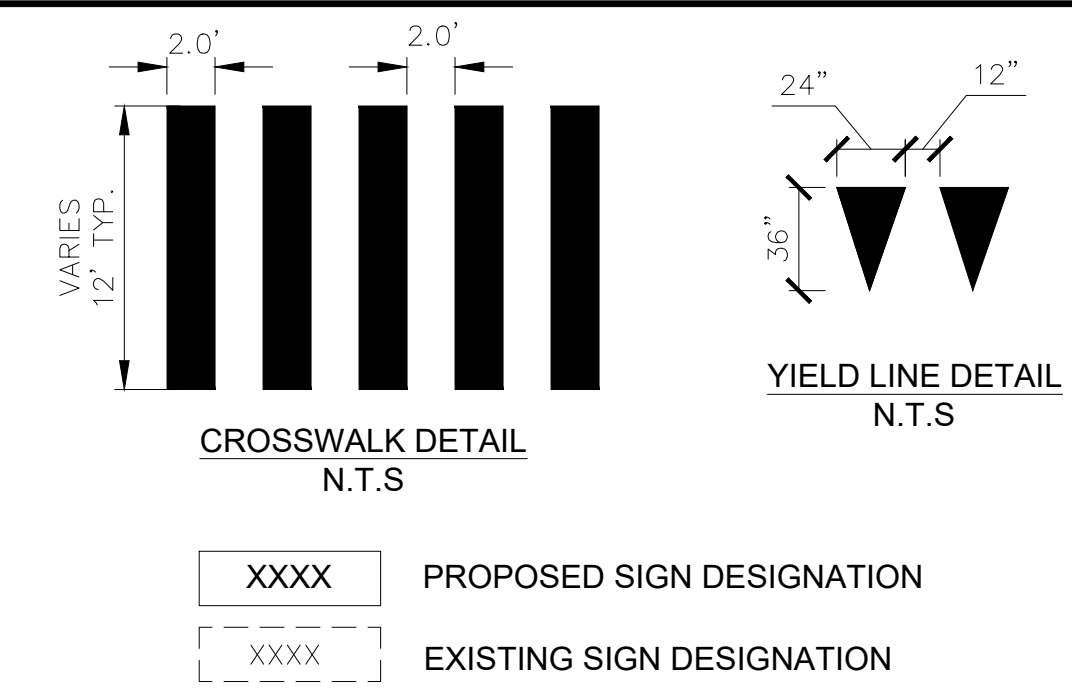


NOTES:

- ALL EXISTING SIGNS TO REMAIN UNLESS OTHERWISE NOTED ON PLANS.
- ALL PAVEMENT MARKINGS ON RAIL TRAIL SHALL BE REFLECTORIZED PAINT.
- ALL PROPOSED PAVEMENT MARKING LINES ON ROADWAYS SHALL BE 6" WIDE, EXCEPT STOP BARS WHICH SHALL BE 12" WIDE. ALL MARKINGS SHALL BE REFLECTORIZED THERMOPLASTIC.
- SIGN SUPPORTS FOR SHARED-USE PATH SHALL BE 4"x4" PRESSURE TREATED WOOD POSTS AND PLACED AS SHOWN ON THE "TYPICAL SIGN PLACEMENT DETAIL" IN THE CONSTRUCTION DETAILS.
- ANY SIGN LABELED WITH AN "\*" SHALL BE MOUNTED ON A STANDARD P-5 POST AT STANDARD MUTCD HEIGHT UNLESS OTHERWISE SHOWN ON PLANS.
- ALL P-5 POSTS SHALL BE FACTORY COATED FEDERAL GREEN.



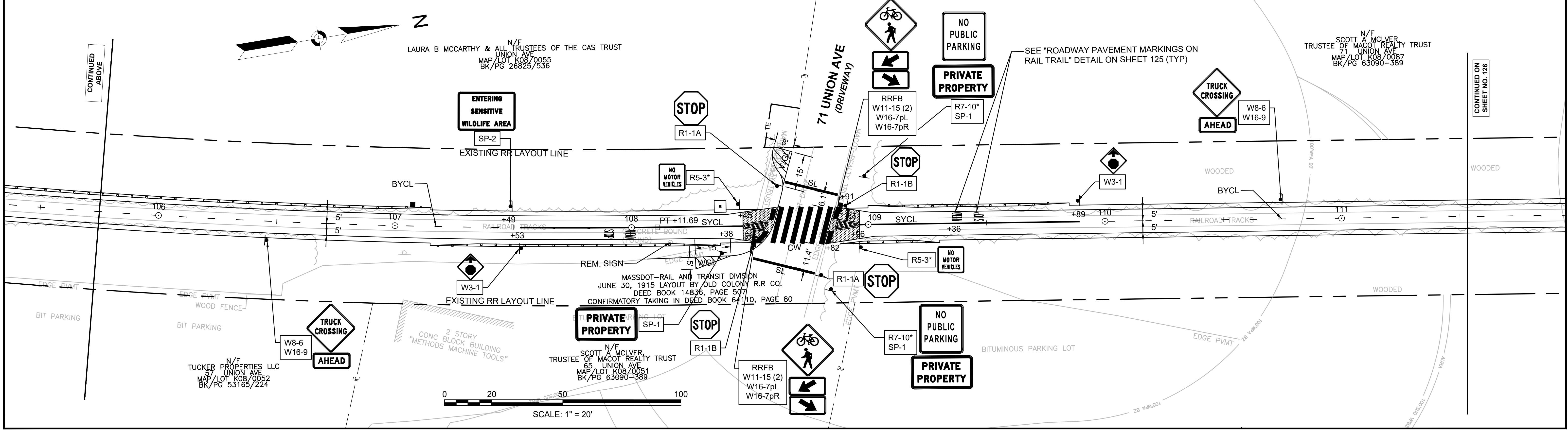
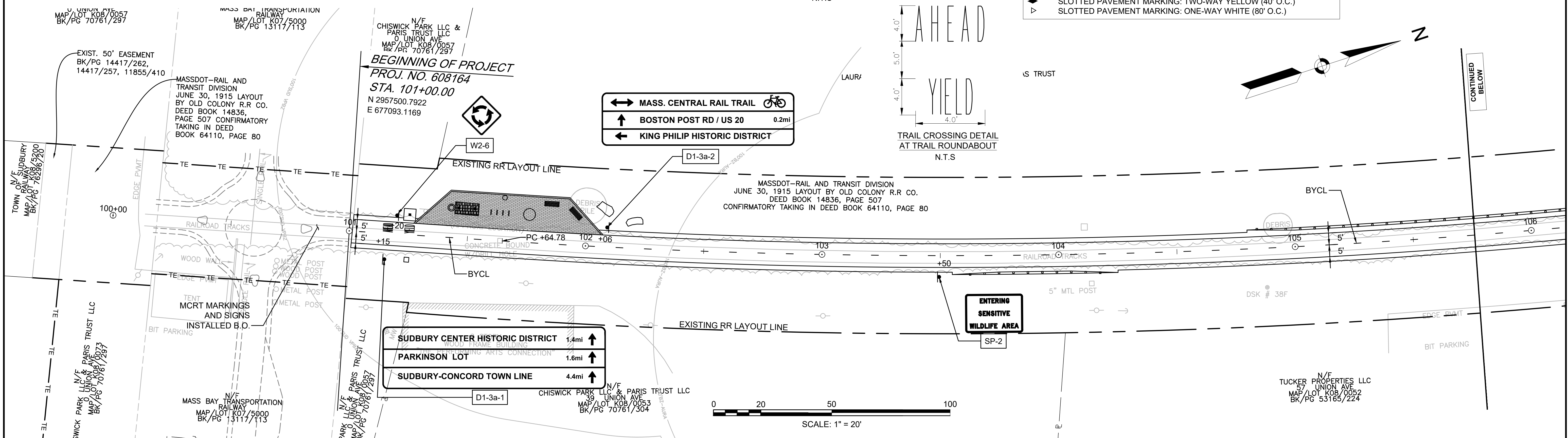
MARKING LEGEND

	BICYCLE DETECTOR PAVEMENT MARKING
	PROPOSED SIGN
SL	PROPOSED 12" WHITE STOP LINE
CW	PROPOSED 24" WHITE CROSS WALK
SWEL	PROPOSED 6" SINGLE WHITE EDGE LINE
SWLL	PROPOSED 6" SINGLE WHITE LANE LINE
BWLL	PROPOSED 6" SINGLE BROKEN WHITE LANE LINE (10' MARK - 30' SKIP)
SYEL	PROPOSED 6" SINGLE YELLOW EDGE LINE
SYCL	PROPOSED 6" SINGLE YELLOW CENTER LINE
BYCL	PROPOSED 6" BROKEN YELLOW CENTER LINE (3' MARK - 9' SKIP)
DYCL	PROPOSED 6" DOUBLE YELLOW CENTER LINE
DWLEX	PROPOSED 6" DOTTED WHITE LANE EXTENSION LINE (2' MARK - 6' SKIP)
SWCHL	PROPOSED 6" SOLID WHITE CHANNEL LINE
WGL	WHITE GORE LINE - 12" SOLID WHITE LINE
	SLOTTED PAVEMENT MARKING: TWO-WAY YELLOW (40' O.C.)
	SLOTTED PAVEMENT MARKING: ONE-WAY WHITE (80' O.C.)

SUDBURY  
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	125	318
PROJECT FILE NO.		608164	

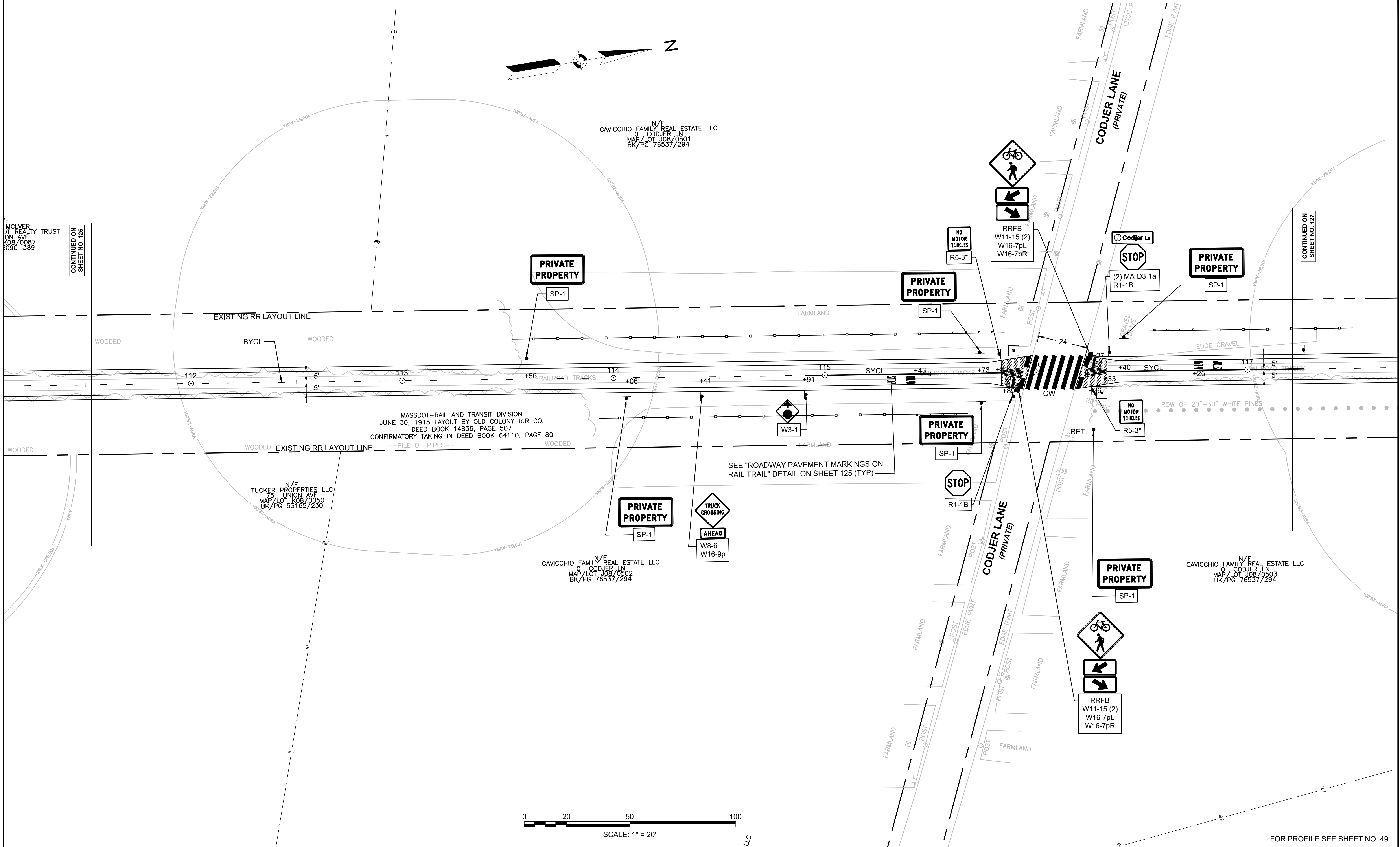
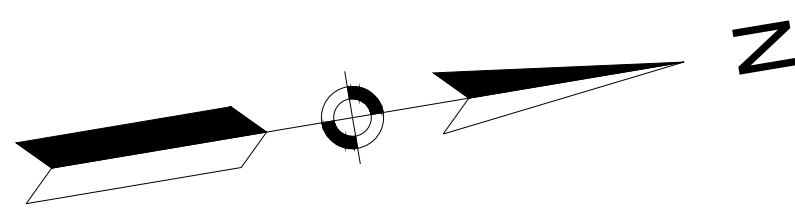
PAVEMENT MARKING & SIGNING PLANS



**SUDBURY  
BRUCE FREEMAN RAIL TRAIL**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	126	318
PROJECT FILE NO.		608164	

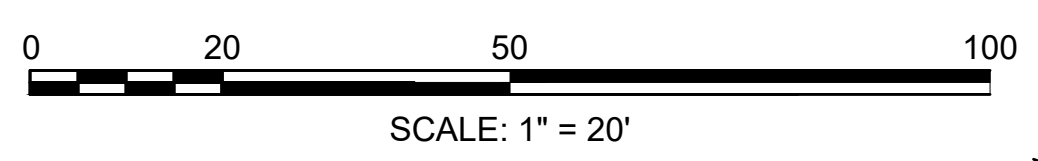
**PAVEMENT MARKING & SIGNING PLANS**



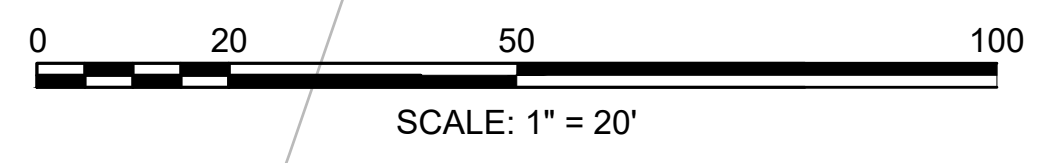
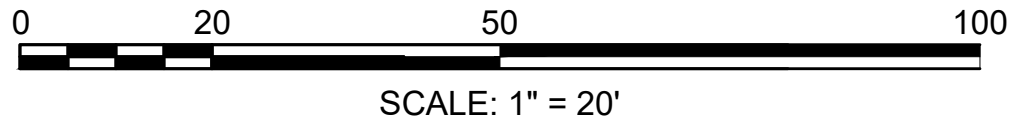
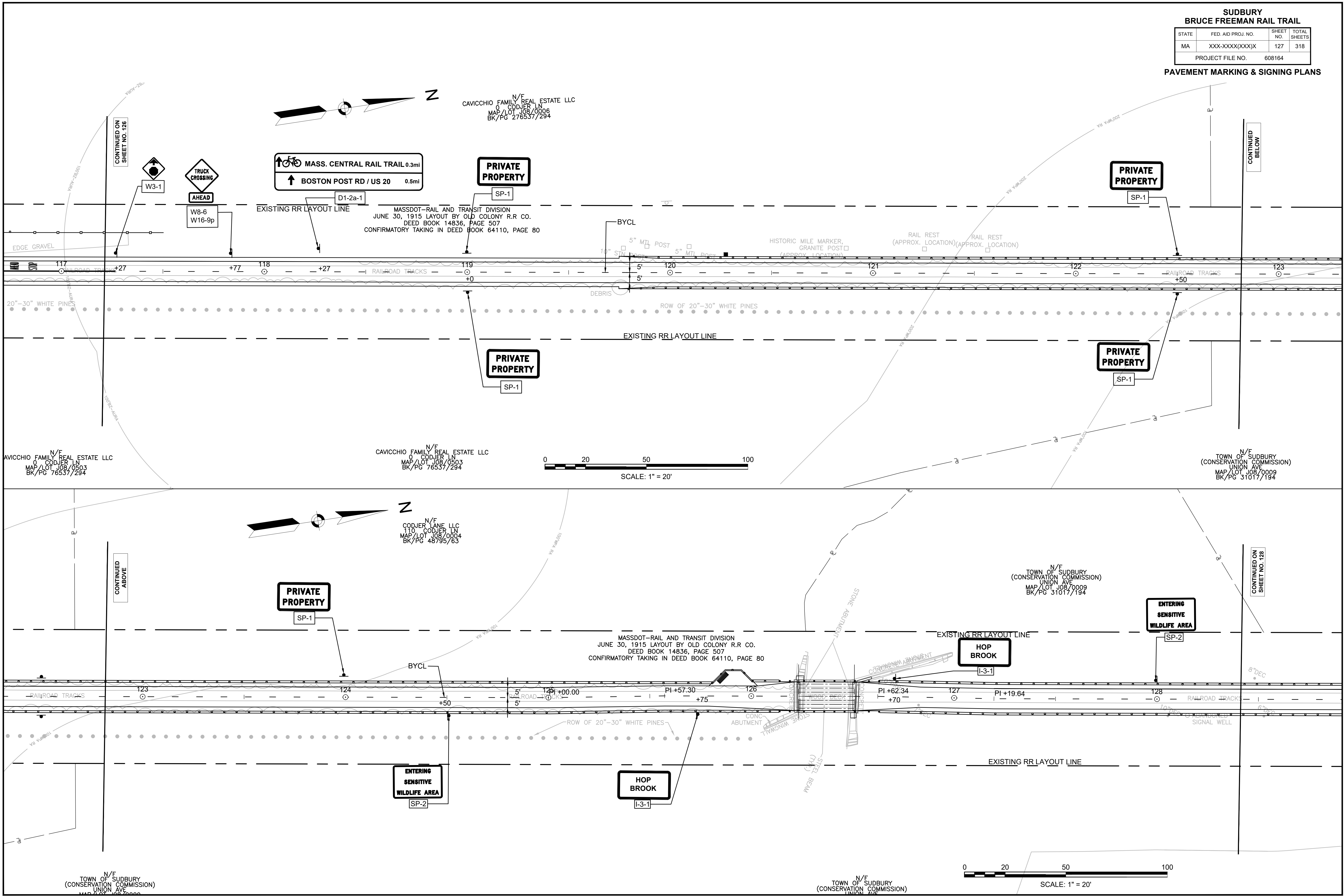
MCLVER  
OT REALTY TRUST  
75 UNION AVE  
KOB/0087  
090-389

CONTINUED ON  
SHEET NO. 125

CONTINUED ON  
SHEET NO. 127



FOR PROFILE SEE SHEET NO. 49

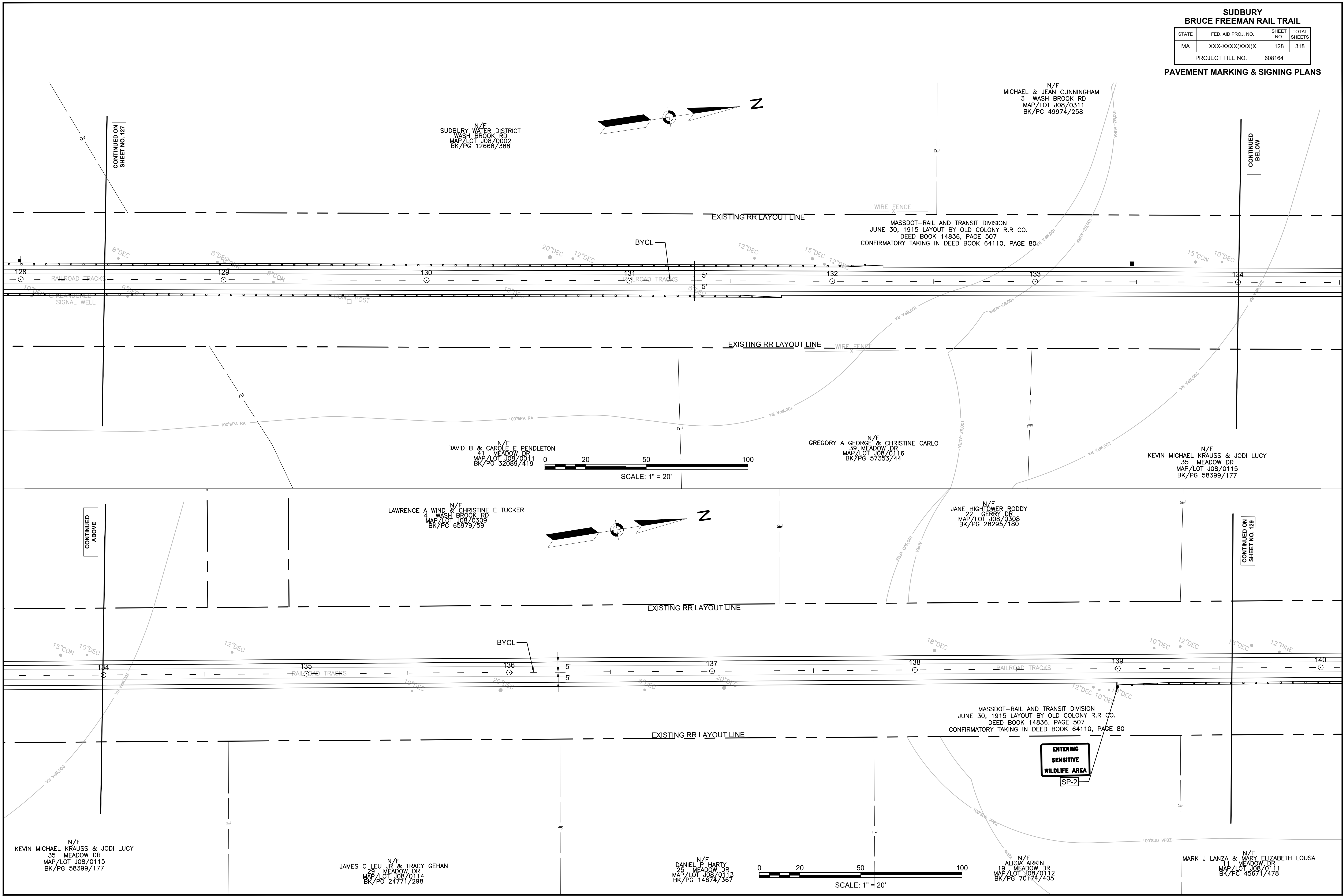


**SUDBURY  
BRUCE FREEMAN RAIL TRAIL**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	128	318

PROJECT FILE NO. 608164

**PAVEMENT MARKING & SIGNING PLANS**



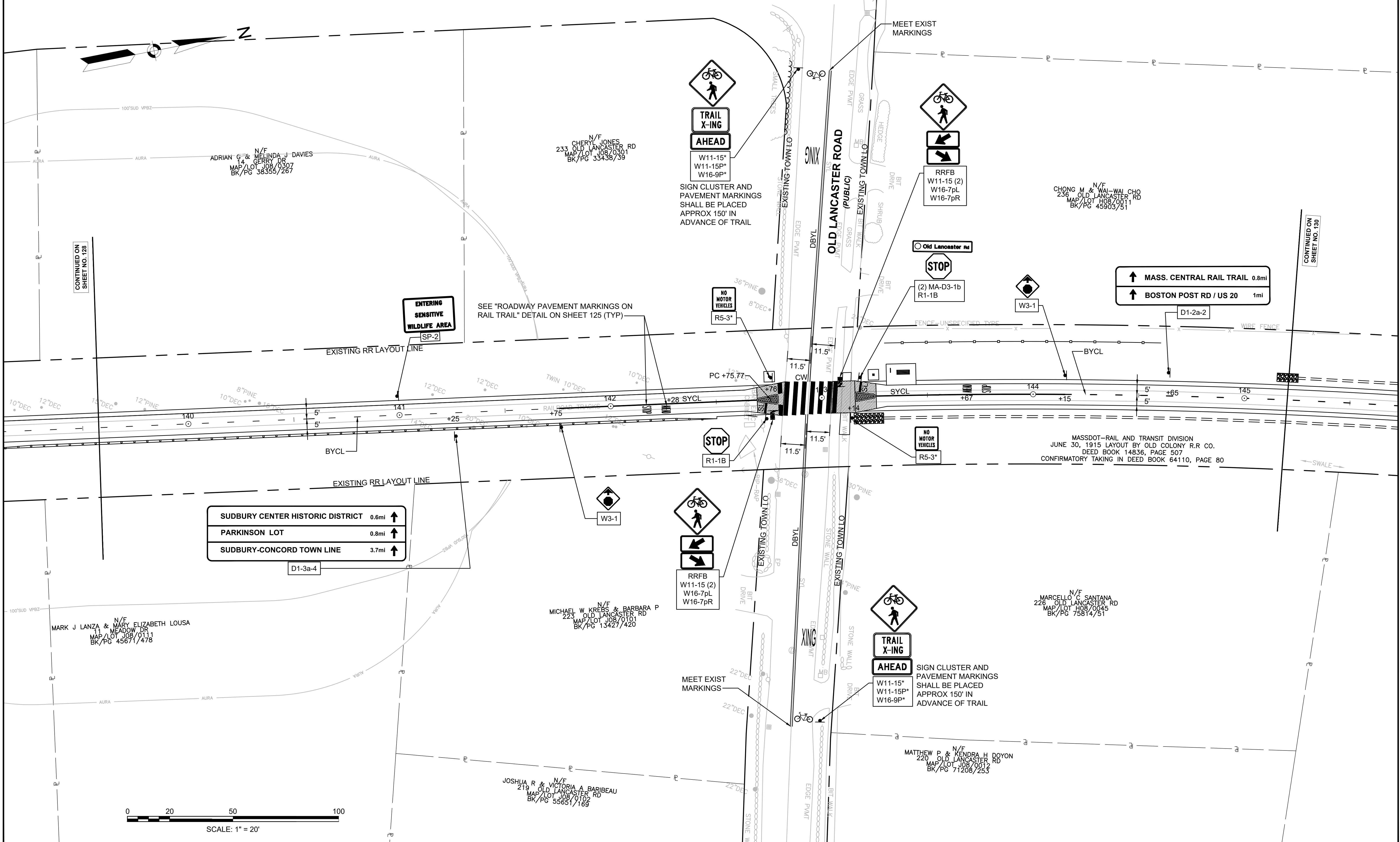
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SHEET NO. 127

CONTINUED  
BELOW

CONTINUED  
ABOVE

CONTINUED ON  
SHEET NO. 129

**ENTERING  
SENSITIVE  
WILDLIFE AREA**  
SP-2



MASSDOT—RAIL AND TRANSIT DIVISION  
 JUNE 30, 1915 LAYOUT BY OLD COLONY R.R. CO.  
 DEED BOOK 14836, PAGE 507  
 CONFIRMATORY TAKING IN DEED BOOK 64110, PAGE 80

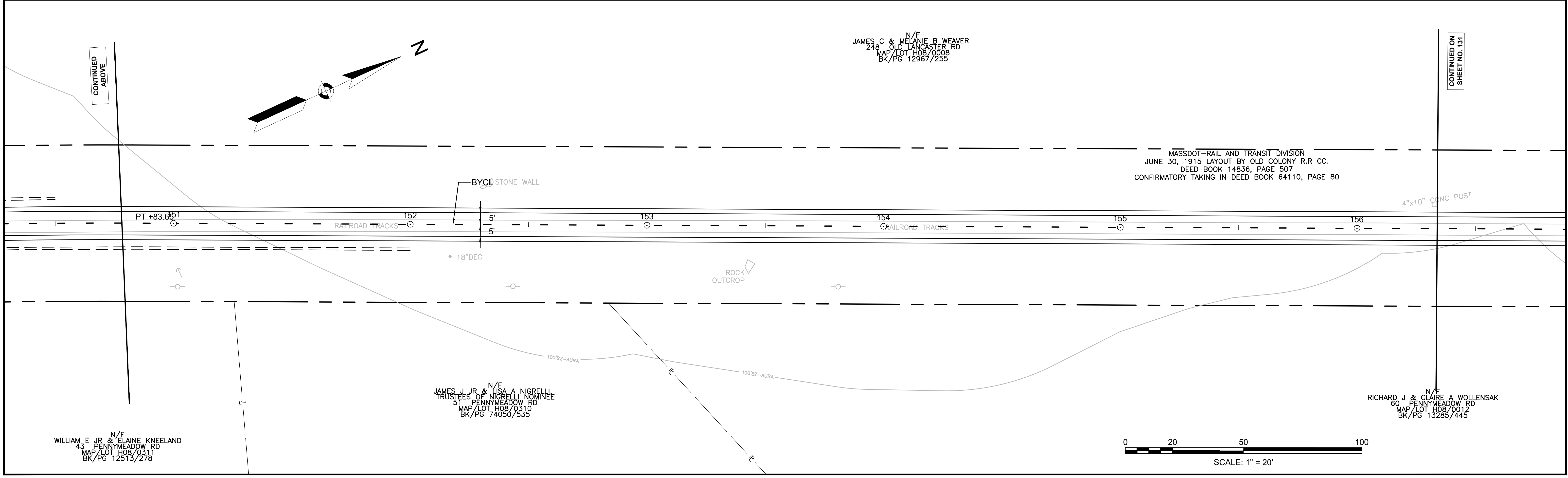
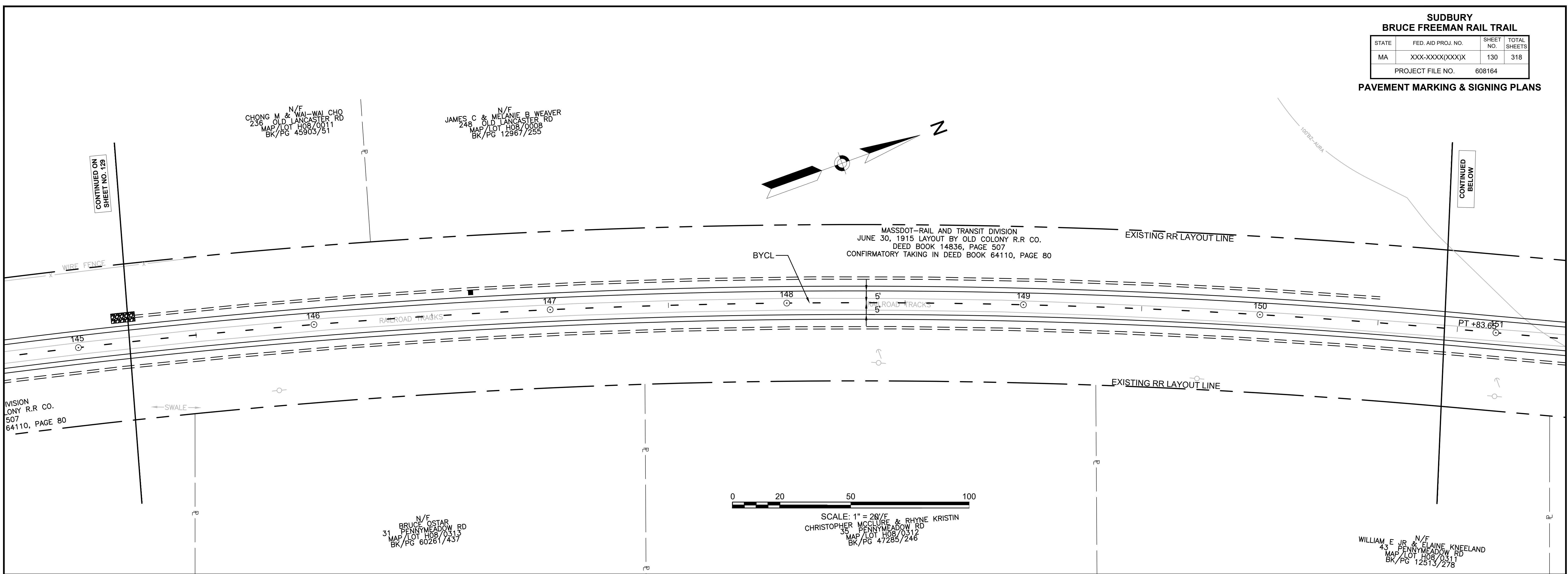
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SHEET NO. 128

CONTINUED ON  
SHEET NO. 130

**SUDBURY  
BRUCE FREEMAN RAIL TRAIL**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	130	318
PROJECT FILE NO.		608164	

**PAVEMENT MARKING & SIGNING PLANS**



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SHEET NO. 129

CONTINUED  
BELOW

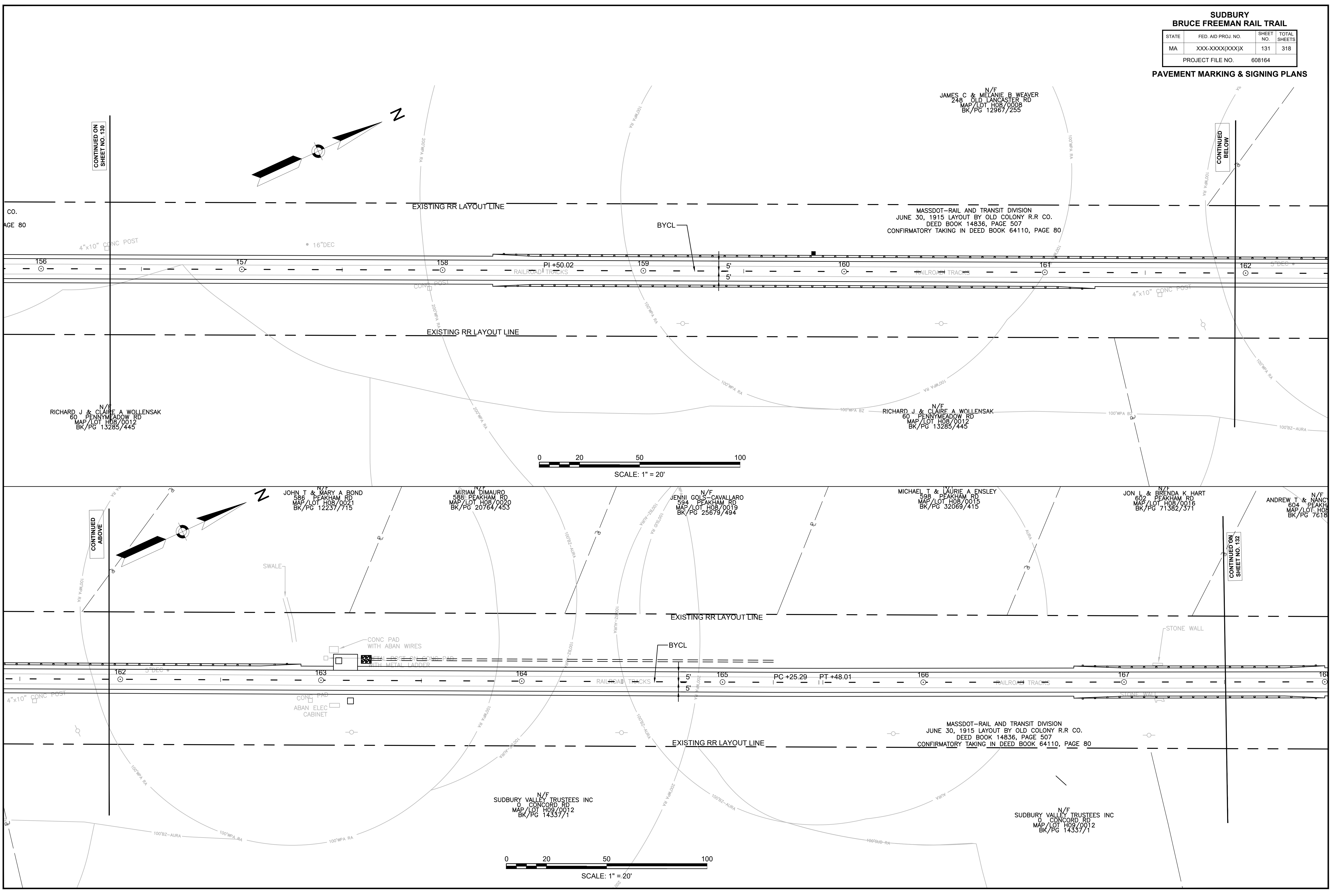
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ABOVE

CONTINUED ON  
SHEET NO. 131

**SUDBURY  
BRUCE FREEMAN RAIL TRAIL**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	131	318
PROJECT FILE NO.		608164	

**PAVEMENT MARKING & SIGNING PLANS**

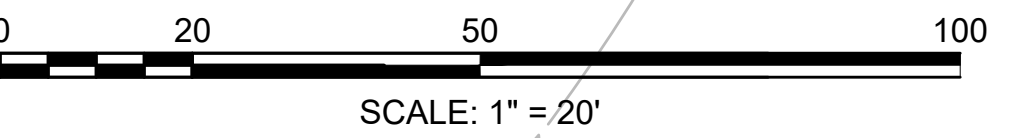


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BELOW

CONTINUED  
ABOVE

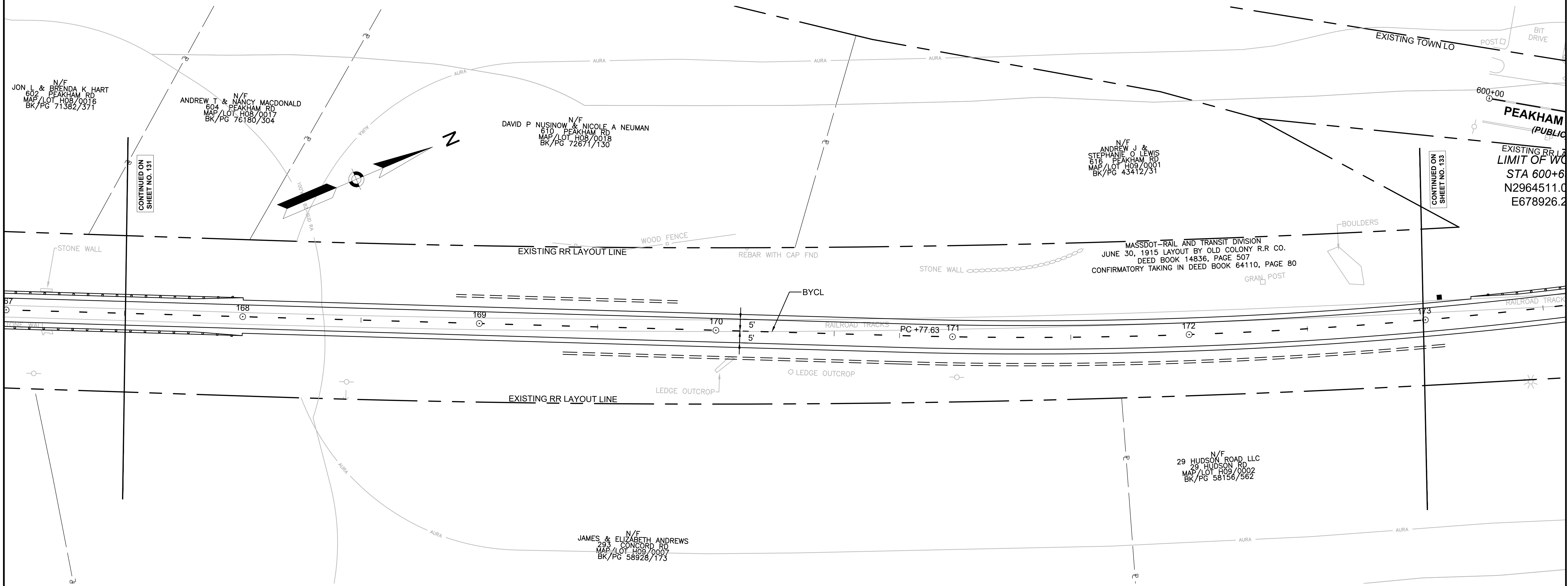
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SHEET NO. 132



**SUDBURY  
BRUCE FREEMAN RAIL TRAIL**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	132	318
PROJECT FILE NO.		608164	

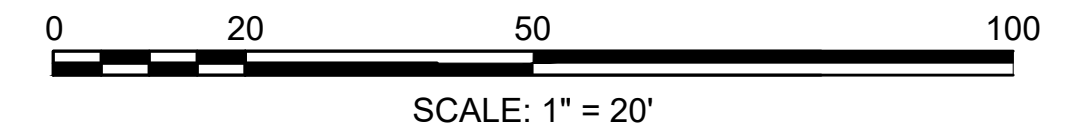
**PAVEMENT MARKING & SIGNING PLANS**



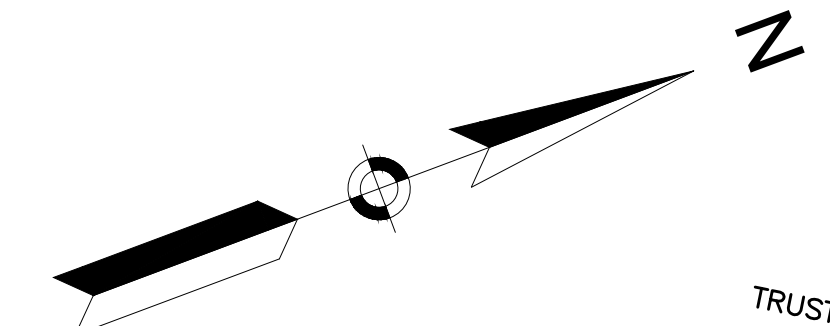
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CONTINUED ON SHEET NO. 133

MASSDOT-RAIL AND TRANSIT DIVISION  
JUNE 30, 1915 LAYOUT BY OLD COLONY R.R CO.  
DEED BOOK 14836, PAGE 507  
CONFIRMATORY TAKING IN DEED BOOK 64110, PAGE 80







N/F  
 LINDA LOUISE MURI  
 TRUSTEE OF LINDA LOUISE MURI  
 623 PEAKHAM RD  
 MAP/LOT H09/0056  
 BK/PG 66273/460

N/F  
 LINDA LOUISE MURI  
 TRUSTEE OF LINDA LOUISE MURI  
 623 PEAKHAM RD  
 MAP/LOT H09/0056  
 BK/PG 66273/460

**LIMIT OF WORK**  
 STA 504+26.44  
 N2964724.5314  
 E678875.4345

N/F  
 NICHOLAS A TRITOS & ROANNA M LONDON  
 46 HUDSON RD  
 MAP/LOT G09/0013  
 BK/PG 45390/280

N/F  
 TOWN OF SUDBURY (TREASURER)  
 HUDSON RD  
 MAP/LOT G09/0200  
 BK/PG 13189/604

N/F  
 LAWRENCE W TIGHE  
 THE HUDSON ROAD TRUST #2  
 49 HUDSON RD  
 MAP/LOT G09/0001  
 BK/PG 33228/333

N/F  
 PENN CENTRAL TRANSPORTATION CO  
 HUDSON RD  
 MAP/LOT G09/0012  
 BK/PG 7074/339

N/F  
 MATTHEW S & MOLLY F GILMARTIN  
 50 HUDSON RD  
 MAP/LOT H09/0068  
 BK/PG 42175/386

N/F  
 MATTHEW S & MOLLY F GILMARTIN  
 50 HUDSON RD  
 MAP/LOT H09/0068  
 BK/PG 42175/386

N/F  
 TOWN OF SUDBURY & BOARD OF SELECT BOARD  
 (TOWN CENTER LAND)  
 HUDSON RD  
 MAP/LOT G09/0004  
 BK/PG 77156/463 & 77156/472

N/F  
 LINDA LOUISE MURI  
 TRUSTEE OF LINDA LOUISE MURI  
 623 PEAKHAM RD  
 MAP/LOT H09/0056  
 BK/PG 66273/460

**LIMIT OF WORK**  
 STA 600+65.46  
 N2964511.0042  
 E678926.2687

SEE "ROADWAY PAVEMENT MARKINGS ON RAIL TRAIL" DETAIL ON SHEET 125 (TYP)

PARKINSON LOT	0.1mi	↑
BROAD ACRES FARM LOT	0.7mi	↑
SUDBURY-CONCORD TOWN LINE	3mi	↑

SUDBURY CENTER HISTORIC DISTRICT	→
SUDBURY TOWN HALL	→

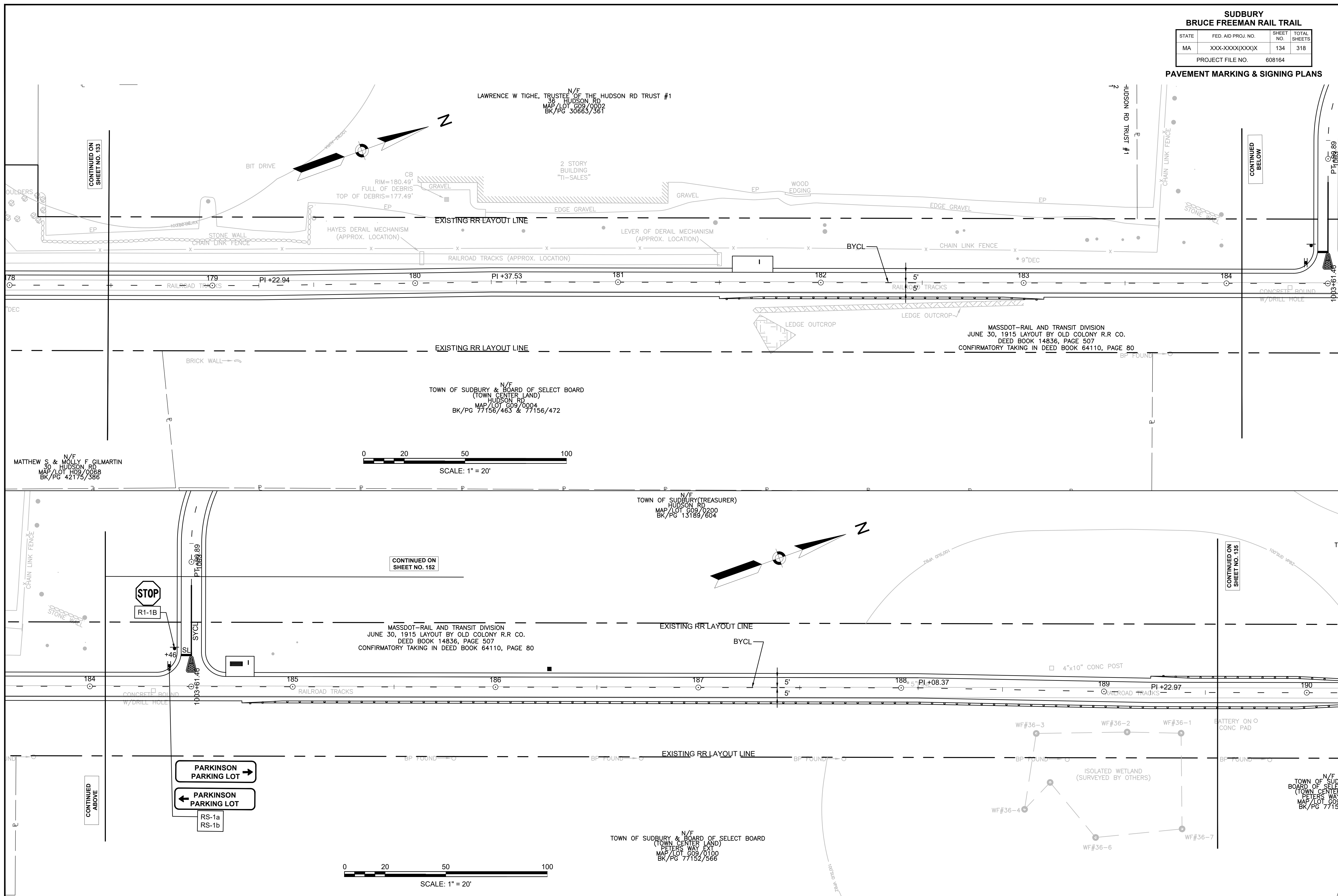
**LIMIT OF WORK**  
 STA 500+28.85  
 N2964552.0831  
 E679227.4914



**SUDBURY  
BRUCE FREEMAN RAIL TRAIL**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	134	318
PROJECT FILE NO.		608164	

**PAVEMENT MARKING & SIGNING PLANS**



CONTINUED ON  
SHEET NO. 133

CONTINUED  
BELOW

CONTINUED ON  
SHEET NO. 152

CONTINUED ON  
SHEET NO. 135

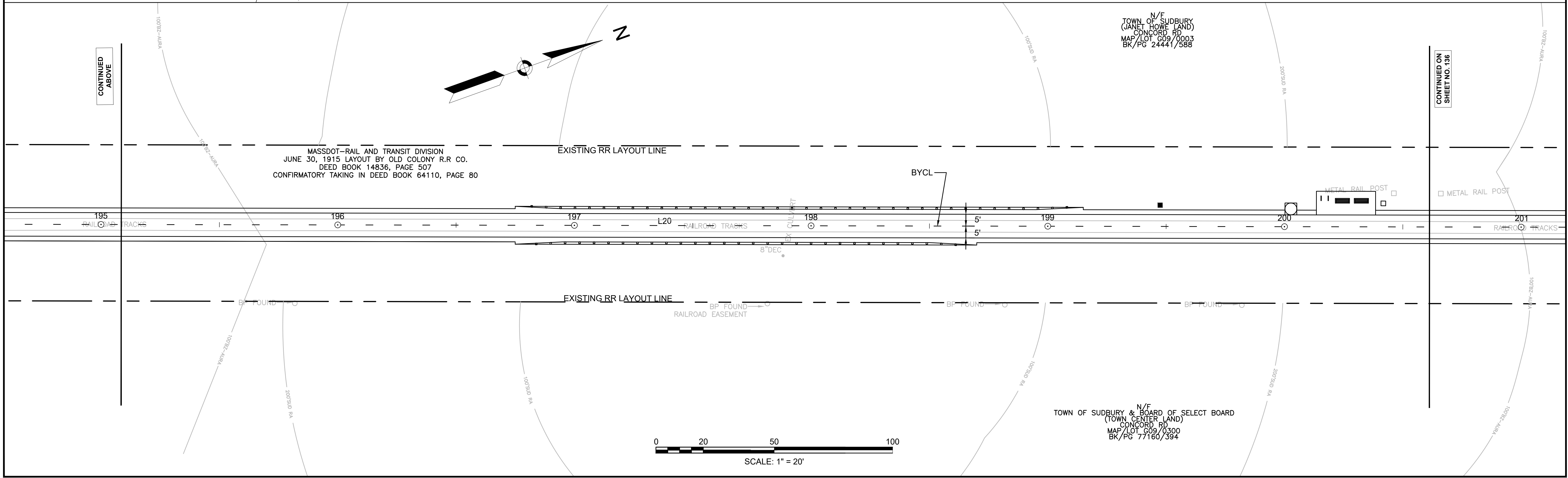
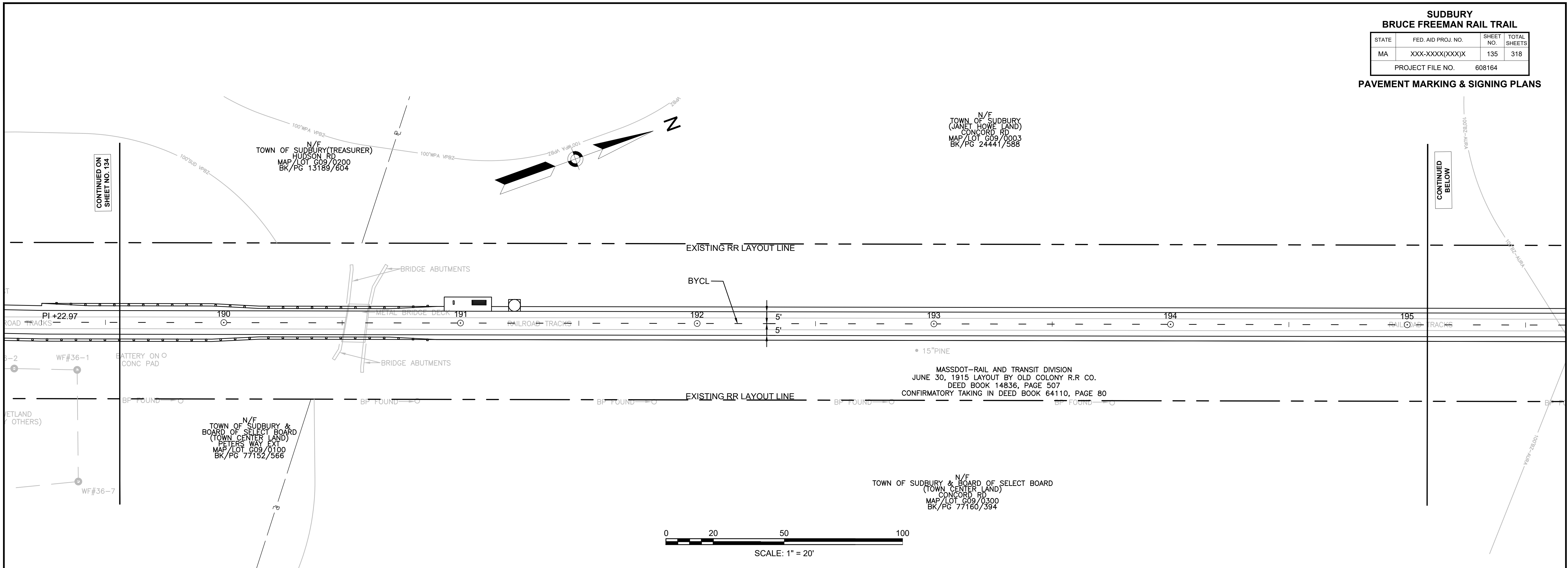
CONTINUED  
ABOVE

N/F  
TOWN OF SUDBURY  
BOARD OF SELECT BOARD  
(TOWN CENTER LAND)  
PETERS WAY EXT  
MAP/LOT 609/0100  
BK/PG 77152/566

**SUDBURY  
BRUCE FREEMAN RAIL TRAIL**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	135	318
PROJECT FILE NO.		608164	

**PAVEMENT MARKING & SIGNING PLANS**



**SUDBURY  
BRUCE FREEMAN RAIL TRAIL**

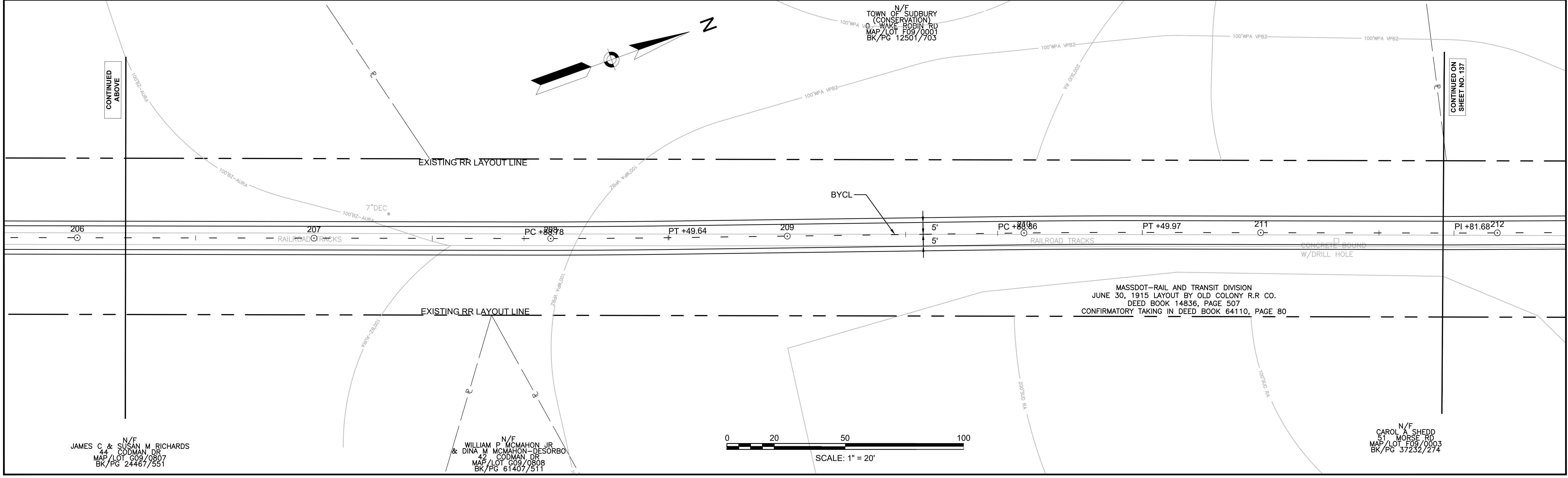
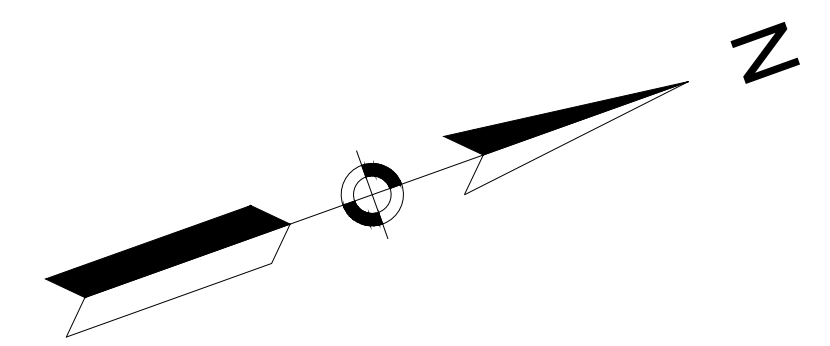
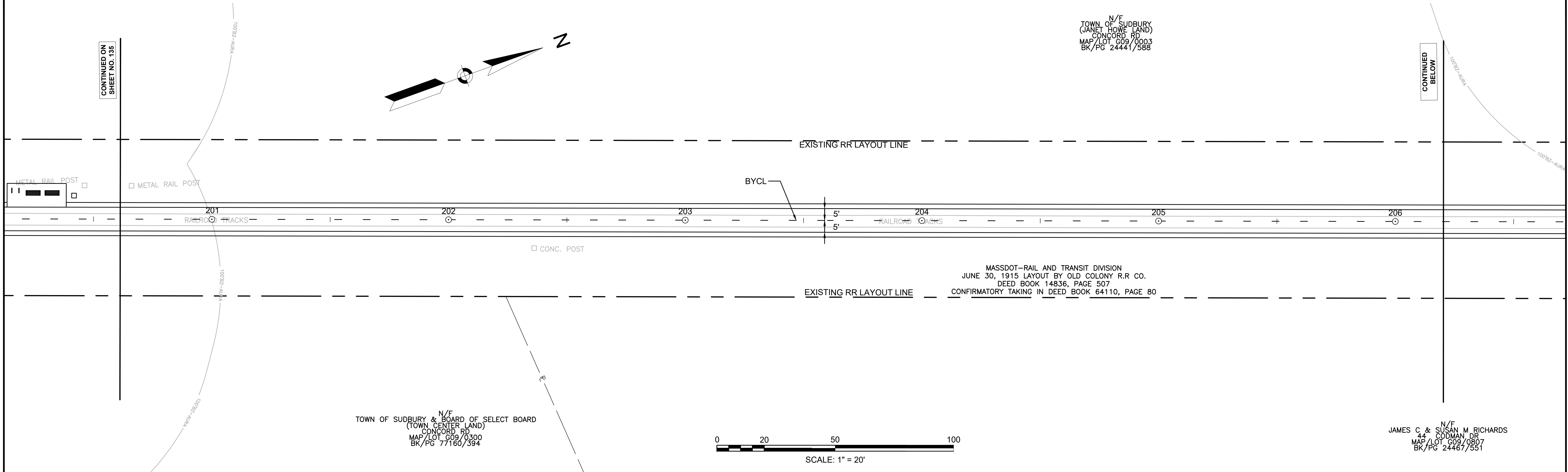
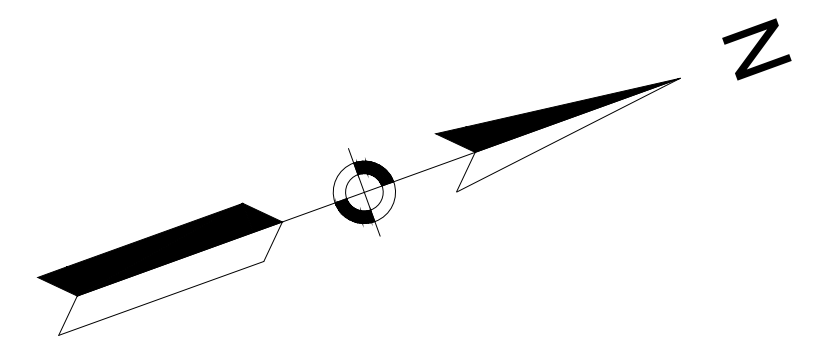
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	136	318
PROJECT FILE NO.		608164	

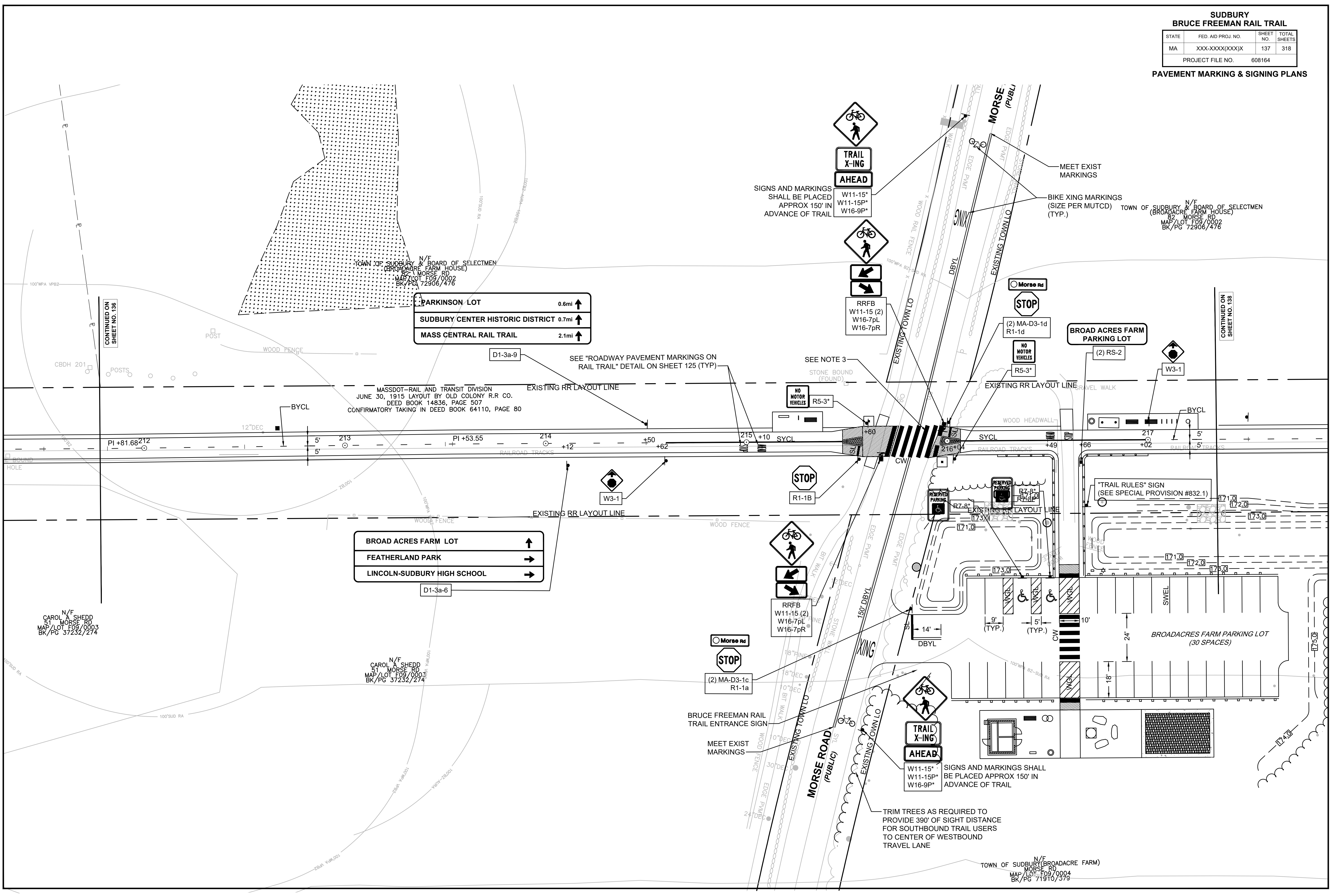
**PAVEMENT MARKING & SIGNING PLANS**

N/E  
TOWN OF SUDBURY  
(JANET HOWE LAND)  
CONCORD RD  
MAP/LOT G09/0003  
BK/PG 24441/588

CONTINUED ON  
SHEET NO. 135

CONTINUED  
BELOW





**PARKINSON LOT** 0.6mi ↑  
**SUDBURY CENTER HISTORIC DISTRICT** 0.7mi ↑  
**MASS CENTRAL RAIL TRAIL** 2.1mi ↑

**BROAD ACRES FARM LOT** ↑  
**FEATHERLAND PARK** →  
**LINCOLN-SUDBURY HIGH SCHOOL** →

SIGNS AND MARKINGS SHALL BE PLACED APPROX 150' IN ADVANCE OF TRAIL  
W11-15\*  
W11-15P\*  
W16-9P\*

MEET EXIST MARKINGS  
BIKE XING MARKINGS (SIZE PER MUTCD) TOWN OF SUDBURY & BOARD OF SELECTMEN (BROADACRES FARM HOUSE) MAP/LOT F09/0002 BK/PG 72906/476

SEE "ROADWAY PAVEMENT MARKINGS ON RAIL TRAIL" DETAIL ON SHEET 125 (TYP)

SEE NOTE 3

SIGNS AND MARKINGS SHALL BE PLACED APPROX 150' IN ADVANCE OF TRAIL  
W11-15\*  
W11-15P\*  
W16-9P\*

TRIM TREES AS REQUIRED TO PROVIDE 390' OF SIGHT DISTANCE FOR SOUTHBOUND TRAIL USERS TO CENTER OF WESTBOUND TRAVEL LANE

"TRAIL RULES" SIGN (SEE SPECIAL PROVISION #832.1)

TOWN OF SUDBURY (BROADACRES FARM) MAP/LOT F09/0004 BK/PG 71910/379

CONTINUED ON SHEET NO. 136

CONTINUED ON SHEET NO. 138

**SUDBURY  
BRUCE FREEMAN RAIL TRAIL**

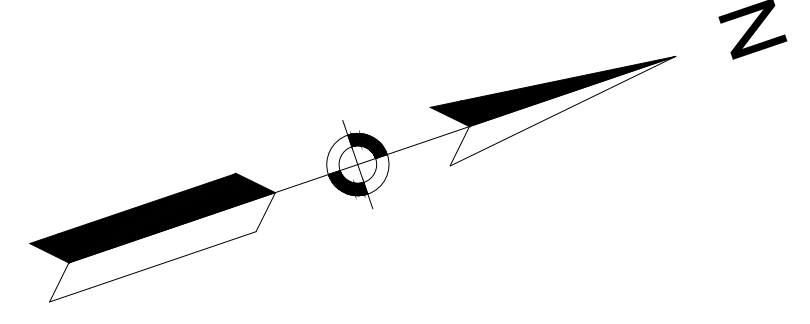
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	138	318
PROJECT FILE NO.		608164	

**PAVEMENT MARKING & SIGNING PLANS**

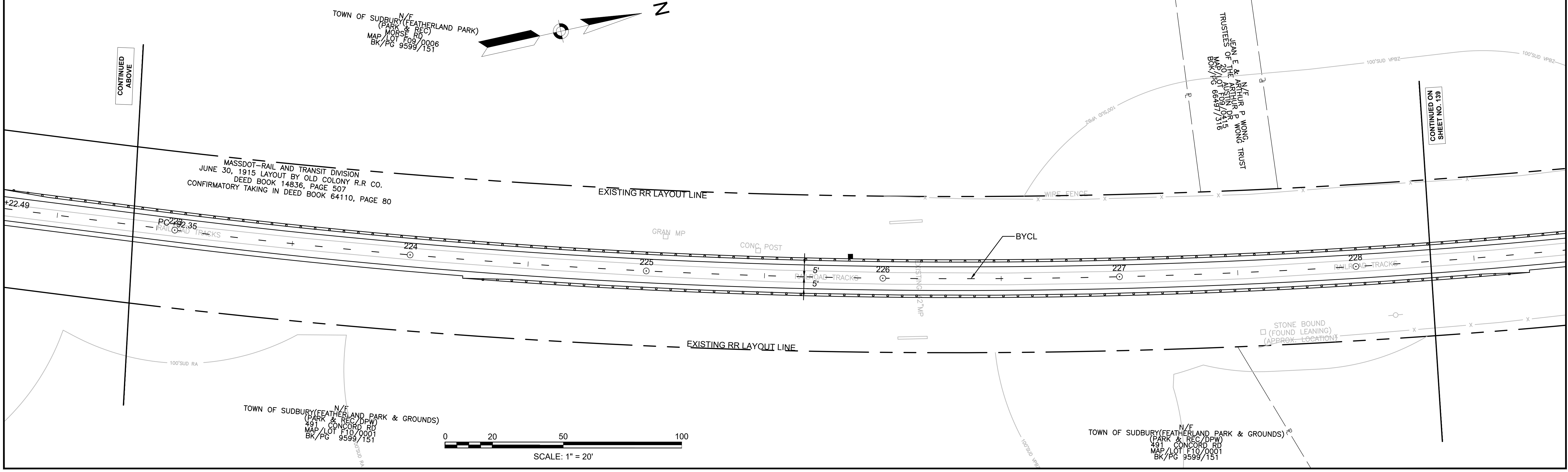
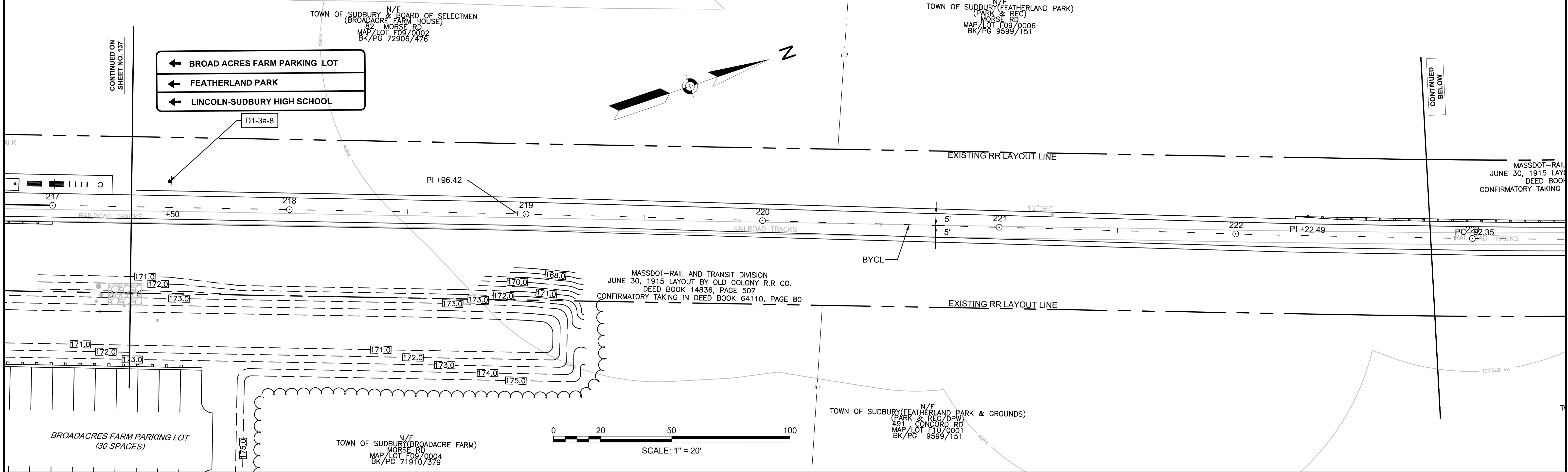
CONTINUED ON  
SHEET NO. 137

- ← BROAD ACRES FARM PARKING LOT
- ← FEATHERLAND PARK
- ← LINCOLN-SUDBURY HIGH SCHOOL

D1-3a-8



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BELOW

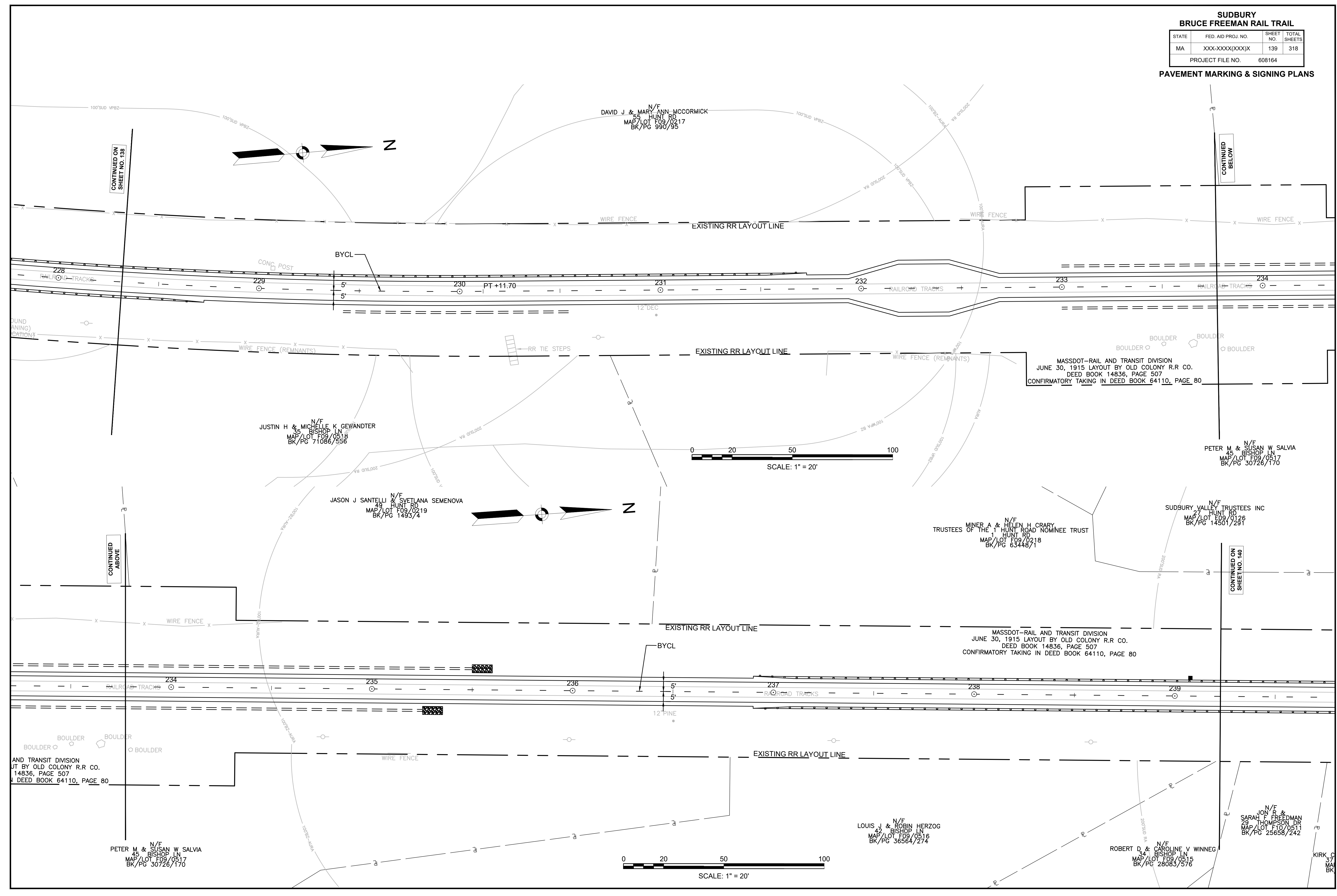


**SUDBURY  
BRUCE FREEMAN RAIL TRAIL**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	139	318

PROJECT FILE NO. 608164

**PAVEMENT MARKING & SIGNING PLANS**

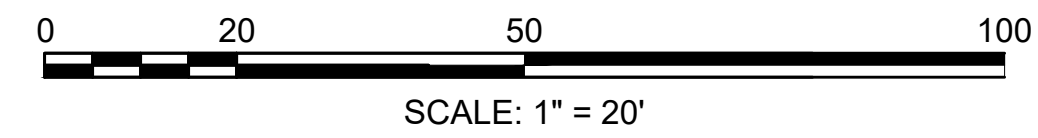
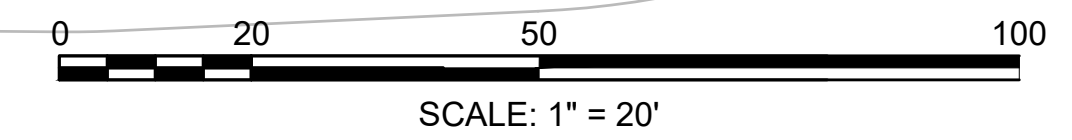
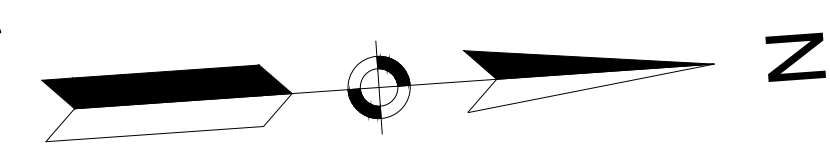
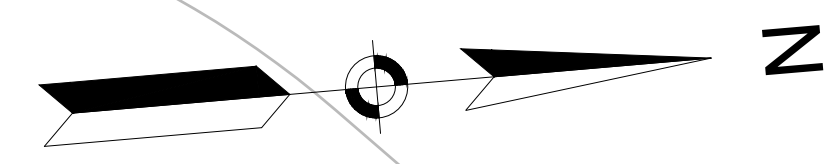


CONTINUED ON  
SHEET NO. 138

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BELOW

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ABOVE

CONTINUED ON  
SHEET NO. 140



N/F  
DAVID J & MARY ANN MCCORMICK  
55 HUNT RD  
MAP/LOT F09/0217  
BK/PG 990/95

N/F  
JUSTIN H & MICHELLE K GEWANDTER  
35 BISHOP LN  
MAP/LOT F09/0518  
BK/PG 71086/536

N/F  
JASON J SANTELLI & SVETLANA SEMENOVA  
49 HUNT RD  
MAP/LOT F09/0219  
BK/PG 1493/4

N/F  
MINER A & HELEN H CRAY  
TRUSTEES OF THE HUNT ROAD NOMINEE TRUST  
HUNT RD  
MAP/LOT F09/0218  
BK/PG 63448/1

N/F  
PETER M & SUSAN W SALVIA  
45 BISHOP LN  
MAP/LOT F09/0517  
BK/PG 30726/170

N/F  
SUDBURY VALLEY TRUSTEES INC  
27 HUNT RD  
MAP/LOT F09/0126  
BK/PG 14501/291

MASSDOT-RAIL AND TRANSIT DIVISION  
JUNE 30, 1915 LAYOUT BY OLD COLONY R.R CO.  
DEED BOOK 14836, PAGE 507  
CONFIRMATORY TAKING IN DEED BOOK 64110, PAGE 80

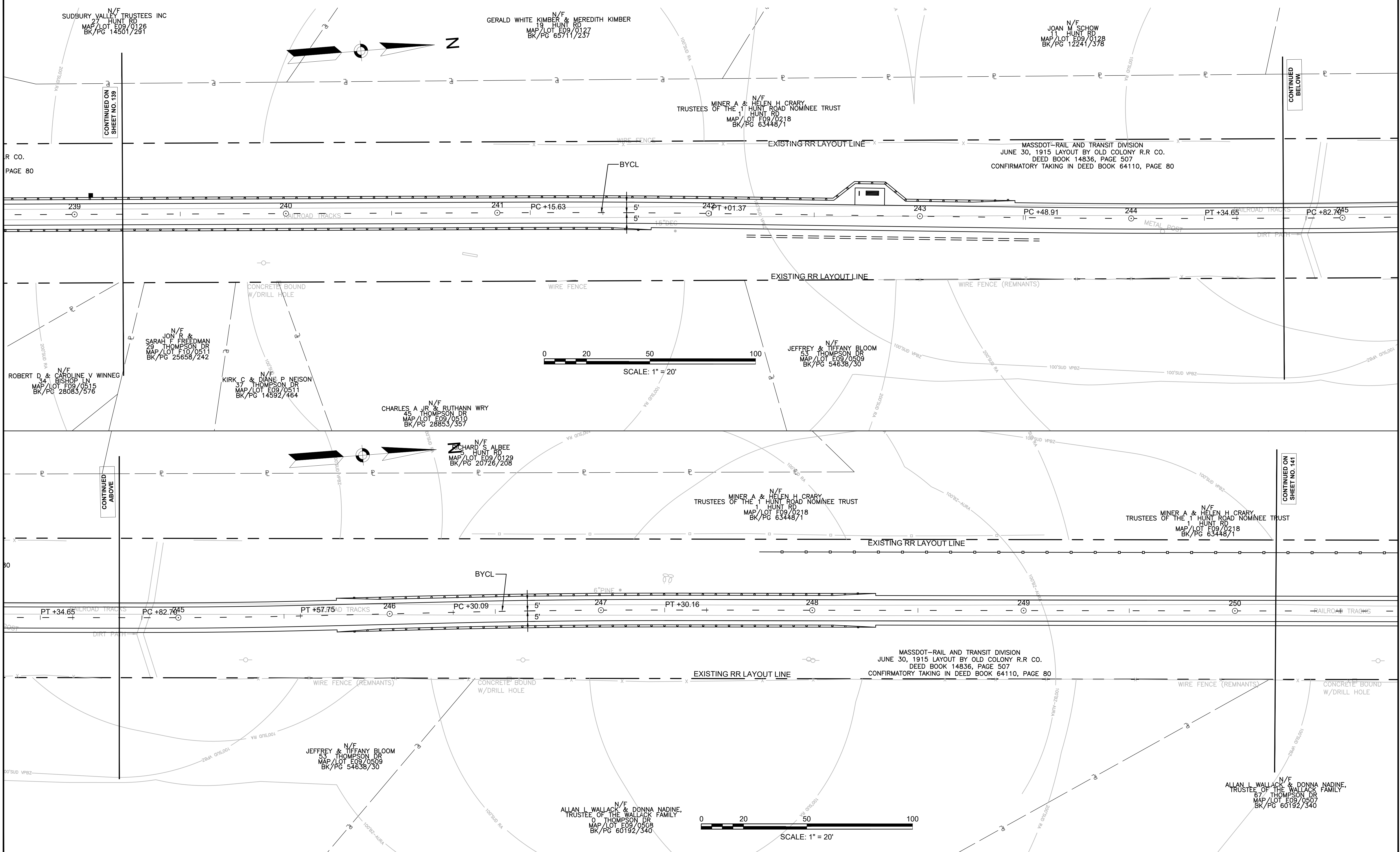
MASSDOT-RAIL AND TRANSIT DIVISION  
JUNE 30, 1915 LAYOUT BY OLD COLONY R.R CO.  
DEED BOOK 14836, PAGE 507  
CONFIRMATORY TAKING IN DEED BOOK 64110, PAGE 80

N/F  
PETER M & SUSAN W SALVIA  
45 BISHOP LN  
MAP/LOT F09/0517  
BK/PG 30726/170

N/F  
LOUIS J & ROBIN HERZOG  
42 BISHOP LN  
MAP/LOT F09/0516  
BK/PG 36564/274

N/F  
ROBERT D & CAROLINE V WINNEG  
34 BISHOP LN  
MAP/LOT F09/0515  
BK/PG 28083/576

N/F  
JON R & SARAH F FREDMAN  
29 THOMPSON DR  
MAP/LOT F10/0511  
BK/PG 25658/242



CONTINUED ON  
SHEET NO. 139

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BELOW

CONTINUED  
ABOVE

CONTINUED ON  
SHEET NO. 141

R. CO.  
PAGE 80

90

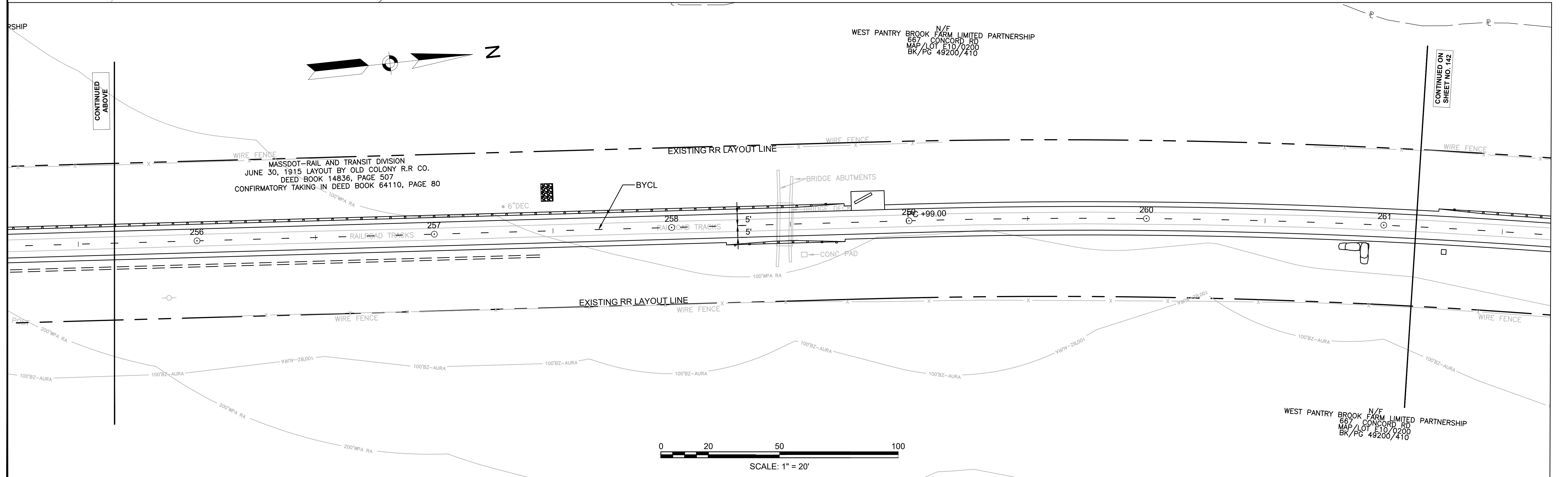
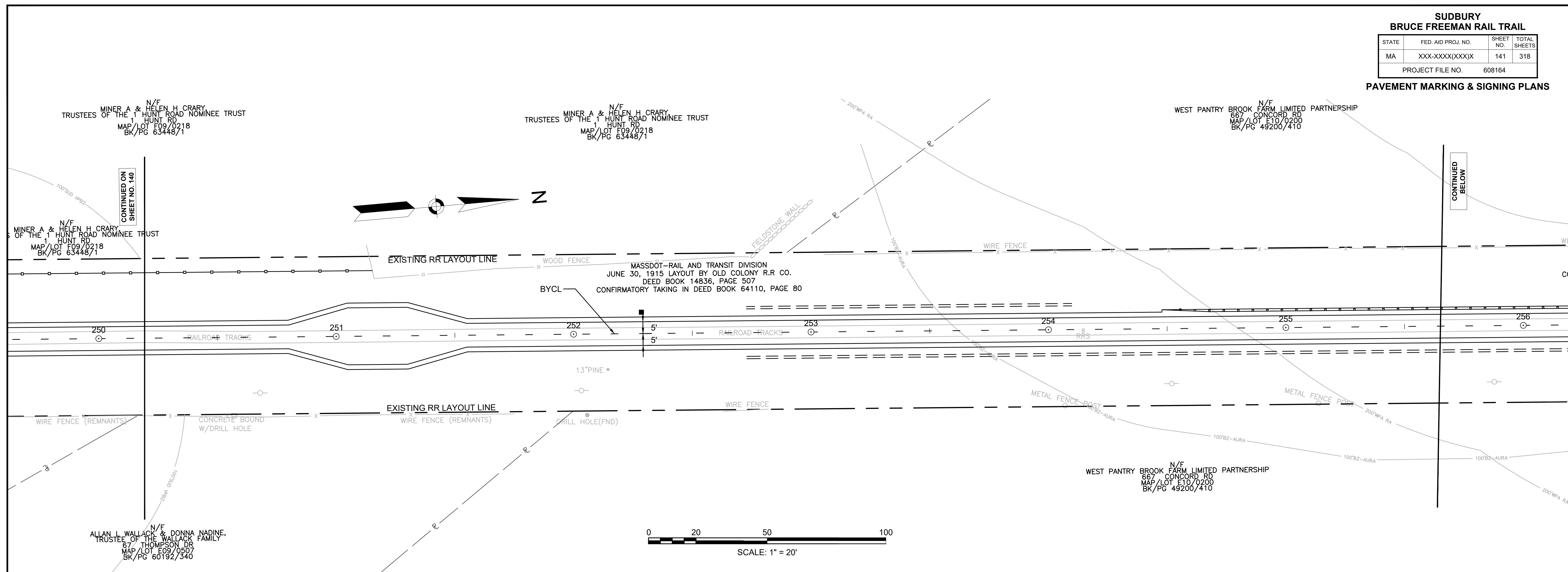
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**SUDBURY  
BRUCE FREEMAN RAIL TRAIL**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	141	318
PROJECT FILE NO.		608164	

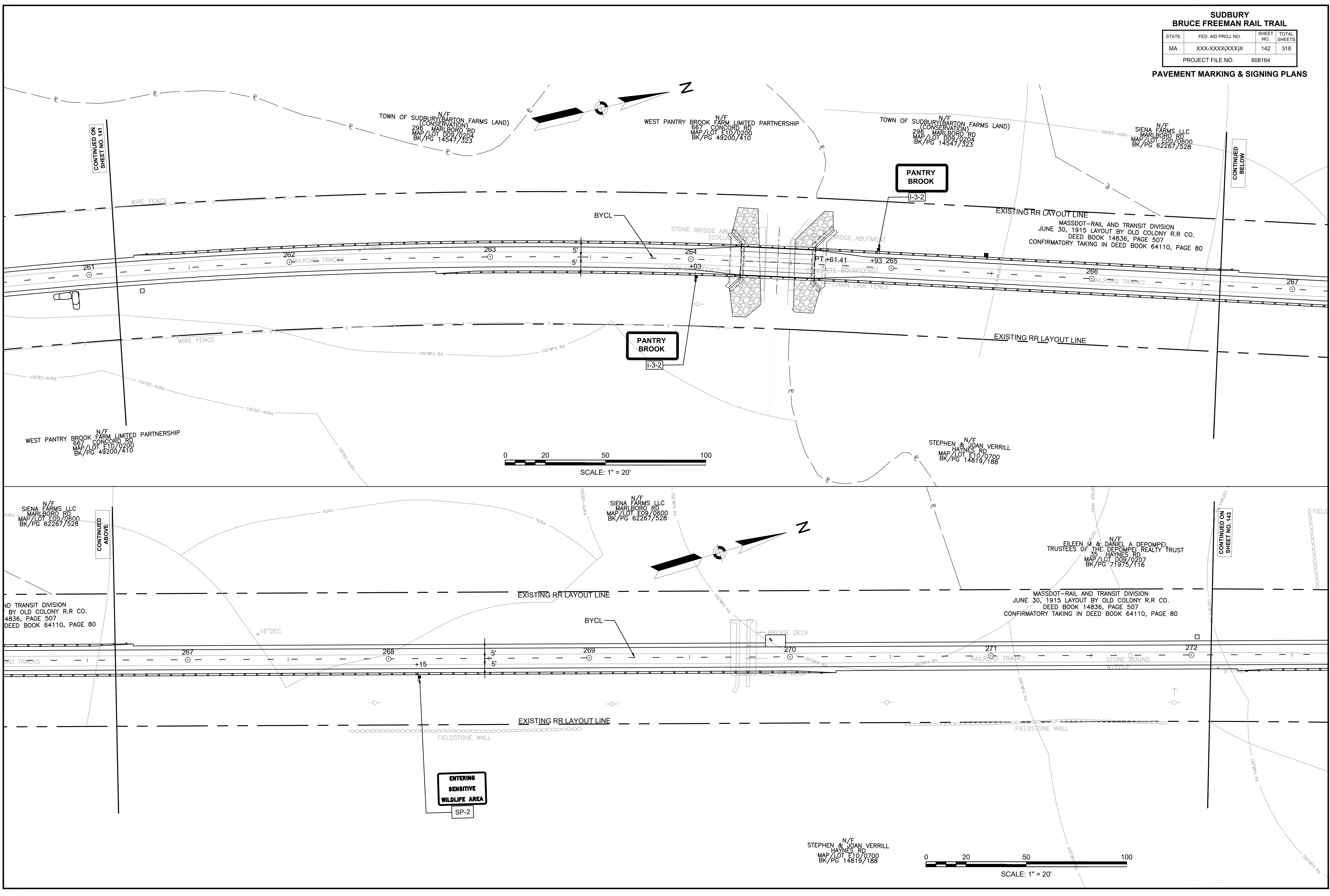
**PAVEMENT MARKING & SIGNING PLANS**



**SUDBURY  
BRUCE FREEMAN RAIL TRAIL**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	142	318
PROJECT FILE NO.		608164	

**PAVEMENT MARKING & SIGNING PLANS**

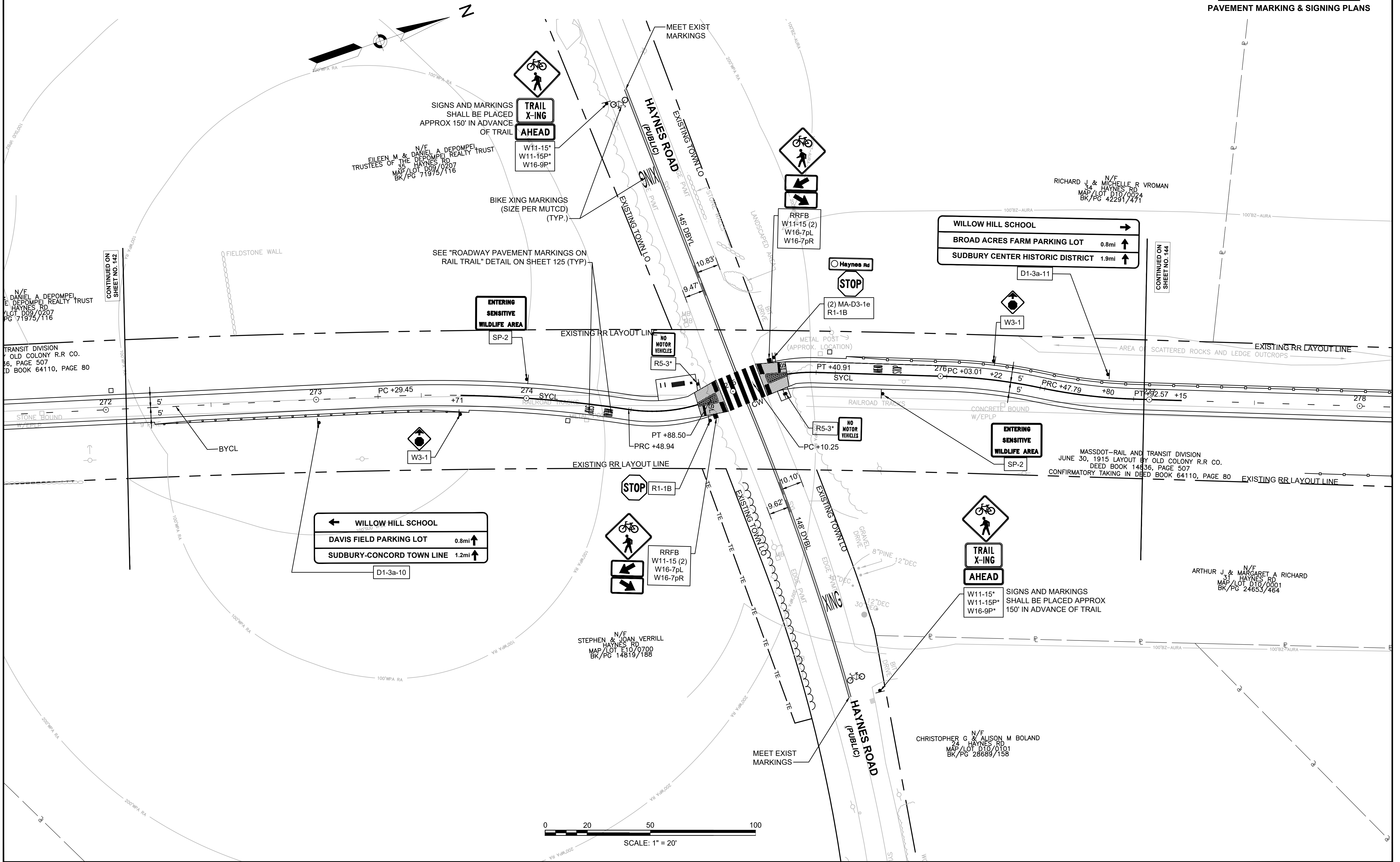


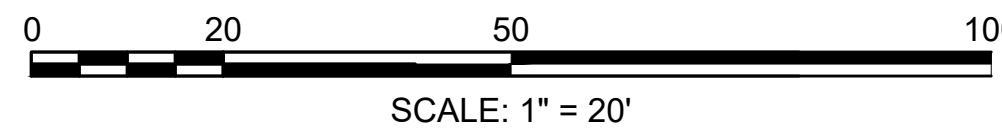
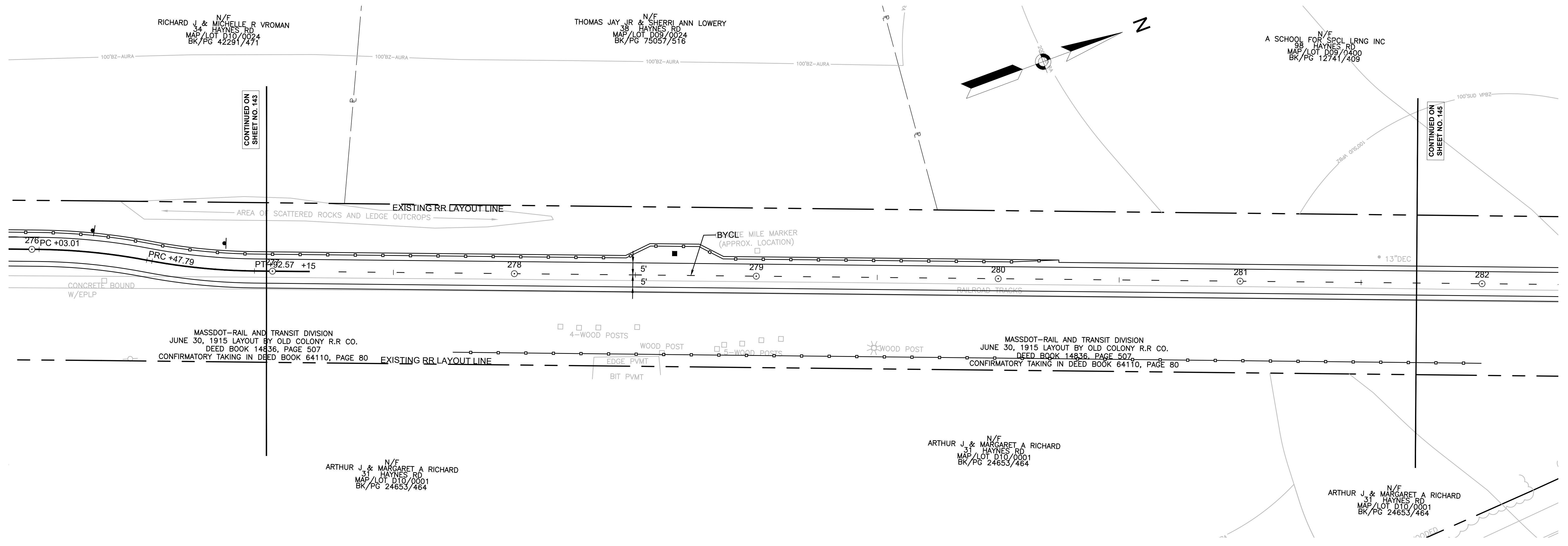
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SHEET NO. 141

CONTINUED  
BELOW

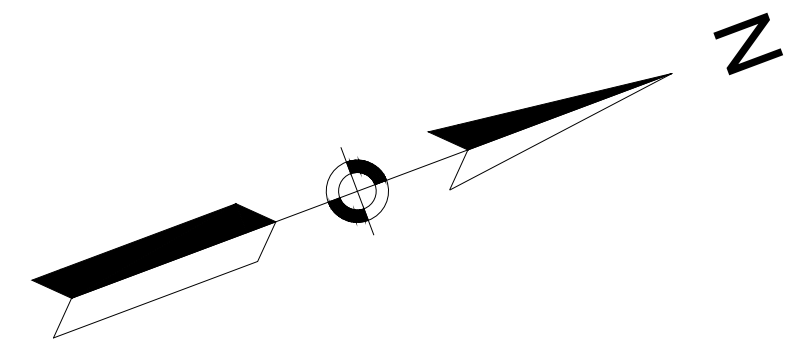
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ABOVE

CONTINUED  
ON  
SHEET NO. 143





**BROAD ACRES FARM LOT** 1.3mi ↑  
**PARKINSON LOT** 1.9mi ↑  
**SUDBURY CENTER HISTORIC DISTRICT** 2.1mi ↑



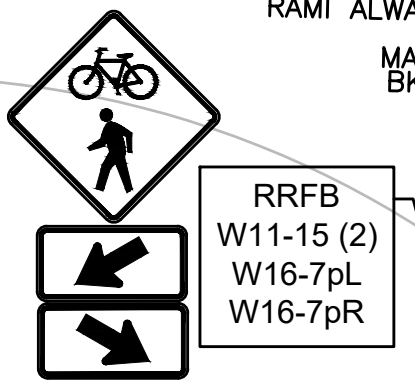
A SCHOOL FOR SPCL LRNG INC  
 98 HAYNES RD  
 MAP/LOT D10/0400  
 BK/PG 12741/409

RAMI ALWAN & JENNIE M BRANNEN  
 PANTRY RD  
 MAP/LOT D10/0013  
 BK/PG 69023/195

**DAVIS FIELD PARKING LOT** 0.6mi ↑  
**SUDBURY-CONCORD TOWN LINE** 1mi ↑

**ENTERING SENSITIVE WILDLIFE AREA**  
 SP-2

**NO MOTOR VEHICLES**  
 R5-3\*



SIGNS AND MARKINGS SHALL BE PLACED APPROX. 150' IN ADVANCE OF TRAIL  
 W11-15\*  
 W11-15P\*  
 W16-9P\*

BIKE XING MARKINGS (SIZE PER MUTCD) (TYP.)

MEET EXIST MARKINGS

**PANTRY ROAD (PUBLIC)**

CONTINUED ON SHEET NO. 144

CONTINUED ON SHEET NO. 146

SEE "ROADWAY PAVEMENT MARKINGS ON RAIL TRAIL" DETAIL ON SHEET 125 (TYP)

MASSDOT-RAIL AND TRANSIT DIVISION  
 JUNE 30, 1915 LAYOUT BY OLD COLONY R.R CO.  
 DEED BOOK 14836, PAGE 507  
 CONFIRMATORY TAKING IN DEED BOOK 64110, PAGE 80

ARTHUR J & MARGARET A RICHARD  
 31 HAYNES RD  
 MAP/LOT D10/0001  
 BK/PG 24653/464

PAUL J II & JOANNE H MARCOUX  
 70 PANTRY RD  
 MAP/LOT D10/0401  
 BK/PG 43235/303

MEGHAN E GODEY & DANIEL E REISER  
 76 PANTRY RD  
 MAP/LOT D10/0400  
 BK/PG 71149/479

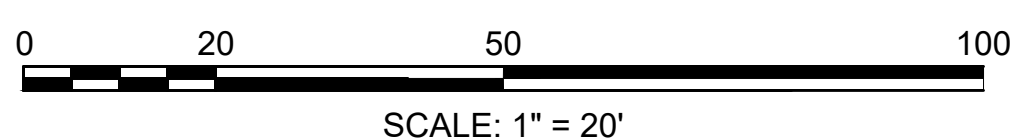


SIGNS AND MARKINGS SHALL BE PLACED APPROX 150' IN ADVANCE OF TRAIL  
 W11-15\*  
 W11-15P\*  
 W16-9P\*

**NO MOTOR VEHICLES**  
 R5-3\*

**Pantry Rd**  
**STOP**  
 (2) MA-D3-1f  
 R1-1B

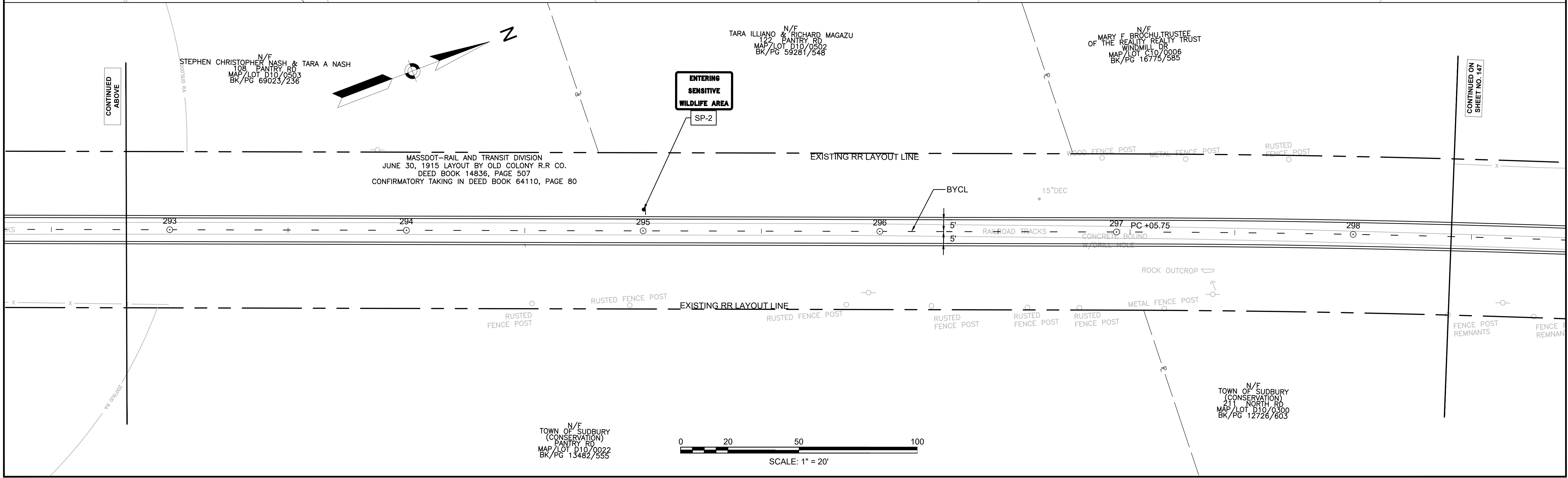
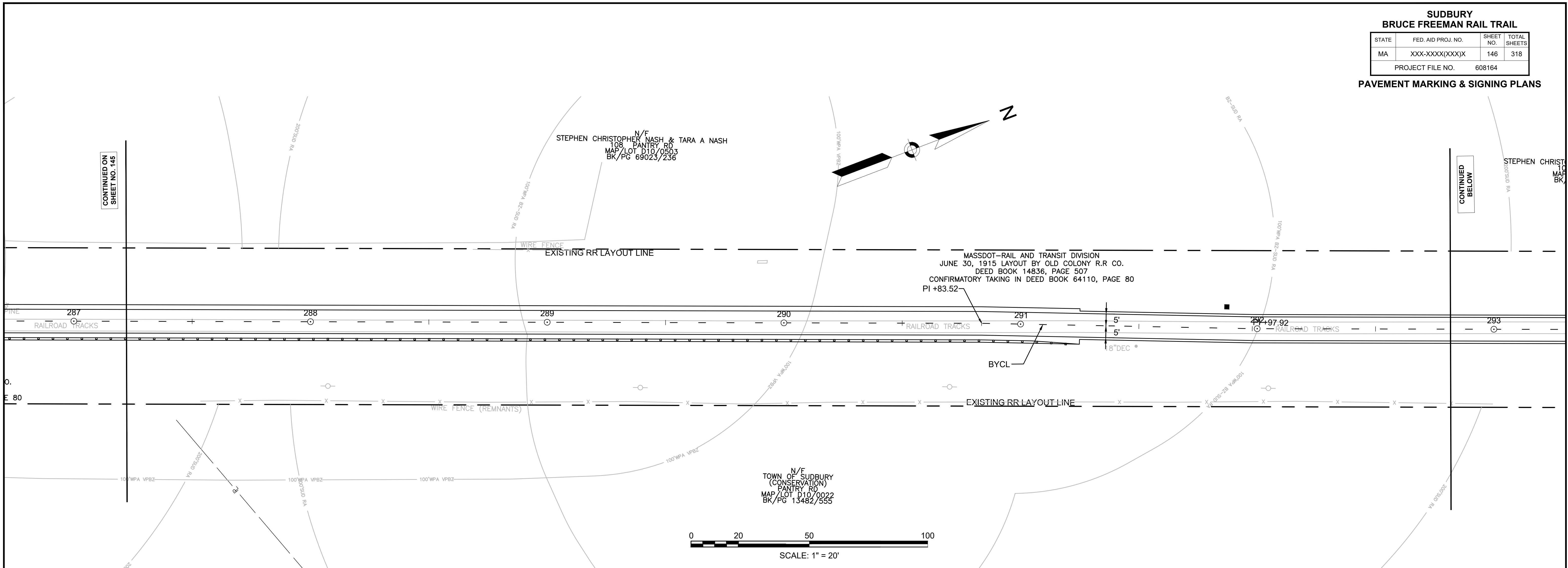
**ENTERING SENSITIVE WILDLIFE AREA**  
 SP-2



**SUDBURY  
BRUCE FREEMAN RAIL TRAIL**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	146	318
PROJECT FILE NO.		608164	

**PAVEMENT MARKING & SIGNING PLANS**

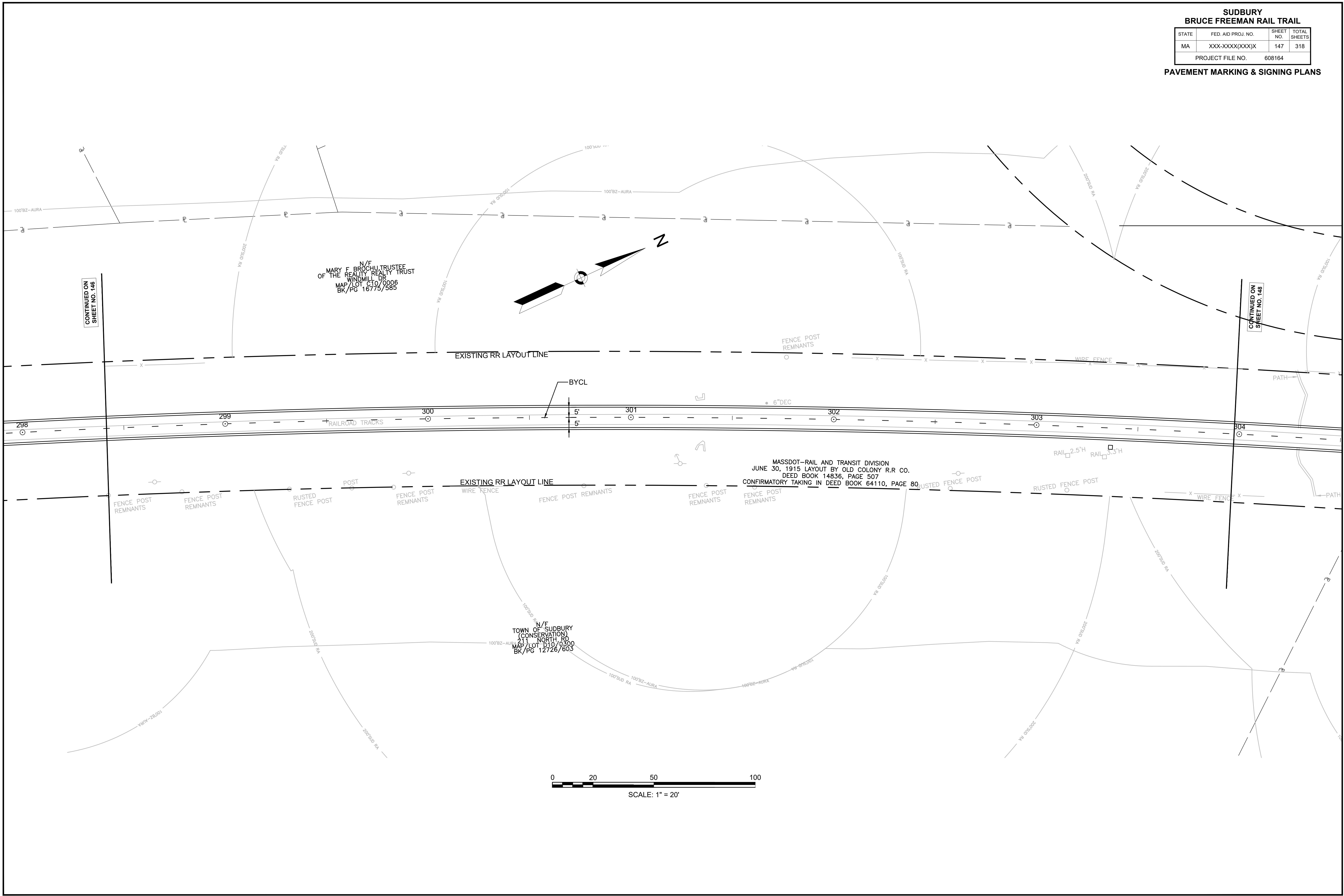


CONTINUED ON SHEET NO. 145

CONTINUED BELOW

CONTINUED ABOVE

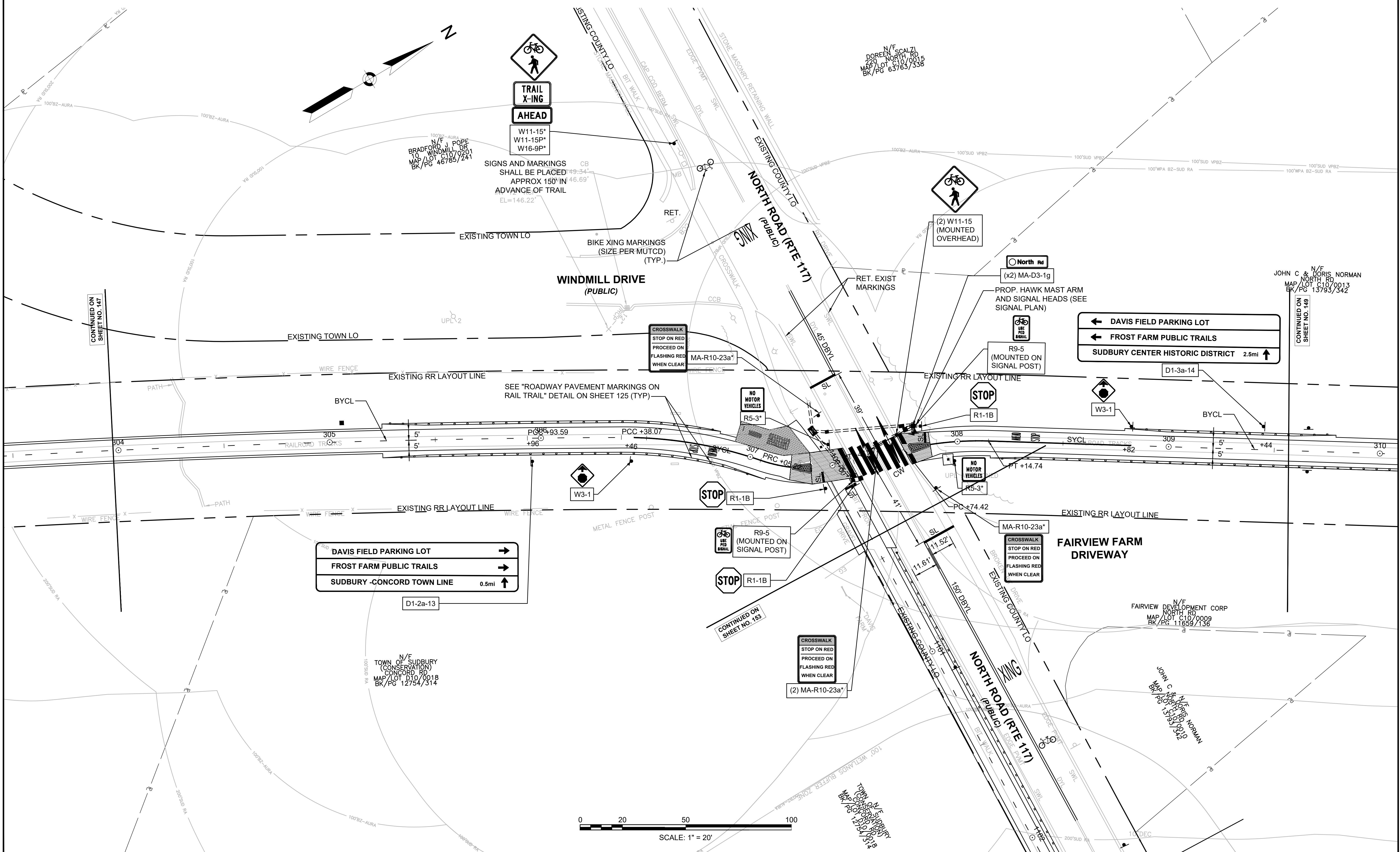
CONTINUED ON SHEET NO. 147



**SUDBURY  
BRUCE FREEMAN RAIL TRAIL**

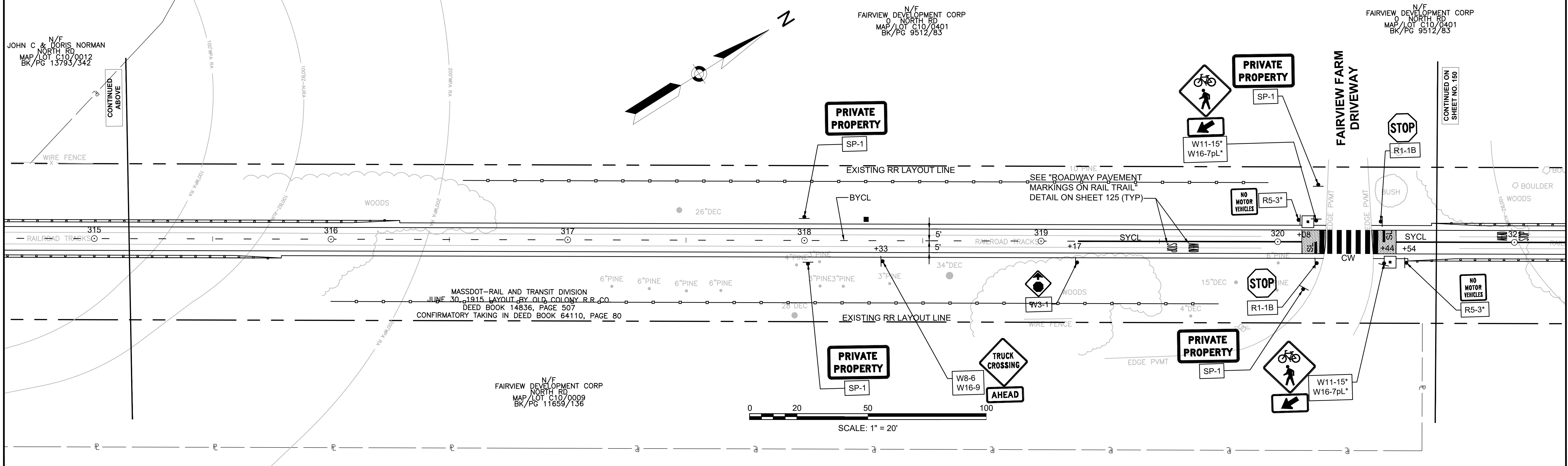
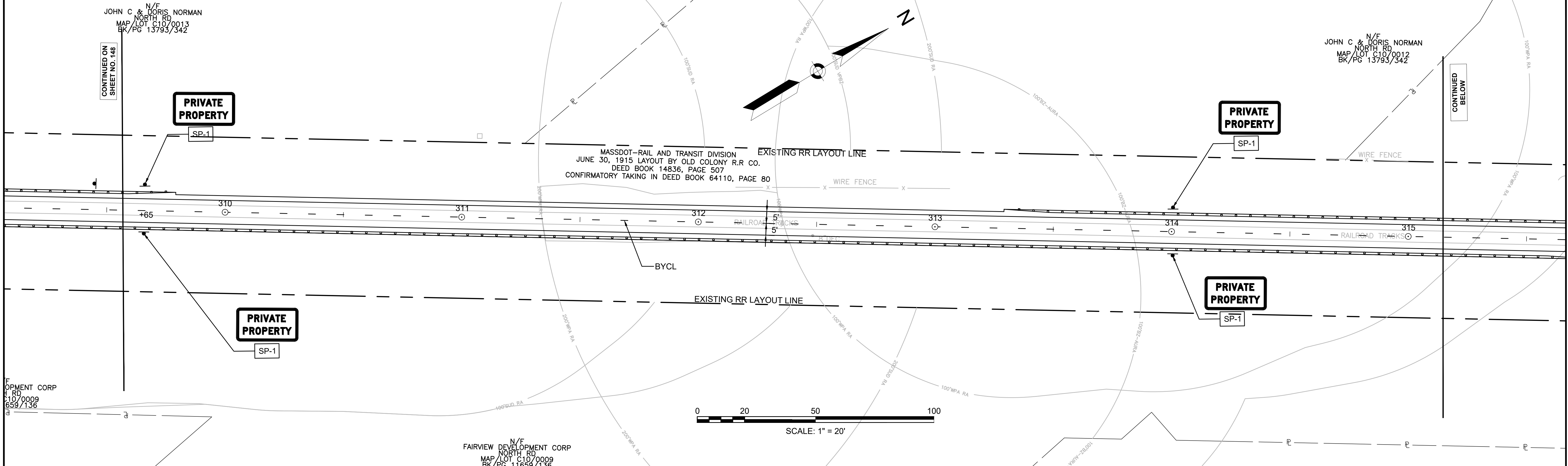
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXX(XXX)X	148	318
PROJECT FILE NO.		608164	

**PAVEMENT MARKING & SIGNING PLANS**



608164\_HD(PAVEMENT MARKING & SIGNING PLANS).DWG Plotted on 12-May-2021 11:50 AM



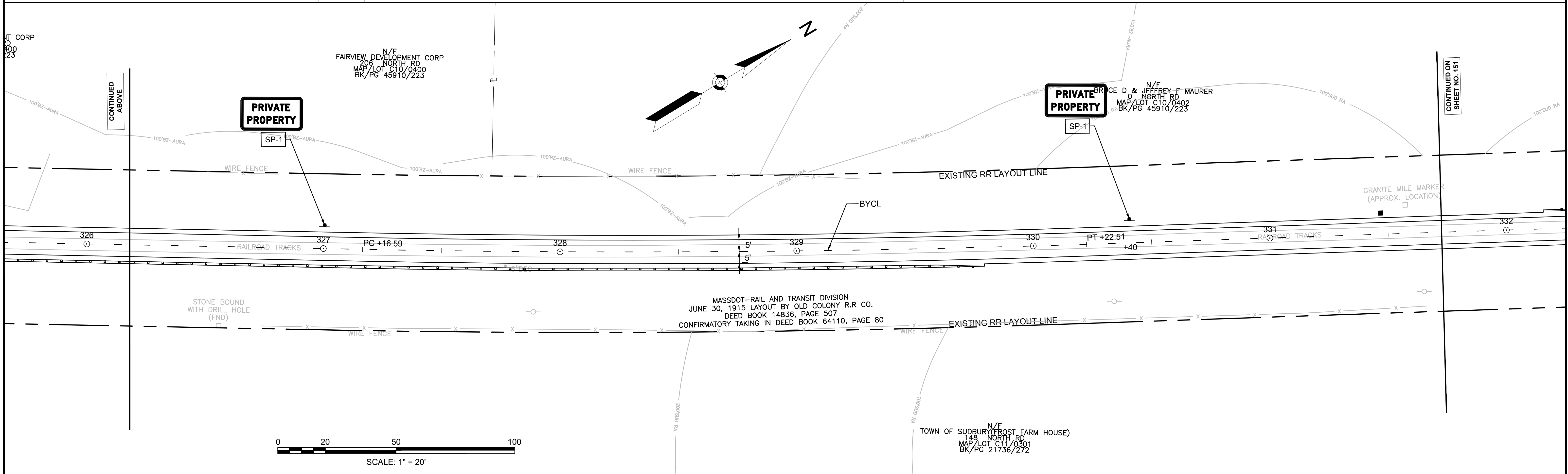
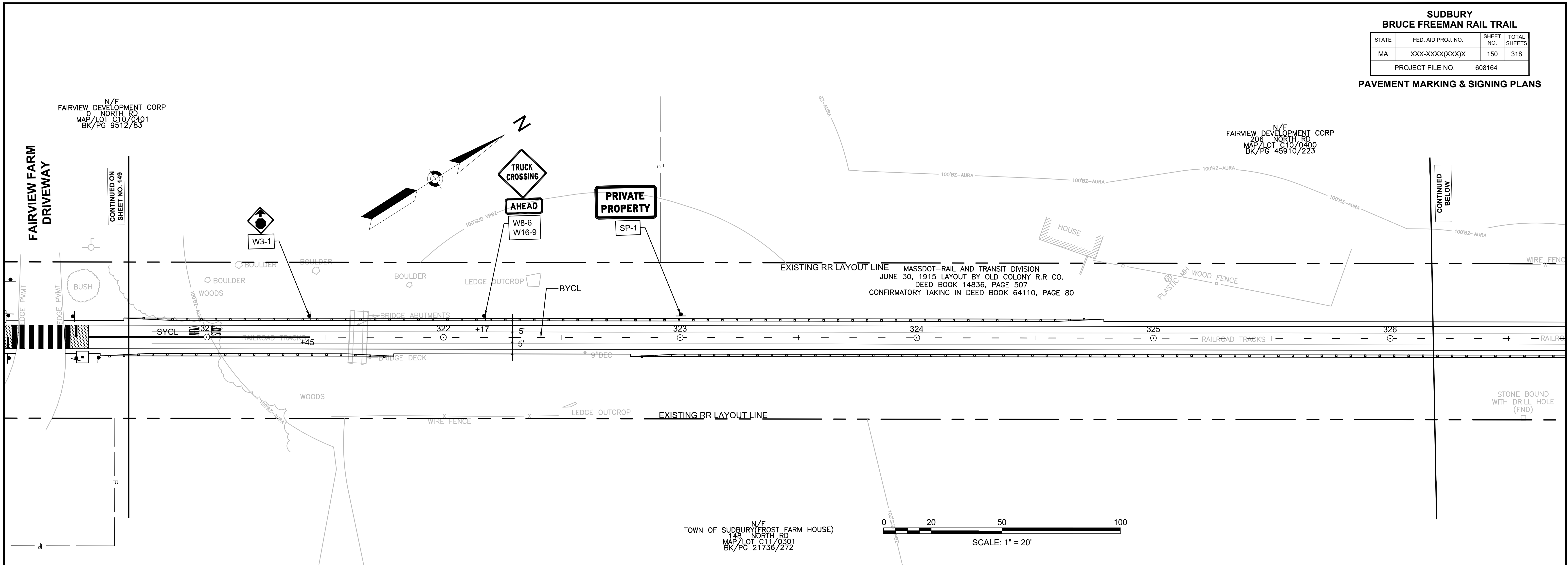


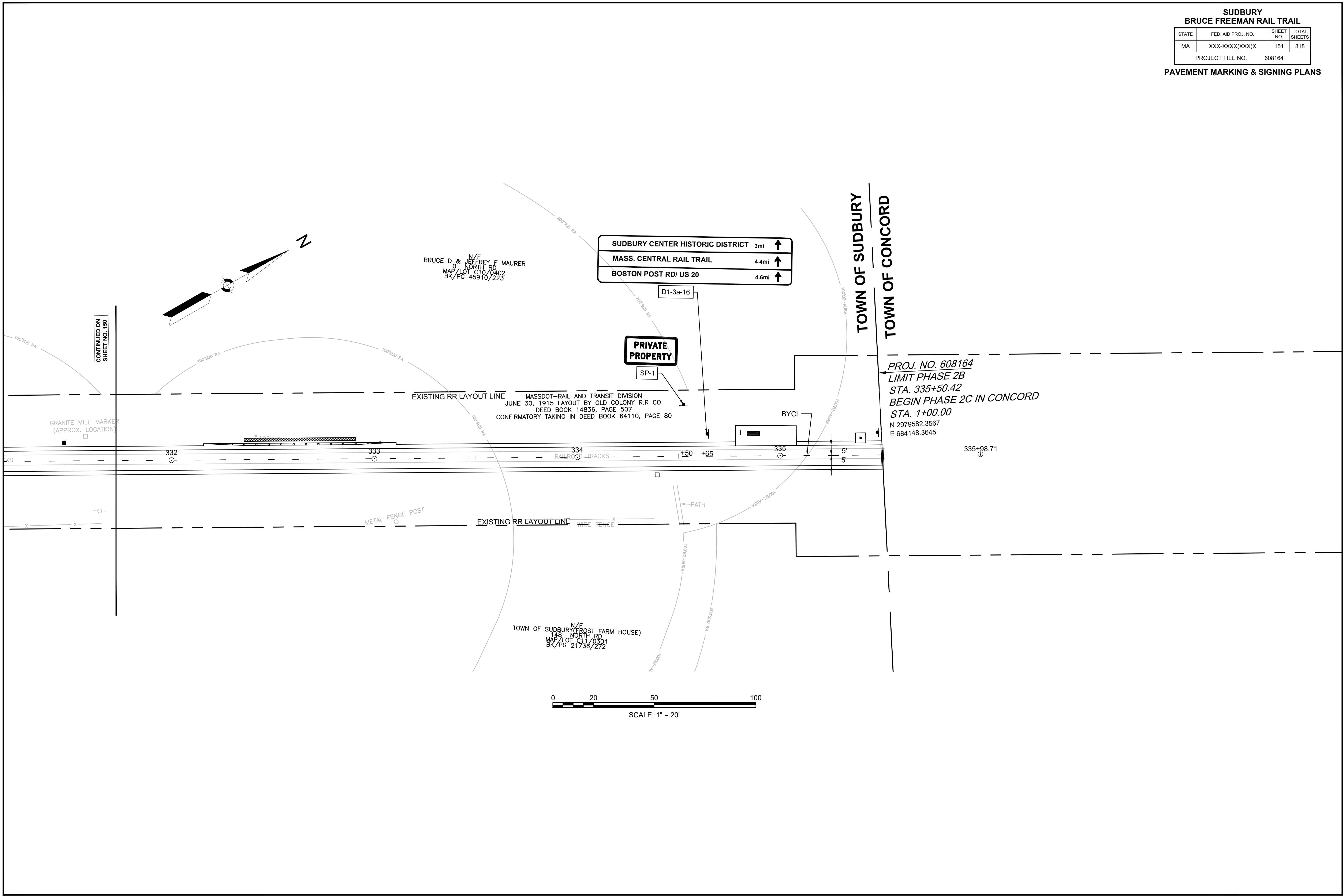
**SUDBURY  
BRUCE FREEMAN RAIL TRAIL**

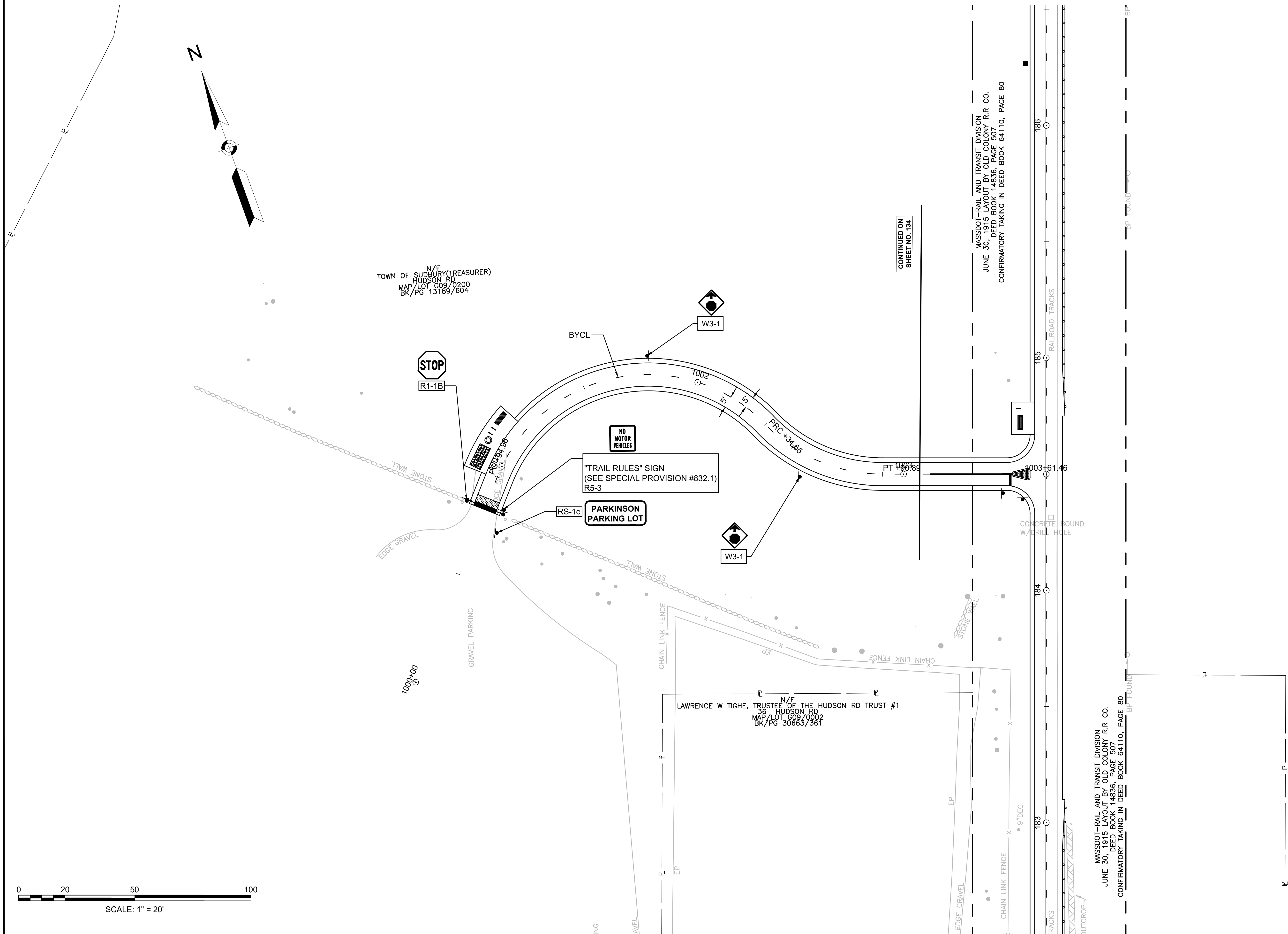
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	150	318

PROJECT FILE NO. 608164

**PAVEMENT MARKING & SIGNING PLANS**







CONTINUED ON  
SHEET NO. 134

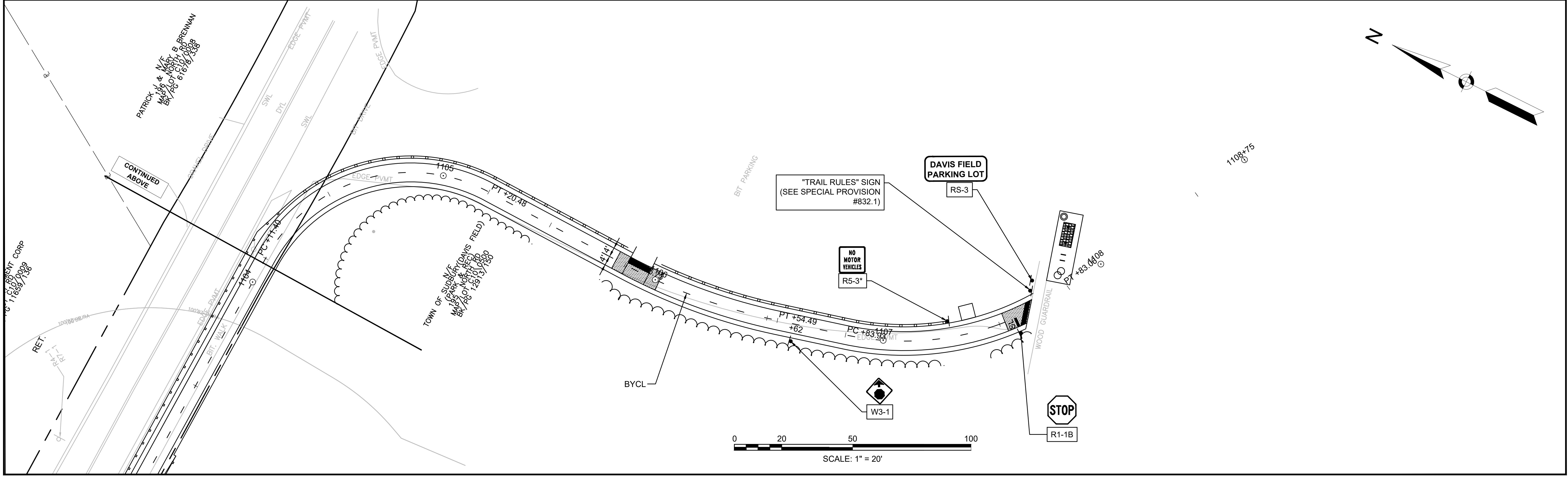
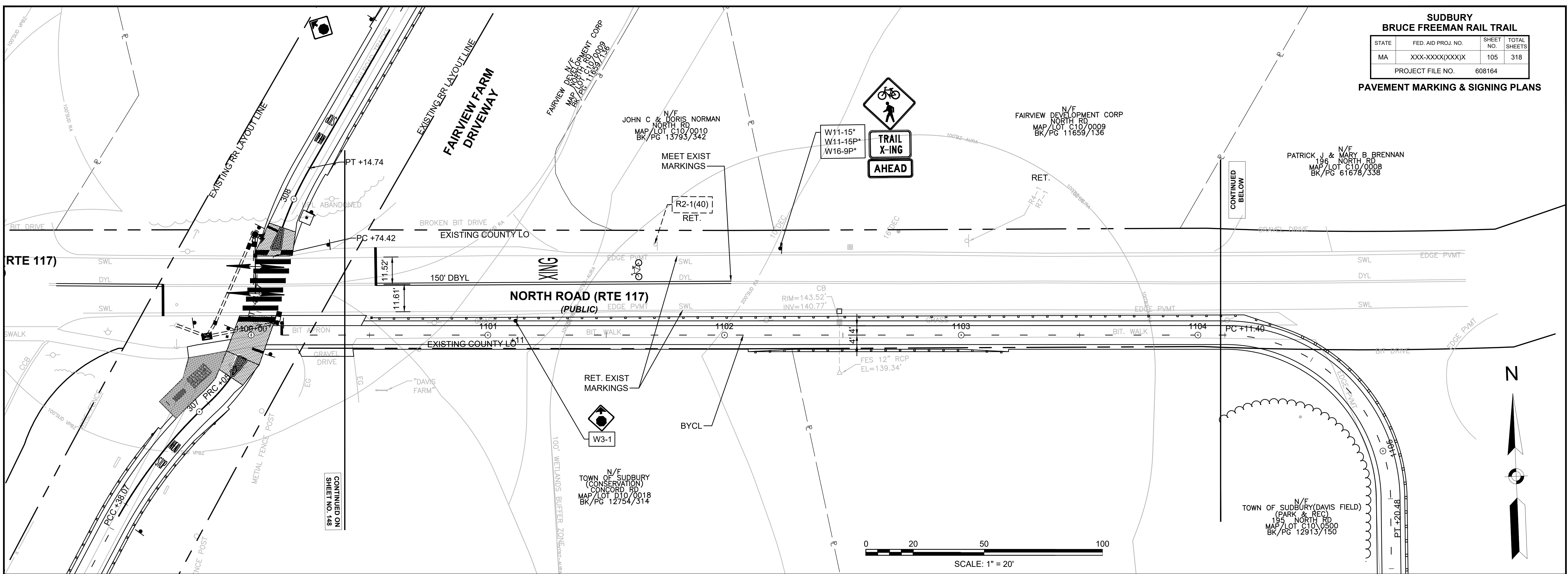
MASSDOT-RAIL AND TRANSIT DIVISION  
JUNE 30, 1915 LAYOUT BY OLD COLONY R.R. CO.  
DEED BOOK 14836, PAGE 507  
CONFIRMATORY TAKING IN DEED BOOK 64110, PAGE 80

MASSDOT-RAIL AND TRANSIT DIVISION  
JUNE 30, 1915 LAYOUT BY OLD COLONY R.R. CO.  
DEED BOOK 14836, PAGE 507  
CONFIRMATORY TAKING IN DEED BOOK 64110, PAGE 80

**SUDBURY**  
**BRUCE FREEMAN RAIL TRAIL**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	105	318
PROJECT FILE NO.		608164	

**PAVEMENT MARKING & SIGNING PLANS**



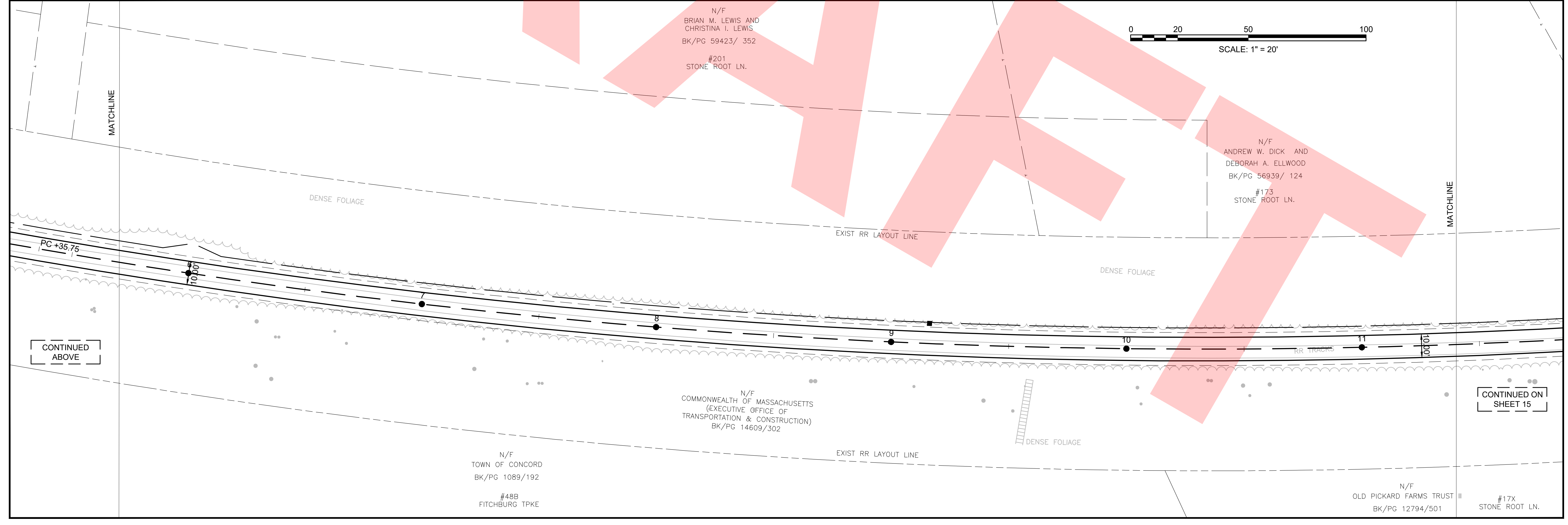
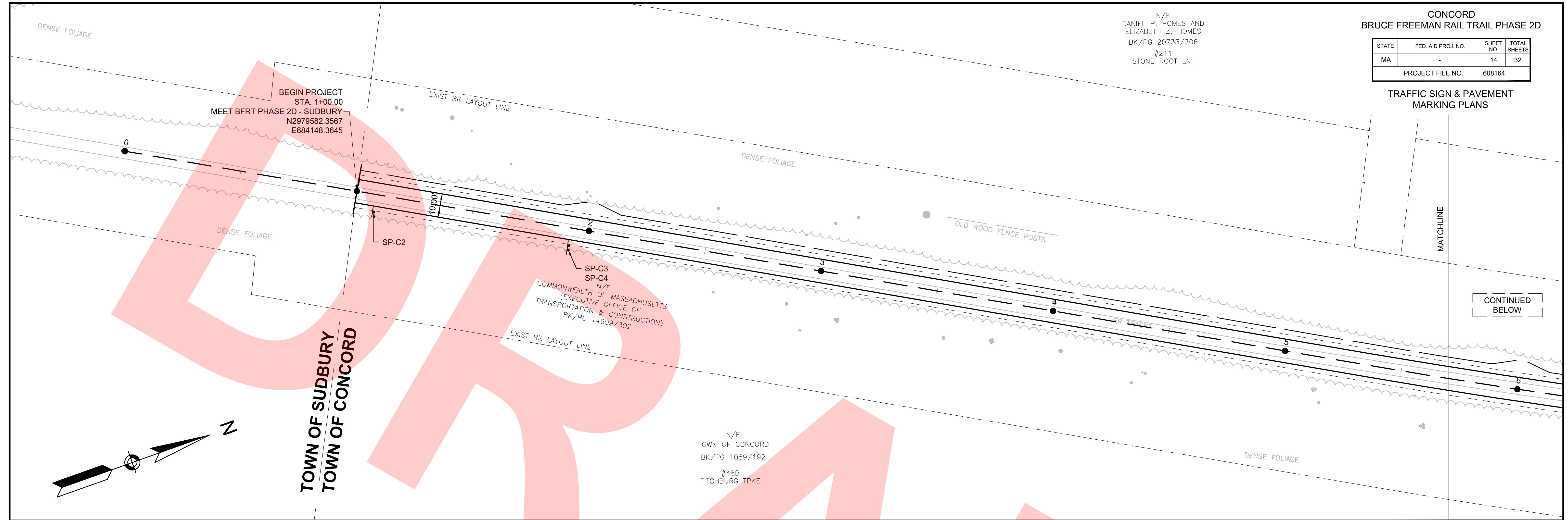
N/F  
 DANIEL P. HOMES AND  
 ELIZABETH Z. HOMES  
 BK/PG 20733/306  
 #211  
 STONE ROOT LN.

CONCORD  
 BRUCE FREEMAN RAIL TRAIL PHASE 2D

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	14	32
PROJECT FILE NO.		608164	

TRAFFIC SIGN & PAVEMENT  
 MARKING PLANS

CONTINUED  
 BELOW



CONCORD  
BRUCE FREEMAN RAIL TRAIL PHASE 2D

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	15	32
PROJECT FILE NO.		608164	

TRAFFIC SIGN & PAVEMENT MARKING PLANS

N/F  
KENNETH C. ZURBRIGG  
AND LINDA E. ZURBRIGG  
BK/PG 40158/ 421

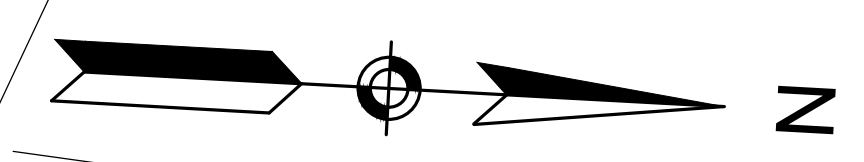
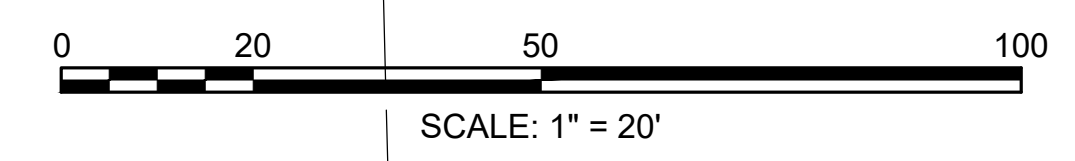
N/F  
WALTER W. BIRGE III AND  
SUSAN HILL  
BK/PG 43886/198  
#109  
STONE ROOT LN.

N/F  
THOMAS D. FURMAN JR.  
AND SUSAN A. W. FURMAN  
BK/PG 19409/40  
#153  
STONE ROOT LN.

N/F  
OLD PICKARD FARMS TRUST II  
BK/PG 12794/501  
#16A  
STONE ROOT LN.

CONTINUED BELOW

CONTINUED ON SHEET 14



N/F  
GREGORY J. MUELLER  
AND AMY E. MUELLER  
BK/PG 50209/138  
#95  
STONE ROOT LN.

N/F  
CHRISTOPHER W. JONES AND  
JENNIFER A. FENTON-JONES  
BK/PG 52779/402  
#83  
STONE ROOT LN.

N/F  
JOSHUA I. GALPER AND  
NIRMALI D. GALPER  
BK/PG 49661/458  
#65  
STONE ROOT LN.

CONTINUED ON SHEET 16

CONTINUED ABOVE

N/F  
COMMONWEALTH OF MASSACHUSETTS  
(EXECUTIVE OFFICE OF  
TRANSPORTATION & CONSTRUCTION)  
BK/PG 14609/302

N/F  
KENNETH C. MILLER AND  
DORCAS MILLER  
BK/PG 25487/522  
#75  
WHITE AVE.

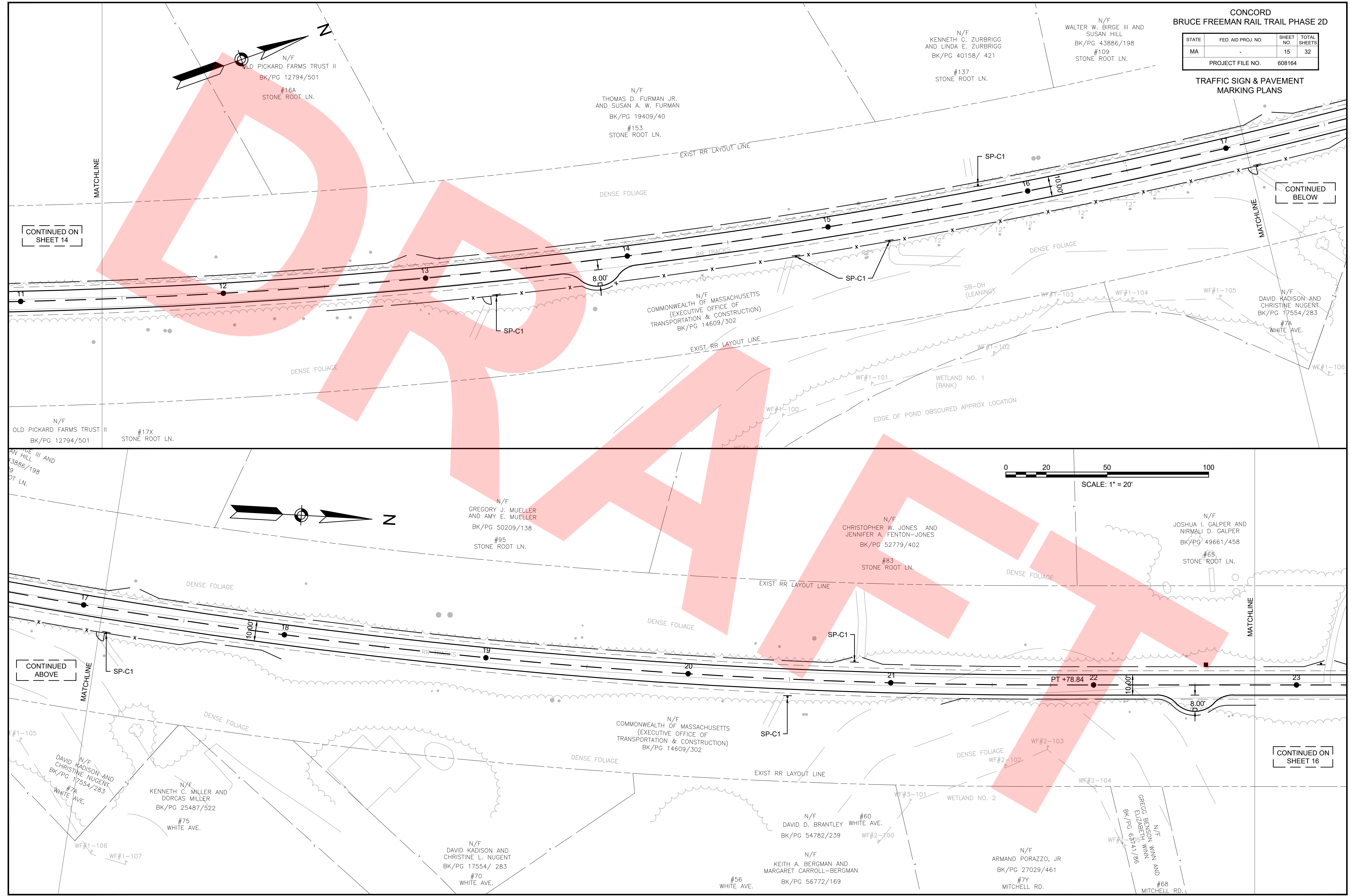
N/F  
DAVID KADISON AND  
CHRISTINE L. NUGENT  
BK/PG 17554/ 283  
#70  
WHITE AVE.

N/F  
DAVID D. BRANTLEY  
BK/PG 54782/239  
#60  
WHITE AVE.

N/F  
KEITH A. BERGMAN AND  
MARGARET CARROLL-BERGMAN  
BK/PG 56772/169  
#56  
WHITE AVE.

N/F  
ARMAND PORAZZO, JR  
BK/PG 27029/461  
#7Y  
MITCHELL RD.

N/F  
GREGG BENSON WINN AND  
ELIZABETH WINN  
BK/PG 65141/86  
#68  
MITCHELL RD.

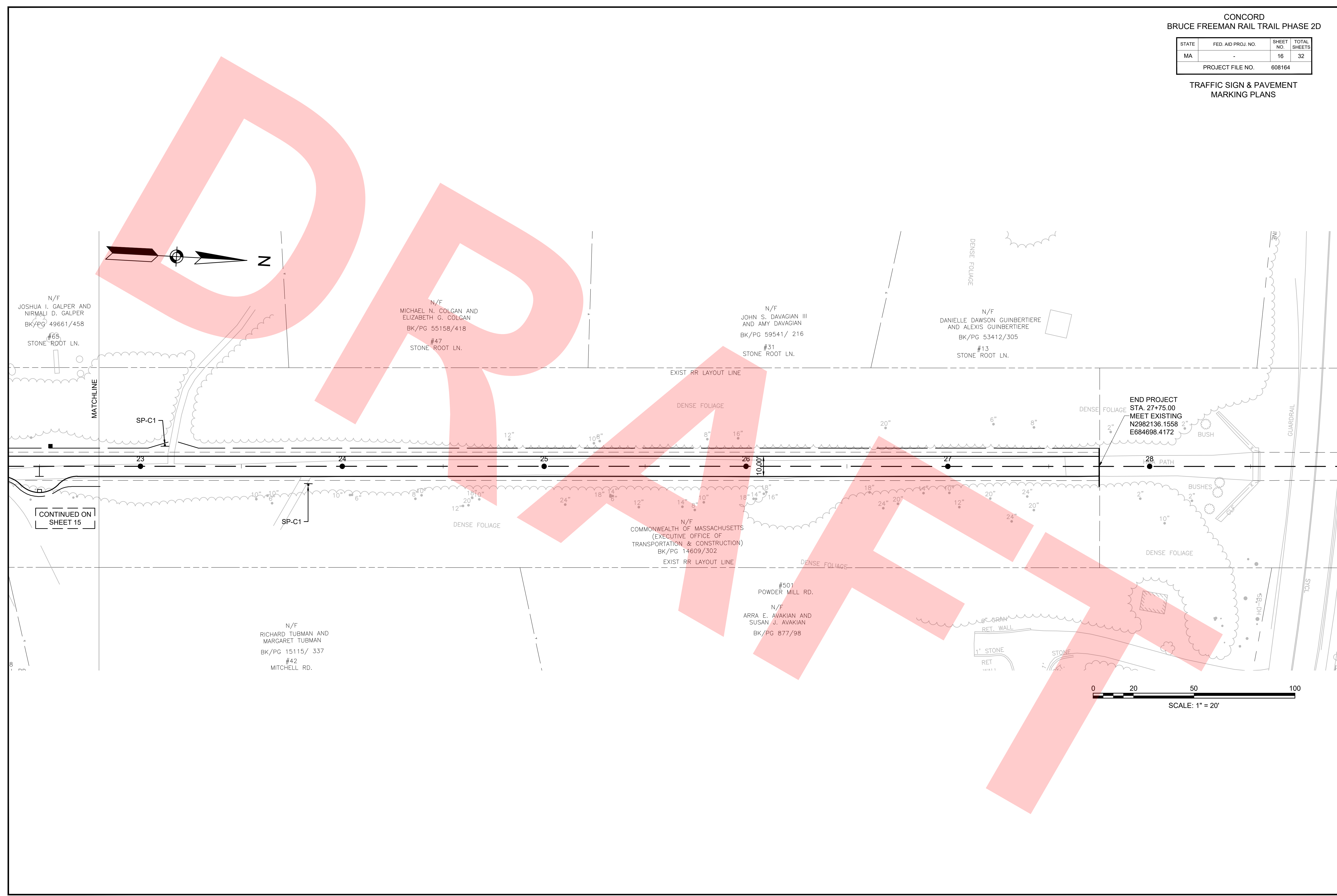


CONCORD  
BRUCE FREEMAN RAIL TRAIL PHASE 2D

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	16	32
PROJECT FILE NO.		608164	

TRAFFIC SIGN & PAVEMENT  
MARKING PLANS

605189\_HD(FMS).DWG Plotted on 22-Apr-2021 1:50 PM



CONTINUED ON  
SHEET 15

0 20 50 100  
SCALE: 1" = 20'



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

ALL P5 SIGN POSTS SHALL BE 2" SQUARE POSTS FACTORY COATED FEDERAL GREEN UNLESS OTHERWISE NOTED (PBS) = PAINTED BOTH SIDES

**SUDBURY  
BRUCE FREEMAN RAIL TRAIL**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	157	318
PROJECT FILE NO.		608164	

**TRAFFIC SIGN SUMMARY**




IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (in)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	SIGN FACE AREA (S.F.)	TOTAL AREA (S.F.)	IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (in)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	SIGN FACE AREA (S.F.)	TOTAL AREA (S.F.)
	WIDTH (IN)	HEIGHT (IN)		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.		BACK-GROUND	LEGEND	BORDER					LETTER HEIGHT	VERTICAL SPACING		ARROW RTE. MKR.	BACK-GROUND	LEGEND		BORDER	WIDTH (IN)	HEIGHT (IN)			
R1-1a	30	30		SEE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (INCLUDING LATEST REVISION)			2	RED	WHITE	WHITE	WOOD POST 2 REQ'D	6.25	13.00	W11-15p	24	18		SEE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (INCLUDING LATEST REVISION)			12	YELLOW	BLACK	BLACK	12 MOUNTED WITH W11-15	3.00	36.00
R1-1b	18	18					20	RED	WHITE	WHITE	WOOD POST 20 REQ'D	2.25	45.00	W16-7pL	24	12					2	YELLOW	BLACK	BLACK	2 MOUNTED W/ W11-15	2.00	4.00
R3-7L	30	30					1	WHITE	BLACK	BLACK	P-5 1 REQ'D	6.25	6.25	W16-9p	24	12					20	YELLOW	BLACK	BLACK	12 MOUNTED W/ W11-15 2 MOUNTED W/ W3-3	2.00	40.00
R5-3	24	24					2	WHITE	BLACK	BLACK	P-5 20 REQ'D	4.00	80.00														
R7-8	12	18					2	WHITE	GREEN	GREEN	WOOD POST 2 REQ'D	1.50	3.00	MA-D3-1a	36	12		6D/4D	3 3.25	N/A	2	GREEN	WHITE	WHITE	2 MOUNTED W/ R1-1b	-	EACH
R7-8P	18	9					1	WHITE	GREEN	GREEN	MOUNTED WITH R7-8 SEE PLANS	1.13	1.13	MA-D3-1b	42	12		6D/4D	3 3.25	N/A	2	GREEN	WHITE	WHITE	2 MOUNTED W/ R1-1b	-	EACH
R7-10	18	12					2	WHITE	BLACK	BLACK	2 MOUNTED WITH SP-1	1.50	3.00	MA-D3-1c	36	12		6D/4D	3 3.25	N/A	1	GREEN	WHITE	WHITE	MOUNTED ON SIGNAL POST	-	EACH
R9-5	12	18					4	WHITE	BLACK	BLACK	WOOD POST 1 REQ'D 3 MOUNTED ON SIGNAL POST	1.50	6.00	MA-D3-1d	36	12		6D/4D	3 3.25	N/A	2	GREEN	WHITE	WHITE	2 MOUNTED W/ R1-1b	-	EACH
R10-6L	24	36					1	WHITE	BLACK	BLACK	P-5 1 REQ'D	6.00	6.00	MA-D3-1e	36	12		6D/4D	3 3.25	N/A	2	GREEN	WHITE	WHITE	2 MOUNTED W/ R1-1b	-	EACH
R10-11	24	30					1	WHITE	RED/BLACK	BLACK	P-5 1 REQ'D	5.00	5.00	MA-D3-1f	36	12		6D/4D	3 3.25	N/A	2	GREEN	WHITE	WHITE	2 MOUNTED W/ R1-1b	-	EACH
MA-R10-12a	30	36		MASSDOT STANDARD			1	WHITE	BLACK/YELLOW	BLACK	O'HEAD MOUNT	7.50	7.50	MA-D3-1g	36	12		6D/4D	3 3.25	N/A	2	GREEN	WHITE	WHITE	MOUNTED ON SIGNAL POST	-	EACH
MA-R10-23a	30	36					4	YELLOW/WHITE	BLACK	BLACK	P-5 2 REQ'D 2 O'HEAD MOUNT	7.50	30.00	MA-D3-1h	36	12		6D/4D	3 3.25	N/A	2	GREEN	WHITE	WHITE	MOUNTED ON SIGNAL POST	-	EACH
W2-6	18	18		SEE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (INCLUDING LATEST REVISION)			1	YELLOW	BLACK	BLACK	WOOD POST 1 REQ'D	2.25	2.25	SP-1	24	12		3"C 3"C	2"C 2"C	N/A	26	WHITE	RED	RED	WOOD POST 26 REQ'D	2.00	52.00
W3-1	18	18					20	YELLOW	BLACK	BLACK	WOOD POST 20 REQ'D	2.25	45.00	SP-2	30	24		4"B 4"B 4"B	3" 3" 3"	N/A	12	WHITE	BLACK	BLACK	WOOD POST 12 REQ'D	5.00	60.00
W3-3	18	18					2	YELLOW	BLACK	BLACK	WOOD POST 2 REQ'D	2.25	4.50	I-3-1	24	18		SEE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (INCLUDING LATEST REVISION)			2	WHITE	BLACK	BLACK	WOOD POST 2 REQ'D	3.00	6.00
W8-6	18	18					6	YELLOW	BLACK	BLACK	WOOD POST 2 REQ'D	2.25	8.25	I-3-2	24	18					2	WHITE	BLACK	BLACK	WOOD POST 2 REQ'D	3.00	6.00
W11-15	30	30					16	YELLOW	BLACK	BLACK	P-5 14 REQ'D 2 O'HEAD	6.25	100.00														

IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (in)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	SIGN FACE AREA (S.F.)	TOTAL AREA (S.F.)
	WIDTH (IN)	HEIGHT (IN)		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.		BACK-GROUND	LEGEND	BORDER			
SP-C4	24	18	TRAIL RULES SIGN (REF. SPEC 832.1)				3	WHITE	BLACK	BLACK	P-5 2 REQ'D 1 MOUNTED WITH R5-3	PAY UNDER ITEM 832.1	
RS-1a	36	16		4D	3 2 3	4x3 @ 0°	1	GREEN	WHITE	WHITE	P-5 2 REQ'D	4.00	4.00
RS-1b	36	16		4D	3 2 3	4x3 @ 180°	1	GREEN	WHITE	WHITE	P-5 2 REQ'D	4.00	4.00
RS-1c	36	16		4D	3 2 3	-	1	GREEN	WHITE	WHITE	P-5 2 REQ'D	4.00	4.00
RS-2	36	16		4D	3 2 3	-	1	GREEN	WHITE	WHITE	P-5 2 REQ'D	4.00	4.00
RS-3	36	16		4D	3 2 3	-	1	GREEN	WHITE	WHITE	P-5 2 REQ'D	4.00	4.00
D1-2a-1	48	16		4D/3D	3 2 3	4x3 @ 90° & 4x6 4x3 @ 90°	1	GREEN	WHITE	WHITE	P-5 2 REQ'D	5.33	5.33
D1-2a-2	48	16		4D/3D	3 2 3	4x3 @ 90° 4x3 @ 90°	1	GREEN	WHITE	WHITE	P-5 2 REQ'D	5.33	5.33
D1-2a-3	48	16		4D	3 2 3	3x4 @ 0° 3x4 @ 0°	1	GREEN	WHITE	WHITE	P-5 2 REQ'D	5.33	5.33
D1-2a-4	48	16		4D	3 2 3	3x4 @ 180° 3x4 @ 180°	1	GREEN	WHITE	WHITE	P-5 2 REQ'D	5.33	5.33
D1-2a-5	48	16		4D/3D	3 2 3	4x3 @ 90° 4x3 @ 90°	1	GREEN	WHITE	WHITE	P-5 2 REQ'D	5.33	5.33
D1-3a-1	48	24		4D/3D	3 2 2 3	4x3 @ 90° 4x3 @ 90° 4x3 @ 90°	1	GREEN	WHITE	WHITE	P-5 2 REQ'D	8.00	8.00
D1-3a-2	48	24		4D/3D	3 2 2 3	(2) 4x6 4x3 @ 90° 4x3 @ 180°	1	GREEN	WHITE	WHITE	P-5 2 REQ'D	8.00	8.00
D1-3a-4	48	24		4D/3D	3 2 2 3	4x3 @ 90° 4x3 @ 90° 4x3 @ 90°	1	GREEN	WHITE	WHITE	P-5 2 REQ'D	8.00	8.00
D1-3a-5	48	24		4D/3D	3 2 2 3	4x3 @ 90° 4x3 @ 90° 4x3 @ 90°	1	GREEN	WHITE	WHITE	P-5 2 REQ'D	8.00	8.00
D1-3a-6	48	24		4D	3 2 2 3	4x3 @ 90° 4x3 @ 0° 4x3 @ 0°	1	GREEN	WHITE	WHITE	P-5 2 REQ'D	8.00	8.00
D1-3a-8	48	24		4D	3 2 2 3	3x4 @ 180° 3x4 @ 180° 3x4 @ 180°	1	GREEN	WHITE	WHITE	P-5 2 REQ'D	8.00	8.00
D1-3a-9	48	24		4D/3D	3 2 2 3	4x3 @ 90° 4x3 @ 90° 4x3 @ 90°	1	GREEN	WHITE	WHITE	P-5 2 REQ'D	8.00	8.00
D1-3a-10	48	24		4D/3D	3 2 2 3	3x4 @ 180° 4x3 @ 90° 4x3 @ 90°	1	GREEN	WHITE	WHITE	P-5 2 REQ'D	8.00	8.00
D1-3a-11	48	24		4D/3D	3 2 2 3	3x4 @ 0° 4x3 @ 90° 4x3 @ 90°	1	GREEN	WHITE	WHITE	P-5 2 REQ'D	8.00	8.00
D1-3a-12	48	24		4D/3D	3 2 2 3	4x3 @ 90° 4x3 @ 90° 4x3 @ 90°	1	GREEN	WHITE	WHITE	P-5 2 REQ'D	8.00	8.00
D1-3a-13	48	24		4D/3D	3 2 2 3	3x4 @ 0° 3x4 @ 0° 4x3 @ 90°	1	GREEN	WHITE	WHITE	P-5 2 REQ'D	8.00	8.00
D1-3a-14	48	24		4D/3D	3 2 2 3	3x4 @ 180° 3x4 @ 180° 4x3 @ 90°	1	GREEN	WHITE	WHITE	P-5 2 REQ'D	8.00	8.00
D1-3a-16	48	24		4D/3D	3 2 2 3	4x3 @ 90° 4x3 @ 90° 4x3 @ 90°	1	GREEN	WHITE	WHITE	P-5 2 REQ'D	8.00	8.00

CONCORD  
BRUCE FREEMAN RAIL TRAIL PHASE 2D

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	17	32
PROJECT FILE NO.		608164	

TRAFFIC SIGN SUMMARY SHEET

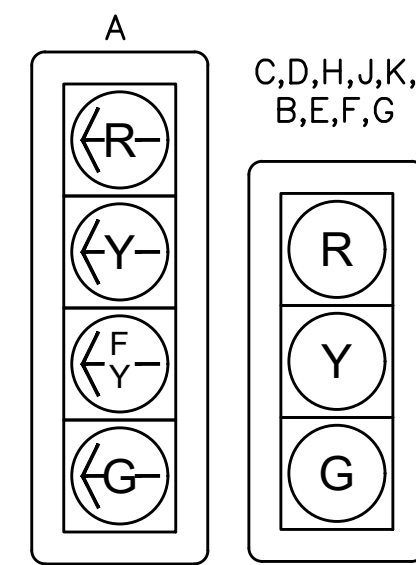
IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (INCHES)		NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA IN SQUARE FEET	AREA IN SQUARE FEET
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING		BACK-GROUND	LEGEND	BORDER			
SP-C1	24"	12"		3"C 3"C	2"C 2"C 2"C	8	WHITE	RED	RED	P5 (8 REQ'D)	2.00	16.00
SP-C2	30"	24"		4"B 4"B 4"B	3" 3" 3" 3"	1	WHITE	BLACK	BLACK	P5 (1 REQ'D)	5.00	5.00
SP-C3	30"	24"		4"B 4"B 4"B	3" 3" 3" 3"	1	BROWN	WHITE	WHITE	2-P5 (1 REQ'D)	5.00	5.00
SP-C4	24"	36"	TRAIL RULES SIGN (REF. SPEC 832.1)			1	WHITE	BLACK	BLACK	MNT w/SP-4	PAY UNDER ITEM 832.1	

NOTES:

1. ALL WARNING, REGULATORY AND ROUTE MARKERS SHALL BE FABRICATED WITH HIGH INTENSITY ENCAPSULATED LENS REFLECTIVE SHEETING (SEE SECTION M9.30.0) TYPE III OR IV.
2. ALL SIGNS NOTED AS "(R&R)" SHALL BE MOUNTED ON NEW P5 POSTS OR AS OTHERWISE INDICATED.
3. ALL P5 POSTS SHALL BE TELESCOPIC SQUARE TYPE POSTS.
4. QUANTITIES OF SIGNS AND POSTS SHOWN ON THIS SHEET MAY DIFFER FROM THE PAVEMENT MARKING AND SIGNING PLANS. WHERE DIFFERENCES OCCUR, THE PAVEMENT MARKINGS AND SIGNING PLANS SHALL PREVAIL.
5. ALL STOP AND YIELD SIGNS PROPOSED IN THIS CONTRACT ARE SUBJECT TO FIELD INVESTIGATION BY THE DISTRICT OFFICE OF THE MASSACHUSETTS HIGHWAY DEPARTMENT TO JUSTIFY WARRANTS BEFORE INSTALLATION.
6. NUMERICAL LIMITS AND JUSTIFICATION FOR THE LIMITS AND JUSTIFICATION FOR THE SPEED AND ADVISORY EXIT SPEED AND ADVISORY EXIT SPEED SIGNS SHALL BE OBTAINED FROM THE SPEED ZONING UNIT OF THE TRAFFIC DEPARTMENT BEFORE FABRICATION AND/OR ERECTION.

SUDBURY BRUCE FREEMAN RAIL TRAIL			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	160	318
PROJECT FILE NO.		608164	

**TRAFFIC SIGNAL PLANS  
HUDSON RD & PEAKHAM RD**



**PROPOSED SIGNAL INDICATIONS**

ALL SIGNAL HEADS SHALL BE RIGID MOUNTED & EQUIPPED WITH ±5" NON-LOUVERED BACKPLATES WITH 3" YELLOW RETROREFLECTIVE TAPE BORDERS.  
 \*\*\*\*ALL PROPOSED SIGNAL POSTS, BASES, BACKPLATES, SIGNAL HOUSINGS, AND BRACKETS SHALL BE FACTORY FEDERAL GREEN\*\*\*\*

**VIDEO DETECTION**

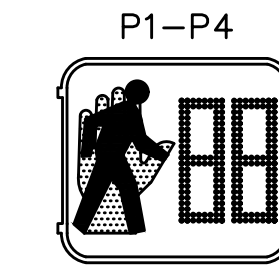
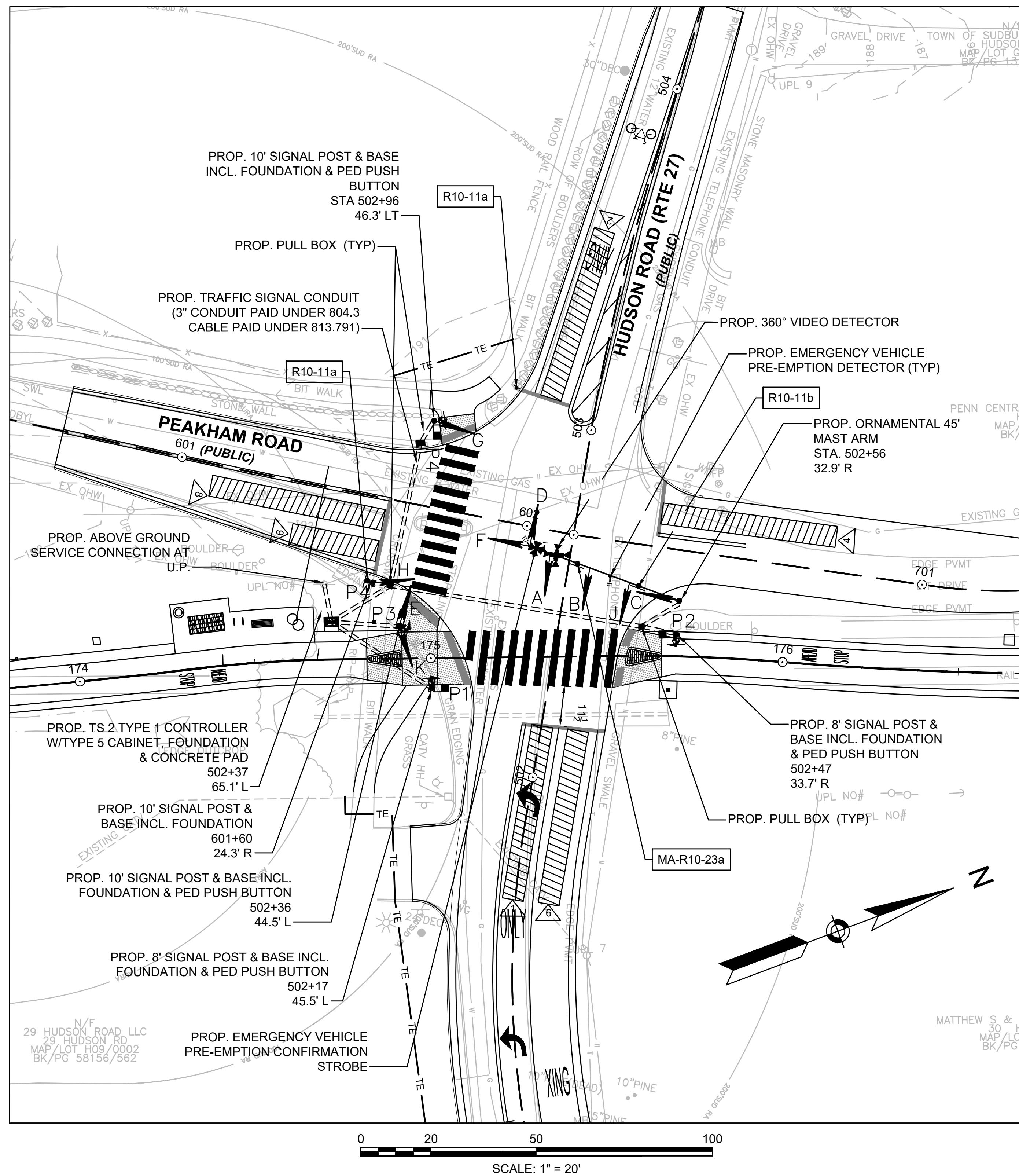
KEY	OPERATION	DELAY	PHASE
1	PRESENCE	0 SEC.	1
2	PRESENCE	0 SEC.	2
4	PRESENCE	0 SEC.	4
6	PRESENCE	0 SEC.	6
8	PRESENCE	0 SEC.	8
9	PRESENCE	5 SEC	8

**LEGEND**

- PROPOSED MAST ARM & POLE
- PROPOSED SIGNAL POST
- ▲ PROPOSED SIGNAL HEAD
- P1 PROPOSED PEDESTRIAN HEAD
- PROPOSED PEDESTRIAN PUSH BUTTON
- PROPOSED 12 X 12 PULL BOX
- PROPOSED 13 X 24 HAND HOLE
- === PROPOSED 3" PVC CONDUIT TYPE NM
- PROPOSED CONTROLLER CABINET W/CONC PAD
- ▲ DETECTOR KEY
- ⊕ PROPOSED 360° VIDEO CAMERA DETECTION
- ⊗ PROPOSED PREEMPTION CONFIRMATION STROBE
- ▨ VIDEO DETECTION ZONE
- III PROPOSED EMERGENCY VEHICLE PRE-EMPTION DETECTOR

**CONSTRUCTION NOTES**

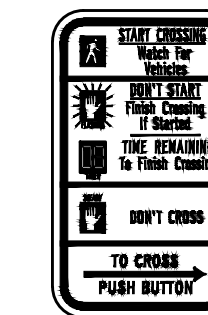
- THE TOP OF ALL MAST ARM FOUNDATIONS IN SIDEWALK AREAS SHALL BE LOCATED FLUSH WITH FINISH GRADE.
- THE TOP OF ALL MAST ARM FOUNDATIONS IN GRASSY AREAS SHALL BE LOCATED 3"± ABOVE FINISHED GRADE.
- TS POST/POLE, WITH PEDESTRIAN PUSH BUTTON, NOT LOCATED WITHIN A PAVED SURFACE SHALL BE POSITIONED SO AS TO PROVIDE A 10" MAX CLEAR REACH ZONE BETWEEN THE PEDESTRIAN PUSH BUTTON AND THE PAVED SURFACE PER 521 CMR AND AS SHOWN IN THE CONSTRUCTION DETAILS.



ALL COUNTDOWN PEDESTRIAN SIGNAL DISPLAYS SHALL BE EQUIPPED W/ L.E.D. MODULES (16 INCH DISPLAY).

**ACCESSIBLE PEDESTRIAN SIGNALS (APS):**

ALL PROPOSED ACCESSIBLE PEDESTRIAN SIGNALS MUST FULLY COMPLY WITH THE UNITED STATES ACCESS BOARD PROWAG SUPPLEMENTAL TECHNICAL REQUIREMENTS UNDER CHAPTER 4. THIS INCLUDES OPERABLE PARTS (R403), CLEAR SPACES (R404), AND REACH RANGES (R406) AS RELATES TO ACCESSIBLE PEDESTRIAN SIGNALS AND PEDESTRIAN PUSH BUTTONS.



**PROPOSED R10-3E**

TO BE MOUNTED WITH EACH ACCESSIBLE PEDESTRIAN SIGNAL PROPOSED.

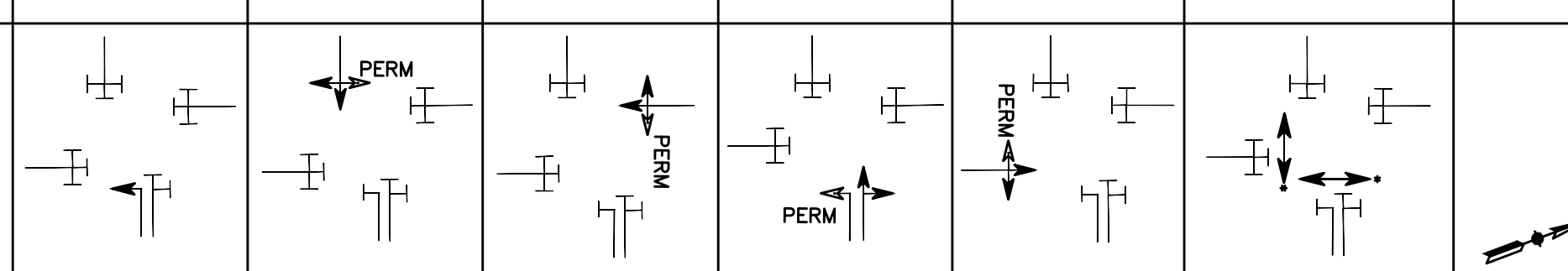
**ACCESSIBLE PEDESTRIAN SIGNALS (APS) SPEECH MESSAGE NOTE:**

BUTTONS P1, P2, P3, P4 SHALL BE PROGRAMMED WITH THE APPROPRIATE SPEECH MESSAGE FOR WALK INDICATING THE STREET CROSSING.

**MAJOR ITEMS REQUIRED**

PAY ITEM	QUANTITY	ITEM
804.3	230	3 INCH ELECTRICAL CONDUIT TYPE NM - PLASTIC -(UL)
811.31	3	PULL BOX 12" X 12"
815.1	1	SERVICE CONNECTION (UNDERGROUND)
	2	8' SIGNAL POST & BASE STANDARD - INCL FOUNDATION
	3	10' SIGNAL POST & BASE STANDARD - INCL FOUNDATION
	9	SIGNAL HEAD 1 WAY - 3 SECTION 12" LED LENS
	1	SIGNAL HEAD 1 WAY - 4 SECTION 12" LED LENS
	4	16" LED PEDESTRIAN SIGNAL HEAD
	4	ACCESSIBLE PEDESTRIAN SIGNAL, SIGN, AND SADDLE
	1	TRAFFIC SIGNAL CONTROLLER - 80 TS2 TYP 1 CONTROLLER IN A TYPE 5 BASE MOUNTED CABINET INCLUDING FOUNDATION AND CONCRETE PAD
	1	360° VIDEO DETECTION CAMERA, VDP, AND CABLES
	1	VIDEO IMAGE PROCESSOR
	1	VIDEO DETECTION RACK
	3	SINGLE CHANNEL PREEMPTION DETECTOR & CABLE
	1	4 CHANNEL OPTICAL SIGNAL PROCESSOR
	1	PRE-EMPTION CARD RACK AND HARNESS
1	PRE-EMPTION CONFIRMATION STROBE	
1	GPS CLOCK	
1	PLUS ALL WIRE, CABLE, MOUNTING HARDWARE, EQUIPMENT & MATERIALS NECESSARY TO COMPLETE THE INSTALLATION	
1	SYSTEM MASTER CONTROLLER	
817.8	1	45' MAST ARM - ORNAMENTAL

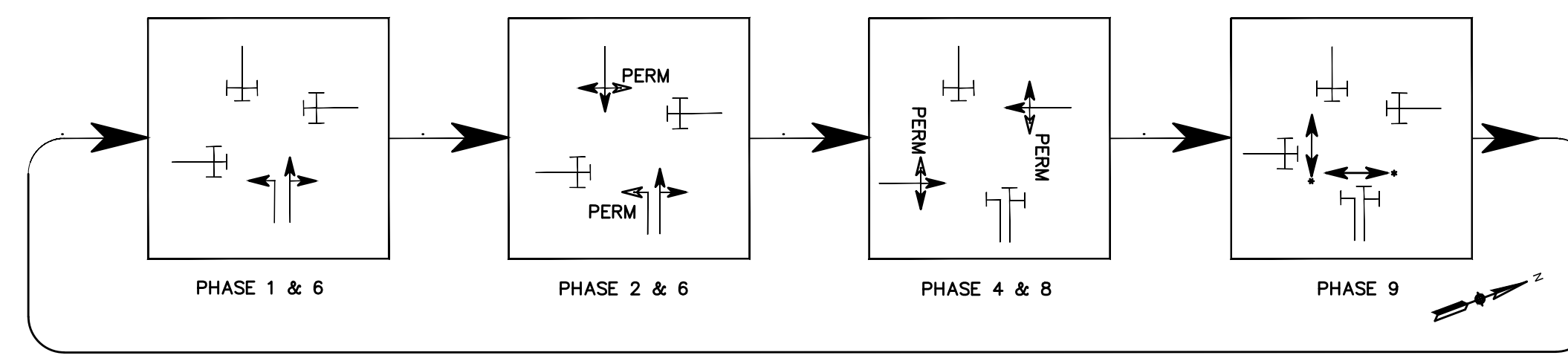
## SIGNAL SEQUENCING & TIMING FOR FULLY ACTUATED CONTROL

	DIRECTION	HOUSING	ø/OL	PHASE 1			PHASE 2			PHASE 4			PHASE 6			PHASE 8			PHASE 9			FLASH FLASHING OPERATION PER MUTCD SEC. 4D-12	
				PREEMPTION II			PREEMPTION I			PREEMPTION II			PREEMPTION III										
				1	2	3	4	5	6	7	8	9	16	17	18	19	20	21	22	23	24	25	
MIN GREEN				2			4			4			4			4							
PASSAGE TIME				2			2			2			2			2							
MAX I				4			79			29			79			29							
MAX II				11			71			30			71			30							
YEL CLEAR				3			4			4			4			4							
RED CLEAR				2			2			2			2			2						4	
WALK																			7				
PED CLEAR																					10		
HUDSON RD	WB L	A	1,6	<G	<Y	<R	<R	<R	<R	<R	<R	<R	<FY	<R	<R	<R	<R	<R	<R	<R	<R	<FR	
HUDSON RD	EB	D,E	2	R	R	R	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R	
TI-SALES DR	SB	G,H	4	R	R	R	R	R	R	G	Y	R	R	R	R	R	R	R	R	R	R	R	
HUDSON RD	WB	B,J,K	6	R	R	R	R	R	R	R	R	R	G	Y	R	R	R	R	R	R	R	R	
PEAKHAM RD	NB	C,F	8	R	R	R	R	R	R	R	R	R	R	R	R	G	Y	R	R	R	R	R	
PEDESTRIAN	N,S,E,W	P1-P4	9	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	DW	DW	
DETECTORS				NON-LOCK			NON-LOCK			NON-LOCK			NON-LOCK			NON-LOCK			-				
RECALL				OFF			SOFT			OFF			OFF			OFF			-				
DUAL ENTRY				OFF			OFF			ON			OFF			ON			-				
MAX I: MON-FRI 5AM-10AM MAX II: ALL OTHER TIMES																							

\* UPON PEDESTRIAN PUSH  
BUTTON ACTIVATION

### SIGNAL TIMING AND COORDINATION NOTES

- IF THE ASSIGNED RIGHT OF WAY FOR ANY TRAFFIC MOVEMENT IS TO REMAIN IN EFFECT DURING THE NEXT CALLED PHASE, THE SIGNAL INDICATIONS FOR THAT TRAFFIC MOVEMENT WILL NOT CHANGE DURING THE CLEARANCE INTERVAL.
- THE RIGHT OF WAY MAY BE ASSIGNED TO ANY PHASE OR ANY COMBINATION OF NON-CONFLICTING PHASES.
- IF CALLS EXIST ON ALL PHASES, THE ASSIGNMENT OF RIGHT OF WAY SHALL BE IN ACCORDANCE WITH THE PREFERENTIAL PHASE SEQUENCE.
- IF THE ASSIGNED RIGHT-OF-WAY FOR ANY TRAFFIC MOVEMENT IS TO CHANGE DURING THE NEXT CALLED PHASE, THE SIGNAL INDICATION FOR THAT MOVEMENT WILL DISPLAY THE APPROPRIATE CLEARANCE INTERVALS.

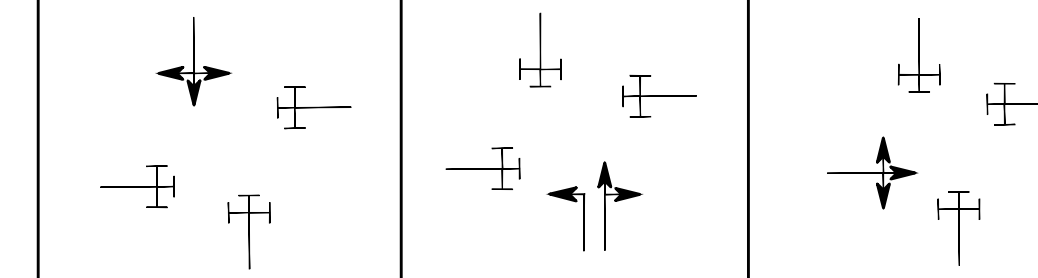


**PREFERENTIAL PHASE SEQUENCE**

**NOTES:**

- AUTOMATIC FLASHING OPERATION PER 2009 M.U.T.C.D. OR AS AMENDED.
- PERM=PERMISSIVE
- ACTUATED SIGNAL OPERATION FOR 24 HOURS PER DAY, FLASHING OPERATION FOR EMERGENCY ONLY.

### PRE-EMPTION SIGNAL SEQUENCE

	DIRECTION	HOUSING	PREEMPTION I			PREEMPTION II			PREEMPTION III		
			1	2	3	4	5	6	7	8	9
HUDSON RD	WB L	A	<R	<R	<R	<G	<Y	<R	<R	<R	<R
HUDSON RD	EB	D,E	G	Y	R	R	R	R	R	R	R
TI-SALES DR	SB	G,H	R	R	R	R	R	R	R	R	R
HUDSON DR	WB	A,B,J,K	R	R	R	G	Y	R	R	R	R
PEAKHAM RD	NB	C,F	R	R	R	R	R	R	G	Y	R
											

### EMERGENCY VEHICLE PRE-EMPTION PHASING AND PRIORITY NOTES:

- EMERGENCY VEHICLE PRE-EMPTION SIGNALS SHALL BE OPTICALLY TRANSMITTED BY OPTICAL EMITTERS MOUNTED IN EMERGENCY VEHICLES AND RECEIVED BY OPTICAL DETECTORS LOCATED AT EACH INTERSECTION.
- IN RESPONSE TO A PRE-EMPTION SIGNAL RECEIVED AT AN INTERSECTION BY PREEMPTION OPTICAL DETECTOR 1 (OR 2, 3) THE CONTROLLER SHALL HOLD OR ADVANCE TO AND THEN HOLD IN PRE-EMPTION PHASE I (OR II, III) GREEN FOR A MINIMUM OF TEN (10) SECONDS OR UNTIL THE PRE-EMPTION SIGNAL CEASES.
- THE CONTROLLER SHALL THEN PROVIDE PRE-EMPTION PHASE CLEARANCE (4 SECONDS: YELLOW AND 2 SECOND: ALL RED) AND THEN SERVICE AN ADDITIONAL EMERGENCY VEHICLE PRE-EMPTION PHASE IF NECESSARY FOLLOWED BY A PRE-EMPTION CLEARANCE.
- RESUME NORMAL SIGNAL OPERATION.
- MINIMUM GREEN AND NORMAL VEHICLE OR PEDESTRIAN CLEARANCE TIME, SHALL BE PROVIDED ON PHASES THAT ARE TO BE TERMINATED BY PRE-EMPTION DEMAND.
- PREEMPTION STROBE SHALL BE ILLUMINATED WHENEVER ANY EMERGENCY VEHICLE PRE-EMPTION GREEN IS ON.

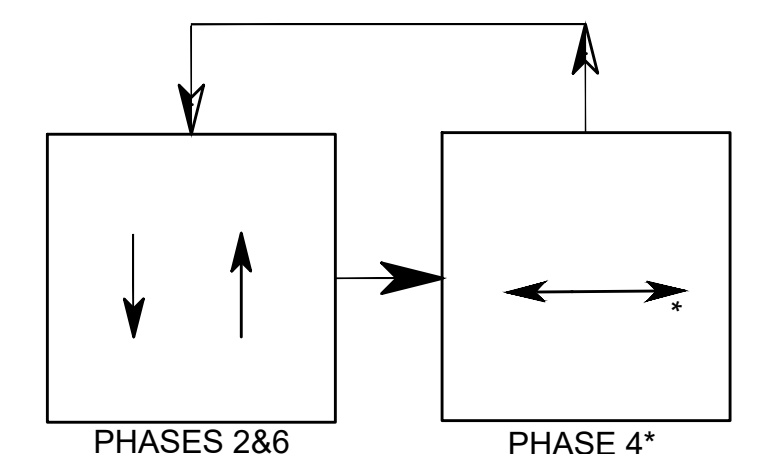
**ACCESSIBLE PEDESTRIAN SIGNALS (APS):**

ALL PROPOSED ACCESSIBLE PEDESTRIAN SIGNALS MUST FULLY COMPLY WITH THE UNITED STATES ACCESS BOARD PROWAG SUPPLEMENTAL TECHNICAL REQUIREMENTS UNDER CHAPTER 4. THIS INCLUDES OPERABLE PARTS (R403), CLEAR SPACES (R404), AND REACH RANGES (R406) AS RELATES TO ACCESSIBLE PEDESTRIAN SIGNALS AND PEDESTRIAN PUSH BUTTONS.

**ACCESSIBLE PEDESTRIAN SIGNALS (APS) SPEECH MESSAGE NOTE:**

ALL PUSH BUTTONS AT THIS INTERSECTION SHALL BE PROGRAMMED WITH THE APPROPRIATE SPEECH MESSAGE FOR WALK INDICATING THE STREET CROSSING.

**PREFERENTIAL PHASE SEQUENCE**

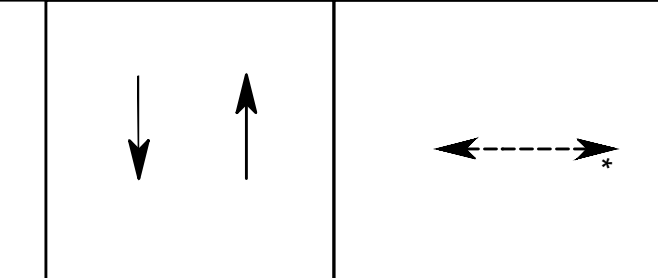


\*UPON PEDESTRIAN PUSH BUTTON ACTUATION

SEQUENCE AND TIMING									
	DIRECTION	HOUSING	Ø/OL	PHASES 2&6		PHASE 4*			FLASH
				1	2	3	4	5	
MIN INTERVAL				15					
MAXIMUM I				N/A					
MAXIMUM II				N/A					
FLASHING YELLOW						4			
STEADY YELLOW							3		
STEADY RED/ PEDESTRIAN WALK								7	
FLASHING RED/ PEDESTRIAN CLEAR									10
NORTH ROAD	EB	C,D	2	DARK	FY	Y	R	FR	FY
NORTH ROAD	WB	A,B	6	DARK	FY	Y	R	FR	FY
PEDESTRIAN	N&S	P1-P2	4	DW	DW	DW	W	FDW	OUT
			RECALL	MIN				NONE	

**NOTES:**

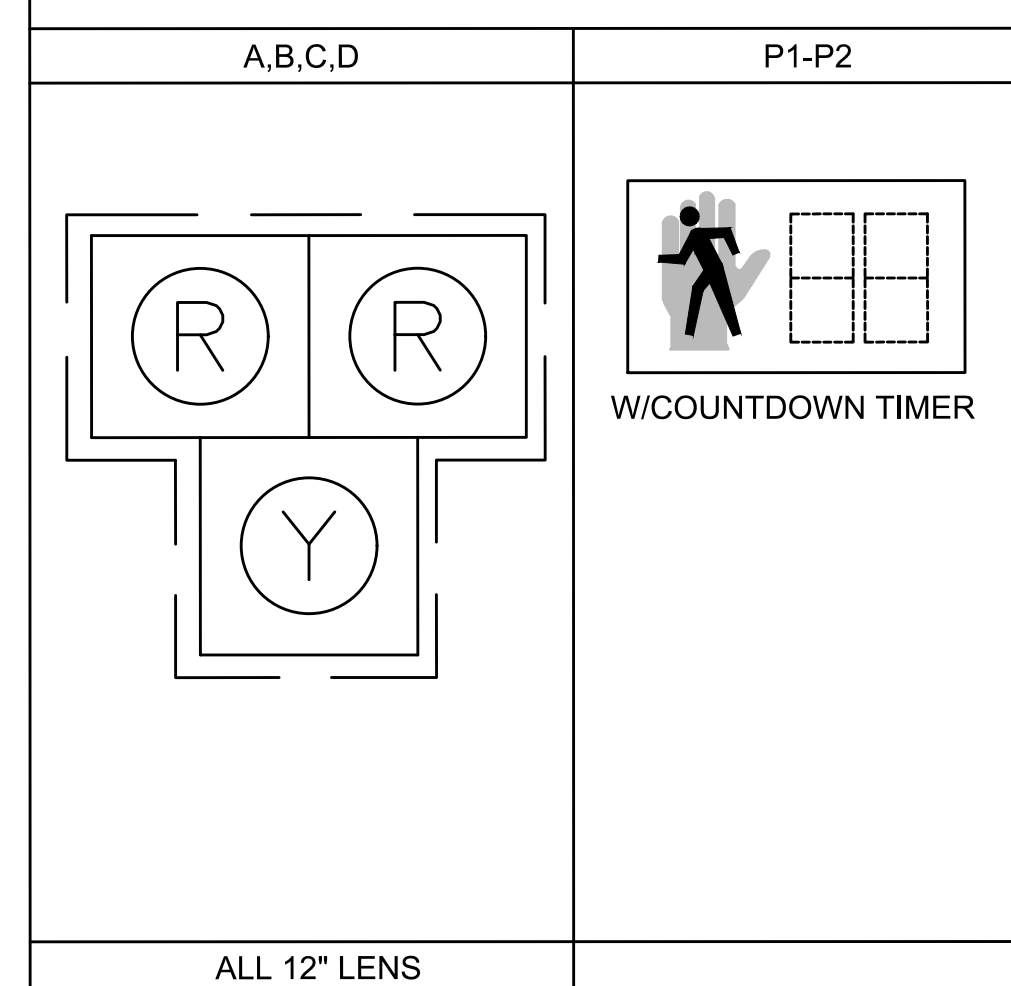
1. AUTOMATIC FLASHING OPERATION PER MUTCD SECTION 4D.12
2. \* UPON PEDESTRIAN PUSH BUTTON ACTUATION
3. FR=ALTERNATING FLASHING RED
4. STOP AND GO OPERATION FOR 24 HOURS PER DAY. FLASHING OPERATION FOR EMERGENCY ONLY



**TRAFFIC SIGNAL SYMBOLS**

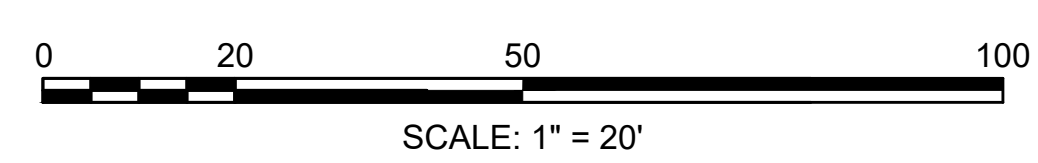
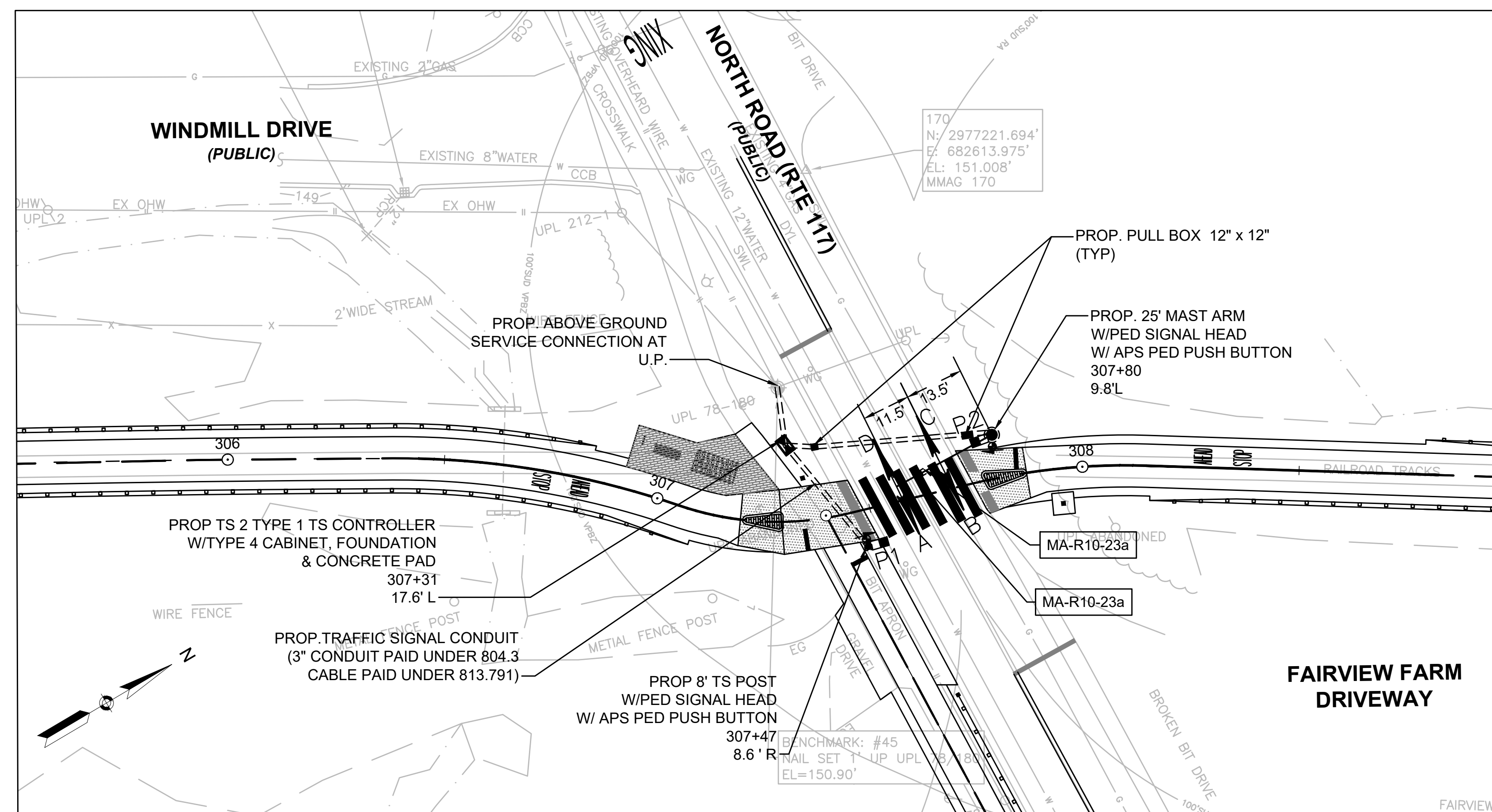
- PEDESTRIAN PUSH BUTTON, SIGN (DIRECTIONAL ARROW AS SHOWN) AND SADDLE
- VEHICULAR SIGNAL HEAD
- PEDESTRIAN SIGNAL HEAD
- STEEL OR ALUMINUM MAST ARM, SHAFT AND BASE (ARM LENGTH AS NOTED)
- CONTROL CABINET, GROUND MOUNTED
- PULL BOX 12"x12" (AND AS NOTED)
- PULL BOX 13"x24" (AND AS NOTED)
- 3" TRAFFIC SIGNAL CONDUIT (TYPE AS NOTED)
- PREEMPTION CONFIRMATION STROBE
- PROP EMERGENCY VEH DETECTOR

**SIGNAL HEAD DATA**



**NOTES:**

1. ALL SIGNAL HEADS SHALL BE RIGID MOUNTED.
2. ALL SIGNAL HEADS SHALL BE EQUIPPED WITH 5"± NON-LOUVERED BACKPLATES. ALL BACKPLATES SHALL CONTAIN A 3" WIDE YELLOW REFLECTIVE BORDER.
3. ALL SIGNAL HEADS SHALL BE EQUIPPED WITH TUNNEL VISORS.
4. ALL SIGNAL DISPLAYS SHALL BE EQUIPPED WITH L.E.D. MODULES.
5. ALL MAST ARMS BRACKETS SHALL BE FACTORY COATED FEDERAL GREEN.

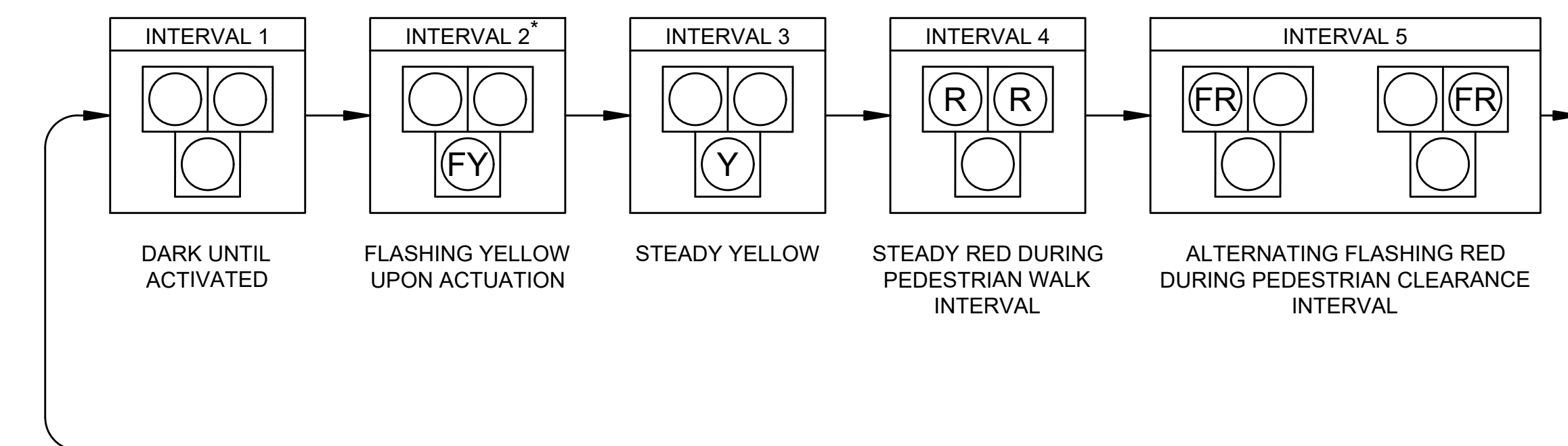


MAJOR ITEMS REQUIRED			
PAY ITEM	QUANTITY	ITEM	
804.3	91	3 INCH ELECTRICAL CONDUIT TYPE NM - PLASTIC -(UL)	
811.31	1	PULL BOX 12" X 12"	
815.2	1	SERVICE CONNECTION	
	2	25' MAST ARM - STEEL, INCL BASE & FOUNDATION	
	4	SIGNAL HEAD 1 WAY - 3 SECTION 12" LED LENS	
	2	16" LED PEDESTRIAN SIGNAL HEAD	
	2	ACCESSIBLE PEDESTRIAN SIGNAL WITH SIGN AND SADDLE	
	1	TRAFFIC SIGNAL CONTROLLER - TS2 TYPE 1, INCLUDING BASE MOUNTED CABINET NEMA TYPE 5 W CONCRETE PAD	
	2	ACCESSIBLE PEDESTRIAN SIGNAL WITH SIGN AND SADDLE	
	1	8' SIGNAL POST & BASE STANDARD - INCL FOUNDATION	
			PLUS ALL WIRE, CABLE, MOUNTING HARDWARE, EQUIPMENT & MATERIALS NECESSARY TO COMPLETE THE INSTALLATION

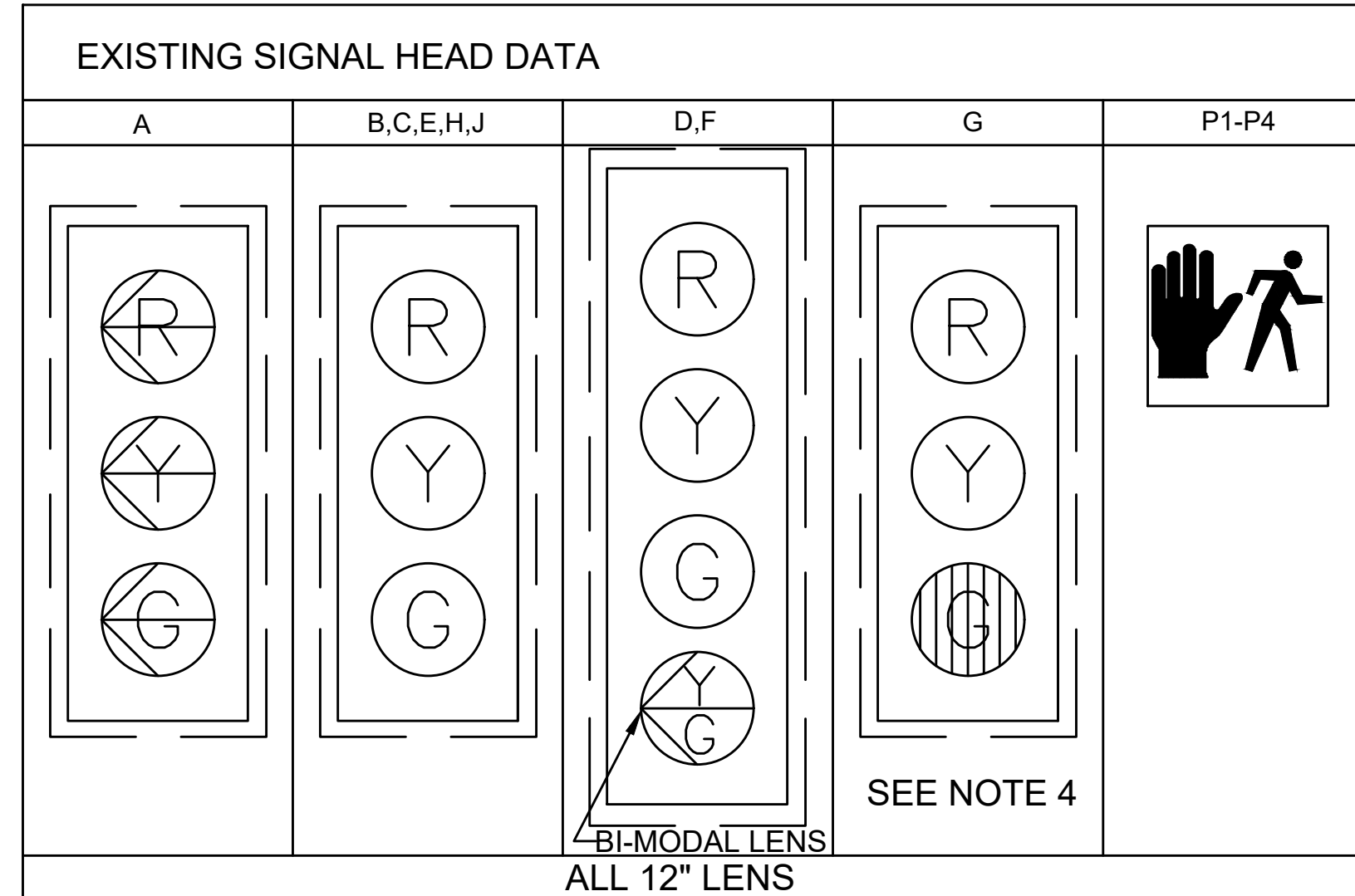
**CONSTRUCTION NOTES**

1. THE TOP OF ALL MAST ARM FOUNDATIONS IN SIDEWALK AREAS SHALL BE LOCATED FLUSH WITH FINISH GRADE.
2. THE TOP OF ALL MAST ARM FOUNDATIONS IN GRASSY AREAS SHALL BE LOCATED 3"± ABOVE FINISHED GRADE.
3. TS POST/POLE, WITH PEDESTRIAN PUSH BUTTON, NOT LOCATED WITHIN A PAVED SURFACE SHALL BE POSITIONED SO AS TO PROVIDE A 10" MAX CLEAR REACH ZONE BETWEEN THE PEDESTRIAN PUSH BUTTON AND THE PAVED SURFACE PER 521 CMR AND AS SHOWN IN THE CONSTRUCTION DETAILS.

**HAWK (PEDESTRIAN) PHASE SEQUENCE**



\* UPON PEDESTRIAN PUSH BUTTON ACTUATION  
R = STEADY RED  
FR = FLASHING RED  
Y = STEADY YELLOW  
FY = FLASHING YELLOW



- NOTES:**
1. ALL EX. SIGNAL HEADS ARE RIGID MOUNTED
  2. ALL EX. SIGNAL HEADS ARE EQUIPPED WITH 5"± LOUVERED BACK PLATES.
  3. ALL EX. SIGNAL HEADS ARE EQUIPPED WITH TUNNEL VISORS
  4. EX. SIGNAL HEAD G IS EQUIPPED WITH GEOMETRICALLY PROGRAMMABLE LOUVERS. IN THE GREEN INDICATION IT IS SET TO A 42° VIEW ANGLE.
  5. ALL EX. SIGNAL DISPLAYS ARE EQUIPPED WITH L.E.D. MODULES

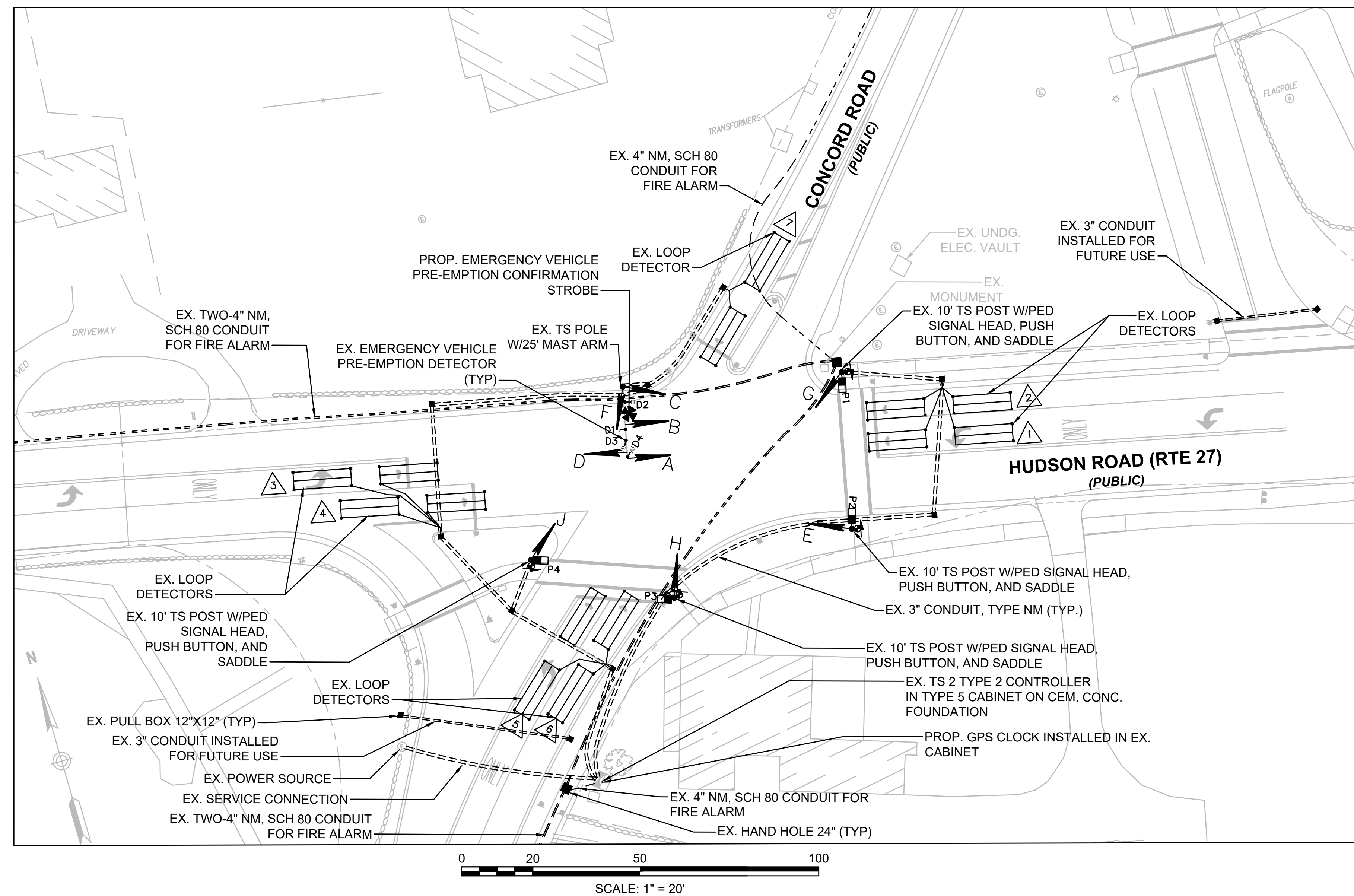
**EXISTING LOOP DETECTOR DATA**

DETECTOR NO.	NO. SECTION/ SIZE	NO. OF TURNS	OPERATIONS	DELAY/ EXIT	CALL PHASE	LOOP CONNECTION
1	2-6'X20' QUADRUPOLE	2-4-2	PRESENCE	2 SEC DELAY	Ø1	SERIES
2	2-6'X20' QUADRUPOLE	2-4-2	PRESENCE	0	Ø6	SERIES
3	2-6'X20' QUADRUPOLE	2-4-2	PRESENCE	2 SEC DELAY	Ø5 (SEE NOTE 2)	SERIES
4	2-6'X20' QUADRUPOLE	2-4-2	PRESENCE	0	Ø2	SERIES
5	2-6'X20' QUADRUPOLE	2-4-2	PRESENCE	2 SEC DELAY	Ø3 (SEE NOTE 3)	SERIES
6	2-6'X20' QUADRUPOLE	2-4-2	PRESENCE	0	Ø8	SERIES
7	2-6'X20' QUADRUPOLE	2-4-2	PRESENCE	0	Ø4	SERIES

- NOTES:**
1. DELAY AND EXTENSION TIMINGS SHALL BE PROGRAMMED IN THE CONTROLLER ONLY
  2. LOOP GROUP 3 SHALL CALL/EXTEND Ø2, THEN SWITCH TO CALL/EXTEND Ø5.
  3. LOOP GROUP 5 SHALL CALL/EXTEND Ø3, THEN SWITCH TO CALL/EXTEND Ø8.

**LEGEND**

—●—	EXISTING MAST ARM & POLE
●	EXISTING SIGNAL POST
—A	EXISTING SIGNAL HEAD
■P1	EXISTING PEDESTRIAN HEAD
●	EXISTING PEDESTRIAN PUSH BUTTON
■	EXISTING 12 X 12 PULL BOX
■	EXISTING 24 X 23 HAND HOLE
=====	EXISTING 3" PVC CONDUIT TYPE NM
■	EXISTING CONTROLLER CABINET W/CONC PAD
△	DETECTOR KEY
✱	EXISTING PREEMPTION CONFIRMATION STROBE
□	EXISTING LOOP DETECTOR
●—III	EXISTING EMERGENCY VEHICLE PRE-EMPTION DETECTOR



**MAJOR ITEMS REQUIRED**

PAY ITEM	QUANTITY	ITEM
816.03	1	GPS CLOCK PLUS ALL WIRE, CABLE, MOUNTING HARDWARE, EQUIPMENT & MATERIALS NECESSARY TO COMPLETE THE INSTALLATION

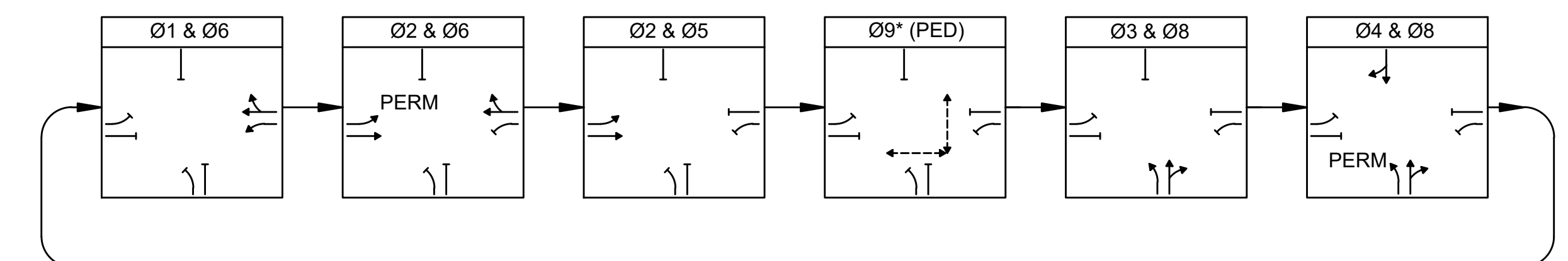
**SEQUENCE AND TIMING FOR FULLY ACTUATED CONTROL**

APPROACH	DIRECTION	HOUSING	PHASE 1			PHASE 2			PHASE 3			PHASE 4			PHASE 5			PHASE 6			PHASE 8			PHASE 9			FLASHING OPERATION PER MUTCD SEC. 4D-12	
			PREEMPTION II			PREEMPTION I			PREEMPTION III			PREEMPTION IIII			PREEMPTION I			PREEMPTION II			PREEMPTION III							
OLD SUDBURY RD (RTE 27)	WB	A	←G←	←Y←	←R←	←R←	←R←	←R←	←R←	←R←	←R←	←R←	←R←	←R←	←R←	←R←	←R←	←R←	←R←	←R←	←R←	←R←	←R←	←R←	←R←	←R←	FLASH	
OLD SUDBURY RD (RTE 27)	WB	B,C	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	FY	
HUDSON ROAD (RTE 27)	EB	D	R	R	R	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	FY	
HUDSON ROAD (RTE 27)	EB	E	R	R	R	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	FY	
CONCORD ROAD	NB	F	R	R	R	R	R	R	←S←	←Y←	←R←	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	FR	
CONCORD ROAD	NB	G	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	FR	
CONCORD ROAD	SB	H,J	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	FR	
PEDESTRIAN X-ING	NB-SB	P1-P2	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	OUT	
PEDESTRIAN X-ING	EB-WB	P3-P4	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	OUT	
TIMING IN SECONDS																												
MINIMUM GREEN (INITIAL)				4			10			6			8			6			10			8			-			CONFLICT FLASH OPERATION ONLY
PASSAGE TIME (VEHICLE)				2			2.5			2.5			2			2.5			2			2.5			-			
MAXIMUM 1				6			39			16			22			16			39			22			-			
MAXIMUM 2				6			33			18			26			16			33			26			-			
YELLOW CLEARANCE					3			4			3			4			3			4			4			-		
RED CLEARANCE						4			2			2			4			1			4			2		1		
PEDESTRIAN WALK																										7		
PEDESTRIAN CLEARANCE																										10		
DETECTOR MEMORY				NON-LOCK			NON-LOCK			NON-LOCK			NON-LOCK			NON-LOCK			NON-LOCK			NON-LOCK			-			
RECALL				OFF			SOFT			OFF			OFF			OFF			OFF			OFF			-			
DUAL ENTRY				OFF			OFF			OFF			ON			OFF			OFF			ON			-			
MAX I: MON-FRI 5AM-10AM MAX II: ALL OTHER TIMES			ø1			ø2			ø3			ø4			ø5			ø6			ø8			ø9				

**SEQUENCE & TIMING NOTES:**

- IF THE ASSIGNED RIGHT OF WAY FOR ANY TRAFFIC MOVEMENT IS TO REMAIN IN EFFECT DURING THE NEXT CALLED PHASE. THE SIGNAL INDICATIONS FOR THAT TRAFFIC MOVEMENT WILL NOT CHANGE DURING THE CLEARANCE INTERVAL.
- THE RIGHT OF WAY MAY BE ASSIGNED TO ANY PHASE OR ANY COMBINATION OF NON-CONFLICTING PHASES.
- IF CALLS EXIST ON ALL PHASES, THE ASSIGNMENT OF RIGHT OF WAY SHALL BE IN ACCORDANCE WITH THE PREFERENTIAL PHASE SEQUENCE.
- IF THE ASSIGNED RIGHT-OF-WAY FOR ANY TRAFFIC MOVEMENT IS TO CHANGE DURING THE NEXT CALLED PHASE, THE SIGNAL INDICATION FOR THAT MOVEMENT WILL DISPLAY THE APPROPRIATE CLEARANCE INTERVALS.

**PREFERENTIAL PHASE SEQUENCE**



\* UPON PEDESTRIAN PUSH BUTTON ACTUATION

**NOTES:**

- AUTOMATIC FLASHING OPERATION PER 2009 M.U.T.C.D. or AS AMENDED
- \*UPON PEDESTRIAN PUSH BUTTON ACTIVATION
- PERM=PERMISSIVE
- ACTUATED FOR 24 HOURS PER DAY, FLASHING OPERATION FOR EMERGENCY ONLY.

**PRE-EMPTION SIGNAL SEQUENCE**

APPROACH	DIRECTION	HOUSING	PREEMPTION I			PREEMPTION II			PREEMPTION III			PREEMPTION IIII		
			ø2&ø5			ø1&ø6			ø3&ø8			ø4		
OLD SUDBURY RD (RTE 27)	WB	A	R	R	R	←G←	←Y←	←R←	R	R	R	R	R	R
OLD SUDBURY RD (RTE 27)	WB	B,C	R	R	R	R	G	Y	R	R	R	R	R	R
HUDSON RD (RTE 27)	EB	D	←G←	←Y←	←R←	R	R	R	R	R	R	R	R	R
HUDSON RD (RTE 27)	EB	E	G	Y	R	R	R	R	R	R	R	R	R	R
CONCORD RD	NB	F	R	R	R	R	R	R	←G←	←Y←	←R←	R	R	R
CONCORD RD	NB	G	R	R	R	R	R	R	R	G	Y	R	R	R
CONCORD RD	SB	H,J	R	R	R	R	R	R	R	R	R	G	Y	R

**EMERGENCY VEHICLE PRE-EMPTION OPERATION:**

- EMERGENCY VEHICLE PRE-EMPTION SIGNALS SHALL BE OPTICALLY TRANSMITTED BY OPTICAL EMITTERS MOUNTED IN EMERGENCY VEHICLES AND RECEIVED BY OPTICAL DETECTORS LOCATED AT THIS INTERSECTION.
- PRE-EMPTION SIGNALS SHALL BE SERVICED ON A PRIORITY BASIS WITH DETECTORS D1, D2, D3, OR D4 ASSIGNED DESCENDING PRIORITIES AS FOLLOWS: (D1 HIGHEST AND D4 LOWEST)
- IN RESPONSE TO A PRE-EMPTION SIGNAL RECEIVED AT AN INTERSECTION BY OPTICAL DETECTOR D1 (OR D2, D3, D4) THE CONTROLLER SHALL HOLD OR ADVANCE TO AND HOLD IN EMERGENCY VEHICLE PRE-EMPTION PHASE #1 (OR #2,#3,#4) GREEN FOR A MINIMUM OF TEN (10) SECONDS OR UNTIL PRE-EMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME PRE-EMPTION PHASE CLEARANCES FOR THE ASSOCIATED PHASE(S) AS SHOWN IN THE SEQUENCE AND TIMING CHART AND SERVICE SUBSEQUENT EMERGENCY VEHICLE PRE-EMPTION PHASES AS NECESSARY.
- MINIMUM GREEN AND NORMAL VEHICLE CLEARANCE SHALL BE PROVIDED ON PHASES THAT ARE TO BE TERMINATED BY PRE-EMPTION DEMAND.
- PRE-EMPTION STROBE SHALL BE ILLUMINATED WHENEVER ANY EMERGENCY VEHICLE PRE-EMPTION GREEN IS ON.



HUDSON RD (RTE 27) AT PEAKHAM RD		
	PLAN 1 (SEC.)	PLAN 2 (SEC.)
Ø1&Ø6	09	16
Ø2&Ø6	85	77
Ø4&Ø8	35	36
Ø9**	21	21
CYCLE LENGTH	150	150
OFFSET*		

HUDSON RD (RTE 27) AT CONCORD RD		
	PLAN 1 (SEC.)	PLAN 2 (SEC.)
Ø1&Ø6	13	13
Ø2&Ø6	45	39
Ø2&Ø5	23	23
Ø9**	21	21
Ø3&Ø8	21	23
Ø4&Ø8	27	31
CYCLE LENGTH	150	150
OFFSET*	0	0

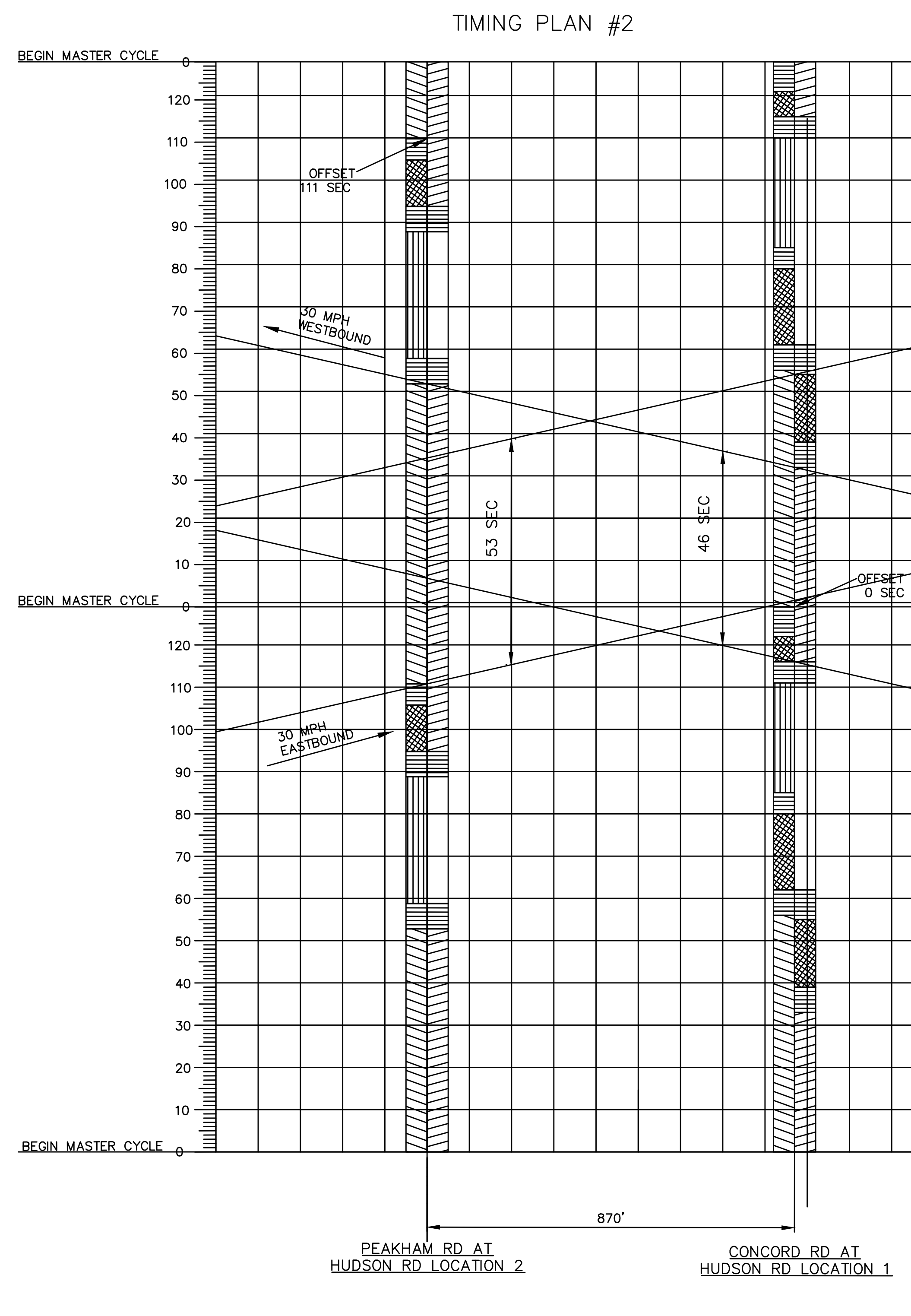
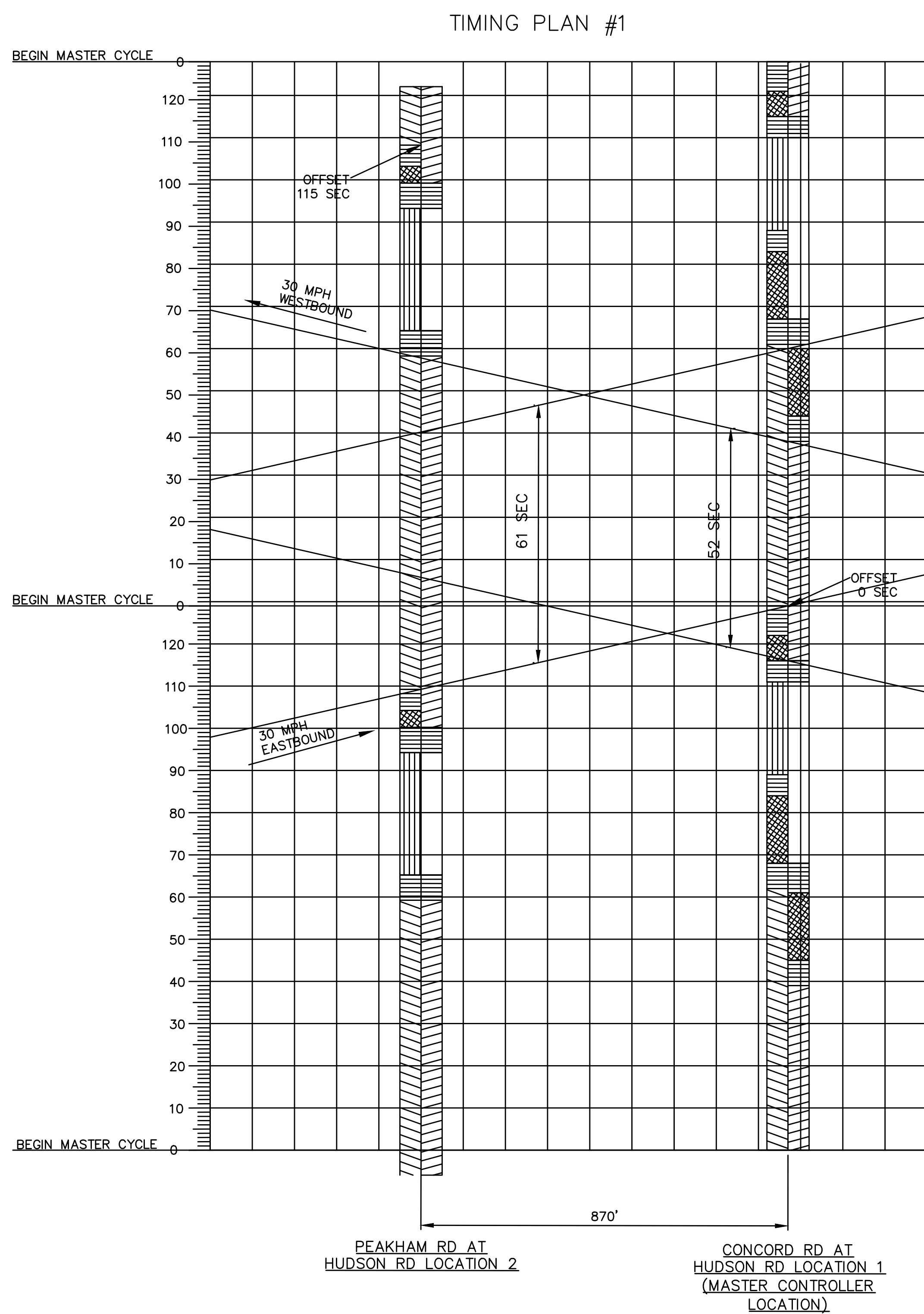
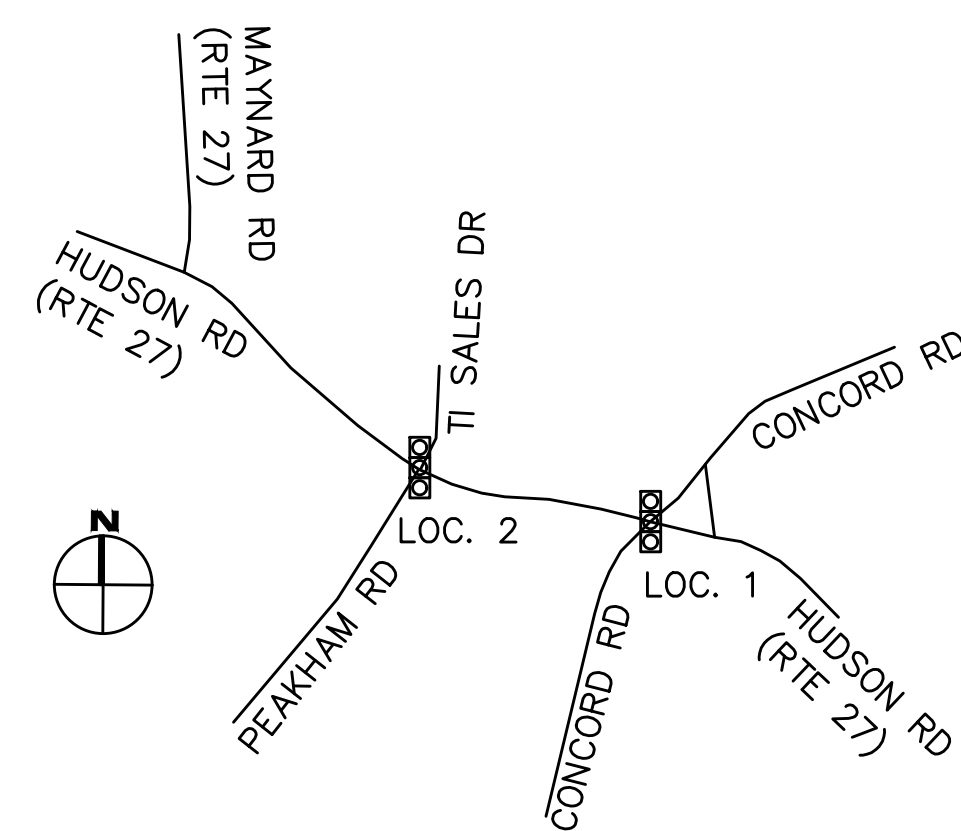
**NOTES:**

\*OFFSET REFERENCED TO Ø2+Ø6 START OF GREEN

\*\* PUSH-BUTTON ACTIVATED EXCLUSIVE PED PHASE IS NOT INCLUDED IN COORDINATION PLAN. CONTROLLER SHALL RE-COORDINATE TIMINGS AFTER EXCLUSIVE PED PHASE IS SERVED.

HUDSON RD AT CONCORD RD IS THE SYSTEM MASTER CONTROLLER LOCATION

DAILY PROGRAMMING COORDINATION DATA			
OPERATION MODE	MON. - FRI.	SATURDAY	SUNDAY
PLAN 1	05:00-10:00		
PLAN 2	00:00-4:59 10:01-23:59	00:00-23:59	00:00-23:59



- LEGEND**
- YELLOW AND RED CLEARANCE INTERVAL
  - EASTBOUND GREEN TIME (Ø2)
  - WESTBOUND GREEN TIME (Ø6)
  - LEFT TURN PHASE GREEN TIME (Ø1, Ø3 or Ø5)
  - SOUTH GREEN TIME (Ø4)
  - NORTH GREEN TIME (Ø8)
  - 100' X 10 SEC.
  - BANDWIDTH SLOPE = 25 MPH OR 36.7 FT/SEC



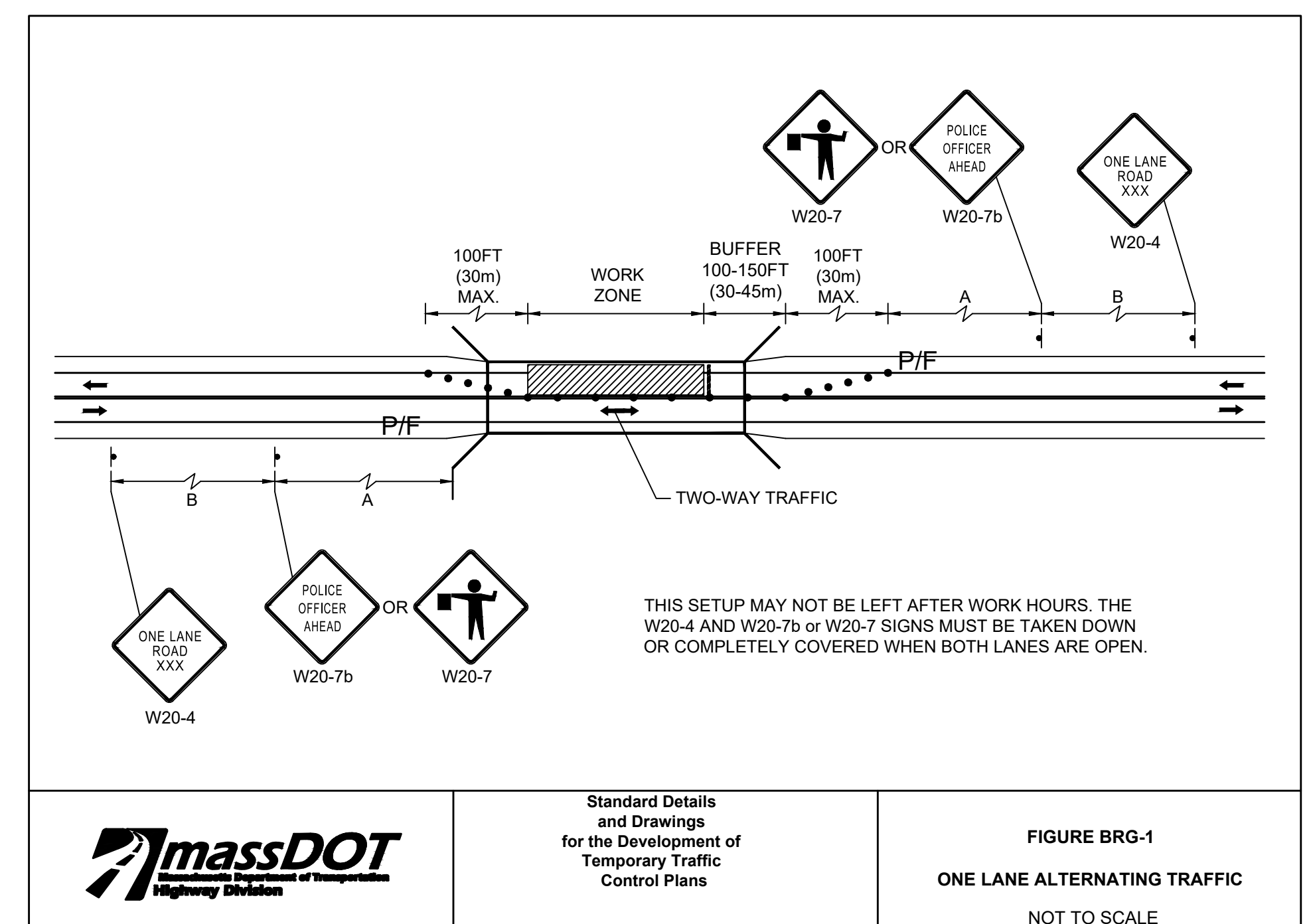
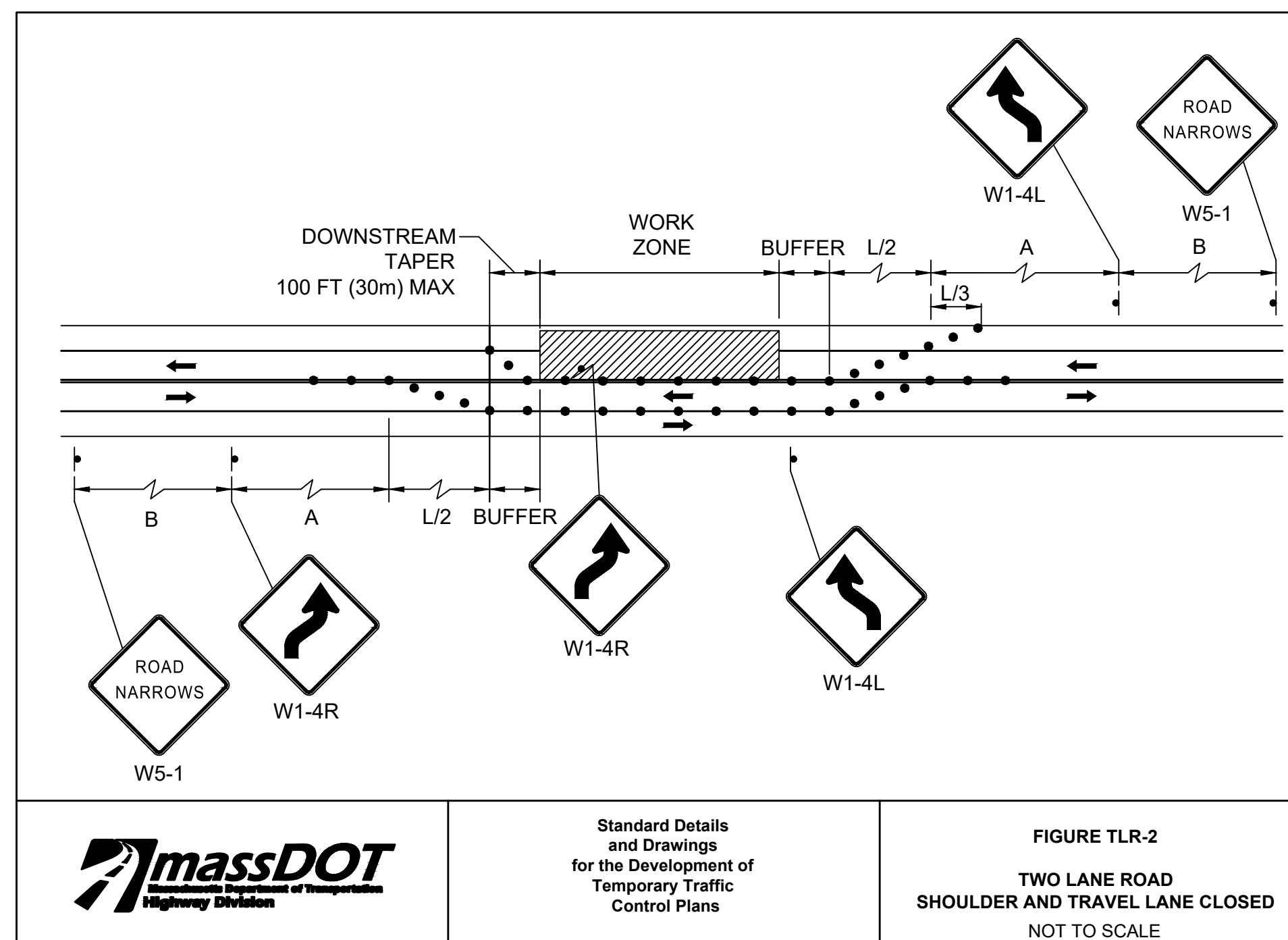
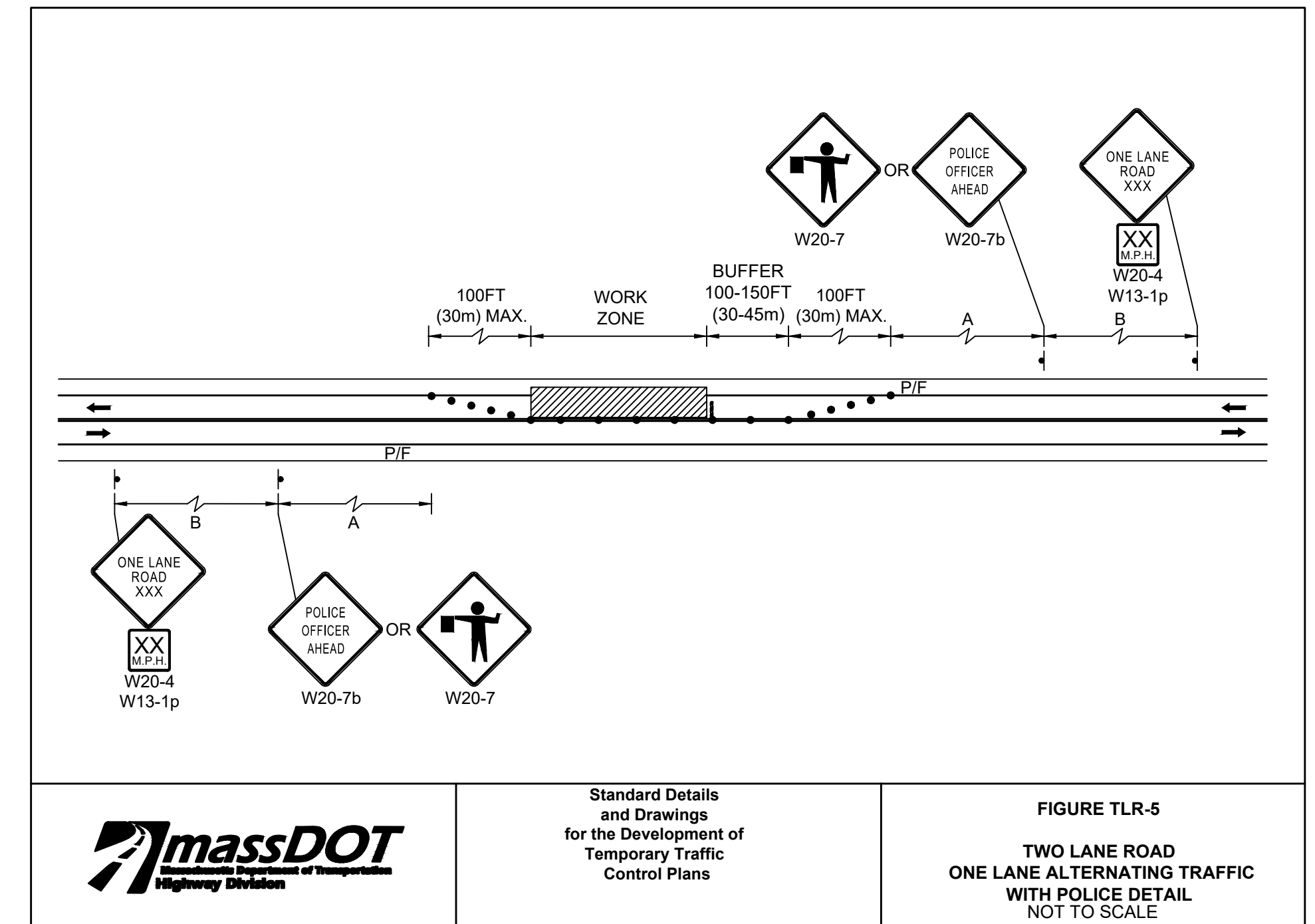
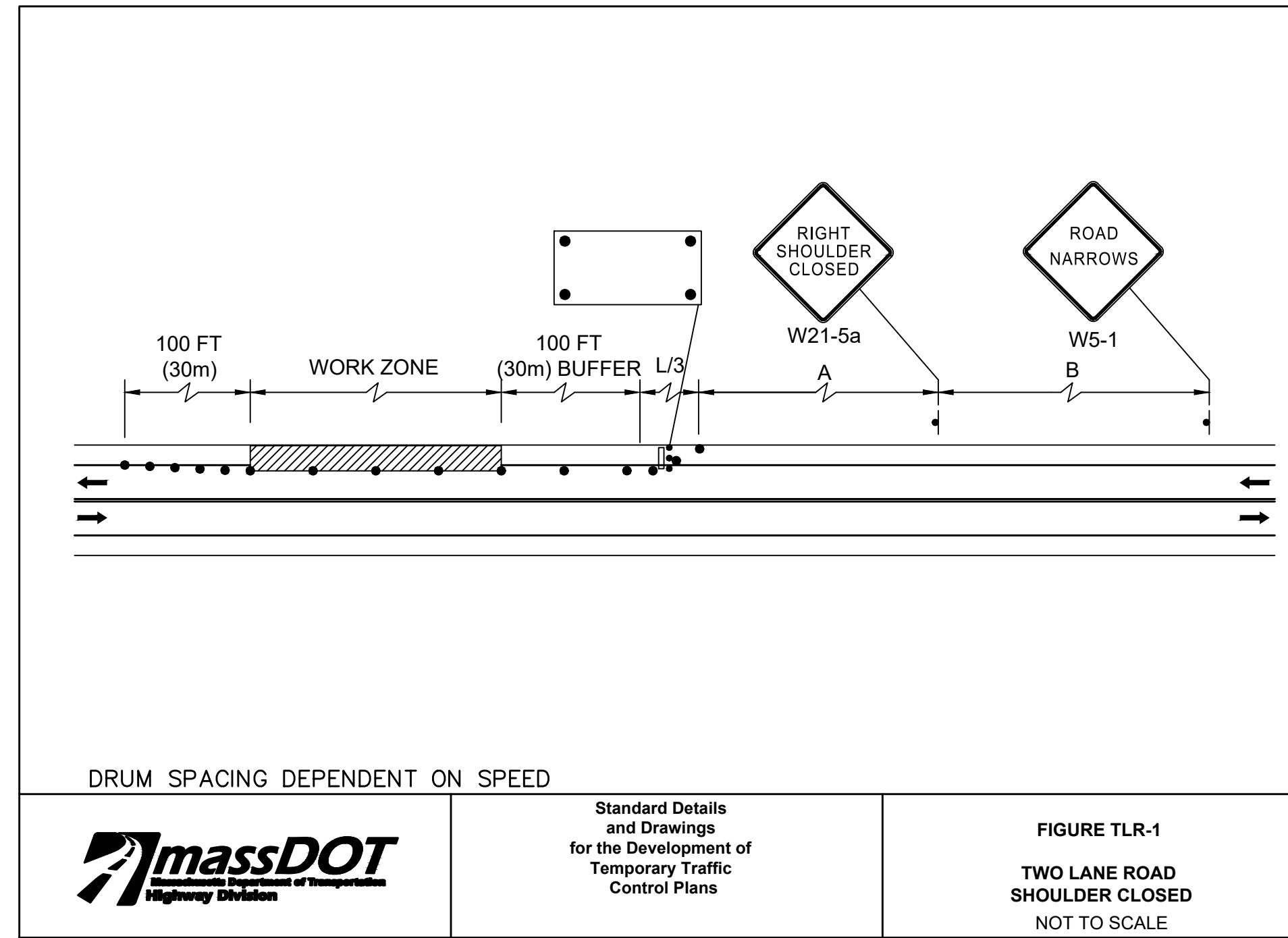
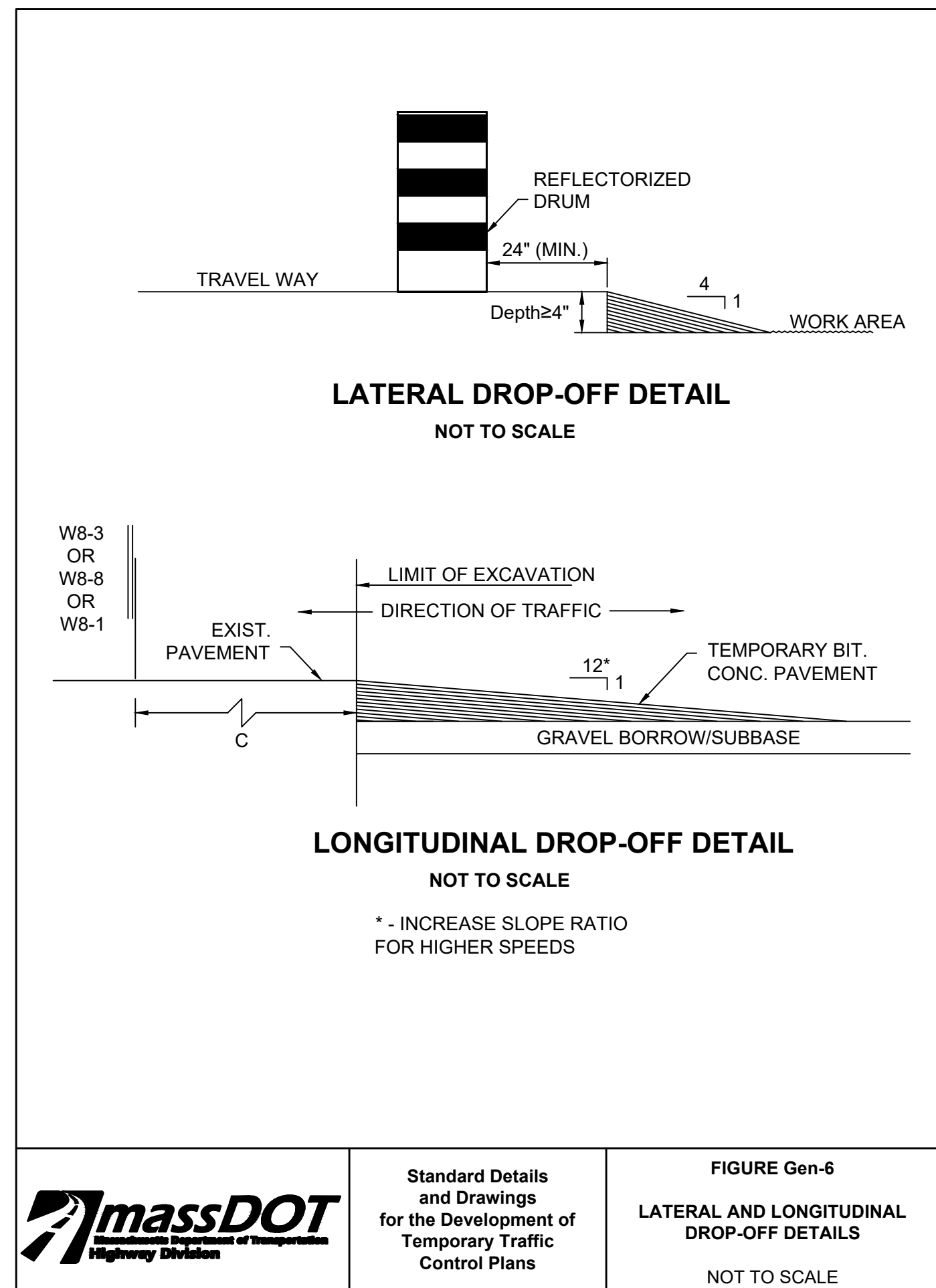
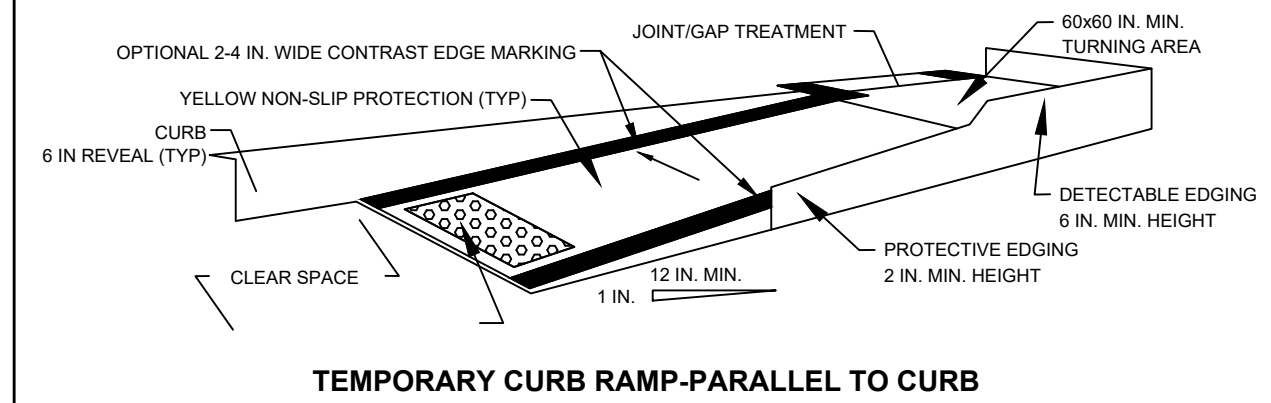
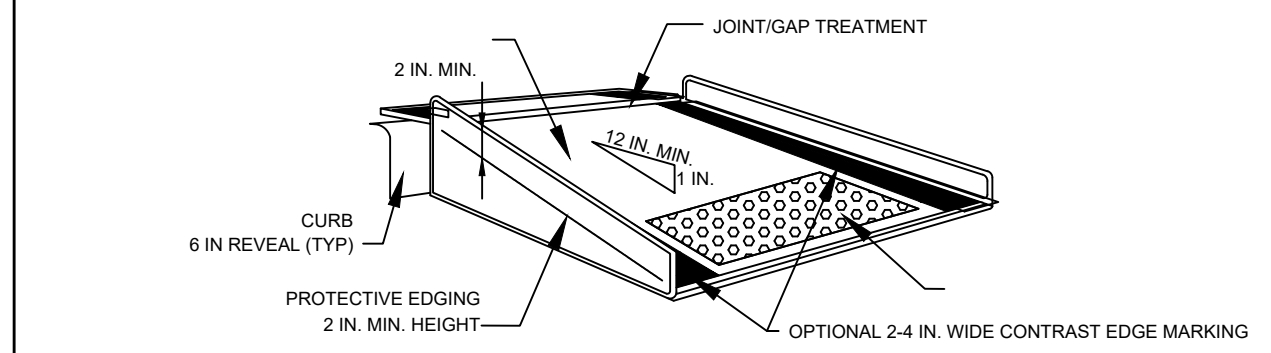


FIGURE 4  
 TYPICAL PEDESTRIAN DEVICES  
 (1 OF 2)  
 NOT TO SCALE



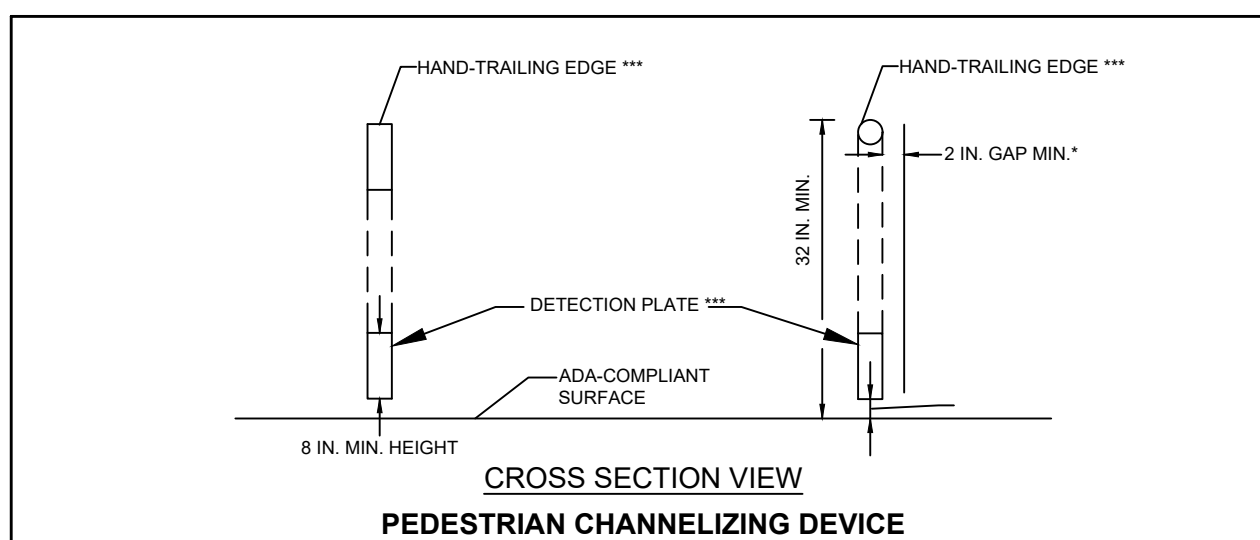
TEMPORARY CURB RAMP-PARALLEL TO CURB



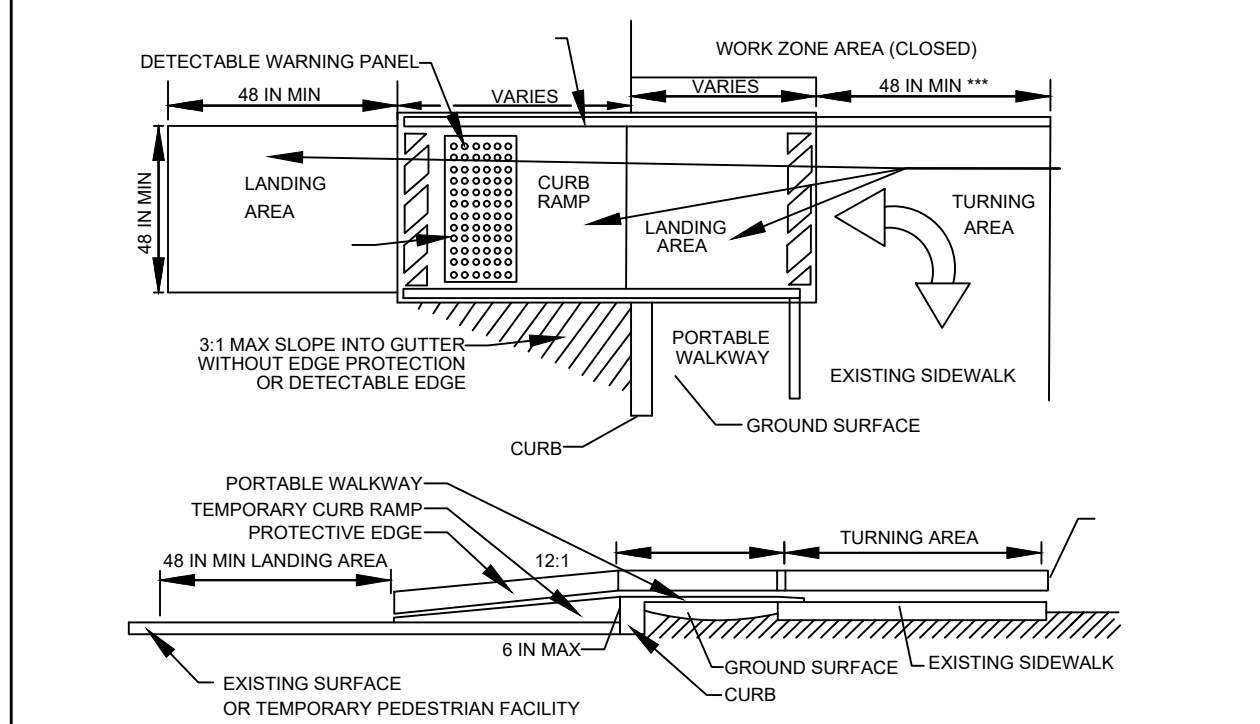
TEMPORARY CURB RAMP-PERPENDICULAR TO CURB

NOTES:

- CURB RAMPS SHALL BE 60 IN. MINIMUM WIDTH WITH A FIRM, STABLE, AND NON-SLIP SURFACE.
- PROTECTIVE EDGING WITH A 2 IN. MINIMUM HEIGHT SHALL BE INSTALLED WHEN THE CURB RAMP OR LANDING PLATFORM HAS A VERTICAL DROP OF 6 IN. OR GREATER OR HAS A SIDE APRON SLOPE STEEPER THAN 1:3 (33%). PROTECTIVE EDGING SHOULD BE CONSIDERED WHEN THE CURB RAMPS OR LANDING PLATFORMS HAVE A VERTICAL DROP OF 3 IN. OR MORE.
- PROTECTABLE EDGING WITH 6 IN. MINIMUM HEIGHT AND CONTRASTING COLOR SHALL BE INSTALLED ON ALL CURB RAMP LANDINGS WHERE THE WALKWAY CHANGES DIRECTION (TURNS).
- THE CURB RAMP WALKWAY AND LANDING AREA SURFACE SHALL BE OF A SOLID CONTINUOUS CONTRASTING COLOR ABUTTING UP TO THE EXISTING SIDEWALK.
- CURB RAMPS AND LANDINGS SHOULD HAVE A 1:50 (2%) MAX CROSS-SLOPE.
- CLEAR SPACE OF 48x48 IN. MINIMUM SHALL BE PROVIDED ABOVE AND BELOW THE CURB RAMP.
- WATER FLOW IN THE GUTTER SYSTEM SHALL HAVE MINIMAL RESTRICTION.
- LATERAL JOINTS OR GAPS BETWEEN SURFACES SHALL BE LESS THAN 0.5 IN. WIDTH.
- CHANGES BETWEEN SURFACE HEIGHTS SHOULD NOT EXCEED 0.5 IN. LATERAL EDGES SHOULD BE VERTICAL UP TO 0.25 IN. HIGH, AND BEVELED AT 1:2 BETWEEN 0.25 IN. AND 0.5 IN. HEIGHT.
- IF A TEMPORARY PEDESTRIAN RAMP LEADS TO A CROSSWALK, THEN A DETECTABLE WARNING PAD MUST BE ADHERED TO THE BASE OF THE RAMP. IF IT LEADS TO A PROTECTED PEDESTRIAN BYPASS THAT DOES NOT CONFLICT WITH VEHICULAR TRAFFIC, THEN A PAD SHALL NOT BE INSTALLED ON THE RAMP.



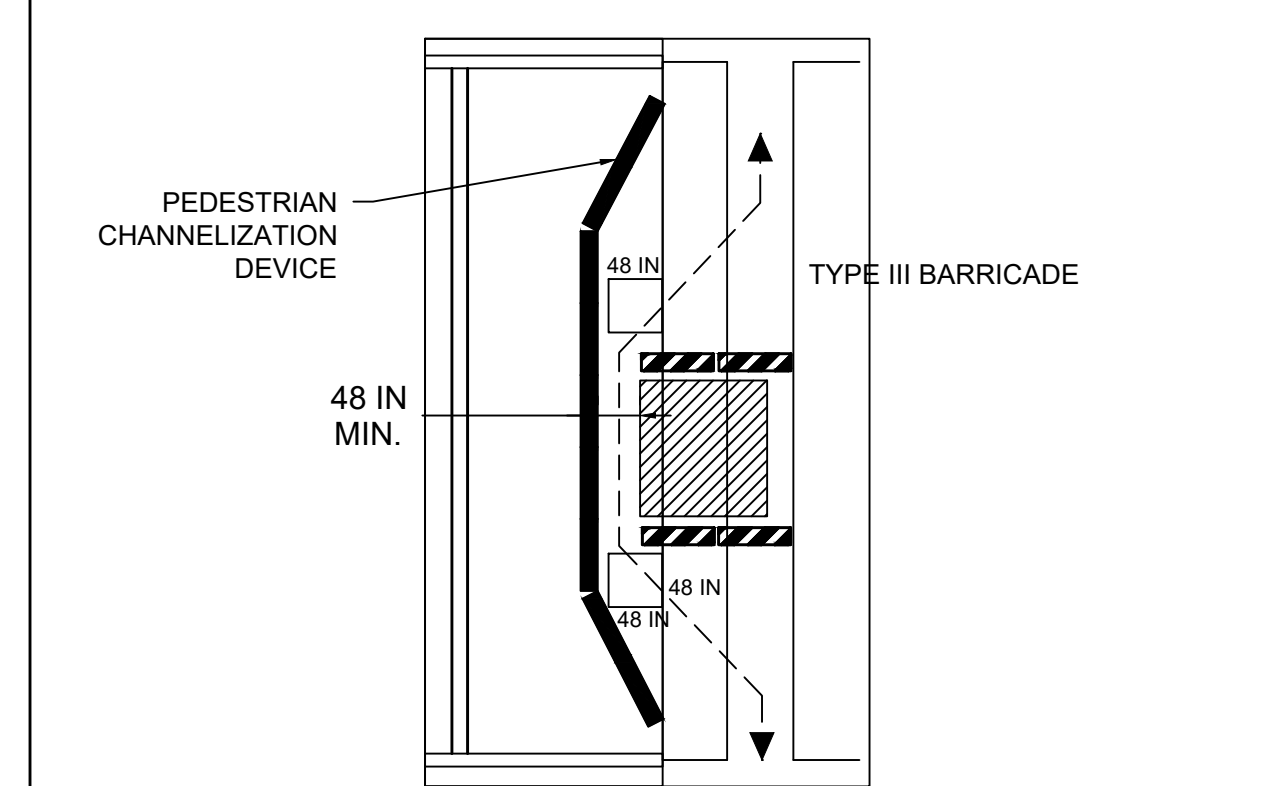
CROSS SECTION VIEW  
 PEDESTRIAN CHANNELIZING DEVICE



TEMPORARY CURB RAMP

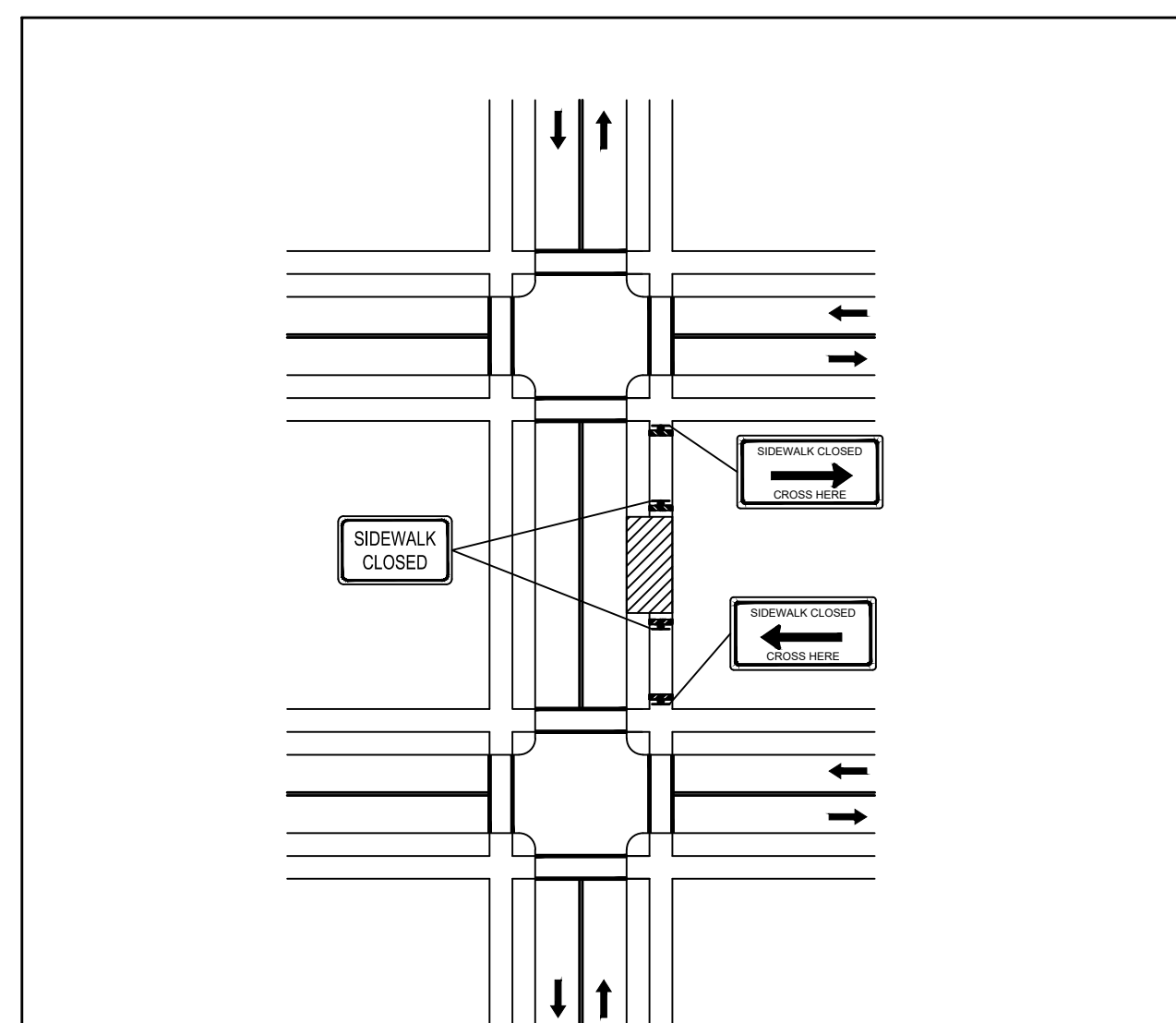
FIGURE 5  
 TYPICAL PEDESTRIAN DEVICES  
 (2 OF 2)  
 NOT TO SCALE

FIGURE 45  
 PEDESTRIAN BYPASS



NOTES:

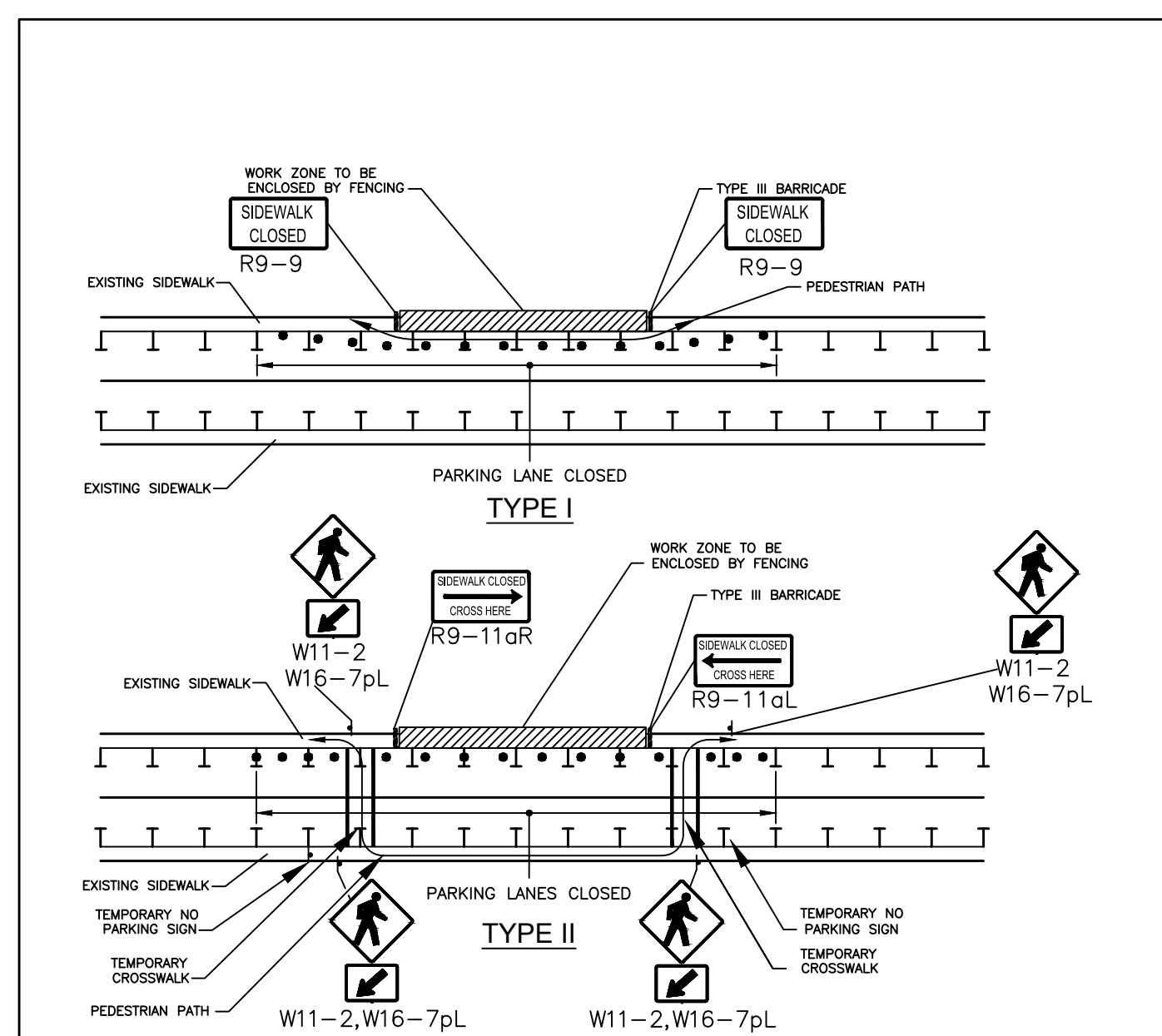
- WHEN EXISTING PEDESTRIAN FACILITIES ARE DISRUPTED, CLOSED, OR RELOCATED IN A TTC ZONE, TEMPORARY FACILITIES SHALL BE PROVIDED AND THEY SHALL BE DETECTABLE AND INCLUDE ACCESSIBILITY FEATURES CONSISTENT WITH THE FEATURES PRESENT IN THE EXISTING PEDESTRIAN FACILITY.
- A PEDESTRIAN CHANNELIZING DEVICE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



NOTES:

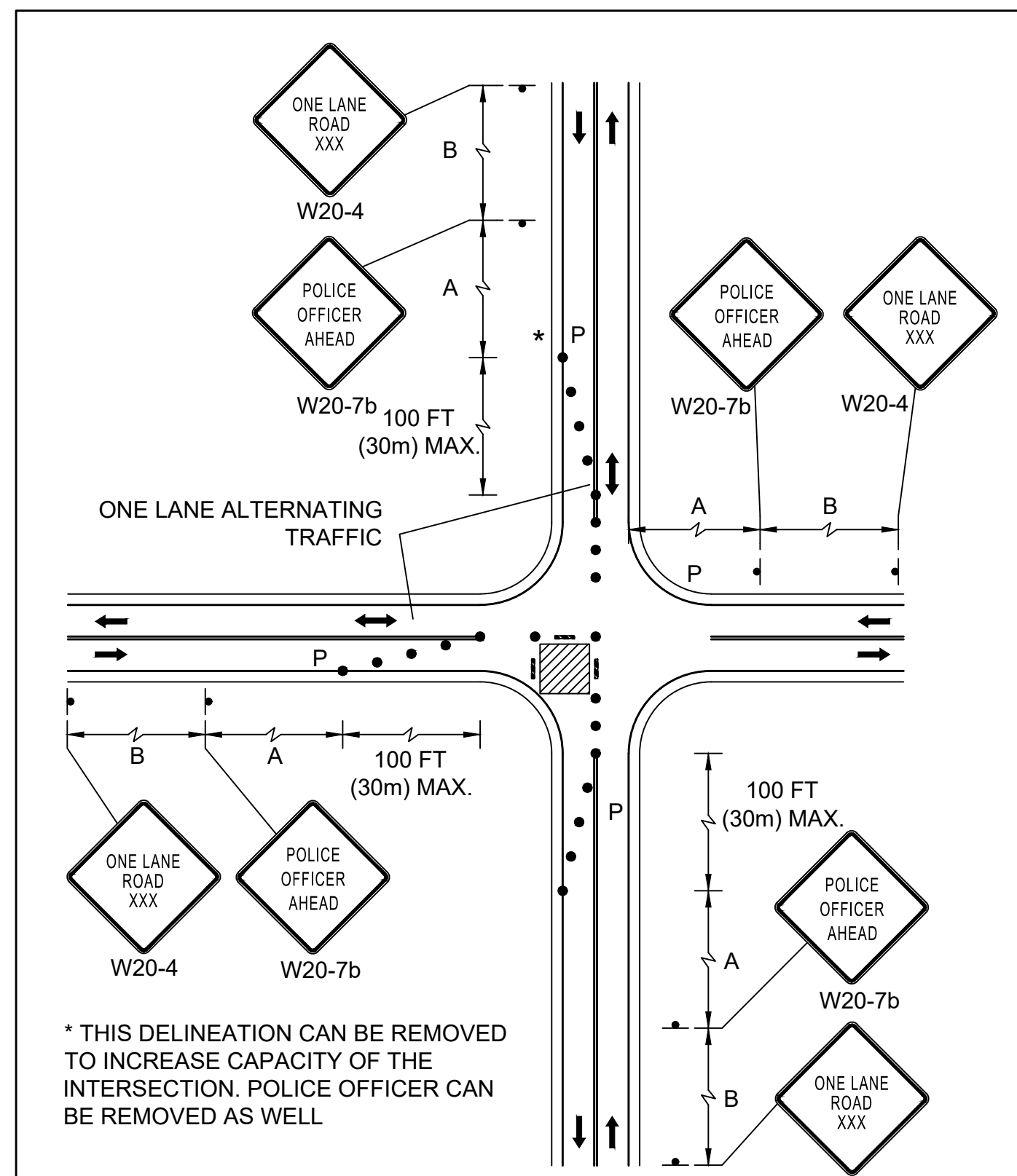
- CLOSURE OF A SIDEWALK FACILITY SHALL CONSTITUTE THE PROVISION FOR MANAGING PEDESTRIAN TRAFFIC AND ACCOMMODATING ALL USERS. IF THE EXISTING PEDESTRIAN ACCESS ROUTE(S) CAN BE TEMPORARILY RELOCATED ALONG THE EXISTING SIDEWALK, AND SAID FACILITY PROVIDES A MINIMUM WIDTH OF 48-INCHES OF SOLID, SMOOTH UNOBSTRUCTED SURFACE, THEN NO DETOURING OF THE ROUTE SHALL BE REQUIRED. DELINEATION OF THE WORK AREA IS STILL REQUIRED.
- IF IT IS NECESSARY TO DIVERT PEDESTRIAN TRAFFIC TO AN ALTERNATE ROUTE ACROSS THE ROADWAY FROM THE EXISTING FACILITY, THE FIGURE ABOVE SHALL BE FOLLOWED TO PROVIDE ADEQUATE DIRECTION TO PEDESTRIANS. ALTERNATE ROUTE SHALL PROVIDE THE SAME LEVEL OF ACCOMMODATION AS THE FACILITY THAT IS BEING DETOURED AND RETAIN ADA COMPLIANCE IN ITS ENTIRETY.
- FOR EMERGENCY OR SHORT-DURATION SIDEWALK CLOSURES OF 4-HOURS OR LESS, IT IS OPTIONAL TO HAVE ON-DEMAND PEDESTRIAN ASSISTANCE PERSONNEL AVAILABLE AT ALL TIMES DURING THE CLOSURE TO ASSIST THOSE MOBILITY CHALLENGED PERSONS WHO REQUIRE ADDITIONAL ASSISTANCE TO SAFELY NAVIGATE AROUND THE WORK AREA IN LIEU OF A FULL DETOUR.

