MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION

PLAN AND PROFILE OF

SPRING STREET OVER MBTA/CSX

(BRIDGE NO. N-03-007)

IN THE TOWN OF

NATICK

MIDDLESEX COUNTY

FEDERAL AID PROJECT NO. -

NATICK
SPRING STREET OVER MBTA/CSX

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	1	33
PROJECT FILE NO.		610869	

TITLE SHEET AND INDEX

THESE PLANS ARE SUPPLEMENTED BY THE OCTOBER 2017 CONSTRUCTION STANDARD DETAILS, THE 2015 OVERHEAD SIGNAL STRUCTURE AND FOUNDATION STANDARD DRAWINGS, MASSDOT TRAFFIC MANAGEMENT PLANS AND DETAIL DRAWINGS, THE 1990 STANDARD DRAWINGS FOR SIGNS AND SUPPORTS, THE 1968 STANDARD DRAWINGS FOR TRAFFIC SIGNALS AND HIGHWAY LIGHTING, AND THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK.

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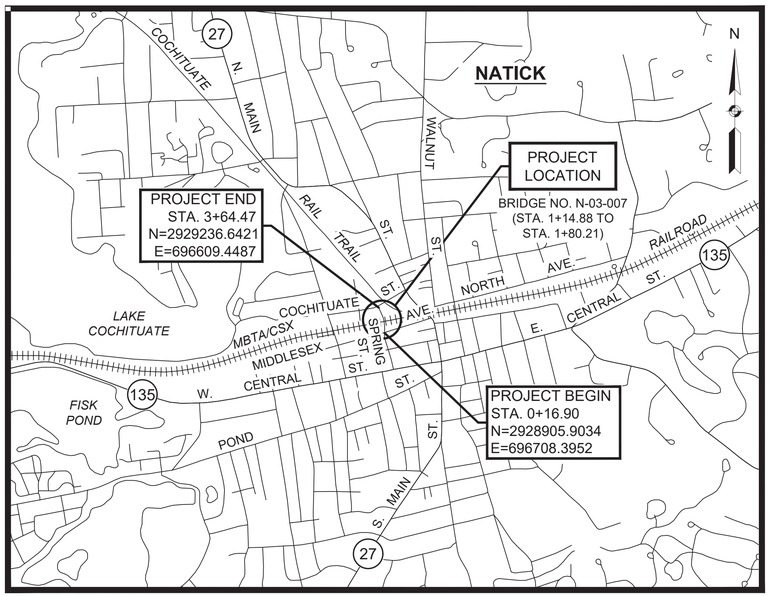


0 1000 2000 3000 4000

SCALE: 1" = 1,000'

LENGTH OF PROJECT = 347.57 FEET = 0.066 MILES

DESIGN DESIGNATION (SPRING STREET)	
DESIGN SPEED	12 MPH (BICYCLE)
ADT (1998) (YEAR CLOSED)	0 (CLOSED TO TRAFFIC)
ADT (2023)	(BICYCLE/PEDESTRIAN ONLY)
K	N/A
D	N/A
T (PEAK HOUR)	N/A
T (AVERAGE DAY)	N/A
DHV	N/A
DDHV	N/A
FUNCTIONAL CLASSIFICATION	N/A (SHARED USE PATH)

COMMONWEALTH OF MASSACHUSETTS
RICHARD P. LENOX
STRUCTURAL
No. 41034
PROFESSIONAL ENGINEER

Lenox, Richard (USRL04144)
Digitally signed by Lenox, Richard (USRL04144)
Date: 2024.12.18 08:53:55 -05'00'

WSP USA Inc.
100 NORTH PARKWAY
SUITE 110
WORCESTER, MA 01605
TEL: +1 508.248.1970

DATE	DESCRIPTION	REV #

MassDOT
Massachusetts Department of Transportation
Highway Division

APPROVED

Digitally signed by Carrie Lavallee, P.E.
Date: 2024.12.26 10:30:08 -05'00'

12/26/2024

CHIEF ENGINEER — **DATE**

GENERAL NOTES:

1. COORDINATES REFER TO THE MASS. STATE PLANE COORDINATE SYSTEM (NAD '83-2011).
2. ELEVATIONS REFER TO THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988.
3. SURVEY PROVIDED BY WSP DATED DECEMBER 2022 AND RECORDED IN MASSDOT SURVEY BOOK #15110.
4. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE ALL WORK WITH UTILITIES AND OTHER PARTIES WITHIN THE PROJECT LIMITS.
5. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PREVENT DAMAGE TO ALL EXISTING UTILITIES.
6. WHERE REQUIRED, ALL MUNICIPAL STRUCTURES SHALL BE ADJUSTED BY THE CONTRACTOR UNLESS OTHERWISE NOTED. ALL PRIVATE TELEPHONE, GAS, AND ELECTRICAL CASTINGS SHALL BE ADJUSTED BY OTHERS.
7. THE LOCATIONS OF EXISTING SUBSURFACE UTILITIES SHOWN ON THESE PLANS WERE COMPILED FROM VISIBLE STRUCTURES AND INFORMATION OBTAINED FROM VARIOUS SOURCES. THE CONTRACTOR SHALL NOTIFY ALL AGENCIES INVOLVED AND VERIFY THE LOCATIONS OF ALL EXISTING SUBSURFACE UTILITIES PRIOR TO PERFORMING ANY WORK.
8. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT ADEQUATE AND SAFE ACCESS IS PROVIDED TO VEHICULAR AND PEDESTRIAN TRAFFIC AND TO RESIDENCES BORDERING THE PROJECT AREA DURING CONSTRUCTION.
9. THE CONTRACTOR SHALL OBSERVE OSHA STANDARDS FOR SAFETY.
10. TREES AND SHRUBS WITHIN THE LIMITS OF CONSTRUCTION SHALL BE REMOVED ONLY UPON APPROVAL BY THE ENGINEER.
11. THE CONTRACTOR SHALL ENSURE THAT ALL ROADWAY RUNOFF IS DIRECTED TO CATCH BASINS WHERE PRESENT.
12. WHERE A NEW PAVEMENT MEETS EXISTING PAVEMENT, THE JOINT SHALL BE SAWCUT TO A NEAT VERTICAL LINE.
13. ALL PEDESTRIAN CURB RAMPS SHALL BE CONSTRUCTED TO COMPLY WITH THE LATEST MASSDOT STANDARDS, ADA REGULATIONS AND AAB REGULATIONS AND THE DETAILS SHOWN IN THESE PLANS.
14. ALL AREAS OUTSIDE OF THE LIMIT OF WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S OWN EXPENSE.
15. ALL GRANITE CURB SHALL BE SET TO HAVE A 6" REVEAL ABOVE FINAL PAVEMENT GRADES (UNLESS OTHERWISE NOTED).
16. THE CONTRACTOR MUST NOTIFY DIGSAFE AT 1-888-344-7233 NO LESS THAN 72 HOURS BEFORE COMMENCING ANY EXCAVATION ACTIVITIES.
17. ALL SIGNS, POSTS OR OTHER ELEMENTS PLACED ADJACENT TO A VEHICULAR TRAVELWAY (OUTSIDE THE LIMITS OF THE SHARED USE PATH) SHALL BE SET TO PROVIDE AT LEAST 18" OF CLEAR DISTANCE TO THE FACE OF CURB.
18. ALL SIGNS, POSTS OR OTHER ELEMENTS PLACED ADJACENT TO THE SHARED USE PATH SHALL BE SET TO PROVIDE AT LEAST 24" CLEAR DISTANCE TO THE EDGE OF THE PATH.

BENCH MARKS:

"2737": MAG NAIL SET BY MASSDOT GPS
STA. 0+11.75, 707.77' LT., N=2928700.6600, E=696031.0170
EL.= 164.66' (NAVD 1988)

"2738": PAVEMENT NAIL SET BY MASSDOT GPS
STA. 0+22.27, 12.39' LT., N=2928907.5480, E=696694.9940
EL.= 168.038' (NAVD 1988)

TRAFFIC SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		SIGN AND POST
		SIGN AND POST (2 POSTS)

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
		SHARED LANE MARKING - WHITE

GENERAL SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
JB	JB	JERSEY BARRIER
CB	CB	CATCH BASIN
		CATCH BASIN CURB INLET
FP	FP	FLAG POLE
GP	GP	GAS PUMP
MB	MB	MAIL BOX
		POST SQUARE
		POST CIRCULAR
WELL	WELL	WELL
EHH	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	C	CABLE MANHOLE
D	D	DRAINAGE MANHOLE
E	E	ELECTRIC MANHOLE
G	G	GAS MANHOLE
	L	LEACH BASIN
M 07	M 07	MISC MANHOLE
S	S	SEWER MANHOLE
T	T	TELEPHONE MANHOLE
W	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	TPL or GUY	TROLLEY POLE OR GUY POLE
HTP		TRANSMISSION POLE
UFB	UFB	UTILITY POLE W/ FIREBOX
UPDL	UPDL	UTILITY POLE WITH DOUBLE LIGHT
ULT	ULT	UTILITY POLE W / 1 LIGHT
UPL	UPL	UTILITY POLE
		BUSH OR SHRUB
SIZE & TYPE		TREE
		STUMP
		SWAMP / MARSH
WG	WG	WATER GATE
PM	PM	PARKING METER
		OVERHEAD CABLE/WIRE
		CURBING
99 / 100		CONTOURS (ON-THE-GROUND SURVEY DATA)
99 / 100		CONTOURS (PHOTOGRAMMETRIC DATA)
		UNDERGROUND DRAIN PIPE (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND ELECTRIC DUCT (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND GAS MAIN (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND SEWER MAIN (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND TELEPHONE DUCT (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND WATER MAIN (DOUBLE LINE 24 INCH AND OVER)
		BALANCED STONE WALL
		GUARD RAIL - STEEL POSTS
		GUARD RAIL - WOOD POSTS
		GUARD RAIL - DOUBLE FACE - STEEL POSTS
		GUARD RAIL - DOUBLE FACE - WOOD POSTS
x	x	CHAIN LINK OR METAL FENCE
		WOOD FENCE
		SEDIMENT CONTROL BARRIER
		TREE LINE
		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

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
BCR	BICYCLE CURB RAMP
BD.	BOUND
BL	BASELINE
BLDG	BUILDING
BM	BENCHMARK
B.O.	BY OTHERS
B.O.S.	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 (or GR)	GUARD
HDPE	HIGH DENSITY POLYETHYLENE
HDW	HEADWALL
HMA	HOT MIX ASPHALT
HOR	HORIZONTAL
HYD.	HYDRANT
INV	INVERT
JCT	JUNCTION
L	LENGTH OF CURVE
LB	LEACH BASIN
LO	LAYOUT
LP	LIGHT POLE
LSA	LANDSCAPE AREA
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
PCR	PEDESTRIAN CURB RAMP
PE	POLYETHYLENE
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

ABBREVIATIONS (cont.)

GENERAL

PSB	PLANTABLE SOIL BORROW
PT	POINT OF TANGENCY
PVC	POINT OF VERTICAL CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
PVMT	PAVEMENT
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 (or SDWK.)	SIDEWALK
T	TANGENT DISTANCE OF CURVE/TRUCK %
TAN	TANGENT
TEMP.	TEMPORARY
TC	TOP OF CURB
TOS	TOP OF SLOPE
TP	TURNING POINT
TYP	TYPICAL
UP	UTILITY POLE
VAR	VARIES
VERT	VERTICAL
VC	VERTICAL CURVE
VGC	VERTICAL GRANITE CURB
WG	WATER GATE
WIP	WROUGHT IRON PIPE
WM	WATER METER/WATER MAIN
X-SECT	CROSS SECTION

NATICK
SPRING STREET OVER MBTA/CSX

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	2	33
PROJECT FILE NO.	610869		

GENERAL NOTES, LEGEND AND ABBREVIATIONS

BORING BB-3A

N=2929097.3
E=696620.8
GROUND ELEVATION: 166.77±

ELEVATION (feet)

170.0
165.0
160.0
155.0
150.0
145.0

APPROX. BOTTOM OF PROP. MODULAR WALL EL.= 165.6±

massDOT Highway

LAMSON ENGINEERING CORPORATION
437 Cherry Street, #109, Newton, Massachusetts 02465
Phone: (617) 558-0101

Boring No. BB-3A Page 1/1

Boring Log Scale 1" = 4 '

City/Town: Natick	Bridge No.: N-03-007	Project File No: 610869	Contract No.:
Location: Spring Street over MBTA/CSX		Date & Time Started: 4/5/24 8:30 AM	Total Hours:
Groundwater Depth: 6'6"	Date & Time: 4/5/24 11:20 AM	Date & Time Completed: 4/5/24 12:00 PM	3.5
Coordinates:N 2929097.3 E 696620.8	Ground Elevation (Feet): 166.77	Inspector's Name: James Gu	
Drilling Company: New England Boring Contractors	Driller's Name: Mark D'Ambrosio	Helper's Name: Carol Downing	

Sample Number	Depth Range (Feet)	Blow Counts per 6 Inches / Coring Times Minute Per Foot	Recovery (inches)	Field Description	Strata Changes
	0'-1'			ASPHALT AND SUBBASE	1'
S-1	1'-3'	7 7 6 5	13"	Dry, medium dense, black, FINE TO COARSE SAND, some fine to medium gravel.	
S-2	3'-5'	5 18 50 27	12"	Dry, very dense, brown, FINE TO COARSE SAND, some fine to medium gravel	
S-3	5'-7'	35 44 24 27	12"	Wet, very dense, brown, FINE TO COARSE SAND, some fine to medium gravel	
S-4	10'-11'6"	10 24 27 70/0	11"	Wet, very dense, brown, FINE TO COARSE GRAVEL, some inorganic silt, trace of fine to coarse sand.	11'6"
				Top of Bedrock at 11'6". Rollerbit to 12'	12'
C-1	12'-17'	2.5 2 2 2 2	60"	Hard, dark gray, moderate angular fractures and some core breaks, SCHIST Recovery: 60"/60"= 100% RQD: 49"/60"= 82%	
C-2	17'-21'10"	3 3 2.5 4 6/10	58"	Hard, dark gray, moderate angular fractures and some core breaks, SCHIST Recovery: 58"/58"= 100% RQD: 54"/58"= 93%	21'10"
				Bottom of Exploration @ 21'10"	

Notes: Moved boring 6' South due to overhead branch Natick police Brian Ingham	Arrow Board:- Signs:- Cones:-	Protective Device Stand:- Box:- Well Depth:- Solid Pipe:- Stick Up Pipe:- Screen Pipe:-

Penetration Resistance (N) Guide:

Cohesionless Soils (Sands, Gravels)		Cohesive Soils (silts, Clays)	
Relative Density	Penetration Resistance	Consistency	Penetration Resistance
Very Loose	0 - 4	Very Soft	0 - 2
Loose	4 - 10	Soft	2 - 4
Medium Dense	10 - 30	Medium Stiff	4 - 8
Dense	30 - 50	Stiff	8 - 15
Very Dense	Over 50	Very Stiff	15 - 30
N=Sum of Second and Third 6" Blow Counts		Hard	Over 30

Terms Used for Second Entry of Descriptions: and=40-50%,some=10-40%,trace=10% or less

Type of Drill Rig: GT8 TRuck
Hammer Weight: 140 lbs Fall: 30"
Casing Types: Spin
Size: 4 3
Depth: 25' 25'
Sampler Type: SS Size: 1 3/8" ID
Automatic Hammer Weight: 140
Safety Hammer Weight:
Donut Hammer Weight: Fall: 30"
Core Barrel Type: NX Size: 2.15"

BORING BB-4

N=2929180.2
E=696603.4
GROUND ELEVATION: 168.05±

APPROX. BOTTOM OF PROP. MODULAR WALL EL.= 164.1±

massDOT Highway

LAMSON ENGINEERING CORPORATION
437 Cherry Street, #109, Newton, Massachusetts 02465
Phone: (617) 558-0101

Boring No. BB-4 Page 1/1

Boring Log Scale 1" = 4 '

City/Town: Natick	Bridge No.: N-03-007	Project File No: 610869	Contract No.:
Location: Spring Street over MBTA/CSX		Date & Time Started: 4/5/24 8:30 AM	Total Hours:
Groundwater Depth: 4'1"	Date & Time: 4/5/24 11:50 AM	Date & Time Completed: 4/5/24 12:30 PM	3.5
Coordinates:N 2929180.2 E 696603.4	Ground Elevation (Feet): 168.05	Inspector's Name: Alicia Mahoney	
Drilling Company: New England Boring Contractors	Driller's Name: Ken Smith	Helper's Name: Brian Steen	

Sample Number	Depth Range (Feet)	Blow Counts per 6 Inches / Coring Times Minute Per Foot	Recovery (inches)	Field Description	Strata Changes
S-1	0'-2'	2 6 15 10	12"	Moist, medium dense, black, FINE TO COARSE SAND, some fine to medium gravel.	
S-2	2'-4'	13 18 16 15	8"	Moist, dense, dark brown/pink, FINE TO COARSE SAND, some fine to medium gravel	8'
C-1	8'-13'	3.5 3.5 3 3 3.5	60"	Hard, light gray, moderate angular fractures and some core breaks, GRANITE Recovery: 60"/60"= 100% RQD: 42"/60"= 73%	
C-2	13'-18'	3 4 4 3.5 5.5	58"	Hard, light gray, moderate angular fractures and some core breaks, GRANITE Recovery: 58"/60"= 97% RQD: 43"/60"= 72%	18'
				Bottom of Exploration @ 18'	

Notes: Natick police Brian Ingham	Arrow Board:- Signs:- Cones:-	Protective Device Stand:- Box:- Well Depth:- Solid Pipe:- Stick Up Pipe:- Screen Pipe:-

Penetration Resistance (N) Guide:

Cohesionless Soils (Sands, Gravels)		Cohesive Soils (silts, Clays)	
Relative Density	Penetration Resistance	Consistency	Penetration Resistance
Very Loose	0 - 4	Very Soft	0 - 2
Loose	4 - 10	Soft	2 - 4
Medium Dense	10 - 30	Medium Stiff	4 - 8
Dense	30 - 50	Stiff	8 - 15
Very Dense	Over 50	Very Stiff	15 - 30
N=Sum of Second and Third 6" Blow Counts		Hard	Over 30

Terms Used for Second Entry of Descriptions: and=40-50%,some=10-40%,trace=10% or less

Type of Drill Rig: GT8 TRuck
Hammer Weight: 140 lbs Fall: 30"
Casing Types: Spin
Size: 4 3
Depth: 15' 15'
Sampler Type: SS Size: 1 3/8" ID
Automatic Hammer Weight: 140
Safety Hammer Weight:
Donut Hammer Weight: Fall: 30"
Core Barrel Type: NX Size: 2.15"

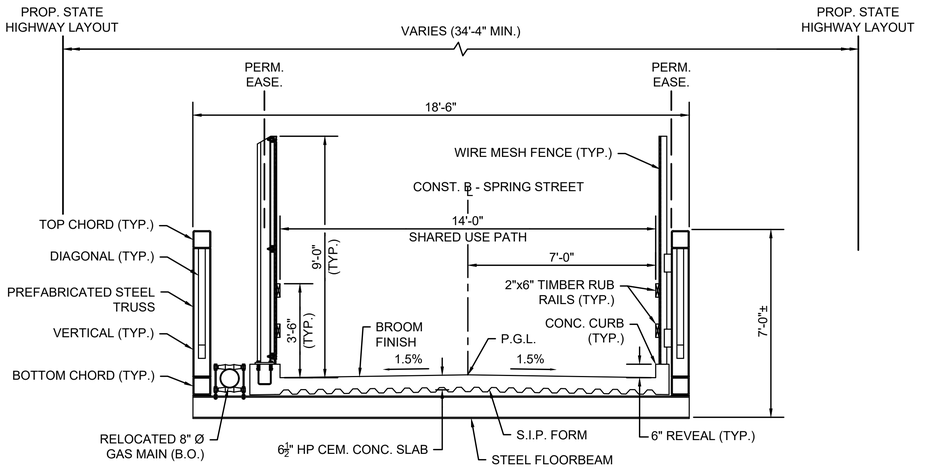
NOTES:

1. LOCATION OF BORINGS SHOWN ON THE PLAN THUS: ⊘ BB-1
2. BORINGS ARE TAKEN FOR PURPOSE OF DESIGN AND SHOW CONDITIONS AT BORING POINTS ONLY, BUT DO NOT NECESSARILY SHOW THE NATURE OF THE MATERIALS TO BE ENCOUNTERED DURING CONSTRUCTION.
3. WATER LEVELS SHOWN ON THE BORING LOGS WERE OBSERVED AT THE TIME OF TAKING BORINGS AND DO NOT NECESSARILY SHOW THE TRUE GROUND WATER LEVEL.
4. FIGURES IN COLUMNS INDICATE NUMBER OF BLOWS REQUIRED TO DRIVE A 1⅜" I.D. SPLIT SPOON SAMPLER 6" USING A 140 POUND WEIGHT FALLING 30".
5. BORING SAMPLES ARE STORED AT A STORAGE FACILITY LOCATED ON ROUTE 114 (219 WINTHROP AVE.) IN LAWRENCE, MA. THE CONTRACTOR MAY EXAMINE THE SOIL AND ROCK SAMPLES BY CONTACTING THE MASSDOT GEOTECHNICAL SECTION AT 10 PARK PLAZA, BOSTON, MA.
6. ALL BORINGS WERE MADE IN APRIL 2024.
7. BORINGS WERE MADE BY:
   NEW ENGLAND BORING CONTRACTORS
   40 FORDWAY STREET
   DERRY, NH 03038
8. THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988 IS USED THROUGHOUT.

NATICK
SPRING STREET OVER MBTA/CSX

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	4	33
PROJECT FILE NO.	610869		

TYPICAL ROADWAY SECTIONS AND PAVEMENT NOTES 1 OF 2



TYPICAL SHARED USE PATH SECTION AT BRIDGE NO. N-03-007
(STA. 1+14.88 TO STA. 1+80.21)
SCALE: ⅜" = 1'-0"

PAVEMENT NOTES

PROPOSED FULL DEPTH ROADWAY CONSTRUCTION

SURFACE: 1½" SUPERPAVE SURFACE COURSE - 9.5 (SSC-9.5)

INTERMEDIATE: 2" SUPERPAVE INTERMEDIATE COURSE - 12.5 (SIC-12.5)

BASE: 4" SUPERPAVE BASE COURSE - 37.5 (SBC-37.5)

SUBBASE: 4" DENSE GRADED CRUSHED STONE FOR SUBBASE OVER 8" GRAVEL BORROW (TYPE b)

PROPOSED FULL DEPTH SHARED USE PATH CONSTRUCTION

SURFACE: 1½" SUPERPAVE SURFACE COURSE - 9.5 (SSC-9.5)

INTERMEDIATE: 2½" SUPERPAVE INTERMEDIATE COURSE - 12.5 (SIC-12.5)

SUBBASE: 8" GRAVEL BORROW (TYPE b)

PROPOSED CEMENT CONCRETE SIDEWALK / RAMP / PATH / SPLITTER ISLAND

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

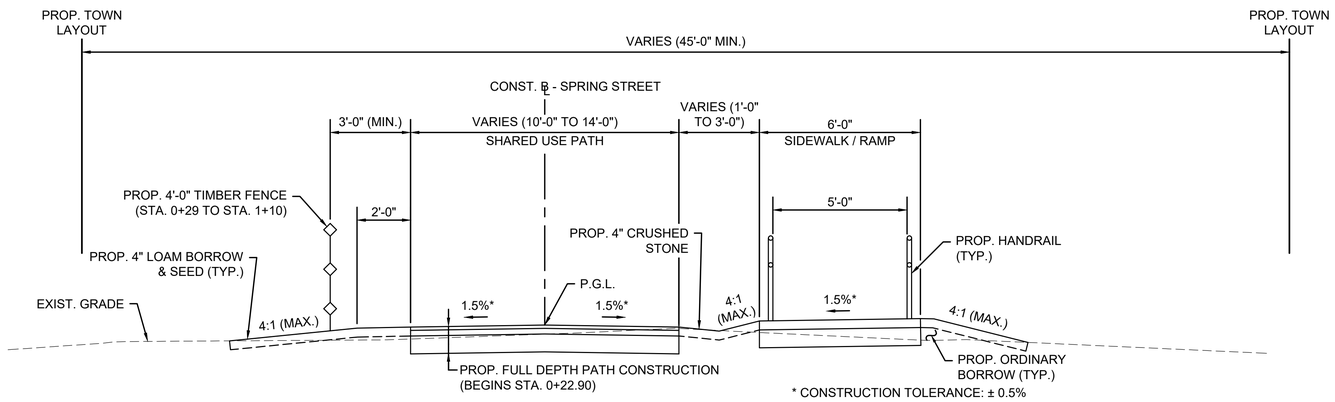
BASE: 8" GRAVEL BORROW (TYPE b)

PROPOSED HOT MIX ASPHALT DRIVEWAY APRON

SURFACE: 1½" SUPERPAVE SURFACE COURSE - 9.5 (SSC-9.5)

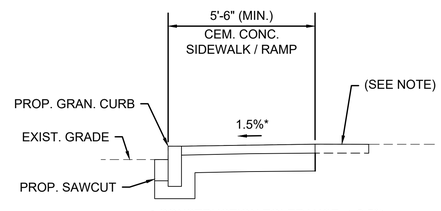
INTERMEDIATE: 2½" SUPERPAVE INTERMEDIATE COURSE - 12.5 (SIC-12.5)

SUBBASE: 8" GRAVEL BORROW (TYPE b)



* CONSTRUCTION TOLERANCE: ± 0.5%

TYPICAL SHARED USE PATH SECTION
(STA. 0+16.90 TO STA. 1+14.88)
SCALE: ⅜" = 1'-0"



* CONSTRUCTION TOLERANCE: ± 0.5%

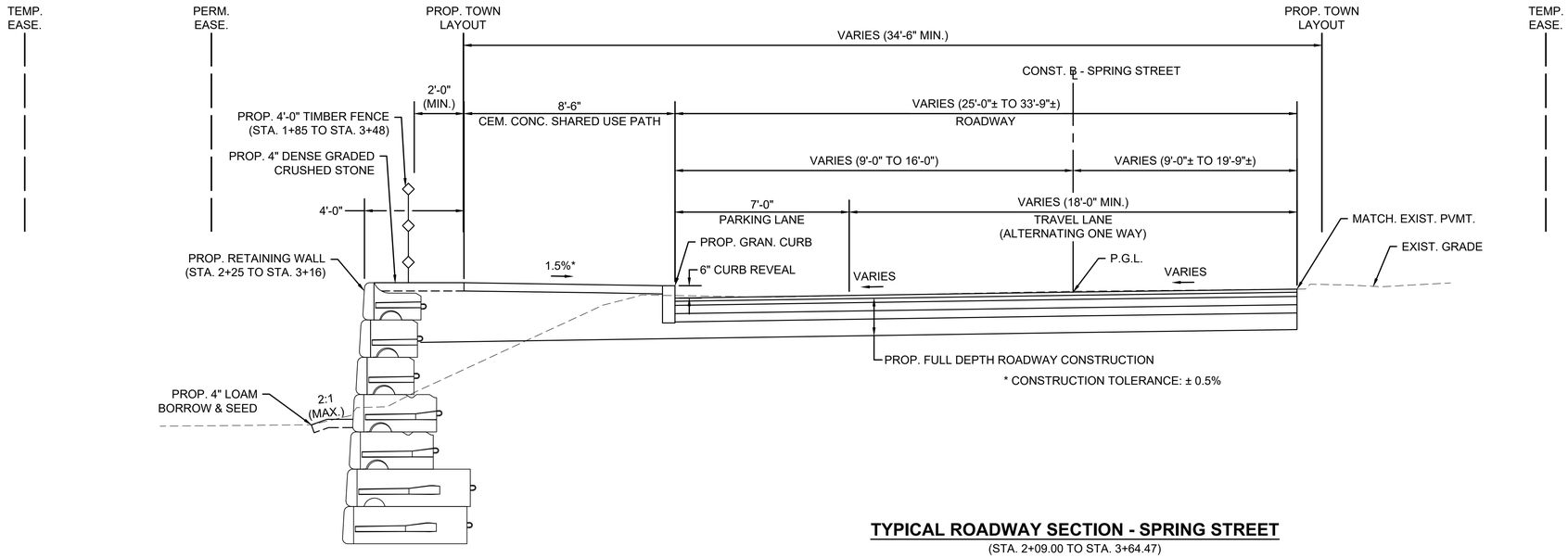
NOTE:
REFER TO CONSTRUCTION PLAN ON SHEET 6 FOR PROPOSED SURFACE TREATMENT.

