MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	1	129
	PROJECT FILE NO.	609054	

TITLE SHEET & INDEX

PLAN AND PROFILE OF

FOSTER STREET

(BRIDGE NO. L-13-017)

IN THE TOWN OF

LITTLETON

MIDDLESEX COUNTY

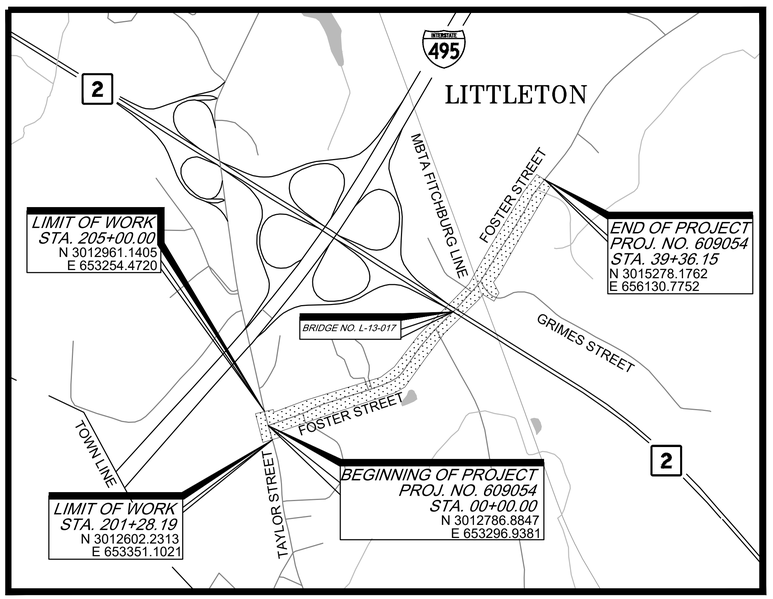
FEDERAL AID PROJECT NO. XXX-XXXX(XXX)X

75% SUBMITTAL

THE COMMONWEALTH OF MASSACHUSETTS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES 2020 EDITION, 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 WITH 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.

INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET & INDEX
2	LEGEND & ABBREVIATIONS
3	KEY PLAN & BORING LOCATIONS
4	BORING LOGS
5-8	TYPICAL SECTIONS
9-16	CONSTRUCTION PLANS
17-23	PROFILE - FOSTER STREET
24	PROFILE - SIDE STREETS
25-32	CURB & BASELINE TIE PLANS
33-40	GRADING PLANS
41-48	PAVEMENT MARKING & SIGNING PLANS
49-50	TRAFFIC SIGN SUMMARY SHEET
51-56	TEMPORARY TRAFFIC CONTROL PLANS
57-64	DRAINAGE & UTILITY PLANS
65-67	DRAINAGE & UTILITY DETAILS
68-71	CONSTRUCTION DETAILS
72-73	WHEELCHAIR RAMP/DRIVEWAY DETAILS
74-129	PRELIMINARY CROSS SECTIONS



750 0 750 1500
SCALE IN FEET

LENGTH OF PROJECT = 3936.15 FEET = 0.745 MILES
(FOSTER STREET)

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

DATE	DESCRIPTION	REV #
11-18-2020	75% SUBMISSION	0
06-13-2019	25% SUBMISSION	0
03-14-2019	PRE-25% SUBMISSION	0

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

massDOT
Massachusetts Department of Transportation
Highway Division

RECOMMENDED FOR APPROVAL

CHIEF ENGINEER **DATE**

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED:

DIVISION ADMINISTRATOR **DATE**

20170044A21_COV01.DWG Plotted on 22-Oct-2020 8:22 AM

GENERAL SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
JB	JB	JERSEY BARRIER ON BRIDGE OR JERSEY BARRIER
CB		CATCH BASIN
CBCI		CATCH BASIN CURB INLET
LB		LEACHING BASIN
DI		DROP INLET
CONC. HDR		CONCRETE HEADWALL
STONE HDR		STONE HEADWALL
FP		FLAG POLE
GP		GAS PUMP
MB		MAIL BOX
		POST SQUARE
		POST CIRCULAR
WELL		WELL
EHH		ELECTRIC HANDHOLE
		FENCE GATE POST
GG	GG	GAS GATE
BHL #	BHL #	BORING HOLE
MW #	MW #	MONITORING WELL
TP #	TP #	TEST PIT
		HYDRANT
		LIGHT POLE
CO.BD.		COUNTY BOUND
		GPS POINT
C		CABLE MANHOLE
D		DRAINAGE MANHOLE
E		ELECTRIC MANHOLE
G		GAS MANHOLE
M		MISC MANHOLE
S		SEWER MANHOLE
T		TELEPHONE MANHOLE
W		WATER MANHOLE
MHB	MHB	MASSACHUSETTS HIGHWAY BOUND
MON		MONUMENT
SB		STONE BOUND
TB		TOWN OR CITY BOUND
		TRAVERSE OR TRIANGULATION STATION
TPL or GUY		TROLLEY POLE OR GUY POLE
HTP		TRANSMISSION POLE
UFB		UTILITY POLE W/ FIREBOX
UPDL		UTILITY POLE WITH DOUBLE LIGHT
ULT		UTILITY POLE W / 1 LIGHT
UPL		UTILITY POLE
		BUSH
SIZE & TYPE		TREE
		STUMP
		SWAMP / MARSH
WF-#		WETLAND FLAG
WG	WG	WATER GATE
PM		PARKING METER
		OVERHEAD CABLE/WIRE
		CURBING
		CONTOURS
		UNDERGROUND DRAIN PIPE (DOUBLE LINE 24 INCH AND OVER)
100 99		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
X	X	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
		LIMIT OF EDGE OF PAVEMENT OR COLD PLANE AND OVERLAY
		BANK OF RIVER OR STREAM
		BORDER OF WETLAND
		100 FT WETLAND BUFFER
		200 FT RIVERFRONT BUFFER
		STATE HIGHWAY LAYOUT
		TOWN OR CITY LAYOUT
		COUNTY LAYOUT
		RAILROAD SIDELINE
		TOWN OR CITY BOUNDARY LINE
℄		PROPERTY LINE OR APPROXIMATE PROPERTY LINE
		EASEMENT

TRAFFIC SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
1	1	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)
RRSG	RRSG	RAILROAD SIGNAL
OR		SIGNAL POST AND BASE (ALPHA-NUMERIC DESIGNATION NOTED)
	20'	MAST ARM, SHAFT AND BASE (ARM LENGTH AS NOTED)
		HIGH MAST POLE OR TOWER
		SIGN AND POST
		SIGN AND POST (2 POSTS)
	20'	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
ONLY	ONLY	LEGEND "ONLY" - WHITE
	SL	STOP LINE
	CW	CROSSWALK
	SWL	SOLID WHITE LINE
	SYL	SOLID YELLOW LINE
	BWL	BROKEN WHITE LINE
	BYL	BROKEN YELLOW LINE
	DWL	DOTTED WHITE LINE
	DYL	DOTTED YELLOW LINE
	DWLEx	DOTTED WHITE LINE EXTENSION
	DYLEx	DOTTED YELLOW LINE EXTENSION
	DBWL	DOUBLE WHITE LINE
	DBYL	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
OHW	OVERHEAD WIRE
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

LITTLETON
RECONSTRUCTION OF FOSTER STREET

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LEGEND & GENERAL NOTES

GENERAL NOTES:

1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. THE CONTRACTOR SHALL COORDINATE WITH PROPERTY OWNERS TO REMOVE ANY PERSONAL ITEMS, PRIVATE SPRINKLER LINES/SYSTEMS, LANDSCAPING, PLANT BULBS, PAVERS LOCATED IN THE TEMPORARY EASEMENT, TOWN LAYOUT, AND MassDOT LAYOUT.
7. 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.
8. 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.
9. 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.
10. 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.
11. 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.
12. 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

PVMT	PAVEMENT
PWW	PAVED WATER WAY
R	RADIUS OF CURVATURE
R&D	REMOVE AND DISPOSE
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
RDWY	ROADWAY
REM	REMOVE
RET	RETAIN
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

ABBREVIATIONS (cont.)

GENERAL

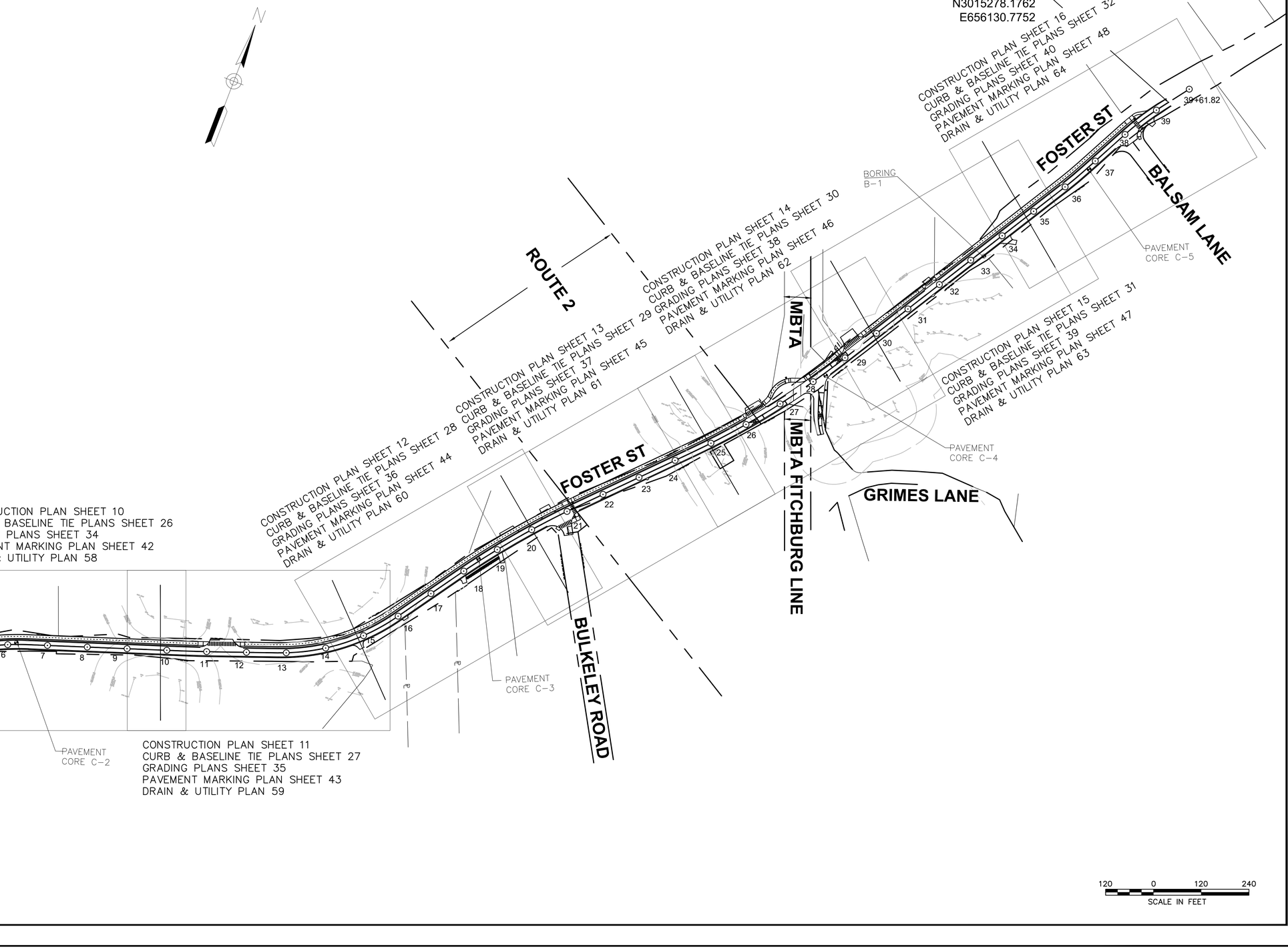
UP	UTILITY POLE
VAR	VARIES
VERT	VERTICAL
VC	VERTICAL CURVE
WCR	WHEEL CHAIR RAMP
WG	WATER GATE
WIP	WROUGHT IRON PIPE
WM	WATER METER/WATER MAIN
X-SECT	CROSS SECTION

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20170044A21_GEN01.DWG Plotted on 12-Nov-2020 7:52 AM

LITTLETON
RECONSTRUCTION OF FOSTER STREET

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KEY PLAN & BORING LOCATIONS



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MS VIEW: -

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FUSS & O'NEILL

BORING LOG

Project Name: Foster St Corridor Improvements

Project Location: Littleton, MA

Location ID: B-1
Sheet #: 1 of 1
Project #:
Weather: Partly Cloudy ~35

Contractor: Seaboard
Operator: Dale Griffin
F&O Representative: Matthew Kissane
Drilling Method: Auger
Sampling Method: Split-Spoon
Hammer Weight: Hammer Fall (inches):

Location Description:
Date Started: 2/14/19
Date/Time Completed: 2/14/19 / 1005
Depth to Saturated Zone: N/A

Sample # Prefix:

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 = PID/OVM

If refusal is encountered, describe all efforts used to confirm.

Field Decon: Yes / No / Dedicated Device

PROPORTIONS USED:

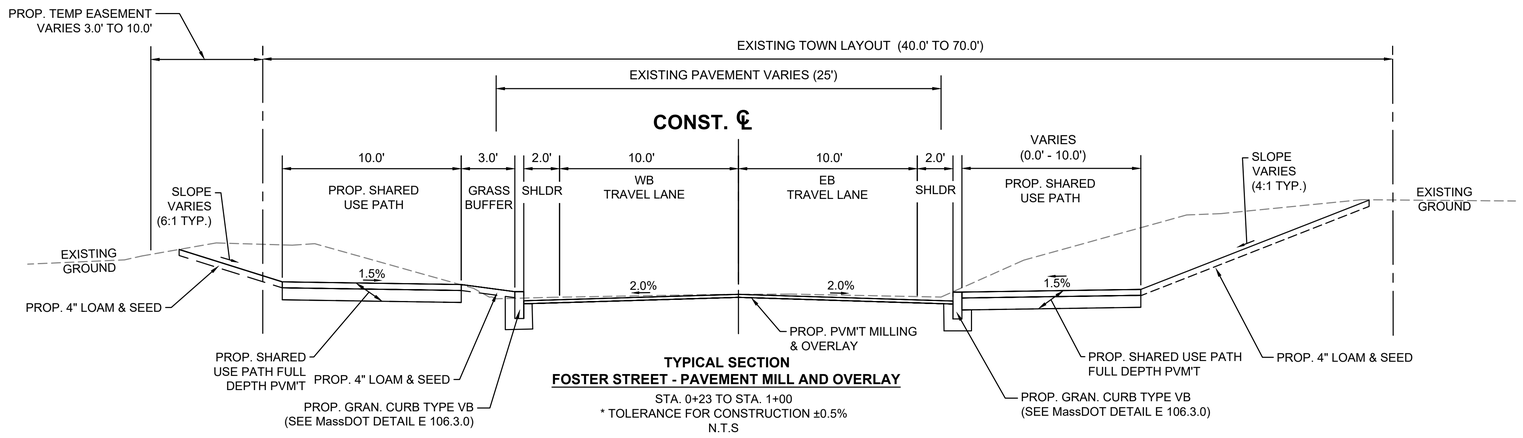
Trace (tr)	0 to 10%	Some (sm)	20 to 35%
Little (ltl)	10 to 20%	And	35 to 50%

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:

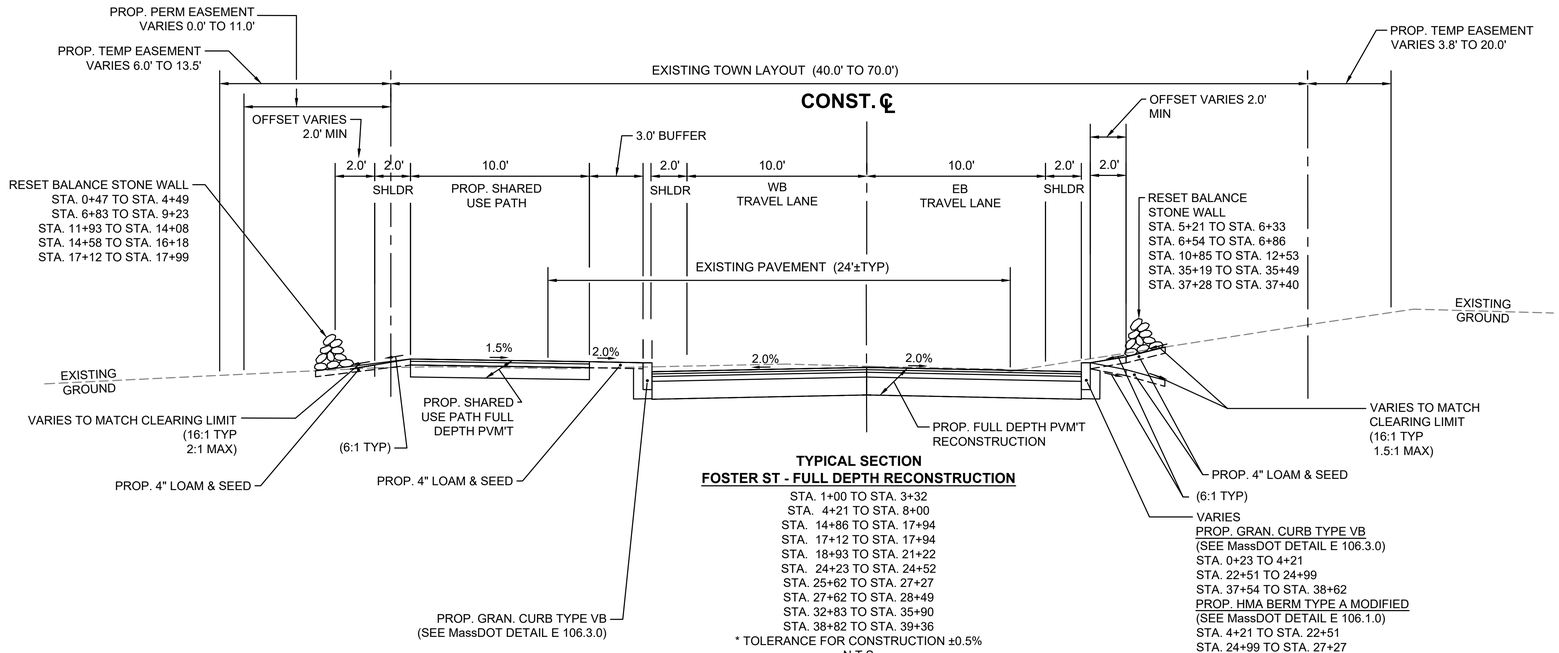
BACKFILL

Asphalt / Concrete		To		See Monitoring Well
Bentonite Grout/Chips		To		Completion Report
Cuttings/Native Material	0	To	5	
Other		To		



TYPICAL SECTION
FOSTER STREET - PAVEMENT MILL AND OVERLAY

STA. 0+23 TO STA. 1+00
* TOLERANCE FOR CONSTRUCTION ±0.5%
N.T.S



TYPICAL SECTION
FOSTER ST - FULL DEPTH RECONSTRUCTION

STA. 1+00 TO STA. 3+32
STA. 4+21 TO STA. 8+00
STA. 14+86 TO STA. 17+94
STA. 17+12 TO STA. 17+94
STA. 18+93 TO STA. 21+22
STA. 24+23 TO STA. 24+52
STA. 25+62 TO STA. 27+27
STA. 27+62 TO STA. 28+49
STA. 32+83 TO STA. 35+90
STA. 38+82 TO STA. 39+36
* TOLERANCE FOR CONSTRUCTION ±0.5%
N.T.S

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TYPICAL SECTIONS - FOSTER ST

PAVEMENT NOTES:

PROPOSED PAVEMENT MILLING AND OVERLAY - FOSTER STREET

1-1/2" PAVEMENT MILLING
1-1/2" SUPERPAVE SURFACE COURSE - 9.5
MILLING TO BE VARIABLE DEPTH (INCREASING) AT PROJECT LIMITS TO MEET EXISTING GRADE ON TAYLOR ST
MILLING TO BE VARIABLE DEPTH (DECREASING) AT SAWCUT TRANSITION ON FOSTER ST EAST OF BALSAM LN

PROPOSED FULL DEPTH PAVEMENT RECONSTRUCTION

SURFACE: 1 1/2 " SUPERPAVE SURFACE COURSE - 9.5 OVER
INTERMEDIATE: 1 3/4 " SUPERPAVE INTERMEDIATE COURSE - 12.5 OVER
2 3/4 " SUPERPAVE INTERMEDIATE COURSE - 19 OVER
SUBBASE: 4" DENSE GRADED CRUSHED STONE
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 HOT MIX ASPHALT SIDEWALK OR DRIVEWAY

SURFACE: 1-1/2" SUPERPAVE SURFACE COURSE - 9.5 OVER
2-1/2" SUPERPAVE INTERMEDIATE COURSE - 19.0
FOUNDATION: 8" GRAVEL BORROW, TYPE b.

PROPOSED CEMENT CONCRETE SIDEWALK

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

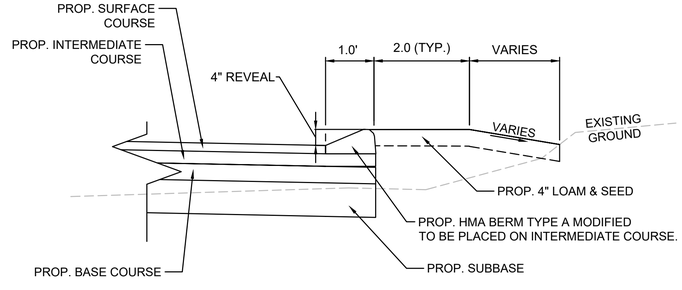
PROPOSED CEMENT CONCRETE WHEELCHAIR RAMP

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

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.



PROP. HMA BERM TYPE A MODIFIED PLACEMENT
SCALE: NTS

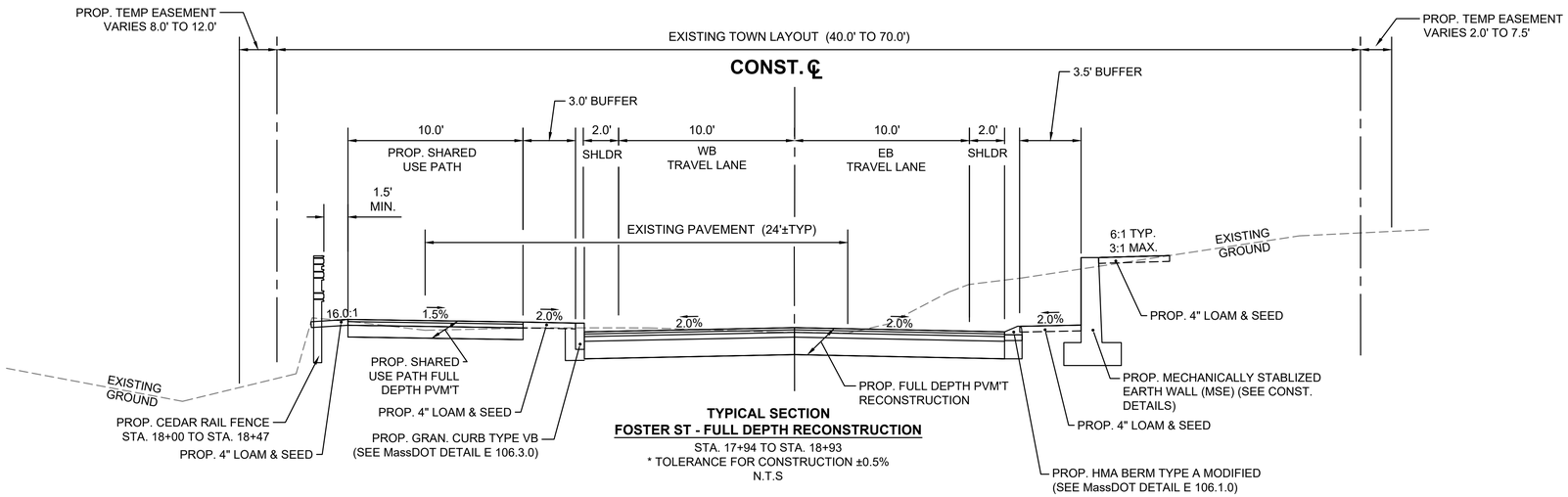
20170044A21_TYP01.DWG Plotted on 17-Nov-2020 8:49 AM

LITTLETON
RECONSTRUCTION OF FOSTER STREET

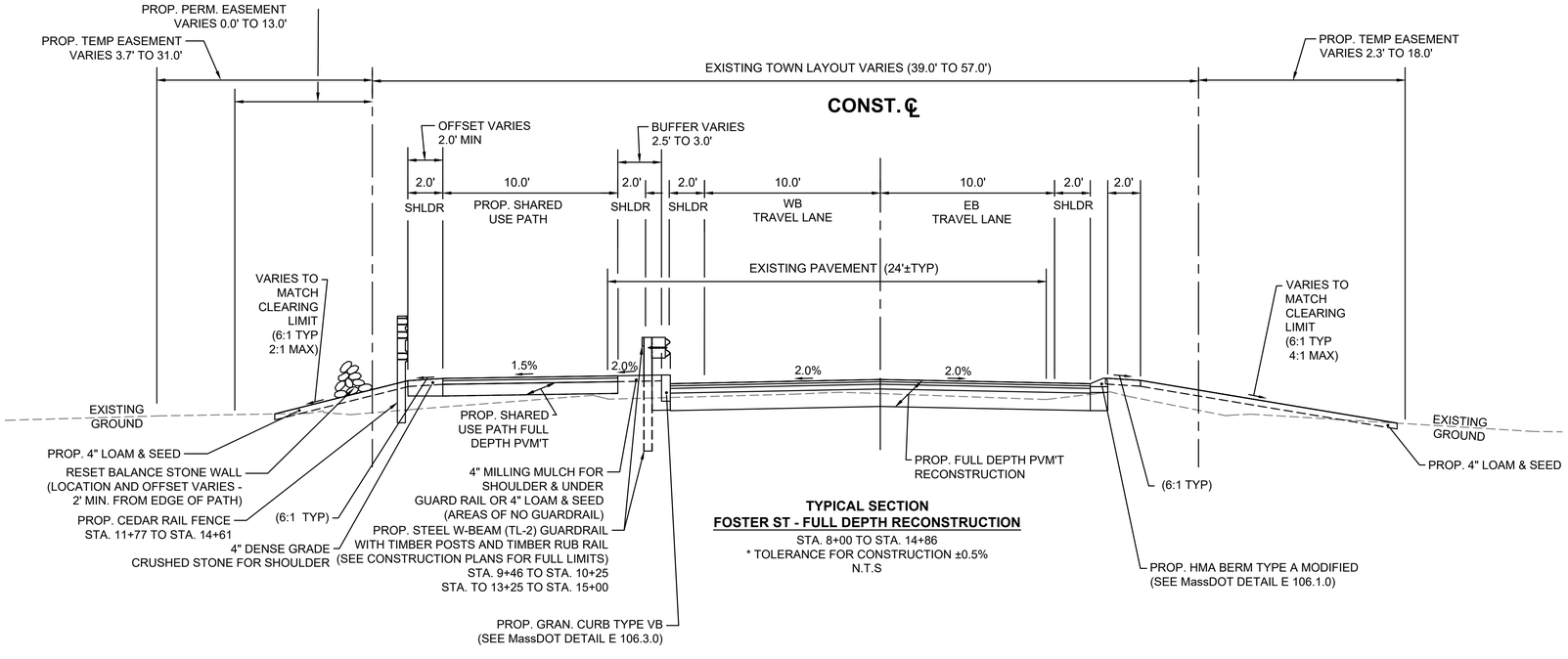
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	6	129
PROJECT FILE NO.	609054		

TYPICAL SECTIONS - FOSTER ST

20170044A21_TYP01.DWG Plotted on 17-Nov-2020 8:49 AM



TYPICAL SECTION
FOSTER ST - FULL DEPTH RECONSTRUCTION
STA. 17+94 TO STA. 18+93
* TOLERANCE FOR CONSTRUCTION ±0.5%
N.T.S



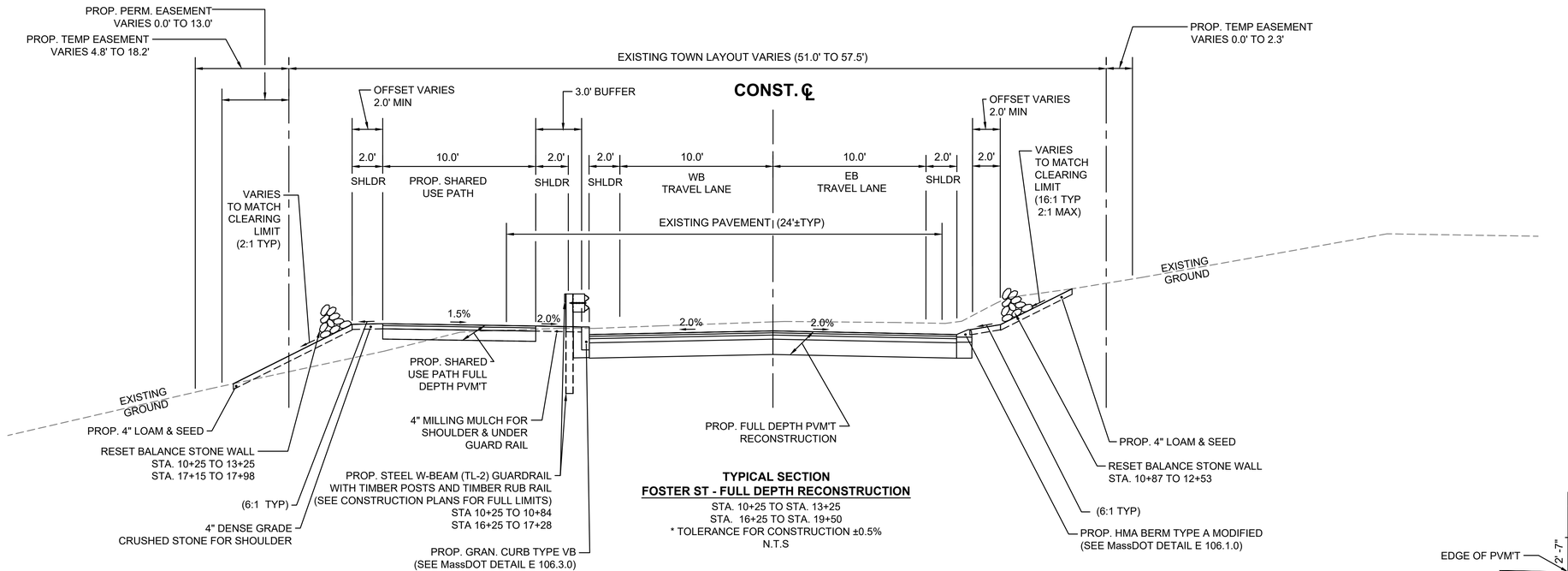
TYPICAL SECTION
FOSTER ST - FULL DEPTH RECONSTRUCTION
STA. 8+00 TO STA. 14+86
* TOLERANCE FOR CONSTRUCTION ±0.5%
N.T.S

LITTLETON
RECONSTRUCTION OF FOSTER STREET

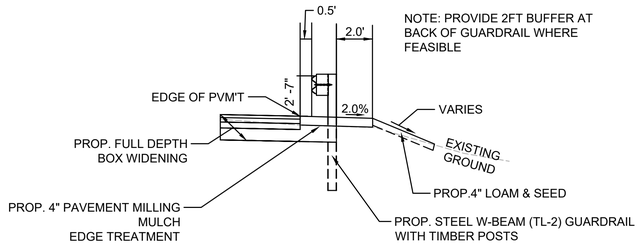
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	7	129
PROJECT FILE NO.	609054		

TYPICAL SECTIONS - FOSTER ST

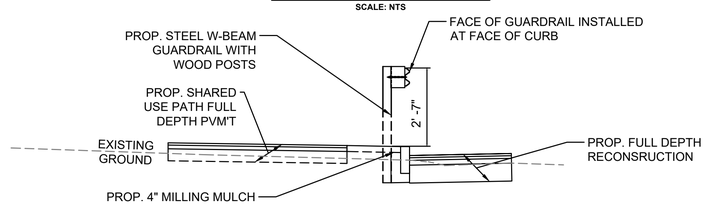
20170044A21_TYP01.DWG Plotted on 17-Nov-2020 8:49 AM



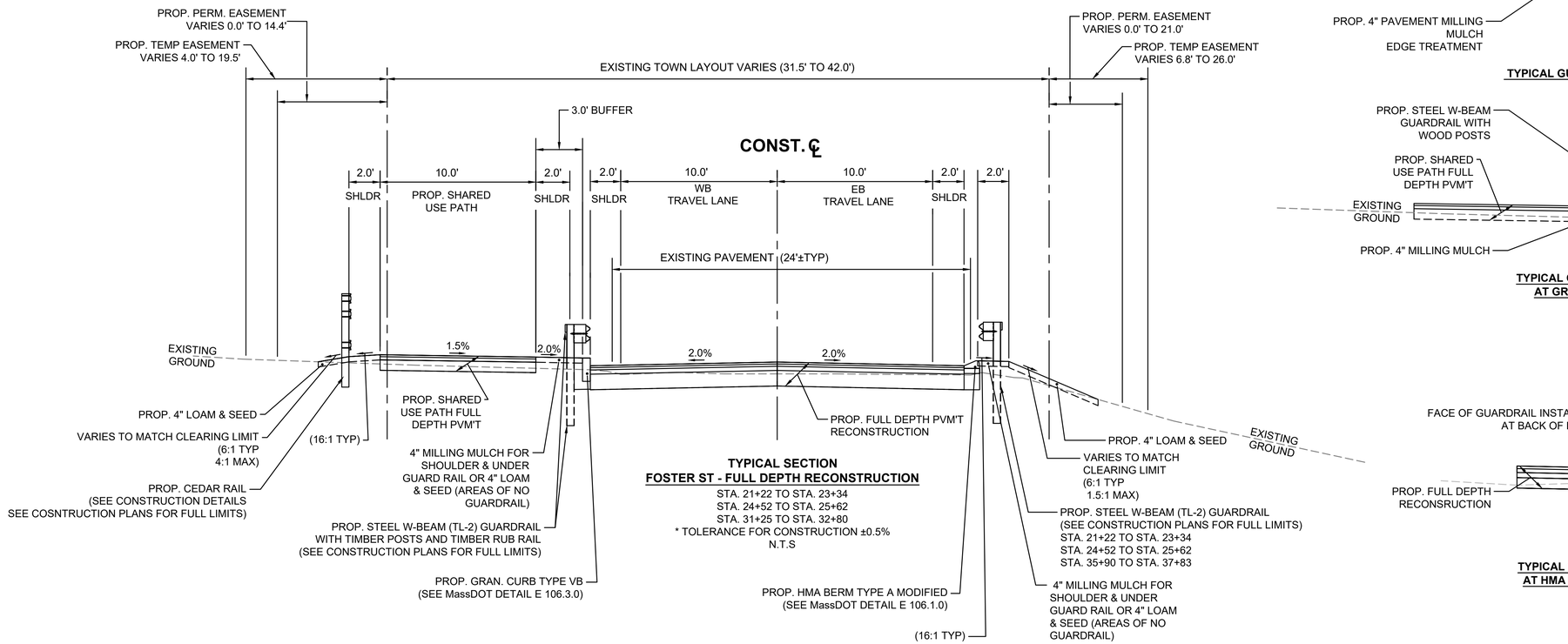
TYPICAL SECTION
FOSTER ST - FULL DEPTH RECONSTRUCTION
STA. 10+25 TO STA. 13+25
STA. 16+25 TO STA. 19+50
* TOLERANCE FOR CONSTRUCTION ±0.5%
N.T.S



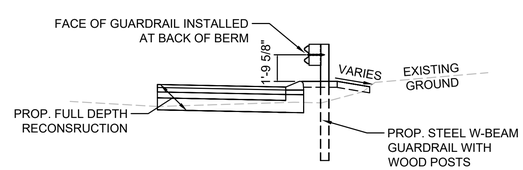
TYPICAL GUARDRAIL PLACEMENT
SCALE: NTS



TYPICAL GAURDRAIL PLACEMENT
AT GRANITE CURB TYPE VB
SCALE: NTS



TYPICAL SECTION
FOSTER ST - FULL DEPTH RECONSTRUCTION
STA. 21+22 TO STA. 23+34
STA. 24+52 TO STA. 25+62
STA. 31+25 TO STA. 32+80
* TOLERANCE FOR CONSTRUCTION ±0.5%
N.T.S



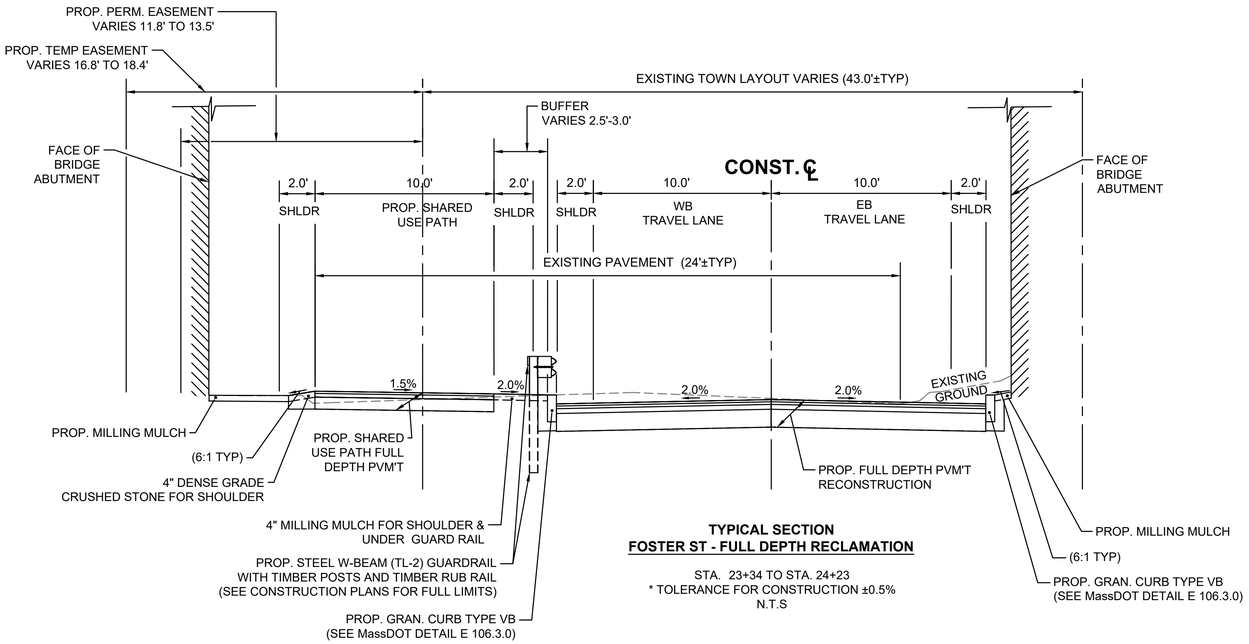
TYPICAL GAURDRAIL PLACEMENT
AT HMA BERM TYPE A MODIFIED
SCALE: NTS

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	8	129
PROJECT FILE NO.	609054		

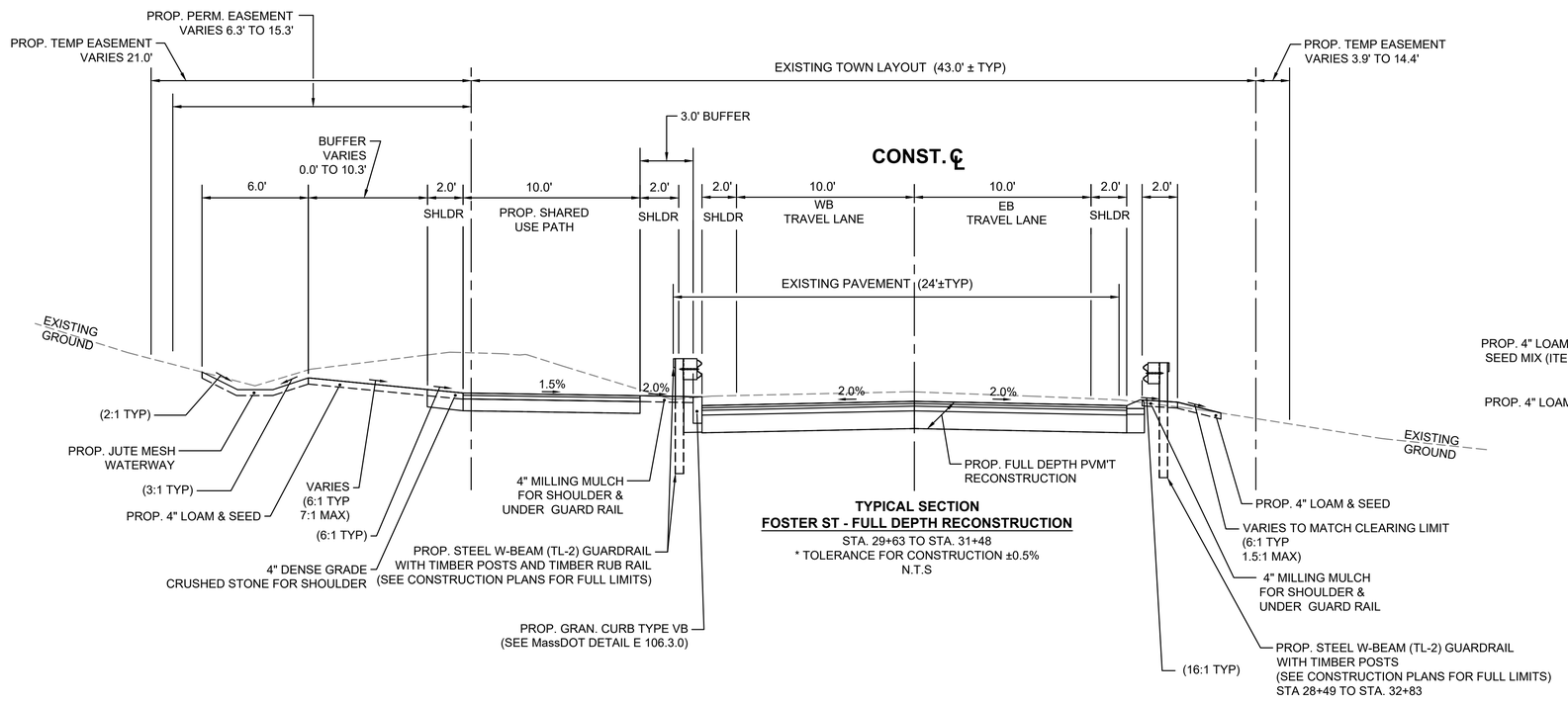
TYPICAL SECTIONS - FOSTER ST

20170044A21_TYP01.DWG Plotted on 17-Nov-2020 8:49 AM



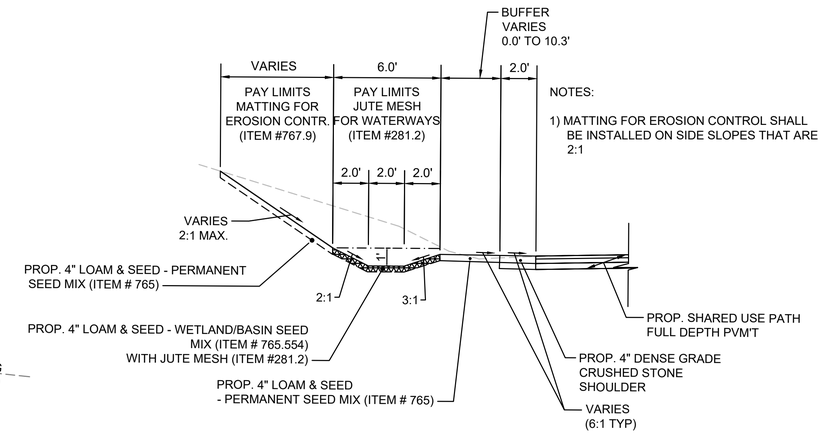
TYPICAL SECTION
FOSTER ST - FULL DEPTH RECLAMATION

STA. 23+34 TO STA. 24+23
* TOLERANCE FOR CONSTRUCTION ±0.5%
N.T.S



TYPICAL SECTION
FOSTER ST - FULL DEPTH RECONSTRUCTION

STA. 29+63 TO STA. 31+48
* TOLERANCE FOR CONSTRUCTION ±0.5%
N.T.S



NOTES:

1) MATTING FOR EROSION CONTROL SHALL BE INSTALLED ON SIDE SLOPES THAT ARE 2:1

GRASS SWALE WITH JUTE MESH LINING
SCALE: NTS

HIGHWAY GUARD DETAILS

NONE

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

SEE SHEET 57-64

DRAINAGE DETAILS

SEE SHEET NOS. 65-67

LEGEND:

PROPOSED WHEELCHAIR RAMP DETAIL # X#

PROPOSED DRIVEWAY DETAIL # DR#

NOTES:

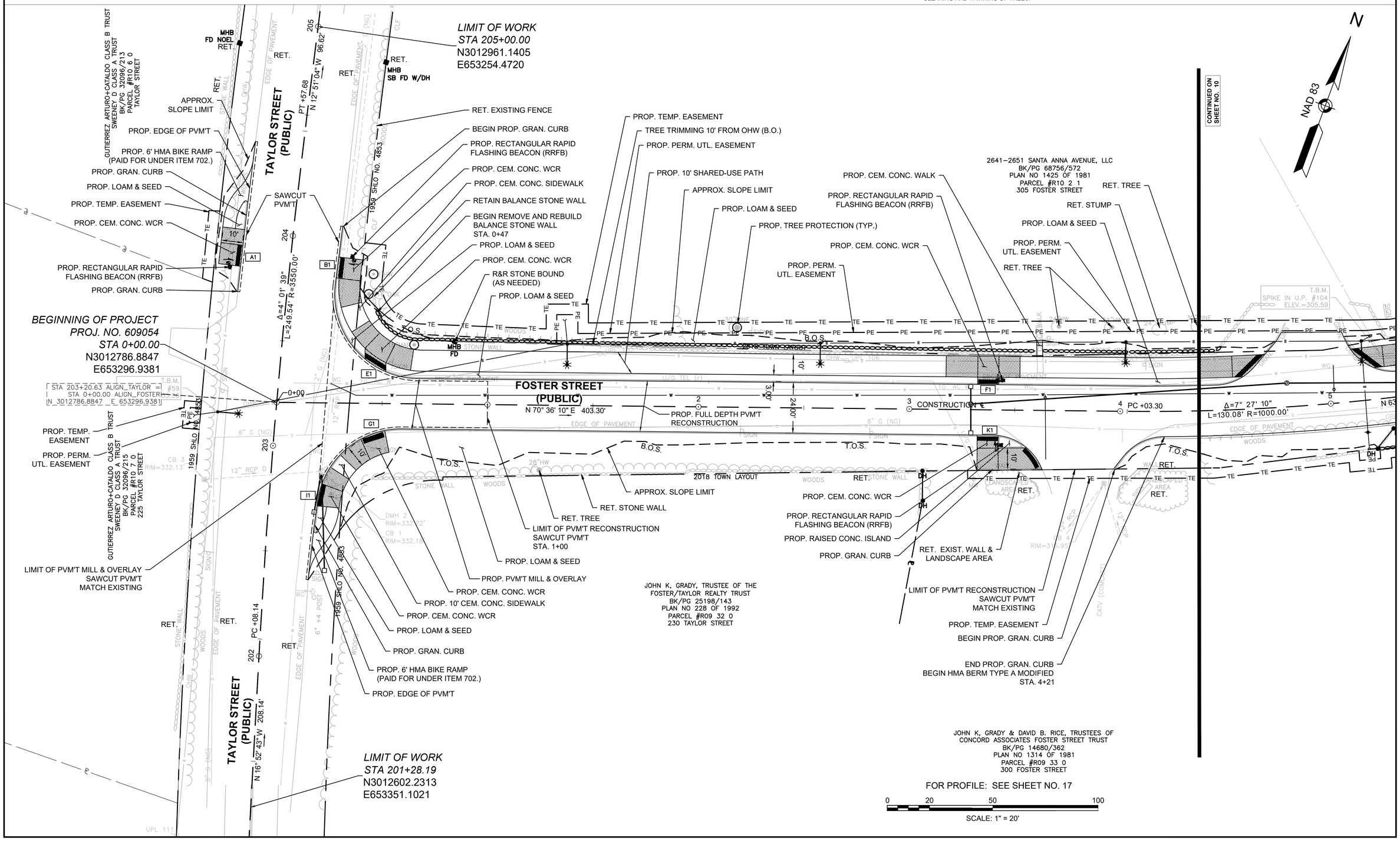
1. ALL EXISTING GRANITE CURB WITHIN PROJECT LIMITS SHALL BE REMOVED & DISCARDED UNLESS OTHERWISE NOTED ON THE PLAN
2. FOR GUARDRAIL DETAILS REFER TO STANDARD DETAILS 400.1.2, 400.1.3, 400.1.4, 400.1.5, 400.1.6, AND 400.5.1
3. ALL PROPOSED GRANITE CURB SHALL BE TYPE VB.
4. PRIOR TO CONSTRUCTION ACTIVITIES, A SITE WALK SHALL BE CONDUCTED WITH CONTRACTOR, ENGINEER, AND LANDSCAPE ARCHITECT TO DETERMINE SELECTIVE CLEARING AND THINNING OF TREES.

LITTLETON

RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	9	129
PROJECT FILE NO.	609054		

CONSTRUCTION PLANS



20170044A21_HPN01.DWG Plotted on 17-Nov-2020 9:43 AM

HIGHWAY GUARD DETAILS

STEEL W-BEAM GUARDRAIL (TL-2) W/ WOOD POST & TANGENT END STA. 9+46 LT TO TANGENT END STA 10+84 LT

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

SEE SHEET 57-64

DRAINAGE DETAILS

SEE SHEET NOS. 65-67

LEGEND:

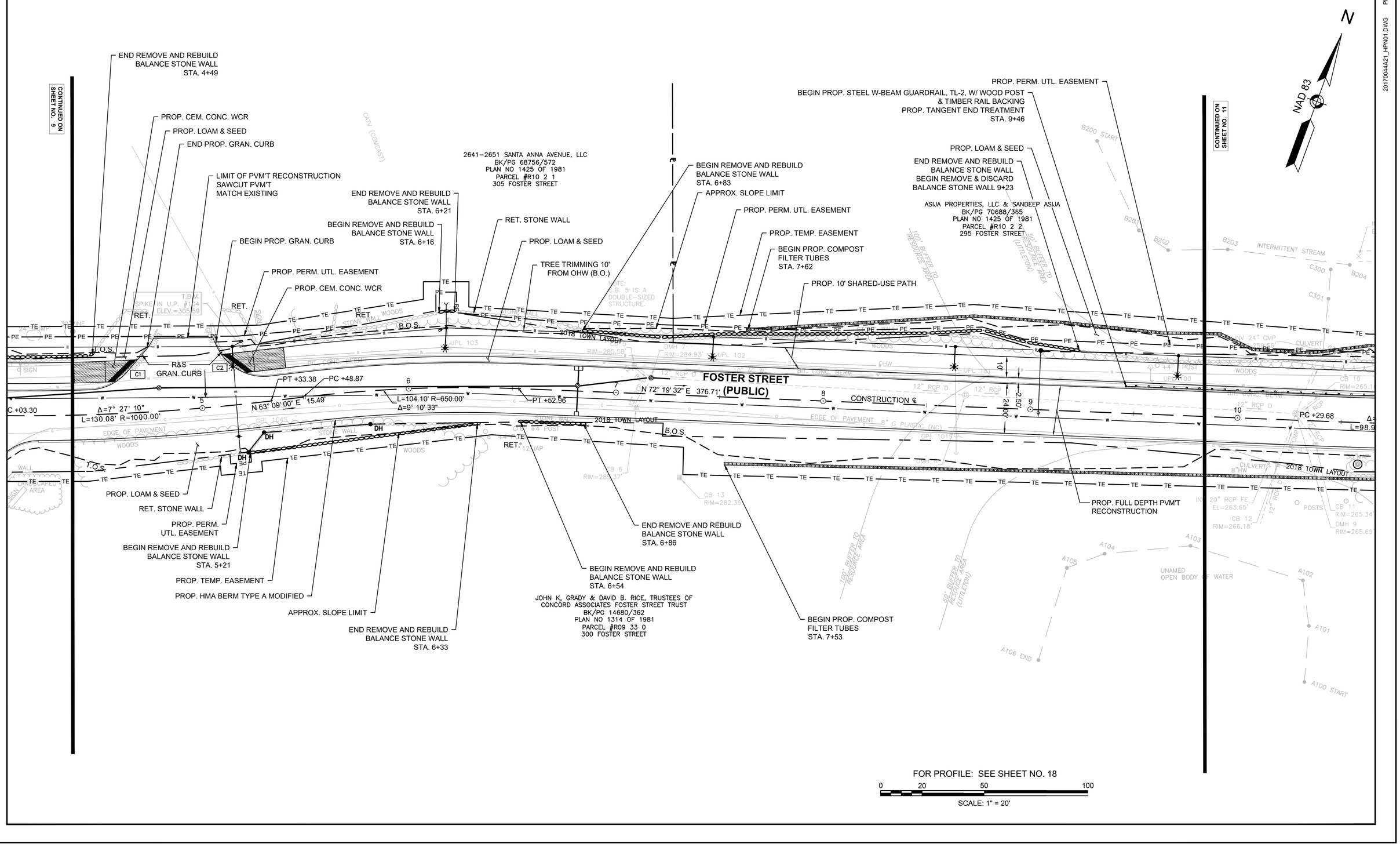
PROPOSED WHEELCHAIR RAMP DETAIL # X#

PROPOSED DRIVEWAY DETAIL # DR#

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	10	129
PROJECT FILE NO.	609054		

CONSTRUCTION PLANS



FOR PROFILE: SEE SHEET NO. 18

0 20 50 100

SCALE: 1" = 20'

20170044A21_HPN01.DWG Plotted on 17-Nov-2020 9:43 AM

HIGHWAY GUARD DETAILS

STEEL W-BEAM GUARDRAIL (TL-2) W/ WOOD POST & TANGENT END STA. 9+46 LT TO TANGENT END STA 10+84 LT

STEEL W-BEAM GUARDRAIL (TL-2) W/ WOOD POST & TANGENT END STA. 11+94 LT TO TANGENT END STA 17+28 LT

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

SEE SHEET 57-64

DRAINAGE DETAILS

SEE SHEET NOS. 65-67

LEGEND:

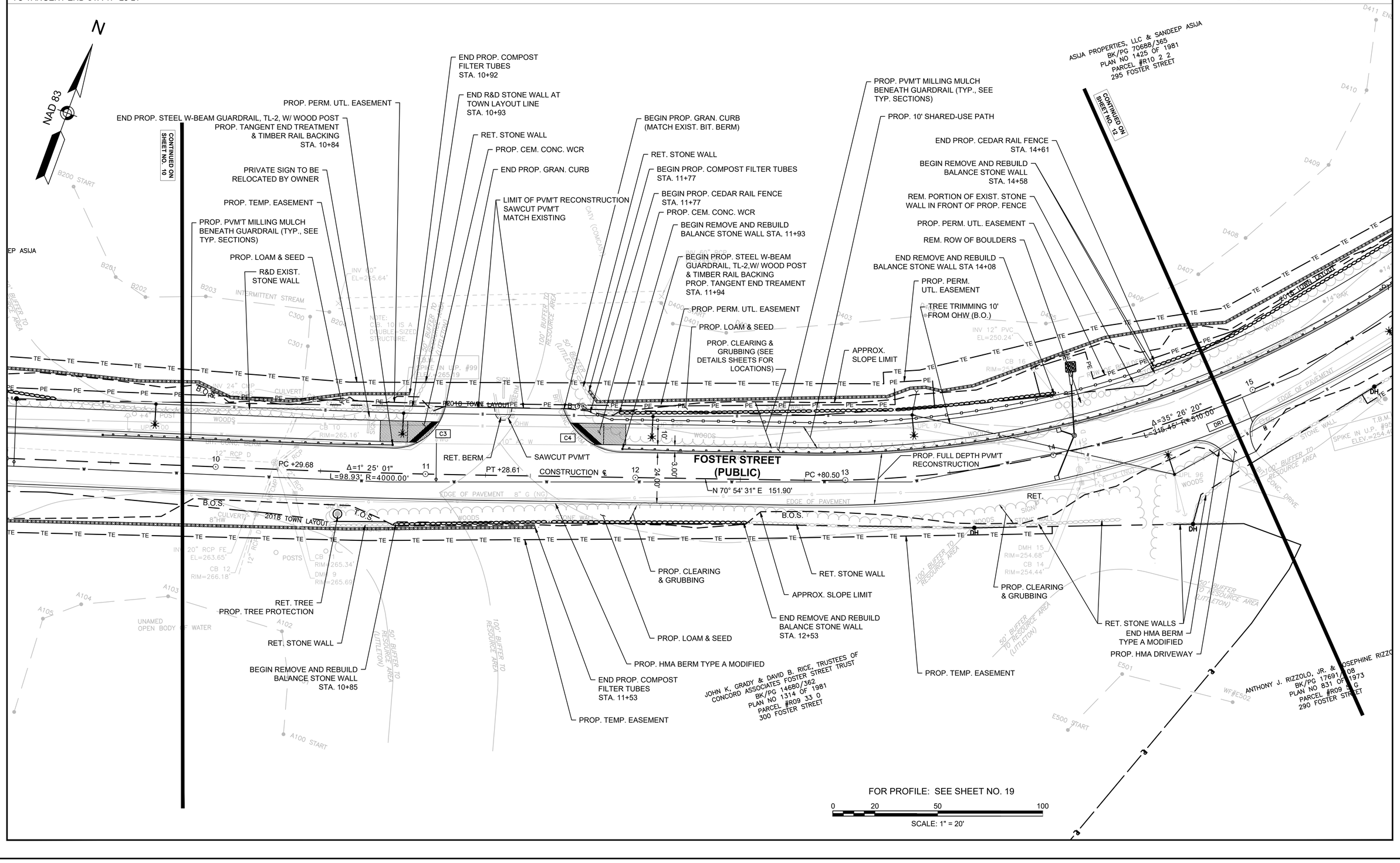
PROPOSED WHEELCHAIR RAMP DETAIL # X#

PROPOSED DRIVEWAY DETAIL # DR#

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	11	129
PROJECT FILE NO.	609054		

CONSTRUCTION PLANS



20170044A21_HPN01.DWG Plotted on 17-Nov-2020 9:43 AM

HIGHWAY GUARD DETAILS	TRAFFIC SIGNAL CONDUIT	WATER SUPPLY ALTERATIONS	DRAINAGE DETAILS
STEEL W-BEAM GUARDRAIL (TL-2) W/ WOOD POST & TANGENT END STA. 11+94 TO TANGENT END STA 17+28	NONE	SEE SHEET 57-64	SEE SHEET NOS. 65-67

LEGEND:

PROPOSED WHEELCHAIR RAMP DETAIL # X#

PROPOSED DRIVEWAY DETAIL # DR#

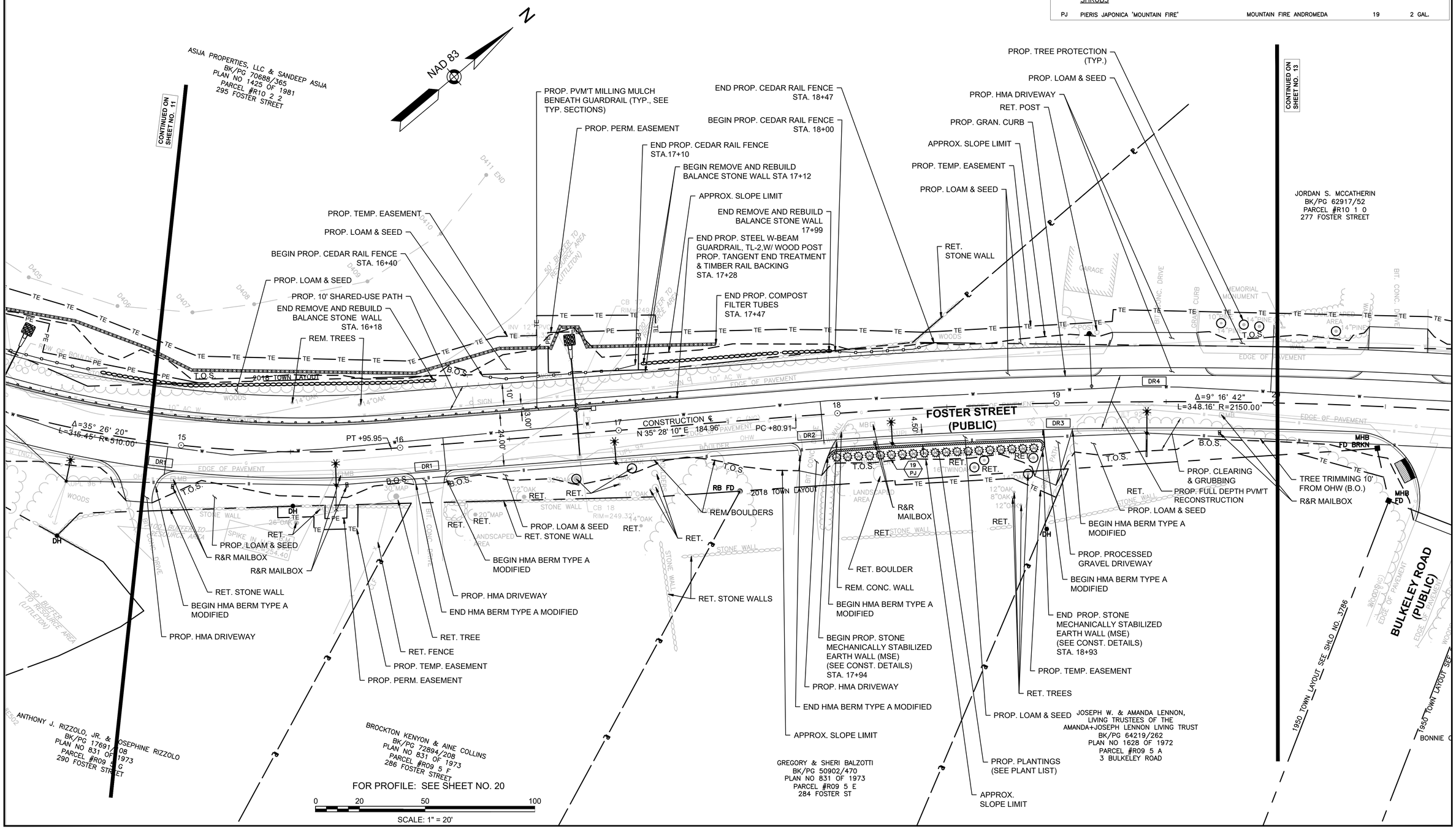
LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	12	129
PROJECT FILE NO.	609054		

CONSTRUCTION PLANS

PLANT LIST

KEY	BOTANICAL NAME	COMMON NAME	QTY.	SIZE
	SHRUBS			
PJ	PIERIS JAPONICA 'MOUNTAIN FIRE'	MOUNTAIN FIRE ANDROMEDA	19	2 GAL.



20170044A21_HPN01.DWG Plotted on 17-Nov-2020 9:43 AM

HIGHWAY GUARD DETAILS

STEEL W-BEAM GUARDRAIL (TL-2) W/ WOOD POST & TANGENT END STA. 21+22 RT TO CONCRETE ABUTMENT STA 23+34 RT

STEEL W-BEAM GUARDRAIL (TL-2) W/ WOOD POST & TANGENT END STA. 23+26 LT TO TANGENT END STA 26+04 LT

STEEL W-BEAM GUARDRAIL (TL-2) W/ WOOD POST & TANGENT END STA. 24+52 RT TO TANGENT END STA 25+62 RT

WATER SUPPLY ALTERATIONS

SEE SHEET 57-64

TRAFFIC SIGNAL CONDUIT

NONE

DRAINAGE DETAILS

SEE SHEET NOS. 65-67

LEGEND:

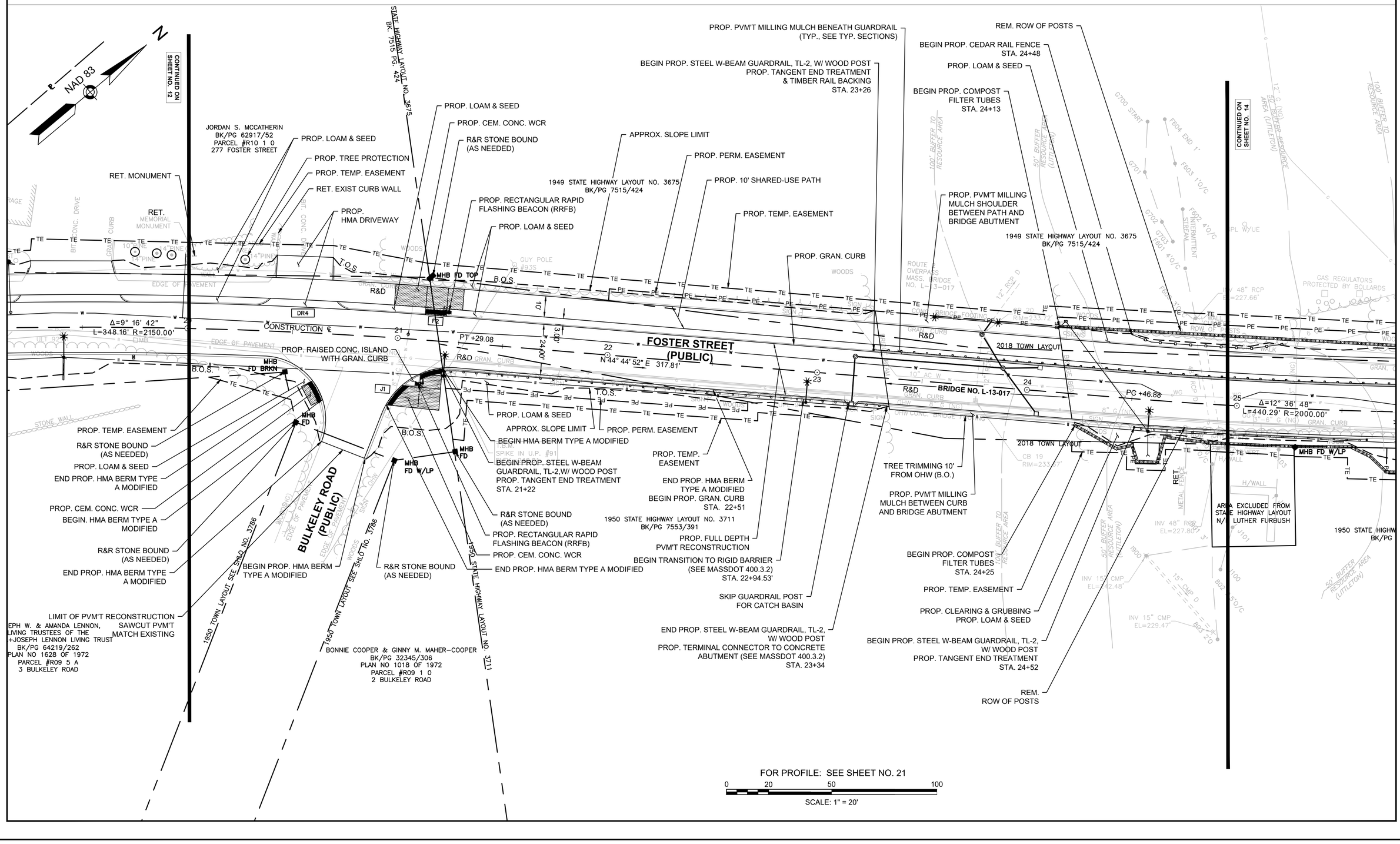
PROPOSED WHEELCHAIR RAMP DETAIL # X#

PROPOSED DRIVEWAY DETAIL # DR#

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	13	129
PROJECT FILE NO.	609054		

CONSTRUCTION PLANS



20170044A21_HPN01.DWG Plotted on 17-Nov-2020 9:43 AM

HIGHWAY GUARD DETAILS

STEEL W-BEAM GUARDRAIL (TL-2) W/ WOOD POST & TANGENT END STA. 23+26 LT TO TANGENT END STA 26+04 LT
STEEL W-BEAM GUARDRAIL (TL-2) W/ WOOD POST & TANGENT END STA. 24+52 RT TO TANGENT END STA 25+62 RT
STEEL W-BEAM GUARDRAIL (TL-2) W/ WOOD POST & TANGENT END STA. 26+71 LT TO TANGENT END STA 27+44 LT
STEEL W-BEAM GUARDRAIL (TL-2) W/ WOOD POST & TANGENT END STA. 28+49 RT TO FLARED END STA 32+83 RT
STEEL W-BEAM GUARDRAIL (TL-2) W/ WOOD POST & TANGENT END STA. 29+74 LT TO TANGENT END STA 31+58 LT
STEEL W-BEAM GUARDRAIL (TL-2) W/ WOOD POST & TANGENT END STA. 301+41 LT TO TANGENT END STA 300+48 LT

WATER SUPPLY ALTERATIONS

SEE SHEET 57-64

TRAFFIC SIGNAL CONDUIT

NONE

DRAINAGE DETAILS

SEE SHEET NOS. 65-67

LEGEND:

PROPOSED WHEELCHAIR RAMP DETAIL # X#

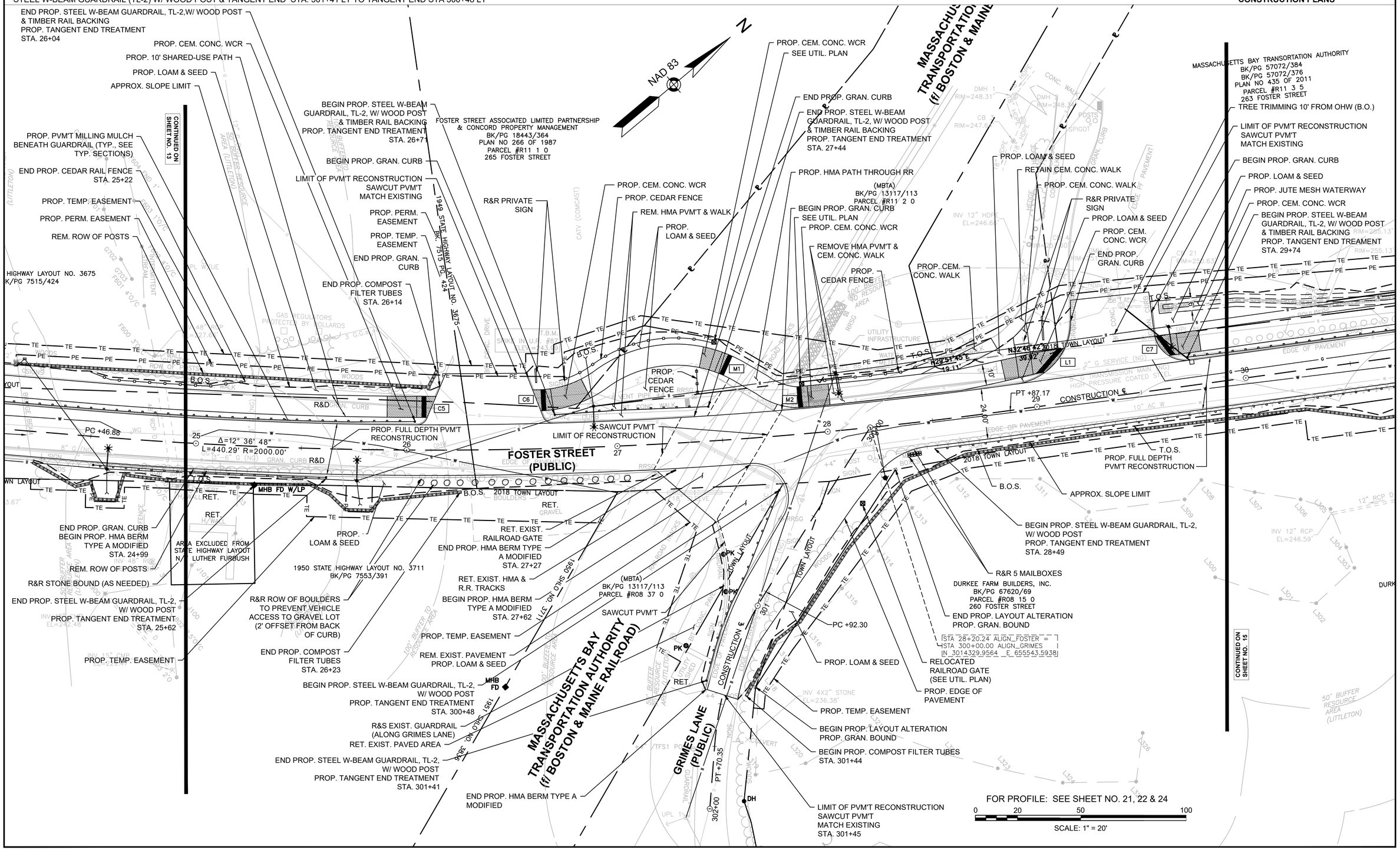
PROPOSED DRIVEWAY DETAIL # DR#

NOTE: GUARDRAIL FROM 26+71 LT TO 27+44 LT SHALL BE PLACED AS CLOSE TO THE PROPOSED EDGE OF PAVEMENT AS POSSIBLE WITHOUT CONFLICTING WITH EXISTING GAS.