FIGURE 46  
 TEMPORARY SIDEWALK CLOSURE



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

FIGURE Ped-7  
 PEDESTRIAN DETAILS  
 NOT TO SCALE



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

FIGURE Int-2  
 SINGLE LANE APPROACH ONE QUADRANT CLOSURE  
 NOT TO SCALE

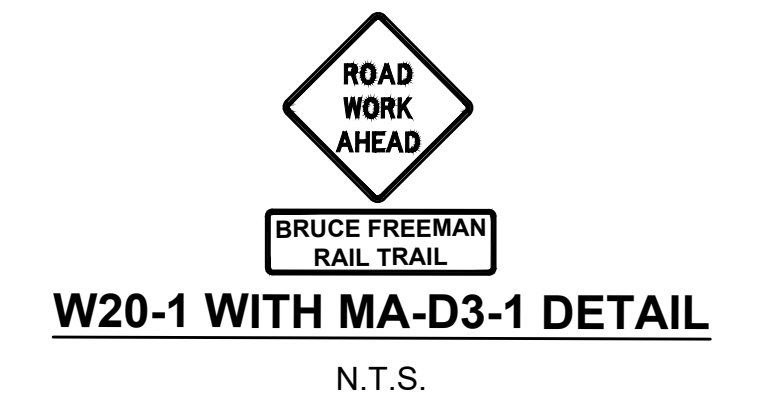
**SUDBURY  
BRUCE FREEMAN RAIL TRAIL**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	169	318
PROJECT FILE NO.		608164	

**TEMPORARY TRAFFIC CONTROL PLANS  
SIGN SUMMARY**

IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (in)			COLOR			SIGN FACE AREA (S.F.)
	WIDTH (IN)	HEIGHT (IN)		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.	BACK-GROUND	LEGEND	BORDER	
R3-7L	30	30		SEE FHWA 2004 STANDARD HIGHWAY SIGNS MANUAL & 2012 SUPPLEMENT (ENGLISH VERSION)			WHITE	BLACK	BLACK	6.25
R3-7R	30	30					WHITE	BLACK	BLACK	6.25
R9-8	36	18					FLRSCNT. ORANGE	BLACK	BLACK	4.5
R9-9	24	12					FLRSCNT. ORANGE	BLACK	BLACK	2
R9-10	24	12					FLRSCNT. ORANGE	BLACK	BLACK	2
R9-11L	24	18					FLRSCNT. ORANGE	BLACK	BLACK	3
R9-11R	24	18					FLRSCNT. ORANGE	BLACK	BLACK	3
R9-11aL	24	18					FLRSCNT. ORANGE	BLACK	BLACK	3
R9-11aR	24	18					FLRSCNT. ORANGE	BLACK	BLACK	3
W1-4L	36	36					FLRSCNT. ORANGE	BLACK	BLACK	9
W1-4R	36	36					FLRSCNT. ORANGE	BLACK	BLACK	9
W4-2L	36	36					FLRSCNT. ORANGE	BLACK	BLACK	9
MA-W4-7L	36	36		SEE MASSDOT 2016 STANDARD SIGNS BOOK			FLRSCNT. ORANGE	BLACK	BLACK	9
W5-1	36	36		SEE FHWA 2004 STANDARD HIGHWAY SIGNS MANUAL & 2012 SUPPLEMENT (ENGLISH VERSION)			FLRSCNT. ORANGE	BLACK	BLACK	9
W8-3	36	36					FLRSCNT. ORANGE	BLACK	BLACK	9
W11-2	30	30					FLRSCNT. ORANGE	BLACK	BLACK	6.25
W13-1	24	24					FLRSCNT. ORANGE	BLACK	BLACK	4

IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (in)			COLOR			SIGN FACE AREA (S.F.)
	WIDTH (IN)	HEIGHT (IN)		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.	BACK-GROUND	LEGEND	BORDER	
W16-7PL	24	12		SEE FHWA 2004 STANDARD HIGHWAY SIGNS MANUAL & 2012 SUPPLEMENT (ENGLISH VERSION)			FLRSCNT. ORANGE	BLACK	BLACK	2
W16-9P	24	12					FLRSCNT. ORANGE	BLACK	BLACK	2
W20-4	36	36					FLRSCNT. ORANGE	BLACK	BLACK	9
W20-5L	36	36					FLRSCNT. ORANGE	BLACK	BLACK	9
W20-5R	36	36					FLRSCNT. ORANGE	BLACK	BLACK	9
W20-7a	36	36					FLRSCNT. ORANGE	BLACK	BLACK	9
MA-W20-7b	36	36		SEE MASSDOT 2016 STANDARD SIGNS BOOK			FLRSCNT. ORANGE	BLACK	BLACK	9
W21-5aR	36	36		SEE FHWA 2004 STANDARD HIGHWAY SIGNS MANUAL & 2012 SUPPLEMENT (ENGLISH VERSION)			FLRSCNT. ORANGE	BLACK	BLACK	9



**FIXED CONSTRUCTION WARNING SIGN PLAN**

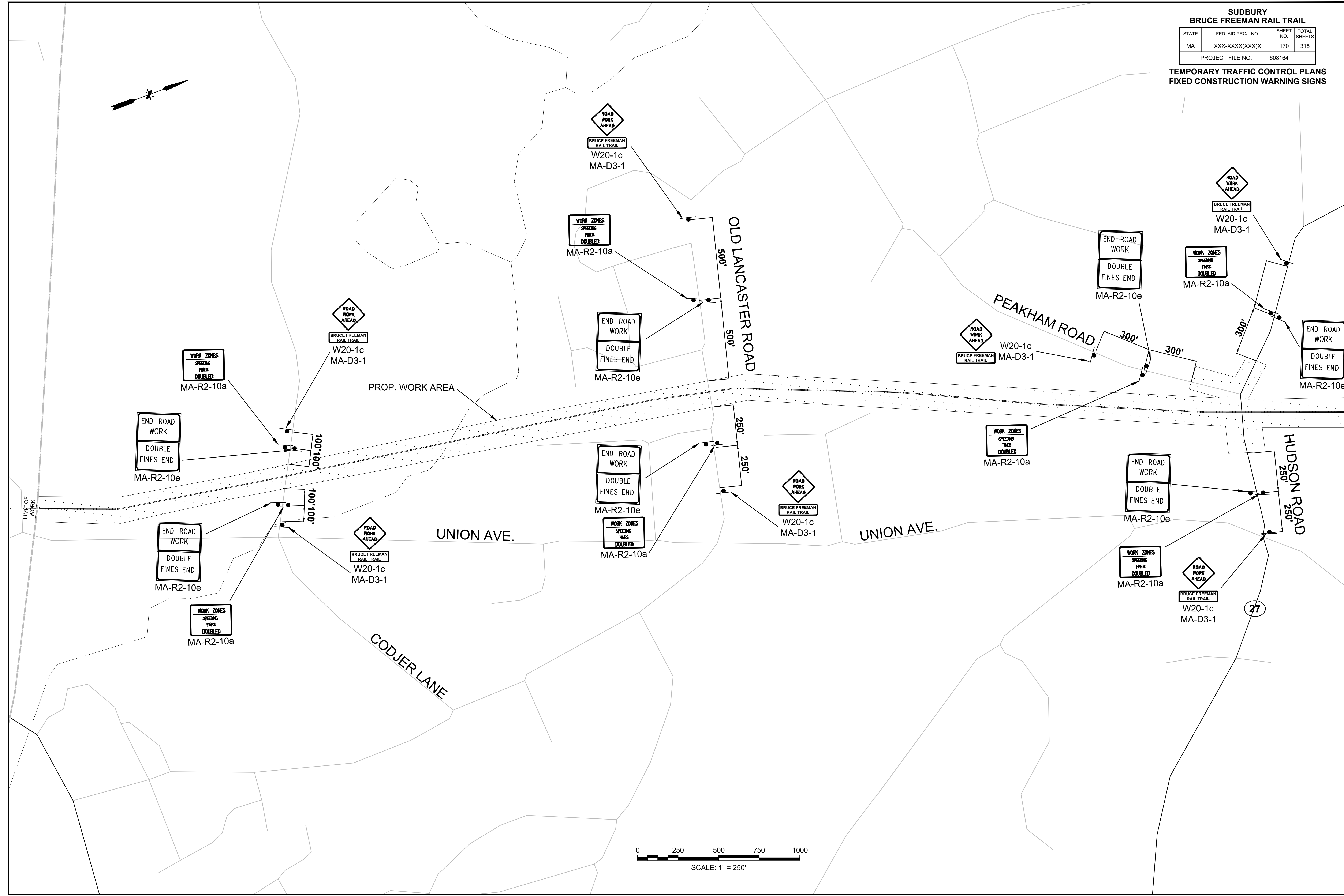
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	WIDTH (IN)	HEIGHT (IN)			LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.	BACK-GROUND	LEGEND	BORDER			
MA-D3-1	40	18		14	5C	3	N/A	FLRSCNT. ORANGE	BLACK	BLACK	MOUNTED W/ W20-1	5	70
MA-R2-10a	48	36		15	SEE MASSDOT 2016 STANDARD SIGNS BOOK			FLRSCNT. ORANGE WHITE	BLACK	BLACK	U-CHAN. 15 REQ'D	12	180
MA-R2-10e	36	48		14	SEE MASSDOT 2016 STANDARD SIGNS BOOK			FLRSCNT. ORANGE/ WHITE	BLACK	BLACK	U-CHAN. 28 REQ'D	12	168
W20-1c	36	36		14	5C	3	N/A	FLRSCNT. ORANGE	BLACK	BLACK	U-CHAN. 14 REQ'D	9	126

**TYPICAL CONSTRUCTION SIGNING**  
N.T.S.

**SUDBURY  
BRUCE FREEMAN RAIL TRAIL**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	170	318
PROJECT FILE NO.		608164	

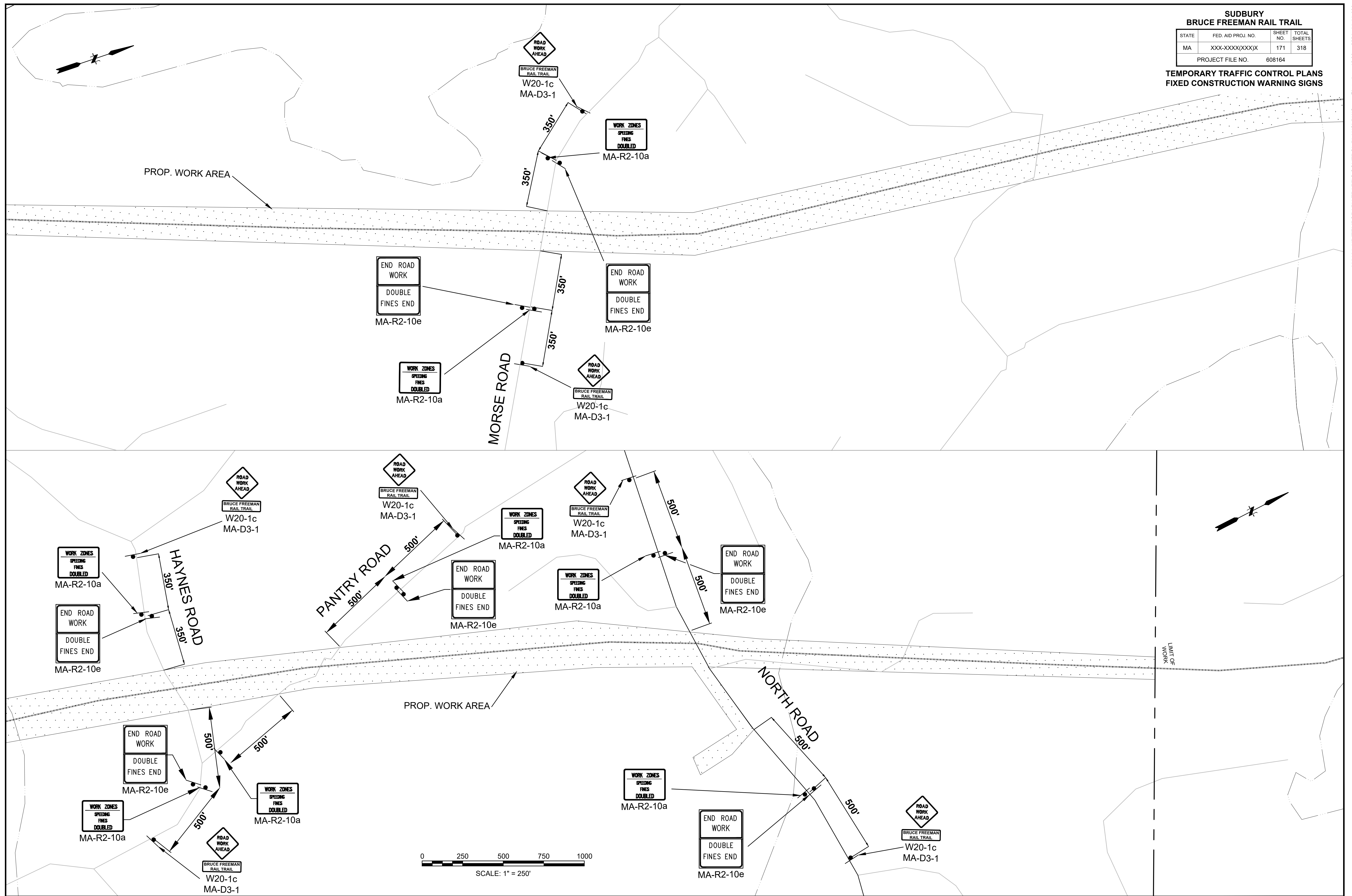
**TEMPORARY TRAFFIC CONTROL PLANS  
FIXED CONSTRUCTION WARNING SIGNS**



**SUDBURY**  
**BRUCE FREEMAN RAIL TRAIL**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	171	318
PROJECT FILE NO.		608164	

**TEMPORARY TRAFFIC CONTROL PLANS**  
**FIXED CONSTRUCTION WARNING SIGNS**



**DRAINAGE AND UTL NOTES:**

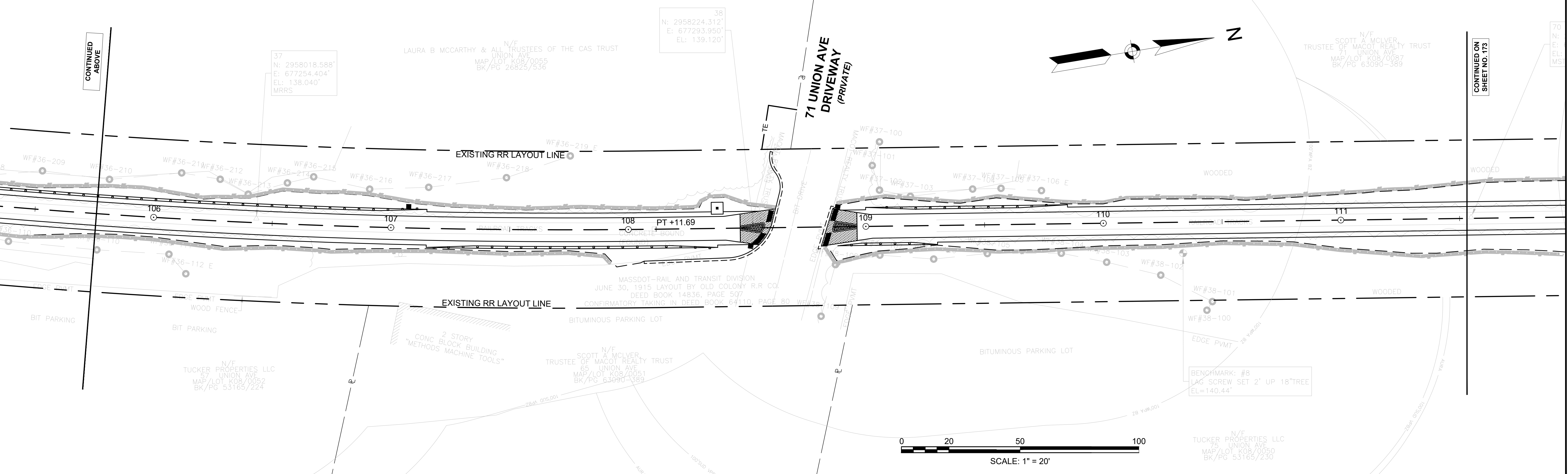
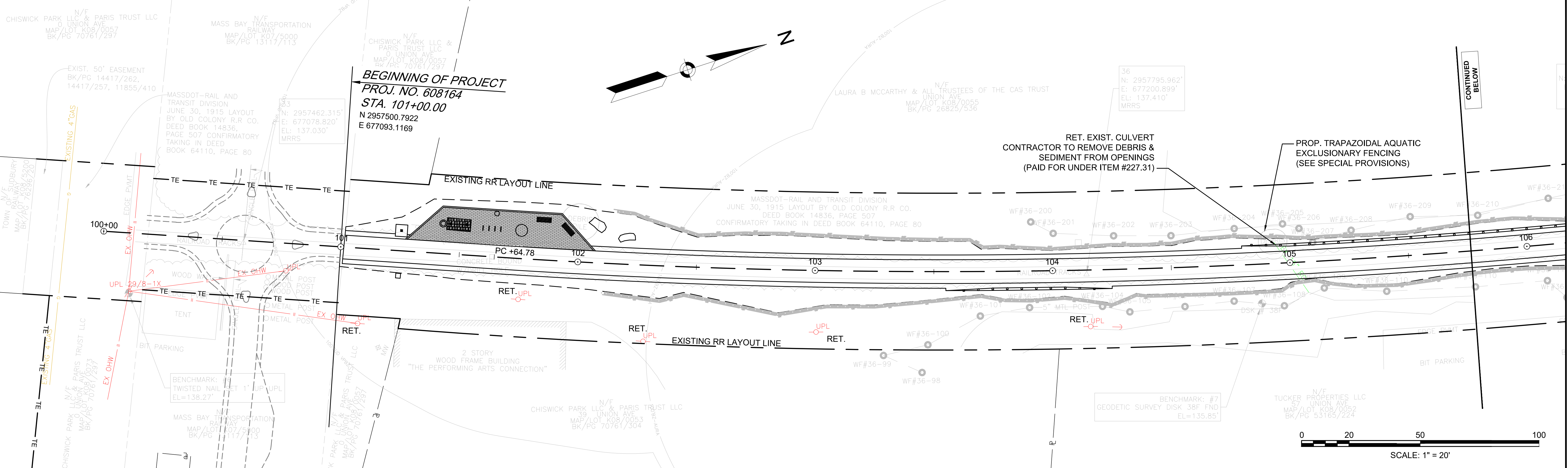
1. HEADWALL RIM ELEVATIONS REFER TO THE CENTER AND TOP OF CONCRETE.
2. PROP. CONCRETE HEADWALLS SHALL CONFORM TO MASSDOT DETAIL E 206.4.0
3. PROP STONE FOR PIPE ENDS SHALL MATCH THE GENERAL DIMENSIONS SHOWN ON MASSDOT DETAIL E 206.7.0. THEY MAY BE ADJUSTED ACCORDINGLY BASED ON FIELD CONDITIONS AND AS DIRECTED BY THE RESIDENT ENGINEER.
4. ALL CATCH BASIN FRAME AND GRATES TO BE MASSDOT CASCADE TYPE.

**SUDBURY**  
**BRUCE FREEMAN RAIL TRAIL**

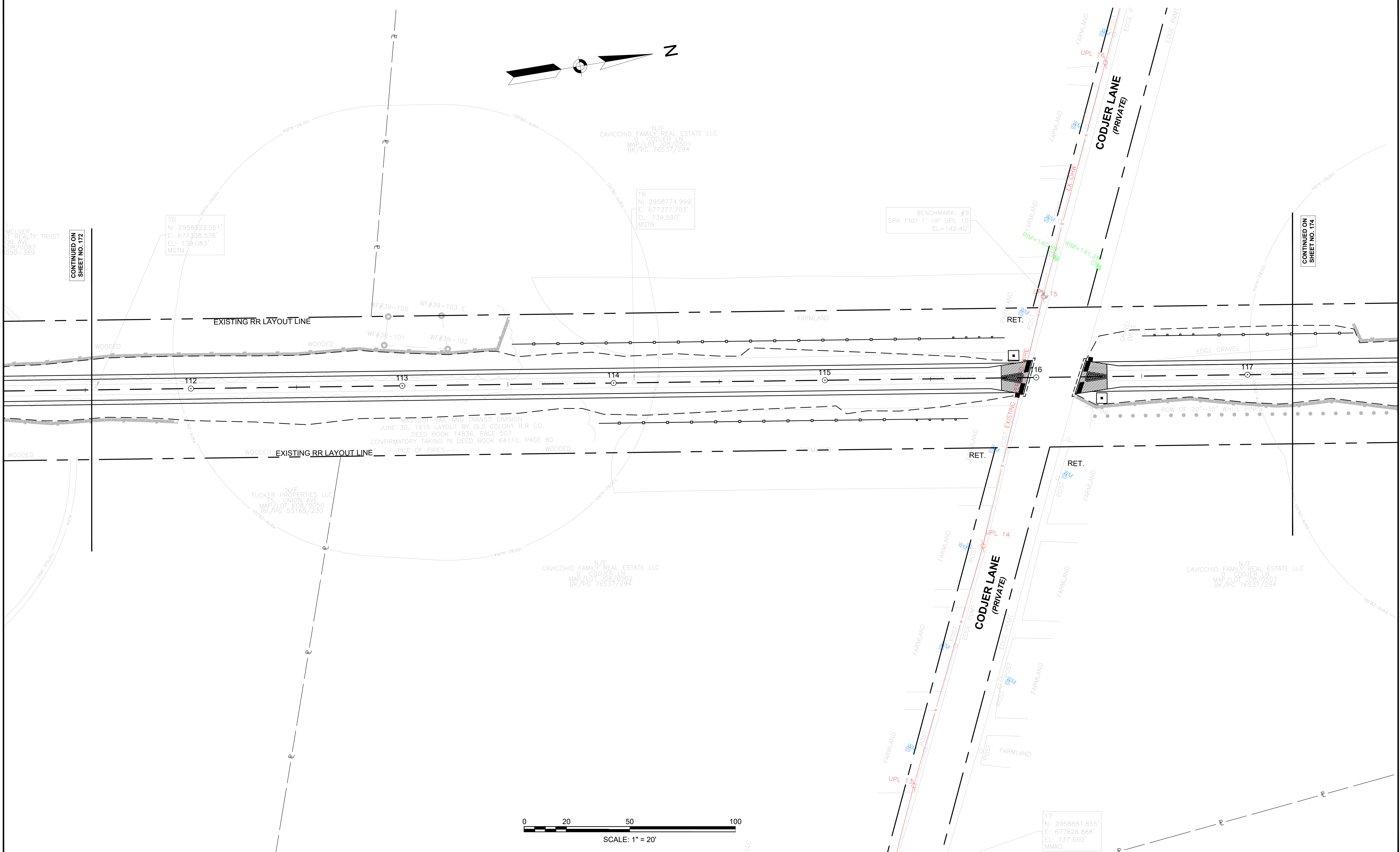
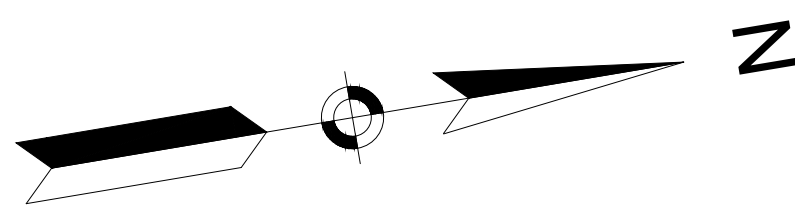
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	172	318

PROJECT FILE NO. 608164

**DRAINAGE & UTILITY PLANS**







CONTINUED ON SHEET NO. 172

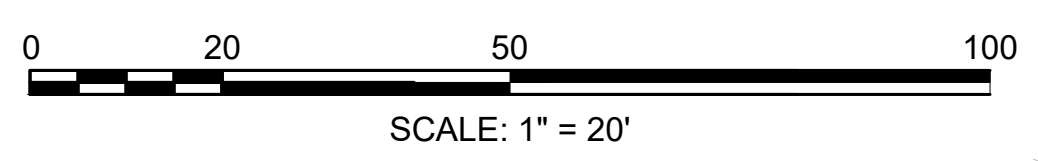
CONTINUED ON SHEET NO. 174

70  
 N: 2958523.051'  
 E: 677338.576'  
 EL: 139.083'  
 MSTN

16  
 N: 2958774.999'  
 E: 677377.703'  
 EL: 139.590'  
 MSTN

BENCHMARK: #9  
 SPK FND 1" UP UPL 15  
 EL=142.40'

17  
 N: 2958881.855'  
 E: 677626.888'  
 EL: 137.660'  
 MMAC

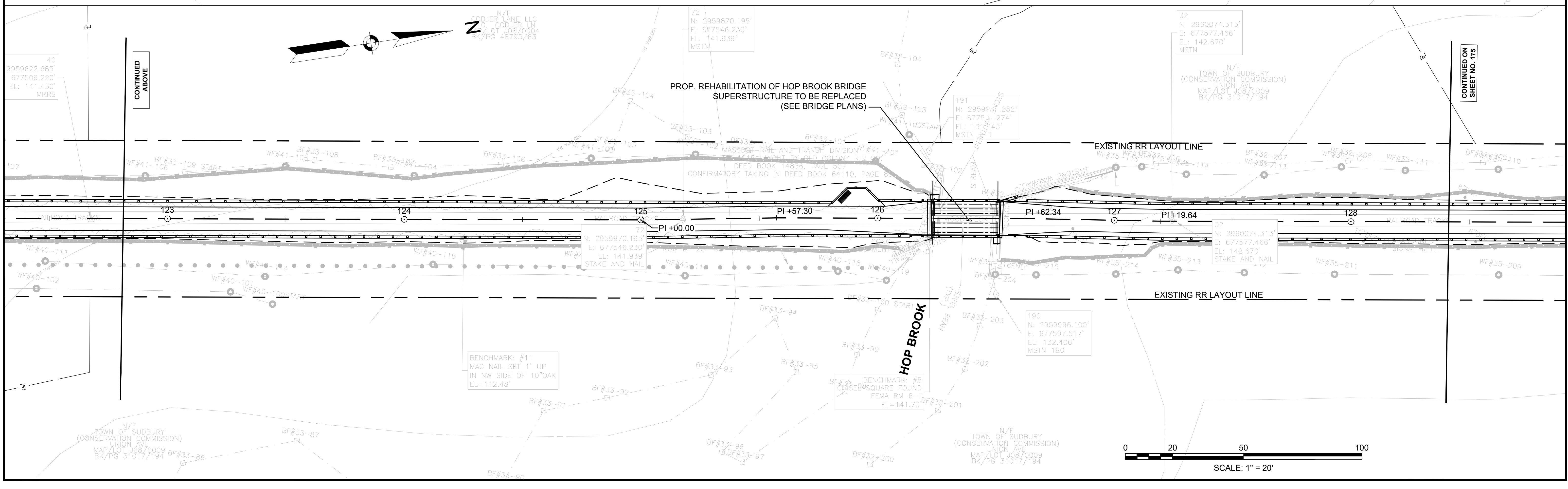
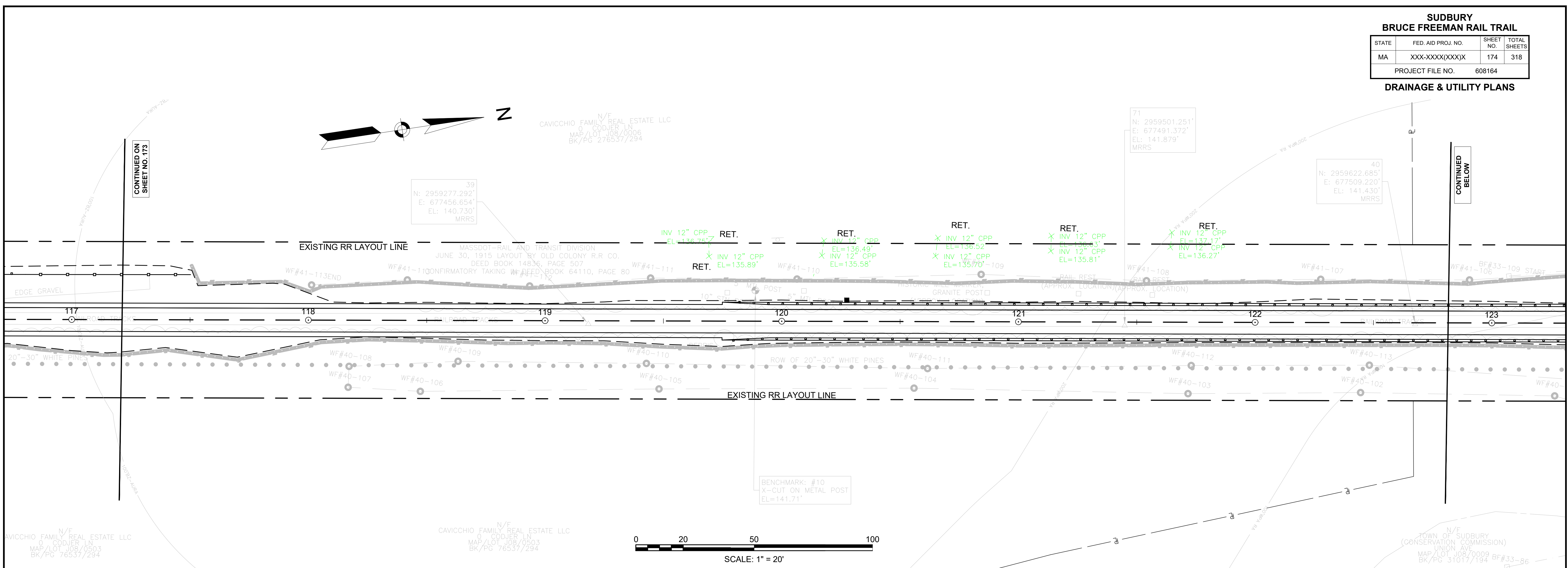


**SUDBURY  
BRUCE FREEMAN RAIL TRAIL**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	174	318

PROJECT FILE NO. 608164

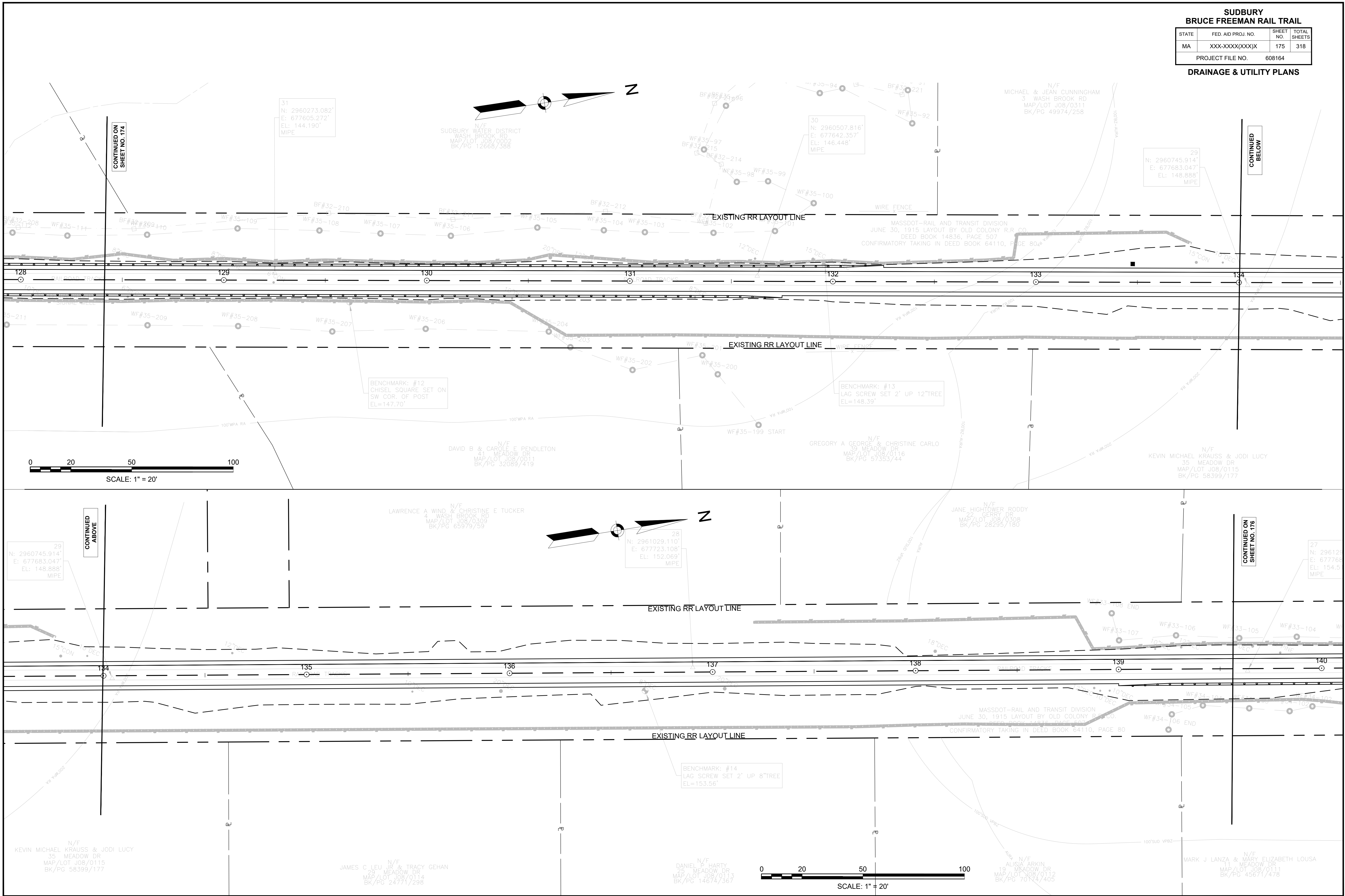
**DRAINAGE & UTILITY PLANS**



**SUDBURY  
BRUCE FREEMAN RAIL TRAIL**

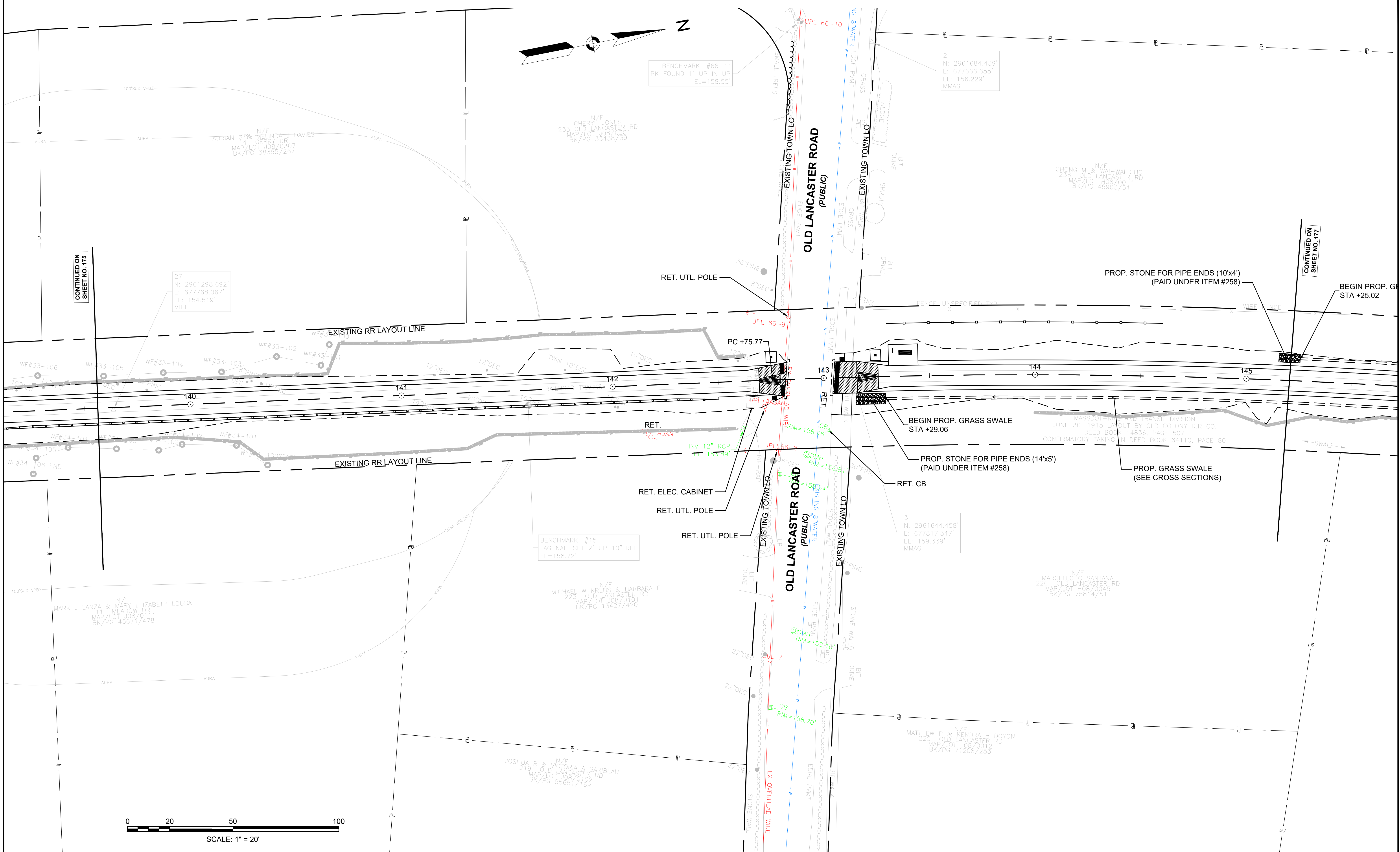
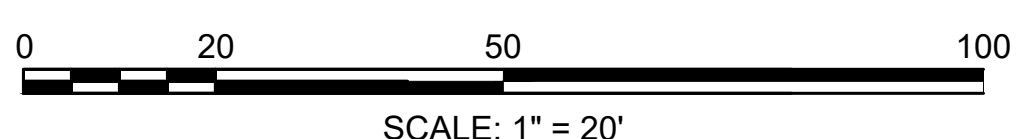
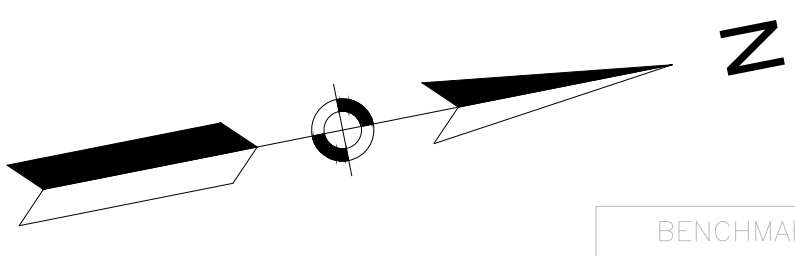
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	175	318
PROJECT FILE NO.		608164	

**DRAINAGE & UTILITY PLANS**



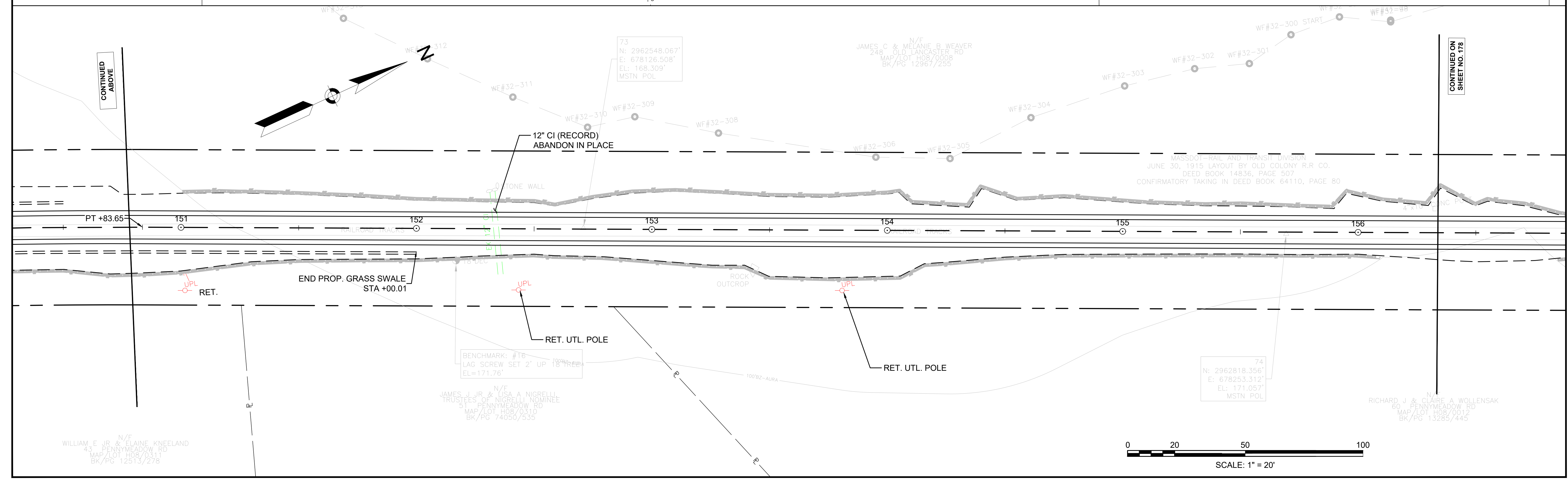
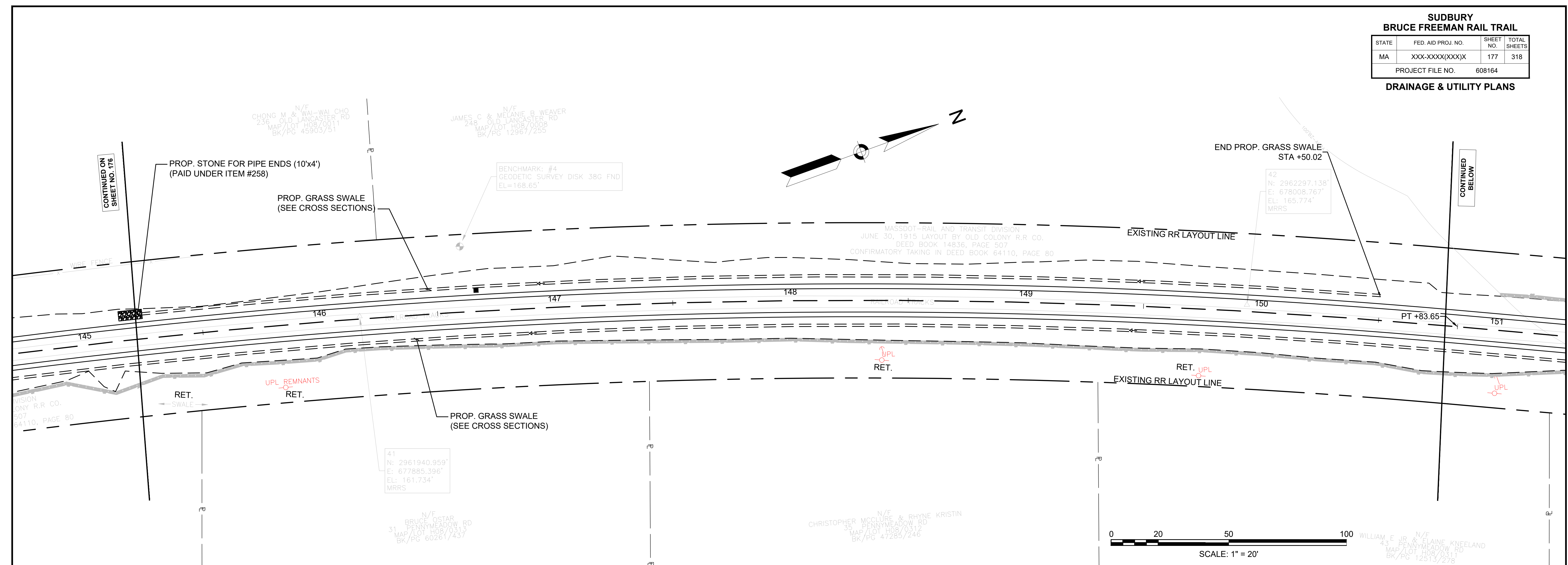
**SUDBURY**  
**BRUCE FREEMAN RAIL TRAIL**  
**DRAINAGE & UTILITY PLANS**

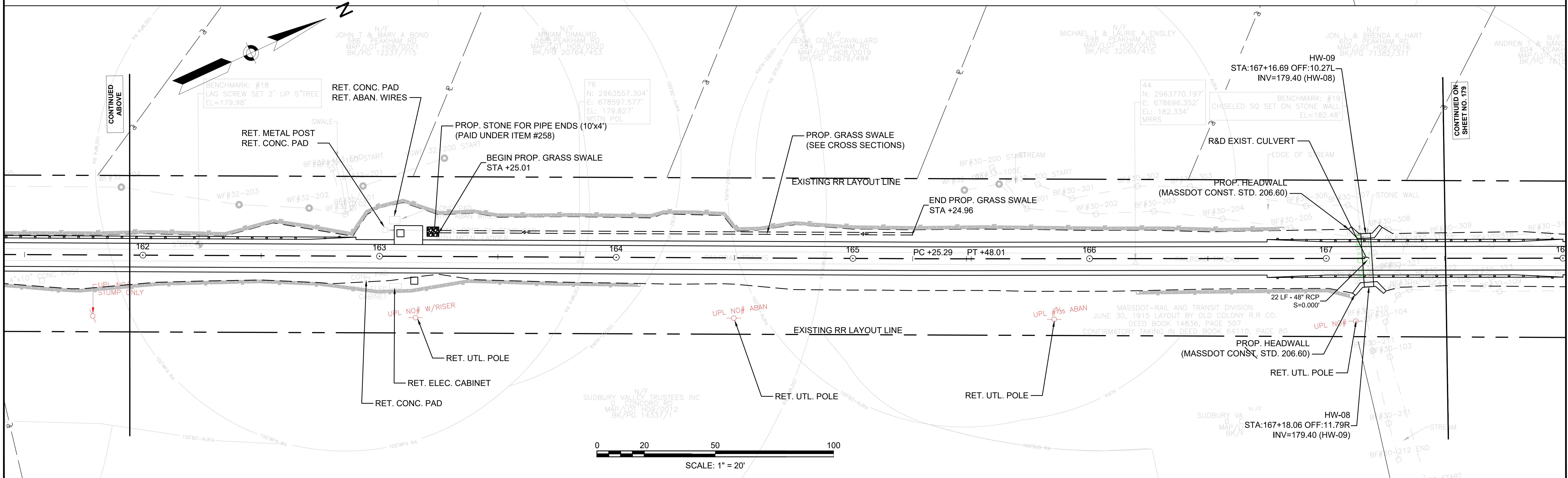
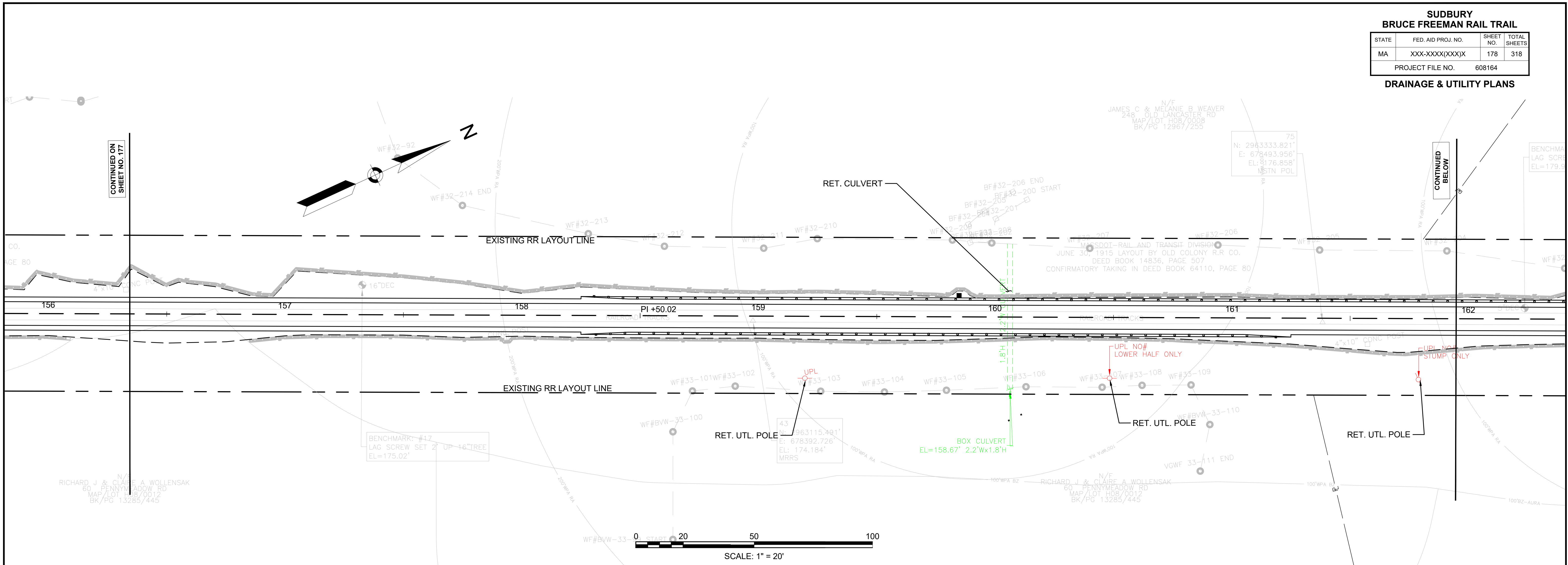
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	176	318
PROJECT FILE NO.		608164	

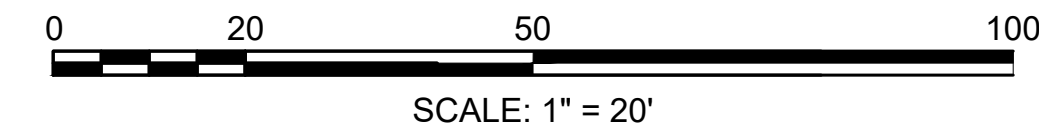
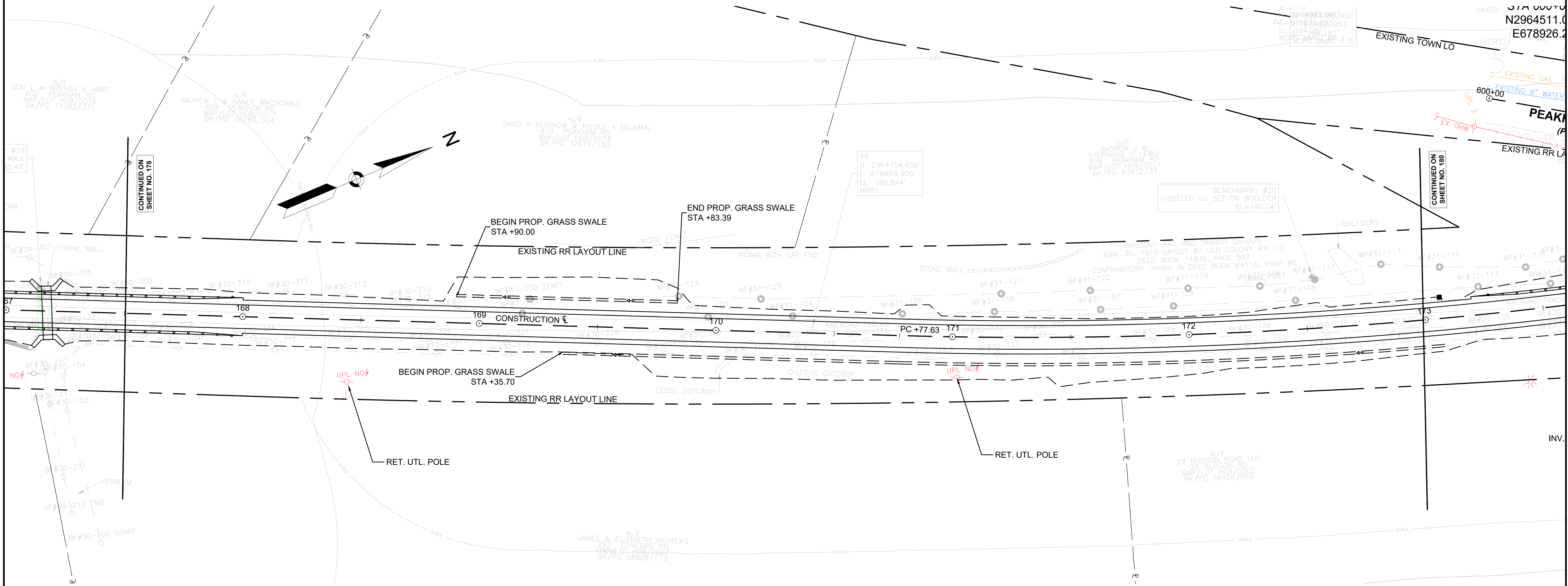


CONTINUED ON SHEET NO. 175

CONTINUED ON SHEET NO. 177

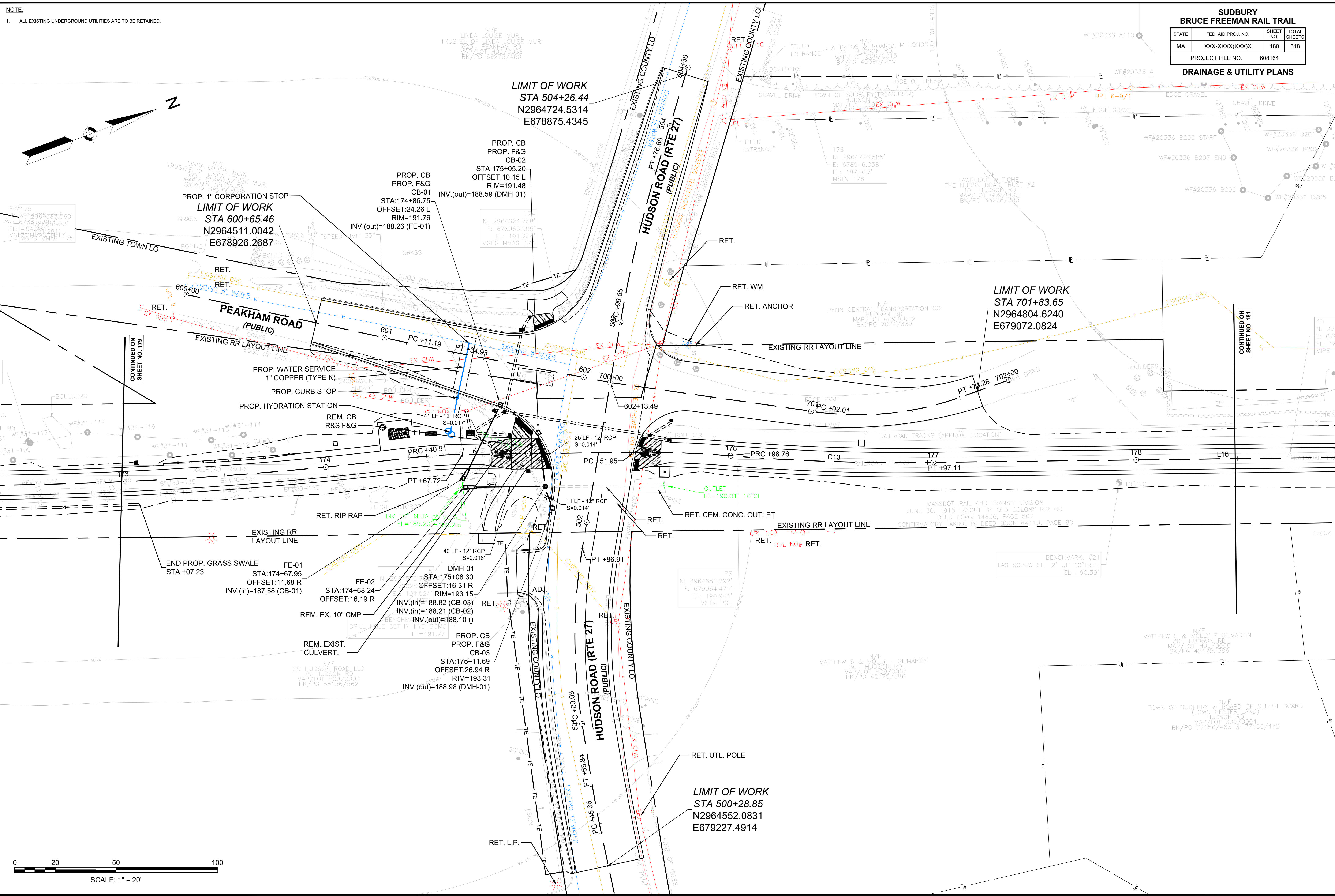
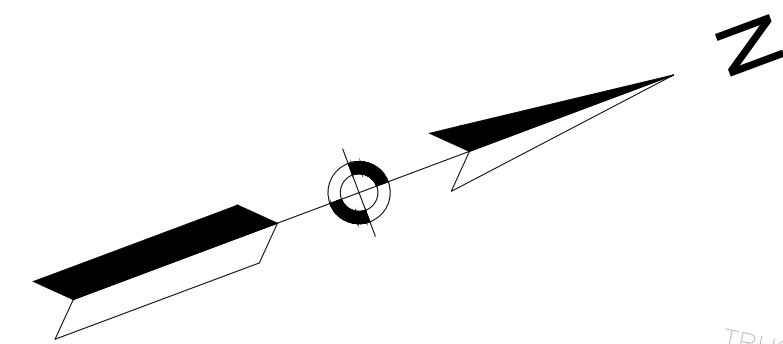






NOTE:  
1. ALL EXISTING UNDERGROUND UTILITIES ARE TO BE RETAINED.

SUDBURY BRUCE FREEMAN RAIL TRAIL			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXX(XXX)X	180	318
PROJECT FILE NO.		608164	
DRAINAGE & UTILITY PLANS			



**LIMIT OF WORK**  
STA 504+26.44  
N2964724.5314  
E678875.4345

**LIMIT OF WORK**  
STA 600+65.46  
N2964511.0042  
E678926.2687

PROP. CB  
PROP. F&G  
CB-02  
STA:175+05.20  
OFFSET:10.15 L  
RIM=191.48  
INV.(out)=188.59 (DMH-01)

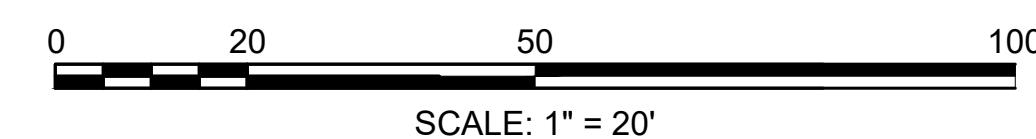
PROP. CB  
PROP. F&G  
CB-01  
STA:174+86.75  
OFFSET:24.26 L  
RIM=191.76  
INV.(out)=188.26 (FE-01)

**LIMIT OF WORK**  
STA 701+83.65  
N2964804.6240  
E679072.0824

**LIMIT OF WORK**  
STA 500+28.85  
N2964552.0831  
E679227.4914

CONTINUED ON  
SHEET NO. 179

CONTINUED ON  
SHEET NO. 181

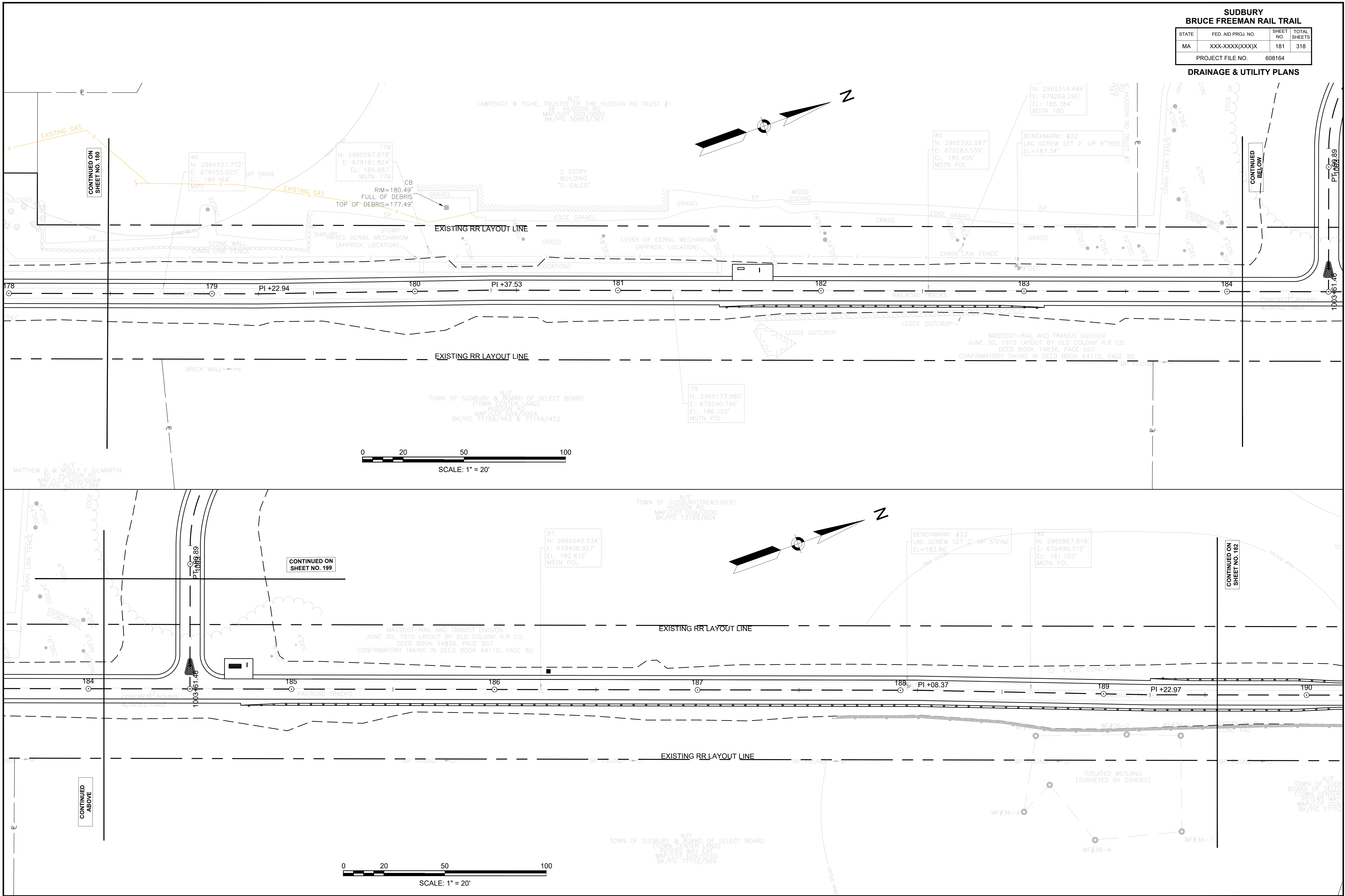


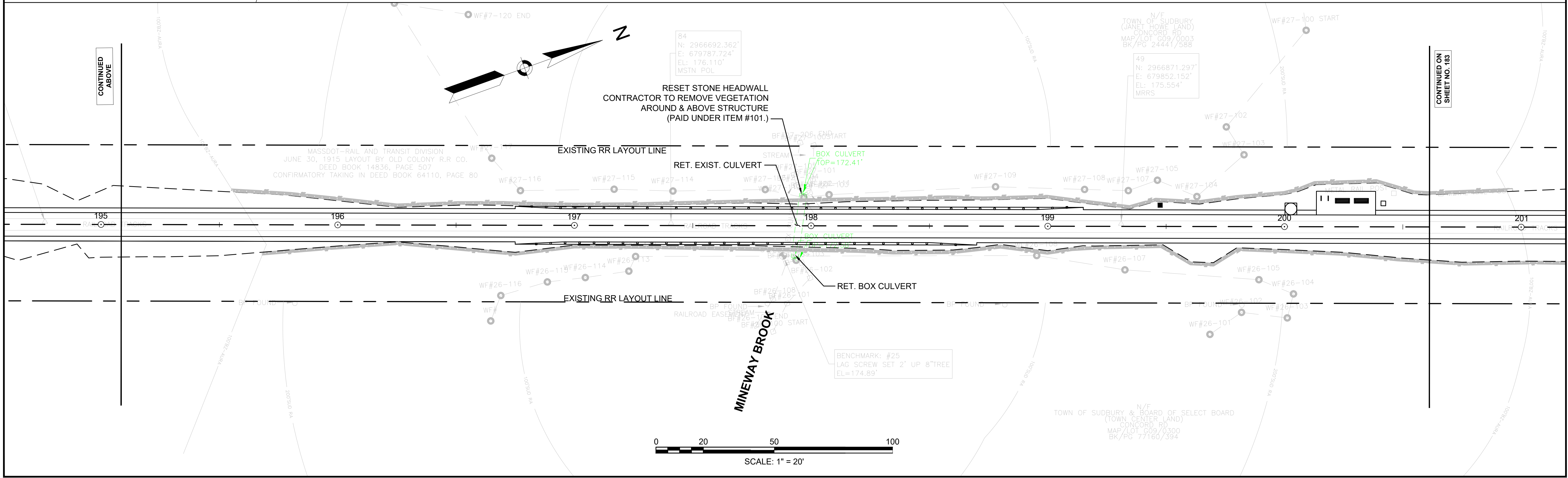
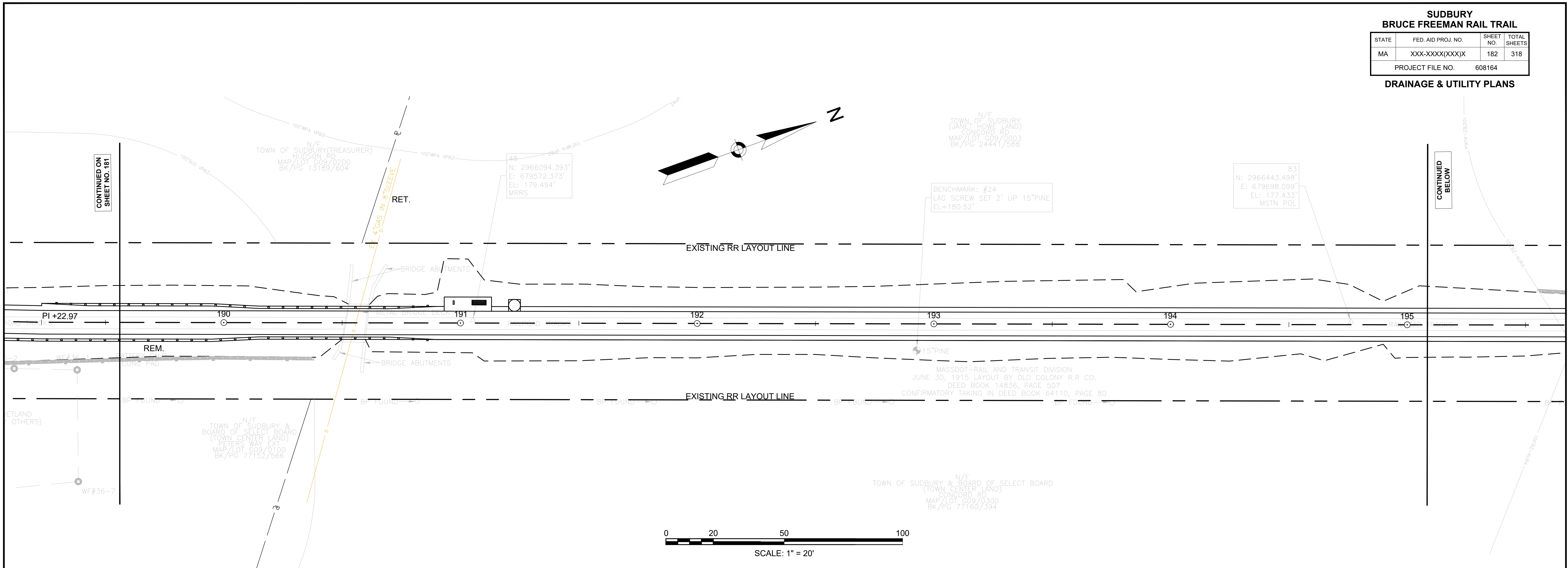


**SUDBURY  
BRUCE FREEMAN RAIL TRAIL**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	181	318
PROJECT FILE NO.		608164	

**DRAINAGE & UTILITY PLANS**





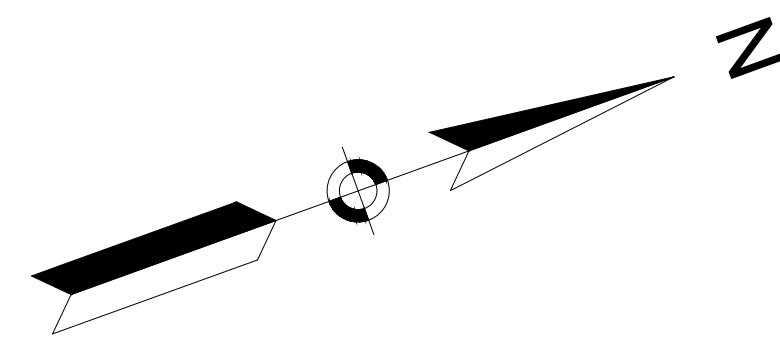
**SUDBURY**  
**BRUCE FREEMAN RAIL TRAIL**  
**DRAINAGE & UTILITY PLANS**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	183	318
PROJECT FILE NO.		608164	

START

CONTINUED ON  
SHEET NO. 182

CONTINUED BELOW



85  
 N: 2967158.846'  
 E: 679955.889'  
 EL: 175.157'  
 MSTN POL

50  
 N: 2967446.659'  
 E: 680059.723'  
 EL: 174.364'  
 MRRS

N/F  
 TOWN OF SUDBURY  
 (JANET HOWE LAND)  
 CONCORD RD  
 MAP/LOT 099/0003  
 BK/PG 24421/588

EXISTING RR LAYOUT LINE

EXISTING RR LAYOUT LINE

201

202

203

204

205

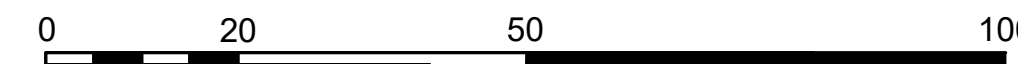
206

CONC. POST

BENCHMARK: #26  
 CHISELED SO SET ON CONC POST  
 EL=178.55'

MASSDOT-RAIL AND TRANSIT DIVISION  
 JUNE 30, 1915 LAYOUT BY OLD COLONY R.R. CO.  
 DEED BOOK 14836, PAGE 507  
 CONFIRMATORY TAKING IN DEED BOOK 64110, PAGE 80

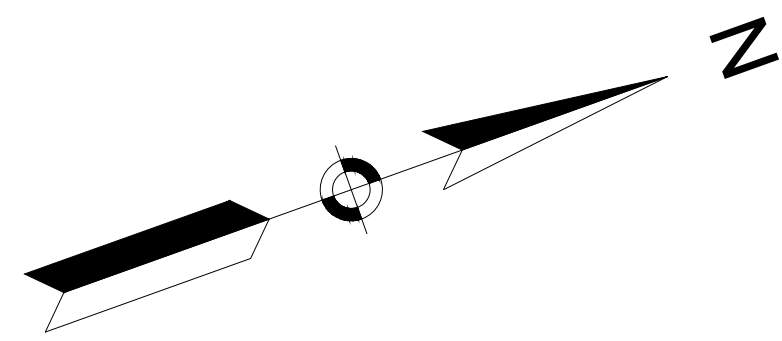
N/F  
 TOWN OF SUDBURY & BOARD OF SELECT BOARD  
 (TOWN CENTER LAND)  
 CONCORD RD  
 MAP/LOT 009/0300  
 BK/PG 77160/394



SCALE: 1" = 20'

N/F  
 JAMES C & SUSAN M RICHARDS  
 44 CODMAN DR  
 MAP/LOT 009/0807  
 BK/PG 24467/551

CONTINUED ABOVE



BENCHMARK: #27  
 LAG SCREW SET 2' UP 7" TREE  
 EL=175.05'

86  
 N: 2967756.688'  
 E: 680171.009'  
 EL: 173.283'  
 MSTN POL

51  
 N: 2967872.934'  
 E: 680212.734'  
 EL: 172.488'  
 MRRS

182  
 N: 2967982.909'  
 E: 680252.270'  
 EL: 171.730'  
 MSTN 182

EXISTING RR LAYOUT LINE

EXISTING RR LAYOUT LINE

CONTINUED ON  
SHEET NO. 184

206

207

208

PT +49.64

209

210

PT +49.97

211

212

PI +81.68

7" DEC

PC +88.78

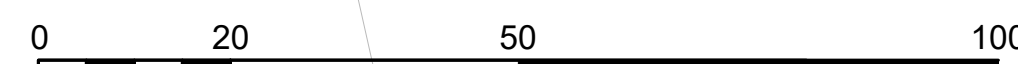
PT +49.64

PC +88.86

PT +49.97

PT +49.97

PI +81.68

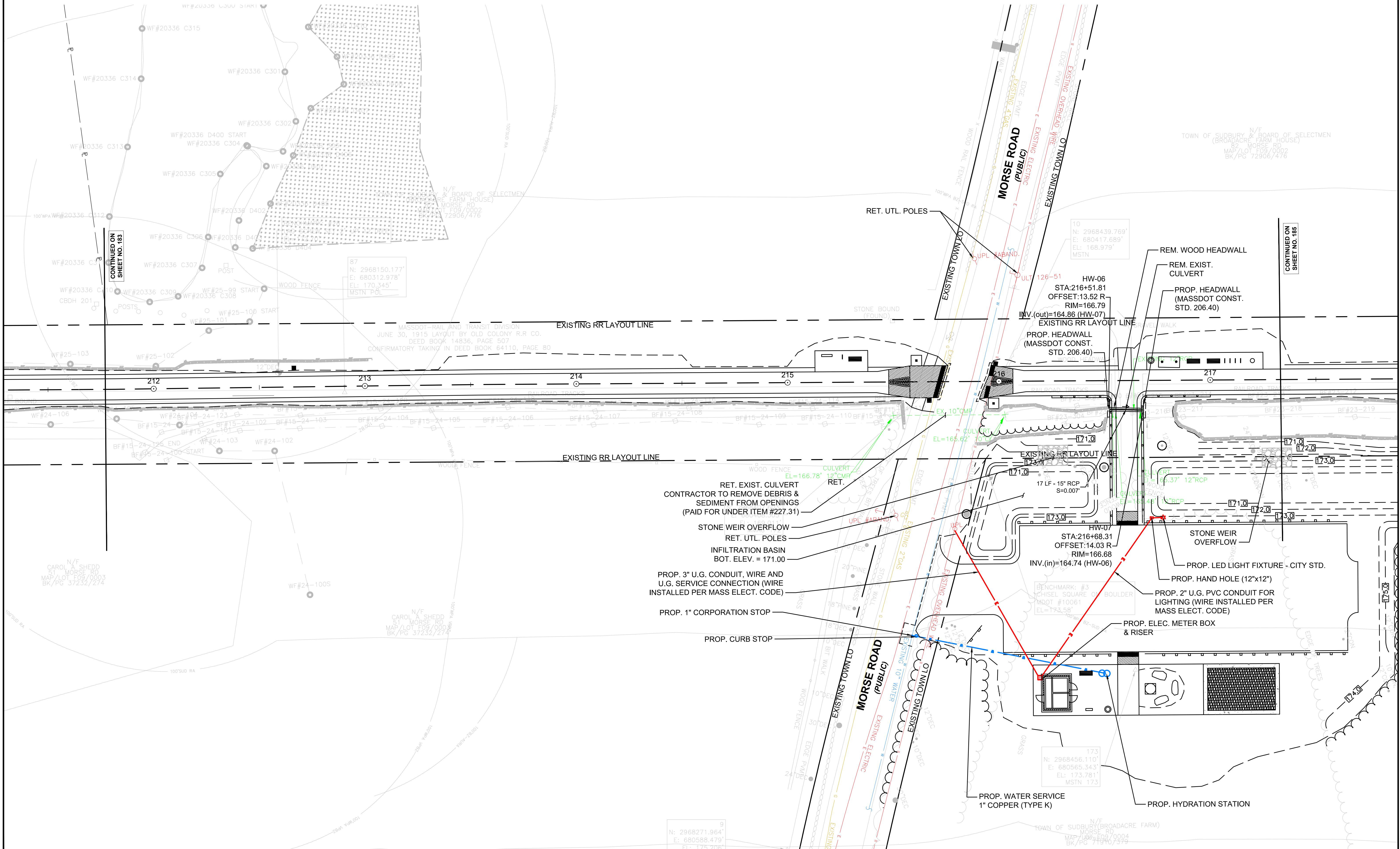


SCALE: 1" = 20'

N/F  
 JAMES C & SUSAN M RICHARDS  
 44 CODMAN DR  
 MAP/LOT 009/0807  
 BK/PG 24467/551

N/F  
 WILLIAM P. MCMAHON JR.  
 & DINA M. MCMAHON-BESORBE  
 42 CODMAN DR  
 MAP/LOT 009/0808  
 BK/PG 61407/511

N/F  
 CAROL A. SHEDD  
 51 MORSE RD  
 MAP/LOT 009/0003  
 BK/PG 37232/274



CONTINUED ON  
SHEET NO. 183

CONTINUED ON  
SHEET NO. 185

- RET. EXIST. CULVERT  
CONTRACTOR TO REMOVE DEBRIS &  
SEDIMENT FROM OPENINGS  
(PAID FOR UNDER ITEM #227.31)
- STONE WEIR OVERFLOW
- RET. UTL. POLES
- INFILTRATION BASIN  
BOT. ELEV. = 171.00
- PROP. 3" U.G. CONDUIT, WIRE AND  
U.G. SERVICE CONNECTION (WIRE  
INSTALLED PER MASS ELECT. CODE)
- PROP. 1" CORPORATION STOP
- PROP. CURB STOP

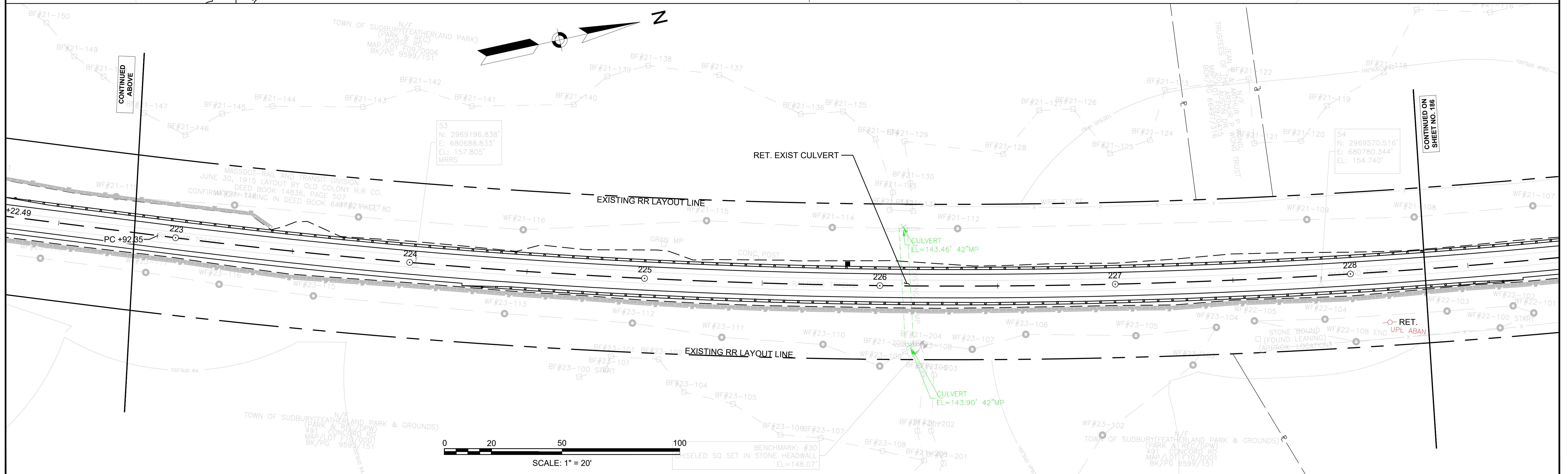
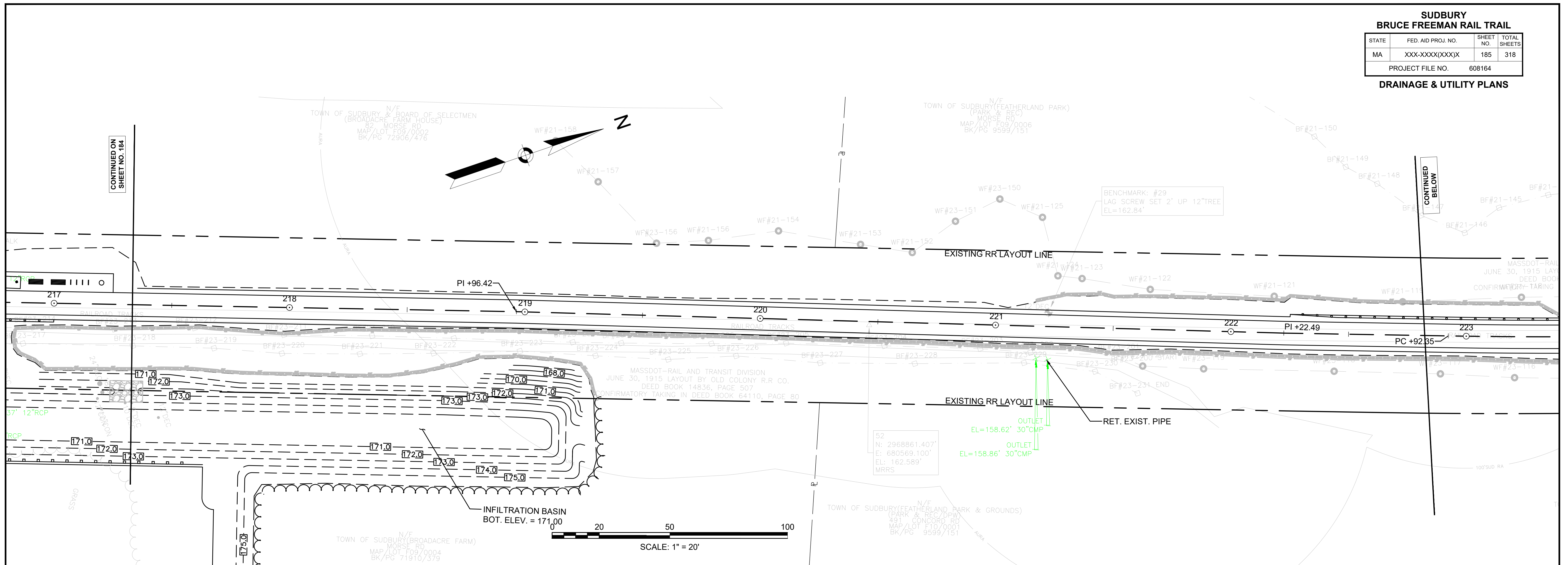
- RET. WOOD HEADWALL
- REM. EXIST. CULVERT
- PROP. HEADWALL  
(MASSDOT CONST.  
STD. 206.40)
- STONE WEIR OVERFLOW
- PROP. LED LIGHT FIXTURE - CITY STD.
- PROP. HAND HOLE (12"x12")
- PROP. 2" U.G. PVC CONDUIT FOR  
LIGHTING (WIRE INSTALLED PER  
MASS ELECT. CODE)
- PROP. ELEC. METER BOX  
& RISER
- PROP. HYDRATION STATION

9  
N: 2968271.964'  
E: 680588.479'  
EL: 173.781'  
MSTN 173

173  
N: 2968456.110'  
E: 680565.343'  
EL: 173.781'  
MSTN 173

N/F  
TOWN OF SUDBURY (BROADACRE FARM)  
MORSE RD  
MAP/LOT F09/0004  
BK/PG 7490/375

N/F  
TOWN OF SUDBURY & BOARD OF SELECTMEN  
(BROADACRE FARM HOUSE)  
MORSE RD  
MAP/LOT F09/0002  
BK/PG 72906/476



CONTINUED ON SHEET NO. 184

CONTINUED BELOW

CONTINUED ABOVE

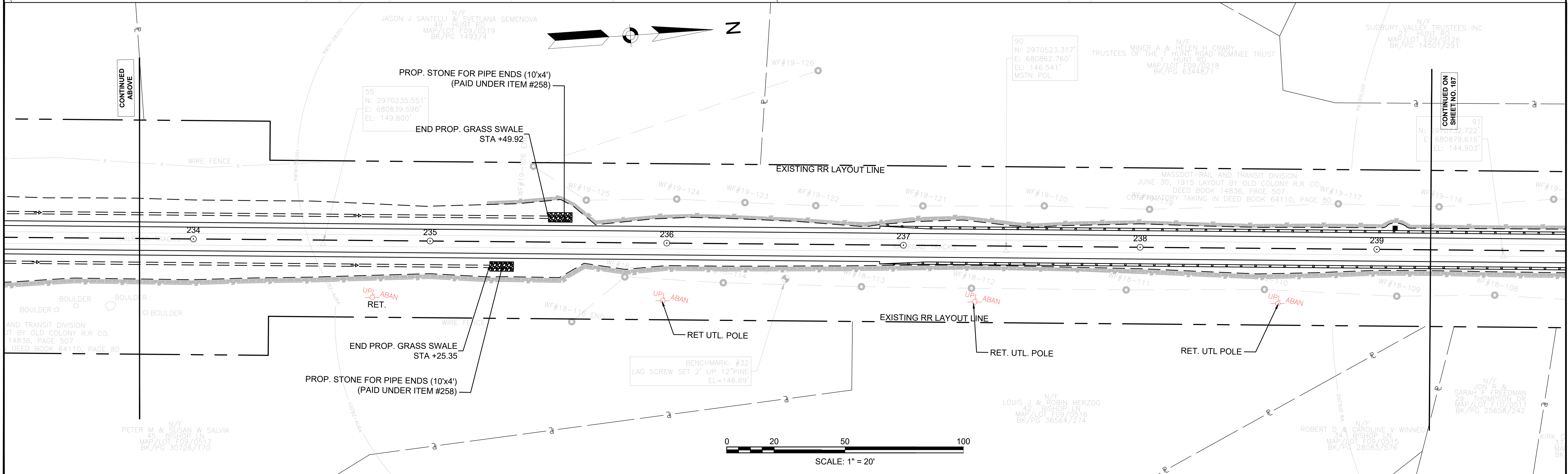
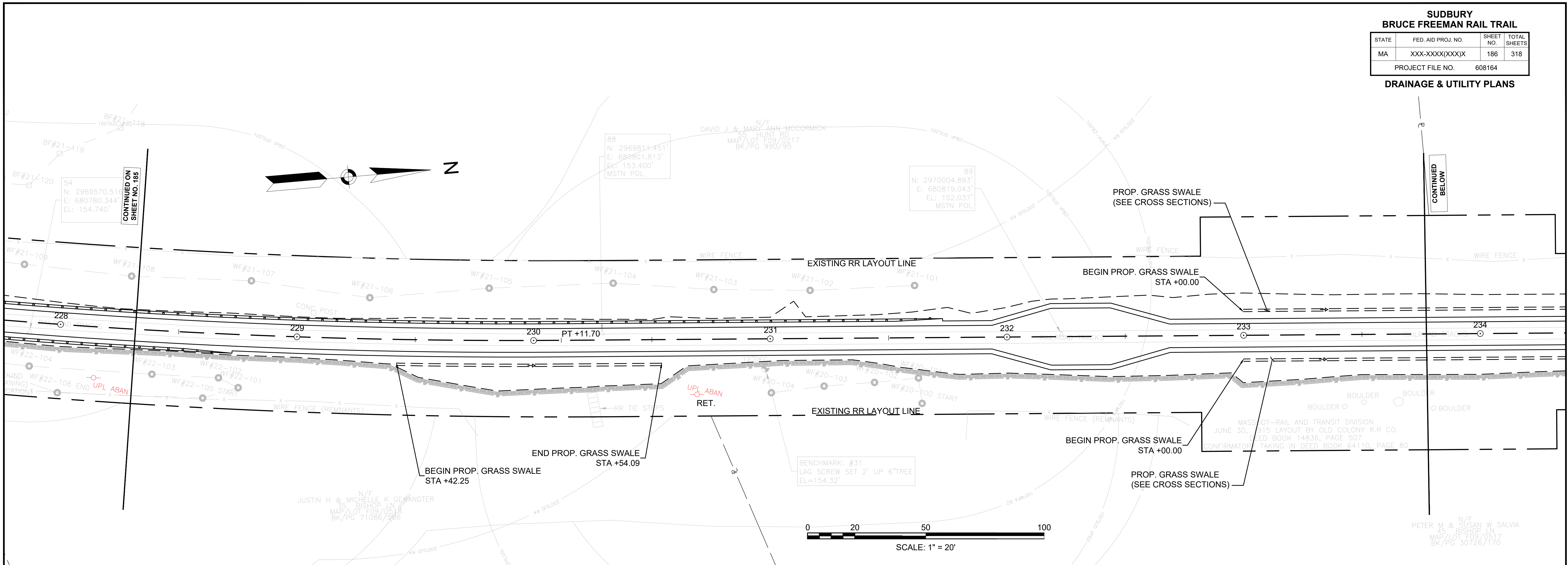
CONTINUED ON SHEET NO. 188

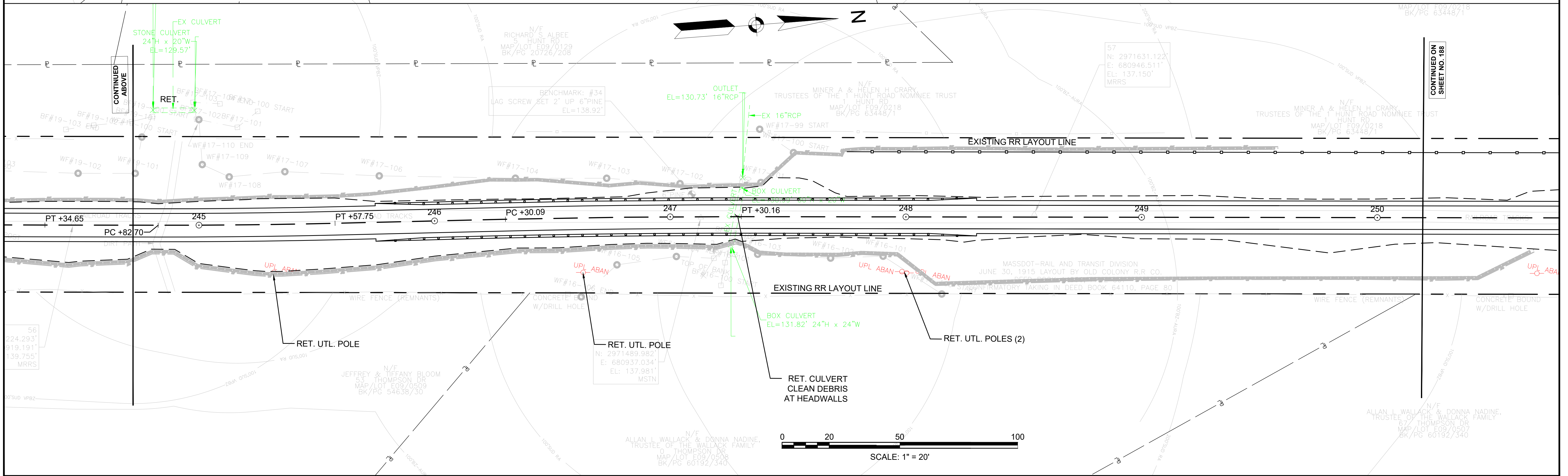
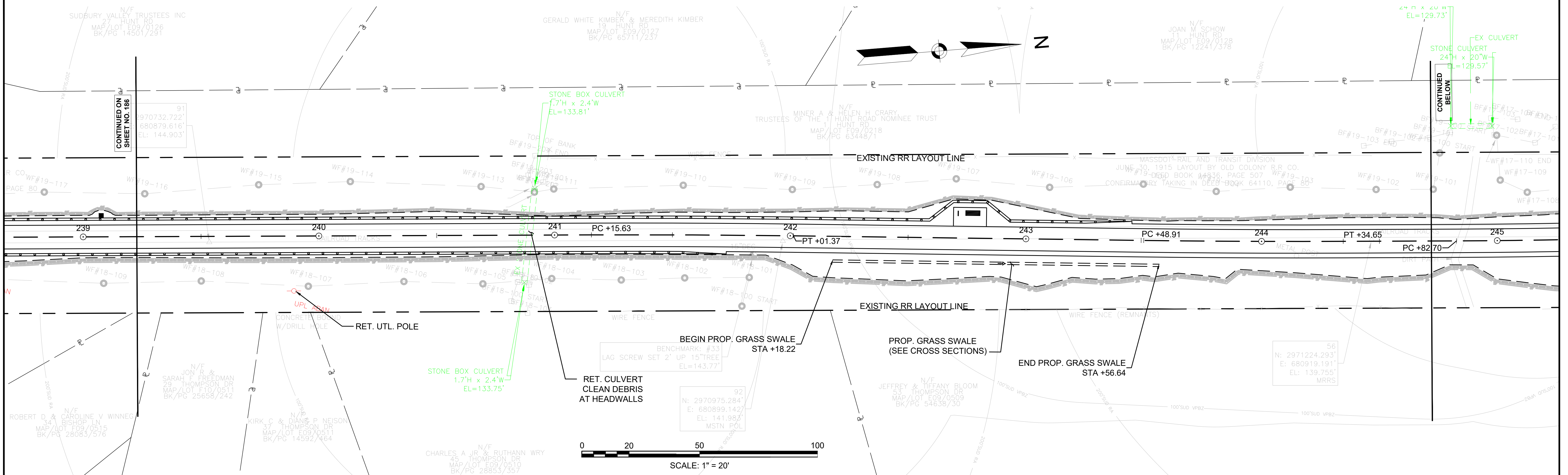
**SUDBURY**  
**BRUCE FREEMAN RAIL TRAIL**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	186	318

PROJECT FILE NO. 608164

**DRAINAGE & UTILITY PLANS**



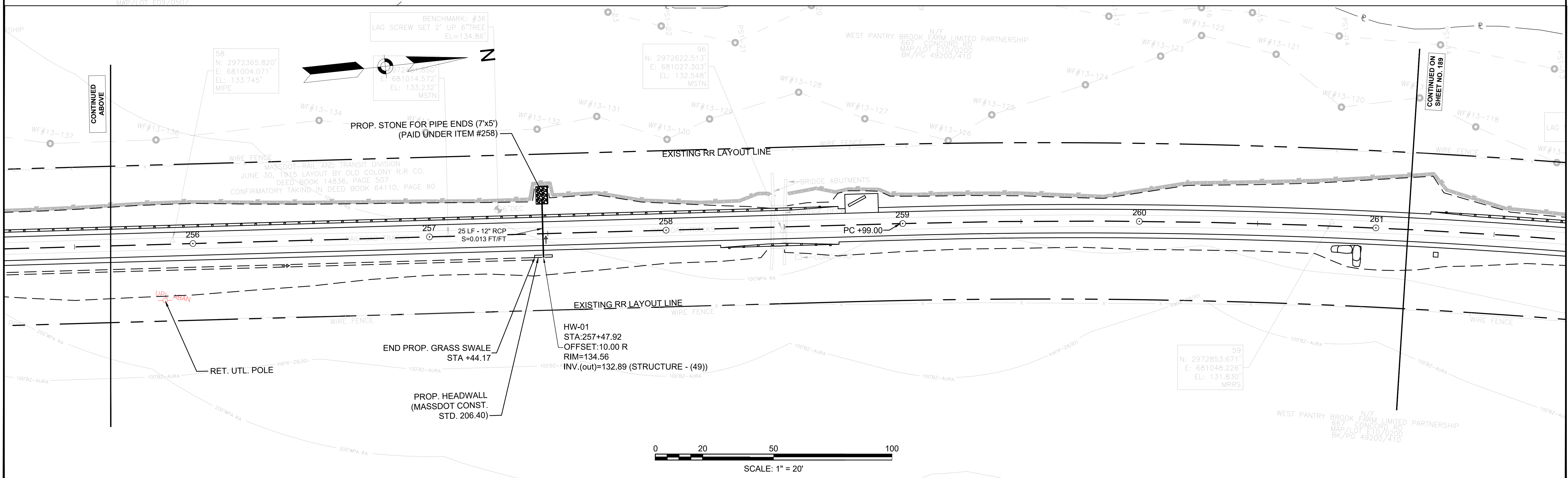
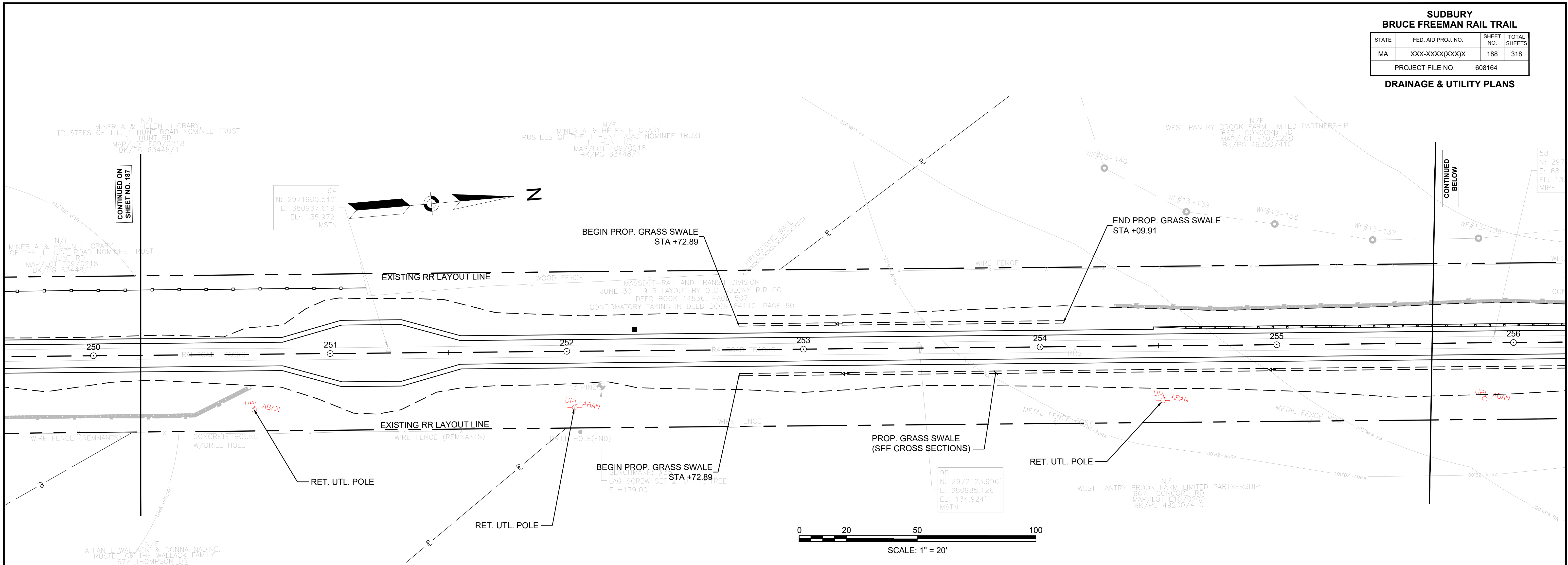


**SUDBURY  
BRUCE FREEMAN RAIL TRAIL**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	188	318

PROJECT FILE NO. 608164

**DRAINAGE & UTILITY PLANS**



CONTINUED ON  
SHEET NO. 187

CONTINUED  
BELOW

CONTINUED  
ABOVE

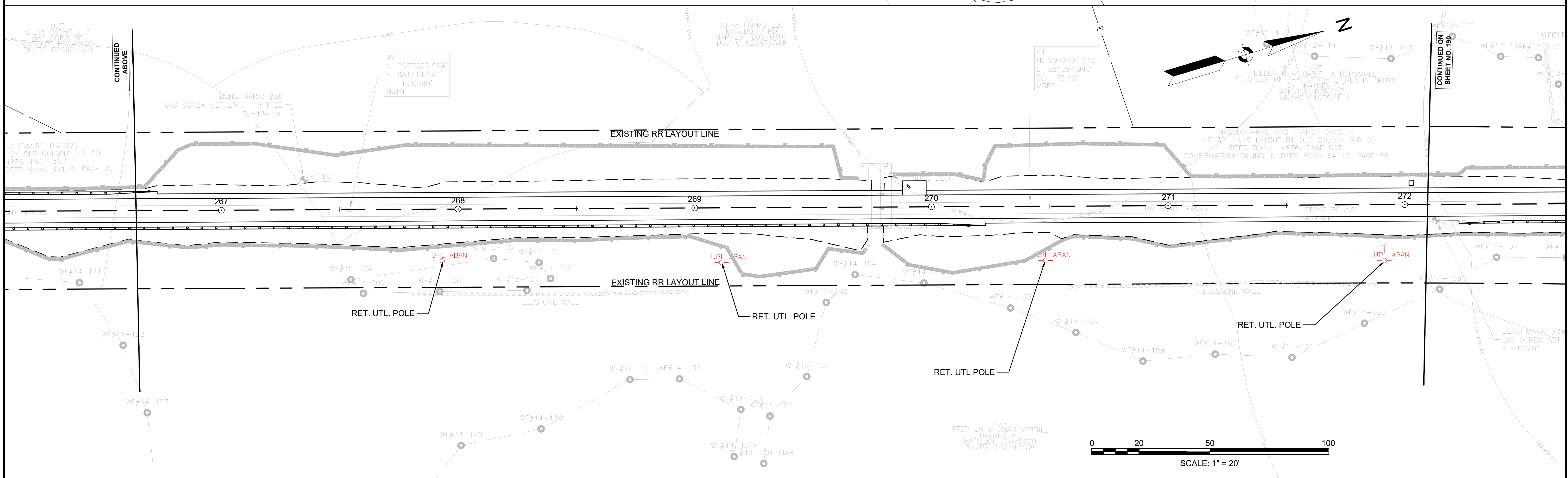
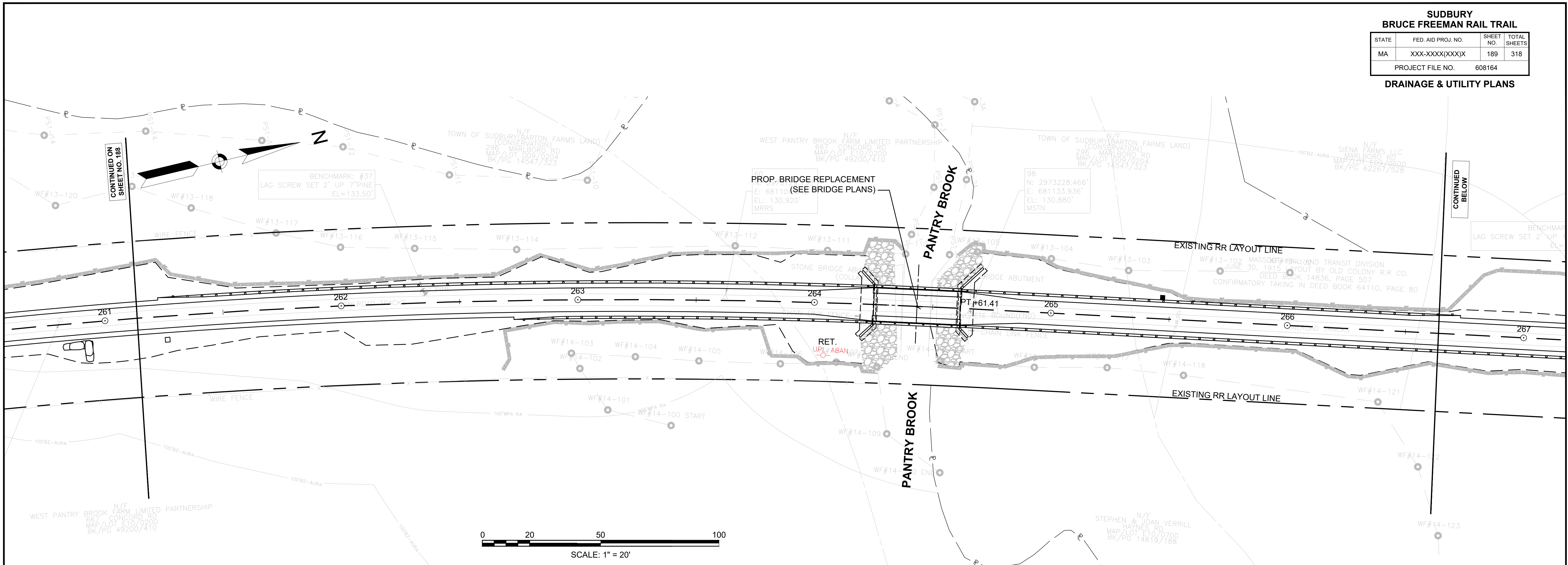
CONTINUED ON  
SHEET NO. 189

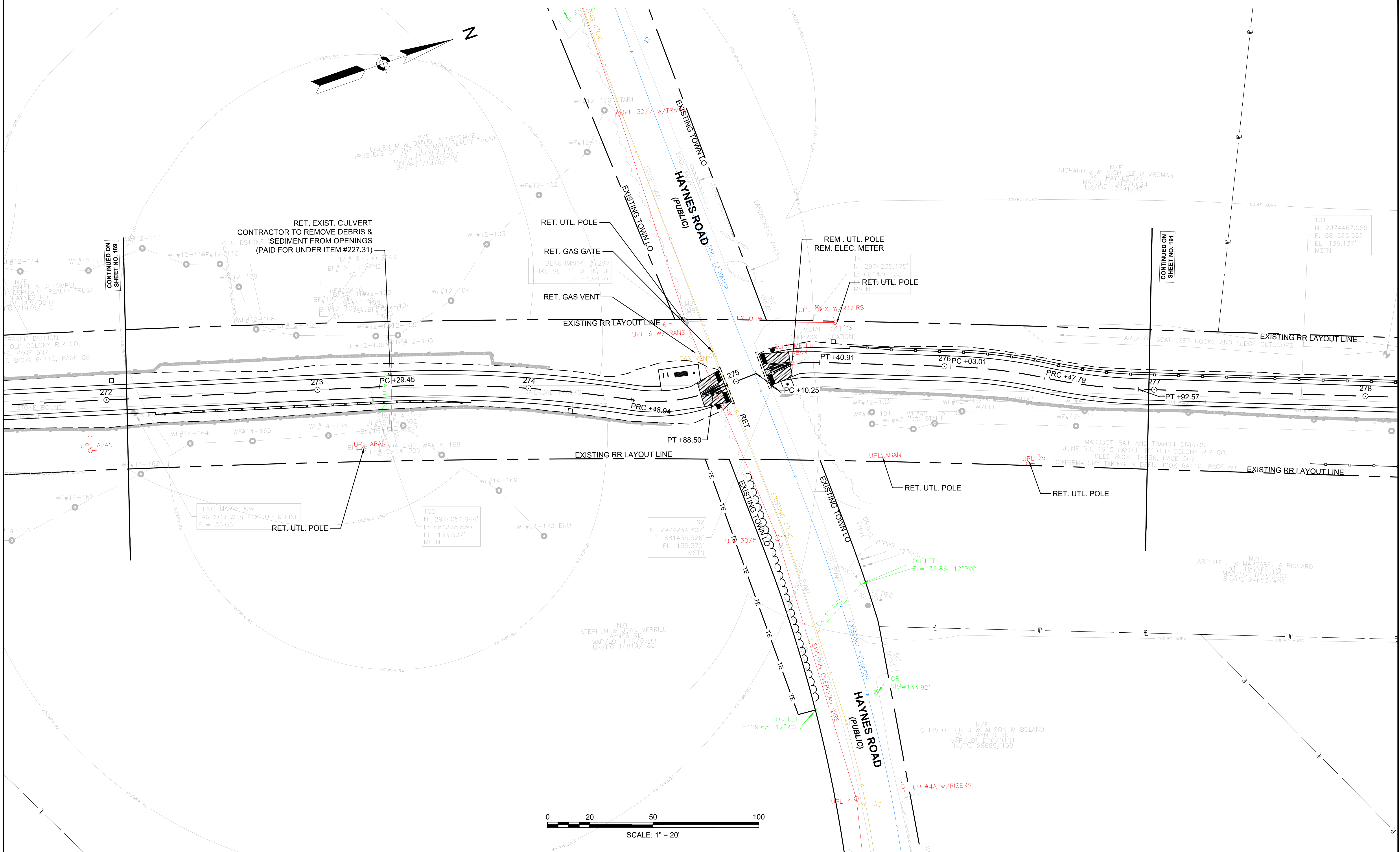


**SUDBURY  
BRUCE FREEMAN RAIL TRAIL**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	189	318
PROJECT FILE NO.		608164	

**DRAINAGE & UTILITY PLANS**





CONTINUED ON SHEET NO. 189

CONTINUED ON SHEET NO. 191

RET. EXIST. CULVERT  
 CONTRACTOR TO REMOVE DEBRIS &  
 SEDIMENT FROM OPENINGS  
 (PAID FOR UNDER ITEM #227.31)

RET. UTL. POLE  
 RET. GAS GATE  
 RET. GAS VENT

REM. UTL. POLE  
 REM. ELEC. METER  
 RET. UTL. POLE

BENCHMARK #39  
 LAG SCREW SET 2" UP 9" PINE  
 EL=135.05'

100  
 N: 2974051.944'  
 E: 681378.850'  
 EL: 133.507'  
 MSTN

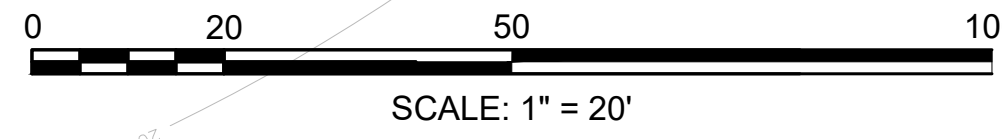
62  
 N: 2974234.807'  
 E: 681435.526'  
 EL: 135.370'  
 MSTN

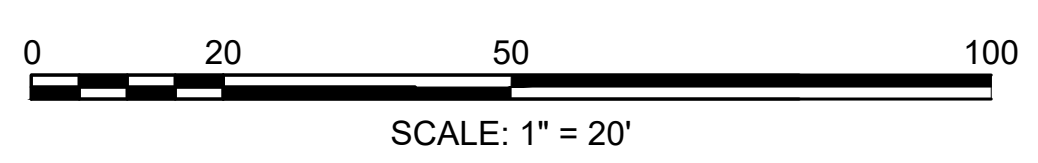
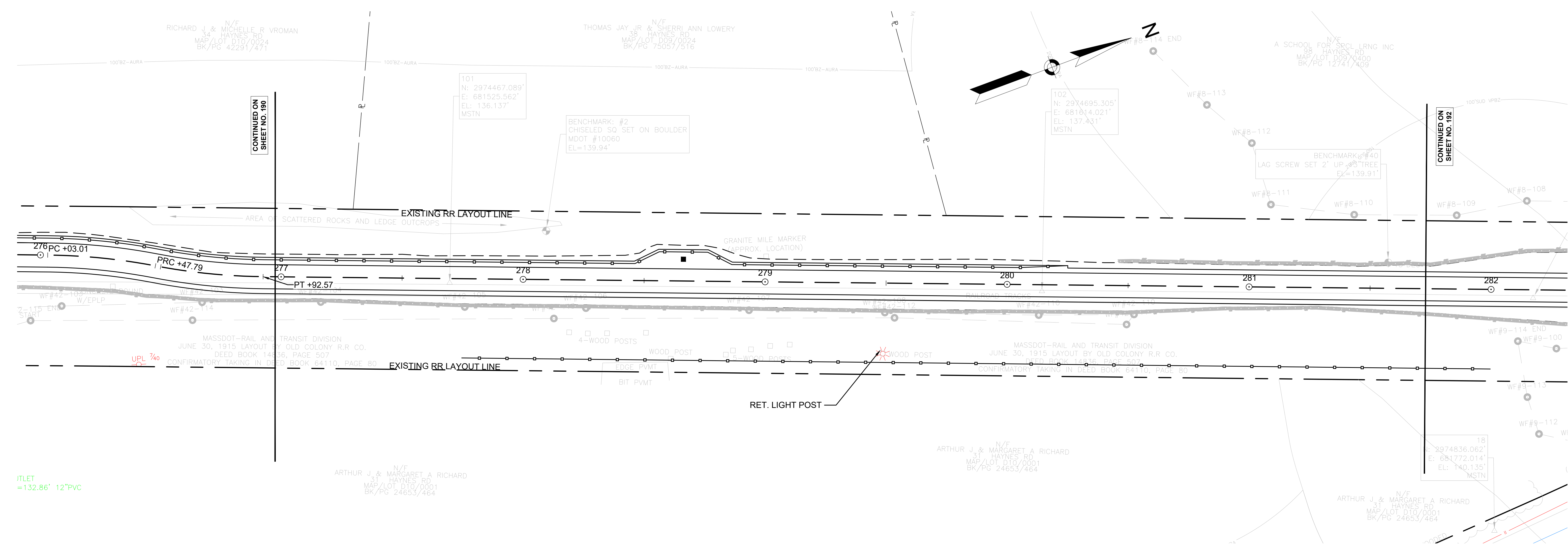
101  
 N: 2974467.089'  
 E: 681525.562'  
 EL: 136.137'  
 MSTN

MASSDOT-RAIL AND  
 TRANSIT DIVISION  
 JUNE 30, 1915 LAYOUT  
 BY OLD COLONY R.R. CO.  
 DEED BOOK 14536, PAGE 507  
 CONFIRMATORY TAKING IN  
 DEED BOOK 64110, PAGE 80

ARTHUR J. & MARGARET A. RICHARD  
 31 HAYNES RD  
 MAP/LOT D10/0001  
 BK/PG 24653/464

CHRISTOPHER G. & ALISON M. BOLAND  
 24 HAYNES RD  
 MAP/LOT D18/0101  
 BK/PG 26689/158





ITLET  
=132.86' 12" PVC

CONTINUED ON  
SHEET NO. 190

CONTINUED ON  
SHEET NO. 192

N/F  
RICHARD J. & MICHELLE R. VROMAN  
34 HAYNES RD  
MAP/LOT D10/0024  
BK/PG 42291/471

N/F  
THOMAS JAY JR & SHERRI ANN LOWERY  
35 HAYNES RD  
MAP/LOT D09/0024  
BK/PG 75057/516

N/F  
A SCHOOL FOR SPECIAL LING INC  
95 HAYNES RD  
MAP/LOT D09/0400  
BK/PG 12741/409

N/F  
ARTHUR J. & MARGARET A RICHARD  
31 HAYNES RD  
MAP/LOT D10/0001  
BK/PG 24653/464

N/F  
ARTHUR J. & MARGARET A RICHARD  
31 HAYNES RD  
MAP/LOT D10/0001  
BK/PG 24653/464

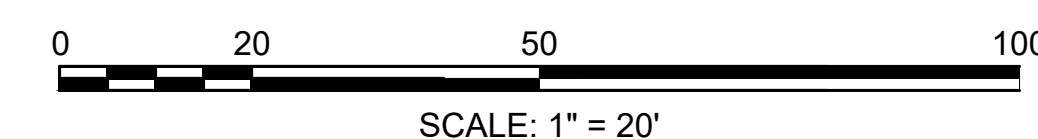
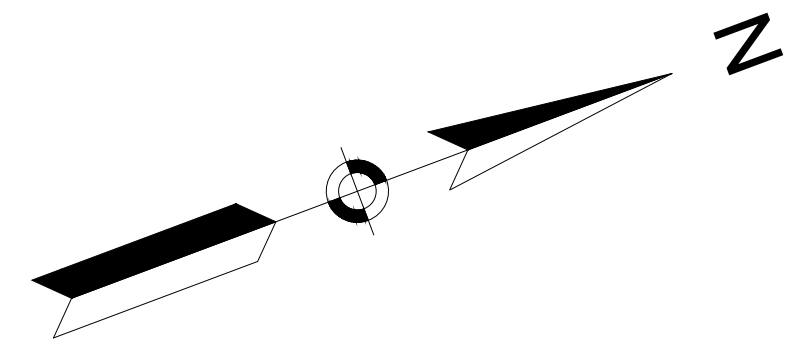
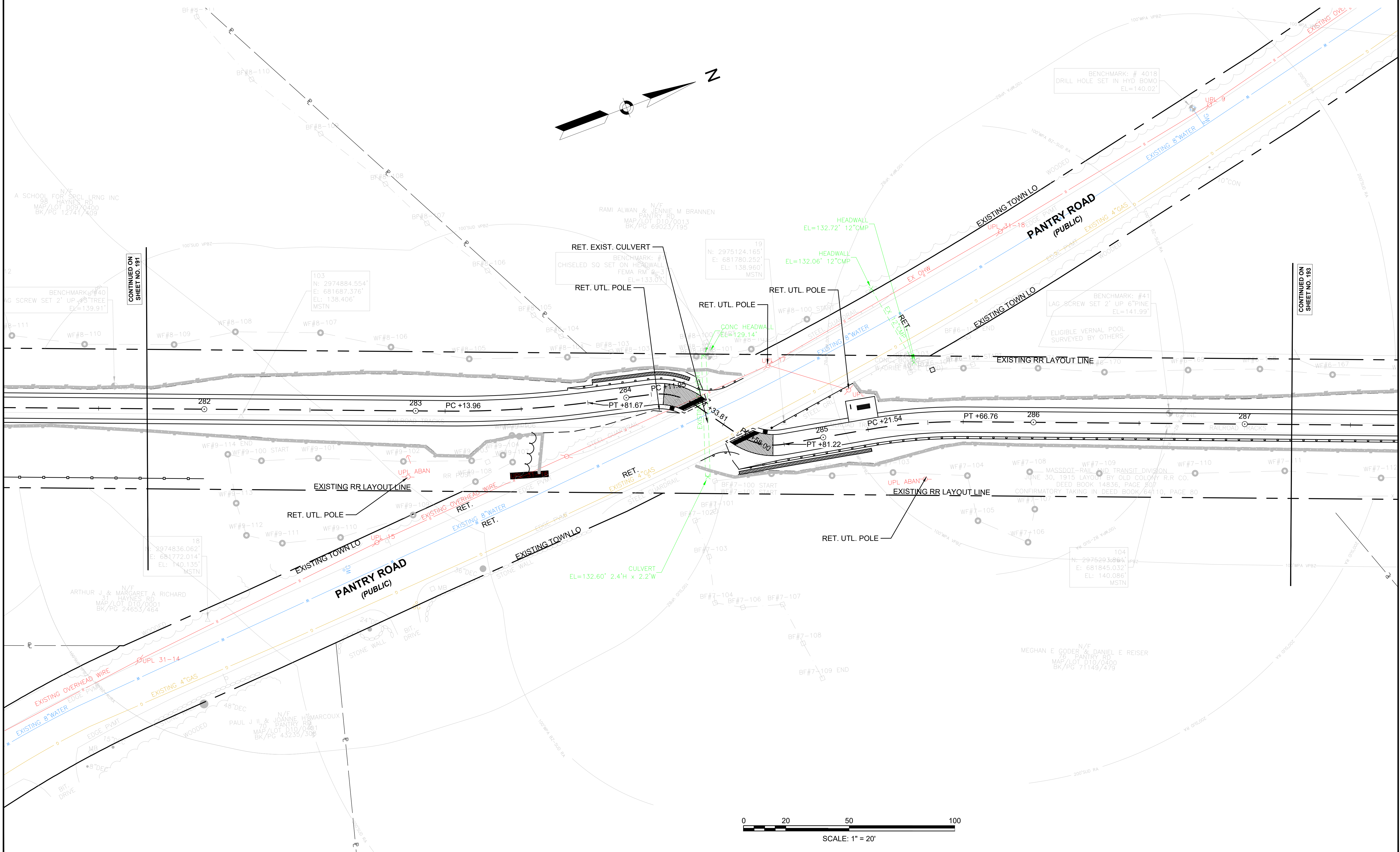
101  
N: 2974467.089'  
E: 681525.562'  
EL: 136.137'  
MSTN

BENCHMARK: #2  
CHISELED SQ SET ON BOULDER  
MDOT #10060  
EL=139.94'

102  
N: 2974695.305'  
E: 681614.021'  
EL: 137.231'  
MSTN

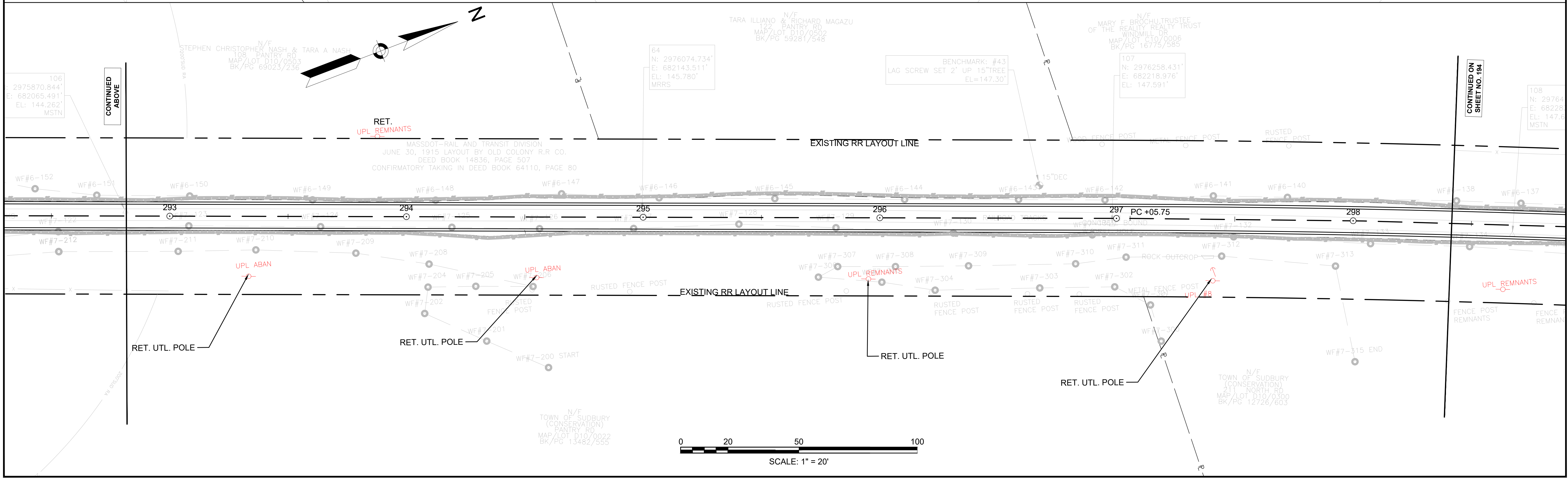
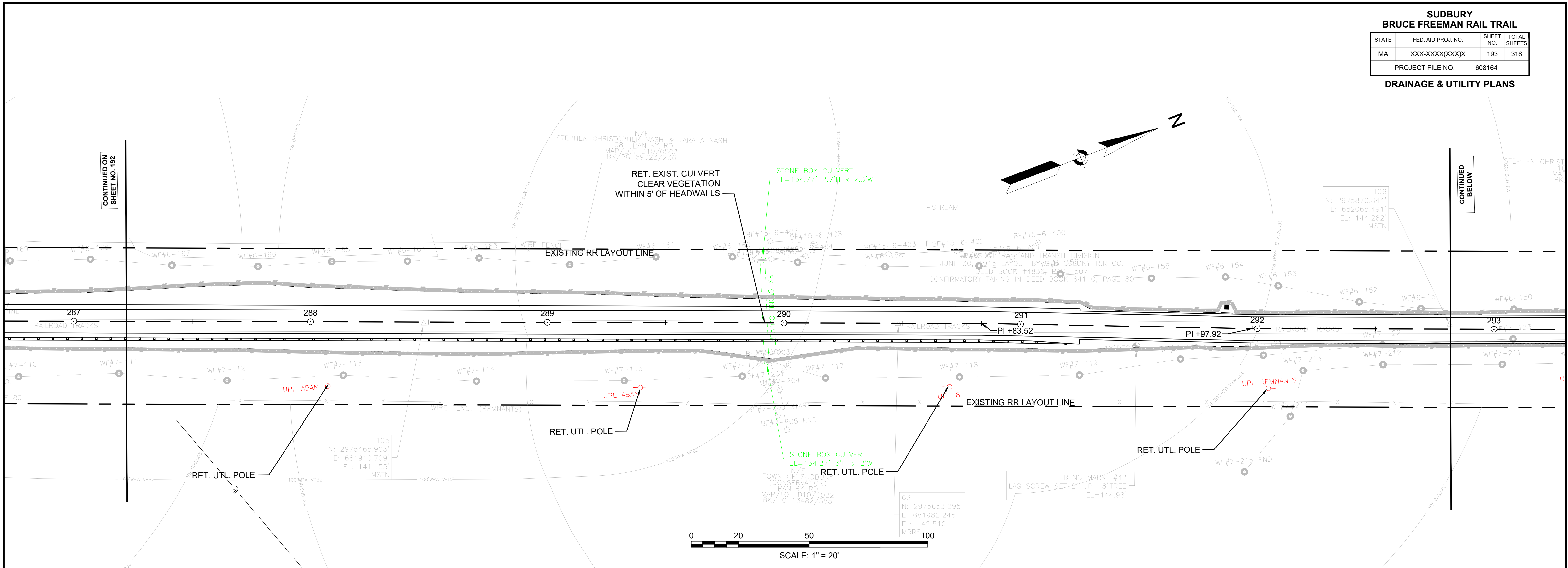
BENCHMARK: #40  
LAG SCREW SET 2" UP IN TREE  
EL=139.91'

18  
N: 2974836.062'  
E: 681772.014'  
EL: 140.135'  
MSTN



CONTINUED ON  
SHEET NO. 191

CONTINUED ON  
SHEET NO. 193

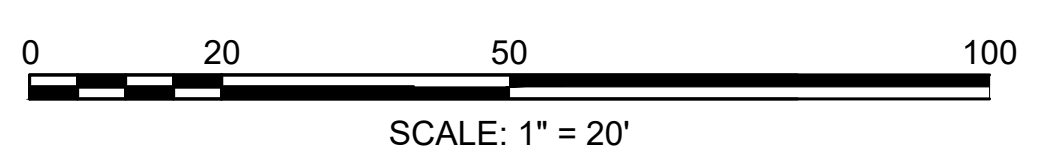
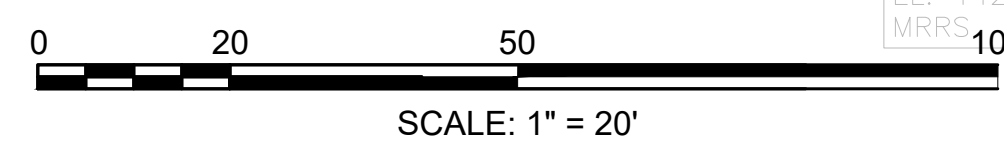


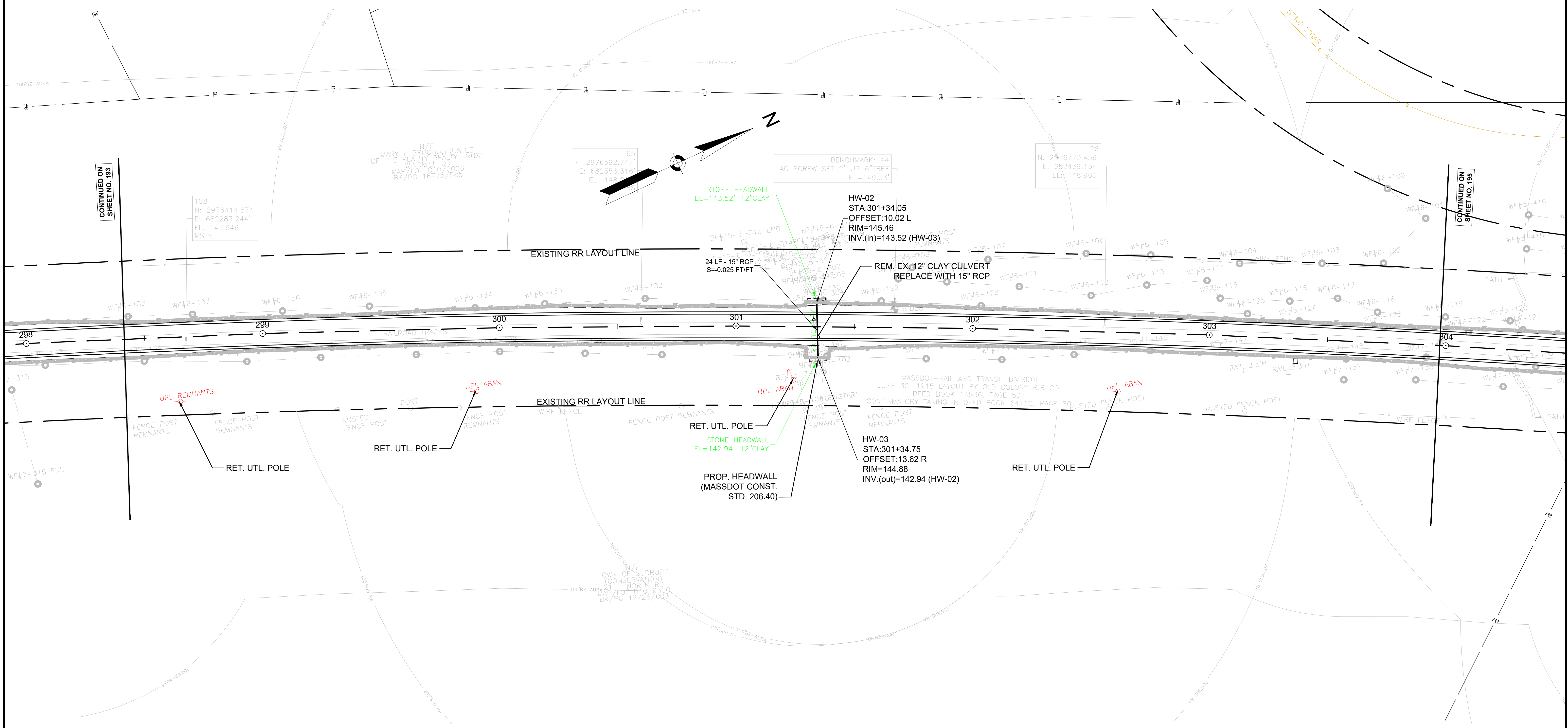
CONTINUED ON  
SHEET NO. 192

CONTINUED  
BELOW

CONTINUED  
ABOVE

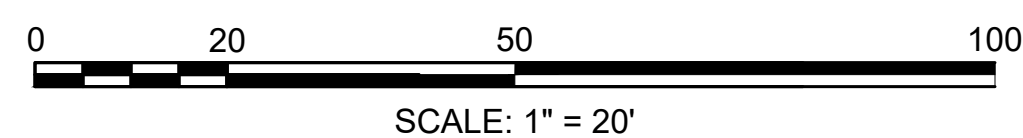
CONTINUED ON  
SHEET NO. 194





CONTINUED ON SHEET NO. 193

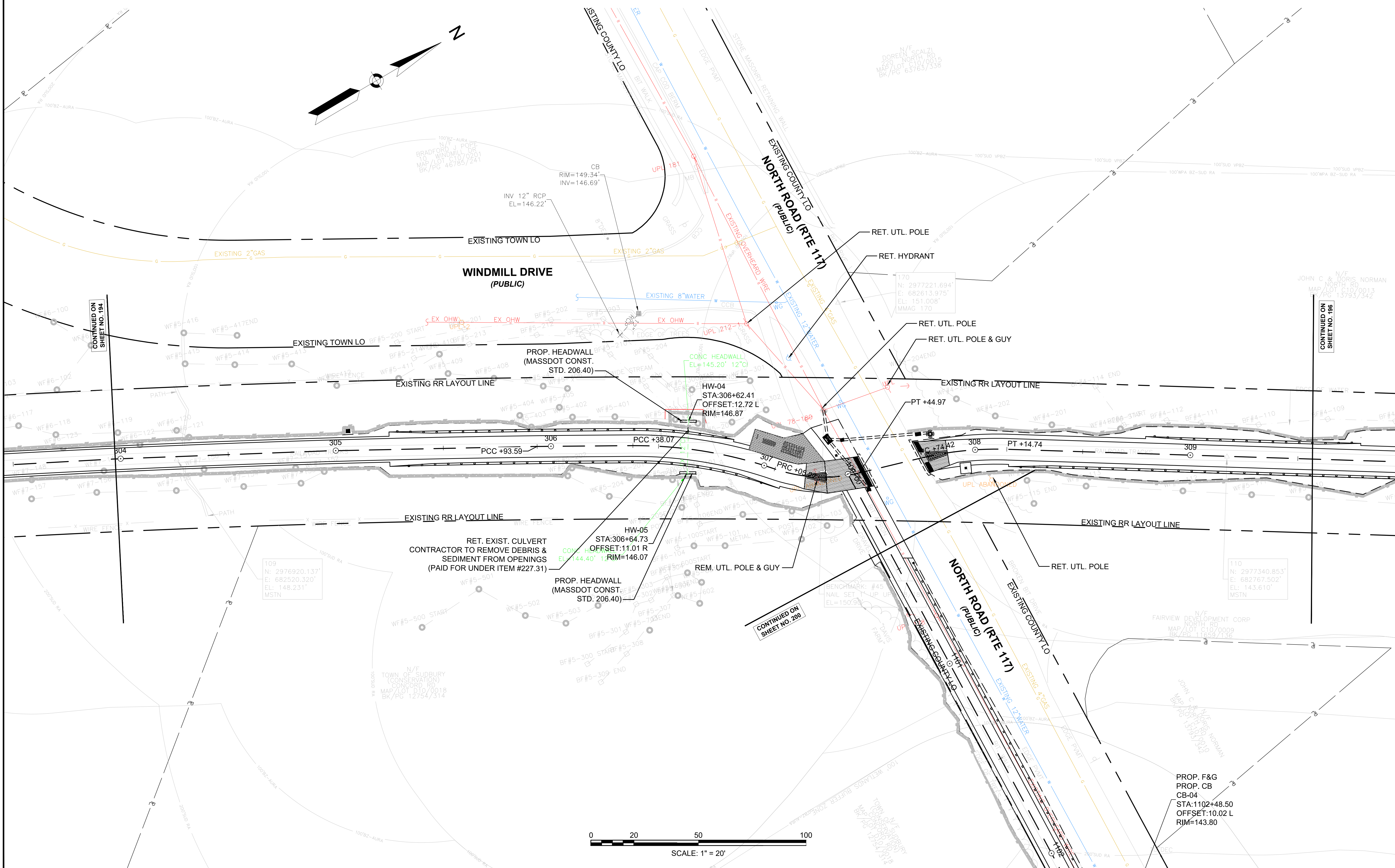
CONTINUED ON SHEET NO. 195



**SUDBURY**  
**BRUCE FREEMAN RAIL TRAIL**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	195	318

PROJECT FILE NO. 608164  
**DRAINAGE & UTILITY PLANS**



CONTINUED ON  
SHEET NO. 194

CONTINUED ON  
SHEET NO. 196

CONTINUED ON  
SHEET NO. 200

0 20 50 100  
 SCALE: 1" = 20'

PROP. F&G  
 PROP. CB  
 CB-04  
 STA:1102+48.50  
 OFFSET:10.02 L  
 RIM=143.80

RET. EXIST. CULVERT  
 CONTRACTOR TO REMOVE DEBRIS &  
 SEDIMENT FROM OPENINGS  
 (PAID FOR UNDER ITEM #227.31)

HW-05  
 STA:306+64.73  
 OFFSET:11.01 R  
 EL=144.40' RIM=146.07

PROP. HEADWALL  
 (MASSDOT CONST.  
 STD. 206.40)

170  
 N: 2977221.694'  
 E: 682613.975'  
 EL: 151.008'  
 MMAG 170

110  
 N: 2977340.853'  
 E: 682767.502'  
 EL: 143.610'  
 MSTN

109  
 N: 2976920.137'  
 E: 682520.320'  
 EL: 148.231'  
 MSTN

TOWN OF SUDBURY  
 (CONSERVATION)  
 CONCORD RD  
 MAP/LOT D10/0018  
 BK/PG 12754/514

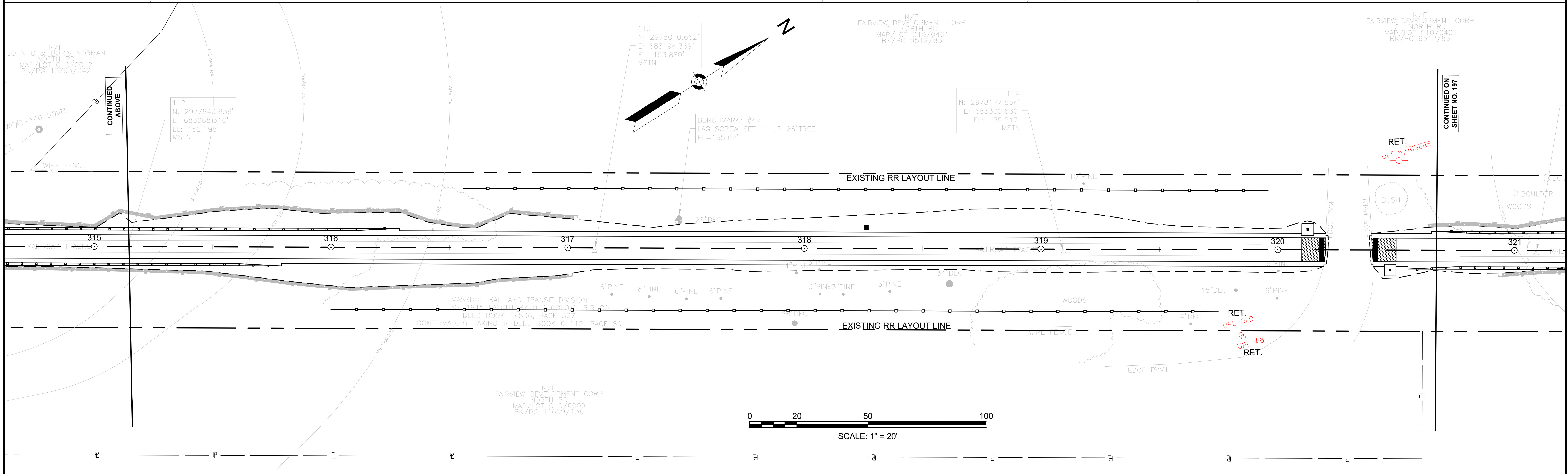
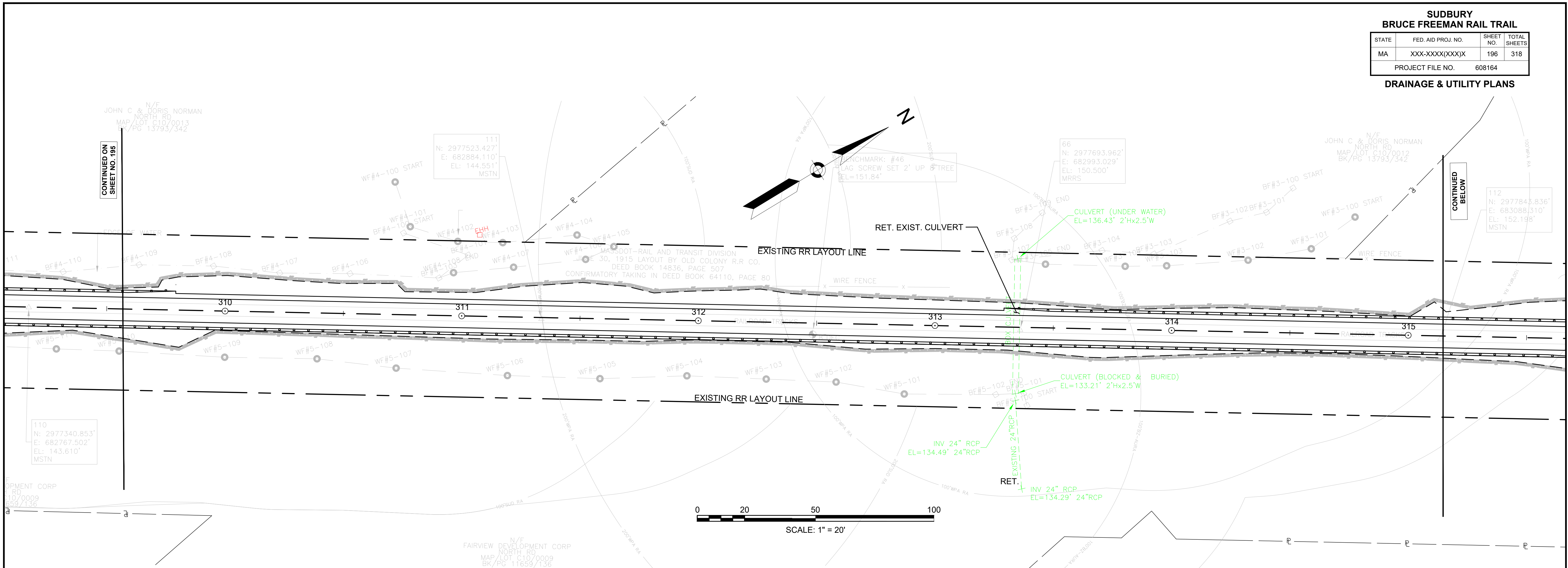
FAIRVIEW DEVELOPMENT CORP  
 NORTH RD  
 MAP/LOT C16/0009  
 BK/PG 11659/136

JOHN C & MORIS NORMAN  
 NORTH RD  
 MAP/LOT C10/0013  
 BK/PG 13793/342

N/F SCALZI  
 220 LOT NO. 54 RD  
 MAP/LOT C10/0015  
 BK/PG 63763/536

BRADFORD J POPE  
 WINDMILL DR  
 MAP/LOT C107/0201  
 BK/PG 46760/241

JOHN C & MORIS NORMAN  
 NORTH RD  
 MAP/LOT C10/0013  
 BK/PG 13793/342



JOHN C & DORIS NORMAN  
NORTH RD  
MAP/LOT C10/0013  
BK/PG 13793/342

JOHN C & DORIS NORMAN  
NORTH RD  
MAP/LOT C10/0012  
BK/PG 13793/342

FAIRVIEW DEVELOPMENT CORP  
NORTH RD  
MAP/LOT C10/0009  
BK/PG 11659/136

FAIRVIEW DEVELOPMENT CORP  
NORTH RD  
MAP/LOT C10/0401  
BK/PG 9512/83

FAIRVIEW DEVELOPMENT CORP  
NORTH RD  
MAP/LOT C10/0401  
BK/PG 9512/83

JOHN C & DORIS NORMAN  
NORTH RD  
MAP/LOT C10/0012  
BK/PG 13793/342

112  
N: 2977845.836'  
E: 683088.310'  
EL: 152.198'  
MSTN

113  
N: 2978010.662'  
E: 683194.369'  
EL: 153.880'  
MSTN

114  
N: 2978177.854'  
E: 683300.660'  
EL: 155.517'  
MSTN

BENCHMARK: #47  
LAG SCREW SET 1" UP 26" TREE  
EL=155.62'

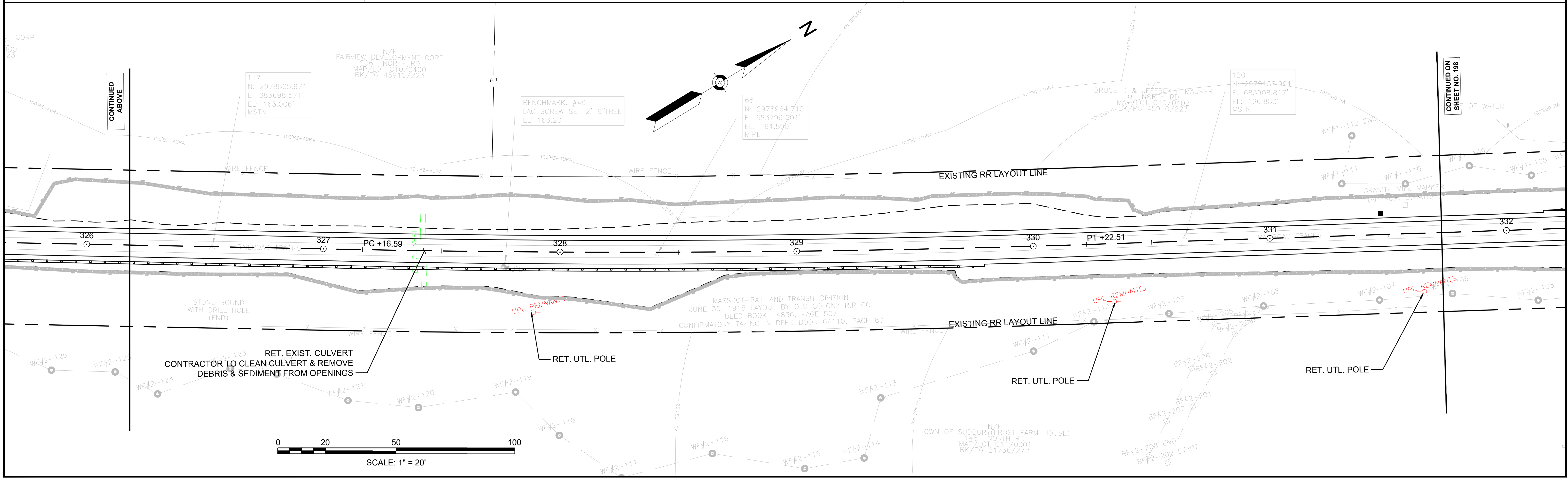
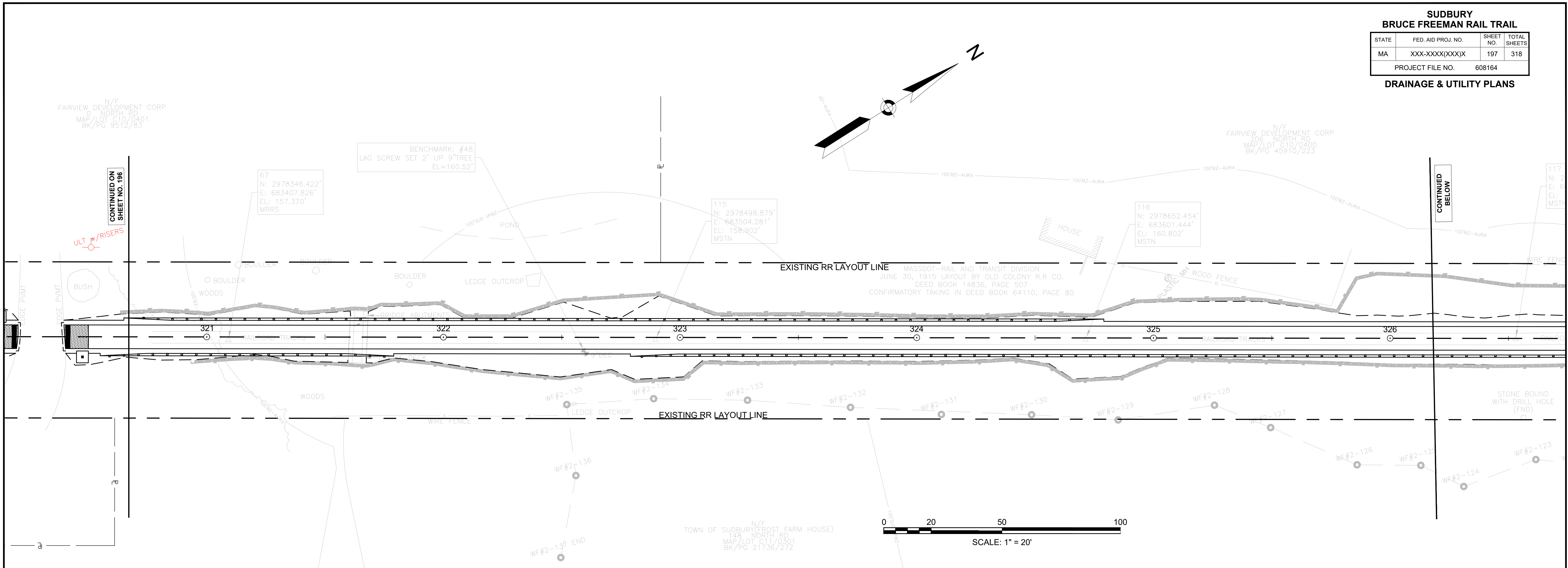
FAIRVIEW DEVELOPMENT CORP  
NORTH RD  
MAP/LOT C10/0009  
BK/PG 11659/136



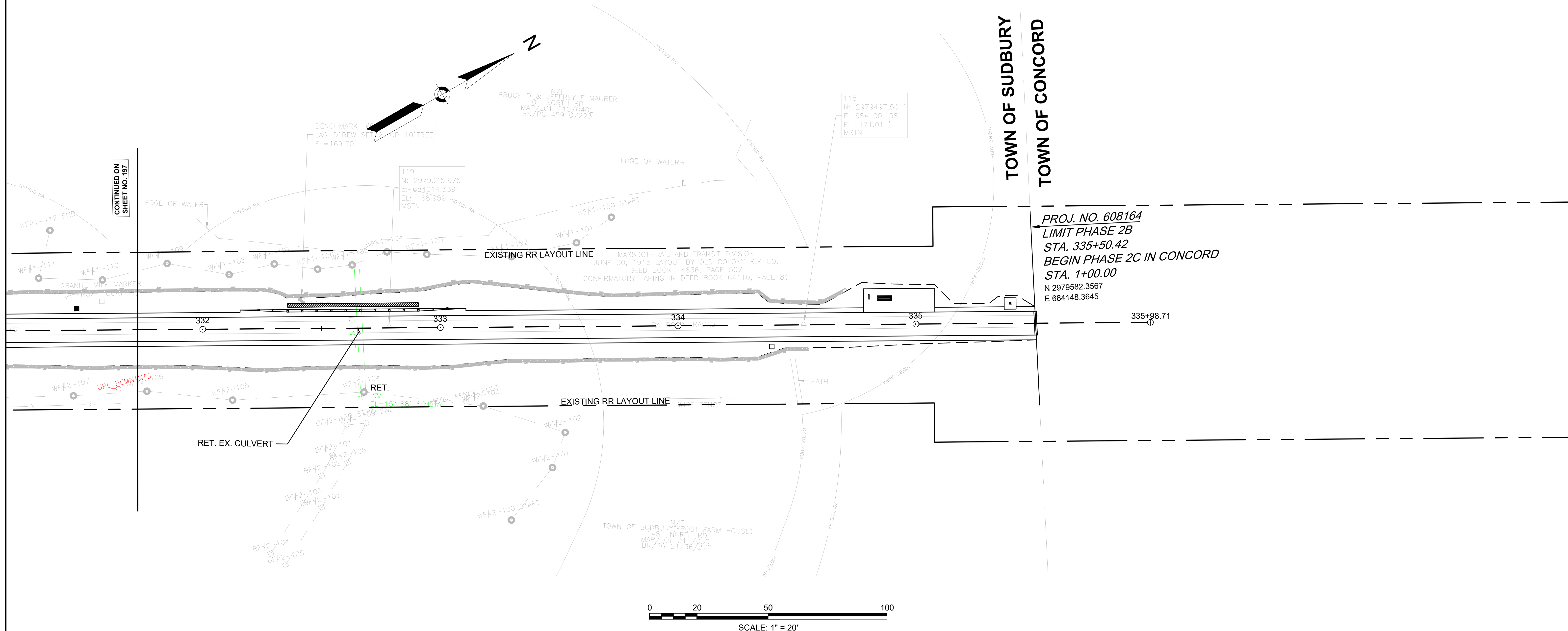
**SUDBURY  
BRUCE FREEMAN RAIL TRAIL**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXX(XXX)X	197	318
PROJECT FILE NO.		608164	

**DRAINAGE & UTILITY PLANS**

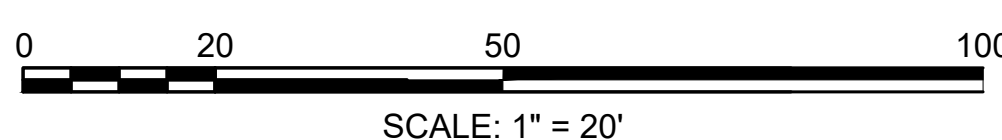


SUDBURY BRUCE FREEMAN RAIL TRAIL			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	198	318
PROJECT FILE NO.		608164	
DRAINAGE & UTILITY PLANS			



TOWN OF SUDBURY  
TOWN OF CONCORD

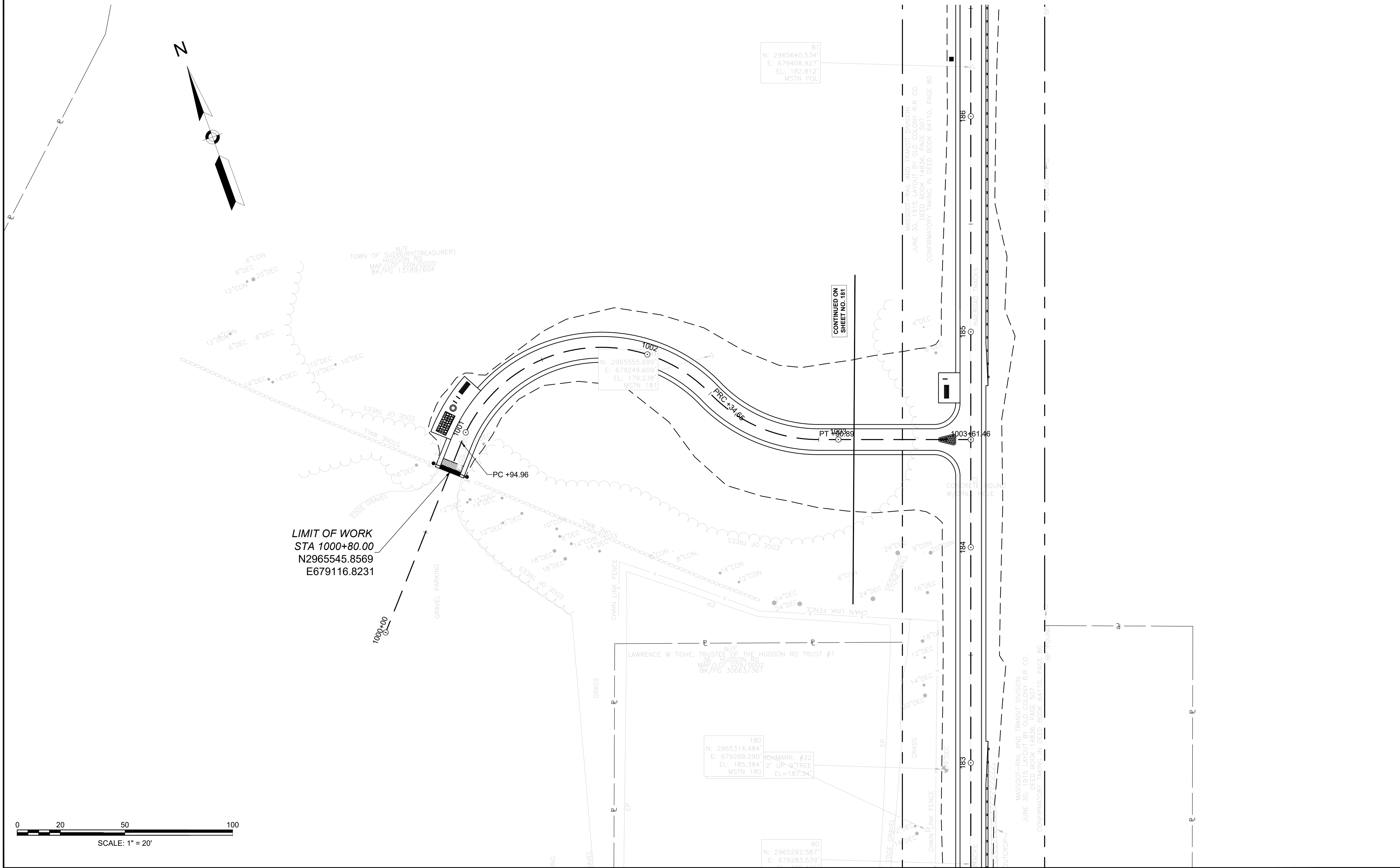
PROJ. NO. 608164  
LIMIT PHASE 2B  
STA. 335+50.42  
BEGIN PHASE 2C IN CONCORD  
STA. 1+00.00  
N 2979582.3567  
E 684148.3645



**SUBURBY  
BRUCE FREEMAN RAIL TRAIL**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	199	318
PROJECT FILE NO.		608164	

**DRAINAGE & UTILITY PLANS**



81  
N: 2965640.534'  
E: 679408.927'  
EL: 182.812'  
MSTN POL

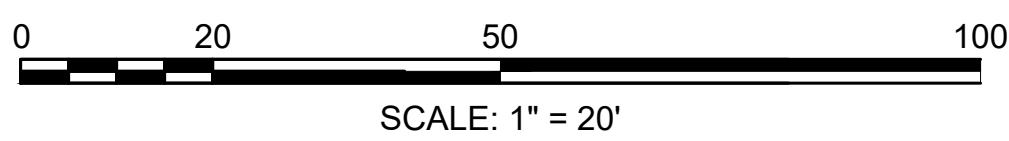
1002  
N: 2965555.699'  
E: 679249.609'  
EL: 179.238'  
MSTN 181

180  
N: 2965314.484'  
E: 679269.290'  
EL: 185.384'  
MSTN 180  
MARK: #22  
2" UP 9" TREE  
EL=187.34'

80  
N: 2965292.587'  
E: 679283.539'

CONTINUED ON  
SHEET NO. 181

LIMIT OF WORK  
STA 1000+80.00  
N2965545.8569  
E6791116.8231

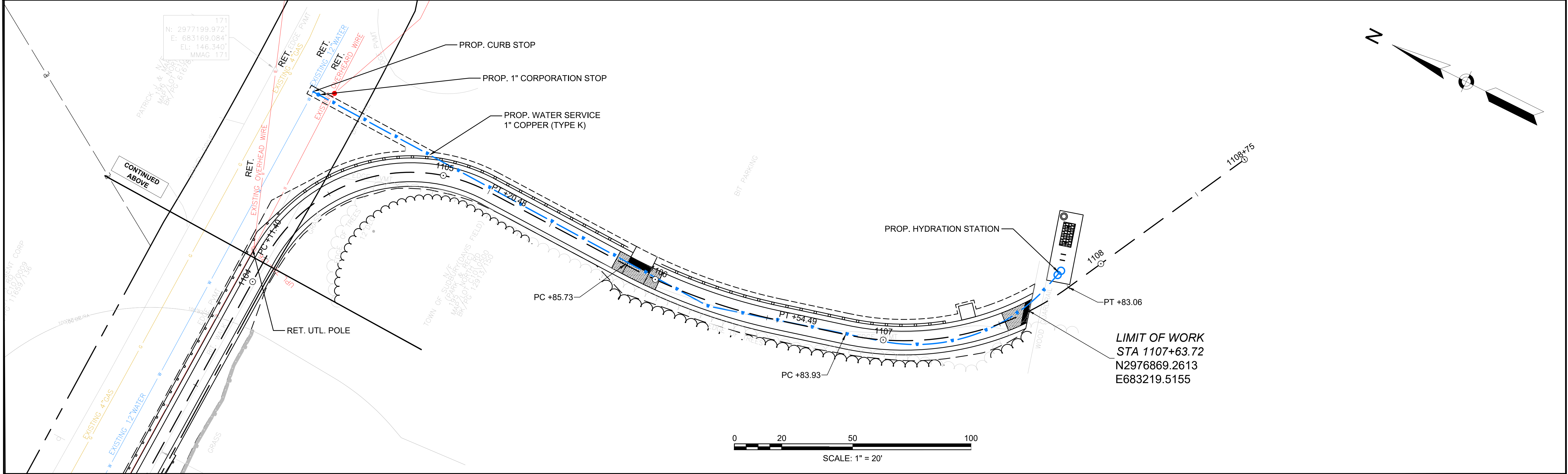
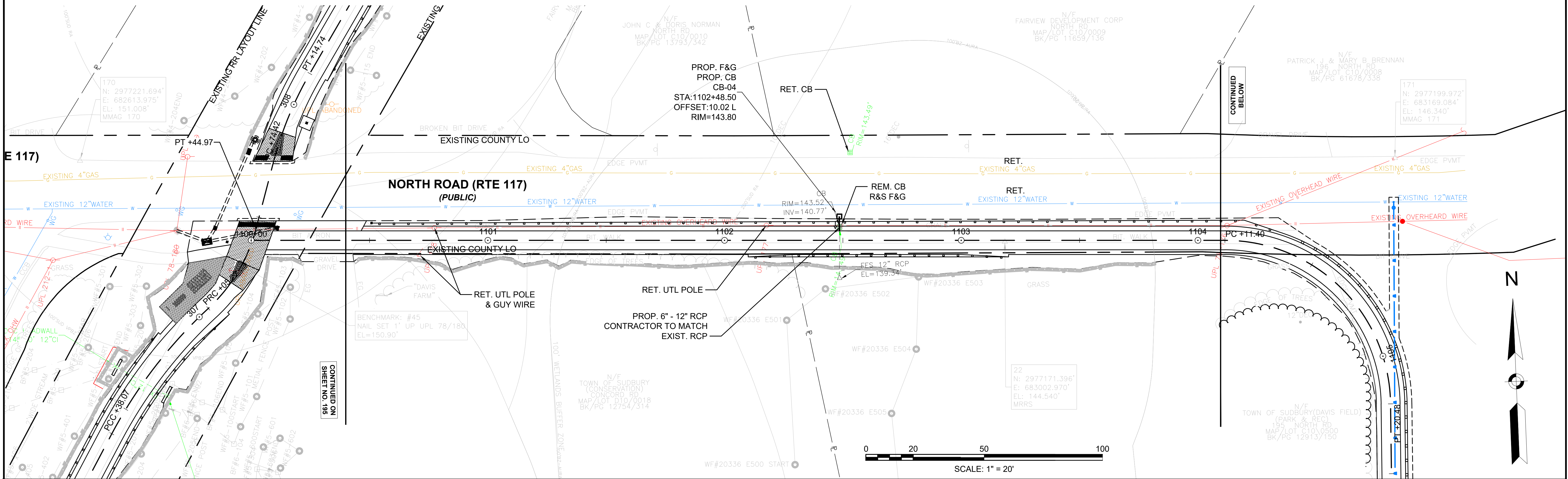


**SUDBURY  
BRUCE FREEMAN RAIL TRAIL**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	200	318

PROJECT FILE NO. 608164

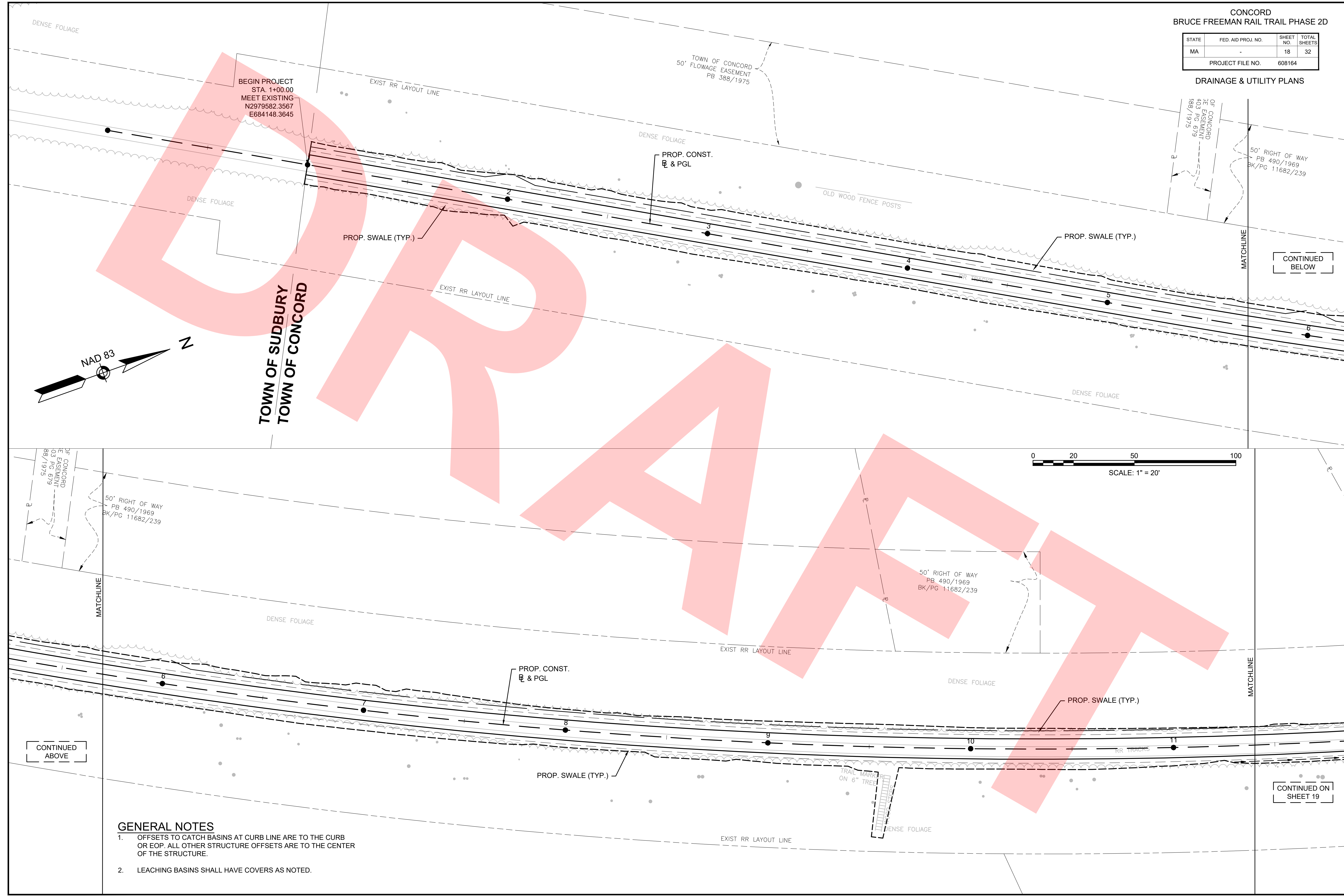
**DRAINAGE & UTILITY PLANS**



CONCORD  
BRUCE FREEMAN RAIL TRAIL PHASE 2D

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	18	32
PROJECT FILE NO.		608164	

DRAINAGE & UTILITY PLANS



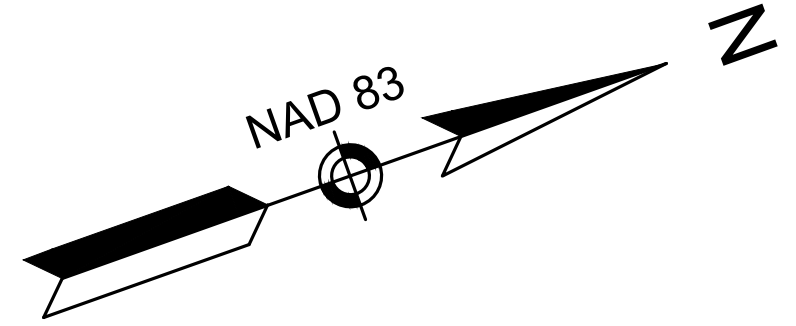
BEGIN PROJECT  
STA. 1+00.00  
MEET EXISTING  
N2979582.3567  
E684148.3645

TOWN OF CONCORD  
50' FLOWAGE EASEMENT  
PB 388/1975

OF CONCORD  
2E EASEMENT  
403 PG 8/79  
188/1975

50' RIGHT OF WAY  
PB 490/1969  
BK/PG 11682/239

CONTINUED  
BELOW



TOWN OF SUDBURY  
TOWN OF CONCORD



OF CONCORD  
2E EASEMENT  
403 PG 8/79  
188/1975

MATCHLINE

50' RIGHT OF WAY  
PB 490/1969  
BK/PG 11682/239

CONTINUED  
ABOVE

**GENERAL NOTES**

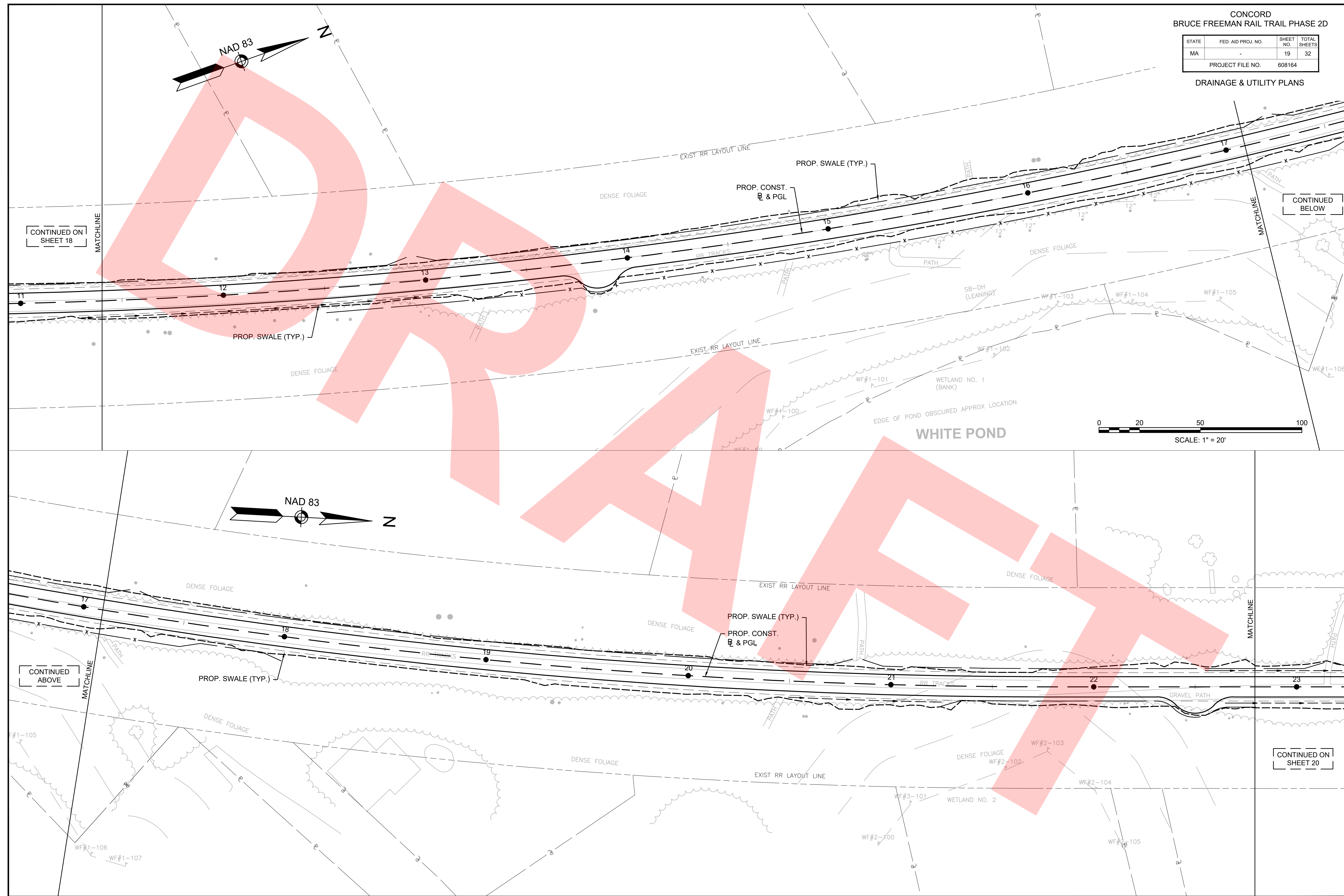
1. OFFSETS TO CATCH BASINS AT CURB LINE ARE TO THE CURB OR EOP. ALL OTHER STRUCTURE OFFSETS ARE TO THE CENTER OF THE STRUCTURE.
2. LEACHING BASINS SHALL HAVE COVERS AS NOTED.

CONTINUED ON  
SHEET 19

CONCORD  
BRUCE FREEMAN RAIL TRAIL PHASE 2D

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	19	32
PROJECT FILE NO.		608164	

DRAINAGE & UTILITY PLANS



CONTINUED ON SHEET 18

CONTINUED BELOW

CONTINUED ABOVE

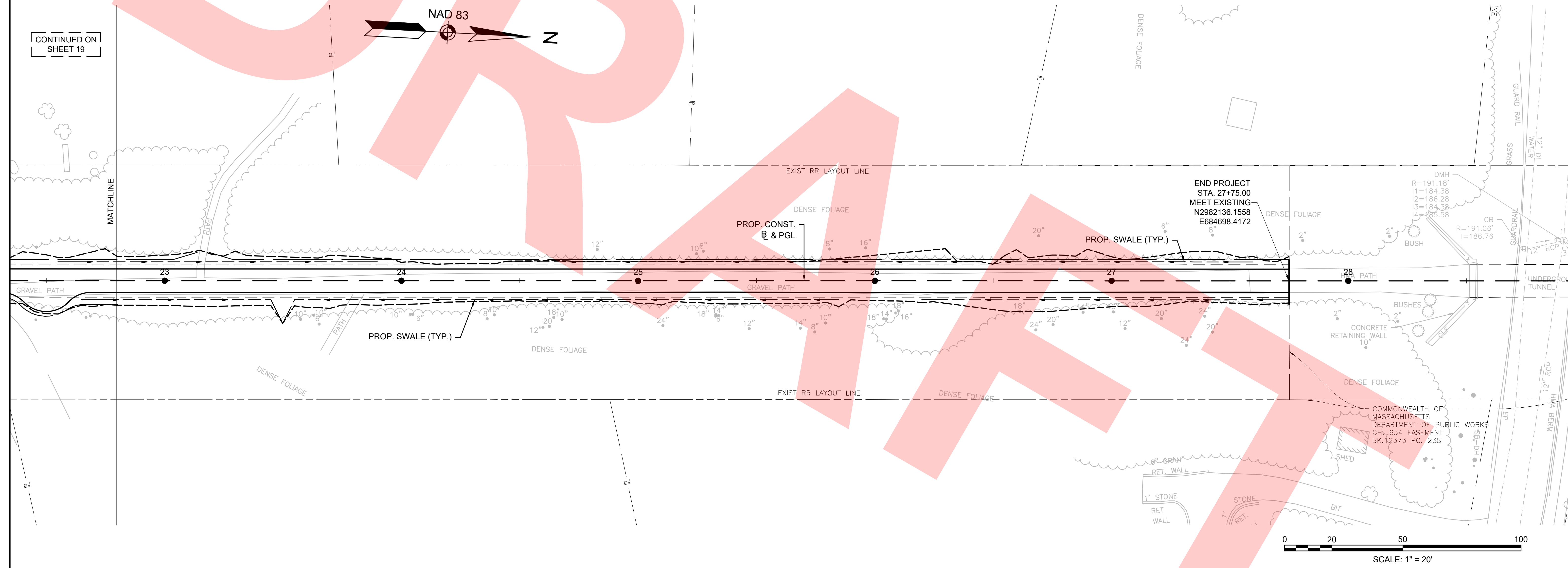
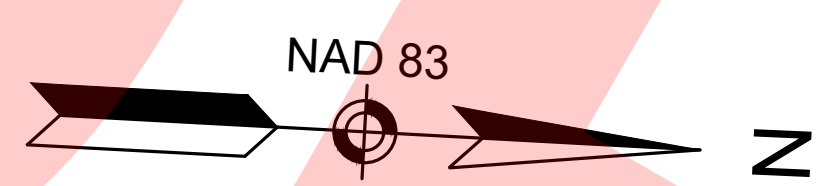
CONTINUED ON SHEET 20

CONCORD  
BRUCE FREEMAN RAIL TRAIL PHASE 2D

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	20	32
PROJECT FILE NO.		608164	

DRAINAGE & UTILITY PLANS

CONTINUED ON  
SHEET 19

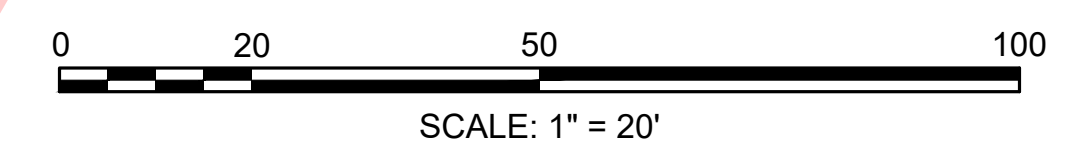


END PROJECT  
STA. 27+75.00  
MEET EXISTING  
N2982136.1558  
E684698.4172

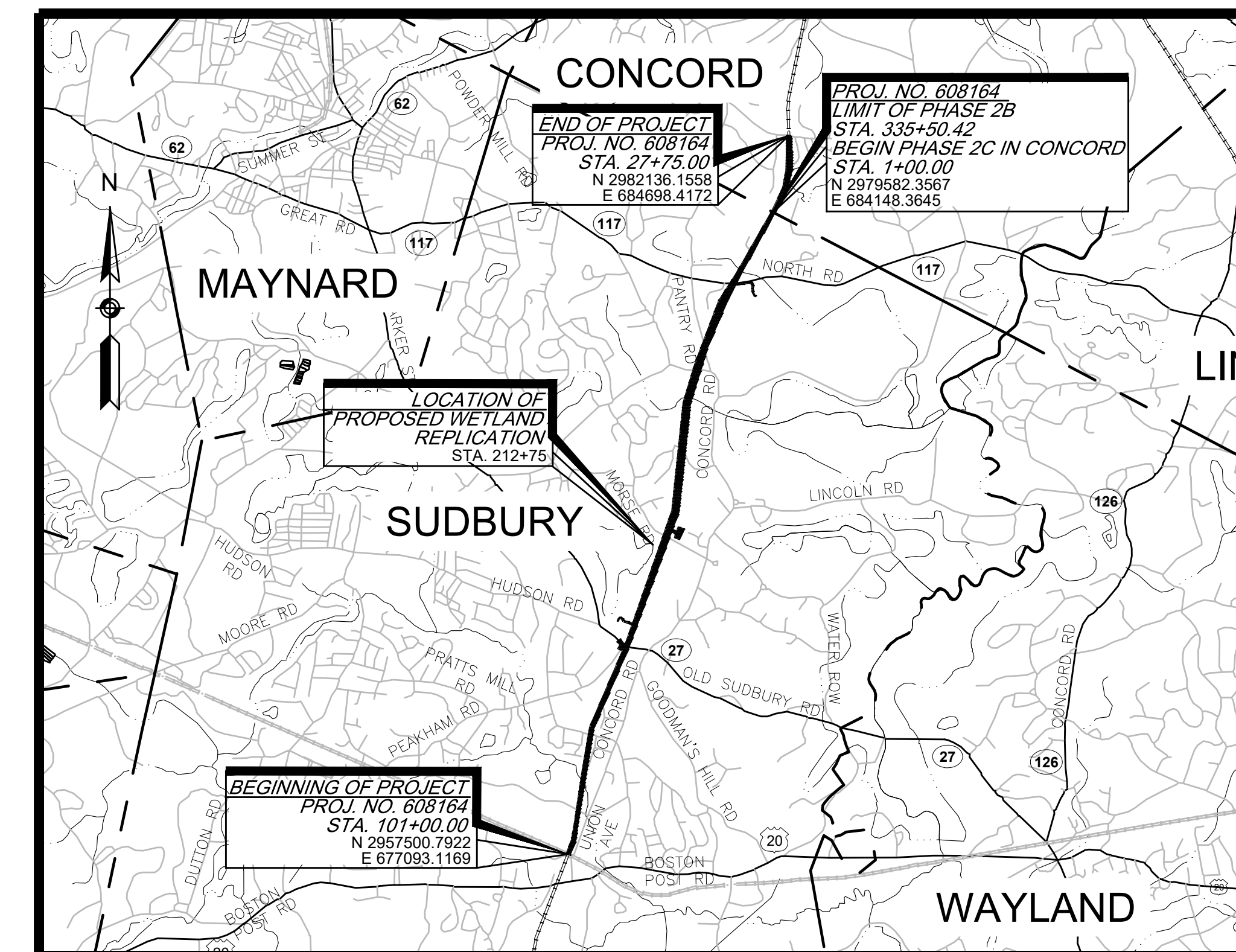
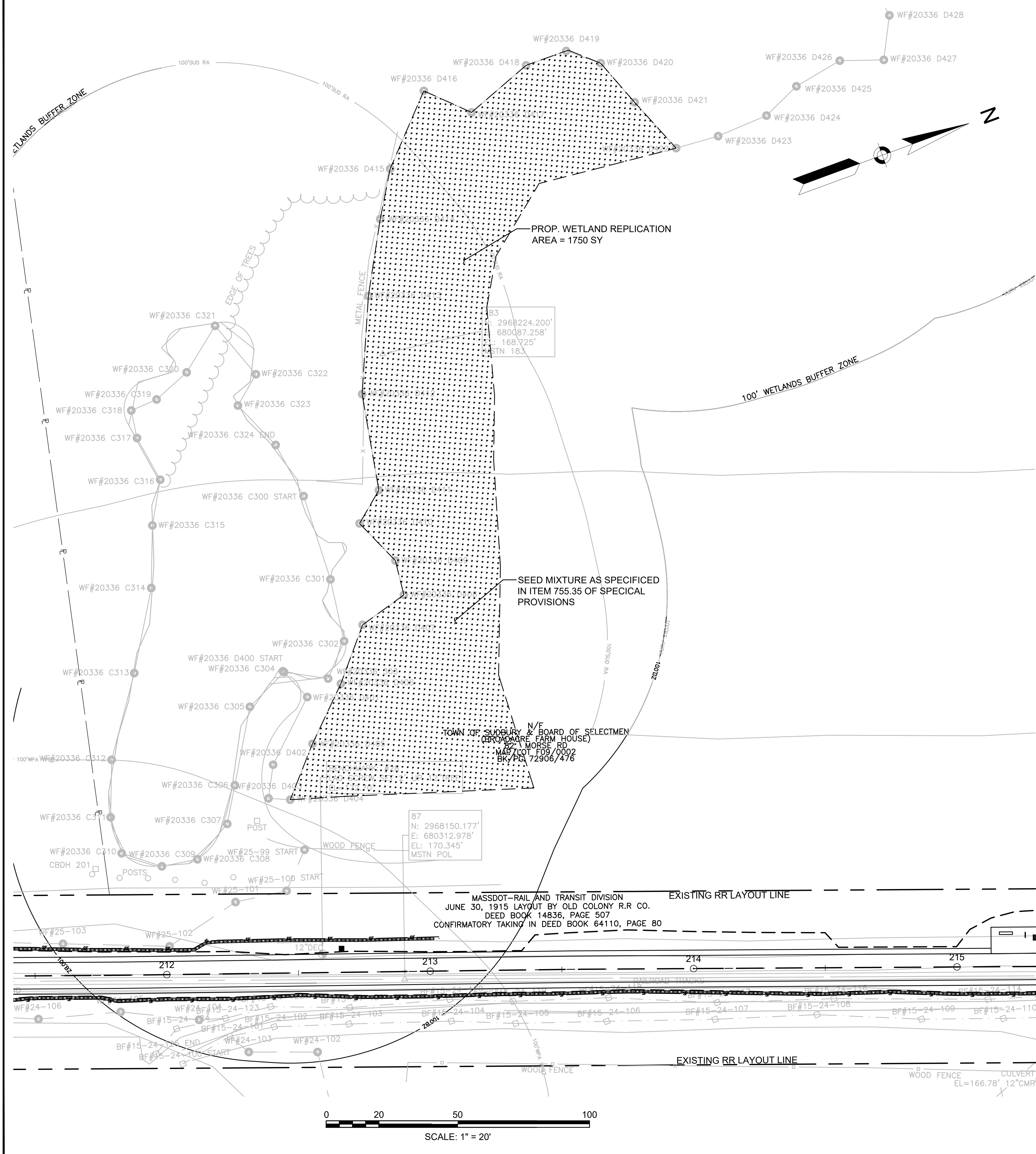
DMH  
R=191.18'  
11=184.38  
12=186.28  
13=184.38  
14=185.58

CB  
R=191.06'  
I=186.76

COMMONWEALTH OF MASSACHUSETTS  
DEPARTMENT OF PUBLIC WORKS  
CH. 834 EASEMENT  
BK.12373 PG. 238



SUDBURY BRUCE FREEMAN RAIL TRAIL			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	204	318
PROJECT FILE NO.		608164	
WETLAND REPLICATION PLAN			



LEGEND

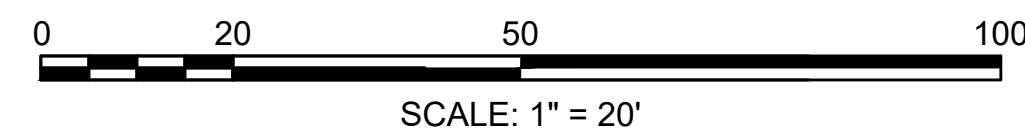
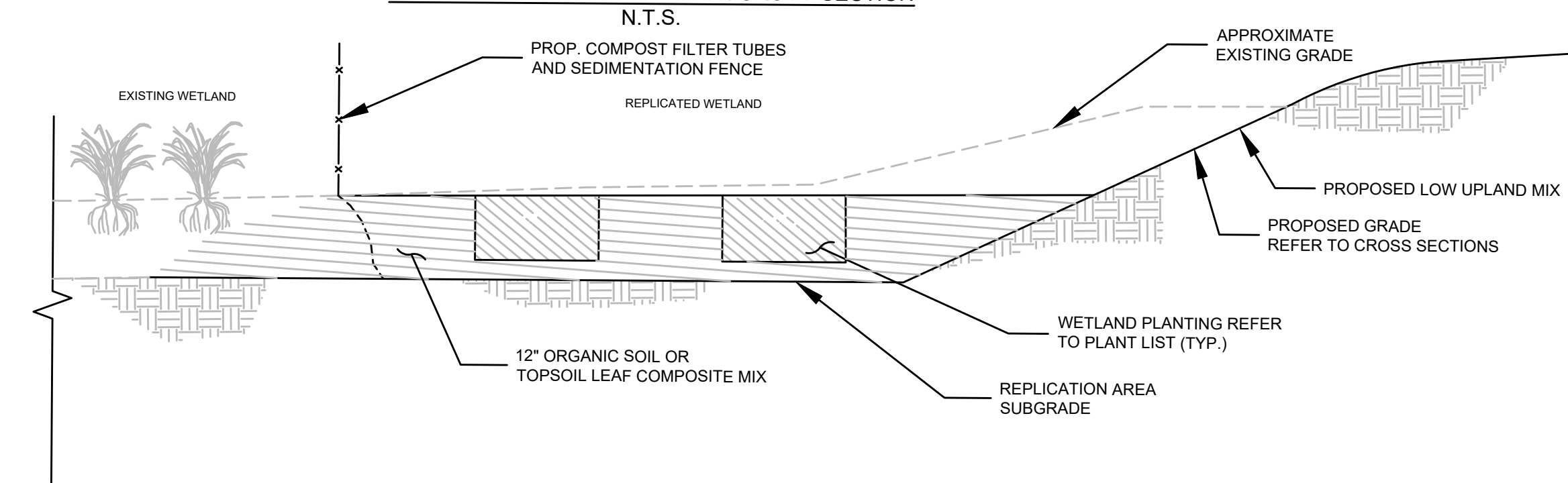
WETLAND REPLICATION AREA (SEASONALLY FLOODED)



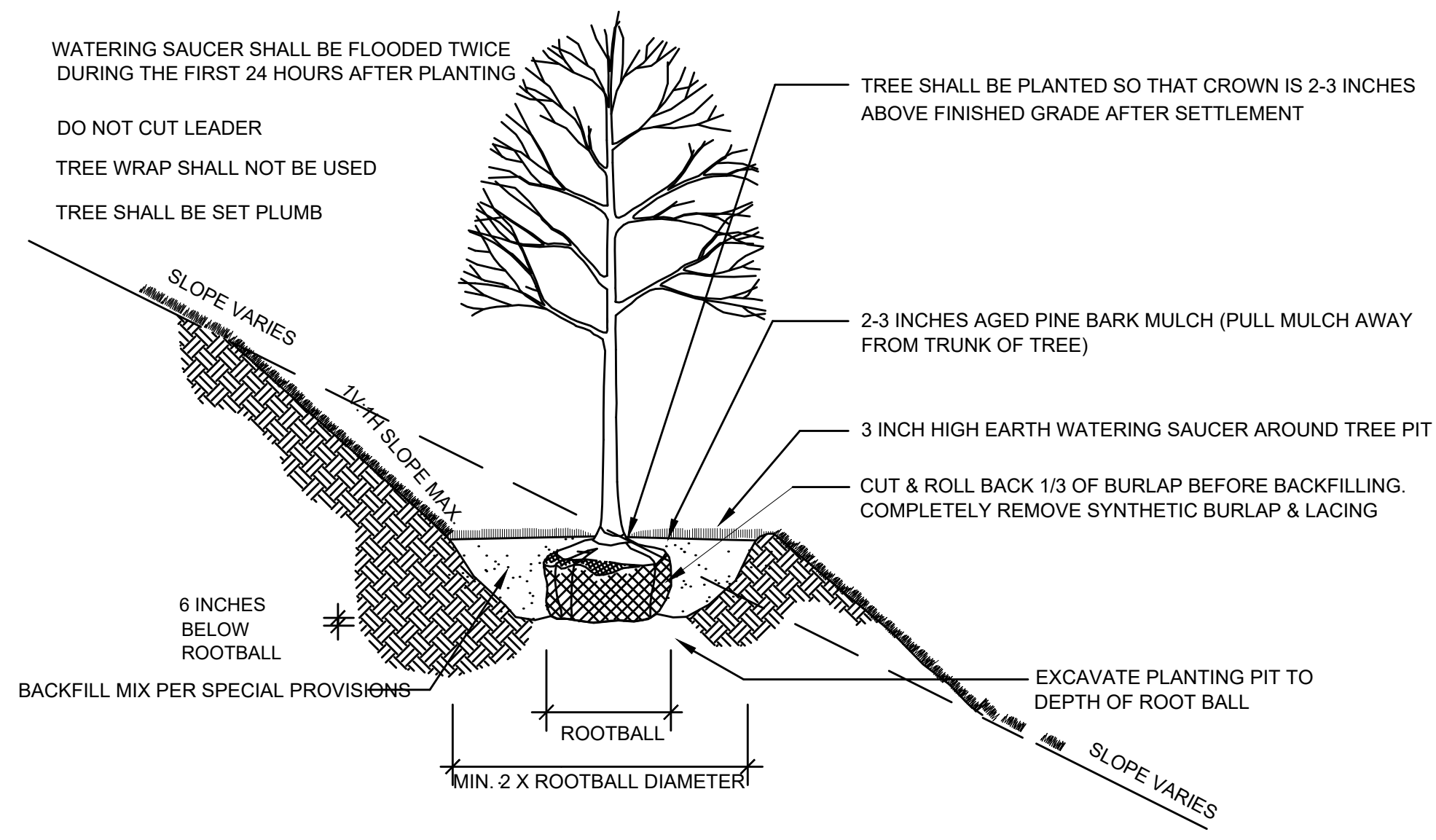
WETLAND REPLICATION NOTES:

1. EXACT SPECIES AND QUANTITY TO BE DETERMINED UPON CONSULTATION WITH WETLAND SPECIALIST.
2. WETLAND REPLICATION SHALL BE CONDUCTED IN ACCORDANCE WITH THESE DRAWINGS, SPECIAL PROVISIONS AND REQUIREMENTS OUTLINED IN THE ORDER OF CONDITIONS AS ISSUED BY THE TOWN OF SUDBURY CONSERVATION COMMISSION.
3. THE WETLAND REPLICATION SITE WILL BE ACCESSED FROM THE BRUCE FREEMAN RAIL TRAIL.
4. ALL EXISTING WETLAND DELINEATION WITHIN 100 FEET OF THE WORK AREA WILL BE RE-FLAGGED EVERY 25 FEET.
5. A PRE-CONSTRUCTION MEETING WILL BE HELD WITH THE CONTRACTOR, THE ENGINEER, SUPERVISING WETLAND SPECIALIST AND OTHER KEY PERSONNEL PRIOR TO THE COMMENCEMENT OF WORK TO REVIEW SEDIMENT AND EROSION CONTROL MEASURES, CONSTRUCTION METHODS AND WETLAND REPLACEMENT PROCEDURES.
6. THE SEDIMENTATION EROSION CONTROLS WILL BE PLACED AS SHOWN ON THE PLAN AND AS DIRECTED BY THE ENGINEER, SUPERVISING WETLAND SPECIALIST, OR OTHER KEY PERSONNEL. SEDIMENTATION EROSION CONTROLS SHALL BE MAINTAINED UNTIL THE SITE HAS COMPLETELY STABILIZED.
7. THE SUBGRADE OF WETLAND REPLACEMENT AREAS WILL BE GRADED A MINIMUM OF ONE FOOT BELOW THE ADJACENT WETLANDS. NO GRADING WILL BE PERMITTED WITHIN THE EXISTING WETLAND AREAS EXCEPT TO CUT OPENINGS IN BERMS TO ESTABLISH HYDRAULIC CONDUCTIVITY BETWEEN THE REPLACEMENT WETLAND AND THE WETLAND REPLICATION.
8. A TWELVE-INCH LAYER OF ORGANIC SOIL OR MIXTURE OF EQUAL PARTS OF GOOD QUALITY TOPSOIL AND CLEAN LEAF COMPOST WILL BE PLACED IN THE BOTTOM OF THE REPLACEMENT AREA.
9. THE DISTURBED SOILS WITHIN THE WETLAND REPLACEMENT AREA WILL BE SEEDED LIGHTLY WITH WET SEED MIX' OR EQUIVALENT AT RATES OF 1 LBS / 1700 FT2 IN AREAS WITH EXPOSED SOILS AND .25 LBS / 1700 FT2 IN VEGETATED AREAS AS TOP-SEEDING. THE AREA WILL BE MULCHED WITH TWO INCHES OF CLEAN LEAF COMPOST OR STRAW.
10. SIDE SLOPES WILL BE GRADED WITH A MINIMUM OF FOUR INCHES OF THE SOIL MIXTURE AS DESCRIBED ABOVE AND SEEDED WITH 'SHOULDER SEED MIX'. SLOPES WILL THEN BE MULCHED WITH THREE INCHES OF STRAW.
11. DURING AND AFTER THE FIRST AND SECOND GROWING SEASON, THE SUCCESS OF THE VEGETATIVE GROWTH WILL BE REVIEWED AND EVALUATED. ADDITIONAL VEGETATION WILL BE PLANTED AS NECESSARY TO REPLACE STRESSED OR MISSING VEGETATION AND TO ACHIEVE THE 75% VEGETATIVE DENSITY SPECIFIED IN THE SPECIAL PROVISIONS.
12. GRADING AND PLANTINGS WILL NOT BE CONDUCTED DURING PERIODS OF HIGH WATER. CONSTRUCTION OF THE REPLACEMENT AREA WILL CONTINUE UNINTERRUPTED TO AVOID EROSION AND THE SILTATION OF WETLANDS.
13. THE CONSTRUCTION OF THE WETLAND REPLICATION AREA WILL BE SUPERVISED BY A QUALIFIED WETLAND SPECIALIST IN ACCORDANCE WITH THE SPECIAL PROVISIONS.
14. THE STABILITY OF THE AREA WILL BE MONITORED AND ADJUSTMENTS WILL BE MADE AS NECESSARY TO PREVENT IMPACTS TO THE RESOURCE AREAS.

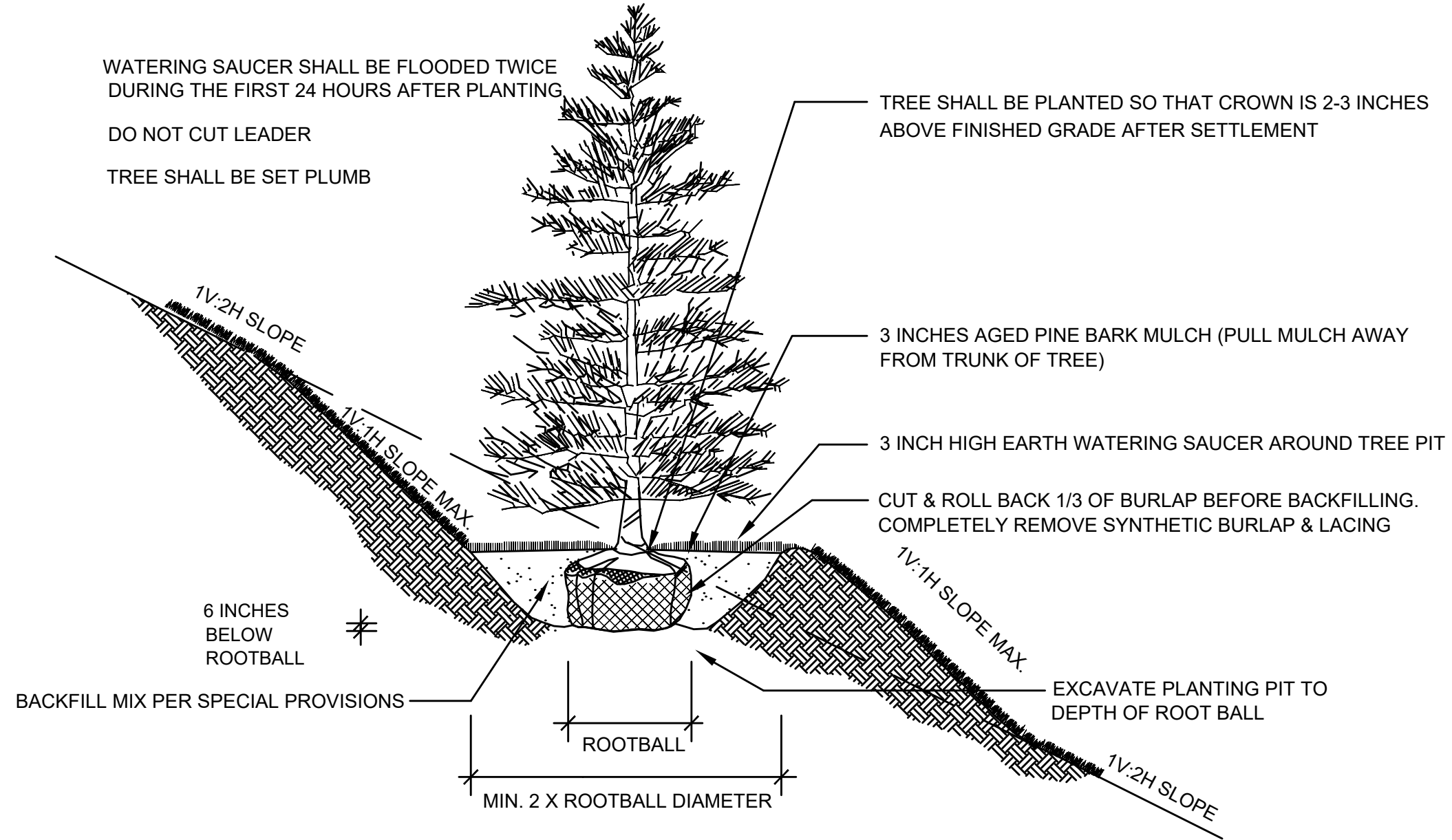
TYPICAL WETLAND REPLICATION CROSS-SECTION



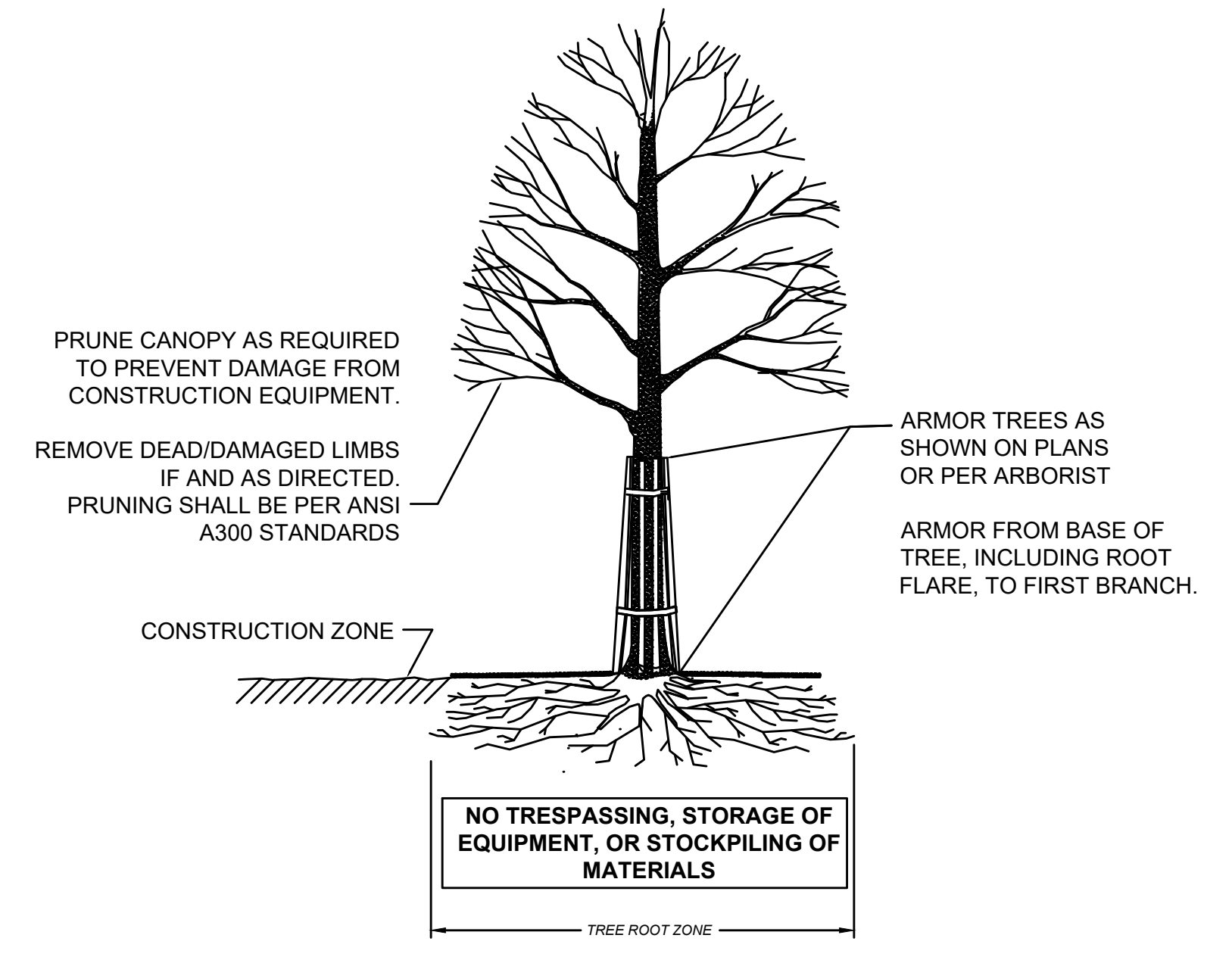




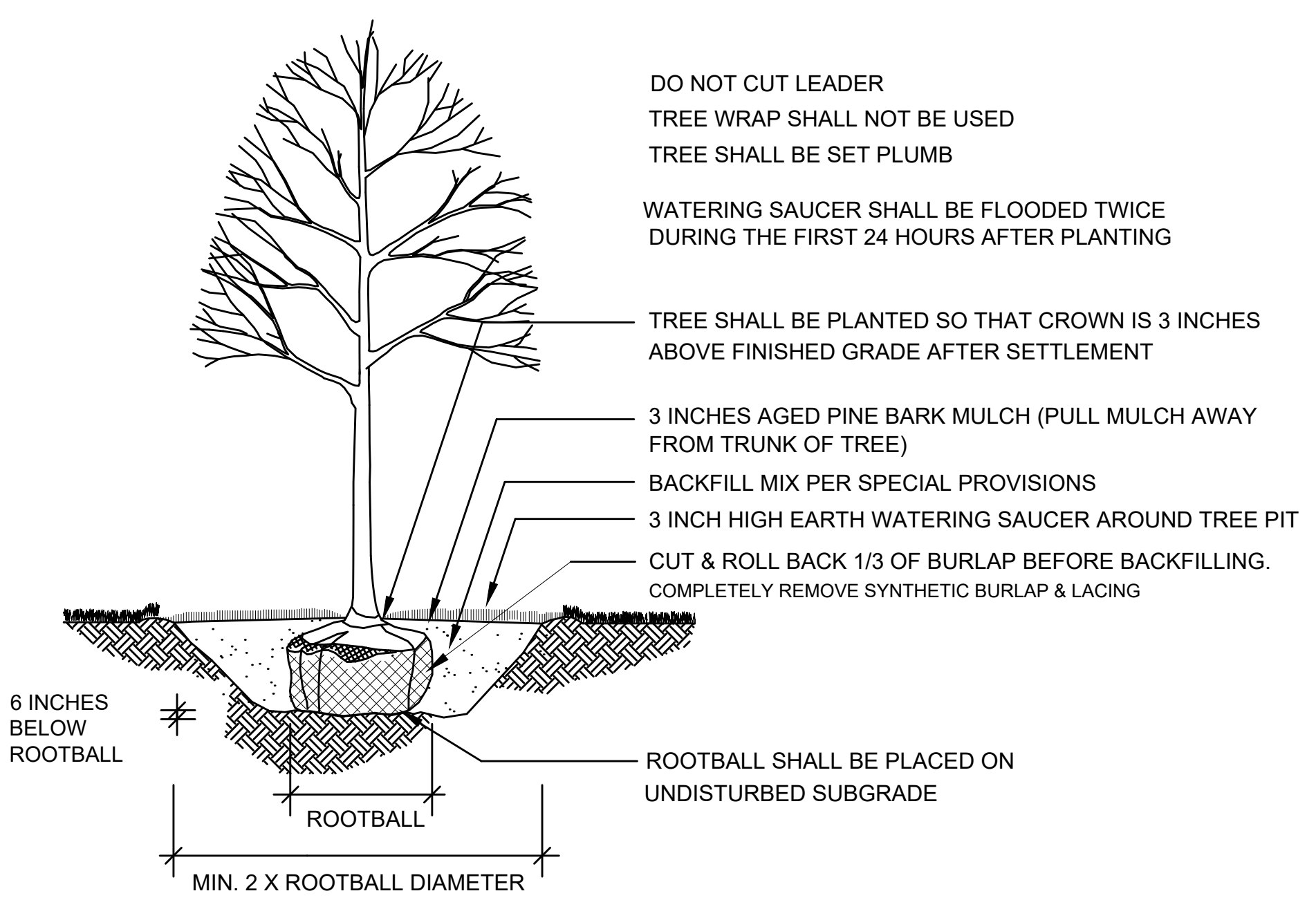
1 DECIDUOUS TREE PLANTING (SLOPE)  
SCALE: N.T.S.



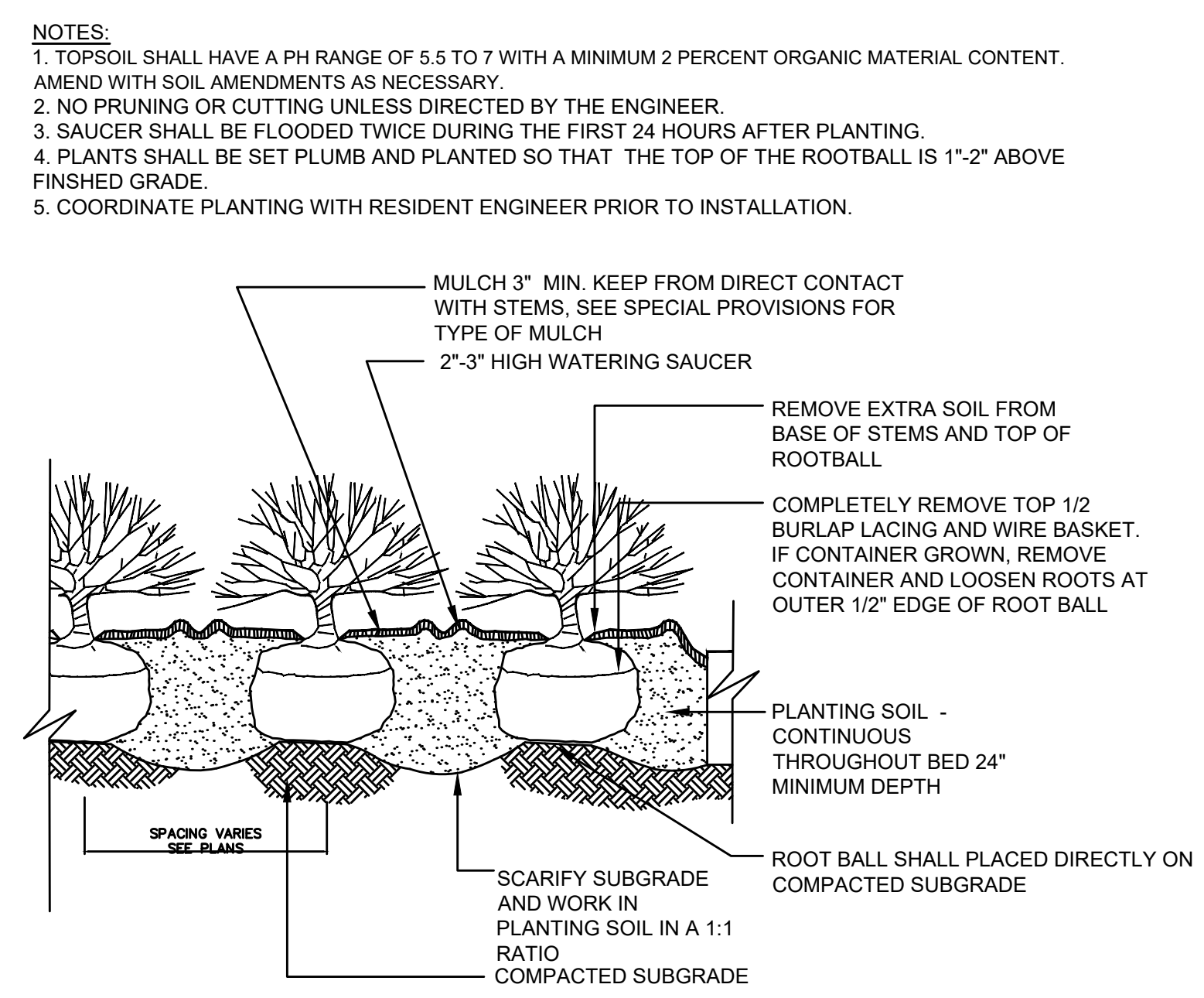
2 EVERGREEN TREE PLANTING (SLOPE)  
SCALE: N.T.S.



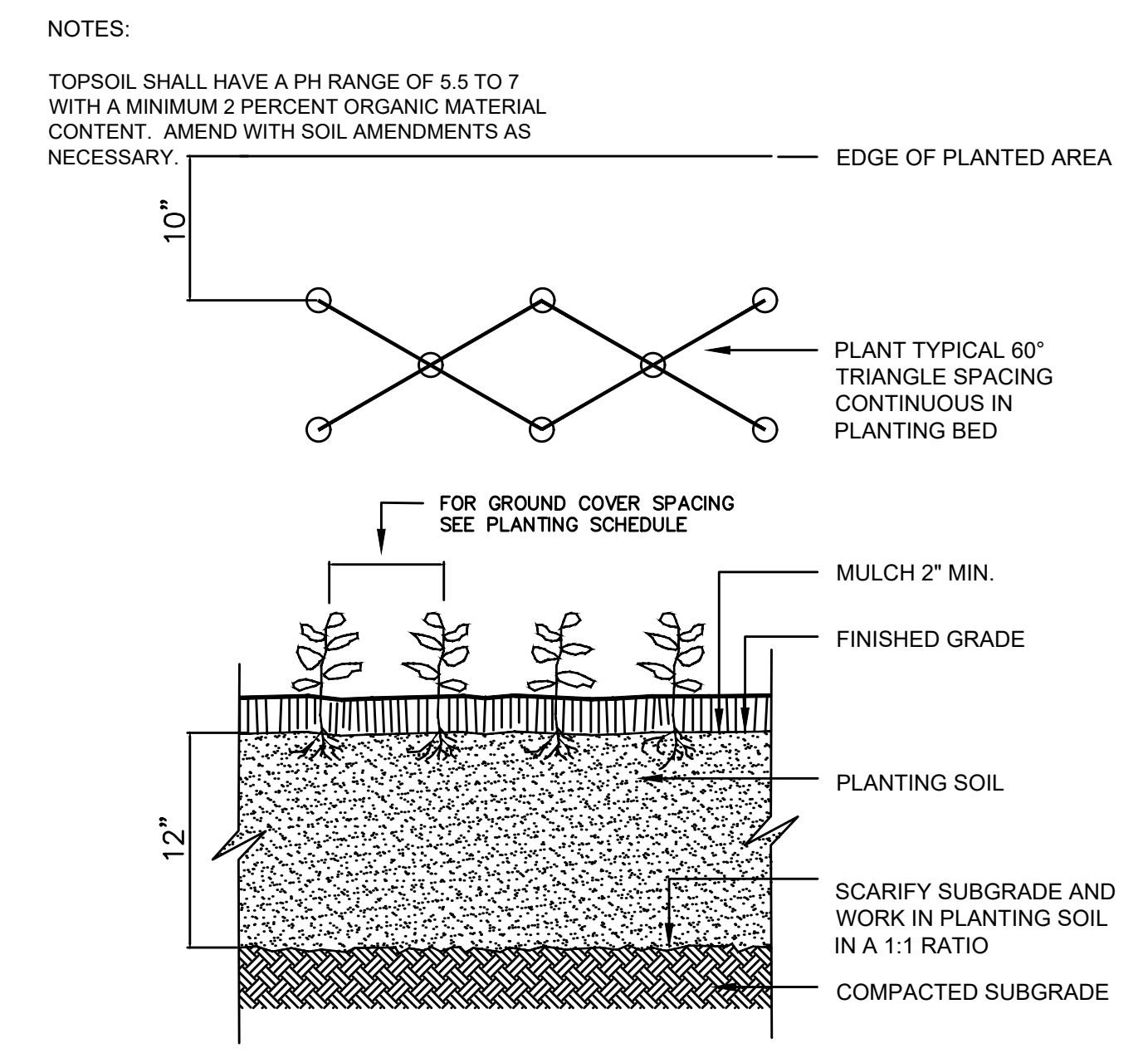
3 INDIVIDUAL TREE PROTECTION  
SCALE: N.T.S.



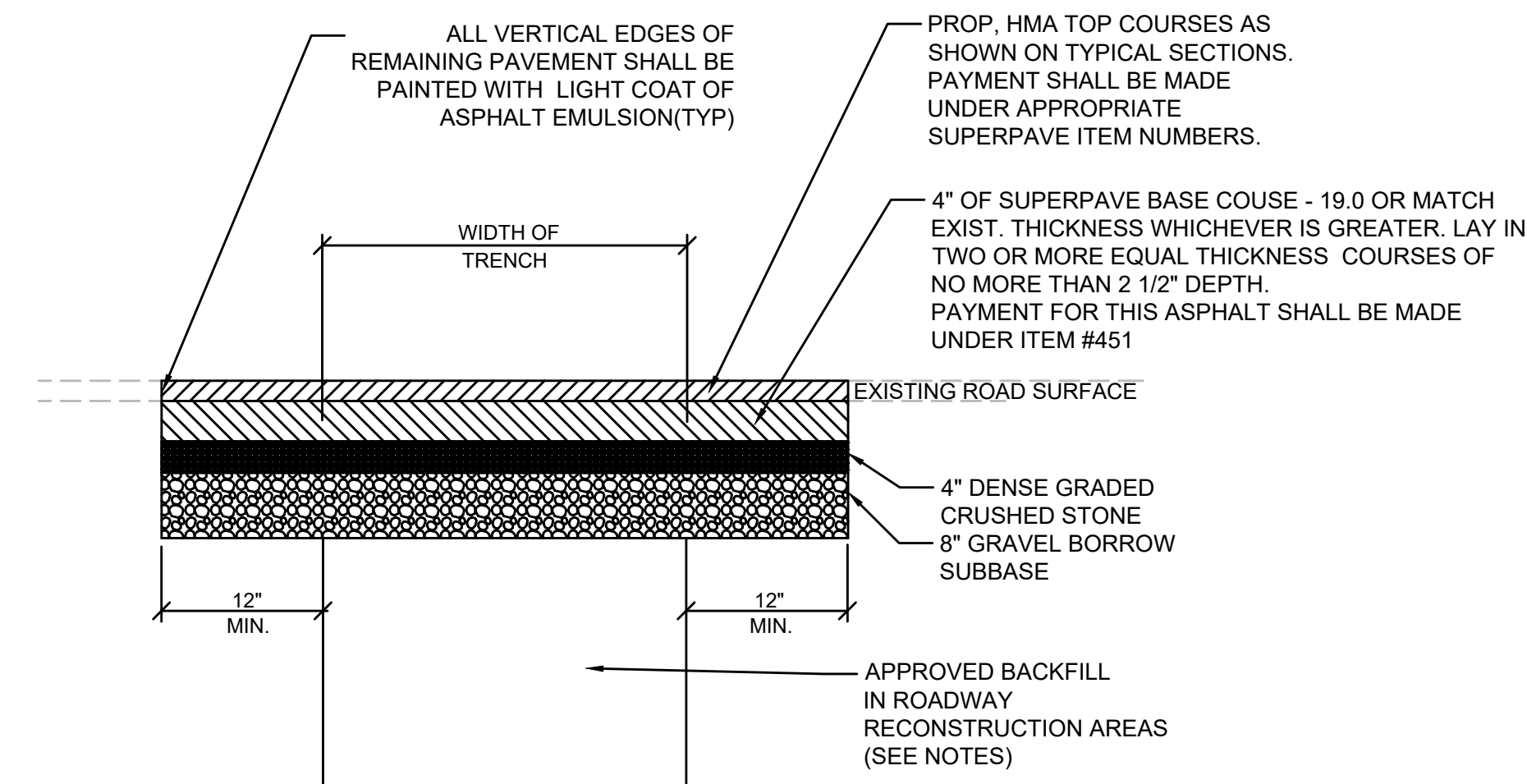
4 DECIDUOUS TREE PLANTING  
SCALE: N.T.S.



5 SHRUB AND PERENNIAL PLANTING  
SCALE: N.T.S.

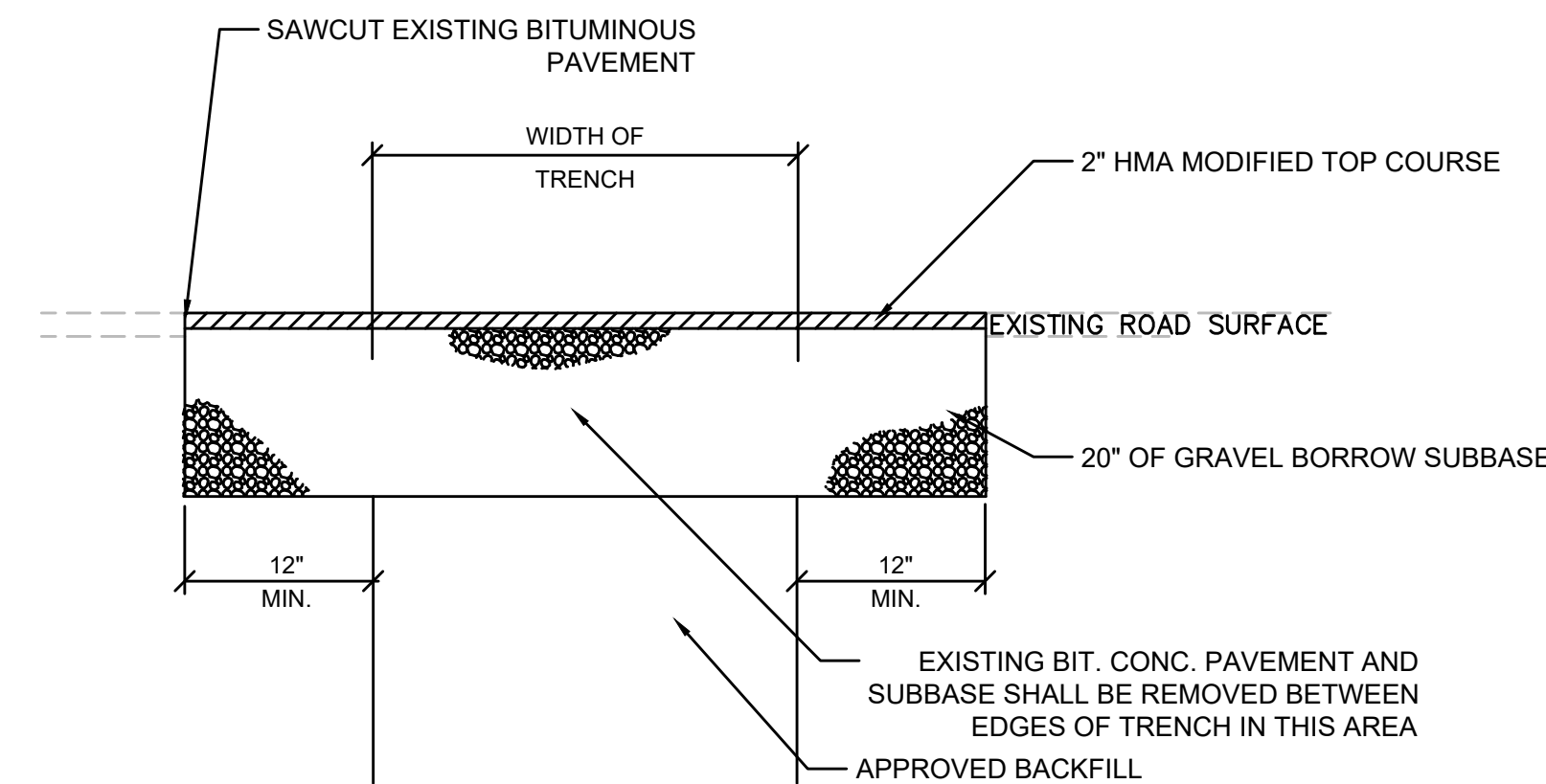


6 GROUNDCOVER PLANTING  
SCALE: N.T.S.



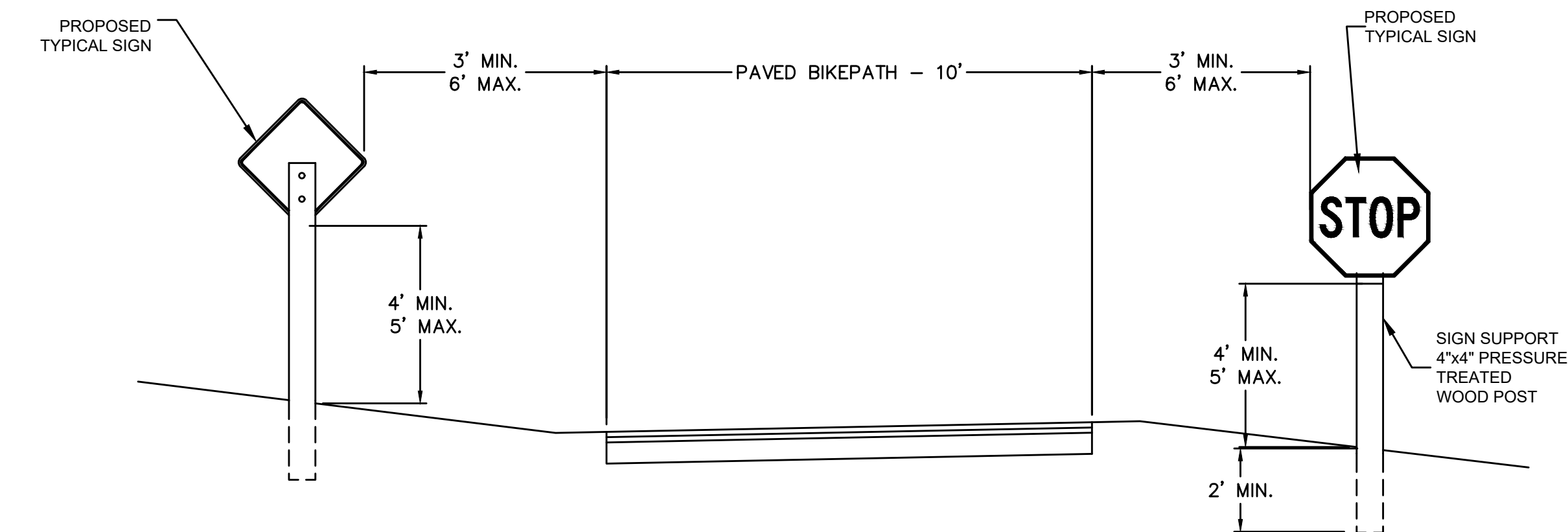
NOTES:  
 OVERLAY AREAS: THE TRENCH SHALL BE REPAIRED TO THE TOP OF THE BASE COURSE. THE TOP COURSES SHALL BE PLACED WITH OVERLAY OF THE ROADWAY  
 ROADWAY TRENCHING OUTSIDE OF FULL DEPTH AND OVERLAY: THE TRENCH SHALL BE REPAIRED WITH TOP COURSES INSTALLED WITH THE BASE COURSE.  
 CONTROLLED DENSITY FILL MAY BE USED IN LIEU OF APPROVED BACKFILL IN PAVEMENT MILLING AND OVERLAY AREAS. **USE OF CONTROLLED DENSITY FILL TO BACKFILL TRENCHES SHALL BE APPROVED BY THE TOWN OF SUDBURY PRIOR TO PLACEMENT.**  
 PERMANENT ASPHALT SHALL BE PAID FOR UNDER ITEM #451.

**7** PERMANENT PAVEMENT TRENCH REPAIR IN ROADWAYS  
 SCALE: N.T.S.



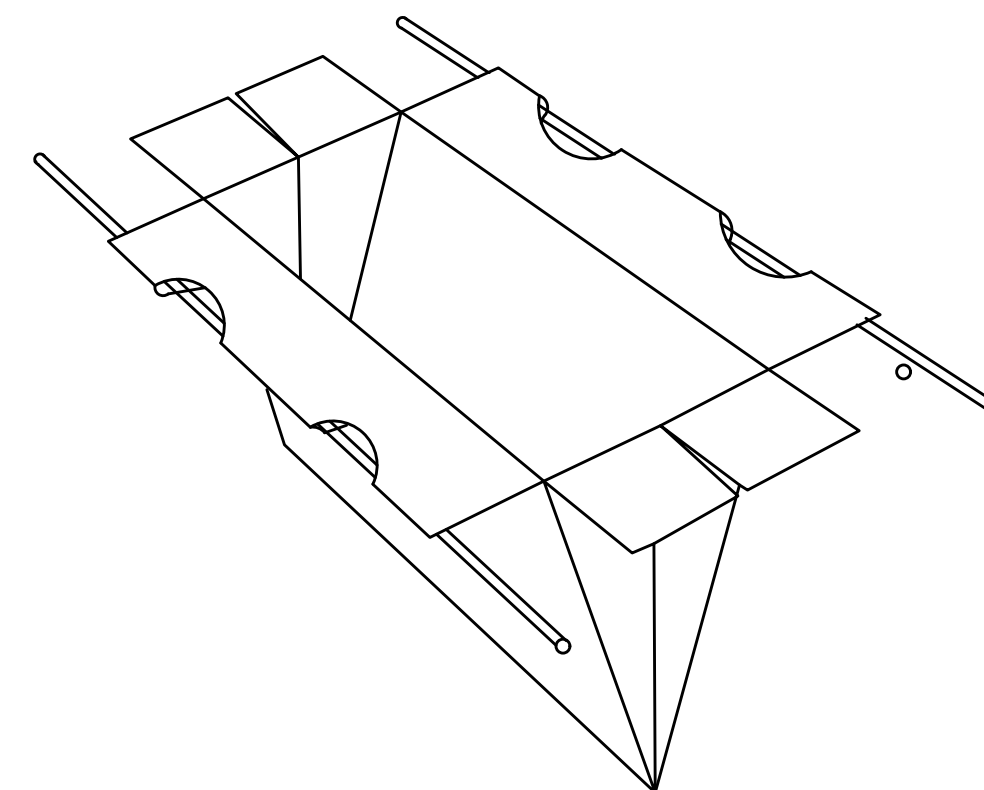
NOTES:  
 THE TEMPORARY PAVEMENT TRENCH REPAIR SHALL BE USED DURING THE TIME BETWEEN COMPLETION OF THE UTILITY CONSTRUCTION AND CONSTRUCTION OF THE PROPOSED ROADWAY PAVEMENT STRUCTURE OR PERMANENT PAVEMENT TRENCH REPAIR.  
 TEMPORARY ASPHALT SHALL BE PAID FOR UNDER ITEM #472

**8** TEMPORARY PAVEMENT TRENCH REPAIR  
 SCALE: N.T.S.



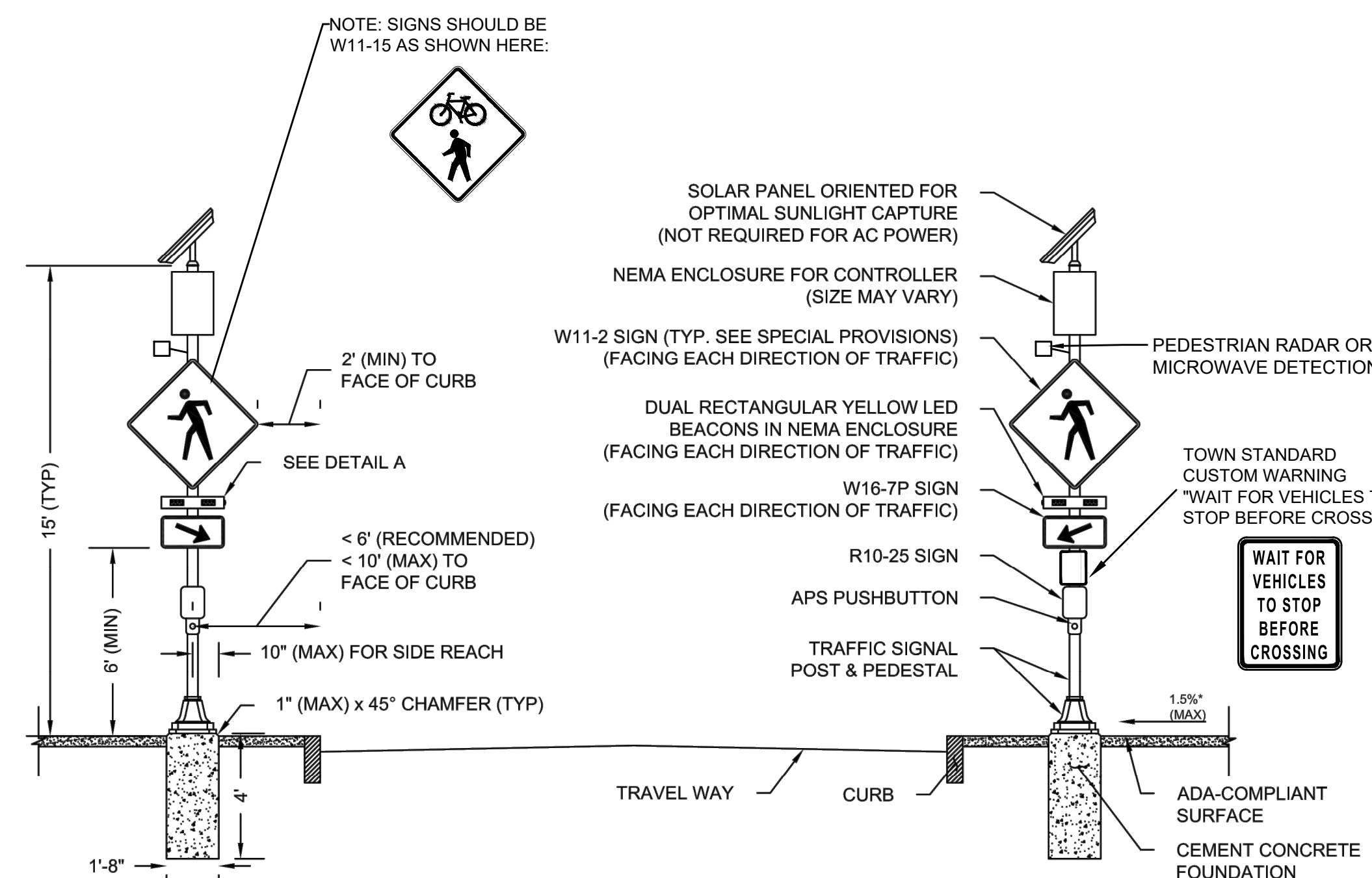
**9** SHARED-USE PATH TYPICAL SIGN PLACEMENT  
 SCALE: N.T.S.

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



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

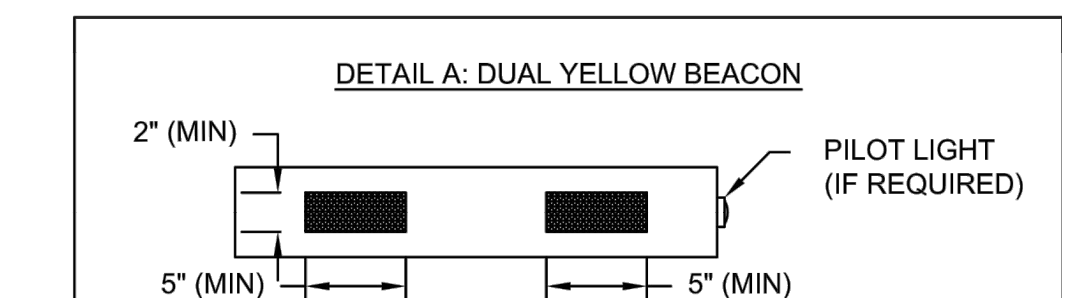
**10** CATCH BASIN SILT SACK  
 SCALE: N.T.S.



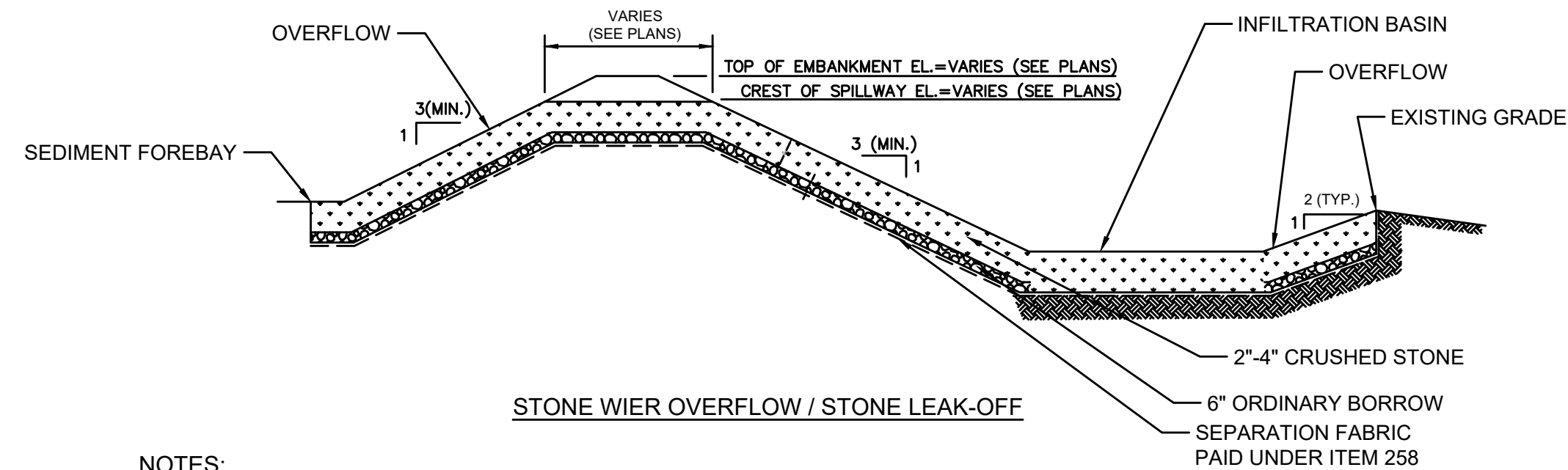
RRFB NOTES:  
 1) PAYMENT FOR PRECAST FOUNDATION INCLUSIVE UNDER ITEM 824.221 & 824.222  
 2) ALL POSTS, BRACKETS, AND HARDWARE SHALL BE FACTORY FEDERAL GREEN.

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

**MAJOR ITEMS LIST**  
 2 CEMENT CONCRETE FOUNDATIONS PER 812.30.1  
 2 15' TRAFFIC SIGNAL POSTS & PEDESTALS  
 2 APS PUSHBUTTON SYSTEMS  
 4 DUAL RECTANGULAR YELLOW LED BEACONS IN NEMA ENCLOSURES  
 2 R10-25 SIGNS  
 4 W11-2 SIGNS  
 2 W16-7PR SIGNS  
 2 W16-7PL SIGNS  
 2 SOLAR PANEL SYSTEMS (NOT REQUIRED FOR AC POWER)  
 2 NEMA ENCLOSURES FOR ALL COMPONENTS NEEDED TO MEET FUNCTIONAL REQUIREMENTS PER SPECIAL PROVISIONS  
 2 BATTERY SYSTEMS (NOT REQUIRED FOR AC POWER)  
 2 TOWN STANDARD CUSTOM WARNING SIGNS PLUS ALL MOUNTING AND SUPPORTING HARDWARE AND WIRING NECESSARY TO COMPLETE A WORKING SYSTEM.  
 2 PEDESTRIAN RADAR OR MICROWAVE DETECTION



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

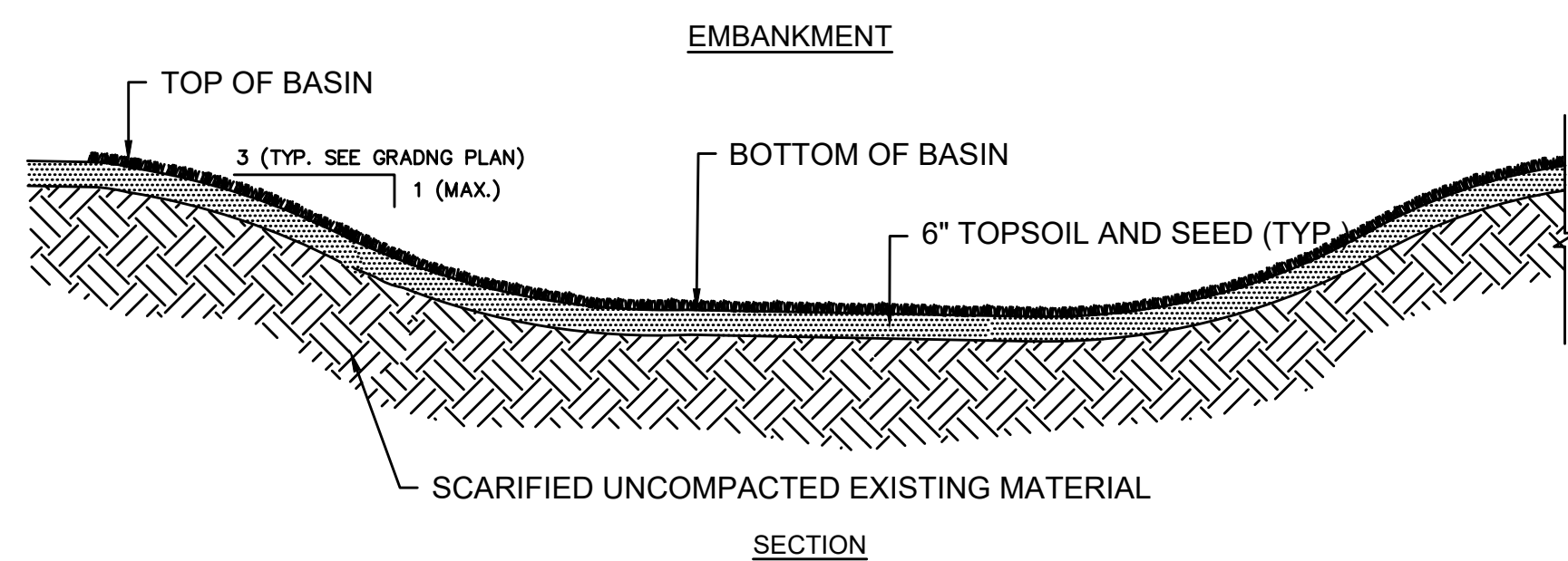


**NOTES:**

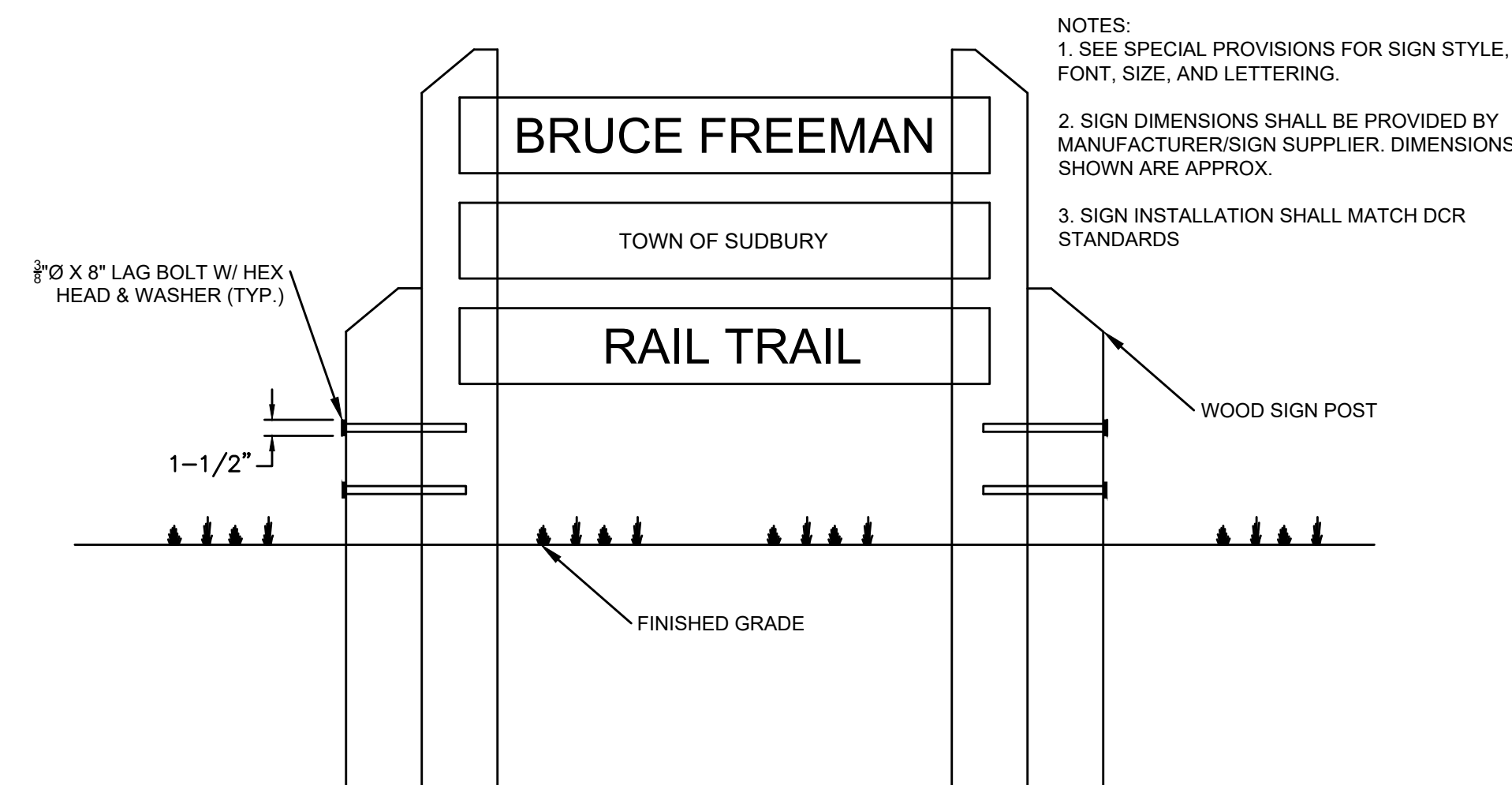
1. IMPERVIOUS MATERIAL FOR USE IN BASIN EMBANKMENT AREAS AND WHERE SHOWN ON THE PLANS SHALL BE COMPOSED OF CLAYS, SILTY CLAYS, OR CLAYEY SILTS. THE SOIL SHALL BE FREE OF RUBBISH, ICE, VEGETATIVE MATTER, LOAM, OR OTHER DEBRIS AND HAVE THE FOLLOWING GRADATION AS DEFINED BY A STANDARD SIEVE TEST (ASTM D422):

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

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

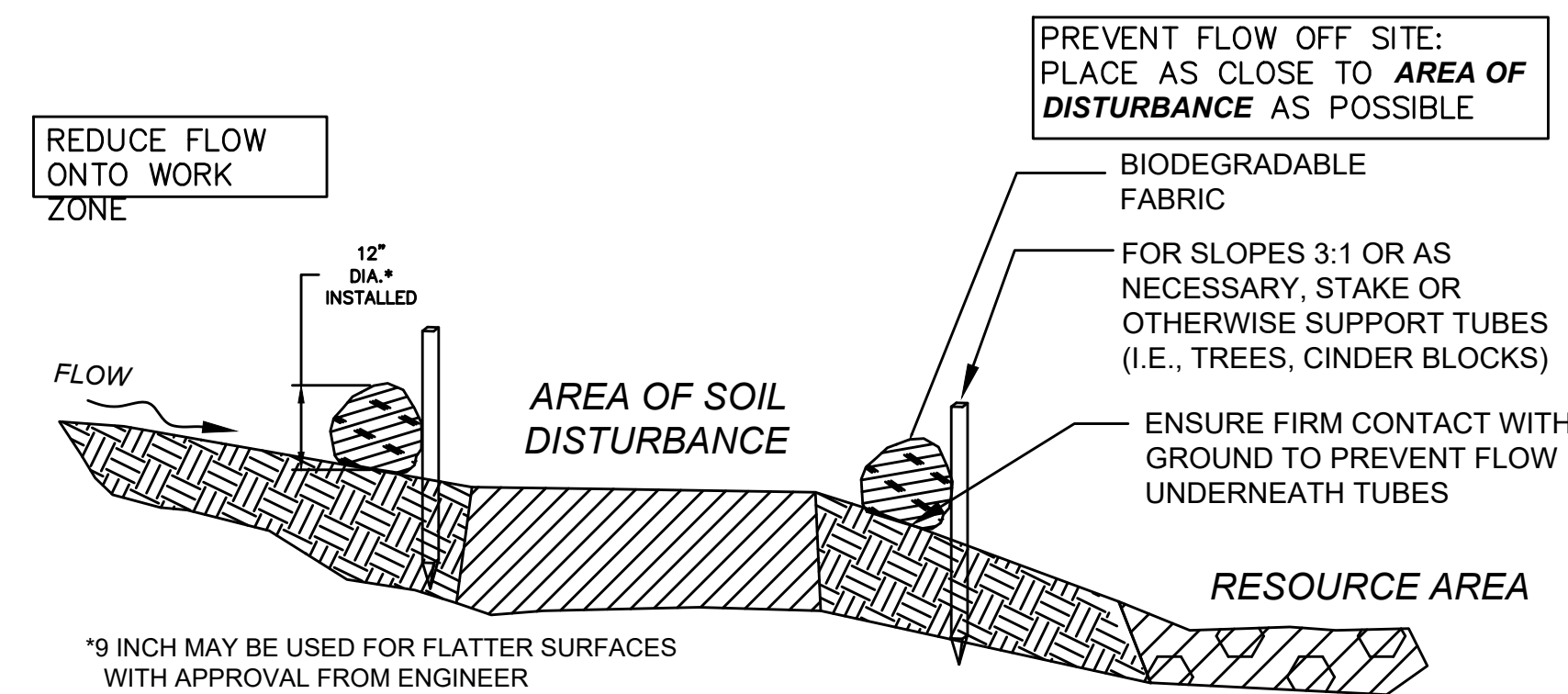


**12 INFILTRATION BASIN**  
SCALE: N.T.S.



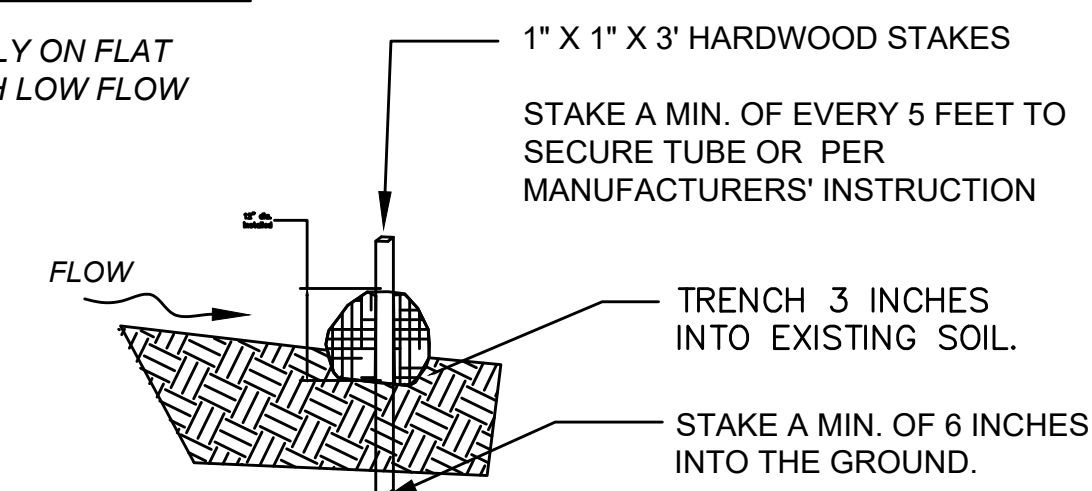
**14 BRUCE FREEMAN RAIL TRAIL ENTRANCE SIGN**  
SCALE: N.T.S.

**COMPOST FILTER TUBE**

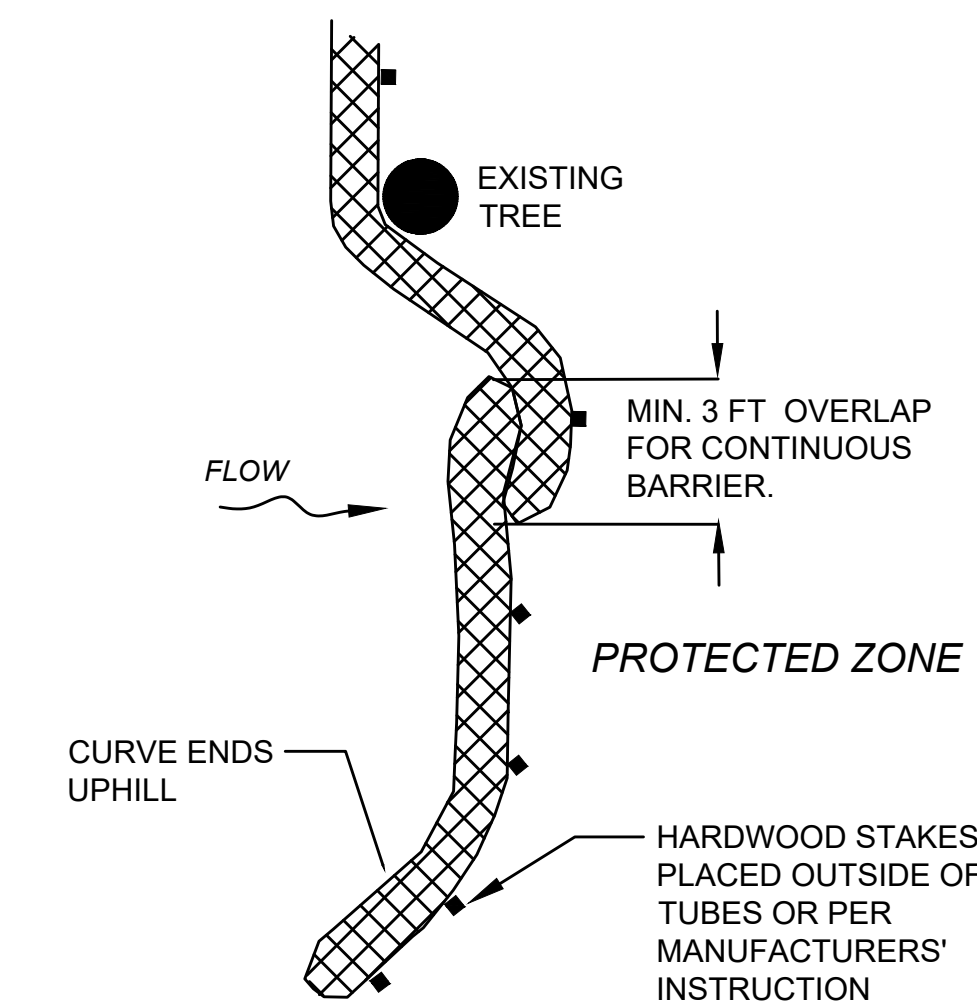


**12 INCH STRAW WATTLE**

TO BE USED ONLY ON FLAT SURFACES WITH LOW FLOW



**SECTION**



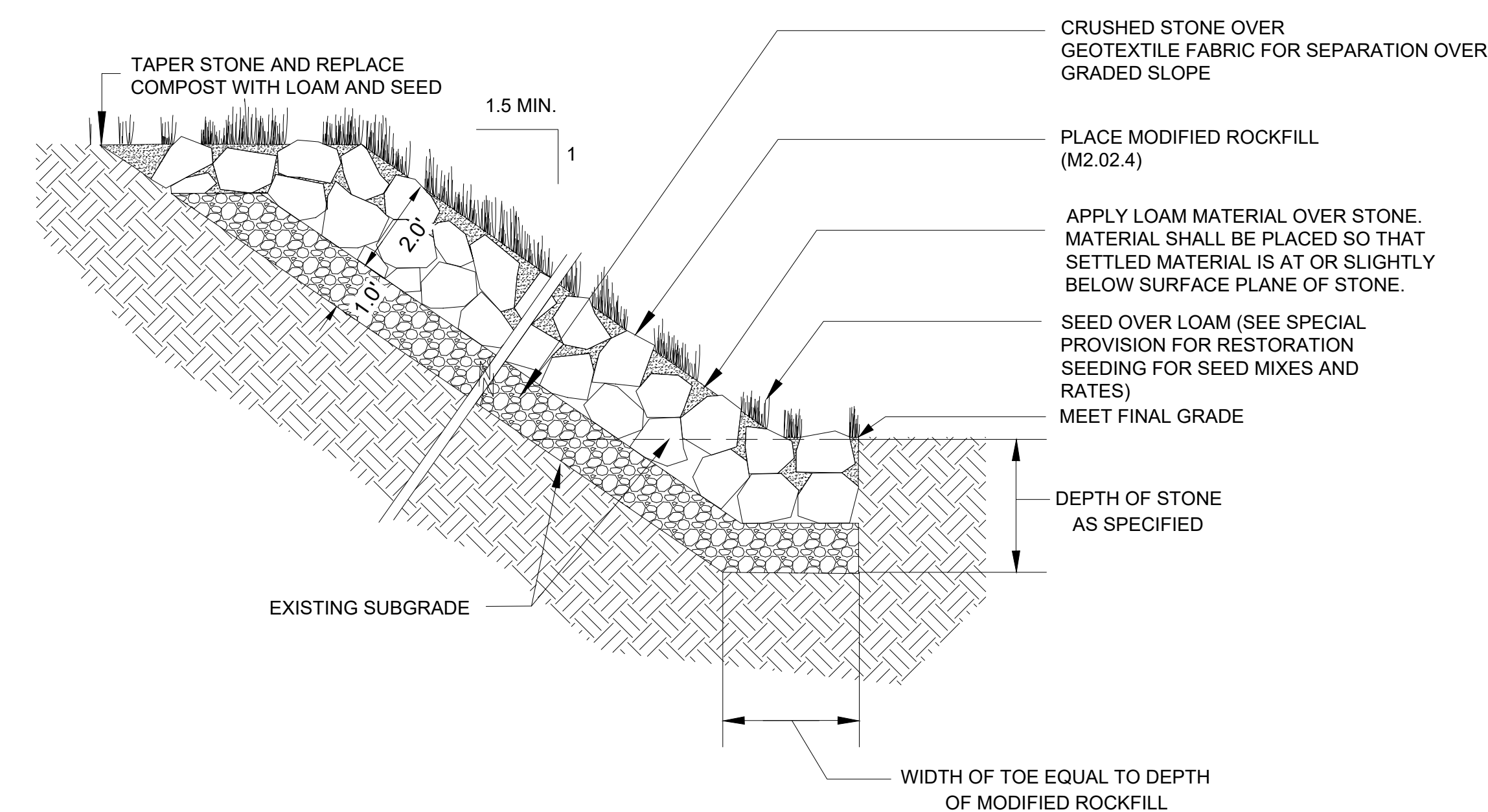
PLACE TUBE ALONG CONTOURS AND PERPENDICULAR TO FLOW.

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

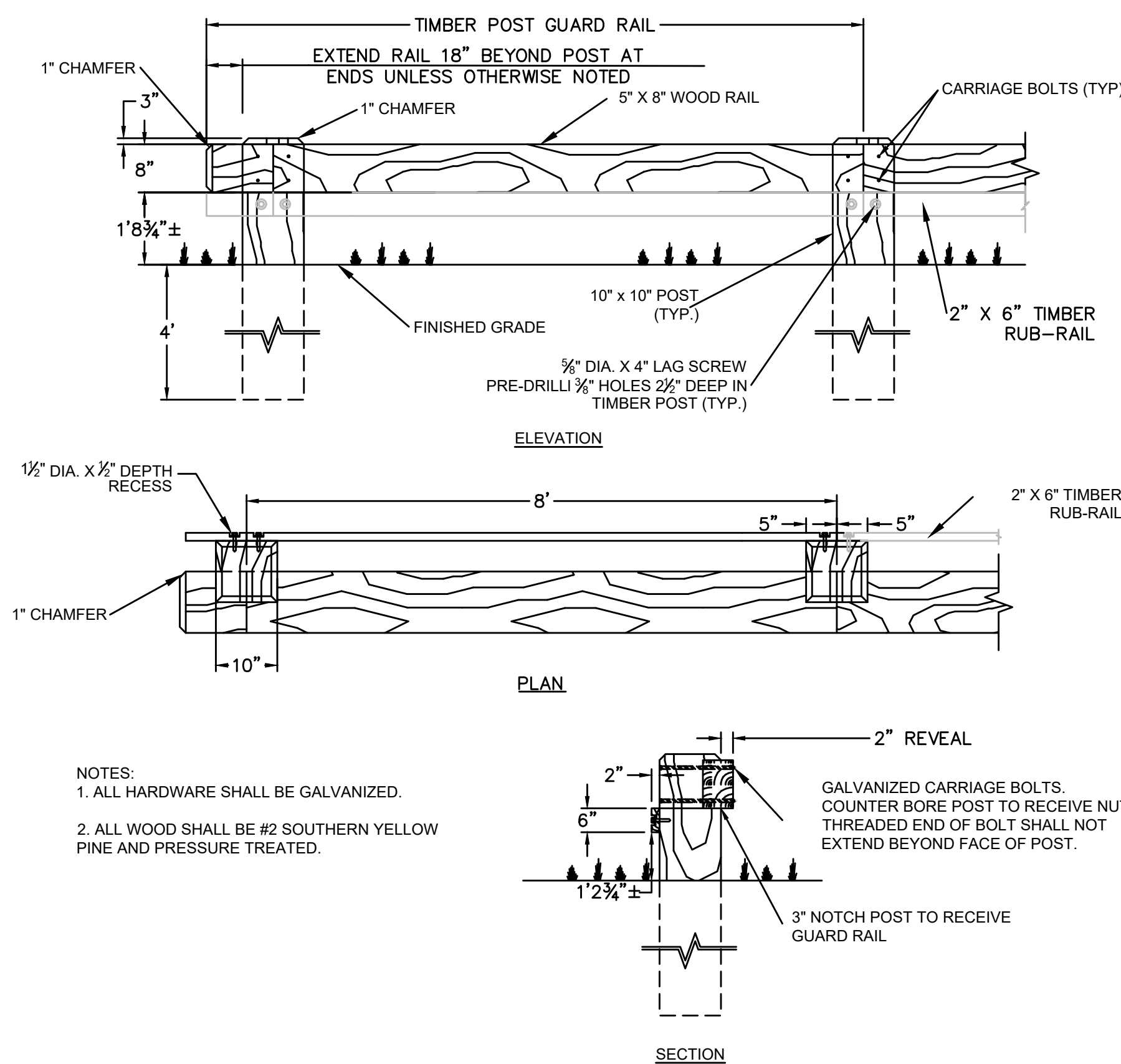
PLACE STAKES AS NEEDED TO SECURE TUBES IN PLACE.

**PLAN VIEW**

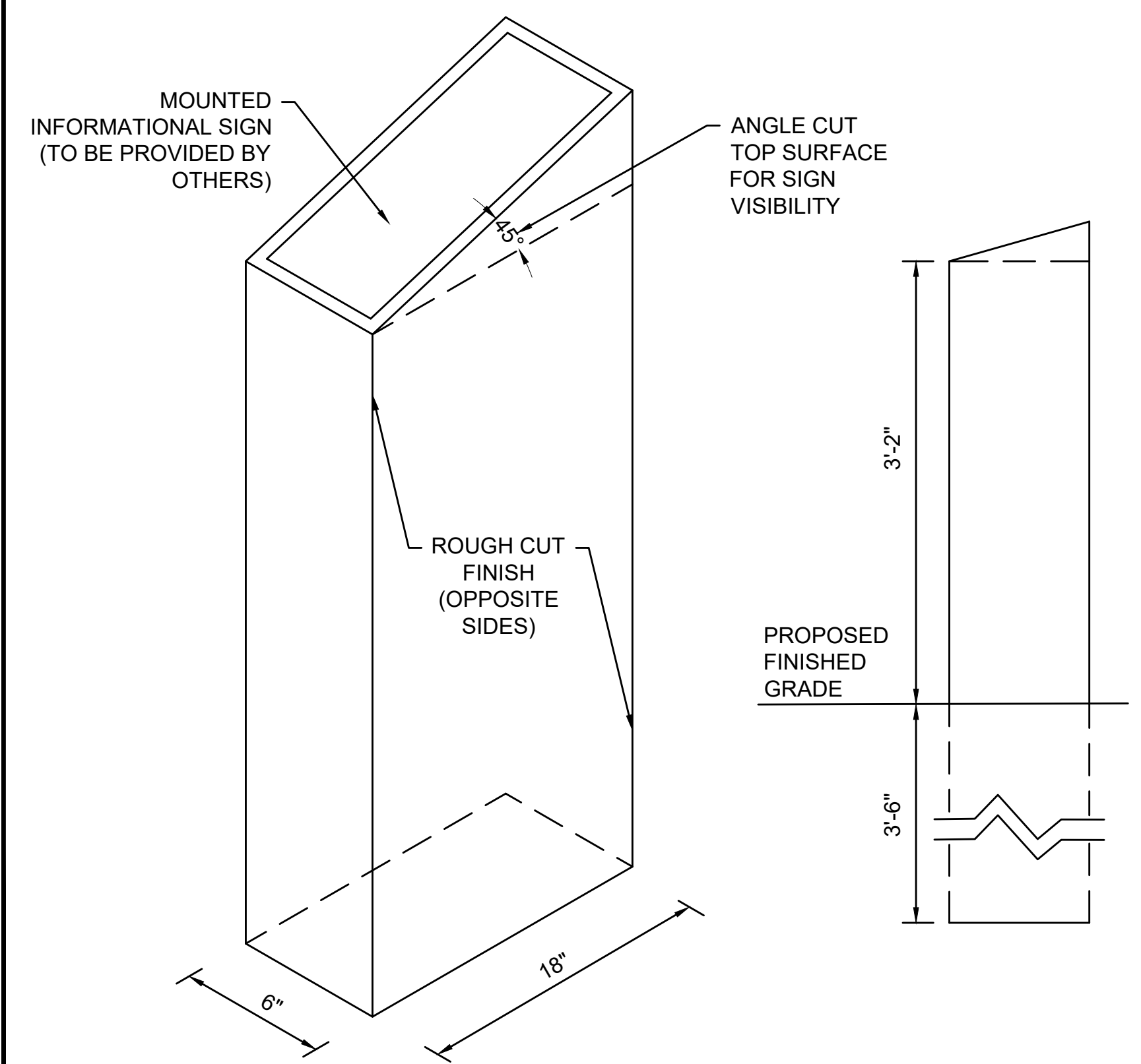
**13 SEDIMENT BARRIERS – COMPOST FILTER TUBES**  
SCALE: N.T.S.



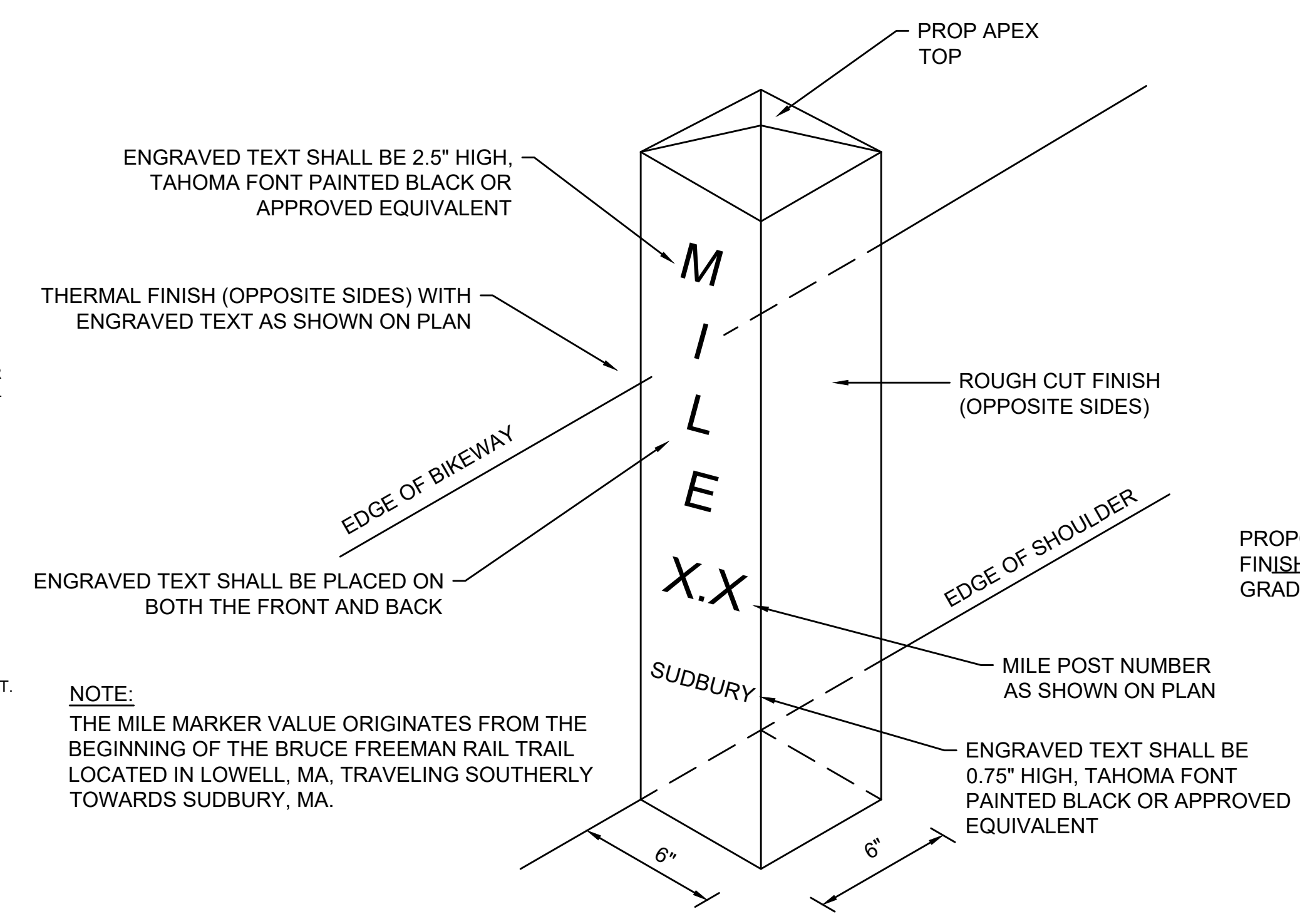
**15 LOAM AND SEED OVER MODIFIED ROCKFILL**  
SCALE: N.T.S.



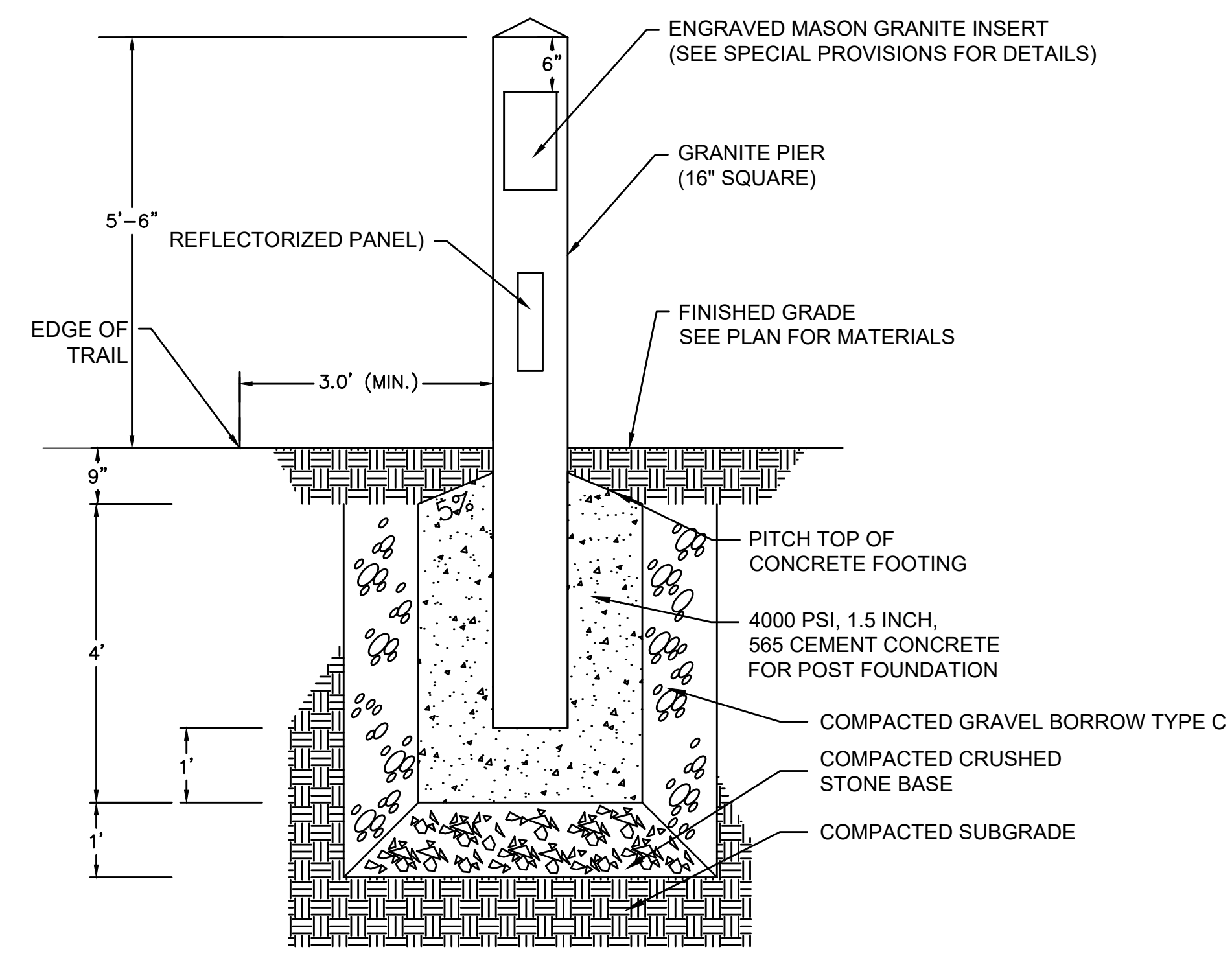
**16** **TIMBER POST GUARDRAIL**  
SCALE: N.T.S.



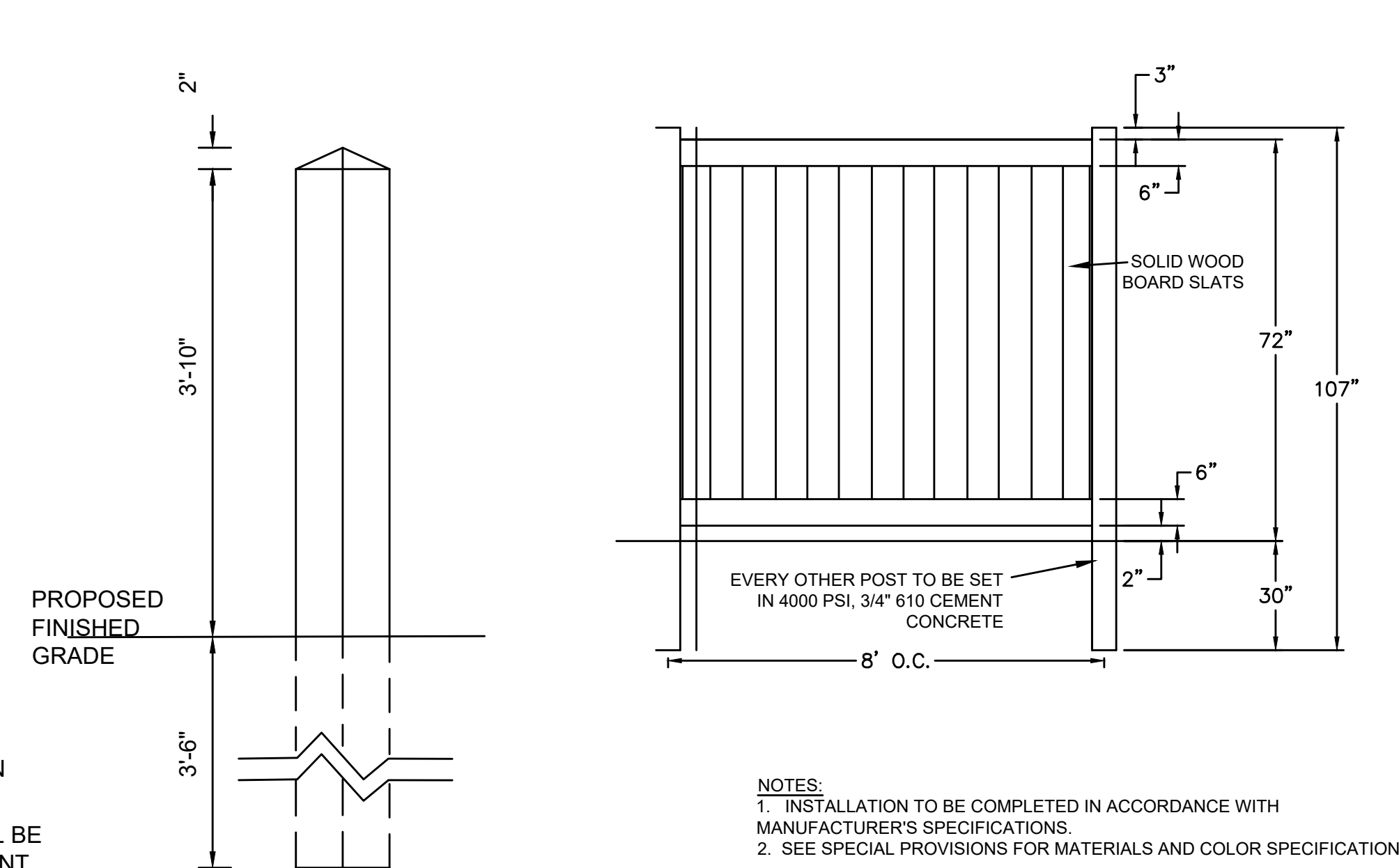
**19** **GRANITE POST INTERPRETIVE SIGN**  
SCALE: N.T.S.



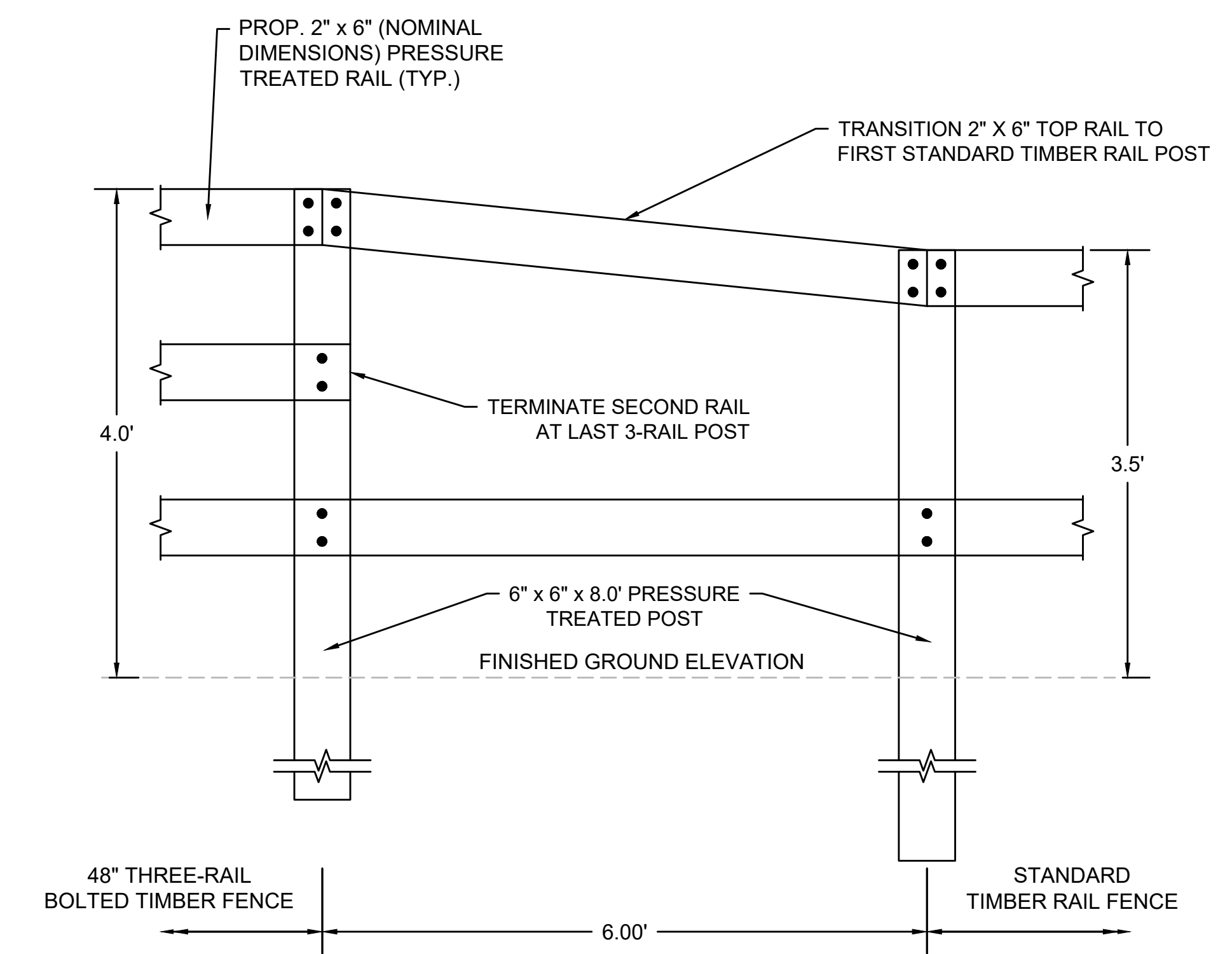
**17** **GRANITE MILE MARKER**  
SCALE: N.T.S.