TYPICAL CEMENT CONCRETE SIDEWALK / RAMP SECTION
(MIDDLESEX AVE. STA. 1+33.63 TO STA. 1+56.17 & STA. 1+77.27 TO STA. 2+63.54)
SCALE: ⅜" = 1'-0"

NATICK
SPRING STREET OVER MBTA/CSX

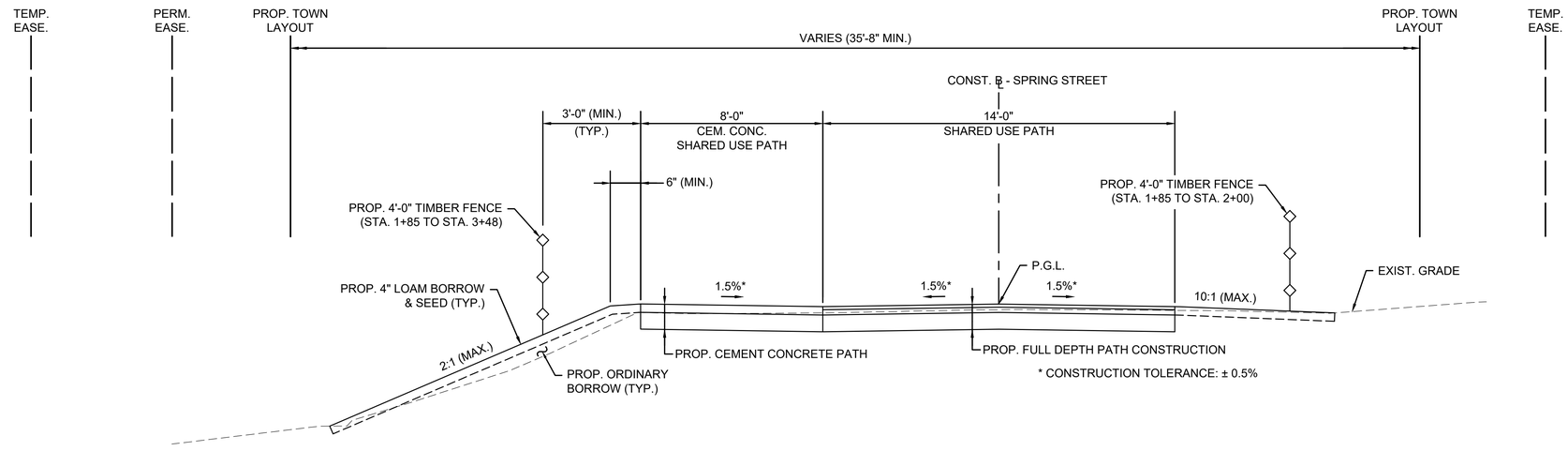
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	5	33
PROJECT FILE NO.	610869		

TYPICAL ROADWAY SECTIONS AND PAVEMENT NOTES
2 OF 2



TYPICAL ROADWAY SECTION - SPRING STREET

(STA. 2+09.00 TO STA. 3+64.47)
SCALE: $\frac{3}{8}$" = 1'-0"



TYPICAL SHARED USE PATH SECTION

(STA. 1+80.21 TO STA. 2+09.00)
SCALE: $\frac{3}{8}$" = 1'-0"

NOTE:

1. SEE SHEET 4 FOR PAVEMENT NOTES.

HIGHWAY GUARD DETAILS

NONE

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

SEE BELOW

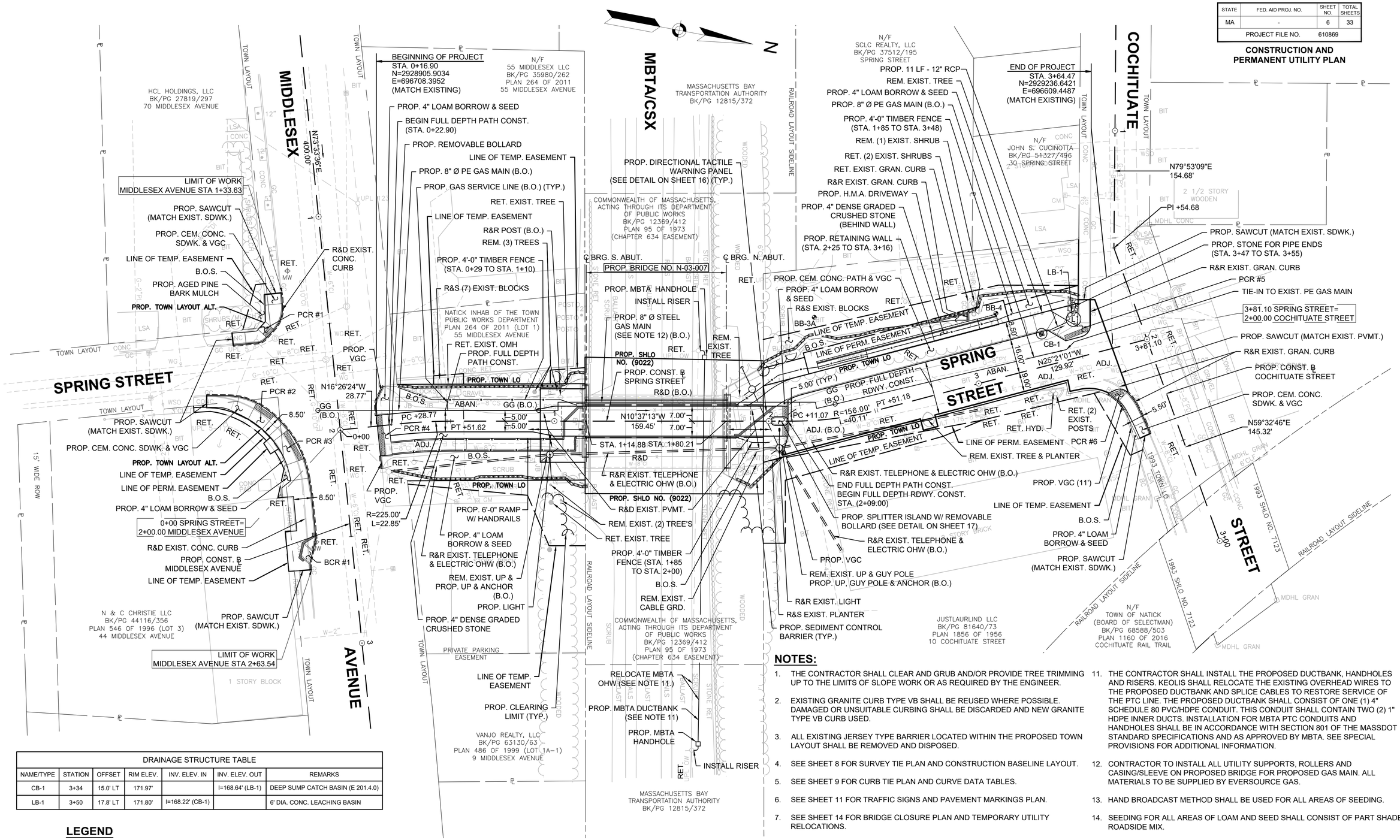
DRAINAGE DETAILS

SEE BELOW

NATICK
SPRING STREET OVER MBTA/CSX

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	6	33
PROJECT FILE NO.	610869		

CONSTRUCTION AND PERMANENT UTILITY PLAN



DRAINAGE STRUCTURE TABLE						
NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
CB-1	3+34	15.0' LT	171.97'		I=168.64' (LB-1)	DEEP SUMP CATCH BASIN (E 201.4.0)
LB-1	3+50	17.8' LT	171.80'	I=168.22' (CB-1)		6' DIA. CONC. LEACHING BASIN

LEGEND

EXIST. DRAINAGE
EXIST. ELECTRIC
EXIST. GAS
PROP. GAS
EXIST. SEWER
EXIST. WATER

CONSTRUCTION PLAN

0 20 50 100

SCALE: 1" = 20'

NOTES:

1. THE CONTRACTOR SHALL CLEAR AND GRUB AND/OR PROVIDE TREE TRIMMING UP TO THE LIMITS OF SLOPE WORK OR AS REQUIRED BY THE ENGINEER.
2. EXISTING GRANITE CURB TYPE VB SHALL BE REUSED WHERE POSSIBLE. DAMAGED OR UNSUITABLE CURBING SHALL BE DISCARDED AND NEW GRANITE TYPE VB CURB USED.
3. ALL EXISTING JERSEY TYPE BARRIER LOCATED WITHIN THE PROPOSED TOWN LAYOUT SHALL BE REMOVED AND DISPOSED.
4. SEE SHEET 8 FOR SURVEY TIE PLAN AND CONSTRUCTION BASELINE LAYOUT.
5. SEE SHEET 9 FOR CURB TIE PLAN AND CURVE DATA TABLES.
6. SEE SHEET 11 FOR TRAFFIC SIGNS AND PAVEMENT MARKINGS PLAN.
7. SEE SHEET 14 FOR BRIDGE CLOSURE PLAN AND TEMPORARY UTILITY RELOCATIONS.
8. SEE SHEET 16 FOR CURB RAMP DETAILS.
9. SEE CROSS SECTIONS FOR SHARED USE PATH AND ROADWAY CROSS SLOPES.
10. PROPOSED TREES SHALL BE FIELD LOCATED AS APPROVED BY THE ENGINEER. REFER TO THE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.
11. THE CONTRACTOR SHALL INSTALL THE PROPOSED DUCTBANK, HANDHOLES AND RISERS. KEOLIS SHALL RELOCATE THE EXISTING OVERHEAD WIRES TO THE PROPOSED DUCTBANK AND SPLICE CABLES TO RESTORE SERVICE OF THE PTC LINE. THE PROPOSED DUCTBANK SHALL CONSIST OF ONE (1) 4" SCHEDULE 80 PVC/HDPE CONDUIT. THIS CONDUIT SHALL CONTAIN TWO (2) 1" HDPE INNER DUCTS. INSTALLATION FOR MBTA PTC CONDUITS AND HANDHOLES SHALL BE IN ACCORDANCE WITH SECTION 801 OF THE MASSDOT STANDARD SPECIFICATIONS AND AS APPROVED BY MBTA. SEE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.
12. CONTRACTOR TO INSTALL ALL UTILITY SUPPORTS, ROLLERS AND CASING/SLEEVE ON PROPOSED BRIDGE FOR PROPOSED GAS MAIN. ALL MATERIALS TO BE SUPPLIED BY EVERSOURCE GAS.
13. HAND BROADCAST METHOD SHALL BE USED FOR ALL AREAS OF SEEDING.
14. SEEDING FOR ALL AREAS OF LOAM AND SEED SHALL CONSIST OF PART SHADE ROADSIDE MIX.
15. BORINGS BB-3A AND BB-4 COMPLETED FOR DESIGN OF THE PROPOSED RETAINING WALL. SEE SHEET 3 FOR BORING LOGS.

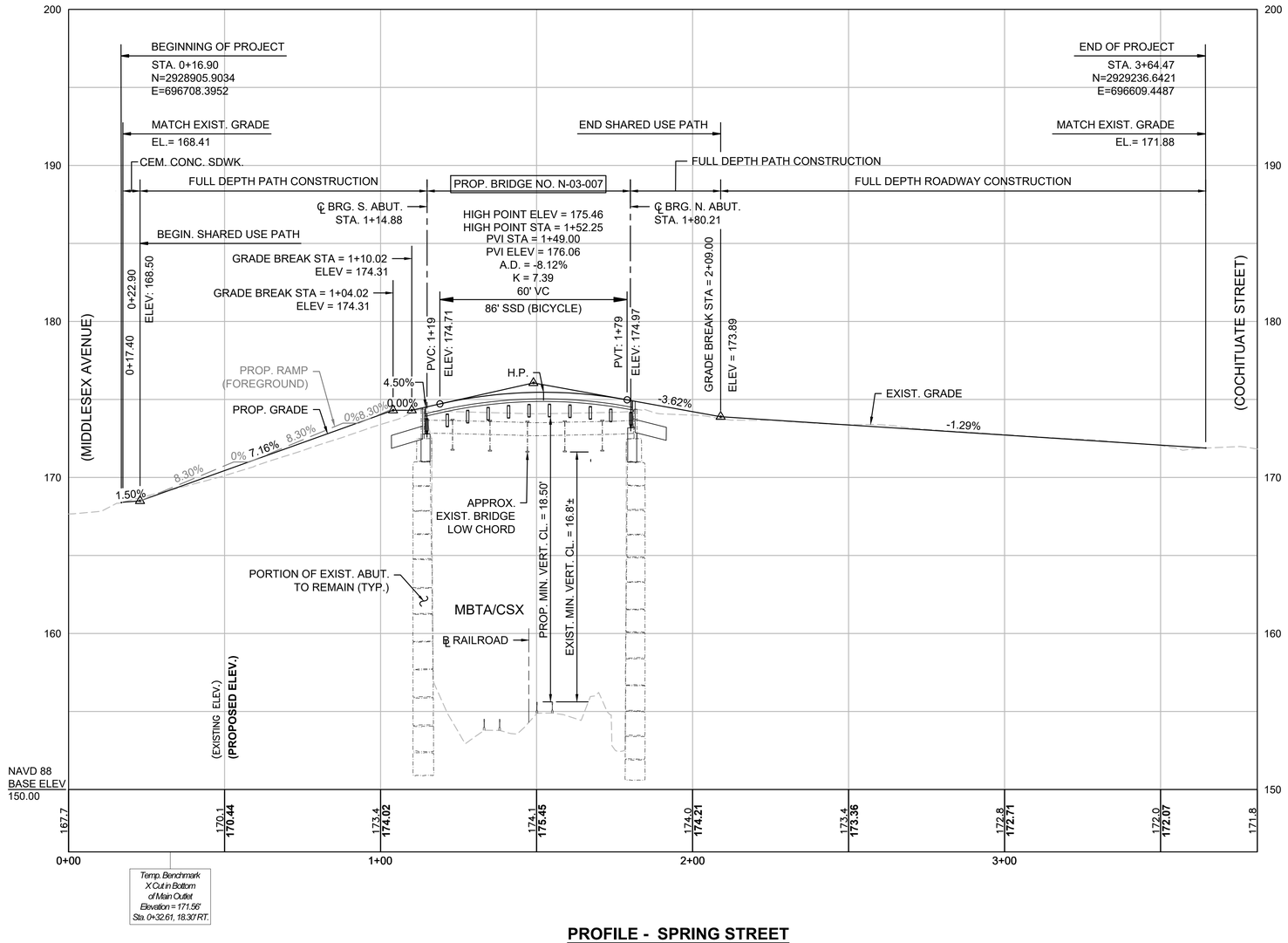
FOR CONSTRUCTION PROFILE:
SEE SHEET NO. 7

610869_HDJCONST_PLAN).DWG Plotted on 3-Jan-2025 10:42 AM

NATICK
SPRING STREET OVER MBTA/CSX

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	7	33
PROJECT FILE NO.	610869		

PROFILE



PROFILE - SPRING STREET

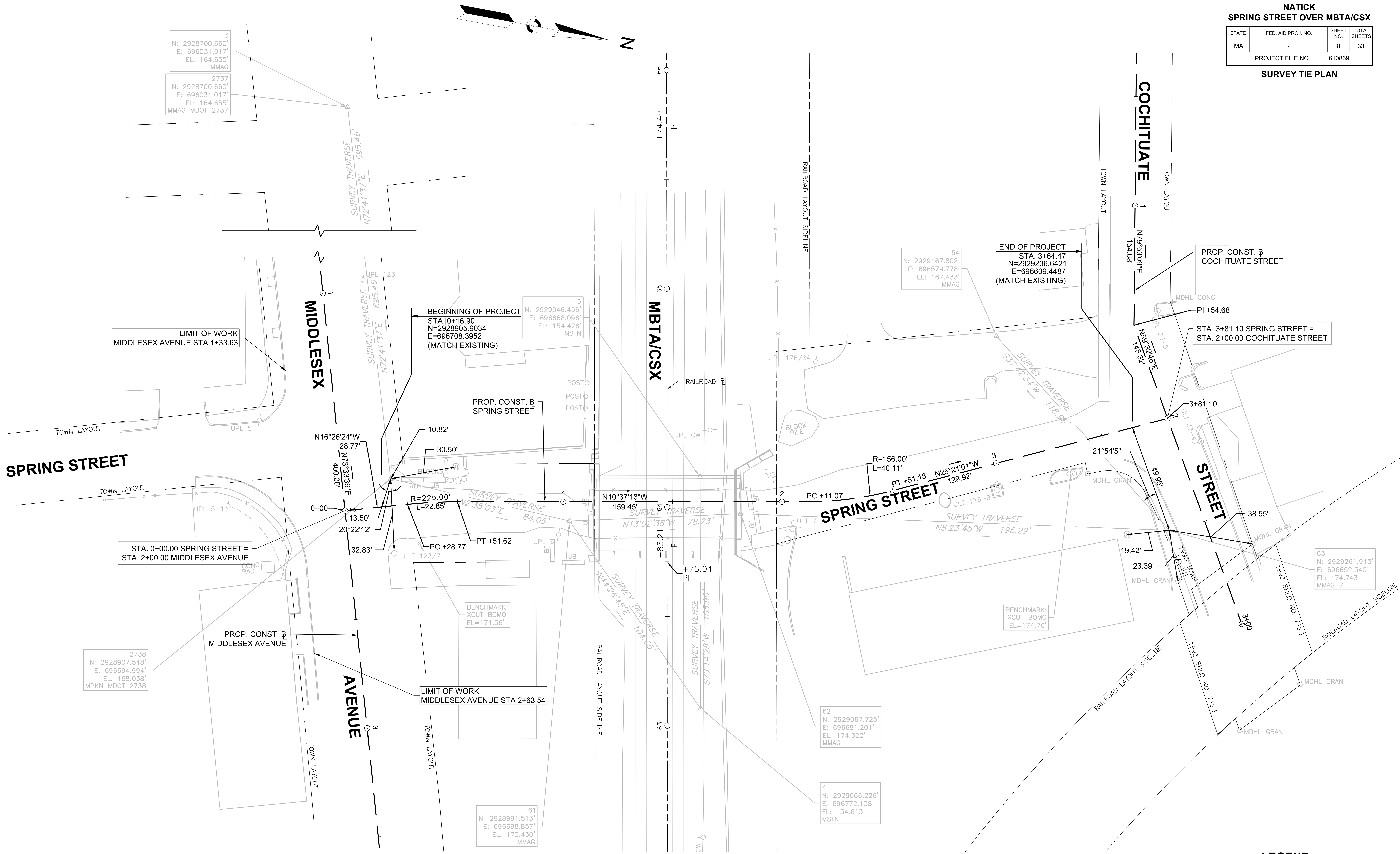
HOR. SCALE IN FEET
20 0 20 40
4 0 4 8
VER. SCALE IN FEET

610869_HD(SURVEY_TIE_PLAN).DWG Plotted on 19-Nov-2024 12:33 PM

NATICK
SPRING STREET OVER MBTA/CSX

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	8	33
	PROJECT FILE NO.	610869	

SURVEY TIE PLAN



SURVEY TIE PLAN

0 20 50 100
SCALE: 1" = 20'

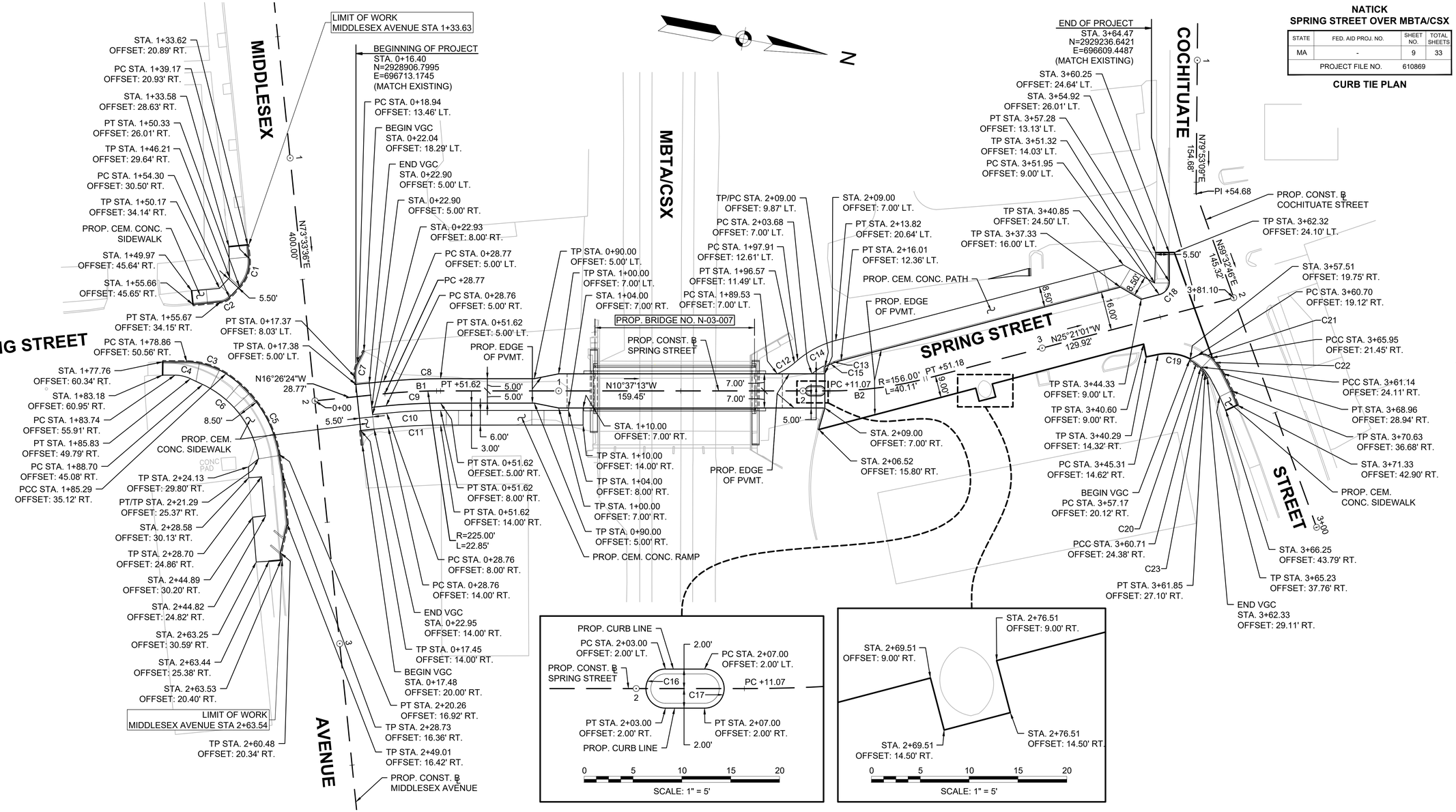
LEGEND

- × - BENCHMARK
- △ - SURVEY CONTROL POINT
- MMAG - MAG NAIL
- MSTN - TRAVERSE STATION
- MPKN - PAVEMENT NAIL

NATICK
SPRING STREET OVER MBTA/CSX

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	9	33
PROJECT FILE NO.	610869		

CURB TIE PLAN



CURVE DATA

CURVE	RADIUS	LENGTH	TANGENT	DELTA
B1	225.00'	22.85'	11.44'	5°-49'-11"
B2	156.00'	40.11'	20.16'	14°-43'-48"
C1	15.00'	12.63'	6.72'	48°-14'-40"
C2	5.50'	3.98'	2.08'	41°-28'-44"
C3	30.00'	16.95'	8.71'	32°-21'-57"
C4	15.00'	6.51'	3.31'	24°-52'-13"
C5	49.00'	40.57'	21.53'	47°-26'-29"
C6	40.50'	39.65'	21.58'	56°-05'-50"

CURVE DATA

CURVE	RADIUS	LENGTH	TANGENT	DELTA
C7	10.00'	5.73'	2.95'	32°-51'-31"
C8	230.00'	23.36'	11.69'	5°-49'-11"
C9	220.00'	22.35'	11.18'	5°-49'-11"
C10	217.00'	22.04'	11.03'	5°-49'-11"
C11	211.00'	21.43'	10.73'	5°-49'-11"
C12	32.00'	8.37'	4.21'	14°-59'-32"
C13	32.00'	13.30'	6.75'	23°-48'-51"
C14	40.00'	17.64'	8.97'	25°-16'-12"

CURVE DATA

CURVE	RADIUS	LENGTH	TANGENT	DELTA
C15	31.50'	7.11'	3.57'	12°-55'-54"
C16	2.00'	6.28'	-	180°-00'-00"
C17	2.00'	6.28'	-	180°-00'-00"
C18	5.50'	7.25'	4.26'	75°-32'-28"
C19	20.00'	13.48'	7.01'	38°-37'-25"
C20	19.50'	5.56'	2.80'	16°-19'-29"
C21	5.00'	6.12'	3.51'	70°-07'-22"
C22	25.50'	8.11'	4.09'	18°-13'-33"

CURVE DATA

CURVE	RADIUS	LENGTH	TANGENT	DELTA
C23	9.50'	2.96'	1.49'	17°-51'-29"

CURB TIE PLAN

0 20 50 100
SCALE: 1" = 20'

NATICK
SPRING STREET OVER MBTA/CSX

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	10	33
PROJECT FILE NO.	610869		

GRADING PLAN

610869_HDI(GRADE_PLAN).DWG Plotted on 19-Nov-2024 12:36 PM

MIDDLESEX AVENUE
SPRING STREET
COCHITUATE STREET
MBTA/CSX
RAILROAD LAYOUT SIDELINE
TOWN LAYOUT
LIMIT OF WORK MIDDLESEX AVENUE STA 1+33.63
BEGINNING OF PROJECT STA. 0+16.90 N=2928905.9034 E=696708.3952 (MATCH EXISTING)
END OF PROJECT STA. 3+64.47 N=2929236.6421 E=696609.4487 (MATCH EXISTING)
LIMIT OF WORK MIDDLESEX AVENUE STA 2+63.54
PROP. BRIDGE NO. N-03-007
PROP. SHLO NO. (9022)
PROP. TOWN LO
PROP. TOWN LAYOUT ALT.
PROP. CONST. ℄ MIDDLESEX AVENUE
PROP. CONST. ℄ SPRING STREET
PROP. CONST. ℄ COCHITUATE STREET
PROP. EDGE OF PVMT.
PROP. SEDIMENT CONTROL BARRIER (TYP.)
PROP. RETAINING WALL (STA. 2+25 TO STA. 3+16)
LINE OF TEMP. EASEMENT
LINE OF PERM. EASEMENT
EDGE OF PATH MATCH EDGE OF SHARED USE PATH
MATCH EXIST.
B.O.S.
PC +28.77
PT +51.62
PC +11.07
PT +51.18
PI +54.68
SEE BRIDGE PLANS FOR ELEVATIONS & GEOMETRY ON BRIDGE
1993 SHLO NO. 7123
1993 TOWN LAYOUT
HCL HOLDINGS, LLC BK/PG 27819/297 70 MIDDLESEX AVENUE
N/F 55 MIDDLESEX LLC BK/PG 35980/262 PLAN 264 OF 2011 55 MIDDLESEX AVENUE
MASSACHUSETTS BAY TRANSPORTATION AUTHORITY BK/PG 12815/372
COMMONWEALTH OF MASSACHUSETTS, ACTING THROUGH ITS DEPARTMENT OF PUBLIC WORKS BK/PG 12369/412 PLAN 95 OF 1973 (CHAPTER 634 EASEMENT)
NATICK INHAB OF THE TOWN PUBLIC WORKS DEPARTMENT PLAN 264 OF 2011 (LOT 1) 55 MIDDLESEX AVENUE
N/F SCLC REALTY, LLC BK/PG 37512/195 SPRING STREET
N/F JOHN S. CUCINOTTA BK/PG 51327/496 30 SPRING STREET
N & C CHRISTIE LLC BK/PG 44116/356 PLAN 546 OF 1996 (LOT 3) 44 MIDDLESEX AVENUE
VANJO REALTY, LLC BK/PG 63130/63 PLAN 486 OF 1999 (LOT 1A-1) 9 MIDDLESEX AVENUE
JUSTLAURLIND LLC BK/PG 81640/73 PLAN 1856 OF 1956 10 COCHITUATE STREET
N/F TOWN OF NATICK (BOARD OF SELECTMAN) BK/PG 68588/503 PLAN 1160 OF 2016 COCHITUATE RAIL TRAIL
2 1/2 STORY WOODEN
1 STORY BRICK
2 STORY BRICK
1 STORY BLOCK
15' WIDE ROW

GRADING PLAN

0 20 50 100
SCALE: 1" = 20'

NOTES:

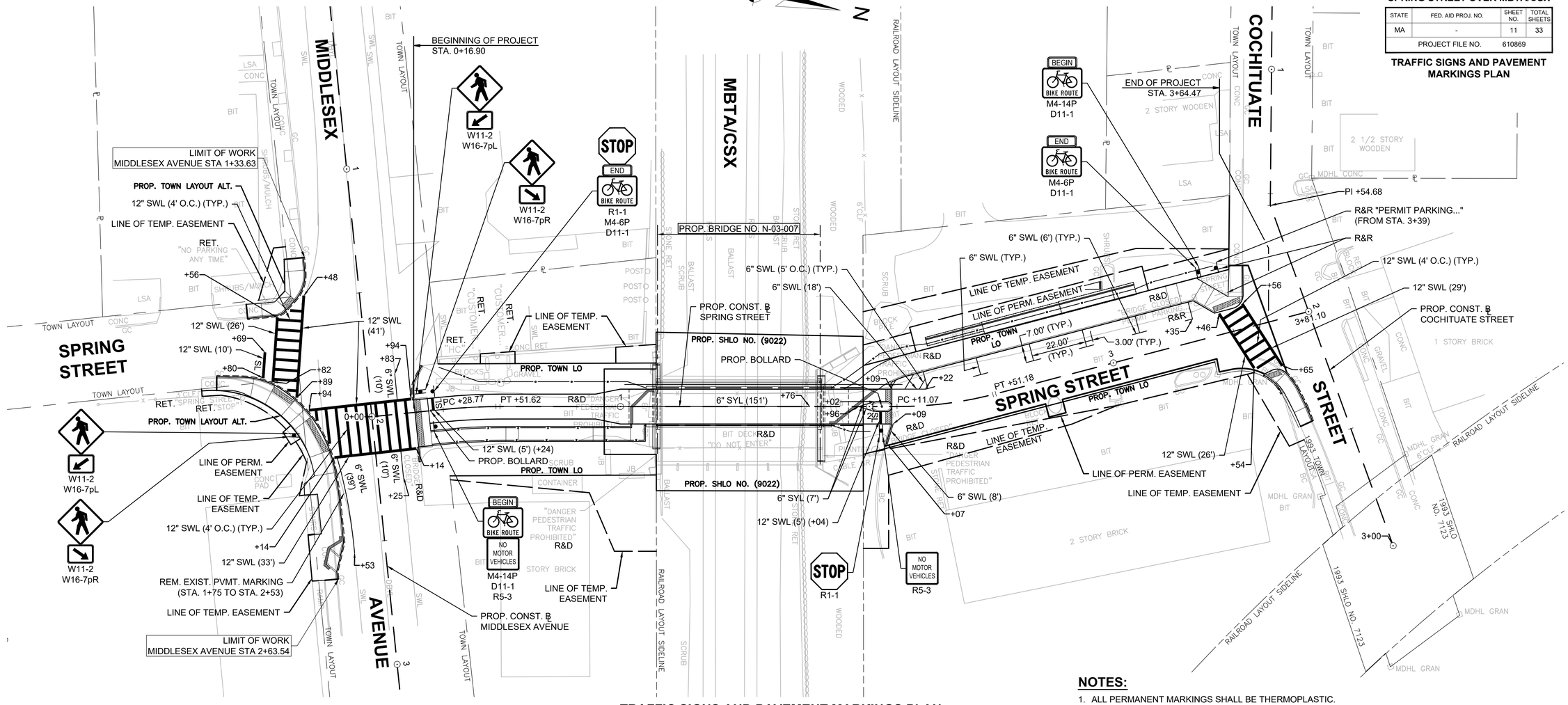
1. PROFILE AND CROSS SECTIONS SHALL BE USED TO ESTABLISH ALL ROADWAY, PATH AND SIDEWALK GRADES.
2. SEE CURB TIE PLANS TO ESTABLISH PROPOSED EDGES OF PAVEMENT AND CURB LINES AS WELL AS PROPOSED SIDEWALK, RAMP AND PATH WIDTHS.
3. ALL CROSS SLOPES SHOWN FOR SHARED USE PATHS AND SIDEWALKS SHALL HAVE A CONSTRUCTION TOLERANCE OF ± 0.5%.