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	14	129
PROJECT FILE NO.	609054		

CONSTRUCTION PLANS



20170044A21_HPN01.DWG Plotted on 17-Nov-2020 9:43 AM

HIGHWAY GUARD DETAILS

STEEL W-BEAM GUARDRAIL (TL-2) W/ WOOD POST & TANGENT END STA. 28+49 RT TO FLARED END STA 32+83 RT
STEEL W-BEAM GUARDRAIL (TL-2) W/ WOOD POST & TANGENT END STA. 29+74 LT TO TANGENT END STA 31+58 LT
STEEL W-BEAM GUARDRAIL (TL-2) W/ WOOD POST & TANGENT END STA. 32+07 LT TO TANGENT END STA 32+48 LT

WATER SUPPLY ALTERATIONS

SEE SHEET 57-64

TRAFFIC SIGNAL CONDUIT

NONE

DRAINAGE DETAILS

SEE SHEET NOS. 65-67

LEGEND:

PROPOSED WHEELCHAIR RAMP DETAIL # X#

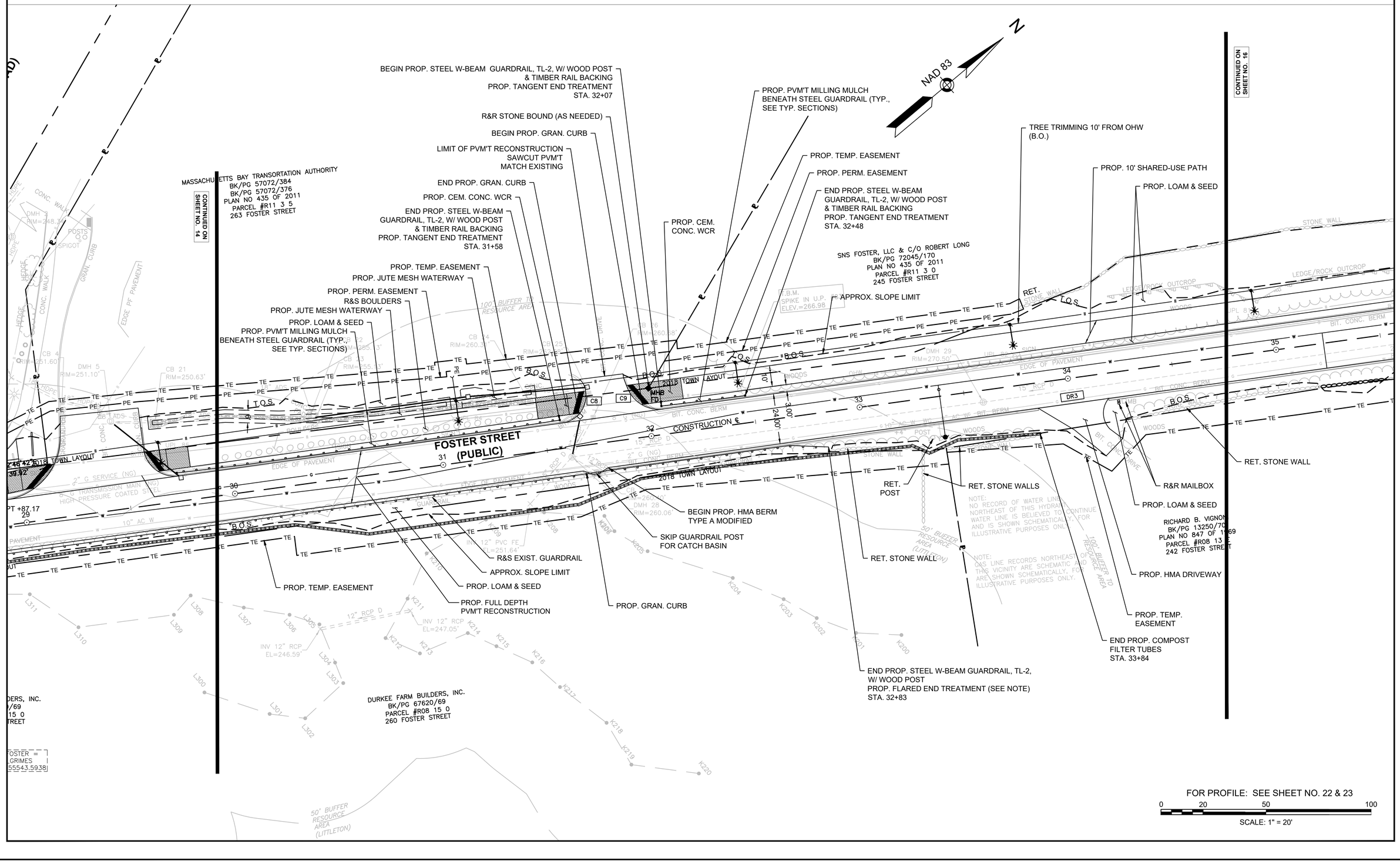
PROPOSED DRIVEWAY DETAIL # DR#

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	15	129
PROJECT FILE NO.	609054		

CONSTRUCTION PLANS

20170044A21_HPN01.DWG Plotted on 17-Nov-2020 9:44 AM



HIGHWAY GUARD DETAILS

STEEL W-BEAM GUARDRAIL (TL-2) W/ WOOD POST & TANGENT END STA. 35+90 RT

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

SEE SHEET 57-64

DRAINAGE DETAILS

SEE SHEET NOS. 65-67

LEGEND:

PROPOSED WHEELCHAIR RAMP DETAIL # X#

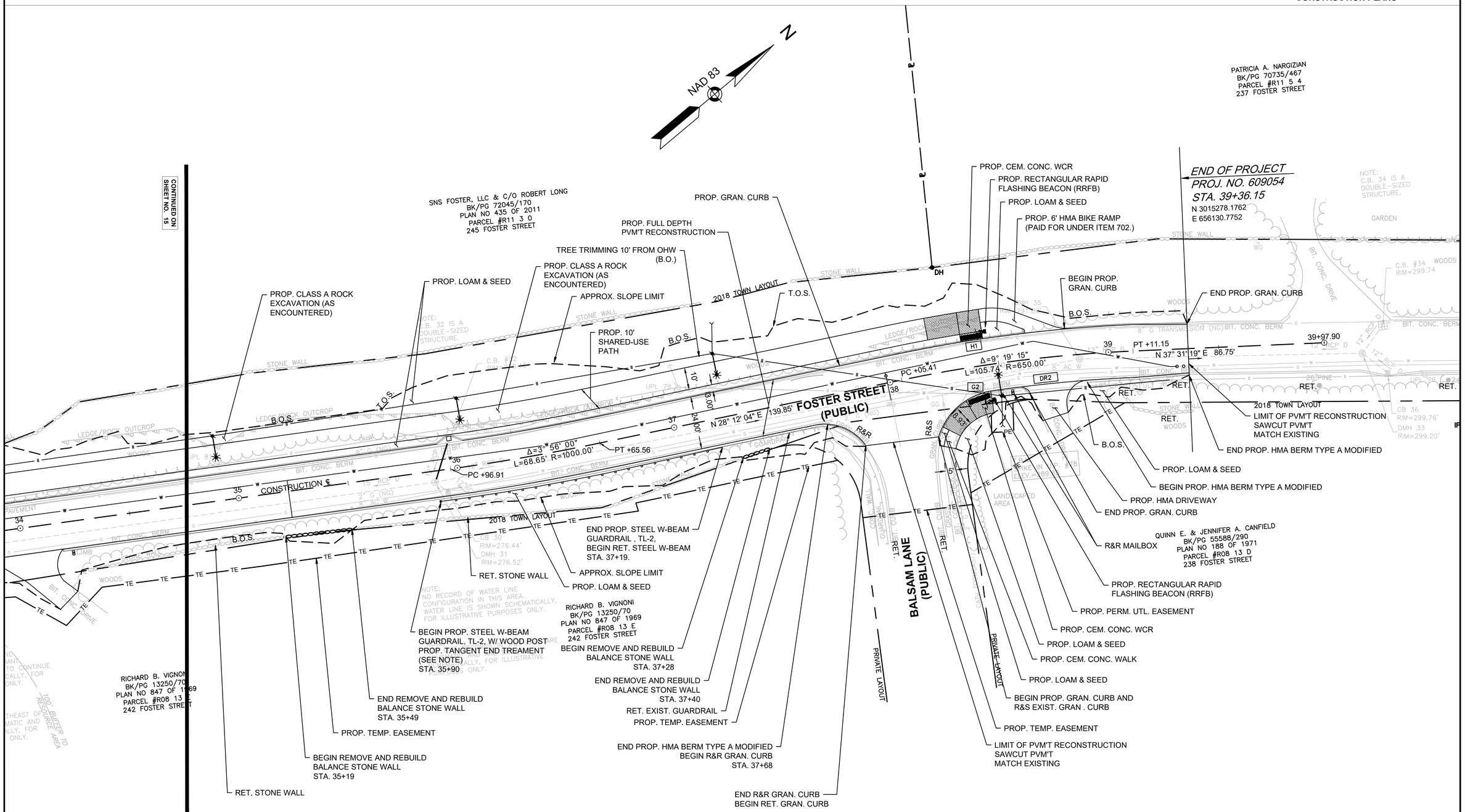
PROPOSED DRIVEWAY DETAIL # DR#

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	16	129
PROJECT FILE NO.	609054		

CONSTRUCTION PLANS

20170044A21_HPN01.DWG Plotted on 17-Nov-2020 9:44 AM

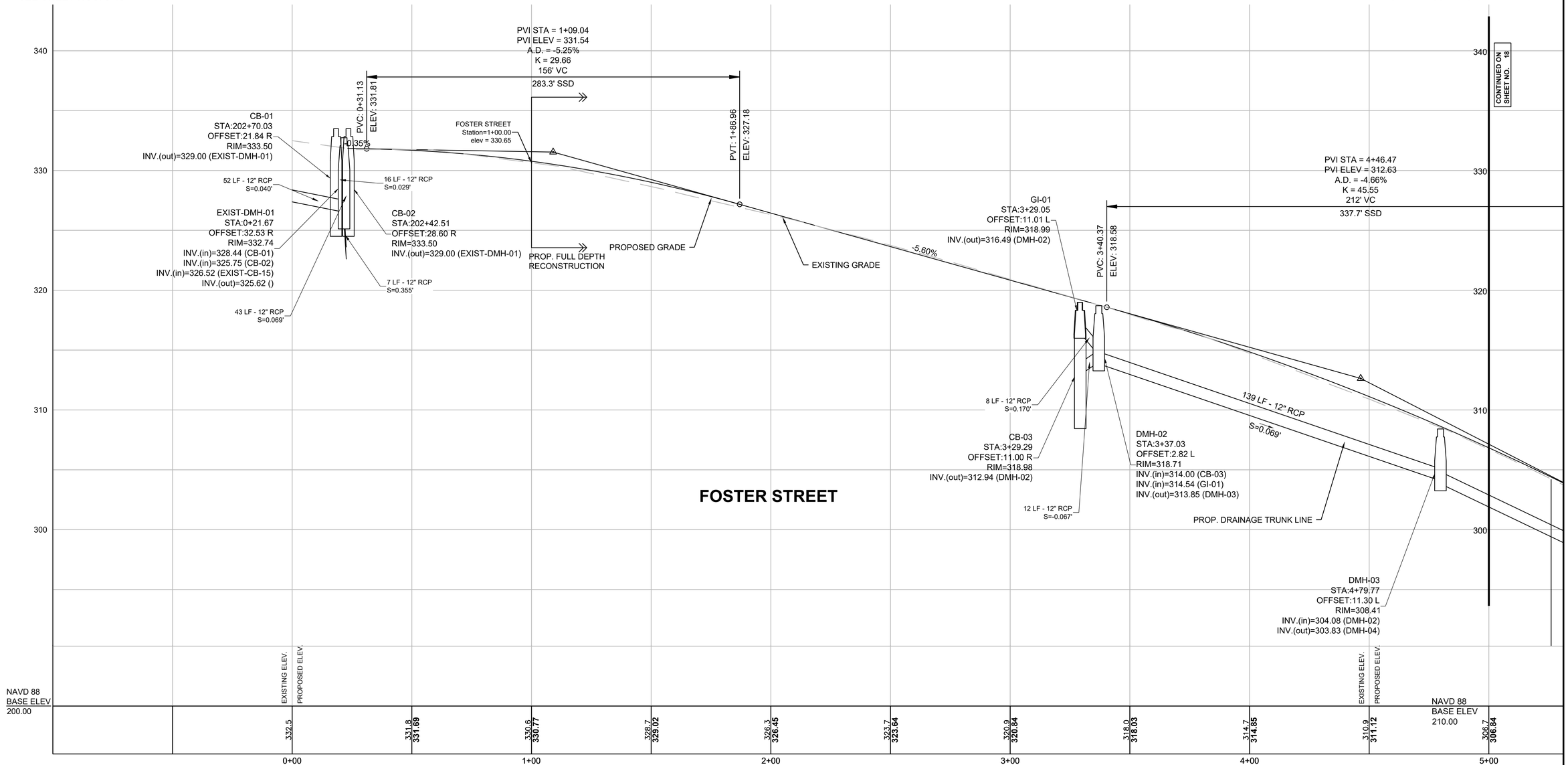

NAD 83
N
CONTINUED ON SHEET NO. 15
SNS FOSTER, LLC & C/O ROBERT LONG
BK/PG 72045/170
PLAN NO 435 OF 2011
PARCEL #R11 3 0
245 FOSTER STREET
PATRICIA A. NARGIZIAN
BK/PG 70735/467
PARCEL #R11 5 4
237 FOSTER STREET
PROP. GRAN. CURB
PROP. FULL DEPTH PVM'T RECONSTRUCTION
TREE TRIMMING 10' FROM OHW (B.O.)
PROP. CLASS A ROCK EXCAVATION (AS ENCOUNTERED)
PROP. LOAM & SEED
APPROX. SLOPE LIMIT
T.O.S.
2018 TOWN LAYOUT
PROP. 10' SHARED-USE PATH
B.O.S.
PROP. CEM. CONC. WCR
PROP. RECTANGULAR RAPID FLASHING BEACON (RRFB)
PROP. LOAM & SEED
PROP. 6' HMA BIKE RAMP (PAID FOR UNDER ITEM 702.)
END OF PROJECT
PROJ. NO. 609054
STA. 39+36.15
N 3015278.1762
E 656130.7752
BEGIN PROP. GRAN. CURB
END PROP. GRAN. CURB
NOTE: C.B. 34 IS A DOUBLE-SIZED STRUCTURE.
GARDEN
C.B. #34 WOODS RIM=299.74
BIT. CONC. DRIVE
STONE WALL
WOODS
LEDGE/ROCK OUTCROP
BIT. CONC. BERM
8" G TRANSMISSION (NG)
12" RCP D
26" PINE
PT +11.15
N 37° 31' 19" E 86.75'
39+97.90
Δ=9° 19' 15"
L=105.74'
R=650.00'
PC +05.41
FOSTER STREET (PUBLIC)
N 28° 12' 04" E 139.85'
Δ=3° 56' 00"
L=68.65'
R=1000.00'
PT +65.56
PC +96.91
CONSTRUCTION ℄
2018 TOWN LAYOUT
C.B. #32 RIM=276.44' DMH 31 RIM=276.52'
C.B. 36 RIM=299.76' DMH 33 RIM=299.20'
RET. STONE WALL
END PROP. STEEL W-BEAM GUARDRAIL , TL-2, BEGIN RET. STEEL W-BEAM STA. 37+19.
APPROX. SLOPE LIMIT
PROP. LOAM & SEED
NOTE: NO RECORD OF WATER LINE CONFIGURATION IN THIS AREA. WATER LINE IS SHOWN SCHEMATICALLY, FOR ILLUSTRATIVE PURPOSES ONLY.
RICHARD B. VIGNONI
BK/PG 13250/70
PLAN NO 847 OF 1969
PARCEL #R08 13 E
242 FOSTER STREET
BEGIN PROP. STEEL W-BEAM GUARDRAIL, TL-2, W/ WOOD POST
PROP. TANGENT END TREAMENT (SEE NOTE)
STA. 35+90
BEGIN REMOVE AND REBUILD BALANCE STONE WALL STA. 37+28
END REMOVE AND REBUILD BALANCE STONE WALL STA. 37+40
RET. EXIST. GUARDRAIL
PROP. TEMP. EASEMENT
END REMOVE AND REBUILD BALANCE STONE WALL STA. 35+49
PROP. TEMP. EASEMENT
BEGIN REMOVE AND REBUILD BALANCE STONE WALL STA. 35+19
RET. STONE WALL
END PROP. HMA BERM TYPE A MODIFIED
BEGIN R&R GRAN. CURB STA. 37+68
END R&R GRAN. CURB
BEGIN RET. GRAN. CURB
BALSAM LANE (PUBLIC)
PRIVATE LAYOUT
R&R
R&S
RET.
LIMIT OF PVM'T RECONSTRUCTION SAWCUT PVM'T MATCH EXISTING
END PROP. HMA BERM TYPE A MODIFIED
B.O.S.
PROP. LOAM & SEED
BEGIN PROP. HMA BERM TYPE A MODIFIED
PROP. HMA DRIVEWAY
END PROP. GRAN. CURB
R&R MAILBOX
QUINN E. & JENNIFER A. CANFIELD
BK/PG 55588/290
PLAN NO 188 OF 1971
PARCEL #R08 13 D
238 FOSTER STREET
PROP. RECTANGULAR RAPID FLASHING BEACON (RRFB)
PROP. PERM. UTL. EASEMENT
PROP. CEM. CONC. WCR
PROP. LOAM & SEED
PROP. CEM. CONC. WALK
PROP. LOAM & SEED
BEGIN PROP. GRAN. CURB AND R&S EXIST. GRAN . CURB
PROP. TEMP. EASEMENT
LIMIT OF PVM'T RECONSTRUCTION SAWCUT PVM'T MATCH EXISTING
LANDSCAPED AREA
GRASS
CONC. WALK
BIT. CONC. CURB
H1
G2
DR2
B
PE
TE
W
G
UPL 79
UPL 84
UPL 76
UPL 78
UPL 82
UPL 83
UPL 85
UPL 86
UPL 87
UPL 88
UPL 89
UPL 90
UPL 91
UPL 92
UPL 93
UPL 94
UPL 95
UPL 96
UPL 97
UPL 98
UPL 99
UPL 100
UPL 101
UPL 102
UPL 103
UPL 104
UPL

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	17	129
PROJECT FILE NO.	609054		

PROFILE - FOSTER STREET

FOR CONSTRUCTION PLANS:
SEE SHEET NOS. 9-16



HOR. SCALE IN FEET
20 0 20 40
4 0 4 8
VER. SCALE IN FEET

20170044A21_HWD01.DWG Plotted on 12-Nov-2020 7:58 AM

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	18	129
PROJECT FILE NO.	609054		

PROFILE - FOSTER STREET

FOR CONSTRUCTION PLANS:
SEE SHEET NOS. 9-16

CONTINUED ON SHEET NO. 17

CONTINUED ON SHEET NO. 19

NE

DMH-03
STA:4+79.77
OFFSET:11.30 L
RIM=308.41
n)=304.08 (DMH-02)
t)=303.83 (DMH-04)

199 LF - 12" RCP
S=0.096'

-10.26%

TEMP. BENCHMARK:
SPIKE IN U.P. #104
ELEVATION = 305.59'
STA. 5+26.02, 21.03' LT

PROP. DRAINAGE TRUNK LINE

PVI STA = 8+49.02
PVI ELEV = 271.32
A.D. = 7.06%
K = 50.00
353' VC
253.5' HSD

PVC: 6+72.42
ELEV: 289.45

5 LF - 12" RCP
S=0.046'

10 LF - 12" RCP
S=0.037'

32 LF - 12" RCP
S=0.032'

7 LF - 12" RCP
S=-0.005'

PROPOSED GRADE

CBDB-01
STA:6+81.56
OFFSET:11.00 L
RIM=288.56
INV.(out)=284.39 (DMH-04)

DMH-05
STA:7+16.60
OFFSET:7.83 L
RIM=285.40
INV.(in)=280.69 (DMH-04)
INV.(out)=280.43 ()

EXISTING GRADE

DMH-04
STA:6+81.54
OFFSET:2.46 L
RIM=288.73
INV.(in)=284.00 (CBDB-01)
INV.(in)=284.52 (DMH-03)
INV.(in)=282.08 (CB-04)
INV.(out)=281.83 (DMH-05)

CB-04
STA:6+81.35
OFFSET:11.00 R
RIM=288.58
INV.(out)=282.58 (DMH-04)

PVT: 10+25.62
ELEV: 265.67

TEMP. B
SPIKE IN
ELEVAT
STA. 10+

FOSTER STREET

	EXISTING ELEV.	PROPOSED ELEV.
NAVD 88 BASE ELEV 210.00	310.9	311.12
5+00	306.7	306.84
	301.9	302.01
6+00	297.0	296.88
	291.8	291.75
7+00	286.7	286.69
	281.8	282.09
8+00	277.3	277.98
	273.7	274.38
9+00	270.7	271.27
	268.5	268.66
10+00	266.7	266.56
NAVD 88 BASE ELEV 210.00	265.2	264.89

HOR. SCALE IN FEET
20 0 20 40
VER. SCALE IN FEET
4 0 4 8

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LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	19	129
PROJECT FILE NO.	609054		

PROFILE - FOSTER STREET

FOR CONSTRUCTION PLANS:
SEE SHEET NOS. 9-16

CONTINUED ON SHEET NO. 18

CONTINUED ON SHEET NO. 20

PVI STA = 12+80.03
PVI ELEV = 257.54
A.D. = 1.57%
K = 112.93
177' VC
HSD > 250'

PVI STA = 14+63.92
PVI ELEV = 254.54
A.D. = -1.05%
K = 84.68
89' VC
1074.2' SSD

PROPOSED GRADE

EXISTING GRADE

3.20%

-1.63%

-2.68%

PVC: 11+91.50
ELEV: 260.37

PVT: 13+68.55
ELEV: 256.09

PVC: 14+19.55
ELEV: 255.26

PVT: 15+08.29
ELEV: 253.35

PVC: 15+50.01
ELEV: 252.23

DMH-06
STA:14+11.89
OFFSET:6.83 L
RIM=255.25
INV.(in)=250.67 (CB-06)
INV.(in)=250.67 (CB-05)

18 LF - 12" RCP
S=0.008'

24 LF - 12" RCP
S=0.020'

FE-01
STA:14+16.61
OFFSET:30.50 L
RIM=251.75
INV.(in)=250.08 ()

4 LF - 12" RCP
S=0.035'

CB-05
STA:13+99.37
OFFSET:10.97 R
RIM=255.37
INV.(out)=250.85 (DMH-06)

CB-06
STA:14+05.22
OFFSET:11.03 L
RIM=255.28
INV.(out)=250.94 (DMH-06)

TEMP. BENCHMARK:
SPIKE IN U.P. #99
ELEVATION = 265.19'
STA. 10+88.83, 23.04' LT

TEMP. BENCHMARK:
SPIKE IN U.P. #95
ELEVATION = 254.40'
STA. 15+69.90, 10.34' RT

FOSTER STREET

OF
INV.(in)=245.67
INV.(in)=2
INV.(out)=2

OF
INV.(out)=24

270
260
250
240
230
220

NAVD 88
BASE ELEV
210.00

EXISTING ELEV.
PROPOSED ELEV

10+00	11+00	12+00	13+00	14+00	15+00	16+00
265.7 **266.56**	263.8 **263.29**	262.3 **261.70**	260.9 **260.10**	259.0 **258.65**	257.2 **257.42**	255.9 **256.41**
265.2 **264.89**						

255.0 **255.58**	254.3 **254.71**	254.0 **253.57**	253.0 **252.23**	251.5 **251.15**

NAVD 88
BASE ELEV
210.00

HOR. SCALE IN FEET
20 0 20 40
4 0 4 8
VER. SCALE IN FEET

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LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	20	129
PROJECT FILE NO.	609054		

PROFILE - FOSTER STREET

FOR CONSTRUCTION PLANS:
SEE SHEET NOS. 9-16

CONTINUED ON SHEET NO. 19

CONTINUED ON SHEET NO. 21

LOW POINT ELEV = 250.47
LOW POINT STA = 16+81.34
PVI STA = 16+61.98
PVI ELEV = 249.23
A.D. = 4.57%
K = 49.03
224' VC
252.1' HSD

HIGH POINT ELEV = 253.00
HIGH POINT STA = 18+89.51
PVI STA = 19+44.65
PVI ELEV = 254.57
A.D. = -7.50%
K = 29.61
222' VC
254.9' SSD

PVC: 15+50.01
ELEV: 252.23

PVT: 17+73.95
ELEV: 251.35

PVC: 18+33.59
ELEV: 252.47

PVT: 20+55.71
ELEV: 248.34

2.68%

1.89%

-5.61%

PROPOSED GRADE

EXISTING GRADE

18 LF - 12" RCP
S=0.005'

4 LF - 12" RCP
S=0.013'

21 LF - 12" RCP
S=0.009'

DMH-07
STA:16+81.45
OFFSET:10.98 L
RIM=250.25
INV.(in)=245.67 (EXIST-CB-08)
INV.(in)=245.67 (CB-07)
INV.(out)=245.57 (FE-02)

CB-07
STA:16+89.33
OFFSET:10.95 L
RIM=250.27
INV.(out)=245.77 (DMH-07)

EXIST-CB-08
STA:16+81.36
OFFSET:10.96 R
RIM=250.25
INV.(out)=245.77 (DMH-07)

FE-02
STA:16+80.98
OFFSET:34.28 L
RIM=247.04
INV.(in)=245.37 (DMH-07)

TEMP. BENCHMARK:
SPIKE IN U.P. #95
ELEVATION = 254.40'
STA. 15+69.90, 10.34' RT

TEMP. BENCHMARK:
SPIKE IN U.P. #91
ELEVATION = 246.01'
STA. 21+24.99, 12.68' RT

FOSTER STREET

BULKELEY
ROAD

	EXISTING ELEV.	PROPOSED ELEV									
NAVD 88 BASE ELEV 210.00	253.0	252.23	251.5	251.15	250.0	250.57	249.9	250.51	250.5	250.95	251.6	251.84	252.7	252.74	252.8	252.98	252.3	252.38	251.1	250.94	248.8	248.65	246.2	245.85	243.0	243.05	NAVD 88 BASE ELEV 210.00
	16+00						17+00				18+00				19+00				20+00				21+00				

HOR. SCALE IN FEET
20 0 20 40
4 0 4 8
VER. SCALE IN FEET

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LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	21	129
PROJECT FILE NO.	609054		

PROFILE - FOSTER STREET

FOR CONSTRUCTION PLANS:
SEE SHEET NOS. 9-16

CONTINUED ON SHEET NO. 20

CONTINUED ON SHEET NO. 22

LOW POINT ELEV = 233.78
LOW POINT STA = 24+05.36
PVI STA = 23+83.22
PVI ELEV = 229.95
A.D. = 9.85%
K = 32.19
317' VC
182.8' HSD

PVI STA = 26+89.21
PVI ELEV = 242.92
A.D. = -2.59%
K = 36.51
95' VC
463.8' SSD

MBTA AT-GRADE CROSSIN

PVC: 22+24.70
ELEV: 238.85

PVT: 25+41.75
ELEV: 236.67

PVC: 26+41.92
ELEV: 240.92

PVT: 27+36.51
ELEV: 243.70

ROUTE 2 OVERPASS
HEIGHT = 14'-1"

-5.61%

4.24%

1.65%

PROPOSED GRADE

EXISTING GRADE

DMH-08
STA:23+17.43
OFFSET:9.07 L
RIM=234.81
INV.(in)=229.50 (CB-09)
INV.(out)=229.40 (DMH-10)

66 LF - 12" RCP
S=0.005'

15 LF - 12" RCP
S=0.005'

23 LF - 12" RCP
S=0.056'

18 LF - 12" RCP
S=0.007'

CB-09
STA:23+17.40
OFFSET:13.37 R
RIM=234.90
INV.(out)=229.65 (DMH-08)

GI-02
STA:24+05.37
OFFSET:11.00 R
RIM=233.56
INV.(out)=231.06 (DMH-10)

DMH-09
STA:23+76.52
OFFSET:24.55 L
RIM=234.37
INV.(in)=228.82 (DMH-10)
INV.(out)=228.72 ()

DMH-10
STA:23+87.77
OFFSET:9.31 L
RIM=233.65
INV.(in)=229.55 (GI-02)
INV.(in)=229.02 (CB-10)
INV.(in)=229.02 (DMH-08)
INV.(out)=228.92 (DMH-09)

CB-10
STA:24+05.36
OFFSET:10.98 L
RIM=233.56
INV.(out)=229.16 (DMH-10)

14 LF - 12" RCP
S=0.008'

6 LF - 12" RCP
S=0.005'

FOSTER STREET

TEMP. BENCHMARK:
SPIKE IN U.P. #87
ELEVATION = 243.99'
STA. 26+89.40, 19.39' LT

?. BENCHMARK:
E IN U.P. #91
'ATION = 246.01'
21+24.99, 12.68' RT

260
250
240
230
220

EXISTING ELEV.
PROPOSED ELEV.

NAVD 88
BASE ELEV
210.00

22+00	23+00	24+00	25+00	26+00	27+00
243.0 **243.05**	240.2 **240.24**	237.7 **237.53**	235.8 **235.51**	234.4 **234.26**	234.0 **233.79**
			234.2 **234.09**	235.1 **235.17**	236.8 **237.02**
				238.9 **239.14**	241.0 **241.25**
					243.0 **242.92**

NAVD 88
BASE ELEV
210.00
243.9 **243.92**

HOR. SCALE IN FEET
20 0 20 40
4 0 4 8
VER. SCALE IN FEET

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LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	22	129
PROJECT FILE NO.	609054		

PROFILE - FOSTER STREET

FOR CONSTRUCTION PLANS:
SEE SHEET NOS. 9-16

CONTINUED ON SHEET NO. 21

CONTINUED ON SHEET NO. 23

PVI STA = 29+26.15
PVI ELEV = 246.82
A.D. = 4.50%
K = 54.99
247' VC
274.8' HSD

PVC: 28+02.47
ELEV: 244.78

PVT: 30+49.82
ELEV: 254.42

PVC: 31+98.51
ELEV: 263.56

PVT: 27+36.51
ELEV: 243.70

MBTA AT-GRADE CROSSING

1.65%

6.14%

EXISTING GRADE

PROPOSED GRADE

71 LF - 15" RCP
S=0.038'

53 LF - 15" RCP
S=0.051'

16 LF - 12" RCP
S=0.010'

13 LF - 12" RCP
S=0.003'

196 LF - 15" RCP
S=0.055'

28 LF - 15" RCP
S=0.000'

CB-15
STA:31+72.92
OFFSET:27.26 L
RIM=262.12
INV.(out)=257.45 (CB-12)

EXIST-CB-16
STA:31+71.59
OFFSET:13.22 R
RIM=261.84

CB-12
STA:31+16.15
OFFSET:30.52 L
RIM=258.81
INV.(in)=254.57 (CB-15)
INV.(out)=254.37 (EXIST CBDB-02)

CB-13
STA:31+67.68
OFFSET:13.99 L
RIM=261.48
INV.(out)=254.88 (EXIST-DMH-12)

EXIST-DMH-12
STA:31+61.23
OFFSET:4.66 R
RIM=261.17
INV.(in)=254.68 (CB-13)
INV.(out)=251.46 ()

EXIST CBDB-02
STA:30+41.70
OFFSET:30.72 L
RIM=253.95
INV.(in)=251.54 (CB-12)

CB-11
STA:29+75.67
OFFSET:9.45 L
RIM=250.14
INV.(out)=244.14 (EXIST-DMH-11)

STA. 28+20.24 ALIGN_FOSTER =
STA. 300+00.00 ALIGN_GRIMES
N:3014329.9564 E:655543.5938

GRIMES LANE

TEMP. BENCHMARK:
SPIKE IN U.P. #83
ELEVATION = 266.98'
STA. 32+44.53, 15.90' LT

FOSTER STREET

280
270
260
250
240
230

	EXISTING ELEV.	PROPOSED ELEV.									
NAVD 88 BASE ELEV 210.00	243.9	**243.92**	244.7	**244.74**	246.1	**245.77**	248.0	**247.25**	250.1	**249.19**	252.1	**251.58**	254.2	**254.43**	256.6	**257.50**	259.5	**260.57**	262.6	**263.65**	266.1	**266.51**	268.5	**268.98**	NAVD 88 BASE ELEV 210.00	270.3	**271.06**
	28+00						29+00				30+00				31+00				32+00				33+00				

HOR. SCALE IN FEET
20 0 20 40
4 0 4 8
VER. SCALE IN FEET

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LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	23	129
PROJECT FILE NO.	609054		

PROFILE - FOSTER STREET

FOR CONSTRUCTION PLANS:
SEE SHEET NOS. 9-16

CONTINUED ON SHEET NO. 22

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

PVT: 34+54.39
ELEV: 274.13

2.12%

PVC: 35+59.23
ELEV: 276.36

PVI STA = 36+52.91
PVI ELEV = 278.35
A.D. = 3.58%
K = 52.28
187' VC
291.4' HSD

PVT: 37+46.60
ELEV: 283.70

PROPOSED GRADE

5.71%

EXISTING GRADE

GI-04
STA:35+98.01
OFFSET:13.74 L
RIM=277.00
INV.(out)=274.50 (EXIST-DMH-13)

294 LF - 12" RCP
S=0.055'

227 LF - 15" RCP
S=0.020'

17 LF - 12" RCP
S=0.105'

EXIST-DMH-13
STA:35+89.17
OFFSET:5.04 R
RIM=276.98
INV.(in)=272.32 (GI-04)
INV.(in)=272.32 (EXIST-CB-14)
INV.(in)=270.72 (EXIST-DMH-14)
INV.(out)=270.52 (EXIST-DMH-15)

4 LF - 12" RCP
S=0.005'

EXIST-CB-14
STA:35+94.37
OFFSET:10.50 R
RIM=277.02
INV.(out)=272.36 (EXIST-DMH-13)

EXIST-DMH-15
STA:33+58.65
OFFSET:5.64 R
RIM=271.27
INV.(in)=266.00 (EXIST-DMH-13)
INV.(out)=265.90 ()

3 LF - 12" RCP
S=0.010'

FOSTER STREET
Station=39+36.88
elev = 294.55

PROP. FULL DEPTH RECONSTRUCTION

EXIST-DMH-14
STA:38+86.71
OFFSET:2.11 R
RIM=291.65
INV.(in)=288.37 ()
INV.(out)=287.17 (EXIST-DMH-13)

TEMP. BENCHMARK:
SPIKE IN U.P. #78
ELEVATION = 289.65'
STA. 38+38.16, 12.47' RT

BALSAM LANE

FOSTER STREET

	EXISTING ELEV.	PROPOSED ELEV.										
NAVD 88 BASE ELEV 210.00	270.3	**271.06**	271.7	**272.75**	273.2	**274.04**	274.5	**275.10**	275.7	**276.16**	277.0	**277.38**
	278.6	**279.07**	280.7	**281.24**	283.6	**283.89**	286.6	**286.74**	288.8	**289.60**	292.6	**292.45**
NAVD 88 BASE ELEV 210.00	295.2											

34+00 35+00 36+00 37+00 38+00 39+00

HOR. SCALE IN FEET
20 0 20 40
4 0 4 8
VER. SCALE IN FEET

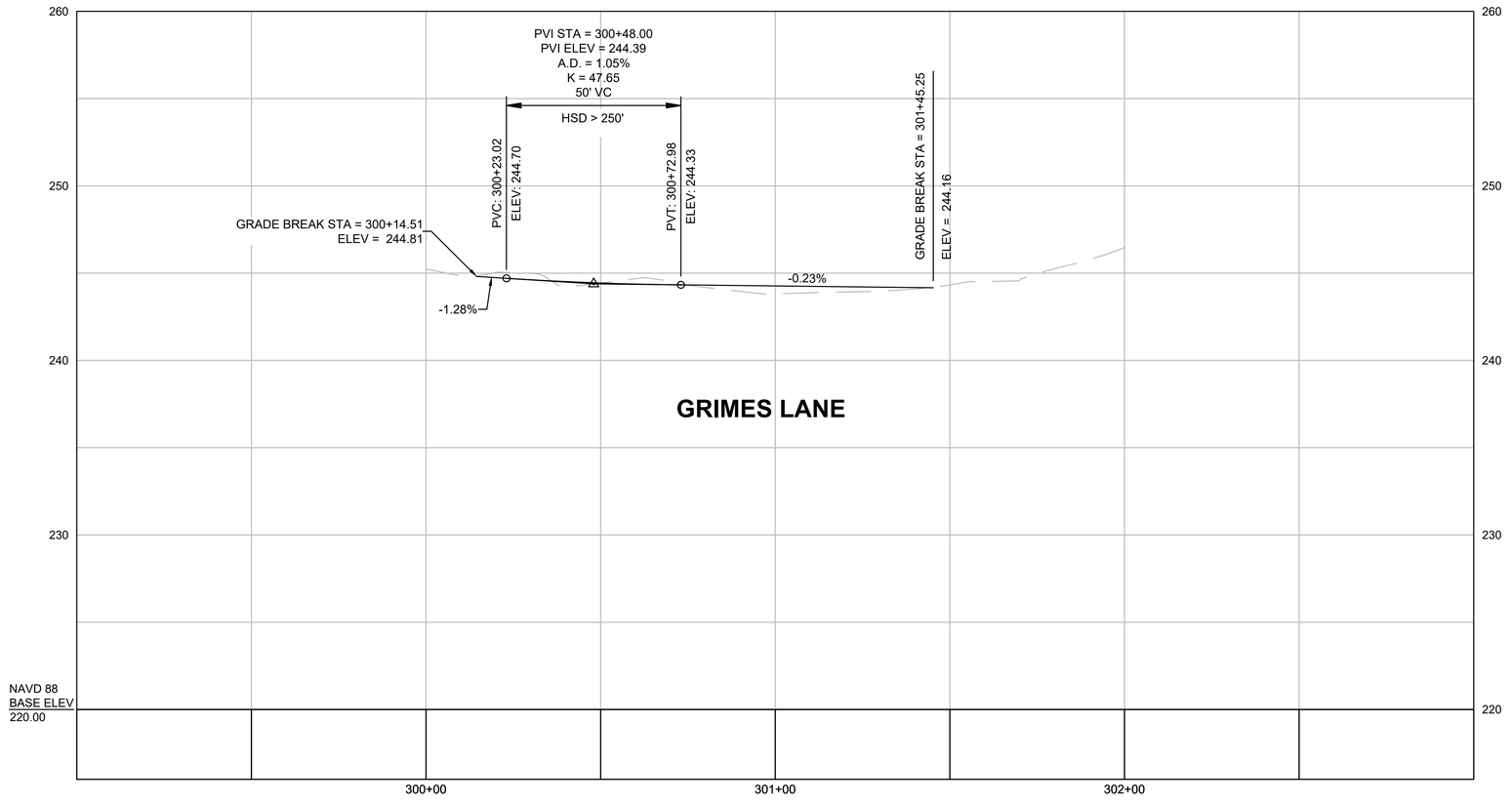
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FOR CONSTRUCTION PLANS:
SEE SHEET NOS. 9-16

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	24	129
PROJECT FILE NO.	609054		

PROFILE - GRIMES LANE



HOR. SCALE IN FEET
20 0 20 40
4 0 4 8
VER. SCALE IN FEET

20170044A21_HWD01.DWG Plotted on 12-Nov-2020 7:59 AM

THIS PLAN IS BASED ON FIELD SURVEY CONDUCTED BY:
SHERMAN & FRYDRYK, LLC.
FIELD DATA WAS COLLECTED BETWEEN 8/14/18 & 9/17/18

HORIZONTAL CONTROL IS BASED ON VALUES PROVIDED BY MEANS OF GLOBAL POSITION SYSTEM METHODS, AND IS BASED ON THE NORTH AMERICAN DATUM OF 1983 (NAD-1093) MASSACHUSETTS STATE PLANE COORDINATE SYSTEM MAINLAND ZONE. OR PER SURVEY NOTE: HORIZONTAL DATUM IS BASED ON THE 1983 N.A.D. SYSTEM USING SURVEY GPS CONTROL POINTS SET BY THE CITY OF LITTLETON ENGINEERING DEPARTMENT. GPS CONTROL STATION CORS_IS-HAMP, PID-DE9093

VERTICAL CONTROL IS BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988, (NAVD-1988). OR VERTICAL DATUM IS BASED ON THE 1988 N.G.V.D. SYSTEM USING SURVEY GPS CONTROL POINTS SET BY THE CITY OF LITTLETON ENGINEERING DEPARTMENT, GPS CONTROL STATION: CORS_ID-HAMP, PID-DE8093

CURVE TABLE

CURVE NO.	LENGTH	RADIUS	DELTA	TANGENT
C101	59.74	40.00	85°34'14.45"	37.02
C102	67.01	40.00	95°59'18.11"	44.42
C103	30.28	25.31	68°33'34.95"	17.25
C104	22.65	25.00	51°54'03.97"	12.17

FOSTER ST CONSTRUCTION BASELINE DATA

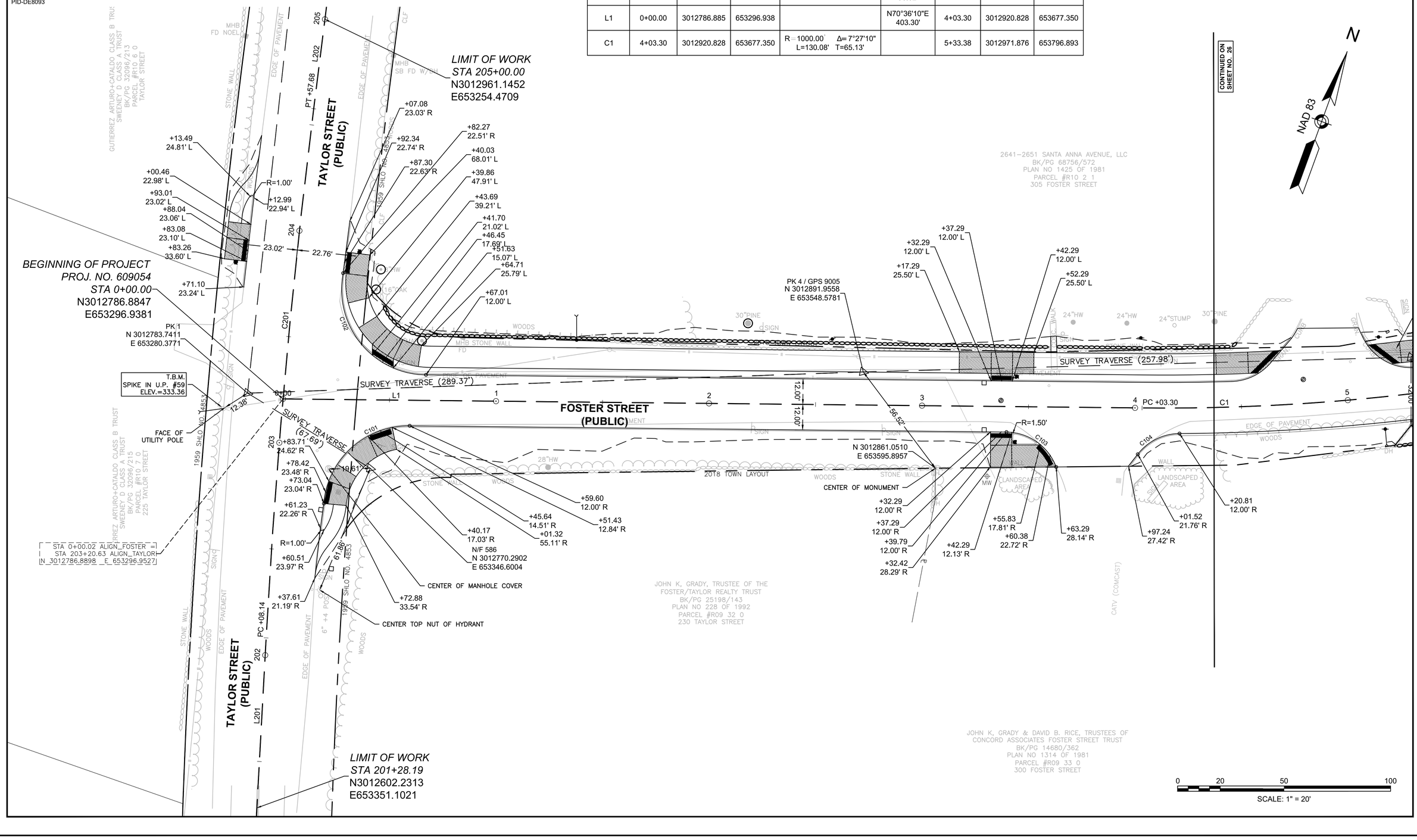
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L201	200+00.00	3012479.567	653388.320		N16°52'43"W 208.14'	202+08.14	3012678.737	653327.889
C201	202+08.14	3012678.737	653327.889	R=3550.00' Δ=4°01'39" L=249.54' T=124.82'		204+57.68	3012919.876	653263.886
L202	204+57.68	3012919.876	653263.886		N12°51'04"W 96.62'	205+54.29	3013014.072	653242.397
L1	0+00.00	3012786.885	653296.938		N70°36'10"E 403.30'	4+03.30	3012920.828	653677.350
C1	4+03.30	3012920.828	653677.350	R=1000.00' Δ=7°27'10" L=130.08' T=65.13'		5+33.38	3012971.876	653796.893

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	25	129
PROJECT FILE NO.	609054		

CURB AND BASELINE TIE PLAN

CONTINUED ON SHEET NO. 26



File Path: J:\DWG\P2017\0044\A21\Civil\Plan\20170044A21_ALN01.dwg Layout: ALN01 Plotted: Thu, November 12, 2020 - 8:17 AM User: cagro
Plotter: AUTOCAD PDF (GENERAL DOCUMENTATION).PC3 CTB File: MADOT-D.STB
MS VIEW:- LAYER STATE:-
20170044A21_ALN01.DWG Plotted on 12-Nov-2020 8:17 AM

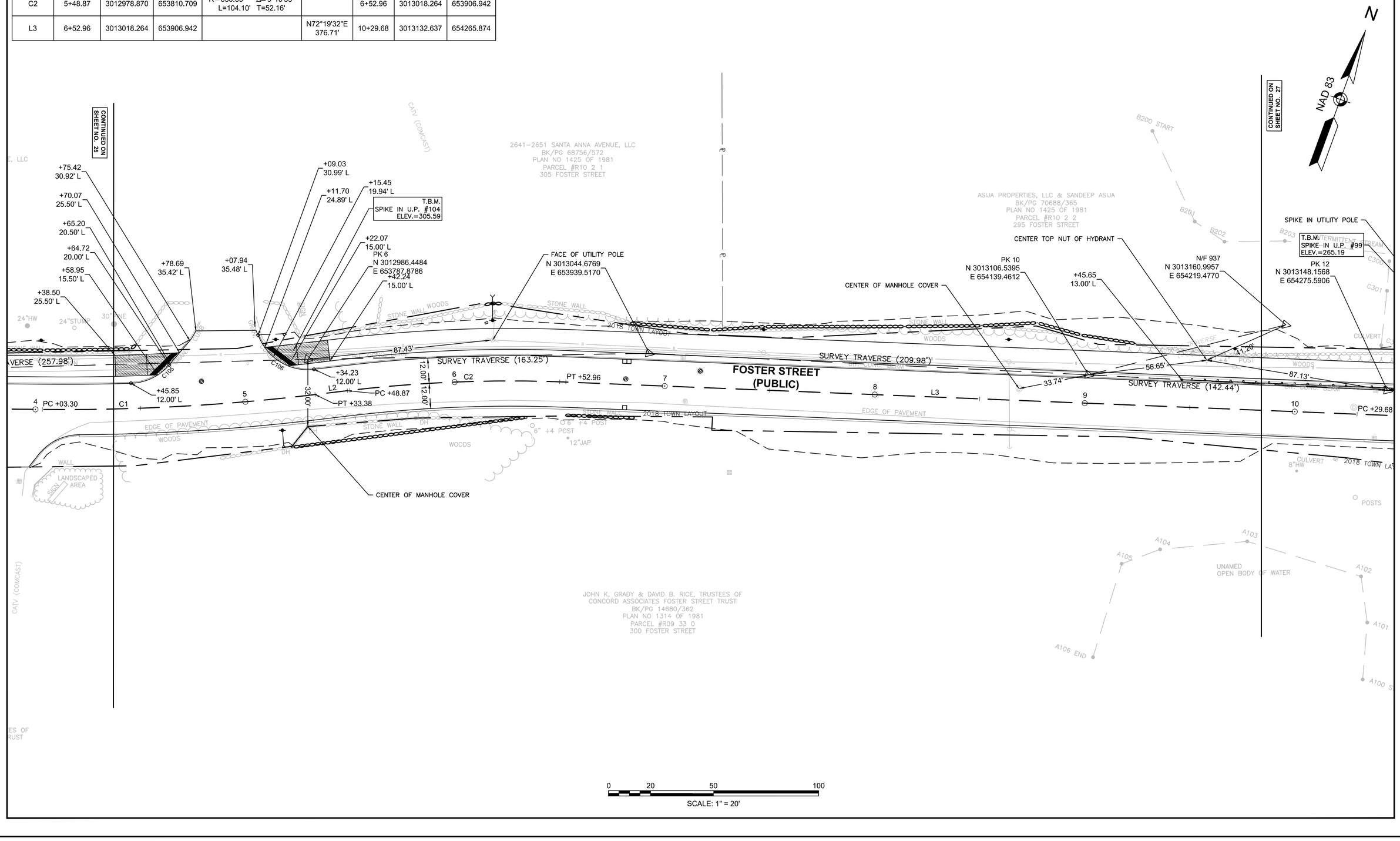
FOSTER ST CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
C1	4+03.30	3012920.828	653677.350	R=1000.00' Δ=7°27'10" L=130.08' T=65.13'		5+33.38	3012971.876	653796.893
L2	5+33.38	3012971.876	653796.893		N63°09'00"E 15.49'	5+48.87	3012978.870	653810.709
C2	5+48.87	3012978.870	653810.709	R=650.00' Δ=9°10'33" L=104.10' T=52.16'		6+52.96	3013018.264	653906.942
L3	6+52.96	3013018.264	653906.942		N72°19'32"E 376.71'	10+29.68	3013132.637	654265.874

CURVE TABLE				
CURVE NO.	LENGTH	RADIUS	DELTA	TANGENT
C105	20.81	25.00	47°42'10.96"	11.05
C106	31.21	25.00	71°31'00.09"	18.00

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	26	129
PROJECT FILE NO.	609054		

CURB AND BASELINE TIE PLAN



0 20 50 100

SCALE: 1" = 20'

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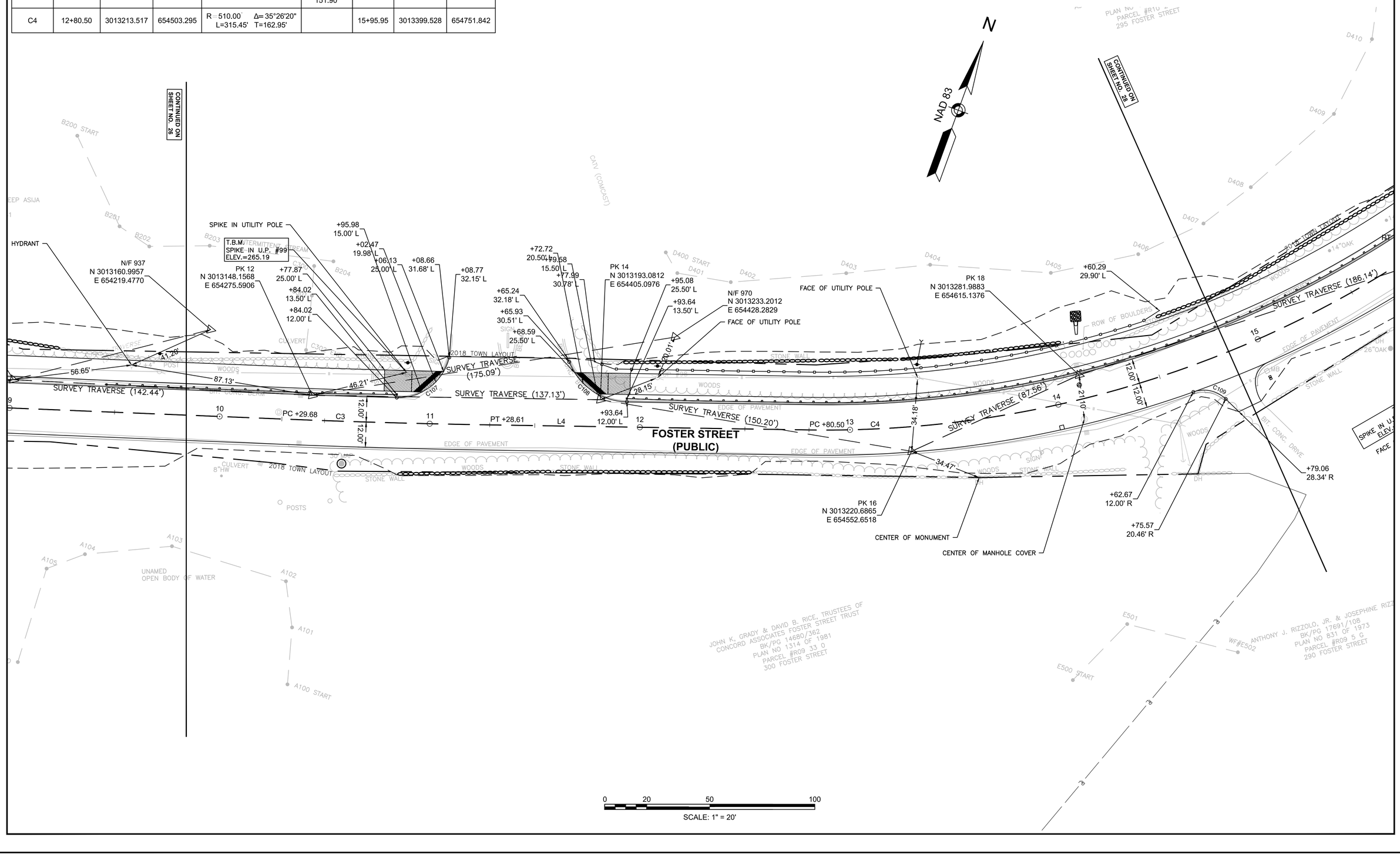
FOSTER ST CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
C3	10+29.68	3013132.637	654265.874	R=4000.00' Δ=1°25'01" L=98.93' T=49.47'		11+28.61	3013163.835	654359.752
L4	11+28.61	3013163.835	654359.752		N70°54'31"E 151.90'	12+80.50	3013213.517	654503.295
C4	12+80.50	3013213.517	654503.295	R=510.00' Δ=35°26'20" L=315.45' T=162.95'		15+95.95	3013399.528	654751.842

CURVE TABLE				
CURVE NO.	LENGTH	RADIUS	DELTA	TANGENT
C107	33.99	25.00	77°54'00.86"	20.21
C108	35.33	30.00	67°28'58.53"	20.04
C109	16.60	15.00	63°25'13.74"	9.27

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	27	129
PROJECT FILE NO.	609054		

CURB AND BASELINE TIE PLAN



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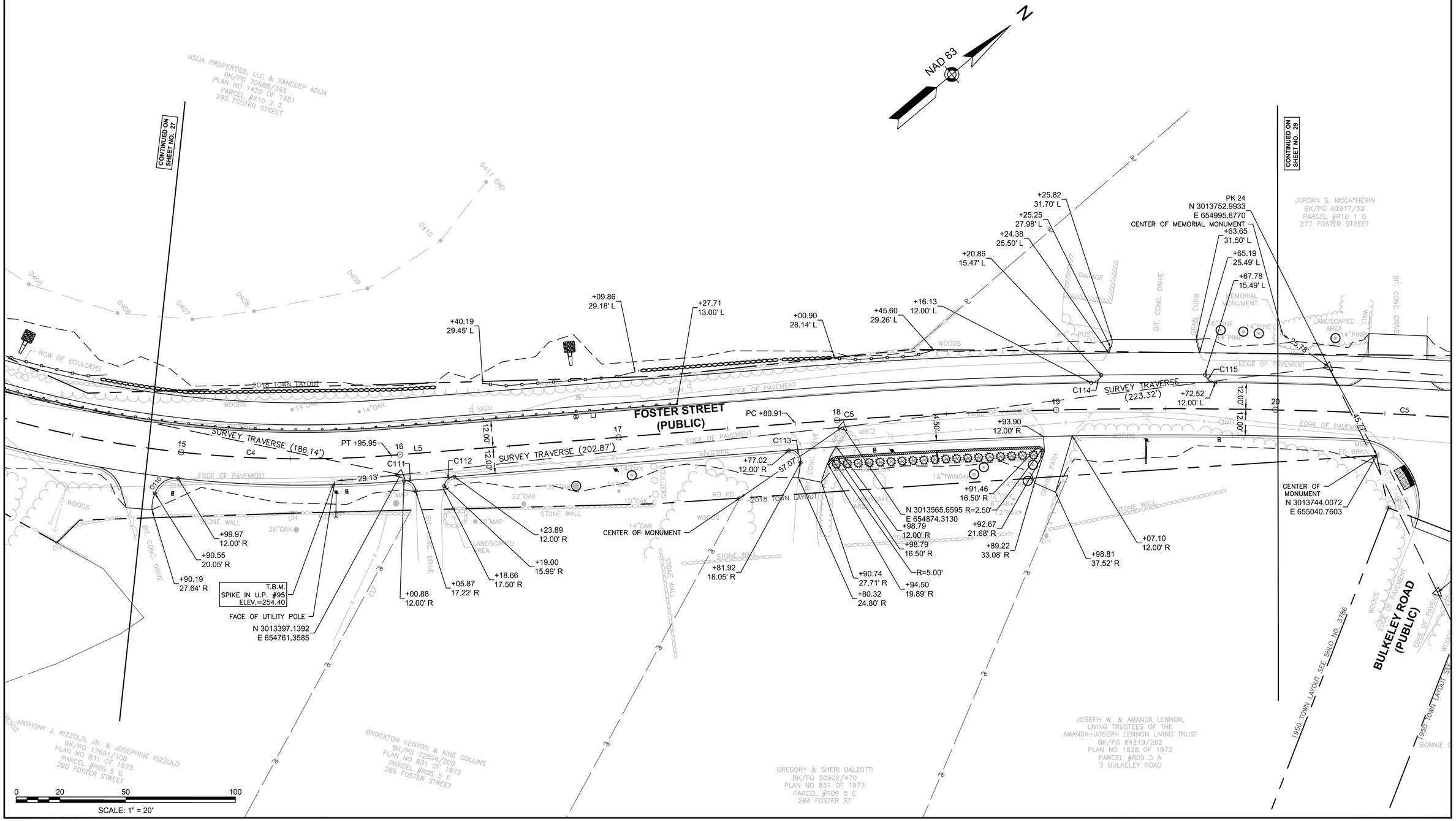
FOSTER ST CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
C4	12+80.50	3013213.517	654503.295	R=510.00' Δ=35°26'20" L=315.45' T=162.95'		15+95.95	3013399.528	654751.842
L5	15+95.95	3013399.528	654751.842		N35°28'10"E 184.96'	17+80.91	3013550.166	654859.170
C5	17+80.91	3013550.166	654859.170	R=2150.00' Δ=9°16'42" L=348.16' T=174.46'		21+29.08	3013816.158	655083.225

CURVE TABLE				
CURVE NO.	LENGTH	RADIUS	DELTA	TANGENT
C110	13.65	10.00	78°13'52.92"	8.13
C111	8.07	5.00	92°31'23.65"	5.23
C112	6.84	5.00	78°21'56.47"	4.08
C113	8.91	5.00	102°06'07.13"	6.19
C114	6.30	5.00	72°09'02.07"	3.64
C115	6.31	5.00	72°21'40.59"	3.66

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	28	129
PROJECT FILE NO.	609054		

CURB AND BASELINE TIE PLAN



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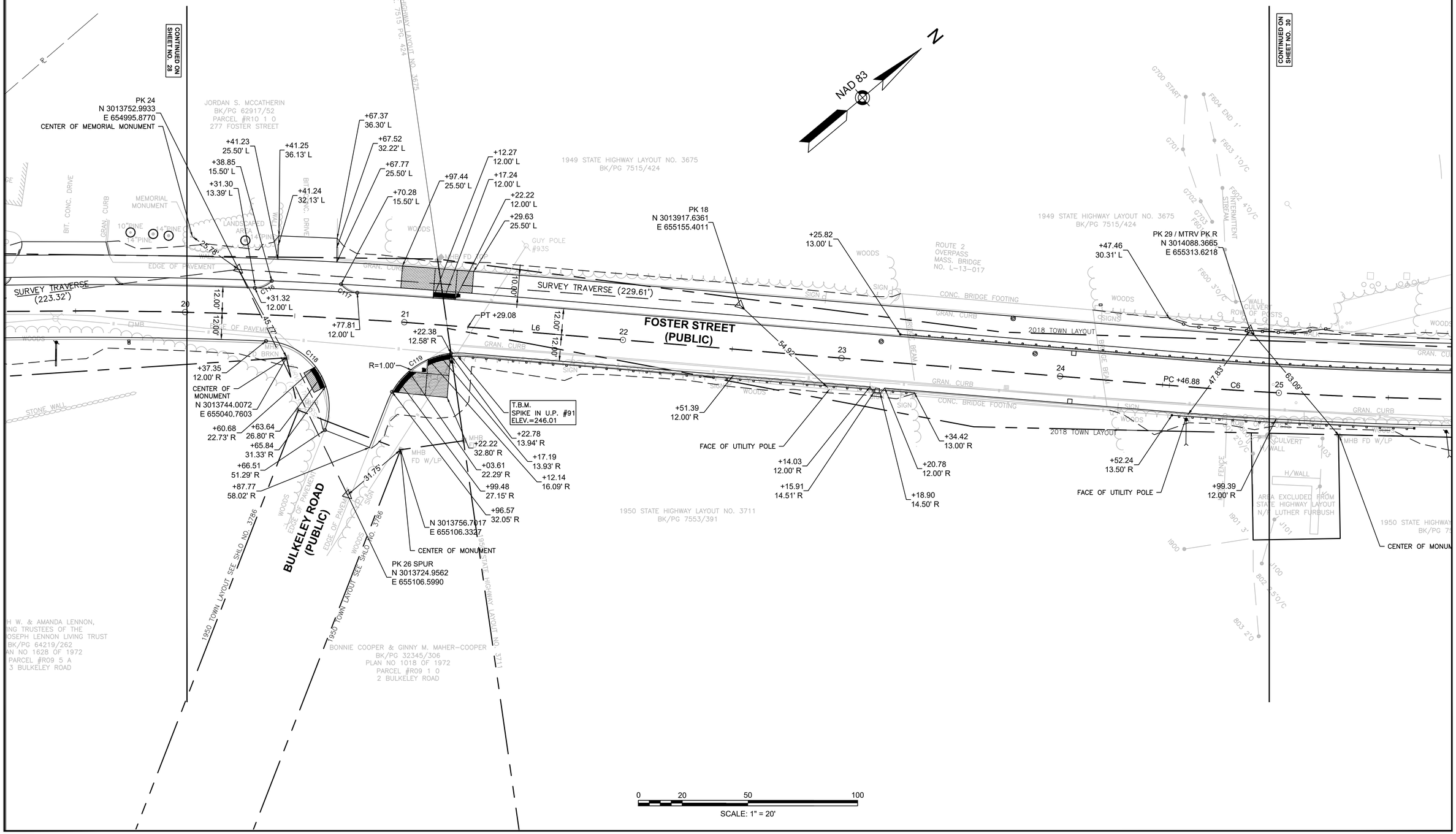
FOSTER ST CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
C5	17+80.91	3013550.166	654859.170	R=2150.00' Δ=9°16'42" L=348.16' T=174.46'		21+29.08	3013816.158	655083.225
L6	21+29.08	3013816.158	655083.225		N44°44'52"E 317.81'	24+46.88	3014041.869	655306.958
C6	24+46.88	3014041.869	655306.958	R=2000.00' Δ=12°36'48" L=440.29' T=221.04'		28+87.17	3014386.025	655580.135

CURVE TABLE				
CURVE NO.	LENGTH	RADIUS	DELTA	TANGENT
C116	8.61	10.00	49°21'29.13"	4.60
C117	8.61	10.00	49°21'29.13"	4.60
C118	56.77	30.00	108°25'26.86"	41.61
C119	33.36	35.00	54°37'08.05"	18.07

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	29	129
PROJECT FILE NO.	609054		

CURB AND BASELINE TIE PLAN



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20170044A21_ALN01.DWG Plotted on 12-Nov-2020 8:18 AM

LITTLETON
RECONSTRUCTION OF FOSTER STREET

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MA	XXX-XXXX(XXX)X	30	129
PROJECT FILE NO.	609054		

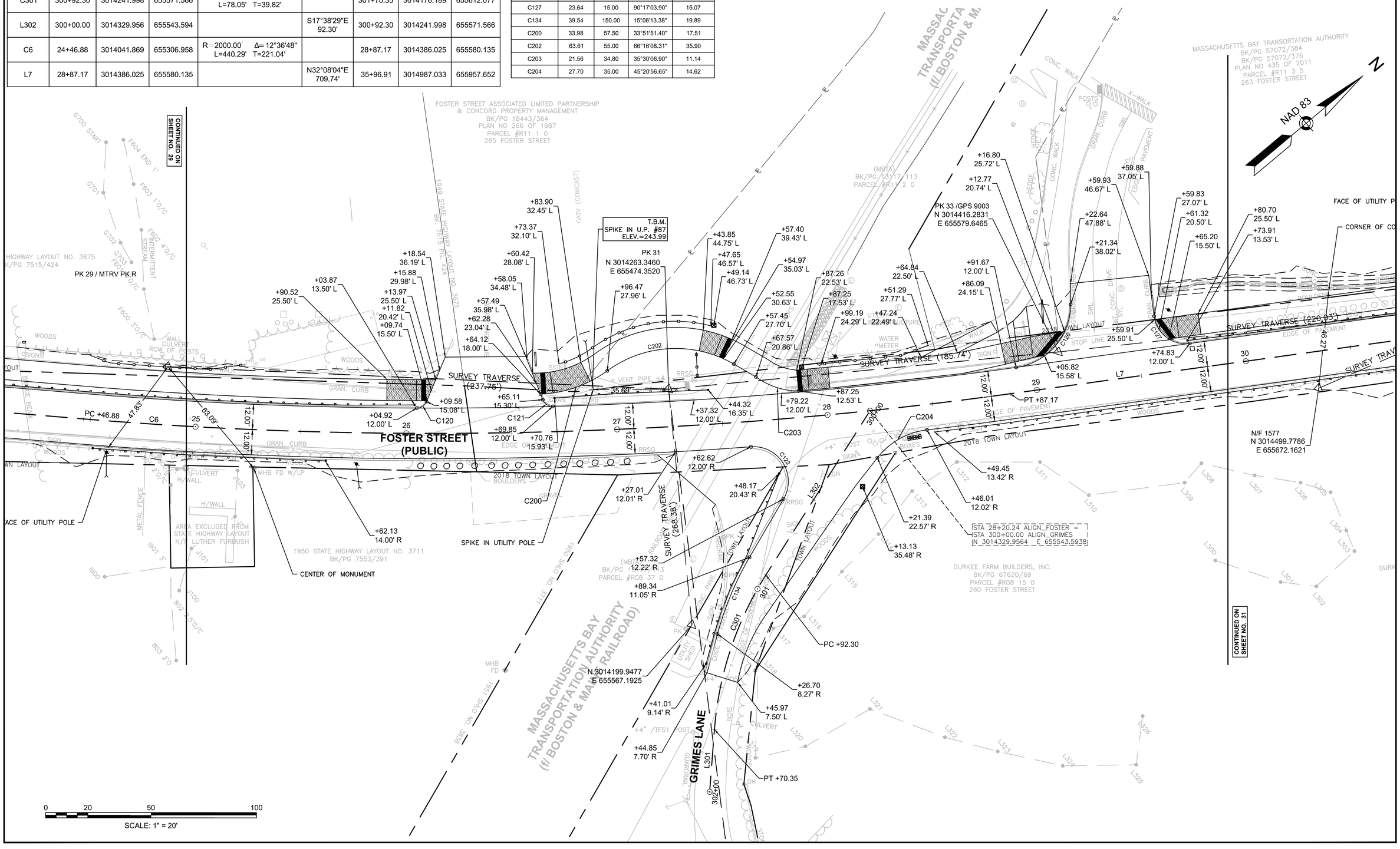
CURB AND BASELINE TIE PLAN

FOSTER ST CONSTRUCTION BASELINE DATA

NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L301	301+70.35	3014176.189	655612.077		S45°35'28"E 29.65'	302+00.00	3014155.440	655633.259
C301	300+92.30	3014241.998	655571.566	R=160.00' Δ=27°56'58" L=78.05' T=39.82'		301+70.35	3014176.189	655612.077
L302	300+00.00	3014329.956	655543.594		S17°38'29"E 92.30'	300+92.30	3014241.998	655571.566
C6	24+46.88	3014041.869	655306.958	R=2000.00' Δ=12°36'48" L=440.29' T=221.04'		28+87.17	3014386.025	655580.135
L7	28+87.17	3014386.025	655580.135		N32°08'04"E 709.74'	35+96.91	3014987.033	655957.652

CURVE TABLE

CURVE NO.	LENGTH	RADIUS	DELTA	TANGENT
C120	5.89	5.00	67°31'40.66"	3.34
C121	6.13	5.00	70°16'09.13"	3.52
C122	35.87	16.50	124°33'27.66"	31.40
C126	43.06	30.00	82°14'42.43"	26.19
C127	23.64	15.00	90°17'03.90"	15.07
C134	39.54	150.00	15°06'13.38"	19.89
C200	33.98	57.50	33°51'51.40"	17.51
C202	63.61	55.00	66°16'08.31"	35.90
C203	21.56	34.80	35°30'06.90"	11.14
C204	27.70	35.00	45°20'56.65"	14.62



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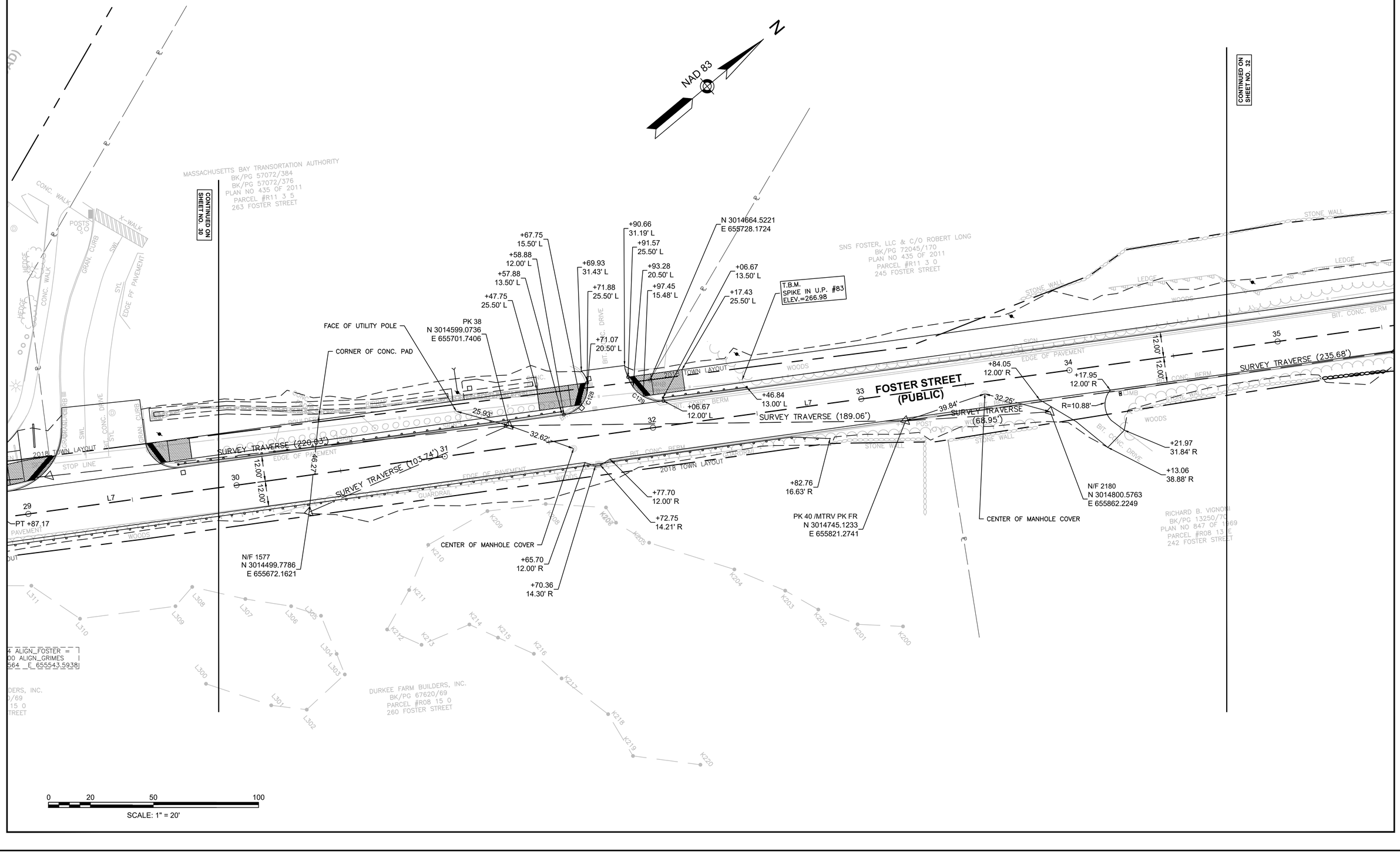
FOSTER ST CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L7	28+87.17	3014386.025	655580.135		N32°08'04"E 709.74'	35+96.91	3014987.033	655957.652

CURVE TABLE				
CURVE NO.	LENGTH	RADIUS	DELTA	TANGENT
C128	20.25	13.00	89°15'44.99"	12.83
C129	21.90	16.12	77°49'51.93"	13.02

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	31	129
PROJECT FILE NO.	609054		

CURB AND BASELINE TIE PLAN



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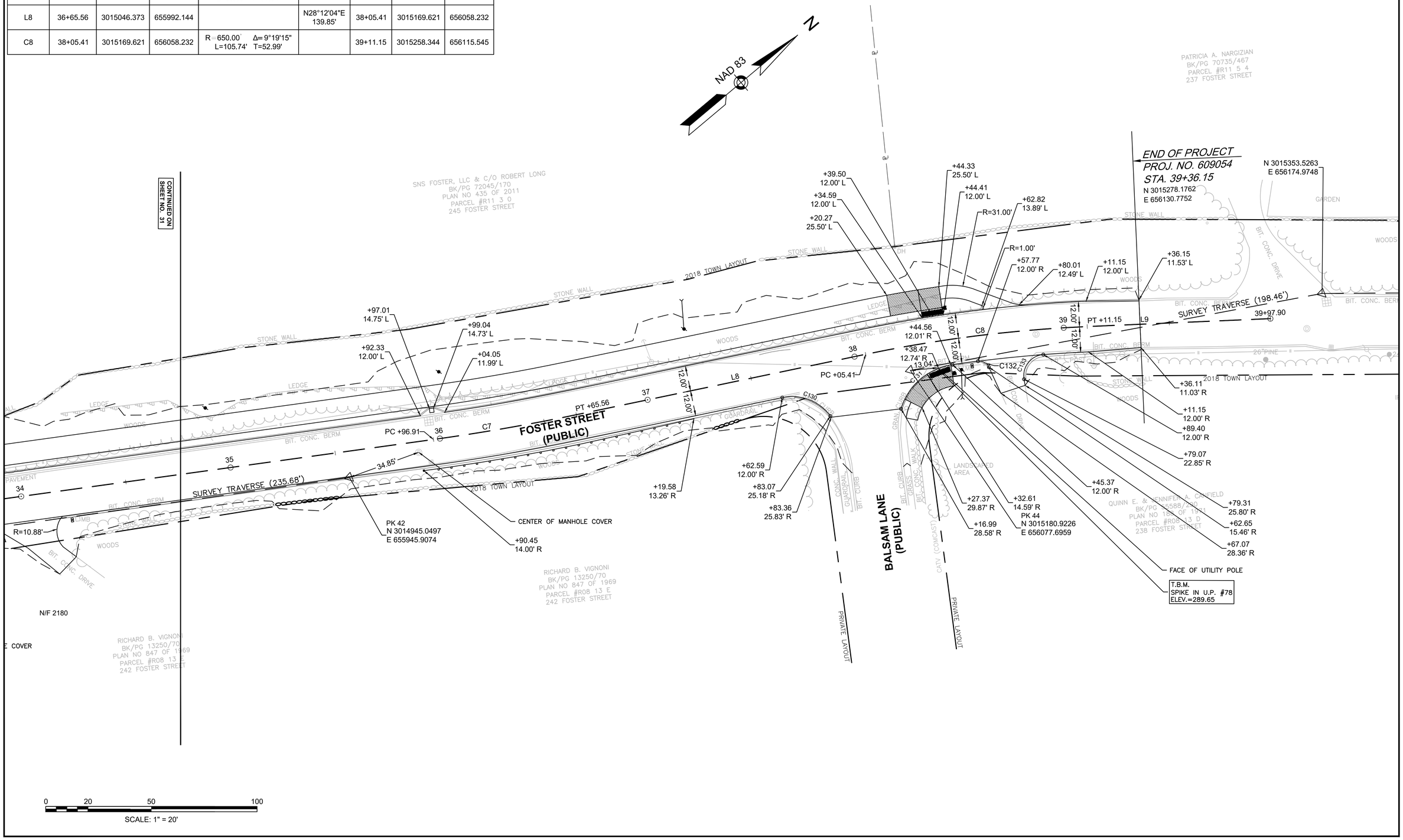
FOSTER ST CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L7	28+87.17	3014386.025	655580.135		N32°08'04"E 709.74'	35+96.91	3014987.033	655957.652
C7	35+96.91	3014987.033	655957.652	R=1000.00' Δ=3°56'00" L=68.65' T=34.34'		36+65.56	3015046.373	655992.144
L8	36+65.56	3015046.373	655992.144		N28°12'04"E 139.85'	38+05.41	3015169.621	656058.232
C8	38+05.41	3015169.621	656058.232	R=650.00' Δ=9°19'15" L=105.74' T=52.99'		39+11.15	3015258.344	656115.545

CURVE TABLE				
CURVE NO.	LENGTH	RADIUS	DELTA	TANGENT
C130	25.73	22.50	65°31'37.86"	14.48
C131	33.87	30.00	64°41'21.83"	19.00
C132	6.31	5.00	72°17'07.85"	3.65
C133	16.63	10.00	95°18'24.47"	10.97

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	32	129
PROJECT FILE NO.	609054		

CURB AND BASELINE TIE PLAN



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MS VIEW:- LAYER STATE:-

20170044A21_ALN01.DWG Plotted on 12-Nov-2020 8:19 AM

THIS PLAN IS BASED ON FIELD SURVEY CONDUCTED BY:
SHERMAN & FRYDRYK, LLC.
FIELD DATA WAS COLLECTED BETWEEN 8/14/18 & 9/17/18

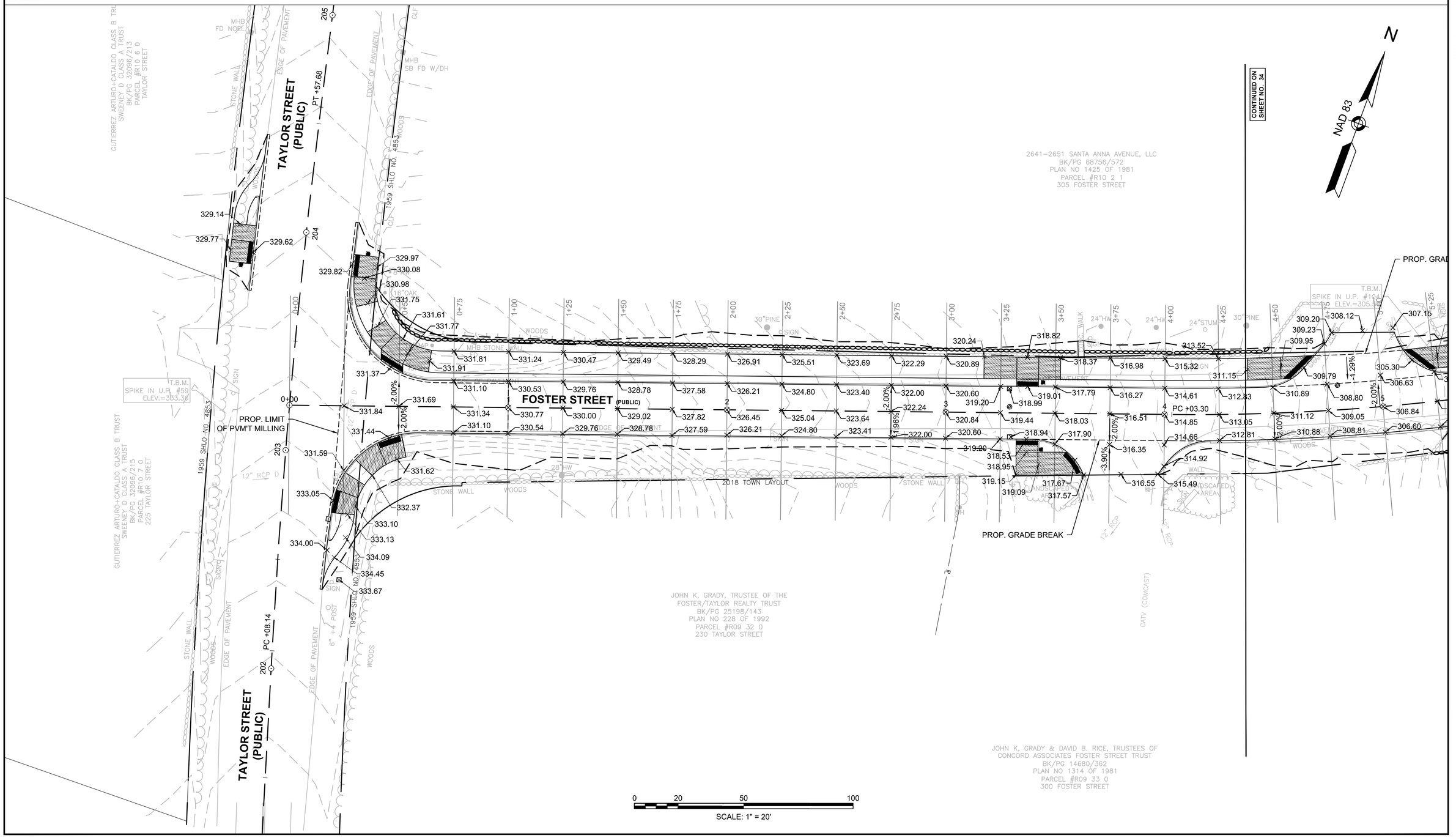
HORIZONTAL CONTROL IS BASED ON VALUES PROVIDED BY MEANS OF GLOBAL POSITION SYSTEM METHODS, AND IS BASED ON THE NORTH AMERICAN DATUM OF 1983 (NAD-1093) MASSACHUSETTS STATE PLANE COORDINATE SYSTEM MAINLAND ZONE. OR PER SURVEY NOTE: HORIZONTAL DATUM IS BASED ON THE 1983 N.A.D. SYSTEM USING SURVEY GPS CONTROL POINTS SET BY THE CITY OF LITTLETON ENGINEERING DEPARTMENT. GPS CONTROL STATION CORS_IS-HAMP, PID-DE9093

VERTICAL CONTROL IS BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988, (NAVD-1988). OR VERTICAL DATUM IS BASED ON THE 1988 N.G.V.D. SYSTEM USING SURVEY GPS CONTROL POINTS SET BY THE CITY OF LITTLETON ENGINEERING DEPARTMENT, GPS CONTROL STATION: CORS_ID-HAMP, PID-DE8093

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	33	129
PROJECT FILE NO.	609054		

GRADING PLAN



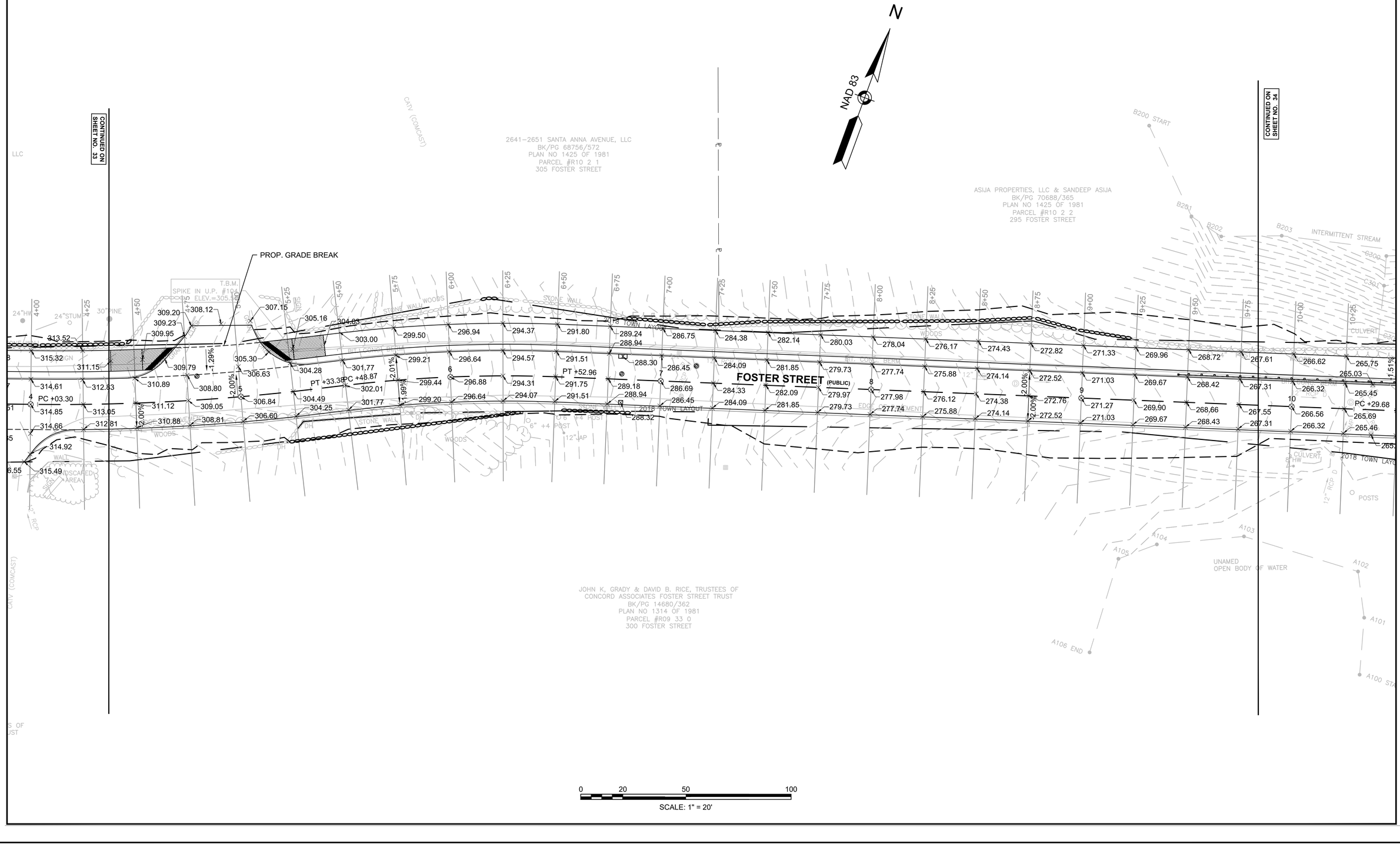
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LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	34	129
PROJECT FILE NO.	609054		