**20** **GRANITE BRUCE FREEMAN RAIL TRAIL PIER**  
SCALE: N.T.S.



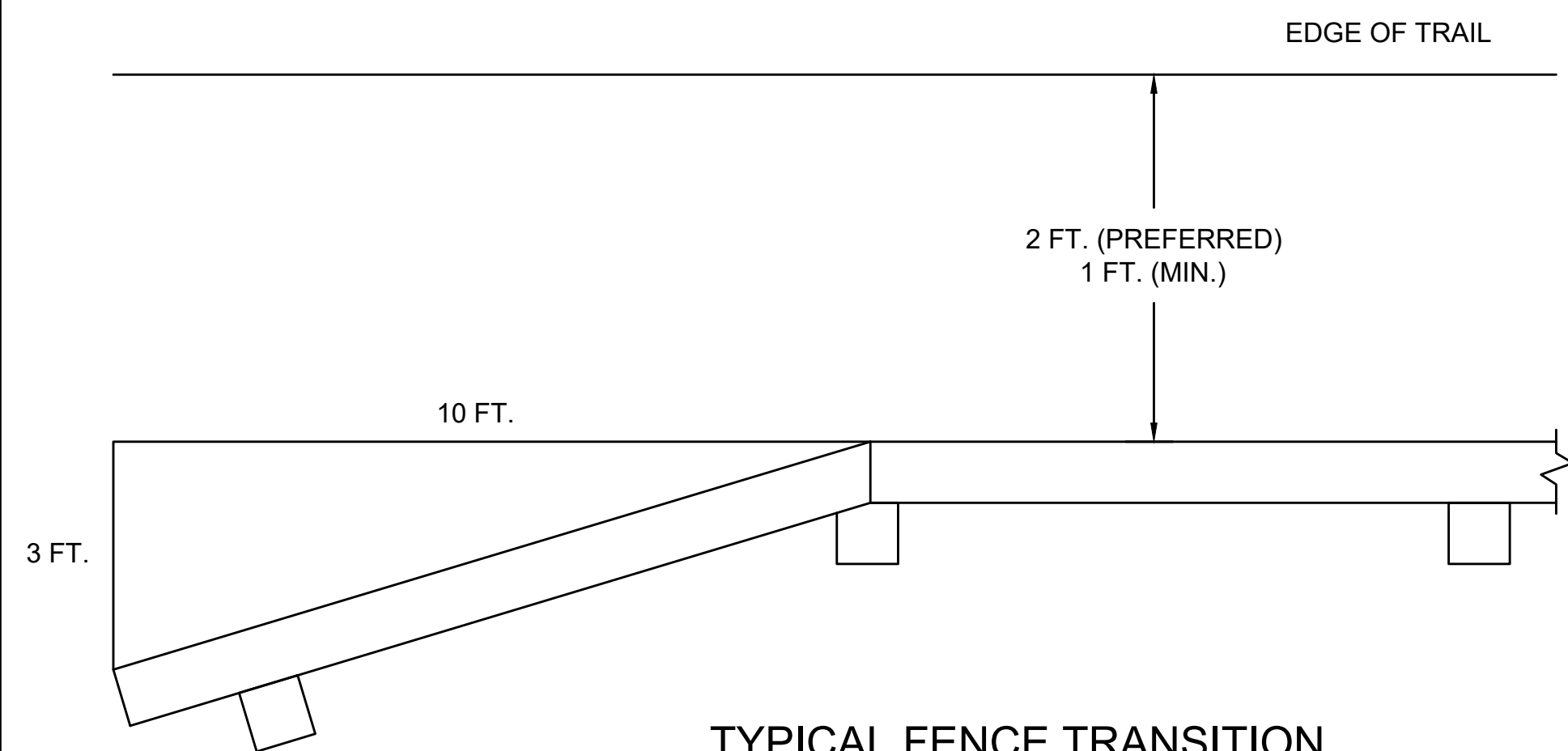
**18** **STOCKADE FENCE**  
SCALE: N.T.S.



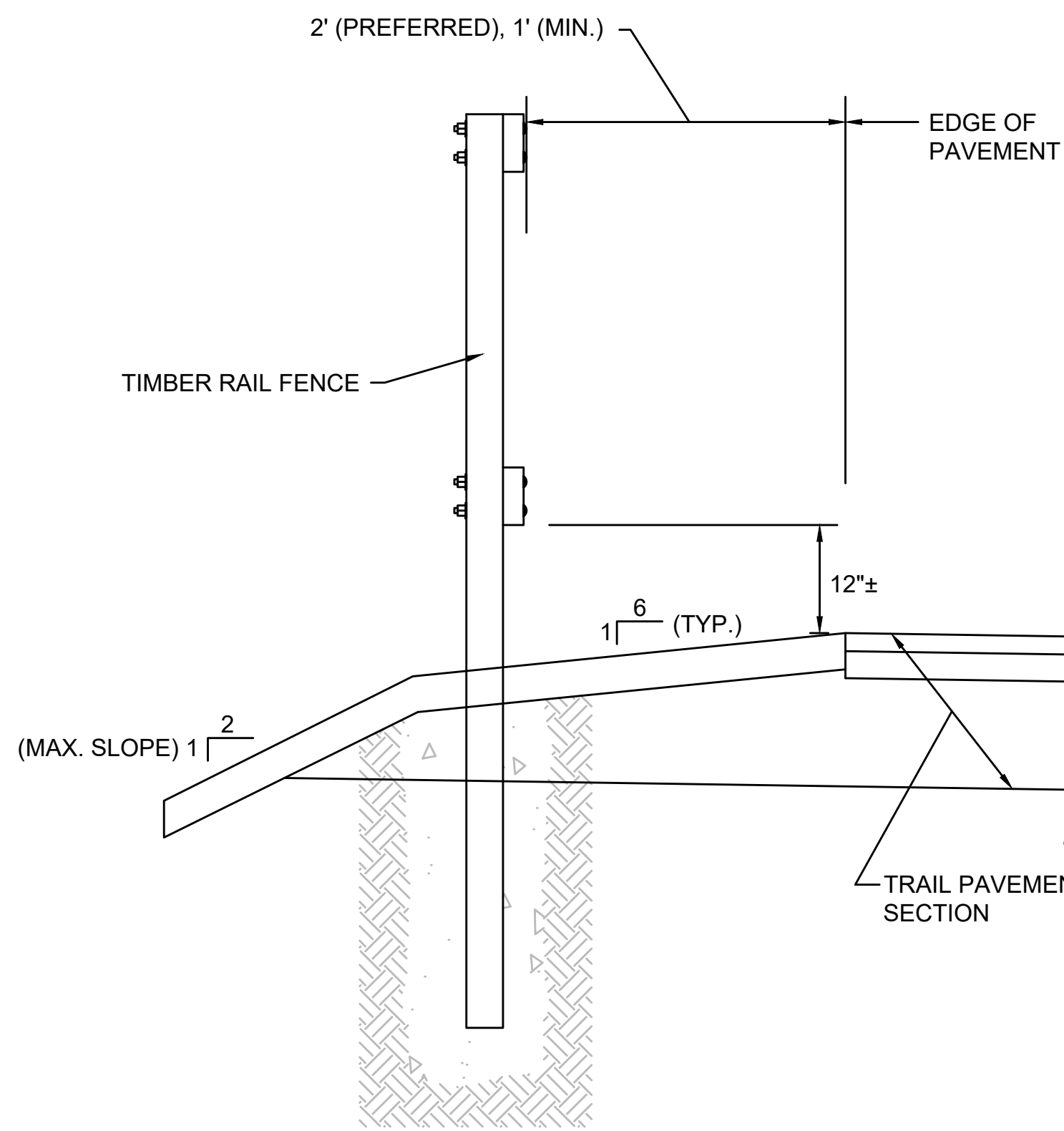
**21** **48\"/>**

SUDBURY BRUCE FREEMAN RAIL TRAIL			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	209	318
PROJECT FILE NO.		608164	

**CONSTRUCTION DETAILS**



**TYPICAL FENCE TRANSITION  
AT FENCE APPROACHES**  
N.T.S.

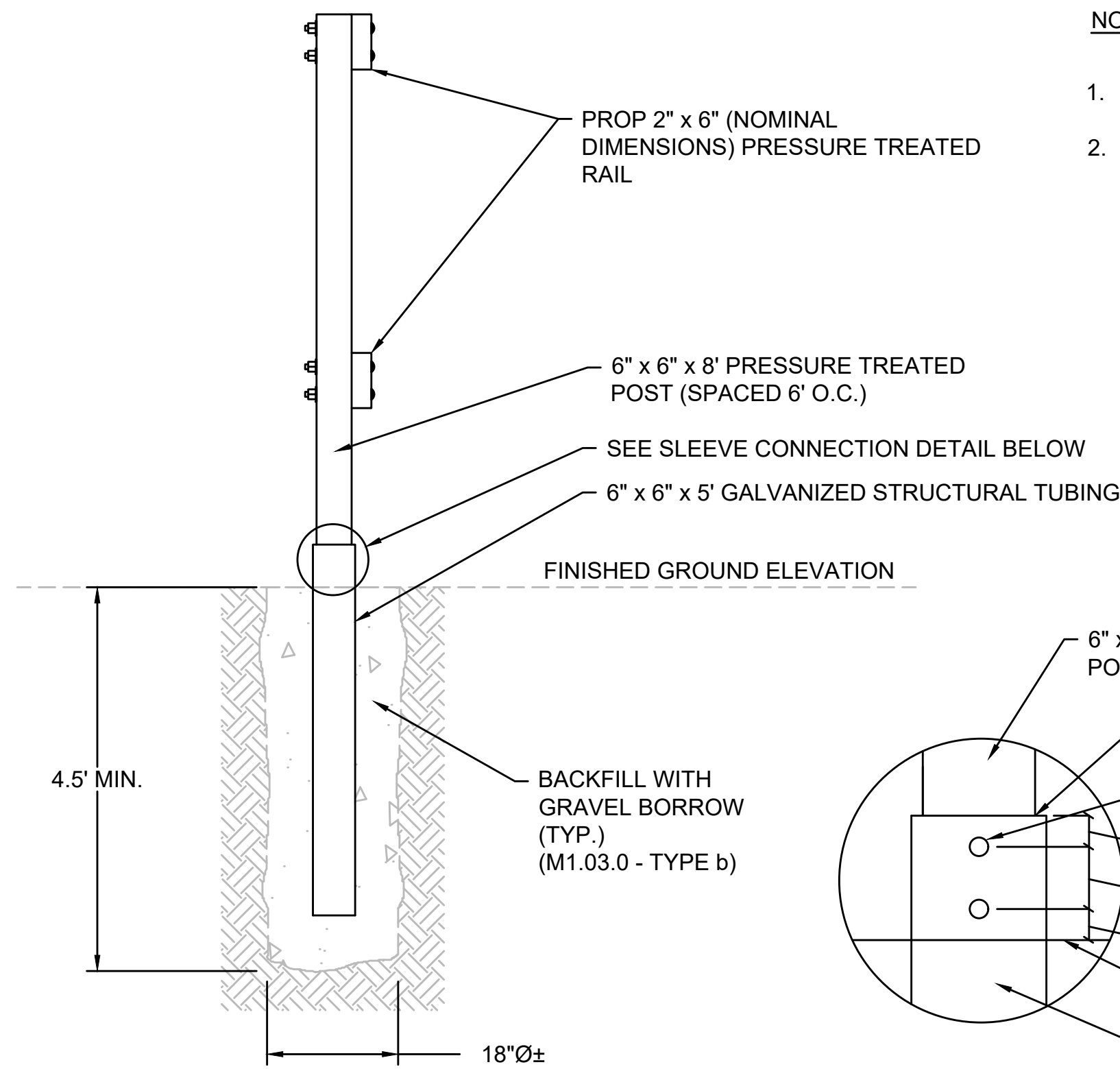


SECTION A-A

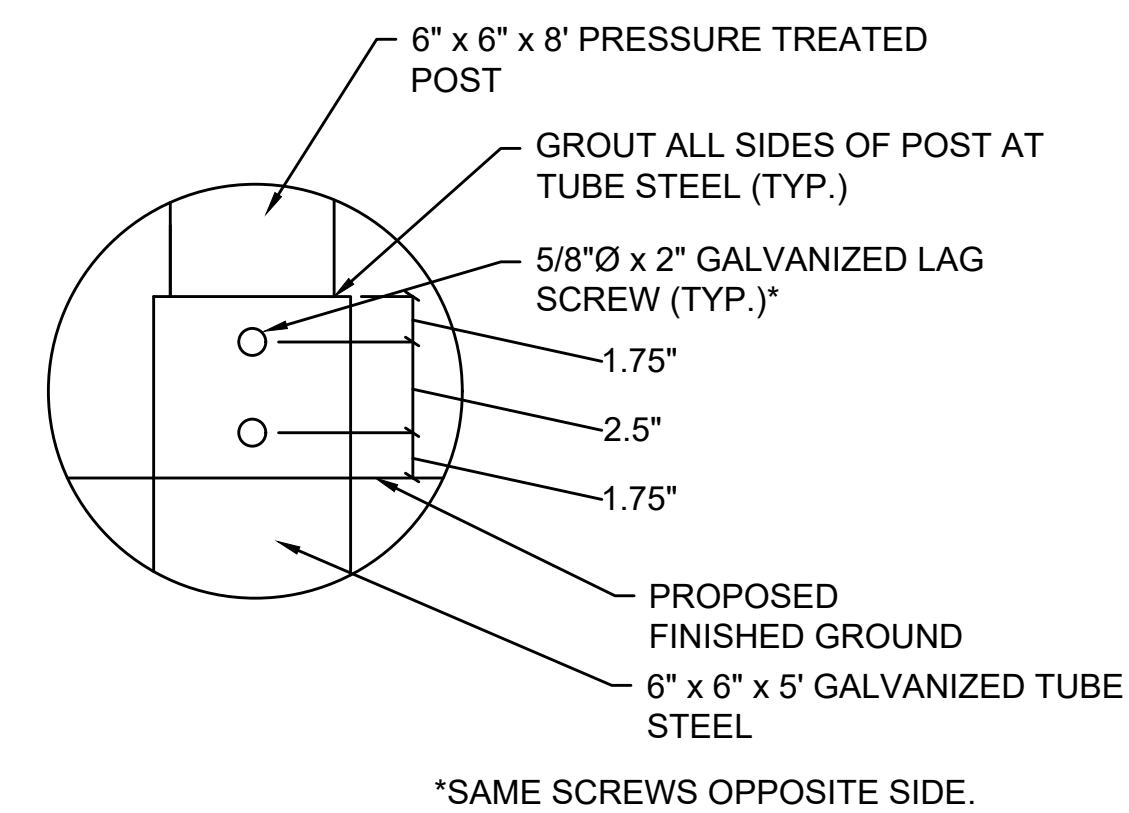
**SUGGESTED TIMBER RAIL FENCE CONSTRUCTION SEQUENCE**

1. AUGER OR DIG POST HOLE TO REQUIRED DIMENSIONS.
2. IF GROUND IS SATURATED, USE TUBE STEEL SLEEVE. SEE DETAIL ON THIS SHEET.
3. BACKFILL BOTTOM 6"± OF HOLE WITH GRAVEL AND COMPACT THOROUGHLY.
4. SET POST AND HOLD PLUMB DURING BACKFILLING.
5. BACKFILL WITH GRAVEL IN 12" LIFTS. COMPACT EACH LIFT THOROUGHLY.
6. CLAMP RAILS TO POSTS AND FIELD DRILL BOLT HOLES.
7. SET BOLTS, WASHERS AND NUTS.

22 **TIMBER FENCE (TWO RAIL)**  
SCALE: N.T.S.  
SEE PLANS FOR LOCATIONS



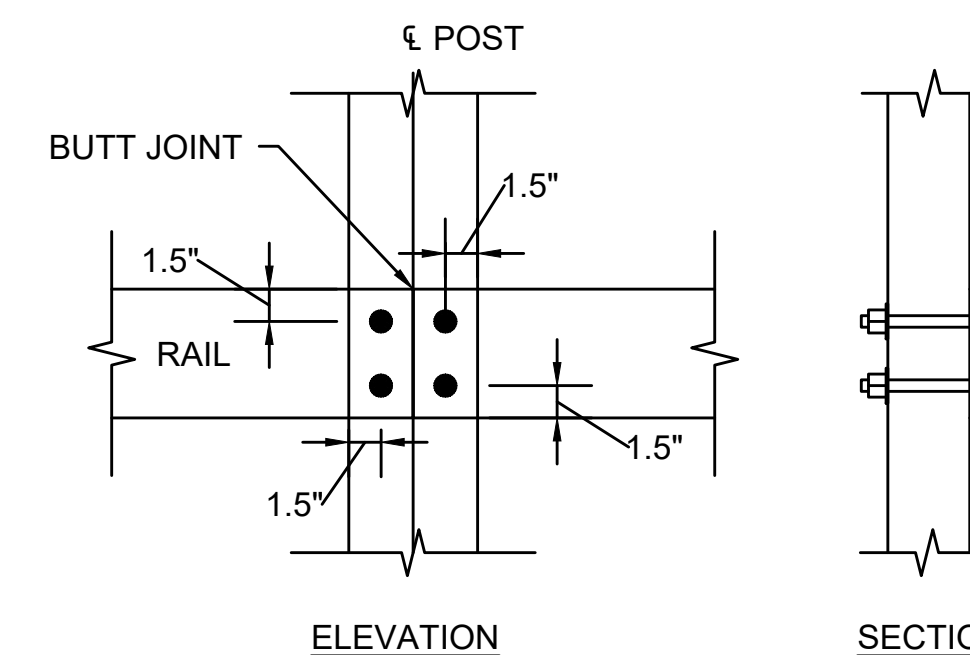
**TIMBER RAIL FENCE TUBE STEEL SLEEVE  
(FOR USE IN SATURATED LOCATIONS AND  
THROUGH WEST CONCORD CENTER)**  
N.T.S.



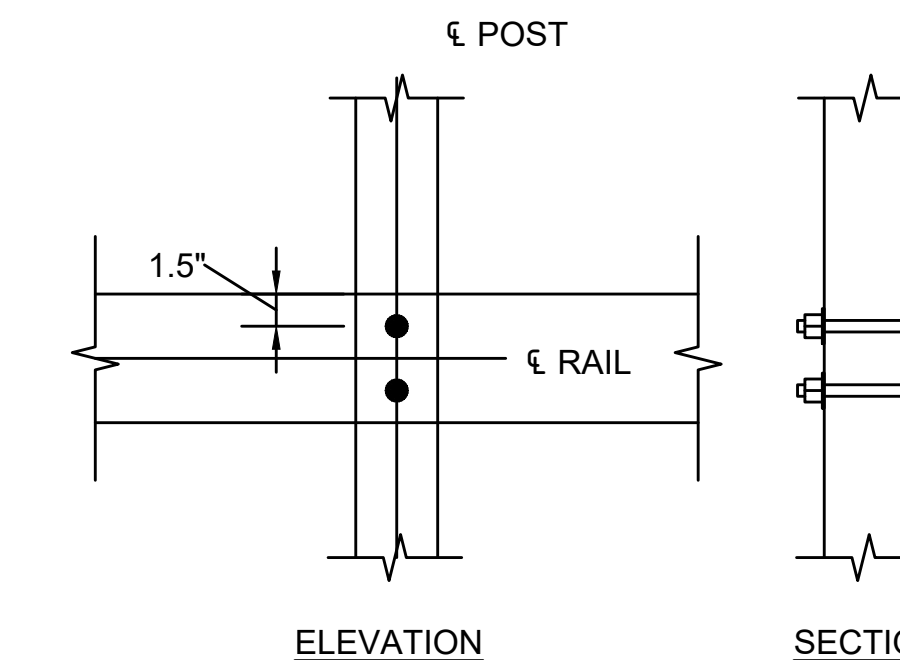
**SLEEVE CONNECTION DETAIL**  
N.T.S.

**NOTES:**

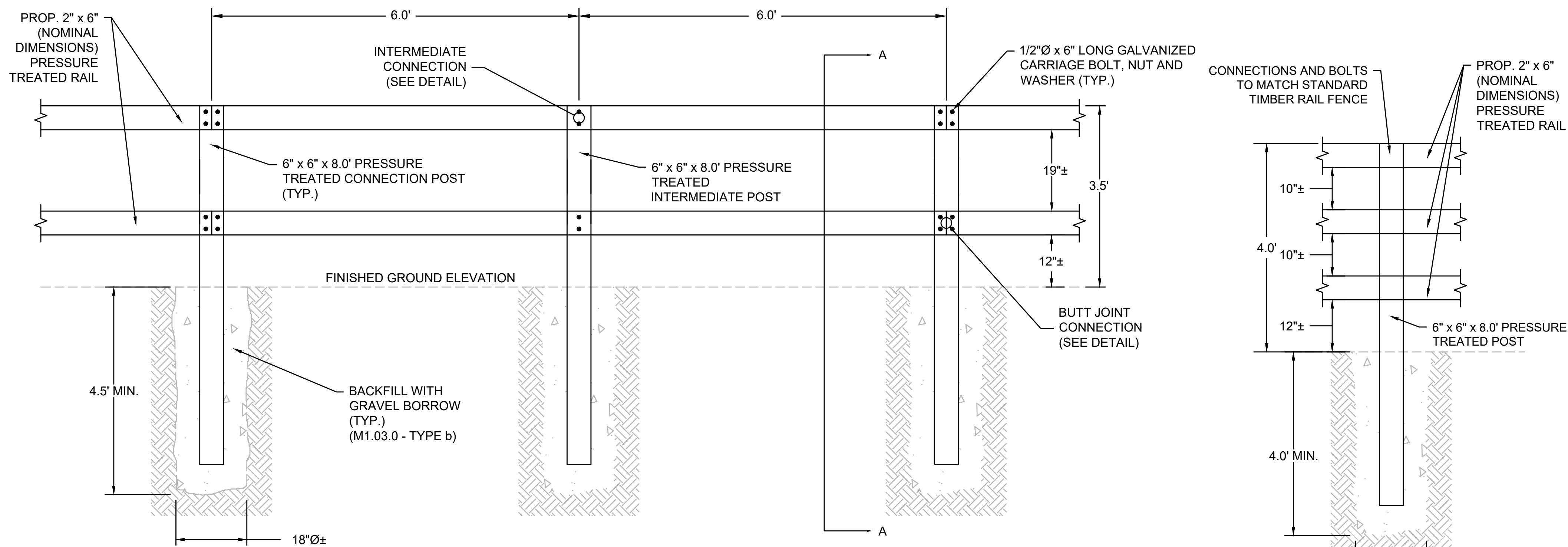
1. TIMBER PRESERVATIVES SHALL BE USED ON ALL WOOD TIMBER.
2. ALL CUT ENDS SHALL BE PAINTED WITH PRESERVATIVE IN THE FIELD PER MANUFACTURERS DIRECTION.



**BUTT JOINT CONNECTION**  
N.T.S.



**INTERMEDIATE CONNECTION**  
N.T.S.

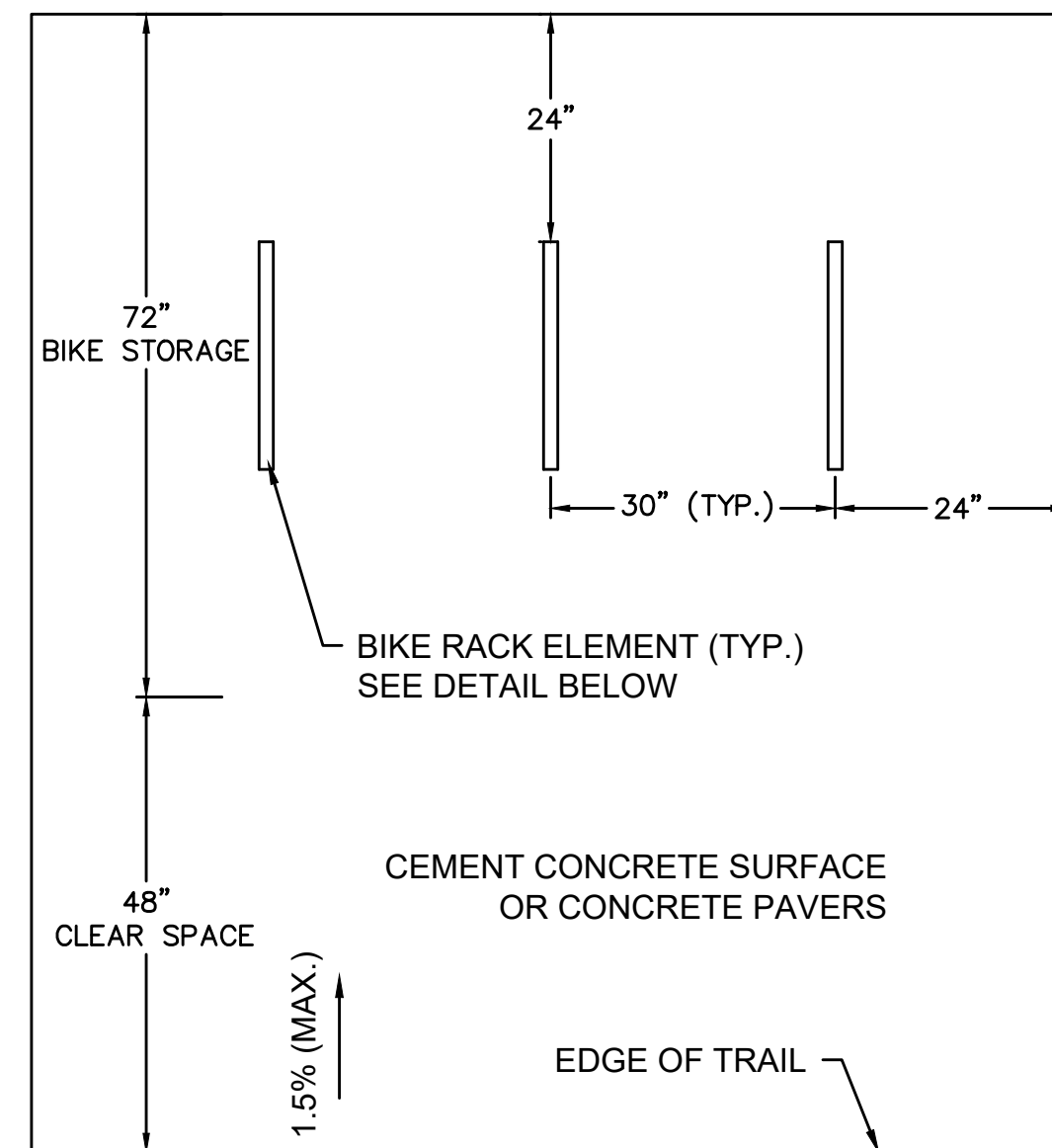


**TIMBER RAIL FENCE ELEVATION**  
N.T.S.

**NOTES:**

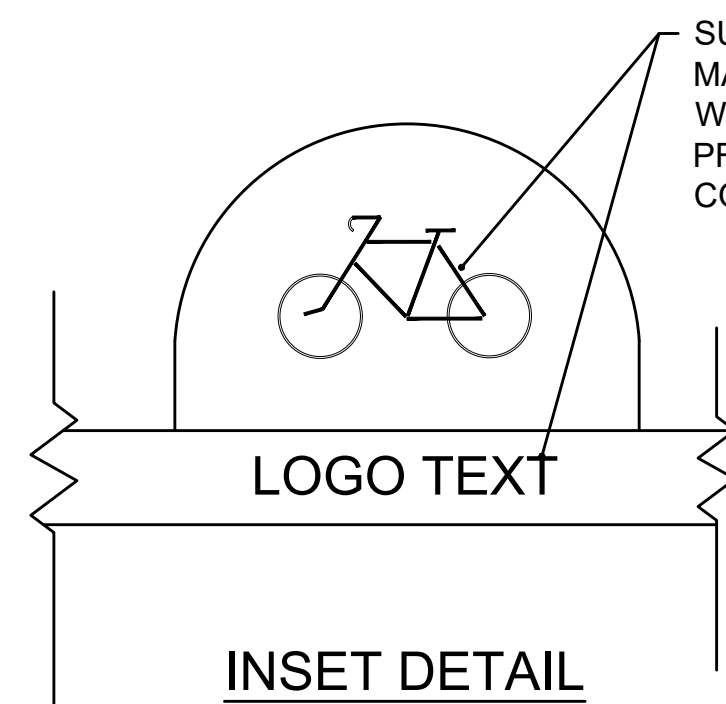
1. FOR RADII LESS THAN 165', USE CONNECTION POSTS SET AT 6.0' O.C. AND SHORTEN RAILS ACCORDINGLY.

**48" THREE-RAIL BOLTED  
TIMBER FENCE ELEVATION**  
N.T.S.



NOTES:  
• SEE PLANS FOR QUANTITY OF BIKE RACK ELEMENTS

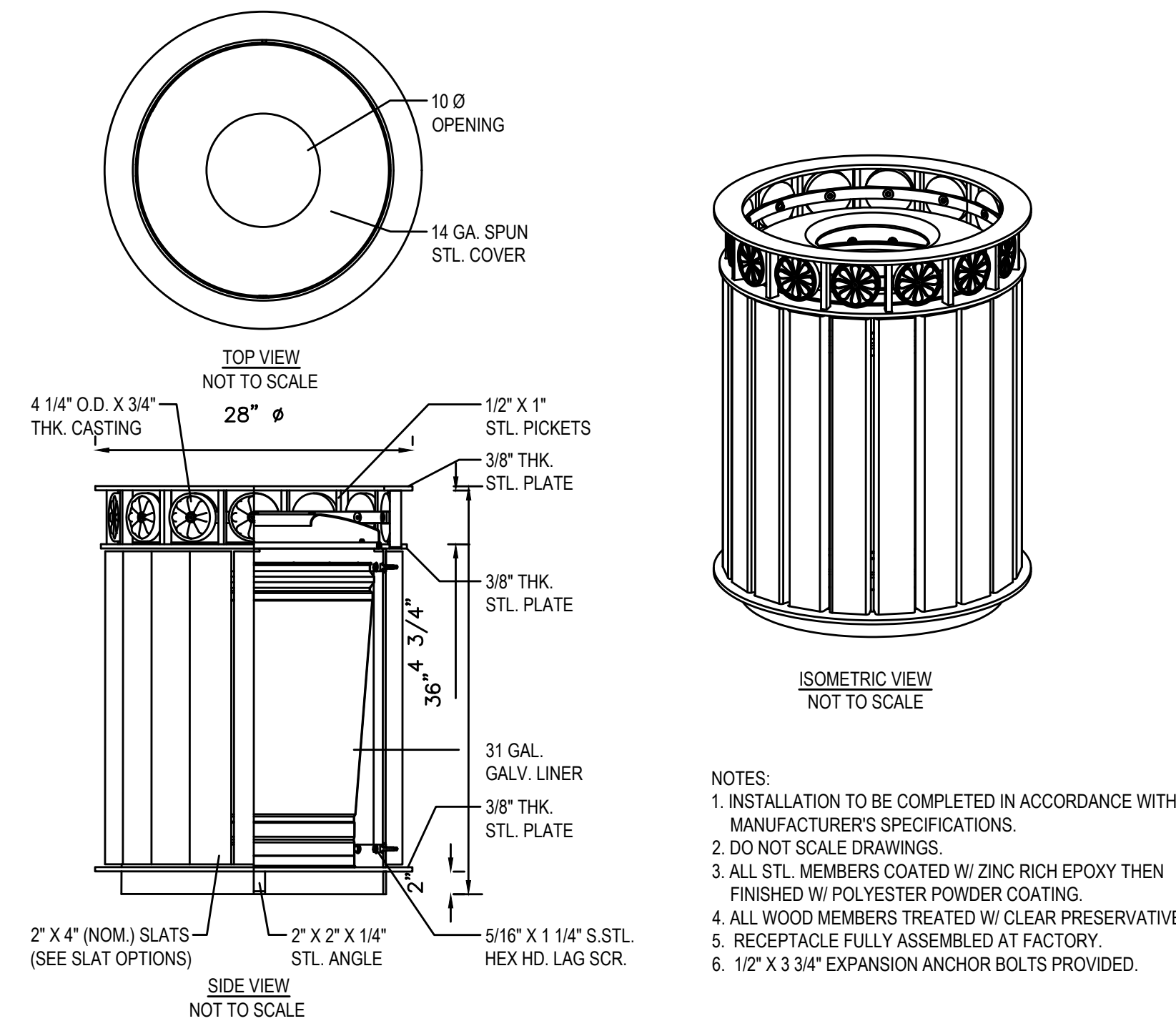
**BIKE RACK PLACEMENT**



NOTES:

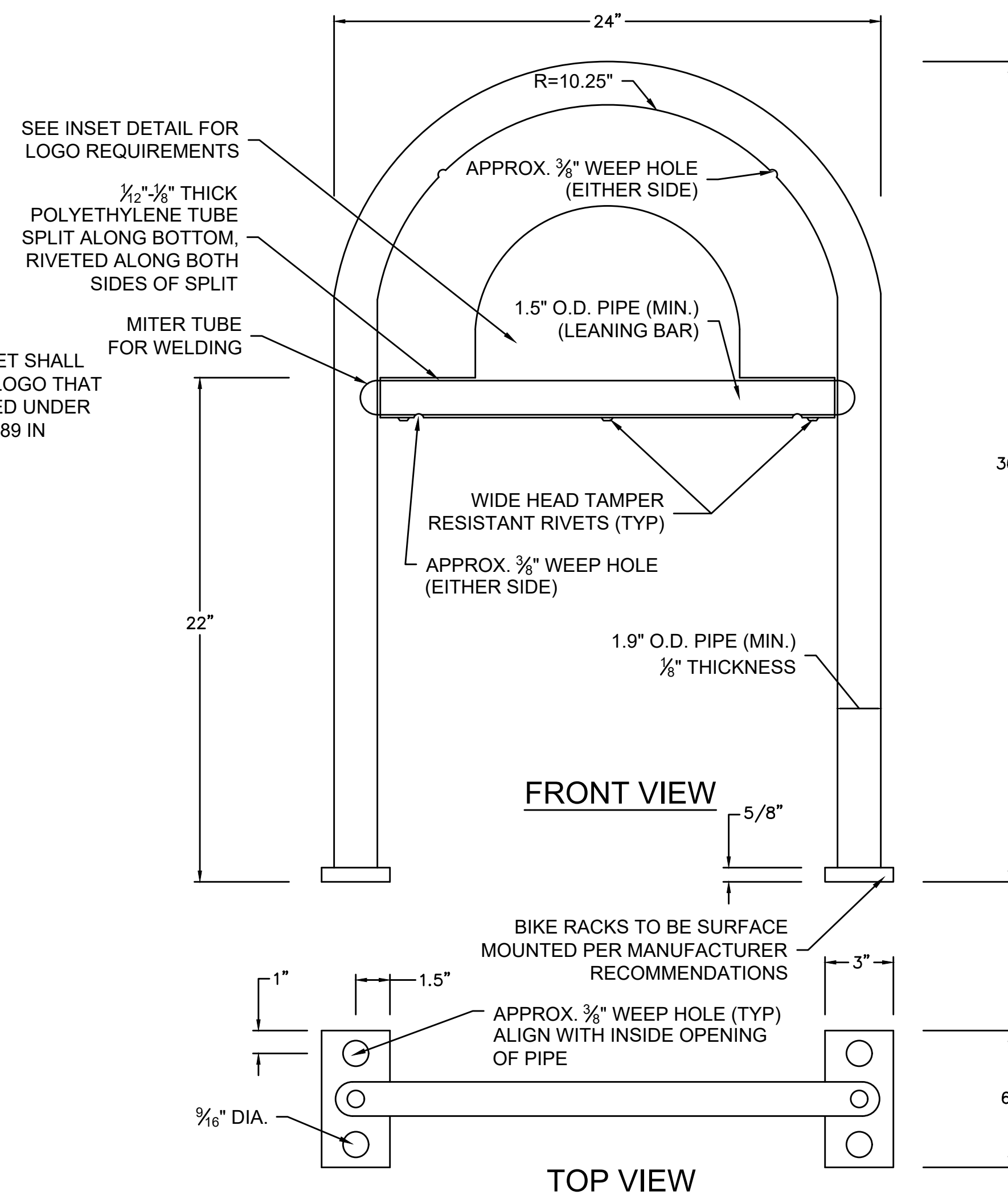
1. EACH BIKE RACK SHALL INCLUDE A LASER-CUT LOGO. LOGO DETAIL TO BE PROVIDED BY THE TOWN OF SUDBURY.
2. DIMENSIONS ARE APPROXIMATE AND WILL BE DETERMINED IN COORDINATION WITH THE MANUFACTURER. BIKE RACK ELEMENTS TO BE OF THE INVERTED "U".
3. EACH BIKE RACK SHALL ACCOMMODATE TWO BICYCLES.
4. ALL POSTS AND HARDWARE SHALL BE FACTORY COATED FEDERAL GREEN (SEE SPECIAL PROVISIONS)

**BIKE RACK  
SCALE: N.T.S.**



NOTES:  
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.  
2. DO NOT SCALE DRAWINGS.  
3. ALL STL. MEMBERS COATED W/ ZINC RICH EPOXY THEN FINISHED W/ POLYESTER POWDER COATING.  
4. ALL WOOD MEMBERS TREATED W/ CLEAR PRESERVATIVE.  
5. RECEPTACLE FULLY ASSEMBLED AT FACTORY.  
6. 1/2" X 3/4" EXPANSION ANCHOR BOLTS PROVIDED.

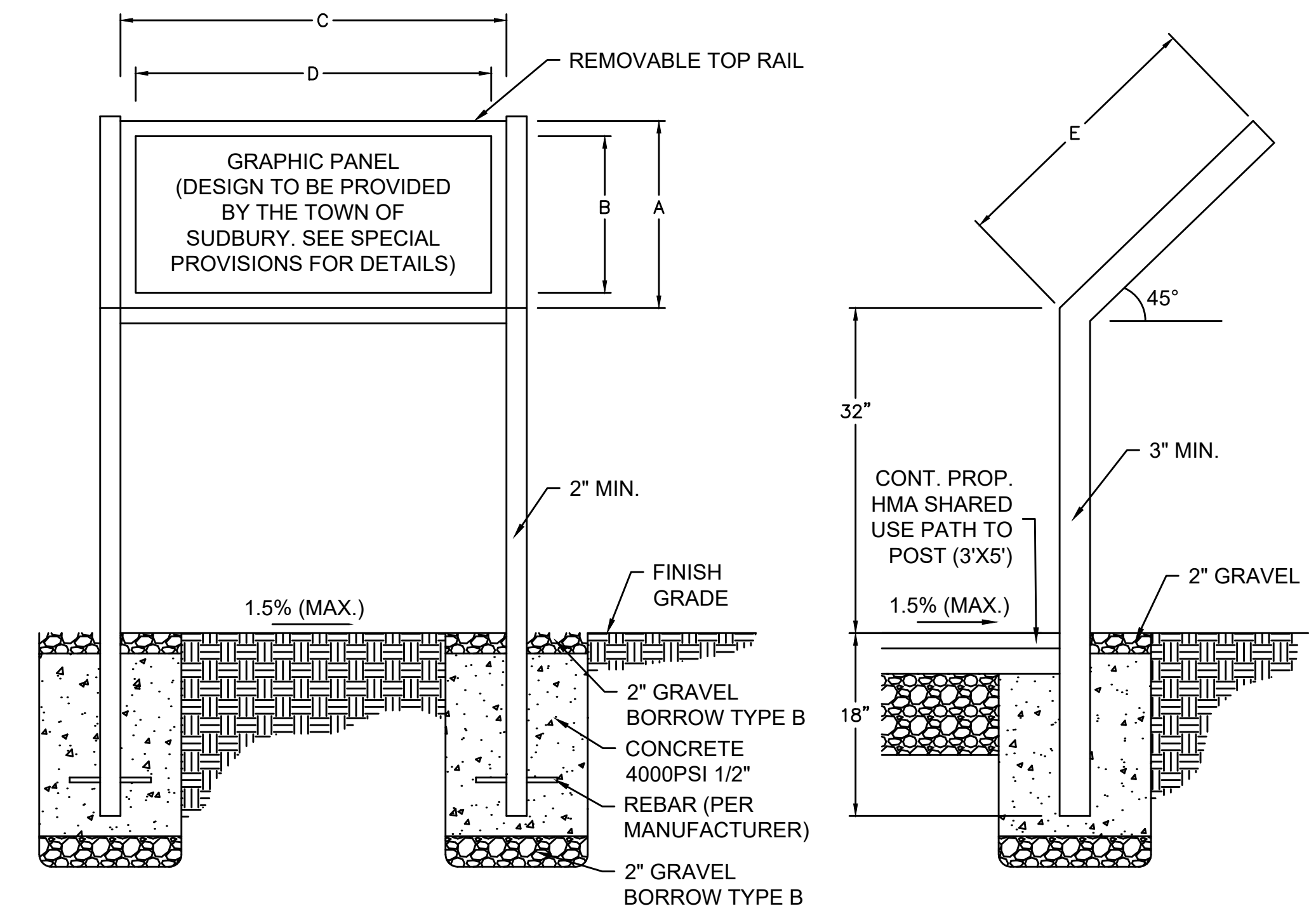
**23 TRASH RECEPTACLE  
SCALE: N.T.S.**



**TOP VIEW**

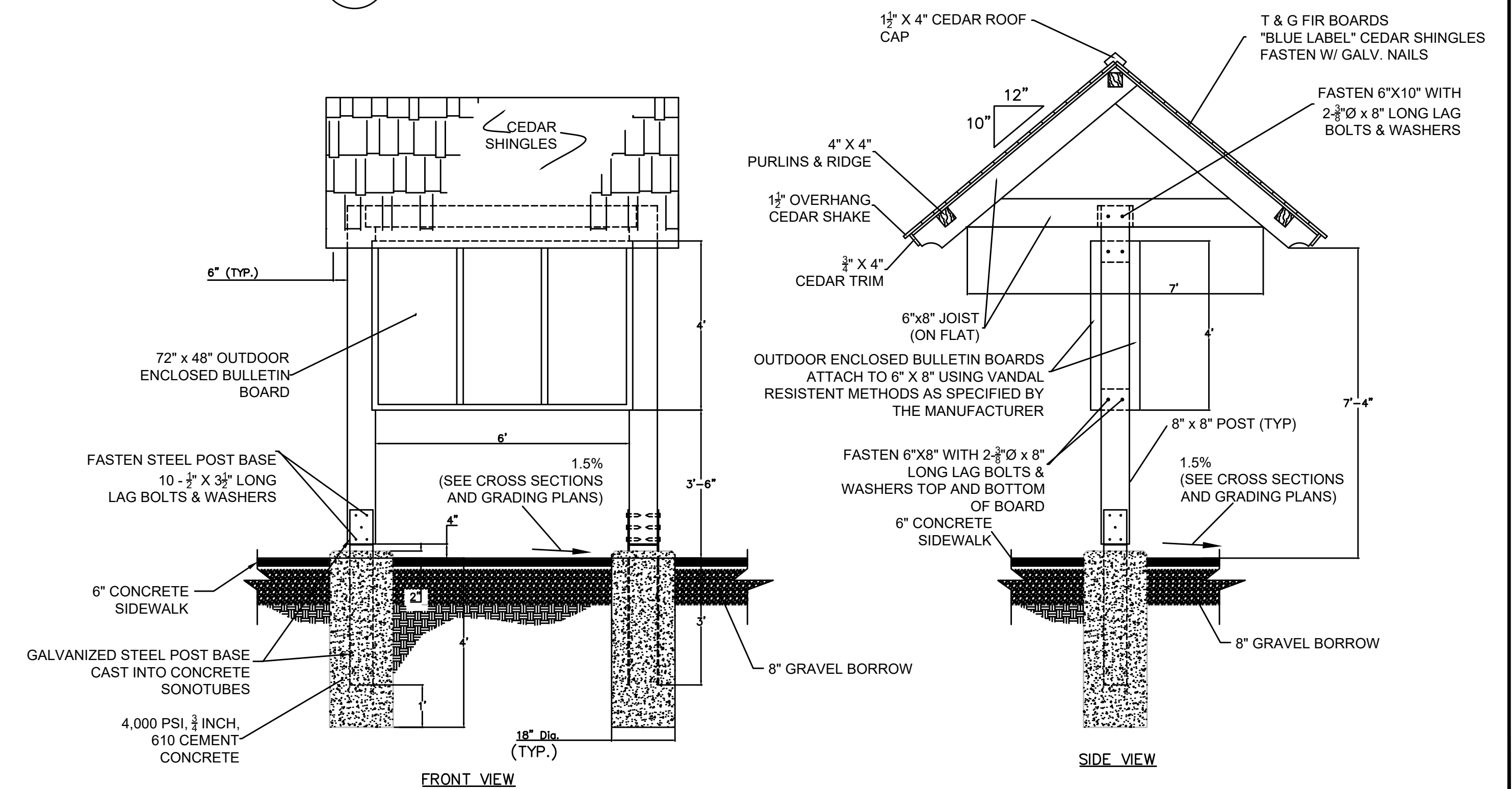
NOTE:

INTERPRETATIVE PANEL SHALL BE SQUARE METAL POSTS AND IS INTENDED TO MATCH THE MASSACHUSETTS DCR STANDARDS.



SIGN TYPE	DIMENSION TABLE					
	HEIGHT	WIDTH		DEPTH		
	A	B	C	D	E	
26" x 38"	26"	23"	38"	35"	26.5"	

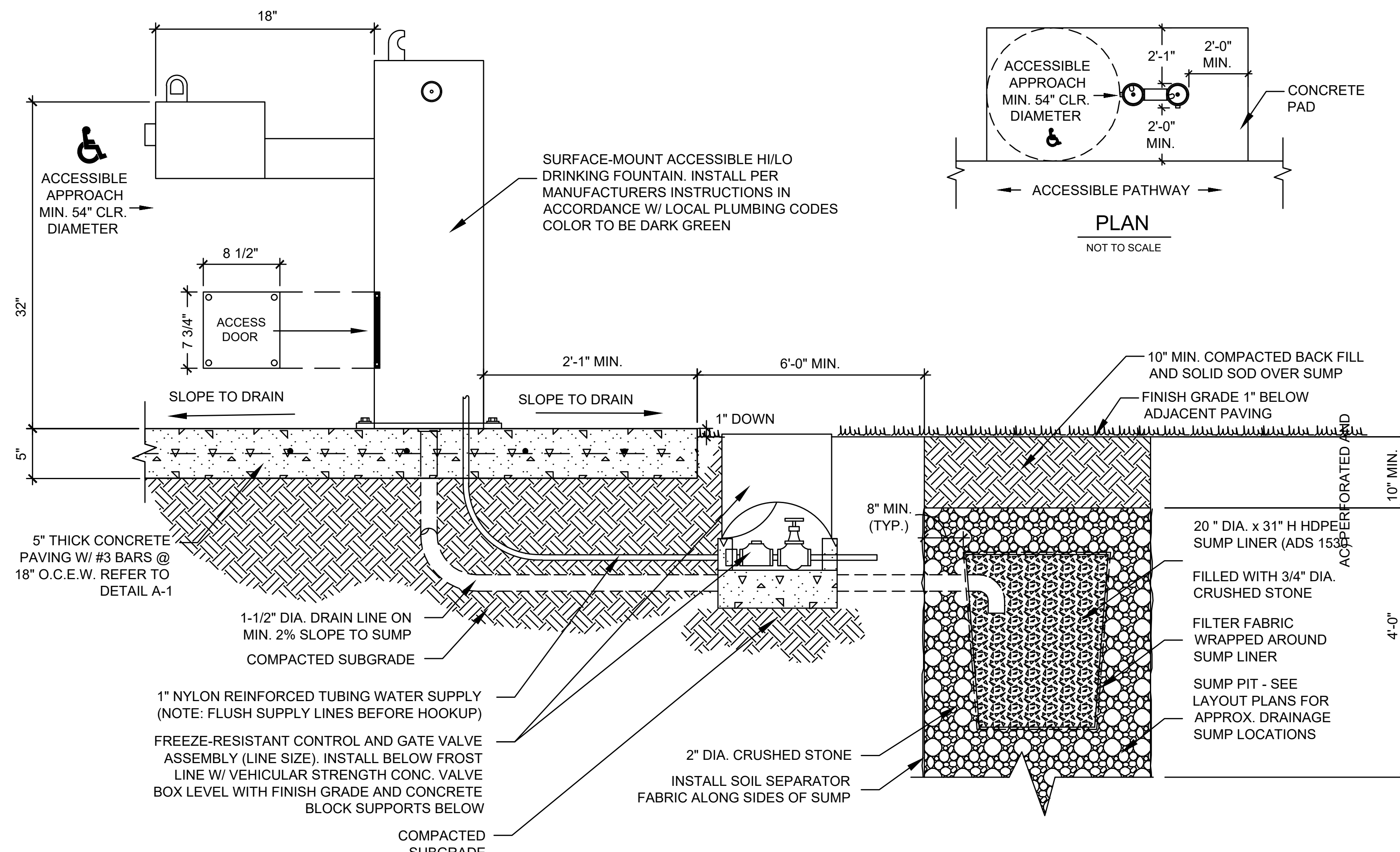
**24 INTERPRETATIVE SIGN  
SCALE: N.T.S.**



**FRONT VIEW**

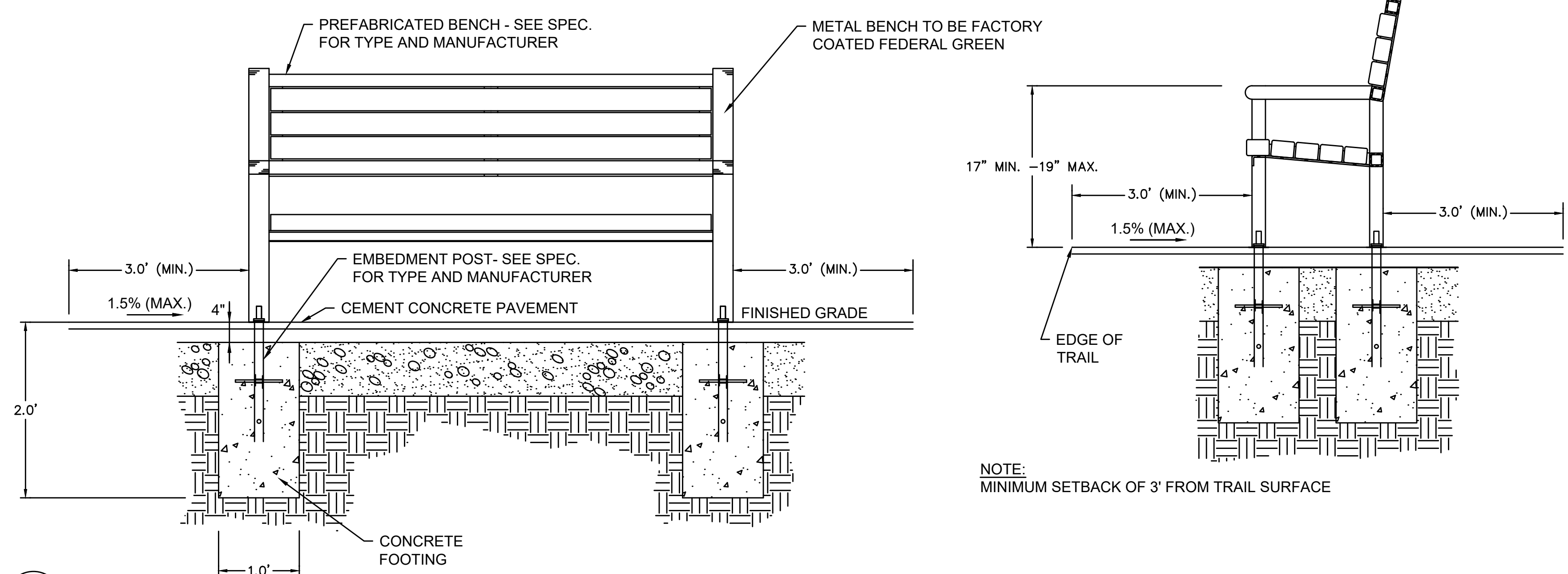
**SIDE VIEW**

**26 DISPLAY BOARD  
SCALE: N.T.S.**

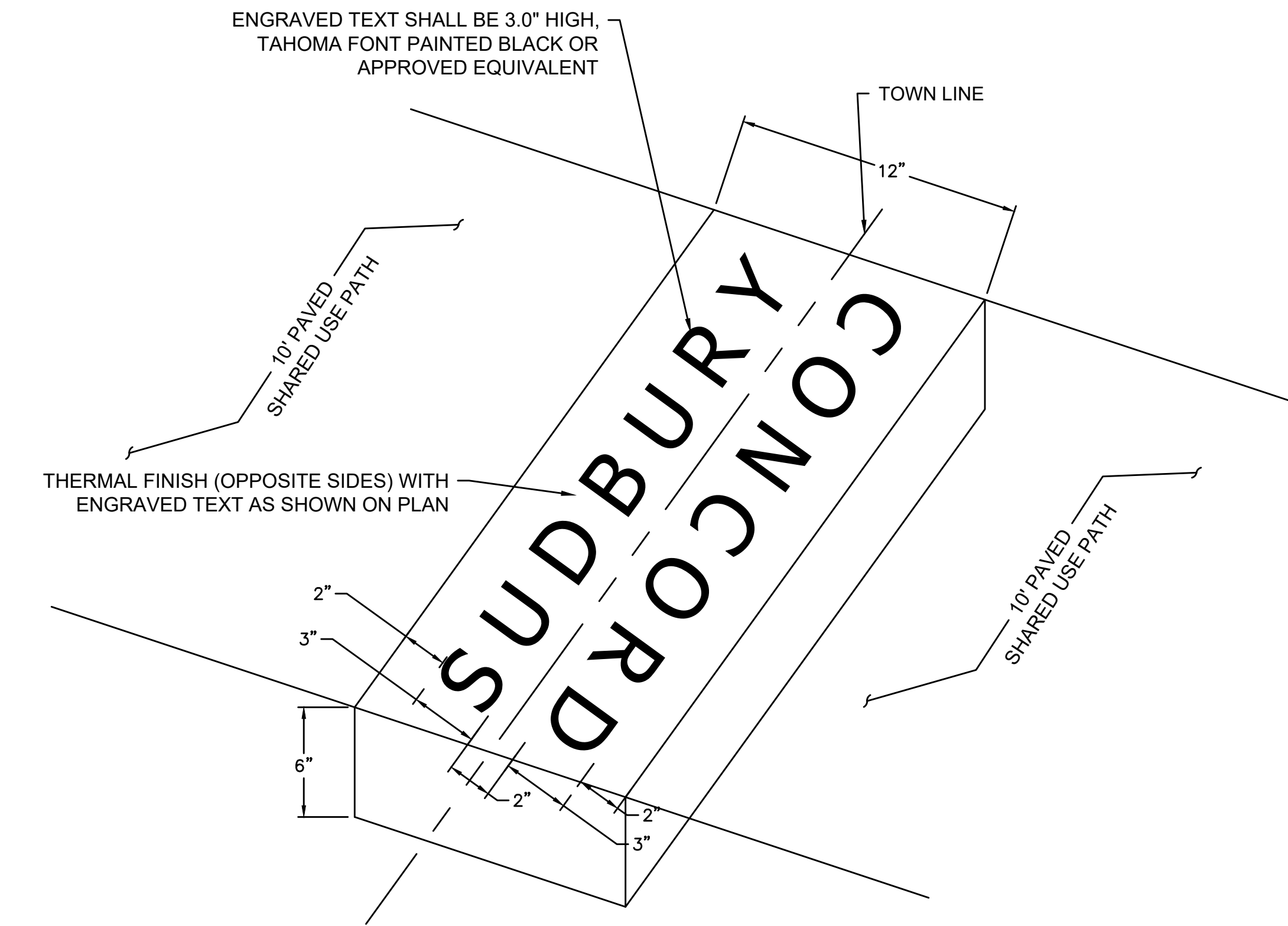


- GENERAL NOTES:**
1. DRINKING FOUNTAIN MUST BE INSTALLED ADJACENT TO AN ACCESSIBLE ROUTE.
  2. SPECIFIED DRINKING FOUNTAIN TO BE IN ACCORDANCE W/ MAAB ACCESSIBILITY STANDARDS.
  3. BASED ON PROJECT SPECIFICATIONS, MODEL MAY INCLUDE DOG BOWL AND/OR JUG FILLER. REFERENCE MANUFACTURER'S PRODUCT CATALOG FOR ACCESSORY ITEMS.

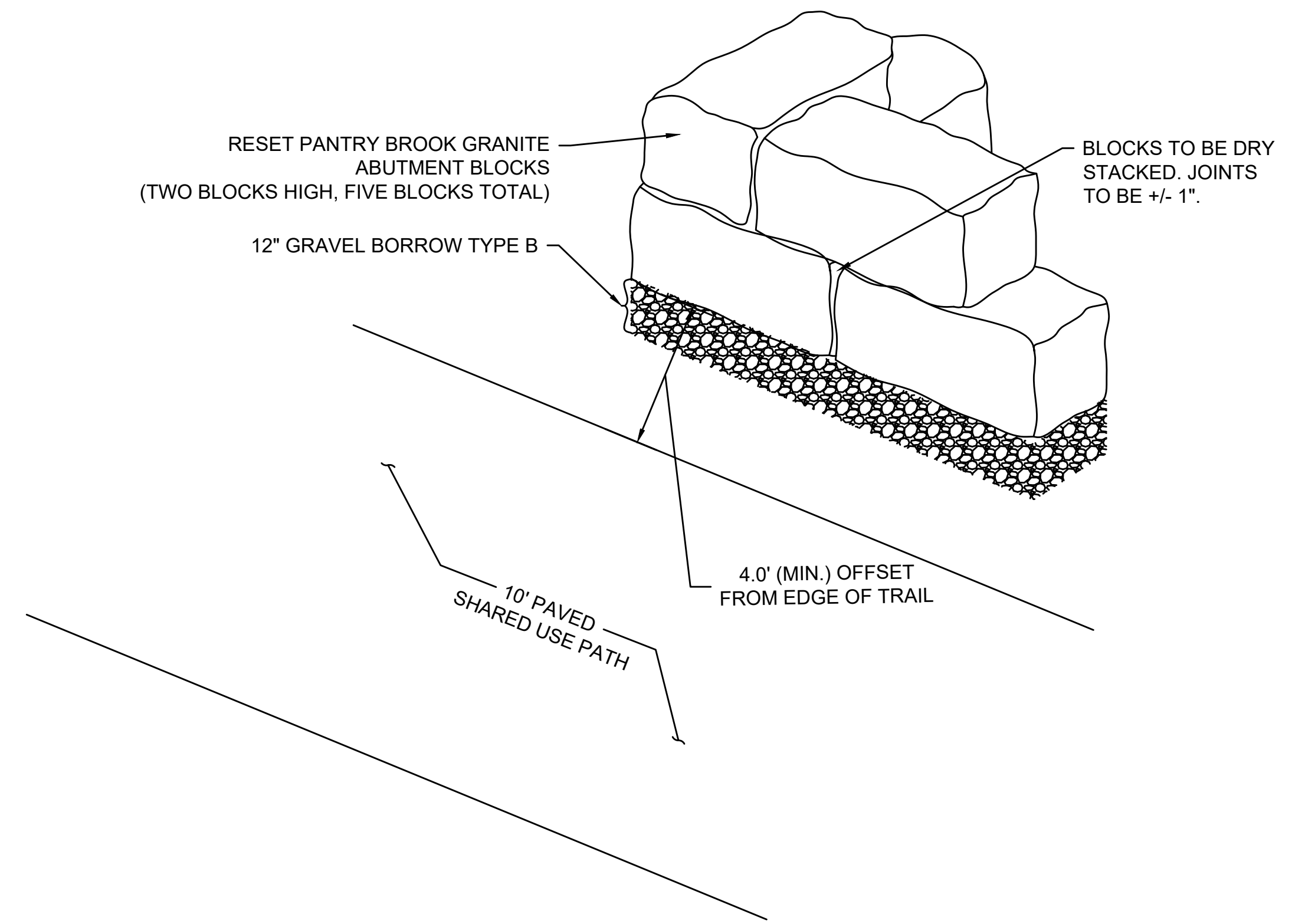
**27** HYDRATION STATION  
SCALE: N.T.S.



**29** BENCH  
SCALE: N.T.S.



**28** 12" FLUSH GRANITE TOWN LINE MARKER  
SCALE: N.T.S.



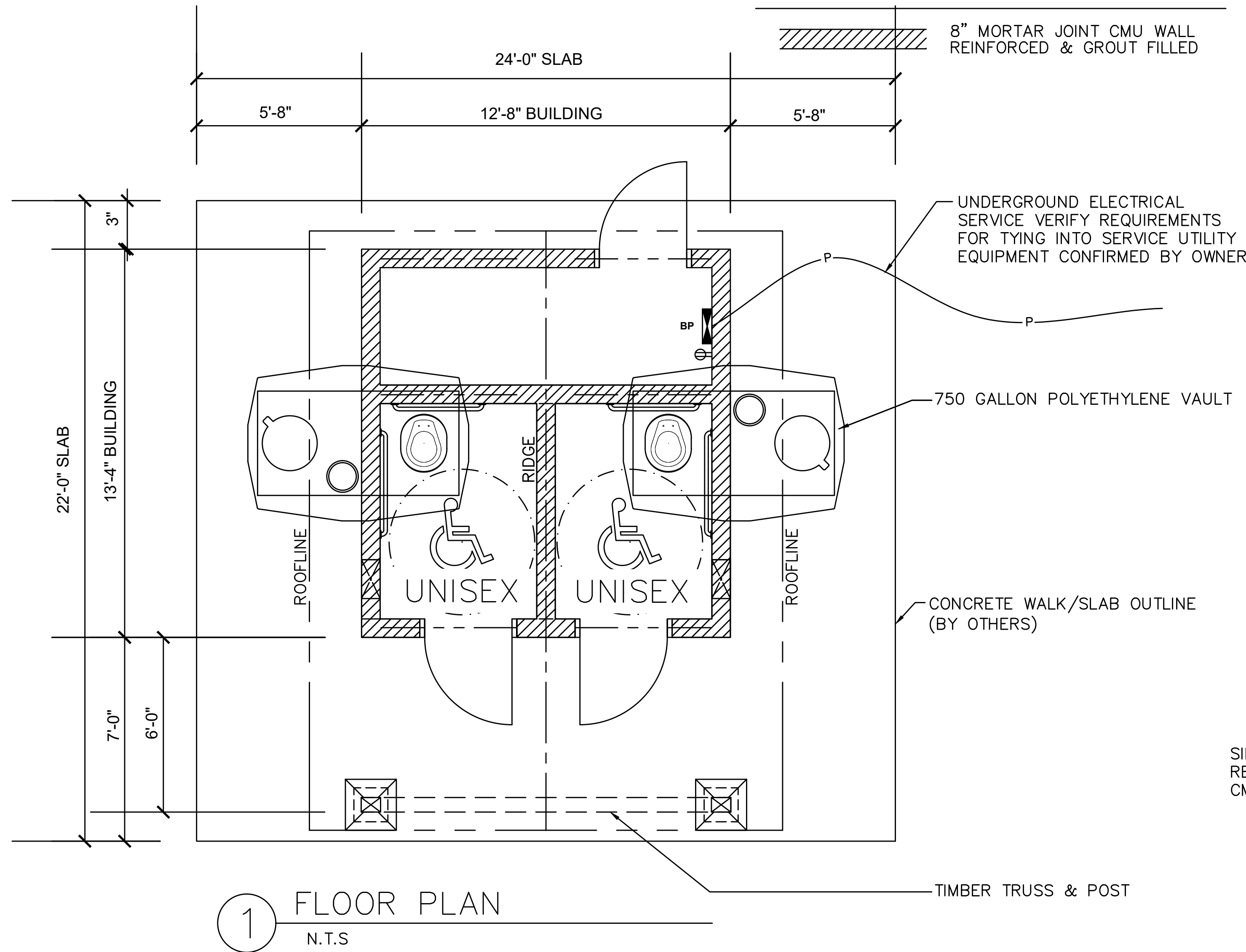
**30** PANTRY BROOK ABUTMENT BLOCKS RESET STA. 260+91  
SCALE: N.T.S.

NOTE:  
THESE PLAN VIEW AND ELEVATION DRAWINGS ARE A PRELIMINARY ARCHITECTURAL REPRESENTATION OF THE BUILDING.

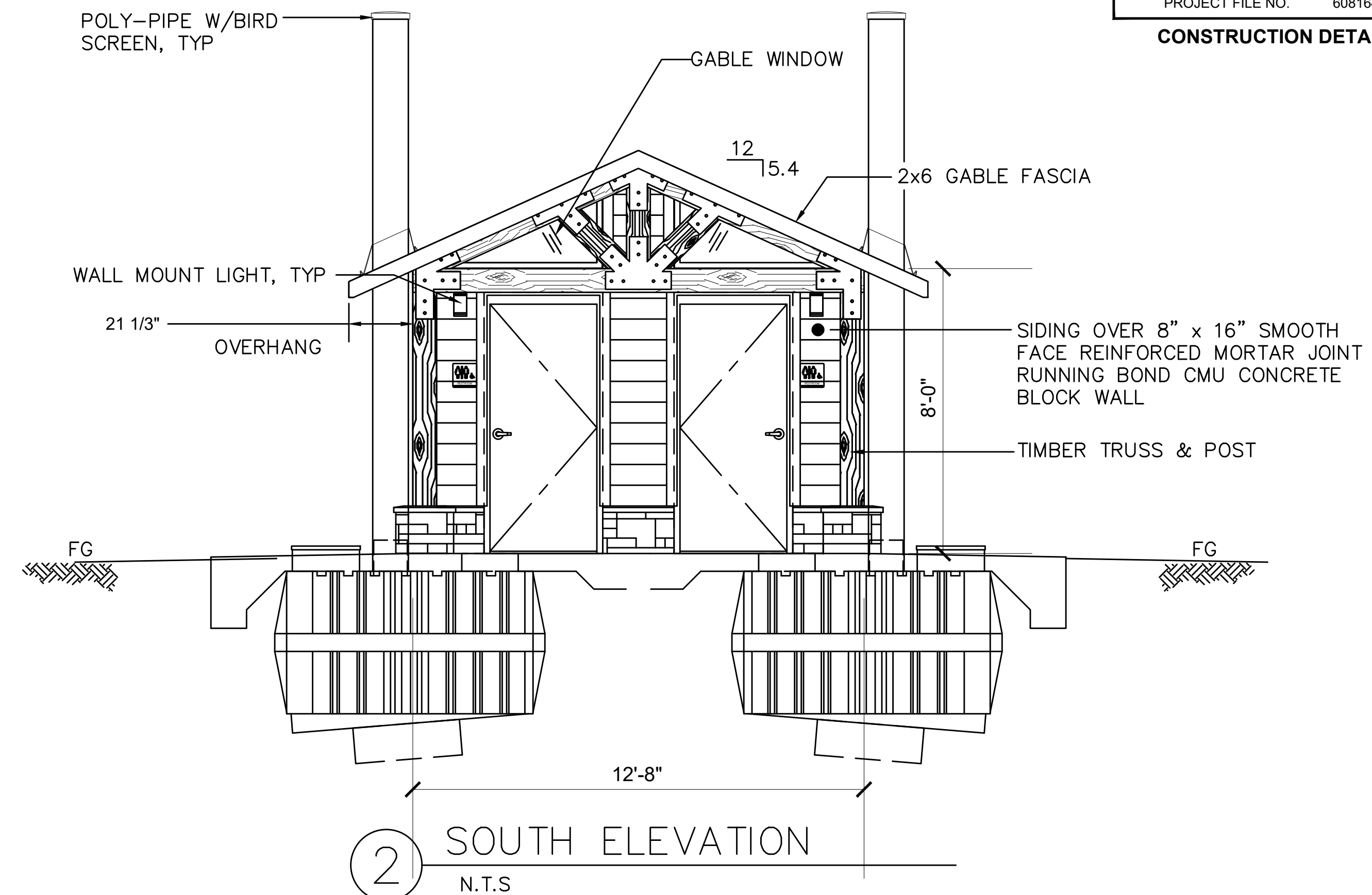
LEGEND		
SYMBOL	DESCRIPTION	AREA / QUANTITY
—	GABLE WINDOW	6
—	16" x 24" EXTERIOR WALL VENT LOCATED IN CMU WALL	2
—	EXTERIOR WALL LIGHTS	3
—	INTERIOR CEILING LIGHTS	3

**WALL TYPE SCHEDULE**

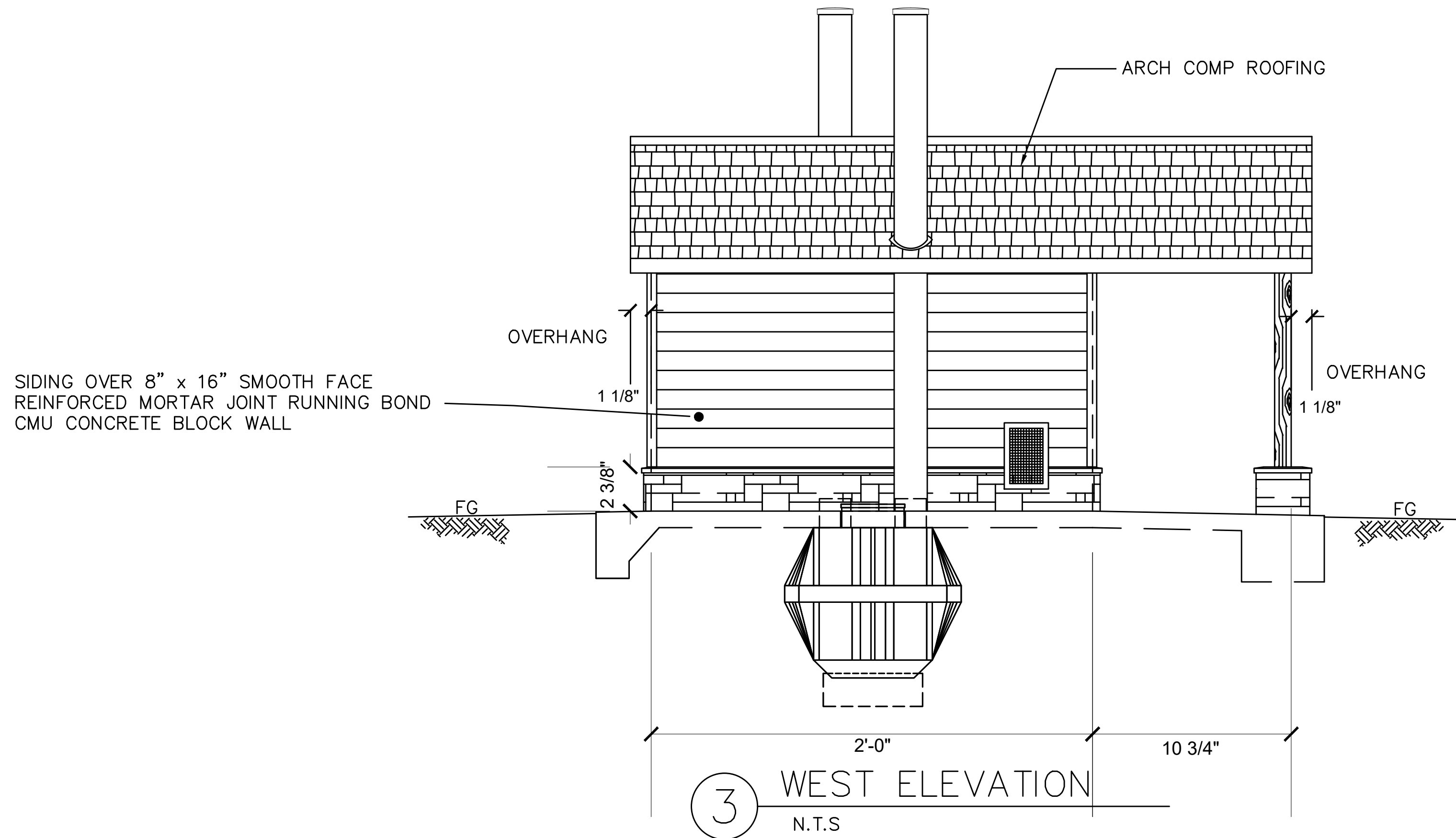
8" MORTAR JOINT CMU WALL REINFORCED & GROUT FILLED



① FLOOR PLAN  
N.T.S.



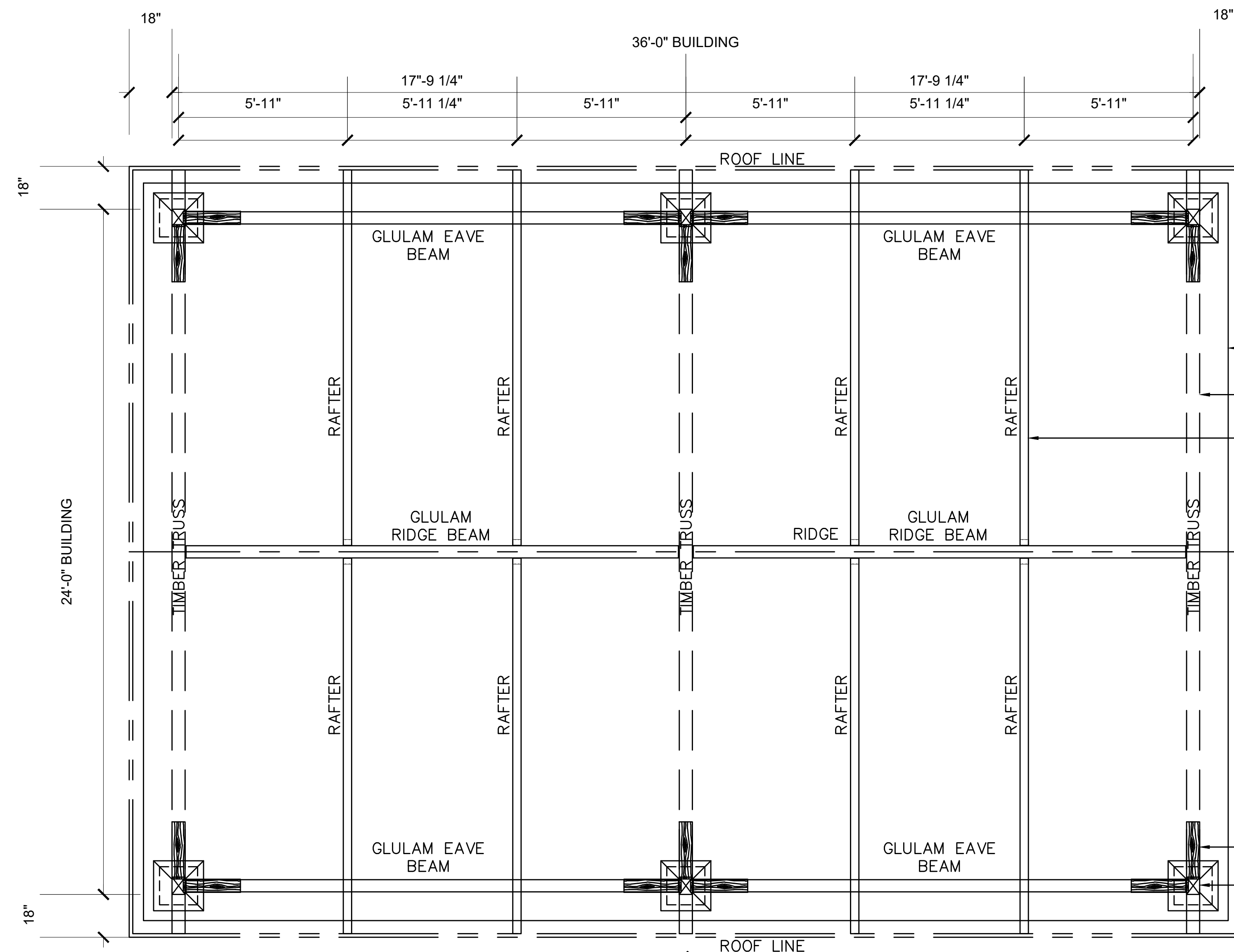
② SOUTH ELEVATION  
N.T.S.



③ WEST ELEVATION  
N.T.S.



NOTE:  
THESE PLAN VIEW AND ELEVATION DRAWINGS ARE A PRELIMINARY ARCHITECTURAL REPRESENTATION OF THE BUILDING. ALL DIMENSIONS, FEATURES AND COMPONENTS SHOWN ON THESE PRELIMINARY DRAWINGS SHALL BE APPROVED BY THE TOWN DURING CONSTRUCTION/SUBMISSION OF SHOP DRAWINGS.

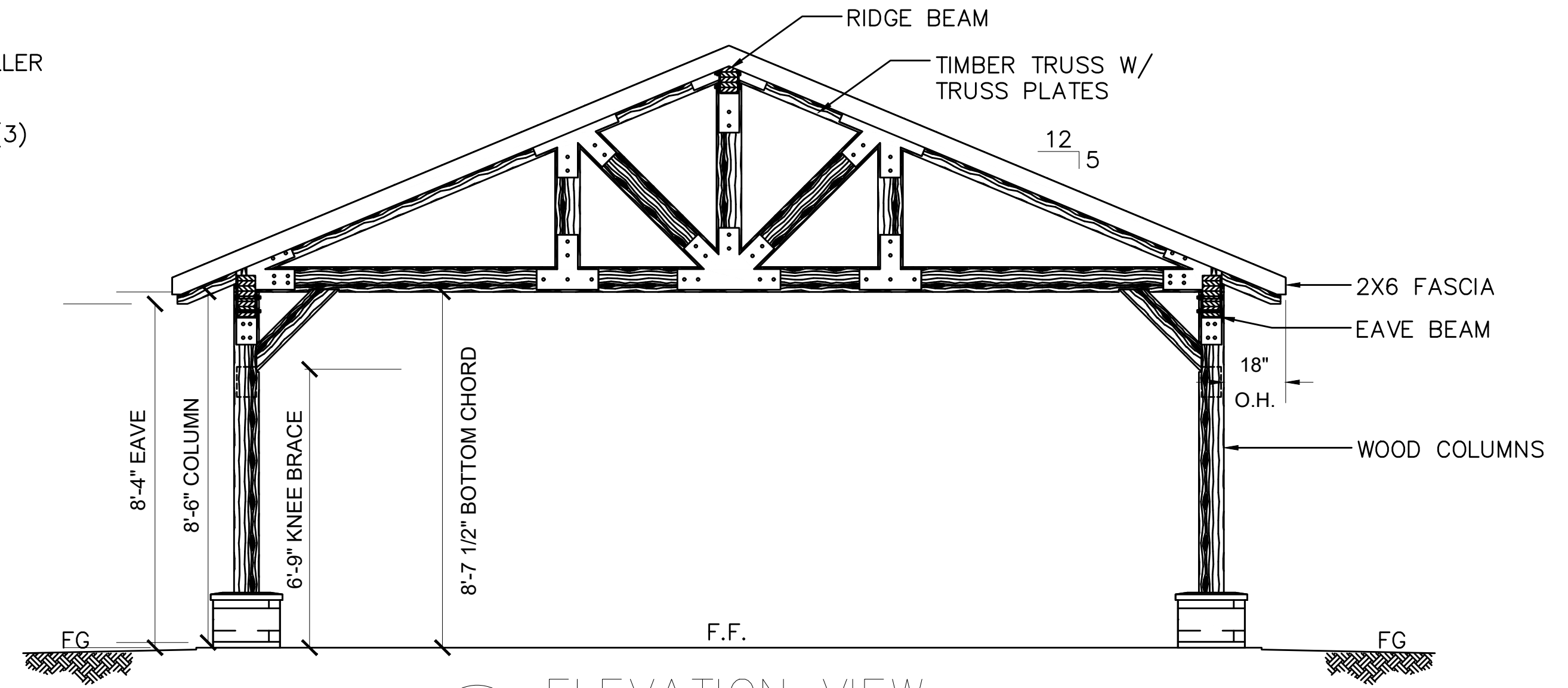


**1 FLOOR PLAN**  
N.T.S.

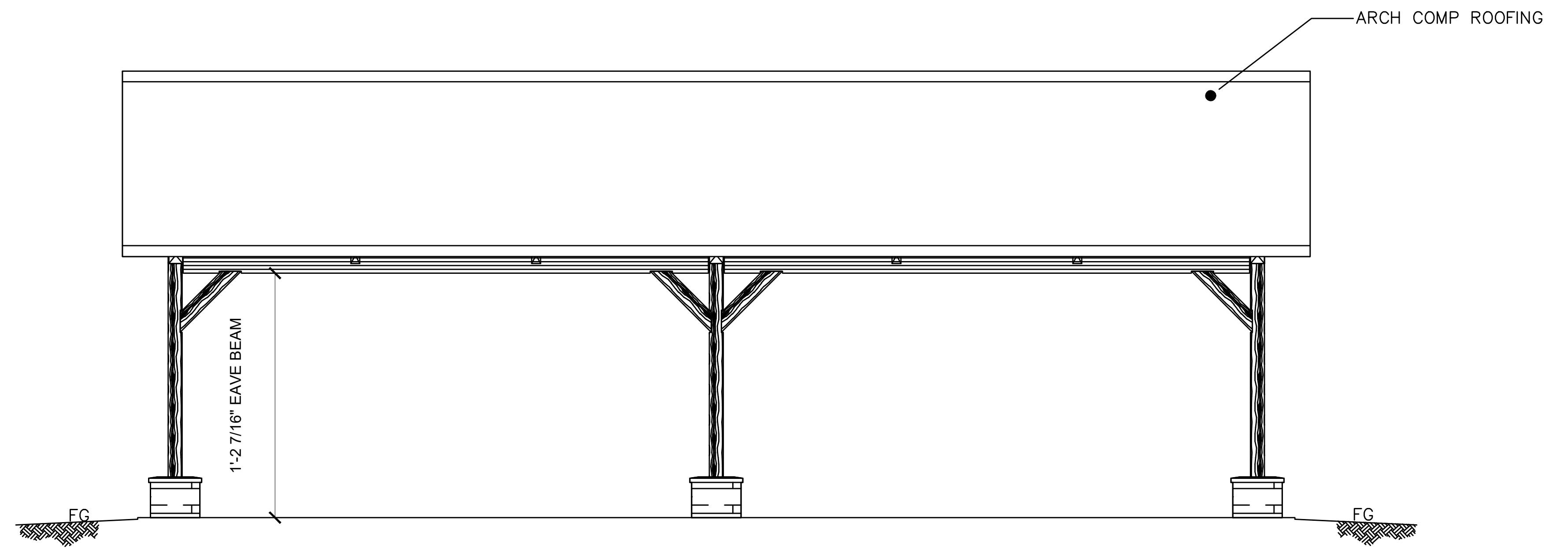
LEGEND		
SYMBOL	DESCRIPTION	AREA/QUANTITY
	WOOD TRUSS	3
	GLU-LAM BEAMS	6

- CONCRETE BY INSTALLER
- TIMBER TRUSS, TYP (3)
- RAFTER, TYP (8)

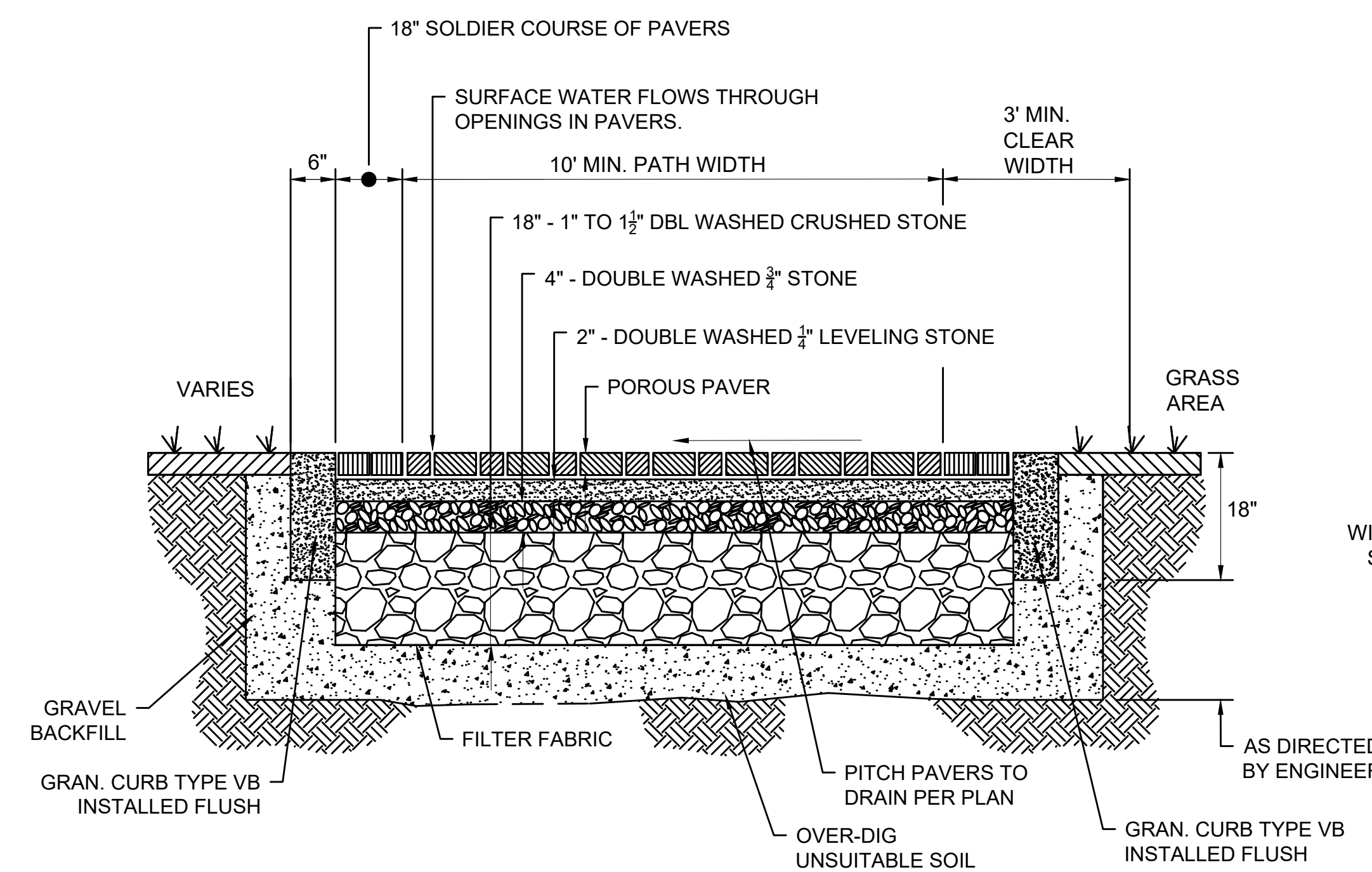
- WOOD KNEE BRACES, TYP (14)
- WOOD COLUMNS, TYP (6)



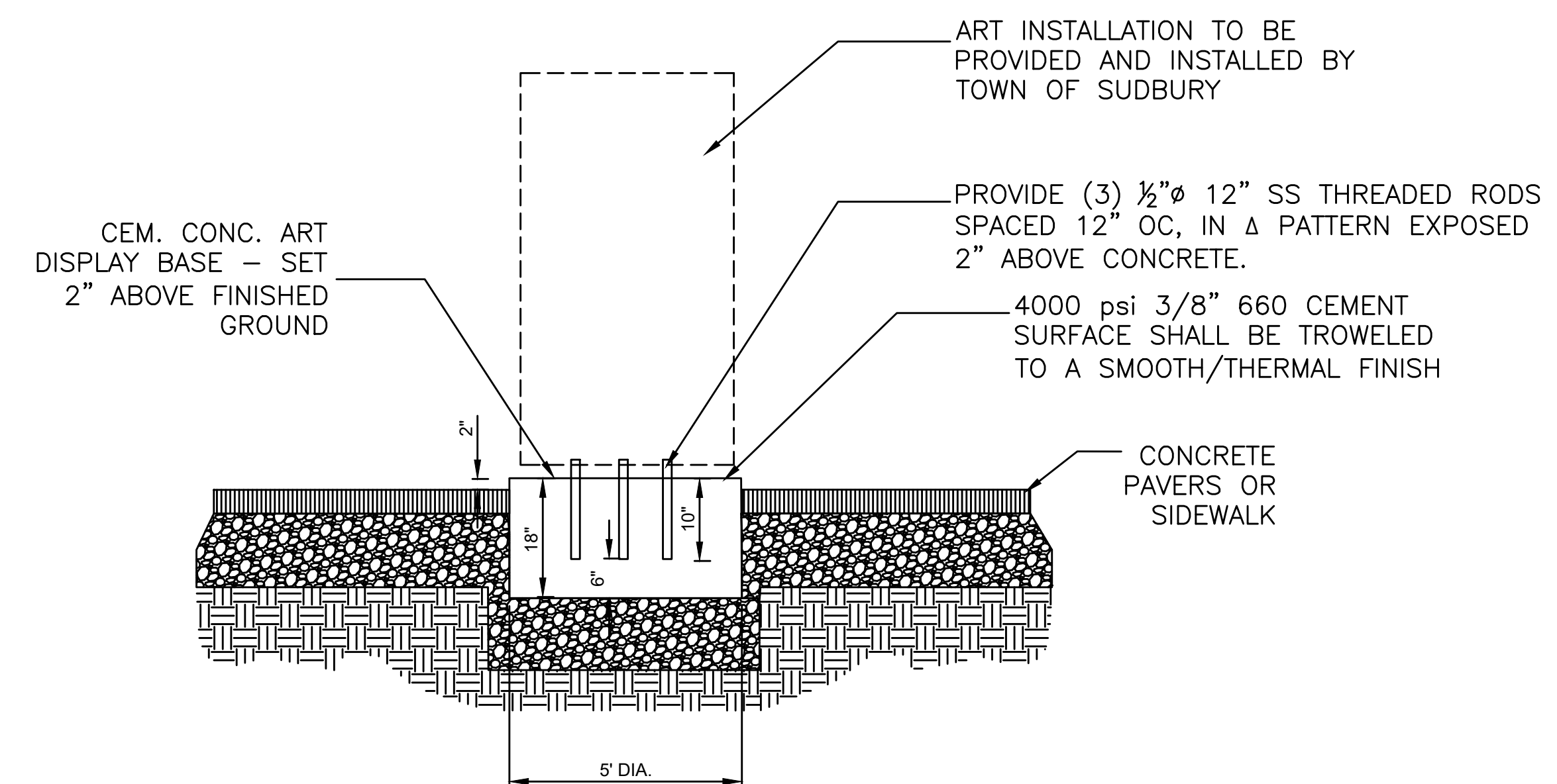
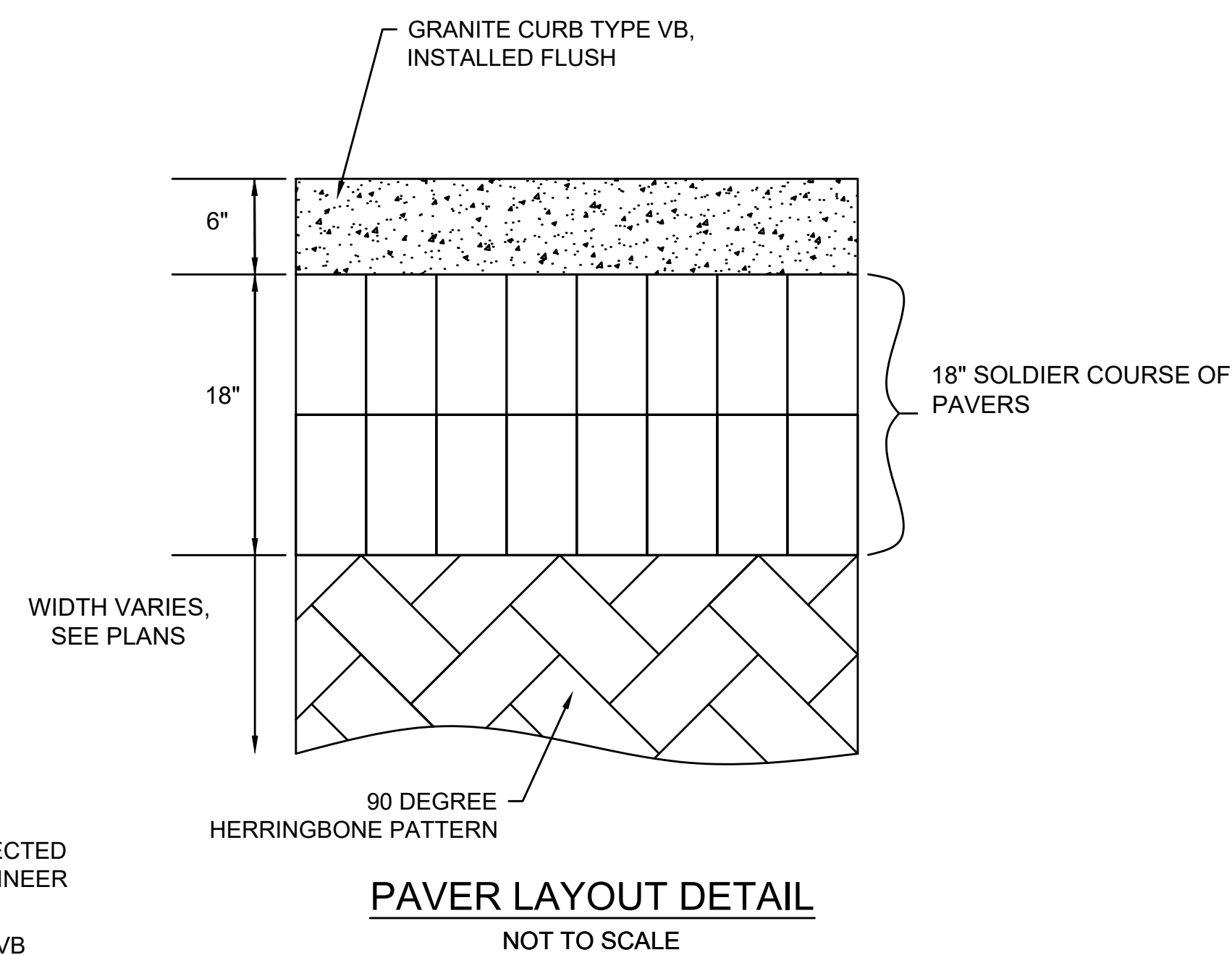
**B ELEVATION VIEW**  
N.T.S.



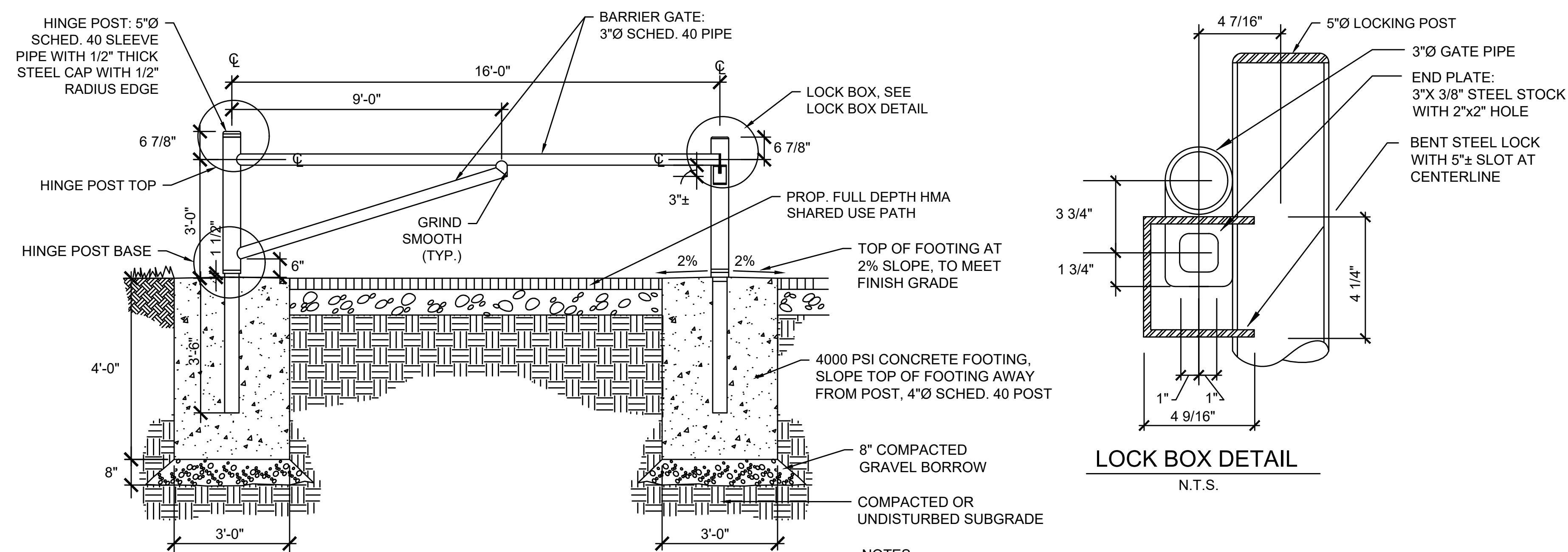
**C ELEVATION VIEW**  
N.T.S.



**33** PREVIOUS PAVER TYPICAL SECTION  
SCALE: N.T.S.

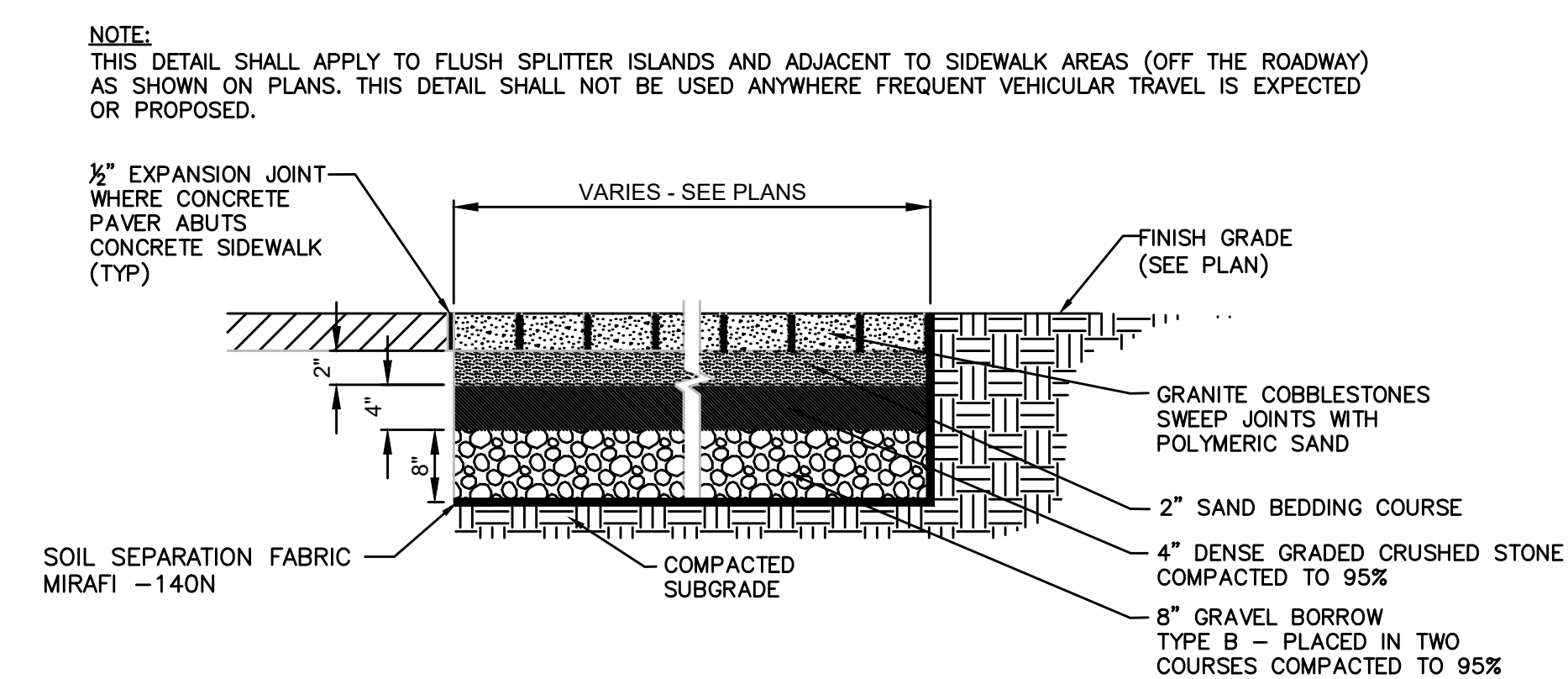


**34** CONCRETE ART DISPLAY BASE  
SCALE: N.T.S.



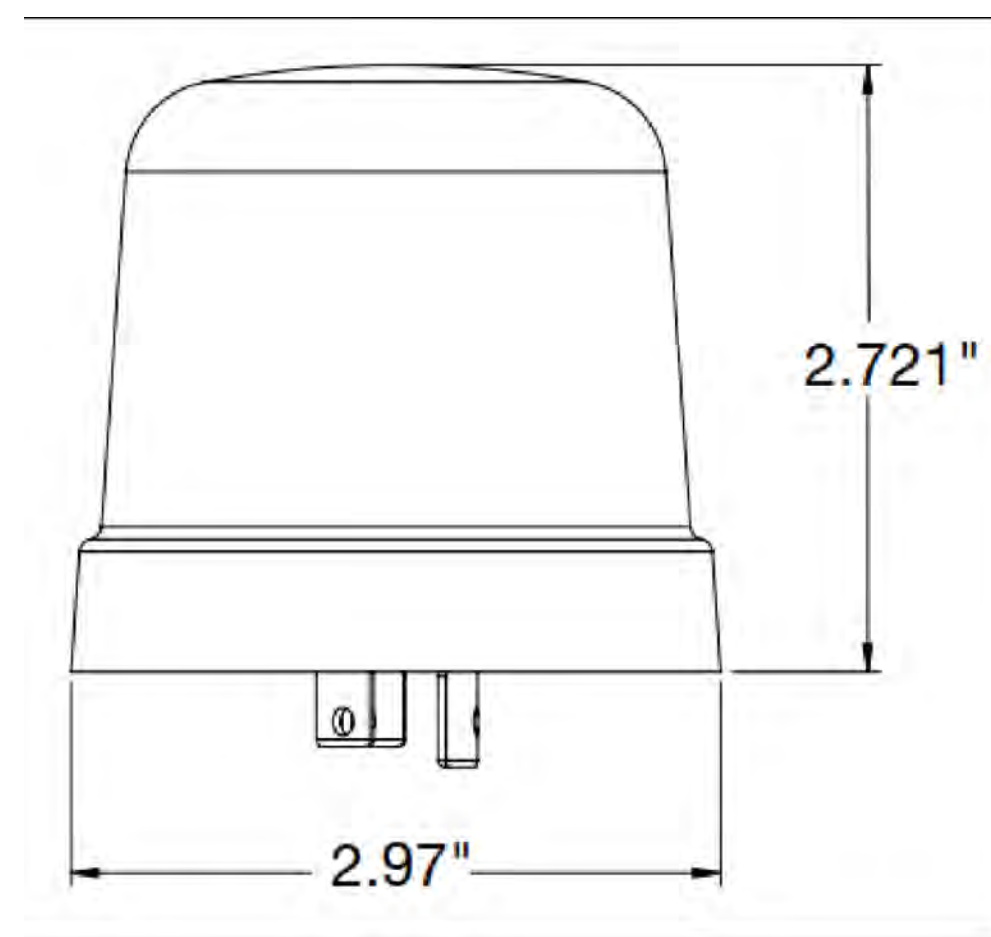
**35** STEEL PIPE ACCESS GATE  
SCALE: N.T.S.

- NOTES:
1. ALL STEEL SHALL BE GALVANIZED INSIDE AND OUT.
  2. PROVIDE 1/2\"/>

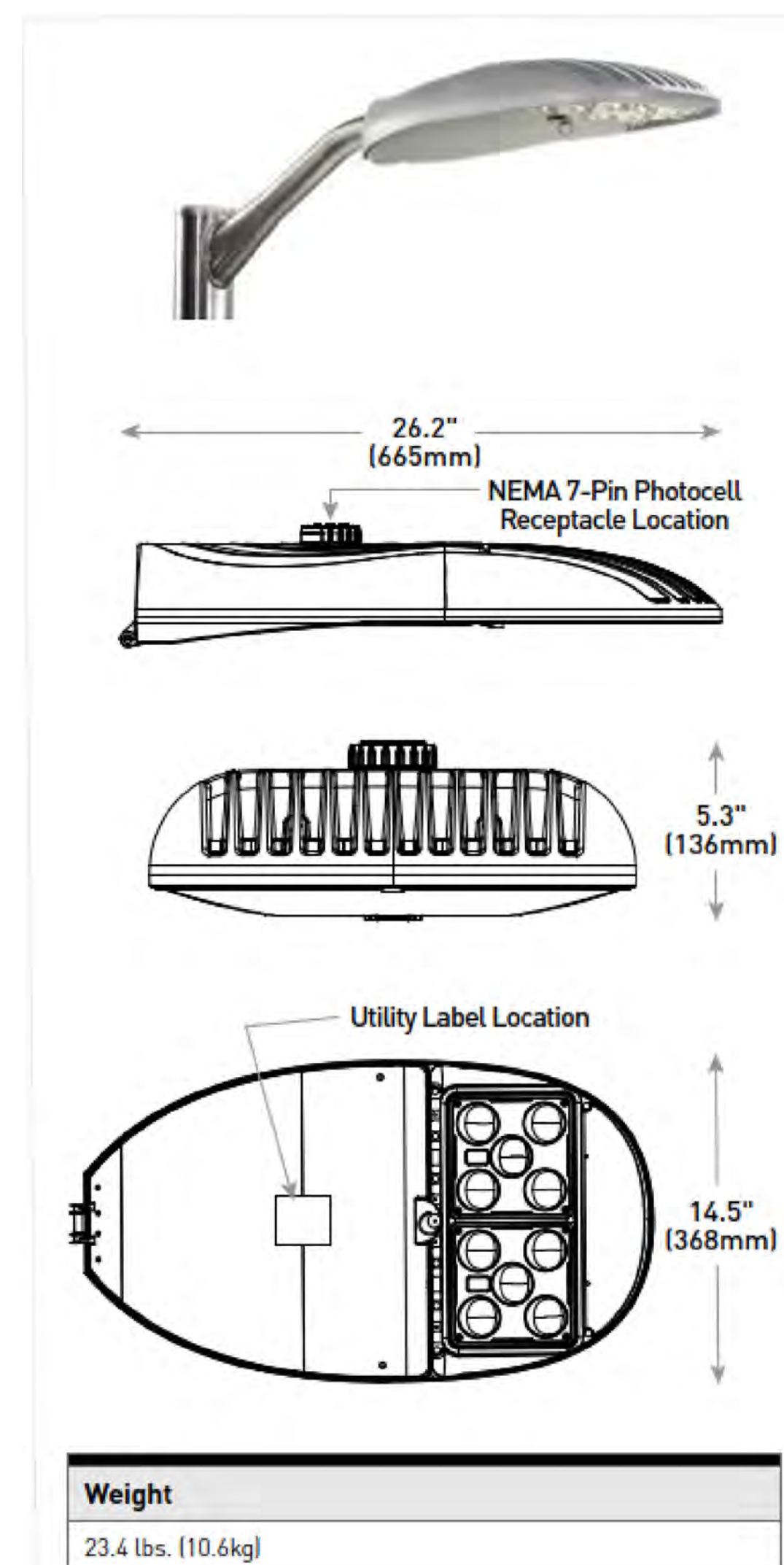


**36** GRANITE COBBLESTONE PAVER SETTING BED  
SCALE: N.T.S.

**120-277 VOLT ELECTRIC PHOTO CONTROL  
LOCKING TYPE MOUNTING**



**LED STREET/AREA LUMINARE**

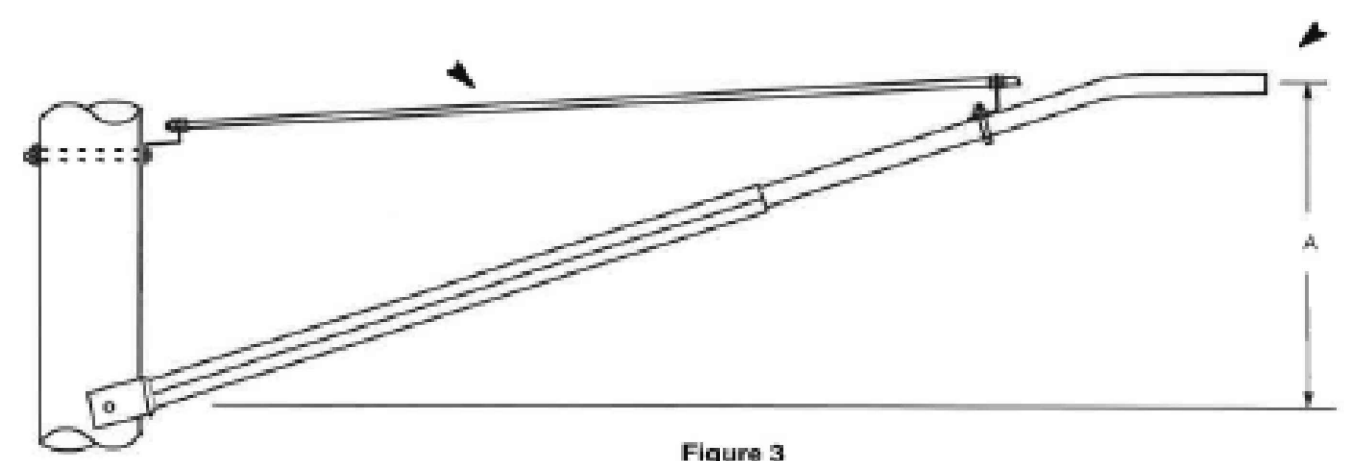
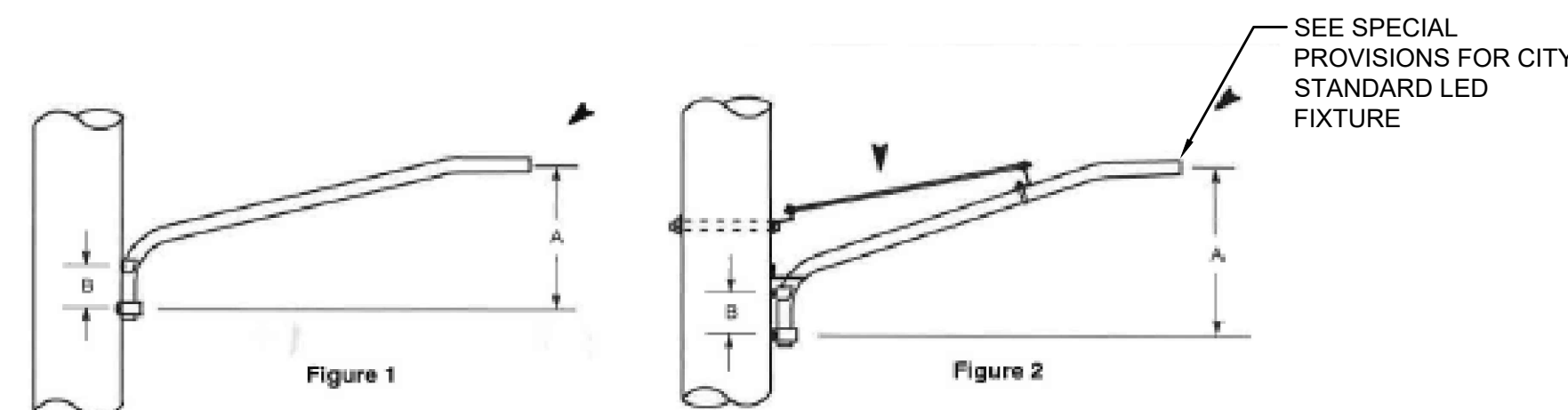


**Weight**  
23.4 lbs. (10.6kg)

**NOTES:**

1. TO BE INSTALLED PER CITY STANDARD
2. HORIZONTAL TENSION MOUNTING
3. DIE CAST ALUMINUM HOUSING
4. INPUT VOLTAGE 120V - 277V
5. TO MEET ANSI C136.31-2001 AND 3G BRIDGE AND OVERPASS VIBRATION STANDARDS
6. TO DELIVER UP TO 23,800 LUMENS
7. WITH EFFICACY UP TO 139 LPW
8. CCT: 2700K, 3000K, 4000K, 5000K, 5700K

**37 LED STREET/AREA LUMINARE (CITY STANDARD)**  
SCALE: N.T.S.



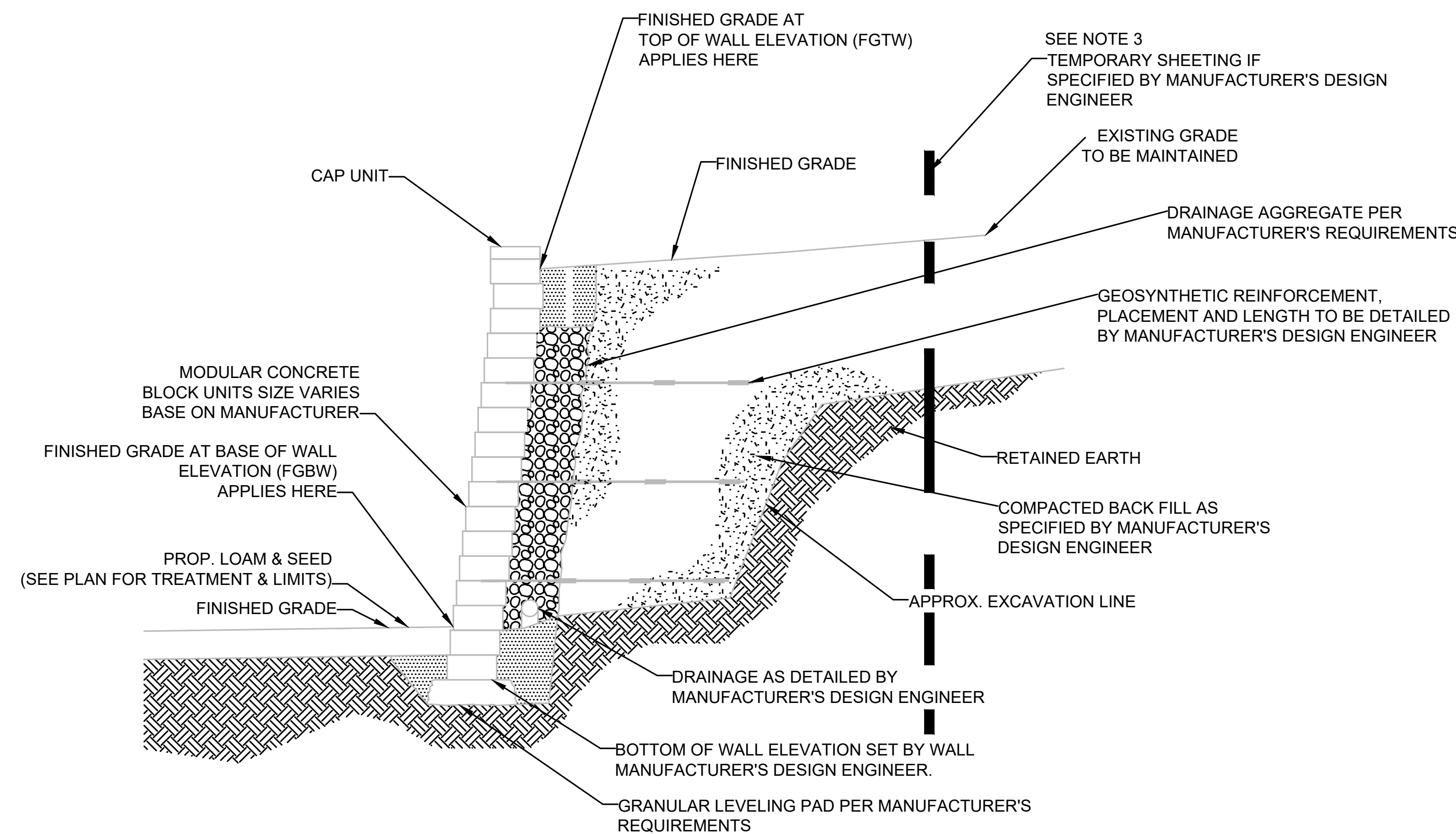
SEE SPECIAL PROVISIONS FOR CITY STANDARD LED FIXTURE

Bracket Size	Bracket Style Figure No.	Approximate Dimensions in Inches		Item Number	DTR 21.112 Pageback Variations
		A	B		
1 1/4" x 4"	1	18-19	11	511567	A thru C
1 1/4" x 6"	2	24-30	8-11	511568	D thru F
1 1/4" x 8"	2	18-31	8-13	511569	G thru I
1 1/4" x 10"	2	35-48	12-13	511570	J thru L
1 1/4" x 12"	3	40-43	—	511571	M thru O
1 1/4" x 16"	3	56-58	—	511572	P thru R
2" x 20"	3	67-73	—	511573	S thru U
2" x 8"	2	30	9	511496	V thru X

**Notes**  
1. Dimensions shown do not necessarily apply to brackets purchased before 1967.  
2. Variations shown depend on application.

DESIGNED BY	APPROVED BY	DATE	PROJECT	SCALE
EVERSOURCE ENERGY	DESIGN & APPLICATION STANDARD	DTR 21.111	9	

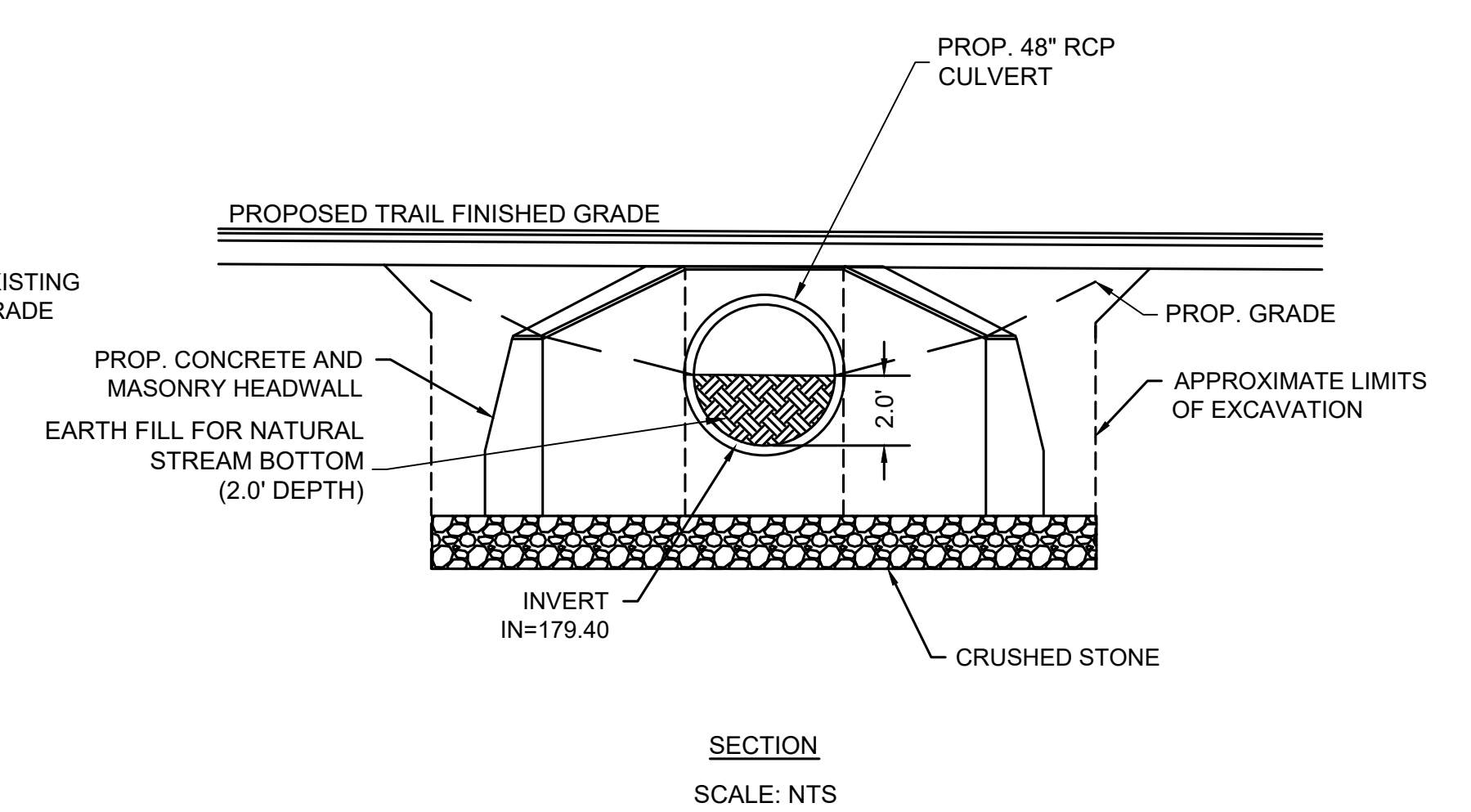
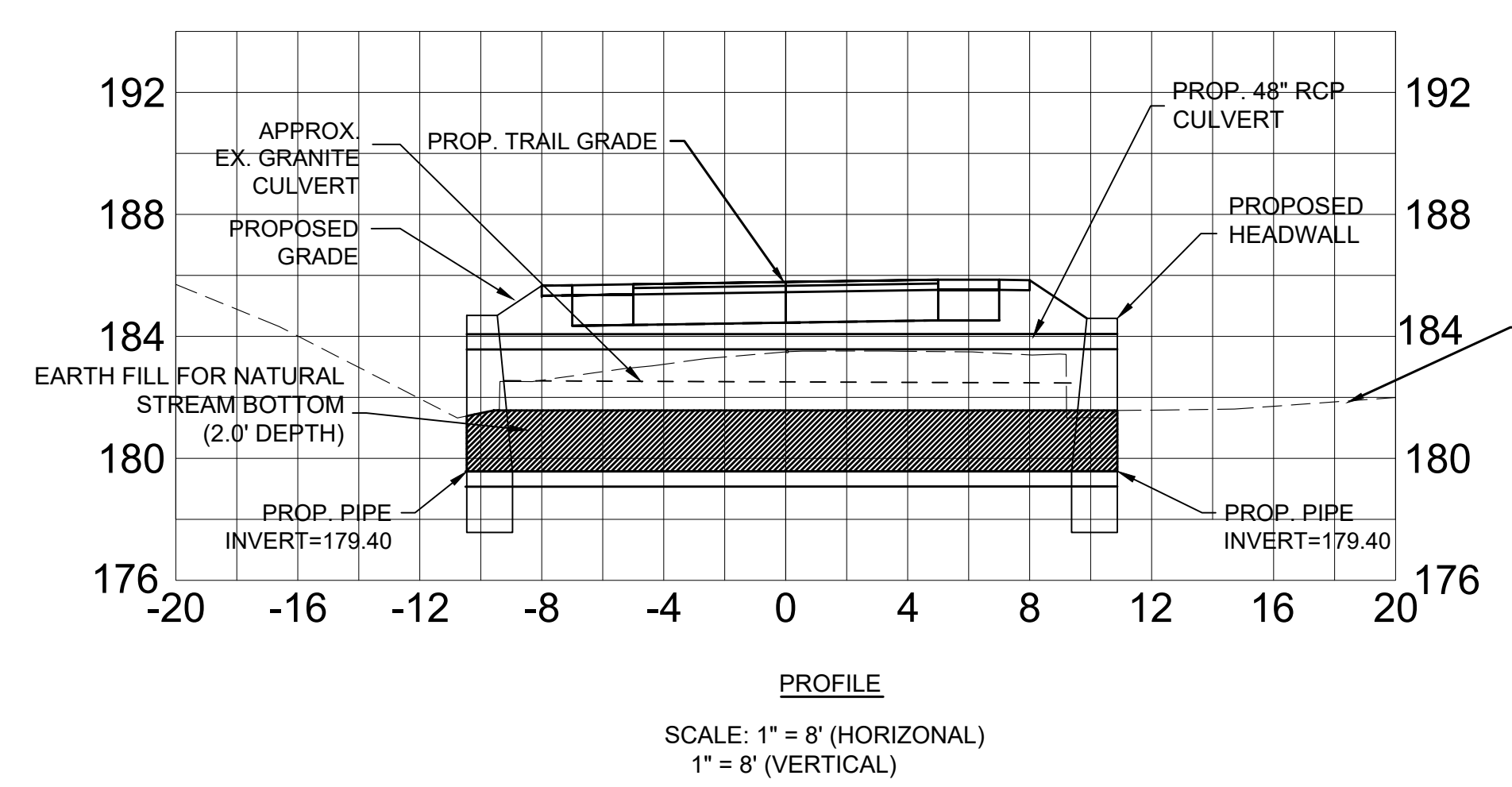
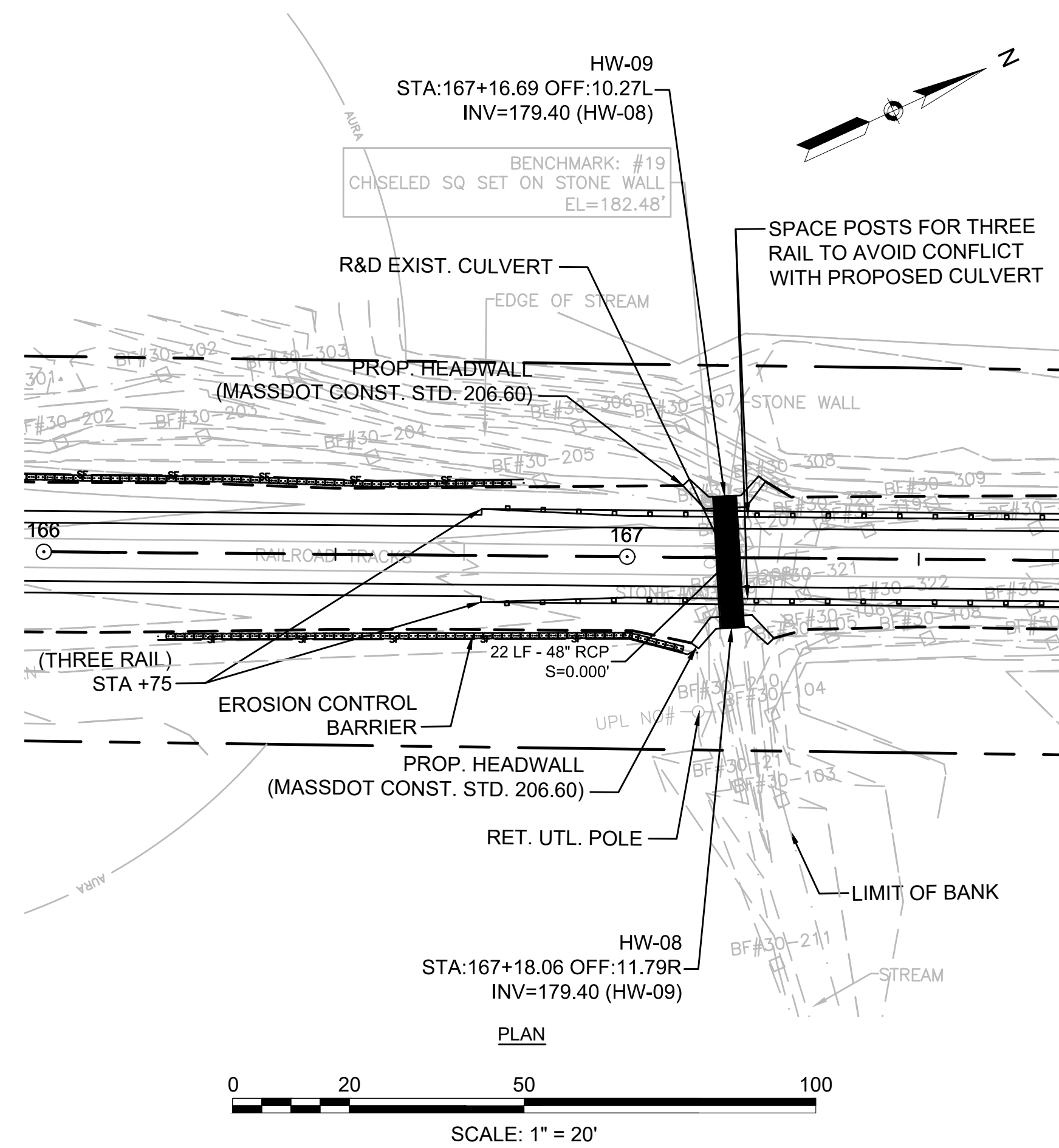
**38 HIGHWAY LIGHTING FIXTURE ARM**  
SCALE: N.T.S.



**NOTES**

1. DETAILS AND NOTES HEREON ARE GENERIC AND ARE INTENDED TO GIVE A GENERAL DESCRIPTION OF THE WALL.
2. SEE GRADING PLANS FOR WALL ELEVATIONS.
3. DETAILED WALL CONSTRUCTION PLANS, STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE COMMONWEALTH OF MASSACHUSETTS, SHALL BE SUBMITTED TO AND APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION.
4. MANUFACTURER'S USE OF TEMPORARY SHEETING SHALL BE FOR CONTRACTOR CONVENIENCE ONLY. ANY TEMPORARY SHEETING USED SHALL BE PAID FOR AT THE EXPENSE OF THE CONTRACTOR.
5. SEE CONTRACT SPECIAL PROVISIONS FOR WALL FINISHES, COLOR, AND WALL FACE TREATMENTS
6. LOW MODULAR BLOCK WALL TO BE DESIGNED BY THE CONTRACTOR AND SUBMITTED TO THE ENGINEER FOR APPROVAL. EXCAVATION AND REPLACEMENT OF ANY UNSUITABLE MATERIALS BELOW THE LOW MODULAR BLOCK WALL LIMITS AS DIRECTED BY THE ENGINEER, WILL BE MEASURED AND PAID FOR AS DEFINED IN SECTIONS 120, 140, AND 150.

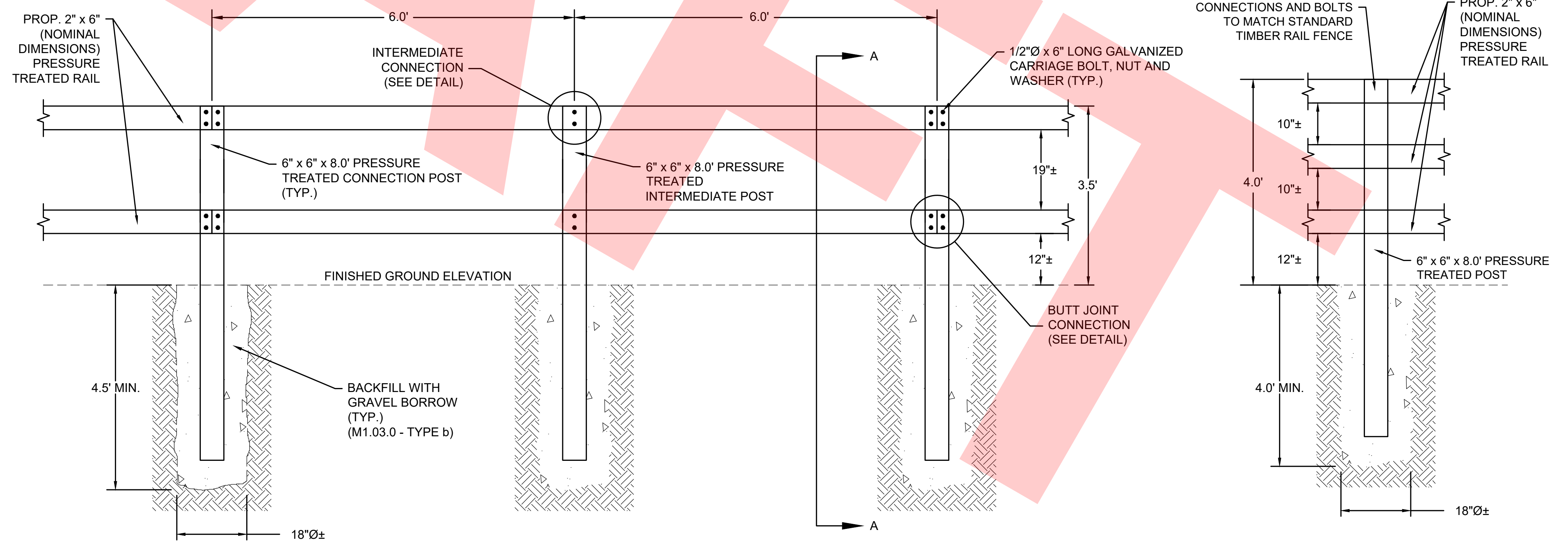
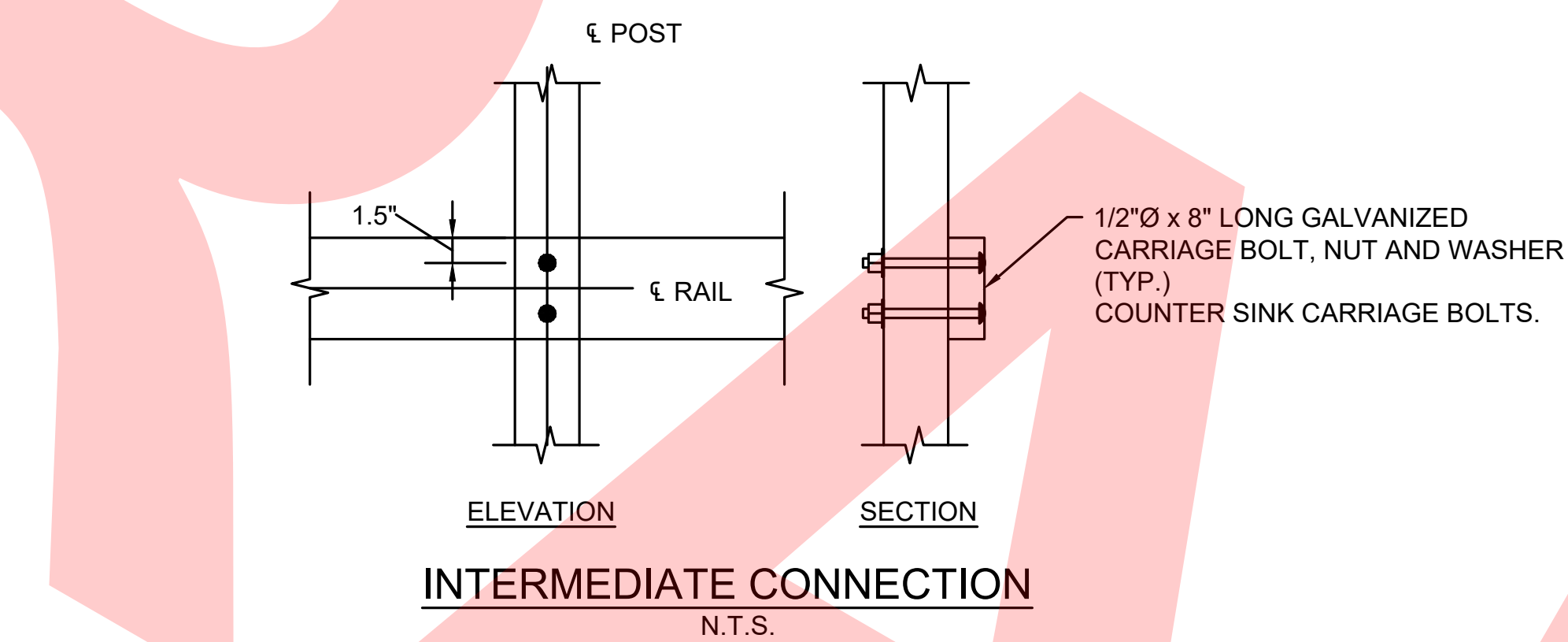
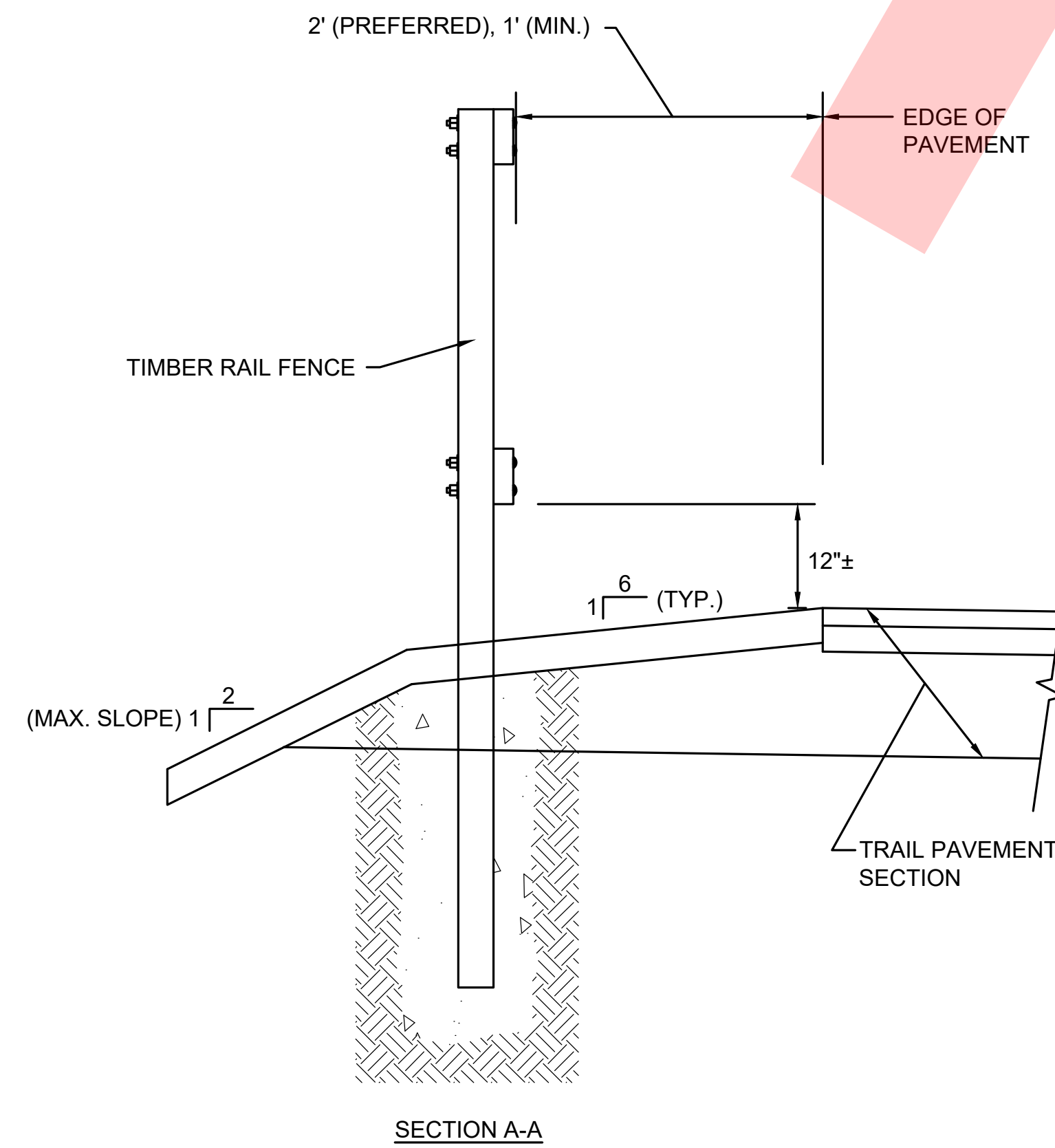
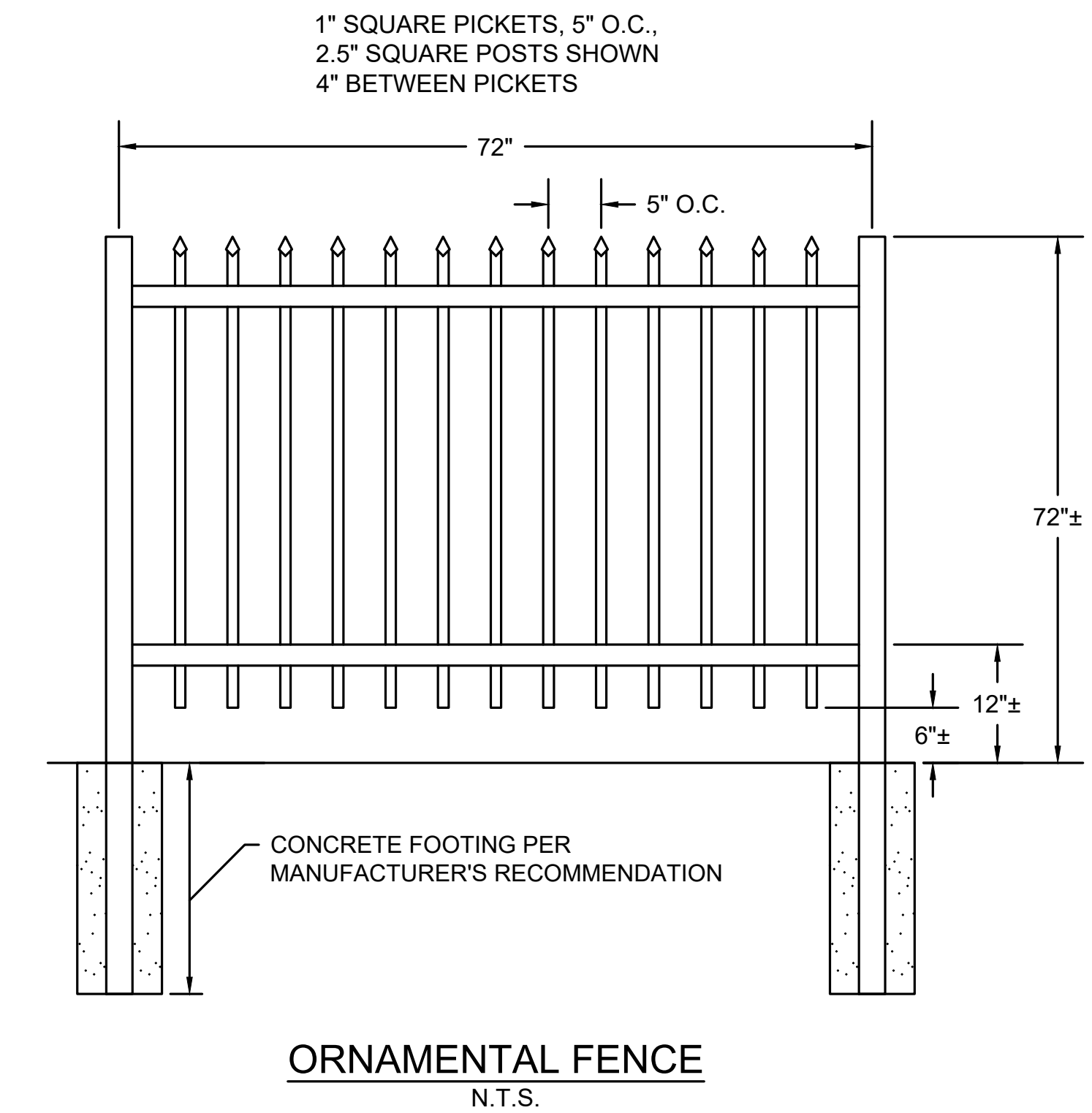
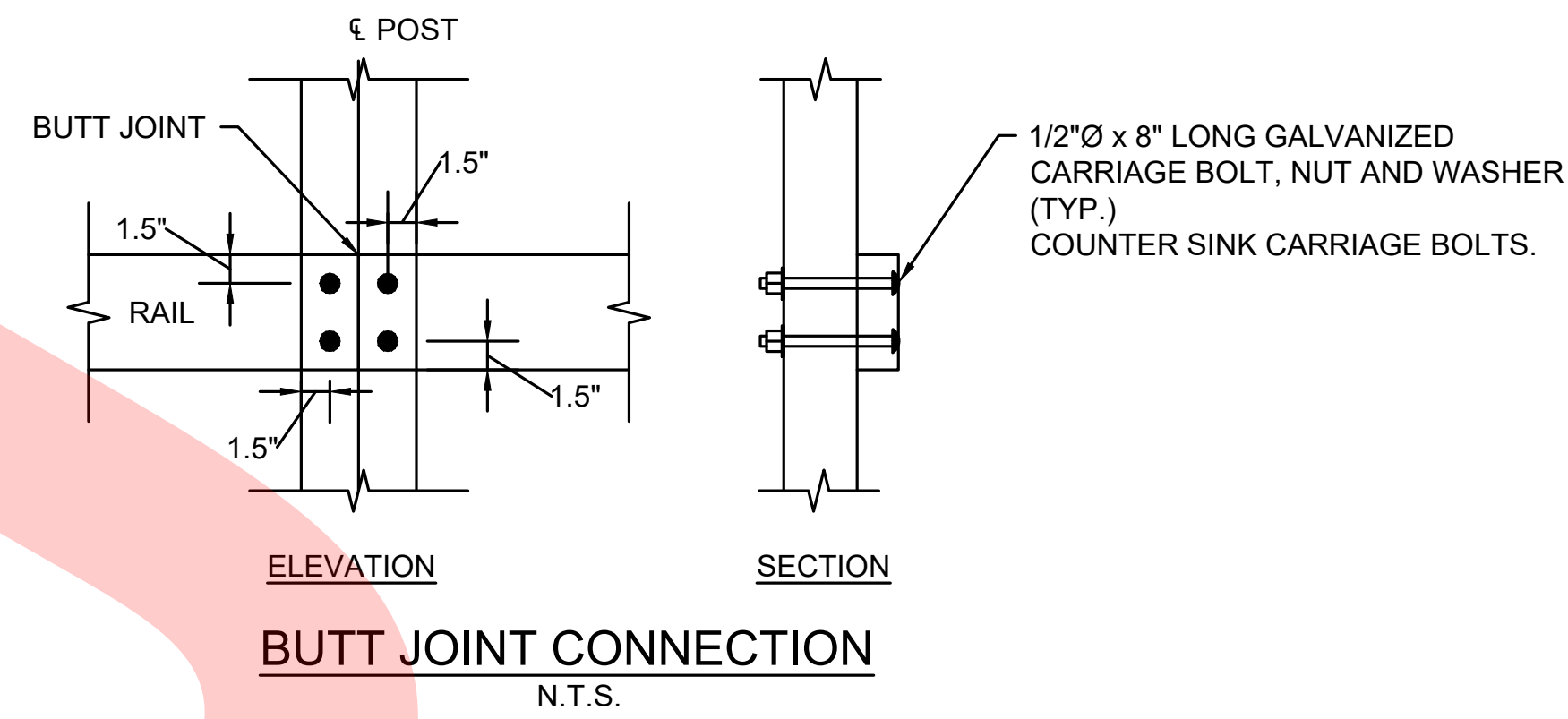
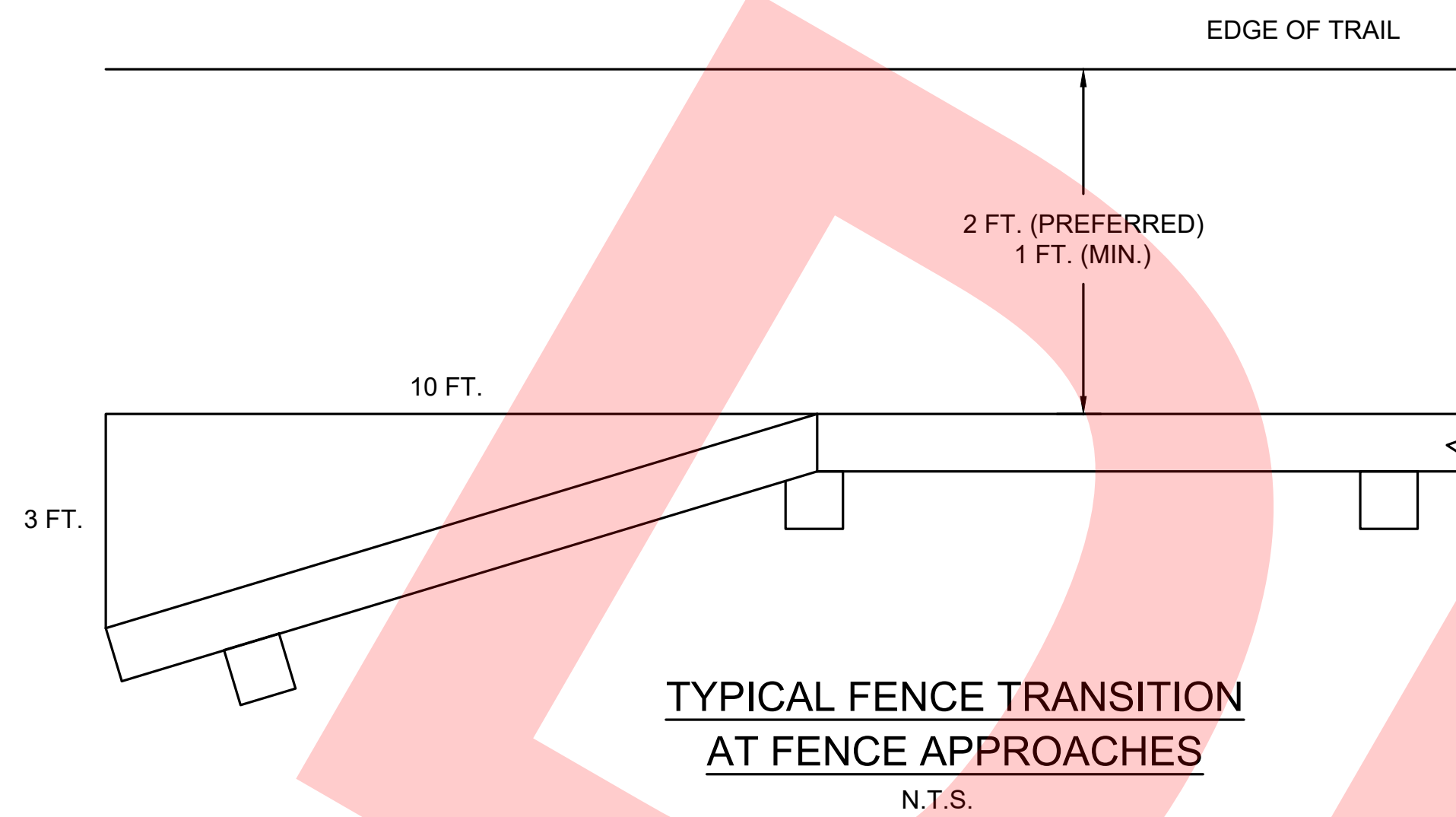
**39 MECHANICALLY STABILIZED EARTH WALL**  
SCALE: N.T.S.



(40) CONCRETE CULVERT REPLACEMENT - STA 167+17  
SCALE: AS NOTED

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	21	32
PROJECT FILE NO.		608164	

CONSTRUCTION DETAILS



**SUGGESTED TIMBER RAIL FENCE CONSTRUCTION SEQUENCE**

1. AUGER OR DIG POST HOLE TO REQUIRED DIMENSIONS.
2. BACKFILL BOTTOM 6"± OF HOLE WITH GRAVEL AND COMPACT THOROUGHLY.
3. SET POST AND HOLD PLUMB DURING BACKFILLING.
4. BACKFILL WITH GRAVEL IN 12" LIFTS. COMPACT EACH LIFT THOROUGHLY.
5. CLAMP RAILS TO POSTS AND FIELD DRILL BOLT HOLES.
6. SET BOLTS, WASHERS AND NUTS.
7. IF CCA PRESSURE TREATED LUMBER IS NOT READILY AVAILABLE AT THE TIME OF CONSTRUCTION OR IT IS DEEMED ENVIRONMENTALLY UNACCEPTABLE FOR COMMERCIAL USES BY THE EPA, USE ACQ PRESSURE TREATED LUMBER.

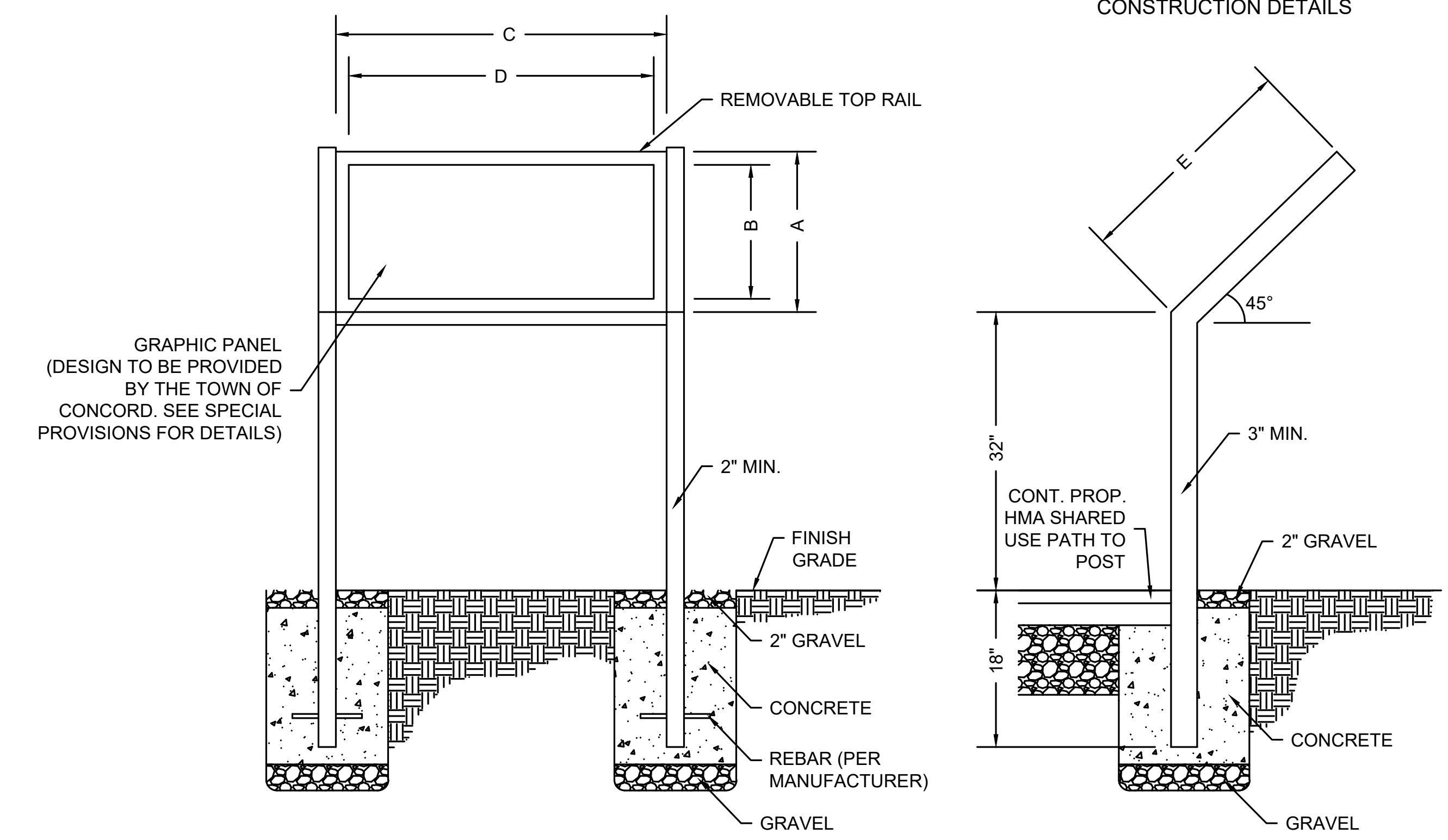
**TIMBER RAIL FENCE ELEVATION**  
N.T.S.  
SEE PLANS FOR LOCATIONS

NOTES:  
1. FOR RADII LESS THAN 165', USE CONNECTION POSTS SET AT 6.0' O.C. AND SHORTEN RAILS ACCORDINGLY.

**48" THREE-RAIL BOLTED  
TIMBER FENCE ELEVATION**  
N.T.S.

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	22	32
PROJECT FILE NO.		608164	

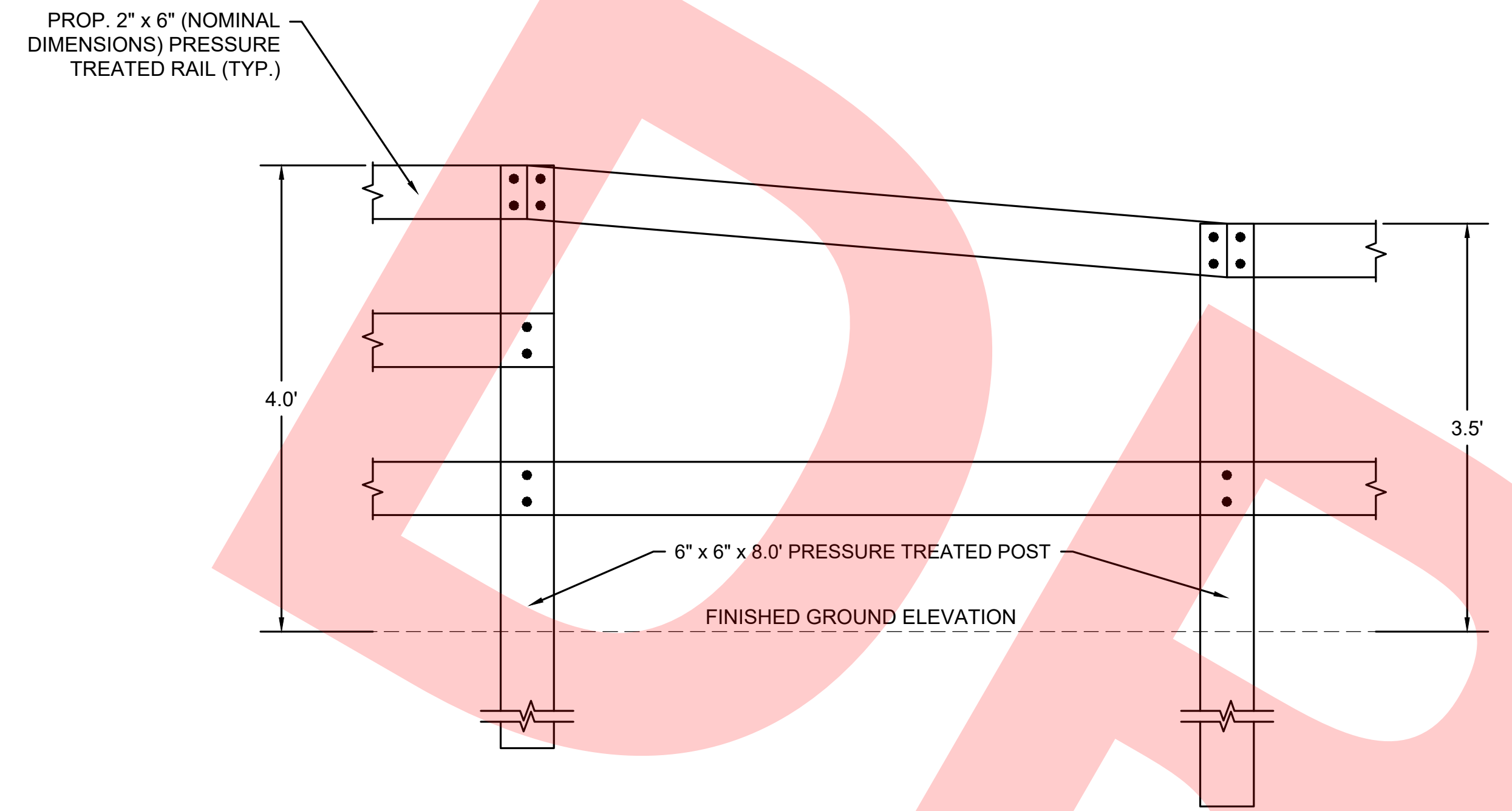
CONSTRUCTION DETAILS



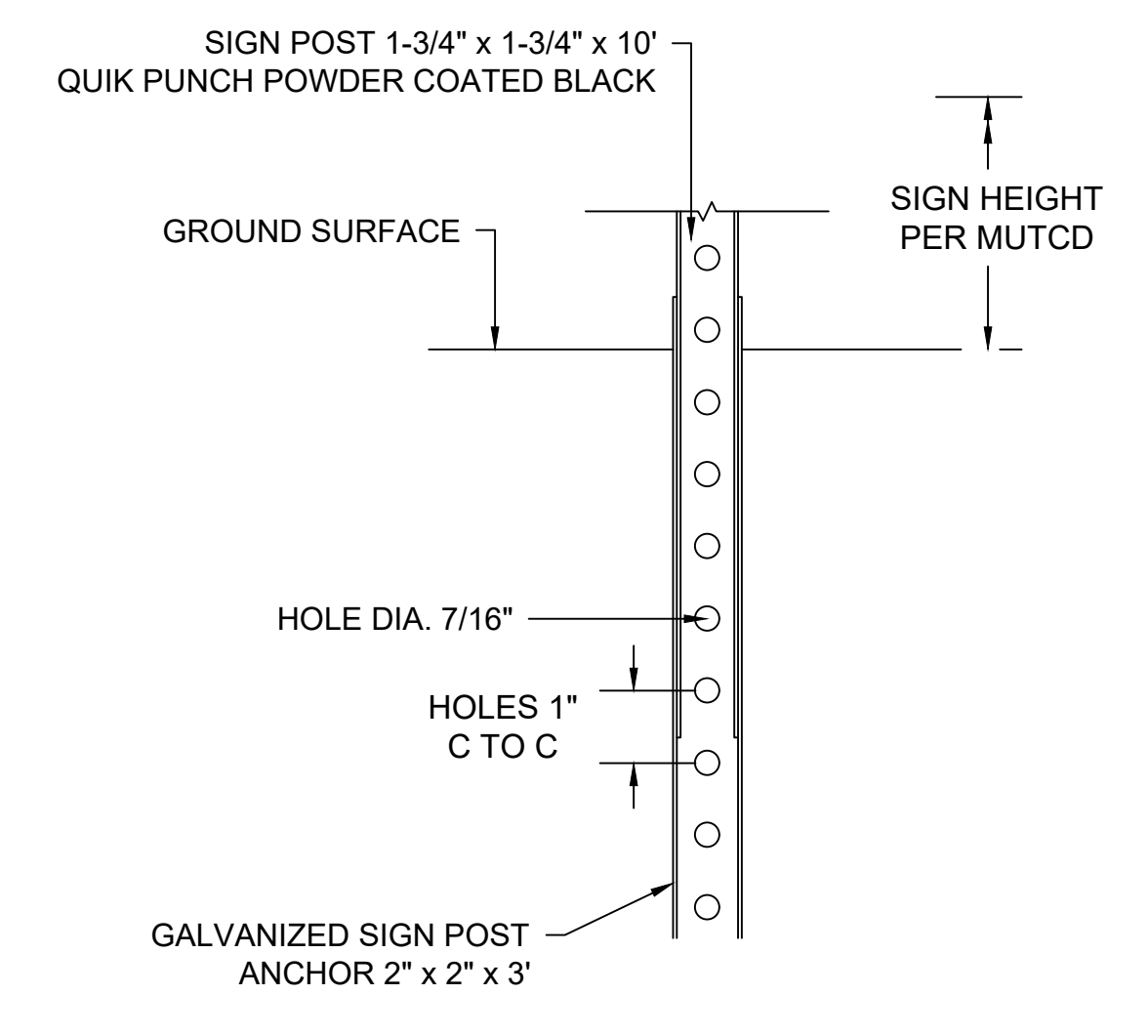
INTERPRETIVE SIGN

N.T.S.

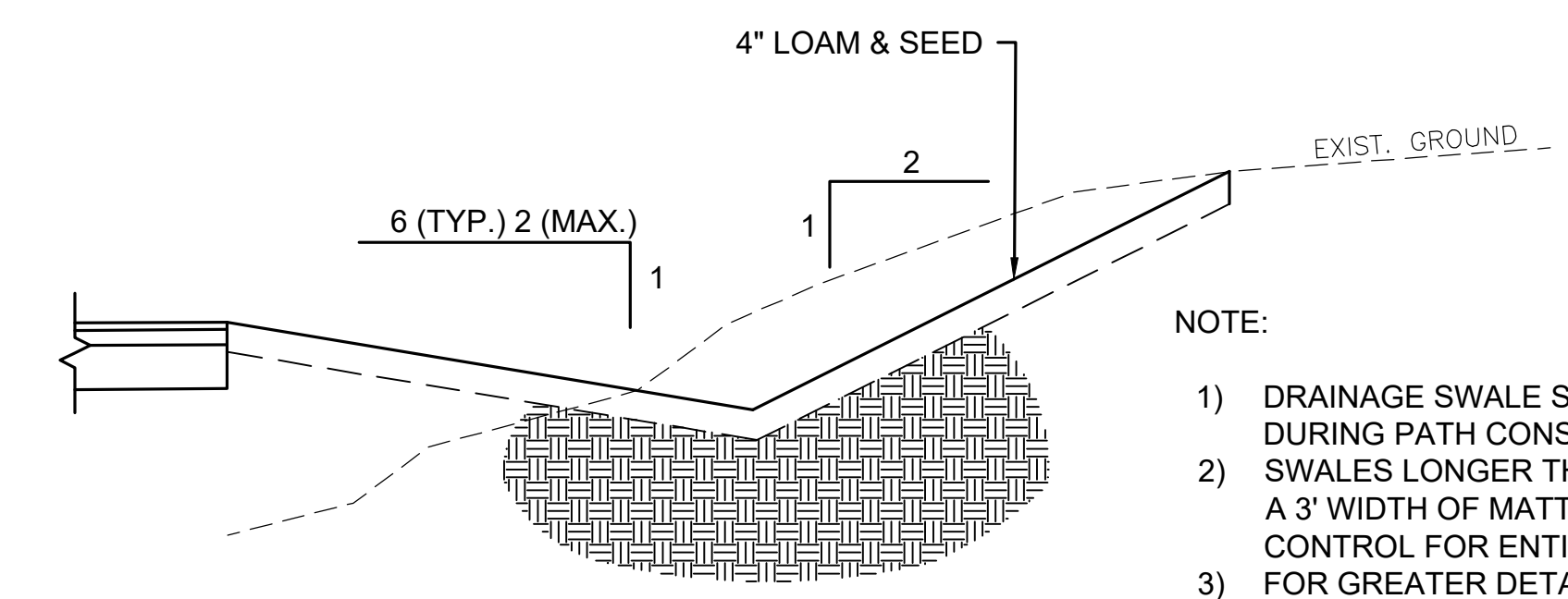
SIGN TYPE	HEIGHT		WIDTH		DEPTH
	A	B	C	D	
18" x 24"	18"	15"	24"	21"	18.5"
26" x 38"	26"	23"	38"	35"	26.5"



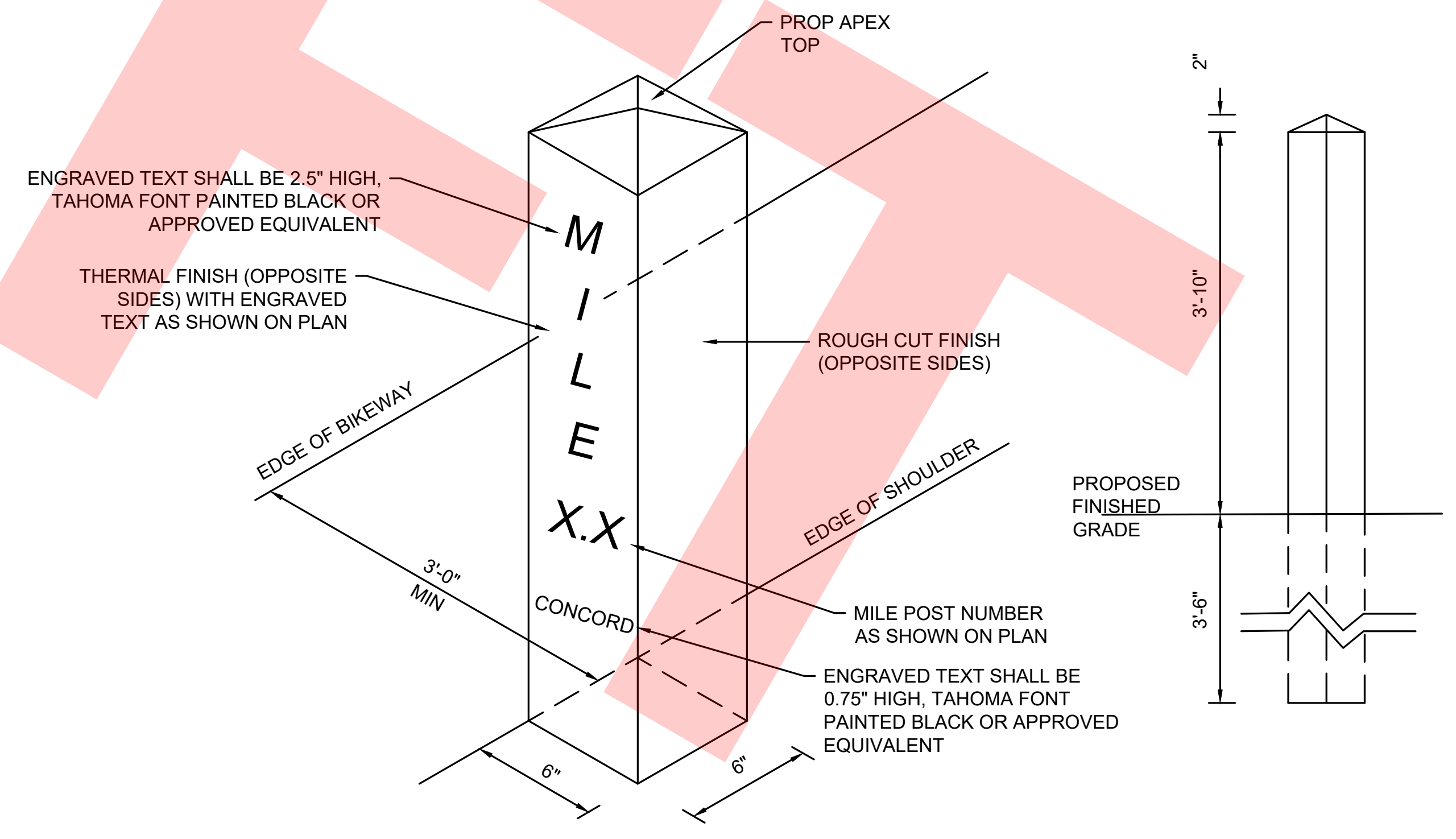
48" THREE-RAIL BOLTED TIMBER FENCE TRANSITION TO STANDARD TIMBER RAIL FENCE  
N.T.S.



CONCORD TOWN STANDARD  
P-5 TELESCOPIC POST  
N.T.S.

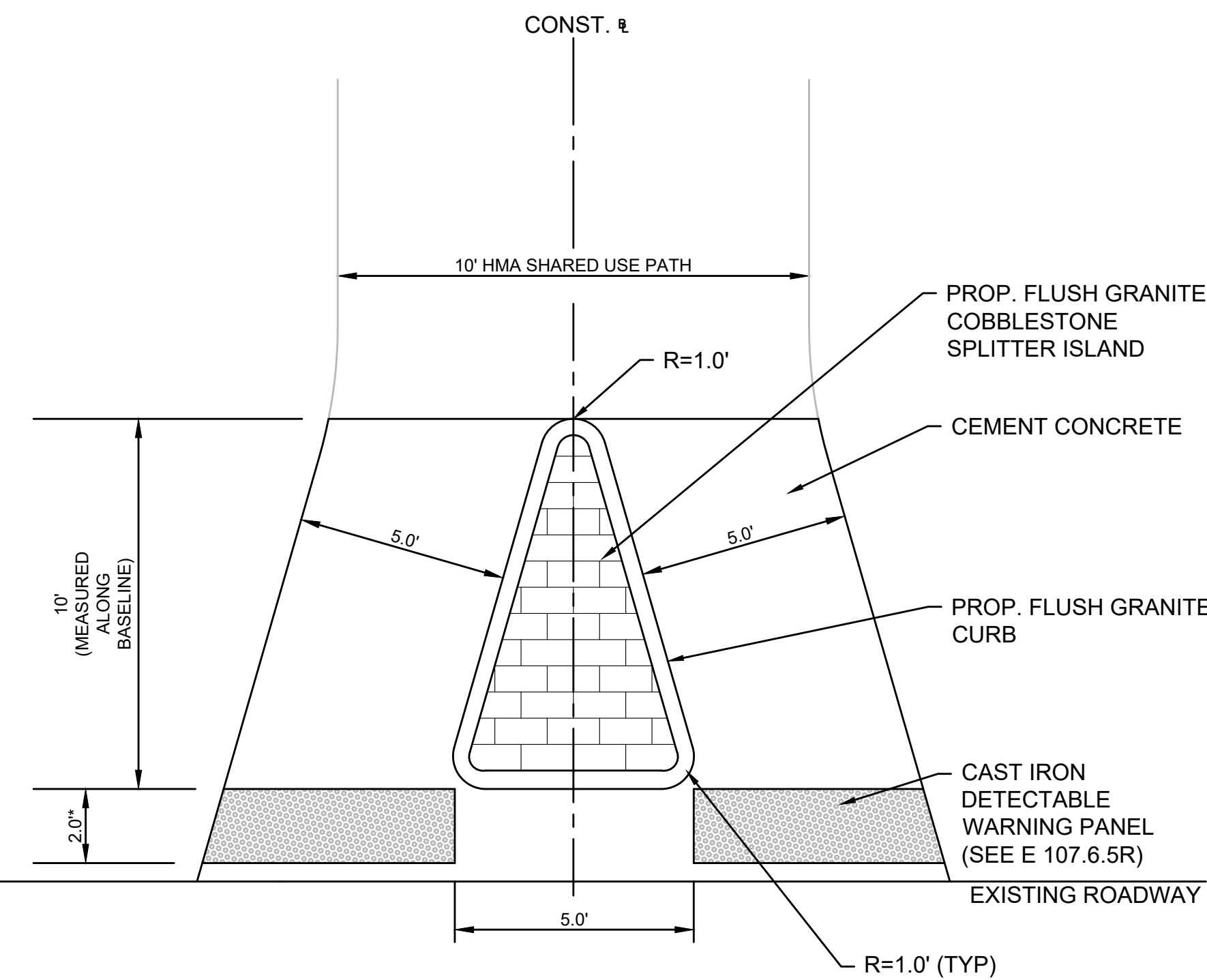


- NOTE:
- 1) DRAINAGE SWALE SHALL BE GRADED DURING PATH CONSTRUCTION.
  - 2) SWALES LONGER THAN 500' SHALL UTILIZE A 3' WIDTH OF MATTING FOR EROSION CONTROL FOR ENTIRE LENGTH (ITEM 767.9) FOR GREATER DETAIL REFER TO CROSS SECTIONS.
  - 3)



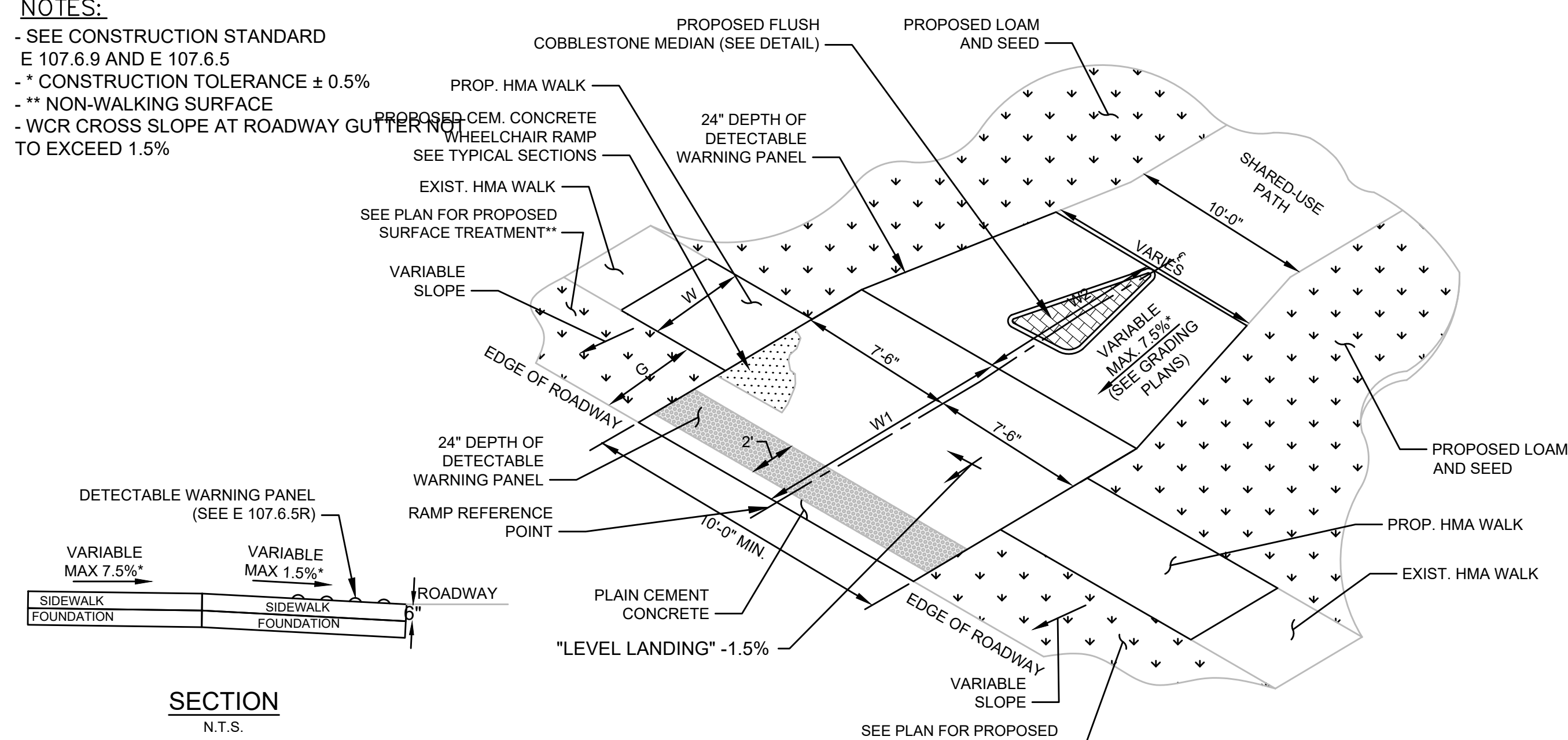
GRANITE MARKER  
N.T.S.

- NOTES:
- ALL RAMP ARE TO BE CONSTRUCTED WITH 6" THICKNESS OF CEMENT CONCRETE.
  - DETECTABLE WARNING PANELS SHALL BE MADE OF CAST IRON AND OTHERWISE CONFORM TO TOWN STANDARDS.



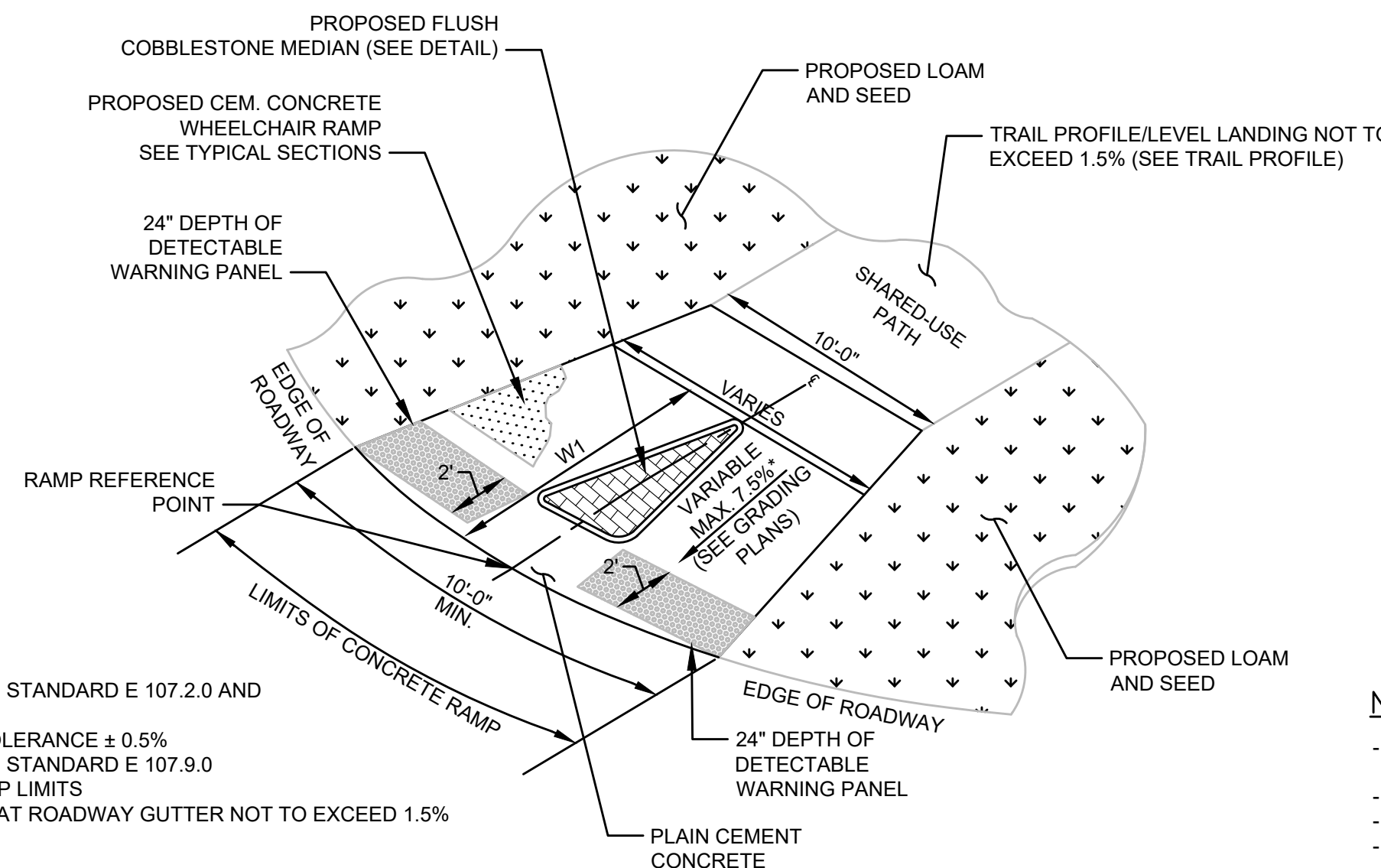
**CEMENT CONCRETE RAIL TRAIL ENTRANCE WITH SPLITTER ISLAND**  
N.T.S.

- NOTES:
- SEE CONSTRUCTION STANDARD E 107.6.9 AND E 107.6.5
  - \* CONSTRUCTION TOLERANCE ± 0.5%
  - \*\* NON-WALKING SURFACE
  - WCR CROSS SLOPE AT ROADWAY GUTTER NOT TO EXCEED 1.5%



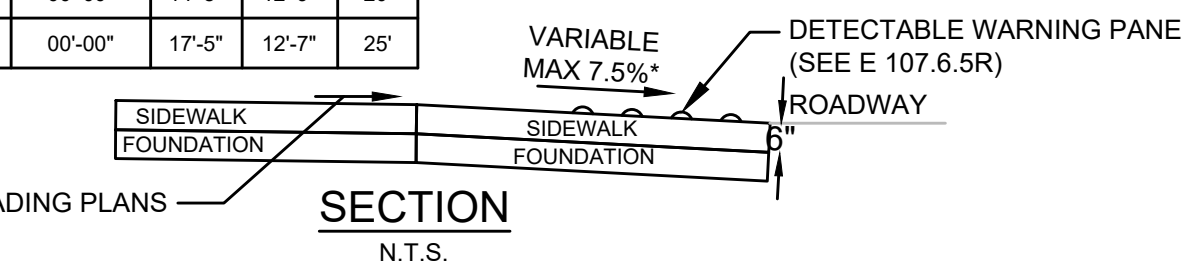
**TYPE C SHARED USE PATH  
ENTRANCE/EXIT RAMP**  
N.T.S.

WCR#	RAMP REFERENCE POINT		WIDTH OF SIDEWALK (W)	WIDTH OF BUFFER STRIP (G)	WIDTH OF RAMP ENTRANCE (10'-0" MIN.)	LENGTH OF PRIMARY RAMP (W1)	LENGTH OF SECONDARY RAMP (W2)
	STATION/ROADWAY	OFFSET					
C1	143+04.71 OLD LANCASTER RD.	00'-00"	4'-6"	4'-7"	15'-00"	11'-00"	10'-00"
C2	215+73.57 MORSE RD.	00'-00"	5'-0"	5'-6"	15'-11"	15'-9"	10'-00"
C3	307+48.47 NORTH RD.	00'-00"	8'-0"	4'-4"	15'-6"	19'-0"	10'-0"



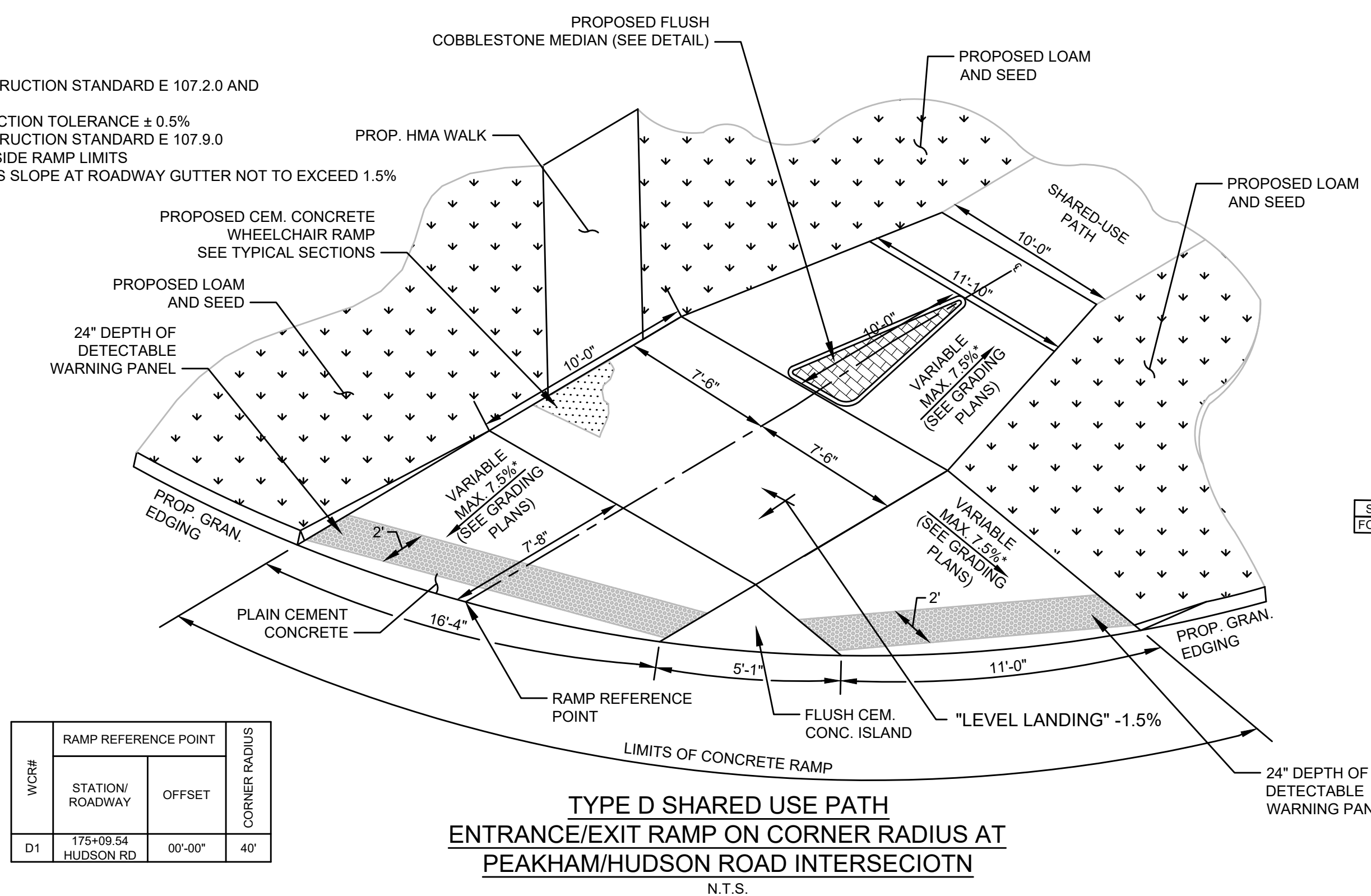
**TYPE A SHARED USE PATH  
ENTRANCE/EXIT RAMP ON CORNER RADIUS**  
N.T.S.

WCR#	RAMP REFERENCE POINT		WIDTH OF RAMP ENTRANCE (10'-0" MIN.)	LENGTH OF PRIMARY RAMP (W1)	CORNER RADIUS
	STATION/ROADWAY	OFFSET			
A1	108+59.82 UNION AVE.	00'-00"	14'-8"	12'-9"	20'
A2	175+53.03 HUDSON RD.	00'-00"	17'-5"	12'-7"	25'



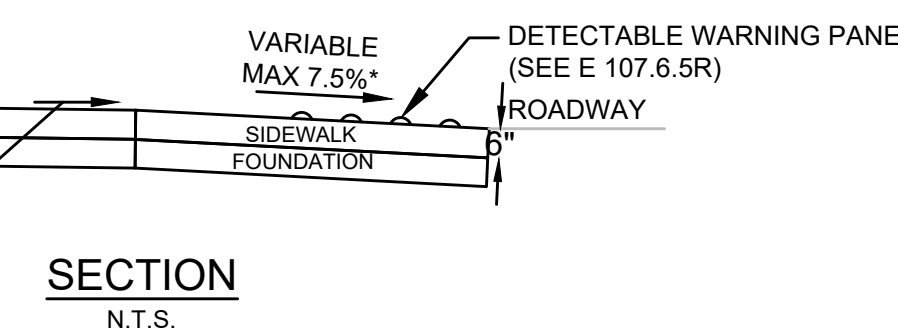
**SECTION**  
N.T.S.

- NOTES:
- SEE CONSTRUCTION STANDARD E 107.2.0 AND E 107.6.5
  - \* CONSTRUCTION TOLERANCE ± 0.5%
  - SEE CONSTRUCTION STANDARD E 107.9.0
  - PC/PT OUTSIDE RAMP LIMITS
  - WCR CROSS SLOPE AT ROADWAY GUTTER NOT TO EXCEED 1.5%



**TYPE D SHARED USE PATH  
ENTRANCE/EXIT RAMP ON CORNER RADIUS AT  
PEAKHAM/HUDSON ROAD INTERSECIOTN**  
N.T.S.

WCR#	RAMP REFERENCE POINT		CORNER RADIUS
	STATION/ROADWAY	OFFSET	
D1	175+09.54 HUDSON RD	00'-00"	40'



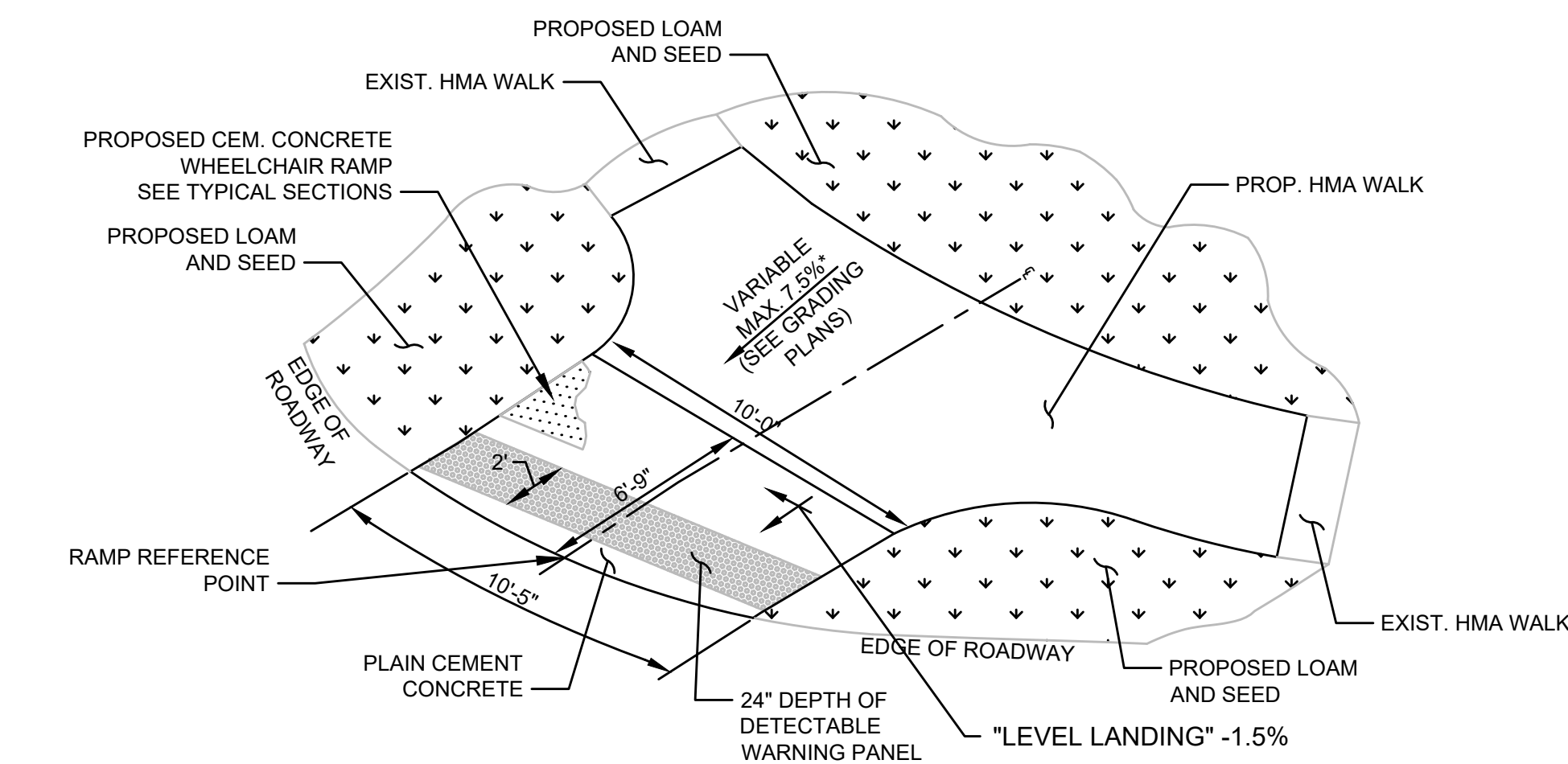
**SECTION**  
N.T.S.

- NOTES:
- SEE CONSTRUCTION STANDARD E 107.2.0 AND E 107.6.5
  - \* CONSTRUCTION TOLERANCE ± 0.5%
  - SEE CONSTRUCTION STANDARD E 107.9.0
  - PC/PT OUTSIDE RAMP LIMITS
  - WCR CROSS SLOPE AT ROADWAY GUTTER NOT TO EXCEED 1.5%

WCR#	RAMP REFERENCE POINT		WIDTH OF RAMP ENTRANCE (10'-0" MIN.)	LENGTH OF PRIMARY RAMP (W1)
	STATION/ROADWAY	OFFSET		
B1	108+53.74 UNION AVE.	00'-00"	16'-5"	12'-7"
B2	115+96.13 CODJER LN.	00'-00"	16'-6"	12'-8"
B3	116+20.92 CODJER LN.	00'-00"	16'-6"	12'-8"
B4	142+82.00 OLD LANCASTER RD.	00'-00"	16'-2"	12'-7"
B5	215+94.04 MORSE RD.	00'-00"	17'-0"	12'-7"
B6	274+94.44 HAYNES RD.	00'-00"	16'-00"	12'-3"
B7	307+74.46 NORTH RD.	00'-00"	16'-6"	12'-7"

**TYPE B SHARED USE PATH  
ENTRANCE/EXIT RAMP**  
N.T.S.

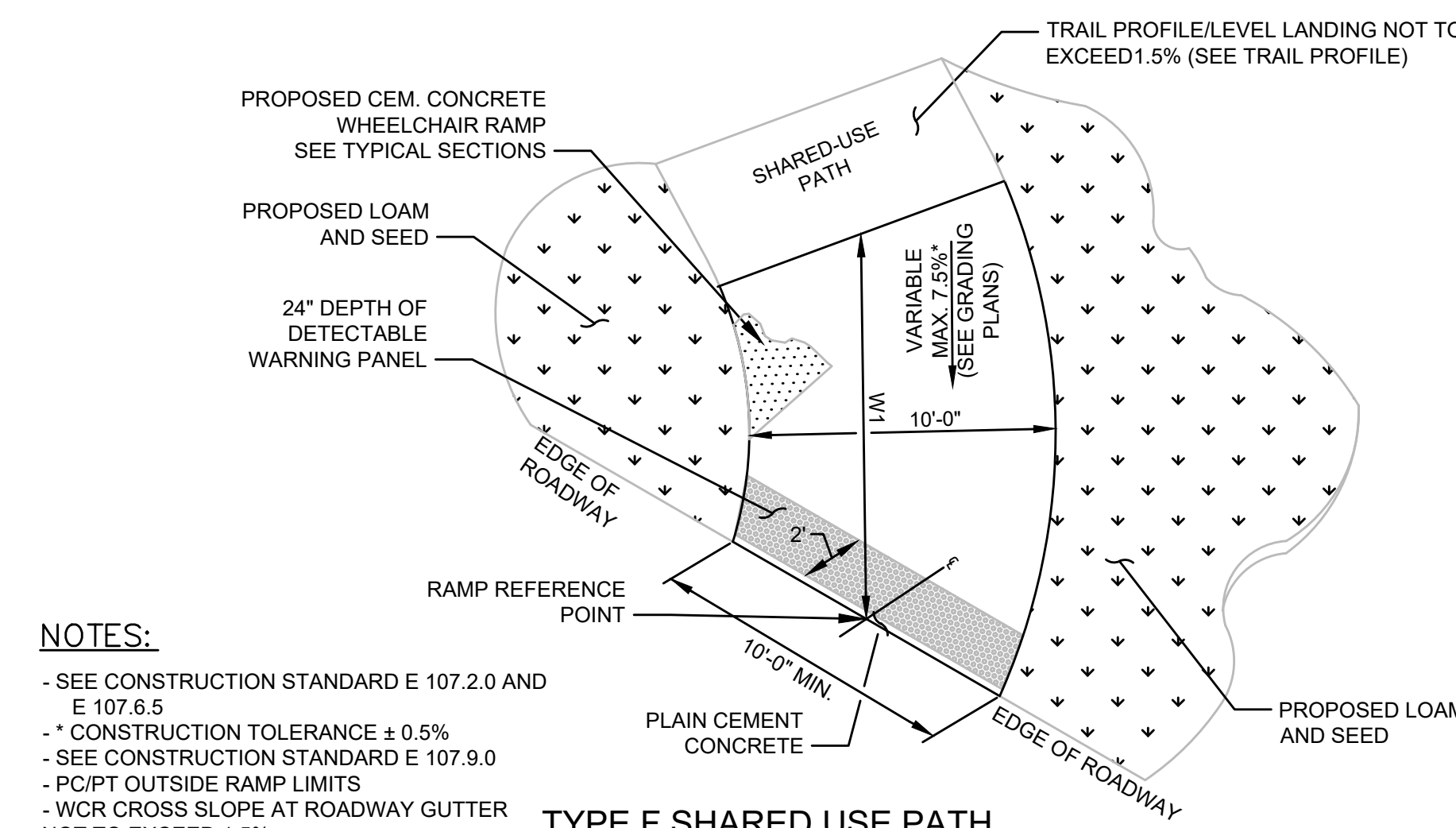
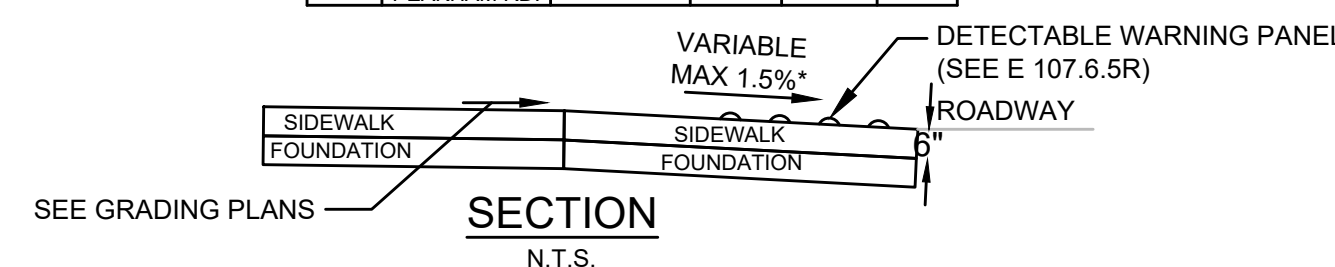
- NOTES:
- ALL RAMPS ARE TO BE CONSTRUCTED WITH 6" THICKNESS OF CEMENT CONCRETE.
  - DETECTABLE WARNING PANELS SHALL BE MADE OF CAST IRON AND OTHERWISE CONFORM TO TOWN STANDARDS.



- NOTES:
- SEE CONSTRUCTION STANDARD E 107.2.0 AND E 107.6.5
  - \* CONSTRUCTION TOLERANCE ± 0.5%
  - \*\* CONSTRUCTION STANDARD E 107.9.0
  - PC/PT OUTSIDE RAMP LIMITS
  - WCR CROSS SLOPE AT ROADWAY GUTTER NOT TO EXCEED 1.5%

**TYPE E WHEELCHAIR RAMP  
ON CORNER RADIUS AT  
PEAKHAM/HUDSON ROAD INTERSECTION**  
N.T.S.

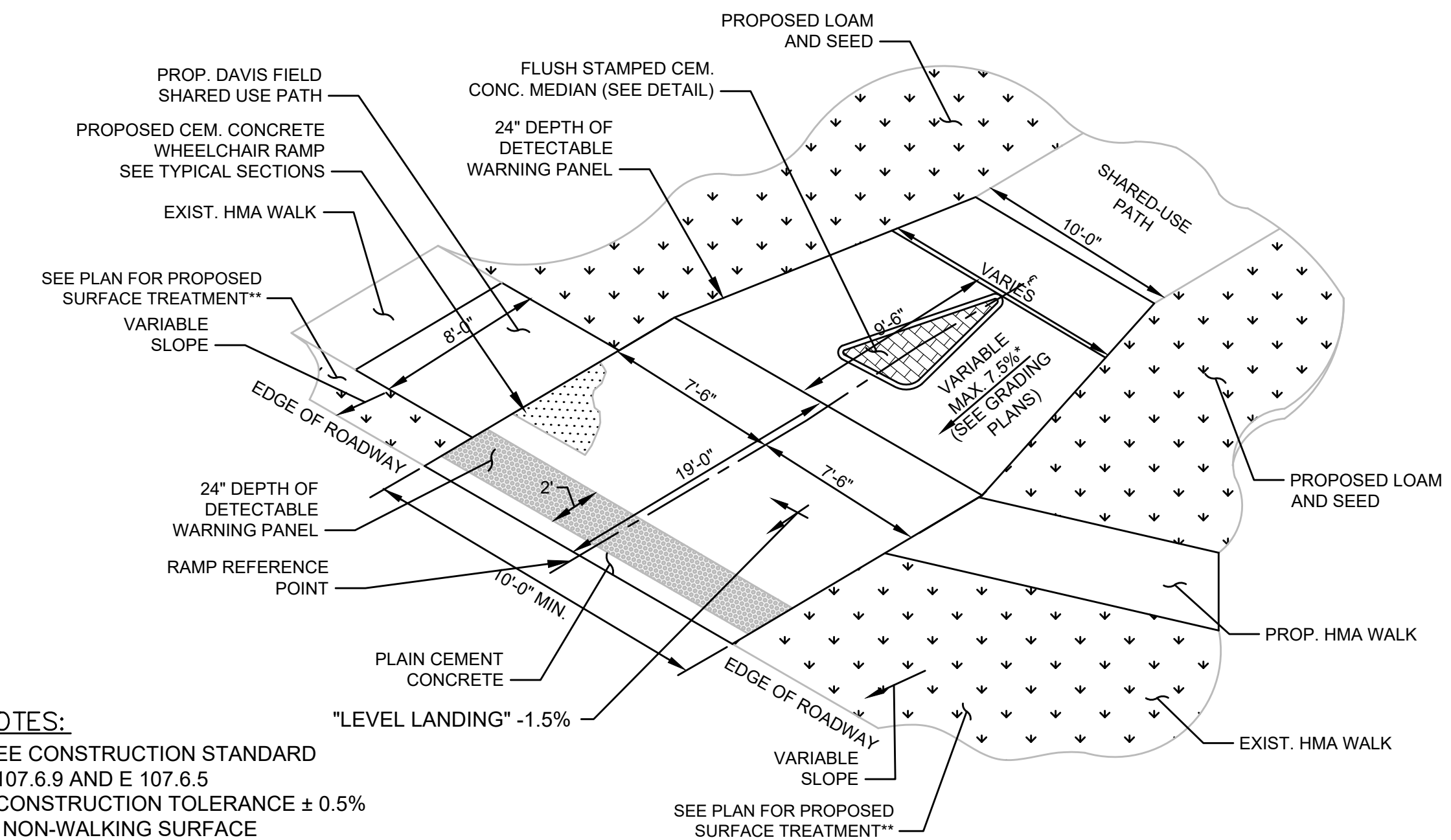
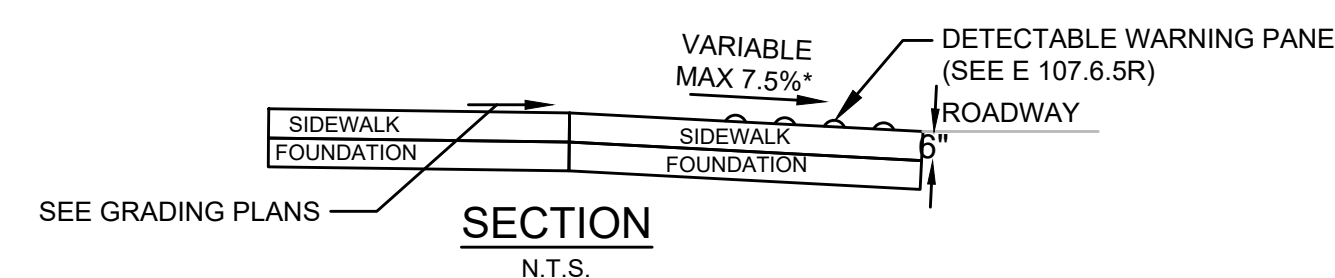
WCR#	STATION/ ROADWAY	OFFSET	WIDTH OF RAMP ENTRANCE (10'-0" MIN.)	LENGTH OF RAMP (10'-0" MIN.)	CORNER RADIUS
E1	601+76.54 PEAKHAM RD.	20.43'	10'-5"	6'-10"	40'



- NOTES:
- SEE CONSTRUCTION STANDARD E 107.2.0 AND E 107.6.5
  - \* CONSTRUCTION TOLERANCE ± 0.5%
  - \*\* CONSTRUCTION STANDARD E 107.9.0
  - PC/PT OUTSIDE RAMP LIMITS
  - WCR CROSS SLOPE AT ROADWAY GUTTER NOT TO EXCEED 1.5%

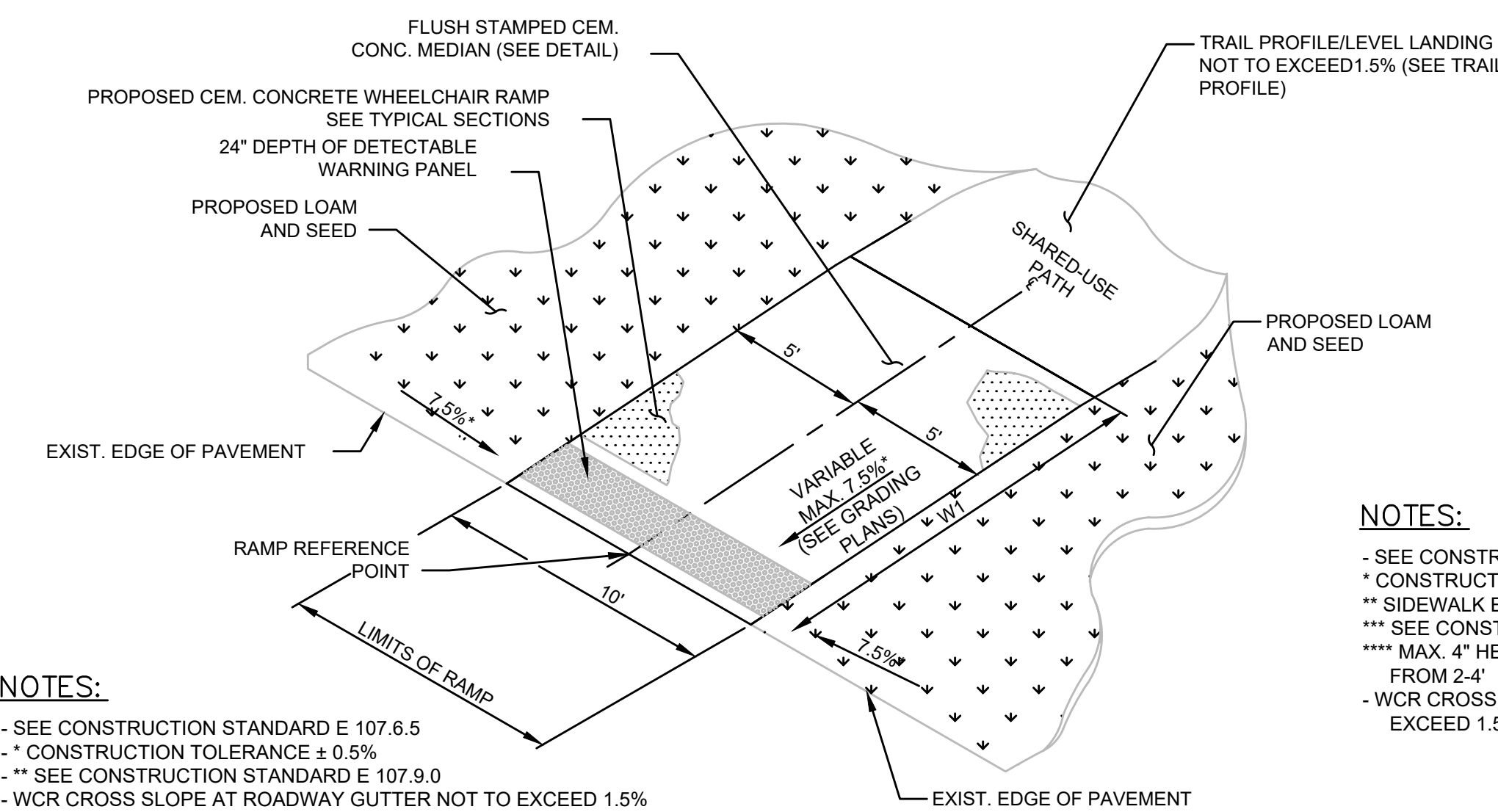
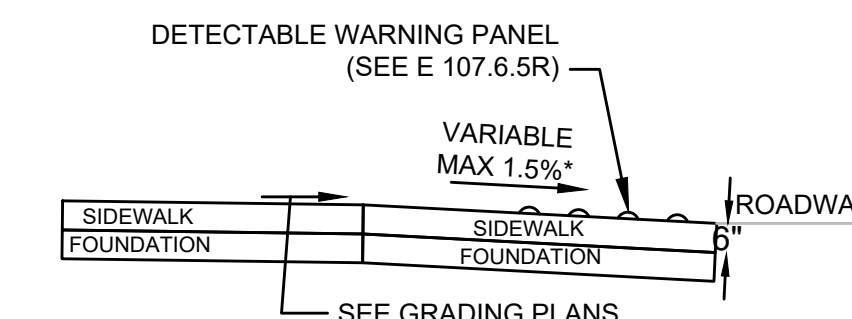
**TYPE F SHARED USE PATH  
ENTRANCE/EXIT RAMP**  
N.T.S.

WCR#	STATION/ ROADWAY	OFFSET	WIDTH OF RAMP ENTRANCE (10'-0" MIN.)	LENGTH OF PRIMARY RAMP (10'-0" MIN.)
F1	284+33.98 PANTRY RD	00'-00"	10'-0"	15'-11"
F2	284+61.04 PANTRY RD	00'-00"	10'-0"	15'-7"



- NOTES:
- SEE CONSTRUCTION STANDARD E 107.6.9 AND E 107.6.5
  - \* CONSTRUCTION TOLERANCE ± 0.5%
  - \*\* NON-WALKING SURFACE
  - WCR CROSS SLOPE AT ROADWAY GUTTER NOT TO EXCEED 1.5%

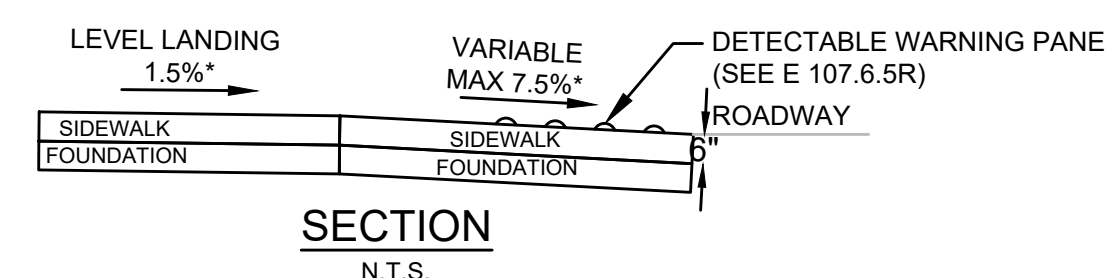
**TYPE G SHARED USE PATH  
ENTRANCE/EXIT RAMP AT NORTH ROAD  
STA. 307+48**  
N.T.S.



- NOTES:
- SEE CONSTRUCTION STANDARD E 107.6.5
  - \* CONSTRUCTION TOLERANCE ± 0.5%
  - \*\* SEE CONSTRUCTION STANDARD E 107.9.0
  - WCR CROSS SLOPE AT ROADWAY GUTTER NOT TO EXCEED 1.5%

**TYPE H WHEELCHAIR RAMP  
SHARED-USE PATH ENTRANCE/EXIT**  
N.T.S.

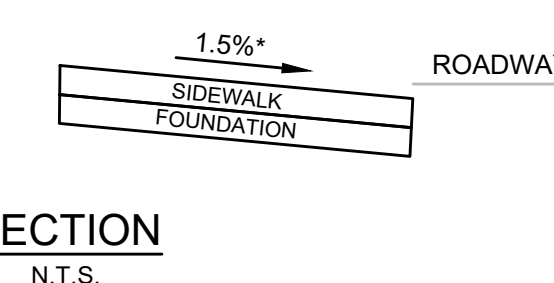
WCR#	STATION/ ROADWAY	OFFSET	WIDTH OF RAMP ENTRANCE (10'-0" MIN.)	LENGTH OF PRIMARY RAMP (10'-0" MIN.)
H1	1000+80.00 PARKINSON'S LOT	00'-00"	10'-0"	5'-0"
H2	216+60.31 BROADACRES FARM	51'-94"	10'-0"	6'-6"
H3	320+20.22 FAIRVIEW FARMS DRIVEWAY	00'-00"	10'-0"	10'-0"
H4	320+40.01 FAIRVIEW FARMS DRIVEWAY	00'-00"	10'-0"	10'-0"
H5	1107+63.72 DAVIS FIELD	00'-00"	10'-0"	11'-3"
H6	216+60.31 BROADACRES FARM	118'-43"	10'-0"	6'-0"



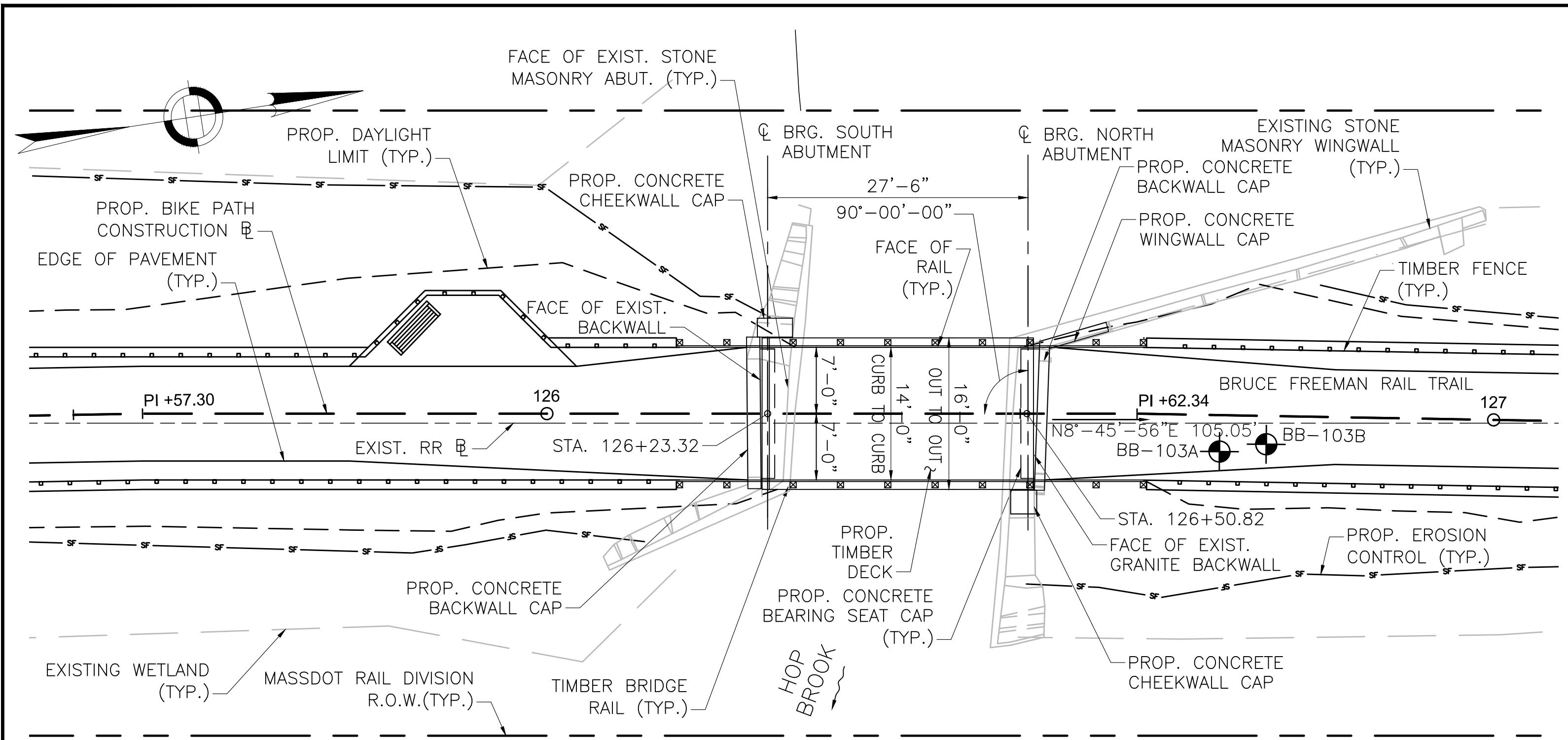
- NOTES:
- SEE CONSTRUCTION STANDARD E 107.8.0
  - \* CONSTRUCTION TOLERANCE ± 0.5%
  - \*\* SIDEWALK ENDS
  - \*\*\* SEE CONSTRUCTION STANDARD E 107.9.0
  - \*\*\*\* MAX. 4" HEIGHT OF DR. RAMP FOR WIDTHS OF RAMPS FROM 2'-4"
  - WCR CROSS SLOPE AT ROADWAY GUTTER NOT TO EXCEED 1.5%

**TYPE I WHEELCHAIR RAMP  
SHARED-USE PATH ENTRANCE/EXIT AT DAVIS FIELD PARKING LOT**  
N.T.S.

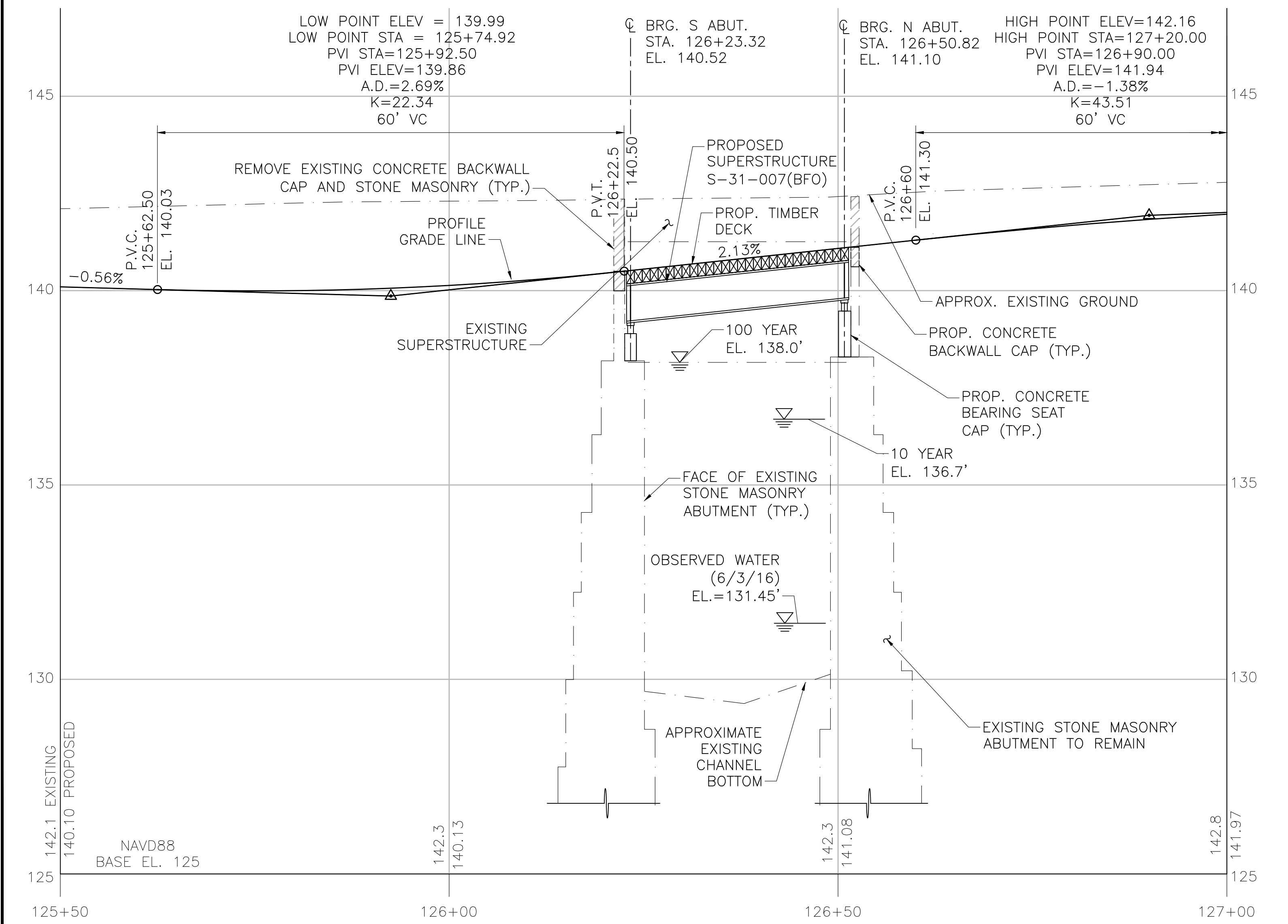
WCR#	DRIVEWAY REFERENCE POINT STATION/ ROADWAY	OFFSET
I-1	1105+91.63 DAVIS FIELD	4.00' LT



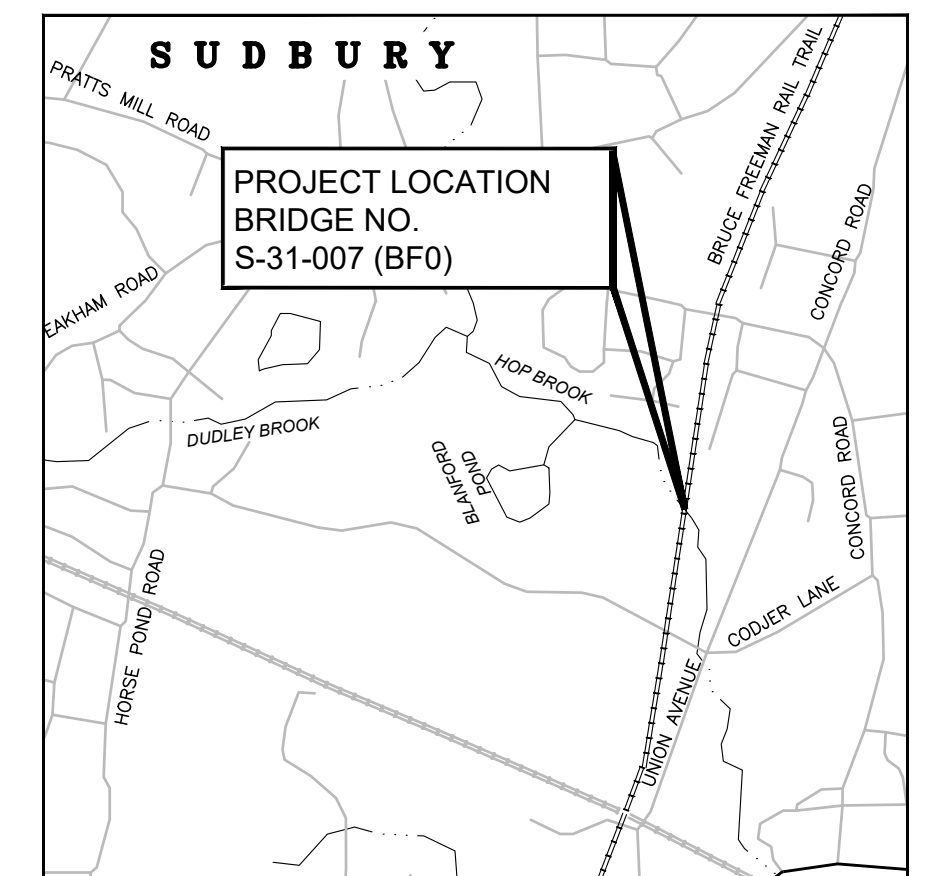




**KEY PLAN**  
SCALE: 1" = 10'-0"



**PROFILE ALONG BIKE PATH**  
HORIZONTAL SCALE: 1" = 10'-0"  
VERTICAL SCALE: 1" = 2'-0"



**LOCUS PLAN**  
SCALE: 1" = 1200'

**SUDBURY**  
**BIKE PATH OVER HOP BROOK**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	221	318
PROJECT FILE NO.		608164	

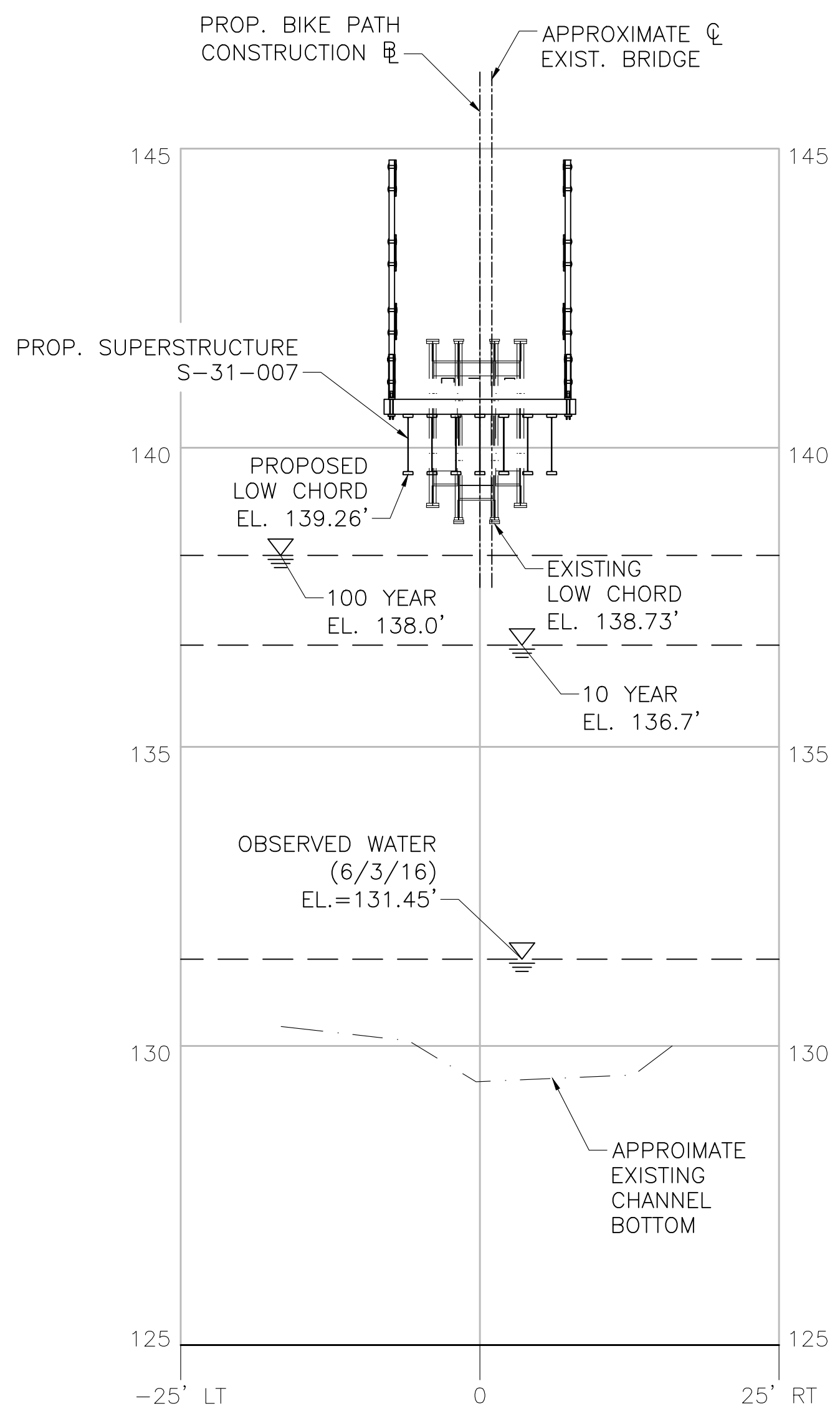
**KEY PLAN & PROFILE**

**ESTIMATED QUANTITIES:**  
(NOT GUARANTEED)

ITEM:	QUANTITY:
DEMOLITION OF SUPERSTRUCTURE OF BRIDGE NO. S-31-007	1 LS
REINFORCED CONCRETE EXCAVATION	3 CY
BRIDGE EXCAVATION	5 CY
CLASS B ROCK EXCAVATION	5 CY
GRAVEL BORROW FOR BACKFILLING STRUCTURES AND PIPES	2 CY
STONE MASONRY WALL REMOVED AND REBUILT IN CEMENT MORTAR	6 CY
MASONRY REPOINTING	65 SY
CONTROL OF WATER - STRUCTURE NO. S-31-007	1 LS
BRIDGE SUPERSTRUCTURE, BRIDGE NO. S-31-007	1 LS

**INDEX**

SHEET NO.	DESCRIPTION
1	KEY PLAN AND PROFILE
2	GENERAL NOTES
3	BORING LOGS
4	GENERAL PLAN AND ELEVATION
5	ABUTMENT REMOVAL PLANS AND ELEVATIONS
6	SOUTH ABUTMENT PLAN AND ELEVATION
7	NORTH ABUTMENT PLAN AND ELEVATION
8	SUBSTRUCTURE DETAILS
9	BEARING DETAILS
10	FRAMING PLAN AND STRUCTURAL STEEL DETAILS
11	DECK DETAILS AND TYPICAL SECTION
12	TIMBER BRIDGE RAIL DETAILS



**PROFILE ALONG HOP BROOK**  
HORIZONTAL SCALE: 1" = 10'-0"  
VERTICAL SCALE: 1" = 2'-0"

P.E. STAMP SIGNATURE   <b>FUSS &amp; O'NEILL</b> 1550 MAIN STREET, SUITE 400 SPRINGFIELD, MA 01103 413.452.0445 www.fando.com	MONTH DD, YYYY ISSUED FOR CONSTRUCTION
	 <b>PROPOSED SUPERSTRUCTURE REPLACEMENT SUDBURY</b> <b>PROPOSED BIKE PATH OVER HOP BROOK</b> MASSACHUSETTS DEPARTMENT OF TRANSPORTATION HIGHWAY DIVISION 10 PARK PLAZA BOSTON, MASS
TITLE:	CHIEF ENGINEER

608164\_BR(S-31-007)(FIRST SHEET).DWG Plotted on 12-May-2021 9:29 AM Xxxxx Structural Submittal (S) DD-Month-YYYY

**SUDBURY  
BIKE PATH OVER HOP BROOK**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	222	318
PROJECT FILE NO.		608164	

**GENERAL NOTES**

**GENERAL NOTES:**

**DESIGN:**

IN ACCORDANCE WITH THE 2020 AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS LRFD BRIDGE DESIGN SPECIFICATIONS WITH CURRENT INTERIM SPECIFICATIONS THROUGH 2021 FOR H-10 VEHICULAR AND 90 PSF PEDESTRIAN LOADINGS.

**MASSDOT BENCH MARK:**

BM #5 CHISEL SQUARE FOUND  
FEMA RM 6-1  
ELEV. = 141.73'

ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988.

**SURVEY NOTEBOOKS:**

SURVEY PERFORMED BY VANASSE HANGEN BRUSTLIN, INC FIELD NOTEBOOKS SHALL BE OBTAINED FROM FUSS AND O'NEILL, INC. SPRINGFIELD, MA.

**SCALES:**

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

**UNSUITABLE MATERIAL:**

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

**DIMENSIONS:**

ALL DIMENSIONS SHOWN ON PLANS ARE FOR STRUCTURES AT 68' F, UNLESS OTHERWISE NOTED.

**EXISTING CONSTRUCTION:**

DIMENSIONS SHOWN ARE TAKEN FROM SURVEY, VARIOUS FIELD MEASUREMENTS, AND GEOTECHNICAL EXPLORATION AND ARE NOT GUARANTEED. THE CONTRACTOR SHALL DETERMINE AND ESTABLISH ALL DIMENSIONS AND DETAILS NECESSARY FOR COMPLETION OF ALL WORK BY FIELD MEASUREMENT AND SURVEY. THE CONTRACTOR SHALL BE RESPONSIBLE AND NOT ORDER ANY MATERIAL OR COMMENCE ANY FABRICATION UNTIL HE HAS MADE THE REQUIRED MEASUREMENTS ON THE ACTUAL STRUCTURE AND THE EXTENT OF THE PROPOSED WORK HAS BEEN APPROVED BY THE ENGINEER.

**GEOTECHNICAL REPORT:**

REFER TO GEOTECHNICAL REPORT DATED APRIL 24, 2020 BY JACOBS ENGINEERING GROUP, INC.

**HYDRAULIC REPORT:**

REFER TO HOP BROOK MEMORANDUM DATED APRIL 20, 2020 BY JACOBS ENGINEERING GROUP, INC.

**TIMBER:**

ALL STRUCTURAL TIMBER FOR DECKING SHALL BE MIXED SOUTHERN PINE GRADE 1 OR APPROVED EQUAL.

**CONCRETE:**

ALL CONCRETE SHALL BE 4,000 HP CONCRETE.

**REINFORCEMENT:**

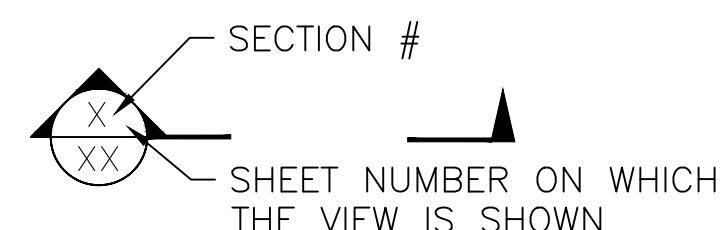
REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 31 GRADE 60. UNLESS OTHERWISE NOTED ON THE CONSTRUCTION DRAWINGS, ALL BARS SHALL BE LAPPED AS FOLLOWS:

MODIFICATION CONDITION	#4 BARS	#5 BARS	#6 BARS
1. NONE	16"	19"	23"
2. 12" OF CONCRETE BELOW BAR	20"	25"	30"
3. EPOXY COATED BARS, COVER < 3d <sub>b</sub> , OR CLEAR SPACING < 6d <sub>b</sub>	23"	29"	34"
4. COATED BARS, ALL OTHER CASES	18"	23"	27"
5. CONDITION 2. AND 3.	26"	32"	39"
6. CONDITION 2. AND 4.	24"	30"	36"

ALL OTHER BARS SHOULD BE LAPPED AS SHOWN ON THE CONSTRUCTION DRAWINGS.

ALL REINFORCEMENT IN CONCRETE BACKWALL, BEARING SEAT, CHEEKWALL, AND WINGWALL CAPS SHALL BE EPOXY COATED.

**SECTION MARK:**



TRAFFIC DATA		
	ROADWAY OVER	ROADWAY UNDER
DESIGN YEAR	N/A	
AVERAGE DAILY TRAFFIC -- PRESENT	N/A	
AVERAGE DAILY TRAFFIC -- DESIGN YEAR	N/A	
DESIGN HOURLY VOLUME	N/A	
DIRECTIONAL DISTRIBUTION	N/A	
TRUCK PERCENTAGE -- AVERAGE DAY	N/A	
TRUCK PERCENTAGE -- PEAK HOUR	N/A	
DESIGN SPEED	18 MPH	
DIRECTIONAL DESIGN HOURLY VOLUME	N/A	

SEISMIC DESIGN CRITERIA	
DESIGN RETURN PERIOD:	1,000
DESIGN SPECTRA	
As	0.11
SDs	0.23
SD1	0.09
SITE CLASS	D
SEISMIC DESIGN CATEGORY (SDC)	A

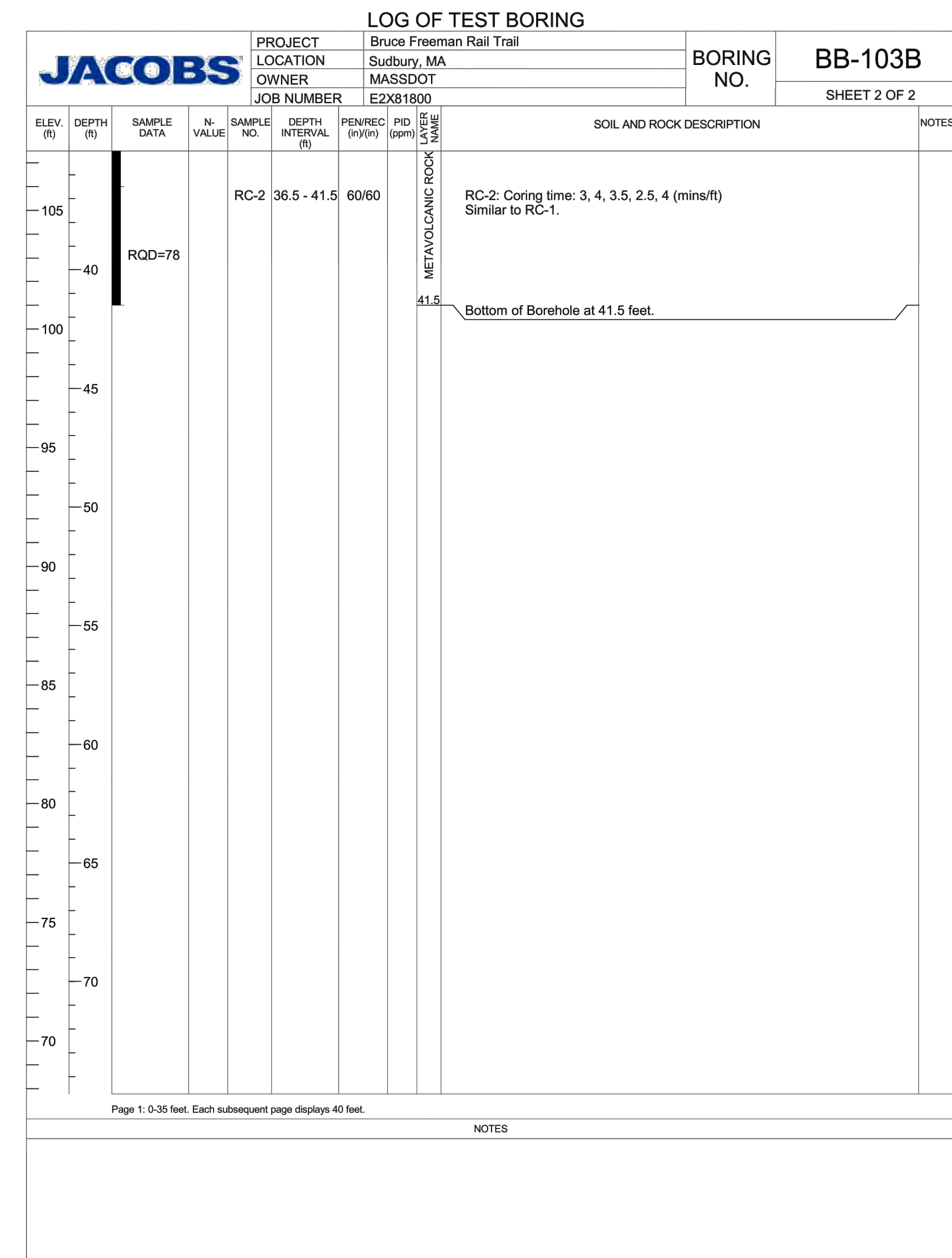
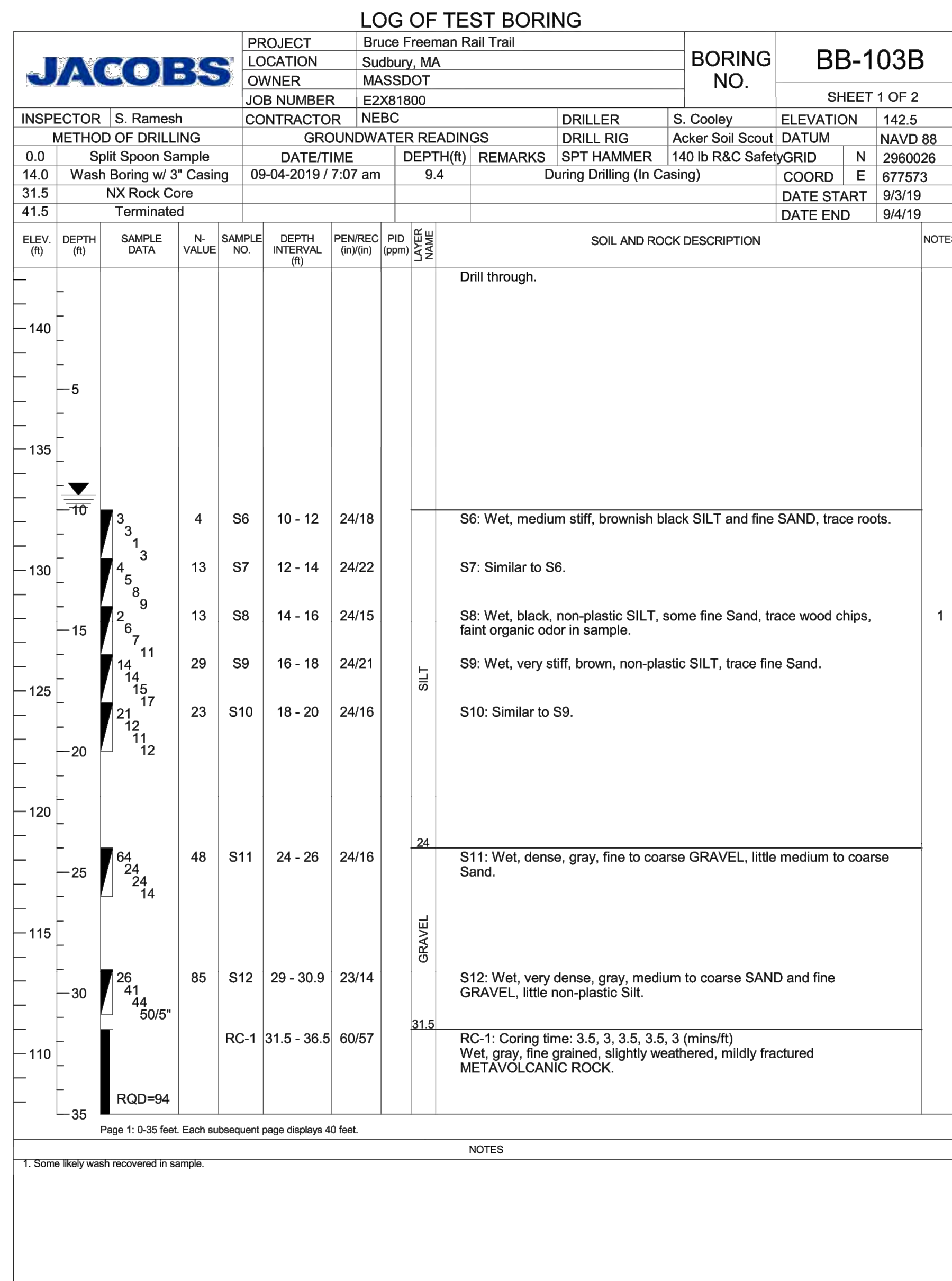
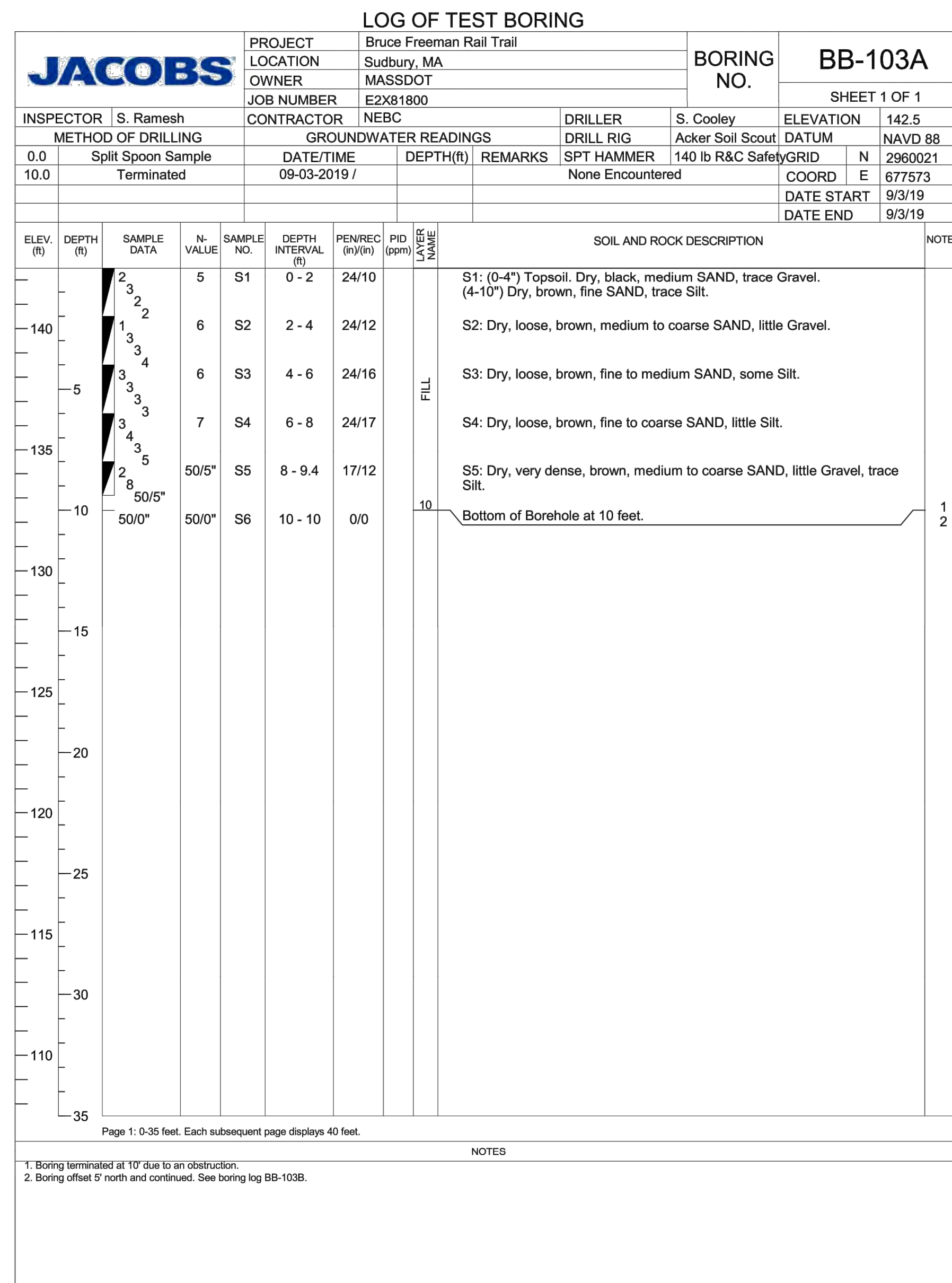
HYDRAULIC DESIGN DATA	
DRAINAGE AREA (SQ. MILES)	14.7
DESIGN FLOOD DISCHARGE (C.F.S)	452
DESIGN FLOOD FREQUENCY (YEARS)	10
DESIGN FLOOD VELOCITY (F.P.S)	2.66
DESIGN FLOOD ELEVATION (FEET, NAVD)	136.7

BASE (100-YEAR) FLOOD DATA	
BASE FLOOD DISCHARGE (C.F.S)	881
BASE FLOOD ELEVATION (FEET, NAVD)	138.2

DESIGN AND CHECK SCOUR DATA	
DESIGN SCOUR FLOOD EVENT RETURN FREQUENCY (YEARS)	25
DESIGN FLOOD ABUTMENT SCOUR DEPTH (FEET)	N/A
DESIGN FLOOD PIER SCOUR DEPTH (FEET)	N/A
CHECK SCOUR FLOOD EVENT RETURN FREQUENCY (YEARS)	50
CHECK FLOOD ABUTMENT SCOUR DEPTH (FEET)	N/A
CHECK FLOOD PIER SCOUR DEPTH (FEET)	N/A

FLOOD OF RECORD	
DISCHARGE (C.F.S.)	N/A
FREQUENCY (IF KNOWN, YEARS)	N/A
MAXIMUM ELEVATION (FEET, NAVD)	N/A
DATE (MM/YYYY)	N/A
HISTORY OF ICE FLOES	N/A
EVIDENCE OF SCOUR AND EROSION	N/A

MONTH DD, YYYY	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	



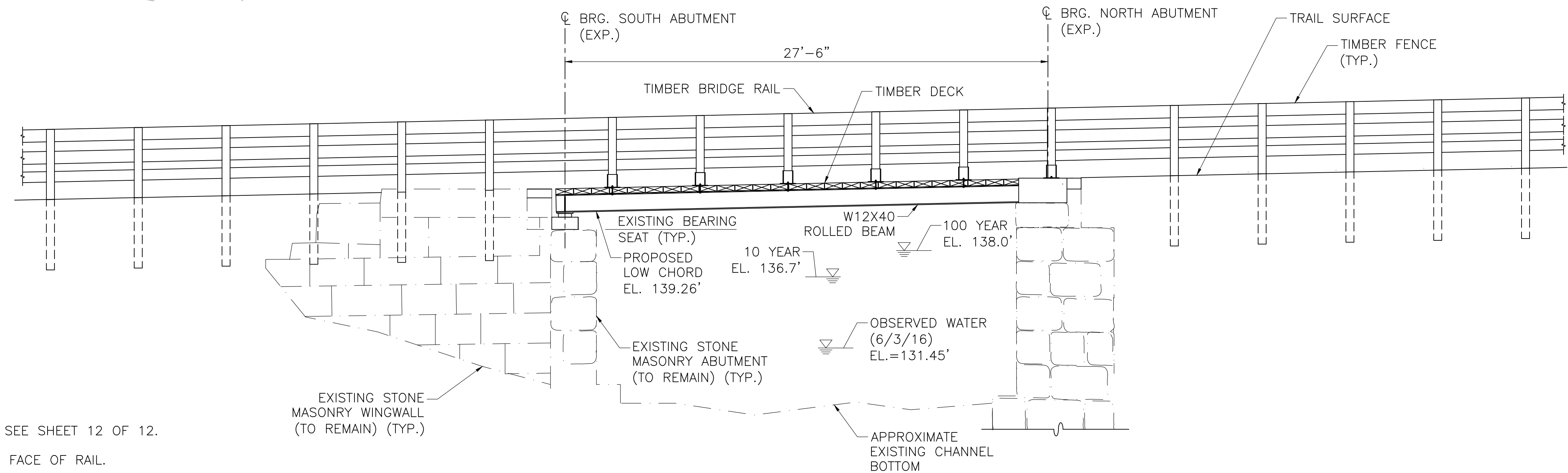
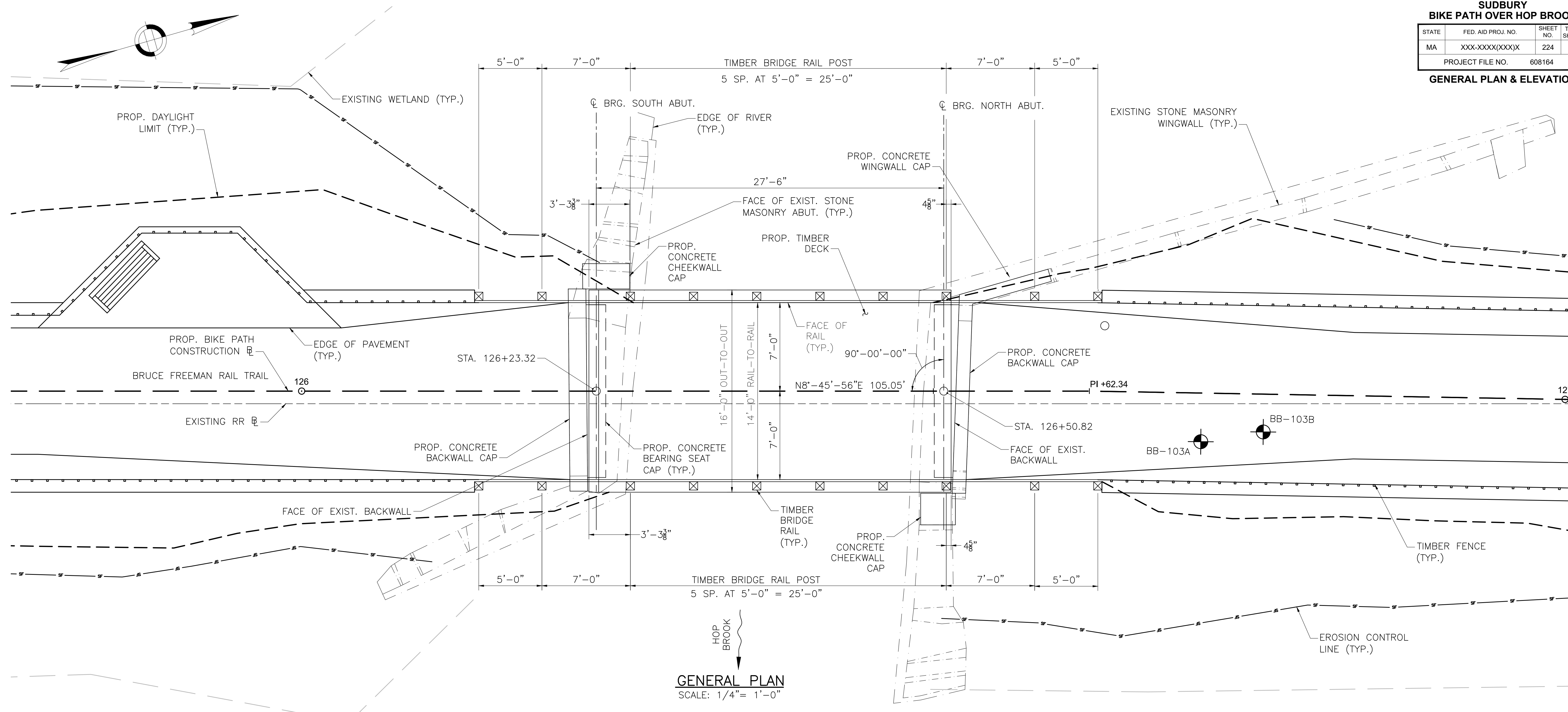
**BORING NOTES:**

- LOCATION OF BORINGS SHOWN ON THE PLANS THUS: BB-#
- 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.
- 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.
- FIGURES IN COLUMNS INDICATE NUMBER OF BLOWS REQUIRED TO DRIVE A 1 1/8" I.D. SPLIT SPOON SAMPLER 6" USING A 140 POUND WEIGHT FALLING 30".
- BORING SAMPLES ARE STORED AT A STORAGE FACILITY LOCATED ON ROUTE 114 (219 WINTHRUP 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.
- ALL BORINGS WERE MADE IN SEPTEMBER 2019.
- BORINGS WERE MADE BY NEW ENGLAND BORING CONTRACTOR, INC., P.O. BOX 165, DERRY, NH 03038.
- THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988 IS USED THROUGHOUT.

**GROUNDWATER:**

THE WATER LEVEL RECORDED IN THE TABLE ARE THOSE MEASURED ON THE DATES GIVEN AND DO NOT NECESSARILY REPRESENT GROUNDWATER LEVEL AT THE TIME OF CONSTRUCTION.

MONTH DD, YYYY	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	



- NOTES:**
- FOR TIMBER BRIDGE RAIL DETAILS, SEE SHEET 12 OF 12.
  - RAIL POSTS ARE MEASURED ALONG FACE OF RAIL.

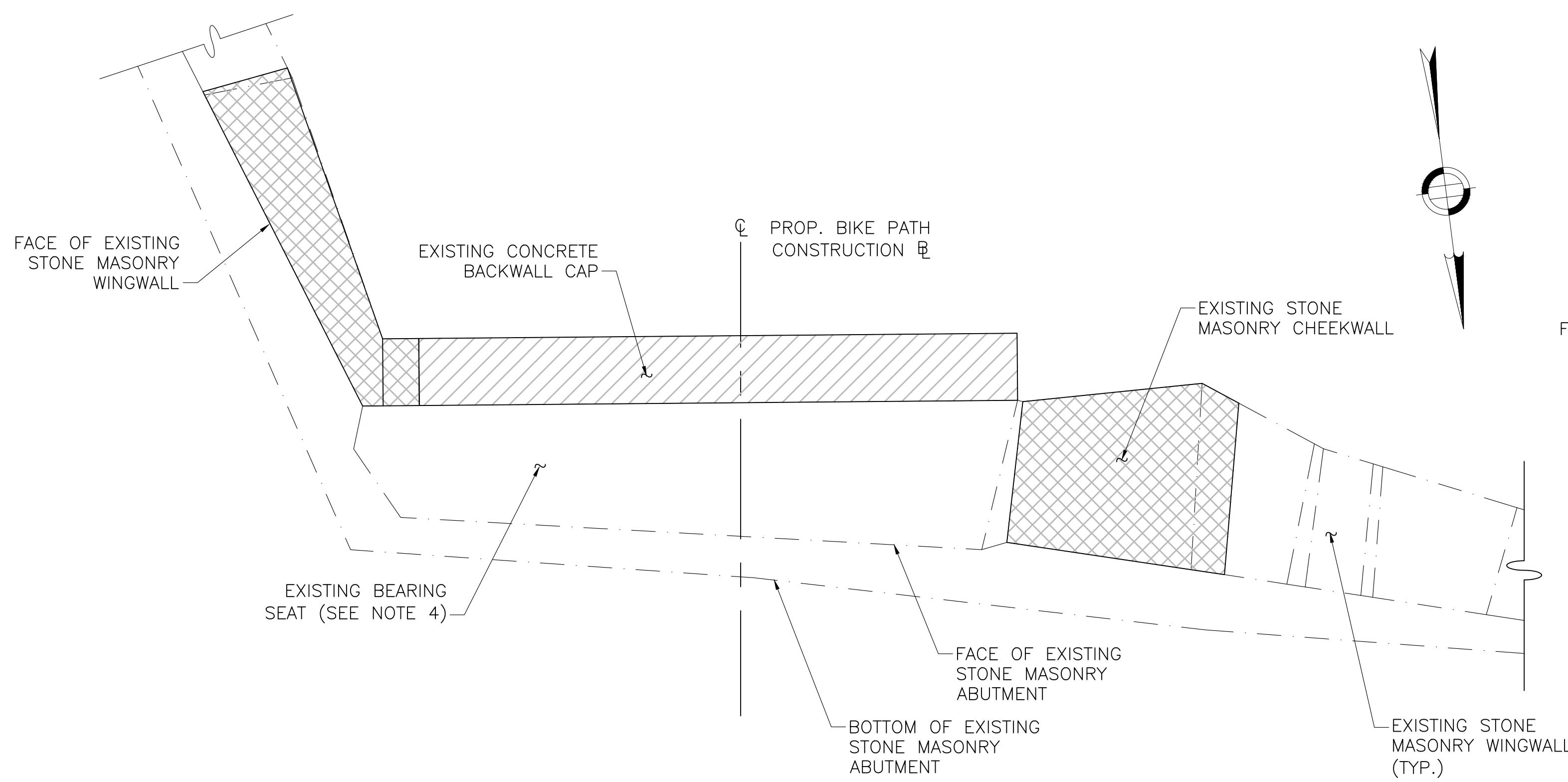
**NOTE:**  
DECK END PLATE NOT SHOWN FOR CLARITY. SEE SHEET 11 FOR PLATE DETAILS.

MONTH DD, YYYY	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

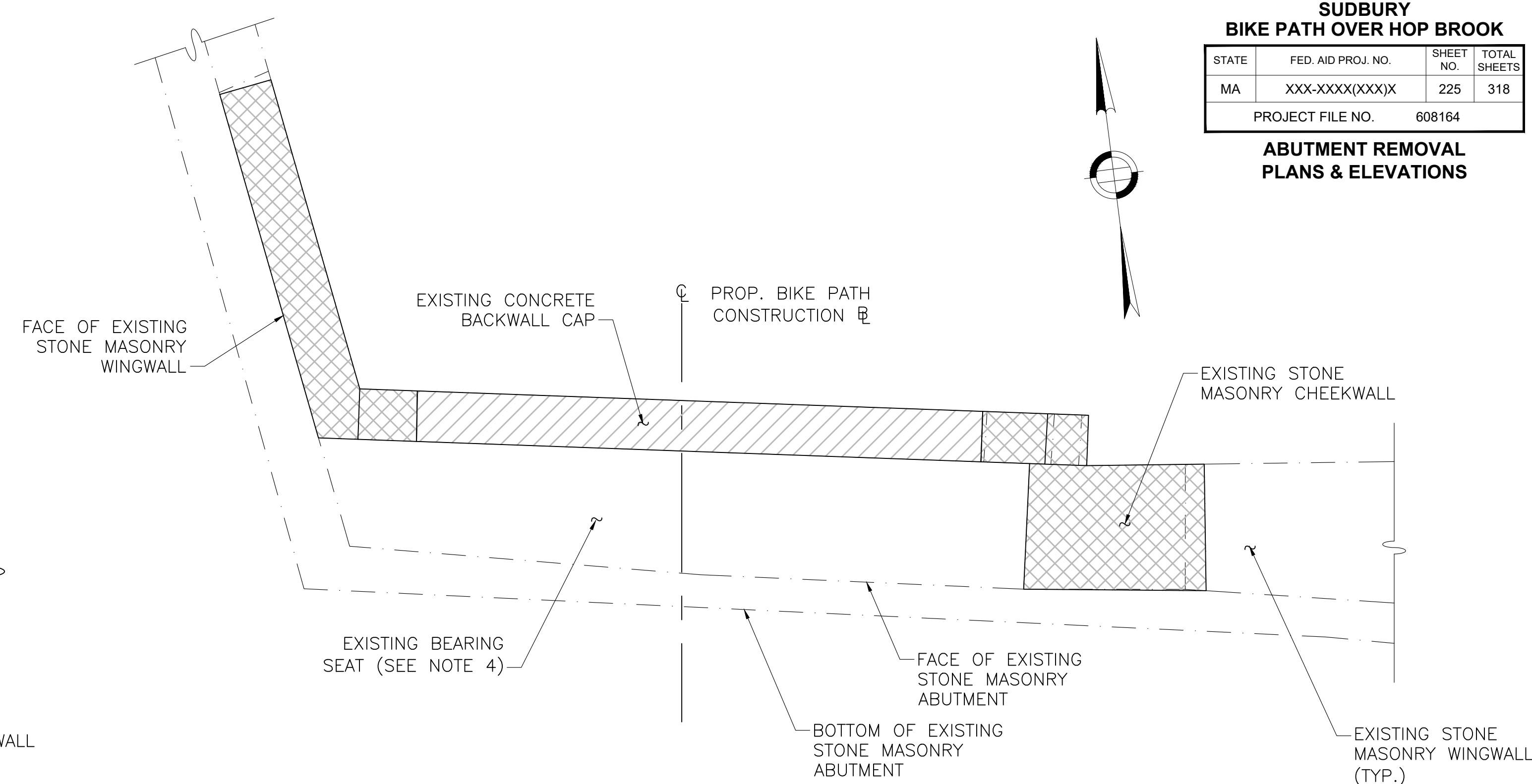
608164\_BR(S-31-007)GENPLAN.DWG Plotted on 12-May-2021 9:30 AM Xxxxx Structural Submittal (S) DD-Month-YYYY

SUDBURY BIKE PATH OVER HOP BROOK			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	225	318
PROJECT FILE NO.		608164	

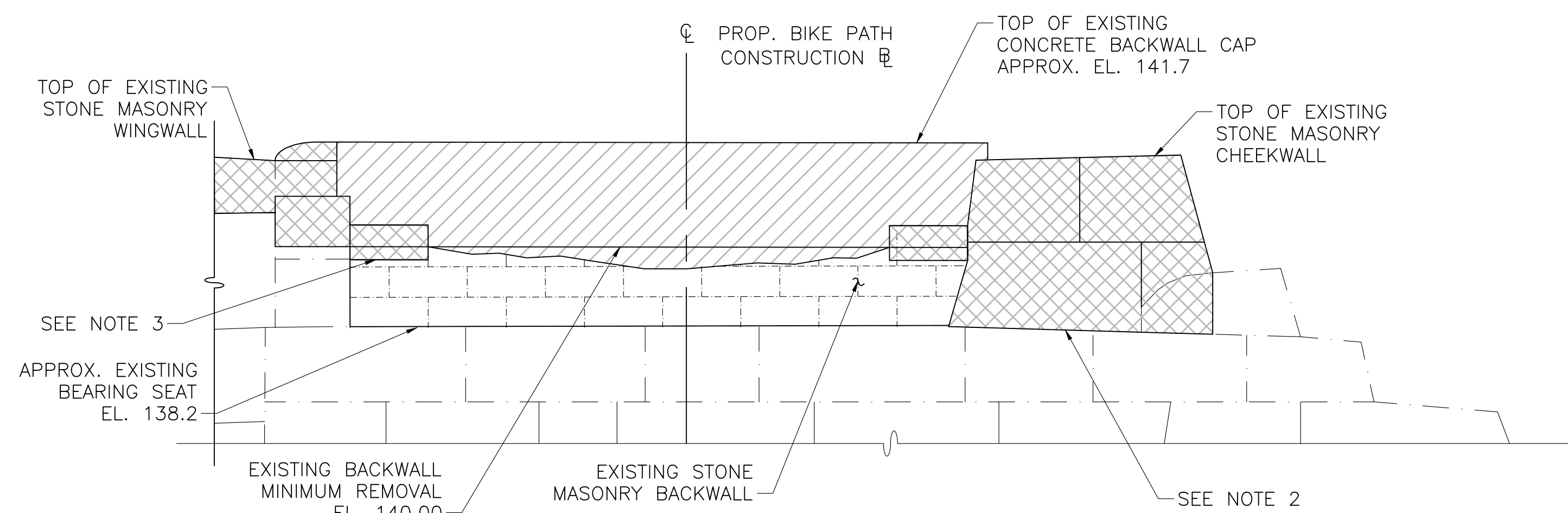
**ABUTMENT REMOVAL  
PLANS & ELEVATIONS**



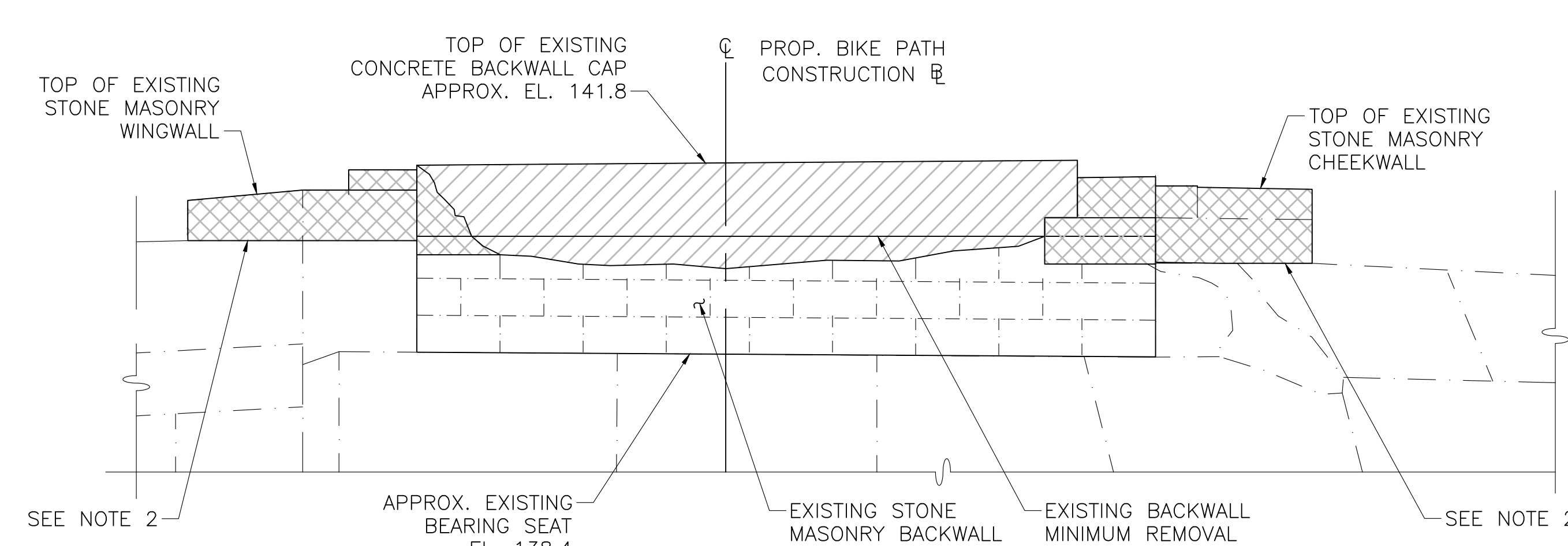
**SOUTH ABUTMENT REMOVAL PLAN**  
SCALE: 1/2"=1'-0"



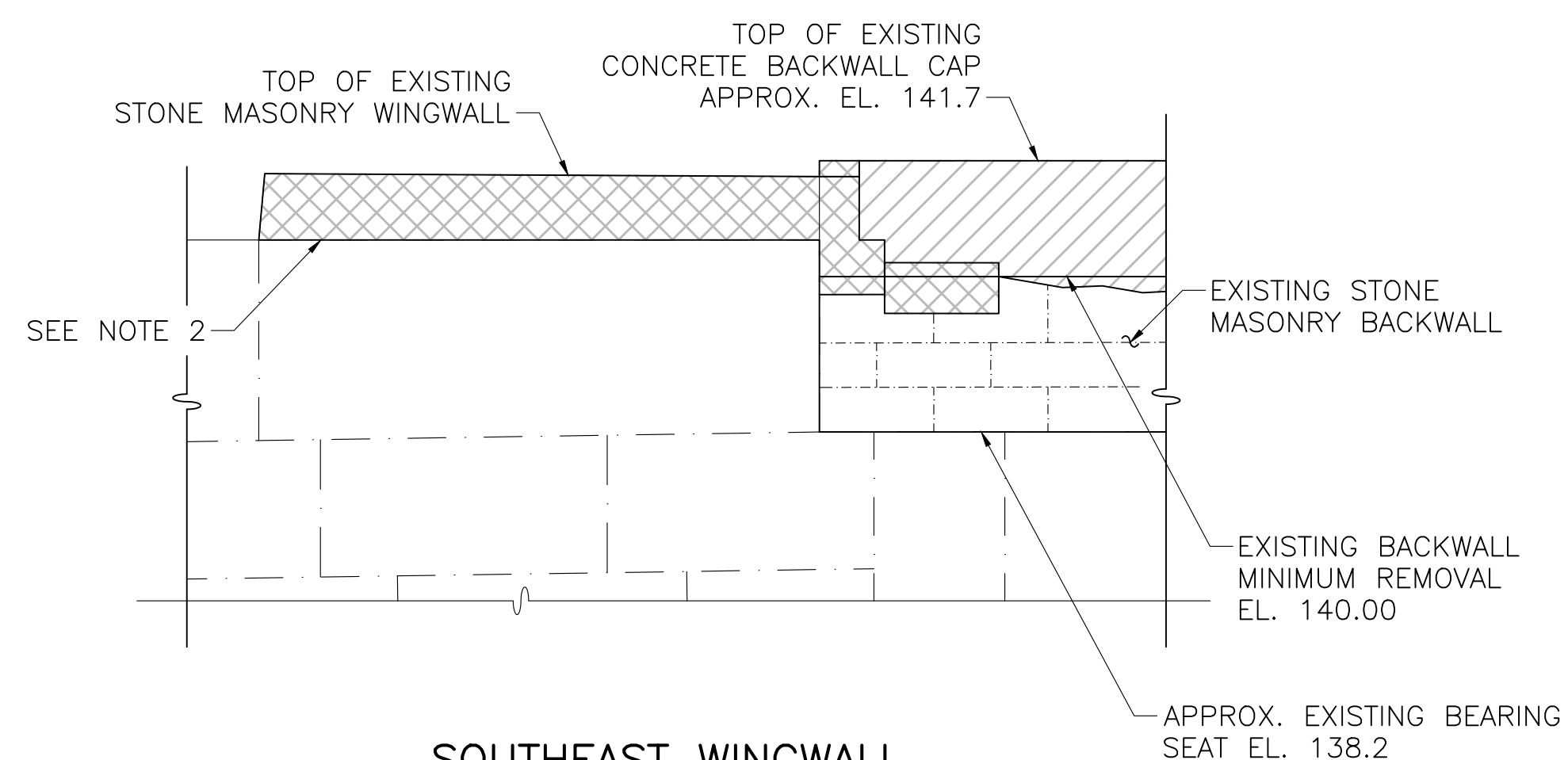
**NORTH ABUTMENT REMOVAL PLAN**  
SCALE: 1/2"=1'-0"



**SOUTH ABUTMENT AND SOUTHWEST WINGWALL REMOVAL ELEVATION**  
SCALE: 1/2"=1'-0"



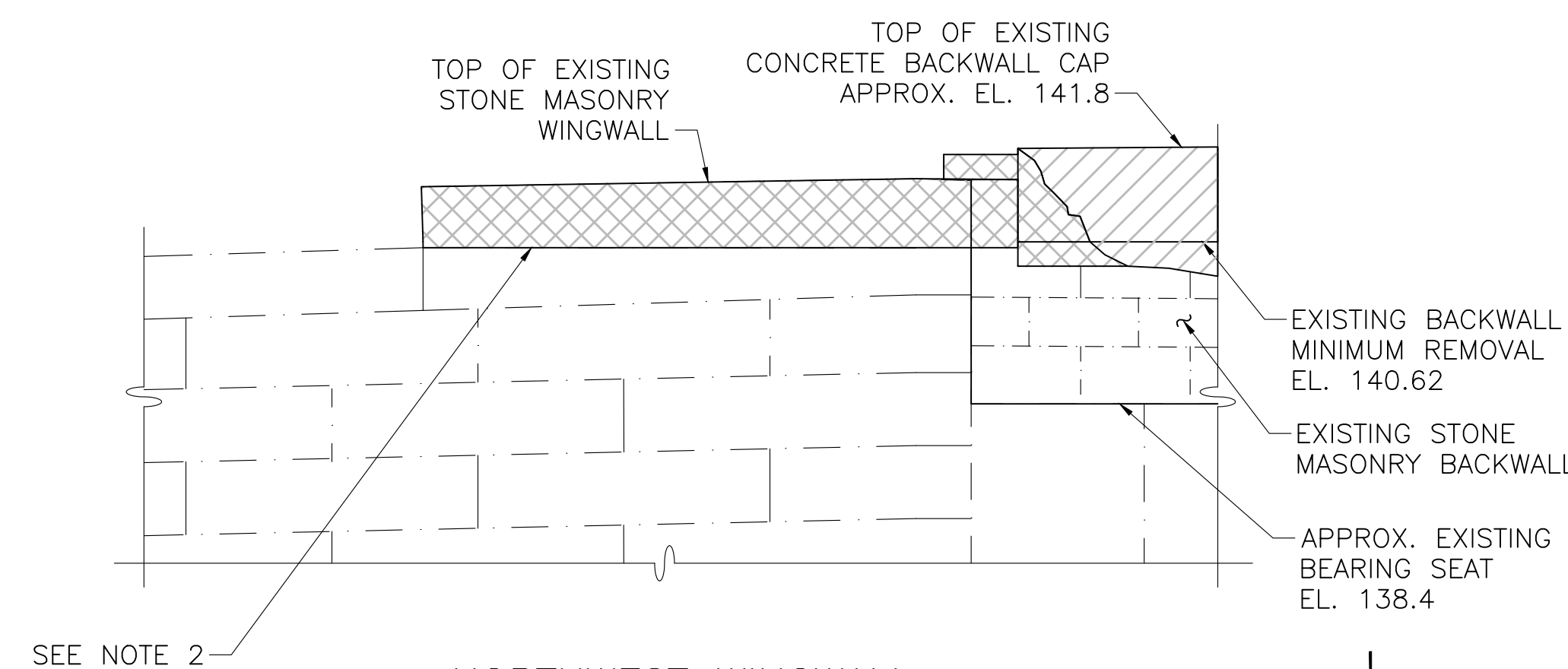
**NORTH ABUTMENT AND NORTHEAST WINGWALL REMOVAL ELEVATION**  
SCALE: 1/2"=1'-0"



**SOUTHEAST WINGWALL  
REMOVAL ELEVATION**  
SCALE: 1/2"=1'-0"

**EXISTING SUBSTRUCTURE REMOVAL NOTES:**

1. BOTTOM OF EXISTING CONCRETE BACKWALL CAP VARIES. REMOVAL LIMITS SHALL EXTEND TO AT LEAST THE MINIMUM REMOVAL ELEVATION AS SHOWN ON THIS SHEET. FINAL REMOVAL LIMITS SHALL BE DETERMINED BY THE ENGINEER. PAYMENT FOR EXISTING CONCRETE BACKWALL REMOVAL SHALL BE INCLUDED IN ITEM 127.1, "REINFORCED CONCRETE EXCAVATION".
2. FINAL EXISTING STONE MASONRY CHEEKWALL AND WINGWALL REMOVAL LIMITS SHALL BE DETERMINED BY THE ENGINEER. PAYMENT FOR EXISTING STONE MASONRY REMOVAL, INCLUDING STONE MASONRY PORTIONS OF THE EXISTING ABUTMENT BACKWALLS, SHALL BE INCLUDED UNDER ITEM 144, "CLASS B ROCK EXCAVATION".
3. WHEN THE HORIZONTAL JOINT IN THE STONE FALLS BELOW THE MINIMUM REMOVAL ELEVATION, THE STONES OR PORTIONS OF STONES SHALL BE REMOVED BY MECHANICAL METHODS. WITH APPROVAL OF THE ENGINEER, THE ENTIRE STONE SHALL BE REMOVED AND REPLACED WITH 4,000 PSI, 3/4 INCH, 610 CEMENT CONCRETE IN LIEU OF MECHANICAL METHODS.
4. THE EXISTING ABUTMENT BEARING SEATS SHALL BE BLAST CLEANED OF EFFLORESCENCE AND DEBRIS AS DIRECTED BY THE ENGINEER. PAYMENT SHALL BE INCIDENTAL TO ITEM 995.