610869_HD\SIGN_PLAN).DWG Plotted on 19-Nov-2024 12:37 PM

NATICK
SPRING STREET OVER MBTA/CSX

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	11	33
PROJECT FILE NO.	610869		

TRAFFIC SIGNS AND PAVEMENT MARKINGS PLAN



TRAFFIC SIGNS AND PAVEMENT MARKINGS PLAN

0 20 50 100

SCALE: 1" = 20'

NOTES:

1. ALL PERMANENT MARKINGS SHALL BE THERMOPLASTIC.
2. ALL PROPOSED SIGNS, SIGN SUPPORTS, PAVEMENT MARKINGS AND INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE 2009 EDITION OF THE MUTCD AND MASSDOT STANDARDS.

TRAFFIC SIGN SUMMARY

IDENTIFICATION NUMBER	SIZE OF SIGN WIDTH	SIZE OF SIGN HEIGHT	TEXT	TEXT DIMENSIONS (INCHES) LETTER HEIGHT	TEXT DIMENSIONS (INCHES) VERTICAL SPACING	TEXT DIMENSIONS (INCHES) ARROW RTE. MKR.	NUMBER OF SIGNS REQUIRED	COLOR BACK-GROUND	COLOR LEGEND	COLOR BORDER	POST SIZE AND NUMBER REQUIRED	UNIT AREA (S.F.)	AREA IN SQUARE FEET
D11-1	24"	18"	BIKE ROUTE	SEE STANDARDS IN 2009 MUTCD			4	GREEN	WHITE	WHITE	P-5 1 2 MOUNT WITH R5-3 & R1-1	3.0	12.0
M4-6P	12"	6"	END				2	GREEN	WHITE	WHITE	MOUNT W/ D11-1	0.5	1.0
M4-14P	12"	6"	BEGIN				2	GREEN	WHITE	WHITE	MOUNT W/ D11-1	0.5	1.0
R1-1	18"	18"	STOP				2	RED	WHITE	WHITE	P-5 1	1.9	3.8

IDENTIFICATION NUMBER	SIZE OF SIGN WIDTH	SIZE OF SIGN HEIGHT	TEXT	TEXT DIMENSIONS (INCHES) LETTER HEIGHT	TEXT DIMENSIONS (INCHES) VERTICAL SPACING	TEXT DIMENSIONS (INCHES) ARROW RTE. MKR.	NUMBER OF SIGNS REQUIRED	COLOR BACK-GROUND	COLOR LEGEND	COLOR BORDER	POST SIZE AND NUMBER REQUIRED	UNIT AREA (S.F.)	AREA IN SQUARE FEET
R5-3	24"	24"	NO MOTOR VEHICLES	SEE STANDARDS IN 2009 MUTCD			2	WHITE	BLACK	BLACK	P-5 1 1 MOUNT W/ D11-1	4.0	8.0
W11-2	36"	36"					4	FLOURE-SCENT YELLOW-GREEN	BLACK	BLACK	P-5 2	9.0	36.0
W16-7pL	24"	12"					2	FLOURE-SCENT YELLOW-GREEN	BLACK	BLACK	MOUNT W/ W11-2	2.0	4.0
W16-7pR	24"	12"					2	FLOURE-SCENT YELLOW-GREEN	BLACK	BLACK	MOUNT W/ W11-2	2.0	4.0

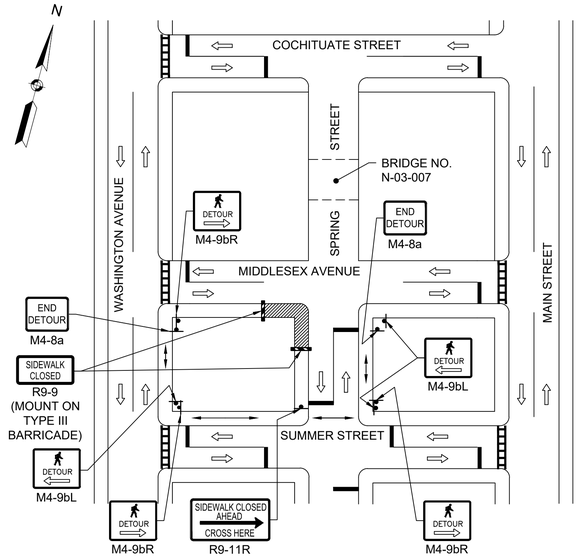
LEGEND

- REFLECTORIZED PLASTIC DRUM OR 36" CONE
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC (VEHICLES)
- DIRECTION OF TRAFFIC (PEDESTRIANS)
- CONSTRUCTION SIGN
- P/F — POLICE OR FLAGGER
- WORK AREA

NATICK
SPRING STREET OVER MBTA/CSX

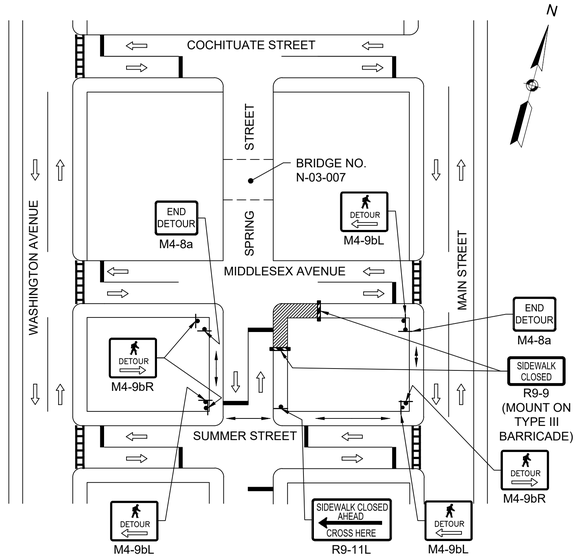
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	12	33
PROJECT FILE NO.	610869		

TEMPORARY TRAFFIC CONTROL DETAILS AND NOTES
1 OF 2



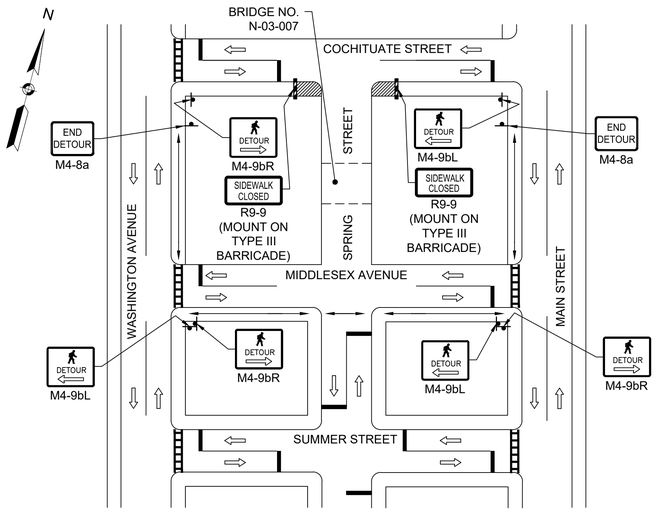
PEDESTRIAN DETOUR (SIDEWALK CLOSURE AT SOUTHWEST CORNER OF MIDDLESEX AVE./ SPRING ST. INTERSECTION)

NOT TO SCALE



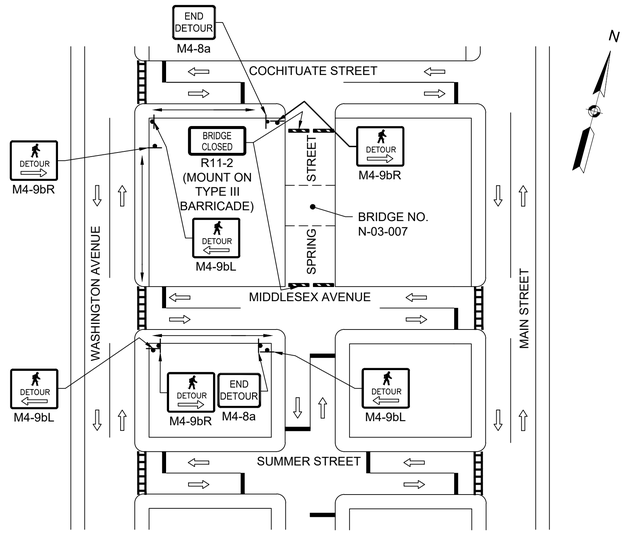
PEDESTRIAN DETOUR (SIDEWALK CLOSURE AT SOUTHEAST CORNER OF MIDDLESEX AVE./ SPRING ST. INTERSECTION)

NOT TO SCALE



PEDESTRIAN DETOUR (SIDEWALK CLOSURE AT COCHITUATE ST./ SPRING ST. INTERSECTION)

NOT TO SCALE



PEDESTRIAN DETOUR (BRIDGE CLOSURE)

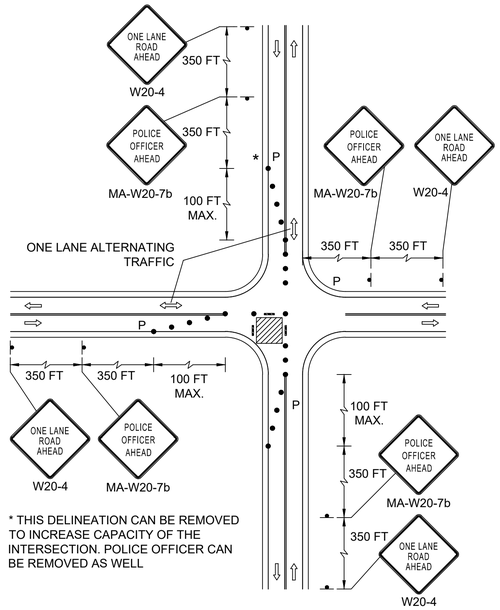
NOT TO SCALE

NOTE:

1. SEE SHEET 13 FOR TEMPORARY TRAFFIC CONTROL NOTES.

CONSTRUCTION SIGN SUMMARY

IDENTIFICATION NUMBER	SIZE OF SIGN (INCHES) WIDTH	HEIGHT	TEXT	TEXT DIMENSIONS (INCHES) LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.	NUMBER OF SIGNS REQUIRED	COLOR BACK-GROUND	LEGEND	BORDER	UNIT AREA IN SQUARE FEET	AREA IN SQUARE FEET	
MA-W20-7b	36"	36"	POLICE OFFICER AHEAD	SEE MASSDOT STANDARDS			3	FLUOR. ORANGE	BLACK	BLACK	9.0	27.0	
M4-8a	24"	18"	END DETOUR	SEE STANDARDS IN 2009 MUTCD			2	FLUOR. ORANGE	BLACK	BLACK	3.0	6.0	
M4-9bL	30"	24"	DETOUR				3	FLUOR. ORANGE	BLACK	BLACK	5.0	15.0	
M4-9bR	30"	24"	DETOUR				3	FLUOR. ORANGE	BLACK	BLACK	5.0	15.0	
R9-9	24"	12"	SIDEWALK CLOSED				2	WHITE	BLACK	BLACK	2.0	4.0	MOUNT ON TYPE III BARRICADE
R9-11L	24"	18"	SIDEWALK CLOSED AHEAD ← CROSS HERE				1	WHITE	BLACK	BLACK	3.0	3.0	
R9-11R	24"	18"	SIDEWALK CLOSED AHEAD → CROSS HERE				1	WHITE	BLACK	BLACK	3.0	3.0	
R11-2	48"	30"	BRIDGE CLOSED				2	WHITE	BLACK	BLACK	10.0	20.0	MOUNT ON TYPE III BARRICADE
W5-1	36"	36"	ROAD NARROWS				1	FLUOR. ORANGE	BLACK	BLACK	9.0	9.0	
W13-1p	18"	18"	XX M.P.H.				2	FLUOR. ORANGE	BLACK	BLACK	2.25	4.5	
W20-4	36"	36"	ONE LANE ROAD AHEAD				3	FLUOR. ORANGE	BLACK	BLACK	9.0	27.0	
W20-7	36"	36"					2	FLUOR. ORANGE	BLACK	BLACK	9.0	18.0	
W21-5a	36"	36"	RIGHT SHOULDER CLOSED				1	FLUOR. ORANGE	BLACK	BLACK	9.0	9.0	

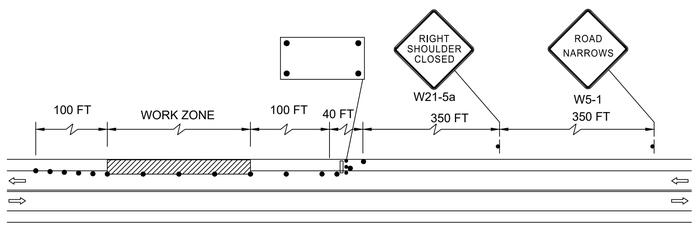


NOTE:

DETAIL ONLY TO BE USED AT 3-LEG INTERSECTIONS AT THE PROJECT LOCATION. DETAIL IS SHOWN AS 4-LEGS TO BE APPLICABLE FOR DIFFERENT CONFIGURATIONS.

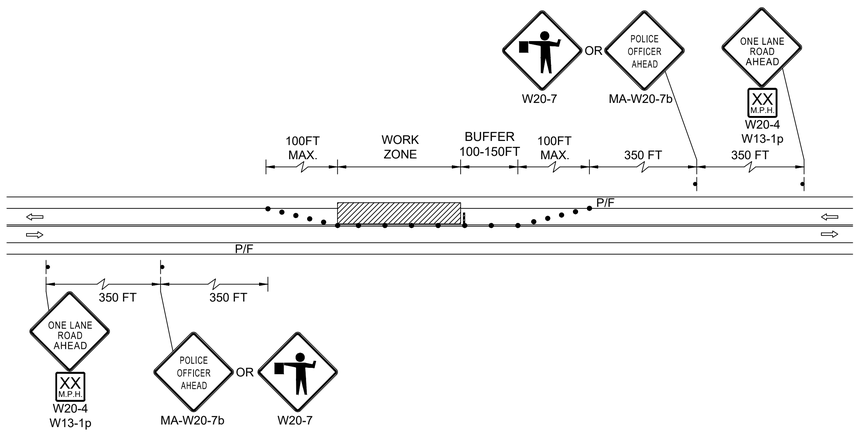
INTERSECTION ONE QUADRANT CLOSURE

NOT TO SCALE



TWO LAND ROAD SHOULDER CLOSED

NOT TO SCALE



TWO LAND ROAD ONE LANE ALTERNATING TRAFFIC

NOT TO SCALE

NATICK
SPRING STREET OVER MBTA/CSX

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	13	33
PROJECT FILE NO.	610869		

TEMPORARY TRAFFIC CONTROL DETAILS AND NOTES
2 OF 2

NOTES:

1. ALL TEMPORARY TRAFFIC CONTROL WORK SHALL CONFORM TO THE 2009 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. THE TEMPORARY TRAFFIC CONTROL PLANS CONTAINED HEREIN ARE GIVEN AS A GUIDE FOR TYPICAL WORK ZONE TRAFFIC CONTROL APPLICATIONS FOR THE TYPES OF WORK ANTICIPATED FOR THIS PROJECT. THEY ARE NOT INTENDED TO COVER ALL POSSIBLE CONSTRUCTION OPERATIONS WHICH THE CONTRACTOR MAY CHOOSE TO EMPLOY. WORK ZONE TRAFFIC CONTROL FOR OTHER CONSTRUCTION OPERATIONS OR OTHER TRAFFIC SITUATIONS, IF APPLICABLE, SHALL BE IN ACCORDANCE WITH THE MUTCD AND AS APPROVED OR AS DIRECTED BY THE ENGINEER.
4. TEMPORARY CONSTRUCTION SIGNING AND ALL OTHER TRAFFIC CONTROL DEVICES SHALL BE IN PLACE PRIOR TO THE START OF ANY WORK.
5. SIGNS AND SIGN SUPPORTS LOCATED ON OR NEAR THE TRAVELED WAY, INCLUDING CHANNELIZING DEVICES, BARRIERS AND CRASH ATTENUATORS MUST PASS THE CRITERIA SET FORTH IN THE "MANUAL FOR ASSESSING SAFETY HARDWARE" (MASH).
6. ALL SIGNS SHALL BE MOUNTED ON STANDARD SIGN SUPPORTS.
7. EXISTING SIGNING THAT IS NOT APPLICABLE SHALL BE COVERED OR REMOVED WHEN NOT REQUIRED FOR CONTROL OF TRAFFIC.
8. WHERE TEMPORARY PAVEMENT MARKINGS ARE REQUIRED, THE CONTRACTOR SHALL REMOVE EXISTING PAVEMENT MARKINGS BY GRINDING.
9. THE CONTRACTOR SHALL CLEAR AND GRUB WITHIN THE WORK AREAS AS REQUIRED AND AS APPROVED BY THE ENGINEER.
10. THE ADVISORY SPEED LIMIT, IF REQUIRED, SHALL BE DETERMINED BY THE ENGINEER.

LEGEND

- REFLECTORIZED PLASTIC DRUM OR 36" CONE
- TYPE III BARRICADE
- DIRECTION OF TRAFFIC (VEHICLES)
- DIRECTION OF TRAFFIC (PEDESTRIANS)
- CONSTRUCTION SIGN
- P/F POLICE OR FLAGGER
- WORK AREA

NATICK
SPRING STREET OVER MBTA/CSX

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	14	33
PROJECT FILE NO.	610869		

BRIDGE CLOSURE AND TEMPORARY UTILITY PLAN

610869_HD(BR_CLOSE_PLAN).DWG Plotted on 3-Jan-2025 10:47 AM

MIDDLESEX AVENUE
SPRING STREET
COCHITUATE STREET
MBTA/CSX RR
RAILROAD LAYOUT SIDELINE
1993 SHLO NO. 7123
PROP. SHLO NO. (9022)
PROP. TOWN LAYOUT
PROP. TOWN LAYOUT ALT.
PROP. CONST. ℄ MIDDLESEX AVENUE
PROP. CONST. ℄ SPRING STREET
PROP. CONST. ℄ COCHITUATE STREET
PROP. 8" Ø PE GAS MAIN (B.O.)
ABAN. EXIST. 8" Ø GAS MAIN
R&D EXIST. 8" Ø GAS MAIN
R&D EXIST. BARRIER (TYP.)
TEMP. BARRIER, TL-2 (TYP.)
TEMP. SEDIMENT CONTROL BARRIER (TYP.)
LINE OF TEMP. EASEMENT
LINE OF PERM. EASEMENT
TEMP. UTILITY BRIDGE
TEMP. 8" Ø GAS MAIN
TEMP. C.L.F. (TYP.)
TEMP. GATE (TYP.)
TEMP. CAISSON (SEE NOTE 3)
TEMP. UP & GUY WIRE (B.O.)
REM. EXIST. UP (B.O.)
R&D EXIST. 8" Ø WATER MAIN
REM. EXIST. UP R&R EXIST. LIGHT (B.O.)
RELOCATE EXIST. TELEPHONE & ELECTRIC OHW (B.O.)
RET. 20' (MIN.) OPENING AT ALL TIMES DURING BUSINESS HOURS
MAINTAIN ACCESS TO HYDRANT WHILE BARRIER IS IN PLACE
BRIDGE CLOSED R11-2
0+00
1
2
3
3+00
3+81.10

LEGEND

- TEMPORARY FENCE
- TEMPORARY FENCE GATES
- TEMPORARY BARRIER, TL-2
- REFLECTORIZED DRUM
- PORTABLE BREAKAWAY BARRICADE TYPE III
- WORK AREA
- SEDIMENT CONTROL BARRIER
- DIRECTION OF TRAFFIC

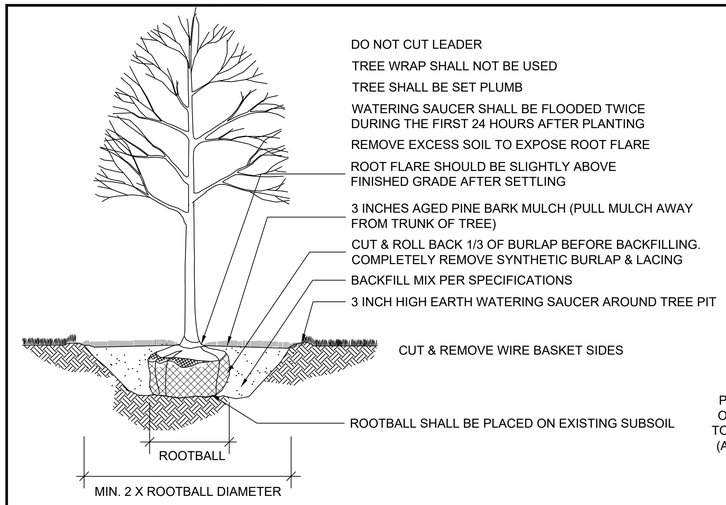
NOTES:

1. SEE SHEET 6 FOR PERMANENT UTILITY PLAN.
2. SEE SHEET 12 FOR PEDESTRIAN DETOUR.
3. CONTRACTOR SHALL COORDINATE THE REQUIRED CAISSON DIMENSIONS WITH EVERSOURCE ELECTRIC PRIOR TO INSTALLATION. REFER TO SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.

BRIDGE CLOSURE PLAN

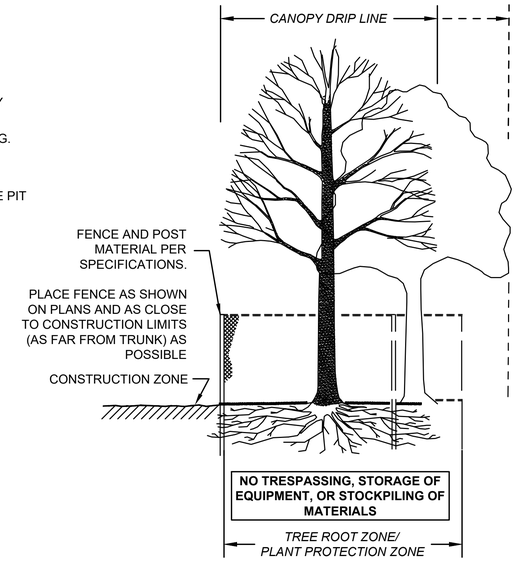
0 20 50 100

SCALE: 1" = 20'

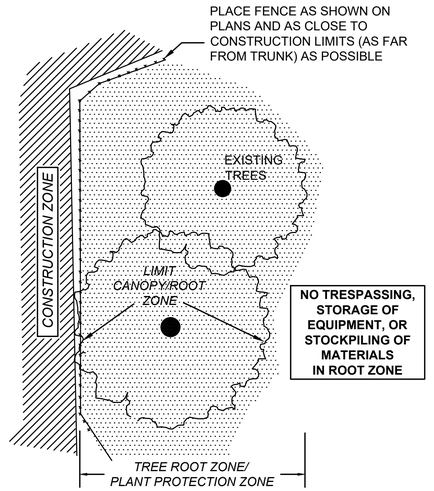


DECIDUOUS TREE PLANTING

NOT TO SCALE



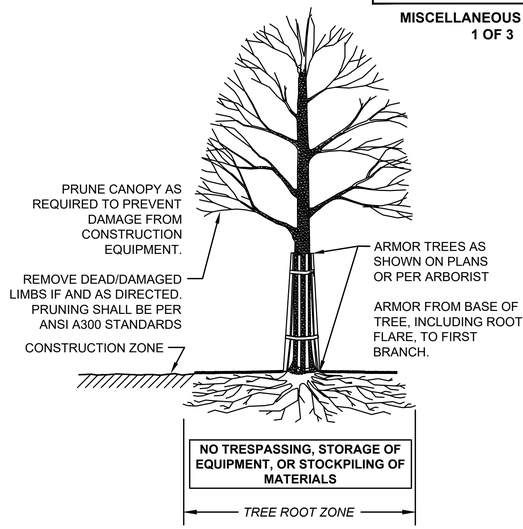
SECTION - FENCE PROTECTION OF ROOT ZONE



PLAN VIEW - FENCE PROTECTION OF ROOT ZONE

TREE PROTECTION - ROOT ZONE

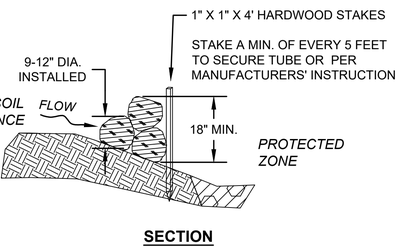
NOT TO SCALE



SECTION - TRUNK ARMORING & PRUNING

TREE PROTECTION - TRUNK

NOT TO SCALE

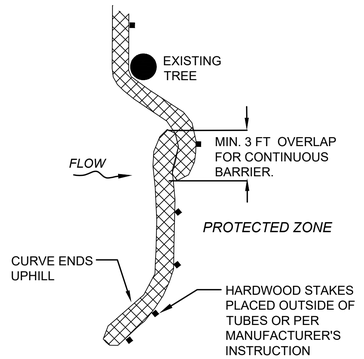


PLAN VIEW

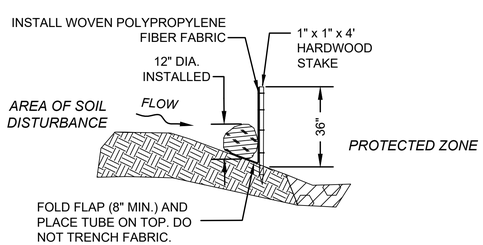
SECTION

COMPOST FILTER TUBE BERM (SLOPES 2:1 OR STEEPER)

NOT TO SCALE



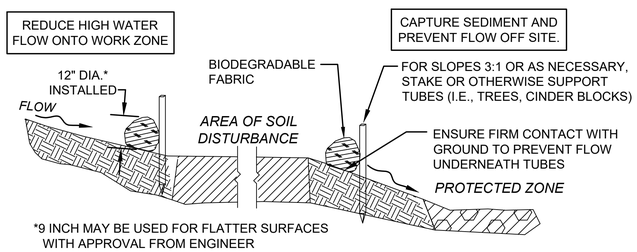
PLAN VIEW



SECTION

COMPOST FILTER TUBE AND SILT FENCE

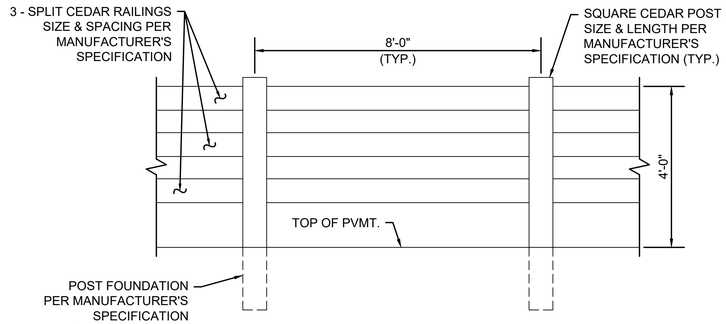
NOT TO SCALE

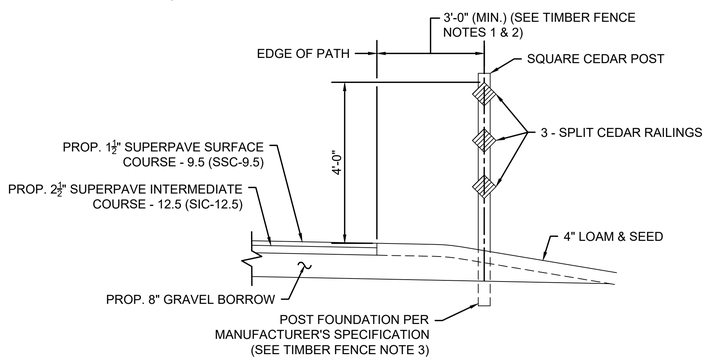


SECTION

SEDIMENT BARRIER - COMPOST FILTER TUBE

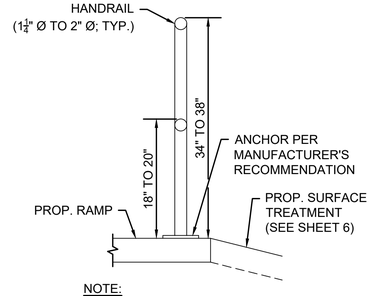
NOT TO SCALE





TIMBER FENCE DETAILS

NOT TO SCALE



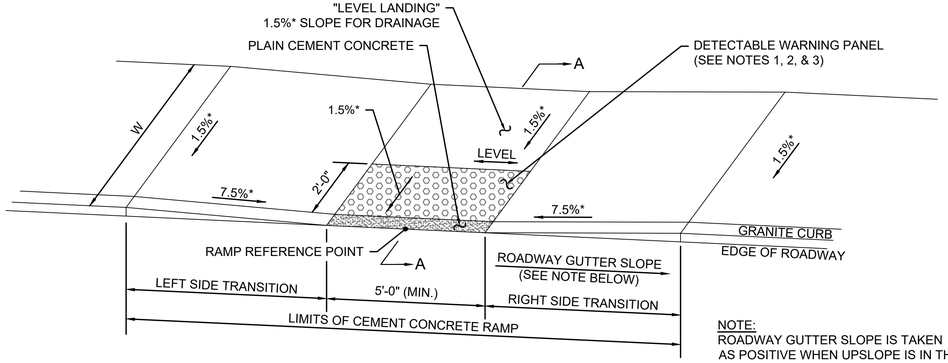
NOTE:
SEE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.

