

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION

PLAN AND PROFILE OF
FOSTER STREET
(BRIDGE NO. L-13-017)
IN THE TOWN OF
LITTLETON
MIDDLESEX COUNTY

FEDERAL AID PROJECT NO. XXX-XXXX(XXX)X

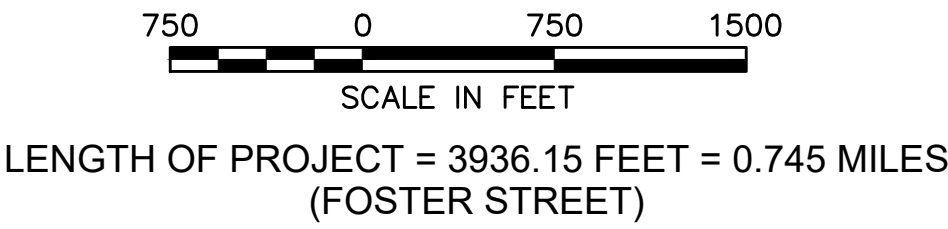
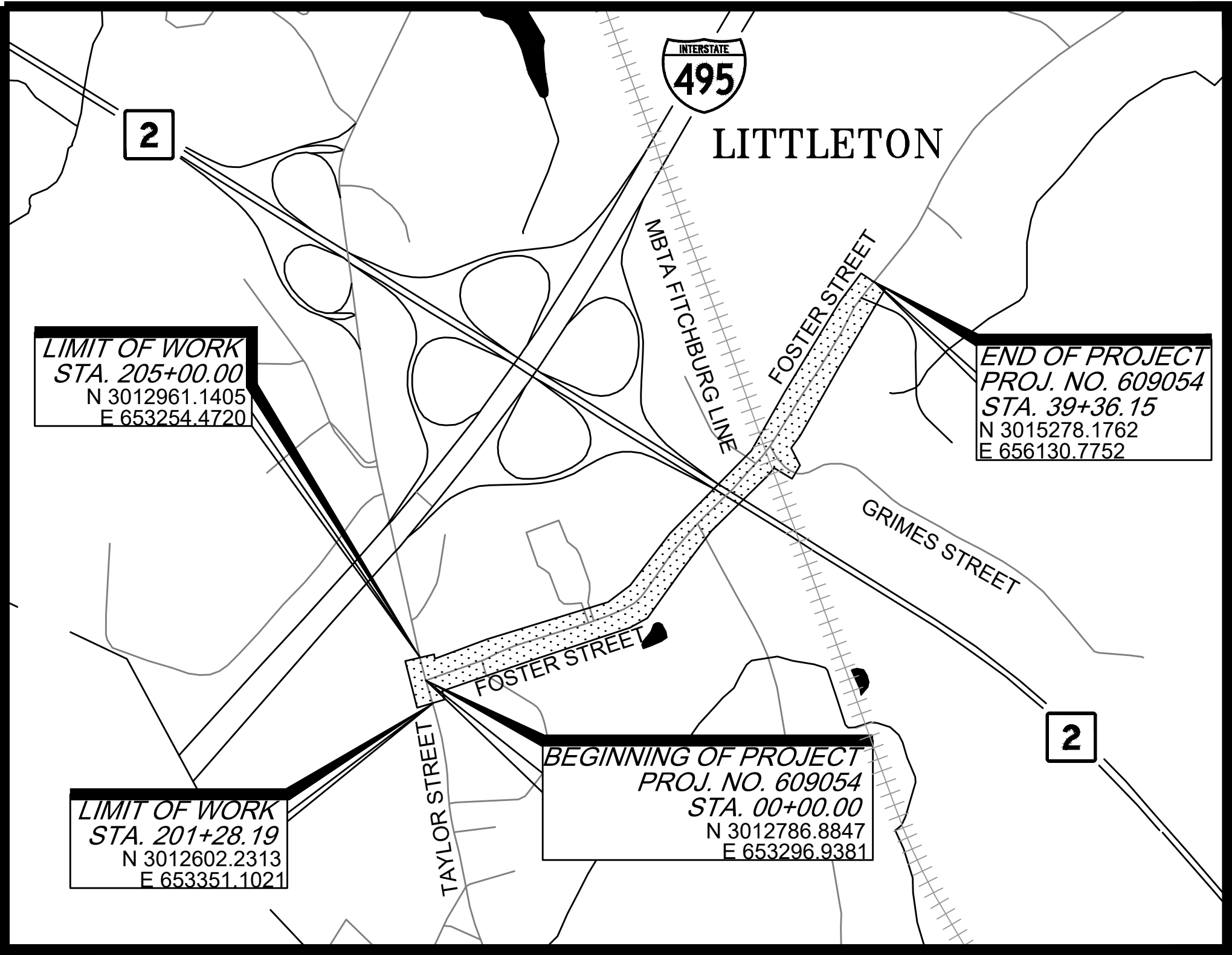
LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	1	XX
PROJECT FILE NO.		609054	

TITLE SHEET & INDEX

THE MASSACHUSETTS HIGHWAY DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES DATED 1988, AS AMENDED, THE SUPPLEMENTAL SPECIFICATIONS DATED MARCH 1, 2019, THE OCTOBER 2017 CONSTRUCTION STANDARD DETAILS, THE 2015 OVERHEAD SIGNAL STRUCTURE AND FOUNDATION STANDARD DRAWINGS, MASSDOT TRAFFIC MANAGEMENT PLANS AND DETAIL DRAWINGS, THE LATEST MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS WTH MASSACHUSETTS AMENDMENTS, 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, WILL GOVERN.

SHEET NO.	DESCRIPTION
X	TITLE SHEET & INDEX
X	LEGEND & ABBREVIATIONS
X	KEY PLAN & BORING LOCATIONS
X	BORING LOGS
X	TYPICAL SECTIONS
X	CONSTRUCTION PLANS
X	PROFILE - FOSTER STREET
X	PROFILE - SIDE STREETS (TO BE PROVIDED AT 75%)
X	CURB & BASELINE TIE PLANS (TO BE PROVIDED AT 75%)
X	GRADING PLAN (TO BE PROVIDED AT 75%)
X	PAVEMENT MARKING & SIGNING PLANS
X	TRAFFIC SIGN SUMMARY SHEET
X	TEMPORARY TRAFFIC CONTROL PLANS
X	DRAINAGE & UTILITY PLANS
X	DRAINAGE & UTILITY DETAILS
X	CONSTRUCTION DETAILS
X	WHEELCHAIR RAMP/DRIVEWAY DETAILS
X	PRELIMINARY CROSS SECTIONS



DESIGN DESIGNATION (FOSTER STREET)

DESIGN SPEED	35 MPH
ADT (2017)	2,100
ADT (2037)	2,562
K	12%
D	69% (NB)
T (PEAK HOUR)	0.9%
T (AVERAGE DAY)	5.5%
DHV	252
DDHV	174 (NB)
FUNCTIONAL CLASSIFICATION	URBAN COLLECTOR

06-13-2019	25% SUBMISSION	0
03-14-2019	PRE-25% SUBMISSION	0
DATE	DESCRIPTION	REV #



FUSS & O'NEILL
1550 MAIN STREET, SUITE 400
SPRINGFIELD, MA 01103
413.452.0445
www.fando.com



RECOMMENDED FOR APPROVAL

CHIEF ENGINEER DATE

APPROVED

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED:

DIVISION ADMINISTRATOR DATE

HIGHWAY ADMINISTRATOR DATE

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Plotter: DWG TO PDF.PC3 CTB File: MADOT-D.STB
MS VIEW:-

GENERAL SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		JERSEY BARRIER ON BRIDGE OR JERSEY BARRIER
		CATCH BASIN
		CATCH BASIN CURB INLET
		LEACHING BASIN
		DROP INLET
		CONCRETE HEADWALL
		STONE HEADWALL
		FLAG POLE
		GAS PUMP
		MAIL BOX
		POST SQUARE
		POST CIRCULAR
		WELL
		ELECTRIC HANDHOLE
		FENCE GATE POST
		GAS GATE
		BORING HOLE
		MONITORING WELL
		TEST PIT
		HYDRANT
		LIGHT POLE
		COUNTY BOUND
		GPS POINT
		CABLE MANHOLE
		DRAINAGE MANHOLE
		ELECTRIC MANHOLE
		GAS MANHOLE
		MISC MANHOLE
		SEWER MANHOLE
		TELEPHONE MANHOLE
		WATER MANHOLE
		MASSACHUSETTS HIGHWAY BOUND MONUMENT
		STONE BOUND
		TOWN OR CITY BOUND
		TRAVERSE OR TRIANGULATION STATION
		TROLLEY POLE OR GUY POLE
		TRANSMISSION POLE
		UTILITY POLE W/ FIREBOX
		UTILITY POLE WITH DOUBLE LIGHT
		UTILITY POLE W / 1 LIGHT
		UTILITY POLE
		BUSH
		TREE
		STUMP
		SWAMP / MARSH
		WETLAND FLAG
		WATER GATE
		PARKING METER
		OVERHEAD CABLE/WIRE
		CURBING
		CONTOURS
		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)
		BALANCE STONE WALL
		RETAINING WALL
		DOUBLE FACED WALL (CONCRETE OR MASONRY)
		GUARD RAIL - STEEL POSTS
		GUARD RAIL - WOOD POSTS
		CHAIN LINK OR METAL FENCE
		WOOD FENCE (STOCKADE OR PICKET)
		WOOD RAIL FENCE
		HAY BALES/SILT FENCE
		TREE LINE OR LIMIT OF CLEARING AND GRUBBING
		SAWCUT LINE
		TOP OR BOTTOM OF SLOPE
		FLASHING DON'T WALK
		FLASHING CIRCULAR RED
		FLASHING RED LEFT ARROW
		FLASHING RED RIGHT ARROW
		FLASHING CIRCULAR AMBER
		FLASHING AMBER LEFT ARROW
		FLASHING AMBER RIGHT ARROW
		STEADY CIRCULAR GREEN
		STEADY GREEN LEFT ARROW
		STEADY GREEN RIGHT ARROW
		STEADY GREEN SLASH LEFT ARROW
		STEADY GREEN SLASH RIGHT ARROW
		STEADY GREEN VERTICAL ARROW
		OVERLAP
		PEDESTRIAN
		PAN, TILE, ZOOM

TRAFFIC SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		CONTROLLER PHASE ACTUATED
		TRAFFIC SIGNAL HEAD (SIZE AS NOTED)
		WIRE LOOP DETECTOR (6' x 6' TYP UNLESS OTHERWISE SPECIFIED)
		VIDEO DETECTION CAMERA
		MICROWAVE DETECTOR
		PEDESTRIAN PUSH BUTTON, SIGN (DIRECTIONAL ARROW AS SHOWN) AND SADDLE
		EMERGENCY PREEMPTION CONFIRMATION STROBE LIGHT
		VEHICULAR SIGNAL HEAD
		VEHICULAR SIGNAL HEAD, OPTICALLY PROGRAMMED
		FLASHING BEACON
		PEDESTRIAN SIGNAL HEAD, (TYPE AS NOTED OR AS SPECIFIED)
		RAILROAD SIGNAL
		SIGNAL POST AND BASE (ALPHA-NUMERIC DESIGNATION NOTED)
		MAST ARM, SHAFT AND BASE (ARM LENGTH AS NOTED)
		HIGH MAST POLE OR TOWER
		SIGN AND POST
		SIGN AND POST (2 POSTS)
		MAST ARM WITH LUMINAIRE
		OPTICAL PRE-EMPTION DETECTOR
		CONTROL CABINET, GROUND MOUNTED
		CONTROL CABINET, POLE MOUNTED
		FLASHING BEACON CONTROL AND METER PEDESTAL
		LOAD CENTER ASSEMBLY
		PULL BOX 12"x12" (OR AS NOTED)
		ELECTRIC HANDHOLE 12"x24" (OR AS NOTED)
-----		TRAFFIC SIGNAL CONDUIT

PAVEMENT MARKINGS SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		PAVEMENT ARROW - WHITE
		LEGEND "ONLY" - WHITE
		STOP LINE
		CROSSWALK
		SOLID WHITE LINE
		SOLID YELLOW LINE
		BROKEN WHITE LINE
		BROKEN YELLOW LINE
		DOTTED WHITE LINE
		DOTTED YELLOW LINE
		DOTTED WHITE LINE EXTENSION
		DOTTED YELLOW LINE EXTENSION
		DOUBLE WHITE LINE
		DOUBLE YELLOW LINE

TRAFFIC SIGNAL ABBREVIATIONS

CAB.	CABINET
CCVE	CLOSED CIRCUIT VIDEO EQUIPMENT
DW	STEADY DON'T WALK
FDW	FLASHING DON'T WALK
FR	FLASHING CIRCULAR RED
FRL	FLASHING RED LEFT ARROW
FRR	FLASHING RED RIGHT ARROW
FY	FLASHING CIRCULAR AMBER
FYL	FLASHING AMBER LEFT ARROW
FYR	FLASHING AMBER RIGHT ARROW
G	STEADY CIRCULAR GREEN
GL	STEADY GREEN LEFT ARROW
GR	STEADY GREEN RIGHT ARROW
GSL	STEADY GREEN SLASH LEFT ARROW
GSR	STEADY GREEN SLASH RIGHT ARROW
GV	STEADY GREEN VERTICAL ARROW
OL	OVERLAP
PED	PEDESTRIAN
PTZ	PAN, TILE, ZOOM

TRAFFIC SIGNAL ABBREVIATIONS(cont.)

R	STEADY CIRCULAR RED
RL	STEADY RED LEFT ARROW
RR	STEADY RED RIGHT ARROW
TR SIG	TRAFFIC SIGNAL
TSC	TRAFFIC SIGNAL CONDUIT
W	STEADY WALK
Y	STEADY CIRCULAR AMBER
YL	STEADY AMBER LEFT ARROW

ABBREVIATIONS

GENERAL	
AADT	ANNUAL AVERAGE DAILY TRAFFIC
ABAN	ABANDON
ADJ	ADJUST
APPROX.	APPROXIMATE
A.C.	ASPHALT CONCRETE
ACCM PIPE	ASPHALT COATED CORRUGATED METAL PIPE
BIT.	BITUMINOUS
BC	BOTTOM OF CURB
BD.	BOUND
BL	BASELINE
BLDG	BUILDING
BM	BENCHMARK
BO	BY OTHERS
BOS	BOTTOM OF SLOPE
BR.	BRIDGE
CB	CATCH BASIN
CBCI	CATCH BASIN WITH CURB INLET
CC	CEMENT CONCRETE
CCM	CEMENT CONCRETE MASONRY
CEM	CEMENT
CI	CURB INLET
CIP	CAST IRON PIPE
CLF	CHAIN LINK FENCE
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CSP	CORRUGATED STEEL PIPE
CO.	COUNTY
CONC	CONCRETE
CONT	CONTINUOUS
CONST	CONSTRUCTION
CR GR	CROWN GRADE
DHV	DESIGN HOURLY VOLUME
DI	DROP INLET
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DW	STEADY DON'T WALK - PORTLAND ORANGE
DWY	DRIVEWAY
ELEV (or EL.)	ELEVATION
EMB	EMBANKMENT
EOP	EDGE OF PAVEMENT
EXIST (or EX)	EXISTING
EXC	EXCAVATION
F&C	FRAME AND COVER
F&G	FRAME AND GRATE
FDN.	FOUNDATION
FLDSTN	FIELDSTONE
GAR	GARAGE
GD	GROUND
GG	GAS GATE
GI	GUTTER INLET
GIP	GALVANIZED IRON PIPE
GRAN	GRANITE
GRAV	GRAVEL
GRD	GUARD
HDW	HEADWALL
HMA	HOT MIX ASPHALT
HOR	HORIZONTAL
HYD	HYDRANT
INV	INVERT
JCT	JUNCTION
L	LENGTH OF CURVE
LB	LEACH BASIN
LP	LIGHT POLE
LT	LEFT
MAX	MAXIMUM
MB	MAILBOX
MH	MANHOLE
MHB	MASSACHUSETTS HIGHWAY BOUND
MIN	MINIMUM
NIC	NOT IN CONTRACT
NO.	NUMBER
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVATURE
P.G.L.	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
POC	POINT ON CURVE
POT	POINT ON TANGENT
PRC	POINT OF REVERSE CURVATURE
PROJ	PROJECT
PROP	PROPOSED
PSB	PLANTABLE SOIL BORROW
PT	POINT OF TANGENCY
PVC	POINT OF VERTICAL CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
PVMT	PAVEMENT

LITTLETON
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LEGEND & GENERAL NOTES

GENERAL NOTES:

- INFORMATION REGARDING THE LOCATION OF EXISTING UTILITIES HAS BEEN BASED UPON AVAILABLE INFORMATION AND MAY BE INCOMPLETE, AND WHERE SHOWN SHOULD BE CONSIDERED APPROXIMATE. NO GUARANTEE TO THE ACCURACY OF THE EXISTING UTILITIES FACILITIES SHOWN IN THIS PROJECT IS EXPRESSED OR IMPLIED UNLESS OTHERWISE NOTED. CONTRACTOR SHALL CONTACT "Mass DIG-SAFE", 1-888-344-7233. CONTRACTOR SHALL MAINTAIN MARKINGS WHERE NEEDED DURING PROJECT. ALL UTILITY LOCATIONS THAT DO NOT MATCH THE VERTICAL OR HORIZONTAL CONTROL SHOWN ON THE PLANS SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER FOR RESOLUTION. THE CONTRACTOR SHALL VERIFY LOCATIONS OF UTILITIES AND SERVICE LATERALS PRIOR TO CONSTRUCTION. ANY CONFLICTS WITH LOCATIONS OF LIGHT POLES, TREES, ETC. SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER FOR RESOLUTION PRIOR TO CONSTRUCTION.
- VERIZON UNDERGROUND TELEPHONE: THE PROPOSED UNDERGROUND TELEPHONE RELOCATIONS AS SHOWN ASSUMES INSUFFICIENT COVER DUE TO PROPOSED ROADWAY WORK. ACTUAL LIMITS OF PROPOSED UNDERGROUND TELEPHONE RELOCATIONS WILL BE DETERMINED IN THE FIELD BY TEST PITS. IF COVER CAN NOT BE ACHIEVED VERIZON PREFERS TO LOWER THE LINES IN PLACE.
- THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY LOCAL AND STATE APPROVALS AND PERMITS PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL CONFORM TO ALL REQUIREMENTS OF THE LOCAL AND STATE AGENCIES. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS AND FEES REQUIRED FOR THIS WORK INCLUDING BUT NOT LIMITED TO TOWN SIDEWALK AND EXCAVATION PERMITS AND ASSOCIATED BONDING.
- THE CONTRACTOR SHALL PROTECT EXISTING UTILITIES AND STRUCTURES. THOSE OF WHICH HAVE BEEN DAMAGED SHALL BE PROMPTLY REPAIRED TO EXISTING OR BETTER CONDITION AT THE CONTRACTOR'S EXPENSE.
- THE ROADWAY IS TO BE GRADED SMOOTHLY AND EVENLY IN ACCORDANCE WITH THE GRADING AND TIE PLANS, PROFILE, AND CROSS SECTIONS. THE CONTRACTOR IS RESPONSIBLE FOR INSURING A POSITIVE DRAINAGE FLOW TO ALL CATCH BASINS WITHOUT CREATING ANY FLAT SPOTS THAT WILL RESULT IN STANDING WATER.
- THE CONTRACTOR SHALL COORDINATE WITH PROPERTY OWNERS TO REMOVE ANY PERSONAL ITEMS, LANDSCAPING, PLANT BULBS, PAVERS LOCATED IN THE TEMPORARY EASEMENT, TOWN LAYOUT, AND MassDOT LAYOUT.
- ANY PUBLIC OR PRIVATE PROPERTY DISTURBED AS A RESULT OF CONSTRUCTION OPERATIONS SHALL BE RESTORED AS QUICKLY AS POSSIBLE AND TO THE SATISFACTION OF THE ENGINEER.
- RIM OR FRAME ELEVATIONS OF ALL UTILITY STRUCTURES SHALL BE ADJUSTED TO MEET FINISHED PAVED SURFACES. PRIVATE UTILITIES WHO ARE RESPONSIBLE FOR ADJUSTING THEIR OWN STRUCTURES SHALL BE NOTIFIED AT LEAST 2 WEEKS IN ADVANCE BY THE CONTRACTOR.
- STAGING AREAS AND MATERIAL STOCK PILES SHALL BE LIMITED WITHIN THE SITE AND LOCATED SO AS NOT TO INTERFERE WITH PEDESTRIAN OR VEHICULAR TRAFFIC UNLESS APPROVED OTHERWISE BY THE MassDOT AND THE TOWN. THE CONTRACTOR SHALL PROVIDE SAFETY DEVICES (IF ORDERED BY THE ENGINEER) TO PROTECT STOCK PILES/WORK STAGING AREAS. IF THIS WORK IS SO ORDERED THERE WILL BE NO ADDITIONAL COMPENSATION MADE TO THE CONTRACTOR.
- HOURS OF WORK SHALL BE DEFINED IN THE CONTRACT DOCUMENTS. THE MassDOT RESERVES THE RIGHT TO ADJUST THESE HOURS IN THE INTEREST OF PUBLIC SAFETY.
- ACCESS TO PRIVATE PROPERTIES MUST BE MAINTAINED AT ALL TIMES. FOR SECURITY REASONS ALL PRIVATELY OWNED FENCING THAT IS TO BE REMOVED SHALL BE REPLACED WITHIN 72 HOURS OF REMOVAL.
- INSTALL SEDIMENTATION AND EROSION CONTROL MEASURES PRIOR TO START OF CONSTRUCTION. EXISTING AND PROPOSED CATCH BASINS DOWNGRADE OF ALL WORK AREAS SHALL BE SURROUNDED BY EROSION CONTROL MEASURES DURING CONSTRUCTION.

ABBREVIATIONS (cont.)

GENERAL		GENERAL	
PWW	PAVED WATER WAY	VAR	VARIES
R	RADIUS OF CURVATURE	VERT	VERTICAL
R&D	REMOVE AND DISPOSE	VC	VERTICAL CURVE
RCP	REINFORCED CONCRETE PIPE	WCR	WHEEL CHAIR RAMP
RD	ROAD	WG	WATER GATE
RDWY	ROADWAY	WIP	WROUGHT IRON PIPE
REM	REMOVE	WM	WATER METER/WATER MAIN
RET	RETAIN	X-SECT	CROSS SECTION
RET WALL	RETAINING WALL		
ROW	RIGHT OF WAY		
RR	RAILROAD		
R&R	REMOVE AND RESET		
R&S	REMOVE AND STACK		
RT	RIGHT		
SB	STONE BOUND		
SHLD	SHOULDER		
SMH	SEWER MANHOLE		
ST	STREET		
STA	STATION		
SSD	STOPPING SIGHT DISTANCE		
SHLO	STATE HIGHWAY LAYOUT LINE		
SW	SIDEWALK		
T	TANGENT DISTANCE OF CURVE/TRUCK %		
TAN	TANGENT		
TEMP	TEMPORARY		
TC	TOP OF CURB		
TOS	TOP OF SLOPE		
TYP	TYPICAL		
UP	UTILITY POLE		

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END OF PROJECT
PROJ. NO. 609054
STA 39+36.15-
N3015278.1762
E656130.7752



 FUSS & O'NEILL	BORING LOG		Location ID: B-1						
	Project Name: Foster St Corridor Improvements		Sheet #: 1 of 1						
	Project Location: Littleton, MA		Project #:						
		Weather: Partly Cloudy ~35							
Contractor: Seaboard			Location Description:						
Operator: Dale Griffin			Date Started: 2/14/19						
F&O Representative: Matthew Kissane			Date/Time Completed: 2/14/19 / 1005						
Drilling Method: Auger			Depth to Saturated Zone: N/A						
Sampling Method: Split-Spoon			Sample # Prefix:						
Hammer Weight: Hammer Fall (inches):									
DRILLING DETAILS			MATERIAL DESCRIPTION			ANALYTICAL SAMPLES			
START DEPTH (FT)	BLOWS 6"	REC/ PEN (IN)	DEPTH RANGE (FT)	DESCRIPTION	PID	LITHO-LOGIC CODE	SAMPLE NO. & TIME	DEPTH INTERVAL (FT)	JARS & PRESERV.
0	10, 17 7, 3		0-2	TILL, Fn-Md Silty Sand, some ¼ - ½“ Gravel, poorly sorted, light-dark gray, moist.	N/A	SM			
2	N/A		2-4	No recovery, Split-Spoon unable to drive past 2' bgs	N/A	N/A			
4	N/A		4-5	No recovery, Split-Spoon unable to drive past 2' bgs Bedrock at 5' bgs - End of Boring	N/A	N/A			
BORING DIAMETER		BORING METHOD		BORING DEPTH	REMARKS Field Instrument = If refusal is encountered, describe all efforts used to confirm. PID/OVM Field Decon: Yes / No / Dedicated Device				
PROPORTIONS USED: Trace (tr) 0 to 10% Some (sm) 20 to 35% Little (lt) 10 to 20% And 35 to 50%					BACKFILL Asphalt / Concrete _____ To _____ See Monitoring Well Bentonite Grout/ Chips _____ To _____ Completion Report Cuttings/Native Material 0 _____ To 5 _____ Other _____ To _____				
EXAMPLE DESCRIPTION: SAND, F-M; sm F angular gravel; ltl silt; tr clay; (10R 5/4), wet at 7 ft. Loose. No odor. Reviewed by Staff:									

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BORING LOGS

GENERAL PAVEMENT NOTES:

LITTLETON

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TYPICAL SECTIONS - FOSTER ST

PROPOSED CEMENT CONCRETE SIDEWALK
SURFACE: 4" CEMENT CONCRETE
AIR ENTRAINED 4000psi, 3/4", 610
FOUNDATION: 8" GRAVEL BORROW, TYPE b.

PROPOSED CEMENT CONCRETE WHEELCHAIR RAMP
SURFACE: 6" CEMENT CONCRETE
AIR ENTRAINED 4000psi, 3/4", 610
FOUNDATION: 8" GRAVEL BORROW, TYPE b.

PROPOSED HOT MIX ASPHALT DRIVEWAY
SURFACE: 1-1/2" SUPERPAVE SURFACE COURSE - 9.5 OVER
2" SUPERPAVE INTERMEDIATE COURSE - 12.5
FOUNDATION: 8" GRAVEL BORROW, TYPE b.

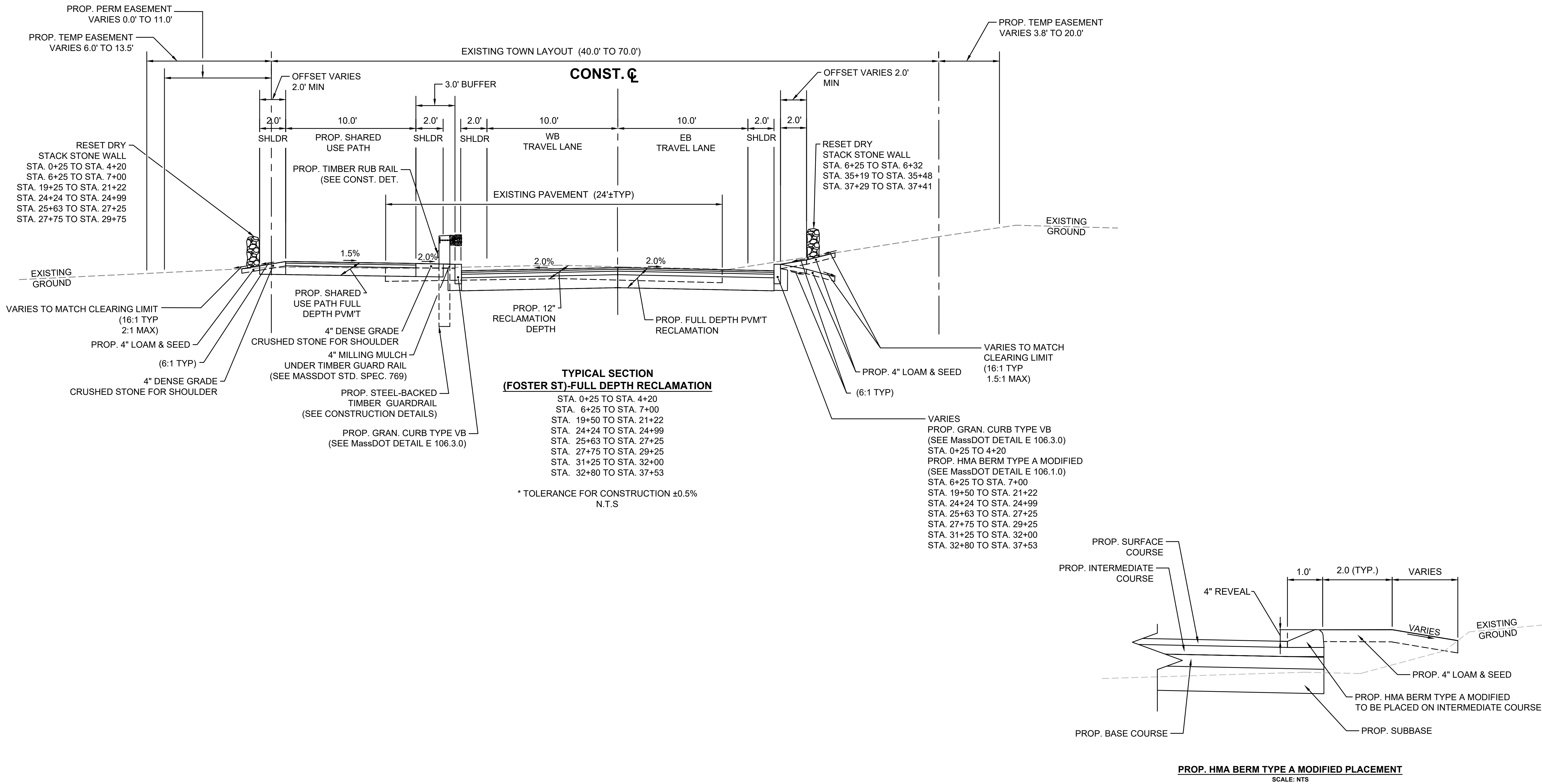
PROPOSED SHARED-USE PATH FULL DEPTH PAVEMENT
SURFACE: 1 1/2" SUPERPAVE SURFACE COURSE- 9.5 OVER
INTERMEDIATE: 2 1/2" SUPERPAVE INTERMEDIATE COURSE- 19.0 OVER
SUBBASE: 8" GRAVEL BORROW, TYPE b

PROPOSED FULL DEPTH PAVEMENT RECLAMATION
SURFACE: 1 1/2 " SUPERPAVE SURFACE COURSE - 9.5 OVER
INTERMEDIATE: 1 3/4 " SUPERPAVE INTERMEDIATE COURSE - 12.5 OVER
BASE: 3 1/4 " SUPERPAVE BASE COURSE - 37.5 OVER
SUBBASE: 4" STABILIZED LIQUID ASPHALT RECLAIMED PAVEMENT OVER
8 " RECLAIMED PAVEMENT BORROW

NOTES: ASPHALT EMULSION FOR TACK COAT AND HMA JOINT SEALANT SHALL BE APPLIED PER SECTION 450 QA OF THE SPECIAL PROVISIONS.

HMA FOR PATCHING SHALL BE USED FOR ALL PERMANENT, PARTIAL, AND FULL DEPTH PAVEMENT REPAIRS OF UNSOUND PAVEMENT PER SECTION 450 IN AREAS OUTSIDE OF PROPOSED FULL DEPTH RECLAMATION OR RECONSTRUCTION ROADWAY AREAS.

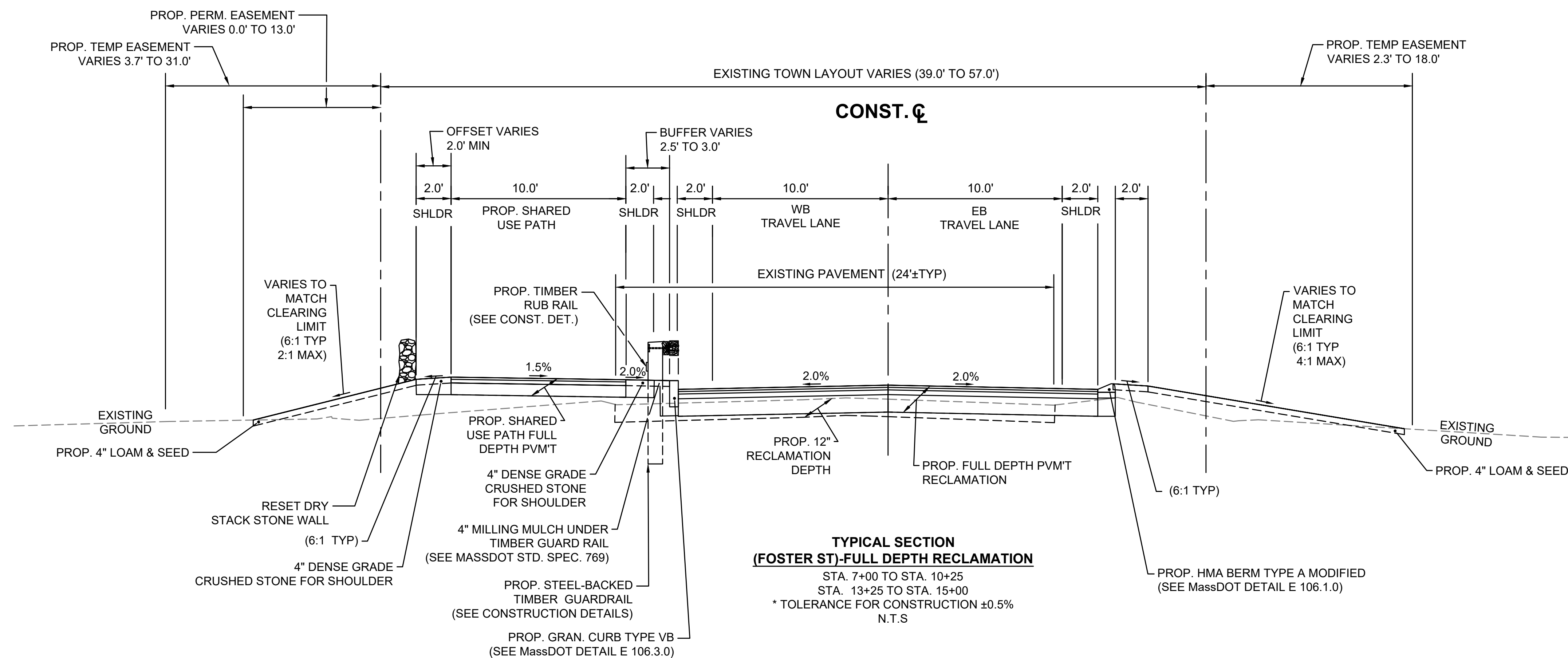
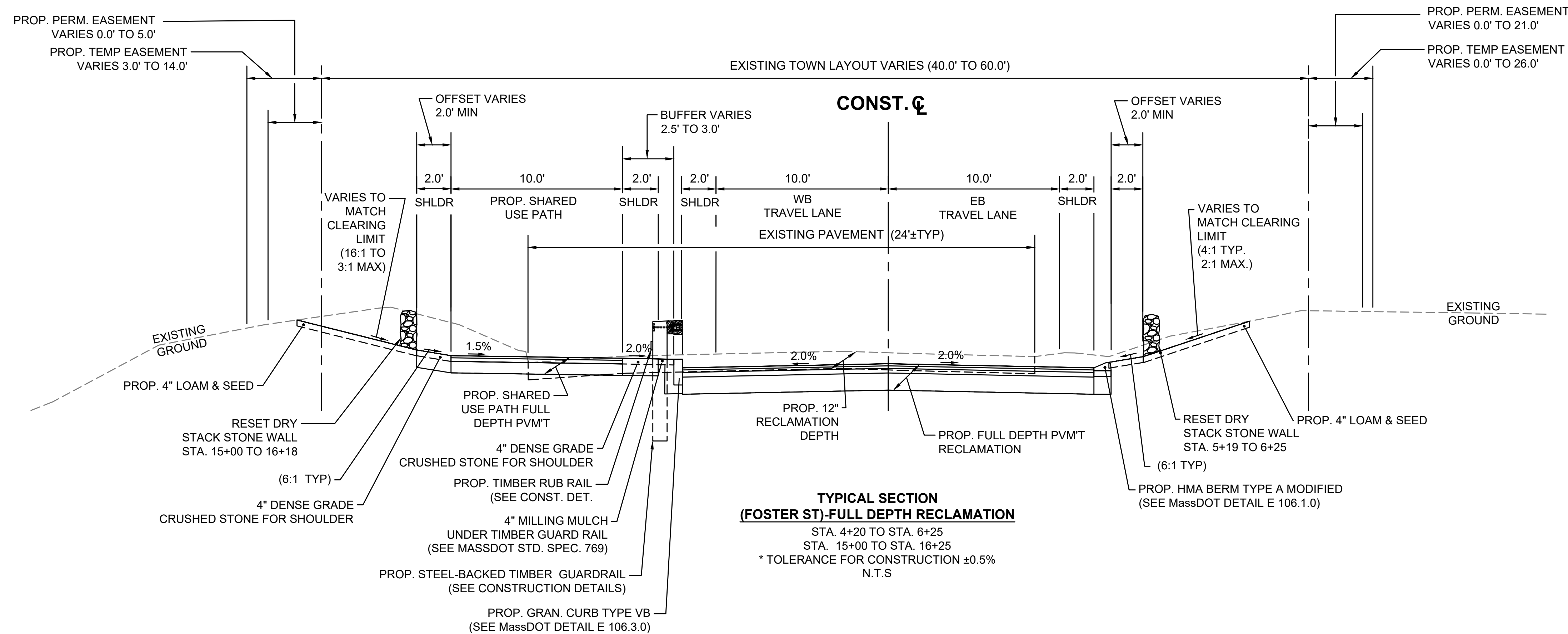
HMA FOR MISCELLANEOUS WORK SHALL BE USED FOR ALL TEMPORARY CONSTRUCTION, TAPER RAMPS, CURB CUT RAMPS, TEMPORARY TRENCH REPAIR, ETC.



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TYPICAL SECTIONS - FOSTER ST



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EXISTING TOWN LAYOUT VARIES (51.0' TO 57.5')

CONST. ϕ

EXISTING PAVEMENT₁ (24'±TYP)

PROF. TEMP EASEMENT VARIES 0.0' TO 13.0'

PROF. TEMP EASEMENT VARIES 4.8' TO 18.2'

PROF. TEMP EASEMENT VARIES 0.0' TO 2.3'

OFFSET VARIES 2.0' MIN

3.0' BUFFER

2.0'

10.0'

2.0'

2.0'

10.0'

10.0'

2.0'

2.0'

VARIES TO MATCH CLEARING LIMIT (2:1 TYP)

SHLDR

PROP. SHARED USE PATH

SHLDR

SHLDR

WB TRAVEL LANE

EB TRAVEL LANE

SHLDR

VARIES TO MATCH CLEARING LIMIT (16:1 TYP 2:1 MAX)

EXISTING GROUND

1.5%

2.0%

2.0%

2.0%

12" PROP. RECLAMATION DEPTH

PROP. SHARED USE PATH FULL DEPTH PVMIT

4" DENSE GRADE CRUSHED STONE FOR SHOULDER

4" MILLING MULCH UNDER TIMBER GUARD RAIL (SEE MASSDOT STD. SPEC. 769)

PROP. STEEL-BACKED TIMBER GUARDRAIL (SEE CONSTRUCTION DETAILS)

PROP. GRAN. CURB TYPE VB (SEE MassDOT DETAIL E 106.3.0)

PROP. 4" LOAM & SEED

RESET DRY STACK STONE WALL STA. 10+25 TO 13+25 STA. 17+15 TO 17+98 (16:1 TYP)

4" DENSE GRADE CRUSHED STONE FOR SHOULDER

PROP. FULL DEPTH PVMIT RECLAMATION

RESET DRY STACK STONE WALL STA. 10+87 TO 12+53 (6:1 TYP)

PROP. HMA BERM TYPE A MODIFIED (SEE MassDOT DETAIL E 106.1.0)

TYPICAL SECTION (FOSTER ST)-FULL DEPTH RECLAMATION

STA. 10+25 TO STA. 13+25

STA. 16+25 TO STA. 19+50

*** TOLERANCE FOR CONSTRUCTION ±0.5% N.T.S**

[illegible]

Diagram illustrating the cross-section of a guardrail system installed at the back of a berm. The diagram shows the following components and dimensions:

- FACE OF GUARDRAIL INSTALLED AT BACK OF BERM**: The vertical face of the guardrail.
- 1.0'**: The height of the guardrail from the existing ground to the top of the W-beam.
- 4'-9.56"**: The height of the guardrail from the existing ground to the top of the W-beam, measured along the slope.
- VARIES**: The slope of the berm, which varies.
- EXISTING GROUND**: The ground level on which the guardrail is installed.
- PROP. FULL DEPTH RECLAMATION**: The area of the berm that is to be reclaimed.
- PROP. STEEL W-BEAM GUARDRAIL WITH WOOD POSTS**: The guardrail system consisting of a steel W-beam and wood posts.

20170044A21_TYP01.DWG Plotted on 10-Jun-2019 8:53 AM

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	X	XX
PROJECT FILE NO.		609054	

20170044A21_TYP01.DWG Plotted on 10-Jun-2019 8:53 AM



TO BE PROVIDED AT 75%

NONE

NONE

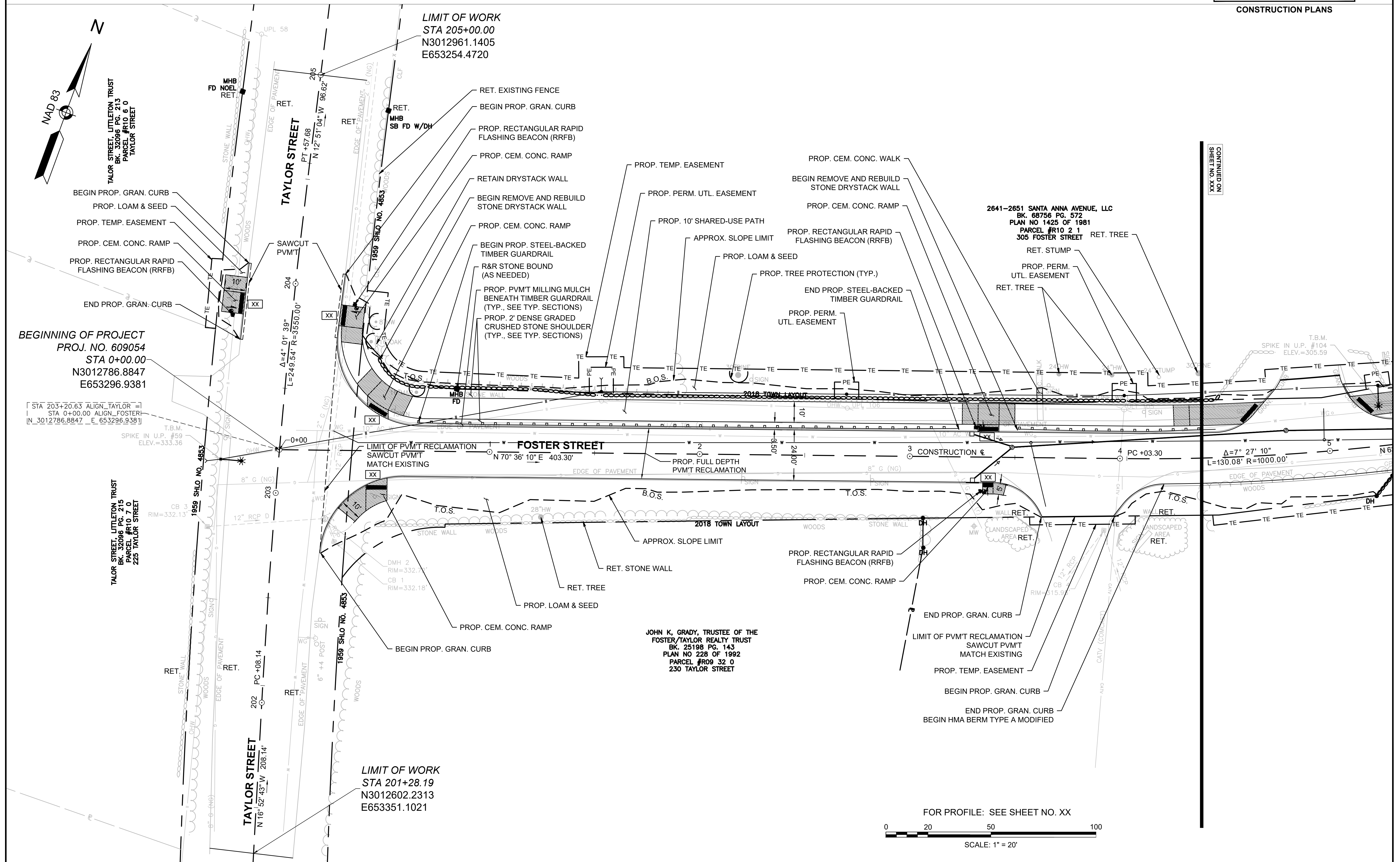
SEE SHEET XX

PROPOSED DRIVEWAY
DETAIL #

FOR PROFILE: SEE SHEET NO. XX

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	3	XX
PROJECT FILE NO.		609054	

CONTINUED ON
SHEET NO. XXX



HIGHWAY GUARD DETAILS
TO BE PROVIDED AT 75%

TRAFFIC SIGNAL CONDUIT
NONE

WATER SUPPLY ALTERATIONS
NONE

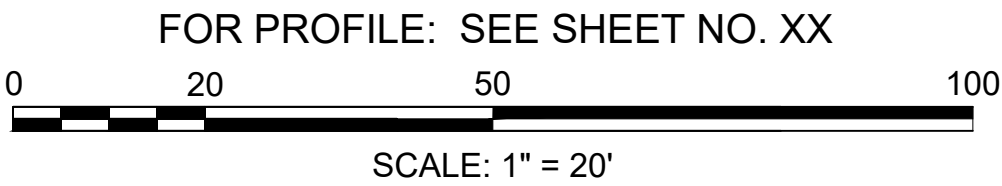
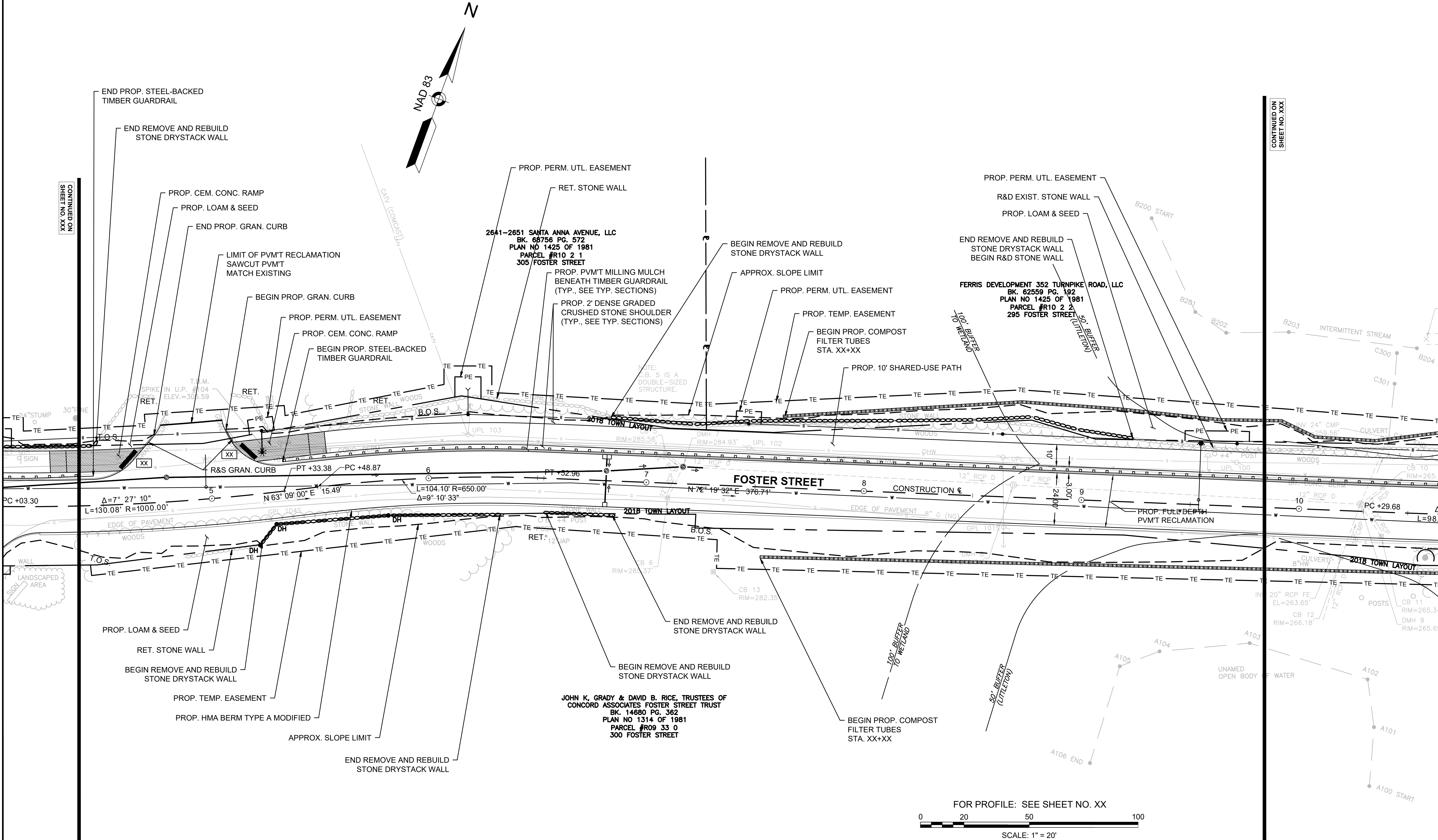
DRAINAGE DETAILS
SEE SHEET XX

LEGEND:
PROPOSED WHEELCHAIR
RAMP DETAIL # X#
PROPOSED DRIVEWAY
DETAIL # DR#-#

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXX(XXX)X	4	XX
PROJECT FILE NO. 609054			