**NORTHWEST WINGWALL  
REMOVAL ELEVATION**  
SCALE: 1/2"=1'-0"

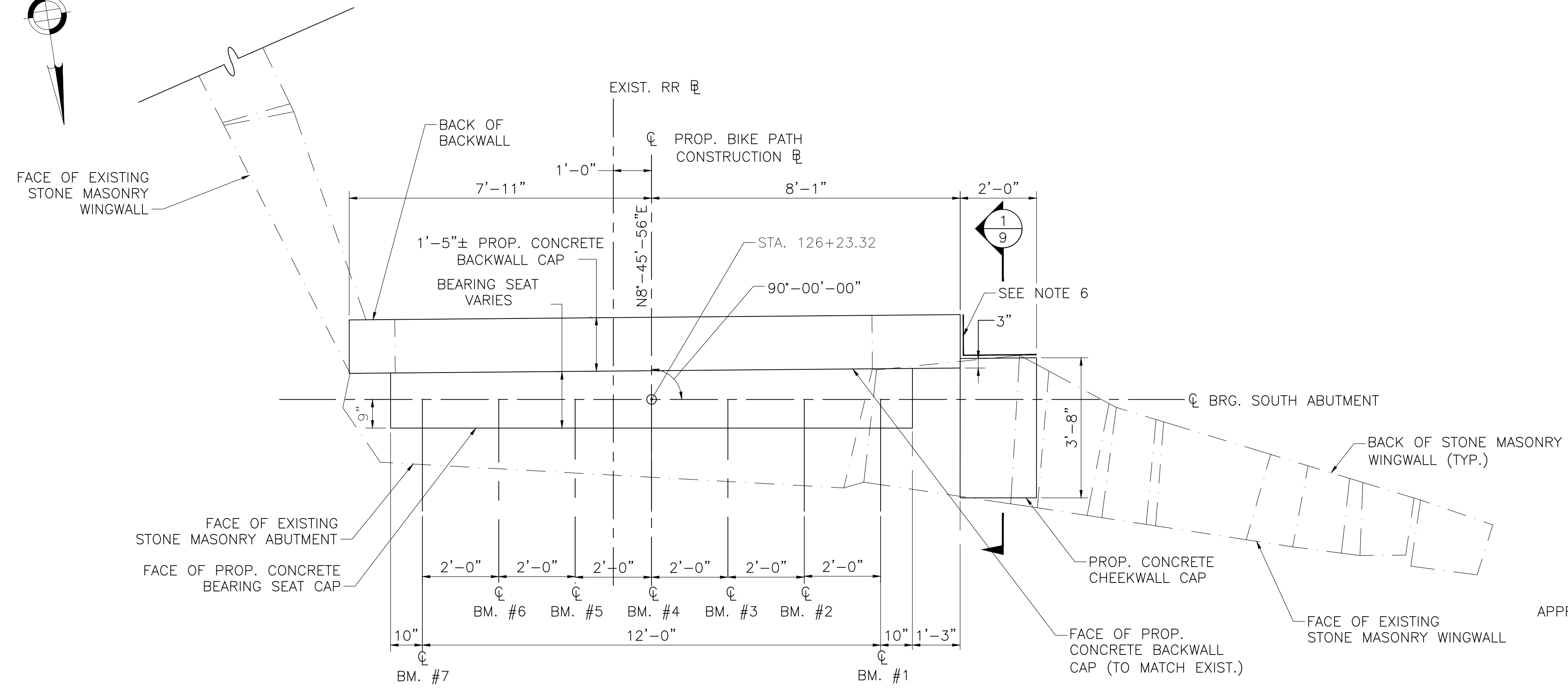
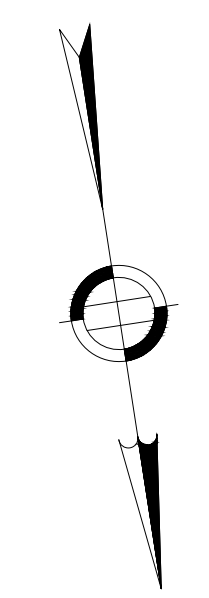
**LEGEND**

	CONCRETE REMOVAL LIMITS
	MASONRY REMOVAL LIMITS

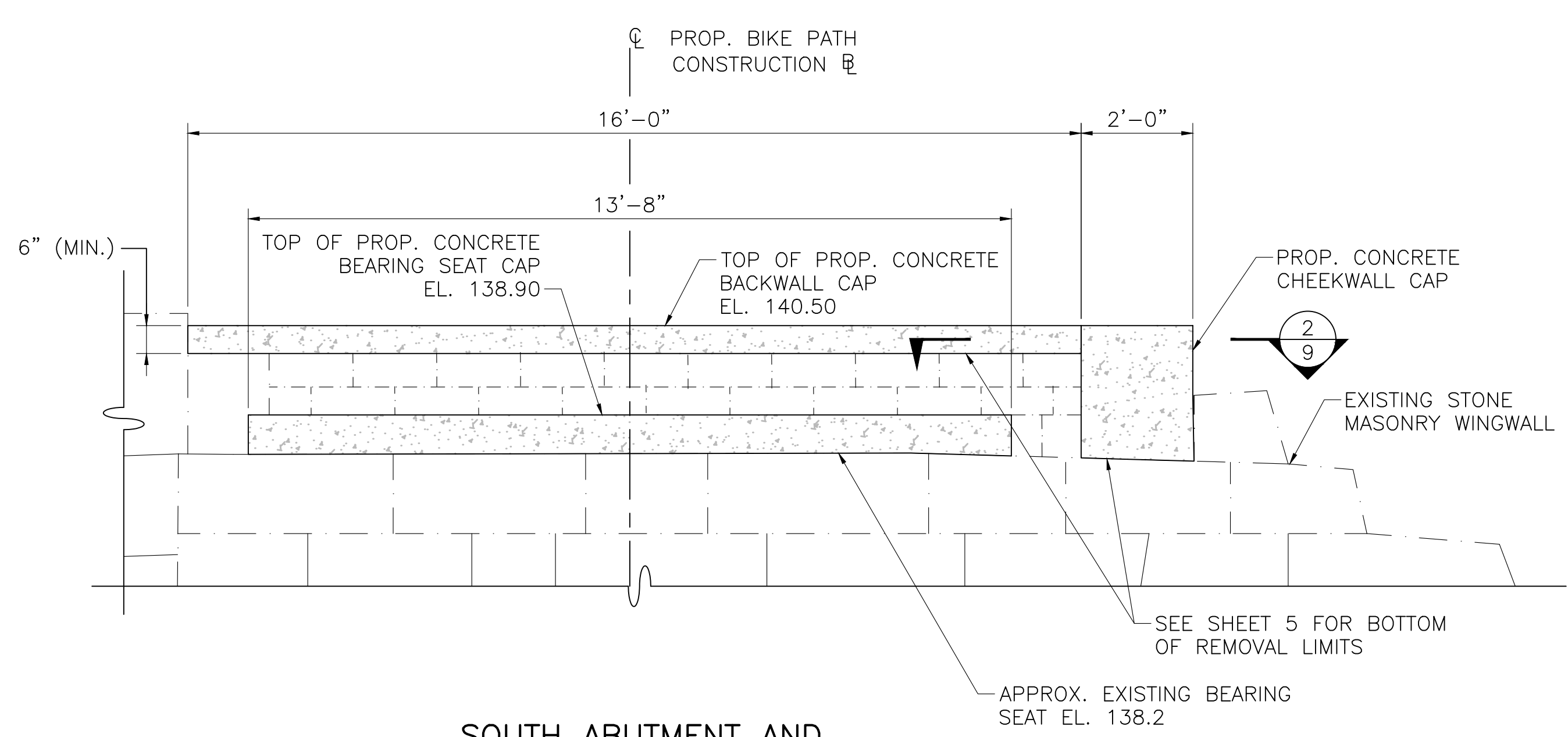
MONTH DD, YYYY	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

608164\_BRG(S-31-007)REMOVAL.DWG Plotted on 12-May-2021 9:31 AM Xxxxx Structural Submittal (S) DD-Month-YYYY

608164\_BR(S-31-007)(SOUTH ABUT).DWG Ploited on 12-May-2021 9:31 AM  
XXXXX Structural Submittal (S) DD-Month-YYYY



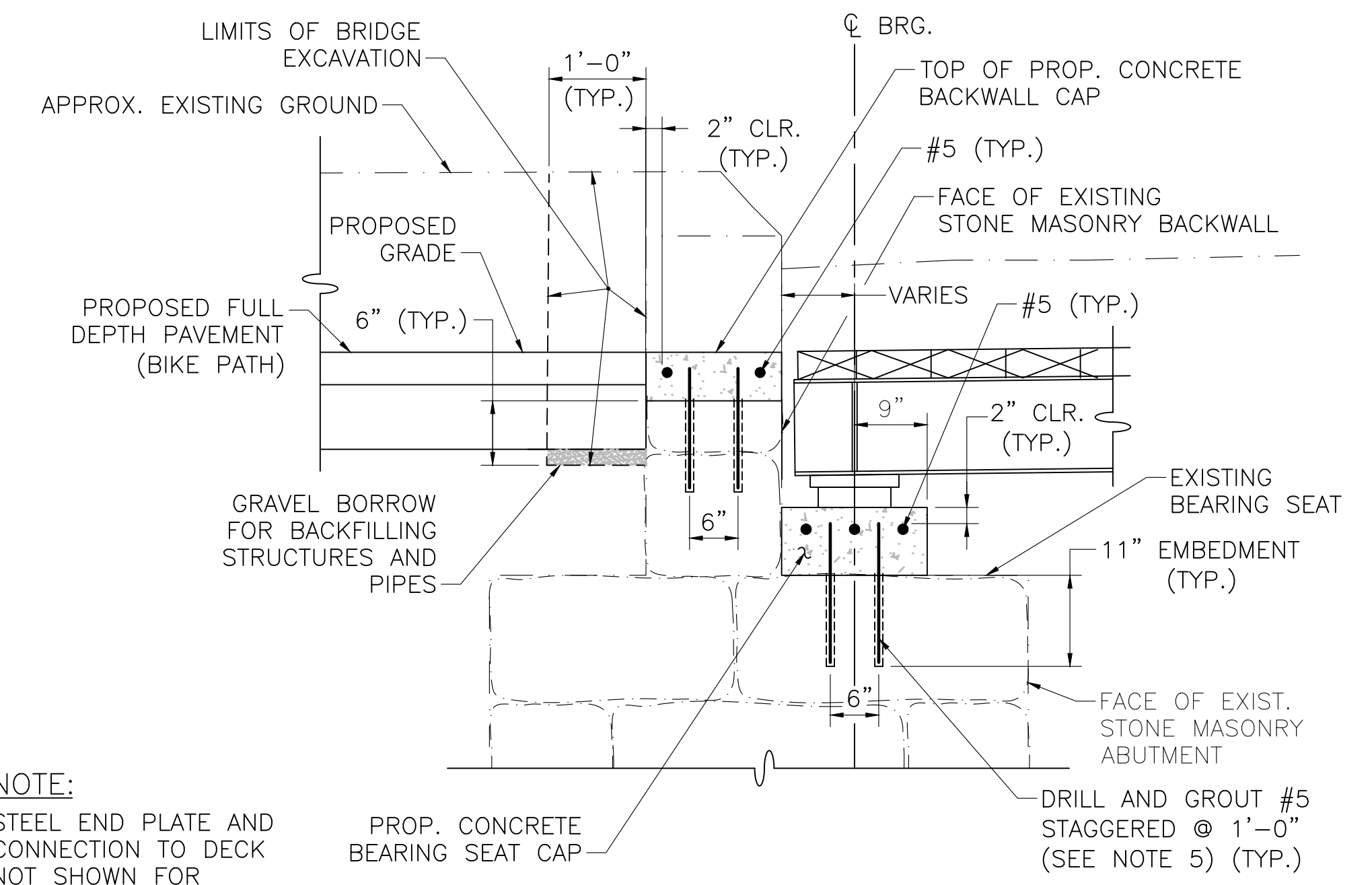
**SOUTH ABUTMENT PLAN**  
SCALE: 1/2"=1'-0"



**SOUTH ABUTMENT AND SOUTHWEST WINGWALL ELEVATION**  
SCALE: 1/2"=1'-0"

**NOTES:**

1. BEARING SEAT ELEVATION IS GIVEN AT  $\bar{C}$  BEARING.
2. BACKWALL ELEVATION IS GIVEN AT FACE OF BACKWALL.
3. SEE SHEET 8 FOR EXISTING ABUTMENT REPAIR NOTES.
4. SEE SHEET 8 FOR REINFORCING IN PROPOSED CHEEKWALL CAPS.
5. USE APPROVED NON-SHRINK GROUT WITH MINIMUM COMPRESSIVE STRENGTH  $F'_c$  OF 6,200 PSI.
6. MEMBRANE WATERPROOFING AND 8"x16"x2", 4000 PSI, 3/4 IN. 610 CEMENT CONCRETE BLOCKS LAID IN MORTAR OR OTHER WATERPROOFING PROTECTIVE COURSE, MIN 2" THICK AS SPECIFIED IN MHD STANDARD SPECIFICATIONS.

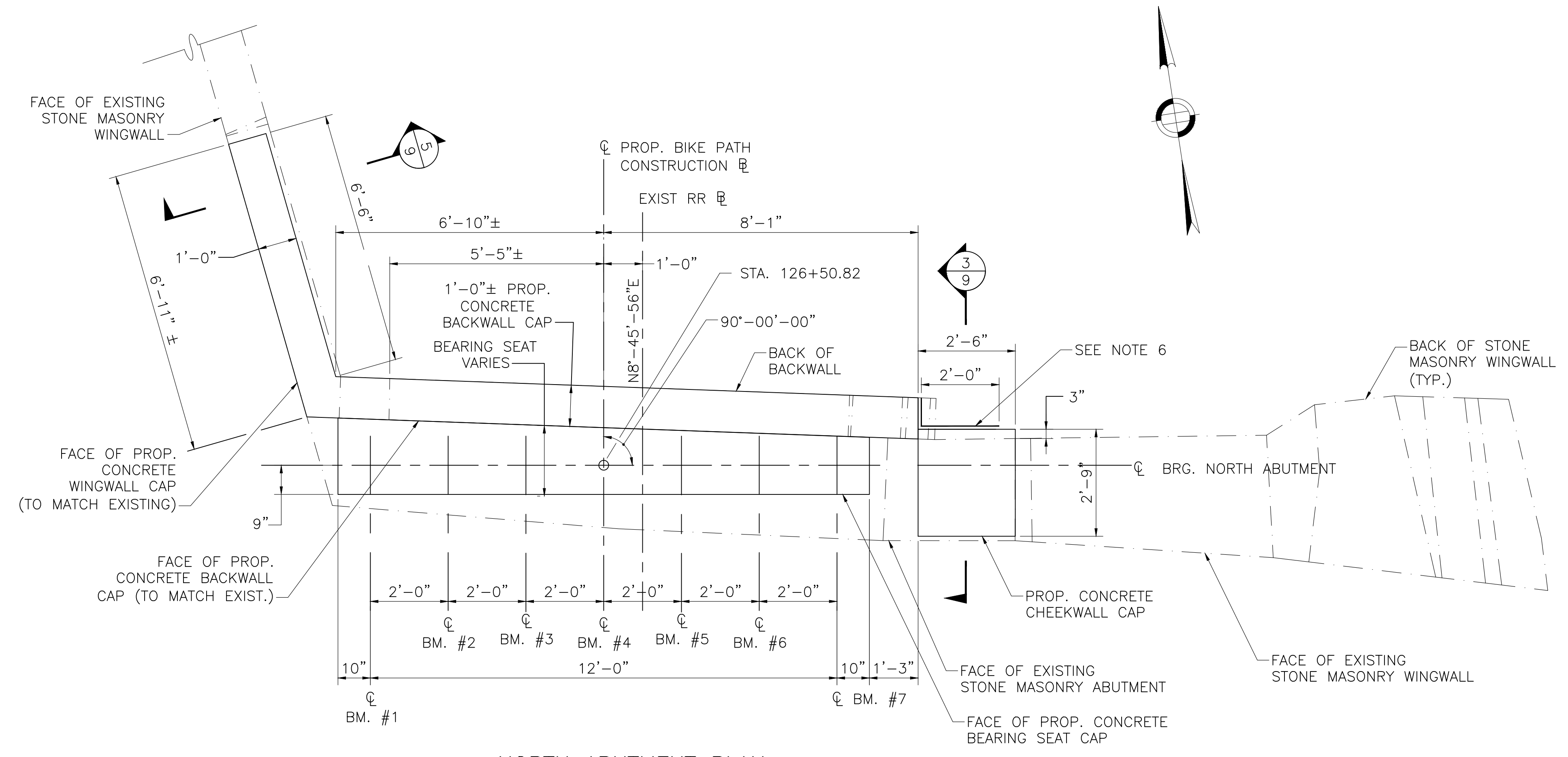


**TYPICAL ABUTMENT SECTION**  
SCALE: 3/4"=1'-0"

**NOTE:**

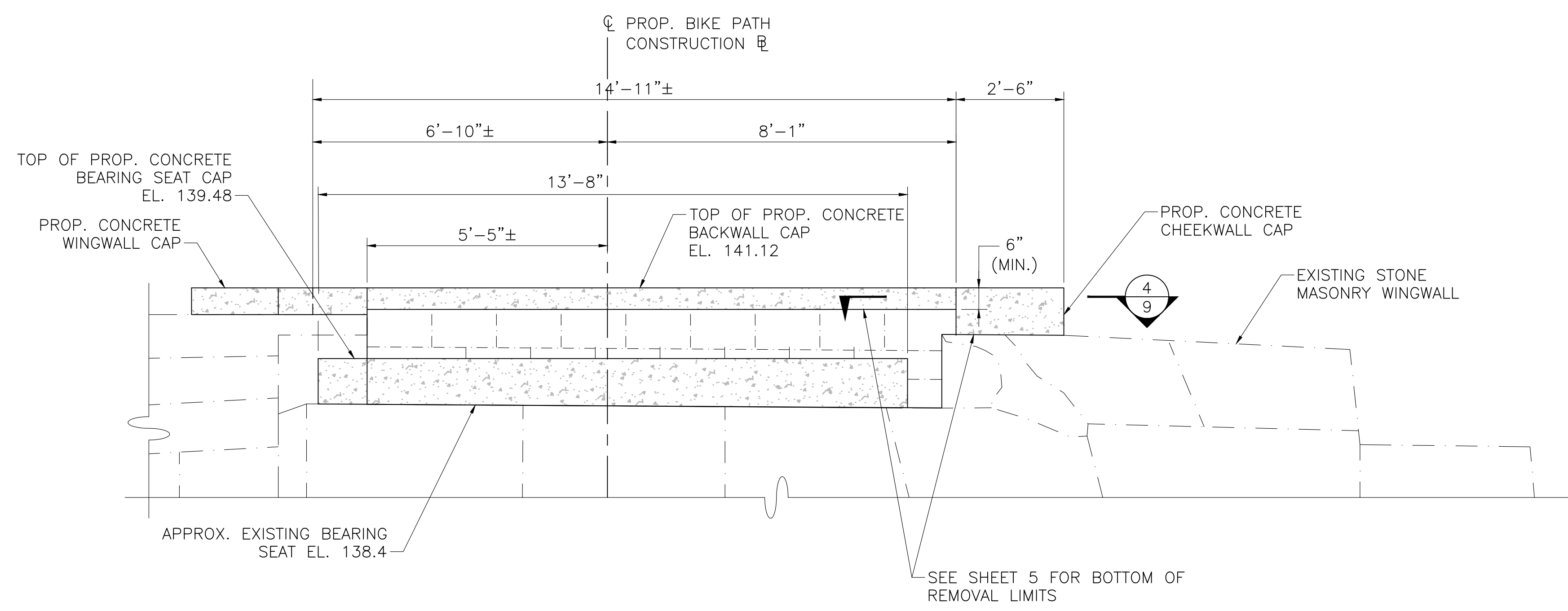
STEEL END PLATE AND CONNECTION TO DECK NOT SHOWN FOR CLARITY. SEE SHEET 11.

MONTH DD, YYYY	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

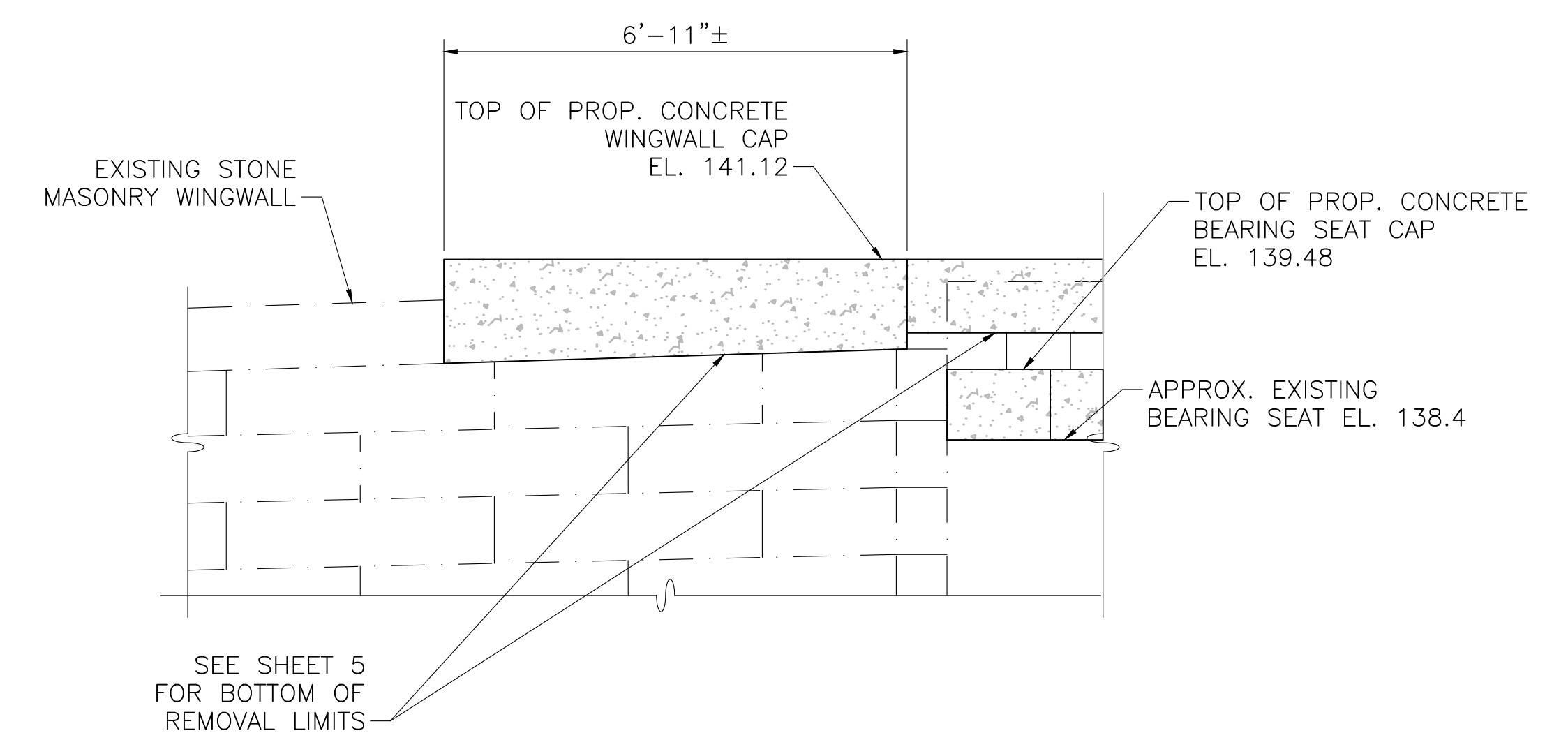


**NORTH ABUTMENT PLAN**  
SCALE: 1/2"=1'-0"

- NOTES:**
1. BEARING SEAT ELEVATION IS GIVEN AT  $\phi$  BEARING.
  2. BACKWALL ELEVATION IS GIVEN AT FACE OF BACKWALL.
  3. SEE SHEET 8 FOR EXISTING ABUTMENT REPAIR NOTES.
  4. SEE SHEET 8 FOR REINFORCING IN PROPOSED CHEEKWALL CAPS
  5. USE APPROVED NON-SHRINK GROUT WITH MINIMUM COMPRESSIVE STRENGTH  $F'_c$  OF 6,200 PSI.
  6. MEMBRANE WATERPROOFING AND 8"x16"x2", 4000 PSI, 3/4 IN. 610 CEMENT CONCRETE BLOCKS LAID IN MORTAR OR OTHER WATERPROOFING PROTECTIVE COURSE, MIN 2" THICK AS SPECIFIED IN MHD STANDARD SPECIFICATIONS.
  7. SEE SHEET 6 FOR TYPICAL ABUTMENT SECTION.



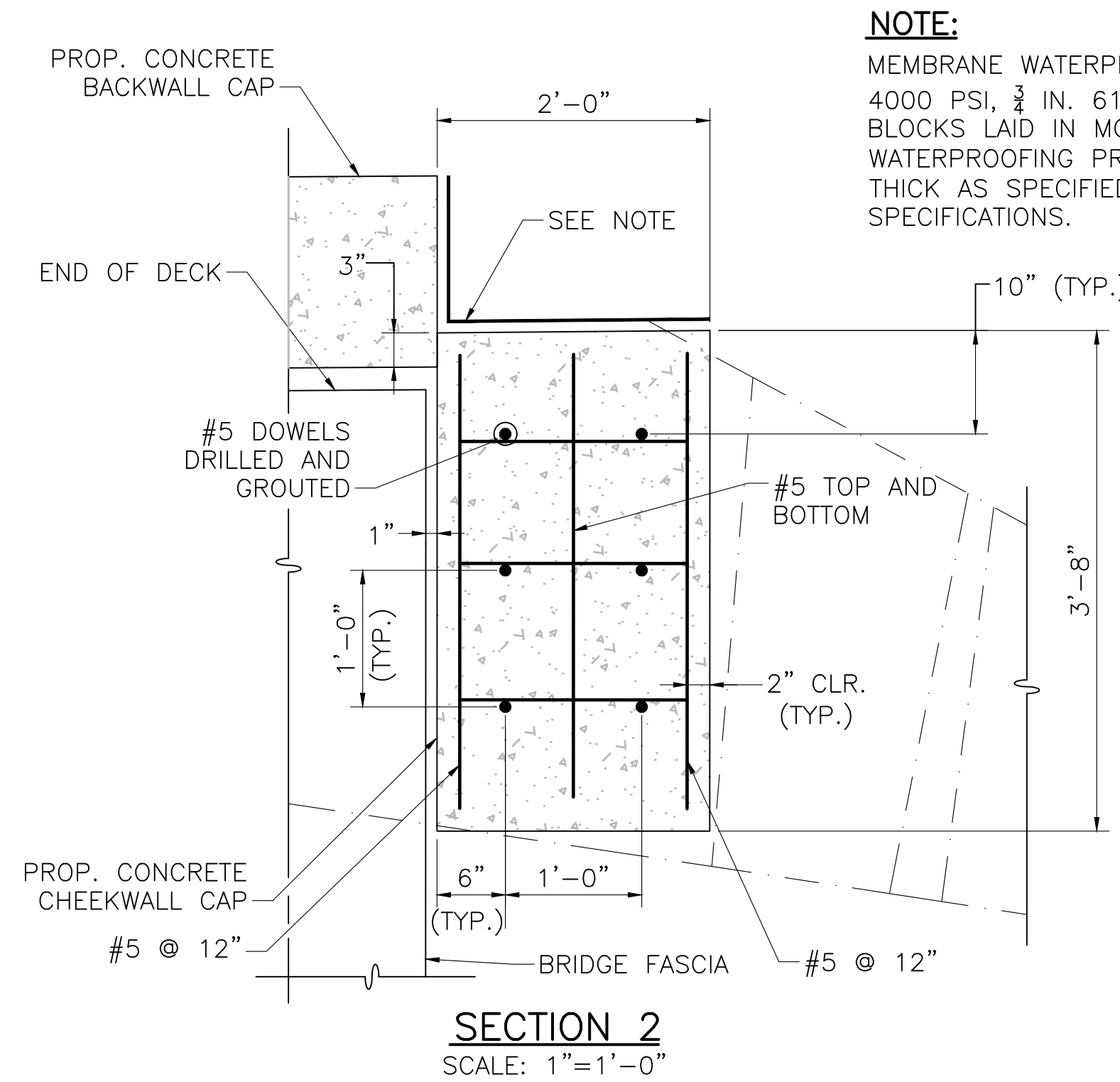
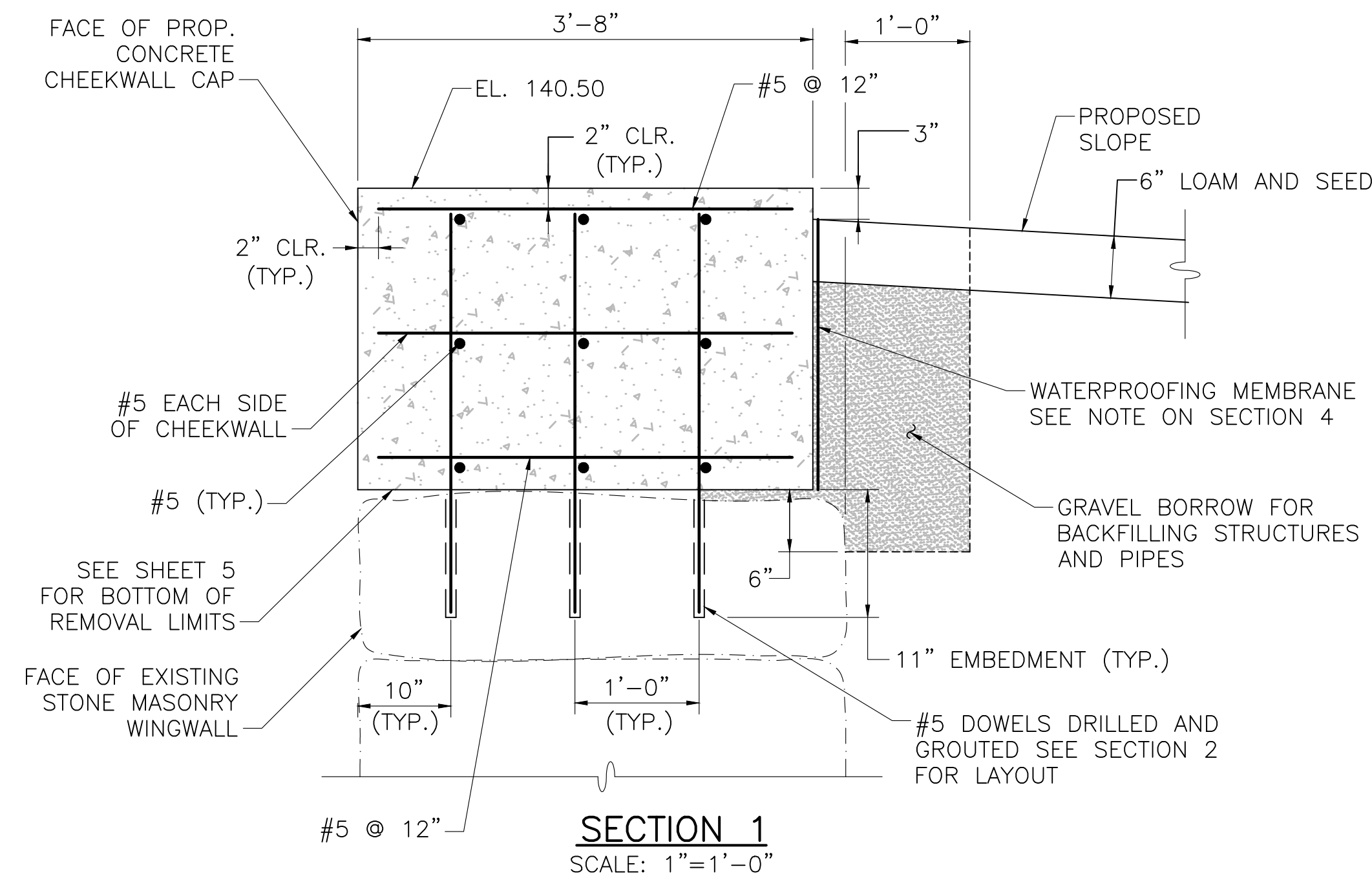
**NORTH ABUTMENT AND  
NORTHEAST WINGWALL ELEVATION**  
SCALE: 1/2"=1'-0"



**NORTHWEST WINGWALL ELEVATION**  
SCALE: 1/2"=1'-0"

MONTH DD, YYYY	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

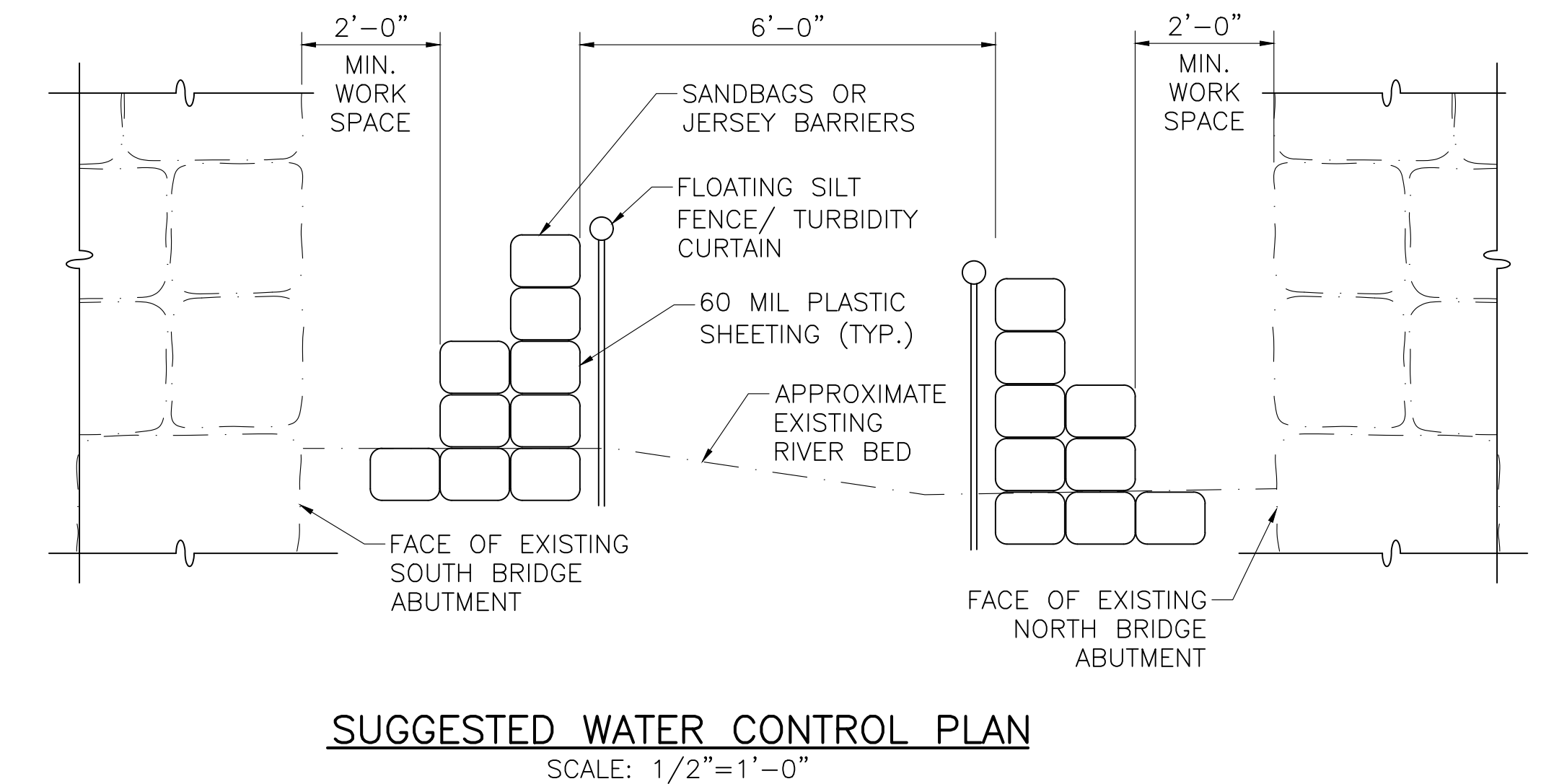
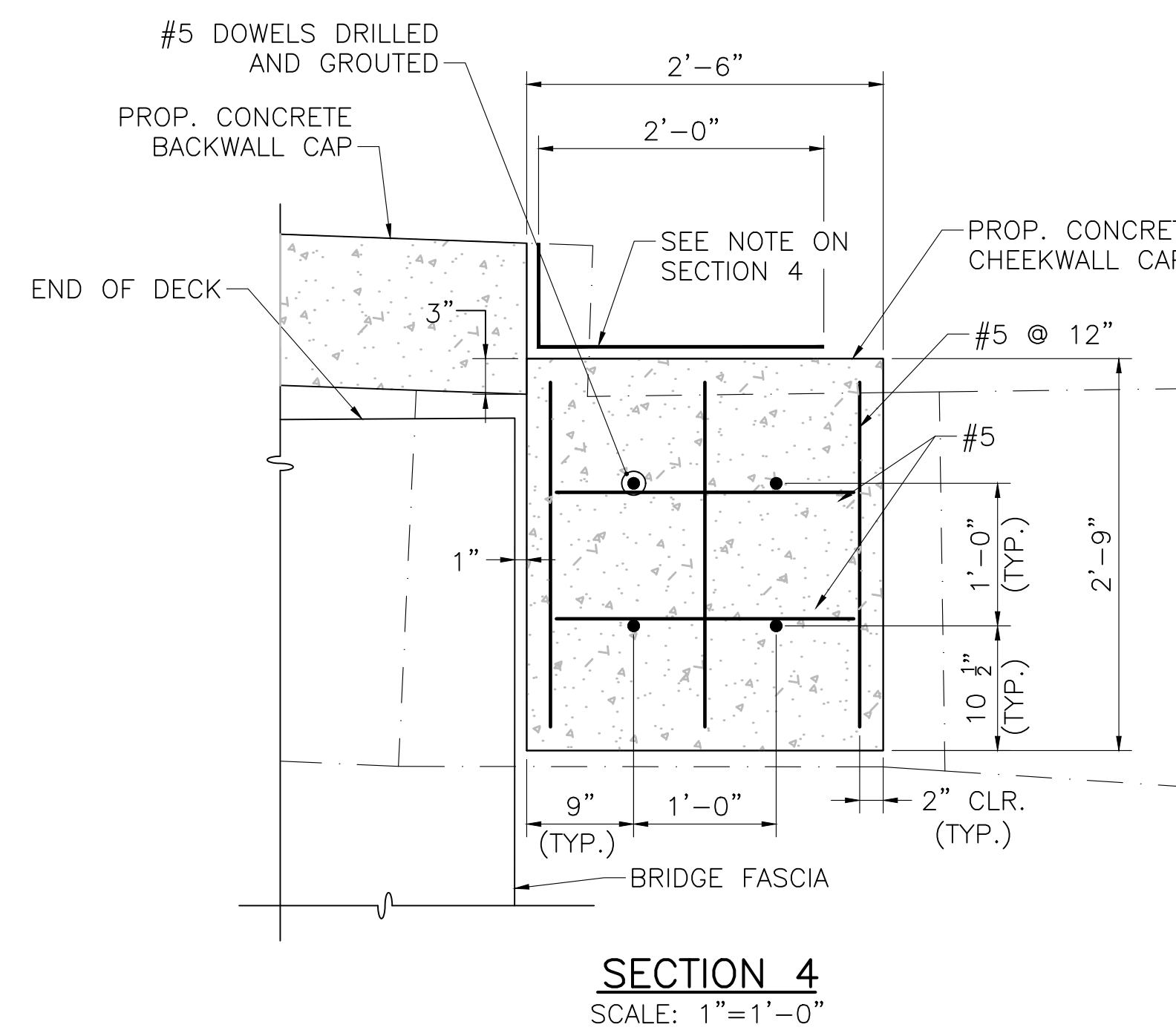
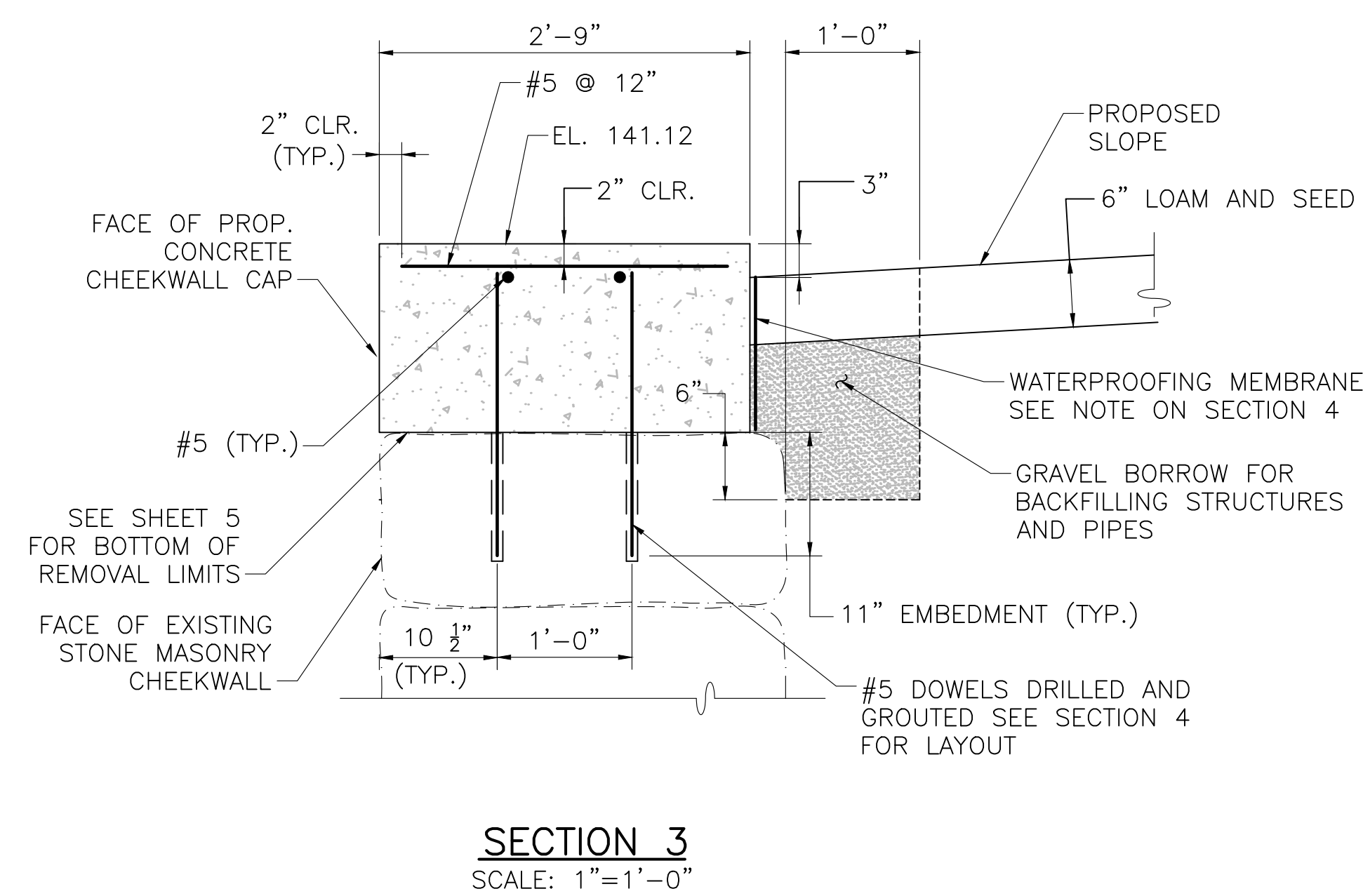
608164\_BRES-31-007(NORTH ABUT) DWG Plotted on 12-May-2021 9:31 AM Xxxxx Structural Submittal (S) DD-Month-YYYY



**NOTE:**  
MEMBRANE WATERPROOFING AND 8"x16"x2", 4000 PSI, 3/8 IN. 610 CEMENT CONCRETE BLOCKS LAID IN MORTAR OR OTHER WATERPROOFING PROTECTIVE COURSE, MIN 2" THICK AS SPECIFIED IN MHD STANDARD SPECIFICATIONS.

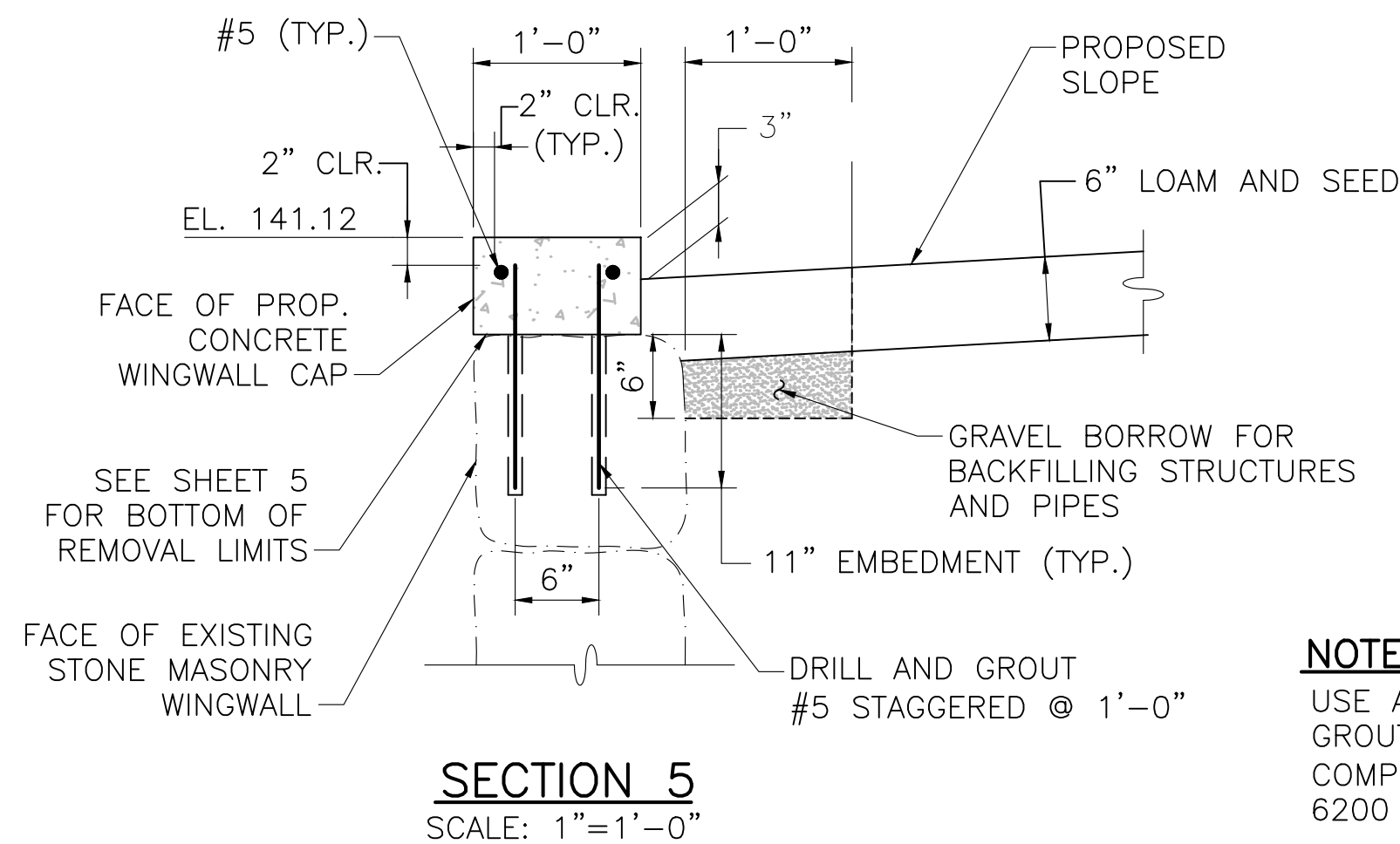
**EXISTING ABUTMENT REPAIR NOTES:**

1. THE NORTH EXISTING STONE MASONRY ABUTMENT HAS A MISSING STONE IN THE FACE. THE CONTRACTOR SHALL REBUILD ANY COLLAPSED PORTIONS OF THE EXISTING WALL ALONG THE LENGTH OF THE ABUTMENT AND WINGWALLS BELOW THE LIMITS OF REMOVAL. THE COST TO REBUILD THE WALL AS REQUIRED SHALL BE INCLUDED IN ITEM 690, "STONE MASONRY WALL REMOVED AND REBUILT IN CEMENT MORTAR".
2. REPOINTING OF THE EXISTING STONE MASONRY ABUTMENTS SHALL BE REQUIRED PRIOR TO SUPERSTRUCTURE WORK. THE CONFIGURATION OF THE EXISTING ABUTMENT STONE WALLS AND THE ELEVATION OF THE BOTTOM OF THE EXISTING ABUTMENTS SHOWN ON THE PLANS ARE APPROXIMATE. THE CONTRACTOR SHALL ENSURE THE EXISTING ABUTMENT STONE WALLS ARE NOT UNDERMINED OR IN ANY WAY COMPROMISED DURING EXCAVATION OPERATIONS. THE COST TO REPOINT SHALL BE INCLUDED IN ITEM 690.91, "MASONRY REPOINTING".
3. ANY WATER CONTROL REQUIRED TO REMOVE, REPAIR, REBUILD, OR REPOINT THE EXISTING ABUTMENTS SHALL BE INCLUDED UNDER ITEM 991, "CONTROL OF WATER".



**NOTES:**

1. WORK IN THE WATER SHALL BE PERFORMED DURING LOW FLOW SEASON AND THE FLOW SHALL BE MAINTAINED THROUGH THE USE OF TEMPORARY WATER CONTROL.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SIZING THE BARRIER TO HANDLE THE RIVER FLOW. THE BARRIER SHALL BE OF ADEQUATE SIZE TO DELIVER THE WATER AT THE DISCHARGE END TO THE RIVER WITHOUT DISTURBING THE EXISTING BANKS OR RIVERBED FLOW. THE BARRIER HEIGHT SHALL BE SIZED TO MAINTAIN THE 2-YEAR FLOOD.
3. IN THE EVENT OF HIGH FLOW RATES, THE CONTRACTOR SHALL BE RESPONSIBLE TO DEVELOP AND IMPLEMENT A REASONABLE MEANS NECESSARY TO HANDLE THE ADDITIONAL FLOWS TO PROTECT THE SURROUNDING AREA, AS APPROVED BY THE ENGINEER.



**NOTE:**  
USE APPROVED NON-SHRINK GROUT WITH MINIMUM COMPRESSIVE STRENGTH F'c OF 6200 PSI.

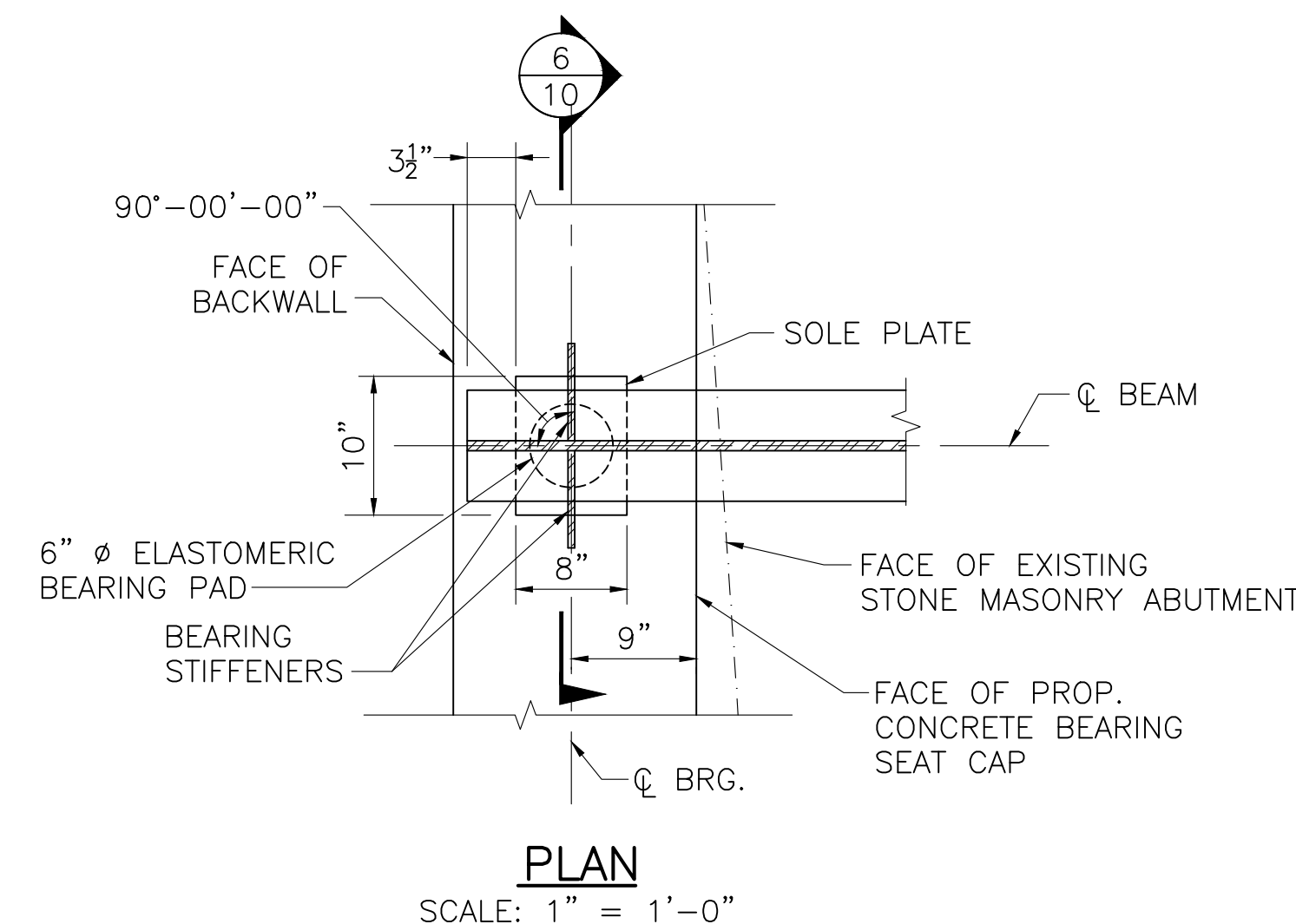
MONTH DD, YYYY	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	



**SUDBURY  
BIKE PATH OVER HOP BROOK**

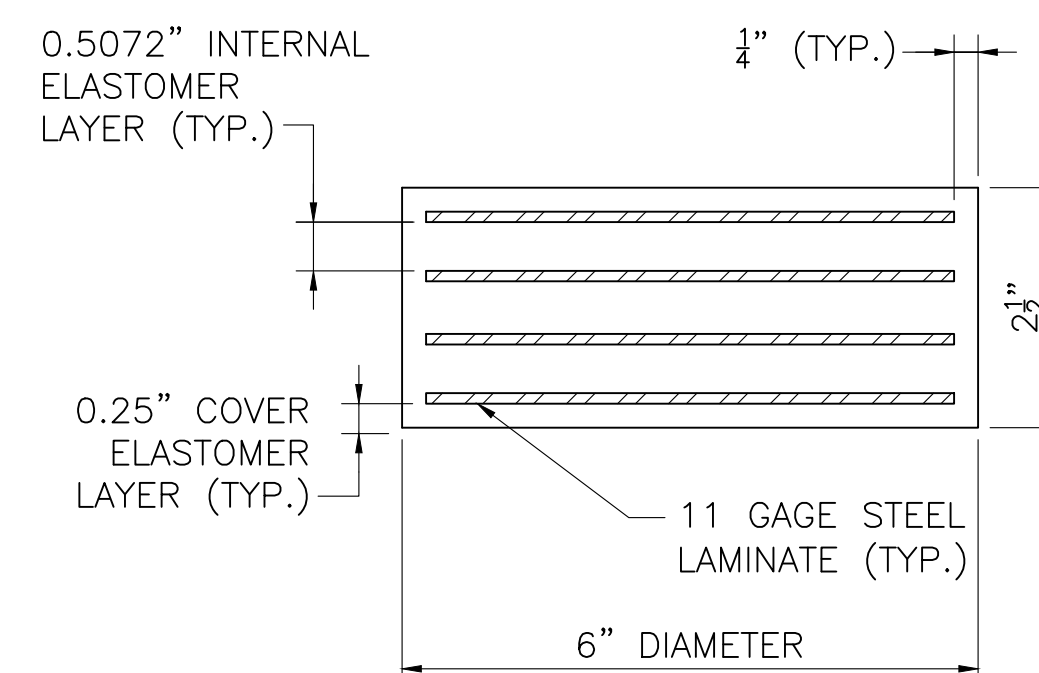
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	229	318
PROJECT FILE NO.		608164	

**BEARING DETAILS**



**PLAN**

SCALE: 1" = 1'-0"



**NOTES:**

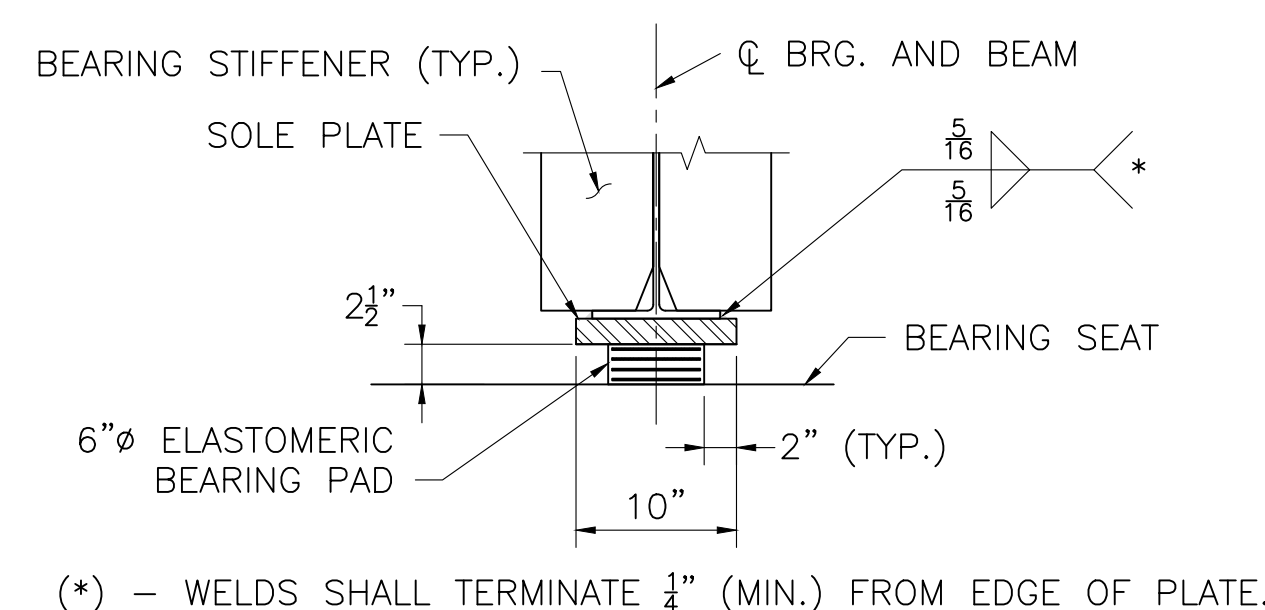
1. ELASTOMER SHALL HAVE A SHEAR MODULUS OF 0.160 KSI.
2. STEEL LAMINATES SHALL CONFORM TO ASTM A 1011 GRADE 36.
3. THE COMPRESSIVE DESIGN LOAD ON THE BEARING PAD IS 8 KIPS. THE COMPRESSIVE DESIGN STRESS IS THE RESULT OF DIVIDING THE COMPRESSIVE DESIGN LOAD BY THE AREA OF THE PAD AND IS EQUAL TO 0.28 KSI.
4. ELASTOMERIC BEARING PAD SHALL NOT BE VULCANIZED TO THE SOLE PLATE.
5. ELASTOMER SHALL HAVE A HARDNESS OF 60 DUROMETER.

**ELASTOMERIC BEARING PAD**

6" = 1'-0"

**BEARING NOTES:**

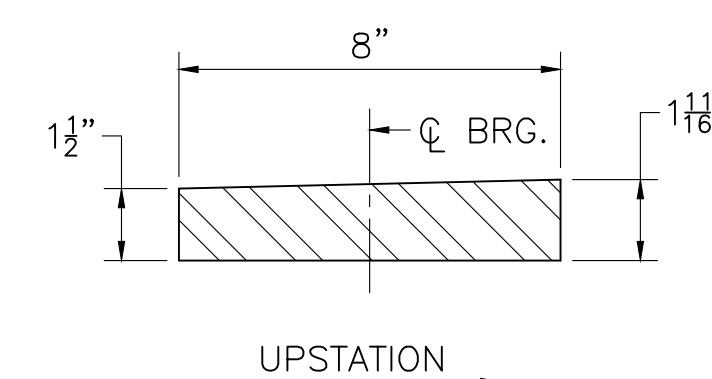
1. STEEL SOLE PLATES SHALL CONFORM TO AASHTO M 270 GRADE 36 AND SHALL BE HOT-DIP GALVANIZED.
2. CENTER THE ELASTOMERIC PAD UNDER THE SOLE PLATE DURING BEAM ERECTION.
3. BEAMS SHALL BE ERECTED WHEN THE AMBIENT TEMPERATURE IS BETWEEN 50 °F AND 77 °F. IF BEAMS ARE ERECTED AT OTHER AMBIENT TEMPERATURES, THEY WILL HAVE TO BE JACKED AND THE ELASTOMERIC BEARINGS RECENTERED WHEN THE TEMPERATURE RETURNS TO THAT RANGE.



(\* ) - WELDS SHALL TERMINATE 1/4" (MIN.) FROM EDGE OF PLATE.

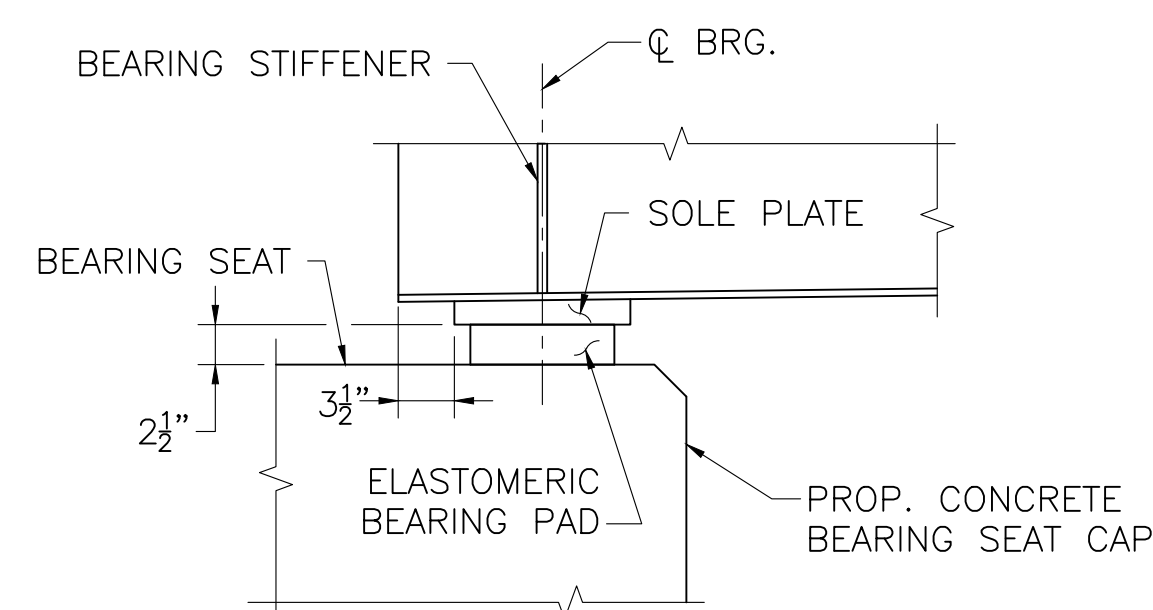
**SECTION 6**

SCALE: 1" = 1'-0"



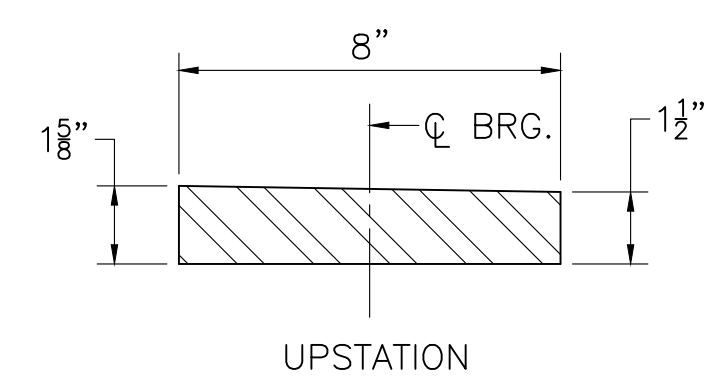
**SOUTH ABUTMENT SOLE PLATE DETAIL**

SCALE: 3" = 1'-0"



**ELEVATION**

SCALE: 1" = 1'-0"



**NORTH ABUTMENT SOLE PLATE DETAIL**

SCALE: 3" = 1'-0"

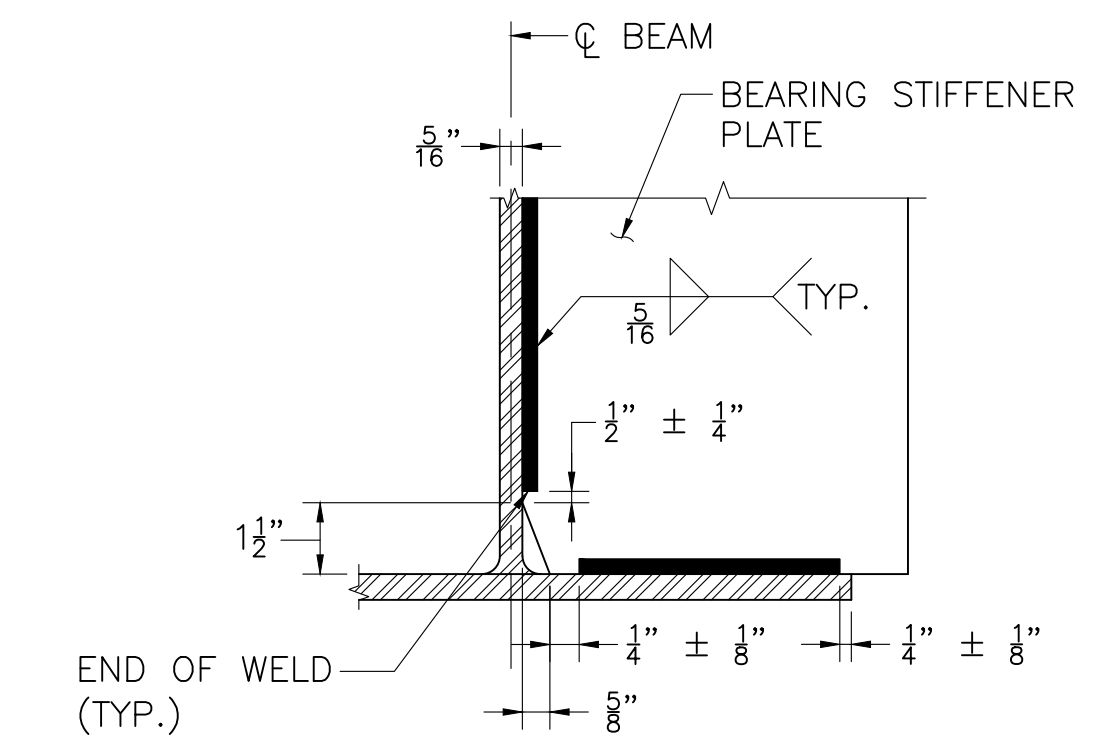
MONTH DD, YYYY	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

SUDBURY BIKE PATH OVER HOP BROOK			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	230	318
PROJECT FILE NO.		608164	

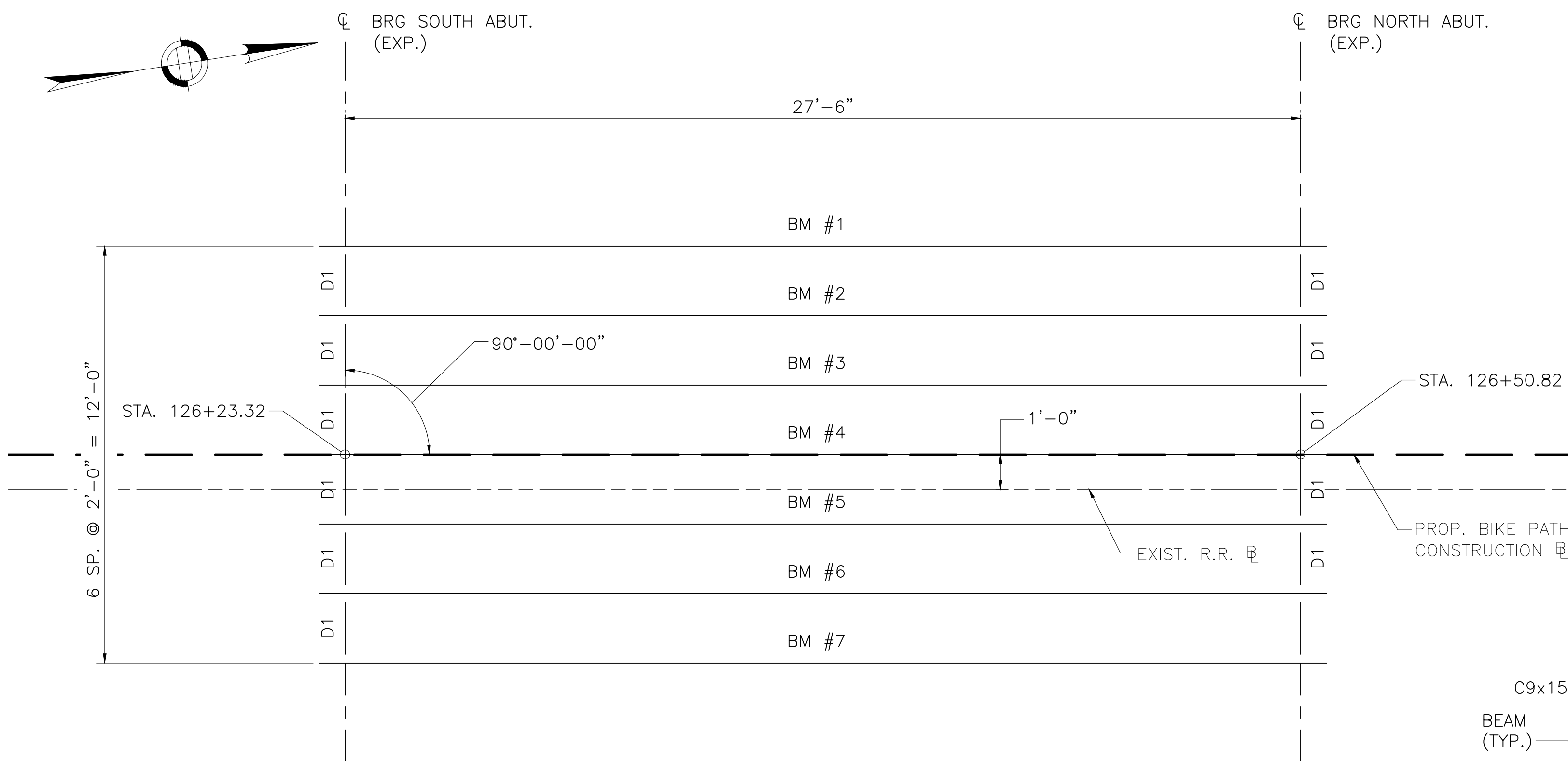
**FRAMING PLAN & STRUCTURAL STEEL DETAILS**

**NOTES:**

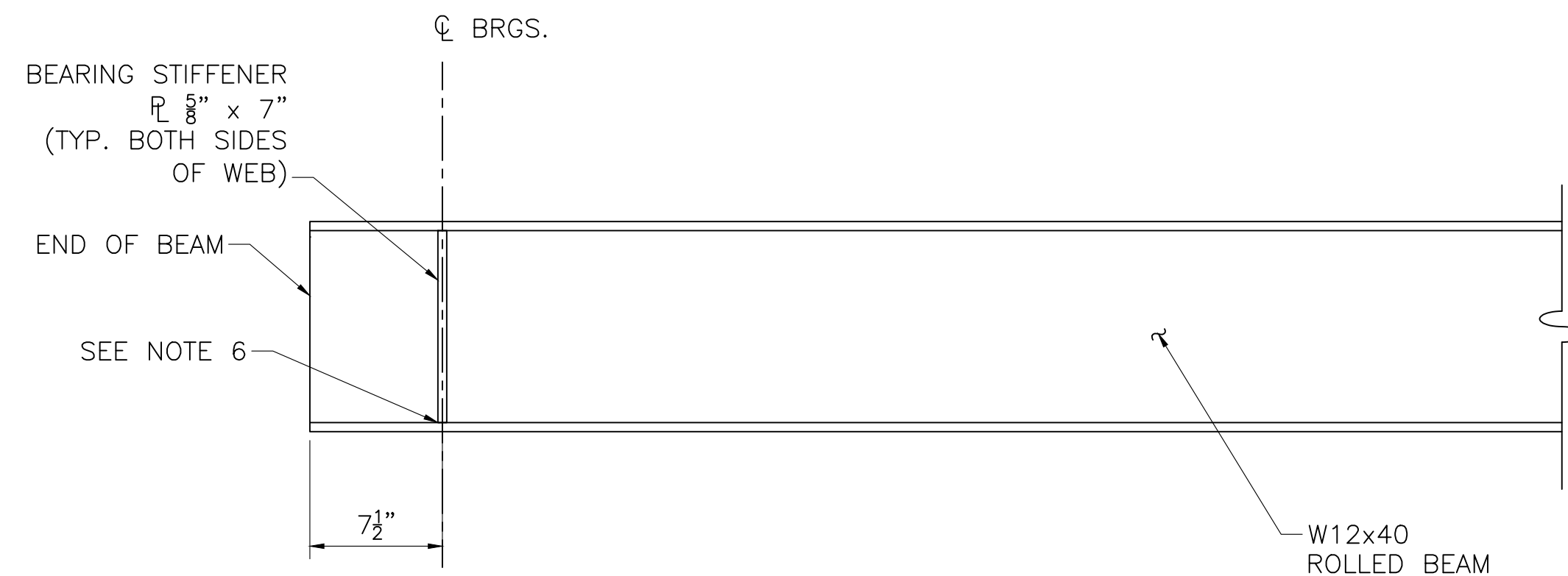
- D1 = C9x15 (TYPICAL DIAPHRAGM)
- THE MAIN LOAD CARRYING MEMBERS ARE BM #1 THROUGH BM #7. ALL BEAMS SHALL BE W12x40.
- ALL STEEL SHALL CONFORM TO AASHTO M270 GRADE 50 HOT-DIP GALVANIZED.
- ALL BEARING STIFFENERS SHALL BE PLUMB.
- ENDS OF BEAMS SHALL BE FABRICATED SO THAT UNDER FULL DEAD LOAD THE ENDS OF THE BEAMS WILL PLUMB.
- BEARING STIFFENER PLATES AT BOTTOM FLANGE SHALL BE MILLED FOR TIGHT FIT AND WELDED WITH  $\frac{5}{16}$ " FILLET WELDS, BOTH SIDES OF PLATE.



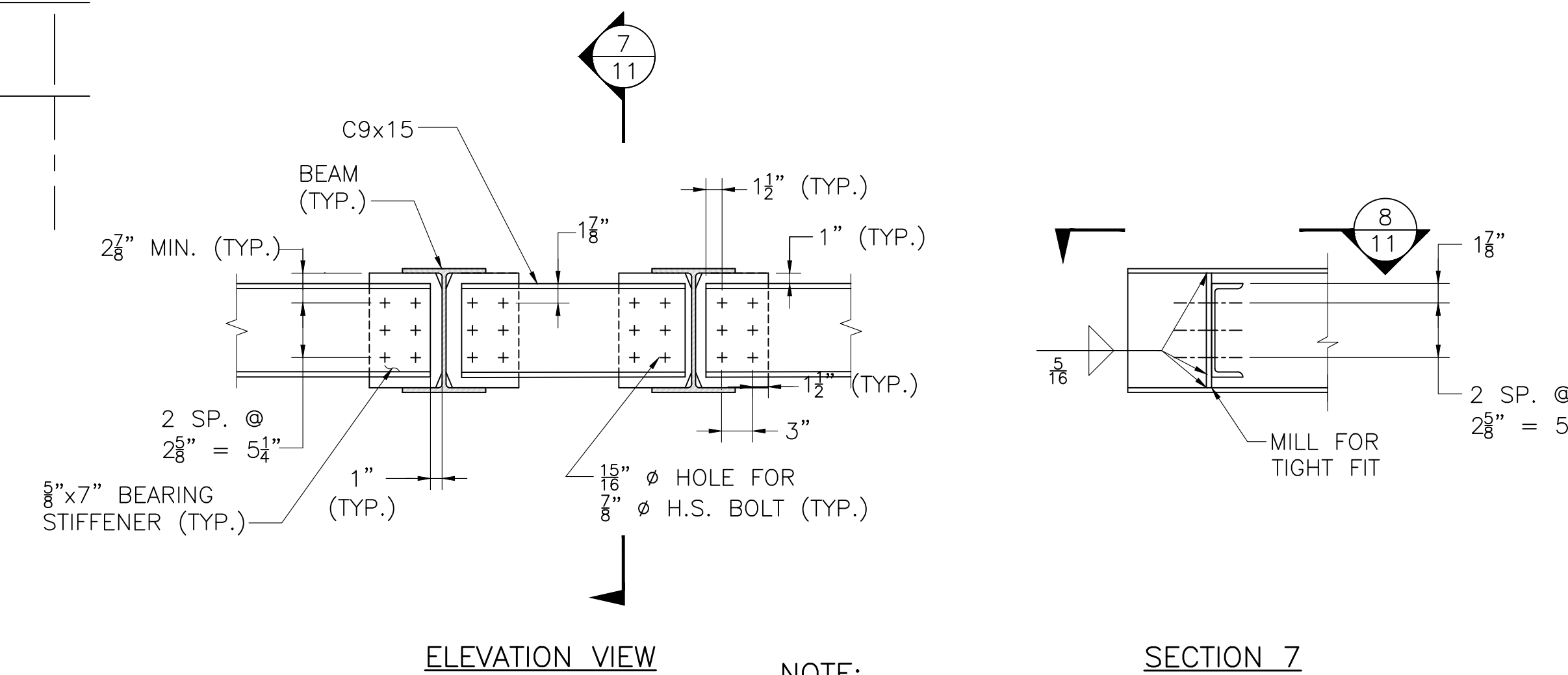
**CLIP DETAIL**  
NOT TO SCALE



**FRAMING PLAN**  
SCALE:  $\frac{3}{8}$ " = 1'-0"



**BEAM ELEVATION**  
SCALE:  $\frac{1}{2}$ " = 1'-0"

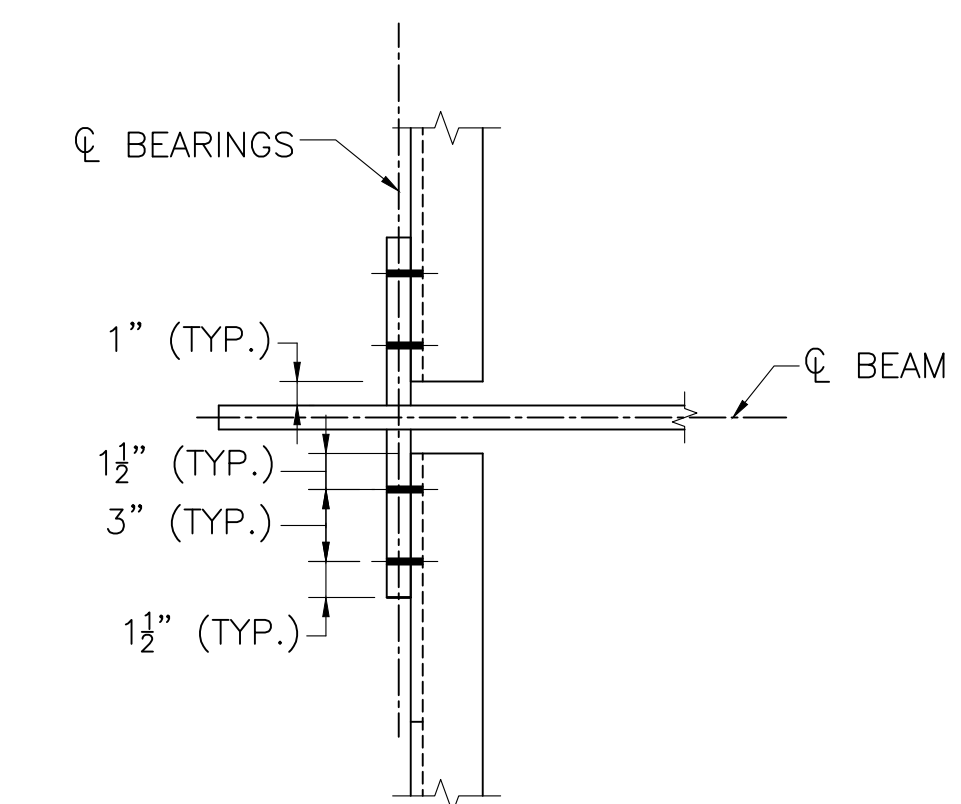


**ELEVATION VIEW**

**SECTION 7**

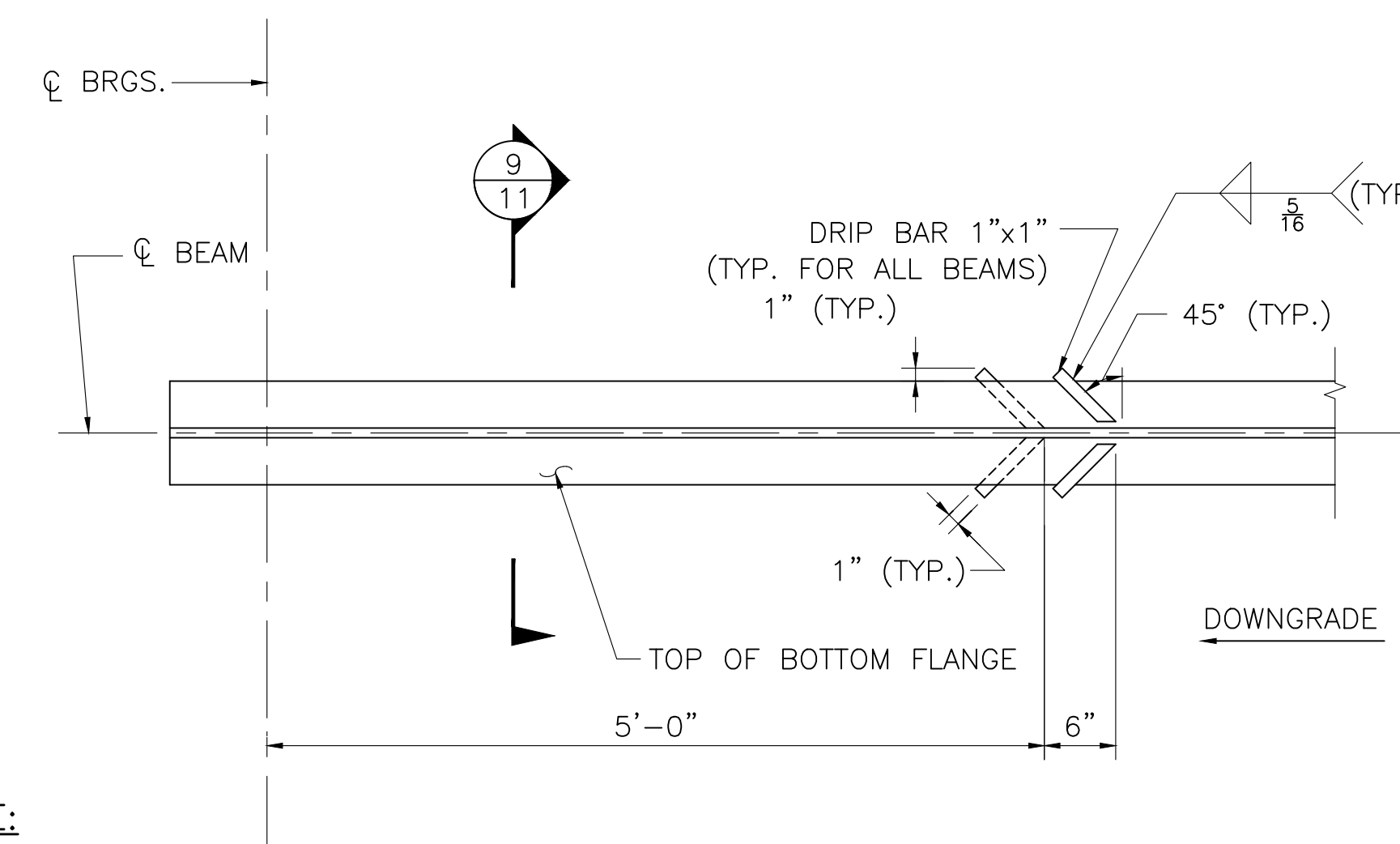
**NOTE:**  
SEE CLIP DETAIL ON THIS SHEET.

**END DIAPHRAGM D1**  
SCALE: 1" = 1'-0"



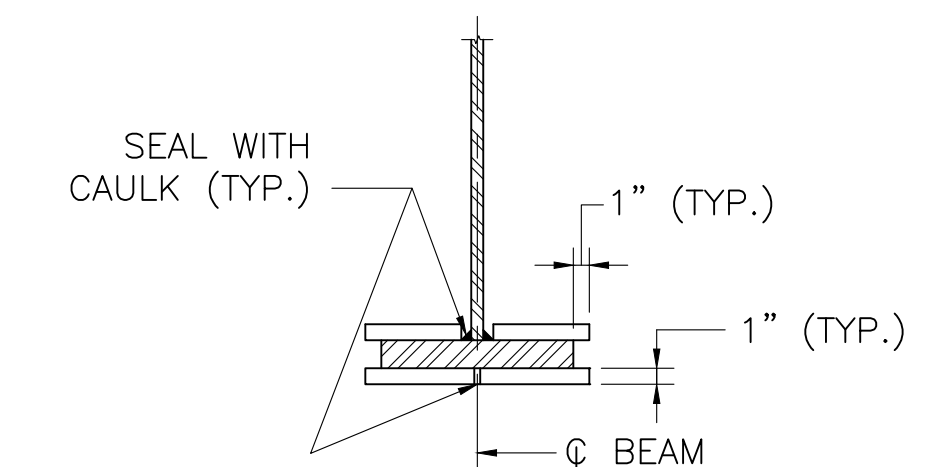
**SECTION 8**  
SCALE:  $\frac{1}{2}$ " = 1'-0"

	CAMBER TABLE										
	SPAN NO. 1										
	S. ABUT.	0.1L	0.2L	0.3L	0.4L	0.5L	0.6L	0.7L	0.8L	0.9L	N. ABUT.
STEEL DL DEFLECTION	0.00	0.02	0.03	0.05	0.06	0.06	0.06	0.05	0.03	0.02	0.00
NONCOMP. DEFLECTION	0.00	0.03	0.05	0.06	0.07	0.07	0.07	0.06	0.05	0.03	0.00
ADDITIONAL CAMBER	0.00	0.07	0.14	0.21	0.28	0.34	0.28	0.21	0.14	0.07	0.00
TOTAL CAMBER	0.00	0.12	0.22	0.32	0.41	0.47	0.41	0.32	0.22	0.12	0.00



**NOTE:**  
DRIP BARS SHALL BE LOCATED ON THE LOW END OF EACH SPAN FOR ALL BEAMS.

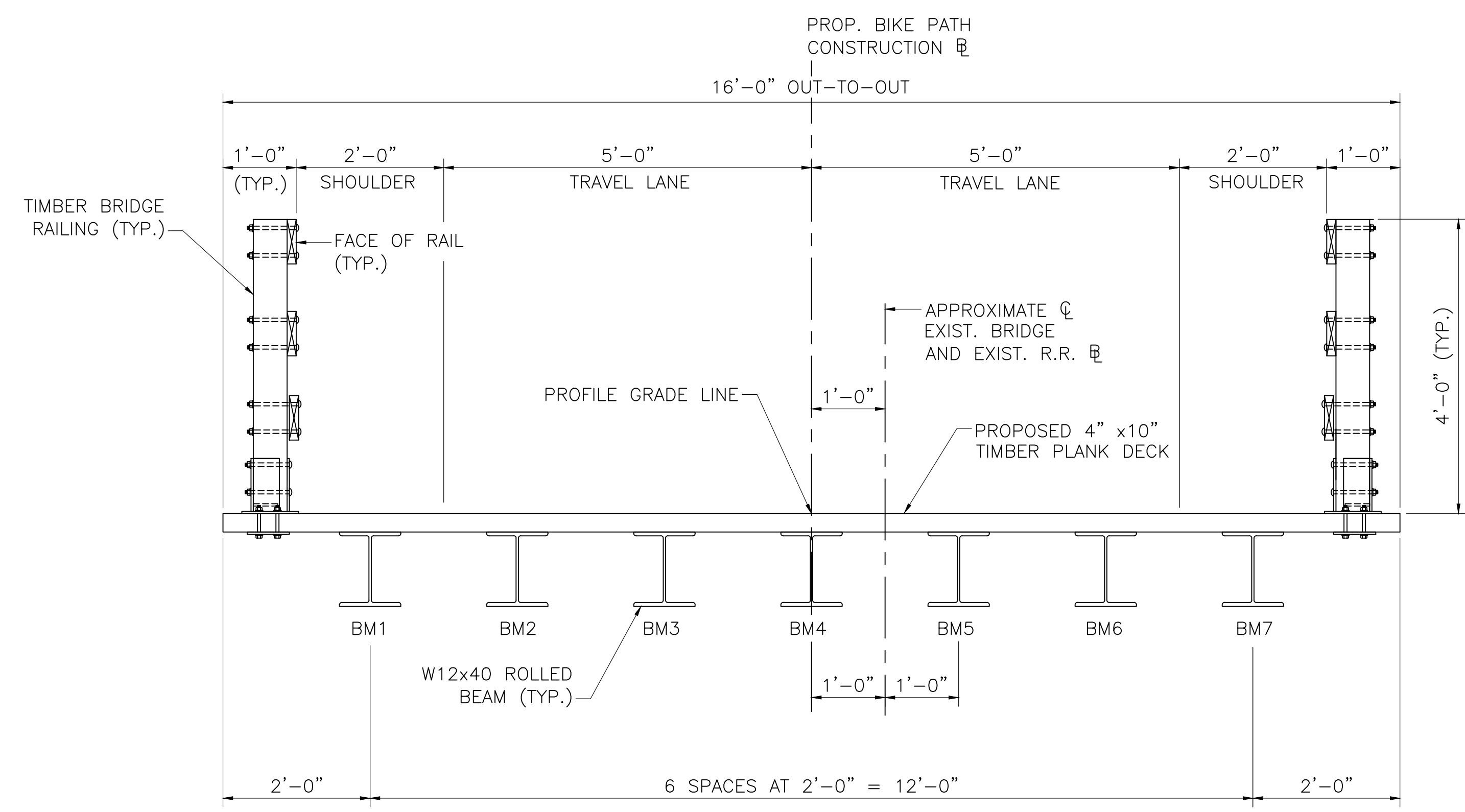
**DRIP BAR DETAIL**  
SCALE: 1" = 1'-0"



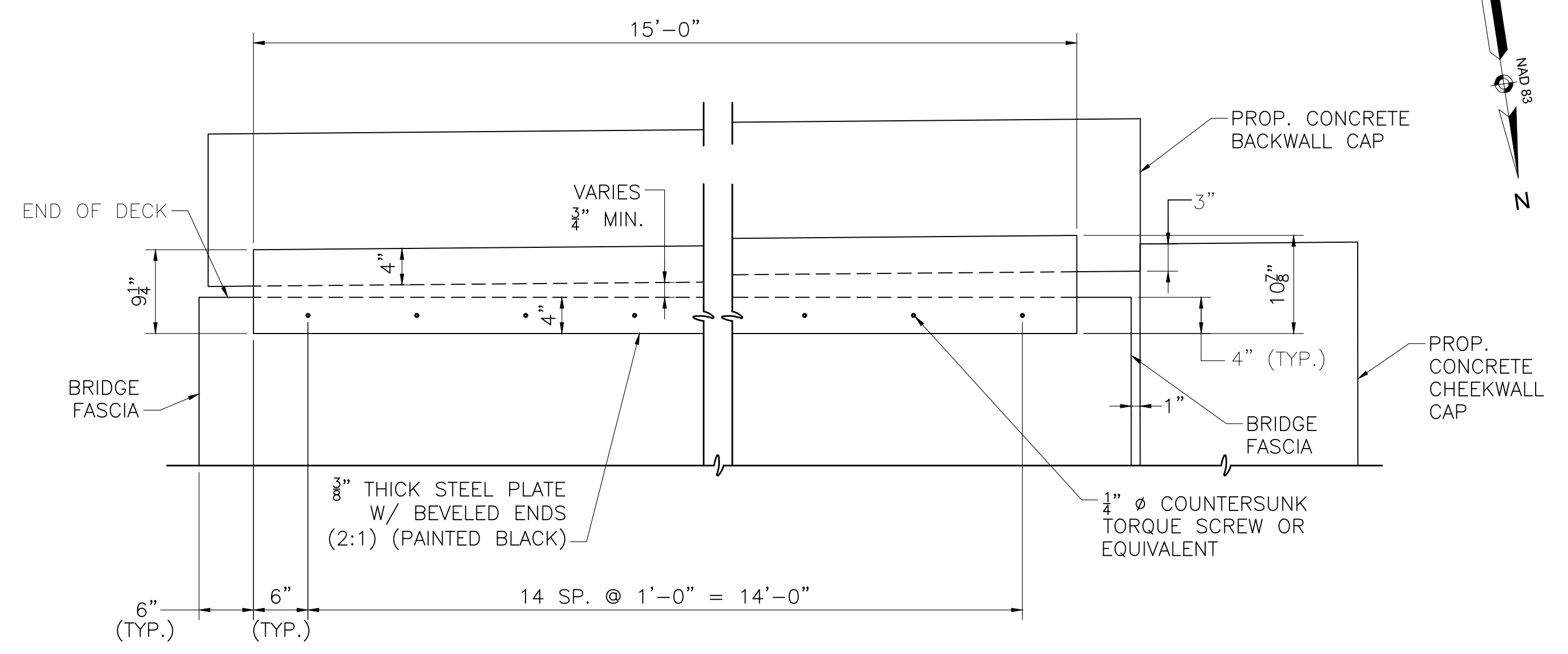
**SECTION 9**  
SCALE: 1" = 1'-0"

MONTH DD, YYYY	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

608164\_BR1(S-31-007)FRAME.DWG Plotted on 12-May-2021 9:33 AM Xxxxx Structural Submitter (S#) DD-Month-YYYY

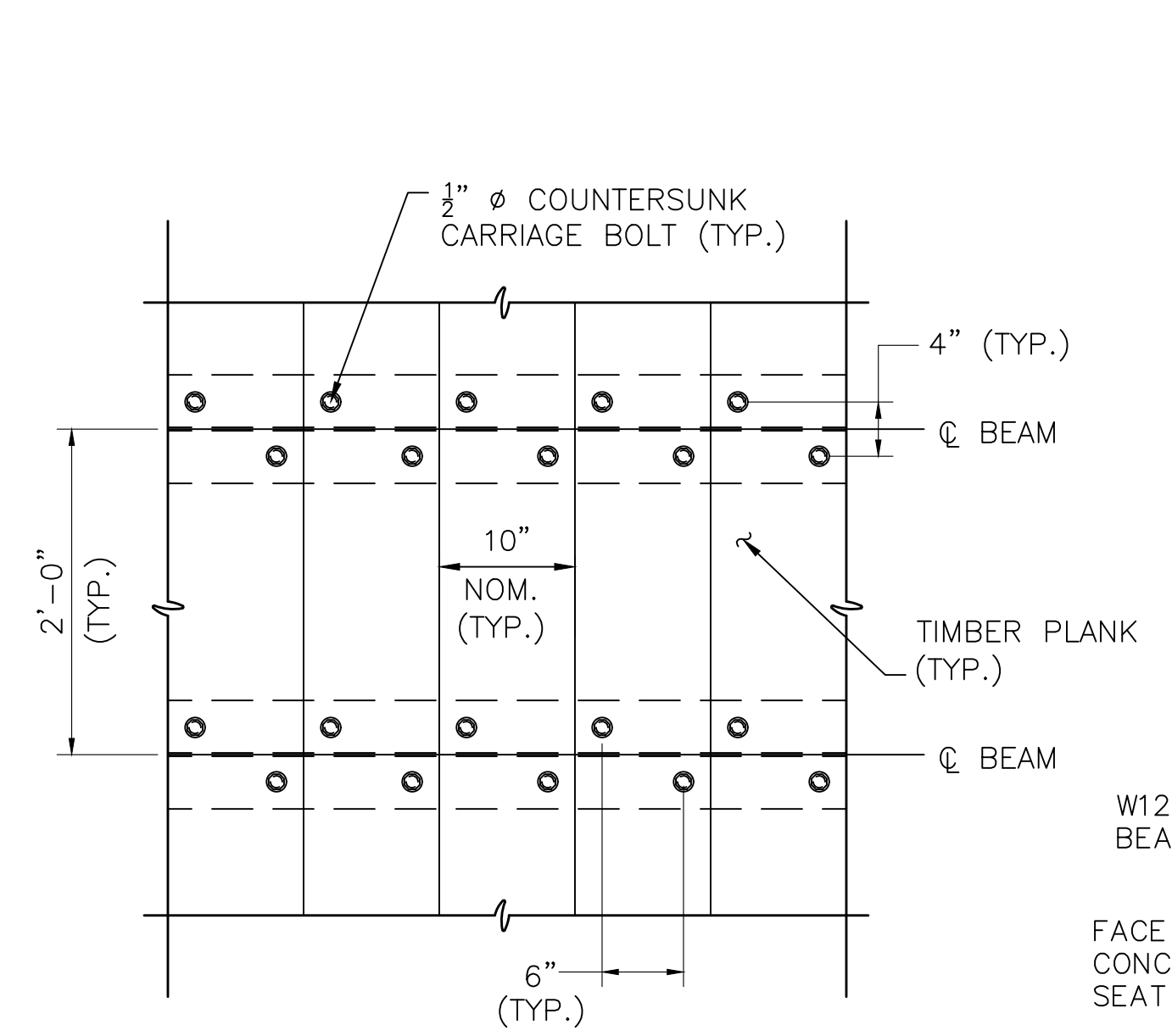


**TYPICAL BRIDGE SECTION**  
SCALE: 3/4" = 1'-0"



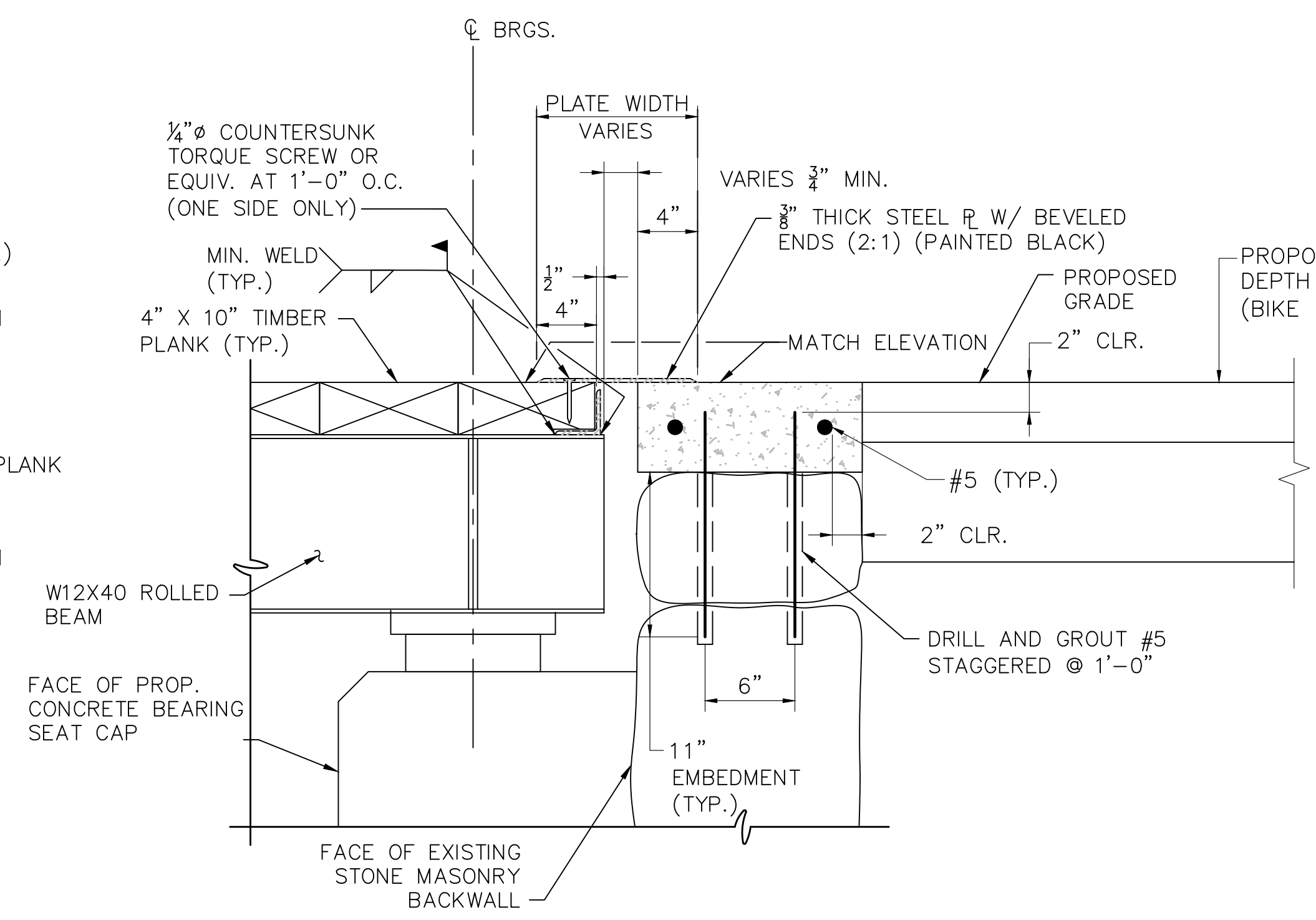
**SOUTH DECK END PLATE DETAIL**  
SCALE: 1" = 1'-0"

**NOTE:**  
BEAMS AND BEARING SEAT NOT SHOWN FOR CLARITY.

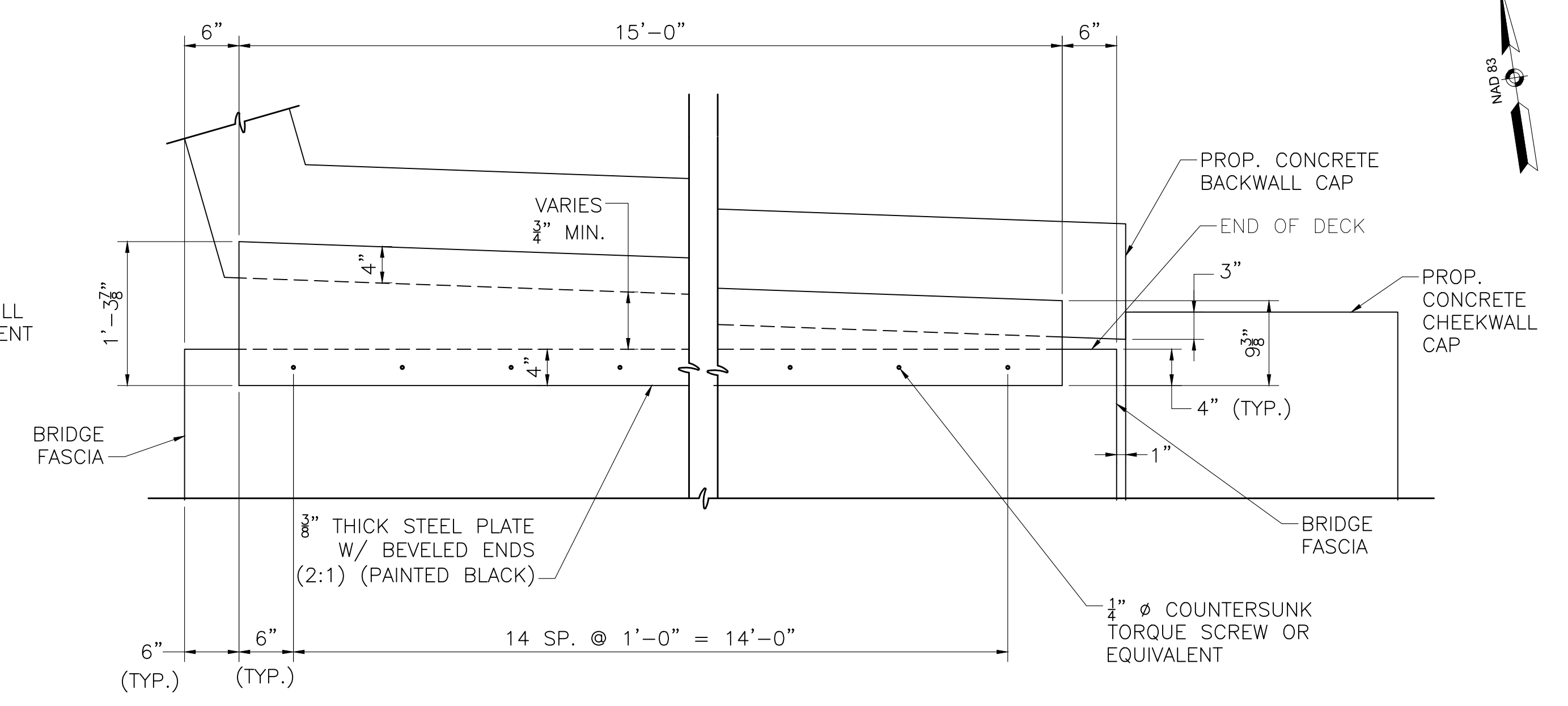


**NOTE:**  
CONNECTION SHOULD BE CENTERED ON PLANKS AND BEAMS.

**DECK CONNECTION DETAIL**  
SCALE: 1" = 1'-0"



**TYPICAL ABUTMENT END DETAIL**  
SCALE: 1 1/2" = 1'-0"



**NORTH DECK END PLATE DETAIL**  
SCALE: 1" = 1'-0"

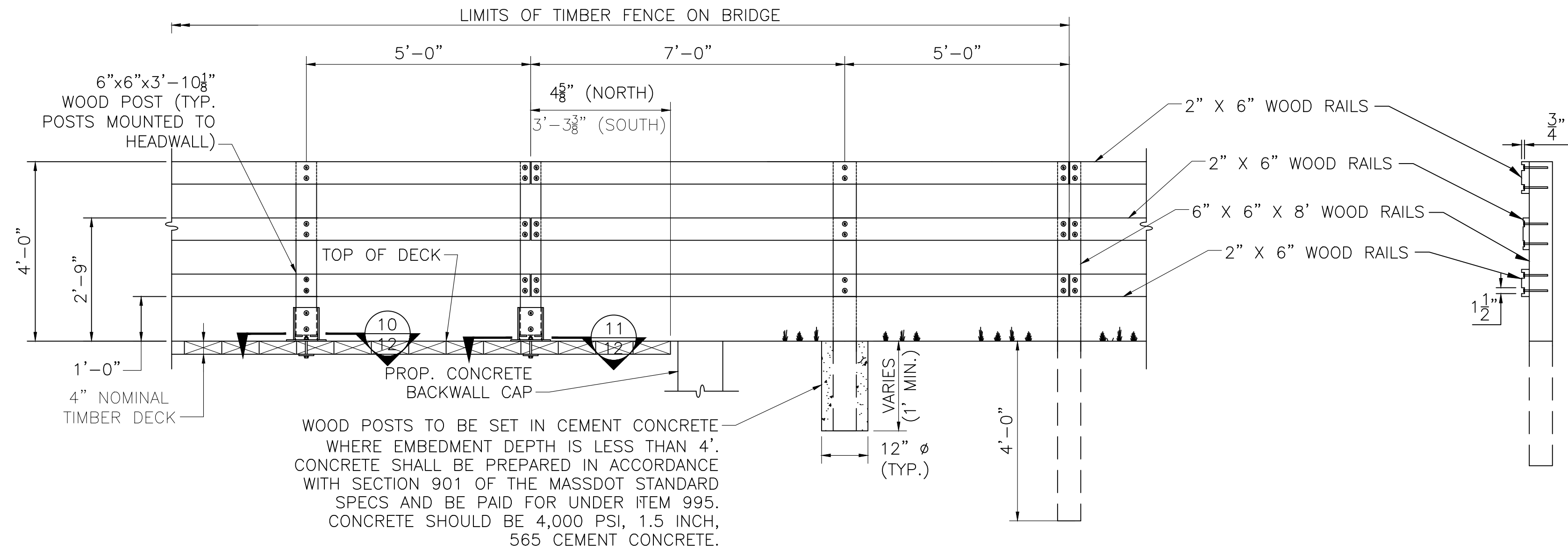
MONTH DD, YYYY	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

608164\_BR13(S-31-007)DECK DETAILS.DWG Plotted on 12-May-2021 9:33 AM DD-Month-YYYY

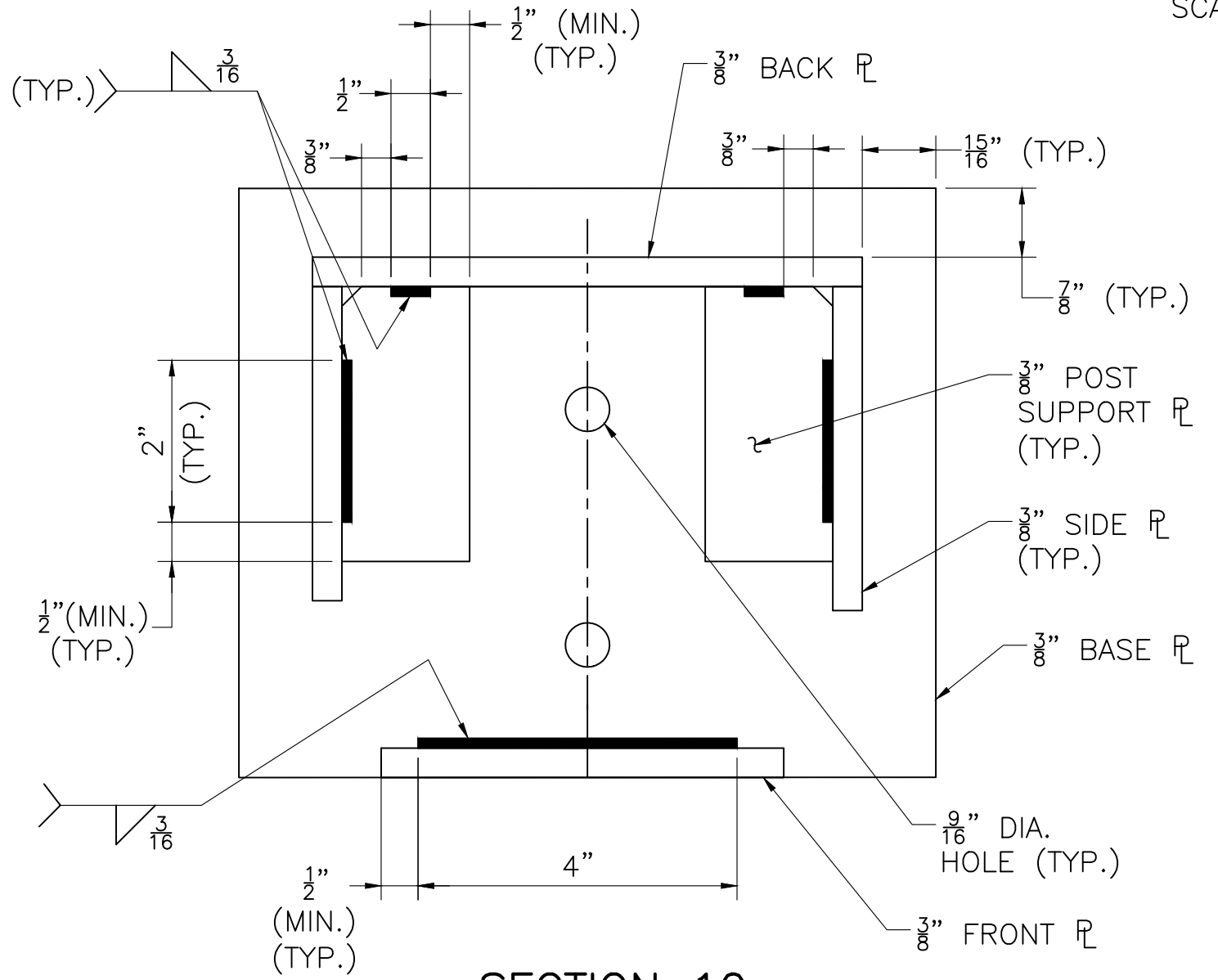
SUDBURY BIKE PATH OVER HOP BROOK			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	232	318
PROJECT FILE NO.		608164	
TIMBER BRIDGE RAIL DETAILS			

**RAILING NOTES:**

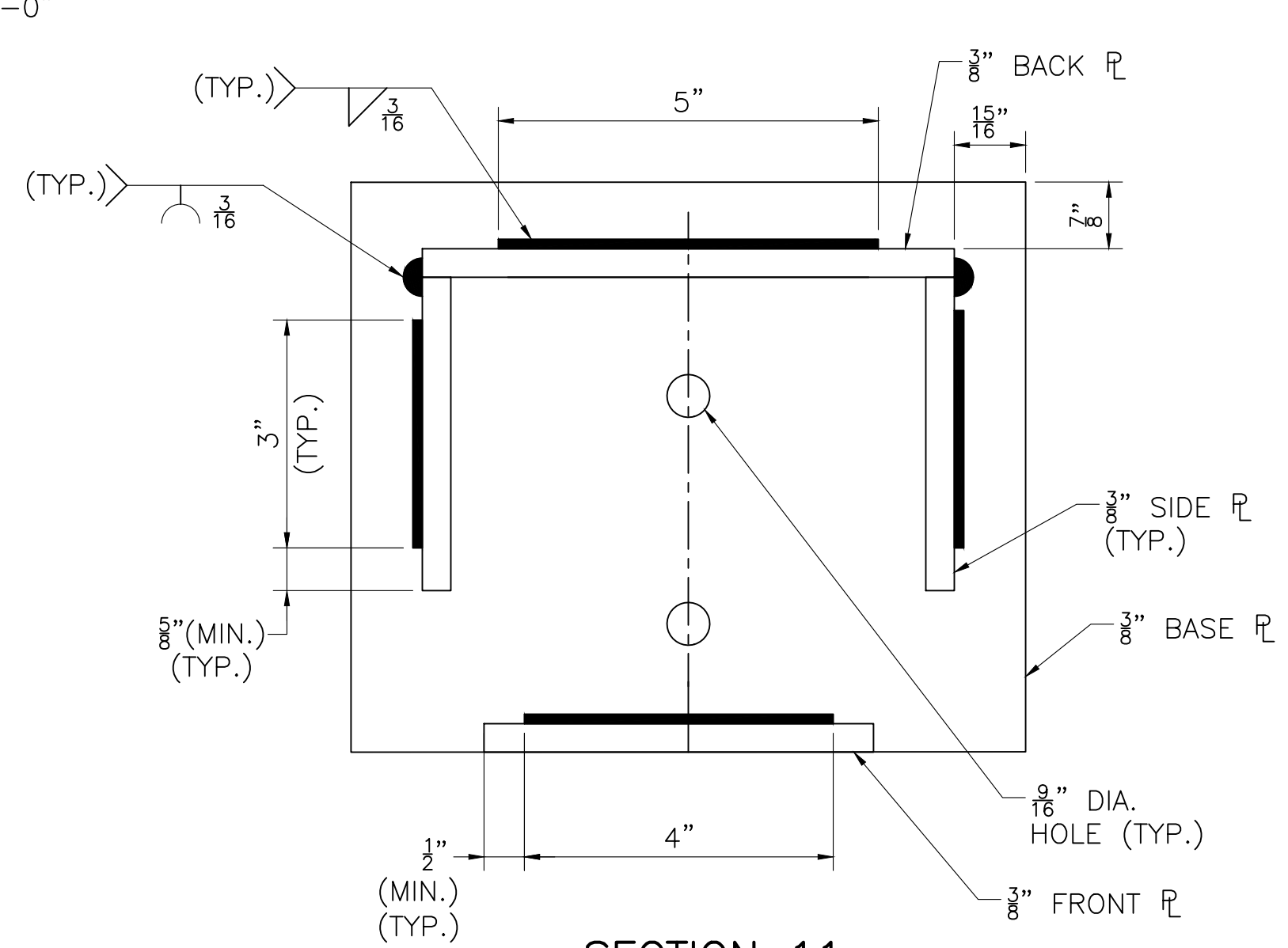
- RAIL CONNECTION PLATES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M270 GRADE 50.
- ALL STEEL PLATES AND FASTENERS SHALL BE GALVANIZED.
- THE NUT SECURING THE POST BASE PLATE TO THE TIMBER DECK SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL  $\frac{1}{8}$  TURN AFTER STEEL IS IN PLACE.
- CONNECTION BOLTS SHALL BE ASTM A325 TYPE 1.
- RAIL POSTS SHALL NOT FALL WITHIN 2" OF EDGE OF PLANK. ADJUST RAIL SPACING TO BE NOT MORE THAN 5'-0" SPACING ON BRIDGE TO ACCOMMODATE 2" EDGE DISTANCE LIMIT. HOLD 7' SPACING BETWEEN LAST POST ON THE BRIDGE AND FIRST POST OFF THE BRIDGE.



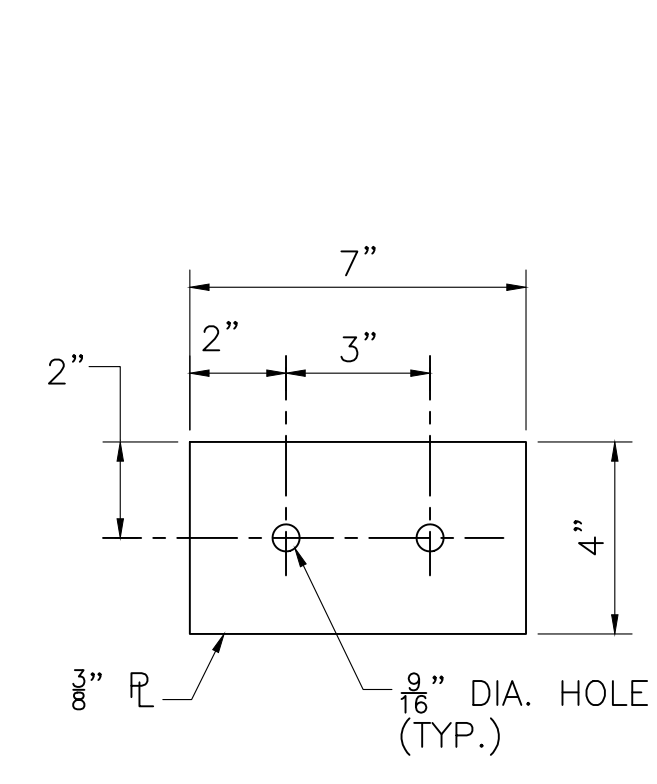
**TIMBER BRIDGE RAIL ELEVATION**  
SCALE: 1/2"=1'-0"



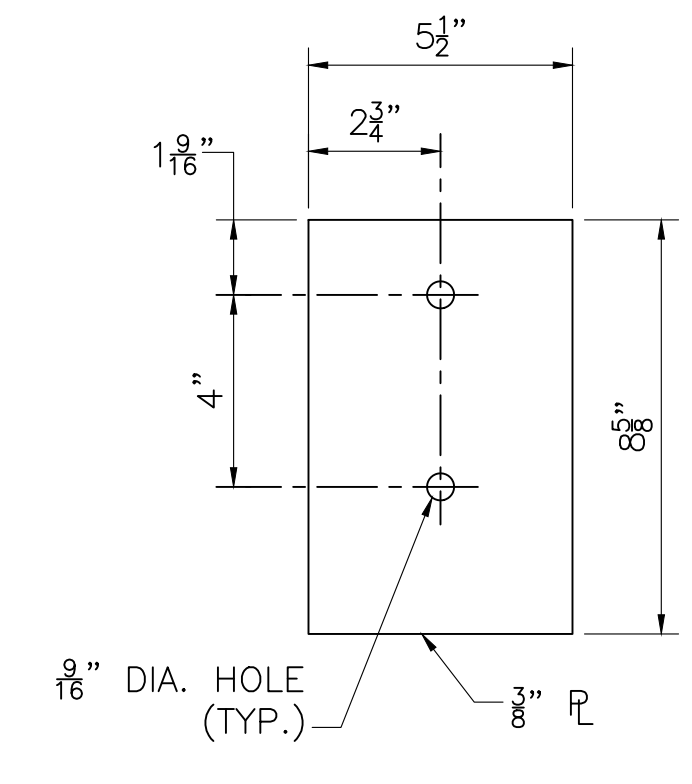
**SECTION 10**  
SCALE: 6"=1'-0"



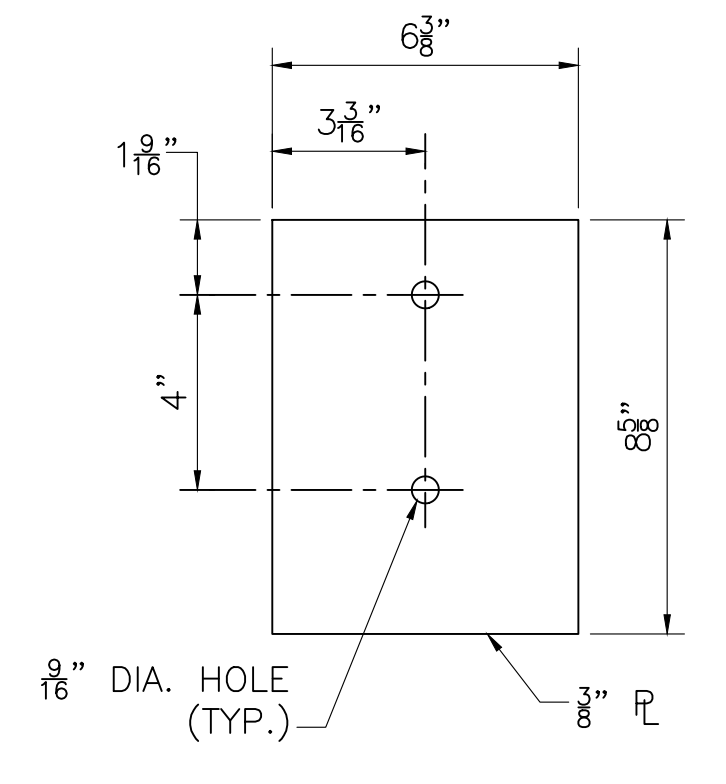
**SECTION 11**  
SCALE: 6"=1'-0"



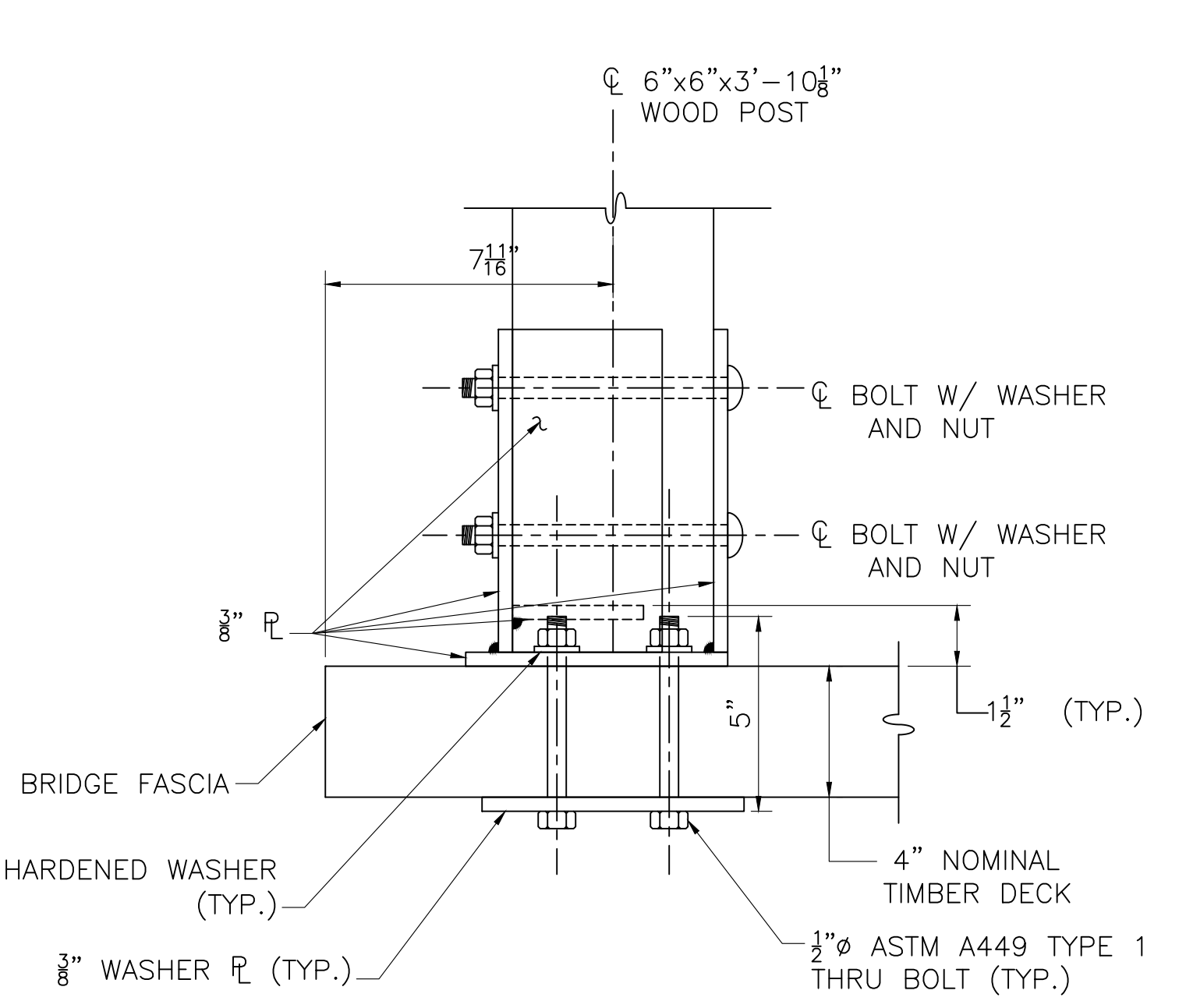
**WASHER PLATE**  
SCALE: 3"=1'-0"



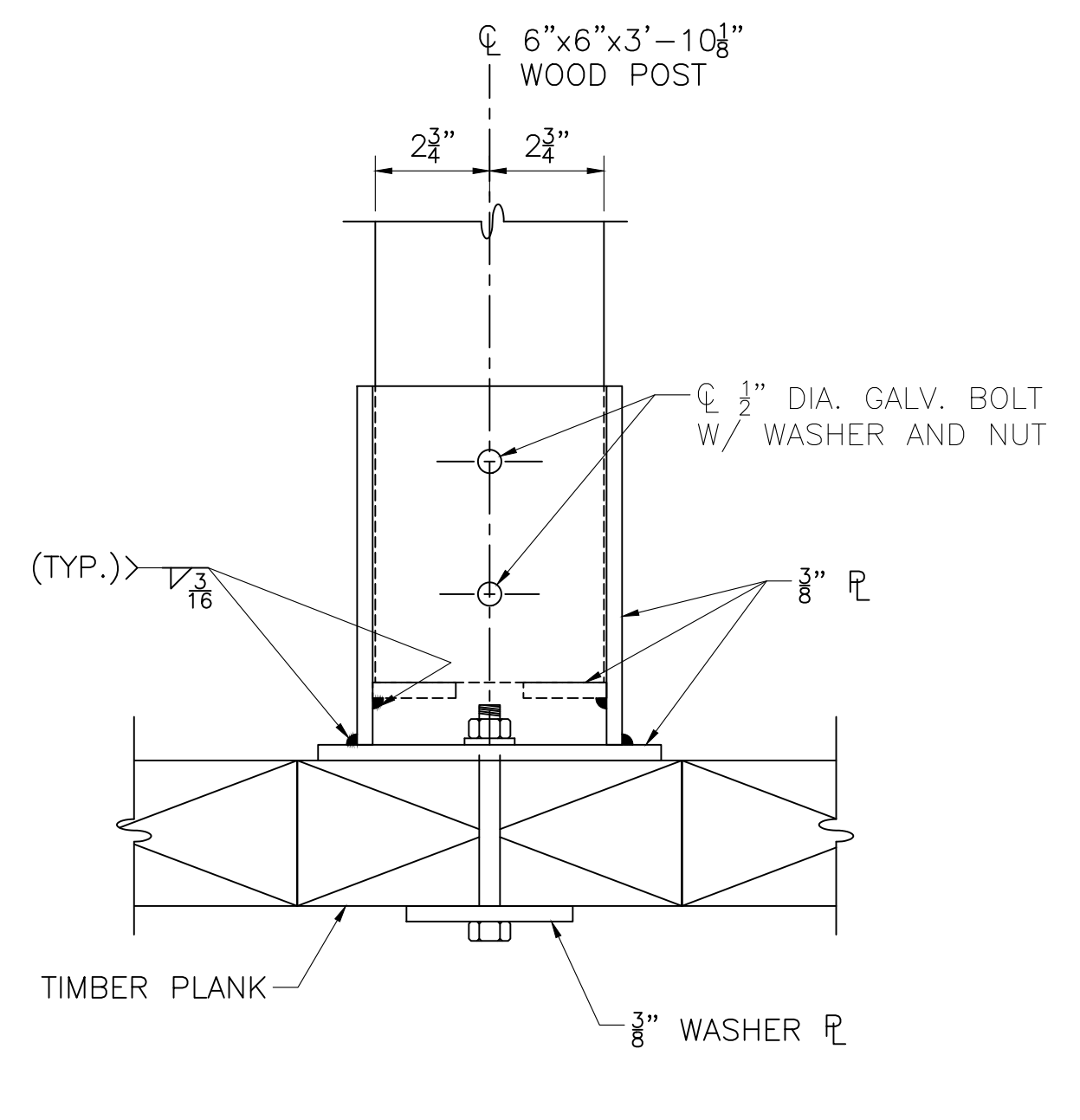
**FRONT PLATE**  
SCALE: 3"=1'-0"



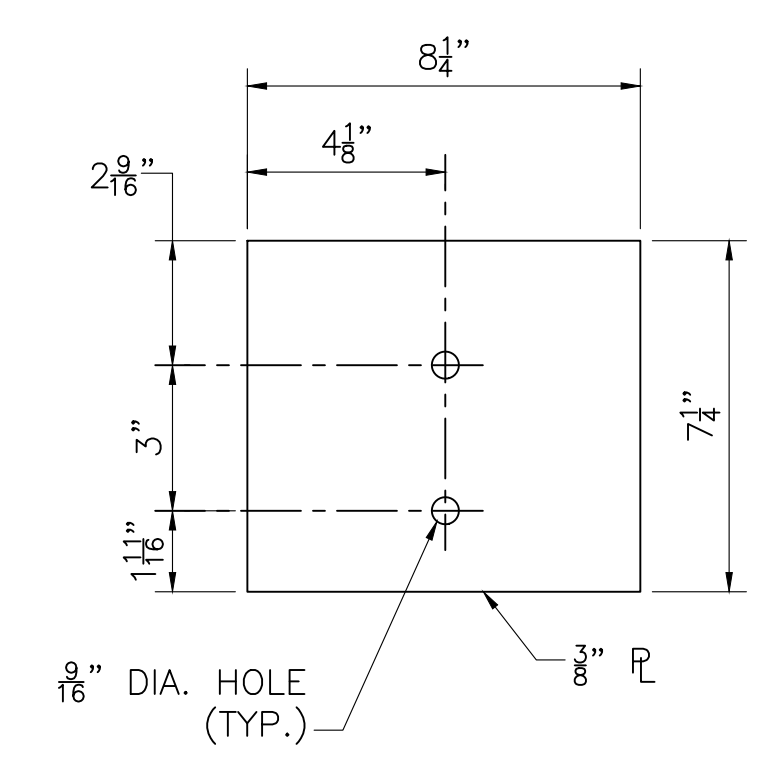
**BACK PLATE**  
SCALE: 3"=1'-0"



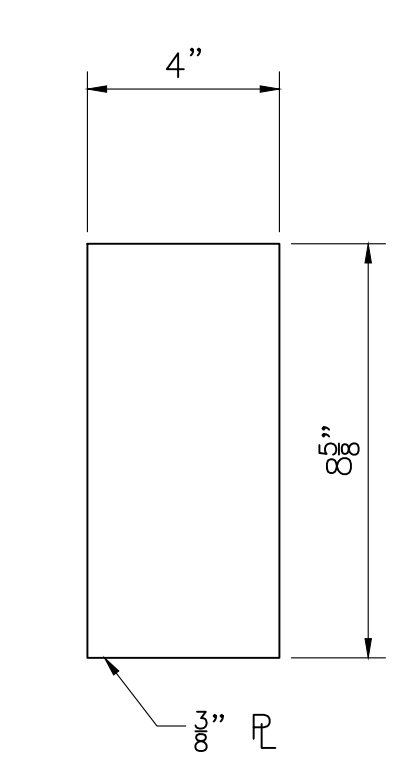
**SIDE ELEVATION**  
SCALE: 3"=1'-0"



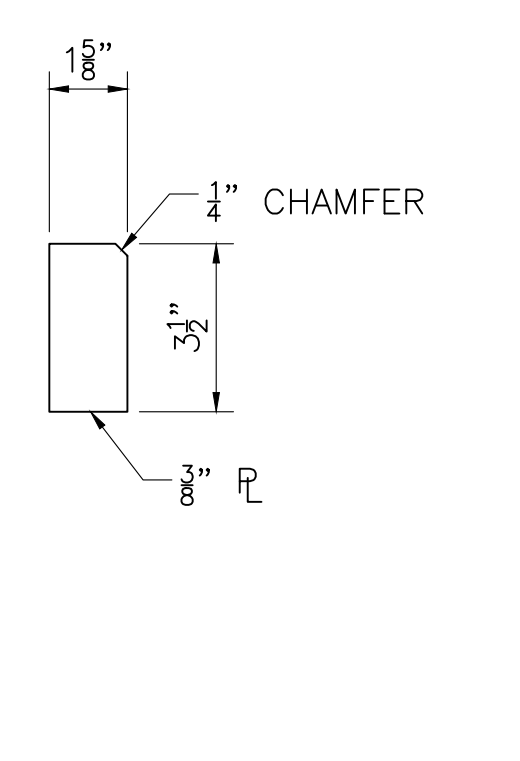
**BACK ELEVATION**  
SCALE: 3"=1'-0"



**BASE PLATE**  
SCALE: 3"=1'-0"



**SIDE PLATE**  
SCALE: 3"=1'-0"



**POST SUPPORT PLATE**  
SCALE: 3"=1'-0"

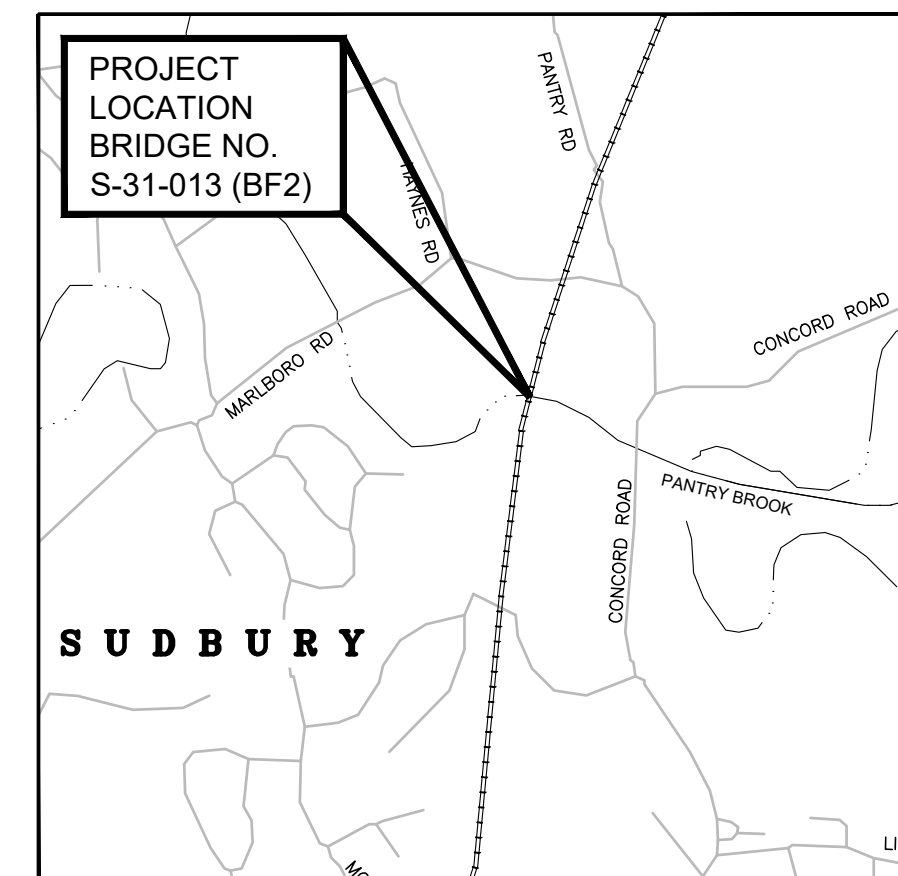
MONTH DD, YYYY	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

Plotted on 12-May-2021 9:33 AM  
XXXXX Structural Submittal (S) DD-Month-YYYY

**SUDBURY**  
**BIKE PATH OVER PANTRY BROOK**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	233	318
PROJECT FILE NO.		608164	

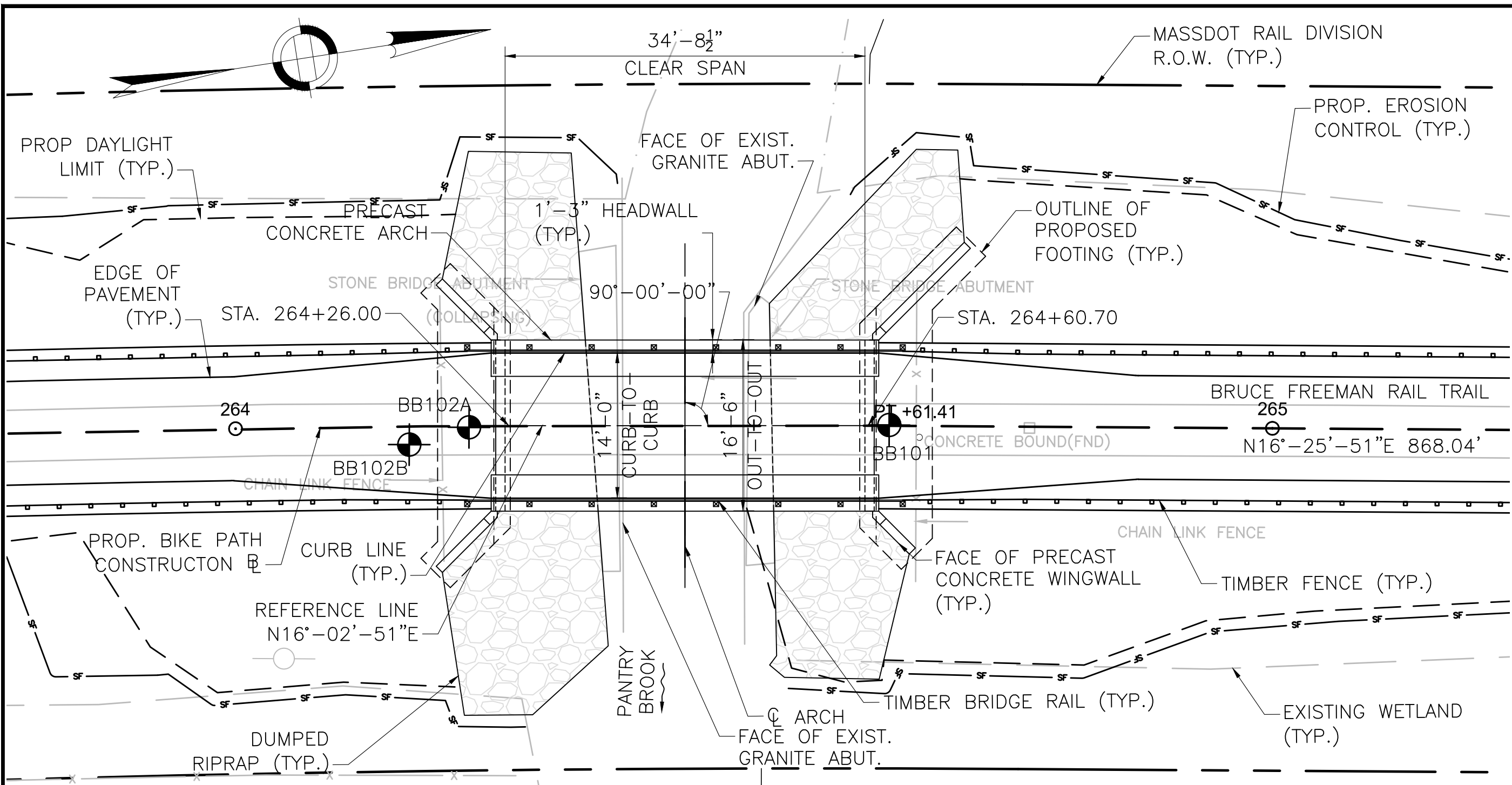
**KEY PLAN & PROFILE**



**LOCUS PLAN**  
SCALE: 1" = 1200'

**ESTIMATED QUANTITIES:**  
(NOT GUARANTEED)

ITEM:	QUANTITY:
DEMOLITION OF SUPERSTRUCTURE OF BRIDGE NO. S-31-013	1 LS
BRIDGE EXCAVATION	410 CY
CHANNEL EXCAVATION	235 CY
GRAVEL BORROW FOR BACKFILLING STRUCTURES AND PIPES	270 CY
CRUSHED STONE	85 TON
CRUSHED STONE FOR BRIDGE FOUNDATIONS	60 TON
CHAIN LINK FENCE REMOVED AND STACKED	55 FT
STONE MASONRY WALL REMOVED AND REBUILT IN CEMENT MORTAR	10 CY
MASONRY REPOINTING	10 SY
MASONRY REMOVED AND STOCKPILED	76 SY
GEOTEXTILE FABRIC FOR PERMANENT EROSION CONTROL	215 SY
MASONRY PARK BENCH REMOVED AND RESET	7 EA
DUMPED RIPRAP	205 TON
CONTROL OF WATER - STRUCTURE NO. S-31-013	1 LS
BRIDGE STRUCTURE, BRIDGE NO. S-31-013	1 LS



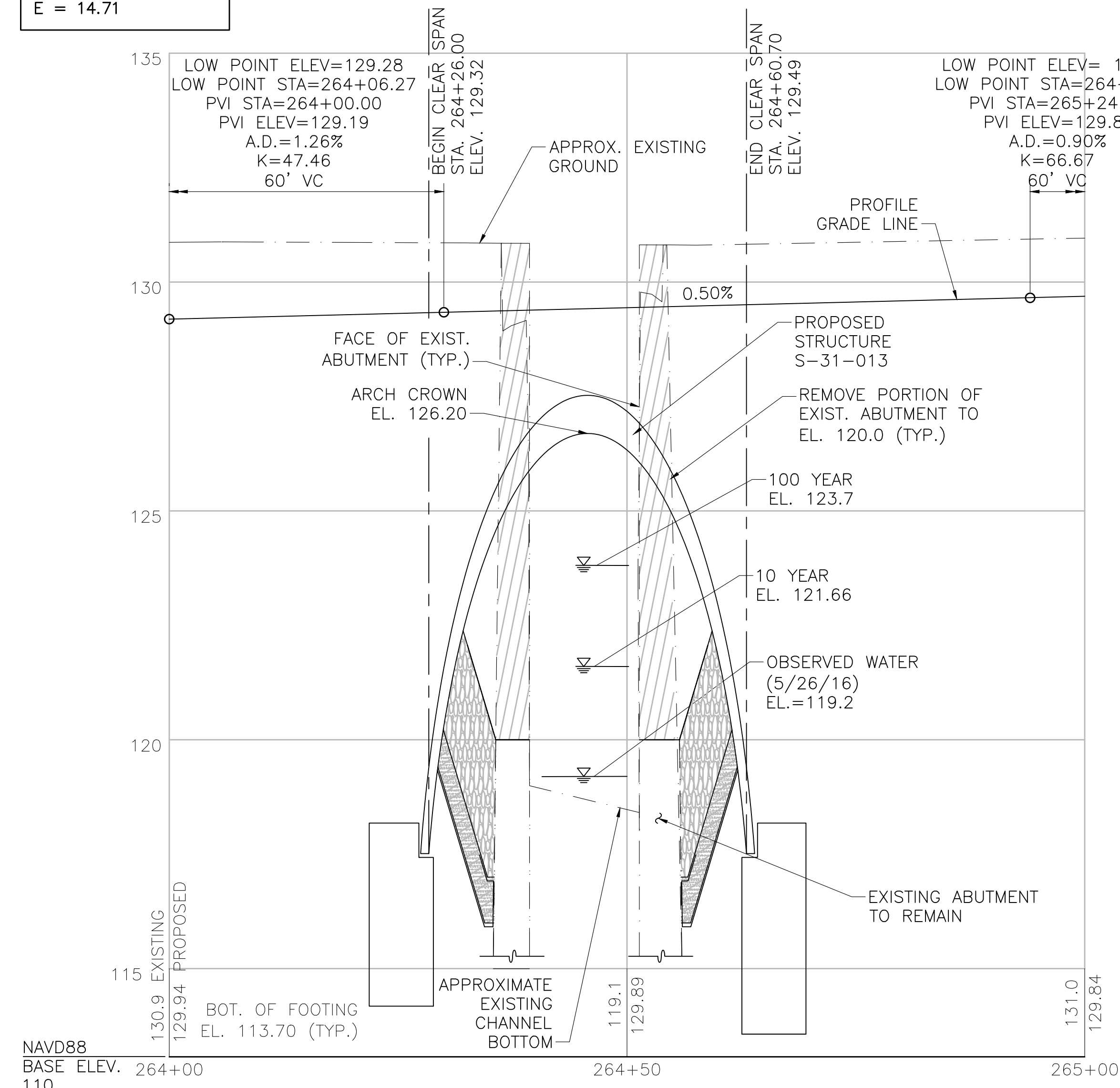
**KEY PLAN**  
SCALE: 1" = 10'-0"

**CURVE DATA**

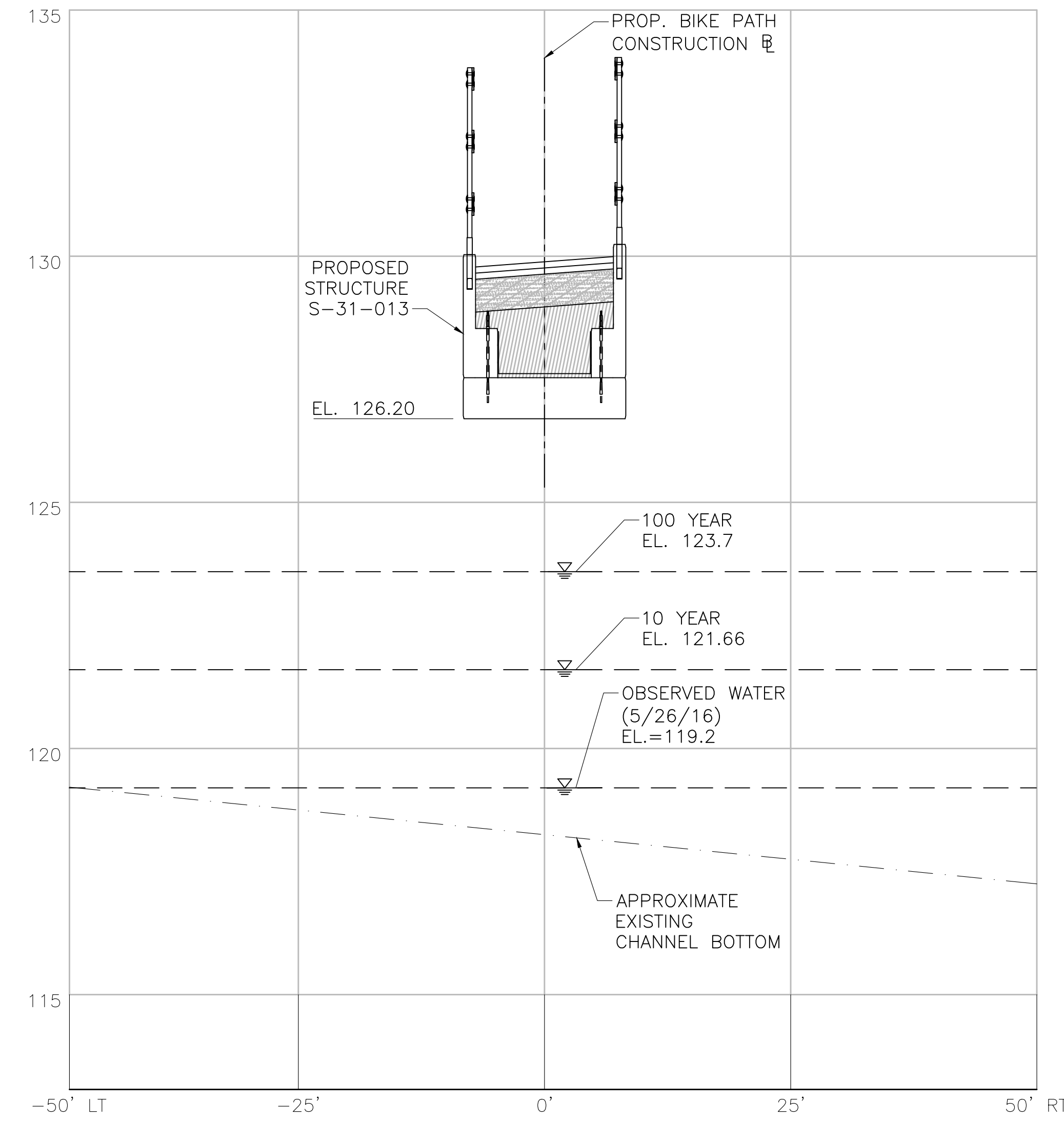
PI = 261+81.23
Δ = 11°-56'-04.85"
R = 2700.00
T = 282.23
L = 562.41
E = 14.71

**INDEX**

SHEET NO.	DESCRIPTION
1	KEY PLAN AND PROFILE
2	GENERAL NOTES
3-4	BORING LOGS
5	GENERAL PLAN AND ELEVATION
6	EARTHWORK DETAILS
7	TYPICAL SECTIONS AND ELEVATIONS
8	FOUNDATION PLAN AND DETAILS
9	PRECAST ARCH DETAILS AND NOTES
10	TIMBER BRIDGE RAIL DETAILS



**PROFILE ALONG BIKE PATH**  
HORIZONTAL SCALE: 1" = 10'-0"  
VERTICAL SCALE: 1" = 2'-0"



**PROFILE ALONG PANTRY BROOK**  
HORIZONTAL SCALE: 1" = 10'-0"  
VERTICAL SCALE: 1" = 2'-0"

P.E. STAMP SIGNATURE

MONTH DD, YYYY ISSUED FOR CONSTRUCTION

**PROPOSED BRIDGE**  
**SUDBURY**  
**PROPOSED BIKEPATH**  
**OVER PANTRY BROOK**

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

TITLE: \_\_\_\_\_ CHIEF ENGINEER

608164\_BR(S-31-013)(FIRST SHEET).DWG Plotted on 12-May-2021 9:38 AM

**SUDBURY  
BIKE PATH OVER PANTRY BROOK**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	234	318
PROJECT FILE NO.		608164	

**GENERAL NOTES**

**GENERAL NOTES:**

**DESIGN:**

IN ACCORDANCE WITH THE 2020 AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS LRFD BRIDGE DESIGN SPECIFICATIONS WITH CURRENT INTERIM SPECIFICATIONS THROUGH 2021 FOR H-10 VEHICULAR AND 90 PSF PEDESTRIAN LOADINGS.

**MASSDOT BENCH MARK:**

BM #37 LAG SCREW SET 2' UP 7" PINE  
ELEV. = 133.50'

ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988.

**SURVEY NOTEBOOKS:**

SURVEY PERFORMED BY VANASSE HANGEN BRUSTLIN, INC. FIELD NOTEBOOKS SHALL BE OBTAINED FROM FUSS AND O'NEILL, INC., SPRINGFIELD, MA.

**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.

**EXISTING CONSTRUCTION:**

DIMENSIONS SHOWN ARE TAKEN FROM SURVEY, VARIOUS FIELD MEASUREMENTS, AND GEOTECHNICAL EXPLORATION AND ARE NOT GUARANTEED. THE CONTRACTOR SHALL DETERMINE AND ESTABLISH ALL DIMENSIONS AND DETAILS NECESSARY FOR COMPLETION OF ALL WORK BY FIELD MEASUREMENT AND SURVEY. THE CONTRACTOR SHALL BE RESPONSIBLE AND NOT ORDER ANY MATERIAL OR COMMENCE ANY FABRICATION UNTIL HE HAS MADE THE REQUIRED MEASUREMENTS ON THE ACTUAL STRUCTURE AND THE EXTENT OF THE PROPOSED WORK HAS BEEN APPROVED BY THE ENGINEER.

**GEOTECHNICAL REPORT:**

REFER TO GEOTECHNICAL REPORT DATED APRIL 24, 2020 BY JACOBS ENGINEERING GROUP, INC.

**HYDRAULIC REPORT:**

REFER TO HYDRAULIC REPORT DATED APRIL 24, 2020 BY JACOBS ENGINEERING GROUP, INC.

**CONCRETE:**

ALL CONCRETE SHALL BE 4,000 HP CONCRETE. ALL PRECAST CONCRETE SHALL BE 5,000 PSI, 3/4", 685 HP CEMENT CONCRETE

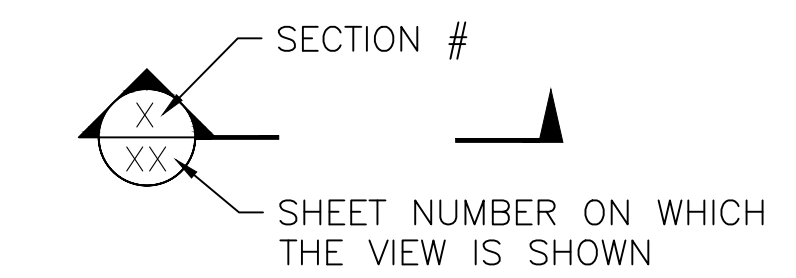
**REINFORCEMENT:**

REINFORCING STEEL 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	16"	19"	23"
2. 12" OF CONCRETE BELOW BAR	20"	25"	30"
3. EPOXY COATED BARS, COVER < 3d <sub>s</sub> , OR CLEAR SPACING < 6d <sub>s</sub>	23"	29"	34"
4. COATED BARS, ALL OTHER CASES	18"	23"	27"
5. CONDITION 2. AND 3.	26"	32"	39"
6. CONDITION 2. AND 4.	24"	30"	36"

ALL OTHER BARS SHOULD BE LAPPED AS SHOWN ON THE CONSTRUCTION DRAWINGS.

**SECTION MARK:**



TRAFFIC DATA		
	ROADWAY OVER	ROADWAY UNDER
DESIGN YEAR	N/A	
AVERAGE DAILY TRAFFIC -- PRESENT	N/A	
AVERAGE DAILY TRAFFIC -- DESIGN YEAR	N/A	
DESIGN HOURLY VOLUME	N/A	
DIRECTIONAL DISTRIBUTION	N/A	
TRUCK PERCENTAGE -- AVERAGE DAY	N/A	
TRUCK PERCENTAGE -- PEAK HOUR	N/A	
DESIGN SPEED	18 MPH	
DIRECTIONAL DESIGN HOURLY VOLUME	N/A	

SEISMIC DESIGN CRITERIA	
DESIGN RETURN PERIOD:	1,000
DESIGN SPECTRA	
As	0.11
SDs	0.23
SD1	0.09
SITE CLASS	D
SEISMIC DESIGN CATEGORY (SDC)	A

HYDRAULIC DESIGN DATA	
DRAINAGE AREA (SQ. MILES)	2.5
DESIGN FLOOD DISCHARGE (C.F.S)	155
DESIGN FLOOD FREQUENCY (YEARS)	10
DESIGN FLOOD VELOCITY (F.P.S)	2.88
DESIGN FLOOD ELEVATION (FEET, NAVD)	121.66

BASE (100-YEAR) FLOOD DATA	
BASE FLOOD DISCHARGE (C.F.S)	240
BASE FLOOD ELEVATION (FEET, NAVD)	123.16

DESIGN AND CHECK SCOUR DATA	
DESIGN SCOUR FLOOD EVENT RETURN FREQUENCY (YEARS)	25
DESIGN FLOOD ABUTMENT SCOUR DEPTH (FEET)	0.6
DESIGN FLOOD PIER SCOUR DEPTH (FEET)	N/A
CHECK SCOUR FLOOD EVENT RETURN FREQUENCY (YEARS)	50
CHECK FLOOD ABUTMENT SCOUR DEPTH (FEET)	0.7
CHECK FLOOD PIER SCOUR DEPTH (FEET)	N/A

FLOOD OF RECORD	
DISCHARGE (C.F.S.)	N/A
FREQUENCY (IF KNOWN, YEARS)	N/A
MAXIMUM ELEVATION (FEET, NAVD)	N/A
DATE (MM/YYYY)	N/A
HISTORY OF ICE FLOES	N/A
EVIDENCE OF SCOUR AND EROSION	YES

MONTH DD, YYYY	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

608164\_BRF(S-31-013)NOTES.DWG Plotted on 12-May-2021 9:39 AM Xxxxx Structural Submittal (S) DD-Month-YYYY

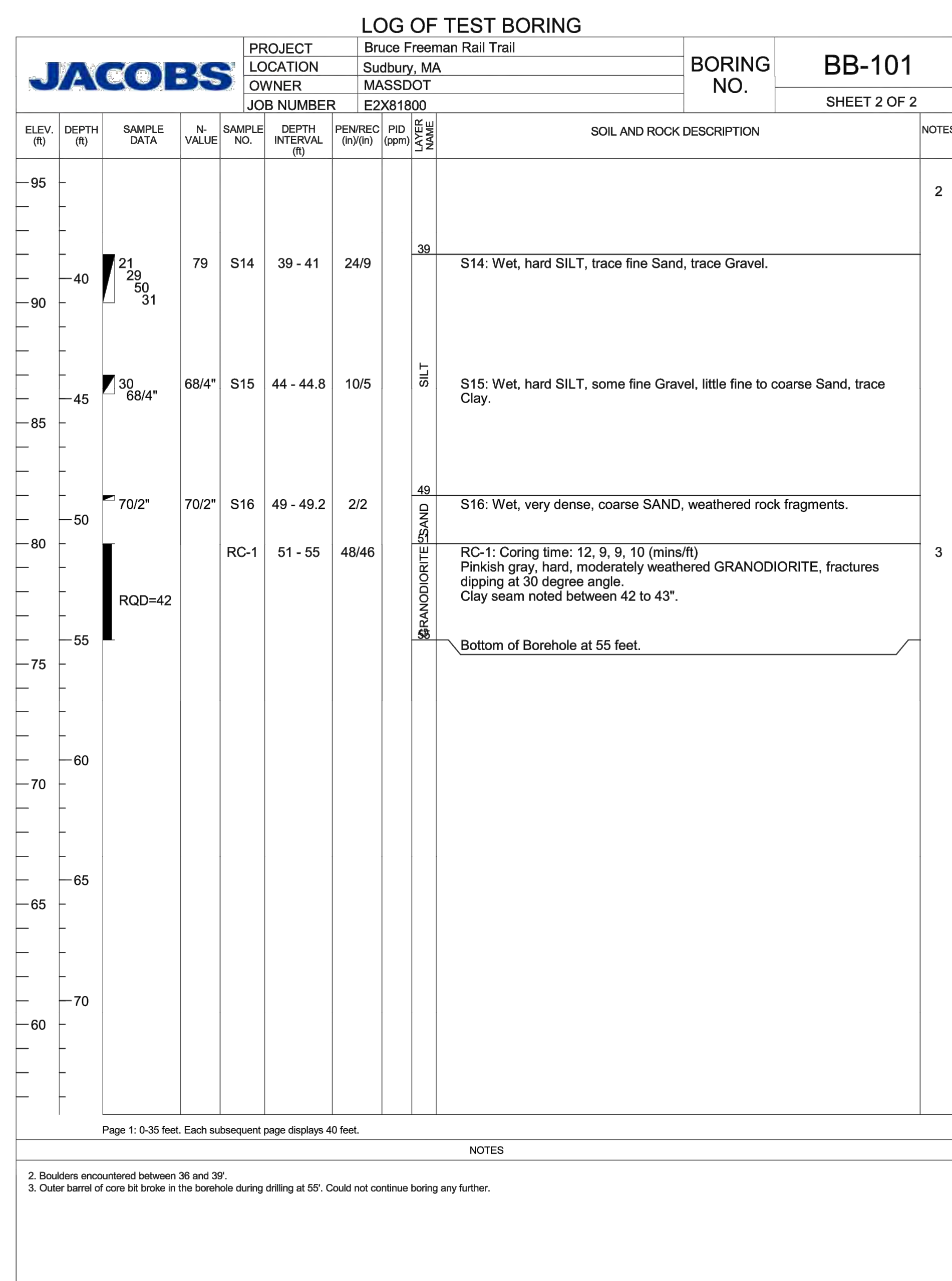
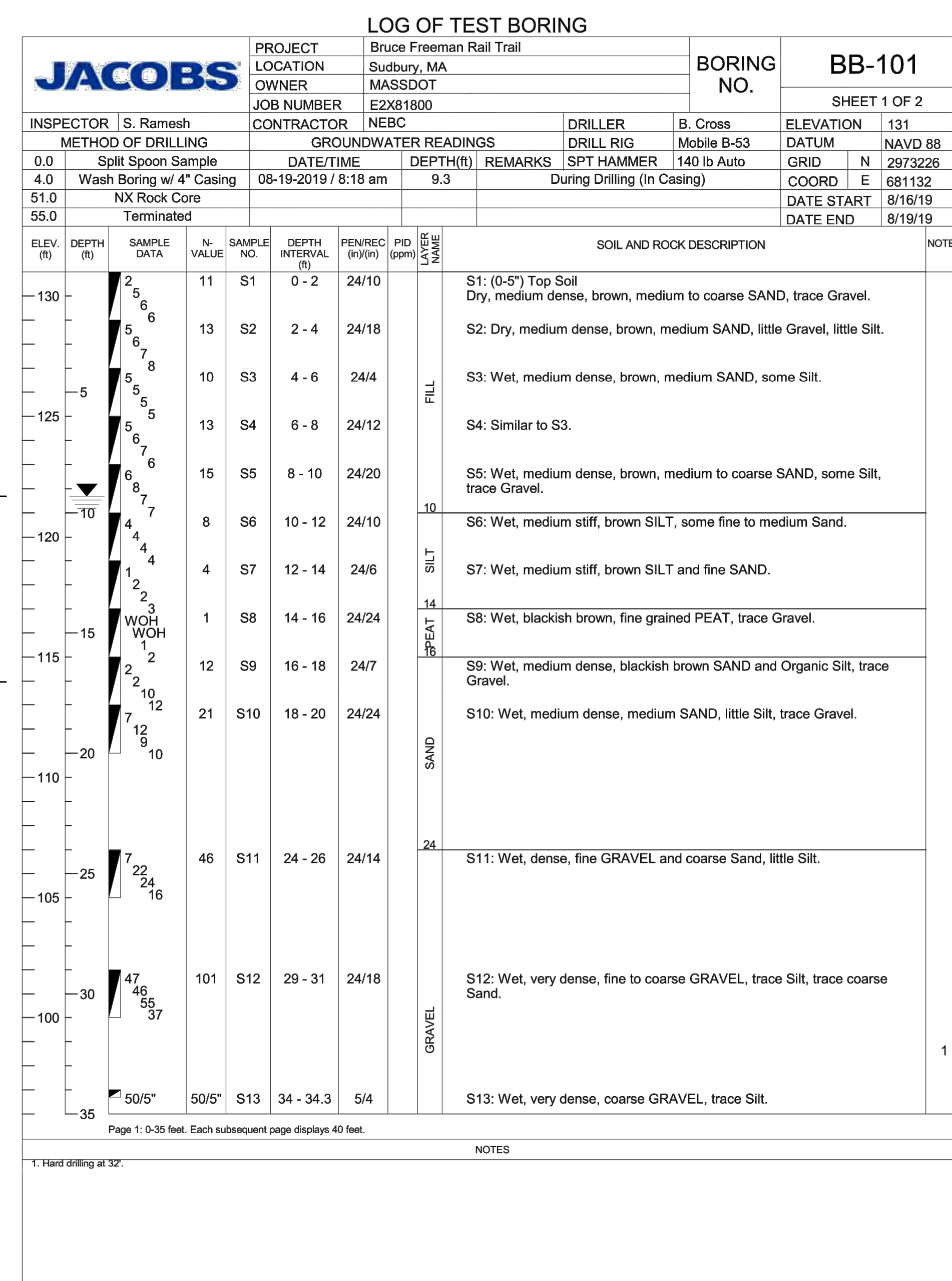
**SUDBURY  
BIKE PATH OVER PANTRY BROOK**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	235	318
PROJECT FILE NO.		608164	

**BORING LOGS**

**BORING NOTES:**

1. LOCATION OF BORINGS SHOWN ON THE PLANS THUS: BB-#
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 1 1/8" 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 CONTRACTING THE MASSDOT GEOTECHNICAL SECTION AT 10 PARK PLAZA, BOSTON, MA.
6. ALL BORINGS WERE MADE IN AUGUST 2019.
7. BORINGS WERE MADE BY NEW ENGLAND BORING CONTRACTOR, INC., P.O. BOX 165, DERRY, NH 03038.
8. THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988 IS USED THROUGHOUT.



**GROUNDWATER:**

THE WATER LEVELS RECORDED IN THE TABLE ARE THOSE MEASURED ON THE DATES GIVEN AND DO NOT NECESSARILY REPRESENT GROUNDWATER LEVEL AT THE TIME OF CONSTRUCTION.

▽ 121.7

BOT. OF FTG.  
EL. 113.70

MONTH DD, YYYY	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

608164\_BRC-4(S-31-013)BORINGS.DWG Plotted on 12-May-2021 9:39 AM Xxxxx Structural Submittal (S) DD-Month-YYYY

BORING NOTES:  
SEE SHEET 3 FOR BORING NOTES.

**LOG OF TEST BORING**

<b>JACOBS</b>				PROJECT: Bruce Freeman Rail Trail				BORING NO. <b>BB-102A</b>	
LOCATION: Sudbury, MA				OWNER: MASSDOT				SHEET 1 OF 1	
JOB NUMBER: E2X81800				CONTRACTOR: NEBC				DRILLER: B. Cross	
ELEVATION: 131				METHOD OF DRILLING: Split Spoon Sample				DATE/TIME: 08-20-2019 / 1:36 pm	
GRID N: 2973187				REMARKS: Upon Completion (Casing pulled)				DEPTH (ft): 11.5	
COORD E: 681121				DRILL RIG: Mobile B-53				DATE START: 8/20/19	
DATE END: 8/20/19				SPT HAMMER: 140 lb Auto				DATE END: 8/20/19	
INSPECTOR: S. Ramesh		CONTRACTOR: NEBC		DRILLER: B. Cross		ELEVATION: 131		NAVD 88	
METHOD OF DRILLING		GROUNDWATER READINGS		DRILL RIG		DATUM		NAVD 88	

ELEV. (ft)	DEPTH (ft)	SAMPLE DATA	N-VALUE	SAMPLE NO.	DEPTH INTERVAL (ft)	PEN/REC (in/ft)	PID (ppm)	LAYER NAME	SOIL AND ROCK DESCRIPTION	NOTES
130	2	4		10	0 - 2	24/17		FILL	S1: (0-12") Dry, black, medium SAND, trace Gravel, roots (topsoil). (12-17") Dry, brown, fine to medium SAND, trace Silt.	
125	5	4		11	2 - 4	24/15			S2: Dry, medium dense, brown, fine to medium SAND, little Silt, trace Gravel.	
120	8	4		6	4 - 6	24/9			S3: Wet, loose, brown, fine SAND, some Silt, trace Gravel.	
115	11	5		11	6 - 8	24/10			S4: Wet, medium dense, brown, fine SAND and SILT.	
110	12	5		12	8 - 10	24/5			S5: Wet, medium dense, fine to coarse SAND, some Silt, trace Gravel.	
105	15	6		4	10 - 12	24/4		PEAT / SILT	S6: Wet, medium stiff, brown, SILT, some fine to medium Sand, trace Clay, trace Gravel.	
100	18	2		5	12 - 14	24/23			S7: Wet, blackish brown, fine grained PEAT.	
95	19	5		19	14 - 16	24/19			S8: Wet, medium dense, brownish gray, medium to coarse SAND, some Silt.	
90	21	1		41	16 - 18	24/15			S9: Wet, dense, brown, medium to coarse SAND, trace Silt, trace fine Gravel.	
85	22	3		29	18 - 20	24/19		SAND	S10: Wet, medium dense, grayish brown, medium to coarse SAND, little Silt.	
80	24	15		33	24 - 26	24/5		SILT	S11: Wet, hard, gray SILT, little fine Sand, little fine Gravel.	1
75	26	14							Bottom of Borehole at 26 feet.	2

▽ 119.5

BOT. OF FTG. EL. 113.70

Page 1: 0-35 feet. Each subsequent page displays 40 feet.

NOTES:  
1. Boring terminated at 26' due to an obstruction.  
2. Boring offset 6' south and continued. See boring log BB-102B.

**LOG OF TEST BORING**

<b>JACOBS</b>				PROJECT: Bruce Freeman Rail Trail				BORING NO. <b>BB-102B</b>	
LOCATION: Sudbury, MA				OWNER: MASSDOT				SHEET 1 OF 2	
JOB NUMBER: E2X81800				CONTRACTOR: NEBC				DRILLER: B. Cross	
ELEVATION: 131				METHOD OF DRILLING: Wash Boring w/ 3" Casing				DATE/TIME: 08-21-2019 / 8:34 am	
GRID N: 2973181				REMARKS: During Drilling (In Casing)				DEPTH (ft): 10.8	
COORD E: 681121				DRILL RIG: Mobile B-53				DATE START: 8/21/19	
DATE END: 8/23/19				SPT HAMMER: 140 lb Auto				DATE END: 8/23/19	
INSPECTOR: S. Ramesh		CONTRACTOR: NEBC		DRILLER: B. Cross		ELEVATION: 131		NAVD 88	
METHOD OF DRILLING		GROUNDWATER READINGS		DRILL RIG		DATUM		NAVD 88	

ELEV. (ft)	DEPTH (ft)	SAMPLE DATA	N-VALUE	SAMPLE NO.	DEPTH INTERVAL (ft)	PEN/REC (in/ft)	PID (ppm)	LAYER NAME	SOIL AND ROCK DESCRIPTION	NOTES
130	0.0	31							Drill through.	
125	30.0	21								
120	30.0	53/4"	53/4"	S14	39 - 39.8	10/5			S14: Wet, very dense, gray, fine to coarse GRAVEL, little coarse Sand, trace Silt.	
115	52.0	18		59	44 - 46	24/21			S15: Wet, hard, gray SILT, some Clay, trace fine Sand, trace Gravel.	
110	62.8	25								
105		34								
100		41								
95		16		82	49 - 50.8	22/22			S16: Wet, hard, gray SILT, some Clay, trace fine to coarse Sand, little Gravel.	
90		37								
85		45								
80		50/4"								
75										
70										
65										
60										
55										
50										
45										
40										
35										

▽ 119.5

BOT. OF FTG. EL. 113.70

Page 1: 0-35 feet. Each subsequent page displays 40 feet.

NOTES:

**LOG OF TEST BORING**

<b>JACOBS</b>				PROJECT: Bruce Freeman Rail Trail				BORING NO. <b>BB-102B</b>	
LOCATION: Sudbury, MA				OWNER: MASSDOT				SHEET 2 OF 2	
JOB NUMBER: E2X81800				CONTRACTOR: NEBC				DRILLER: B. Cross	
ELEVATION: 131				METHOD OF DRILLING: Wash Boring w/ 4" Casing				DATE/TIME: 08-22-2019 / 9:02 am	
GRID N: 2973181				REMARKS: During Drilling (In Casing)				DEPTH (ft): 11.9	
COORD E: 681121				DRILL RIG: Mobile B-53				DATE START: 8/21/19	
DATE END: 8/23/19				SPT HAMMER: 140 lb Auto				DATE END: 8/23/19	
INSPECTOR: S. Ramesh		CONTRACTOR: NEBC		DRILLER: B. Cross		ELEVATION: 131		NAVD 88	
METHOD OF DRILLING		GROUNDWATER READINGS		DRILL RIG		DATUM		NAVD 88	

ELEV. (ft)	DEPTH (ft)	SAMPLE DATA	N-VALUE	SAMPLE NO.	DEPTH INTERVAL (ft)	PEN/REC (in/ft)	PID (ppm)	LAYER NAME	SOIL AND ROCK DESCRIPTION	NOTES
130	0.0	31								
125	30.0	21								
120	30.0	53/4"	53/4"	S14	39 - 39.8	10/5			S14: Wet, very dense, gray, fine to coarse GRAVEL, little coarse Sand, trace Silt.	
115	52.0	18		59	44 - 46	24/21			S15: Wet, hard, gray SILT, some Clay, trace fine Sand, trace Gravel.	
110	62.8	25								
105		34								
100		41								
95		16		82	49 - 50.8	22/22			S16: Wet, hard, gray SILT, some Clay, trace fine to coarse Sand, little Gravel.	
90		37								
85		45								
80		50/4"								
75										
70										
65										
60										
55										
50										
45										
40										
35										

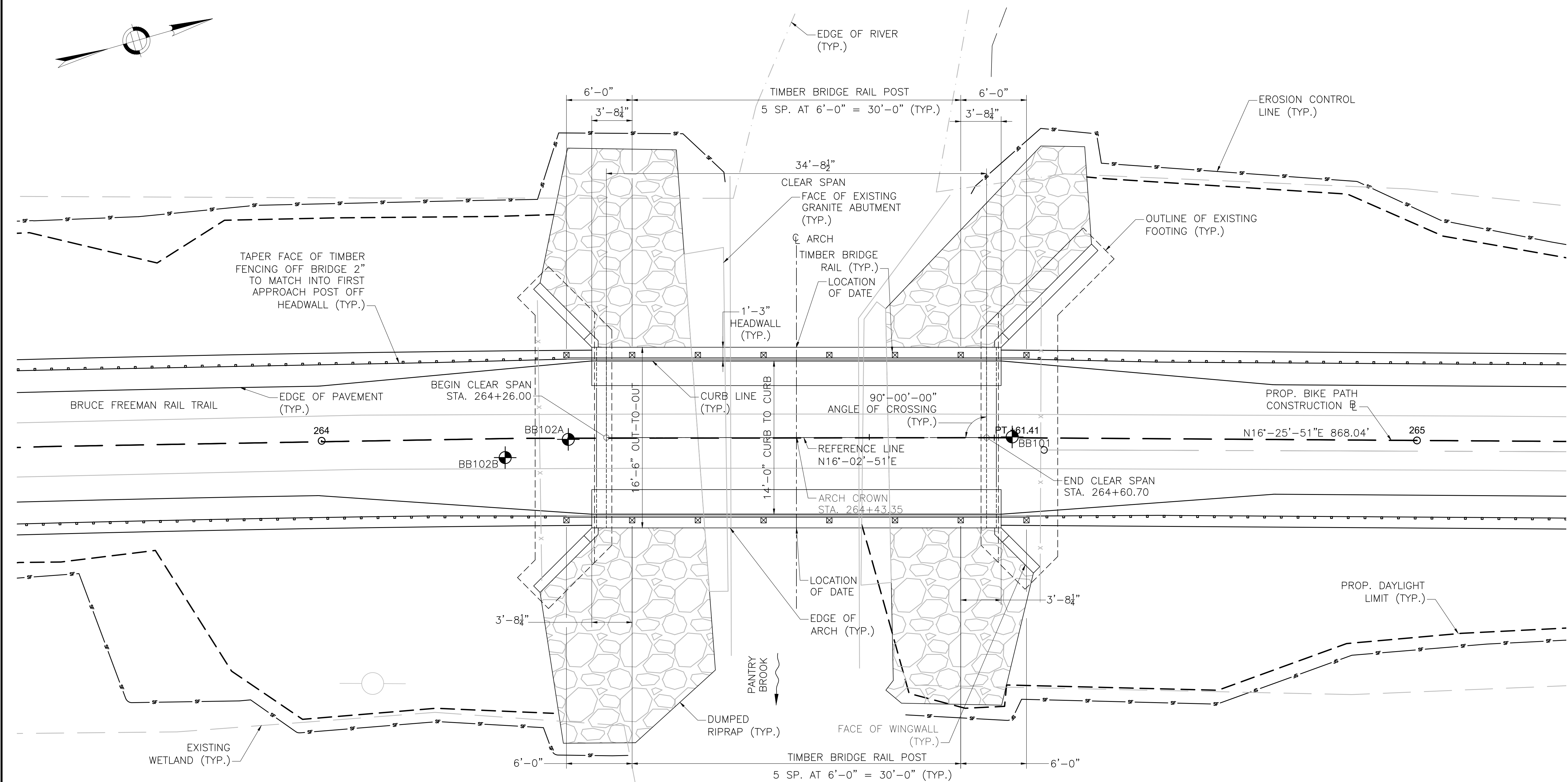
▽ 119.5

BOT. OF FTG. EL. 113.70

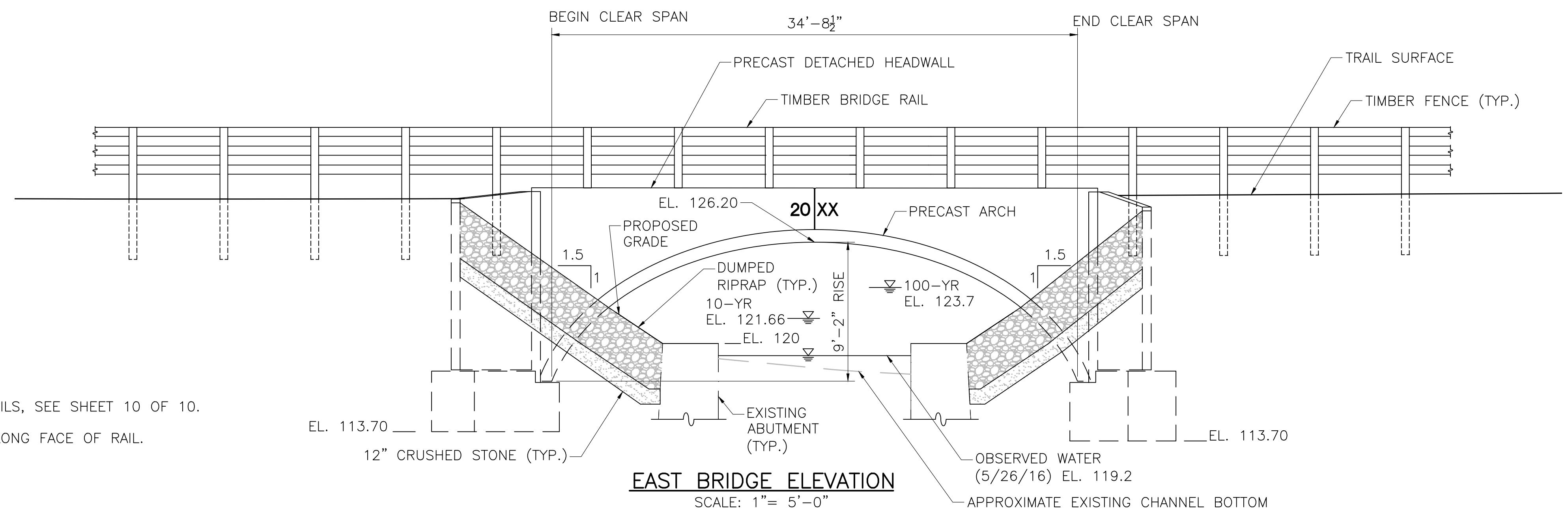
Page 1: 0-35 feet. Each subsequent page displays 40 feet.

NOTES:  
RC-1: Coring time: 4.5, 5, 4.5, 11 (mins/ft)  
Wet, gray, pink grained, moderately to severely weathered, coarse grained GRANODIORITE.  
RC-2: Coring time: 6, 5, 3.5, 2.5, 2 (mins/ft)  
Similar to RC-1.  
RC-3: Coring time: 2, 3.5 (mins/ft)  
Similar to RC-1.  
Bottom of Borehole at 62.8 feet.





**GENERAL PLAN**  
SCALE: 1" = 5'-0"



**EAST BRIDGE ELEVATION**  
SCALE: 1" = 5'-0"

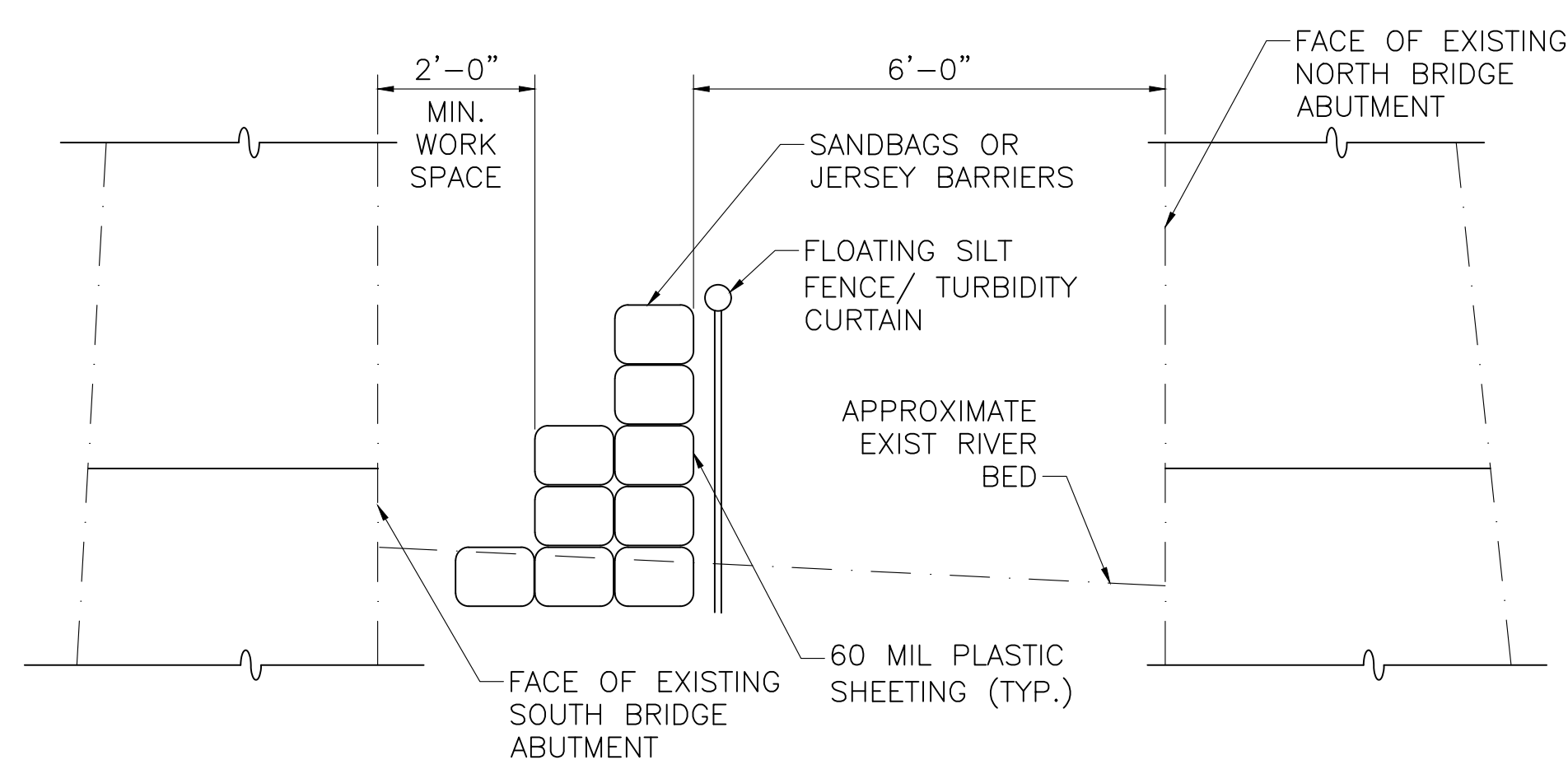
- NOTES:**
- FOR TIMBER BRIDGE RAIL DETAILS, SEE SHEET 10 OF 10.
  - RAIL POSTS ARE MEASURED ALONG FACE OF RAIL.

MONTH DD, YYYY	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

608164\_BRF(S-31-013)GENPLAN.DWG Plotted on 12-May-2021 9:40 AM

**EXISTING ABUTMENT REPAIR NOTES:**

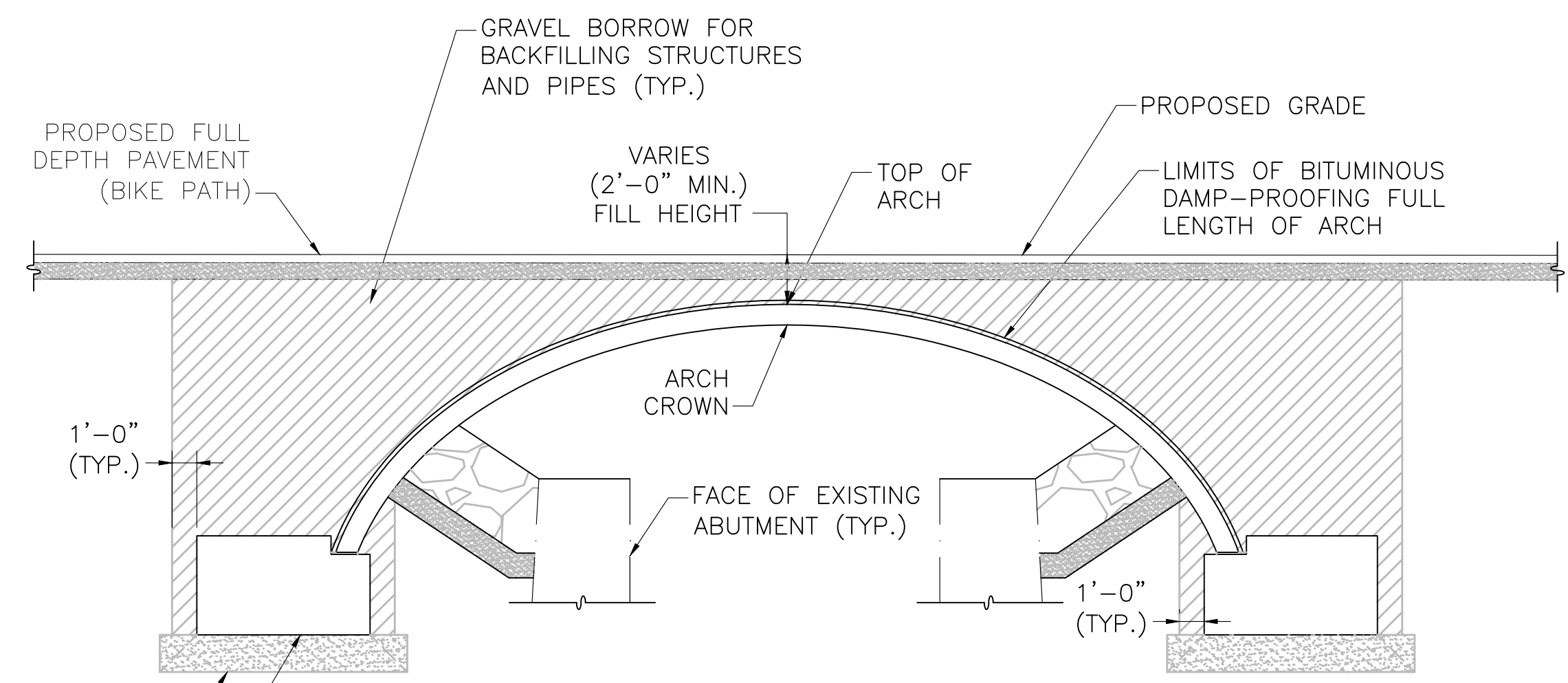
- REMOVE TOPS OF EXISTING STONE MASONRY ABUTMENTS TO ELEVATION 120' OR TO THE NEAREST LONGITUDINAL STONE JOINT, PROVIDED THE JOINT LIES ABOVE THE RIVERBED OR AS DIRECTED BY THE ENGINEER. THE COST TO REMOVE THE EXISTING STONES SHALL BE INCLUDED IN ITEM 690.92, "MASONRY REMOVED AND STOCKPILED". SEVEN (7) OF THESE GRANITE BLOCKS SHALL BE SET ASIDE FOR RE-USE AS BENCHES AND HISTORIC DISPLAY ALONG THE TRAIL. REMOVAL AND RESETTING OF THESE 7 BLOCKS SHALL BE PAID FOR SEPARATELY UNDER ITEM 707.XX.
- THE SOUTH EXISTING STONE MASONRY ABUTMENT HAS PARTIALLY COLLAPSED. THE CONTRACTOR SHALL REBUILD ANY COLLAPSED PORTIONS OF THE EXISTING WALL ALONG THE LENGTH OF THE ABUTMENT AND WINGWALLS BELOW THE LIMITS OF REMOVAL. THE COST TO REBUILD THE WALL AS REQUIRED SHALL BE INCLUDED IN ITEM 690, "STONE MASONRY WALL REMOVED AND REBUILT IN CEMENT MORTAR".
- REPOINTING OF THE EXISTING STONE MASONRY ABUTMENTS SHALL BE REQUIRED AFTER THE TOP OF THE EXISTING ABUTMENTS HAVE BEEN REMOVED BUT PRIOR TO EXCAVATION OPERATIONS. THE CONFIGURATION OF THE EXISTING ABUTMENT STONE WALLS AND THE ELEVATION OF THE BOTTOM OF THE EXISTING ABUTMENTS SHOWN ON THE PLANS ARE APPROXIMATE. THE CONTRACTOR SHALL ENSURE THE EXISTING ABUTMENT STONE WALLS ARE NOT UNDERMINED OR IN ANY WAY COMPROMISED DURING EXCAVATION OPERATIONS. TEMPORARY SHORING OF THE EXISTING ABUTMENT WALLS MAY BE REQUIRED TO COMPLETE EXCAVATION OPERATIONS. THE COST TO REPOINT SHALL BE INCLUDED IN ITEM 690.91, "MASONRY REPOINTING".
- ANY WATER CONTROL REQUIRED TO REMOVE, REPAIR, REBUILD, SHORE, OR REPOINT THE EXISTING ABUTMENTS SHALL BE INCLUDED UNDER ITEM 991, "CONTROL OF WATER".



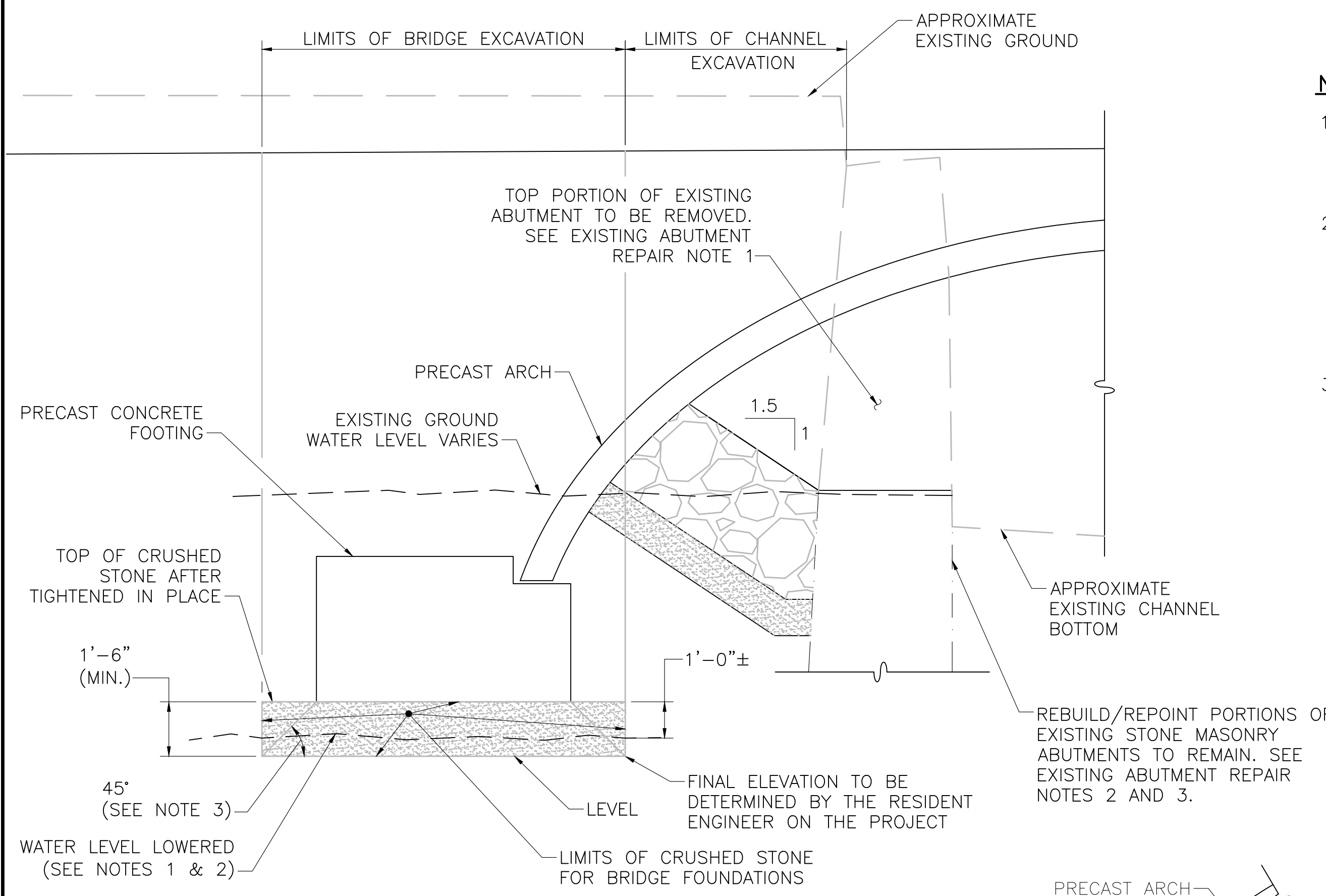
**SUGGESTED WATER CONTROL PLAN**  
SCALE: 1"=1'-0"

**NOTES:**

- WORK IN THE WATER SHALL BE PERFORMED DURING LOW FLOW SEASON AND THE FLOW SHALL BE MAINTAINED THROUGH THE USE OF TEMPORARY WATER CONTROL.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR SIZING THE BARRIER TO HANDLE THE RIVER FLOW. THE BARRIER SHALL BE OF ADEQUATE SIZE TO DELIVER THE WATER AT THE DISCHARGE END TO THE RIVER WITHOUT DISTURBING THE EXISTING BANKS OR RIVERBED FLOW. THE BARRIER HEIGHT SHALL BE SIZED TO MAINTAIN THE 2-YEAR FLOOD.
- IN THE EVENT OF HIGH FLOW RATES, THE CONTRACTOR SHALL BE RESPONSIBLE TO DEVELOP AND IMPLEMENT A REASONABLE MEANS NECESSARY TO HANDLE THE ADDITIONAL FLOWS TO PROTECT THE SURROUNDING AREA, AS APPROVED BY THE ENGINEER.



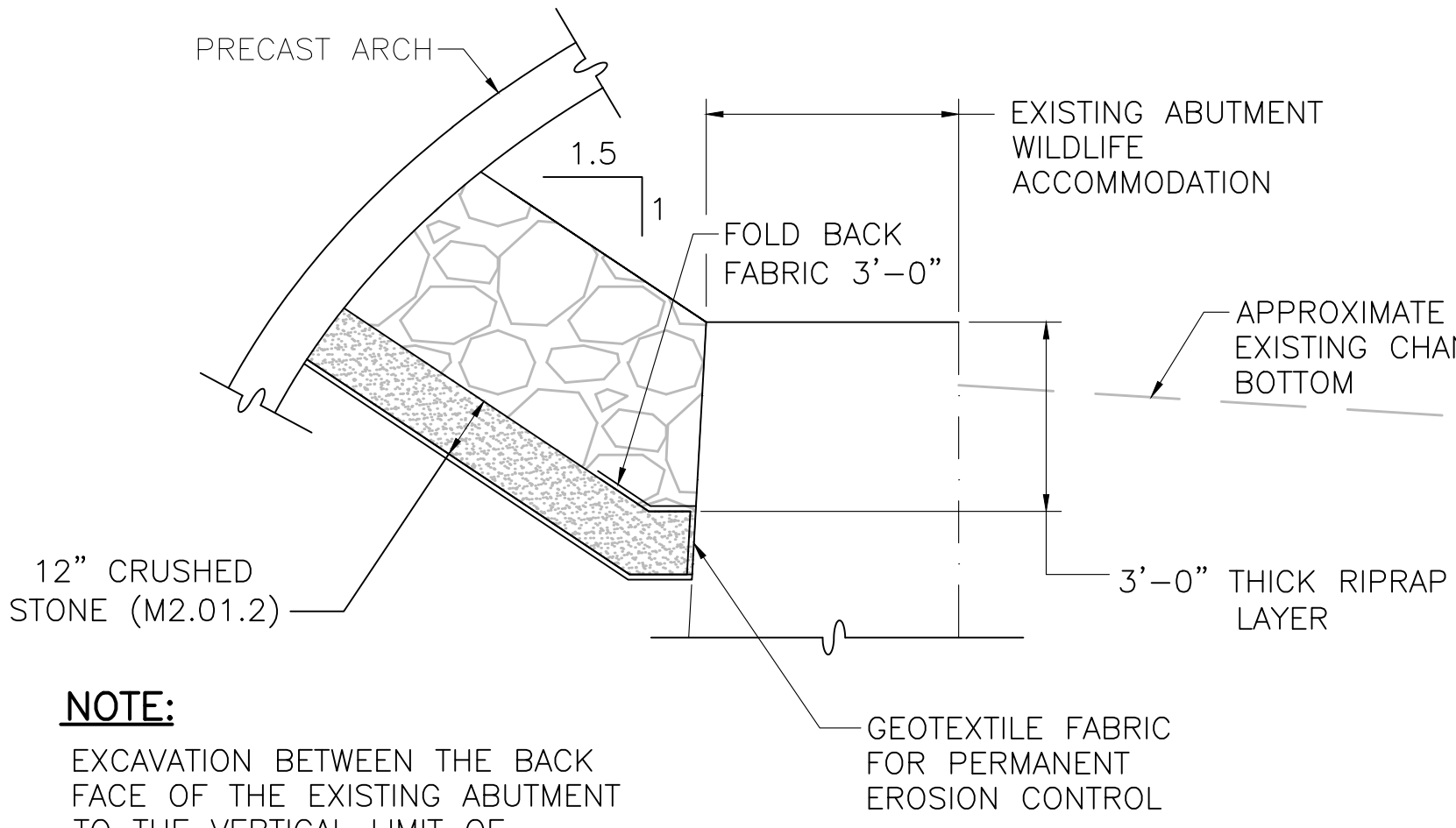
**ARCH BACKFILL DETAIL**  
SCALE: 3/16"=1'-0"



**LIMITS OF CRUSHED STONE  
FOR BRIDGE FOUNDATIONS**  
SCALE: 3/8"=1'-0"

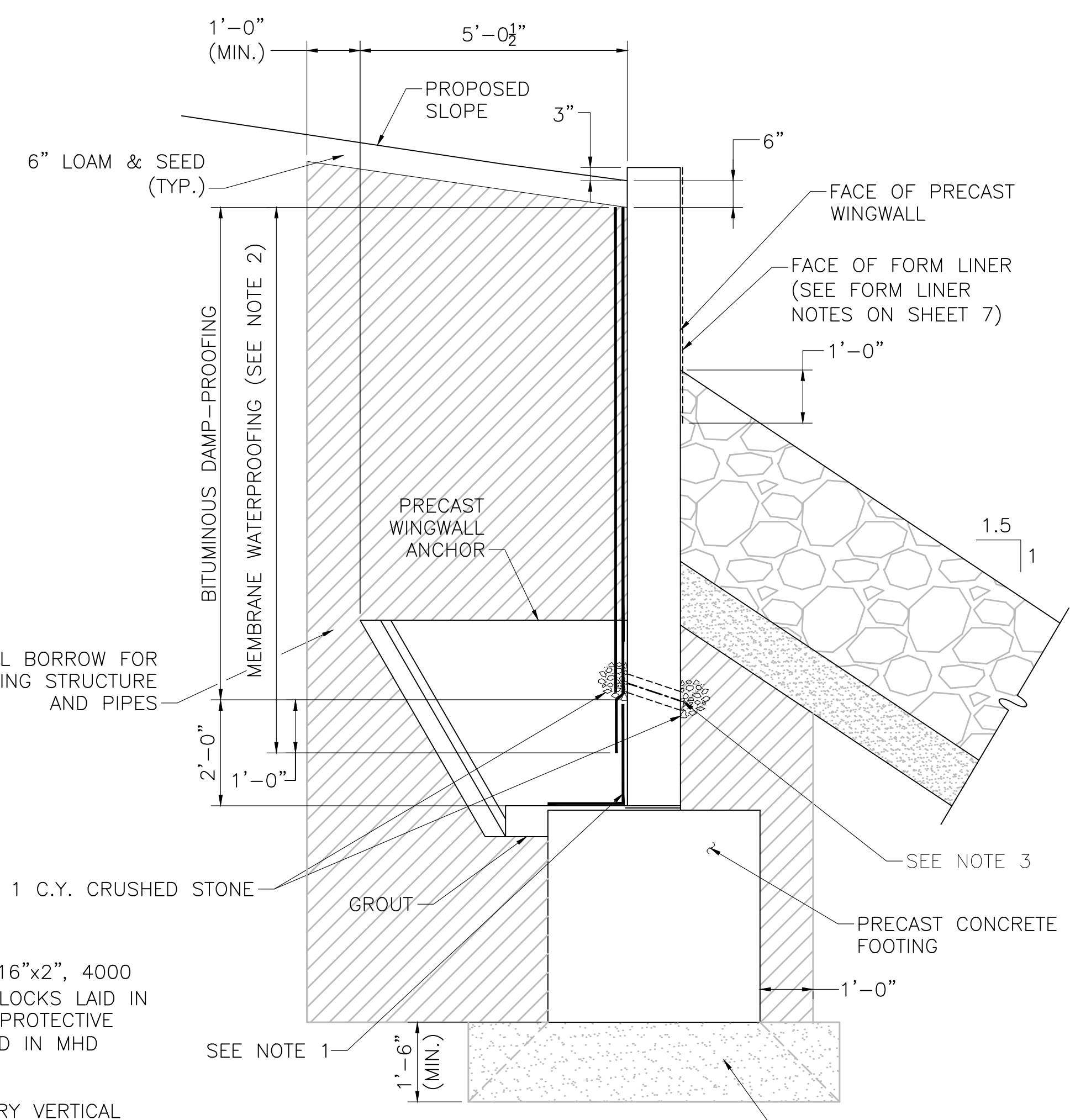
**NOTES**

- LOWER WATER LEVEL AS MUCH AS POSSIBLE WITHOUT DISTURBING THE GRANULAR SOIL (SIDES AND BOTTOM) AND TIGHTEN THE CRUSHED STONE IN PLACE (SEE STANDARD SPEC).
- WATER CONTROL REQUIREMENTS:
  - THE CONTRACTOR SHALL SUBMIT THE WATER CONTROL PLAN FOR APPROVAL PRIOR TO REMOVAL OF THE TOPS OF THE EXISTING ABUTMENTS AND WINGWALLS AND PLACEMENT OF THE PRECAST ARCH FOOTINGS.
  - EXCAVATED FOOTING AREA SHALL CONTINUE TO BE DEWATERED UNTIL THE PRECAST CONCRETE FOOTINGS ARE FULLY INSTALLED.
  - RIPRAP SHALL BE PLACED IN THE DRY AFTER DEWATERING ALL AREAS.
- 45° FOR DEPTH 5'-0" OR LESS.  
60° FOR DEPTH OVER 5'-0"



**RIPRAP DETAIL**  
SCALE: 3/8"=1'-0"

**NOTE:**  
EXCAVATION BETWEEN THE BACK FACE OF THE EXISTING ABUTMENT TO THE VERTICAL LIMIT OF EXCAVATION FOR CRUSHED STONE FOR BRIDGE FOUNDATIONS AND DOWN TO THE BOTTOM OF CRUSHED STONE (M2.01.2) SHALL BE PAID FOR UNDER ITEM 143, "CHANNEL EXCAVATION".



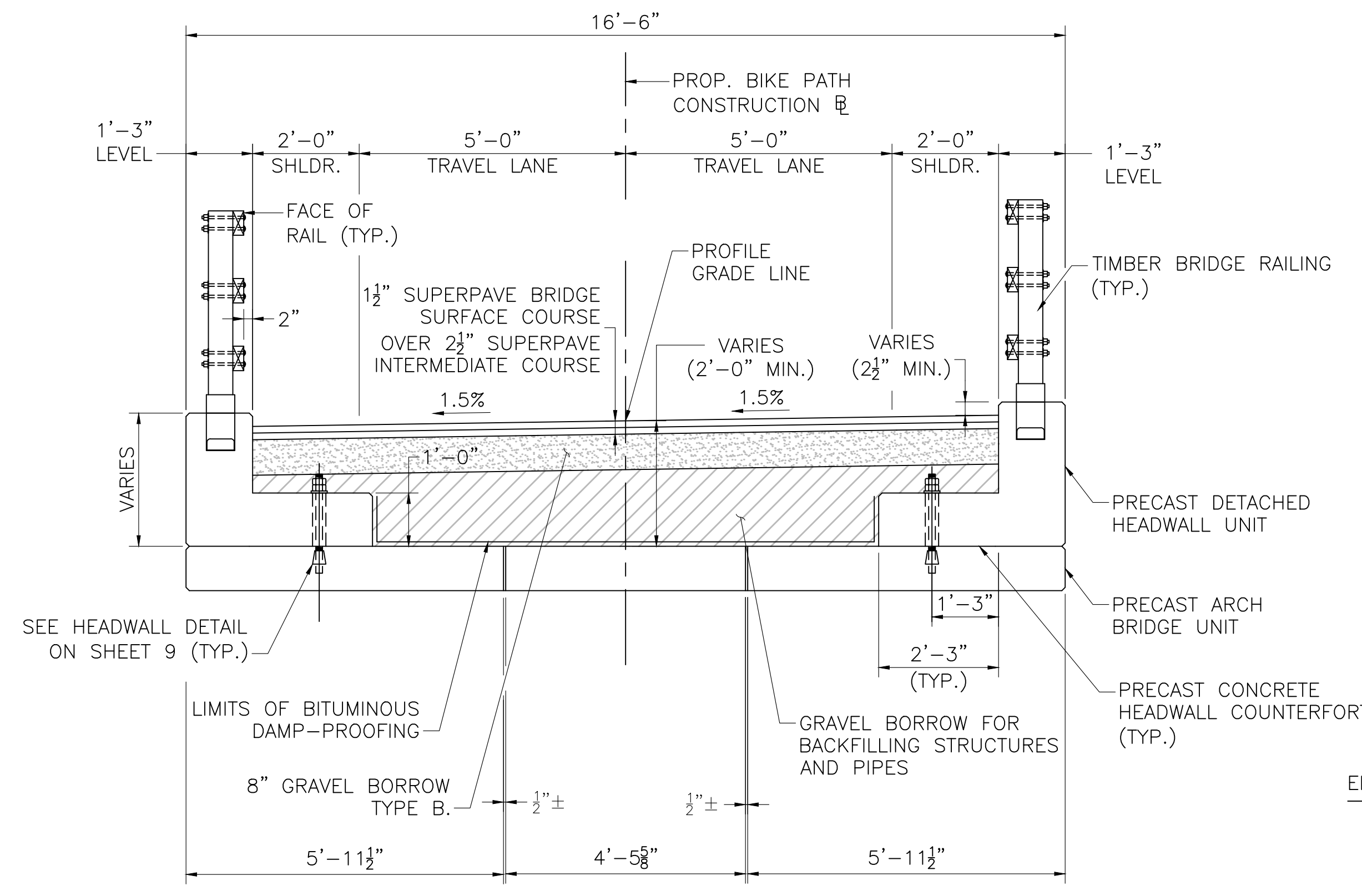
**WINGWALL BACKFILL DETAIL**  
SCALE: 1/2"=1'-0"

**NOTES:**

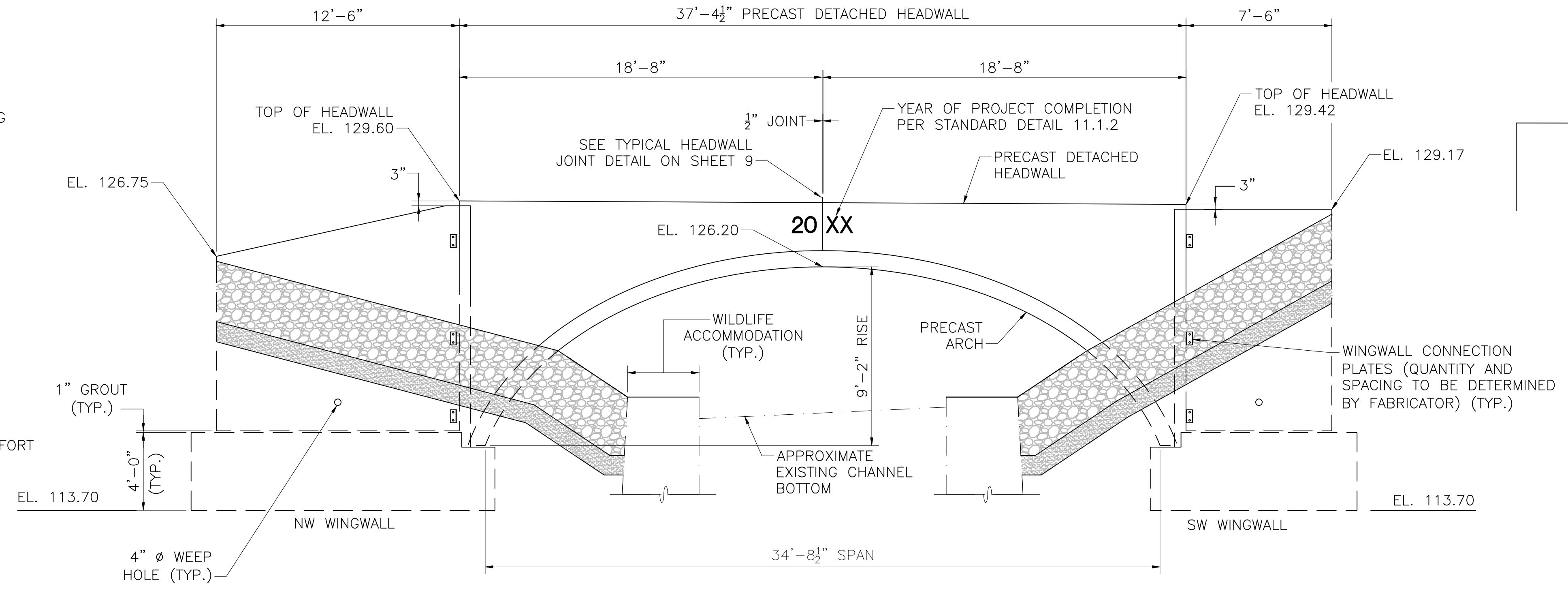
- MEMBRANE WATERPROOFING AND 8"x16"x2", 4000 PSI, 3/4 IN. 610 CEMENT CONCRETE BLOCKS LAID IN MORTAR OR OTHER WATERPROOFING PROTECTIVE COURSE, MIN. 2" THICK AS SPECIFIED IN MHD STANDARD SPECIFICATIONS.
- MEMBRANE WATERPROOFING AT EVERY VERTICAL JOINT BETWEEN PRECAST CONCRETE WINGWALL SECTIONS. 1'-0" EITHER SIDE OF THE JOINT.
- 4" Ø WEEP HOLES 10'-0" O.C. (JUST ABOVE PROTECTIVE COURSE). PROVIDE 1 CUBIC YARD OF CRUSHED STONE AT EACH END OF WEEP HOLE.
- SEE LIMITS OF CRUSHED STONE FOR BRIDGE FOUNDATIONS DETAIL FOR WINGWALL FOOTING REQUIREMENTS.
- SEE RIPRAP DETAIL FOR RIPRAP AT FACE OF WINGWALL REQUIREMENTS.

MONTH DD, YYYY	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

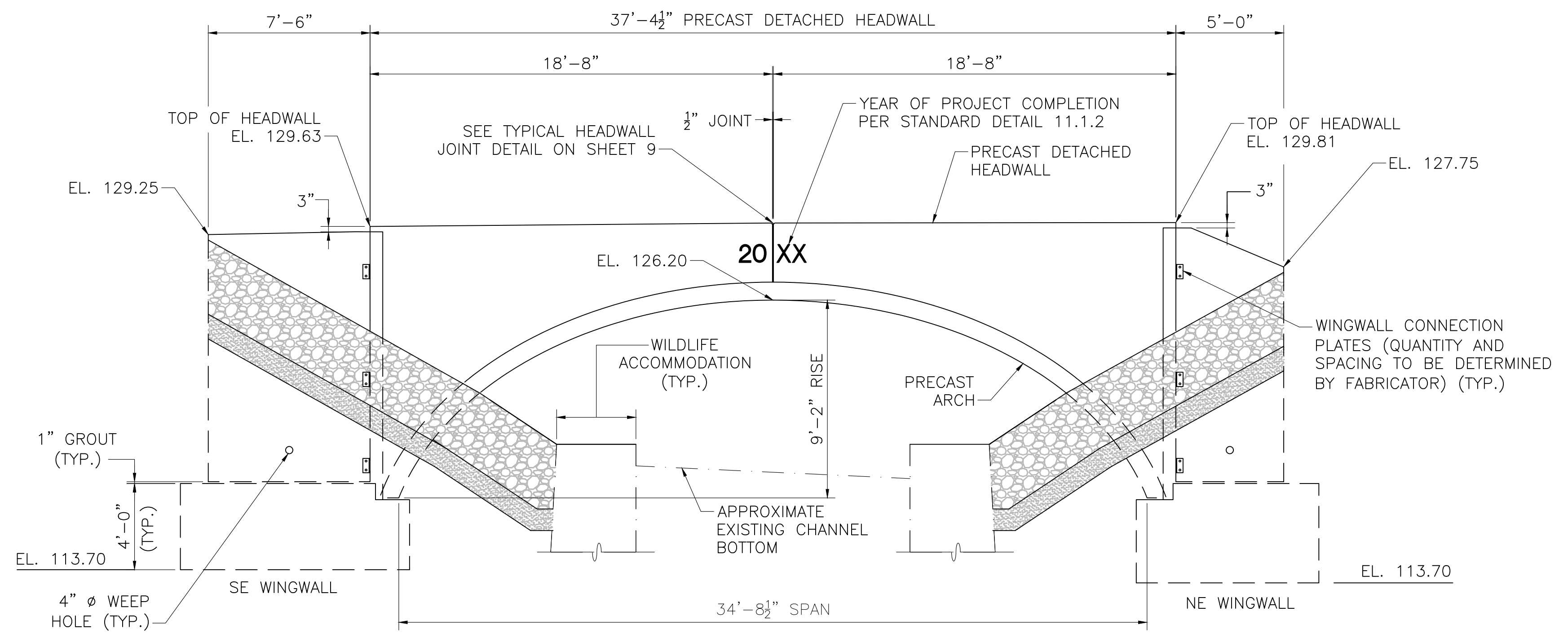
608164\_BRF(S-31-013)EARTHWORKS.DWG Plotted on 12-May-2021 9:40 AM Xxxxx Structural Submittal (S) DD-Month-YYYY



**TRANVERSE SECTION**  
SCALE: 1/2"=1'-0"



**UPSTREAM ELEVATION**  
SCALE: 1/4"=1'-0"

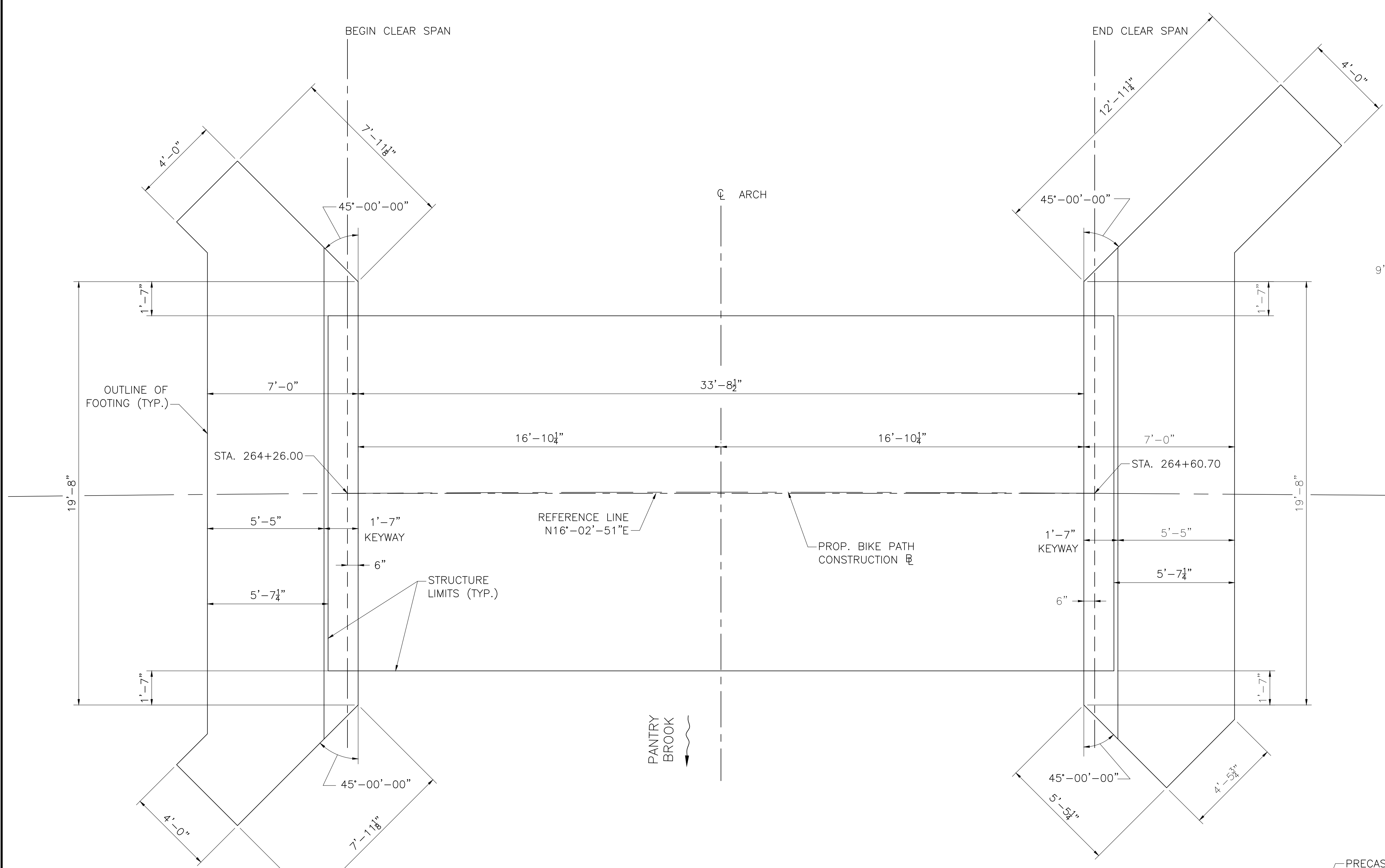


**DOWNSTREAM ELEVATION**  
SCALE: 1/4"=1'-0"

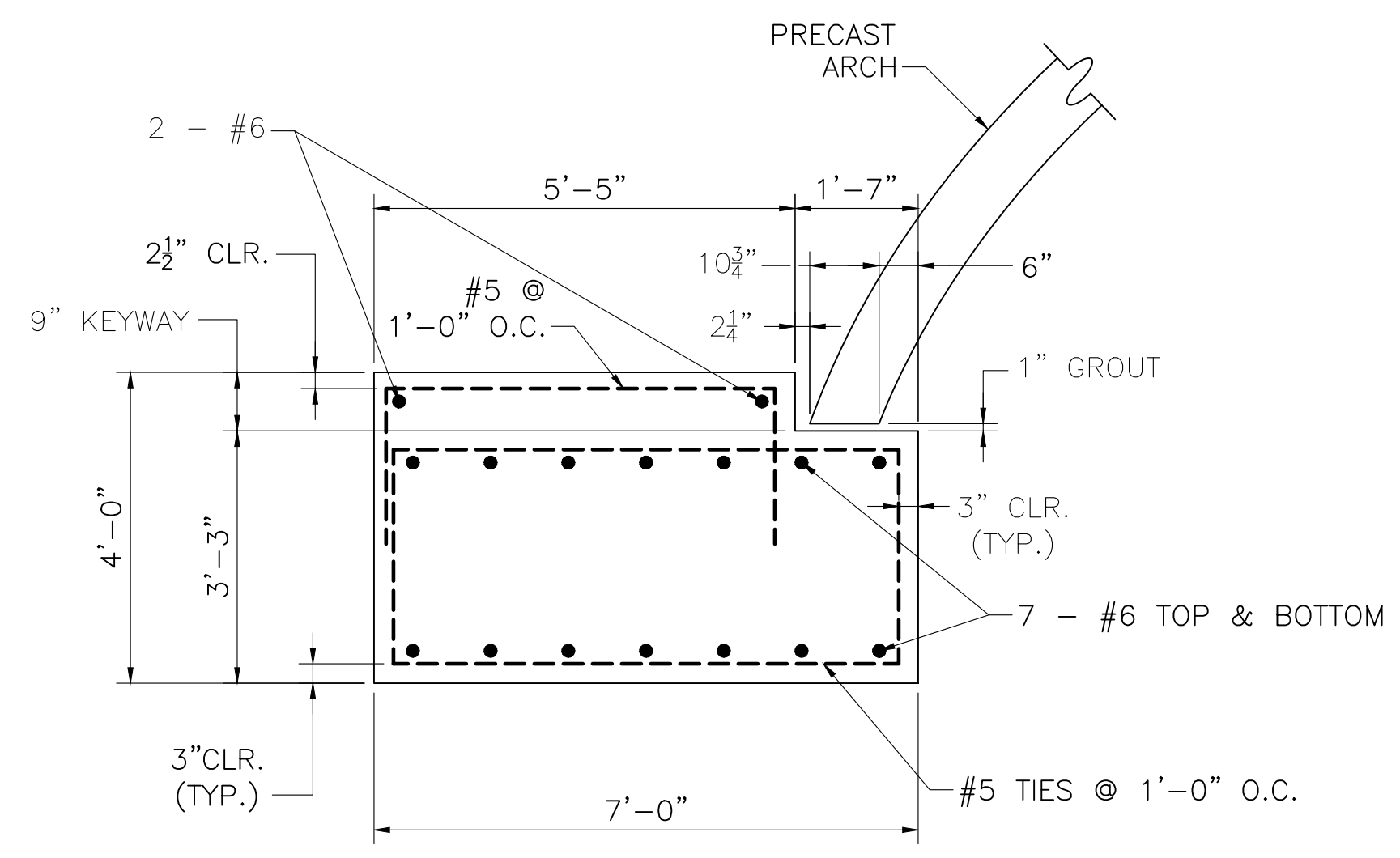
- WINGWALL AND HEADWALL FORM LINER NOTES:**
1. EXPOSED FACES OF HEADWALLS AND WINGWALLS SHALL HAVE A PATTERNED FORM LINER AND SHALL EXTEND A MINIMUM OF 1' BELOW THE PROPOSED GRADE AT THE FACE OF THE WALL.
  2. THE FORM LINER PATTERN AND STAIN SHALL SIMULATE THE APPEARANCE OF THE EXISTING MASONRY ABUTMENTS AND SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. THE COST OF THE FORM LINER SHALL BE INCLUDED UNDER ITEM 995, "BRIDGE STRUCTURE BRIDGE NO. S-31-013." SEE SPECIAL PROVISION FOR ADDITIONAL INFORMATION.

MONTH DD, YYYY	ISSUED FOR CONSTRUCTION
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USE ONLY PRINTS OF LATEST DATE	

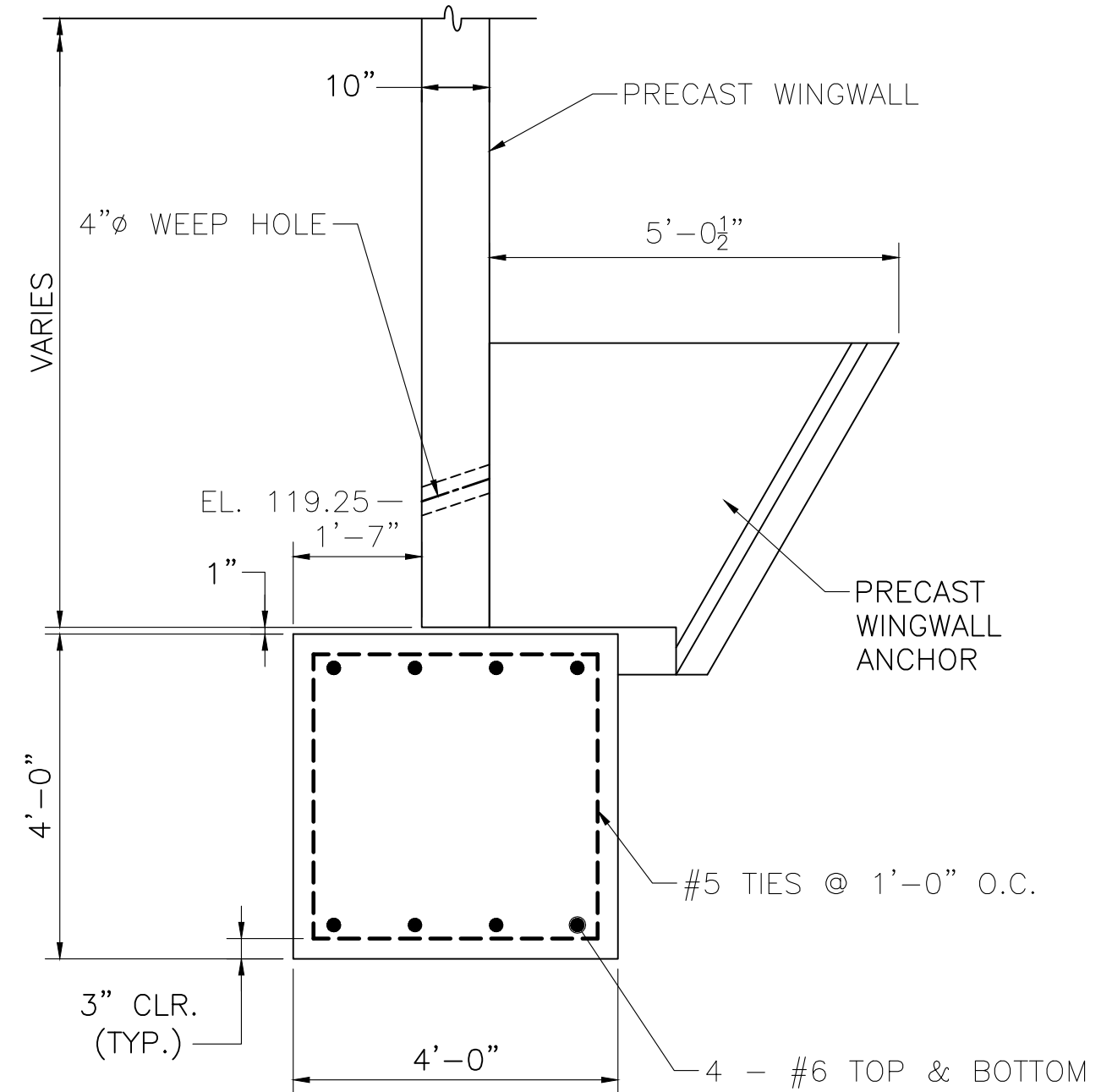
608164\_BR7(S-31-013)DECK/SECT.DWG Plotted on 12-May-2021 9:40 AM Xxxxx Structural Submittal (S) DD-Month-YYYY



**FOUNDATION PLAN**  
SCALE: 1/4"=1'-0"

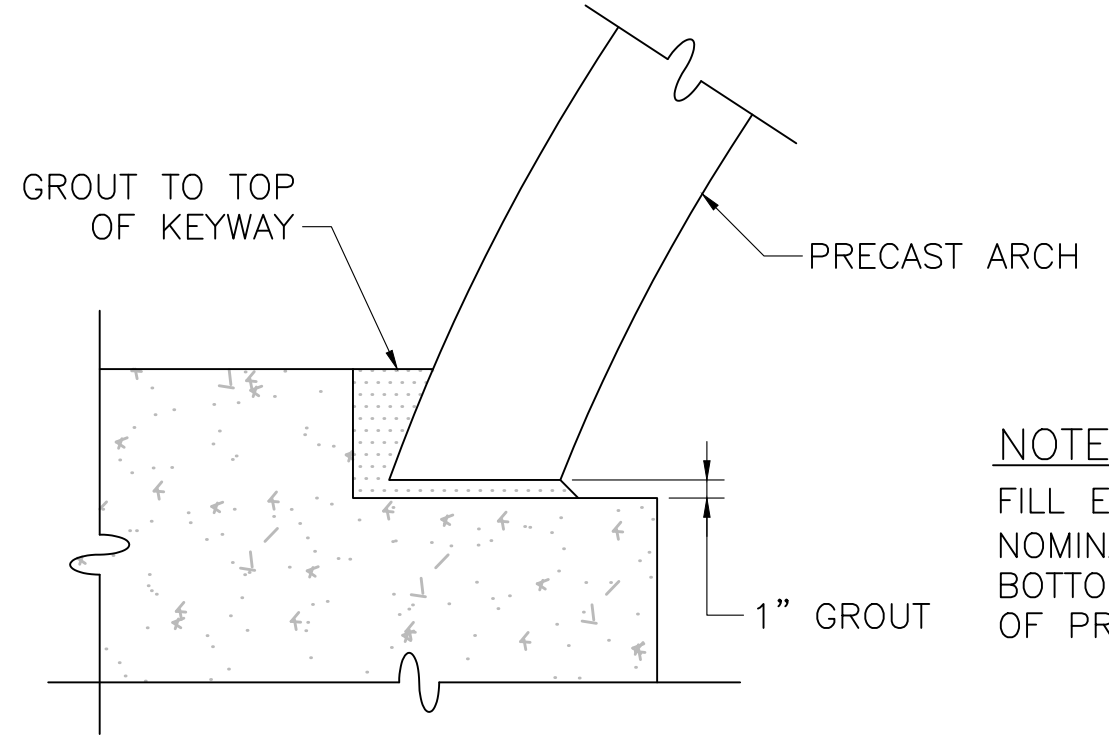


**PRECAST FOOTING SECTION**  
SCALE: 1/2"=1'-0"



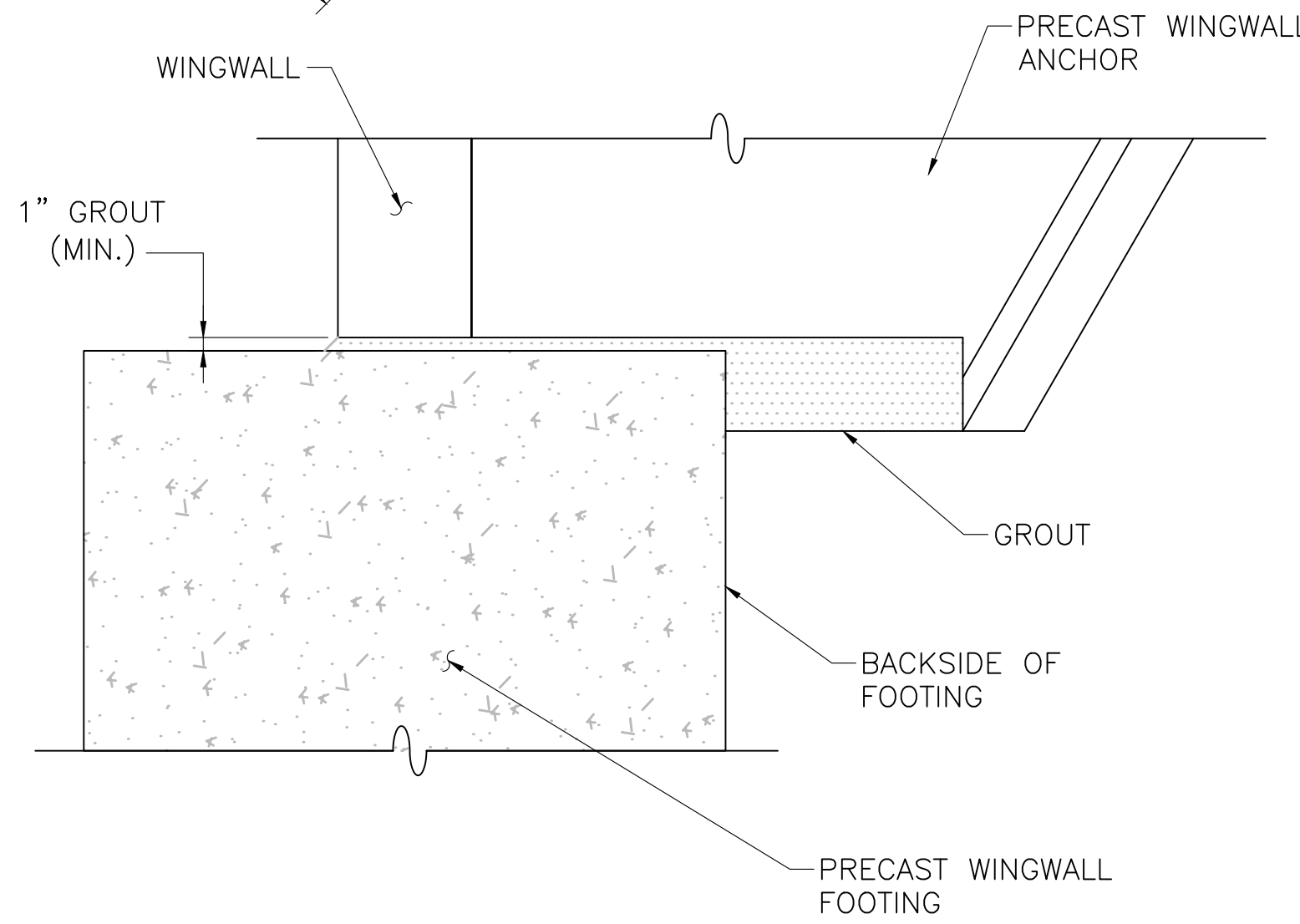
**WINGWALL FOOTING SECTION**  
SCALE: 1/2"=1'-0"

- NOTES:**
- THE PRECAST CONCRETE STRIP FOOTING IS PER CONTRACTOR DESIGN. THEREFORE, THE FACTORED BEARING PRESSURE WILL BE DETERMINED BY THE CONTRACTOR. SLIDING AND OVERTURNING OF THE PRECAST STRIP FOOTING SHALL ALSO BE CHECKED IN THE CONTRACTOR'S DESIGN USING THE INFORMATION PROVIDED IN THE GEOTECHNICAL REPORT.
  - FACTORED BEARING RESISTANCE:
- | FOOTING WIDTH (FT) | ECCENTRICITY (FT) | FACTORED BEARING RESISTANCE (KSF) |
|--------------------|-------------------|-----------------------------------|
| 4                  | 1.33              | 5.2                               |
| 6                  | 2.00              | 5.7                               |
| 8                  | 2.67              | 6.1                               |
- FACTORED BEARING RESISTANCE IS THE PRODUCT OF THE NOMINAL BEARING RESISTANCE AND A RESISTANCE FACTOR OF 0.45.



**ARCH TYPICAL KEY DETAIL**  
SCALE: 1"=1'-0"

**NOTE:**  
FILL ENTIRE KEYWAY INCLUDING NOMINAL 1" VOID BETWEEN BOTTOM OF KEYWAY AND BOTTOM OF PRECAST ARCH LEG WITH GROUT.

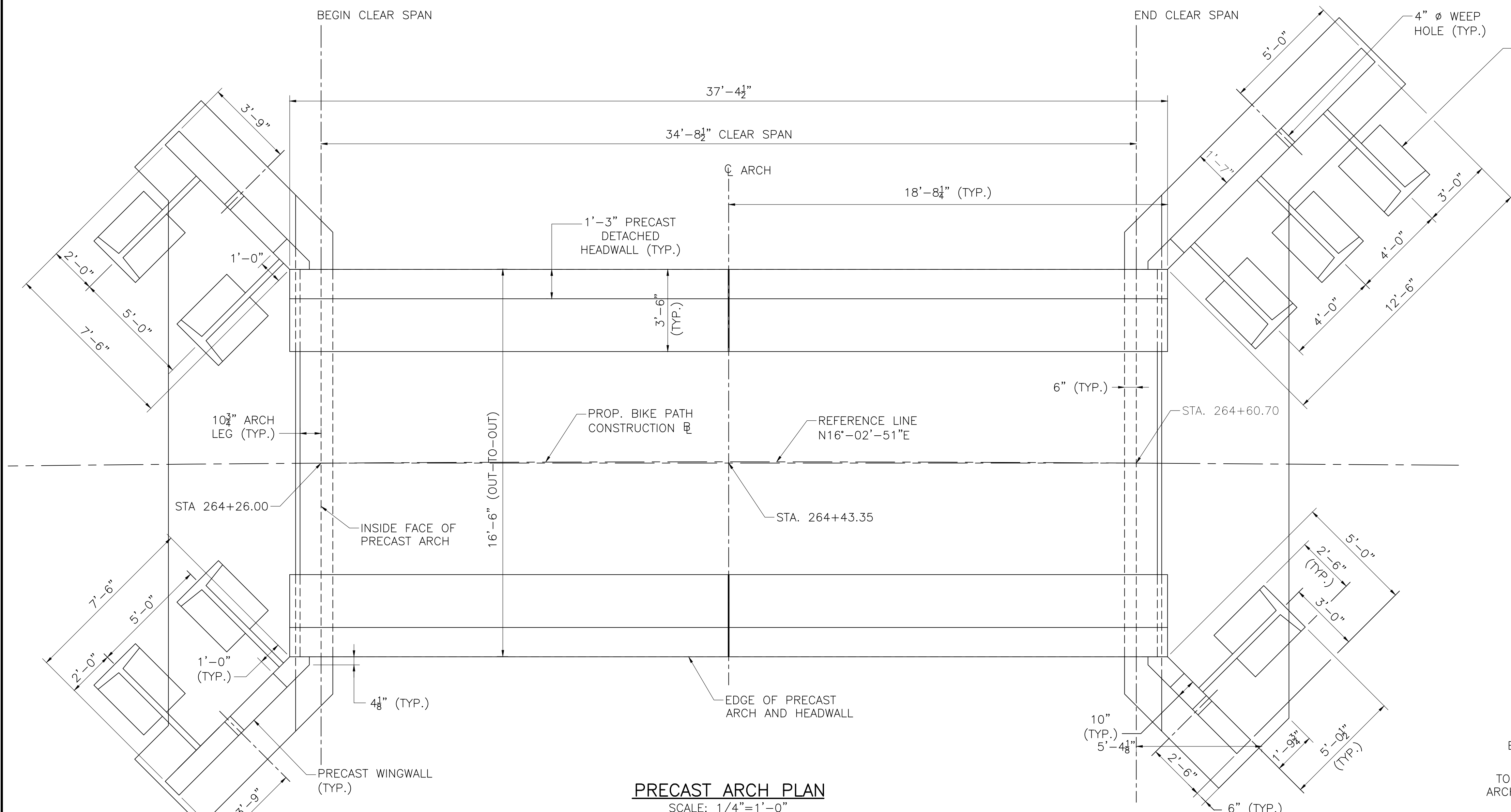


**WINGWALL TYPICAL GROUT DETAIL**  
SCALE: 1"=1'-0"

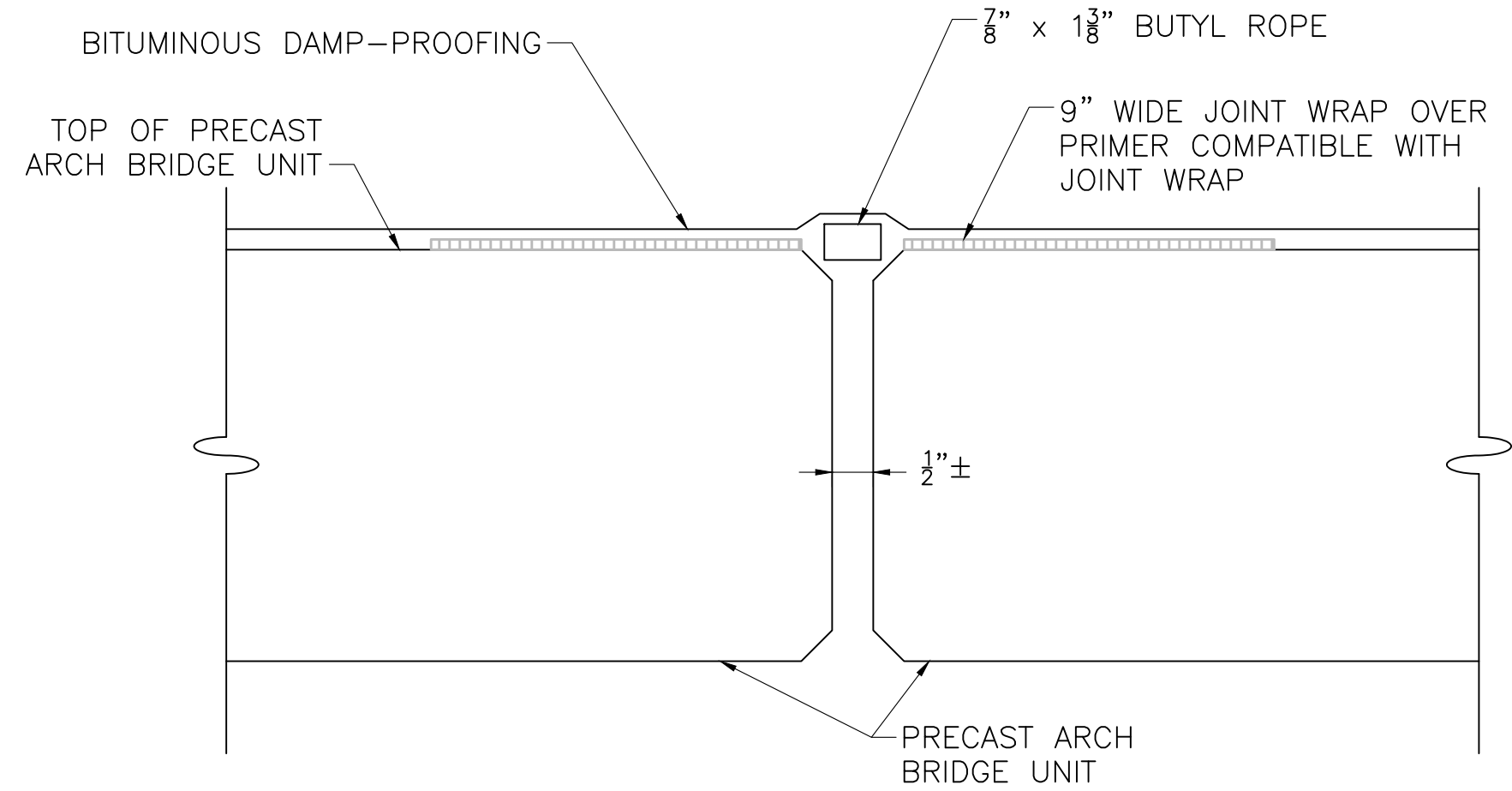
- NOTES:**
- MINIMUM 1" NON-SHRINK GROUT CONFORMING TO M4.04.0 UNDER WINGWALL LEG AND ANCHOR STEM.
  - AREA BETWEEN WINGWALL FOOTING AND ANCHOR SHALL BE GROUTED SOLID BEFORE BACKFILL.

MONTH DD, YYYY	ISSUED FOR CONSTRUCTION
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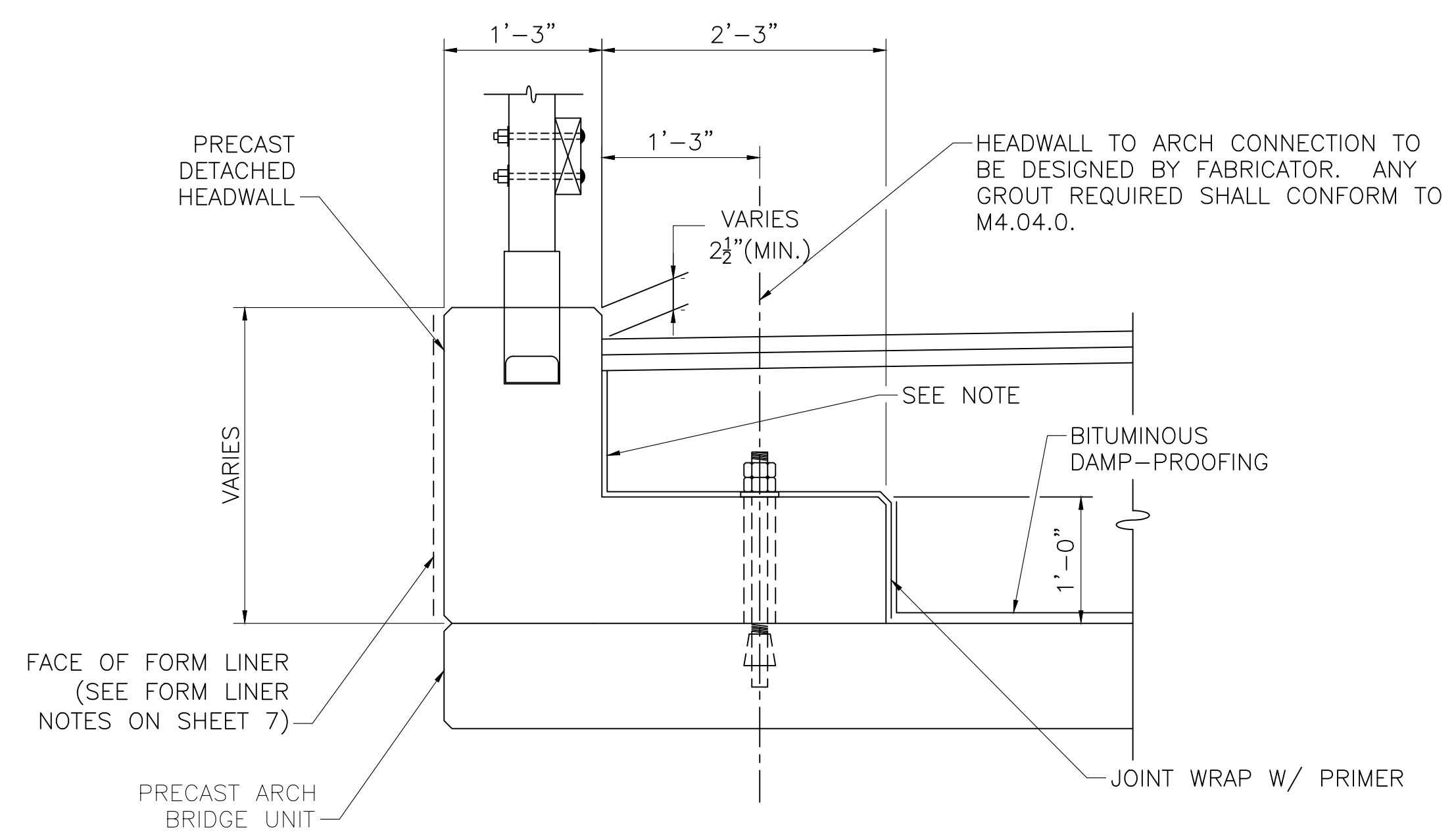
- PRECAST CONCRETE ELEMENT NOTES:**
1. THE CONTRACTOR SHALL SUBMIT DESIGN CALCULATIONS FOR THE ARCH BRIDGE ELEMENTS, INCLUDING THE HEADWALL CONNECTION TO THE ARCH AND THE ARCH FOOTINGS, IN ACCORDANCE WITH THE LATEST AASHTO LRFD DESIGN SPECIFICATIONS AND THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION'S LRFD BRIDGE DESIGN MANUAL FOR H10 TRUCK LOADING AND PEDESTRIAN LOADING FOR APPROVAL OF THE ENGINEER. THE DESIGN COMPUTATIONS SHALL CONSIDER ALL LOADINGS AS APPROPRIATE DURING FABRICATION, SHIPMENT, ERECTION, CONSTRUCTION, AND AFTER COMPLETION OF CONSTRUCTION BASED ON THESE CONSTRUCTION DRAWINGS.
  2. THE ARCH DIMENSIONS PROVIDED ARE SHOWN TO ESTABLISH THE SIZE OF THE PROPOSED OPENING OF 141 SQUARE FEET. THE WIDTHS AND THICKNESSES OF EACH ARCH UNIT MAY VARY DEPENDING UPON THE MANUFACTURER'S SPECIFICATIONS. AN ARCH TYPE STRUCTURE SHALL BE REQUIRED. THE CONTRACTOR, AT NO ADDITIONAL COMPENSATION, HAS THE OPTION TO PROPOSE AN ALTERNATE ARCH DESIGN WITH THE SAME OR LARGER OPENING AREA.
  3. THE PRECAST FOOTING DESIGN DETAILED HEREIN WAS BASED ON THE GEOMETRY OF THE ARCH SHOWN. SEE FACTORED BEARING RESISTANCES BY SIZE ON SHEET 8. THE FABRICATOR SHALL PREPARE AND SUBMIT THE FINAL DESIGN OF THE FOOTING FOR APPROVAL.
  4. THE CONTRACTOR, AT NO ADDITIONAL COMPENSATION, HAS THE OPTION TO PROVIDE CAST-IN-PLACE CONCRETE FOOTINGS, AND SHALL PREPARE AND SUBMIT THE FINAL DESIGN OF THE CAST-IN-PLACE CONCRETE FOOTINGS.
  5. THE PRECAST ELEMENTS ARE TO BE PARALLEL AND ALIGNED WITH THE REFERENCE LINE AS SHOWN ON THESE CONSTRUCTION DRAWINGS.
  6. A MINIMUM OF 4 FEET COVER TO THE BOTTOM OF FOOTING SHALL BE PROVIDED.
  7. THE FABRICATOR IS RESPONSIBLE FOR THE DESIGN AND INSTALLATION OF LIFT HOOKS FOR ALL PRECAST ELEMENTS. PLANS PROVIDING SPACING AND LOCATION OF LIFTING DEVICES AND HANDLING STRESS CALCULATIONS SHALL BE PROVIDED.
  8. SHOP DRAWINGS AND DESIGN CALCULATIONS SHALL BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE COMMONWEALTH OF MASSACHUSETTS.
  9. PRECAST CONCRETE ELEMENTS SHALL CONFORM TO THE APPLICABLE PARTS OF SECTION 901 OF THE SPECIFICATIONS.



**PRECAST ARCH PLAN**  
 SCALE: 1/4"=1'-0"

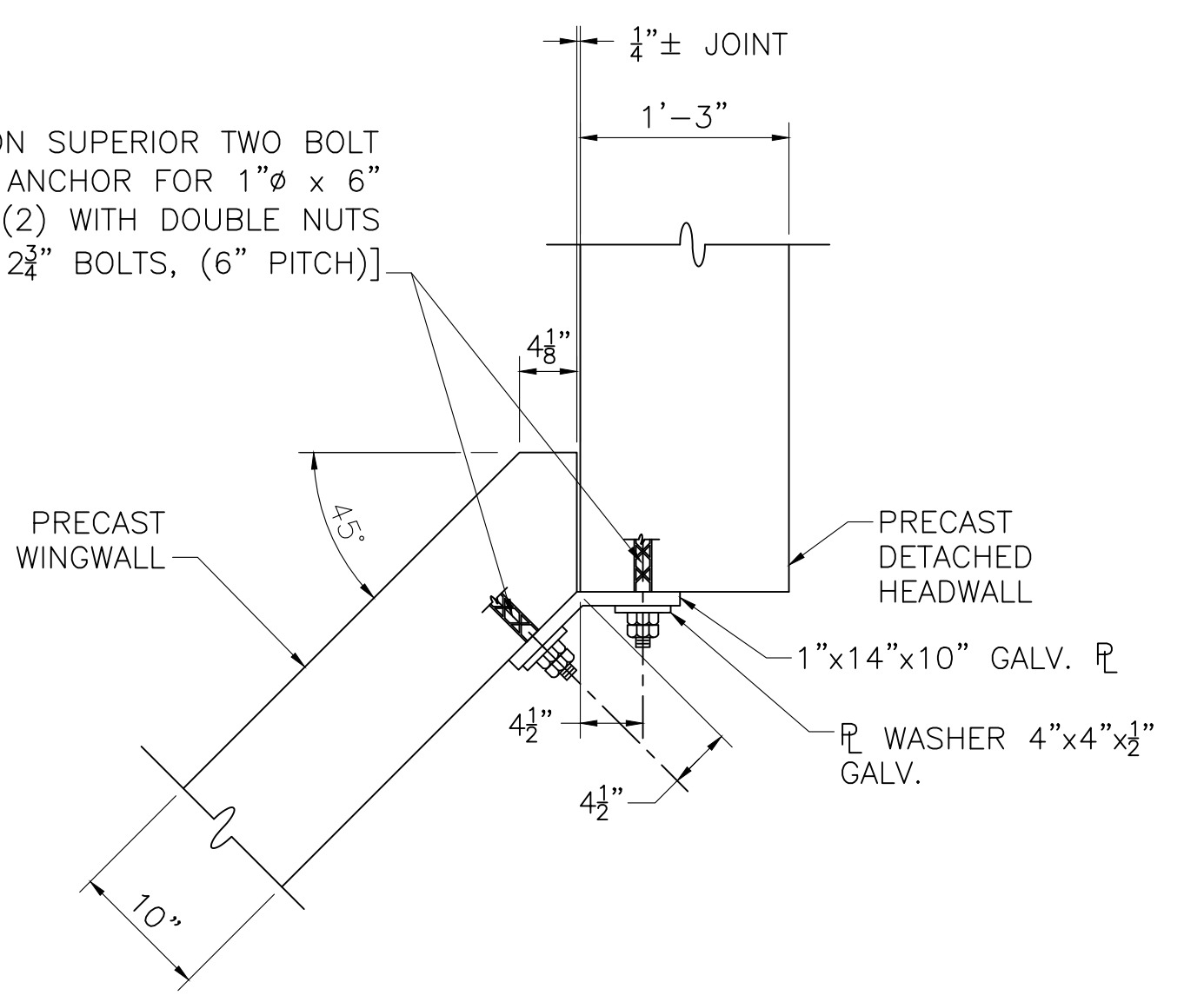


**TYPICAL JOINT SEAL DETAIL**  
 SCALE: 3"=1'-0"

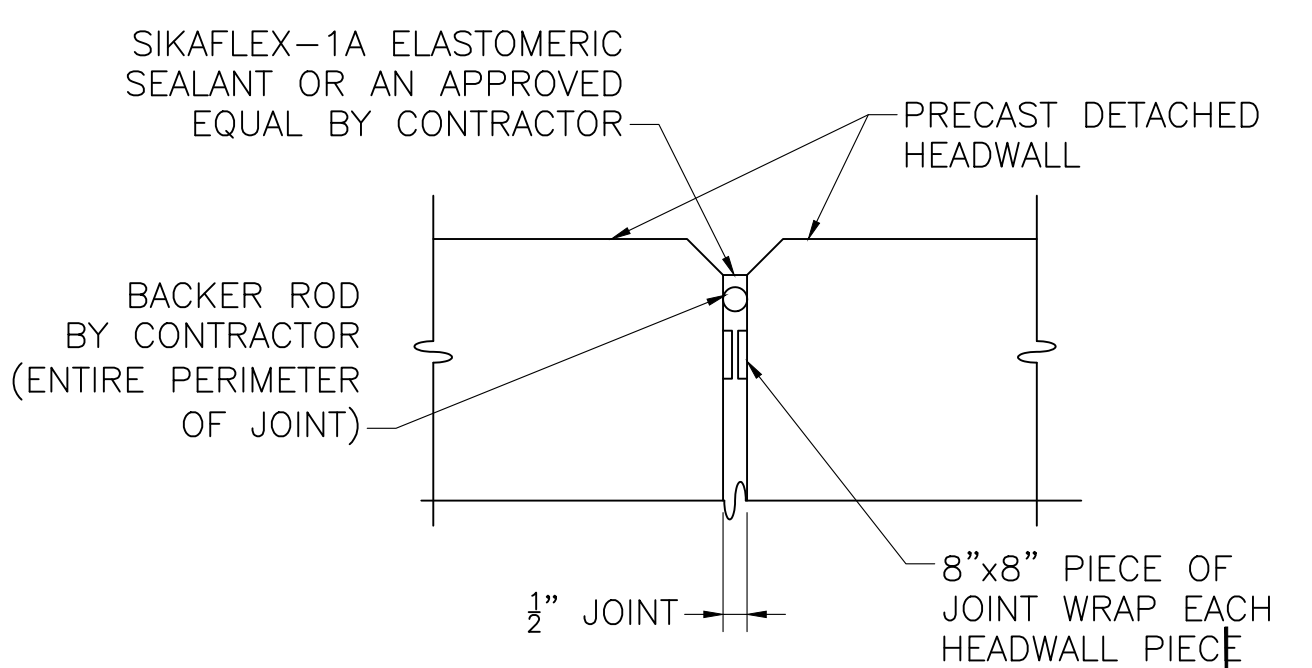


**HEADWALL DETAIL**  
 SCALE: 1"=1'-0"

**NOTE:**  
 MEMBRANE WATERPROOFING AND 8"x16"x2", 4000 PSI, 3/4" IN, 610 CEMENT CONCRETE BLOCKS LAID IN MORTAR OR OTHER WATERPROOFING PROTECTIVE COURSE, MIN. 2" THICK AS SPECIFIED IN MHD STANDARD SPECIFICATIONS.