GRADING PLAN



0 20 50 100

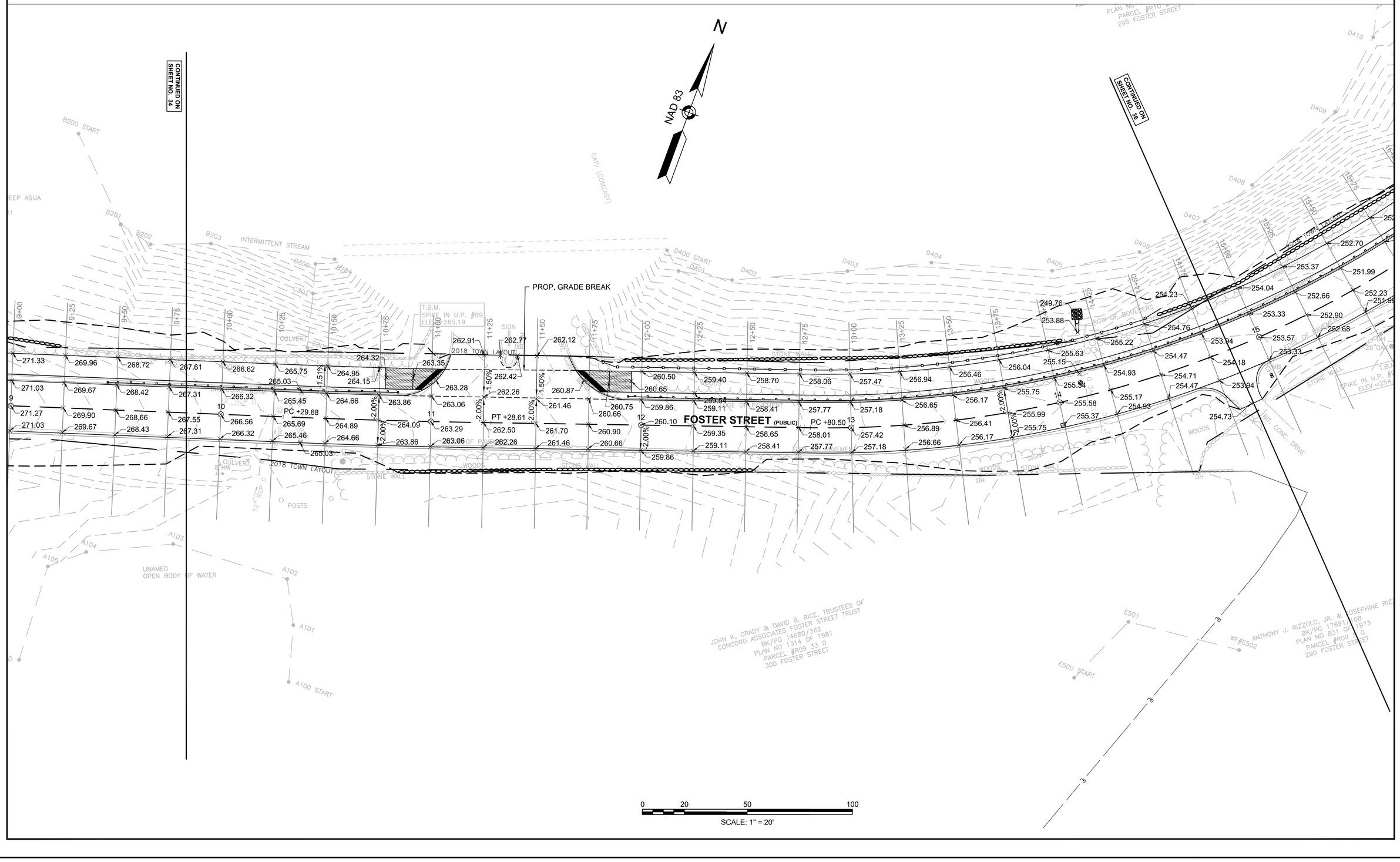
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LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	35	129
PROJECT FILE NO.	609054		

GRADING PLAN



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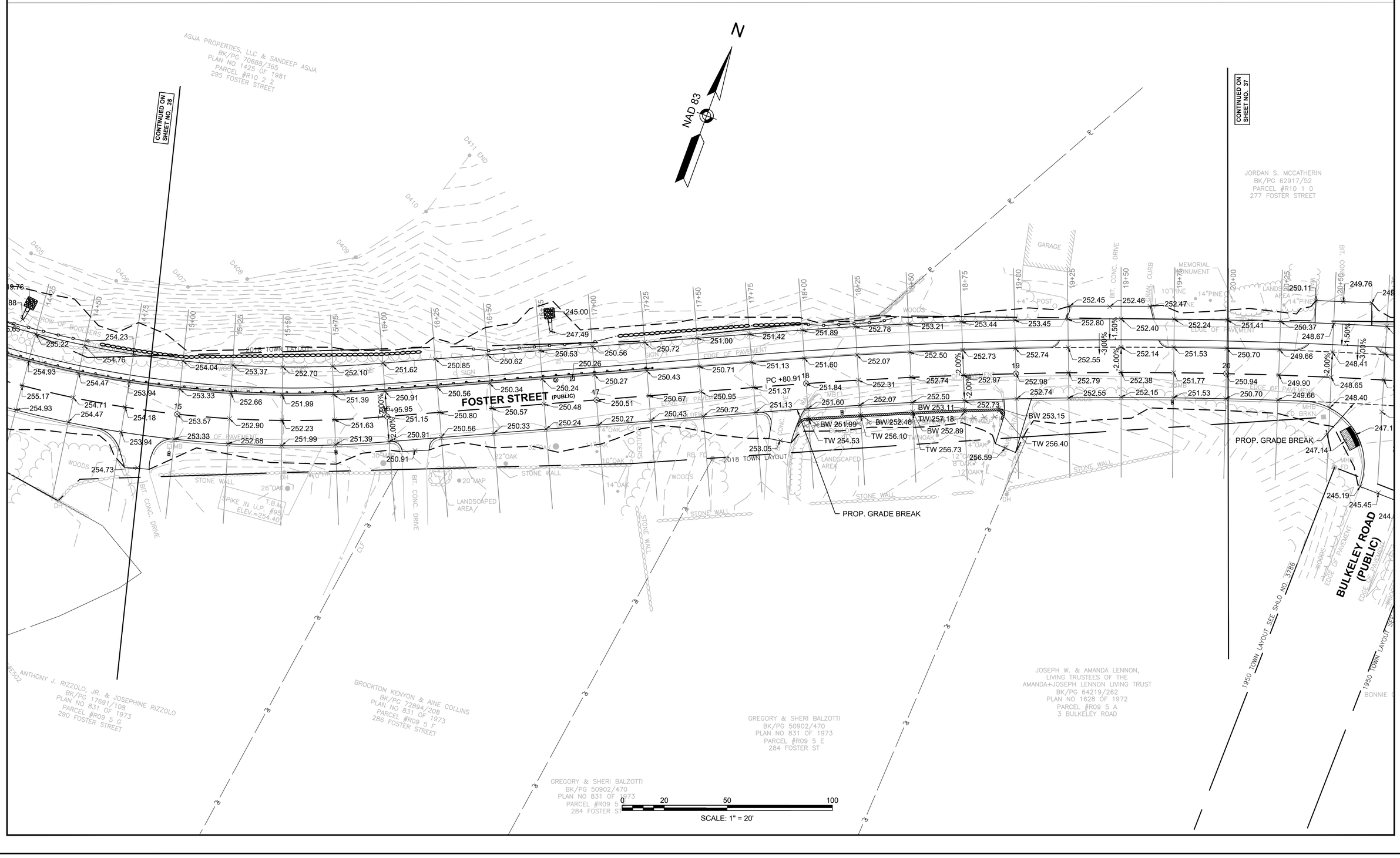
20170044A21_GRA01.DWG Plotted on 16-Nov-2020 3:57 PM

BW = FINISHED GRADE AT BOTTOM OF WALL
TW = FINISHED GRADE AT TOP OF WALL
SEE CONSTRUCTION DETAILS FOR WALL SPECIFICATIONS

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	36	129
PROJECT FILE NO.	609054		

GRADING PLAN

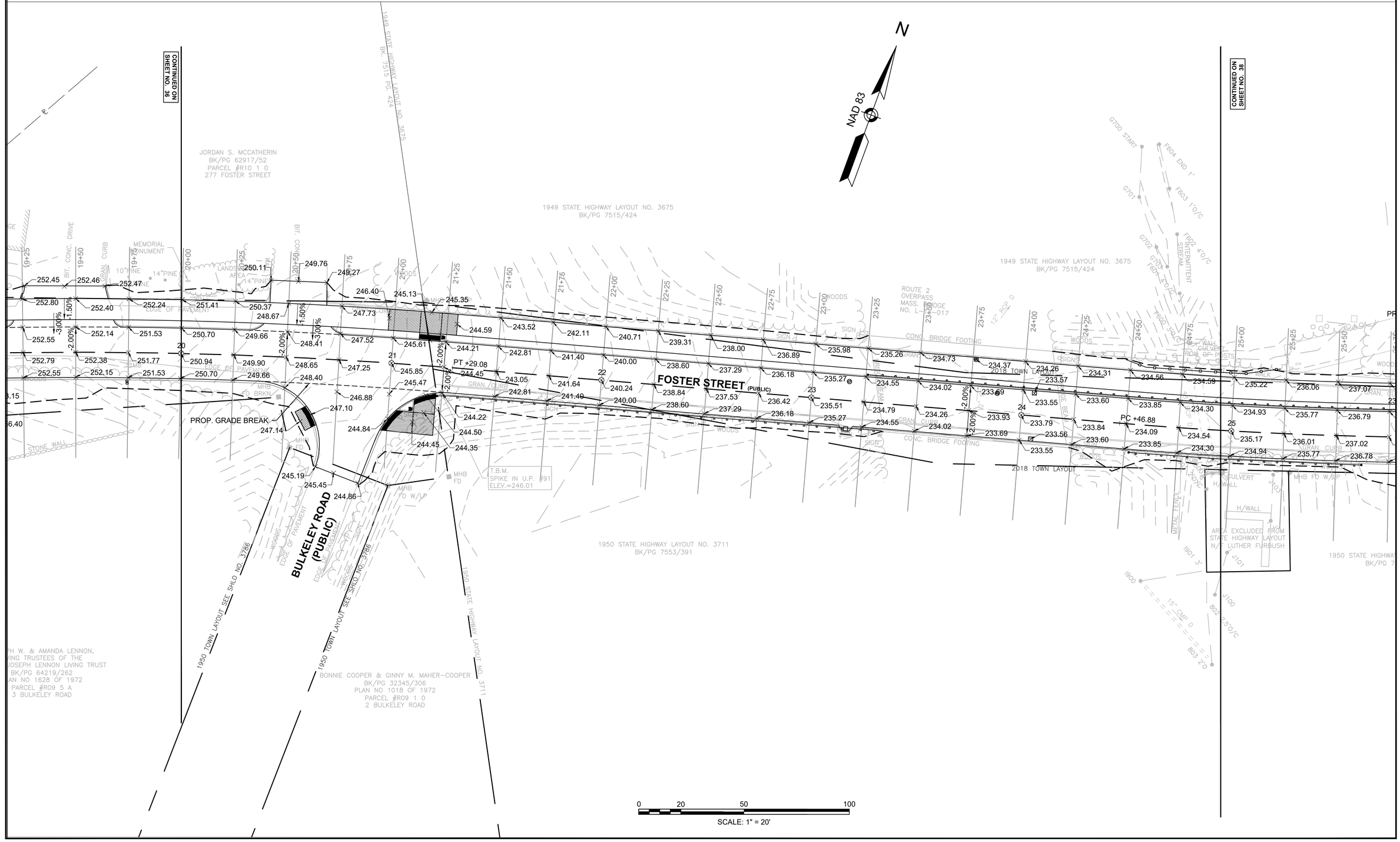


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LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	37	129
PROJECT FILE NO.	609054		

GRADING PLAN



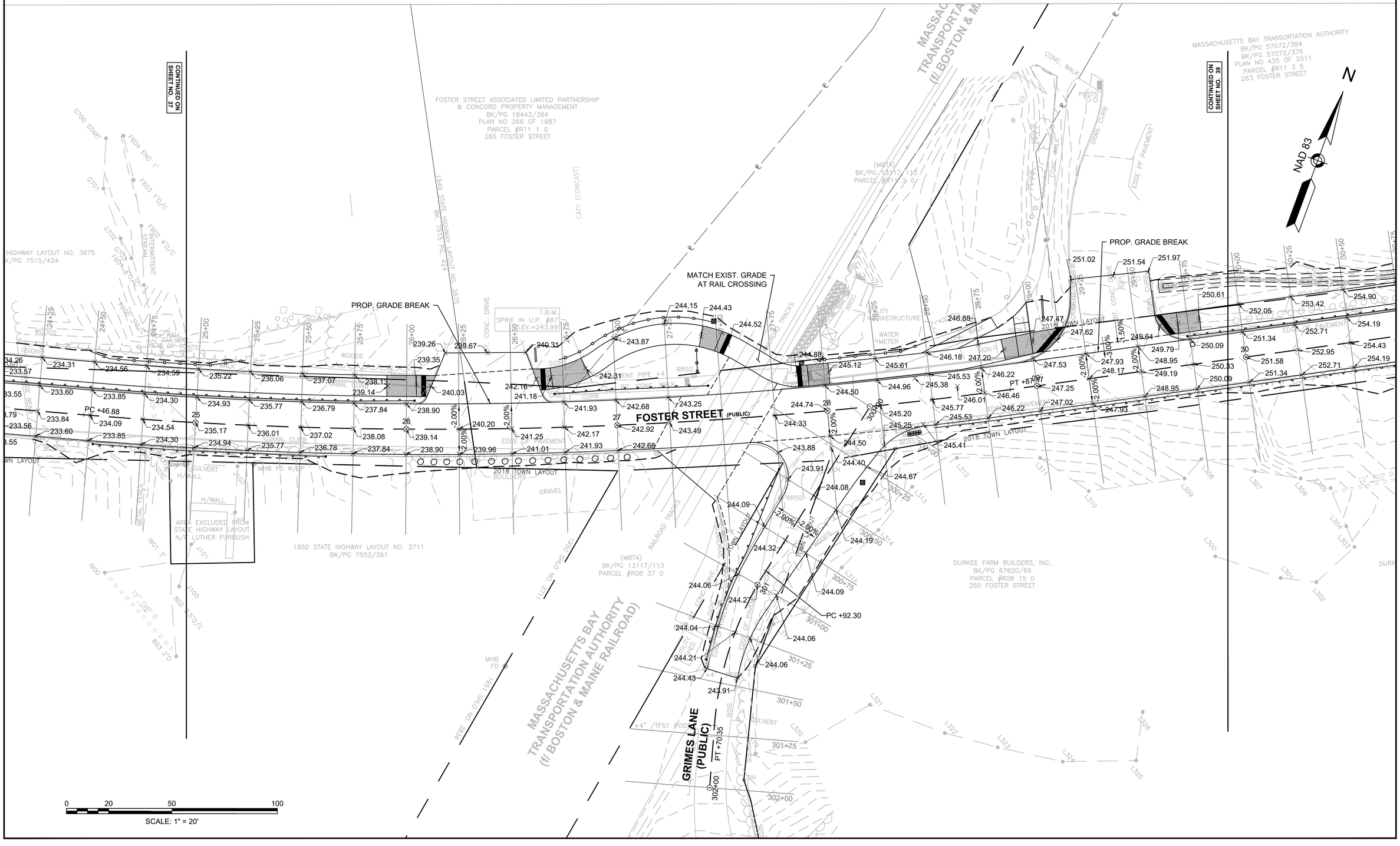
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20170044A21_GRA01.DWG Plotted on 16-Nov-2020 3:57 PM

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	38	129
PROJECT FILE NO.	609054		

GRADING PLAN

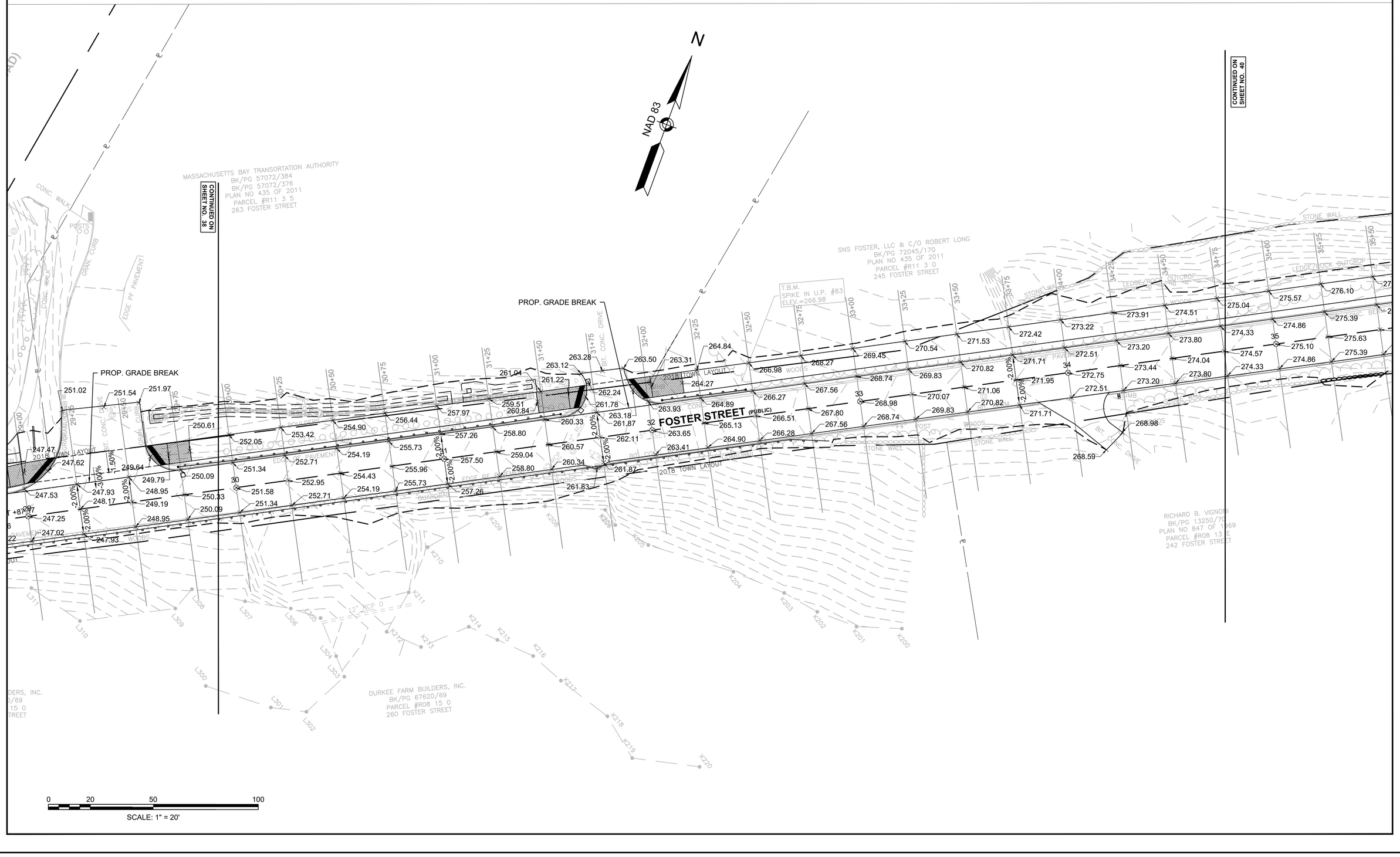


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LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	39	129
PROJECT FILE NO.	609054		

GRADING PLAN



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MS VIEW: -
20170044A21_GRA01.DWG Plotted on 16-Nov-2020 3:57 PM

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	40	129
PROJECT FILE NO.	609054		

GRADING PLAN



File Path: J:\DWG\P2017\0044\A21\Civil\Plan\20170044A21_GRA01.dwg Layout: GRA08 Plotted: Mon, November 16, 2020 - 3:57 PM User: tmonczka
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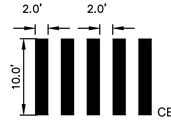
NOTES:

1. ALL EXISTING SIGNS TO REMAIN UNLESS OTHERWISE NOTED ON PLANS
2. ALL PROPOSED PAVEMENT MARKING LINES ON ROADWAYS SHALL BE WET REFLECTORIZED RECESSED THERMOPLASTIC. ALL MARKINGS SHALL BE 6" WIDE, EXCEPT STOP BARS WHICH SHALL BE 12" WIDE.
3. ALL PROPOSED PAVEMENT MARKING LINES ON SHARED-USE PATH SHALL BE PAINTED. ALL MARKINGS SHALL BE 4" WIDE, EXCEPT STOP BARS WHICH SHALL BE 12" WIDE.
4. 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.
5. ANY OTHER SIGN SHALL BE MOUNTED ON A STANDARD P-5 POST FACTORY COATED GLOSS BLACK AT STANDARD MUTCD HEIGHT UNLESS OTHERWISE SHOWN ON PLANS.
6. ALL R7 SERIES SIGNS (NO PARKING) SHALL BE INSTALLED AT 45 DEGREE ANGLE RELATIVE TO THE ROADWAY. REFER TO THE SIGN SYMBOLS PLACED ON PLANS
7. SEE SIGN SUMMARY ON SHEET XX FOR SIGN DETAILS

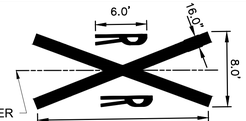
XXXX PROPOSED SIGN DESIGNATION

XXXX EXISTING SIGN DESIGNATION

MARKING LEGEND	
	PROPOSED SIGN
SL	PROPOSED 12" WHITE STOP LINE / 24" AT RAILROAD CROSSING
CW	PROPOSED 24" WHITE CROSS WALK
SWL	PROPOSED 6" SINGLE WHITE LINE
SYL	PROPOSED 4" SINGLE SOLID YELLOW LINE
BYCL	PROPOSED 4" BROKEN YELLOW CENTER LINE (3' MARK - 9' SKIP)
DBYL	PROPOSED 6" DOUBLE YELLOW LINE
DWLEx	PROPOSED 6" DOTTED WHITE LANE EXTENSION LINE (2' MARK - 6' SKIP)



CROSSWALK DETAIL
N.T.S

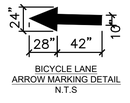


CENTER OF LANE

GRADE CROSSING PAVEMENT MARKING DETAIL
N.T.S



BICYCLE LANE MARKING DETAIL
N.T.S

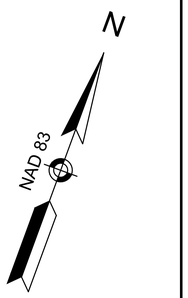


BICYCLE LANE ARROW MARKING DETAIL
N.T.S

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	41	129
PROJECT FILE NO.	609054		

PAVEMENT MARKING & SIGNING PLAN



MERGE TO EXISTING MARKINGS
75 FT FROM LIMIT OF WORK

BIKE LANE
R3-17

LIMIT OF WORK
STA 205+00.00
N3012961.1405
E653254.4720

R3-17
R3-17bP
BIKE LANE
ENDS

WEIGHT LIMIT
20 T
25 T
40 T
R12-5

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

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

CAUTION
DEAF
CHILDREN
RET.

BIKE ROUTE
Rail Station 0.6
D11-1*
D1-1a-a*

YIELD TO PEDS
KEEP RIGHT EXCEPT TO PASS
R9-6*
R4-16*

DO NOT PASS
R9-6*
R4-1*

STOP
R1-1b*

STOP
R1-1

R12-5
R&S

R9-5*
USE PED SIGNAL

R1-1
R&S

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

PROP. PREFORMED THERMOPLASTIC BIKE LANE MARKINGS - GREEN (SEE SPECIAL PROVISIONS)
GREEN MARKING AREA TO BE INSTALLED BETWEEN THE DWLEx

COMMUTER RAIL STATION
R&S

SPEED LIMIT 40
R2-1(40)

PROP. PERFORMED THERMOPLASTIC BIKE MARKINGS TYP. (SEE SPECIAL PROVISIONS)

R2-1(40)
R&S

SPEED LIMIT 40
R2-1(40)

R2-1(40)
R&S

COMMUTER RAIL STATION
R&S

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

BIKE LANE
ENDS
R3-17
R3-17bP

BIKE LANE
R3-17

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

MERGE TO EXISTING MARKINGS
75 FT FROM LIMIT OF WORK

MA-D3-1a
R&S

AHEAD
W11-15
W16-9P

SPEED LIMIT 30
R2-1(30)

R2-1(30)
R&S

SLOW PED XING
R&S

Foster St
Taylor St
MA-D3-1a (2 MOUNTED BACK TO BACK)
MA-D3-1d (2 MOUNTED BACK TO BACK)

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

SLOW PED XING
R&S

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

CONTINUED ON SHEET NO. 42

TAYLOR STREET (PUBLIC)
1959 SHLO NO. 4853
DBYL
SWL
CW
DWLEx
SYL
BYCL
SL
FOSTER STREET (PUBLIC)
PC +03.30
PT +33.38
PC +08.14
6" +4 POST
UPL 58
UPL 111
UPL 106

GUTIERREZ ARTURO+CATALDO CLASS B TRUST
SWEENEY D CLASS A TRUST
BK/PG 32096/213
PARCEL #R10 6 0
TAYLOR STREET

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

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

PARCEL #R10 2 0
305 FOSTER STREET

2018 TOWN LAYOUT

0 20 50 100
SCALE: 1" = 20'

20170044A21_PVT01.DWG Plotted on 12-Nov-2020 8:24 AM

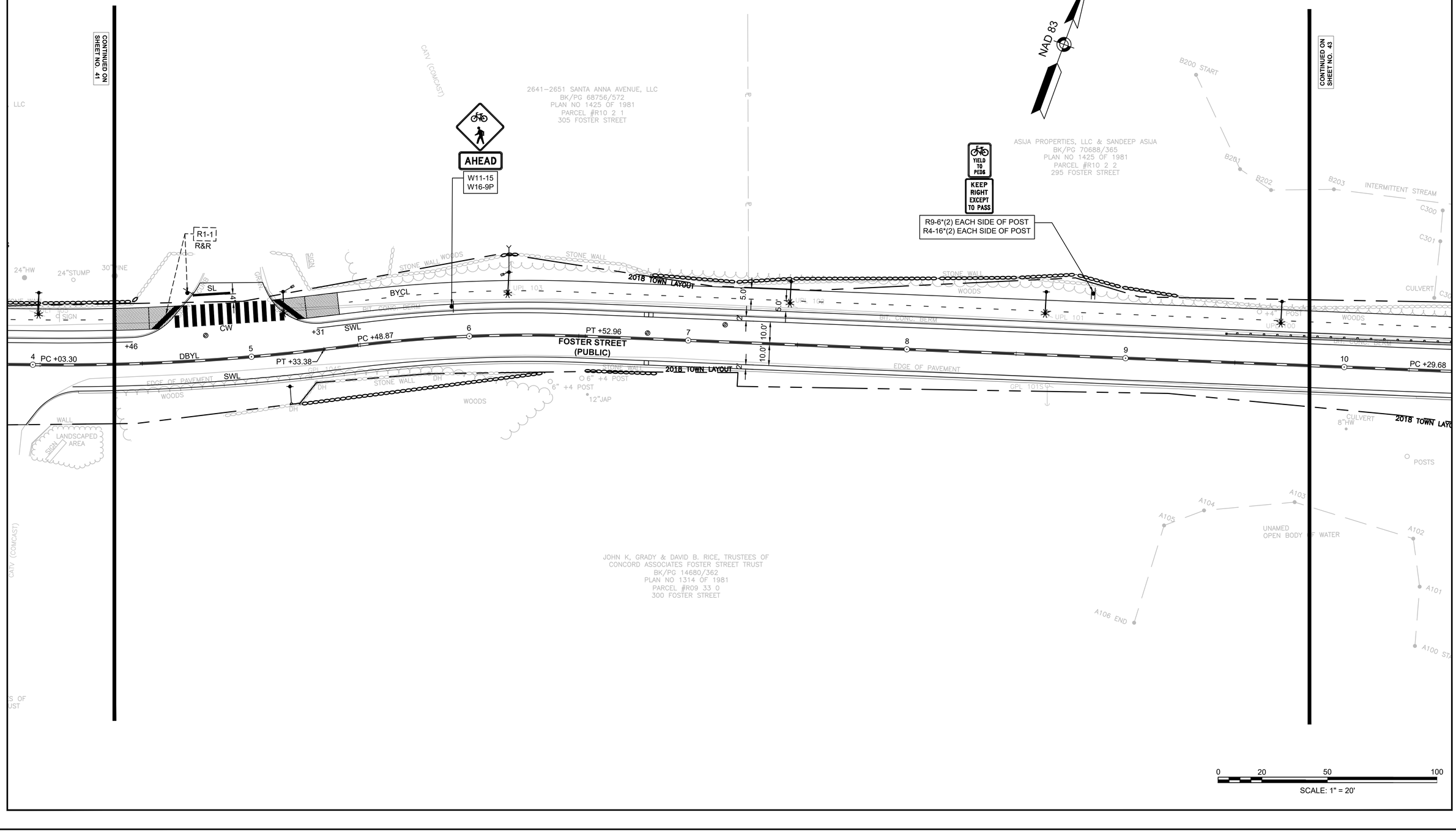
SEE SHEET 41 FOR MARKING & SIGNING NOTES

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	42	129
PROJECT FILE NO.	609054		

PAVEMENT MARKING & SIGNING PLAN

20170044A21_PVT01.DWG Plotted on 12-Nov-2020 8:24 AM



SEE SHEET 41 FOR MARKING & SIGNING NOTES

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	43	129
	PROJECT FILE NO.	609054	

PAVEMENT MARKING & SIGNING PLAN

20170044A21_PVT01.DWG Plotted on 12-Nov-2020 8:24 AM

N

NAD 83

CONTINUED ON SHEET NO. 42

CONTINUED ON SHEET NO. 44

BIKE ROUTE
Rail Station 0.4
D11-1*
D1-1a-b*

BIKE ROUTE
Taylor St 0.2
D11-1*
D1-1a-c*

REAL ESTATE SIGN
R&S

R1-1
R&R

RETAIN ENTRANCE SIGN

2018 TOWN LAYOUT

FOSTER STREET
(PUBLIC)

PC +29.68
PT +28.61
PC +80.50
DBYL
BYCL
CW
SWL
EDGE OF PAVEMENT
STONE WALL
WOODS
CULVERT
8"HW
30"MAP
POSTS
UPL 96
UPL 100
+44 POST
+84
+92
10
11
12
13
14
15
5.0'
10.0'
2'

B200 START
B201
B202
B203
B204
INTERMITTENT STREAM
C300
C301
C302
CULVERT
EP ASIJA

CATV (COMCAST)

D400 START
D401
D402
D403
D404
D405
D406
D407
D408
D409
D410

ASIJA PROPERTIES
BK/PG 7060[illegible]
PLAN NO 1425 OF 19[illegible]
PARCEL #R10 2 2
295 FOSTER STREET

14"OAK
26"OAK
ROW OF BOULDERS
EDGE OF PAVEMENT
DH
CONC DRIVE
SIGN

W12-2
R&S

14-1"
1000 FEET
W12-2
(14' 1")
W16-2P

A100 START
A101
A102
A103
A104
A105
UNAMED OPEN BODY OF WATER

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

E500 START
E501
WF#E502
ANTHONY J. RIZZOLO, JR. & JOSEPHINE RIZZO
BK/PG 1769/108
PLAN NO 831 OF 1973
PARCEL #R09 [illegible] G
290 FOSTER STREET

0 20 50 100
SCALE: 1" = 20'

SEE SHEET 41 FOR MARKING & SIGNING NOTES

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	44	129
	PROJECT FILE NO. 609054		

PAVEMENT MARKING & SIGNING PLAN

20170044A21_PVT01.DWG Plotted on 12-Nov-2020 8:24 AM

NAD 83 N

CONTINUED ON SHEET NO. 43

CONTINUED ON SHEET NO. 45

ASIJA PROPERTIES, LLC & SANDEEP ASIJA
BK/PG 70688/365
PLAN NO 1425 OF 1981
PARCEL #R10 2 2
295 FOSTER STREET

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

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

BROCKTON KENYON & AINE COLLINS
BK/PG 72894/208
PLAN NO 831 OF 1973
PARCEL #R09 5 F
286 FOSTER STREET

GREGORY & SHERI BALZOTTI
BK/PG 50902/470
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/PG 64219/262
PLAN NO 1628 OF 1972
PARCEL #R09 5 A
3 BULKELEY ROAD

FOSTER STREET (PUBLIC)

BULKELEY ROAD (PUBLIC)

1950 TOWN LAYOUT SEE SHLO NO. 3786

2018 TOWN LAYOUT

R7-11 R&S

R7-201 R&S

YIELD TO PEDS

KEEP RIGHT EXCEPT TO PASS

R9-6* (2) EACH SIDE OF POST
R4-16* (2) EACH SIDE OF POST

Littleton/Rte 495 Sta

MA-D1-5a(T)-c

AHEAD

W11-15
W16-9P

14-1"

400 FEET

W12-2
(14' 1")
W16-2P

PC +80.91

PT +95.95

SWL

DBYL

BYCL

EDGE OF PAVEMENT

BOULDERS

STONE WALL

BIT. CONC. DRIVE

GRAN. CURB

GARAGE

POST

MEMORIAL MONUMENT

LANDSCAPED AREA

GAS PATH

WOODS

MB

MHB

FD BRKN

RB FD

DH

SIGN

0 20 50 100

SCALE: 1" = 20'

SEE SHEET 41 FOR MARKING & SIGNING NOTES

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	45	129
PROJECT FILE NO.	609054		

PAVEMENT MARKING & SIGNING PLAN

20170044A21_PVT01.DWG Plotted on 12-Nov-2020 8:24 AM

CONTINUED ON SHEET NO. 44

CONTINUED ON SHEET NO. 46

NAD 83

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

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

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

BIKE ROUTE
Rail Station 0.2
D11-1*
D1-1a-d*

BIKE ROUTE
Taylor St 0.4
D11-1*
D1-1a-e*

AHEAD
W11-15
W16-9P

NO PARKING ANY TIME
R7-1D

R7-1
R&S

OM-3L

OM-3L
R&S

14 FT 1 IN
W12-2a
MOUNTED ON BRIDGE BEAM

ROUTE 2
OVERPASS
MASS. BRIDGE
NO. L-13-017

14 FT 1 IN
W12-2a
MOUNTED ON BRIDGE BEAM

OM-3R
R&S

OM-3R

W12-2
R&S

NO PARKING ANY TIME
R7-1D

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

MEMORIAL MONUMENT
BIT. CONC. DRIVE
GRAN. CURB
LANDSCAPED AREA
WALL
BIT. CONC. DRIVE
WOODS
EDGE OF PAVEMENT
GRAN. CURB
NB FD TOP
BYCL
DBYL
SWL
CW
+59
+38
+23 PT +29.08
+29
21
22
23
24
25
FOSTER STREET (PUBLIC)
2018 TOWN LAYOUT
PC +46.88
CONC. BRIDGE FOOTING
WOODS
SIGN
MHB FD
MHB FD BRKN
MHB FD W/LP
STONE WALL
ROW OF POSTS
CULVERT
H/WALL
METAL FENCE
INTERMITTENT STREAM
G700 START
F604 END 1'
F603 1'0/C
F602 4'0/C
F600 3'0/C
G702
J101
J102
J103
J100
802 5'0/C
803 2'0
1901 3'
1900
5.0'
10.0'
2

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

R7-201
R&S

R2-1(30)
R&S

NO PARKING ANY TIME
R7-1D

SPEED LIMIT 30
R2-1(30)

W12-2
R&S

OM-3R
R&S

OM-3R

OM-3L
R&S

OM-3L

R1-1
MA-D3-1b
R&S

STOP
R1-1

DBYL
SL
10.88'

Foster St
Bulkeley Rd

MA-D3-1a (2 MOUNTED BACK TO BACK)
MA-D3-1b (2 MOUNTED BACK TO BACK)

BULKELEY ROAD (PUBLIC)

1950 TOWN LAYOUT SEE SHLO NO. 3786

1950 TOWN LAYOUT SEE SHLO NO. 3786

1950 STATE HIGHWAY LAYOUT NO. 3711

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

AREA EXCLUDED FROM STATE HIGHWAY LAYOUT
N/F LUTHER FURBUSH

1950 STATE HIGHW
BK/PG

EPH W. & AMANDA LENNON,
IVING TRUSTEES OF THE
-JOSEPH LENNON LIVING TRUST
BK/PG 64219/262
LAN NO 1628 OF 1972
PARCEL #R09 5 A
3 BULKELEY ROAD

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

0 20 50 100
SCALE: 1" = 20'

SEE SHEET 41 FOR MARKING & SIGNING NOTES

NOTES
1. REMOVE AND RESET OF THESE SIGNS SHALL BE PAID FOR UNDER ITEM 874.85

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	46	129
PROJECT FILE NO.	609054		

PAVEMENT MARKING & SIGNING PLAN

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NAD 83 N

CONTINUED ON SHEET NO. 45

CONTINUED ON SHEET NO. 47

FOSTER STREET ASSOCIATED LIMITED PARTNERSHIP & CONCORD PROPERTY MANAGEMENT
BK/PG 18443/364
PLAN NO 266 OF 1987
PARCEL #R11 1 0
265 FOSTER STREET

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

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

(MBTA)
BK/PG 15717/113
PARCEL #R11 2 0

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

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

1951 SHLO NO. 3836

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

FOSTER STREET (PUBLIC)

GRIMES LANE (PUBLIC)

2018 TOWN LAYOUT

PC +46.88

PT +87.17

PT +70.33

302+00

R9-6* (2) EACH SIDE OF POST
R4-16* (2) EACH SIDE OF POST

YIELD TO PEDS
KEEP RIGHT EXCEPT TO PASS

W10-1b*

R7-1
R&S

STONEYARD SIGN
R&R
(SEE NOTE 1)

NO PARKING ANY TIME
R7-1D

2 TRACKS
R15-2b MOUNTED ON GATE POST

RAILROAD CROSSING
R15-1b MOUNTED ON GATE POST

PED. CROSSING GATE
R&R

"DEP FILE" SIGN
RET

RR SIGNAL GATE
R&R

R15-1
R&R

R15-2
R&R

DO NOT STOP ON TRACKS
R8-8

W10-1
R&S

STATION ENTRANCE SIGN
R&R
(SEE NOTE 1)

R1-1
R&R

R15-1
RET

R15-2
RET

RR SIGNAL GATE
RET

TRACK SIGN
RET

MA-D3-1c
R&S

MA-D3-1a (2 MOUNTED BACK TO BACK)
MA-D3-1c (2 MOUNTED BACK TO BACK)

Foster St
Grimes Ln

R7-1D
R7-201aP

NO PARKING ANY TIME
TOWAWAY ZONE

STOP
R1-1

R7-1D
NO PARKING ANY TIME

SIGN
R&S

SIGN
RET

RETAIN NO OUTLET SIGN

RAILROAD CROSSING
R15-1

2 TRACKS
R15-2

0 20 50 100
SCALE: 1" = 20'

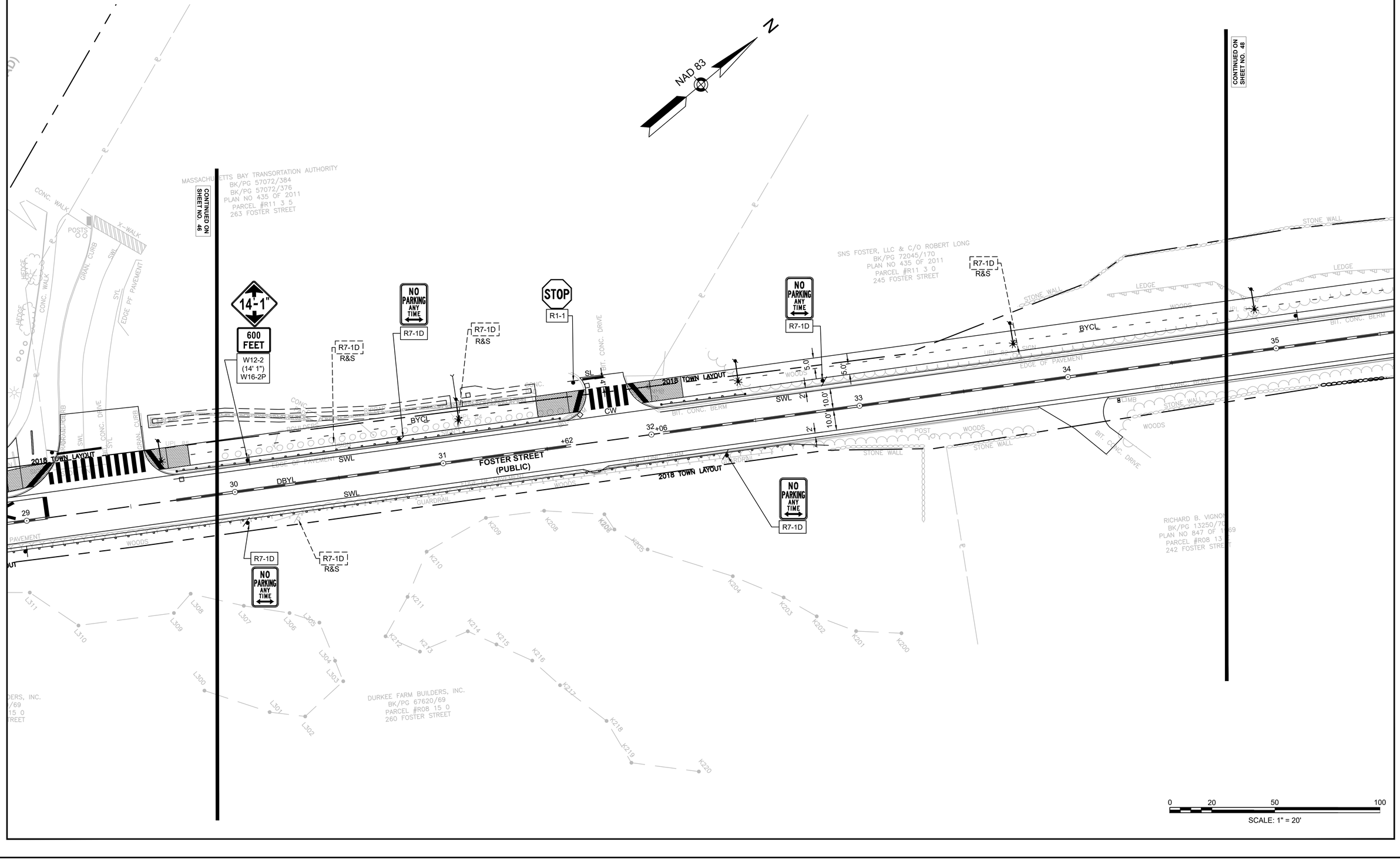
SEE SHEET 41 FOR MARKING & SIGNING NOTES

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	47	129
PROJECT FILE NO.	609054		

PAVEMENT MARKING & SIGNING PLAN

20170044A21_PVT01.DWG Plotted on 12-Nov-2020 8:25 AM



SEE SHEET 41 FOR MARKING & SIGNING NOTES

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	48	129
	PROJECT FILE NO. 609054		

PAVEMENT MARKING & SIGNING PLAN

20170044A21_PVT01.DWG Plotted on 12-Nov-2020 8:25 AM

NAD 83 N

CONTINUED ON SHEET NO. 47

SPEED LIMIT 30
R2-1(30)

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

BIKE ROUTE END
USE PED SIGNAL
D11-1*
M4-6*
R9-5*

NO MOTOR VEHICLES
R5-3*

YIELD TO PEDS
KEEP RIGHT EXCEPT TO PASS
R9-6*
R4-16*

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

BIKE ROUTE
D11-1
M6-1R

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

END OF PROJECT
PROJ. NO. 609054
STA. 39+36.15
N 3015278.1762
E 656130.7752

AHEAD
W11-15
W16-9p

AHEAD
W11-15
W16-9P

SHARE THE ROAD
W11-1
W16-1P

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

R1-1
MA-D3-1
(BALSAM LN)
R&R

2018 TOWN LAYOUT

FOSTER STREET
(PUBLIC)

BALSAM LANE
(PUBLIC)

PRIVATE LAYOUT

PRIVATE LAYOUT

PC +96.91
PT +65.56
PC +05.41
PT +11.15
39+97.90
MATCH EXISTING MARKINGS

SNS FOSTER, LLC & C/O ROBERT LONG
BK/PG 72045/170
PLAN NO 435 OF 2011
PARCEL #R11 3 0
245 FOSTER STREET

PATRICIA A. NARGIZIAN
BK/PG 70735/467
PARCEL #R11 5 4
237 FOSTER STREET

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

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

0 20 50 100
SCALE: 1" = 20'

File Path: J:\DWG\P2017\00044\A21\Civil\Details\20170044A21_SIGNSUM01.dwg, Layout: SIGN SUMMARY-01 Thu, Nov 12, 2020 - 8:33 AM User: cagro
STB: X
LMAN: X
MS VIEW: X
UCS: X

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 2" SQUARE POSTS FACTORY COATED GLOSS BLACK UNLESS OTHERWISE NOTED
(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	49	129
PROJECT FILE NO.	609054		

TRAFFIC SIGN SUMMARY

IDENTIFICATION NUMBER	SIZE OF SIGN WIDTH (IN)	SIZE OF SIGN HEIGHT (IN)	TEXT	TEXT DIMENSIONS (in) LETTER HEIGHT	TEXT DIMENSIONS (in) VERTICAL SPACING	TEXT DIMENSIONS (in) ARROW RTE. MKR.	NUMBER OF SIGNS REQUIRED	COLOR BACK-GROUND	COLOR LEGEND	COLOR BORDER	POST SIZE AND NUMBER REQUIRED	SIGN FACE AREA (S.F.)	TOTAL AREA (S.F.)
R1-1	30	30	STOP	SEE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (INCLUDING LATEST REVISION)			4	RED	WHITE	WHITE	P-5 4 REQ'D	6.00	24.00
R1-1b*	18	18	STOP				1	RED	WHITE	WHITE	4X4 PRESSURE TREATED WOOD 1 REQ'D	2.25	2.25
R2-1 (30)	30	36	SPEED LIMIT 30				3	WHITE	BLACK	BLACK	P-5 3 REQ'D	7.50	22.50
R2-1 (40)	30	36	SPEED LIMIT 40				2	WHITE	BLACK	BLACK	P-5 2 REQ'D	7.50	15.00
R3-17	30	24	BIKE LANE				4	WHITE	BLACK	BLACK	P-5 3 REQ'D	5.00	20.00
R4-1	18	24	DO NOT PASS				1	WHITE	BLACK	BLACK	MOUNTED WITH R9-6	3.00	3.00
M4-6	12	6	END				1	WHITE	BLACK	BLACK	MOUNTED WITH D11-1	0.50	0.50
R3-17bP	24	8	ENDS				2	WHITE	BLACK	BLACK	MOUNTED WITH R3-17	1.33	2.67
R4-16*	18	24	KEEP RIGHT EXCEPT TO PASS				8	WHITE	BLACK	BLACK	4X4 PRESSURE TREATED WOOD 5 REQ'D	3.00	2400
R5-3*	24	24	NO MOTOR VEHICLES				1	WHITE	BLACK	BLACK	4X4 PRESSURE TREATED WOOD 1 REQ'D	4.00	4.00
R7-1D	12	18	NO PARKING ANY TIME				10	WHITE	RED	RED	P-5 10 REQ'D	1.50	15.00
R7-201aP	12	6	TOW-AWAY ZONE				1	WHITE	RED	RED	MOUNTED WITH R7-1D	0.50	0.50
R8-8	18	24	DO NOT STOP ON TRACKS				2	WHITE	BLACK	BLACK	P-5 2 REQ'D	3.00	6.00
R9-5*	12	18	USE PED SIGNAL				2	WHITE	BLACK	BLACK	4X4 PRESSURE TREATED WOOD 1 REQ'D 1 MOUNTED WITH D11-1	1.50	3.00
R9-6*	18	24	YIELD TO PEDS				9	WHITE	BLACK	BLACK	8 MOUNTED WITH R4-16 1 MOUNTED WITH R4-1	3.00	27.00
R12-5	36	24	WEIGHT LIMIT 20 T 25 T 40 T				1	WHITE	BLACK	BLACK	P-5 1 REQ'D	6.00	6.00

IDENTIFICATION NUMBER	SIZE OF SIGN WIDTH (IN)	SIZE OF SIGN HEIGHT (IN)	TEXT	TEXT DIMENSIONS (in) LETTER HEIGHT	TEXT DIMENSIONS (in) VERTICAL SPACING	TEXT DIMENSIONS (in) ARROW RTE. MKR.	NUMBER OF SIGNS REQUIRED	COLOR BACK-GROUND	COLOR LEGEND	COLOR BORDER	POST SIZE AND NUMBER REQUIRED	SIGN FACE AREA (S.F.)	TOTAL AREA (S.F.)
R15-1b	24	24	RAILROAD CROSSING	SEE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (INCLUDING LATEST REVISION)			1	WHITE	BLACK	BLACK	MOUNTED ON GATE POST	2.00	2.00
R15-2b	13.5	9	2 TRACKS				1	WHITE	BLACK	BLACK	MOUNTED ON GATE POST	1.00	1.00
OM-3L	12	36					2	YELLOW	BLACK	BLACK	P-5 2 REQ'D	3.00	6.00
OM-3R	12	36					2	YELLOW	BLACK	BLACK	P-5 2 REQ'D	3.00	6.00
W10-1	36	36	R R				3	YELLOW	BLACK	BLACK	P-5 3 REQ'D	5.00	15.00
W10-1b*	24	24	R R				2	YELLOW	BLACK	BLACK	4X4 PRESSURE TREATED WOOD 2 REQ'D	4.00	8.00
W11-1	24	24					1	YELLOW	BLACK	BLACK	P-5 1 REQ'D	9.00	9.00
W11-15	36	36					6	YELLOW	BLACK	BLACK	P-5 6 REQ'D	9.00	54.00
W12-2	36	36	14'-1"				3	YELLOW	BLACK	BLACK	P-5 3 REQ'D	9.00	27.00
W12-2a	84	24	14FT 1IN				2	YELLOW	BLACK	BLACK	MOUNTED ON BRIDGE BEAM	14.00	28.00
W16-1P	18	24	SHARE THE ROAD				1	YELLOW	BLACK	BLACK	MOUNTED WITH W11-1	3.00	3.00
W16-2P-400	24	18	400 FEET				1	YELLOW	BLACK	BLACK	MOUNTED W/ W12-2	3.00	3.00
W16-2P-600	24	18	600 FEET				1	YELLOW	BLACK	BLACK	MOUNTED W/ W12-2	3.00	3.00
W16-2P-1000	24	18	1000 FEET				1	YELLOW	BLACK	BLACK	MOUNTED W/ W12-2	3.00	3.00
W16-9p	36	24	AHEAD				6	YELLOW	BLACK	BLACK	MOUNTED W/ W11-15	6.00	36.00

20170044A21_SIGNSUM01.DWG 12-Nov-2020

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 2" SQUARE POSTS FACTORY COATED GLOSS BLACK UNLESS OTHERWISE NOTED (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	50	129
PROJECT FILE NO.	609054		

TRAFFIC SIGN SUMMARY

IDENTIFICATION NUMBER	SIZE OF SIGN WIDTH (IN)	SIZE OF SIGN HEIGHT (IN)	TEXT	TEXT DIMENSIONS (in) LETTER HEIGHT	TEXT DIMENSIONS (in) VERTICAL SPACING	TEXT DIMENSIONS (in) ARROW RTE. MKR.	NUMBER OF SIGNS REQUIRED	COLOR BACK-GROUND	COLOR LEGEND	COLOR BORDER	POST SIZE AND NUMBER REQUIRED	SIGN FACE AREA (S.F.)	TOTAL AREA (S.F.)
D1-1a-a*	24	8	Rail Station 0.6 ↑	SEE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (INCLUDING LATEST REVISION)			1	GREEN	WHITE	WHITE	MOUNTED WITH D-11	1.33	1.33
D1-1a-b*	24	8	Rail Station 0.4 ↑				1	GREEN	WHITE	WHITE	MOUNTED WITH D-11	1.33	1.33
D1-1a-c*	24	8	Taylor St 0.2 ↑				1	GREEN	WHITE	WHITE	MOUNTED WITH D-11	1.33	1.33
D1-1a-d*	24	8	Rail Station 0.2 ↑				1	GREEN	WHITE	WHITE	MOUNTED WITH D-11	1.33	1.33
D1-1a-e*	24	8	Taylor St 0.4 ↑				1	GREEN	WHITE	WHITE	MOUNTED WITH D-11	1.33	1.33
D1-2a*	24	16	↑ Rail Station 0.1 ↑ Taylor St 0.7				1	GREEN	WHITE	WHITE	MOUNTED WITH D-11	2.67	2.67
D-11*	24	18	BIKE ROUTE				8	GREEN	WHITE	WHITE	4X4 PRESSURE TREATED WOOD 5 REQ'D P-5 1 REQ'D	3.00	24.00
M6-1R	12	9	→				1	WHITE	BLACK	BLACK	MOUNTED WITH D11-1	0.75	0.75
MA-D1-5a(T)-a	42	18	← (T) Littleton/Rte 495 Sta	SEE 2016 MASSDOT STANDARD SIGNS BOOK			1	GREEN	WHITE	WHITE	P-5 2 REQ'D	5.25	5.25
MA-D1-5a(T)-b	42	18	(T) → Littleton/Rte 495 Sta				1	GREEN	WHITE	WHITE	P-5 2 REQ'D	5.25	5.25
MA-D1-5a(T)-c	42	18	(T) ↑ Littleton/Rte 495 Sta				2	GREEN	WHITE	WHITE	P-5 4 REQ'D	5.25	10.50
MA-D3-1a	36	12	Foster St	6D/4D	3 3.25	N/A	6	GREEN	WHITE	WHITE	P-5 3 REQ'D	-	EACH
MA-D3-1b	40	12	Bulkeley Rd	6D/4D	3 3.25	N/A	2	GREEN	WHITE	WHITE	MOUNTED WITH MA-D3-1a	-	EACH
MA-D3-1c	36	12	Grimes Ln	6D/4D	3 3.25	N/A	2	GREEN	WHITE	WHITE	MOUNTED WITH MA-D3-1a	-	EACH
MA-D3-1d	36	12	Taylor St	6D/4D	3 3.25	N/A	2	GREEN	WHITE	WHITE	MOUNTED WITH MA-D3-1a	-	EACH

IDENTIFICATION NUMBER	SIZE OF SIGN WIDTH (IN)	SIZE OF SIGN HEIGHT (IN)	TEXT	TEXT DIMENSIONS (in) LETTER HEIGHT	TEXT DIMENSIONS (in) VERTICAL SPACING	TEXT DIMENSIONS (in) ARROW RTE. MKR.	NUMBER OF SIGNS REQUIRED	COLOR BACK-GROUND	COLOR LEGEND	COLOR BORDER	POST SIZE AND NUMBER REQUIRED	SIGN FACE AREA (S.F.)	TOTAL AREA (S.F.)

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UCS: X

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20170044A21_SIGNSUM01.DWG

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LMAN: X
MS VIEW: X
UCS: X

NOTES:

1. 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.
2. ALL SIGN LEGENDS, BORDERS, AND MOUNTING SHALL BE IN ACCORDANCE WITH THE MUTCD.
3. TEMPORARY CONSTRUCTION SIGNING AND ALL OTHER TRAFFIC CONTROL DEVICES SHALL BE IN PLACE PRIOR TO THE START OF ANY WORK.
4. 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.
5. 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).
6. CONTRACTORS SHALL NOTIFY EACH ABUTTER AT LEAST 24 HOURS IN ADVANCE OF THE START OF ANY WORK THAT WILL REQUIRE THE TEMPORARY CLOSURE OF ACCESS, SUCH AS CONDUIT INSTALLATION, EXISTING PAVEMENT EXCAVATION, TEMPORARY DRIVEWAY PAVEMENT PLACEMENT, AND SIMILAR OPERATIONS.
7. THE FIRST FIVE PLASTIC DRUMS OF A TAPER SHALL BE MOUNTED WITH TYPE A LIGHTS.
8. THE ADVISORY SPEED LIMIT, IF REQUIRED, SHALL BE DETERMINED BY THE ENGINEER.
9. DISTANCES ARE A GUIDE AND MAY BE ADJUSTED IN THE FIELD BY THE ENGINEER.
10. MAXIMUM SPACING OF TRAFFIC DEVICES IN A TAPER (DRUMS OR CONES) IS EQUAL IN FEET TO THE SPEED LIMIT IN MPH.
11. 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.
12. 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
5	2	8	2,740	1,370
4	2	4	2,950	1,480
3	2	9	2,980	1,490
4	3	4	4,560	1,520

Source: Dudek, 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.

massDOT Highway Division	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)
FREEWAYS AND EXPRESSWAYS*	1,000 (300)	1,500 (450)	2,640 (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 TTCP 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, R2-10e, 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)
30	35
40	50
50	65
60	85
70	105
80	130
90	160
100	185
110	220
120	250

SPEED* (mph)	DISTANCE (ft)
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645
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

massDOT Highway Division	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 AADT. 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
40 MPH OR LESS	$L = \frac{WS^2}{60}$
45 MPH OR MORE	$L = WS$

SPEED LIMIT (S)	TAPER LENGTH (L) Meters
60 KM/H OR LESS	$L = \frac{WS^2}{155}$
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

massDOT Highway Division	Notes for Temporary Traffic Control Plans	FIGURE Gen-3 NOTES ON WORK ZONE DISTANCES

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	51	129
PROJECT FILE NO.	609054		

TEMPORARY TRAFFIC CONTROL PLANS

GENERAL NOTES:

1. IF ANY STAGE REQUIRES MODIFICATION OF THE TRAFFIC SIGNAL OPERATION, THE CONTRACTOR SHALL SUBMIT A REVISED SIGNAL TIMING AND PHASING PLAN TO THE TOWN OF LITTLETON FOR APPROVAL BEFORE MODIFYING THE TRAFFIC SIGNAL.
2. 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.
3. ALL TRAFFIC MANAGEMENT CONFIGURATIONS SHALL CONFORM TO THE STANDARD MassDOT DETAILS ON THE FOLLOWING SHEETS AND APPLY TO ALL LOCATIONS INCLUDED IN THE CONTRACT.

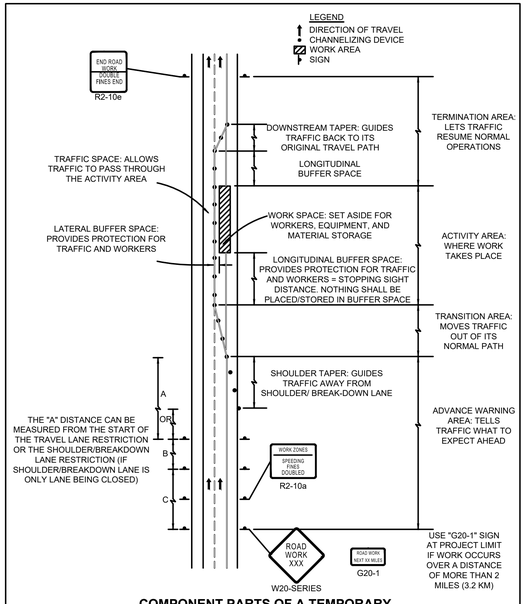
THE CONTRACTOR SHALL BE PERMITTED TO PERFORM TEMPORARY ROADWAY OR LANE CLOSURES FROM 8:00 A.M. TO 3:00 P.M. CHANGES TO THESE TIMES REQUIRE APPROVAL FROM THE TOWN OF LITTLETON

4. 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.
5. COVER ALL EXISTING SIGNAGE THAT CONFLICTS WITH THE TRAFFIC MANAGEMENT SETUP IN PLACE.
6. 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.
7. THE CONTRACTOR SHALL PLACE TWO PORTABLE CHANGEABLE MESSAGE BOARDS (PCMB) ON THE PROJECT SITE, FOR SEVEN DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
8. ALL ADVANCED SIGNAGE SHALL REMAIN IN PLACE FOR THE DURATION OF THE PROJECT.

FOSTER STREET	
ROADWAY TYPE	URBAN PRINCIPAL ARTERIAL
ADT	2,100
DISTANCE "A*"	350 FT
DISTANCE "B*"	350 FT
DISTANCE "C"	350 FT
ANTICIPATED SPEED	30 MPH

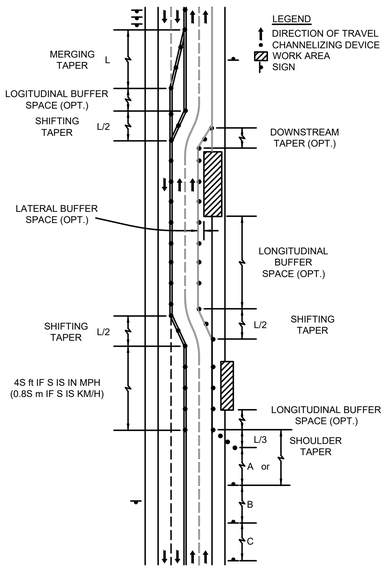
THE DIMENSIONS FOR A* & B* MAY REQUIRE FIELD ADJUSTMENTS DUE TO THE URBAN NATURE OF THE PROJECT AREA.

10. IF FLAGGERS ARE USED FOR TRAFFIC CONTROL, THE FLAGGER SIGN (W20-7a) SHALL BE SUBSTITUTED FOR THE POLICE OFFICER AHEAD (W20-7b) SIGN.
11. 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.



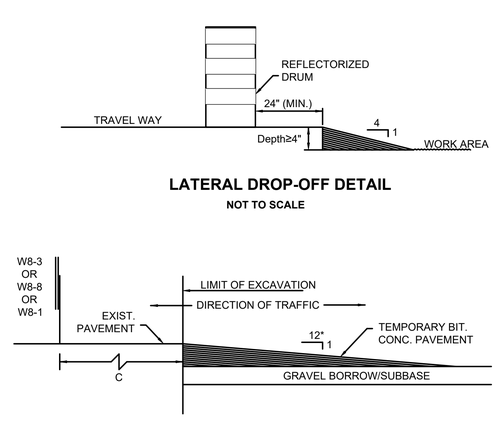
COMPONENT PARTS OF A TEMPORARY TRAFFIC CONTROL (TTC) ZONE

massDOT Highway Division	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



TYPES OF TAPERS AND BUFFER SPACES

massDOT Highway Division	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
NOT TO SCALE

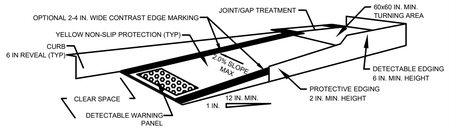
LONGITUDINAL DROP-OFF DETAIL
NOT TO SCALE

* - INCREASE SLOPE RATIO FOR HIGHER SPEEDS

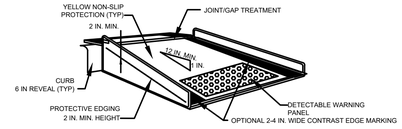
LATERAL AND LONGITUDINAL DROP-OFF DETAILS

massDOT Highway Division	Standard Details and Drawings for the Development of Temporary Traffic Control Plans	FIGURE Gen-6 LATERAL AND LONGITUDINAL DROP-OFF DETAILS NOT TO SCALE

FIGURE 4
TYPICAL PEDESTRIAN DEVICES
(1 OF 2)
NOT TO SCALE



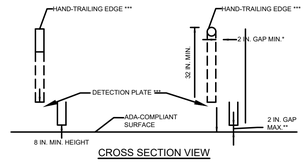
TEMPORARY CURB RAMP-PARALLEL TO CURB



TEMPORARY CURB RAMP-PERPENDICULAR TO CURB

NOTES:

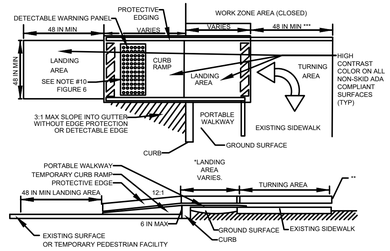
1. CURB RAMPS SHALL BE 60 IN. MINIMUM WIDTH WITH A FIRM, STABLE, AND NON-SLIP SURFACE.
2. PROTECTIVE EDGING WITH A 2 IN. MINIMUM HEIGHT SHALL BE INSTALLED WHEN THE CURB RAMP OR LANDING PLATFORM HAS A VERTICAL DROP OF 6 IN. OR GREATER OR HAS A SIDE APRON SLOP STEEPER THAN 1:3 (33%). PROTECTIVE EDGING SHOULD BE CONSIDERED WHEN THE CURB RAMPS OR LANDING PLATFORMS HAVE A VERTICAL DROP OF 3 IN. OR MORE.
3. PROTECTABLE EDGING WITH 6 IN. MINIMUM HEIGHT AND CONTRASTING COLOR SHALL BE INSTALLED ON ALL CURB RAMP LANDINGS WHERE THE WALKWAY CHANGES DIRECTION (TURNS).
4. THE CURB RAMP WALKWAY AND LANDING AREA SURFACE SHALL BE OF A SOLID CONTINUOUS CONTRASTING COLOR ABUTTING UP TO THE EXISTING SIDEWALK.
5. CURB RAMPS AND LANDINGS SHOULD HAVE A 1:50 (2%) MAX CROSS-SLOPE.
6. CLEAR SPACE OF 48x48 IN. MINIMUM SHALL BE PROVIDED ABOVE AND BELOW THE CURB RAMP.
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.
10. IF A TEMPORARY PEDESTRIAN RAMP LEADS TO A CROSSWALK, THEN A DETECTABLE WARNING PAD MUST BE ADHERED TO THE BASE OF THE RAMP. IF IT LEADS TO A PROTECTED PEDESTRIAN BYPASS THAT DOES NOT CONFLICT WITH VEHICULAR TRAFFIC, THEN A PAD SHALL NOT BE INSTALLED ON THE RAMP.



CROSS SECTION VIEW

PEDESTRIAN CHANNELIZING DEVICE

* 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.
*** THE HAND-TRAILING EDGE AND DETECTION PLATE SHALL BE CONTINUOUS THROUGHOUT THE LENGTH OF THE PATH SUCH THAT A PEDESTRIAN USER WITH A LONG CANE CAN FOLLOW IT.

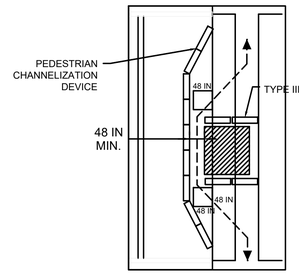


TEMPORARY CURB RAMP

* LANDING AREA USED TO OVERLAP NON-ADA COMPLIANT SURFACES.
** DETECTABLE EDGE REMOVED IF A CONTINUOUS SIDEWALK.
*** 60 IN. IF AN OBSTRUCTION IS AT BACK OF SIDEWALK.

FIGURE 5
TYPICAL PEDESTRIAN DEVICES
(2 OF 2)
NOT TO SCALE

FIGURE 45
PEDESTRIAN BYPASS



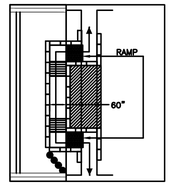
NOTES:

1. 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.
2. A PEDESTRIAN CHANNELIZATION DEVICE THAT IS DETECTABLE BY A PERSON WITH A VISUAL DISABILITY TRAVELING WITH THE AID OF A LONG CANE SHALL BE PLACED ALONG THE FULL LENGTH OF THE TEMPORARY PEDESTRIAN ROUTE.
3. WHEN USED, TEMPORARY RAMPS SHALL COMPLY WITH AMERICANS WITH DISABILITIES ACT.
4. THE ALTERNATE PATHWAY SHOULD HAVE A SMOOTH CONTINUOUS HARD SURFACE FOR THE ENTIRE LENGTH OF THE TEMPORARY PEDESTRIAN FACILITY.
5. THE TEMPORARY SIDEWALK SHOULD BE A MINIMUM OF 4 FEET WIDE. IF THE SIDEWALK EXCEEDS 200 FEET THEN A 5 FOOT BY 5 FOOT PASSING ZONE SHALL BE PROVIDED NEAR THE MID-POINT OF THE CLOSURE.
6. THE PROTECTIVE REQUIREMENTS OF A TTC WORK ZONE MAY HAVE AN IMPACT IN DETERMINING THE NEED FOR TEMPORARY TRAFFIC BARRIERS AND THEIR USE IN PROVIDING PEDESTRIAN DELINEATION SHOULD BE BASED ON ENGINEERING JUDGMENT.
7. ON-DEMAND PEDESTRIAN ASSISTANCE PERSONNEL TO ASSIST WITH NAVIGATION AROUND THE CLOSURE/WORK AREA MAY BE CONSIDERED AS AN OPTION IN PLACE OF PROVIDING ADA/AAB DEVICES FOR WORK FOR CLOSURES LASTING 4 HOURS OR LESS.
8. CONTROLS ONLY FOR PEDESTRIAN TRAFFIC ARE SHOWN; VEHICULAR TRAFFIC SHOULD BE HANDLED AS SHOWN ELSEWHERE. THESE DETAILS ARE USED IN CONJUNCTION WITH THE PROPOSED LANE CLOSURE DETAILS AND DURING CONSTRUCTION STAGING, AS DETERMINED BY THE ENGINEER.

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	52	129
PROJECT FILE NO.	609054		

TEMPORARY TRAFFIC CONTROL PLANS

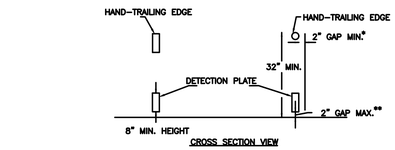


- When existing pedestrian facilities are disrupted, closed, or relocated in a TTC zone, temporary facilities shall be provided and they shall be detectable and include accessibility features consistent with the features present in the existing pedestrian facility.
- A pedestrian channelizing device 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 closings 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



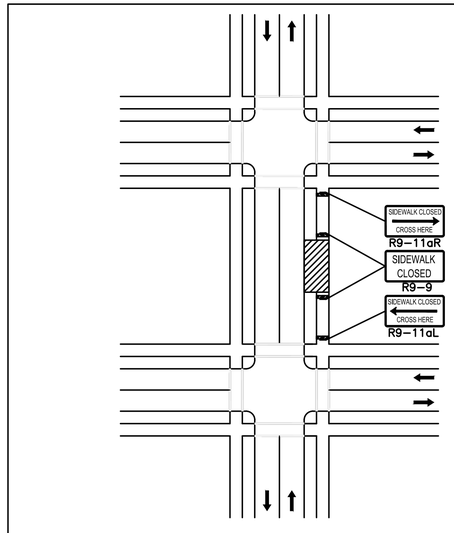
PEDESTRIAN CHANNELIZING DEVICE

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

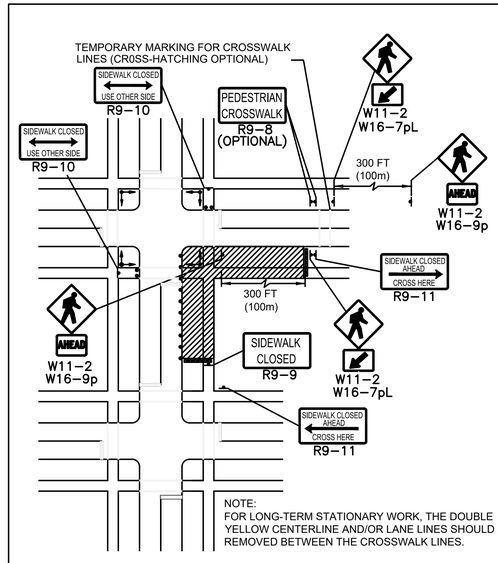
FIGURE Ped-4
PEDESTRIAN DETAILS
NOT TO SCALE



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.

SIDEWALK CLOSED
WITHOUT DETOUR

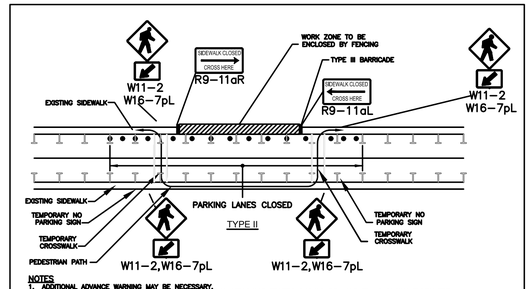
FIGURE Ped-5
SIDEWALK CLOSED WITH DETOUR
NOT TO SCALE



NOTE:
FOR LONG-TERM STATIONARY WORK, THE DOUBLE YELLOW CENTERLINE AND/OR LANE LINES SHOULD BE REMOVED BETWEEN THE CROSSWALK LINES.

PEDESTRIAN DETOUR

FIGURE Ped-6
PEDESTRIAN DETOUR
NOT TO SCALE



NOTES
1. ADDITIONAL ADVANCE WARNING MAY BE NECESSARY.
2. CONTROLS ONLY FOR PEDESTRIAN TRAFFIC ARE SHOWN. VEHICULAR TRAFFIC SHOULD BE HANDLED AS SHOWN ELSEWHERE.
3. STREET LIGHTING SHOULD BE CONSIDERED WHEN LOCATING CONTROL DEVICES.
4. IF THE WORK ZONE DOES NOT PERMIT PEDESTRIANS TO TRAVEL ADJACENT TO IT AS SHOWN IN PEDESTRIAN BYPASS TYPE I, TEMPORARY SIDEWALKS WITH APPROPRIATE SIGNS SHOULD BE INSTALLED TO CROSS PEDESTRIANS TO THE OPPOSITE SIDE OF THE STREET AS SHOWN IN PEDESTRIAN BYPASS TYPE II, AND AS DIRECTED BY THE ENGINEER. TEMPORARY CURB RAMPS WILL BE REQUIRED AT ALL TEMPORARY CROSSWALK LOCATIONS.
5. BYPASS IS TO BE USED IN CONJUCTION WITH THE PROPOSED LANE CLOSURE DETAILS AND DURING CONSTRUCTION STAGING, AS DIRECTED BY THE ENGINEER.
6. THE TEMPORARY SIDEWALK SHOULD BE A MINIMUM OF 4 FEET WIDE. IF THIS WALKWAY EXCEEDS 200 FEET THEN A 5 FOOT X 5 FOOT PASSING ZONE. (FOR SHORT TERM SETUPS < 10 HOURS, THIS CONDITION MAY BE WAIVED. A NOTE WOULD NEED TO BE INCLUDED IN THE TTCP THAT STATES HOW THE CONTRACTOR SHOULD ADDRESS THIS ISSUE.)