CONSTRUCTION PLANS



HIGHWAY GUARD DETAILS
TO BE PROVIDED AT 75%

TRAFFIC SIGNAL CONDUIT
NONE

WATER SUPPLY ALTERATIONS
NONE

DRAINAGE DETAILS
SEE SHEET XX

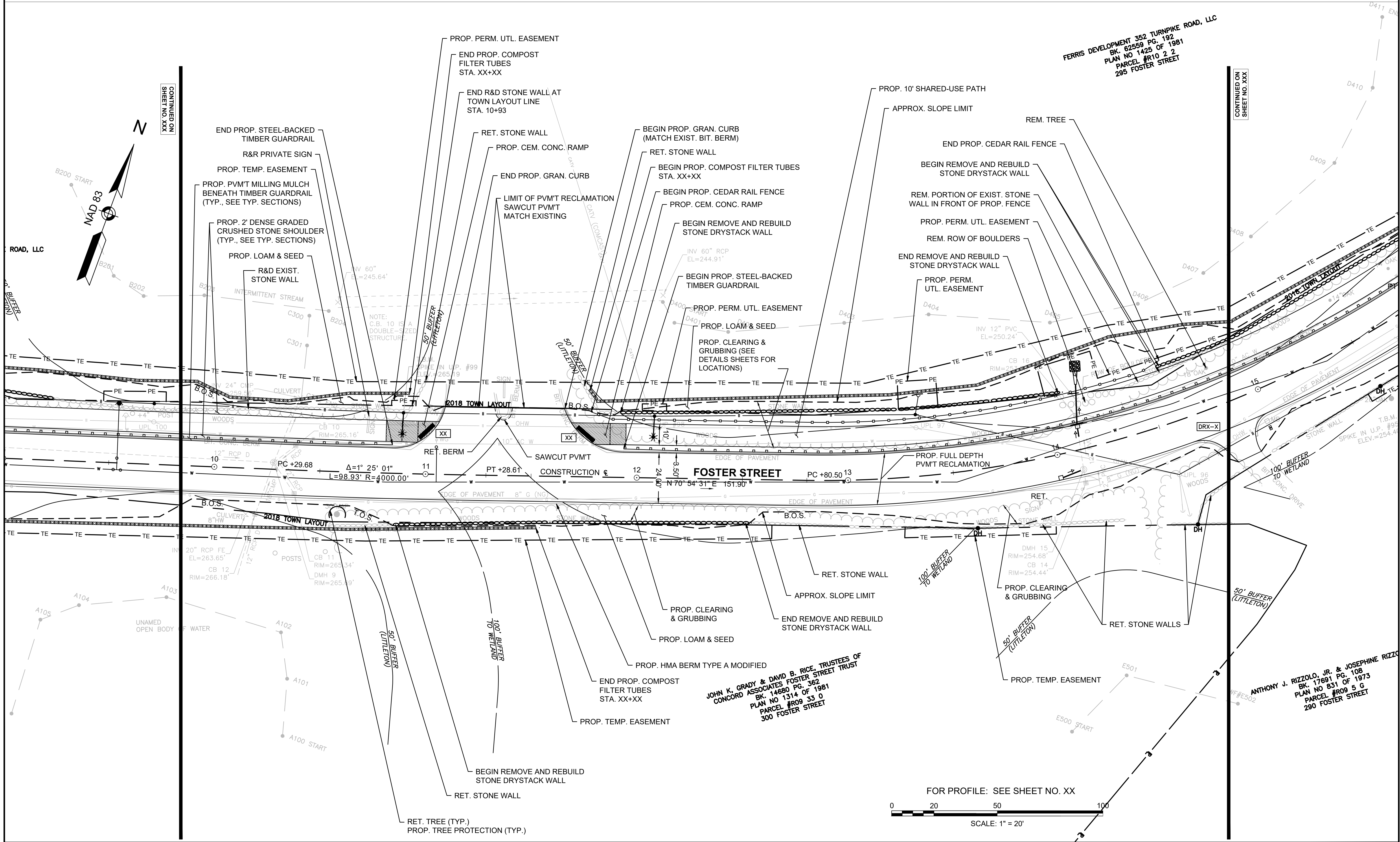
LEGEND:
PROPOSED WHEELCHAIR
RAMP DETAIL # X#
PROPOSED DRIVEWAY
DETAIL # DR#-#

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXX(XXX)X	5	XX

PROJECT FILE NO. 609054

CONSTRUCTION PLANS



HIGHWAY GUARD DETAILS
TO BE PROVIDED AT 75%

TRAFFIC SIGNAL CONDUIT
NONE

WATER SUPPLY ALTERATIONS
NONE

DRAINAGE DETAILS
SEE SHEET XX

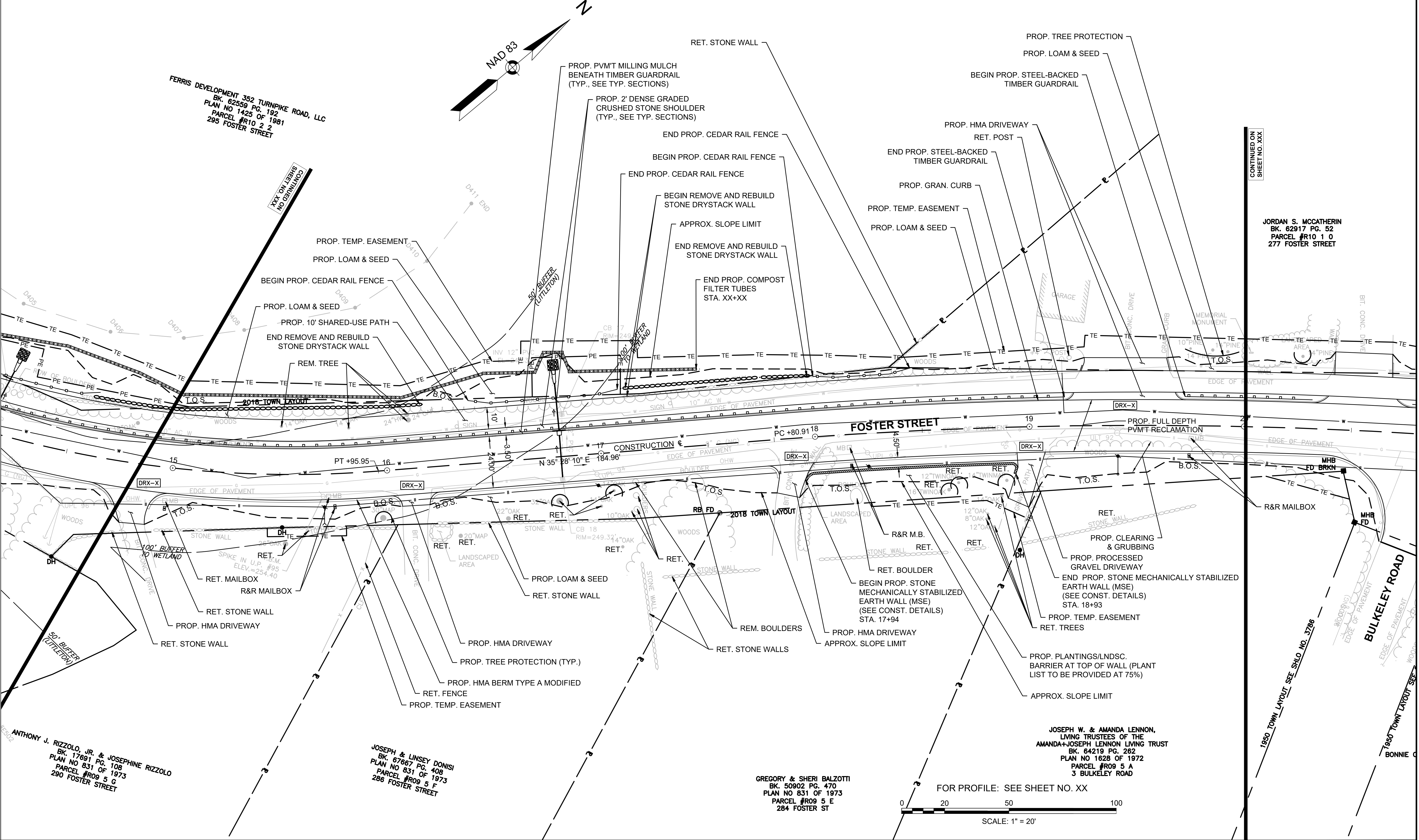
LEGEND:
PROPOSED WHEELCHAIR
RAMP DETAIL # X#
PROPOSED DRIVEWAY
DETAIL # DR#-#

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXX(XXX)X	6	XX

PROJECT FILE NO. 609054

CONSTRUCTION PLANS



TO BE PROVIDED AT 75%

NONE

NONE

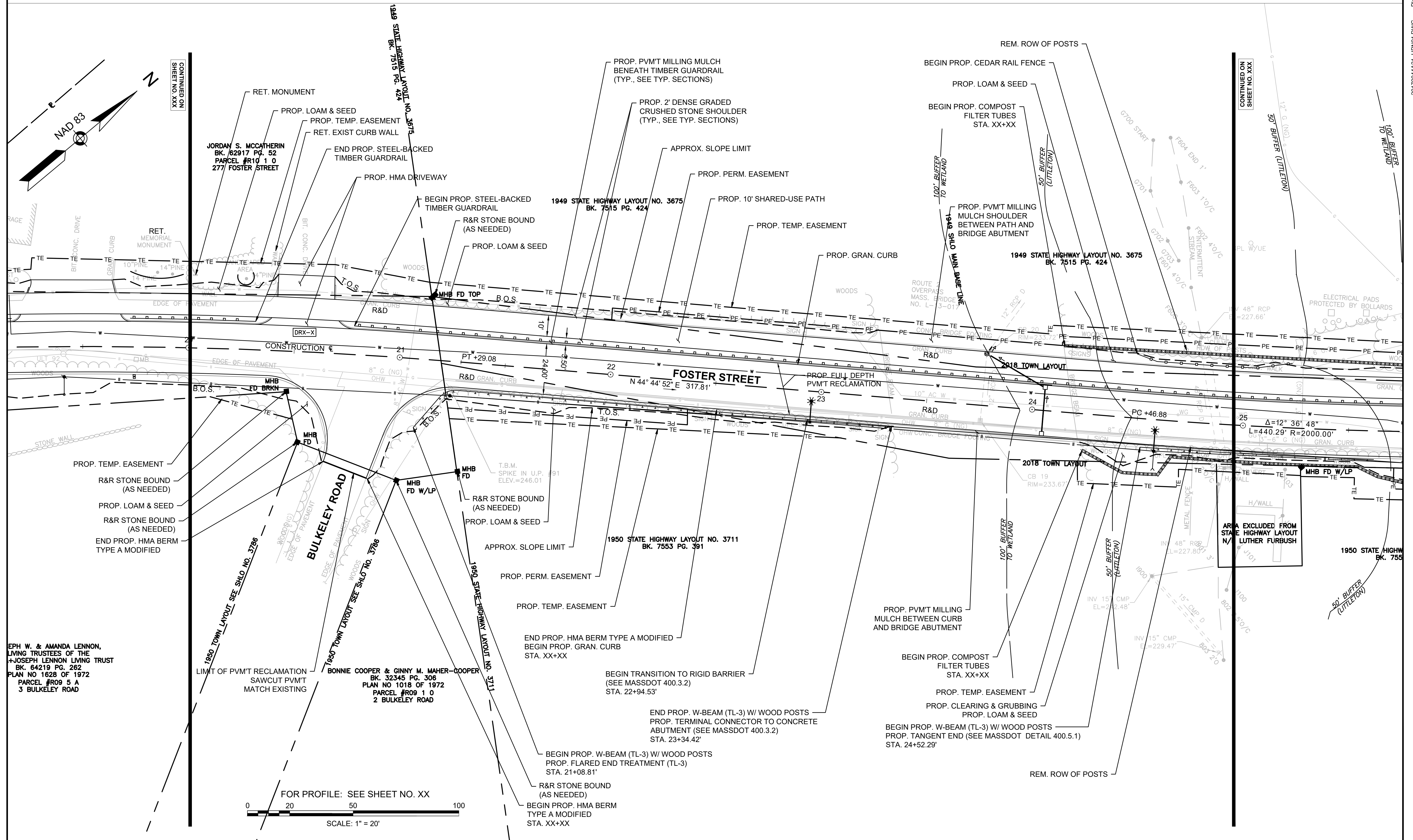
SEE SHEET XX

X#

DR#-#

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	7	XX
PROJECT FILE NO.		609054	

CONSTRUCTION PLANS



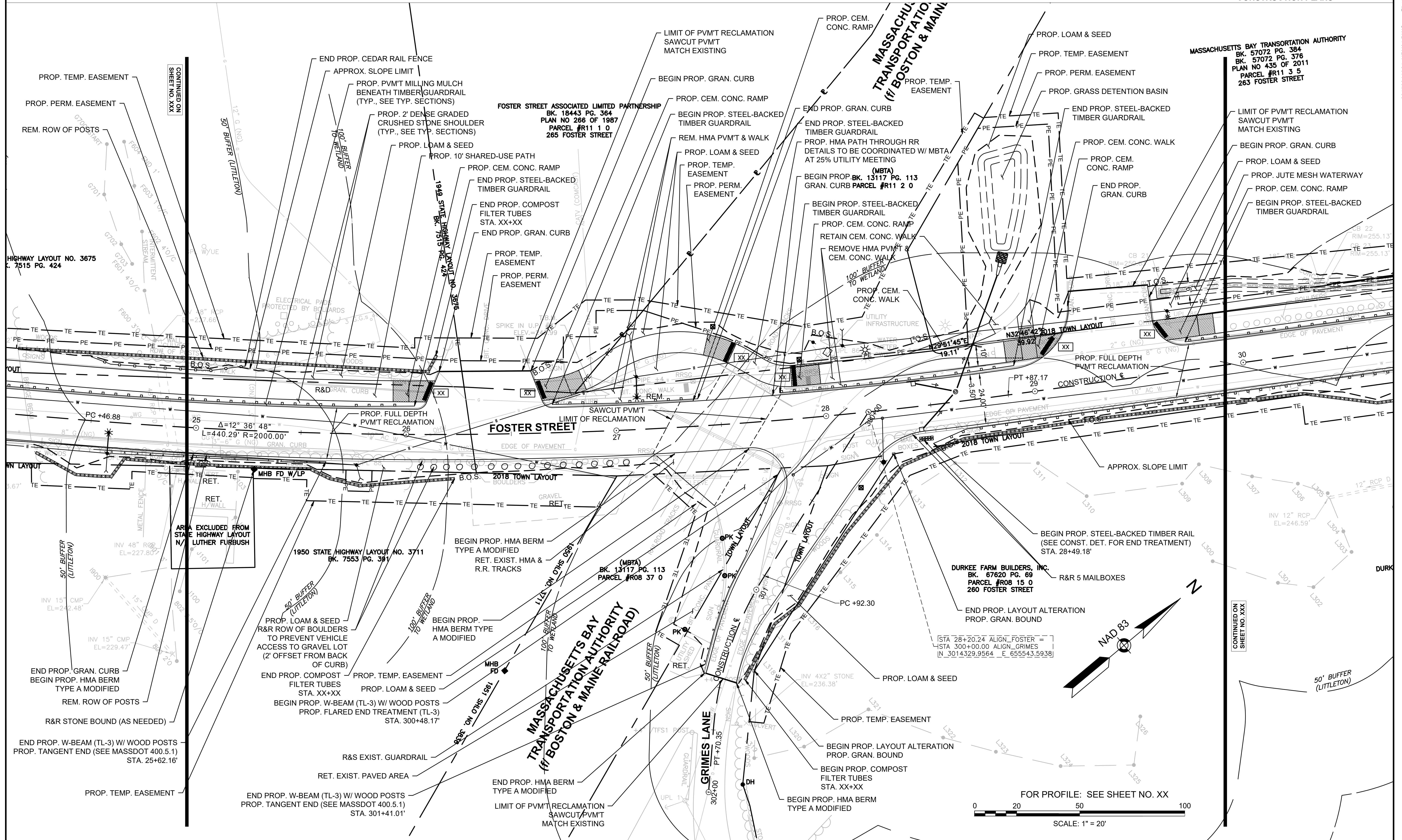
DRAINAGE DETAILS

SEE SHEET XX

DR#-

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	8	XX
PROJECT FILE NO.		609054	

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
BK. 57072 PG. 384
BK. 57072 PG. 376
PLAN NO 435 OF 2011
PARCEL #R11 3 5
263 FOSTER STREET



HIGHWAY GUARD DETAILS
TO BE PROVIDED AT 75%

TRAFFIC SIGNAL CONDUIT
NONE

WATER SUPPLY ALTERATIONS
NONE

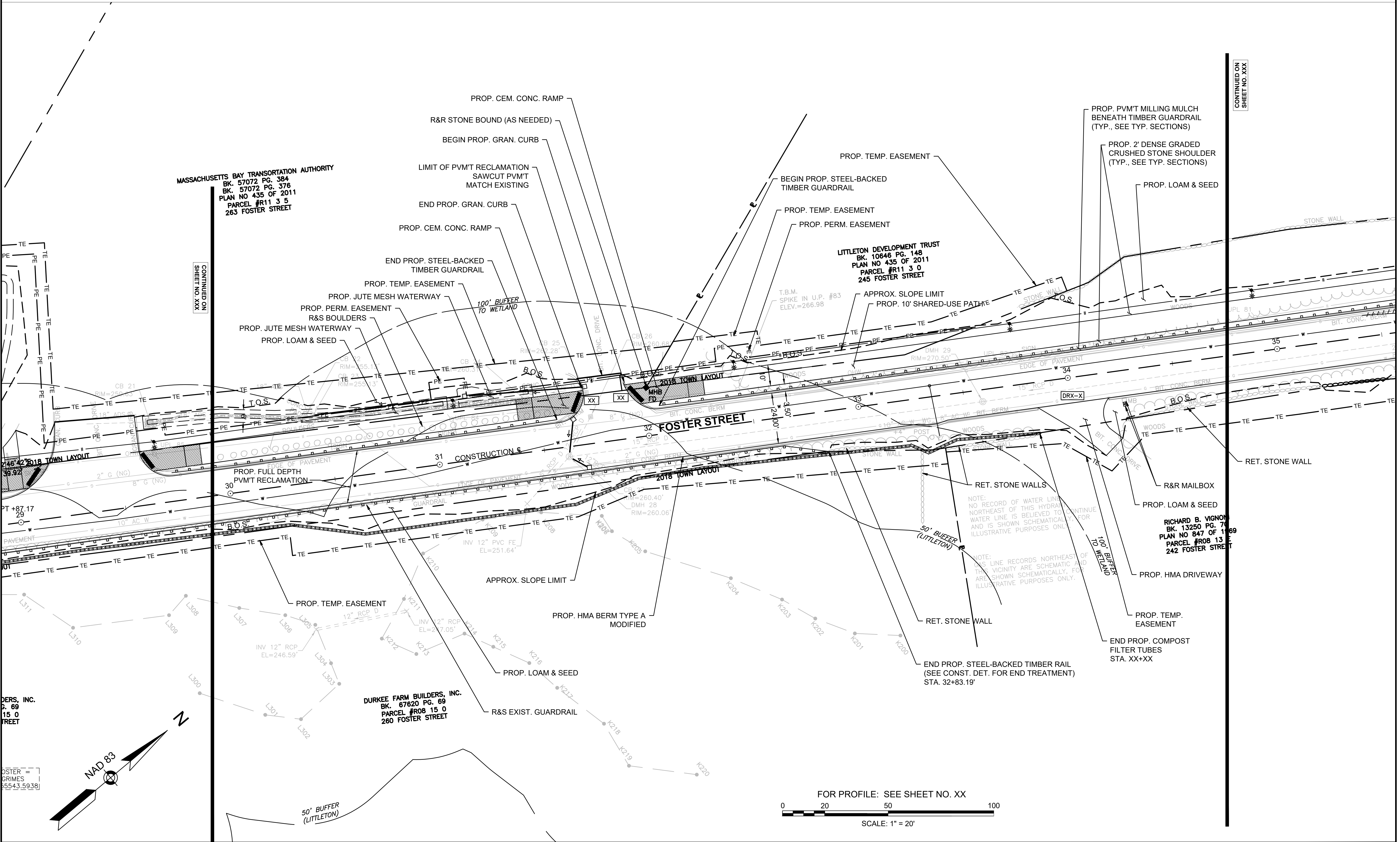
DRAINAGE DETAILS
SEE SHEET XX

LEGEND:
PROPOSED WHEELCHAIR
RAMP DETAIL # X#
PROPOSED DRIVEWAY
DETAIL # DR#-#

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXX(XXX)X	9	XX
PROJECT FILE NO. 609054			

CONSTRUCTION PLANS



HIGHWAY GUARD DETAILS
TO BE PROVIDED AT 75%

TRAFFIC SIGNAL CONDUIT
NONE

WATER SUPPLY ALTERATIONS
NONE

DRAINAGE DETAILS
SEE SHEET XX

LEGEND:
PROPOSED WHEELCHAIR
RAMP DETAIL # X#
PROPOSED DRIVEWAY
DETAIL # DR#-#

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXX(XXX)X	10	XX

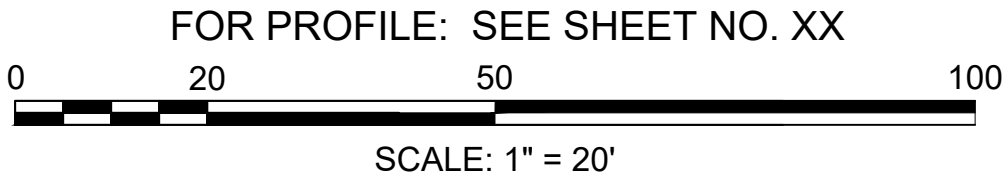
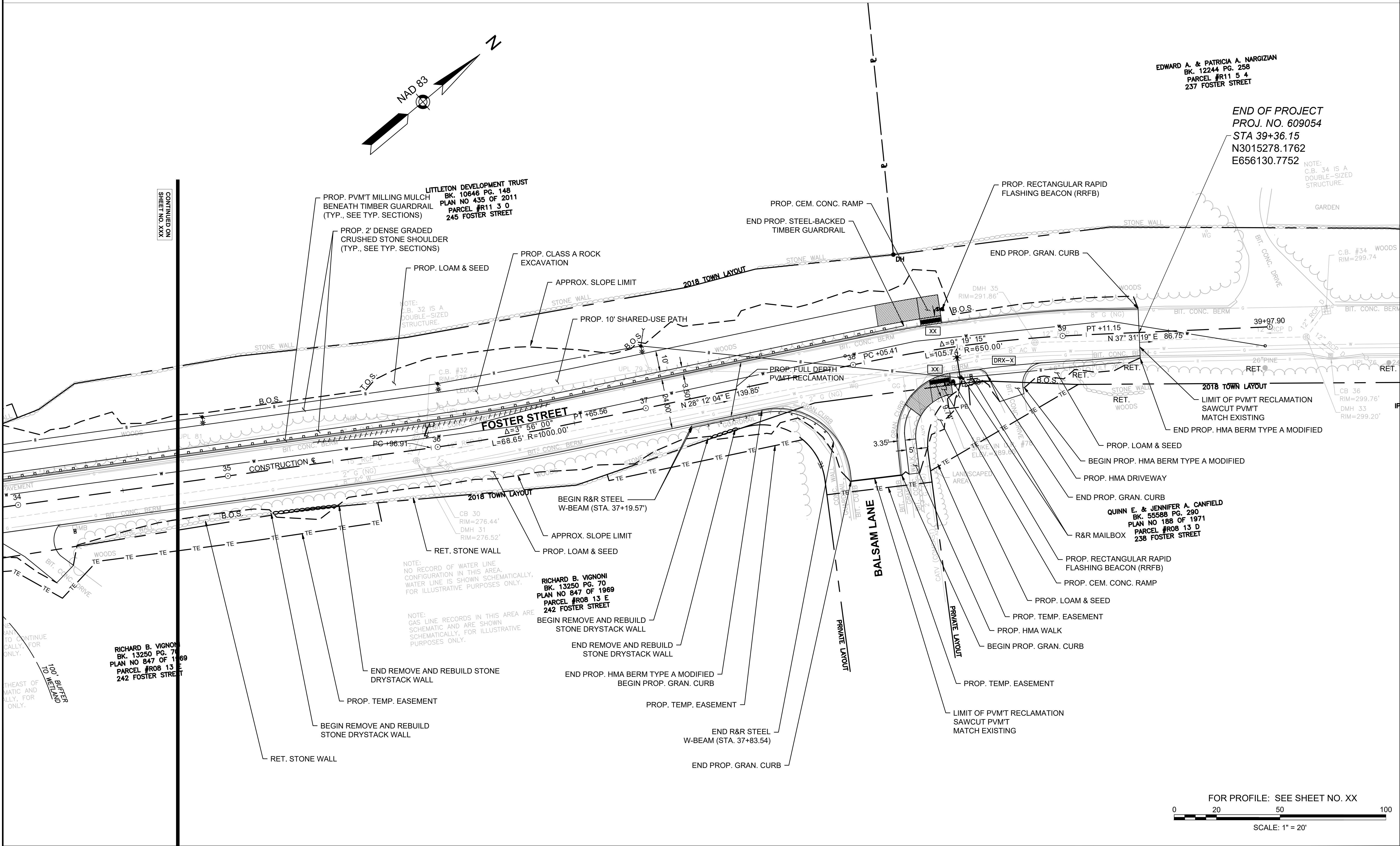
PROJECT FILE NO. 609054

CONSTRUCTION PLANS

EDWARD A. & PATRICIA A. NARGIZIAN
BK. 12244 PG. 258
PARCEL #R11 5 4
237 FOSTER STREET

END OF PROJECT
PROJ. NO. 609054
STA 39+36.15
N3015278.1762
E656130.7752

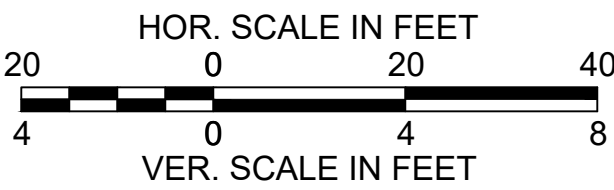
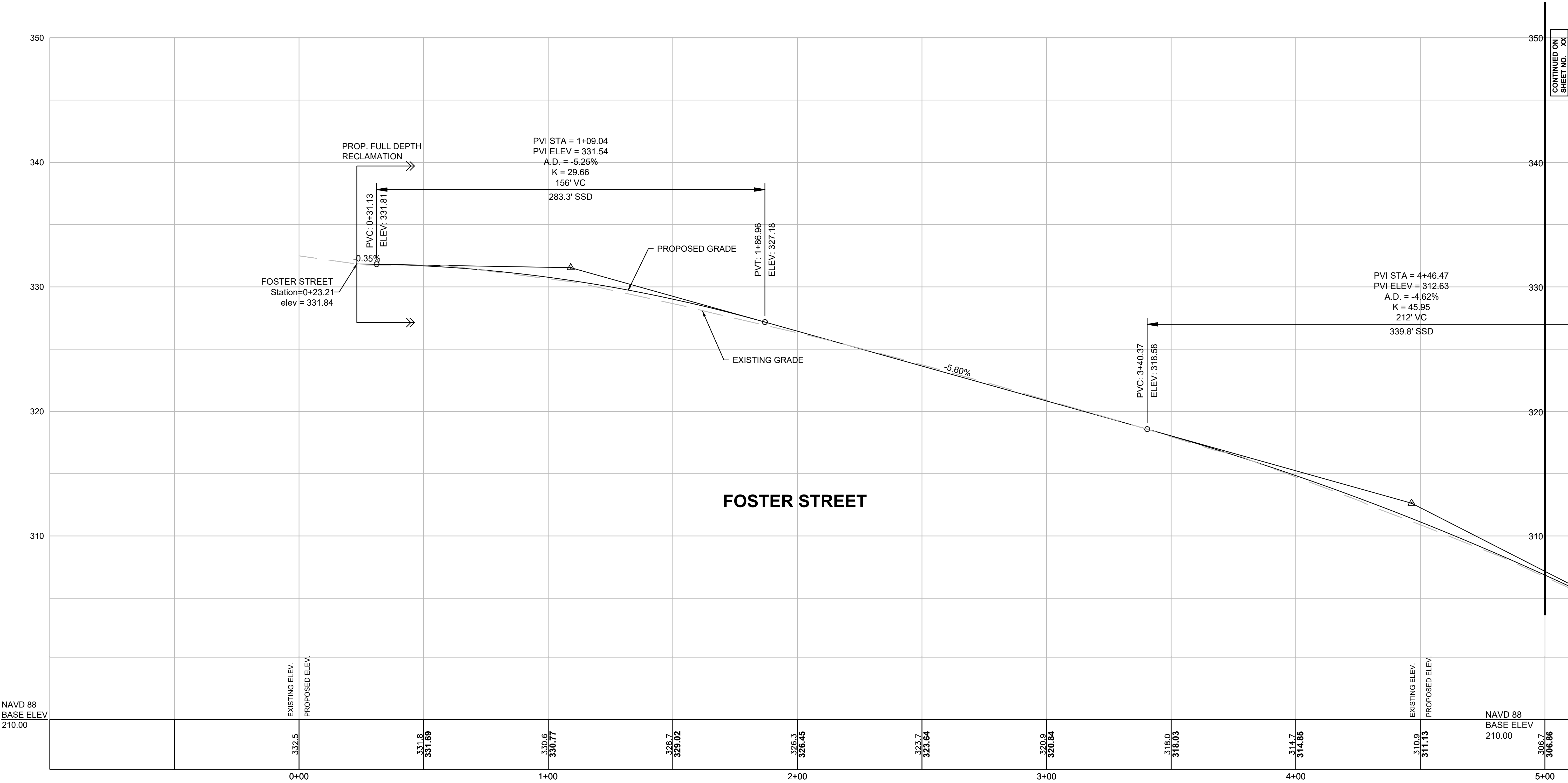
NOTE:
C.B. 34 IS A
DOUBLE-SIZED
STRUCTURE.



LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	11	XX
PROJECT FILE NO.		609054	

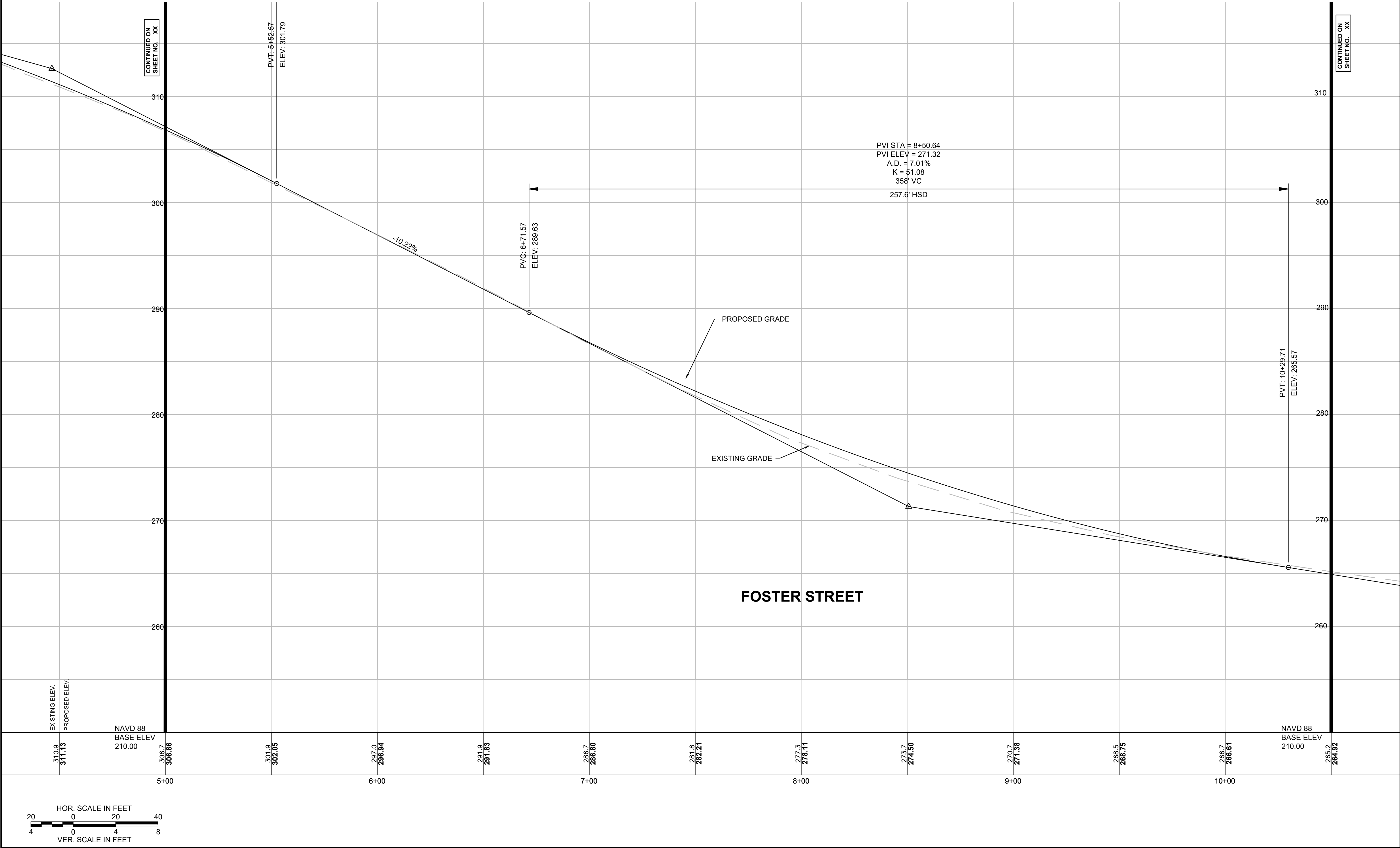
PROFILE - FOSTER STREET



LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	12	XX
PROJECT FILE NO.		609054	

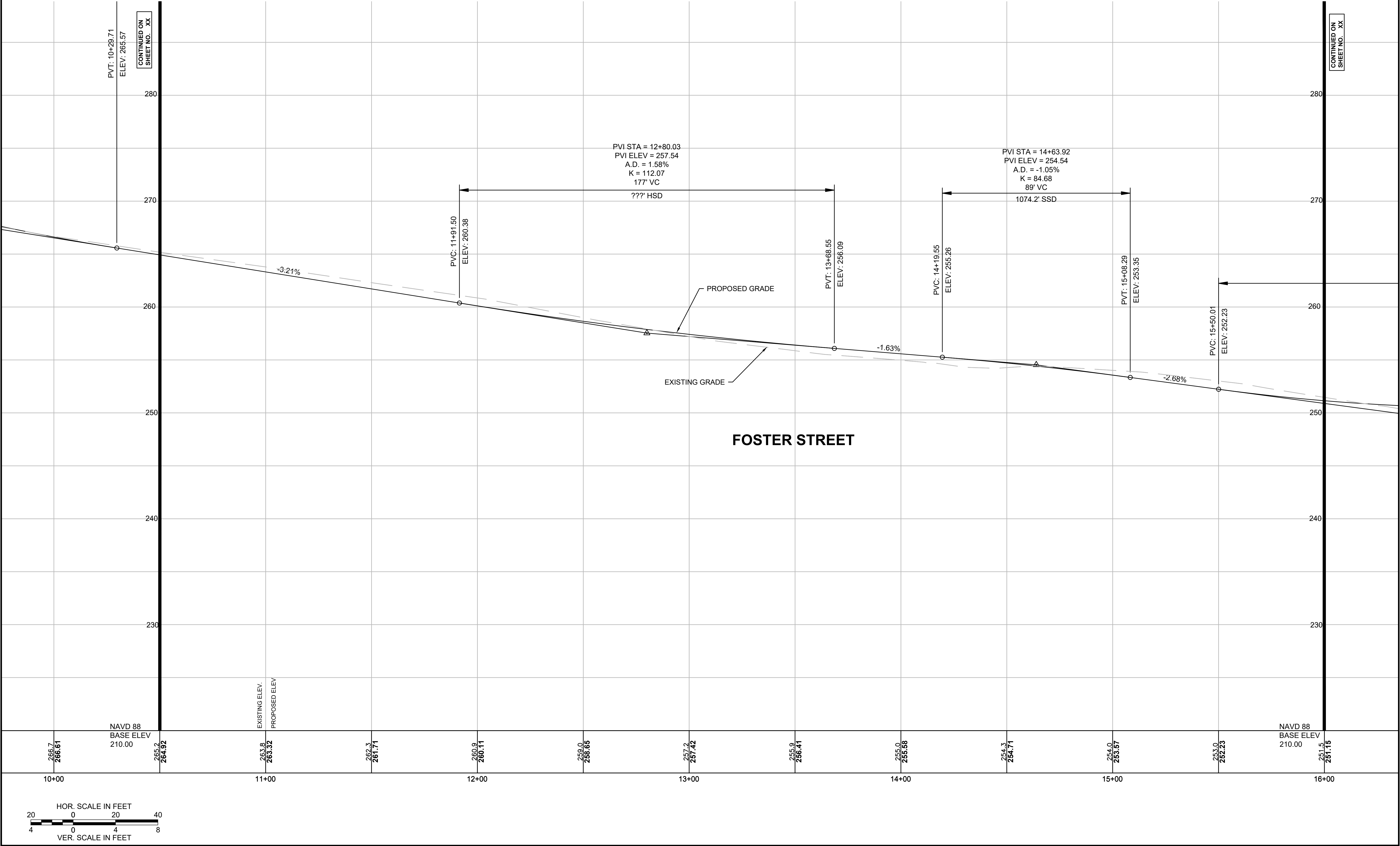
PROFILE - FOSTER STREET



LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	13	XX
PROJECT FILE NO.		609054	

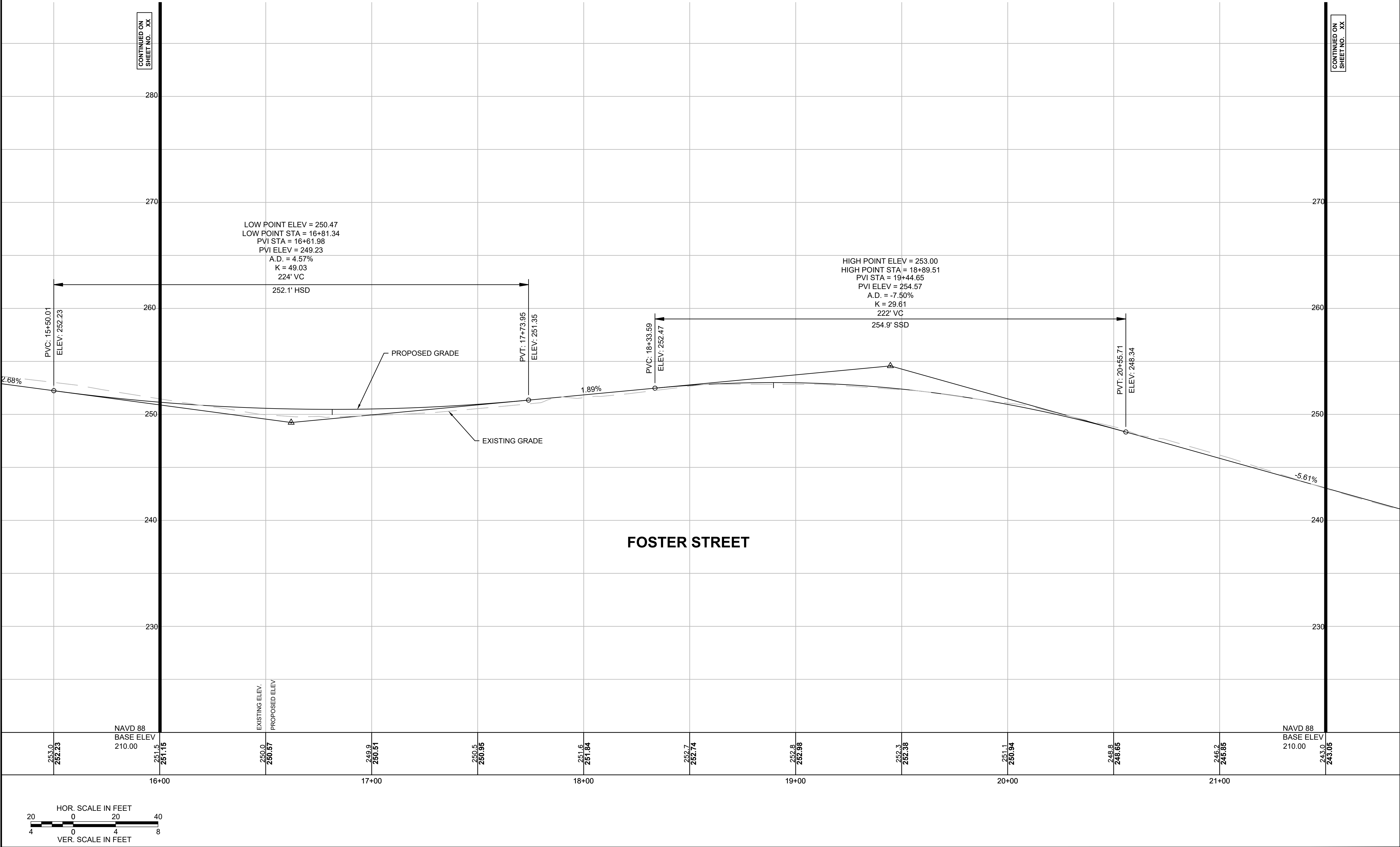
PROFILE - FOSTER STREET



LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	14	XX
PROJECT FILE NO.		609054	

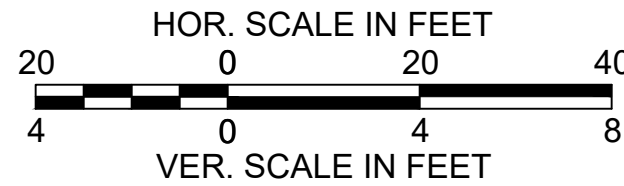
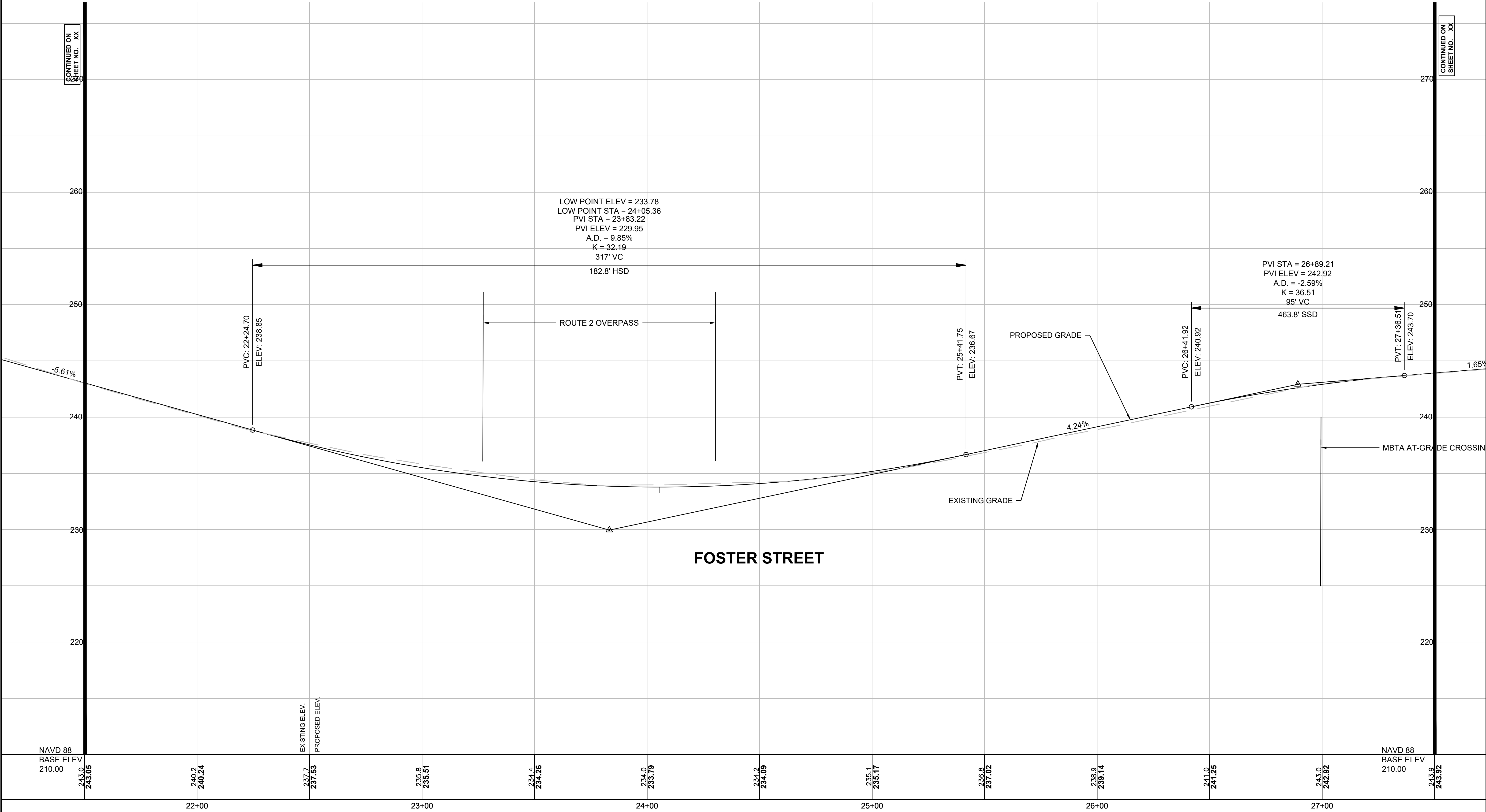
PROFILE - FOSTER STREET



LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	15	XX
PROJECT FILE NO.		609054	

PROFILE - FOSTER STREET

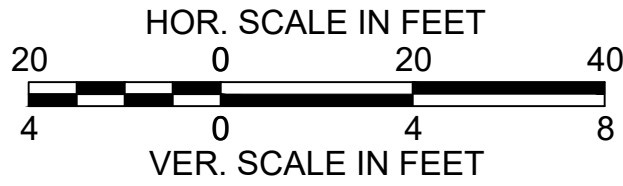
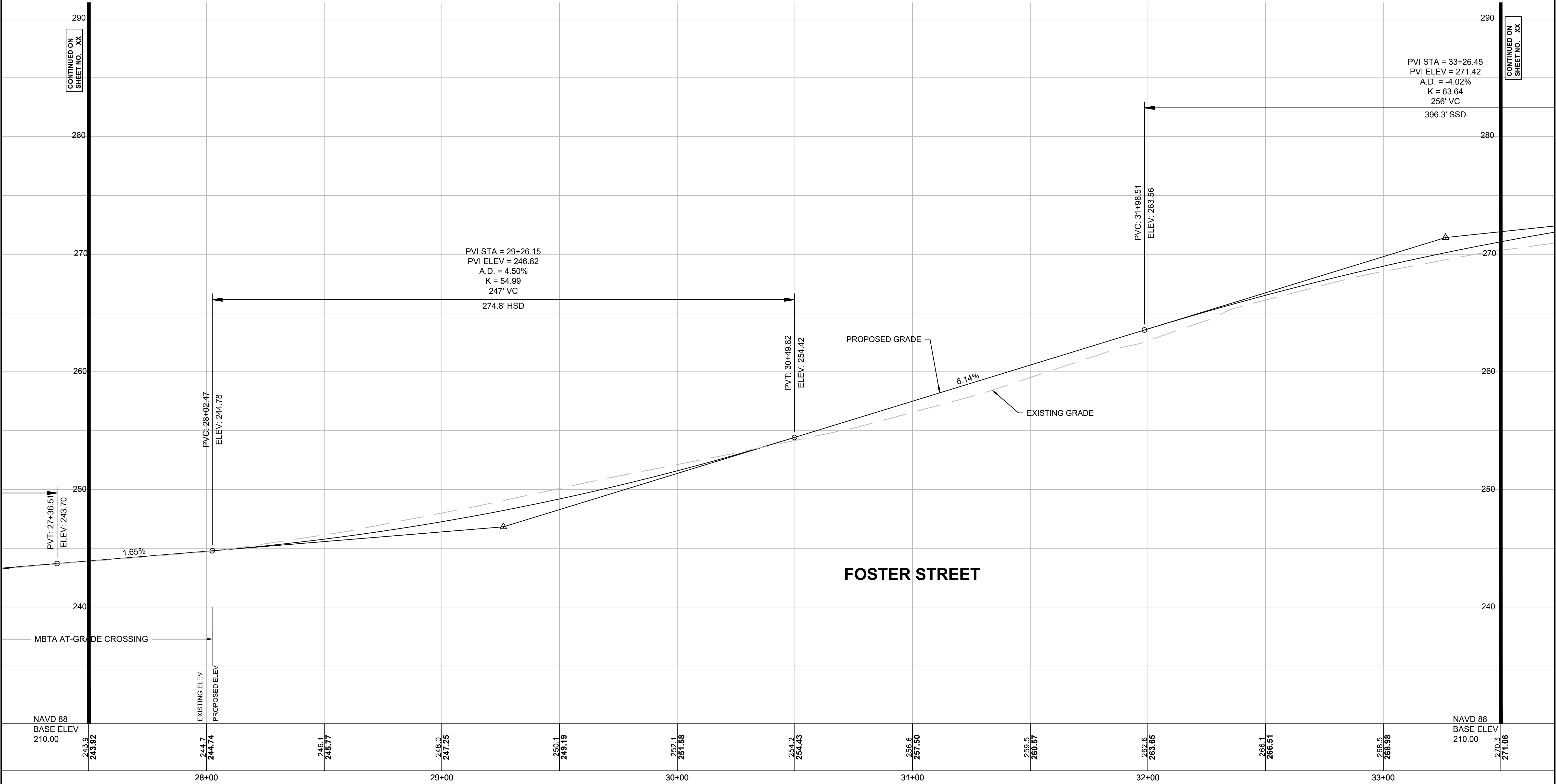


LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	16	XX
PROJECT FILE NO.		609054	

PROFILE - FOSTER STREET

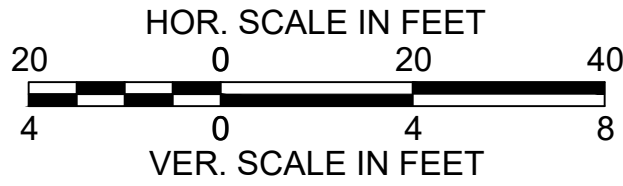
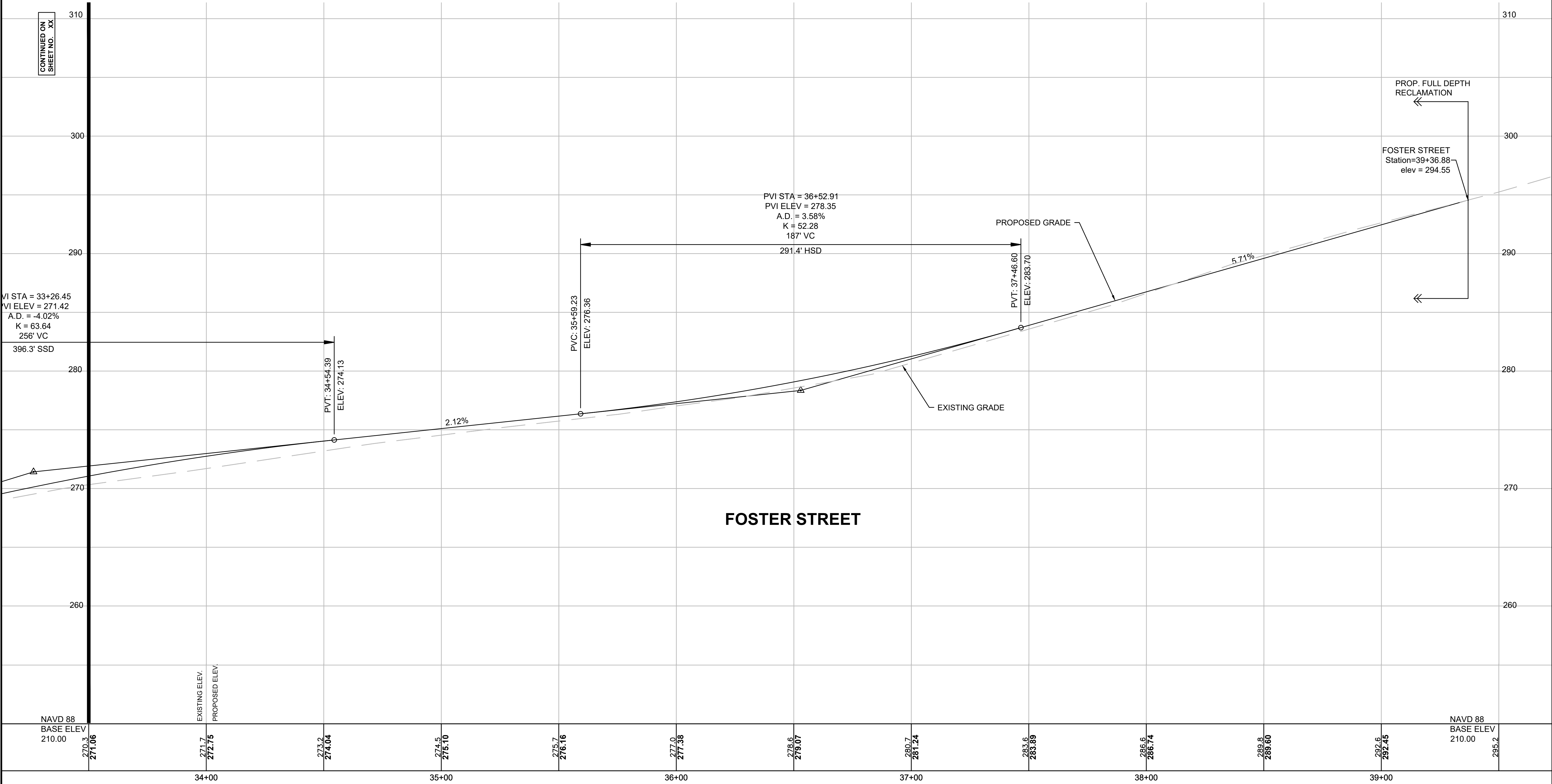
PVI STA = 33+26.45
PVI ELEV = 271.42
A.D. = -4.02%
K = 63.64
256' VC
396.3' SSD



LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	17	XX
PROJECT FILE NO.		609054	

PROFILE - FOSTER STREET



STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	XX	XX
PROJECT FILE NO.		609054	

PROJECT FILE NO. 609054

CURB AND BASELINE PLAN TO BE COMPLETED AT THE 75% DESIGN SUBMITTAL

2641-2651 SANTA ANNA AVENUE, LLC
BK. 68756 PG. 572
PLAN NO 1425 OF 1981
PARCEL #R10 2 1
305 FOSTER STREET

JOHN K. GRADY, TRUSTEE OF THE
FOSTER/TAYLOR REALTY TRUST
BK. 25198 PG. 143
PLAN NO 228 OF 1992
PARCEL #R09 32 0
230 TAYLOR STREET

LIMIT OF WORK
STA 205+00.00
N3012961.1452
E653254.4709

LIMIT OF WORK
STA 201+28.19
N3012602.2313
E653351.1021

BEGINNING OF PROJECT
PROJ. NO. 609054
STA 0+00.00
N3012786.8847
E653296.9381

STREET, LITTLETON TRUST
BK. 32096 PG. 215
PARCEL #R10 7 0
225 TAYLOR STREET

TALOR STREET, LITTLETON TRUST
BK. 32096 PG. 213
PARCEL #R10 6 0
TAYLOR STREET

FOR PROFILE: SEE SHEET NO. X)

CONTINUED ON

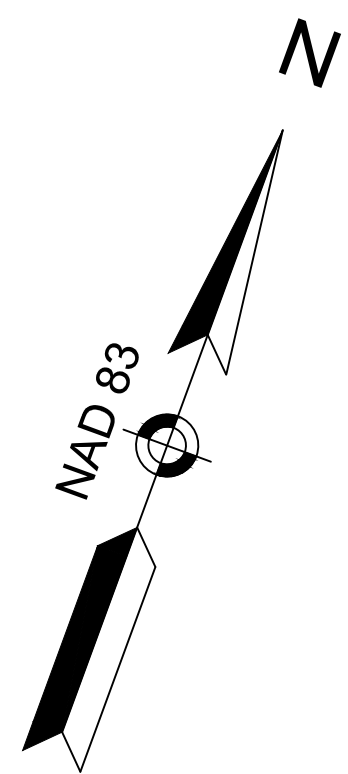
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MS VIEW: - Plotter: AUTOCAD PDF (GENERAL DOCUMENTATION) PC3 CTB File: MADOT-D.STB

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXX(XXX)X	XX	XX
PROJECT FILE NO.		609054	

CURB AND BASELINE TIE PLAN

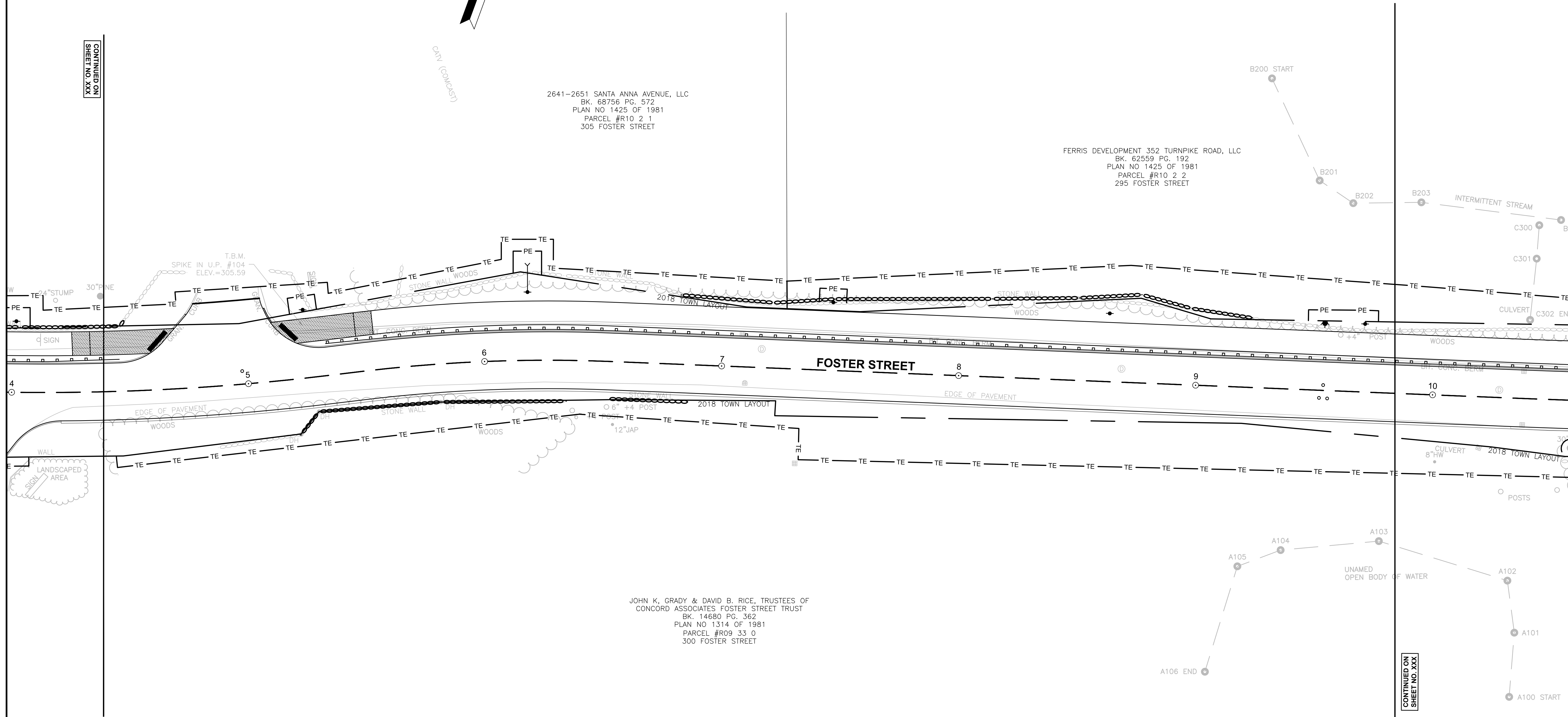
CURB AND BASELINE PLAN TO BE COMPLETED AT THE 75% DESIGN SUBMITTAL



CANY (COMCAST)