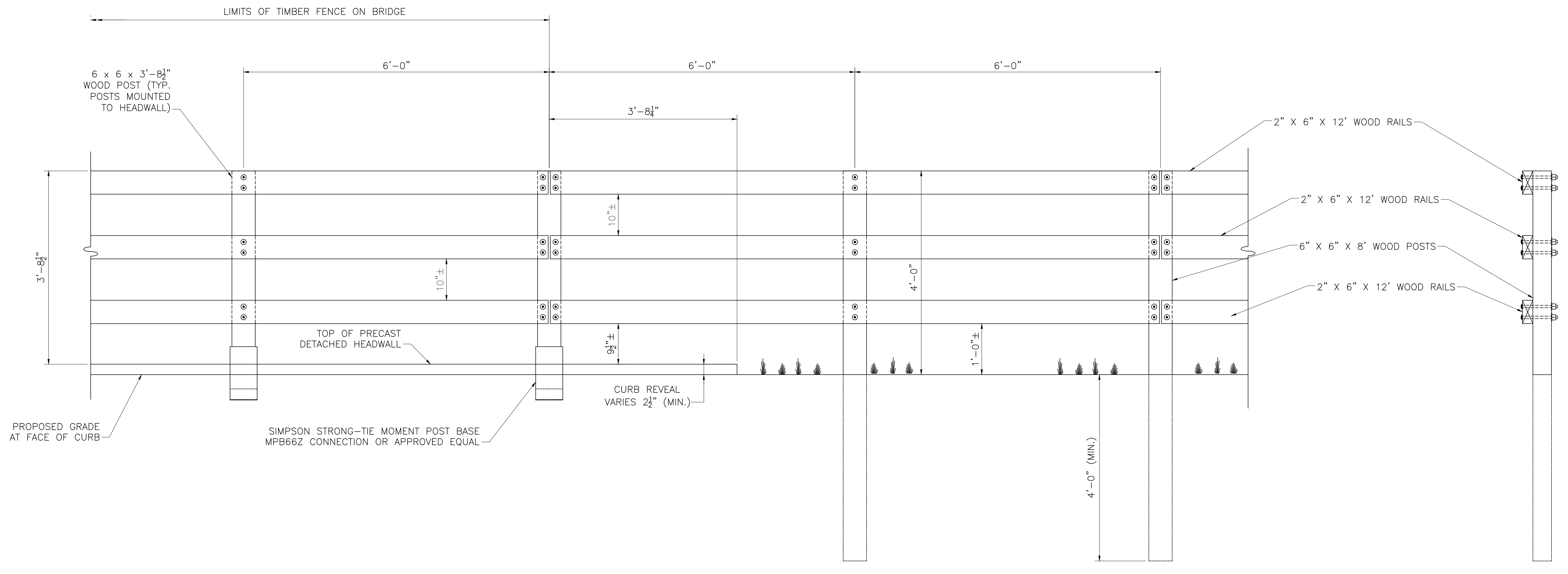
**WINGWALL TO HEADWALL JOINT DETAIL**  
 SCALE: 1"=1'-0"



**TYPICAL HEADWALL JOINT DETAIL**  
 SCALE: 1"=1'-0"

MONTH DD, YYYY	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

608164\_BRF(S-31-013)PRECAST.DWG Plotted on 12-May-2021 9:40 AM Xxxxx Structural Submittal (S) DD-Month-YYYY



**TIMBER BRIDGE RAIL ELEVATION**  
 SCALE: 1"=1'-0"

**NOTE:**  
 SEE TIMBER FENCE DETAILS ON SHEET X FOR  
 ADDITIONAL INFORMATION.

MONTH DD, YYYY	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

608164\_BR10(S-31-013)RAIL.DWG Plotted on 12-May-2021 9:40 AM Xxxxx Structural Submittal (S#) DD-Month-YYYY

SUDBURY  
BRUCE FREEMAN RAIL TRAIL

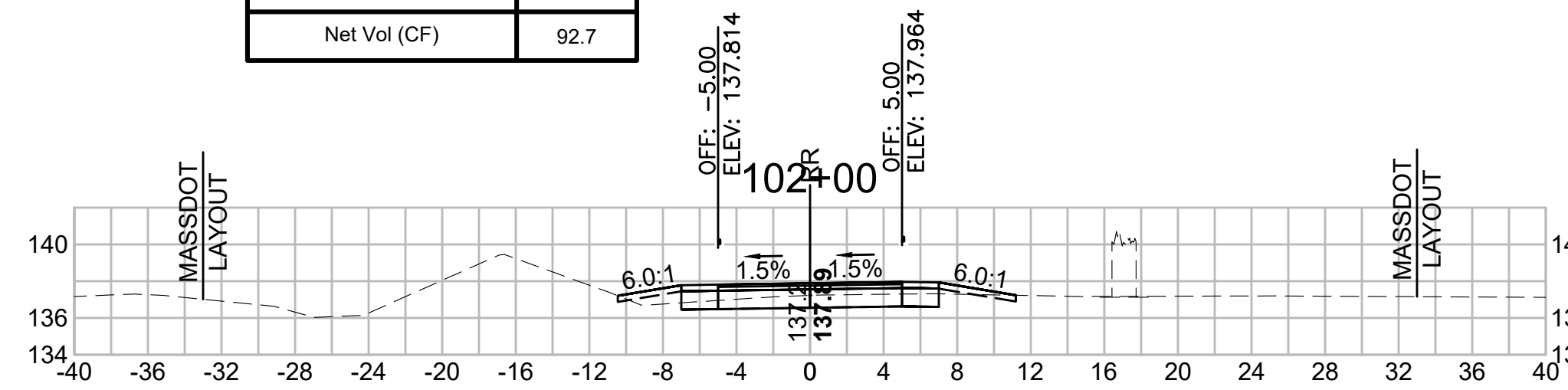
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	243	318

PROJECT FILE NO. 608164

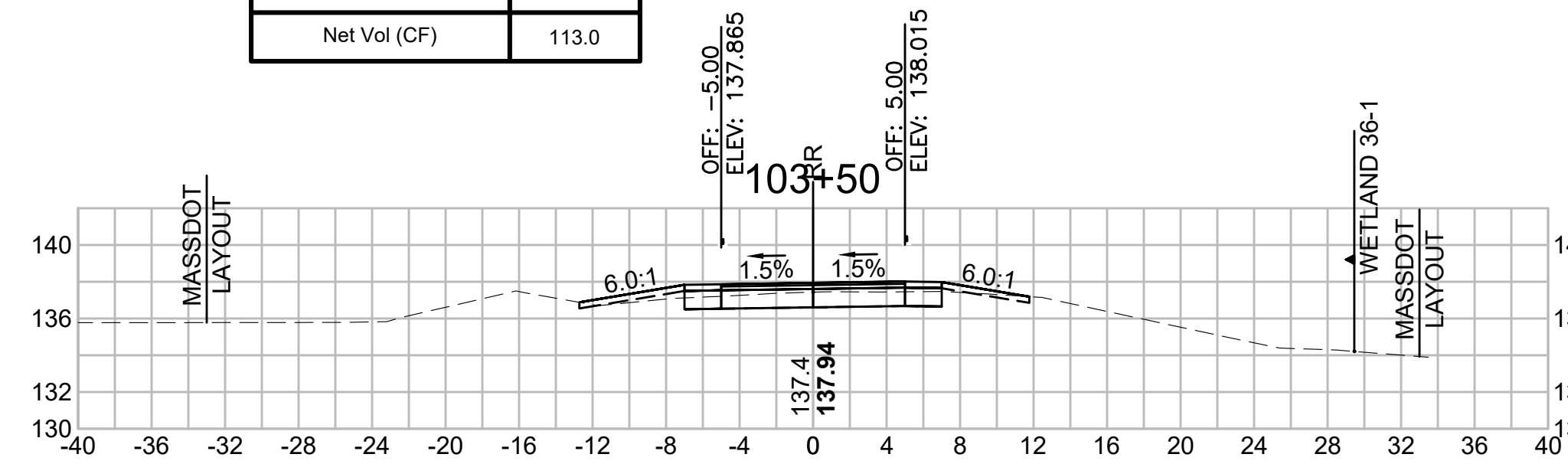
CROSS SECTIONS

608164\_XSEC(CROSS SECTION LAYOUTS).DWG 12-May-2021

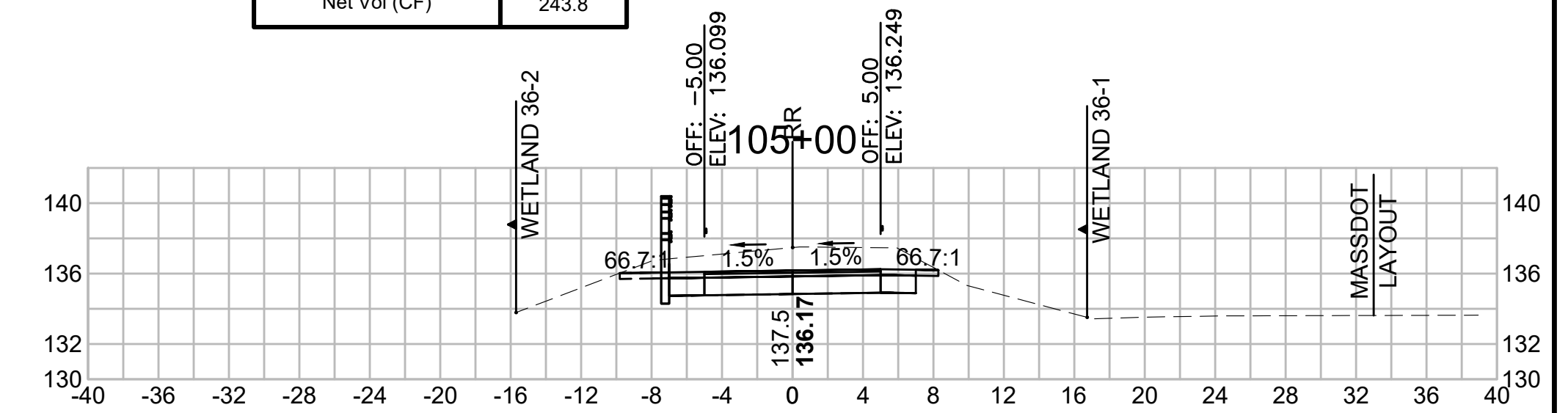
Total Volume at Station 102+00.00	
Cut Area (SF)	12.446
Fill Area (SF)	1.553
Cut Vol (CF)	35.195
Fill Vol (CF)	1.6
Cum Cut Vol (CF)	94.407
Cum Fill Vol (CF)	1.7
Net Vol (CF)	92.7



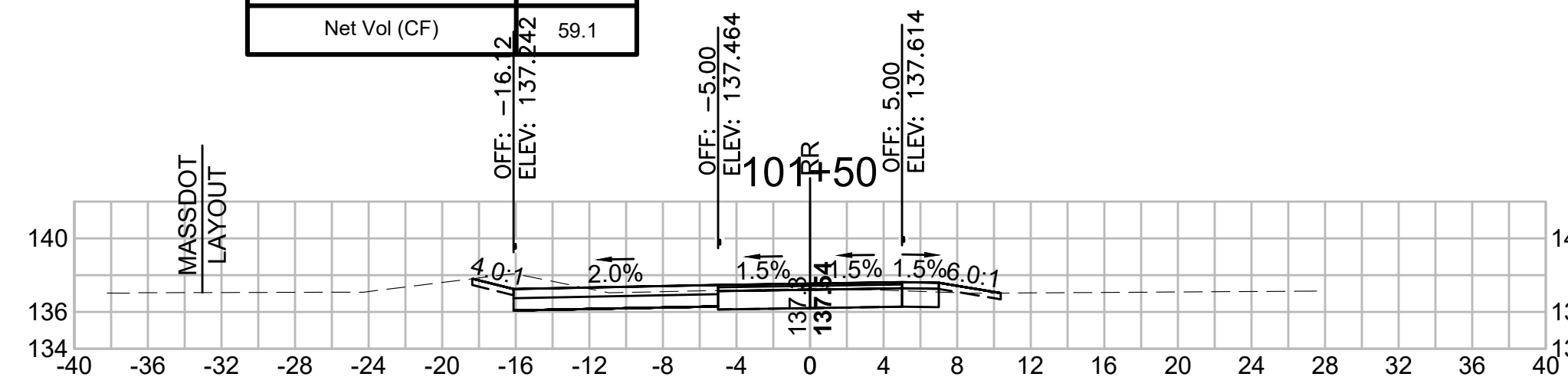
Total Volume at Station 103+50.00	
Cut Area (SF)	11.445
Fill Area (SF)	0.994
Cut Vol (CF)	13.330
Fill Vol (CF)	5.8
Cum Cut Vol (CF)	133.337
Cum Fill Vol (CF)	20.4
Net Vol (CF)	113.0



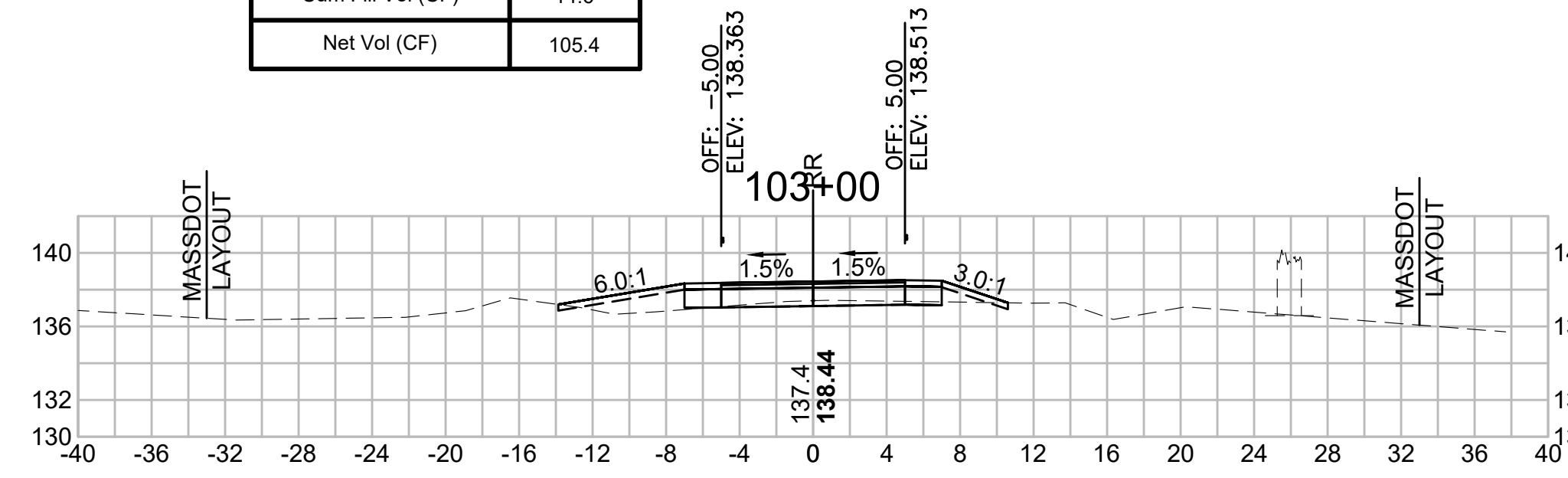
Total Volume at Station 105+00.00	
Cut Area (SF)	37.599
Fill Area (SF)	0.000
Cut Vol (CF)	64.961
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	266.702
Cum Fill Vol (CF)	22.9
Net Vol (CF)	243.8



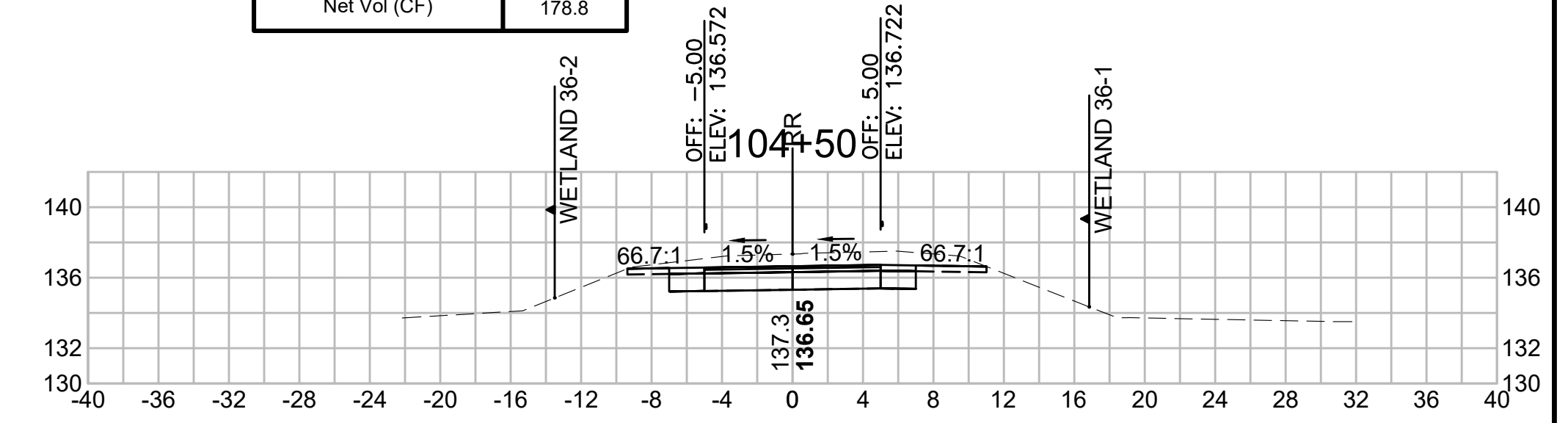
Total Volume at Station 101+50.00	
Cut Area (SF)	25.564
Fill Area (SF)	0.132
Cut Vol (CF)	41.442
Fill Vol (CF)	0.1
Cum Cut Vol (CF)	59.213
Cum Fill Vol (CF)	0.1
Net Vol (CF)	59.1



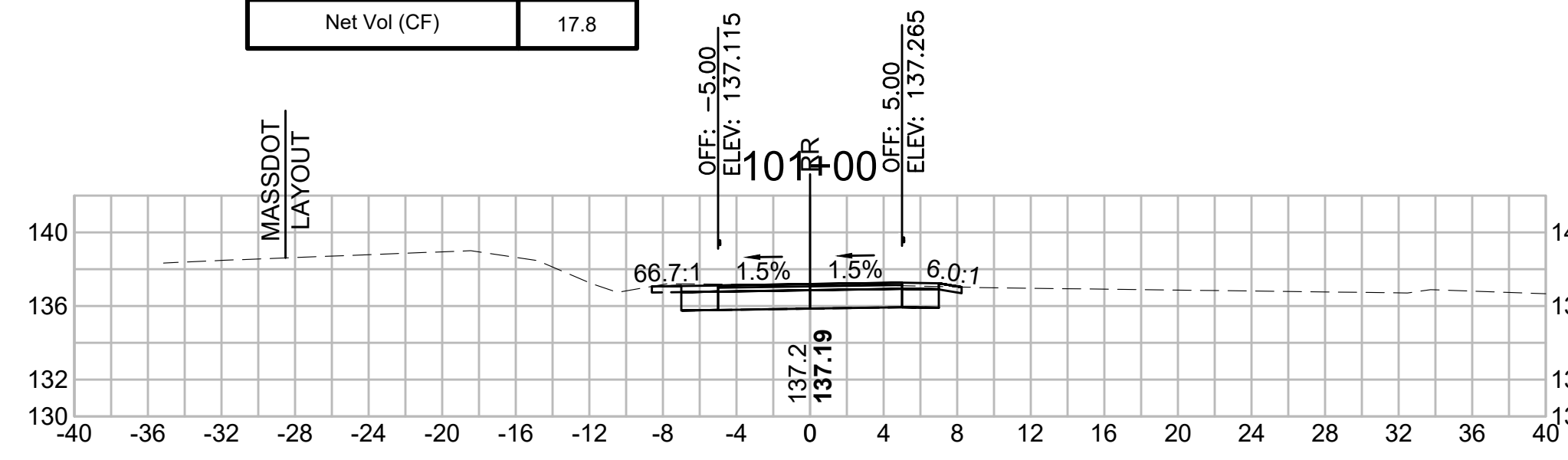
Total Volume at Station 103+00.00	
Cut Area (SF)	2.951
Fill Area (SF)	5.239
Cut Vol (CF)	8.405
Fill Vol (CF)	8.2
Cum Cut Vol (CF)	120.008
Cum Fill Vol (CF)	14.6
Net Vol (CF)	105.4



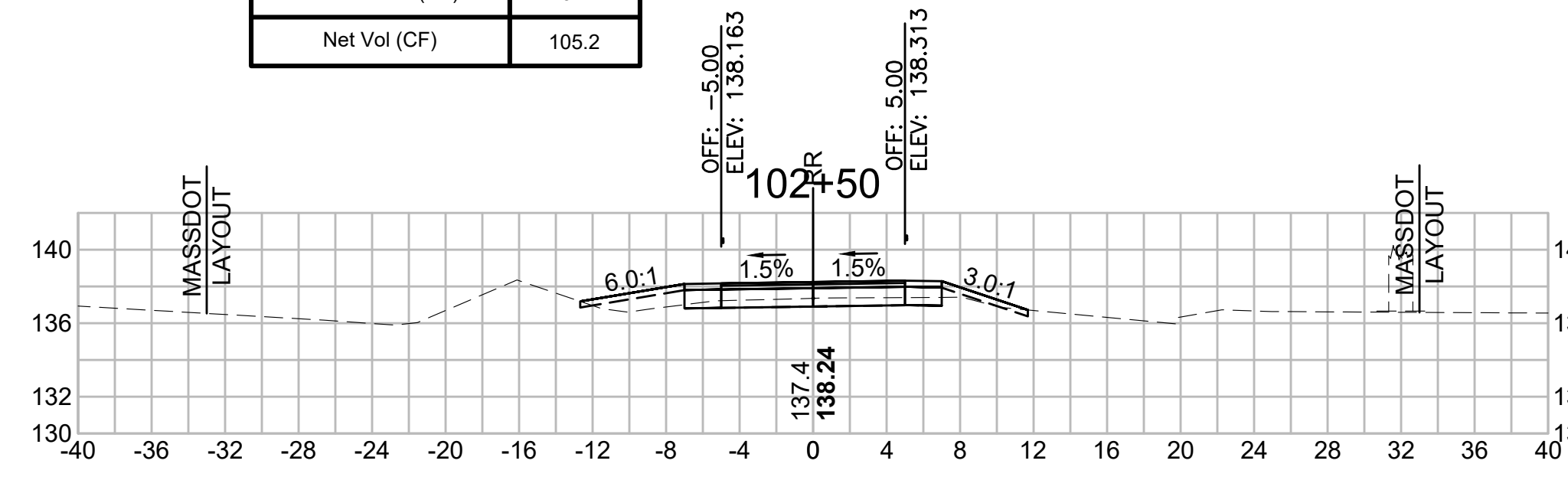
Total Volume at Station 104+50.00	
Cut Area (SF)	32.559
Fill Area (SF)	0.000
Cut Vol (CF)	43.978
Fill Vol (CF)	0.8
Cum Cut Vol (CF)	201.741
Cum Fill Vol (CF)	22.9
Net Vol (CF)	178.8



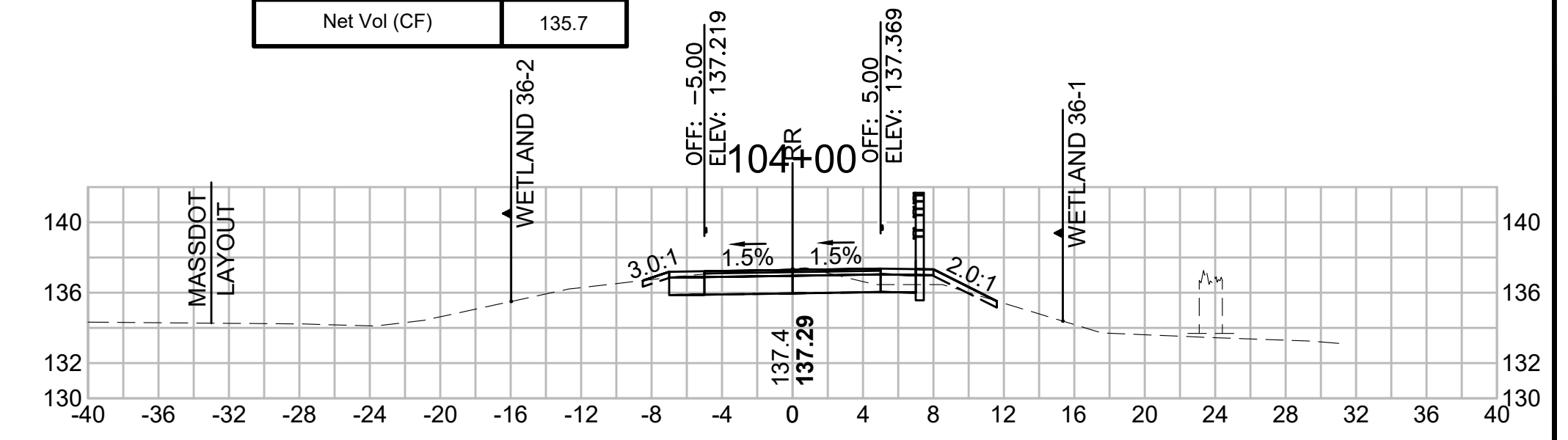
Total Volume at Station 101+00.00	
Cut Area (SF)	19.193
Fill Area (SF)	0.000
Cut Vol (CF)	17.772
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	17.771
Cum Fill Vol (CF)	0.0
Net Vol (CF)	17.8



Total Volume at Station 102+50.00	
Cut Area (SF)	6.126
Fill Area (SF)	3.571
Cut Vol (CF)	17.197
Fill Vol (CF)	4.7
Cum Cut Vol (CF)	111.604
Cum Fill Vol (CF)	6.4
Net Vol (CF)	105.2



Total Volume at Station 104+00.00	
Cut Area (SF)	14.937
Fill Area (SF)	0.878
Cut Vol (CF)	24.428
Fill Vol (CF)	1.7
Cum Cut Vol (CF)	157.764
Cum Fill Vol (CF)	22.1
Net Vol (CF)	135.7



SUDBURY  
BRUCE FREEMAN RAIL TRAIL

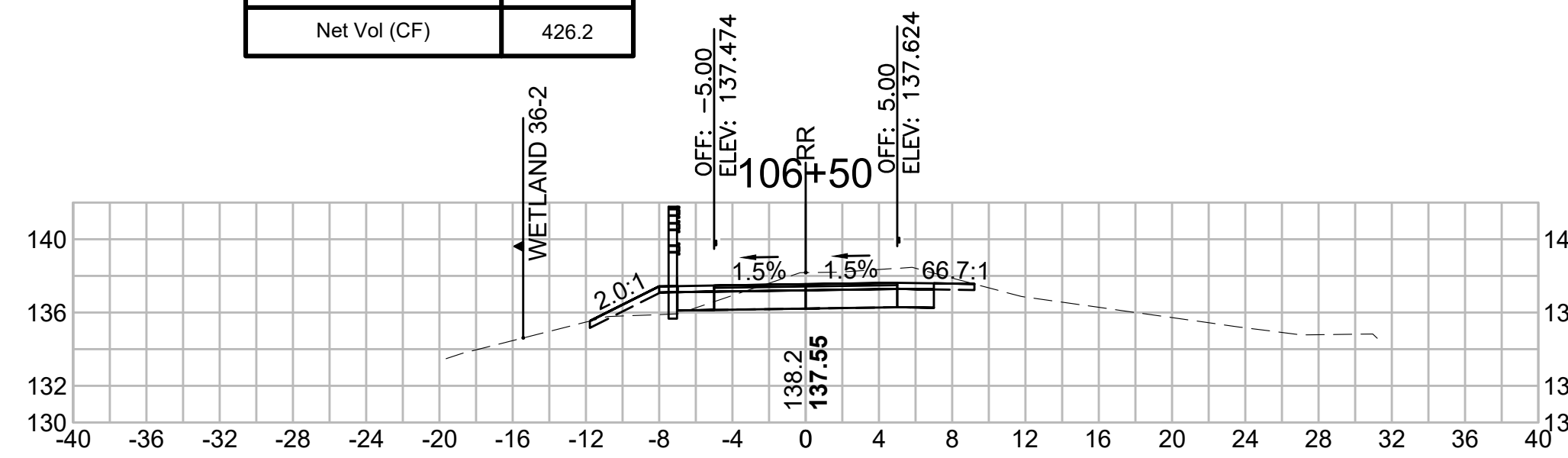
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	244	318

PROJECT FILE NO. 608164

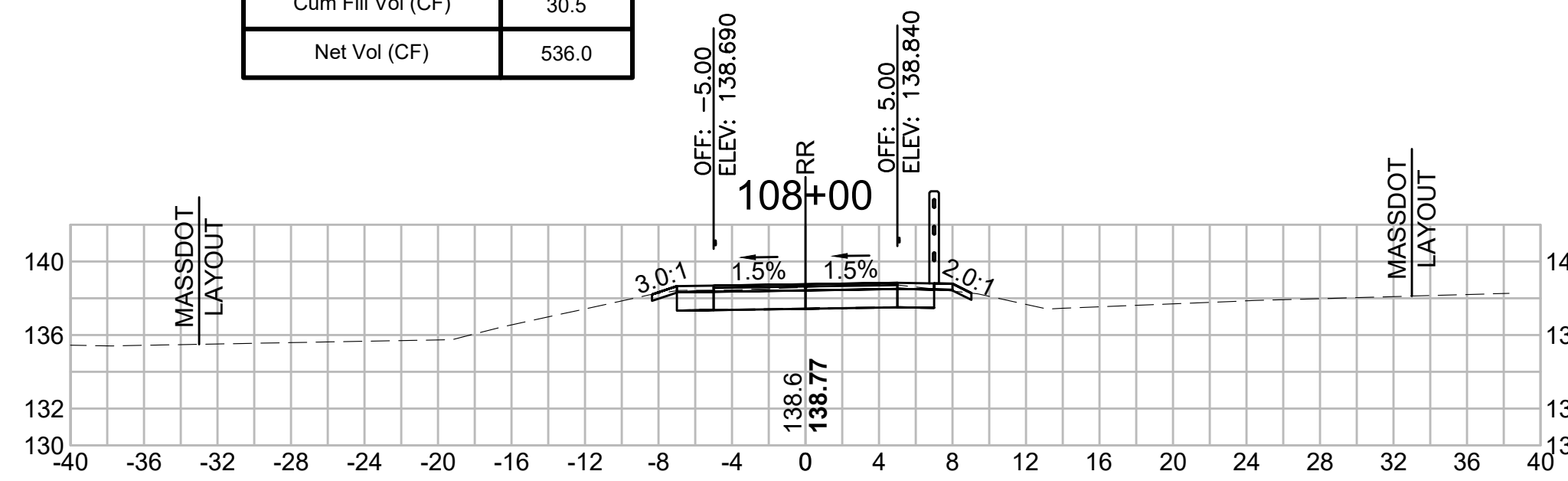
CROSS SECTIONS

608164\_XSEC(CROSS SECTION LAYOUTS).DWG 12-May-2021

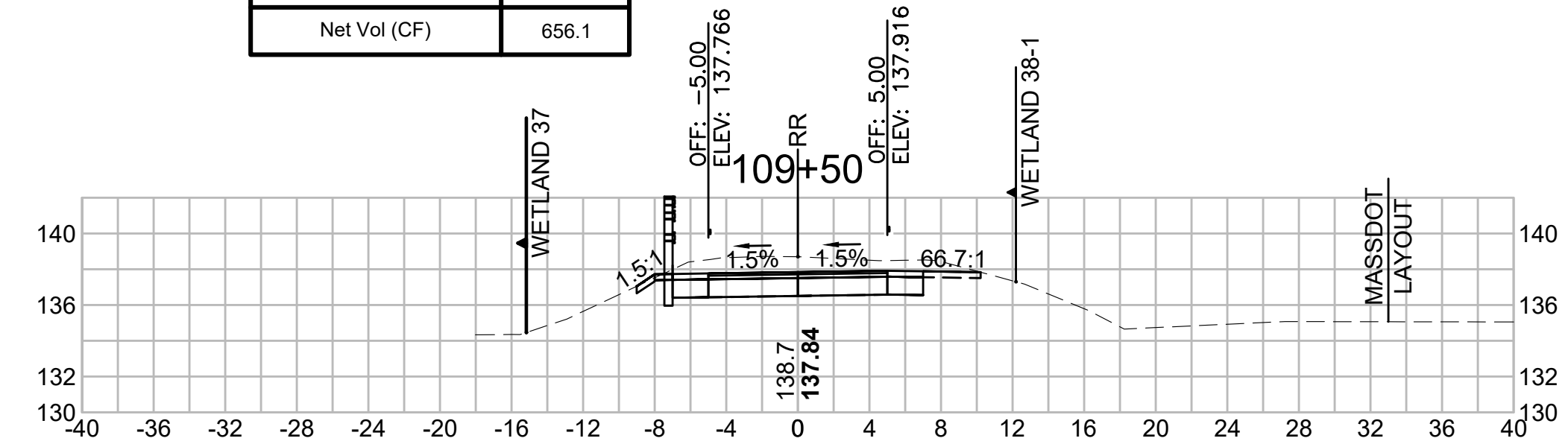
Total Volume at Station 106+50.00	
Cut Area (SF)	23.778
Fill Area (SF)	2.741
Cut Vol (CF)	50.848
Fill Vol (CF)	2.5
Cum Cut Vol (CF)	451.663
Cum Fill Vol (CF)	25.4
Net Vol (CF)	426.2



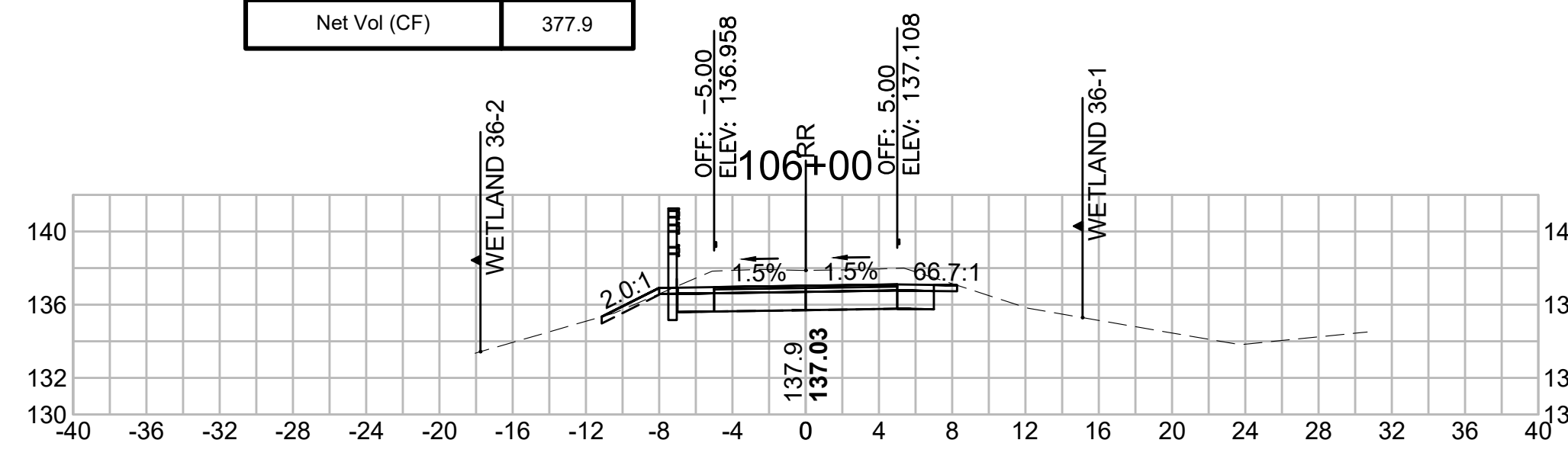
Total Volume at Station 108+00.00	
Cut Area (SF)	16.876
Fill Area (SF)	0.026
Cut Vol (CF)	34.794
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	566.483
Cum Fill Vol (CF)	30.5
Net Vol (CF)	536.0



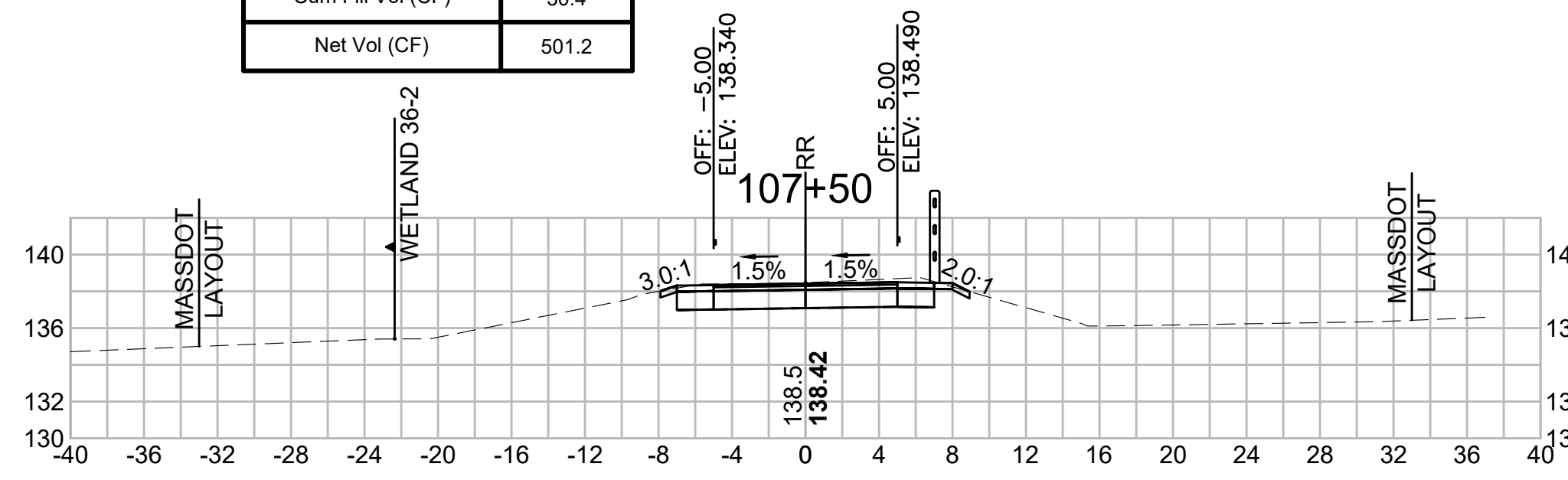
Total Volume at Station 109+50.00	
Cut Area (SF)	32.812
Fill Area (SF)	0.000
Cut Vol (CF)	47.278
Fill Vol (CF)	0.3
Cum Cut Vol (CF)	687.192
Cum Fill Vol (CF)	31.0
Net Vol (CF)	656.1



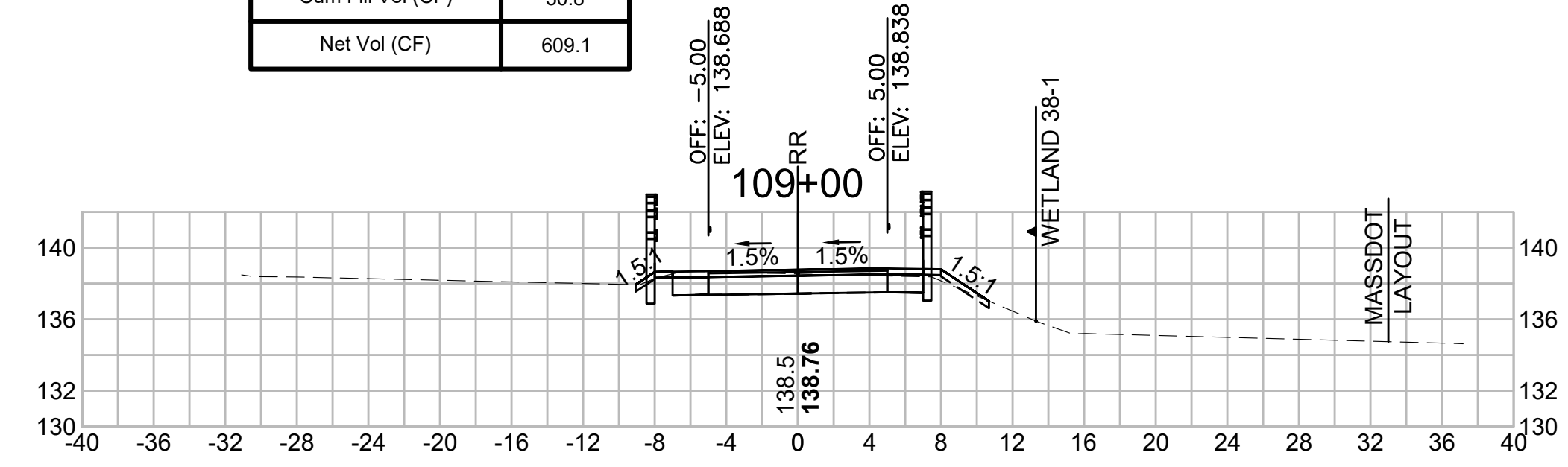
Total Volume at Station 106+00.00	
Cut Area (SF)	31.138
Fill Area (SF)	0.000
Cut Vol (CF)	64.066
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	400.816
Cum Fill Vol (CF)	22.9
Net Vol (CF)	377.9



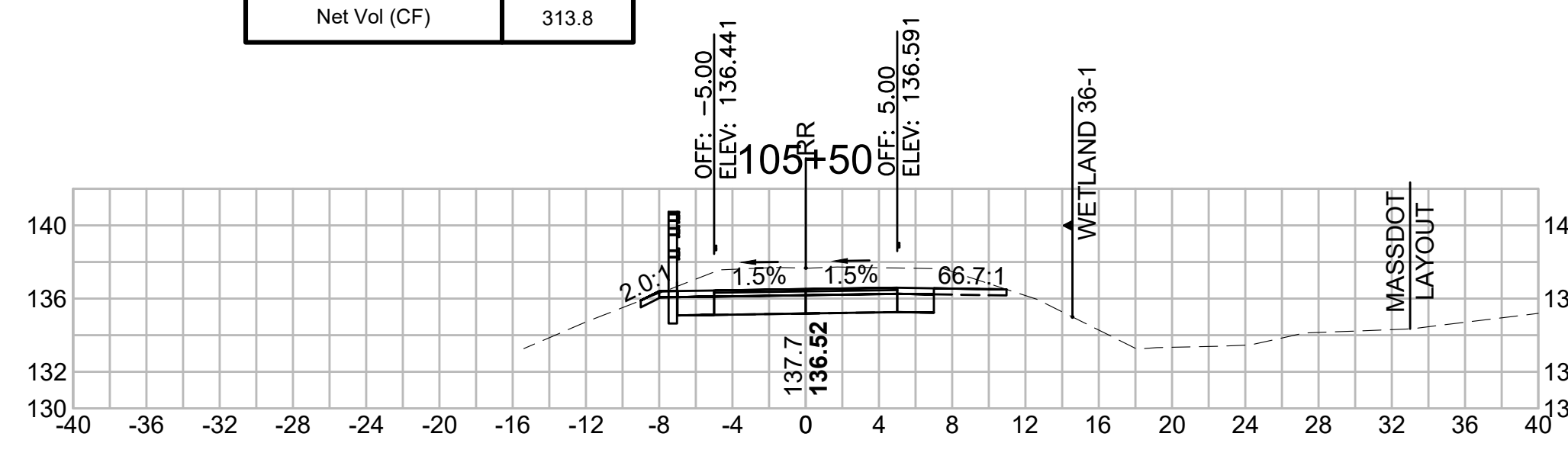
Total Volume at Station 107+50.00	
Cut Area (SF)	20.701
Fill Area (SF)	0.000
Cut Vol (CF)	38.589
Fill Vol (CF)	1.2
Cum Cut Vol (CF)	531.690
Cum Fill Vol (CF)	30.4
Net Vol (CF)	501.2



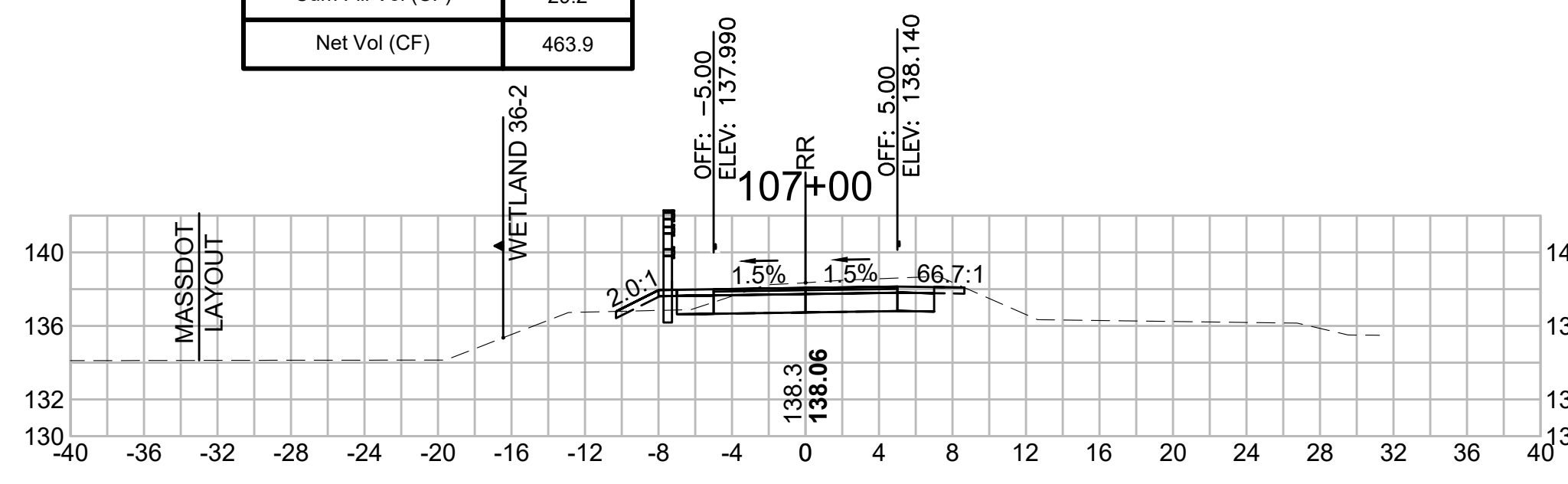
Total Volume at Station 109+00.00	
Cut Area (SF)	18.248
Fill Area (SF)	0.298
Cut Vol (CF)	37.351
Fill Vol (CF)	0.3
Cum Cut Vol (CF)	639.914
Cum Fill Vol (CF)	30.8
Net Vol (CF)	609.1



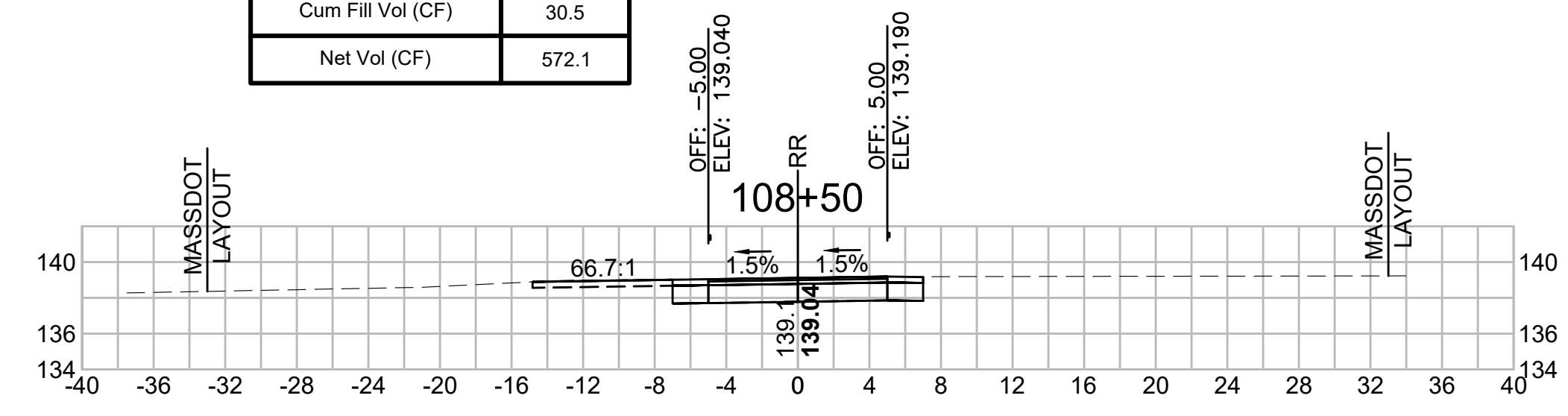
Total Volume at Station 105+50.00	
Cut Area (SF)	38.054
Fill Area (SF)	0.000
Cut Vol (CF)	70.049
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	336.750
Cum Fill Vol (CF)	22.9
Net Vol (CF)	313.8



Total Volume at Station 107+00.00	
Cut Area (SF)	20.975
Fill Area (SF)	1.333
Cut Vol (CF)	41.438
Fill Vol (CF)	3.8
Cum Cut Vol (CF)	493.101
Cum Fill Vol (CF)	29.2
Net Vol (CF)	463.9



Total Volume at Station 108+50.00	
Cut Area (SF)	22.091
Fill Area (SF)	0.000
Cut Vol (CF)	36.081
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	602.563
Cum Fill Vol (CF)	30.5
Net Vol (CF)	572.1





SUDBURY  
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	245	318

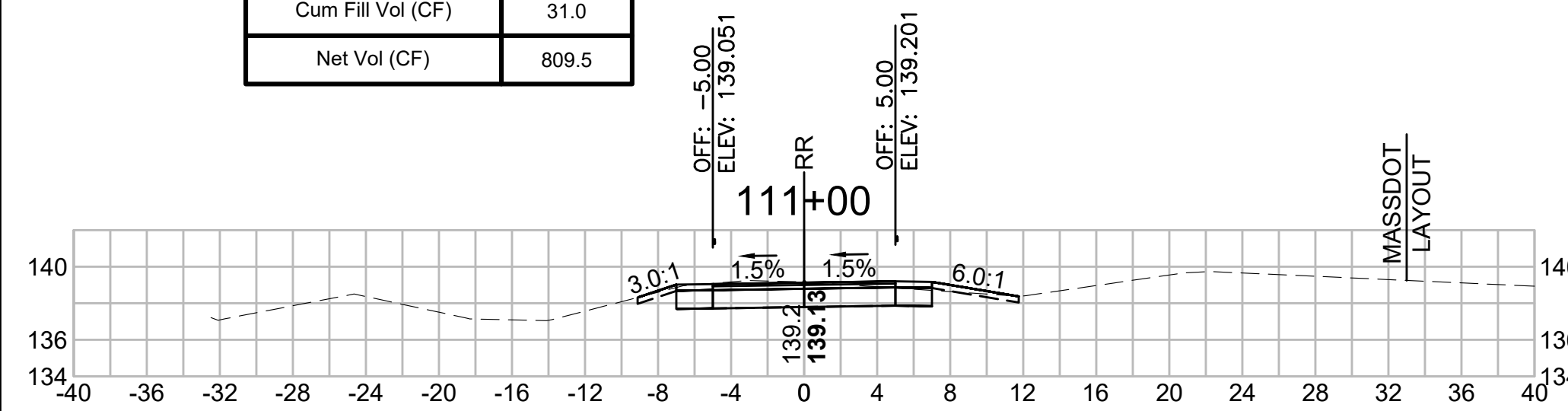
PROJECT FILE NO. 608164

CROSS SECTIONS

608164\_XSEC(CROSS SECTION LAYOUTS).DWG 12-May-2021

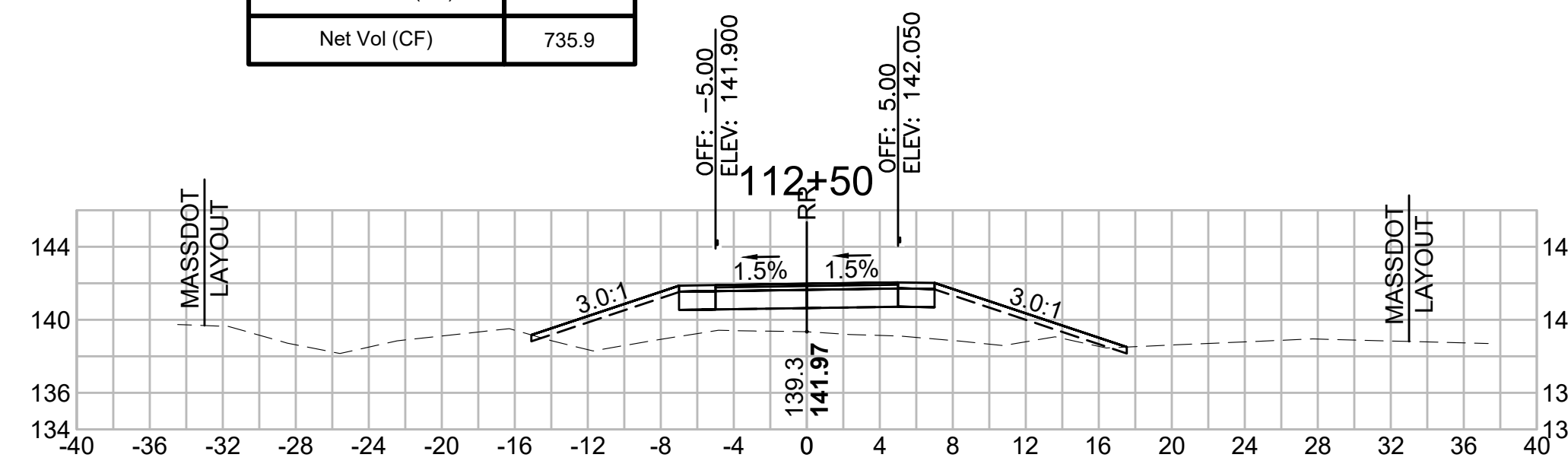
**Total Volume at Station 111+00.00**

Cut Area (SF)	18.236
Fill Area (SF)	0.000
Cut Vol (CF)	40.439
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	840.510
Cum Fill Vol (CF)	31.0
Net Vol (CF)	809.5



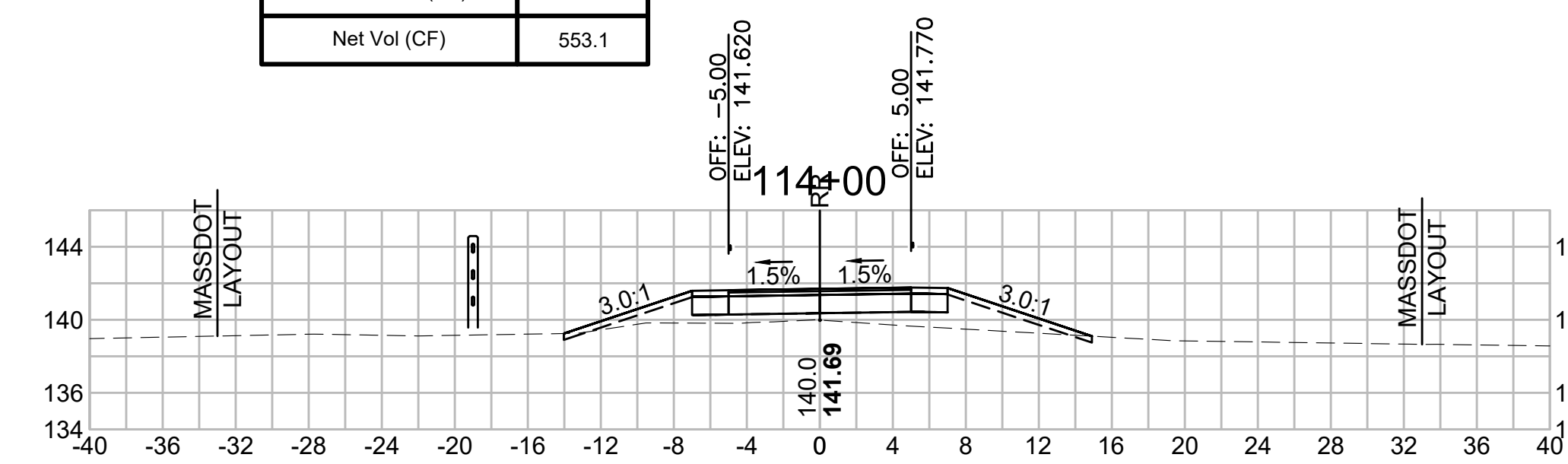
**Total Volume at Station 112+50.00**

Cut Area (SF)	0.261
Fill Area (SF)	43.694
Cut Vol (CF)	0.469
Fill Vol (CF)	63.5
Cum Cut Vol (CF)	866.904
Cum Fill Vol (CF)	131.0
Net Vol (CF)	735.9



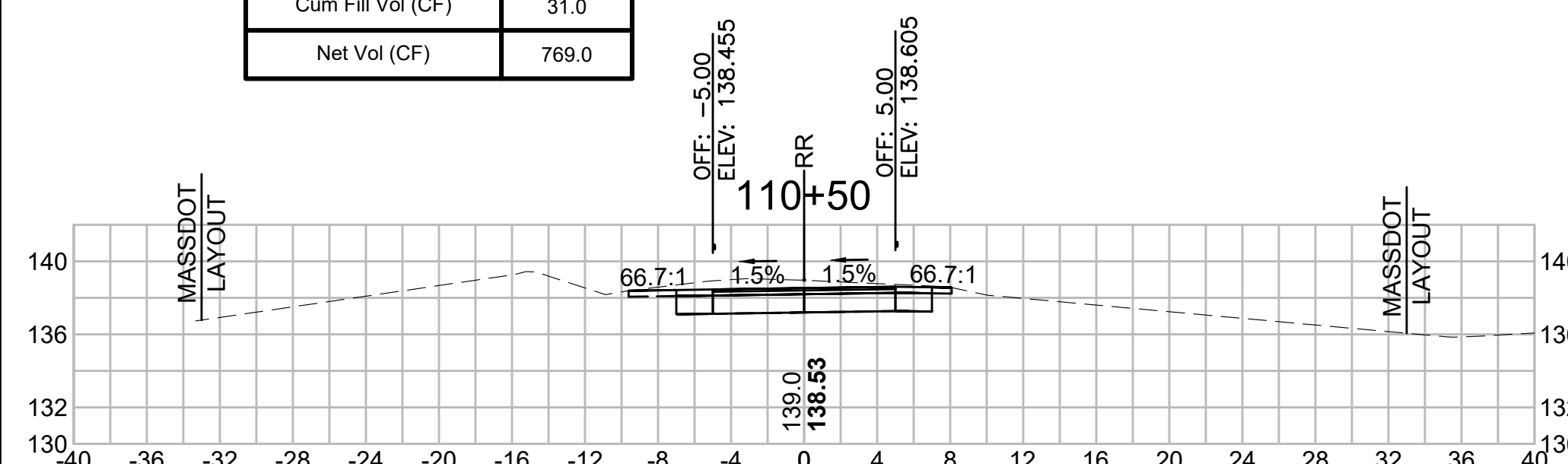
**Total Volume at Station 114+00.00**

Cut Area (SF)	0.425
Fill Area (SF)	17.156
Cut Vol (CF)	0.730
Fill Vol (CF)	38.5
Cum Cut Vol (CF)	868.832
Cum Fill Vol (CF)	315.7
Net Vol (CF)	553.1



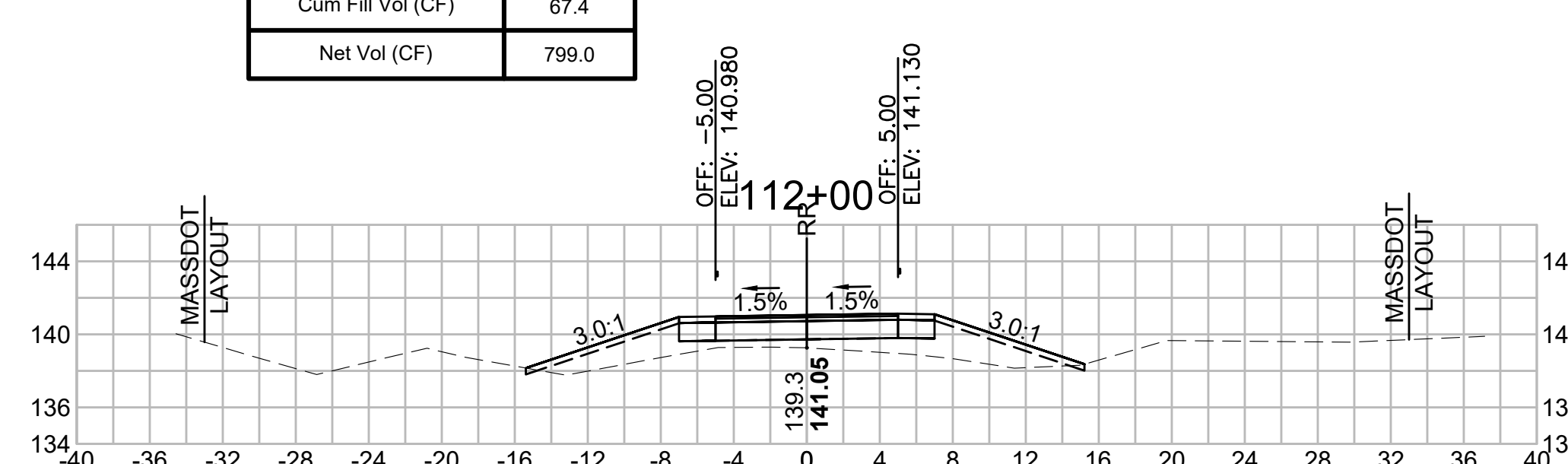
**Total Volume at Station 110+50.00**

Cut Area (SF)	25.438
Fill Area (SF)	0.000
Cut Vol (CF)	53.026
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	800.072
Cum Fill Vol (CF)	31.0
Net Vol (CF)	769.0



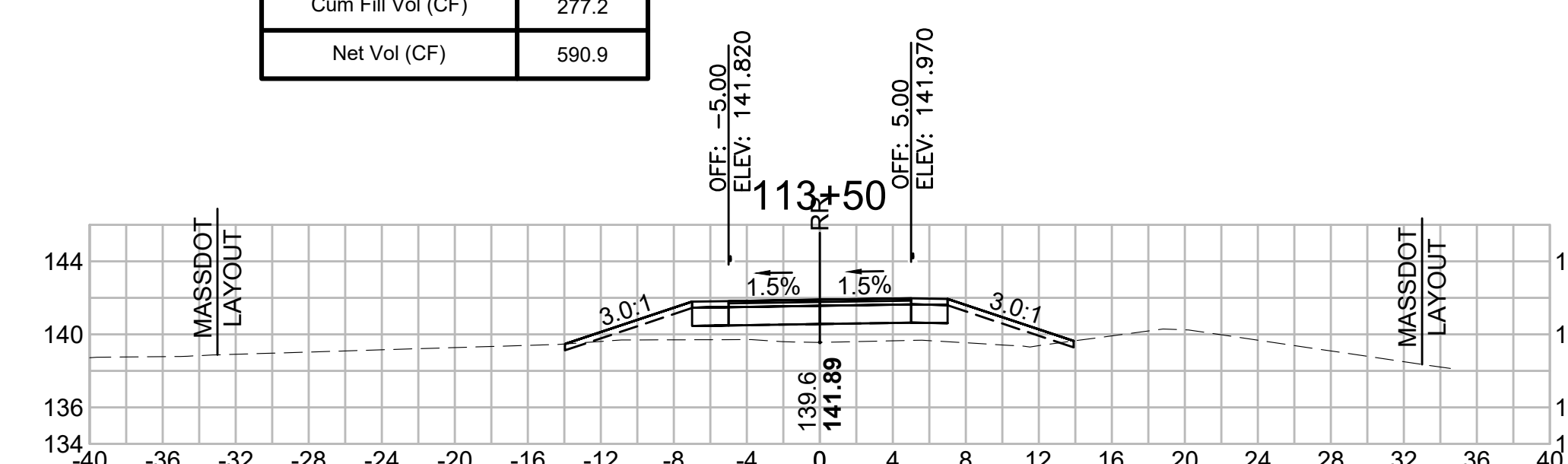
**Total Volume at Station 112+00.00**

Cut Area (SF)	0.246
Fill Area (SF)	24.924
Cut Vol (CF)	4.634
Fill Vol (CF)	29.7
Cum Cut Vol (CF)	866.435
Cum Fill Vol (CF)	67.4
Net Vol (CF)	799.0



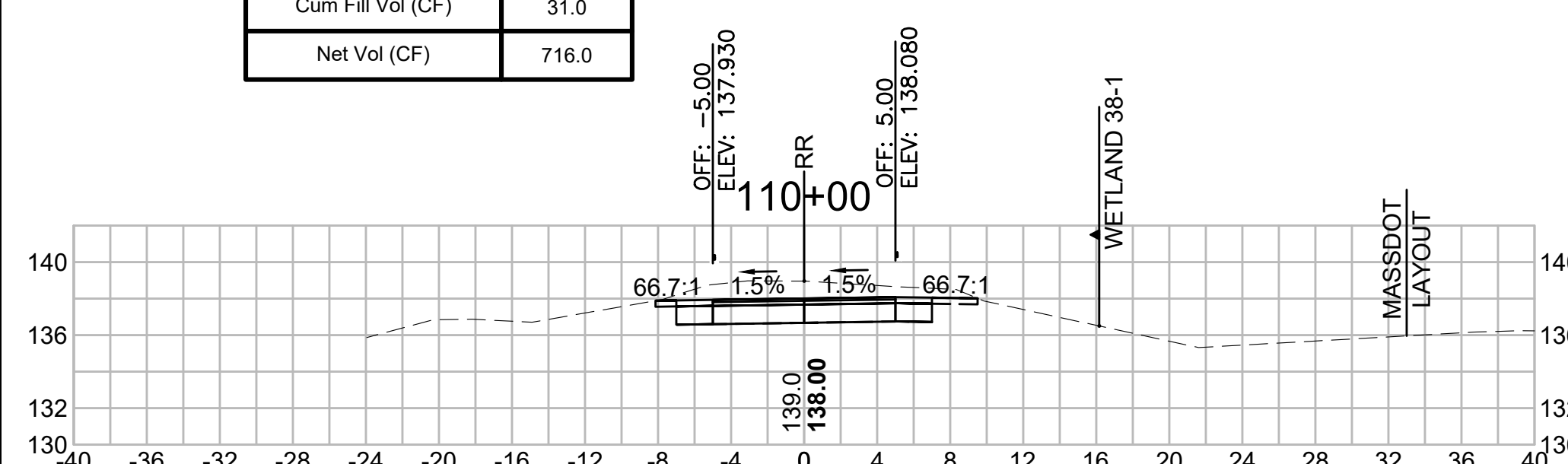
**Total Volume at Station 113+50.00**

Cut Area (SF)	0.363
Fill Area (SF)	24.397
Cut Vol (CF)	0.647
Fill Vol (CF)	64.2
Cum Cut Vol (CF)	868.103
Cum Fill Vol (CF)	277.2
Net Vol (CF)	590.9



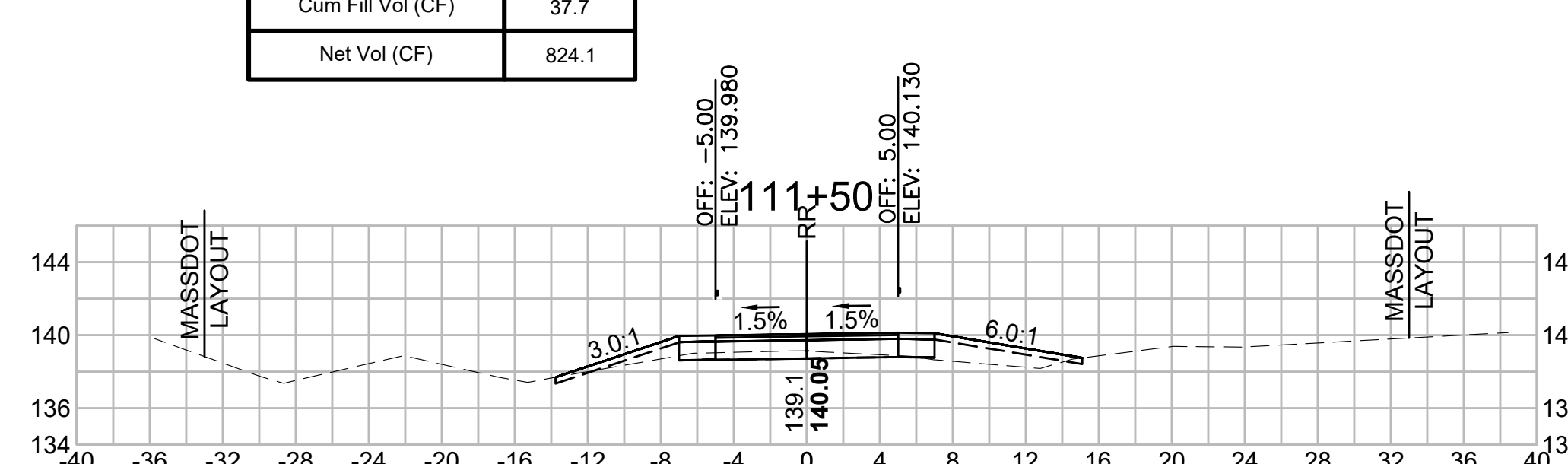
**Total Volume at Station 110+00.00**

Cut Area (SF)	31.830
Fill Area (SF)	0.000
Cut Vol (CF)	59.855
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	747.046
Cum Fill Vol (CF)	31.0
Net Vol (CF)	716.0



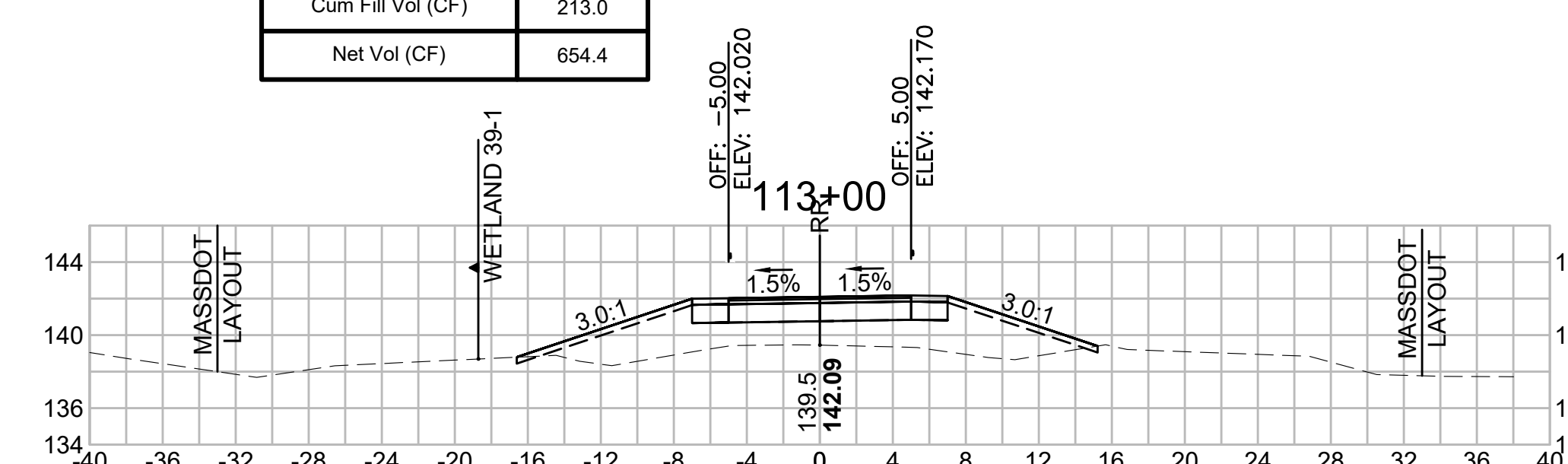
**Total Volume at Station 111+50.00**

Cut Area (SF)	4.759
Fill Area (SF)	7.194
Cut Vol (CF)	21.292
Fill Vol (CF)	6.7
Cum Cut Vol (CF)	861.802
Cum Fill Vol (CF)	37.7
Net Vol (CF)	824.1



**Total Volume at Station 113+00.00**

Cut Area (SF)	0.335
Fill Area (SF)	44.923
Cut Vol (CF)	0.552
Fill Vol (CF)	82.1
Cum Cut Vol (CF)	867.456
Cum Fill Vol (CF)	213.0
Net Vol (CF)	654.4



SUDBURY  
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	246	318

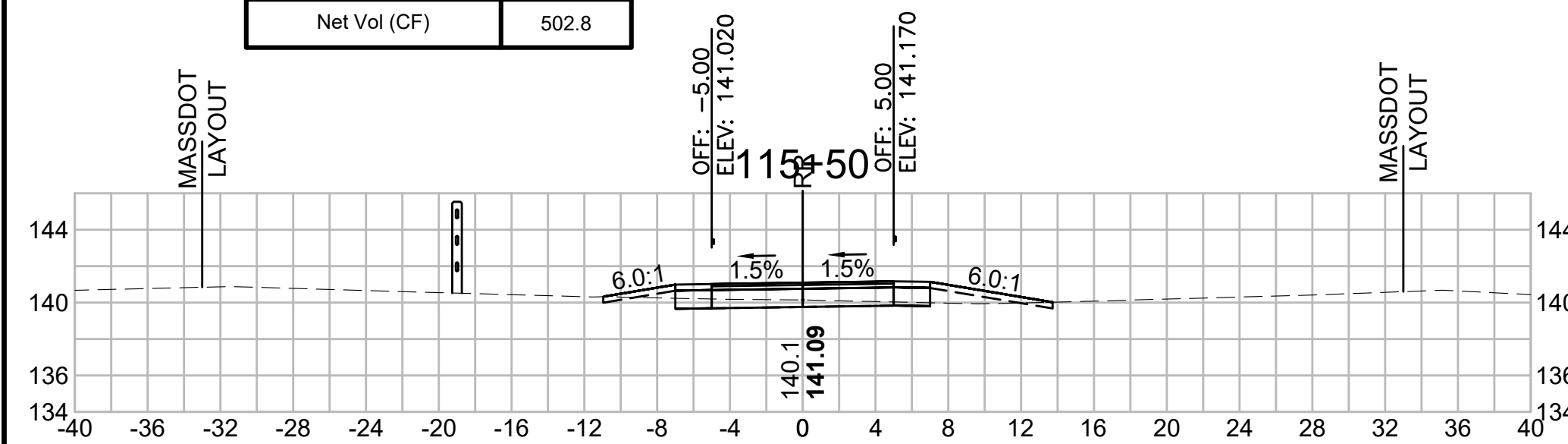
PROJECT FILE NO. 608164

CROSS SECTIONS

608164\_XSEC(CROSS SECTION LAYOUTS).DWG 12-May-2021

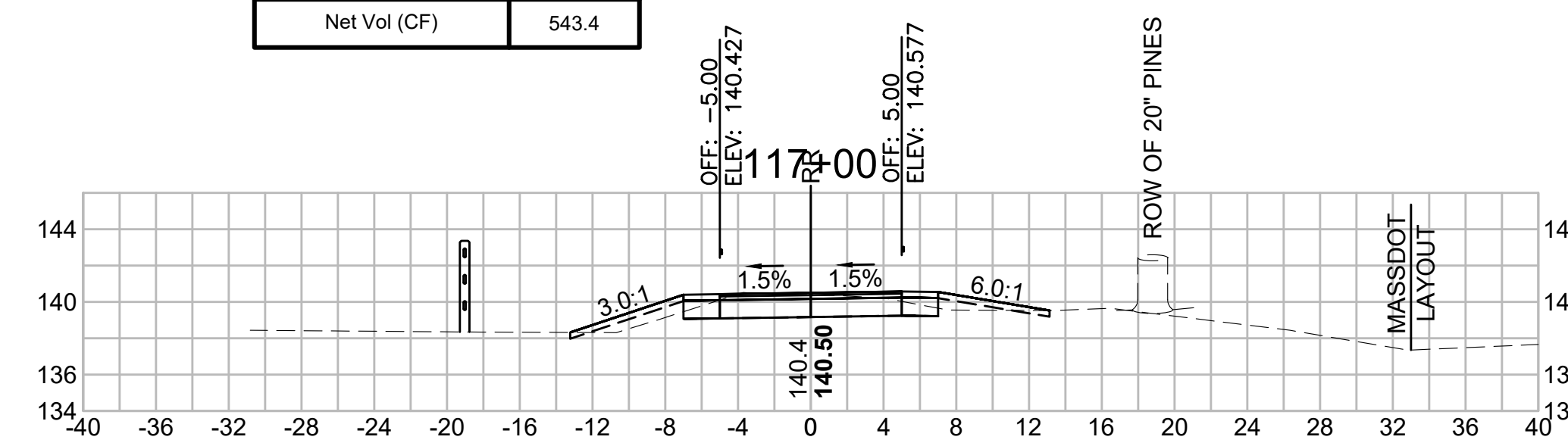
**Total Volume at Station 115+50.00**

Cut Area (SF)	5.798
Fill Area (SF)	2.583
Cut Vol (CF)	6.674
Fill Vol (CF)	8.8
Cum Cut Vol (CF)	877.856
Cum Fill Vol (CF)	375.1
Net Vol (CF)	502.8



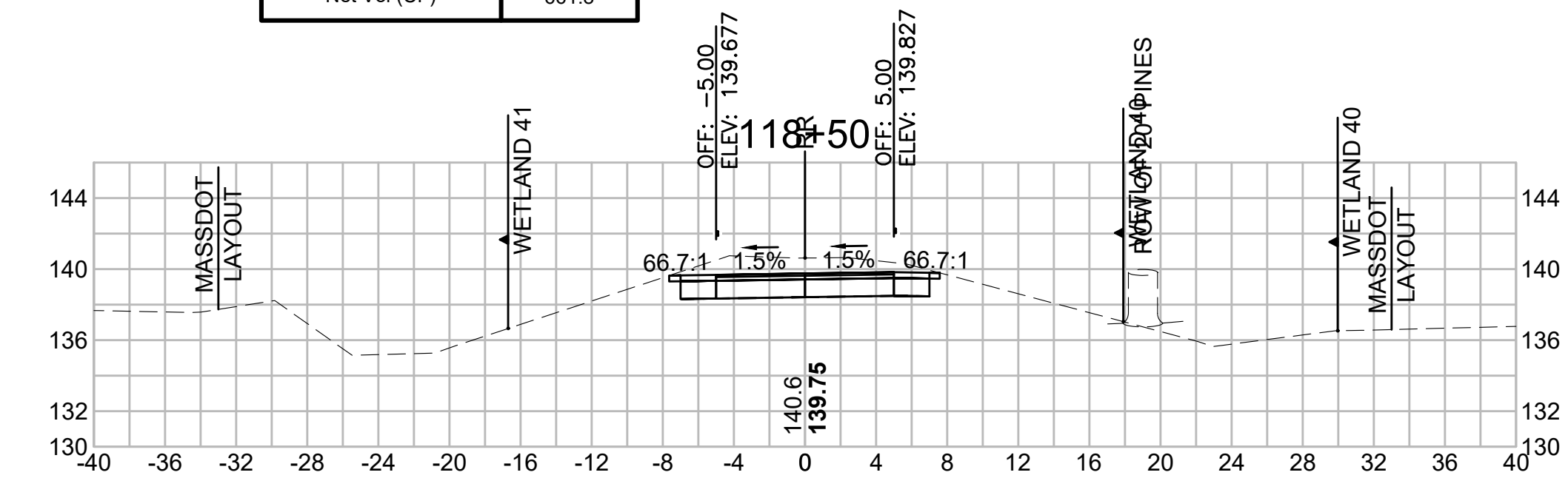
**Total Volume at Station 117+00.00**

Cut Area (SF)	14.901
Fill Area (SF)	3.704
Cut Vol (CF)	27.655
Fill Vol (CF)	3.7
Cum Cut Vol (CF)	924.738
Cum Fill Vol (CF)	381.3
Net Vol (CF)	543.4



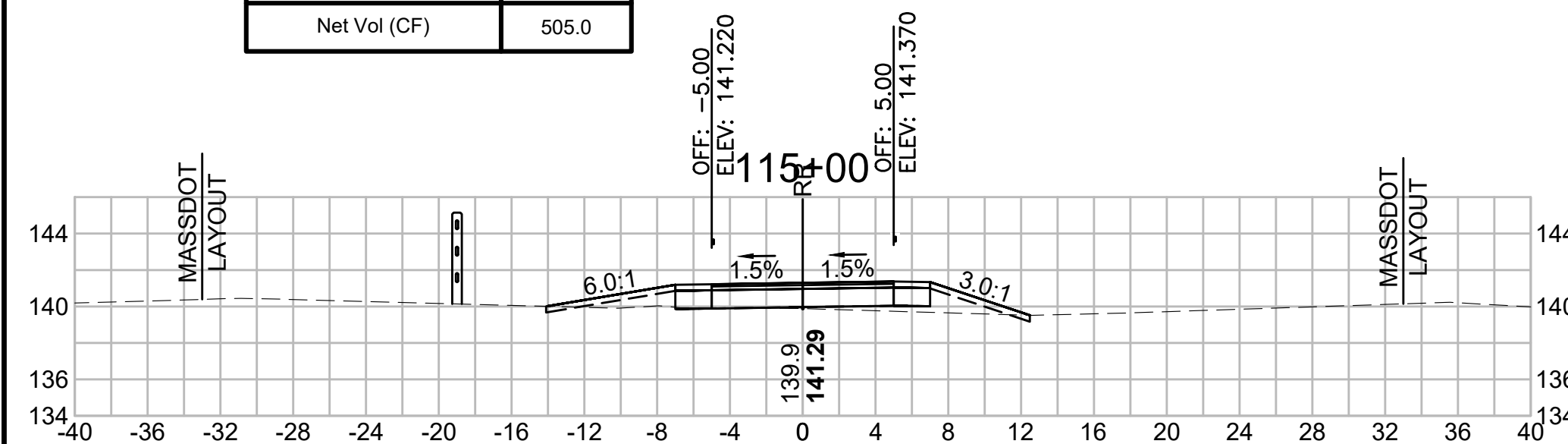
**Total Volume at Station 118+50.00**

Cut Area (SF)	29.627
Fill Area (SF)	0.000
Cut Vol (CF)	50.928
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	1048.464
Cum Fill Vol (CF)	386.7
Net Vol (CF)	661.8



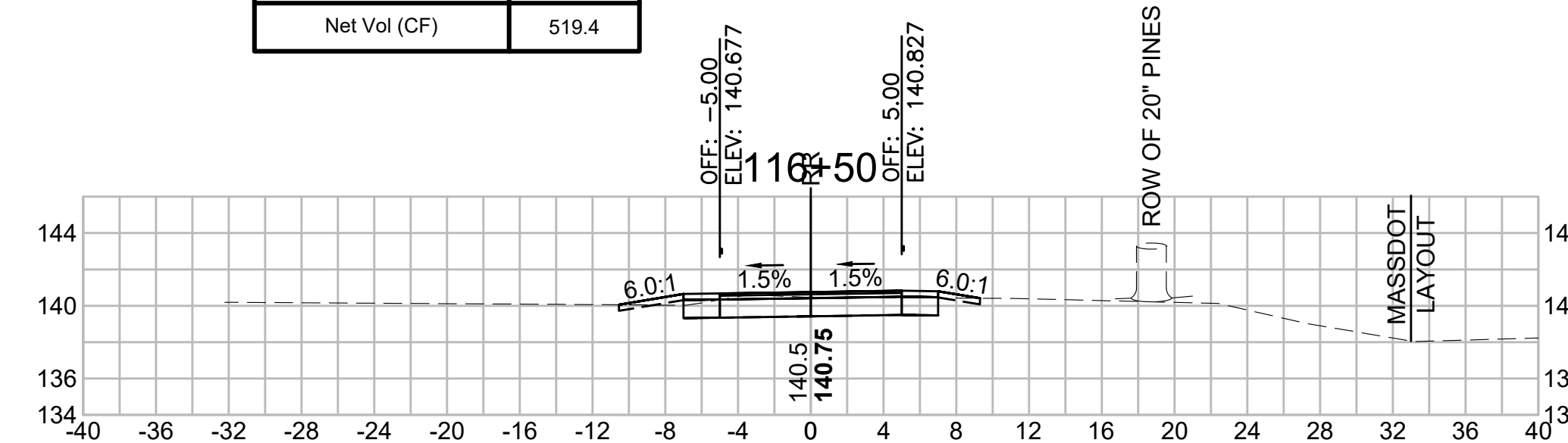
**Total Volume at Station 115+00.00**

Cut Area (SF)	1.409
Fill Area (SF)	6.957
Cut Vol (CF)	1.631
Fill Vol (CF)	20.5
Cum Cut Vol (CF)	871.182
Cum Fill Vol (CF)	366.2
Net Vol (CF)	505.0



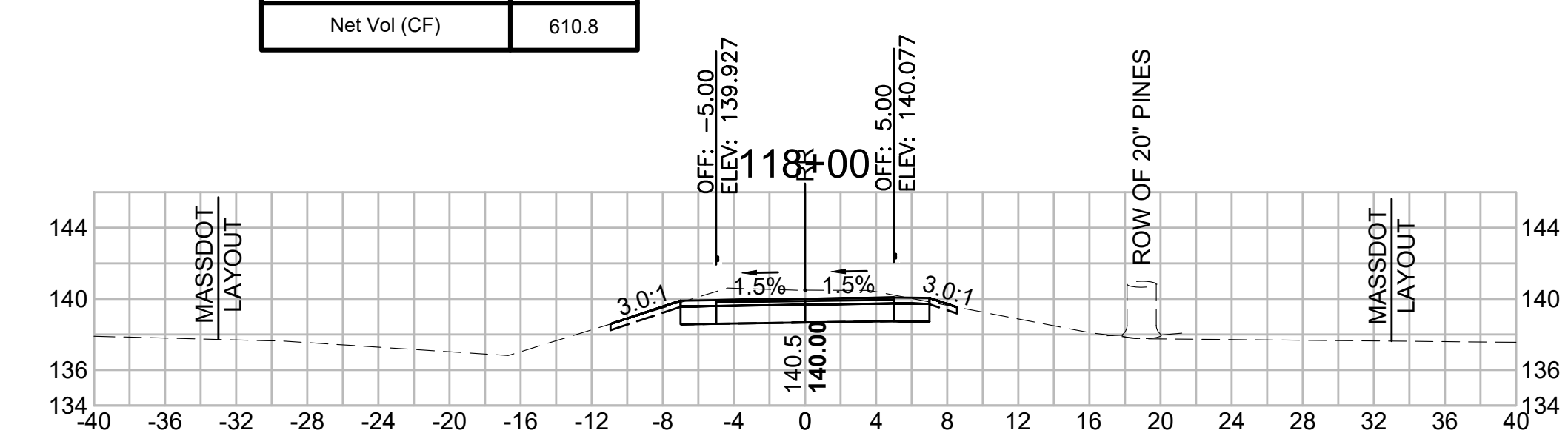
**Total Volume at Station 116+50.00**

Cut Area (SF)	14.966
Fill Area (SF)	0.240
Cut Vol (CF)	13.858
Fill Vol (CF)	0.2
Cum Cut Vol (CF)	897.083
Cum Fill Vol (CF)	377.7
Net Vol (CF)	519.4



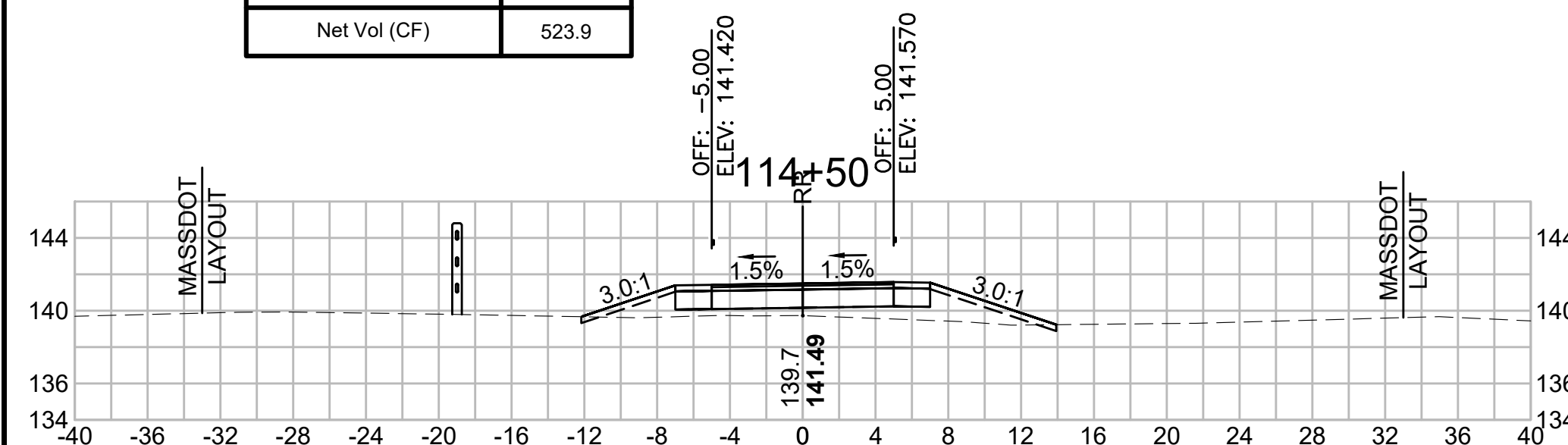
**Total Volume at Station 118+00.00**

Cut Area (SF)	25.374
Fill Area (SF)	0.000
Cut Vol (CF)	41.248
Fill Vol (CF)	1.0
Cum Cut Vol (CF)	997.536
Cum Fill Vol (CF)	386.7
Net Vol (CF)	610.8



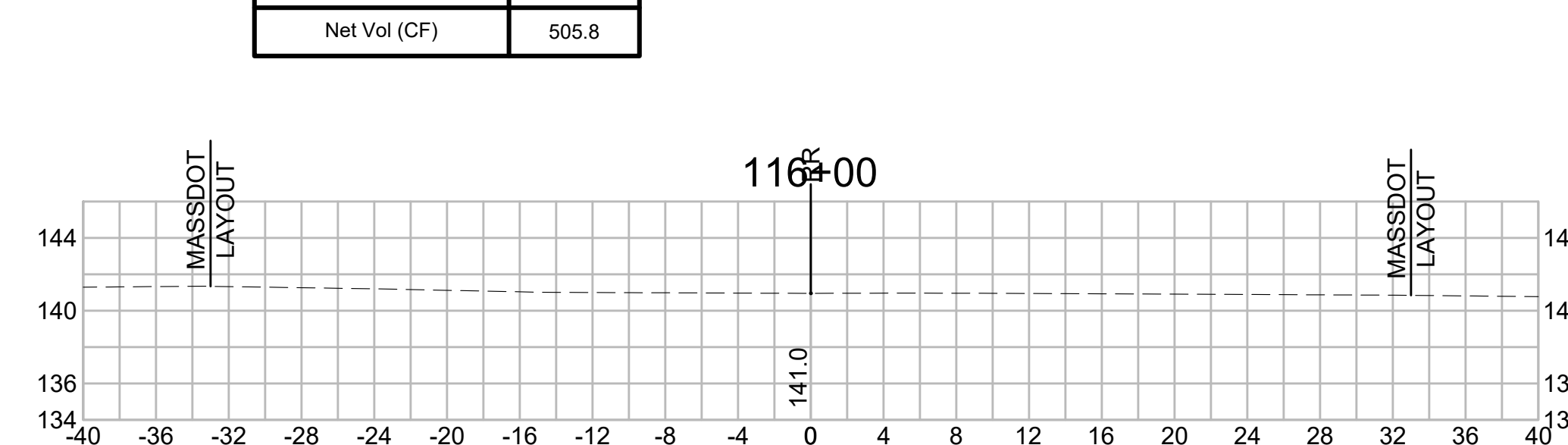
**Total Volume at Station 114+50.00**

Cut Area (SF)	0.352
Fill Area (SF)	15.229
Cut Vol (CF)	0.720
Fill Vol (CF)	30.0
Cum Cut Vol (CF)	869.552
Cum Fill Vol (CF)	345.7
Net Vol (CF)	523.9



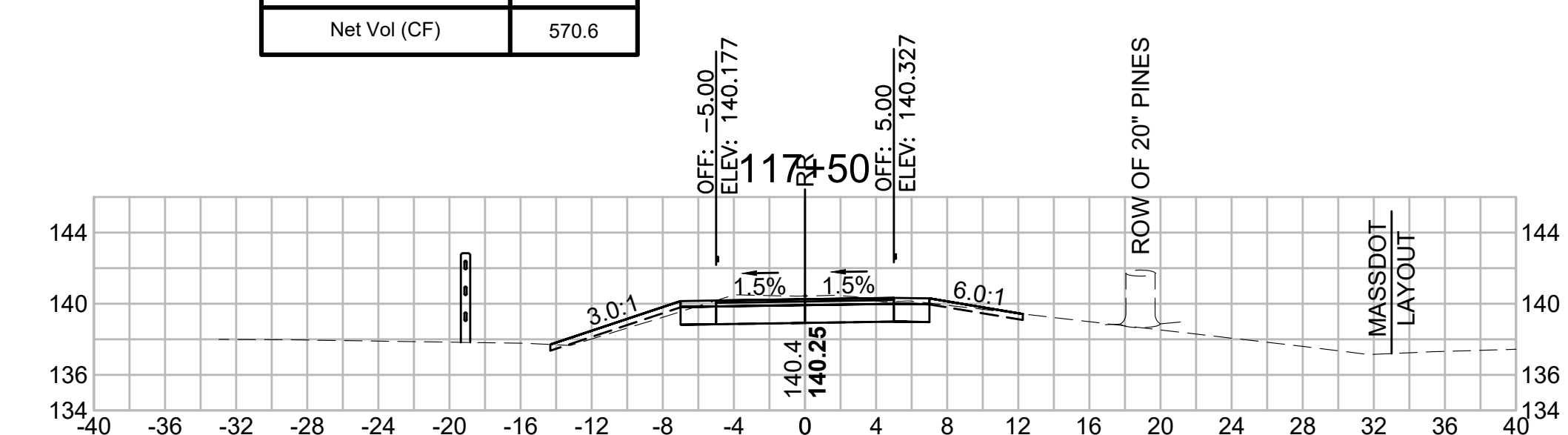
**Total Volume at Station 116+00.00**

Cut Area (SF)	0.000
Fill Area (SF)	0.000
Cut Vol (CF)	5.370
Fill Vol (CF)	2.4
Cum Cut Vol (CF)	883.225
Cum Fill Vol (CF)	377.4
Net Vol (CF)	505.8



**Total Volume at Station 117+50.00**

Cut Area (SF)	19.174
Fill Area (SF)	1.053
Cut Vol (CF)	31.551
Fill Vol (CF)	4.4
Cum Cut Vol (CF)	956.289
Cum Fill Vol (CF)	385.7
Net Vol (CF)	570.6



SUDBURY  
BRUCE FREEMAN RAIL TRAIL

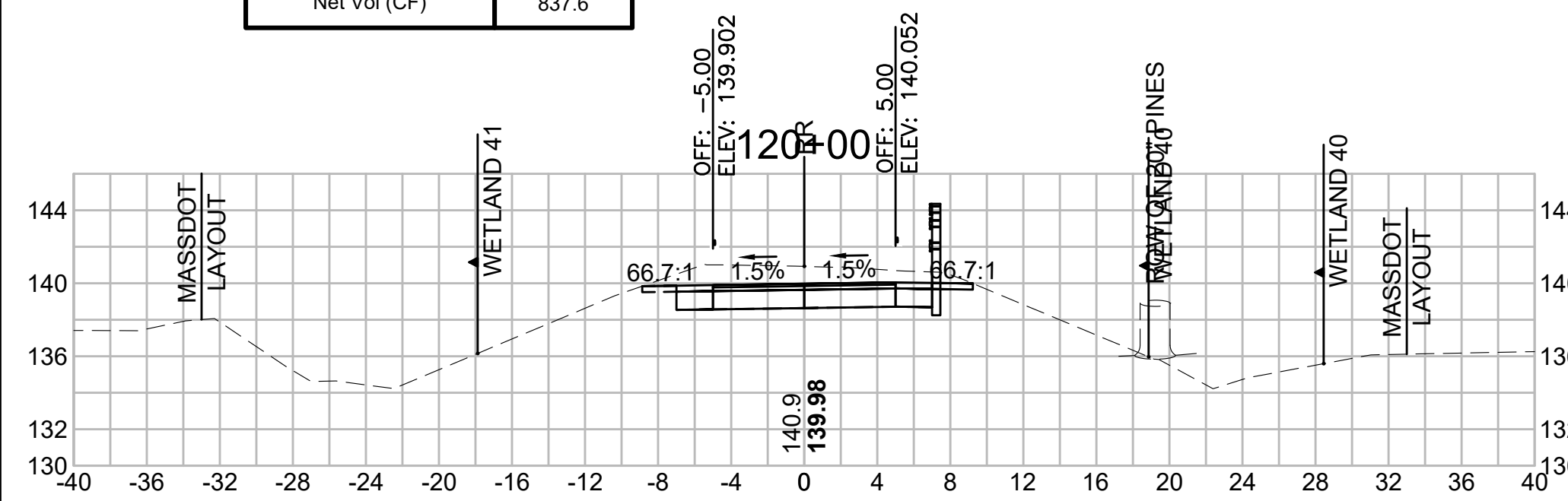
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	247	318

PROJECT FILE NO. 608164

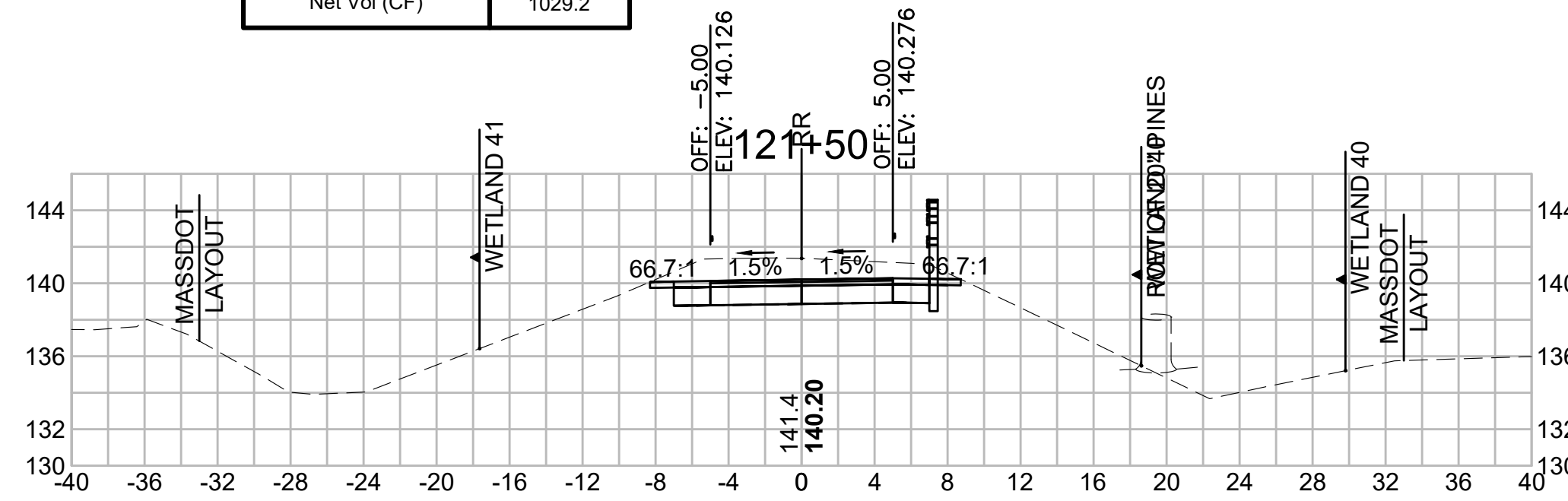
CROSS SECTIONS

608164\_XSEC(CROSS SECTION LAYOUTS).DWG 12-May-2021

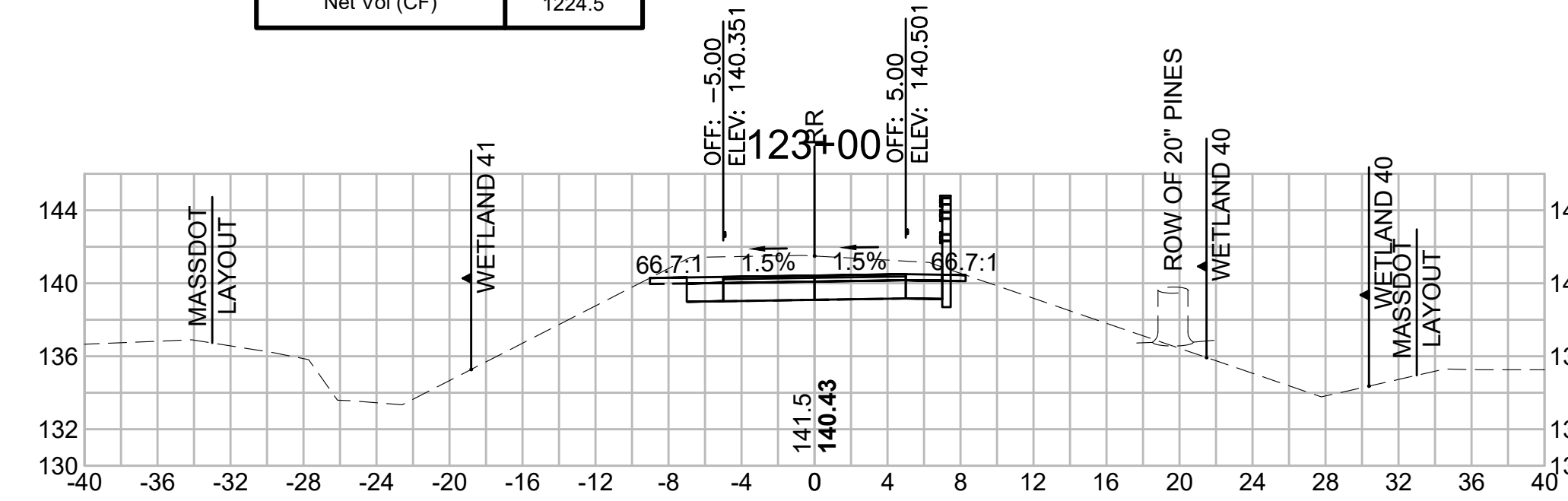
Total Volume at Station 120+00.00	
Cut Area (SF)	33.873
Fill Area (SF)	0.000
Cut Vol (CF)	61.831
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	1224.261
Cum Fill Vol (CF)	386.7
Net Vol (CF)	837.6



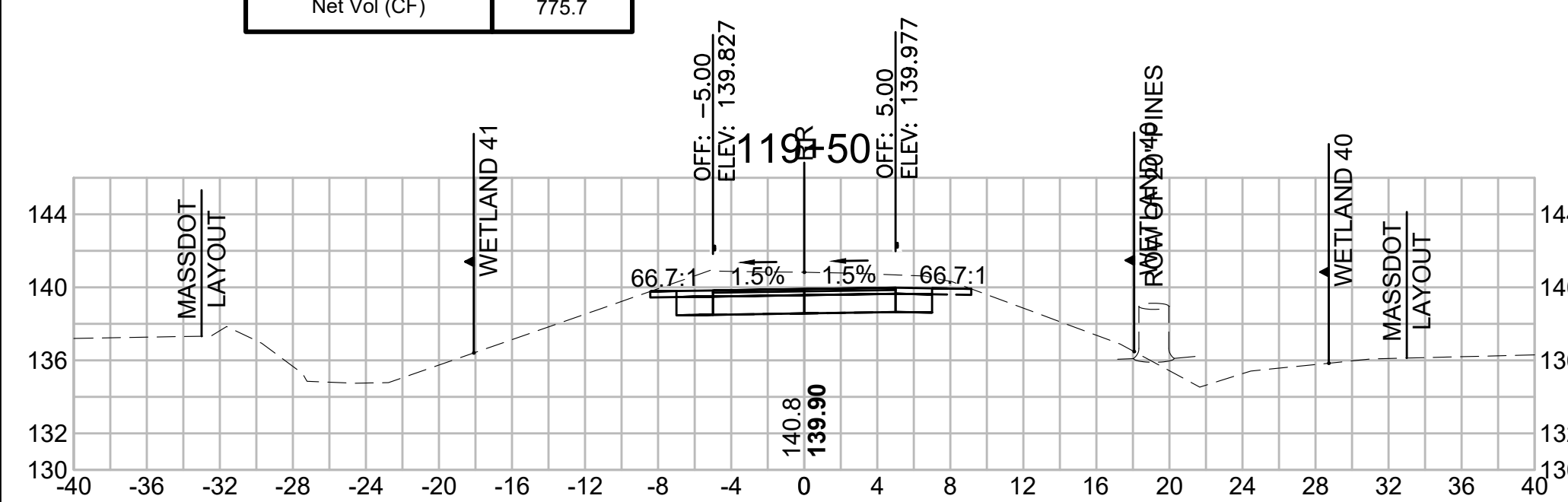
Total Volume at Station 121+50.00	
Cut Area (SF)	35.322
Fill Area (SF)	0.000
Cut Vol (CF)	65.507
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	1415.918
Cum Fill Vol (CF)	386.7
Net Vol (CF)	1029.2



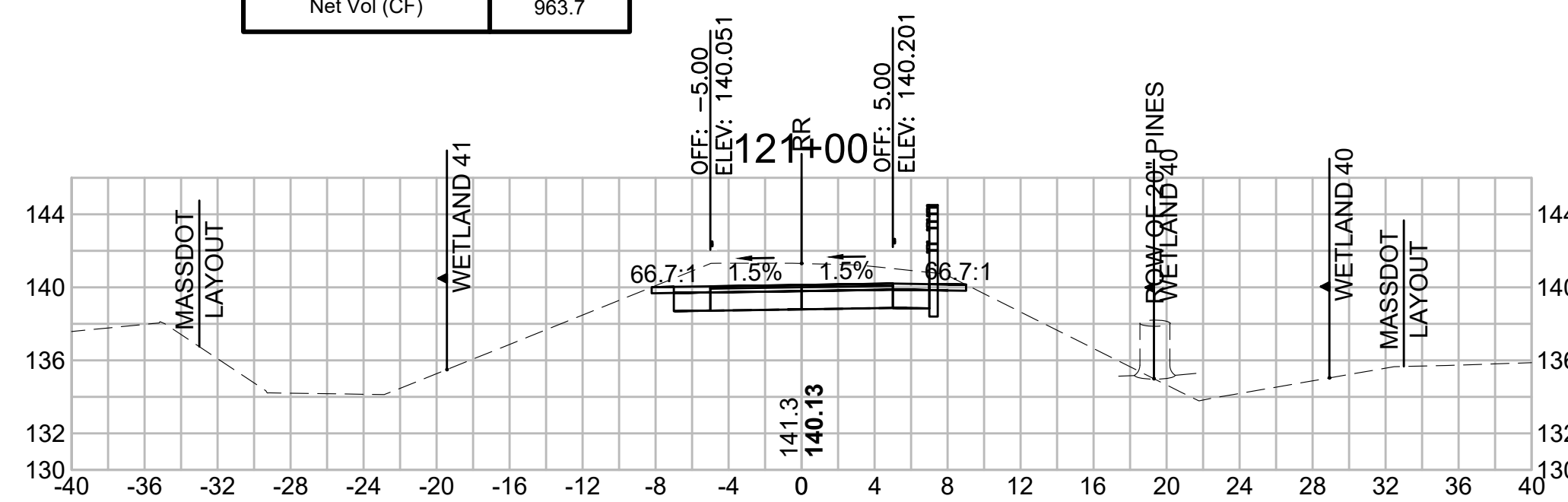
Total Volume at Station 123+00.00	
Cut Area (SF)	34.476
Fill Area (SF)	0.000
Cut Vol (CF)	64.981
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	1611.251
Cum Fill Vol (CF)	386.7
Net Vol (CF)	1224.5



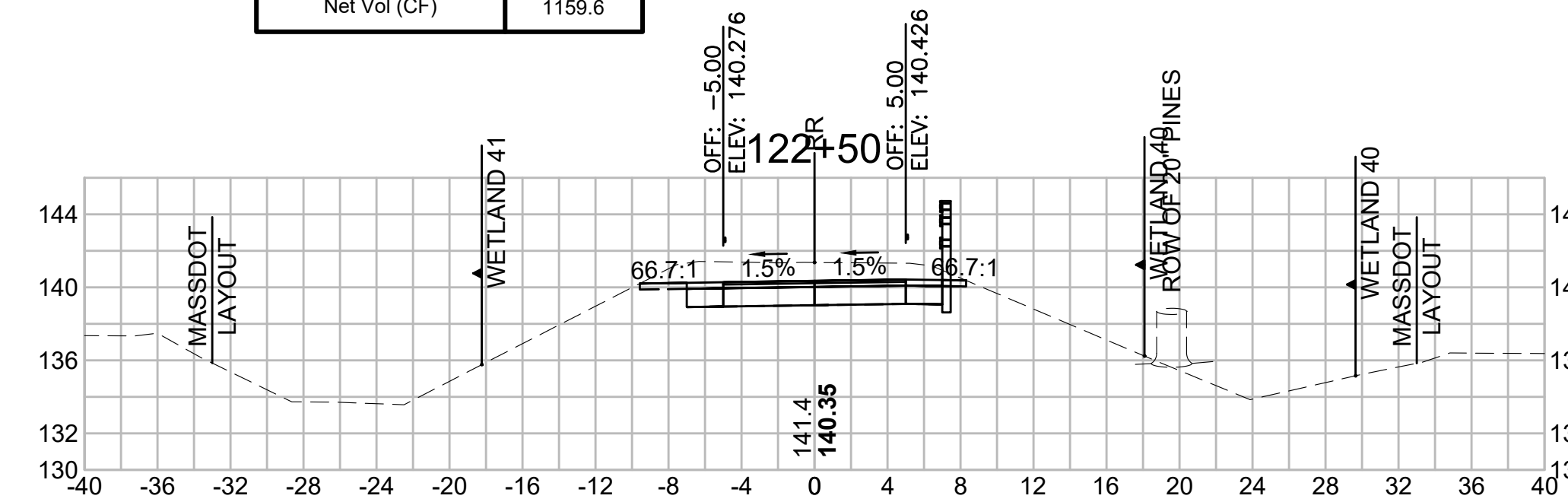
Total Volume at Station 119+50.00	
Cut Area (SF)	32.904
Fill Area (SF)	0.000
Cut Vol (CF)	58.501
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	1162.430
Cum Fill Vol (CF)	386.7
Net Vol (CF)	775.7



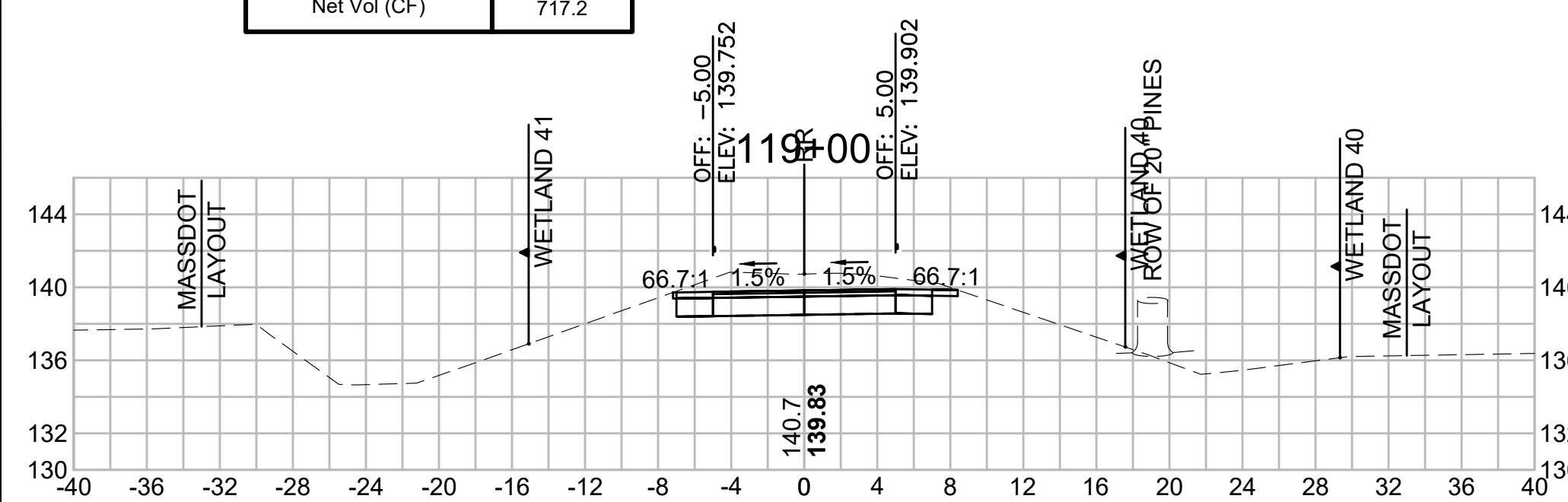
Total Volume at Station 121+00.00	
Cut Area (SF)	35.424
Fill Area (SF)	0.000
Cut Vol (CF)	63.795
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	1350.412
Cum Fill Vol (CF)	386.7
Net Vol (CF)	963.7



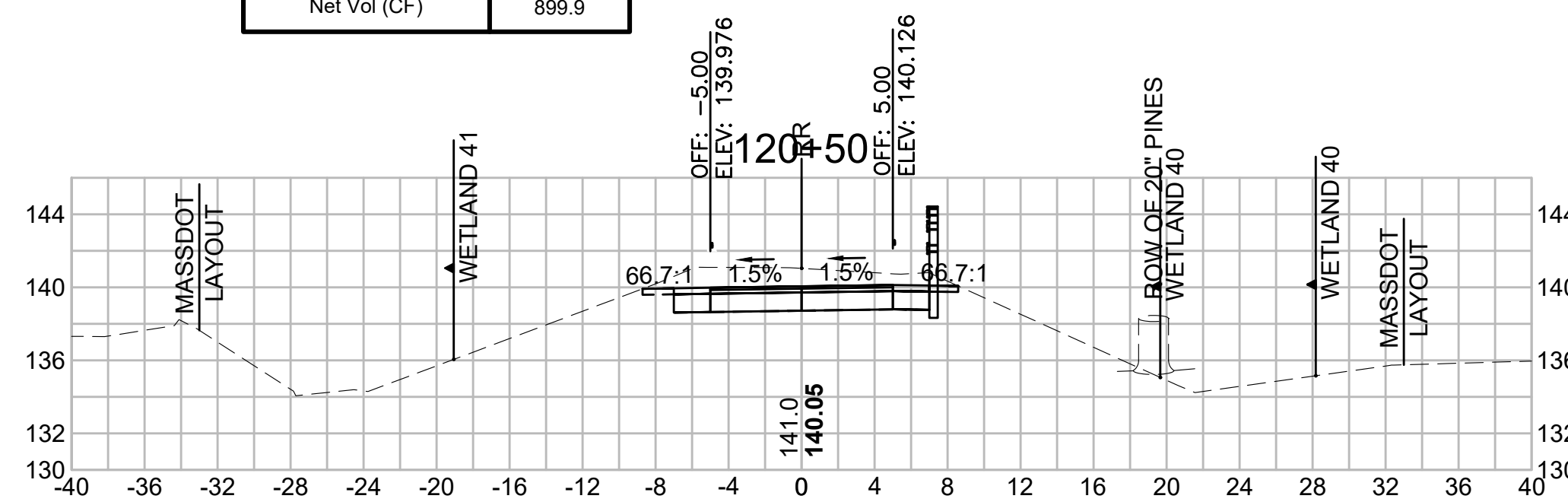
Total Volume at Station 122+50.00	
Cut Area (SF)	35.703
Fill Area (SF)	0.000
Cut Vol (CF)	65.353
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	1546.271
Cum Fill Vol (CF)	386.7
Net Vol (CF)	1159.6



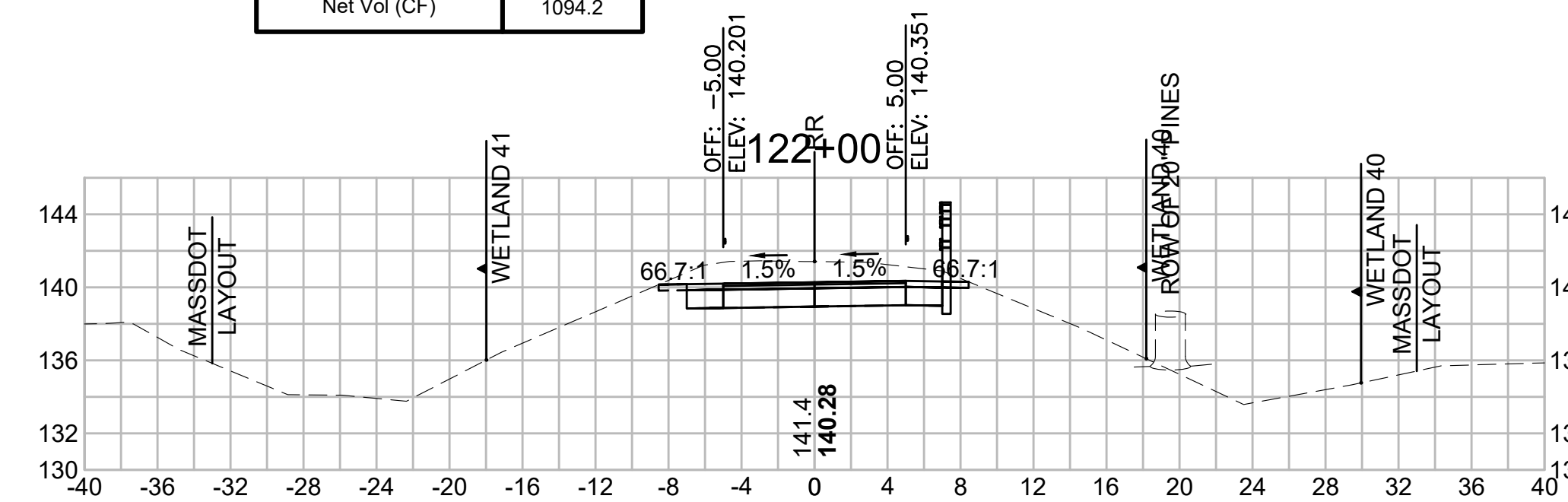
Total Volume at Station 119+00.00	
Cut Area (SF)	30.276
Fill Area (SF)	0.000
Cut Vol (CF)	55.467
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	1103.930
Cum Fill Vol (CF)	386.7
Net Vol (CF)	717.2



Total Volume at Station 120+50.00	
Cut Area (SF)	33.473
Fill Area (SF)	0.000
Cut Vol (CF)	62.358
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	1286.618
Cum Fill Vol (CF)	386.7
Net Vol (CF)	899.9



Total Volume at Station 122+00.00	
Cut Area (SF)	34.878
Fill Area (SF)	0.000
Cut Vol (CF)	65.001
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	1480.919
Cum Fill Vol (CF)	386.7
Net Vol (CF)	1094.2



SUDBURY  
BRUCE FREEMAN RAIL TRAIL

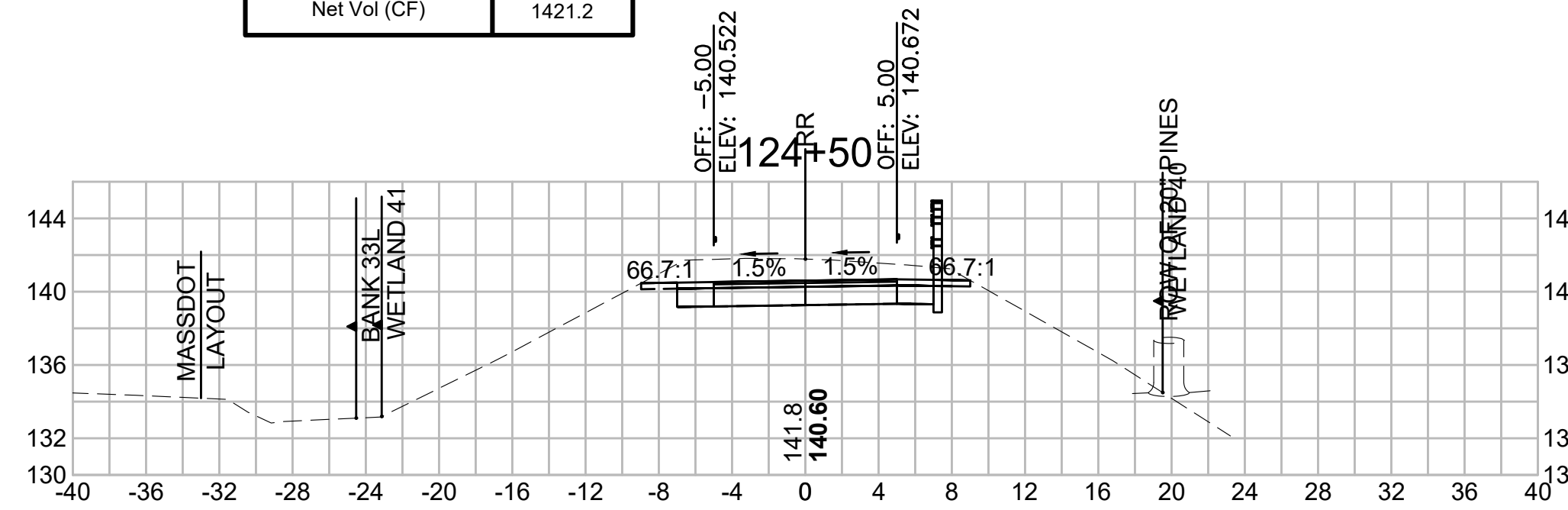
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	248	318

PROJECT FILE NO. 608164

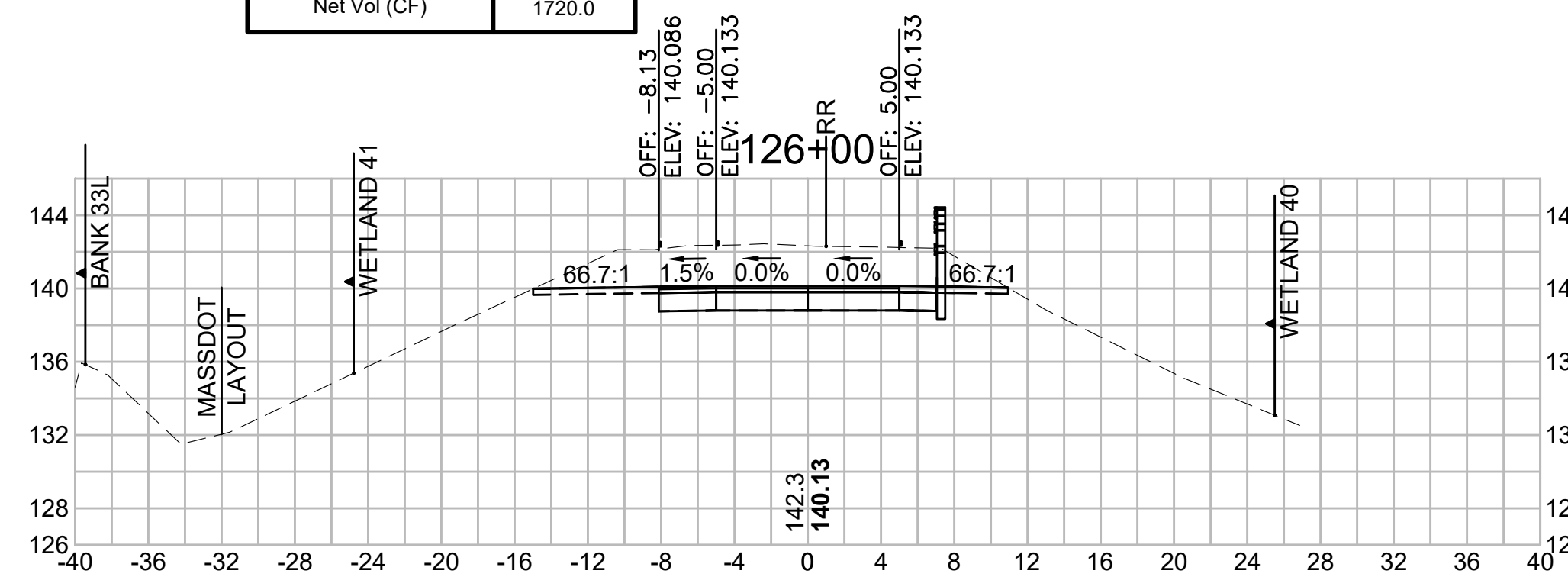
CROSS SECTIONS

608164\_XSEC(CROSS SECTION LAYOUTS).DWG 12-May-2021

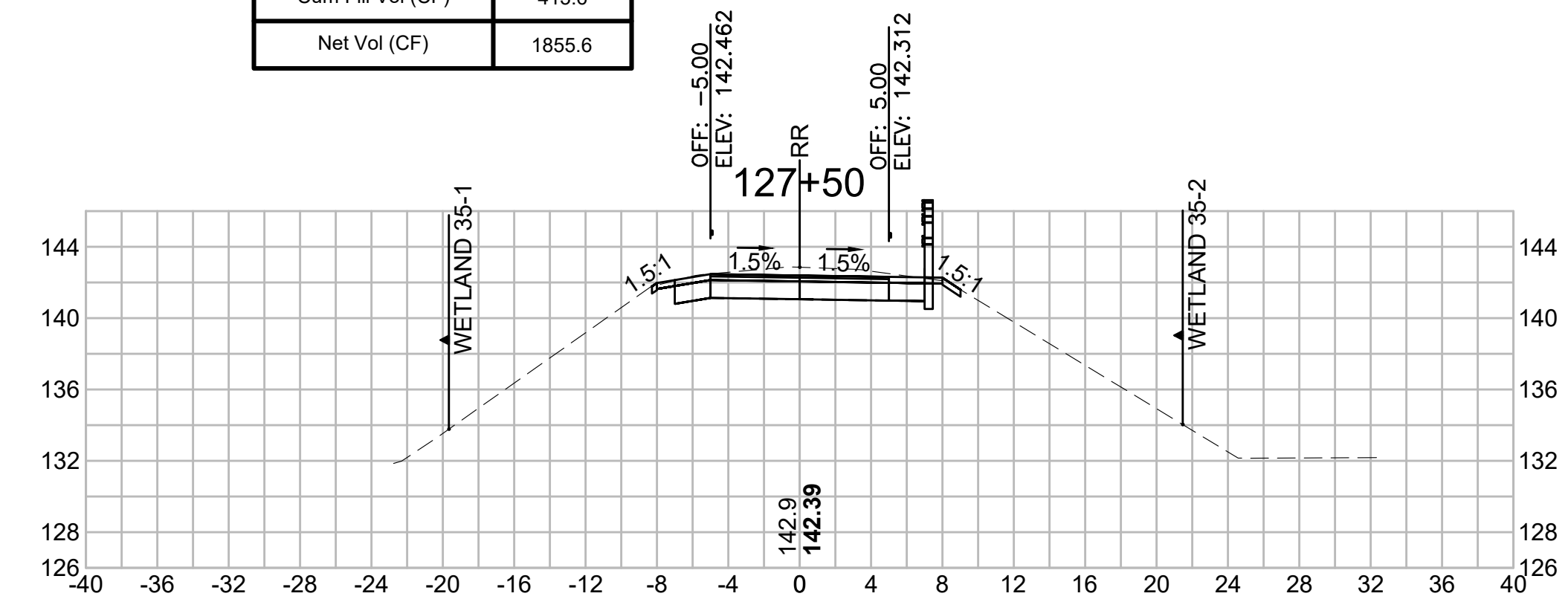
Total Volume at Station 124+50.00	
Cut Area (SF)	37.198
Fill Area (SF)	1.922
Cut Vol (CF)	68.426
Fill Vol (CF)	1.8
Cum Cut Vol (CF)	1809.644
Cum Fill Vol (CF)	388.5
Net Vol (CF)	1421.2



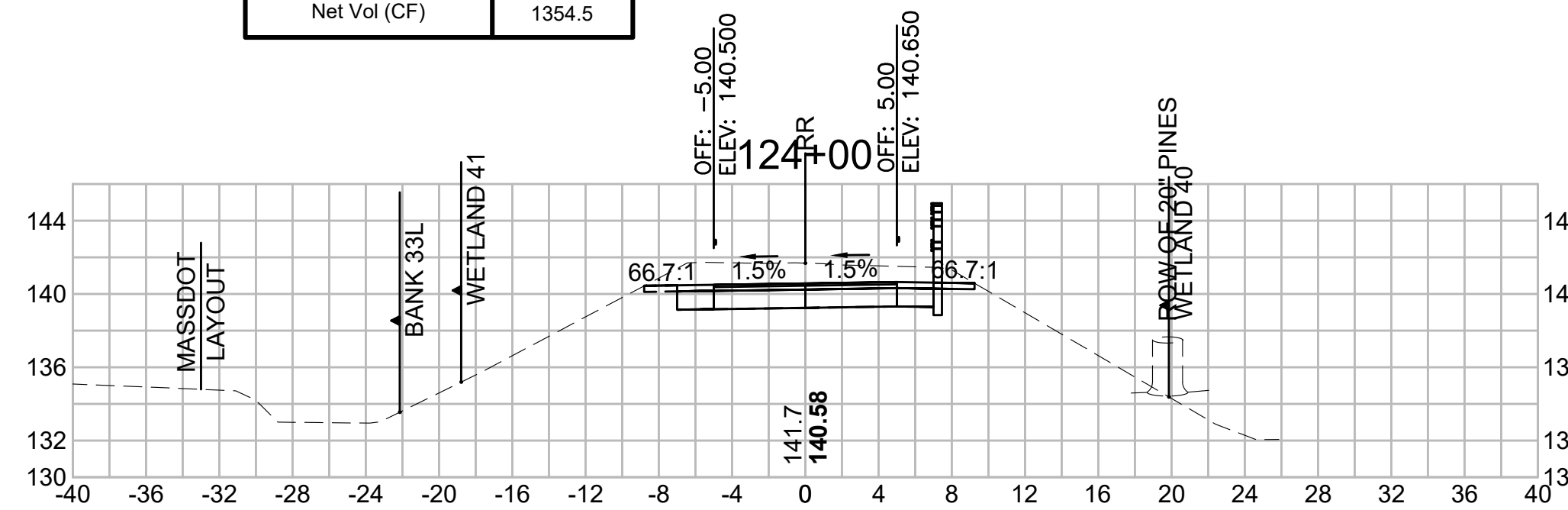
Total Volume at Station 126+00.00	
Cut Area (SF)	59.168
Fill Area (SF)	0.058
Cut Vol (CF)	111.868
Fill Vol (CF)	0.1
Cum Cut Vol (CF)	2110.659
Cum Fill Vol (CF)	390.7
Net Vol (CF)	1720.0



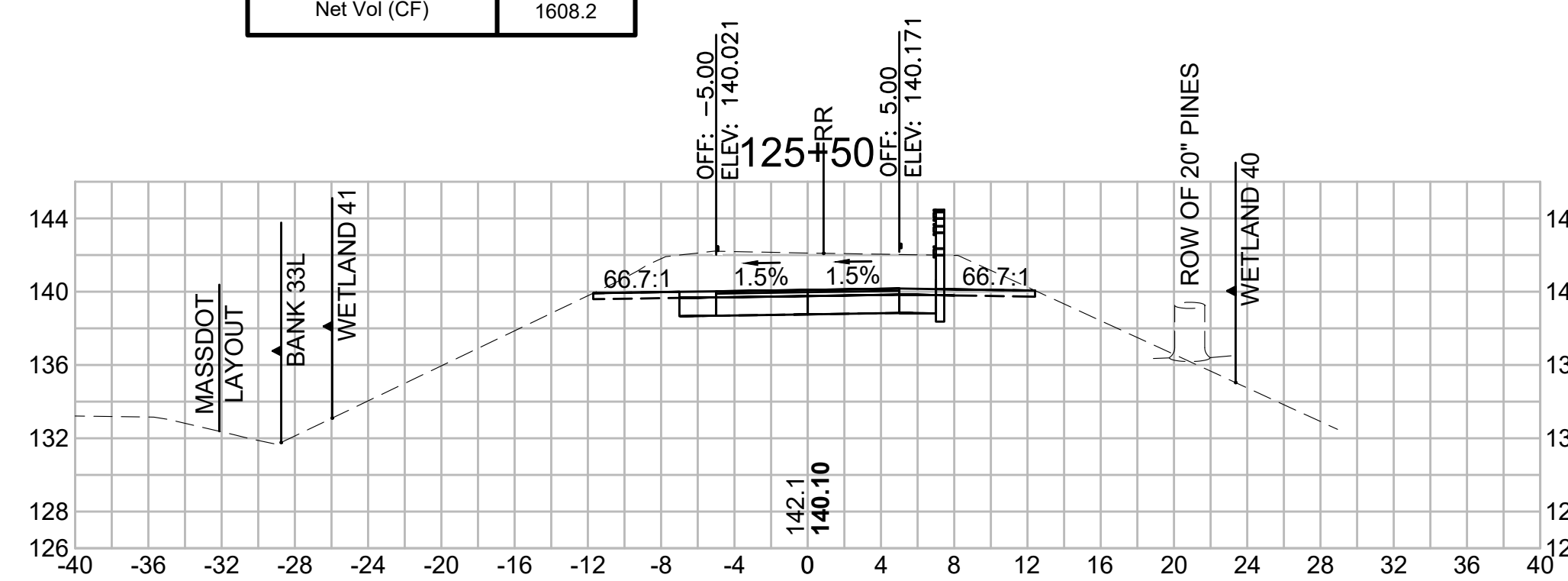
Total Volume at Station 127+50.00	
Cut Area (SF)	22.655
Fill Area (SF)	0.000
Cut Vol (CF)	46.819
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	2269.284
Cum Fill Vol (CF)	413.6
Net Vol (CF)	1855.6



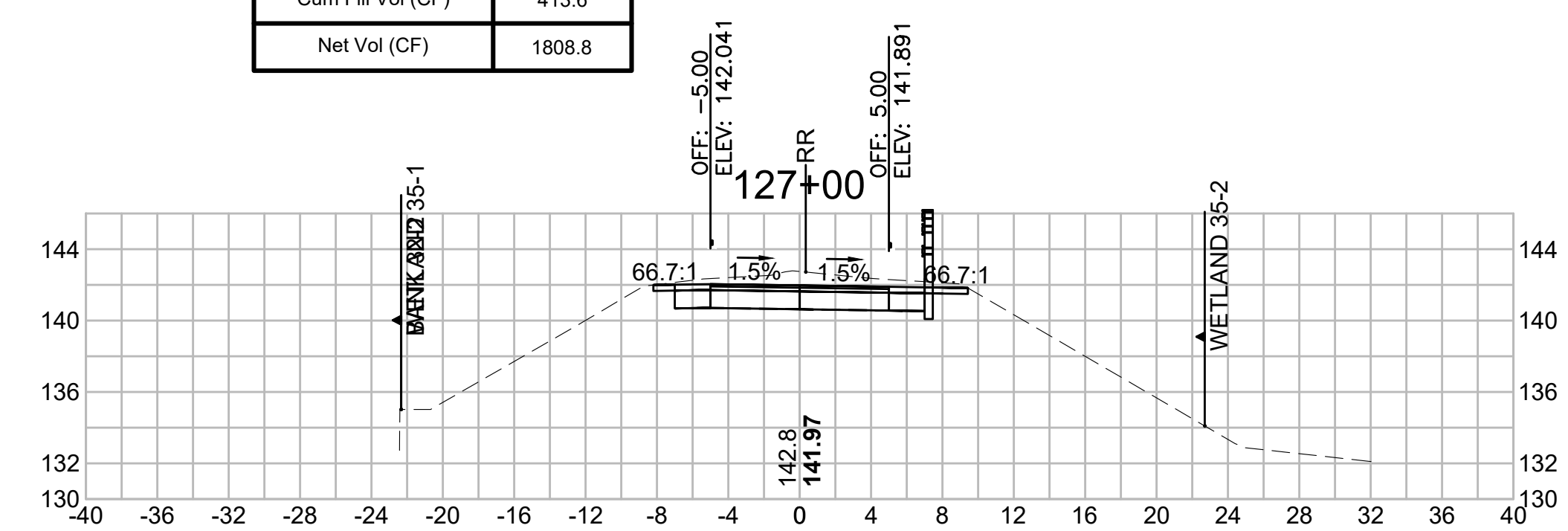
Total Volume at Station 124+00.00	
Cut Area (SF)	36.702
Fill Area (SF)	0.000
Cut Vol (CF)	66.014
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	1741.218
Cum Fill Vol (CF)	386.7
Net Vol (CF)	1354.5



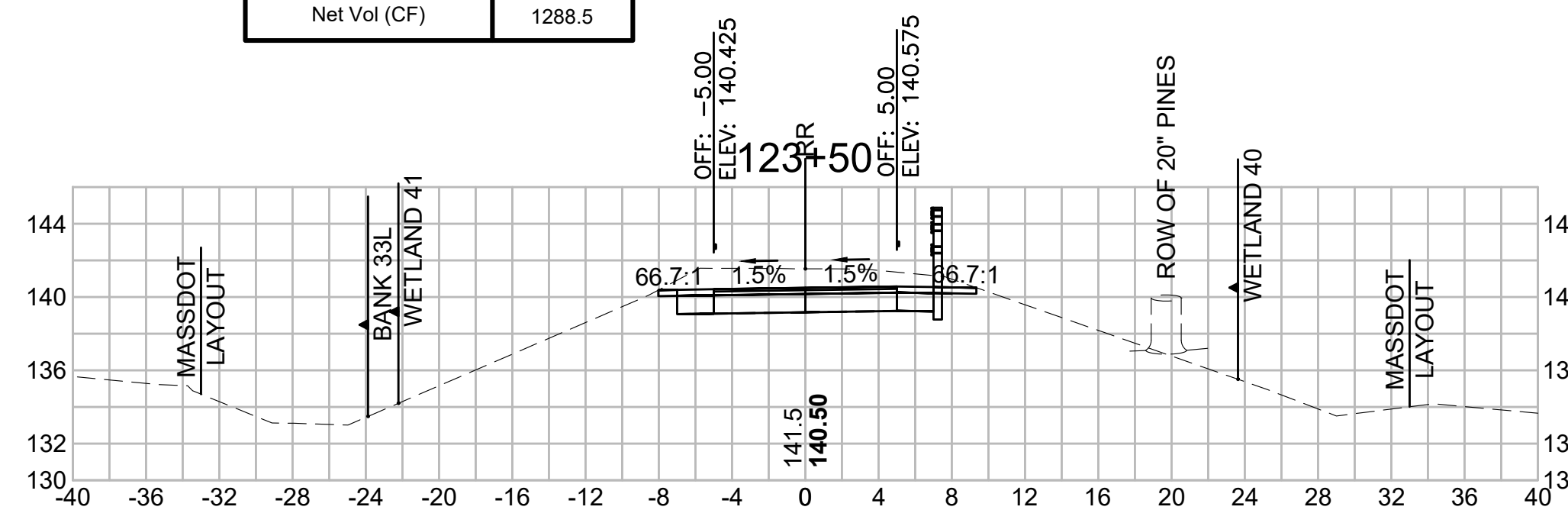
Total Volume at Station 125+50.00	
Cut Area (SF)	61.649
Fill Area (SF)	0.014
Cut Vol (CF)	105.895
Fill Vol (CF)	0.2
Cum Cut Vol (CF)	1998.791
Cum Fill Vol (CF)	390.6
Net Vol (CF)	1608.2



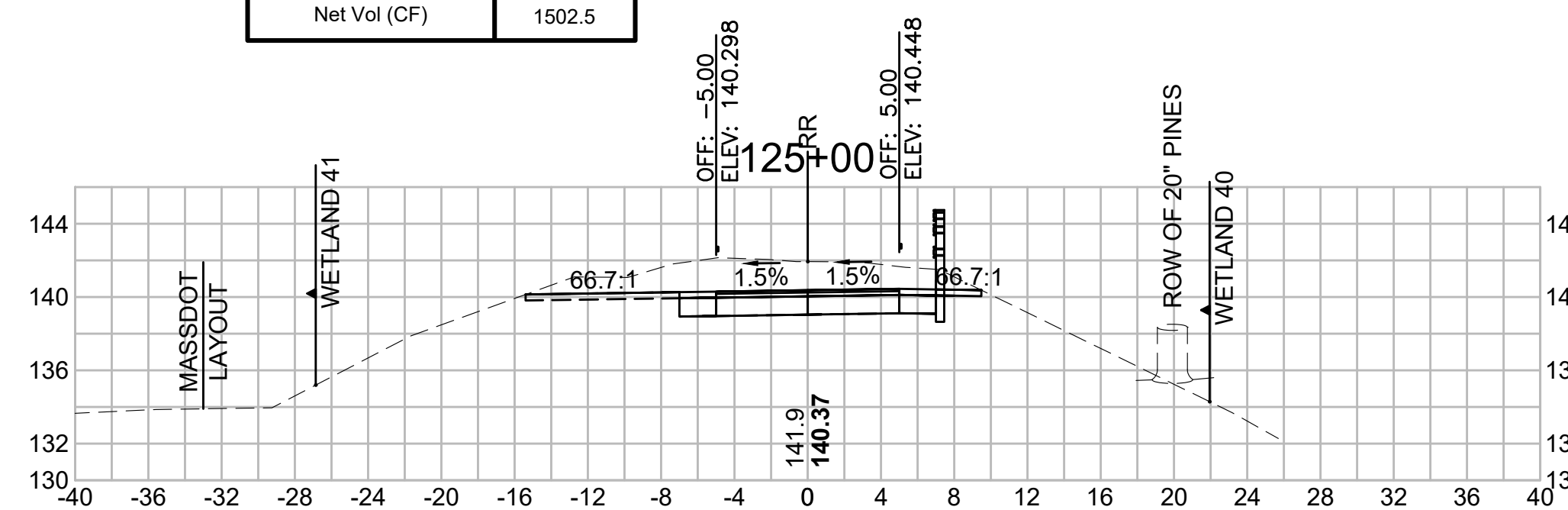
Total Volume at Station 127+00.00	
Cut Area (SF)	27.909
Fill Area (SF)	0.000
Cut Vol (CF)	41.432
Fill Vol (CF)	11.5
Cum Cut Vol (CF)	2222.465
Cum Fill Vol (CF)	413.6
Net Vol (CF)	1808.8



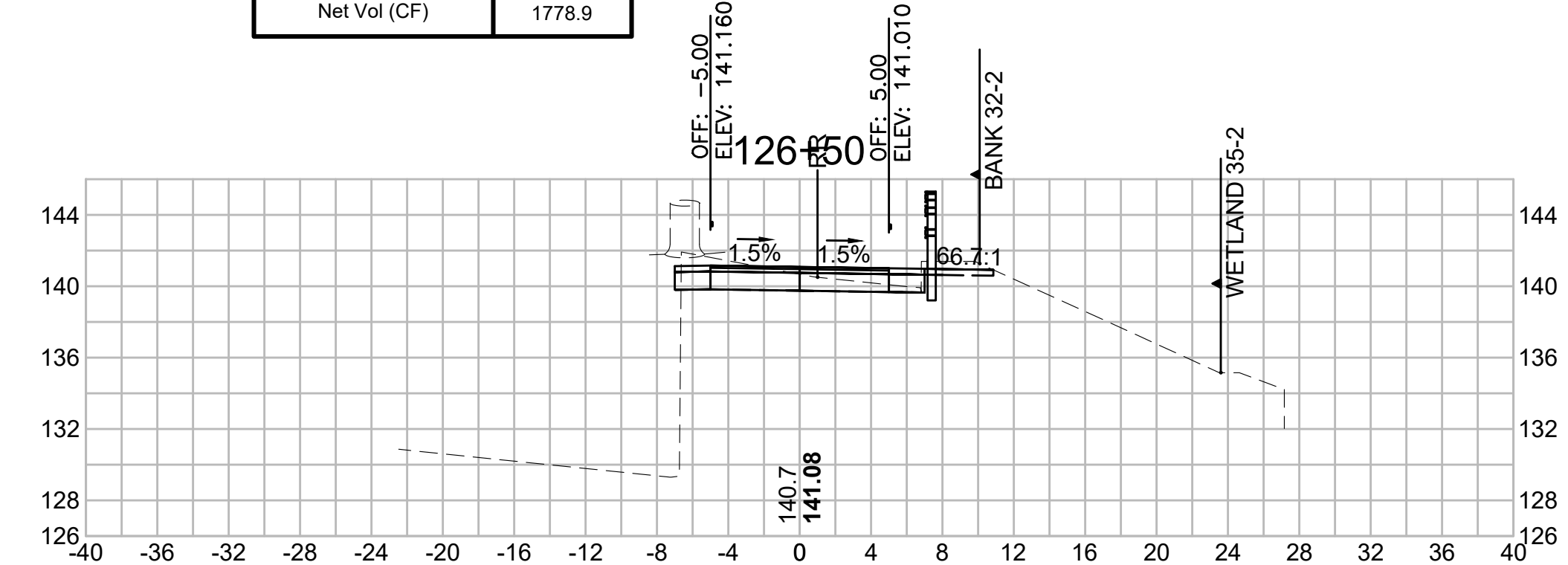
Total Volume at Station 123+50.00	
Cut Area (SF)	34.593
Fill Area (SF)	0.000
Cut Vol (CF)	63.953
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	1675.204
Cum Fill Vol (CF)	386.7
Net Vol (CF)	1288.5



Total Volume at Station 125+00.00	
Cut Area (SF)	52.717
Fill Area (SF)	0.172
Cut Vol (CF)	83.254
Fill Vol (CF)	1.9
Cum Cut Vol (CF)	1892.897
Cum Fill Vol (CF)	390.4
Net Vol (CF)	1502.5



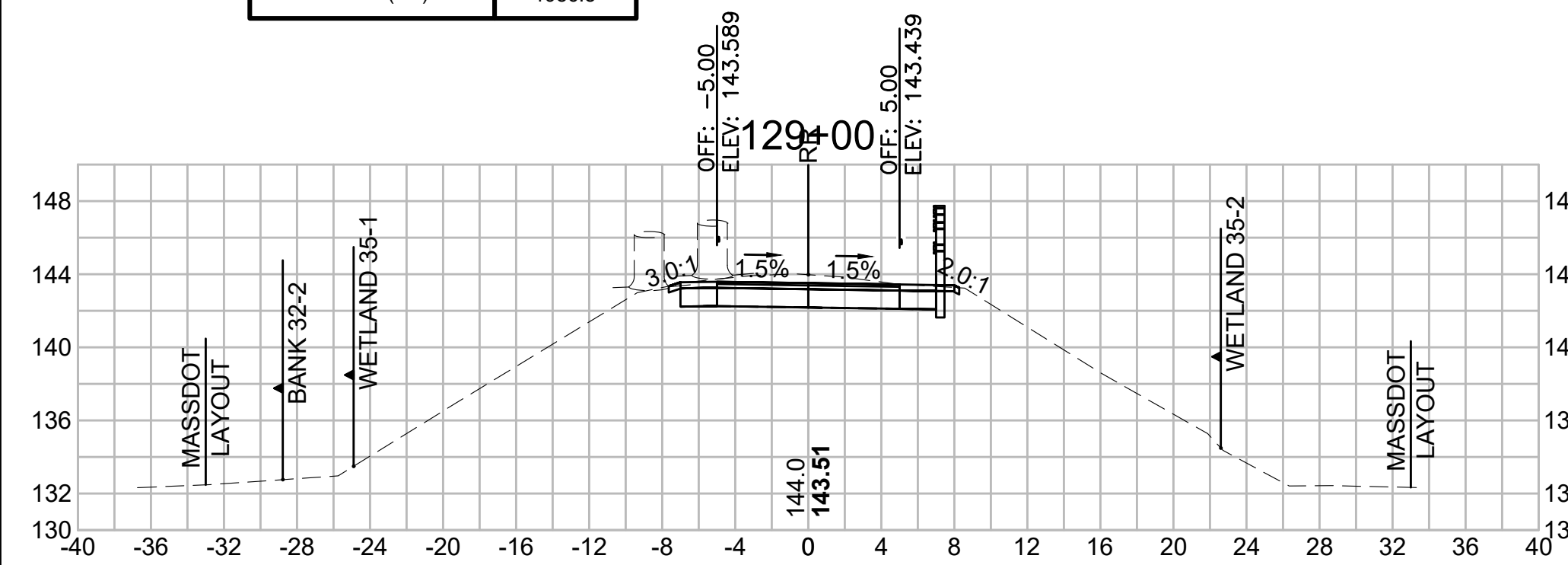
Total Volume at Station 126+50.00	
Cut Area (SF)	16.837
Fill Area (SF)	12.381
Cut Vol (CF)	70.376
Fill Vol (CF)	11.5
Cum Cut Vol (CF)	2181.034
Cum Fill Vol (CF)	402.2
Net Vol (CF)	1778.9



**CROSS SECTIONS**

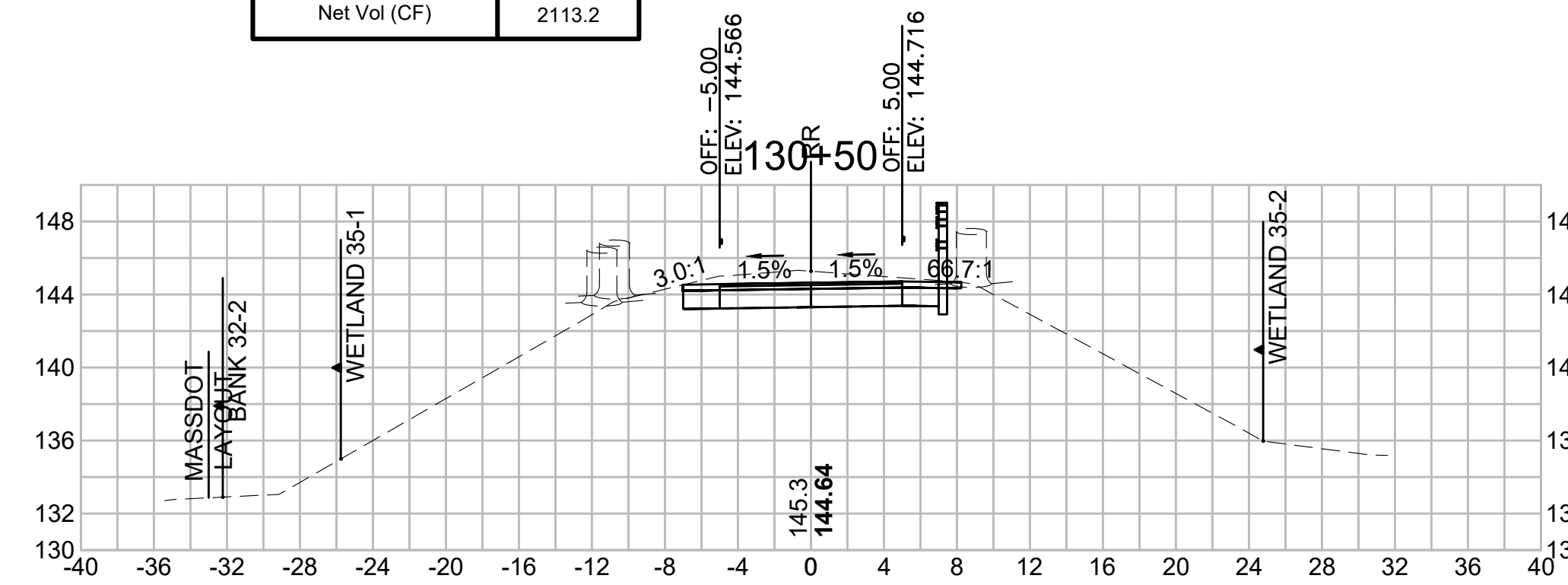
**Total Volume at Station 129+00.00**

Cut Area (SF)	22.380
Fill Area (SF)	0.000
Cut Vol (CF)	42.648
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	2400.475
Cum Fill Vol (CF)	413.6
Net Vol (CF)	1986.8



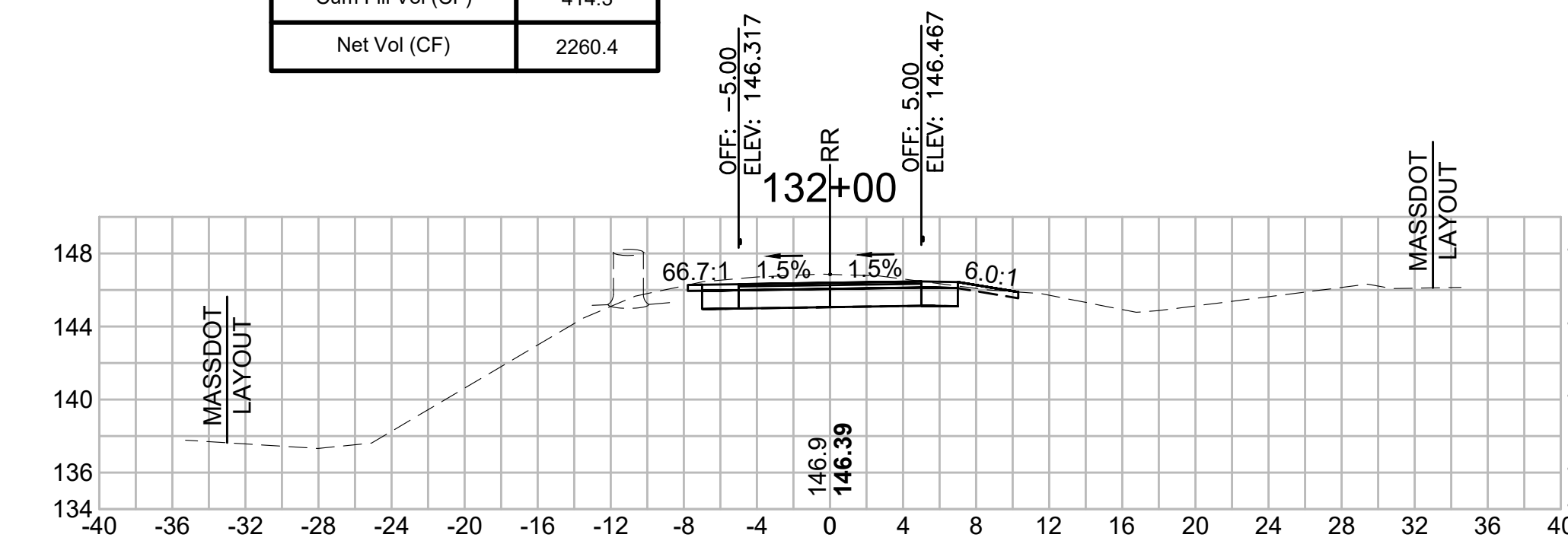
**Total Volume at Station 130+50.00**

Cut Area (SF)	24.889
Fill Area (SF)	0.000
Cut Vol (CF)	43.803
Fill Vol (CF)	0.3
Cum Cut Vol (CF)	2527.523
Cum Fill Vol (CF)	414.3
Net Vol (CF)	2113.2



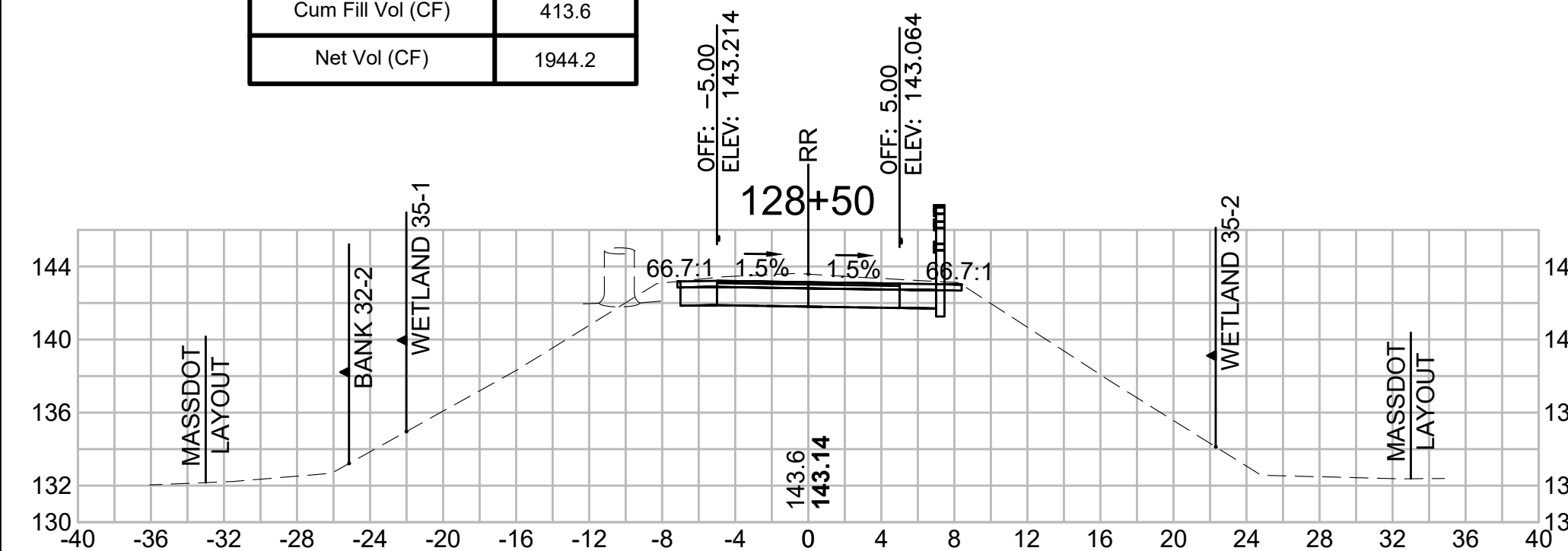
**Total Volume at Station 132+00.00**

Cut Area (SF)	23.474
Fill Area (SF)	0.000
Cut Vol (CF)	47.692
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	2674.708
Cum Fill Vol (CF)	414.3
Net Vol (CF)	2260.4



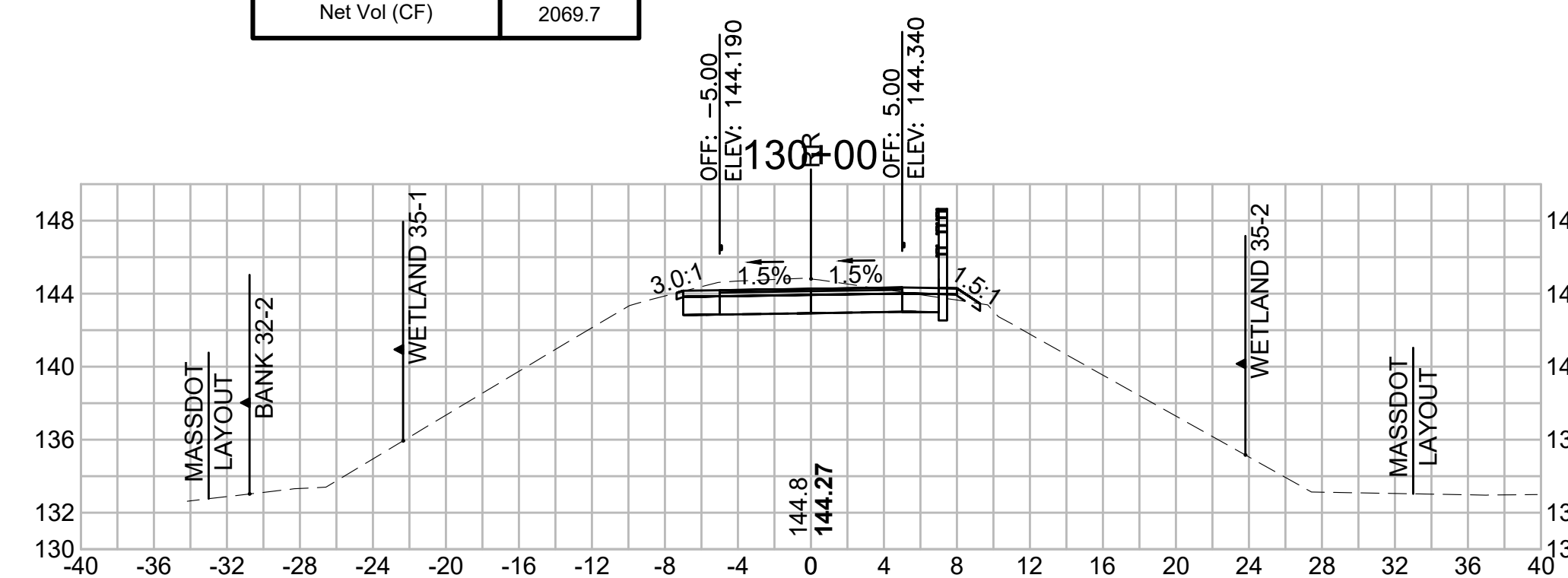
**Total Volume at Station 128+50.00**

Cut Area (SF)	23.679
Fill Area (SF)	0.000
Cut Vol (CF)	44.747
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	2357.828
Cum Fill Vol (CF)	413.6
Net Vol (CF)	1944.2



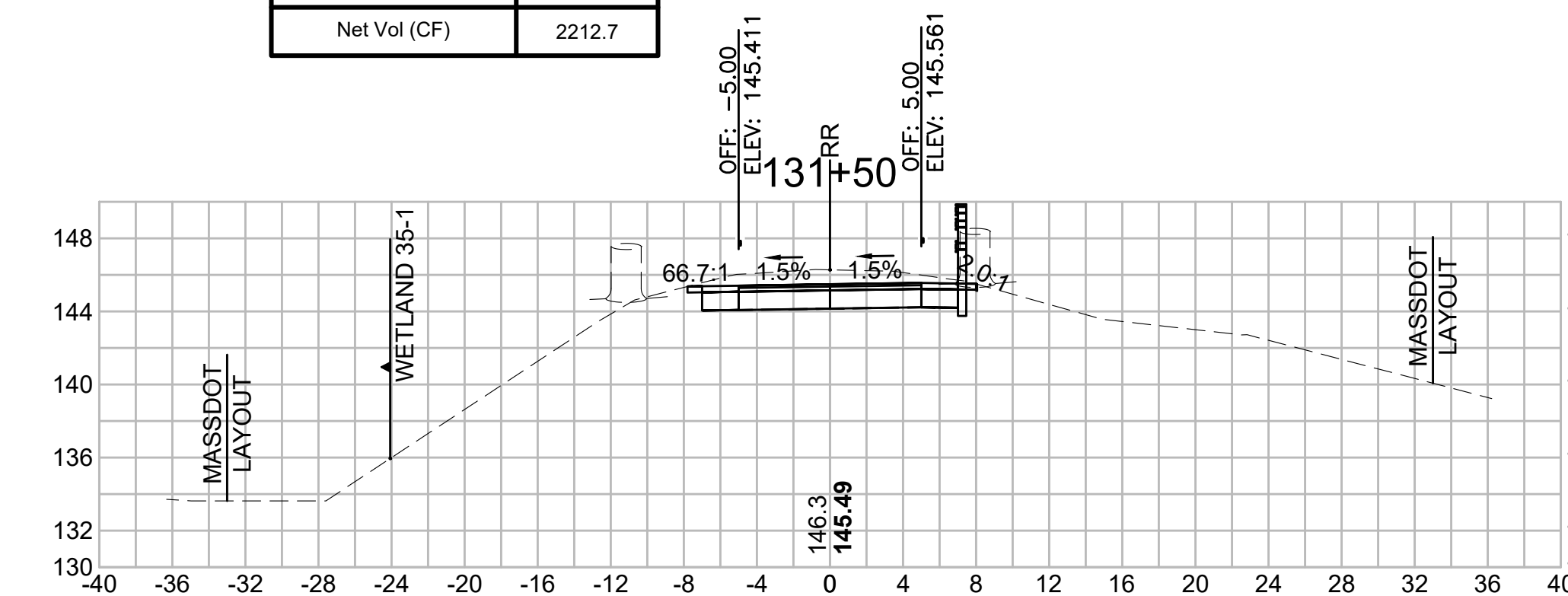
**Total Volume at Station 130+00.00**

Cut Area (SF)	22.418
Fill Area (SF)	0.307
Cut Vol (CF)	41.641
Fill Vol (CF)	0.3
Cum Cut Vol (CF)	2483.721
Cum Fill Vol (CF)	414.0
Net Vol (CF)	2069.7



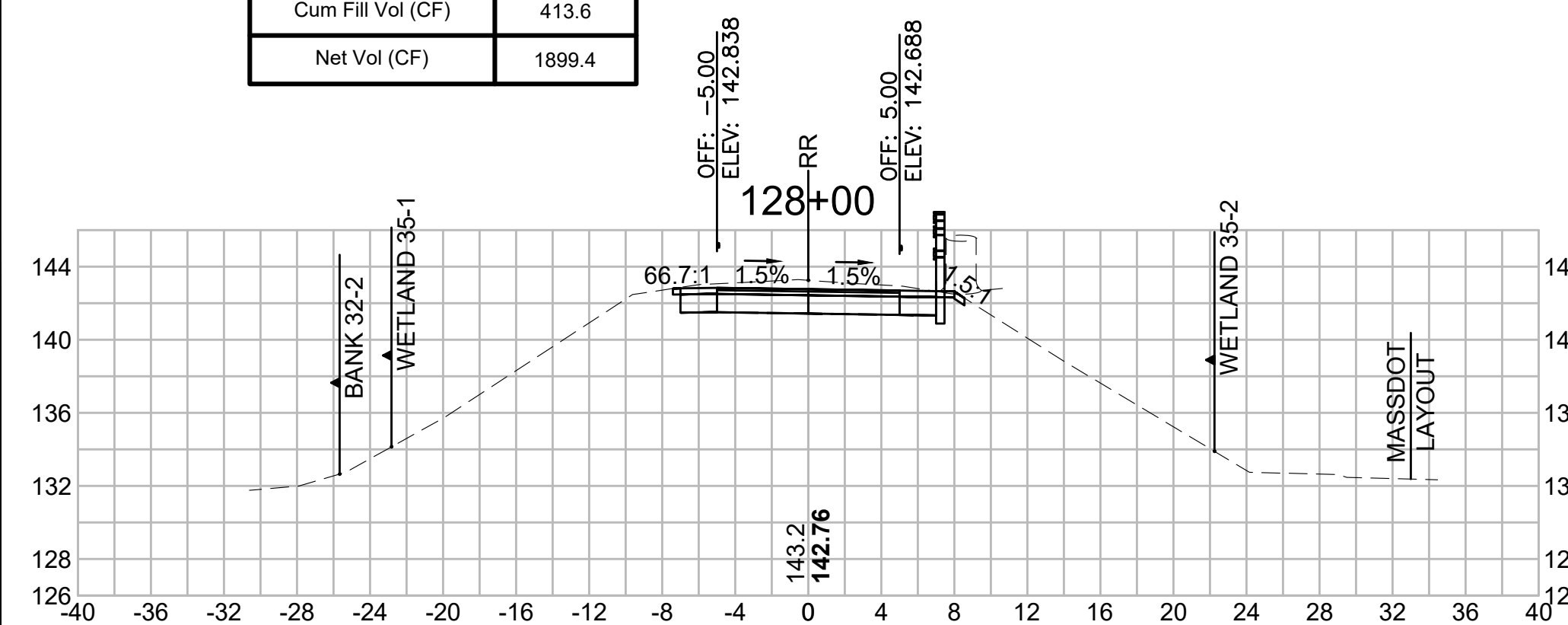
**Total Volume at Station 131+50.00**

Cut Area (SF)	28.033
Fill Area (SF)	0.000
Cut Vol (CF)	51.203
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	2627.017
Cum Fill Vol (CF)	414.3
Net Vol (CF)	2212.7



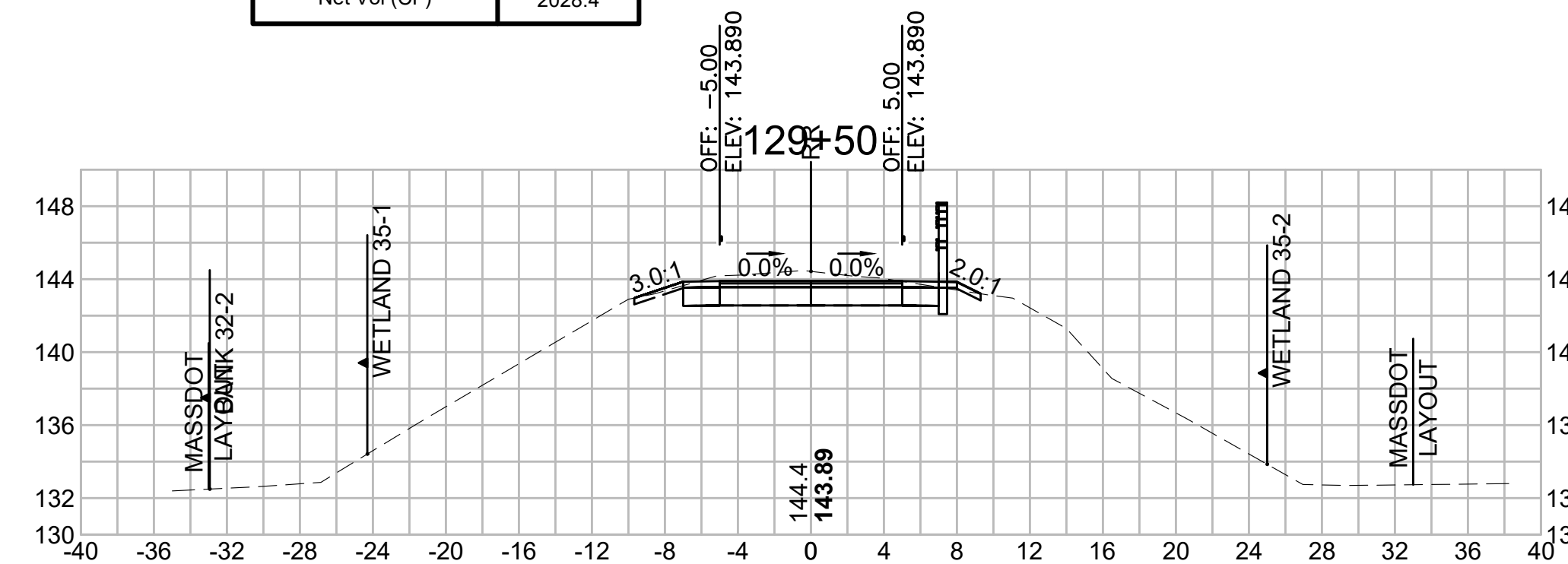
**Total Volume at Station 128+00.00**

Cut Area (SF)	24.647
Fill Area (SF)	0.000
Cut Vol (CF)	43.798
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	2313.082
Cum Fill Vol (CF)	413.6
Net Vol (CF)	1899.4



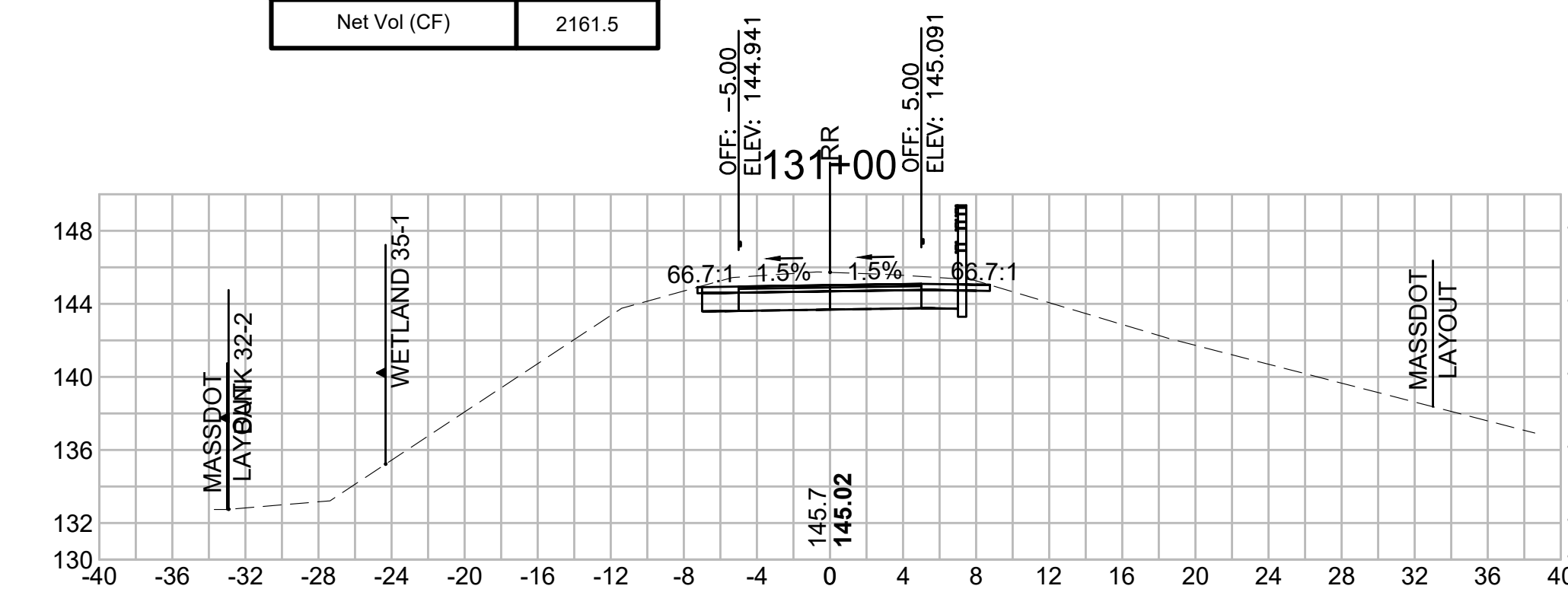
**Total Volume at Station 129+50.00**

Cut Area (SF)	22.554
Fill Area (SF)	0.046
Cut Vol (CF)	41.606
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	2442.080
Cum Fill Vol (CF)	413.7
Net Vol (CF)	2028.4



**Total Volume at Station 131+00.00**

Cut Area (SF)	27.266
Fill Area (SF)	0.000
Cut Vol (CF)	48.292
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	2575.814
Cum Fill Vol (CF)	414.3
Net Vol (CF)	2161.5



SUDBURY  
BRUCE FREEMAN RAIL TRAIL

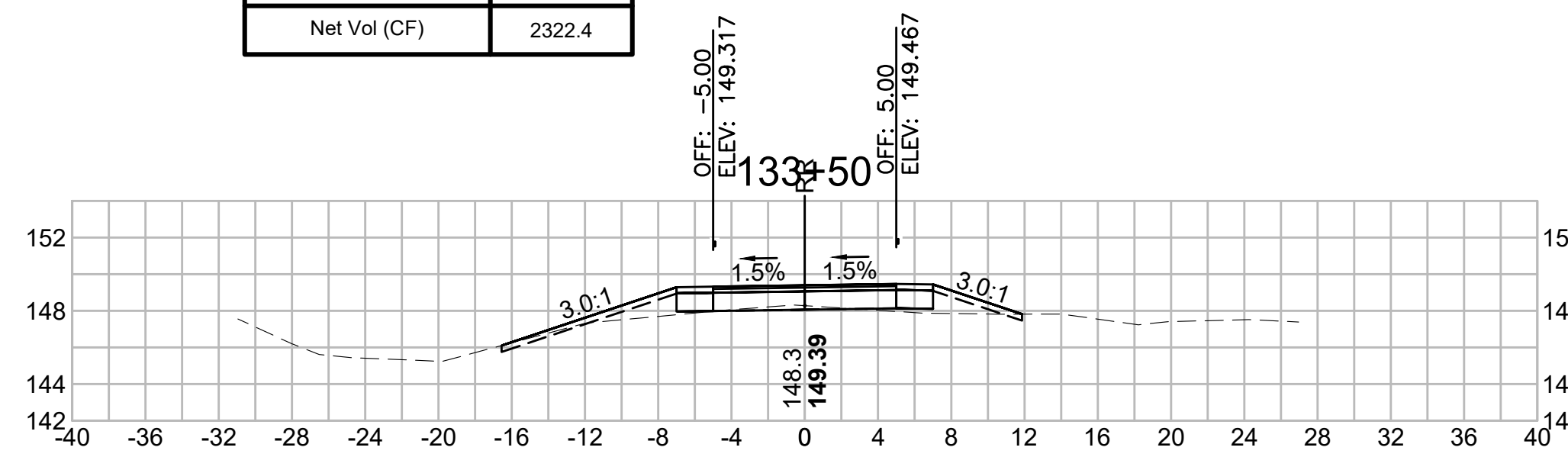
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXX(XXX)X	250	318

PROJECT FILE NO. 608164

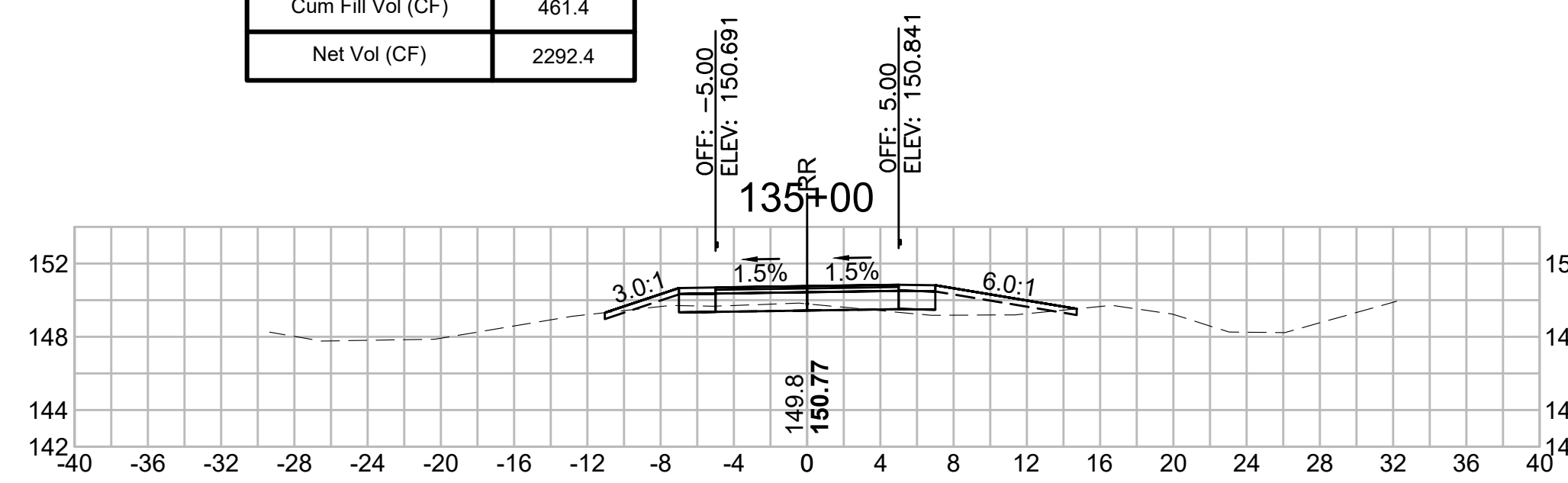
CROSS SECTIONS

608164\_XSEC(CROSS SECTION LAYOUTS).DWG 12-May-2021

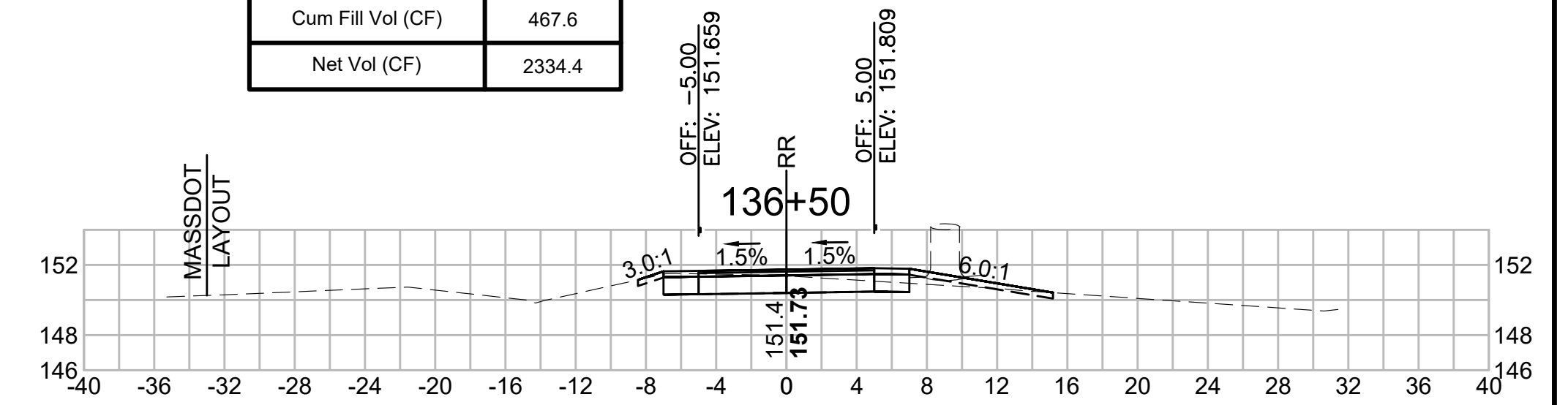
Total Volume at Station 133+50.00	
Cut Area (SF)	2.104
Fill Area (SF)	5.934
Cut Vol (CF)	10.399
Fill Vol (CF)	6.9
Cum Cut Vol (CF)	2745.316
Cum Fill Vol (CF)	423.0
Net Vol (CF)	2322.4



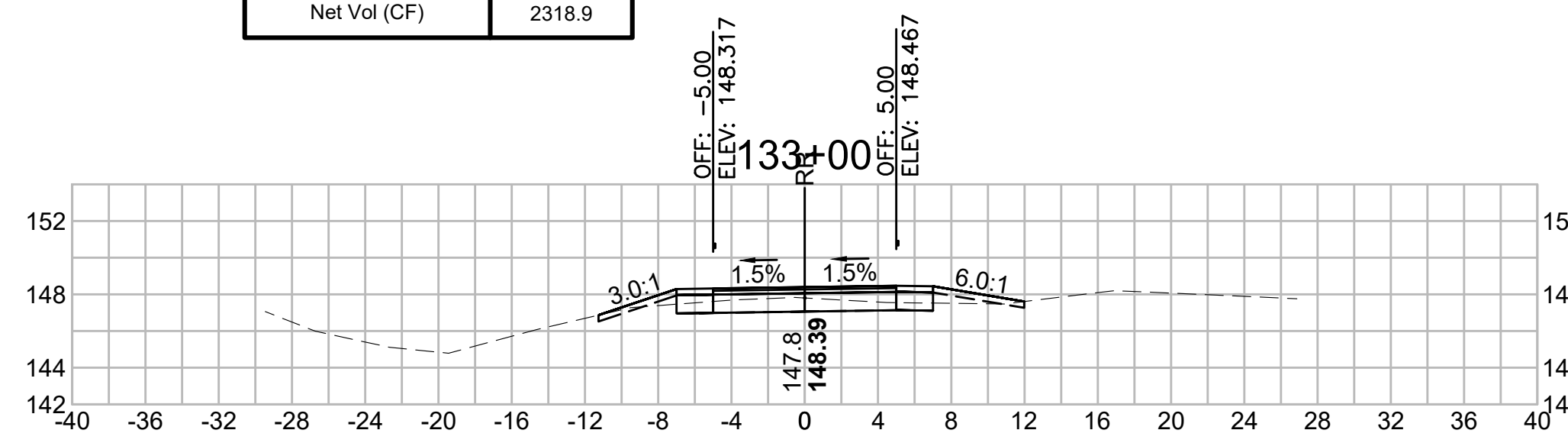
Total Volume at Station 135+00.00	
Cut Area (SF)	3.567
Fill Area (SF)	1.345
Cut Vol (CF)	4.610
Fill Vol (CF)	4.9
Cum Cut Vol (CF)	2753.845
Cum Fill Vol (CF)	461.4
Net Vol (CF)	2292.4



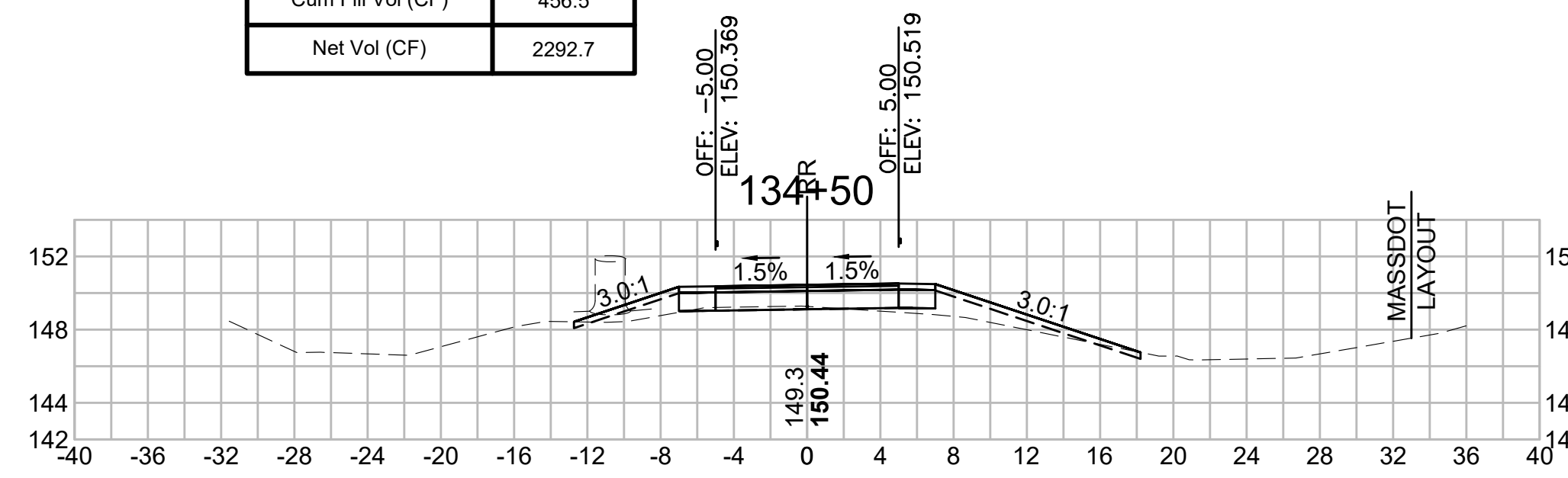
Total Volume at Station 136+50.00	
Cut Area (SF)	14.771
Fill Area (SF)	1.330
Cut Vol (CF)	22.076
Fill Vol (CF)	2.5
Cum Cut Vol (CF)	2801.990
Cum Fill Vol (CF)	467.6
Net Vol (CF)	2334.4



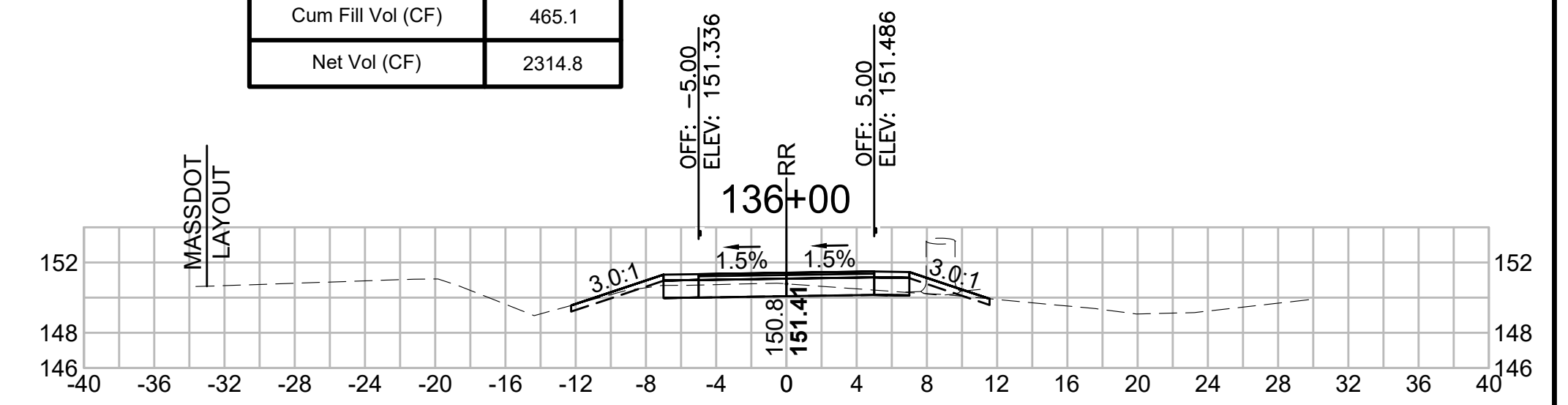
Total Volume at Station 133+00.00	
Cut Area (SF)	9.126
Fill Area (SF)	1.521
Cut Vol (CF)	23.463
Fill Vol (CF)	1.6
Cum Cut Vol (CF)	2734.918
Cum Fill Vol (CF)	416.1
Net Vol (CF)	2318.9



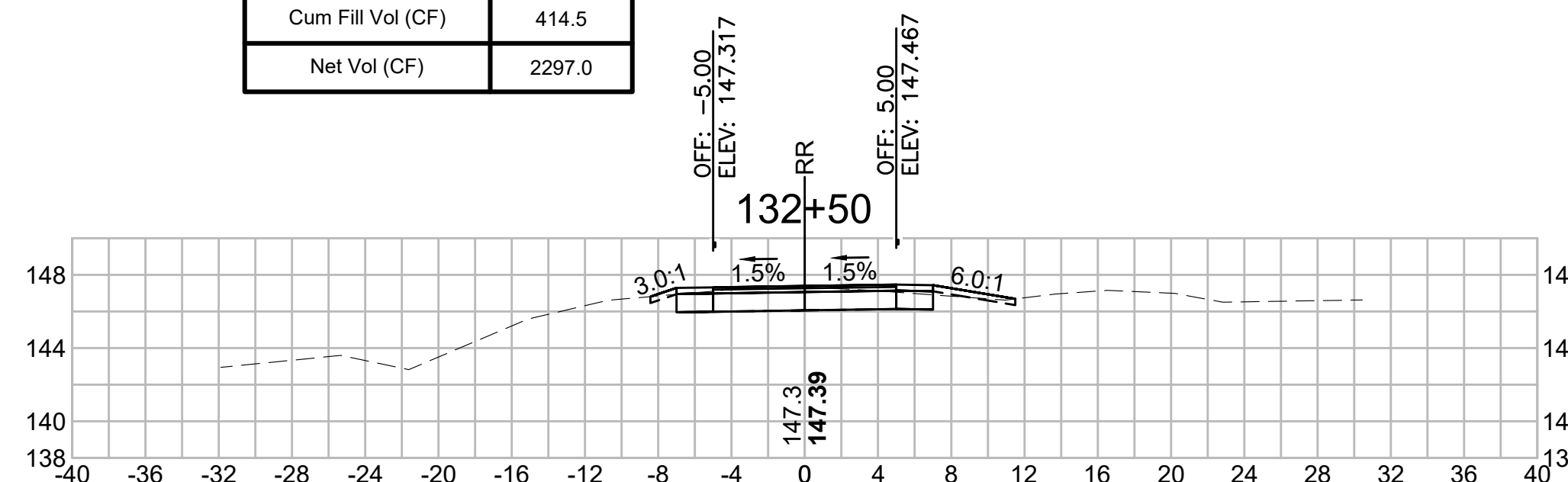
Total Volume at Station 134+50.00	
Cut Area (SF)	1.412
Fill Area (SF)	3.898
Cut Vol (CF)	1.639
Fill Vol (CF)	15.8
Cum Cut Vol (CF)	2749.235
Cum Fill Vol (CF)	456.5
Net Vol (CF)	2292.7



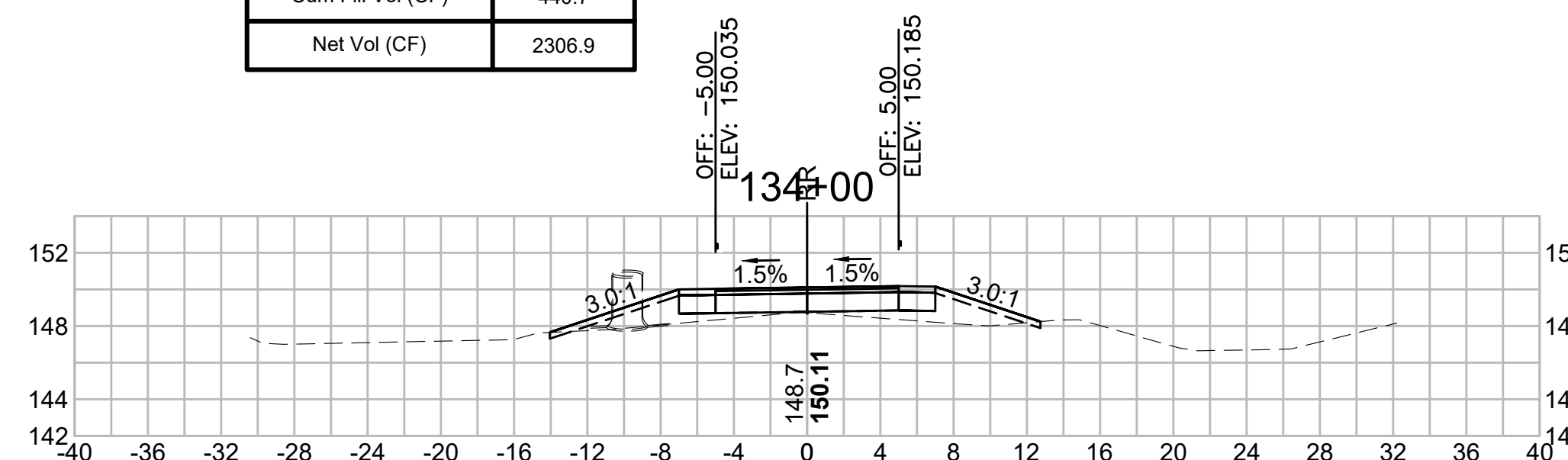
Total Volume at Station 136+00.00	
Cut Area (SF)	9.071
Fill Area (SF)	1.398
Cut Vol (CF)	15.584
Fill Vol (CF)	1.9
Cum Cut Vol (CF)	2779.915
Cum Fill Vol (CF)	465.1
Net Vol (CF)	2314.8



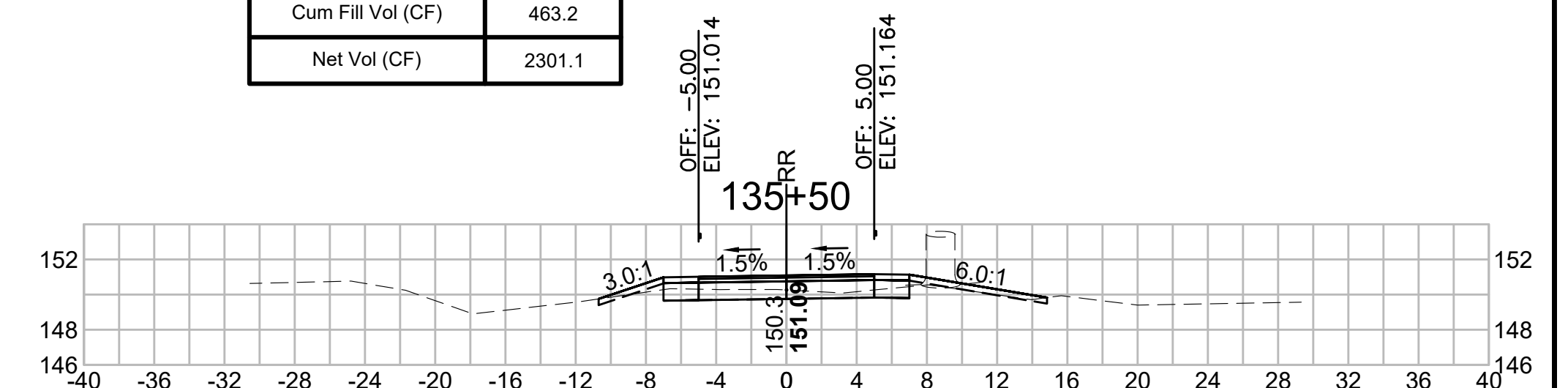
Total Volume at Station 132+50.00	
Cut Area (SF)	16.213
Fill Area (SF)	0.195
Cut Vol (CF)	36.748
Fill Vol (CF)	0.2
Cum Cut Vol (CF)	2711.455
Cum Fill Vol (CF)	414.5
Net Vol (CF)	2297.0



Total Volume at Station 134+00.00	
Cut Area (SF)	0.358
Fill Area (SF)	13.218
Cut Vol (CF)	2.281
Fill Vol (CF)	17.7
Cum Cut Vol (CF)	2747.596
Cum Fill Vol (CF)	440.7
Net Vol (CF)	2306.9



Total Volume at Station 135+50.00	
Cut Area (SF)	7.759
Fill Area (SF)	0.630
Cut Vol (CF)	10.488
Fill Vol (CF)	1.8
Cum Cut Vol (CF)	2764.332
Cum Fill Vol (CF)	463.2
Net Vol (CF)	2301.1



SUDBURY  
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	251	318

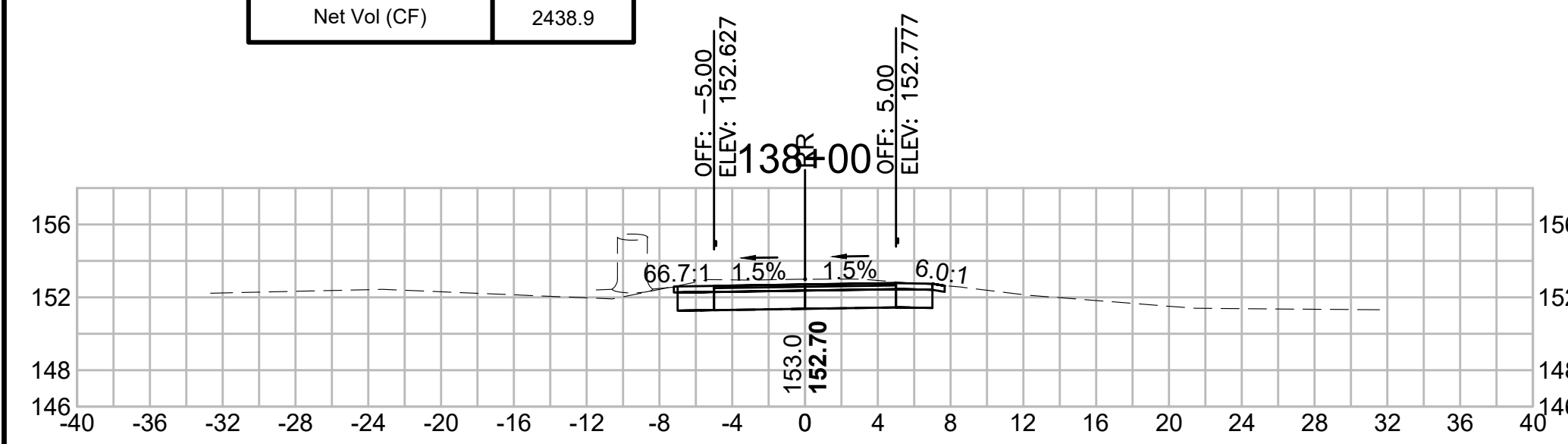
PROJECT FILE NO. 608164

CROSS SECTIONS

608164\_XSEC(CROSS SECTION LAYOUTS).DWG 12-May-2021

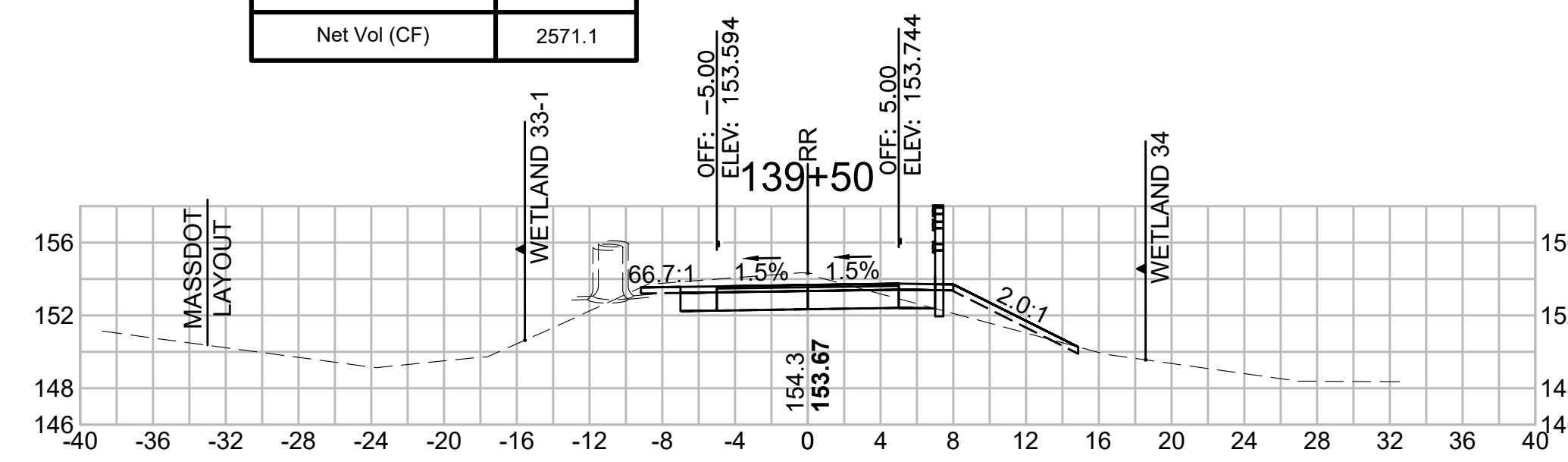
**Total Volume at Station 138+00.00**

Cut Area (SF)	22.037
Fill Area (SF)	0.000
Cut Vol (CF)	39.805
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	2908.449
Cum Fill Vol (CF)	469.5
Net Vol (CF)	2438.9



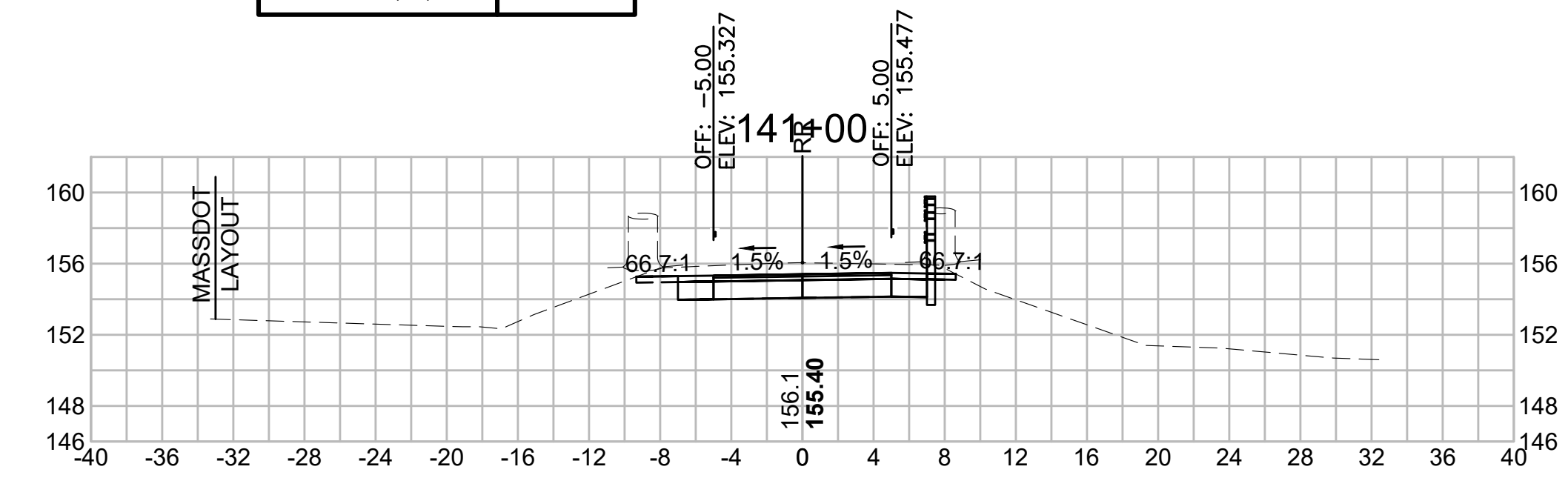
**Total Volume at Station 139+50.00**

Cut Area (SF)	20.757
Fill Area (SF)	4.368
Cut Vol (CF)	44.769
Fill Vol (CF)	4.0
Cum Cut Vol (CF)	3044.683
Cum Fill Vol (CF)	473.6
Net Vol (CF)	2571.1



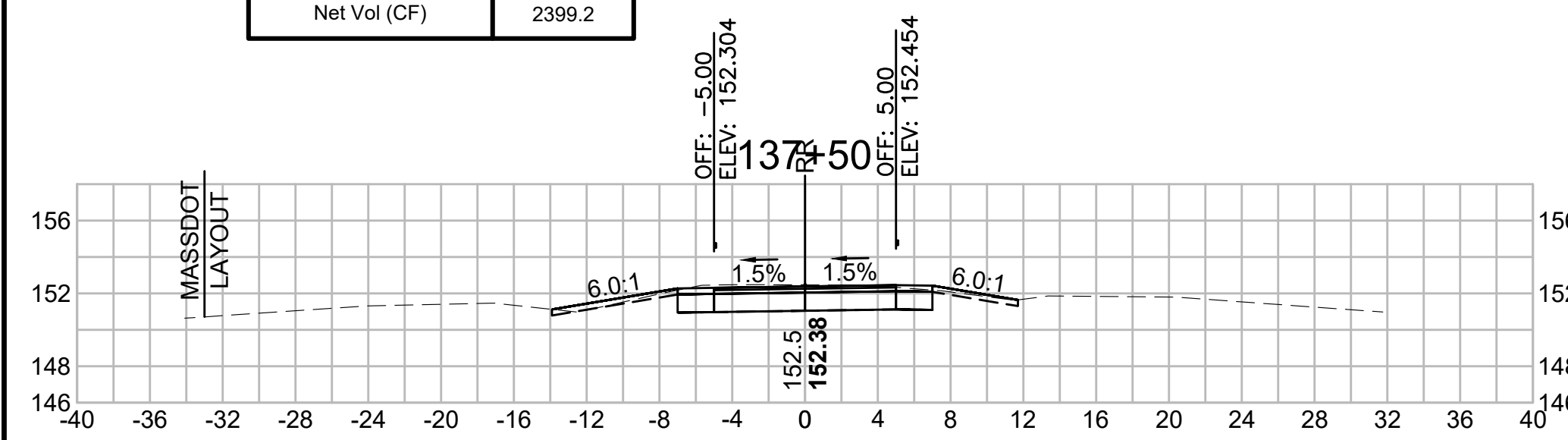
**Total Volume at Station 141+00.00**

Cut Area (SF)	29.263
Fill Area (SF)	0.000
Cut Vol (CF)	58.810
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	3209.736
Cum Fill Vol (CF)	478.9
Net Vol (CF)	2730.9



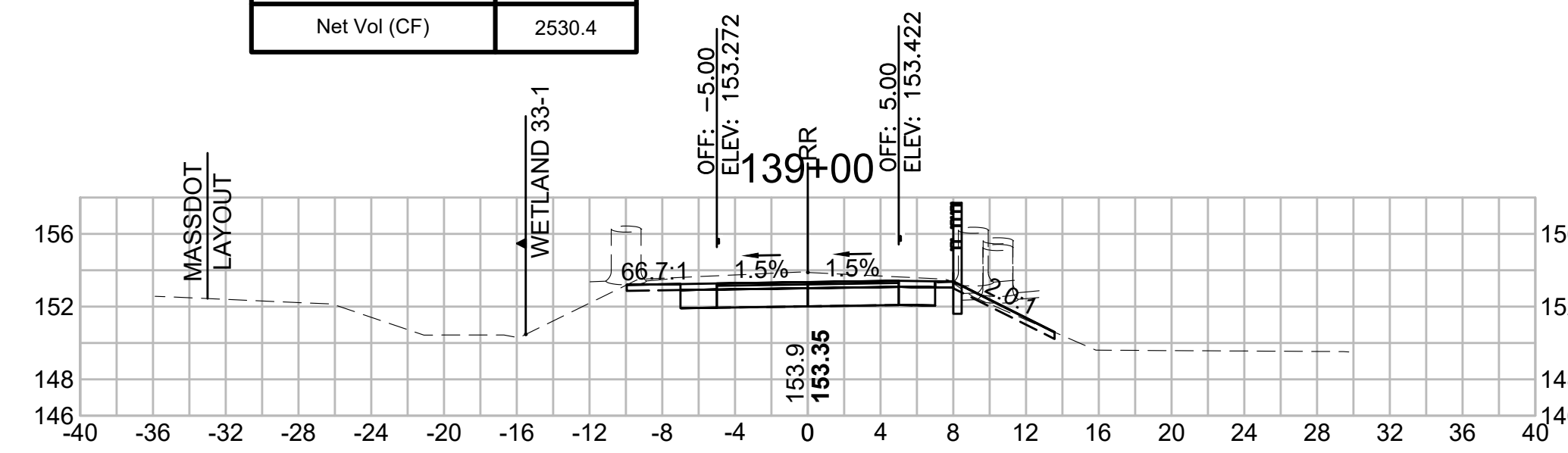
**Total Volume at Station 137+50.00**

Cut Area (SF)	20.952
Fill Area (SF)	0.033
Cut Vol (CF)	36.189
Fill Vol (CF)	0.3
Cum Cut Vol (CF)	2868.644
Cum Fill Vol (CF)	469.5
Net Vol (CF)	2399.2



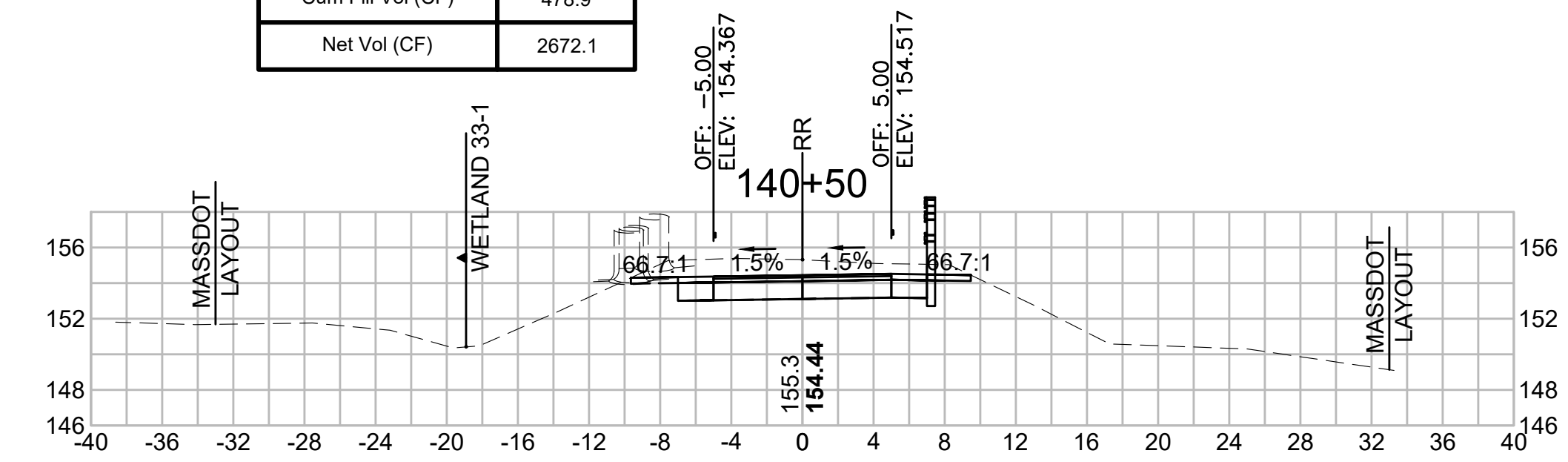
**Total Volume at Station 139+00.00**

Cut Area (SF)	27.593
Fill Area (SF)	0.000
Cut Vol (CF)	48.306
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	2999.915
Cum Fill Vol (CF)	469.5
Net Vol (CF)	2530.4



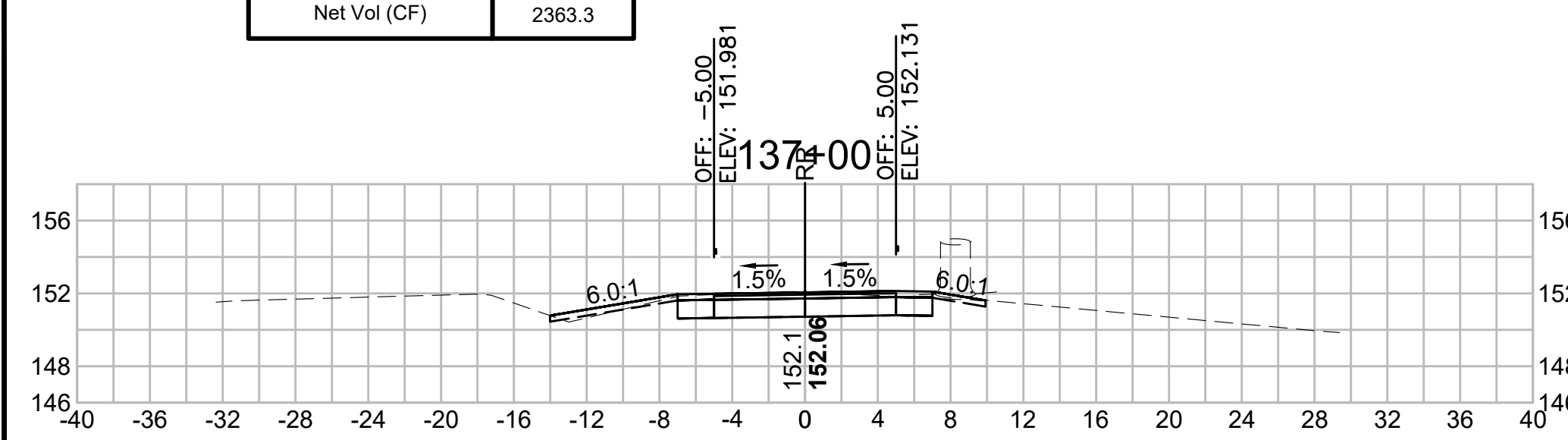
**Total Volume at Station 140+50.00**

Cut Area (SF)	34.252
Fill Area (SF)	0.000
Cut Vol (CF)	59.369
Fill Vol (CF)	0.6
Cum Cut Vol (CF)	3150.926
Cum Fill Vol (CF)	478.9
Net Vol (CF)	2672.1



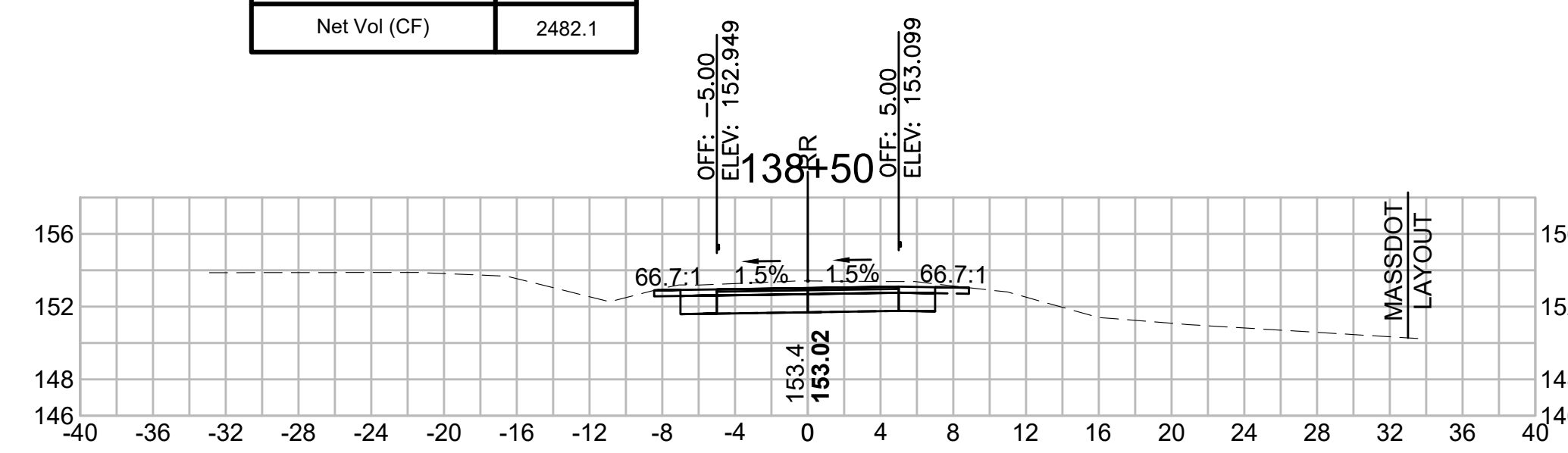
**Total Volume at Station 137+00.00**

Cut Area (SF)	18.132
Fill Area (SF)	0.314
Cut Vol (CF)	30.466
Fill Vol (CF)	1.5
Cum Cut Vol (CF)	2832.456
Cum Fill Vol (CF)	469.2
Net Vol (CF)	2363.3



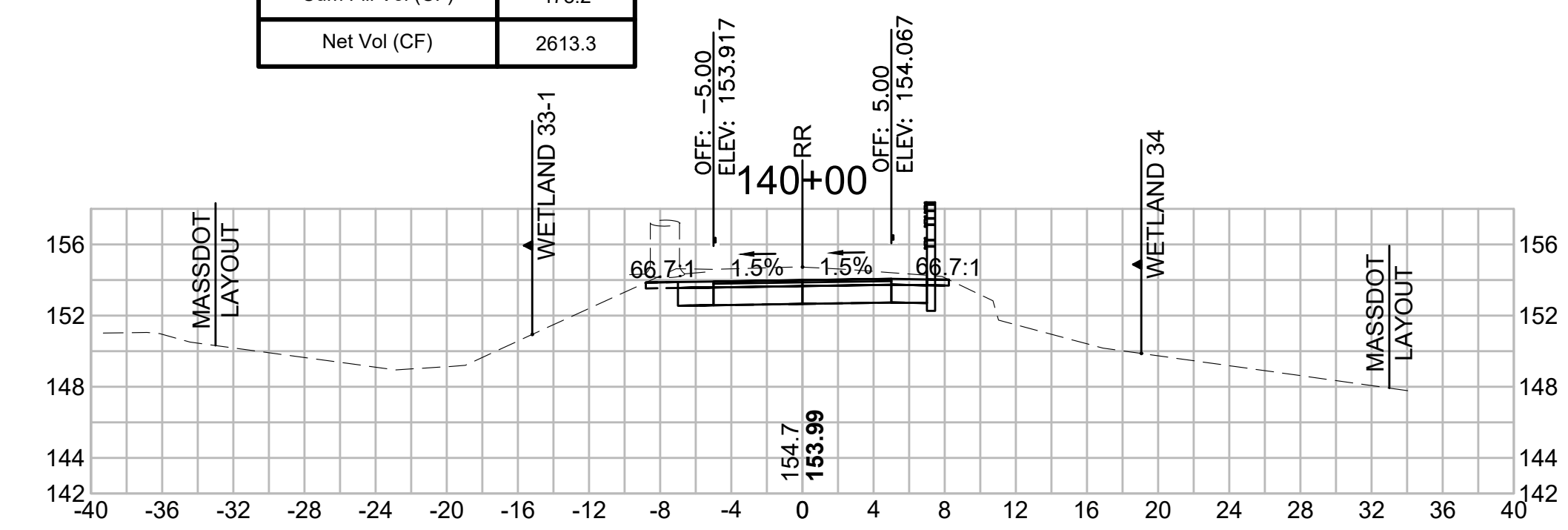
**Total Volume at Station 138+50.00**

Cut Area (SF)	24.577
Fill Area (SF)	0.000
Cut Vol (CF)	43.162
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	2951.610
Cum Fill Vol (CF)	469.5
Net Vol (CF)	2482.1



**Total Volume at Station 140+00.00**

Cut Area (SF)	29.866
Fill Area (SF)	0.685
Cut Vol (CF)	46.874
Fill Vol (CF)	4.7
Cum Cut Vol (CF)	3091.557
Cum Fill Vol (CF)	478.2
Net Vol (CF)	2613.3



SUDBURY  
BRUCE FREEMAN RAIL TRAIL

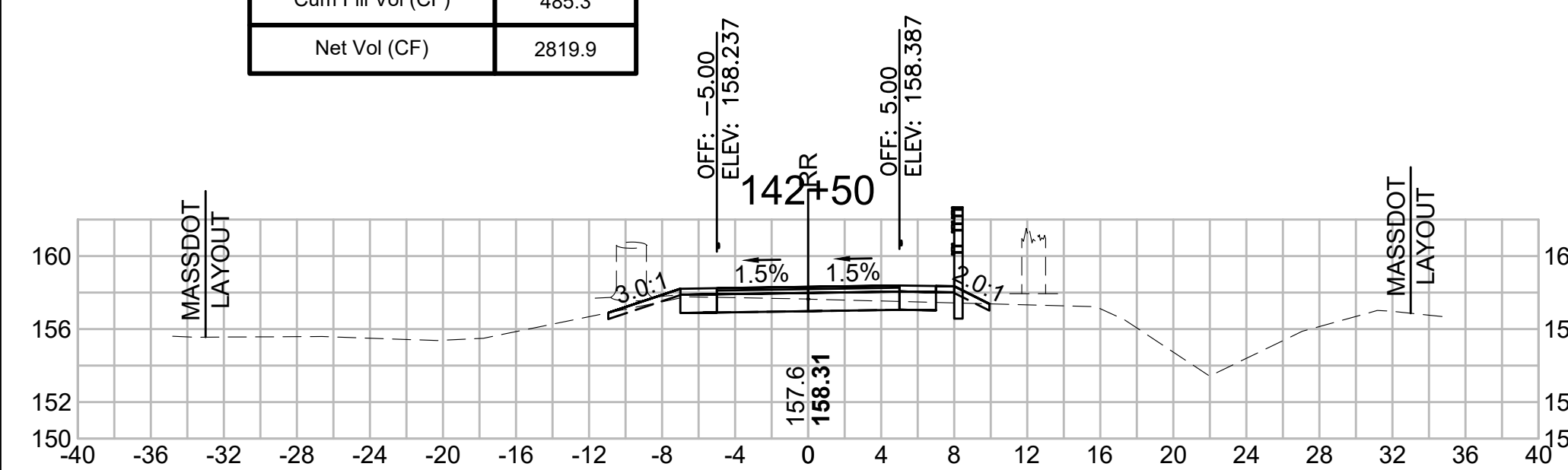
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	252	318

PROJECT FILE NO. 608164

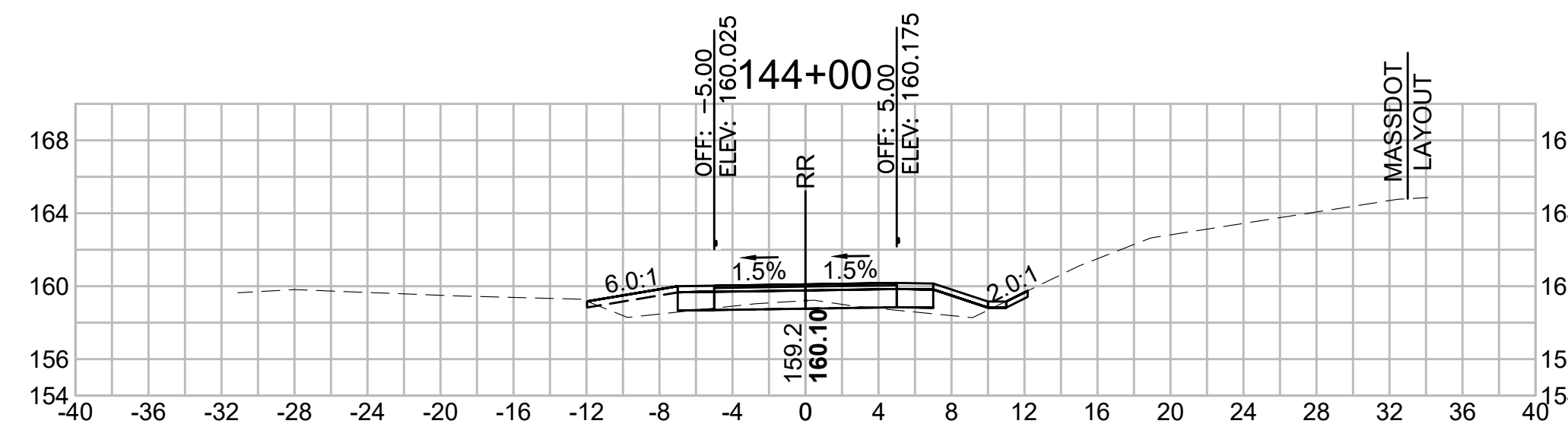
CROSS SECTIONS

608164\_XSEC(CROSS SECTION LAYOUTS).DWG 12-May-2021

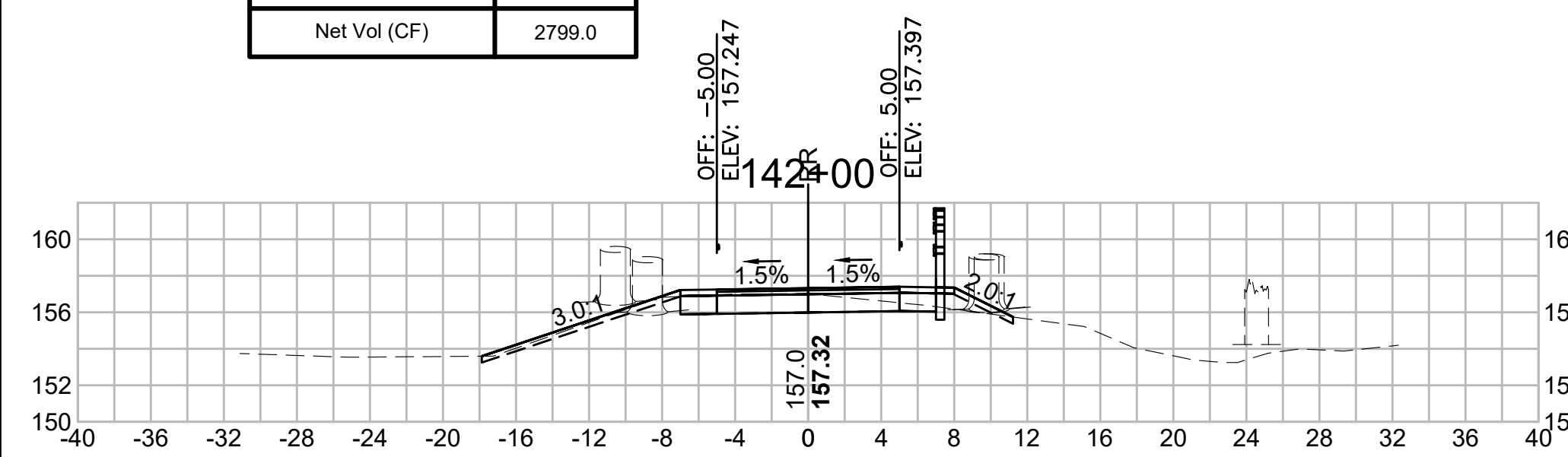
Total Volume at Station 142+50.00	
Cut Area (SF)	10.988
Fill Area (SF)	0.988
Cut Vol (CF)	23.427
Fill Vol (CF)	2.5
Cum Cut Vol (CF)	3305.223
Cum Fill Vol (CF)	485.3
Net Vol (CF)	2819.9



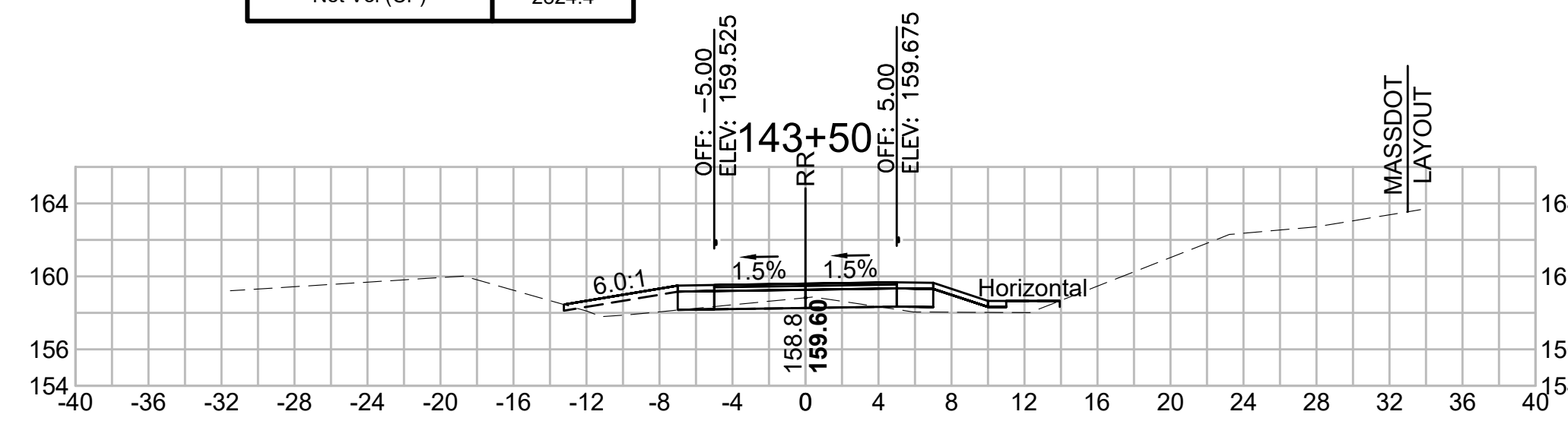
Total Volume at Station 144+00.00	
Cut Area (SF)	3.375
Fill Area (SF)	6.893
Cut Vol (CF)	6.235
Fill Vol (CF)	14.3
Cum Cut Vol (CF)	3324.741
Cum Fill Vol (CF)	508.5
Net Vol (CF)	2816.2



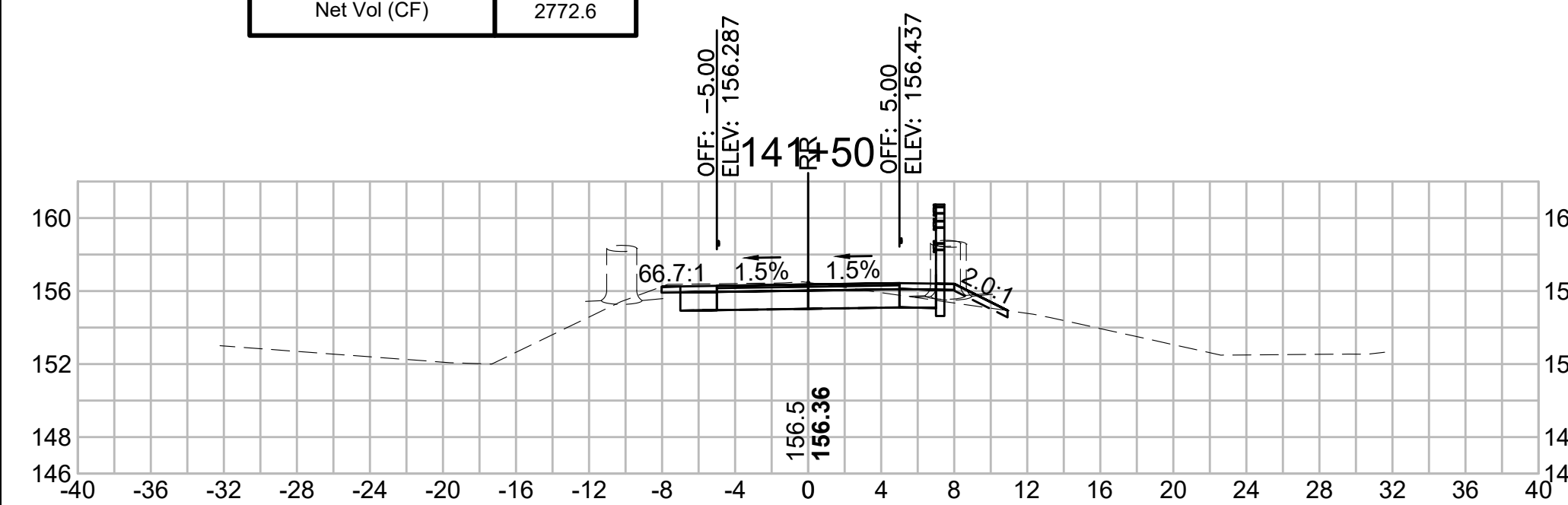
Total Volume at Station 142+00.00	
Cut Area (SF)	14.314
Fill Area (SF)	1.685
Cut Vol (CF)	29.110
Fill Vol (CF)	2.8
Cum Cut Vol (CF)	3281.796
Cum Fill Vol (CF)	482.8
Net Vol (CF)	2799.0



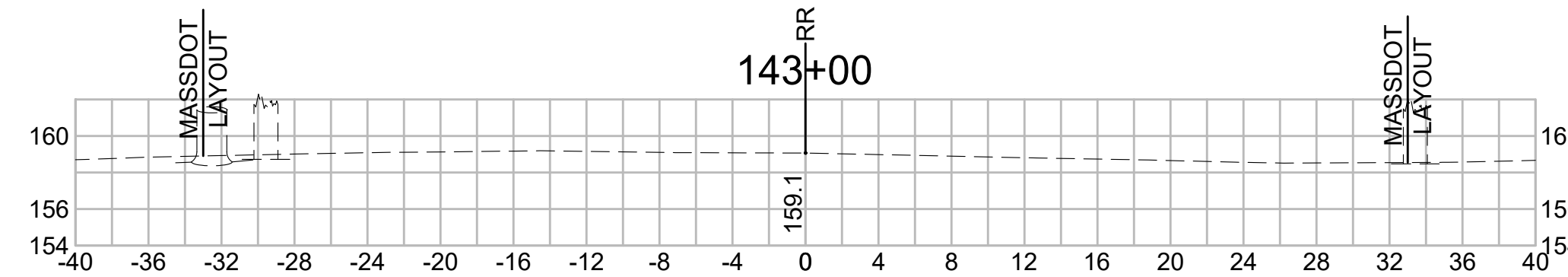
Total Volume at Station 143+50.00	
Cut Area (SF)	3.358
Fill Area (SF)	8.592
Cut Vol (CF)	3.110
Fill Vol (CF)	8.0
Cum Cut Vol (CF)	3318.506
Cum Fill Vol (CF)	494.2
Net Vol (CF)	2824.4



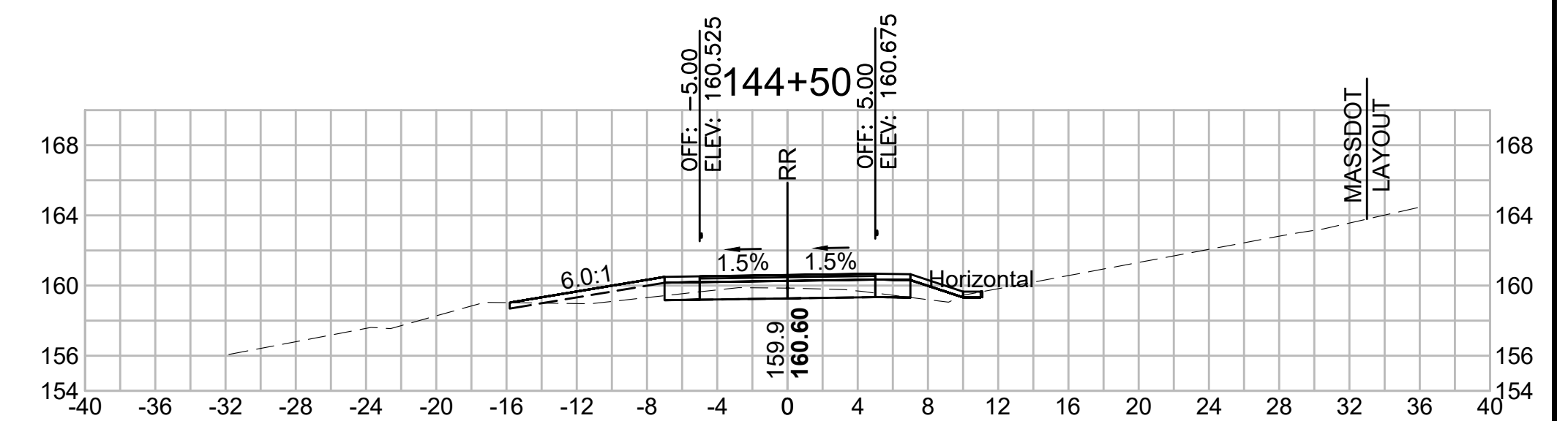
Total Volume at Station 141+50.00	
Cut Area (SF)	17.124
Fill Area (SF)	1.289
Cut Vol (CF)	42.951
Fill Vol (CF)	1.2
Cum Cut Vol (CF)	3252.687
Cum Fill Vol (CF)	480.1
Net Vol (CF)	2772.6



Total Volume at Station 143+00.00	
Cut Area (SF)	0.000
Fill Area (SF)	0.000
Cut Vol (CF)	10.174
Fill Vol (CF)	0.9
Cum Cut Vol (CF)	3315.397
Cum Fill Vol (CF)	486.2
Net Vol (CF)	2829.2



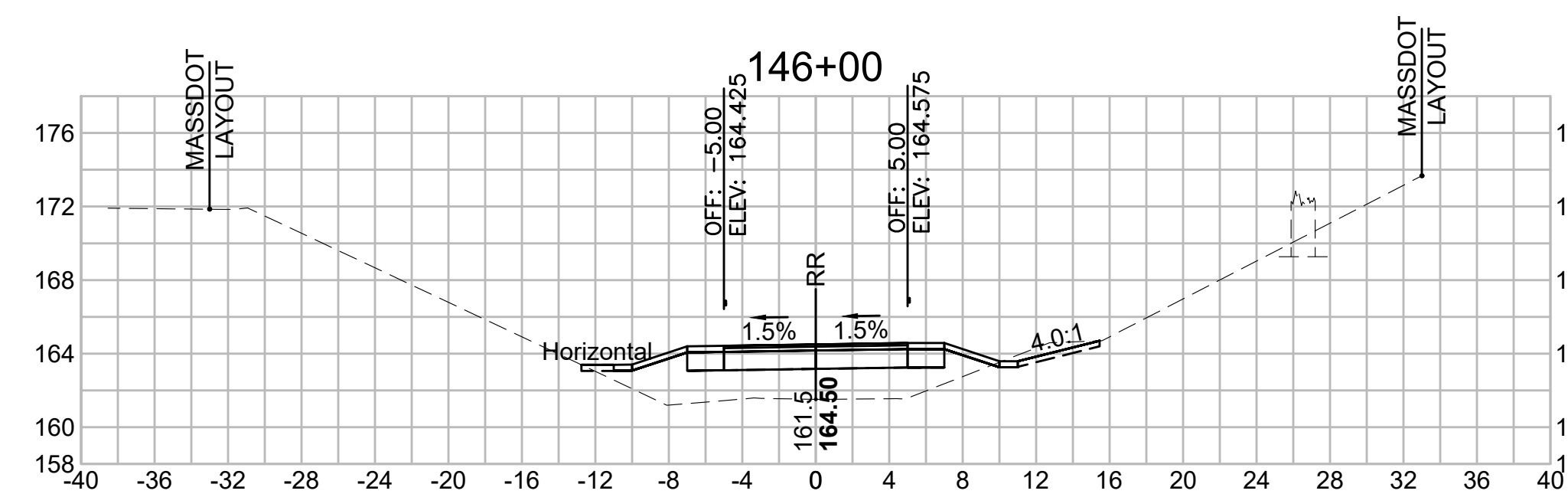
Total Volume at Station 144+50.00	
Cut Area (SF)	6.921
Fill Area (SF)	5.126
Cut Vol (CF)	9.534
Fill Vol (CF)	11.1
Cum Cut Vol (CF)	3334.275
Cum Fill Vol (CF)	519.6
Net Vol (CF)	2814.7



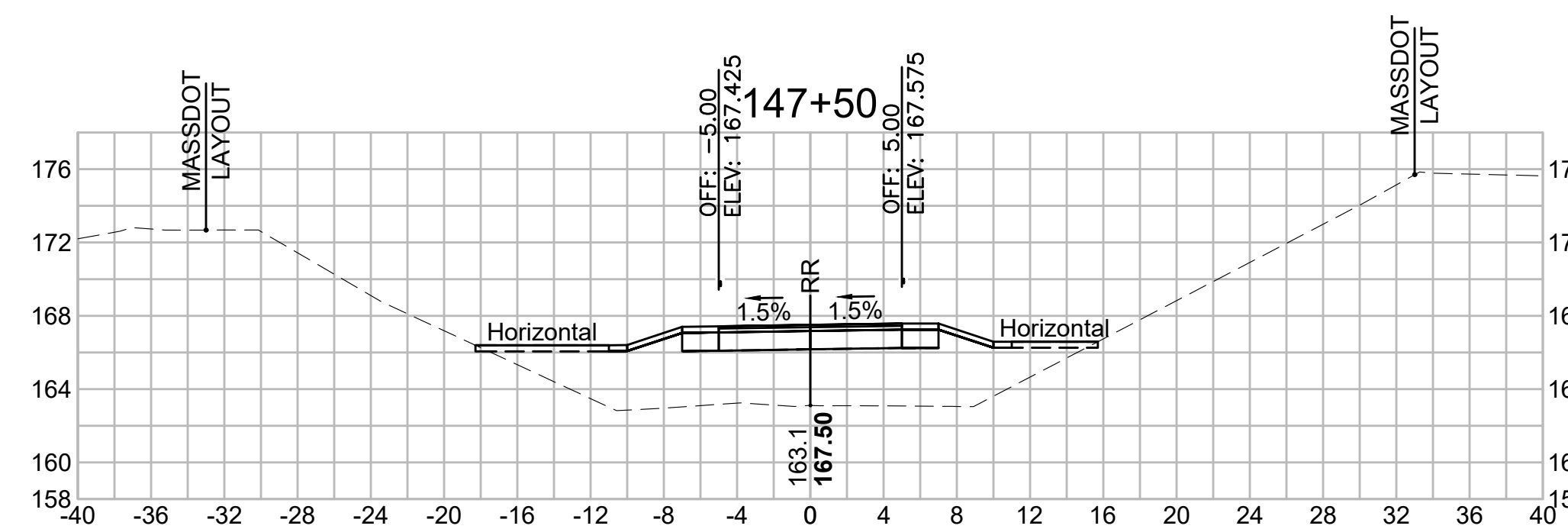


**CROSS SECTIONS**

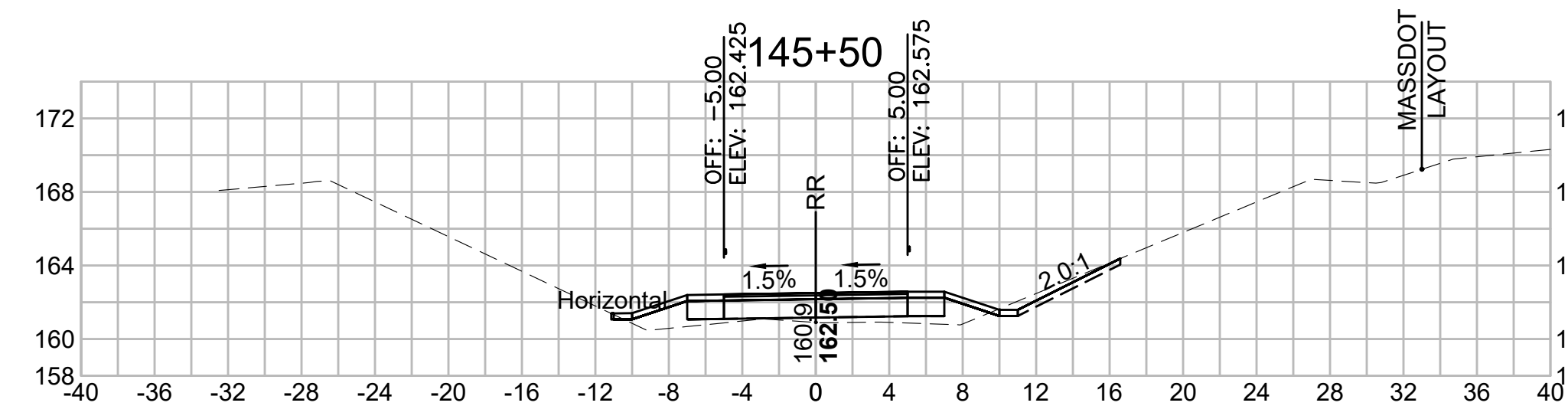
Total Volume at Station 146+00.00	
Cut Area (SF)	3.559
Fill Area (SF)	32.053
Cut Vol (CF)	7.0
Fill Vol (CF)	37.8
Cum Cut Vol (CF)	3364.3
Cum Fill Vol (CF)	579.4
Net Vol (CF)	2784.9



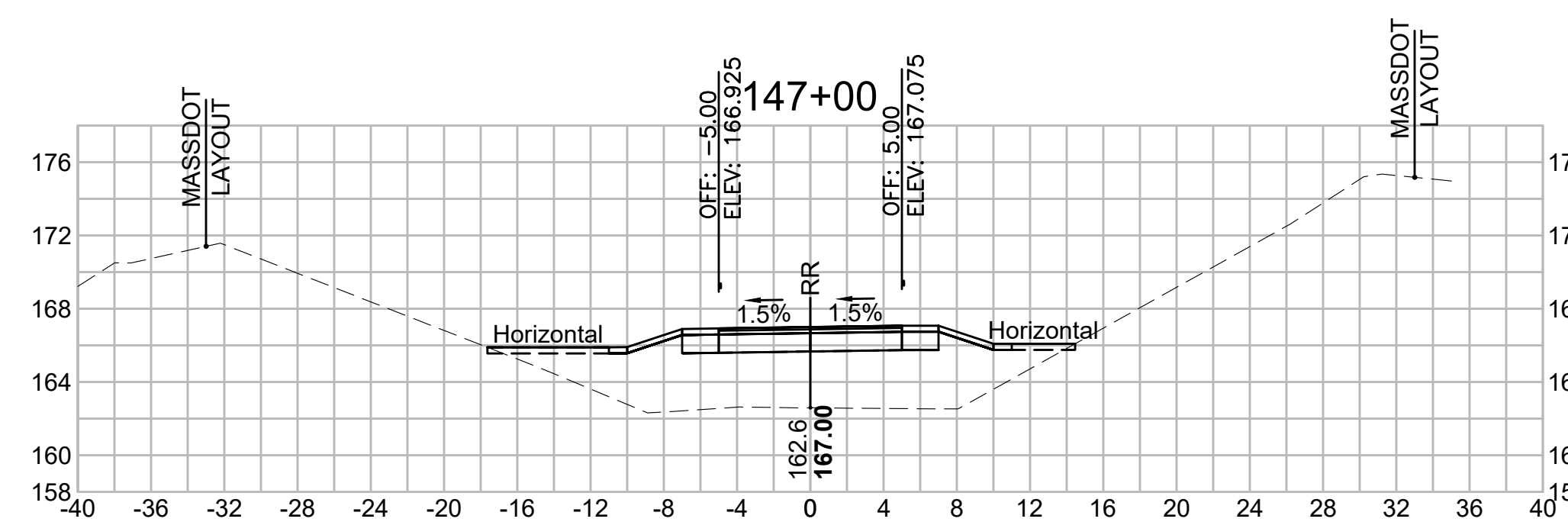
Total Volume at Station 147+50.00	
Cut Area (SF)	0.970
Fill Area (SF)	84.410
Cut Vol (CF)	1.1
Fill Vol (CF)	150.3
Cum Cut Vol (CF)	3369.4
Cum Fill Vol (CF)	961.5
Net Vol (CF)	2407.9



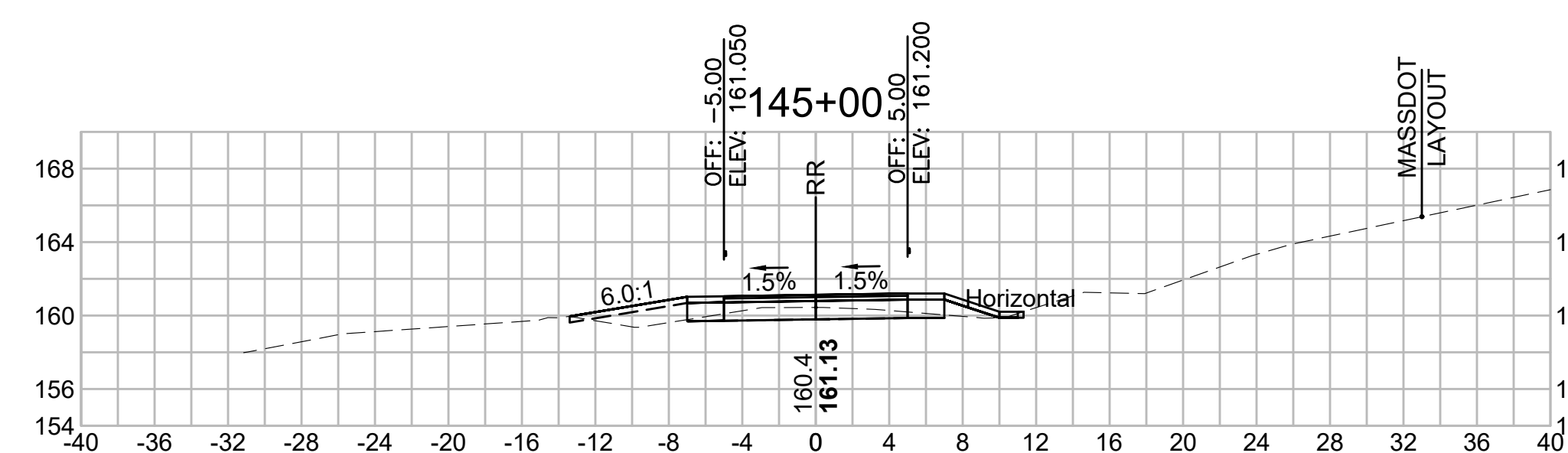
Total Volume at Station 145+50.00	
Cut Area (SF)	3.981
Fill Area (SF)	8.721
Cut Vol (CF)	10.2
Fill Vol (CF)	12.7
Cum Cut Vol (CF)	3357.3
Cum Fill Vol (CF)	541.7
Net Vol (CF)	2815.7



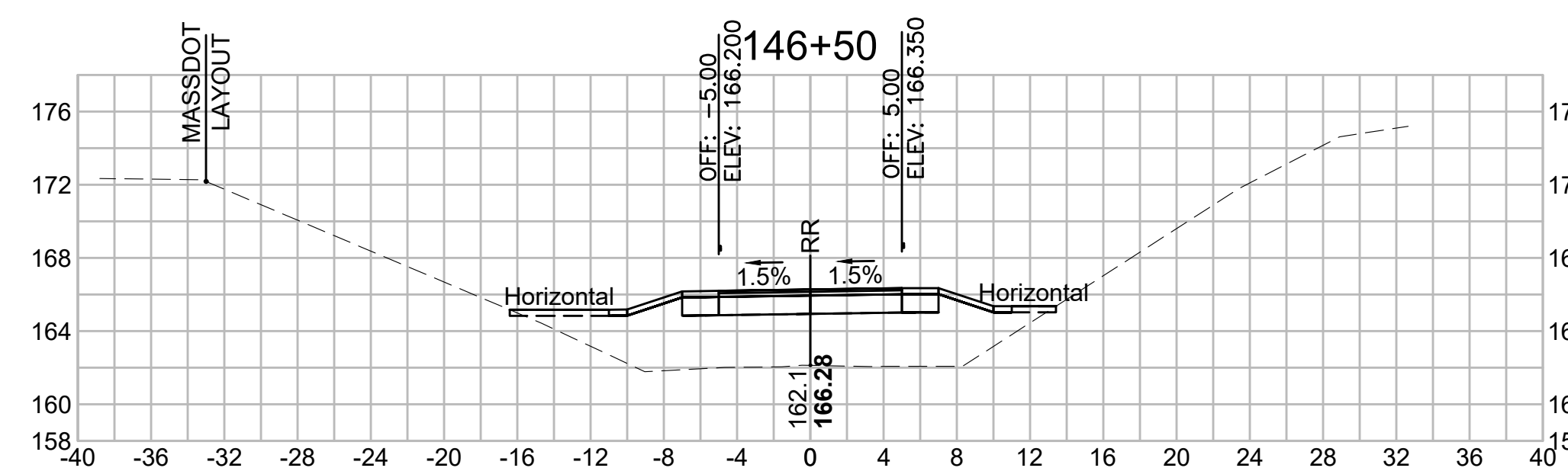
Total Volume at Station 147+00.00	
Cut Area (SF)	0.237
Fill Area (SF)	77.891
Cut Vol (CF)	0.4
Fill Vol (CF)	137.1
Cum Cut Vol (CF)	3368.2
Cum Fill Vol (CF)	811.2
Net Vol (CF)	2557.0



Total Volume at Station 145+00.00	
Cut Area (SF)	7.007
Fill Area (SF)	4.985
Cut Vol (CF)	12.9
Fill Vol (CF)	9.4
Cum Cut Vol (CF)	3347.2
Cum Fill Vol (CF)	529.0
Net Vol (CF)	2818.2



Total Volume at Station 146+50.00	
Cut Area (SF)	0.213
Fill Area (SF)	70.196
Cut Vol (CF)	3.5
Fill Vol (CF)	94.7
Cum Cut Vol (CF)	3367.8
Cum Fill Vol (CF)	674.1
Net Vol (CF)	2693.7



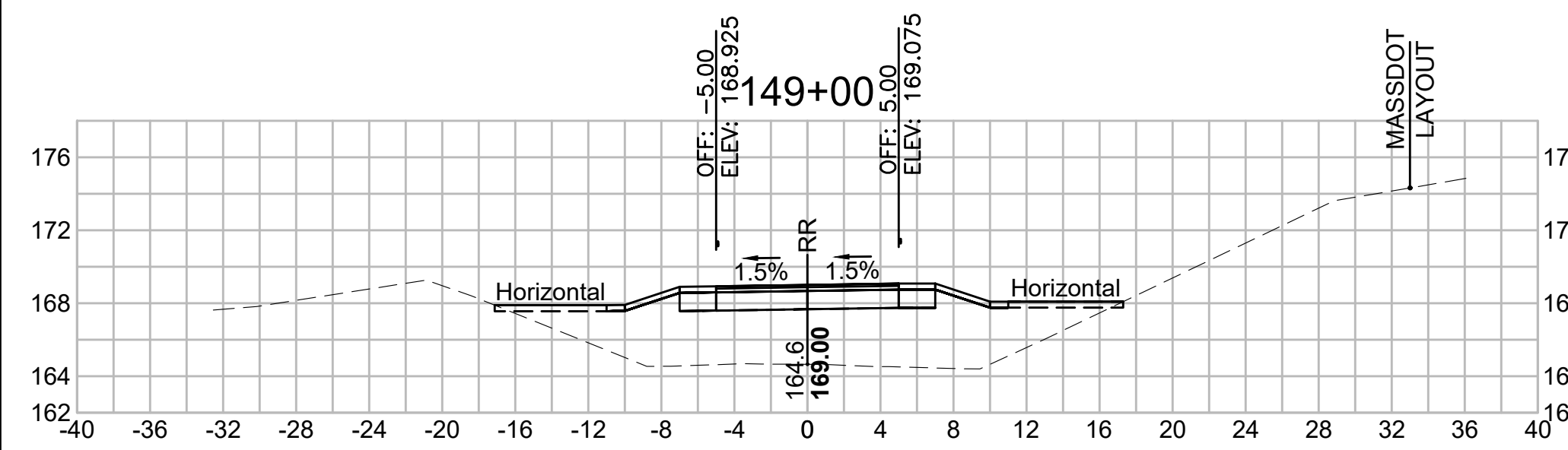
SUDBURY  
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	254	318

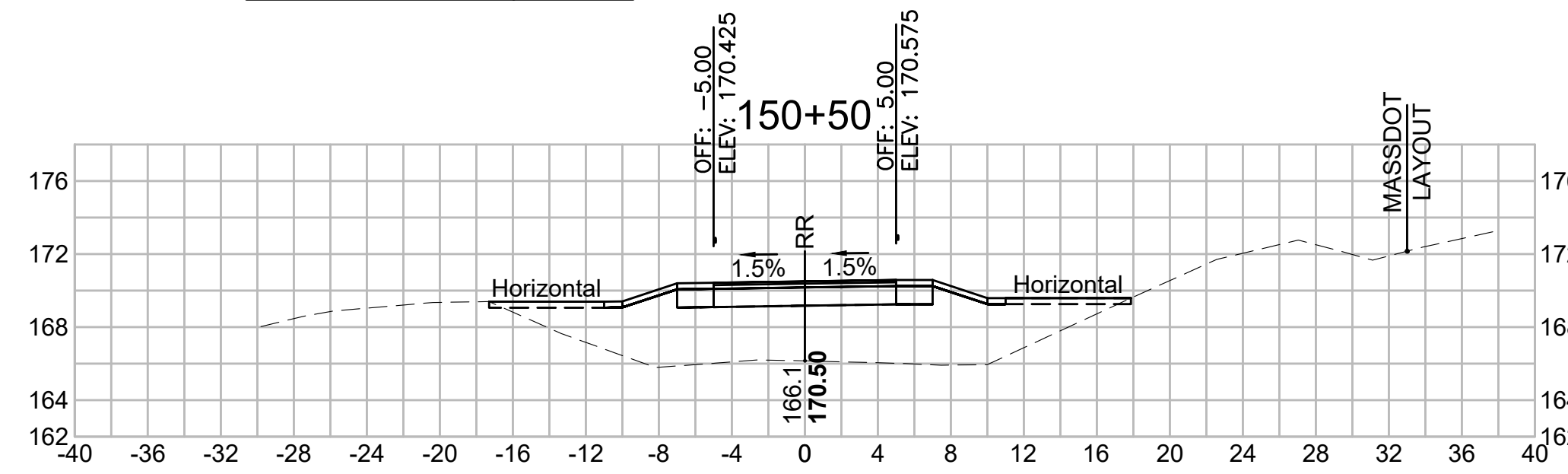
PROJECT FILE NO. 608164

CROSS SECTIONS

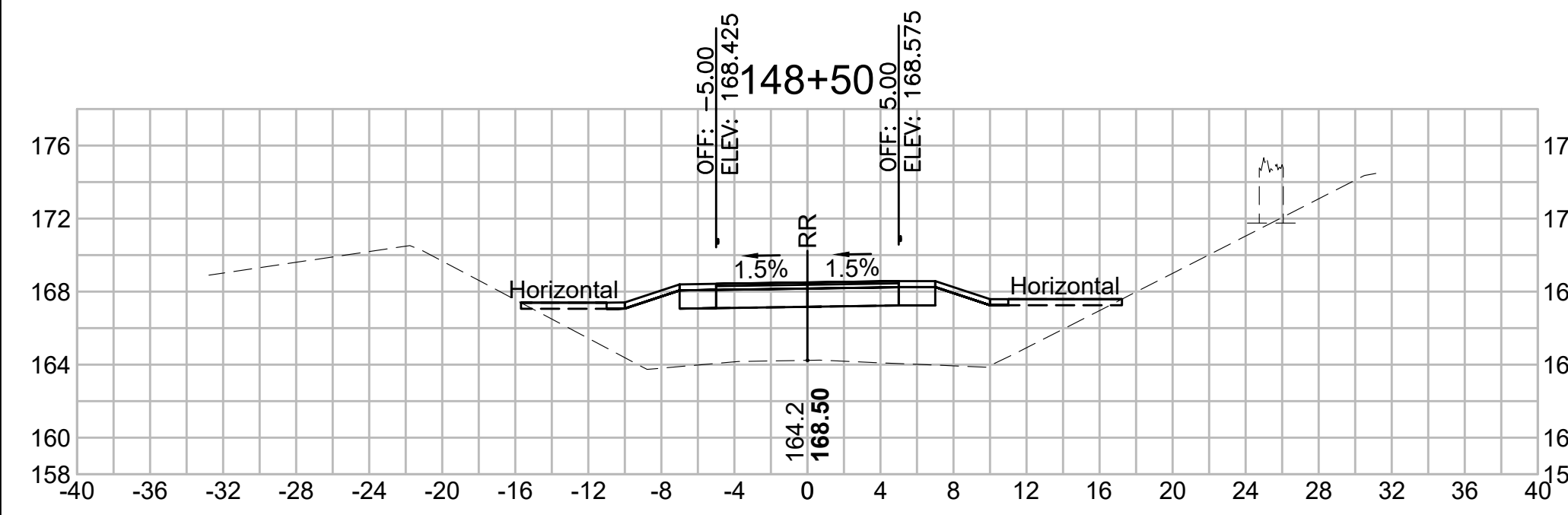
Total Volume at Station 149+00.00	
Cut Area (SF)	0.249
Fill Area (SF)	83.098
Cut Vol (CF)	0.4
Fill Vol (CF)	153.7
Cum Cut Vol (CF)	3371.2
Cum Fill Vol (CF)	1436.4
Net Vol (CF)	1934.9



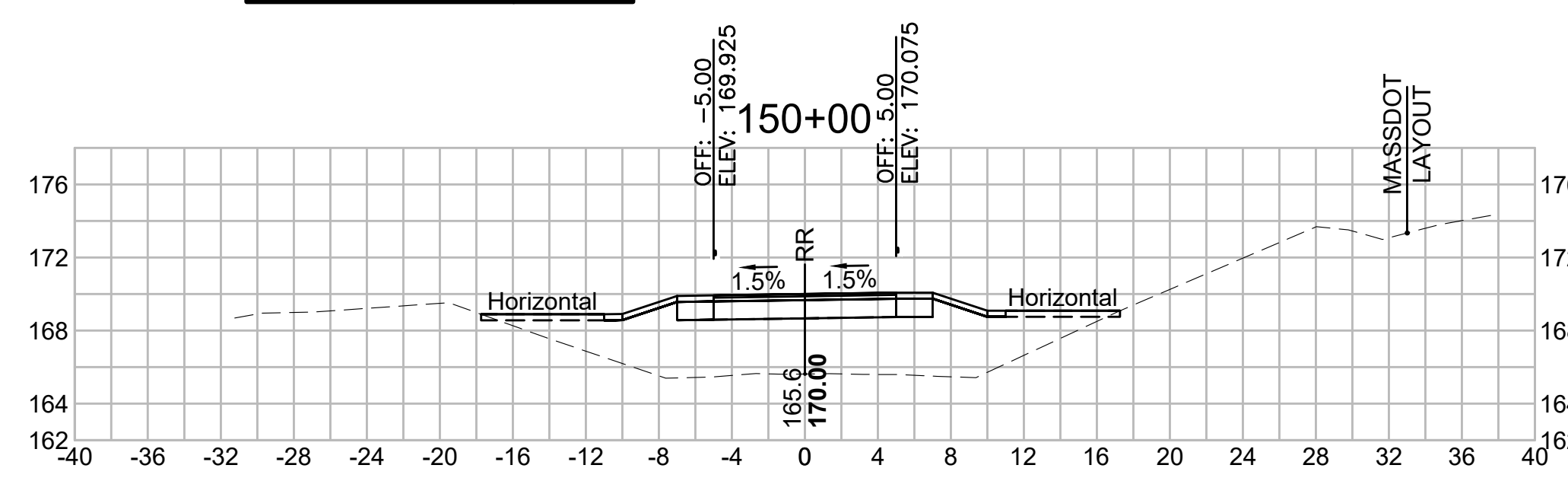
Total Volume at Station 150+50.00	
Cut Area (SF)	0.610
Fill Area (SF)	85.158
Cut Vol (CF)	0.8
Fill Vol (CF)	155.6
Cum Cut Vol (CF)	3373.1
Cum Fill Vol (CF)	1905.8
Net Vol (CF)	1467.3



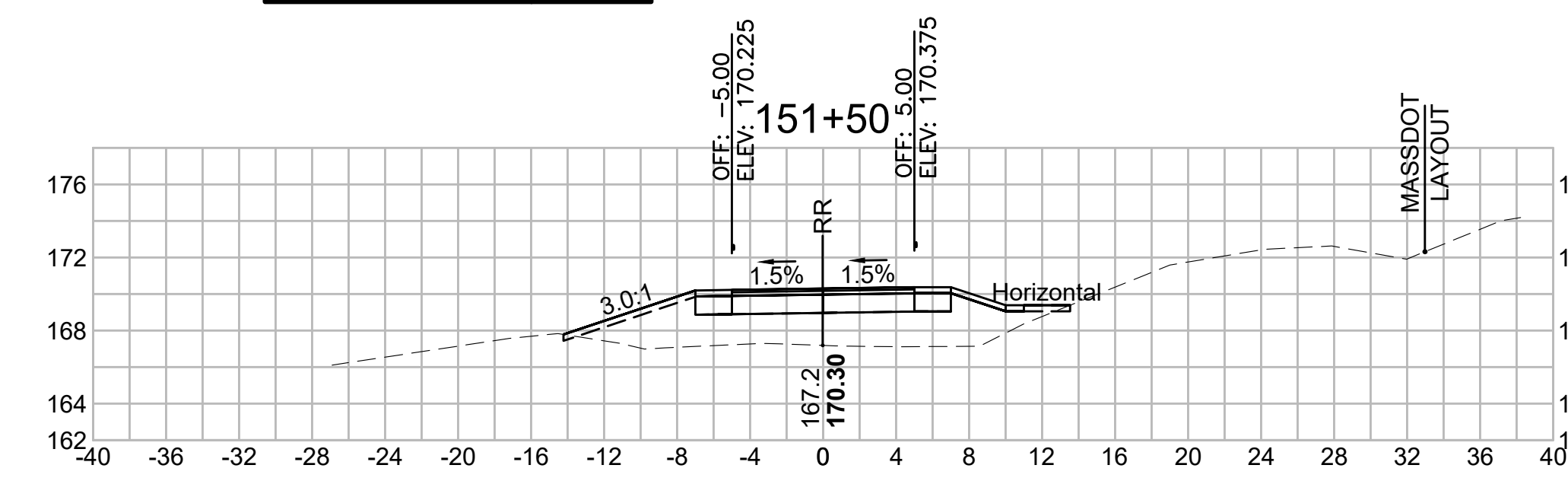
Total Volume at Station 148+50.00	
Cut Area (SF)	0.210
Fill Area (SF)	82.874
Cut Vol (CF)	0.4
Fill Vol (CF)	159.9
Cum Cut Vol (CF)	3370.8
Cum Fill Vol (CF)	1282.7
Net Vol (CF)	2088.1



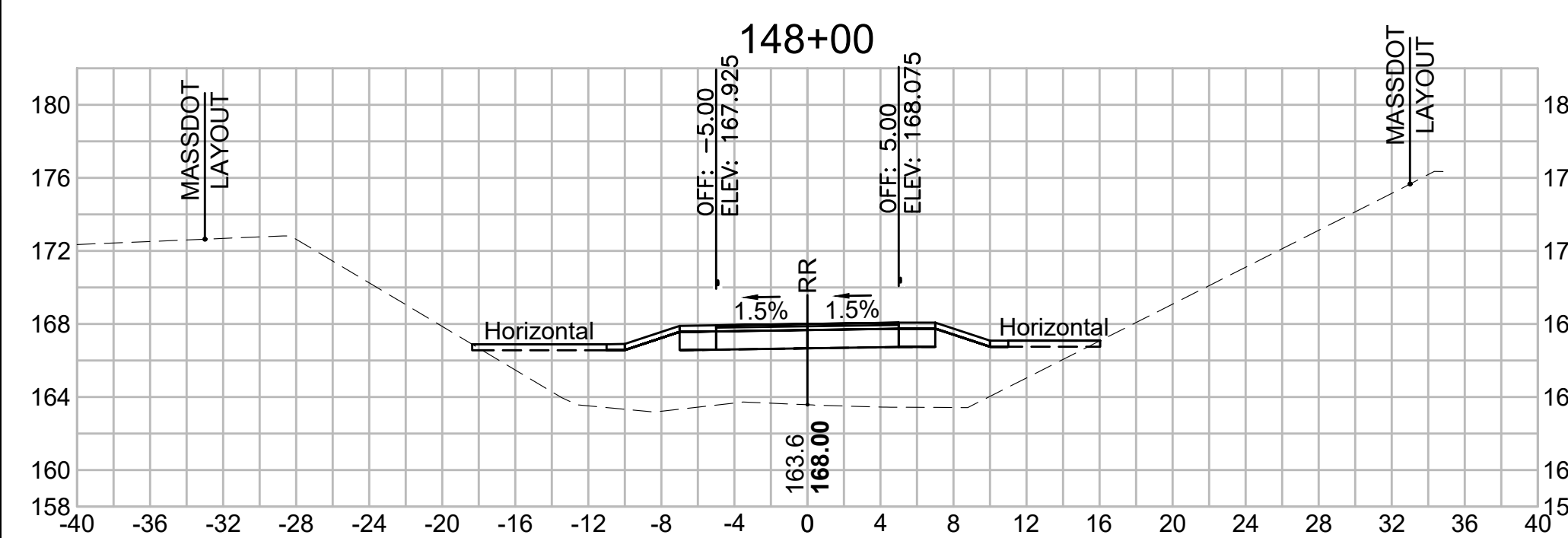
Total Volume at Station 150+00.00	
Cut Area (SF)	0.297
Fill Area (SF)	82.858
Cut Vol (CF)	0.5
Fill Vol (CF)	156.8
Cum Cut Vol (CF)	3372.3
Cum Fill Vol (CF)	1750.2
Net Vol (CF)	1622.0



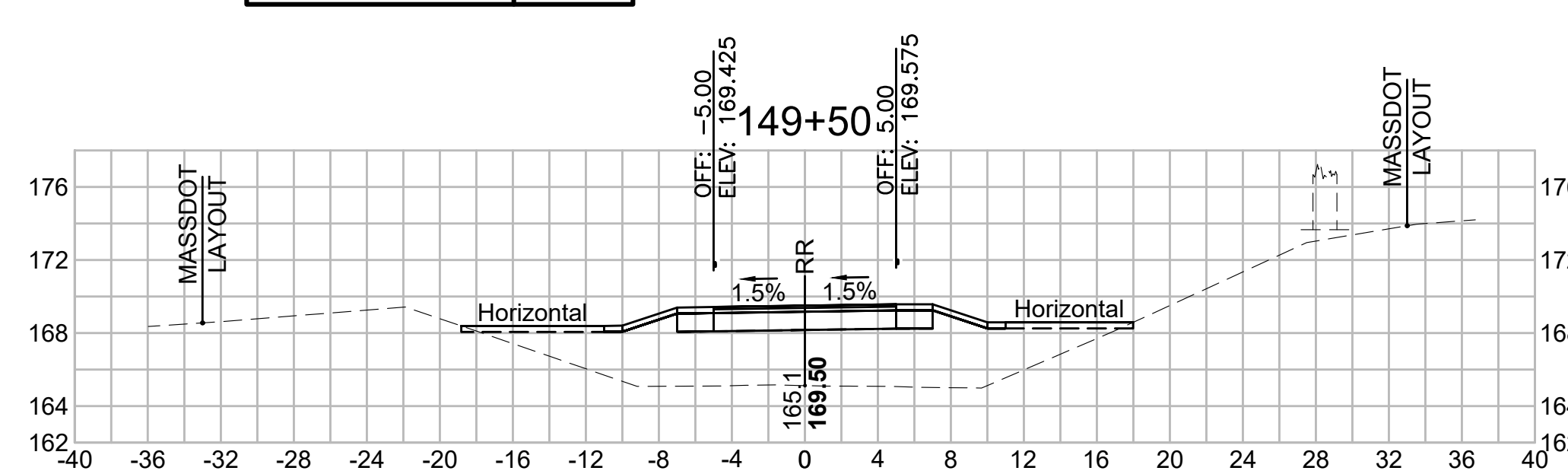
Total Volume at Station 151+50.00	
Cut Area (SF)	0.259
Fill Area (SF)	43.187
Cut Vol (CF)	0.6
Fill Vol (CF)	110.0
Cum Cut Vol (CF)	3374.7
Cum Fill Vol (CF)	2164.6
Net Vol (CF)	1210.1



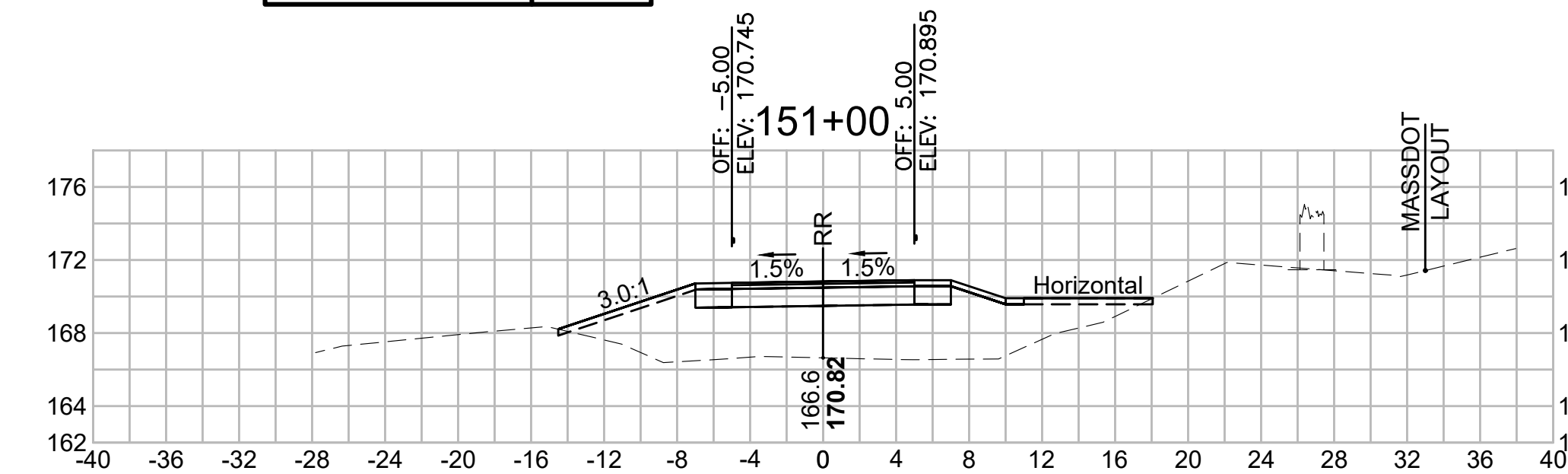
Total Volume at Station 148+00.00	
Cut Area (SF)	0.199
Fill Area (SF)	89.808
Cut Vol (CF)	1.1
Fill Vol (CF)	161.3
Cum Cut Vol (CF)	3370.4
Cum Fill Vol (CF)	1122.8
Net Vol (CF)	2247.6



Total Volume at Station 149+50.00	
Cut Area (SF)	0.280
Fill Area (SF)	86.502
Cut Vol (CF)	0.5
Fill Vol (CF)	157.0
Cum Cut Vol (CF)	3371.7
Cum Fill Vol (CF)	1593.4
Net Vol (CF)	1778.3



Total Volume at Station 151+00.00	
Cut Area (SF)	0.422
Fill Area (SF)	75.564
Cut Vol (CF)	1.0
Fill Vol (CF)	148.8
Cum Cut Vol (CF)	3374.1
Cum Fill Vol (CF)	2054.6
Net Vol (CF)	1319.4



SUDBURY  
BRUCE FREEMAN RAIL TRAIL

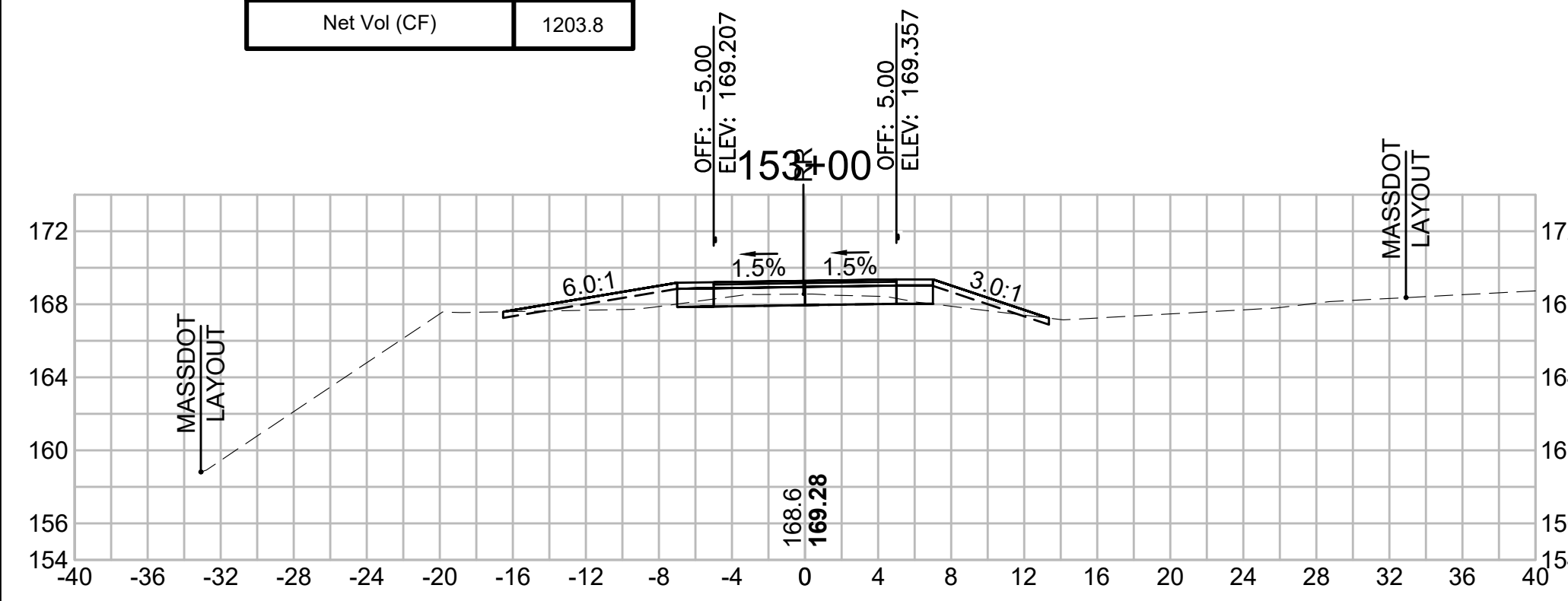
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	255	318

PROJECT FILE NO. 608164

CROSS SECTIONS

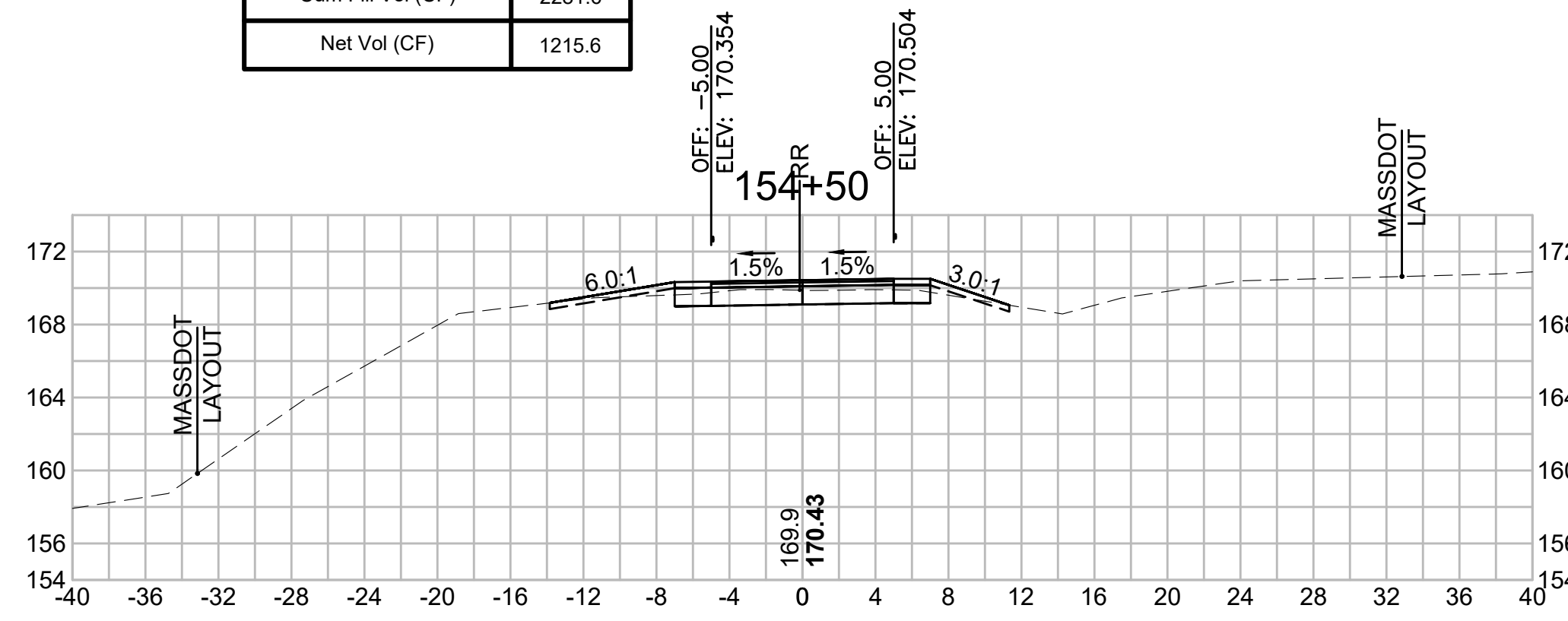
**Total Volume at Station 153+00.00**

Cut Area (SF)	9.364
Fill Area (SF)	5.972
Cut Vol (CF)	31.8
Fill Vol (CF)	8.6
Cum Cut Vol (CF)	3447.0
Cum Fill Vol (CF)	2243.2
Net Vol (CF)	1203.8



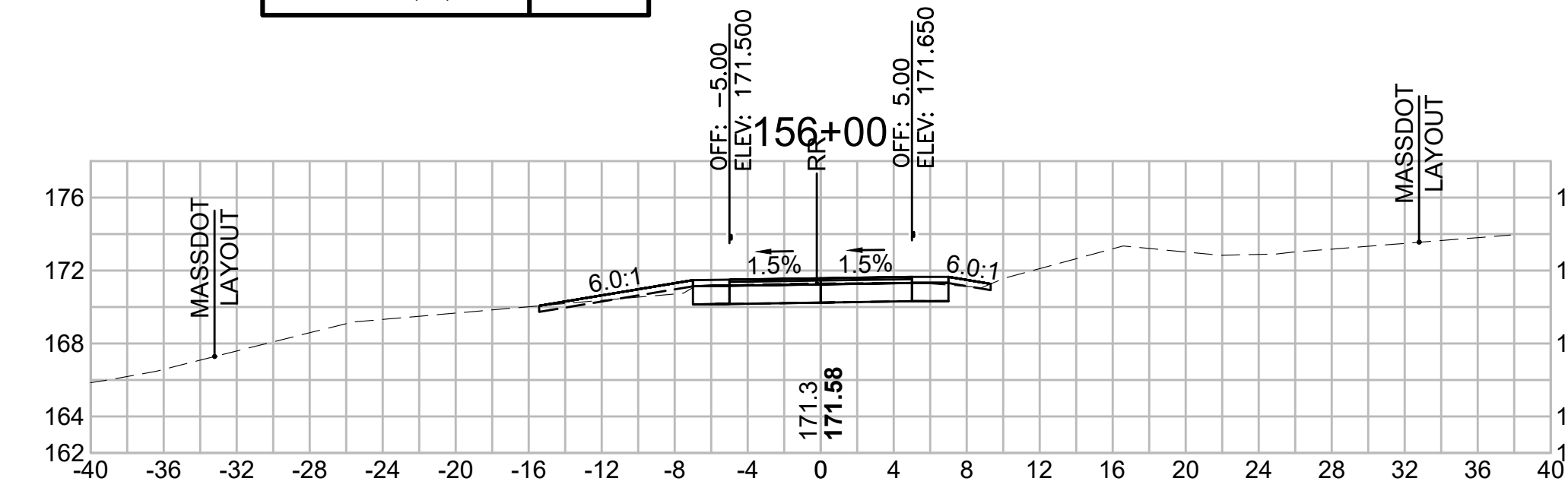
**Total Volume at Station 154+50.00**

Cut Area (SF)	13.458
Fill Area (SF)	1.023
Cut Vol (CF)	20.4
Fill Vol (CF)	8.1
Cum Cut Vol (CF)	3497.2
Cum Fill Vol (CF)	2281.6
Net Vol (CF)	1215.6



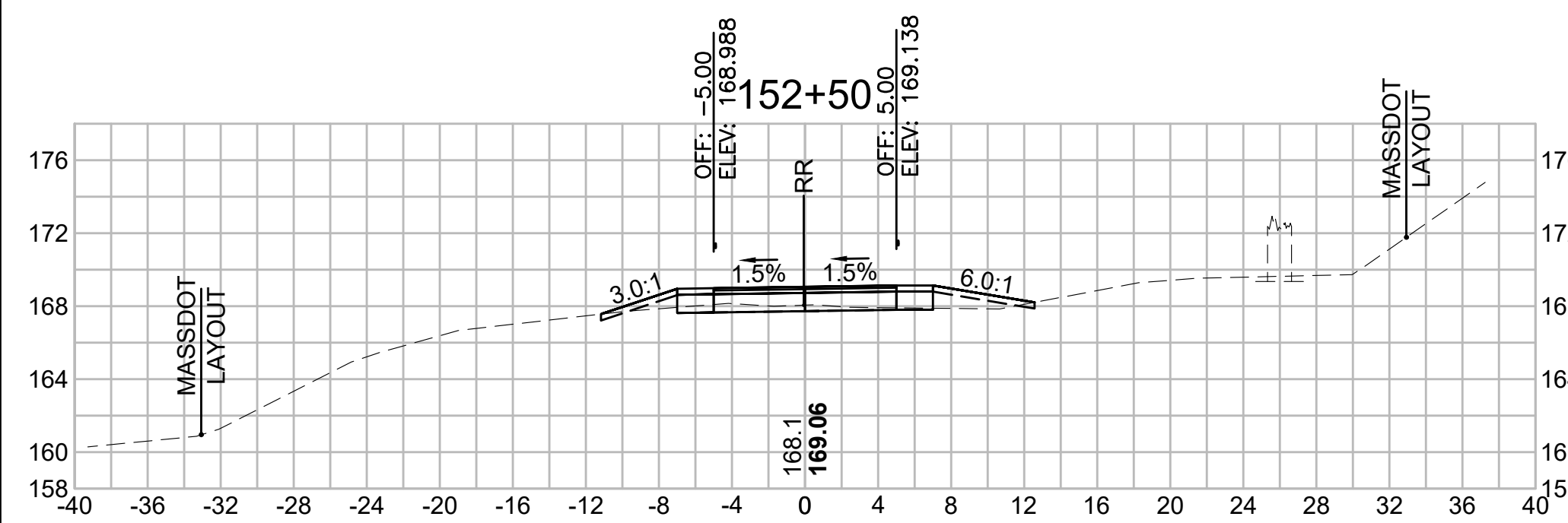
**Total Volume at Station 156+00.00**

Cut Area (SF)	16.208
Fill Area (SF)	0.703
Cut Vol (CF)	28.8
Fill Vol (CF)	0.7
Cum Cut Vol (CF)	3574.5
Cum Fill Vol (CF)	2284.6
Net Vol (CF)	1289.9



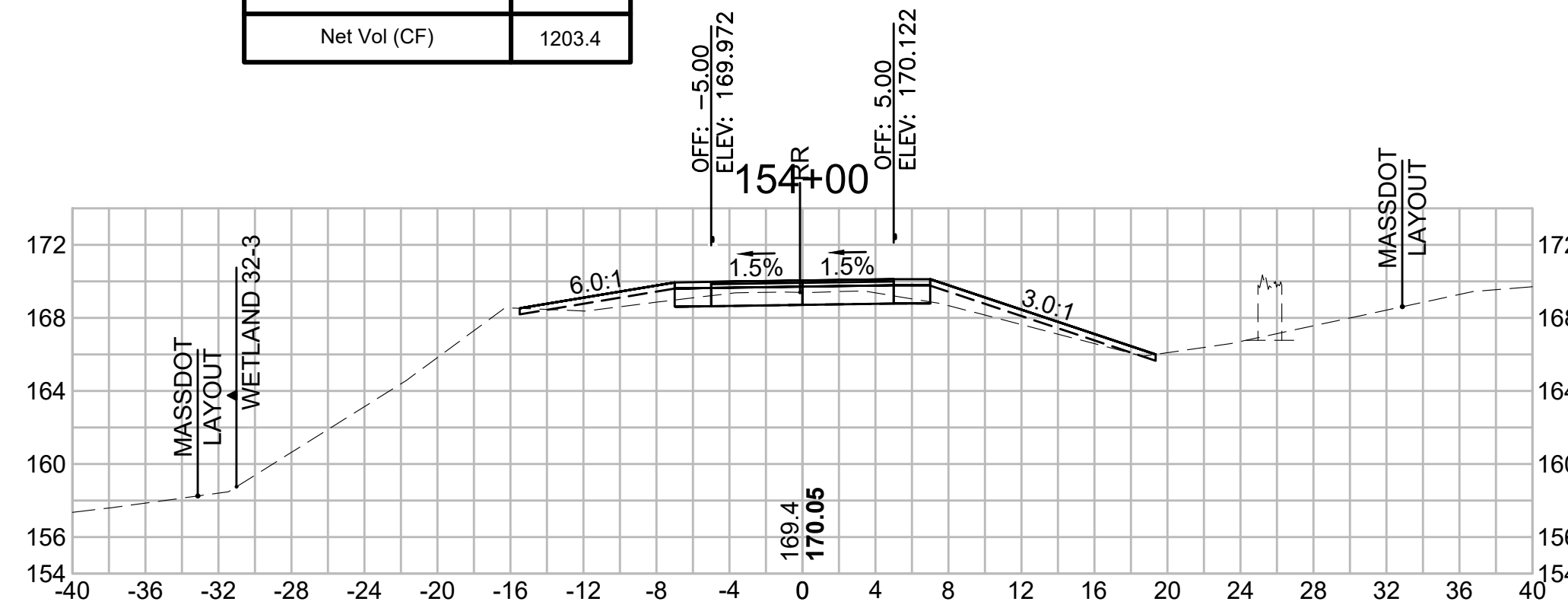
**Total Volume at Station 152+50.00**

Cut Area (SF)	24.926
Fill Area (SF)	3.337
Cut Vol (CF)	31.7
Fill Vol (CF)	16.5
Cum Cut Vol (CF)	3415.2
Cum Fill Vol (CF)	2234.6
Net Vol (CF)	1180.7



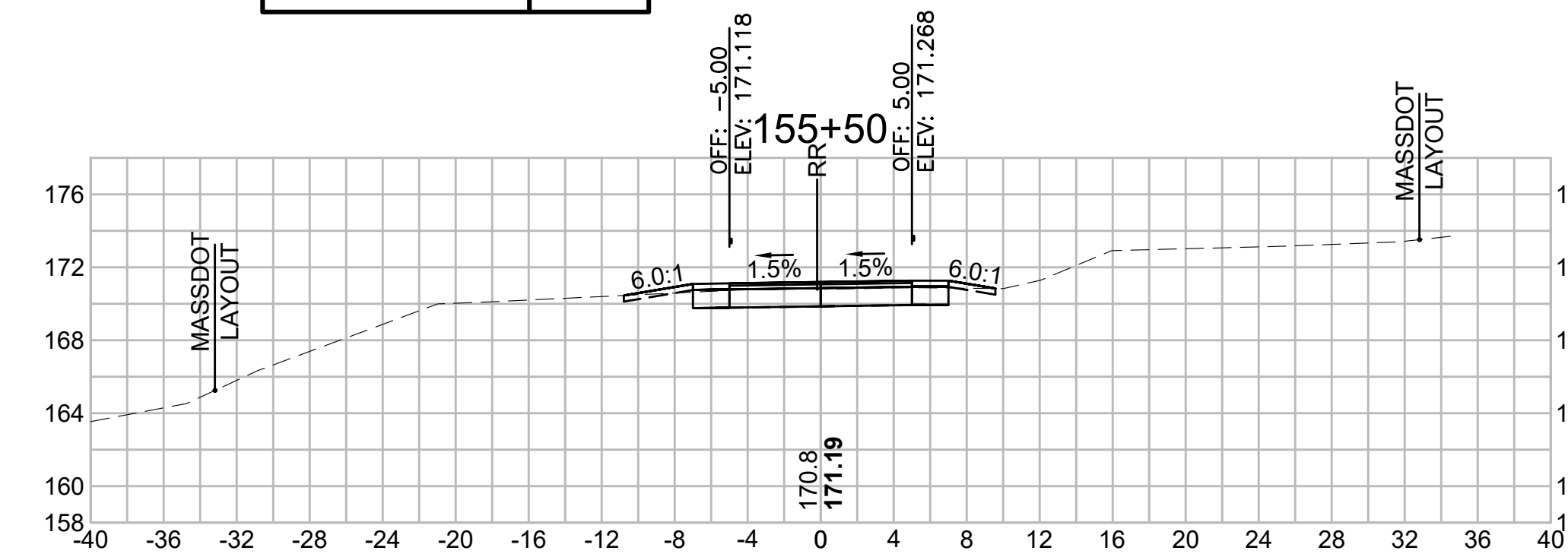
**Total Volume at Station 154+00.00**

Cut Area (SF)	8.578
Fill Area (SF)	7.745
Cut Vol (CF)	14.6
Fill Vol (CF)	16.0
Cum Cut Vol (CF)	3476.8
Cum Fill Vol (CF)	2273.5
Net Vol (CF)	1203.4



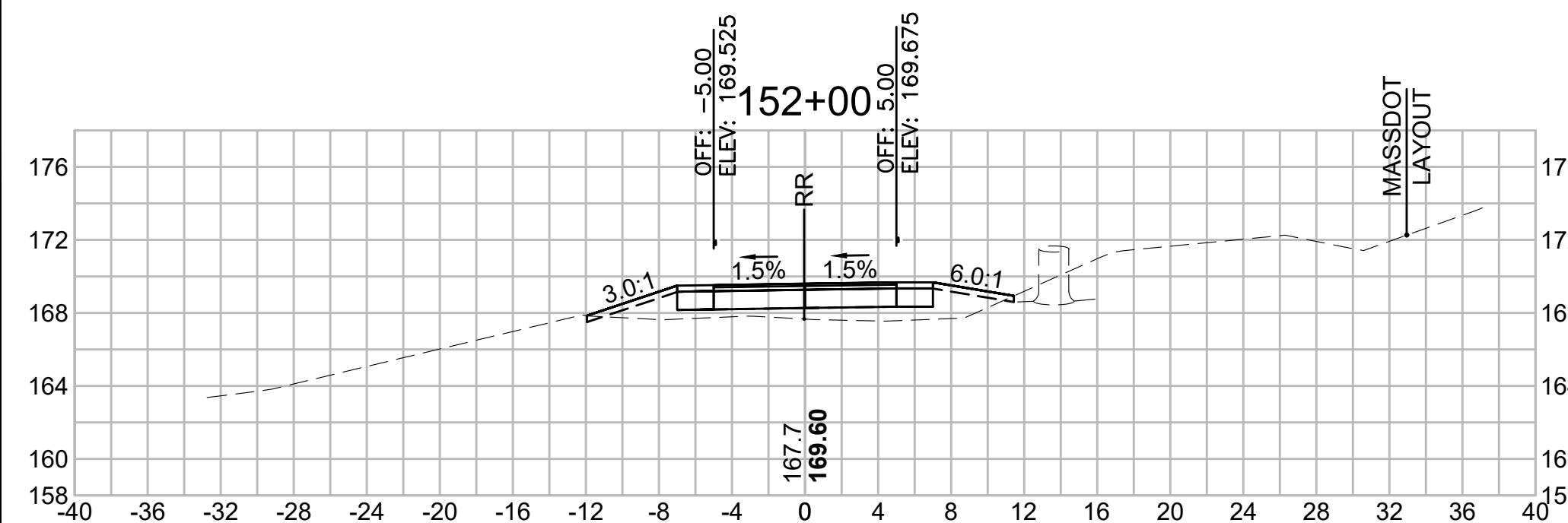
**Total Volume at Station 155+50.00**

Cut Area (SF)	14.892
Fill Area (SF)	0.070
Cut Vol (CF)	24.9
Fill Vol (CF)	0.7
Cum Cut Vol (CF)	3545.7
Cum Fill Vol (CF)	2283.9
Net Vol (CF)	1261.8



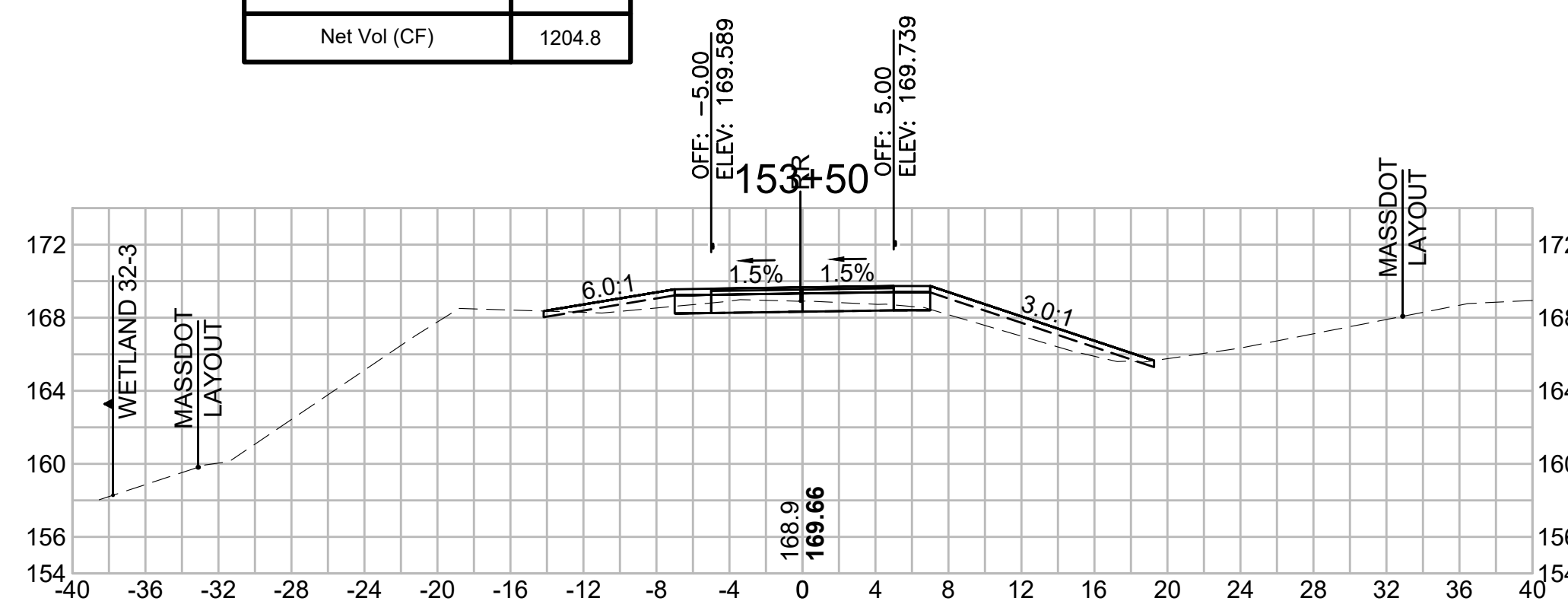
**Total Volume at Station 152+00.00**

Cut Area (SF)	9.300
Fill Area (SF)	14.530
Cut Vol (CF)	8.9
Fill Vol (CF)	53.4
Cum Cut Vol (CF)	3383.5
Cum Fill Vol (CF)	2218.0
Net Vol (CF)	1165.5



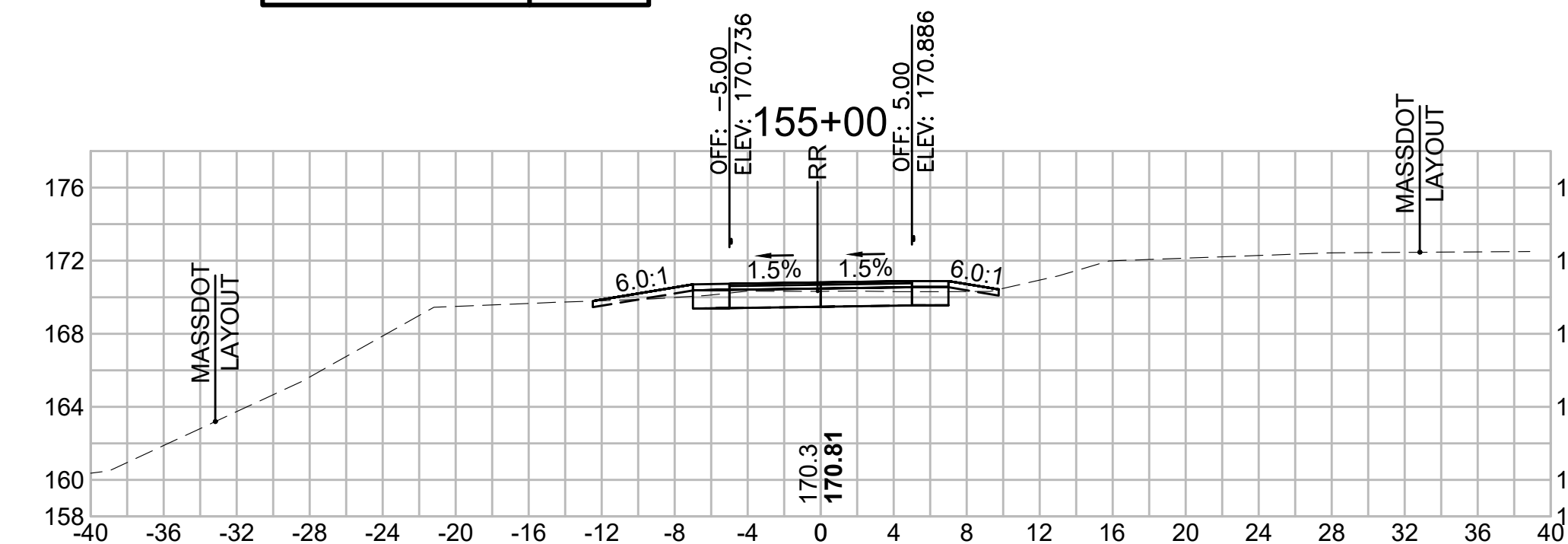
**Total Volume at Station 153+50.00**

Cut Area (SF)	7.150
Fill Area (SF)	9.504
Cut Vol (CF)	15.3
Fill Vol (CF)	14.3
Cum Cut Vol (CF)	3462.3
Cum Fill Vol (CF)	2257.5
Net Vol (CF)	1204.8



**Total Volume at Station 155+00.00**

Cut Area (SF)	11.993
Fill Area (SF)	0.670
Cut Vol (CF)	23.6
Fill Vol (CF)	1.6
Cum Cut Vol (CF)	3520.8
Cum Fill Vol (CF)	2283.2
Net Vol (CF)	1237.6



SUDBURY  
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	256	318

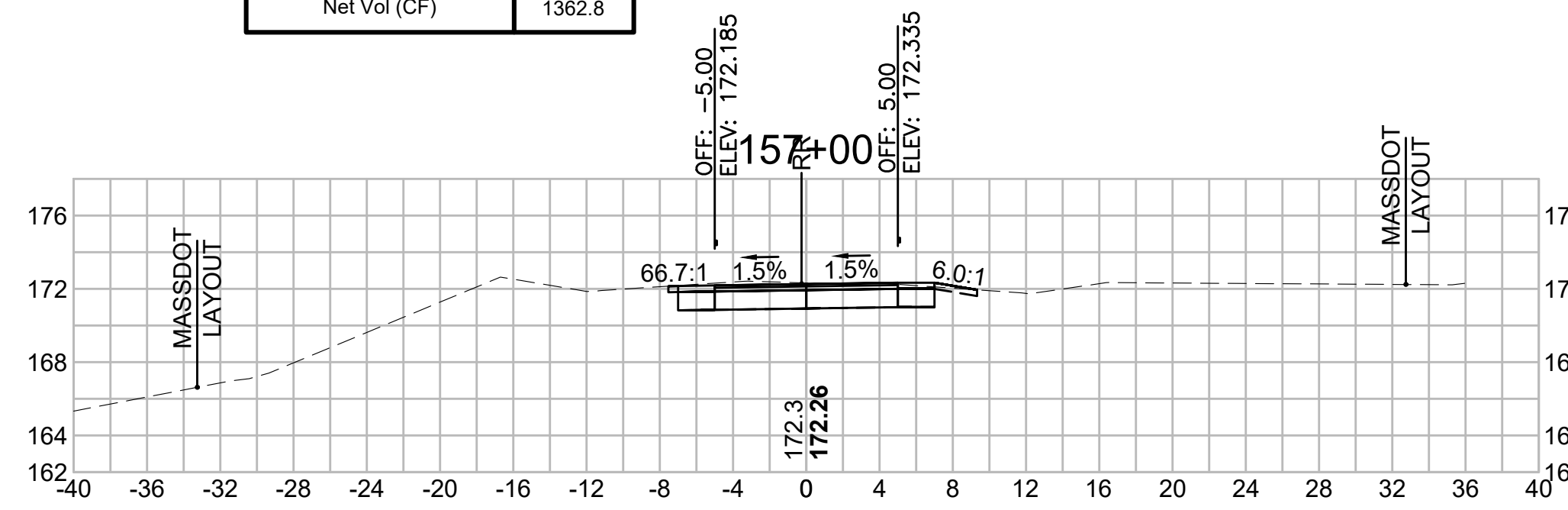
PROJECT FILE NO. 608164

CROSS SECTIONS

608164\_XSEC(CROSS SECTION LAYOUTS).DWG 12-May-2021

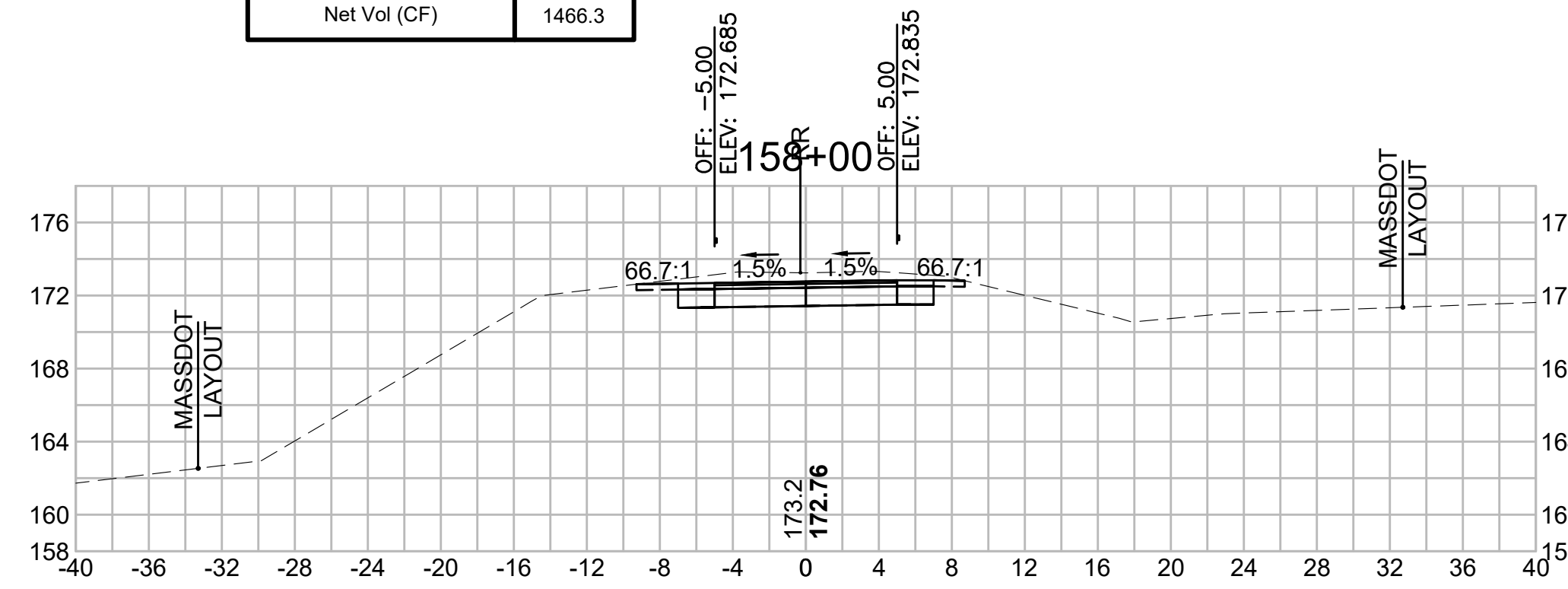
**Total Volume at Station 157+00.00**

Cut Area (SF)	24.992
Fill Area (SF)	0.000
Cut Vol (CF)	41.3
Fill Vol (CF)	0.5
Cum Cut Vol (CF)	3649.0
Cum Fill Vol (CF)	2286.2
Net Vol (CF)	1362.8