PEDESTRIAN BYPASS

FIGURE Ped-7
PEDESTRIAN DETAILS
NOT TO SCALE

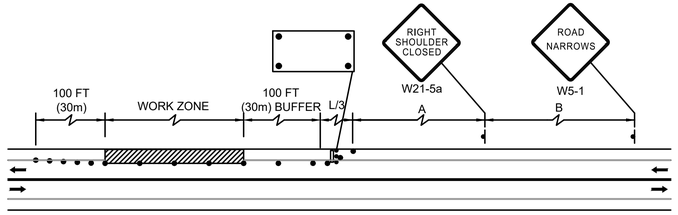
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LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	53	129
PROJECT FILE NO.	609054		

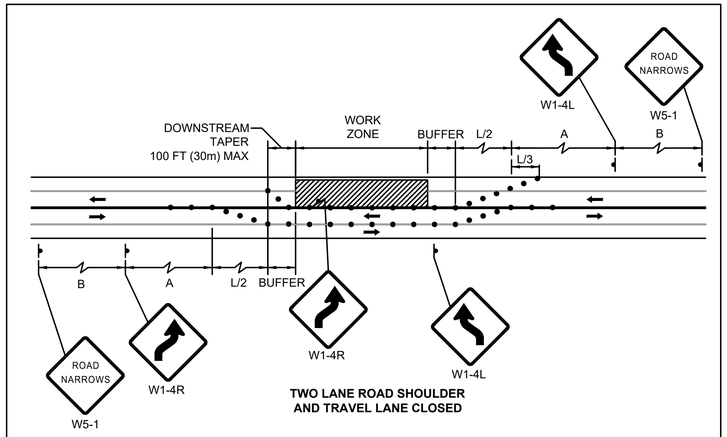
TEMPORARY TRAFFIC CONTROL PLANS



TWO LANE ROAD
SHOULDER CLOSED

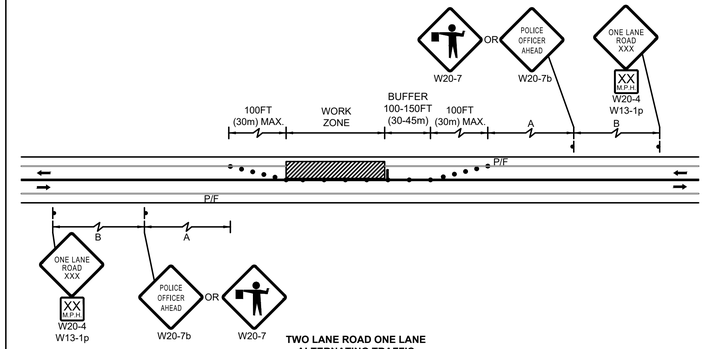
DRUM SPACING DEPENDENT ON SPEED

massDOT Highway Division	Standard Details and Drawings for the Development of Temporary Traffic Control Plans	**FIGURE TLR-1** **TWO LANE ROAD SHOULDER CLOSED** NOT TO SCALE



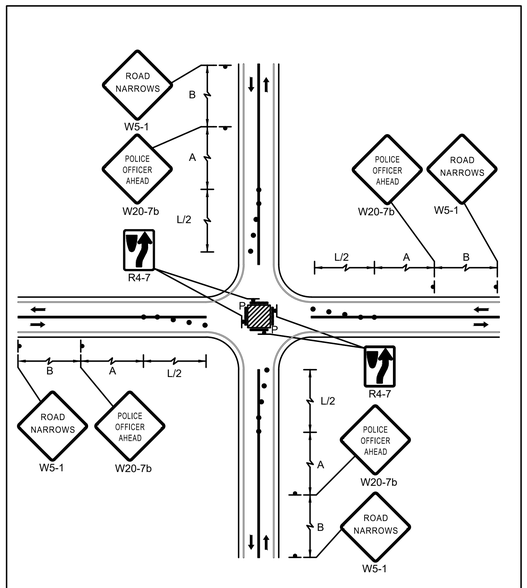
TWO LANE ROAD SHOULDER
AND TRAVEL LANE CLOSED

massDOT Highway Division	Standard Details and Drawings for the Development of Temporary Traffic Control Plans	**FIGURE TLR-2** **TWO LANE ROAD SHOULDER AND TRAVEL LANE CLOSED** NOT TO SCALE



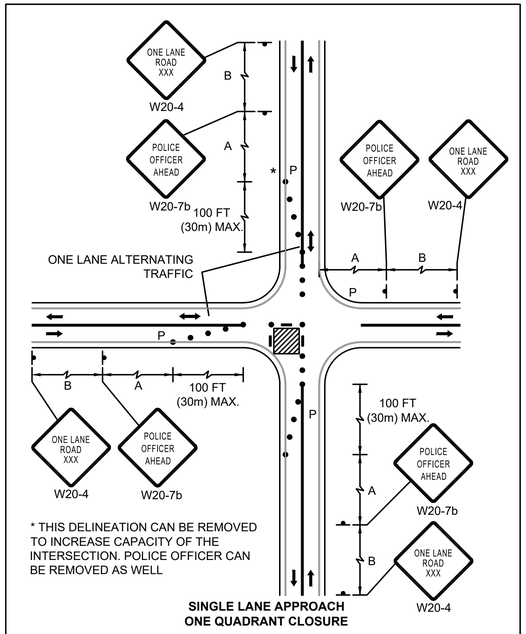
TWO LANE ROAD ONE LANE
ALTERNATING TRAFFIC

massDOT Highway Division	Standard Details and Drawings for the Development of Temporary Traffic Control Plans	**FIGURE TLR-5** **TWO LANE ROAD ONE LANE ALTERNATING TRAFFIC WITH POLICE DETAIL** NOT TO SCALE



SINGLE LANE APPROACH
CENTER CLOSURE

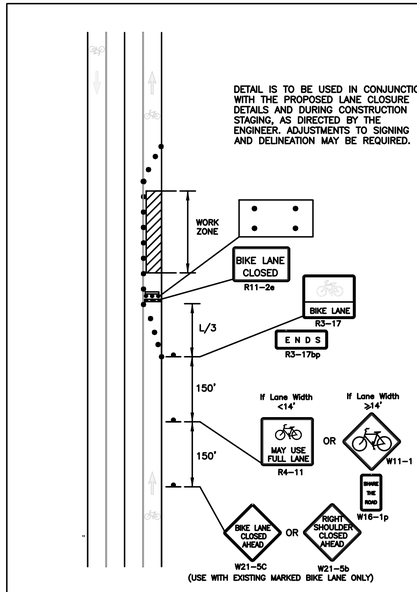
massDOT Highway Division	Standard Details and Drawings for the Development of Temporary Traffic Control Plans	**FIGURE INT-1** **SINGLE LANE APPROACH CENTER CLOSURE** NOT TO SCALE



* THIS DELINEATION CAN BE REMOVED TO INCREASE CAPACITY OF THE INTERSECTION. POLICE OFFICER CAN BE REMOVED AS WELL

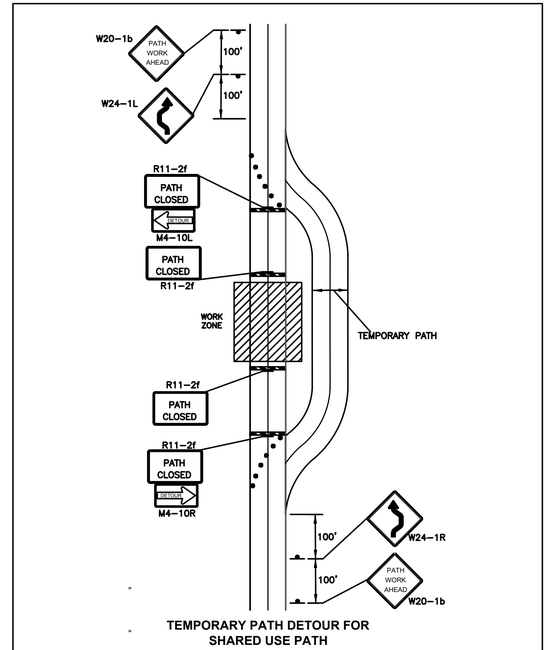
SINGLE LANE APPROACH
ONE QUADRANT CLOSURE

massDOT Highway Division	Standard Details and Drawings for the Development of Temporary Traffic Control Plans	**FIGURE Int-2** **SINGLE LANE APPROACH ONE QUADRANT CLOSURE** NOT TO SCALE



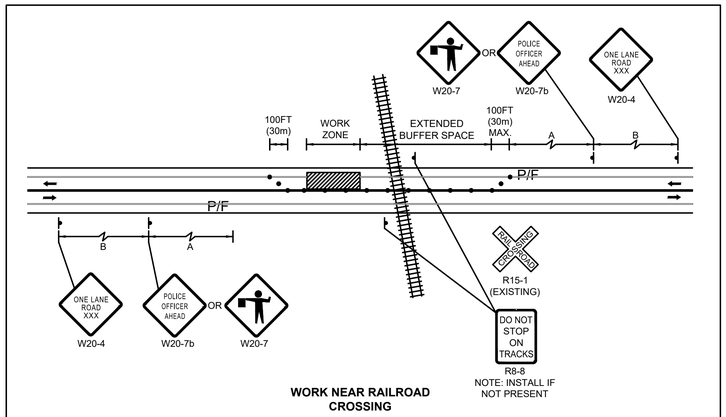
BICYCLE LANE CLOSURE
WITHOUT DETOUR

massDOT Highway Division	Standard Details and Drawings for the Development of Temporary Traffic Control Plans	**FIGURE BIK-1** **BICYCLE LANE CLOSURE WITHOUT DETOUR** NOT TO SCALE



TEMPORARY PATH DETOUR FOR
SHARED USE PATH

massDOT Highway Division	Standard Details and Drawings for the Development of Temporary Traffic Control Plans	**FIGURE BIK-3** **TEMPORARY PATH DETOUR FOR SHARED USE PATH** NOT TO SCALE



WORK NEAR RAILROAD CROSSING

massDOT Massachusetts Department of Transportation Highway Division

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

FIGURE RR-1

WORK NEAR RAILROAD CROSSING

NOT TO SCALE

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TYPICAL CONSTRUCTION SIGNING

N.T.S.

IDENTIFICATION NUMBER	SIZE OF SIGN WIDTH (IN)	SIZE OF SIGN HEIGHT (IN)	TEXT	TEXT DIMENSIONS (in) LETTER HEIGHT	TEXT DIMENSIONS (in) VERTICAL SPACING	TEXT DIMENSIONS (in) ARROW RTE. MKR.	ESTIMATED NUMBER OF SIGNS REQUIRED	COLOR BACK-GROUND	COLOR LEGEND	COLOR BORDER	SIGN FACE AREA (S.F.)	TOTAL AREA (S.F.)
R3-7L	30	30	LEFT LANE MUST TURN LEFT	SEE FHWA 2004 STANDARD HIGHWAY SIGNS MANUAL & 2012 SUPPLEMENT (ENGLISH VERSION)			2	WHITE	BLACK	BLACK	6.25	12.50
R3-7R	30	30	RIGHT LANE MUST TURN RIGHT				2	WHITE	BLACK	BLACK	6.25	12.50
R4-7	24	30					2	WHITE	BLACK	BLACK	6.25	12.50
R9-8	36	18	PEDESTRIAN CROSSWALK				1	FLRSCNT. ORANGE	BLACK	BLACK	4.50	4.50
R9-9	24	12	SIDEWALK CLOSED				2	FLRSCNT. ORANGE	BLACK	BLACK	2.00	4.00
R9-10	24	12	SIDEWALK CLOSED ⟷ USE OTHER SIDE				2	FLRSCNT. ORANGE	BLACK	BLACK	2.00	4.00
R9-11L	24	18	SIDEWALK CLOSED AHEAD ← CROSS HERE				1	FLRSCNT. ORANGE	BLACK	BLACK	3.00	3.00
R9-11R	24	18	SIDEWALK CLOSED AHEAD → CROSS HERE				1	FLRSCNT. ORANGE	BLACK	BLACK	3.00	3.00
R9-11aL	24	18	SIDEWALK CLOSED ← CROSS HERE				2	FLRSCNT. ORANGE	BLACK	BLACK	3.00	6.00
R9-11aR	24	18	SIDEWALK CLOSED → CROSS HERE				2	FLRSCNT. ORANGE	BLACK	BLACK	3.00	6.00
W1-4L	36	36					2	FLRSCNT. ORANGE	BLACK	BLACK	9.00	18.00
W1-4R	36	36					2	FLRSCNT. ORANGE	BLACK	BLACK	9.00	18.00
W4-2L	36	36					4	FLRSCNT. ORANGE	BLACK	BLACK	9.00	36.00
MA-W4-7L	36	36	THRU TRAFFIC MERGE LEFT	SEE MASSDOT 2016 STANDARD SIGNS BOOK			2	FLRSCNT. ORANGE	BLACK	BLACK	9.00	18.00
W5-1	36	36	ROAD NARROWS	SEE FHWA 2004 STANDARD HIGHWAY SIGNS MANUAL & 2012 SUPPLEMENT (ENGLISH VERSION)			7	FLRSCNT. ORANGE	BLACK	BLACK	9.00	63.00
W8-3	36	36	PAVEMENT ENDS				2	FLRSCNT. ORANGE	BLACK	BLACK	9.00	18.00
W11-2	30	30					8	FLRSCNT. ORANGE	BLACK	BLACK	6.25	50

IDENTIFICATION NUMBER	SIZE OF SIGN WIDTH (IN)	SIZE OF SIGN HEIGHT (IN)	TEXT	TEXT DIMENSIONS (in) LETTER HEIGHT	TEXT DIMENSIONS (in) VERTICAL SPACING	TEXT DIMENSIONS (in) ARROW RTE. MKR.	ESTIMATED NUMBER OF SIGNS REQUIRED	COLOR BACK-GROUND	COLOR LEGEND	COLOR BORDER	SIGN FACE AREA (S.F.)	TOTAL AREA (S.F.)
W13-1	24	24	XX M.P.H.	SEE FHWA 2004 STANDARD HIGHWAY SIGNS MANUAL & 2012 SUPPLEMENT (ENGLISH VERSION)			2	FLRSCNT. ORANGE	BLACK	BLACK	4.00	8.00
W16-7PL	24	12					6	FLRSCNT. ORANGE	BLACK	BLACK	2.00	12.00
W16-9P	24	12	AHEAD				2	FLRSCNT. ORANGE	BLACK	BLACK	2.00	4.00
W20-4	36	36	ONE LANE ROAD AHEAD				8	FLRSCNT. ORANGE	BLACK	BLACK	9.00	72.00
W20-5L	36	36	LEFT LANE CLOSED AHEAD				2	FLRSCNT. ORANGE	BLACK	BLACK	9.00	18.00
W20-5R	36	36	RIGHT LANE CLOSED AHEAD				2	FLRSCNT. ORANGE	BLACK	BLACK	9.00	18.00
W20-7a	36	36					4	FLRSCNT. ORANGE	BLACK	BLACK	9.00	36.00
MA-W20-7b	36	36	POLICE OFFICER AHEAD	SEE MASSDOT 2016 STANDARD SIGNS BOOK			8	FLRSCNT. ORANGE	BLACK	BLACK	9.00	72.00
W21-5aR	36	36	RIGHT SHOULDER CLOSED	SEE FHWA 2004 STANDARD HIGHWAY SIGNS MANUAL & 2012 SUPPLEMENT (ENGLISH VERSION)			1	FLRSCNT. ORANGE	BLACK	BLACK	9.00	9.00
MA-W21-5c	36	36	BIKE LANE CLOSED AHEAD	SEE MASSDOT 2016 STANDARD SIGNS BOOK			4	FLRSCNT. ORANGE	BLACK	BLACK	9.00	36.00
MA-M4-9cL	30	24	DETOUR ←				2	FLRSCNT. ORANGE	BLACK	BLACK	5.00	10.00
MA-M4-9cR	30	24	DETOUR →				2	FLRSCNT. ORANGE	BLACK	BLACK	5.00	10.00
MA-R2-10a	48	36	WORK ZONES SPEEDING FINES DOUBLED	SEE MASSDOT 2016 STANDARD SIGNS BOOK			5	FLRSCNT. ORANGE / WHITE	BLACK / BLACK	BLACK / BLACK	12.00	60.00
MA-R2-10e	36	48	END ROAD WORK / DOUBLE FINES END	SEE MASSDOT 2016 STANDARD SIGNS BOOK			5	FLRSCNT. ORANGE/ WHITE	BLACK	BLACK	12.00	60.00
W20-1c	36	36	ROAD WORK AHEAD	5C	3	N/A	5	FLRSCNT. ORANGE	BLACK	BLACK	9.00	45.00

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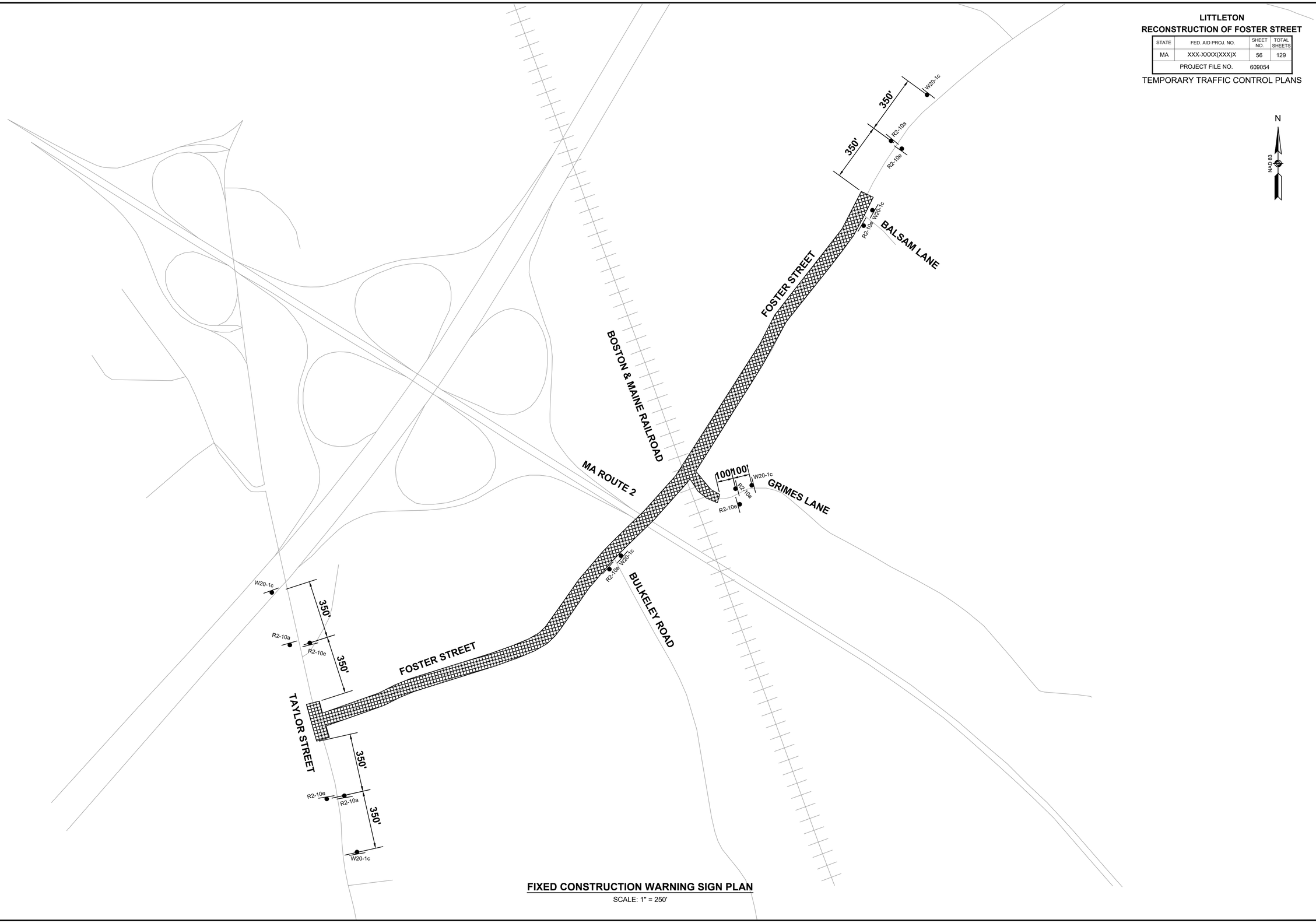
LITTLETON

RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	56	129
PROJECT FILE NO.	609054		

TEMPORARY TRAFFIC CONTROL PLANS

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FIXED CONSTRUCTION WARNING SIGN PLAN

SCALE: 1" = 250'

NOTES:

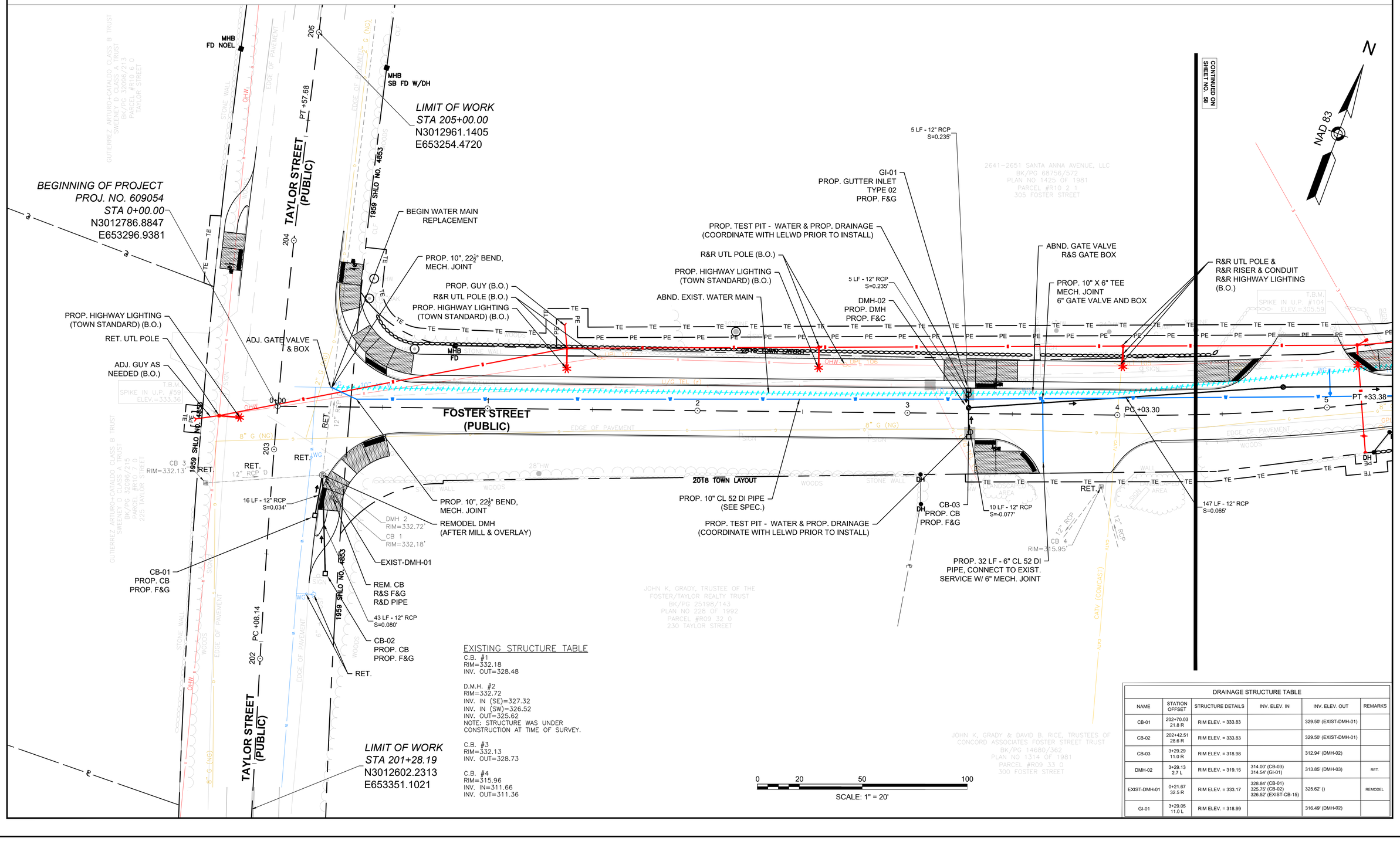
1. IF EXISTING PIPES SHOWN TO BE REMOVED ARE WITHIN THE LIMITS OF NEW PIPE TRENCH EXCAVATION, THEN THE REMOVAL COST OF THE OLD PIPES SHALL BE INCLUDED IN THE UNIT COST FOR THE NEW PIPE THAT IS BEING INSTALLED. IF PIPES SHOWN TO BE REMOVED ARE OUTSIDE THE LIMITS OF NEW PIPE TRENCH (AS DETERMINED BY THE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

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	57	129
PROJECT FILE NO.	609054		

DRAINAGE & UTILITY PLANS

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EXISTING STRUCTURE TABLE

C.B. #1
RIM=332.18
INV. OUT=328.48

D.M.H. #2
RIM=332.72
INV. IN (SE)=327.32
INV. IN (SW)=326.52
INV. OUT=325.62
NOTE: STRUCTURE WAS UNDER CONSTRUCTION AT TIME OF SURVEY.

C.B. #3
RIM=332.13
INV. OUT=328.73

C.B. #4
RIM=315.96
INV. IN=311.66
INV. OUT=311.36

DRAINAGE STRUCTURE TABLE

NAME	STATION OFFSET	STRUCTURE DETAILS	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
CB-01	202+70.03 21.8 R	RIM ELEV. = 333.83		329.50' (EXIST-DMH-01)	
CB-02	202+42.51 28.6 R	RIM ELEV. = 333.83		329.50' (EXIST-DMH-01)	
CB-03	3+29.29 11.0 R	RIM ELEV. = 318.98		312.94' (DMH-02)	
DMH-02	3+29.13 2.7 L	RIM ELEV. = 319.15	314.00' (CB-03) 314.54' (GI-01)	313.85' (DMH-03)	RET.
EXIST-DMH-01	0+21.67 32.5 R	RIM ELEV. = 333.17	328.84' (CB-01) 325.75' (CB-02) 326.52' (EXIST-CB-15)	325.62' ()	REMODEL
GI-01	3+29.05 11.0 L	RIM ELEV. = 318.99		316.49' (DMH-02)	

NOTES:
1. SEE SHEET 57 FOR GENERAL UTILITY NOTES
2. * - CONTRACTOR TO MATCH EXISTING PIPE INVERT. INVERT GIVEN IS APPROXIMATE

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	58	129
PROJECT FILE NO.	609054		

DRAINAGE & UTILITY PLANS

Plotted on 17-Nov-2020 9:06 AM
20170044A21_COLOR_UTL01.DWG

CONTINUED ON SHEET NO. 57
CONTINUED ON SHEET NO. 59

N
NAD 83

R&S GATE VALVE & BOX
PROP. HIGHWAY LIGHTING (TOWN STANDARD) (B.O.)
PROP. GUY (B.O.)
PROP. CONDUIT (B.O.)
R&R UTL POLE & R&R RISER
PROP. HANDHOLE (B.O.)
PROP. HIGHWAY LIGHTING (TOWN STANDARD) (B.O.)
PROP. CONDUIT (B.O.)
PROP. 14 LF - 6" CL 52 DI PIPE, CONNECT TO EXIST. SERVICE W/ 6" MECH. JOINT
PROP. HANDHOLE (B.O.)
REM. EX. CONDUIT (B.O.)
DEFLECT MECH. JOINT 4°
ABND. EXIST. WATER MAIN
ADJ. GG (B.O.)
REM. EX. CONDUIT (B.O.)
R&R UTL POLE & R&R RISER
PT +52.96
PT +33.38
PC +48.87
PC +03.30
DMH-03 PROP. DMH PROP. F&C
PROP. 10 " X 6" TEE MECH. JOINT 6" GATE VALVE AND BOX
R&R GUY POLE AND GUY (B.O.)
199 LF - 12" RCP S=0.096'
DEFLECT MECH. JOINT 2°
DMH-04 PROP. DMH PROP. F&C
10 LF - 12" RCP S=0.037'
PROP. TEST PIT - GAS & PROP. DRAINAGE
PROP. CB PROP. F&G
CB-04 PROP. CB PROP. F&G
REM. CB R&S F&G ABANDON PIPES
PROP. TEST PIT - WATER & PROP. DRAINAGE
CBDB-01 PROP. CBDB PROP. F&G
5 LF - 12" RCP S=0.046'
32 LF - 12" RCP S=0.032'
REM. CBDB R&S F&G ABANDON PIPES
DMH-05 PROP. DMH, PROP. F&C REM. DMH, R&S F&C
6 LF -12" RCP MATCH EXIST. PIPE
PROP. HIGHWAY LIGHTING (TOWN STANDARD) (B.O.)
R&R UTL POLE (B.O.)
REMOVE PIPES TO NEAREST JOINT
PROP. 10" CL 52 DI PIPE (SEE SPEC.)
PROP. HIGHWAY LIGHTING (TOWN STANDARD) (B.O.)
R&R UTL POLE REM. GUY (B.O.)
ABND. EXIST. WATER MAIN
REM. GUY POLE AND GUY (B.O.)
PROP. HYDRANT
PROP. 6" CL 52 DI PIPE
PROP. 10" X 6" TEE MECH. JOINT 6" GATE VALVE AND BOX
PROP. HIGHWAY LIGHTING (TOWN STANDARD) (B.O.)
R&S EXIST. HYDRANT
R&R UTL POLE
PC +29.68

FOSTER STREET (PUBLIC)

2018 TOWN LAYOUT

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

ASIJA PROPERTIES, LLC & SANDEEP ASIJA
BK/PG 70688/365
PLAN NO 1425 OF 1981
PARCEL #R10 2 A
295 FOSTER STREET

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

UNNAMED OPEN BODY OF WATER

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

DRAINAGE STRUCTURE TABLE					
NAME	STATION OFFSET	STRUCTURE DETAILS	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
CB-05	13+99.37 11.0 R	RIM ELEV. = 255.37		250.85' (DMH-06)	
CB-06	14+05.22 11.0 L	RIM ELEV. = 255.28		250.94' (DMH-06)	
DMH-06	14+11.89 6.8 L	RIM ELEV. = 255.25	250.67' (CB-06) 250.67' (CB-05)	250.57' (FE-01)	
FE-01	14+16.61 30.5 L	RIM ELEV. = 251.75	250.08' (DMH-06)		

0 20 50 100
SCALE: 1" = 20'

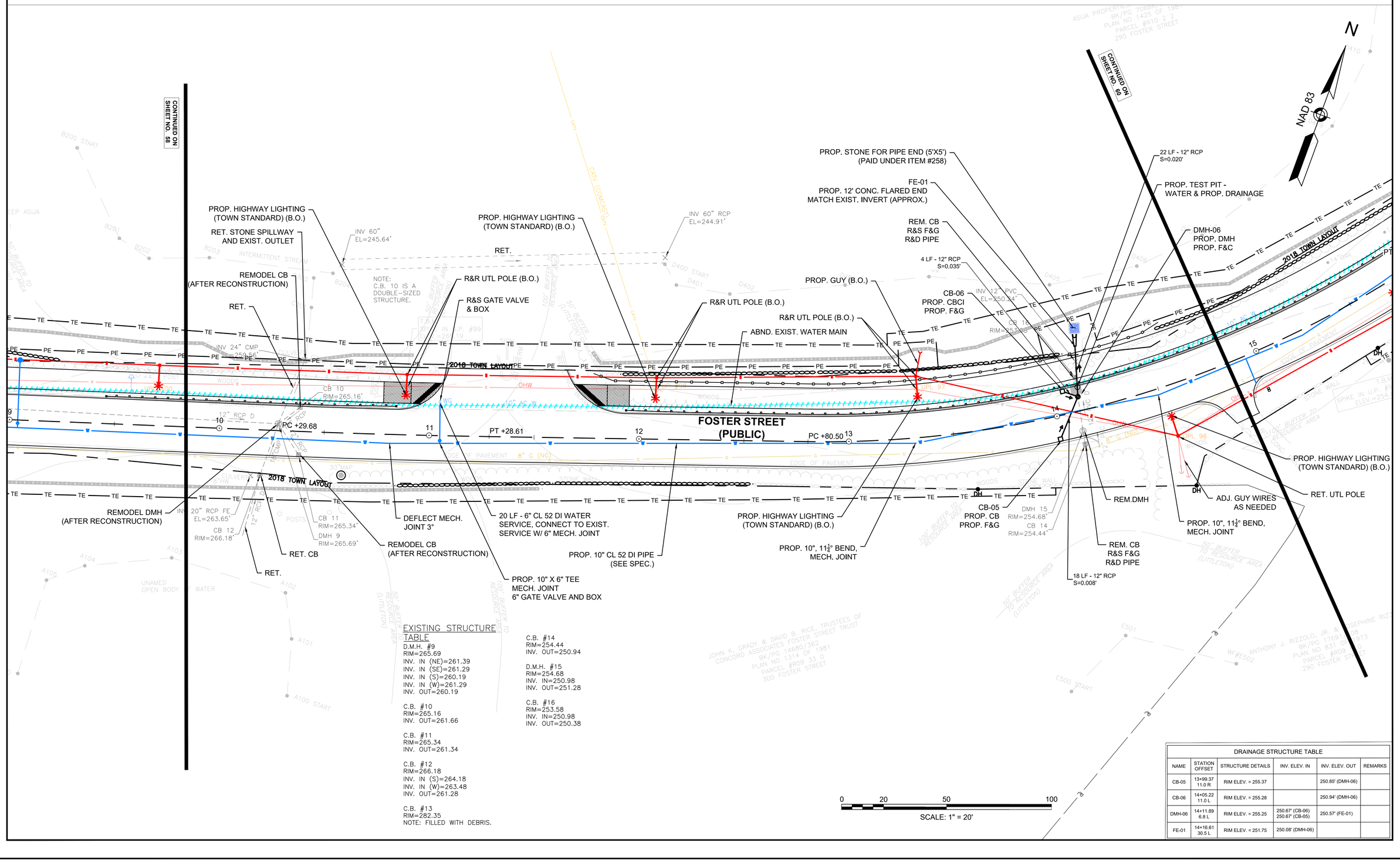
NOTES:
1. SEE SHEET 57 FOR GENERAL UTILITY NOTES
2. * - CONTRACTOR TO MATCH EXISTING PIPE INVERT. INVERT GIVEN IS APPROXIMATE

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	59	129
PROJECT FILE NO.	609054		

DRAINAGE & UTILITY PLANS

20170044A21_COLOR_UTL01.DWG Plotted on 17-Nov-2020 9:06 AM



DRAINAGE STRUCTURE TABLE

NAME	STATION OFFSET	STRUCTURE DETAILS	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
CB-05	13+99.37 11.0 R	RIM ELEV. = 255.37		250.85' (DMH-06)	
CB-06	14+05.22 11.0 L	RIM ELEV. = 255.28		250.94' (DMH-06)	
DMH-06	14+11.89 6.8 L	RIM ELEV. = 255.25	250.67' (CB-06) 250.67' (CB-05)	250.57' (FE-01)	
FE-01	14+16.61 30.5 L	RIM ELEV. = 251.75	250.08' (DMH-06)		

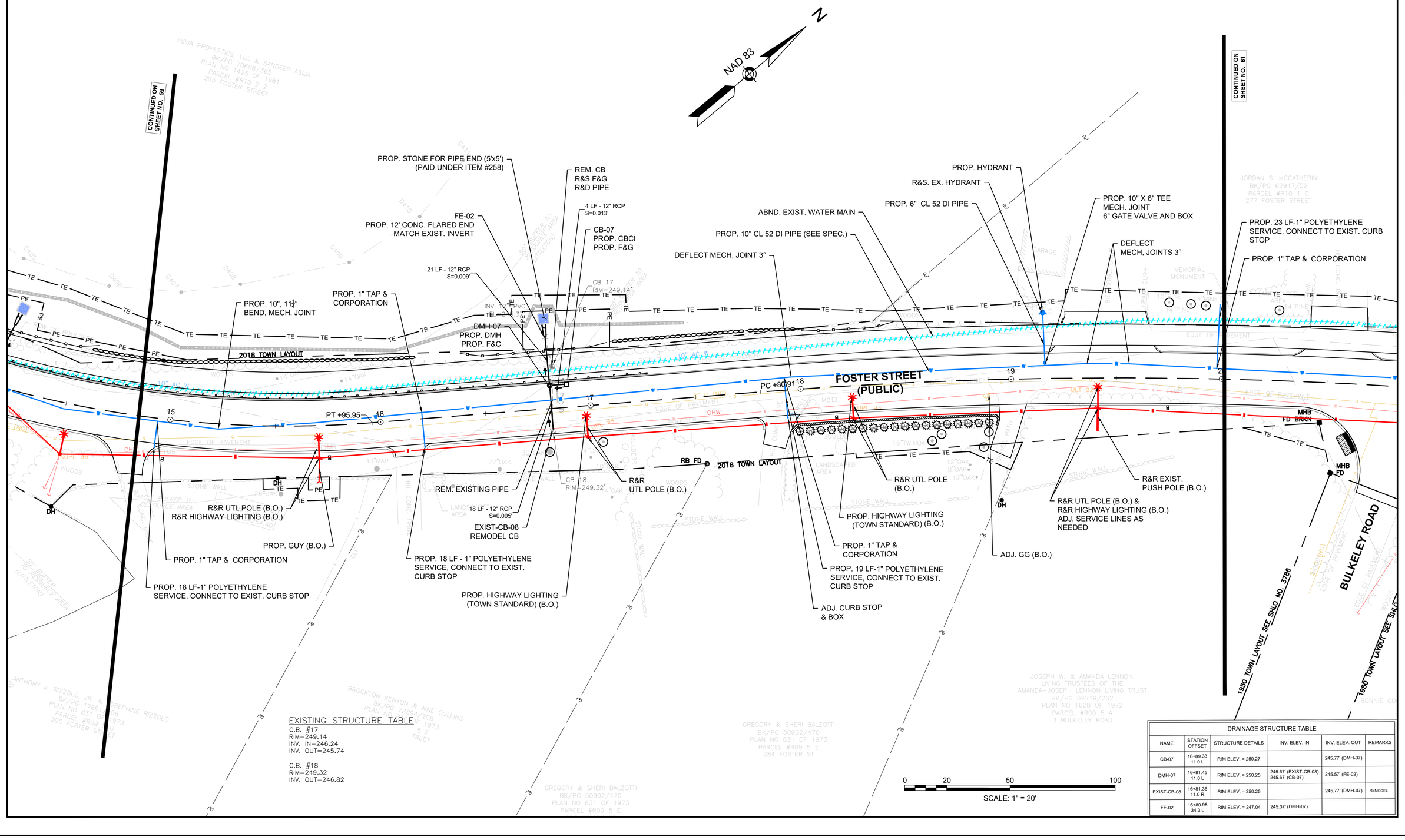
NOTES:
1. SEE SHEET 57 FOR GENERAL UTILITY NOTES
2. * - CONTRACTOR TO MATCH EXISTING PIPE INVERT. INVERT GIVEN IS APPROXIMATE

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	60	129
PROJECT FILE NO.	609054		

DRAINAGE & UTILITY PLANS

20170044A21_COLOR_UTL01.DWG Plotted on 17-Nov-2020 9:06 AM



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

DRAINAGE STRUCTURE TABLE

NAME	STATION OFFSET	STRUCTURE DETAILS	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
CB-07	16+89.33 11.0 L	RIM ELEV. = 250.27		245.77' (DMH-07)	
DMH-07	16+81.45 11.0 L	RIM ELEV. = 250.25	245.67' (EXIST-CB-08) 245.67' (CB-07)	245.57' (FE-02)	
EXIST-CB-08	16+81.36 11.0 R	RIM ELEV. = 250.25		245.77' (DMH-07)	REMODEL
FE-02	16+80.98 34.3 L	RIM ELEV. = 247.04	245.37' (DMH-07)		

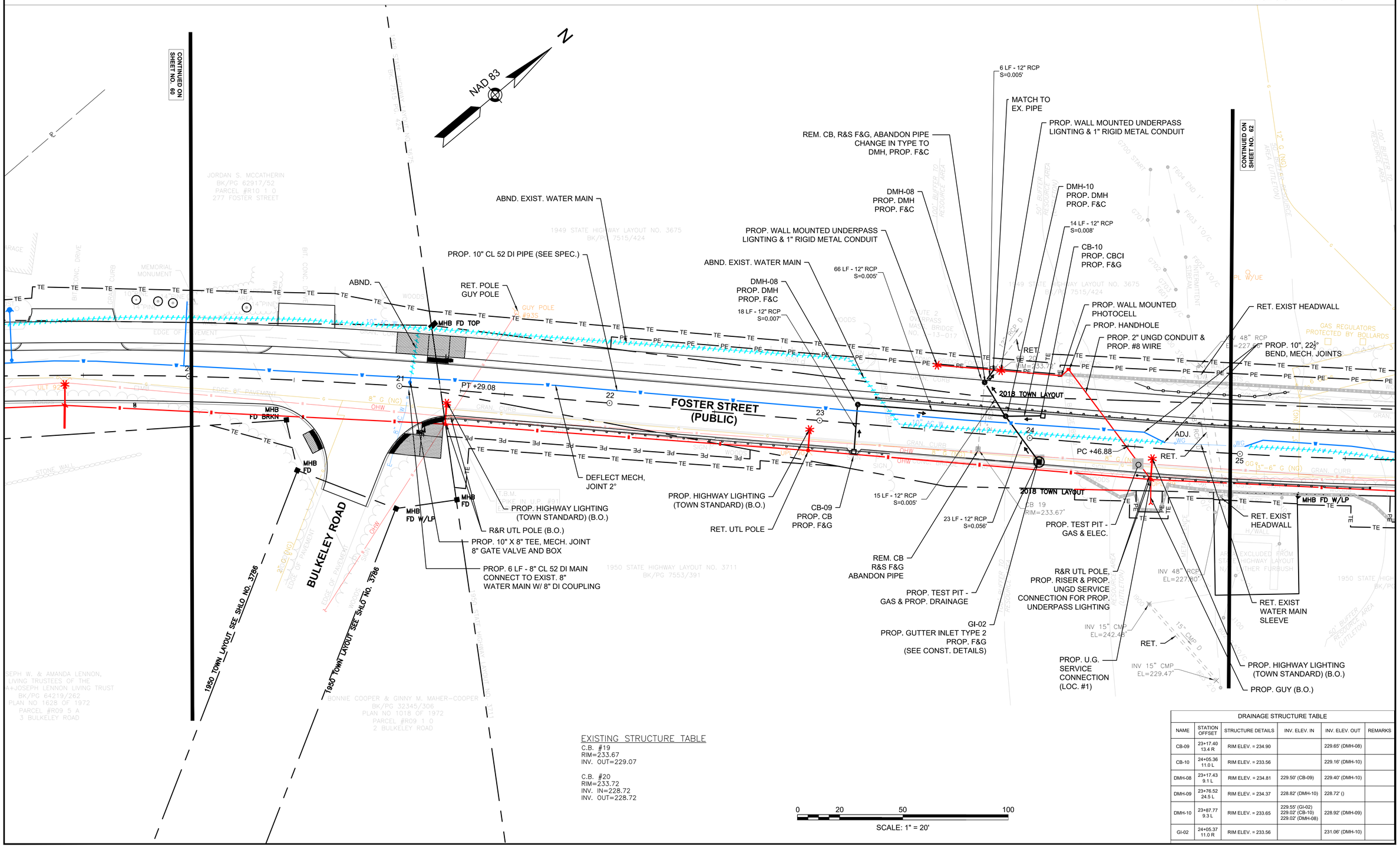
NOTES:
1. SEE SHEET 57 FOR GENERAL UTILITY NOTES
2. * - CONTRACTOR TO MATCH EXISTING PIPE INVERT. INVERT GIVEN IS APPROXIMATE

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	61	129
PROJECT FILE NO.	609054		

DRAINAGE & UTILITY PLANS

20170044A21_COLOR_UTL01.DWG Plotted on 17-Nov-2020 9:06 AM



EXISTING STRUCTURE TABLE

C.B. #19
RIM=233.67
INV. OUT=229.07

C.B. #20
RIM=233.72
INV. IN=228.72
INV. OUT=228.72

DRAINAGE STRUCTURE TABLE

NAME	STATION OFFSET	STRUCTURE DETAILS	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
CB-09	23+17.40 13.4 R	RIM ELEV. = 234.90		229.65' (DMH-08)	
CB-10	24+05.36 11.0 L	RIM ELEV. = 233.56		229.16' (DMH-10)	
DMH-08	23+17.43 9.1 L	RIM ELEV. = 234.81	229.50' (CB-09)	229.40' (DMH-10)	
DMH-09	23+76.52 24.5 L	RIM ELEV. = 234.37	228.82' (DMH-10)	228.72' ()	
DMH-10	23+87.77 9.3 L	RIM ELEV. = 233.65	229.55' (GI-02) 229.02' (CB-10) 229.02' (DMH-08)	228.92' (DMH-09)	
GI-02	24+05.37 11.0 R	RIM ELEV. = 233.56		231.06' (DMH-10)	

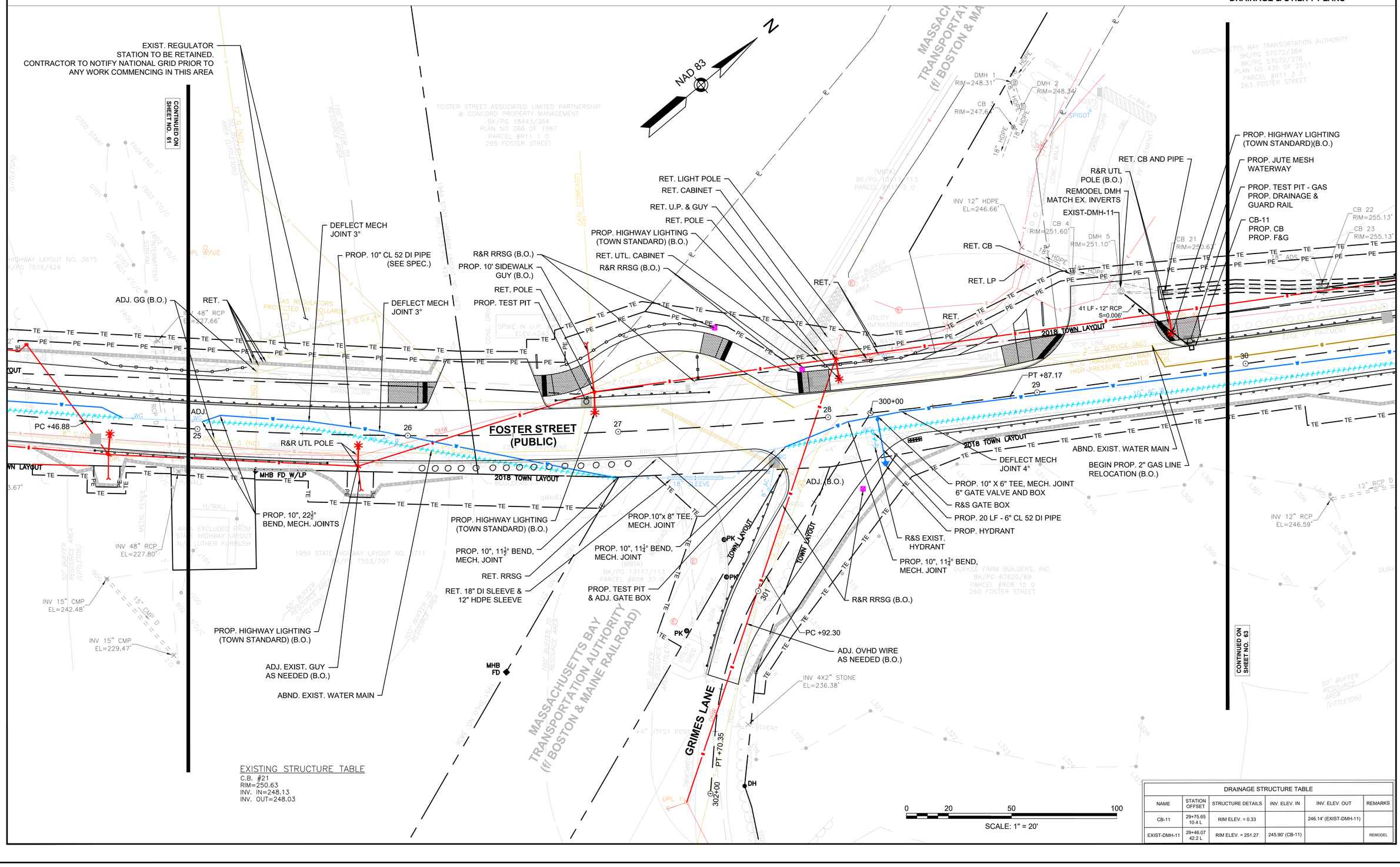
NOTES:
1. SEE SHEET 57 FOR GENERAL UTILITY NOTES
2. * - CONTRACTOR TO MATCH EXISTING PIPE INVERT. INVERT GIVEN IS APPROXIMATE

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	62	129
PROJECT FILE NO.	609054		

DRAINAGE & UTILITY PLANS

20170044A21_COLOR_UTL01.DWG Plotted on 17-Nov-2020 9:06 AM



EXISTING STRUCTURE TABLE
C.B. #21
RIM=250.63
INV. IN=248.13
INV. OUT=248.03

DRAINAGE STRUCTURE TABLE

NAME	STATION OFFSET	STRUCTURE DETAILS	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
CB-11	29+75.65 10.4 L	RIM ELEV. = 0.33		246.14' (EXIST-DMH-11)	
EXIST-DMH-11	29+46.07 42.2 L	RIM ELEV. = 251.27	245.90' (CB-11)		REMODEL

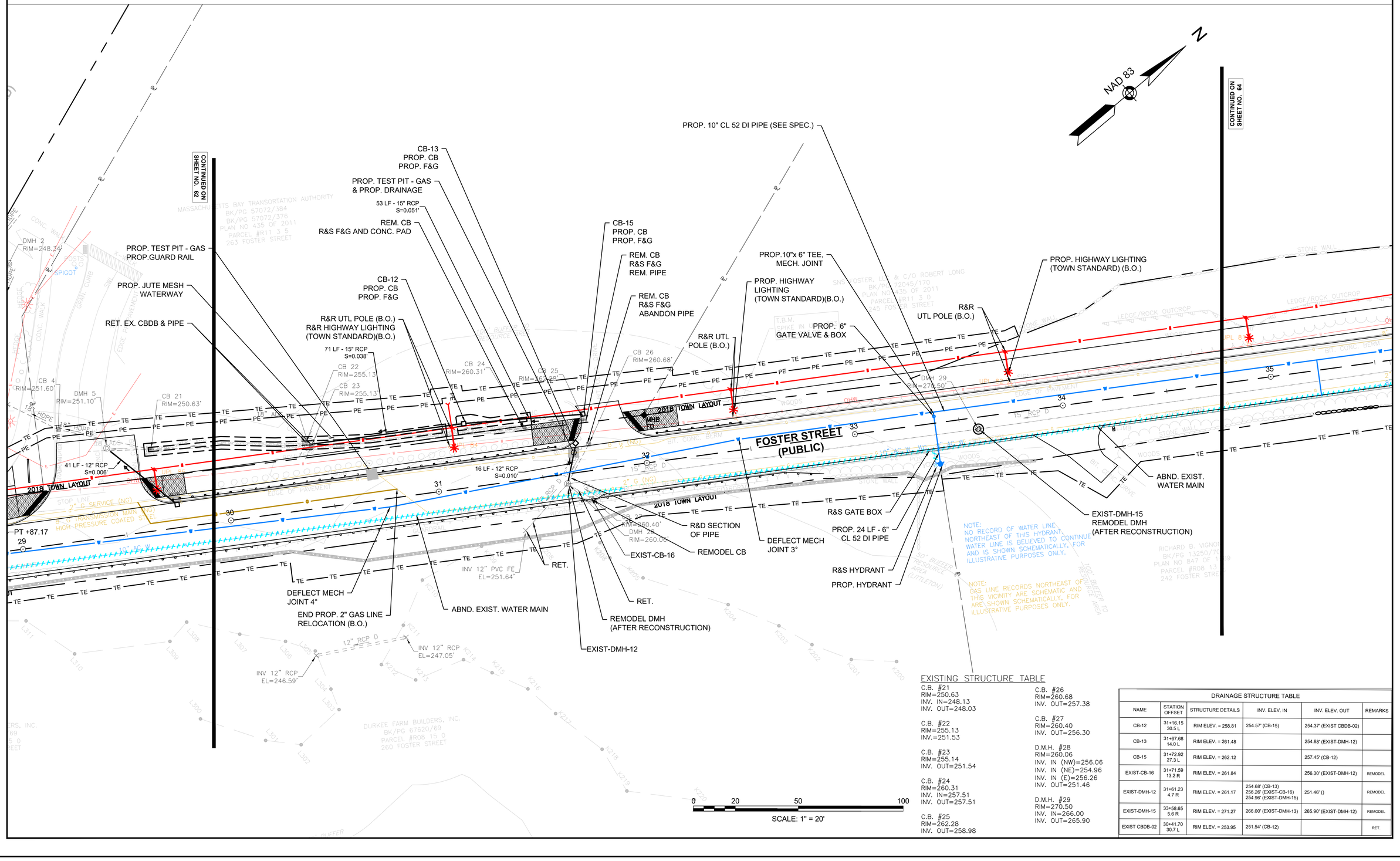
NOTES:
1. SEE SHEET 57 FOR GENERAL UTILITY NOTES
2. * - CONTRACTOR TO MATCH EXISTING PIPE INVERT. INVERT GIVEN IS APPROXIMATE

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	63	129
PROJECT FILE NO.	609054		

DRAINAGE & UTILITY PLANS

20170044A21_COLOR_UTL01.DWG Plotted on 17-Nov-2020 9:06 AM



EXISTING STRUCTURE TABLE

C.B. #21
RIM=250.63
INV. IN=248.13
INV. OUT=248.03

C.B. #22
RIM=255.13
INV.=251.53

C.B. #23
RIM=255.14
INV. OUT=251.54

C.B. #24
RIM=260.31
INV. IN=257.51
INV. OUT=257.51

C.B. #25
RIM=262.28
INV. OUT=258.98

C.B. #26
RIM=260.68
INV. OUT=257.38

C.B. #27
RIM=260.40
INV. OUT=256.30

D.M.H. #28
RIM=260.06
INV. IN (NW)=256.06
INV. IN (NE)=254.96
INV. IN (E)=256.26
INV. OUT=251.46

D.M.H. #29
RIM=270.50
INV. IN=266.00
INV. OUT=265.90

DRAINAGE STRUCTURE TABLE

NAME	STATION OFFSET	STRUCTURE DETAILS	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
CB-12	31+16.15 30.5 L	RIM ELEV. = 258.81	254.57' (CB-15)	254.37' (EXIST CBDB-02)	
CB-13	31+67.68 14.0 L	RIM ELEV. = 261.48		254.88' (EXIST-DMH-12)	
CB-15	31+72.92 27.3 L	RIM ELEV. = 262.12		257.45' (CB-12)	
EXIST-CB-16	31+71.59 13.2 R	RIM ELEV. = 261.84		256.30' (EXIST-DMH-12)	REMODEL
EXIST-DMH-12	31+61.23 4.7 R	RIM ELEV. = 261.17	254.68' (CB-13) 256.26' (EXIST-CB-16) 254.96' (EXIST-DMH-15)	251.46' ()	REMODEL
EXIST-DMH-15	33+58.65 5.6 R	RIM ELEV. = 271.27	266.00' (EXIST-DMH-13)	265.90' (EXIST-DMH-12)	REMODEL
EXIST CBDB-02	30+41.70 30.7 L	RIM ELEV. = 253.95	251.54' (CB-12)		RET.

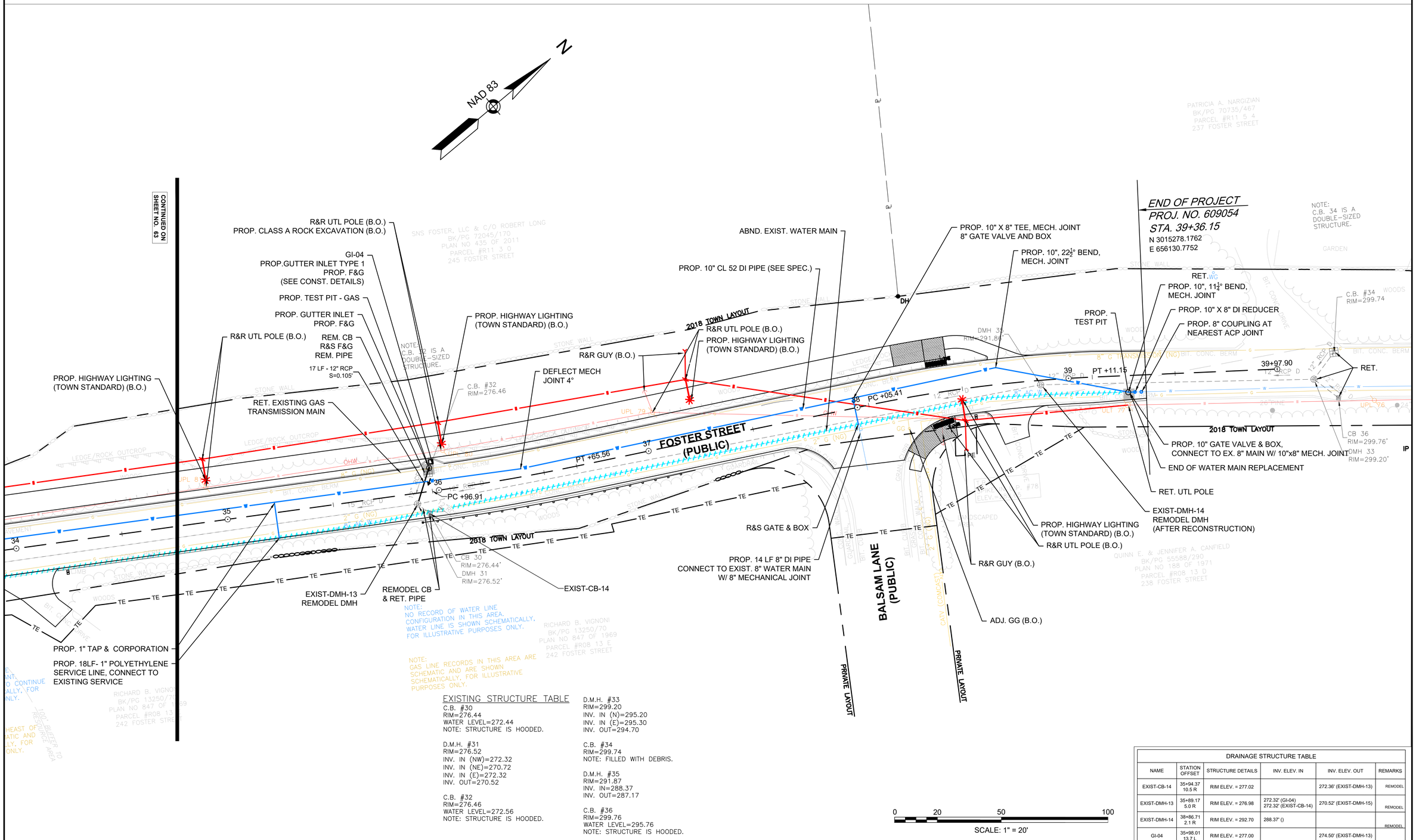
NOTES:
1. SEE SHEET 57 FOR GENERAL UTILITY NOTES
2. * - CONTRACTOR TO MATCH EXISTING PIPE INVERT. INVERT GIVEN IS APPROXIMATE

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	64	129
PROJECT FILE NO.	609054		

DRAINAGE & UTILITY PLANS

20170044A21_COLOR_UTL01.DWG Plotted on 17-Nov-2020 9:07 AM



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

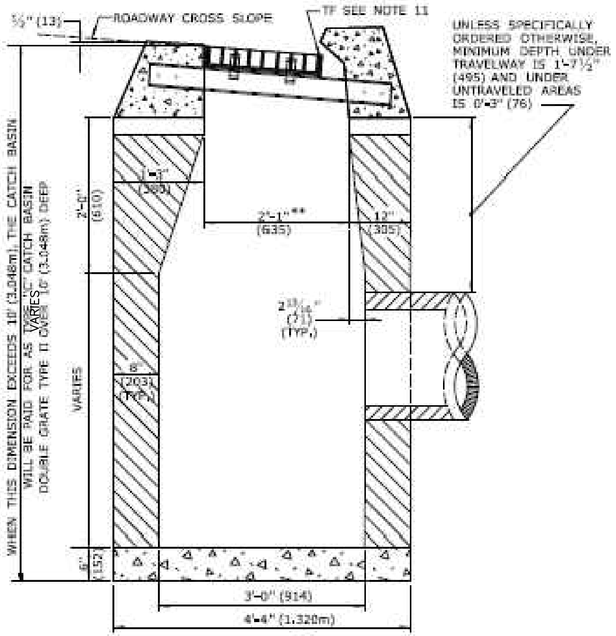
C.B. #36
RIM=299.76
WATER LEVEL=295.76
NOTE: STRUCTURE IS HOODED.

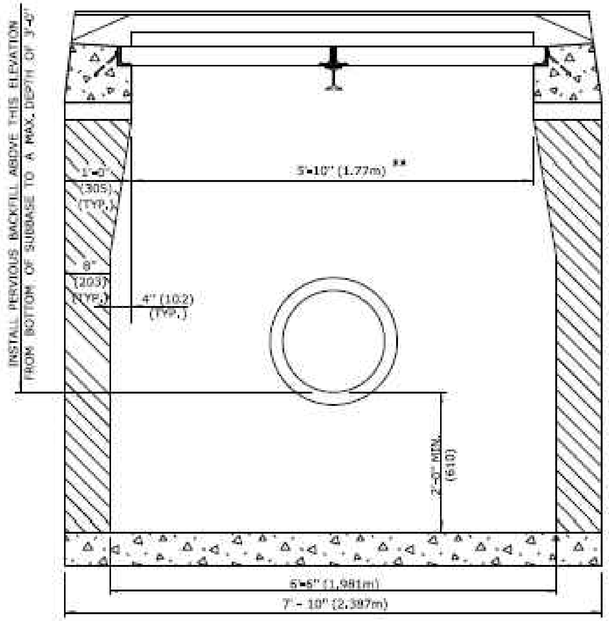
DRAINAGE STRUCTURE TABLE

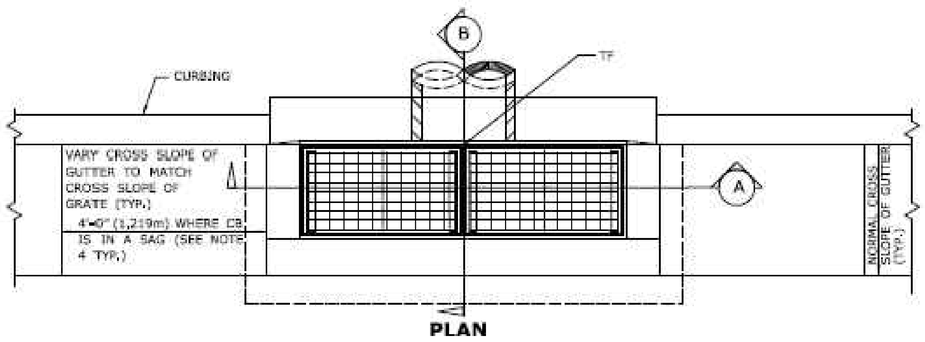
NAME	STATION OFFSET	STRUCTURE DETAILS	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
EXIST-CB-14	35+94.37 10.5 R	RIM ELEV. = 277.02		272.36' (EXIST-DMH-13)	REMODEL
EXIST-DMH-13	35+89.17 5.0 R	RIM ELEV. = 276.98	272.32' (GI-04) 272.32' (EXIST-CB-14)	270.52' (EXIST-DMH-15)	REMODEL
EXIST-DMH-14	38+86.71 2.1 R	RIM ELEV. = 292.70	288.37' ()		REMODEL
GI-04	35+98.01 13.7 L	RIM ELEV. = 277.00		274.50' (EXIST-DMH-13)	

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	65	129
PROJECT FILE NO.	609054		

DRAINAGE & UTILITY DETAILS







TYPE "C" CATCH BASIN DOUBLE GRATE - TYPE II

GENERAL NOTES:

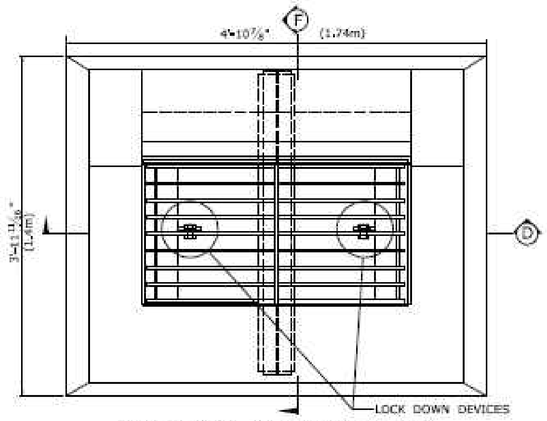
1. FOR DETAILS OF FRAME AND GRATE SEE MASSDOT STANDARD DETAILS 201.7.0-201.9.1.
2. TOP OF FRAME (TF) ELEVATION SHALL BE MEASURED IN BETWEEN BOTH GRATES AT THE GUTTER.
3. STRUCTURES AND SPACERS SHALL CONFORM TO MASSDOT STANDARD SPECIFICATIONS SECTION 200.
4. USE 6-0' ON UPGRADE SIDE OF CONTINUOUS GRADE AND 1-0' ON DOWNSIDE OF CONTINUOUS GRADE OR AS DIRECTED BY ENGINEER.
5. TO CONVEY SUBSURFACE DRAINAGE, OPENINGS SHALL BE FORMED IN THE FOUR WALLS AT OR IMEDIATELY ABOVE THE BOTTOM OF THE PERVIOUS BACKFILL.
6. SPACER MAY BE CMU OR PRECAST WITH REQUIRED REINFORCING (RECOMMENDED BY MANUFACTURERS) AS NEEDED TO PROVIDE PROPER GRADE SHOWN ON PLANS.

1 SPECIAL CATCH BASIN

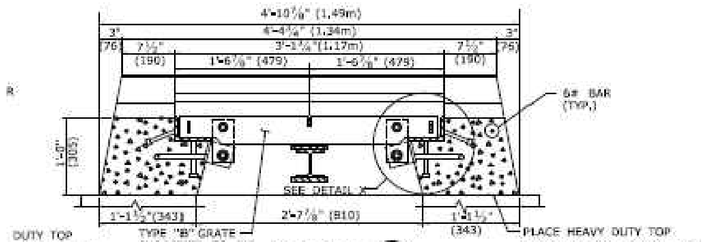
SCALE: N.T.S.

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STB: X
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17-Nov-2020
20170044A21_DET01.DWG

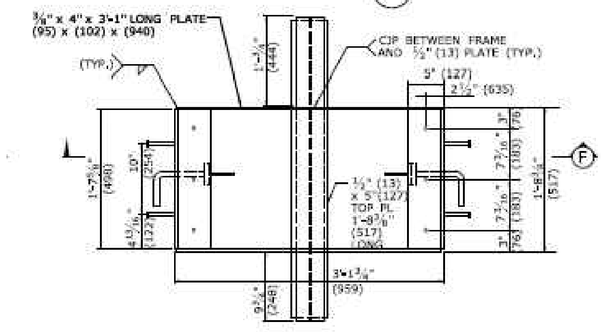
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17-Nov-2020 20170044A21_DET01.DWG



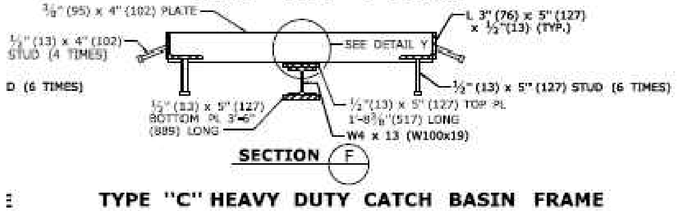
PLAN-TYPE "C" HEAVY DUTY
CATCH BASIN TOP



SECTION D



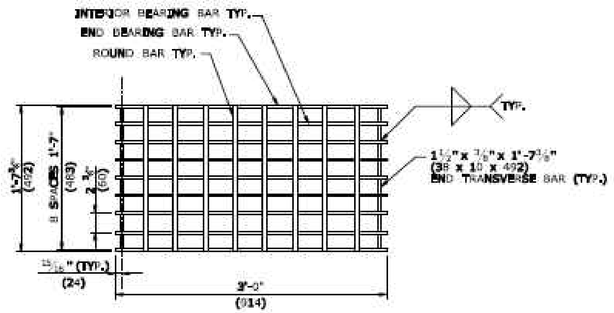
PLAN - TYPE "C" FRAME



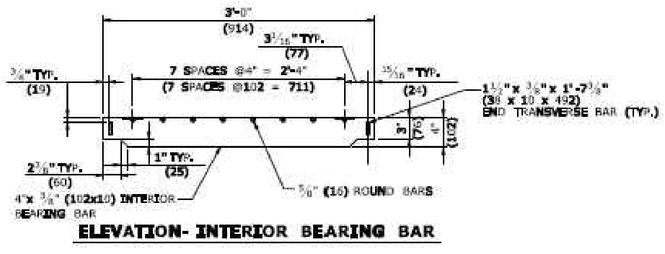
SECTION F

TYPE "C" HEAVY DUTY CATCH BASIN FRAME

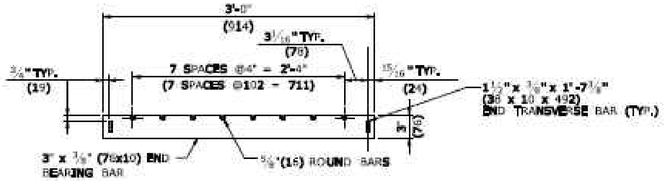
2 DOUBLE CATCH BASIN FRAME
SCALE: N.T.S.



PLAN

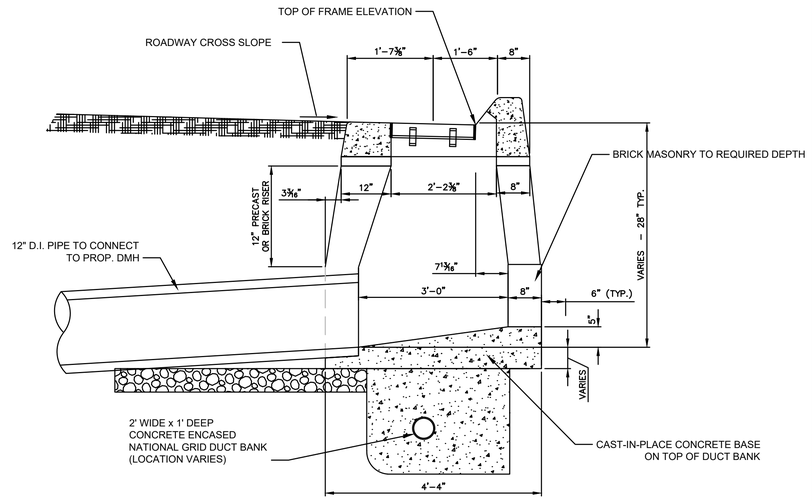


ELEVATION- INTERIOR BEARING BAR



ELEVATION- END BEARING BAR
CATCH BASIN GRATE TYPE A

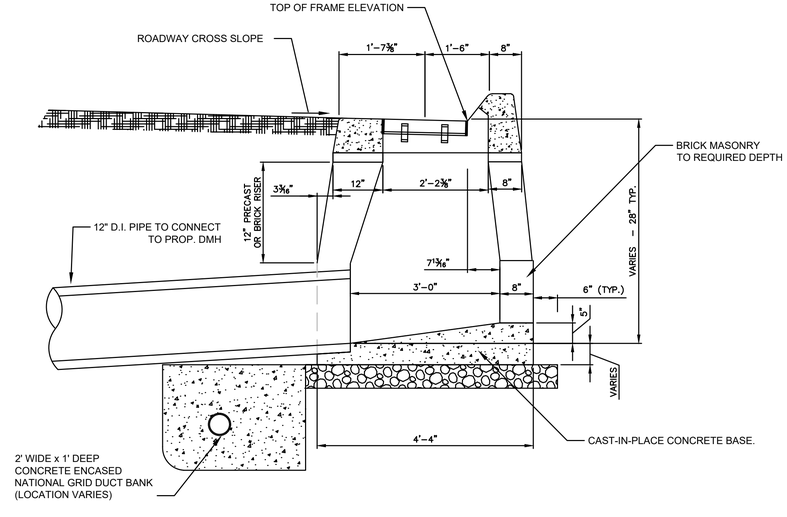
3 DOUBLE CATCH BASIN GRATE
SCALE: N.T.S.



GUTTER INLET - SPECIAL TYPE 1 GENERAL NOTES

1. 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.
2. END OF PIPE SHALL EXTEND TO AND BE CUT FLUSH WITH INSIDE FACE OF FACE OF GUTTER INLET WALL.
3. MINIMUM CONCRETE COMPRESSIVE STRENGTH OF F'c = 4000 PSI SHALL BE OBTAINED PRIOR TO SHIPPING.
4. ALL KNOCKOUTS IN PRECAST UNITS SHALL BE MADE FLUSH WITH EXTERIOR / INTERIOR OF UNITS USING CONCRETE, BRICKS AND MORTAR.
5. LATEST MASSDOT STANDARD SPECIFICATIONS AND SUPPLEMENTALS SHALL GOVERN.

4 GUTTER INLET – SPECIAL TYPE 1
SCALE: N.T.S.

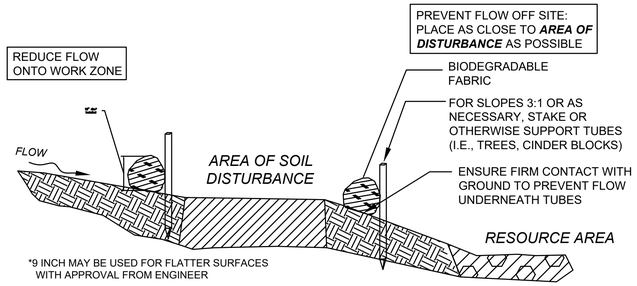


5 GUTTER INLET – SPECIAL TYPE 2
SCALE: N.T.S.

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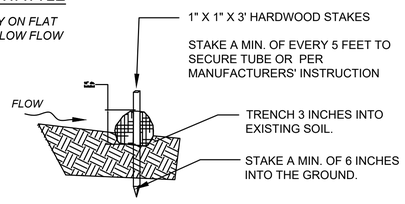
20170044A21_DET01.DWG 17-Nov-2020

COMPOST FILTER TUBE

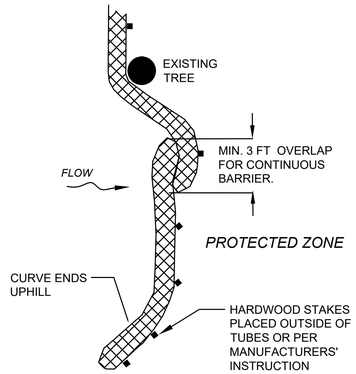


12 INCH STRAW WATTLE

TO BE USED ONLY ON FLAT SURFACES WITH LOW FLOW



SECTION



PLACE TUBE ALONG CONTOURS AND PERPENDICULAR TO FLOW.

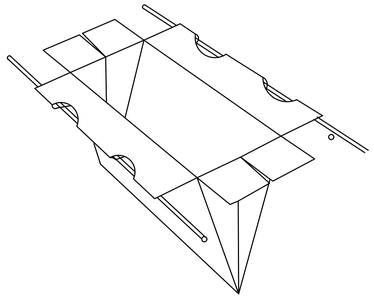
ADJUST LOCATION AS REQUIRED FOR OPTIMUM EFFECTIVENESS. DO NOT INSTALL IN WATERWAYS.

PLACE STAKES AS NEEDED TO SECURE TUBES IN PLACE.

PLAN VIEW

6 SEDIMENT BARRIERS – COMPOST FILTER TUBES

SCALE: N.T.S.

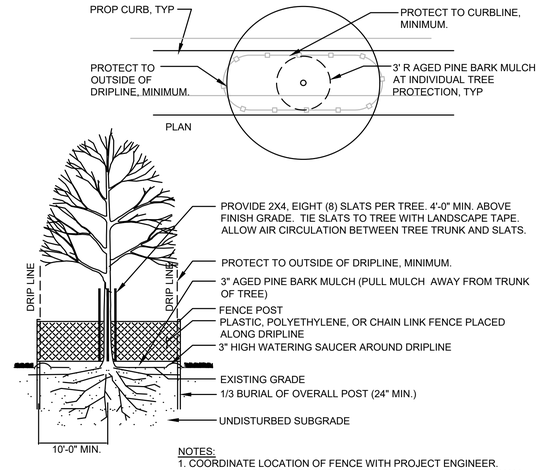


NOTES:

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.

7 CATCH BASIN SILT SACK

SCALE: N.T.S.

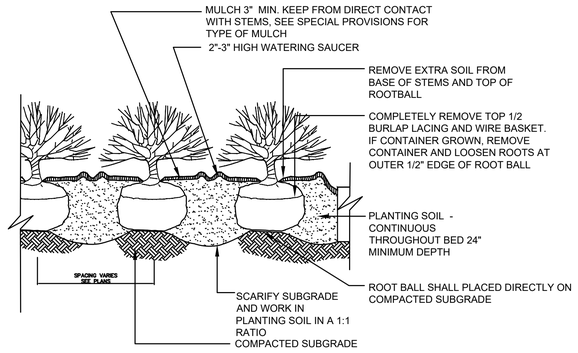


NOTES:
1. COORDINATE LOCATION OF FENCE WITH PROJECT ENGINEER.
2. IF EXCAVATION OCCURS WITHIN DRIPLINE, EXISTING ROOTS SHALL BE CLEANLY CUT PRIOR TO EXCAVATION BY A CERTIFIED ARBORIST AND TREES SHALL BE WATERED.

8 INDIVIDUAL TREE PROTECTION

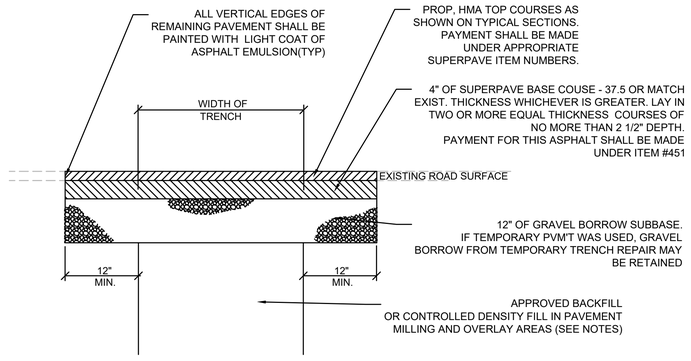
SCALE: N.T.S.

NOTES:
1. TOPSOIL SHALL HAVE A PH RANGE OF 5.5 TO 7 WITH A MINIMUM 2 PERCENT ORGANIC MATERIAL CONTENT. AMEND WITH SOIL AMENDMENTS AS NECESSARY.
2. NO PRUNING OR CUTTING UNLESS DIRECTED BY THE ENGINEER.
3. SAUCER SHALL BE FLOODED TWICE DURING THE FIRST 24 HOURS AFTER PLANTING.
4. PLANTS SHALL BE SET PLUMB AND PLANTED SO THAT THE TOP OF THE ROOTBALL IS 1"-2" ABOVE FINSHED GRADE.
5. COORDINATE PLANTING WITH RESIDENT ENGINEER PRIOR TO INSTALLATION.



9 SHRUB AND PERENNIAL PLANTING

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

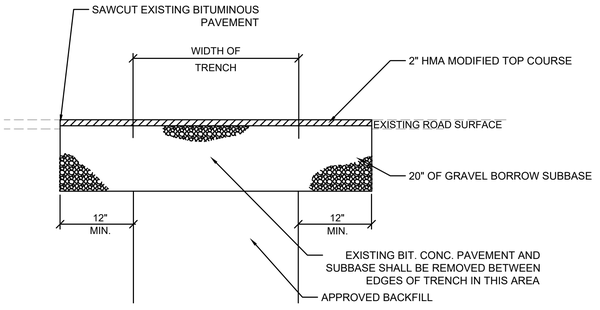
ROADWAY TRENCHING OUTSIDE OF FULL DEPTH AND OVERLAY: THE TRENCH SHALL BE REPAIRED WITH TOP COURSES INSTALLED WITH THE BASE COURSE.

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

PERMANENT ASHPALT SHALL BE PAID FOR UNDER ITEM #451.

10 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 ASHPALT SHALL BE PAID FOR UNDER ITEM #472

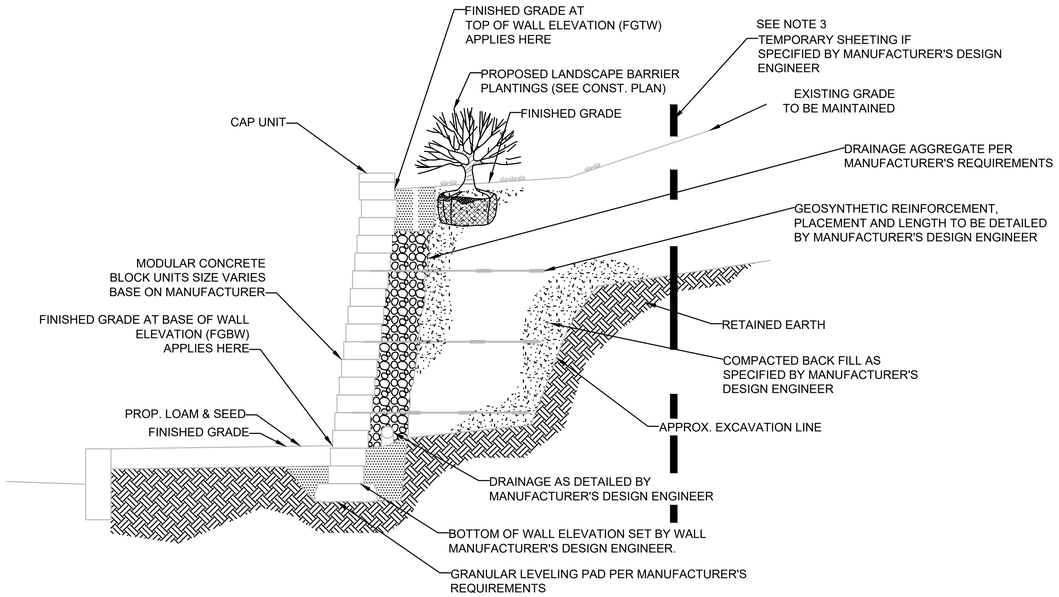
11 TEMPORARY PAVEMENT TRENCH REPAIR

SCALE: N.T.S.