HANDRAIL DETAIL

NOT TO SCALE

TIMBER FENCE NOTES:

1. THE FIRST FENCE POST BEYOND EACH BRIDGE END POST SHALL BE SET SO THAT THE CENTER OF THE POST IS 6" FROM THE EDGE OF PATH AND 9" FROM THE FACE OF THE RAILING TRANSITION. THE NEXT POST SHALL BE SET AS SHOWN.
2. FENCE POSTS THAT DO NOT ABUT THE BRIDGE END POSTS SHALL BE SET SO THAT THE CENTER OF THE POST IS 3'-0" MINIMUM FROM THE EDGE OF THE PATH. TERMINAL FENCE POST SHALL BE FLARED AWAY FROM THE EDGE OF THE PATH.
3. WHERE THE FENCE POSTS ARE INSTALLED AT THE PROPOSED RETAINING WALL, POSTS SHALL BE INSTALLED SO THAT THERE IS 2'-0" MINIMUM CLEAR DISTANCE FROM THE FENCE TO THE EDGE OF PATH. POSTS SHALL BE INSTALLED WITHIN VOIDS OF THE MODULAR RETAINING WALL. SEE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.

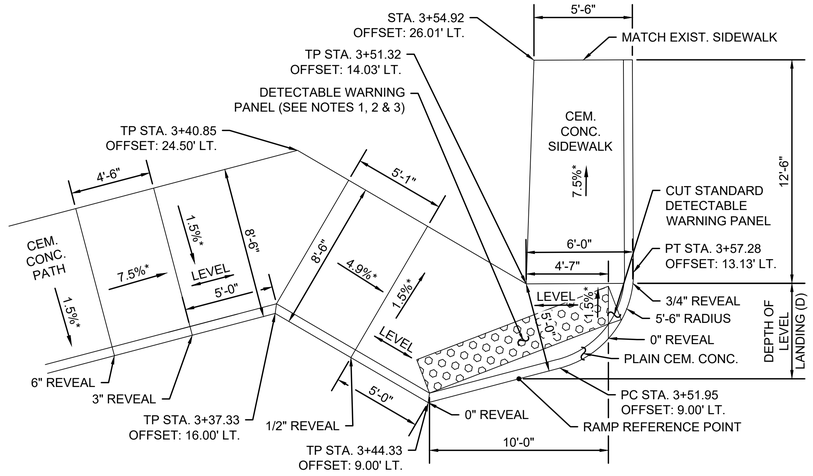


NOTE:
ROADWAY GUTTER SLOPE IS TAKEN AS POSITIVE WHEN UPSLOPE IS IN THE SAME DIRECTION AS THE TRANSITION.

CURB RAMP	RAMP REFERENCE POINT			WIDTH OF OPENING	DEPTH OF LEVEL LANDING	SIDE	WIDTH OF SIDEWALK (W)	ROADWAY GUTTER SLOPE (SEE NOTE)	TRANSITION LENGTH	CURB REVEAL
	ALIGNMENT	STATION	OFFSET (FEET)							
PCR #1	MIDDLESEX AVE	1+51.6	27.9 RT	5'-0"	5'-6"	RIGHT	8'-1"	0.8%	7'-8"	6"
						LEFT	5'-6"	2.7%	6'-6"	6"
PCR #2	MIDDLESEX AVE	1+86.6	33.6 RT	10'-0"	8'-6"	RIGHT	7'-6"	-2.7%	6'-6"	6"
						LEFT	8'-6"	-1.7%	9'-0"	3"
PCR #3	MIDDLESEX AVE	2+04.4	20.7 RT	15'-5"	8'-6"	RIGHT	8'-6"	-2.6%	6'-6"	3"
						LEFT	8'-6"	-0.9%	7'-8"	6"

PEDESTRIAN CURB RAMP ON SIDEWALK

NOT TO SCALE



NOTE:
ROADWAY GUTTER SLOPE IS TAKEN AS POSITIVE WHEN UPSLOPE IS IN THE SAME DIRECTION AS THE TRANSITION.

CURB RAMP	RAMP REFERENCE POINT			DEPTH OF LEVEL LANDING
	ALIGNMENT	STATION	OFFSET (FEET)	
PCR #5	SPRING ST	3+49.6	9.0 LT	5'-4"

CURB RAMP AT SIDEWALK AND PATH

NOT TO SCALE

NATICK
SPRING STREET OVER MBTA/CSX

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	16	33
PROJECT FILE NO.	610869		

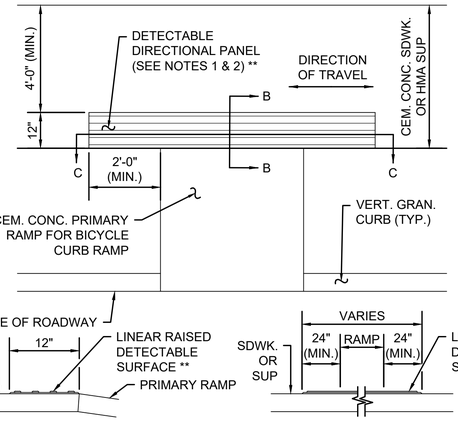
MISCELLANEOUS DETAILS
2 OF 3

NOTES:

1. FOR DETECTABLE WARNING PANELS AT PEDESTRIAN CURB RAMPS (PCR'S), SEE MASSDOT CONSTRUCTION STANDARD DRAWING E 107.6.5 FOR DETAILS. FOR DIRECTIONAL TACTILE WARNING PANELS AT BICYCLE CURB RAMPS (BCR'S), SEE DETAIL ON THIS SHEET.
2. THE DETECTABLE WARNING PANEL SHALL BE PROVIDED WITH A "SAFETY YELLOW" COLOR.
3. DETECTABLE WARNING PANEL IS 2 FEET DEEP MINIMUM AT ALL LOCATIONS IN THE PEDESTRIAN PATH OF TRAVEL.
4. TRANSITION SIDE, LEFT OR RIGHT, IS BASED ON THE PERSPECTIVE OF FACING THE RAMP FROM THE ROADWAY.

* TOLERANCE FOR CONSTRUCTION ±0.5%

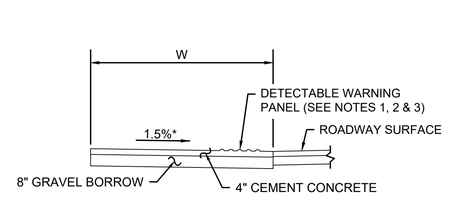
** LINEAR RAISED DETECTABLE SURFACE FOR DIRECTIONAL TACTILE WARNING PANELS SHALL BE SET PARALLEL TO THE DIRECTION OF TRAVEL ON THE ADJACENT WALKWAY UNLESS OTHERWISE NOTED. DIMENSIONS FOR THE LINEAR RAISED DETECTABLE SURFACE SHALL BE PER THE PRODUCT MANUFACTURER (SEE SPECIAL PROVISIONS).



SECTION B-B SECTION C-C

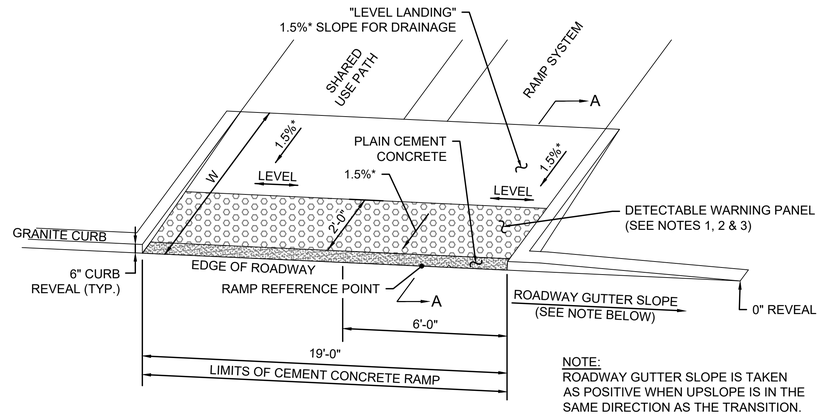
DIRECTIONAL TACTILE WARNING PANEL

NOT TO SCALE



SECTION A-A

NOT TO SCALE

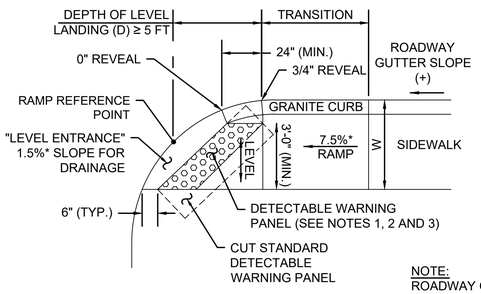


NOTE:
ROADWAY GUTTER SLOPE IS TAKEN AS POSITIVE WHEN UPSLOPE IS IN THE SAME DIRECTION AS THE TRANSITION.

CURB RAMP	RAMP REFERENCE POINT			ROADWAY GUTTER SLOPE (SEE NOTE)	DEPTH OF LEVEL LANDING (W)
	ALIGNMENT	STATION	OFFSET (FEET)		
PCR #4	SPRING ST	0+17.4	11.0 RT	-1.0%	5'-6"

PEDESTRIAN CURB RAMP AT RAMP SYSTEM

NOT TO SCALE

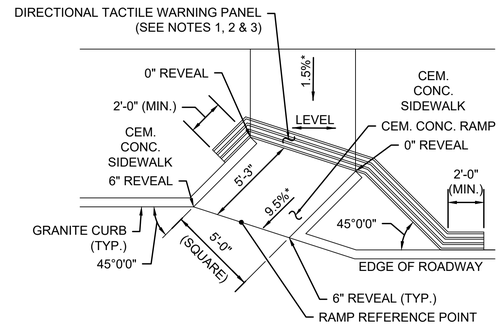


NOTE:
ROADWAY GUTTER SLOPE IS TAKEN AS POSITIVE WHEN UPSLOPE IS IN THE SAME DIRECTION AS THE TRANSITION.

CURB RAMP	RAMP REFERENCE POINT			WIDTH OF OPENING	DEPTH OF LEVEL LANDING	WIDTH OF SIDEWALK (W)	ROADWAY GUTTER SLOPE (SEE NOTE)	TRANSITION LENGTH
	ALIGNMENT	STATION	OFFSET (FEET)					
PCR #6	SPRING ST	3+60.4	19.2 RT	4'-0"	5'-0"	5'-6"	-5.0%	15'-0"

CURB RAMP FOR ONE CONTINUOUS DIRECTION OF TRAVEL LEVEL LANDING ≥ 5 FEET DEEP

NOT TO SCALE



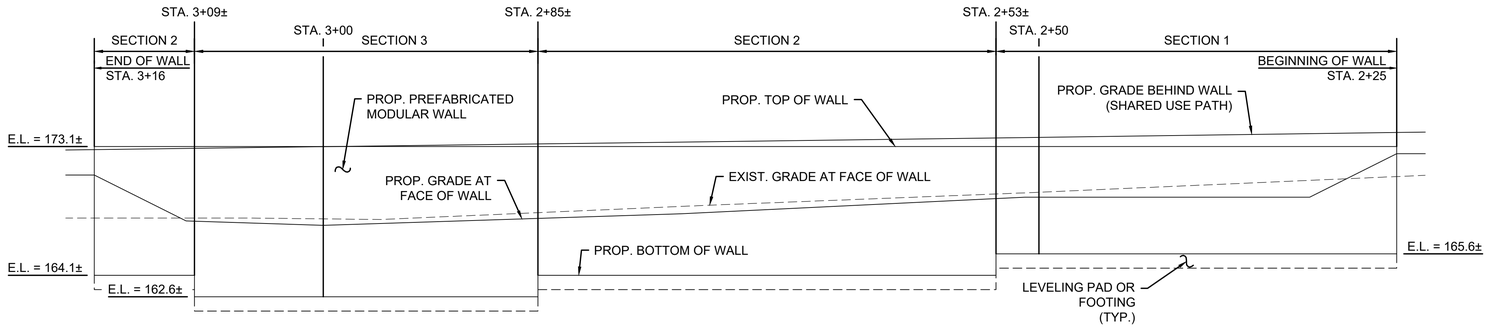
CURB RAMP	RAMP REFERENCE POINT		
	ALIGNMENT	STATION	OFFSET (FEET)
BCR #1	MIDDLESEX AVE	2+57.8	19.4 RT

ANGLED CURB RAMP - BCR 1

NOT TO SCALE

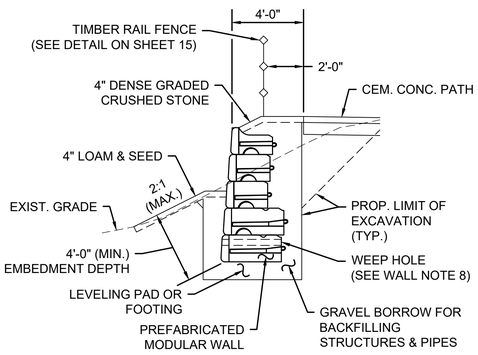
WALL NOTES:

1. THE CONTRACTOR SHALL SELECT AND DESIGN THE MODULAR WALL SYSTEM TO BE USED IN ACCORDANCE WITH THE SPECIAL PROVISIONS.
2. ALL WALL COMPONENTS AND LEVELING PAD/FOOTING DIMENSIONS ARE TO BE DETERMINED BASED ON THE MANUFACTURER'S SPECIFICATIONS.
3. WALL FOUNDATION SUBGRADE SHALL BE PREPARED PER MANUFACTURER'S SPECIFICATIONS.
4. ALL CONCRETE SHALL BE 5000 PSI HP CEMENT CONCRETE.
5. PAVEMENT SHALL BE REPAIRED AT LOCATIONS WHERE TRENCH EXCAVATION IMPACTS EXISTING PAVEMENT AT THE FRONT OF THE MODULAR WALL. REPAIR PAVEMENT SHALL FOLLOW PROPOSED HOT MIX ASPHALT DRIVEWAY APRON AS SHOWN IN THE PAVEMENT NOTES ON SHEET 4.
6. WALL TO BE DESIGNED USING THE FACTORED GEOTECHNICAL BEARING RESISTANCE PROVIDED IN THE SPECIAL PROVISIONS, AS SHOWN IN THE FINAL GEOTECHNICAL REPORT DATED 10/7/2024.
7. SEE CONSTRUCTION PLAN SHEET 6 FOR WALL LOCATION.
8. THE WEEP HOLES SHALL BE 4" IN DIAMETER AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS. WEEP HOLES SHALL HAVE A MAXIMUM SPACING OF 10'-0" O.C.



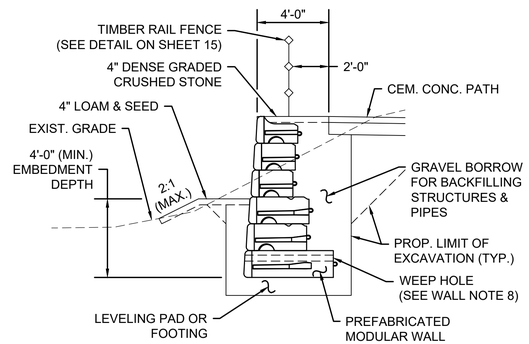
PREFABRICATED MODULAR WALL ELEVATION

SCALE: 1" = 5'



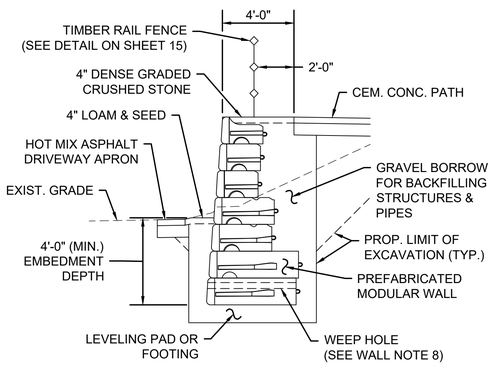
PREFABRICATED MODULAR WALL - SECTION 1

SCALE: 1" = 4'



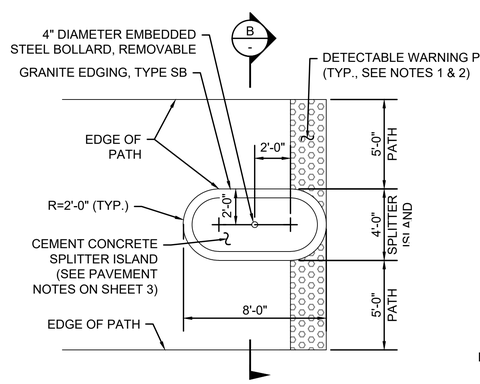
PREFABRICATED MODULAR WALL - SECTION 2

SCALE: 1" = 4'

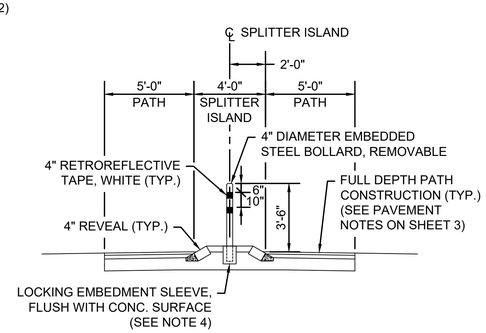


PREFABRICATED MODULAR WALL - SECTION 3

SCALE: 1" = 4'



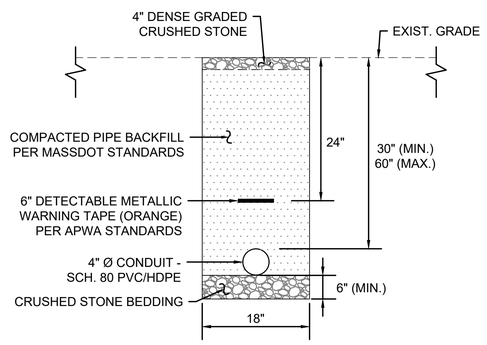
PLAN



SECTION B

SPLITTER ISLAND DETAILS

NOT TO SCALE



TYPICAL TRENCH SECTION FOR CONDUIT INSTALLATION

(PTC CONDUIT - DOUBLE)

NOT TO SCALE

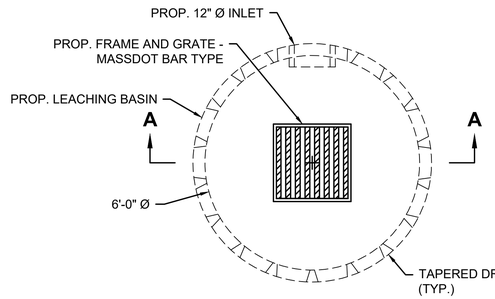
NATICK
SPRING STREET OVER MBTA/CSX

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	17	33
PROJECT FILE NO.	610869		

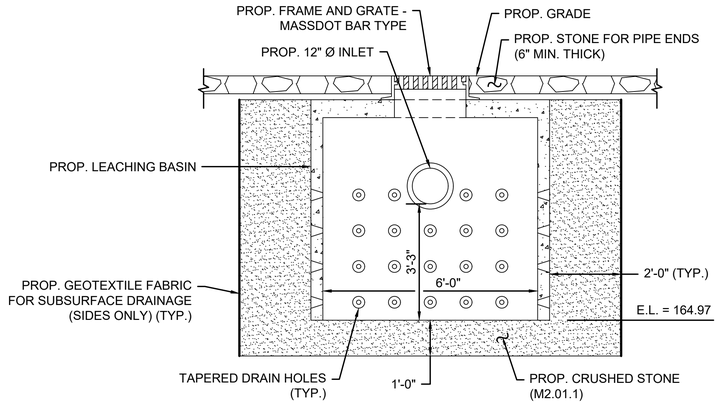
MISCELLANEOUS DETAILS
3 OF 3

NOTES:

1. FOR DETECTABLE WARNING PANEL DETAILS, SEE MASSDOT CONSTRUCTION STANDARD DRAWING E 107.6.5.
2. THE DETECTABLE WARNING PANEL SHALL BE PROVIDED WITH A "SAFETY YELLOW" COLOR.
3. DETECTABLE WARNING PANEL IS 2 FEET DEEP MINIMUM AT ALL LOCATIONS IN THE PEDESTRIAN PATH OF TRAVEL.
4. SEE SPECIAL PROVISIONS FOR INFORMATION REGARDING THE INSTALLATION OF THE EMBEDMENT SLEEVE.
5. SEE SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS REGARDING THE INSTALLATION OF THE LEACHING BASIN.



PLAN



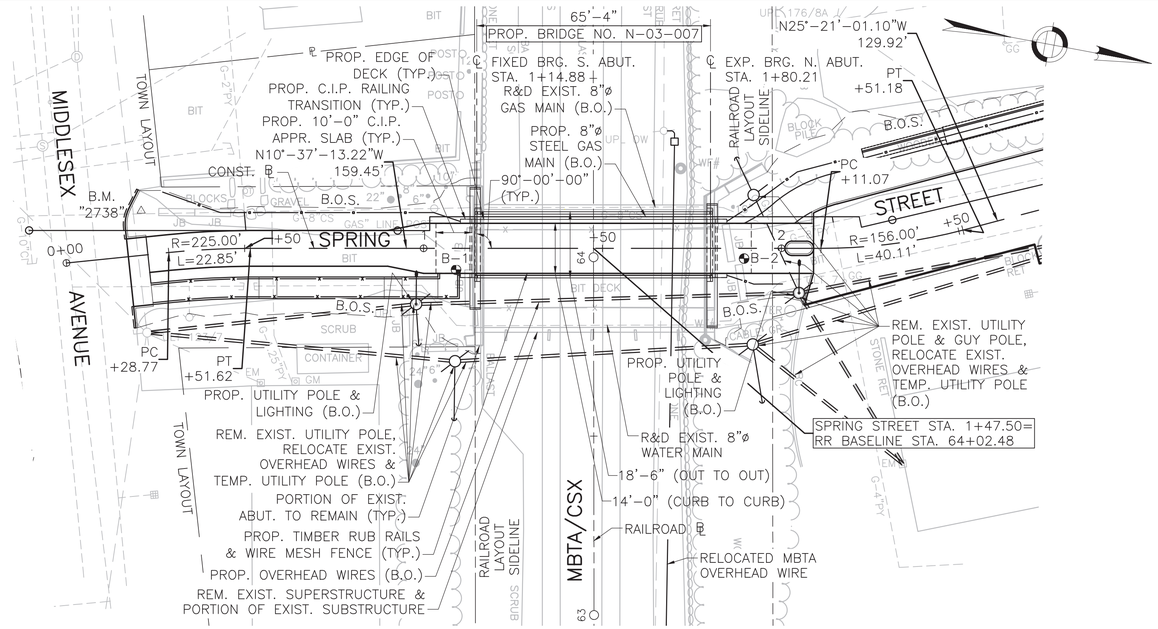
SECTION A-A

LEACHING BASIN

SCALE: 1" = 2'

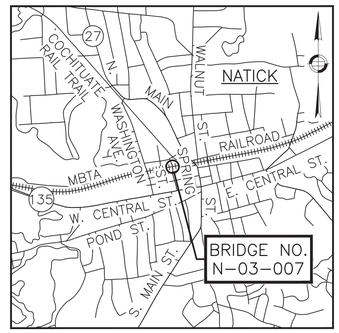
UTILITY TRENCHING NOTES:

1. SHORE UTILITY TRENCHES WHERE FIELD CONDITIONS DICTATE AND/OR WHERE REQUIRED BY LOCAL, STATE AND FEDERAL HEALTH AND SAFETY CODES.
2. CONTRACTOR TO NOTIFY THE ENGINEER IN WRITING OF ANY CONFLICT, ERROR, AMBIGUITY, OR DISCREPANCY WITH THE PLANS OR BETWEEN THE PLANS AND ANY APPLICABLE LAW, REGULATION, CODE, STANDARD SPECIFICATION, OR MANUFACTURER'S INSTRUCTIONS.
3. RED OR ORANGE METAL FOIL MARKING TAPE SHALL BE PLACED ABOVE ALL CONDUIT AS DETAILED (METAL MARKING TAPE/WIRE SHOULD BE USED FOR NON-METALLIC CONDUIT).
4. ALL TRENCH DIMENSIONS SHALL BE IN ACCORDANCE WITH SUBSECTION 140.80 OF THE MASSDOT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES.
5. CONDUITS FOR MBTA SHALL BE INSTALLED IN ACCORDANCE WITH THE MBTA PTC INFRASTRUCTURE CHANGE REQUIREMENTS, INCLUDED IN THE SPECIAL PROVISIONS.