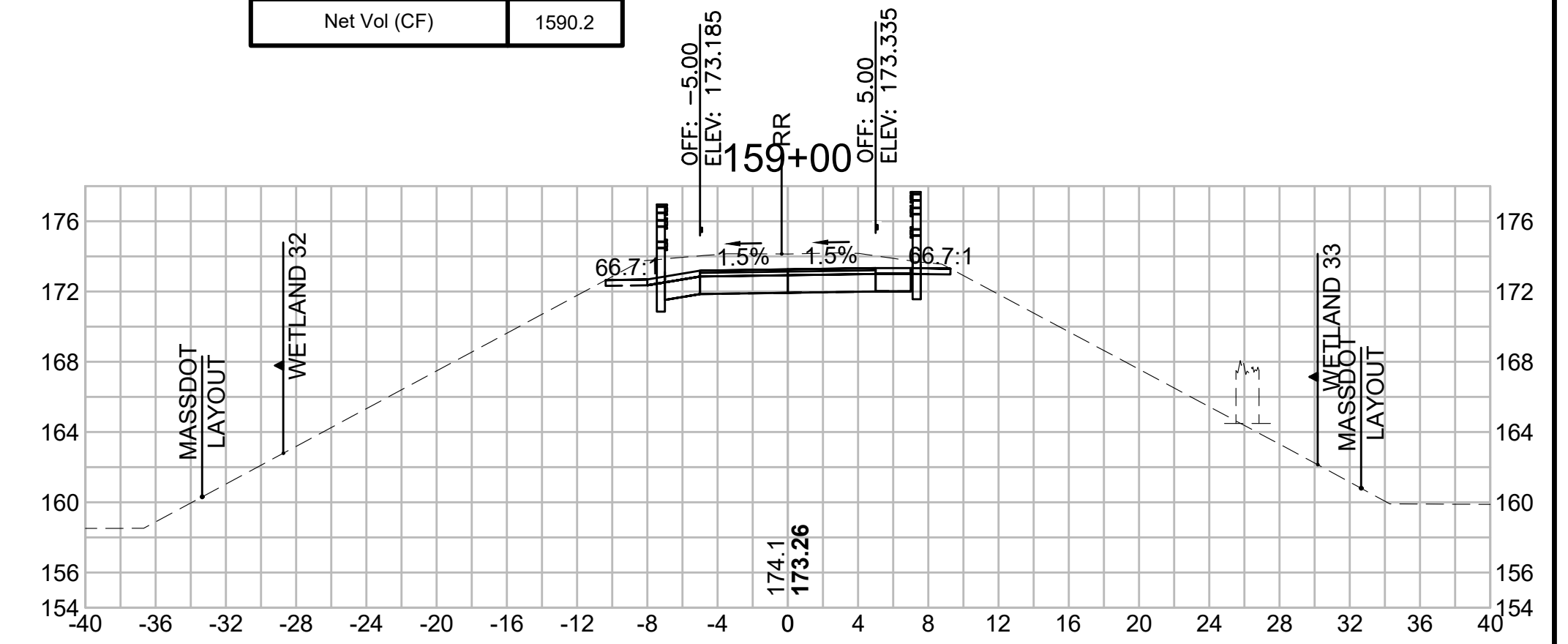
**Total Volume at Station 158+00.00**

Cut Area (SF)	28.031
Fill Area (SF)	0.000
Cut Vol (CF)	53.2
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	3752.5
Cum Fill Vol (CF)	2286.2
Net Vol (CF)	1466.3



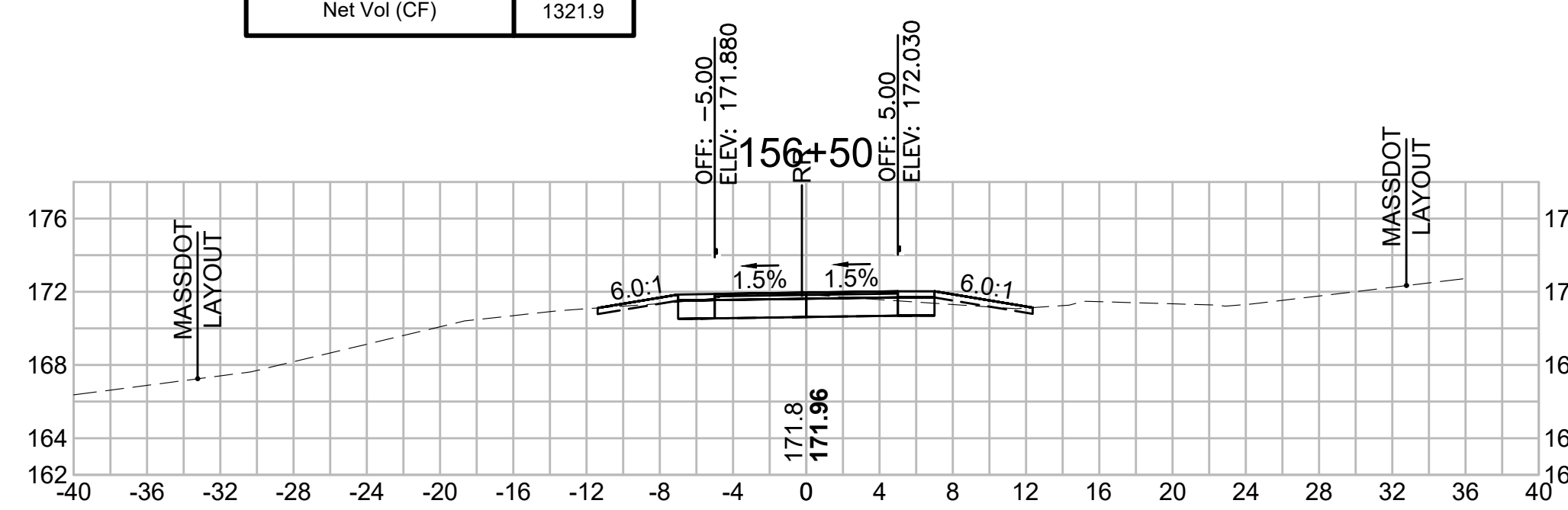
**Total Volume at Station 159+00.00**

Cut Area (SF)	35.419
Fill Area (SF)	0.000
Cut Vol (CF)	65.4
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	3876.4
Cum Fill Vol (CF)	2286.2
Net Vol (CF)	1590.2



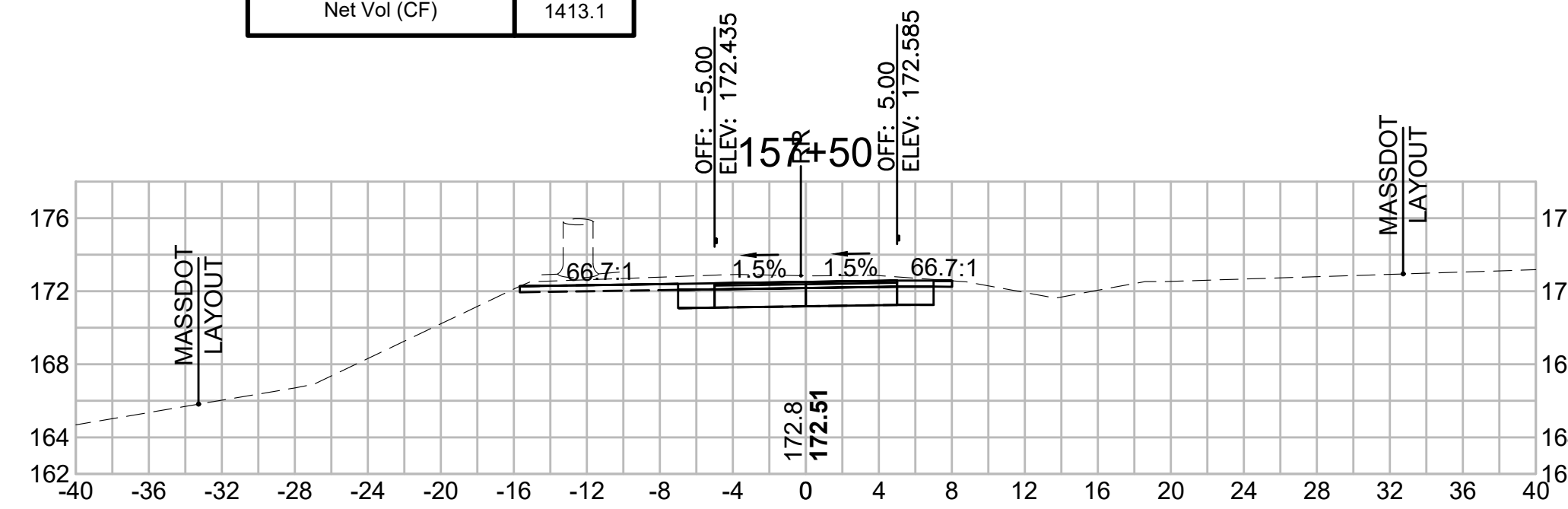
**Total Volume at Station 156+50.00**

Cut Area (SF)	19.620
Fill Area (SF)	0.543
Cut Vol (CF)	33.2
Fill Vol (CF)	1.2
Cum Cut Vol (CF)	3607.7
Cum Fill Vol (CF)	2285.7
Net Vol (CF)	1321.9



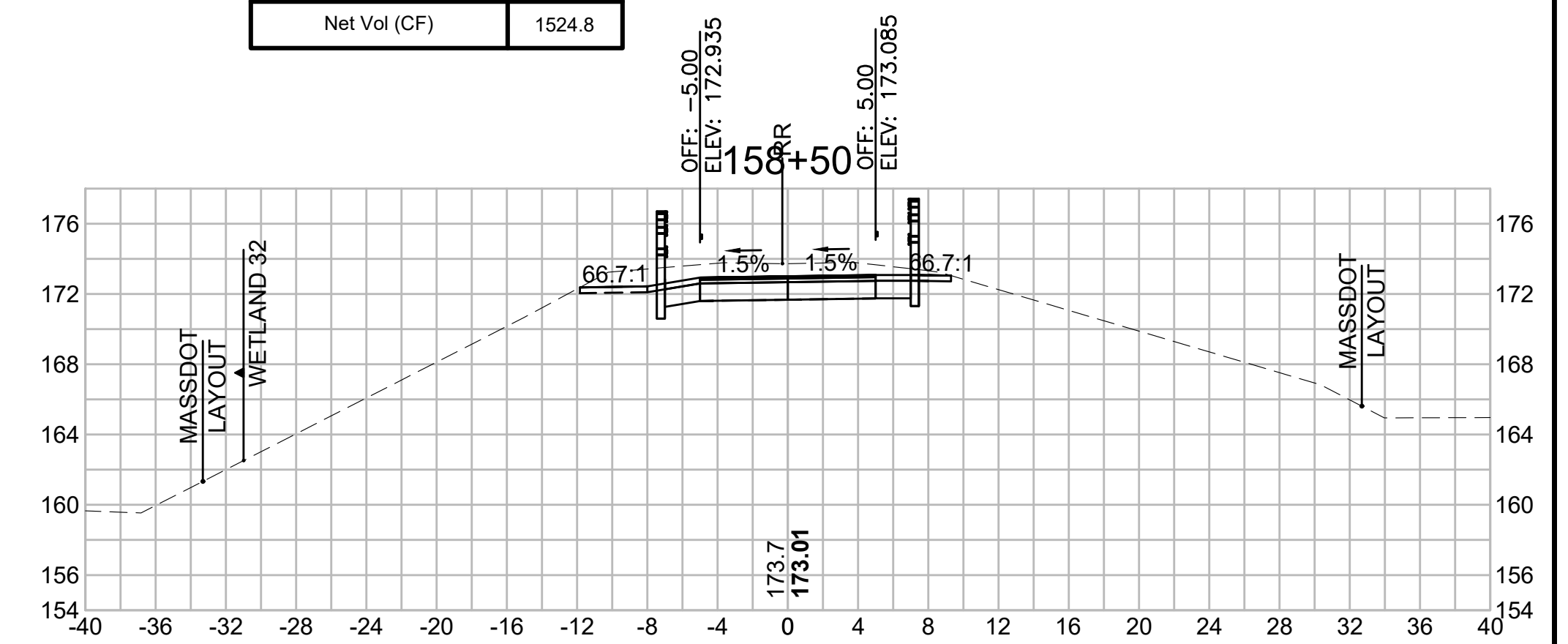
**Total Volume at Station 157+50.00**

Cut Area (SF)	29.380
Fill Area (SF)	0.000
Cut Vol (CF)	50.3
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	3699.3
Cum Fill Vol (CF)	2286.2
Net Vol (CF)	1413.1



**Total Volume at Station 158+50.00**

Cut Area (SF)	35.184
Fill Area (SF)	0.000
Cut Vol (CF)	58.5
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	3811.0
Cum Fill Vol (CF)	2286.2
Net Vol (CF)	1524.8



SUDBURY  
BRUCE FREEMAN RAIL TRAIL

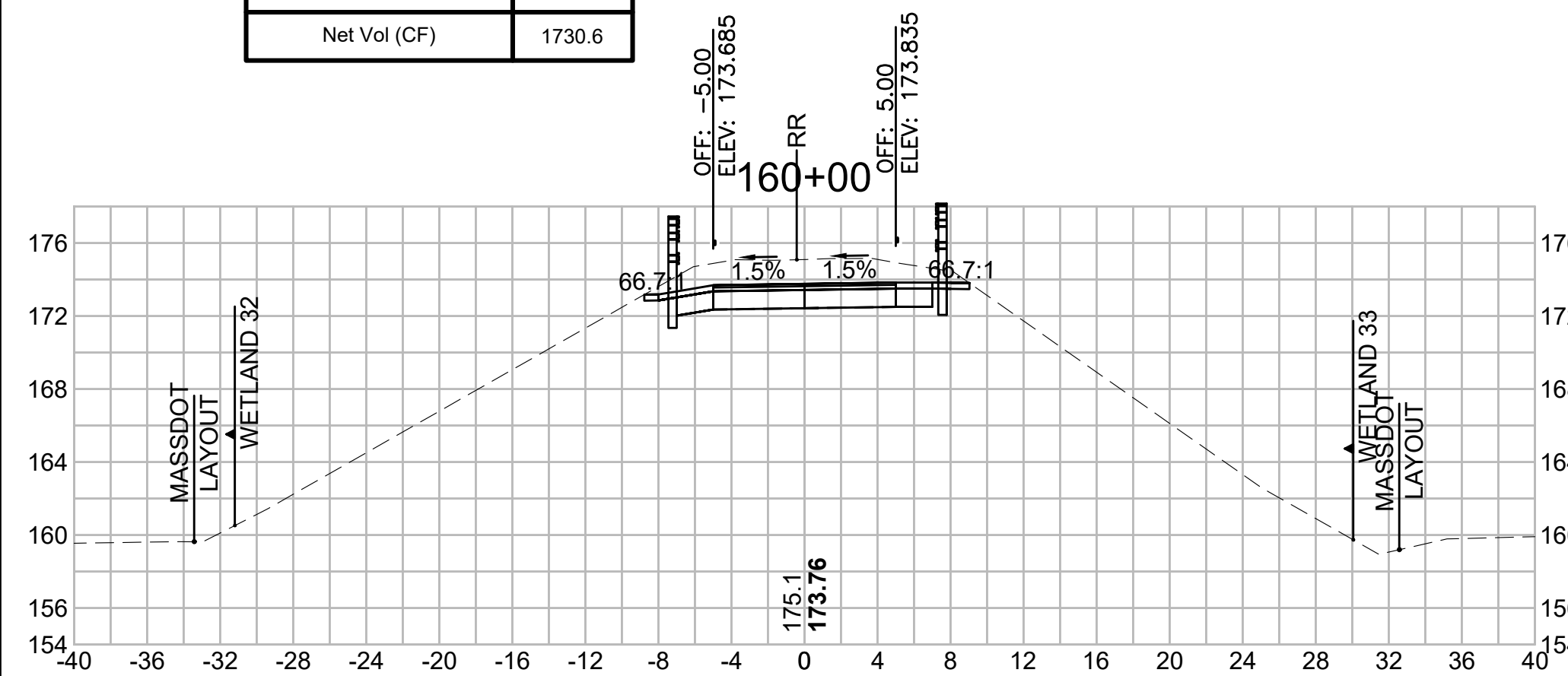
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	257	318

PROJECT FILE NO. 608164

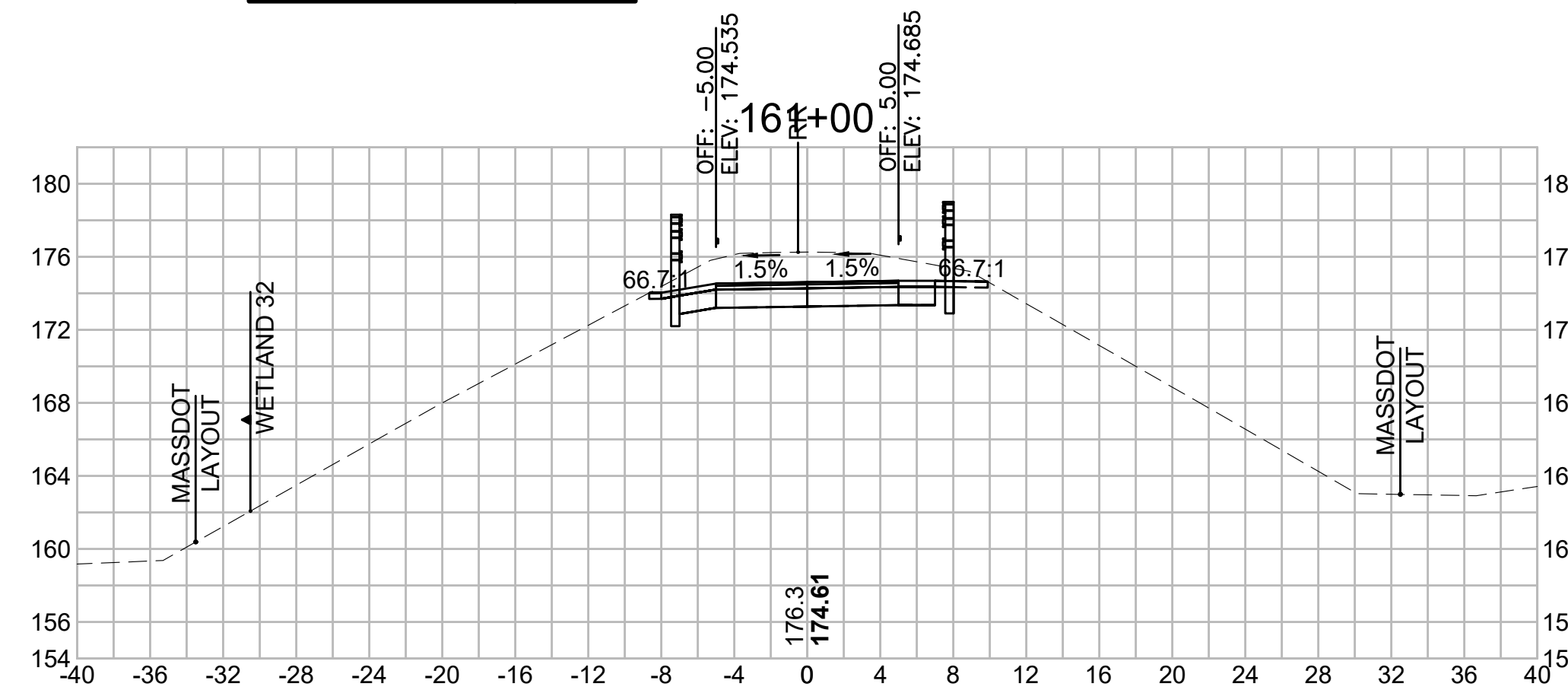
CROSS SECTIONS

608164\_XSEC(CROSS SECTION LAYOUTS).DWG 12-May-2021

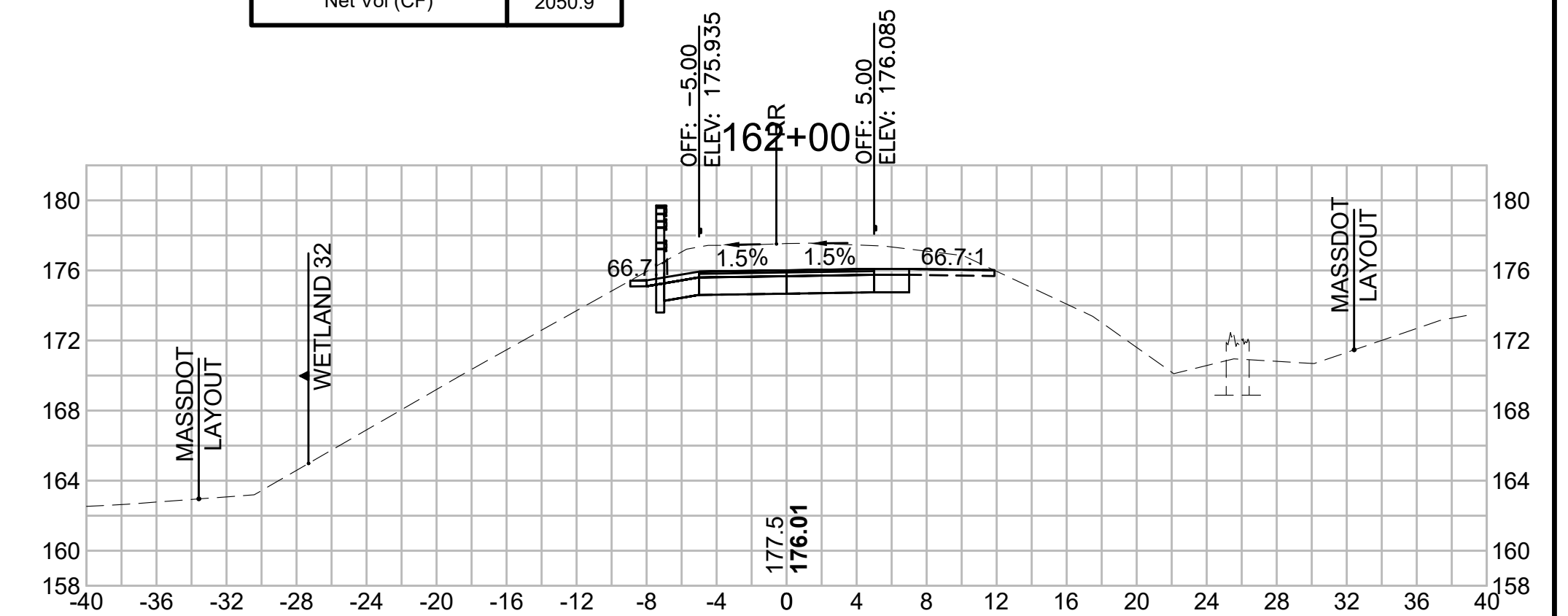
Total Volume at Station 160+00.00	
Cut Area (SF)	39.083
Fill Area (SF)	0.000
Cut Vol (CF)	71.9
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	4016.8
Cum Fill Vol (CF)	2286.2
Net Vol (CF)	1730.6



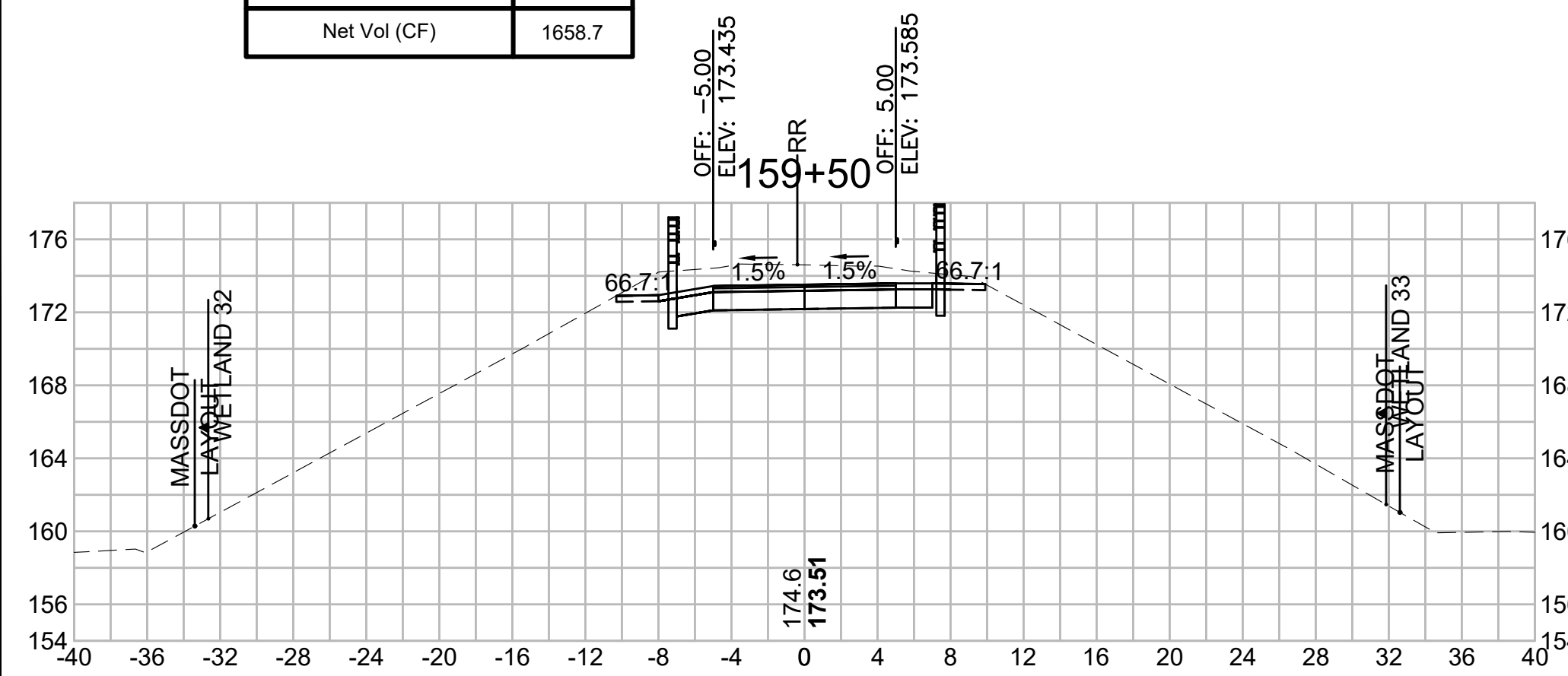
Total Volume at Station 161+00.00	
Cut Area (SF)	42.276
Fill Area (SF)	0.000
Cut Vol (CF)	76.3
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	4166.5
Cum Fill Vol (CF)	2286.2
Net Vol (CF)	1880.3



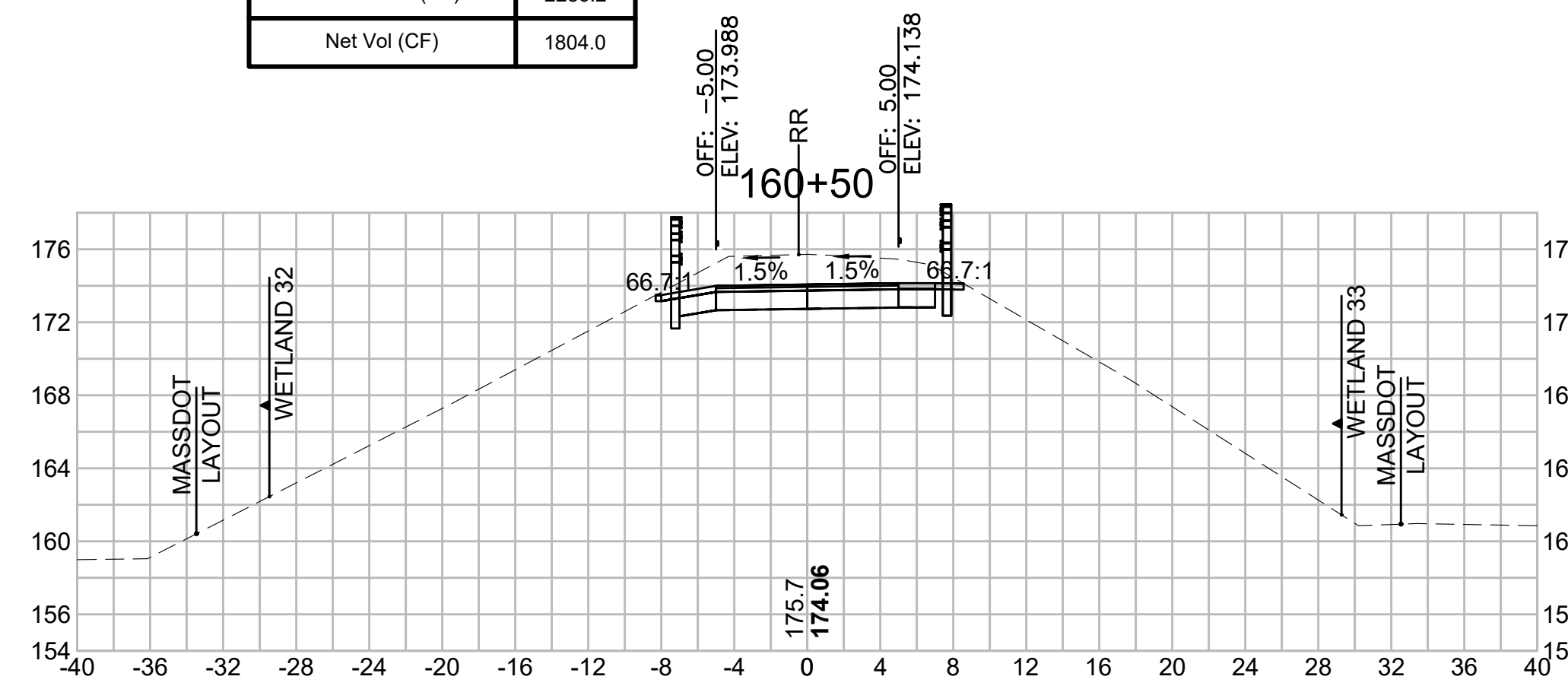
Total Volume at Station 162+00.00	
Cut Area (SF)	46.382
Fill Area (SF)	0.000
Cut Vol (CF)	87.2
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	4337.2
Cum Fill Vol (CF)	2286.2
Net Vol (CF)	2050.9



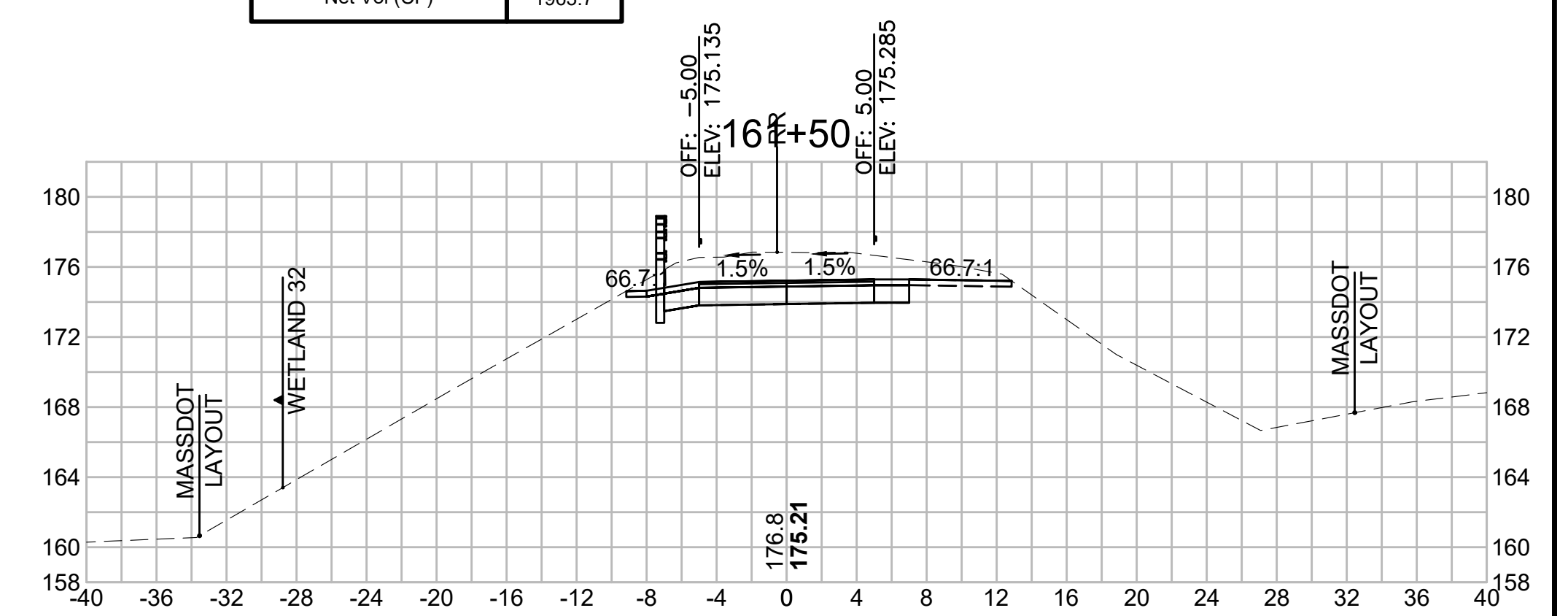
Total Volume at Station 159+50.00	
Cut Area (SF)	38.578
Fill Area (SF)	0.000
Cut Vol (CF)	68.5
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	3944.9
Cum Fill Vol (CF)	2286.2
Net Vol (CF)	1658.7



Total Volume at Station 160+50.00	
Cut Area (SF)	40.182
Fill Area (SF)	0.000
Cut Vol (CF)	73.4
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	4090.2
Cum Fill Vol (CF)	2286.2
Net Vol (CF)	1804.0



Total Volume at Station 161+50.00	
Cut Area (SF)	47.805
Fill Area (SF)	0.000
Cut Vol (CF)	83.4
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	4250.0
Cum Fill Vol (CF)	2286.2
Net Vol (CF)	1963.7



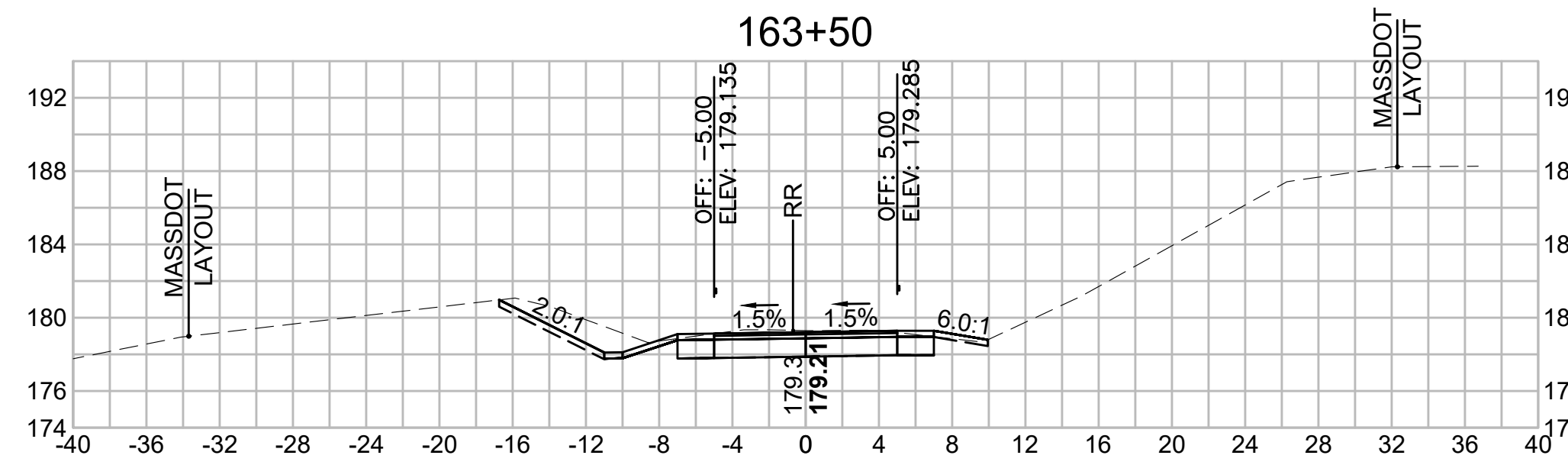
SUDBURY  
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	258	318

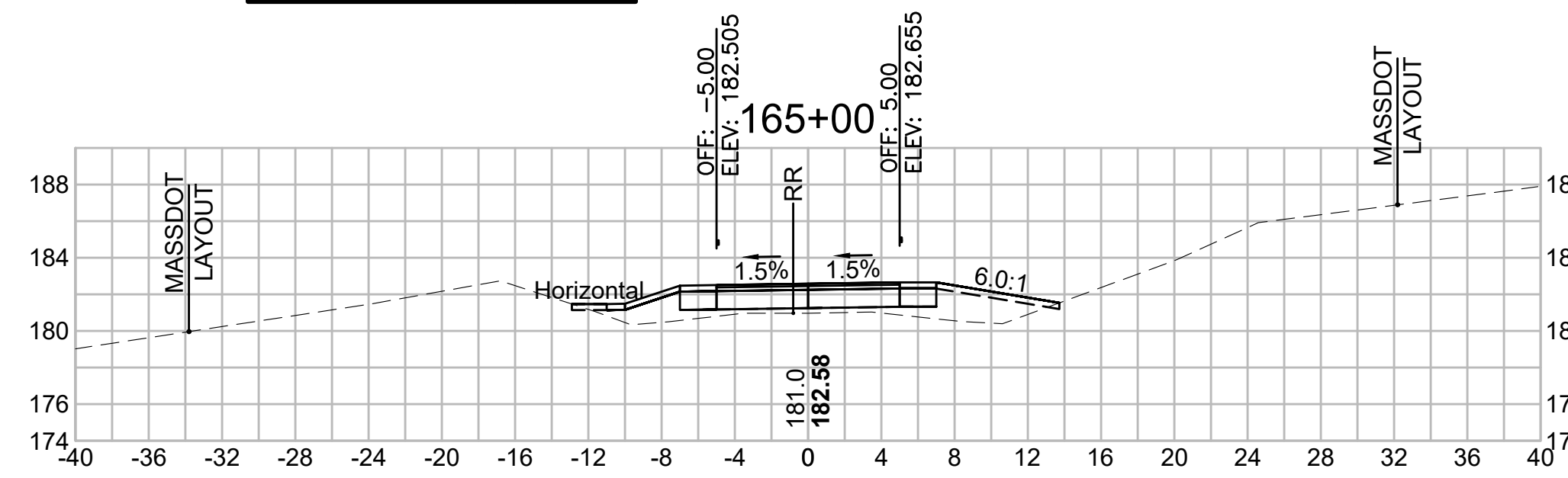
PROJECT FILE NO. 608164

CROSS SECTIONS

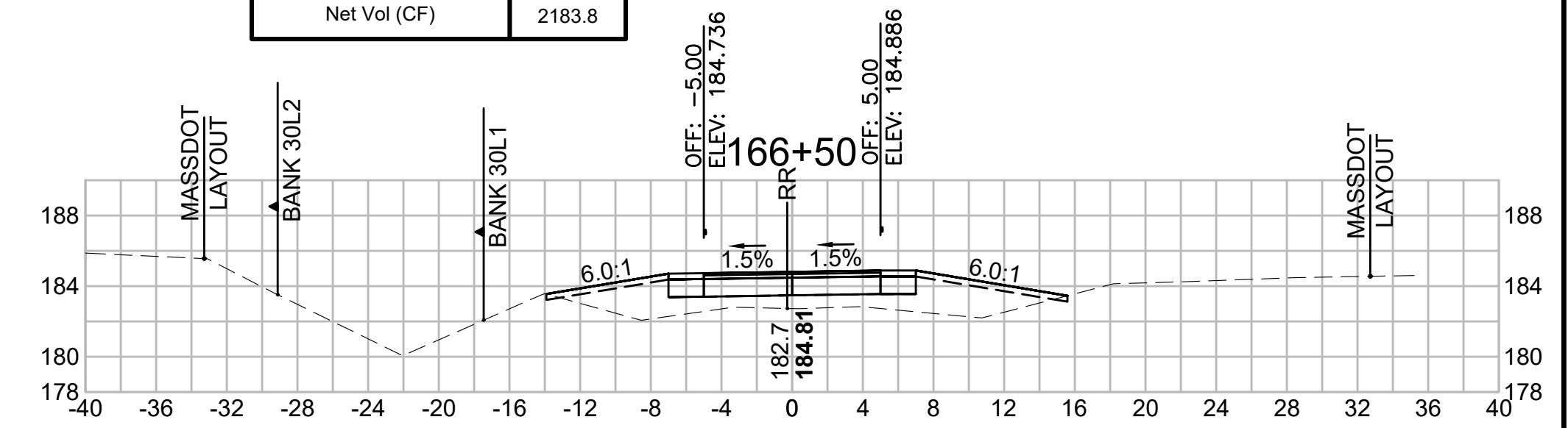
Total Volume at Station 163+50.00	
Cut Area (SF)	31.079
Fill Area (SF)	0.000
Cut Vol (CF)	66.5
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	4556.3
Cum Fill Vol (CF)	2288.2
Net Vol (CF)	2268.1



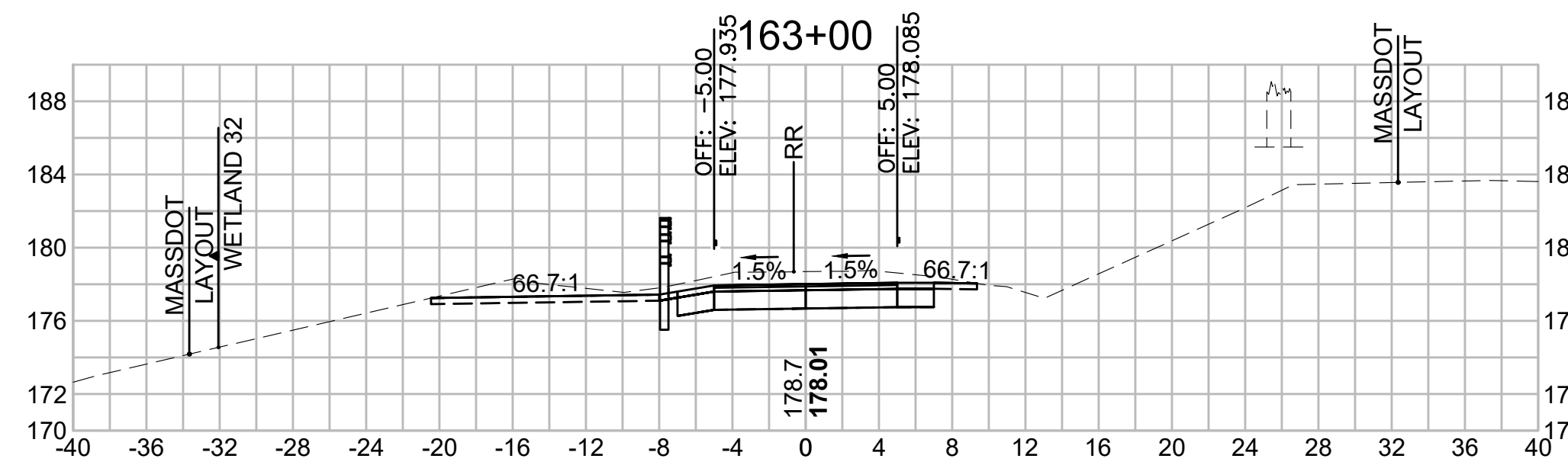
Total Volume at Station 165+00.00	
Cut Area (SF)	0.823
Fill Area (SF)	16,241
Cut Vol (CF)	7.1
Fill Vol (CF)	20.1
Cum Cut Vol (CF)	4632.9
Cum Fill Vol (CF)	2316.8
Net Vol (CF)	2316.1



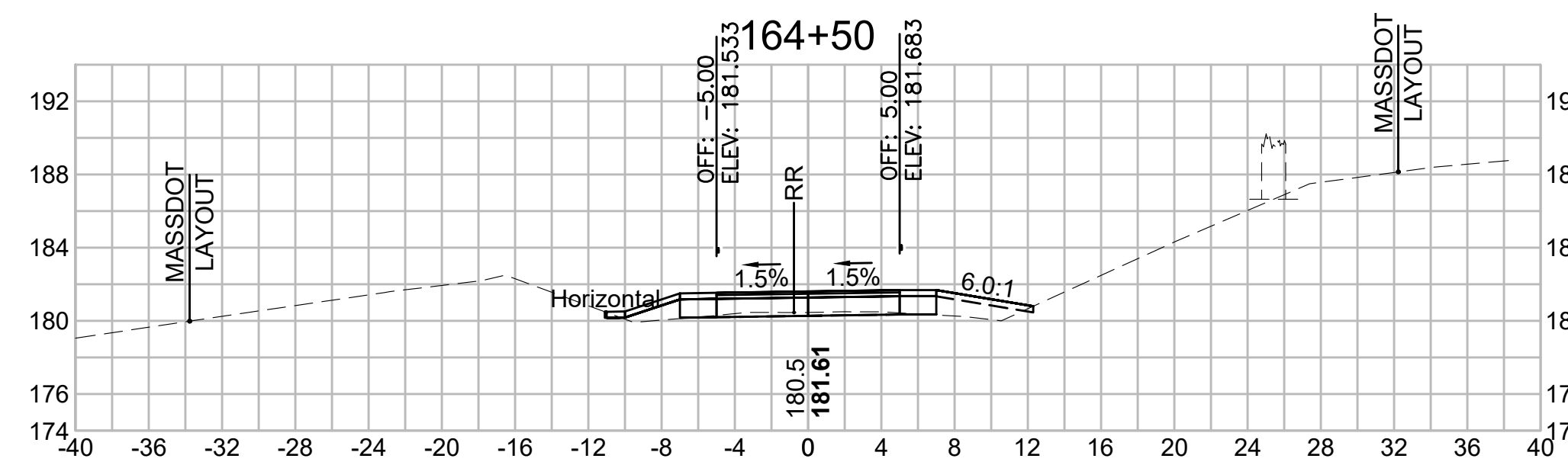
Total Volume at Station 166+50.00	
Cut Area (SF)	2,401
Fill Area (SF)	29,348
Cut Vol (CF)	2.5
Fill Vol (CF)	52.2
Cum Cut Vol (CF)	4636.9
Cum Fill Vol (CF)	2453.1
Net Vol (CF)	2183.8



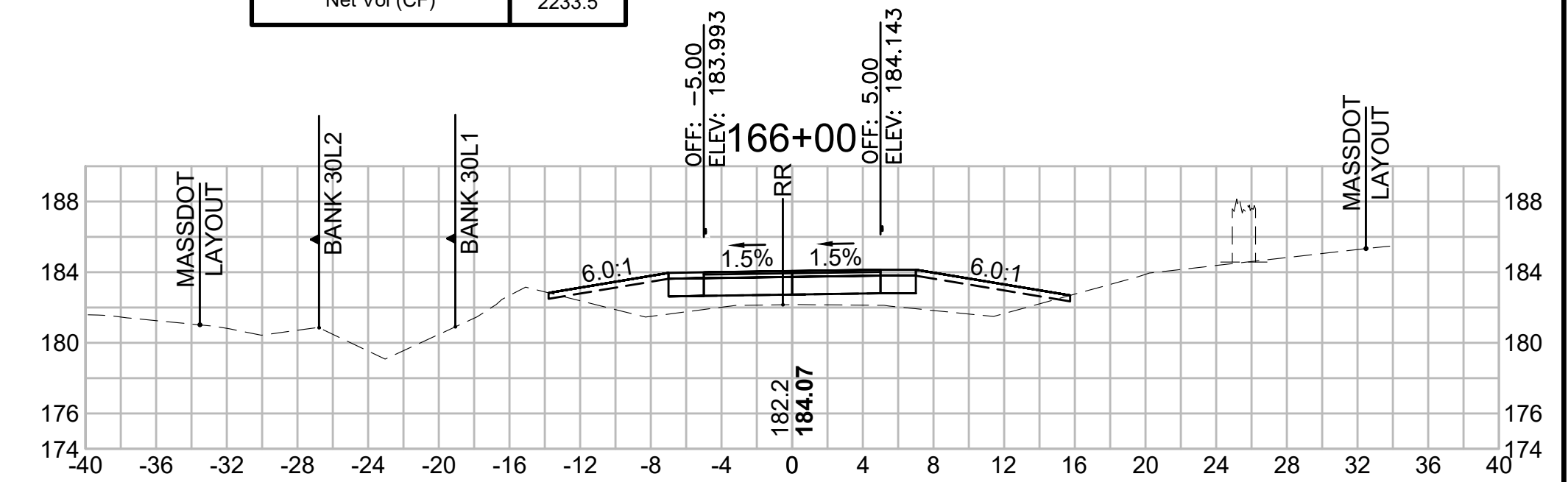
Total Volume at Station 163+00.00	
Cut Area (SF)	40,741
Fill Area (SF)	0.000
Cut Vol (CF)	73.7
Fill Vol (CF)	1.0
Cum Cut Vol (CF)	4489.8
Cum Fill Vol (CF)	2288.2
Net Vol (CF)	2201.6



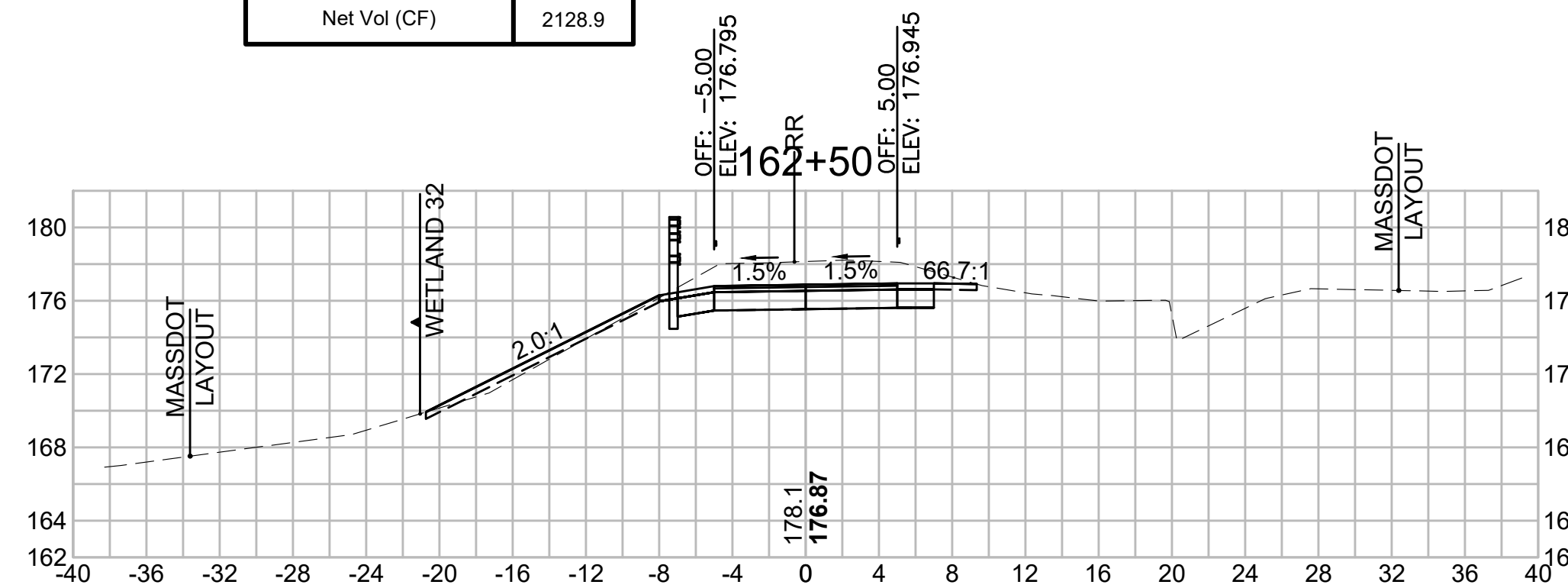
Total Volume at Station 164+50.00	
Cut Area (SF)	6,792
Fill Area (SF)	5,512
Cut Vol (CF)	23.5
Fill Vol (CF)	6.8
Cum Cut Vol (CF)	4625.9
Cum Fill Vol (CF)	2296.6
Net Vol (CF)	2329.2



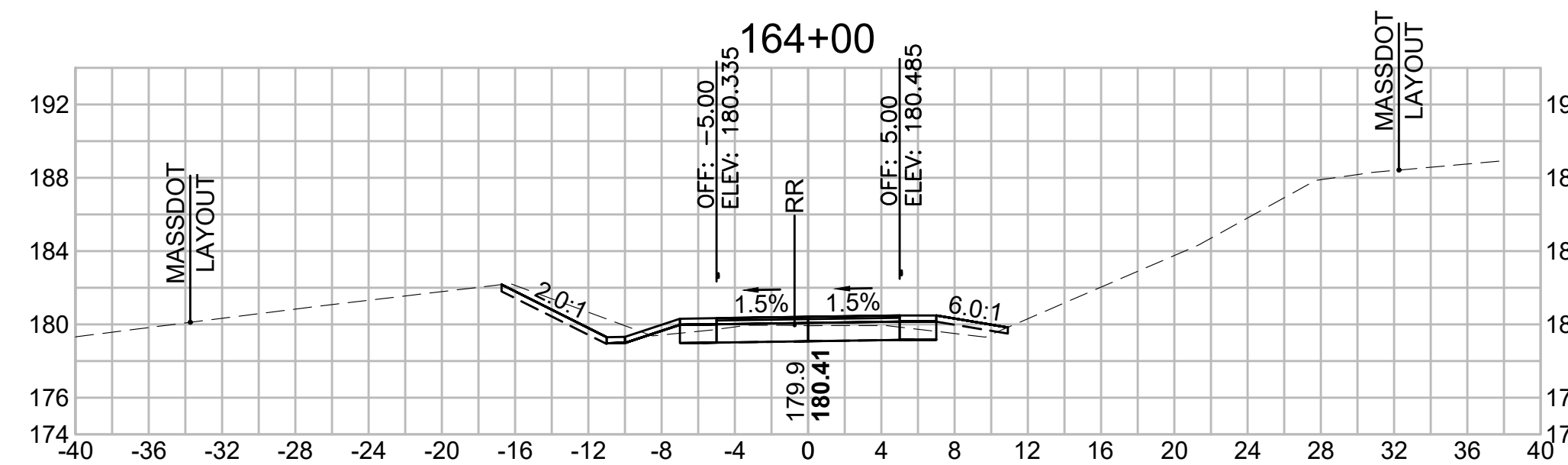
Total Volume at Station 166+00.00	
Cut Area (SF)	0,263
Fill Area (SF)	26,994
Cut Vol (CF)	0.5
Fill Vol (CF)	47.0
Cum Cut Vol (CF)	4634.4
Cum Fill Vol (CF)	2400.9
Net Vol (CF)	2233.5



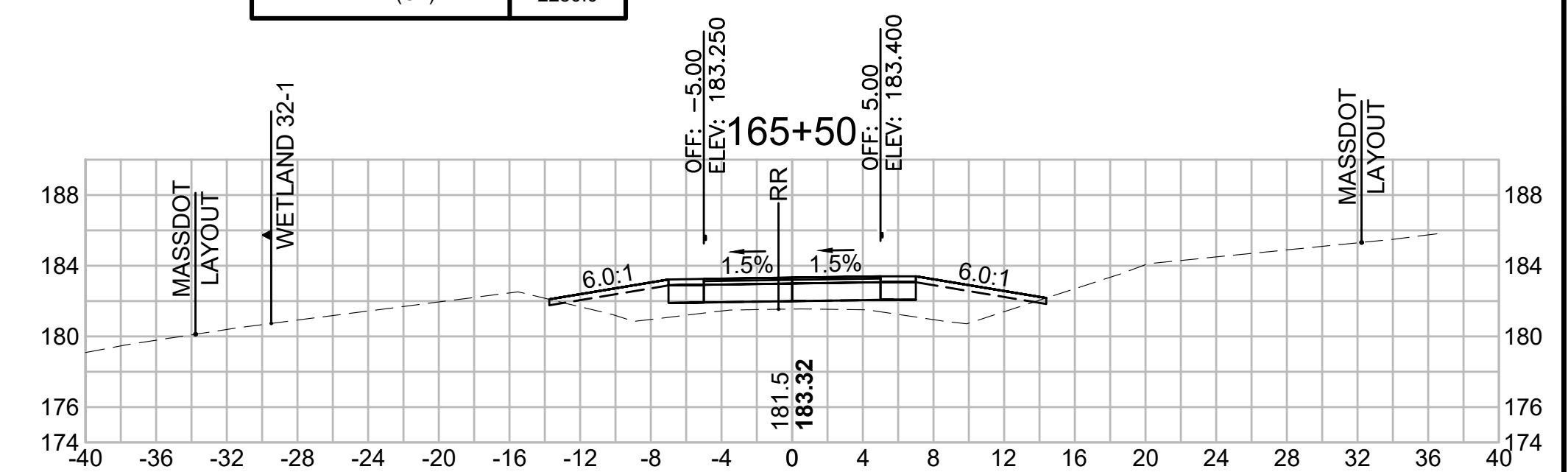
Total Volume at Station 162+50.00	
Cut Area (SF)	38,865
Fill Area (SF)	1,063
Cut Vol (CF)	78.9
Fill Vol (CF)	1.0
Cum Cut Vol (CF)	4416.1
Cum Fill Vol (CF)	2287.2
Net Vol (CF)	2128.9



Total Volume at Station 164+00.00	
Cut Area (SF)	18,630
Fill Area (SF)	1,805
Cut Vol (CF)	46.0
Fill Vol (CF)	1.7
Cum Cut Vol (CF)	4602.3
Cum Fill Vol (CF)	2289.9
Net Vol (CF)	2312.5



Total Volume at Station 165+50.00	
Cut Area (SF)	0,254
Fill Area (SF)	23,819
Cut Vol (CF)	1.0
Fill Vol (CF)	37.1
Cum Cut Vol (CF)	4633.9
Cum Fill Vol (CF)	2353.9
Net Vol (CF)	2280.0



SUDBURY  
BRUCE FREEMAN RAIL TRAIL

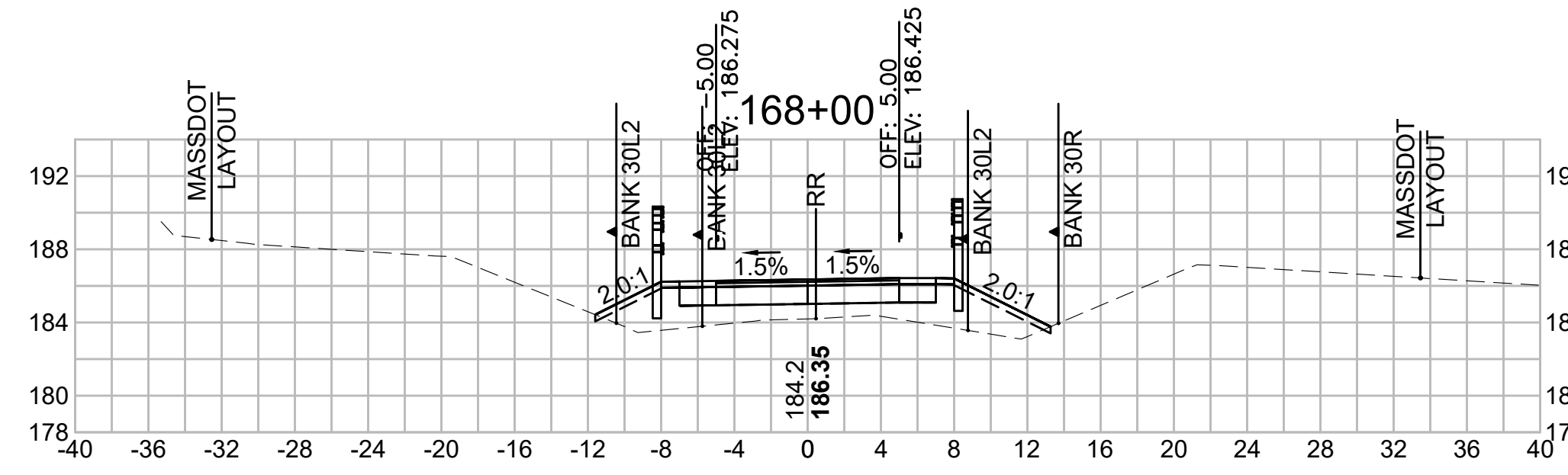
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	259	318

PROJECT FILE NO. 608164

CROSS SECTIONS

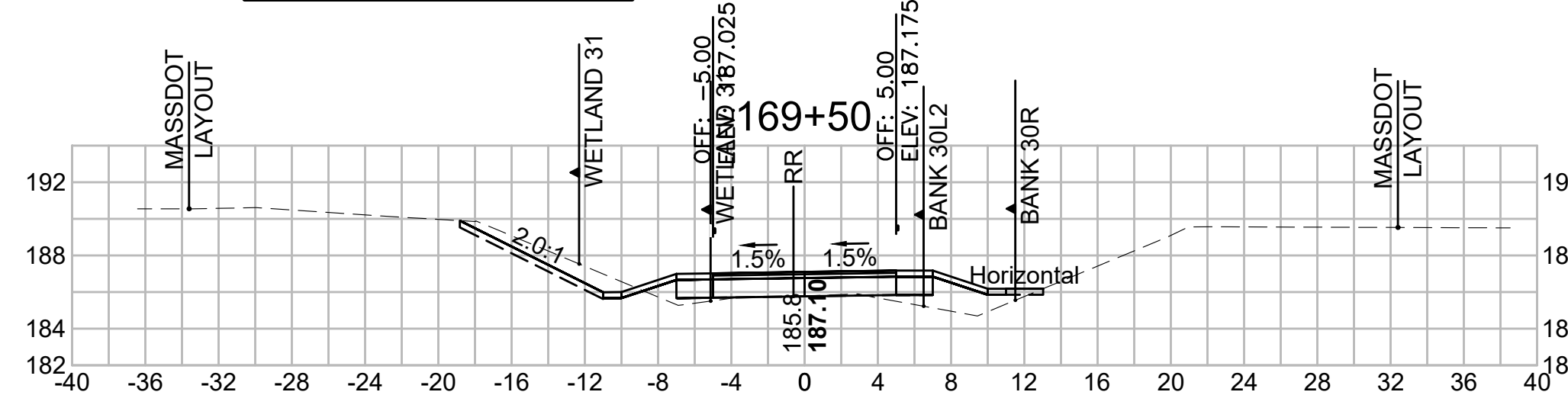
**Total Volume at Station 168+00.00**

Cut Area (SF)	1.753
Fill Area (SF)	28.680
Cut Vol (CF)	10.6
Fill Vol (CF)	58.8
Cum Cut Vol (CF)	4667.9
Cum Fill Vol (CF)	2624.2
Net Vol (CF)	2043.6



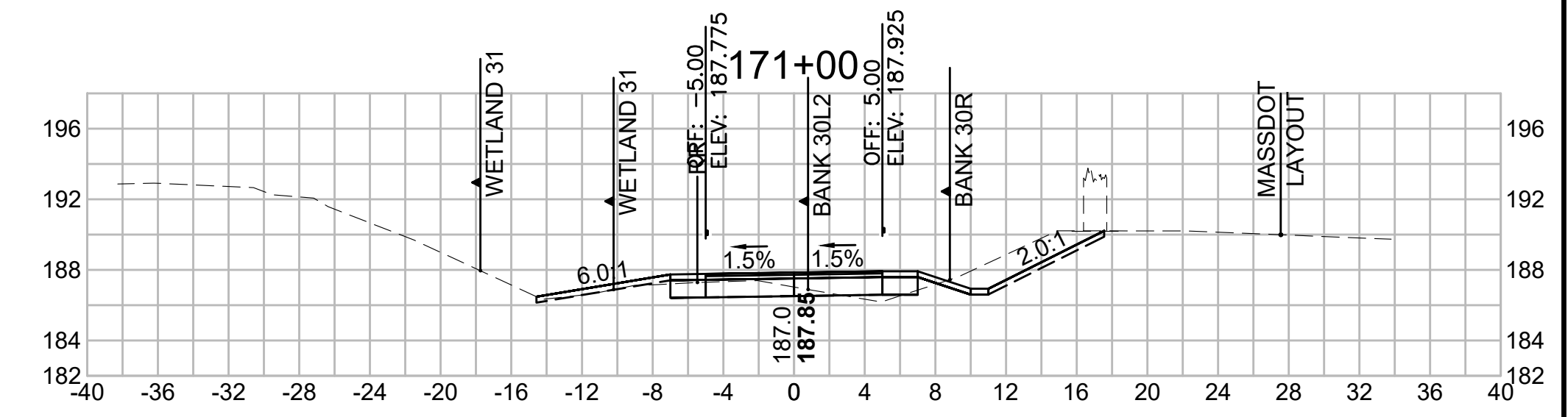
**Total Volume at Station 169+50.00**

Cut Area (SF)	10.732
Fill Area (SF)	8.648
Cut Vol (CF)	14.3
Fill Vol (CF)	22.6
Cum Cut Vol (CF)	4688.7
Cum Fill Vol (CF)	2745.2
Net Vol (CF)	1943.5



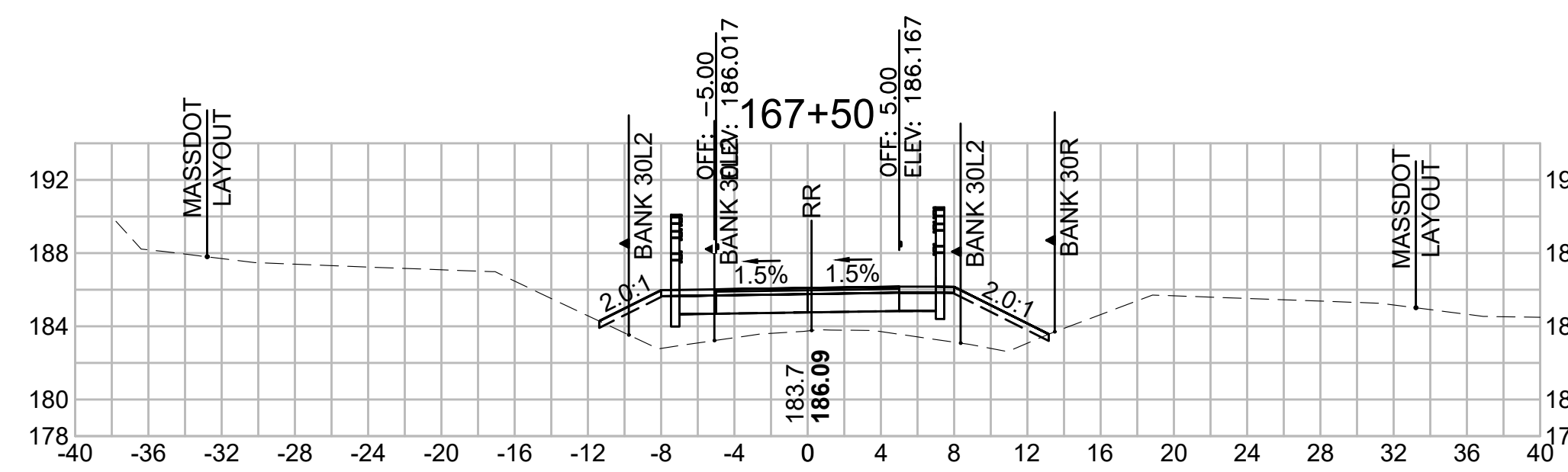
**Total Volume at Station 171+00.00**

Cut Area (SF)	19.179
Fill Area (SF)	1.323
Cut Vol (CF)	30.6
Fill Vol (CF)	6.6
Cum Cut Vol (CF)	4760.6
Cum Fill Vol (CF)	2781.9
Net Vol (CF)	1978.7



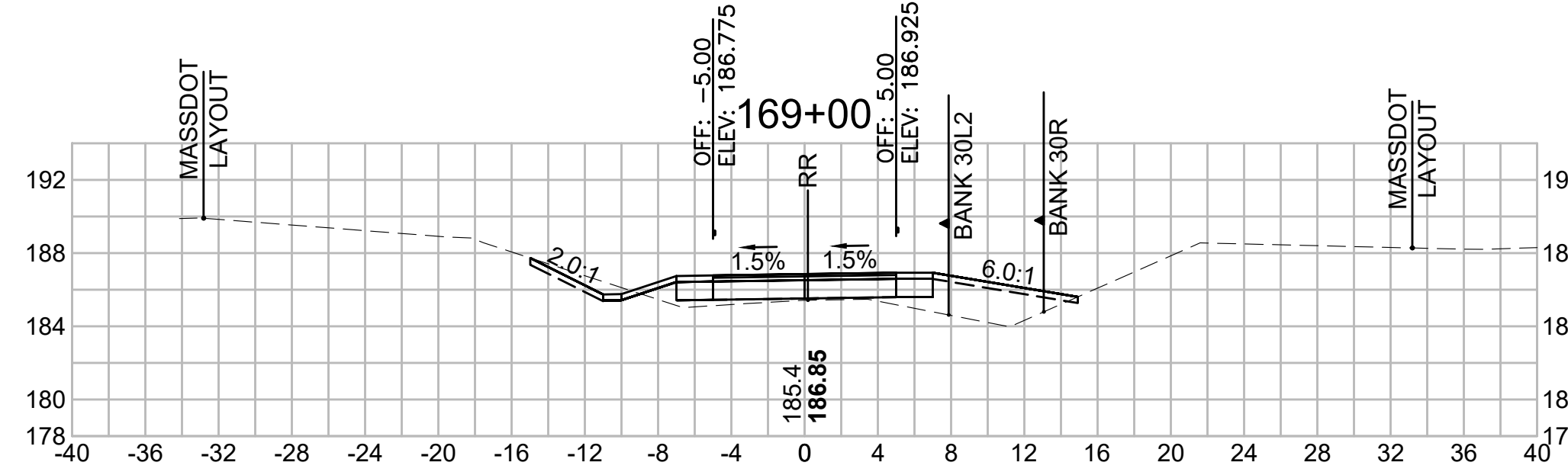
**Total Volume at Station 167+50.00**

Cut Area (SF)	9.708
Fill Area (SF)	34.842
Cut Vol (CF)	13.6
Fill Vol (CF)	58.7
Cum Cut Vol (CF)	4657.2
Cum Fill Vol (CF)	2565.4
Net Vol (CF)	2091.8



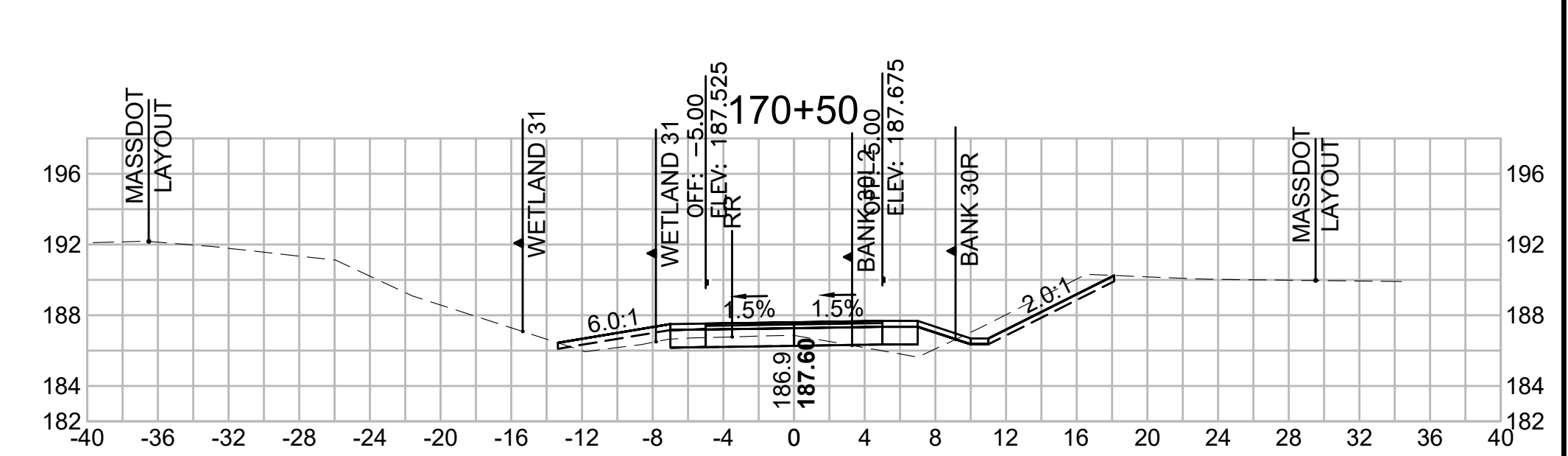
**Total Volume at Station 169+00.00**

Cut Area (SF)	4.696
Fill Area (SF)	15.803
Cut Vol (CF)	4.6
Fill Vol (CF)	43.2
Cum Cut Vol (CF)	4674.4
Cum Fill Vol (CF)	2722.5
Net Vol (CF)	1951.9



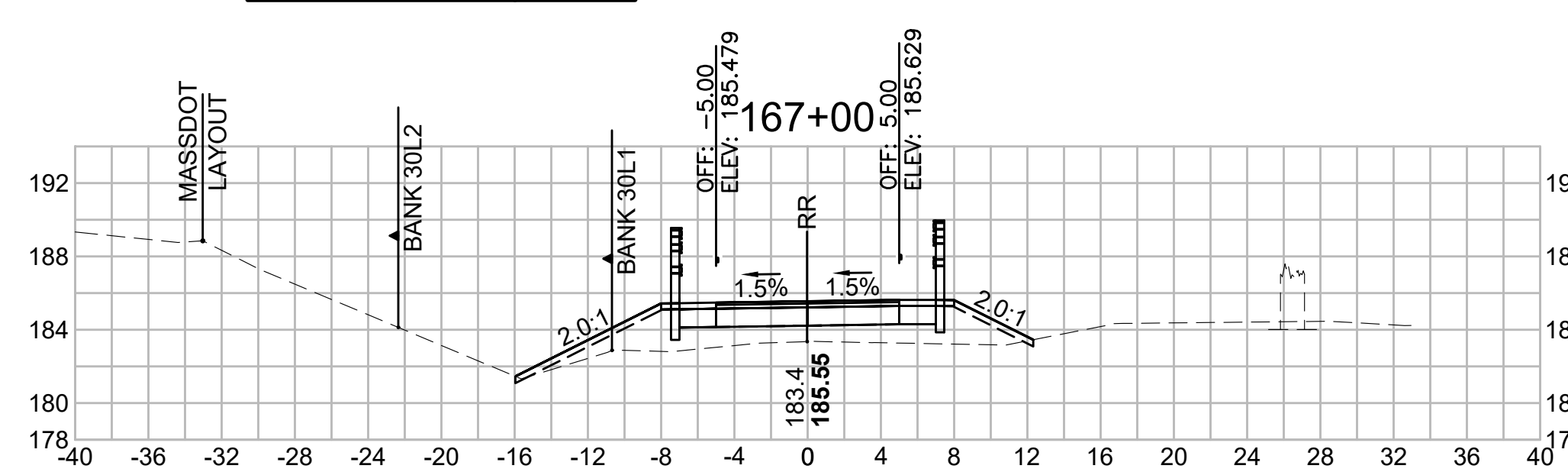
**Total Volume at Station 170+50.00**

Cut Area (SF)	13.832
Fill Area (SF)	5.840
Cut Vol (CF)	22.1
Fill Vol (CF)	13.8
Cum Cut Vol (CF)	4730.0
Cum Fill Vol (CF)	2775.3
Net Vol (CF)	1954.8



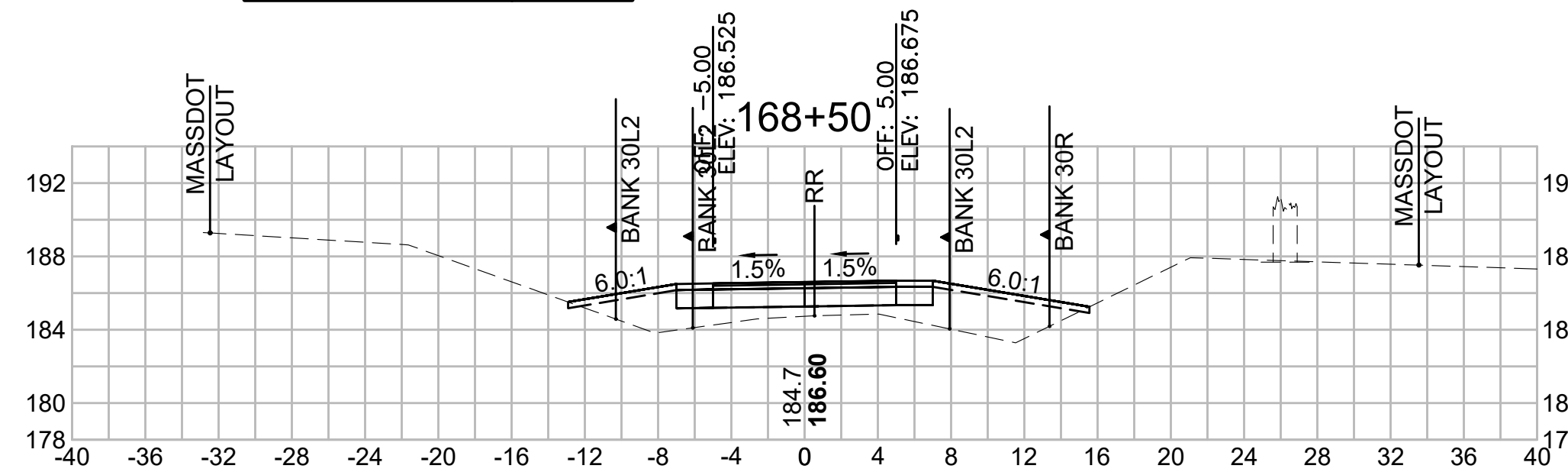
**Total Volume at Station 167+00.00**

Cut Area (SF)	4.951
Fill Area (SF)	28.554
Cut Vol (CF)	6.8
Fill Vol (CF)	53.6
Cum Cut Vol (CF)	4643.7
Cum Fill Vol (CF)	2506.7
Net Vol (CF)	2137.0



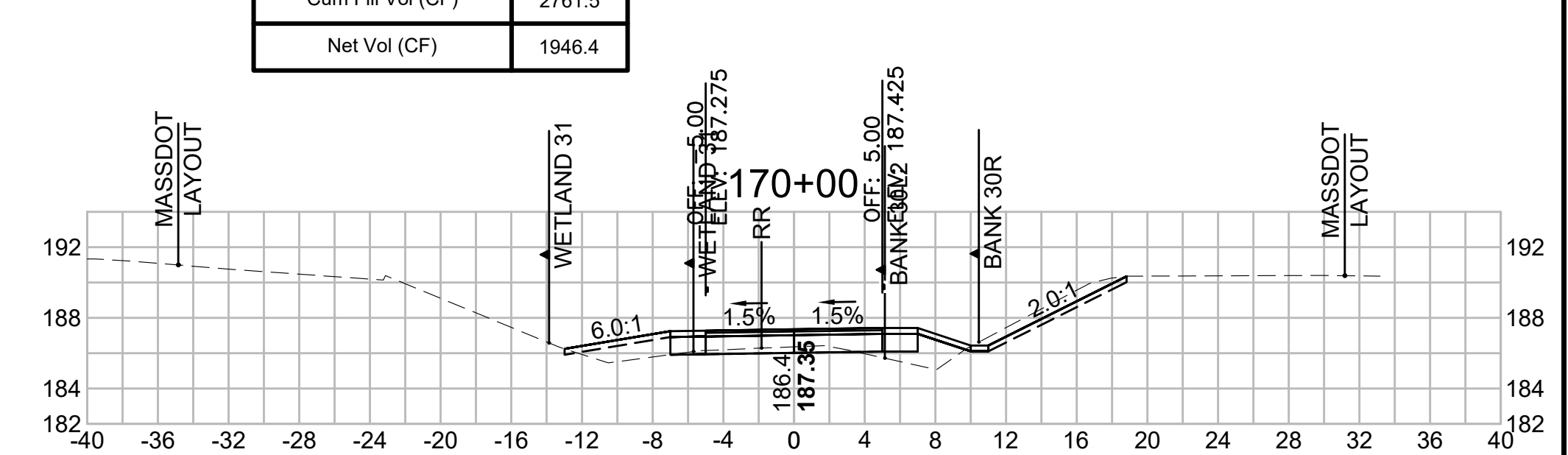
**Total Volume at Station 168+50.00**

Cut Area (SF)	0.290
Fill Area (SF)	30.838
Cut Vol (CF)	1.9
Fill Vol (CF)	55.1
Cum Cut Vol (CF)	4669.8
Cum Fill Vol (CF)	2679.3
Net Vol (CF)	1990.4



**Total Volume at Station 170+00.00**

Cut Area (SF)	10.063
Fill Area (SF)	9.015
Cut Vol (CF)	19.3
Fill Vol (CF)	16.4
Cum Cut Vol (CF)	4707.9
Cum Fill Vol (CF)	2761.5
Net Vol (CF)	1946.4



SUDBURY  
BRUCE FREEMAN RAIL TRAIL

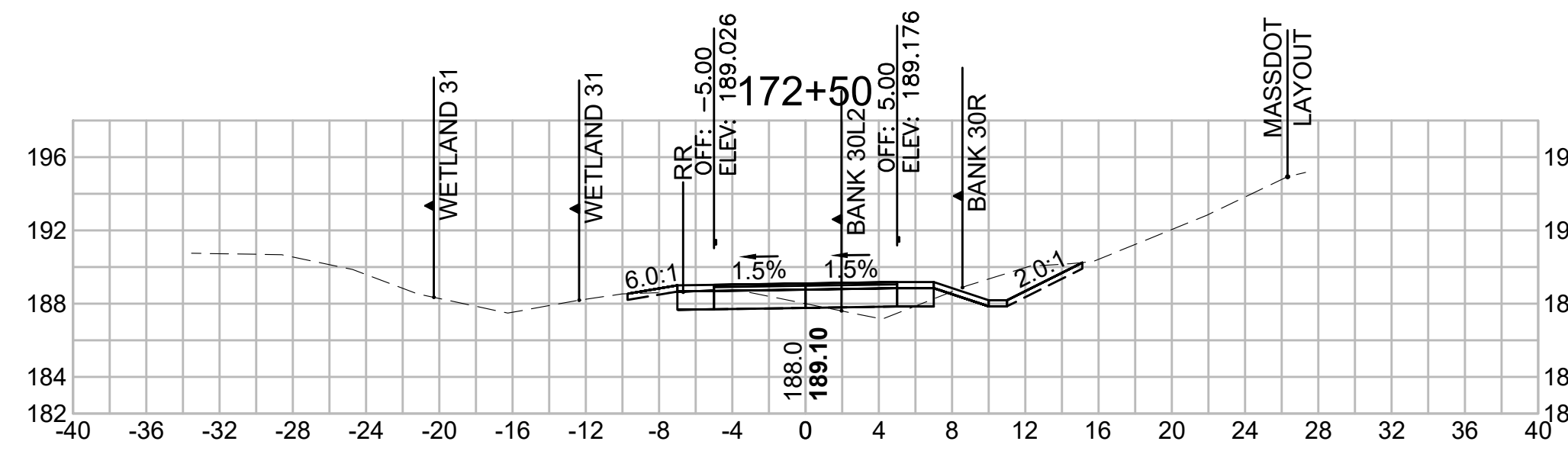
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	260	318

PROJECT FILE NO. 608164

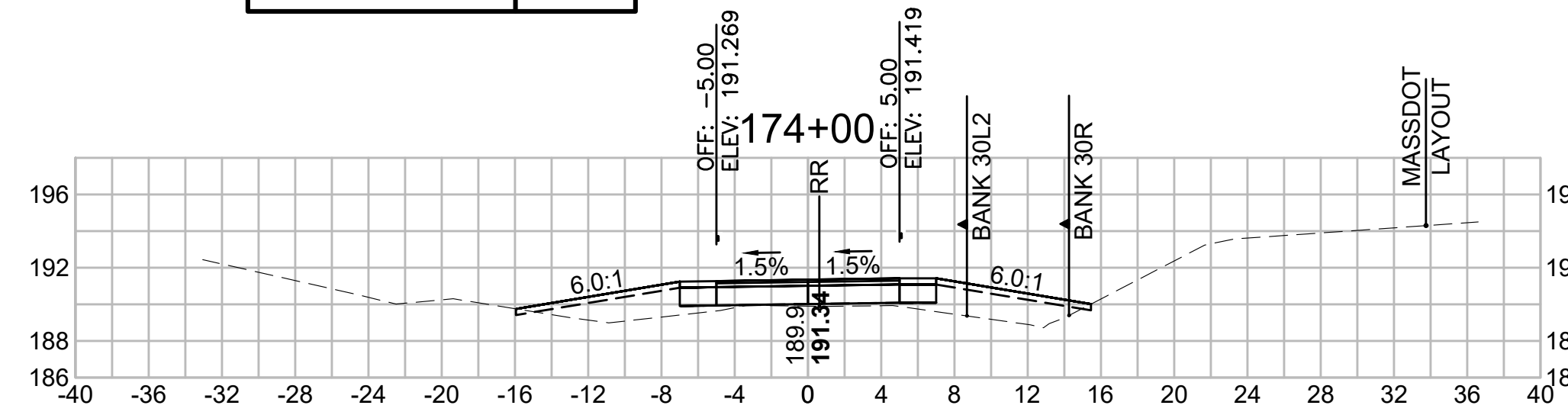
CROSS SECTIONS

608164\_XSEC(CROSS SECTION LAYOUTS).DWG 12-May-2021

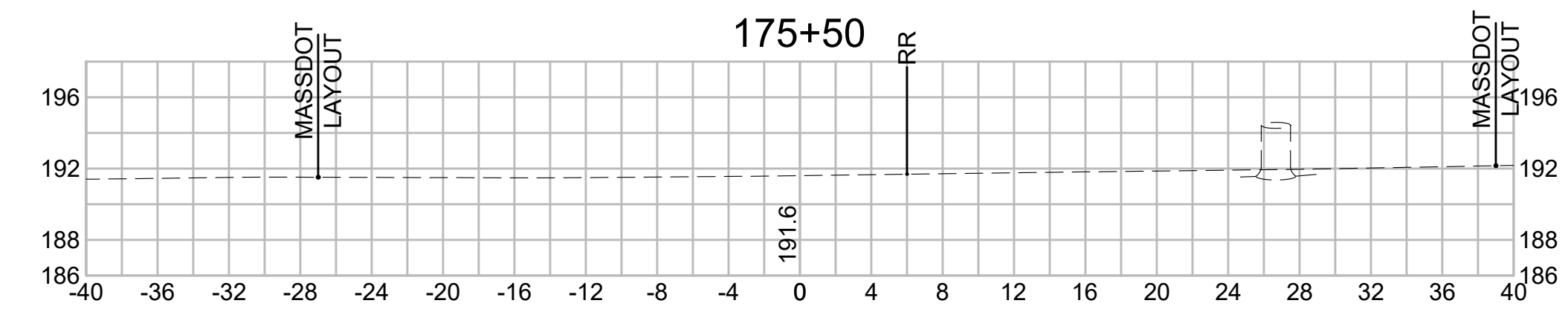
Total Volume at Station 172+50.00	
Cut Area (SF)	17.059
Fill Area (SF)	1.893
Cut Vol (CF)	35.3
Fill Vol (CF)	2.4
Cum Cut Vol (CF)	4875.8
Cum Fill Vol (CF)	2788.2
Net Vol (CF)	2087.6



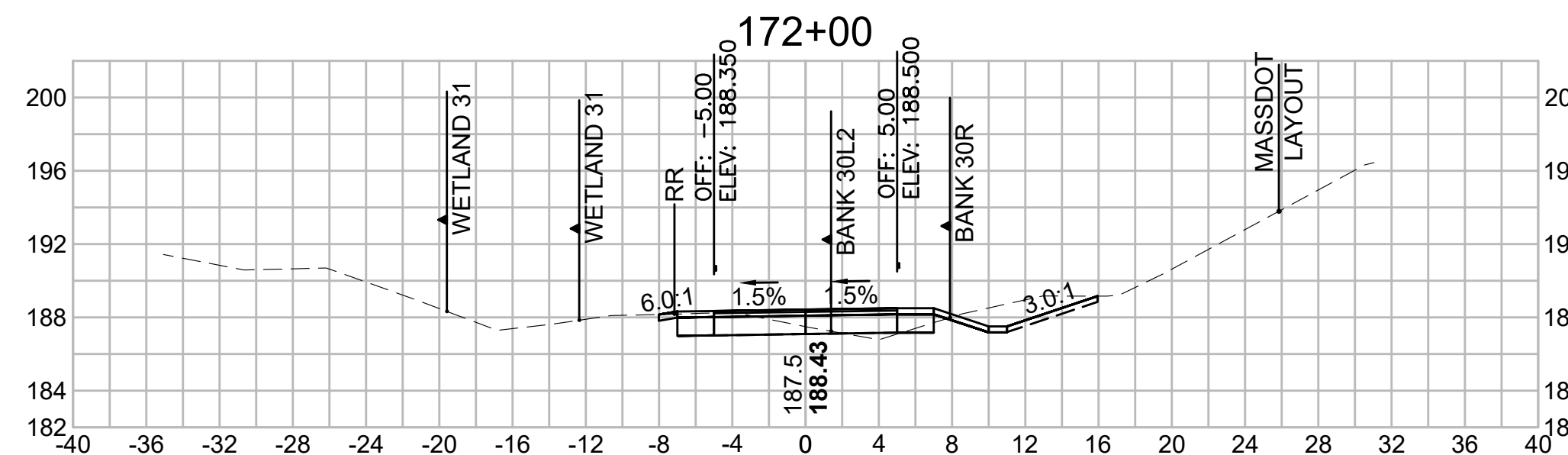
Total Volume at Station 174+00.00	
Cut Area (SF)	18.430
Fill Area (SF)	20.356
Cut Vol (CF)	22.4
Fill Vol (CF)	30.7
Cum Cut Vol (CF)	4934.2
Cum Fill Vol (CF)	2844.2
Net Vol (CF)	2090.0



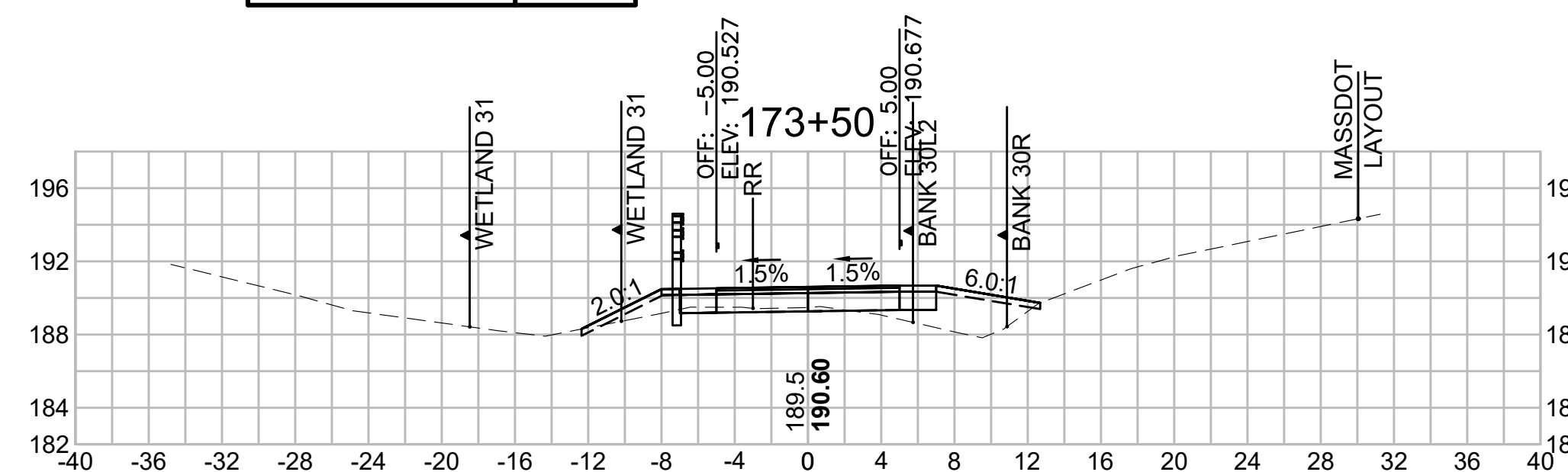
Total Volume at Station 175+50.00	
Cut Area (SF)	53.884
Fill Area (SF)	0.000
Cut Vol (CF)	97.6
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	5147.7
Cum Fill Vol (CF)	2869.4
Net Vol (CF)	2278.3



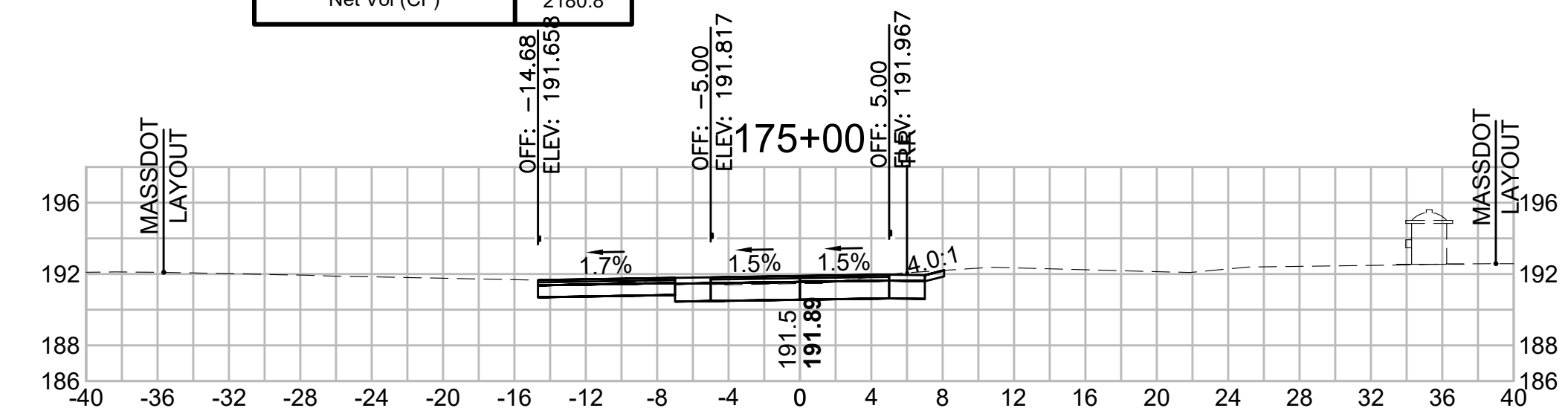
Total Volume at Station 172+00.00	
Cut Area (SF)	21.079
Fill Area (SF)	0.749
Cut Vol (CF)	40.8
Fill Vol (CF)	1.7
Cum Cut Vol (CF)	4840.5
Cum Fill Vol (CF)	2785.8
Net Vol (CF)	2054.7



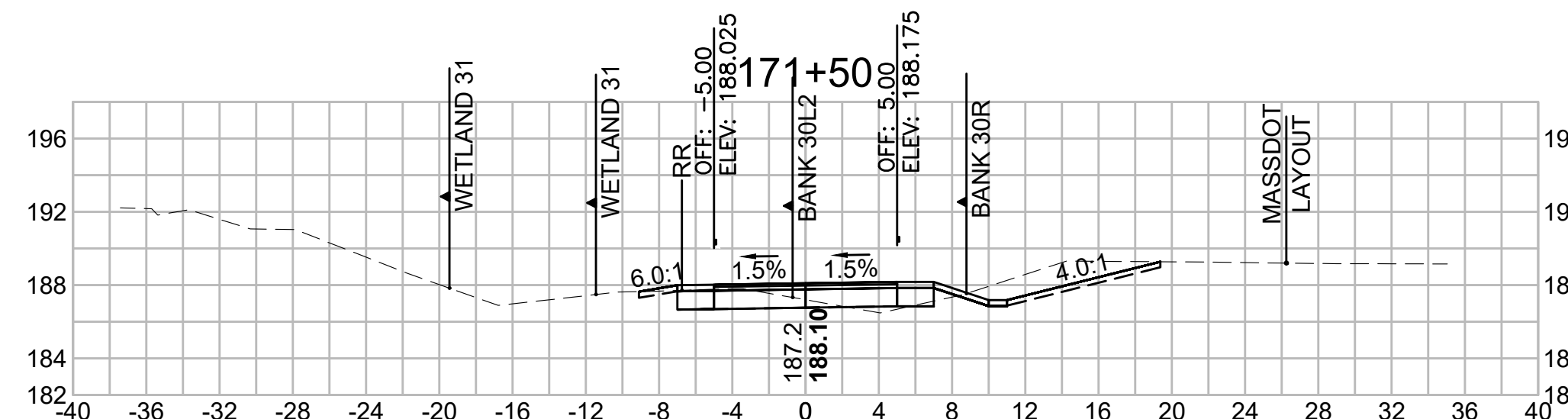
Total Volume at Station 173+50.00	
Cut Area (SF)	5.720
Fill Area (SF)	12.803
Cut Vol (CF)	12.8
Fill Vol (CF)	17.7
Cum Cut Vol (CF)	4911.8
Cum Fill Vol (CF)	2813.5
Net Vol (CF)	2098.4



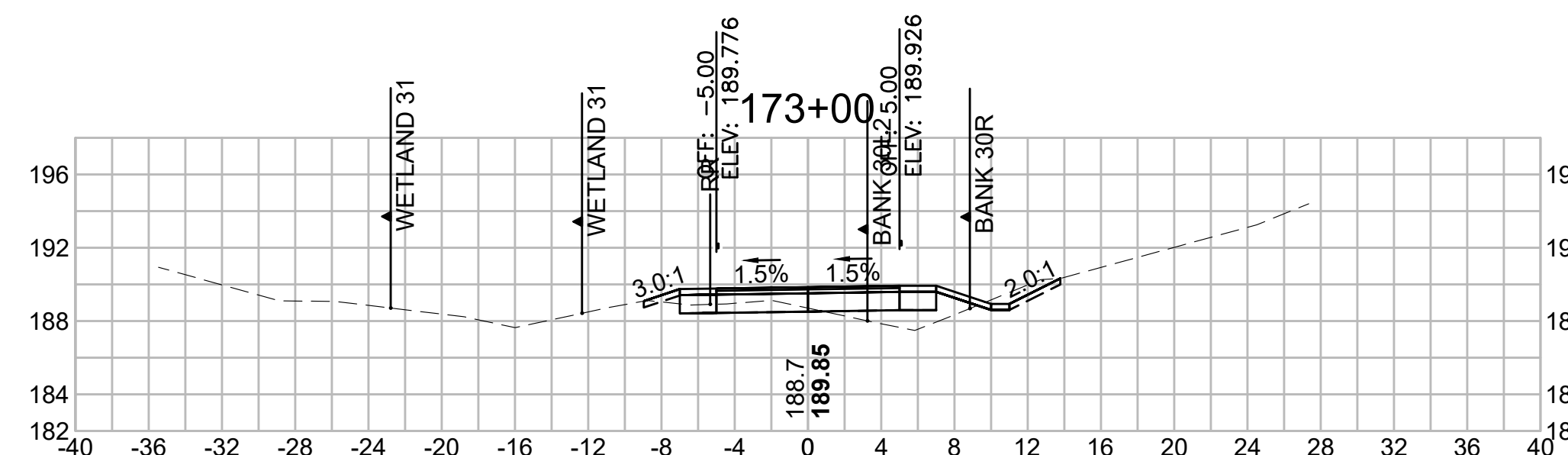
Total Volume at Station 175+00.00	
Cut Area (SF)	51.481
Fill Area (SF)	0.000
Cut Vol (CF)	73.3
Fill Vol (CF)	3.2
Cum Cut Vol (CF)	5050.1
Cum Fill Vol (CF)	2869.4
Net Vol (CF)	2180.8



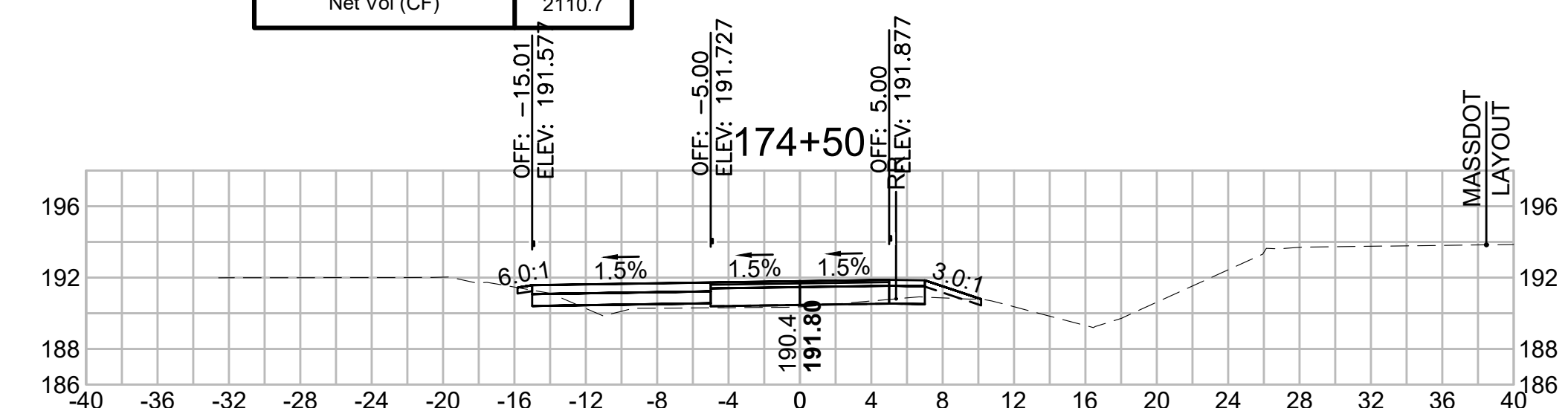
Total Volume at Station 171+50.00	
Cut Area (SF)	23.012
Fill Area (SF)	1.070
Cut Vol (CF)	39.1
Fill Vol (CF)	2.2
Cum Cut Vol (CF)	4799.7
Cum Fill Vol (CF)	2784.1
Net Vol (CF)	2015.6



Total Volume at Station 173+00.00	
Cut Area (SF)	8.068
Fill Area (SF)	6.275
Cut Vol (CF)	23.3
Fill Vol (CF)	7.6
Cum Cut Vol (CF)	4899.1
Cum Fill Vol (CF)	2795.8
Net Vol (CF)	2103.3



Total Volume at Station 174+50.00	
Cut Area (SF)	27.647
Fill Area (SF)	3.433
Cut Vol (CF)	42.7
Fill Vol (CF)	22.0
Cum Cut Vol (CF)	4976.9
Cum Fill Vol (CF)	2866.2
Net Vol (CF)	2110.7





SUDBURY  
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	261	318

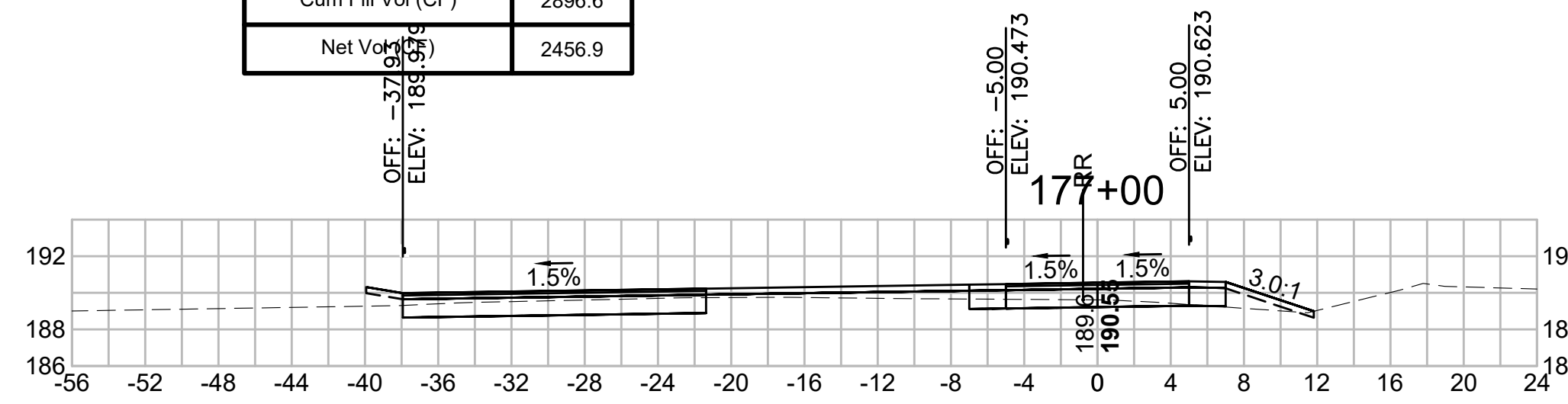
PROJECT FILE NO. 608164

CROSS SECTIONS

608164\_XSEC(CROSS SECTION LAYOUTS).DWG 12-May-2021

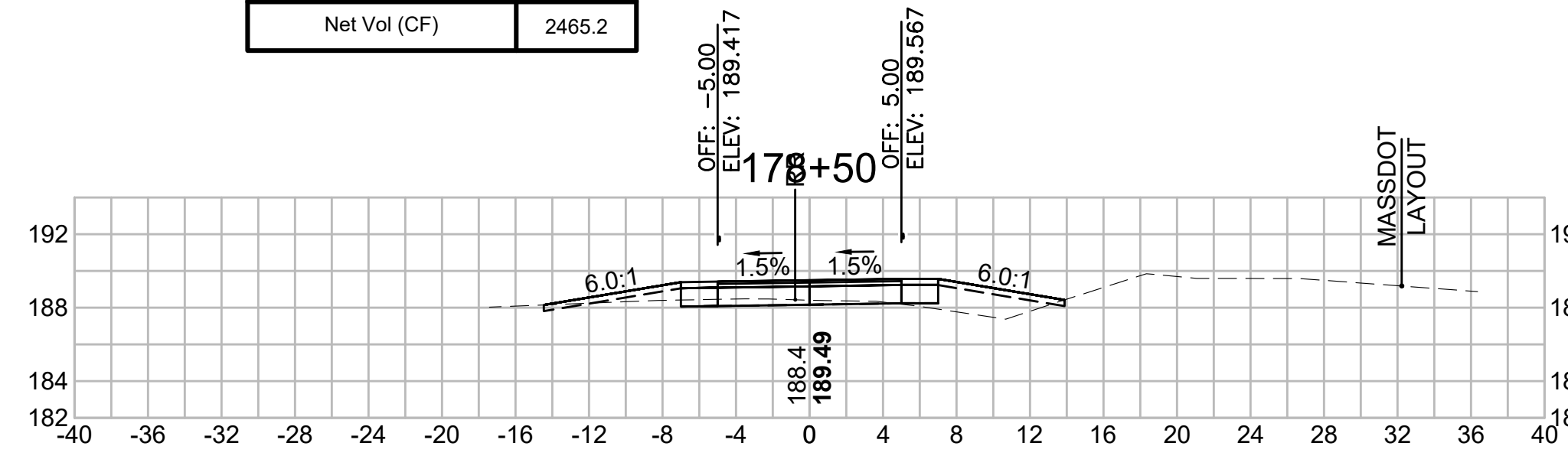
**Total Volume at Station 177+00.00**

Cut Area (SF)	17.842
Fill Area (SF)	11.279
Cut Vol (CF)	47.3
Fill Vol (CF)	15.6
Cum Cut Vol (CF)	5353.5
Cum Fill Vol (CF)	2896.6
Net Vol (CF)	2456.9



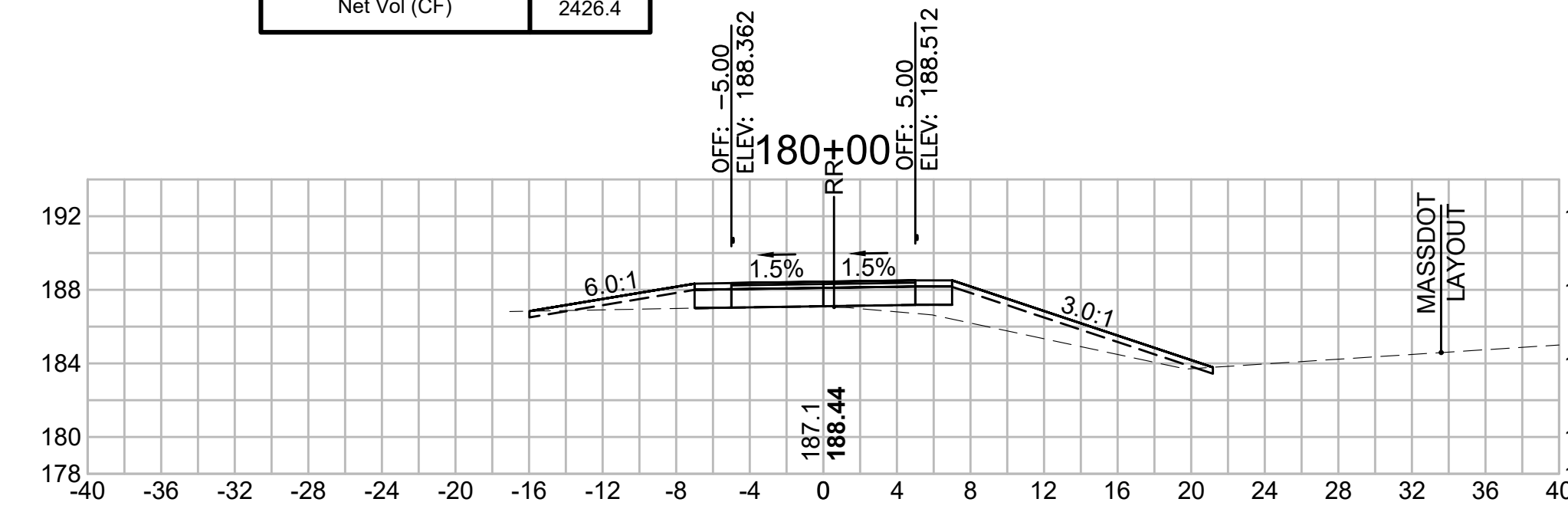
**Total Volume at Station 178+50.00**

Cut Area (SF)	4.589
Fill Area (SF)	8.137
Cut Vol (CF)	13.7
Fill Vol (CF)	13.2
Cum Cut Vol (CF)	5406.4
Cum Fill Vol (CF)	2941.3
Net Vol (CF)	2465.2



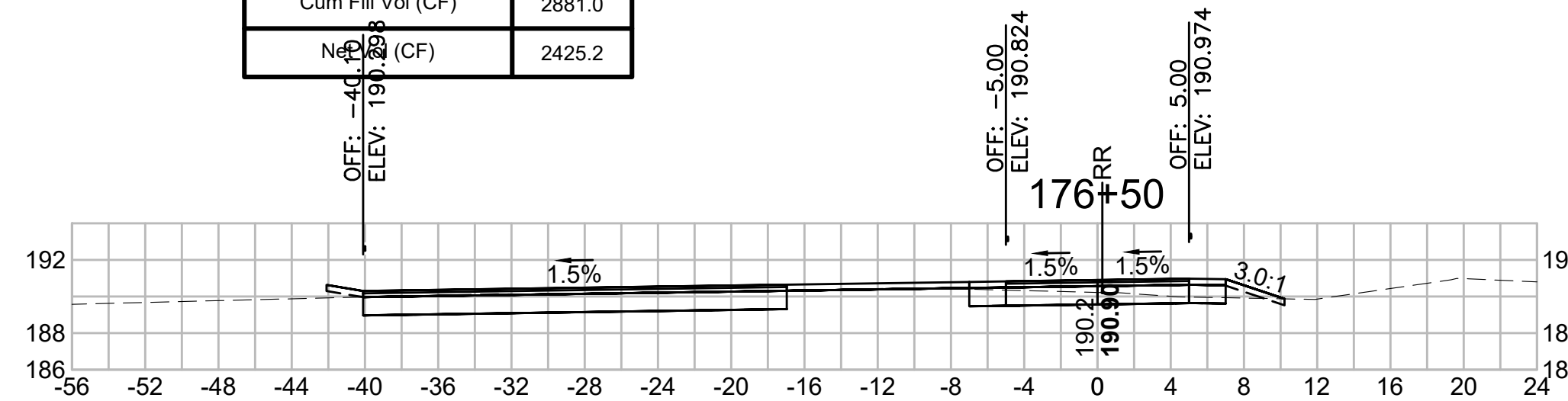
**Total Volume at Station 180+00.00**

Cut Area (SF)	0.645
Fill Area (SF)	18.383
Cut Vol (CF)	5.1
Fill Vol (CF)	24.3
Cum Cut Vol (CF)	5426.4
Cum Fill Vol (CF)	3000.0
Net Vol (CF)	2426.4



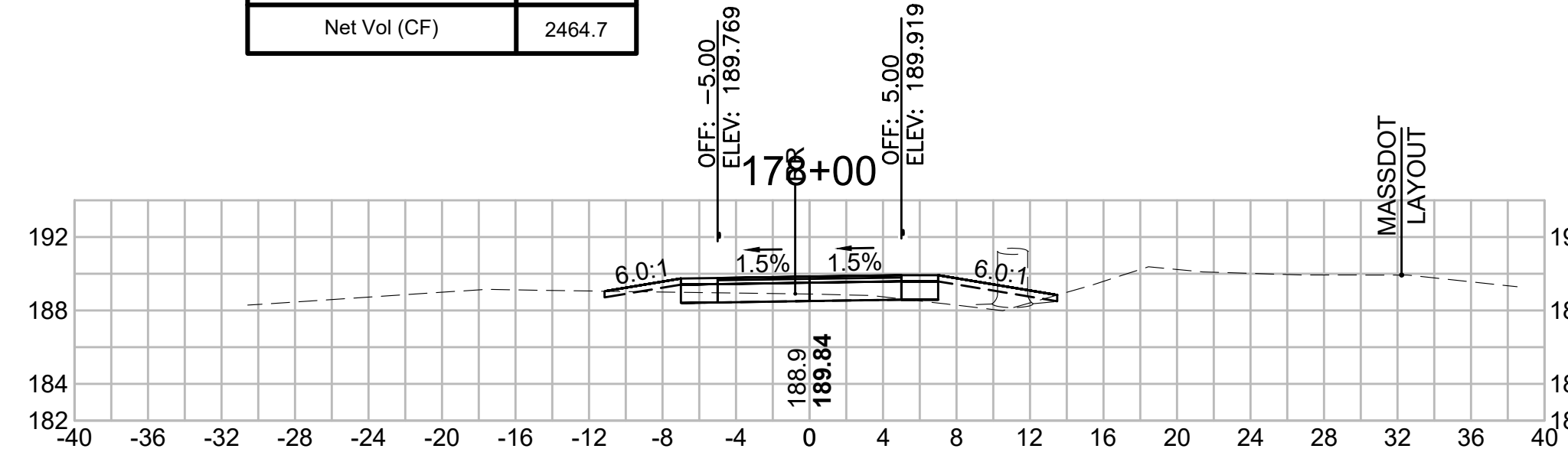
**Total Volume at Station 176+50.00**

Cut Area (SF)	33.198
Fill Area (SF)	5.555
Cut Vol (CF)	69.7
Fill Vol (CF)	8.4
Cum Cut Vol (CF)	5306.2
Cum Fill Vol (CF)	2881.0
Net Vol (CF)	2425.2



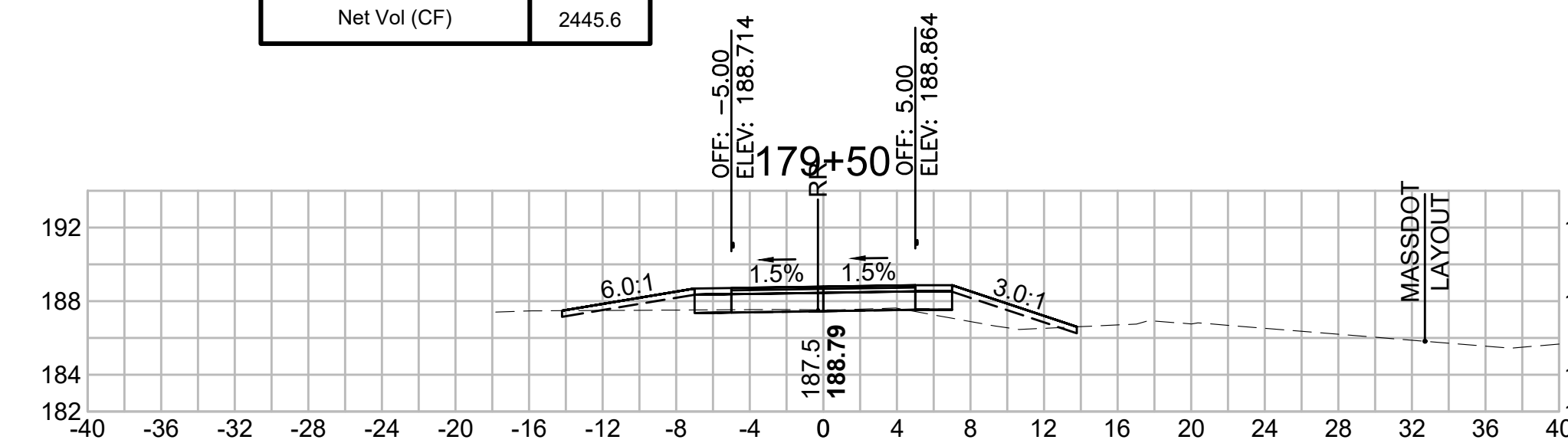
**Total Volume at Station 178+00.00**

Cut Area (SF)	10.165
Fill Area (SF)	6.125
Cut Vol (CF)	16.1
Fill Vol (CF)	13.4
Cum Cut Vol (CF)	5392.8
Cum Fill Vol (CF)	2928.1
Net Vol (CF)	2464.7



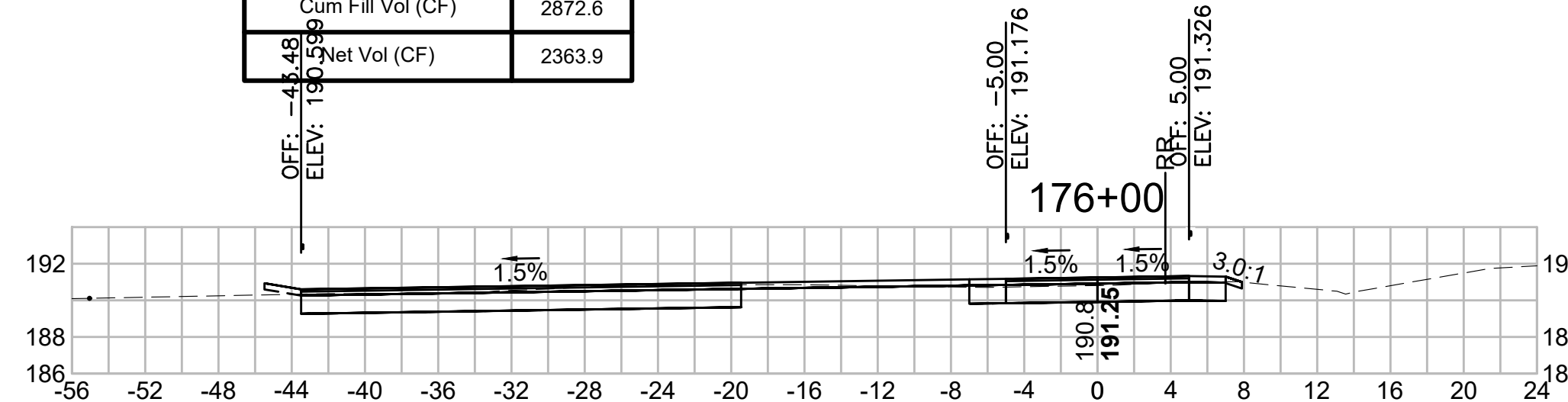
**Total Volume at Station 179+50.00**

Cut Area (SF)	4.862
Fill Area (SF)	7.855
Cut Vol (CF)	7.6
Fill Vol (CF)	17.1
Cum Cut Vol (CF)	5421.3
Cum Fill Vol (CF)	2975.7
Net Vol (CF)	2445.6



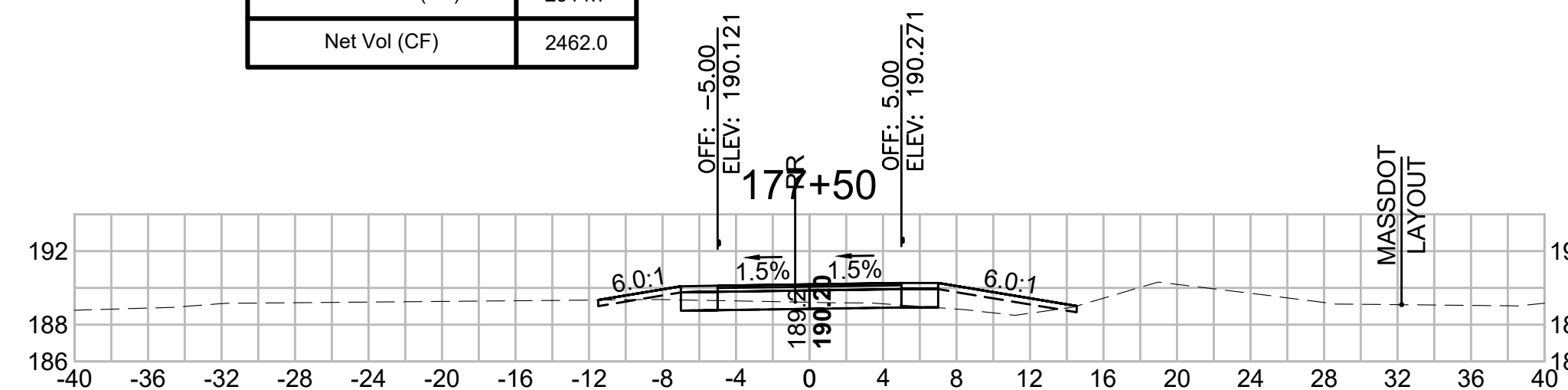
**Total Volume at Station 176+00.00**

Cut Area (SF)	42.074
Fill Area (SF)	3.492
Cut Vol (CF)	88.8
Fill Vol (CF)	3.2
Cum Cut Vol (CF)	5236.5
Cum Fill Vol (CF)	2872.6
Net Vol (CF)	2363.9



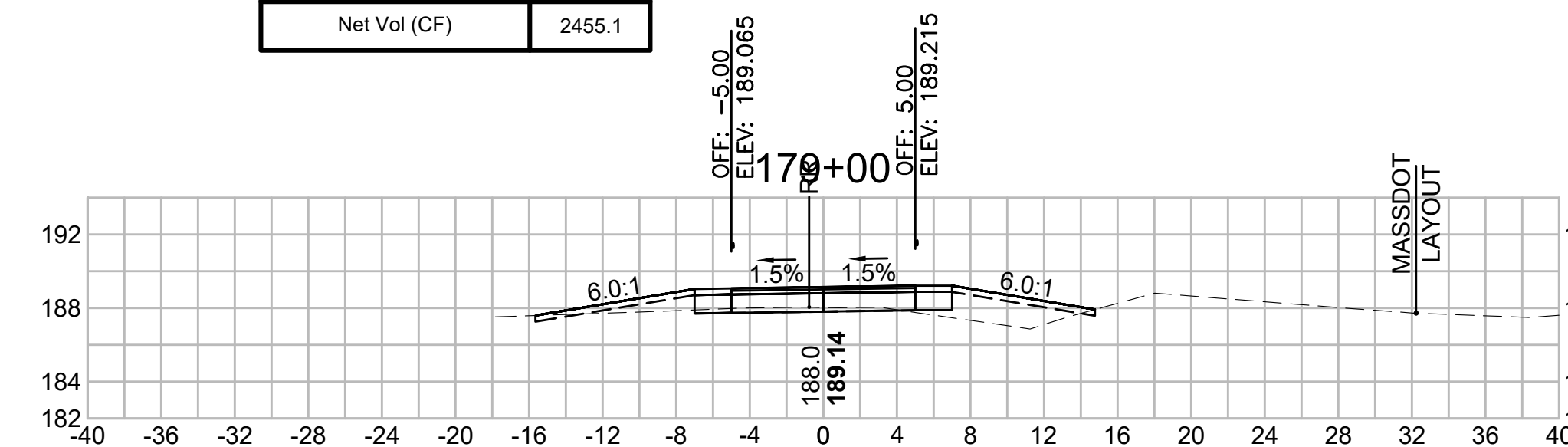
**Total Volume at Station 177+50.00**

Cut Area (SF)	7.197
Fill Area (SF)	8.297
Cut Vol (CF)	23.2
Fill Vol (CF)	18.1
Cum Cut Vol (CF)	5376.7
Cum Fill Vol (CF)	2914.7
Net Vol (CF)	2462.0



**Total Volume at Station 179+00.00**

Cut Area (SF)	3.318
Fill Area (SF)	10.592
Cut Vol (CF)	7.3
Fill Vol (CF)	17.3
Cum Cut Vol (CF)	5413.7
Cum Fill Vol (CF)	2958.6
Net Vol (CF)	2455.1



SUDBURY  
BRUCE FREEMAN RAIL TRAIL

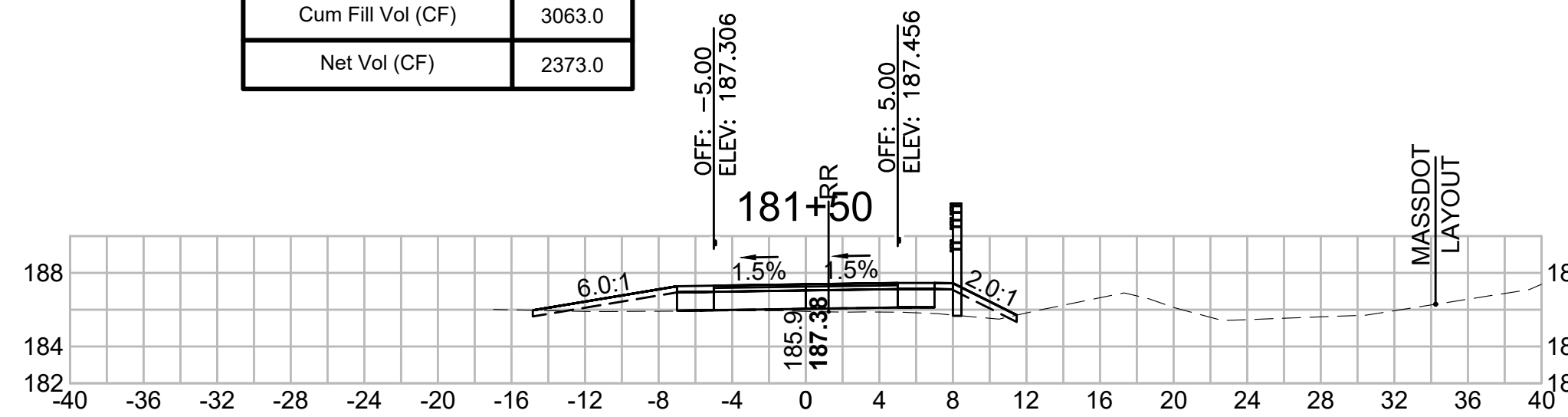
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	262	318

PROJECT FILE NO. 608164

CROSS SECTIONS

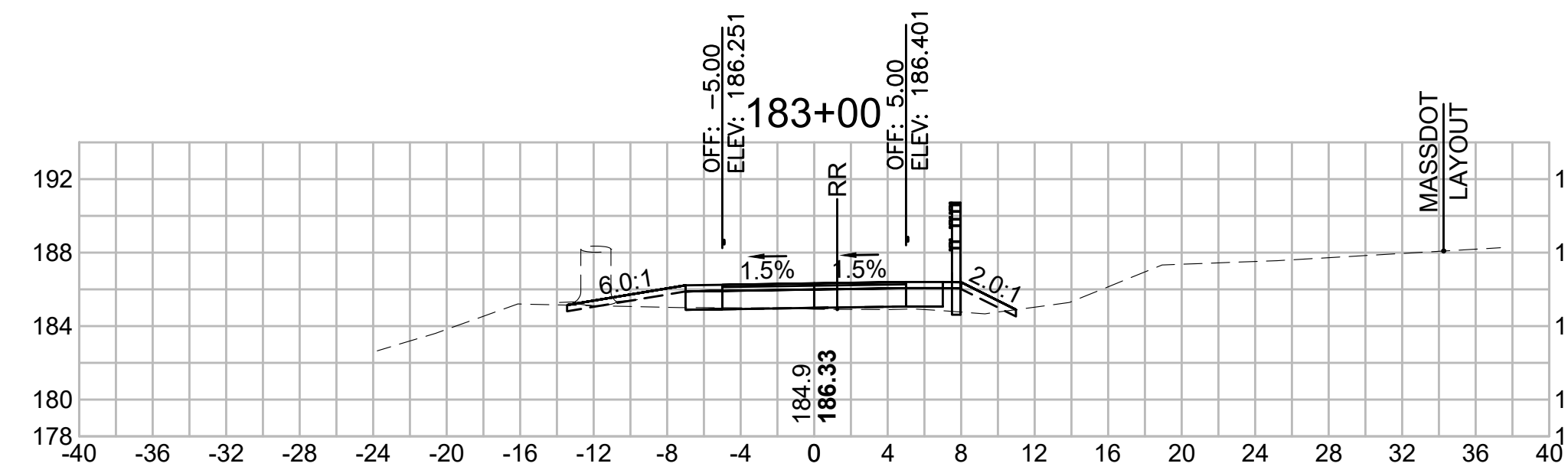
**Total Volume at Station 181+50.00**

Cut Area (SF)	1,346
Fill Area (SF)	8,786
Cut Vol (CF)	1.9
Fill Vol (CF)	19.4
Cum Cut Vol (CF)	5436.0
Cum Fill Vol (CF)	3063.0
Net Vol (CF)	2373.0



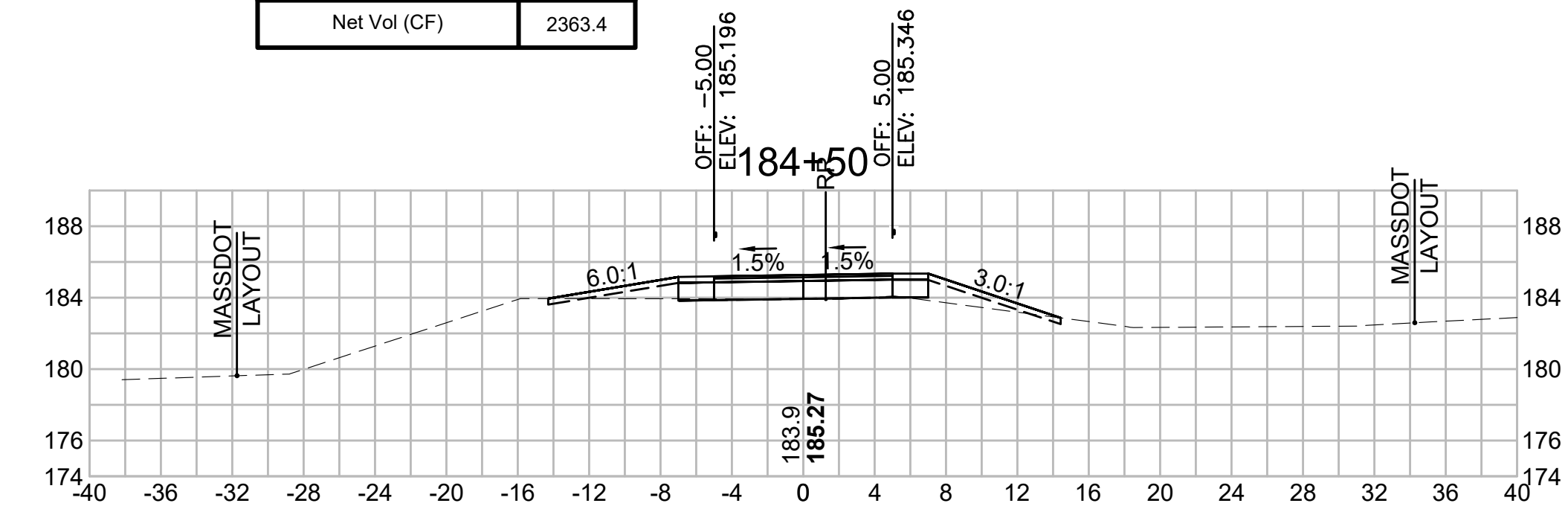
**Total Volume at Station 183+00.00**

Cut Area (SF)	2,529
Fill Area (SF)	5,951
Cut Vol (CF)	3.7
Fill Vol (CF)	10.5
Cum Cut Vol (CF)	5443.6
Cum Fill Vol (CF)	3098.9
Net Vol (CF)	2344.7



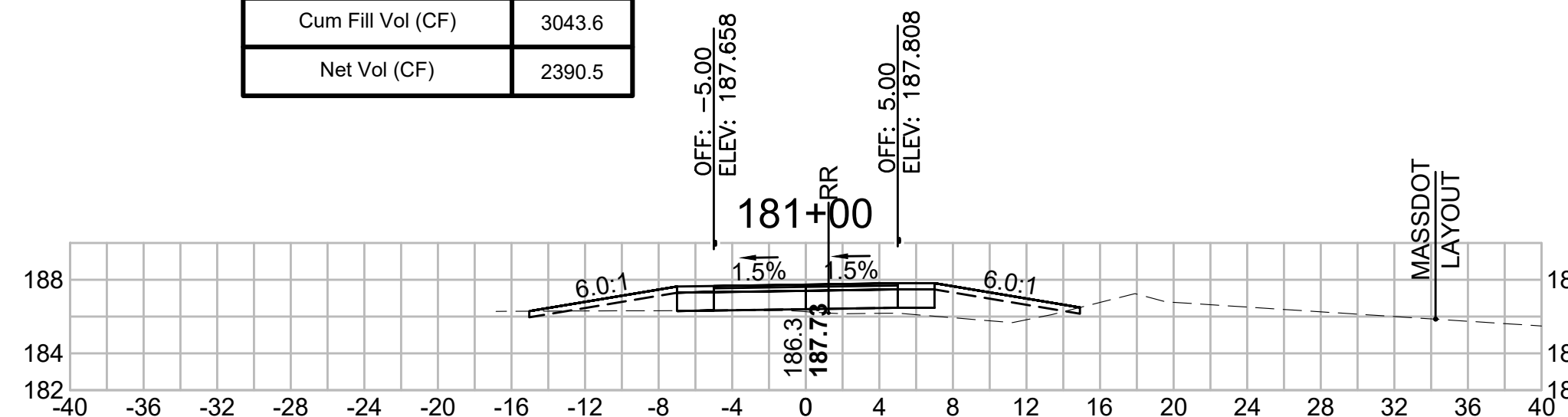
**Total Volume at Station 184+50.00**

Cut Area (SF)	6,232
Fill Area (SF)	6,019
Cut Vol (CF)	21.1
Fill Vol (CF)	11.5
Cum Cut Vol (CF)	5496.3
Cum Fill Vol (CF)	3132.9
Net Vol (CF)	2363.4



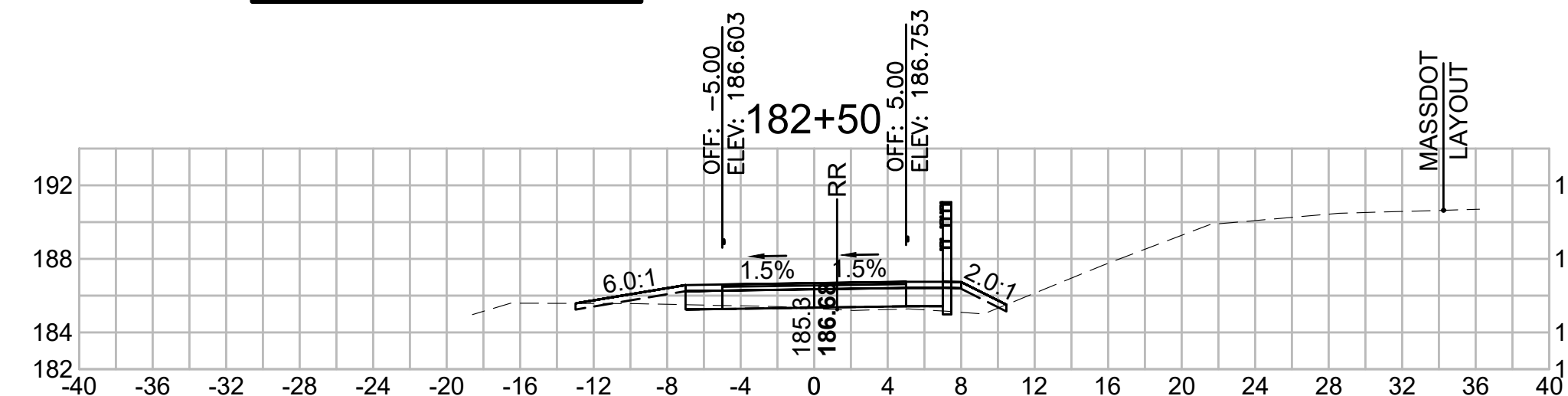
**Total Volume at Station 181+00.00**

Cut Area (SF)	0,695
Fill Area (SF)	12,165
Cut Vol (CF)	3.9
Fill Vol (CF)	18.9
Cum Cut Vol (CF)	5434.1
Cum Fill Vol (CF)	3043.6
Net Vol (CF)	2390.5



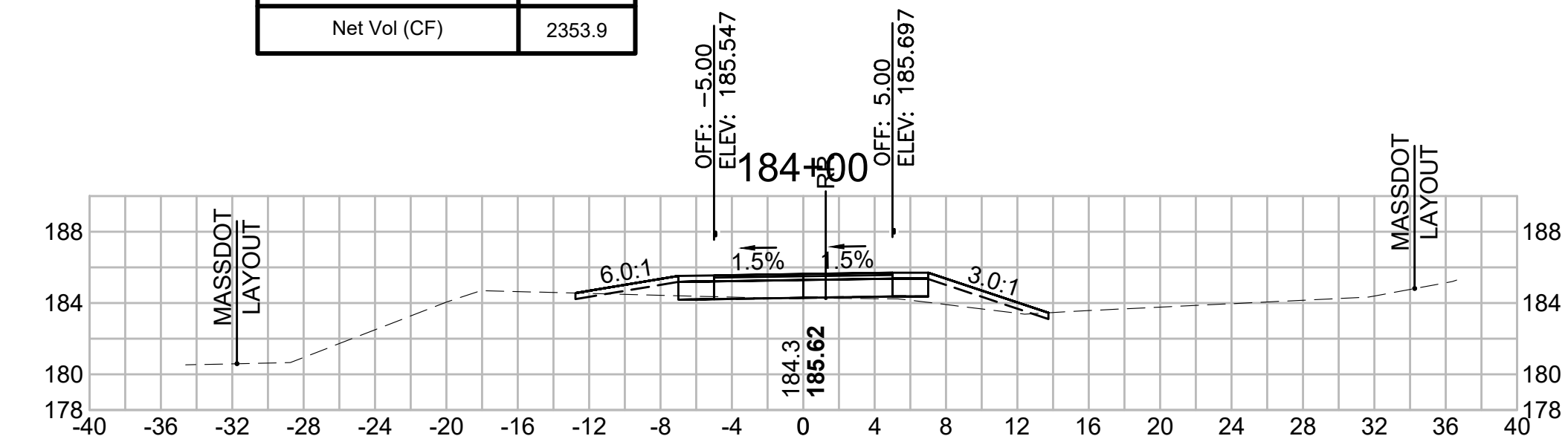
**Total Volume at Station 182+50.00**

Cut Area (SF)	1,419
Fill Area (SF)	5,417
Cut Vol (CF)	2.0
Fill Vol (CF)	11.1
Cum Cut Vol (CF)	5440.0
Cum Fill Vol (CF)	3088.4
Net Vol (CF)	2351.6



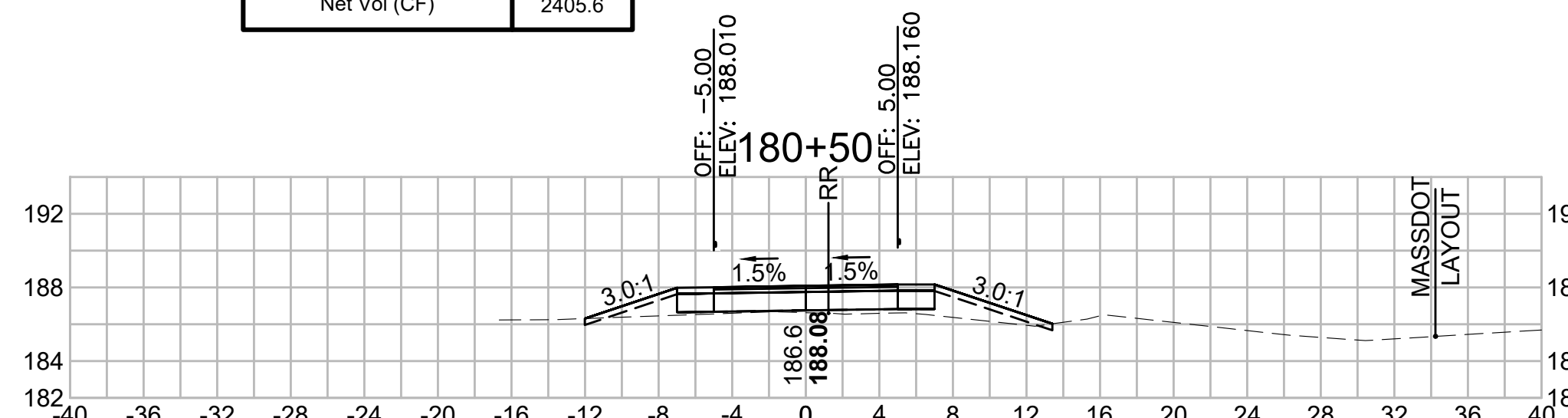
**Total Volume at Station 184+00.00**

Cut Area (SF)	16,514
Fill Area (SF)	6,420
Cut Vol (CF)	22.3
Fill Vol (CF)	11.5
Cum Cut Vol (CF)	5475.2
Cum Fill Vol (CF)	3121.4
Net Vol (CF)	2353.9



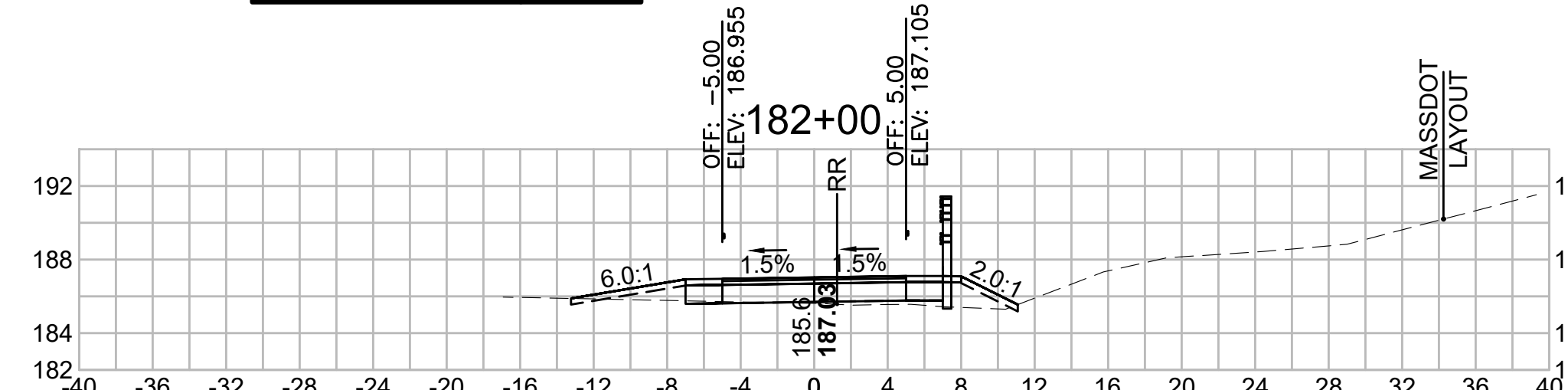
**Total Volume at Station 180+50.00**

Cut Area (SF)	3,507
Fill Area (SF)	8,297
Cut Vol (CF)	3.8
Fill Vol (CF)	24.7
Cum Cut Vol (CF)	5430.3
Cum Fill Vol (CF)	3024.7
Net Vol (CF)	2405.6



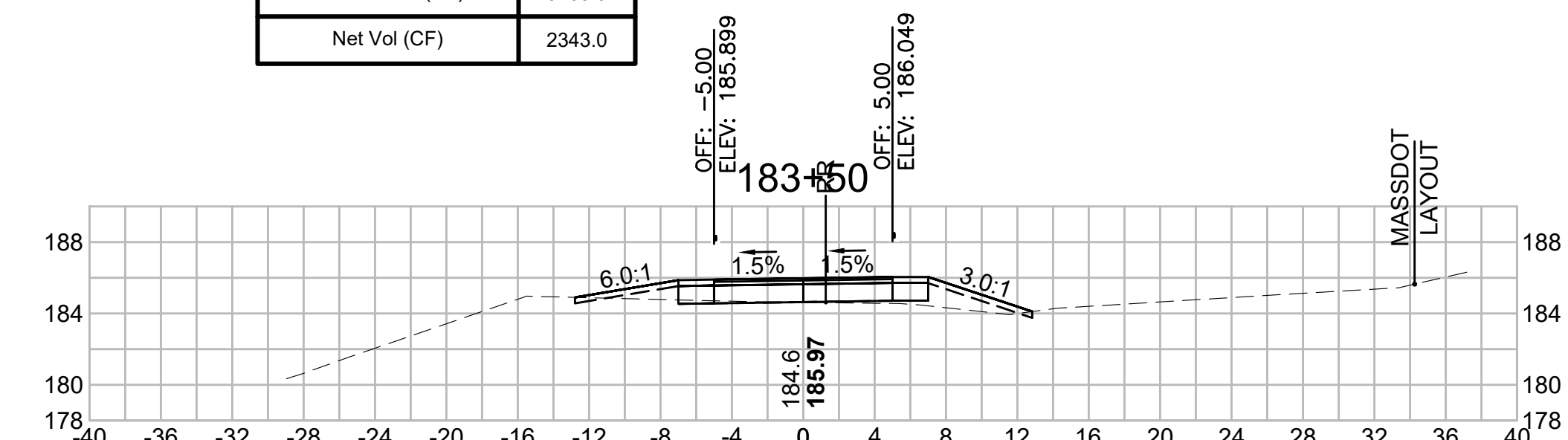
**Total Volume at Station 182+00.00**

Cut Area (SF)	0,744
Fill Area (SF)	6,586
Cut Vol (CF)	1.9
Fill Vol (CF)	14.2
Cum Cut Vol (CF)	5438.0
Cum Fill Vol (CF)	3077.3
Net Vol (CF)	2360.7



**Total Volume at Station 183+50.00**

Cut Area (SF)	7,540
Fill Area (SF)	5,949
Cut Vol (CF)	9.3
Fill Vol (CF)	11.0
Cum Cut Vol (CF)	5453.0
Cum Fill Vol (CF)	3109.9
Net Vol (CF)	2343.0



SUDBURY  
BRUCE FREEMAN RAIL TRAIL

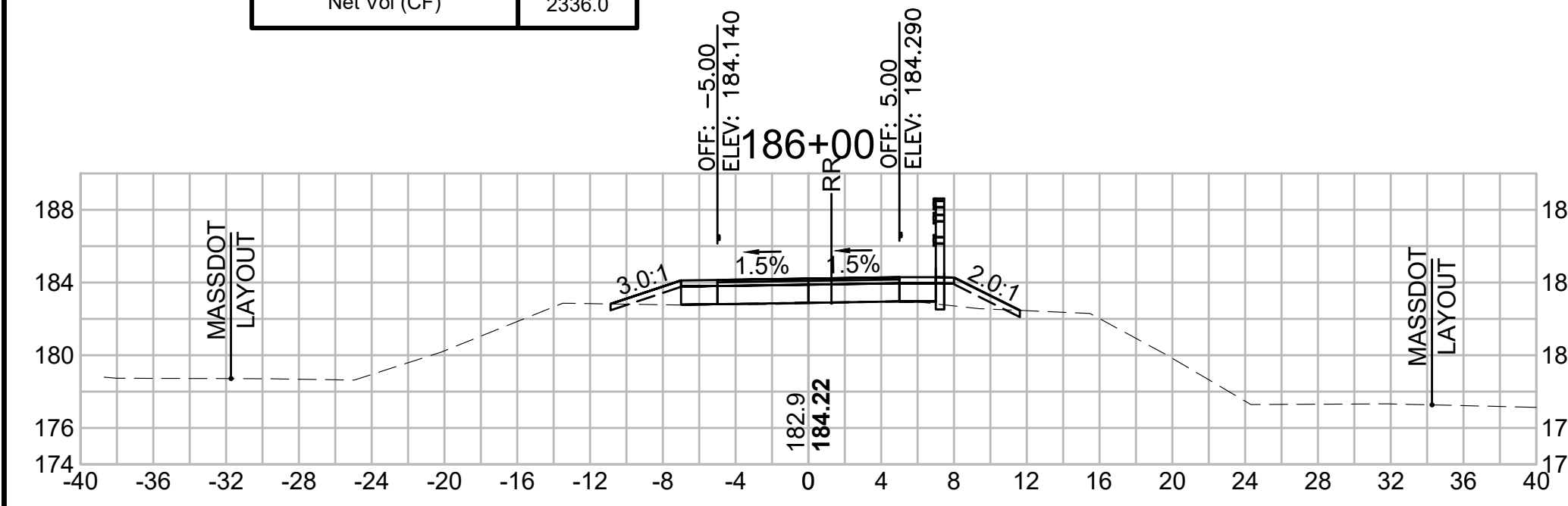
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	263	318

PROJECT FILE NO. 608164

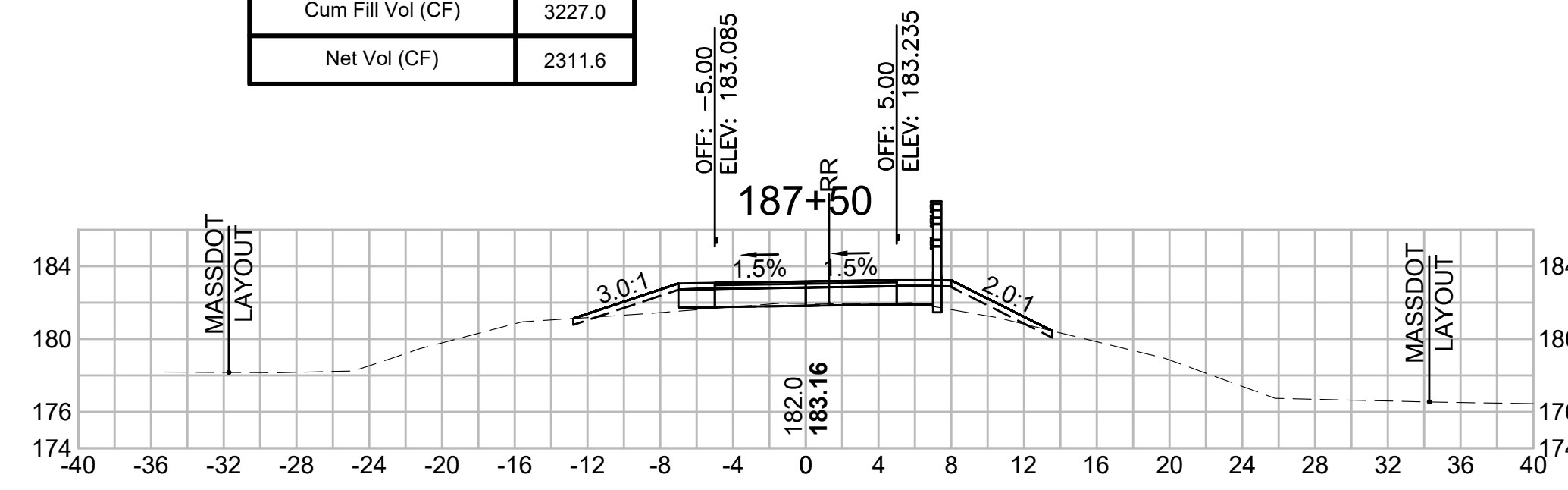
CROSS SECTIONS

608164\_X\SEC\CROSS SECTION LAYOUTS.DWG 12-May-2021

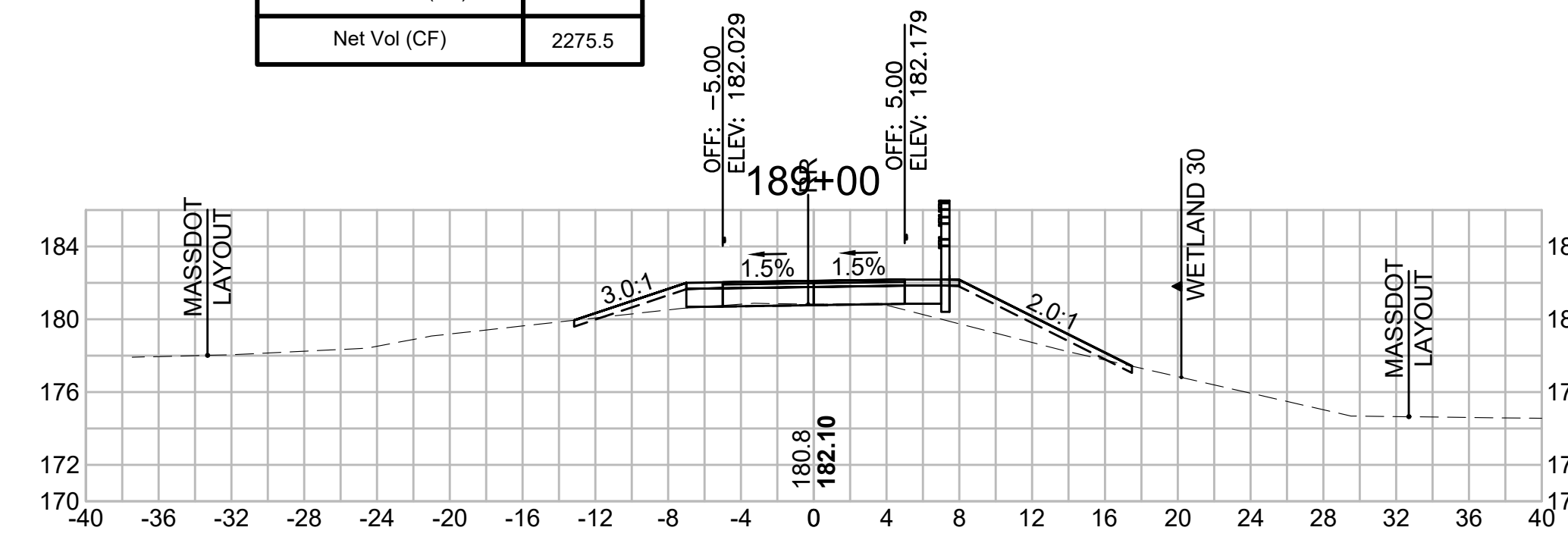
Total Volume at Station 186+00.00	
Cut Area (SF)	4.122
Fill Area (SF)	7.211
Cut Vol (CF)	9.9
Fill Vol (CF)	15.2
Cum Cut Vol (CF)	5525.1
Cum Fill Vol (CF)	3189.1
Net Vol (CF)	2336.0



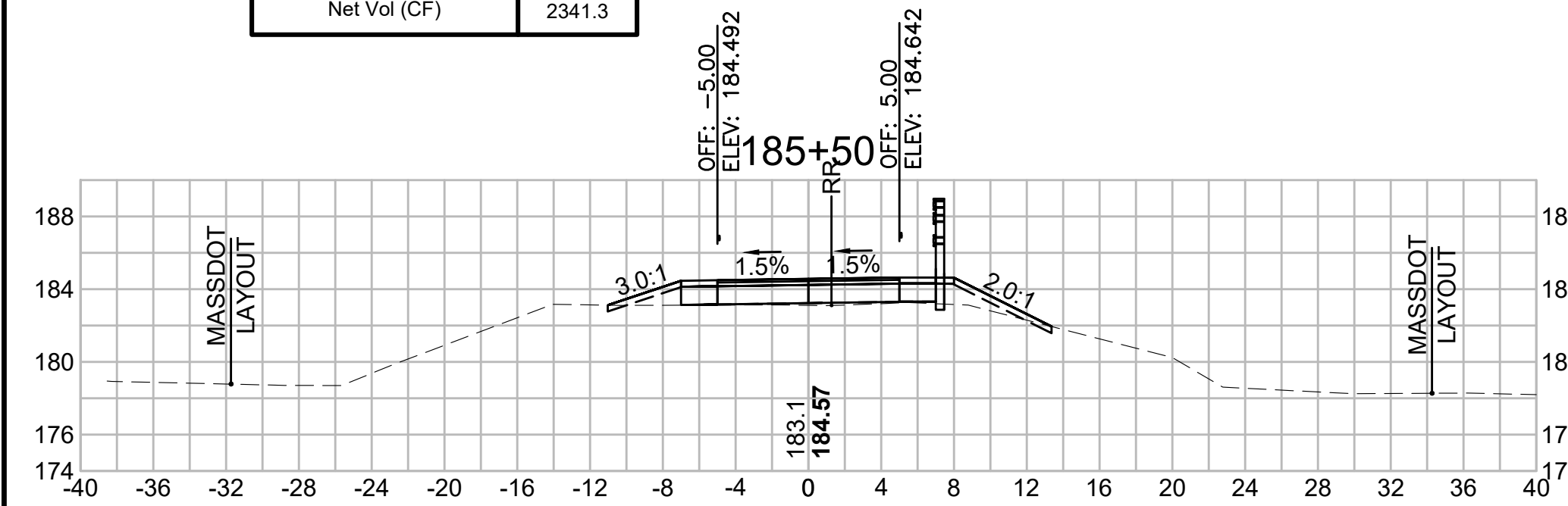
Total Volume at Station 187+50.00	
Cut Area (SF)	1.386
Fill Area (SF)	6.627
Cut Vol (CF)	3.6
Fill Vol (CF)	12.2
Cum Cut Vol (CF)	5538.5
Cum Fill Vol (CF)	3227.0
Net Vol (CF)	2311.6



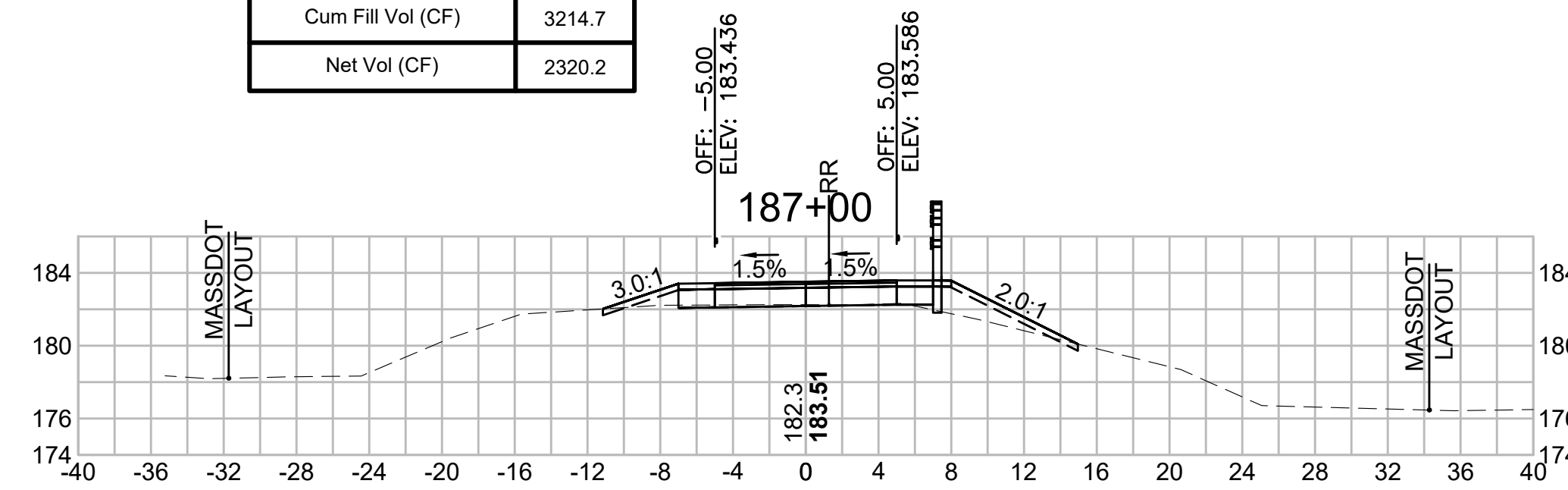
Total Volume at Station 189+00.00	
Cut Area (SF)	1.596
Fill Area (SF)	14.259
Cut Vol (CF)	2.9
Fill Vol (CF)	19.9
Cum Cut Vol (CF)	5546.8
Cum Fill Vol (CF)	3271.3
Net Vol (CF)	2275.5



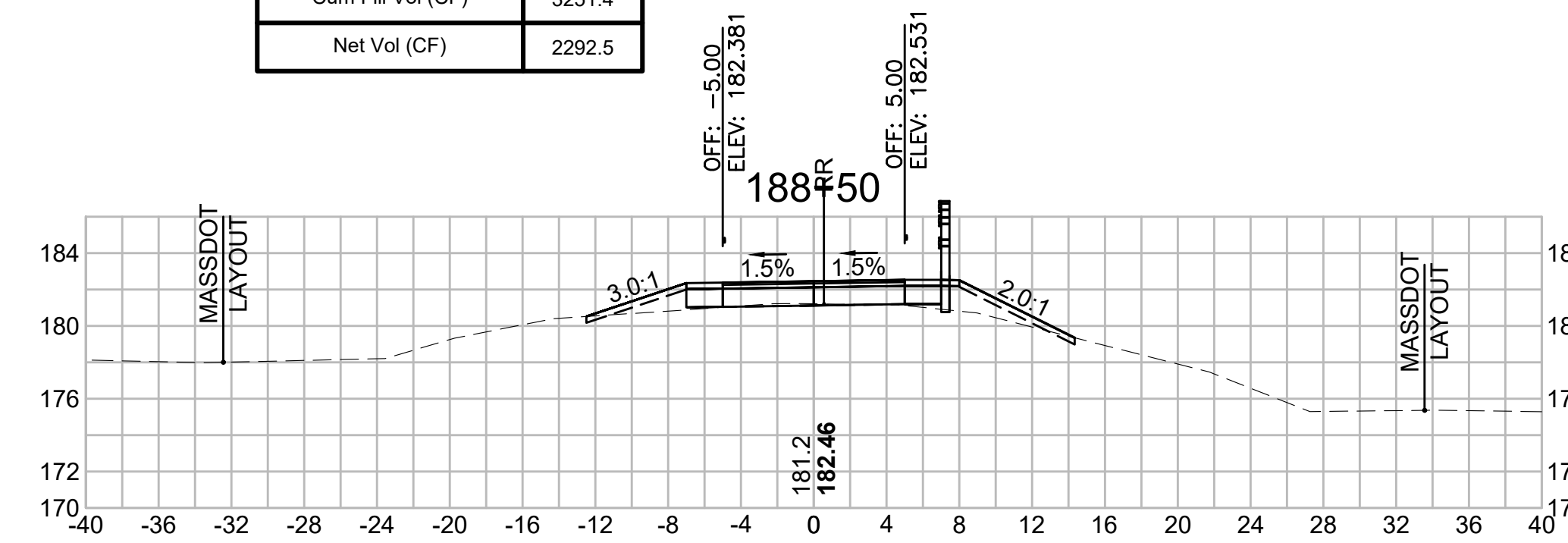
Total Volume at Station 185+50.00	
Cut Area (SF)	6.517
Fill Area (SF)	9.173
Cut Vol (CF)	9.6
Fill Vol (CF)	22.0
Cum Cut Vol (CF)	5515.2
Cum Fill Vol (CF)	3173.9
Net Vol (CF)	2341.3



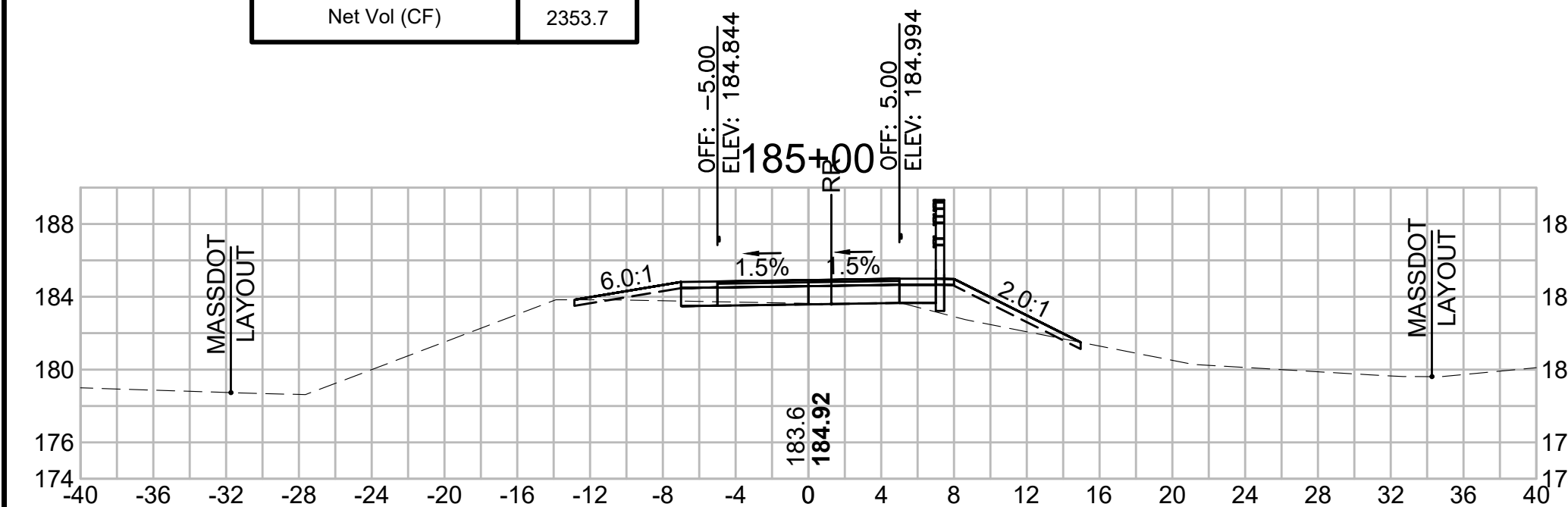
Total Volume at Station 187+00.00	
Cut Area (SF)	2.530
Fill Area (SF)	6.585
Cut Vol (CF)	4.2
Fill Vol (CF)	12.5
Cum Cut Vol (CF)	5534.9
Cum Fill Vol (CF)	3214.7
Net Vol (CF)	2320.2



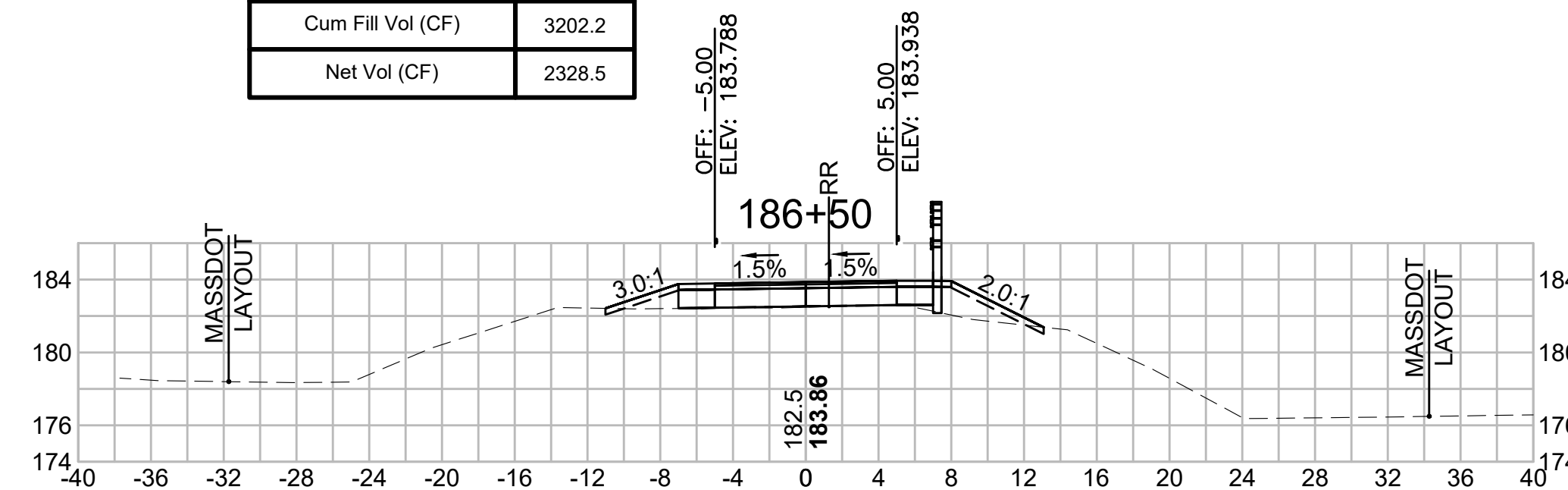
Total Volume at Station 188+50.00	
Cut Area (SF)	1.557
Fill Area (SF)	7.184
Cut Vol (CF)	2.8
Fill Vol (CF)	12.5
Cum Cut Vol (CF)	5543.9
Cum Fill Vol (CF)	3251.4
Net Vol (CF)	2292.5



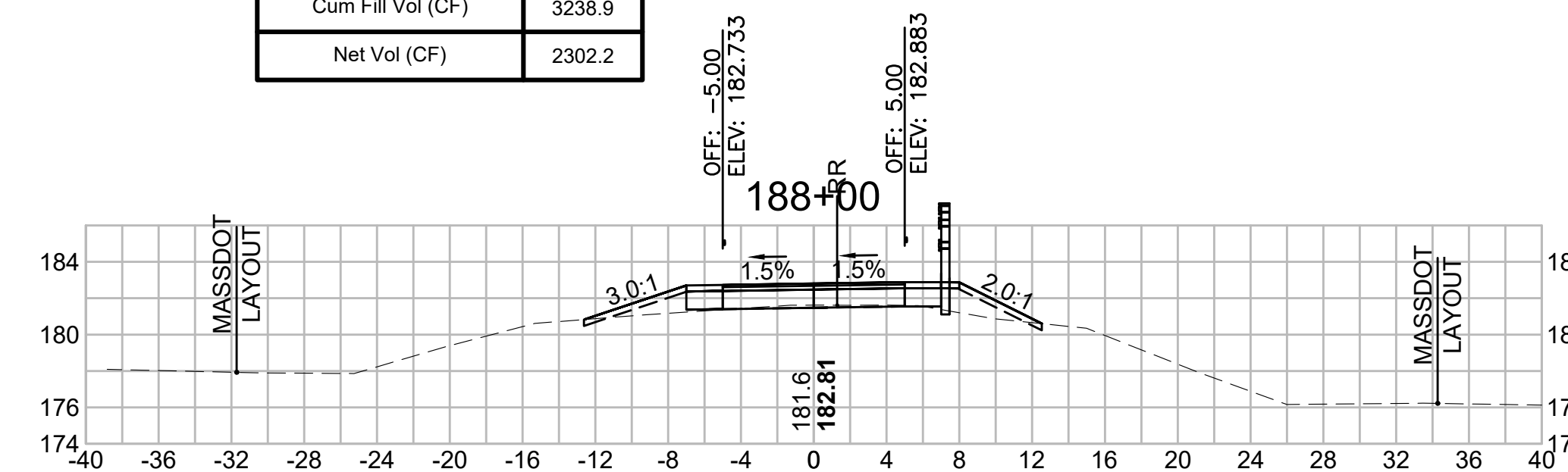
Total Volume at Station 185+00.00	
Cut Area (SF)	3.855
Fill Area (SF)	14.556
Cut Vol (CF)	9.3
Fill Vol (CF)	19.1
Cum Cut Vol (CF)	5505.6
Cum Fill Vol (CF)	3151.9
Net Vol (CF)	2353.7



Total Volume at Station 186+50.00	
Cut Area (SF)	1.968
Fill Area (SF)	6.945
Cut Vol (CF)	5.6
Fill Vol (CF)	13.1
Cum Cut Vol (CF)	5530.7
Cum Fill Vol (CF)	3202.2
Net Vol (CF)	2328.5

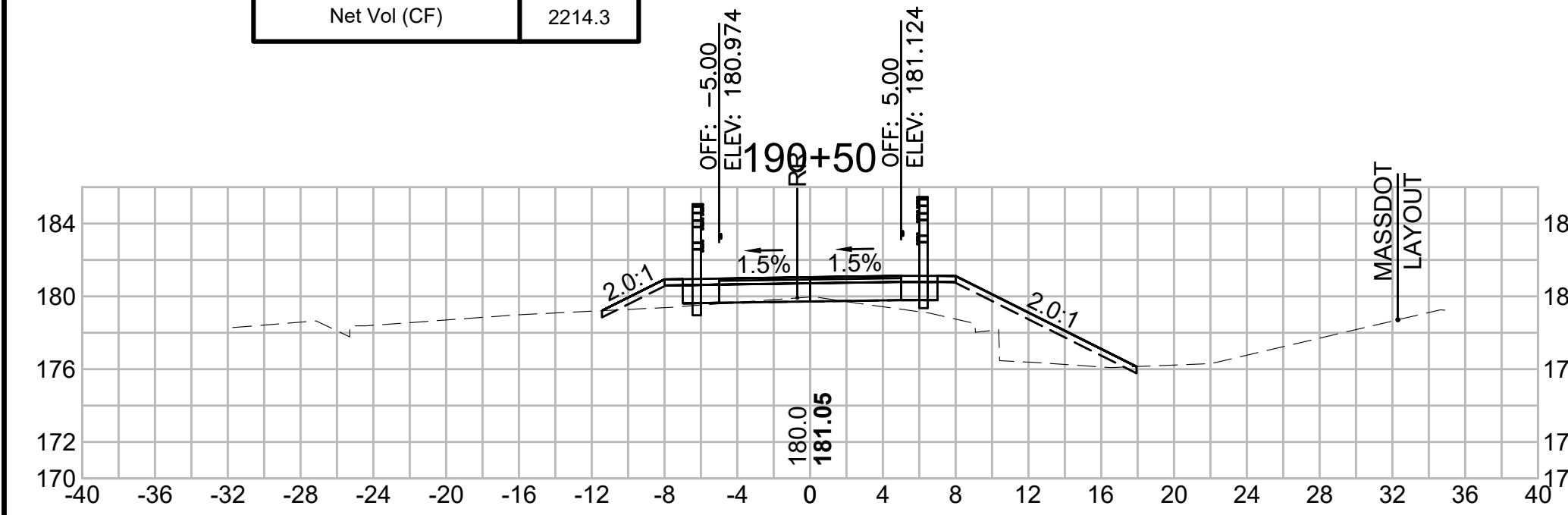


Total Volume at Station 188+00.00	
Cut Area (SF)	1.428
Fill Area (SF)	6.309
Cut Vol (CF)	2.6
Fill Vol (CF)	12.0
Cum Cut Vol (CF)	5541.1
Cum Fill Vol (CF)	3238.9
Net Vol (CF)	2302.2

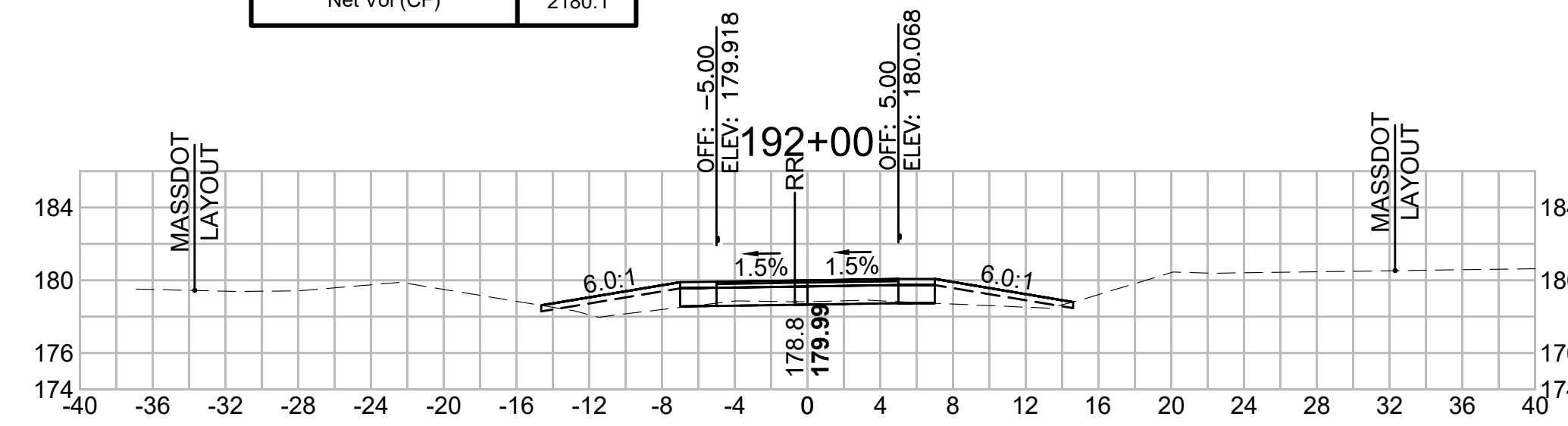


**CROSS SECTIONS**

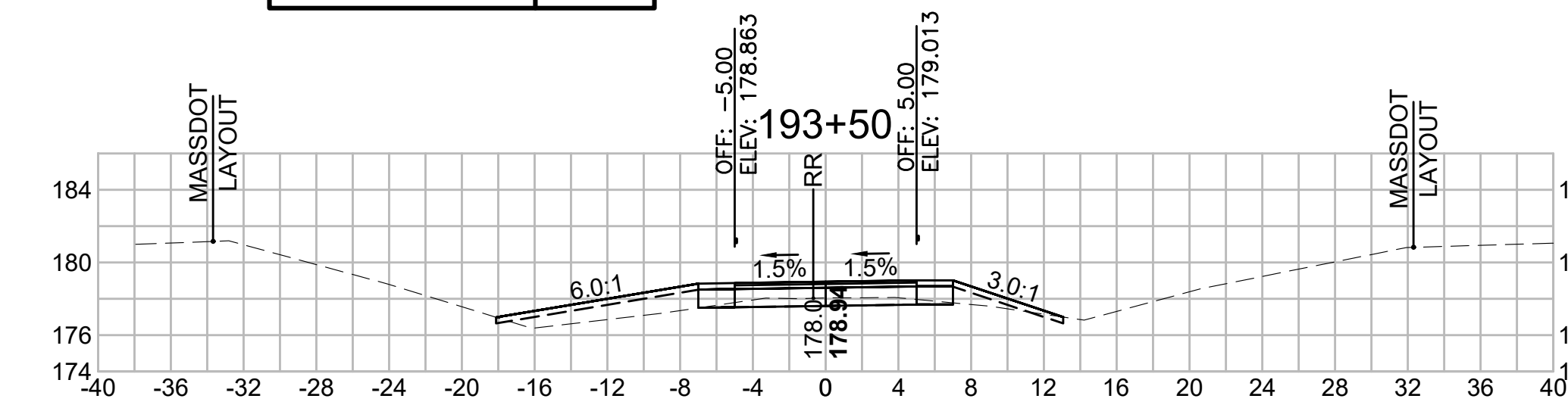
Total Volume at Station 190+50.00	
Cut Area (SF)	20.566
Fill Area (SF)	22.081
Cut Vol (CF)	20.2
Fill Vol (CF)	35.0
Cum Cut Vol (CF)	5573.6
Cum Fill Vol (CF)	3359.3
Net Vol (CF)	2214.3



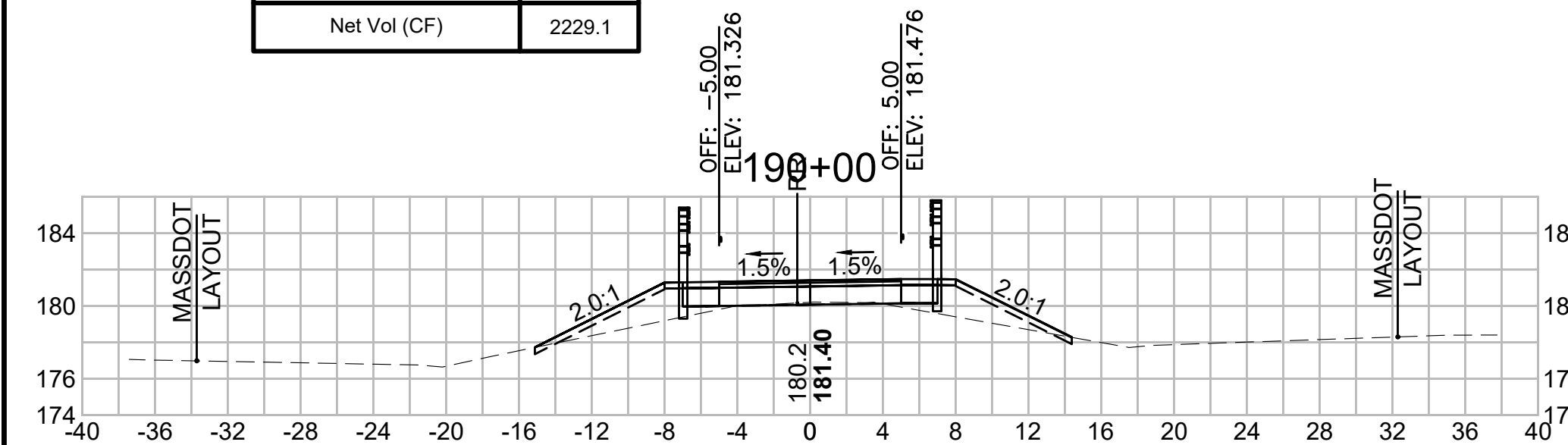
Total Volume at Station 192+00.00	
Cut Area (SF)	10.793
Fill Area (SF)	8.960
Cut Vol (CF)	17.1
Fill Vol (CF)	21.3
Cum Cut Vol (CF)	5624.8
Cum Fill Vol (CF)	3444.7
Net Vol (CF)	2180.1



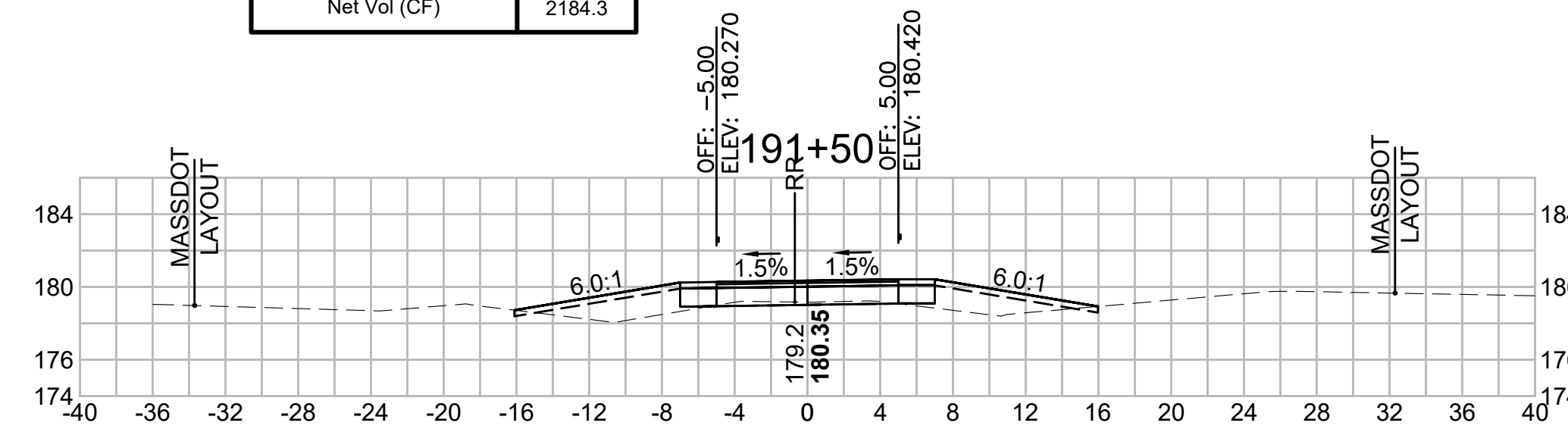
Total Volume at Station 193+50.00	
Cut Area (SF)	5.500
Fill Area (SF)	9.676
Cut Vol (CF)	8.4
Fill Vol (CF)	21.3
Cum Cut Vol (CF)	5661.8
Cum Fill Vol (CF)	3503.1
Net Vol (CF)	2158.7



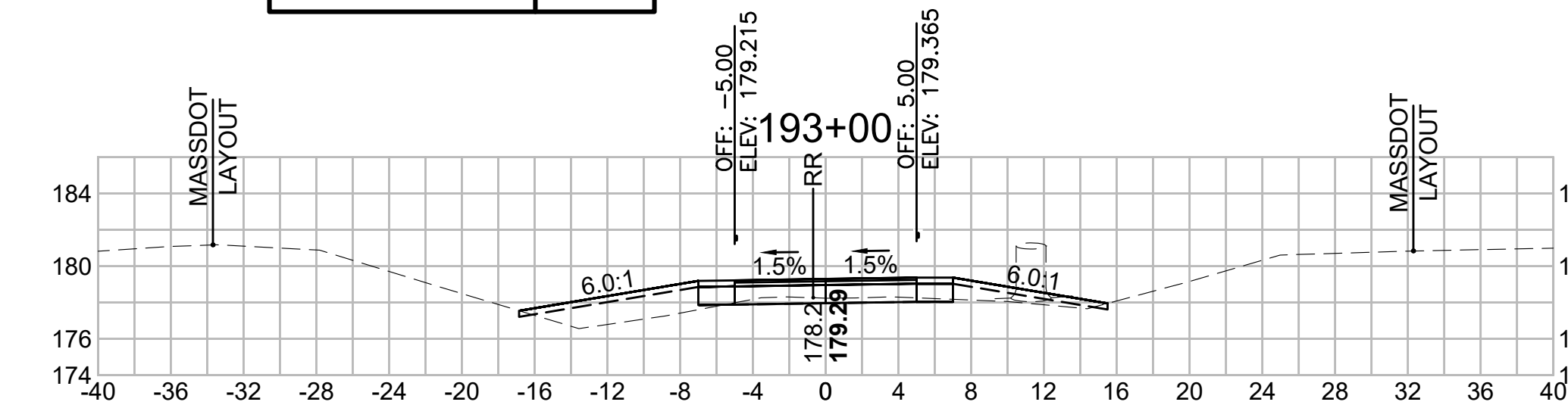
Total Volume at Station 190+00.00	
Cut Area (SF)	1.277
Fill Area (SF)	15.723
Cut Vol (CF)	3.1
Fill Vol (CF)	27.2
Cum Cut Vol (CF)	5553.4
Cum Fill Vol (CF)	3324.3
Net Vol (CF)	2229.1



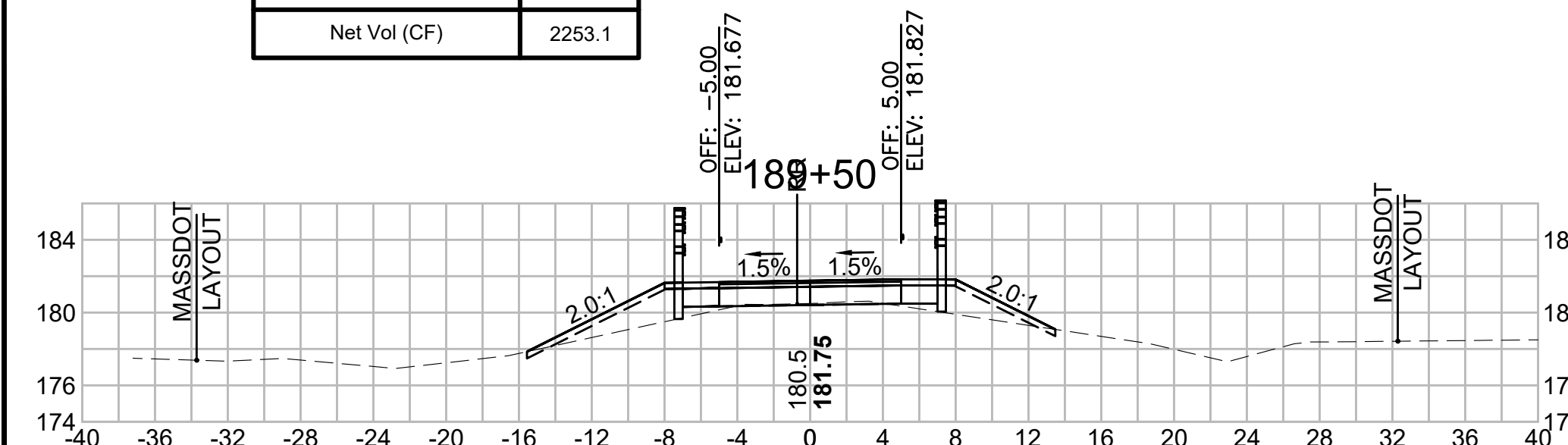
Total Volume at Station 191+50.00	
Cut Area (SF)	7.627
Fill Area (SF)	14.034
Cut Vol (CF)	11.1
Fill Vol (CF)	28.3
Cum Cut Vol (CF)	5607.8
Cum Fill Vol (CF)	3423.4
Net Vol (CF)	2184.3



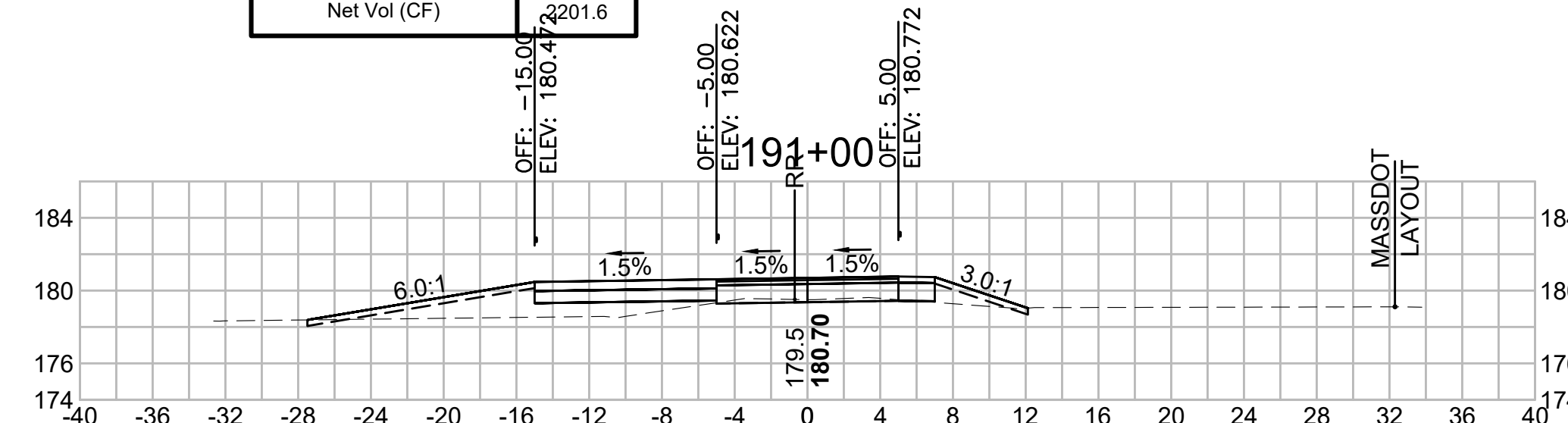
Total Volume at Station 193+00.00	
Cut Area (SF)	3.556
Fill Area (SF)	13.298
Cut Vol (CF)	10.9
Fill Vol (CF)	20.5
Cum Cut Vol (CF)	5653.4
Cum Fill Vol (CF)	3481.8
Net Vol (CF)	2171.6



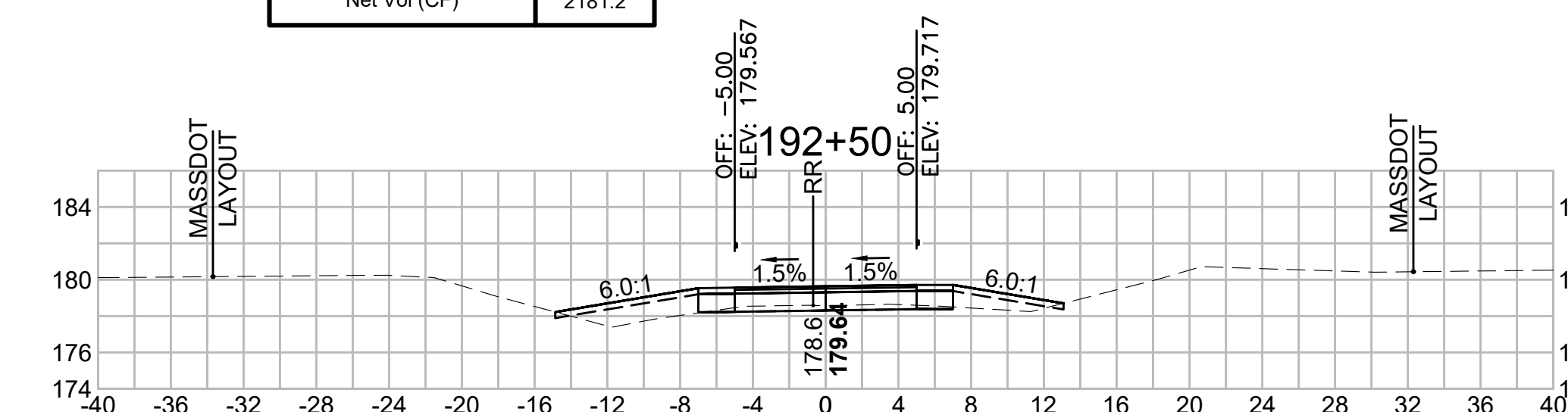
Total Volume at Station 189+50.00	
Cut Area (SF)	2.108
Fill Area (SF)	13.640
Cut Vol (CF)	3.4
Fill Vol (CF)	25.8
Cum Cut Vol (CF)	5550.2
Cum Fill Vol (CF)	3297.1
Net Vol (CF)	2253.1



Total Volume at Station 191+00.00	
Cut Area (SF)	4.366
Fill Area (SF)	16.576
Cut Vol (CF)	23.1
Fill Vol (CF)	35.8
Cum Cut Vol (CF)	5596.7
Cum Fill Vol (CF)	3395.1
Net Vol (CF)	2201.6



Total Volume at Station 192+50.00	
Cut Area (SF)	8.245
Fill Area (SF)	8.892
Cut Vol (CF)	17.6
Fill Vol (CF)	16.5
Cum Cut Vol (CF)	5642.5
Cum Fill Vol (CF)	3461.3
Net Vol (CF)	2181.2



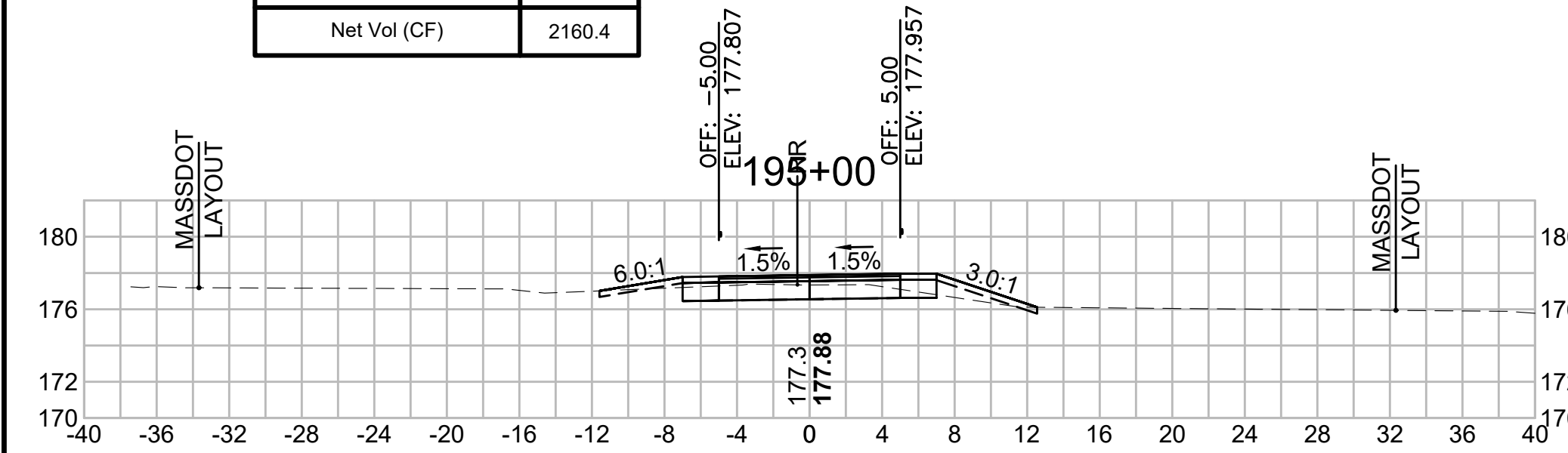
SUDBURY  
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	265	318
PROJECT FILE NO. 608164			

CROSS SECTIONS

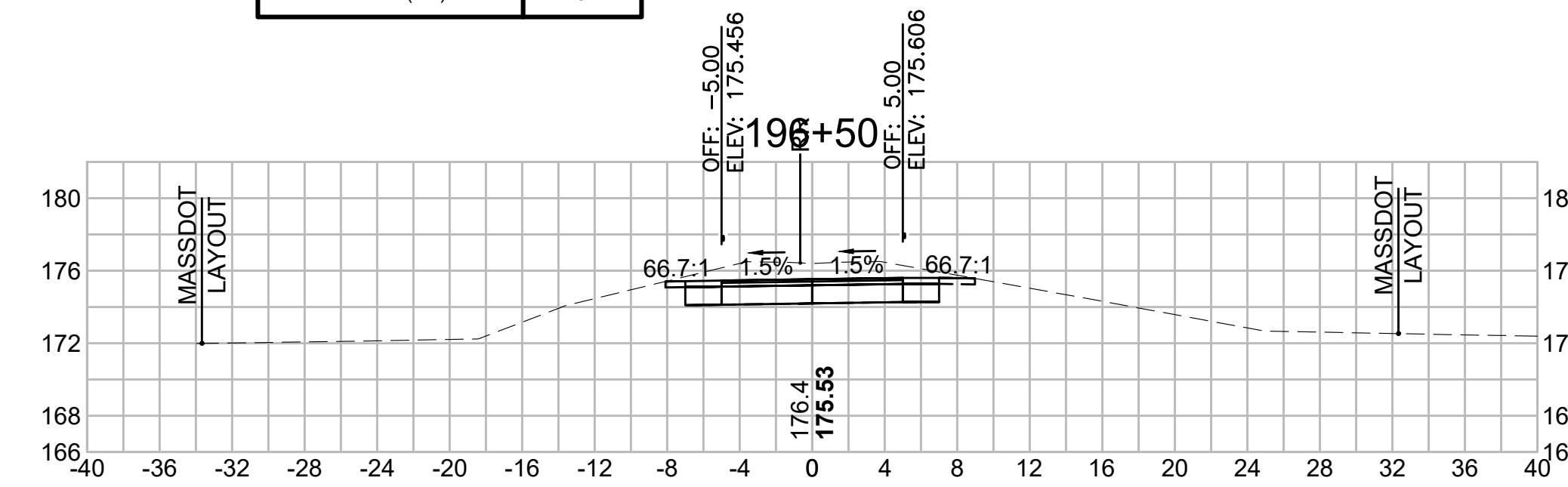
**Total Volume at Station 195+00.00**

Cut Area (SF)	15,040
Fill Area (SF)	2,012
Cut Vol (CF)	20.1
Fill Vol (CF)	11.4
Cum Cut Vol (CF)	5706.9
Cum Fill Vol (CF)	3546.5
Net Vol (CF)	2160.4



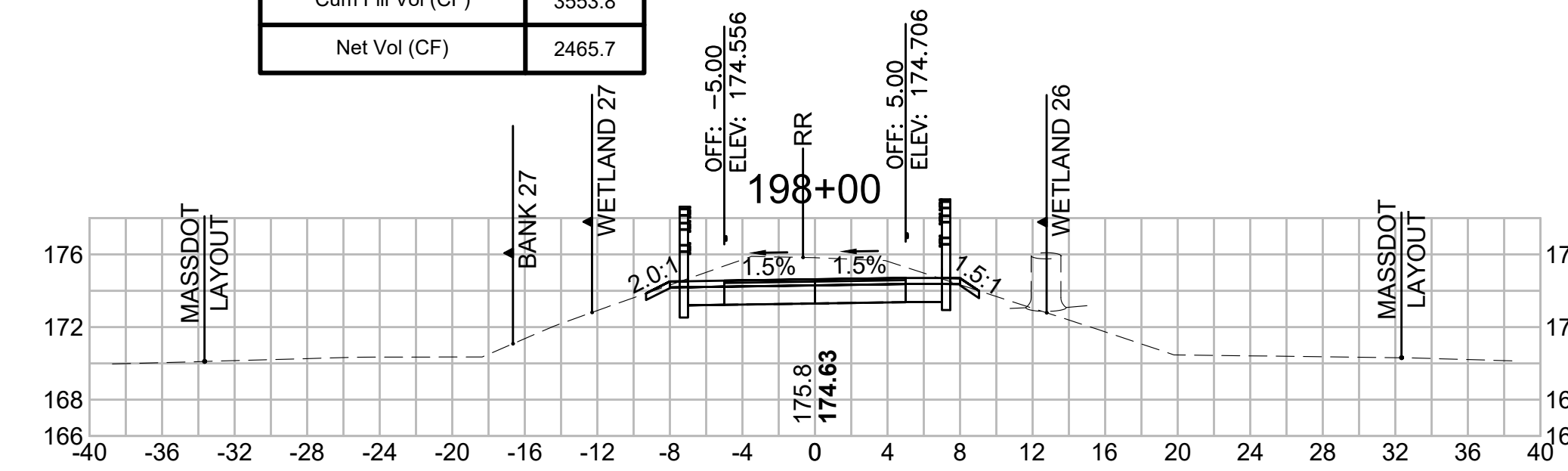
**Total Volume at Station 196+50.00**

Cut Area (SF)	35,196
Fill Area (SF)	0.000
Cut Vol (CF)	52.1
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	5814.9
Cum Fill Vol (CF)	3552.8
Net Vol (CF)	2262.1



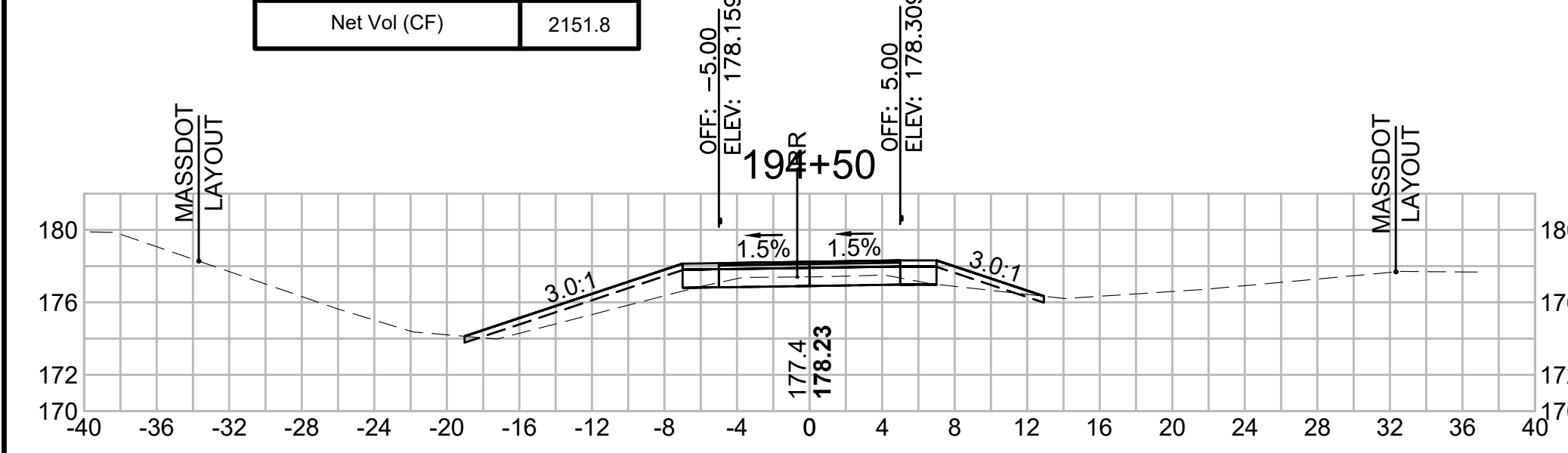
**Total Volume at Station 198+00.00**

Cut Area (SF)	34,547
Fill Area (SF)	1,124
Cut Vol (CF)	65.3
Fill Vol (CF)	1.1
Cum Cut Vol (CF)	6019.5
Cum Fill Vol (CF)	3553.8
Net Vol (CF)	2465.7



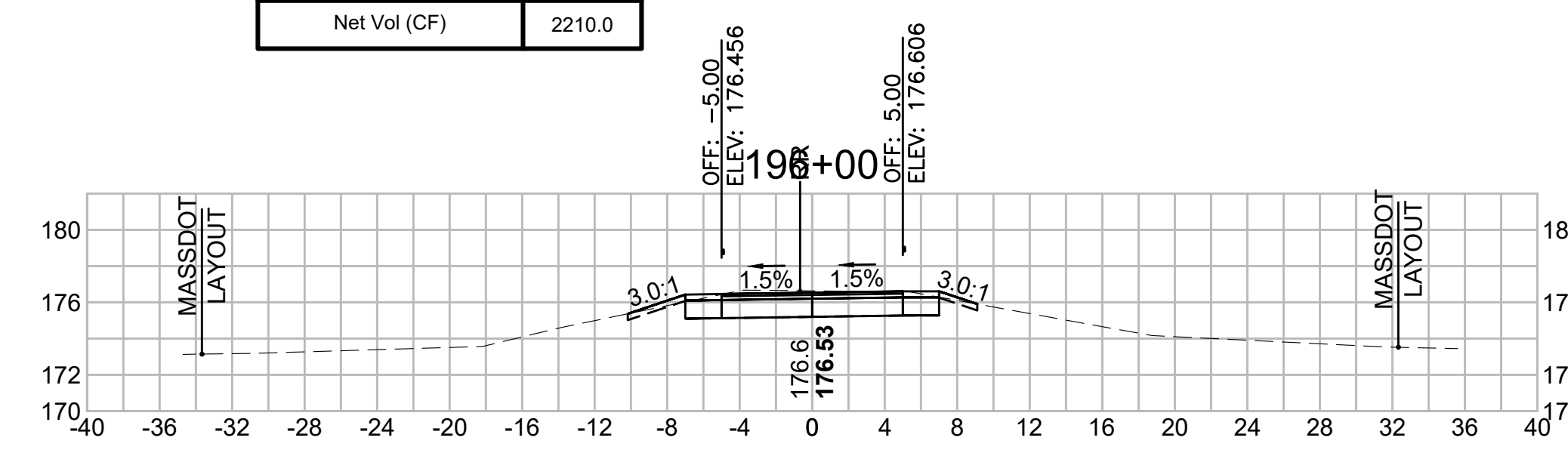
**Total Volume at Station 194+50.00**

Cut Area (SF)	6,663
Fill Area (SF)	10,352
Cut Vol (CF)	13.1
Fill Vol (CF)	16.3
Cum Cut Vol (CF)	5686.8
Cum Fill Vol (CF)	3535.1
Net Vol (CF)	2151.8



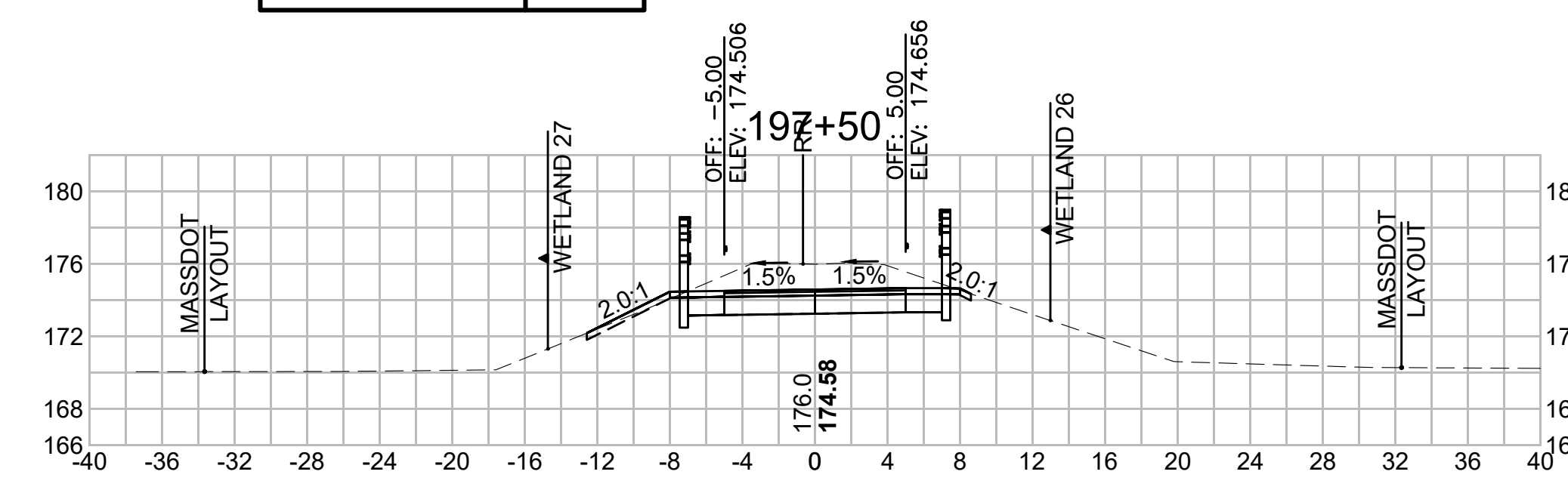
**Total Volume at Station 196+00.00**

Cut Area (SF)	21,122
Fill Area (SF)	0.012
Cut Vol (CF)	30.7
Fill Vol (CF)	2.2
Cum Cut Vol (CF)	5762.8
Cum Fill Vol (CF)	3552.8
Net Vol (CF)	2210.0



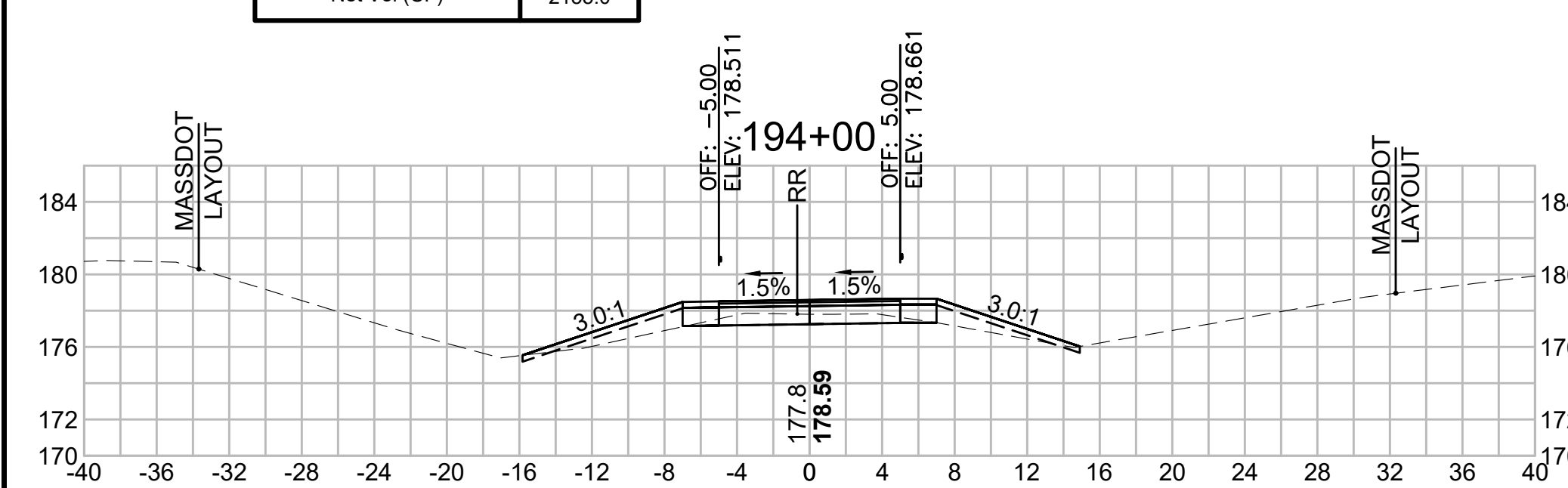
**Total Volume at Station 197+50.00**

Cut Area (SF)	36,005
Fill Area (SF)	0.012
Cut Vol (CF)	70.0
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	5954.2
Cum Fill Vol (CF)	3552.8
Net Vol (CF)	2401.4



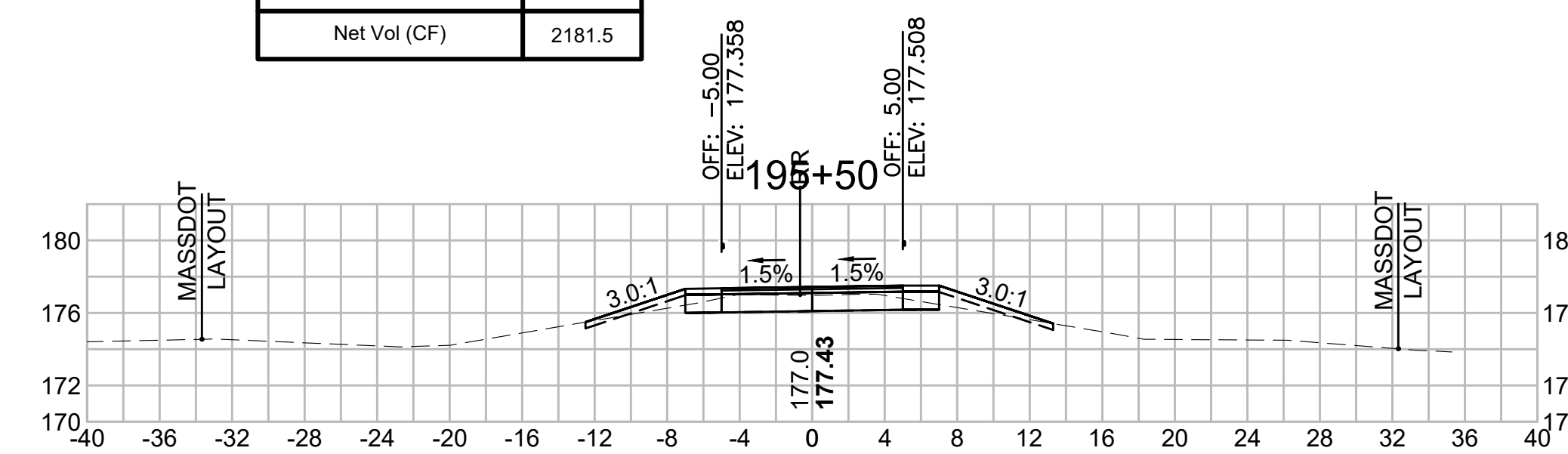
**Total Volume at Station 194+00.00**

Cut Area (SF)	7,450
Fill Area (SF)	7,251
Cut Vol (CF)	12.0
Fill Vol (CF)	15.7
Cum Cut Vol (CF)	5673.8
Cum Fill Vol (CF)	3518.8
Net Vol (CF)	2155.0



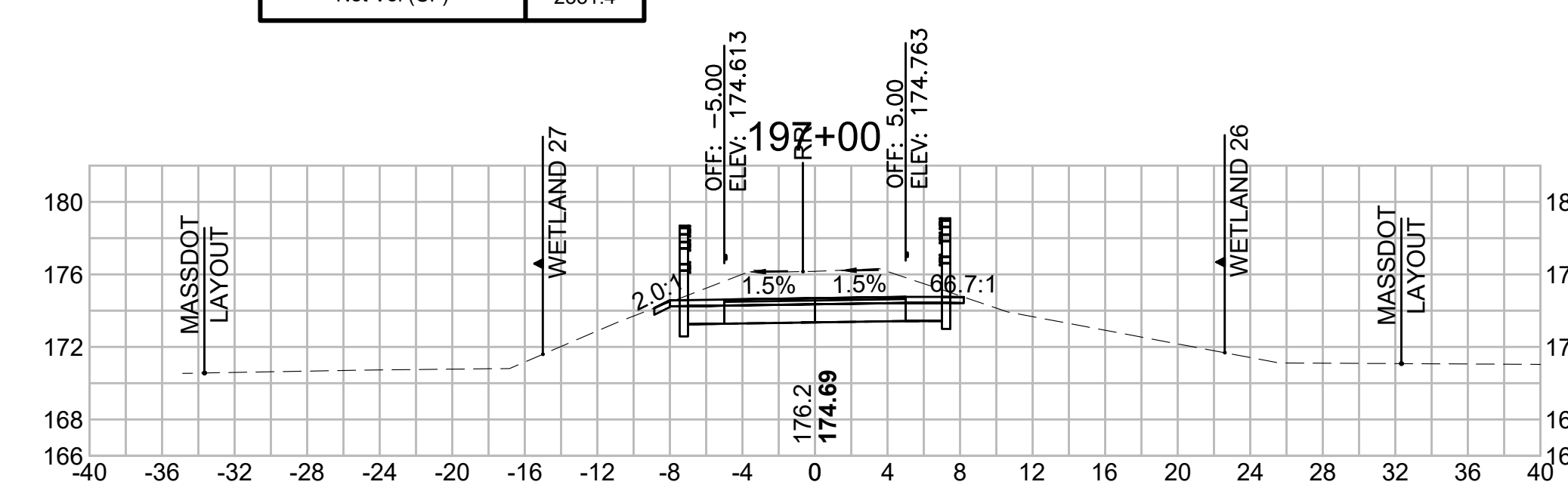
**Total Volume at Station 195+50.00**

Cut Area (SF)	12,077
Fill Area (SF)	2,372
Cut Vol (CF)	25.1
Fill Vol (CF)	4.1
Cum Cut Vol (CF)	5732.0
Cum Fill Vol (CF)	3550.6
Net Vol (CF)	2181.5



**Total Volume at Station 197+00.00**

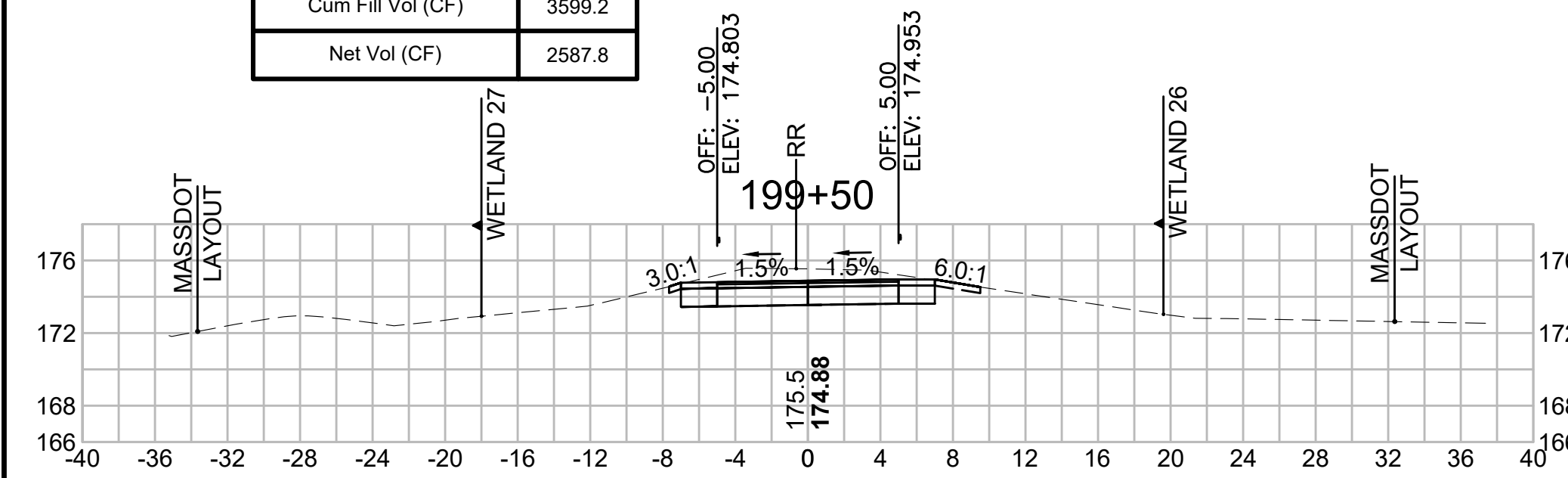
Cut Area (SF)	39,622
Fill Area (SF)	0.001
Cut Vol (CF)	69.3
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	5884.2
Cum Fill Vol (CF)	3552.8
Net Vol (CF)	2331.4



**CROSS SECTIONS**

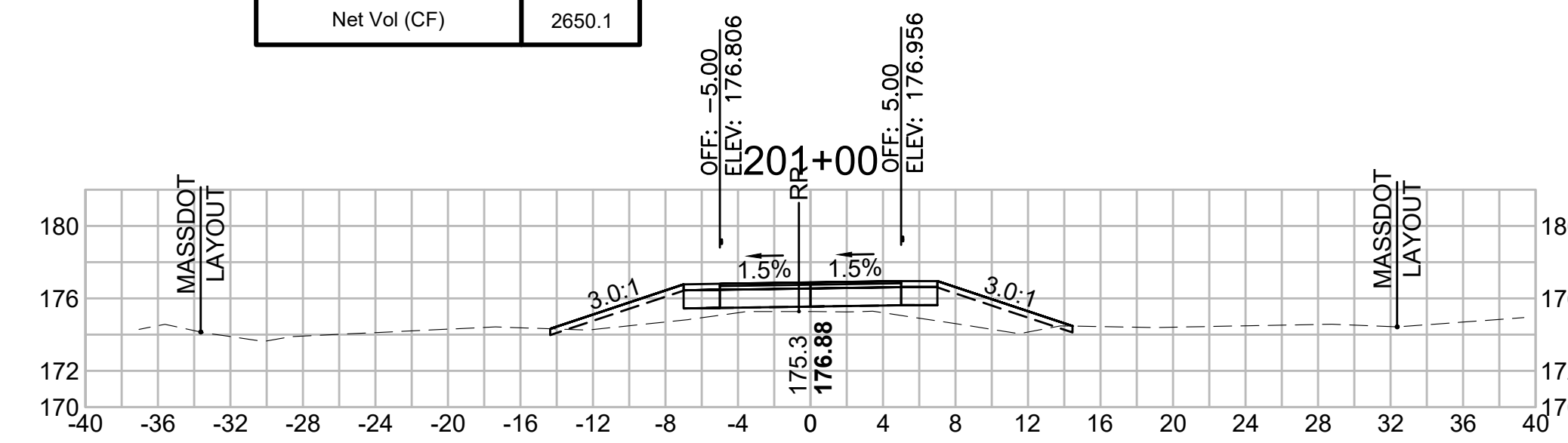
**Total Volume at Station 199+50.00**

Cut Area (SF)	29.162
Fill Area (SF)	0.060
Cut Vol (CF)	53.1
Fill Vol (CF)	12.5
Cum Cut Vol (CF)	6187.0
Cum Fill Vol (CF)	3599.2
Net Vol (CF)	2587.8



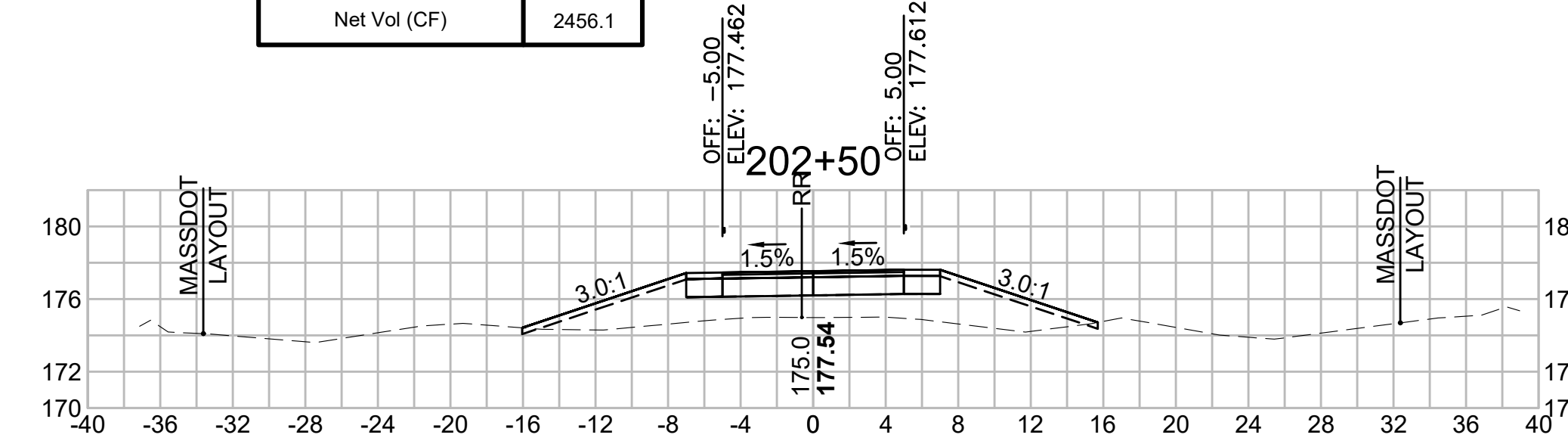
**Total Volume at Station 201+00.00**

Cut Area (SF)	8.334
Fill Area (SF)	18.749
Cut Vol (CF)	19.3
Fill Vol (CF)	21.2
Cum Cut Vol (CF)	6278.1
Cum Fill Vol (CF)	3628.0
Net Vol (CF)	2650.1



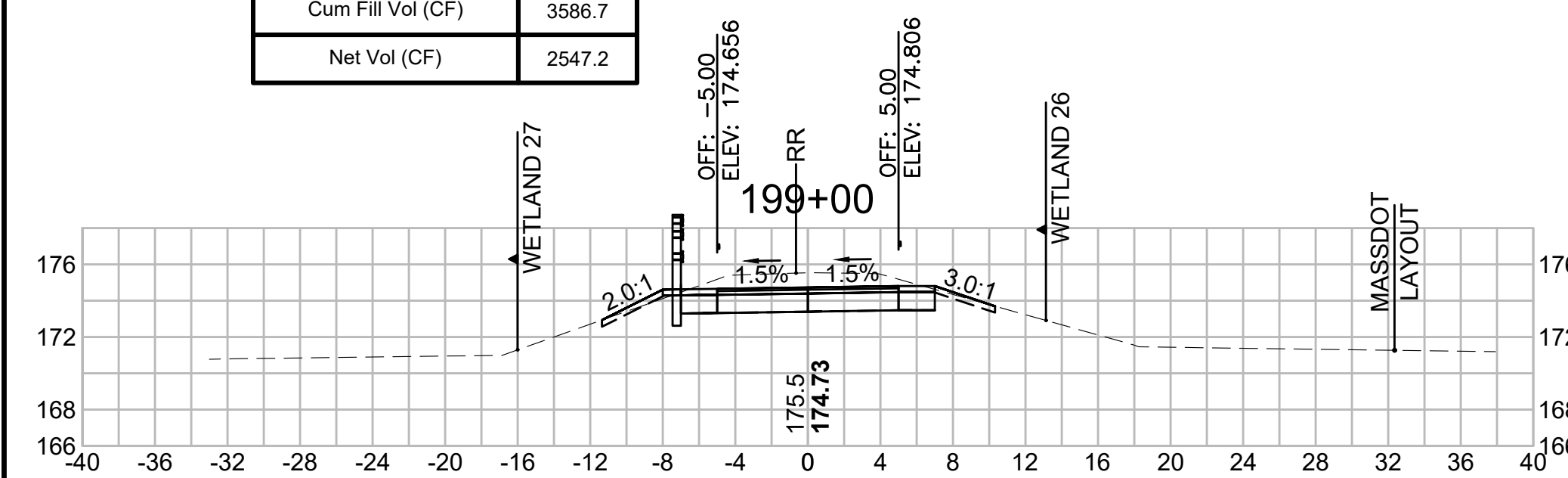
**Total Volume at Station 202+50.00**

Cut Area (SF)	0.269
Fill Area (SF)	40.294
Cut Vol (CF)	0.6
Fill Vol (CF)	76.7
Cum Cut Vol (CF)	6291.0
Cum Fill Vol (CF)	3834.9
Net Vol (CF)	2456.1



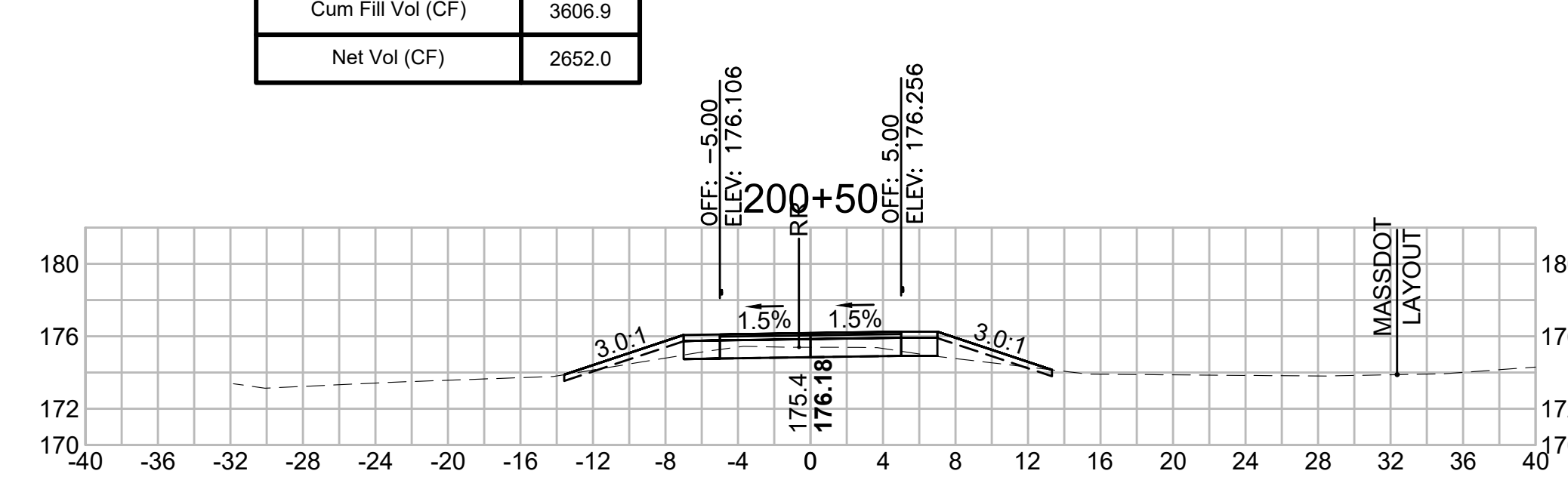
**Total Volume at Station 199+00.00**

Cut Area (SF)	28.158
Fill Area (SF)	13.415
Cut Vol (CF)	54.2
Fill Vol (CF)	22.1
Cum Cut Vol (CF)	6133.9
Cum Fill Vol (CF)	3586.7
Net Vol (CF)	2547.2



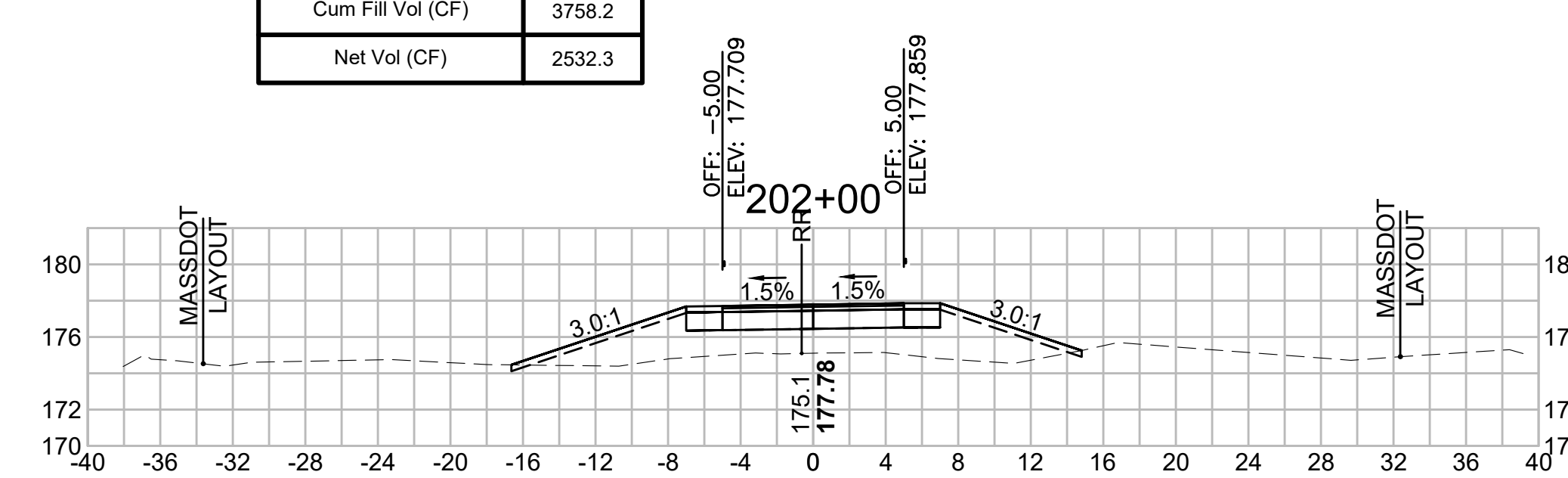
**Total Volume at Station 200+50.00**

Cut Area (SF)	12.502
Fill Area (SF)	4.110
Cut Vol (CF)	28.2
Fill Vol (CF)	5.7
Cum Cut Vol (CF)	6258.9
Cum Fill Vol (CF)	3606.9
Net Vol (CF)	2652.0



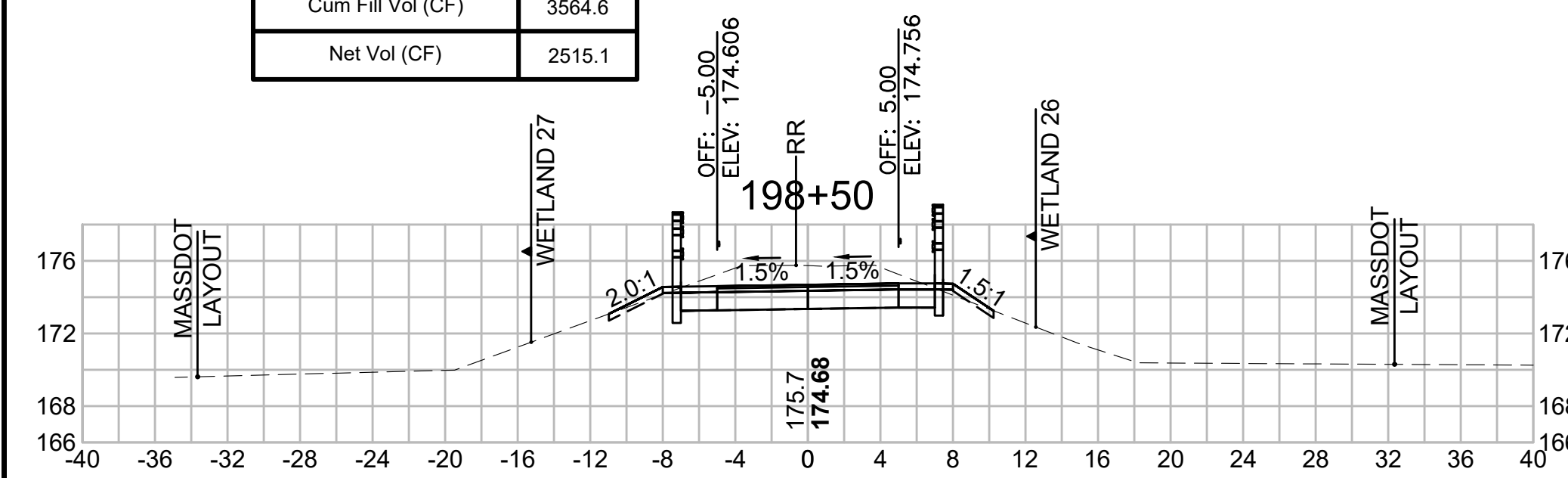
**Total Volume at Station 202+00.00**

Cut Area (SF)	0.329
Fill Area (SF)	42.587
Cut Vol (CF)	2.4
Fill Vol (CF)	76.1
Cum Cut Vol (CF)	6290.4
Cum Fill Vol (CF)	3758.2
Net Vol (CF)	2532.3



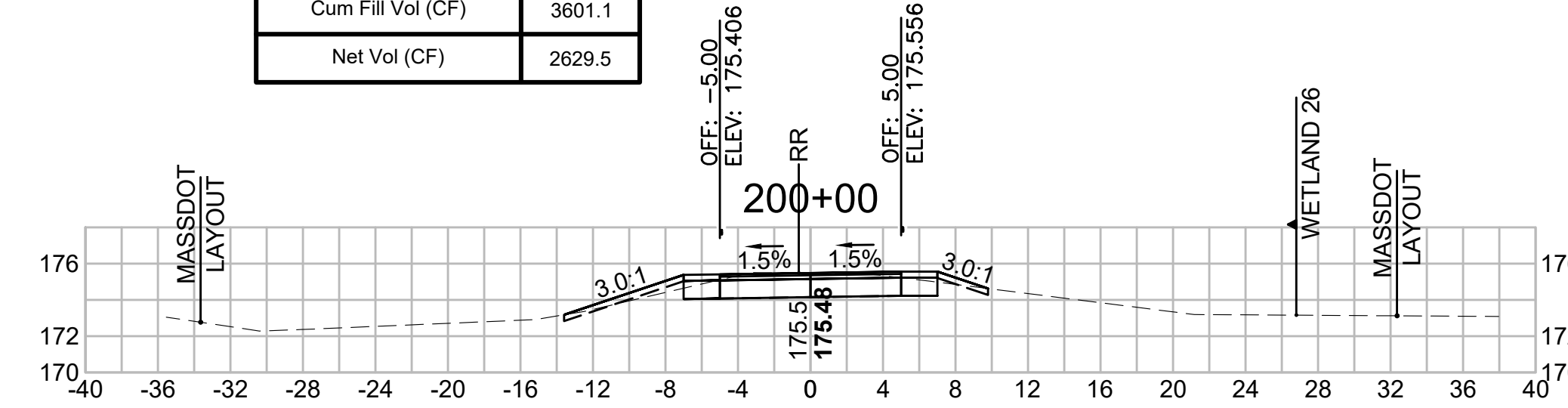
**Total Volume at Station 198+50.00**

Cut Area (SF)	30.417
Fill Area (SF)	10.468
Cut Vol (CF)	60.2
Fill Vol (CF)	10.7
Cum Cut Vol (CF)	6079.7
Cum Fill Vol (CF)	3564.6
Net Vol (CF)	2515.1



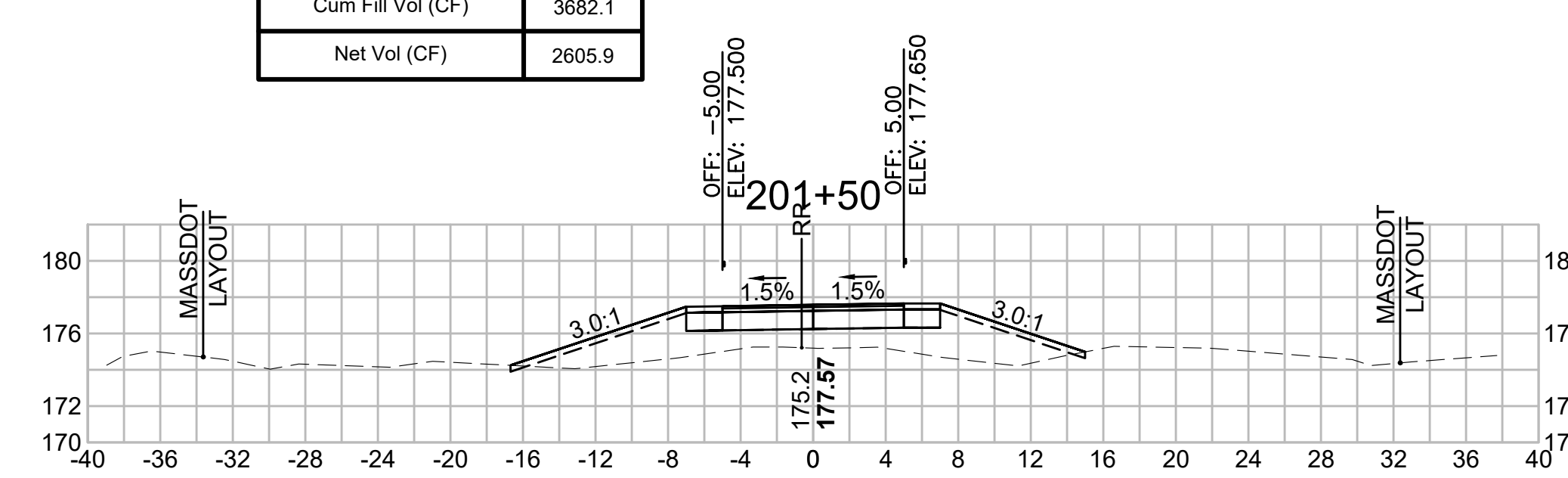
**Total Volume at Station 200+00.00**

Cut Area (SF)	17.962
Fill Area (SF)	2.080
Cut Vol (CF)	43.6
Fill Vol (CF)	2.0
Cum Cut Vol (CF)	6230.6
Cum Fill Vol (CF)	3601.1
Net Vol (CF)	2629.5



**Total Volume at Station 201+50.00**

Cut Area (SF)	2.298
Fill Area (SF)	39.594
Cut Vol (CF)	9.8
Fill Vol (CF)	54.0
Cum Cut Vol (CF)	6288.0
Cum Fill Vol (CF)	3682.1
Net Vol (CF)	2605.9



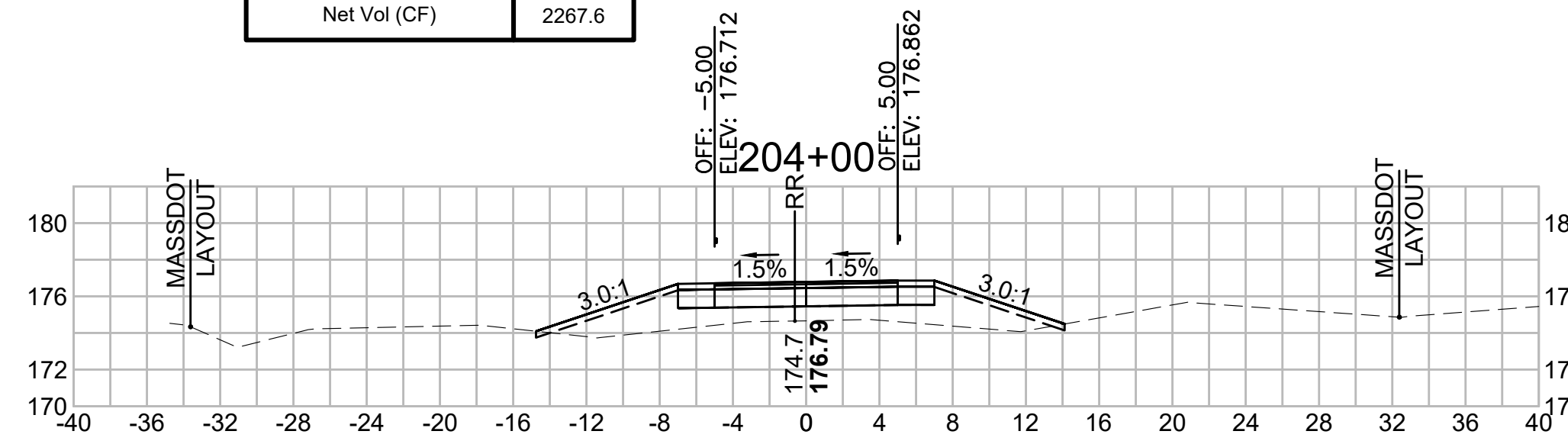
SUDBURY  
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	267	318

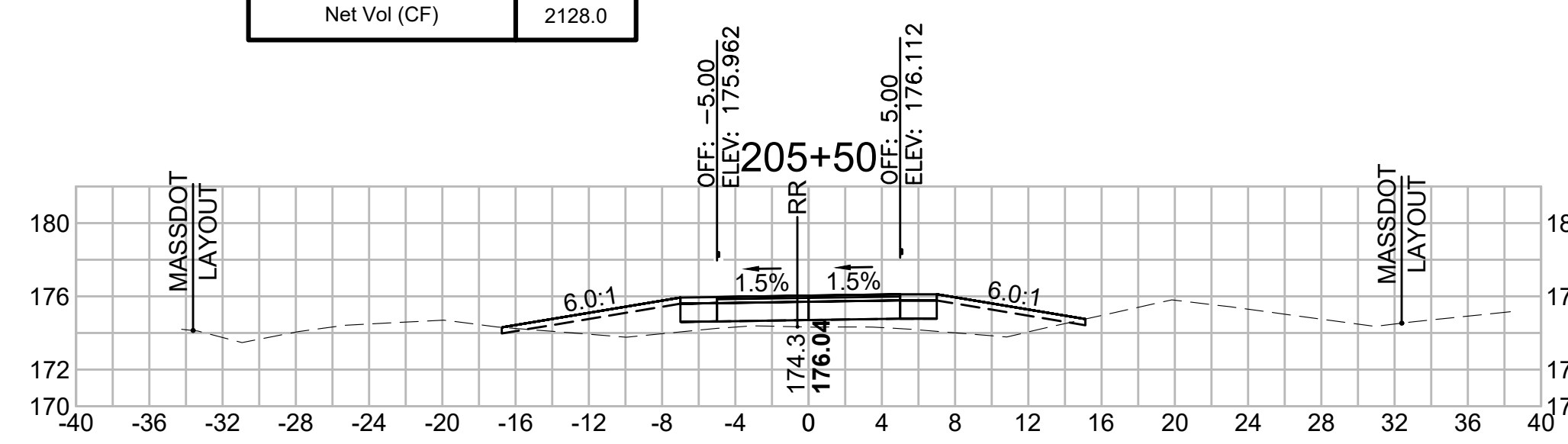
CROSS SECTIONS

608164\_XSEC(CROSS SECTION LAYOUTS).DWG 12-May-2021

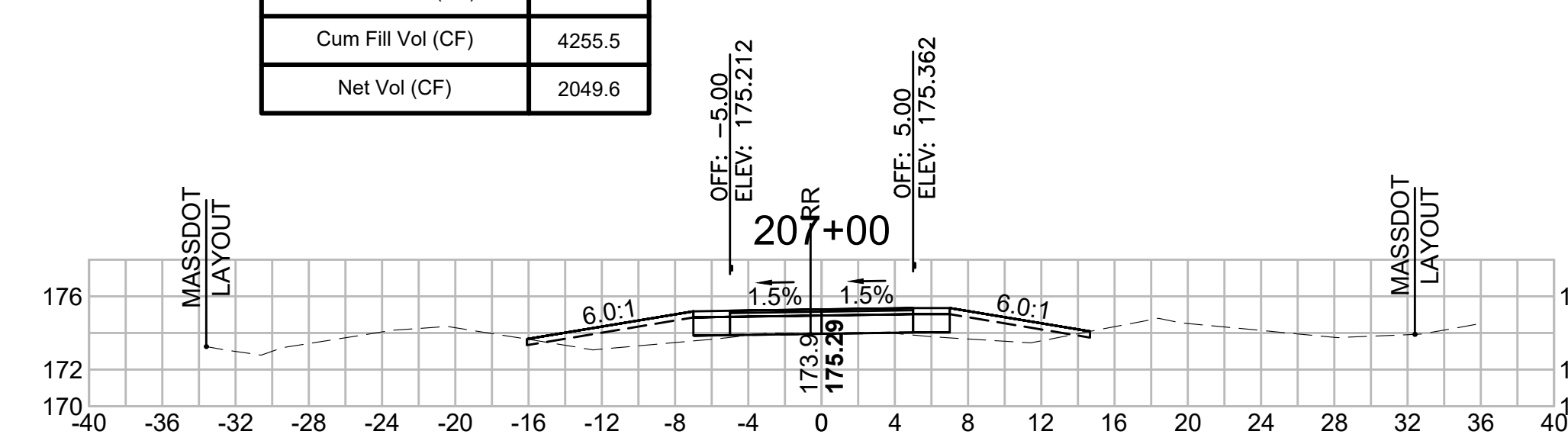
Total Volume at Station 204+00.00	
Cut Area (SF)	1.111
Fill Area (SF)	28.525
Cut Vol (CF)	2.4
Fill Vol (CF)	56.9
Cum Cut Vol (CF)	6295.9
Cum Fill Vol (CF)	4028.3
Net Vol (CF)	2267.6



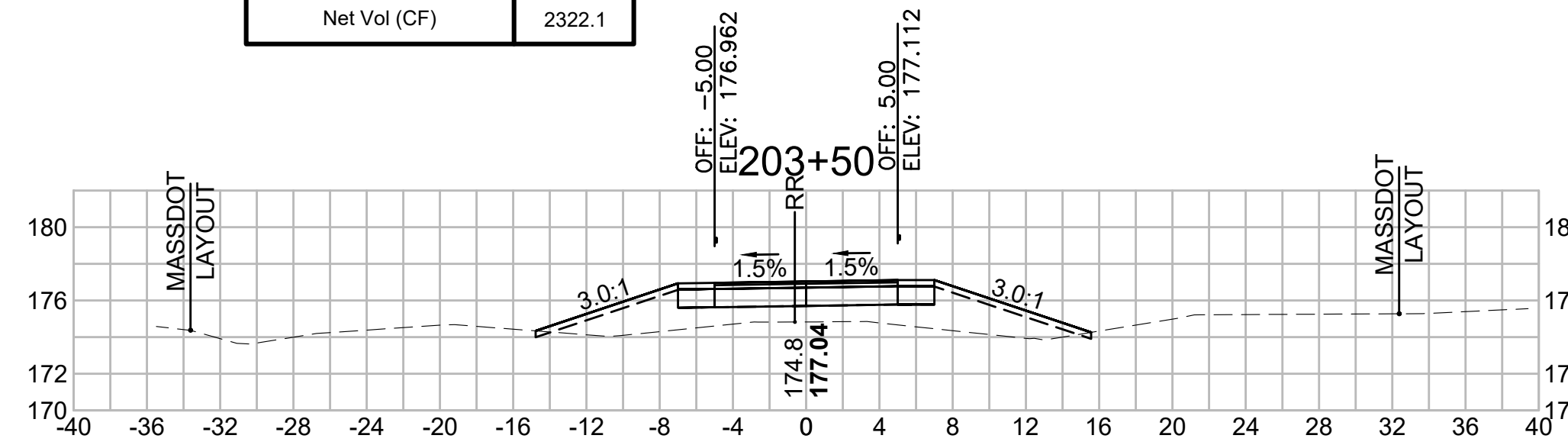
Total Volume at Station 205+50.00	
Cut Area (SF)	0.375
Fill Area (SF)	21.945
Cut Vol (CF)	1.0
Fill Vol (CF)	42.2
Cum Cut Vol (CF)	6295.5
Cum Fill Vol (CF)	4171.5
Net Vol (CF)	2128.0



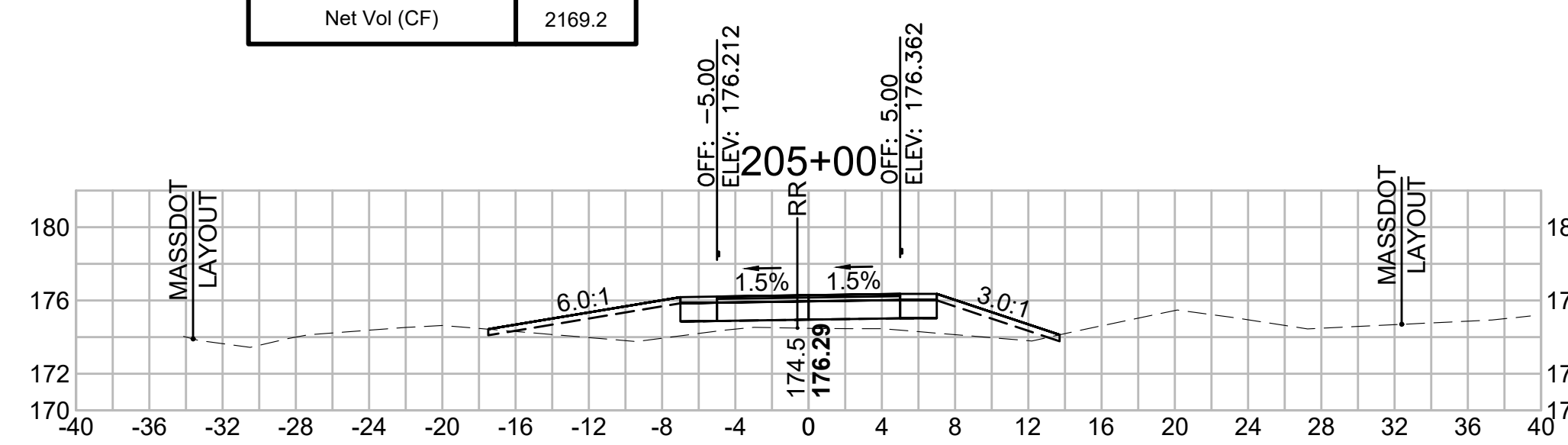
Total Volume at Station 207+00.00	
Cut Area (SF)	0.486
Fill Area (SF)	13.756
Cut Vol (CF)	1.5
Fill Vol (CF)	24.4
Cum Cut Vol (CF)	6305.1
Cum Fill Vol (CF)	4255.5
Net Vol (CF)	2049.6



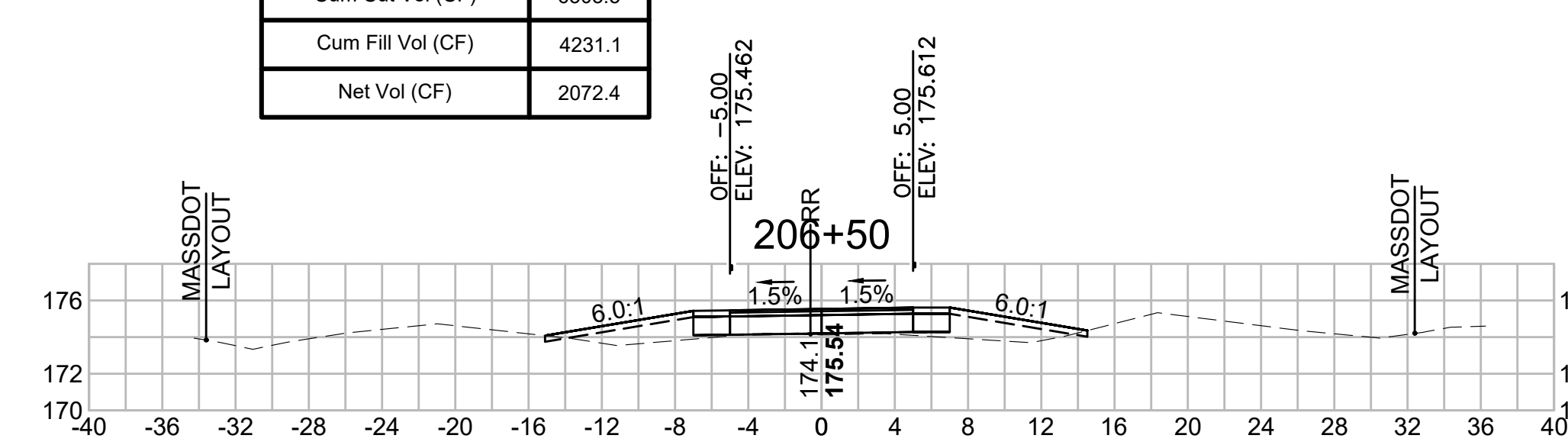
Total Volume at Station 203+50.00	
Cut Area (SF)	1.477
Fill Area (SF)	32.895
Cut Vol (CF)	1.8
Fill Vol (CF)	64.8
Cum Cut Vol (CF)	6293.5
Cum Fill Vol (CF)	3971.4
Net Vol (CF)	2322.1



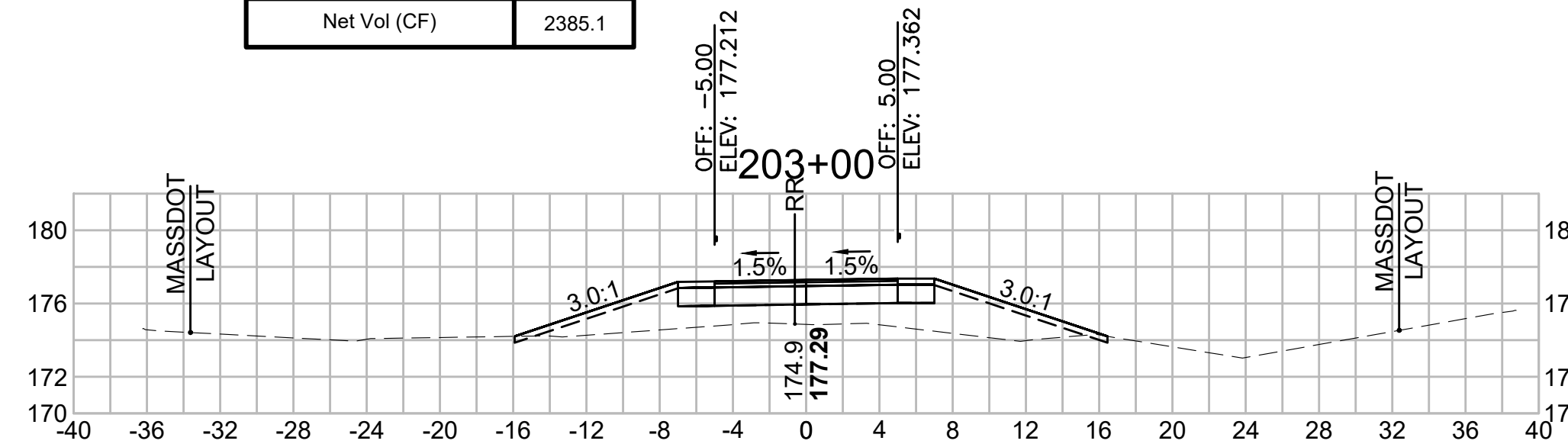
Total Volume at Station 205+00.00	
Cut Area (SF)	0.741
Fill Area (SF)	23.656
Cut Vol (CF)	1.1
Fill Vol (CF)	48.2
Cum Cut Vol (CF)	6298.5
Cum Fill Vol (CF)	4129.3
Net Vol (CF)	2169.2



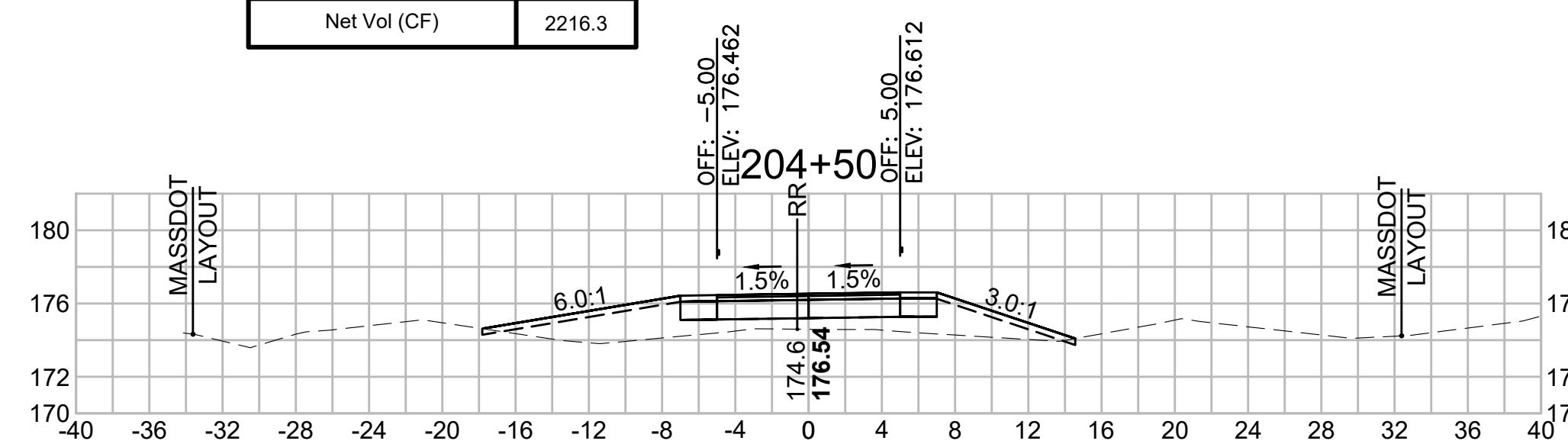
Total Volume at Station 206+50.00	
Cut Area (SF)	1.181
Fill Area (SF)	12.544
Cut Vol (CF)	2.4
Fill Vol (CF)	25.4
Cum Cut Vol (CF)	6303.5
Cum Fill Vol (CF)	4231.1
Net Vol (CF)	2072.4



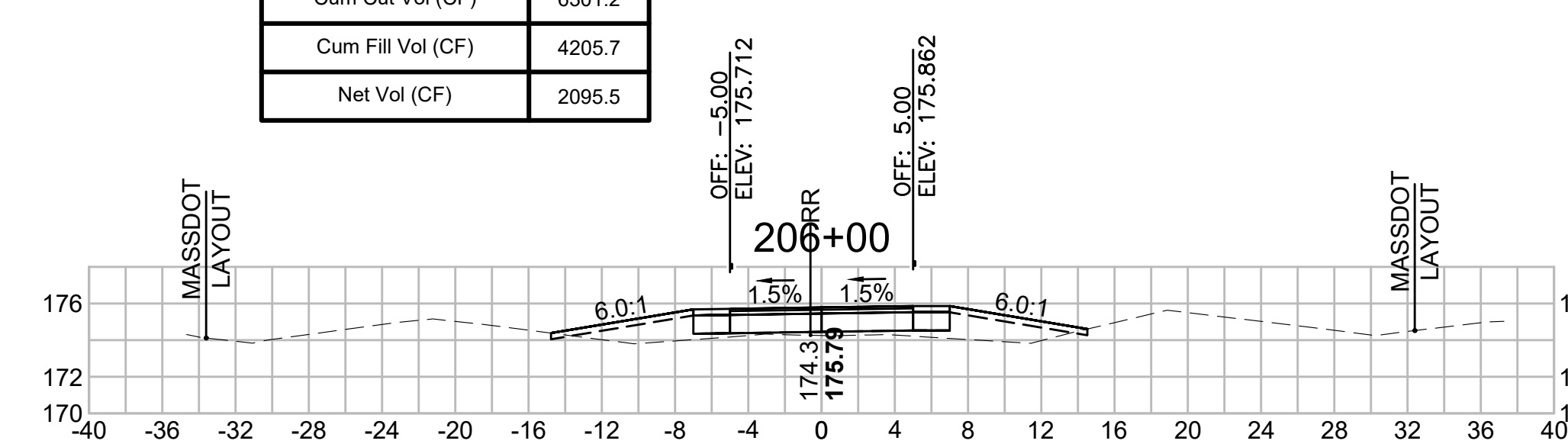
Total Volume at Station 203+00.00	
Cut Area (SF)	0.502
Fill Area (SF)	37.130
Cut Vol (CF)	0.7
Fill Vol (CF)	71.7
Cum Cut Vol (CF)	6291.7
Cum Fill Vol (CF)	3906.6
Net Vol (CF)	2385.1



Total Volume at Station 204+50.00	
Cut Area (SF)	0.471
Fill Area (SF)	28.449
Cut Vol (CF)	1.5
Fill Vol (CF)	52.8
Cum Cut Vol (CF)	6297.4
Cum Fill Vol (CF)	4081.1
Net Vol (CF)	2216.3



Total Volume at Station 206+00.00	
Cut Area (SF)	1.387
Fill Area (SF)	14.930
Cut Vol (CF)	1.6
Fill Vol (CF)	34.1
Cum Cut Vol (CF)	6301.2
Cum Fill Vol (CF)	4205.7
Net Vol (CF)	2095.5



SUDBURY  
BRUCE FREEMAN RAIL TRAIL

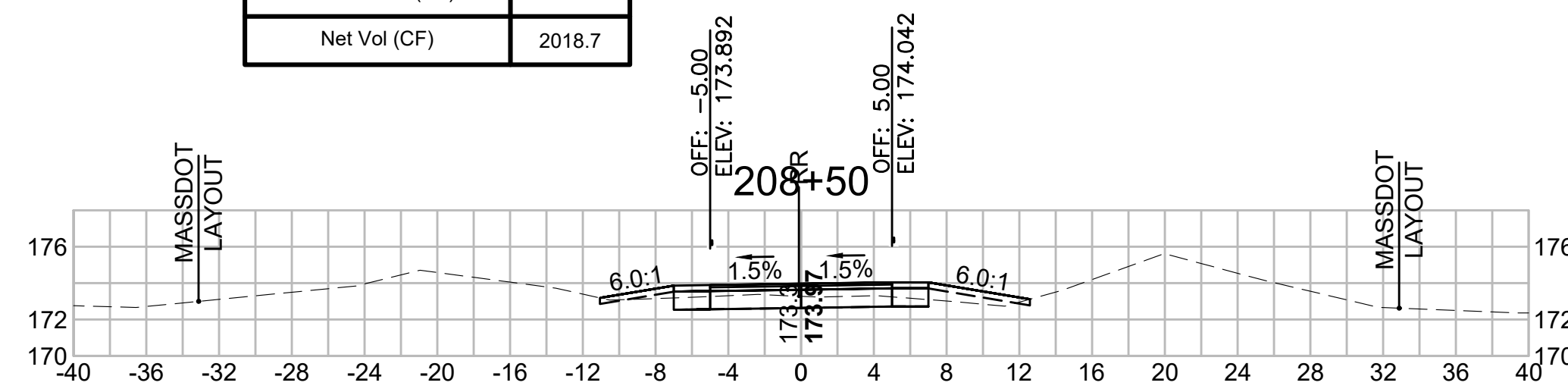
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	268	318

PROJECT FILE NO. 608164

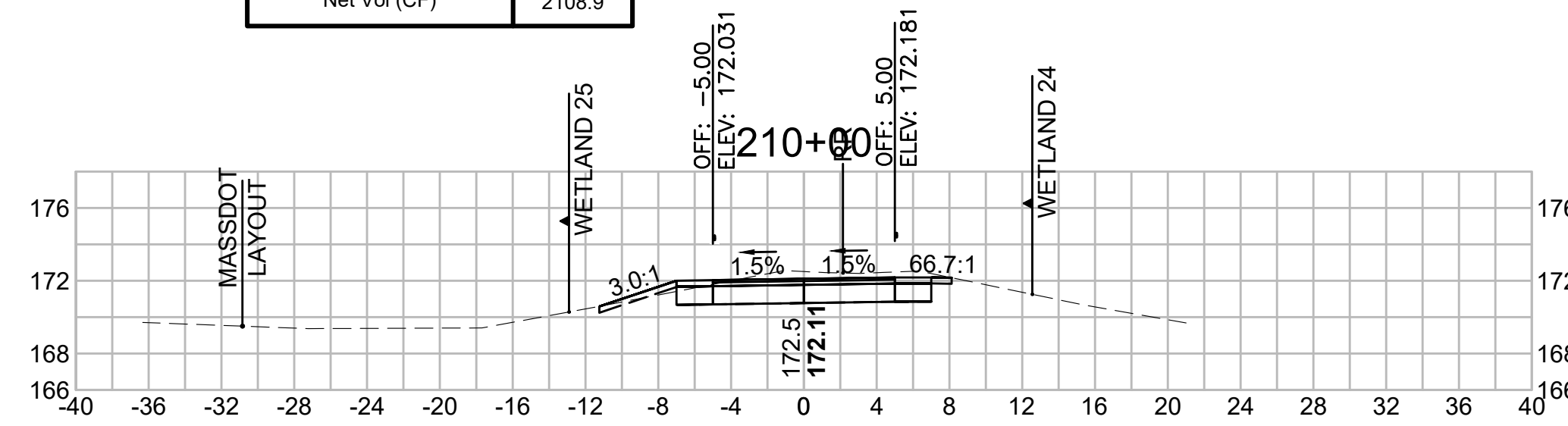
CROSS SECTIONS

608164\_XSEC(CROSS SECTION LAYOUTS).DWG 12-May-2021

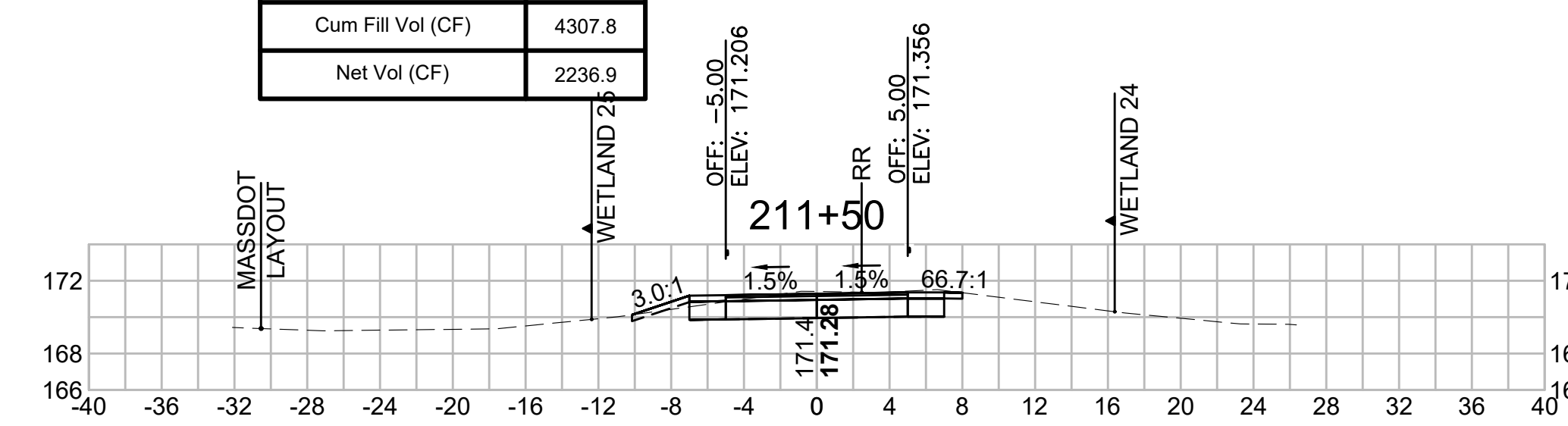
Total Volume at Station 208+50.00	
Cut Area (SF)	9.444
Fill Area (SF)	2.372
Cut Vol (CF)	12.0
Fill Vol (CF)	8.5
Cum Cut Vol (CF)	6322.5
Cum Fill Vol (CF)	4303.9
Net Vol (CF)	2018.7



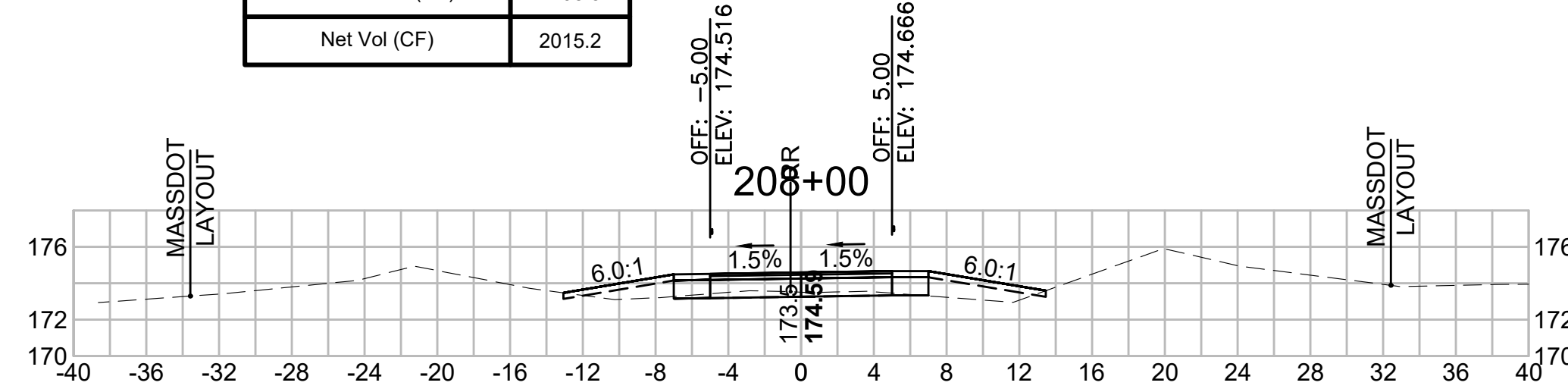
Total Volume at Station 210+00.00	
Cut Area (SF)	22.200
Fill Area (SF)	0.211
Cut Vol (CF)	39.3
Fill Vol (CF)	0.2
Cum Cut Vol (CF)	6415.9
Cum Fill Vol (CF)	4307.0
Net Vol (CF)	2108.9



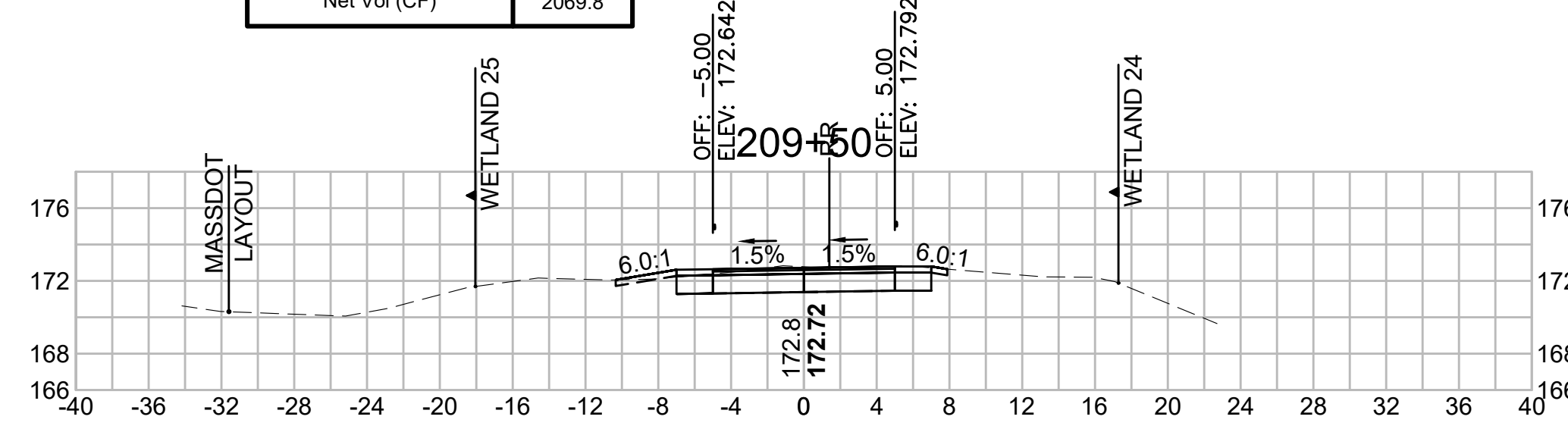
Total Volume at Station 211+50.00	
Cut Area (SF)	20.997
Fill Area (SF)	0.179
Cut Vol (CF)	41.2
Fill Vol (CF)	0.3
Cum Cut Vol (CF)	6544.7
Cum Fill Vol (CF)	4307.8
Net Vol (CF)	2236.9



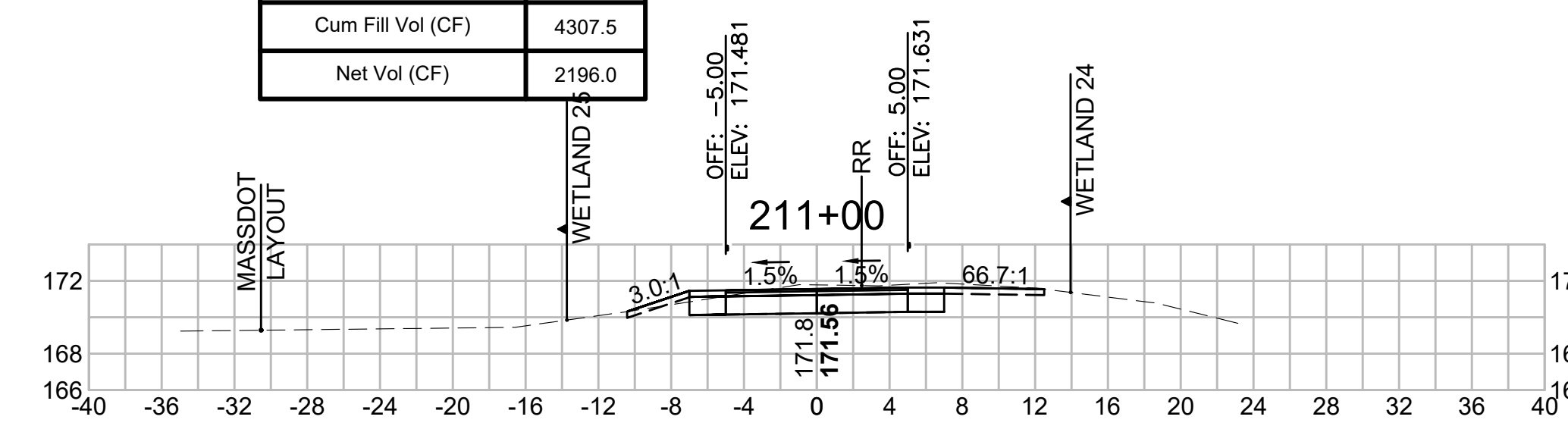
Total Volume at Station 208+00.00	
Cut Area (SF)	3.490
Fill Area (SF)	6.856
Cut Vol (CF)	4.1
Fill Vol (CF)	16.7
Cum Cut Vol (CF)	6310.5
Cum Fill Vol (CF)	4295.3
Net Vol (CF)	2015.2



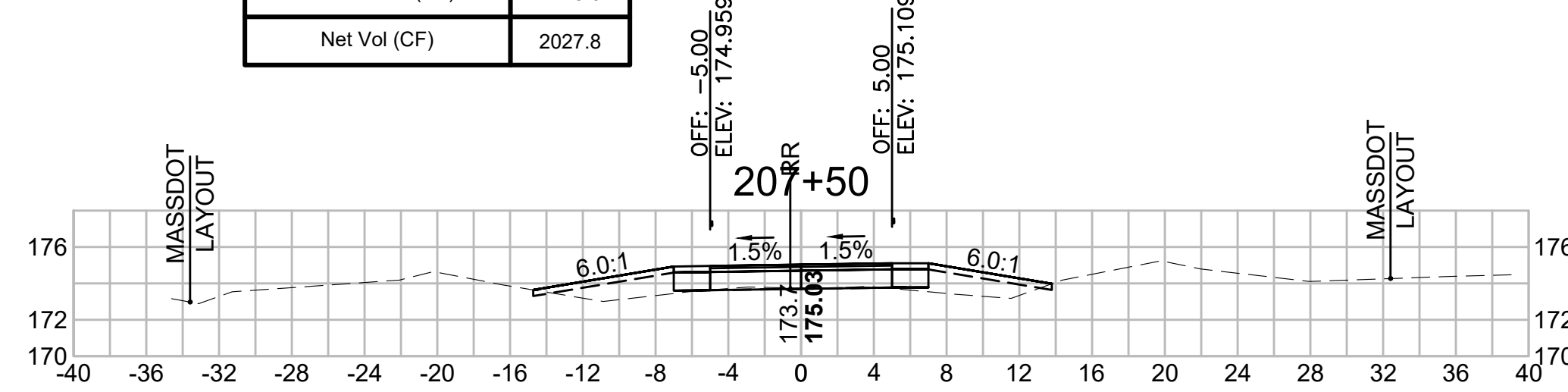
Total Volume at Station 209+50.00	
Cut Area (SF)	20.276
Fill Area (SF)	0.029
Cut Vol (CF)	32.1
Fill Vol (CF)	0.4
Cum Cut Vol (CF)	6376.6
Cum Fill Vol (CF)	4306.8
Net Vol (CF)	2069.8