STB: X
LMAN: X
MS VIEW: X
UCS: X

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	68	129
PROJECT FILE NO.	609054		

CONSTRUCTION DETAILS



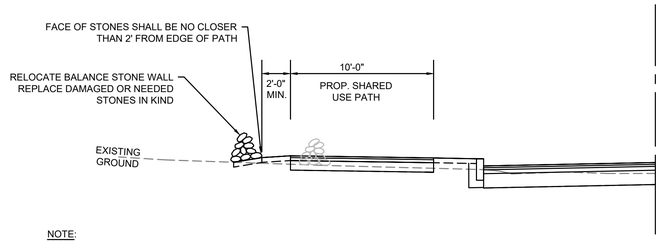
TYPICAL SECTION

NOTES

1. DETAILS AND NOTES HEREON ARE GENERIC AND ARE INTENDED TO GIVE A GENERAL DESCRIPTION OF THE WALL.
2. DETAILED WALL CONSTRUCTION PLANS, STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE COMMONWEALTH OF MASSACHUSETTS, SHALL BE SUBMITTED TO AND APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION.
3. MANUFACTURER'S USE OF TEMPORARY SHEETING SHALL BE FOR CONTRACTOR CONVIENIENCE ONLY. ANY TEMPORARY SHEETING USED SHALL BE PAID FOR AT THE EXPENSE OF THE CONTRACTOR.
4. SEE CONTRACT SPECIAL PROVISIONS FOR WALL FINISHES, COLOR, AND WALL FACE TREATMENTS

12 MECHANICALLY STABILIZED EARTH WALL

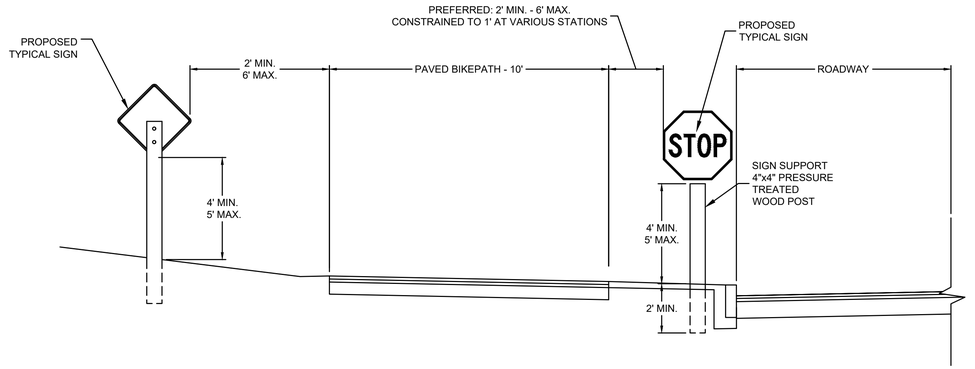
SCALE: N.T.S.



NOTE:
STONE WALL WIDTH AND HEIGHT ARE VARIABLE IN WALL REPLACEMENT AREAS. REPLACE IN KIND AT LOCATIONS SHOWN ON THE CONSTRUCTION PLANS.

13 BALANCE STONE WALL REMOVED AND REBUILT, DRY

SCALE: N.T.S.



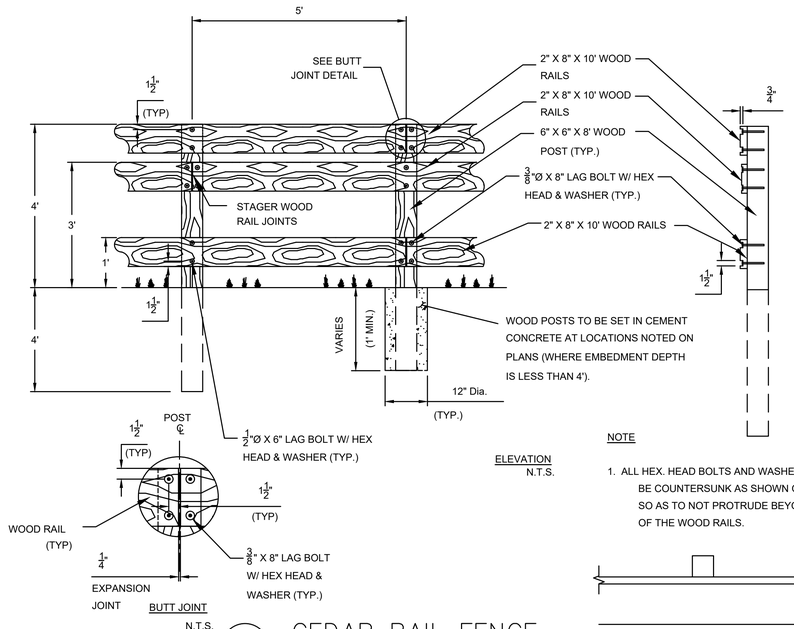
14 SHARED-USE PATH TYPICAL SIGN PLACEMENT

SCALE: N.T.S.

NOTES:
1. ALL HARDWARE SHALL BE GALVANIZED.
2. WOOD POSTS SHALL BE PAID FOR UNDER ITEM 847.11*.

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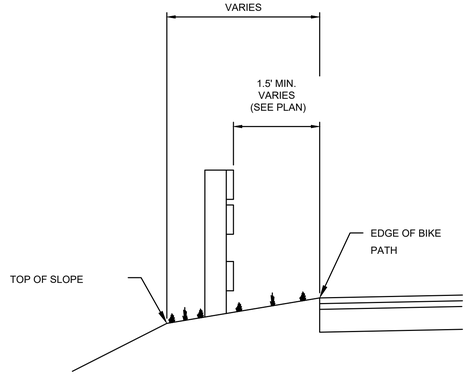
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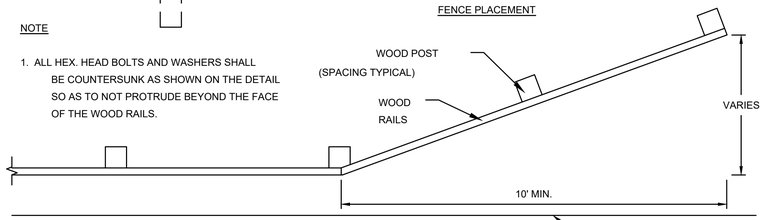
NOTE

1. ALL HEX. HEAD BOLTS AND WASHERS SHALL BE COUNTERSUNK AS SHOWN ON THE DETAIL SO AS TO NOT PROTRUDE BEYOND THE FACE OF THE WOOD RAILS.

BUTT JOINT
N.T.S.



FENCE PLACEMENT

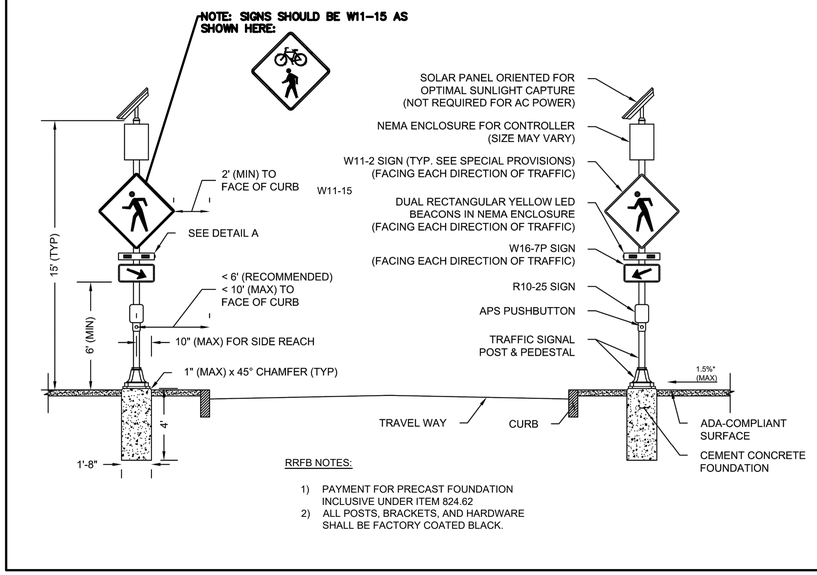


PLAN VIEW

END TREATMENT

15 CEDAR RAIL FENCE

SCALE: N.T.S.



RRFB NOTES:

1) PAYMENT FOR PRECAST FOUNDATION INCLUSIVE UNDER ITEM 824.62
2) ALL POSTS, BRACKETS, AND HARDWARE SHALL BE FACTORY COATED BLACK.

NOTES:

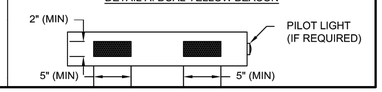
1. CROSSWALK AND ADA-COMPLIANT RAMPS NOT SHOWN. SEE PLANS FOR LOCATIONS.
2. REFER TO THE SPECIAL PROVISIONS FOR SIGN DIMENSIONS.
3. ALL CONDUIT, PULL BOXES, SERVICE CONNECTIONS, AND EQUIPMENT GROUNDING REQUIRED FOR AC POWER IS NOT SHOWN IN THIS DETAIL AND SHALL BE PAID FOR SEPARATELY UNDER THEIR RESPECTIVE PAY ITEMS.
4. ACCESS TO ALL PEDESTRIAN ACTUATED CONTROLS SHALL BE ADA/AAB COMPLIANT.
5. *0.5% CONSTRUCTION TOLERANCE FOR CROSS-SLOPE.

MAJOR ITEMS LIST

- 2 CEMENT CONCRETE FOUNDATIONS PER 812.30.1
- 2 15' TRAFFIC SIGNAL POSTS & PEDESTALS
- 2 APS PUSHBUTTON SYSTEMS
- 4 DUAL RECTANGULAR YELLOW LED BEACONS IN NEMA ENCLOSURES
- 2 R10-25 SIGNS
- 4 W11-2 SIGNS
- 2 W16-7PR SIGNS
- W11-15 SIGNS
- 2 SOLAR PANEL SYSTEMS (NOT REQUIRED FOR AC POWER)
- 2 NEMA ENCLOSURES FOR ALL COMPONENTS NEEDED TO MEET FUNCTIONAL REQUIREMENTS PER SPECIAL PROVISIONS
- 2 BATTERY SYSTEMS (NOT REQUIRED FOR AC POWER)

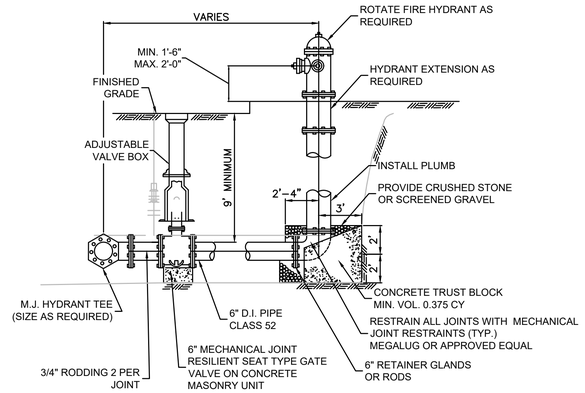
PLUS ALL MOUNTING AND SUPPORTING HARDWARE AND WIRING NECESSARY TO COMPLETE A WORKING SYSTEM.

DETAIL A: DUAL YELLOW BEACON



16 RECTANGULAR RAPID FLASHING BEACON (RRFB)

SCALE: N.T.S.



HYDRANT AND VALVE DETAIL

1) HYDRANT SHALL BE YELLOW
2) HYDRANT OPENS TO THE LEFT
3) LEAVE HYDRANT DRAINS OPEN

17 HYDRANT AND VALVE DETAIL

SCALE: N.T.S.



NOTES

1. MADE FOR APPLICATION TO TRAFFIC TUNNELS & UNDERPASSES
2. DIMENSIONS (1.9 x 4.3 x 78.7 in)
3. HOUSING: ALUMINUM WITH GLASS COVER
4. LIGHT SOURCE: INTEGRAL LED MODULE
5. POWER:(102W)
6. LUMINOUS FLUX (14,400 LM)
7. COLOR: NW (4000K)
8. OPERATING TEMPERATURE RANGE (-22° to 113° F)
9. DRIVER: SEPARATE (NON-SELF BALLASTED LED MODULE)

18 LED UNDERPASS LIGHTING

SCALE: N.T.S.

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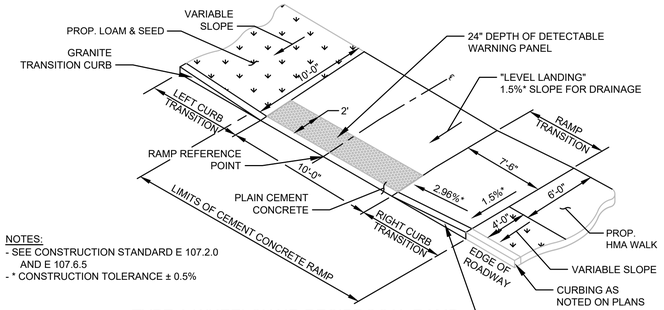
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LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	71	129
PROJECT FILE NO.	609054		

WHEELCHAIR RAMP DETAILS

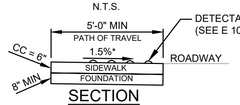
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20170044A21_DET01.DWG



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

TYPE A WHEELCHAIR RECIPROCAL RAMP ON ROADWAY TANGENT

N.T.S.

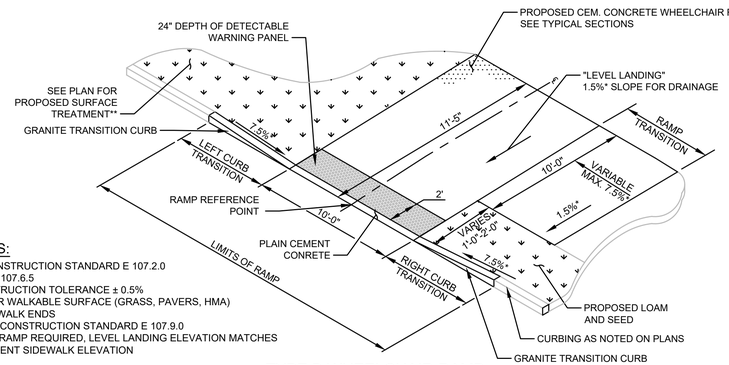


SECTION

N.T.S.

WCR#	RAMP REFERENCE POINT		LEFT SIDE TRANSITION			RIGHT SIDE TRANSITION		
	STATION/ ROADWAY	OFFSET	CURB LENGTH	ROADWAY GUTTER GRADE	CURB REVEAL	CURB LENGTH	ROADWAY GUTTER GRADE	CURB REVEAL	RAMP LENGTH
A1	203+88.54 TAYLOR ST	23.24 LT	5'-6"	2.95%	6"	7'-6"	-2.94%	6"	7'-6"

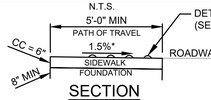
(-) REPRESENTS THE LOW SIDE TRANSITION



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 B WHEELCHAIR RAMP

N.T.S.

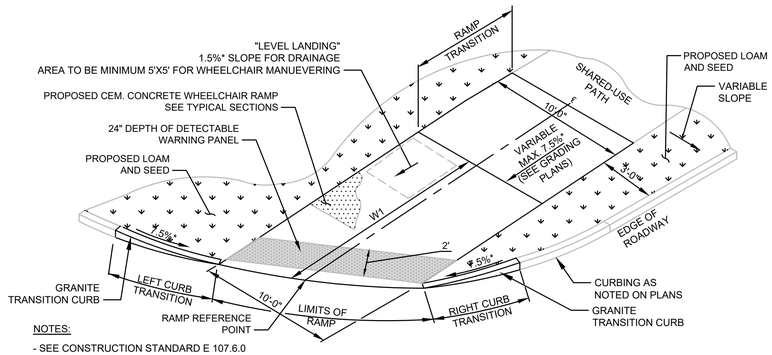


SECTION

N.T.S.

WCR#	RAMP REFERENCE POINT		LEFT SIDE TRANSITION			RIGHT SIDE TRANSITION			
	STATION/ ROADWAY	OFFSET	CURB LENGTH	ROADWAY GUTTER GRADE	CURB REVEAL	CURB LENGTH	ROADWAY GUTTER GRADE	CURB REVEAL	RAMP LENGTH
B1	203+88.11 TAYLOR ST	22.95 LT	5'-6"	3.13%	6"	7'-6"	-3.04%	6"	7'-6"

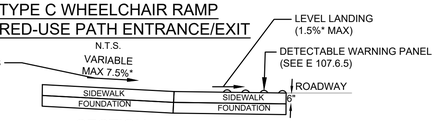
(-) REPRESENTS THE LOW SIDE TRANSITION



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 C WHEELCHAIR RAMP SHARED-USE PATH ENTRANCE/EXIT

N.T.S.

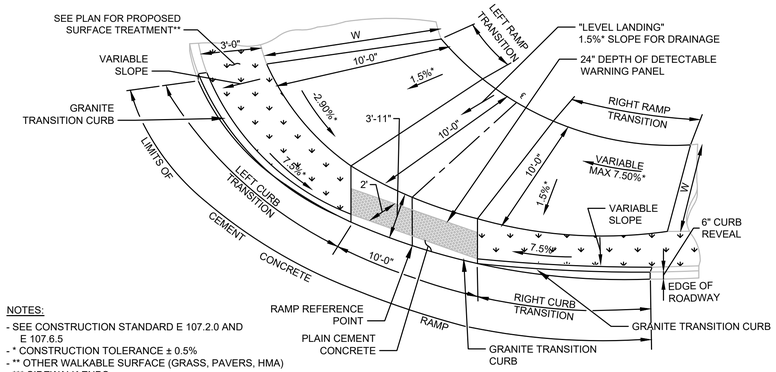


SECTION

N.T.S.

WCR#	RAMP REFERENCE POINT		LENTH OF PRIMARY RAMP (W1)	CORNER RADIUS	RAMP TRANSITION	LEFT SIDE CURB TRANSITION				RIGHT SIDE CURB TRANSITION			
	STATION/ ROADWAY	OFFSET				CURB CURVE LENGTH	CURB STRAIGHT LENGTH	ROADWAY GUTTER GRADE	CURB REVEAL	CURB CURVE LENGTH	CURB STRAIGHT LENGTH	ROADWAY GUTTER GRADE	CURB REVEAL
C1	4+64.35 FOSTER ST	19.88 LT	10'-7"	25'	15'-0"	13'-6"	7'-3"	1.22%	6"	-	7'-6"	-1.52%	6"
C2	5+16.31 FOSTER ST	20.00 LT	11'-8"	25'	15'-0"	4'-4"	2'-4"	10.92%	6"	11'-8"	-	-8.39%	6"
C3	11+02.50 FOSTER ST	20.00 LT	11'-7"	25'	13'-0"	6'-4"	3'-7"	2.17%	6"	7'-8"	-	-3.53%	6"
C4	11+72.67 FOSTER ST	20.00 LT	12'-0"	30'	10'-6"	5'-8"	1'-10"	-0.09%	6"	8'-7"	-	-1.95%	6"
C5	26+11.93 FOSTER ST	20.68 LT	7'-0"	-	14'-0"	6'-2"	-	0.01%	6"	-	4'-10"	-0.80%	6"
C6	26+62.34 FOSTER ST	22.87 LT	7'-3"	-	15'-0"	-	6'-10"	-6.70%	6"	6'-2"	2'-11"	3.18%	6"
C7	29+61.28 FOSTER ST	20.56 LT	8'-11"	15'	10'-6"	1'-7"	10'-0"	6.25%	6"	6'-3"	-	4.05%	6"
C8	31+71.06 FOSTER ST	20.48 LT	8'-4"	13'	15'-0"	9'-9"	-	-8.18%	6"	-	-	-8.64%	-
C9	31+93.14 FOSTER ST	20.73 LT	9'-3"	16'	12'-0"	-	-	7.05%	6"	10'-9"	-	3.48%	6"

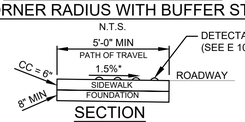
(-) REPRESENTS THE LOW SIDE TRANSITION



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 E WHEELCHAIR RAMP ON CORNER RADIUS WITH BUFFER STRIP

N.T.S.

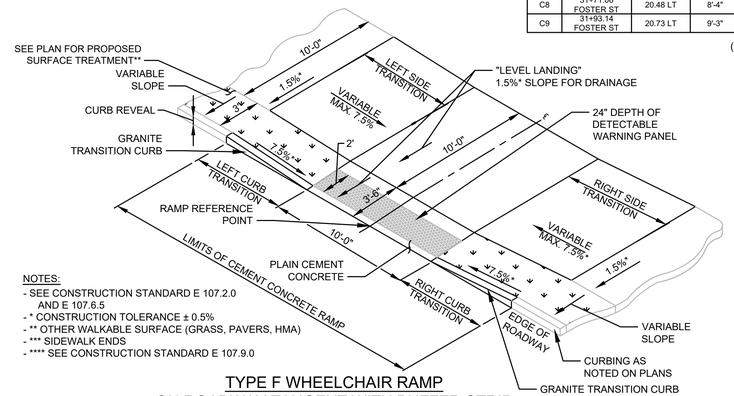


SECTION

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	ROADWAY GUTTER GRADE	CURB REVEAL	RAMP LENGTH	CURB LENGTH	ROADWAY GUTTER GRADE	CURB REVEAL	RAMP LENGTH
E1	0+46.14 FOSTER ST	18.04 LT	10'-0"	3'-0"	10'-0"	4'-9"	40'	14'-7"	0.75%	6"	7'-6"	11-9"	1.50%	6"	9'-0"

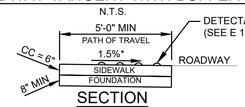
(-) REPRESENTS THE LOW SIDE TRANSITION



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 F WHEELCHAIR RAMP ON ROADWAY TANGENT WITH BUFFER STRIP

N.T.S.



SECTION

N.T.S.

WCR#	RAMP REFERENCE POINT		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
F1	3+37.50 FOSTER ST	12.00 LT	15'-0"	5.71%	6"	15'-0"	10'-0"	-5.79%	6"	10'-0"
F2	21+17.29 FOSTER ST	12.00 LT	15'-0"	6.53%	6"	15'-0"	7'-6"	-6.31%	6"	7'-6"

(-) REPRESENTS THE LOW SIDE TRANSITION

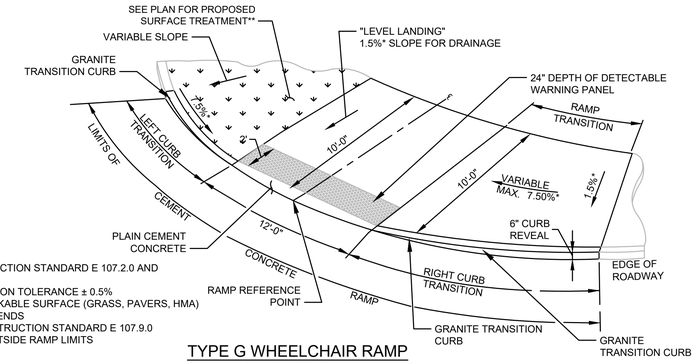
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UCS: X

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	72	129
PROJECT FILE NO.	609054		

DRIVEWAY DETAILS

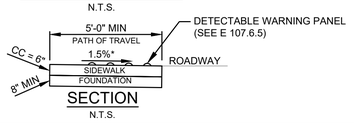
20170044A21_DET01.DWG 17-Nov-2020



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 G WHEELCHAIR RAMP ON CORNER RADIUS

N.T.S.

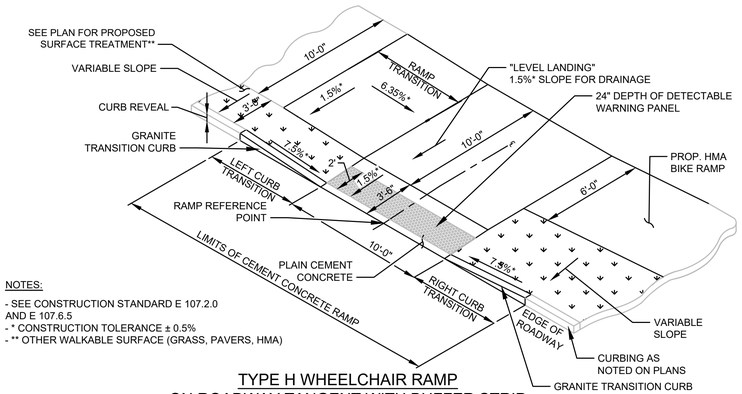


SECTION

N.T.S.

WCR#	RAMP REFERENCE POINT		WIDTH OF SIDEWALK (W)	WIDTH OF RAMP ENTRANCE (5'-0" MIN.)	LENGTH OF PRIMARY RAMP (VT)	CORNER RADIUS	LEFT SIDE TRANSITION			RIGHT SIDE TRANSITION			
	STATION/ ROADWAY	OFFSET					CURB LENGTH	ROADWAY GUTTER GRADE	CURB REVEAL	CURB LENGTH	ROADWAY GUTTER GRADE	CURB REVEAL	RAMP LENGTH
G1	0+46.14 FOSTER ST	14.29 RT	10'-0"	12'-0"	10'-6"	40'	7'-2"	-1.66%	6"	11-9"	1.49%	6"	10'-10"
G2	38+38.59 FOSTER ST	12.69 RT	10'-0"	12'-0"	10'-6"	30'	5'-6"	6.86%	6"	11-9"	-9.01%	6"	10'-8"

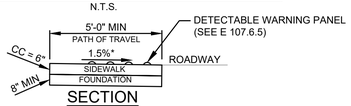
(-) REPRESENTS THE LOW SIDE TRANSITION



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

TYPE H WHEELCHAIR RAMP ON ROADWAY TANGENT WITH BUFFER STRIP

N.T.S.

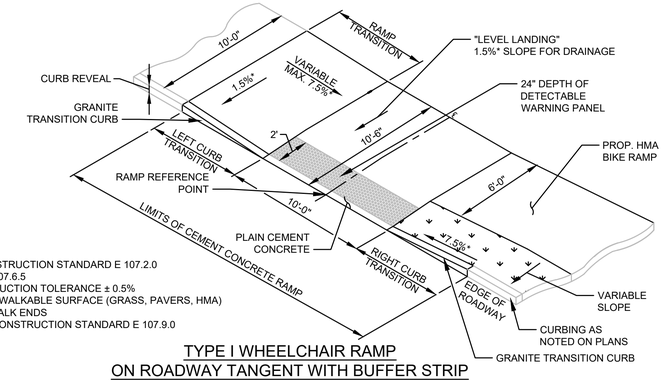


SECTION

N.T.S.

WCR#	RAMP REFERENCE POINT		WIDTH OF RAMP ENTRANCE (5'-0" MIN.)	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
H1	38+39.60 FOSTER ST	12.00 LT	10'-0"	15'-0"	-6.59%	6"	15'-0"	5'-6"	6.21%	6"	-

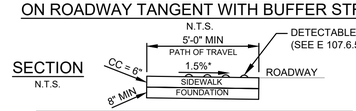
(-) REPRESENTS THE LOW SIDE TRANSITION



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 I WHEELCHAIR RAMP ON ROADWAY TANGENT WITH BUFFER STRIP

N.T.S.

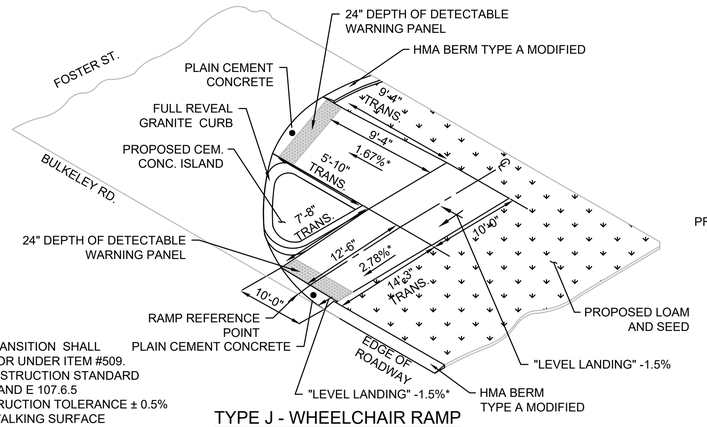


SECTION

N.T.S.

WCR#	RAMP REFERENCE POINT		RAMP TRANSITION			
	STATION/ ROADWAY	OFFSET	CURB LENGTH	ROADWAY GUTTER GRADE	CURB REVEAL	RAMP LENGTH
I1	202+78.73	23.72 RT	12'-10"	-3.57%	6"	9'-6"

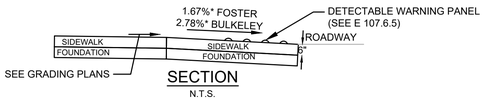
(-) REPRESENTS THE LOW SIDE TRANSITION



NOTES:
- CURB TRANSITION SHALL BE PAID FOR UNDER ITEM #509.
- SEE CONSTRUCTION STANDARD E 107.6.9 AND E 107.6.5
- * CONSTRUCTION TOLERANCE ± 0.5%
- ** NON-WALKING SURFACE

TYPE J - WHEELCHAIR RAMP CORNER OF FOSTER STREET & BULKELEY ROAD

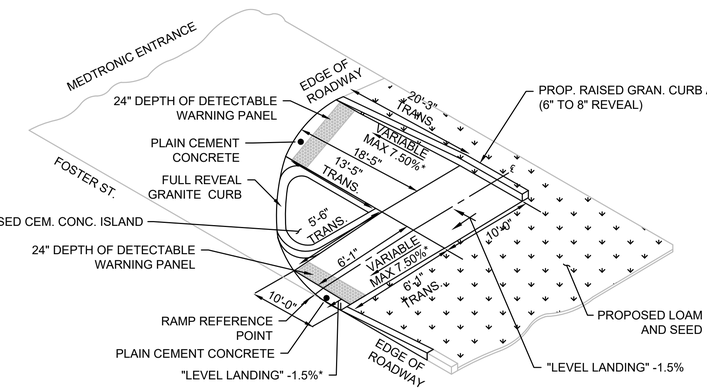
N.T.S.



SECTION

N.T.S.

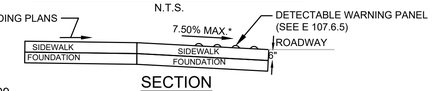
WCR#	RAMP REFERENCE POINT	
	STATION/ ROADWAY	OFFSET
J1	20+99.25 FOSTER ST	27.48' RT



NOTES:
- CURB TRANSITION SHALL BE PAID FOR UNDER ITEM #509.
- SEE CONSTRUCTION STANDARD E 107.6.9 AND E 107.6.5
- * CONSTRUCTION TOLERANCE ± 0.5%
- ** NON-WALKING SURFACE

TYPE K - WHEELCHAIR RAMP CORNER OF 300 FOSTER STREET DRIVEWAY

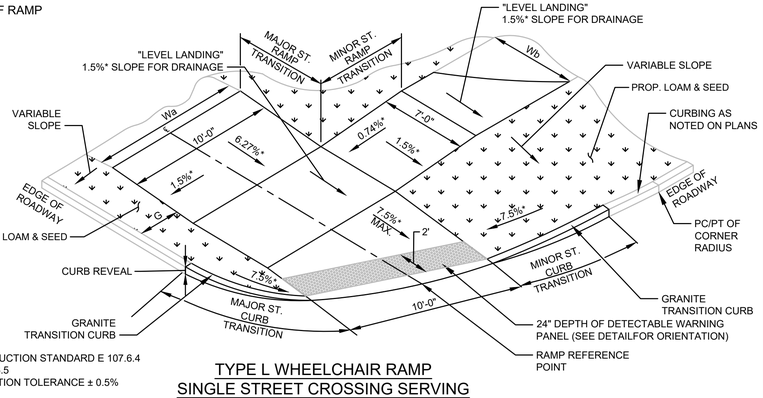
N.T.S.



SECTION

N.T.S.

WCR#	RAMP REFERENCE POINT	
	STATION/ ROADWAY	OFFSET
K	3+37.29 FOSTER ST	12.00' RT



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

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

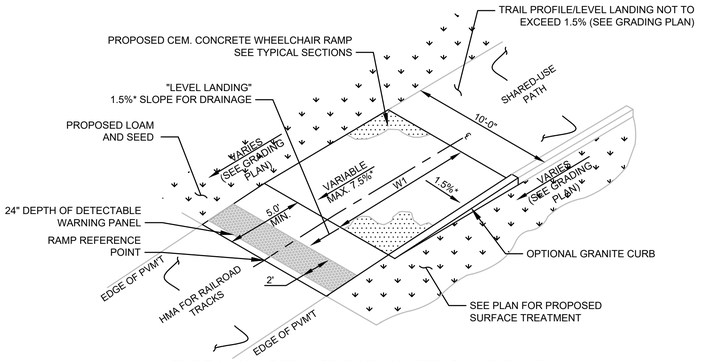
N.T.S.

WCR#	RAMP REFERENCE POINT		WIDTH OF SIDEWALK (Wa)	WIDTH OF BUFFER STRIP (G)	WIDTH OF SIDEWALK (Wb)	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	PC/PT CURB REVEAL	ROADWAY GUTTER GRADE	CURB REVEAL	RAMP LENGTH
L1	29+12.64 FOSTER ST	20.62 LT	10'-0"	2'-3"	7'-0"	10'-0"	30'	8'-10"	-	6"	-2.24%	6"	6'-6"	13'-3"	-	6"	9.16%	6"	5'-6"

(-) REPRESENTS THE LOW SIDE TRANSITION

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	73	129
PROJECT FILE NO.	609054		

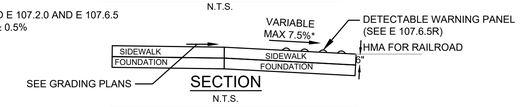
DRIVEWAY DETAILS



TYPE M SHARED USE-PATH WHEELCHAIR RAMP
RAILROAD CROSSING ACCESS

N.T.S.

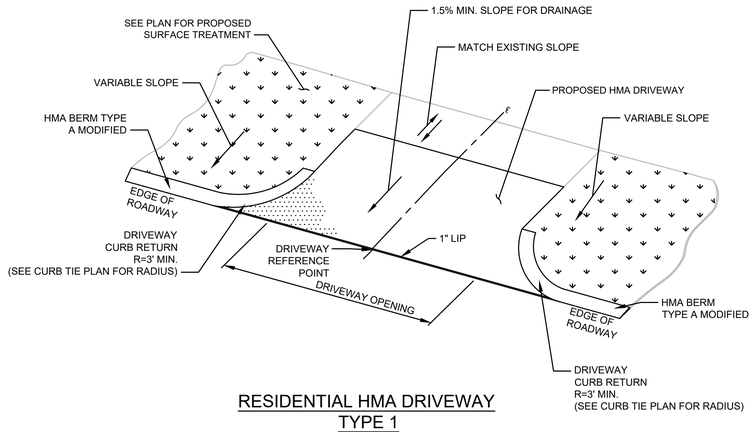
NOTES:
- SEE CONSTRUCTION STANDARD E 107.2.0 AND E 107.6.5
- * CONSTRUCTION TOLERANCE ± 0.5%



SECTION

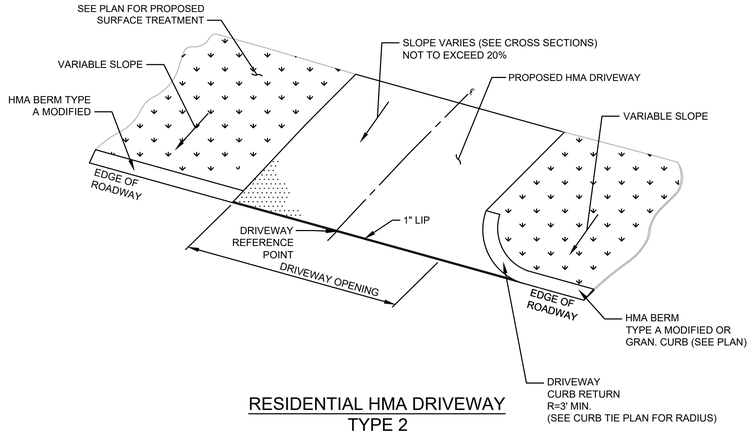
N.T.S.

WCR#	RAMP REFERENCE POINT		WIDTH OF RAMP ENTRANCE (OPTIONAL)	RAMP TRANSITION (W1)	OPTIONAL GRANITE CURB
	STATION/ ROADWAY	OFFSET			
M1	27+54.97 FOSTER ST	35.03 LT	10'-0"	8'-6"	NO
M2	27+87.25 FOSTER ST	17.53 LT	10'-0"	8'-8"	YES



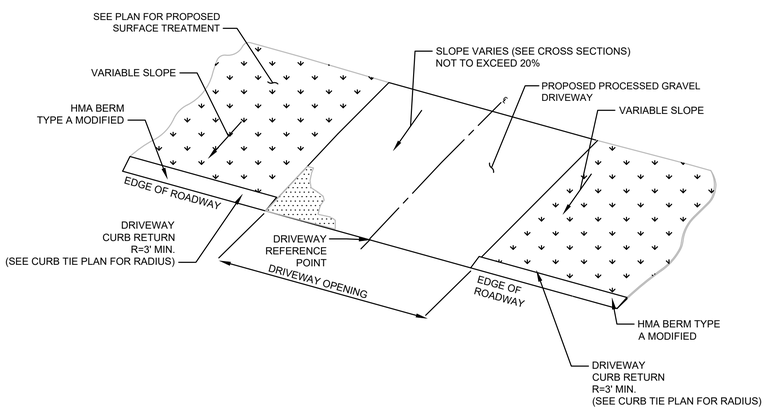
RESIDENTIAL HMA DRIVEWAY
TYPE 1

N.T.S.



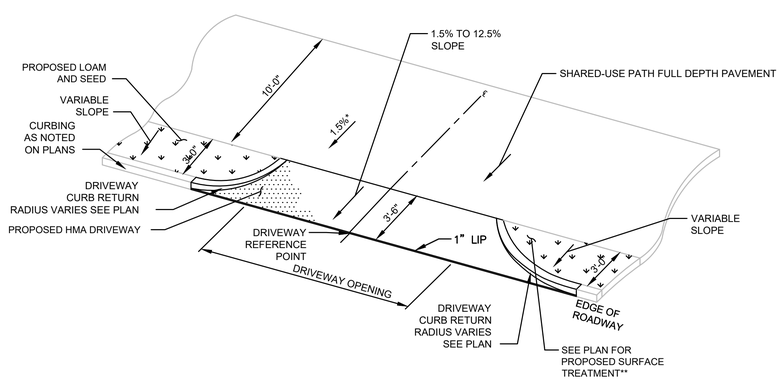
RESIDENTIAL HMA DRIVEWAY
TYPE 2

N.T.S.



RESIDENTIAL PROCESSED GRAVEL DRIVEWAY
TYPE 3

N.T.S.



DRIVEWAY AT SHARED-USE PATH
TYPE 4

N.T.S.

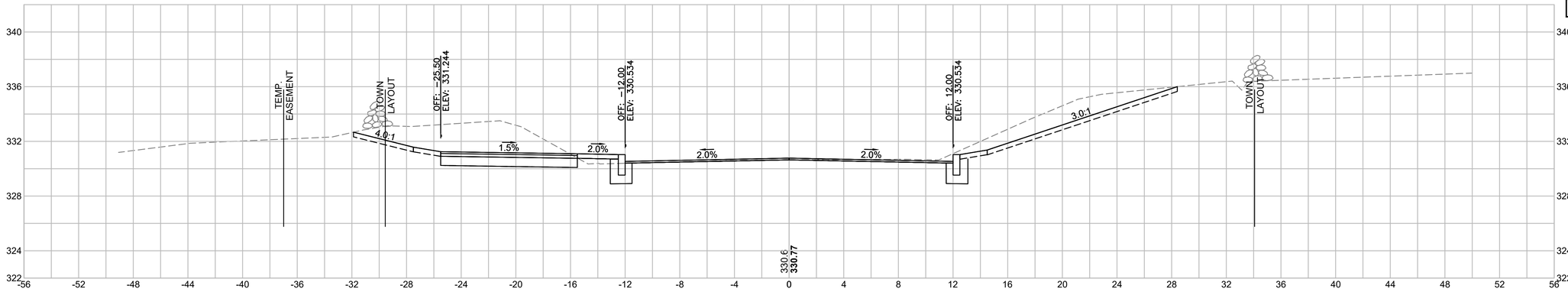
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UCS: X
20170044A21_DET01.DWG 17-Nov-2020

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	74	129
PROJECT FILE NO.	609054		

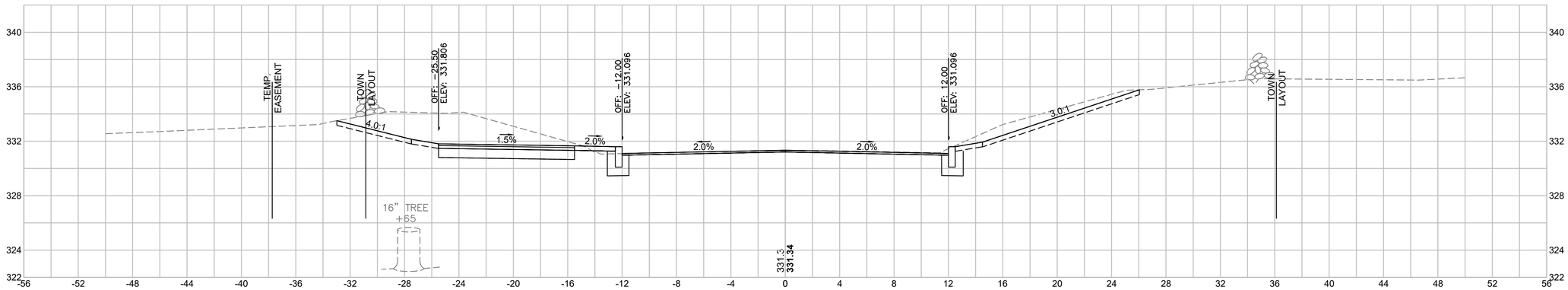
CROSS SECTIONS

1+00



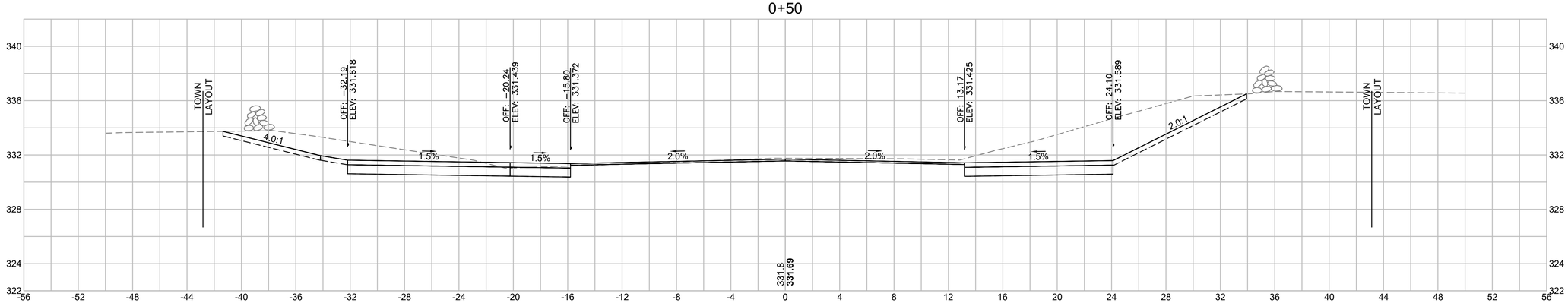
Total Volume at Station 1+00.00	
Cut Area	83.574
Fill Area	0.749
Cut Vol	56.3
Fill Vol	0.4
Cum Cut Vol	121.7
Cum Fill Vol	0.8
Net Vol	121.1

0+75



Total Volume at Station 0+75.00	
Cut Area	58.124
Fill Area	0.188
Cut Vol	65.3
Fill Vol	0.1
Cum Cut Vol	65.3
Cum Fill Vol	0.1
Net Vol	65.2

0+50



Total Volume at Station 0+50.00	
Cut Area	82.952
Fill Area	0.114
Cut Vol	0.0
Fill Vol	0.0
Cum Cut Vol	0.0
Cum Fill Vol	0.0
Net Vol	0.0

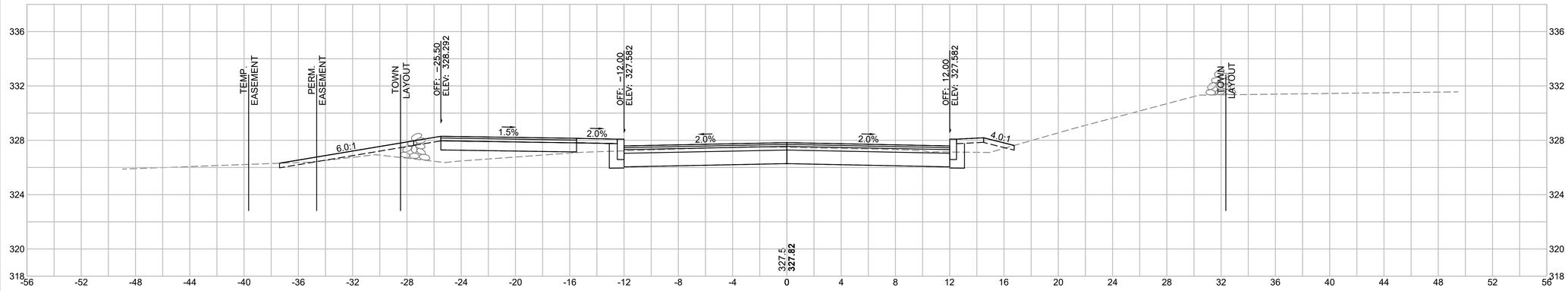
20170044A21_XSEC01_LAYOUTS.DWG Plotted on 18-Nov-2020 1:22 PM

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	75	129
	PROJECT FILE NO. 609054		

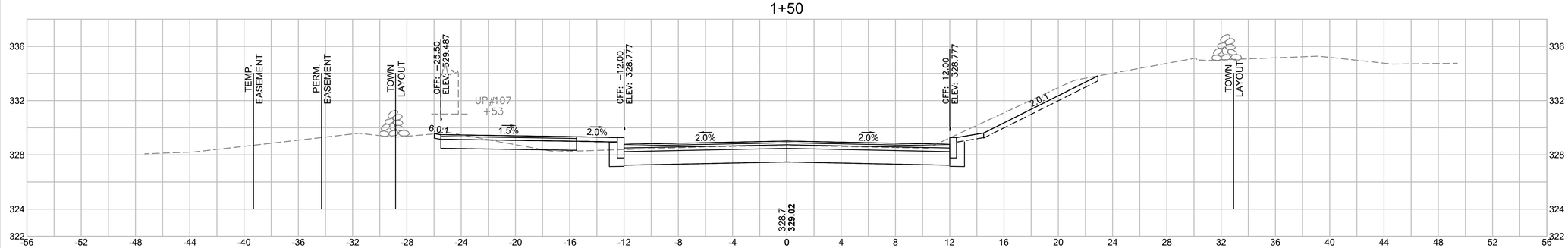
CROSS SECTIONS

1+75



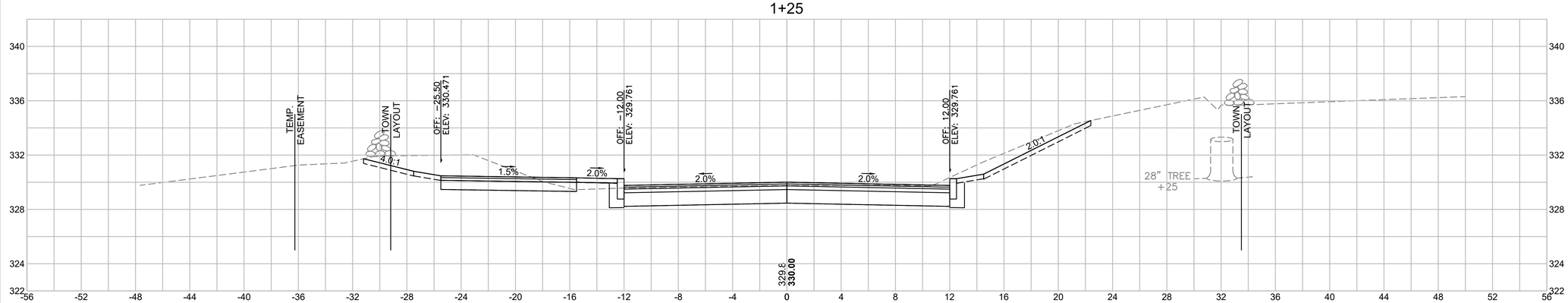
Total Volume at Station 1+75.00	
Cut Area	31.769
Fill Area	10.602
Cut Vol	37.2
Fill Vol	5.7
Cum Cut Vol	274.8
Cum Fill Vol	8.5
Net Vol	266.2

1+50



Total Volume at Station 1+50.00	
Cut Area	48.690
Fill Area	1.802
Cut Vol	54.5
Fill Vol	1.4
Cum Cut Vol	237.5
Cum Fill Vol	2.8
Net Vol	234.7

1+25



Total Volume at Station 1+25.00	
Cut Area	68.999
Fill Area	1.136
Cut Vol	81.4
Fill Vol	0.9
Cum Cut Vol	183.0
Cum Fill Vol	1.4
Net Vol	181.6

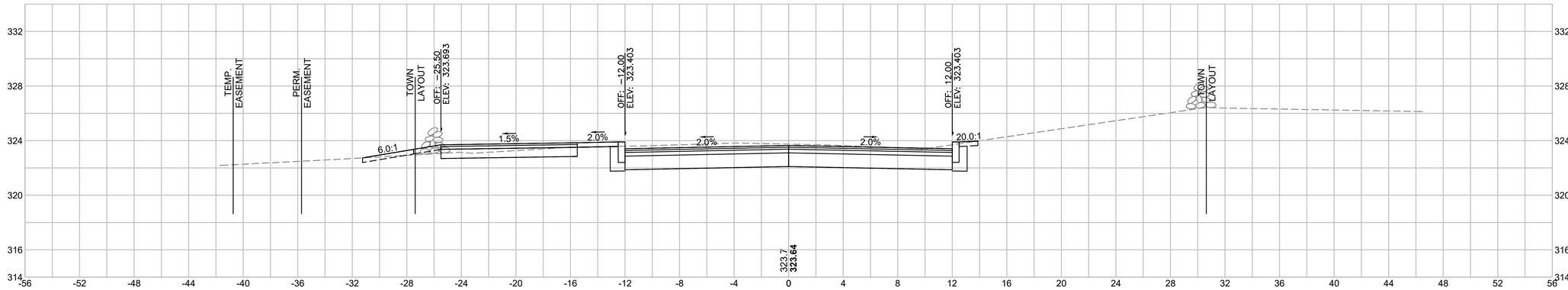
20170044A21_XSEC01_LAYOUTS.DWG Plotted on 18-Nov-2020 1:23 PM

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	76	129
	PROJECT FILE NO. 609054		

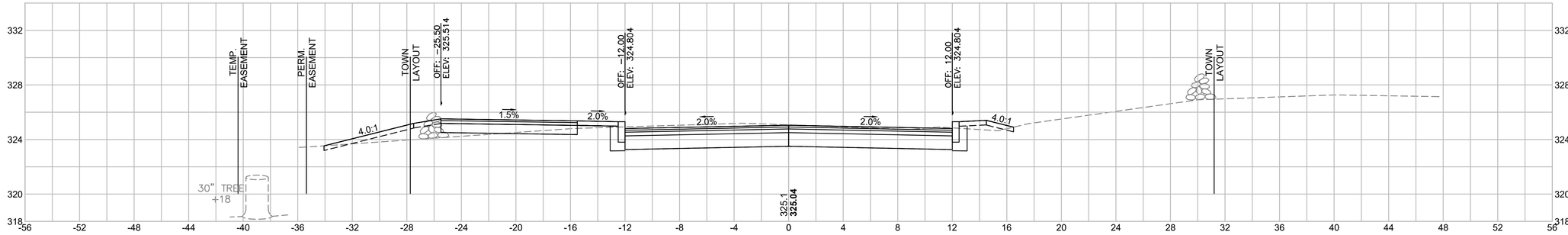
CROSS SECTIONS

2+50



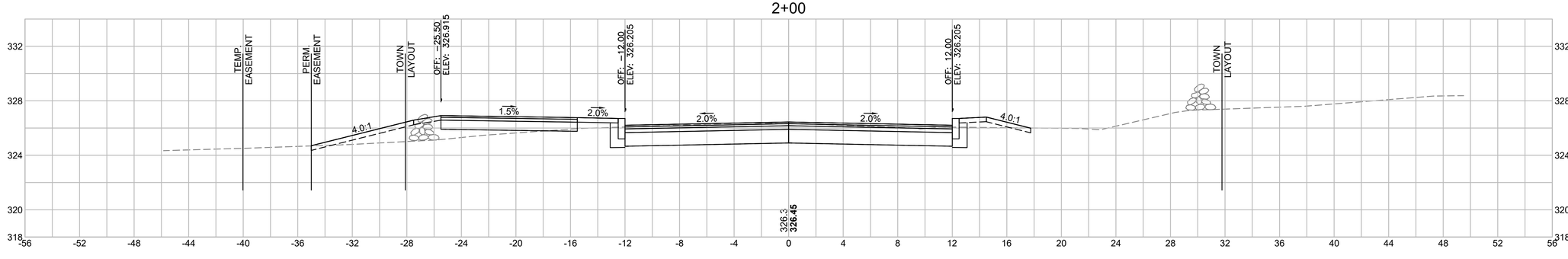
Total Volume at Station 2+50.00	
Cut Area	52.388
Fill Area	0.380
Cut Vol	44.5
Fill Vol	2.9
Cum Cut Vol	390.3
Cum Fill Vol	29.1
Net Vol	361.2

2+25



Total Volume at Station 2+25.00	
Cut Area	43.804
Fill Area	5.793
Cut Vol	38.3
Fill Vol	7.7
Cum Cut Vol	345.7
Cum Fill Vol	26.2
Net Vol	319.5

2+00



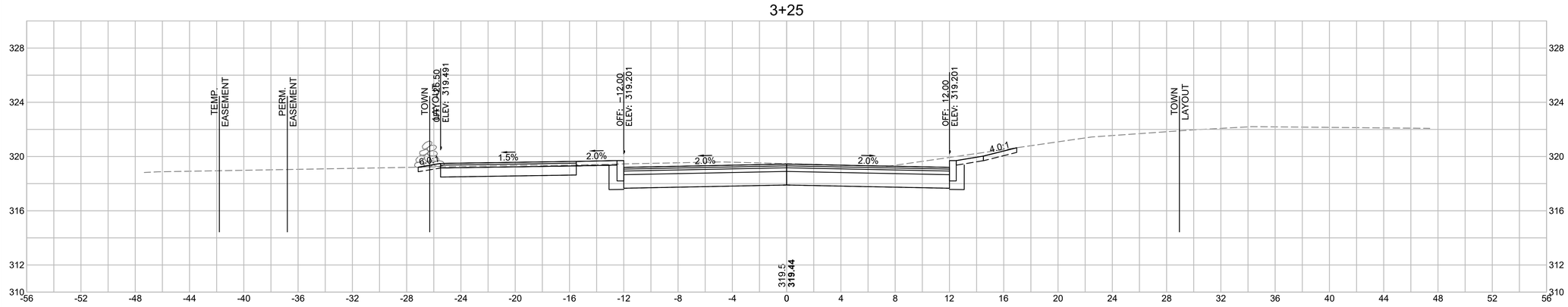
Total Volume at Station 2+00.00	
Cut Area	56.844
Fill Area	10.887
Cut Vol	32.7
Fill Vol	9.9
Cum Cut Vol	307.5
Cum Fill Vol	18.5
Net Vol	289.0

20170044A21_XSEC01_LAYOUTS.DWG Plotted on 18-Nov-2020 1:23 PM

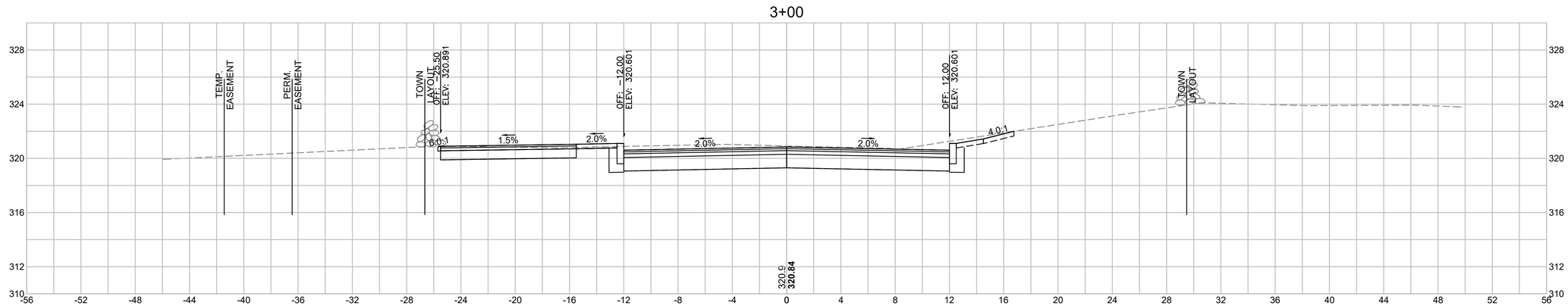
LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	77	129
	PROJECT FILE NO. 609054		

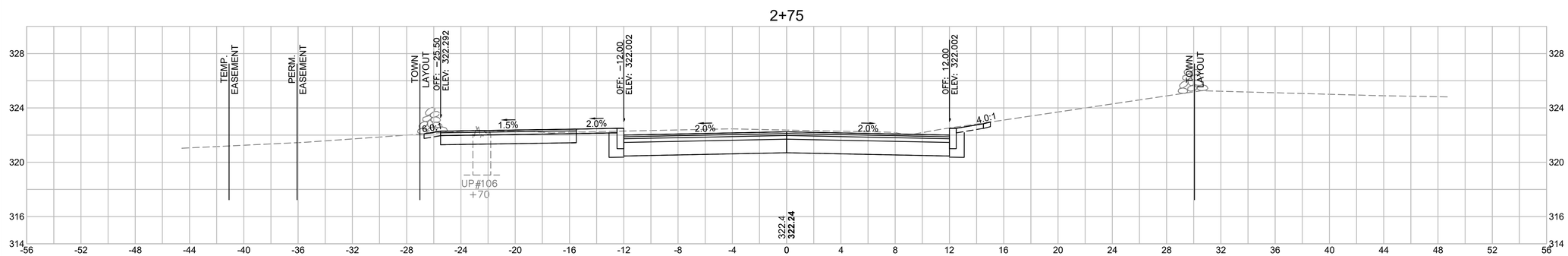
CROSS SECTIONS



Total Volume at Station 3+25.00	
Cut Area	55.715
Fill Area	0.000
Cut Vol	52.8
Fill Vol	0.0
Cum Cut Vol	549.3
Cum Fill Vol	29.3
Net Vol	520.1



Total Volume at Station 3+00.00	
Cut Area	58.384
Fill Area	0.000
Cut Vol	54.5
Fill Vol	0.0
Cum Cut Vol	496.5
Cum Fill Vol	29.3
Net Vol	467.3



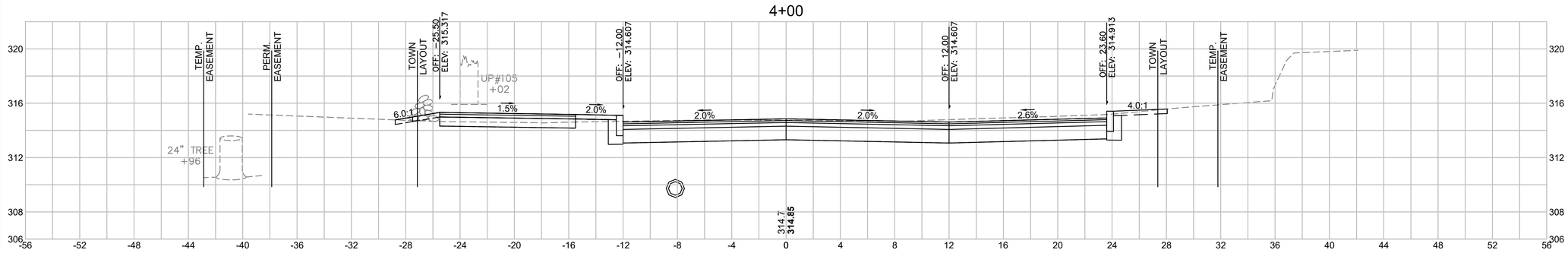
Total Volume at Station 2+75.00	
Cut Area	59.368
Fill Area	0.000
Cut Vol	51.7
Fill Vol	0.2
Cum Cut Vol	442.0
Cum Fill Vol	29.3
Net Vol	412.7

20170044A21_XSEC01_LAYOUTS.DWG Plotted on 18-Nov-2020 1:23 PM

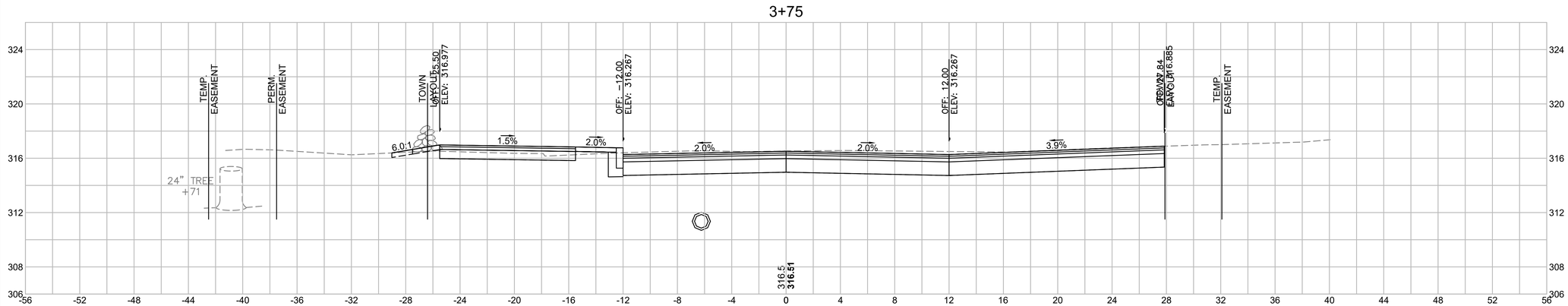
LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	78	129
	PROJECT FILE NO. 609054		

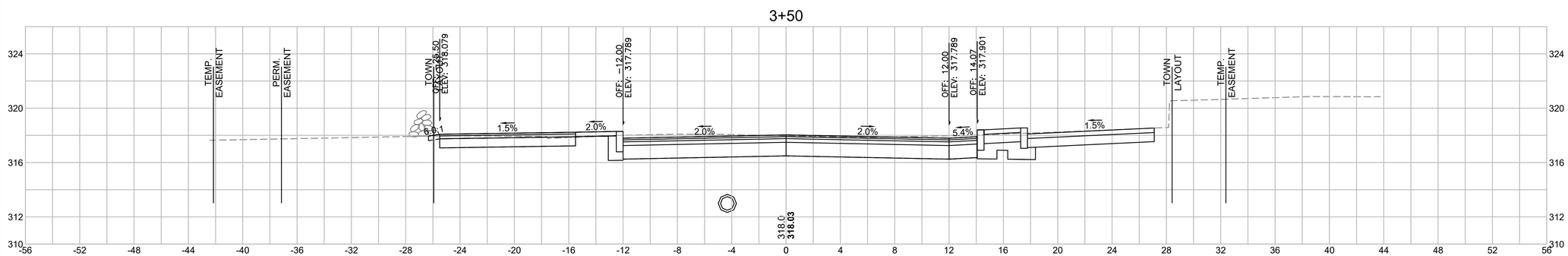
CROSS SECTIONS



Total Volume at Station 4+00.00	
Cut Area	63.031
Fill Area	0.709
Cut Vol	62.7
Fill Vol	0.5
Cum Cut Vol	726.2
Cum Fill Vol	30.0
Net Vol	696.2



Total Volume at Station 3+75.00	
Cut Area	72.436
Fill Area	0.431
Cut Vol	60.9
Fill Vol	0.2
Cum Cut Vol	663.5
Cum Fill Vol	29.5
Net Vol	634.0



Total Volume at Station 3+50.00	
Cut Area	59.192
Fill Area	0.026
Cut Vol	53.2
Fill Vol	0.0
Cum Cut Vol	602.5
Cum Fill Vol	29.3
Net Vol	573.3

20170044A21_XSEC01_LAYOUTS.DWG Plotted on 18-Nov-2020 1:23 PM

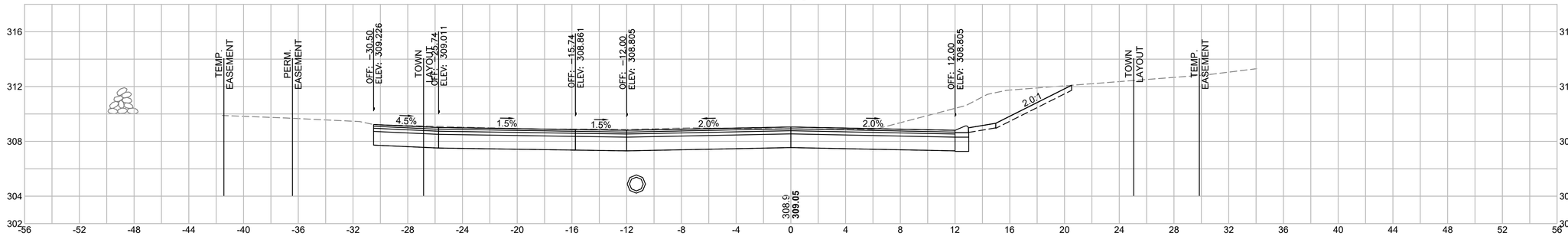
LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	79	129
	PROJECT FILE NO. 609054		

CROSS SECTIONS

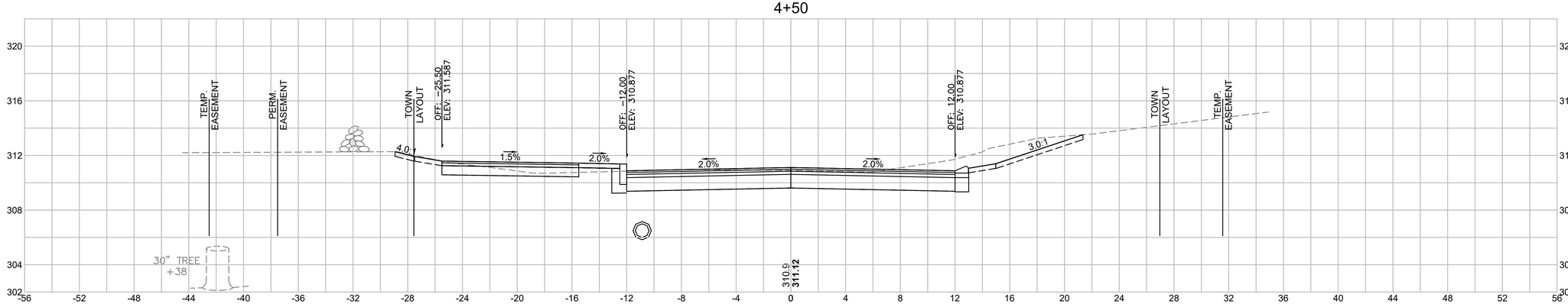
20170044A21_XSEC01_LAYOUTS.DWG Plotted on 18-Nov-2020 1:23 PM

4+75



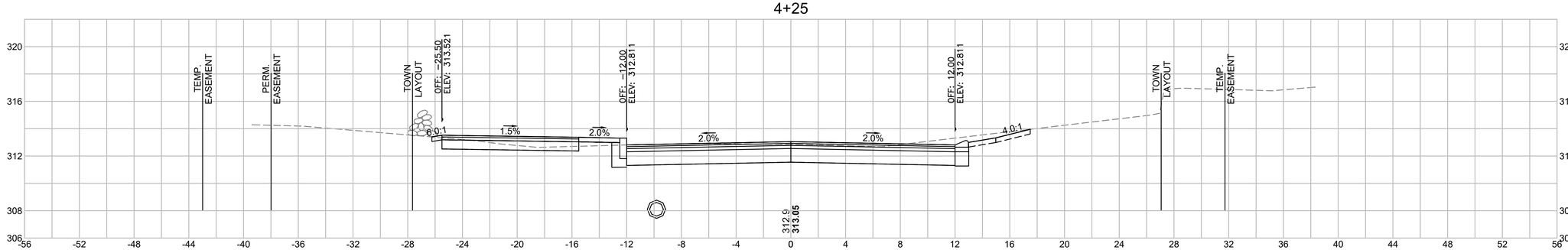
Total Volume at Station 4+75.00	
Cut Area	88.711
Fill Area	0.000
Cut Vol	66.8
Fill Vol	0.3
Cum Cut Vol	891.7
Cum Fill Vol	31.6
Net Vol	860.1

4+50



Total Volume at Station 4+50.00	
Cut Area	65.907
Fill Area	0.702
Cut Vol	47.6
Fill Vol	0.6
Cum Cut Vol	824.9
Cum Fill Vol	31.2
Net Vol	793.6

4+25



Total Volume at Station 4+25.00	
Cut Area	47.047
Fill Area	0.651
Cut Vol	51.0
Fill Vol	0.6
Cum Cut Vol	777.2
Cum Fill Vol	30.6
Net Vol	746.6

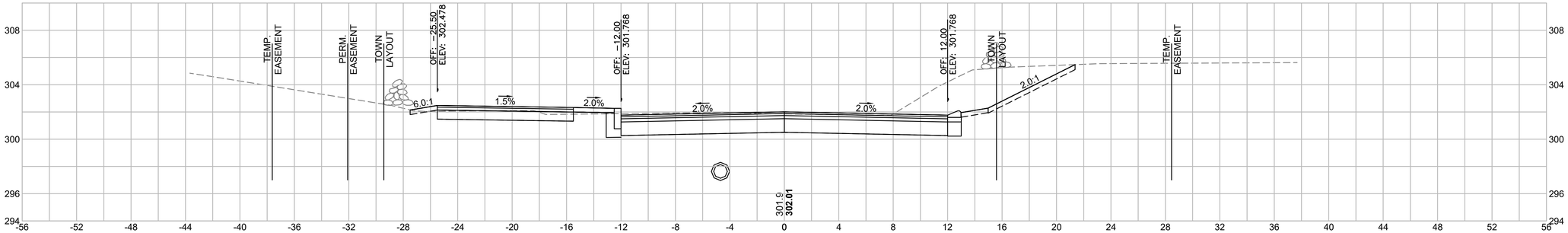
LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	80	129
	PROJECT FILE NO. 609054		

CROSS SECTIONS

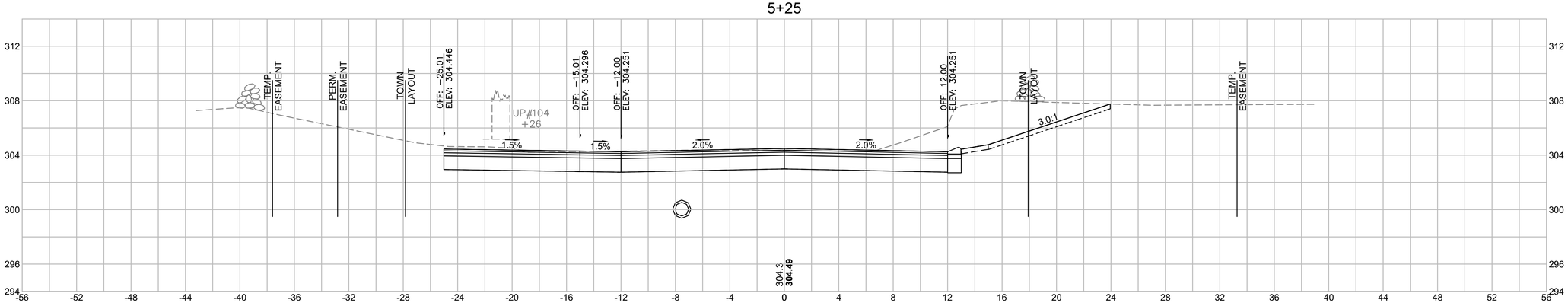
20170044A21_XSEC01_LAYOUTS.DWG Plotted on 18-Nov-2020 1:24 PM

5+50



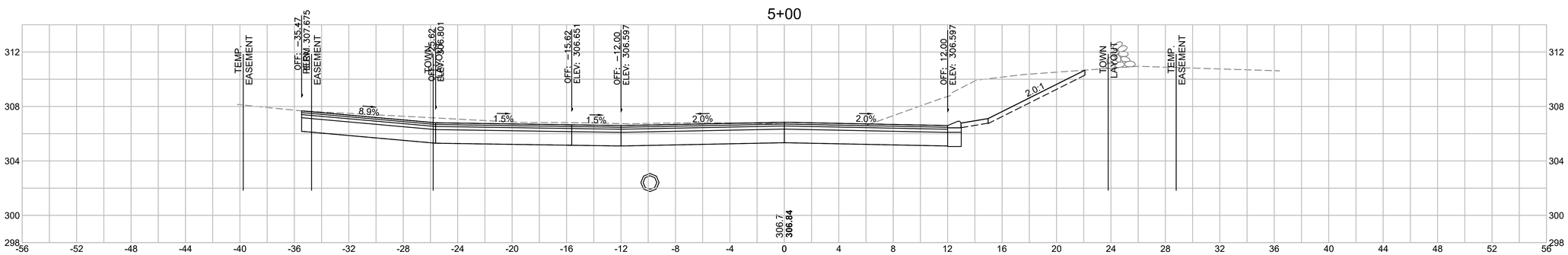
Total Volume at Station 5+50.00	
Cut Area	71.164
Fill Area	0.316
Cut Vol	75.9
Fill Vol	0.1
Cum Cut Vol	1148.2
Cum Fill Vol	31.7
Net Vol	1116.5

5+25



Total Volume at Station 5+25.00	
Cut Area	92.726
Fill Area	0.000
Cut Vol	91.3
Fill Vol	0.0
Cum Cut Vol	1072.3
Cum Fill Vol	31.6
Net Vol	1040.7

5+00



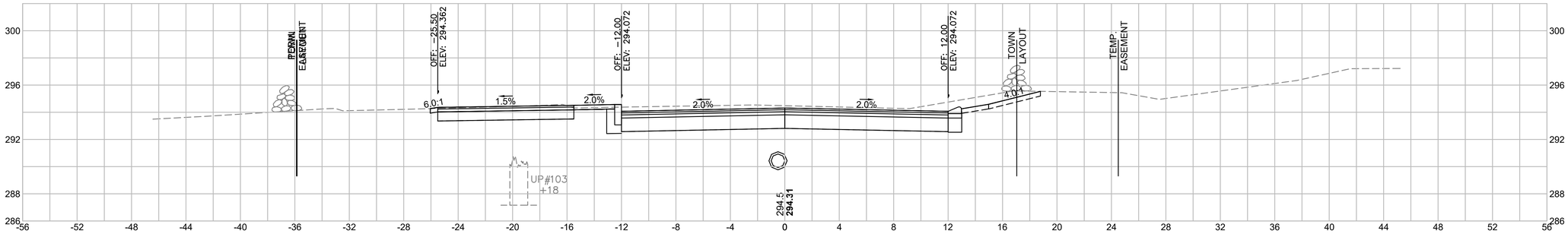
Total Volume at Station 5+00.00	
Cut Area	105.083
Fill Area	0.000
Cut Vol	99.3
Fill Vol	0.0
Cum Cut Vol	981.0
Cum Fill Vol	31.6
Net Vol	949.4

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	81	129
PROJECT FILE NO.	609054		

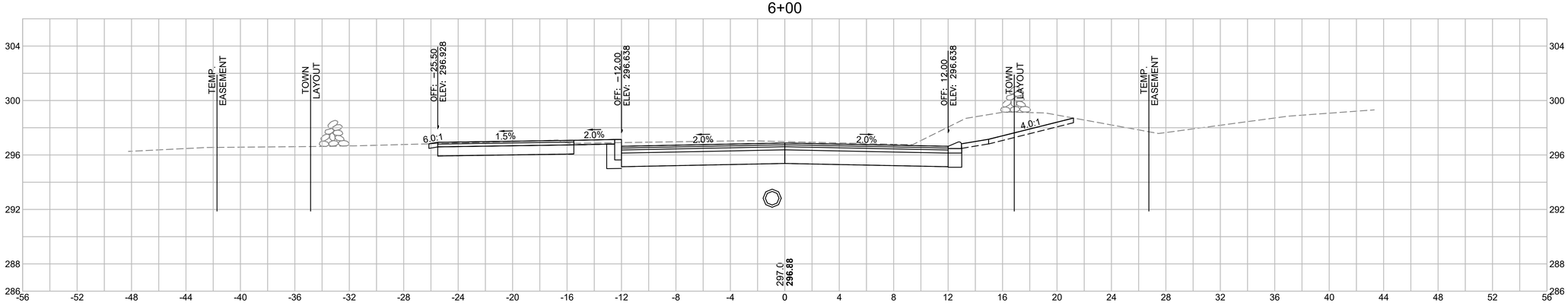
CROSS SECTIONS

6+25



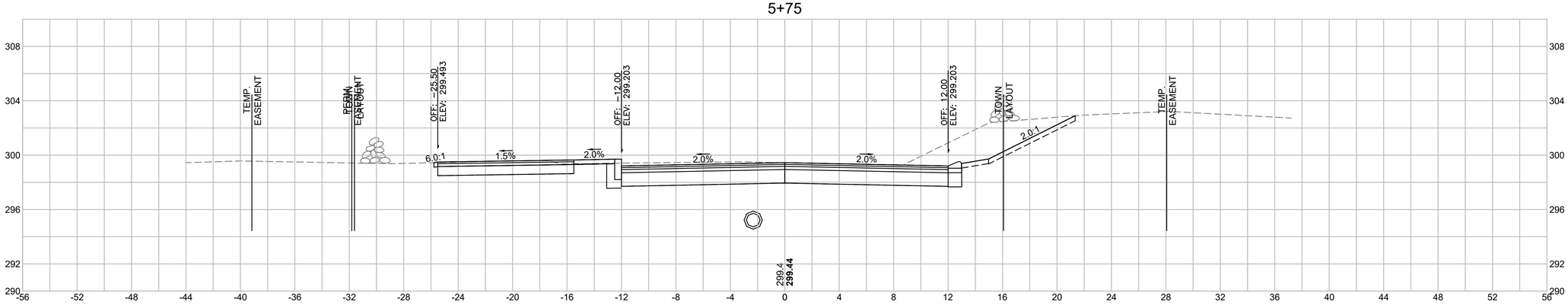
Total Volume at Station 6+25.00	
Cut Area	61.625
Fill Area	0.000
Cut Vol	61.1
Fill Vol	0.0
Cum Cut Vol	1341.8
Cum Fill Vol	31.9
Net Vol	1309.9

6+00



Total Volume at Station 6+00.00	
Cut Area	70.262
Fill Area	0.000
Cut Vol	66.1
Fill Vol	0.0
Cum Cut Vol	1280.6
Cum Fill Vol	31.9
Net Vol	1248.8

5+75



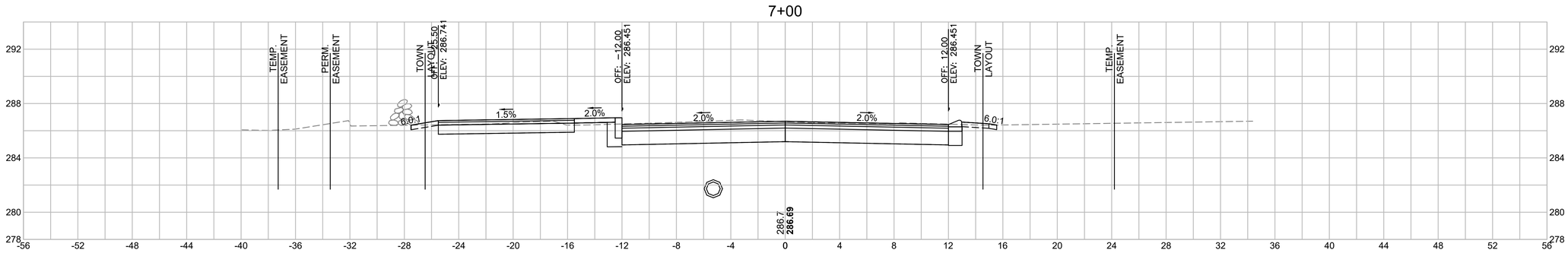
Total Volume at Station 5+75.00	
Cut Area	72.652
Fill Area	0.000
Cut Vol	66.4
Fill Vol	0.2
Cum Cut Vol	1214.5
Cum Fill Vol	31.9
Net Vol	1182.7