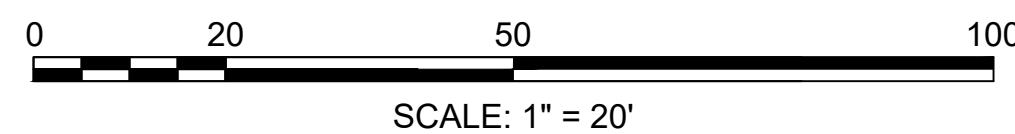
2641-2651 SANTA ANNA AVENUE, LLC
BK. 68756 PG. 572
PLAN NO 1425 OF 1981
PARCEL #R10 2 1
305 FOSTER STREET

FERRIS DEVELOPMENT 352 TURNPIKE ROAD, LLC
BK. 62559 PG. 192
PLAN NO 1425 OF 1981
PARCEL #R10 2 2
295 FOSTER STREET



JOHN K. GRADY & DAVID B. RICE, TRUSTEES OF
CONCORD ASSOCIATES FOSTER STREET TRUST
BK. 14680 PG. 362
PLAN NO 1314 OF 1981
PARCEL #R09 33 0
300 FOSTER STREET

FOR PROFILE: SEE SHEET NO. XX



CONTINUED ON
SHEET NO. XX

CONTINUED ON
SHEET NO. XX

CURB AND BASELINE PLAN TO BE COMPLETED AT THE 75% DESIGN SUBMITTAL

**LITTLETON
RECONSTRUCTION OF FOSTER STREET**

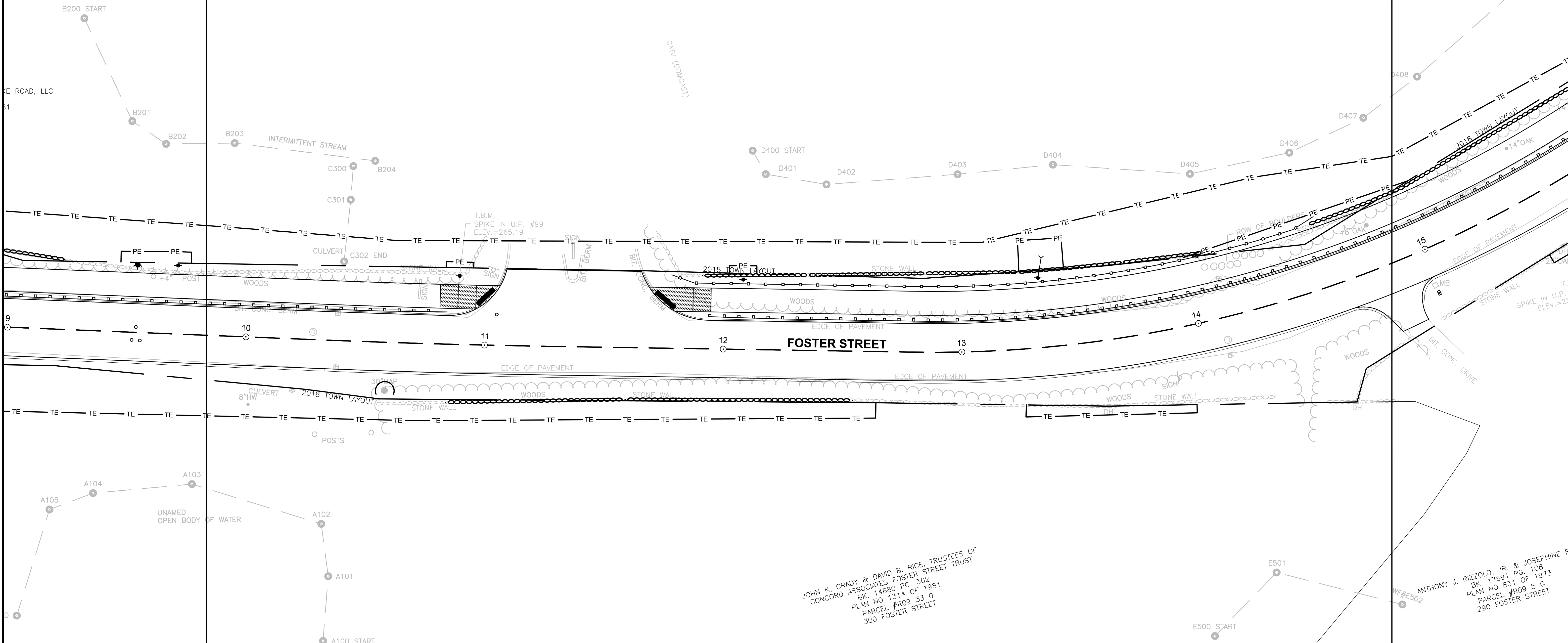
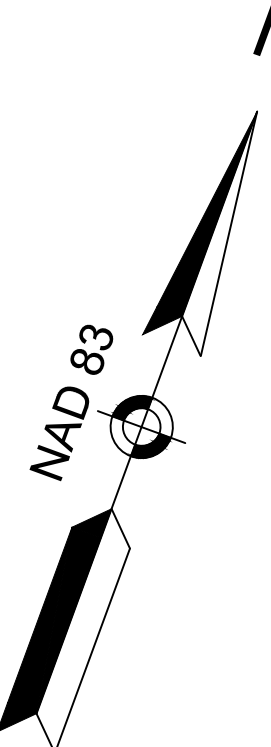
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	XX	XX
PROJECT FILE NO.		609054	

CURB AND BASELINE TIE PLAN

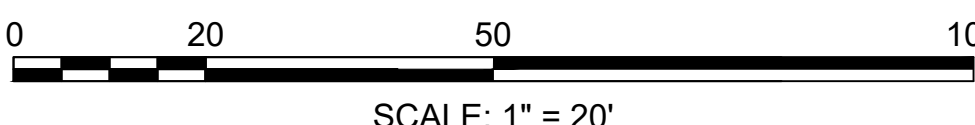
FERRIS DEVELOPMENT 352 TURNPIKE P
BK. 62559 PG. 192
PLAN NO 1425 OF 1981
PARCEL #R10 2 2
295 FOSTER STREET

CONTINUED ON
SHEET NO. XXX

CONTINUED ON
SHEET NO. XXX



FOR PROFILE: SEE SHEET NO. XY

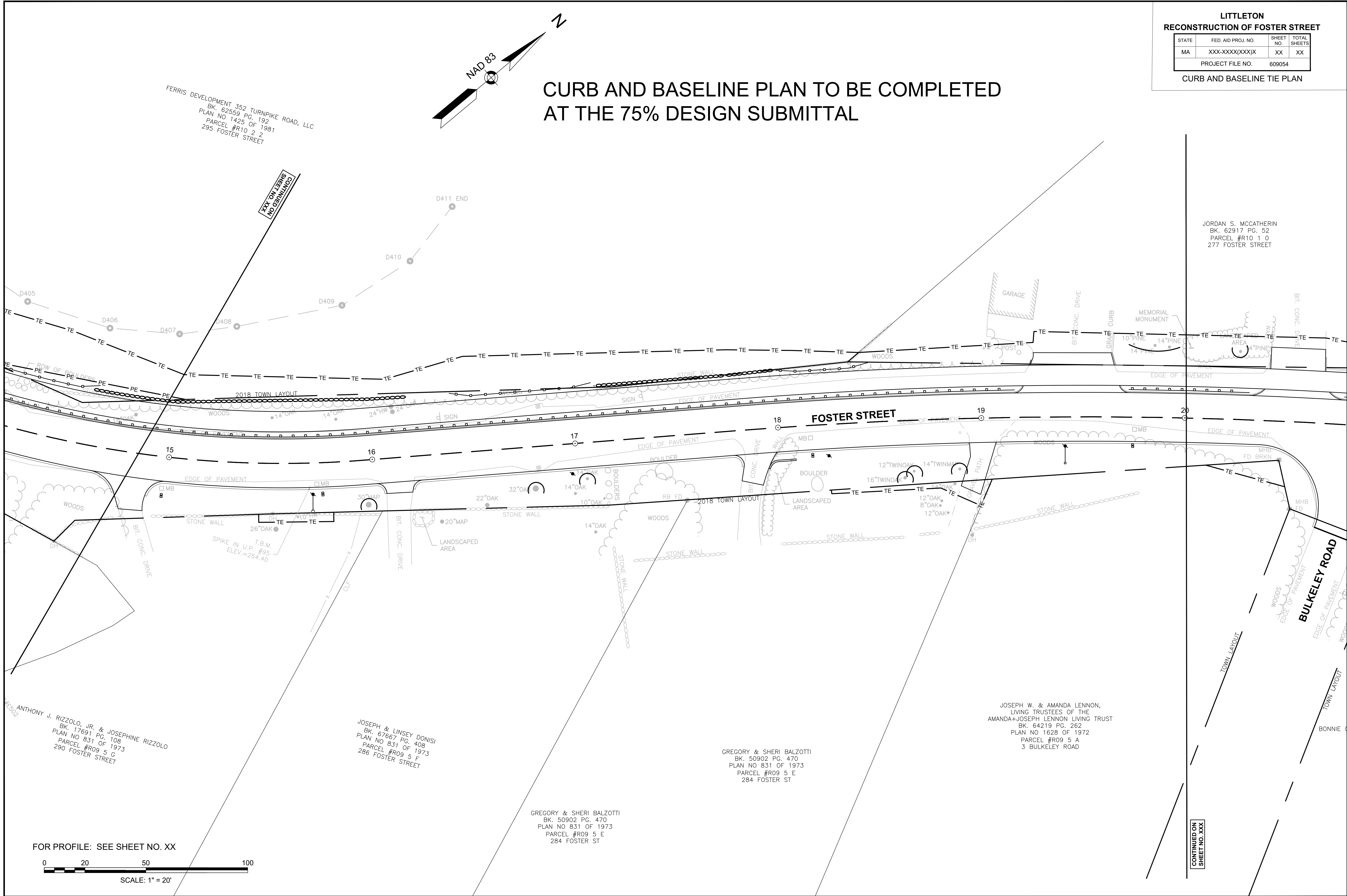


JOHN K. GRADY & DAVID B. RICE, TRUSTEES OF
CONCORD ASSOCIATES FOSTER STREET TRUST
BK. 14680 PG. 362
PLAN NO 1314 OF 1981
PARCEL #R09 33 0
300 FOSTER STREET

ANTHONY J. RIZZOLO, JR. & JOSEPHINE RIZZO
BK. 17691 PG. 108
PLAN NO 831 OF 1973
PARCEL #R09 5 G
290 FOSTER STREET

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Ploter: AUTOCAD PDF (GENERAL DOCUMENTATION) PC3 CTB File: MADOT-D.STB
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LAYER STATE: -



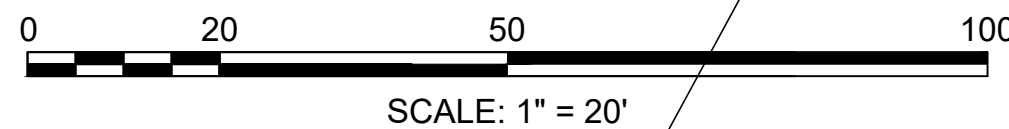
LITTLETON

RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXX(XXX)X	XX	XX
PROJECT FILE NO.		609054	

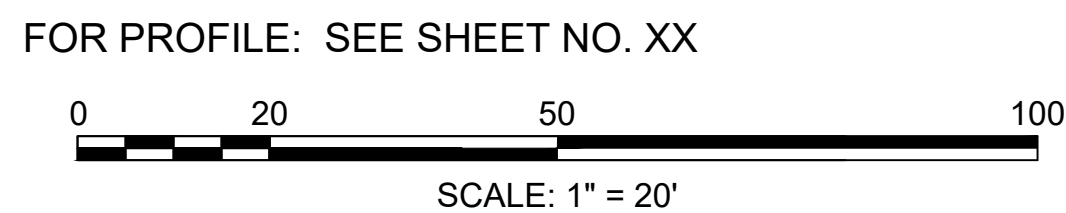
CURB AND BASELINE TIE PLAN

FOR PROFILE: SEE SHEET NO. XX

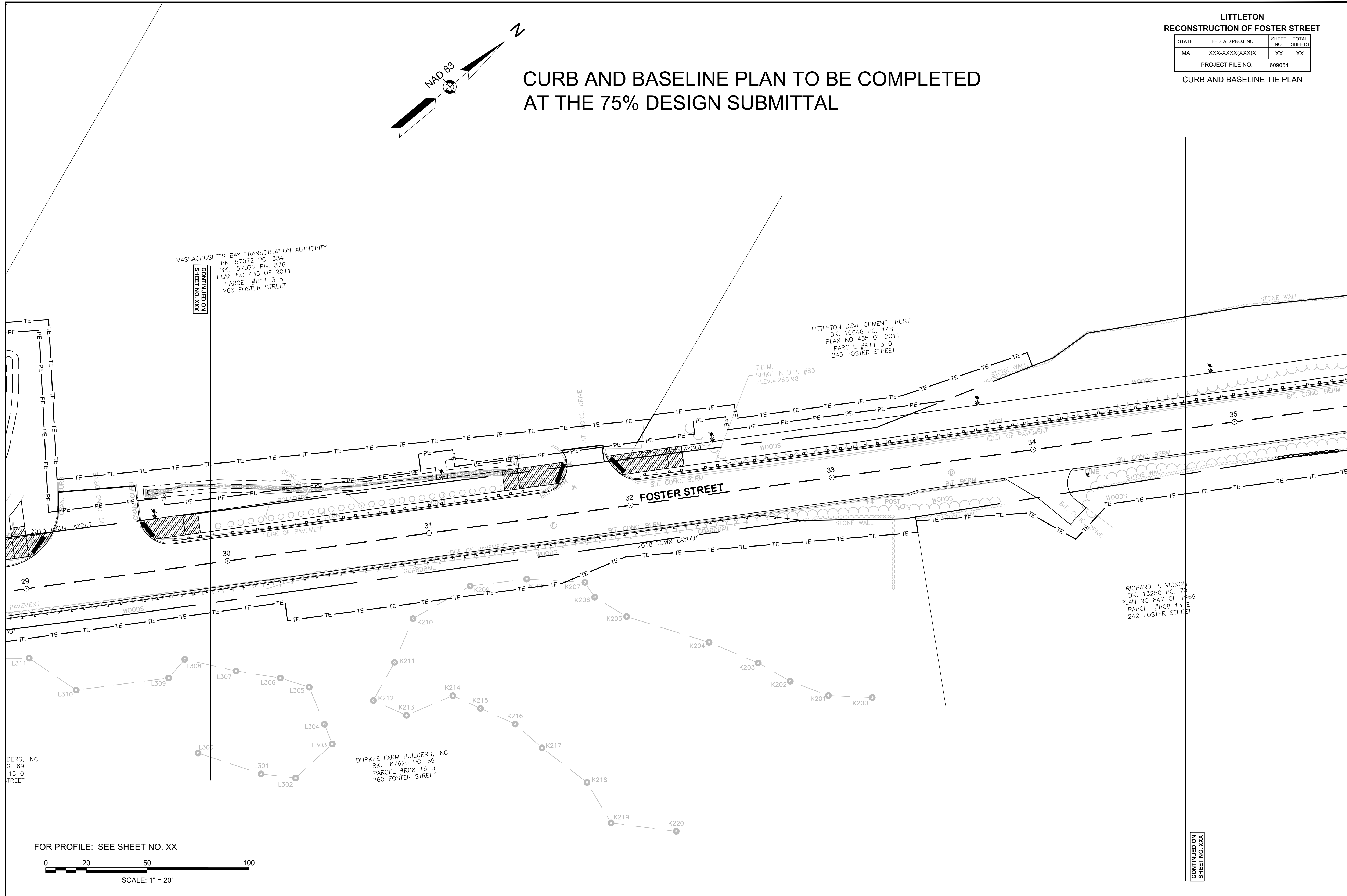


CONTINUED ON
SHEET NO. XX

LITTLETON			
RECONSTRUCTION OF FOSTER STREET			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	XX	XX
PROJECT FILE NO.		609054	



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MS VIEW: -
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LAYER STATE: -



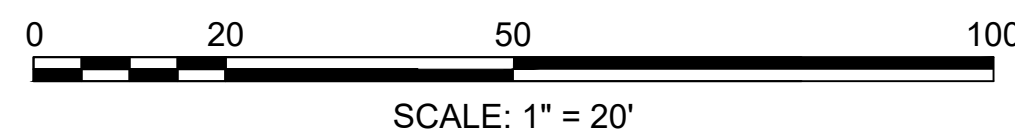
LITTLETON

RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXX(XXX)X	XX	XX
PROJECT FILE NO.		609054	

CURB AND BASELINE TIE PLAN

FOR PROFILE: SEE SHEET NO. XX



CONTINUED ON
SHEET NO. XXX

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MS VIEW: - Plotted: AUTOCAD PDF (GENERAL DOCUMENTATION) PC3 CTB File: MADOT-D.STB

LAYER STATE: -

20170044A21_ALN01.DWG Plotted on 31-May-2019 2:52 PM

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXX(XXX)X	XX	XX
PROJECT FILE NO.		609054	

CURB AND BASELINE TIE PLAN

EDWARD A. & PATRICIA A. MARGIZIAN
BK. 12244 PG. 258
PARCEL #R11 5 4
237 FOSTER STREET

END OF PROJECT
PROJ. NO. 609054
STA 39+36.15
N3015278.1762
E656130.7752

LITTLETON DEVELOPMENT TRUST
BK. 10646 PG. 148
PLAN NO 435 OF 2011
PARCEL #R11 3 0
245 FOSTER STREET

QUINN E. & JENNIFER A. CANFIELD
BK. 55588 PG. 290
PLAN NO 188 OF 1971
PARCEL #R08 13 D
238 FOSTER STREET

RICHARD B. VIGNONI
BK. 13250 PG. 70
PLAN NO 847 OF 1969
PARCEL #R08 13 E
242 FOSTER STREET

RICHARD B. VIGNONI
BK. 13250 PG. 70
PLAN NO 847 OF 1969
PARCEL #R08 13 E
242 FOSTER STREET

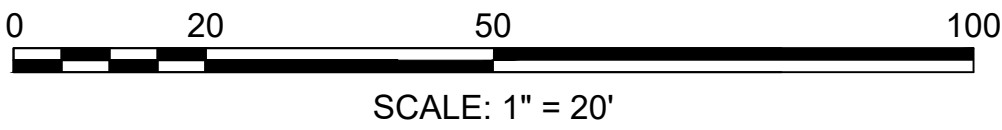
CURB AND BASELINE PLAN TO BE COMPLETED
AT THE 75% DESIGN SUBMITTAL

NAD 83

N

CONTINUED ON
SHEET NO. XX

FOR PROFILE: SEE SHEET NO. XX



STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	XX	XX
PROJECT FILE NO.		609054	

GRADING PLAN

GRADING PLAN TO BE COMPLETED AT THE 75% DESIGN SUBMITTAL

2641-2651 SANTA ANNA AVENUE, LLC
BK. 68756 PG. 572
PLAN NO 1425 OF 1981
PARCEL #R10 2 1
305 FOSTER STREET

JOHN K. GRADY, TRUSTEE OF THE
FOSTER/TAYLOR REALTY TRUST
BK. 25198 PG. 143
PLAN NO 228 OF 1992
PARCEL #R09 32 0
230 TAYLOR STREET

LIMIT OF WORK
STA 205+00.00
N3012961.1452
E653254.4709

LIMIT OF WORK
STA 201+28.19
N3012602.2313
E653351.1021

BEGINNING OF PROJECT
PROJ. NO. 609054
STA 0+00.00
N3012786.8847
E653296.9381

TALOR STREET, LITTLETON TRUST
BK. 32096 PG. 215
PARCEL #R10 7 0
225 TAYLOR STREET

TALOR STREET, LITTLETON TRUST
BK. 32096 PG. 213

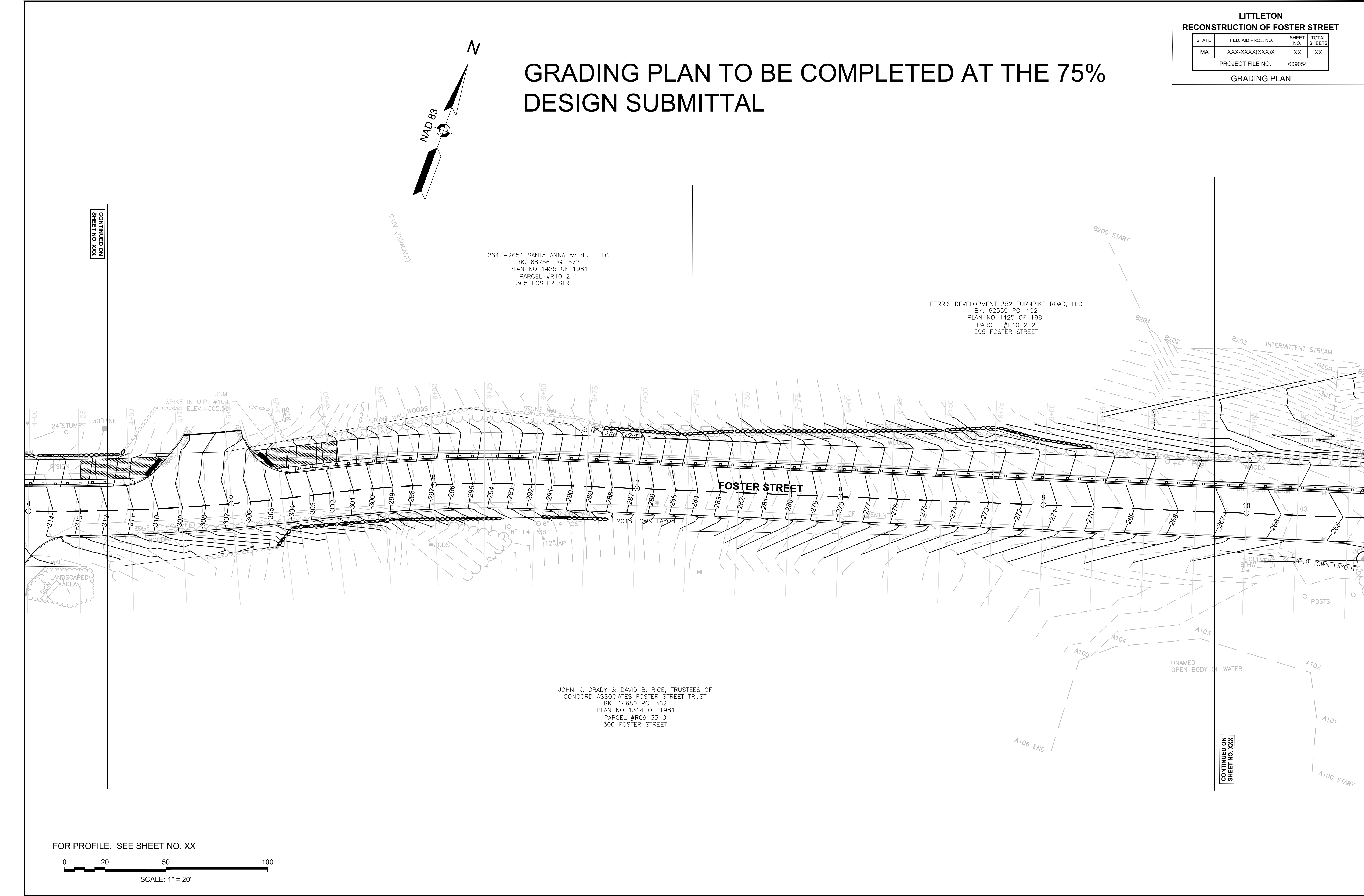
FOR PROFILE: SEE SHEET NO. XX

0 20 50 100

SCALE: 1" = 20'

**CONTINUED ON
SHEET NO. XXX**

File Path: J:\DWG\2017\0044\A21\Civil\Plan\20170044A21_GRA01.dwg Layout: GRA02 Plotted: Fri, May 31, 2019 - 4:01 PM User: nlapointe
MS VIEW: - Ploter: AUTOCAD PDF (GENERAL DOCUMENTATION) PC3 CTB File: MADOT-D.STB



GRADING PLAN TO BE COMPLETED AT THE 75% DESIGN SUBMITTAL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	XX	XX
PROJECT FILE NO.		609054	

GRADING PLAN

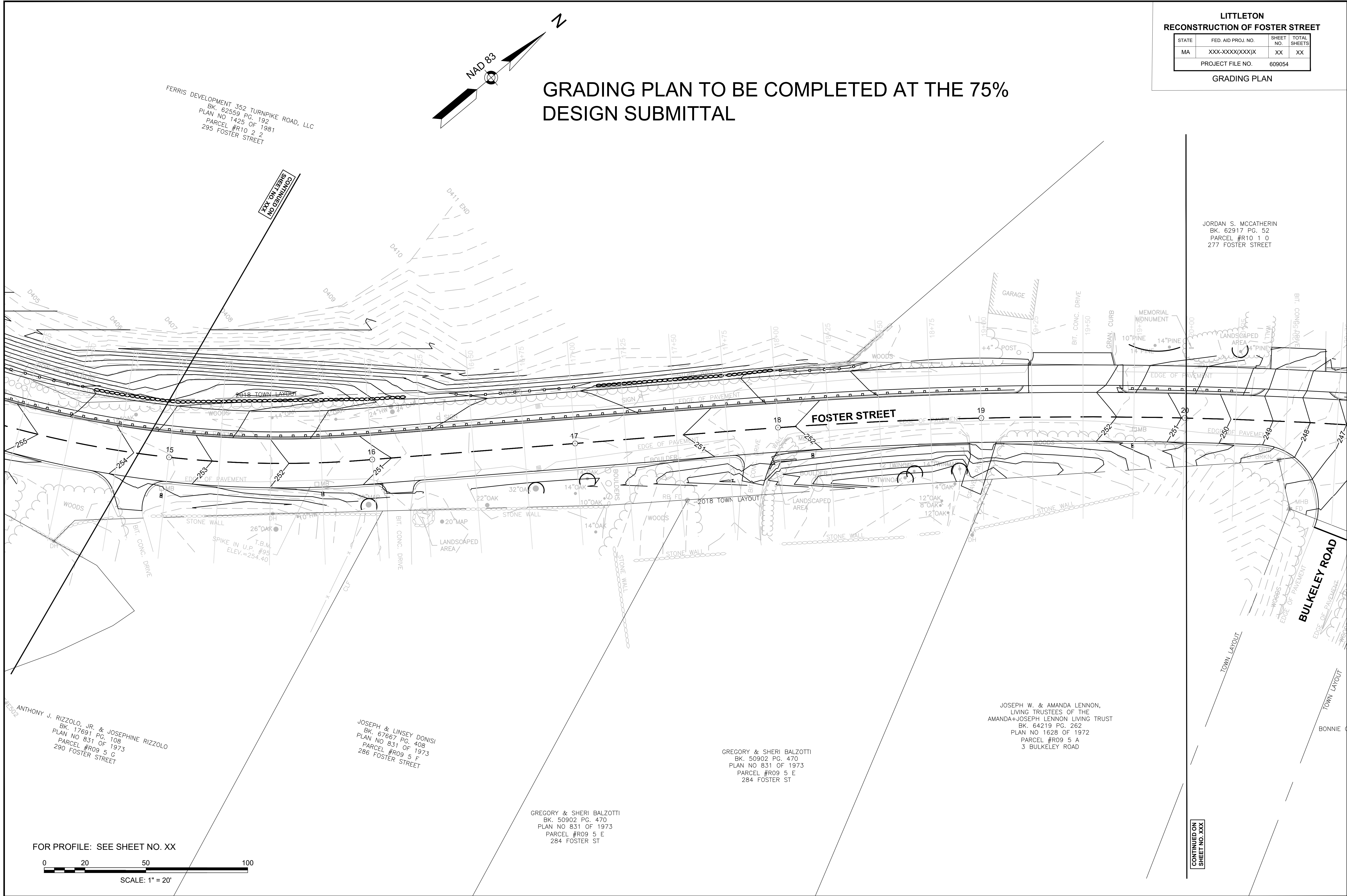
**CONTINUED ON
SHEET NO. XXX**

CONTINUED ON



SCALE: 1" = 20'

File Path: J:\DWG\2017\0044A21\Civil\Plan\20170044A21_GRA01.dwg Layout: GRA04 Plotted: Fri, May 31, 2019 - 4:02 PM User: nlapointe
Plotter: AUTOCAD PDF (GENERAL DOCUMENTATION) PC3 CTB File: MADOT-D.STB
MS VIEW: - LAYER STATE: -



GRADING PLAN TO BE COMPLETED AT THE 75% DESIGN SUBMITTAL

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXX(XXX)X	XX	XX
PROJECT FILE NO.		609054	

GRADING PLAN

FOR PROFILE: SEE SHEET NO. XX
0 20 50 100
SCALE: 1" = 20'

CONTINUED ON
SHEET NO. XX

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MS VIEW: - Ploter: AUTOCAD PDF (GENERAL DOCUMENTATION) PC3 CTB File: MADOT-D.STB

H W. & AMANDA LENNON,
TRUSTEES OF THE
JOSEPH LENNON LIVING TRUST
BK. 64219 PG. 262
PLAN NO 1628 OF 1972
PARCEL #R09 5 A
3 BULKELEY ROAD

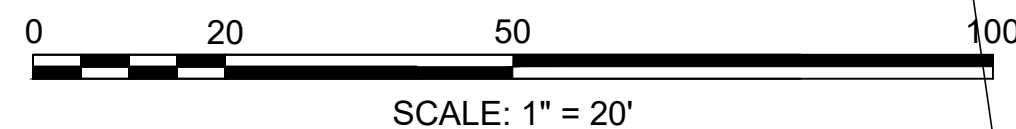
CONTINUED ON
SHEET NO. XXX

JORDAN S. MCCATHERIN
BK. 62917 PG. 52
PARCEL #R10 1 0
277 FOSTER STREET

BULKELEY ROAD

BONNIE COOPER & GINNY M. MAHER-COOPER
BK. 32345 PG. 306
PLAN NO 1018 OF 1972
PARCEL #R09 1 0
2 BULKELEY ROAD

FOR PROFILE: SEE SHEET NO. XX



NAD 83
STATE HIGHWAY LAYOUT NO. 3675
BK. 7515 PG. 424

GRADING PLAN TO BE COMPLETED AT THE 75% DESIGN SUBMITTAL

1949 STATE HIGHWAY LAYOUT NO. 3675
BK. 7515 PG. 424

1950 STATE HIGHWAY LAYOUT NO. 3711
BK. 7553 PG. 391

FOSTER STREET

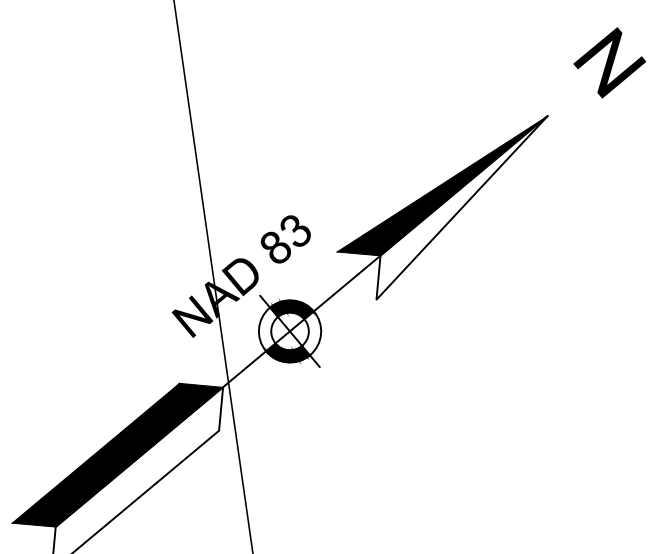
1949 STATE HIGHWAY LAYOUT NO. 3675
BK. 7515 PG. 424

LITTLETON RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXX(XXX)X	X	XX
PROJECT FILE NO.		609054	

GRADING PLAN

CONTINUED ON
SHEET NO. XXX



GRADING PLAN TO BE COMPLETED AT THE 75% DESIGN SUBMITTAL

LITTLETON RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXX(XXX)X	XX	XX
PROJECT FILE NO.		609054	

GRADING PLAN

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
BK. 57072 PG. 384
BK. 57072 PG. 376
PLAN NO. 435 OF 2011
PARCEL #R11 3 5
263 FOSTER STREET

FOSTER STREET ASSOCIATED LIMITED PARTNERSHIP
BK. 18443 PG. 364
PLAN NO. 268 OF 1987
PARCEL #R11 1 0
265 FOSTER STREET

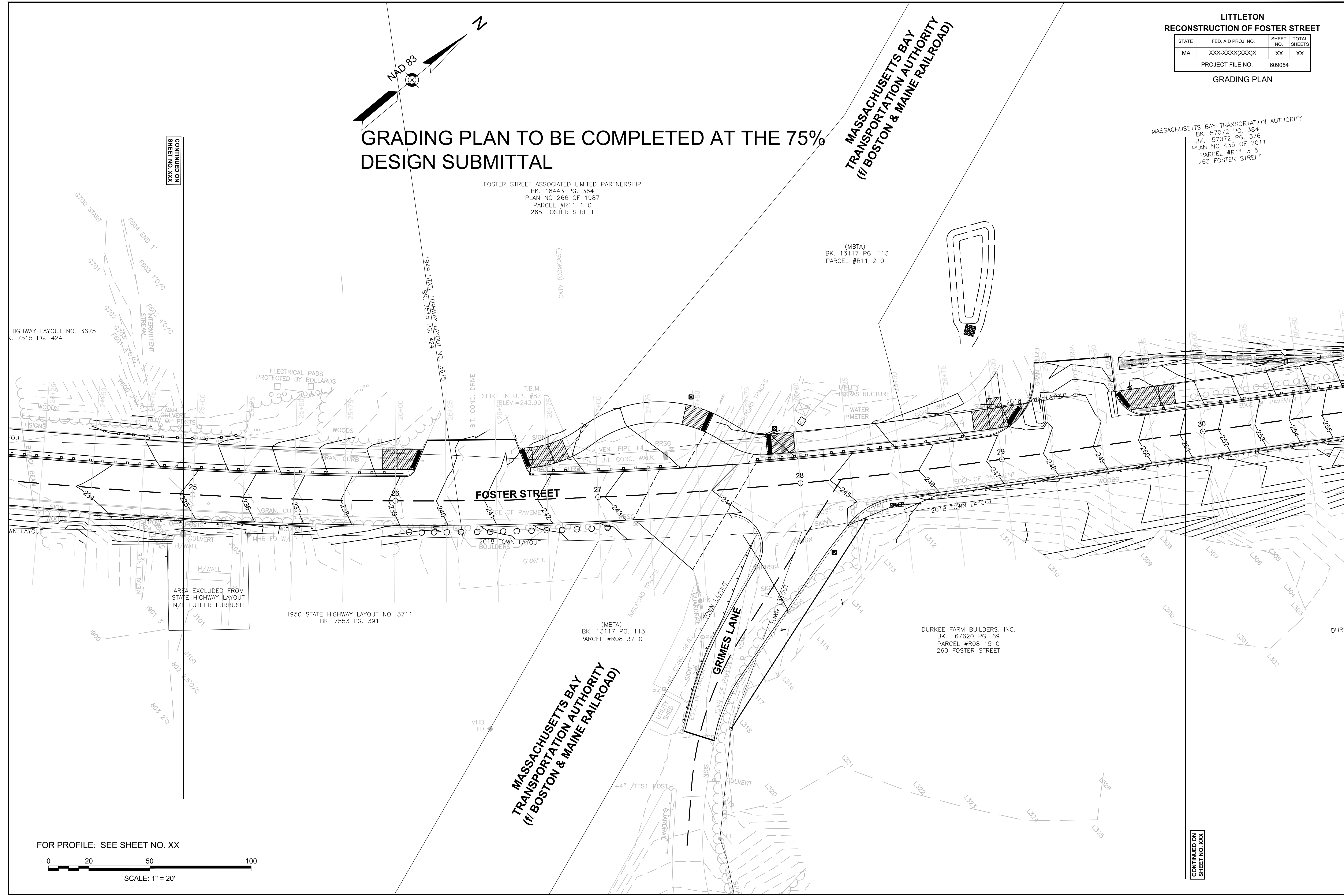
(MBTA)
BK. 13117 PG. 113
PARCEL #R11 2 0

(MBTA)
BK. 13117 PG. 113
PARCEL #R08 37 0

DURKEE FARM BUILDERS, INC.
BK. 67620 PG. 69
PARCEL #R08 15 0
260 FOSTER STREET

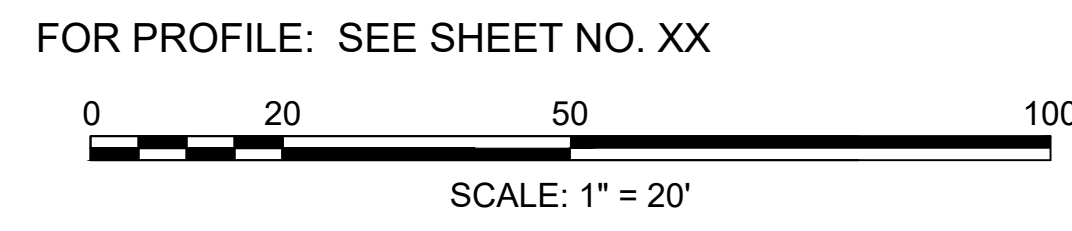
MASSACHUSETTS BAY
TRANSPORTATION AUTHORITY
(f/ BOSTON & MAINE RAILROAD)

MASSACHUSETTS BAY
TRANSPORTATION AUTHORITY
(f/ BOSTON & MAINE RAILROAD)

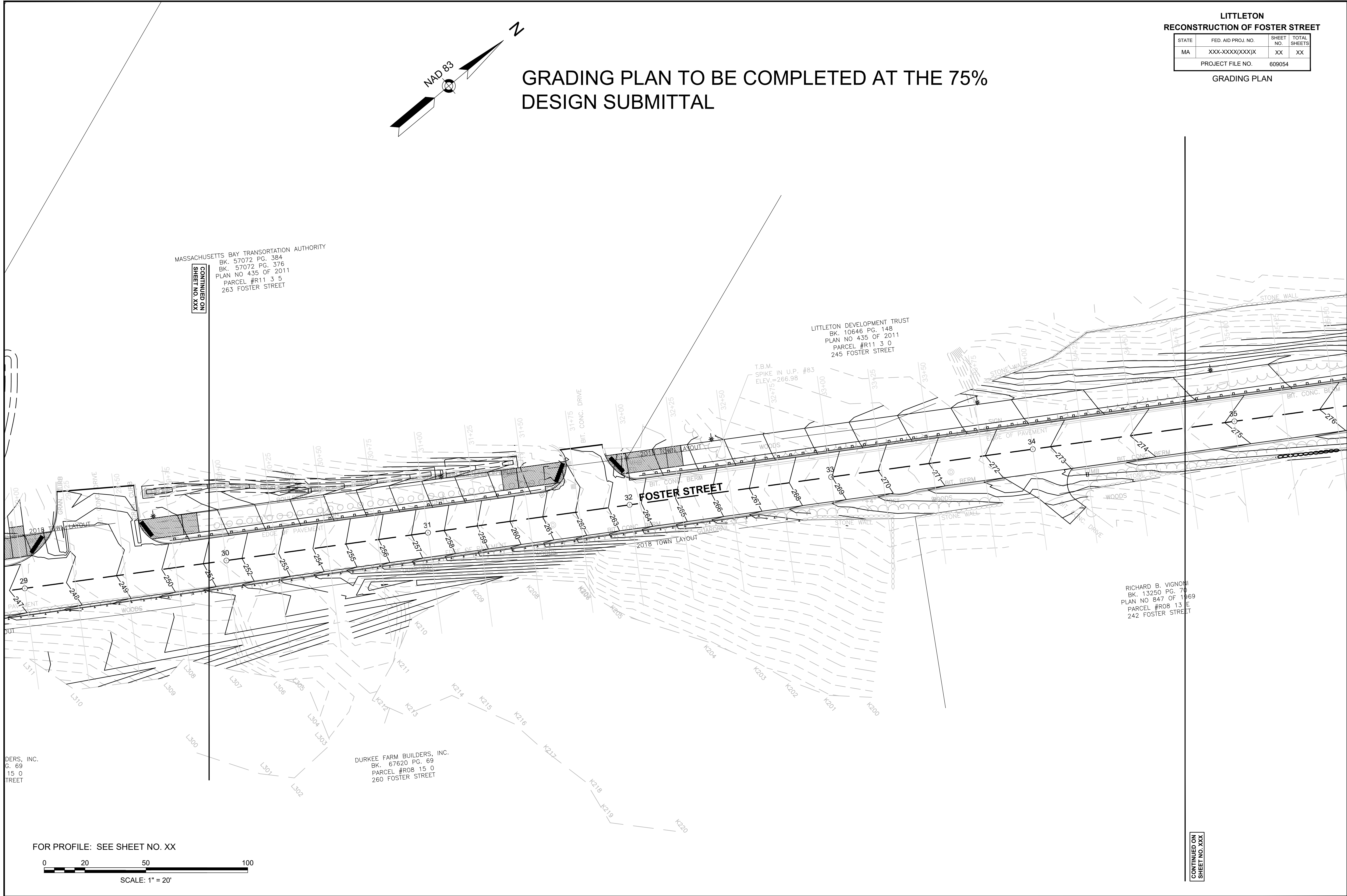


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SHEET NO. XXX



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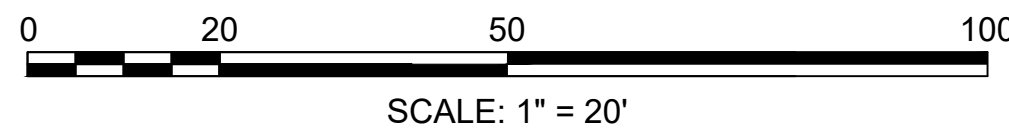


LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	XX	XX
PROJECT FILE NO.		609054	

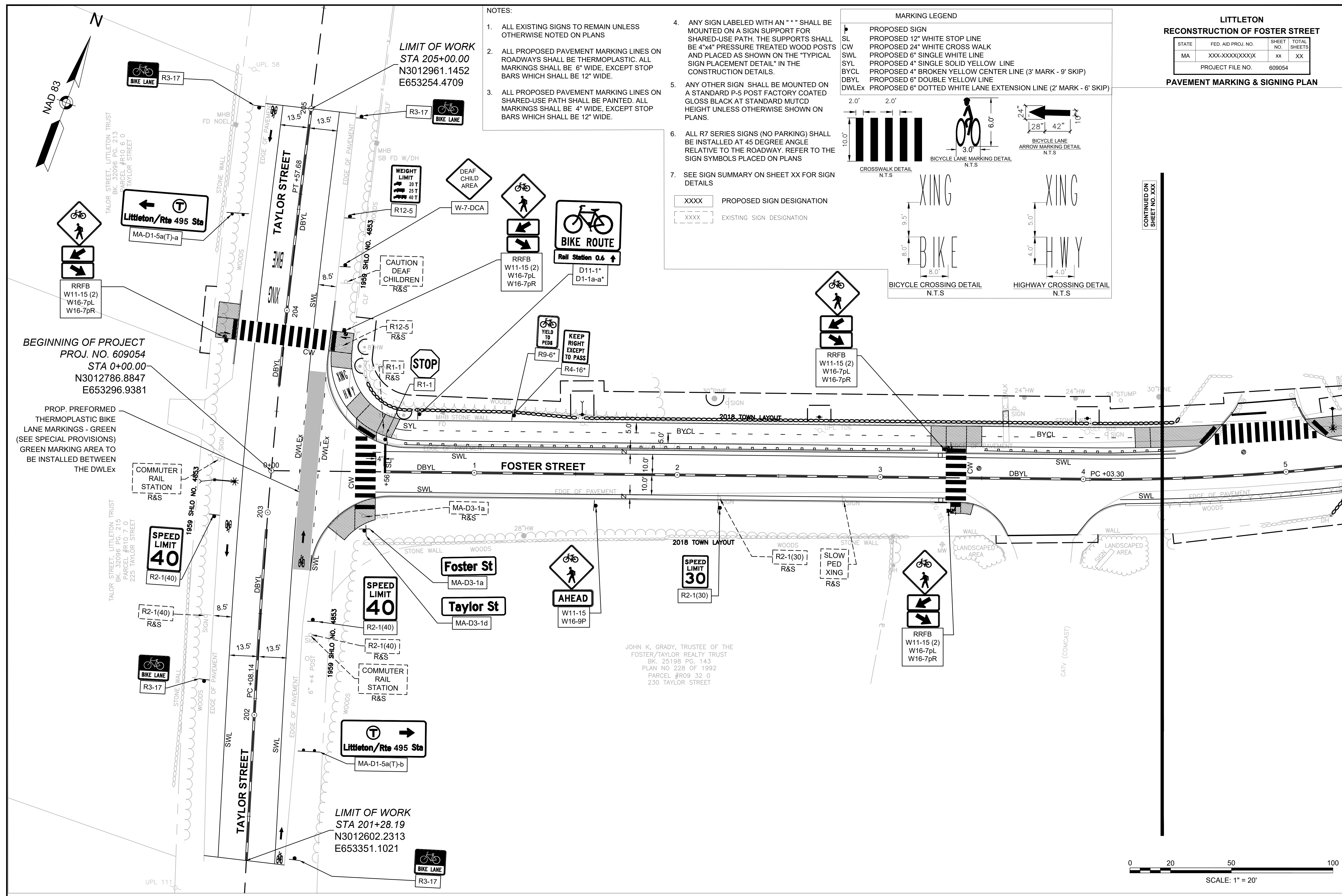
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FOR PROFILE: SEE SHEET NO. XX



CONTINUED ON
SHEET NO. XX

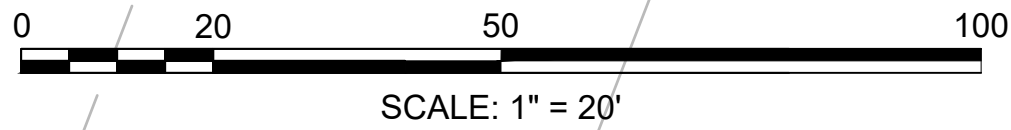
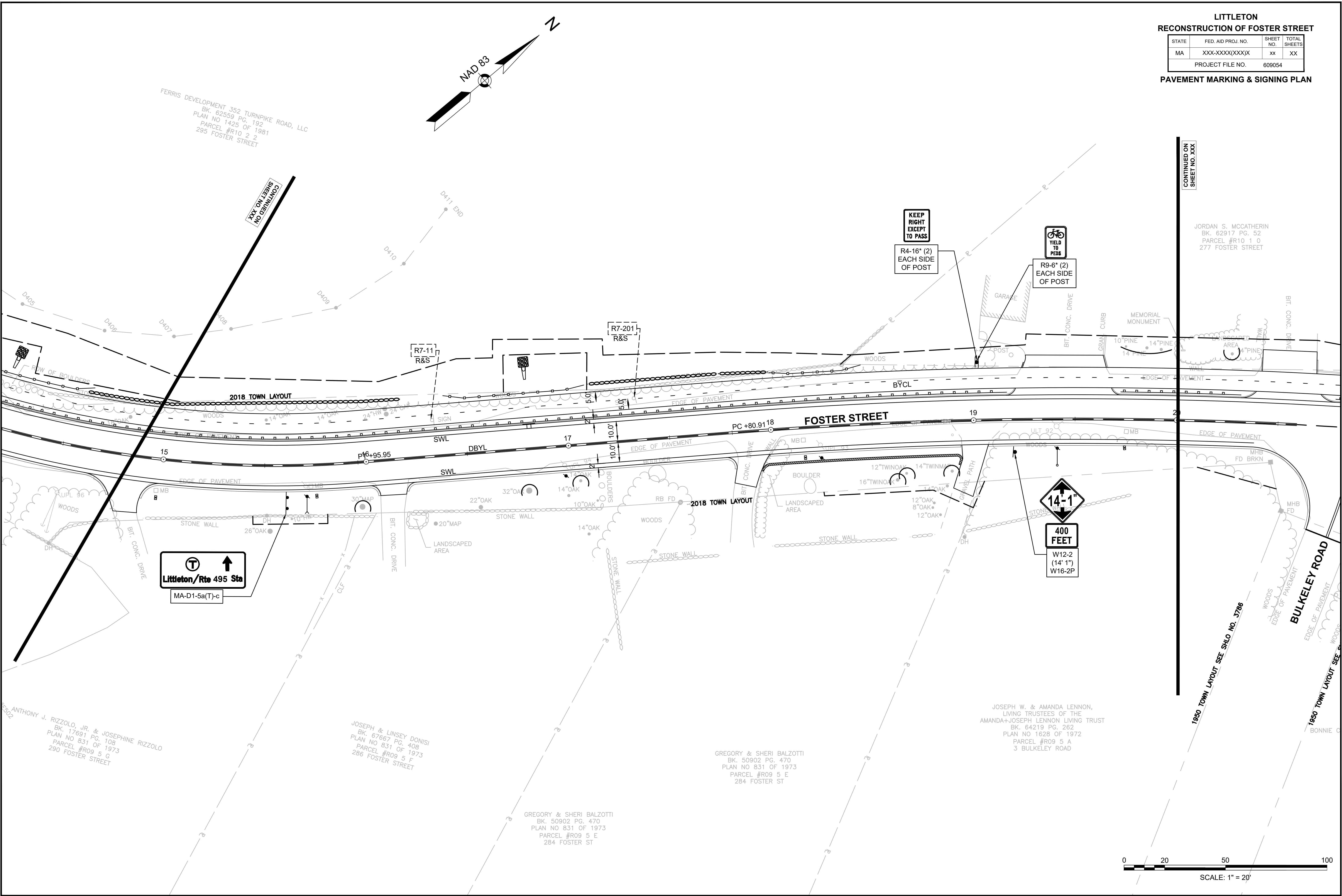
FOR PROFILE: SEE SHEET NO. XX



LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXX(XXX)X	XX	XX
PROJECT FILE NO.		609054	

PAVEMENT MARKING & SIGNING PLAN



LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	xx	XX
PROJECT FILE NO.		609054	

PAVEMENT MARKING & SIGNING PLAN

EDWARD A. & PATRICIA A. NARGIZIAN
BK. 12244 PG. 258
PARCEL #R11 5 4
237 FOSTER STREET

END OF PROJECT
PROJ. NO. 609054
STA 39+36.15
N3015278.1762
E656130.7752

W11-15
W16-p



MA-D1-5a(T)-c
Littleton/Rte 495 Sta



RRFB
W11-15 (2)
W16-7pR
W16-7pL

NO MOTOR VEHICLES
R5-3*

BIKE ROUTE
Rail Station 0.1
Taylor St 0.7
D11-1*
D1-2a*



KEEP RIGHT EXCEPT TO PASS
R4-16*

LITTLETON DEVELOPMENT TRUST
BK. 10646 PG. 148
PLAN NO 435 OF 2011
PARCEL #R11 3 0
245 FOSTER STREET

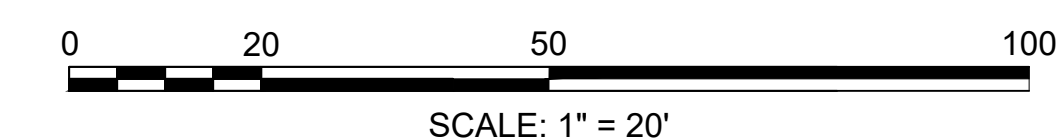
SPEED LIMIT
30
R2-1(30)



W11-15
W16-9P

RICHARD B. VIGNONI
BK. 13250 PG. 70
PLAN NO 847 OF 1969
PARCEL #R08 13 E
242 FOSTER STREET

RICHARD B. VIGNONI
BK. 13250 PG. 70
PLAN NO 847 OF 1969
PARCEL #R08 13 D
242 FOSTER STREET



NOTES:
HIGH INTENSITY ENCAPSULATED LENS REFLECTIVE SHEETING SHALL BE USED FOR ALL SIGNS. THE 2009 "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", THE 1990 MDPW "STANDARD DRAWINGS FOR SIGNS AND SUPPORTS", AND ALL ADMENDMENTS WILL GOVERN.

ALL P5 SIGN POSTS SHALL BE FACTORY COATED GLOSS BLACK
(PBS) = PAINTED BOTH SIDES

ANY SIGN LABELED WITH AN " * " SHALL BE MOUNTED ON A SIGN SUPPORT FOR SHARED-USE PATH. THE SUPPORTS SHALL BE 4"x4" PRESSURE TREATED WOOD POSTS AND PLACED AS SHOWN ON THE "TYPICAL SIGN PLACEMENT DETAIL" IN THE CONSTRUCTION DETAILS.