KEY PLAN

SCALE: 1" = 20'



LOCUS

SCALE: 1" = 2,000'

NATICK
SPRING STREET OVER MBTA/CSX

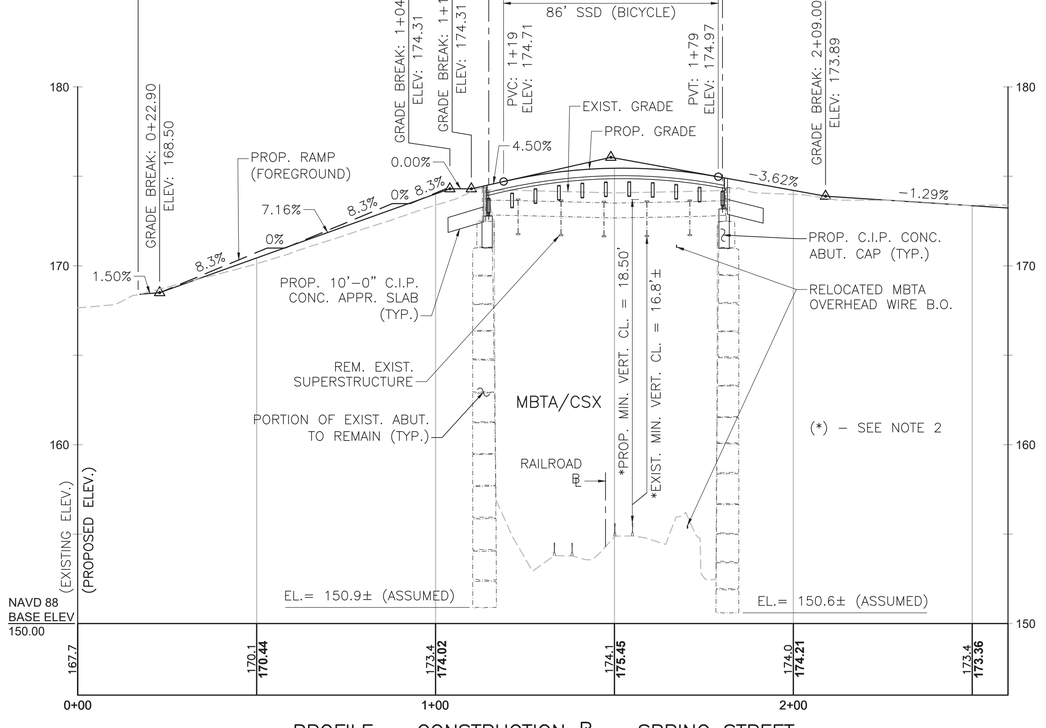
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	18	33
PROJECT FILE NO.	610869		

TITLE SHEET AND INDEX

INDEX OF SHEETS

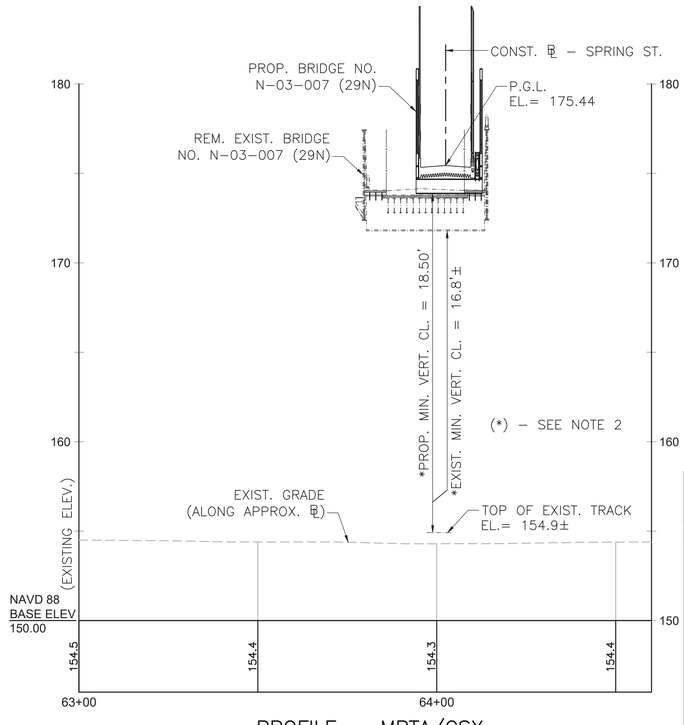
NOTES:

1. SEE SHEET 2 OF 12 FOR GENERAL NOTES AND ESTIMATED QUANTITIES.
2. REQUIRED MINIMUM VERTICAL CLEARANCE IS MEASURED FROM THE TOP OF RAIL TO THE LOWEST ELEVATION OF THE SUPERSTRUCTURE WITHIN 7'-0" OF THE TRACK CENTERLINES. FOR REFERENCE, SEE SURVEY POINTS AT TOP OF EXISTING RAILS DEPICTED ON SHEET 5 OF 12.



PROFILE – CONSTRUCTION ℄ – SPRING STREET

SCALES: HORIZONTAL: 1" = 20'
VERTICAL: 1" = 4'



PROFILE – MBTA/CSX

SCALES: HORIZONTAL: 1" = 20'
VERTICAL: 1" = 4'

COMMONWEALTH OF MASSACHUSETTS
GEOFFREY N. MCGUIRK
CIVIL
No. 52688
REGISTERED PROFESSIONAL ENGINEER

McGuirk, Geoffrey (USGM04343) Digitally signed by McGuirk, Geoffrey (USGM04343) Date: 2024.12.18 09:59:48 -05'00'

WSP USA Inc.
100 NORTH PARKWAY
SUITE 110
WORCESTER, MA 01605
TEL: +1 508.248.1970

DECEMBER 7, 2024 | ISSUED FOR CONSTRUCTION

MassDOT Massachusetts Department of Transportation Highway Division

PROPOSED SUPERSTRUCTURE REPLACEMENT
NATICK
SPRING STREET
OVER MBTA/CSX

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION
10 PARK PLAZA BOSTON, MASS

Alexander K. Bardow, P.E. Digitally signed by Alexander K. Bardow, P.E. Date: 2024.12.19 08:42:32 -05'00'
STATE BRIDGE ENGINEER

Carrie Lavallee, P.E. Digitally signed by Carrie Lavallee, P.E. Date: 2024.12.26 10:33:16 -05'00'
CHIEF ENGINEER

610869_BR1(N03007).DWG Plotted on 16-Dec-2024 10:43 AM

19-November-2024 Final Structural Submittal (SF)

NATICK
SPRING STREET OVER MBTA/CSX

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	19	33
PROJECT FILE NO.	610869		

GENERAL NOTES AND QUANTITIES

GENERAL NOTES:

DESIGN:

IN ACCORDANCE WITH THE 2020 AMERICAN ASSOCIATION OF THE STATE HIGHWAY AND TRANSPORTATION OFFICIALS LRFD BRIDGE SPECIFICATIONS AND THE 2009 LRFD GUIDE SPECIFICATIONS FOR DESIGN OF PEDESTRIAN BRIDGES WITH 2015 INTERIM UPDATES FOR H10 LOADING AND 90 PSF PEDESTRIAN LOADING, WHICHEVER CONTROLS.

EXISTING BRIDGE PLANS:

NO RECORD PLANS FOR THE EXISTING BRIDGE ARE KNOWN TO EXIST. ALL DIMENSIONS AND DETAILS SHOWN FOR THE EXISTING STRUCTURE WERE DERIVED FROM LIMITED FIELD MEASUREMENTS AND ARE NOT GUARANTEED. THE CONTRACTOR SHALL DETERMINE AND ESTABLISH ALL DIMENSIONS AND DETAILS NECESSARY FOR COMPLETION OF ALL WORK BY FIELD MEASUREMENTS AND SURVEY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ADEQUACY AND ACCURACY THEREOF AND SHALL NOT ORDER ANY MATERIAL OR COMMENCE FABRICATION UNTIL HE/SHE HAS MADE THE REQUIRED MEASUREMENTS ON THE ACTUAL STRUCTURE AND THE EXTENT OF THE PROPOSED WORK HAS BEEN APPROVED BY THE ENGINEER.

BRIDGE DEMOLITION:

IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, THE CONTRACTOR IS SOLELY RESPONSIBLE FOR MAINTAINING THE STABILITY OF THE EXISTING STRUCTURE DURING ALL DEMOLITION AND CONSTRUCTION OPERATIONS. BRACING SHALL BE CAPABLE OF WITHSTANDING ALL LOADS THAT IT WILL BE SUBJECT TO.

MASSDOT BENCH MARK:

"2738" PK NAIL SET BY MASSDOT GPS
STA. 0+22.27, 12.39' LT., N=2928907.5480, E=696694.9940, EL.= 168.038'
ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988.

DATE:

TO BE PLACED ON THE INSIDE FACE OF THE NORTHWEST AND SOUTHEAST RAILING TRANSITIONS. A SHEET SHOWING SIZE AND CHARACTER OF NUMERALS WILL BE FURNISHED. THE DATE USED SHALL BE THE LATEST YEAR OF CONTRACT COMPLETION AS OF THE DATE THE FIRST RAILING TRANSITION IS CONSTRUCTED. BOTH RAILING TRANSITIONS SHALL FEATURE THE SAME DATE.

MASSDOT SURVEY NOTEBOOKS:

ELECTRONIC SURVEY PERFORMED BY WSP WAS USED IN THE PREPARATION OF THESE CONSTRUCTION DRAWINGS. FILES CAN BE OBTAINED AT THE SURVEY OFFICE, MASSDOT – HIGHWAY DIVISION, 10 PARK PLAZA, BOSTON, MASSACHUSETTS.

SCALES:

SCALES NOTED ON THE PLANS ARE NOT APPLICABLE TO REDUCED SIZE PRINTS. DIVIDE SCALES BY 2 FOR HALF–SIZE PRINTS (A3).

FOUNDATIONS:

FOUNDATIONS MAY BE ALTERED, IF NECESSARY, TO SUIT CONDITIONS ENCOUNTERED DURING CONSTRUCTION, WITH THE APPROVAL OF THE ENGINEER.

UNSUITABLE MATERIAL:

ALL UNSUITABLE MATERIAL SHALL BE REMOVED WITHIN THE LIMITS OF THE FOUNDATIONS OF THE STRUCTURE, AS DIRECTED BY THE ENGINEER.

ANCHOR BOLTS:

ALL ANCHOR BOLTS SHALL BE SET BY TEMPLATE BEFORE THE CONCRETE IS PLACED.

REINFORCEMENT:

REINFORCING STEEL AND SUPPORT DEVICES SHALL BE EPOXY COATED AND SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 31 GRADE 60. UNLESS OTHERWISE NOTED ON THE CONSTRUCTION DRAWINGS, ALL BARS SHALL BE LAPPED AS FOLLOWS:

MODIFICATION CONDITION	#4 BARS	#5 BARS	#6 BARS
1. NONE	18"	23"	27"
2. 12" OF CONCRETE BELOW BAR	24"	30"	36"
3. COVER < 3_{db}, OR CLEAR SPACING < 6_{db}	23"	29"	34"
4. CONDITION 2. AND 3.	26"	32"	39"

MODIFICATION CONDITION
1. NONE
2. 12" OF CONCRETE BELOW BAR
3. COVER < 3_{db}, OR CLEAR SPACING < 6_{db}
4. CONDITION 2. AND 3.

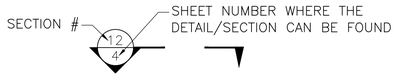
UTILITIES:

THE CONTRACTOR SHALL LOCATE AND PROTECT FROM DAMAGE ALL EXISTING UTILITIES TO REMAIN.

TRAFFIC:

THE BRIDGE IS CURRENTLY CLOSED TO VEHICULAR TRAFFIC.

SECTION MARK:



CONCRETE:

CAST–IN–PLACE
5000 PSI, HP CEMENT CONCRETE SHALL BE PROVIDED FOR BRIDGE DECK, CURBS, RAILING TRANSITIONS, ABUTMENT STEMS, BACKWALLS, CURTAIN WALLS AND APPROACH SLABS.

DIMENSIONS:

DIMENSIONS TO CHAMFERED CORNERS ARE TO PROJECTIONS OF THE ADJOINING FACES, UNLESS OTHERWISE NOTED.

MBTA NOTE:

THE CONTRACTOR SHALL REVIEW AND COMPLY WITH THE REQUIREMENTS OF THE MASSACHUSETTS BAY TRANSPORTATION AUTHORITY (MBTA) FOR ALL WORK PERFORMED UNDER THIS CONTRACT. SEE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.

CSX NOTE:

THE CONTRACTOR SHALL REVIEW AND COMPLY WITH THE REQUIREMENTS OF THE CSX FOR ALL WORK PERFORMED UNDER THIS CONTRACT. SEE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.

SEISMIC DESIGN CRITERIA	
DESIGN RETURN PERIOD:	1000
DESIGN SPECTRA	
As	0.070
SDs	0.142
SD1	0.039
SITE CLASS	B
SEISMIC DESIGN CATEGORY (SDC)	A

ESTIMATED QUANTITIES

(NOT GUARANTEED)

ITEM NO.	ITEM	UNIT	QUANTITY
100.99	STRUCTURE AND GEOTECHNICAL MONITORING	LS	1
114.1	DEMOLITION OF SUPERSTRUCTURE OF BRIDGE NO. N–03–007 (29N)	LS	1
127.	CONCRETE EXCAVATION	CY	36
140.	BRIDGE EXCAVATION	CY	330
144.	CLASS B ROCK EXCAVATION	CY	65
151.2	GRAVEL BORROW FOR BACKFILLING STRUCTURES AND PIPES	CY	15
153.2	LIGHTWEIGHT FILL	CY	310
184.1	DISPOSAL OF TREATED WOOD PRODUCTS	TON	15
698.3	GEOTEXTILE FABRIC FOR SEPARATION	SY	293
908.40	REPOINTING	SY	250
912.4	DRILLED AND GROUTED #4 DOWELS	EA	140
964.3	ELASTOMERIC PROTECTIVE COATING	SF	719
993.31	TEMPORARY UTILITY BRIDGE	LS	1
994.01	TEMPORARY PROTECTIVE SHIELDING BRIDGE NO. N–03–007 (29N)	LS	1
995.	BRIDGE STRUCTURE, BRIDGE NO. N–03–007 (29N)	LS	1

DECEMBER 7, 2024	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT AUTHORIZED SIGNATORY:	STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE	

BORING B-1

N=2928997
E=696695
GROUND ELEVATION: 174.2±

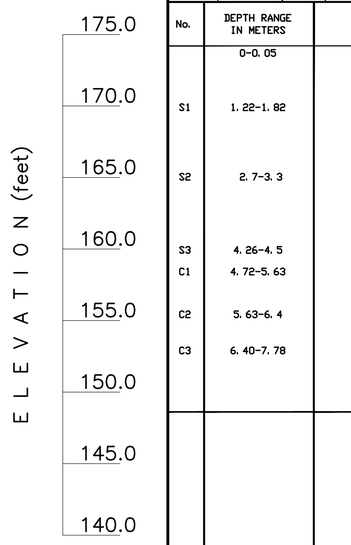
ZOINO-HEBERT, INC. GEOTECHNICAL & ENVIRONMENTAL DRILLING SERVICES 3034 POST ROAD WARWICK, RI 02886			Natick Spring St Bridge over CSX Railroad Bridge # N-3-7			BORING NUMBER: B-1 SURFACE ELEVATION: STA: OFF:
ENGINEER/ARCHITECT: Mass Highway				CASING	SAMPLER	CORE BAR.
DRILLING FOREMAN: B. Hasse			TYPE:	HW	SS	HX
INSPECTOR: J Downing			SIZE, I.D.:	102 mm	51 mm	
GROUNDWATER OBSERVATIONS			HAMMER WT.	136 kg	63.5 kg	
DATE	TIME	DEPTH	STABILIZATION TIME	HAMMER FALL	610 mm	760 mm
			None Encountered			

START: 11-8-01 AT: 08:30
FINISH: 11-8-01 AT: 15:00
TOTAL HOURS: 6.5
CONTRACT NO. | OUR FILE NO.

No.	DEPTH RANGE IN METERS	SAMPLE BLOWS PER .15M	CASING BLOWS CORING TIMES PER .3M	FIELD CLASSIFICATION	DEPTH IN METERS
	0-0.05			Asphalt	0.05
S1	1.22-1.82	4-4-4-5		Moist, loose, brown, COARSE GRAVEL, some fine Sand, trace inorganinc Silt	
S2	2.7-3.3	9-5-10-32		Moist, medium dense, brown, COARSE GRAVEL, trace fine sand, trace inorganic silt	
S3	4.26-4.5	67-120/.075		Moist, very dense, grey, MEDIUM TO COARSE GRAVEL, some inorganic, trace fine sand	
C1	4.72-5.63		8-8-13	Highly Fractured GRANITE Percent Recovery = 100%	4.72
C2	5.63-6.4		7-8-7	Highly Fractured GRANITE Percent Recovery 100%	
C3	6.40-7.78		6-7-6-9	Highly Fractured GRANITE Percent Recovery = 100%	
				Bottom of Boring at 7.78m	7.78

Remarks: Engineer instructed 1st sample at 1.2 m

SCALE: 1:100



APPROX. BOTTOM OF EXIST. S. ABUT. FOOTING EL.= 150.9± (ASSUMED)

BORING LOG

SCALE: 1" = 5'

SOUTH ABUTMENT PROBE DATA

PROBE	DEPTH	DISTANCE (*)	REFUSAL OR REQUIRED DEPTH
P1-A	0.82'	1.97'	REFUSAL
P1-B	17.39'	3.94'	REFUSAL
P1-C	14.47'	5.91'	REFUSAL
P1-D	13.98'	7.87'	REFUSAL
P1-E	13.88'	9.84'	REFUSAL
P1-F	13.39'	11.81'	REFUSAL
P1-G	13.81'	13.78'	REFUSAL
P1-H	9.84'	23.62'	REFUSAL

* FROM BACK FACE OF EXISTING ABUTMENT BACKWALL.

** IT WAS NOTED IN THE FIELD THAT WHEN THE PIPE WAS RETRIEVED AT PROBE P1-B THAT THE BOTTOM SECTION OF THE PIPE WAS BENT, INDICATING THAT THE PIPE MAY HAVE GLANCED OFF THE ABUTMENT. THEREFORE, THE DEPTH OF REFUSAL AT THIS LOCATION MAY BE LOWER THAN INDICATED.

*** THE PLAN LOCATION OF THE PROBES WAS NOT RECORDED.

NATICK
SPRING STREET OVER MBTA/CSX

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	20	33
PROJECT FILE NO. 610869			

BORING LOGS
1 OF 2

NOTES:

1. LOCATION OF BORINGS SHOWN ON THE PLAN THUS: B-1
2. BORINGS ARE TAKEN FOR PURPOSE OF DESIGN AND SHOW CONDITIONS AT BORING POINTS ONLY, BUT DO NOT NECESSARILY SHOW THE NATURE OF THE MATERIALS TO BE ENCOUNTERED DURING CONSTRUCTION.
3. FIGURES IN COLUMNS INDICATE NUMBER OF BLOWS REQUIRED TO DRIVE A 1⅜" I.D. SPLIT SPOON SAMPLER 6" USING A 140 POUND WEIGHT FALLING 30".
4. BORING SAMPLES ARE STORED AT A STORAGE FACILITY LOCATED ON ROUTE 114 (219 WINTHROP AVE.) IN LAWRENCE, MA. THE CONTRACTOR MAY EXAMINE THE SOIL AND ROCK SAMPLES BY CONTACTING THE MASSDOT GEOTECHNICAL SECTION AT 10 PARK PLAZA, BOSTON, MA.
5. ALL BORINGS WERE MADE IN NOVEMBER 2001.
6. BORINGS WERE MADE BY:
   ZOINO-HEBERT, INC.
   3034 POST ROAD
   WARWICK, RI 02886
7. THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988 IS USED THROUGHOUT.
8. BORING LOGS ARE IN METRIC UNITS, AS ORIGINALLY RECORDED.

DECEMBER 7, 2024	ISSUED FOR CONSTRUCTION
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THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT
AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE

BORING B-2

N=2929076
E=696677
GROUND ELEVATION: 174.1±

ZOINO-HEBERT, INC. GEOTECHNICAL & ENVIRONMENTAL DRILLING SERVICES 3034 POST ROAD WARWICK, RI 02886			Natick Spring St Bridge over CSX Railroad Bridge # N-3-7		
ENGINEER/ARCHITECT: Mass Highway			CASING	SAMPLER	CORE BAR.
DRILLING FOREMAN: B. Hasse		TYPE:	HW	SS	NX
INSPECTOR: J Downing		SIZE, I.D.:	102 mm	51 mm	
GROUNDWATER OBSERVATIONS		HAMMER WT.	136 kg	63.5 kg	
DATE / TIME / DEPTH / STABILIZATION TIME		HAMMER FALL	610 mm	760 mm	
None Encountered					

BORING NUMBER:	B-2
SURFACE ELEVATION:	
STA:	OFF:
START: 11-7-01	AT: 09:30
FINISH: 11-7-01	AT: 16:00
TOTAL HOURS:	6.5
CONTRACT NO.	OUR FILE NO.

No.	DEPTH RANGE IN METERS	SAMPLE BLOWS PER .15M	CASING BLOWS CORING TIMES PER .3M	FIELD CLASSIFICATION	DEPTH IN METERS
	0-0.05			Asphalt	.05
S1	1.22-1.82	17-15-12-17		Moist, medium dense, brown, FINE to COARSE SAND, some fine gravel, trace inorganic silt	
S2	2.7-2.93	35-120/.075		Dry, very dense, brown, COARSE SAND, some coarse gravel, trace inorganic silt	
C1	3.05-4.57		15-7-9-8-10	Top of Bedrock Coarse Grain GRANITE 100% Recovery	3.05
C2	4.57-6.1		5-7-9-10-10	Coarse grain GRANITE 100% Recovery	
				Bottom of Boring @ 6.10m	6.1

Remarks: Engineer instructed 1st sample at 1.2 m

SCALE: 1:100

ELEVATION (feet): 175.0, 170.0, 165.0, 160.0, 155.0, 150.0, 145.0, 140.0

DEPTH IN METERS: 0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20

APPROX. BOTTOM OF EXIST. N. ABUT. FOOTING EL.= 150.6± (ASSUMED)

BORING LOG

SCALE: 1" = 5'

NORTH ABUTMENT PROBE DATA

PROBE	DEPTH	DISTANCE (*)	REFUSAL OR REQUIRED DEPTH
P2-A	1.90'	1.97'	REFUSAL
P2-B	9.22'	3.94'	REFUSAL
P2-C	9.48'	5.91'	REFUSAL
P2-D	9.74'	7.87'	REFUSAL
P2-E	8.99'	9.84'	REFUSAL
P2-F	8.99'	11.81'	REFUSAL
P2-G	9.06'	13.78'	REFUSAL
P2-H	9.81'	23.62'	REFUSAL

* FROM BACK FACE OF EXISTING ABUTMENT BACKWALL.

** THE PLAN LOCATION OF THE PROBES WAS NOT RECORDED.

NOTE:

1. SEE SHEET 3 OF 12 FOR BORING NOTES.

NATICK
SPRING STREET OVER MBTA/CSX

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	21	33
PROJECT FILE NO. 610869			

BORING LOGS
2 OF 2

DECEMBER 7, 2024	ISSUED FOR CONSTRUCTION
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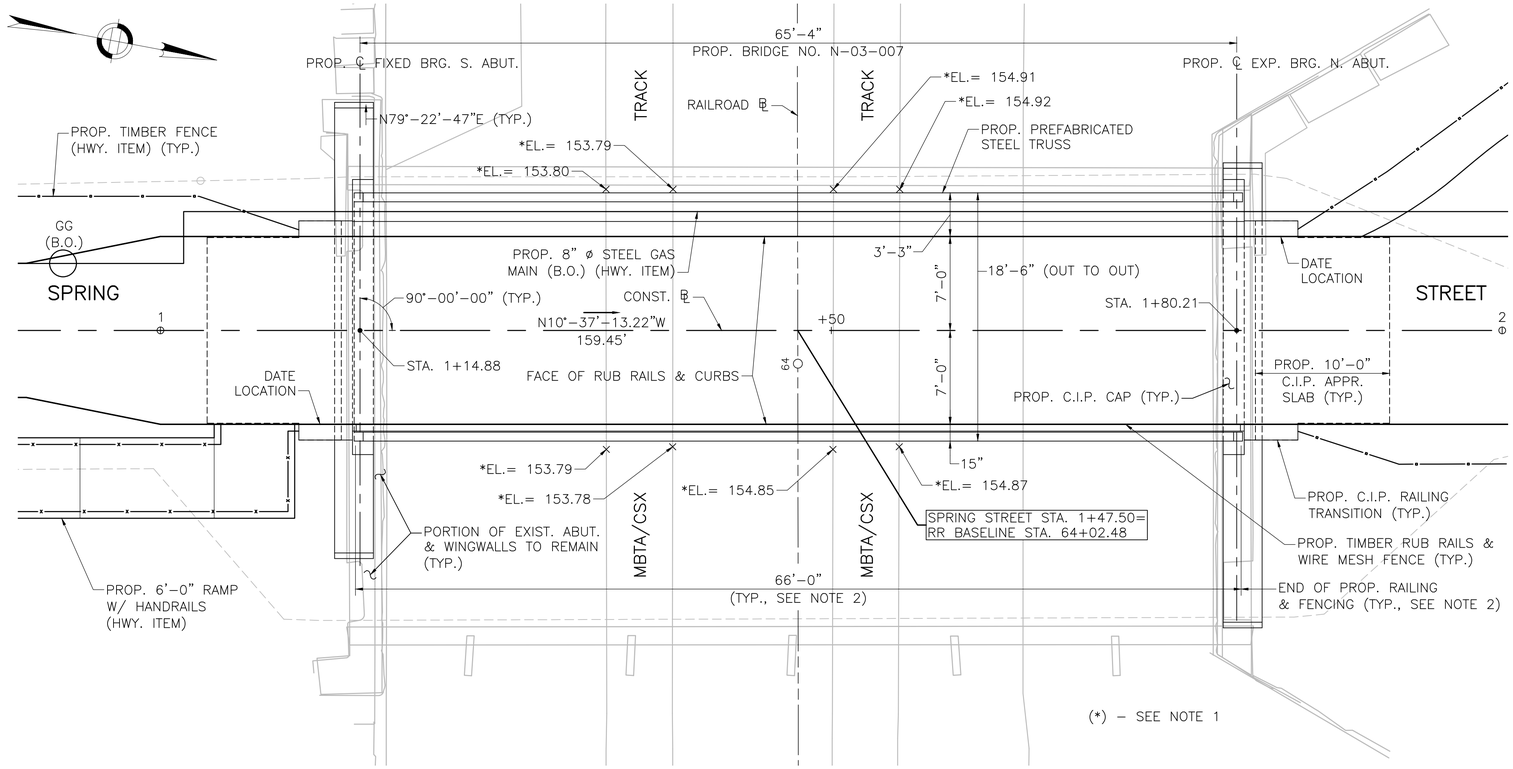
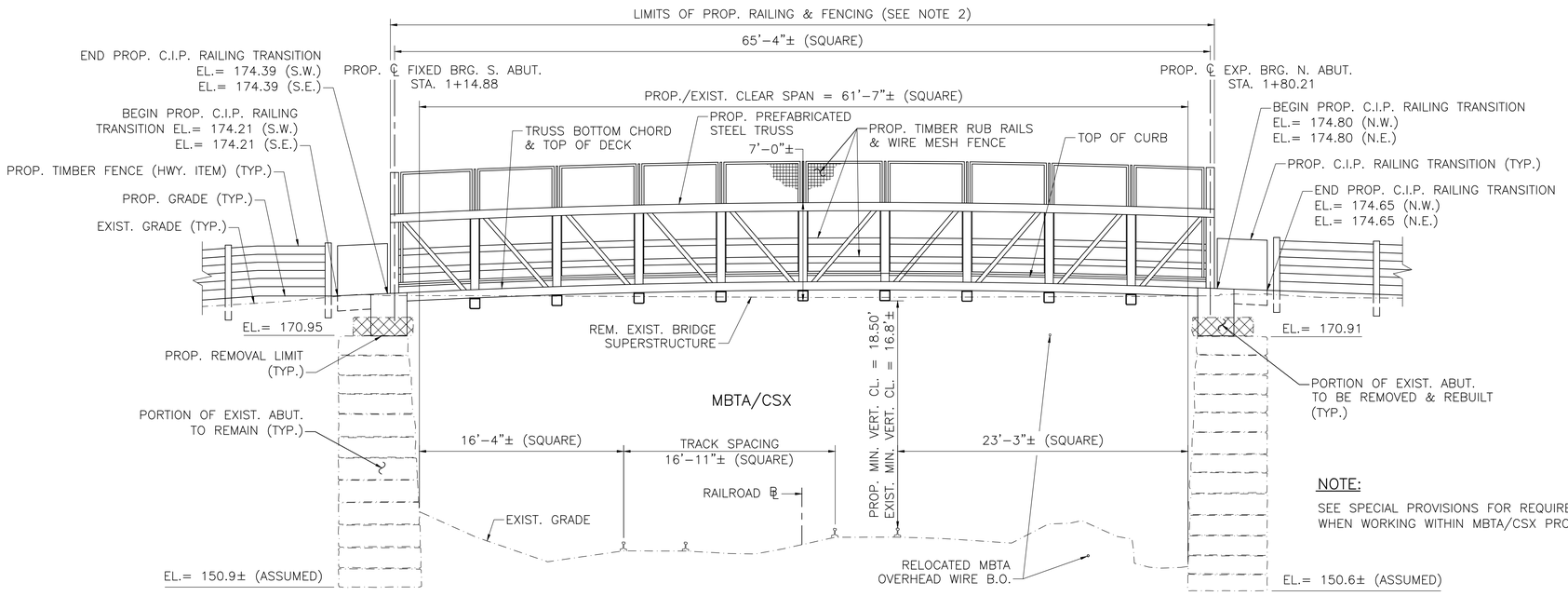


BRIDGE PLAN

SCALE: $\frac{3}{16}$" = 1'-0"



EAST ELEVATION

(WEST ELEVATION SIMILAR)

SCALE: $\frac{3}{16}$" = 1'-0"

NOTE:

SEE SPECIAL PROVISIONS FOR REQUIREMENTS WHEN WORKING WITHIN MBTA/CSX PROPERTY.

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SPRING STREET OVER MBTA/CSX

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	22	33
PROJECT FILE NO.	610869		

BRIDGE PLAN AND ELEVATION

NOTES:

1. ELEVATIONS SHOWN ON THIS PLAN REPRESENT TOP OF RAIL ELEVATIONS OF THE EXISTING MBTA TRACKS. REQUIRED MINIMUM VERTICAL CLEARANCE IS MEASURED FROM THE TOP OF RAIL TO THE LOWEST ELEVATION OF THE SUPERSTRUCTURE WITHIN 7'-0" OF THE TRACK CENTERLINES.
2. TIMBER RUB RAILS AND WIRE MESH FENCE WILL VARY PER CHOSEN TRUSS MANUFACTURER JOINT REQUIREMENTS. SEE ELEVATION AT TRANSITION ON SHEET 11 OF 12 FOR MORE DETAIL.