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20170044A21_XSEC01_LAYOUTS.DWG

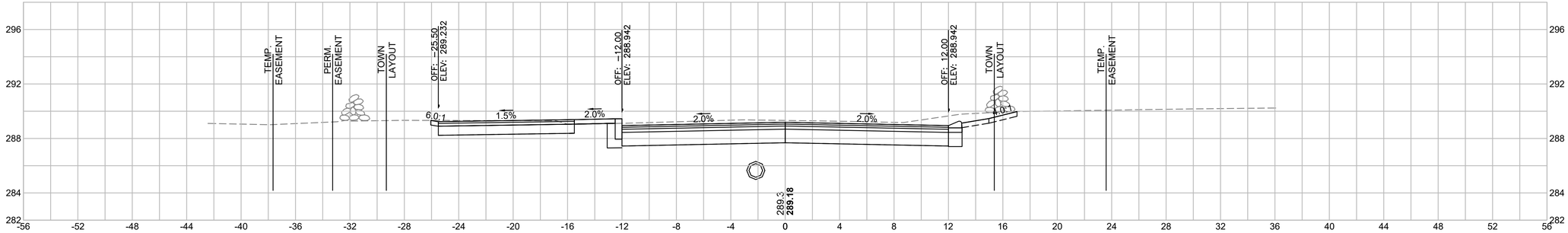
LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	82	129
	PROJECT FILE NO. 609054		

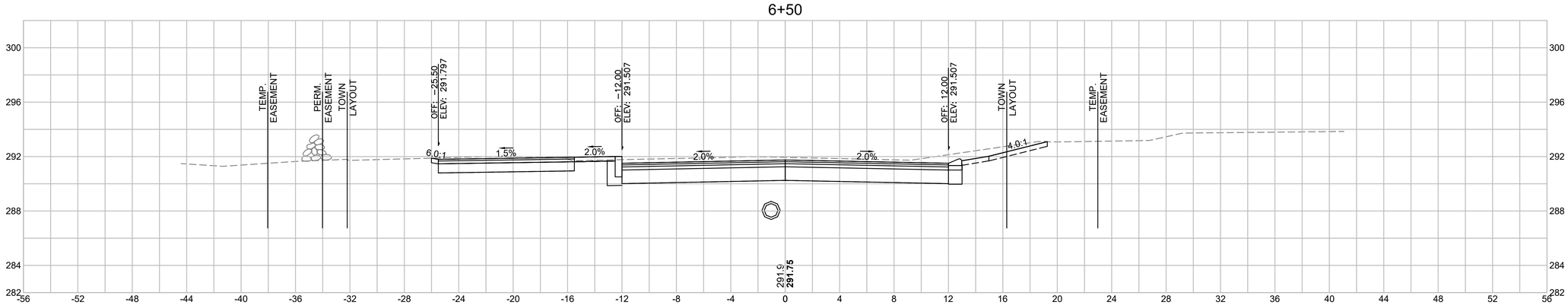
CROSS SECTIONS



Total Volume at Station 7+00.00	
Cut Area	49.185
Fill Area	0.373
Cut Vol	50.3
Fill Vol	0.2
Cum Cut Vol	1504.2
Cum Fill Vol	32.1
Net Vol	1472.1



Total Volume at Station 6+75.00	
Cut Area	59.461
Fill Area	0.038
Cut Vol	55.4
Fill Vol	0.0
Cum Cut Vol	1453.9
Cum Fill Vol	31.9
Net Vol	1422.0



Total Volume at Station 6+50.00	
Cut Area	60.294
Fill Area	0.000
Cut Vol	56.7
Fill Vol	0.0
Cum Cut Vol	1388.4
Cum Fill Vol	31.9
Net Vol	1366.6

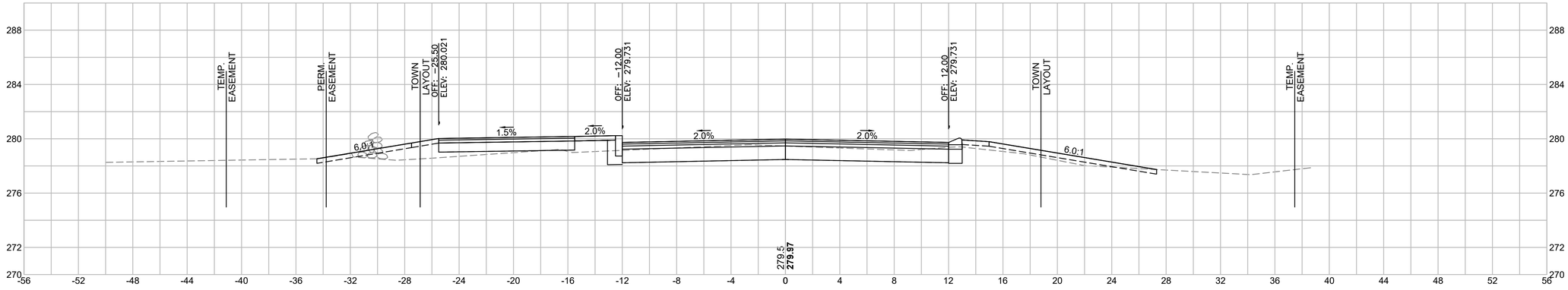
20170044A21_XSEC01_LAYOUTS.DWG Plotted on 18-Nov-2020 1:24 PM

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	83	129
	PROJECT FILE NO. 609054		

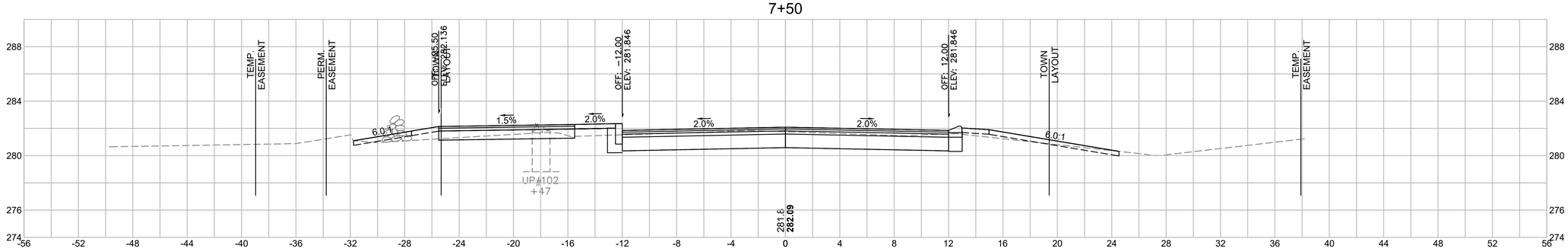
CROSS SECTIONS

7+75



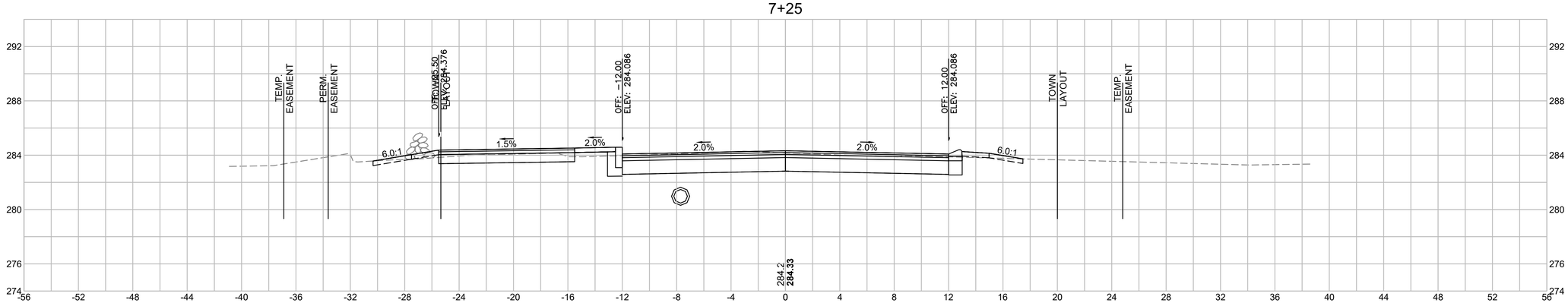
Total Volume at Station 7+75.00	
Cut Area	27.429
Fill Area	0.790
Cut Vol	29.1
Fill Vol	6.2
Cum Cut Vol	1612.8
Cum Fill Vol	41.0
Net Vol	1571.8

7+50



Total Volume at Station 7+50.00	
Cut Area	33.496
Fill Area	3.500
Cut Vol	36.6
Fill Vol	2.1
Cum Cut Vol	1583.7
Cum Fill Vol	34.9
Net Vol	1548.9

7+25



Total Volume at Station 7+25.00	
Cut Area	43.560
Fill Area	1.077
Cut Vol	42.9
Fill Vol	0.7
Cum Cut Vol	1547.1
Cum Fill Vol	32.7
Net Vol	1514.4

20170044A21_XSEC01_LAYOUTS.DWG Plotted on 18-Nov-2020 1:24 PM

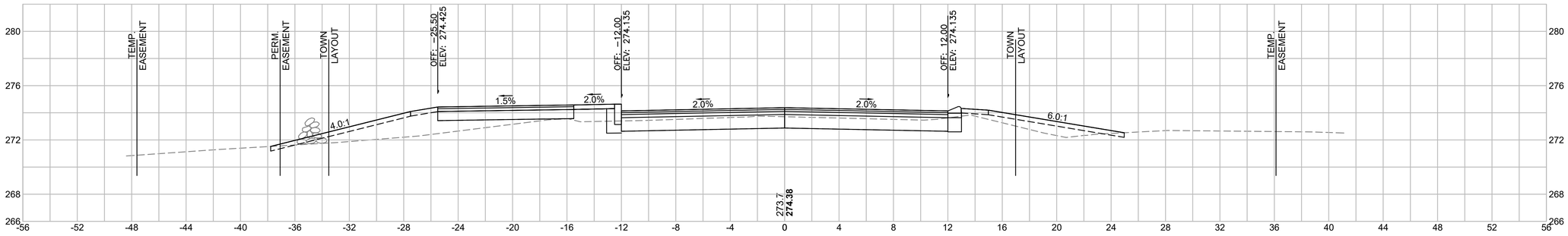
LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	84	129
	PROJECT FILE NO. 609054		

CROSS SECTIONS

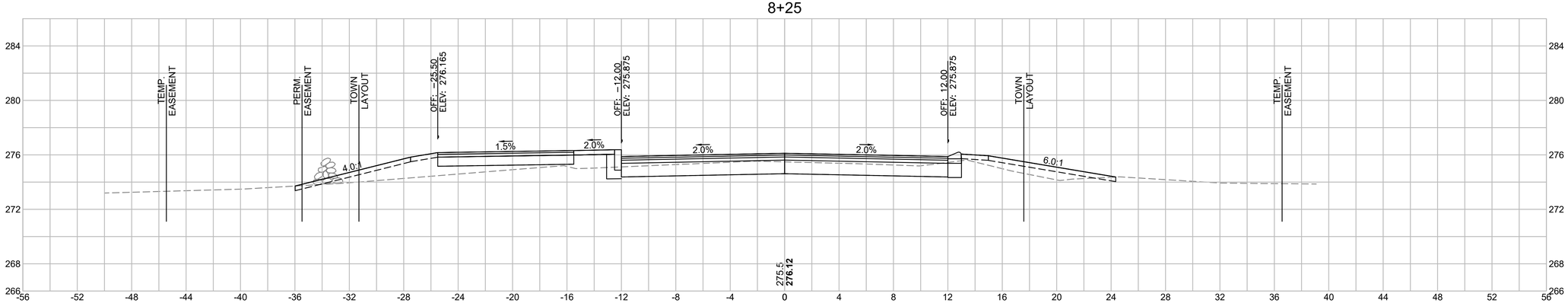
20170044A21_XSEC01_LAYOUTS.DWG Plotted on 18-Nov-2020 1:24 PM

8+50



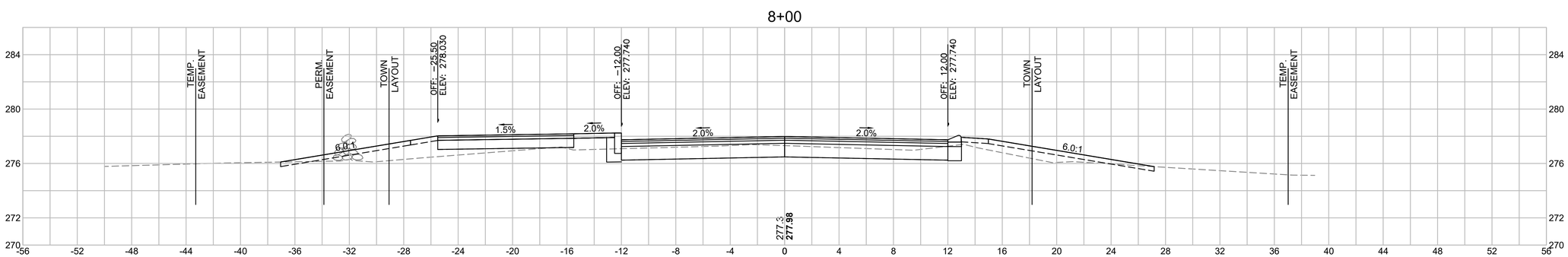
Total Volume at Station 8+50.00	
Cut Area	22.352
Fill Area	20.681
Cut Vol	22.3
Fill Vol	17.2
Cum Cut Vol	1681.7
Cum Fill Vol	84.2
Net Vol	1597.5

8+25



Total Volume at Station 8+25.00	
Cut Area	25.759
Fill Area	18.534
Cut Vol	22.9
Fill Vol	14.5
Cum Cut Vol	1659.4
Cum Fill Vol	67.0
Net Vol	1592.4

8+00



Total Volume at Station 8+00.00	
Cut Area	23.679
Fill Area	14.859
Cut Vol	23.7
Fill Vol	11.4
Cum Cut Vol	1636.5
Cum Fill Vol	52.4
Net Vol	1584.1

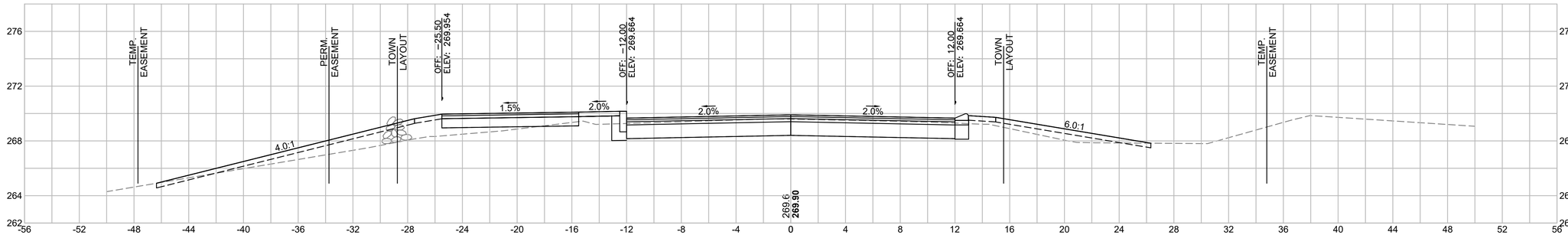
LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	85	129
	PROJECT FILE NO. 609054		

CROSS SECTIONS

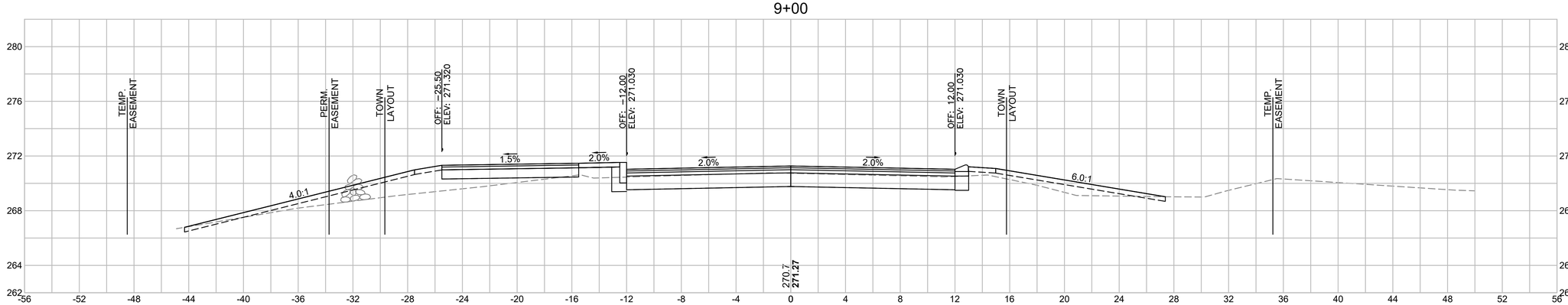
20170044A21_XSEC01_LAYOUTS.DWG Plotted on 18-Nov-2020 1:25 PM

9+25



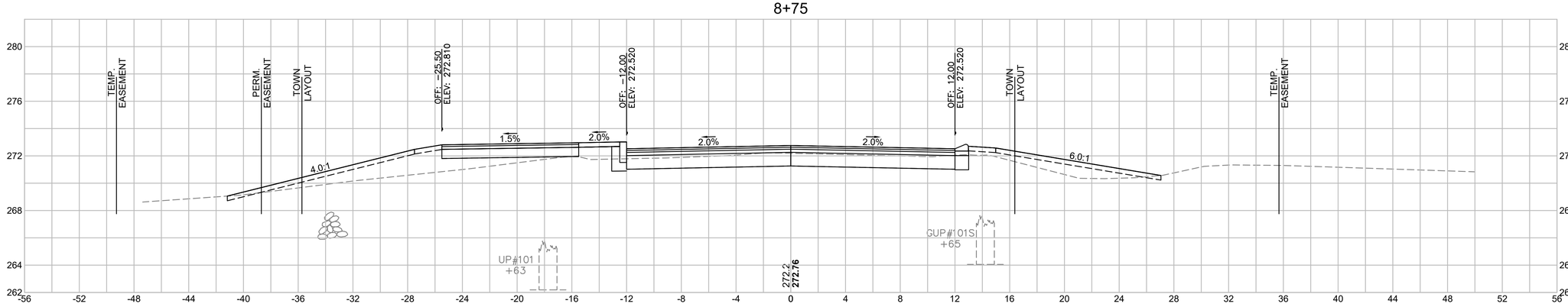
Total Volume at Station 9+25.00	
Cut Area	31.474
Fill Area	9.560
Cut Vol	26.8
Fill Vol	14.1
Cum Cut Vol	1753.2
Cum Fill Vol	139.9
Net Vol	1613.3

9+00



Total Volume at Station 9+00.00	
Cut Area	26.506
Fill Area	20.832
Cut Vol	23.3
Fill Vol	20.9
Cum Cut Vol	1726.4
Cum Fill Vol	125.8
Net Vol	1600.5

8+75



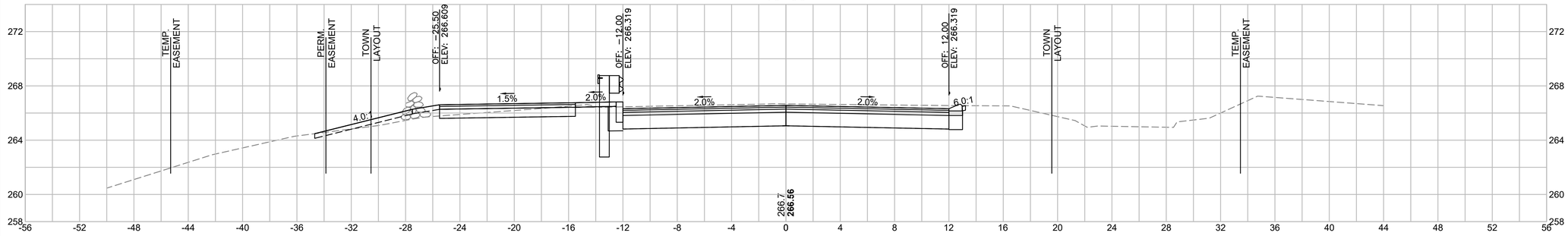
Total Volume at Station 8+75.00	
Cut Area	23.846
Fill Area	24.218
Cut Vol	21.4
Fill Vol	20.8
Cum Cut Vol	1703.1
Cum Fill Vol	105.0
Net Vol	1598.1

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	86	129
PROJECT FILE NO.	609054		

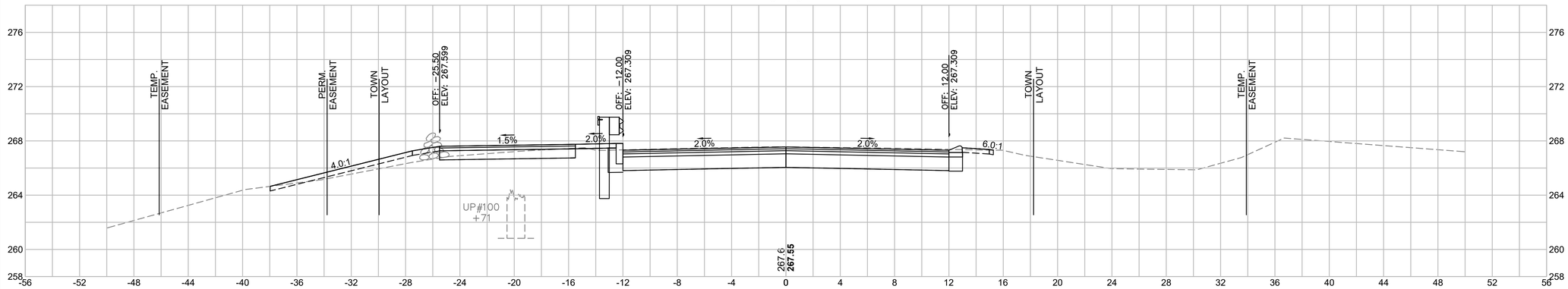
CROSS SECTIONS

10+00



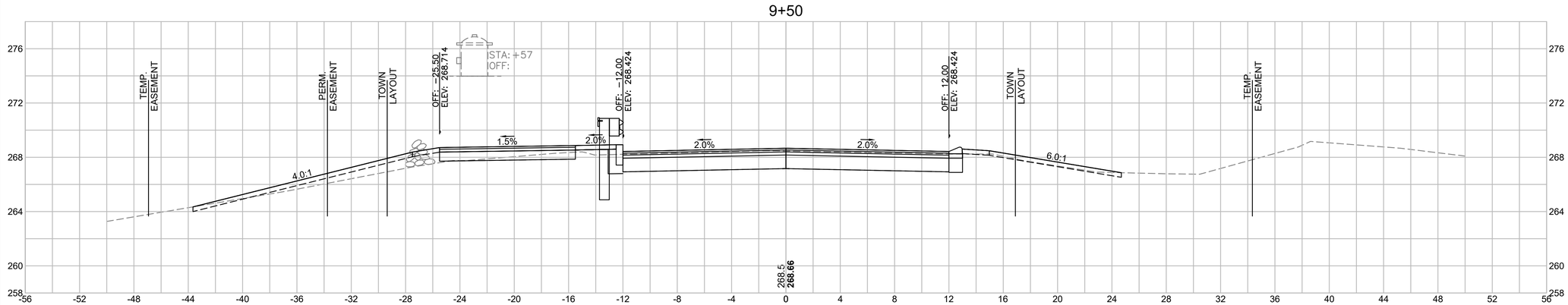
Total Volume at Station 10+00.00	
Cut Area	48.776
Fill Area	1.841
Cut Vol	43.0
Fill Vol	2.4
Cum Cut Vol	1870.0
Cum Fill Vol	130.4
Net Vol	1719.6

9+75



Total Volume at Station 9+75.00	
Cut Area	48.349
Fill Area	3.351
Cut Vol	39.8
Fill Vol	2.6
Cum Cut Vol	1825.1
Cum Fill Vol	148.0
Net Vol	1677.1

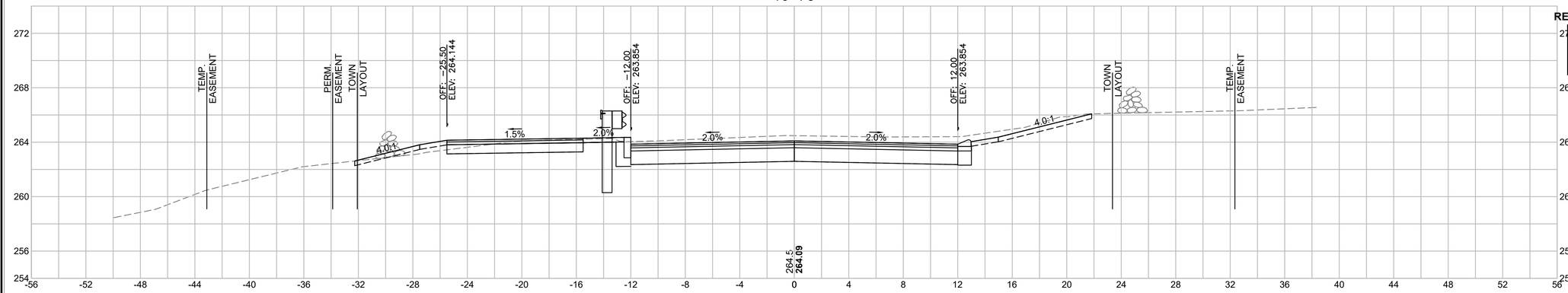
9+50



Total Volume at Station 9+50.00	
Cut Area	37.700
Fill Area	2.299
Cut Vol	32.0
Fill Vol	5.5
Cum Cut Vol	1785.2
Cum Fill Vol	140.4
Net Vol	1639.8

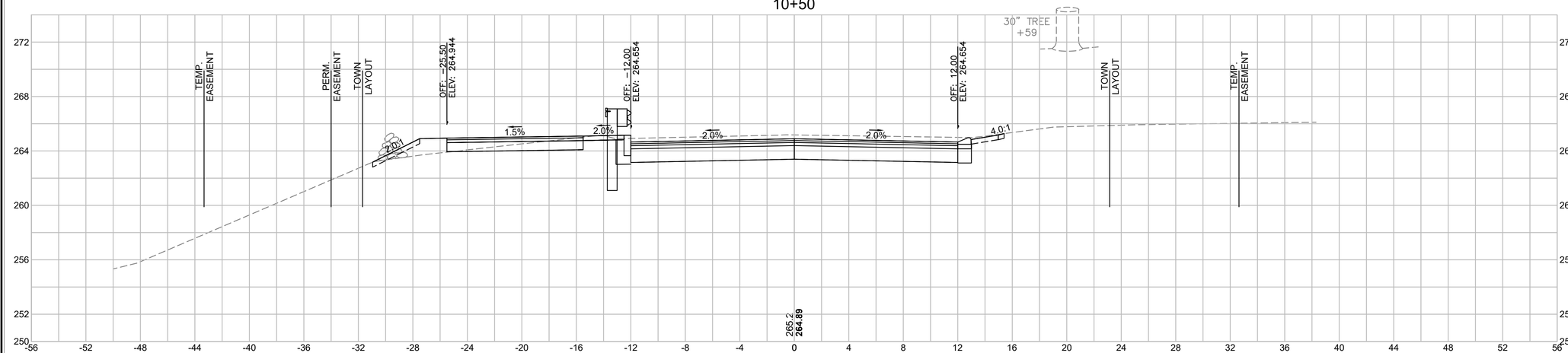
20170044A21_XSEC01_LAYOUTS.DWG Plotted on 18-Nov-2020 1:25 PM

10+75



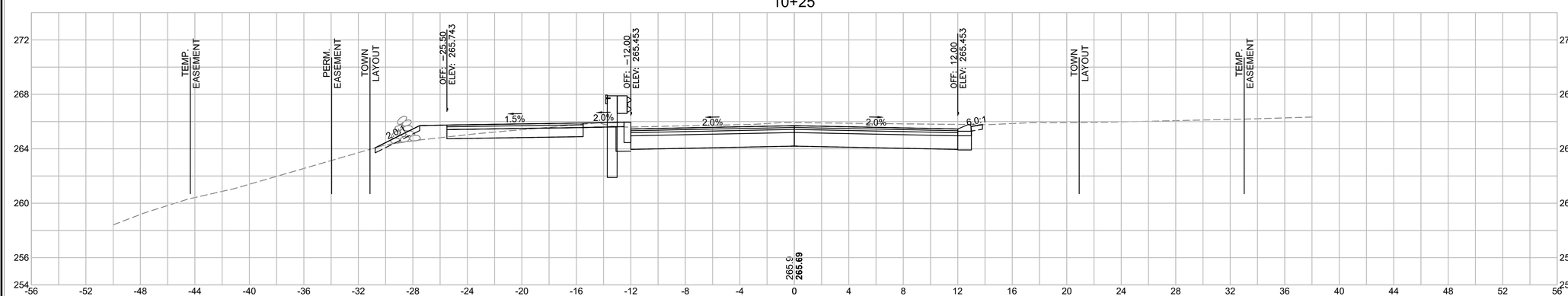
Total Volume at Station 10+75.00	
Cut Area	58.979
Fill Area	1.155
Cut Vol	52.5
Fill Vol	2.0
Cum Cut Vol	2018.2
Cum Fill Vol	157.2
Net Vol	1861.0

10+50



Total Volume at Station 10+50.00	
Cut Area	54.314
Fill Area	3.243
Cut Vol	49.1
Fill Vol	2.7
Cum Cut Vol	1965.7
Cum Fill Vol	155.2
Net Vol	1810.5

10+25



Total Volume at Station 10+25.00	
Cut Area	51.777
Fill Area	2.592
Cut Vol	46.6
Fill Vol	2.1
Cum Cut Vol	1916.8
Cum Fill Vol	152.5
Net Vol	1764.1

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	87	129
PROJECT FILE NO.	609054		

CROSS SECTIONS

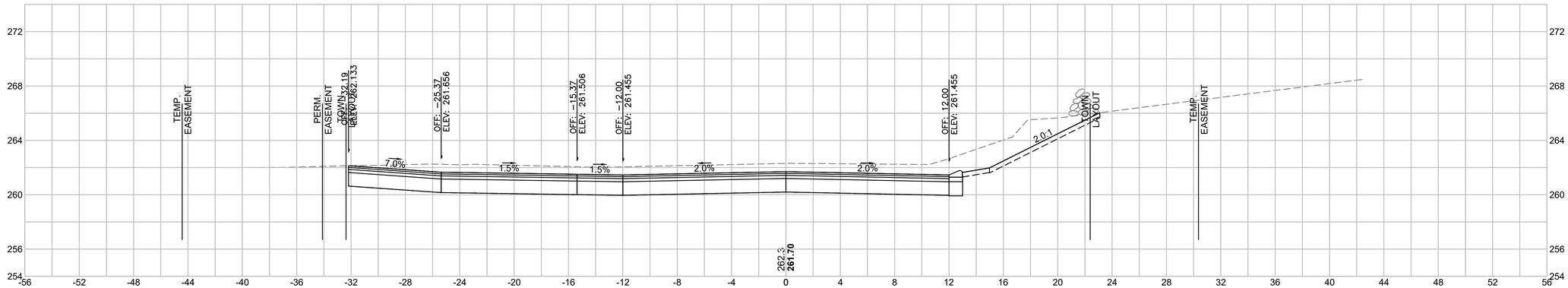
20170044A21_XSEC01_LAYOUTS.DWG Plotted on 18-Nov-2020 1:25 PM

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	88	129
	PROJECT FILE NO. 609054		

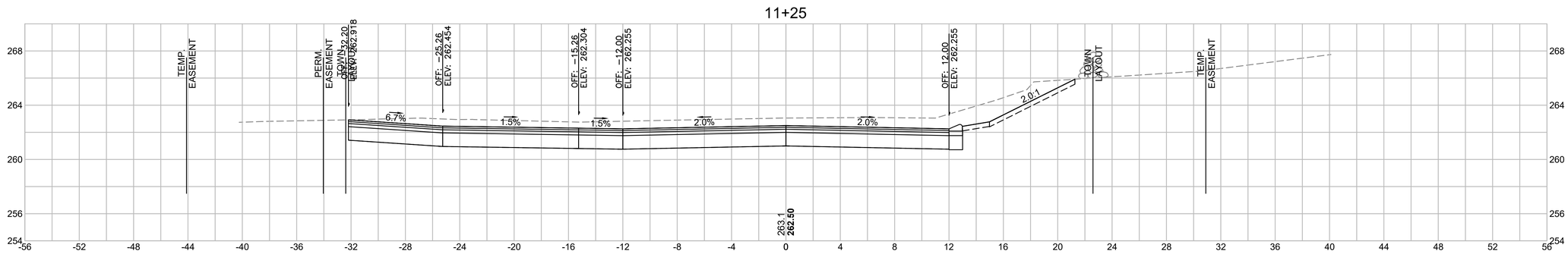
CROSS SECTIONS

11+50



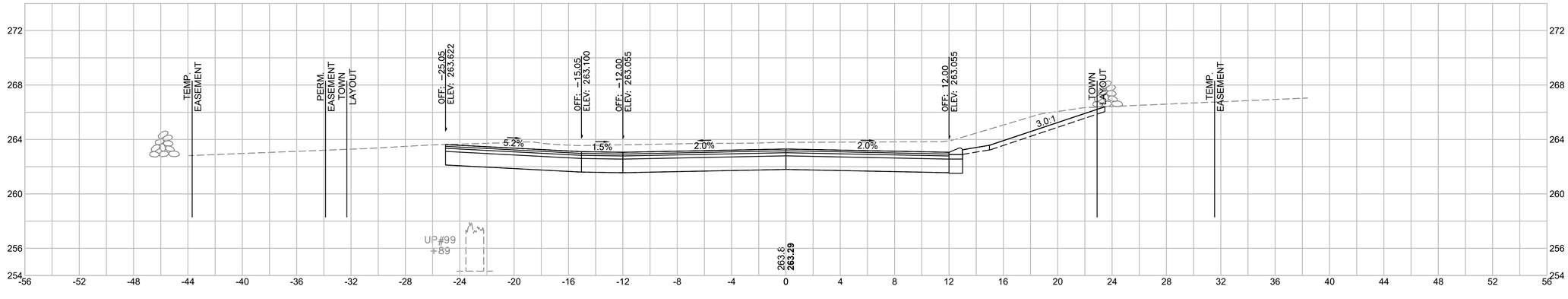
Total Volume at Station 11+50.00	
Cut Area	111.465
Fill Area	0.000
Cut Vol	100.2
Fill Vol	0.0
Cum Cut Vol	2277.7
Cum Fill Vol	157.7
Net Vol	2120.0

11+25



Total Volume at Station 11+25.00	
Cut Area	105.072
Fill Area	0.000
Cut Vol	90.3
Fill Vol	0.0
Cum Cut Vol	2177.4
Cum Fill Vol	157.7
Net Vol	2019.7

11+00



Total Volume at Station 11+00.00	
Cut Area	90.008
Fill Area	0.000
Cut Vol	69.0
Fill Vol	0.0
Cum Cut Vol	2067.1
Cum Fill Vol	157.7
Net Vol	1929.4

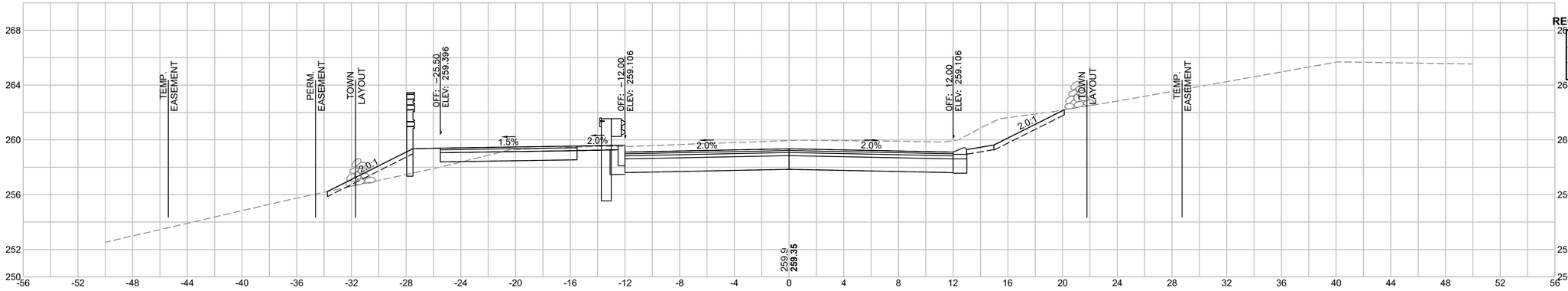
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LITTLETON
RECONSTRUCTION OF FOSTER STREET

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MA	XXX-XXXX(XXX)X	89	129
PROJECT FILE NO.	609054		

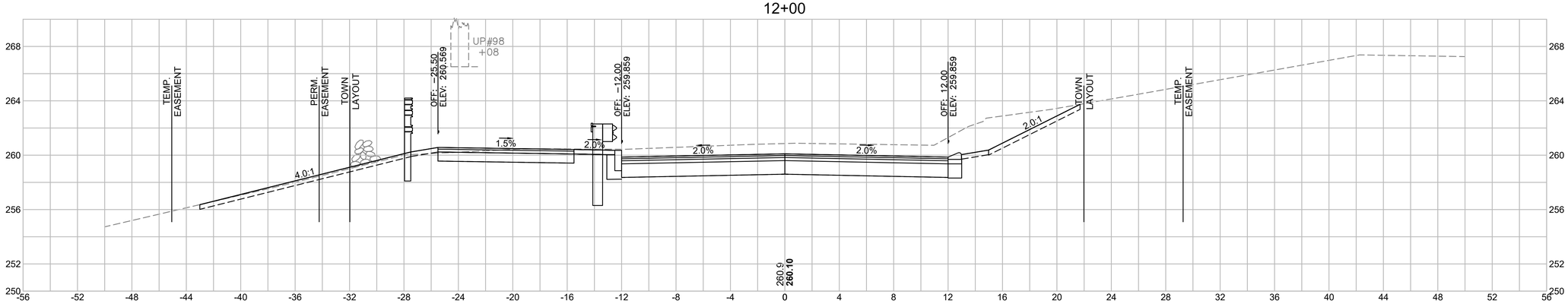
CROSS SECTIONS

12+25



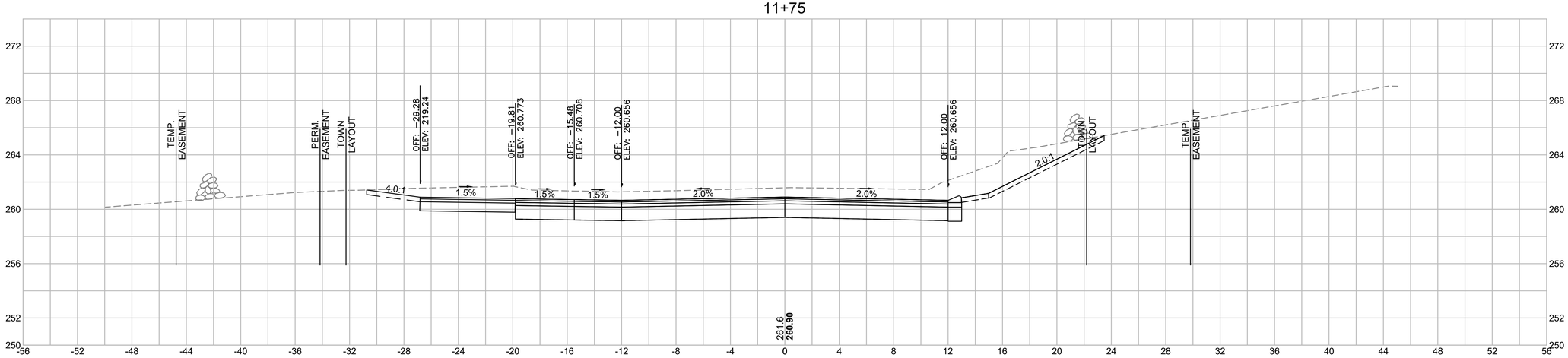
Total Volume at Station 12+25.00	
Cut Area	72.572
Fill Area	6.985
Cut Vol	72.6
Fill Vol	3.2
Cum Cut Vol	3542.5
Cum Fill Vol	161.0
Net Vol	3381.5

12+00



Total Volume at Station 12+00.00	
Cut Area	84.615
Fill Area	0.034
Cut Vol	89.8
Fill Vol	0.0
Cum Cut Vol	2469.7
Cum Fill Vol	157.8
Net Vol	2312.0

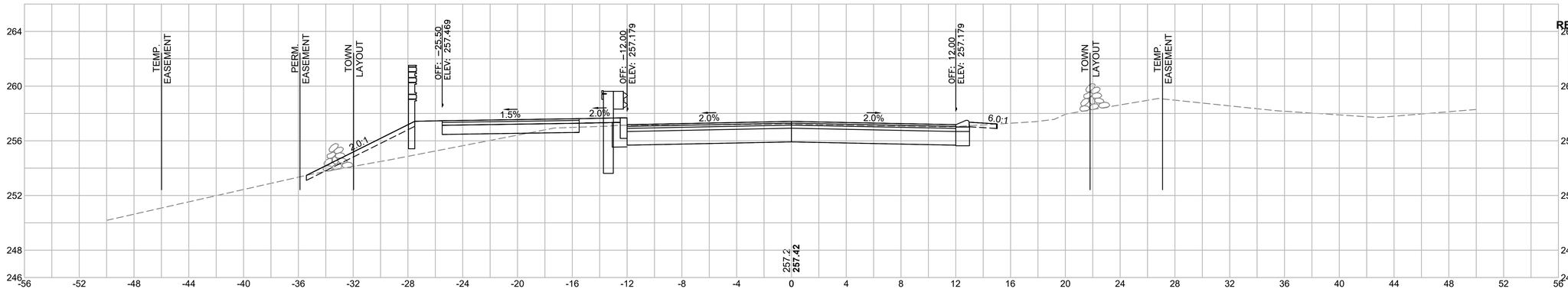
11+75



Total Volume at Station 11+75.00	
Cut Area	109.378
Fill Area	0.000
Cut Vol	102.2
Fill Vol	0.0
Cum Cut Vol	2379.9
Cum Fill Vol	157.7
Net Vol	2222.2

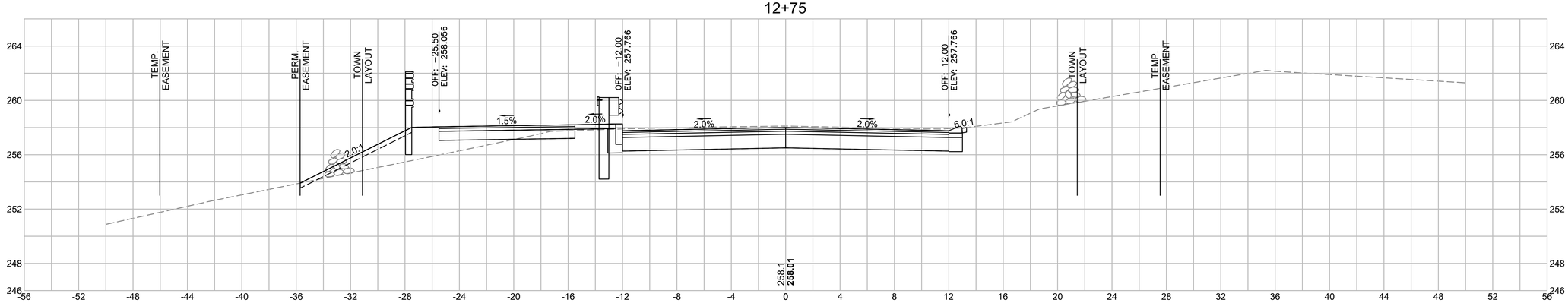
20170044A21_XSEC01_LAYOUTS.DWG Plotted on 18-Nov-2020 1:26 PM

13+00



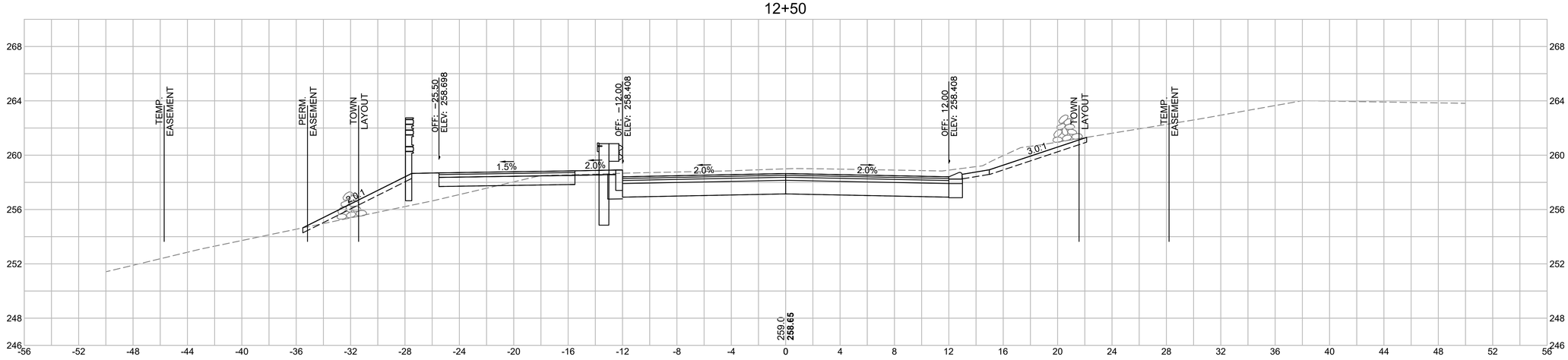
Total Volume at Station 13+00.00	
Cut Area	37.200
Fill Area	15.749
Cut Vol	37.8
Fill Vol	13.6
Cum Cut Vol	2689.5
Cum Fill Vol	196.8
Net Vol	2492.7

12+75



Total Volume at Station 12+75.00	
Cut Area	44.530
Fill Area	14.939
Cut Vol	48.1
Fill Vol	12.9
Cum Cut Vol	2651.7
Cum Fill Vol	183.2
Net Vol	2468.5

12+50



Total Volume at Station 12+50.00	
Cut Area	59.366
Fill Area	12.983
Cut Vol	61.1
Fill Vol	9.2
Cum Cut Vol	2603.6
Cum Fill Vol	170.2
Net Vol	2433.4

LITTLETON

RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	90	129
PROJECT FILE NO.	609054		

CROSS SECTIONS

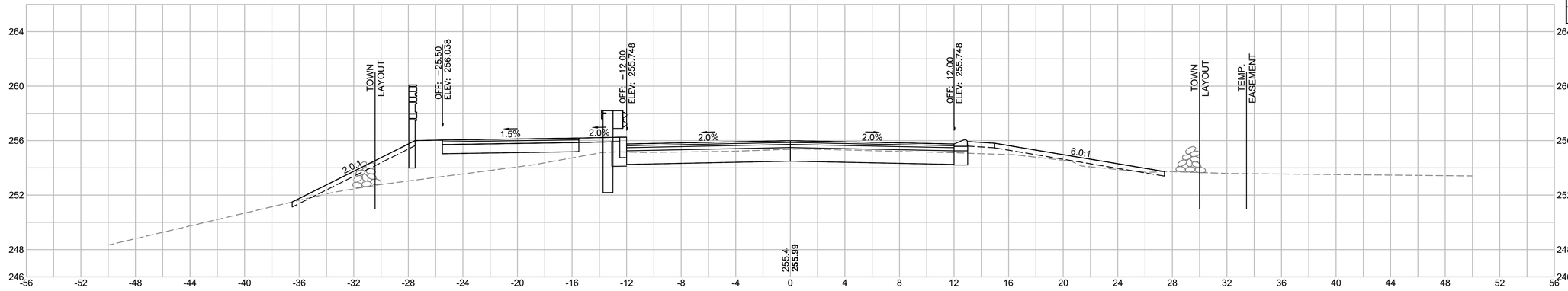
20170044A21_XSEC01_LAYOUTS.DWG Plotted on 18-Nov-2020 1:26 PM

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	91	129
	PROJECT FILE NO. 609054		

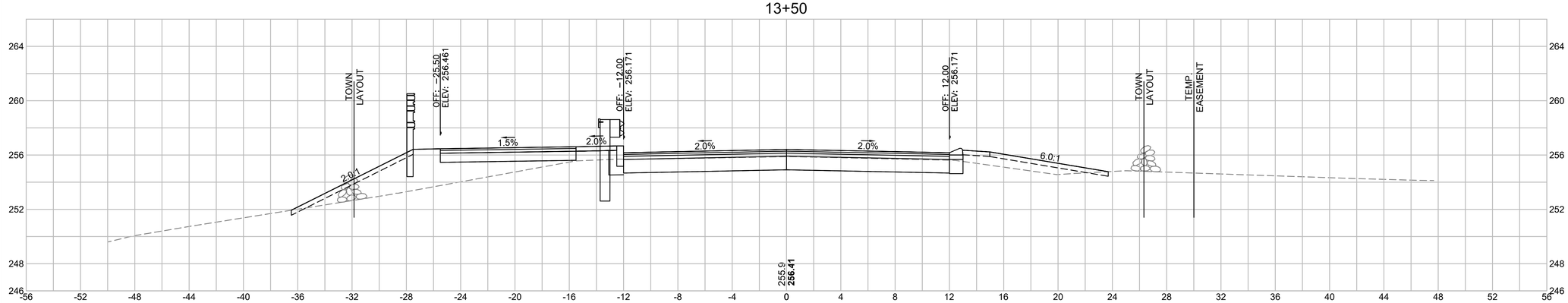
CROSS SECTIONS

13+75



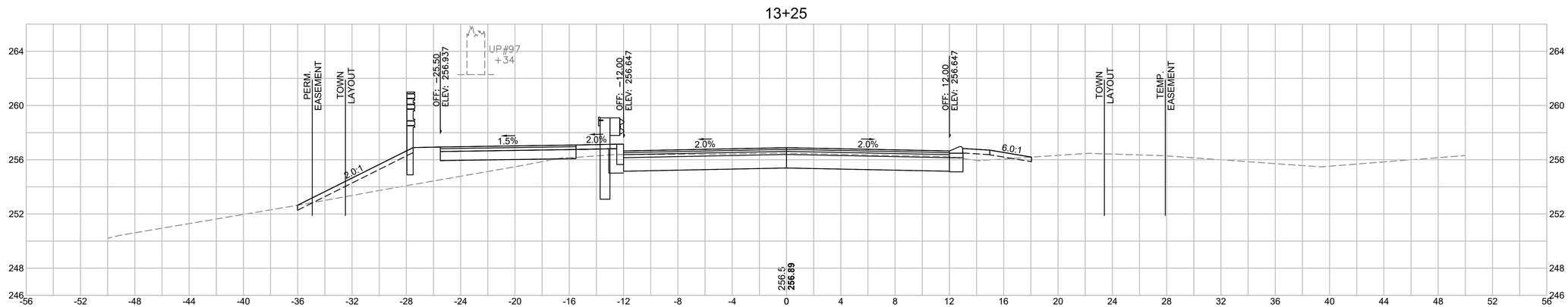
Total Volume at Station 13+75.00	
Cut Area	24.294
Fill Area	30.335
Cut Vol	23.2
Fill Vol	27.4
Cum Cut Vol	2769.6
Cum Fill Vol	264.8
Net Vol	2504.8

13+50



Total Volume at Station 13+50.00	
Cut Area	25.962
Fill Area	31.244
Cut Vol	25.9
Fill Vol	23.8
Cum Cut Vol	2746.4
Cum Fill Vol	237.4
Net Vol	2509.0

13+25



Total Volume at Station 13+25.00	
Cut Area	29.959
Fill Area	22.479
Cut Vol	31.0
Fill Vol	16.8
Cum Cut Vol	2720.5
Cum Fill Vol	213.6
Net Vol	2506.9

20170044A21_XSEC01_LAYOUTS.DWG Plotted on 18-Nov-2020 1:26 PM

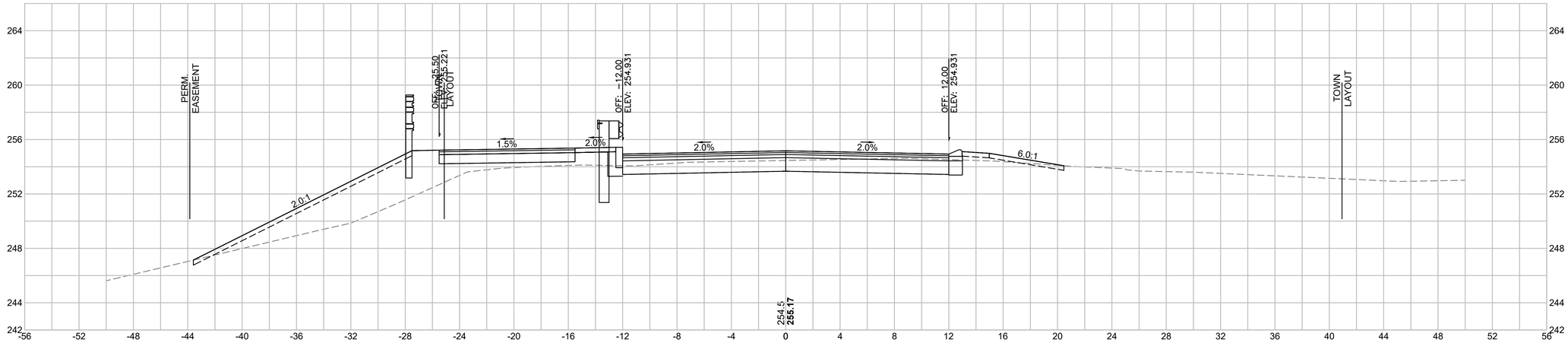
LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	92	129
	PROJECT FILE NO.	609054	

CROSS SECTIONS

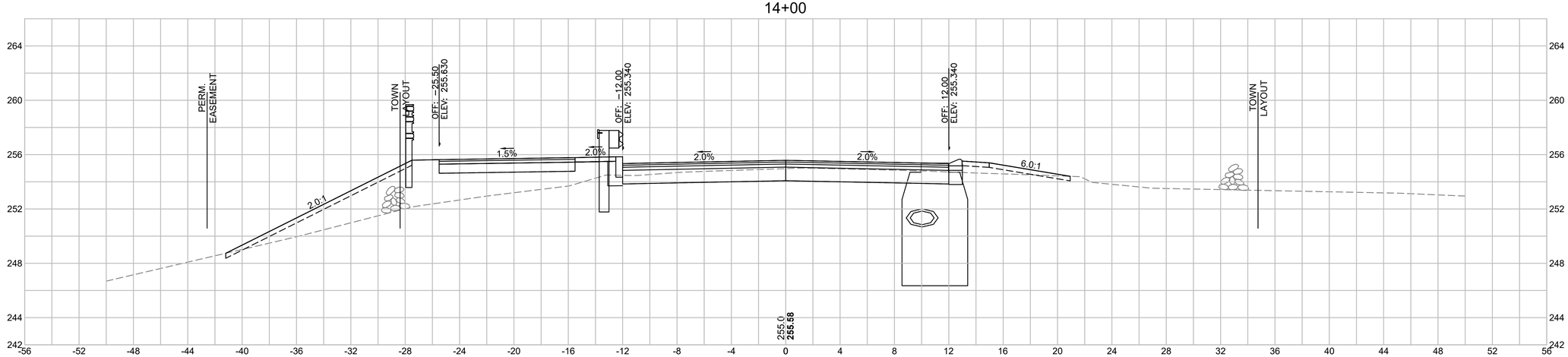
20170044A21_XSEC01_LAYOUTS.DWG Plotted on 18-Nov-2020 1:26 PM

14+25



Total Volume at Station 14+25.00	
Cut Area	23.986
Fill Area	40.818
Cut Vol	22.2
Fill Vol	38.4
Cum Cut Vol	2814.2
Cum Fill Vol	337.2
Net Vol	2477.0

14+00



Total Volume at Station 14+00.00	
Cut Area	23.945
Fill Area	46.640
Cut Vol	22.3
Fill Vol	34.5
Cum Cut Vol	2792.0
Cum Fill Vol	298.8
Net Vol	2493.1

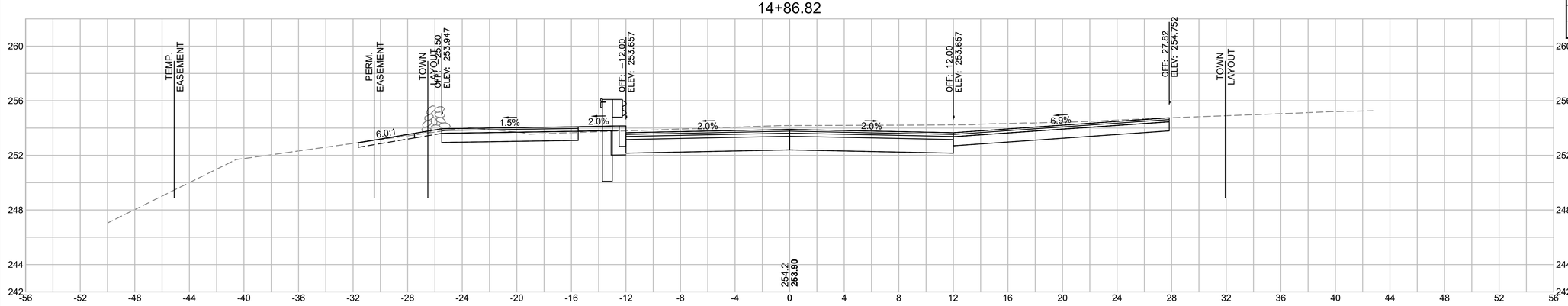
LITTLETON

RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	93	129
	PROJECT FILE NO. 609054		

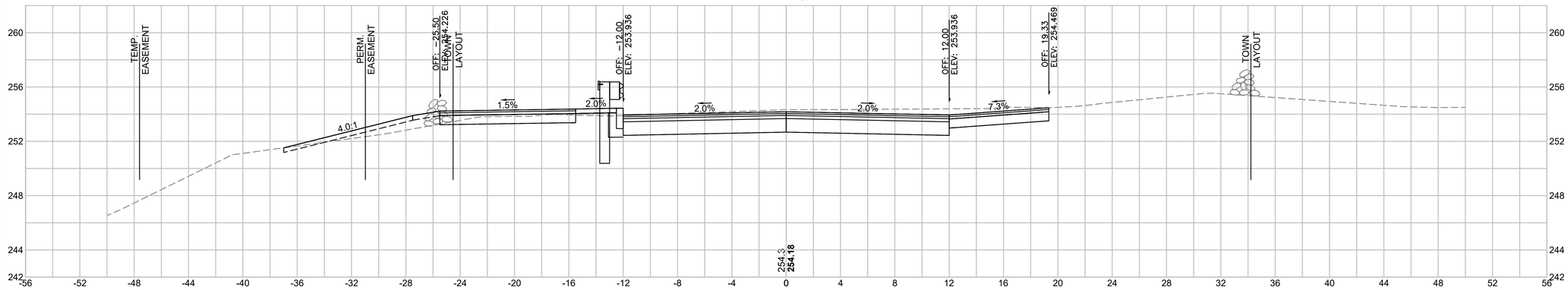
CROSS SECTIONS

14+86.82



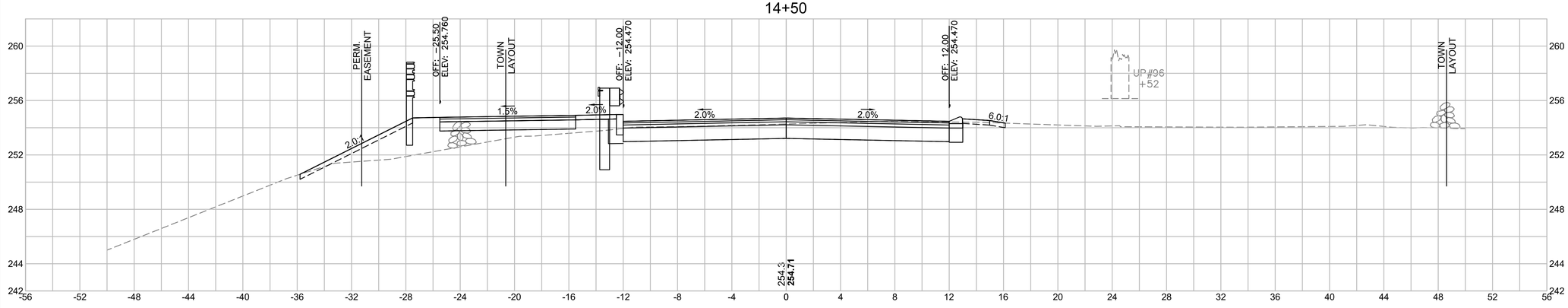
Total Volume at Station 14+86.82	
Cut Area	75.582
Fill Area	0.178
Cut Vol	29.4
Fill Vol	0.8
Cum Cut Vol	2912.3
Cum Fill Vol	377.1
Net Vol	2535.2

14+75



Total Volume at Station 14+75.00	
Cut Area	58.403
Fill Area	3.919
Cut Vol	42.3
Fill Vol	11.4
Cum Cut Vol	2882.9
Cum Fill Vol	376.2
Net Vol	2506.7

14+50



Total Volume at Station 14+50.00	
Cut Area	33.060
Fill Area	22.060
Cut Vol	26.4
Fill Vol	27.6
Cum Cut Vol	2840.6
Cum Fill Vol	364.8
Net Vol	2475.8

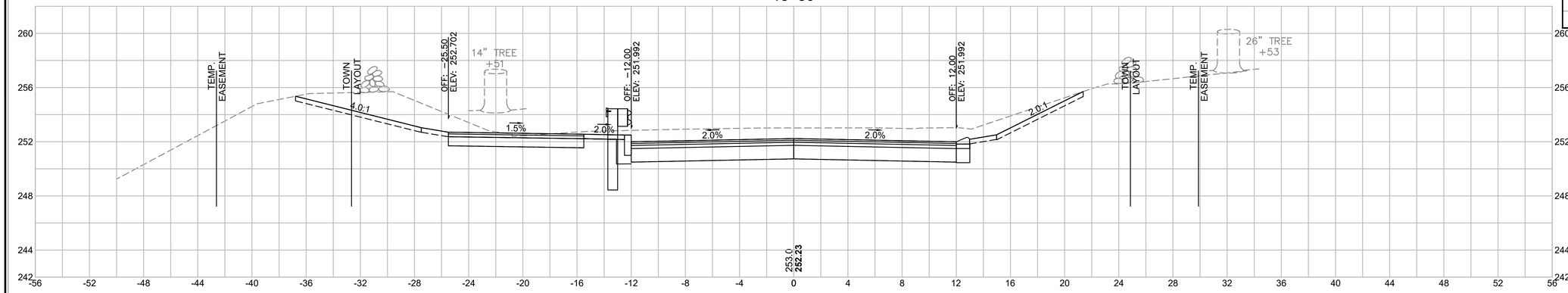
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LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	94	129
	PROJECT FILE NO. 609054		

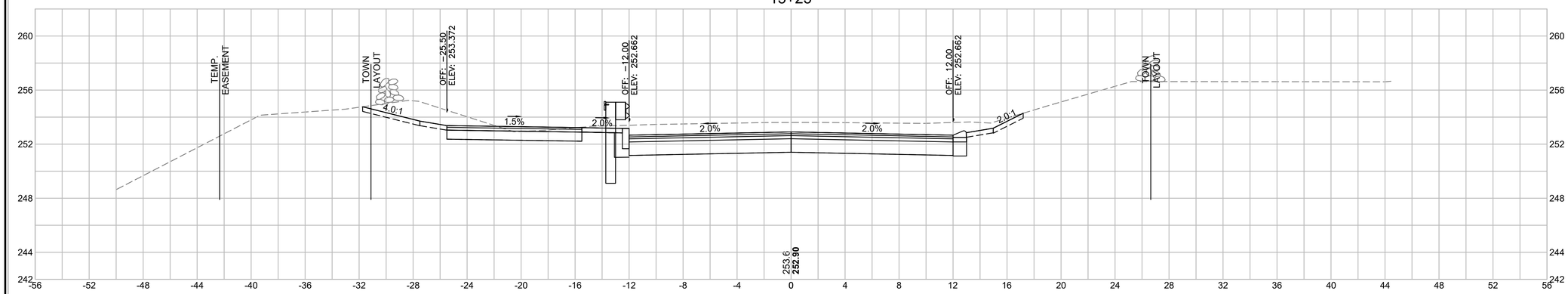
CROSS SECTIONS

15+50



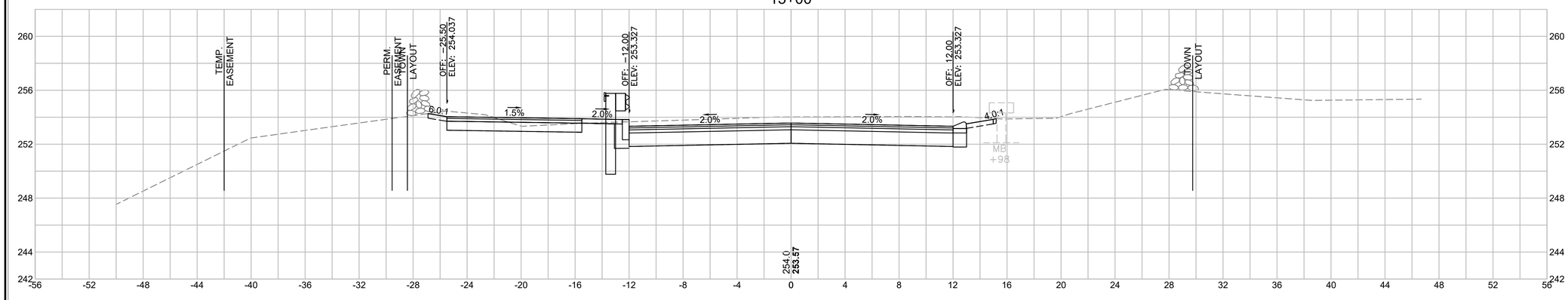
Total Volume at Station 15+50.00	
Cut Area	103.045
Fill Area	0.000
Cut Vol	85.1
Fill Vol	0.0
Cum Cut Vol	3101.3
Cum Fill Vol	377.1
Net Vol	2724.2

15+25



Total Volume at Station 15+25.00	
Cut Area	82.962
Fill Area	0.000
Cut Vol	69.0
Fill Vol	0.0
Cum Cut Vol	3016.2
Cum Fill Vol	377.1
Net Vol	2639.1

15+00



Total Volume at Station 15+00.00	
Cut Area	67.399
Fill Area	0.001
Cut Vol	34.9
Fill Vol	0.0
Cum Cut Vol	2947.2
Cum Fill Vol	377.1
Net Vol	2570.1

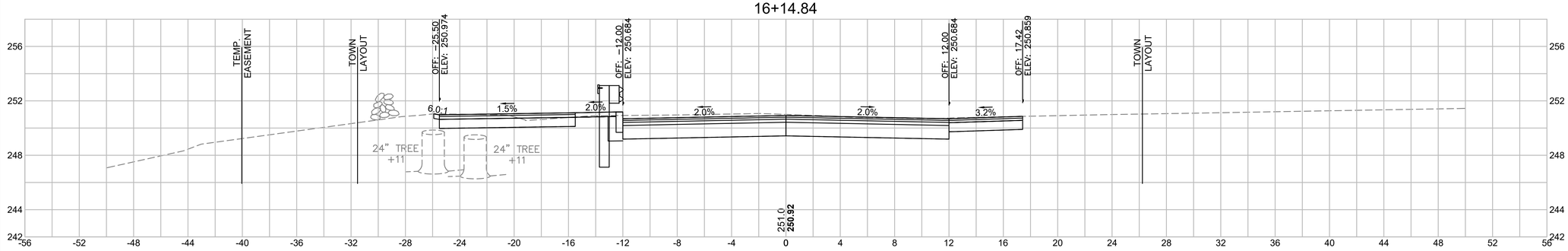
20170044A21_XSEC01_LAYOUTS.DWG Plotted on 18-Nov-2020 1:27 PM

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	95	129
	PROJECT FILE NO. 609054		

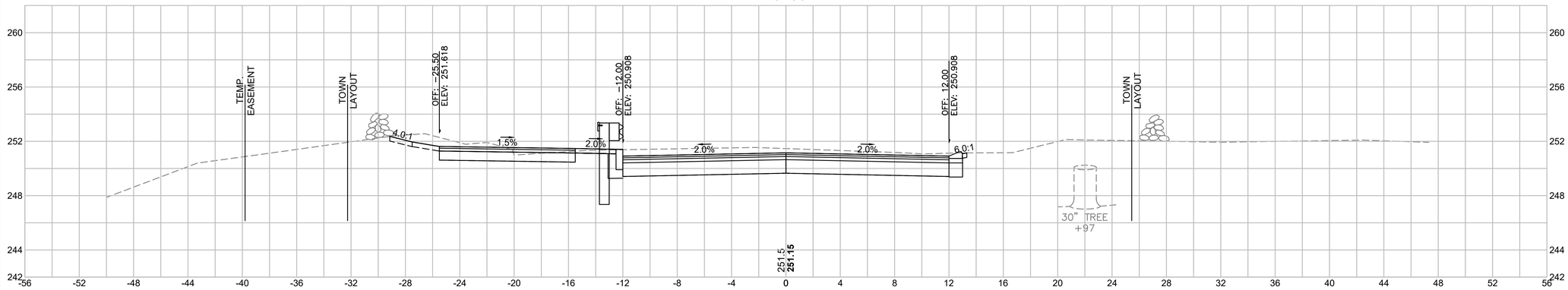
CROSS SECTIONS

16+14.84



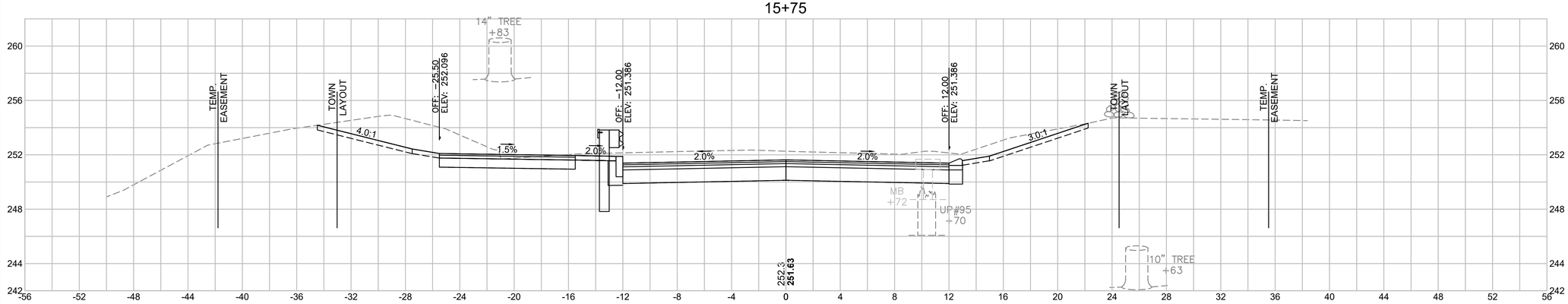
Total Volume at Station 16+14.84	
Cut Area	56.412
Fill Area	0.000
Cut Vol	33.4
Fill Vol	0.0
Cum Cut Vol	3300.9
Cum Fill Vol	377.1
Net Vol	2923.8

16+00



Total Volume at Station 16+00.00	
Cut Area	65.169
Fill Area	0.000
Cut Vol	74.6
Fill Vol	0.0
Cum Cut Vol	3267.5
Cum Fill Vol	377.1
Net Vol	2890.4

15+75



Total Volume at Station 15+75.00	
Cut Area	97.571
Fill Area	0.000
Cut Vol	91.6
Fill Vol	0.0
Cum Cut Vol	3192.9
Cum Fill Vol	377.1
Net Vol	2815.8

20170044A21_XSEC01_LAYOUTS.DWG Plotted on 18-Nov-2020 1:27 PM

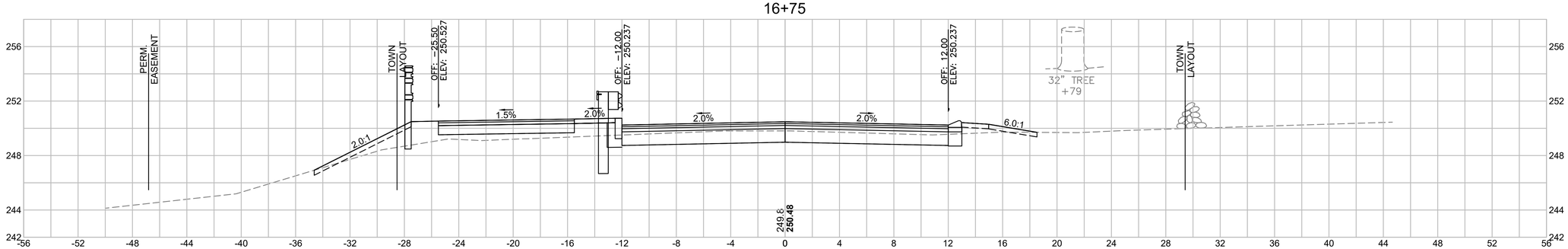
LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	96	129
	PROJECT FILE NO. 609054		

CROSS SECTIONS

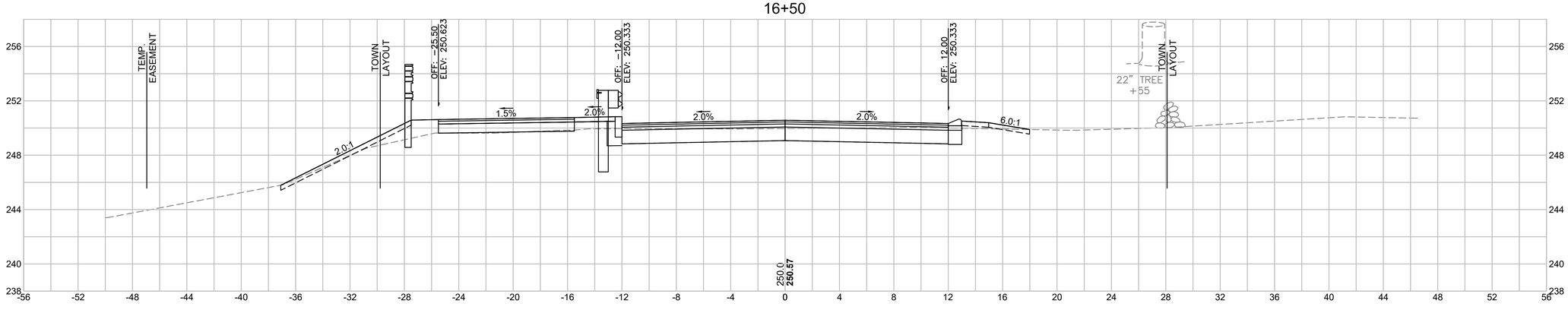
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16+75



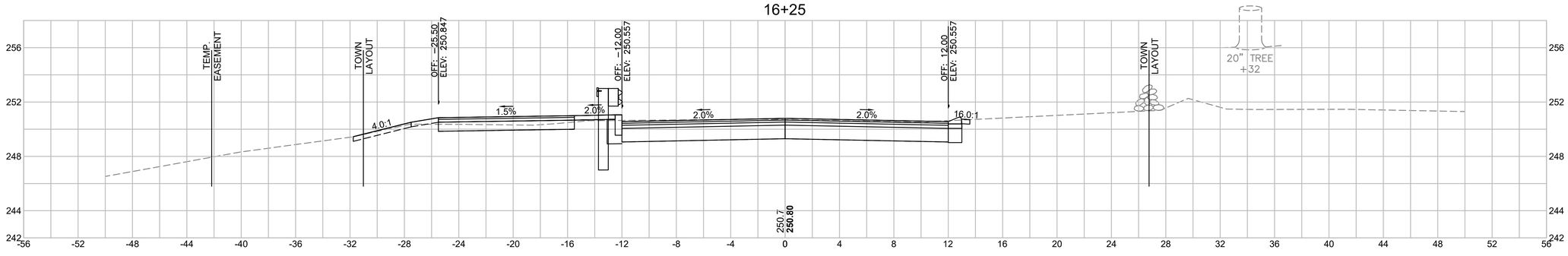
Total Volume at Station 16+75.00	
Cut Area	22.576
Fill Area	13.399
Cut Vol	29.7
Fill Vol	8.9
Cum Cut Vol	3377.5
Cum Fill Vol	388.9
Net Vol	2988.6

16+50



Total Volume at Station 16+50.00	
Cut Area	28.545
Fill Area	5.850
Cut Vol	33.9
Fill Vol	2.8
Cum Cut Vol	3353.8
Cum Fill Vol	380.0
Net Vol	2973.8

16+25



Total Volume at Station 16+25.00	
Cut Area	44.605
Fill Area	0.269
Cut Vol	19.0
Fill Vol	0.1
Cum Cut Vol	3320.0
Cum Fill Vol	377.2
Net Vol	2942.8

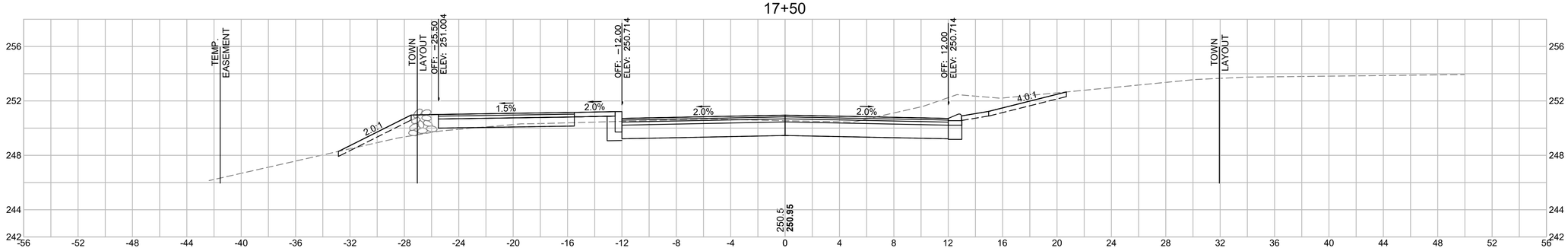
LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	97	129
	PROJECT FILE NO. 609054		

CROSS SECTIONS

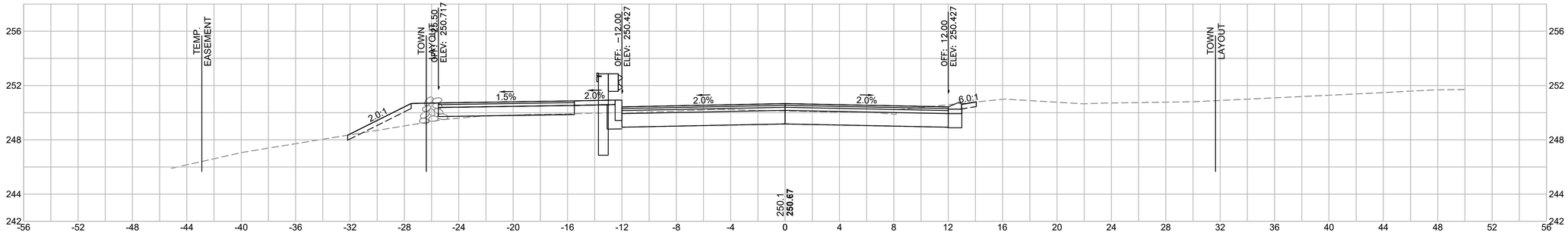
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17+50