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	XX	XX
PROJECT FILE NO.		609054	

TRAFFIC SIGN SUMMARY

IDENTIFI- CATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (in)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	SIGN FACE AREA (S.F.)	TOTAL AREA (S.F.)	
	WIDTH (IN)	HEIGHT (IN)		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.		BACK- GROUND	LEGEND	BORDER				
R1-1	30	30		SEE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (INCLUDING LATEST REVISION)			4	RED	WHITE	WHITE	P-5 4 REQ'D	6	TO BE PROVIDED AT 75% DESIGN	
R1-1b*	18	18					2	RED	WHITE	WHITE	4X4 PRESSURE TREATED WOOD 2 REQ'D	2		
R2-1 (30)	30	36					3	WHITE	BLACK	BLACK	P-5 3 REQ'D	7.5		
R2-1 (40)	30	36					2	WHITE	BLACK	BLACK	P-5 2 REQ'D	7.5		
R3-17	30	24					4	WHITE	BLACK	BLACK	P-5 4 REQ'D	5		
R4-16*	18	24					3	WHITE	BLACK	BLACK	4X4 PRESSURE TREATED WOOD 3 REQ'D	3		
R5-3*	24	24					1	WHITE	BLACK	BLACK	4X4 PRESSURE TREATED WOOD 1 REQ'D	4		
R7-1D	12	18					10	WHITE	RED	RED	P-5 10 REQ'D	1.5		
R9-6*	18	24					3	WHITE	BLACK	BLACK	MOUNTED W R4-16	3		
R12-5	36	24					1	WHITE	BLACK	BLACK	P-5 1 REQ'D	6		
R15-1	48	48					5	WHITE	BLACK	BLACK	MOUNTED ON GATE POST	6		
R15-1b	24	24					2	WHITE	BLACK	BLACK	MOUNTED ON GATE POST	2		
R15-2	27	18					5	WHITE	BLACK	BLACK	MOUNTED ON GATE POST	3		
R15-2b	13.5	9					2	WHITE	BLACK	BLACK	MOUNTED ON GATE POST	1		
OM-3L	12	36					2	YELLOW	BLACK	BLACK	P-5 2 REQ'D	3		
OM-3R	12	36					2	YELLOW	BLACK	BLACK	P-5 2 REQ'D	3		
W7-DCA	36	36					1	YELLOW	BLACK	BLACK	P-5 1 REQ'D	9		

IDENTIFI- CATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (in)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	SIGN FACE AREA (S.F.)	TOTAL AREA (S.F.)	
	WIDTH (IN)	HEIGHT (IN)		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.		BACK- GROUND	LEGEND	BORDER				
W10-1	30	30		SEE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (INCLUDING LATEST REVISION)			5	YELLOW	BLACK	BLACK	P-5 5 REQ'D	5	TO BE PROVIDED AT 75% DESIGN	
W11-15	36	36					15	YELLOW	BLACK	BLACK	12 MOUNTED ON RRFD POST, P-5 3 REQ'D	9		
W12-2	36	36					3	YELLOW	BLACK	BLACK	P-5 3 REQ'D	9		
W12-2a	84	24					2	YELLOW	BLACK	BLACK	MOUNTED ON BRIDGE BEAM	14		
W16-2P-400	24	18					1	YELLOW	BLACK	BLACK	MOUNTED W/ W12-2	3		
W16-2P-600	24	18					1	YELLOW	BLACK	BLACK	MOUNTED W/ W12-2	3		
W16-2P-1000	24	18					1	YELLOW	BLACK	BLACK	MOUNTED W/ W12-2	3		
W16-7pL	24	12					6	YELLOW	BLACK	BLACK	MOUNTED W/ W11-15	2		
W16-7pR	24	12					6	YELLOW	BLACK	BLACK	MOUNTED W/ W11-15	2		
W16-9p	36	36					4	YELLOW	BLACK	BLACK	MOUNTED W/ W11-15	2		
D1-1a-a*	24	6					1	GREEN	WHITE	WHITE	MOUNTED WITH D-11	1		
D1-1a-b*	24	6					1	GREEN	WHITE	WHITE	MOUNTED WITH D-11	1		
D1-1a-c*	24	6					1	GREEN	WHITE	WHITE	MOUNTED WITH D-11	1		
D1-1a-d*	24	6					1	GREEN	WHITE	WHITE	MOUNTED WITH D-11	1		
D1-1a-e*	24	6					1	GREEN	WHITE	WHITE	MOUNTED WITH D-11	1		
D1-2a*	24	12					1	GREEN	WHITE	WHITE	MOUNTED WITH D-11	2		
D-11*	24	18					6	GREEN	WHITE	WHITE	4X4 PRESSURE TREATED WOOD 4 REQ'D	3		

ANY SIGN LABELED WITH AN "S" SHALL BE MOUNTED ON A SIGN SUPPORT FOR SHARED-USE PATH. THE SUPPORTS SHALL BE 4"x4" PRESSURE TREATED WOOD POSTS AND PLACED AS SHOWN ON THE "TYPICAL SIGN PLACEMENT DETAIL" IN THE CONSTRUCTION DETAILS.

TRAFFIC SIGN SUMMARY

UCS: X	IMS VIEW: X	LMAN: X	STB: X
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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 NCHRP REPORT 350, "RECOMMENDED PROCEDURES FOR THE SAFETY PERFORMANCE EVALUATION OF HIGHWAY FEATURES" AND/OR "MANUAL FOR ASSESSING SAFETY HARDWARE" (MASH).
- CONTRACTORS SHALL NOTIFY EACH ADJUTER 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 FIVE PLASTIC DRUMS OF A TAPER SHALL BE MOUNTED WITH TYPE A 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.
- MINIMUM 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 (3.3m) 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
- P/F POLICE/FLAGGER DETAIL
- TYPE III BARRICADE
- CHANGEABLE MESSAGE SIGN
- ARROW BOARD
- WORK ZONE
- DIRECTION OF TRAFFIC
- IMPACT ATTENUATOR
- MEDIAN BARRIER
- MEDIAN BARRIER WITH WARNING LIGHTS
- WORK VEHICLE
- TRUCK MOUNTED ATTENUATOR
- TRAFFIC OR PEDESTRIAN SIGNAL
- SIGN

THE IDEAL CAPACITY OF A MAJOR HIGHWAY IS GENERALLY CONSIDERED TO BE 1900 PASSENGER CARS PER HOUR PER LANE (PCPHPL). IN WORK ZONES ON A MULTI-LANE DIVIDED HIGHWAY, THE FOLLOWING VOLUME GUIDELINES HAVE BEEN SUGGESTED:

MEASURED AVERAGE WORK ZONE CAPACITIES

NUMBER OF LANES		NUMBER OF STUDIES	AVERAGE CAPACITY	
NORMAL (EXISTING)	OPEN (TO TRAFFIC)		VPH	VPHPL
3	1	7	1,170	1,170
2	1	8	1,340	1,340
4	2	4	2,740	1,370
2	1	4	2,480	1,480
3	2	9	2,980	1,490
4	3	4	4,560	1,520

Source: Druhan, C., Notes on Work Zone Capacity and Level of Service, Texas Transportation Institute, Texas A&M University, College Station, Texas (1984)

BY OBTAINING HOURLY TRAFFIC COUNTS FOR A PARTICULAR ROADWAY (WITH A MINIMUM OF A 48-HOUR AUTOMATIC TRAFFIC RECORDER (ATR) COUNT), THIS WILL HELP TO DETERMINE AT WHAT TIMES OF THE DAY OR NIGHT A CERTAIN NUMBER OF LANES MAY BE CLOSED.



Standard Details and Drawings for the Development of Temporary Traffic Control Plans

FIGURE Gen-1
GENERAL GUIDELINES

SUGGESTED WORK ZONE WARNING SIGN SPACING

ROAD TYPE	DISTANCE BETWEEN SIGNS **		
	A	B	C
LOCAL OR LOW VOLUME ROADWAYS*	350 (100)	350 (100)	350 (100)
MOST OTHER ROADWAYS*	500 (150)	500 (150)	500 (150)
FREWAYS AND EXPRESSWAYS*	1,000 (300)	1,500 (450)	2,840 (800)

* ROAD TYPE TO BE DETERMINED BY MASSDOT OFFICE OF TRANSPORTATION PLANNING.

** DISTANCES ARE SHOWN IN FEET (METERS). THE COLUMN HEADINGS A, B, AND C ARE THE DIMENSIONS SHOWN IN THE DETAIL/ TYPICAL SETUP FIGURES. THE A DIMENSION IS THE DISTANCE FROM THE TRANSITION OR POINT OF RESTRICTION TO THE FIRST SIGN. THE B DIMENSION IS THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS. THE C DIMENSION IS THE DISTANCE BETWEEN THE SECOND AND THIRD SIGNS. (THE "THIRD" SIGN IS THE FIRST ONE TYPICALLY ENCOUNTERED BY A DRIVER APPROACHING A TEMPORARY TRAFFIC CONTROL (TTC) ZONE.)

THE "THIRD" SIGN ABOVE IS TYPICALLY REFERRED TO AS AN "ADVANCE WARNING" SIGN ON THE TTC SETUPS. THESE ADVANCE WARNING SIGNS ARE LOCATED PRIOR TO THE PROJECT LIMITS ON ALL APPROACHES (i.e. THE W20-1 SERIES (ROAD WORK XX FT) SIGNS), AND USUALLY REMAIN FOR THE DURATION OF THE PROJECT. ADDITIONAL SIGNS (i.e. "RIGHT LANE CLOSED 1 MILE" AND "LEFT LANE CLOSED 1 MILE") HAVE BEEN SHOWN IN SOME FIGURES AS EXAMPLES OF REINFORCEMENT SIGN PLACEMENT BUT ARE USED IN RARE OCCASIONS.

THE FIRST AND SECOND WARNING SIGNS ABOVE ARE REFERRED TO AS THE OPERATIONAL (DAY-TO-DAY) WORK ZONE SIGNS AND MAY BE MOVED DEPENDING ON WHERE THE SPECIFIC ROADWAY WORK FOR THAT DAY IS LOCATED.

R2-10a SIGNS SHALL BE PLACED BETWEEN THE SECOND AND THIRD SIGNS AS DESCRIBED ABOVE.
R2-10a, R2-10a, AND W20-1 SERIES SIGNS ARE TO BE INCLUDED ON ALL DETAILS/TYPICAL SETUPS.

Based on: Table 6C-1 MUTCD LATEST EDITION

STOPPING SIGHT DISTANCE AS A FUNCTION OF SPEED

SPEED* (km/h)	DISTANCE (m)	SPEED* (mph)	DISTANCE (ft)
30	35	20	115
40	50	25	155
50	85	30	200
60	125	40	305
70	165	45	380
80	205	50	425
90	245	55	495
100	285	60	570
110	325	65	645
120	365	70	730
		75	820

*POSTED SPEED, OFF-PEAK 85TH-PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICIPATED OPERATING SPEED

THESE VALUES MAY BE USED TO DETERMINE THE LENGTH OF LONGITUDINAL BUFFER SPACES.

THE DISTANCES IN THE ABOVE CHART REPRESENT THE MINIMAL VALUES FOR BUFFER SPACING.

Source: Table 6C-2 MUTCD LATEST EDITION



Notes for Temporary Traffic Control Plans

FIGURE Gen-2
NOTES ON WORK ZONE DISTANCES

CONVENTIONAL ROADWAY- A STREET OR HIGHWAY OTHER THAN A LOW-VOLUME ROAD, EXPRESSWAY, OR FREEWAY.

EXPRESSWAY- A DIVIDED HIGHWAY WITH PARTIAL CONTROL OF ACCESS.

FREEWAY- A DIVIDED HIGHWAY WITH FULL CONTROL OF ACCESS.

LOW-VOLUME ROAD- A FACILITY LYING OUTSIDE OF BUILT-UP AREAS OF CITIES, TOWNS, AND COMMUNITIES, AND IT SHALL HAVE A TRAFFIC VOLUME OF LESS THAN 400 ADT. IT SHALL NOT BE A FREEWAY, EXPRESSWAY, INTERCHANGE RAMP, FREEWAY SERVICE ROAD OR A ROAD ON A DESIGNATED STATE HIGHWAY SYSTEM.

Source: MUTCD LATEST EDITION

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.(15 m) 100 FT(30 m) MAX.
DOWNSTREAM TAPER	50 FT MIN.(15 m) 100 FT MAX.(30 m) PER LANE

Source: Table 6C-3 MUTCD LATEST EDITION

FORMULAS FOR DETERMINING TAPER LENGTHS

SPEED LIMIT (S)	TAPER LENGTH (L) FEET	SPEED LIMIT (S)	TAPER LENGTH (L) Meters
40 MPH OR LESS	$L = \frac{WS^2}{60}$	60 KM/H OR LESS	$L = \frac{WS^2}{155}$
45 MPH OR MORE	$L = WS$	70 KM/H OR MORE	$L = \frac{WS}{1.6}$

WHERE: L = TAPER LENGTH IN FEET (METERS)

W = WIDTH OF OFFSET IN FEET (METERS)

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

Source: Table 6C-4 MUTCD LATEST EDITION



Notes for Temporary Traffic Control Plans

FIGURE Gen-3
NOTES ON WORK ZONE DISTANCES

GENERAL NOTES:

- IF ANY STAGE REQUIRES MODIFICATION OF THE TRAFFIC SIGNAL OPERATION, THE CONTRACTOR SHALL SUBMIT A REVISED SIGNAL TIMING AND PHASING PLAN TO THE CITY OF NORTHAMPTON FOR APPROVAL BEFORE MODIFYING THE TRAFFIC SIGNAL.
- CONTRACTOR SHALL CONSTRUCT SIDEWALK IN SMALLER SECTIONS THAN SHOWN ON STAGING PLANS OR PEDESTRAIN MANAGEMENT PLANS IN ORDER TO MAINTAIN ACCESS TO BUILDINGS. THE CONTRACTOR SHALL COORDINATE WITH BUSINESS OWNERS ON ALL WORK IN FRONT OF THEIR BUILDINGS.
- ALL TRAFFIC MANAGEMENT CONFIGURATIONS SHALL CONFORM TO THE STANDARD MassDOT DETAILS ON THE FOLLOWING SHEETS AND APPLY TO ALL LOCATIONS INCLUDED IN THE CONTRACT.

THE CONTRACTOR SHALL BE PERMITTED TO PERFORM TEMPORARY ROADWAY OR LANE CLOSURES FROM 8:00 A.M. TO 3:00 P.M. CHANGES TO THESE TIMES REQUIRE APPROVAL FROM THE CITY OF NORTHAMPTON

- ALL TRENCHES IN THE ROADWAY SHALL EITHER BE BACKFILLED AND PATCHED WITH HOT MIX ASPHALT, COVERED WITH BEVELED EDGES STEEL PLATES, OR HOT MIX ASPHALT AROUND STEEL PLATES BEFORE REOPENING THE ROADWAY TO TRAFFIC. UNBEVELED STEEL PLATE MAY BE USED IF HMA WEDGES ARE PLACED IN ACCORDANCE WITH THE LONGITUDINAL DROP OFF DETAIL.
- COVER ALL EXISTING SIGNAGE THAT CONFLICTS WITH THE TRAFFIC MANAGEMENT SETUP IN PLACE.
- PORTABLE CHANGEABLE MESSAGE BOARDS (PCMB) SHALL BE USED ON THE PROJECT SITE; THESE SIGNS SHALL ADVISE MOTORISTS TO EXPECT DELAYS, AND ADVISE TRAILER TRUCKS OF RESTRICTED LANE WIDTHS (AND POSSIBLE DETOUR ROUTES) ON SPECIFIC APPROACHES DURING CERTAIN STAGES OF CONSTRUCTION.
- THE CONTRACTOR SHALL PLACE TWO PORTABLE CHANGEABLE MESSAGE BOARDS (PCMB) ON THE PROJECT SITE, FOR SEVEN DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
- ALL ADVANCED SIGNAGE SHALL REMAIN IN PLACE FOR THE DURATION OF THE PROJECT.

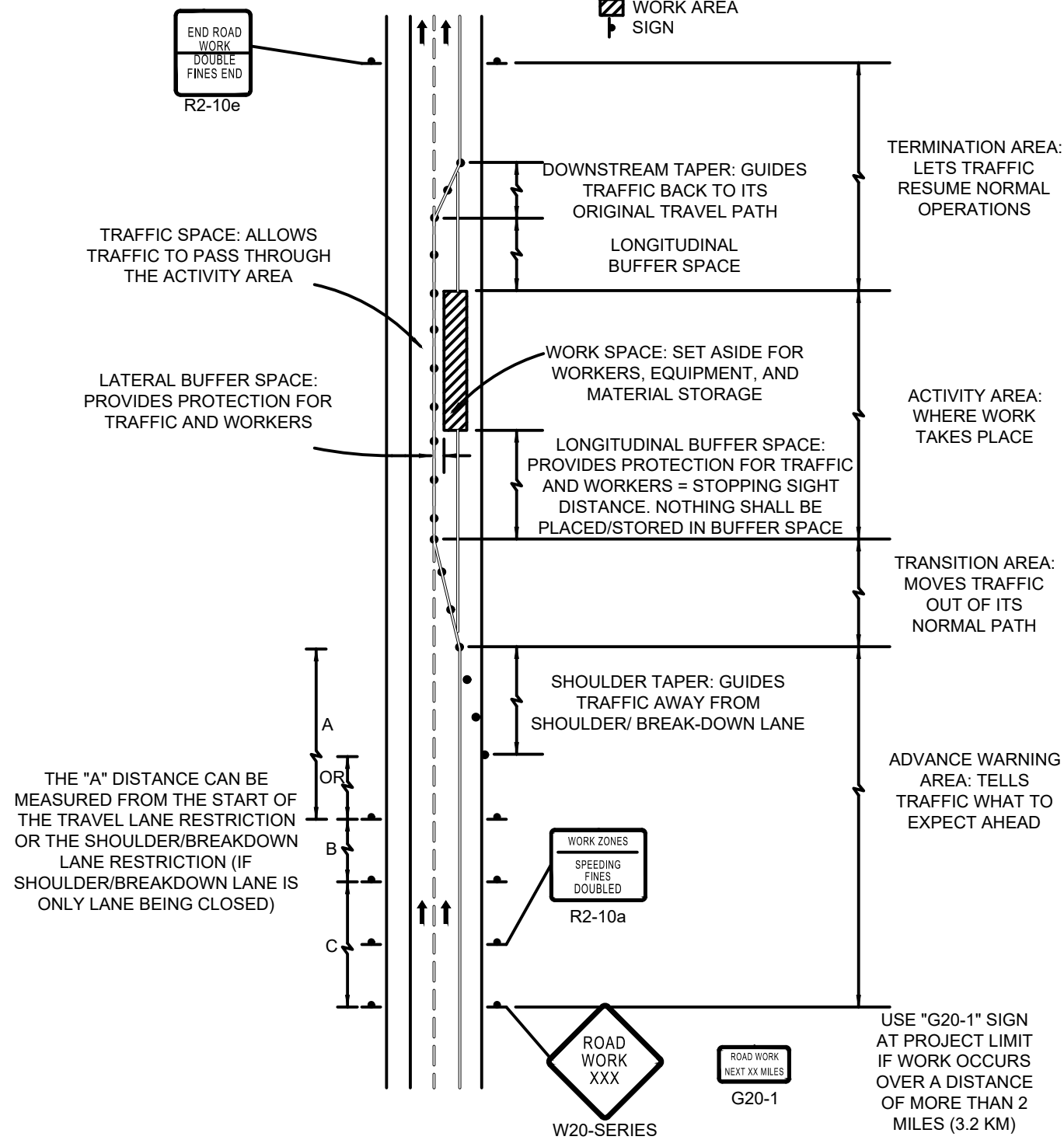
FOSTER STREET

ROADWAY TYPE	URBAN COLLECTOR
ADT	2,100
DISTANCE "A"	350 FT
DISTANCE "B"	350 FT
DISTANCE "C"	350 FT
ANTICIPATED SPEED	30 MPH

THE DIMENSIONS FOR A* & B* MAY REQUIRE FIELD ADJUSTMENTS DUE TO THE URBAN NATURE OF THE PROJECT AREA.

- IF FLAGGERS ARE USED FOR TRAFFIC CONTROL, THE FLAGGER SIGN (W20-7a) SHALL BE SUBSTITUTED FOR THE POLICE OFFICER AHEAD (W20-7b) SIGN.
- FOR EXISTING OR TEMPORARY CROSSWALKS IN A PEDESTRIAN BYPASS AREA (E.G. FIGURE PED-3 STANDARD DETAILS) THERE SHALL BE A PEDESTRIAN WARNING SIGN WITH PLACARD (W11-2 AND W16-7P) ON EACH APPROACH (TRAVEL DIRECTION) AT THE CROSSWALK.

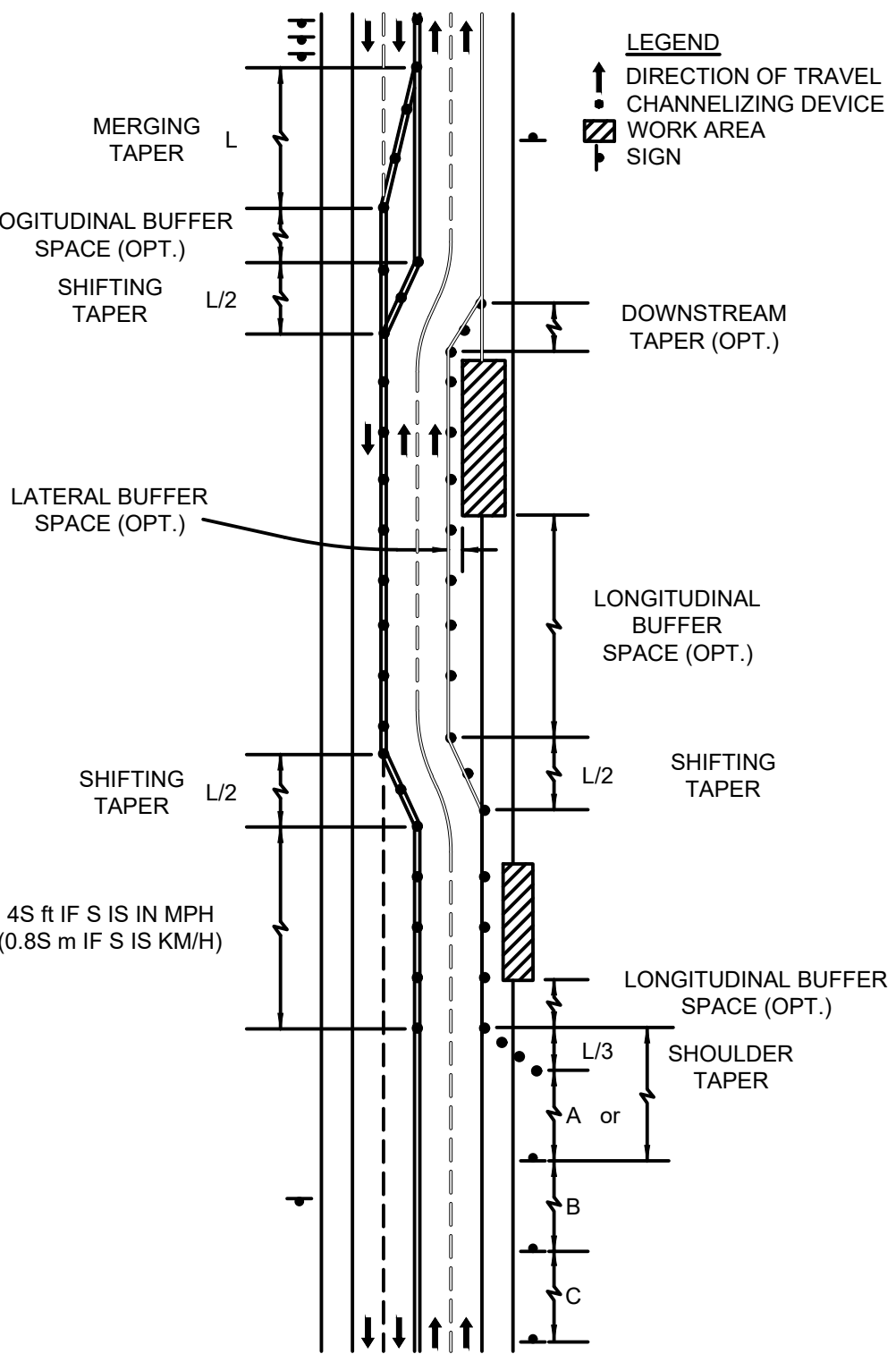
LEGEND
↑ DIRECTION OF TRAVEL
↓ CHANNELIZING DEVICE
WORK AREA
SIGN



Standard Details and Drawings for the Development of Temporary Traffic Control Plans

FIGURE Gen-4
COMPONENT PARTS OF A TEMPORARY TRAFFIC CONTROL (TTC) ZONE
NOT TO SCALE

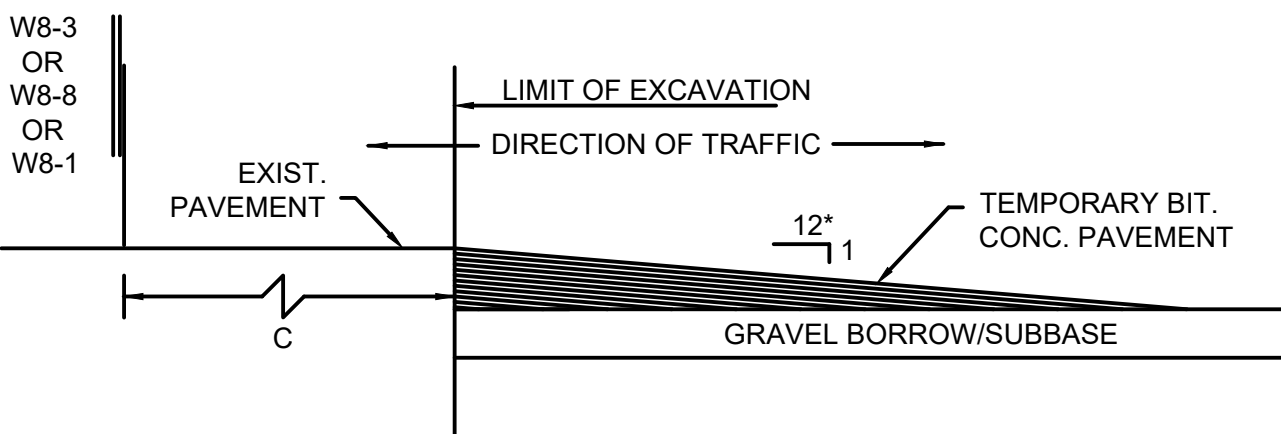
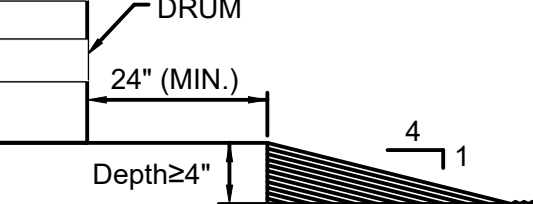
LEGEND
↑ DIRECTION OF TRAVEL
↓ CHANNELIZING DEVICE
WORK AREA
SIGN



Standard Details and Drawings for the Development of Temporary Traffic Control Plans

FIGURE Gen-5
TYPES OF TAPERS AND BUFFER SPACES
NOT TO SCALE

LATERAL DROP-OFF DETAIL



* - INCREASE SLOPE RATIO FOR HIGHER SPEEDS

LATERAL AND LONGITUDINAL DROP-OFF DETAILS



Standard Details and Drawings for the Development of Temporary Traffic Control Plans

FIGURE Gen-6
LATERAL AND LONGITUDINAL DROP-OFF DETAILS
NOT TO SCALE

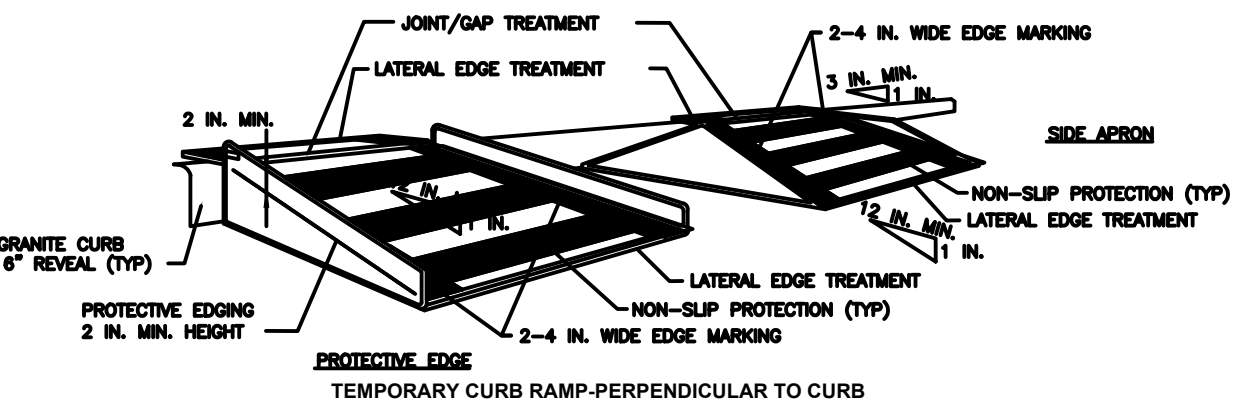
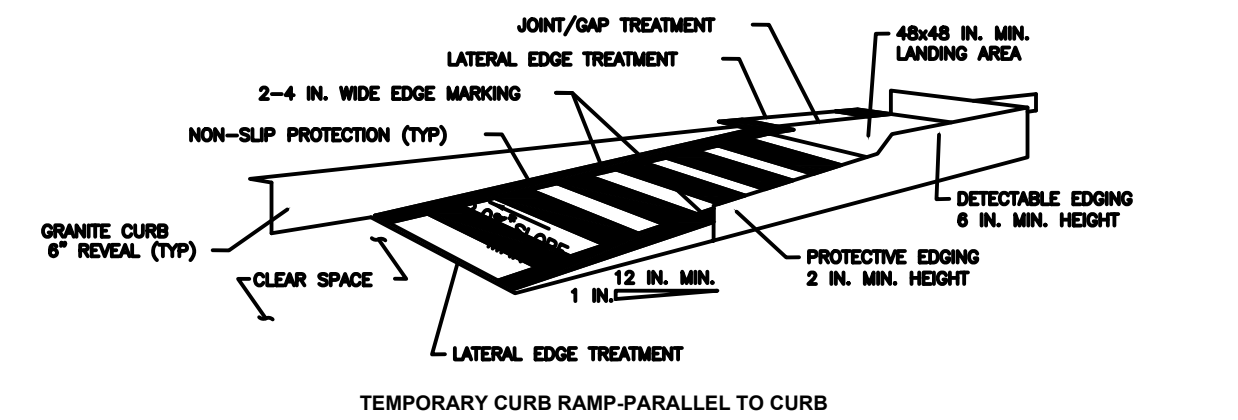
LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXX(XXX)X	XX	XX
PROJECT FILE NO.		609054	

TEMPORARY TRAFFIC CONTROL PLANS

NOTES:

1. CURB RAMPS SHALL BE 60 IN. MINIMUM WIDTH WITH A FIRM, STABLE AND NON-SLIP SURFACE.
2. PROTECTIVE EDGING WITH A 2 IN. MINIMUM HEIGHT SHALL BE INSTALLED WHEN THE CURB RAMP OR LANDING PLATFORM HAS A VERTICAL DROP OF 6 IN. OR GREATER OR HAS A SIDE APRON SLOPE STEEPER THAN 1:3 (33%). PROTECTIVE EDGING SHOULD BE CONSIDERED WHEN THE CURB RAMPS OR LANDING PLATFORMS HAVE A VERTICAL DROP OF 3 IN. OR MORE.
3. DETECTABLE EDGING WITH 6 IN. MINIMUM HEIGHT AND CONTRASTING COLOR SHALL BE INSTALLED ON ALL CURB RAMP LANDINGS WHERE THE WALKWAY CHANGES DIRECTION (TURNS).
4. CURB RAMPS AND LANDINGS SHOULD HAVE A 1:50 (2%) MAX CROSS-SLOPE.
5. CLEAR SPACE OF 48x48 IN. MINIMUM SHALL BE PROVIDED ABOVE AND BELOW THE CURB RAMP.
6. THE CURB RAMP WALKWAY EDGE SHALL BE MARKED WITH A CONTRASTING COLOR 2 TO 4 IN. WIDE MARKING. THE MARKING IS OPTIONAL WHERE COLOR CONTRASTING EDGING IS USED.
7. WATER FLOW IN THE GUTTER SYSTEM SHALL HAVE MINIMAL RESTRICTION.
8. LATERAL JOINTS OR GAPS BETWEEN SURFACES SHALL BE LESS THAN 0.5 IN. WIDTH.
9. CHANGES BETWEEN SURFACE HEIGHTS SHOULD NOT EXCEED 0.5 IN. LATERAL EDGES SHOULD BE VERTICAL UP TO 0.25 IN. HIGH AND BEVELED AT 1:2 BETWEEN 0.25 IN. AND 0.5 IN. HEIGHT.

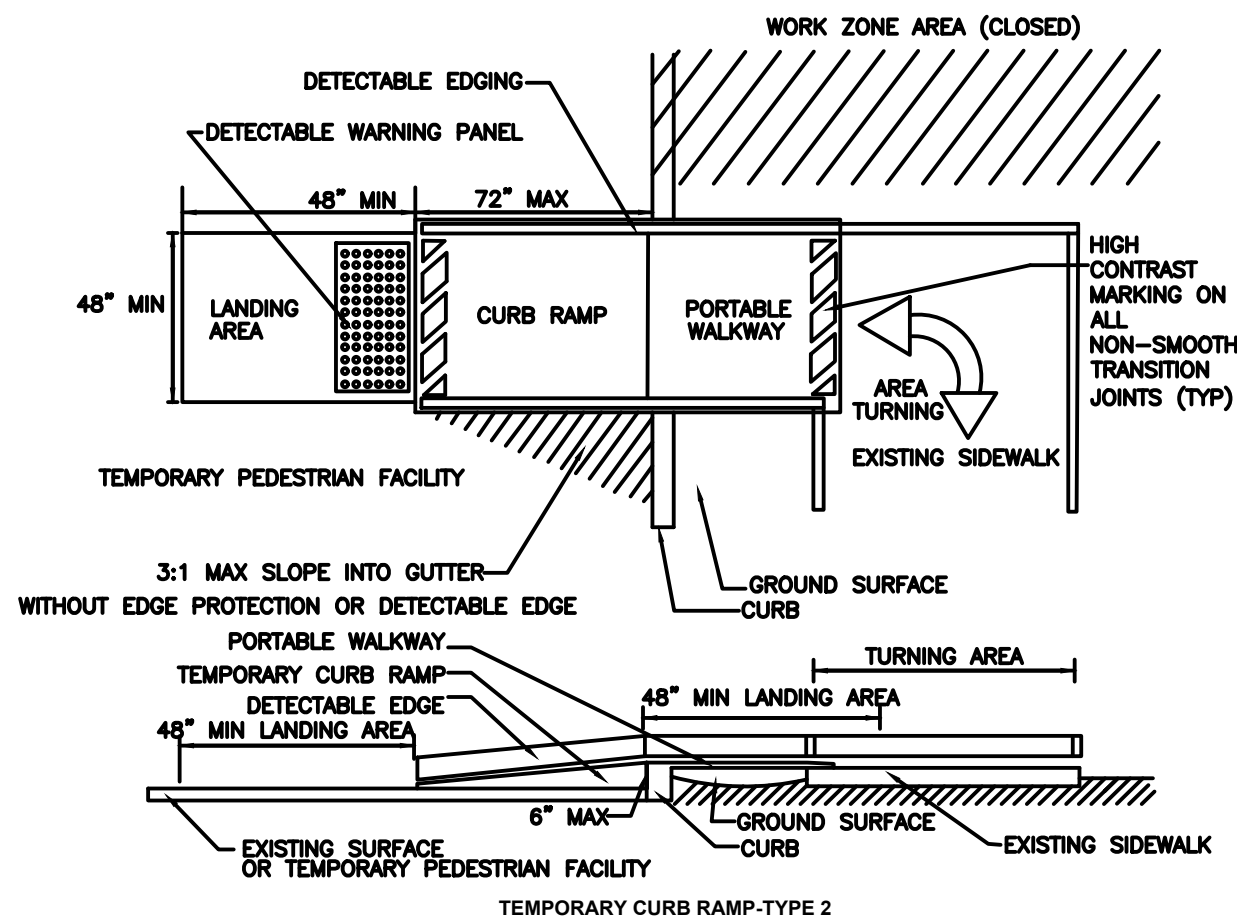


PEDESTRIAN DETAILS



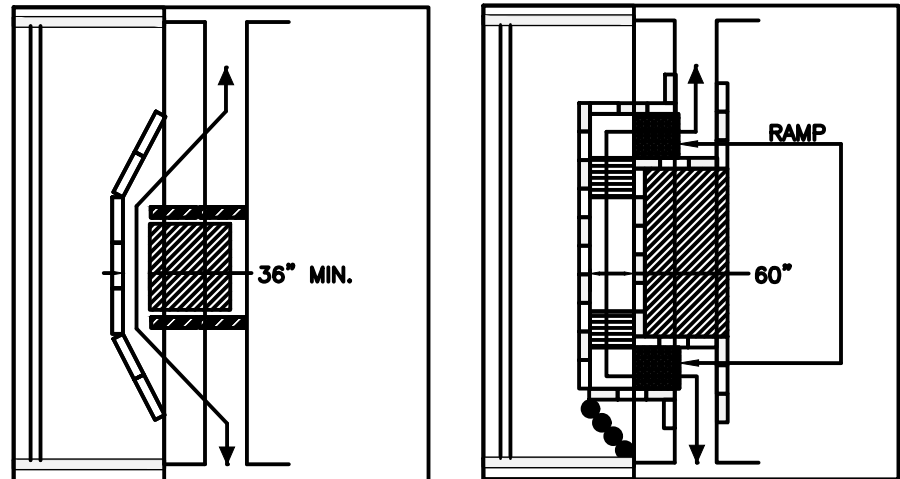
Standard Details
and Drawings
for the Development of
Temporary Traffic
Control Plans

FIGURE Ped-1
PEDESTRIAN DETAILS
NOT TO SCALE



Standard Details
and Drawings
for the Development of
Temporary Traffic
Control Plans

FIGURE Ped-2
PEDESTRIAN DETAILS
NOT TO SCALE



- When existing pedestrian facilities are disrupted, closed, or relocated in a TTC zone, temporary facilities shall be provided and they shall be detectable and include accessibility features consistent with the features present in the existing pedestrian facility.
- A pedestrian channelizing device that is detectable by a person with a visual disability traveling with the aid of a long cane shall be placed across the full width of the closed sidewalk.
- When used, temporary ramps shall comply with Americans with Disabilities Act (see Figures Ped-1 & Ped-2).
- The alternate pathway should have a smooth continuous hard surface for the entire length of the temporary pedestrian facility.
- The protective requirements of a TTC situation have priority in determining the need for temporary traffic barriers and their use in this situation should be based on engineering judgment.
- Audible information devices should be considered where midblock crossings and changed crosswalk areas cause inadequate communication to be provided to pedestrians who have visual disabilities.

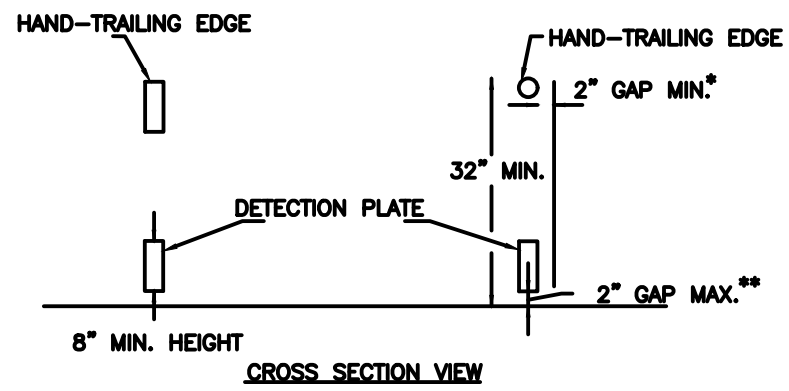
AUDIBLE DEVICES
For long term sidewalk closures (at a minimum overnight) a form of speech messaging for pedestrians with visual disabilities shall be provided. Audible information devices such as detectable barriers or barricades and other passive pedestrian activation (motion activated) devices should be considered for these cases. These audible devices can be mountable or stand alone.

PEDESTRIAN DETAILS



Standard Details
and Drawings
for the Development of
Temporary Traffic
Control Plans

FIGURE Ped-3
PEDESTRIAN DETAILS
NOT TO SCALE



NOTES:

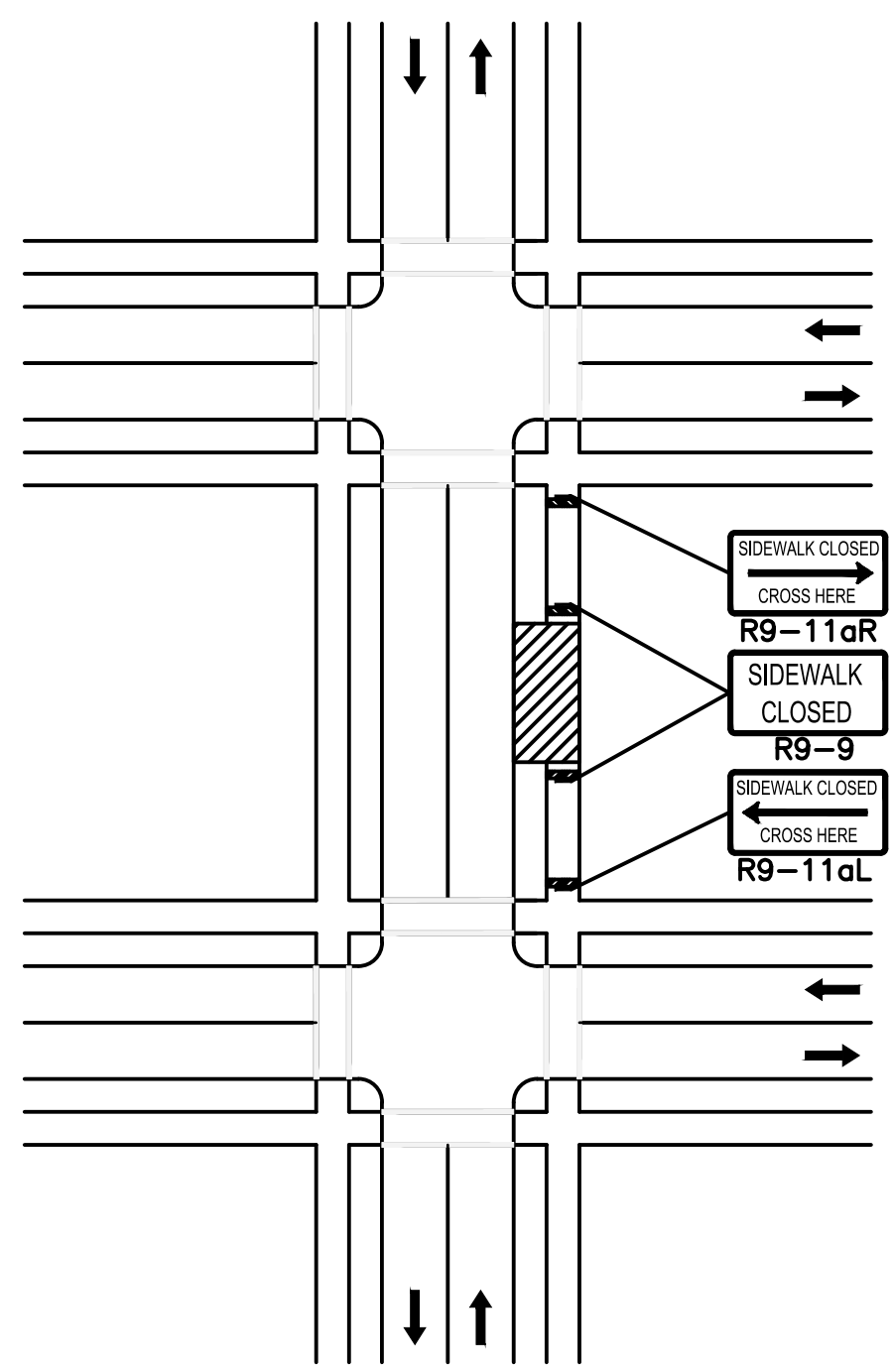
- * THERE SHALL BE A 2 INCH GAP BETWEEN THE HAND-TRAILING EDGE AND ITS SUPPORT.
- ** A MAXIMUM 2 INCH GAP BETWEEN THE BOTTOM OF THE BOTTOM RAIL AND THE SURFACE MAY BE USED TO PROVIDE DRAINAGE.

PEDESTRIAN DETAILS



Standard Details
and Drawings
for the Development of
Temporary Traffic
Control Plans

FIGURE Ped-4
PEDESTRIAN DETAILS
NOT TO SCALE

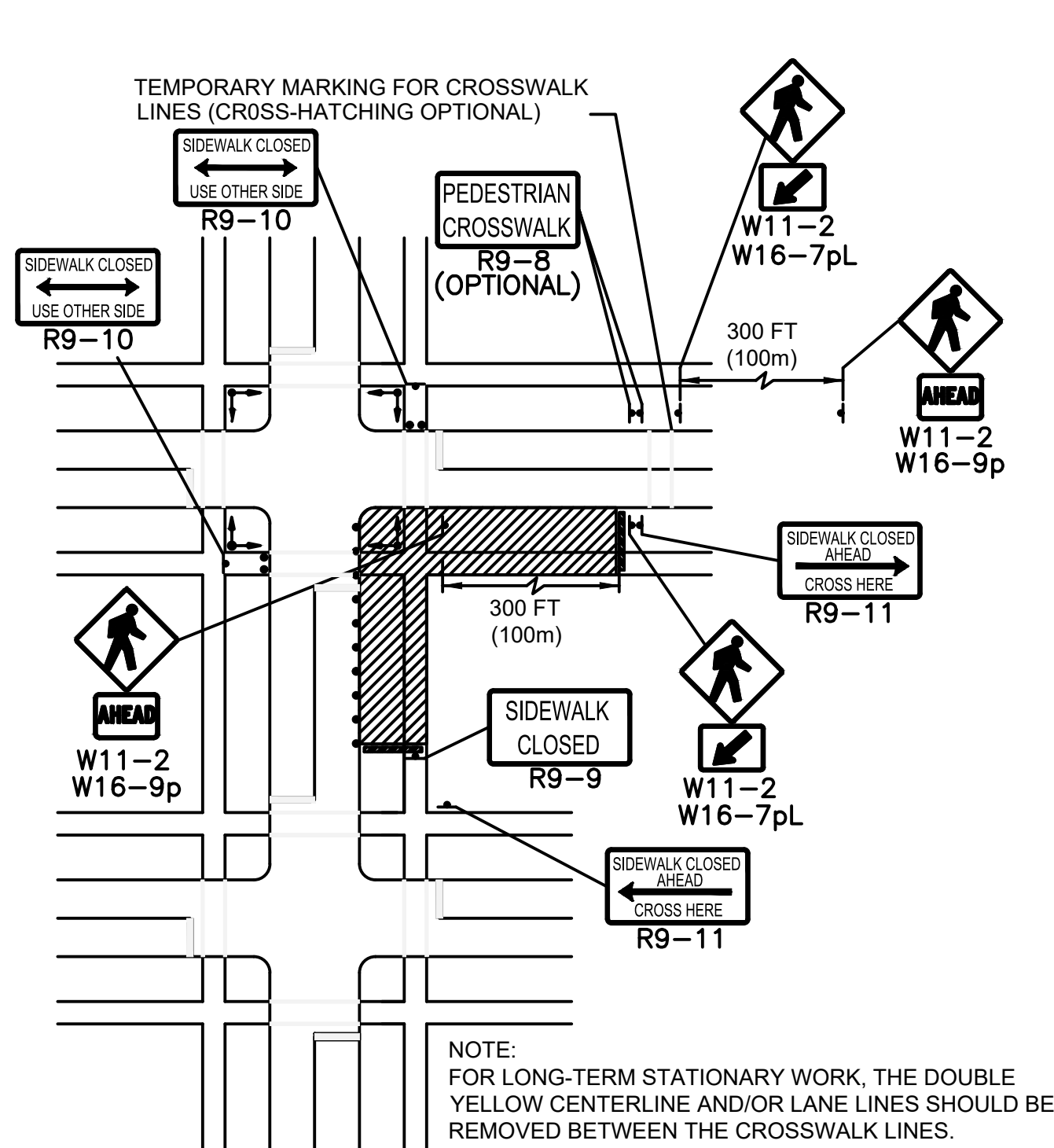


NOTE: IF A MINIMUM WIDTH OF 48" OF SOLID SMOOTH UNOBSTRUCTED SURFACE REMAINS ALONG THE WORK AREA THEN THE DETAIL CAN BE DISREGARDED. DELINEATION OF THE WORK AREA WILL STILL BE REQUIRED. ALL PEDESTRIAN DETOUR ROUTES SHALL BE ADA/MAAB COMPLIANT IN THEIR ENTIRETY.