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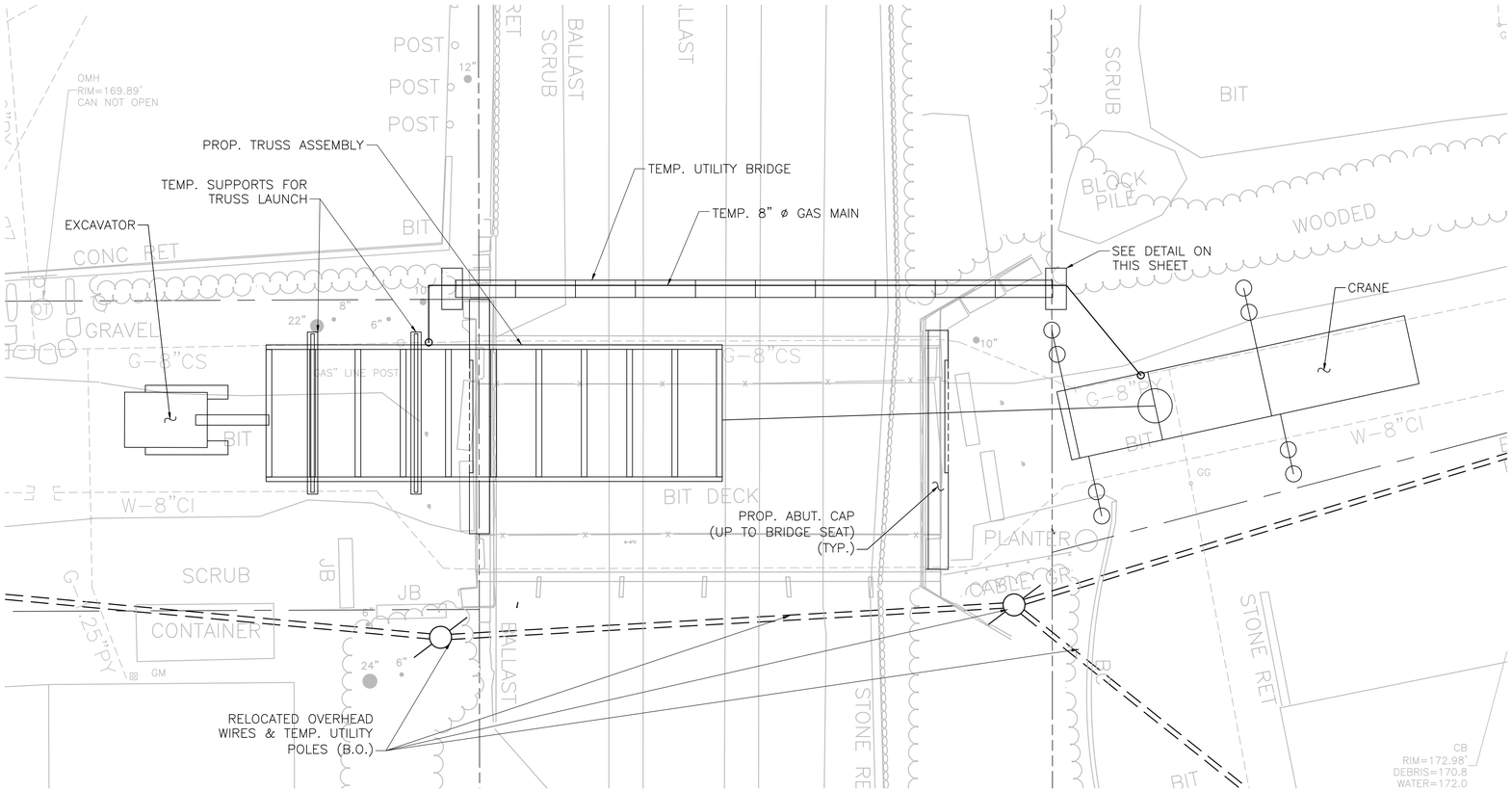
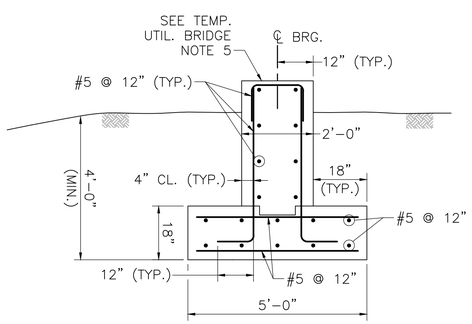


TRUSS LAUNCH PLAN

SCALE: 1" = 10'



TEMPORARY UTILITY BRIDGE TYPICAL ABUTMENT SECTION

SCALE: ½" = 1'-0"

TEMPORARY UTILITY BRIDGE NOTES:

1. THE TEMPORARY UTILITY BRIDGE SHALL SATISFY THE SPECIFICATIONS FOR ITEM 993.31. SEE TRUSS LAUNCH PLAN ON THIS SHEET FOR THE APPROXIMATE LOCATION OF THE TEMPORARY UTILITY BRIDGE.
2. THE FOUNDATION DESIGN SHOWN IS CONCEPTUAL ONLY. THE CONTRACTOR TO DETERMINE DESIGN LOADS AND SHALL SUBMIT CALCULATIONS STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN MA STATING THAT THE SUPERSTRUCTURE LOAD IS LESS THAN OR EQUAL TO THE DESIGN LOAD.
3. THE ABUTMENTS SHALL BE 5000 PSI, HP CEMENT CONCRETE. ALL REINFORCING STEEL SHALL BE EPOXY COATED.
4. THE CONTRACTOR SHALL COMPLETELY REMOVE ALL COMPONENTS (SUPERSTRUCTURE AND SUBSTRUCTURE) AFTER THE TEMPORARY UTILITY BRIDGE IS NO LONGER REQUIRED.
5. SEAT ELEVATIONS TO BE DETERMINED BY THE CONTRACTOR IN COORDINATION WITH THE UTILITY OWNER.
6. THE BOTTOM OF THE FOOTING SHALL BE A MINIMUM OF 4'-0" BELOW FINISHED GRADE.
7. CONTRACTOR SHALL COORDINATE UTILITY OWNER'S REQUIREMENTS FOR RELOCATION OF GAS MAIN. UTILITY OWNER WILL PROVIDE MINIMUM SUPPORT REQUIREMENTS. CONTRACTOR SHALL PROVIDE ADEQUATE SUPPORT FOR THE UTILITIES BEYOND THE ABUTMENTS TO WHERE THE UTILITIES RE-ENTER THE GROUND.
8. CONTRACTOR SHALL MAINTAIN A 18'-6" VERTICAL CLEARANCE ABOVE THE TOP OF RAILS (SEE NOTE 1 ON SHEET 5 REGARDING HOW TRACK CLEARANCE IS DETERMINED).
9. CONTRACTOR SHALL DESIGN, FURNISH AND INSTALL ANCHORAGE SYSTEM AS REQUIRED BY SUPERSTRUCTURE DESIGN CALCULATIONS.

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SPRING STREET OVER MBTA/CSX

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MA	-	23	33
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SUGGESTED BRIDGE ERECTION SEQUENCE

NOTES:

1. THE SUGGESTED PREFABRICATED TRUSS LAUNCH SHOWN IS SCHEMATIC ONLY AND THE CONSTRUCTION SEQUENCE IS INTENDED TO LIST THE MAJOR ITEMS OF WORK ONLY. NO DESIGN ACCEPTANCE IS IMPLIED BASED ON THESE DETAILS. THE CONTRACTOR IS REQUIRED TO FULLY DETAIL AND DESIGN THEIR CHOSEN DEMOLITION AND ERECTION PLANS, WHICH SHALL BE STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF MASSACHUSETTS.
2. THE EXISTING BRIDGE IS CLOSED TO ALL TRAFFIC AND THERE IS NO CURRENT LIVE LOAD RATING OF THE EXISTING SUPERSTRUCTURE. THE CONTRACTOR SHALL ASSUME THAT NO CONSTRUCTION EQUIPMENT OR STORAGE OF MATERIALS WILL BE ALLOWED ON THE EXISTING STRUCTURE. ALL SUPERSTRUCTURE REMOVAL SHALL BE PERFORMED FROM THE APPROACHES. NO CONSTRUCTION LOADS ARE ALLOWED DIRECTLY ON THE EXISTING ABUTMENTS IN ADDITION TO THE PROPOSED TRUSS SUPERSTRUCTURE.
3. THE CONTRACTOR SHALL COORDINATE CONSTRUCTION WITH THE MBTA AND CSX (SEE SPECIAL PROVISIONS).
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN OF THE TEMPORARY SUPPORTS AND LAUNCHING SCHEME BY THE CONTRACTOR'S OWN MEANS AND METHODS. THE CONTRACTOR SHALL COORDINATE WITH THE TRUSS MANUFACTURER ON THE INSTALLATION PROCEDURE AS THE TRUSS DESIGN WILL LIKELY NEED TO ACCOUNT FOR A LAUNCH ERECTION.
5. THE PROPOSED CRANE LOCATION MAY REQUIRE TEMPORARY RESTRICTED ACCESS TO THE PARKING LOT AND BUSINESSES ON THE NORTH APPROACH. DISRUPTION SHALL BE COORDINATED WITH THE AFFECTED PROPERTY OWNERS AND MINIMIZED TO THE EXTENT POSSIBLE. ONLY SHORT DURATION DISRUPTIONS ARE ALLOWED THROUGHOUT THE LENGTH OF THE PROJECT.

SUGGESTED CONSTRUCTION SEQUENCE:

1. INSTALL TEMPORARY UTILITY BRIDGE. SEE SPECIAL PROVISIONS ITEM 993.31 FOR MORE INFORMATION.
2. RELOCATE UTILITIES AND PERFORM CLEARING AND GRUBBING TO CREATE A WORK AREA FOR CRANE.
3. INSTALL TEMPORARY PROTECTIVE SHIELDING. SEE SPECIAL PROVISIONS ITEM 994.01 FOR MORE INFORMATION.
4. DEMOLISH THE EXISTING BRIDGE SUPERSTRUCTURE.
5. REMOVE PORTIONS OF THE EXISTING GRANITE ABUTMENTS TO THE LIMITS SHOWN AND CONSTRUCT THE PROPOSED ABUTMENT CAPS UP TO THE BRIDGE SEAT ELEVATIONS.
6. DELIVER TRUSS SEGMENTS TO THE SOUTH APPROACH OF THE BRIDGE.
7. ASSEMBLE TRUSS SEGMENTS TO FORM COMPLETE TRUSS BRIDGE (MINUS CONCRETE DECK).
8. UTILIZE CRANE AND EXCAVATOR TO LAUNCH TRUSS AND POSITION ONTO BRIDGE SEAT.
9. PLACE CONCRETE DECK AND REMAINING PORTION OF ABUTMENT CAPS (BACKWALLS AND CURTAIN WALLS).
10. BACKFILL BEHIND ABUTMENTS, INSTALL APPROACH SLABS AND COMPLETE APPROACH ROADWAY WORK.

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AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER
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610869_BR6(N03007).DWG Plotted on 19-Nov-2024 1:11 PM
Final Structural Submittal (SF) 19-November-2024

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MA	-	24	33
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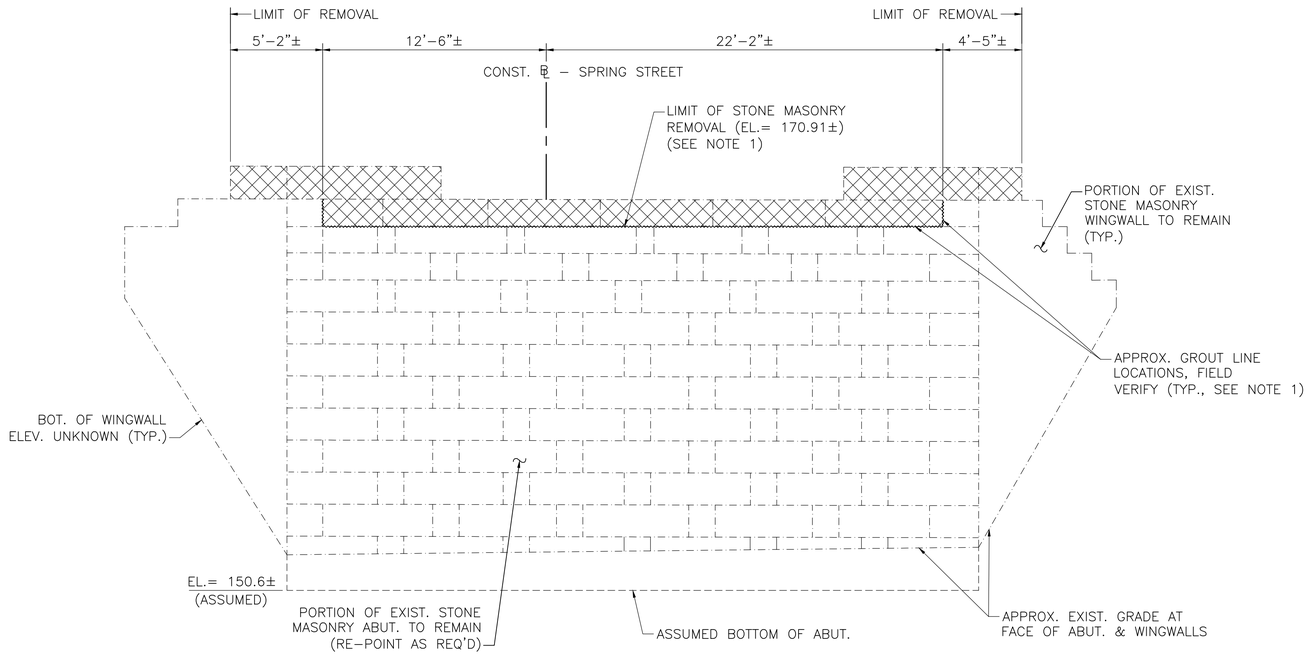
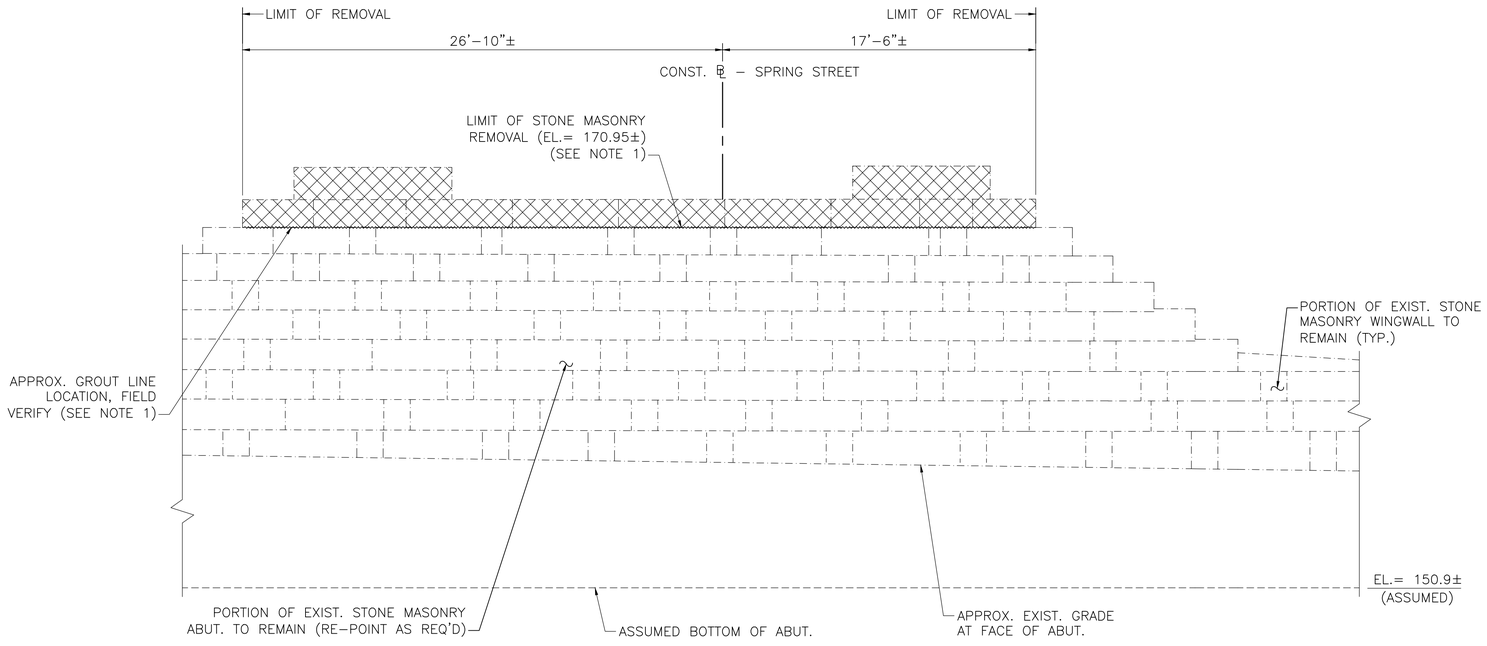
EXISTING SUBSTRUCTURE REMOVAL DETAILS



EXISTING NORTH ABUTMENT ELEVATION

SCALE: ¼" = 1'–0"



EXISTING SOUTH ABUTMENT ELEVATION

SCALE: ¼" = 1'–0"

NOTES:

1. THE CONTRACTOR SHALL FIELD VERIFY THE LIMITS OF STONE MASONRY REMOVAL. THE INTENTION IS FOR THE REMOVAL LIMITS TO CORRESPOND TO GROUT LINES BETWEEN GRANITE BLOCKS.
2. STONE HATCH/PATTERN IS APPROXIMATE AND DOES NOT REPRESENT ACTUAL FIELD LAYOUT OF STONE BLOCKS.

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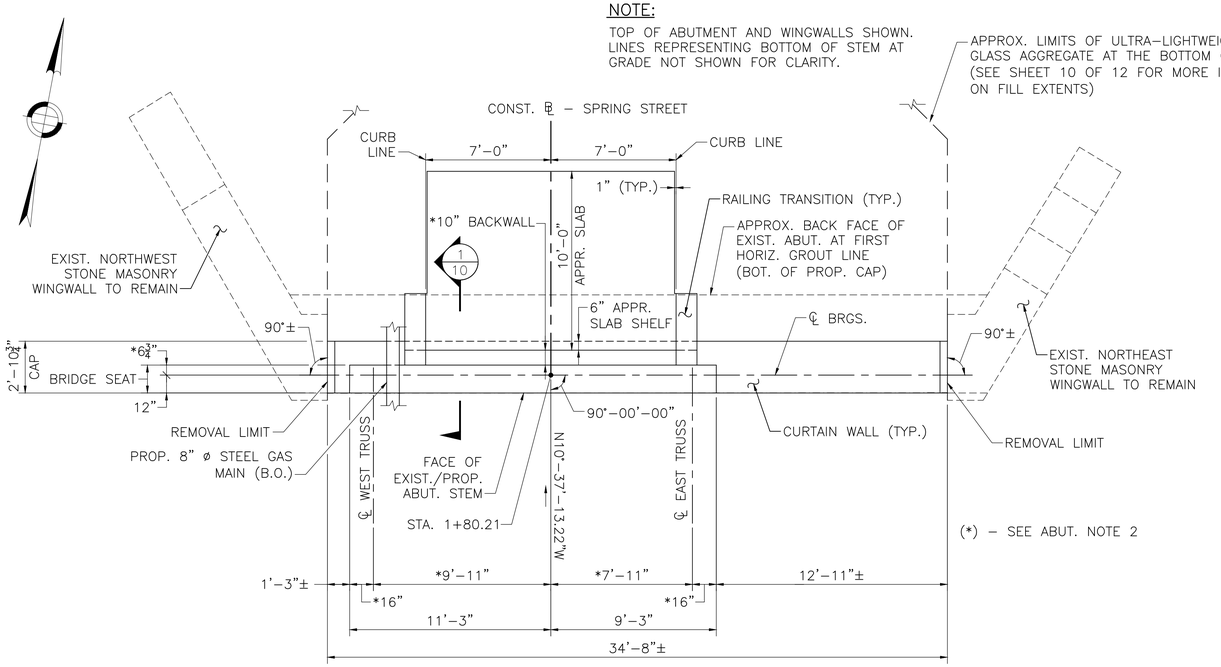
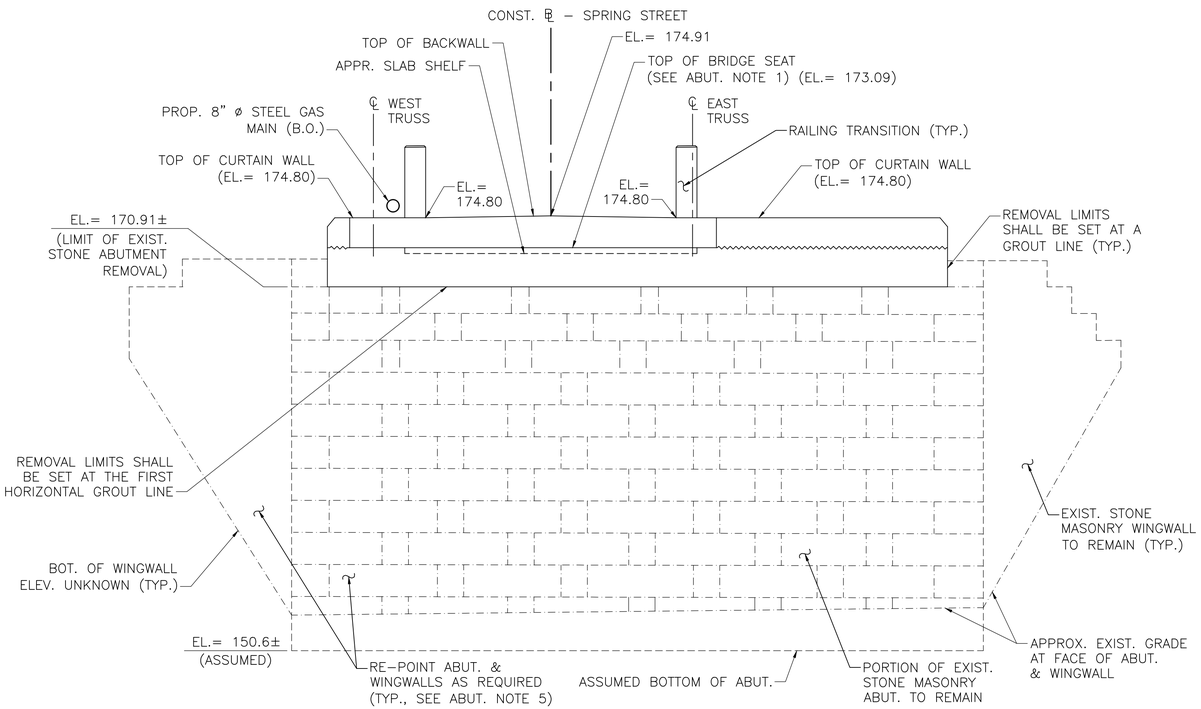
NOTE:
TOP OF ABUTMENT AND WINGWALLS SHOWN. LINES REPRESENTING BOTTOM OF STEM AT GRADE NOT SHOWN FOR CLARITY.



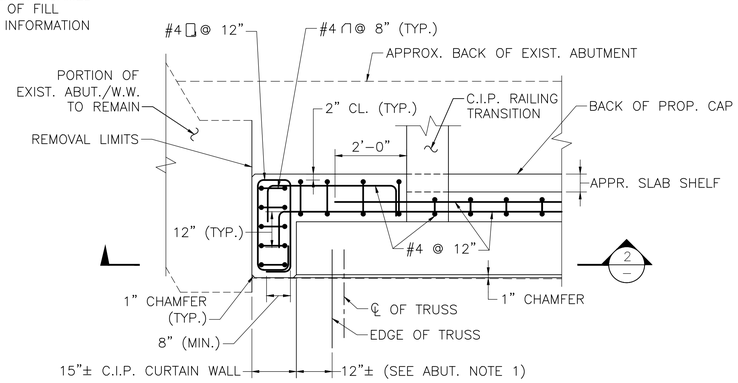
PROPOSED NORTH ABUTMENT PLAN

SCALE: ¼" = 1'-0"



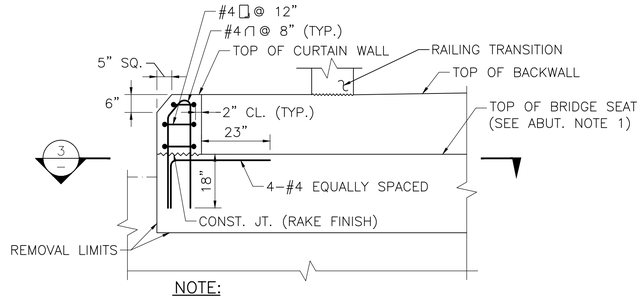
PROPOSED NORTH ABUTMENT ELEVATION

SCALE: ¼" = 1'-0"



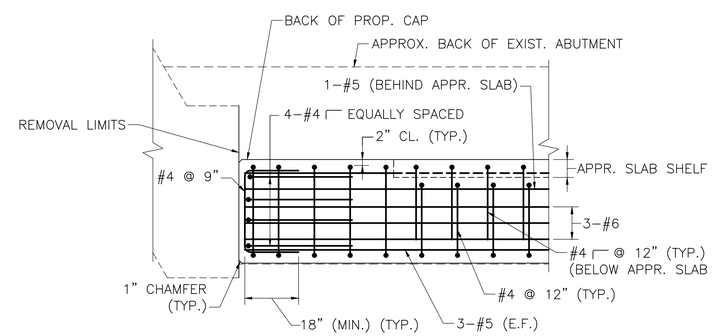
NOTE:
ABUTMENT REINFORCEMENT BELOW CONSTRUCTION JOINT IS OMITTED FOR CLARITY

PLAN



NOTE:
ONLY CURTAIN WALL REINFORCEMENT AND SELECT CAP REINFORCEMENT IS SHOWN FOR CLARITY.

SECTION 2 / –



NOTE:
ONLY ABUTMENT CAP REINFORCEMENT IS SHOWN FOR CLARITY.

SECTION 3 / –

NORTHWEST CURTAIN WALL DETAILS

(SEE SHEET 9 OF 12 FOR N.E. CURTAIN WALL DETAILS)
SCALE: ½" = 1'-0"

NATICK
SPRING STREET OVER MBTA/CSX

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	25	33
PROJECT FILE NO.	610869		

PROPOSED NORTH ABUTMENT PLAN AND ELEVATION

ABUTMENT NOTES:

1. BRIDGE SEAT ELEVATIONS ARE BOTTOM OF BEARING ASSEMBLY AT CENTERLINE OF BEARING. THE BRIDGE SEAT ELEVATIONS SHOWN ARE PRELIMINARY AND BASED ON AN ASSUMED STRUCTURE DEPTH AND BEARING HEIGHT. MINIMUM VERTICAL CLEARANCE IS SHOWN ON THE ELEVATION VIEW. THE CONTRACTOR SHALL DETERMINE THE FINAL BRIDGE SEAT ELEVATIONS AND BACKWALL DIMENSIONS PRIOR TO SUBMITTING REINFORCING STEEL FABRICATION DRAWINGS.
2. DIMENSIONS MARKED "*" WILL VARY BASED ON CHOSEN TRUSS MANUFACTURER. MAINTAIN RAILING TRANSITION DIMENSIONS AS SHOWN ON SHEET 11 OF 12.
3. ALL EXPOSED SURFACES OF THE PROPOSED ABUTMENT CAP, CURTAIN WALLS, BACKWALL AND RAILING TRANSITIONS SHALL BE CLEANED AND COATED WITH AN ELASTOMERIC PROTECTIVE COATING.
4. ANCHOR BOLTS NOT SHOWN FOR CLARITY. ANCHOR BOLTS SHALL BE FULLY DESIGNED AND INSTALLED BY THE CONTRACTOR. THE ANCHOR BOLT PATTERN SHALL BE PER THE TRUSS MANUFACTURER AND SHALL BE SET BY TEMPLATE. THE MINIMUM ANCHOR BOLT EMBEDMENT BELOW THE BRIDGE SEAT SHALL BE 12".
5. REPOINTING OF THE EXISTING ABUTMENTS AND WINGWALLS SHALL BE PER THE SPECIAL PROVISION FOR ITEM 908.4.