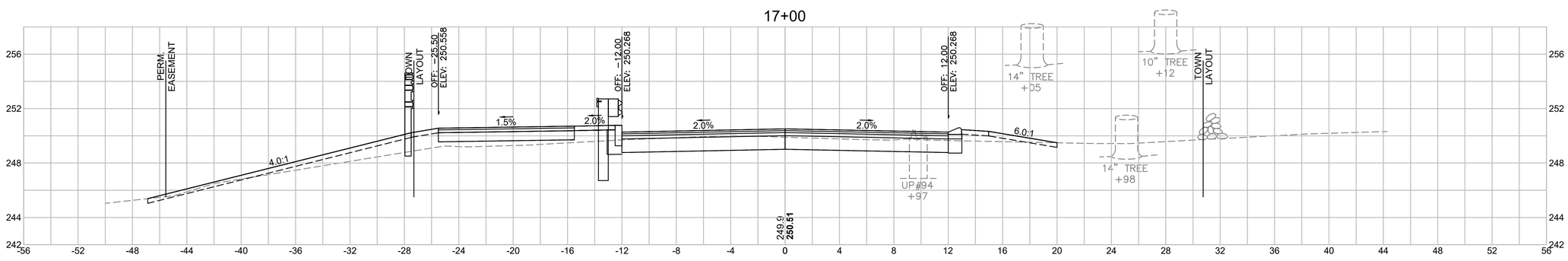
Total Volume at Station 17+50.00	
Cut Area	46.396
Fill Area	6.358
Cut Vol	36.4
Fill Vol	4.2
Cum Cut Vol	3461.3
Cum Fill Vol	412.6
Net Vol	3048.7

17+25



Total Volume at Station 17+25.00	
Cut Area	30.194
Fill Area	8.933
Cut Vol	25.5
Fill Vol	7.3
Cum Cut Vol	3424.9
Cum Fill Vol	408.5
Net Vol	3016.4

17+00



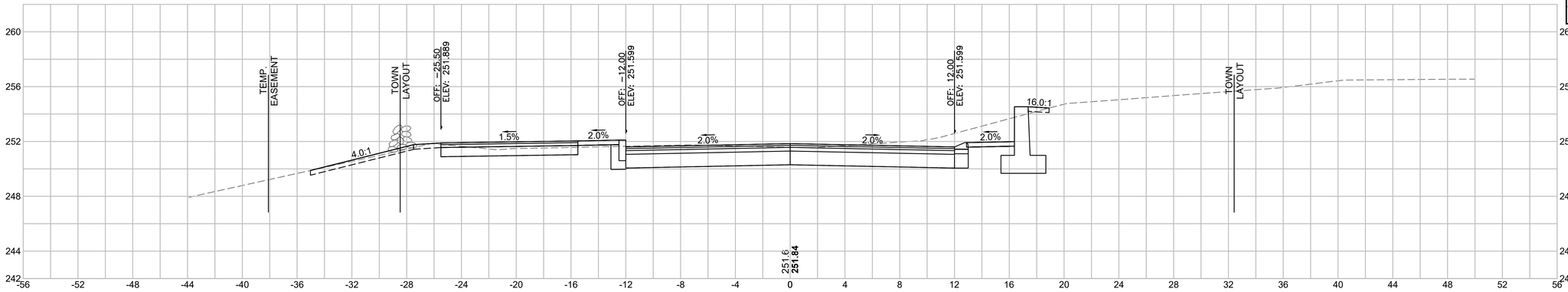
Total Volume at Station 17+00.00	
Cut Area	24.842
Fill Area	8.814
Cut Vol	22.0
Fill Vol	10.3
Cum Cut Vol	3399.4
Cum Fill Vol	399.2
Net Vol	3000.2

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	98	129
	PROJECT FILE NO. 609054		

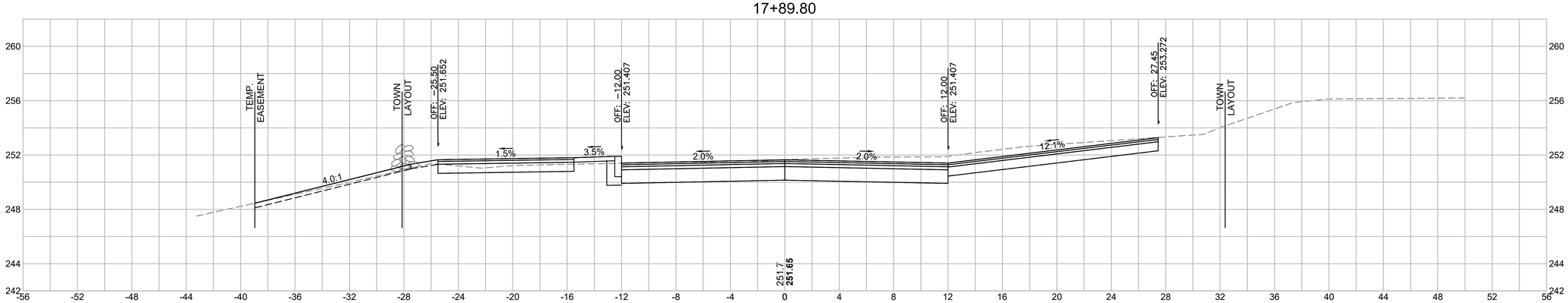
CROSS SECTIONS

18+00



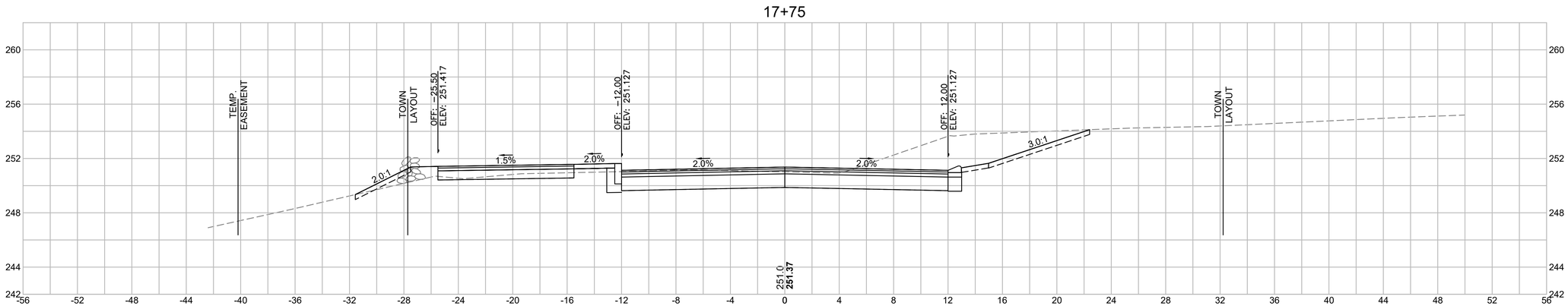
Total Volume at Station 18+00.00	
Cut Area	55.814
Fill Area	0.363
Cut Vol	22.9
Fill Vol	0.1
Cum Cut Vol	3576.2
Cum Fill Vol	418.4
Net Vol	3157.8

17+89.80



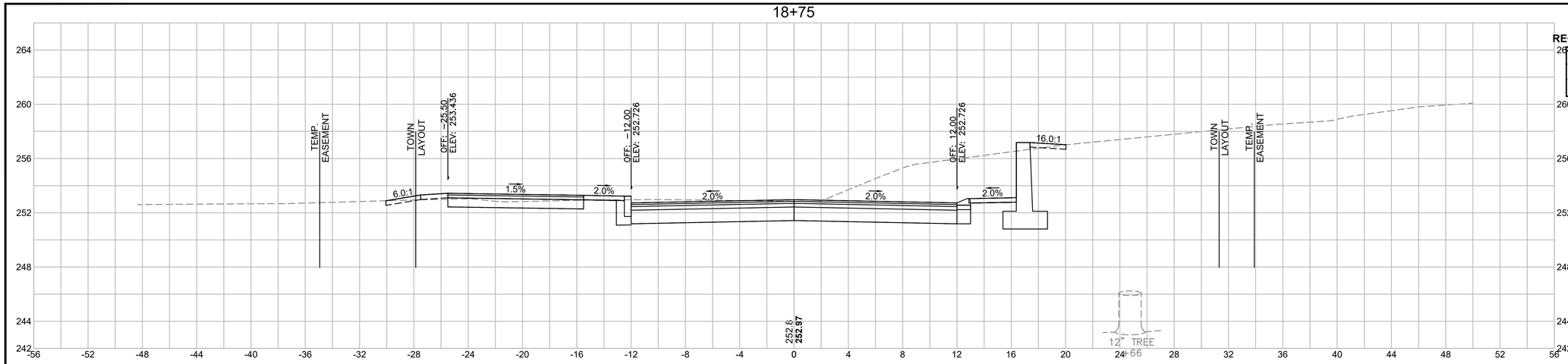
Total Volume at Station 17+89.80	
Cut Area	65.175
Fill Area	0.399
Cut Vol	37.1
Fill Vol	1.6
Cum Cut Vol	3553.4
Cum Fill Vol	418.2
Net Vol	3135.1

17+75



Total Volume at Station 17+75.00	
Cut Area	70.237
Fill Area	3.422
Cut Vol	54.9
Fill Vol	4.5
Cum Cut Vol	3516.2
Cum Fill Vol	417.2
Net Vol	3099.1

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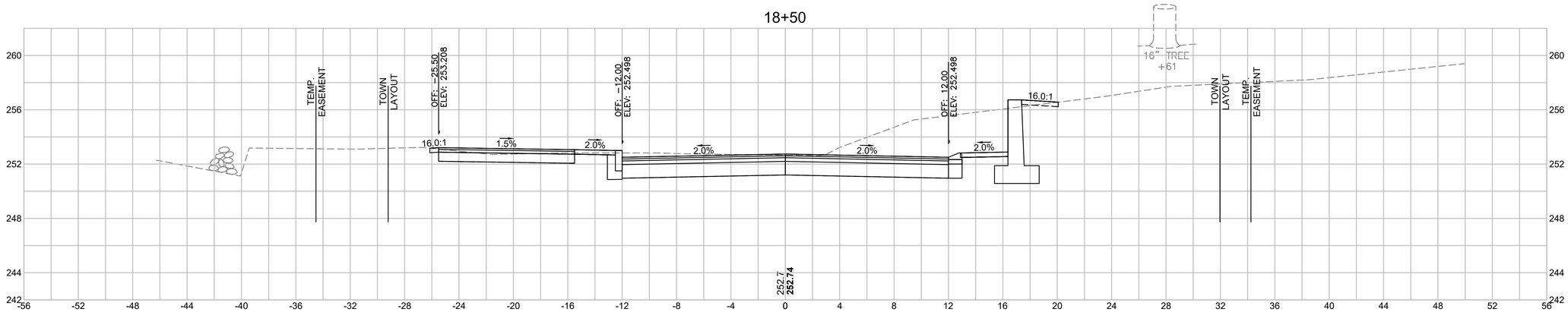
LITTLETON

RECONSTRUCTION OF FOSTER STREET

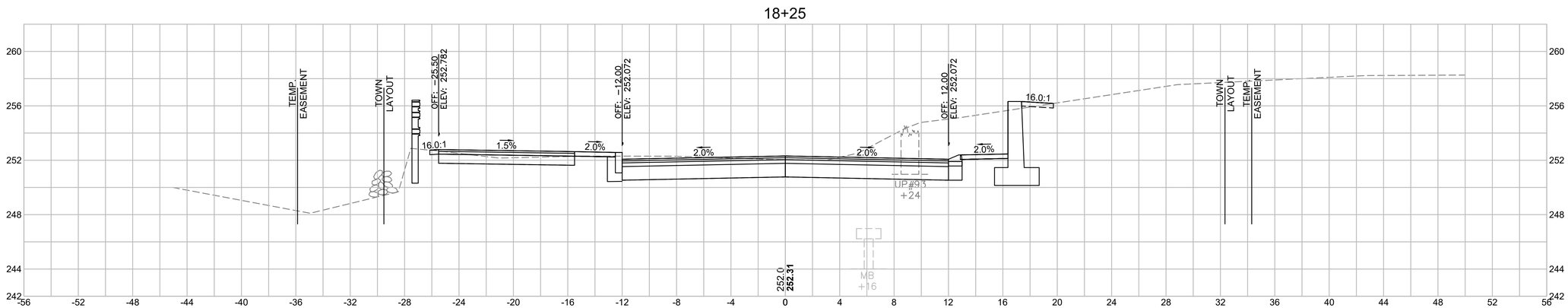
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	99	129
PROJECT FILE NO.	609054		

CROSS SECTIONS

Total Volume at Station 18+75.00	
Cut Area	83.681
Fill Area	0.219
Cut Vol	78.9
Fill Vol	0.1
Cum Cut Vol	3787.7
Cum Fill Vol	418.7
Net Vol	3369.0



Total Volume at Station 18+50.00	
Cut Area	82.368
Fill Area	0.000
Cut Vol	73.5
Fill Vol	0.0
Cum Cut Vol	3710.8
Cum Fill Vol	418.5
Net Vol	3292.2



Total Volume at Station 18+25.00	
Cut Area	76.280
Fill Area	0.005
Cut Vol	61.2
Fill Vol	0.2
Cum Cut Vol	3637.4
Cum Fill Vol	418.5
Net Vol	3218.8

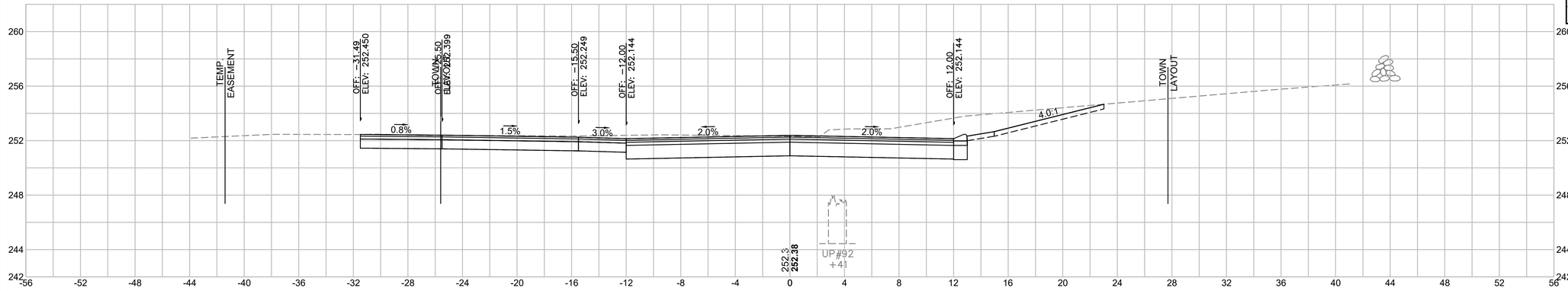
20170044A21_XSEC01_LAYOUTS.DWG Plotted on 18-Nov-2020 1:28 PM

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	100	129
PROJECT FILE NO.	609054		

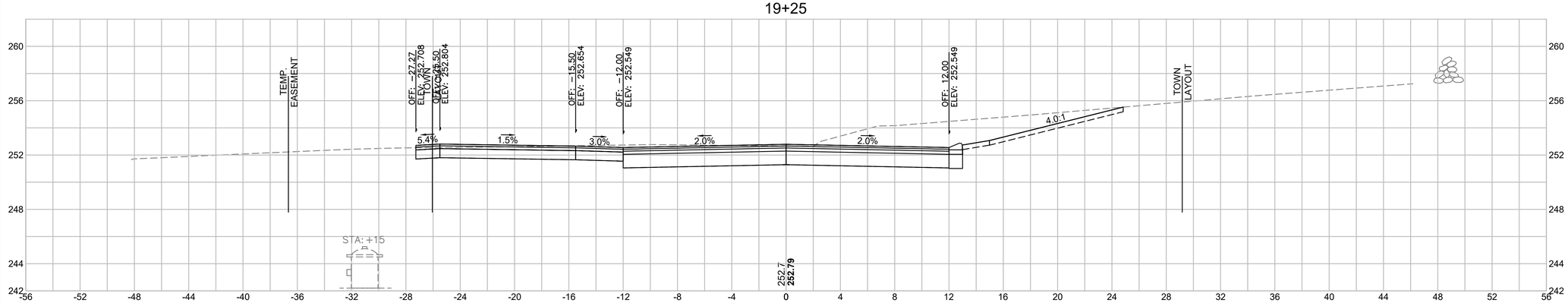
CROSS SECTIONS

19+50



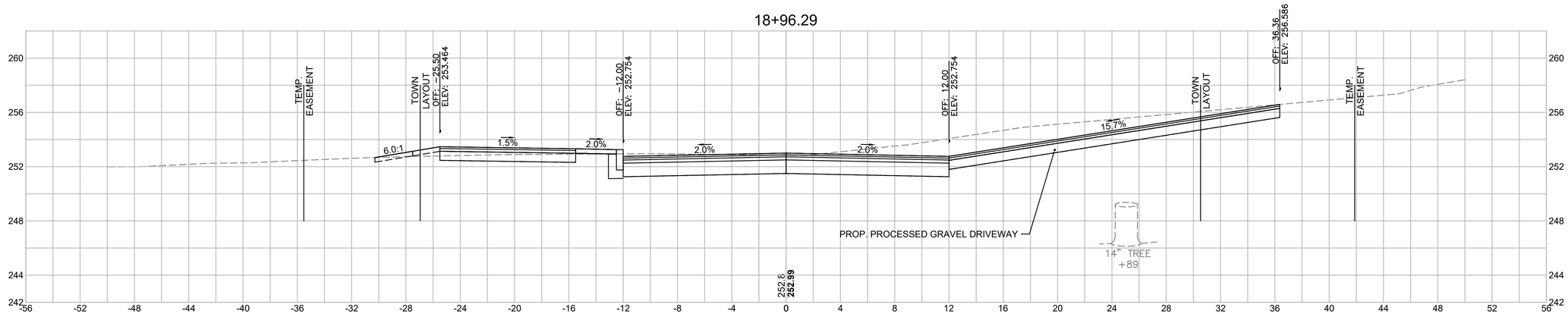
Total Volume at Station 19+50.00	
Cut Area	80.338
Fill Area	0.000
Cut Vol	76.2
Fill Vol	0.0
Cum Cut Vol	4010.0
Cum Fill Vol	419.2
Net Vol	3590.7

19+25



Total Volume at Station 19+25.00	
Cut Area	84.298
Fill Area	0.000
Cut Vol	84.0
Fill Vol	0.3
Cum Cut Vol	3933.8
Cum Fill Vol	419.2
Net Vol	3514.5

18+96.29



Total Volume at Station 18+96.29	
Cut Area	73.705
Fill Area	0.485
Cut Vol	62.0
Fill Vol	0.3
Cum Cut Vol	3849.7
Cum Fill Vol	419.0
Net Vol	3430.8

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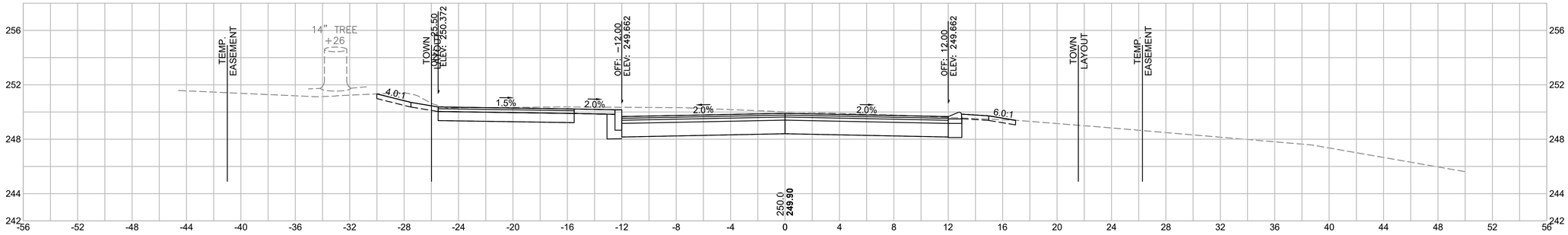
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RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	101	129
	PROJECT FILE NO. 609054		

CROSS SECTIONS

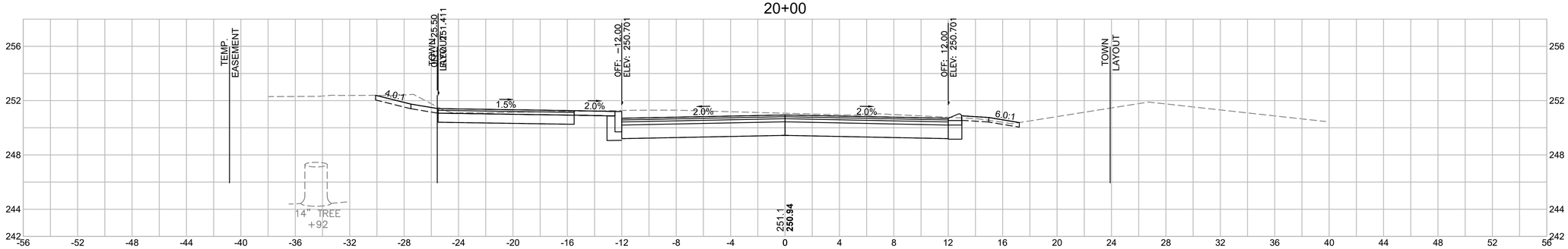
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20+25



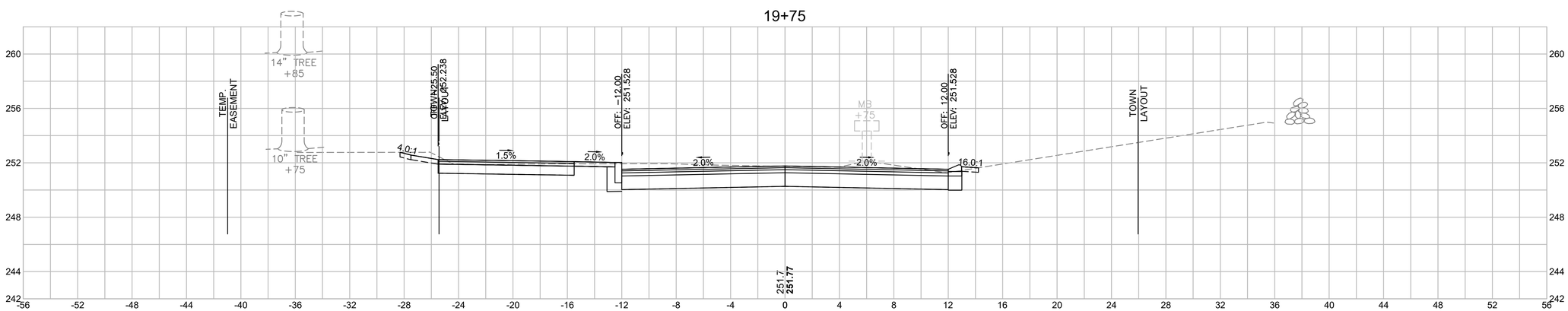
Total Volume at Station 20+25.00	
Cut Area	61.377
Fill Area	0.000
Cut Vol	55.9
Fill Vol	0.0
Cum Cut Vol	4179.9
Cum Fill Vol	419.2
Net Vol	3760.6

20+00



Total Volume at Station 20+00.00	
Cut Area	59.412
Fill Area	0.000
Cut Vol	52.1
Fill Vol	0.0
Cum Cut Vol	4123.9
Cum Fill Vol	419.2
Net Vol	3704.6

19+75

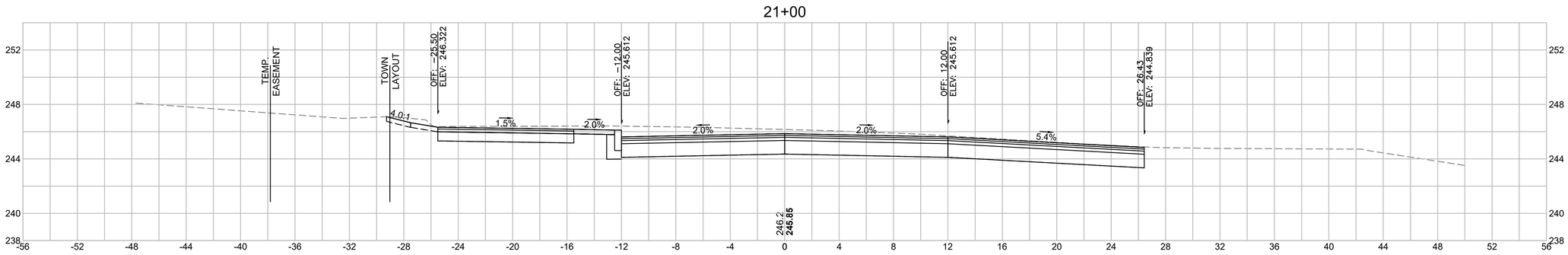


Total Volume at Station 19+75.00	
Cut Area	53.161
Fill Area	0.000
Cut Vol	61.8
Fill Vol	0.0
Cum Cut Vol	4077.8
Cum Fill Vol	419.2
Net Vol	3652.5

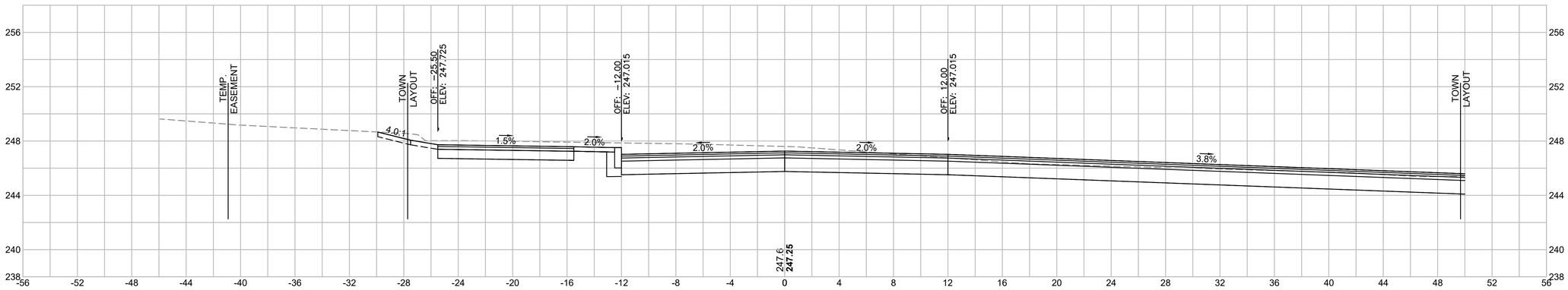
LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	102	129
PROJECT FILE NO.	609054		

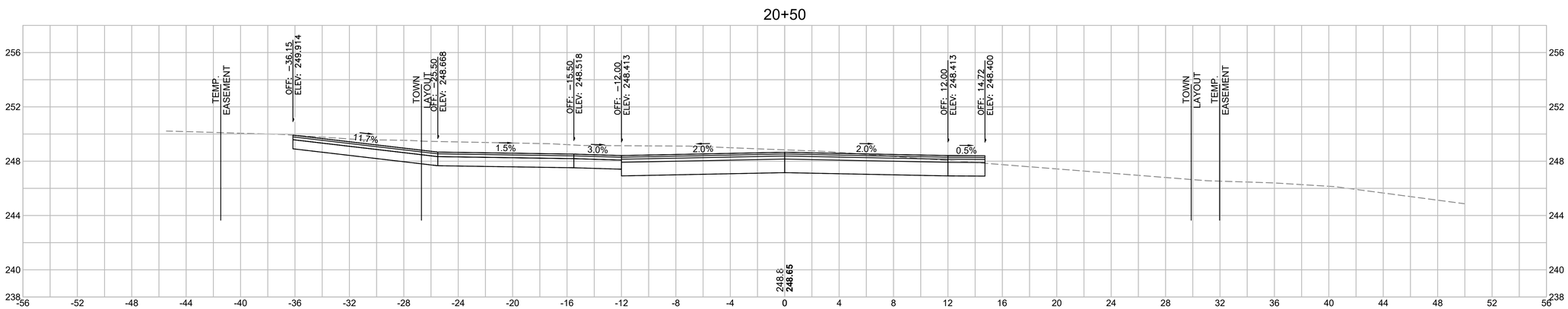
CROSS SECTIONS



Total Volume at Station 21+00.00	
Cut Area	95.966
Fill Area	0.000
Cut Vol	97.2
Fill Vol	0.0
Cum Cut Vol	4438.7
Cum Fill Vol	419.2
Net Vol	4019.4



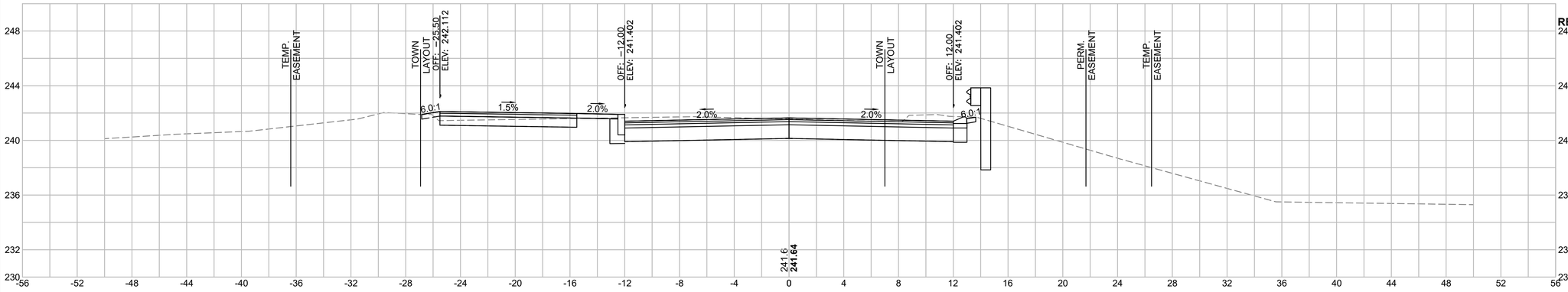
Total Volume at Station 20+75.00	
Cut Area	114.038
Fill Area	0.000
Cut Vol	93.9
Fill Vol	0.0
Cum Cut Vol	4341.4
Cum Fill Vol	419.2
Net Vol	3922.2



Total Volume at Station 20+50.00	
Cut Area	86.804
Fill Area	0.000
Cut Vol	68.6
Fill Vol	0.0
Cum Cut Vol	4248.4
Cum Fill Vol	419.2
Net Vol	3829.2

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21+75



Total Volume at Station 21+75.00	
Cut Area	47.495
Fill Area	0.091
Cut Vol	45.9
Fill Vol	0.2
Cum Cut Vol	4607.6
Cum Fill Vol	430.3
Net Vol	4197.3

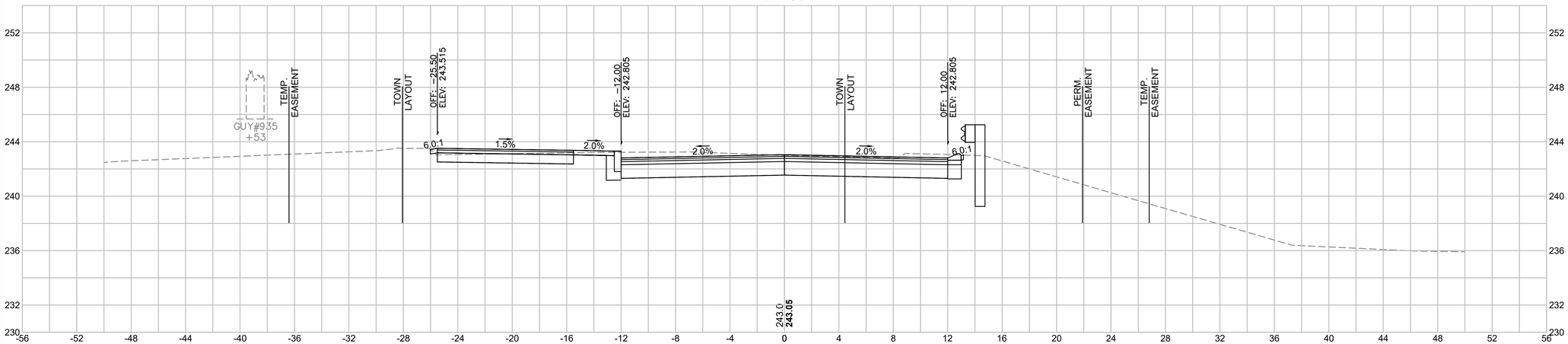
LITTLETON

RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	103	129
PROJECT FILE NO.	609054		

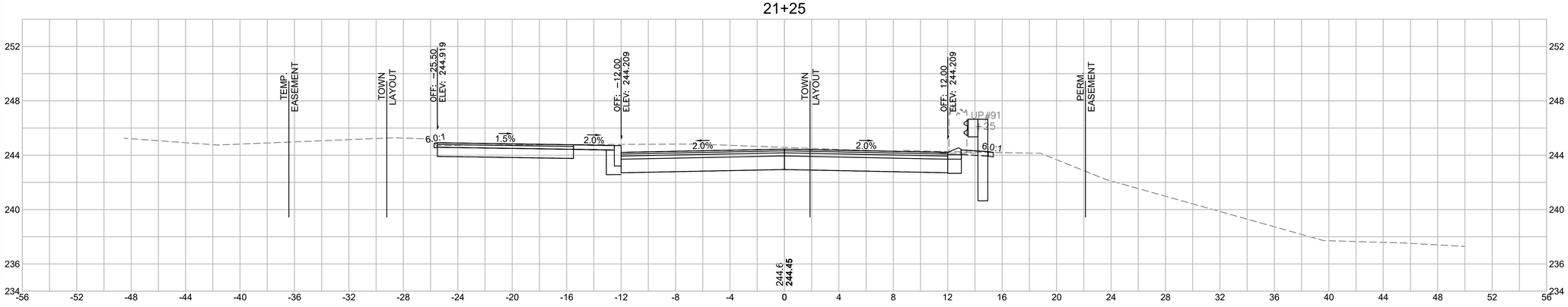
CROSS SECTIONS

21+50



Total Volume at Station 21+50.00	
Cut Area	51.724
Fill Area	0.371
Cut Vol	51.2
Fill Vol	0.5
Cum Cut Vol	4561.6
Cum Fill Vol	420.1
Net Vol	4141.6

21+25



Total Volume at Station 21+25.00	
Cut Area	58.943
Fill Area	0.690
Cut Vol	71.7
Fill Vol	0.3
Cum Cut Vol	4510.4
Cum Fill Vol	419.6
Net Vol	4090.8

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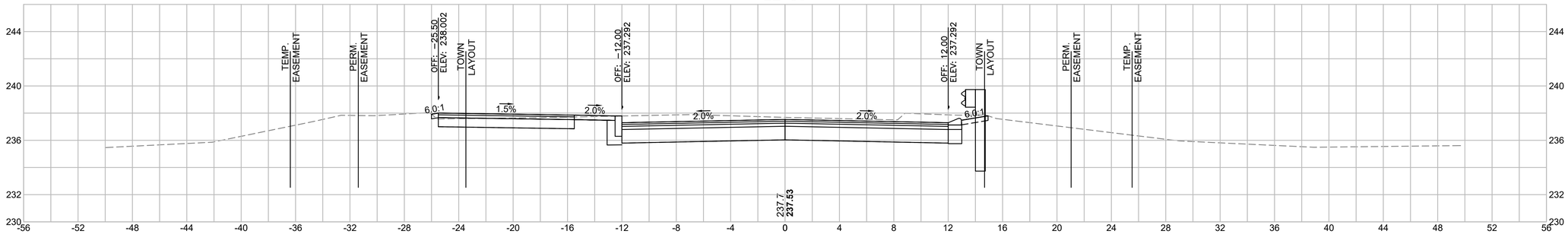
LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	104	129
	PROJECT FILE NO. 609054		

CROSS SECTIONS

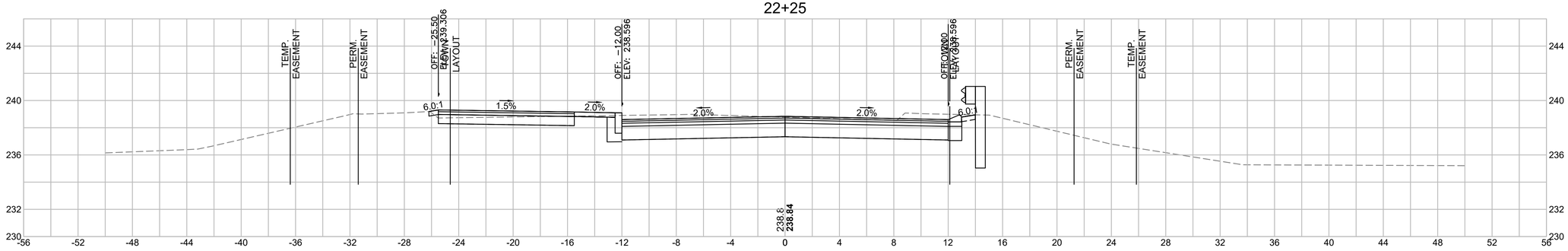
20170044A21_XSEC01_LAYOUTS.DWG Plotted on 18-Nov-2020 1:29 PM

22+50



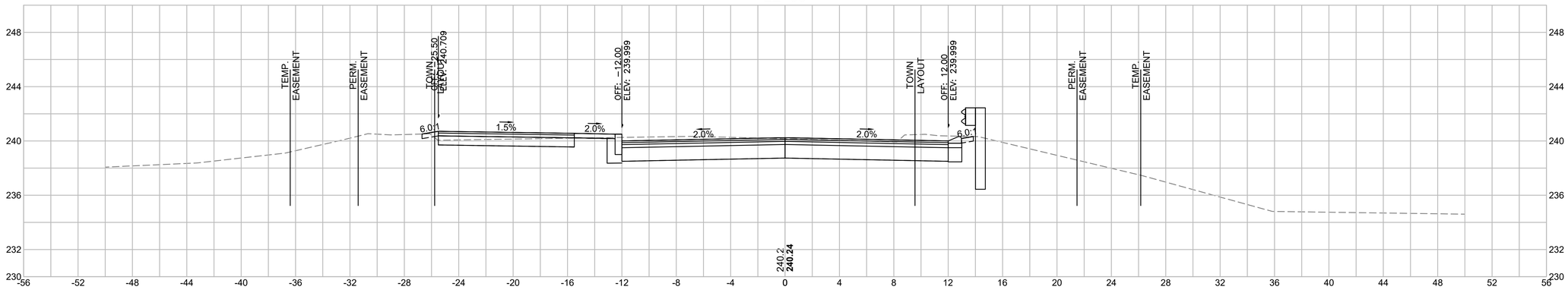
Total Volume at Station 22+50.00	
Cut Area	57.430
Fill Area	0.010
Cut Vol	49.4
Fill Vol	0.0
Cum Cut Vol	4746.0
Cum Fill Vol	420.4
Net Vol	4325.6

22+25



Total Volume at Station 22+25.00	
Cut Area	49.218
Fill Area	0.036
Cut Vol	44.9
Fill Vol	0.0
Cum Cut Vol	4696.6
Cum Fill Vol	420.4
Net Vol	4276.2

22+00



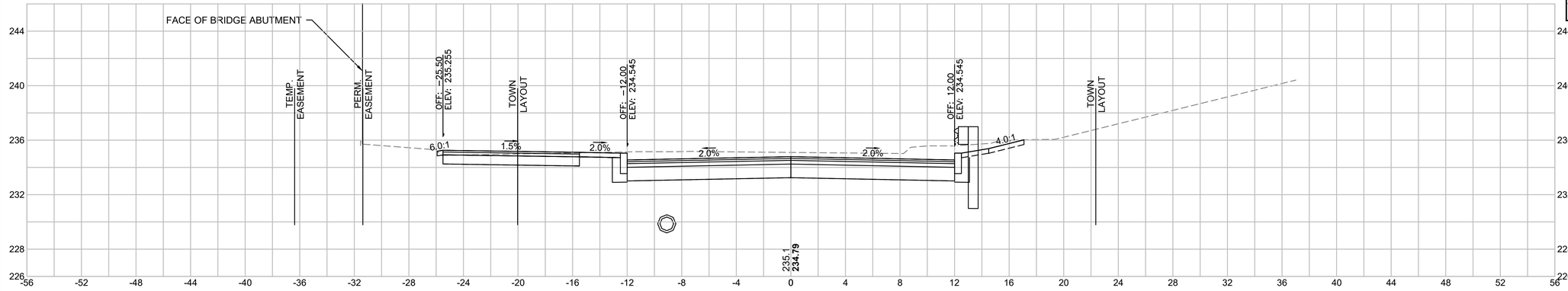
Total Volume at Station 22+00.00	
Cut Area	47.801
Fill Area	0.066
Cut Vol	44.1
Fill Vol	0.1
Cum Cut Vol	4651.7
Cum Fill Vol	420.3
Net Vol	4231.3

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	105	129
	PROJECT FILE NO. 609054		

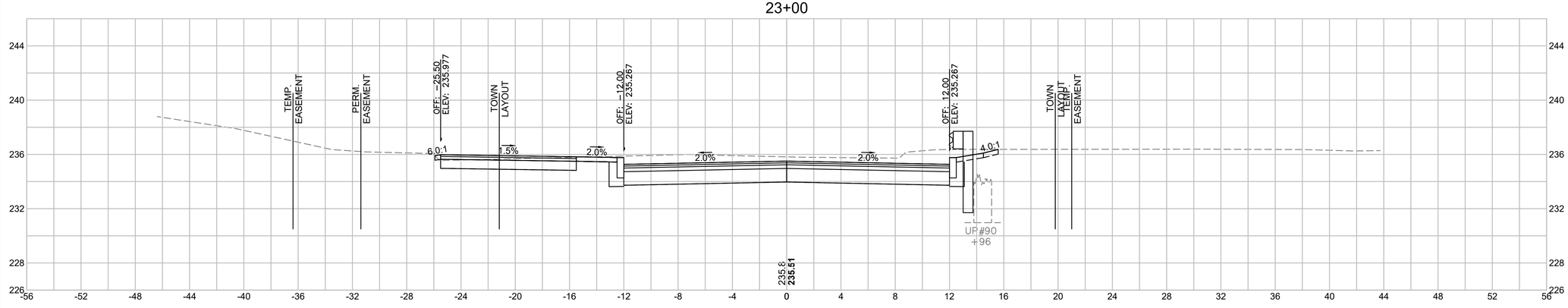
CROSS SECTIONS

23+25



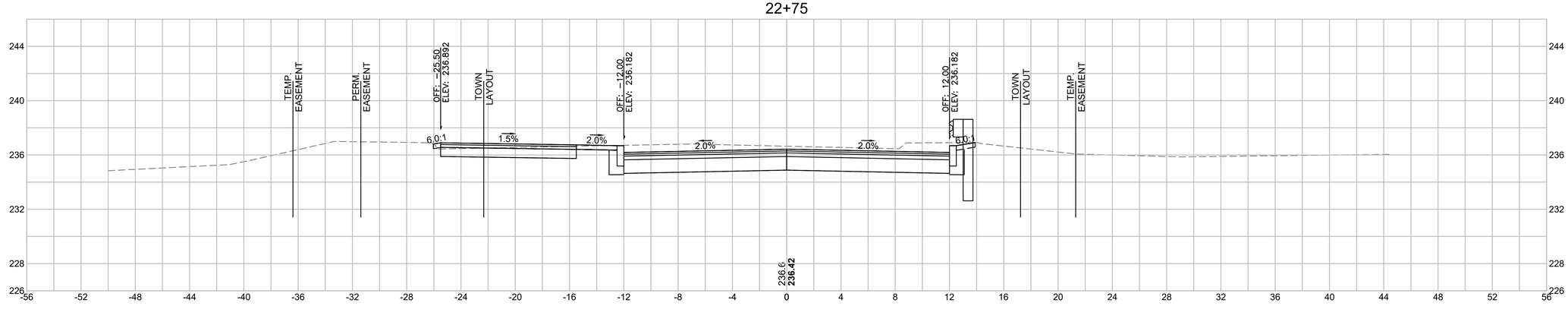
Total Volume at Station 23+25.00	
Cut Area	66.017
Fill Area	0.004
Cut Vol	60.8
Fill Vol	0.0
Cum Cut Vol	4918.9
Cum Fill Vol	420.4
Net Vol	4498.4

23+00



Total Volume at Station 23+00.00	
Cut Area	65.209
Fill Area	0.009
Cut Vol	57.9
Fill Vol	0.0
Cum Cut Vol	4858.1
Cum Fill Vol	420.4
Net Vol	4437.7

22+75



Total Volume at Station 22+75.00	
Cut Area	59.815
Fill Area	0.015
Cut Vol	54.3
Fill Vol	0.0
Cum Cut Vol	4800.2
Cum Fill Vol	420.4
Net Vol	4379.8

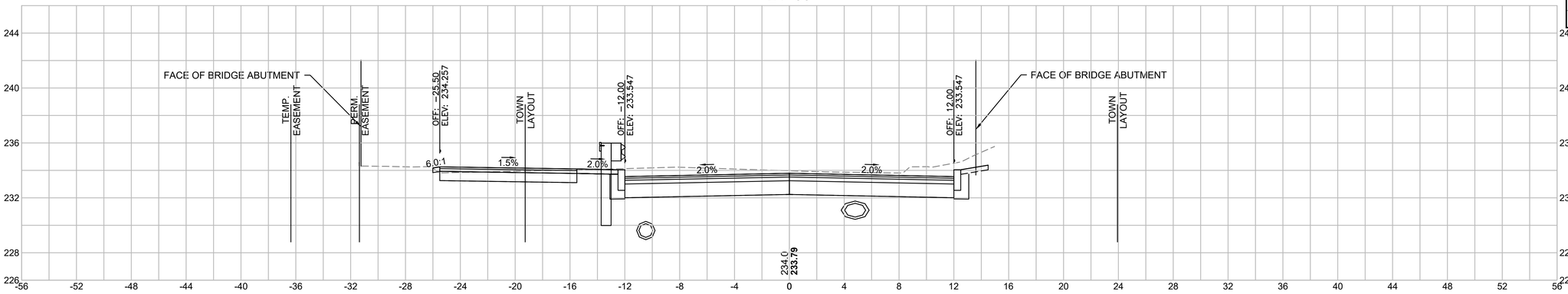
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RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	106	129
	PROJECT FILE NO. 609054		

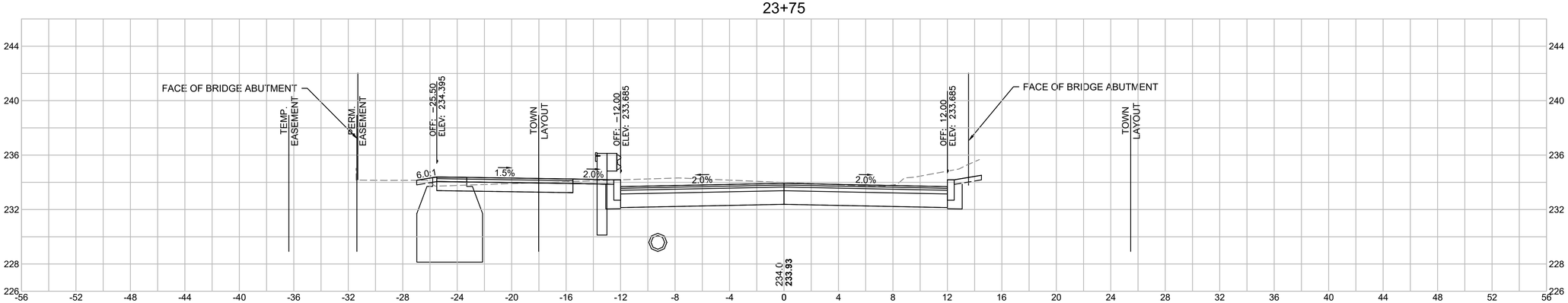
CROSS SECTIONS

24+00



Total Volume at Station 24+00.00	
Cut Area	62.309
Fill Area	0.009
Cut Vol	55.6
Fill Vol	0.0
Cum Cut Vol	5089.2
Cum Fill Vol	420.6
Net Vol	4668.7

23+75



Total Volume at Station 23+75.00	
Cut Area	57.867
Fill Area	0.094
Cut Vol	55.5
Fill Vol	0.1
Cum Cut Vol	5033.6
Cum Fill Vol	420.5
Net Vol	4613.1

23+50



Total Volume at Station 23+50.00	
Cut Area	61.963
Fill Area	0.030
Cut Vol	59.3
Fill Vol	0.0
Cum Cut Vol	4978.1
Cum Fill Vol	420.5
Net Vol	4557.7

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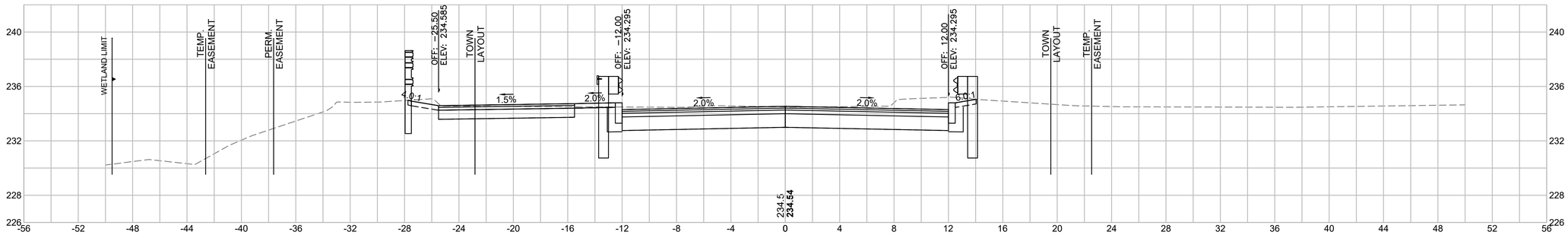
LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	107	129
	PROJECT FILE NO. 609054		

CROSS SECTIONS

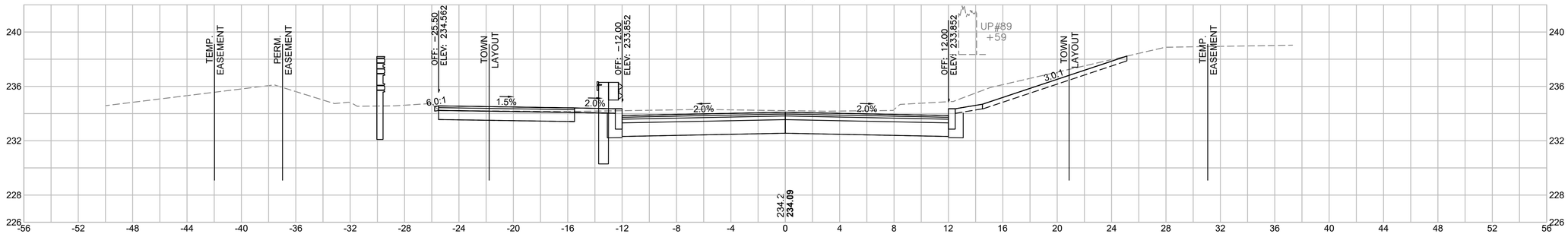
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24+75



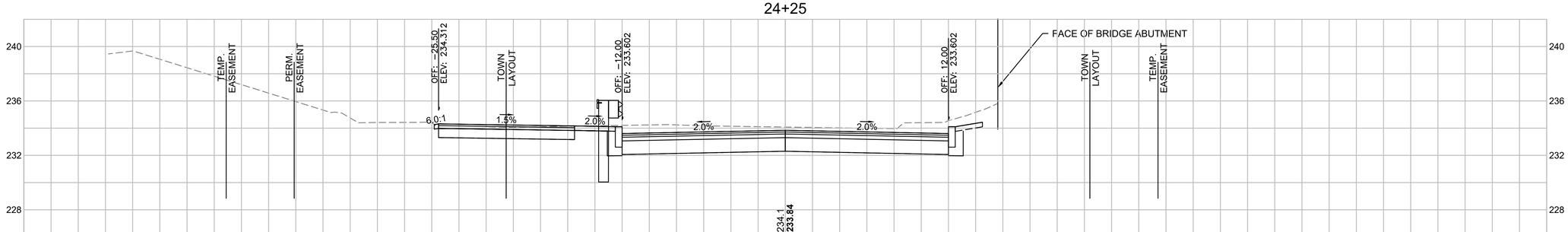
Total Volume at Station 24+75.00	
Cut Area	37.255
Fill Area	0.110
Cut Vol	54.4
Fill Vol	0.1
Cum Cut Vol	5289.6
Cum Fill Vol	420.6
Net Vol	4839.0

24+50



Total Volume at Station 24+50.00	
Cut Area	80.261
Fill Area	0.000
Cut Vol	57.5
Fill Vol	0.0
Cum Cut Vol	5295.3
Cum Fill Vol	420.6
Net Vol	4784.7

24+25



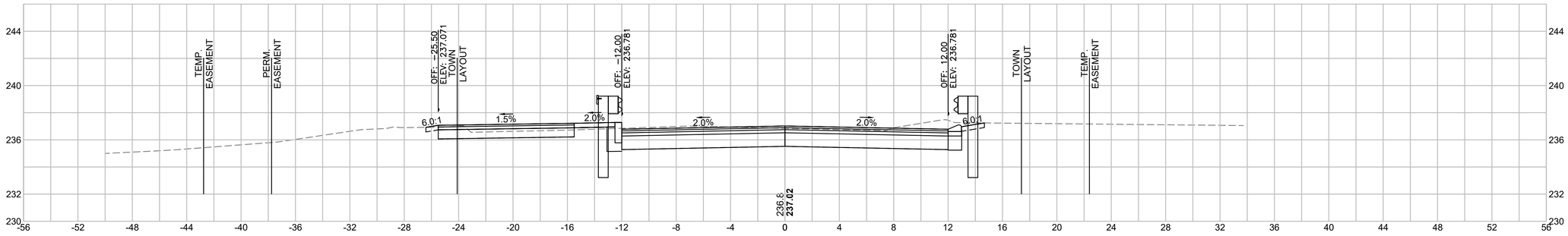
Total Volume at Station 24+25.00	
Cut Area	83.963
Fill Area	0.000
Cut Vol	58.5
Fill Vol	0.0
Cum Cut Vol	5147.7
Cum Fill Vol	420.6
Net Vol	4727.1

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	108	129
PROJECT FILE NO.	609054		

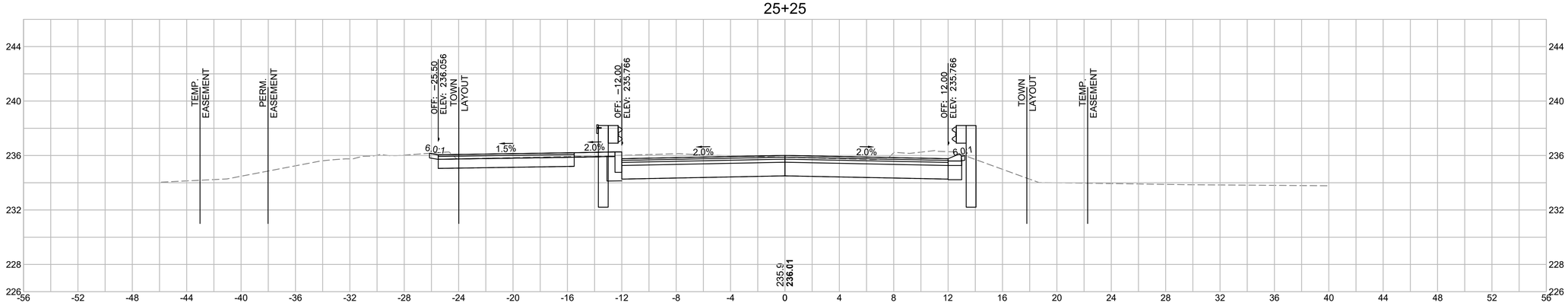
CROSS SECTIONS

25+50



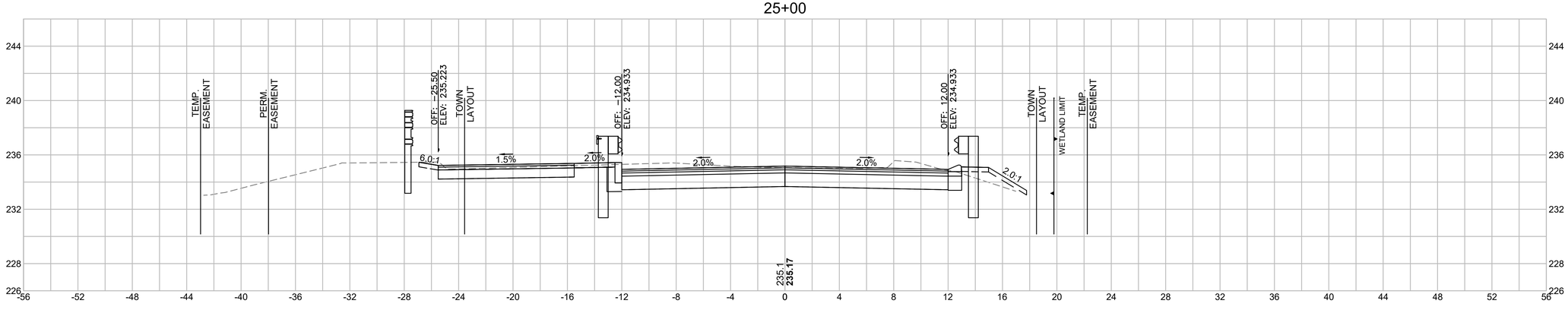
Total Volume at Station 25+50.00	
Cut Area	47.968
Fill Area	0.341
Cut Vol	45.9
Fill Vol	0.3
Cum Cut Vol	5403.9
Cum Fill Vol	424.0
Net Vol	4979.9

25+25



Total Volume at Station 25+25.00	
Cut Area	51.087
Fill Area	0.367
Cut Vol	47.8
Fill Vol	1.6
Cum Cut Vol	5355.1
Cum Fill Vol	423.7
Net Vol	4934.4

25+00



Total Volume at Station 25+00.00	
Cut Area	52.159
Fill Area	3.089
Cut Vol	50.7
Fill Vol	1.5
Cum Cut Vol	5310.3
Cum Fill Vol	422.1
Net Vol	4888.2

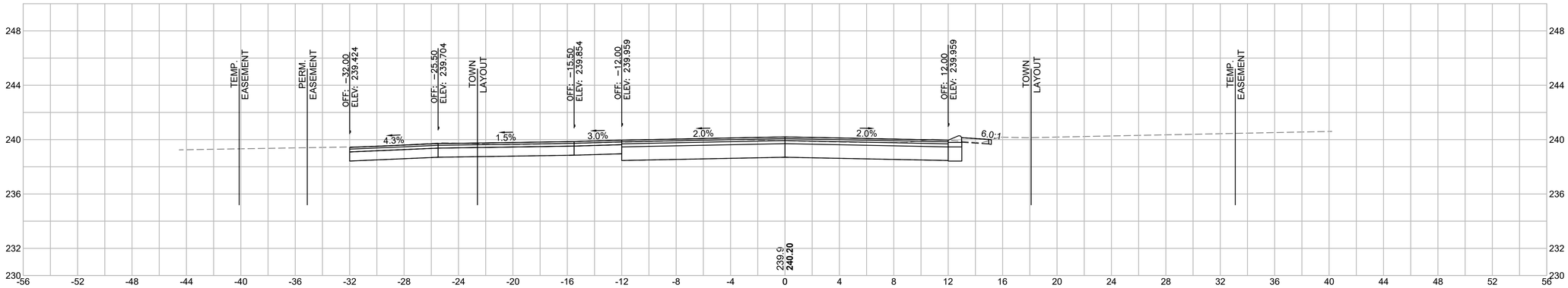
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RECONSTRUCTION OF FOSTER STREET

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MA	XXX-XXXX(XXX)X	109	129
	PROJECT FILE NO. 609054		

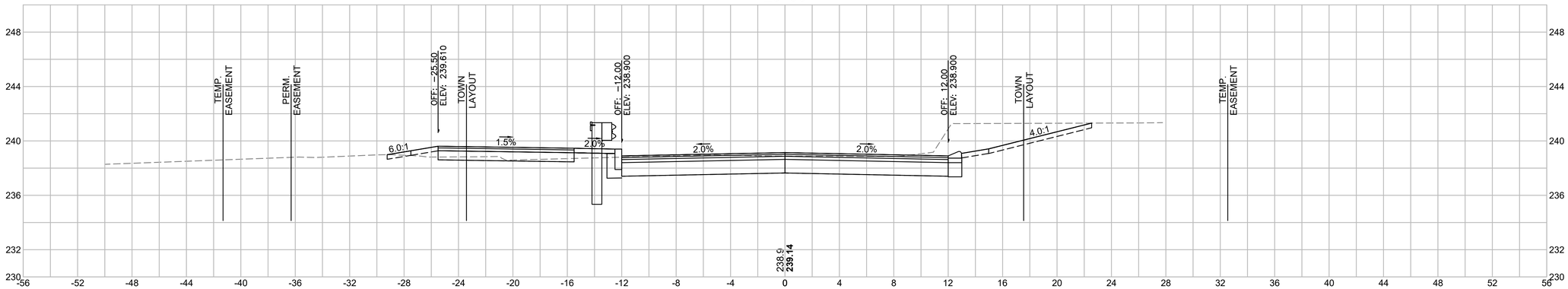
CROSS SECTIONS

26+25



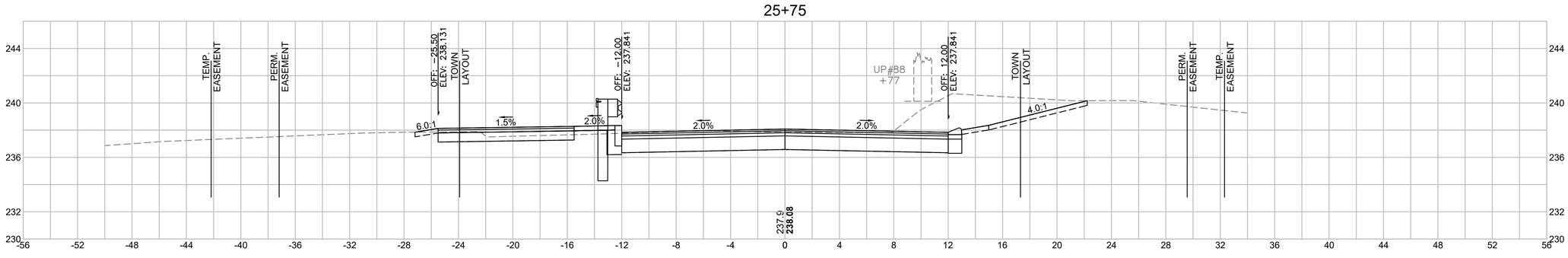
Total Volume at Station 26+25.00	
Cut Area	52.482
Fill Area	0.640
Cut Vol	50.8
Fill Vol	0.9
Cum Cut Vol	5665.5
Cum Fill Vol	426.4
Net Vol	5138.1

26+00



Total Volume at Station 26+00.00	
Cut Area	57.244
Fill Area	1.377
Cut Vol	57.5
Fill Vol	0.9
Cum Cut Vol	5614.7
Cum Fill Vol	425.4
Net Vol	5089.3

25+75



Total Volume at Station 25+75.00	
Cut Area	87.026
Fill Area	0.659
Cut Vol	53.2
Fill Vol	0.5
Cum Cut Vol	5457.2
Cum Fill Vol	424.5
Net Vol	5032.7

20170044A21_XSEC01_LAYOUTS.DWG Plotted on 18-Nov-2020 1:30 PM

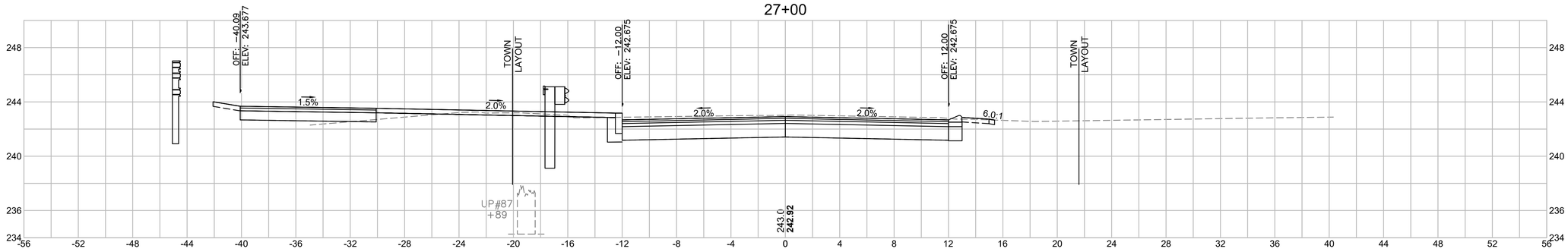
LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	110	129
	PROJECT FILE NO. 609054		

CROSS SECTIONS

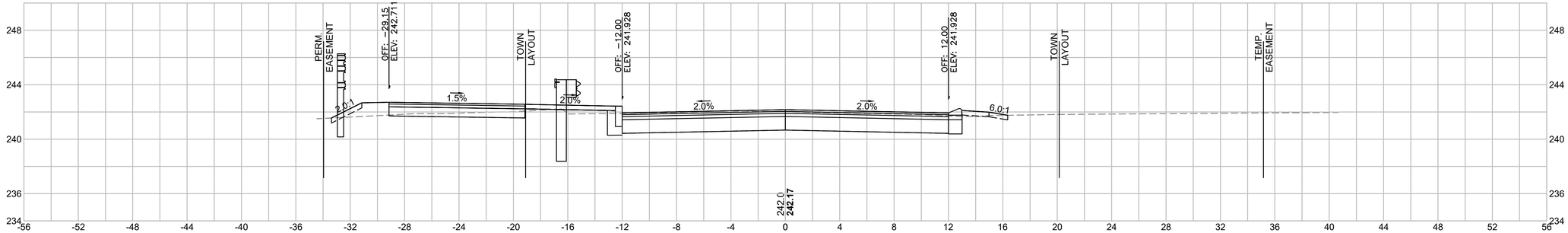
20170044A21_XSEC01_LAYOUTS.DWG Plotted on 18-Nov-2020 1:30 PM

27+00



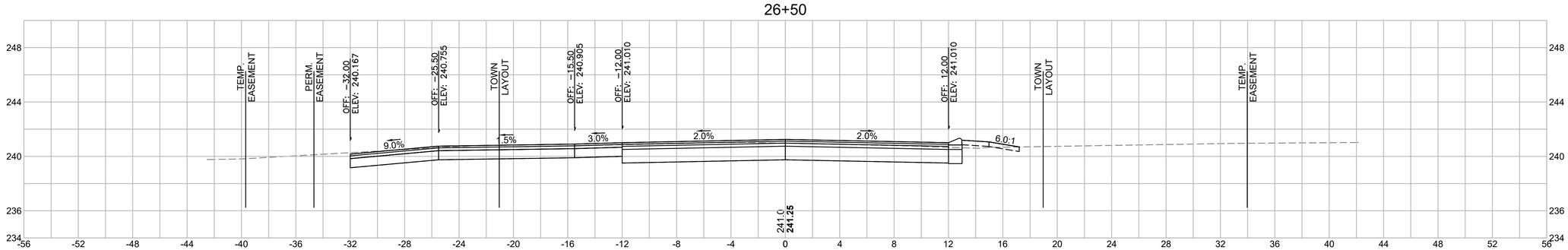
Total Volume at Station 27+00.00	
Cut Area	46.711
Fill Area	1.761
Cut Vol	40.1
Fill Vol	2.4
Cum Cut Vol	5697.0
Cum Fill Vol	431.0
Net Vol	5266.0

26+75



Total Volume at Station 26+75.00	
Cut Area	39.967
Fill Area	3.483
Cut Vol	42.8
Fill Vol	1.8
Cum Cut Vol	5656.9
Cum Fill Vol	428.6
Net Vol	5228.3

26+50



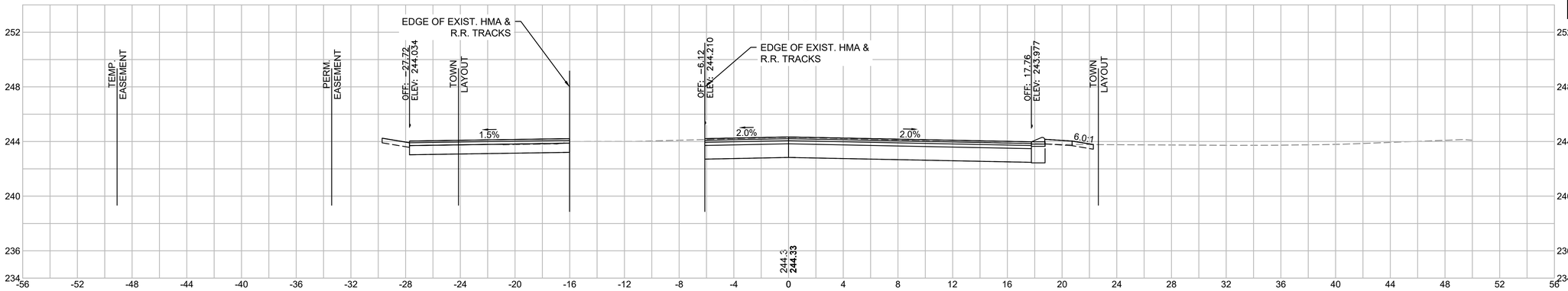
Total Volume at Station 26+50.00	
Cut Area	52.469
Fill Area	0.353
Cut Vol	48.6
Fill Vol	0.5
Cum Cut Vol	5614.1
Cum Fill Vol	426.8
Net Vol	5187.3

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	111	129
	PROJECT FILE NO. 609054		

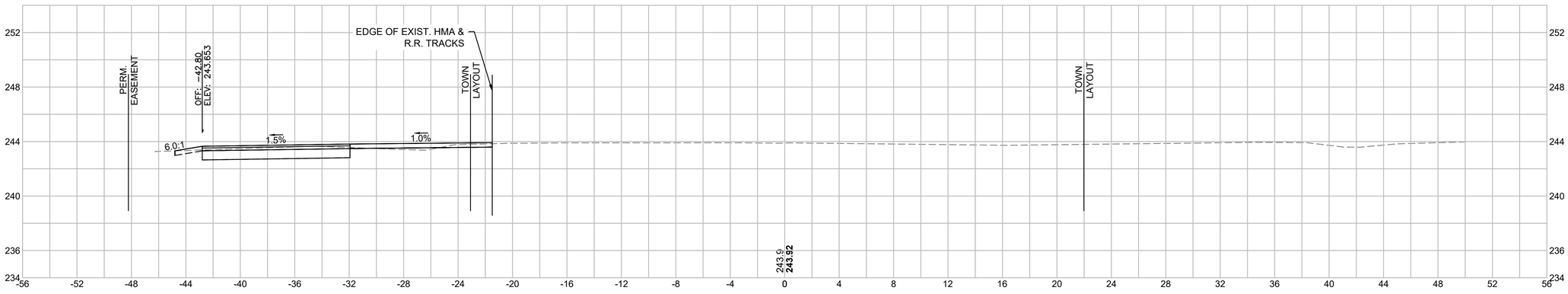
CROSS SECTIONS

27+75



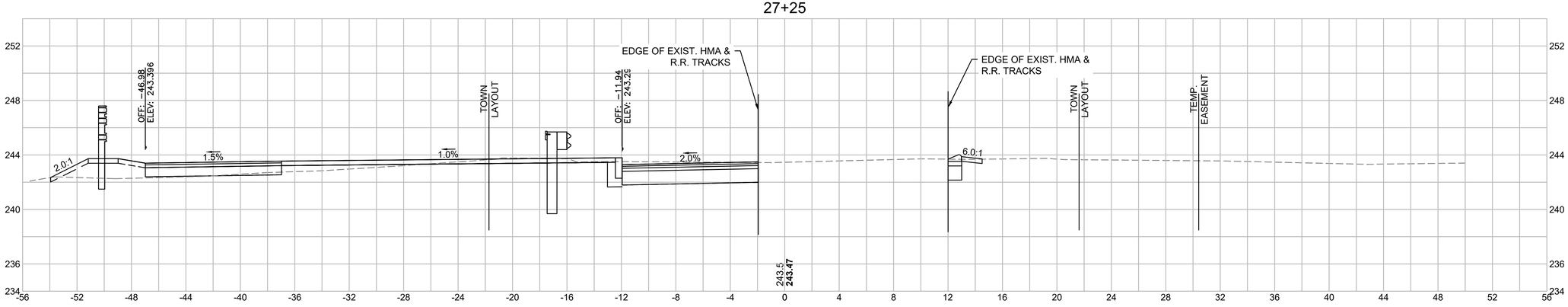
Total Volume at Station 27+75.00	
Cut Area	69.811
Fill Area	0.000
Cut Vol	42.4
Fill Vol	0.2
Cum Cut Vol	5802.6
Cum Fill Vol	435.1
Net Vol	5367.5

27+50



Total Volume at Station 27+50.00	
Cut Area	21.818
Fill Area	0.354
Cut Vol	25.8
Fill Vol	1.6
Cum Cut Vol	5760.1
Cum Fill Vol	434.9
Net Vol	5325.2

27+25



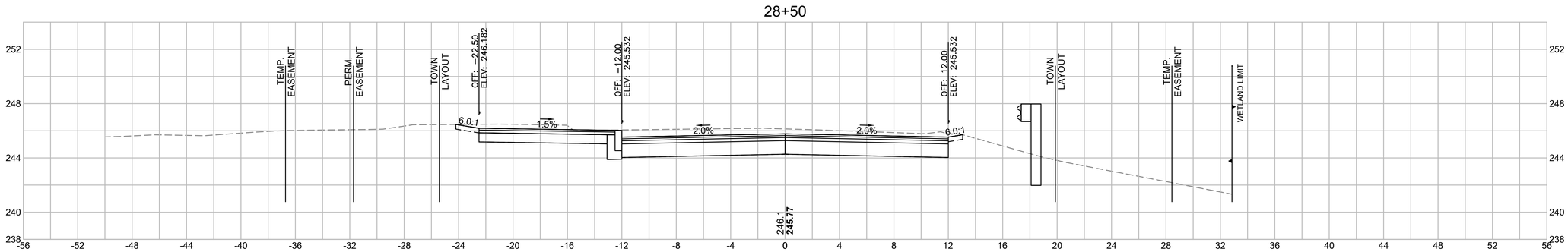
Total Volume at Station 27+25.00	
Cut Area	33.912
Fill Area	3.163
Cut Vol	37.3
Fill Vol	2.3
Cum Cut Vol	5734.3
Cum Fill Vol	433.3
Net Vol	5301.0

20170044A21_XSEC01_LAYOUTS.DWG Plotted on 18-Nov-2020 1:30 PM

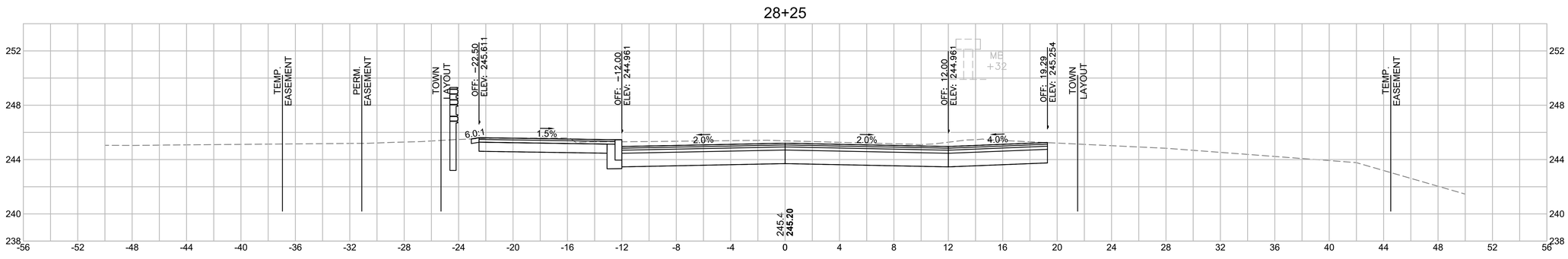
LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	112	129
	PROJECT FILE NO. 609054		

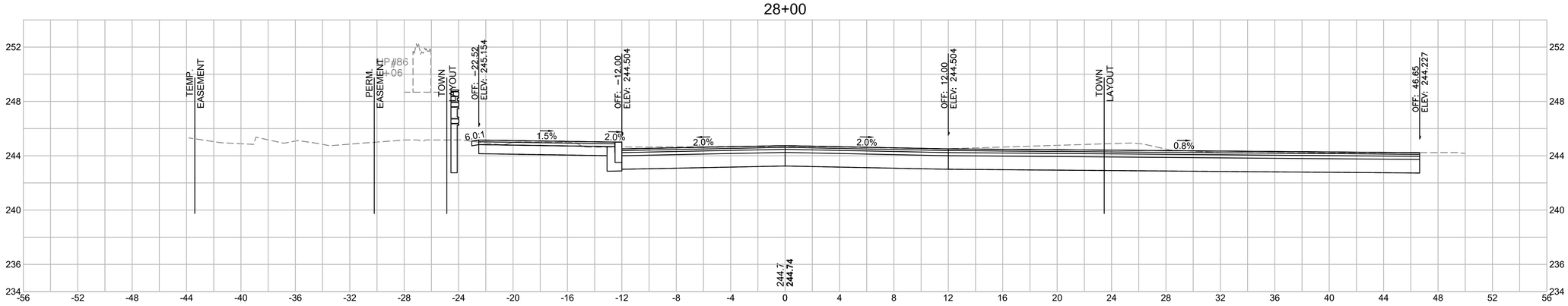
CROSS SECTIONS



Total Volume at Station 28+50.00	
Cut Area	61.173
Fill Area	3.432
Cut Vol	65.8
Fill Vol	1.6
Cum Cut Vol	6033.5
Cum Fill Vol	436.7
Net Vol	5596.8



Total Volume at Station 28+25.00	
Cut Area	80.976
Fill Area	0.000
Cut Vol	85.1
Fill Vol	0.0
Cum Cut Vol	5967.6
Cum Fill Vol	435.1
Net Vol	5532.6



Total Volume at Station 28+00.00	
Cut Area	102.896
Fill Area	0.000
Cut Vol	80.0
Fill Vol	0.0
Cum Cut Vol	5882.5
Cum Fill Vol	435.1
Net Vol	5447.4

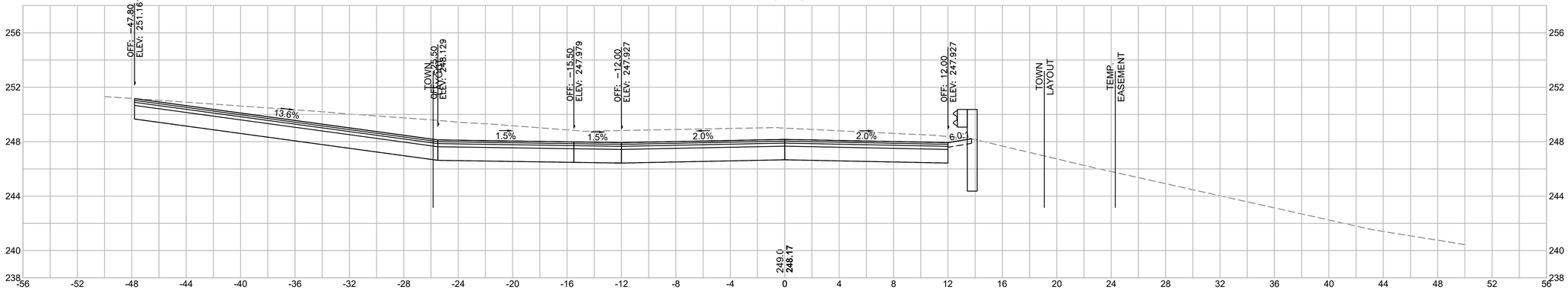
20170044A21_XSEC01_LAYOUTS.DWG Plotted on 18-Nov-2020 1:30 PM

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	113	129
	PROJECT FILE NO. 609054		