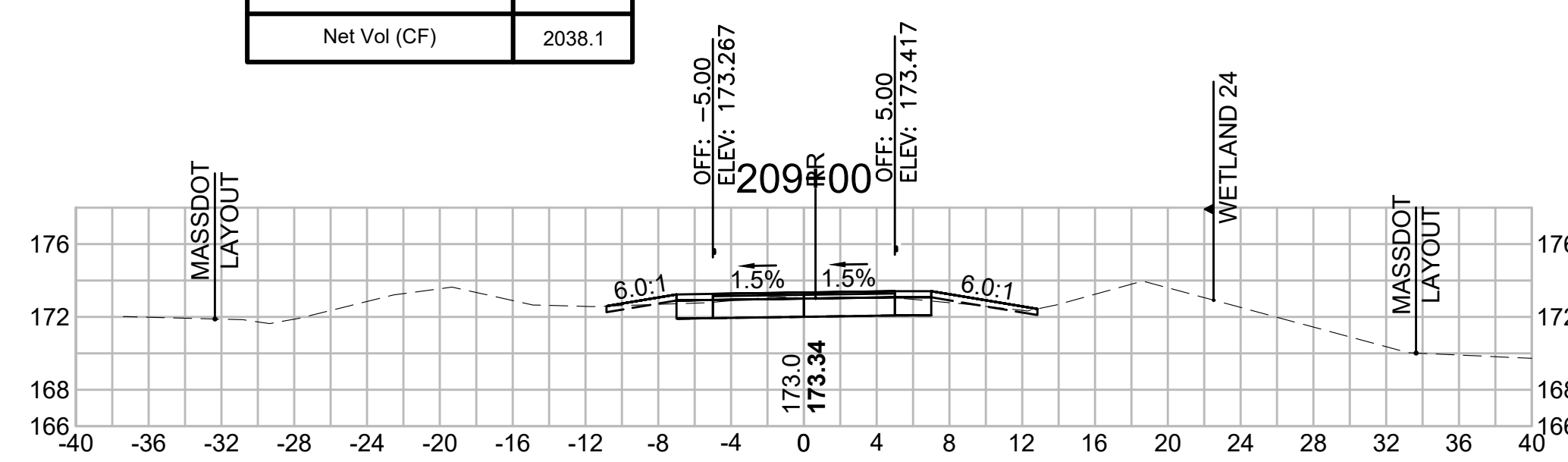
Total Volume at Station 211+00.00	
Cut Area (SF)	23.521
Fill Area (SF)	0.185
Cut Vol (CF)	44.4
Fill Vol (CF)	0.2
Cum Cut Vol (CF)	6503.5
Cum Fill Vol (CF)	4307.5
Net Vol (CF)	2196.0



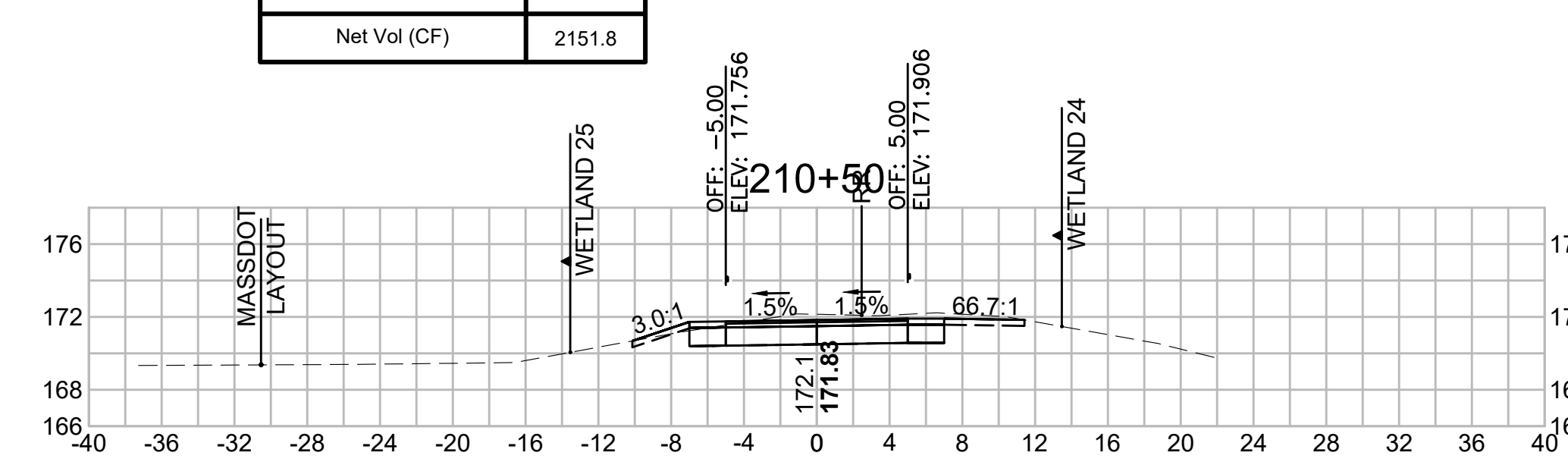
Total Volume at Station 207+50.00	
Cut Area (SF)	0.952
Fill Area (SF)	11.219
Cut Vol (CF)	1.3
Fill Vol (CF)	23.1
Cum Cut Vol (CF)	6306.4
Cum Fill Vol (CF)	4278.6
Net Vol (CF)	2027.8



Total Volume at Station 209+00.00	
Cut Area (SF)	14.341
Fill Area (SF)	0.396
Cut Vol (CF)	22.0
Fill Vol (CF)	2.6
Cum Cut Vol (CF)	6344.5
Cum Fill Vol (CF)	4306.4
Net Vol (CF)	2038.1



Total Volume at Station 210+50.00	
Cut Area (SF)	24.421
Fill Area (SF)	0.053
Cut Vol (CF)	43.2
Fill Vol (CF)	0.2
Cum Cut Vol (CF)	6459.1
Cum Fill Vol (CF)	4307.3
Net Vol (CF)	2151.8





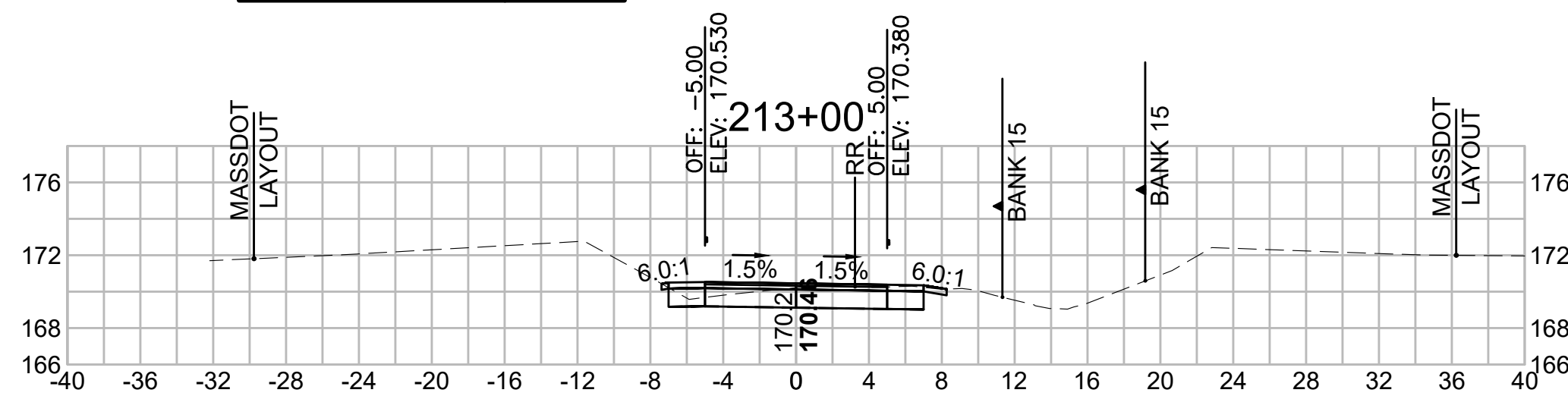
SUDBURY  
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	269	318
PROJECT FILE NO. 608164			

CROSS SECTIONS

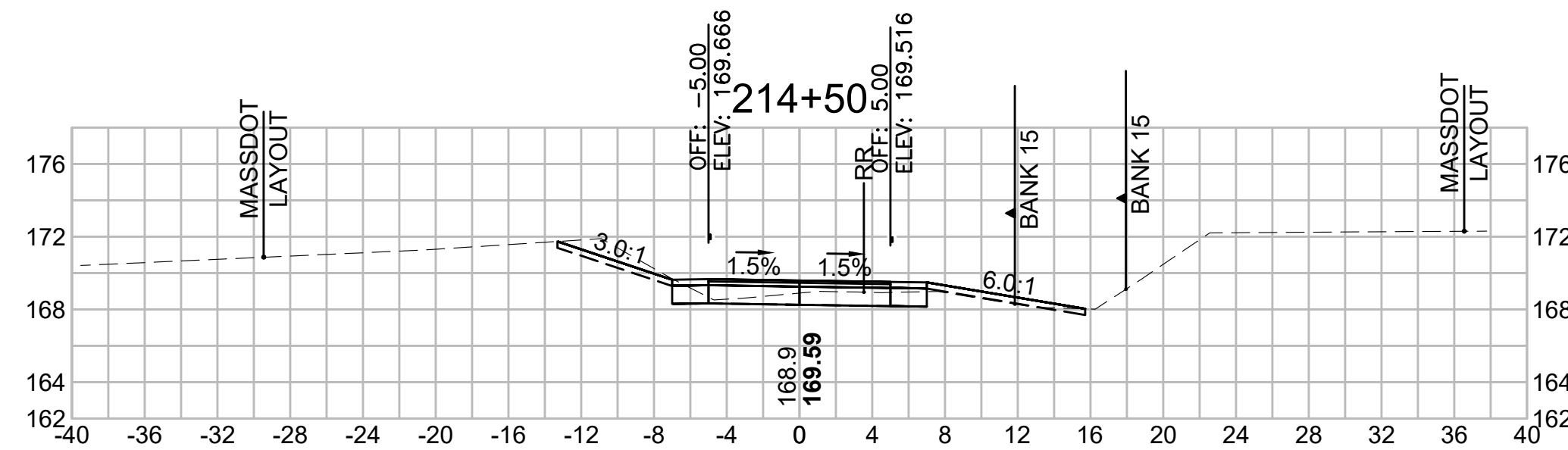
**Total Volume at Station 213+00.00**

Cut Area (SF)	20.996
Fill Area (SF)	0.000
Cut Vol (CF)	44.0
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	6673.8
Cum Fill Vol (CF)	4308.0
Net Vol (CF)	2365.8



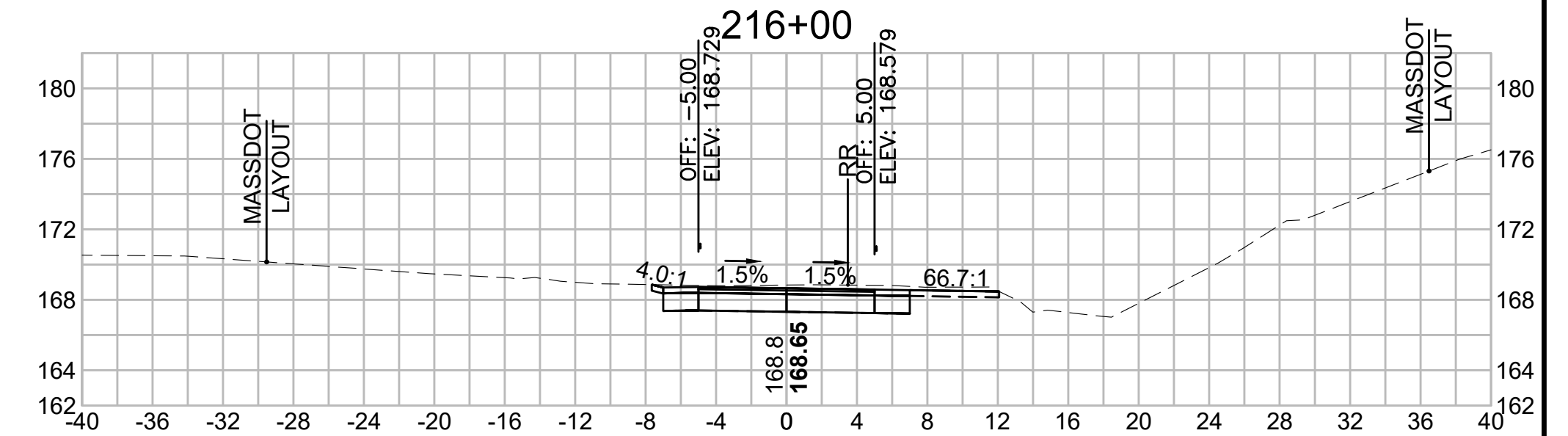
**Total Volume at Station 214+50.00**

Cut Area (SF)	14.820
Fill Area (SF)	0.356
Cut Vol (CF)	33.5
Fill Vol (CF)	0.3
Cum Cut Vol (CF)	6784.2
Cum Fill Vol (CF)	4308.4
Net Vol (CF)	2475.9



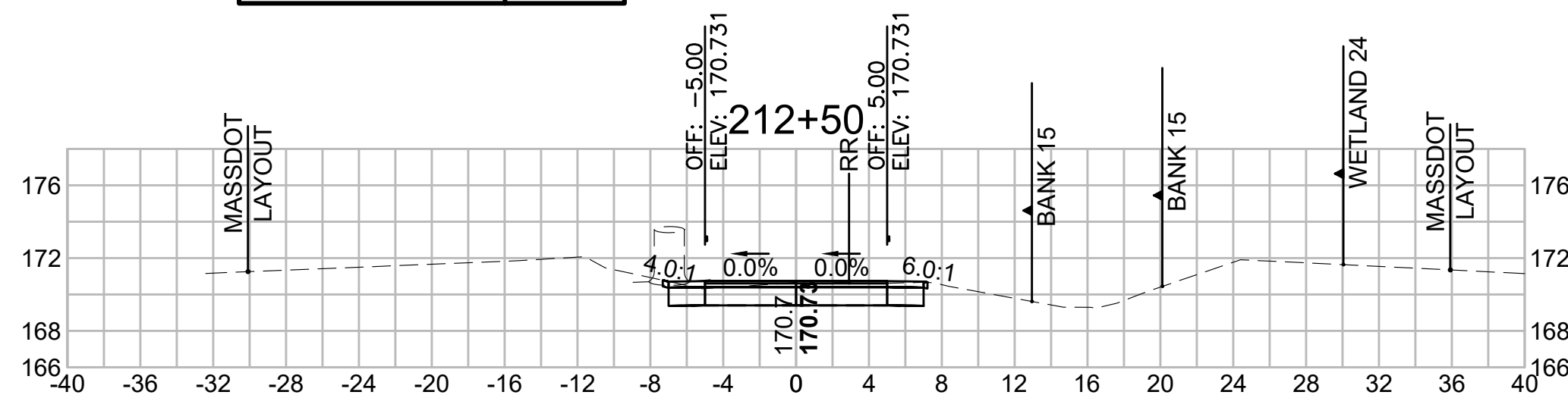
**Total Volume at Station 216+00.00**

Cut Area (SF)	27.469
Fill Area (SF)	0.000
Cut Vol (CF)	47.9
Fill Vol (CF)	0.1
Cum Cut Vol (CF)	6897.7
Cum Fill Vol (CF)	4309.1
Net Vol (CF)	2588.5



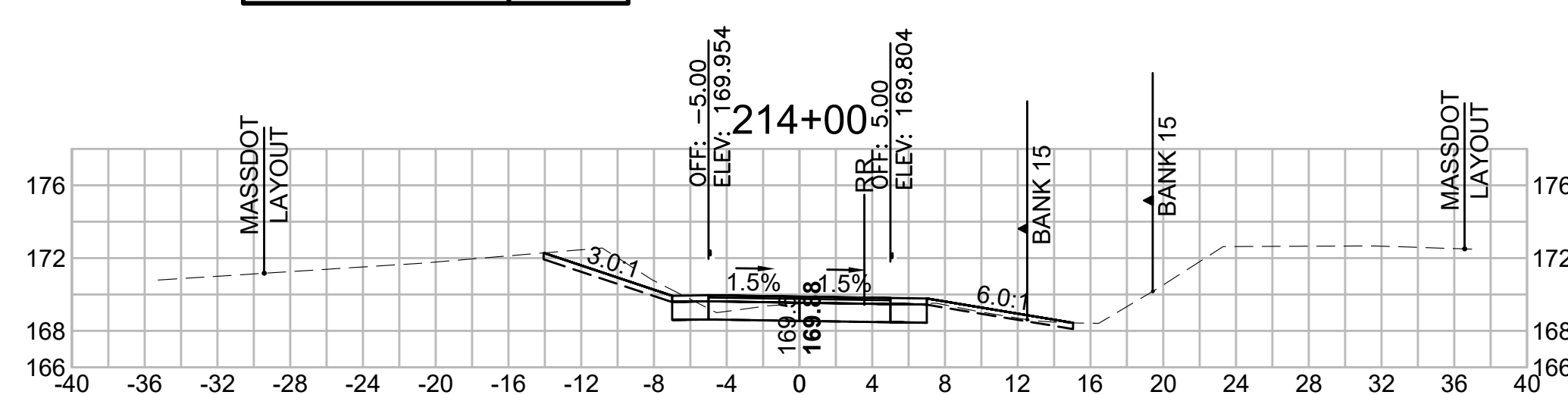
**Total Volume at Station 212+50.00**

Cut Area (SF)	26.497
Fill Area (SF)	0.000
Cut Vol (CF)	45.1
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	6629.8
Cum Fill Vol (CF)	4308.0
Net Vol (CF)	2321.8



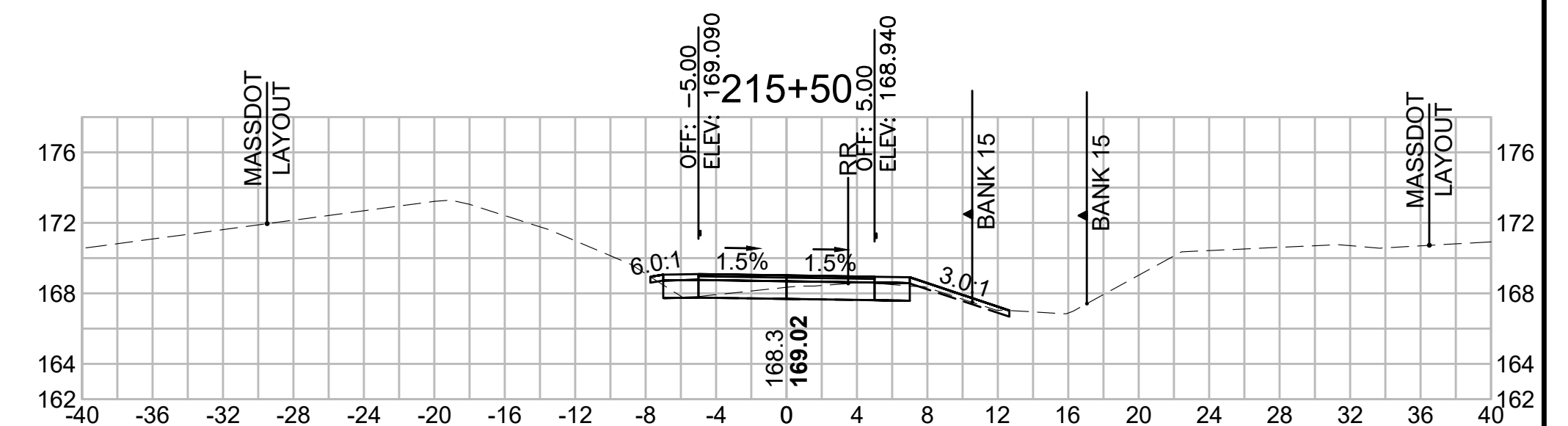
**Total Volume at Station 214+00.00**

Cut Area (SF)	21.365
Fill Area (SF)	0.000
Cut Vol (CF)	38.6
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	6750.7
Cum Fill Vol (CF)	4308.0
Net Vol (CF)	2442.7



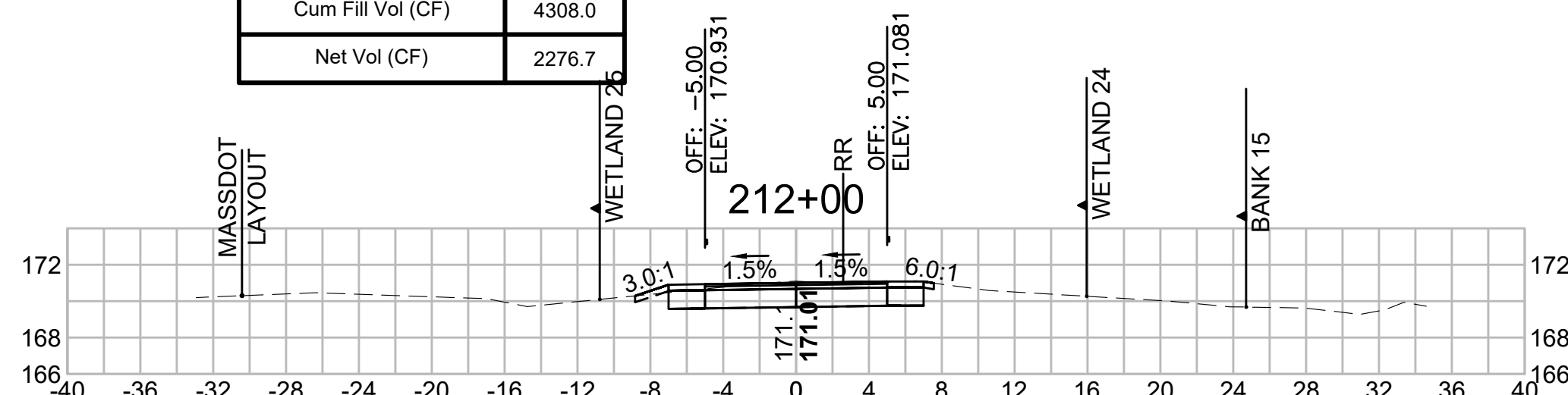
**Total Volume at Station 215+50.00**

Cut Area (SF)	24.227
Fill Area (SF)	0.083
Cut Vol (CF)	37.1
Fill Vol (CF)	0.2
Cum Cut Vol (CF)	6849.8
Cum Fill Vol (CF)	4309.1
Net Vol (CF)	2540.7



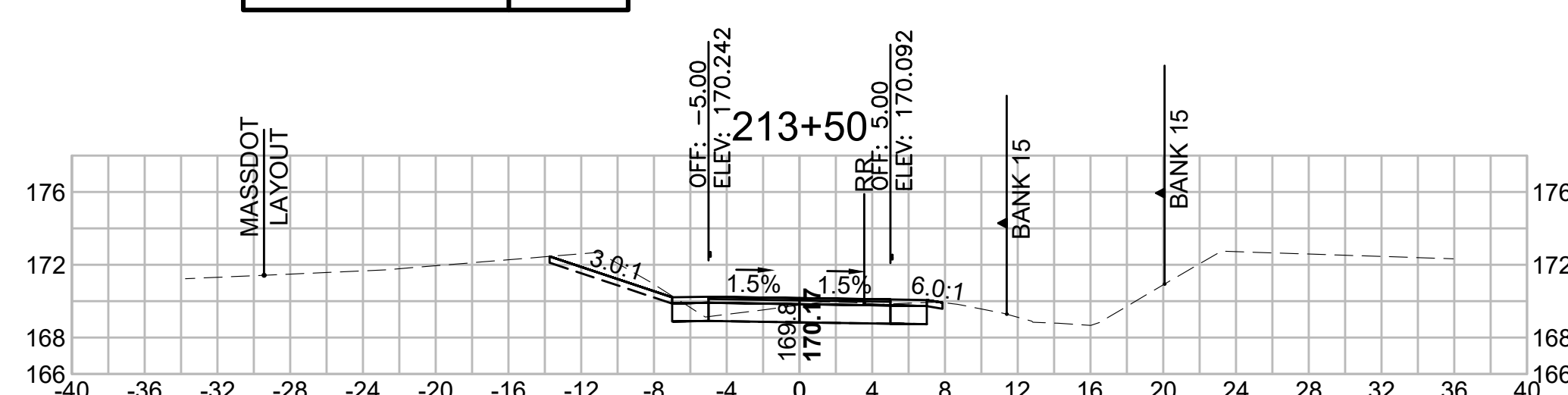
**Total Volume at Station 212+00.00**

Cut Area (SF)	22.231
Fill Area (SF)	0.014
Cut Vol (CF)	40.0
Fill Vol (CF)	0.2
Cum Cut Vol (CF)	6584.7
Cum Fill Vol (CF)	4308.0
Net Vol (CF)	2276.7



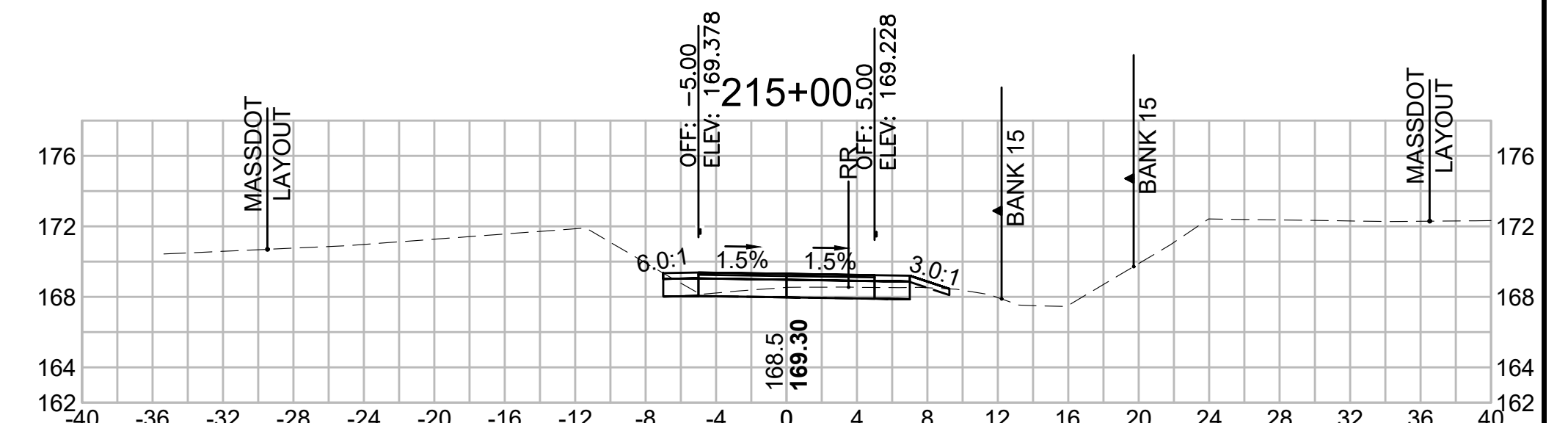
**Total Volume at Station 213+50.00**

Cut Area (SF)	20.362
Fill Area (SF)	0.000
Cut Vol (CF)	38.3
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	6712.1
Cum Fill Vol (CF)	4308.0
Net Vol (CF)	2404.1



**Total Volume at Station 215+00.00**

Cut Area (SF)	15.874
Fill Area (SF)	0.160
Cut Vol (CF)	28.4
Fill Vol (CF)	0.5
Cum Cut Vol (CF)	6812.7
Cum Fill Vol (CF)	4308.8
Net Vol (CF)	2503.8



SUDBURY  
BRUCE FREEMAN RAIL TRAIL

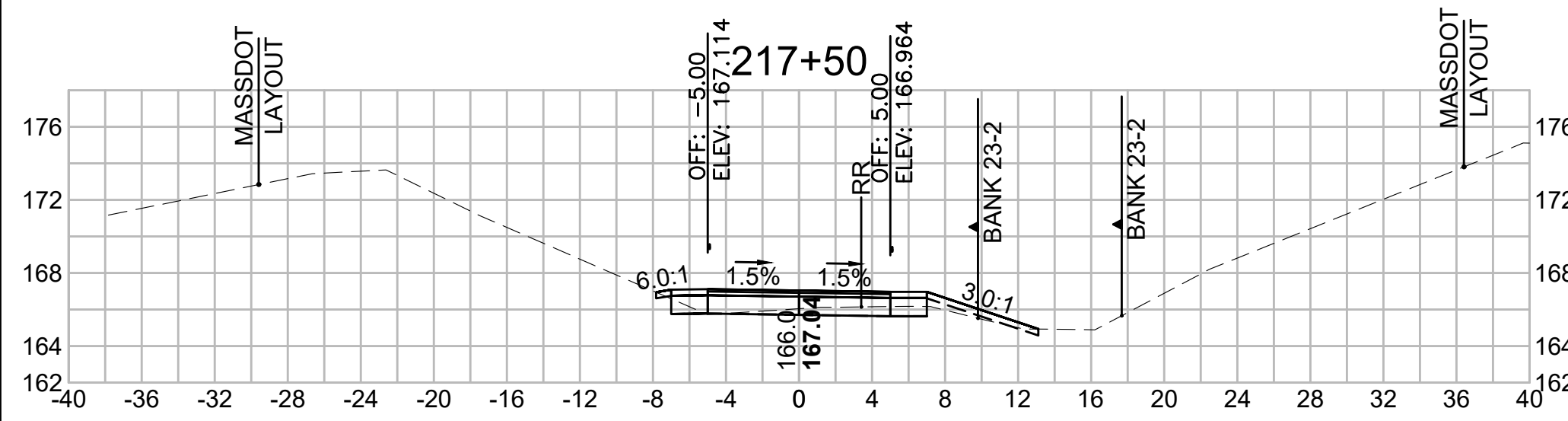
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	270	318

PROJECT FILE NO. 608164

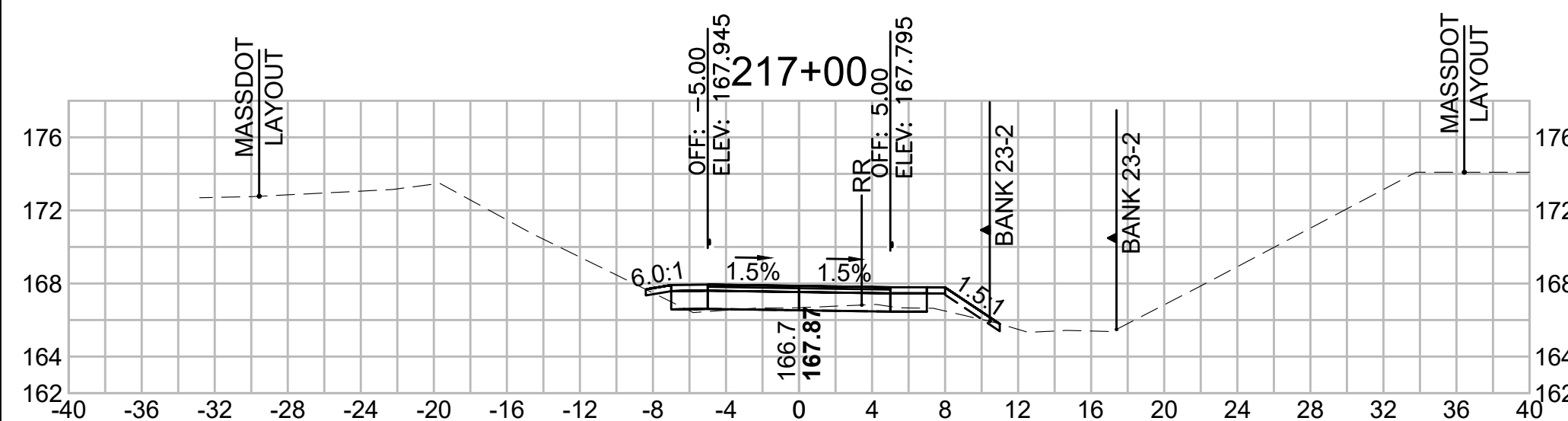
CROSS SECTIONS

608164\_XSEC(CROSS SECTION LAYOUTS).DWG 12-May-2021

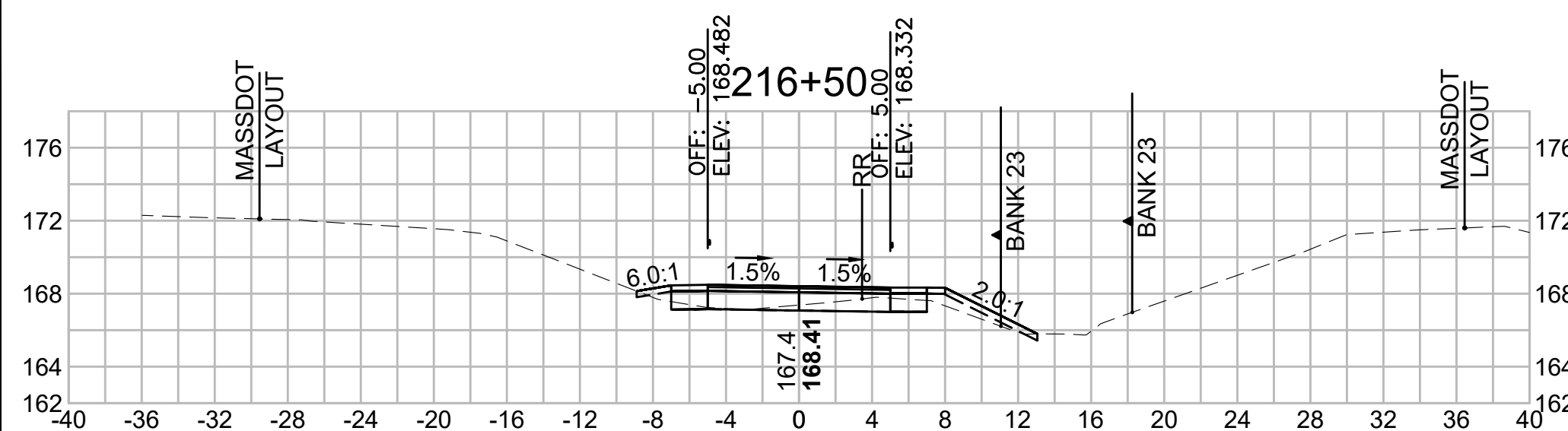
Total Volume at Station 217+50.00	
Cut Area (SF)	5.138
Fill Area (SF)	0.979
Cut Vol (CF)	7.8
Fill Vol (CF)	3.1
Cum Cut Vol (CF)	6944.8
Cum Fill Vol (CF)	4319.8
Net Vol (CF)	2625.0



Total Volume at Station 217+00.00	
Cut Area (SF)	3.273
Fill Area (SF)	2.324
Cut Vol (CF)	8.5
Fill Vol (CF)	4.9
Cum Cut Vol (CF)	6937.0
Cum Fill Vol (CF)	4316.7
Net Vol (CF)	2620.3



Total Volume at Station 216+50.00	
Cut Area (SF)	5.857
Fill Area (SF)	2.925
Cut Vol (CF)	30.9
Fill Vol (CF)	2.7
Cum Cut Vol (CF)	6928.5
Cum Fill Vol (CF)	4311.9
Net Vol (CF)	2616.7



SUDBURY  
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXX(XXX)X	271	318

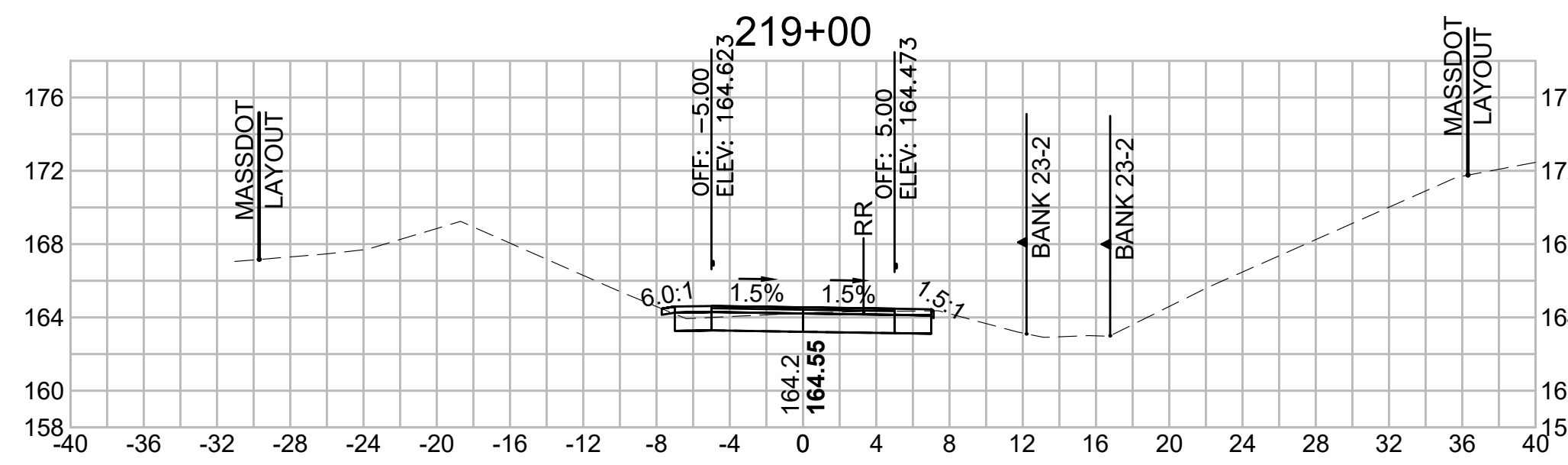
PROJECT FILE NO. 608164

CROSS SECTIONS

608164\_XSEC(CROSS SECTION LAYOUTS).DWG 12-May-2021

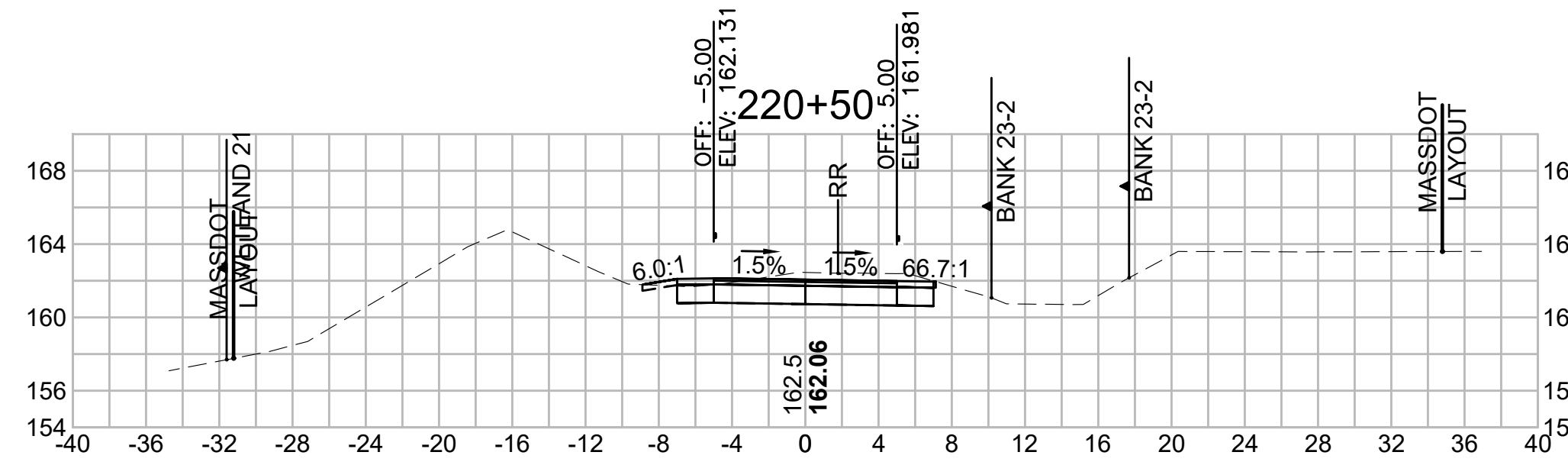
**Total Volume at Station 219+00.00**

Cut Area (SF)	13.950
Fill Area (SF)	0.005
Cut Vol (CF)	22.5
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	6990.9
Cum Fill Vol (CF)	4298.5
Net Vol (CF)	2692.4



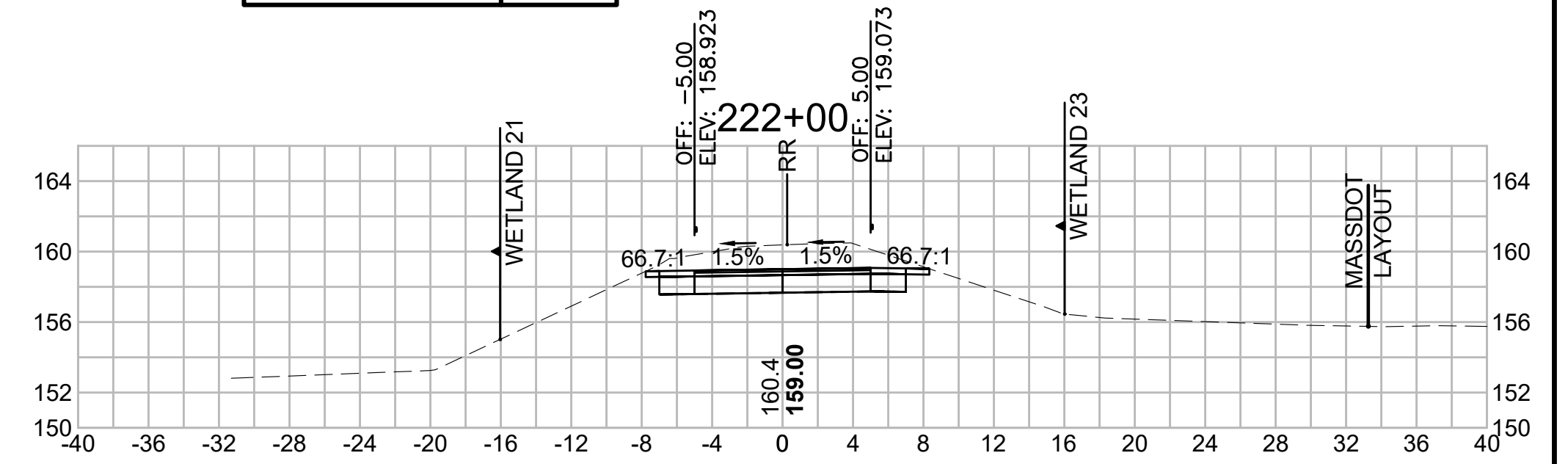
**Total Volume at Station 220+50.00**

Cut Area (SF)	20.886
Fill Area (SF)	0.009
Cut Vol (CF)	38.0
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	7093.7
Cum Fill Vol (CF)	4298.5
Net Vol (CF)	2795.2



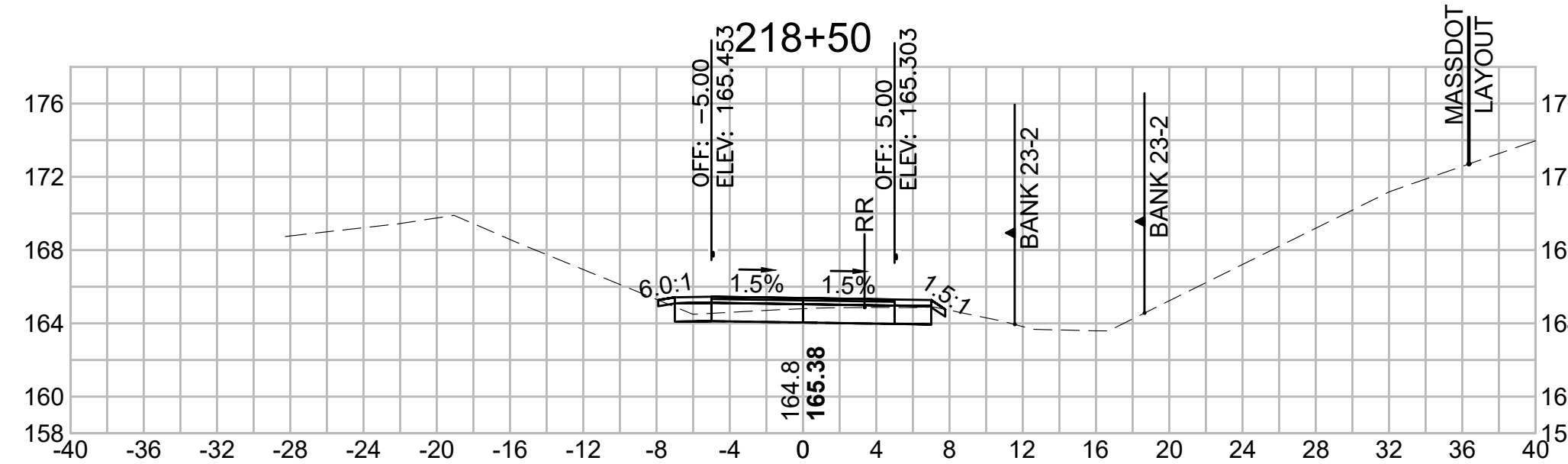
**Total Volume at Station 222+00.00**

Cut Area (SF)	36.279
Fill Area (SF)	0.043
Cut Vol (CF)	60.3
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	7247.3
Cum Fill Vol (CF)	4298.6
Net Vol (CF)	2948.8



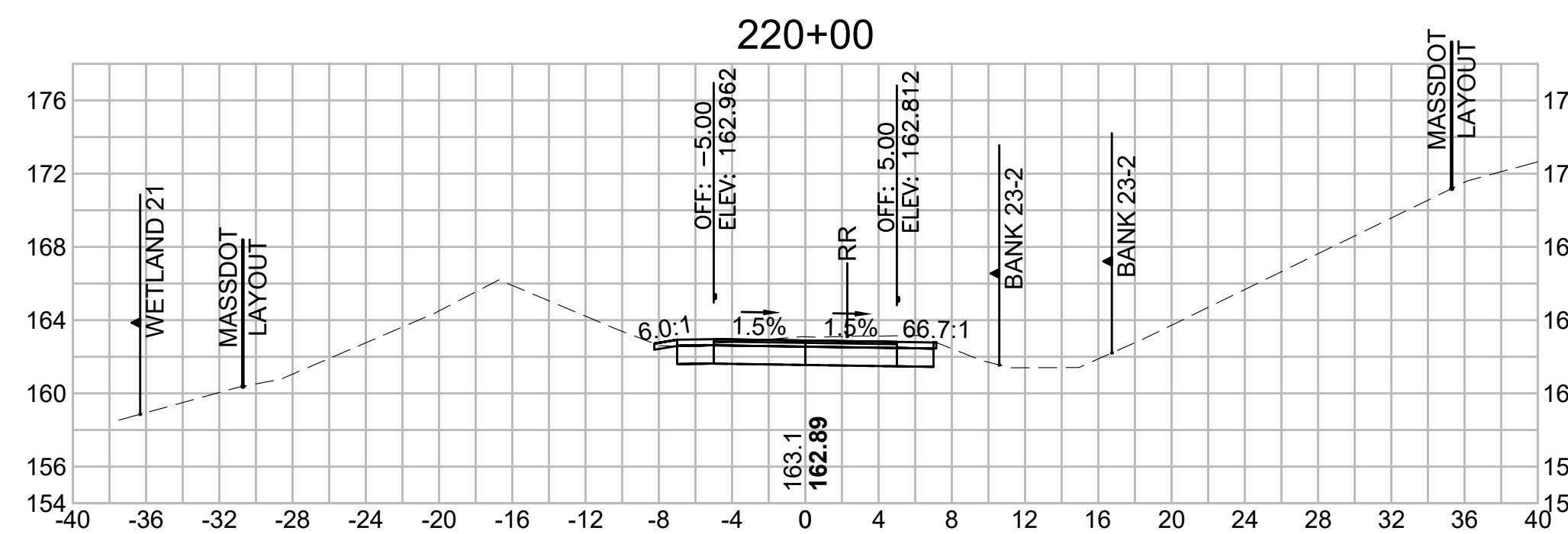
**Total Volume at Station 218+50.00**

Cut Area (SF)	10.300
Fill Area (SF)	0.030
Cut Vol (CF)	17.8
Fill Vol (CF)	0.1
Cum Cut Vol (CF)	6968.4
Cum Fill Vol (CF)	4298.5
Net Vol (CF)	2670.0



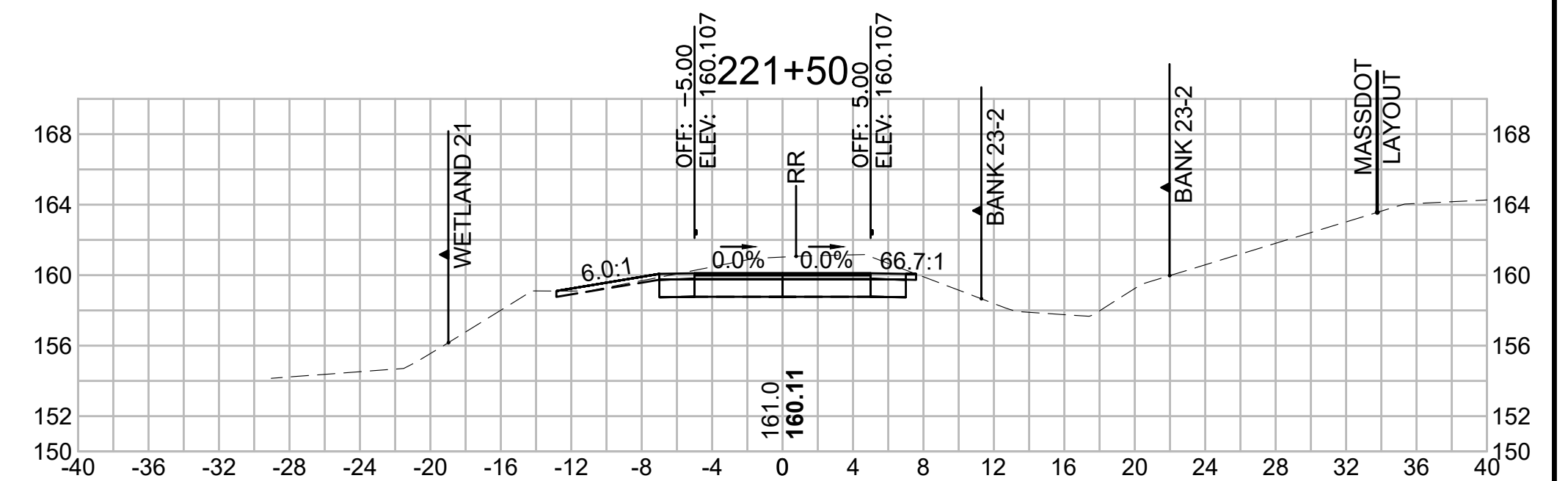
**Total Volume at Station 220+00.00**

Cut Area (SF)	20.136
Fill Area (SF)	0.001
Cut Vol (CF)	35.3
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	7055.7
Cum Fill Vol (CF)	4298.5
Net Vol (CF)	2757.2



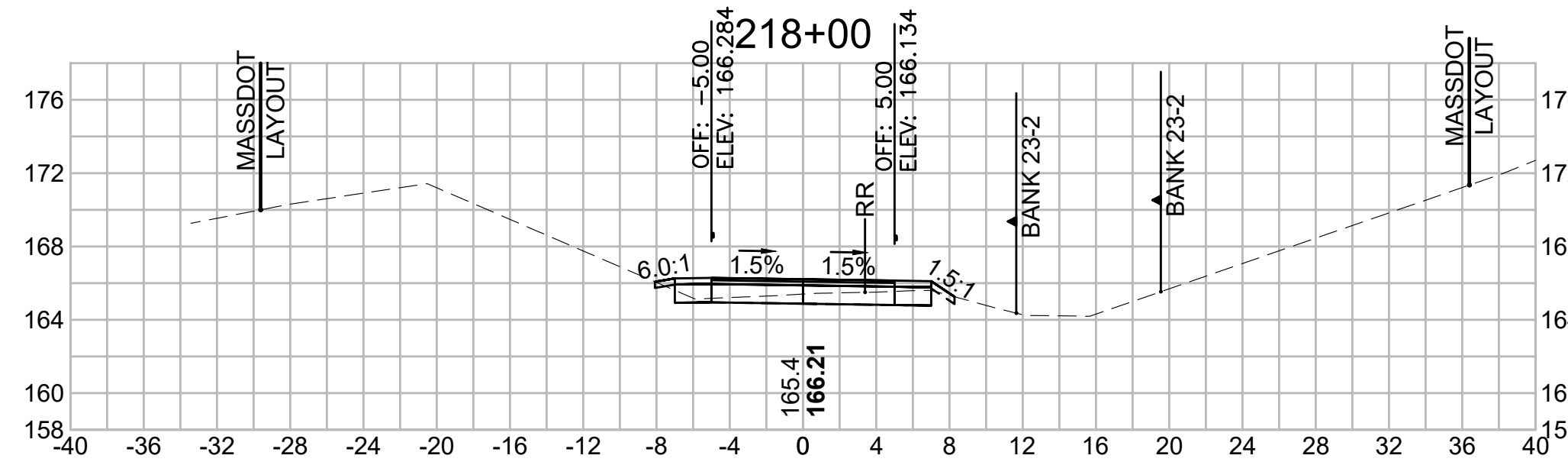
**Total Volume at Station 221+50.00**

Cut Area (SF)	28.856
Fill Area (SF)	0.000
Cut Vol (CF)	50.3
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	7187.0
Cum Fill Vol (CF)	4298.5
Net Vol (CF)	2888.5



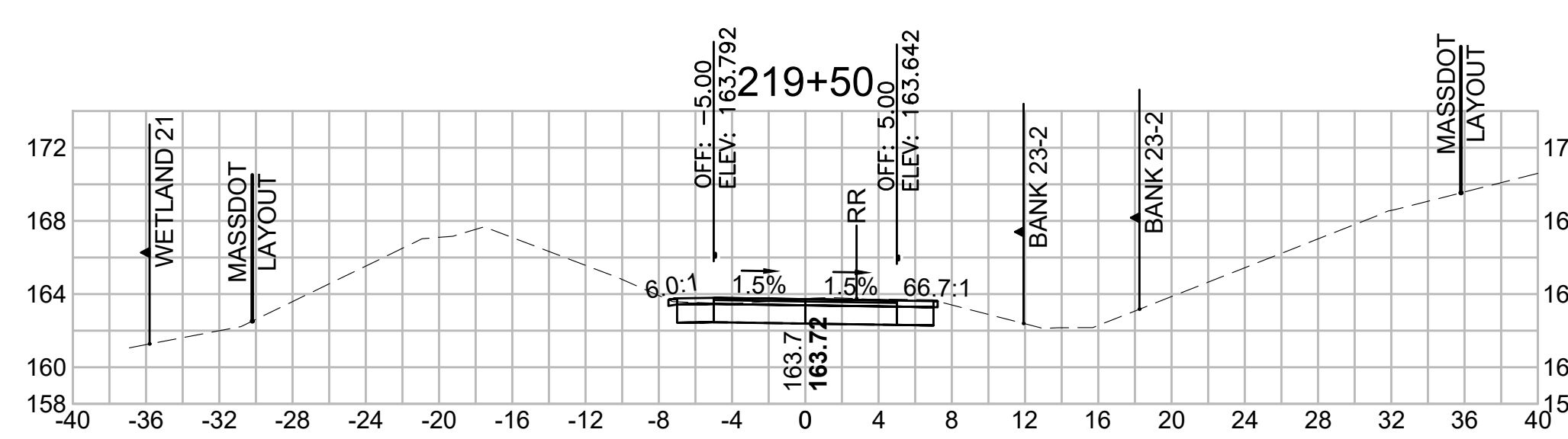
**Total Volume at Station 218+00.00**

Cut Area (SF)	8.908
Fill Area (SF)	0.096
Cut Vol (CF)	13.0
Fill Vol (CF)	1.0
Cum Cut Vol (CF)	6950.7
Cum Fill Vol (CF)	4298.3
Net Vol (CF)	2652.3



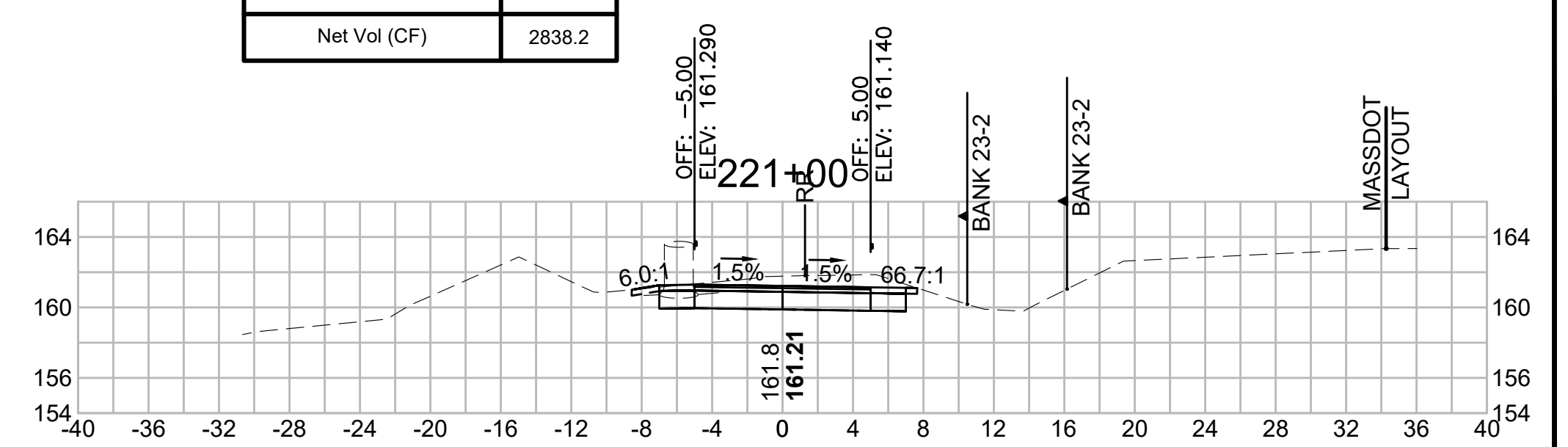
**Total Volume at Station 219+50.00**

Cut Area (SF)	17.969
Fill Area (SF)	0.000
Cut Vol (CF)	29.6
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	7020.5
Cum Fill Vol (CF)	4298.5
Net Vol (CF)	2722.0



**Total Volume at Station 221+00.00**

Cut Area (SF)	25.513
Fill Area (SF)	0.000
Cut Vol (CF)	43.0
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	7136.7
Cum Fill Vol (CF)	4298.5
Net Vol (CF)	2838.2



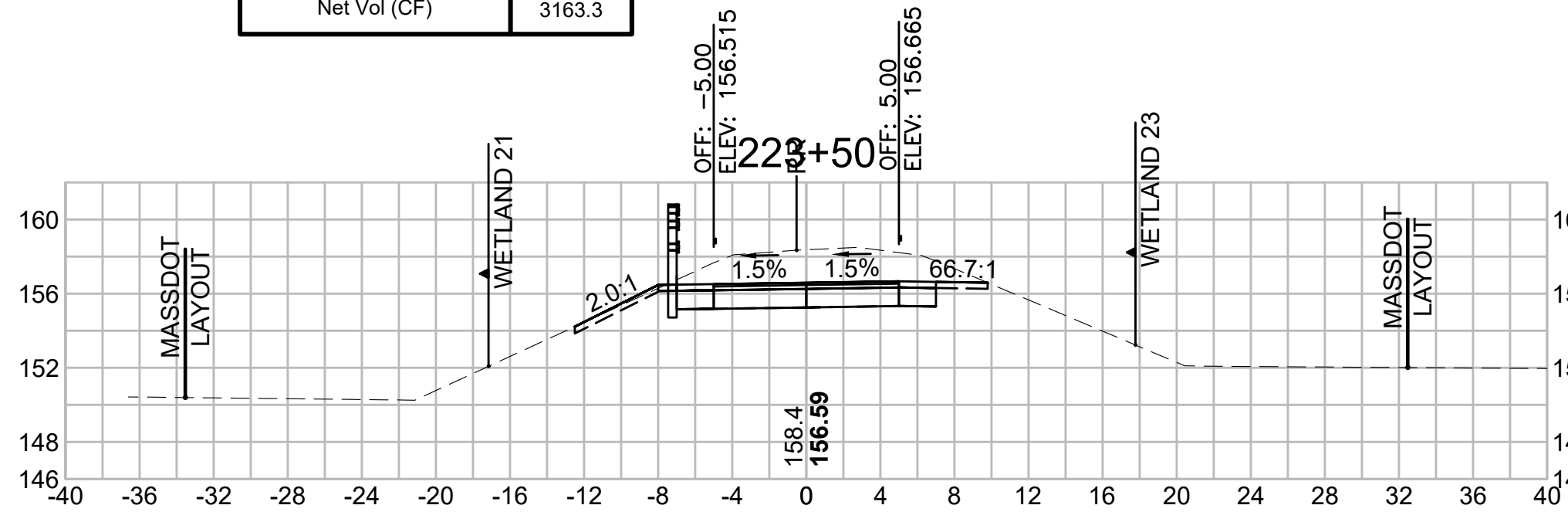
SUDBURY  
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	272	318

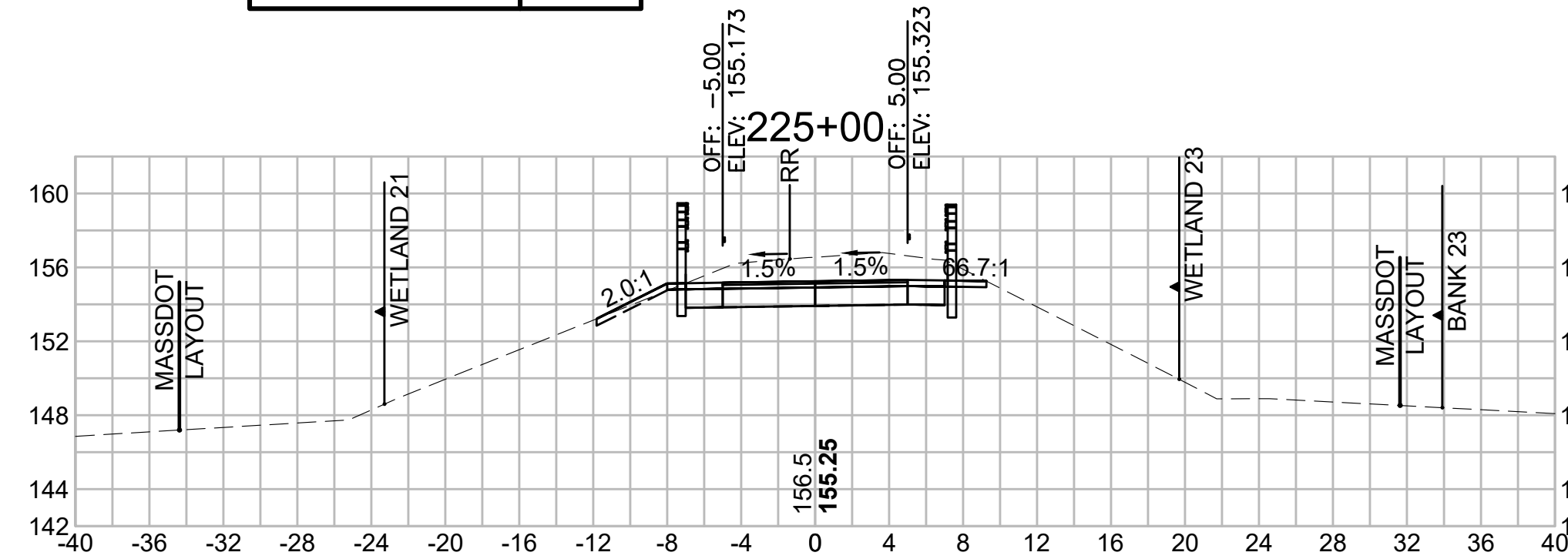
PROJECT FILE NO. 608164

CROSS SECTIONS

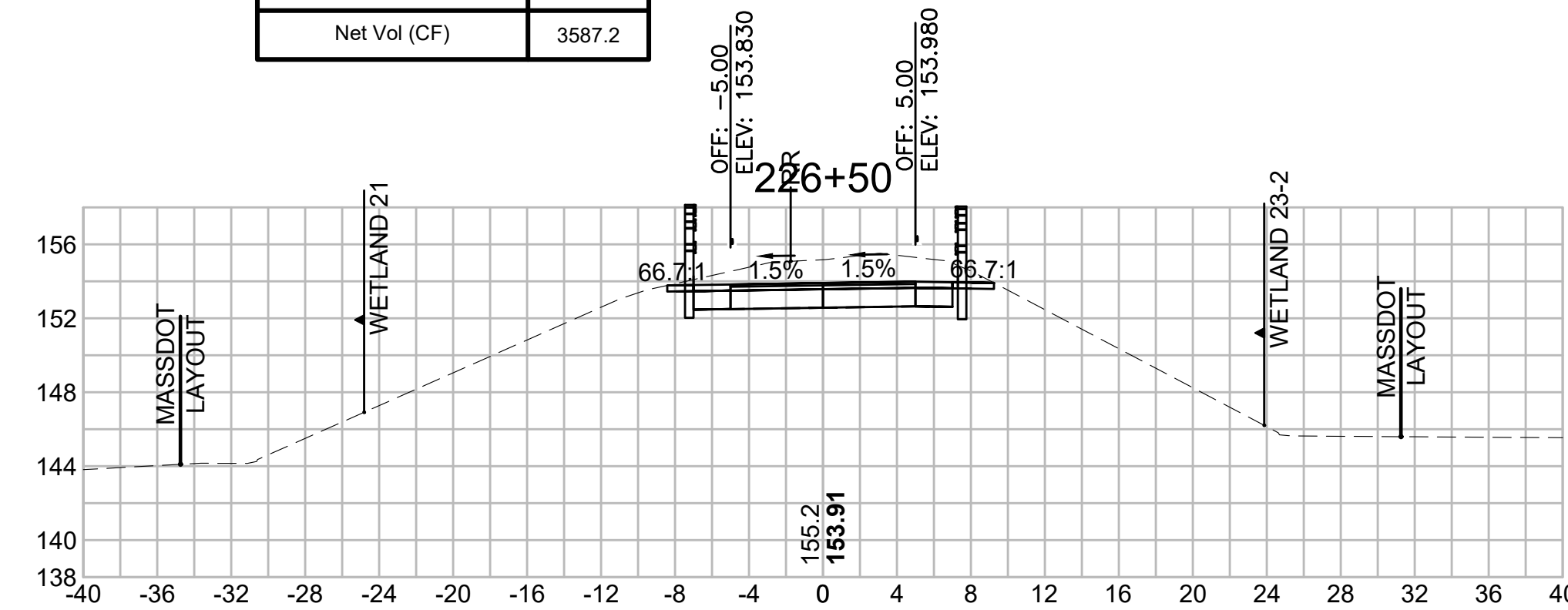
Total Volume at Station 223+50.00	
Cut Area (SF)	43.892
Fill Area (SF)	0.000
Cut Vol (CF)	76.7
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	7462.3
Cum Fill Vol (CF)	4299.1
Net Vol (CF)	3163.3



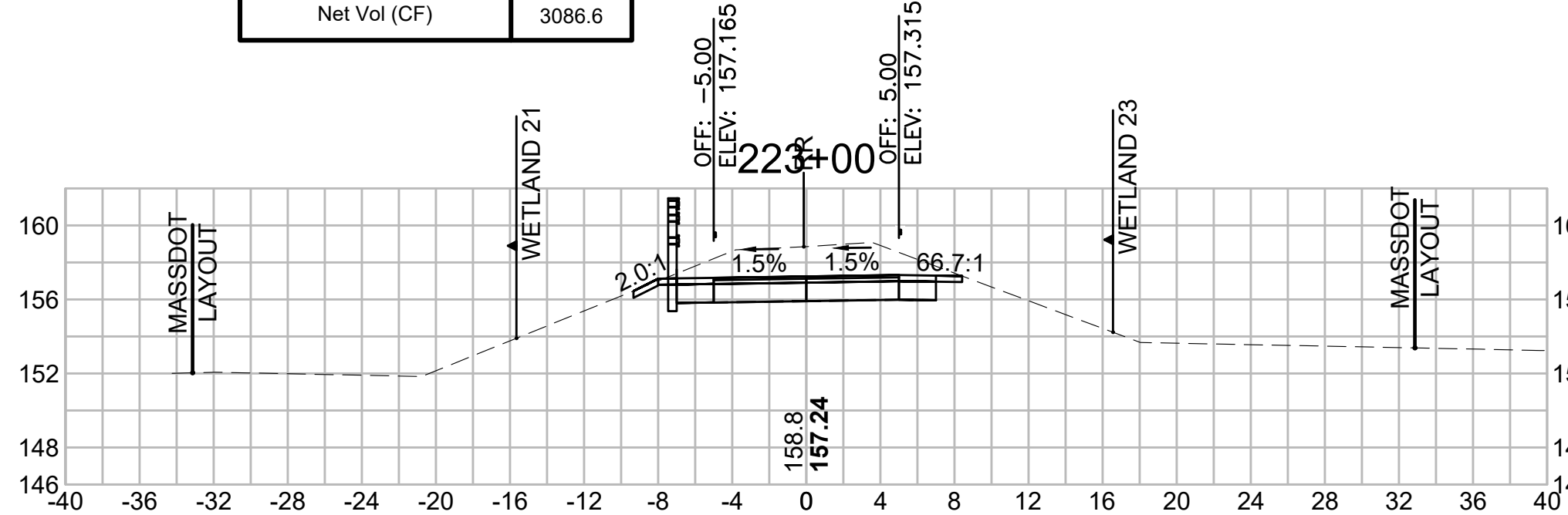
Total Volume at Station 225+00.00	
Cut Area (SF)	37.322
Fill Area (SF)	0.005
Cut Vol (CF)	69.9
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	7677.6
Cum Fill Vol (CF)	4299.1
Net Vol (CF)	3378.5



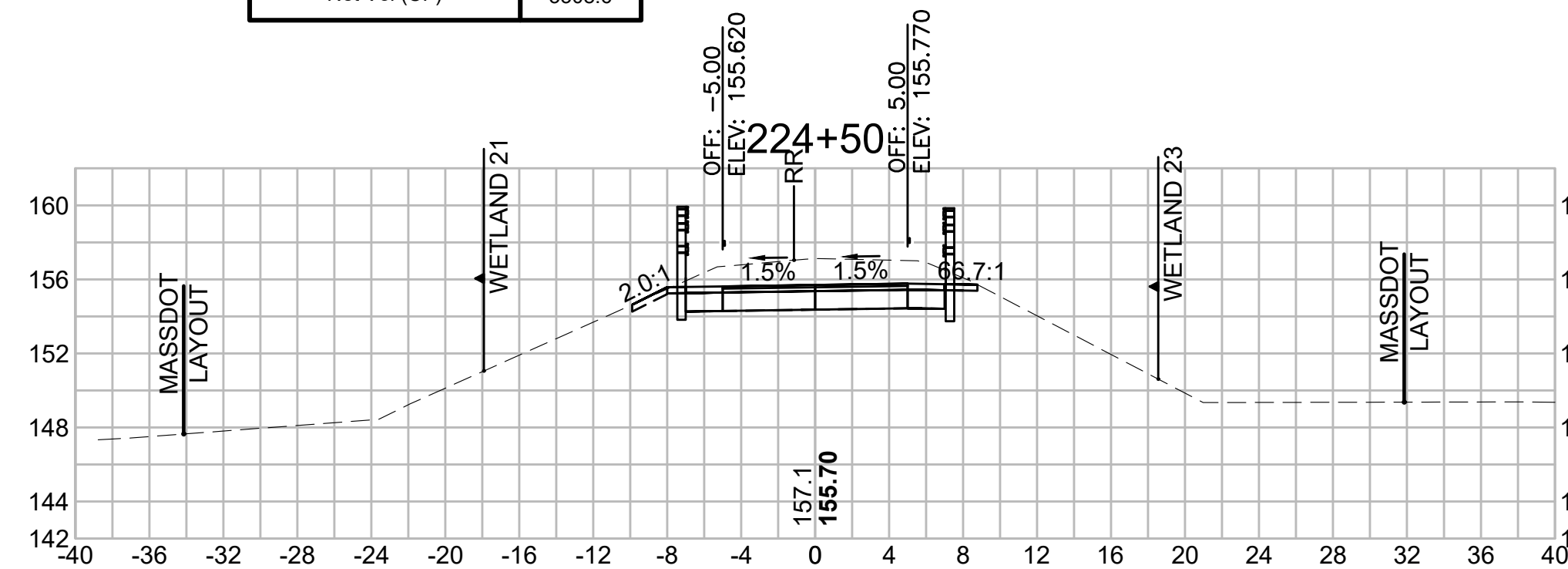
Total Volume at Station 226+50.00	
Cut Area (SF)	37.298
Fill Area (SF)	0.000
Cut Vol (CF)	68.5
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	7886.3
Cum Fill Vol (CF)	4299.1
Net Vol (CF)	3587.2



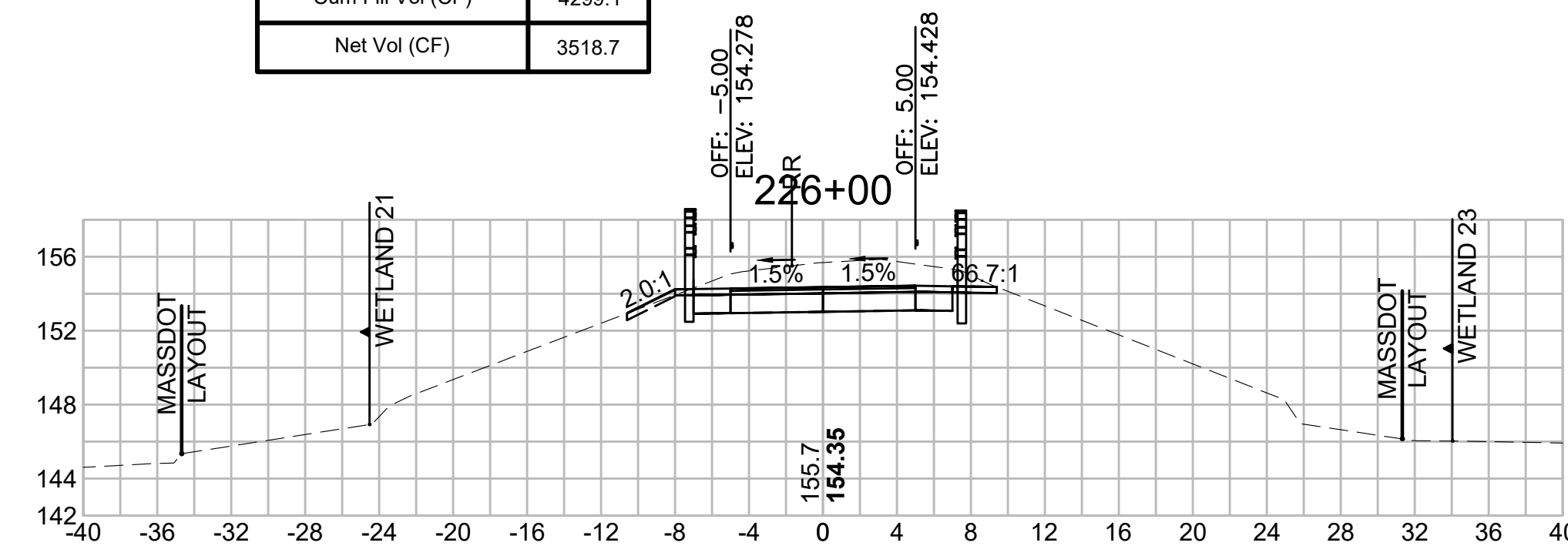
Total Volume at Station 223+00.00	
Cut Area (SF)	38.930
Fill Area (SF)	0.000
Cut Vol (CF)	70.4
Fill Vol (CF)	0.2
Cum Cut Vol (CF)	7385.7
Cum Fill Vol (CF)	4299.1
Net Vol (CF)	3086.6



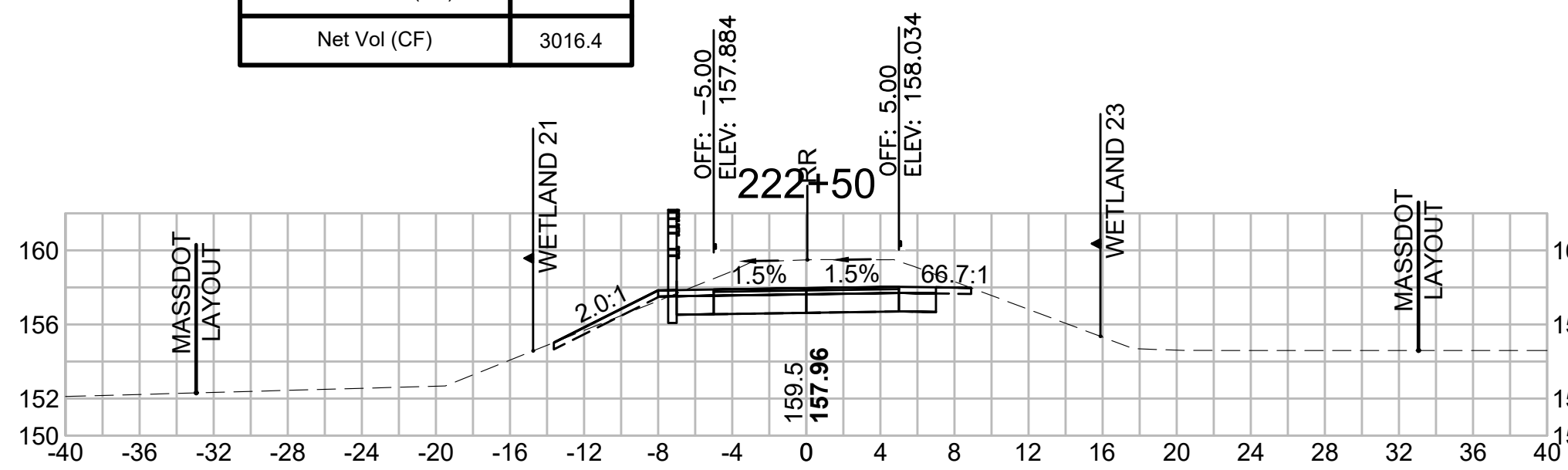
Total Volume at Station 224+50.00	
Cut Area (SF)	38.133
Fill Area (SF)	0.000
Cut Vol (CF)	70.0
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	7607.7
Cum Fill Vol (CF)	4299.1
Net Vol (CF)	3308.6



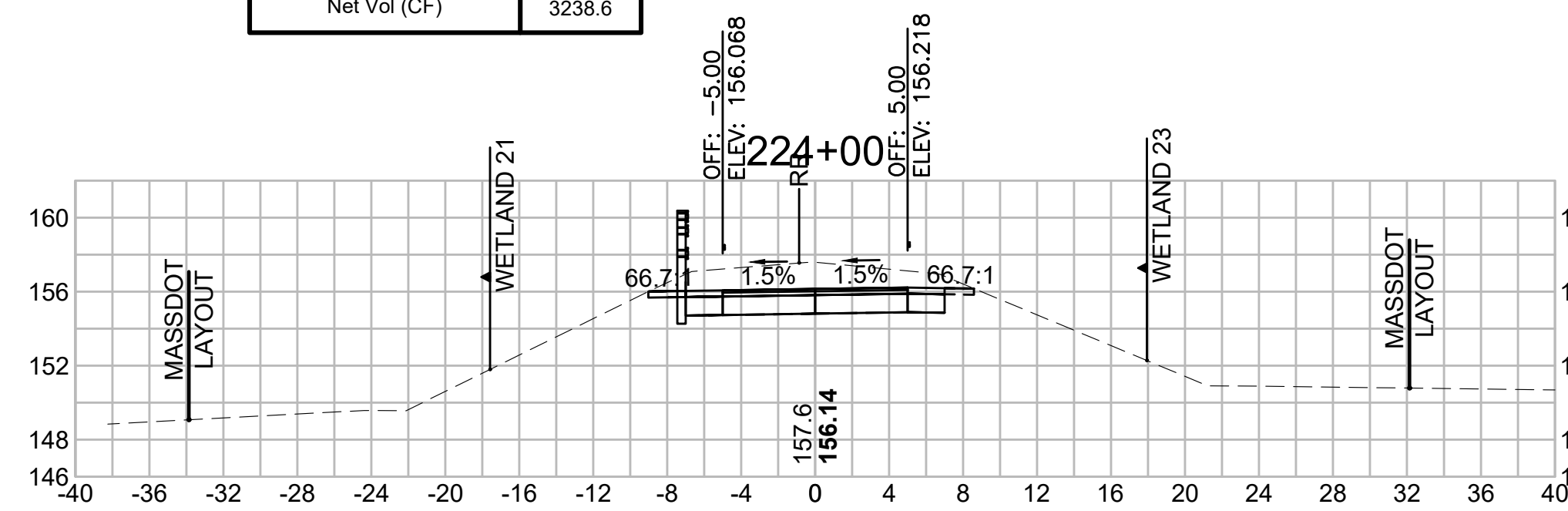
Total Volume at Station 226+00.00	
Cut Area (SF)	36.682
Fill Area (SF)	0.000
Cut Vol (CF)	69.8
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	7817.8
Cum Fill Vol (CF)	4299.1
Net Vol (CF)	3518.7



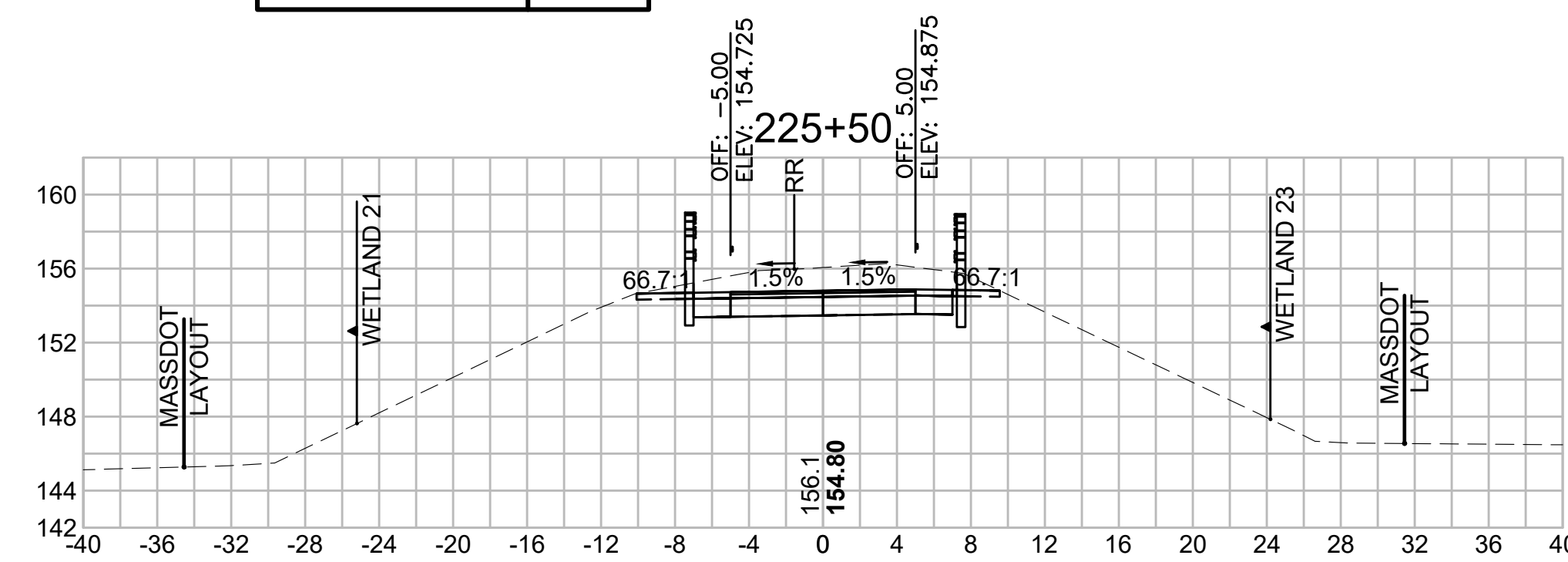
Total Volume at Station 222+50.00	
Cut Area (SF)	37.086
Fill Area (SF)	0.261
Cut Vol (CF)	67.9
Fill Vol (CF)	0.3
Cum Cut Vol (CF)	7315.3
Cum Fill Vol (CF)	4298.8
Net Vol (CF)	3016.4



Total Volume at Station 224+00.00	
Cut Area (SF)	37.492
Fill Area (SF)	0.000
Cut Vol (CF)	75.4
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	7537.7
Cum Fill Vol (CF)	4299.1
Net Vol (CF)	3238.6



Total Volume at Station 225+50.00	
Cut Area (SF)	38.695
Fill Area (SF)	0.000
Cut Vol (CF)	70.4
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	7748.0
Cum Fill Vol (CF)	4299.1
Net Vol (CF)	3448.9



SUDBURY  
BRUCE FREEMAN RAIL TRAIL

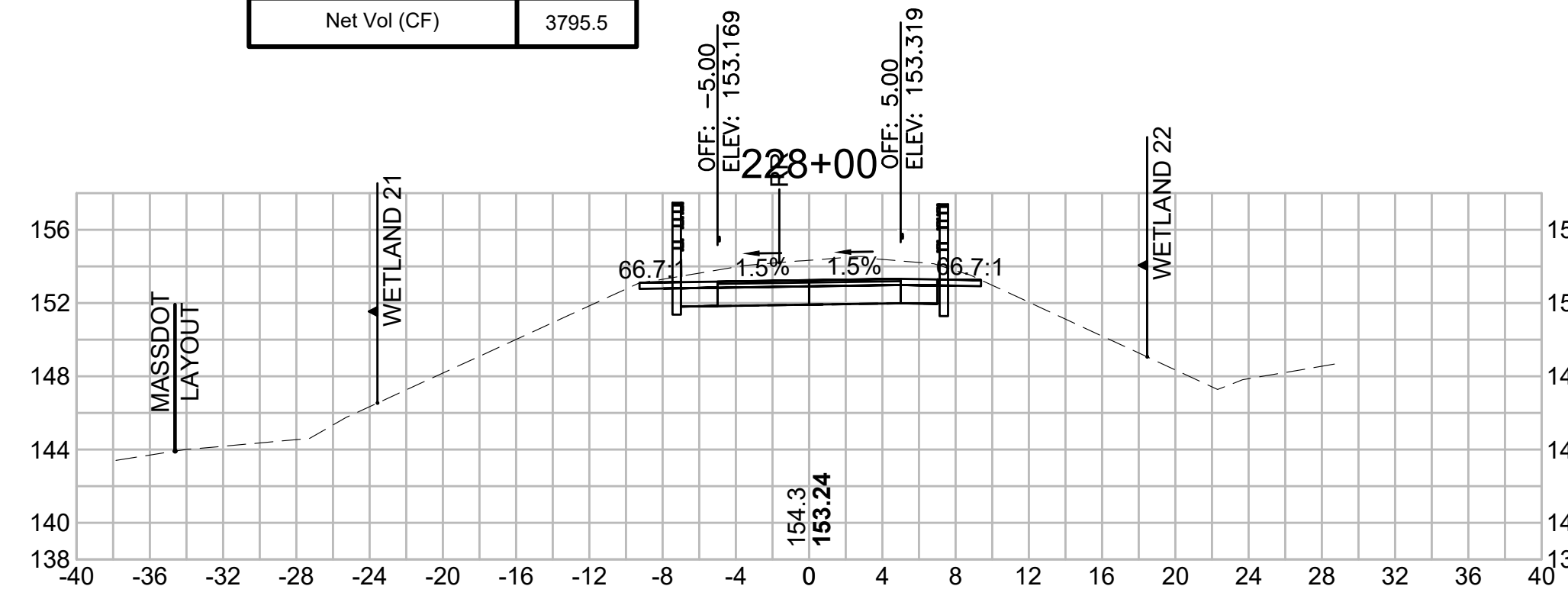
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	273	318

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CROSS SECTIONS

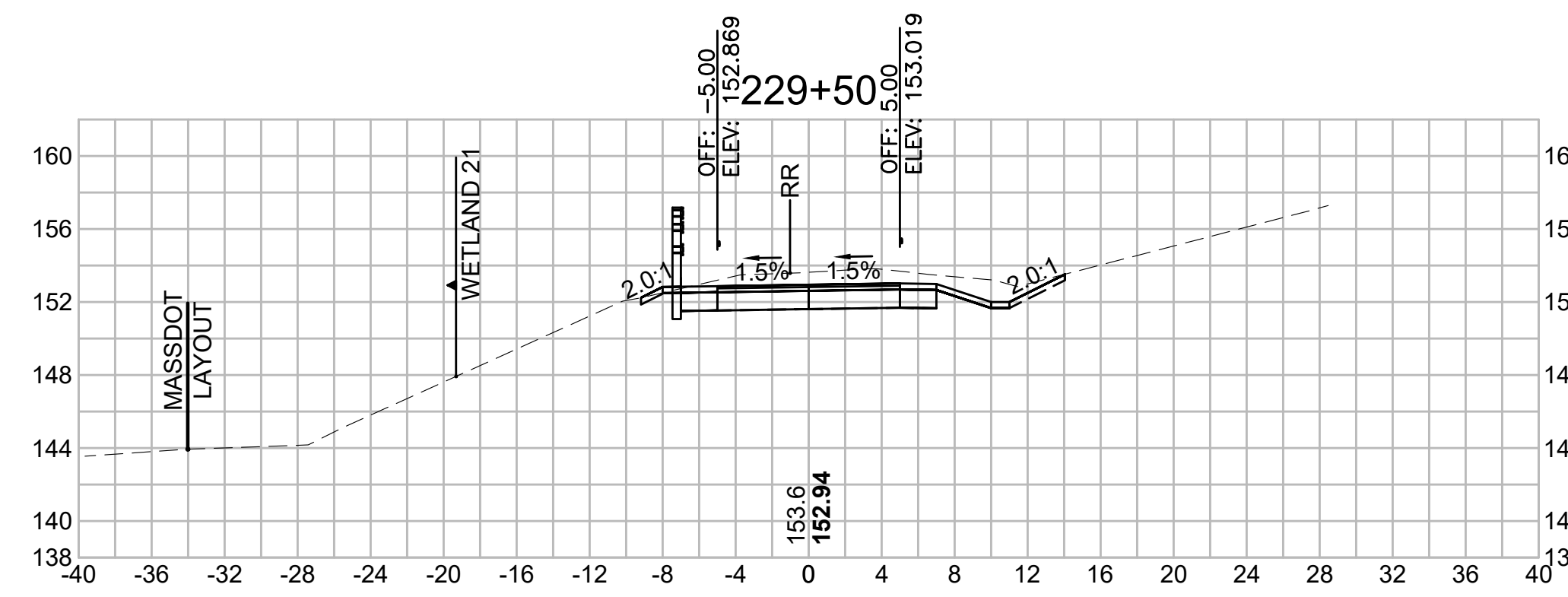
**Total Volume at Station 228+00.00**

Cut Area (SF)	34.618
Fill Area (SF)	0.000
Cut Vol (CF)	66.5
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	8094.6
Cum Fill Vol (CF)	4299.1
Net Vol (CF)	3795.5



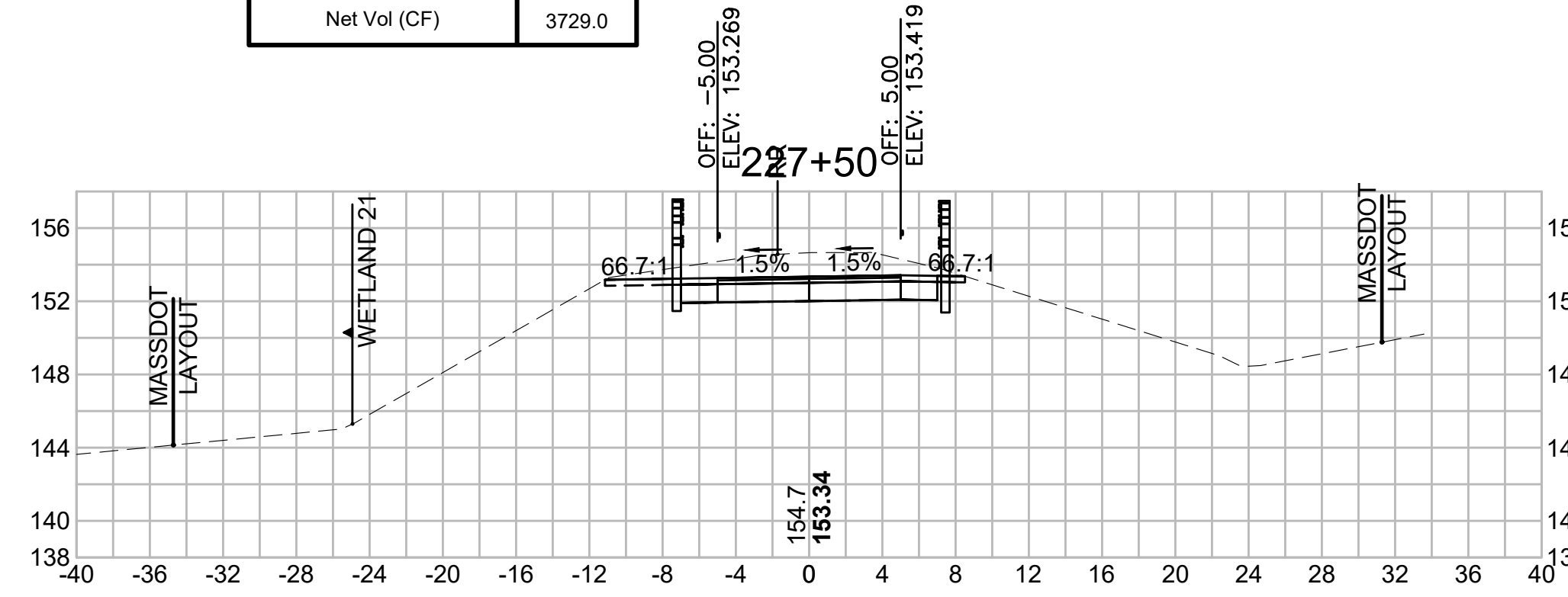
**Total Volume at Station 229+50.00**

Cut Area (SF)	34.762
Fill Area (SF)	0.000
Cut Vol (CF)	58.5
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	8267.0
Cum Fill Vol (CF)	4299.1
Net Vol (CF)	3968.0



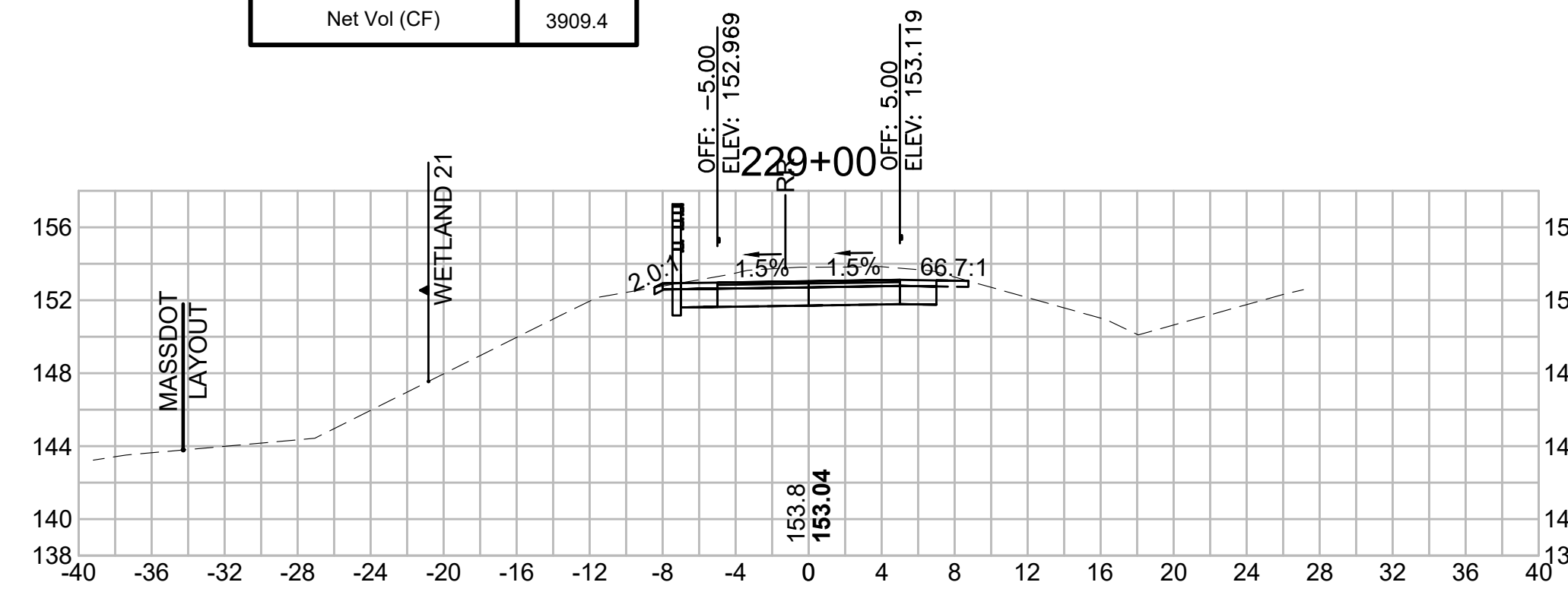
**Total Volume at Station 227+50.00**

Cut Area (SF)	37.191
Fill Area (SF)	0.000
Cut Vol (CF)	70.9
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	8028.1
Cum Fill Vol (CF)	4299.1
Net Vol (CF)	3729.0



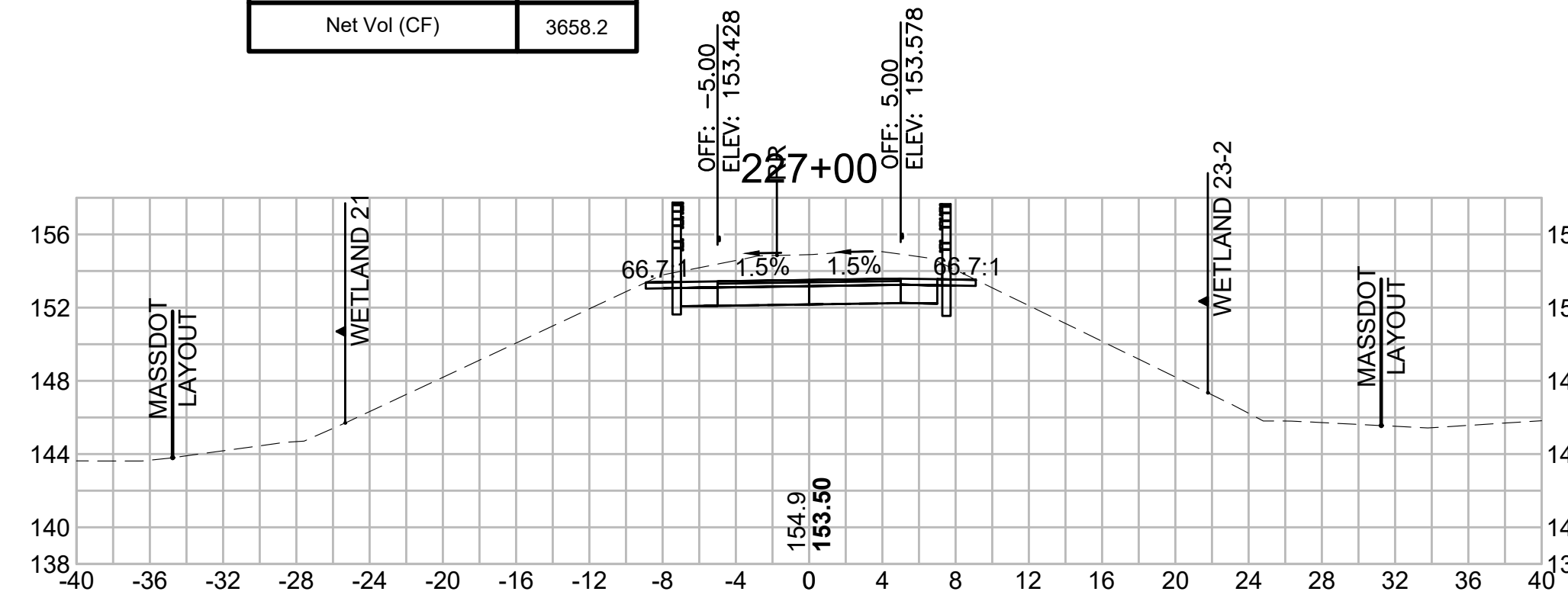
**Total Volume at Station 229+00.00**

Cut Area (SF)	28.437
Fill Area (SF)	0.000
Cut Vol (CF)	54.1
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	8208.5
Cum Fill Vol (CF)	4299.1
Net Vol (CF)	3909.4



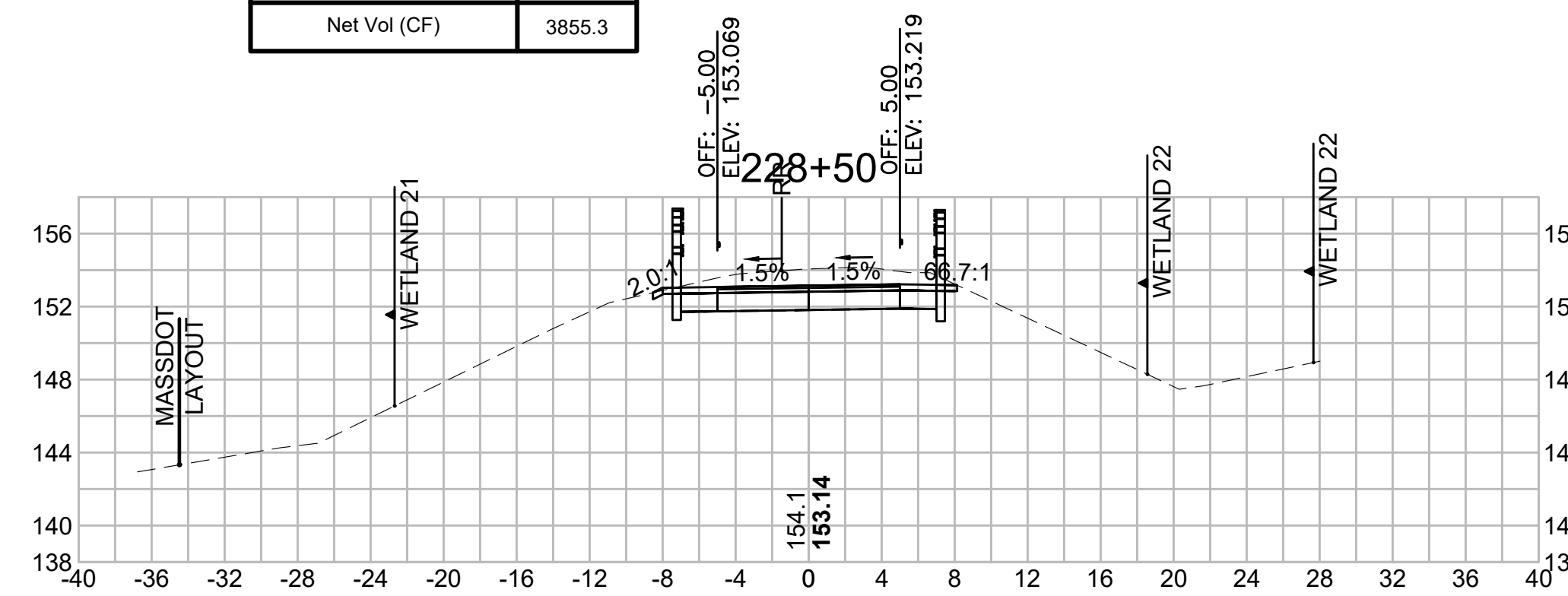
**Total Volume at Station 227+00.00**

Cut Area (SF)	39.361
Fill Area (SF)	0.000
Cut Vol (CF)	71.0
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	7957.2
Cum Fill Vol (CF)	4299.1
Net Vol (CF)	3658.2



**Total Volume at Station 228+50.00**

Cut Area (SF)	29.980
Fill Area (SF)	0.000
Cut Vol (CF)	59.8
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	8154.4
Cum Fill Vol (CF)	4299.1
Net Vol (CF)	3855.3



SUDBURY  
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	274	318

PROJECT FILE NO. 608164

CROSS SECTIONS

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**Total Volume at Station 230+50.00**

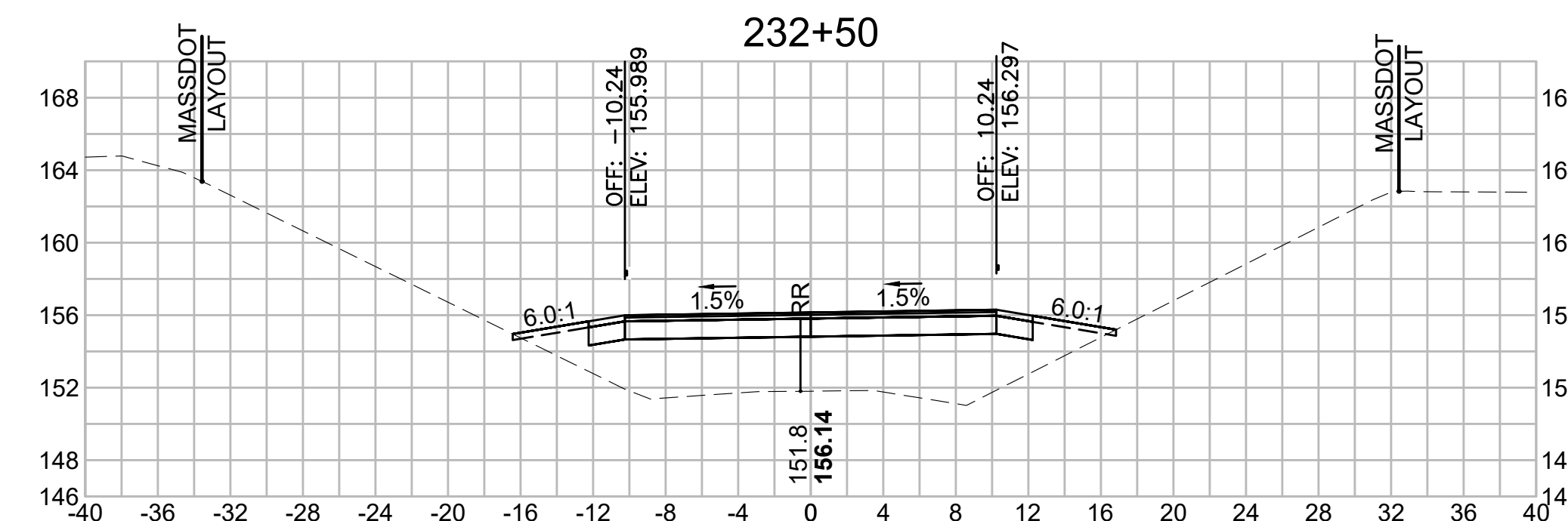
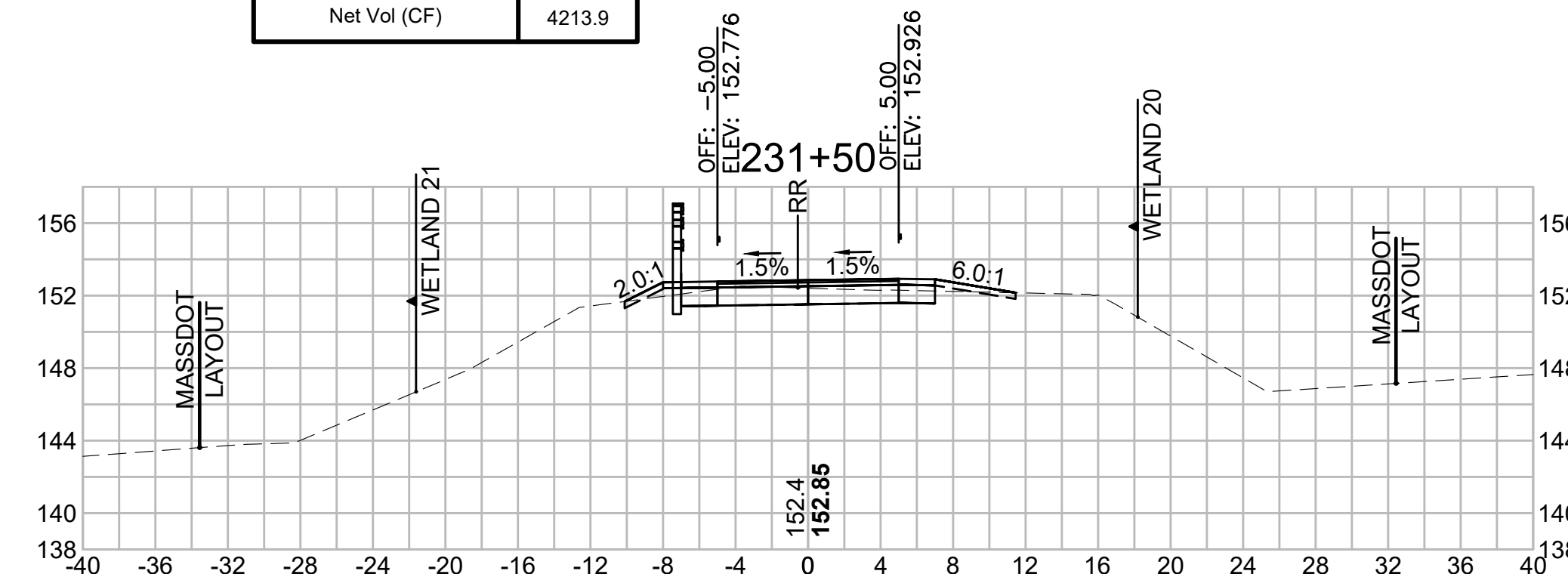
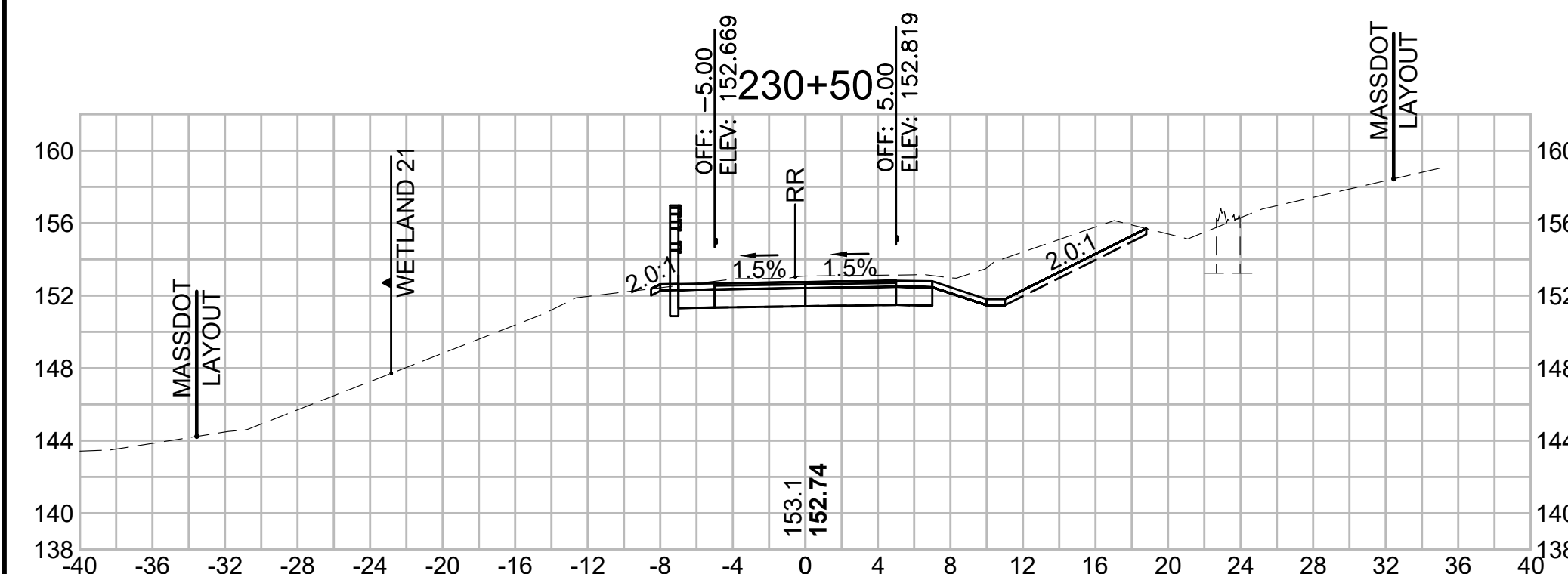
Cut Area (SF)	42.910
Fill Area (SF)	0.000
Cut Vol (CF)	79.0
Fill Vol (CF)	0.2
Cum Cut Vol (CF)	8417.4
Cum Fill Vol (CF)	4299.5
Net Vol (CF)	4117.9

**Total Volume at Station 231+50.00**

Cut Area (SF)	15.865
Fill Area (SF)	0.944
Cut Vol (CF)	35.9
Fill Vol (CF)	0.9
Cum Cut Vol (CF)	8514.3
Cum Fill Vol (CF)	4300.4
Net Vol (CF)	4213.9

**Total Volume at Station 232+50.00**

Cut Area (SF)	0.170
Fill Area (SF)	84.794
Cut Vol (CF)	1.8
Fill Vol (CF)	107.0
Cum Cut Vol (CF)	8532.5
Cum Fill Vol (CF)	4436.8
Net Vol (CF)	4095.7



**Total Volume at Station 230+00.00**

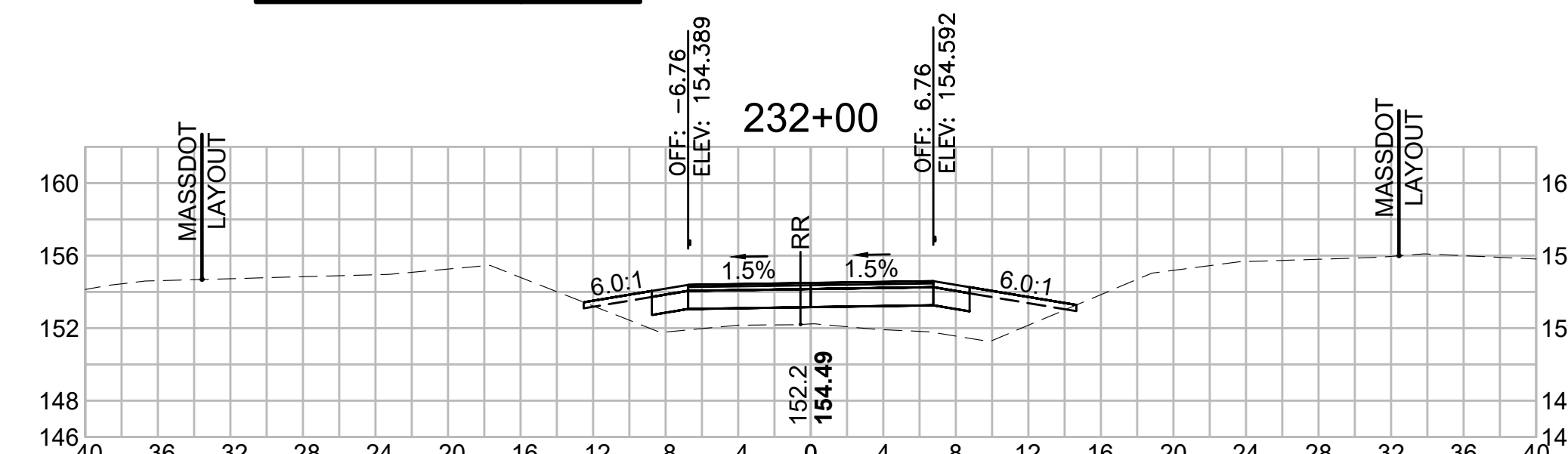
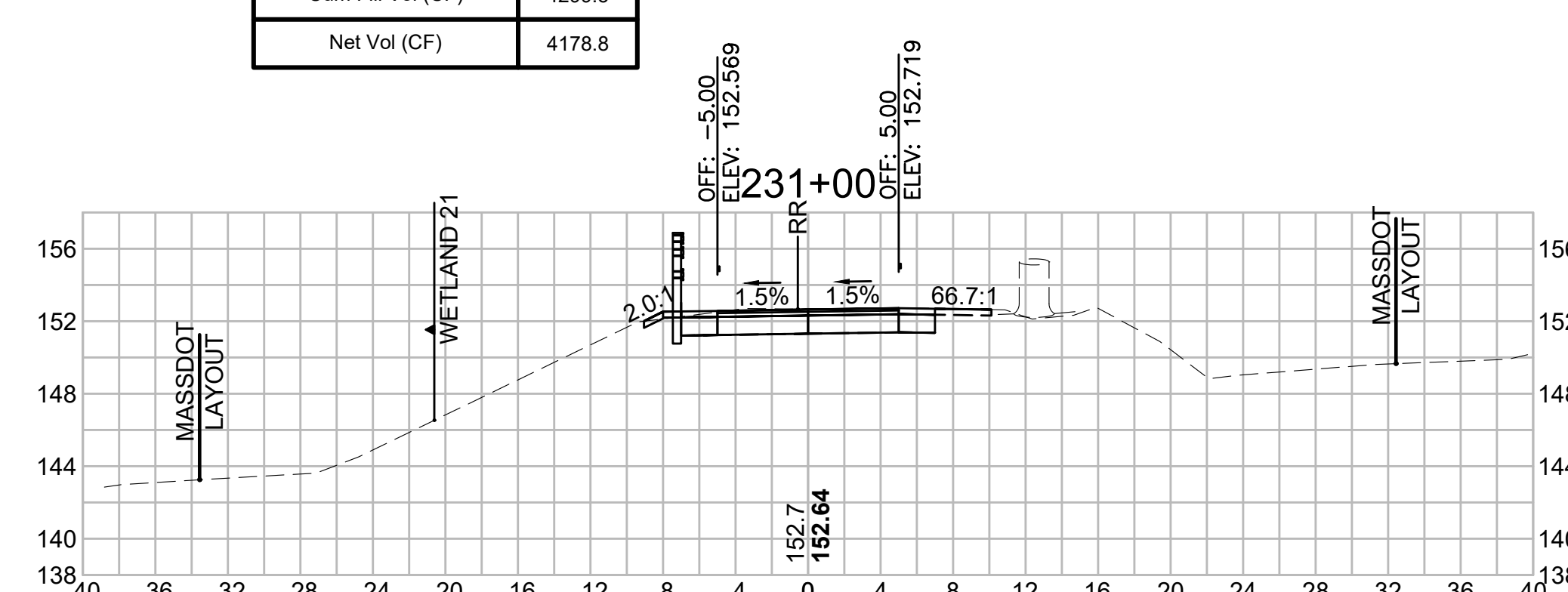
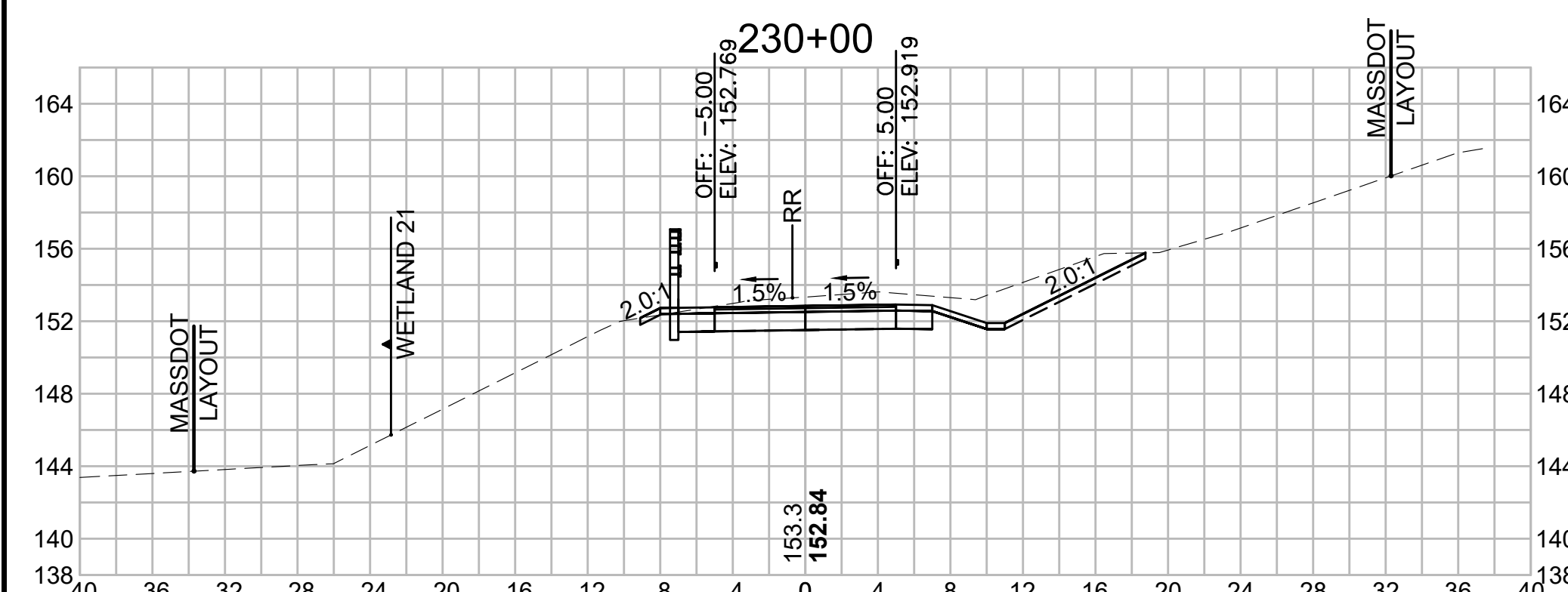
Cut Area (SF)	42.357
Fill Area (SF)	0.240
Cut Vol (CF)	71.4
Fill Vol (CF)	0.2
Cum Cut Vol (CF)	8338.4
Cum Fill Vol (CF)	4299.3
Net Vol (CF)	4039.1

**Total Volume at Station 231+00.00**

Cut Area (SF)	22.956
Fill Area (SF)	0.022
Cut Vol (CF)	61.0
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	8478.4
Cum Fill Vol (CF)	4299.5
Net Vol (CF)	4178.8

**Total Volume at Station 232+00.00**

Cut Area (SF)	1.819
Fill Area (SF)	30.775
Cut Vol (CF)	16.4
Fill Vol (CF)	29.4
Cum Cut Vol (CF)	8530.7
Cum Fill Vol (CF)	4329.8
Net Vol (CF)	4200.9



SUDBURY  
BRUCE FREEMAN RAIL TRAIL

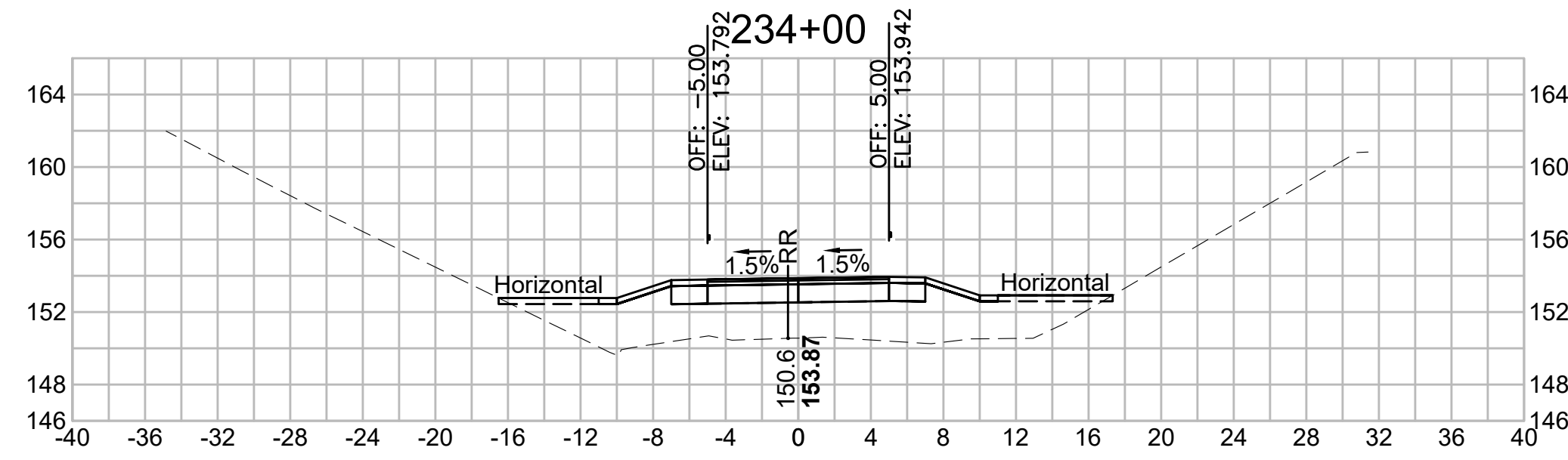
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	275	318

PROJECT FILE NO. 608164

CROSS SECTIONS

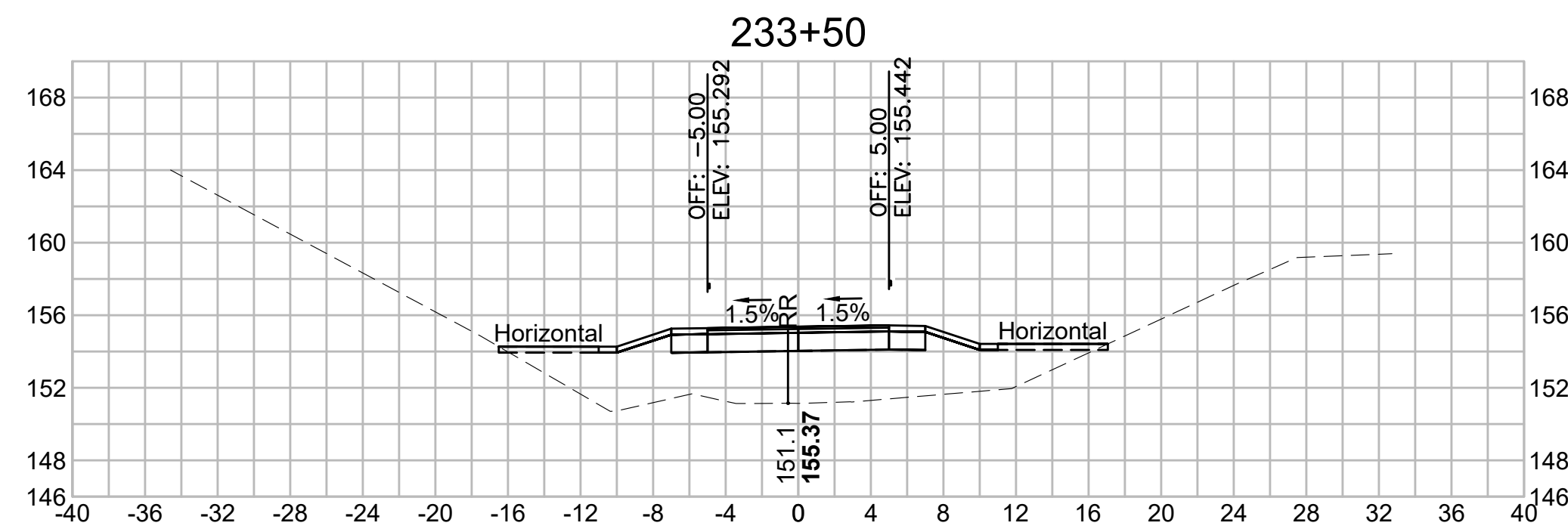
**Total Volume at Station 234+00.00**

Cut Area (SF)	0.204
Fill Area (SF)	63.421
Cut Vol (CF)	0.6
Fill Vol (CF)	129.1
Cum Cut Vol (CF)	8538.6
Cum Fill Vol (CF)	4905.1
Net Vol (CF)	3633.5



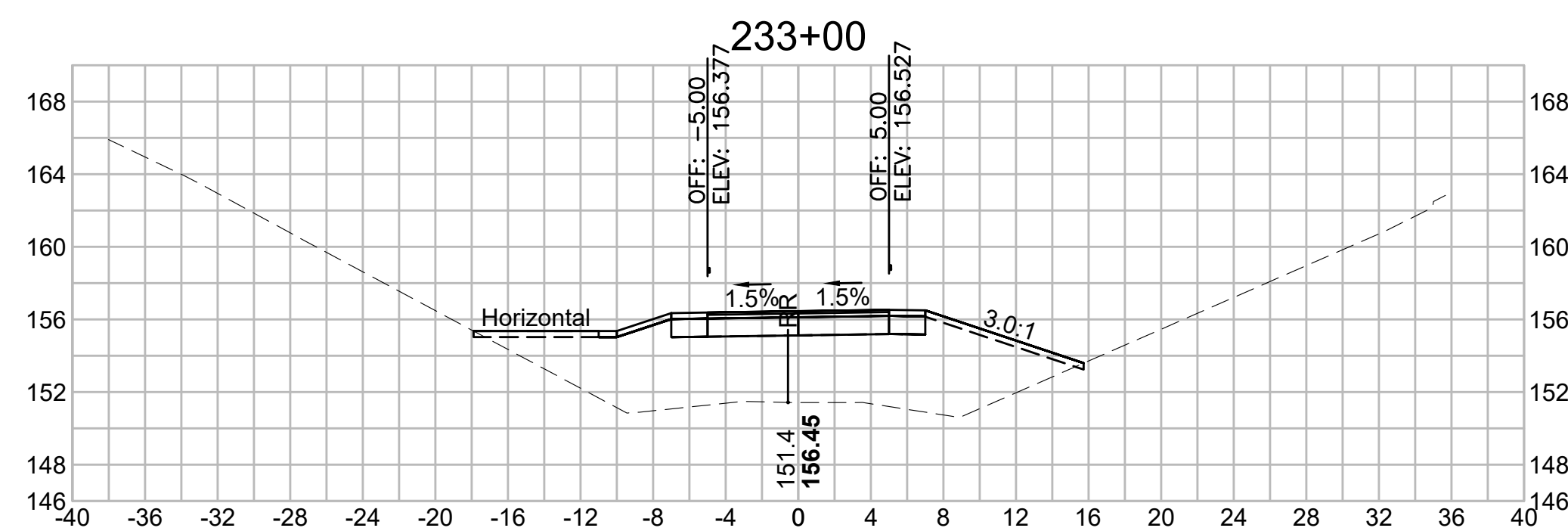
**Total Volume at Station 233+50.00**

Cut Area (SF)	0.426
Fill Area (SF)	76.015
Cut Vol (CF)	2.9
Fill Vol (CF)	165.5
Cum Cut Vol (CF)	8538.0
Cum Fill Vol (CF)	4776.0
Net Vol (CF)	3762.1



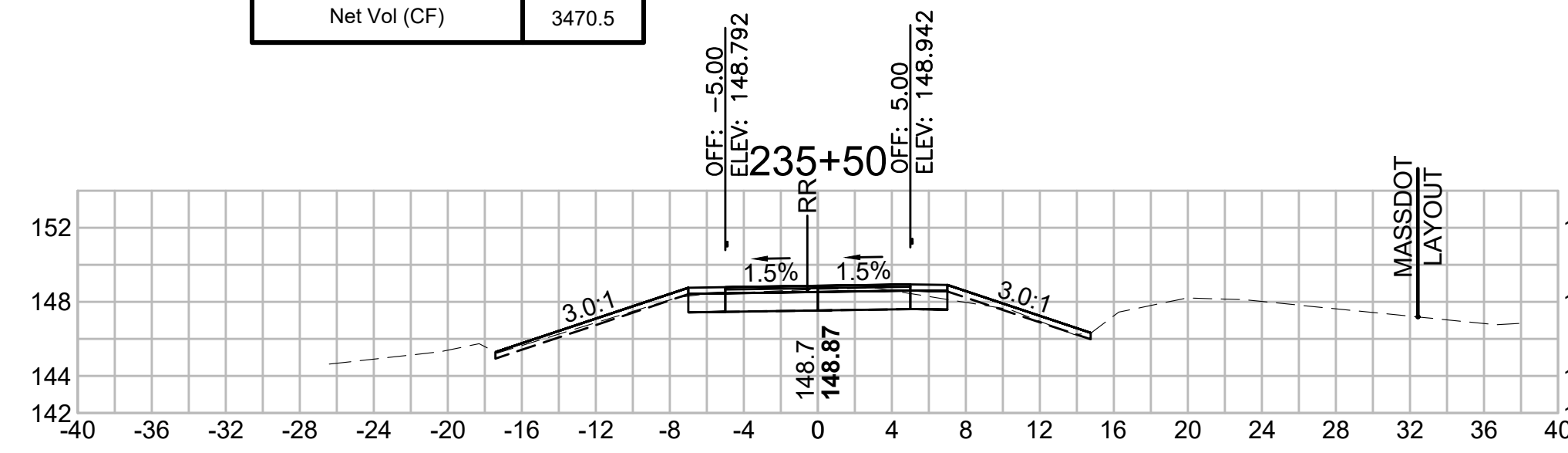
**Total Volume at Station 233+00.00**

Cut Area (SF)	2.657
Fill Area (SF)	102.732
Cut Vol (CF)	2.6
Fill Vol (CF)	173.6
Cum Cut Vol (CF)	8535.2
Cum Fill Vol (CF)	4610.5
Net Vol (CF)	3924.7



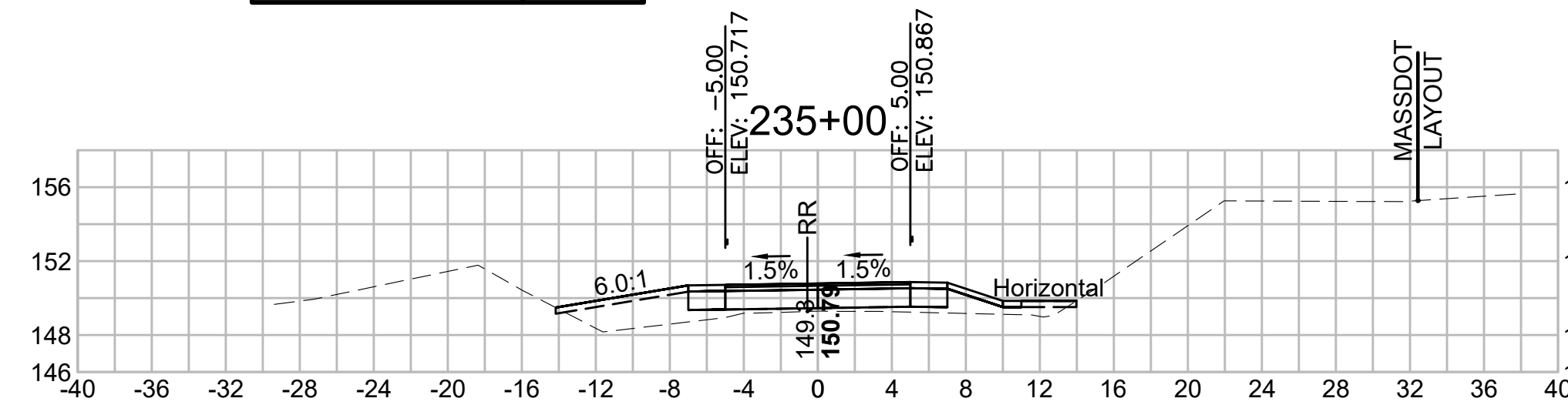
**Total Volume at Station 235+50.00**

Cut Area (SF)	16.187
Fill Area (SF)	0.584
Cut Vol (CF)	15.6
Fill Vol (CF)	15.7
Cum Cut Vol (CF)	8555.3
Cum Fill Vol (CF)	5084.8
Net Vol (CF)	3470.5



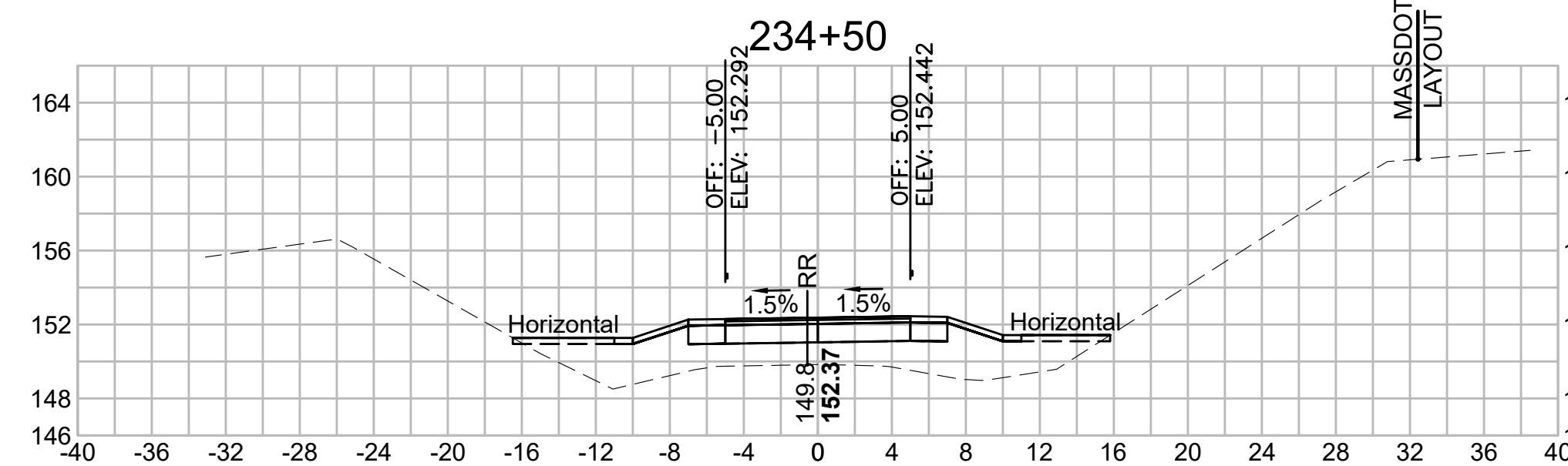
**Total Volume at Station 235+00.00**

Cut Area (SF)	0.665
Fill Area (SF)	16.342
Cut Vol (CF)	0.8
Fill Vol (CF)	60.2
Cum Cut Vol (CF)	8539.7
Cum Fill Vol (CF)	5069.1
Net Vol (CF)	3470.6



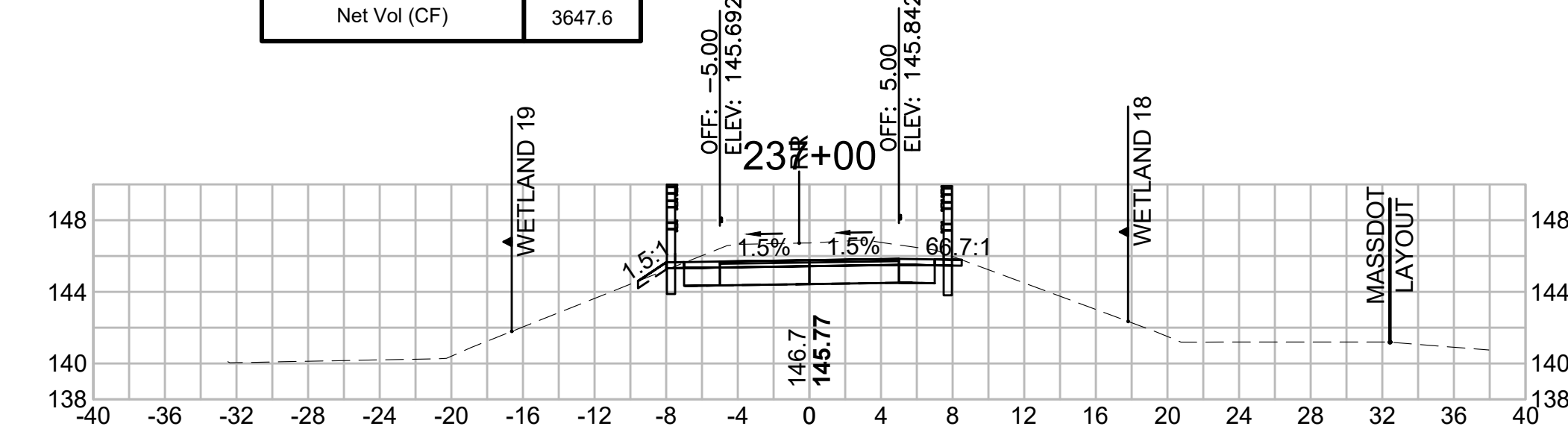
**Total Volume at Station 234+50.00**

Cut Area (SF)	0.181
Fill Area (SF)	48.716
Cut Vol (CF)	0.4
Fill Vol (CF)	103.8
Cum Cut Vol (CF)	8539.0
Cum Fill Vol (CF)	5008.9
Net Vol (CF)	3530.1



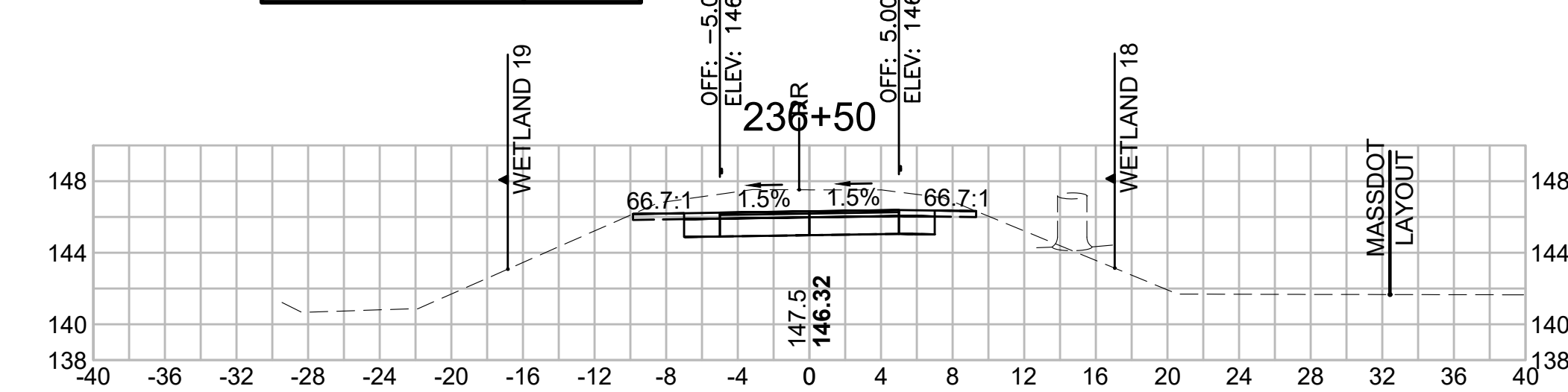
**Total Volume at Station 237+00.00**

Cut Area (SF)	31.543
Fill Area (SF)	0.012
Cut Vol (CF)	64.5
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	8733.0
Cum Fill Vol (CF)	5085.4
Net Vol (CF)	3647.6



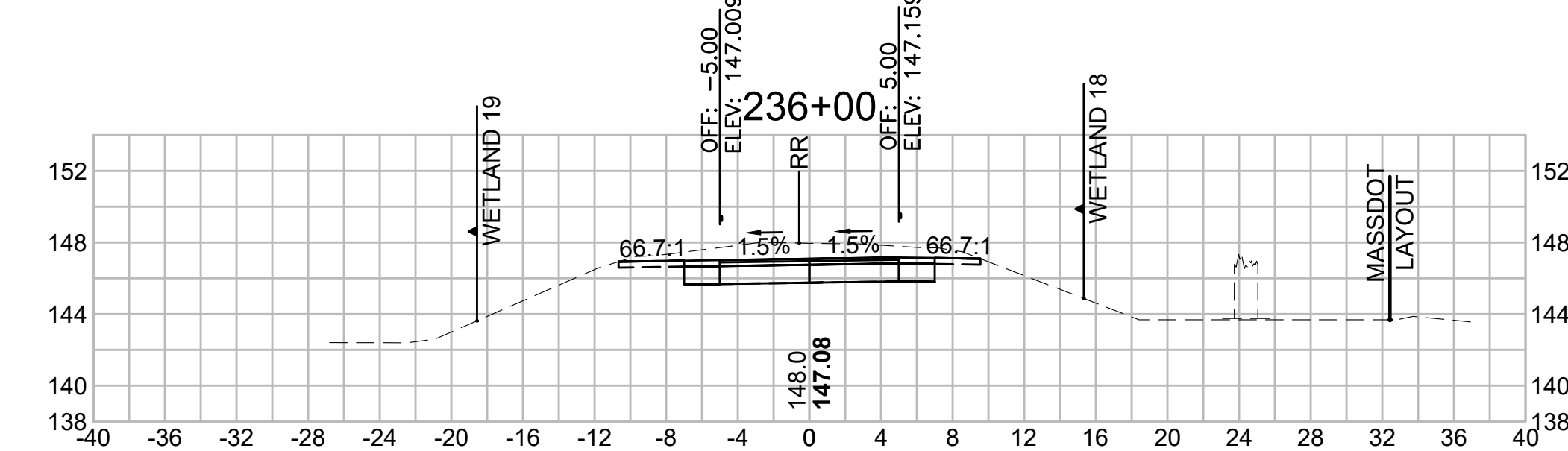
**Total Volume at Station 236+50.00**

Cut Area (SF)	38.158
Fill Area (SF)	0.000
Cut Vol (CF)	66.7
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	8668.4
Cum Fill Vol (CF)	5085.3
Net Vol (CF)	3583.1



**Total Volume at Station 236+00.00**

Cut Area (SF)	33.891
Fill Area (SF)	0.000
Cut Vol (CF)	46.4
Fill Vol (CF)	0.5
Cum Cut Vol (CF)	8601.7
Cum Fill Vol (CF)	5085.3
Net Vol (CF)	3516.4



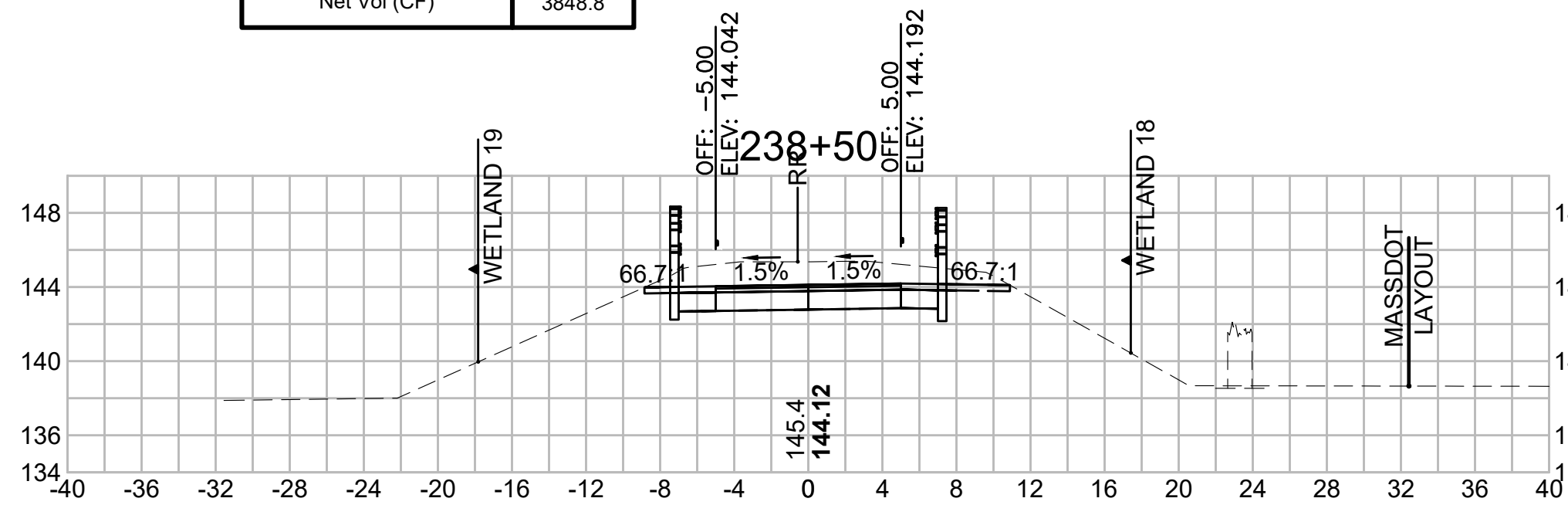
SUDBURY  
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	276	318

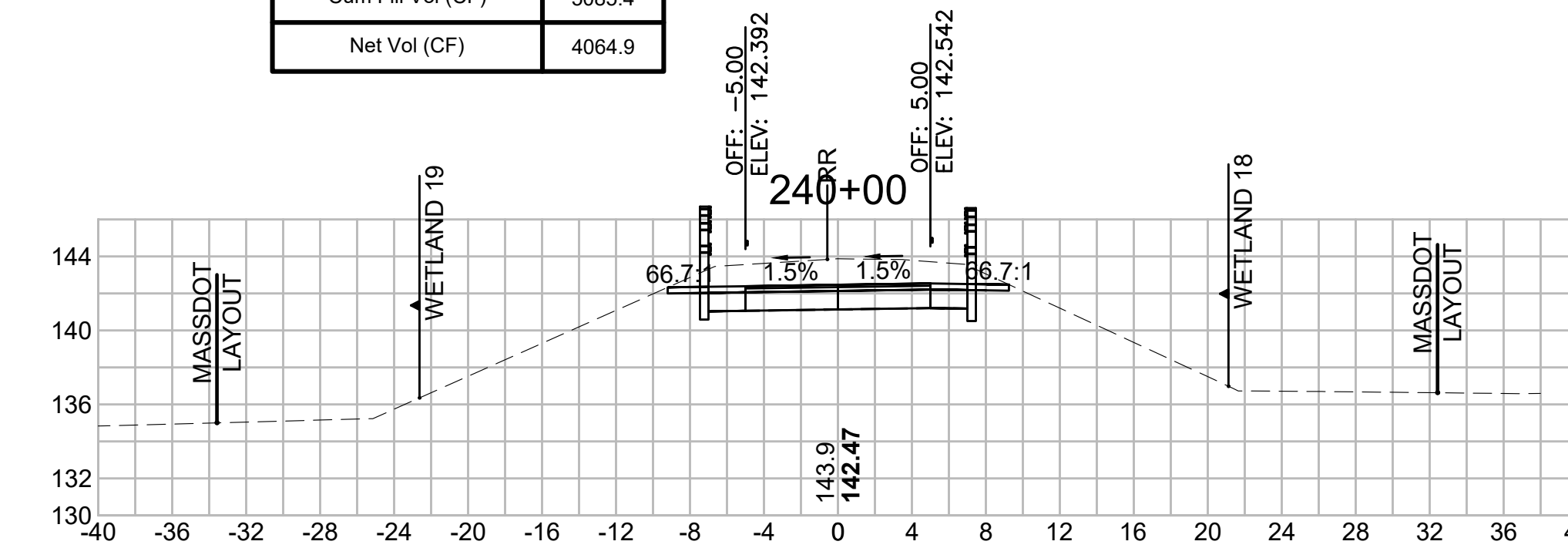
CROSS SECTIONS

608164\_XSEC(CROSS SECTION LAYOUTS).DWG 12-May-2021

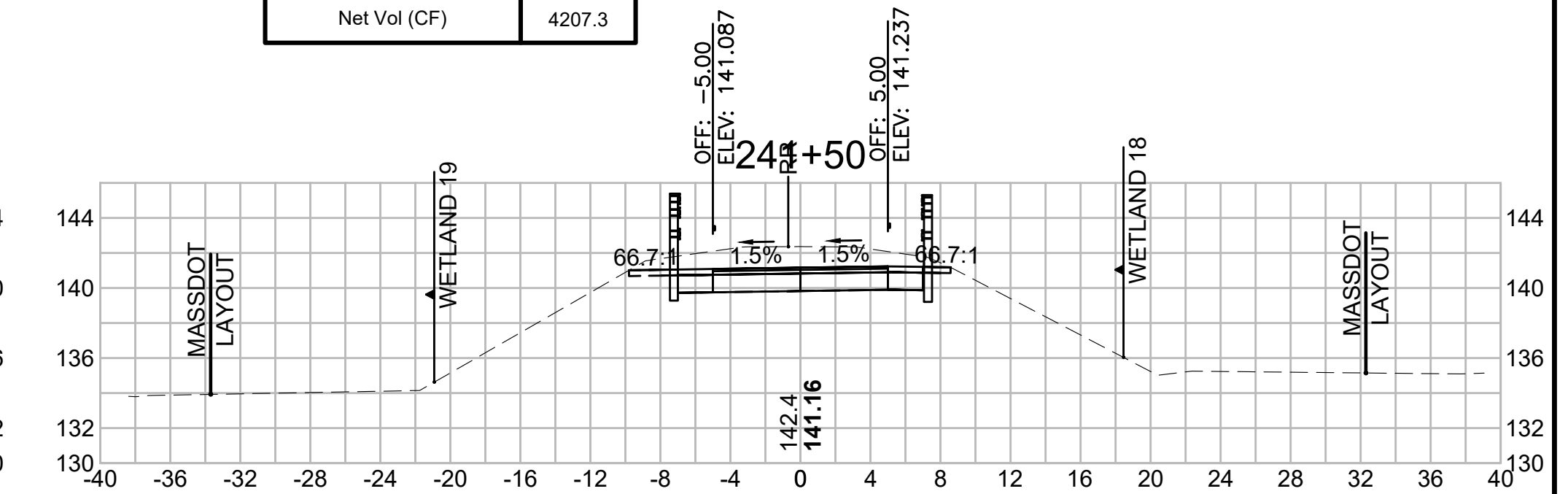
Total Volume at Station 238+50.00	
Cut Area (SF)	40.123
Fill Area (SF)	0.000
Cut Vol (CF)	72.8
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	8934.2
Cum Fill Vol (CF)	5085.4
Net Vol (CF)	3848.8



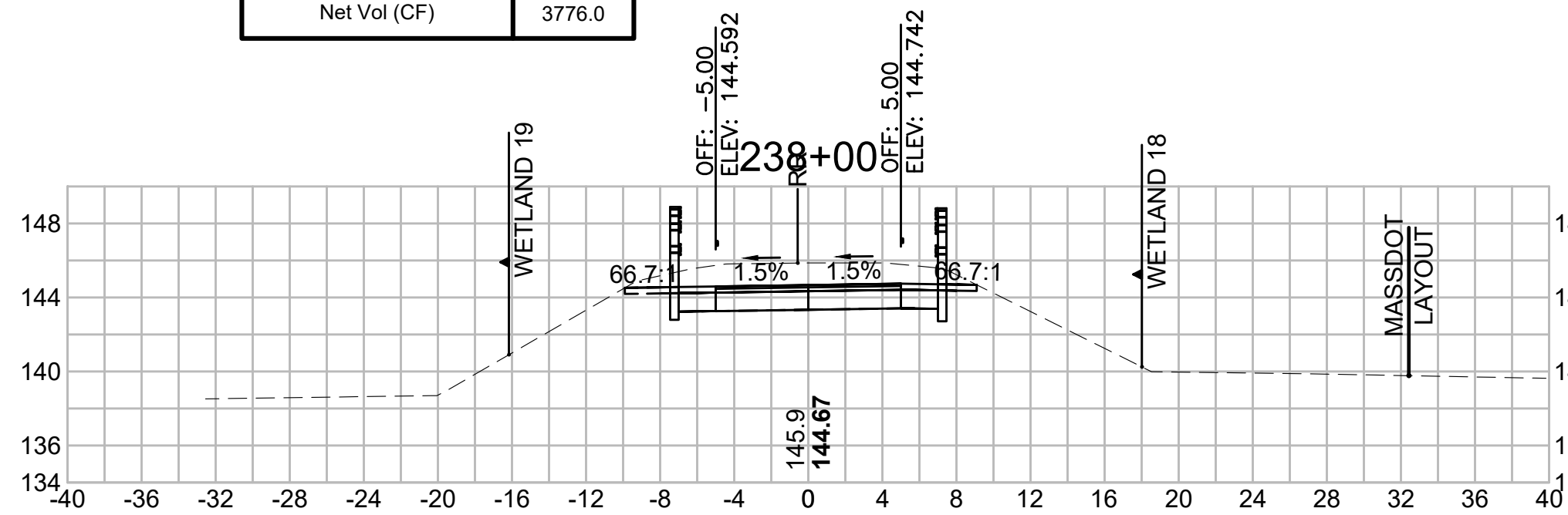
Total Volume at Station 240+00.00	
Cut Area (SF)	39.826
Fill Area (SF)	0.000
Cut Vol (CF)	72.7
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	9150.2
Cum Fill Vol (CF)	5085.4
Net Vol (CF)	4064.9



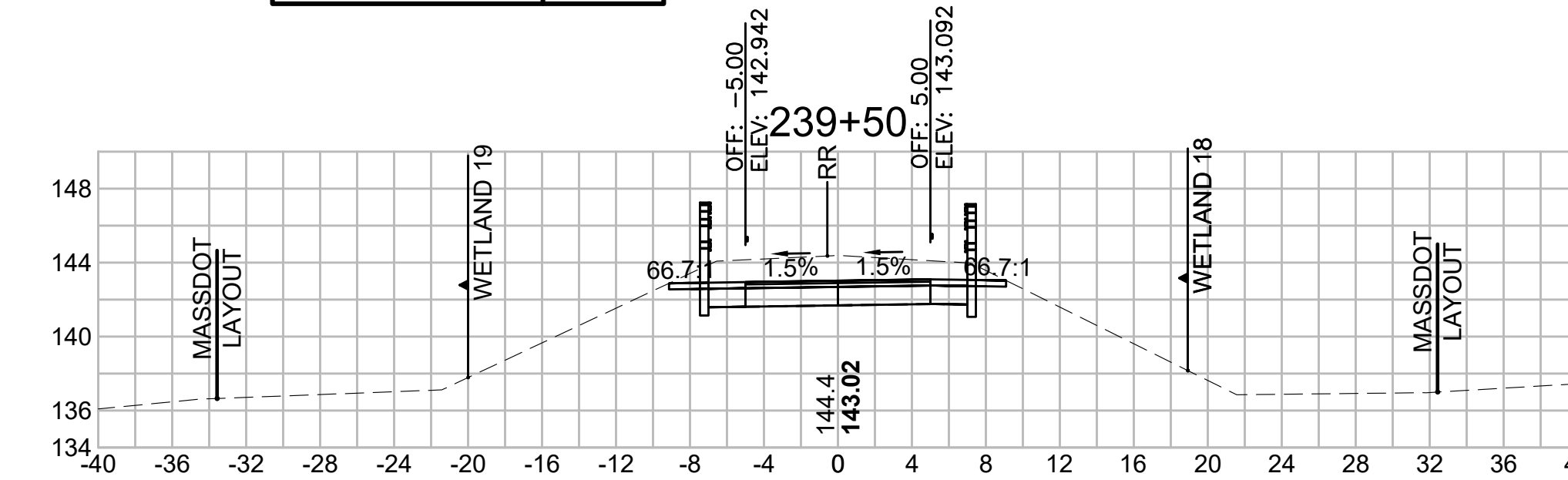
Total Volume at Station 241+50.00	
Cut Area (SF)	36.860
Fill Area (SF)	58.543
Cut Vol (CF)	66.2
Fill Vol (CF)	60.7
Cum Cut Vol (CF)	9359.9
Cum Fill Vol (CF)	5152.6
Net Vol (CF)	4207.3



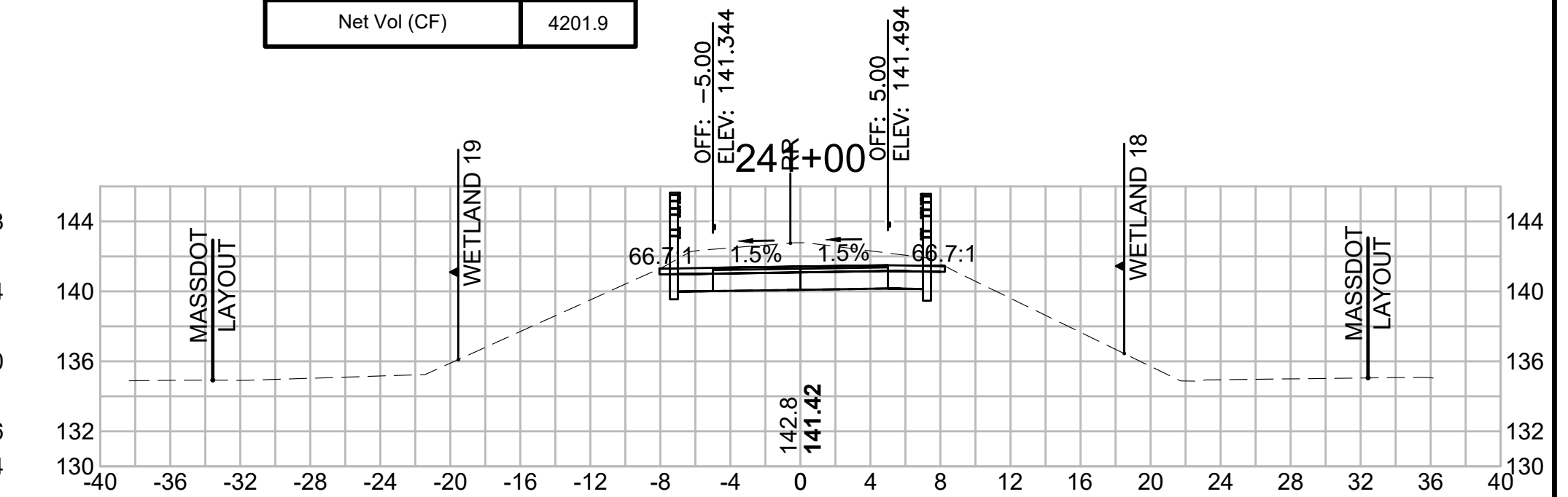
Total Volume at Station 238+00.00	
Cut Area (SF)	38.481
Fill Area (SF)	0.000
Cut Vol (CF)	67.4
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	8861.4
Cum Fill Vol (CF)	5085.4
Net Vol (CF)	3776.0



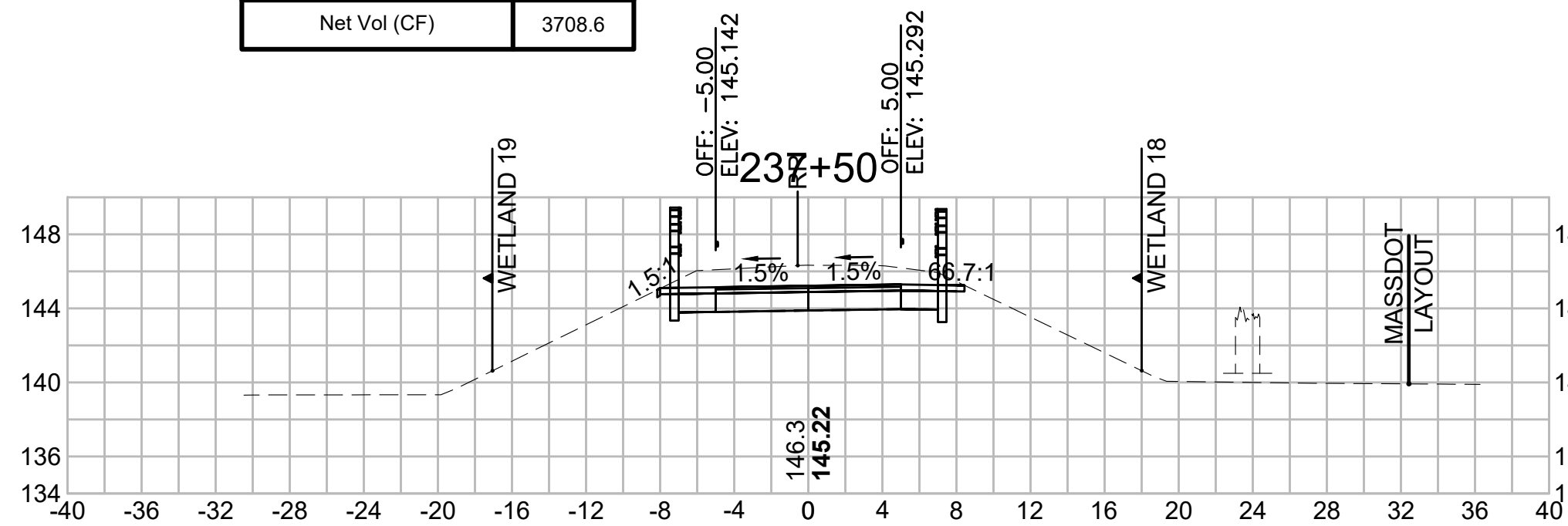
Total Volume at Station 239+50.00	
Cut Area (SF)	38.714
Fill Area (SF)	0.000
Cut Vol (CF)	71.0
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	9077.5
Cum Fill Vol (CF)	5085.4
Net Vol (CF)	3992.1



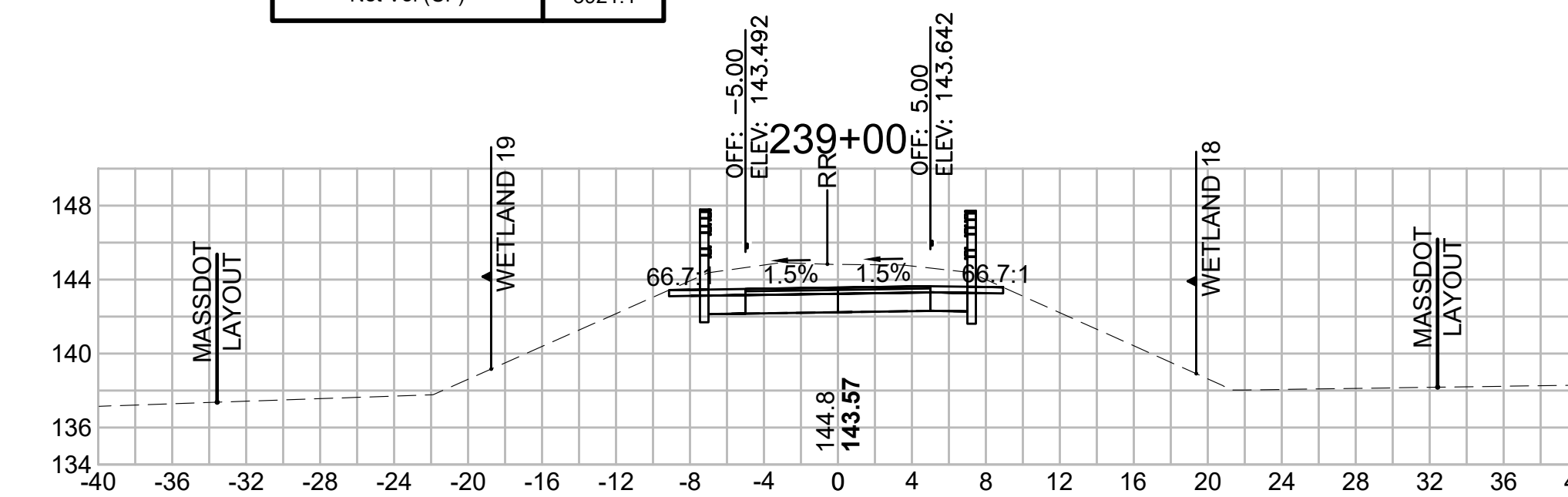
Total Volume at Station 241+00.00	
Cut Area (SF)	34.587
Fill Area (SF)	7.031
Cut Vol (CF)	69.4
Fill Vol (CF)	6.5
Cum Cut Vol (CF)	9293.8
Cum Fill Vol (CF)	5091.9
Net Vol (CF)	4201.9



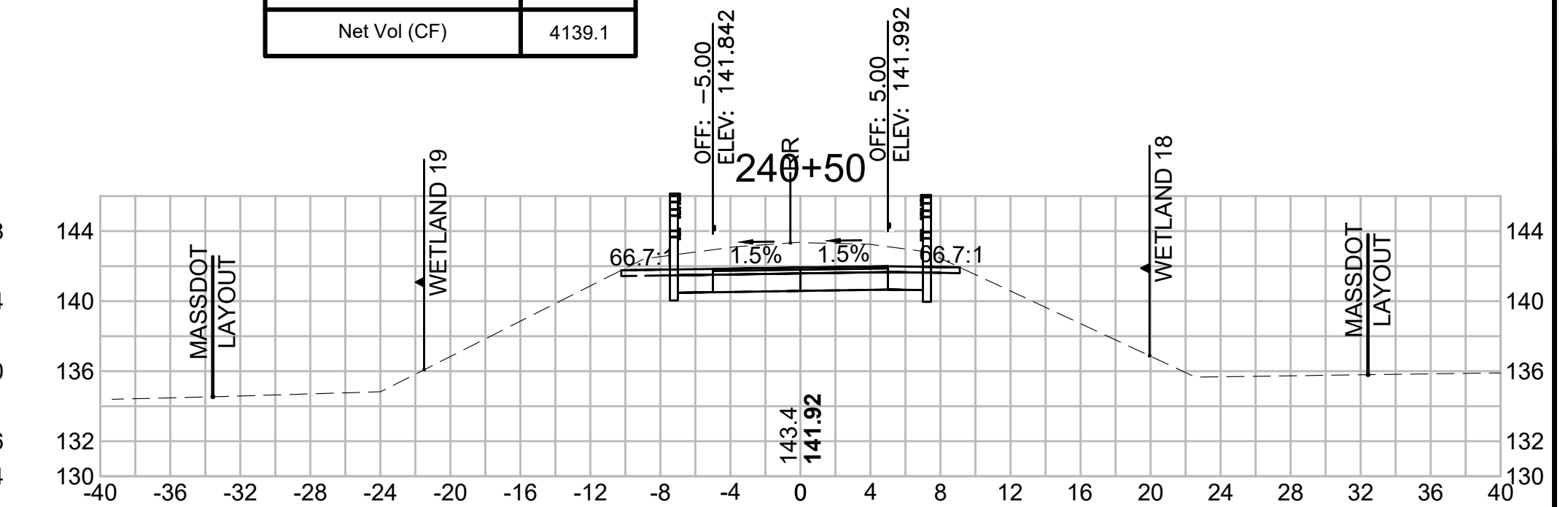
Total Volume at Station 237+50.00	
Cut Area (SF)	34.340
Fill Area (SF)	0.000
Cut Vol (CF)	61.0
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	8794.0
Cum Fill Vol (CF)	5085.4
Net Vol (CF)	3708.6



Total Volume at Station 239+00.00	
Cut Area (SF)	37.978
Fill Area (SF)	0.000
Cut Vol (CF)	72.3
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	9006.5
Cum Fill Vol (CF)	5085.4
Net Vol (CF)	3921.1



Total Volume at Station 240+50.00	
Cut Area (SF)	40.318
Fill Area (SF)	0.000
Cut Vol (CF)	74.2
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	9224.4
Cum Fill Vol (CF)	5085.4
Net Vol (CF)	4139.1





SUDBURY  
BRUCE FREEMAN RAIL TRAIL

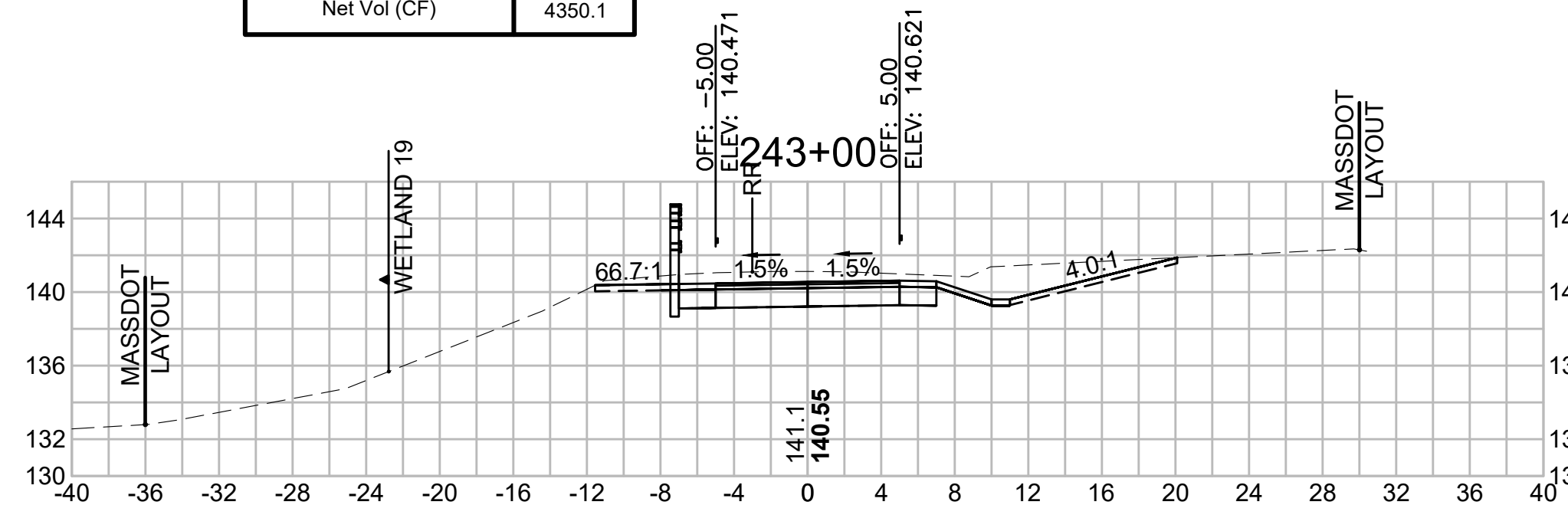
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	277	318

PROJECT FILE NO. 608164

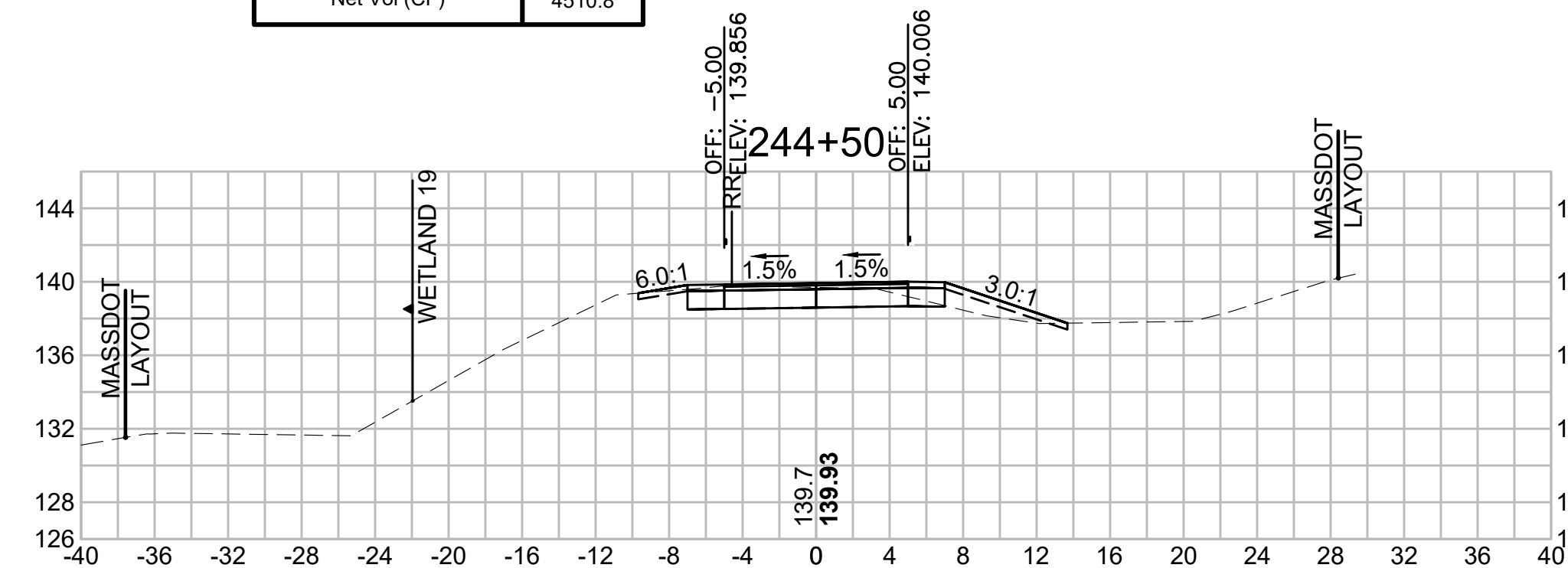
CROSS SECTIONS

608164\_XSEC(CROSS SECTION LAYOUTS).DWG 12-May-2021

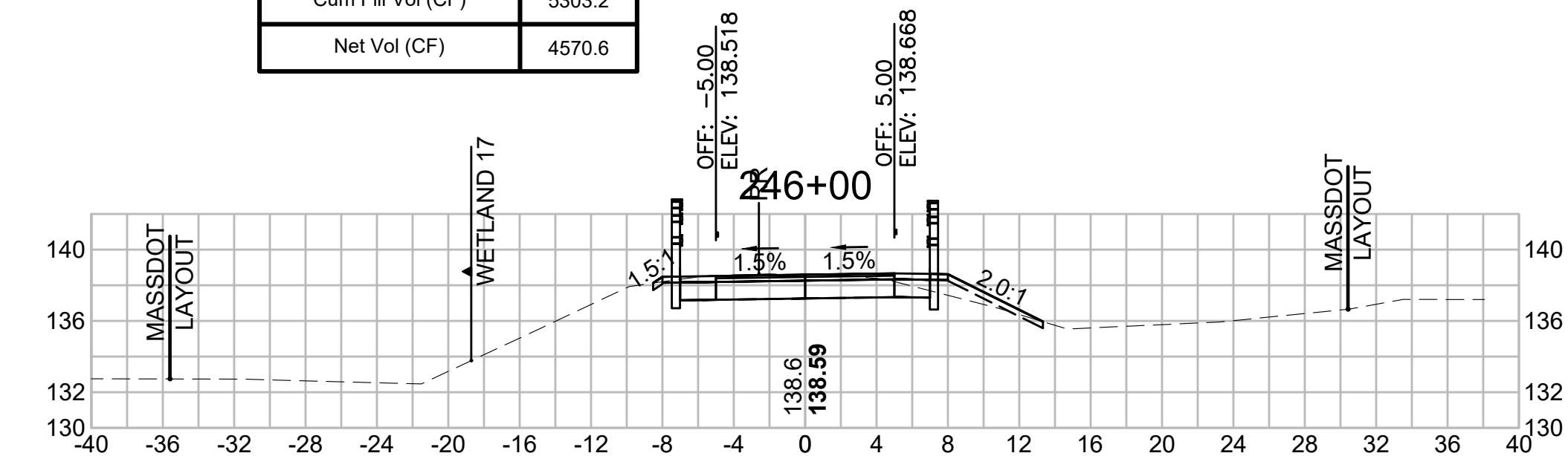
Total Volume at Station 243+00.00	
Cut Area (SF)	46.014
Fill Area (SF)	9.458
Cut Vol (CF)	95.3
Fill Vol (CF)	18.8
Cum Cut Vol (CF)	9617.2
Cum Fill Vol (CF)	5267.1
Net Vol (CF)	4350.1



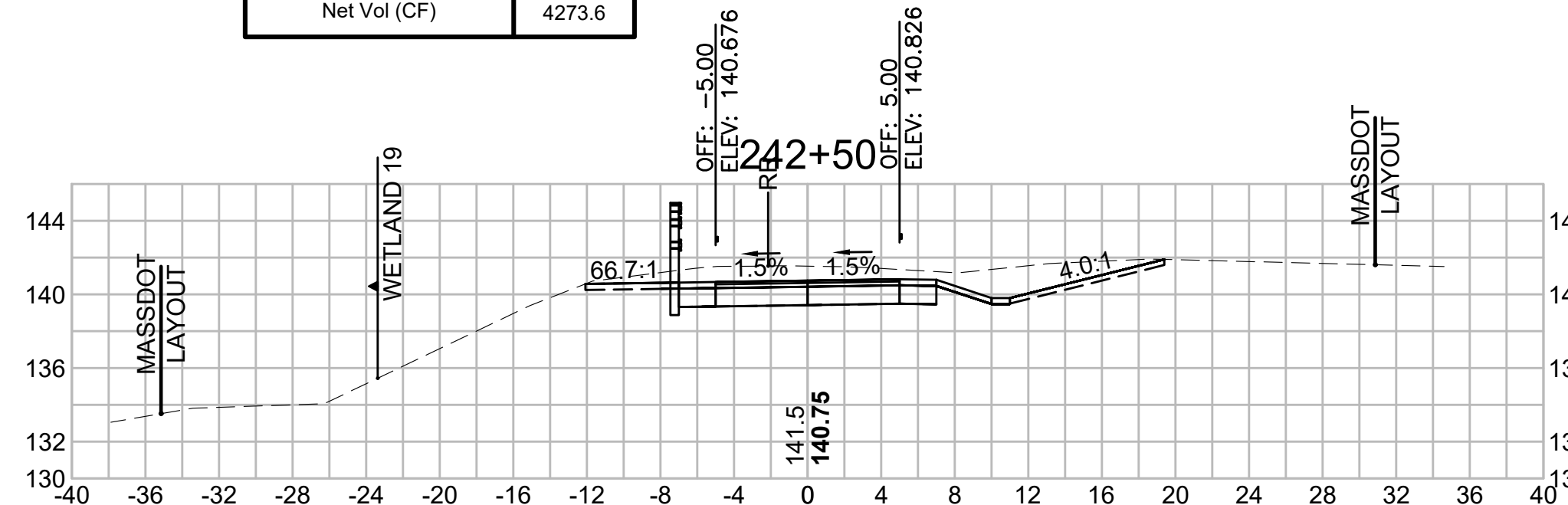
Total Volume at Station 244+50.00	
Cut Area (SF)	14.460
Fill Area (SF)	3.195
Cut Vol (CF)	32.6
Fill Vol (CF)	3.1
Cum Cut Vol (CF)	9789.8
Cum Fill Vol (CF)	5279.0
Net Vol (CF)	4510.8



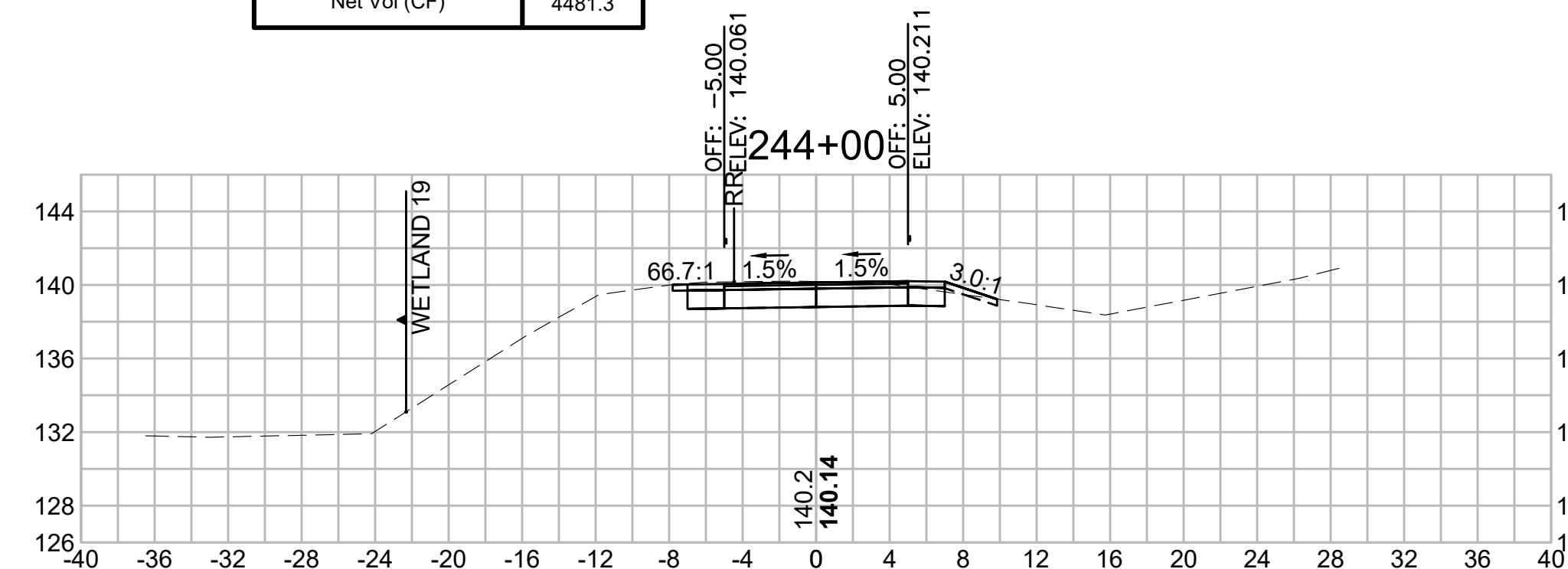
Total Volume at Station 246+00.00	
Cut Area (SF)	17.316
Fill Area (SF)	2.105
Cut Vol (CF)	27.3
Fill Vol (CF)	10.7
Cum Cut Vol (CF)	9873.8
Cum Fill Vol (CF)	5303.2
Net Vol (CF)	4570.6



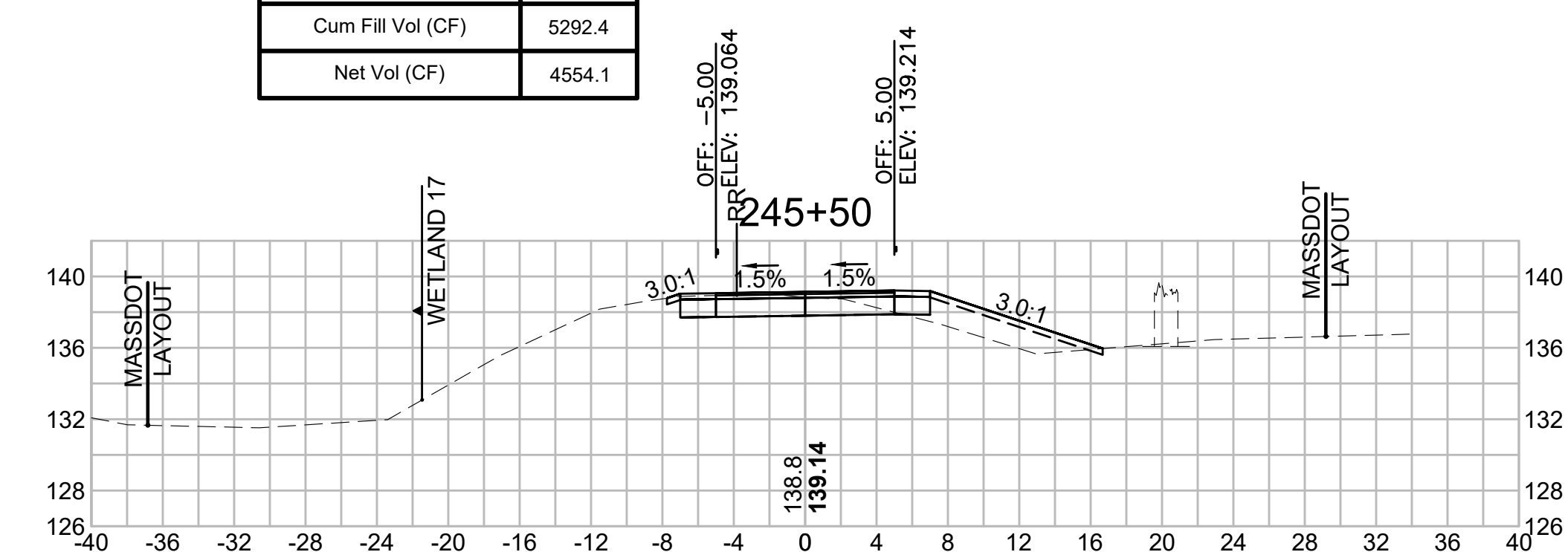
Total Volume at Station 242+50.00	
Cut Area (SF)	56.932
Fill Area (SF)	10.847
Cut Vol (CF)	90.3
Fill Vol (CF)	25.8
Cum Cut Vol (CF)	9521.9
Cum Fill Vol (CF)	5248.3
Net Vol (CF)	4273.6



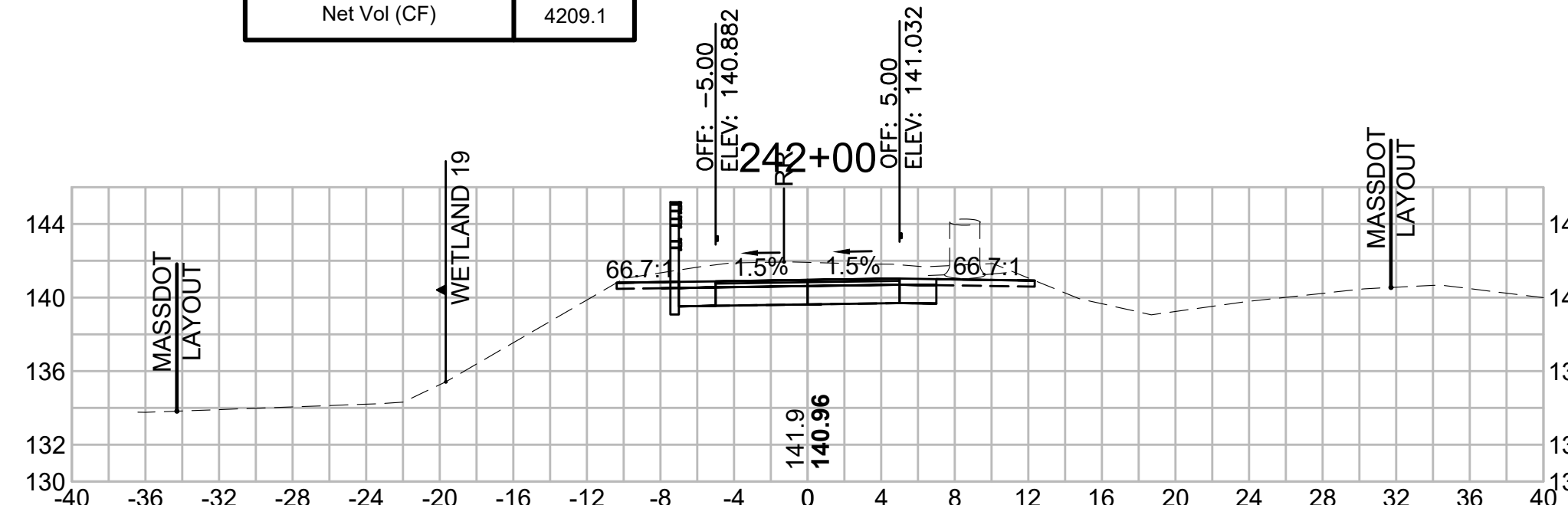
Total Volume at Station 244+00.00	
Cut Area (SF)	20.739
Fill Area (SF)	0.105
Cut Vol (CF)	58.3
Fill Vol (CF)	0.1
Cum Cut Vol (CF)	9757.3
Cum Fill Vol (CF)	5276.0
Net Vol (CF)	4481.3



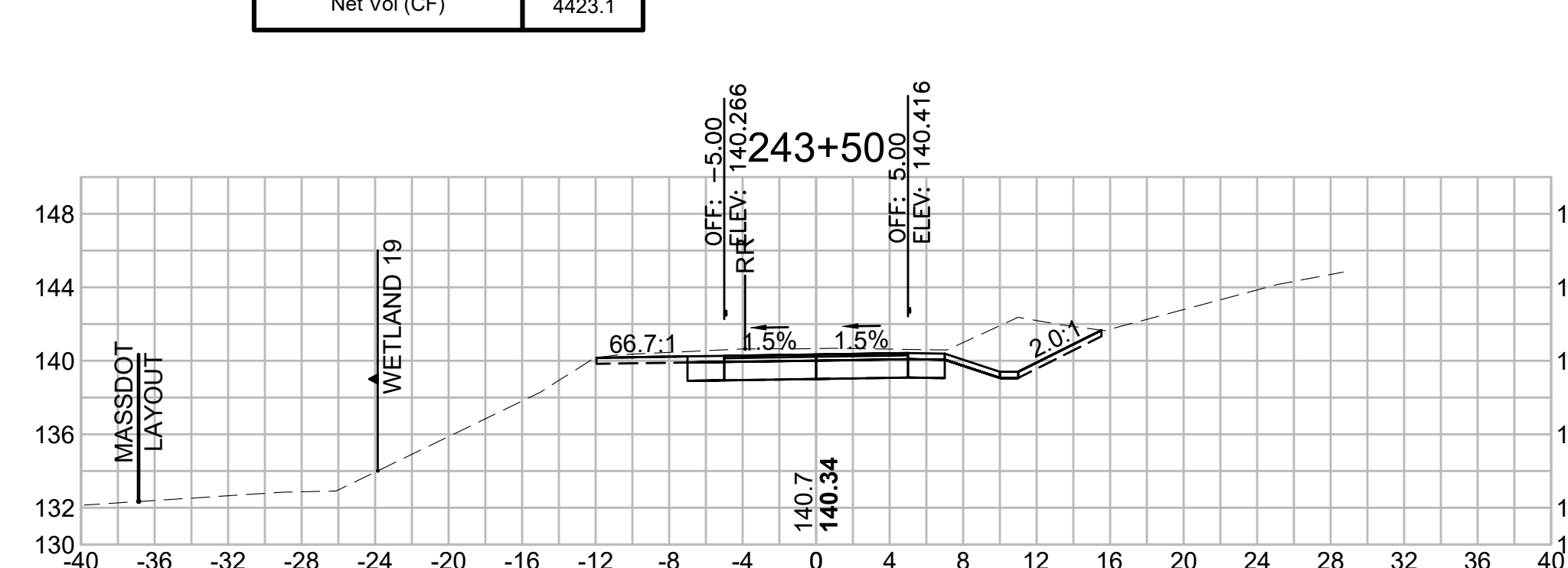
Total Volume at Station 245+00.00	
Cut Area (SF)	12.126
Fill Area (SF)	9.499
Cut Vol (CF)	27.3
Fill Vol (CF)	9.6
Cum Cut Vol (CF)	9846.5
Cum Fill Vol (CF)	5292.4
Net Vol (CF)	4554.1



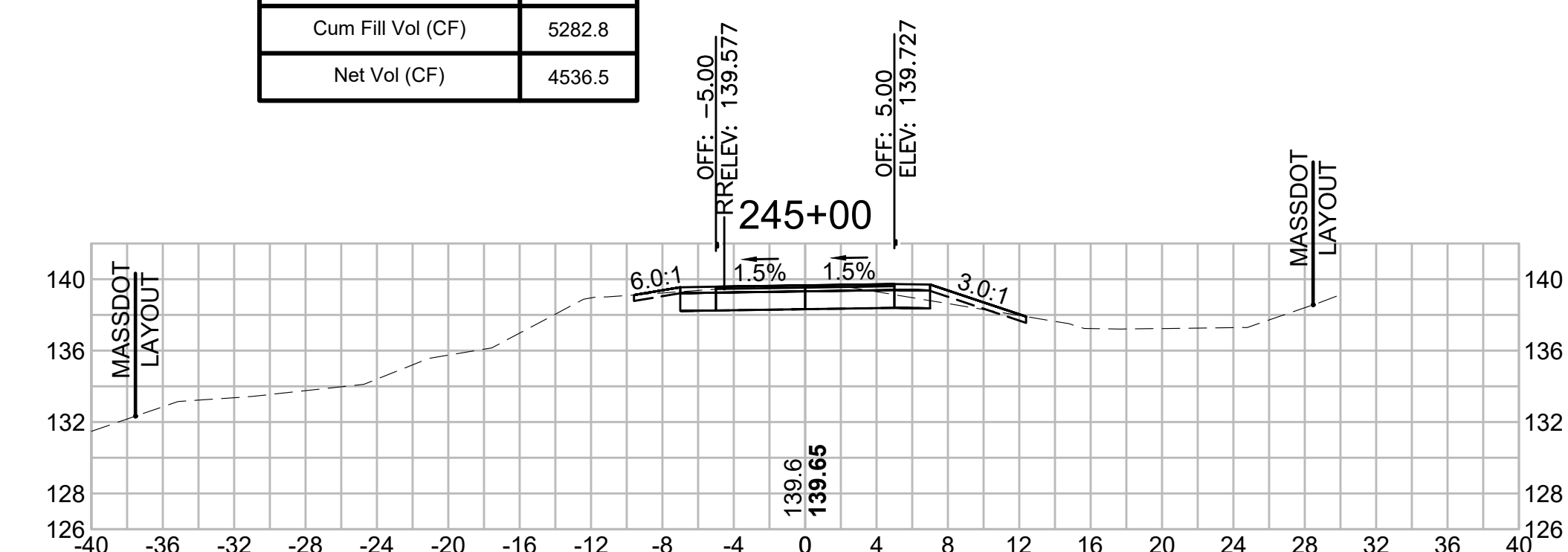
Total Volume at Station 242+00.00	
Cut Area (SF)	40.540
Fill Area (SF)	16.985
Cut Vol (CF)	71.7
Fill Vol (CF)	69.9
Cum Cut Vol (CF)	9431.6
Cum Fill Vol (CF)	5222.5
Net Vol (CF)	4209.1



Total Volume at Station 243+50.00	
Cut Area (SF)	42.264
Fill Area (SF)	0.003
Cut Vol (CF)	81.7
Fill Vol (CF)	8.8
Cum Cut Vol (CF)	9698.9
Cum Fill Vol (CF)	5275.9
Net Vol (CF)	4423.1



Total Volume at Station 245+00.00	
Cut Area (SF)	17.312
Fill Area (SF)	0.900
Cut Vol (CF)	29.4
Fill Vol (CF)	3.8
Cum Cut Vol (CF)	9819.3
Cum Fill Vol (CF)	5282.8
Net Vol (CF)	4536.5



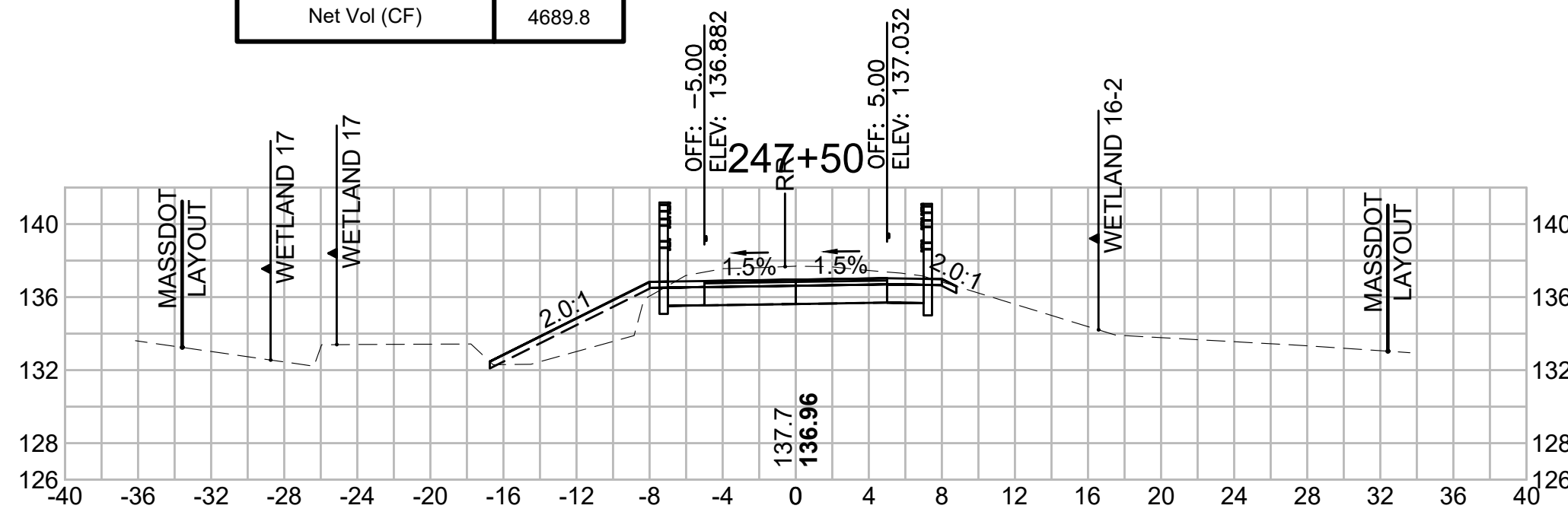
SUDBURY  
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	278	318

CROSS SECTIONS

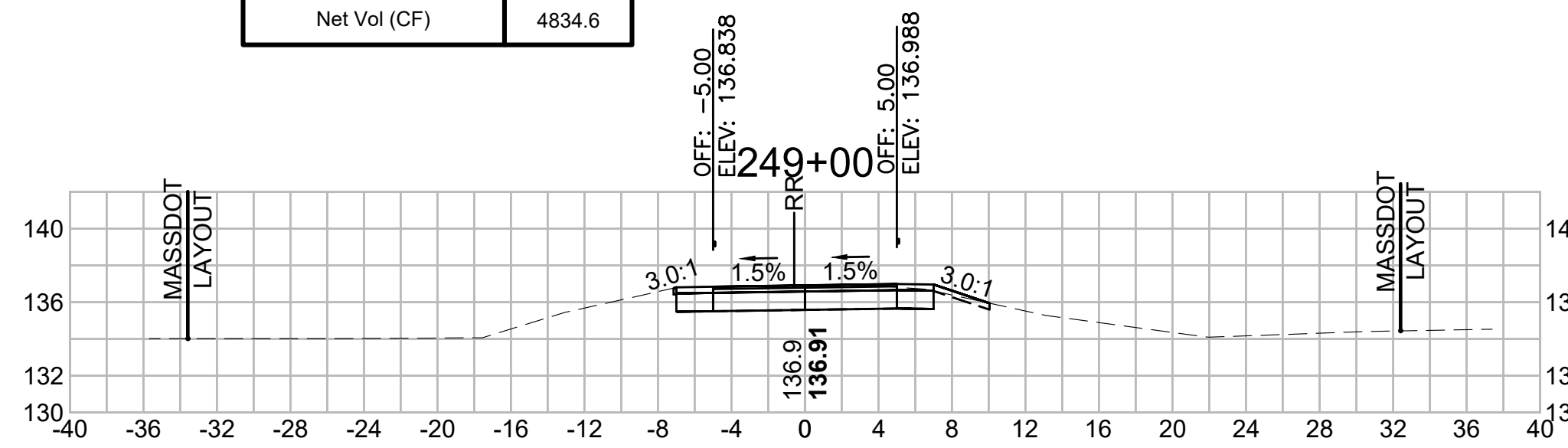
**Total Volume at Station 247+50.00**

Cut Area (SF)	28,081
Fill Area (SF)	10,437
Cut Vol (CF)	49.7
Fill Vol (CF)	9.7
Cum Cut Vol (CF)	10004.6
Cum Fill Vol (CF)	5314.8
Net Vol (CF)	4689.8



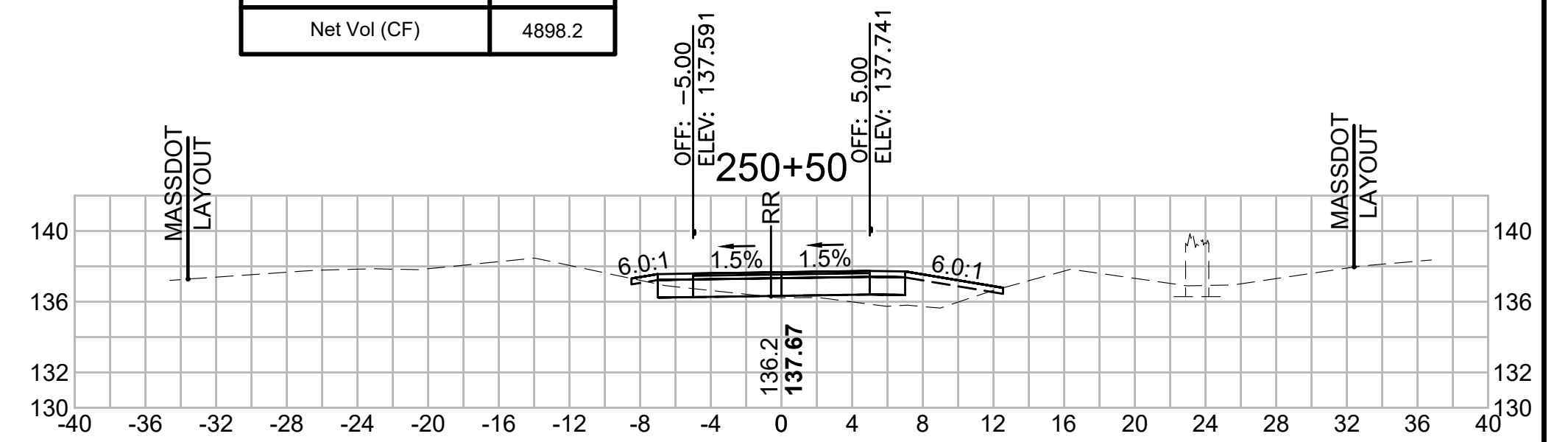
**Total Volume at Station 249+00.00**

Cut Area (SF)	19,014
Fill Area (SF)	0,000
Cut Vol (CF)	41.9
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	10159.1
Cum Fill Vol (CF)	5324.5
Net Vol (CF)	4834.6



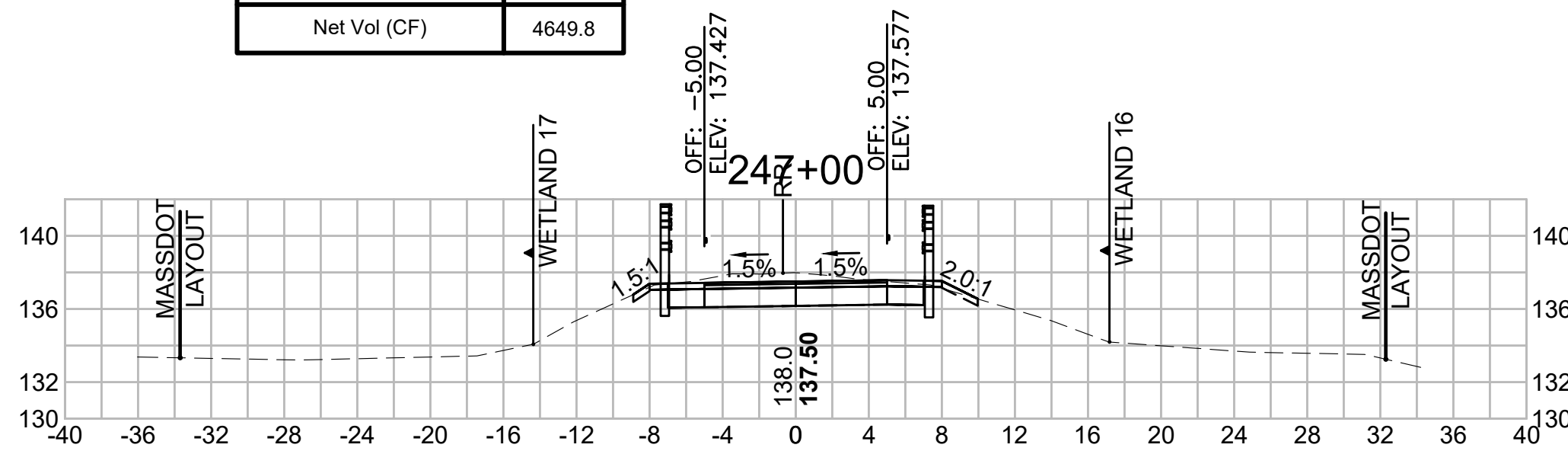
**Total Volume at Station 250+50.00**

Cut Area (SF)	18,871
Fill Area (SF)	7,482
Cut Vol (CF)	25.1
Fill Vol (CF)	8.6
Cum Cut Vol (CF)	10233.3
Cum Fill Vol (CF)	5335.1
Net Vol (CF)	4898.2



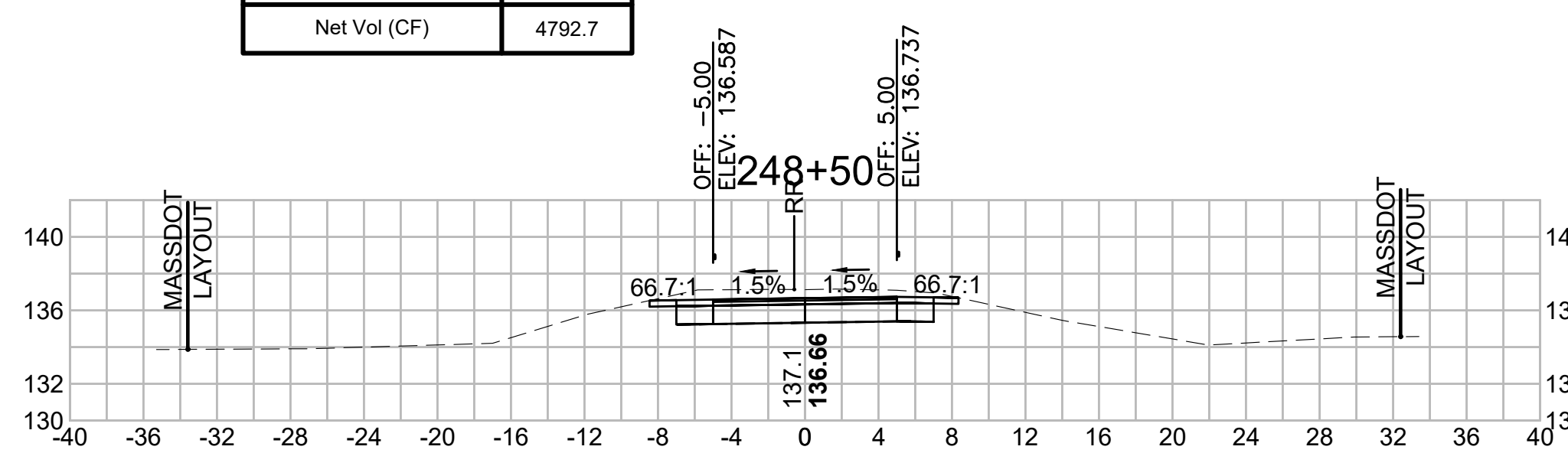
**Total Volume at Station 247+00.00**

Cut Area (SF)	25,565
Fill Area (SF)	0,011
Cut Vol (CF)	44.4
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	9955.0
Cum Fill Vol (CF)	5305.1
Net Vol (CF)	4649.8



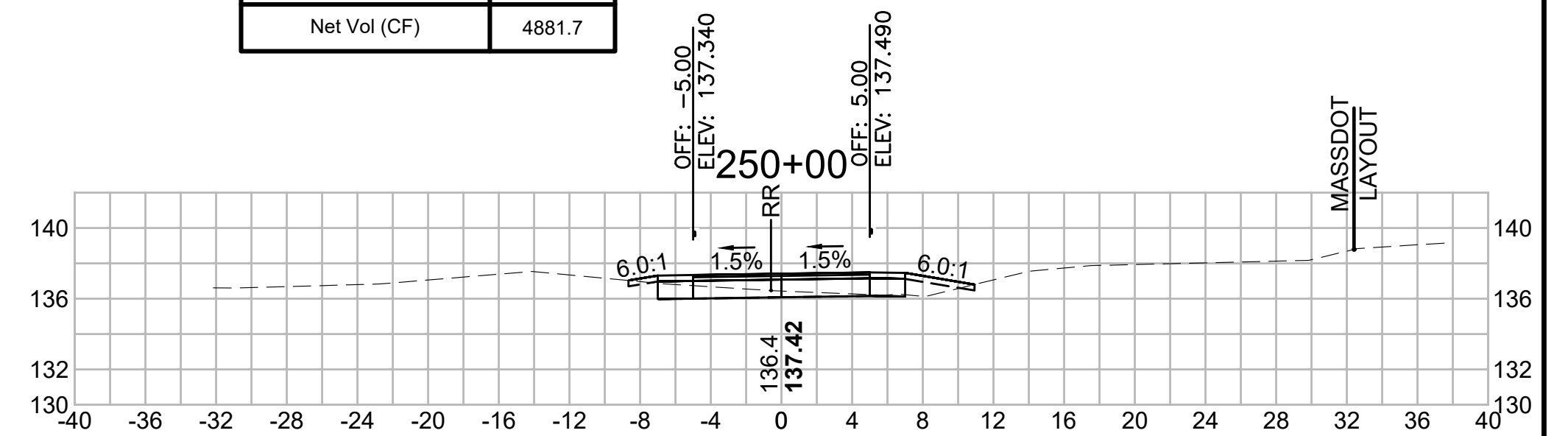
**Total Volume at Station 248+50.00**

Cut Area (SF)	26,248
Fill Area (SF)	0,000
Cut Vol (CF)	55.4
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	10117.2
Cum Fill Vol (CF)	5324.5
Net Vol (CF)	4792.7



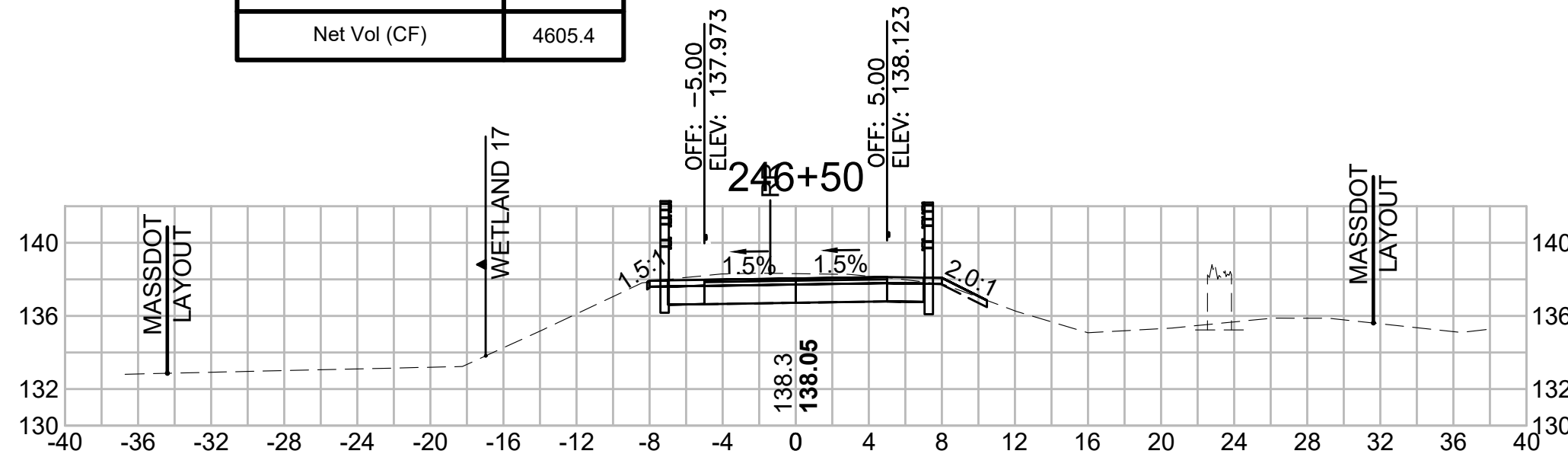
**Total Volume at Station 250+00.00**

Cut Area (SF)	8,194
Fill Area (SF)	1,778
Cut Vol (CF)	19.6
Fill Vol (CF)	1.8
Cum Cut Vol (CF)	10208.2
Cum Fill Vol (CF)	5326.5
Net Vol (CF)	4881.7



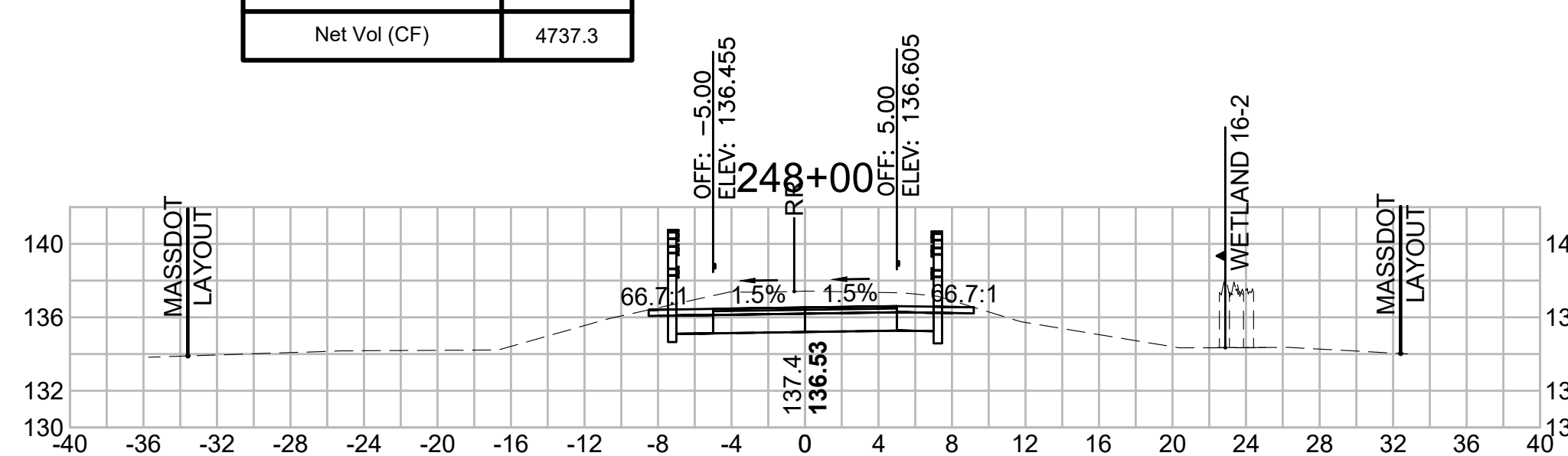
**Total Volume at Station 246+50.00**

Cut Area (SF)	22,390
Fill Area (SF)	0,001
Cut Vol (CF)	36.8
Fill Vol (CF)	1.9
Cum Cut Vol (CF)	9910.5
Cum Fill Vol (CF)	5305.1
Net Vol (CF)	4605.4



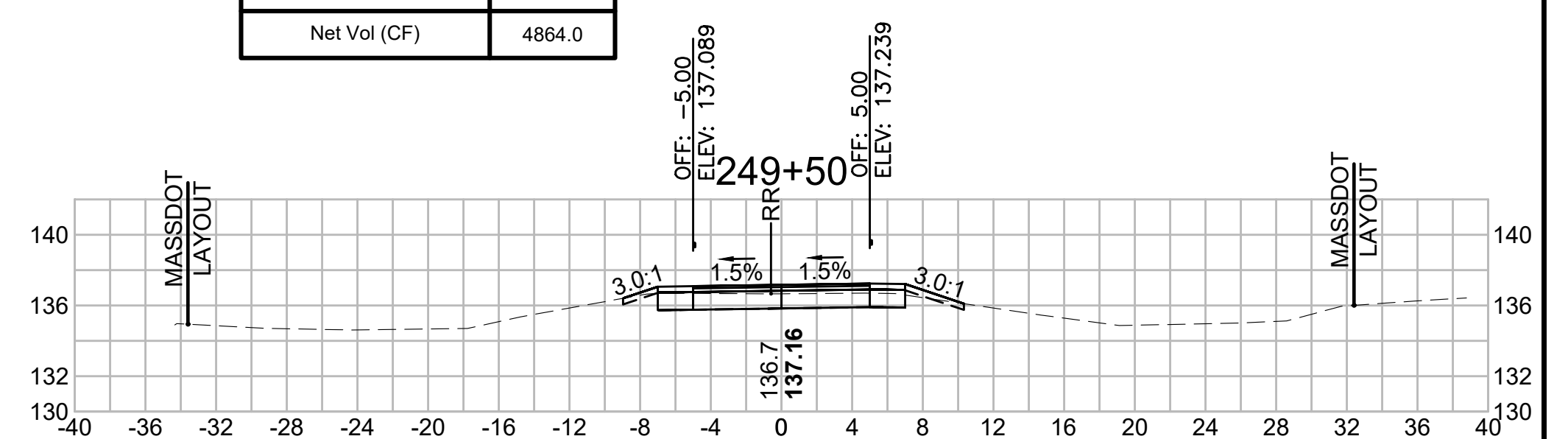
**Total Volume at Station 248+00.00**

Cut Area (SF)	33,601
Fill Area (SF)	0,000
Cut Vol (CF)	57.1
Fill Vol (CF)	9.7
Cum Cut Vol (CF)	10061.7
Cum Fill Vol (CF)	5324.5
Net Vol (CF)	4737.3



**Total Volume at Station 249+50.00**

Cut Area (SF)	12,926
Fill Area (SF)	0,194
Cut Vol (CF)	29.6
Fill Vol (CF)	0.2
Cum Cut Vol (CF)	10188.6
Cum Fill Vol (CF)	5324.7
Net Vol (CF)	4864.0



SUDBURY  
BRUCE FREEMAN RAIL TRAIL

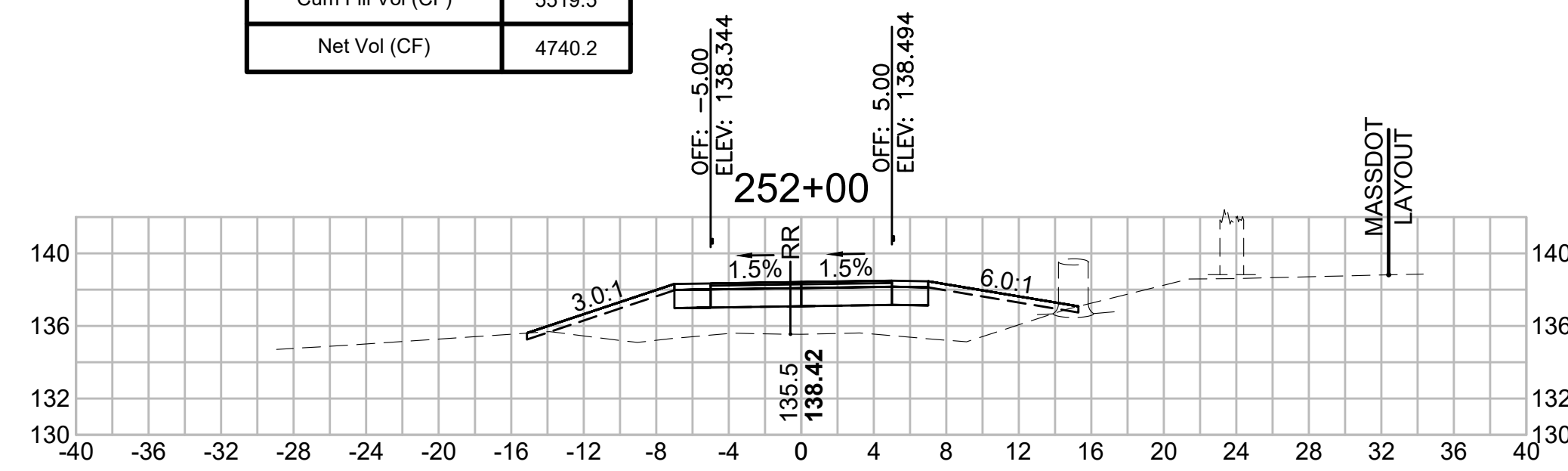
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	279	318

PROJECT FILE NO. 608164

CROSS SECTIONS

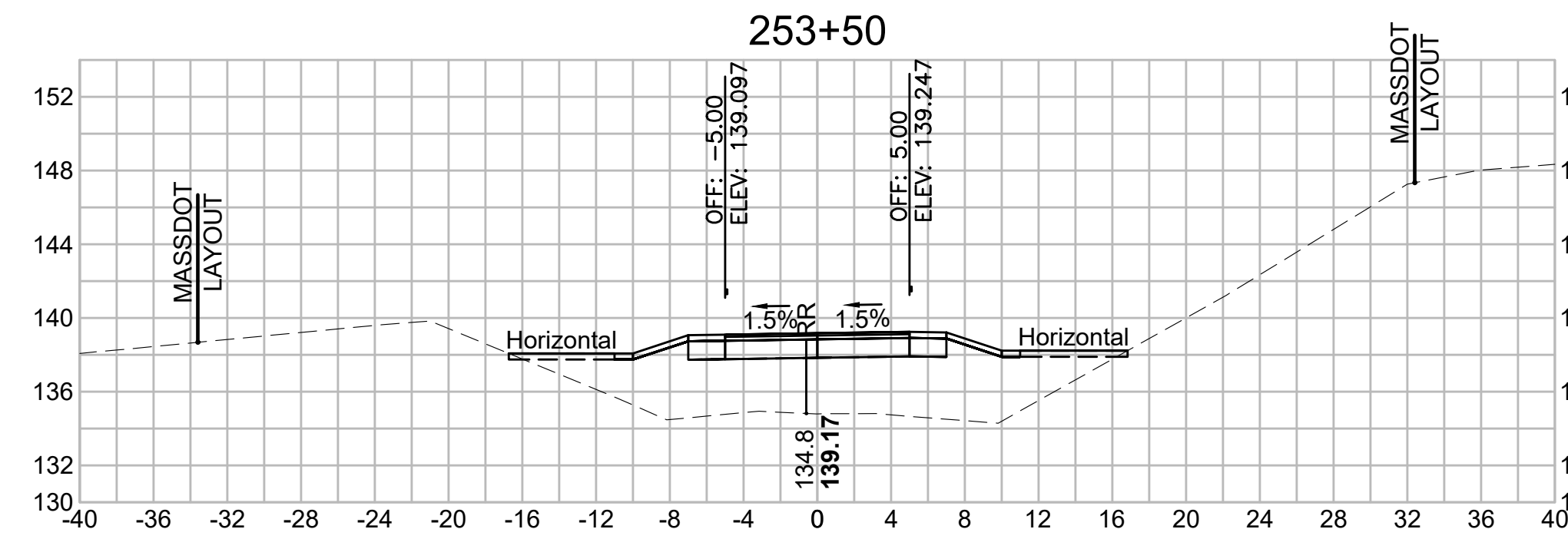
**Total Volume at Station 252+00.00**

Cut Area (SF)	0.630
Fill Area (SF)	45.112
Cut Vol (CF)	3.5
Fill Vol (CF)	76.7
Cum Cut Vol (CF)	10259.7
Cum Fill Vol (CF)	5519.5
Net Vol (CF)	4740.2



**Total Volume at Station 253+00.00**

Cut Area (SF)	0.229
Fill Area (SF)	83.655
Cut Vol (CF)	0.5
Fill Vol (CF)	144.9
Cum Cut Vol (CF)	10262.7
Cum Fill Vol (CF)	5874.3
Net Vol (CF)	4388.4



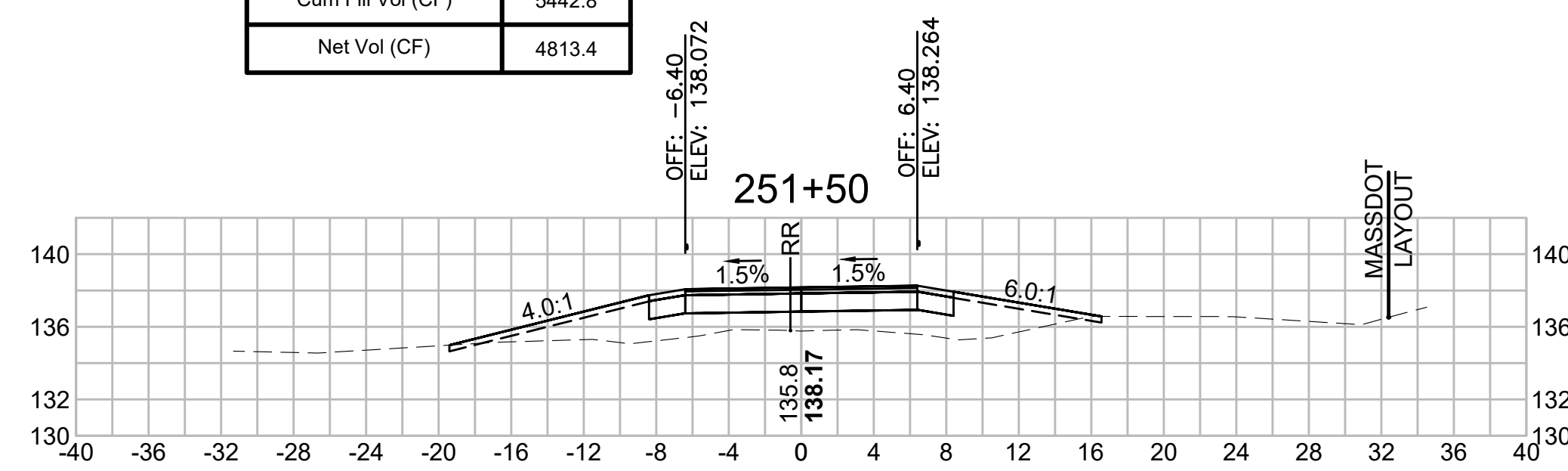
**Total Volume at Station 255+00.00**

Cut Area (SF)	0.198
Fill Area (SF)	116.778
Cut Vol (CF)	0.7
Fill Vol (CF)	215.6
Cum Cut Vol (CF)	10264.5
Cum Fill Vol (CF)	6464.1
Net Vol (CF)	3800.4



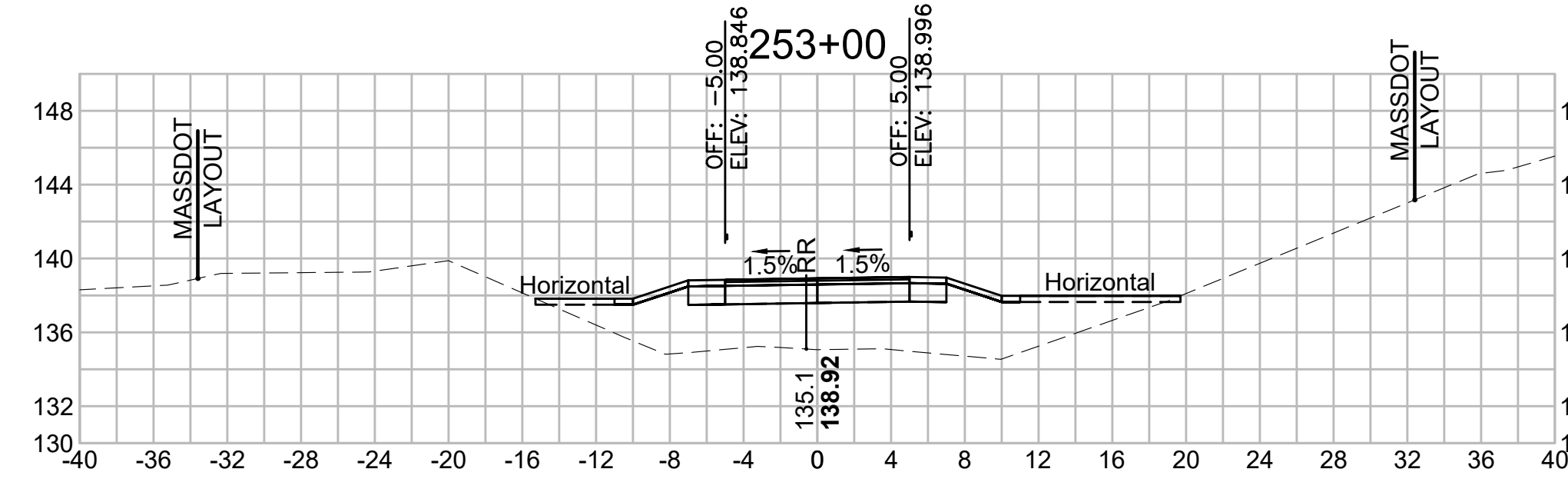
**Total Volume at Station 251+50.00**

Cut Area (SF)	3.142
Fill Area (SF)	37.729
Cut Vol (CF)	4.2
Fill Vol (CF)	67.9
Cum Cut Vol (CF)	10256.2
Cum Fill Vol (CF)	5442.8
Net Vol (CF)	4813.4



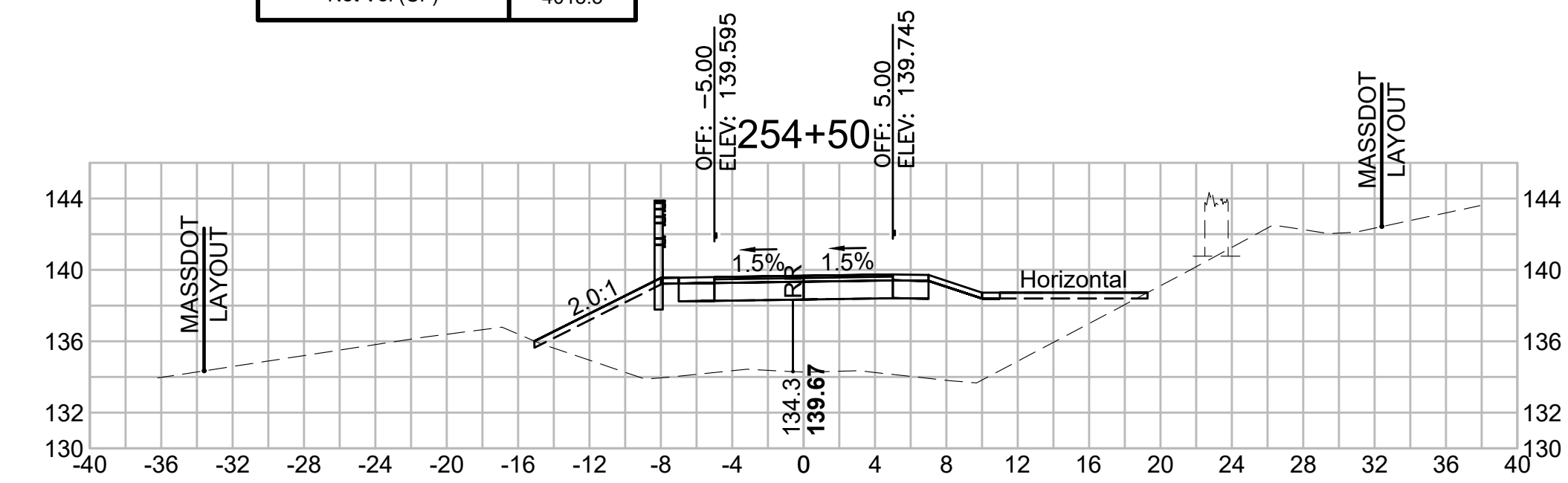
**Total Volume at Station 253+00.00**

Cut Area (SF)	0.259
Fill Area (SF)	72.794
Cut Vol (CF)	1.1
Fill Vol (CF)	117.8
Cum Cut Vol (CF)	10262.2
Cum Fill Vol (CF)	5729.4
Net Vol (CF)	4532.8



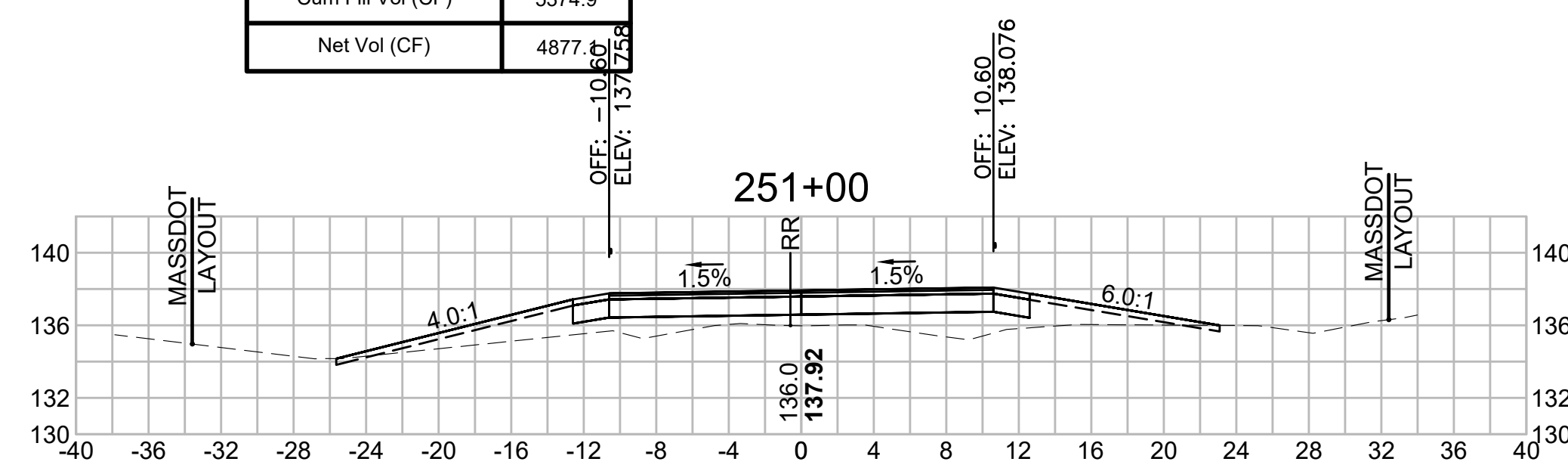
**Total Volume at Station 254+50.00**

Cut Area (SF)	0.534
Fill Area (SF)	116.084
Cut Vol (CF)	0.7
Fill Vol (CF)	202.1
Cum Cut Vol (CF)	10263.8
Cum Fill Vol (CF)	6248.5
Net Vol (CF)	4015.3



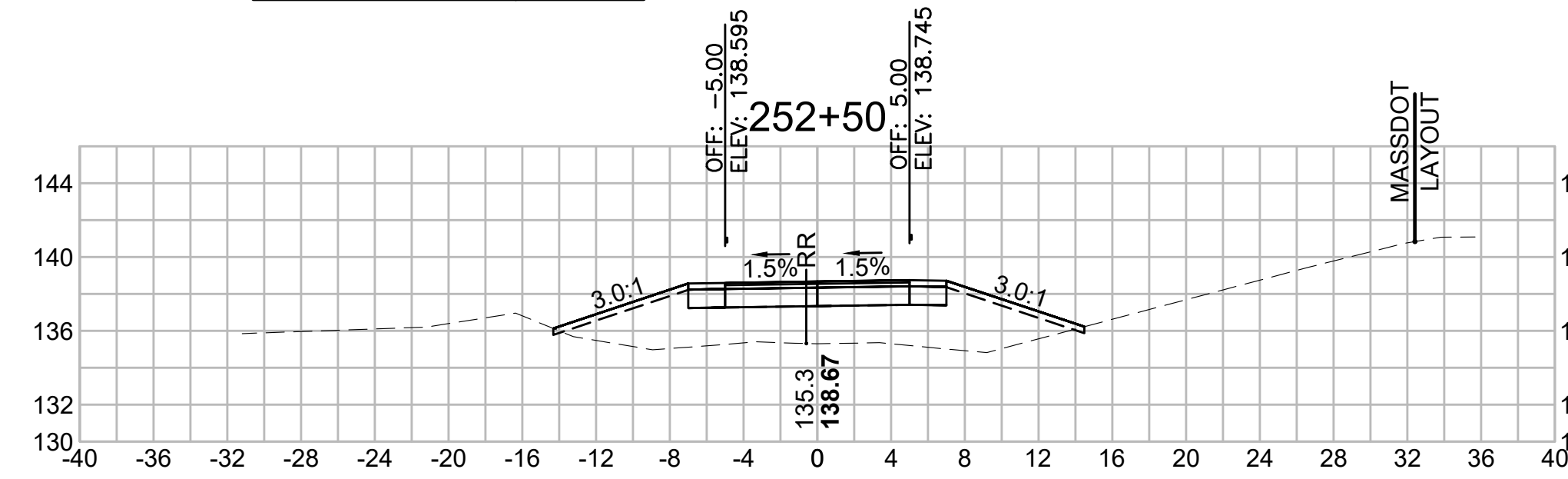
**Total Volume at Station 251+00.00**

Cut Area (SF)	1.399
Fill Area (SF)	35.563
Cut Vol (CF)	18.8
Fill Vol (CF)	39.9
Cum Cut Vol (CF)	10252.0
Cum Fill Vol (CF)	5374.9
Net Vol (CF)	4877.1



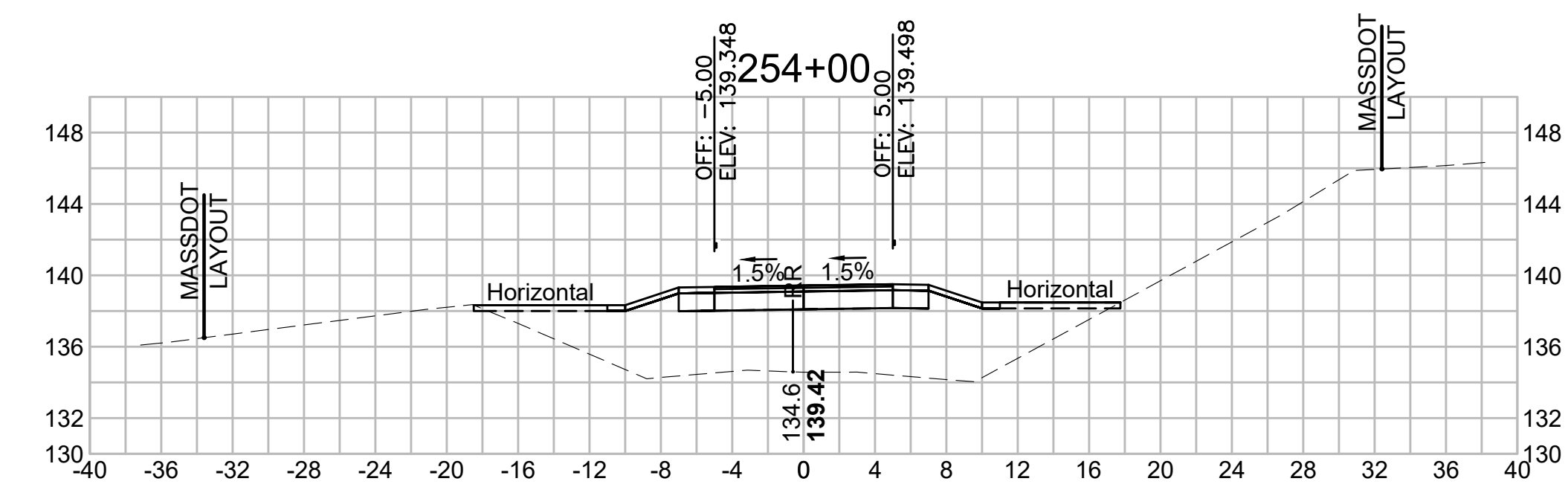
**Total Volume at Station 252+50.00**

Cut Area (SF)	0.898
Fill Area (SF)	54.414
Cut Vol (CF)	1.4
Fill Vol (CF)	92.2
Cum Cut Vol (CF)	10261.1
Cum Fill Vol (CF)	5611.6
Net Vol (CF)	4649.5



**Total Volume at Station 254+00.00**

Cut Area (SF)	0.232
Fill Area (SF)	102.202
Cut Vol (CF)	0.4
Fill Vol (CF)	172.1
Cum Cut Vol (CF)	10263.1
Cum Fill Vol (CF)	6046.4
Net Vol (CF)	4216.7



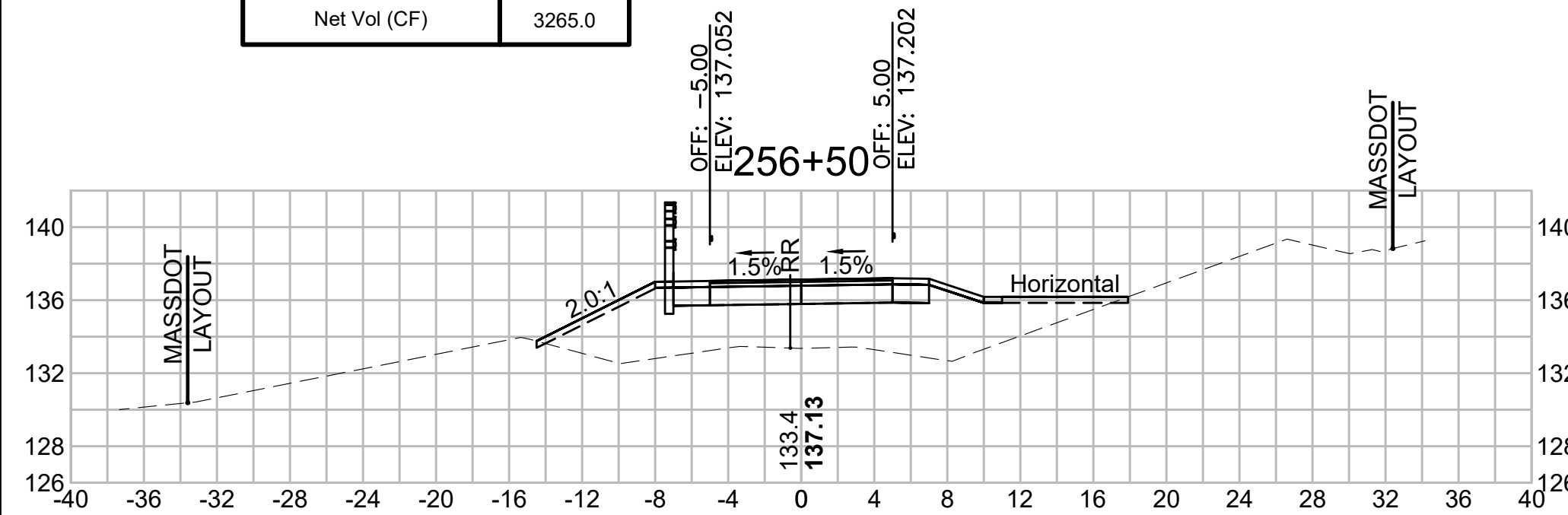
SUDBURY  
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXX(XXX)X	280	318

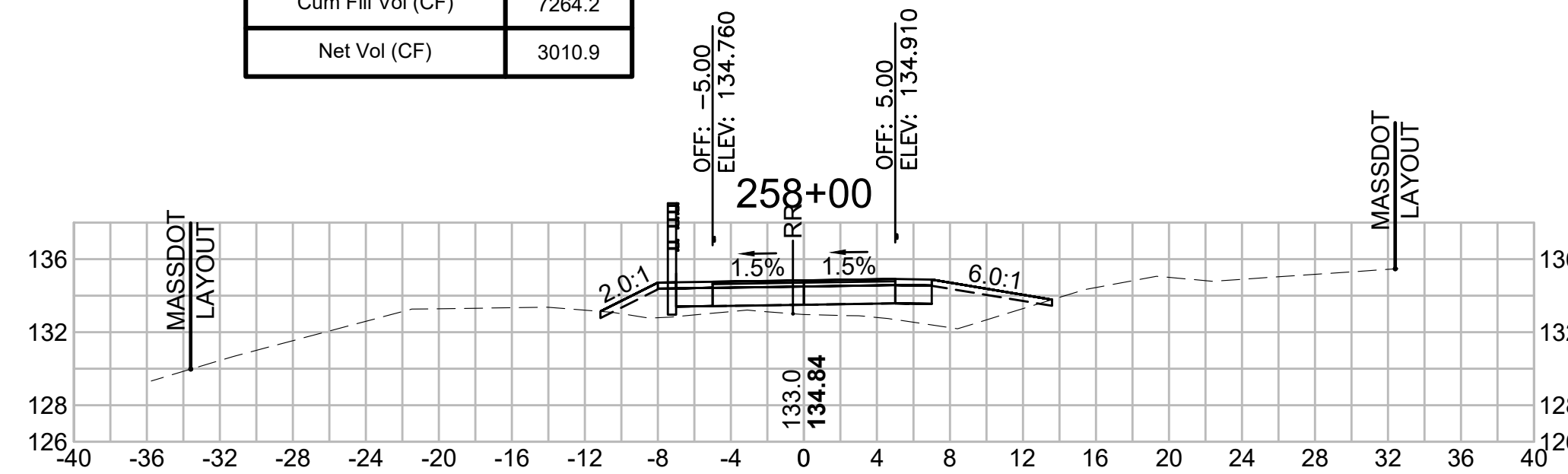
CROSS SECTIONS

608164\_XSEC(CROSS SECTION LAYOUTS).DWG 12-May-2021

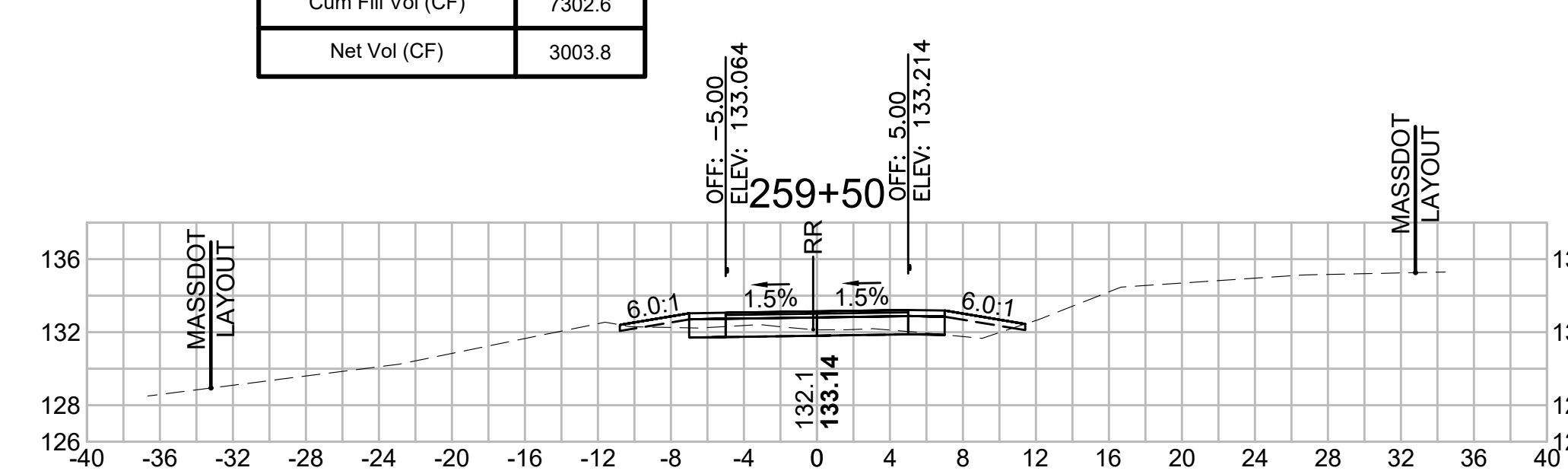
Total Volume at Station 256+50.00	
Cut Area (SF)	0.238
Fill Area (SF)	71.405
Cut Vol (CF)	0.5
Fill Vol (CF)	148.1
Cum Cut Vol (CF)	10265.7
Cum Fill Vol (CF)	7000.7
Net Vol (CF)	3265.0



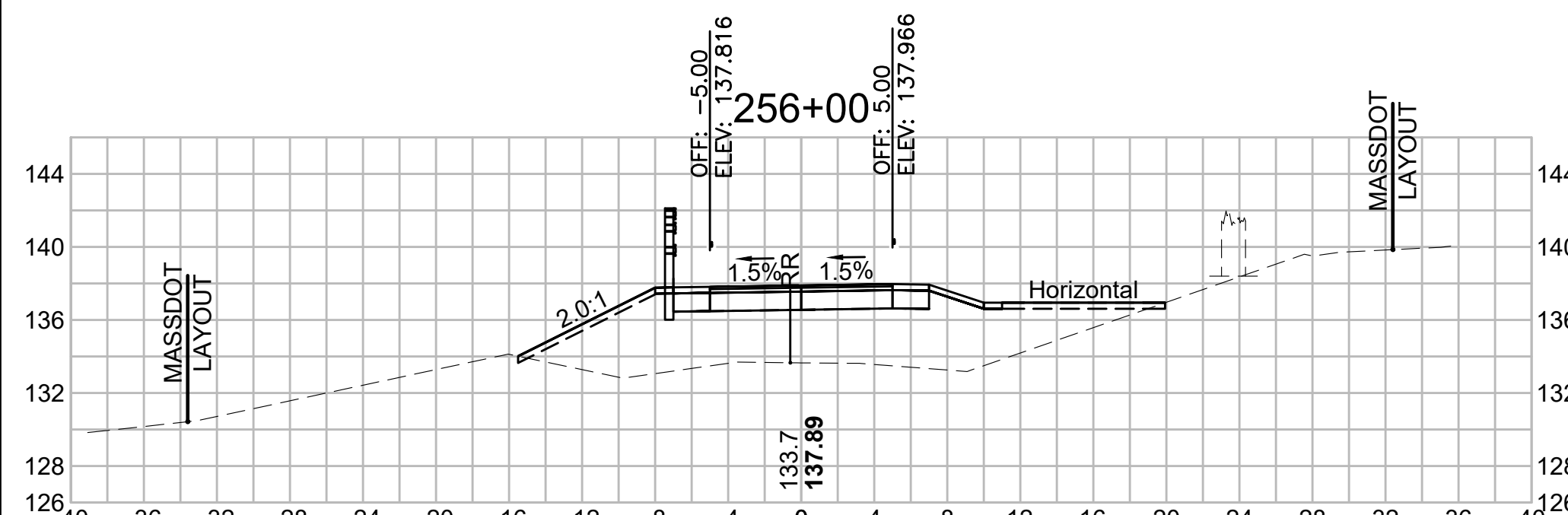
Total Volume at Station 258+00.00	
Cut Area (SF)	6.276
Fill Area (SF)	19.509
Cut Vol (CF)	7.3
Fill Vol (CF)	60.3
Cum Cut Vol (CF)	10275.1
Cum Fill Vol (CF)	7264.2
Net Vol (CF)	3010.9



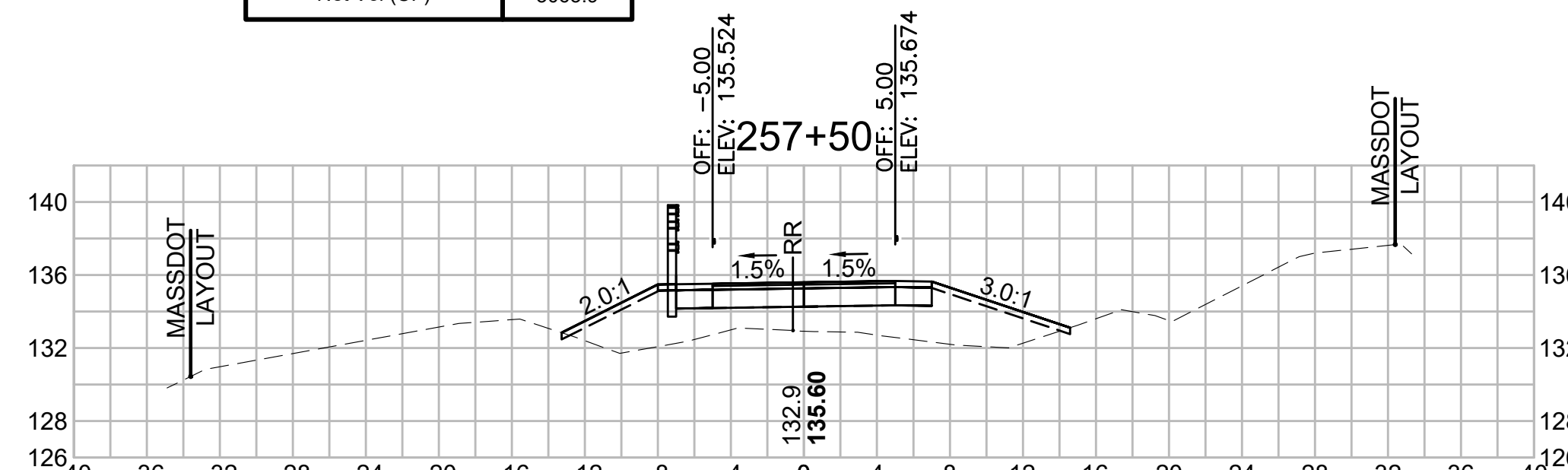
Total Volume at Station 259+50.00	
Cut Area (SF)	5.628
Fill Area (SF)	3.161
Cut Vol (CF)	12.0
Fill Vol (CF)	7.4
Cum Cut Vol (CF)	10306.4
Cum Fill Vol (CF)	7302.6
Net Vol (CF)	3003.8



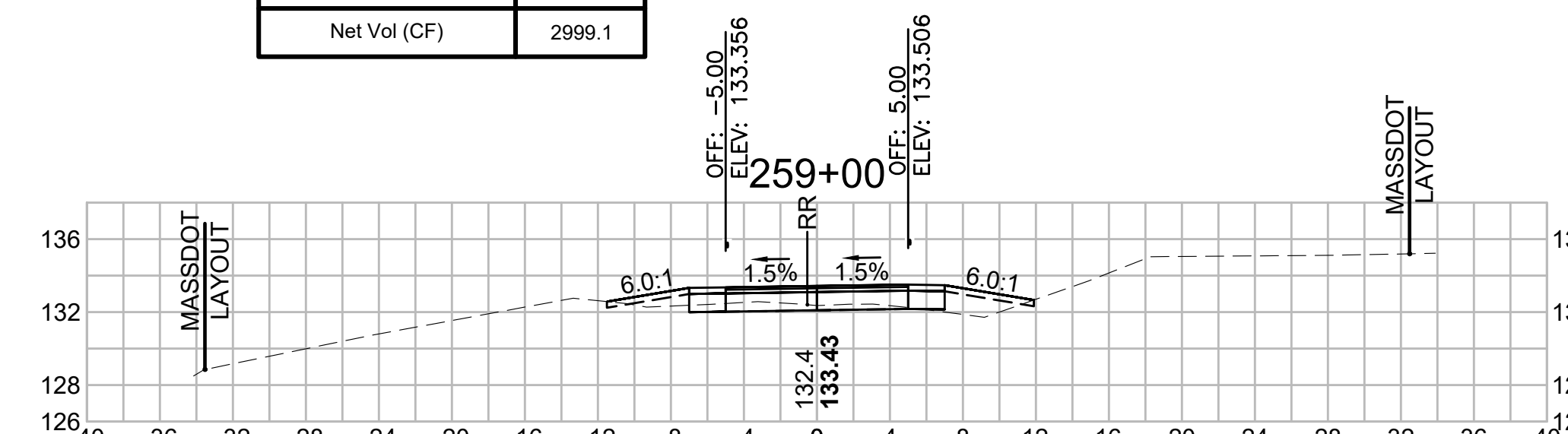
Total Volume at Station 256+00.00	
Cut Area (SF)	0.253
Fill Area (SF)	88.524
Cut Vol (CF)	0.4
Fill Vol (CF)	181.2
Cum Cut Vol (CF)	10265.3
Cum Fill Vol (CF)	6852.6
Net Vol (CF)	3412.7



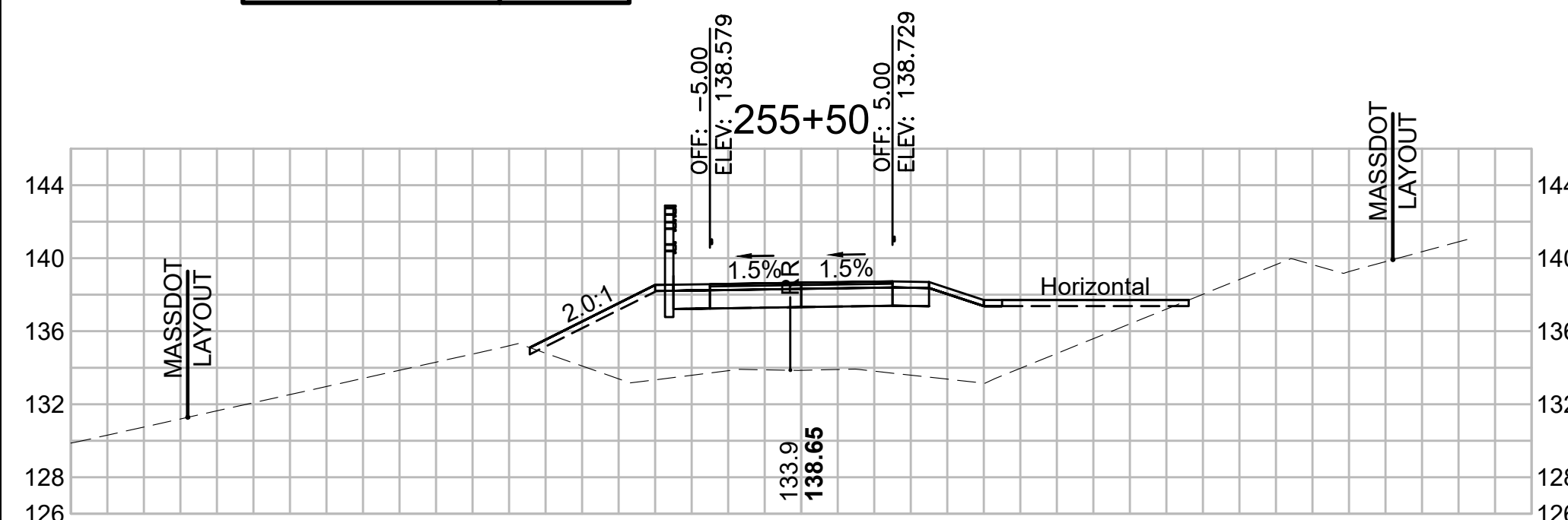
Total Volume at Station 257+50.00	
Cut Area (SF)	1.585
Fill Area (SF)	45.633
Cut Vol (CF)	1.7
Fill Vol (CF)	89.7
Cum Cut Vol (CF)	10267.9
Cum Fill Vol (CF)	7203.9
Net Vol (CF)	3063.9



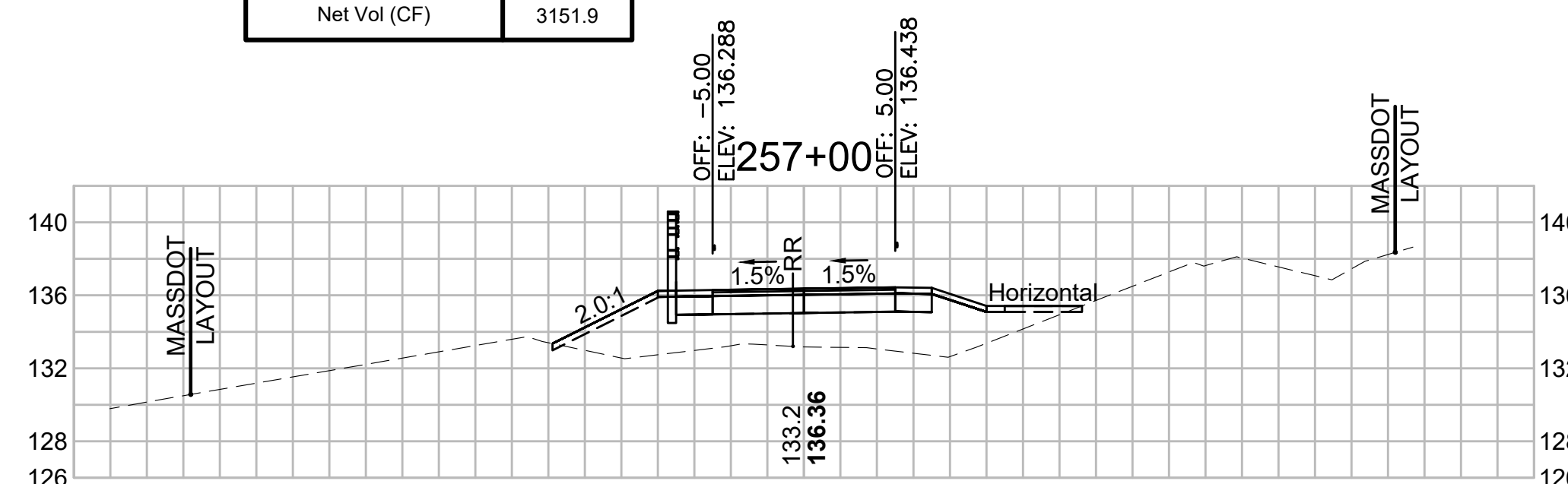
Total Volume at Station 259+00.00	
Cut Area (SF)	7.382
Fill Area (SF)	4.819
Cut Vol (CF)	10.1
Fill Vol (CF)	8.7
Cum Cut Vol (CF)	10294.3
Cum Fill Vol (CF)	7295.2
Net Vol (CF)	2999.1



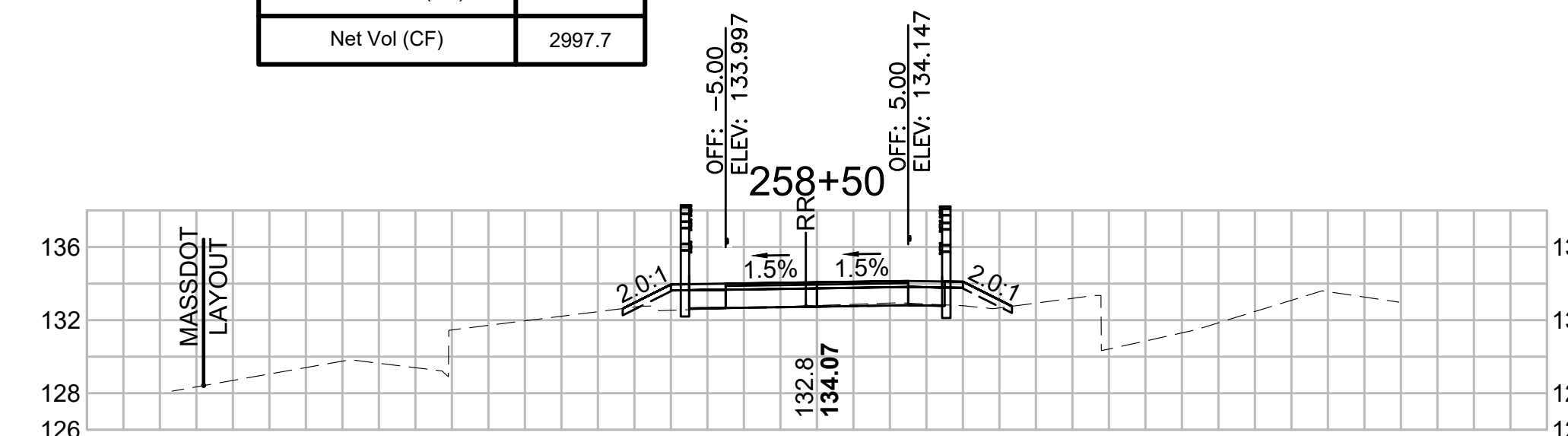
Total Volume at Station 255+50.00	
Cut Area (SF)	0.214
Fill Area (SF)	107.144
Cut Vol (CF)	0.4
Fill Vol (CF)	207.3
Cum Cut Vol (CF)	10264.9
Cum Fill Vol (CF)	6671.4
Net Vol (CF)	3593.4



Total Volume at Station 257+00.00	
Cut Area (SF)	0.235
Fill Area (SF)	51.223
Cut Vol (CF)	0.4
Fill Vol (CF)	113.5
Cum Cut Vol (CF)	10266.2
Cum Fill Vol (CF)	7114.2
Net Vol (CF)	3151.9



Total Volume at Station 258+50.00	
Cut Area (SF)	3.525
Fill Area (SF)	4.560
Cut Vol (CF)	9.1
Fill Vol (CF)	22.3
Cum Cut Vol (CF)	10284.2
Cum Fill Vol (CF)	7286.5
Net Vol (CF)	2997.7



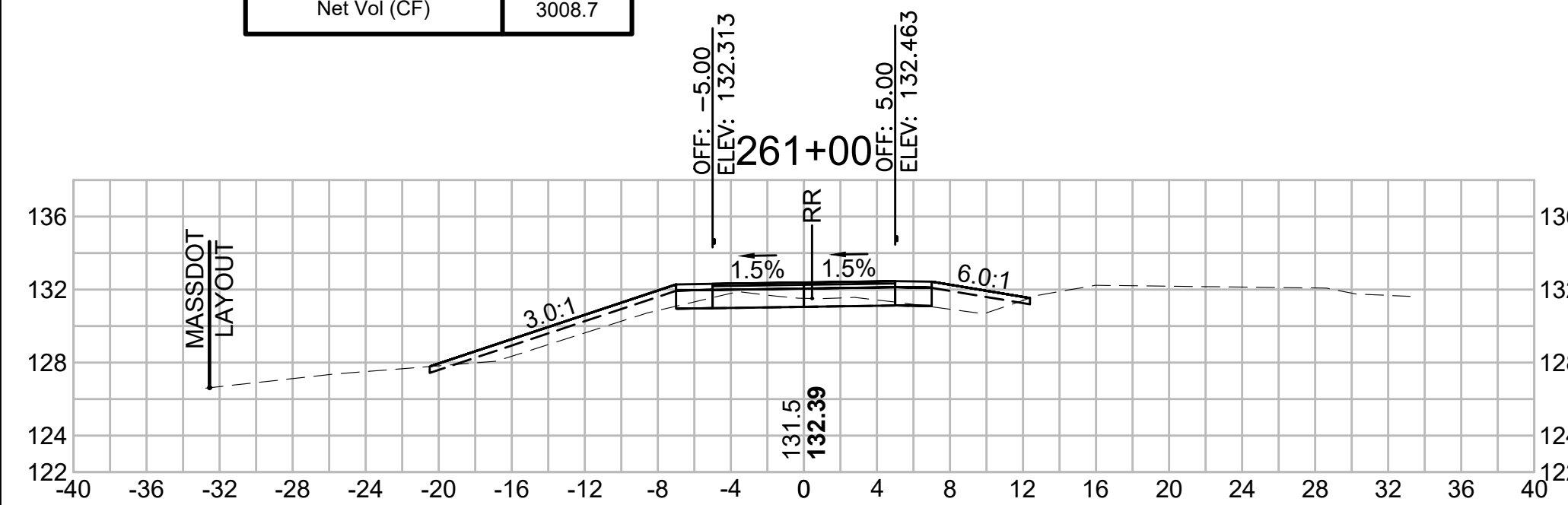
SUDBURY  
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	281	318

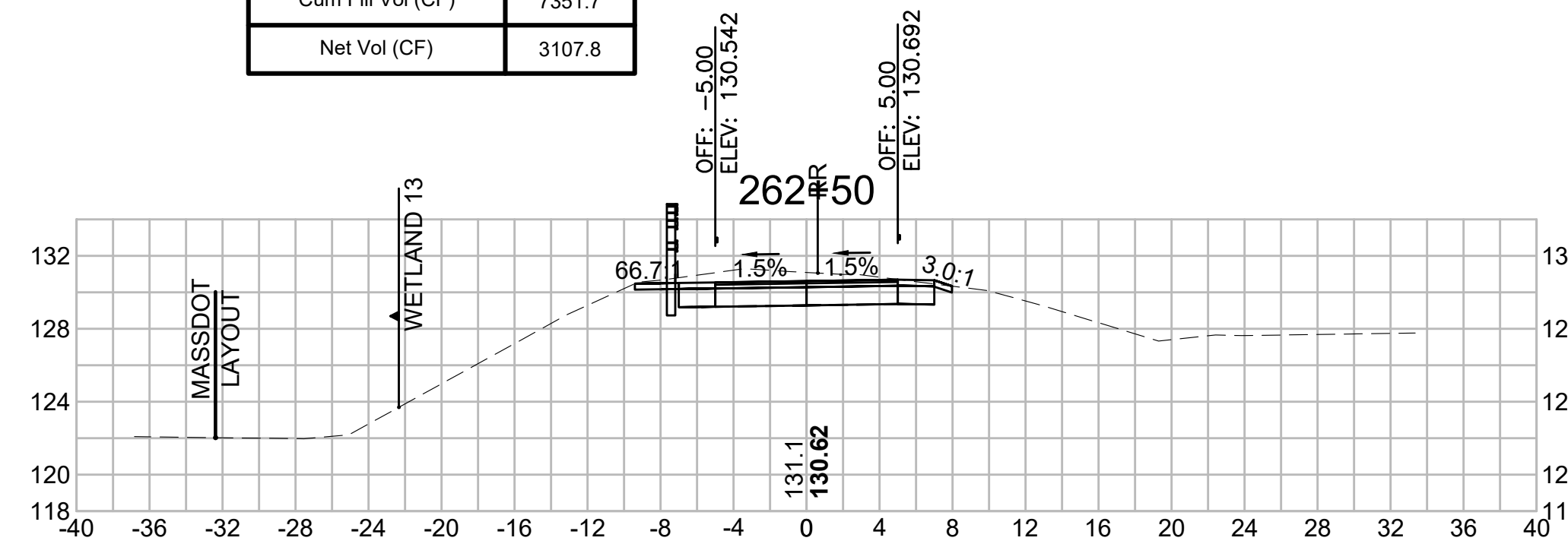
PROJECT FILE NO. 608164

CROSS SECTIONS

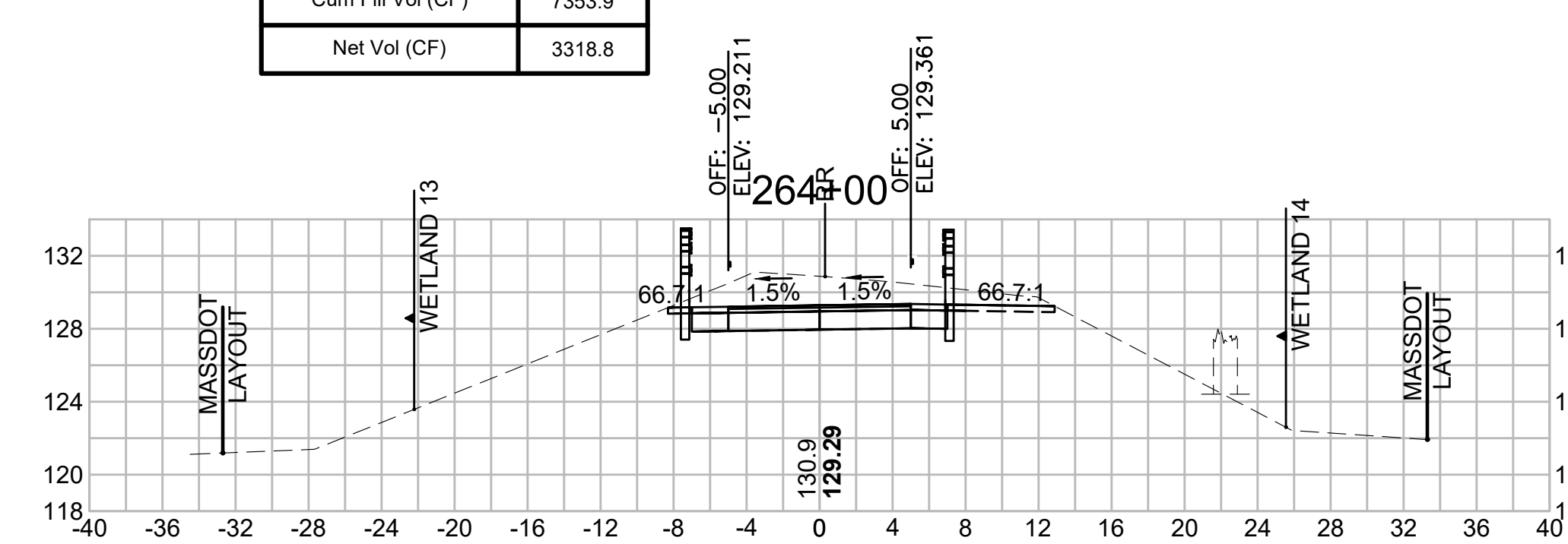
Total Volume at Station 261+00.00	
Cut Area (SF)	6.614
Fill Area (SF)	10.801
Cut Vol (CF)	11.9
Fill Vol (CF)	16.6
Cum Cut Vol (CF)	10343.4
Cum Fill Vol (CF)	7334.7
Net Vol (CF)	3008.7



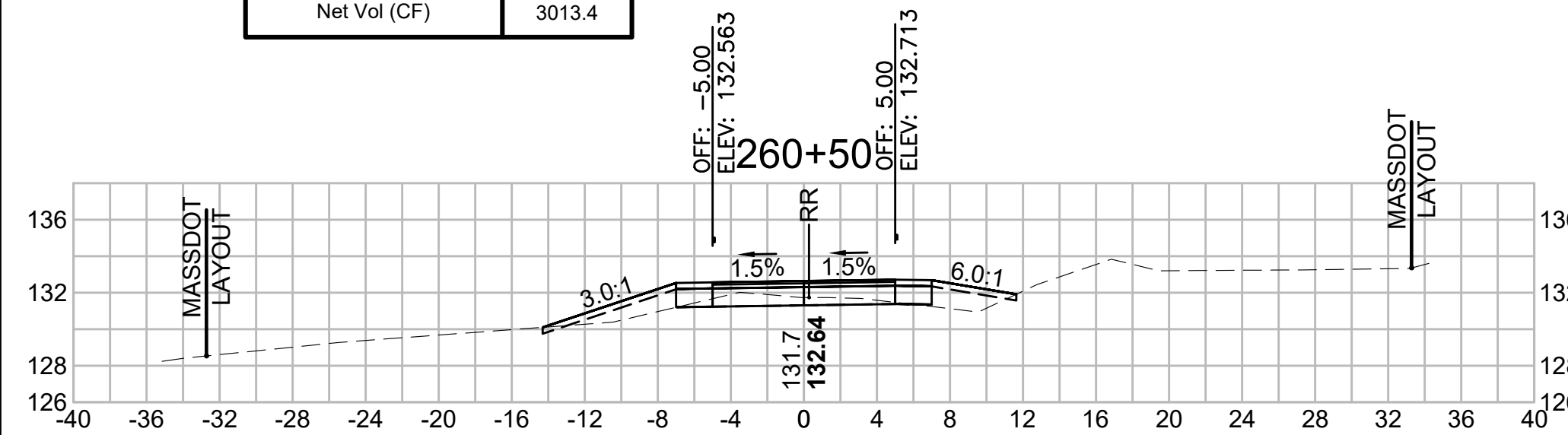
Total Volume at Station 262+50.00	
Cut Area (SF)	37.196
Fill Area (SF)	0.000
Cut Vol (CF)	60.5
Fill Vol (CF)	0.9
Cum Cut Vol (CF)	10459.4
Cum Fill Vol (CF)	7351.7
Net Vol (CF)	3107.8



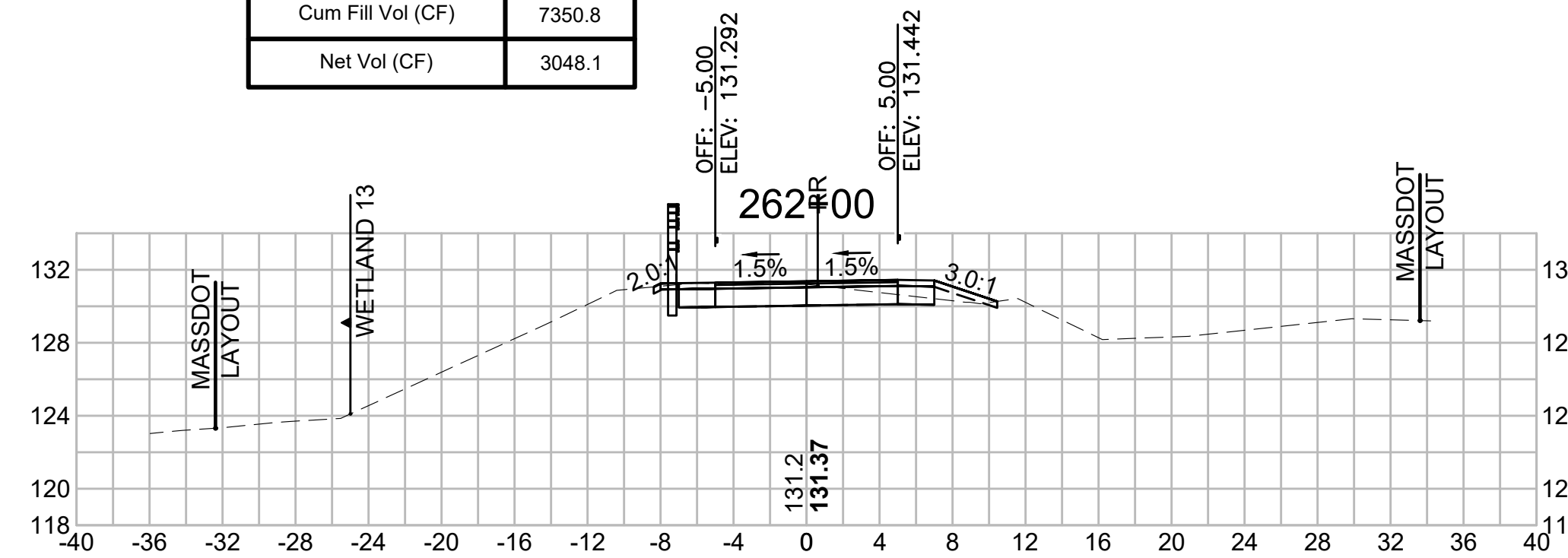
Total Volume at Station 264+00.00	
Cut Area (SF)	44.515
Fill Area (SF)	2.241
Cut Vol (CF)	77.6
Fill Vol (CF)	2.1
Cum Cut Vol (CF)	10672.7
Cum Fill Vol (CF)	7353.9
Net Vol (CF)	3318.8



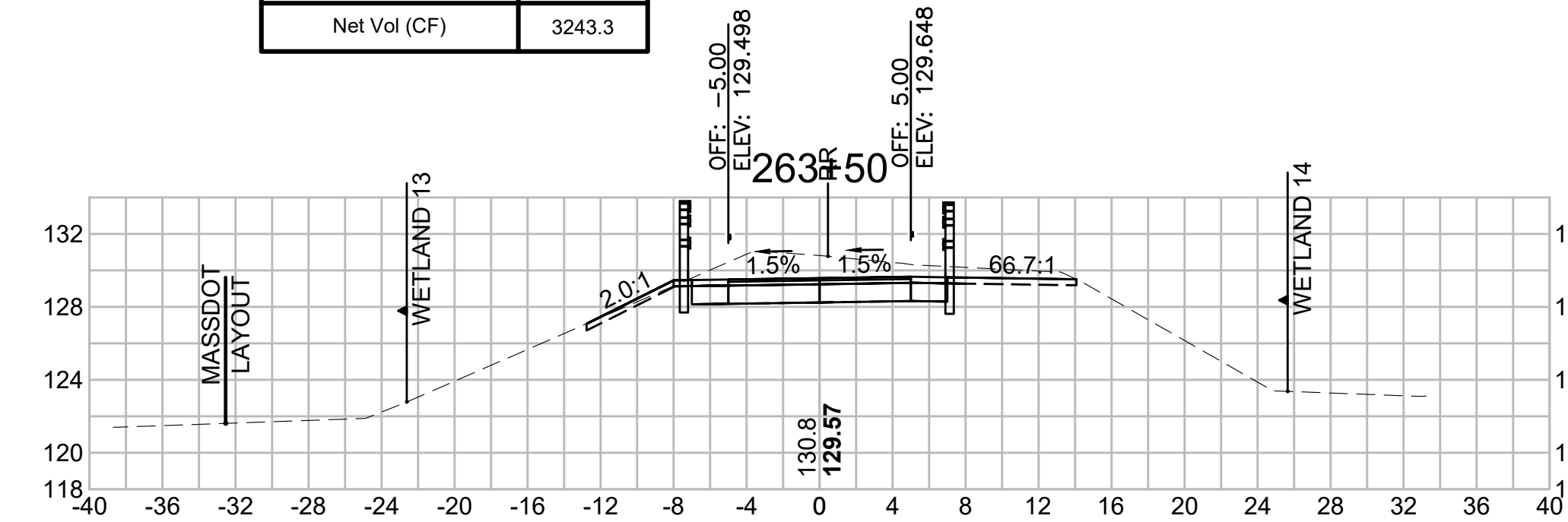
Total Volume at Station 260+50.00	
Cut Area (SF)	6.241
Fill Area (SF)	7.127
Cut Vol (CF)	12.8
Fill Vol (CF)	9.6
Cum Cut Vol (CF)	10331.5
Cum Fill Vol (CF)	7318.1
Net Vol (CF)	3013.4