CURTAIN WALL NOTE:

1. DIMENSION WILL VARY BASED UPON THE CHOSEN TRUSS MANUFACTURER.

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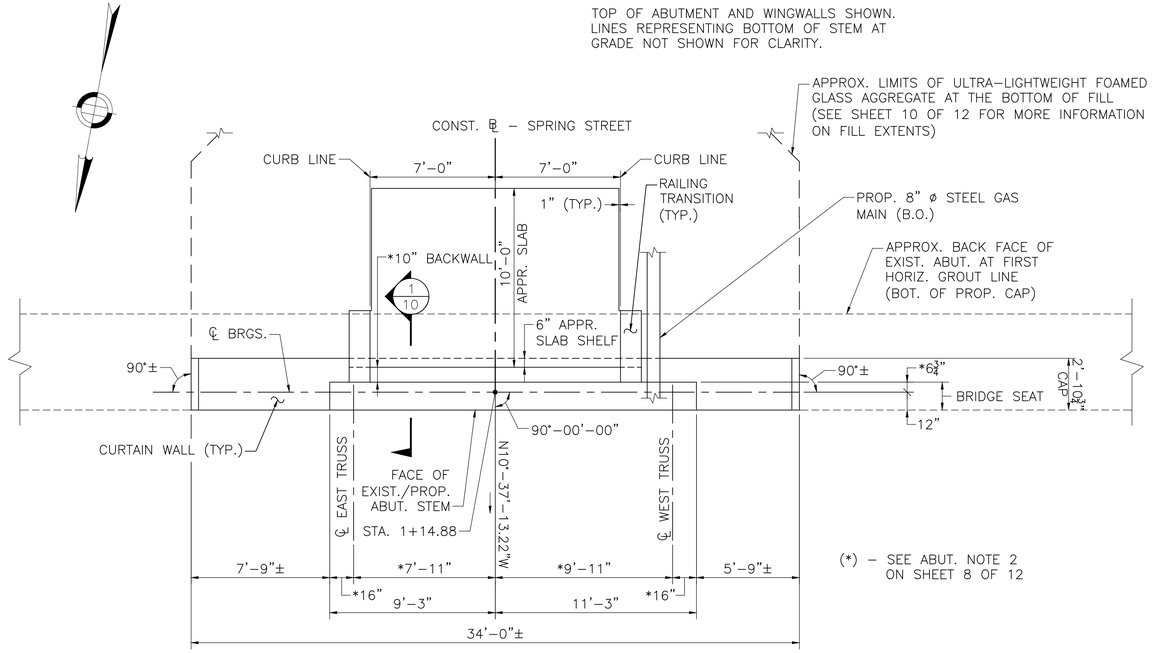
USE ONLY PRINTS OF LATEST DATE

NOTE:

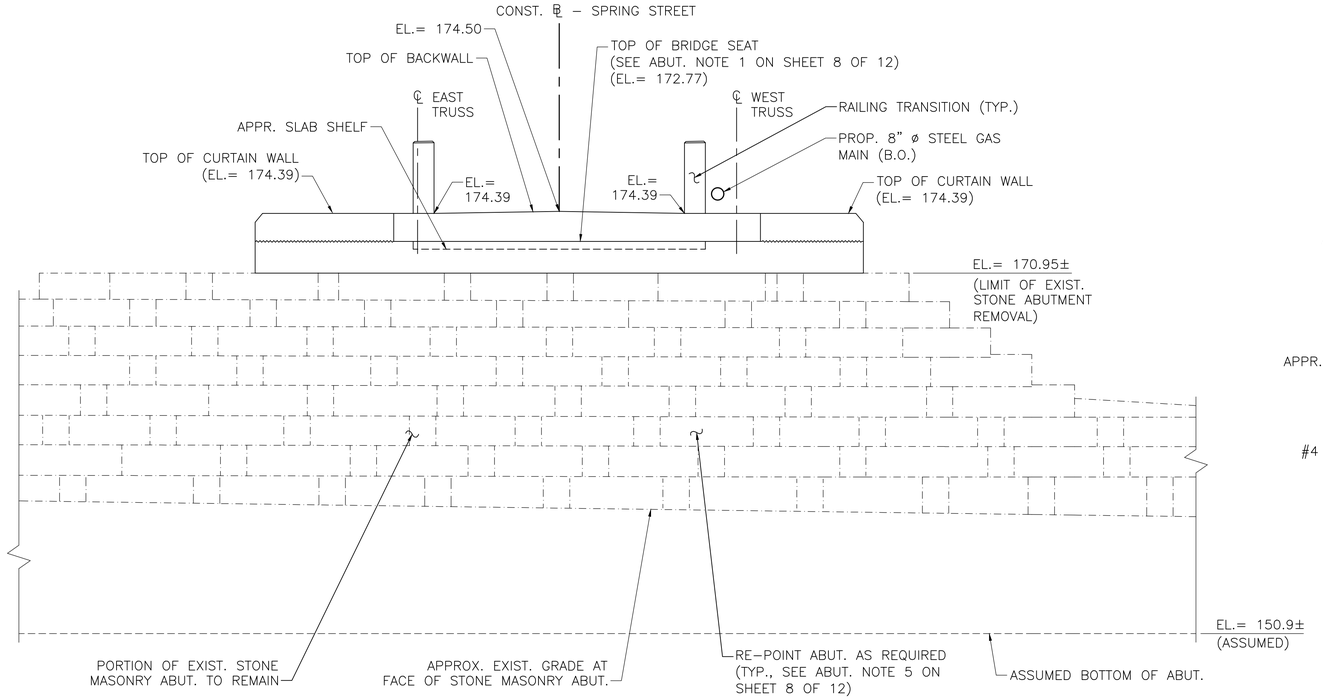
TOP OF ABUTMENT AND WINGWALLS SHOWN. LINES REPRESENTING BOTTOM OF STEM AT GRADE NOT SHOWN FOR CLARITY.



(*) – SEE ABUT. NOTE 2 ON SHEET 8 OF 12

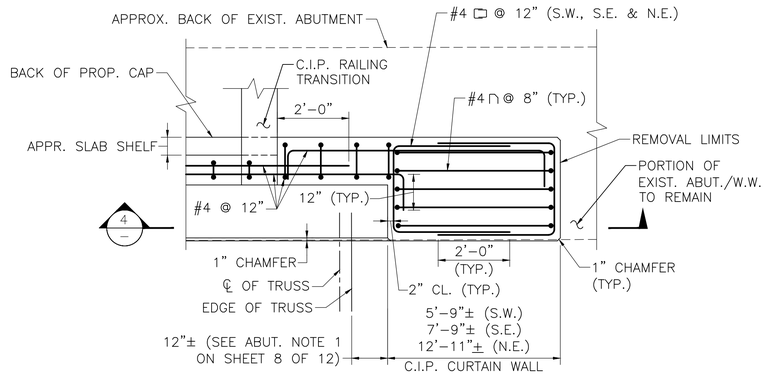
PROPOSED SOUTH ABUTMENT PLAN

SCALE: ¼" = 1'-0"



PROPOSED SOUTH ABUTMENT ELEVATION

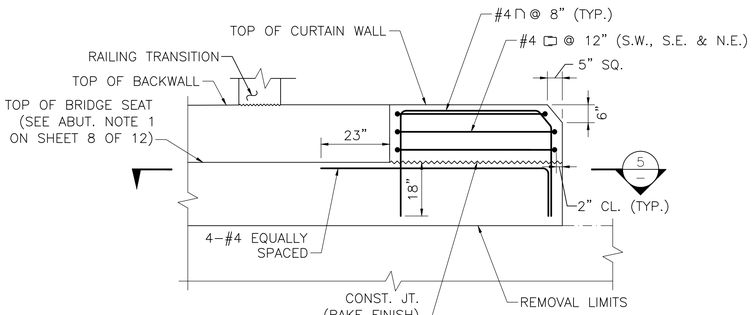
SCALE: ¼" = 1'-0"



NOTE:

ABUTMENT REINFORCEMENT BELOW CONSTRUCTION JOINT IS OMITTED FOR CLARITY

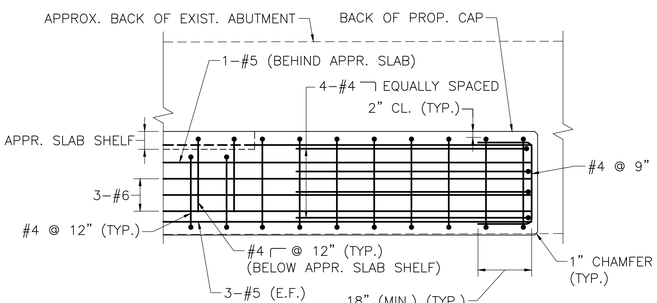
PLAN



NOTE:

ONLY CURTAIN WALL REINFORCEMENT AND SELECT CAP REINFORCEMENT IS SHOWN FOR CLARITY.

SECTION 4 –



NOTE:

ONLY ABUTMENT CAP REINFORCEMENT IS SHOWN FOR CLARITY.

SECTION 5 –

SOUTHWEST CURTAIN WALL DETAILS

(SOUTHEAST AND NORTHEAST SIMILAR, EXCEPT AS NOTED)
SCALE: ½" = 1'-0"

NATICK
SPRING STREET OVER MBTA/CSX

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	26	33
PROJECT FILE NO.	610869		

PROPOSED SOUTH ABUTMENT PLAN AND ELEVATION

ABUTMENT NOTE:

1. SEE SHEET 8 OF 12 FOR NOTES.

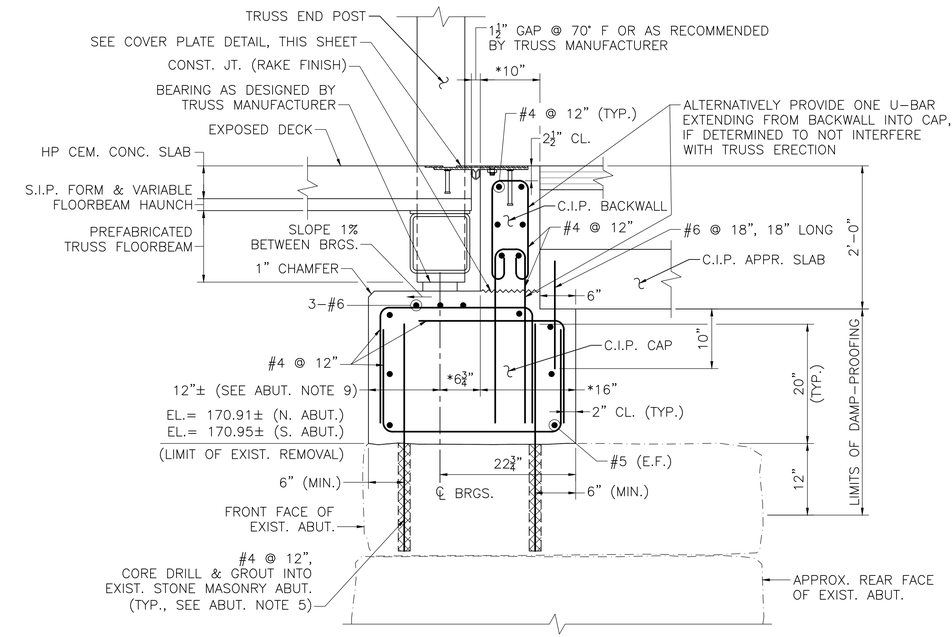
CURTAIN WALL NOTE:

1. SEE SHEET 8 OF 12 FOR NOTES.

DECEMBER 7, 2024	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT
AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER

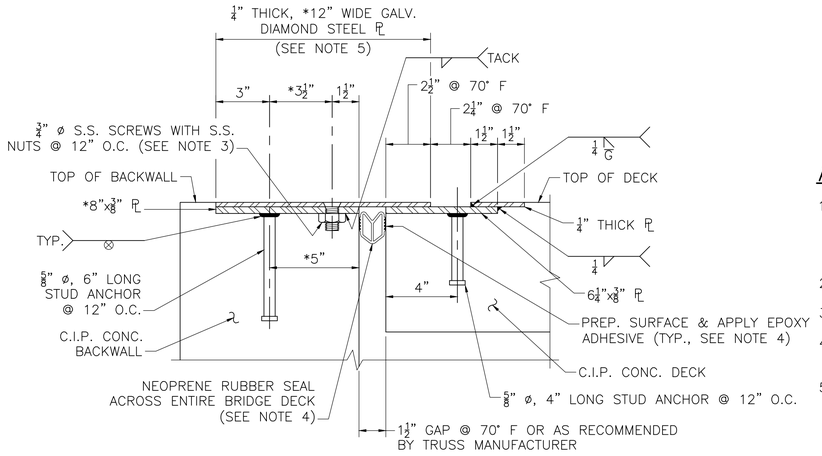
USE ONLY PRINTS OF LATEST DATE



(*) – SEE ABUT. NOTE 1

TYPICAL ABUTMENT SECTION 1

SCALE: 1" = 1'-0" 8&9



(*) – DIMENSION MAY VARY DEPENDING ON BACKWALL THICKNESS, CENTER ANCHOR WITHIN BACKWALL.

NOTES:

1. THE DETAILS SHOWN HERE ARE INTENDED AS A GENERAL GUIDE FOR A TYPICAL COVER PLATE SYSTEM. SHOP DRAWINGS WHICH INCLUDE DETAILS OF THE STEEL SHAPES, WELDING PROCEDURE SPECIFICATIONS, ANCHOR ARRANGEMENT AND TEMPORARY SUPPORT DETAILS SHALL BE SUBMITTED FOR APPROVAL OF THE ENGINEER ACCORDING TO THE STANDARD SPECIFICATIONS.
2. ALL STRUCTURAL STEEL COMPONENTS SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER THE COMPLETION OF ALL WELDING OPERATIONS STEEL PLATE ASSEMBLIES SHALL BE HOT-DIP GALVANIZED.
3. PRIOR TO PLACEMENT OF BACKWALL CONCRETE, LUBRICATE STAINLESS STEEL SCREWS WITH GRAPHITE AND SET SECURELY IN PLACE. MACHINE SCREWS TO BE TEMPORARILY REMOVED AFTER CONCRETE HAS ATTAINED FINAL SET.
4. NEOPRENE RUBBER SEAL SHALL BE INSTALLED IN EACH JOINT ACROSS THE ENTIRE OUT-TO-OUT WIDTH OF THE BRIDGE DECK. THE NEOPRENE RUBBER SEAL SHALL BE FOLDED UP INTO THE CURBS SUCH THAT A WATER-TIGHT SEAL IS PROVIDED ACROSS THE ENTIRE BRIDGE DECK. THE CONTRACTOR SHALL EXHIBIT CARE DURING INSTALLATION TO AVOID DAMAGING THE SEAL AND SHALL FOLLOW ALL MANUFACTURER'S PROCEDURES AND SPECIFICATIONS. THESE INCLUDE, BUT ARE NOT LIMITED TO, PLACEMENT OF THE SEAL WITHIN THE JOINT, FIELD FOLDING, APPLICATION OF EPOXY BONDING COMPOUND AND ANY REQUIRED SURFACE PREPARATION, AND INFLATION OF THE SEAL CHAMBERS.
5. DIAMOND PLATE SHALL EXTEND FROM CURB TO CURB AT EACH ABUTMENT.

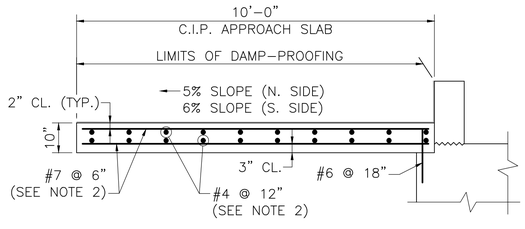
NATICK
SPRING STREET OVER MBTA/CSX

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	27	33
PROJECT FILE NO.	610869		

TYPICAL ABUTMENT SECTIONS AND DETAILS

ABUTMENT NOTES:

1. DIMENSIONS MARKED "*" MAY VARY AS REQUIRED BY THE TRUSS MANUFACTURER. THE BACKWALL THICKNESS CAN BE ADJUSTED AS NEEDED, BUT NOT LESS THAN 8". THE CONTRACTOR SHALL COORDINATE THE LENGTH FROM CENTERLINE OF BEARING TO END OF PREFABRICATED TRUSS.
2. ALL REINFORCEMENT SHALL BE EPOXY COATED.
3. ALL CONCRETE SHALL BE 5000 PSI, HP CEMENT CONCRETE.
4. TOP OF BACKWALL SHALL BE TROWELED SMOOTH AND PARALLEL TO THE PROFILE GRADE.
5. AFTER THE EXISTING STONE MASONRY ABUTMENTS HAVE BEEN DEMOLISHED TO THE LIMITS SHOWN ON SHEET 7 OF 12, DRILL 2" DIAMETER, 18" LONG HOLES FOR PLACEMENT OF #4 DOWELS AS SHOWN OR RECOMMENDED BY THE MANUFACTURER. PRIOR TO PLACEMENT OF GROUT AND REINFORCING BARS, THE DRILL HOLES SHALL BE CLEANED AND PREPARED IN ACCORDANCE WITH THE CHOSEN GROUT MANUFACTURER'S WRITTEN SPECIFICATIONS. SEE ITEM 912.4 IN SPECIAL PROVISIONS FOR MORE INFORMATION.
6. THE FACTORED BEARING PRESSURE = 16.1 KSF AS PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS STRENGTH I LOAD COMBINATION. FACTORED BEARING RESISTANCE = 23.7 KSF. FACTORED BEARING RESISTANCE IS THE PRODUCT OF THE NOMINAL BEARING RESISTANCE AND A RESISTANCE FACTOR OF 0.45.
7. SUBSTRUCTURE DESIGN IS BASED ON AN ASSUMED UNFACTORED SUPERSTRUCTURE WEIGHT FOR THE FULL 65.33 FOOT SPAN OF 140.0 KIPS. THE DESIGN IS SUBJECT TO CHANGE BASED ON FINAL SUPERSTRUCTURE DESIGN. ACTUAL LOADS SHALL BE PROVIDED BY THE PREFABRICATED PEDESTRIAN BRIDGE MANUFACTURER. REACTIONS SHALL NOT EXCEED THESE VALUES WITHOUT WRITTEN APPROVAL OF THE ENGINEER.
8. CONTRACTOR TO COORDINATE THE BEARING ASSEMBLY DESIGN, INCLUDING ANCHOR BOLTS, WITH THE PREFABRICATED BRIDGE MANUFACTURER. BEARING ASSEMBLY AND ANCHORAGE MUST BE DESIGNED AND STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF MASSACHUSETTS AND SUBMITTED FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
9. THE FRONT FACE OF THE PROPOSED CAP SHALL ALIGN WITH THE FACE OF THE EXISTING ABUTMENT. PROVIDE A MINIMUM 2" CLEAR COVER TO REINFORCING.

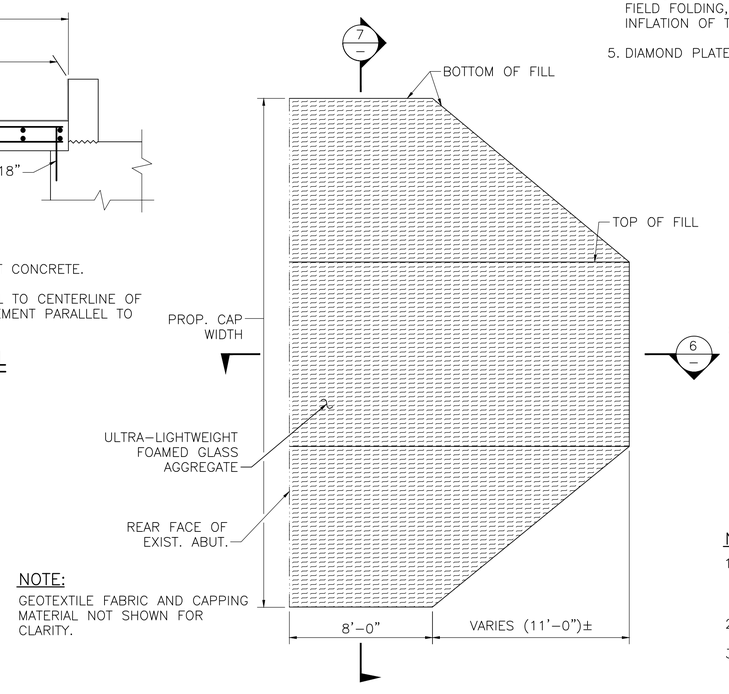


NOTES:

1. APPROACH SLAB TO BE 5000 PSI, HP CEMENT CONCRETE.
2. PLACE LONGITUDINAL REINFORCEMENT PARALLEL TO CENTERLINE OF CONSTRUCTION. PLACE TRANSVERSE REINFORCEMENT PARALLEL TO ABUTMENT.

APPROACH SLAB DETAIL

SCALE: ½" = 1'-0"



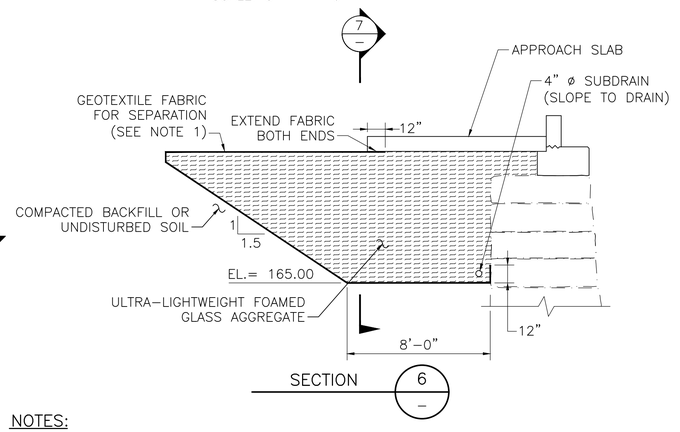
NOTE:

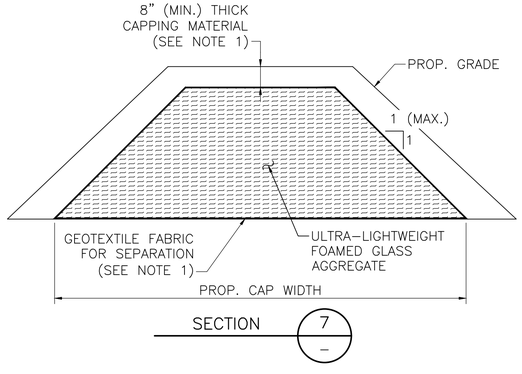
GEOTEXTILE FABRIC AND CAPPING MATERIAL NOT SHOWN FOR CLARITY.

PLAN VIEW

COVER PLATE DETAIL

SCALE: 3" = 1'-0"





NOTES:

1. A MINIMUM 8" THICK CAPPING LAYER IS REQUIRED OVER THE GEOTEXTILE FABRIC BOTH DURING CONSTRUCTION AND IN THE FINAL CONDITION. THE ROADWAY BASE LAYERS SATISFY THIS REQUIREMENT. FABRIC SHALL SURROUND THE LIGHTWEIGHT FILL FROM SURROUNDING FILL ON ALL SIDES.
2. SEE ABUTMENT PLAN VIEW DETAILS FOR ADDITIONAL GUIDANCE ON INSTALLATION LIMITS.
3. MAXIMUM LIFT HEIGHT IS 24 INCHES. SEE SPECIAL PROVISIONS FOR ITEM 153.2 FOR ADDITIONAL REQUIREMENTS.

LIMITS OF LIGHTWEIGHT FILL FOR BACKFILLING THE ABUTMENTS

NOT TO SCALE

DECEMBER 7, 2024	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

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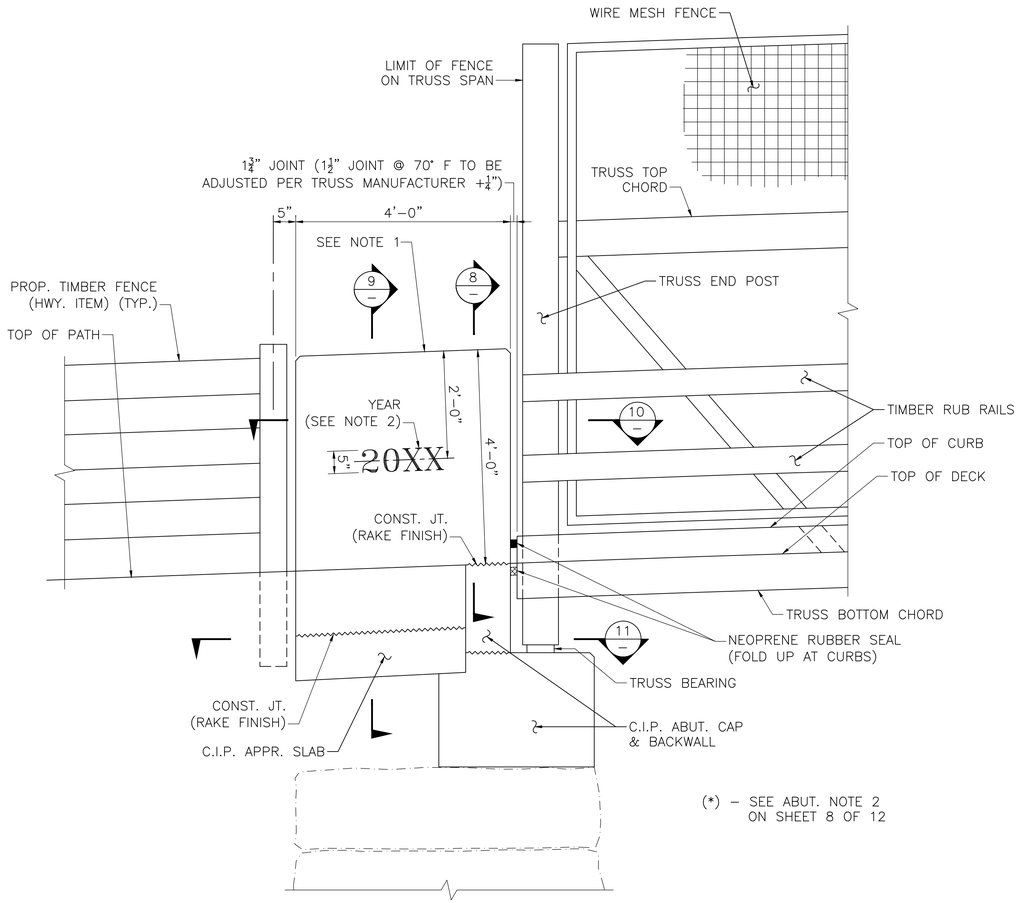
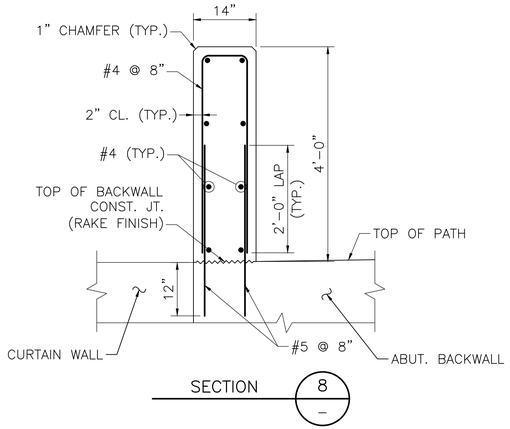
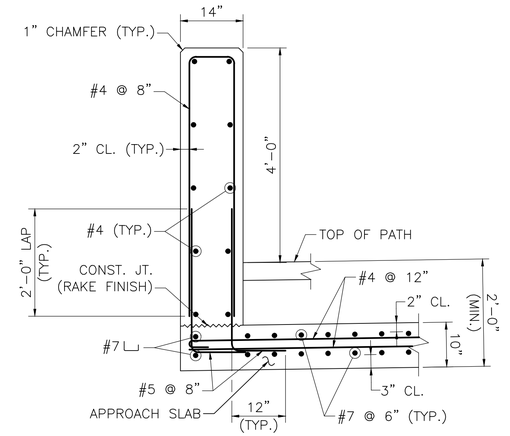


ELEVATION AT TRANSITION

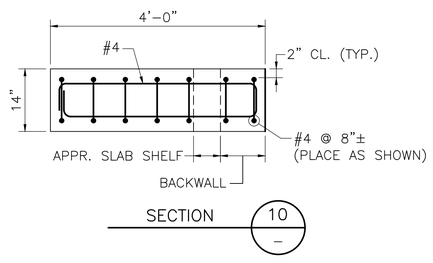
(LOOKING EAST)



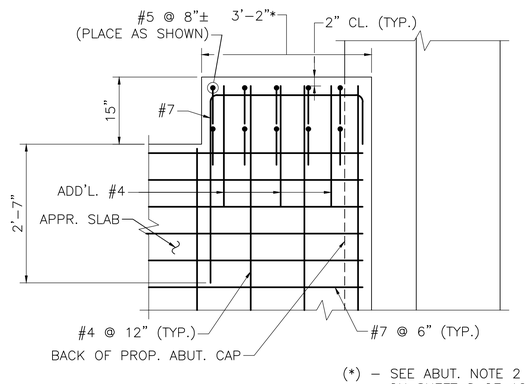
SECTION 8



SECTION 9



SECTION 10



(*) – SEE ABUT. NOTE 2 ON SHEET 8 OF 12

SECTION 11

NATICK
SPRING STREET OVER MBTA/CSX

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	28	33
PROJECT FILE NO.	610869		

RAILING TRANSITION DETAILS

NOTES:

1. THE TRANSITION TOP SHALL FOLLOW APPROACH GRADE.
2. USE LATEST CONTRACT COMPLETION YEAR IN EFFECT WHEN THE FIRST RAILING TRANSITION IS CAST. USE THIS FOR THE SOUTHEAST AND NORTHWEST TRANSITIONS.
3. ALL TRANSITION CONCRETE SHALL BE 5000 PSI, HP CEMENT CONCRETE.