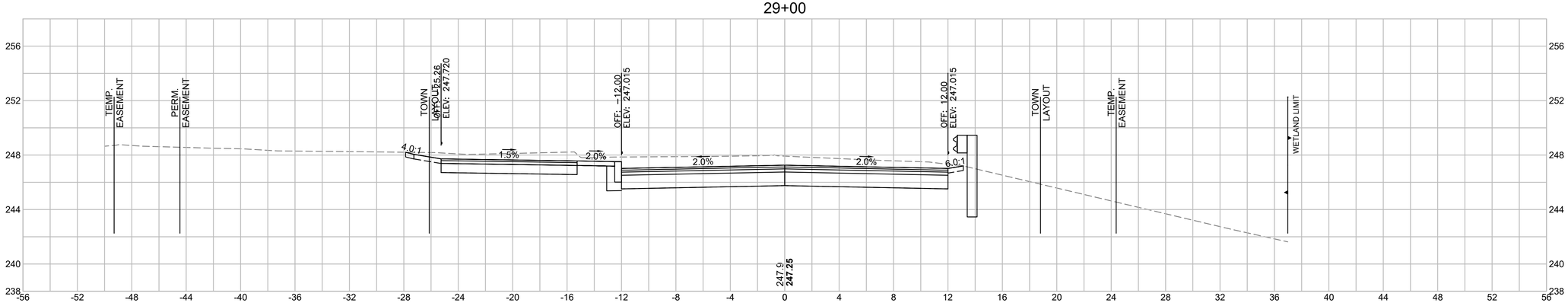
CROSS SECTIONS

29+25



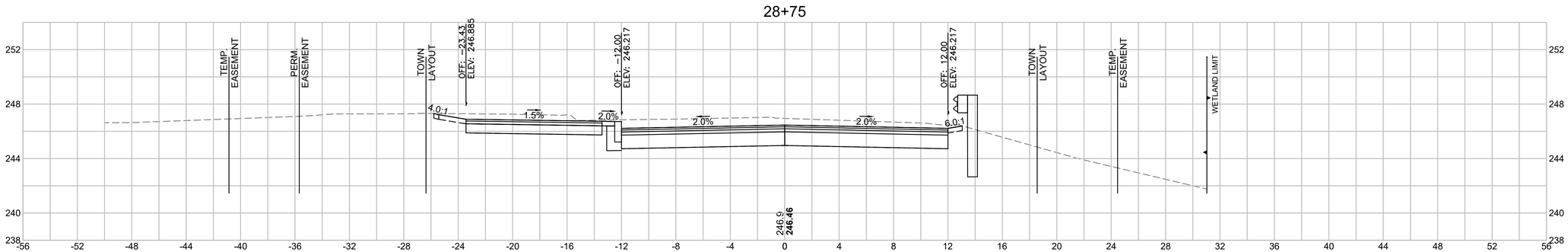
Total Volume at Station 29+25.00	
Cut Area	120.212
Fill Area	0.000
Cut Vol	91.4
Fill Vol	0.1
Cum Cut Vol	6250.7
Cum Fill Vol	438.5
Net Vol	5812.1

29+00



Total Volume at Station 29+00.00	
Cut Area	77.234
Fill Area	0.219
Cut Vol	66.6
Fill Vol	0.1
Cum Cut Vol	6159.3
Cum Fill Vol	438.4
Net Vol	5720.8

28+75



Total Volume at Station 28+75.00	
Cut Area	66.665
Fill Area	0.064
Cut Vol	59.2
Fill Vol	1.6
Cum Cut Vol	6092.6
Cum Fill Vol	438.3
Net Vol	5654.3

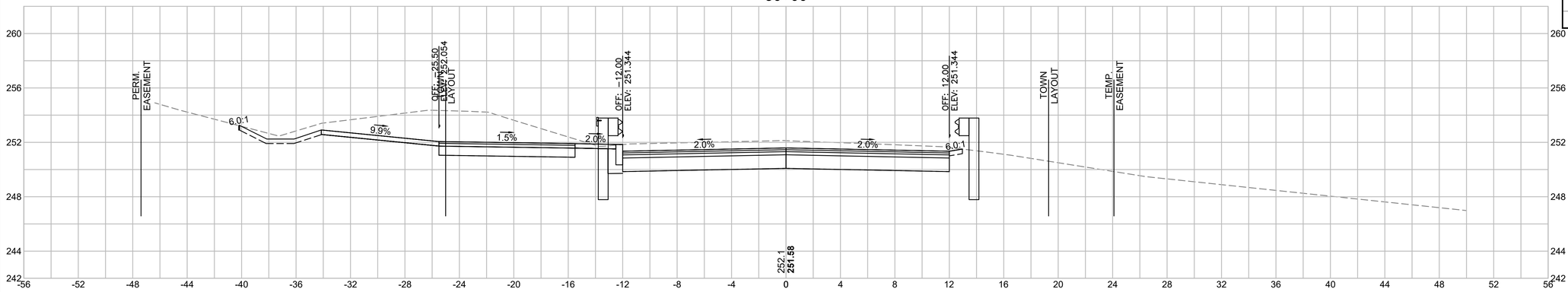
20170044A21_XSEC01_LAYOUTS.DWG Plotted on 18-Nov-2020 1:31 PM

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	114	129
	PROJECT FILE NO. 609054		

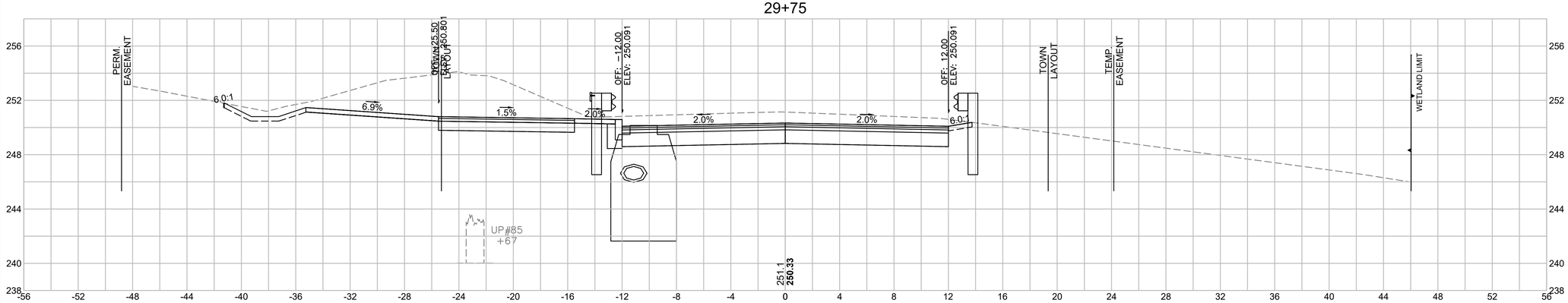
CROSS SECTIONS

30+00



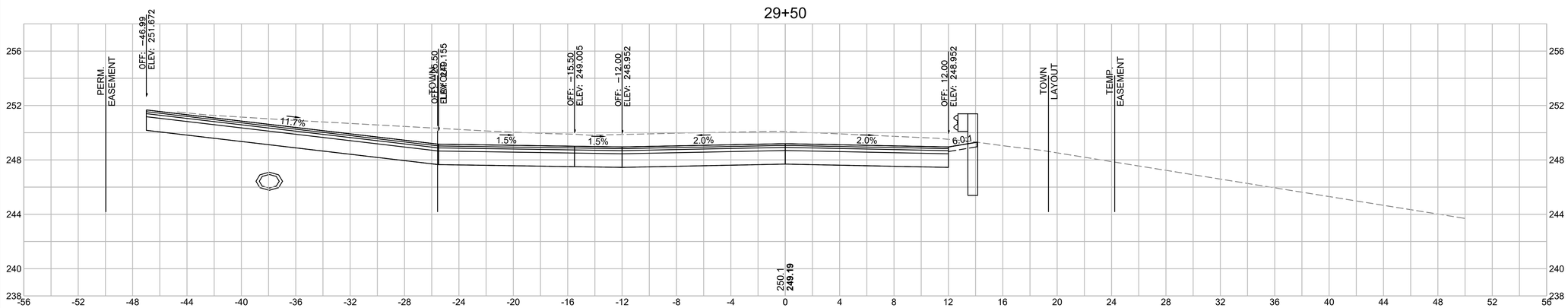
Total Volume at Station 30+00.00	
Cut Area	97.332
Fill Area	0.000
Cut Vol	100.2
Fill Vol	0.0
Cum Cut Vol	6582.7
Cum Fill Vol	438.5
Net Vol	6144.2

29+75



Total Volume at Station 29+75.00	
Cut Area	119.085
Fill Area	0.000
Cut Vol	115.7
Fill Vol	0.0
Cum Cut Vol	6482.5
Cum Fill Vol	438.5
Net Vol	6044.0

29+50



Total Volume at Station 29+50.00	
Cut Area	130.770
Fill Area	0.000
Cut Vol	116.2
Fill Vol	0.0
Cum Cut Vol	6366.9
Cum Fill Vol	438.5
Net Vol	5928.3

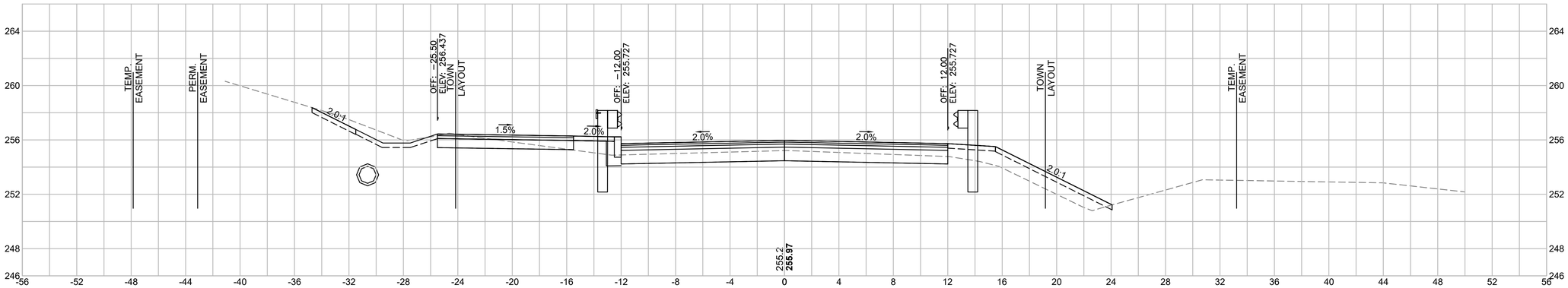
20170044A21_XSEC01_LAYOUTS.DWG Plotted on 18-Nov-2020 1:31 PM

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	115	129
	PROJECT FILE NO. 609054		

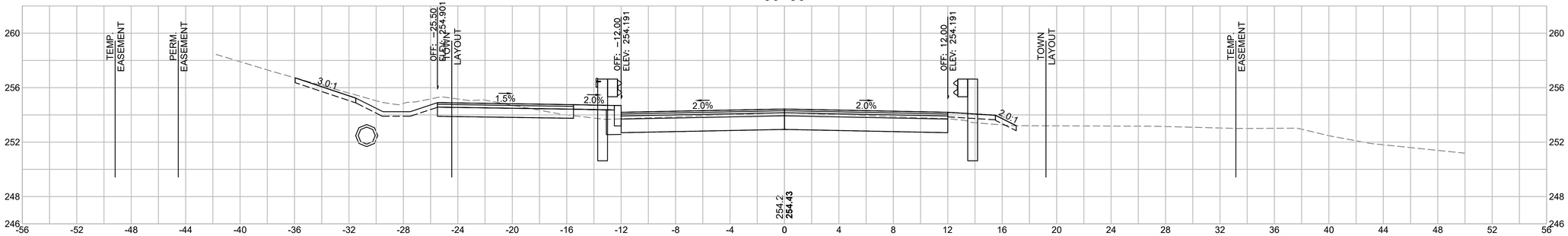
CROSS SECTIONS

30+75



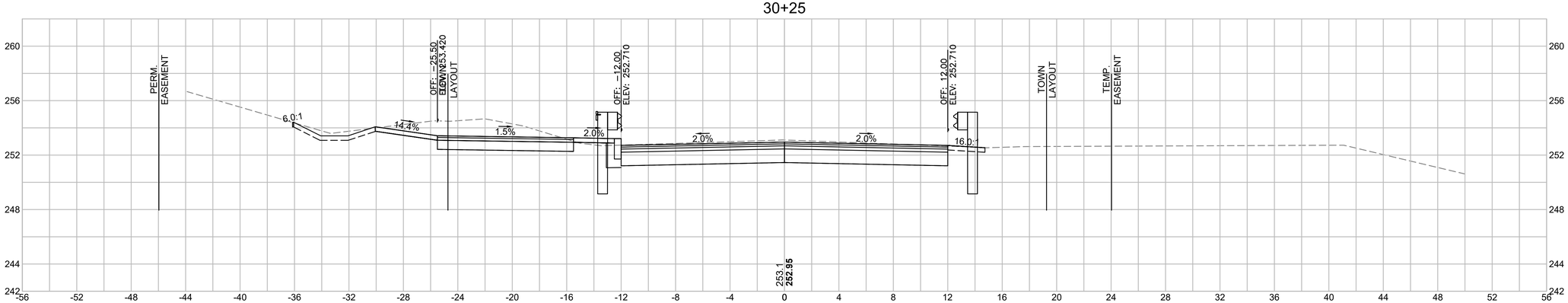
Total Volume at Station 30+75.00	
Cut Area	29.153
Fill Area	11.651
Cut Vol	34.2
Fill Vol	6.5
Cum Cut Vol	6745.1
Cum Fill Vol	446.4
Net Vol	6298.6

30+50



Total Volume at Station 30+50.00	
Cut Area	44.797
Fill Area	2.425
Cut Vol	51.9
Fill Vol	1.3
Cum Cut Vol	6710.8
Cum Fill Vol	439.9
Net Vol	6270.9

30+25



Total Volume at Station 30+25.00	
Cut Area	67.296
Fill Area	0.295
Cut Vol	76.2
Fill Vol	0.1
Cum Cut Vol	6658.9
Cum Fill Vol	438.7
Net Vol	6220.3

20170044A21_XSEC01_LAYOUTS.DWG Plotted on 18-Nov-2020 1:31 PM

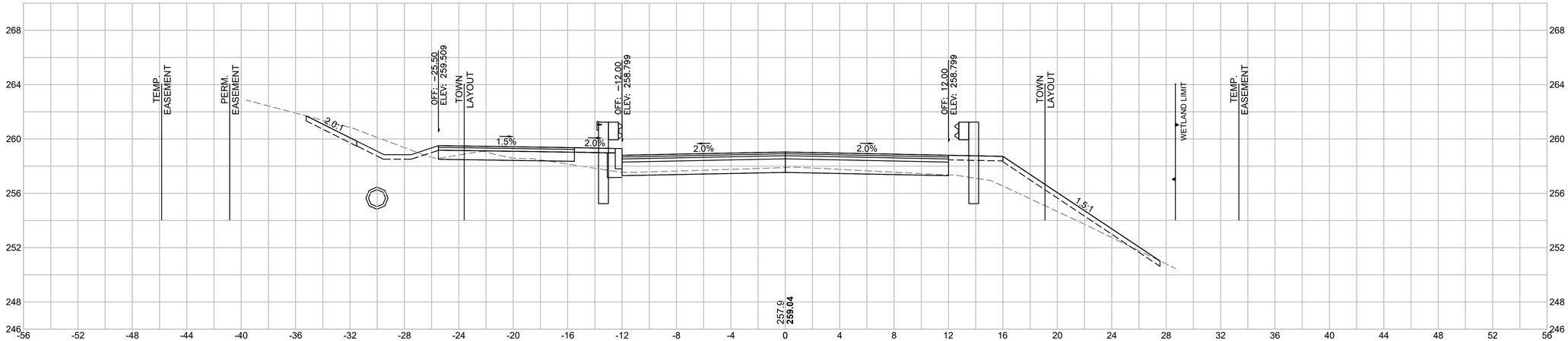
LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	116	129
	PROJECT FILE NO. 609054		

CROSS SECTIONS

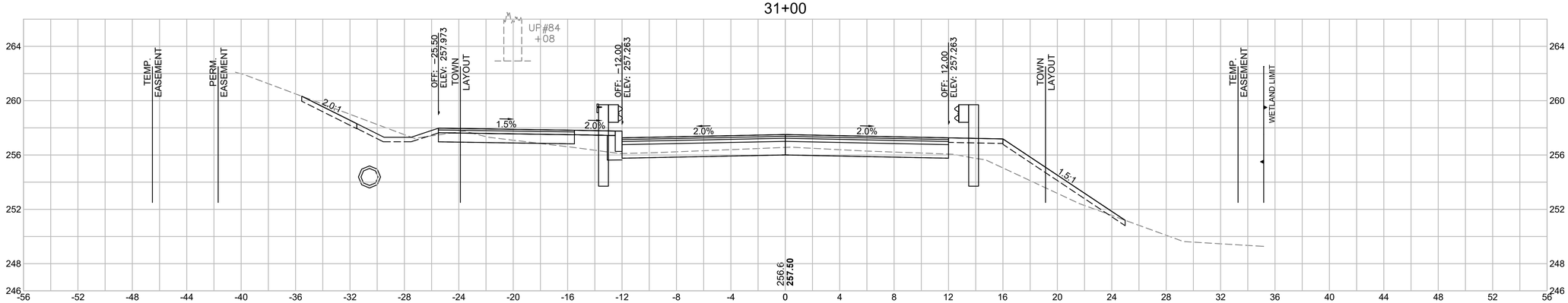
20170044A21_XSEC01_LAYOUTS.DWG Plotted on 18-Nov-2020 1:31 PM

31+25



Total Volume at Station 31+25.00	
Cut Area	17.874
Fill Area	9.041
Cut Vol	17.5
Fill Vol	9.5
Cum Cut Vol	5785.4
Cum Fill Vol	466.7
Net Vol	5318.7

31+00



Total Volume at Station 31+00.00	
Cut Area	20.134
Fill Area	11.480
Cut Vol	22.8
Fill Vol	10.7
Cum Cut Vol	5787.9
Cum Fill Vol	457.2
Net Vol	5330.7

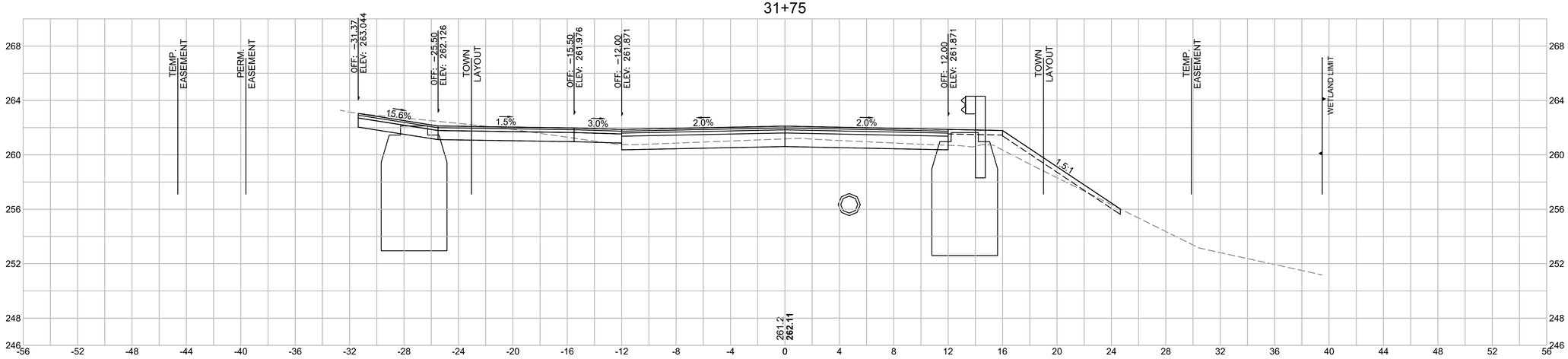
LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	117	129
	PROJECT FILE NO. 609054		

CROSS SECTIONS

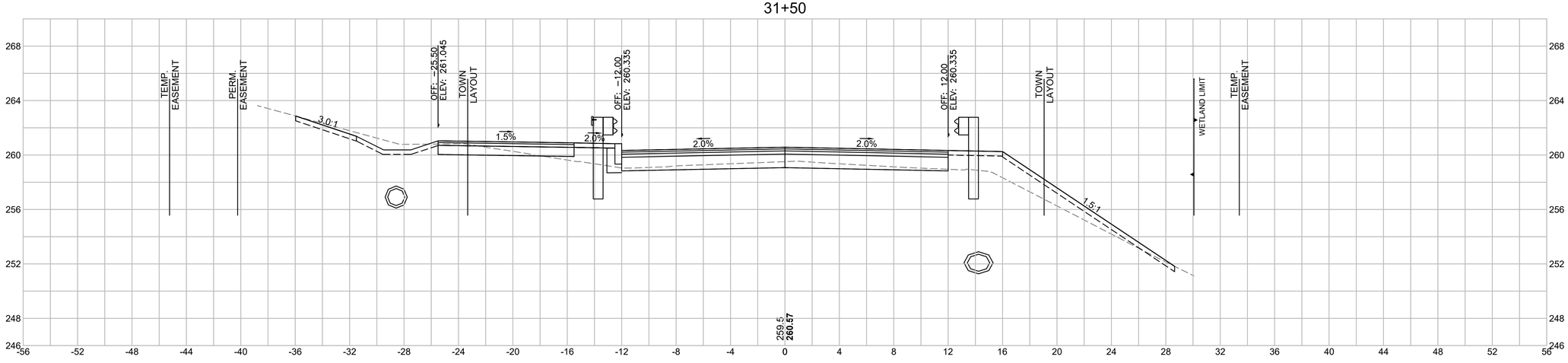
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31+75



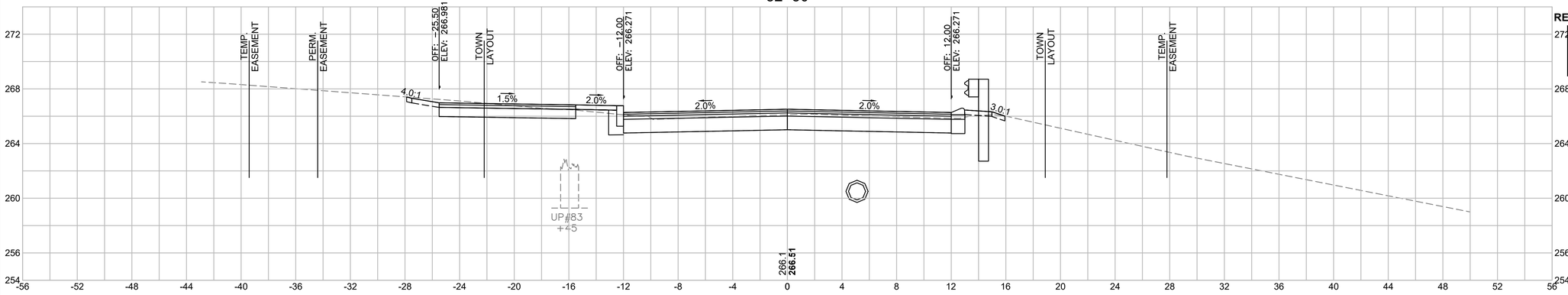
Total Volume at Station 31+75.00	
Cut Area	27.364
Fill Area	9.508
Cut Vol	21.3
Fill Vol	11.6
Cum Cut Vol	6823.4
Cum Fill Vol	489.6
Net Vol	6333.8

31+50



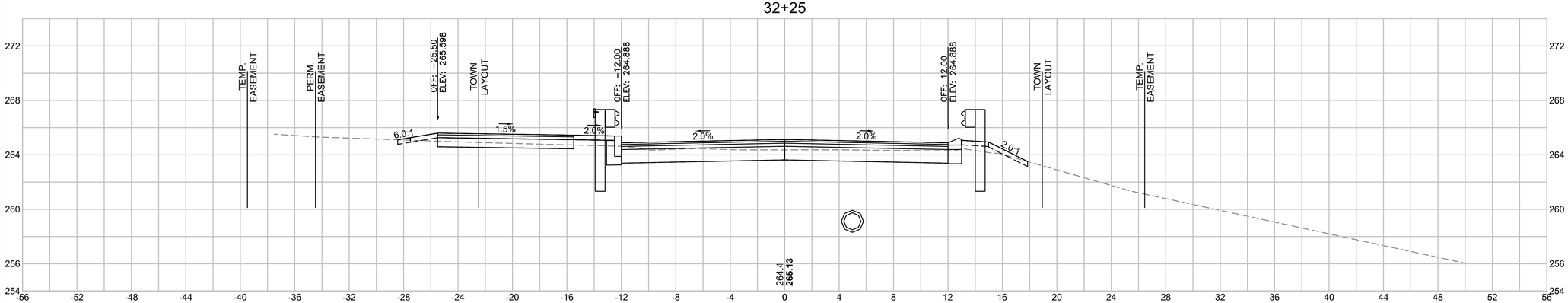
Total Volume at Station 31+50.00	
Cut Area	18.574
Fill Area	15.531
Cut Vol	16.8
Fill Vol	11.4
Cum Cut Vol	6802.2
Cum Fill Vol	478.0
Net Vol	6324.1

32+50



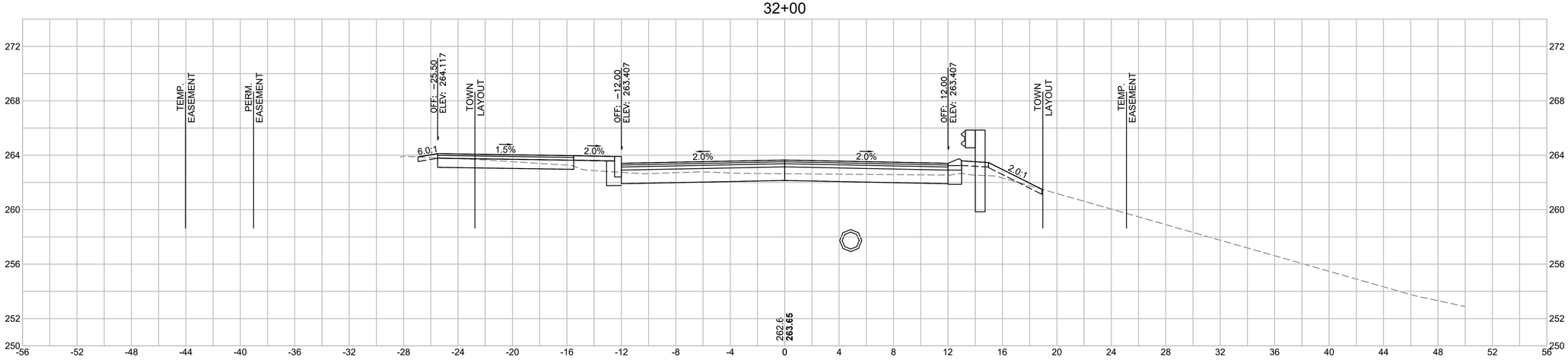
Total Volume at Station 32+50.00	
Cut Area	42.610
Fill Area	0.439
Cut Vol	33.7
Fill Vol	1.2
Cum Cut Vol	6904.4
Cum Fill Vol	499.3
Net Vol	6405.1

32+25



Total Volume at Station 32+25.00	
Cut Area	30.166
Fill Area	2.040
Cut Vol	24.3
Fill Vol	2.6
Cum Cut Vol	6870.8
Cum Fill Vol	498.2
Net Vol	6372.6

32+00



Total Volume at Station 32+00.00	
Cut Area	22.335
Fill Area	3.467
Cut Vol	23.0
Fill Vol	6.0
Cum Cut Vol	6846.4
Cum Fill Vol	495.6
Net Vol	6350.8

LITTLETON

RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	118	129
	PROJECT FILE NO. 609054		

CROSS SECTIONS

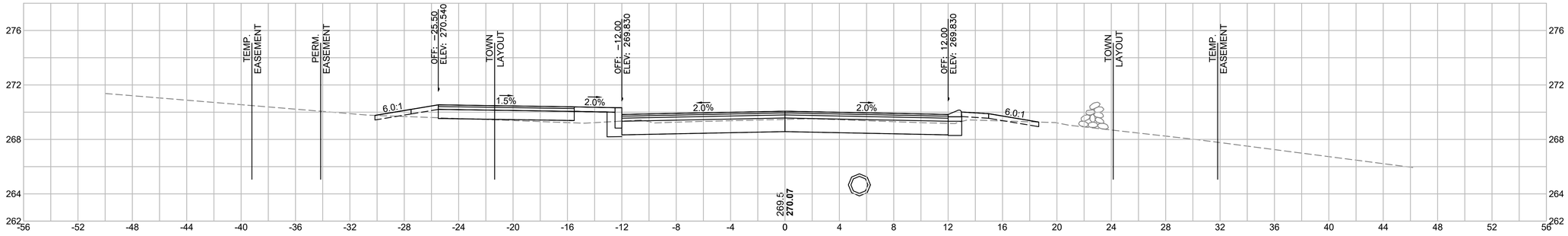
20170044A21_XSEC01_LAYOUTS.DWG Plotted on 18-Nov-2020 1:32 PM

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	119	129
PROJECT FILE NO.	609054		

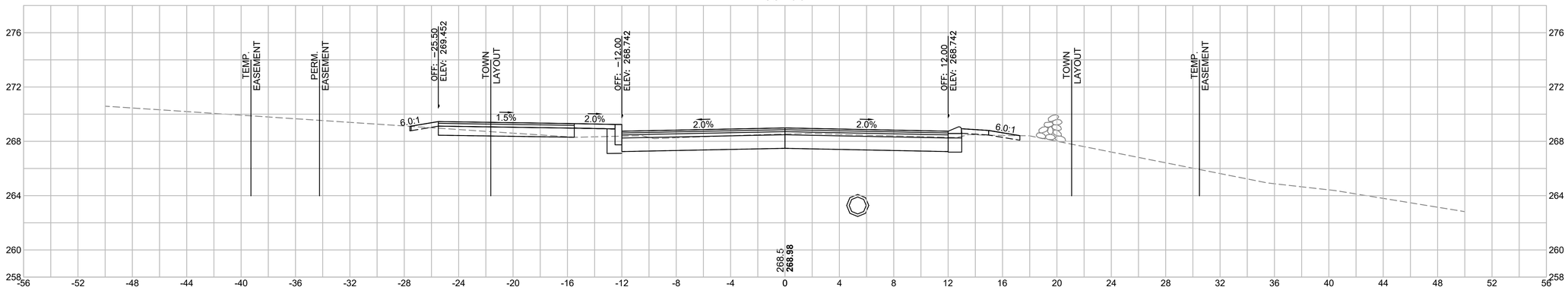
CROSS SECTIONS

33+25



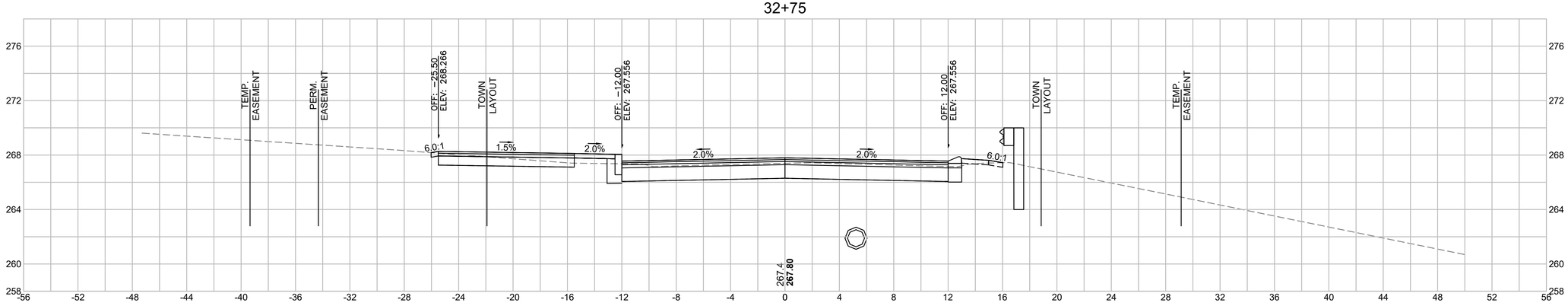
Total Volume at Station 33+25.00	
Cut Area	24.679
Fill Area	4.041
Cut Vol	25.8
Fill Vol	2.7
Cum Cut Vol	6998.8
Cum Fill Vol	503.9
Net Vol	6495.0

33+00



Total Volume at Station 33+00.00	
Cut Area	30.959
Fill Area	1.684
Cut Vol	31.6
Fill Vol	1.2
Cum Cut Vol	6973.1
Cum Fill Vol	501.2
Net Vol	6471.8

32+75



Total Volume at Station 32+75.00	
Cut Area	37.292
Fill Area	0.962
Cut Vol	37.0
Fill Vol	0.8
Cum Cut Vol	6941.4
Cum Fill Vol	500.0
Net Vol	6441.5

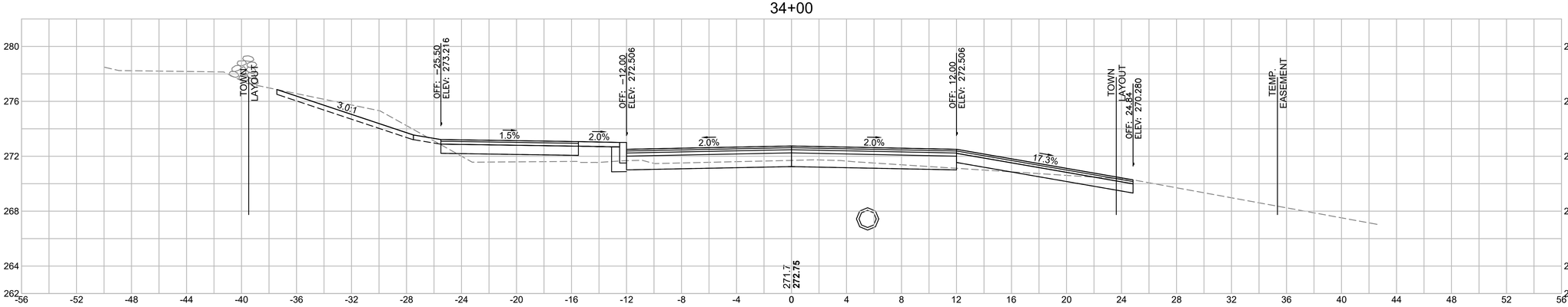
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20170044A21_XSEC01_LAYOUTS.DWG

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	120	129
	PROJECT FILE NO. 609054		

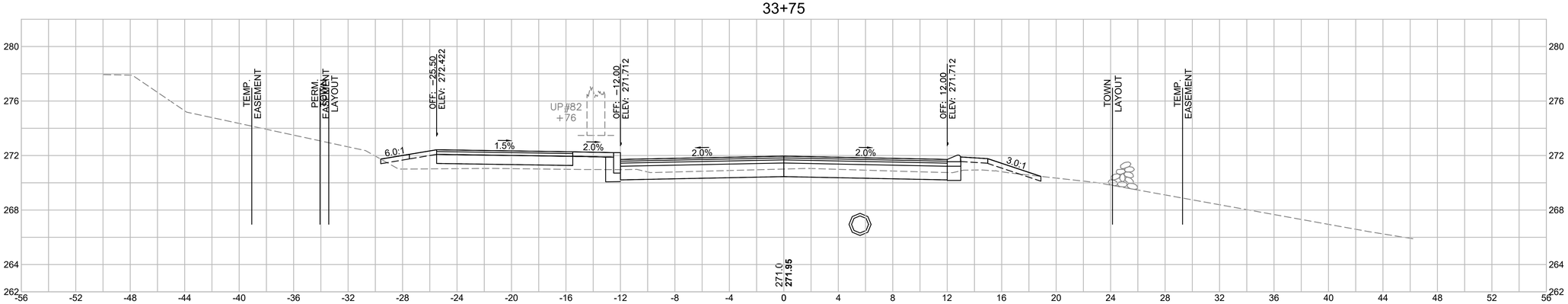
CROSS SECTIONS

34+00



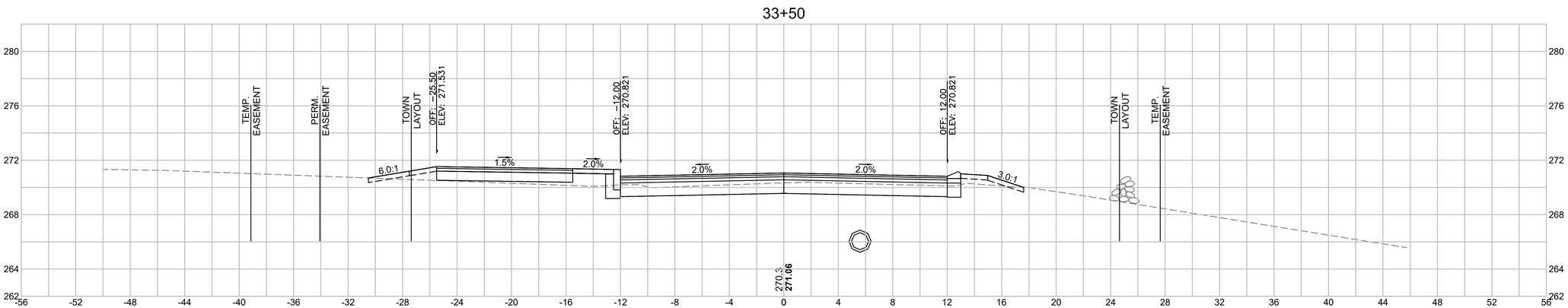
Total Volume at Station 34+00.00	
Cut Area	30.376
Fill Area	7.896
Cut Vol	23.5
Fill Vol	8.4
Cum Cut Vol	7066.2
Cum Fill Vol	524.2
Net Vol	6541.9

33+75



Total Volume at Station 33+75.00	
Cut Area	20.446
Fill Area	10.254
Cut Vol	20.9
Fill Vol	7.4
Cum Cut Vol	7042.6
Cum Fill Vol	515.8
Net Vol	6526.8

33+50



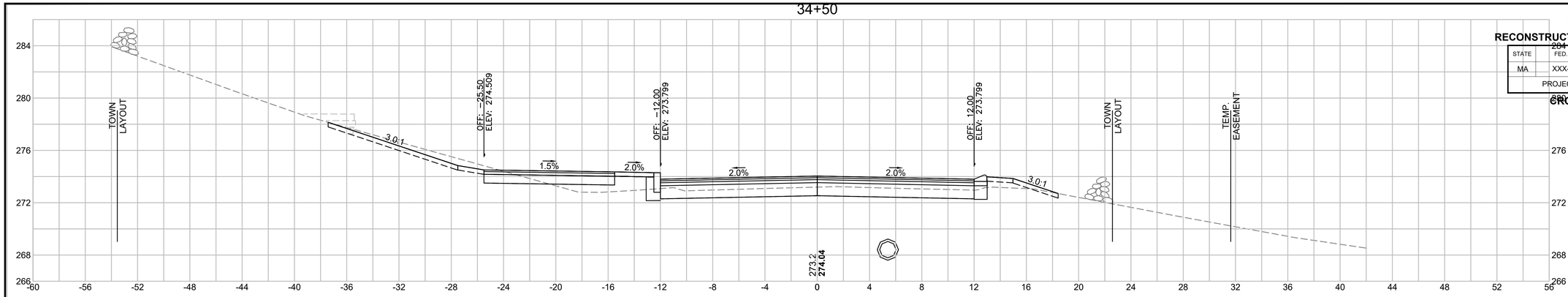
Total Volume at Station 33+50.00	
Cut Area	24.753
Fill Area	5.765
Cut Vol	22.9
Fill Vol	4.5
Cum Cut Vol	7021.7
Cum Fill Vol	508.4
Net Vol	6513.3

20170044A21_XSEC01_LAYOUTS.DWG Plotted on 18-Nov-2020 1:32 PM

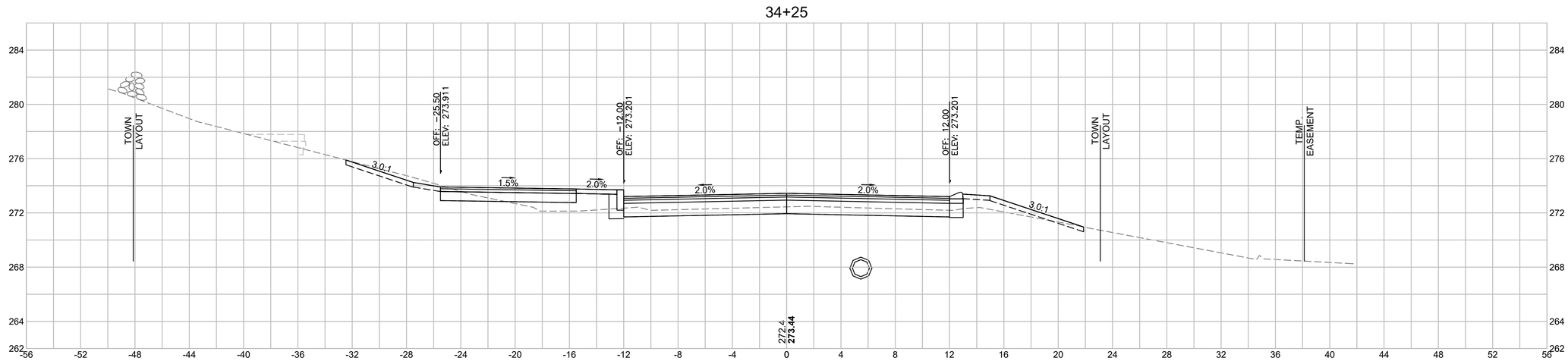
LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	121	129
PROJECT FILE NO.	609054		

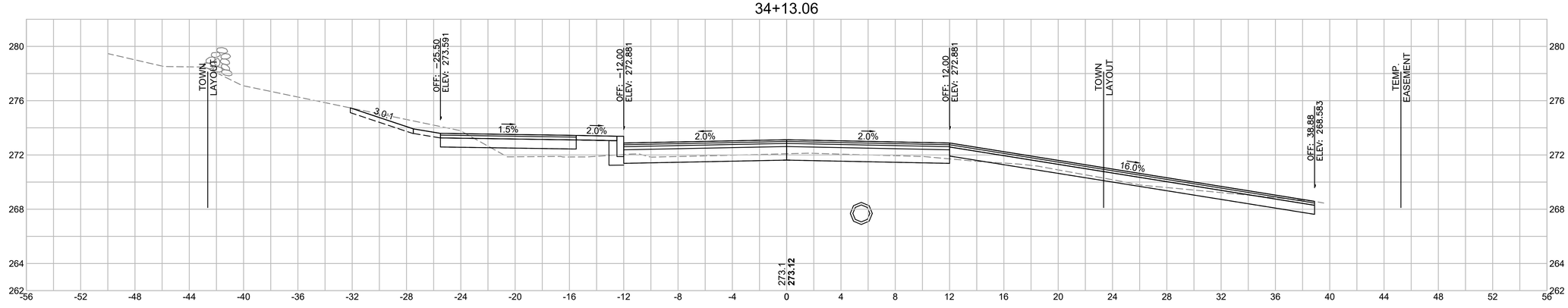
CROSS SECTIONS



Total Volume at Station 34+50.00	
Cut Area	29.108
Fill Area	5.892
Cut Vol	23.8
Fill Vol	6.4
Cum Cut Vol	7117.5
Cum Fill Vol	539.5
Net Vol	6579.0



Total Volume at Station 34+25.06	
Cut Area	22.340
Fill Area	7.977
Cut Vol	12.2
Fill Vol	3.8
Cum Cut Vol	7093.7
Cum Fill Vol	532.1
Net Vol	6561.6



Total Volume at Station 34+13.06	
Cut Area	32.960
Fill Area	9.072
Cut Vol	15.3
Fill Vol	4.1
Cum Cut Vol	7081.5
Cum Fill Vol	528.3
Net Vol	6553.2

20170044A21_XSEC01_LAYOUTS.DWG Plotted on 18-Nov-2020 1:32 PM

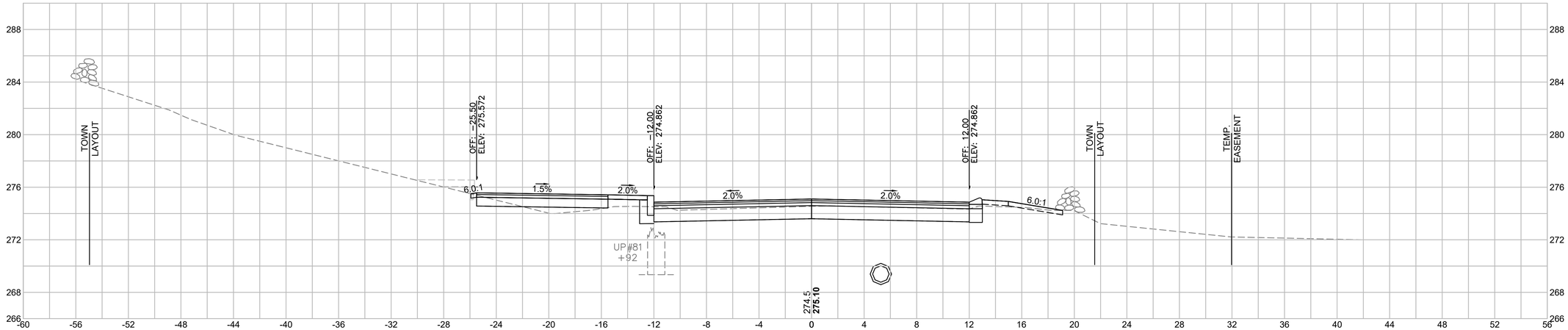
LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	122	129
	PROJECT FILE NO. 609054		

CROSS SECTIONS

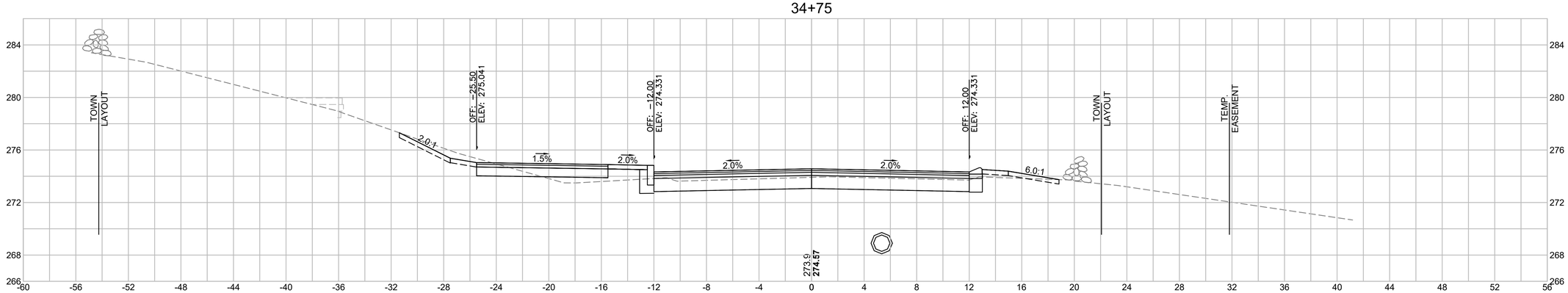
20170044A21_XSEC01_LAYOUTS.DWG Plotted on 18-Nov-2020 1:33 PM

35+00



Total Volume at Station 35+00.00	
Cut Area	29.070
Fill Area	3.335
Cut Vol	27.5
Fill Vol	3.5
Cum.Cut Vol	7172.6
Cum Fill Vol	546.6
Net Vol	6626.0

34+75



Total Volume at Station 34+75.00	
Cut Area	30.394
Fill Area	4.133
Cut Vol	27.5
Fill Vol	4.6
Cum Cut Vol	7146.1
Cum Fill Vol	543.2
Net Vol	6601.9

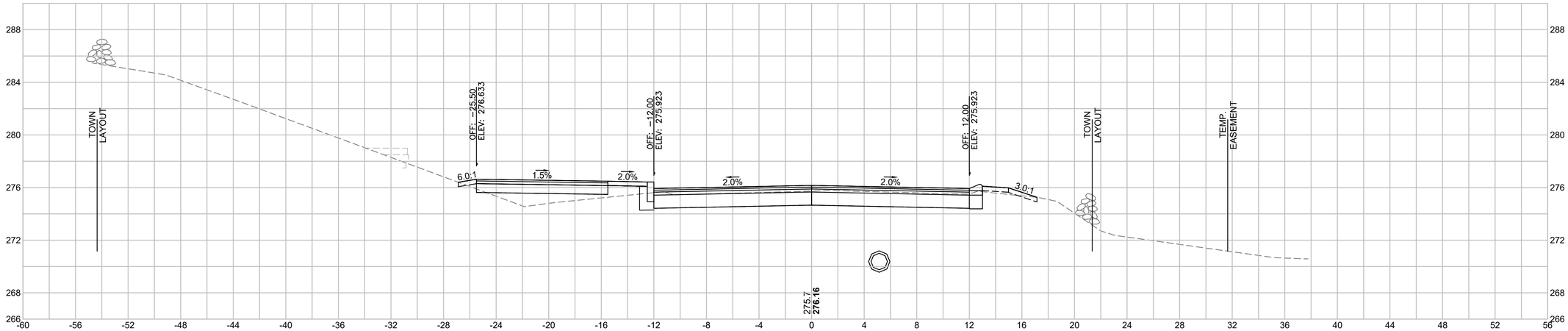
LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	123	129
PROJECT FILE NO.	609054		

CROSS SECTIONS

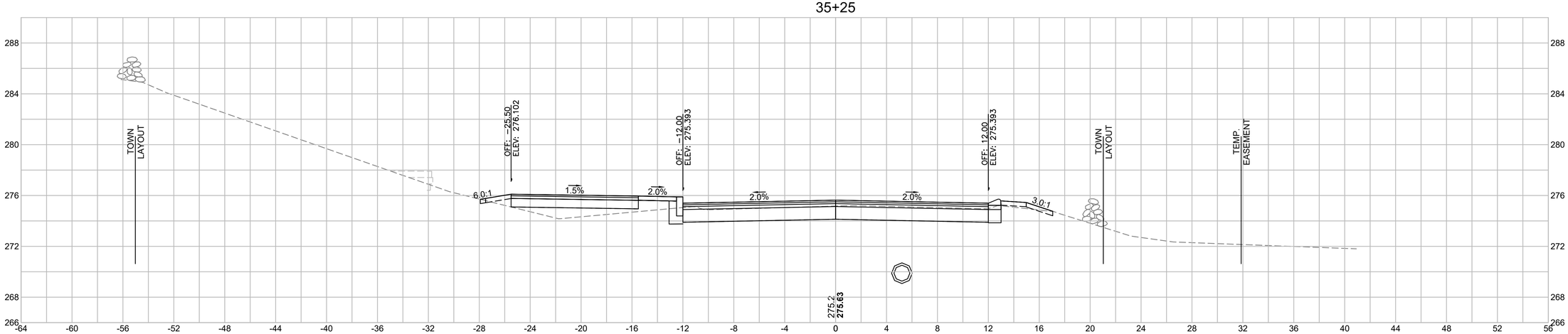
20170044A21_XSEC01_LAYOUTS.DWG Plotted on 18-Nov-2020 1:33 PM

35+50



Total Volume at Station 35+50.00	
Cut Area	29.413
Fill Area	7.507
Cut Vol	26.7
Fill Vol	7.2
Cum Cut Vol	7235.8
Cum Fill Vol	559.0
Net Vol	6666.8

35+25



Total Volume at Station 35+25.00	
Cut Area	28.229
Fill Area	7.959
Cut Vol	26.5
Fill Vol	5.2
Cum Cut Vol	7199.1
Cum Fill Vol	551.8
Net Vol	6647.3

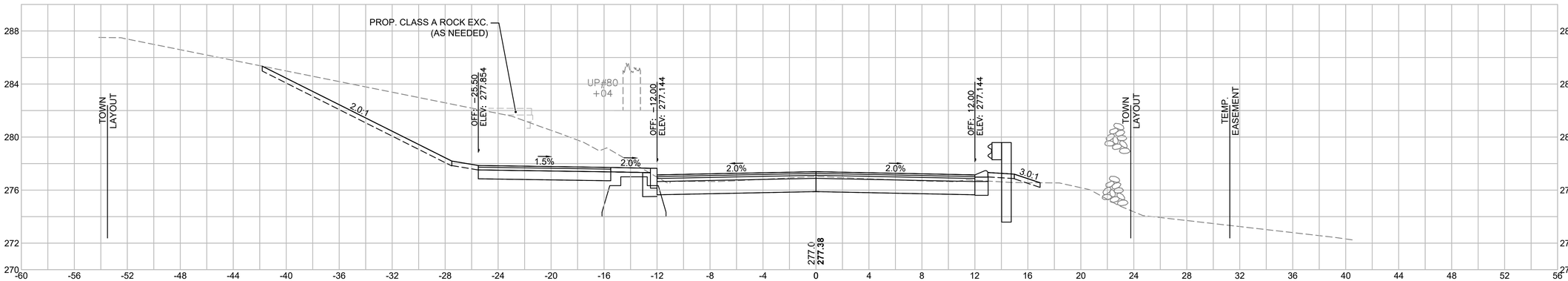
LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	124	129
PROJECT FILE NO.	609054		

CROSS SECTIONS

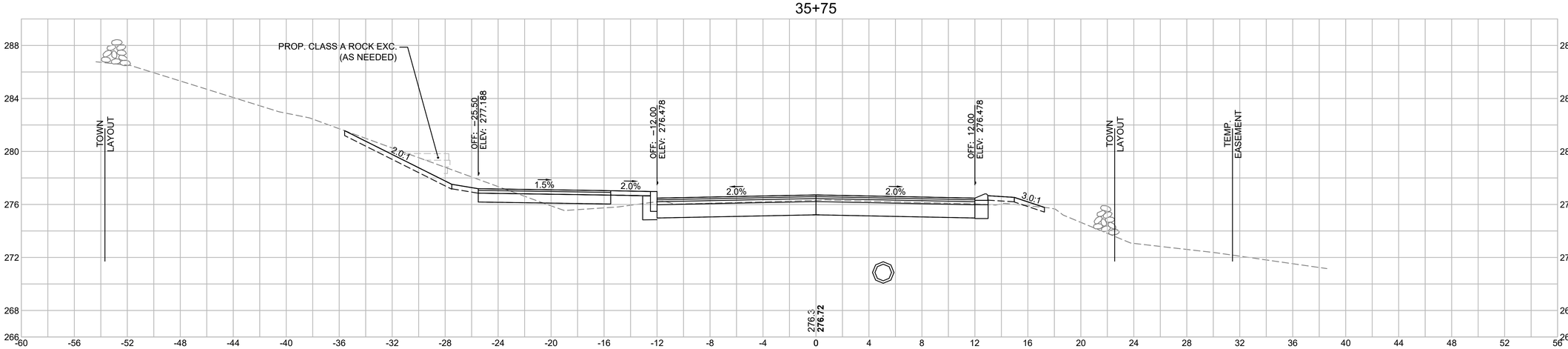
20170044A21_XSEC01_LAYOUTS.DWG Plotted on 18-Nov-2020 1:33 PM

36+00



Total Volume at Station 36+00.00	
Cut Area	113.870
Fill Area	0.733
Cut Vol	72.6
Fill Vol	2.3
Cum Cut Vol	7331.8
Cum Fill Vol	566.8
Net Vol	6765.0

35+75



Total Volume at Station 35+76.00	
Cut Area	42.649
Fill Area	4.262
Cut Vol	33.5
Fill Vol	5.5
Cum Cut Vol	7259.3
Cum Fill Vol	564.5
Net Vol	6694.8

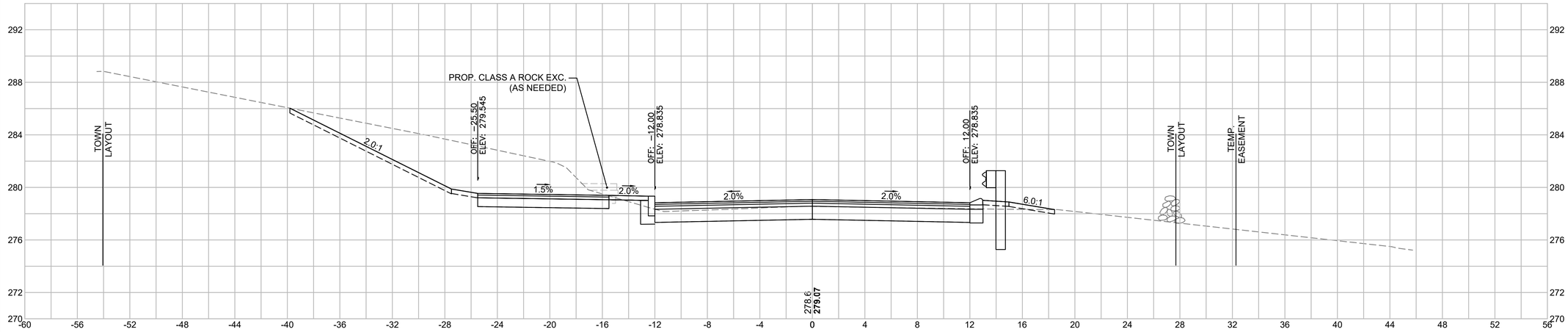
LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	125	129
	PROJECT FILE NO. 609054		

CROSS SECTIONS

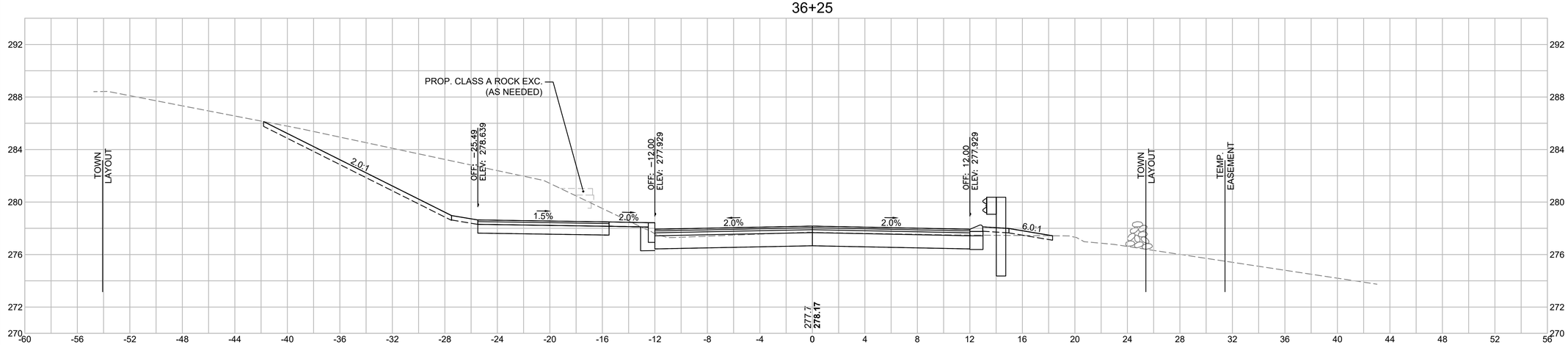
20170044A21_XSEC01_LAYOUTS.DWG Plotted on 18-Nov-2020 1:33 PM

36+50



Total Volume at Station 36+50.00	
Cut Area	93.929
Fill Area	0.928
Cut Vol	90.7
Fill Vol	0.7
Cum Cut Vol	7326.3
Cum Fill Vol	568.1
Net Vol	6958.1

36+25



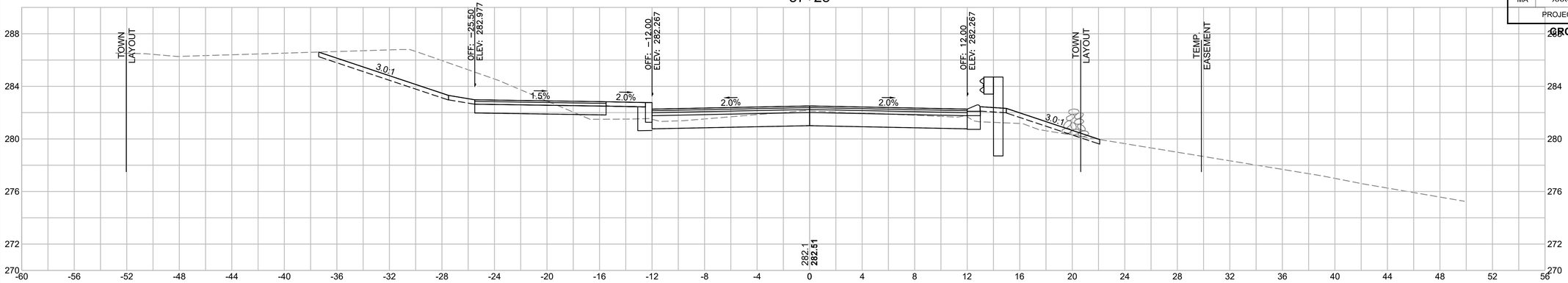
Total Volume at Station 36+25.00	
Cut Area	110.306
Fill Area	0.600
Cut Vol	101.7
Fill Vol	0.6
Cum Cut Vol	7433.5
Cum Fill Vol	567.4
Net Vol	6866.1

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	126	129
PROJECT FILE NO.	609054		

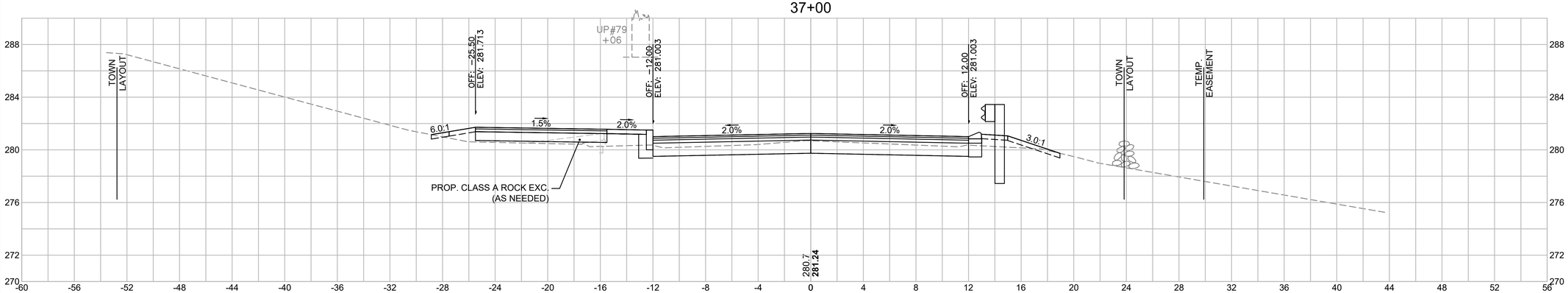
CROSS SECTIONS

37+25



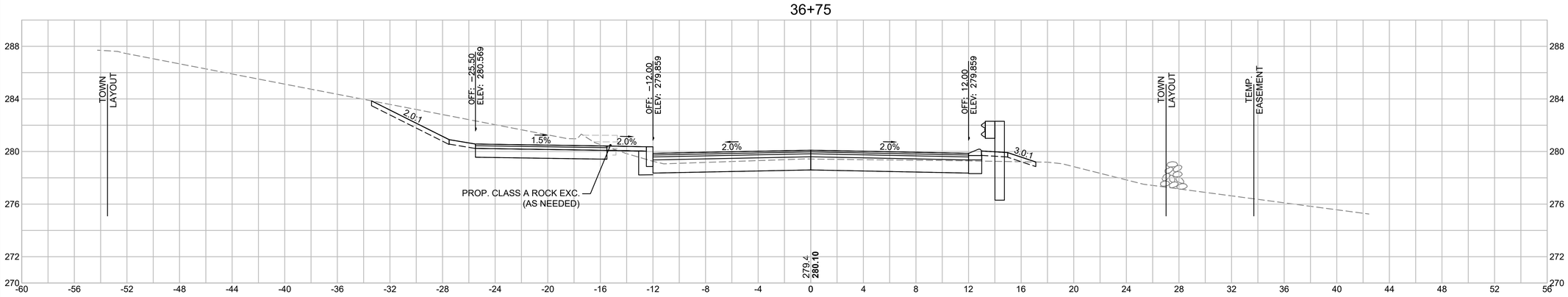
Total Volume at Station 37+25.00	
Cut Area	63.083
Fill Area	4.457
Cut Vol	39.3
Fill Vol	5.0
Cum Cut Vol	7693.5
Cum Fill Vol	577.7
Net Vol	7091.8

37+00



Total Volume at Station 37+00.00	
Cut Area	21.779
Fill Area	6.362
Cut Vol	35.3
Fill Vol	3.6
Cum Cut Vol	7630.2
Cum Fill Vol	572.7
Net Vol	7057.5

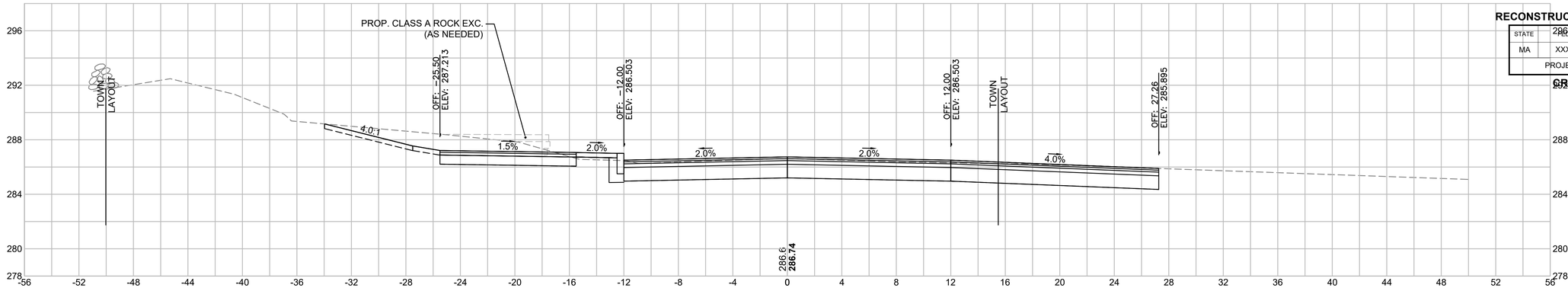
36+75



Total Volume at Station 36+75.00	
Cut Area	54.405
Fill Area	1.324
Cut Vol	68.7
Fill Vol	1.0
Cum Cut Vol	7594.9
Cum Fill Vol	569.2
Net Vol	7025.8

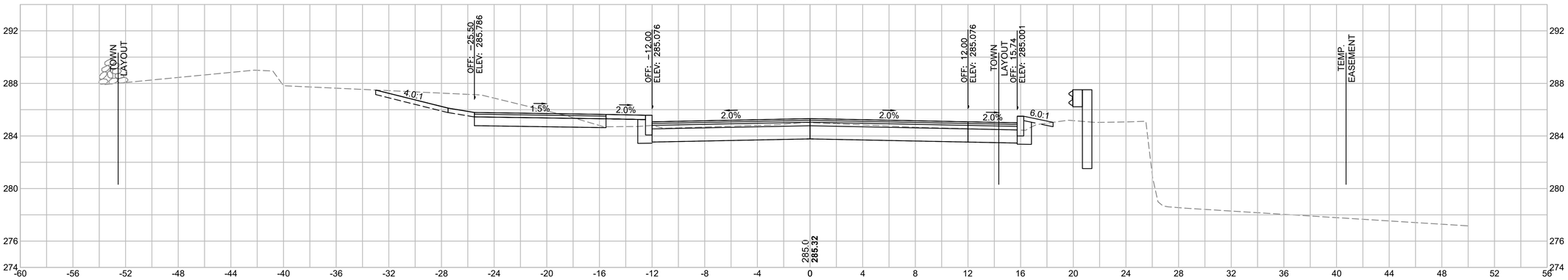
20170044A21_XSEC01_LAYOUTS.DWG Plotted on 18-Nov-2020 1:34 PM

38+00



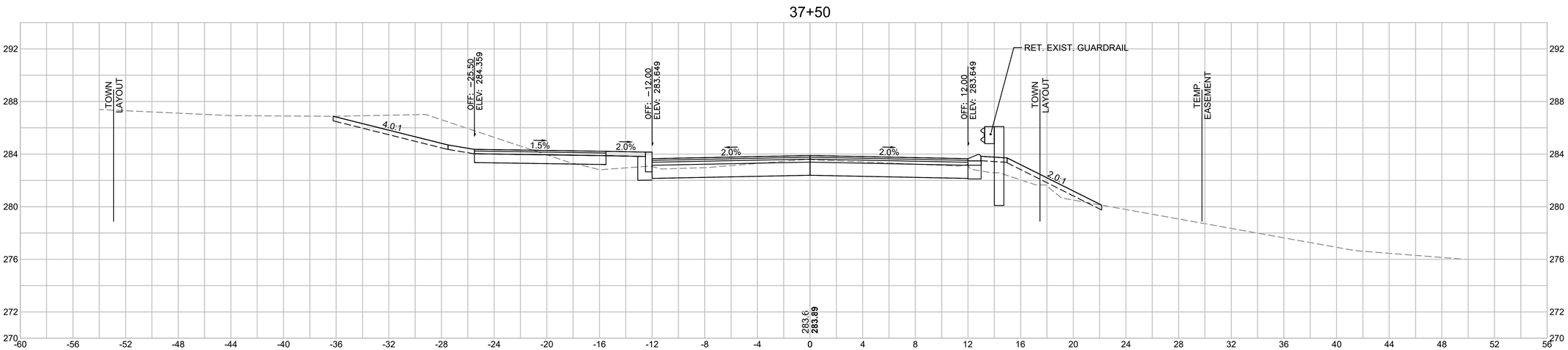
Total Volume at Station 38+00.00	
Cut Area	81.799
Fill Area	0.410
Cut Vol	66.8
Fill Vol	0.8
Cum Cut Vol	7832.6
Cum Fill Vol	588.2
Net Vol	7244.4

37+75



Total Volume at Station 37+75.00	
Cut Area	62.393
Fill Area	1.377
Cut Vol	48.0
Fill Vol	4.1
Cum Cut Vol	7765.8
Cum Fill Vol	587.4
Net Vol	7178.4

37+50



Total Volume at Station 37+50.00	
Cut Area	61.322
Fill Area	7.528
Cut Vol	48.3
Fill Vol	5.5
Cum Cut Vol	7717.8
Cum Fill Vol	583.3
Net Vol	7134.5

LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	127	129
PROJECT FILE NO.	609054		

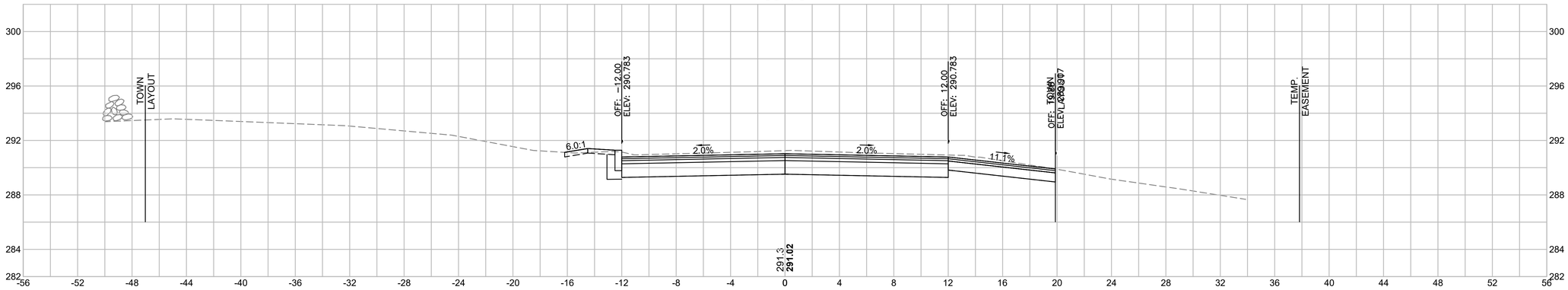
CROSS SECTIONS

20170044A21_XSEC01_LAYOUTS.DWG Plotted on 18-Nov-2020 1:34 PM

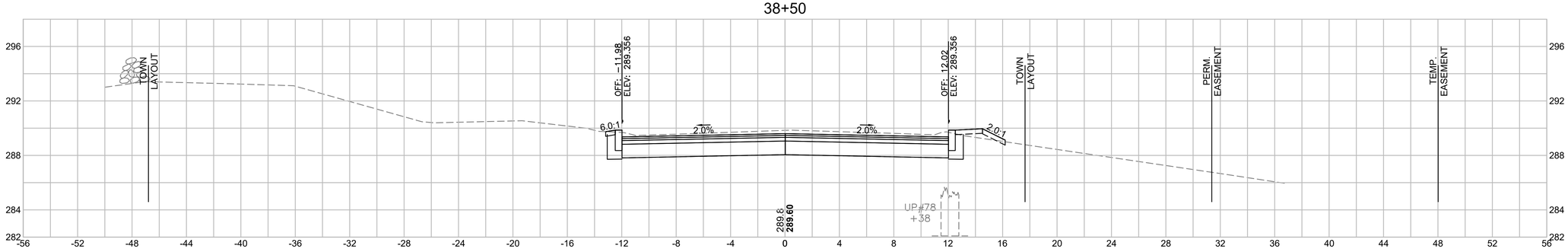
LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	128	129
	PROJECT FILE NO. 609054		

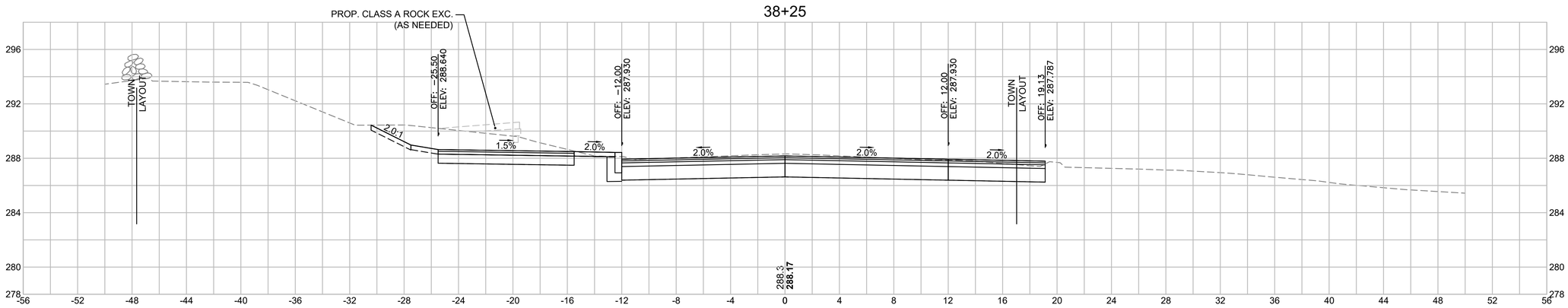
CROSS SECTIONS



Total Volume at Station 38+75.00	
Cut Area	52.389
Fill Area	0.000
Cut Vol	50.9
Fill Vol	3.2
Cum Cut Vol	8034.8
Cum Fill Vol	594.8
Net Vol	7439.8



Total Volume at Station 38+50.00	
Cut Area	57.374
Fill Area	6.873
Cut Vol	65.0
Fill Vol	3.2
Cum Cut Vol	7973.7
Cum Fill Vol	591.6
Net Vol	7382.1



Total Volume at Station 38+25.00	
Cut Area	62.072
Fill Area	0.000
Cut Vol	76.2
Fill Vol	0.2
Cum Cut Vol	7908.8
Cum Fill Vol	588.4
Net Vol	7320.3

20170044A21_XSEC01_LAYOUTS.DWG Plotted on 18-Nov-2020 1:34 PM

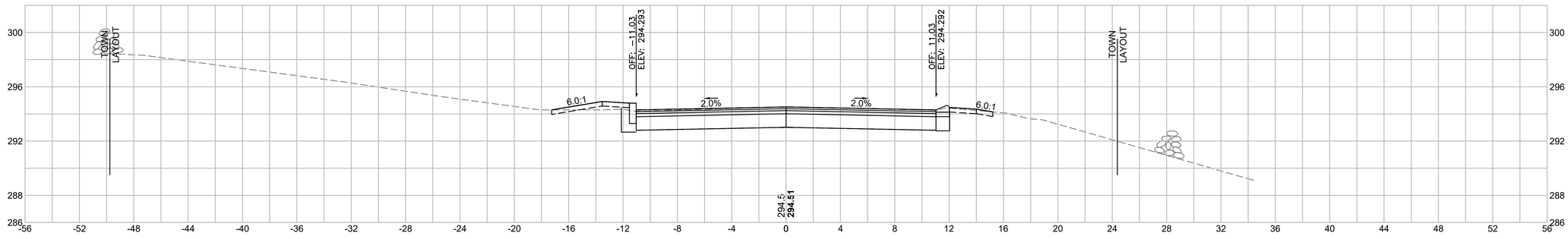
LITTLETON
RECONSTRUCTION OF FOSTER STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	129	129
	PROJECT FILE NO. 609054		

CROSS SECTIONS

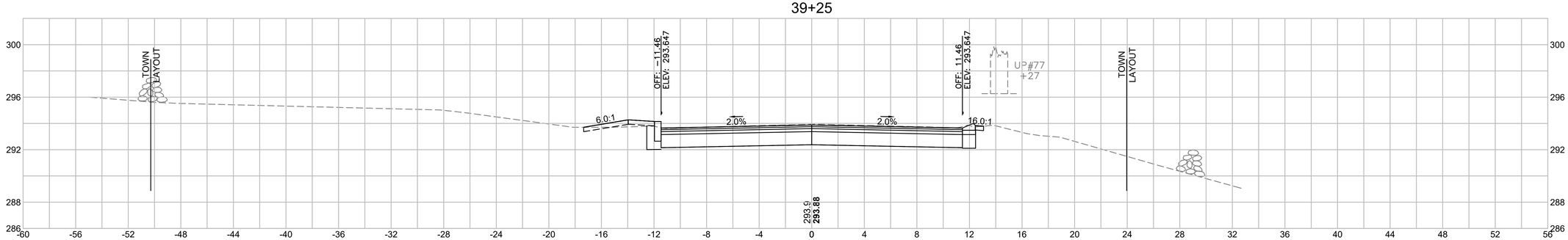
20170044A21_XSEC01_LAYOUTS.DWG Plotted on 18-Nov-2020 1:34 PM

39+36.15



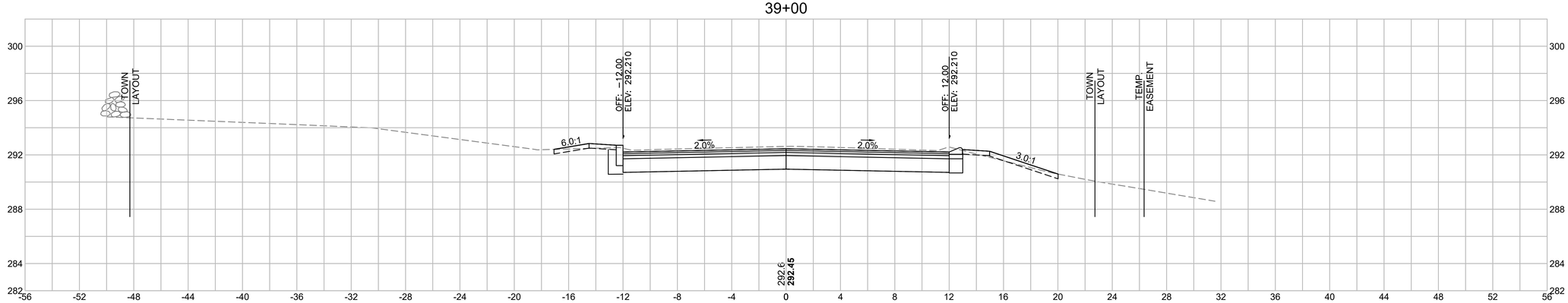
Total Volume at Station 39+36.16	
Cut Area	38.033
Fill Area	0.527
Cut Vol	16.2
Fill Vol	0.2
Cum Cut Vol	8125.2
Cum Fill Vol	595.2
Net Vol	7530.0

39+25



Total Volume at Station 39+25.00	
Cut Area	40.369
Fill Area	0.334
Cut Vol	39.5
Fill Vol	0.2
Cum Cut Vol	8109.1
Cum Fill Vol	595.0
Net Vol	7514.0

39+00



Total Volume at Station 39+00.00	
Cut Area	44.867
Fill Area	0.093
Cut Vol	45.0
Fill Vol	0.0
Cum Cut Vol	8069.6
Cum Fill Vol	594.8
Net Vol	7474.8