Standard Details
and Drawings
for the Development of
Temporary Traffic
Control Plans

FIGURE Ped-5
SIDEWALK CLOSED WITH DETOUR
NOT TO SCALE

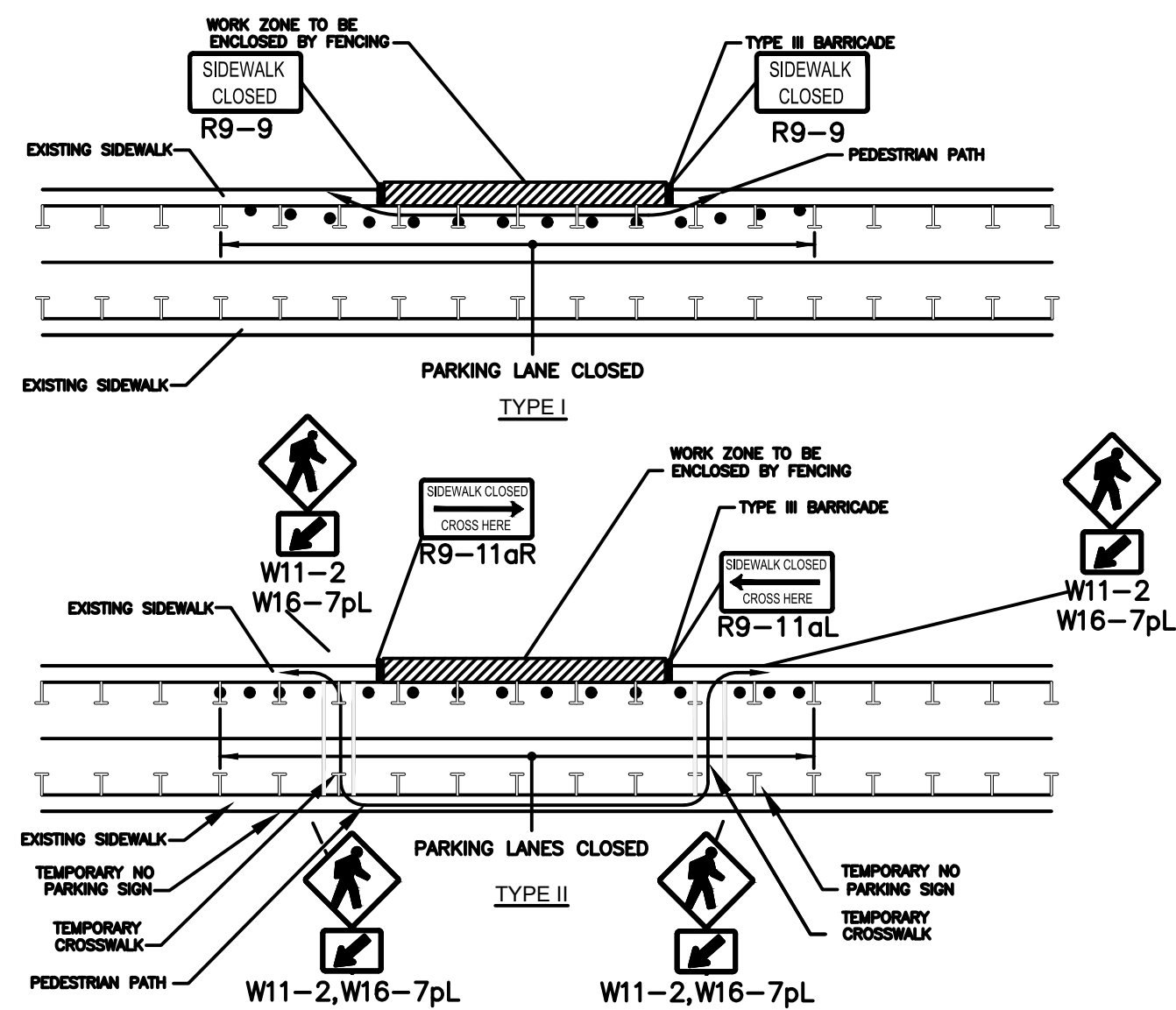


PEDESTRIAN DETOUR



Standard Details
and Drawings
for the Development of
Temporary Traffic
Control Plans

FIGURE Ped-6
PEDESTRIAN DETOUR
NOT TO SCALE



PEDESTRIAN BYPASS



Standard Details
and Drawings
for the Development of
Temporary Traffic
Control Plans

FIGURE Ped-7
PEDESTRIAN DETOUR

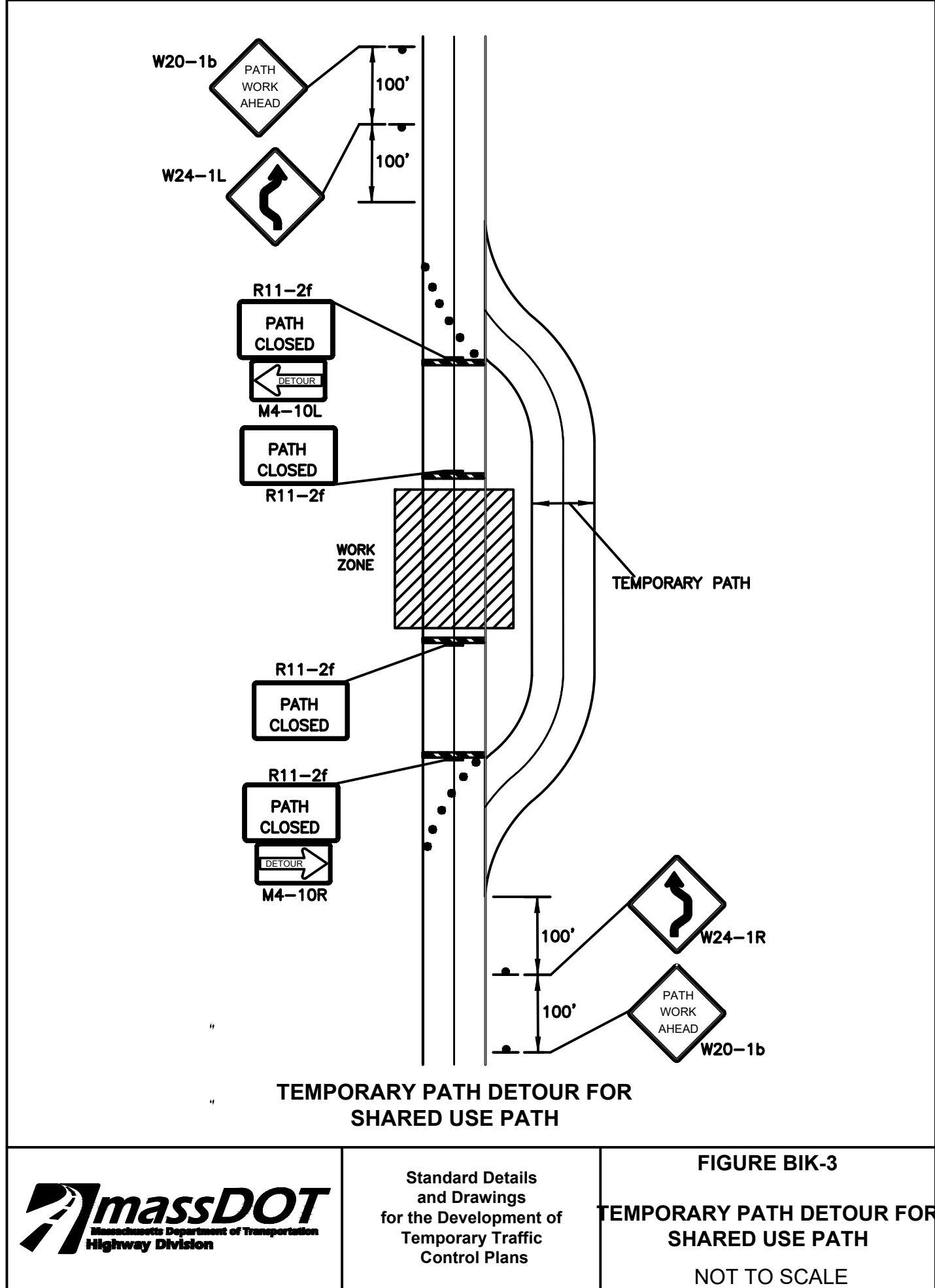
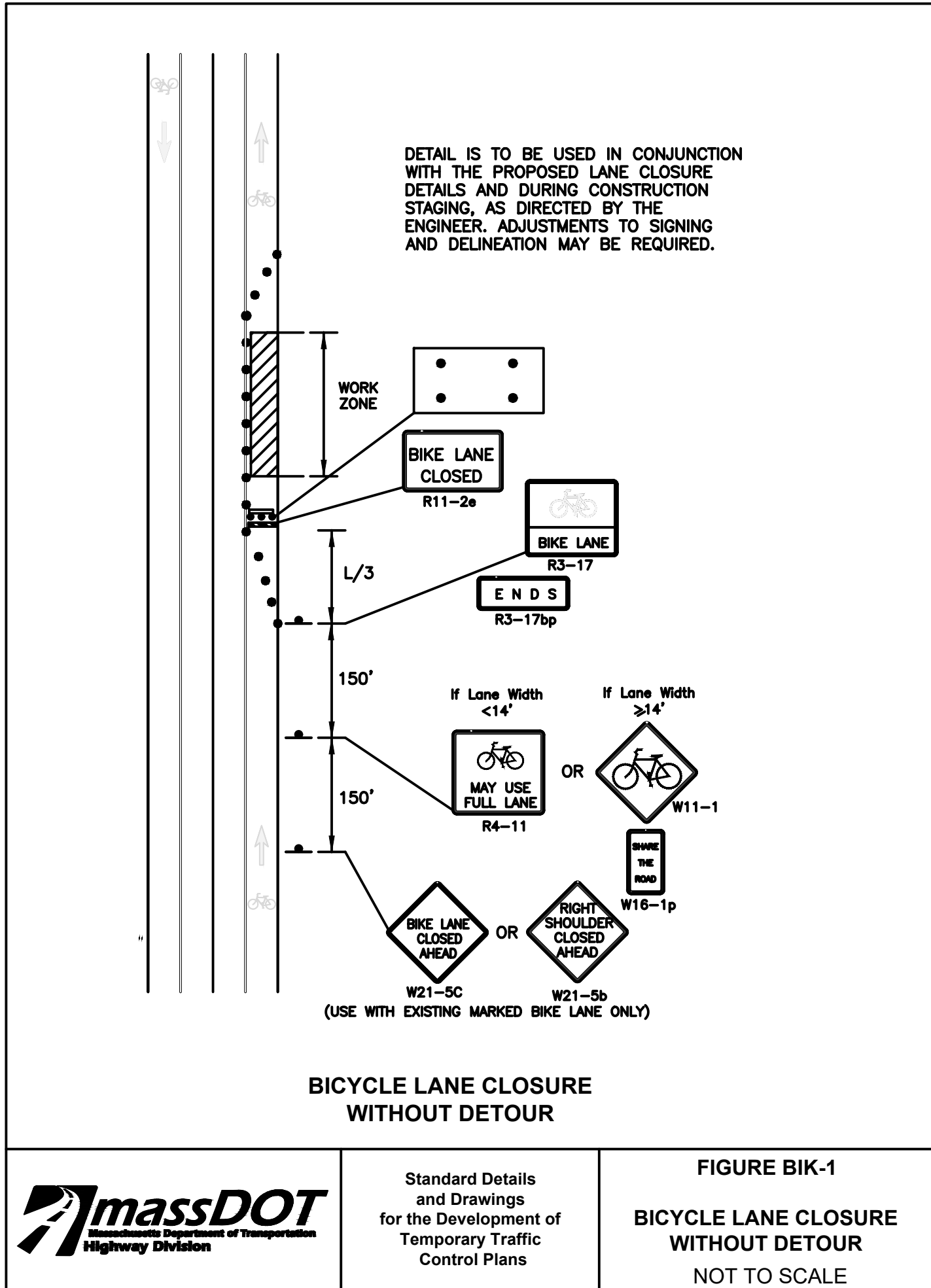
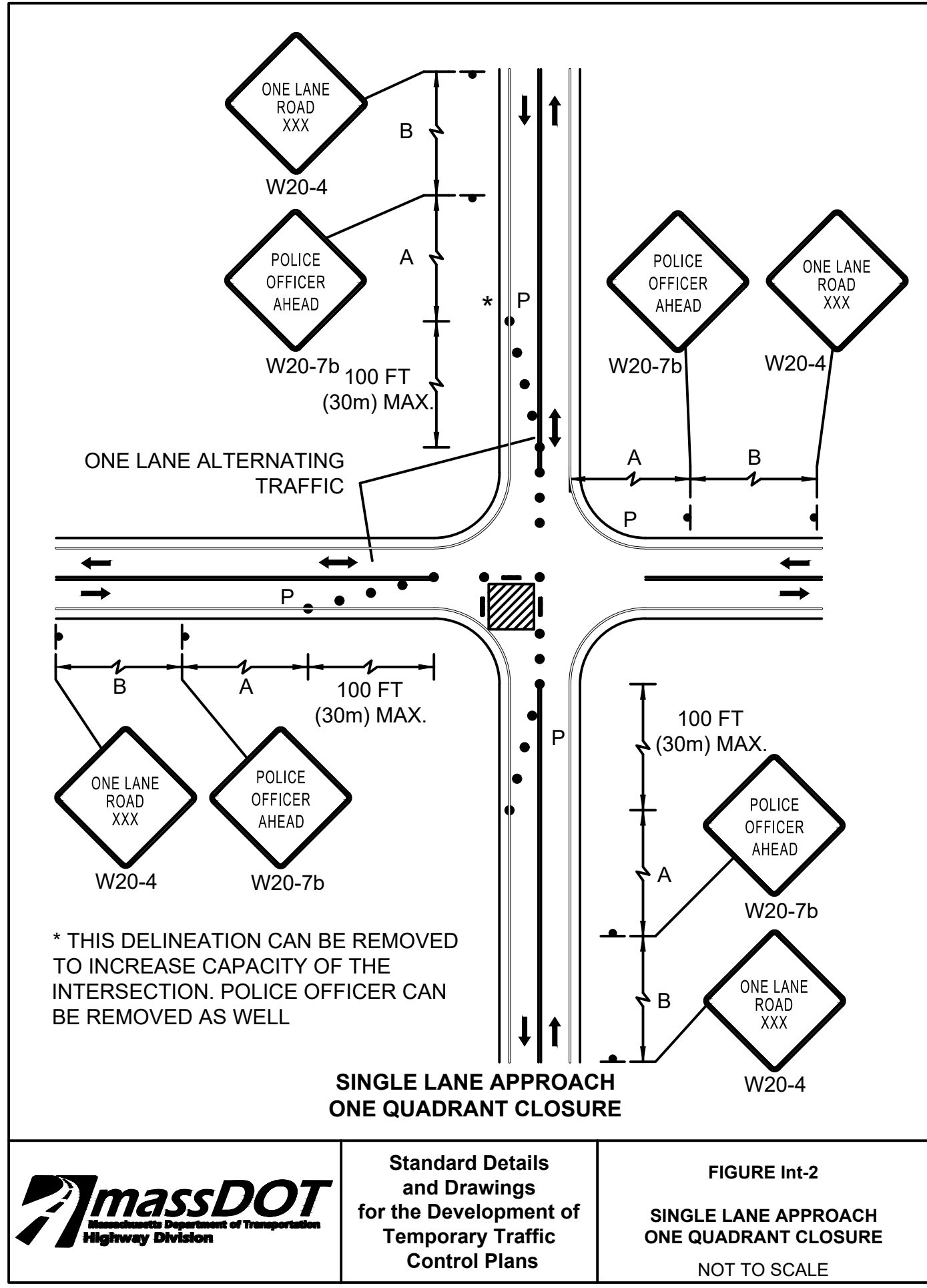
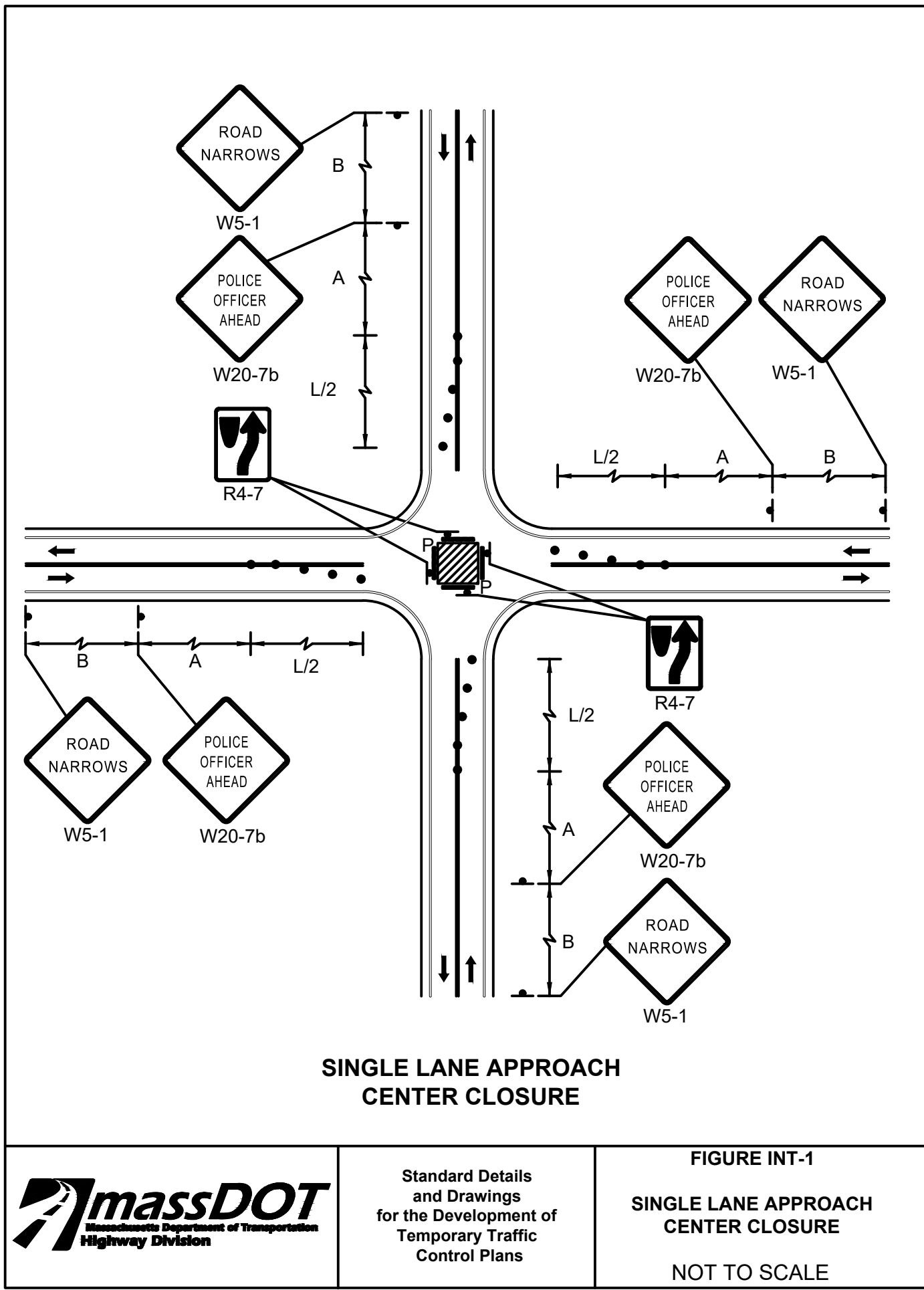
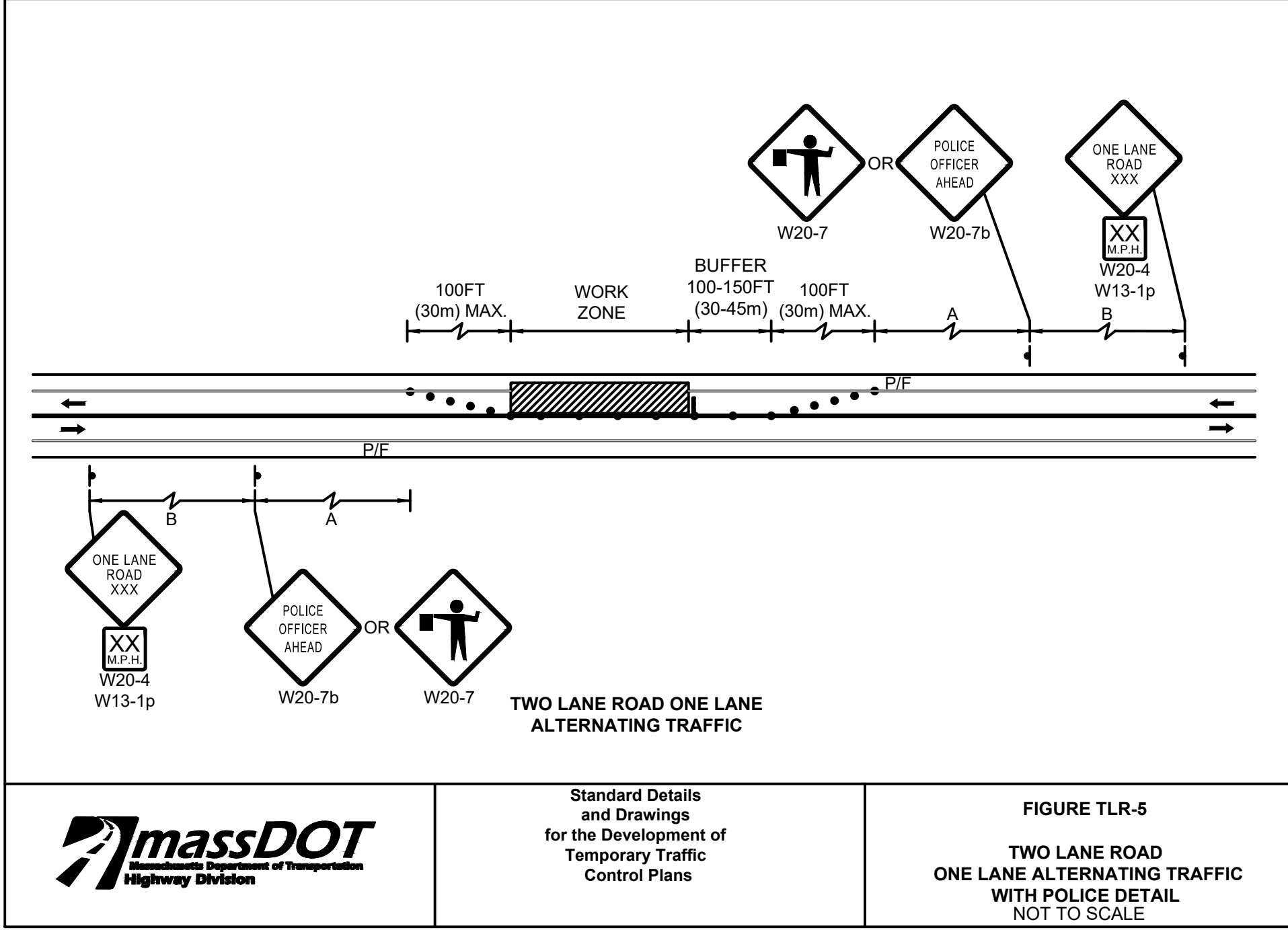
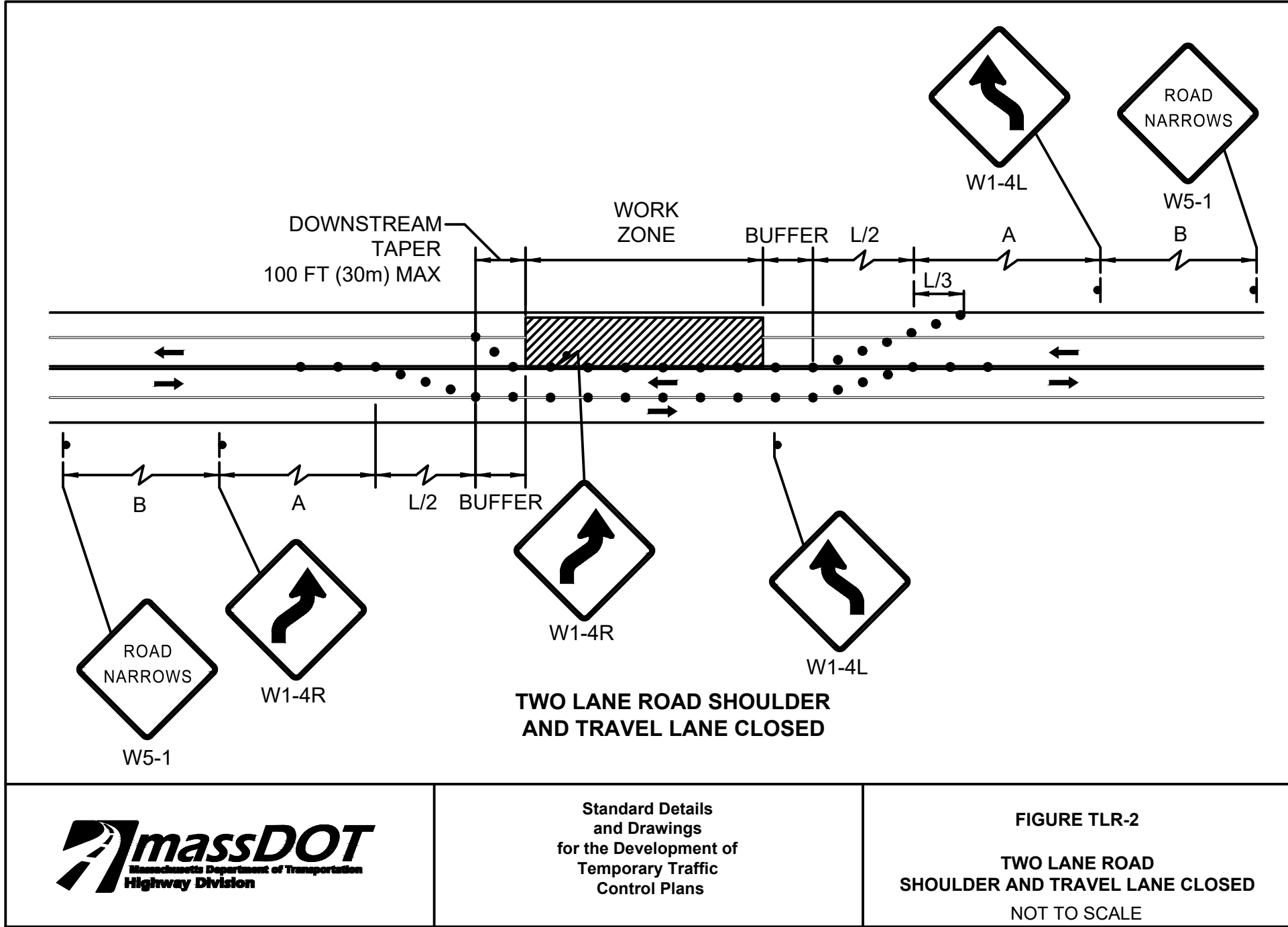
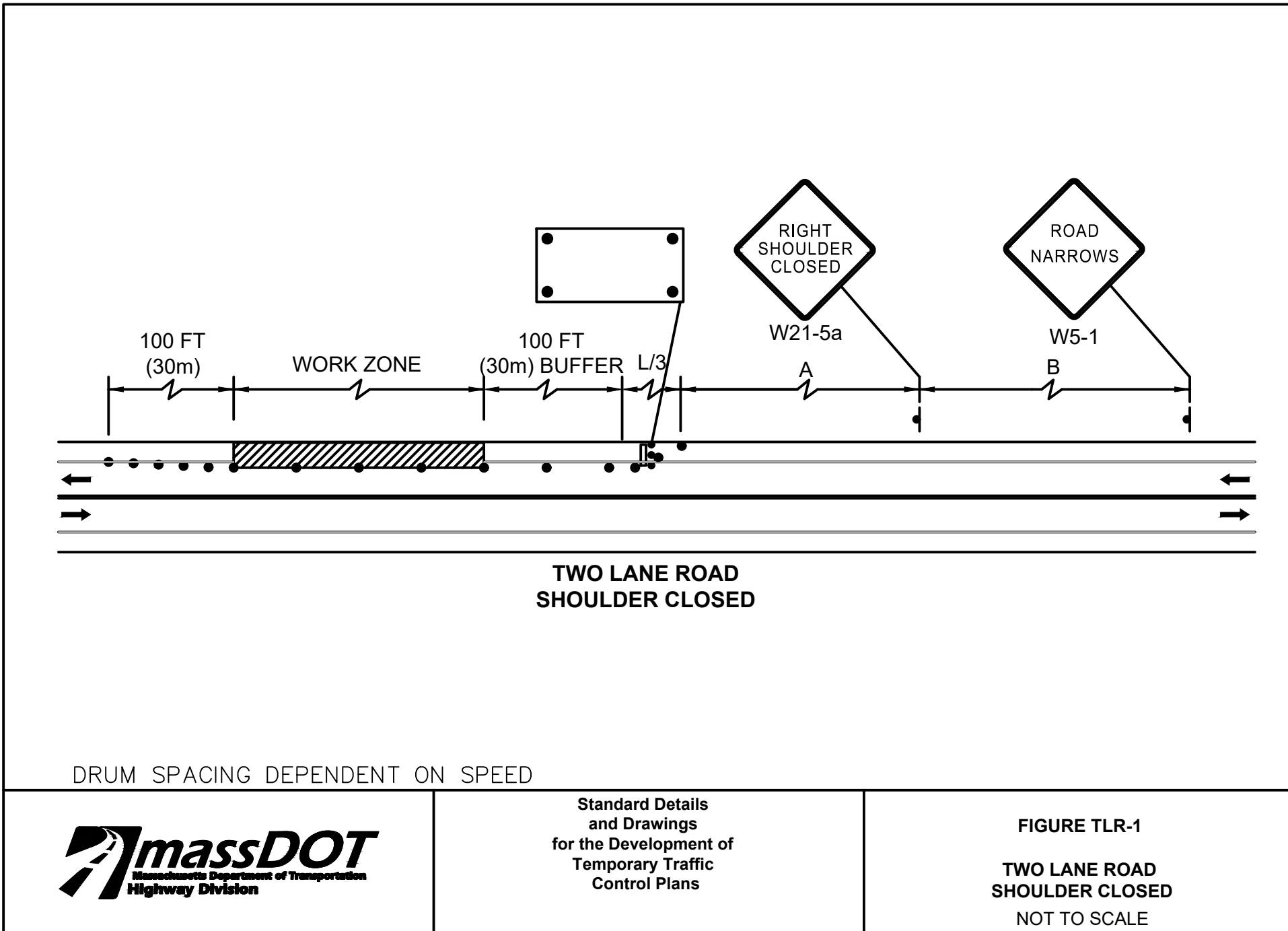
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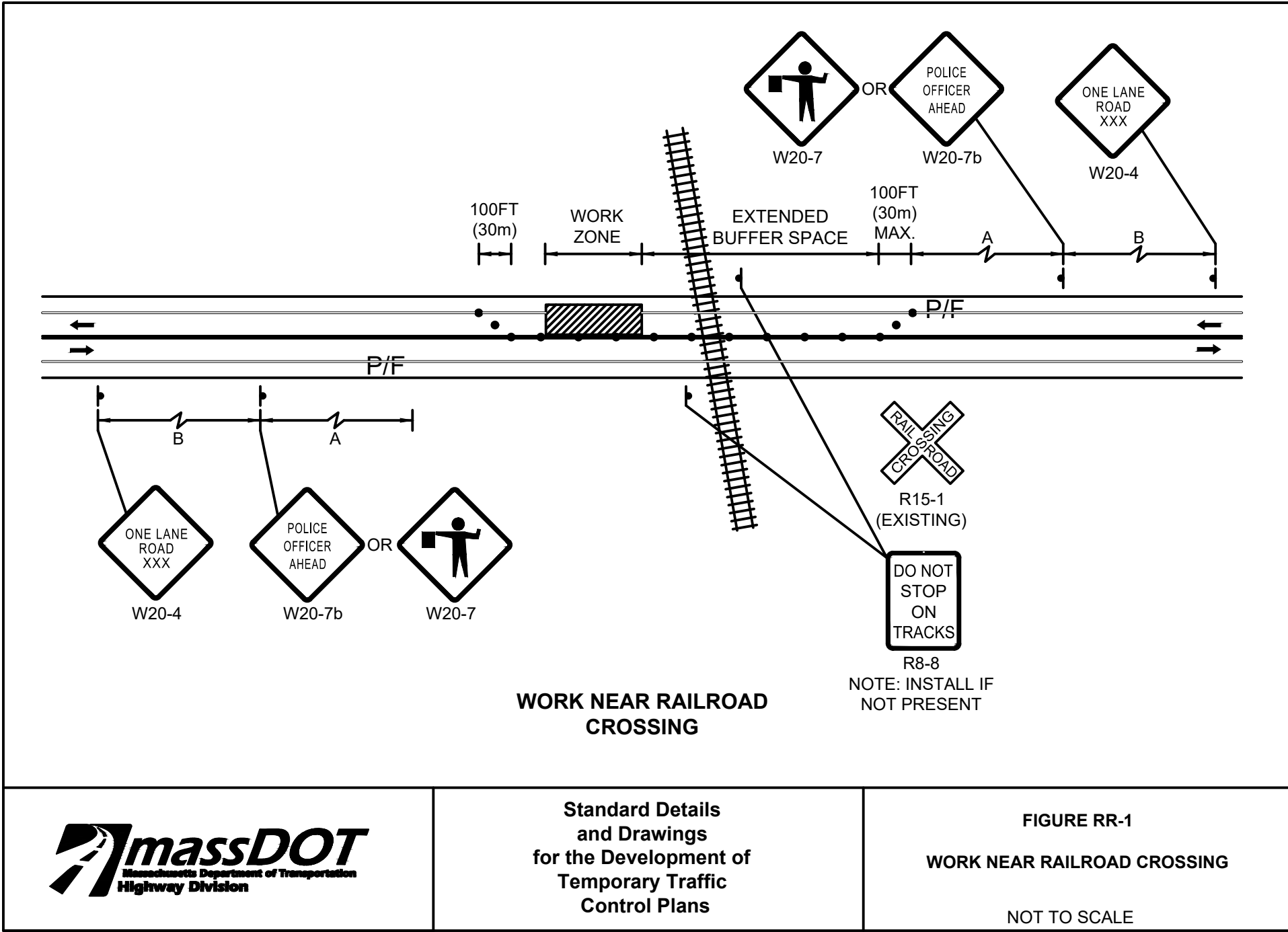
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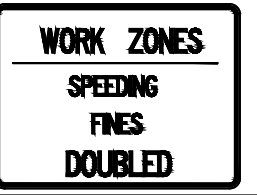
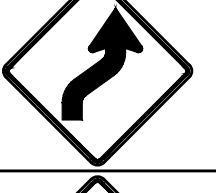
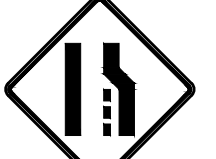
LMAN: X

MS VIEW: X

UCS: X





IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	AREA IN SQUARE FEET
	WIDTH (IN)	HEIGHT (IN)		
R2-10a	24	30		6
R9-8	36	18		4.5
R9-9	30	18		3.75
R9-10	48	24		8
R9-11L	48	24		8
R9-11R	48	24		8
R9-11aL	48	24		8
R9-11aR	48	24		8
W1-4L	30	30		6.25
W1-4R	30	30		6.25
W4-2L	36	36		9
W4-2R	36	36		9
W4-7L	36	36		9
W4-7R	36	36		9
W5-1	36	36		9
W11-2	30	30		6.25
W13-1P	24	24		4
W16-7PL	24	12		2

IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	AREA IN SQUARE FEET
	WIDTH (IN)	HEIGHT (IN)		
W16-9P	24	12		2
W20-1	36	36		9
W20-4	36	36		9
W20-5L	36	36		9
W20-5R	36	36		9
W20-7a	36	36		9
W20-7b	36	36		9
W21-5aL	36	36		6.25
W21-5aR	36	36		6.25
R2-10e (ORANGE) R2-10e (WHITE)	36	48	 	12
R4-7	18	24		6.25
R3-7R	30	30		6.25
R3-7L	30	30		6.25
R11-2e	48	30		6.25
R3-17	30	30		6.25
R3-17bp	24	8		6.25
R4-11	30	30		6.25

[illegible]

TYPICAL CONSTRUCTION SIGNING

N.T.S.

**LITTLETON
RECONSTRUCTION OF FOSTER STREET**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	63	XX
PROJECT FILE NO.		609054	

TEMPORARY TRAFFIC CONTROL PLANS

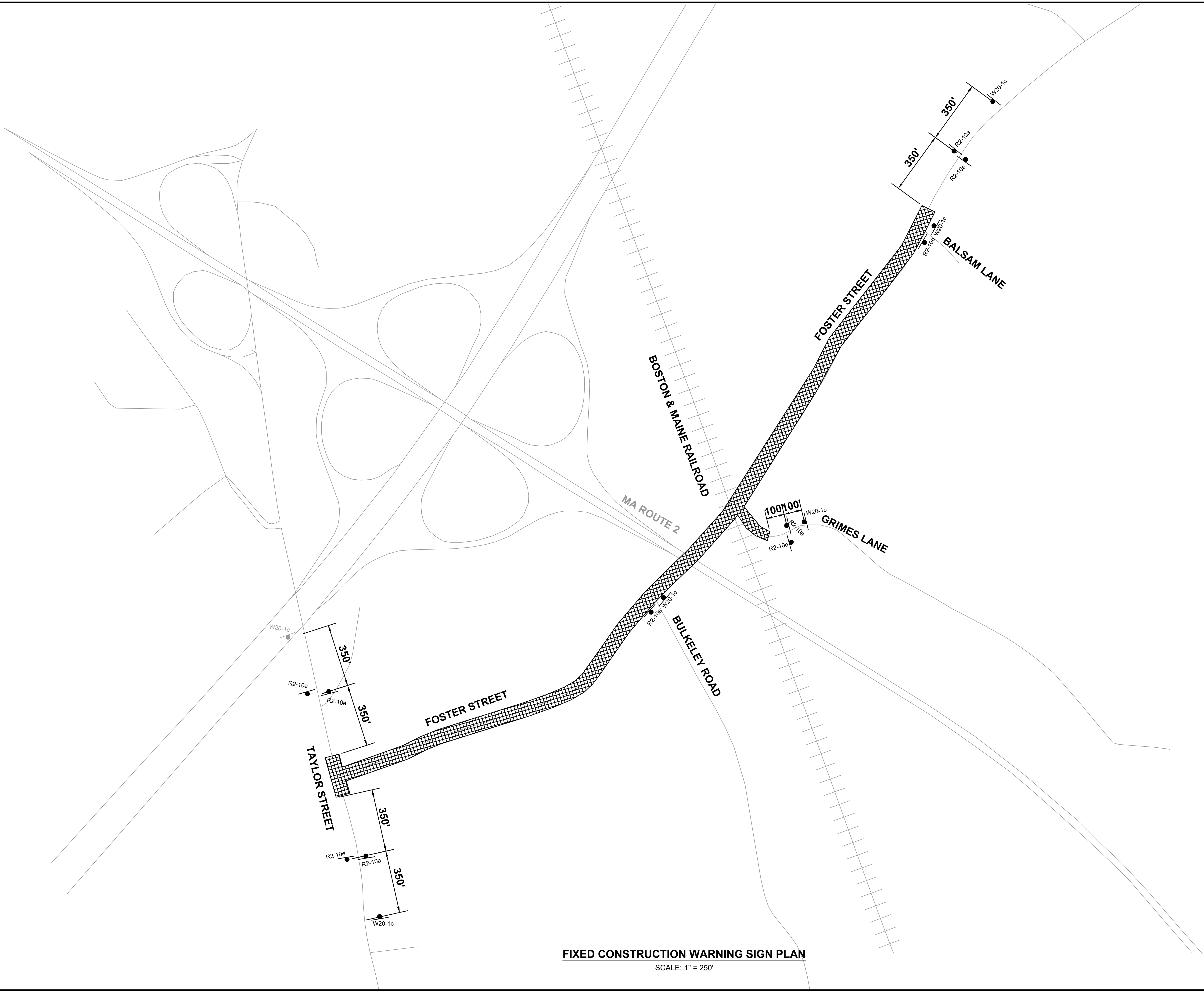
NOTE:

1. CONSTRUCTION SIGN COLORS WILL BE ADDED TO CHART FOR 75% SUBMISSION.
2. ADDITIONAL DETAILS AND TRAFFIC MANAGEMENT PLANS WILL BE PROVIDED FOR CONSTRUCTION ACTIVITIES AT 75% SUBMISSION.

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	64	XX
PROJECT FILE NO.		609054	

TEMPORARY TRAFFIC CONTROL PLANS



FIXED CONSTRUCTION WARNING SIGN PLAN
SCALE: 1" = 250'

1. IF EXISTING PIPES SHOWN TO BE REMOVED ARE WITHIN THE LIMITS OF NEW PIPE TRENCH EXCAVATION, THEN THE REMOVAL COST OF THE OLD PIPES SHALL BE INCLUDED IN THE UNIT COST FOR THE NEW PIPE THAT IS BEING INSTALLED. IF PIPES SHOWN TO BE REMOVED ARE OUTSIDE THE LIMITS OF NEW PIPE TRENCH (AS DETERMINED BY THE ENGINEER), THEN REMOVAL COST SHALL BE PAID UNDER ITEM 141. CLASS A TRENCH EXCAVATION.

2. ALL PROPOSED (NEW) CATCH BASINS SHALL HAVE 4' SUMPS.
3. ALL CATCH BASINS WITHIN THE PAVED ROADWAY SHALL HAVE CASCADE STYLE/BICYCLE SAFE GRATES UNLESS OTHERWISE NOTED ON THE PLANS.
4. ALL ELEVATIONS, STATIONS, AND OFFSETS FOR ALL CATCH BASINS AND DRAINAGE MANHOLES COME FROM CENTER OF COVER OR GRATE.
5. CONTRACTOR SHALL USE APPROPRIATELY SIZED RCP TO MATCH INTO EXISTING PIPES AS SHOWN.
6. PROPOSED PEDESTRIAN LEVEL LIGHT FIXTURES SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR. WIRE AND SERVICE CONNECTIONS SHALL BE PROVIDED BY LITTLETON ELECTRIC LIGHT & WATER DEPARTMENT (LELWD). SEE SPECIAL PROVISIONS.

1. RELOCATION OF EXISTING LIGHT POLES, UTILITY POLES, RAILROAD EQUIPMENT, WATER LINES, AND GAS LINES WILL BE COORDINATED AT 25% UTILITY MEETING AND UPDATED AT 75% WITH THE APPROPRIATE PAY ITEMS AND/OR RESPONSIBLE PARTY NEEDING TO ADJUST CORRESPONDING UTILITIES.
2. WIRING CONNECTIONS FOR PROPOSED LIGHTING TO BE COORDINATED WITH LEWD AT 25% UTILITY MEETING.
3. INVERTS/RIM ELEVATIONS SHOWN ARE INTENDED TO BE PLACEHOLDERS FOR THE CIVIL 3D PIPE NETWORK AND ASSIST WITH PRELIMINARY QUANTITIES. THESE ELEVATIONS ARE PRELIMINARY AND WILL BE REVIEWED/UPDATED AT THE 75% DESIGN STAGE.
4. ADDITIONAL INFORMATION REGARDING NEW WATER LINE (SUCH AS LOCATIONS OF PROPOSED NEW GATE VALVES, CURB STOPS, AND SERVICES) WILL BE PROVIDED AT 75% DESIGN.

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	3	XX
PROJECT FILE NO.		609054	

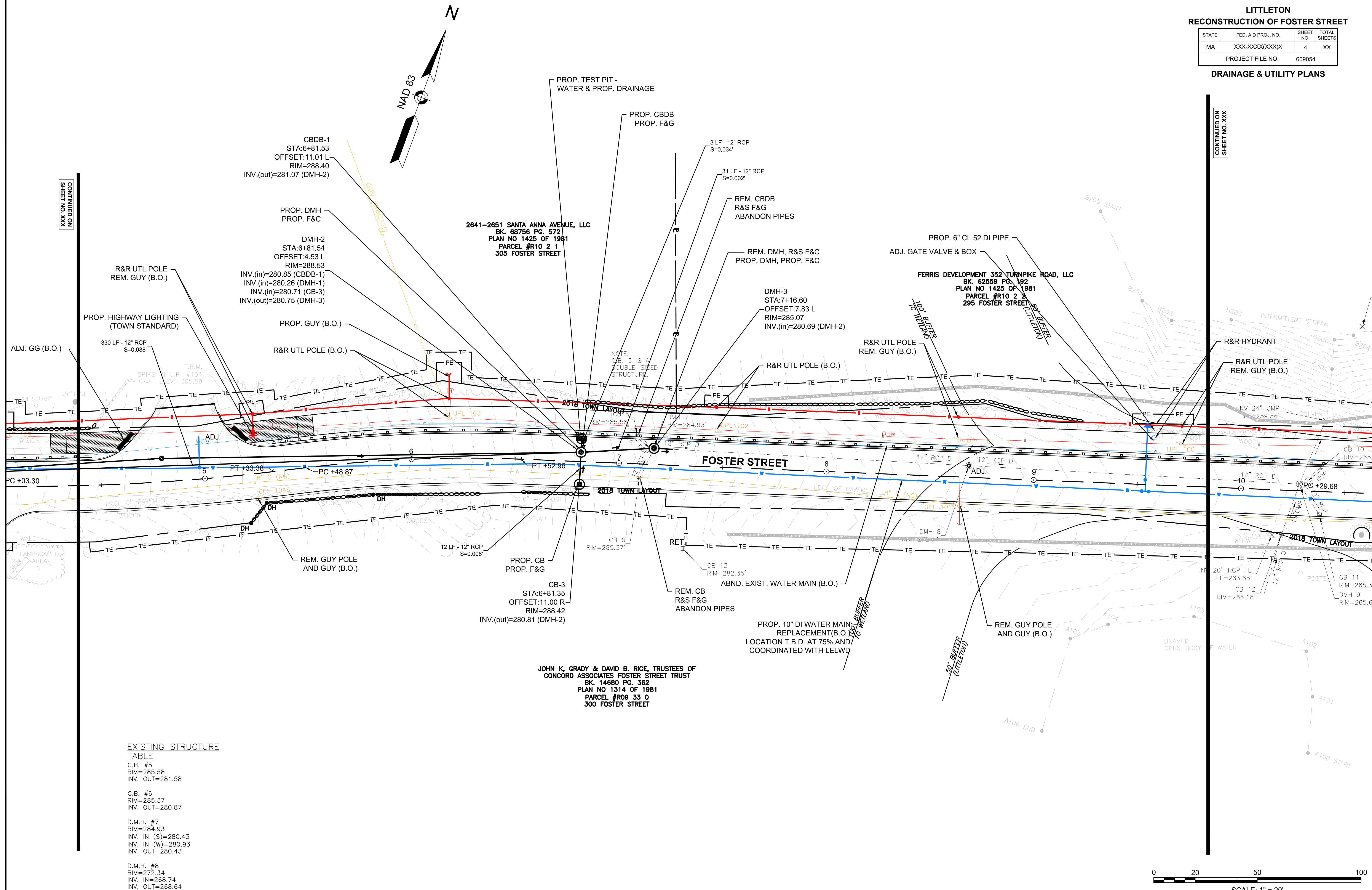
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LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXX(XXX)X	4	XX
PROJECT FILE NO. 609054			

DRAINAGE & UTILITY PLANS

CONTINUED ON
SHEET NO. XXX



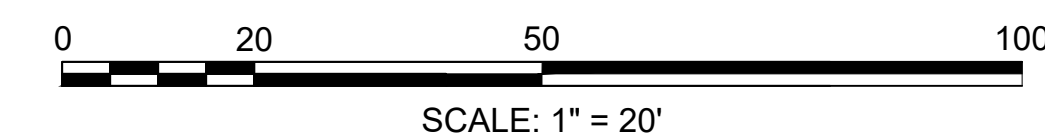
EXISTING STRUCTURE
TABLE

C.B. #5
RIM=285.58
INV. OUT=281.58

C.B. #6
RIM=285.37
INV. OUT=280.87

D.M.H. #7
RIM=284.93
INV. IN (S)=280.43
INV. IN (W)=280.93
INV. OUT=280.43

D.M.H. #8
RIM=272.34
INV. IN=268.74
INV. OUT=268.64



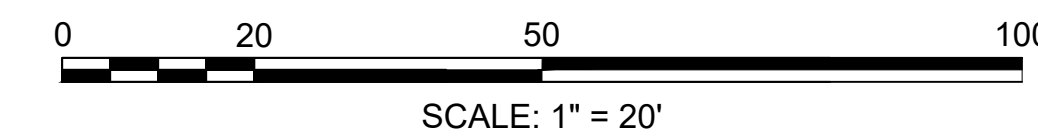
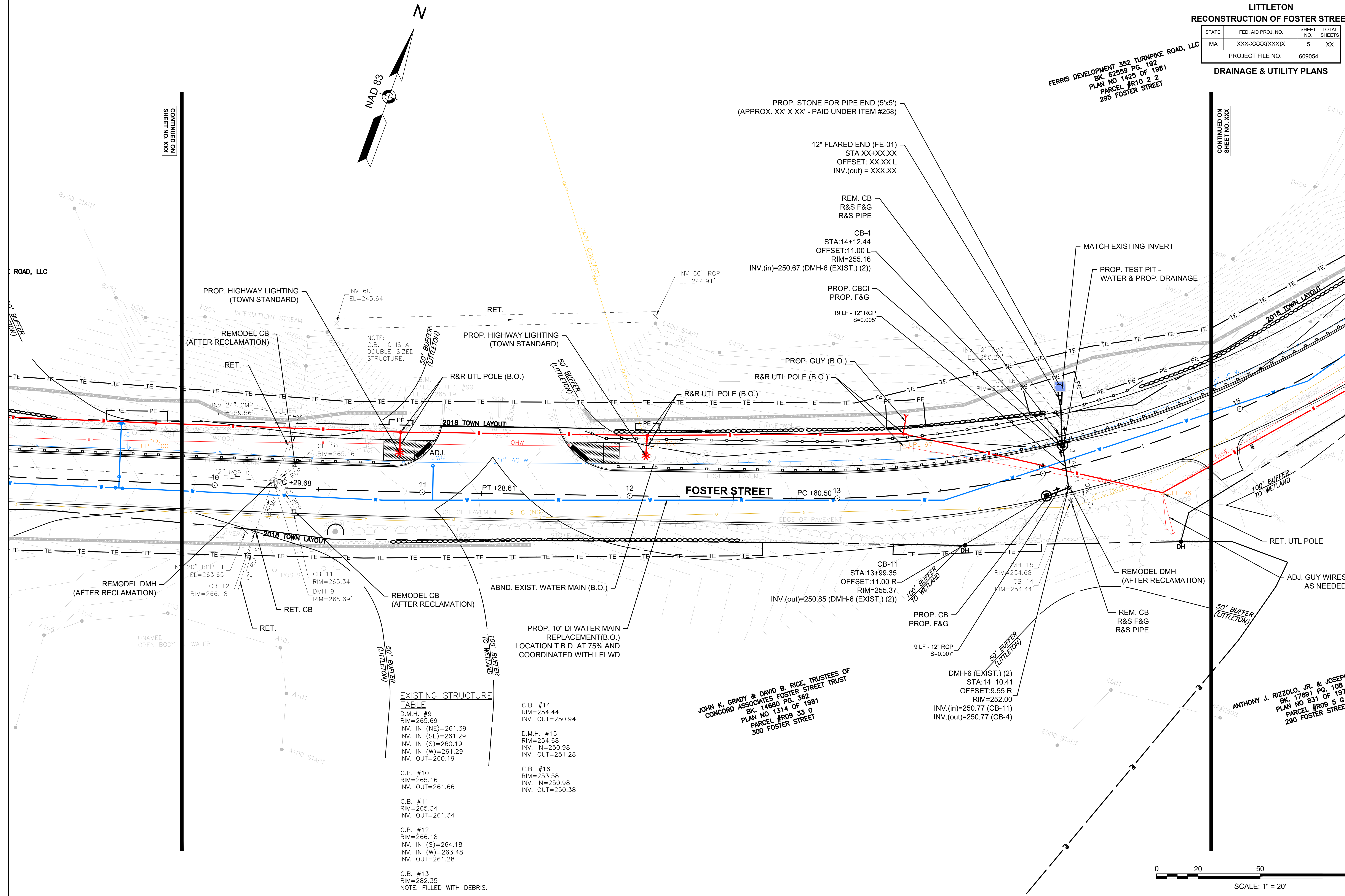
LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXX(XXX)X	5	XX
PROJECT FILE NO.		609054	

DRAINAGE & UTILITY PLANS

FERRIS DEVELOPMENT 352 TURNPIKE ROAD, LLC
BK. 62558 PG. 192
PLAN NO 1425 OF 1981
PARCEL #R10 2 2
295 FOSTER STREET

CONTINUED ON
SHEET NO. XXX



EXISTING STRUCTURE TABLE

D.M.H. #9	RIM=265.69
INV. IN (NE)=261.39	INV. IN (SE)=261.29
INV. IN (S)=260.19	INV. IN (W)=261.29
INV. OUT=260.19	
C.B. #10	RIM=265.16
INV. OUT=261.66	
C.B. #11	RIM=265.34
INV. OUT=261.34	
C.B. #12	RIM=266.18
INV. IN (S)=264.18	INV. IN (W)=263.48
INV. OUT=261.28	
C.B. #13	RIM=282.35
NOTE: FILLED WITH DEBRIS.	