RAILING TRANSITION DETAILS

(NORTHEAST CORNER SHOWN, OTHERS SIMILAR EXCEPT AS NOTED)

SCALE: ¾" = 1'-0"

DECEMBER 7, 2024	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

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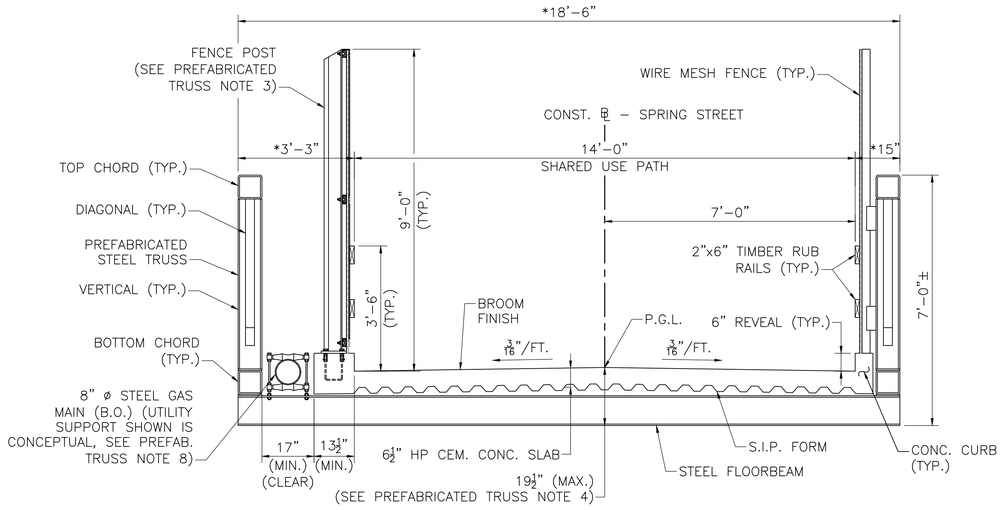
AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER

USE ONLY PRINTS OF LATEST DATE

NATICK
SPRING STREET OVER MBTA/CSX

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	29	33
PROJECT FILE NO.	610869		

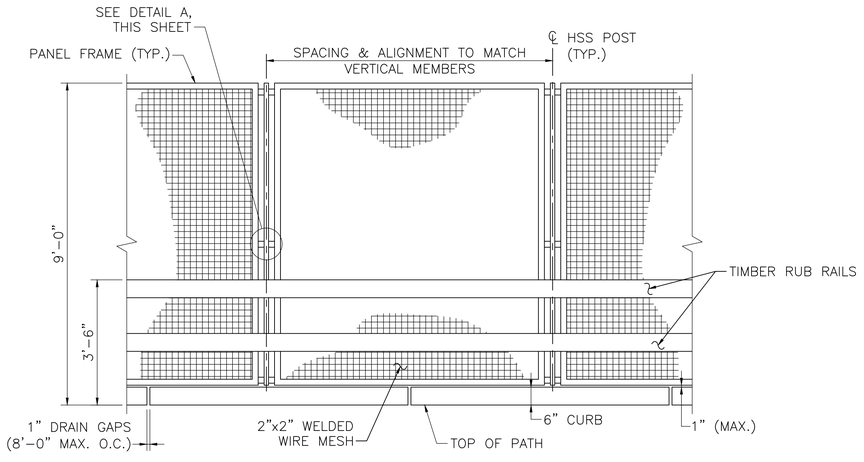
BRIDGE TRANSVERSE SECTION AND DETAILS



(*) – DIMENSION MAY VARY AS REQUIRED BY TRUSS MANUFACTURER.

BRIDGE TRANSVERSE SECTION

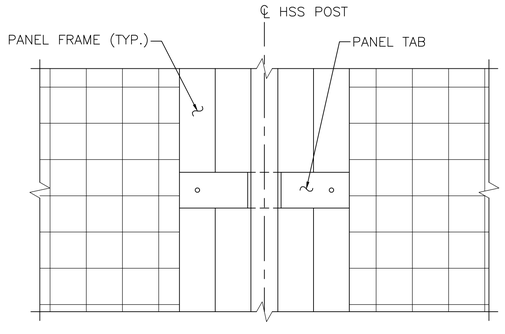
(LOOKING UPSTATION)
SCALE: ½" = 1'–0"



WIRE MESH FENCE ELEVATION (EAST SIDE)*

SCALE: ½" = 1'–0"

(*) – SEE PREFABRICATED TRUSS NOTE 3. THE FENCE DESIGN SHOWN IS CONCEPTUAL AND IS FOR THE EAST SIDE. MODIFY AS NEEDED FOR THE WEST SIDE.



DETAIL A

SCALE: 3" = 1'–0"

PREFABRICATED TRUSS NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FINAL DESIGN OF THE ENTIRE SUPERSTRUCTURE, INCLUDING THE BEARING ASSEMBLIES, RUB RAILS AND ANCHOR BOLTS (REFER TO ITEM 995.).
2. THE TRUSS DESIGN SHOWN IS CONCEPTUAL ALTHOUGH THE OVERALL SHAPE SHALL BE OF A "PRATT" STYLE. THE BRIDGE SELECTION SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
3. WIRE MESH FENCE AND FENCE SUPPORTS SHOWN ON THIS SHEET ARE CONCEPTUAL. FENCE DESIGN, DETAILING AND CONNECTION TO TRUSS VERTICAL MEMBERS SHALL BE DESIGNED BY TRUSS MANUFACTURER. THE CONCEPTUAL FENCE POST DESIGN SHOWN FOR THE WEST FENCE IS BASED ON MASSDOT TYPE II PROTECTIVE SCREEN.
4. SUPERSTRUCTURE DEPTH TO BE COORDINATED WITH TRUSS MANUFACTURER PRIOR TO ABUTMENT CONSTRUCTION AND TO ENSURE A MINIMUM VERTICAL CLEARANCE OF 18'–6" IS PROVIDED AS SHOWN ON SHEET 5 OF 12. THE TRUSS SHALL BE CAMBERED TO FOLLOW THE PROPOSED PROFILE AFTER ACCOUNTING FOR DEAD LOAD DEFLECTIONS. TRUSS DEAD LOAD DEFLECTIONS AND TOP OF FORM ELEVATIONS SHALL BE COORDINATED WITH THE TRUSS MANUFACTURER AND THEIR DESIGN PRIOR TO POURING THE DECK.
5. THE DELIVERY AND INSTALLATION OF TRUSS INCLUDING BEARING ASSEMBLY SHALL BE PER MANUFACTURER'S RECOMMENDATION.
6. ALL STRUCTURAL STEEL OTHER THAN HSS STEEL TUBING SHALL BE AASHTO M 270 GRADE 50. HSS STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A1085 GRADE A (50 KSI), INCLUDING SUPPLEMENTAL REQUIREMENT S1 HEAT TREATMENT. MINIMUM STRUCTURAL TUBING THICKNESS SHALL BE ¼". ALL STRUCTURAL STEEL SHALL BE HOT DIP GALVANIZED AND PAINTED IN ACCORDANCE WITH THE SPECIAL PROVISIONS. THE COLOR SHALL BE FEDERAL STD. 595 COLOR NO. 27038. THE COLOR OF THE WIRE MESH FENCE AND SUPPORTING COMPONENTS SHALL MATCH THE TRUSS COLOR.
7. CLEAR DISTANCE BETWEEN RUB RAILS ON EITHER SIDE OF THE TRUSS SHALL BE 14'–0". CLEAR DISTANCE BETWEEN CURBS ON EITHER SIDE OF THE TRUSS SHALL BE 14'–0" MINIMUM.
8. EVERSOURCE ELECTRIC WILL PROVIDE MATERIALS AND A MASSDOT CONTRACTOR WILL ASSIST IN INSTALLATION OF GAS MAIN.

DECK NOTES:

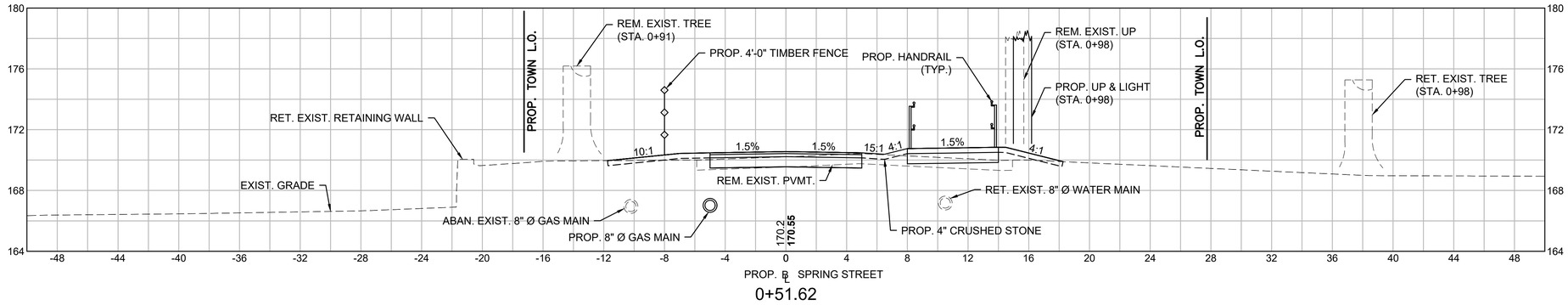
1. DECK SLAB AND CURBS SHALL BE 5000 PSI, HP CEMENT CONCRETE.
2. LONGITUDINAL REINFORCEMENT SHALL BE PLACED PARALLEL TO THE ℄ OF CONSTRUCTION. TRANSVERSE REINFORCEMENT SHALL BE PLACED PERPENDICULAR TO THE ℄ OF CONSTRUCTION. REINFORCEMENT SHALL CONSIST OF TWO (2) MATS OF STEEL, EACH CONSISTING OF TRANSVERSE AND LONGITUDINAL BARS.
3. ALL REINFORCEMENT AND SUPPORT DEVICES SHALL BE COATED.
4. THE FINISHED SURFACE OF THE BRIDGE DECK SHALL BE IN ACCORDANCE WITH SUBSECTION 901.66, I SIDEWALKS AND MEDIANS ON BRIDGES, OF THE MASSDOT STANDARD SPECIFICATIONS. THE SURFACE SHALL BE FREE OF DEPRESSIONS THAT COULD RETAIN WATER.
5. BRIDGE DECK SLAB SHALL BE PLACED IN ONE CONTINUOUS OPERATION WITHOUT CONSTRUCTION JOINTS.

DECEMBER 7, 2024	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT AUTHORIZED SIGNATORY:	STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE	

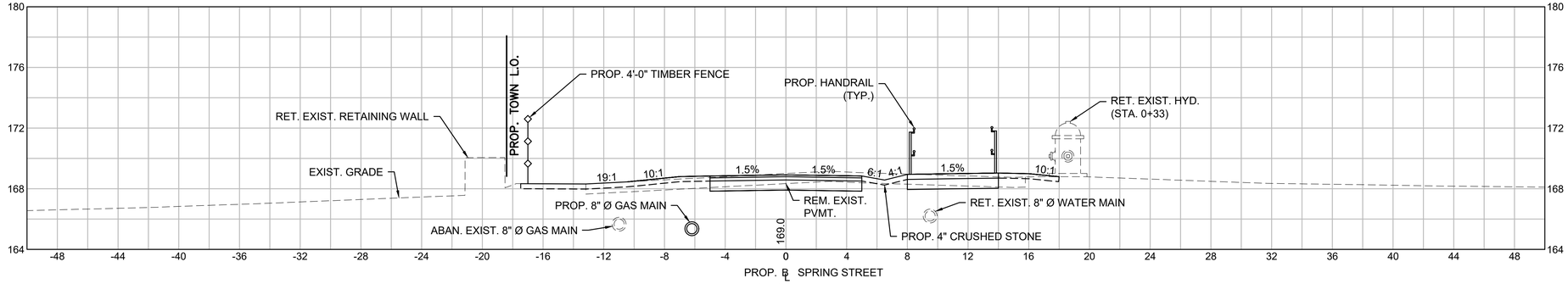
NATICK
SPRING STREET OVER MBTA/CSX

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	30	33
PROJECT FILE NO.	610869		

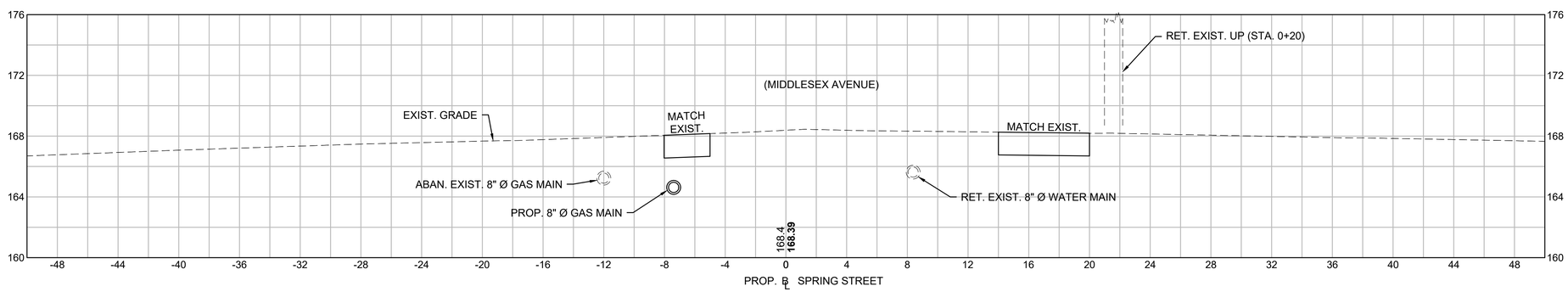
CROSS SECTIONS - SPRING STREET



CUT: 15.46 SF
FILL: 6.36 SF



CUT: 26.85 SF
FILL: 4.94 SF



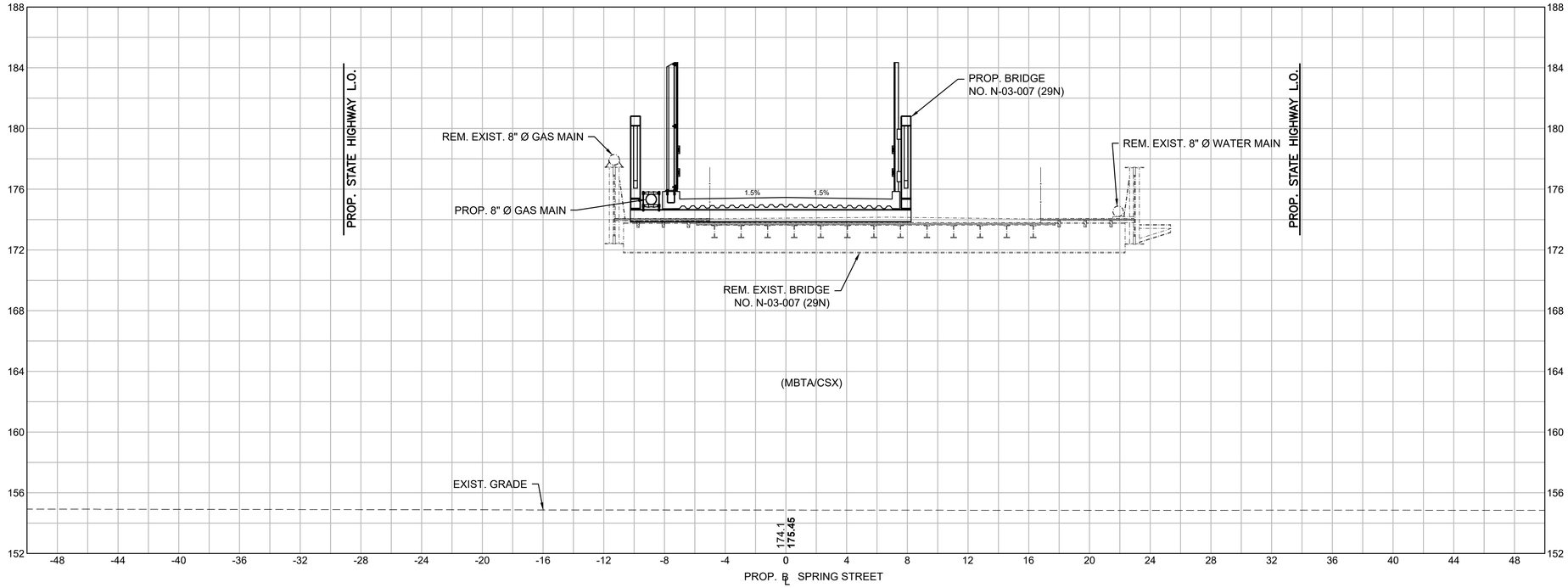
CUT: 13.55 SF
FILL: 0.00 SF

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

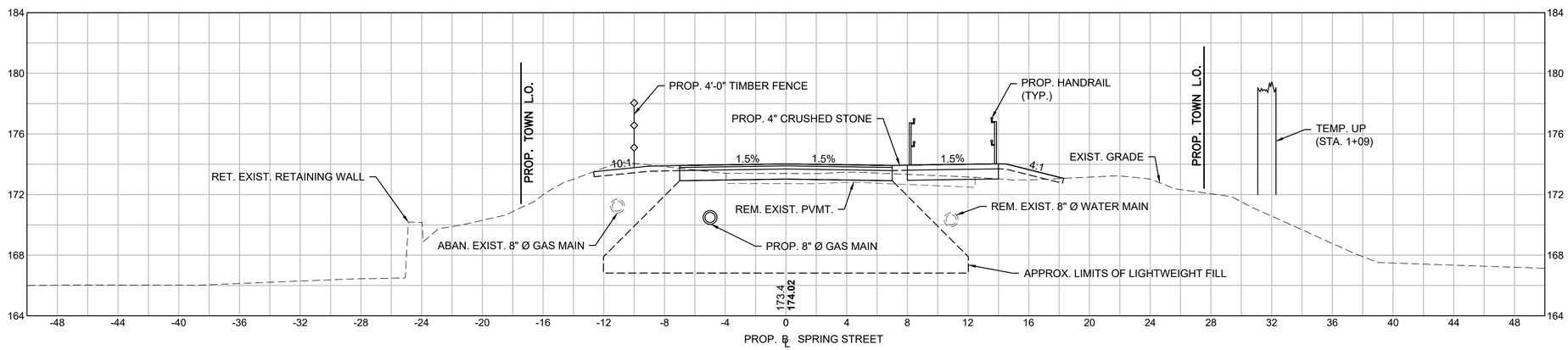
NATICK
SPRING STREET OVER MBTA/CSX

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	31	33
PROJECT FILE NO.	610869		

CROSS SECTIONS - SPRING STREET



CUT: 0.00 SF
FILL: 0.00 SF



CUT: 15.87 SF
FILL: 6.55 SF

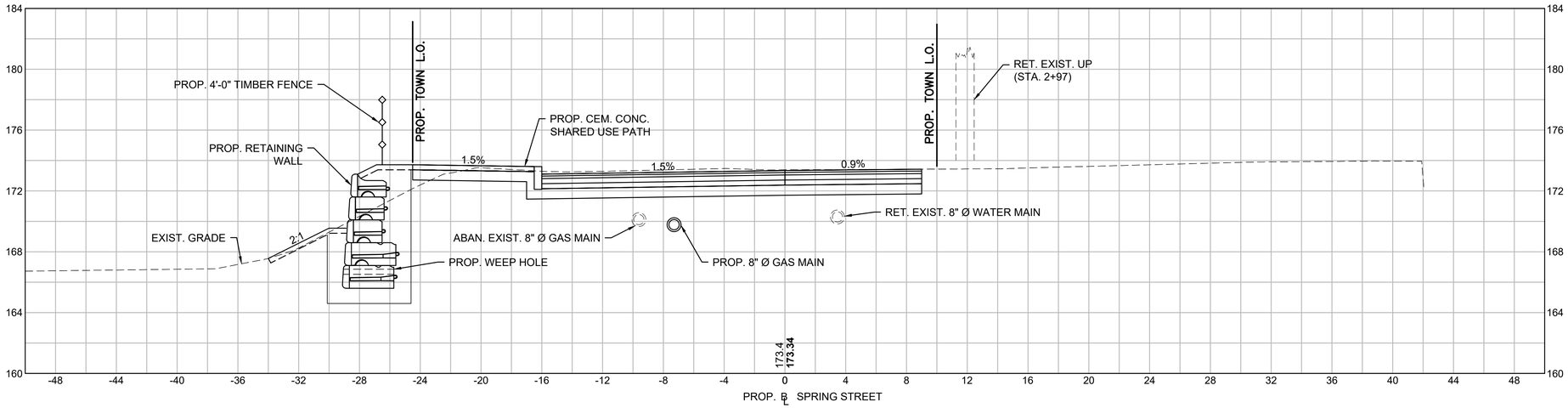
HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

610869_HD(SECTIONS).DWG Plotted on 19-Nov-2024 12:47 PM

NATICK
SPRING STREET OVER MBTA/CSX

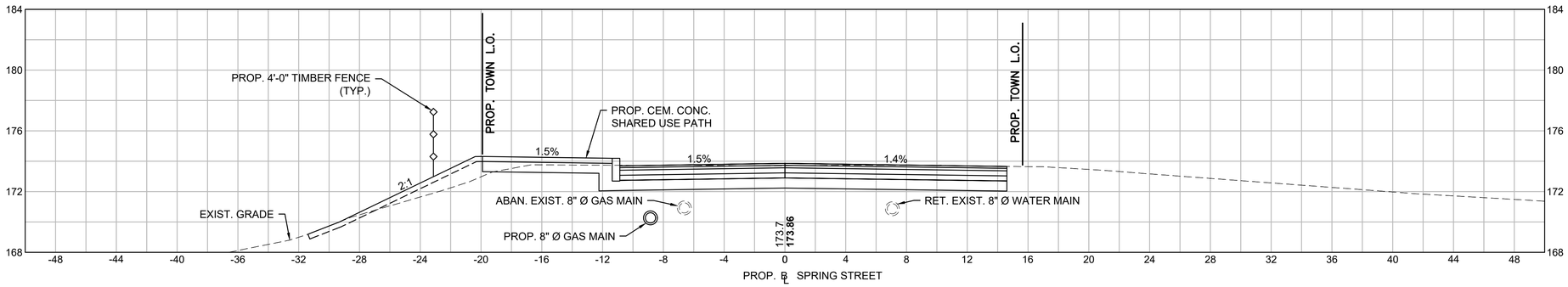
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	32	33
PROJECT FILE NO.	610869		

CROSS SECTIONS - SPRING STREET



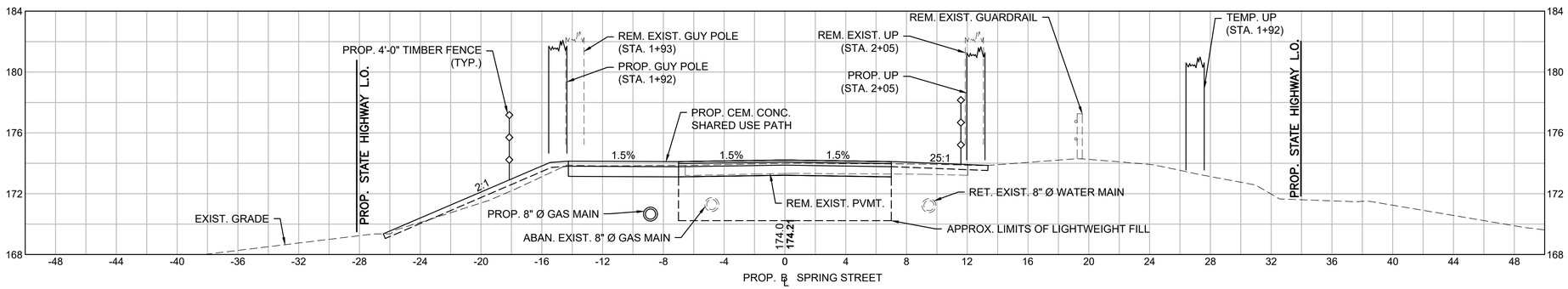
2+51.18

CUT: 49.58 SF
FILL: 0.47 SF



2+11.07

CUT: 46.65 SF
FILL: 4.55 SF



2+00

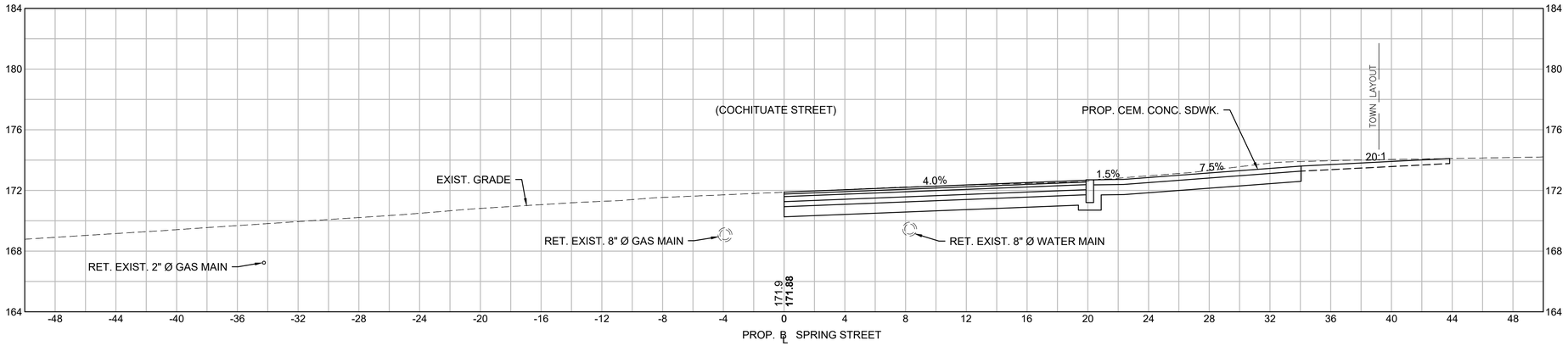
CUT: 20.62 SF
FILL: 4.61 SF

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

NATICK
SPRING STREET OVER MBTA/CSX

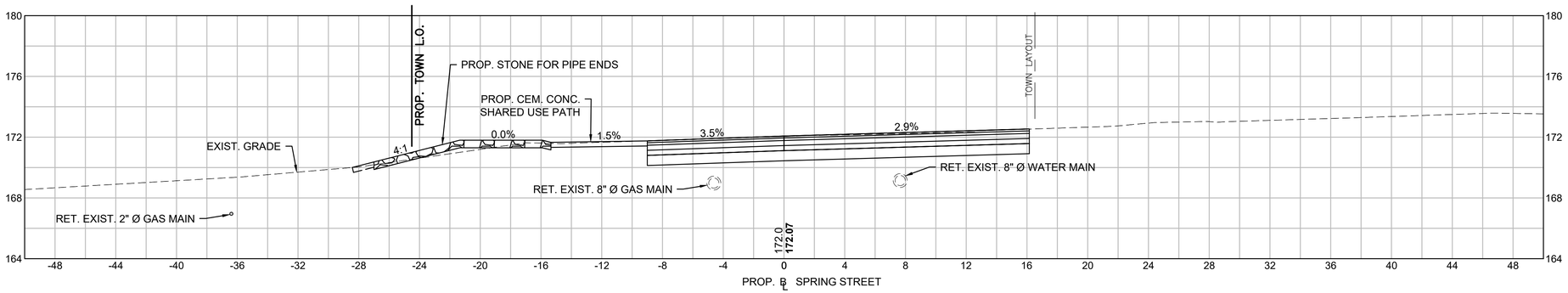
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	33	33
PROJECT FILE NO.	610869		

CROSS SECTIONS - SPRING STREET



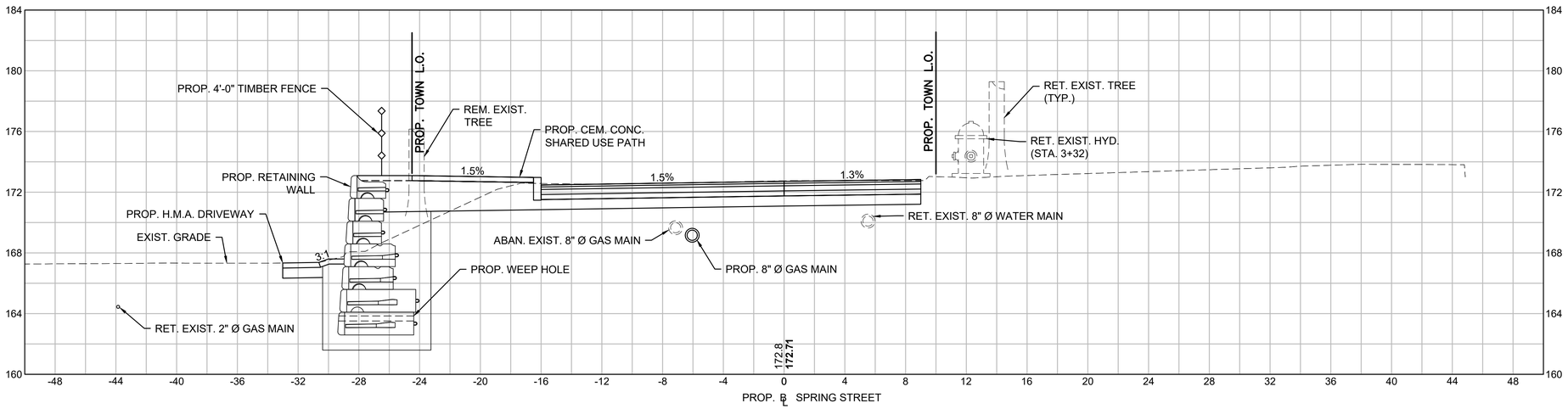
3+64.47

CUT: 54.75 SF
FILL: 0.00 SF



3+50

CUT: 43.53 SF
FILL: 0.72 SF



3+00

CUT: 50.50 SF
FILL: 0.36 SF

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

610869_HD(SECTIONS).DWG Plotted on 19-Nov-2024 12:48 PM