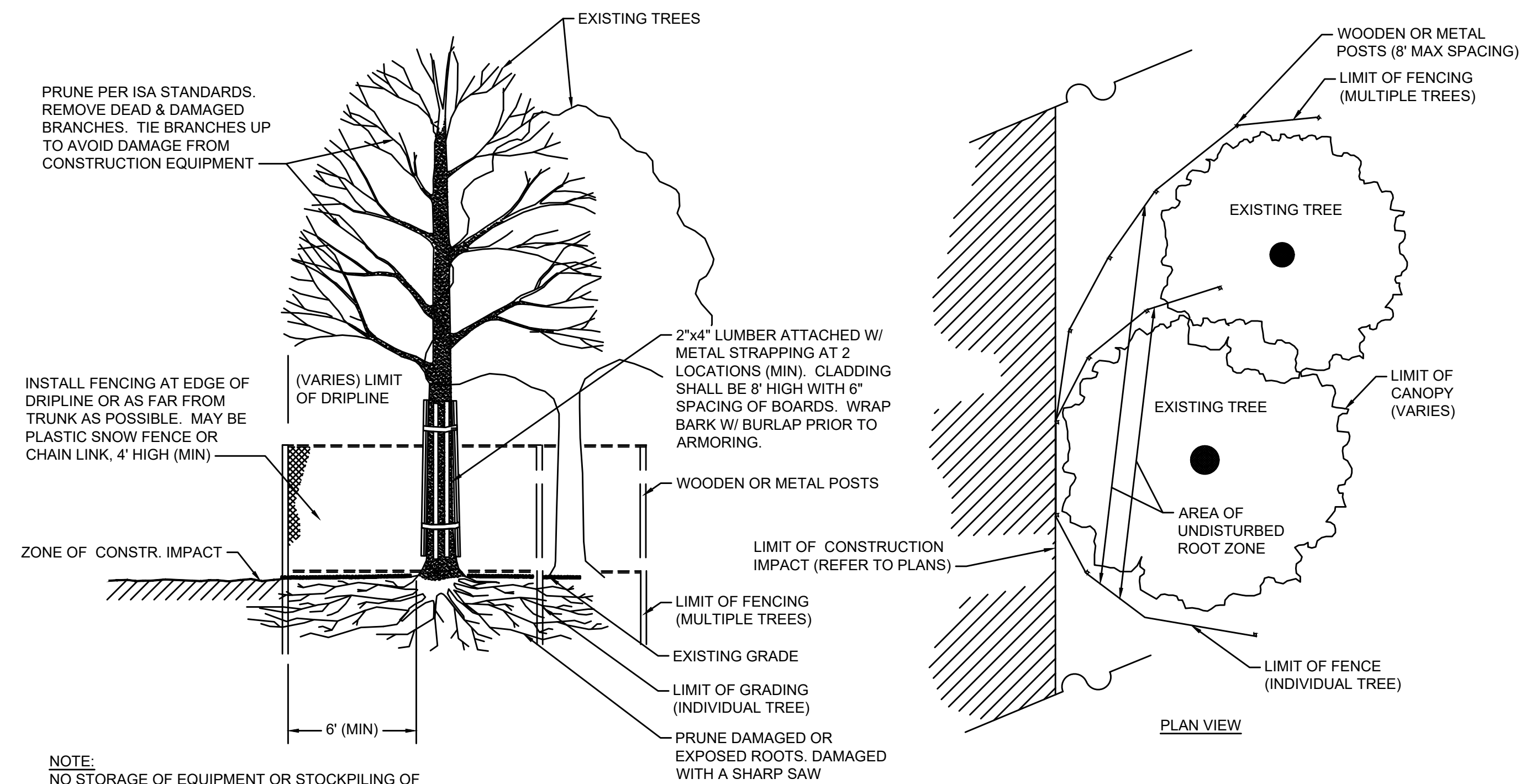
TIMBER GUARDRAIL
N.T.S.

- NOTES:

1. PROVIDE A MINIMUM TUBE DIAMETER OF 12 INCHES FOR SLOPES UP TO 50 FEET IN LENGTH WITH A SLOPE RATIO OF 3H:1V OR STEEPER. LONGER SLOPES OF 3H:1V MAY REQUIRE LARGER TUBE DIAMETER OR ADDITIONAL COURSING OF FILTER TUBES TO CREATE A FILTER BERM. REFER TO MANUFACTURERS' RECOMMENDATIONS FOR SPECIAL SITUATIONS WITH LONGER OR STEEPER SLOPES.
2. INSTALL TUBES ALONG CONTOURS AND PERPENDICULAR TO SHEET OR CONCENTRATED FLOW.
3. TUBE LOCATION MAY BE SHIFTED TO ADJUST TO LANDSCAPE FEATURES, BUT SHALL PROTECT UNDISTURBED AREA AND VEGETATION TO MAXIMUM EXTENT POSSIBLE.
4. DO NOT INSTALL TUBES IN THE DIRECTION OF OR CROSSING OF STREAMS.
5. ADDITIONAL TUBES SHALL BE USED AT THE DIRECTION OF THE ENGINEER.
6. ADDITIONAL STAKING SHALL BE USED AT THE DIRECTION OF THE ENGINEER.



COMPOST FILTER TUBE
N.T.S.



TREE PROTECTION
N.T.S.