C.B. #14	RIM=254.44
INV. OUT=250.94	
D.M.H. #15	RIM=254.68
INV. IN=250.98	INV. OUT=251.28
C.B. #16	RIM=253.58
INV. IN=250.98	INV. OUT=250.38

JOHN K. GRADY & DAVID B. RICE, TRUSTEES OF
CONCORD ASSOCIATES FOSTER STREET TRUST
BK. 14680 PG. 362
PLAN NO 1314 OF 1981
PARCEL #R09 33 0
300 FOSTER STREET

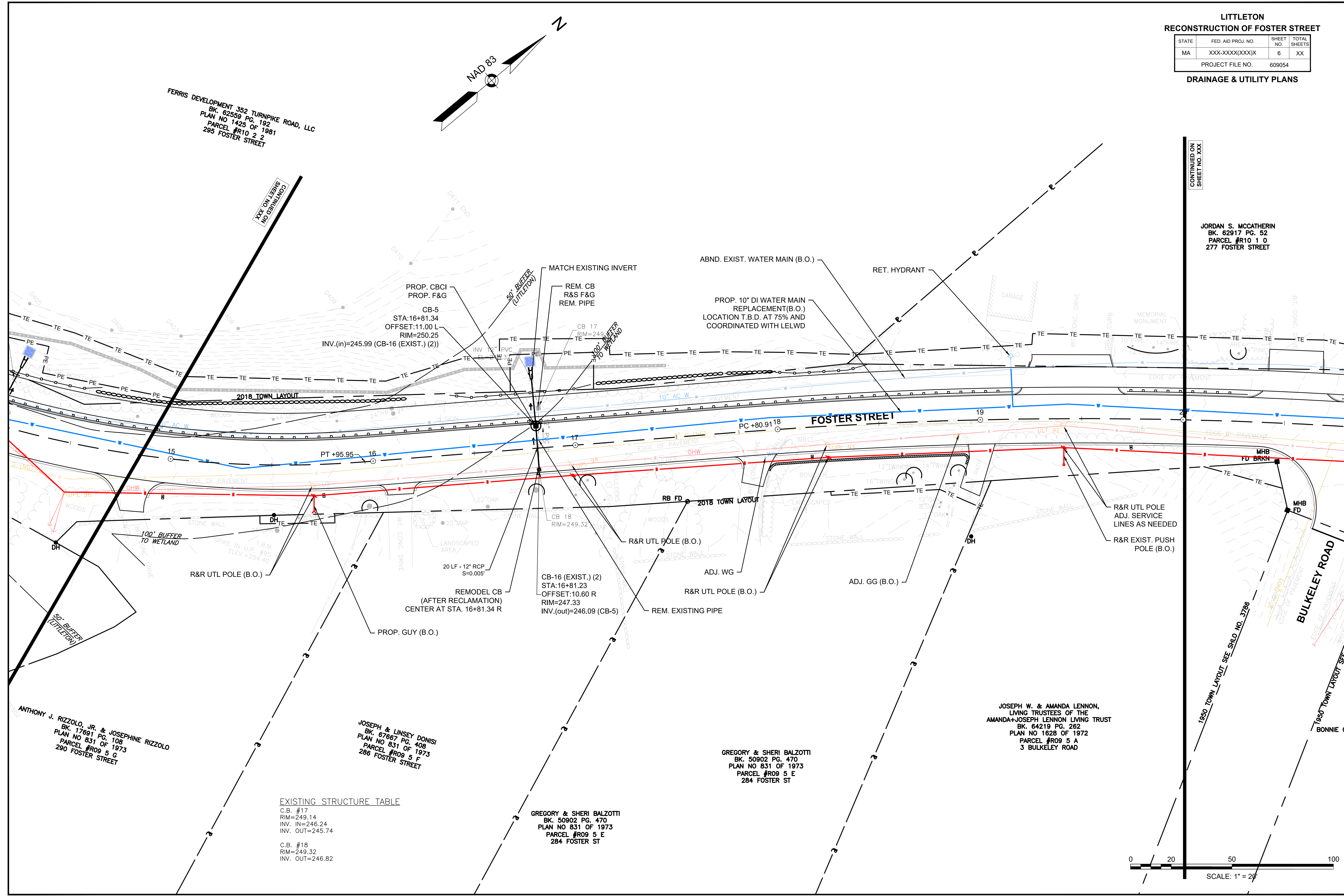
ANTHONY J. RIZZOLO, JR. & JOSEPHINE RIZZOLO
BK. 17691 PG. 108
PLAN NO 831 OF 1973
PARCEL #R09 5 G
290 FOSTER STREET

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXX(XXX)X	6	XX
PROJECT FILE NO.		609054	

DRAINAGE & UTILITY PLANS

JORDAN S. MCCATHERIN
BK. 62917 PG. 52
PARCEL #R10 1 0
277 FOSTER STREET



FERRIS DEVELOPMENT 352 TURNPIKE ROAD, LLC
BK. 62359 PG. 192
PLAN NO. 1425 OF 1981
PARCEL #R10 2 2
295 FOSTER STREET

ANTHONY J. RIZZOLO, JR. & JOSEPHINE RIZZOLO
BK. 17691 PG. 108
PLAN NO. 831 OF 1973
PARCEL #R09 5 G
290 FOSTER STREET

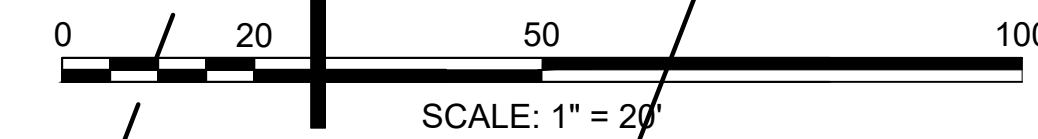
JOSEPH & LINSEY DONISI
BK. 67667 PG. 408
PLAN NO. 831 OF 1973
PARCEL #R09 5 F
286 FOSTER STREET

GREGORY & SHERI BALZOTTI
BK. 50902 PG. 470
PLAN NO. 831 OF 1973
PARCEL #R09 5 E
284 FOSTER ST

JOSEPH W. & AMANDA LENNON,
LIVING TRUSTEES OF THE
AMANDA+JOSEPH LENNON LIVING TRUST
BK. 64219 PG. 262
PLAN NO. 1628 OF 1972
PARCEL #R09 5 A
3 BULKELEY ROAD

EXISTING STRUCTURE TABLE

C.B. #17	RIM=249.14
INV. IN=246.24	INV. OUT=245.74
C.B. #18	RIM=249.32
INV. OUT=246.82	



LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXX(XXX)X	8	XX
PROJECT FILE NO.		609054	

DRAINAGE & UTILITY PLANS

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
BK. 57072 PG. 384
BK. 57072 PG. 376
(NOTE: ADDITIONAL SURVEY WILL BE OBTAINED PRIOR TO 75% DESIGN STAGE. SIZE AND ELEVATIONS WILL BE FINALIZED AT 75%)
PLAN NO 435 OF 2011
PARCEL #R11 3 5
263 FOSTER STREET

CONTINUED ON
SHEET NO. XXX

PROP. STONE FOR PIPE END (5'x5')
(APPROX. XX' X XX' - PAID UNDER ITEM #258)

12" FLARED END (FE-01)
STA XX+XX.XX
OFFSET: XX.XX L
INV.(out) = XXX.XX

PROP. MODIFIED ROCK FILL OVER PIPE OUTLET

FOSTER STREET ASSOCIATED LIMITED PARTNERSHIP
BK. 18443 PG. 364
PLAN NO 286 OF 1987
PARCEL #R111 1 0
265 FOSTER STREET

PROP. TEST PIT -
GAS & PROP. DRAINAGE

PROP. CBCI
PROP. F&G

CB-8
STA:28+42.89
OFFSET:11.00 L
RIM=245.38
INV.(out)=241.07 (DMH-7)

PROP. TEST PIT -
GAS & PROP. DRAINAGE

CB-8
STA:28+42.89
OFFSET:11.00 L
RIM=245.38
INV.(out)=241.07 (DMH-7)

PROP. TEST PIT -
GAS & PROP. DRAINAGE

CB-8
STA:28+42.89
OFFSET:11.00 L
RIM=245.38
INV.(out)=241.07 (DMH-7)

PROP. TEST PIT -
GAS & PROP. DRAINAGE

CB-8
STA:28+42.89
OFFSET:11.00 L
RIM=245.38
INV.(out)=241.07 (DMH-7)

PROP. TEST PIT -
GAS & PROP. DRAINAGE

CB-8
STA:28+42.89
OFFSET:11.00 L
RIM=245.38
INV.(out)=241.07 (DMH-7)

PROP. TEST PIT -
GAS & PROP. DRAINAGE

CB-8
STA:28+42.89
OFFSET:11.00 L
RIM=245.38
INV.(out)=241.07 (DMH-7)

PROP. TEST PIT -
GAS & PROP. DRAINAGE

CB-8
STA:28+42.89
OFFSET:11.00 L
RIM=245.38
INV.(out)=241.07 (DMH-7)

PROP. TEST PIT -
GAS & PROP. DRAINAGE

CB-8
STA:28+42.89
OFFSET:11.00 L
RIM=245.38
INV.(out)=241.07 (DMH-7)

PROP. TEST PIT -
GAS & PROP. DRAINAGE

CB-8
STA:28+42.89
OFFSET:11.00 L
RIM=245.38
INV.(out)=241.07 (DMH-7)

PROP. TEST PIT -
GAS & PROP. DRAINAGE

CB-8
STA:28+42.89
OFFSET:11.00 L
RIM=245.38
INV.(out)=241.07 (DMH-7)

PROP. TEST PIT -
GAS & PROP. DRAINAGE

CB-8
STA:28+42.89
OFFSET:11.00 L
RIM=245.38
INV.(out)=241.07 (DMH-7)

PROP. TEST PIT -
GAS & PROP. DRAINAGE

CB-8
STA:28+42.89
OFFSET:11.00 L
RIM=245.38
INV.(out)=241.07 (DMH-7)

PROP. TEST PIT -
GAS & PROP. DRAINAGE

CB-8
STA:28+42.89
OFFSET:11.00 L
RIM=245.38
INV.(out)=241.07 (DMH-7)

PROP. TEST PIT -
GAS & PROP. DRAINAGE

CB-8
STA:28+42.89
OFFSET:11.00 L
RIM=245.38
INV.(out)=241.07 (DMH-7)

PROP. TEST PIT -
GAS & PROP. DRAINAGE

CB-8
STA:28+42.89
OFFSET:11.00 L
RIM=245.38
INV.(out)=241.07 (DMH-7)

PROP. TEST PIT -
GAS & PROP. DRAINAGE

CB-8
STA:28+42.89
OFFSET:11.00 L
RIM=245.38
INV.(out)=241.07 (DMH-7)

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CB-8
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OFFSET:11.00 L
RIM=245.38
INV.(out)=241.07 (DMH-7)

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CB-8
STA:28+42.89
OFFSET:11.00 L
RIM=245.38
INV.(out)=241.07 (DMH-7)

PROP. TEST PIT -
GAS & PROP. DRAINAGE

CB-8
STA:28+42.89
OFFSET:11.00 L
RIM=245.38
INV.(out)=241.07 (DMH-7)

PROP. TEST PIT -
GAS & PROP. DRAINAGE

CB-8
STA:28+42.89
OFFSET:11.00 L
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CB-8
STA:28+42.89
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STA:28+42.89
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RIM=245.38
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RIM=245.38
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CB-8
STA:28+42.89
OFFSET:11.00 L
RIM=245.38
INV.(out)=241.07 (DMH-7)

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GAS & PROP. DRAINAGE

CB-8
STA:28+42.89
OFFSET:11.00 L
RIM=245.38
INV.(out)=241.07 (DMH-7)

PROP. TEST PIT -
GAS & PROP. DRAINAGE

CB-8
STA:28+42.89
OFFSET:11.00 L
RIM=245.38
INV.(out)=241.07 (DMH-7)

PROP. TEST PIT -
GAS & PROP. DRAINAGE

CB-8
STA:28+42.89
OFFSET:11.00 L
RIM=245.38
INV.(out)=241.07 (DMH-7)

PROP. TEST PIT -
GAS & PROP. DRAINAGE

CB-8
STA:28+42.89
OFFSET:11.00 L
RIM=245.38
INV.(out)=241.07 (DMH-7)

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GAS & PROP. DRAINAGE

CB-8
STA:28+42.89
OFFSET:11.00 L
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PROP. TEST PIT -
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CB-8
STA:28+42.89
OFFSET:11.00 L
RIM=245.38
INV.(out)=241.07 (DMH-7)

PROP. TEST PIT -
GAS & PROP. DRAINAGE

CB-8
STA:28+42.89
OFFSET:11.00 L
RIM=245.38
INV.(out)=241.07 (DMH-7)

PROP. TEST PIT -
GAS & PROP. DRAINAGE

CB-8
STA:28+42.89
OFFSET:11.00 L
RIM=245.38
INV.(out)=241.07 (DMH-7)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	9	XX
PROJECT FILE NO.		609054	

CONTINUED ON
SHEET NO. XXX

RICHARD B. VIGNON
BK. 13250 PG. 70
PLAN NO 847 OF 1969
PARCEL #R08 13 E
242 FOSTER STREET

C.B. #21 RIM=250.63 INV. IN=248.13 INV. OUT=248.03	C.B. #26 RIM=260.68 INV. OUT=257.38
C.B. #22 RIM=255.13 INV.=251.53	C.B. #27 RIM=260.40 INV. OUT=256.30
C.B. #23 RIM=255.14 INV. OUT=251.54	D.M.H. #28 RIM=260.06 INV. IN (NW)=256.26 INV. IN (NE)=254.44 INV. IN (E)=256.26 INV. OUT=251.46
C.B. #24 RIM=260.31 INV. IN=257.51 INV. OUT=257.51	D.M.H. #29 RIM=270.50 INV. IN=266.00 INV. OUT=265.90
C.B. #25 RIM=262.28 INV. OUT=258.98	

0 20 50 100

SCALE: 1" = 20'

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXX(XXX)X	10	XX
PROJECT FILE NO. 609054			

DRAINAGE & UTILITY PLANS

EDWARD A. & PATRICIA A. NARGIZIAN
BK. 12244 PG. 258
PARCEL #R11 5 4
237 FOSTER STREET

NOTE:
C.B. 34 IS A
DOUBLE-SIZED
STRUCTURE.

QUINN E. & JENNIFER A. CANFIELD
BK. 55588 PG. 290
PLAN NO 188 OF 1971
PARCEL #R08 13 D
238 FOSTER STREET

RICHARD B. VIGNONI
BK. 13250 PG. 70
PLAN NO 847 OF 1969
PARCEL #R08 13 E
242 FOSTER STREET

LITTLETON DEVELOPMENT TRUST
BK. 10646 PG. 148
PLAN NO 435 OF 2011
PARCEL #R11 3 0
245 FOSTER STREET

NOTE:
C.B. 32 IS A
DOUBLE-SIZED
STRUCTURE.

NOTE:
NO RECORD OF WATER LINE
CONFIGURATION IN THIS AREA.
WATER LINE IS SHOWN SCHEMATICALLY
FOR ILLUSTRATIVE PURPOSES ONLY.

NOTE:
GAS LINE RECORDS IN THIS AREA ARE
SCHEMATIC AND ARE SHOWN
SCHEMATICALLY, FOR ILLUSTRATIVE
PURPOSES ONLY.

EXISTING STRUCTURE TABLE

C.B. #30
RIM=276.44
WATER LEVEL=272.44
NOTE: STRUCTURE IS HOODED.

D.M.H. #31
RIM=276.52
INV. IN (NW)=272.32
INV. IN (NE)=270.72
INV. IN (E)=272.32
INV. OUT=270.52

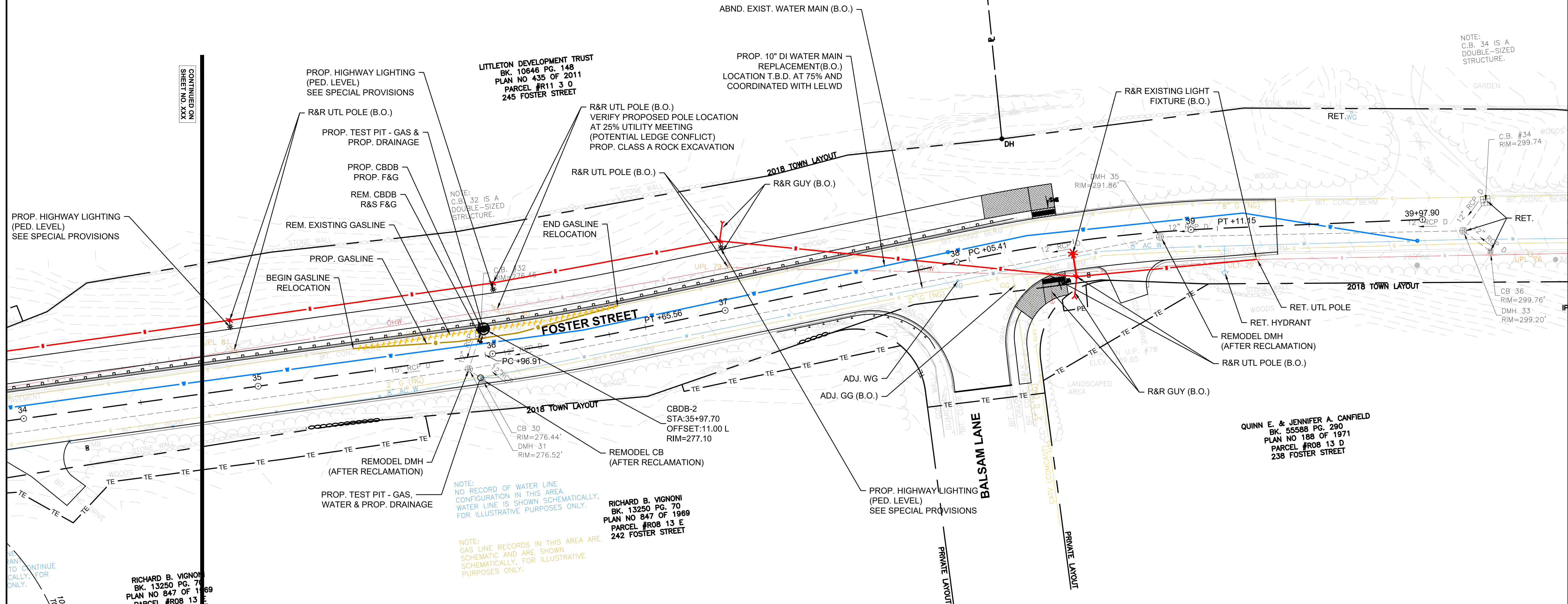
C.B. #32
RIM=276.46
WATER LEVEL=272.56
NOTE: STRUCTURE IS HOODED.

D.M.H. #33
RIM=299.20
INV. IN (N)=295.20
INV. IN (E)=295.30
INV. OUT=294.70

C.B. #34
RIM=299.74
NOTE: FILLED WITH DEBRIS.

D.M.H. #35
RIM=291.87
INV. IN=288.37
INV. OUT=287.17

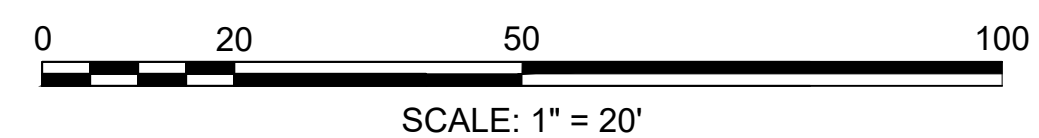
C.B. #36
RIM=299.76
WATER LEVEL=295.76
NOTE: STRUCTURE IS HOODED.



CONTINUED ON
SHEET NO. XXX

RICHARD B. VIGNONI
BK. 13250 PG. 71
PLAN NO 847 OF 1969
PARCEL #R08 13 E
242 FOSTER STREET

100' BUFFER
TO WETLAND
ONLY.



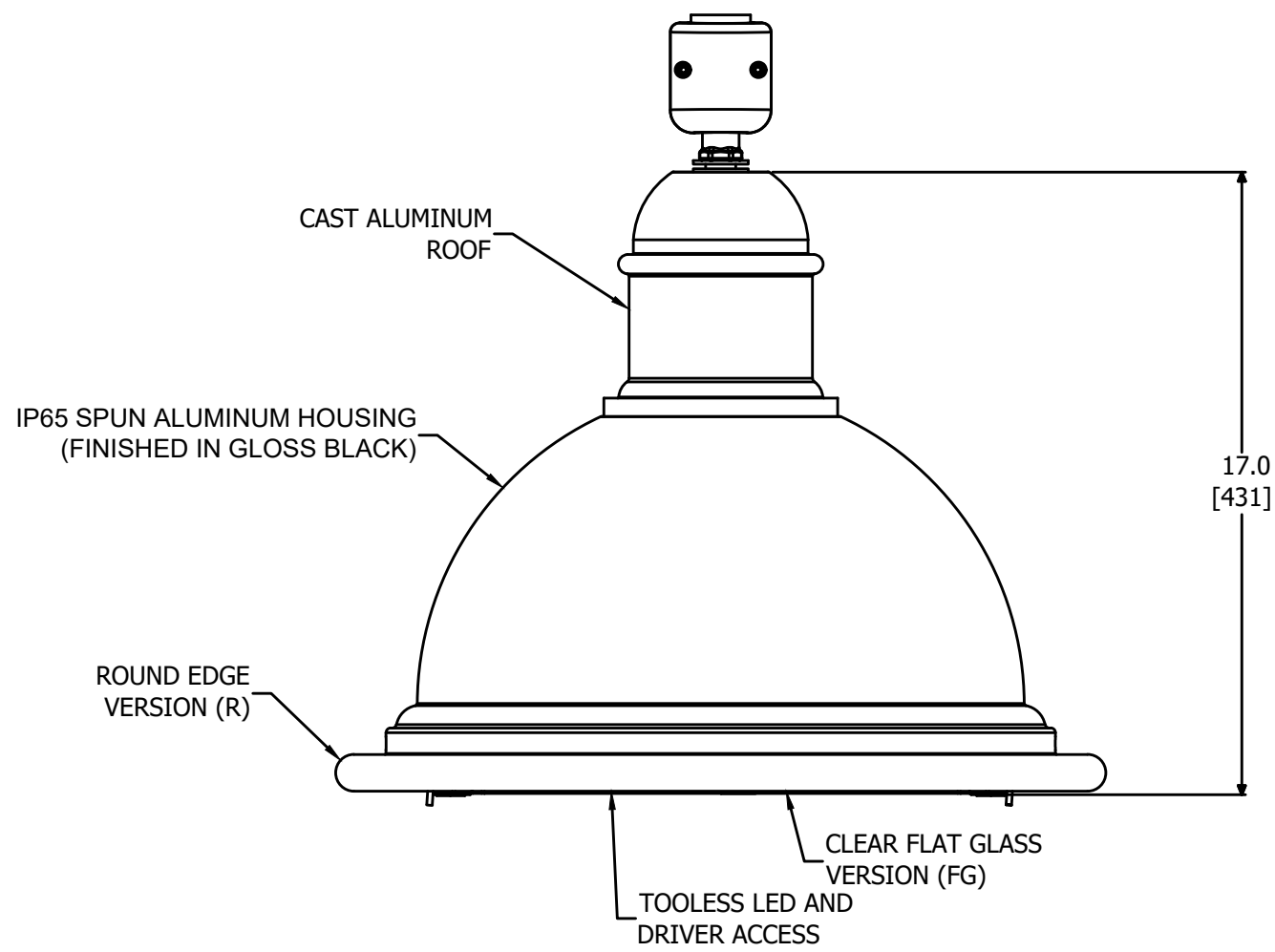
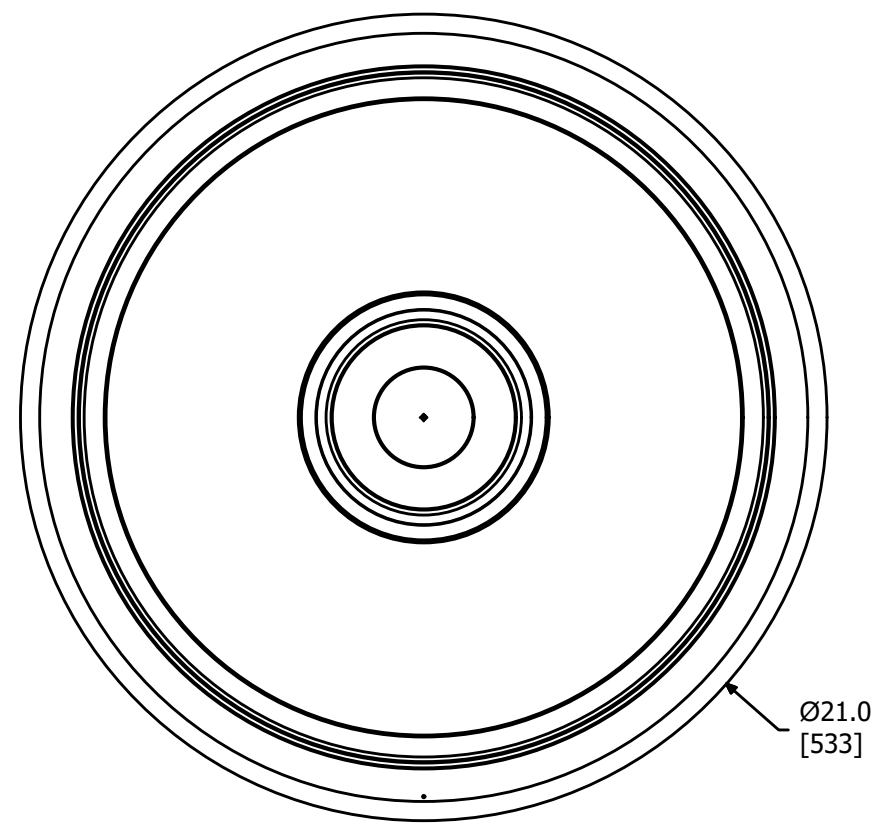
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STB: X

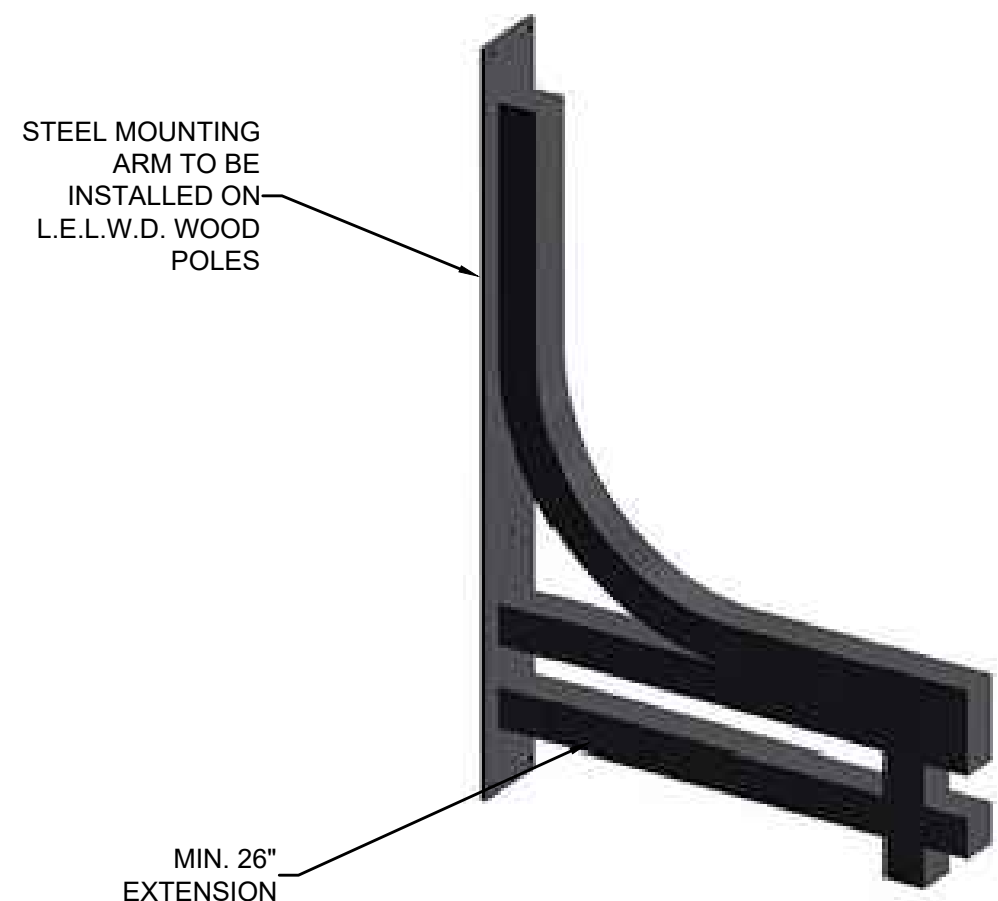
LMAN: X

IMS VIEW: X

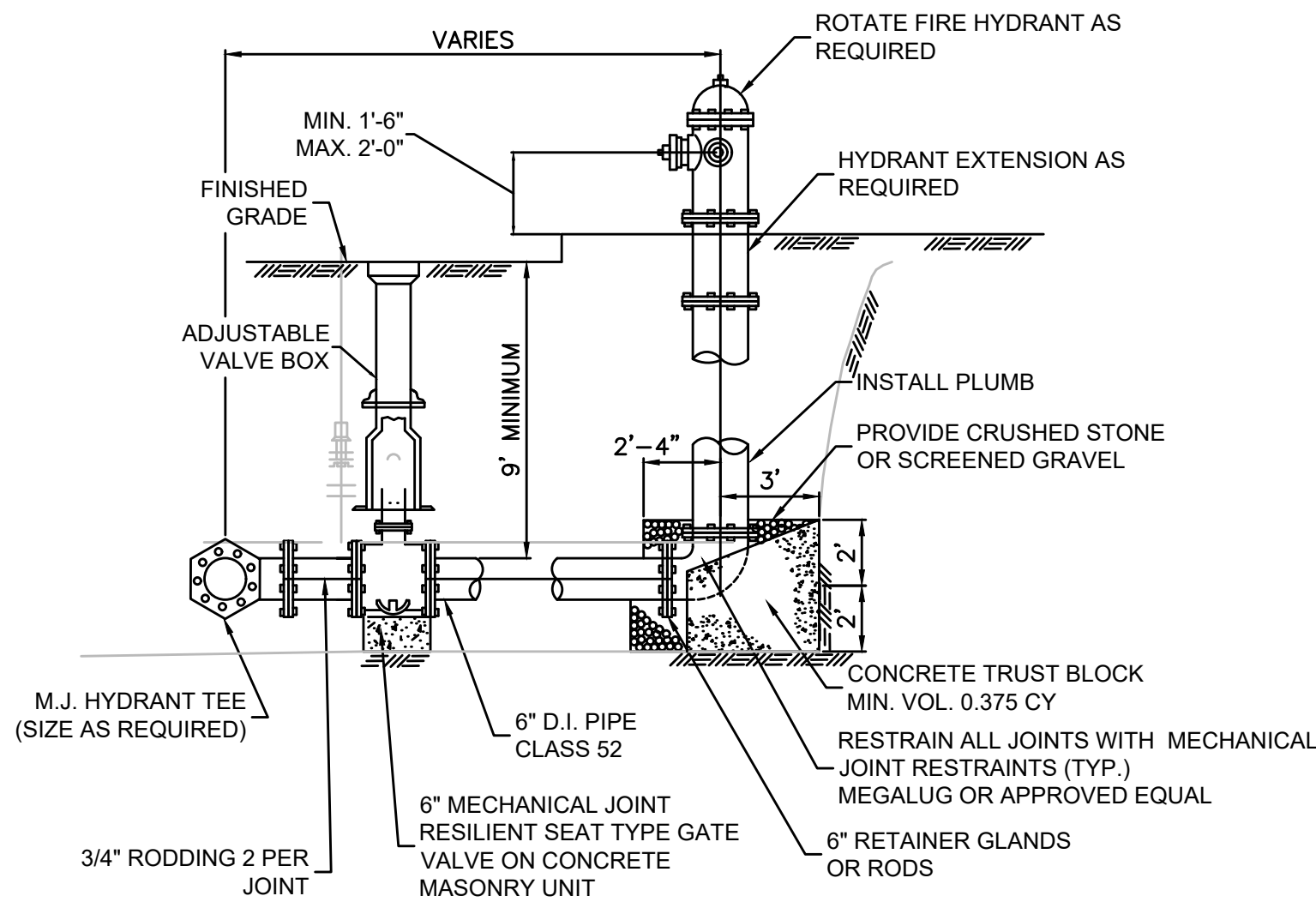
UCS: X



PEDESTRIAN LEVEL HIGHWAY LIGHTING
SCALE: N.T.S.



MOUNTING ARM FOR PEDESTRIAN
LEVEL HIGHWAY LIGHTING
SCALE: N.T.S.



HYDRANT AND VALVE DETAIL
1) HYDRANT OPENS TO THE RIGHT
2) LEAVE HYDRANT DRAINS OPEN

HYDRANT AND VALVE DETAIL
SCALE: N.T.S.

UNDERPASS LIGHTING LOAD CENTER
SCALE: N.T.S.



UNDERPASS LIGHTING TYPE SW-1
SCALE: N.T.S.

TO BE PROVIDED AT 75%

Application
• Traffic tunnels
• Underpasses

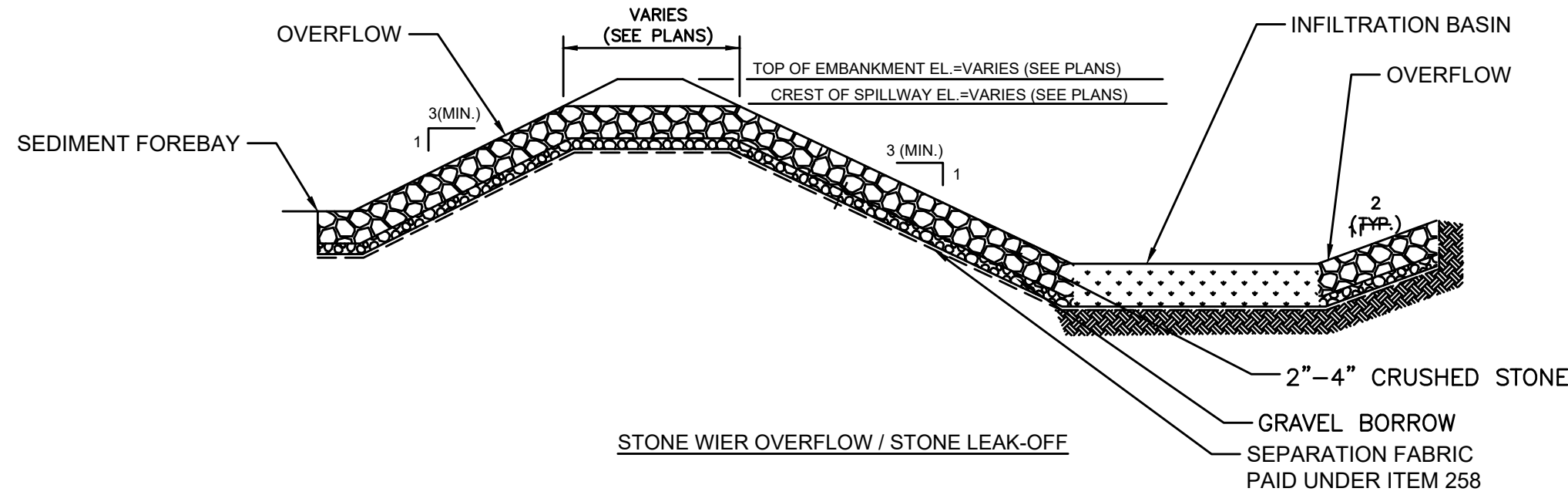
Specifications

Type	BGP360
Light source	Integral LED-module
Power	21-108 W (21/44/72/82/108 W system power)
Luminous flux	3000 up to 14,400 lm (3000/6000/10,000/11,400/14,400 lm)
Luminaire efficacy	> 120 lm/W (129/124/126/125/120 lm/W)
Correlated Color	NW (4000 K)
Temperature	Optional CW (5700 K)
Color Rendering Index	Minimal 70
Lumen maintenance at median useful life*	L95
100000 h	
Performance Ambient	+25 °C
Temperature Tq	
Operating temperature range	-30 to +45 °C
Driver	Separate (non-self ballasted LED-module)
Options	Flying lead length Flying lead cable type Through wiring Cable gland metal Connector type
Optic	DTS, DTS-NB, DTS-WB, DTA, DTA-NB, DTA-WB
Optical element	Lenses
Optical cover	Glass flat
Material	Housing: extruded aluminum with diecasted endcaps and glass cover Extruded aluminum profiles: AlMg Si 0.5 anodized 25 um Endcaps: diecastor aluminum, LM-6 powder coated 65 um Glass cover: 5mm, thermally toughened

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXX(XXX)X	XX	XX
PROJECT FILE NO.		609054	

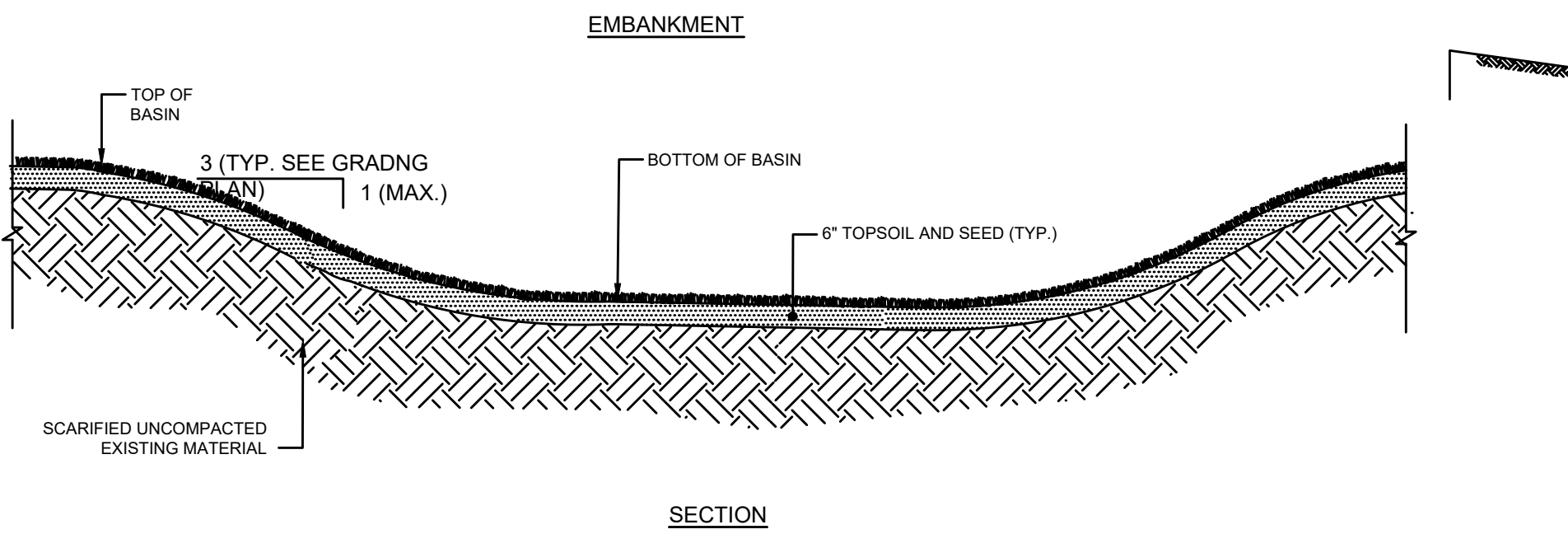
DRAINAGE & UTILITY DETAILS



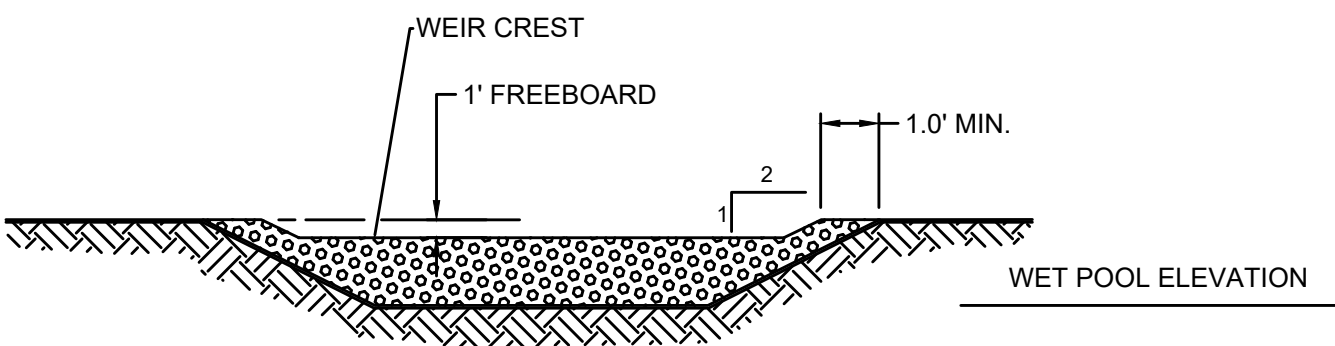
NOTES:
1. IMPERVIOUS MATERIAL FOR USE IN BASIN EMBANKMENT AREAS AND WHERE SHOWN ON THE PLANS SHALL BE COMPOSED OF CLAYS, SILTY CLAYS, OR CLAYEY SILTS. THE SOIL SHALL BE FREE OF RUBBISH, ICE, VEGETATIVE MATTER, LOAM, OR OTHER DEBRIS AND HAVE THE FOLLOWING GRADATION AS DEFINED BY A STANDARD SEIVE TEST (ASTM D422):

MIN. PERCENT PASSING (BY WT.)	SEIVE SIZE
100	3.5"
80-100	3/4"
40-90	No. 4
30-85	No. 40
25-75	No. 200

2. PERVIOUS BACKFILL MATERIAL FOR USE IN FILL AREAS ASSOCIATED WITH BASIN EMBANKMENTS SHALL BE COMPOSED OF ORDINARY BORROW MATERIAL (ITEM 150.) OR EXCAVATED MATERIAL FROM THE SITE DEEMED RE-USEABLE BY THE ENGINEER. SATISFACTORY ON-SITE MATERIAL SHALL HAVE SOIL CLASSIFICATION GROUPS OF GW, GP, GM, SW, SP, AND SM ACCORDING TO ASTM D 2487, OR A COMBINATION OF THESE GROUPS AND SHALL BE FREE OF ROCK OR GRAVEL LARGER THAN 3 INCHES (75 MM) IN ANY DIMENSION, DEBRIS, WASTE, FROZEN MATERIALS, VEGETATION, AND OTHER DELETERIOUS MATTER.



INFILTRATION BASIN
SCALE: N.T.S.



SEDIMENT FOREBAY
SCALE: N.T.S.

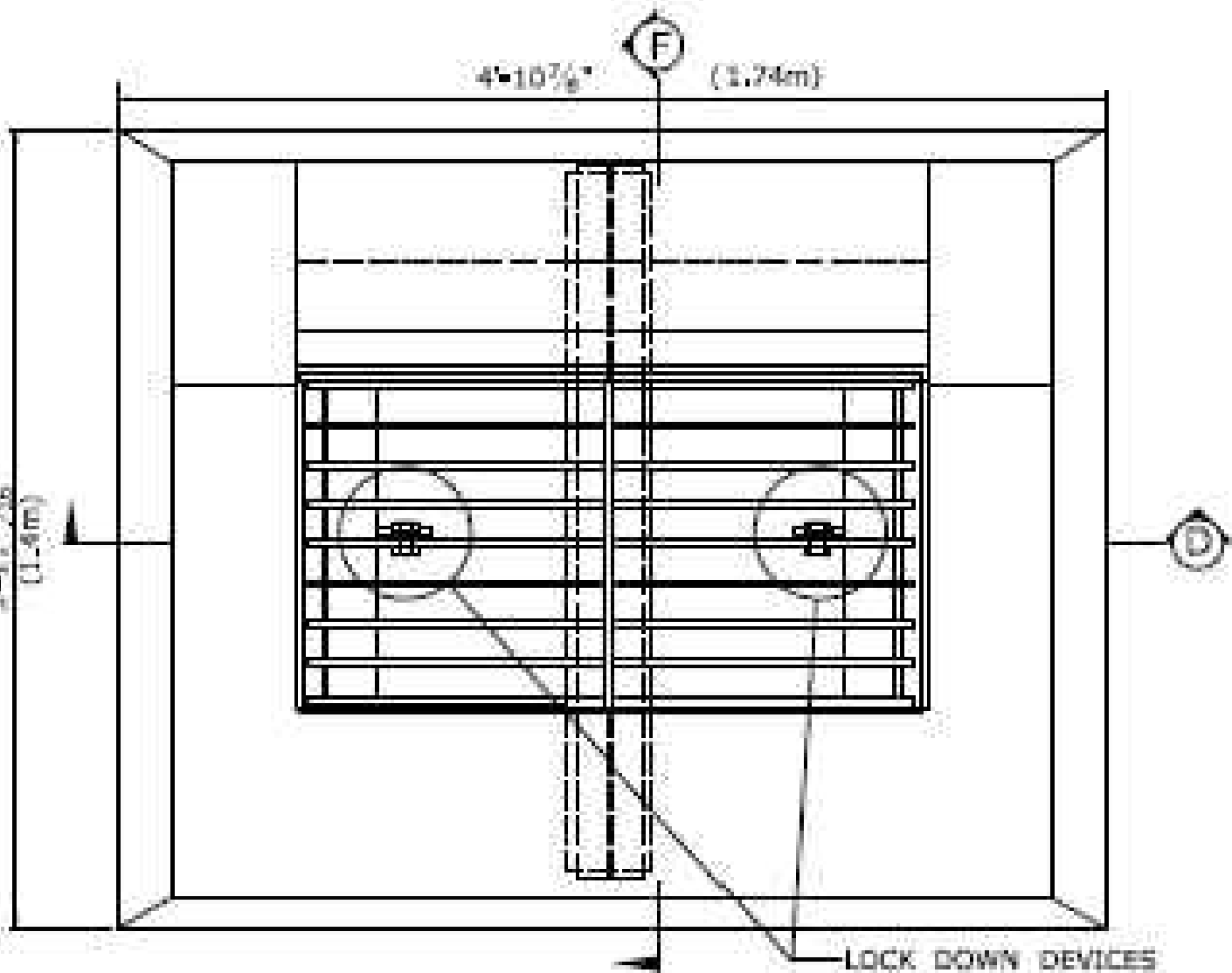
DOUBLE CATCH BASIN
SCALE: N.T.S.

LITTLETON

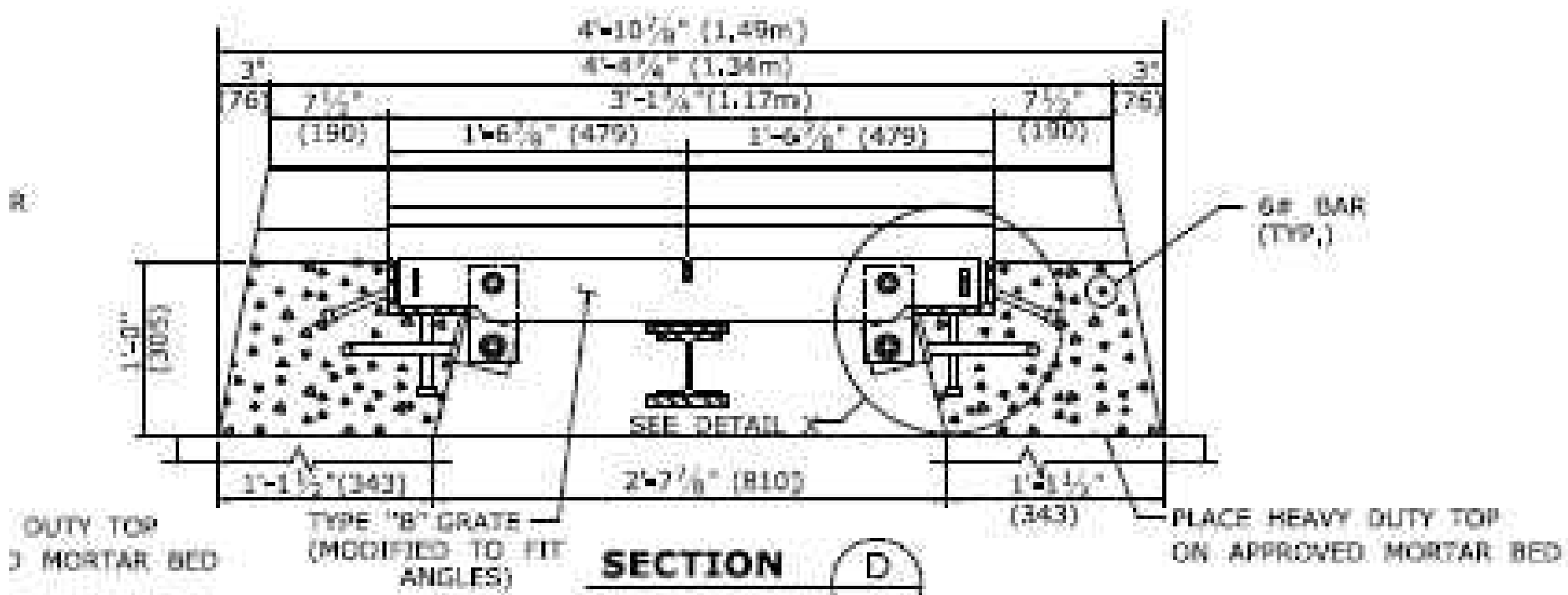
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	XX	XX
PROJECT FILE NO.		609054	

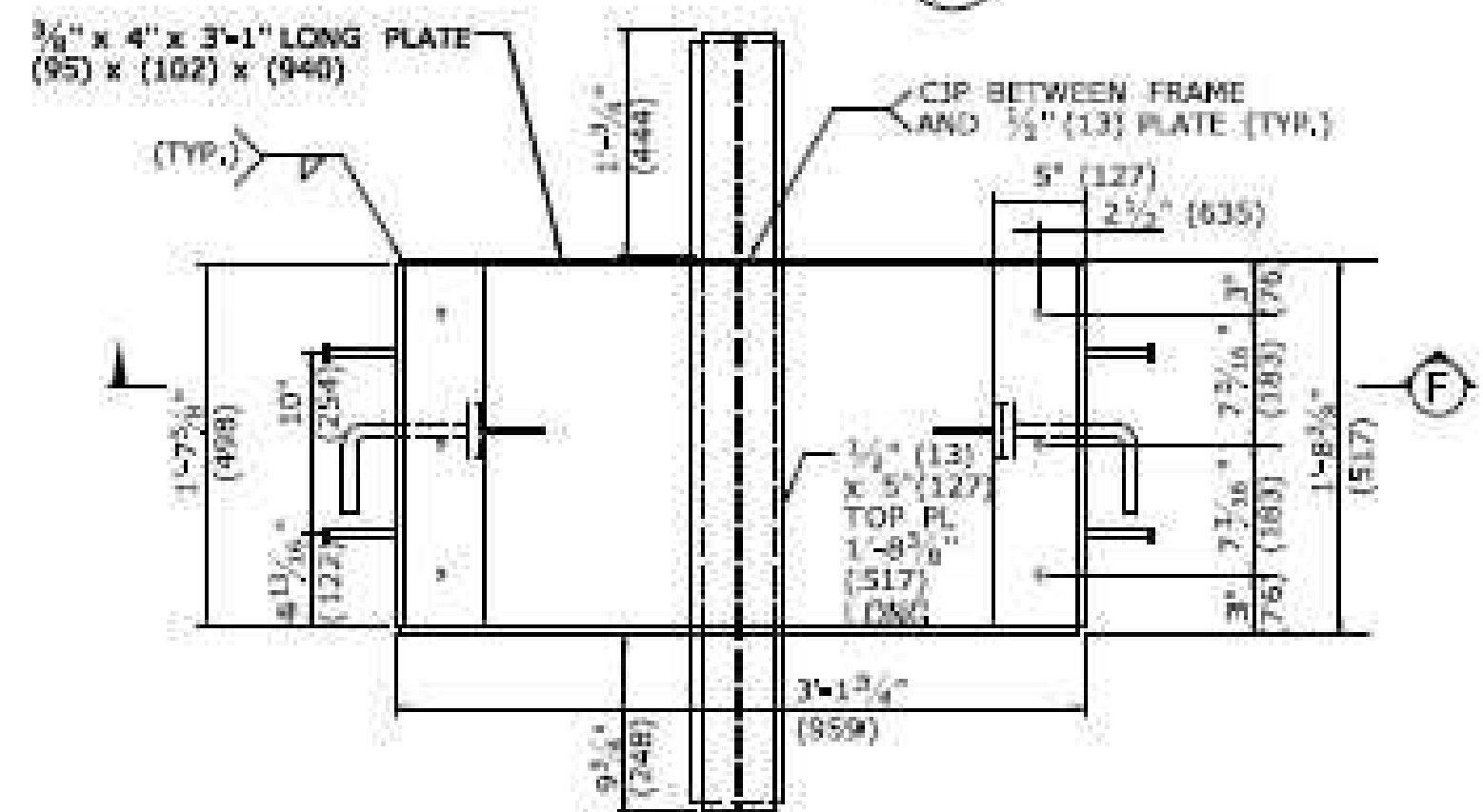
DRAINAGE & UTILITY DETAILS



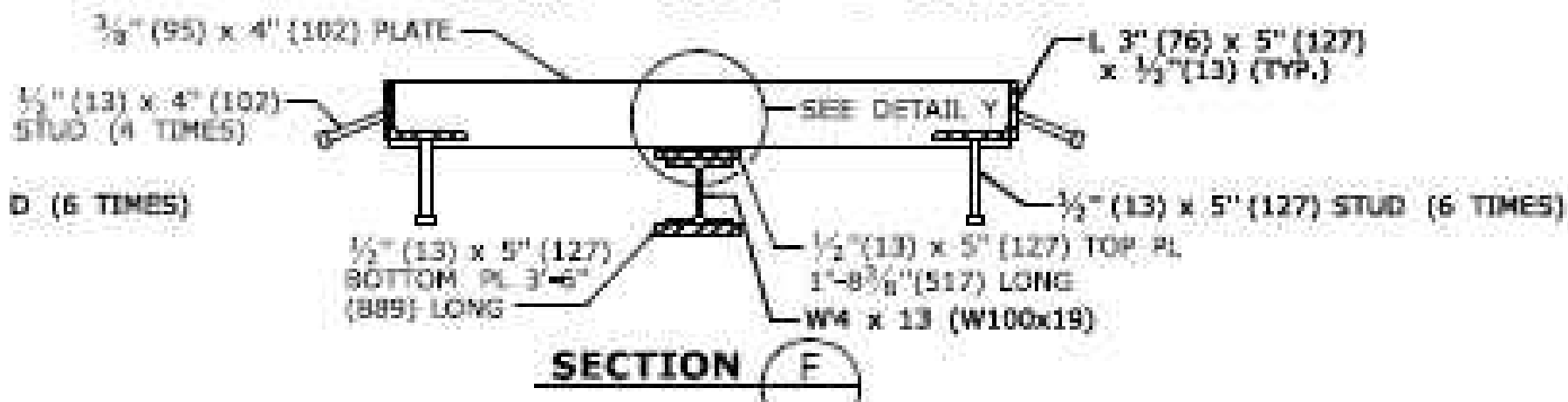
PLAN-TYPE "C" HEAVY DUTY
CATCH BASIN TOP



SECTION D

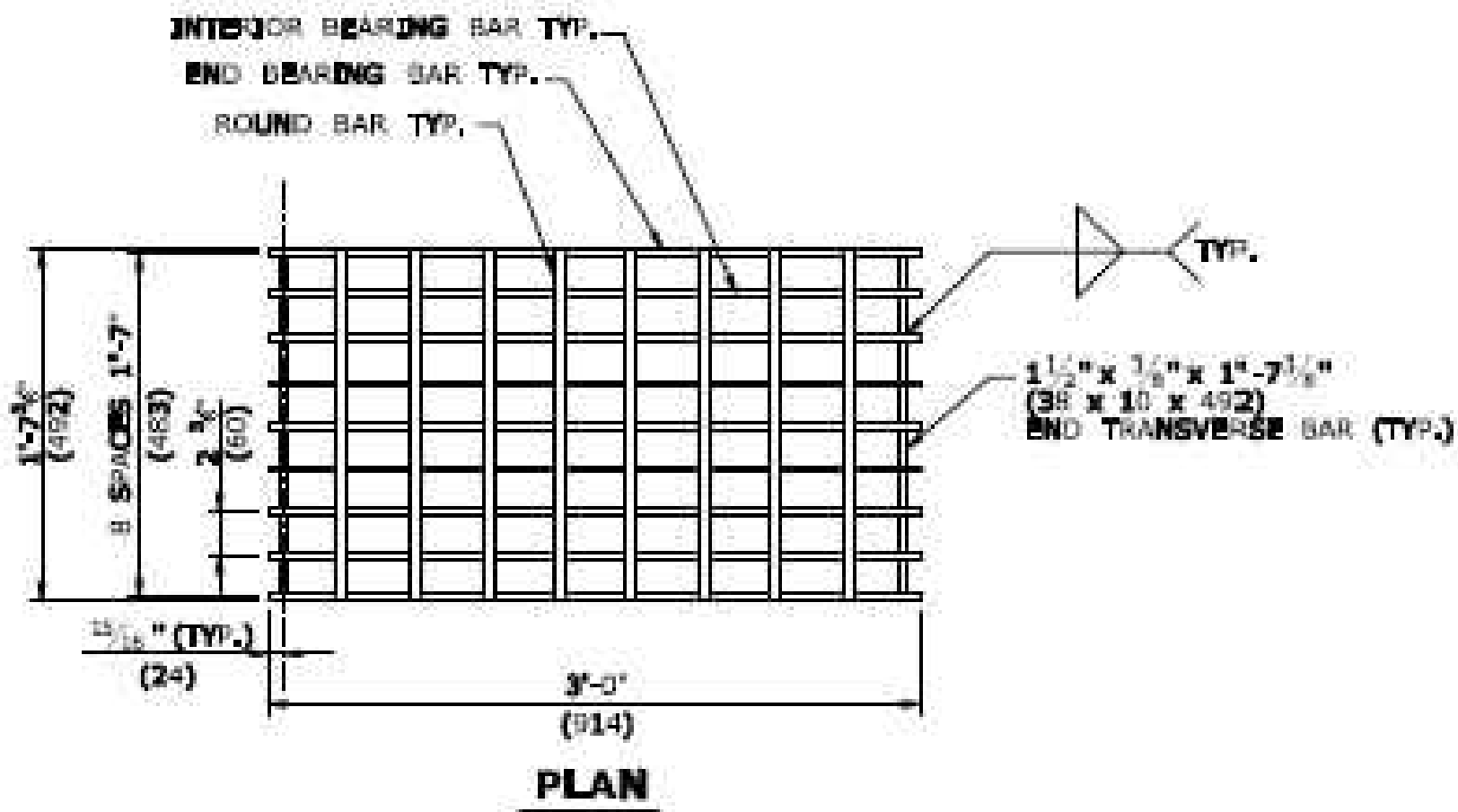


PLAN - TYPE "C" FRAME

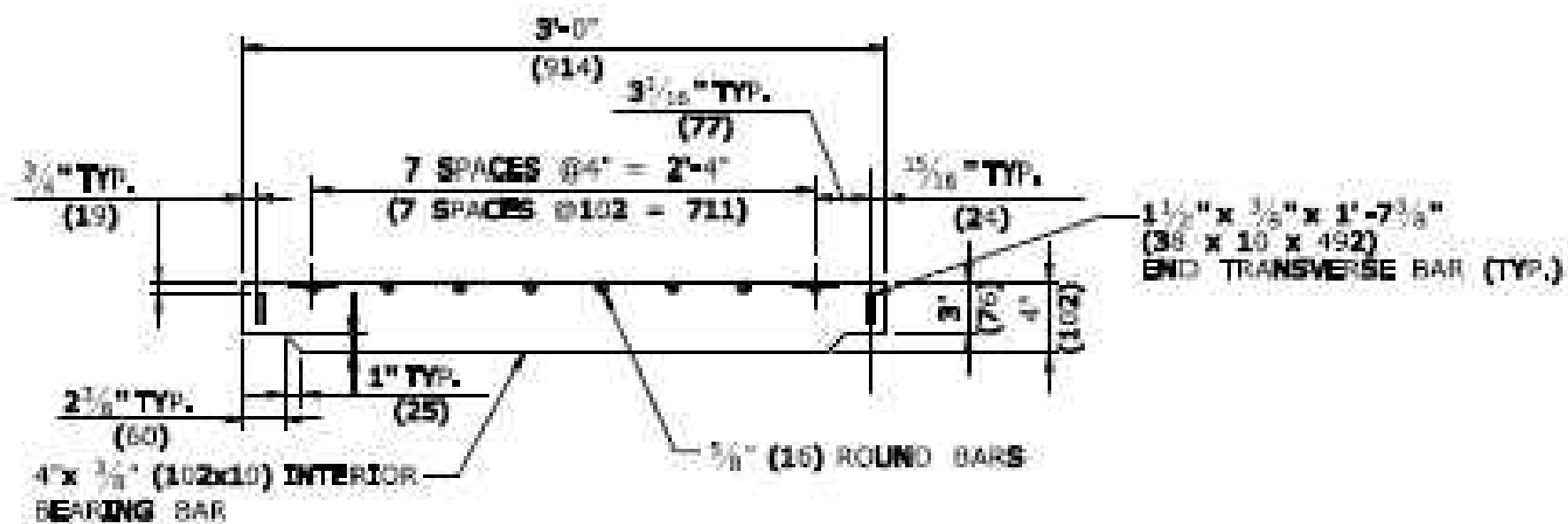


SECTION E

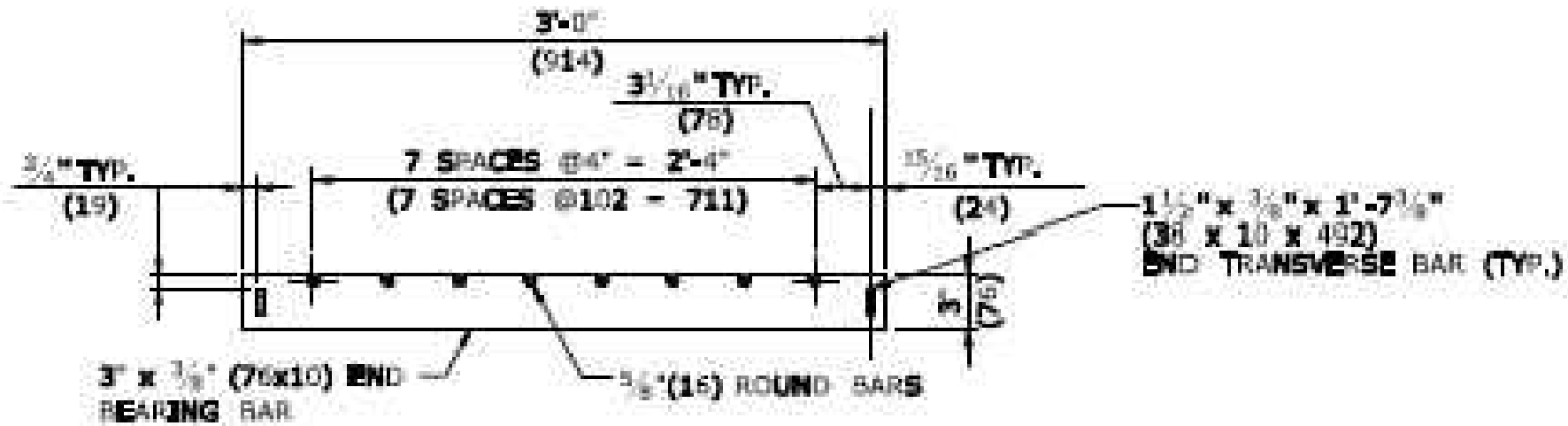
TYPE "C" HEAVY DUTY CATCH BASIN FRAME



PLAN



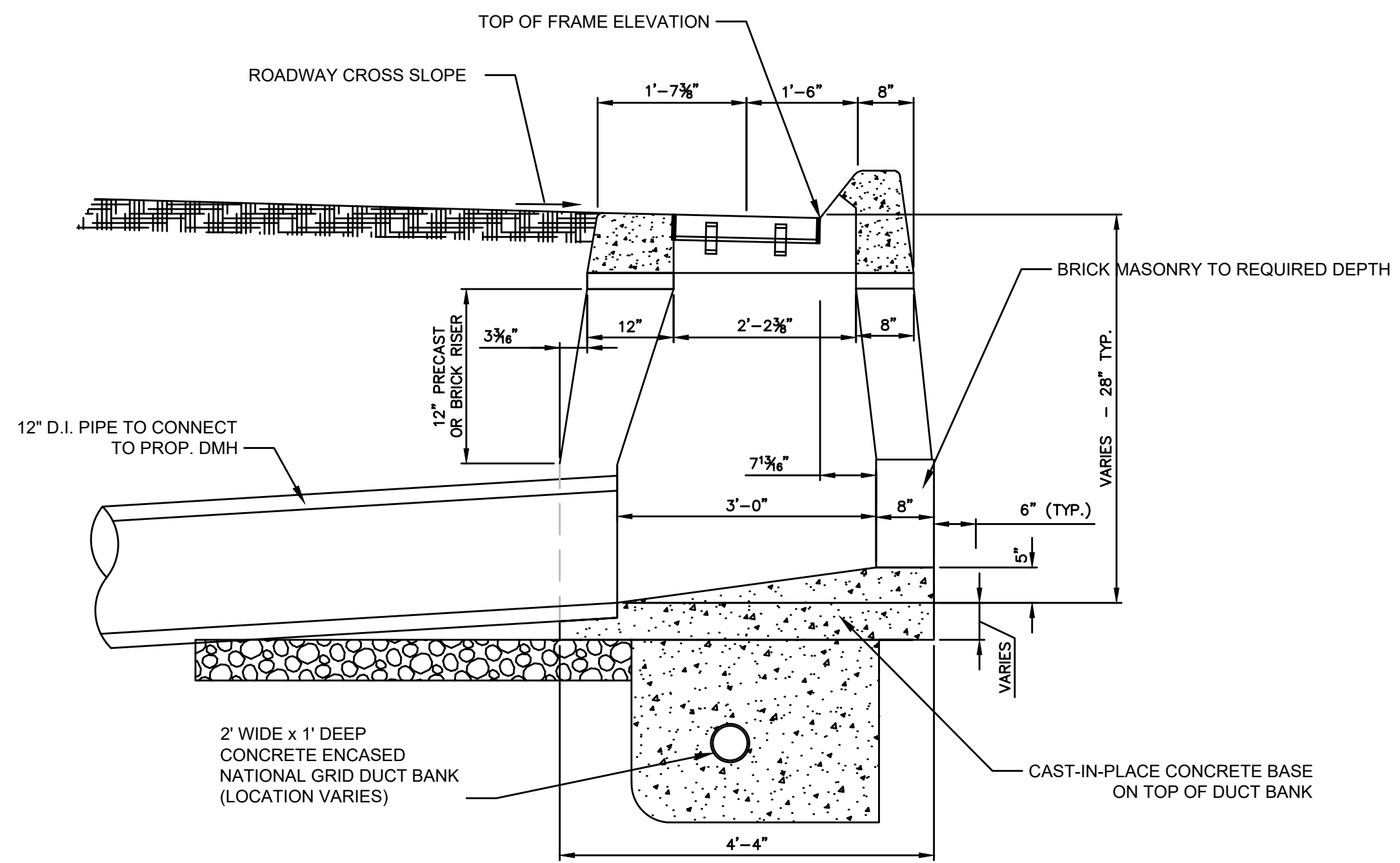
ELEVATION- INTERIOR BEARING BAR



ELEVATION- END BEARING BAR
CATCH BASIN GRATE TYPE A

DOUBLE CATCH BASIN GRATE
SCALE: N.T.S.

DOUBLE CATCH BASIN FRAME
SCALE: N.T.S.

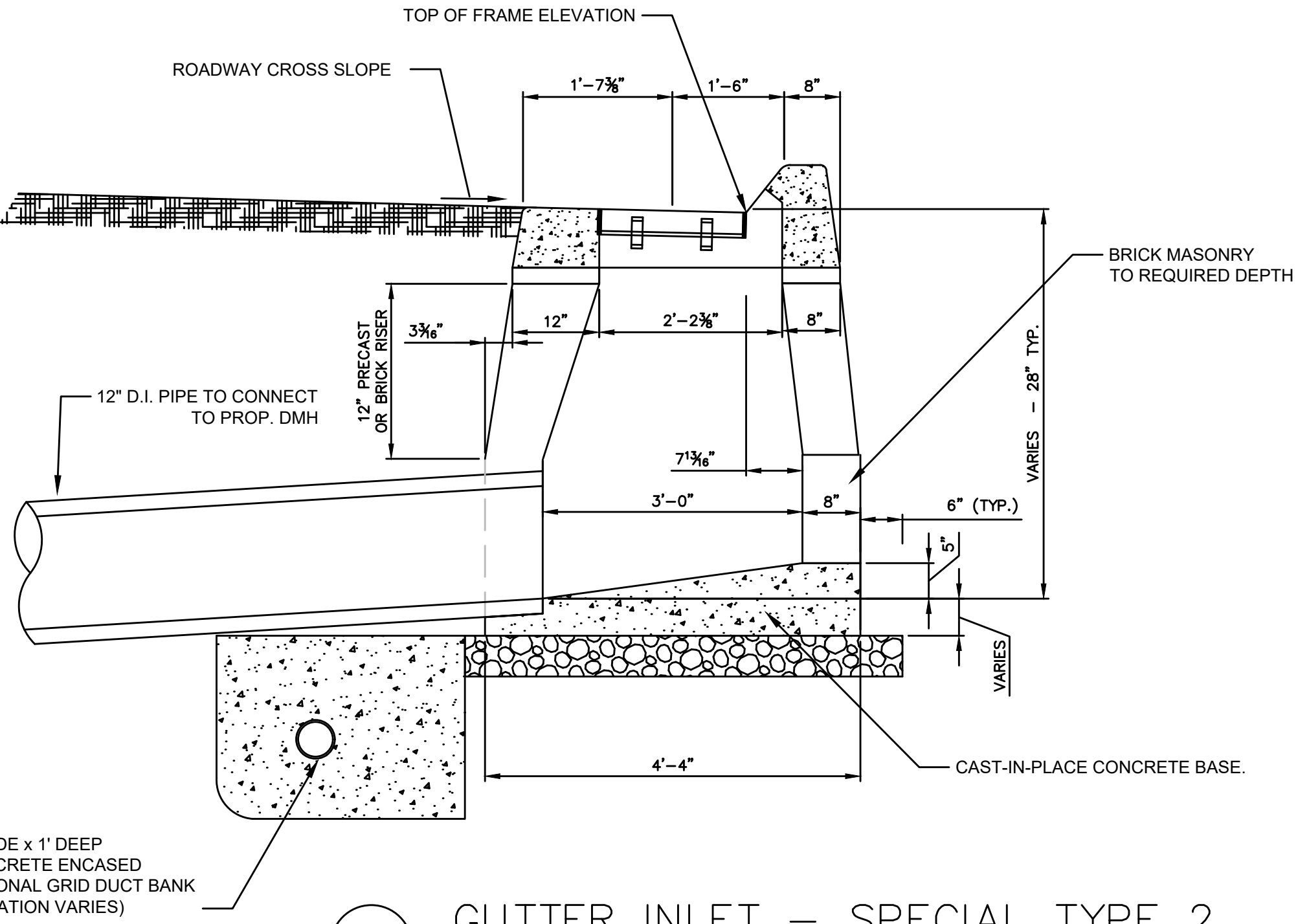


GUTTER INLET - SPECIAL TYPE 1

SCALE: N.T.S.

GUTTER INLET - SPECIAL TYPE 1 GENERAL NOTES

- IF CONCRETE MASONRY UNITS ARE REQUIRED, THE BASIN SHALL BE CONSTRUCTED IN CONFORMANCE WITH THE OVER ALL DIMENSIONS SHOWN HERE. CORBELLING WILL BE ALLOWED AT A MAXIMUM OF 1" PER BLOCK, TURN TOP COURSE 90° TO FRONT AND SIDE WALLS ONLY. RED BRICK IS NOT TO BE USED.
- END OF PIPE SHALL EXTEND TO AND BE CUT FLUSH WITH INSIDE FACE OF FACE OF GUTTER INLET WALL.
- MINIMUM CONCRETE COMPRESSIVE STRENGTH OF F'c = 4000 PSI SHALL BE OBTAINED PRIOR TO SHIPPING.
- ALL KNOCKOUTS IN PRECAST UNITS SHALL BE MADE FLUSH WITH EXTERIOR / INTERIOR OF UNITS USING CONCRETE, BRICKS AND MORTAR.
- LATEST MASSDOT STANDARD SPECIFICATIONS AND SUPPLEMENTALS SHALL GOVERN.



GUTTER INLET - SPECIAL TYPE 2

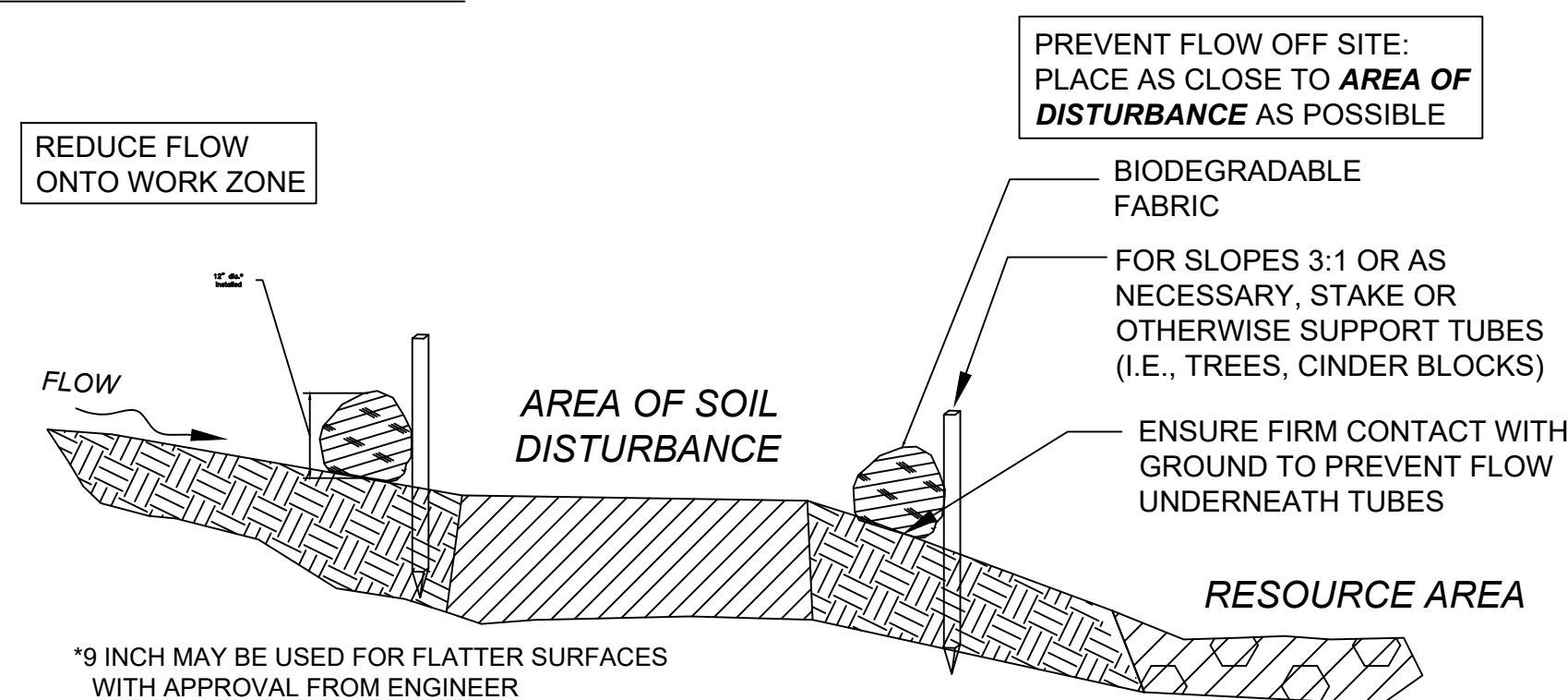
SCALE: N.T.S.

**LITTLETON
RECONSTRUCTION OF FOSTER STREET**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	XX	XX
PROJECT FILE NO.		609054	

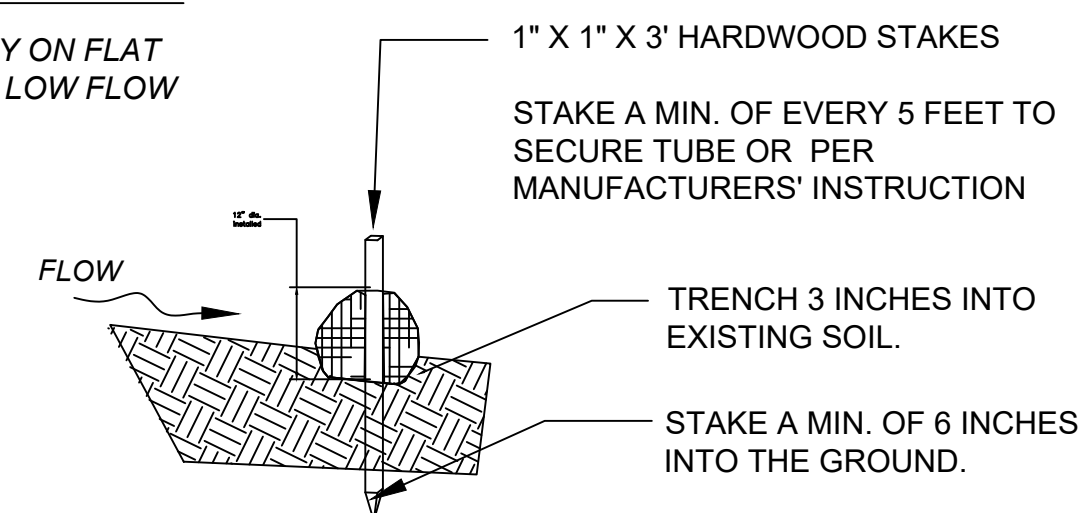
CONSTRUCTION DETAILS

COMPOST FILTER TUBE

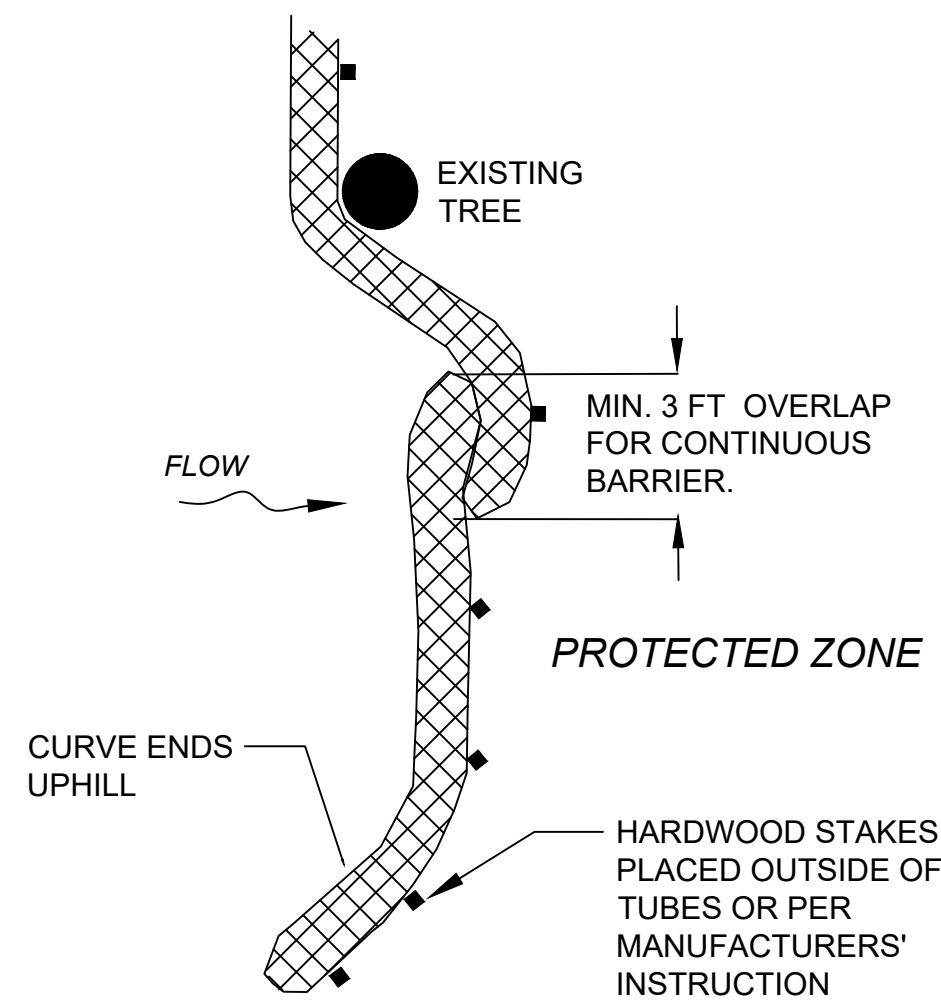


12 INCH STRAW WATTLE

TO BE USED ONLY ON FLAT
SURFACES WITH LOW FLOW



SECTION

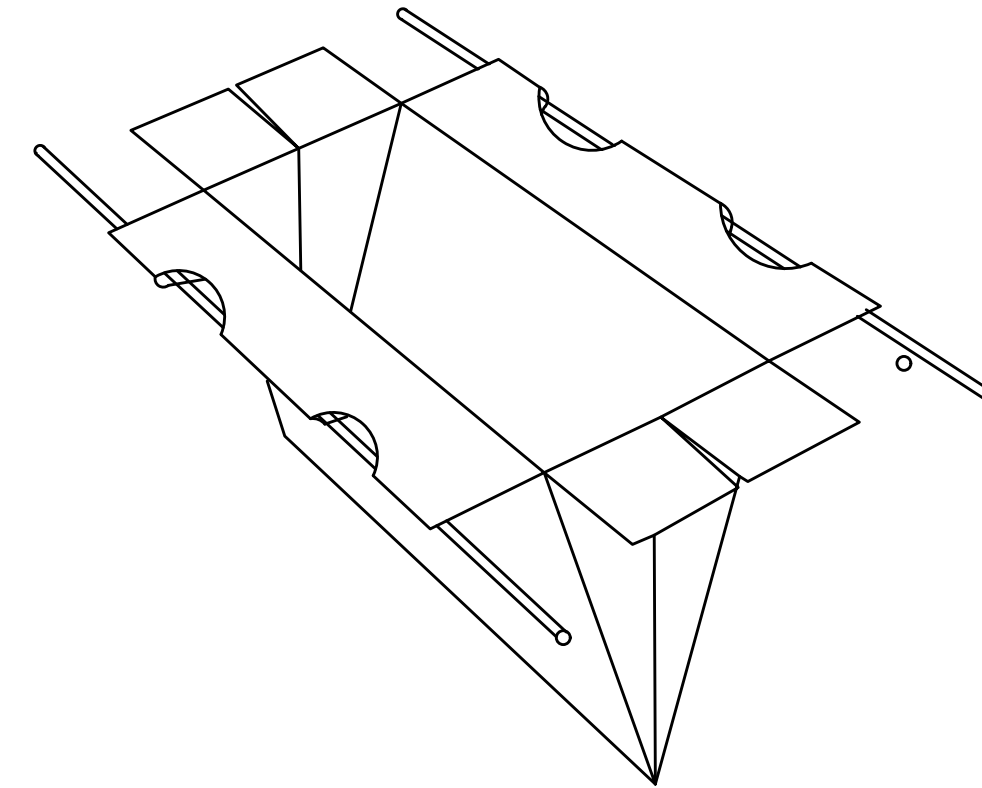


PLACE TUBE ALONG CONTOURS AND PERPENDICULAR TO FLOW.

ADJUST LOCATION AS REQUIRED FOR OPTIMUM EFFECTIVENESS. DO NOT INSTALL IN WATERWAYS.

PLACE STAKES AS NEEDED TO SECURE TUBES IN PLACE.

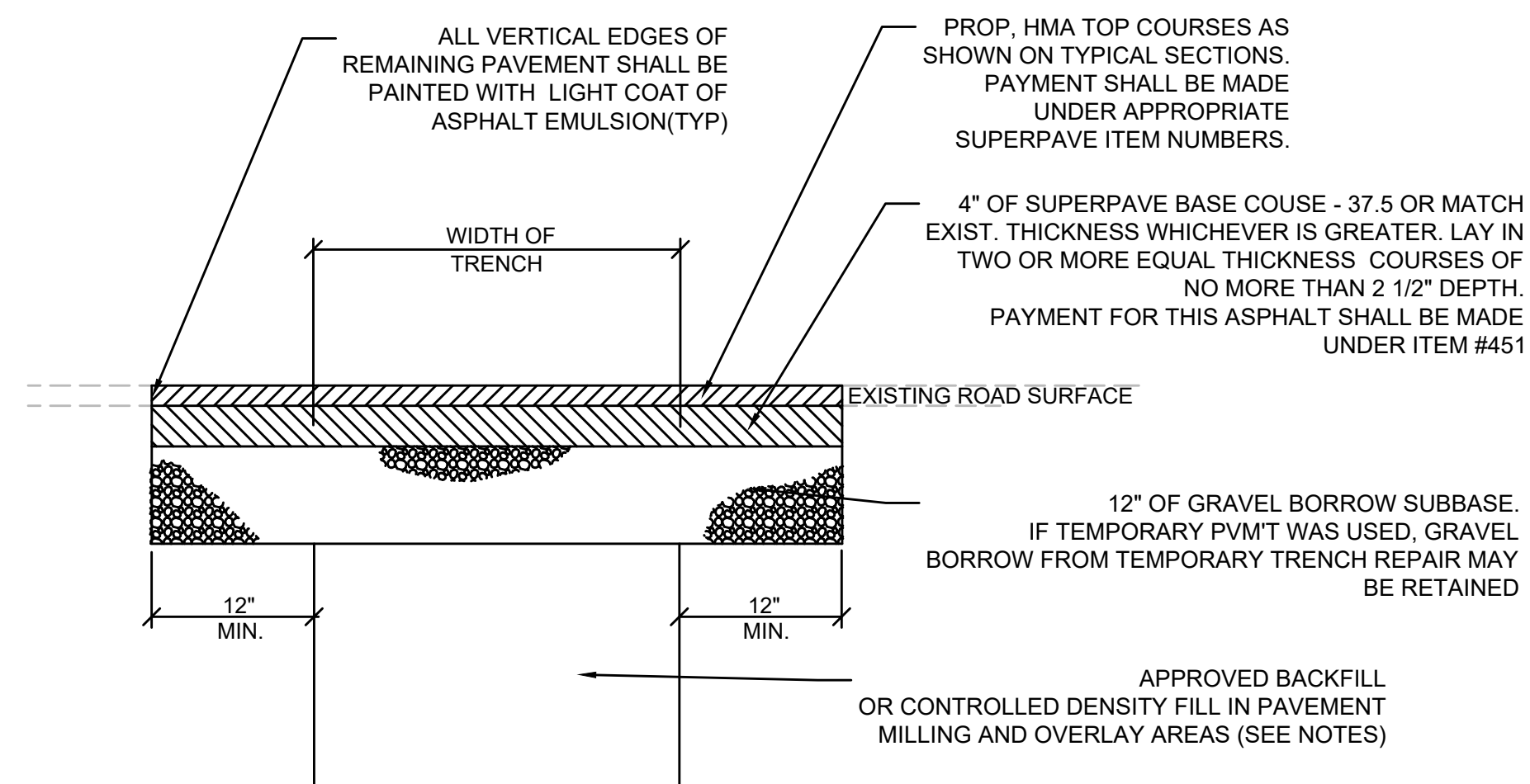
PLAN VIEW



NOTES:

1. SIZED TO FIT ANY SIZE OR SHAPE CATCH BASIN.
2. ALL SEAMS DOUBLE STITCHED.
3. PERMEABILITY - REGULAR FLOW SILTSACK - 40 gal./min./sq. ft.
HI - FLOW SILTSACK - 200 gal./min./sq. ft.

(X) SEDIMENT BARRIERS – COMPOST FILTER TUBES
SCALE: N.T.S.



NOTES:
OVERLAY AREAS:THE TRENCH SHALL BE REPAIRED TO THE TOP OF THE BASE COURSE. THE
TOP COURSES SHALL BE PLACED WITH OVERLAY OF THE ROADWAY

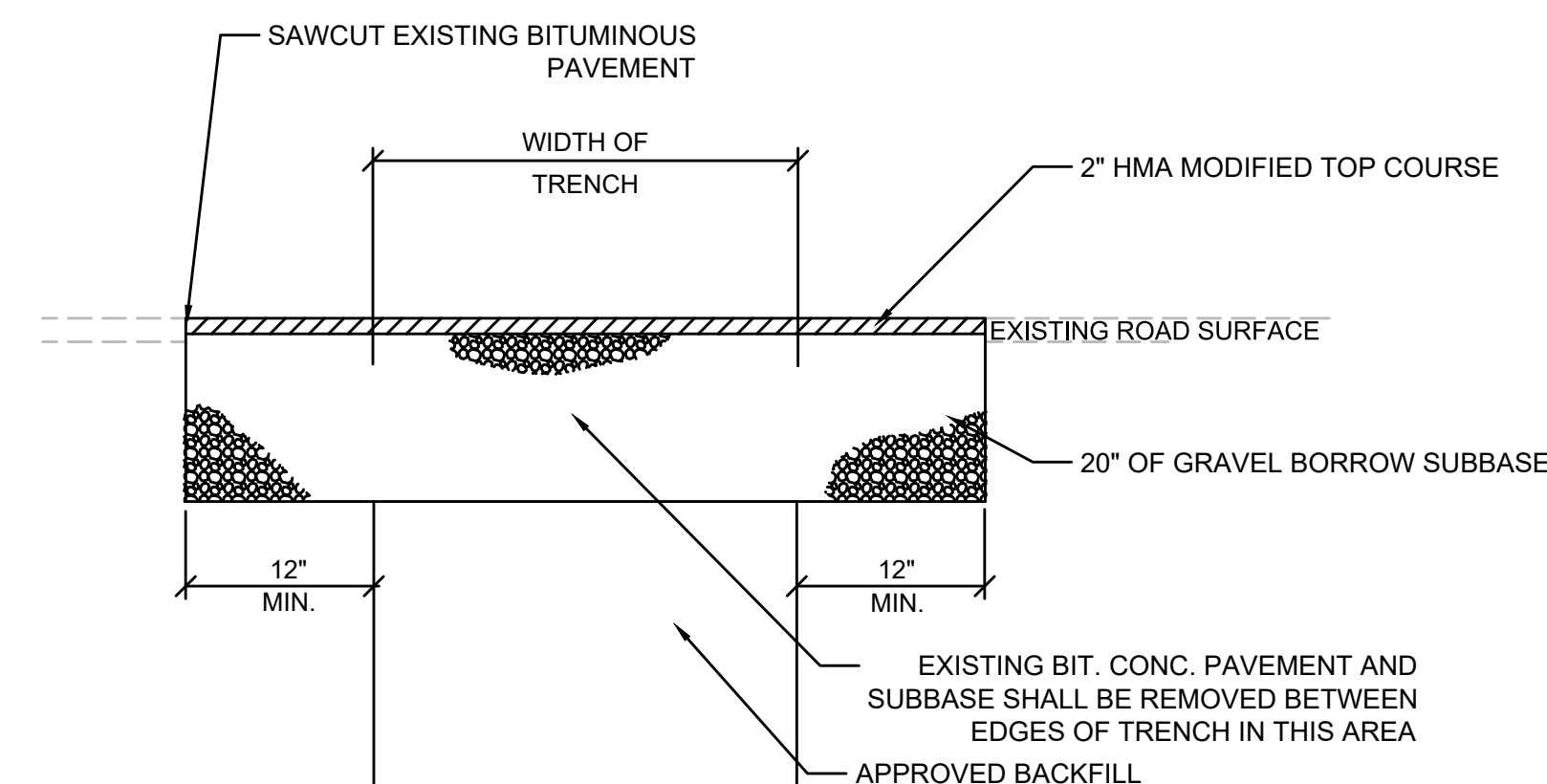
ROADWAY TRENCHING OUTSIDE OF FULL DEPTH AND OVERLAY: THE TRENCH SHALL BE REPAIRED WITH TOP COURSES INSTALLED WITH THE BASE COURSE.

CONTROLLED DENSITY FILL MAY BE USED IN LIEU OF APPROVED BACKFILL IN PAVEMENT MILLING AND OVERLAY AREAS WHERE NORMAL BACKFILL CANNOT BE PLACED OR TO REDUCE AMOUNT OF TIME NEEDED TO BACKFILL THE TRENCH. USE OF CONTROLLED DENSITY FILL TO BACKFILL TRENCHES SHALL BE APPROVED BY ENGINEER.

PERMANENT ASPHALT SHALL BE PAID FOR UNDER ITEM #451.

PERMANENT PAVEMENT TRENCH REPAIR IN ROADWAYS

SCALE: N.T.S.



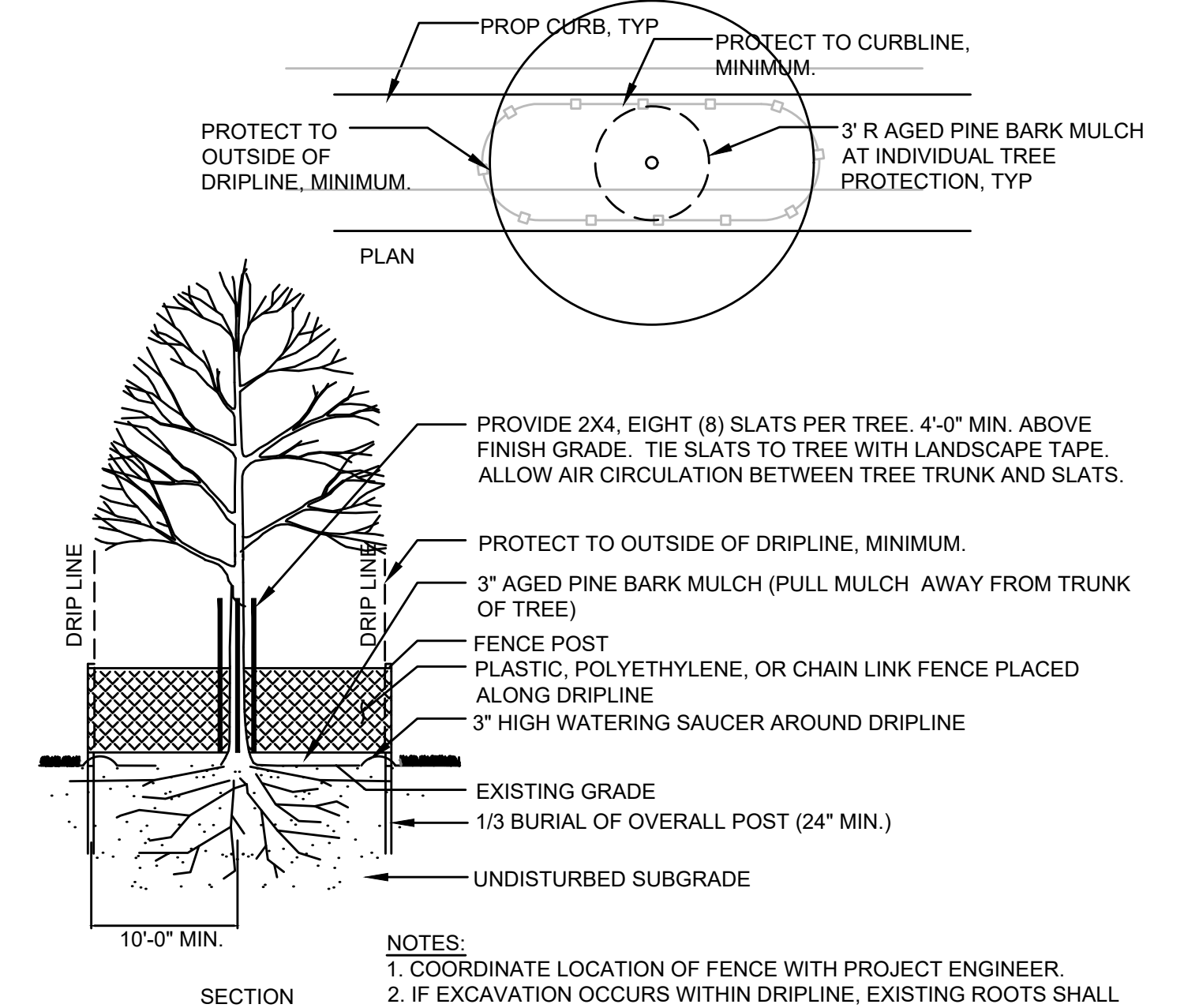
NOTES:
THE TEMPORARY PAVEMENT TRENCH REPAIR SHALL BE USED DURING THE TIME BETWEEN
COMPLETION OF THE UTILITY CONSTRUCTION AND CONSTRUCTION OF THE PROPOSED
ROADWAY PAVEMENT STRUCTURE OR PERMANENT PAVEMENT TRENCH REPAIR.

TEMPORARY ASPHALT SHALL BE PAID FOR UNDER ITEM #472

TEMPORARY PAVEMENT
TRENCH REPAIR

SCALE: N.T.S.

INDIVIDUAL TREE PROTECTION
SCALE: N.T.S.

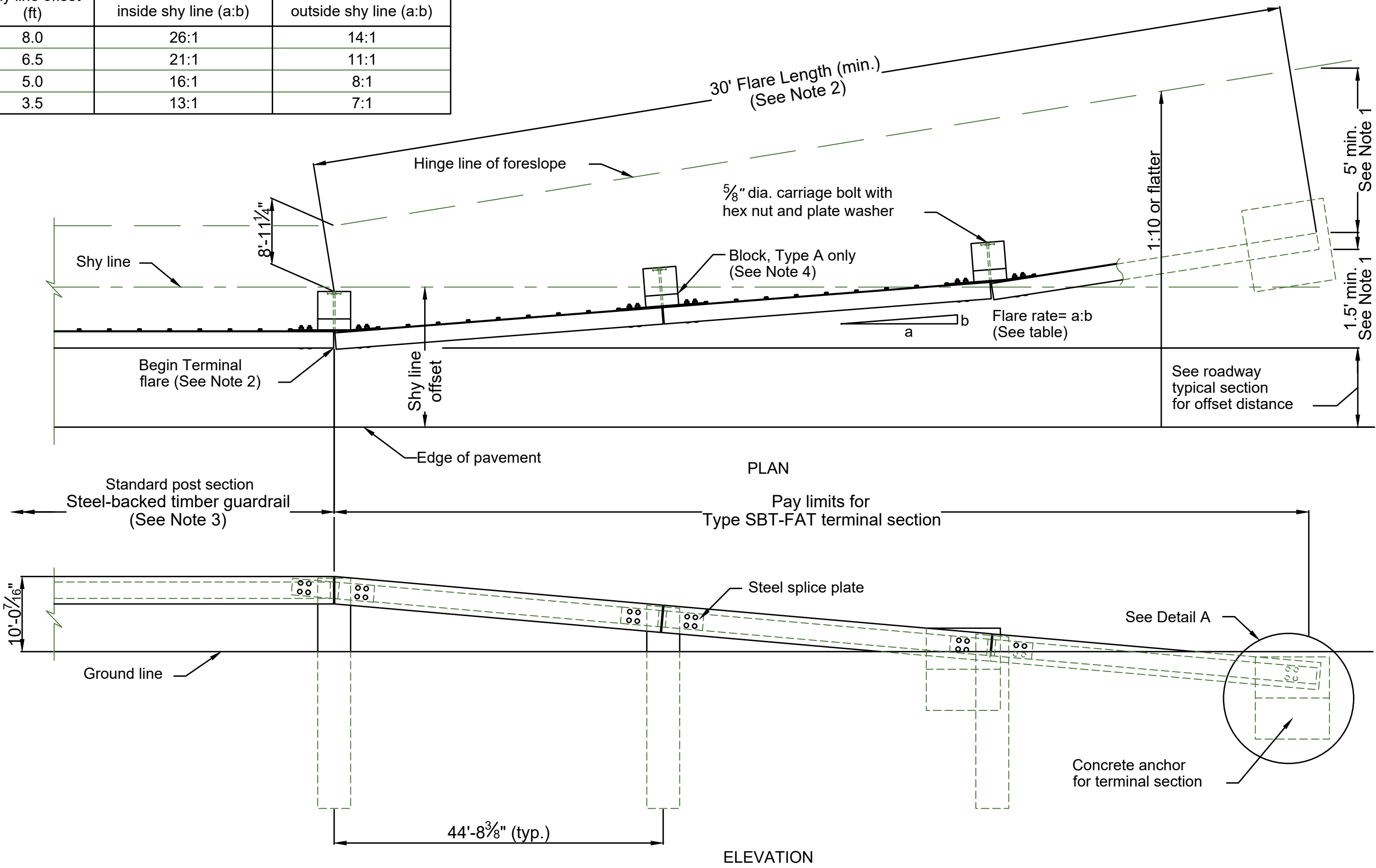


NOTES:

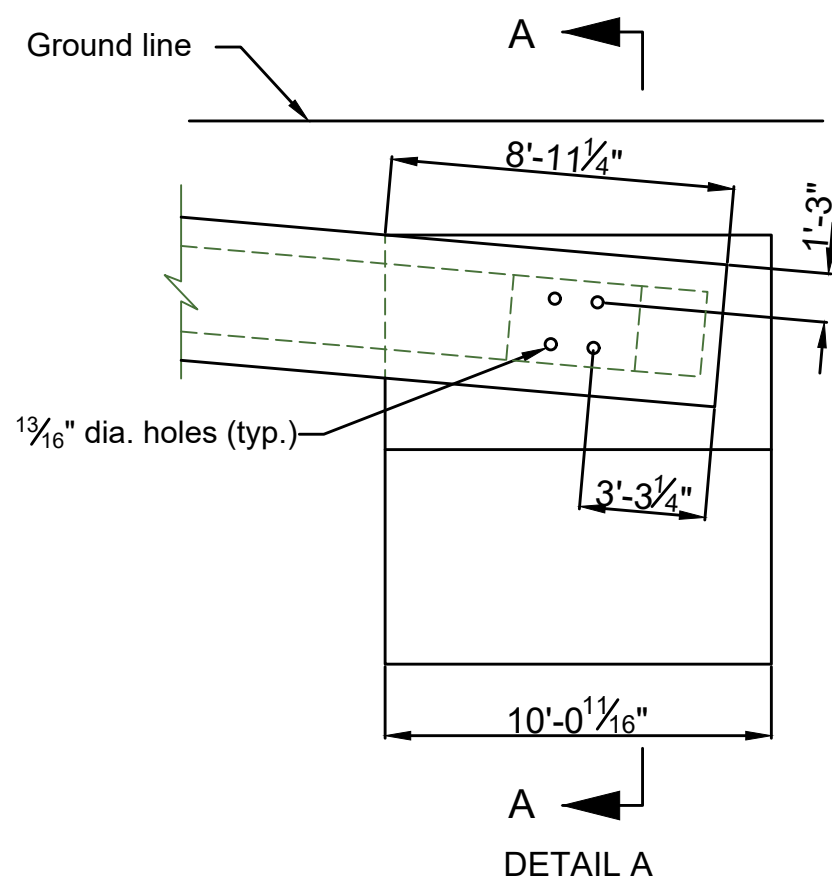
2. IF EXCAVATION OCCURS WITHIN DRIPLINE, EXISTING ROOTS SHALL BE CLEANLY CUT PRIOR TO EXCAVATION BY A CERTIFIED ARBORIST AND TREES SHALL BE WATERED.

SCALE: N.T.S.

GUARDRAIL FLARE RATE TABLE			
Design Speed (mph)	Shy line offset (ft)	Flare rate inside shy line (a:b)	Flare rate outside shy line (a:b)
60	8.0	26:1	14:1
50	6.5	21:1	11:1
40	5.0	16:1	8:1
30 and less	3.5	13:1	7:1

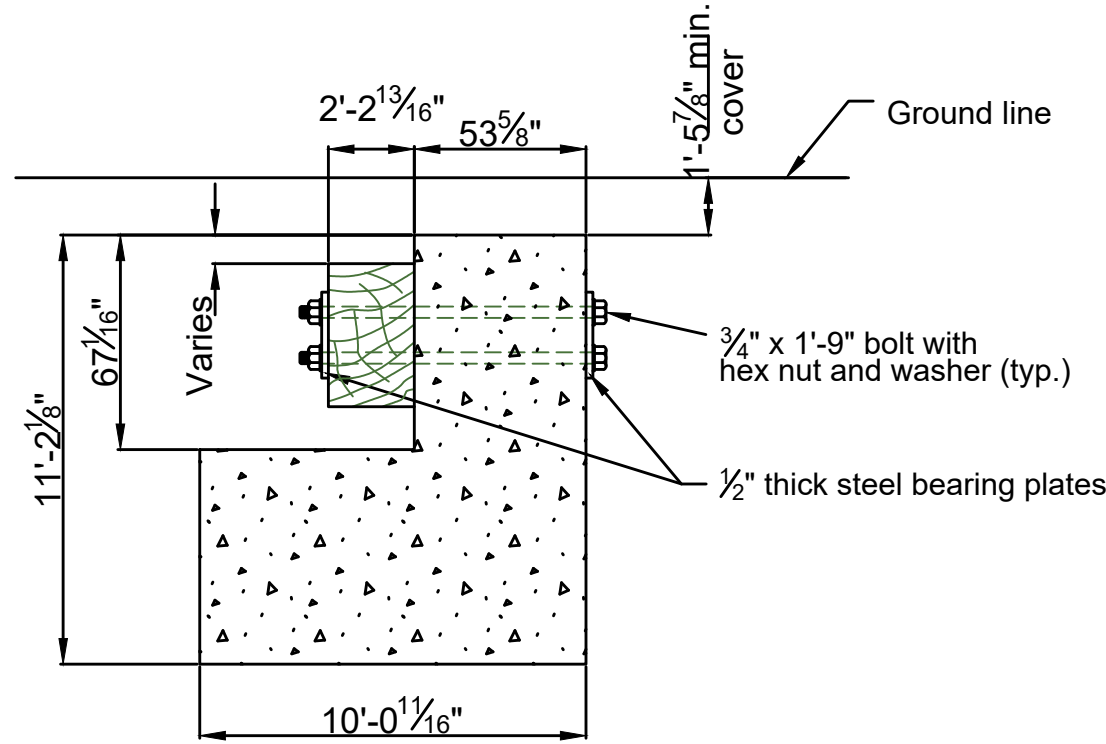


APPROACH & DEPARTURE FLARE WITH FLARED ANCHOR TERMINAL (FAT)

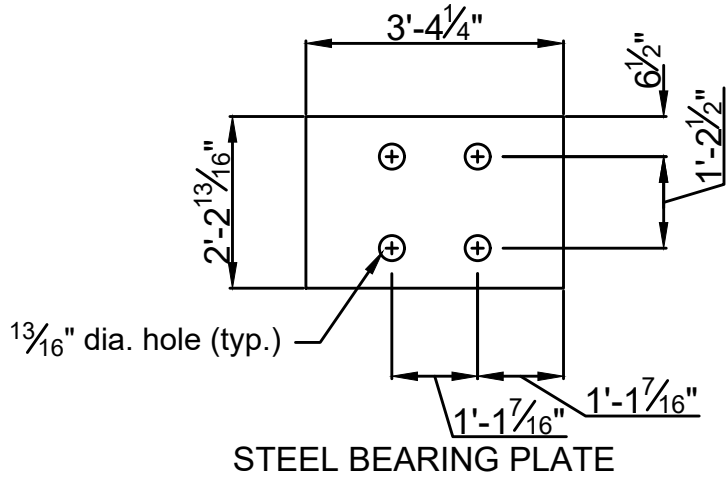


DETAIL A

CONCRETE ANCHOR



SECTION A-A



STEEL BEARING PLATE

NOTE:

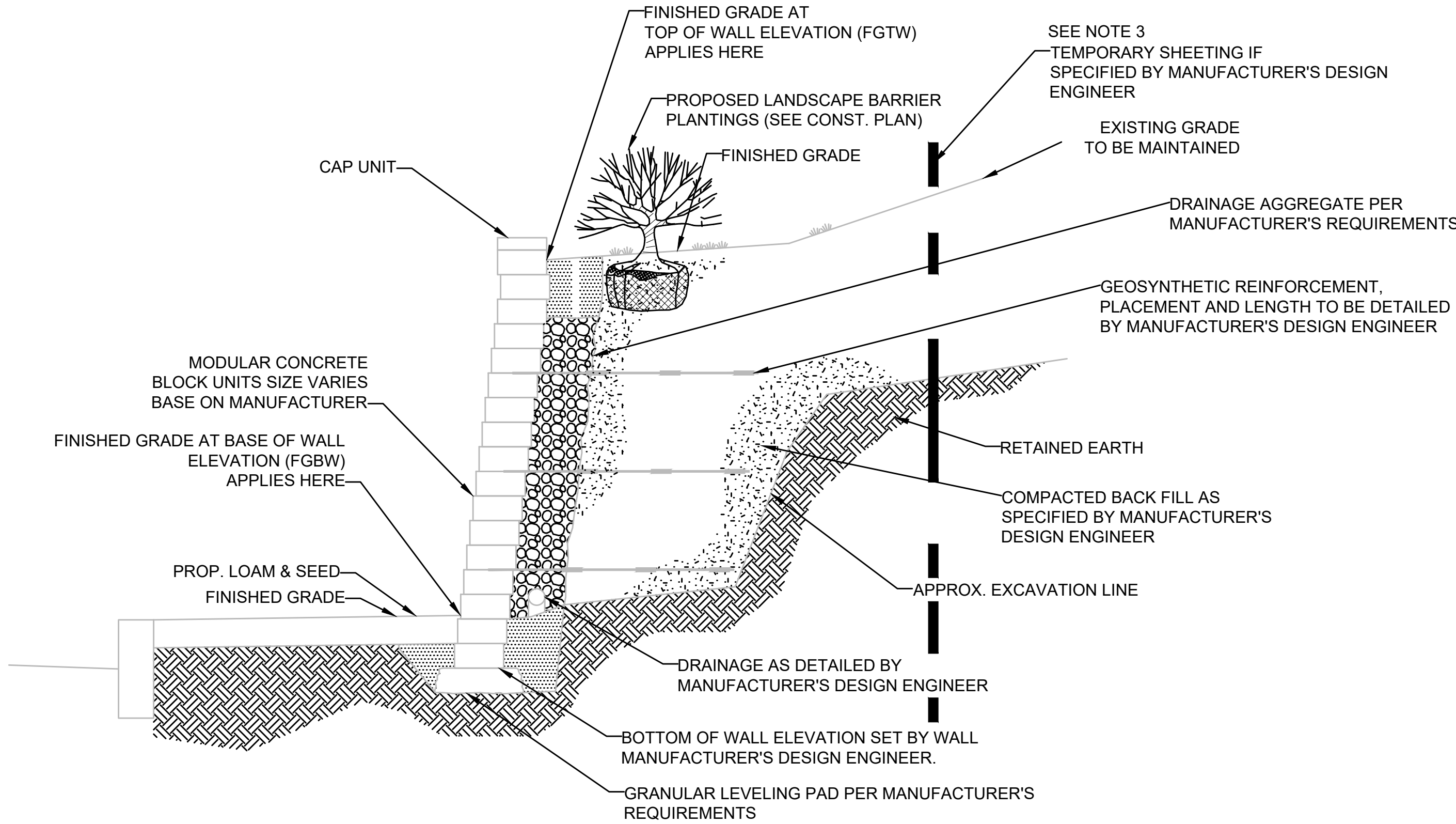
- The guardrail flare shown in the plan view is the minimum length and rate required. As directed by the Engineer, flare the guardrail so that the terminal section is outside the clear zone. If the terminal section cannot be located outside the clear zone, it should be flared as far as practical from the road at the maximum rate indicated on the Guardrail Flare Rates table.
- See Sheet XX, Steel-Backed Timber Guardrail, Type A & Type B with Wood Post, for timber, structural steel, and hardware details.
- On the Type A, blocked-out guardrail, include the blocks in terminal section, except on the concrete anchor. For the Type B, non-blocked-out guardrail, no blocks are included.

STEEL-BACKED TIMBER GUARDRAIL
TERMINAL SECTION
TYPE SBT-FAT
SCALE: N.T.S.

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXX(XXX)X	XX	XX
PROJECT FILE NO.		609054	

CONSTRUCTION DETAILS



TYPICAL SECTION

MECHANICALLY
STABILIZED EARTH WALL
SCALE: N.T.S.

NOTES

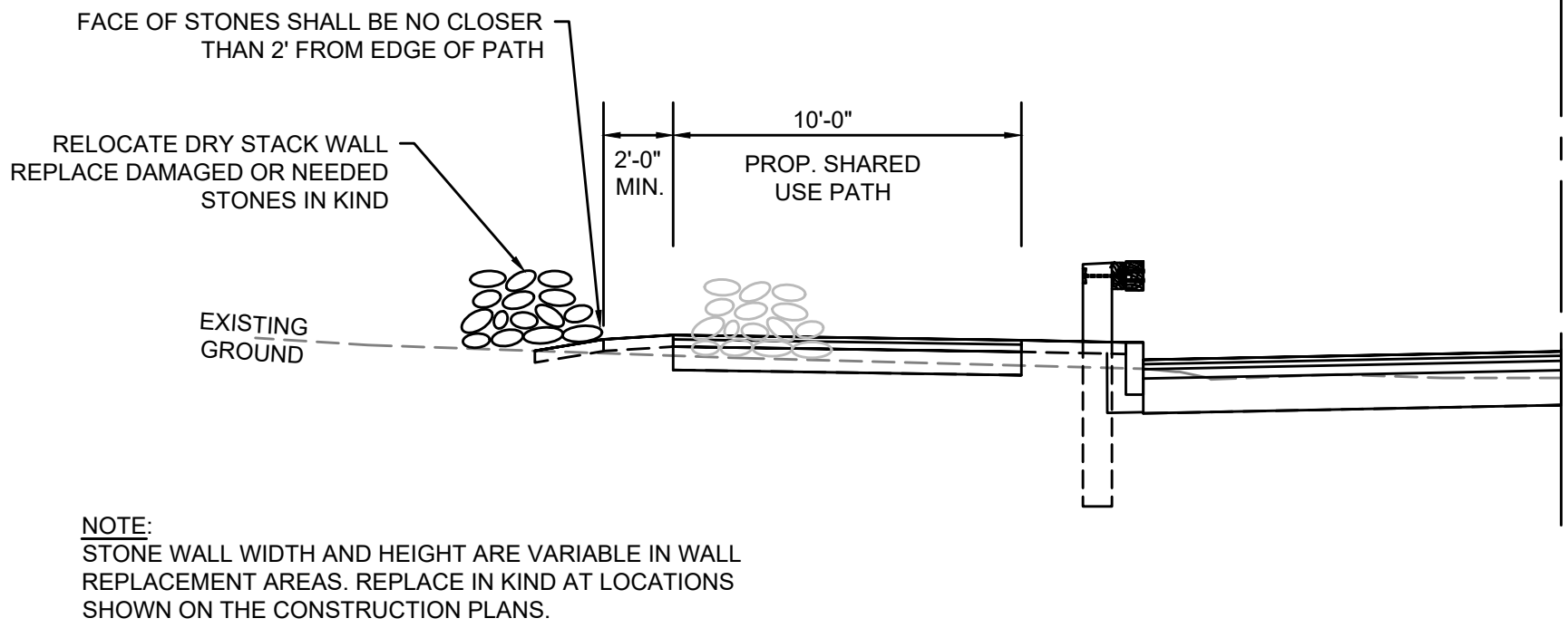
- DETAILS AND NOTES HEREON ARE GENERIC AND ARE INTENDED TO GIVE A GENERAL DESCRIPTION OF THE WALL. THEY ARE NOT FOR CONSTRUCTION.
- DETAILED WALL CONSTRUCTION PLANS, STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF MASSACHUSETTS, SHALL BE SUBMITTED TO AND APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION.
- MANUFACTURER'S USE OF TEMPORARY SHEETING SHALL BE FOR CONTRACTOR CONVENIENCE ONLY. ANY TEMPORARY SHEETING USED SHALL BE PAID FOR AT THE EXPENSE OF THE CONTRACTOR.
- SEE CONTRACT SPECIAL PROVISIONS FOR WALL FINISHES, COLOR, AND WALL FACE TREATMENTS

LITTLETON

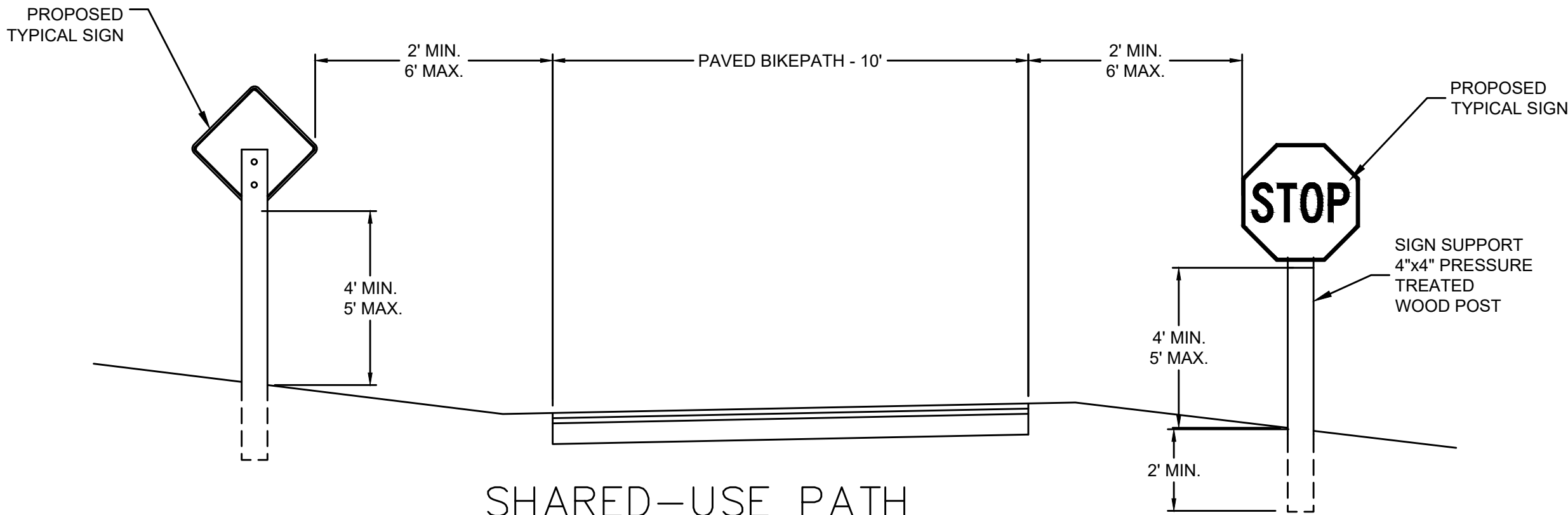
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	XX	XX
PROJECT FILE NO.		609054	

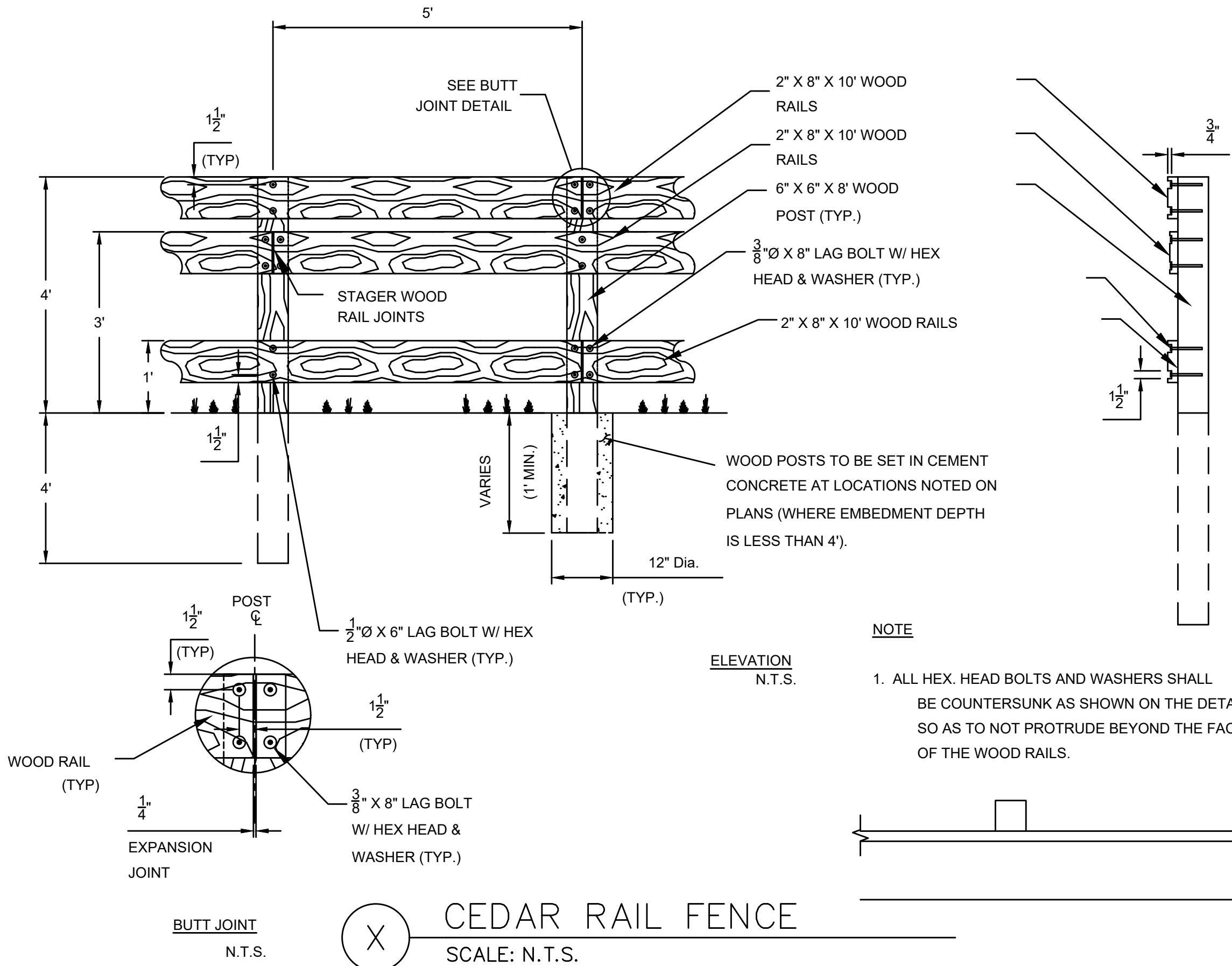
CONSTRUCTION DETAILS



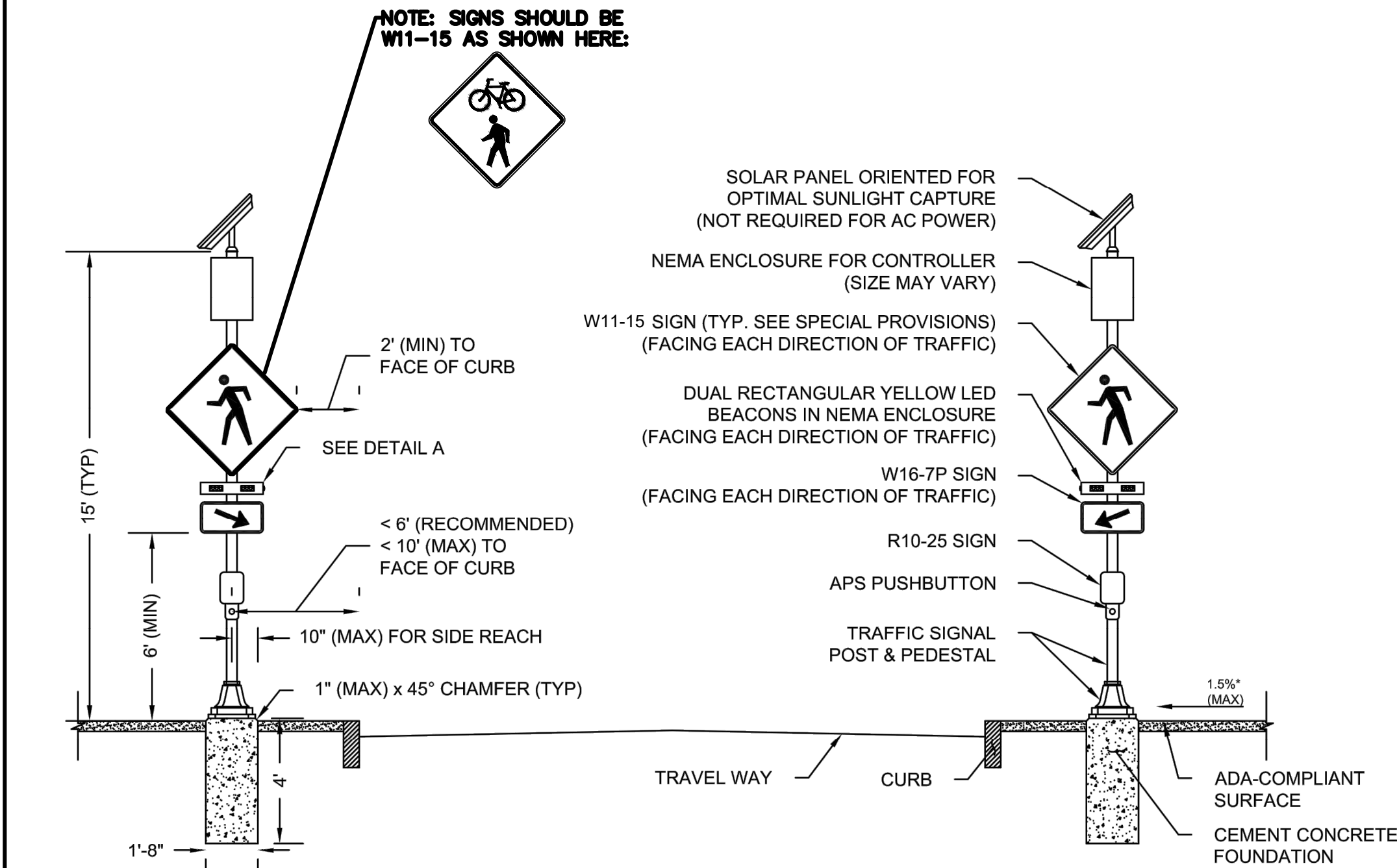
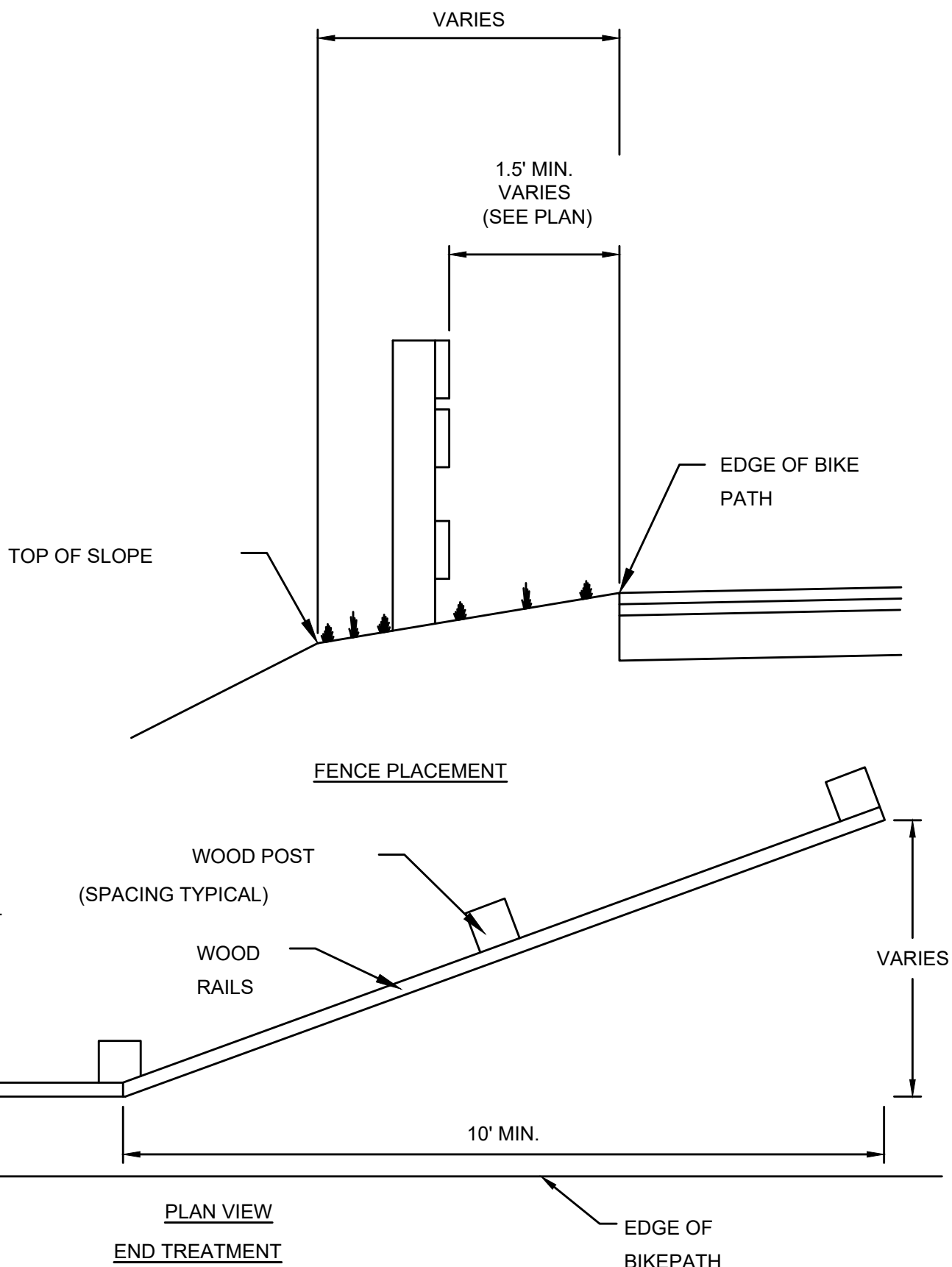
STONE MASONRY WALL
REMOVED AND REBUILT, DRY
SCALE: N.T.S.



SHARED-USE PATH
TYPICAL SIGN PLACEMENT
SCALE: N.T.S.



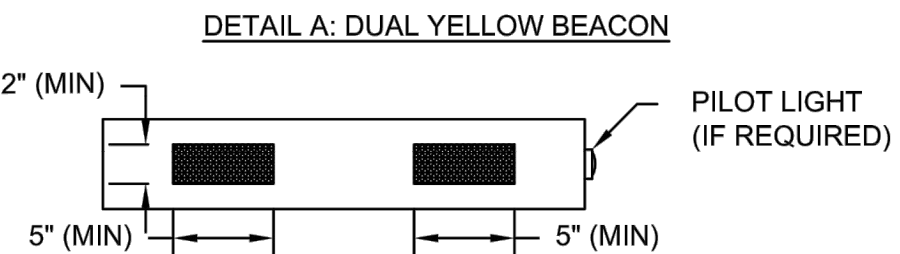
CEDAR RAIL FENCE
SCALE: N.T.S.



RECTANGULAR RAPID FLASHING BEACON (RRFB)
SCALE: N.T.S.

- NOTES:
- CROSSWALK AND ADA-COMPLIANT RAMPS NOT SHOWN. SEE PLANS FOR LOCATIONS.
 - REFER TO THE SPECIAL PROVISIONS FOR SIGN DIMENSIONS.
 - ALL CONDUIT, PULL BOXES, SERVICE CONNECTIONS, AND EQUIPMENT GROUNDING REQUIRED FOR AC POWER IS NOT SHOWN IN THIS DETAIL AND SHALL BE PAID FOR SEPARATELY UNDER THEIR RESPECTIVE PAY ITEMS.
 - ACCESS TO ALL PEDESTRIAN ACTUATED CONTROLS SHALL BE ADA/AAAB COMPLIANT.
 - *0.5% CONSTRUCTION TOLERANCE FOR CROSS-SLOPE.

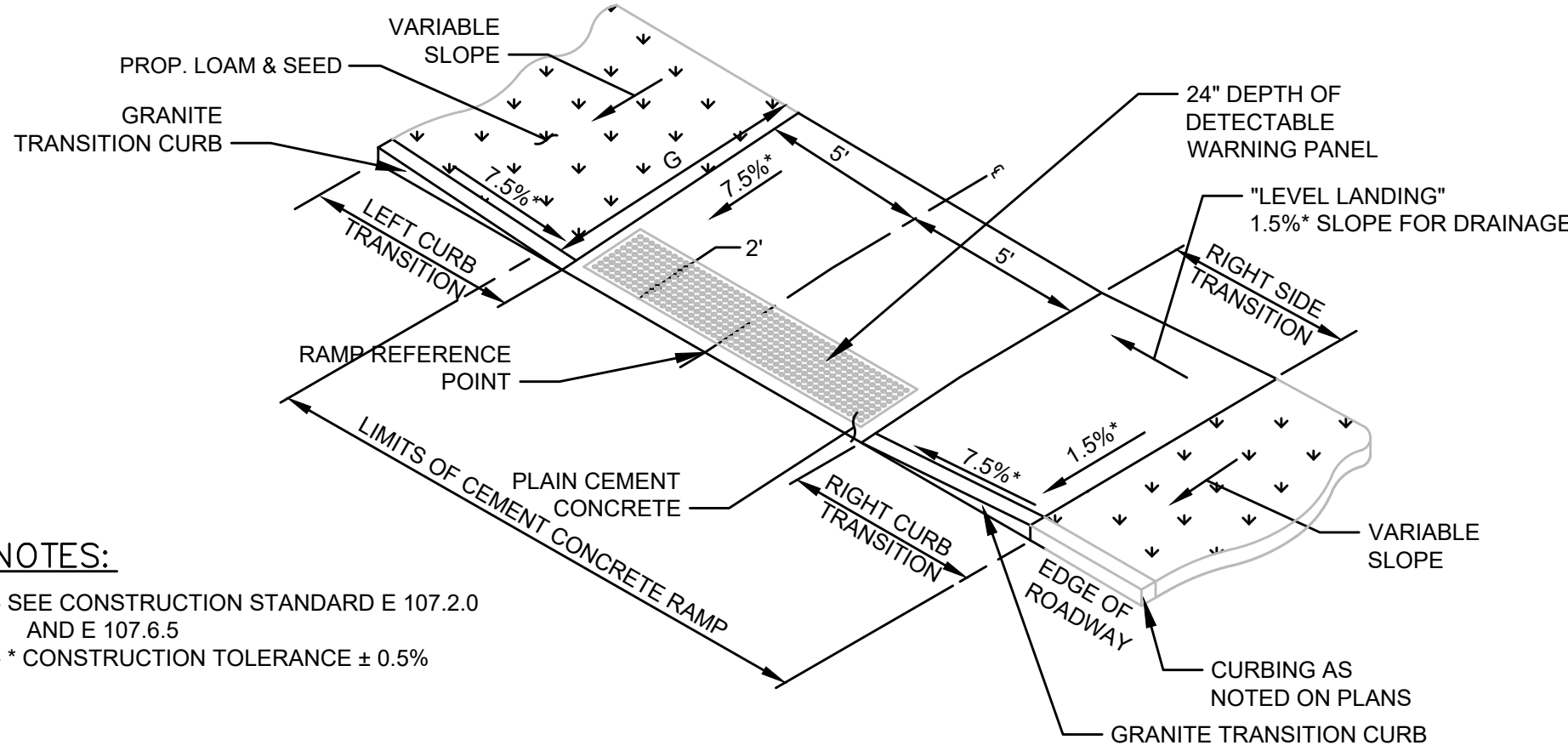
- MAJOR ITEMS LIST
- CEMENT CONCRETE FOUNDATIONS PER 812.30.1
 - 15' TRAFFIC SIGNAL POSTS & PEDESTALS
 - APS PUSHBUTTON SYSTEMS
 - DUAL RECTANGULAR YELLOW LED BEACONS IN NEMA ENCLOSURES
 - R10-25 SIGNS
 - W11-15 SIGNS
 - W16-7PR SIGNS
 - W16-7PL SIGNS
 - SOLAR PANEL SYSTEMS (NOT REQUIRED FOR AC POWER)
 - NEMA ENCLOSURES FOR ALL COMPONENTS NEEDED TO MEET FUNCTIONAL REQUIREMENTS PER SPECIAL PROVISIONS
 - BATTERY SYSTEMS (NOT REQUIRED FOR AC POWER)
- PLUS ALL MOUNTING AND SUPPORTING HARDWARE AND WIRING NECESSARY TO COMPLETE A WORKING SYSTEM.



LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	XXX-XXXXXXX	FED. AID PROJ. NO.	609054	SHEET NO.	XX	TOTAL SHEETS
MA						
PROJECT FILE NO.						

WHEELCHAIR RAMP DETAILS



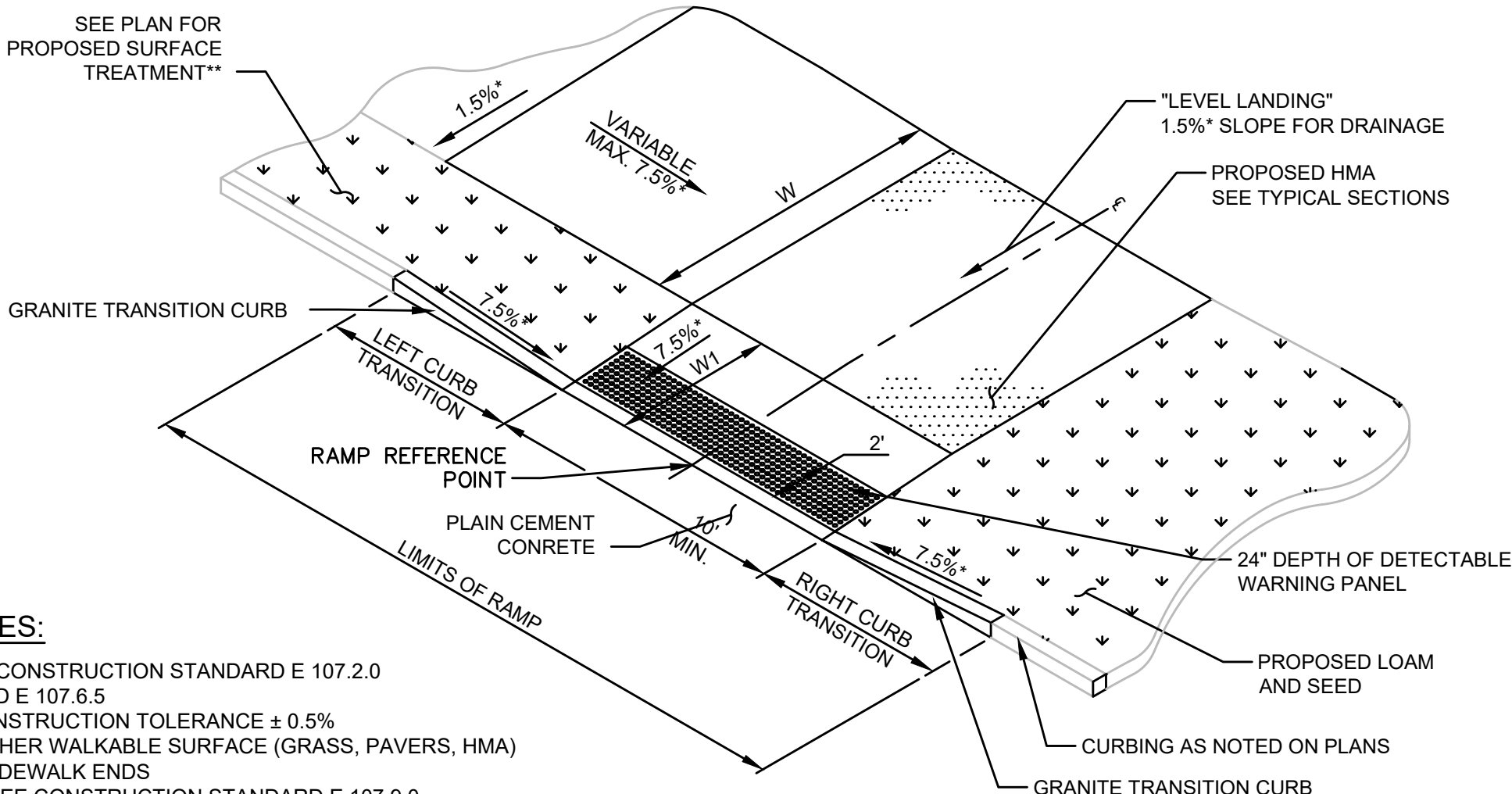
NOTES:

- SEE CONSTRUCTION STANDARD E 107.2.0 AND E 107.6.5
- * CONSTRUCTION TOLERANCE ± 0.5%

TYPE K WHEELCHAIR RECIPROCAL RAMP
ON ROADWAY TANGENT

N.T.S.

WCR#	RAMP REFERENCE POINT		WIDTH OF SIDEWALK (W)	WIDTH OF BUFFER STRIP (G)	WIDTH OF RAMP ENTRANCE (5'-0" MIN.)	LENGTH OF PRIMARY RAMP (W1)	LEFT SIDE TRANSITION				RIGHT SIDE TRANSITION			
	STATION/ROADWAY	OFFSET					CURB LENGTH	ROADWAY GUTTER GRADE	CURB REVEAL	RAMP LENGTH	CURB LENGTH	ROADWAY GUTTER GRADE	CURB REVEAL	RAMP LENGTH
KX	XXX-XXXX XXXXXXXXXX	XXX.XX RT	X'-X"	X'-X"	X'-X"	X'-X"	X'-X"	X.X%	X"	X'-X"	X'-X"	X.X%	X"	X'-X"



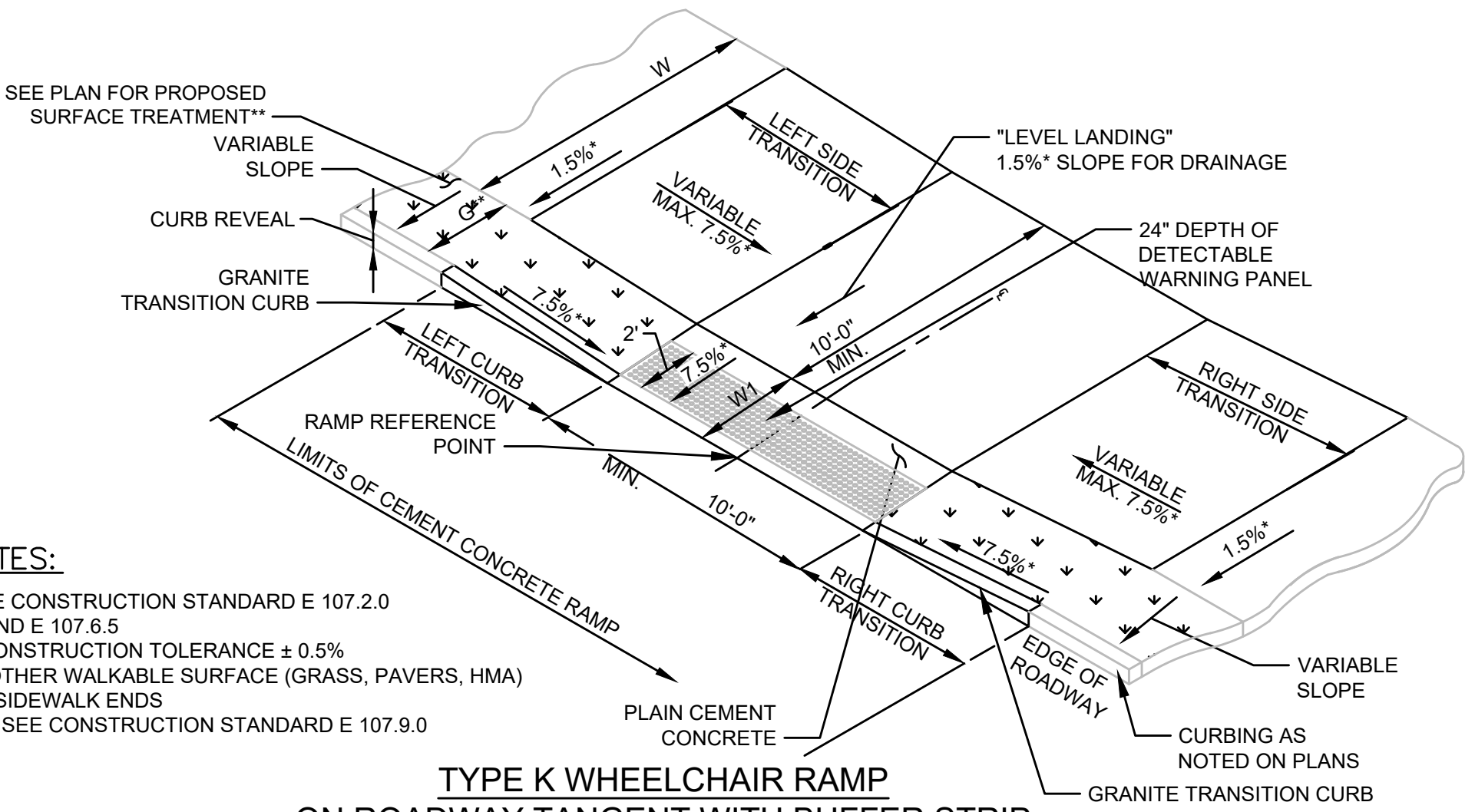
NOTES:

- SEE CONSTRUCTION STANDARD E 107.2.0 AND E 107.6.5
- * CONSTRUCTION TOLERANCE ± 0.5%
- ** OTHER WALKABLE SURFACE (GRASS, PAVERS, HMA)
- *** SIDEWALK ENDS
- **** SEE CONSTRUCTION STANDARD E 107.9.0
- ***** NO RAMP REQUIRED, LEVEL LANDING ELEVATION MATCHES ADJACENT SIDEWALK ELEVATION

TYPE C WHEELCHAIR RAMP

N.T.S.

WCR#	RAMP REFERENCE POINT		WIDTH OF SIDEWALK (W)	WIDTH OF BUFFER STRIP (G)	WIDTH OF RAMP ENTRANCE (5'-0" MIN.)	LENGTH OF PRIMARY RAMP (W1)	LEFT SIDE TRANSITION				RIGHT SIDE TRANSITION			
	STATION/ROADWAY	OFFSET					CURB LENGTH	ROADWAY GUTTER GRADE	CURB REVEAL	RAMP LENGTH	CURB LENGTH	ROADWAY GUTTER GRADE	CURB REVEAL	RAMP LENGTH
C1														



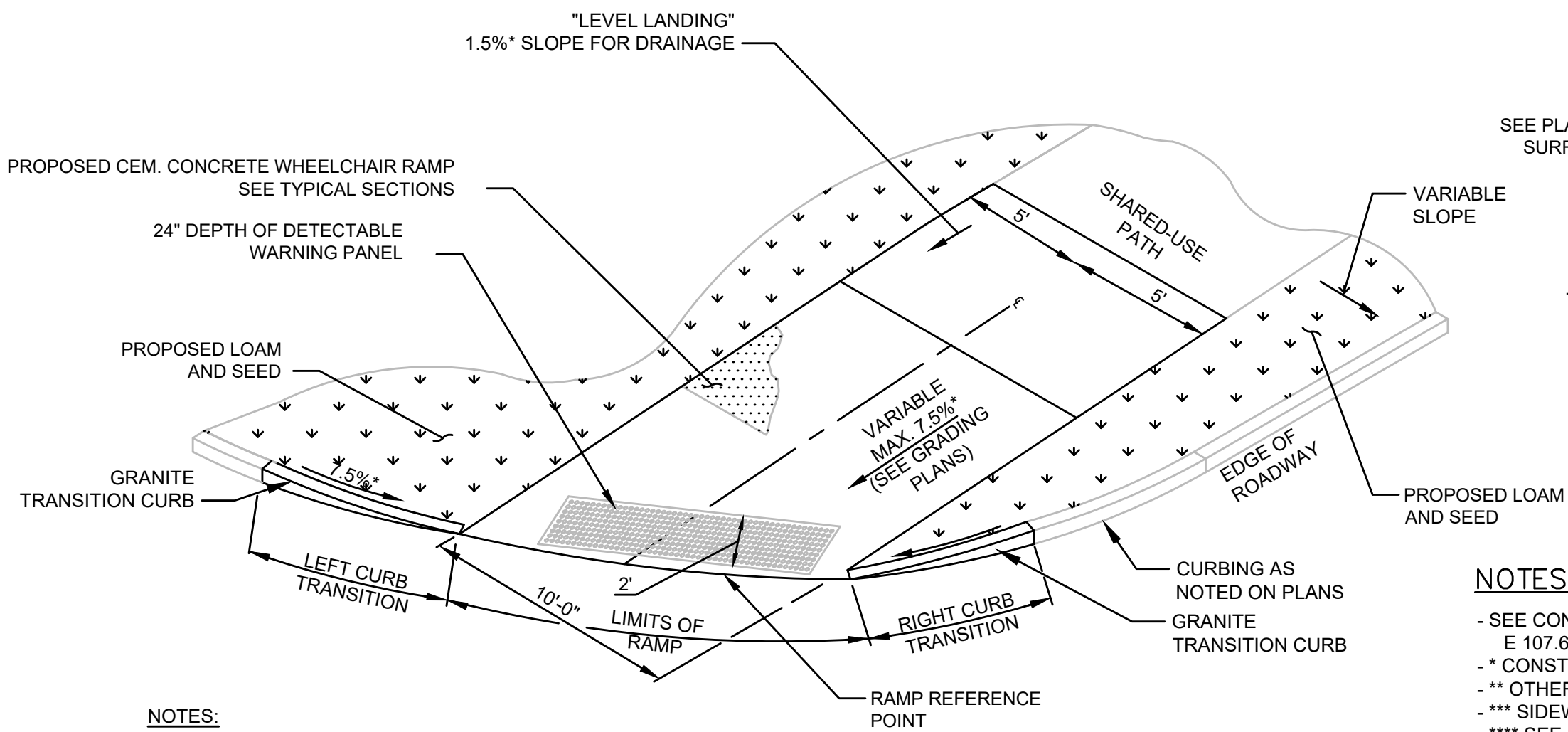
NOTES:

- SEE CONSTRUCTION STANDARD E 107.2.0 AND E 107.6.5
- * CONSTRUCTION TOLERANCE ± 0.5%
- ** OTHER WALKABLE SURFACE (GRASS, PAVERS, HMA)
- *** SIDEWALK ENDS
- **** SEE CONSTRUCTION STANDARD E 107.9.0

TYPE K WHEELCHAIR RAMP
ON ROADWAY TANGENT WITH BUFFER STRIP

N.T.S.

WCR#	RAMP REFERENCE POINT		WIDTH OF SIDEWALK (W)	WIDTH OF BUFFER STRIP (G)	WIDTH OF RAMP ENTRANCE (5'-0" MIN.)	LENGTH OF PRIMARY RAMP (W1)	LEFT SIDE TRANSITION				RIGHT SIDE TRANSITION			
	STATION/ROADWAY	OFFSET					CURB LENGTH	ROADWAY GUTTER GRADE	CURB REVEAL	RAMP LENGTH	CURB LENGTH	ROADWAY GUTTER GRADE	CURB REVEAL	RAMP LENGTH
KX	XXX-XXXX XXXXXXXXXX	XXX.XX RT	X'-X"	X'-X"	X'-X"	X'-X"	X'-X"	X.X%	X"	X'-X"	X'-X"	X.X%	X"	X'-X"



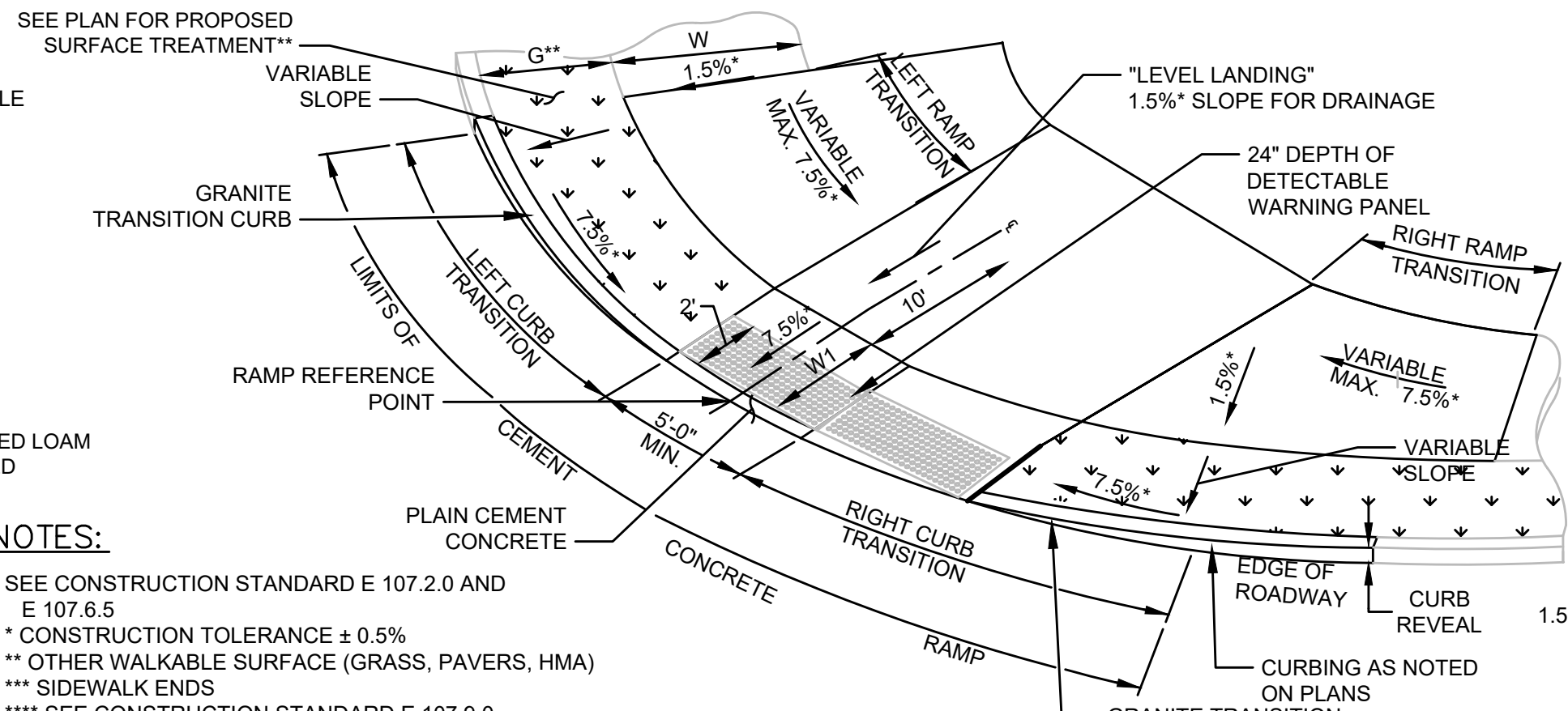
NOTES:

- SEE CONSTRUCTION STANDARD E 107.6.0 AND E 107.6.5
- * CONSTRUCTION TOLERANCE ± 0.5%
- **SEE CONSTRUCTION STANDARD E 107.9.0

TYPE A WHEELCHAIR RAMP
SHARED-USE PATH ENTRANCE/EXIT

N.T.S.

WCR#	RAMP REFERENCE POINT		LENGTH OF PRIMARY RAMP (W1)	LEFT SIDE TRANSITION			RIGHT SIDE TRANSITION		
	STATION/ROADWAY	OFFSET		CURB LENGTH	ROADWAY GUTTER GRADE	CURB REVEAL	CURB LENGTH	ROADWAY GUTTER GRADE	CURB REVEAL
A1									
A2									



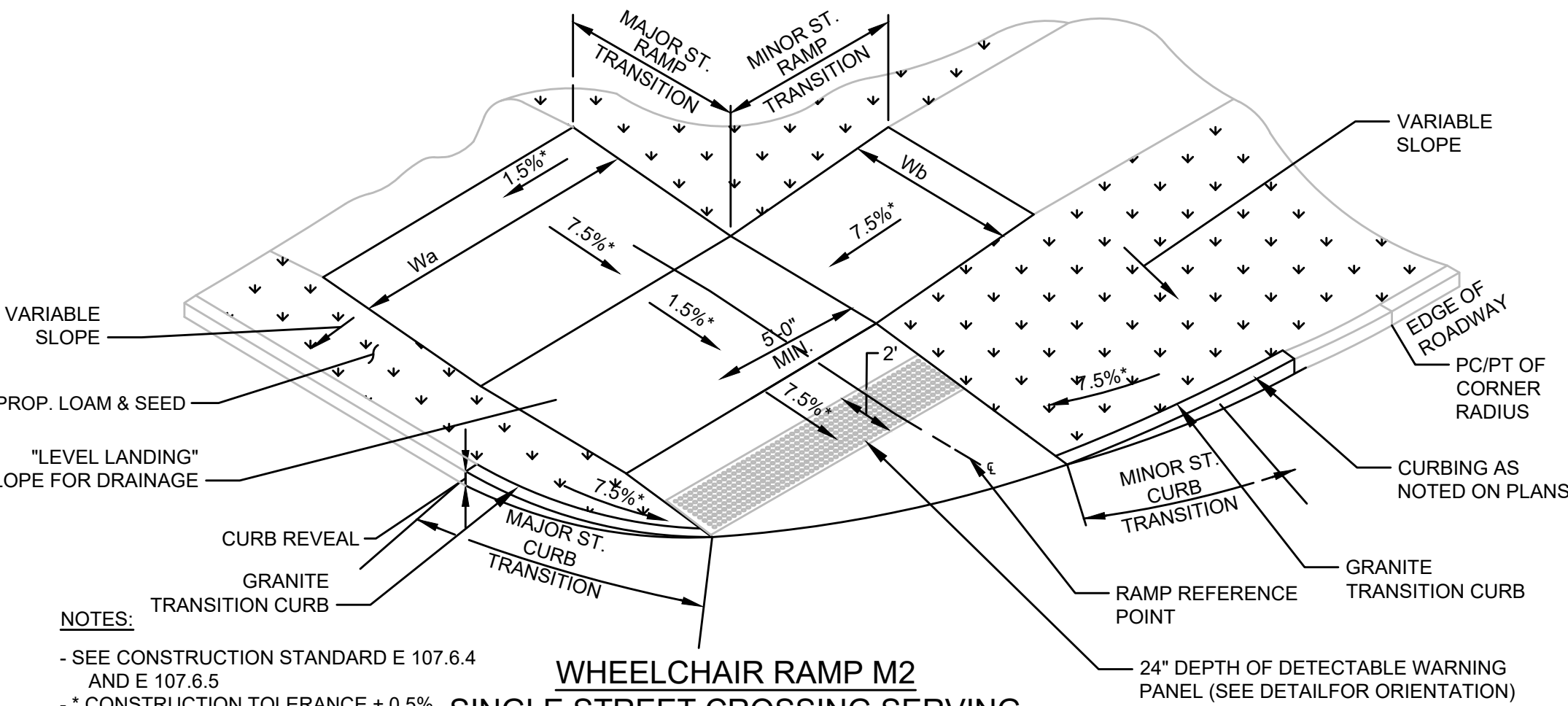
NOTES:

- SEE CONSTRUCTION STANDARD E 107.2.0 AND E 107.6.5
- * CONSTRUCTION TOLERANCE ± 0.5%
- ** OTHER WALKABLE SURFACE (GRASS, PAVERS, HMA)
- *** SIDEWALK ENDS
- **** SEE CONSTRUCTION STANDARD E 107.9.0
- ***** PC/PT OUTSIDE RAMP LIMITS

TYPE L WHEELCHAIR RAMP
ON CORNER RADIUS WITH BUFFER STRIP (W = 6.5' TO 12.4')

N.T.S.

WCR#	RAMP REFERENCE POINT		WIDTH OF SIDEWALK (W)	WIDTH OF BUFFER STRIP (G)	WIDTH OF RAMP ENTRANCE (5'-0" MIN.)	LENGTH OF PRIMARY RAMP (W1)	CORNER RADIUS	LEFT SIDE TRANSITION				RIGHT SIDE TRANSITION			
	STATION/ROADWAY	OFFSET						CURB LENGTH	CURVE LENGTH	STRAIGHT LENGTH	PC/PT CURB REVEAL	ROADWAY GUTTER GRADE	CURB REVEAL	RAMP LENGTH	CURB LENGTH
LX	XXX-XXXX XXXXXXXXXX	XXX.XX RT	X'-X"	X'-X"	X'-X"	X'-X"	XX'	X'-X"	X'-X"	X"	X.X%	X"	X'-X"	X'-X"	X'-X"



NOTES:

- SEE CONSTRUCTION STANDARD E 107.6.4 AND E 107.6.5
- * CONSTRUCTION TOLERANCE ± 0.5%

WHEELCHAIR RAMP M2
SINGLE STREET CROSSING SERVING
TWO SIDEWALK DIRECTIONS WITH BUFFER STRIP

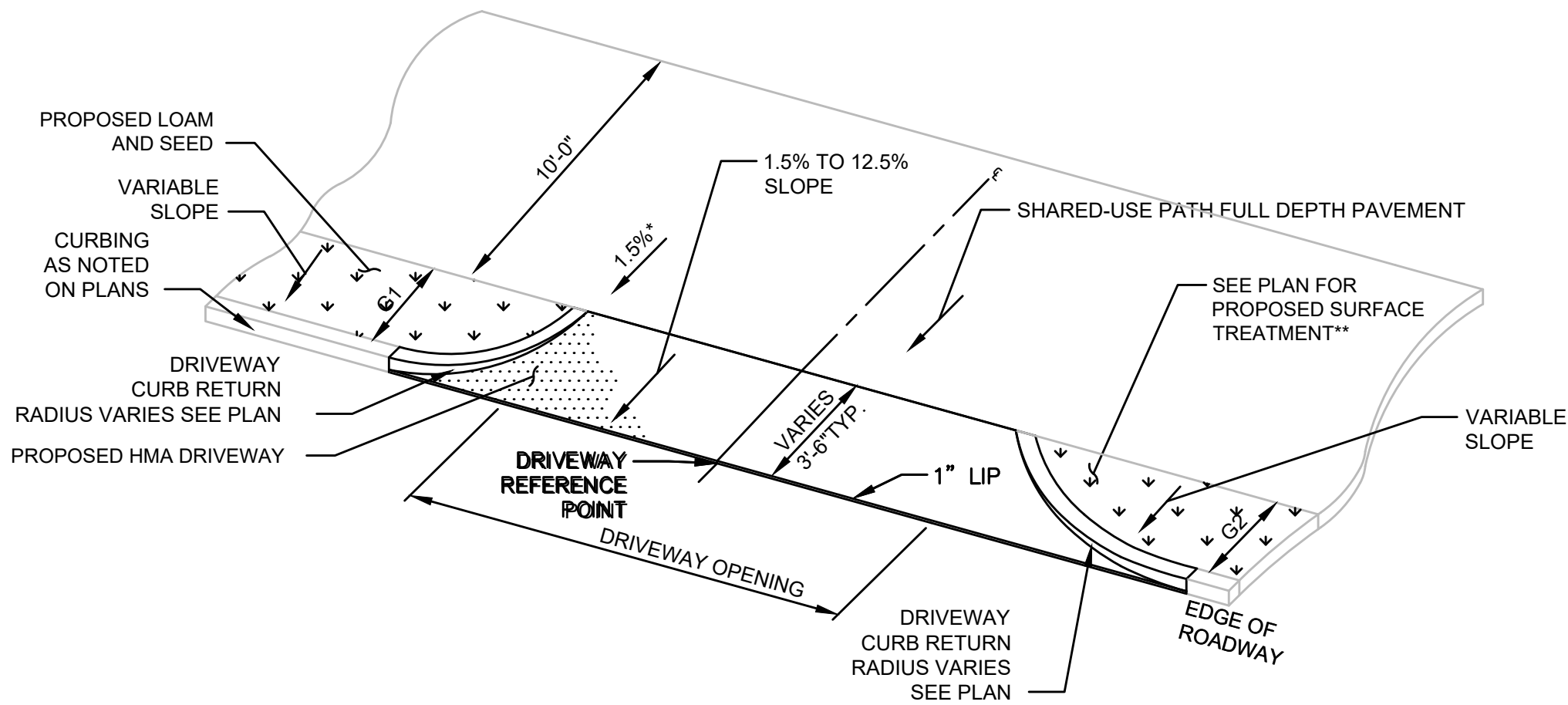
N.T.S.

WCR#	RAMP REFERENCE POINT		WIDTH OF SIDEWALK (W)	WIDTH OF BUFFER STRIP (G)	WIDTH OF SIDEWALK (W)	WIDTH OF RAMP ENTRANCE (5'-0" MIN.)	CORNER RADIUS	MAJOR ST. TRANSITION				MINOR ST. TRANSITION			
	STATION/ROADWAY	OFFSET						CURVE LENGTH	STRAIGHT LENGTH	PC/PT CURB REVEAL	ROADWAY GUTTER GRADE	CURB REVEAL	RAMP LENGTH	CURVE LENGTH	STRAIGHT LENGTH
M2		XXX.XX RT	X'-X"	X'-X"	X'-X"	X'-X"	XX'	X'-X"	X'-X"	X"	X.X%	X"	X'-X"	X'-X"	X'-X"

LITTLETON
RECONSTRUCTION OF FOSTER STREET

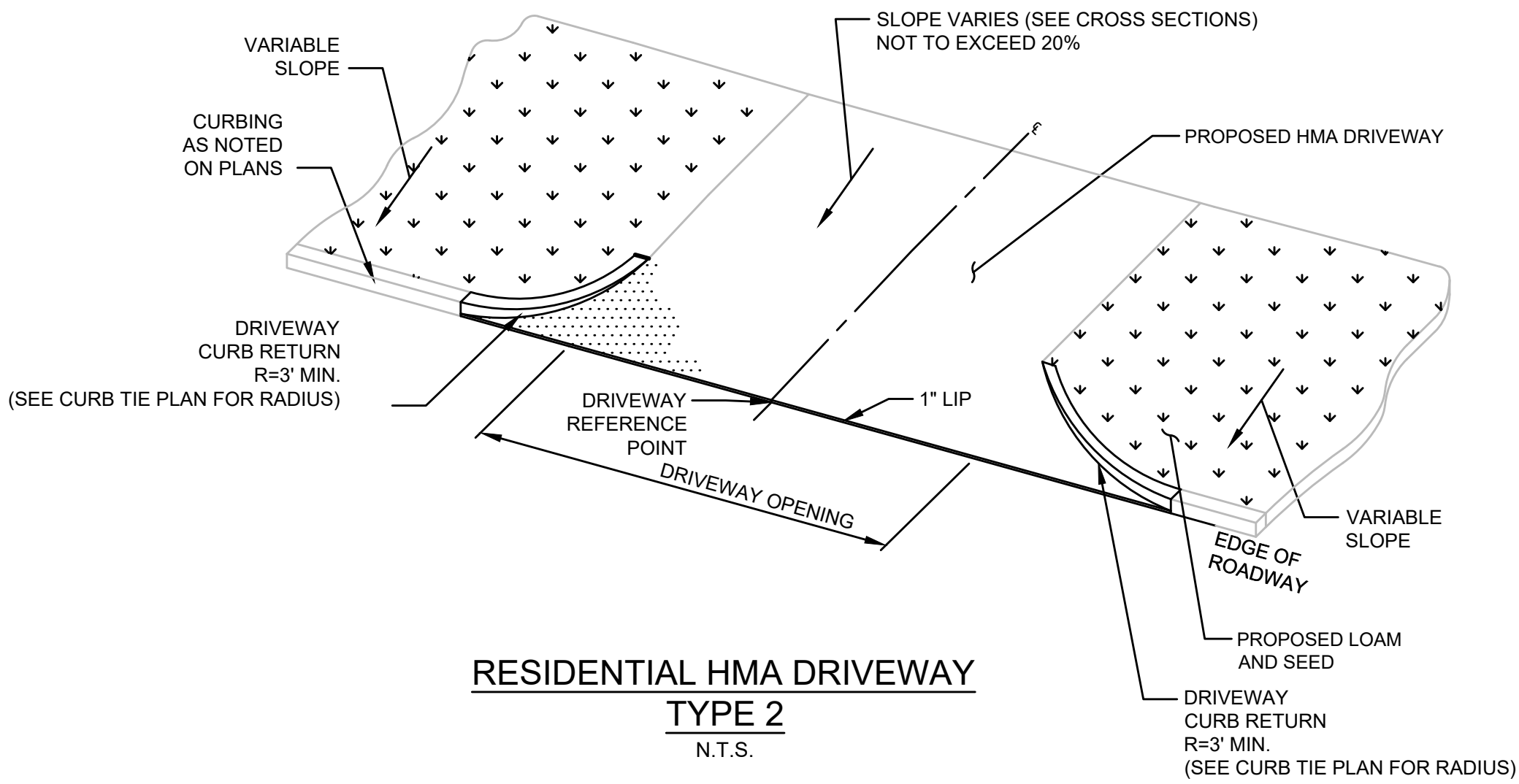
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	XX	XX
PROJECT FILE NO.		609054	

DRIVEWAY DETAILS



SHARED USE PATH AT DRIVEWAY
TYPE 1
N.T.S.

DR#	DRIVEWAY REFERENCE POINT		APRON SLOPE	WIDTH OF BUFFER STRIP (G1)	WIDTH OF BUFFER STRIP (G2)	LEFT SIDE CURB RADIUS	RIGHT SIDE CURB RADIUS
	STATION/ROADWAY	OFFSET					
1-X	XX+XX.XX	XX.XX LT	%	X'-X"	X'-X"	X'-X"	X'-X"
1-X	XX+XX.XX	XX.XX LT	%	X'-X"	X'-X"	X'-X"	X'-X"
1-X	XX+XX.XX	XX.XX LT	%	X'-X"	X'-X"	X'-X"	X'-X"



RESIDENTIAL HMA DRIVEWAY
TYPE 2
N.T.S.