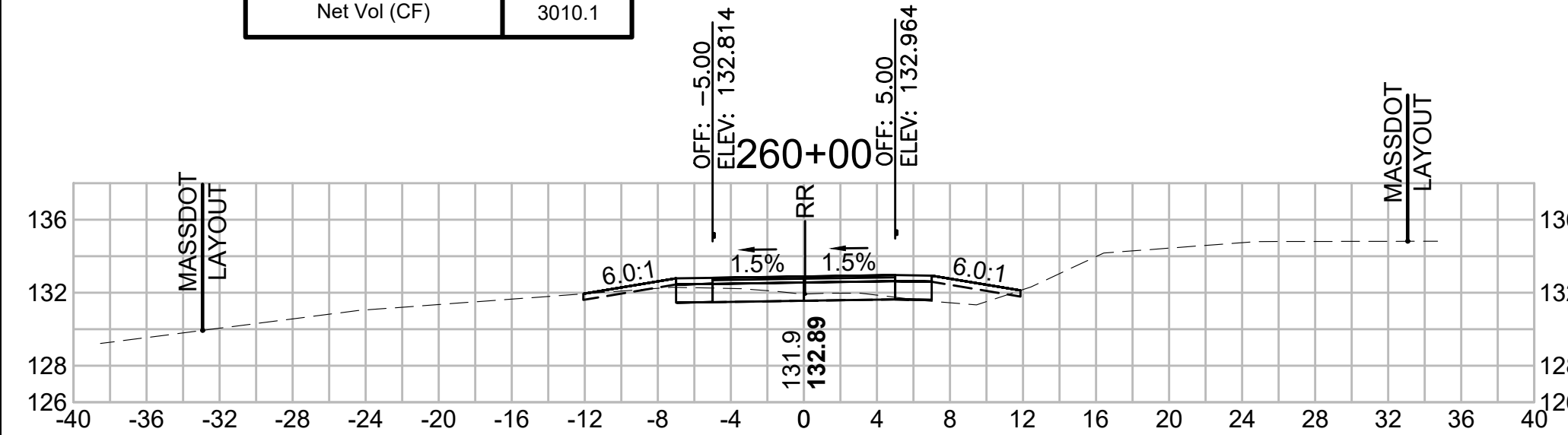
Total Volume at Station 262+00.00	
Cut Area (SF)	28.173
Fill Area (SF)	0.932
Cut Vol (CF)	37.7
Fill Vol (CF)	3.5
Cum Cut Vol (CF)	10398.9
Cum Fill Vol (CF)	7350.8
Net Vol (CF)	3048.1



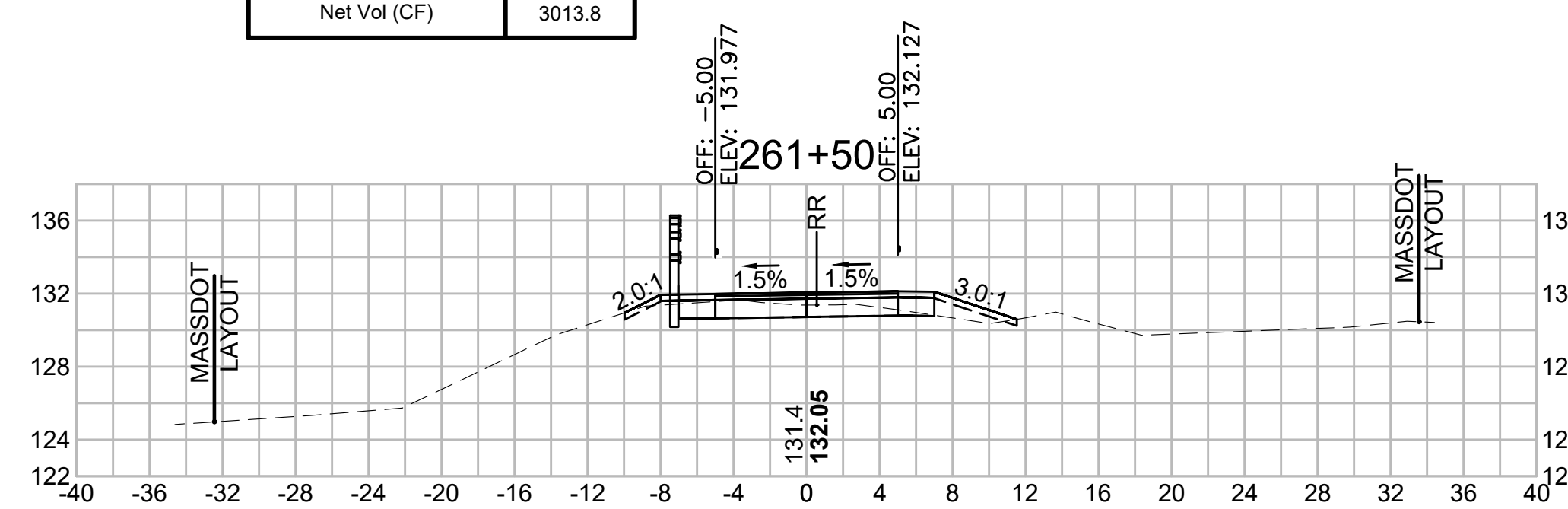
Total Volume at Station 263+50.00	
Cut Area (SF)	39.330
Fill Area (SF)	0.000
Cut Vol (CF)	68.8
Fill Vol (CF)	0.1
Cum Cut Vol (CF)	10595.0
Cum Fill Vol (CF)	7351.8
Net Vol (CF)	3243.3



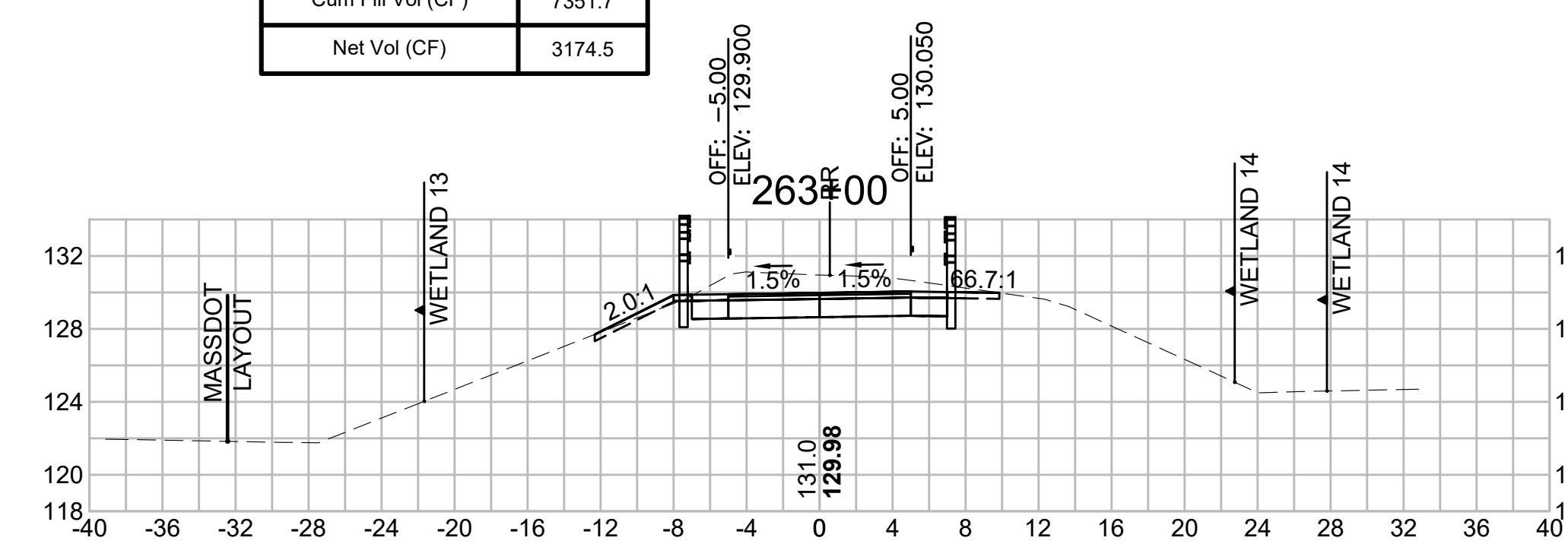
Total Volume at Station 260+00.00	
Cut Area (SF)	7.630
Fill Area (SF)	3.238
Cut Vol (CF)	12.3
Fill Vol (CF)	5.9
Cum Cut Vol (CF)	10318.6
Cum Fill Vol (CF)	7308.5
Net Vol (CF)	3010.1



Total Volume at Station 261+50.00	
Cut Area (SF)	12.596
Fill Area (SF)	2.817
Cut Vol (CF)	17.8
Fill Vol (CF)	12.6
Cum Cut Vol (CF)	10361.2
Cum Fill Vol (CF)	7347.3
Net Vol (CF)	3013.8



Total Volume at Station 263+00.00	
Cut Area (SF)	34.961
Fill Area (SF)	0.066
Cut Vol (CF)	66.8
Fill Vol (CF)	0.1
Cum Cut Vol (CF)	10526.3
Cum Fill Vol (CF)	7351.7
Net Vol (CF)	3174.5



SUDBURY  
BRUCE FREEMAN RAIL TRAIL

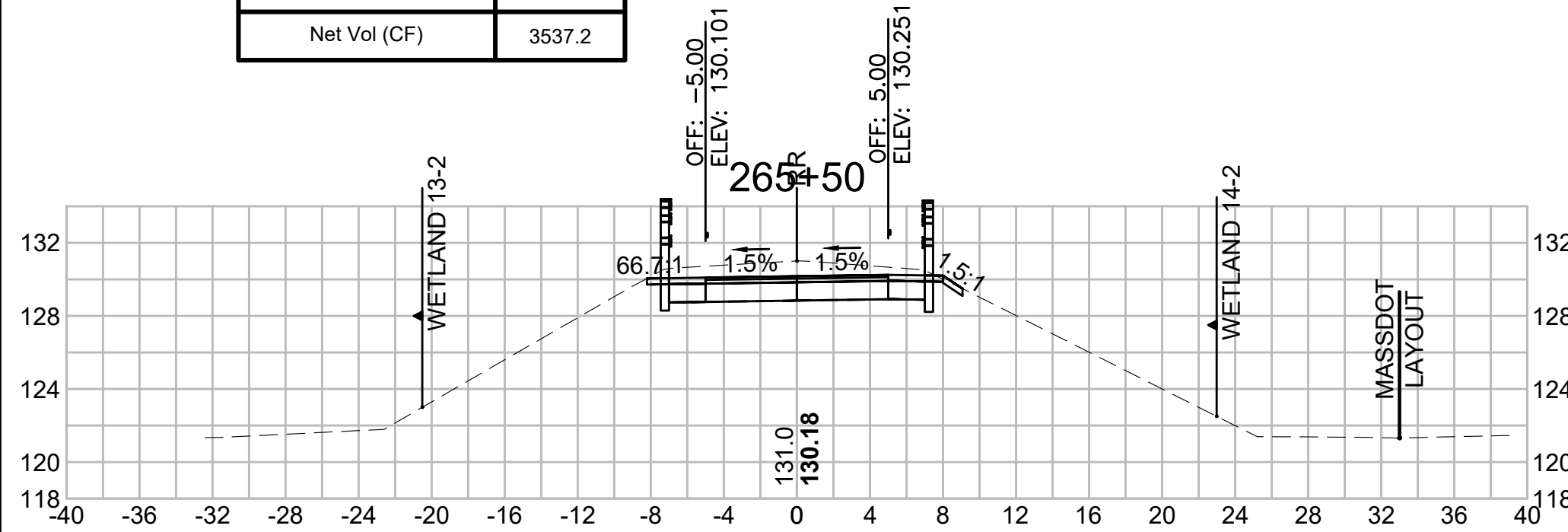
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	282	318

PROJECT FILE NO. 608164

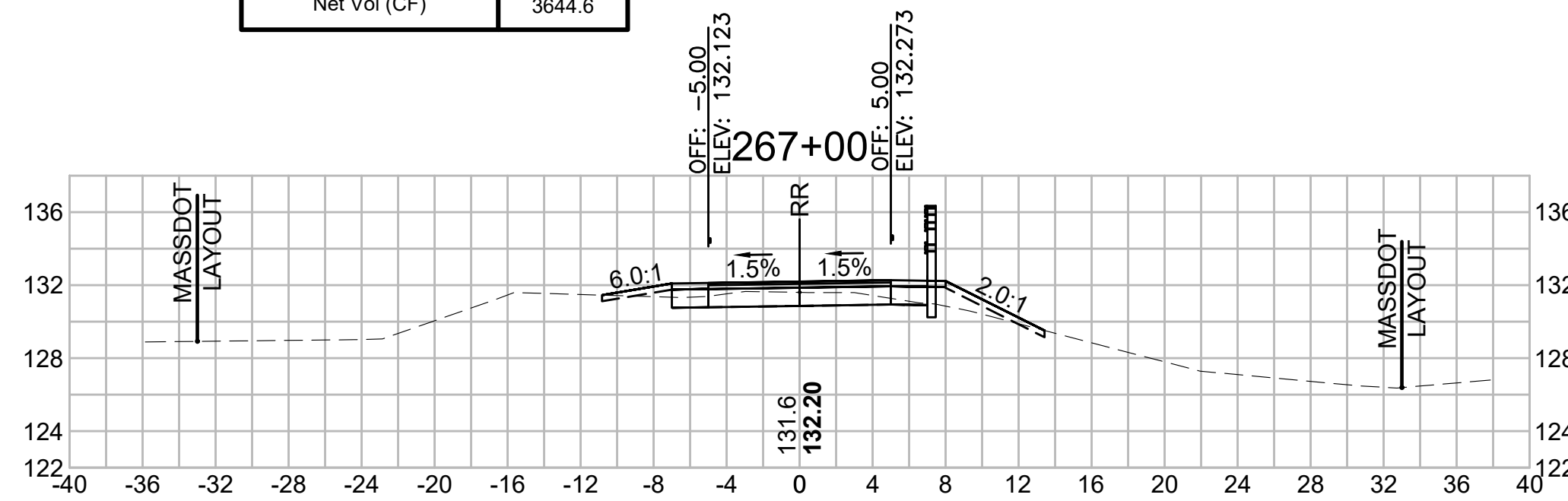
CROSS SECTIONS

608164\_XSEC(CROSS SECTION LAYOUTS).DWG 12-May-2021

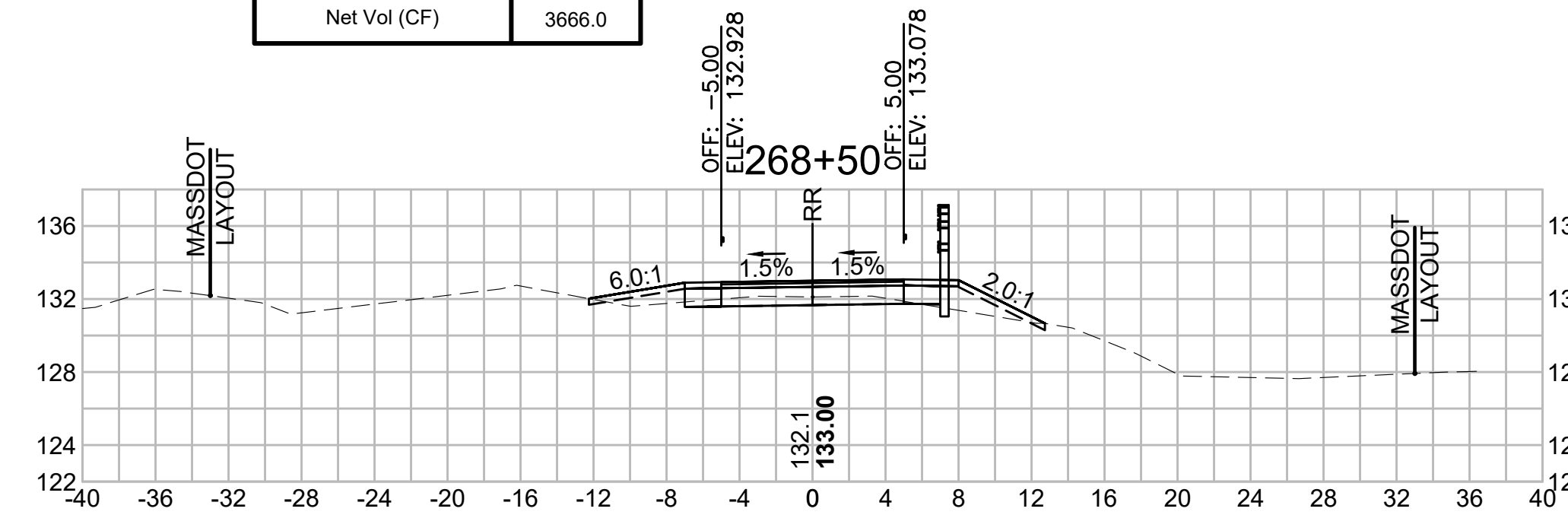
Total Volume at Station 265+50.00	
Cut Area (SF)	28.952
Fill Area (SF)	0.000
Cut Vol (CF)	61.6
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	10894.5
Cum Fill Vol (CF)	7357.3
Net Vol (CF)	3537.2



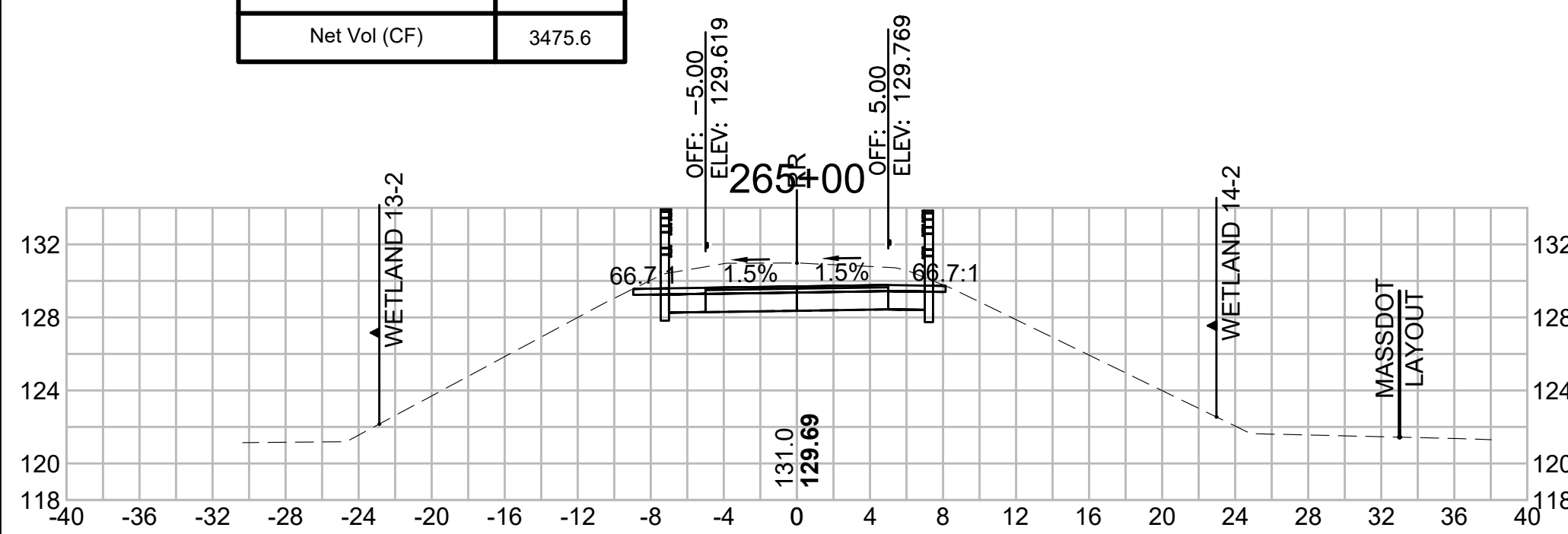
Total Volume at Station 267+00.00	
Cut Area (SF)	9.549
Fill Area (SF)	3.254
Cut Vol (CF)	26.9
Fill Vol (CF)	4.9
Cum Cut Vol (CF)	11008.8
Cum Fill Vol (CF)	7364.2
Net Vol (CF)	3644.6



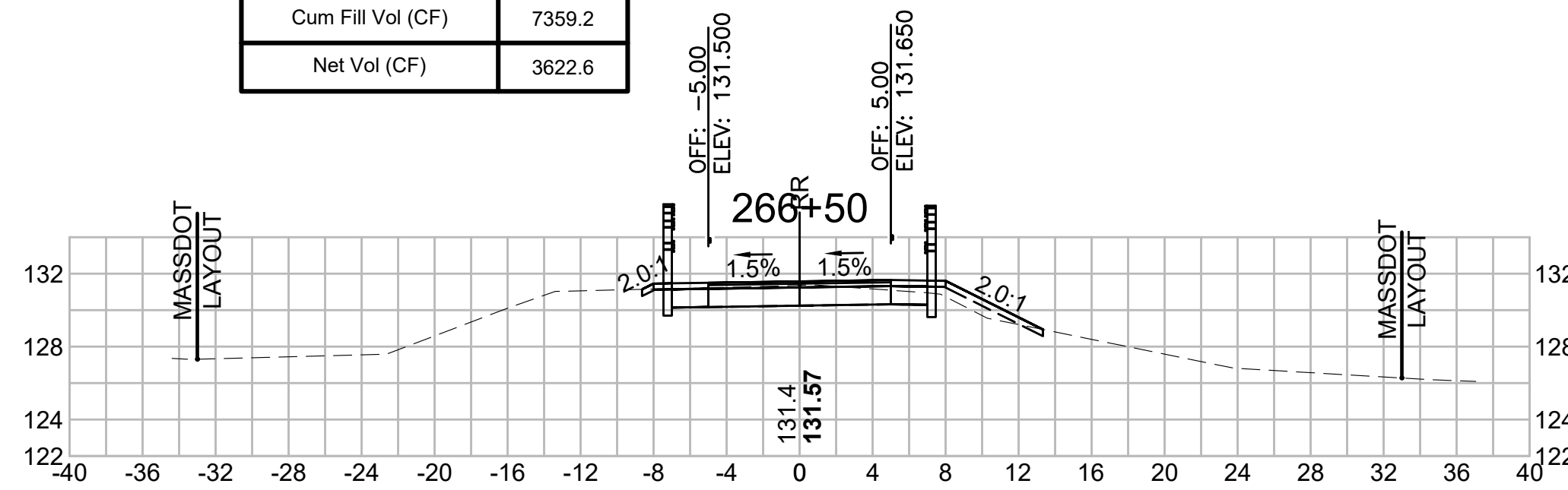
Total Volume at Station 268+50.00	
Cut Area (SF)	5.393
Fill Area (SF)	5.881
Cut Vol (CF)	12.6
Fill Vol (CF)	8.7
Cum Cut Vol (CF)	11052.7
Cum Fill Vol (CF)	7386.6
Net Vol (CF)	3666.0



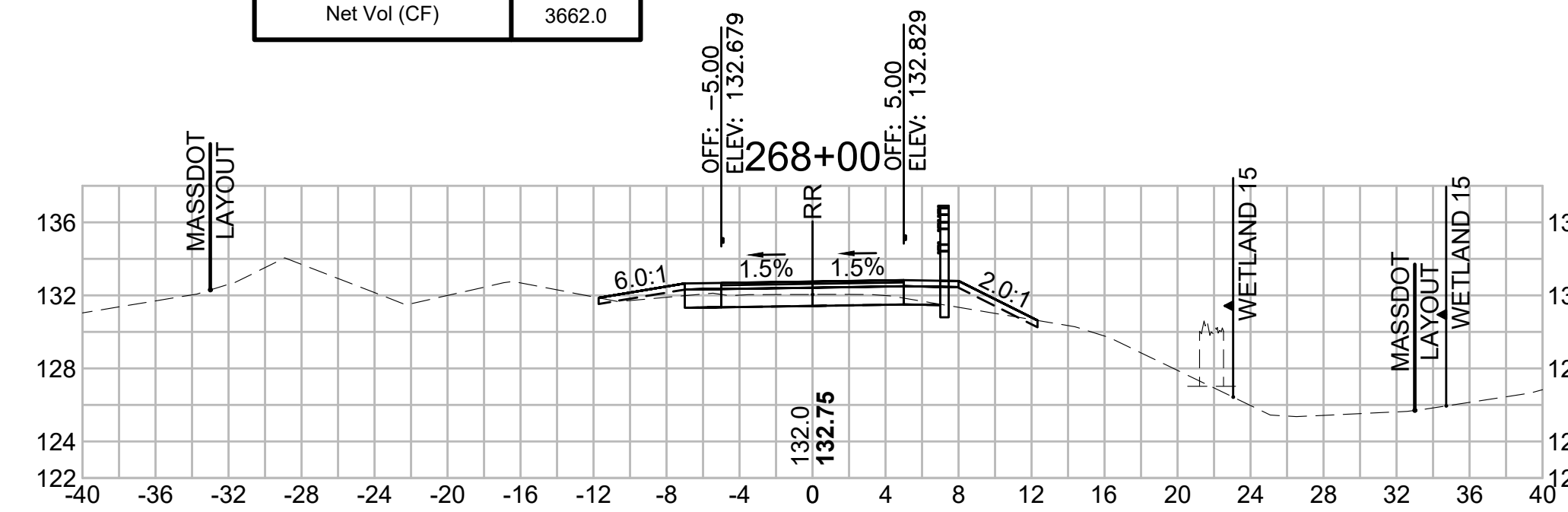
Total Volume at Station 265+00.00	
Cut Area (SF)	37.581
Fill Area (SF)	0.000
Cut Vol (CF)	76.9
Fill Vol (CF)	0.7
Cum Cut Vol (CF)	10832.9
Cum Fill Vol (CF)	7357.3
Net Vol (CF)	3475.6



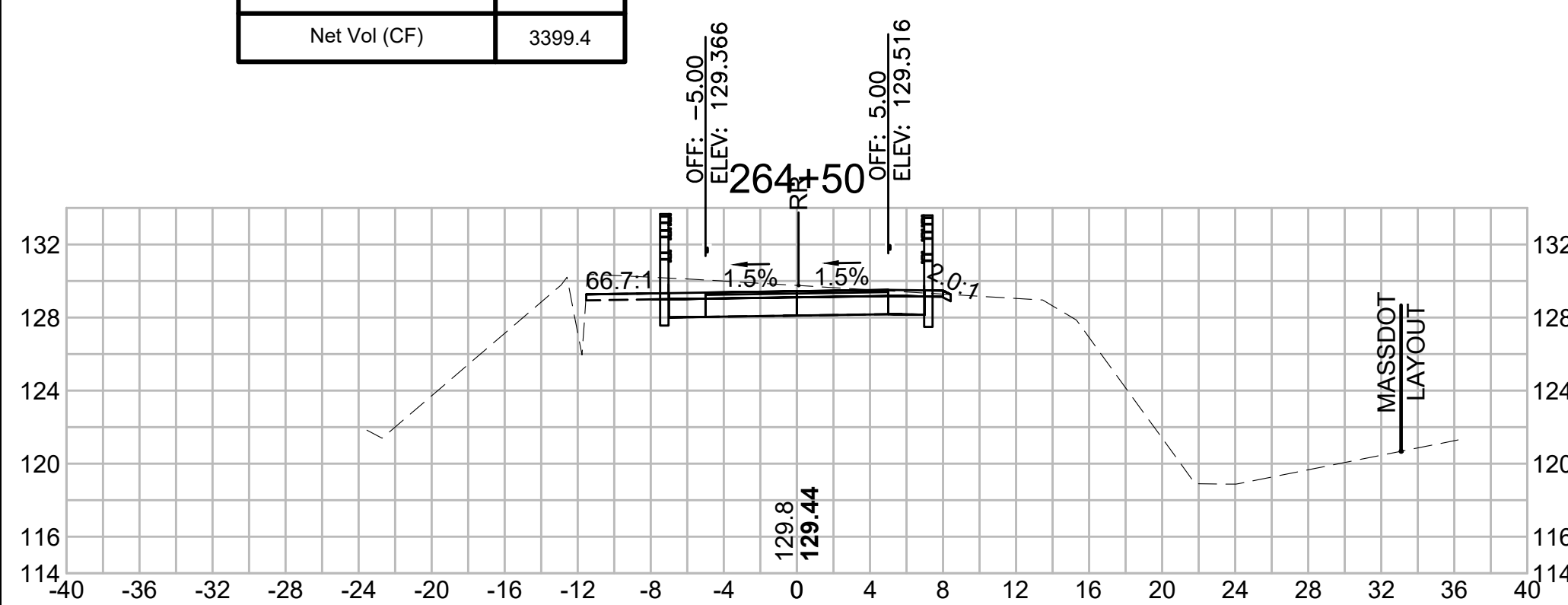
Total Volume at Station 266+50.00	
Cut Area (SF)	19.498
Fill Area (SF)	2.079
Cut Vol (CF)	39.3
Fill Vol (CF)	1.9
Cum Cut Vol (CF)	10981.9
Cum Fill Vol (CF)	7359.2
Net Vol (CF)	3622.6



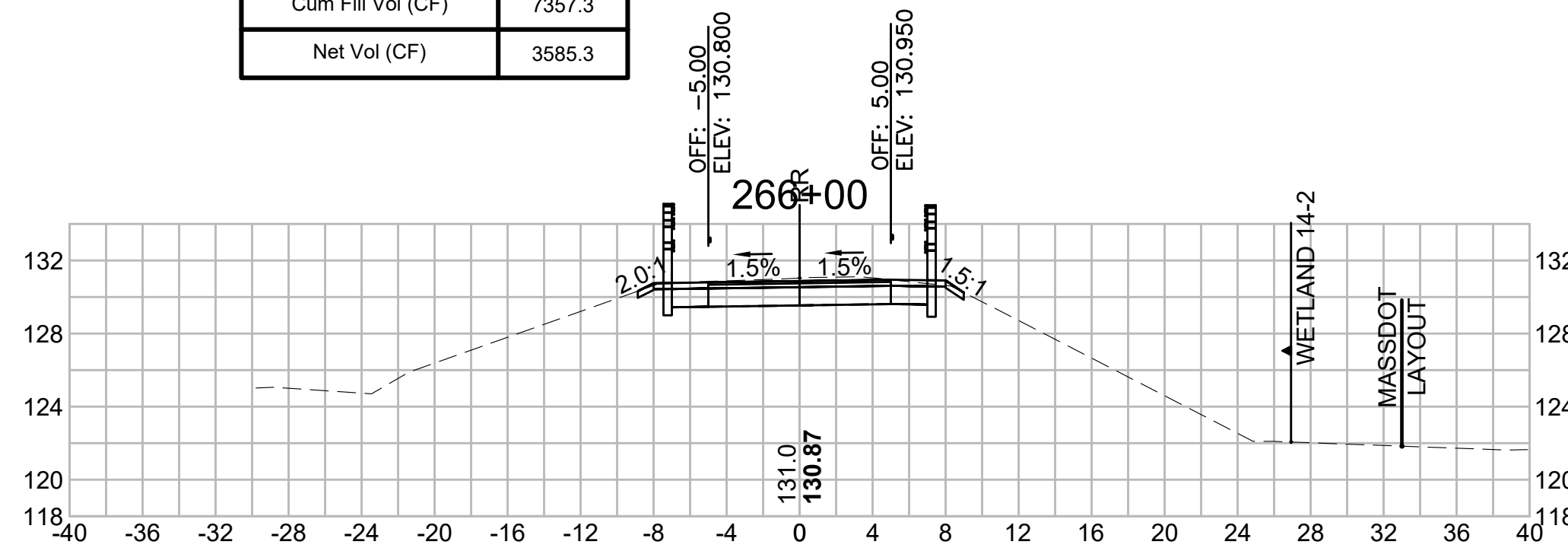
Total Volume at Station 268+00.00	
Cut Area (SF)	8.250
Fill Area (SF)	3.461
Cut Vol (CF)	15.0
Fill Vol (CF)	7.0
Cum Cut Vol (CF)	11040.0
Cum Fill Vol (CF)	7378.0
Net Vol (CF)	3662.0



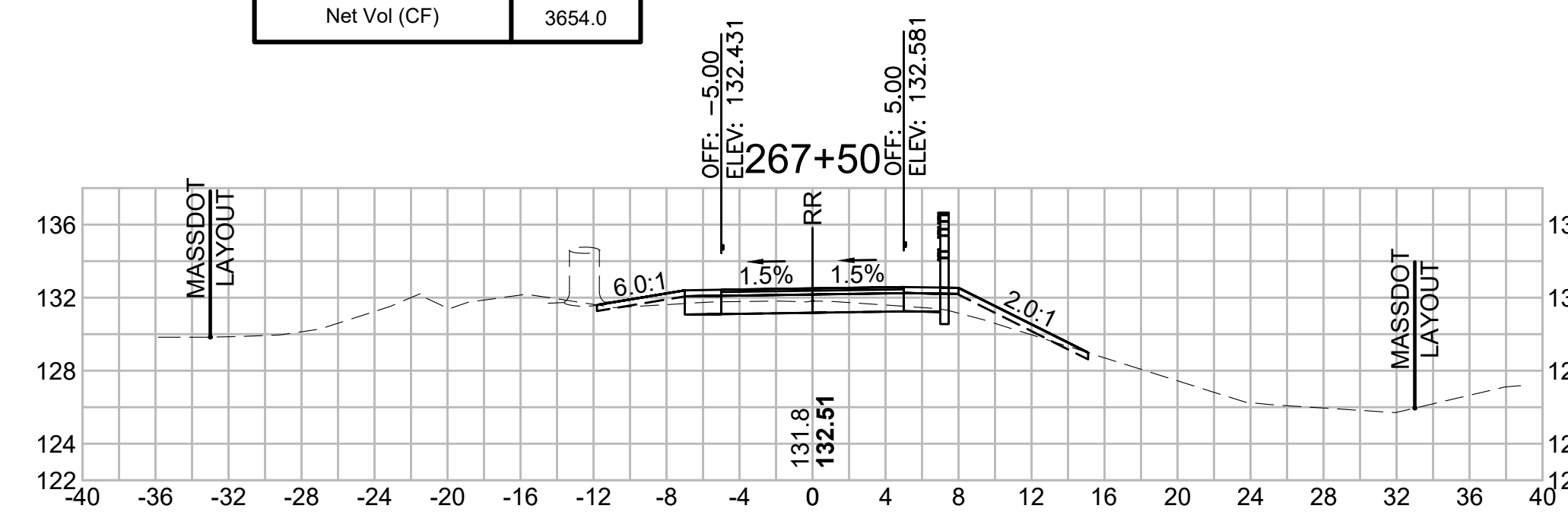
Total Volume at Station 264+50.00	
Cut Area (SF)	45.493
Fill Area (SF)	0.745
Cut Vol (CF)	83.3
Fill Vol (CF)	2.8
Cum Cut Vol (CF)	10756.0
Cum Fill Vol (CF)	7356.6
Net Vol (CF)	3399.4



Total Volume at Station 266+00.00	
Cut Area (SF)	22.934
Fill Area (SF)	0.000
Cut Vol (CF)	48.0
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	10942.6
Cum Fill Vol (CF)	7357.3
Net Vol (CF)	3585.3



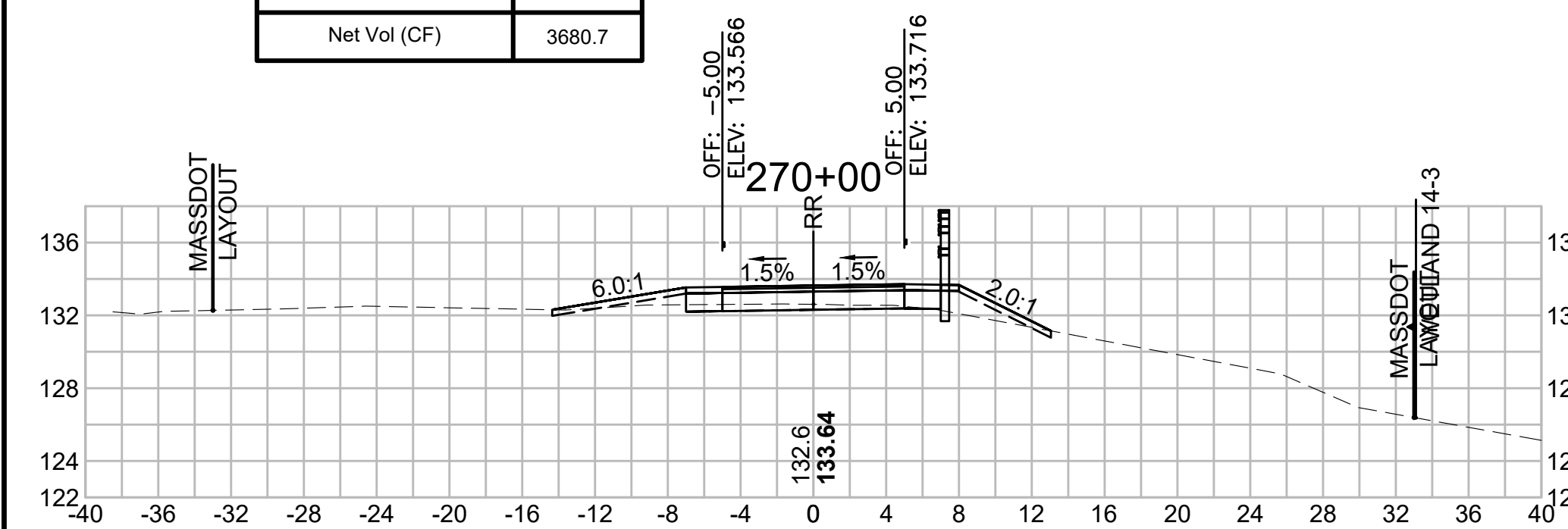
Total Volume at Station 267+50.00	
Cut Area (SF)	7.984
Fill Area (SF)	4.106
Cut Vol (CF)	16.2
Fill Vol (CF)	6.8
Cum Cut Vol (CF)	11025.0
Cum Fill Vol (CF)	7371.0
Net Vol (CF)	3654.0



**CROSS SECTIONS**

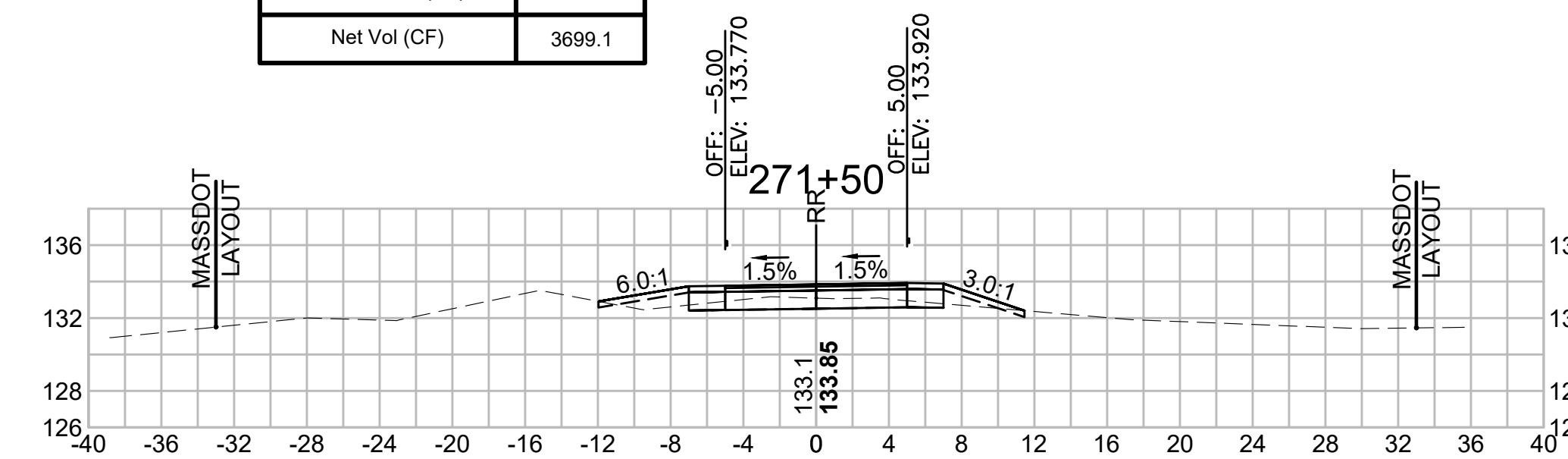
**Total Volume at Station 270+00.00**

Cut Area (SF)	13.731
Fill Area (SF)	4.831
Cut Vol (CF)	21.4
Fill Vol (CF)	12.3
Cum Cut Vol (CF)	11101.2
Cum Fill Vol (CF)	7420.5
Net Vol (CF)	3680.7



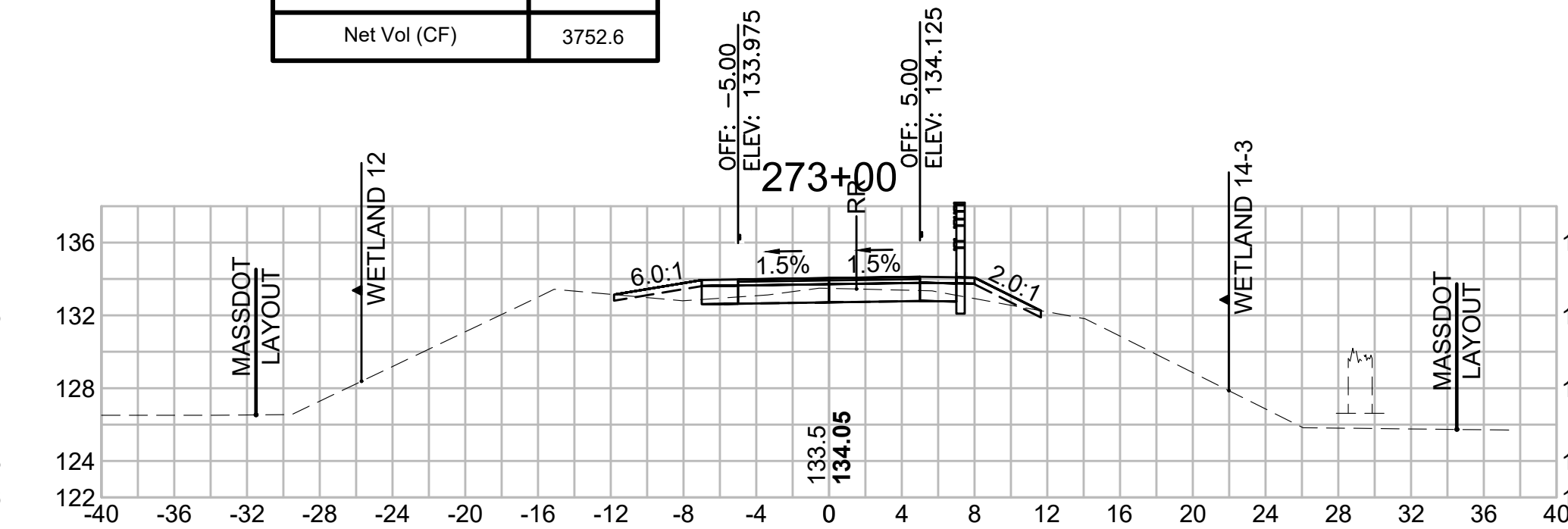
**Total Volume at Station 271+50.00**

Cut Area (SF)	15.888
Fill Area (SF)	3.101
Cut Vol (CF)	19.2
Fill Vol (CF)	10.0
Cum Cut Vol (CF)	11150.2
Cum Fill Vol (CF)	7451.1
Net Vol (CF)	3699.1



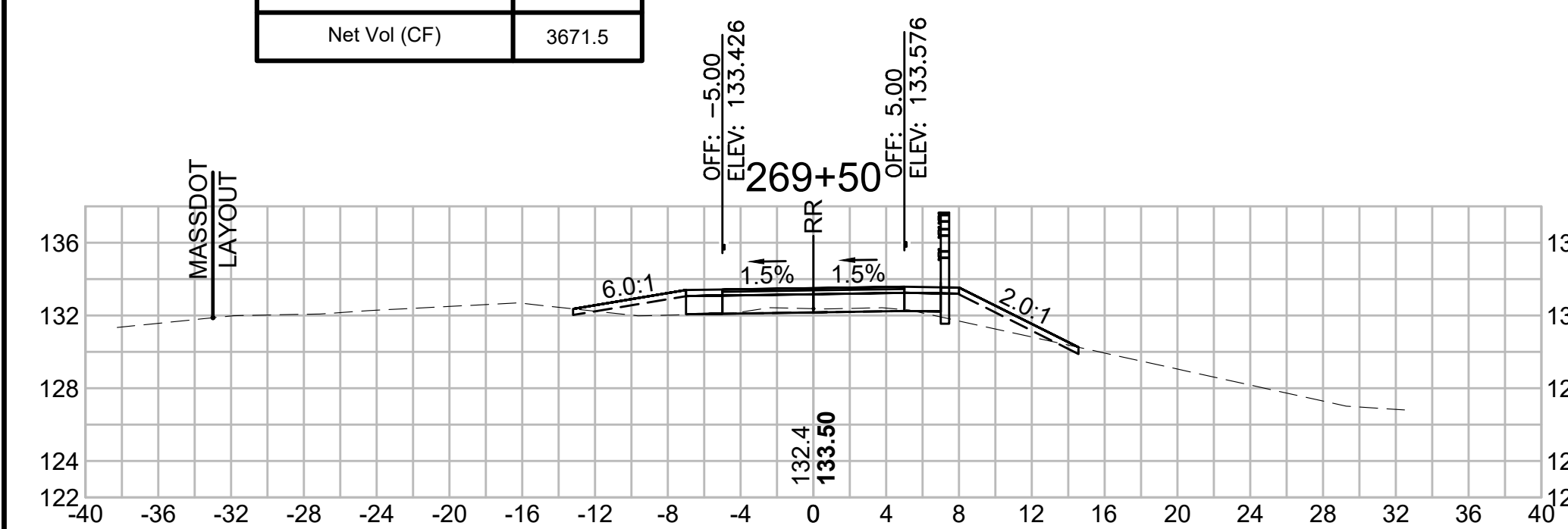
**Total Volume at Station 273+00.00**

Cut Area (SF)	8.276
Fill Area (SF)	3.215
Cut Vol (CF)	16.3
Fill Vol (CF)	8.6
Cum Cut Vol (CF)	11227.8
Cum Fill Vol (CF)	7475.2
Net Vol (CF)	3752.6



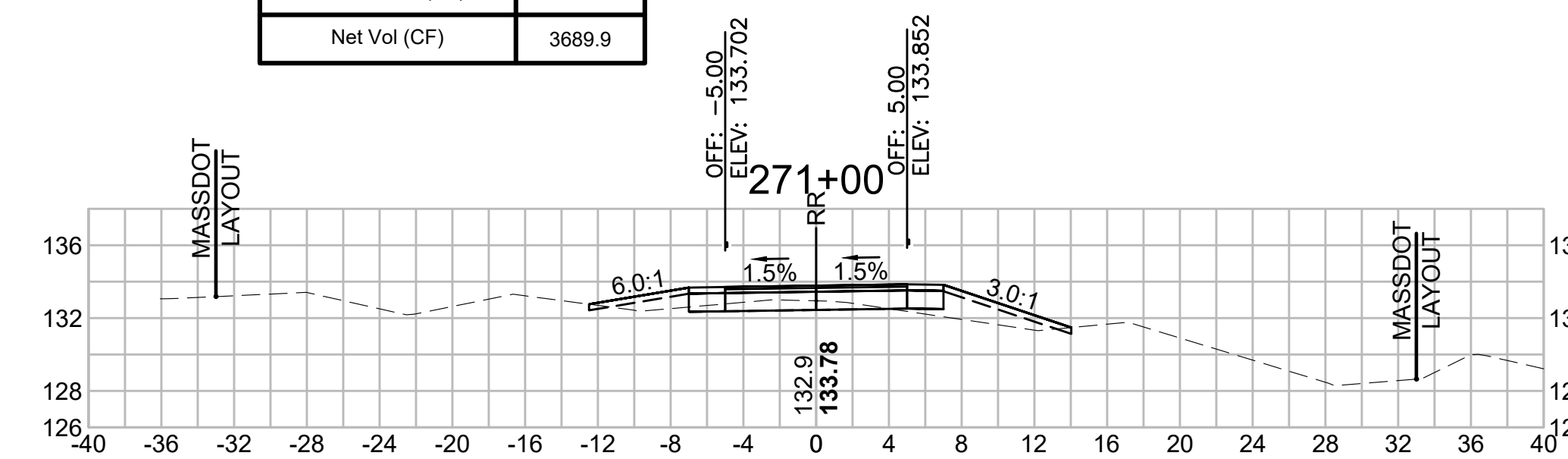
**Total Volume at Station 269+50.00**

Cut Area (SF)	9.431
Fill Area (SF)	8.445
Cut Vol (CF)	15.4
Fill Vol (CF)	12.0
Cum Cut Vol (CF)	11079.7
Cum Fill Vol (CF)	7408.2
Net Vol (CF)	3671.5



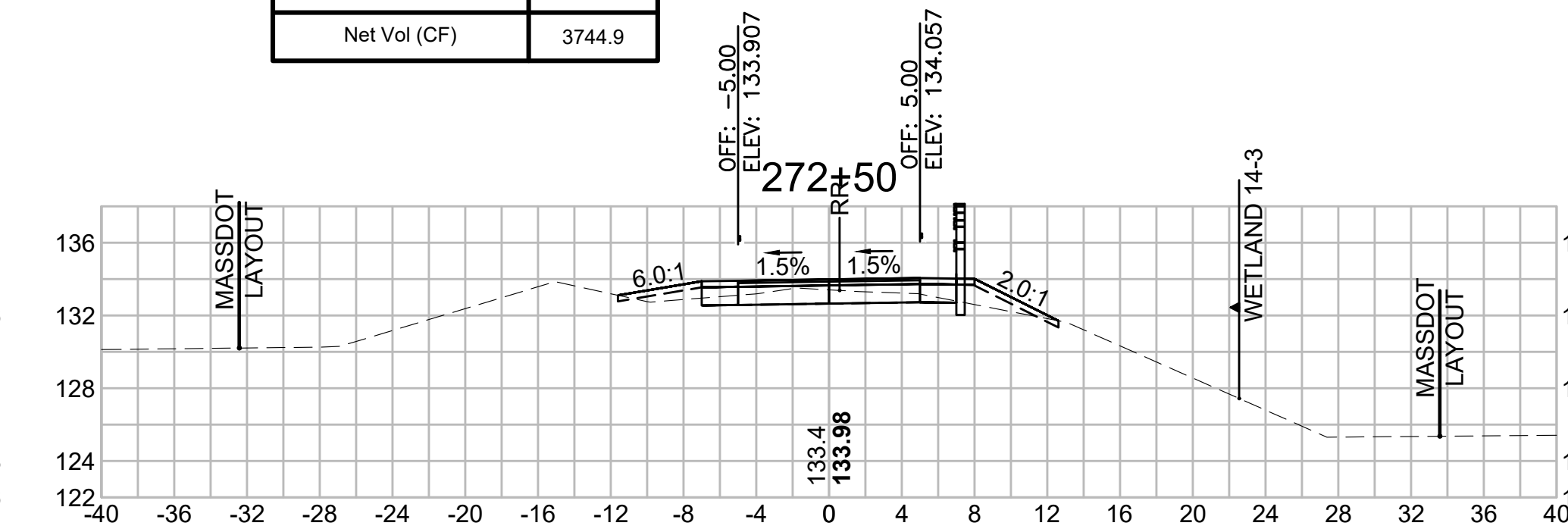
**Total Volume at Station 271+00.00**

Cut Area (SF)	4.887
Fill Area (SF)	7.726
Cut Vol (CF)	10.8
Fill Vol (CF)	11.6
Cum Cut Vol (CF)	11131.0
Cum Fill Vol (CF)	7441.1
Net Vol (CF)	3689.9



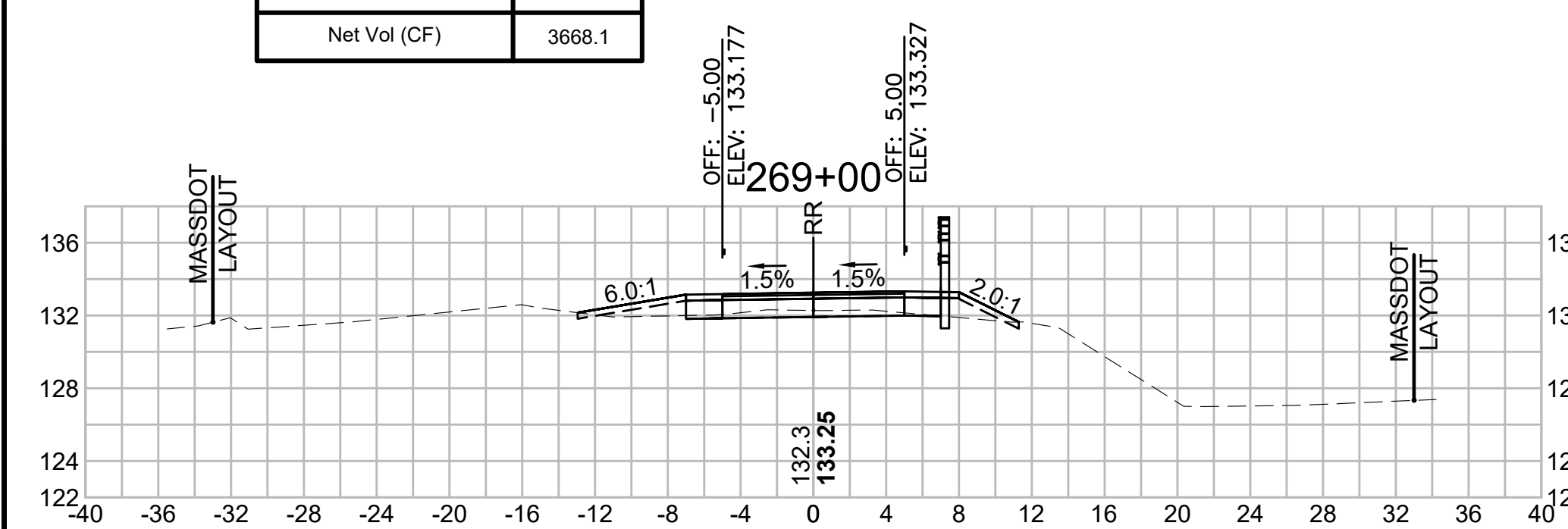
**Total Volume at Station 272+50.00**

Cut Area (SF)	9.303
Fill Area (SF)	6.077
Cut Vol (CF)	27.6
Fill Vol (CF)	9.1
Cum Cut Vol (CF)	11211.5
Cum Fill Vol (CF)	7466.6
Net Vol (CF)	3744.9



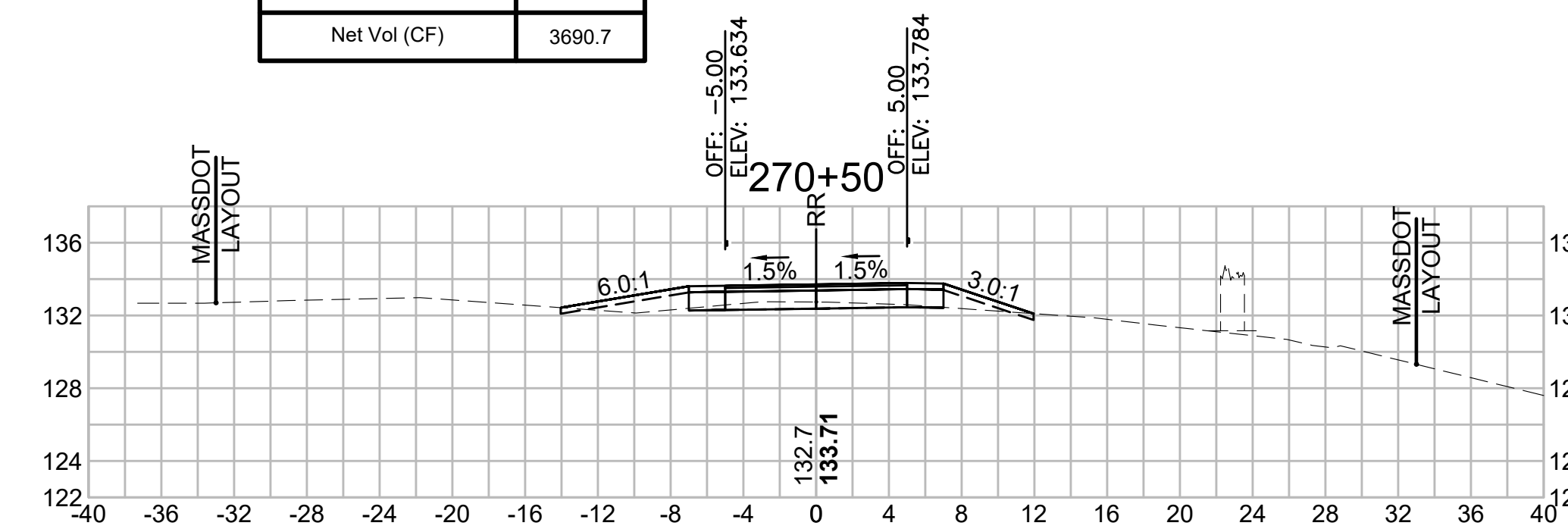
**Total Volume at Station 269+00.00**

Cut Area (SF)	7.207
Fill Area (SF)	4.489
Cut Vol (CF)	11.7
Fill Vol (CF)	9.6
Cum Cut Vol (CF)	11064.3
Cum Fill Vol (CF)	7396.2
Net Vol (CF)	3668.1



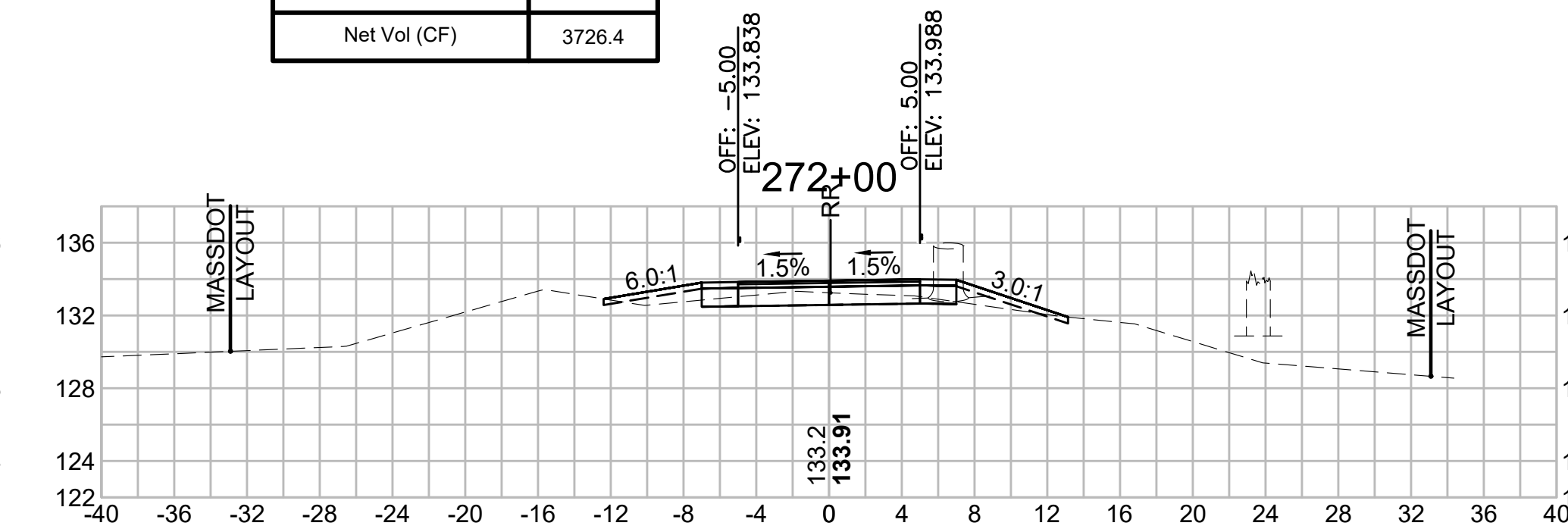
**Total Volume at Station 270+50.00**

Cut Area (SF)	6.768
Fill Area (SF)	4.837
Cut Vol (CF)	19.0
Fill Vol (CF)	9.0
Cum Cut Vol (CF)	11120.2
Cum Fill Vol (CF)	7429.5
Net Vol (CF)	3690.7



**Total Volume at Station 272+00.00**

Cut Area (SF)	20.499
Fill Area (SF)	3.749
Cut Vol (CF)	33.7
Fill Vol (CF)	6.3
Cum Cut Vol (CF)	11183.9
Cum Fill Vol (CF)	7457.5
Net Vol (CF)	3726.4



SUDBURY  
BRUCE FREEMAN RAIL TRAIL

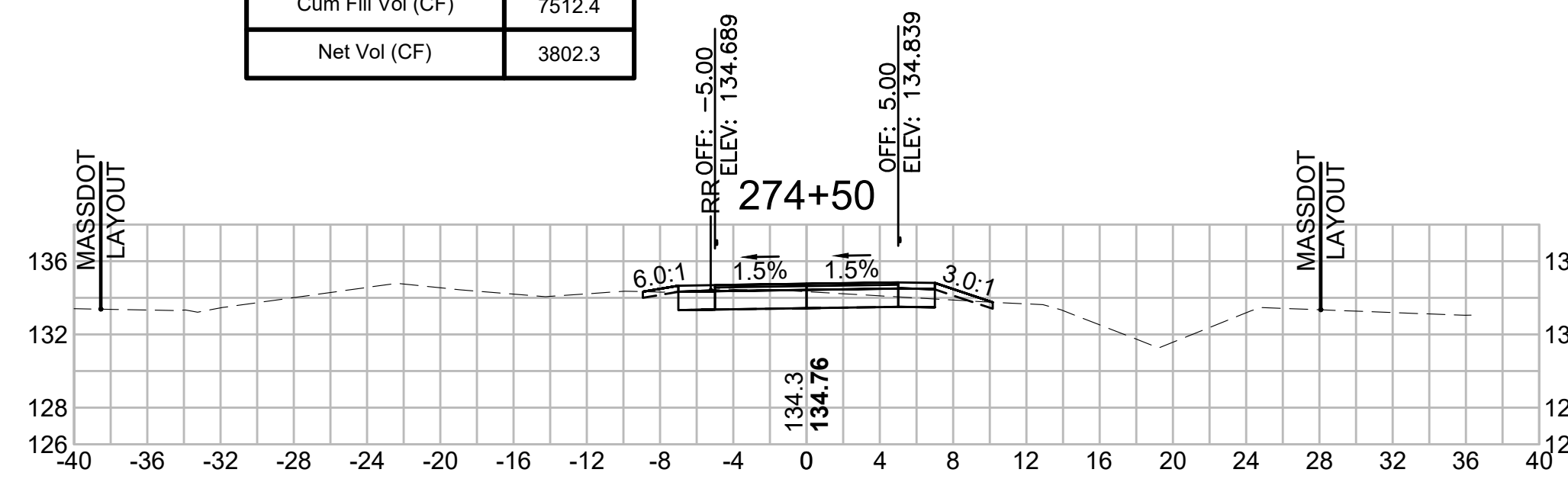
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	284	318

PROJECT FILE NO. 608164

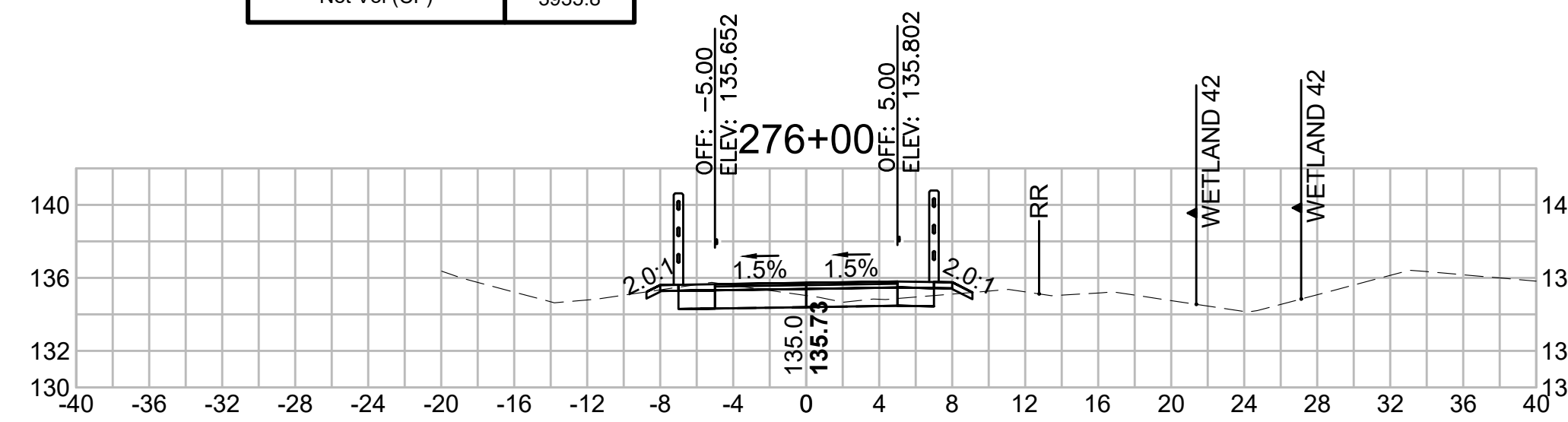
CROSS SECTIONS

608164\_XSEC(CROSS SECTION LAYOUTS).DWG 12-May-2021

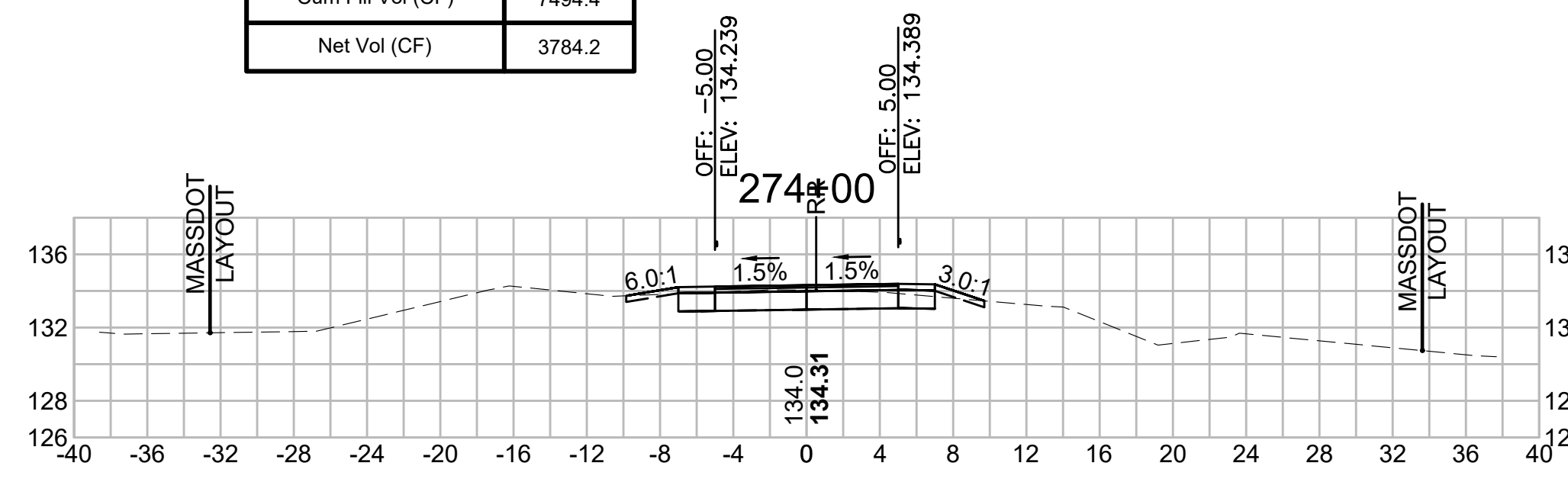
Total Volume at Station 274+50.00	
Cut Area (SF)	19.557
Fill Area (SF)	6.071
Cut Vol (CF)	36.1
Fill Vol (CF)	18.0
Cum Cut Vol (CF)	11314.7
Cum Fill Vol (CF)	7512.4
Net Vol (CF)	3802.3



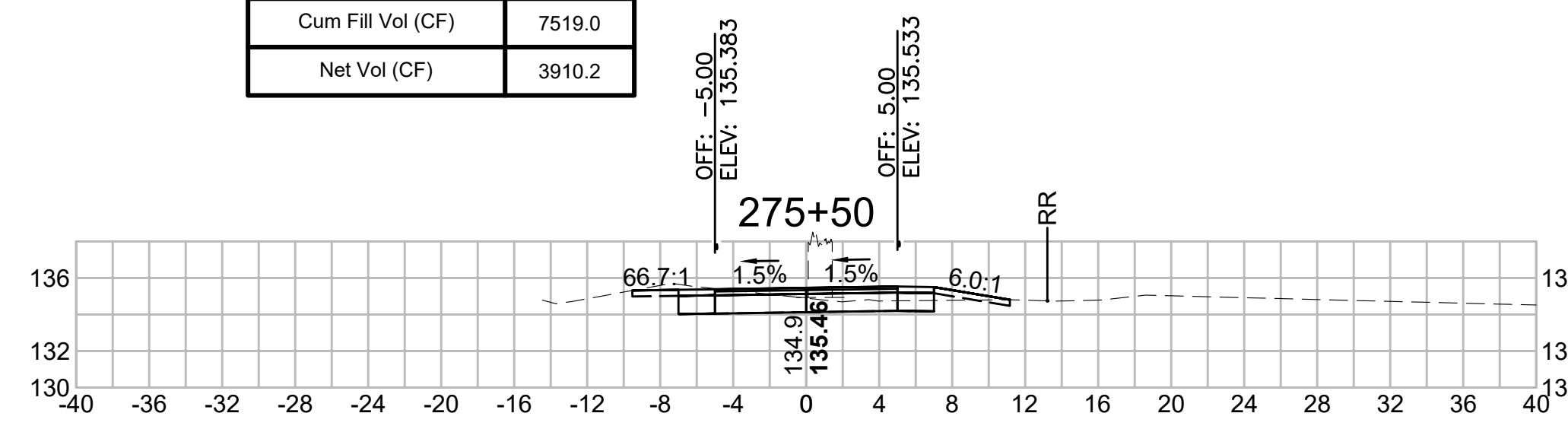
Total Volume at Station 276+00.00	
Cut Area (SF)	12.782
Fill Area (SF)	0.721
Cut Vol (CF)	27.2
Fill Vol (CF)	1.6
Cum Cut Vol (CF)	11456.3
Cum Fill Vol (CF)	7520.5
Net Vol (CF)	3935.8



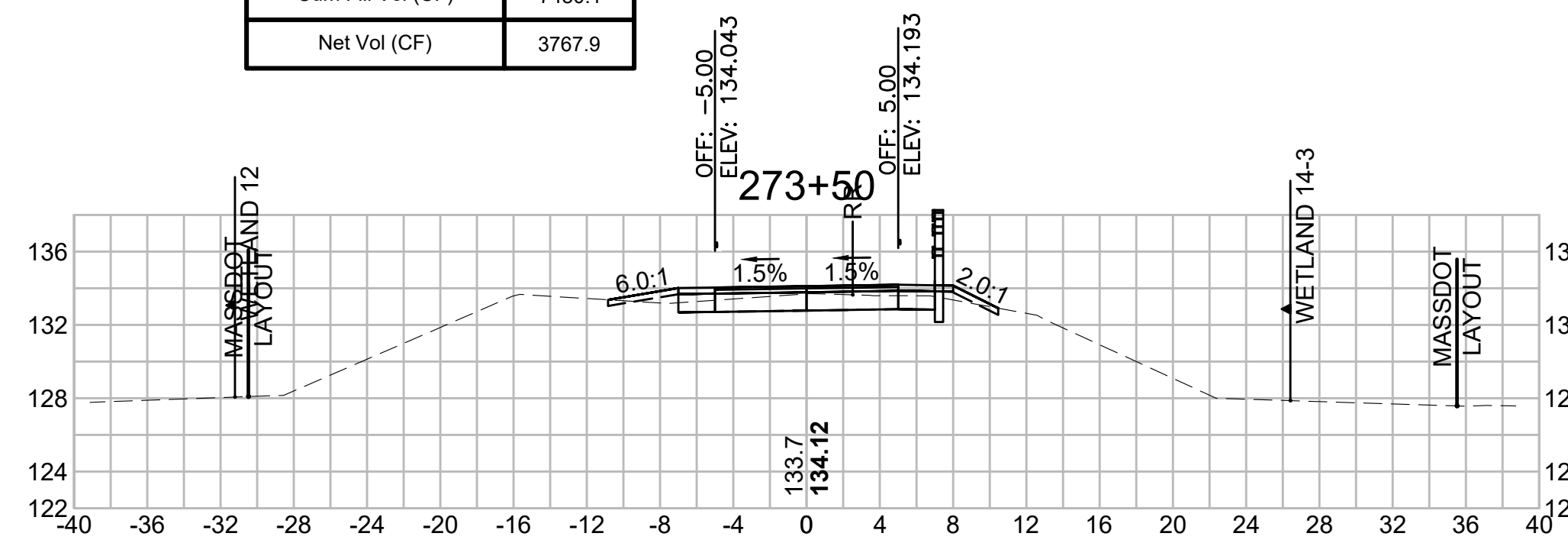
Total Volume at Station 274+00.00	
Cut Area (SF)	19.468
Fill Area (SF)	13.388
Cut Vol (CF)	30.6
Fill Vol (CF)	14.3
Cum Cut Vol (CF)	11278.6
Cum Fill Vol (CF)	7494.4
Net Vol (CF)	3784.2



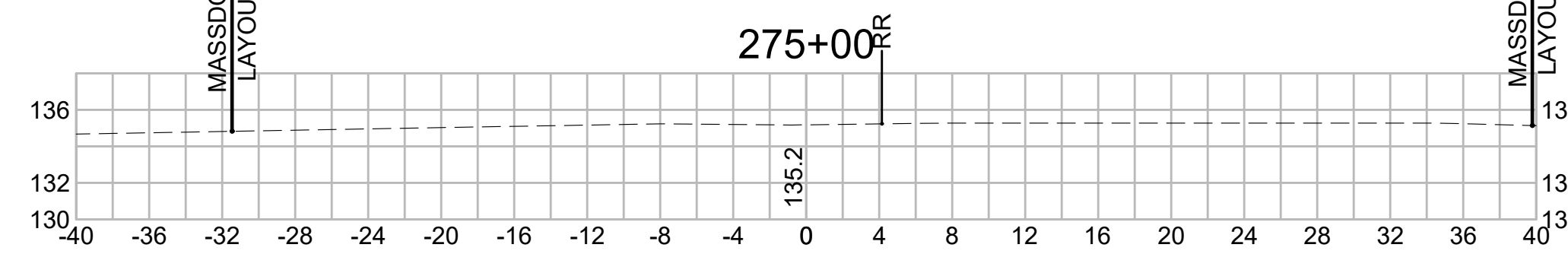
Total Volume at Station 275+50.00	
Cut Area (SF)	16.566
Fill Area (SF)	1.002
Cut Vol (CF)	55.8
Fill Vol (CF)	0.9
Cum Cut Vol (CF)	11429.2
Cum Fill Vol (CF)	7519.0
Net Vol (CF)	3910.2



Total Volume at Station 273+50.00	
Cut Area (SF)	13.567
Fill Area (SF)	2.075
Cut Vol (CF)	20.2
Fill Vol (CF)	4.9
Cum Cut Vol (CF)	11248.0
Cum Fill Vol (CF)	7480.1
Net Vol (CF)	3767.9



Total Volume at Station 275+00.00	
Cut Area (SF)	43.743
Fill Area (SF)	0.000
Cut Vol (CF)	58.6
Fill Vol (CF)	5.6
Cum Cut Vol (CF)	11373.3
Cum Fill Vol (CF)	7518.0
Net Vol (CF)	3855.3





SUDBURY  
BRUCE FREEMAN RAIL TRAIL

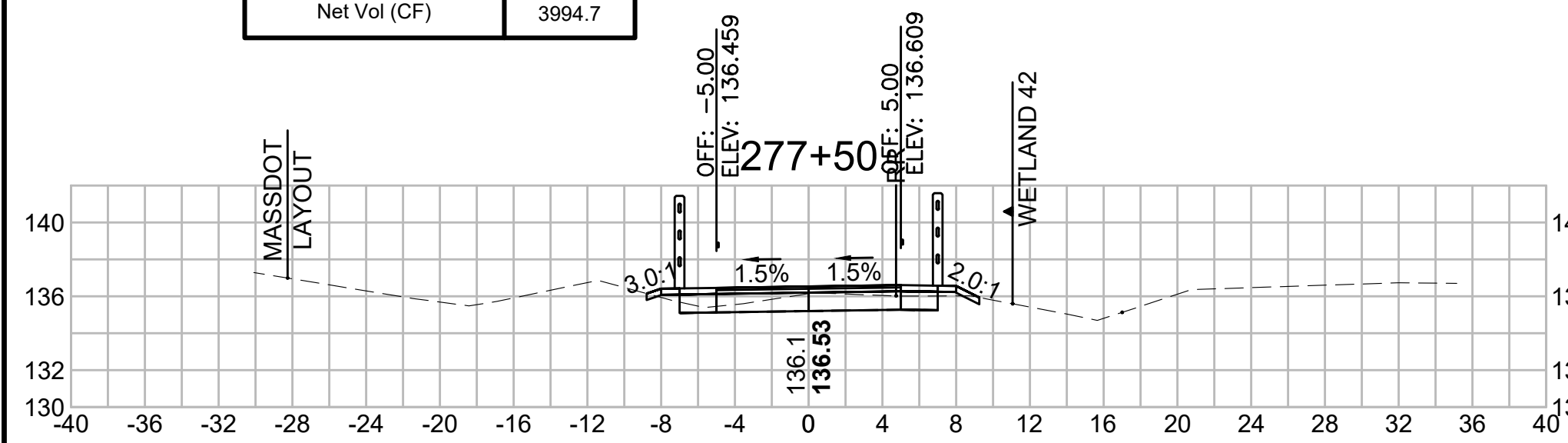
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	285	318

PROJECT FILE NO. 608164

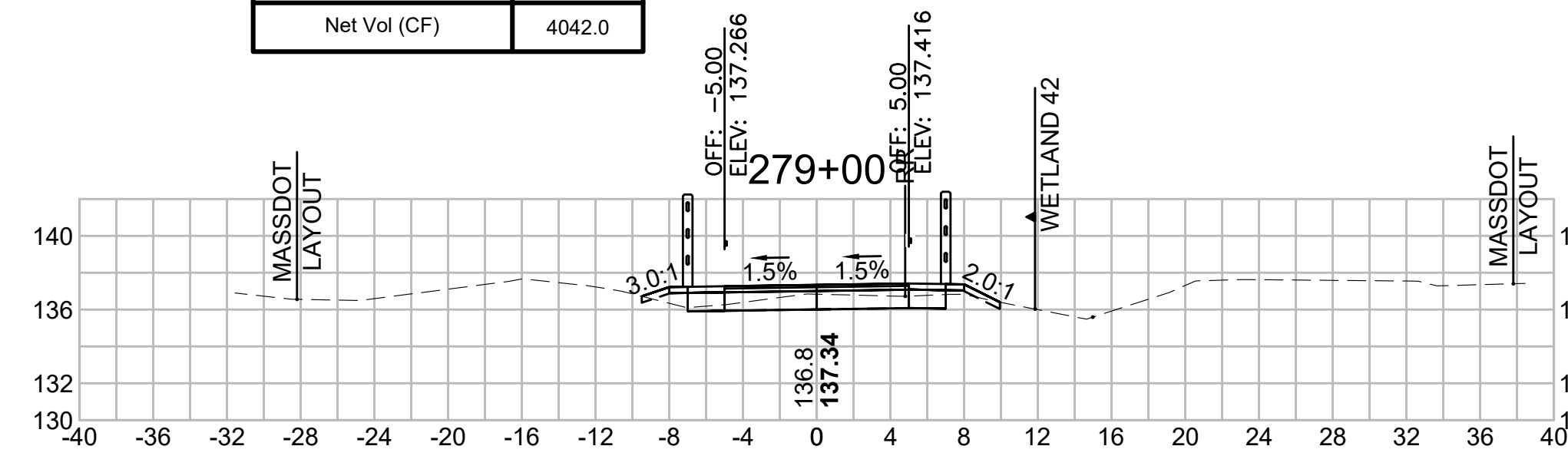
CROSS SECTIONS

608164\_XSEC(CROSS SECTION LAYOUTS).DWG 12-May-2021

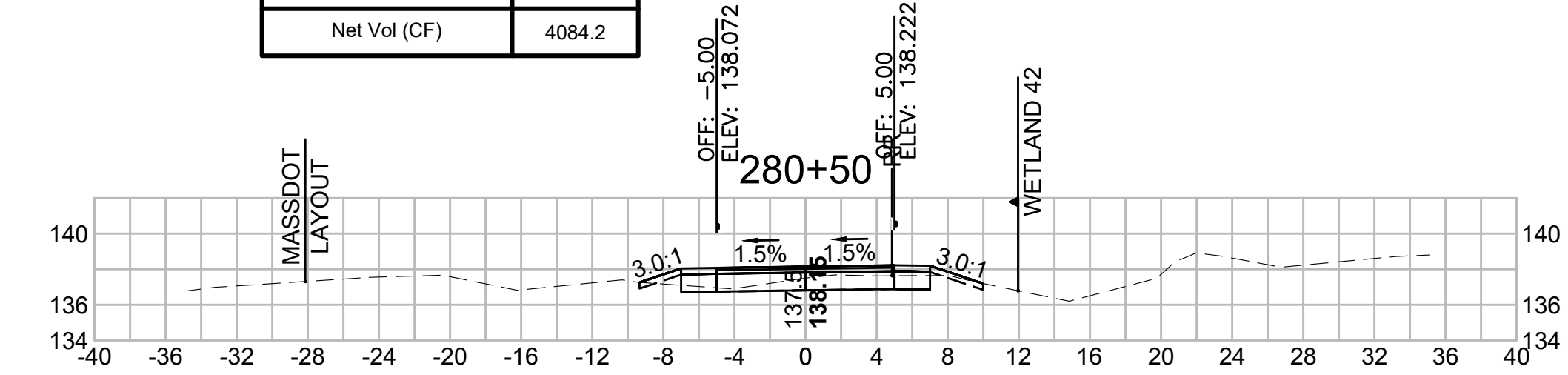
Total Volume at Station 277+50.00	
Cut Area (SF)	9,961
Fill Area (SF)	0,547
Cut Vol (CF)	15.8
Fill Vol (CF)	0.7
Cum Cut Vol (CF)	11520.4
Cum Fill Vol (CF)	7525.7
Net Vol (CF)	3994.7



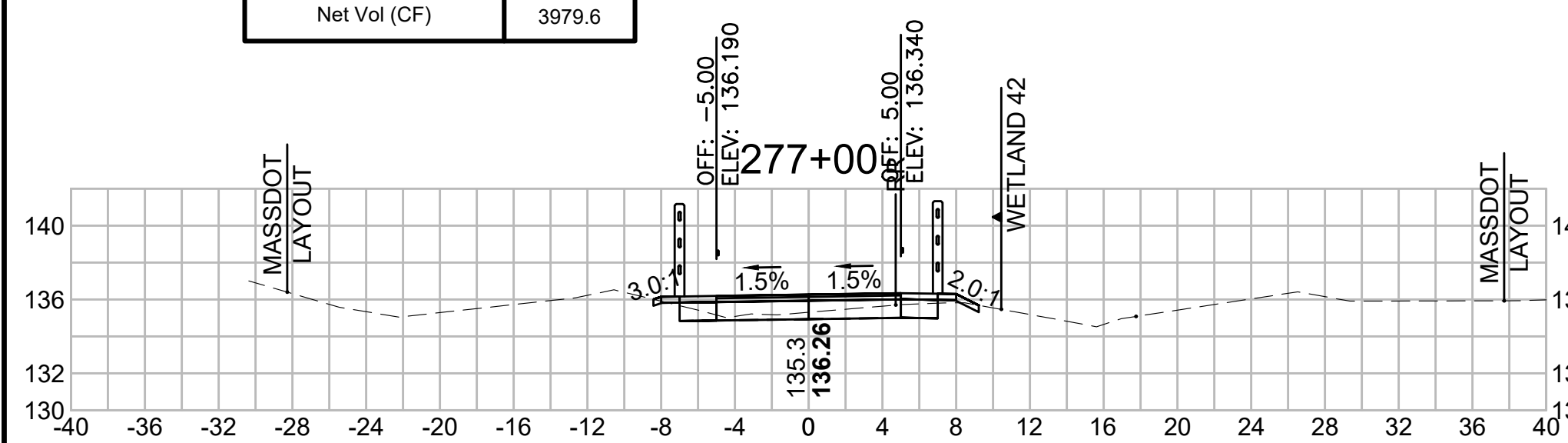
Total Volume at Station 279+00.00	
Cut Area (SF)	9,014
Fill Area (SF)	1,197
Cut Vol (CF)	17.2
Fill Vol (CF)	1.8
Cum Cut Vol (CF)	11572.5
Cum Fill Vol (CF)	7530.4
Net Vol (CF)	4042.0



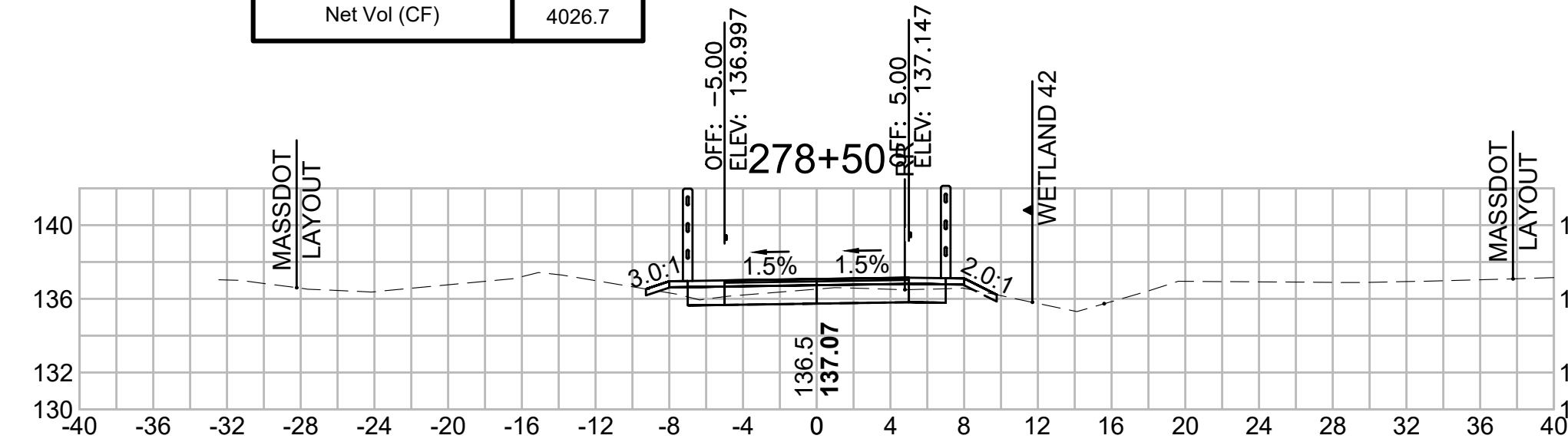
Total Volume at Station 280+50.00	
Cut Area (SF)	8,526
Fill Area (SF)	0,500
Cut Vol (CF)	15.8
Fill Vol (CF)	1.9
Cum Cut Vol (CF)	11621.4
Cum Fill Vol (CF)	7537.2
Net Vol (CF)	4084.2



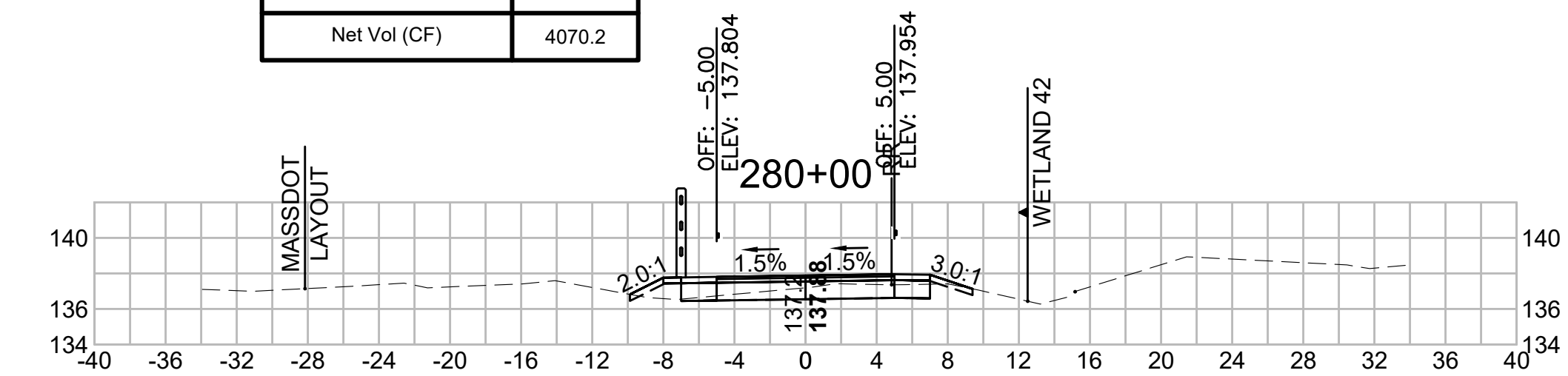
Total Volume at Station 277+00.00	
Cut Area (SF)	7,084
Fill Area (SF)	0,228
Cut Vol (CF)	15.9
Fill Vol (CF)	0.4
Cum Cut Vol (CF)	11504.6
Cum Fill Vol (CF)	7525.0
Net Vol (CF)	3979.6



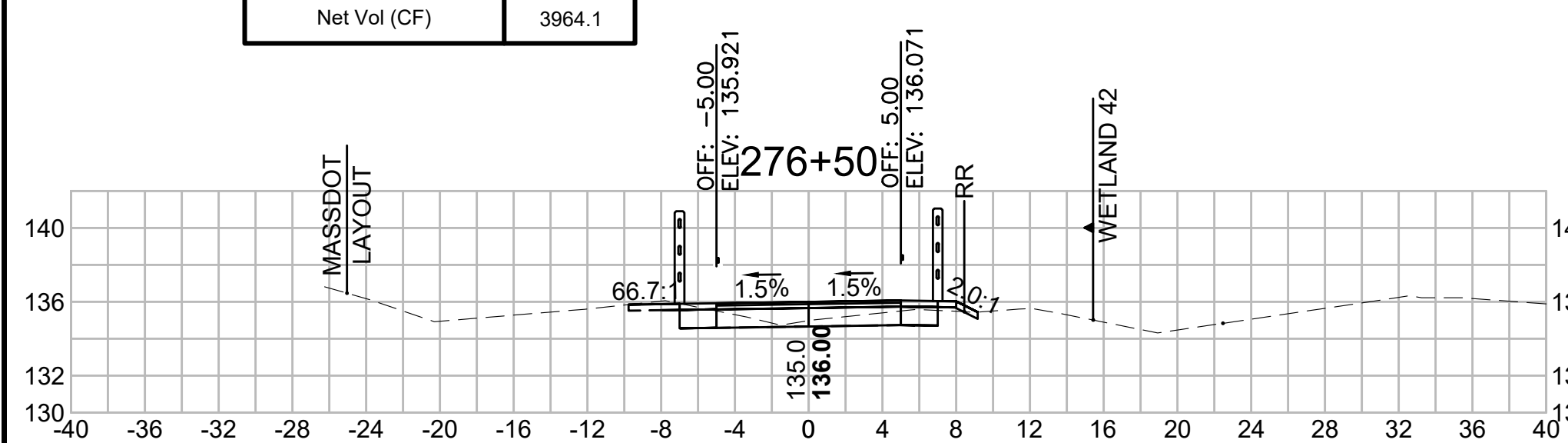
Total Volume at Station 278+50.00	
Cut Area (SF)	9,524
Fill Area (SF)	0,752
Cut Vol (CF)	17.3
Fill Vol (CF)	1.6
Cum Cut Vol (CF)	11555.3
Cum Fill Vol (CF)	7528.6
Net Vol (CF)	4026.7



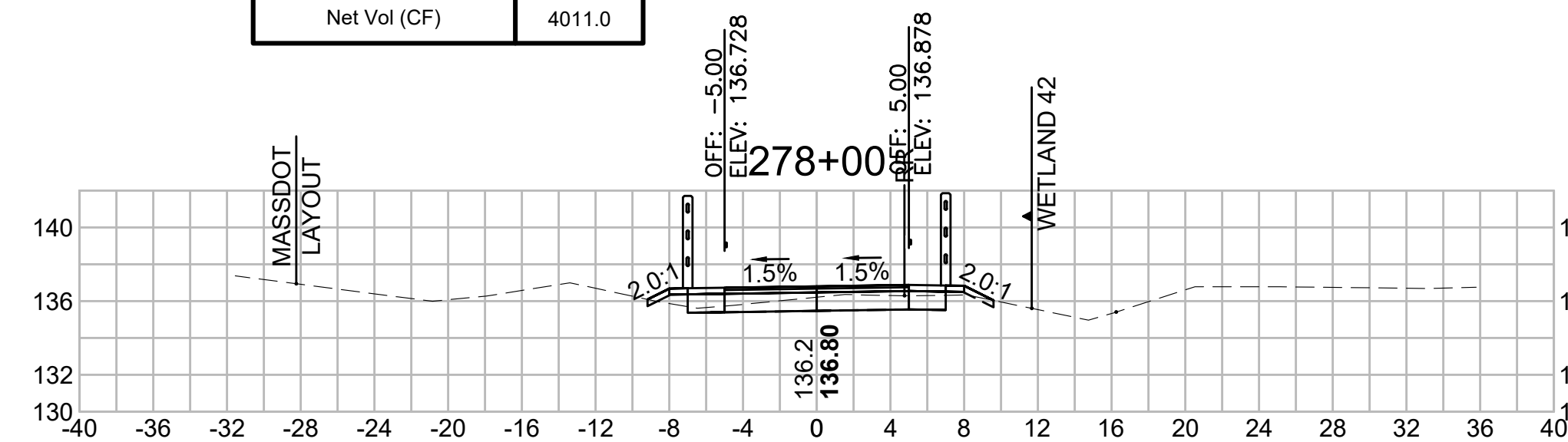
Total Volume at Station 280+00.00	
Cut Area (SF)	8,532
Fill Area (SF)	1,503
Cut Vol (CF)	16.3
Fill Vol (CF)	2.6
Cum Cut Vol (CF)	11605.6
Cum Fill Vol (CF)	7535.4
Net Vol (CF)	4070.2



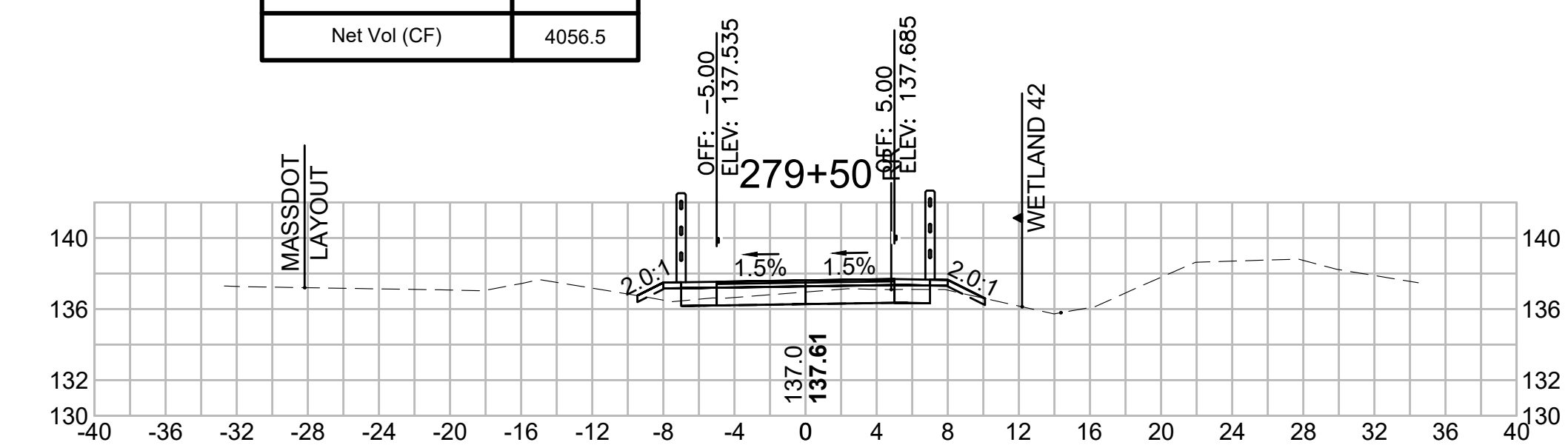
Total Volume at Station 276+50.00	
Cut Area (SF)	10,074
Fill Area (SF)	0,226
Cut Vol (CF)	21.2
Fill Vol (CF)	0.9
Cum Cut Vol (CF)	11488.7
Cum Fill Vol (CF)	7524.6
Net Vol (CF)	3964.1



Total Volume at Station 278+00.00	
Cut Area (SF)	9,128
Fill Area (SF)	0,931
Cut Vol (CF)	17.7
Fill Vol (CF)	1.4
Cum Cut Vol (CF)	11538.1
Cum Fill Vol (CF)	7527.1
Net Vol (CF)	4011.0



Total Volume at Station 279+50.00	
Cut Area (SF)	9,103
Fill Area (SF)	1,302
Cut Vol (CF)	16.8
Fill Vol (CF)	2.3
Cum Cut Vol (CF)	11589.3
Cum Fill Vol (CF)	7532.8
Net Vol (CF)	4056.5



SUDBURY  
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	286	318

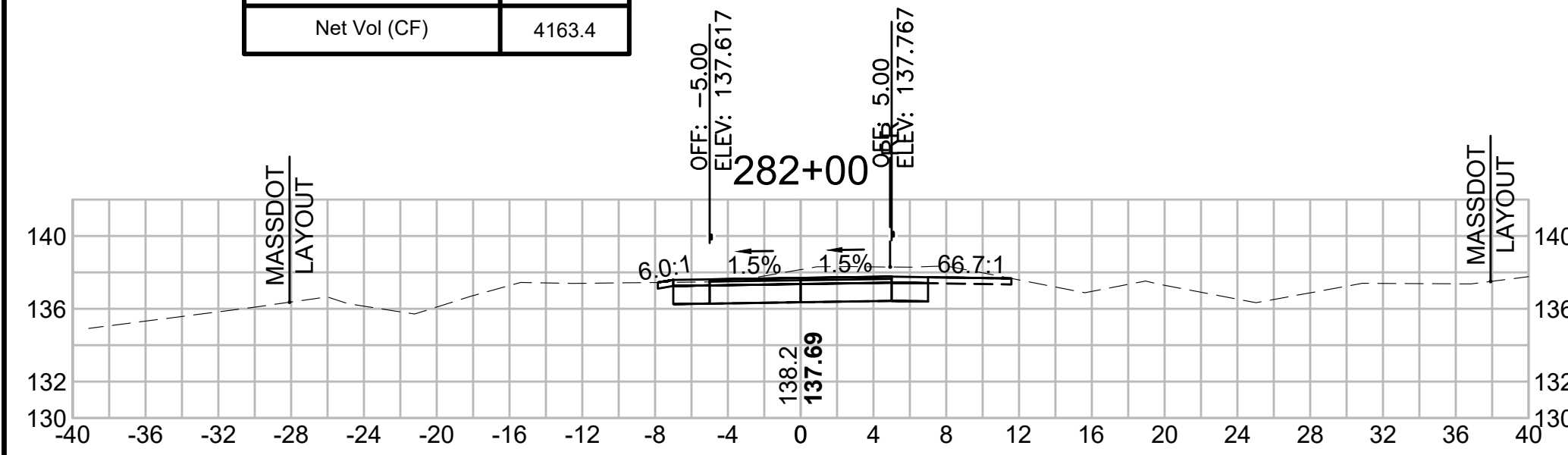
PROJECT FILE NO. 608164

CROSS SECTIONS

608164\_XSEC(CROSS SECTION LAYOUTS).DWG 12-May-2021

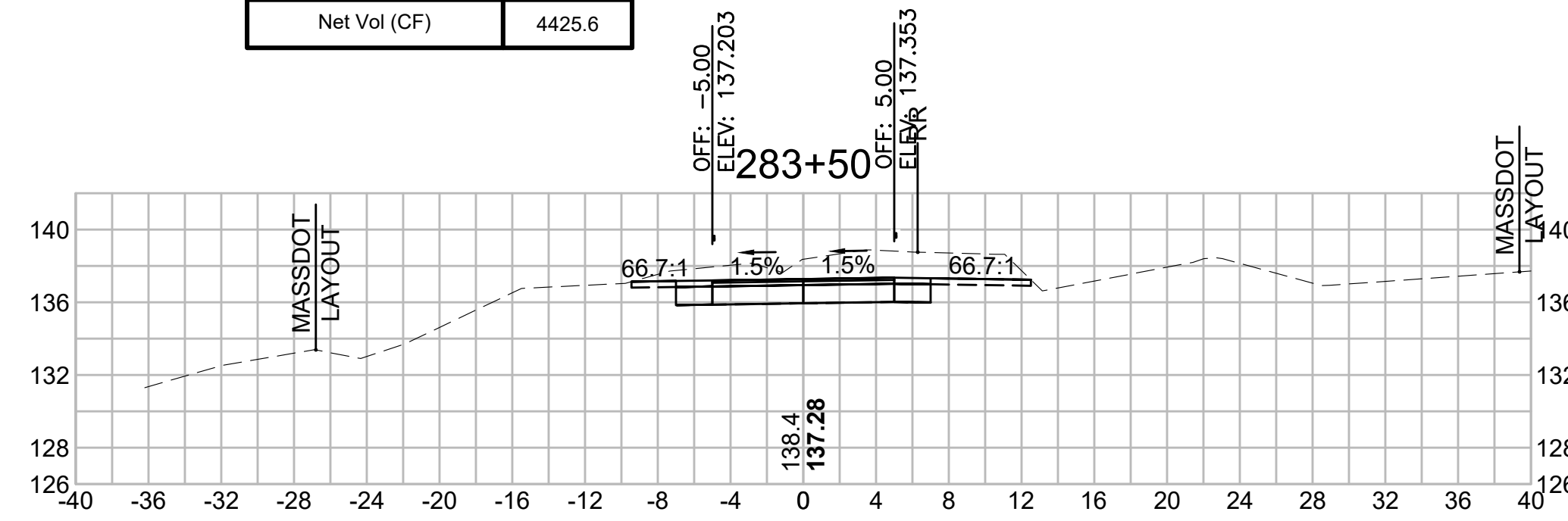
**Total Volume at Station 282+00.00**

Cut Area (SF)	28.258
Fill Area (SF)	0.000
Cut Vol (CF)	40.9
Fill Vol (CF)	0.1
Cum Cut Vol (CF)	11701.9
Cum Fill Vol (CF)	7538.5
Net Vol (CF)	4163.4



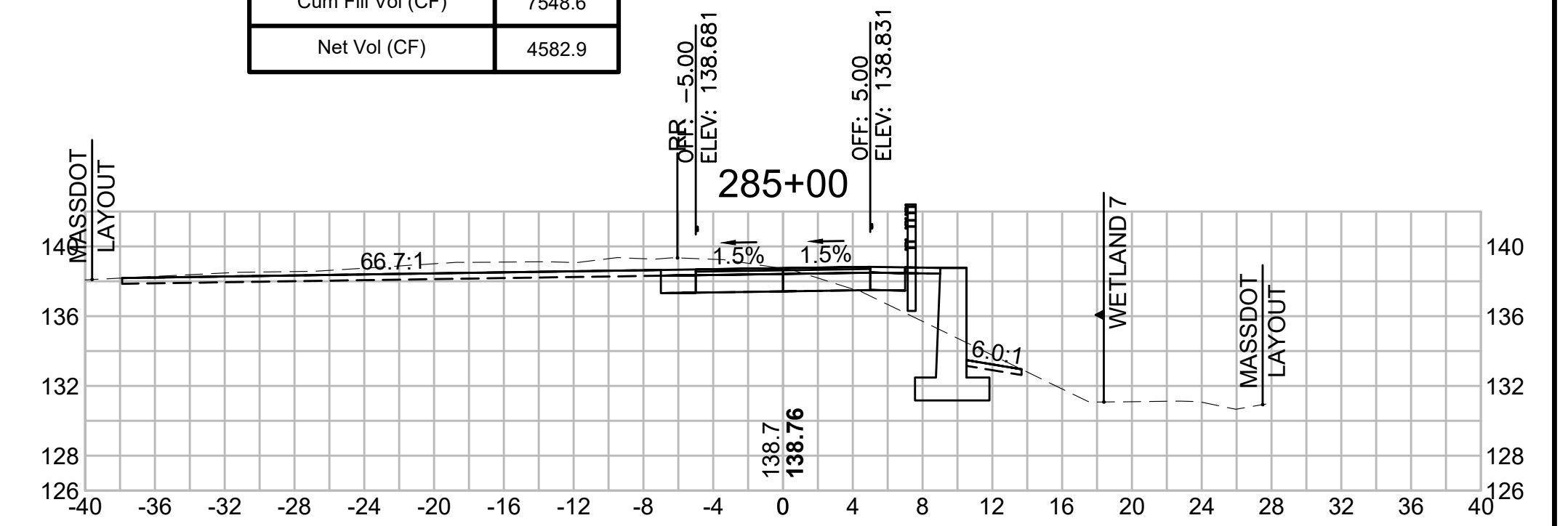
**Total Volume at Station 283+50.00**

Cut Area (SF)	59.185
Fill Area (SF)	0.222
Cut Vol (CF)	105.4
Fill Vol (CF)	0.2
Cum Cut Vol (CF)	11964.3
Cum Fill Vol (CF)	7538.7
Net Vol (CF)	4425.6



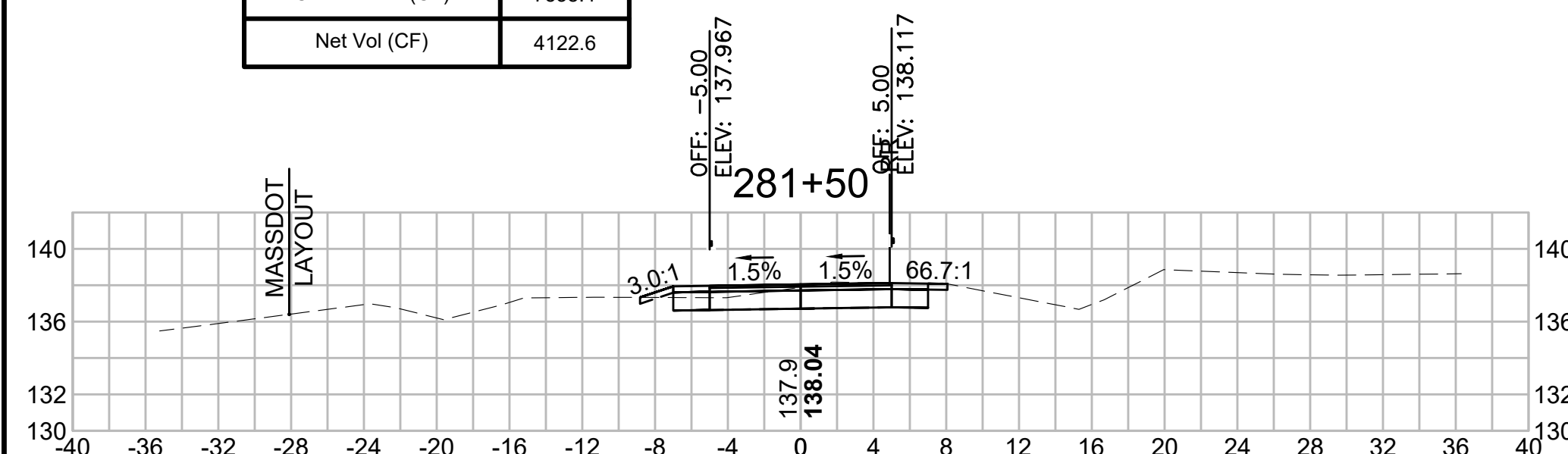
**Total Volume at Station 285+00.00**

Cut Area (SF)	56.229
Fill Area (SF)	5.536
Cut Vol (CF)	52.1
Fill Vol (CF)	5.1
Cum Cut Vol (CF)	12131.5
Cum Fill Vol (CF)	7548.6
Net Vol (CF)	4582.9



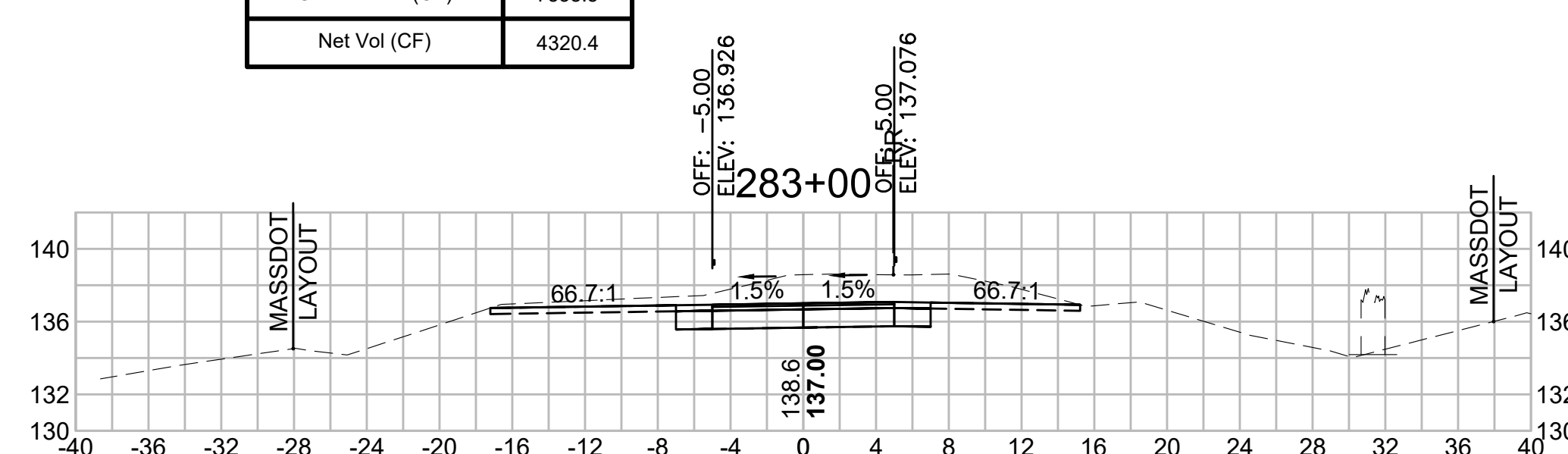
**Total Volume at Station 281+50.00**

Cut Area (SF)	15.927
Fill Area (SF)	0.106
Cut Vol (CF)	23.2
Fill Vol (CF)	0.4
Cum Cut Vol (CF)	11661.0
Cum Fill Vol (CF)	7538.4
Net Vol (CF)	4122.6



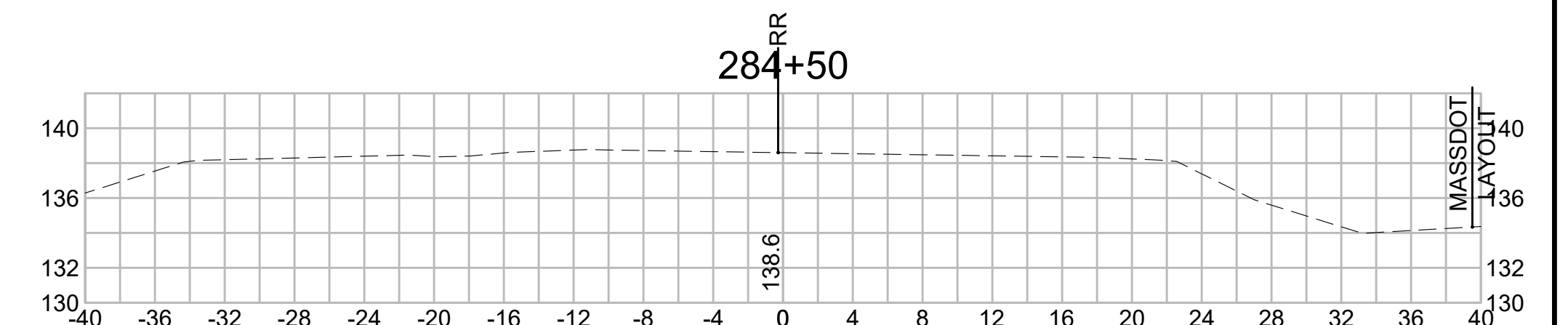
**Total Volume at Station 283+00.00**

Cut Area (SF)	54.652
Fill Area (SF)	0.000
Cut Vol (CF)	90.7
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	11858.9
Cum Fill Vol (CF)	7538.5
Net Vol (CF)	4320.4



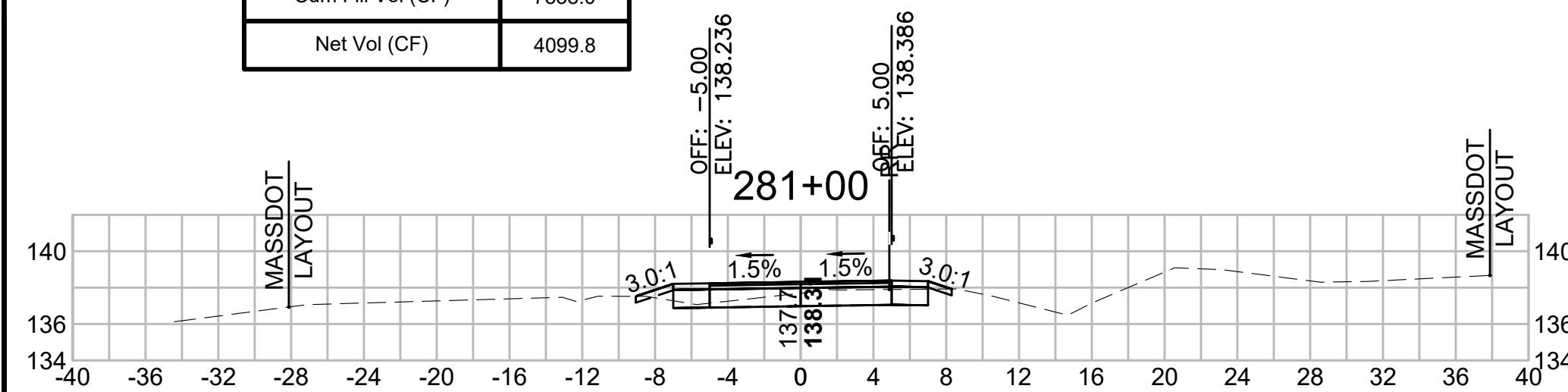
**Total Volume at Station 284+50.00**

Cut Area (SF)	0.000
Fill Area (SF)	0.000
Cut Vol (CF)	30.1
Fill Vol (CF)	2.3
Cum Cut Vol (CF)	12079.4
Cum Fill Vol (CF)	7543.5
Net Vol (CF)	4535.9



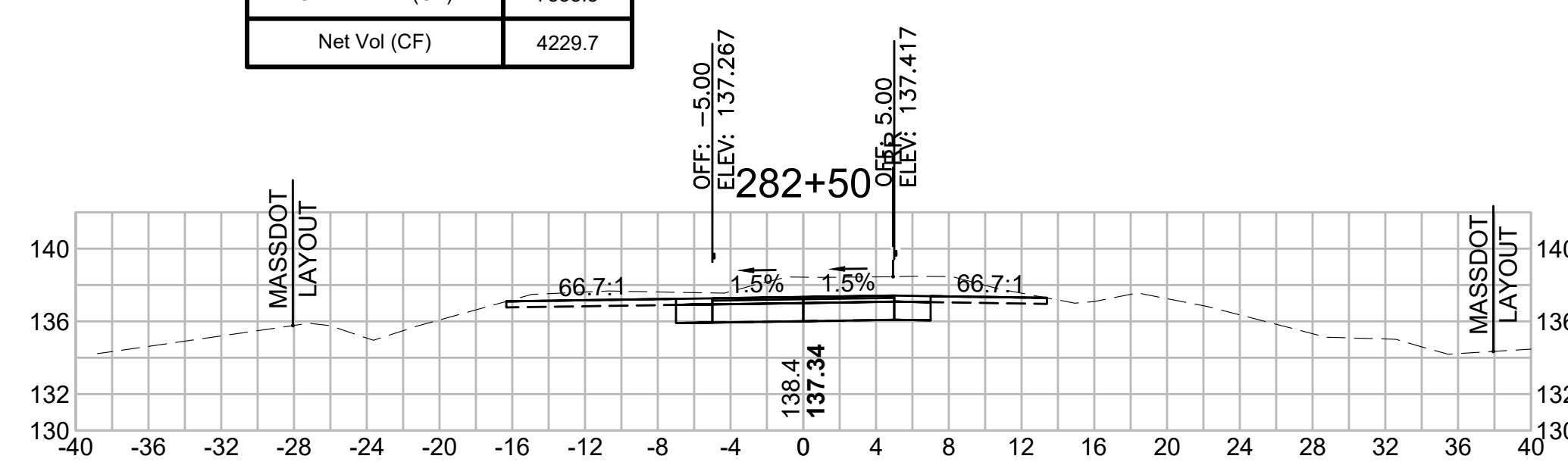
**Total Volume at Station 281+00.00**

Cut Area (SF)	9.182
Fill Area (SF)	0.352
Cut Vol (CF)	16.4
Fill Vol (CF)	0.8
Cum Cut Vol (CF)	11637.8
Cum Fill Vol (CF)	7538.0
Net Vol (CF)	4099.8



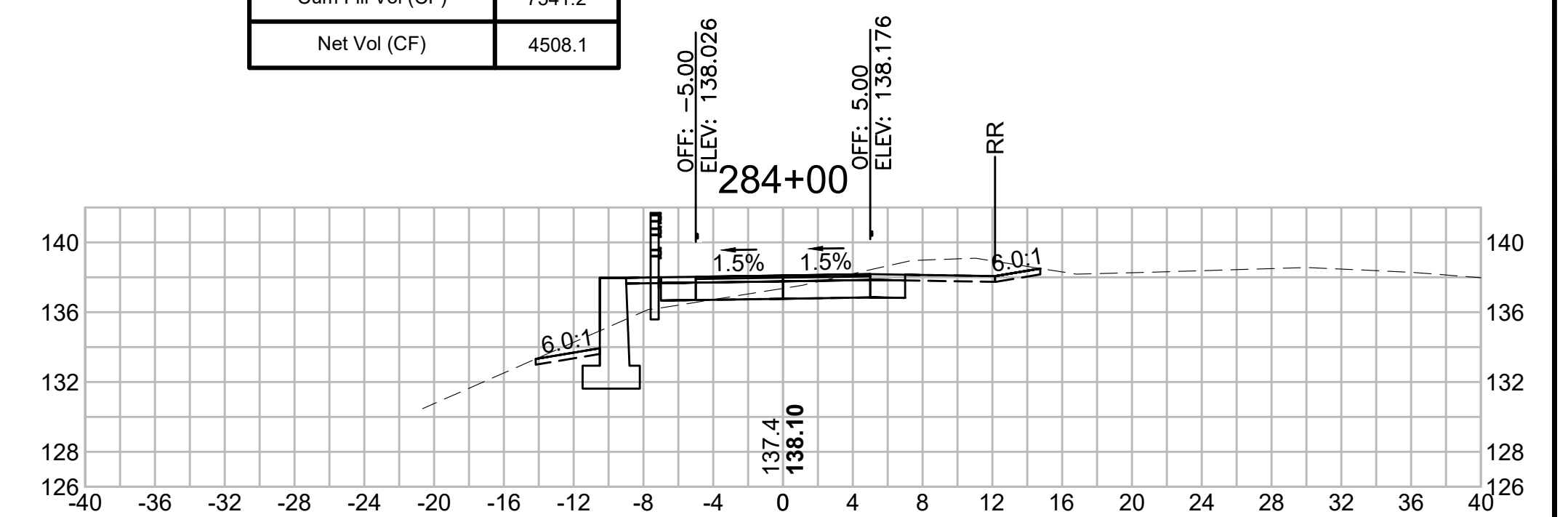
**Total Volume at Station 282+50.00**

Cut Area (SF)	43.320
Fill Area (SF)	0.000
Cut Vol (CF)	66.3
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	11768.2
Cum Fill Vol (CF)	7538.5
Net Vol (CF)	4229.7



**Total Volume at Station 284+00.00**

Cut Area (SF)	32.535
Fill Area (SF)	2.450
Cut Vol (CF)	84.9
Fill Vol (CF)	2.5
Cum Cut Vol (CF)	12049.3
Cum Fill Vol (CF)	7541.2
Net Vol (CF)	4508.1



SUDBURY  
BRUCE FREEMAN RAIL TRAIL

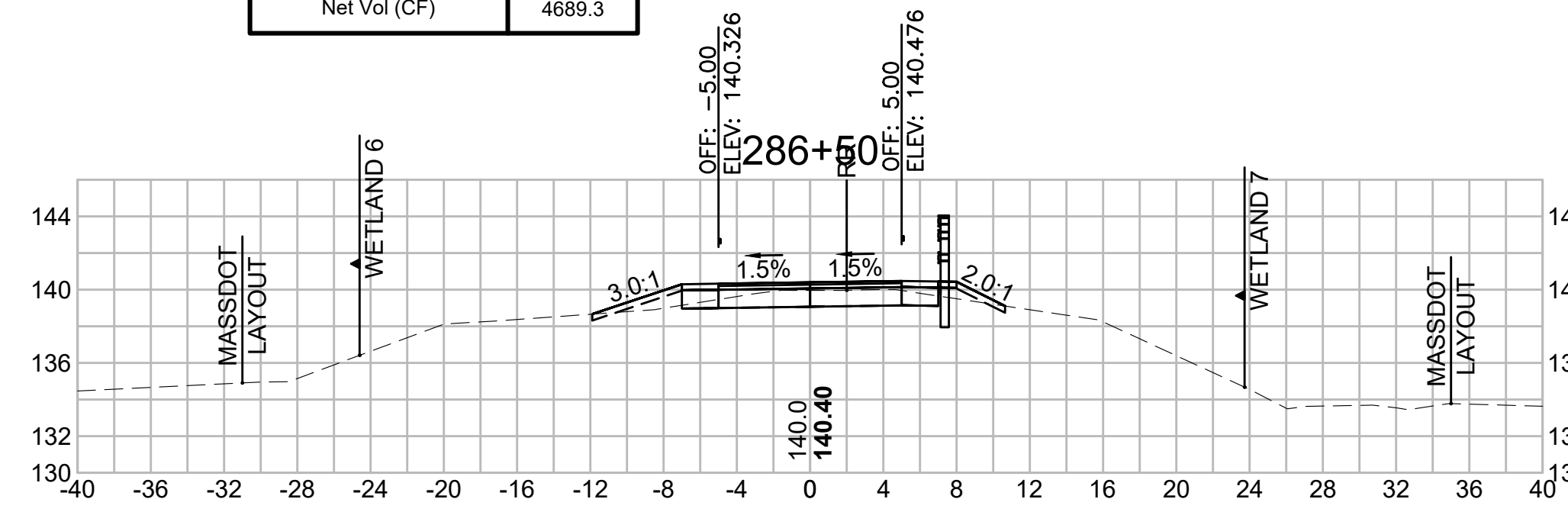
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	287	318

PROJECT FILE NO. 608164

CROSS SECTIONS

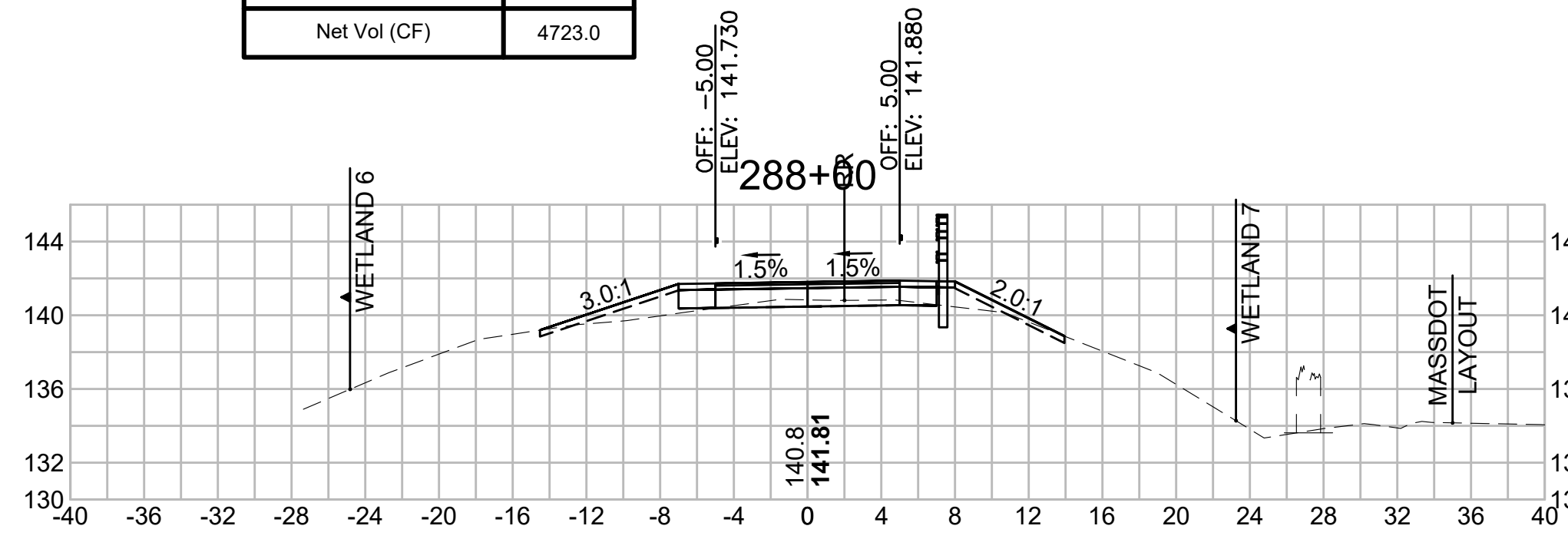
**Total Volume at Station 286+50.00**

Cut Area (SF)	10.652
Fill Area (SF)	2.537
Cut Vol (CF)	22.5
Fill Vol (CF)	3.7
Cum Cut Vol (CF)	12254.0
Cum Fill Vol (CF)	7564.7
Net Vol (CF)	4689.3



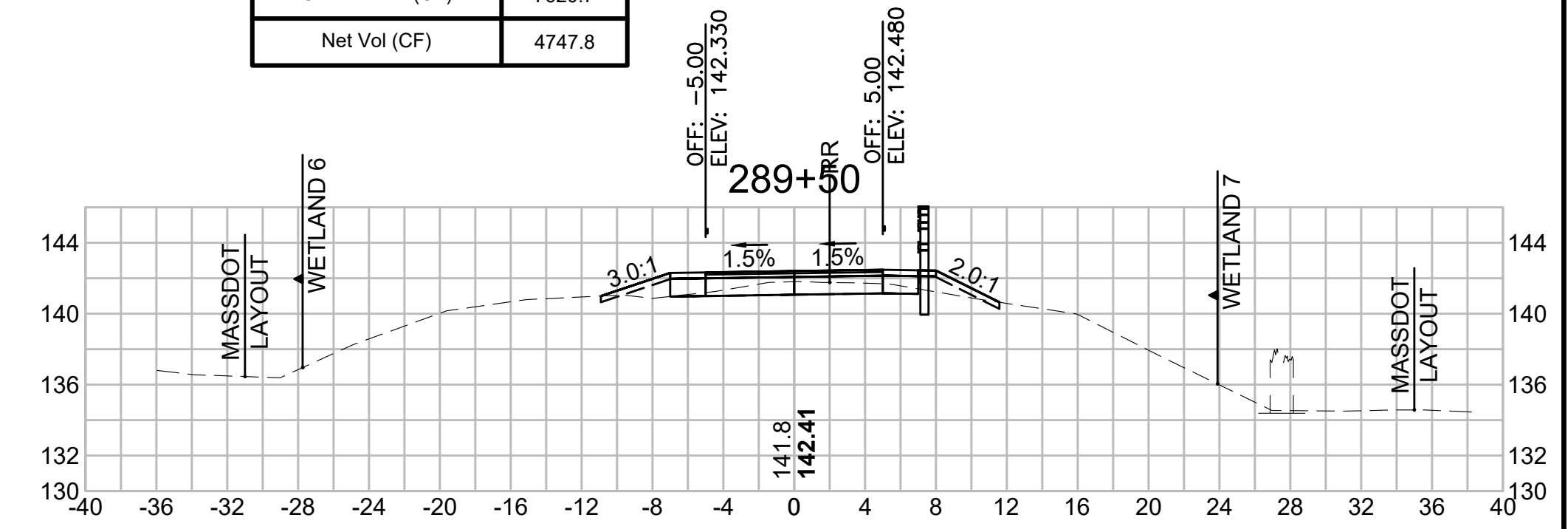
**Total Volume at Station 288+00.00**

Cut Area (SF)	10.395
Fill Area (SF)	6.320
Cut Vol (CF)	22.4
Fill Vol (CF)	11.9
Cum Cut Vol (CF)	12314.2
Cum Fill Vol (CF)	7591.2
Net Vol (CF)	4723.0



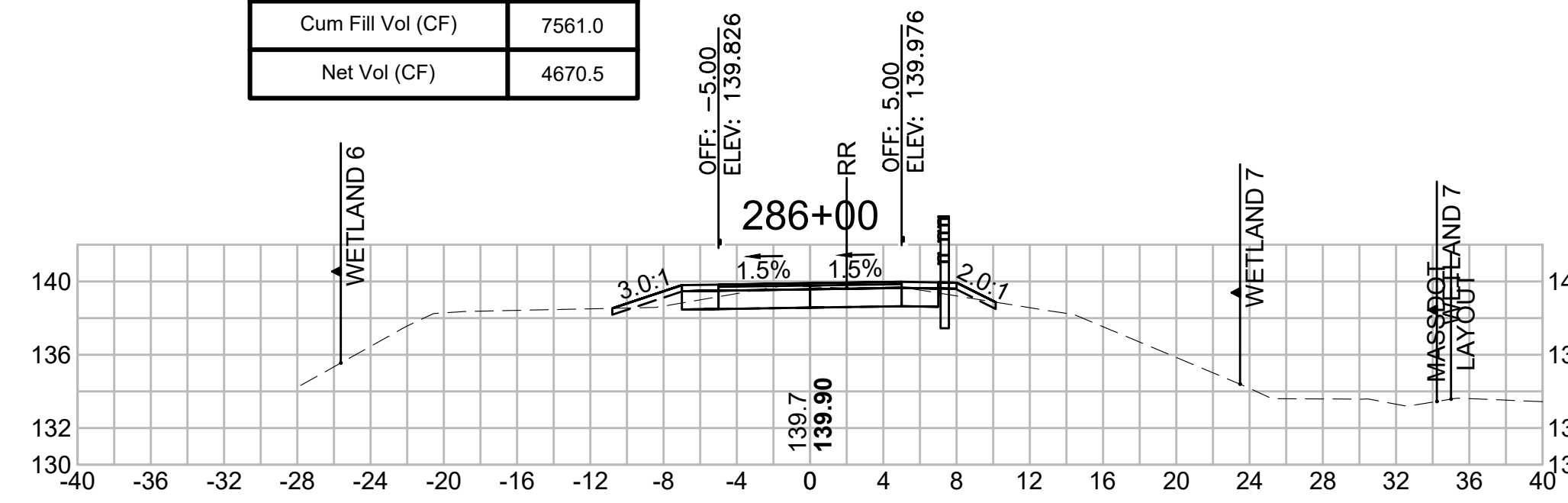
**Total Volume at Station 289+50.00**

Cut Area (SF)	7.485
Fill Area (SF)	3.349
Cut Vol (CF)	12.2
Fill Vol (CF)	7.5
Cum Cut Vol (CF)	12368.5
Cum Fill Vol (CF)	7620.7
Net Vol (CF)	4747.8



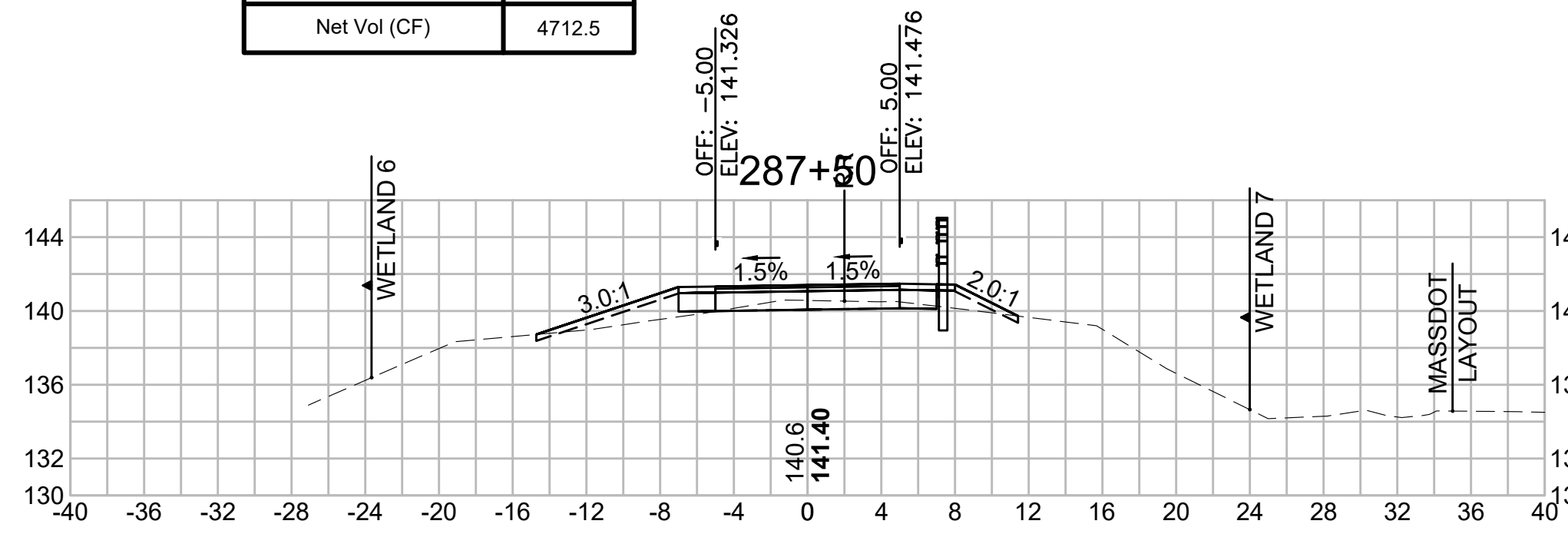
**Total Volume at Station 286+00.00**

Cut Area (SF)	13.658
Fill Area (SF)	1.480
Cut Vol (CF)	30.3
Fill Vol (CF)	4.3
Cum Cut Vol (CF)	12231.5
Cum Fill Vol (CF)	7561.0
Net Vol (CF)	4670.5



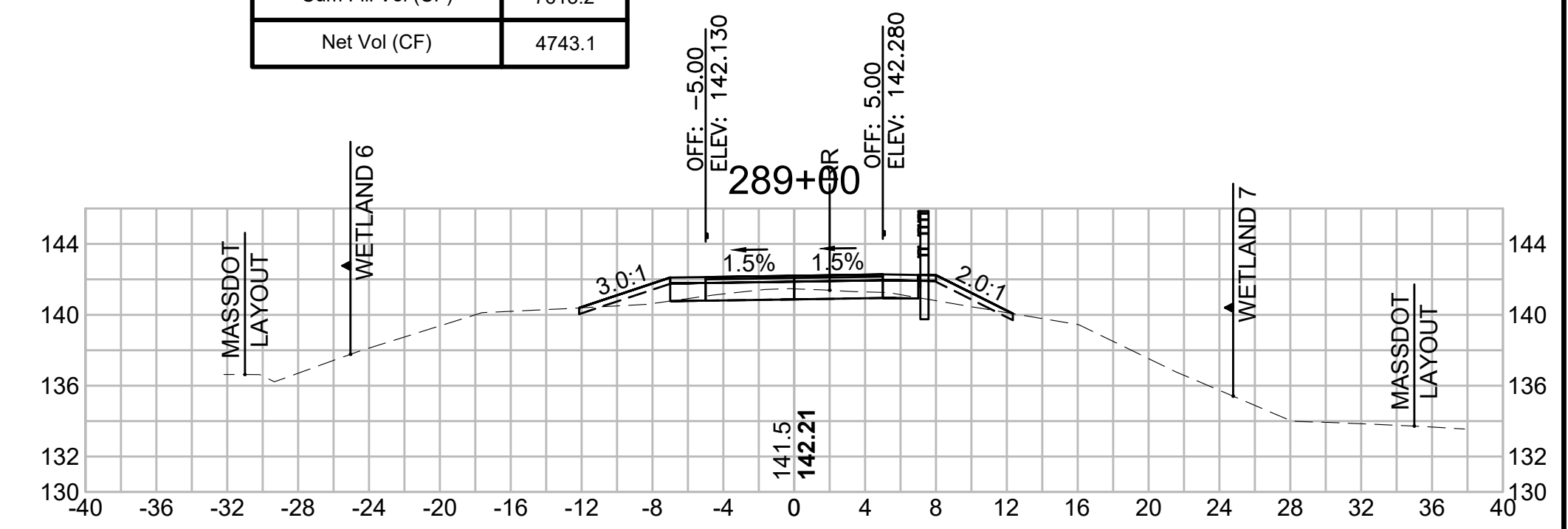
**Total Volume at Station 287+50.00**

Cut Area (SF)	13.780
Fill Area (SF)	6.505
Cut Vol (CF)	20.4
Fill Vol (CF)	9.1
Cum Cut Vol (CF)	12291.8
Cum Fill Vol (CF)	7579.3
Net Vol (CF)	4712.5



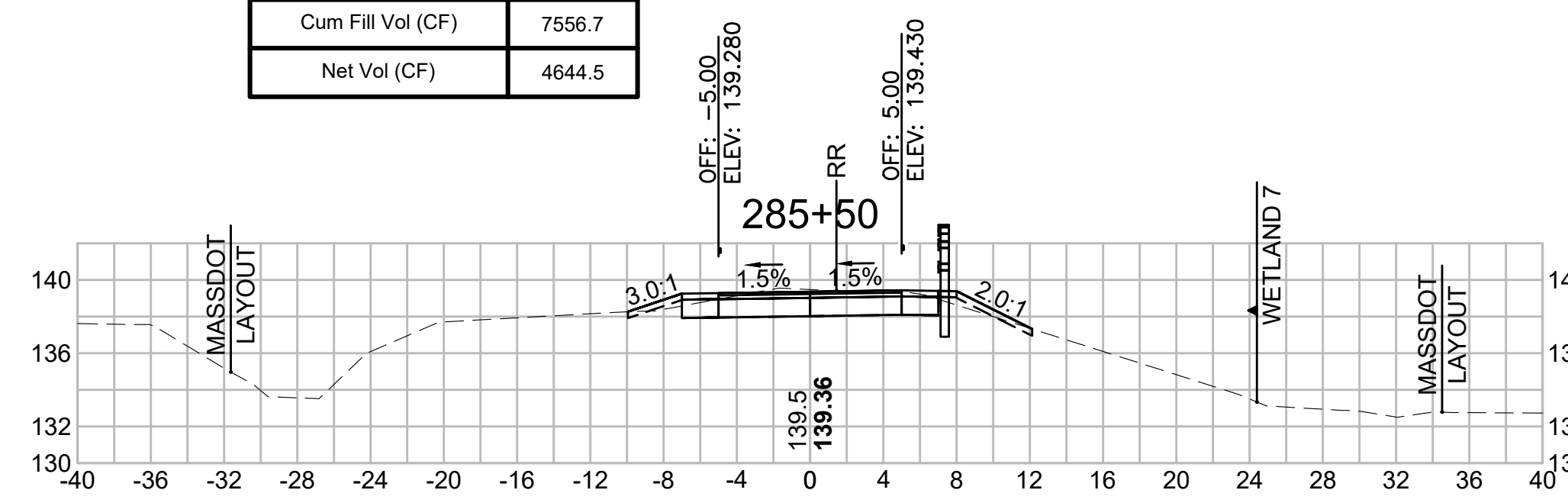
**Total Volume at Station 289+00.00**

Cut Area (SF)	5.738
Fill Area (SF)	4.803
Cut Vol (CF)	18.9
Fill Vol (CF)	10.3
Cum Cut Vol (CF)	12356.3
Cum Fill Vol (CF)	7613.2
Net Vol (CF)	4743.1



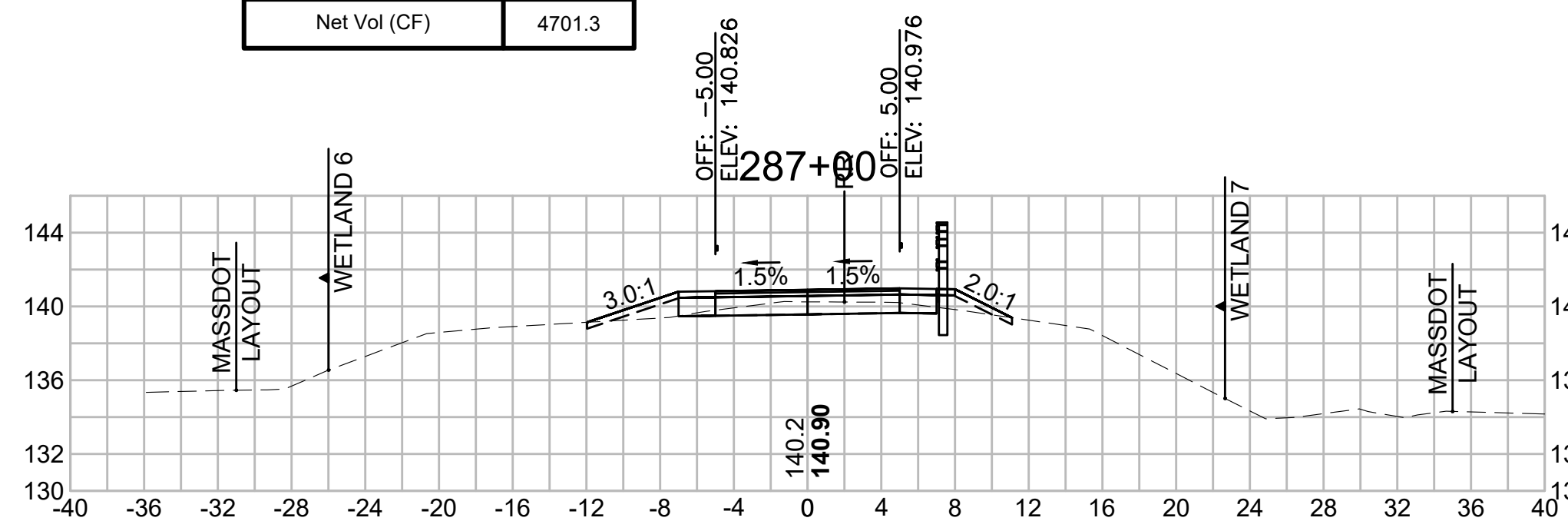
**Total Volume at Station 285+50.00**

Cut Area (SF)	19.066
Fill Area (SF)	3.194
Cut Vol (CF)	69.7
Fill Vol (CF)	8.1
Cum Cut Vol (CF)	12201.2
Cum Fill Vol (CF)	7556.7
Net Vol (CF)	4644.5



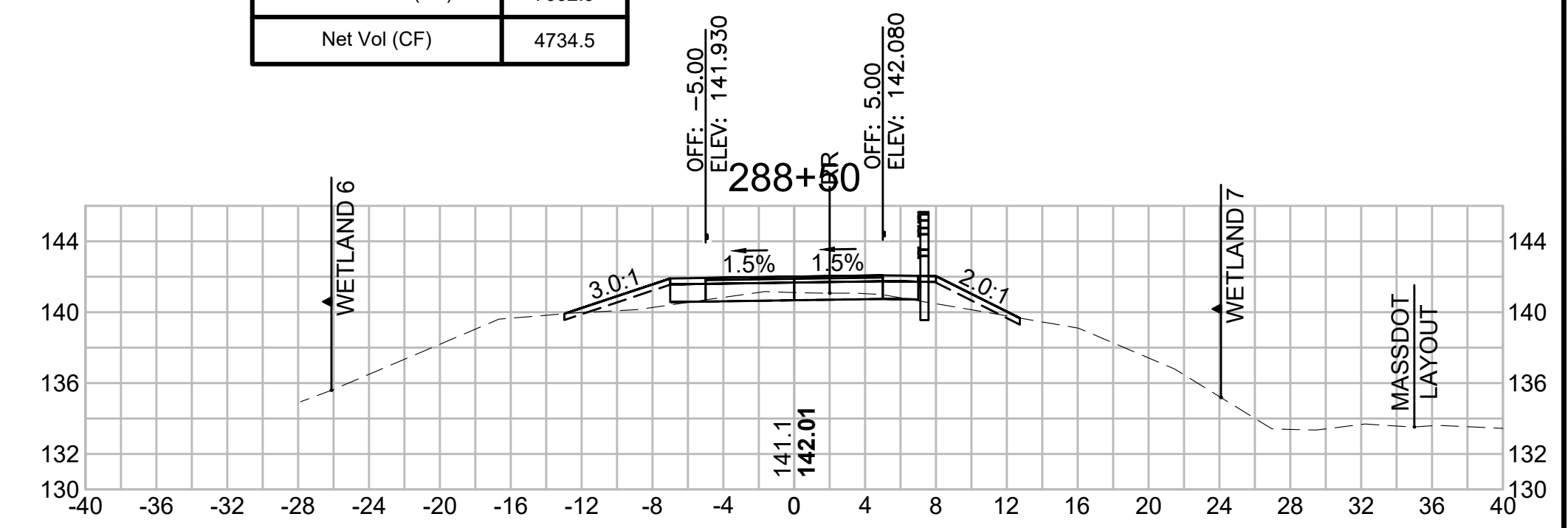
**Total Volume at Station 287+00.00**

Cut Area (SF)	8.206
Fill Area (SF)	3.343
Cut Vol (CF)	17.5
Fill Vol (CF)	5.4
Cum Cut Vol (CF)	12271.4
Cum Fill Vol (CF)	7570.2
Net Vol (CF)	4701.3



**Total Volume at Station 288+50.00**

Cut Area (SF)	14.651
Fill Area (SF)	6.327
Cut Vol (CF)	23.2
Fill Vol (CF)	11.7
Cum Cut Vol (CF)	12337.4
Cum Fill Vol (CF)	7602.9
Net Vol (CF)	4734.5



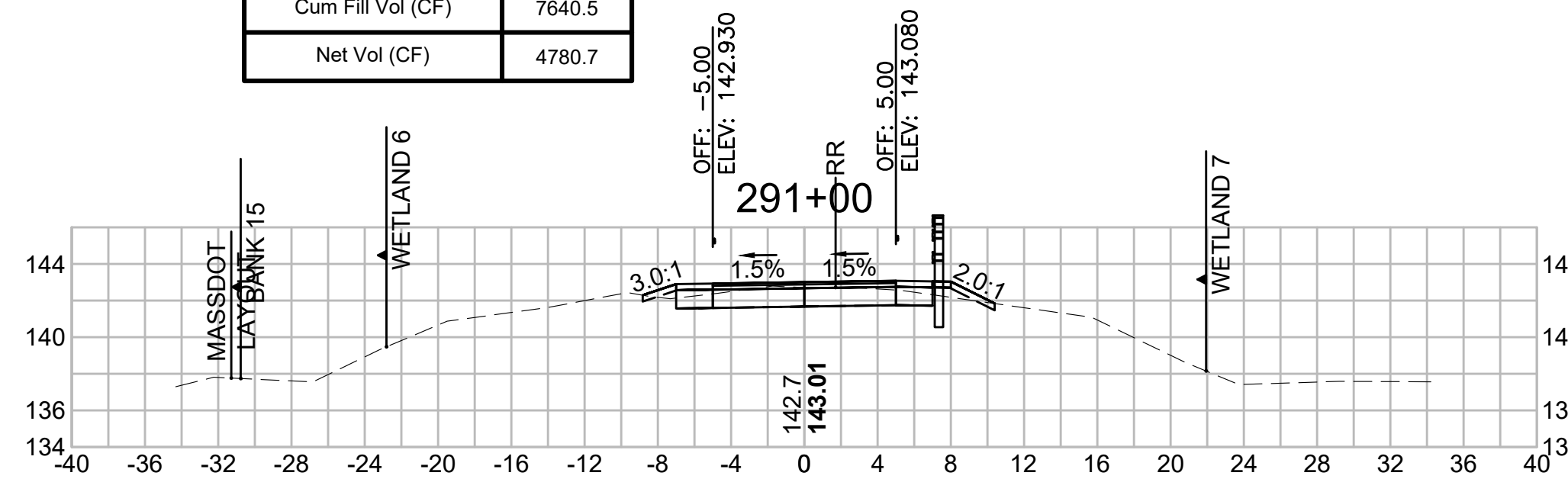
SUDBURY  
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	288	318
PROJECT FILE NO. 608164			

CROSS SECTIONS

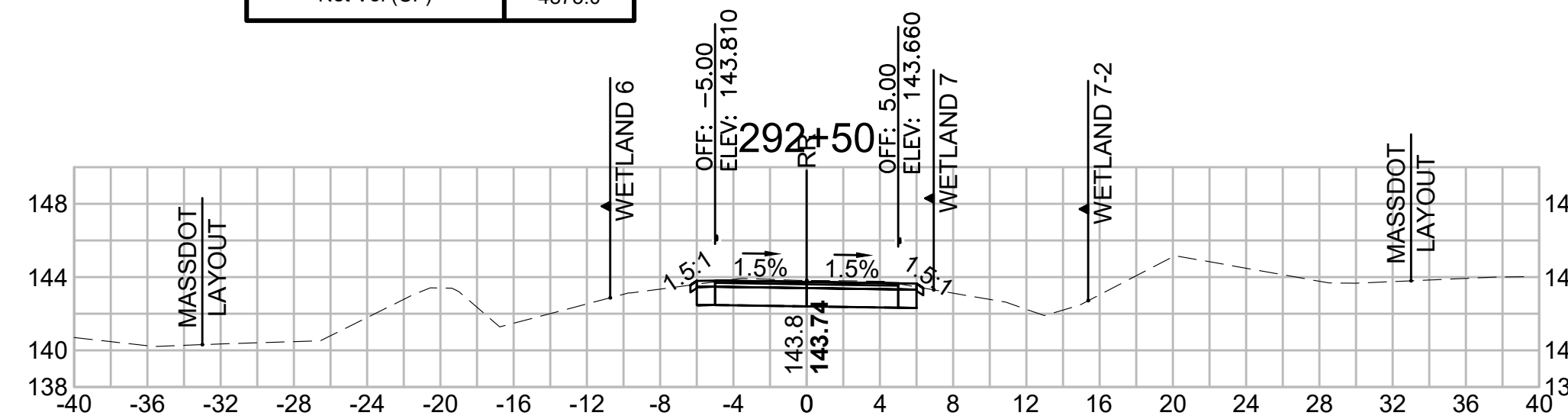
**Total Volume at Station 291+00.00**

Cut Area (SF)	13.191
Fill Area (SF)	1.057
Cut Vol (CF)	21.9
Fill Vol (CF)	2.3
Cum Cut Vol (CF)	12421.2
Cum Fill Vol (CF)	7640.5
Net Vol (CF)	4780.7



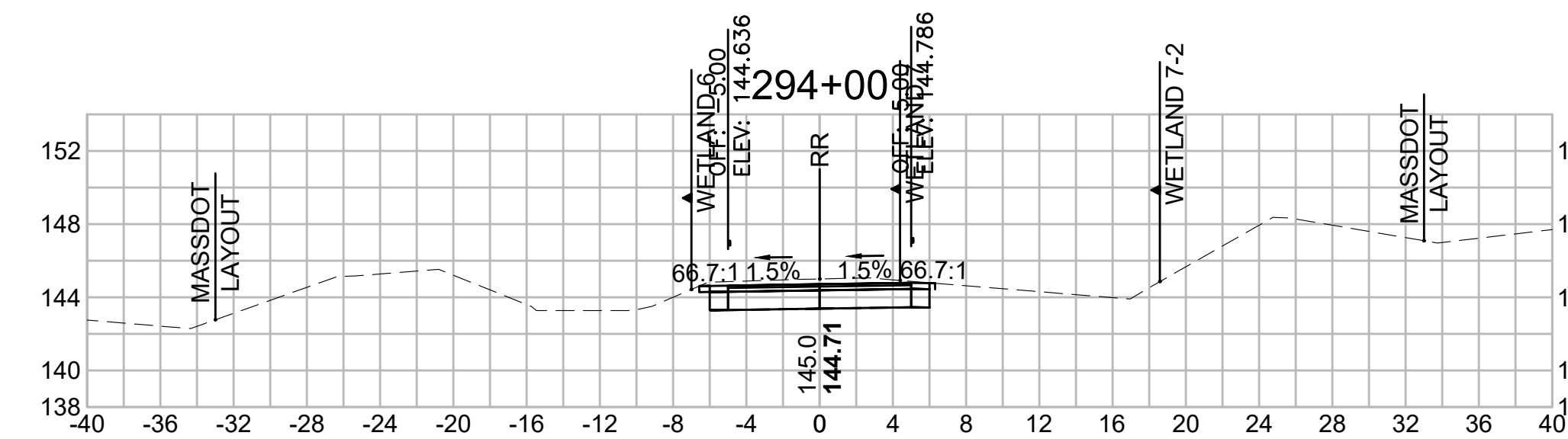
**Total Volume at Station 292+50.00**

Cut Area (SF)	17.578
Fill Area (SF)	0.237
Cut Vol (CF)	33.4
Fill Vol (CF)	0.3
Cum Cut Vol (CF)	12514.9
Cum Fill Vol (CF)	7641.9
Net Vol (CF)	4873.0



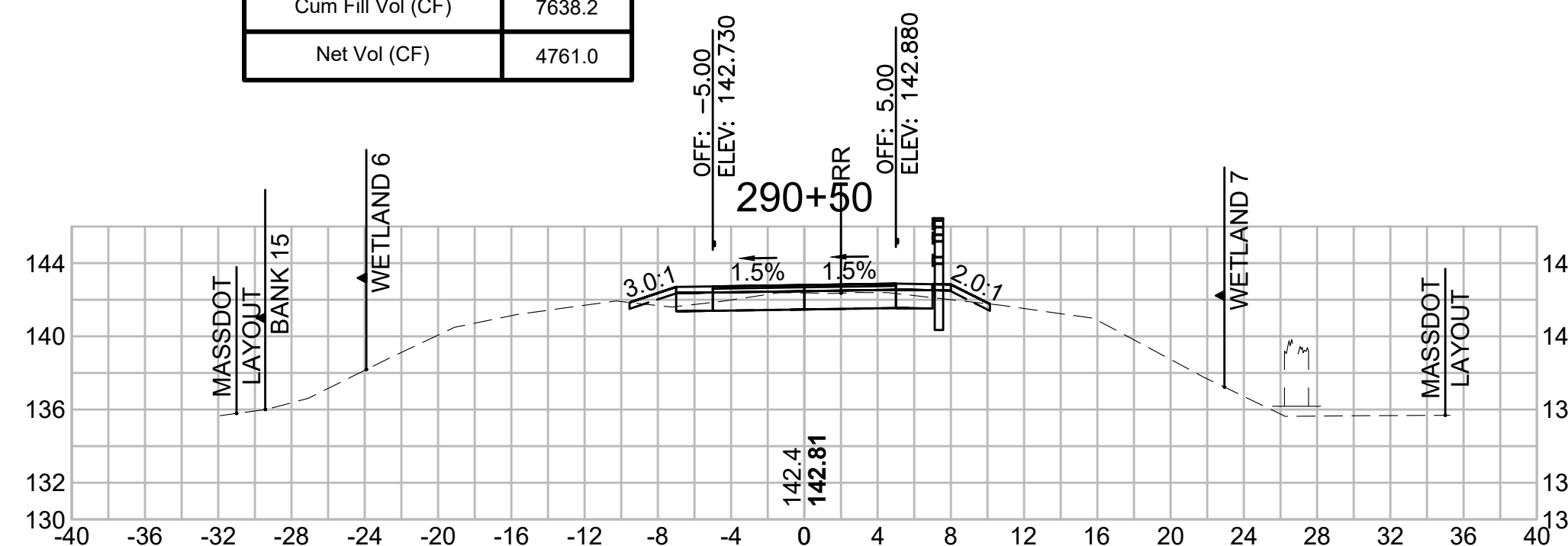
**Total Volume at Station 294+00.00**

Cut Area (SF)	18.901
Fill Area (SF)	0.000
Cut Vol (CF)	35.3
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	12617.6
Cum Fill Vol (CF)	7642.2
Net Vol (CF)	4975.4



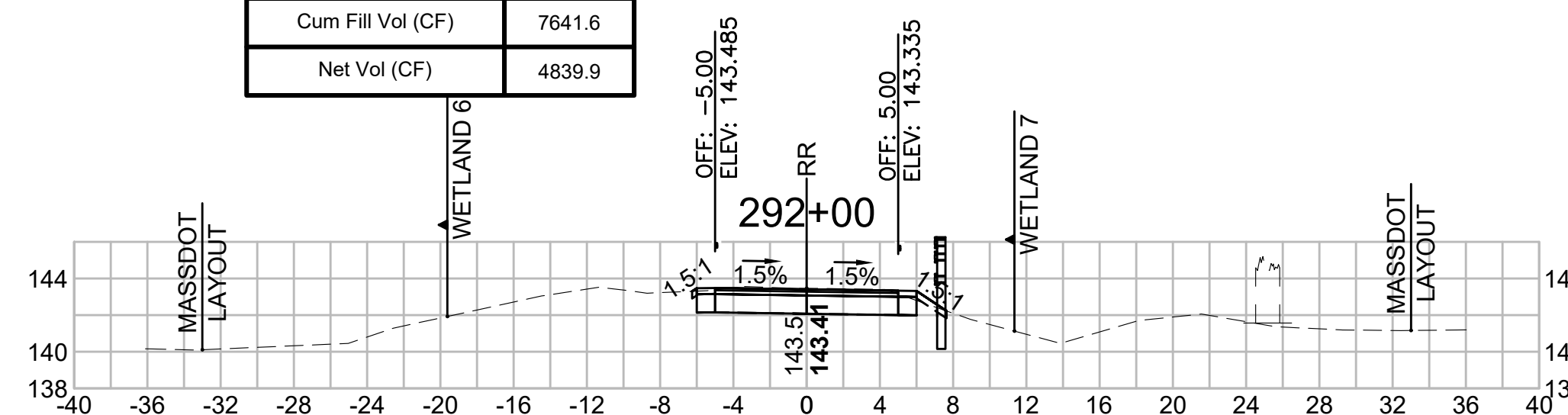
**Total Volume at Station 290+50.00**

Cut Area (SF)	10.501
Fill Area (SF)	1.398
Cut Vol (CF)	16.8
Fill Vol (CF)	7.9
Cum Cut Vol (CF)	12399.2
Cum Fill Vol (CF)	7638.2
Net Vol (CF)	4761.0



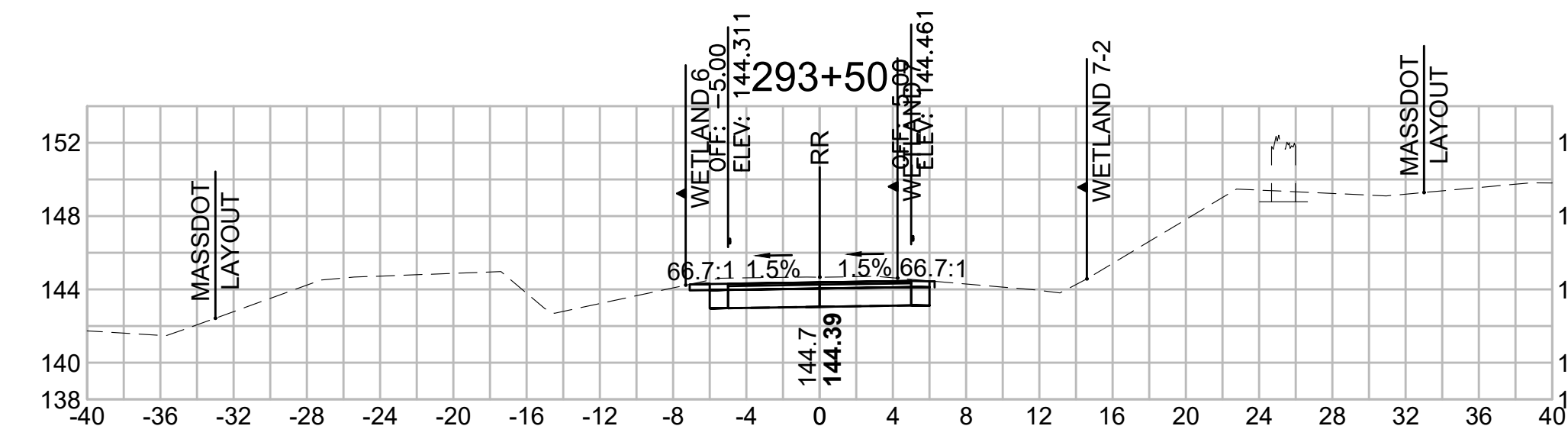
**Total Volume at Station 292+00.00**

Cut Area (SF)	18.450
Fill Area (SF)	0.117
Cut Vol (CF)	32.6
Fill Vol (CF)	0.1
Cum Cut Vol (CF)	12481.6
Cum Fill Vol (CF)	7641.6
Net Vol (CF)	4839.9



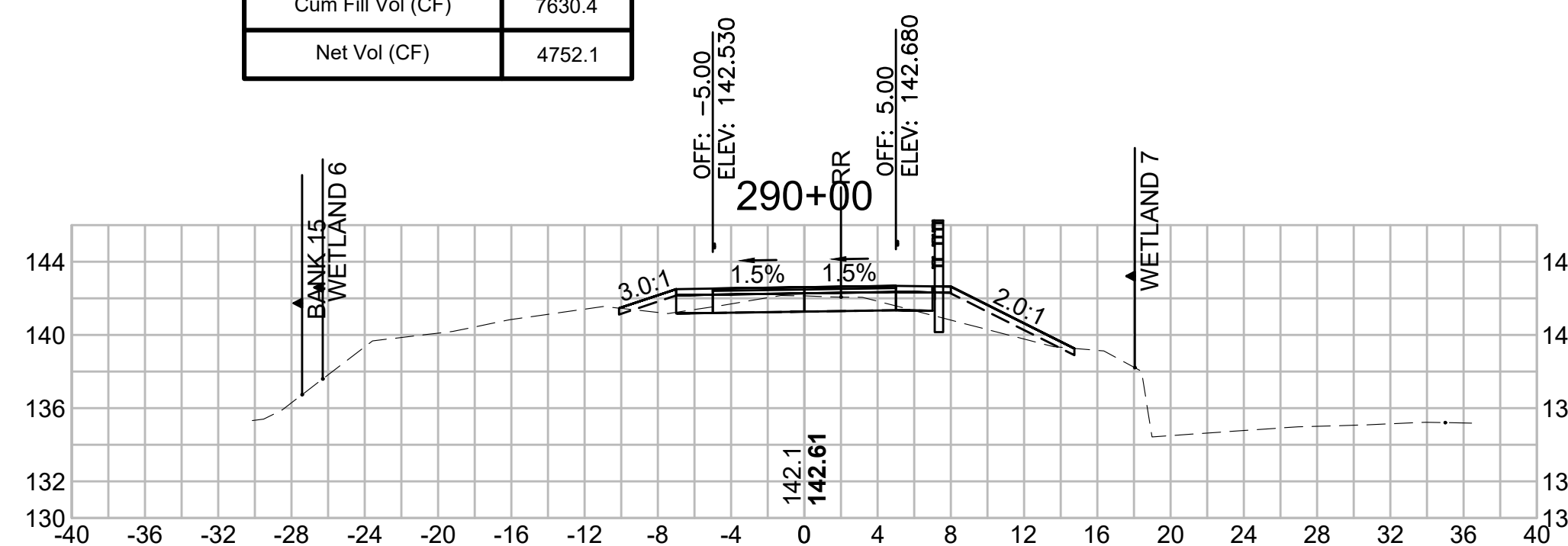
**Total Volume at Station 293+50.00**

Cut Area (SF)	19.180
Fill Area (SF)	0.000
Cut Vol (CF)	34.5
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	12582.3
Cum Fill Vol (CF)	7642.2
Net Vol (CF)	4940.2



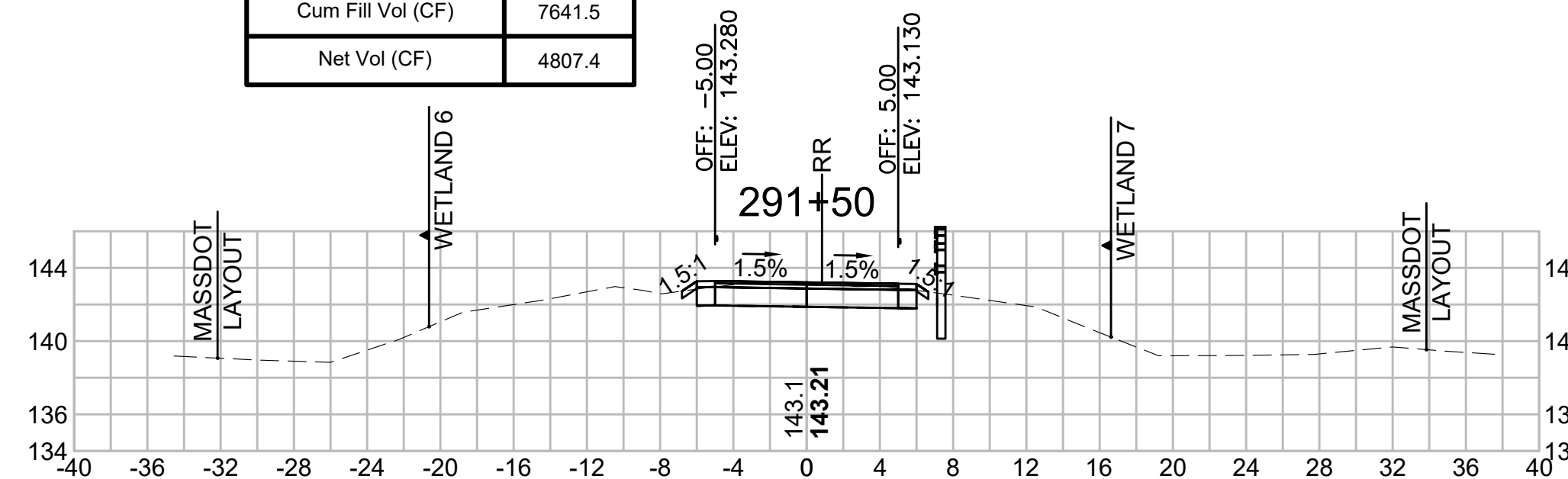
**Total Volume at Station 290+00.00**

Cut Area (SF)	7.605
Fill Area (SF)	7.084
Cut Vol (CF)	14.0
Fill Vol (CF)	9.7
Cum Cut Vol (CF)	12382.5
Cum Fill Vol (CF)	7630.4
Net Vol (CF)	4752.1



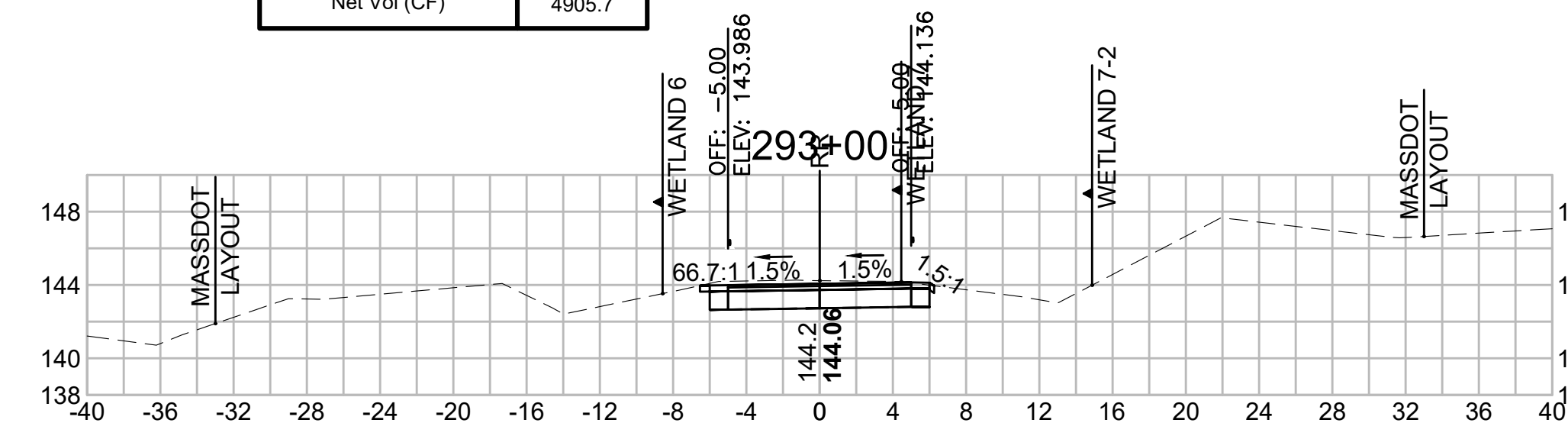
**Total Volume at Station 291+50.00**

Cut Area (SF)	16.789
Fill Area (SF)	0.009
Cut Vol (CF)	27.8
Fill Vol (CF)	1.0
Cum Cut Vol (CF)	12448.9
Cum Fill Vol (CF)	7641.5
Net Vol (CF)	4807.4



**Total Volume at Station 293+00.00**

Cut Area (SF)	18.034
Fill Area (SF)	0.000
Cut Vol (CF)	33.0
Fill Vol (CF)	0.2
Cum Cut Vol (CF)	12547.9
Cum Fill Vol (CF)	7642.2
Net Vol (CF)	4905.7



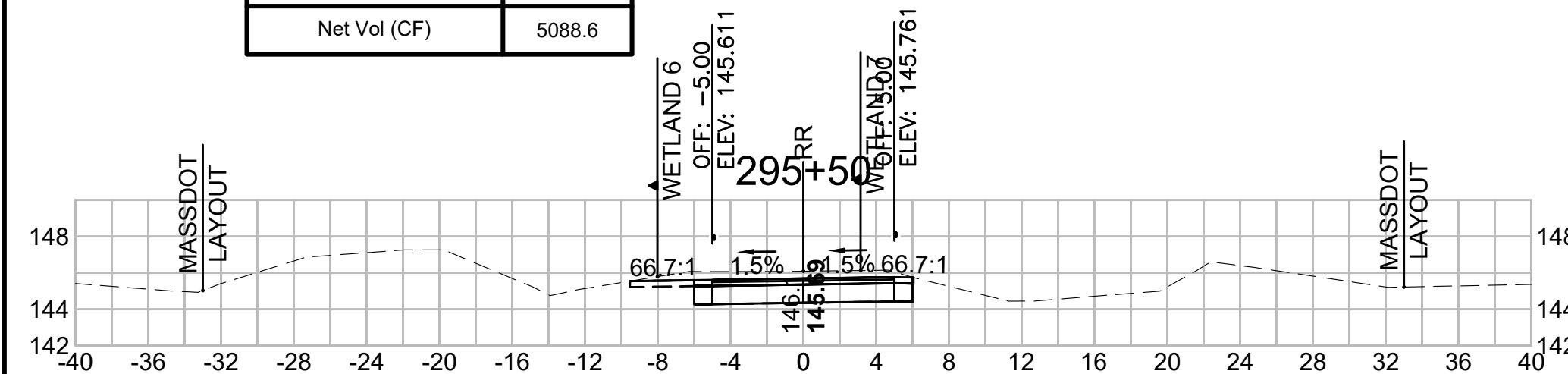
SUDBURY  
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	289	318

CROSS SECTIONS

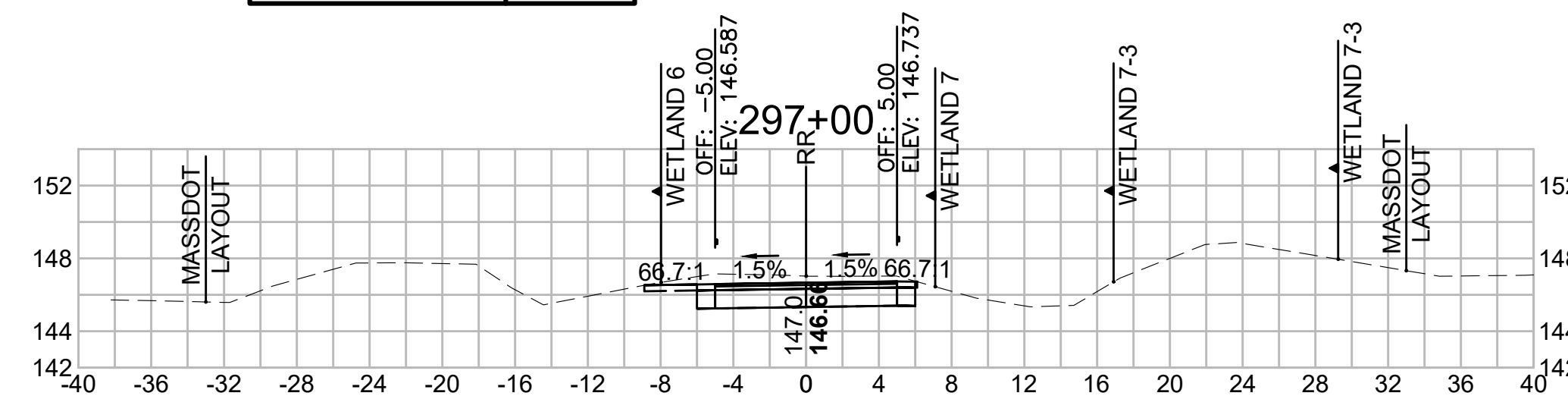
**Total Volume at Station 295+50.00**

Cut Area (SF)	21.623
Fill Area (SF)	0.000
Cut Vol (CF)	39.4
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	12730.8
Cum Fill Vol (CF)	7642.2
Net Vol (CF)	5088.6



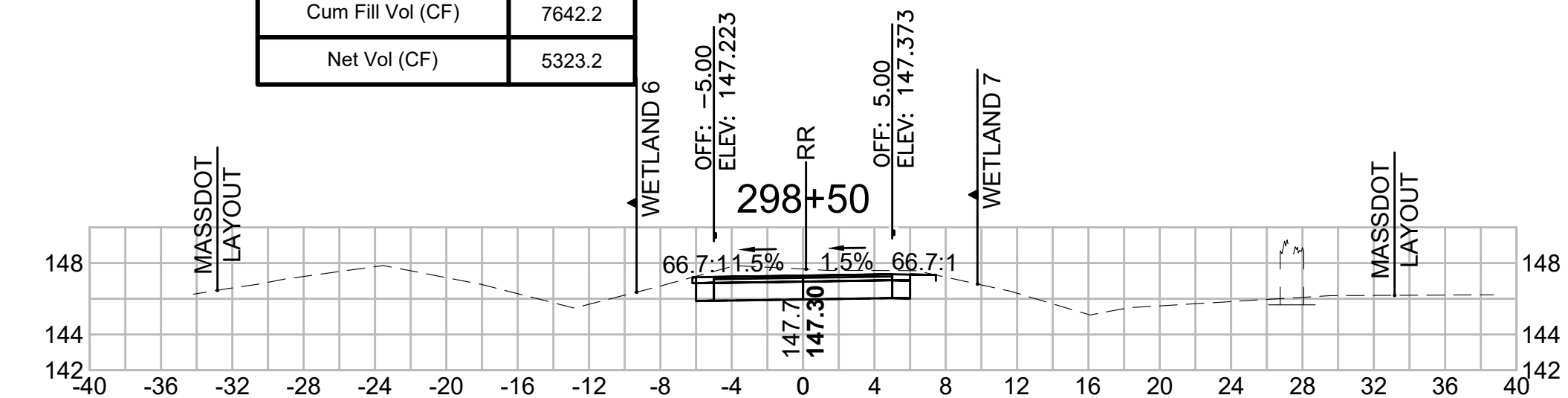
**Total Volume at Station 297+00.00**

Cut Area (SF)	21.291
Fill Area (SF)	0.000
Cut Vol (CF)	39.6
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	12850.3
Cum Fill Vol (CF)	7642.2
Net Vol (CF)	5208.1



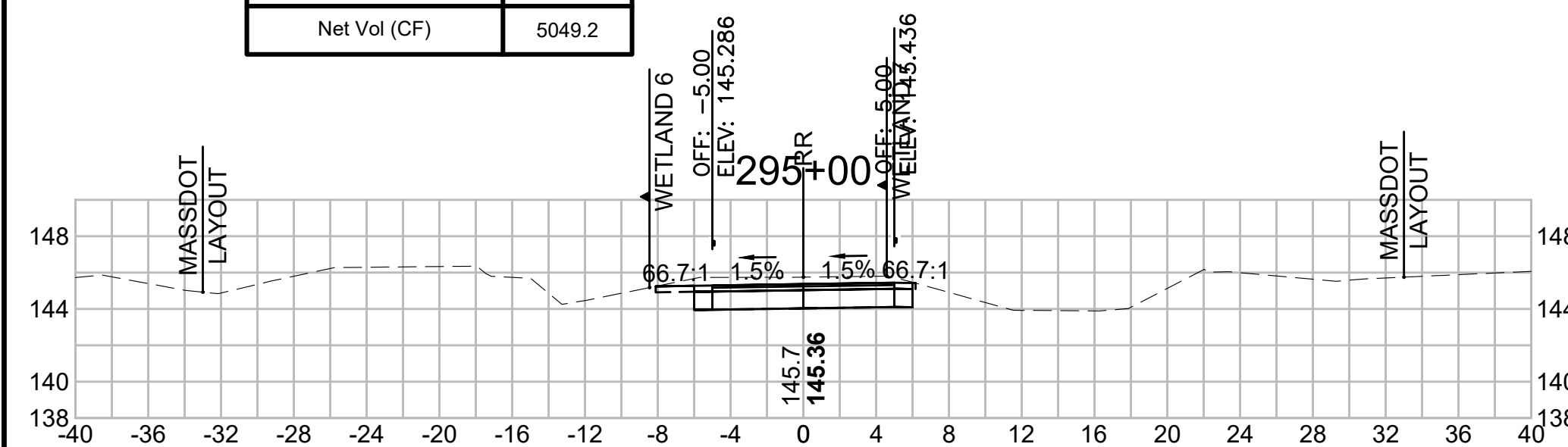
**Total Volume at Station 298+50.00**

Cut Area (SF)	20.486
Fill Area (SF)	0.000
Cut Vol (CF)	38.8
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	12965.4
Cum Fill Vol (CF)	7642.2
Net Vol (CF)	5323.2



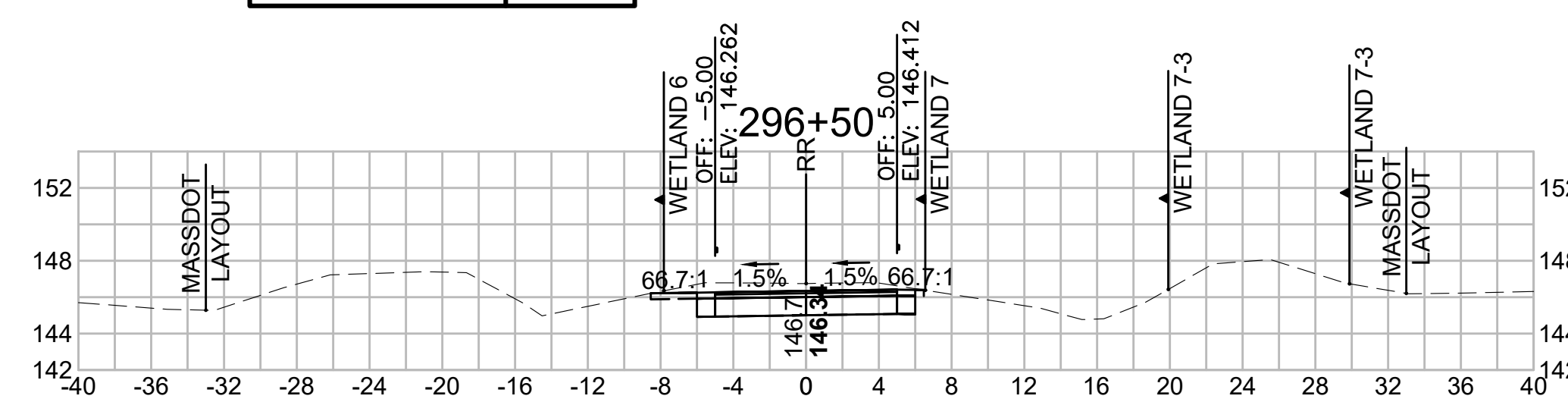
**Total Volume at Station 295+00.00**

Cut Area (SF)	20.951
Fill Area (SF)	0.000
Cut Vol (CF)	37.8
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	12691.4
Cum Fill Vol (CF)	7642.2
Net Vol (CF)	5049.2



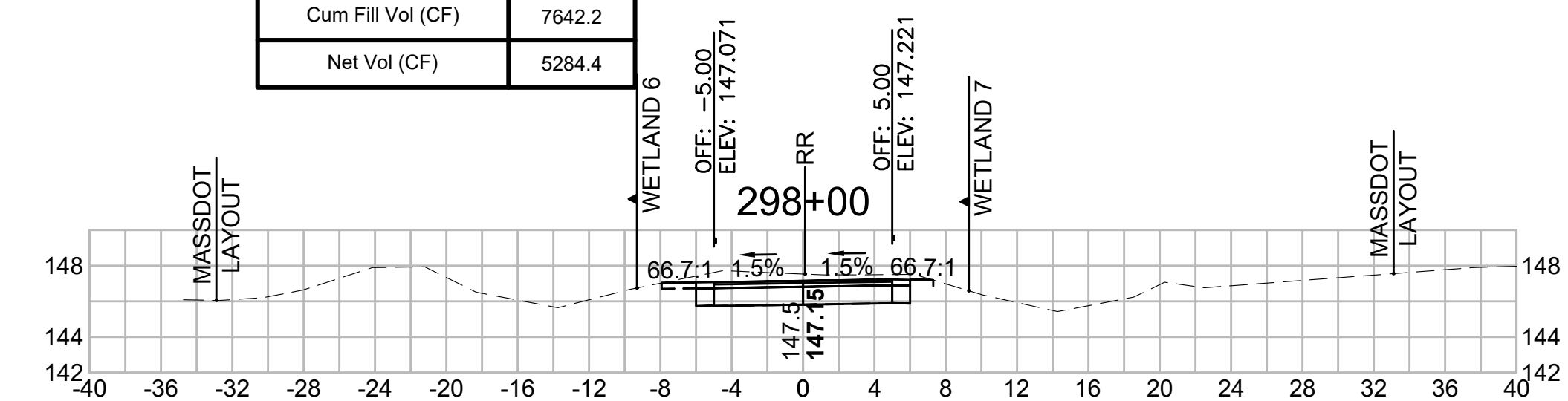
**Total Volume at Station 296+50.00**

Cut Area (SF)	21.515
Fill Area (SF)	0.000
Cut Vol (CF)	39.9
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	12810.7
Cum Fill Vol (CF)	7642.2
Net Vol (CF)	5168.5



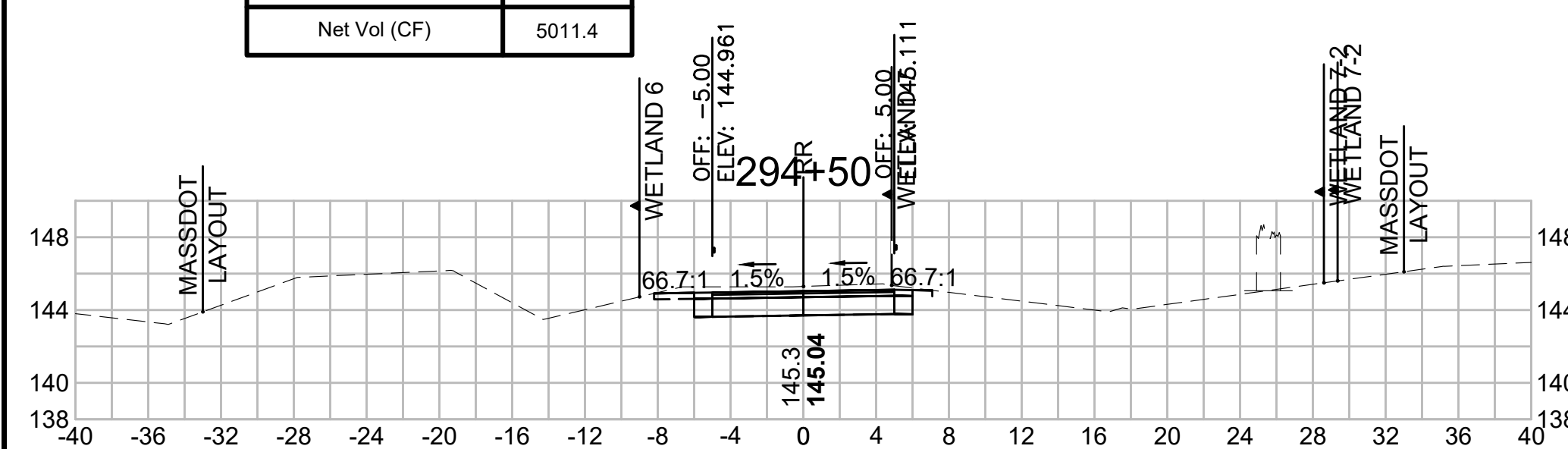
**Total Volume at Station 298+00.00**

Cut Area (SF)	21.465
Fill Area (SF)	0.000
Cut Vol (CF)	38.2
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	12926.5
Cum Fill Vol (CF)	7642.2
Net Vol (CF)	5284.4



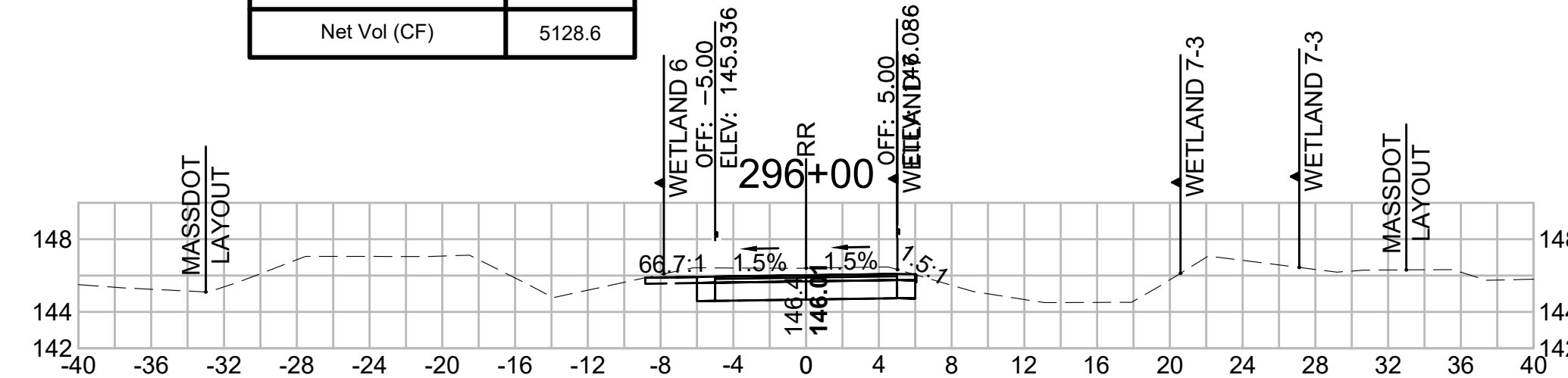
**Total Volume at Station 294+50.00**

Cut Area (SF)	19.901
Fill Area (SF)	0.000
Cut Vol (CF)	35.9
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	12653.5
Cum Fill Vol (CF)	7642.2
Net Vol (CF)	5011.4



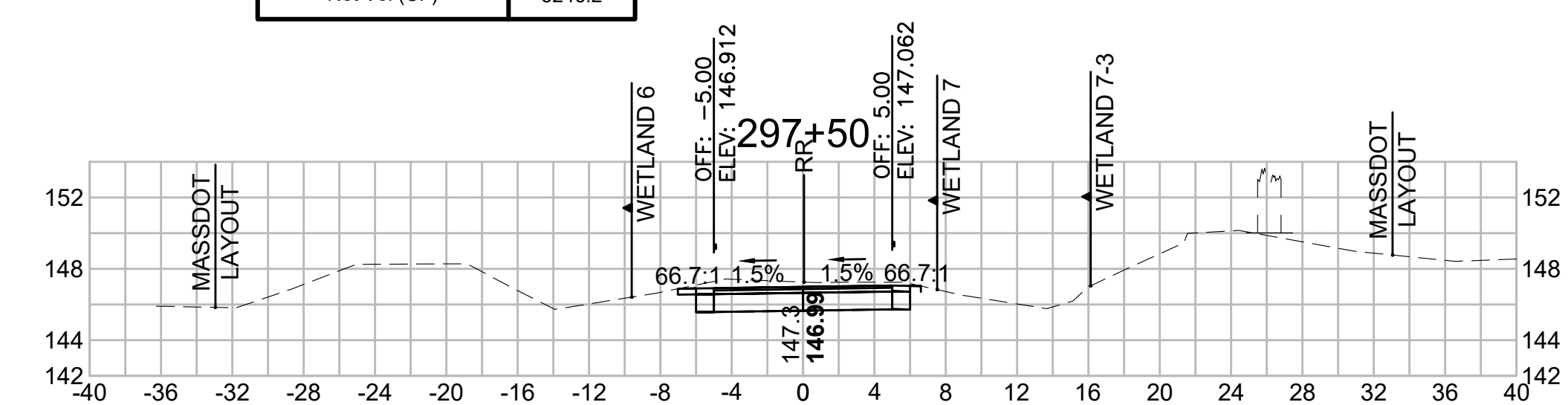
**Total Volume at Station 296+00.00**

Cut Area (SF)	21.562
Fill Area (SF)	0.000
Cut Vol (CF)	40.0
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	12770.8
Cum Fill Vol (CF)	7642.2
Net Vol (CF)	5128.6



**Total Volume at Station 297+50.00**

Cut Area (SF)	19.792
Fill Area (SF)	0.000
Cut Vol (CF)	38.0
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	12888.3
Cum Fill Vol (CF)	7642.2
Net Vol (CF)	5246.2



SUDBURY  
BRUCE FREEMAN RAIL TRAIL

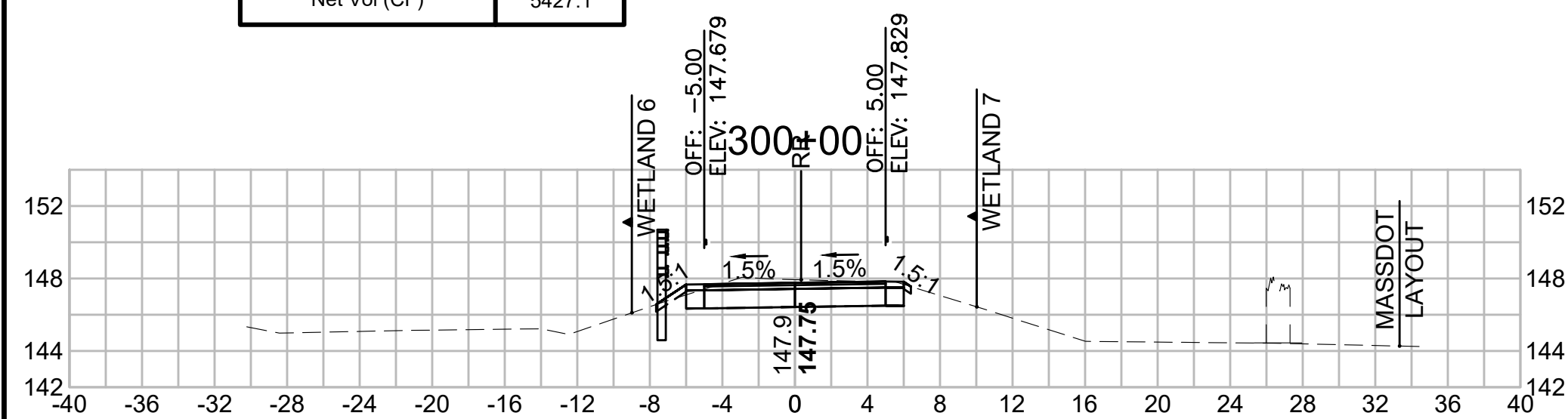
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	290	318

PROJECT FILE NO. 608164

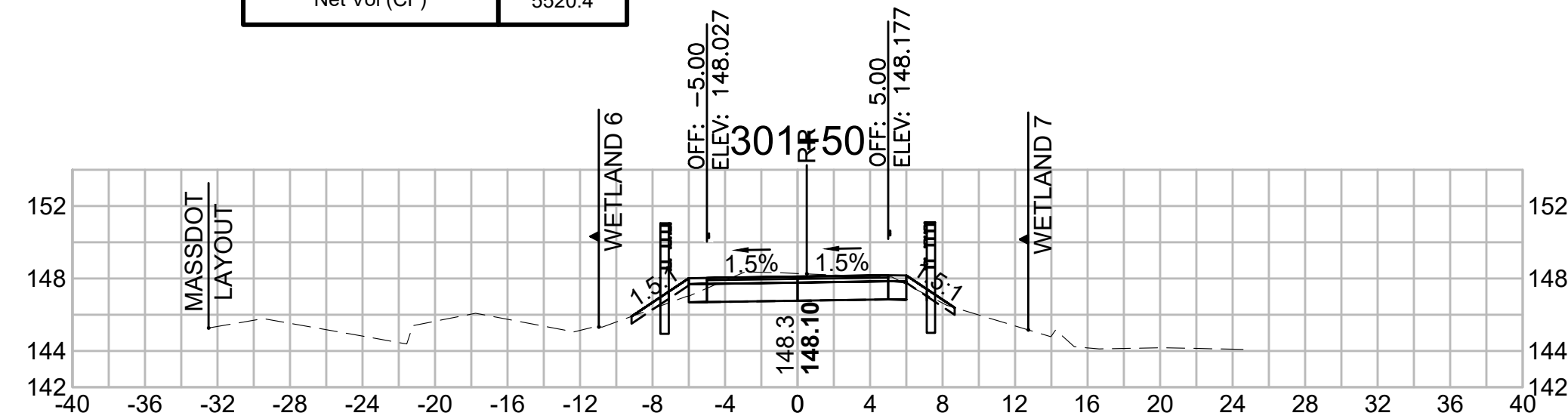
CROSS SECTIONS

608164\_XSEC(CROSS SECTION LAYOUTS).DWG 12-May-2021

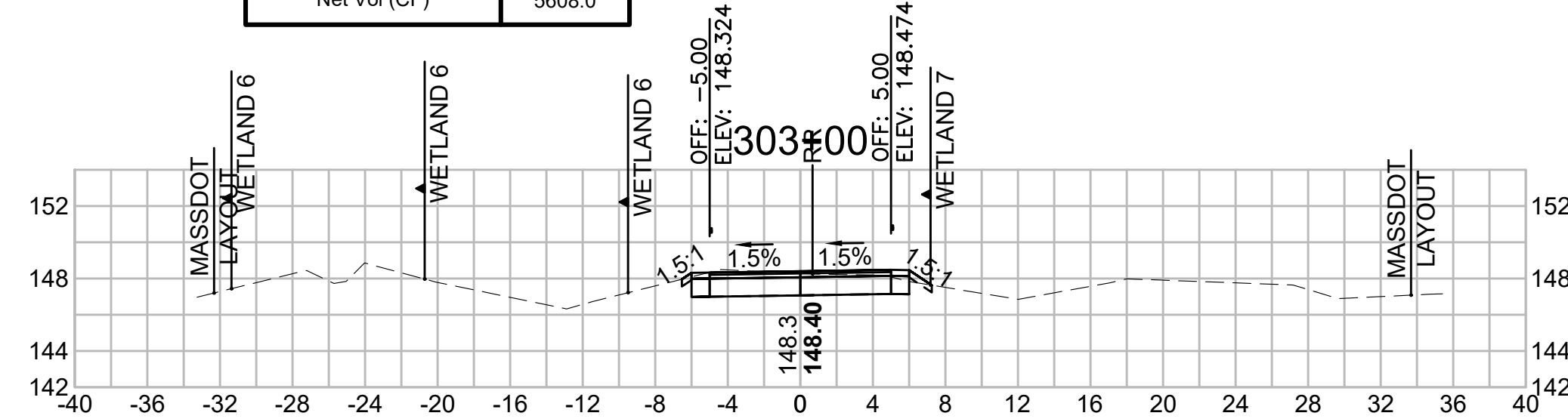
Total Volume at Station 300+00.00	
Cut Area (SF)	17.154
Fill Area (SF)	0.043
Cut Vol (CF)	32.7
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	13069.3
Cum Fill Vol (CF)	7642.2
Net Vol (CF)	5427.1



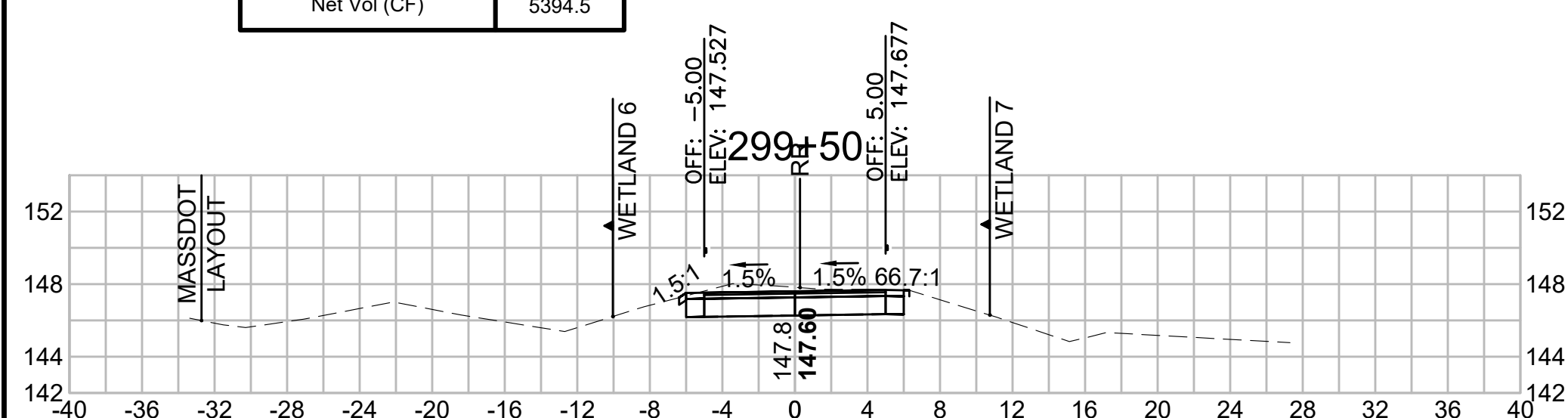
Total Volume at Station 301+50.00	
Cut Area (SF)	16.144
Fill Area (SF)	0.556
Cut Vol (CF)	30.8
Fill Vol (CF)	0.6
Cum Cut Vol (CF)	13163.4
Cum Fill Vol (CF)	7643.0
Net Vol (CF)	5520.4



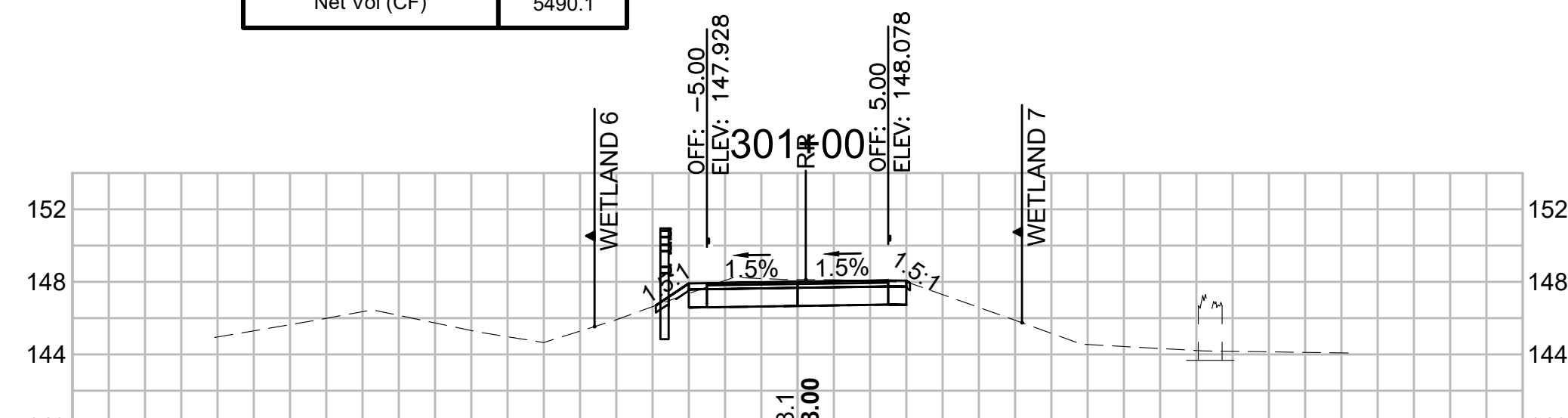
Total Volume at Station 303+00.00	
Cut Area (SF)	14.693
Fill Area (SF)	0.053
Cut Vol (CF)	28.2
Fill Vol (CF)	0.1
Cum Cut Vol (CF)	13251.7
Cum Fill Vol (CF)	7643.8
Net Vol (CF)	5608.0



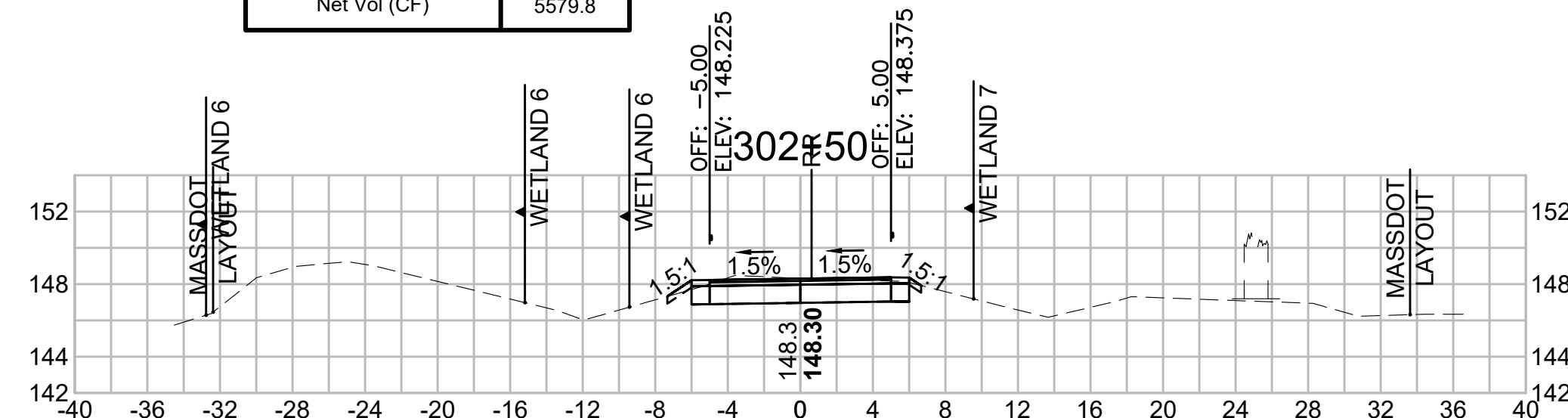
Total Volume at Station 299+50.00	
Cut Area (SF)	18.190
Fill Area (SF)	0.000
Cut Vol (CF)	34.6
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	13036.6
Cum Fill Vol (CF)	7642.2
Net Vol (CF)	5394.5



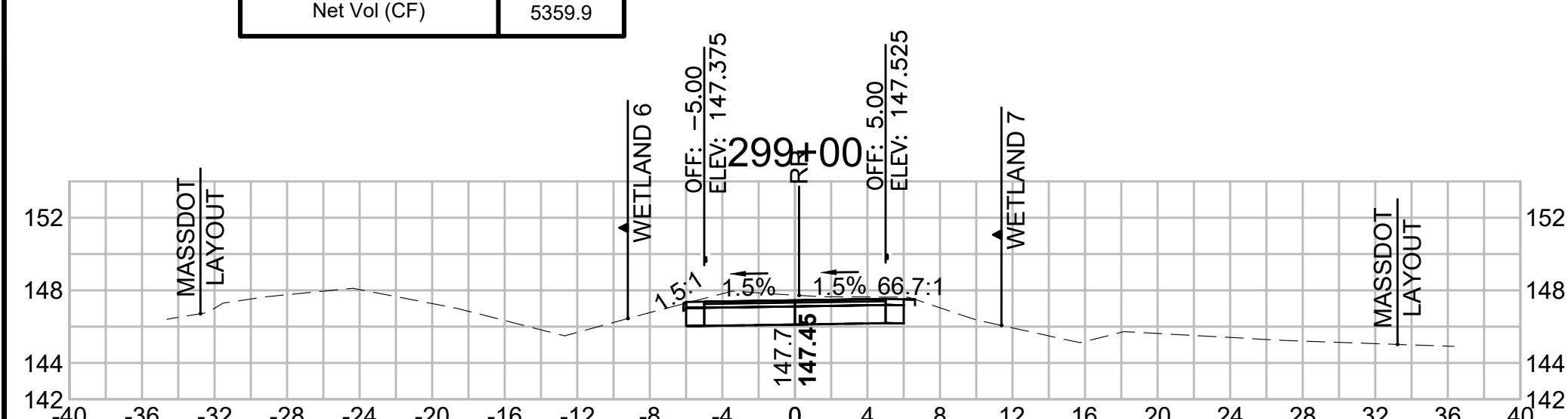
Total Volume at Station 301+00.00	
Cut Area (SF)	17.105
Fill Area (SF)	0.042
Cut Vol (CF)	31.6
Fill Vol (CF)	0.1
Cum Cut Vol (CF)	13132.6
Cum Fill Vol (CF)	7642.5
Net Vol (CF)	5490.1



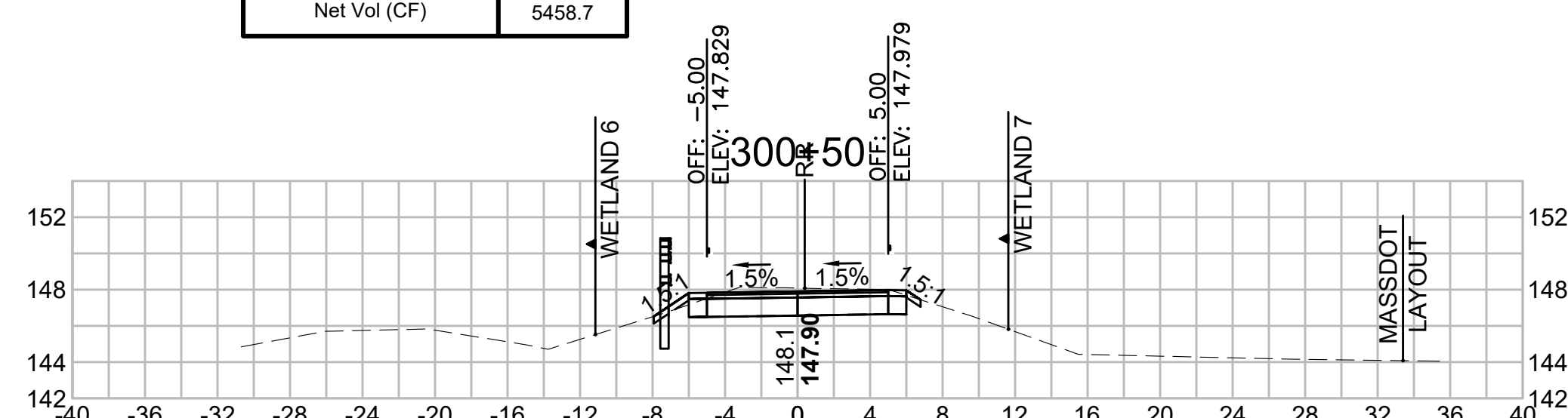
Total Volume at Station 302+50.00	
Cut Area (SF)	15.798
Fill Area (SF)	0.017
Cut Vol (CF)	29.9
Fill Vol (CF)	0.1
Cum Cut Vol (CF)	13223.5
Cum Fill Vol (CF)	7643.7
Net Vol (CF)	5579.8



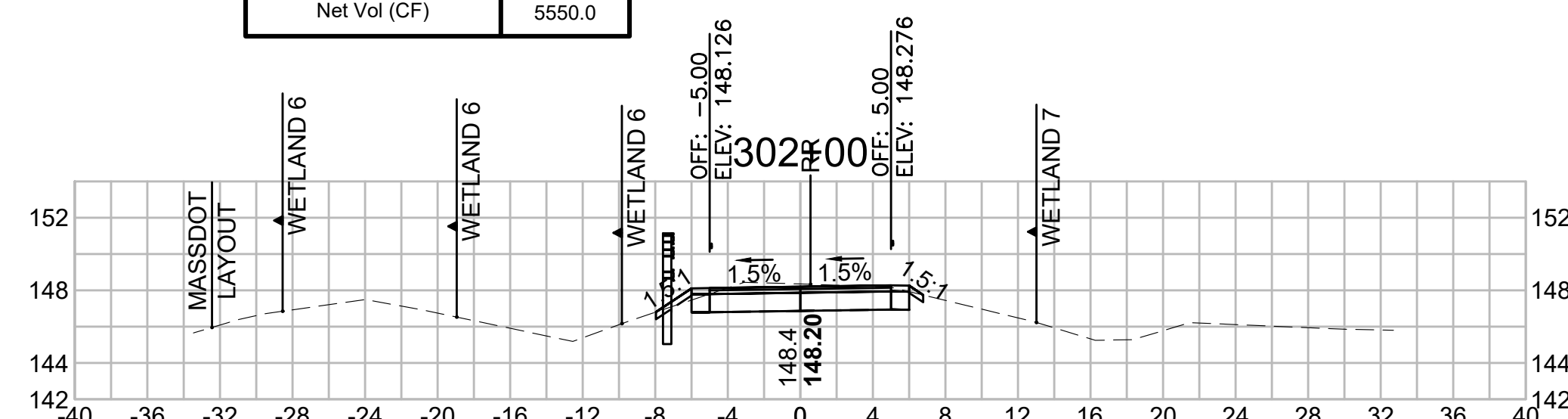
Total Volume at Station 299+00.00	
Cut Area (SF)	19.134
Fill Area (SF)	0.000
Cut Vol (CF)	36.7
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	13002.1
Cum Fill Vol (CF)	7642.2
Net Vol (CF)	5359.9



Total Volume at Station 300+50.00	
Cut Area (SF)	17.029
Fill Area (SF)	0.093
Cut Vol (CF)	31.7
Fill Vol (CF)	0.1
Cum Cut Vol (CF)	13101.0
Cum Fill Vol (CF)	7642.3
Net Vol (CF)	5458.7



Total Volume at Station 302+00.00	
Cut Area (SF)	16.496
Fill Area (SF)	0.094
Cut Vol (CF)	30.2
Fill Vol (CF)	0.6
Cum Cut Vol (CF)	13193.6
Cum Fill Vol (CF)	7643.6
Net Vol (CF)	5550.0



SUDBURY  
BRUCE FREEMAN RAIL TRAIL

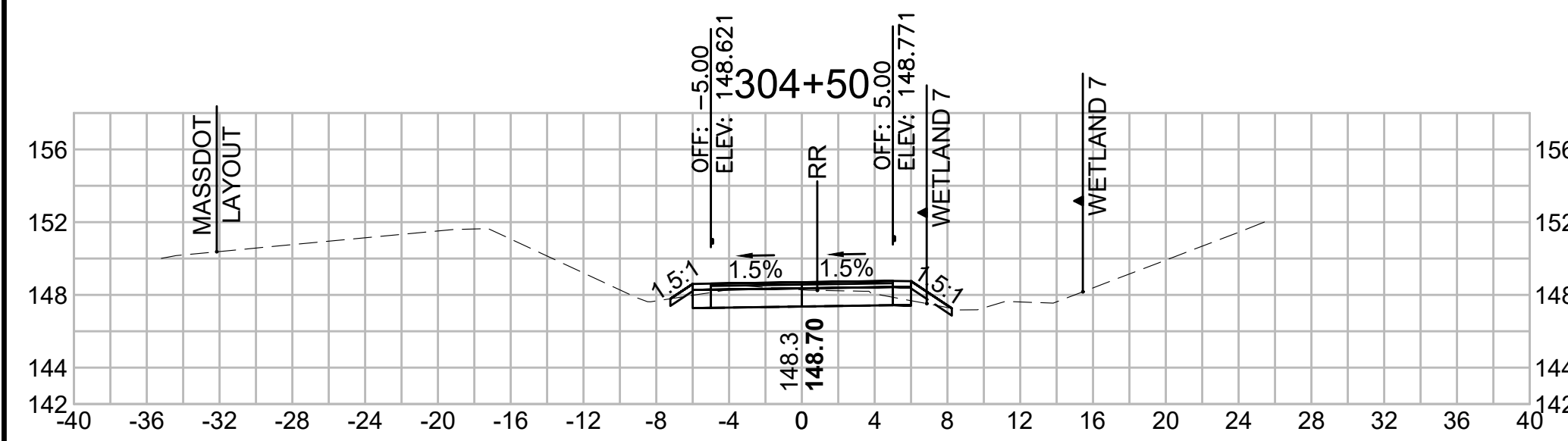
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	291	318

PROJECT FILE NO. 608164

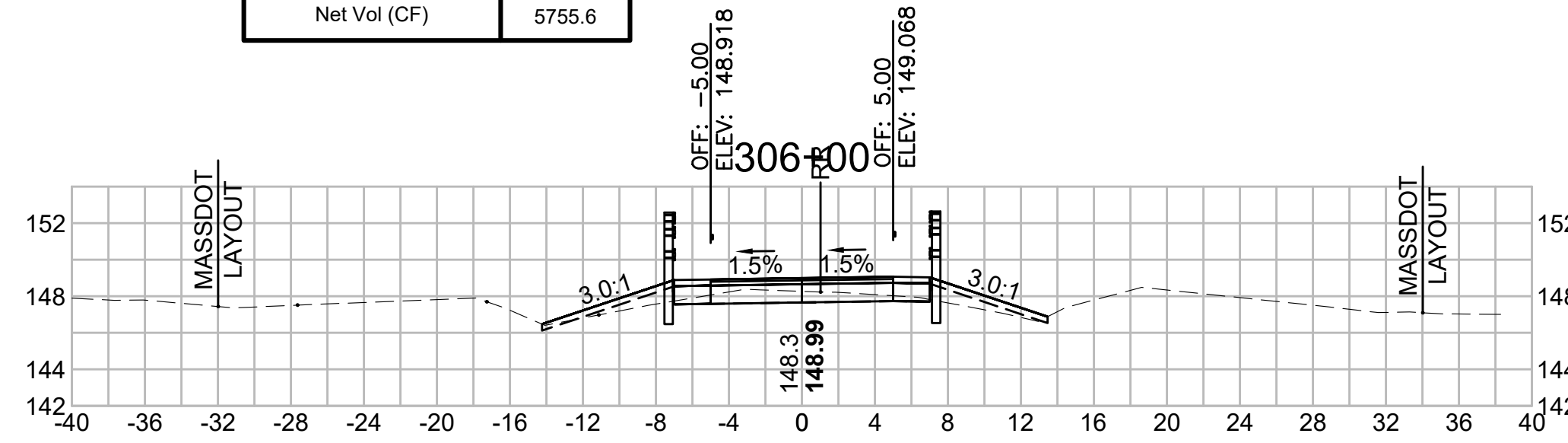
CROSS SECTIONS

608164\_XSEC(CROSS SECTION LAYOUTS).DWG 12-May-2021

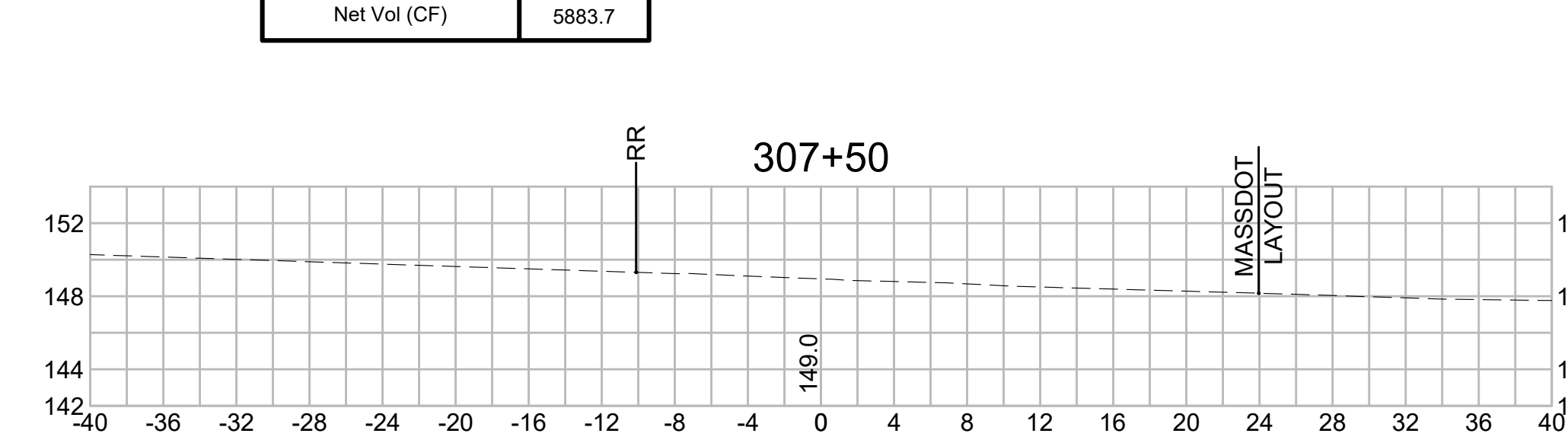
Total Volume at Station 304+50.00	
Cut Area (SF)	12.586
Fill Area (SF)	0.527
Cut Vol (CF)	22.6
Fill Vol (CF)	0.5
Cum Cut Vol (CF)	13323.2
Cum Fill Vol (CF)	7644.5
Net Vol (CF)	5678.7



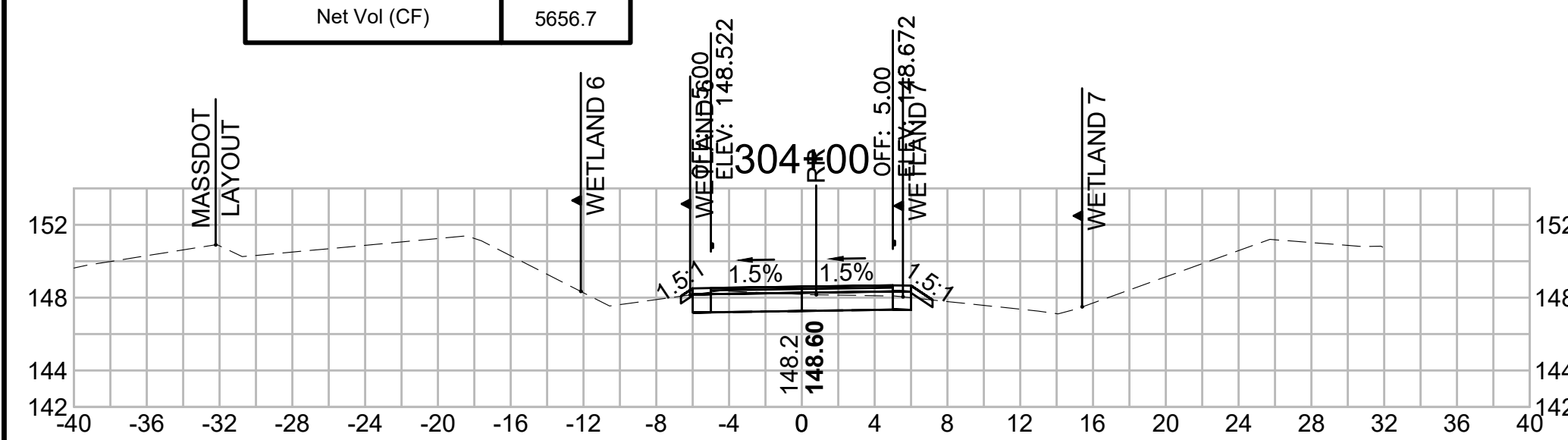
Total Volume at Station 306+00.00	
Cut Area (SF)	14.361
Fill Area (SF)	4.761
Cut Vol (CF)	29.7
Fill Vol (CF)	8.9
Cum Cut Vol (CF)	13414.4
Cum Fill Vol (CF)	7658.8
Net Vol (CF)	5755.6



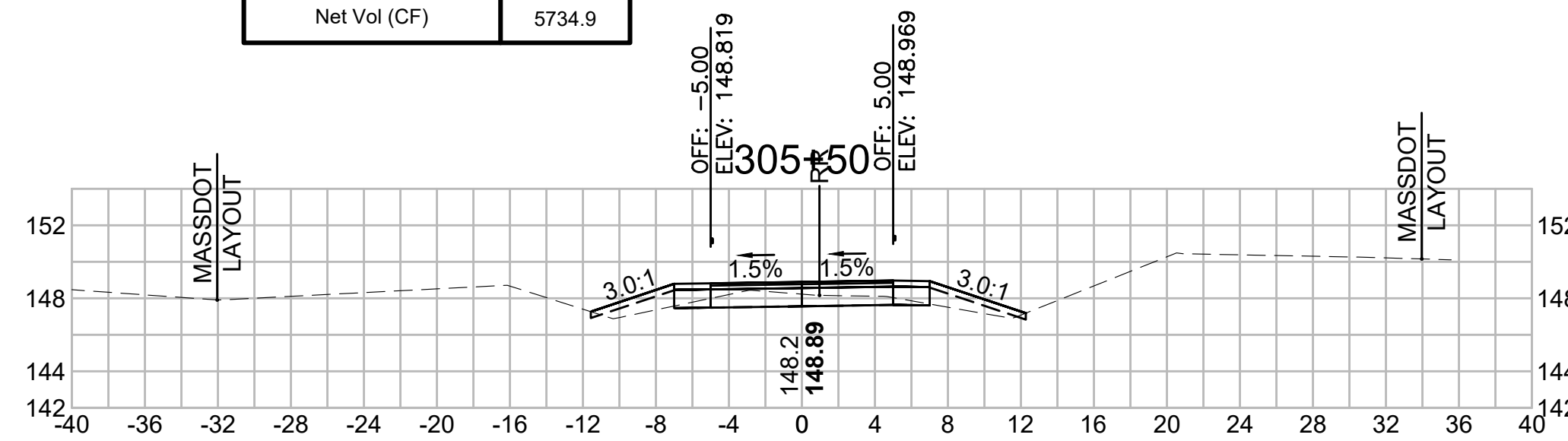
Total Volume at Station 307+50.00	
Cut Area (SF)	80.230
Fill Area (SF)	0.000
Cut Vol (CF)	100.9
Fill Vol (CF)	12.2
Cum Cut Vol (CF)	13580.5
Cum Fill Vol (CF)	7696.8
Net Vol (CF)	5883.7



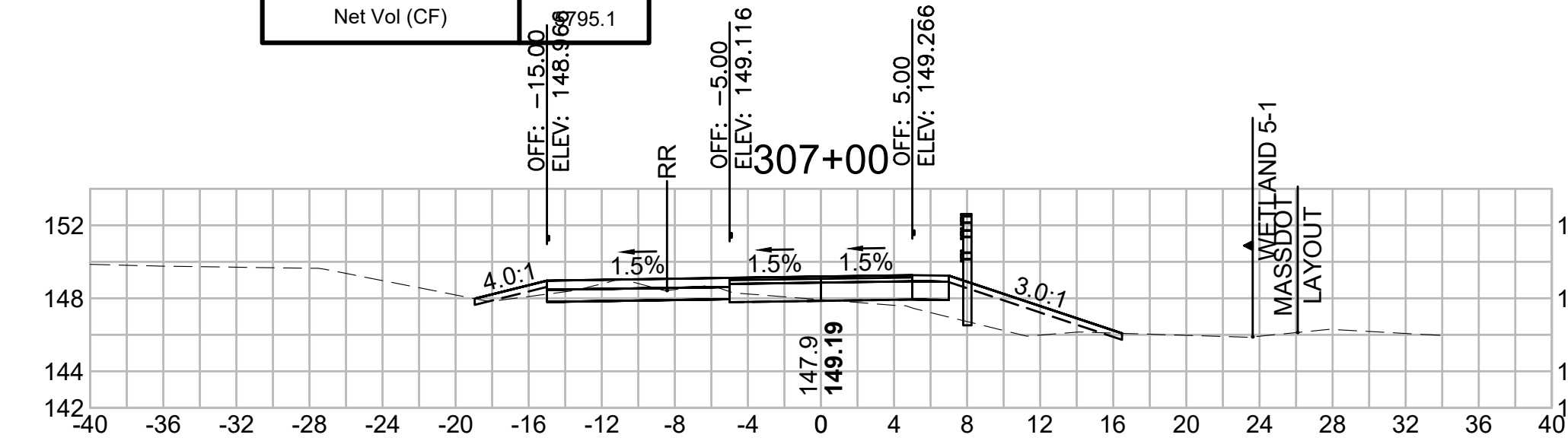
Total Volume at Station 304+00.00	
Cut Area (SF)	11.791
Fill Area (SF)	0.064
Cut Vol (CF)	23.1
Fill Vol (CF)	0.1
Cum Cut Vol (CF)	13300.6
Cum Fill Vol (CF)	7643.9
Net Vol (CF)	5656.7



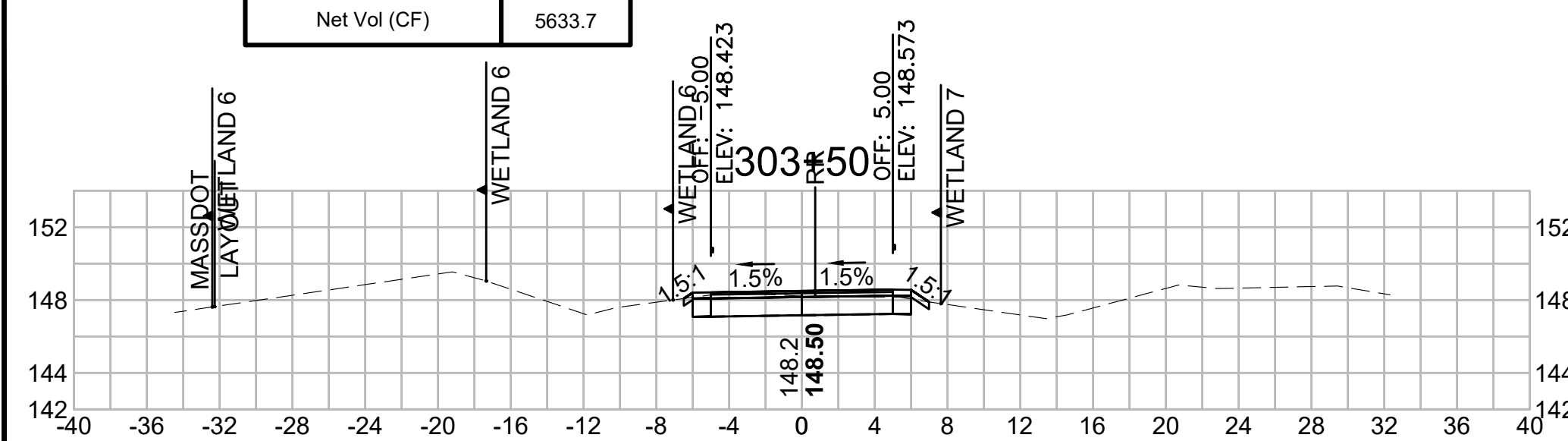
Total Volume at Station 305+50.00	
Cut Area (SF)	17.675
Fill Area (SF)	4.848
Cut Vol (CF)	33.1
Fill Vol (CF)	4.7
Cum Cut Vol (CF)	13384.8
Cum Fill Vol (CF)	7649.9
Net Vol (CF)	5734.9



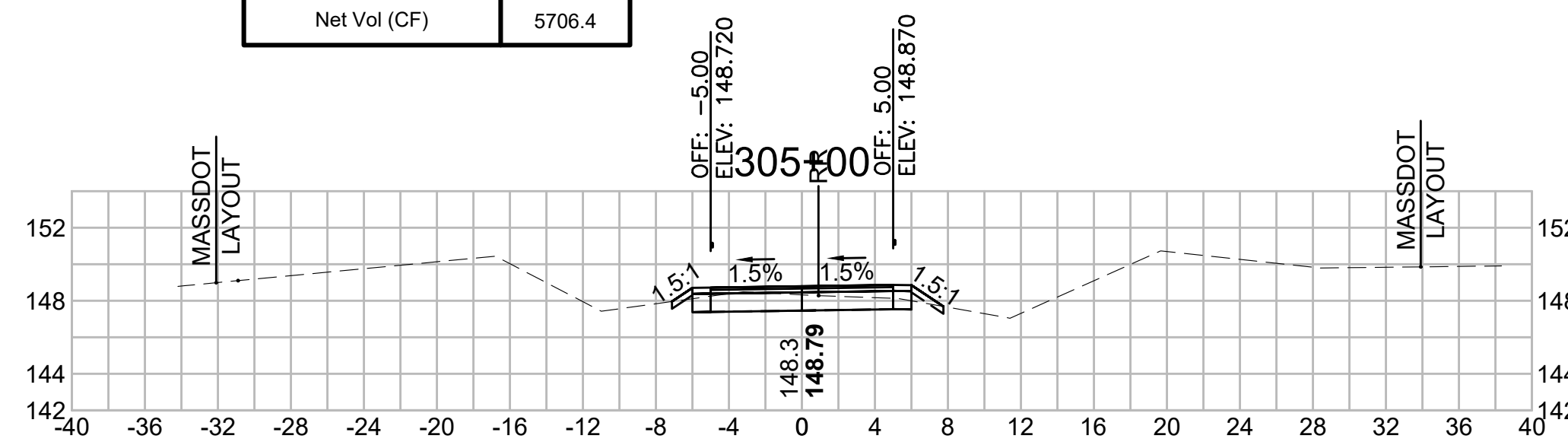
Total Volume at Station 307+00.00	
Cut Area (SF)	28.724
Fill Area (SF)	13.211
Cut Vol (CF)	39.3
Fill Vol (CF)	16.8
Cum Cut Vol (CF)	13479.6
Cum Fill Vol (CF)	7684.6
Net Vol (CF)	5795.1



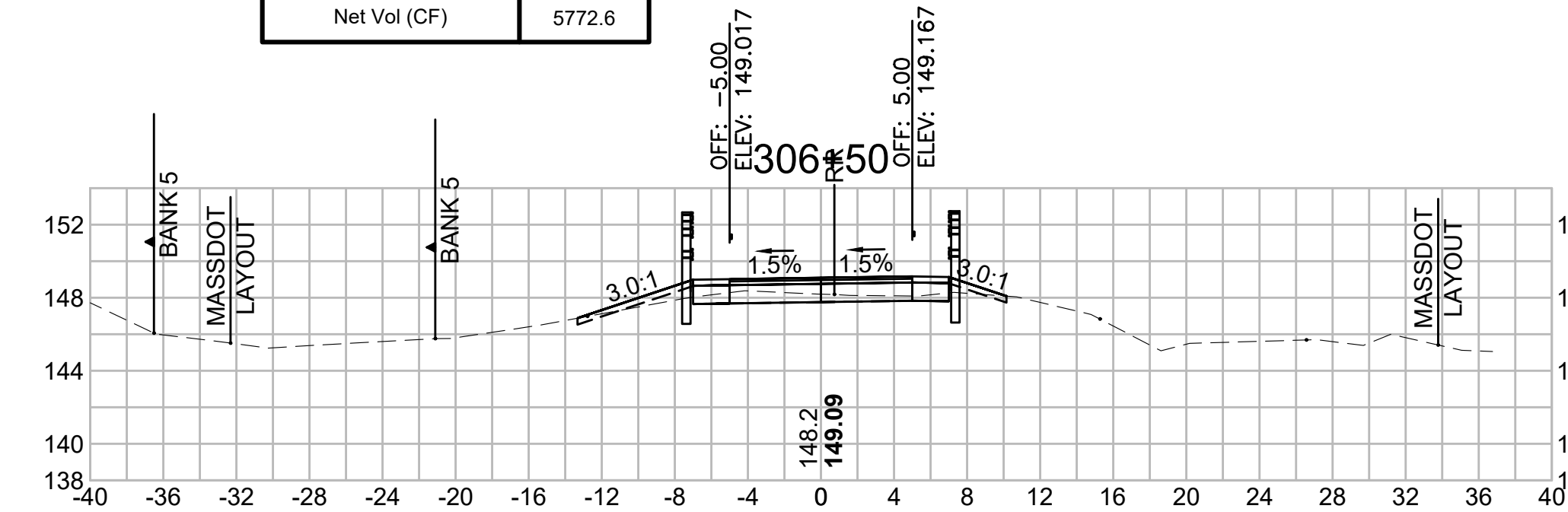
Total Volume at Station 303+50.00	
Cut Area (SF)	13.145
Fill Area (SF)	0.011
Cut Vol (CF)	25.8
Fill Vol (CF)	0.1
Cum Cut Vol (CF)	13277.5
Cum Fill Vol (CF)	7643.8
Net Vol (CF)	5633.7



Total Volume at Station 305+00.00	
Cut Area (SF)	18.122
Fill Area (SF)	0.254
Cut Vol (CF)	28.4
Fill Vol (CF)	0.7
Cum Cut Vol (CF)	13351.6
Cum Fill Vol (CF)	7645.2
Net Vol (CF)	5706.4



Total Volume at Station 306+50.00	
Cut Area (SF)	13.675
Fill Area (SF)	4.927
Cut Vol (CF)	26.0
Fill Vol (CF)	9.0
Cum Cut Vol (CF)	13440.4
Cum Fill Vol (CF)	7667.8
Net Vol (CF)	5772.6



**SUDBURY  
BRUCE FREEMAN RAIL TRAIL**

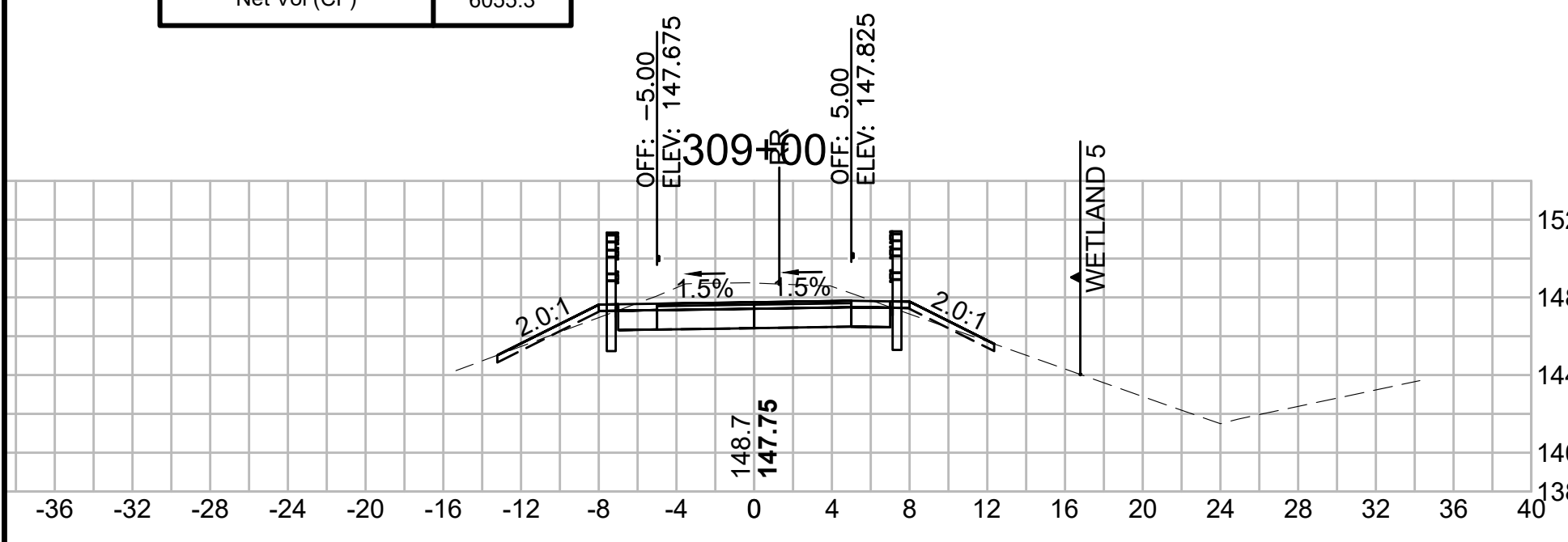
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	292	318

PROJECT FILE NO. 608164

**CROSS SECTIONS**

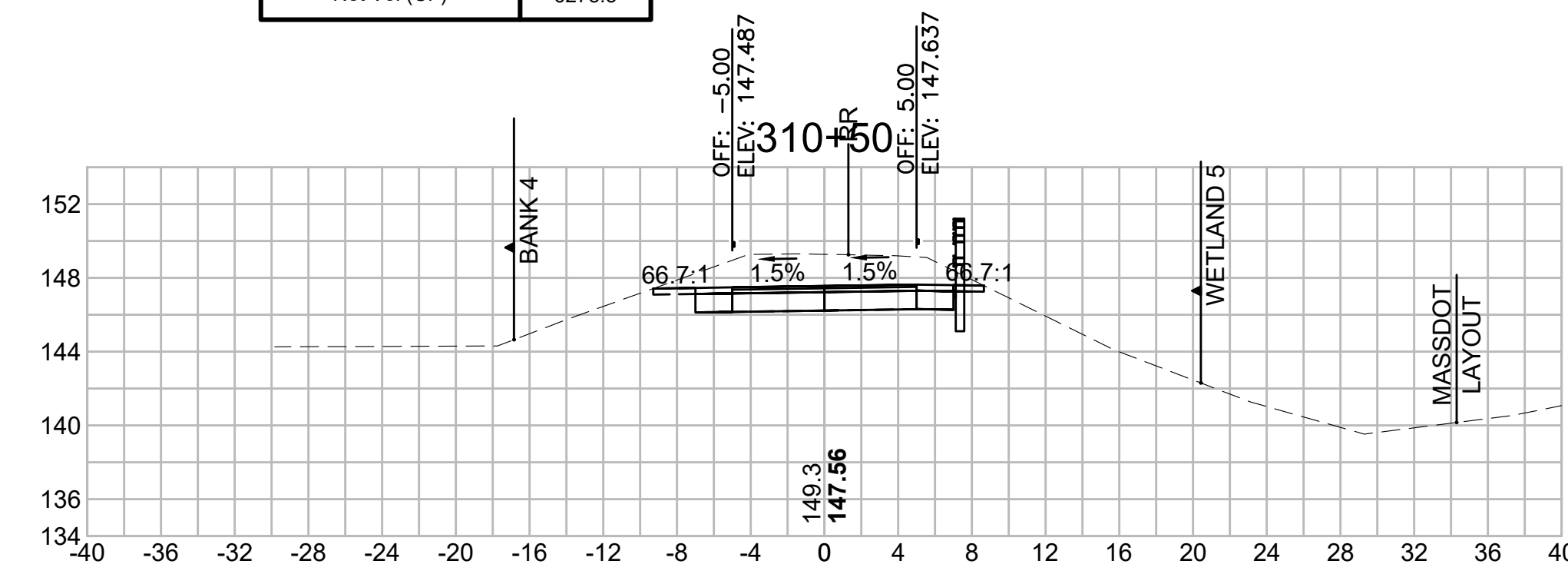
**Total Volume at Station 309+00.00**

Cut Area (SF)	28.856
Fill Area (SF)	1.521
Cut Vol (CF)	50.8
Fill Vol (CF)	1.6
Cum Cut Vol (CF)	13761.9
Cum Fill Vol (CF)	7706.6
Net Vol (CF)	6055.3



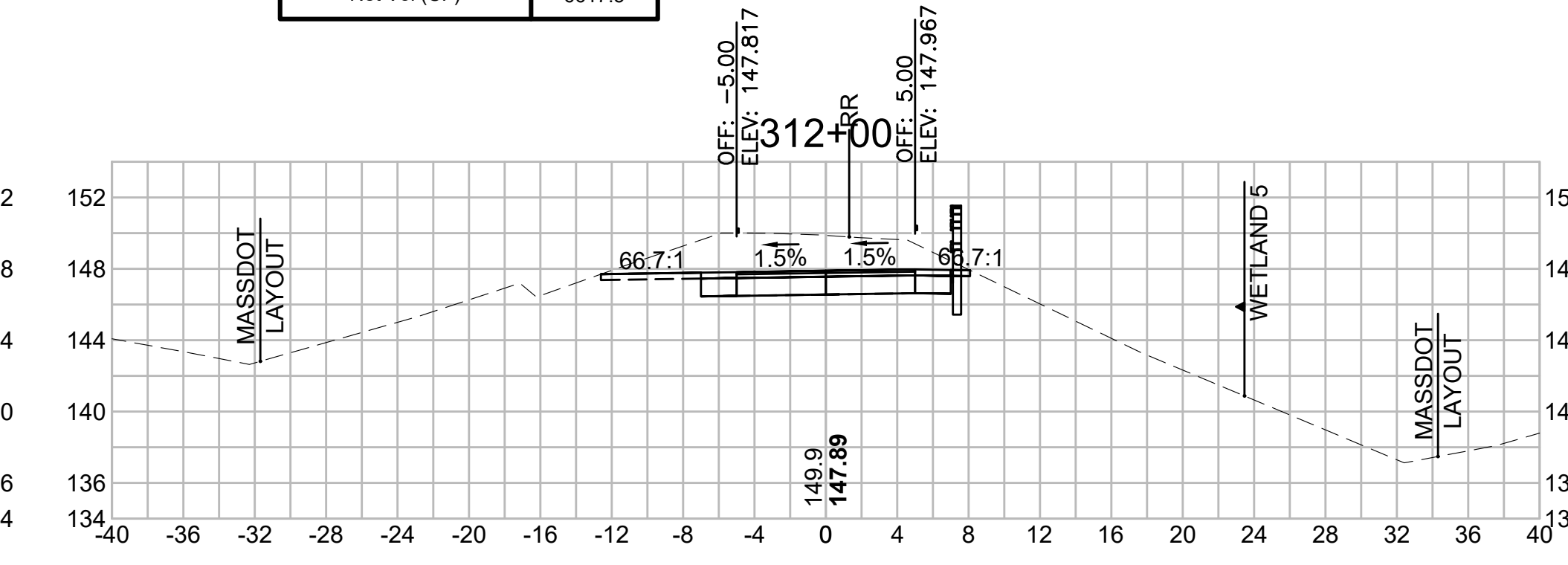
**Total Volume at Station 310+50.00**

Cut Area (SF)	47.202
Fill Area (SF)	0.000
Cut Vol (CF)	87.8
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	13996.8
Cum Fill Vol (CF)	7718.5
Net Vol (CF)	6278.3



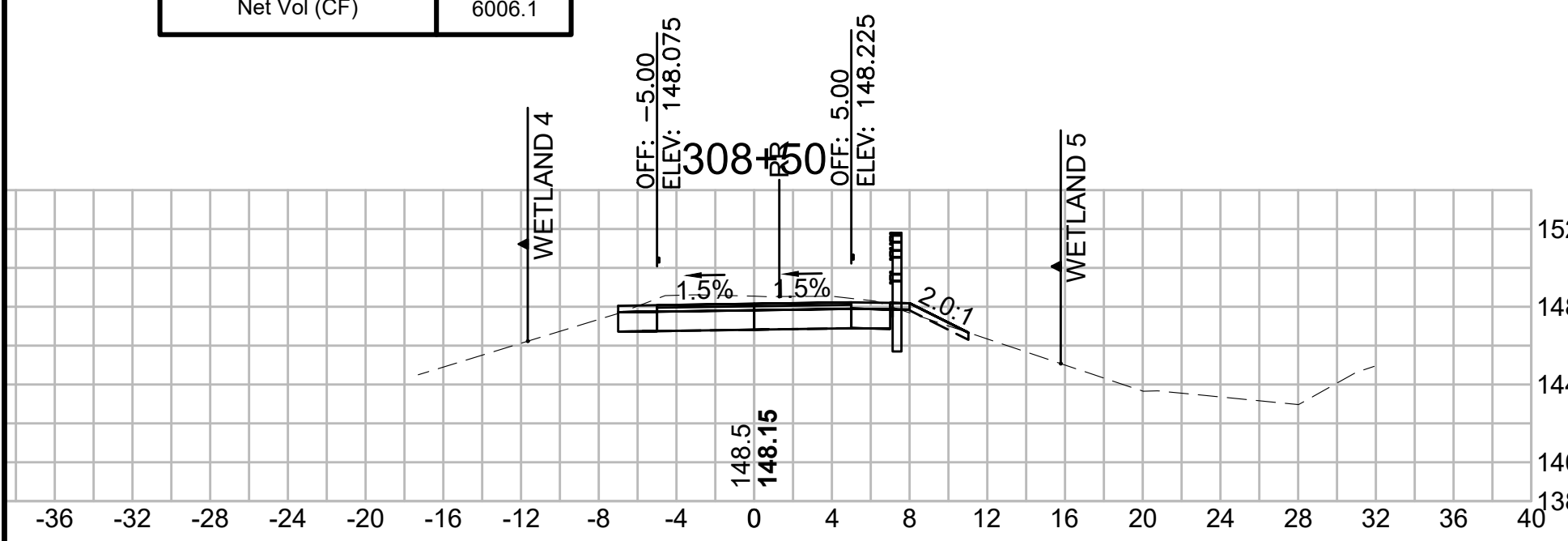
**Total Volume at Station 312+00.00**

Cut Area (SF)	59.214
Fill Area (SF)	0.123
Cut Vol (CF)	118.2
Fill Vol (CF)	0.1
Cum Cut Vol (CF)	14336.5
Cum Fill Vol (CF)	7718.9
Net Vol (CF)	6617.5



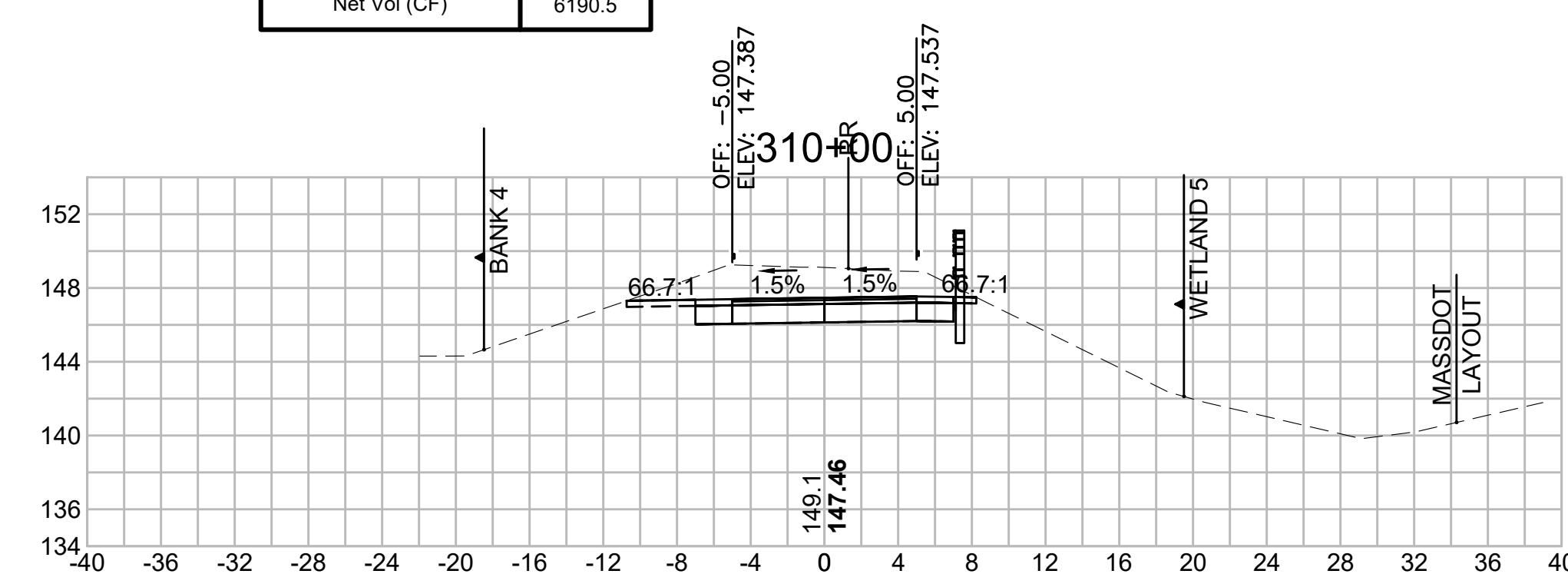
**Total Volume at Station 308+50.00**

Cut Area (SF)	25.972
Fill Area (SF)	0.214
Cut Vol (CF)	40.2
Fill Vol (CF)	4.2
Cum Cut Vol (CF)	13711.1
Cum Fill Vol (CF)	7705.0
Net Vol (CF)	6006.1



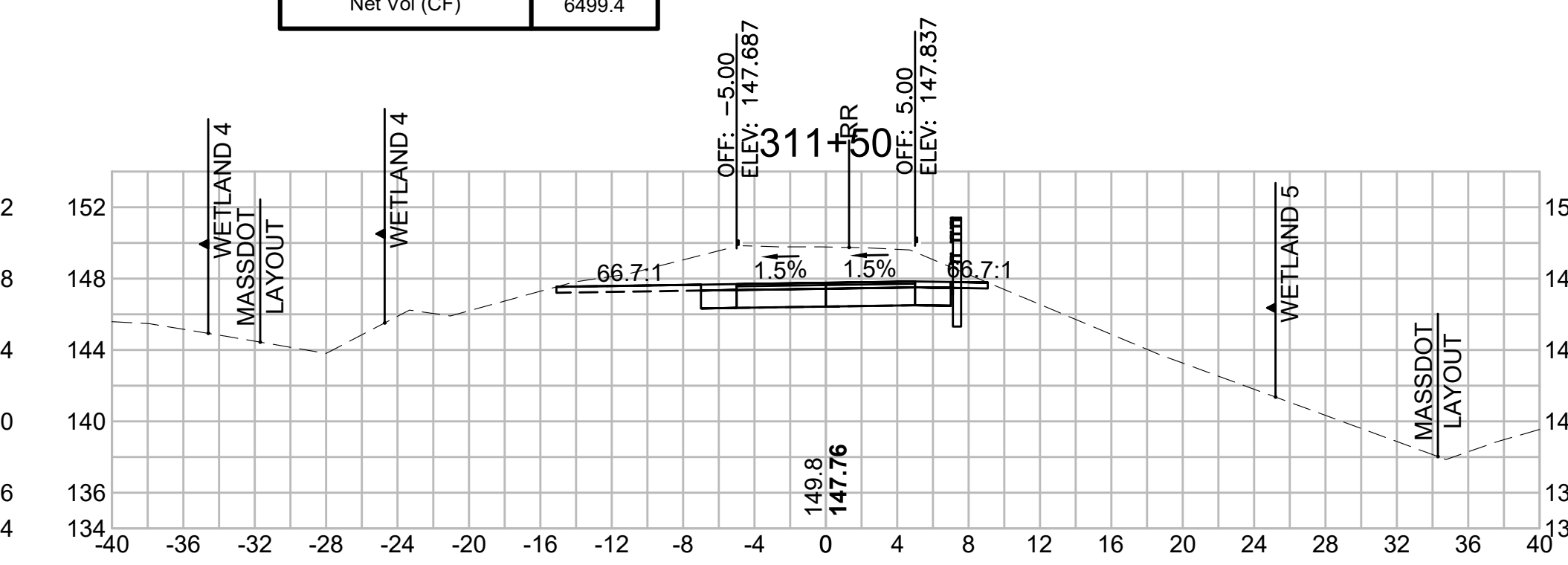
**Total Volume at Station 310+00.00**

Cut Area (SF)	47.665
Fill Area (SF)	0.000
Cut Vol (CF)	82.3
Fill Vol (CF)	5.3
Cum Cut Vol (CF)	13909.0
Cum Fill Vol (CF)	7718.5
Net Vol (CF)	6190.5



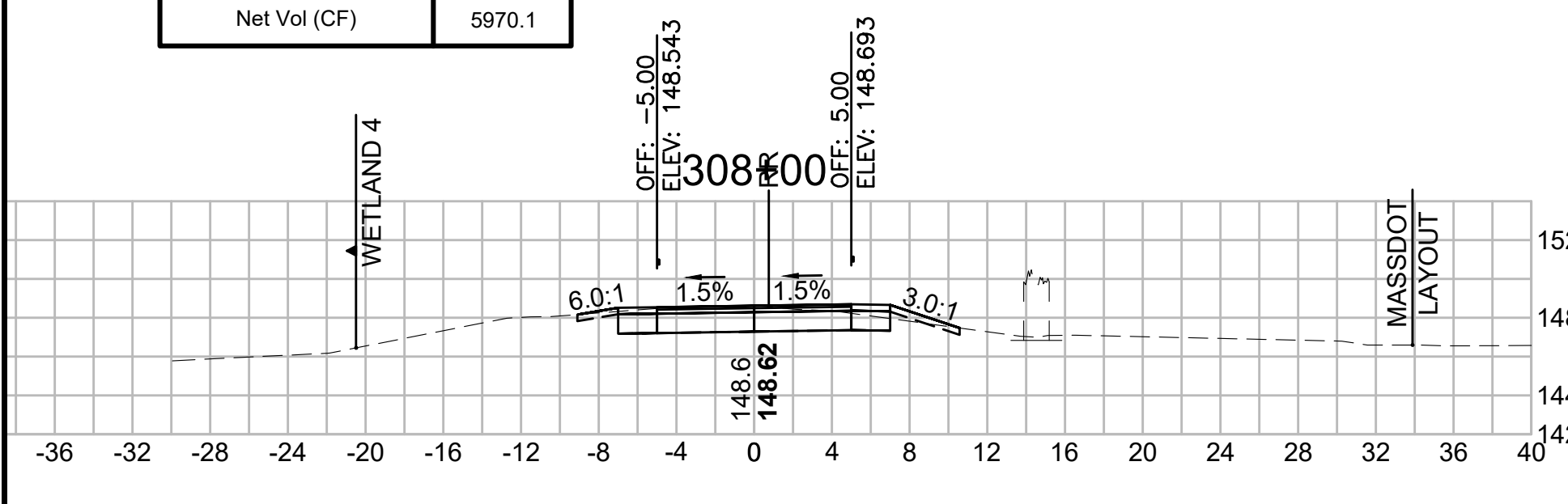
**Total Volume at Station 311+50.00**

Cut Area (SF)	68.474
Fill Area (SF)	0.000
Cut Vol (CF)	120.6
Fill Vol (CF)	0.2
Cum Cut Vol (CF)	14218.2
Cum Fill Vol (CF)	7718.8
Net Vol (CF)	6499.4



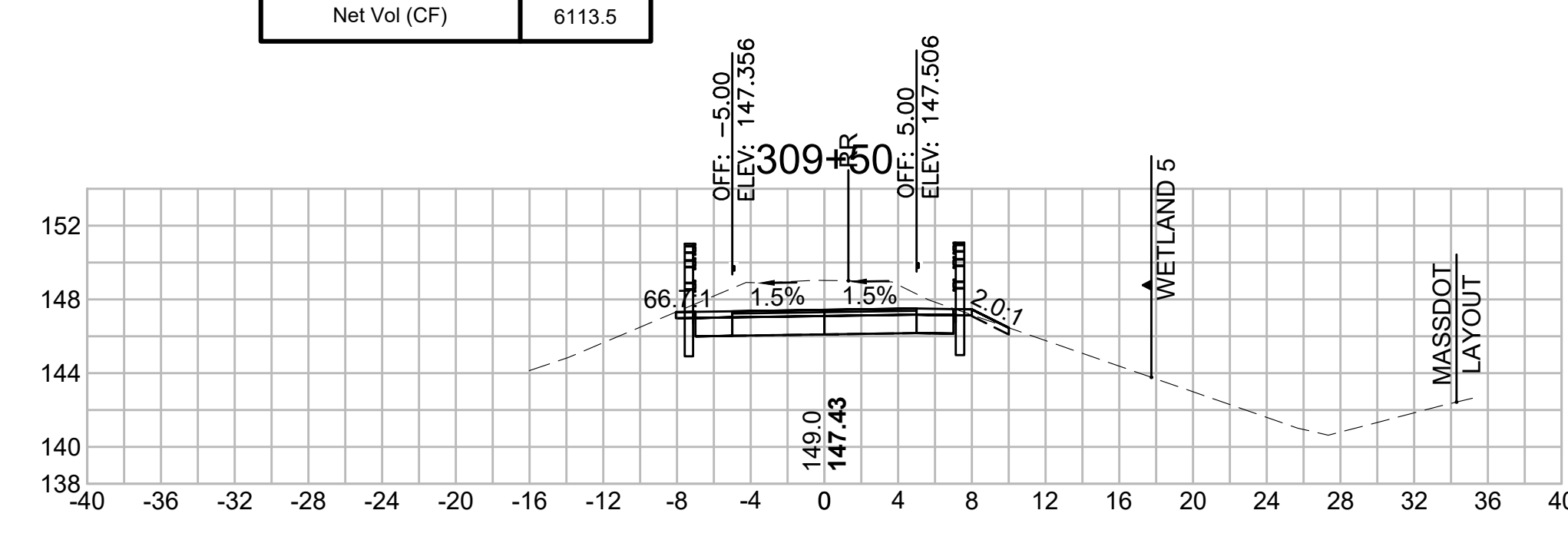
**Total Volume at Station 308+00.00**

Cut Area (SF)	17.407
Fill Area (SF)	4.301
Cut Vol (CF)	90.4
Fill Vol (CF)	4.0
Cum Cut Vol (CF)	13670.9
Cum Fill Vol (CF)	7700.8
Net Vol (CF)	5970.1



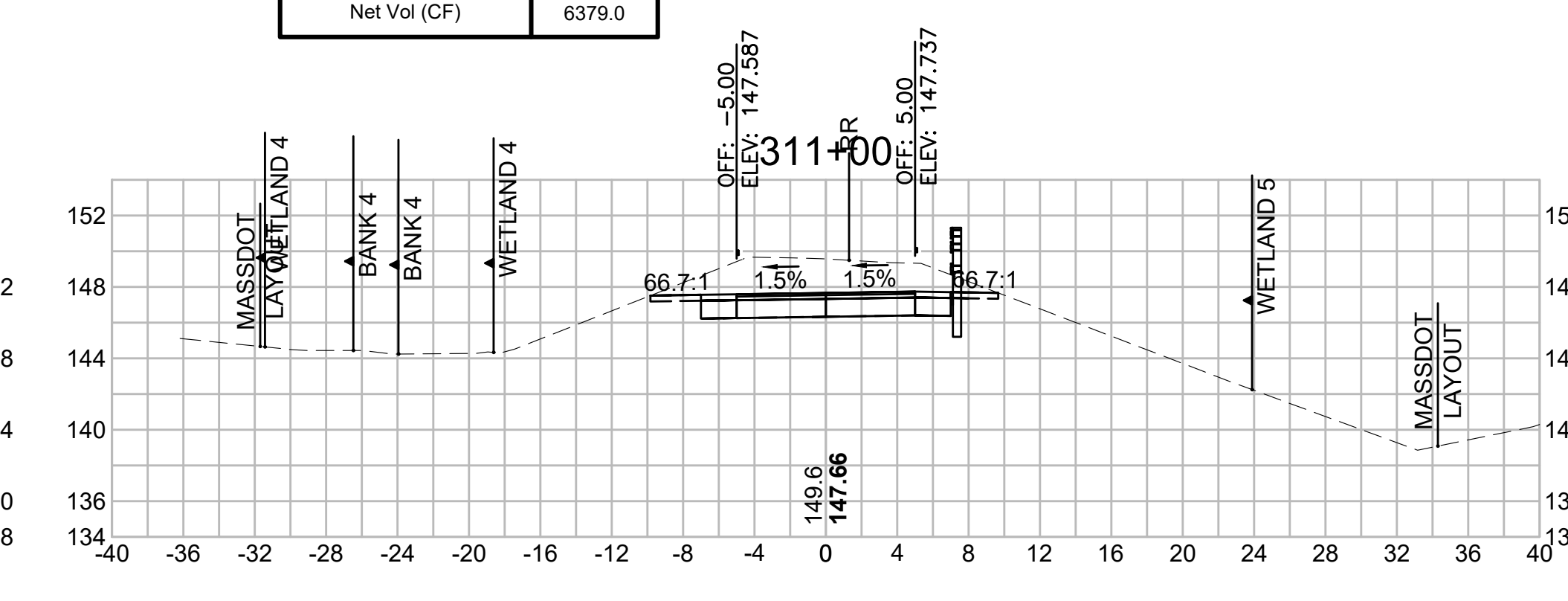
**Total Volume at Station 309+50.00**

Cut Area (SF)	41.186
Fill Area (SF)	5.677
Cut Vol (CF)	64.9
Fill Vol (CF)	6.7
Cum Cut Vol (CF)	13826.7
Cum Fill Vol (CF)	7713.2
Net Vol (CF)	6113.5



**Total Volume at Station 311+00.00**

Cut Area (SF)	61.726
Fill Area (SF)	0.185
Cut Vol (CF)	100.9
Fill Vol (CF)	0.2
Cum Cut Vol (CF)	14097.7
Cum Fill Vol (CF)	7718.7
Net Vol (CF)	6379.0





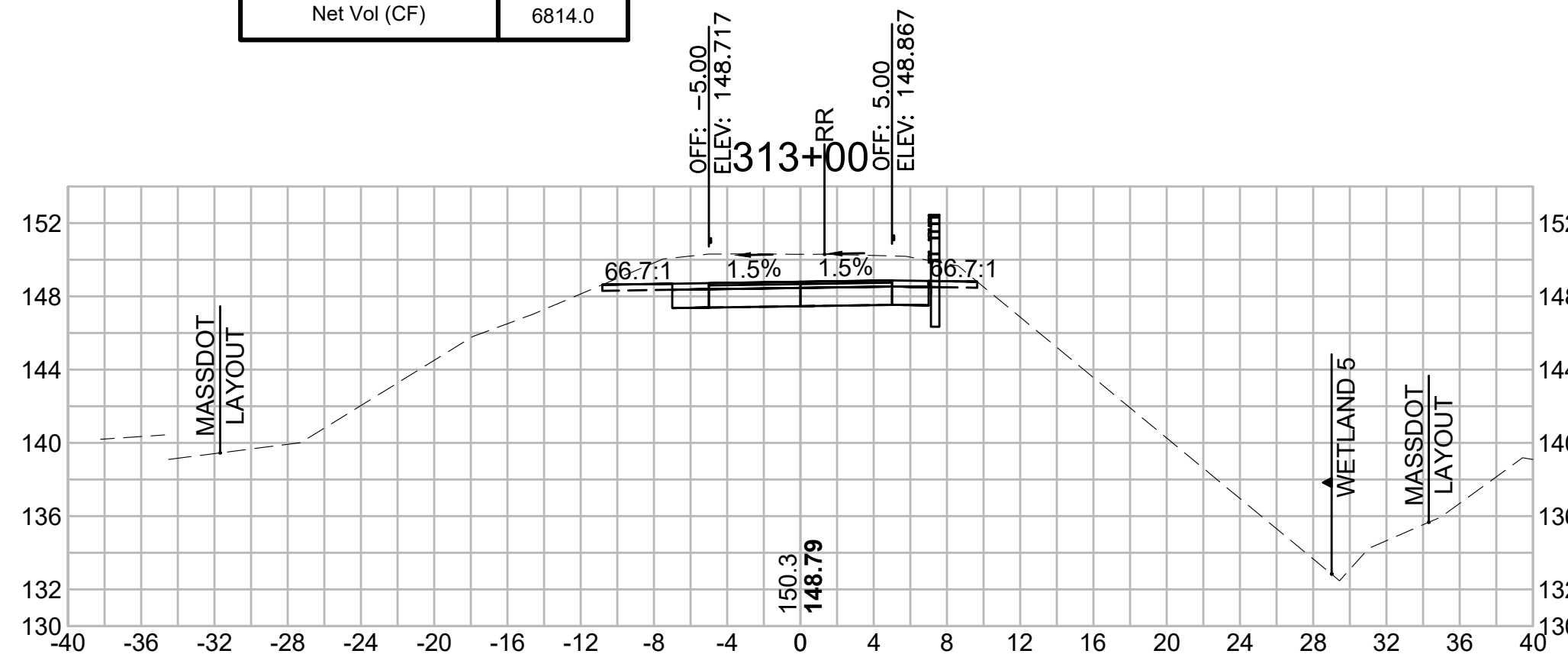
**SUDBURY  
BRUCE FREEMAN RAIL TRAIL**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	293	318

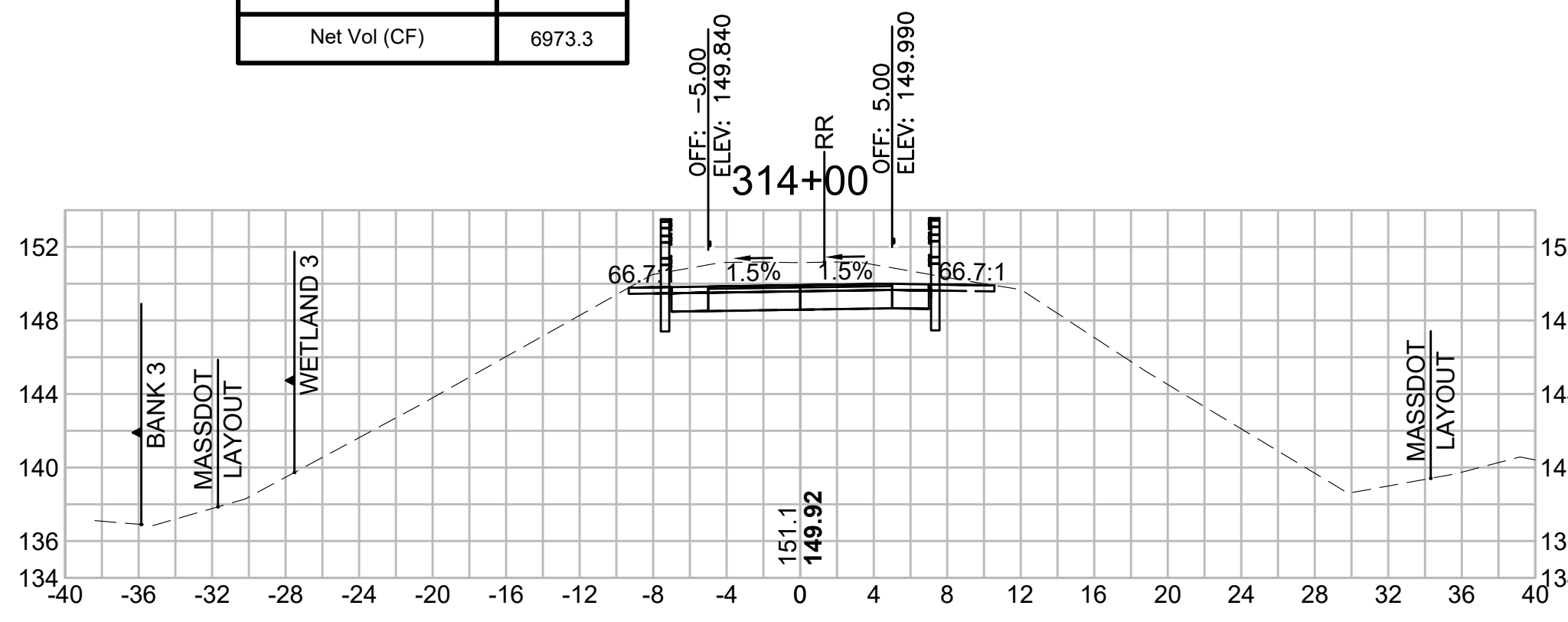
PROJECT FILE NO. 608164

**CROSS SECTIONS**

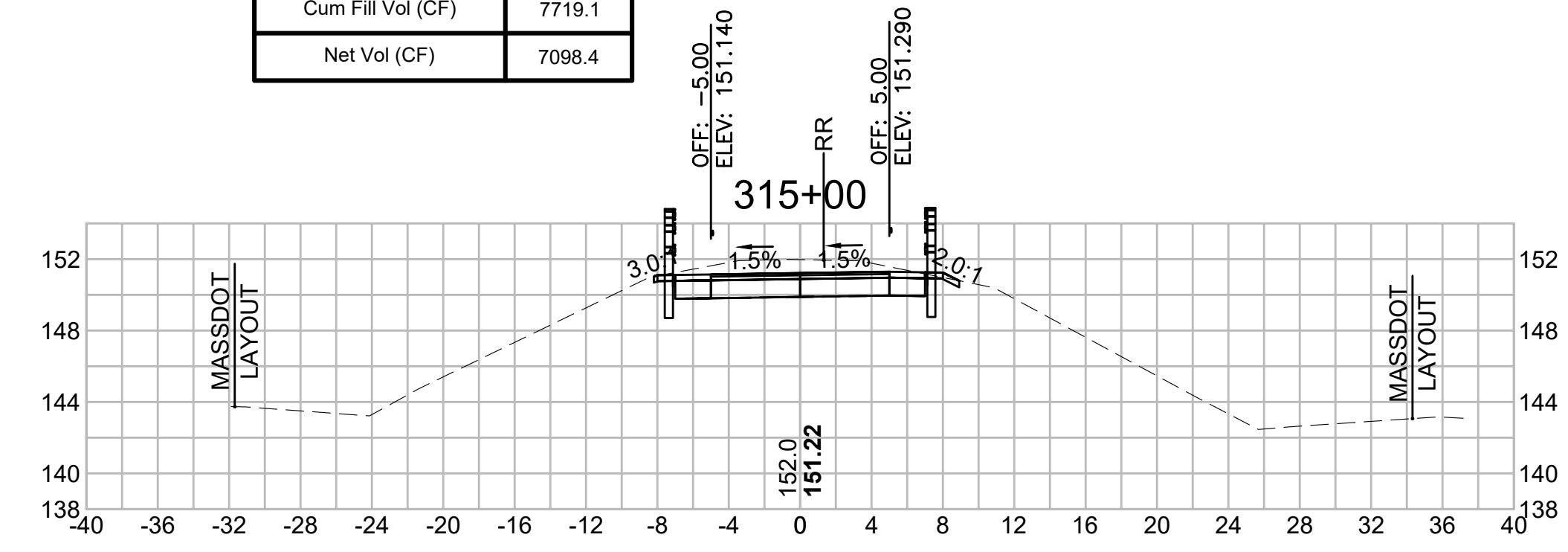
Total Volume at Station 313+00.00	
Cut Area (SF)	46.228
Fill Area (SF)	0.000
Cut Vol (CF)	92.3
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	14533.0
Cum Fill Vol (CF)	7719.1
Net Vol (CF)	6814.0



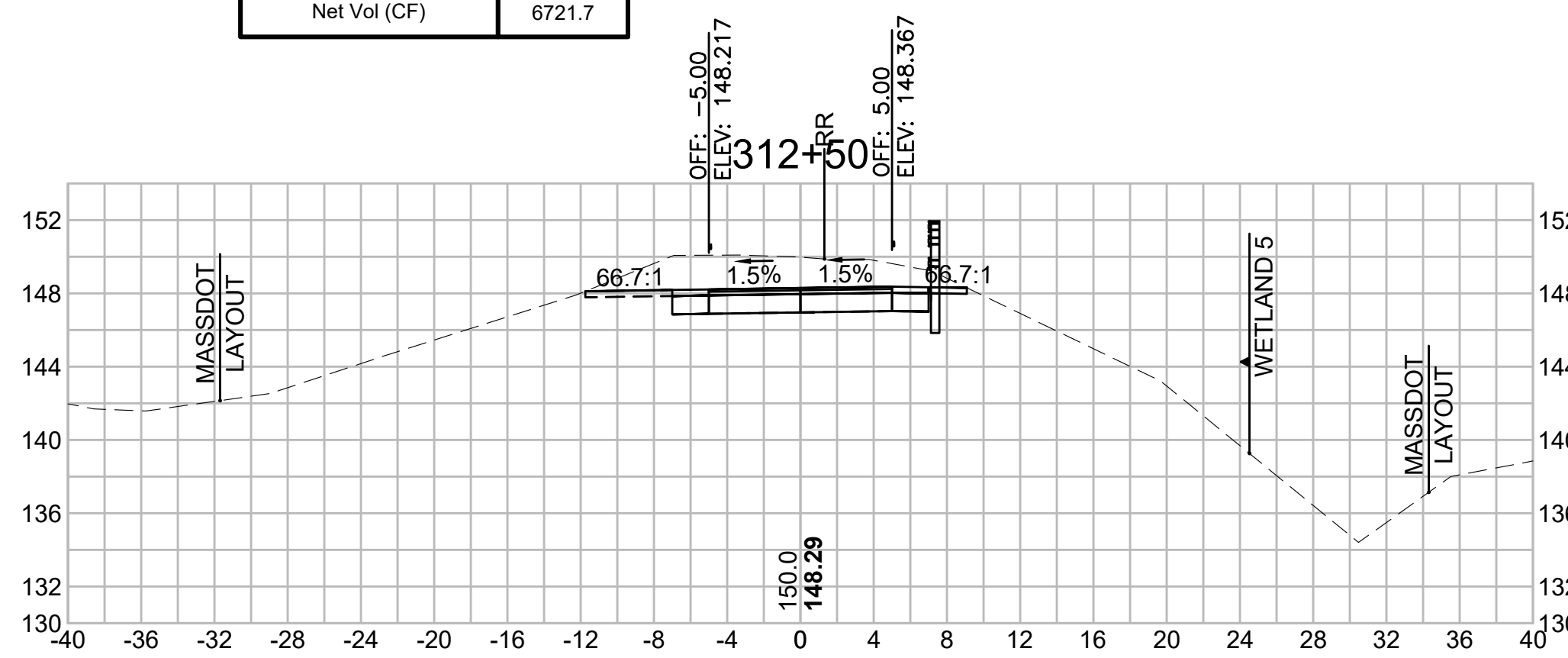
Total Volume at Station 314+00.00	
Cut Area (SF)	38.540
Fill Area (SF)	0.000
Cut Vol (CF)	76.1
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	14692.4
Cum Fill Vol (CF)	7719.1
Net Vol (CF)	6973.3



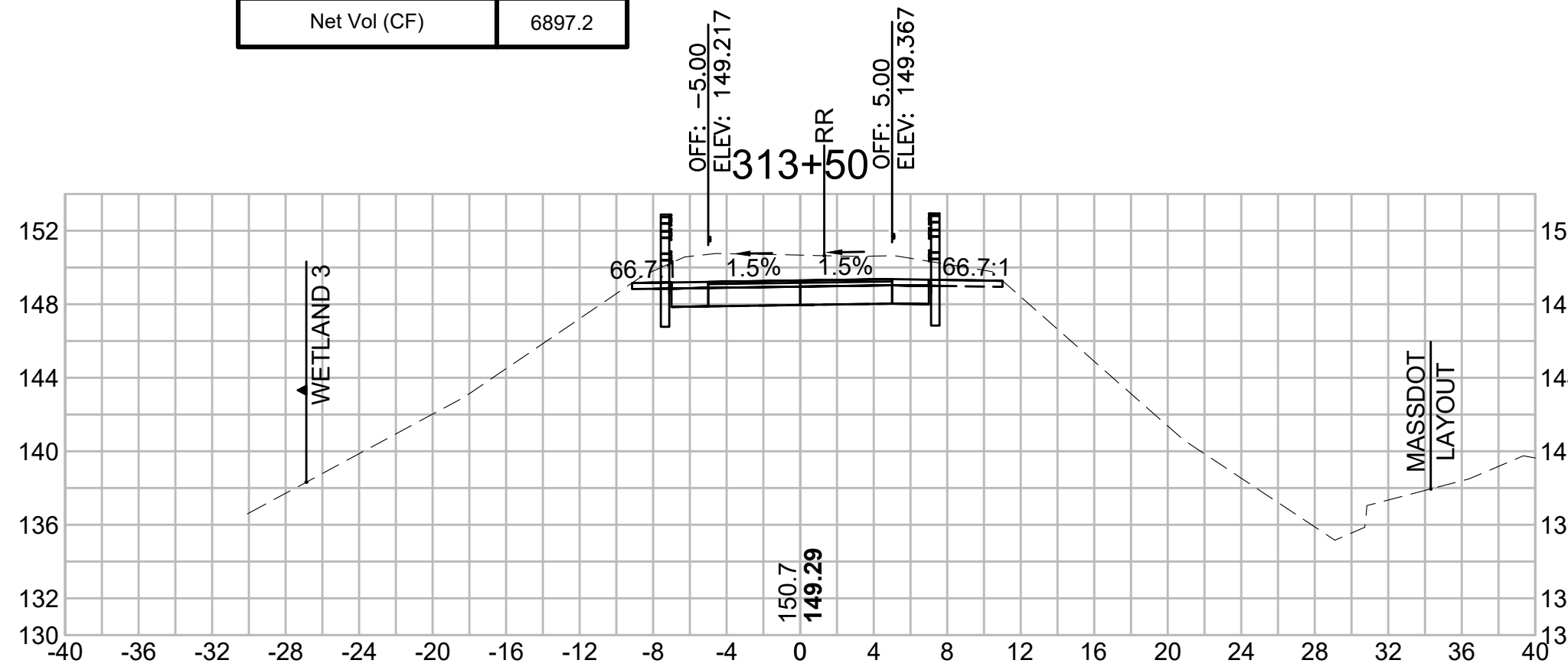
Total Volume at Station 315+00.00	
Cut Area (SF)	29.539
Fill Area (SF)	0.000
Cut Vol (CF)	58.4
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	14817.5
Cum Fill Vol (CF)	7719.1
Net Vol (CF)	7098.4



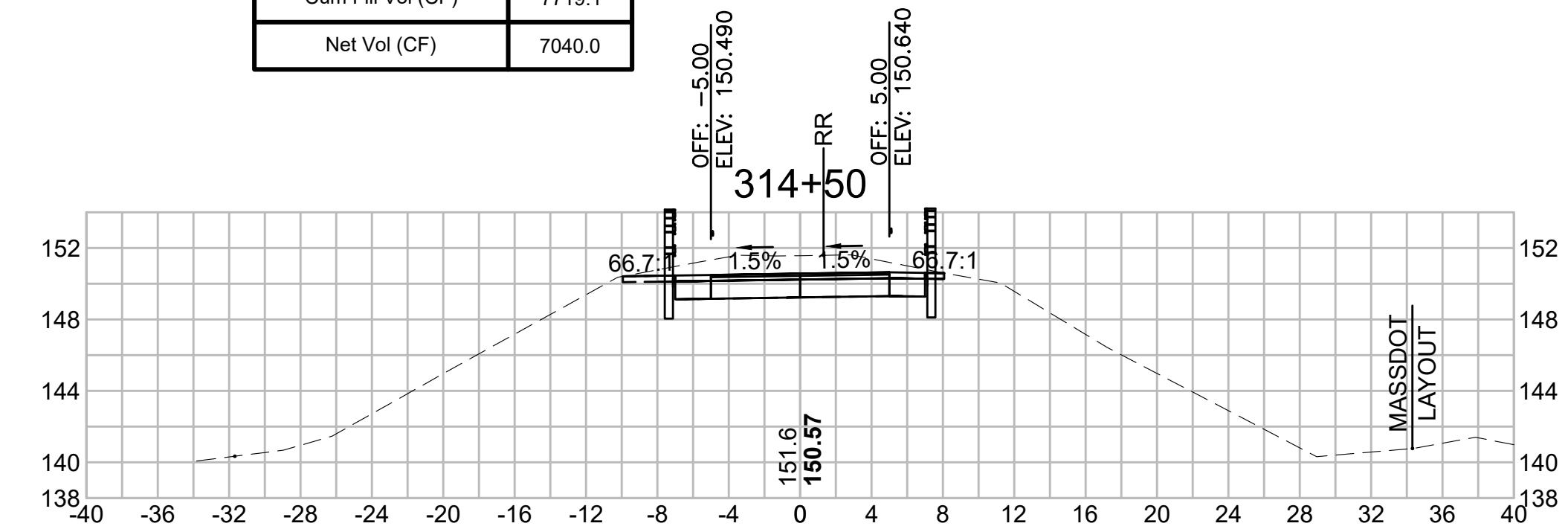
Total Volume at Station 312+50.00	
Cut Area (SF)	53.434
Fill Area (SF)	0.000
Cut Vol (CF)	104.3
Fill Vol (CF)	0.1
Cum Cut Vol (CF)	14440.8
Cum Fill Vol (CF)	7719.1
Net Vol (CF)	6721.7



Total Volume at Station 313+50.00	
Cut Area (SF)	43.650
Fill Area (SF)	0.018
Cut Vol (CF)	83.2
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	14616.3
Cum Fill Vol (CF)	7719.1
Net Vol (CF)	6897.2



Total Volume at Station 314+50.00	
Cut Area (SF)	33.549
Fill Area (SF)	0.000
Cut Vol (CF)	66.7
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	14759.1
Cum Fill Vol (CF)	7719.1
Net Vol (CF)	7040.0



SUDBURY  
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	294	318

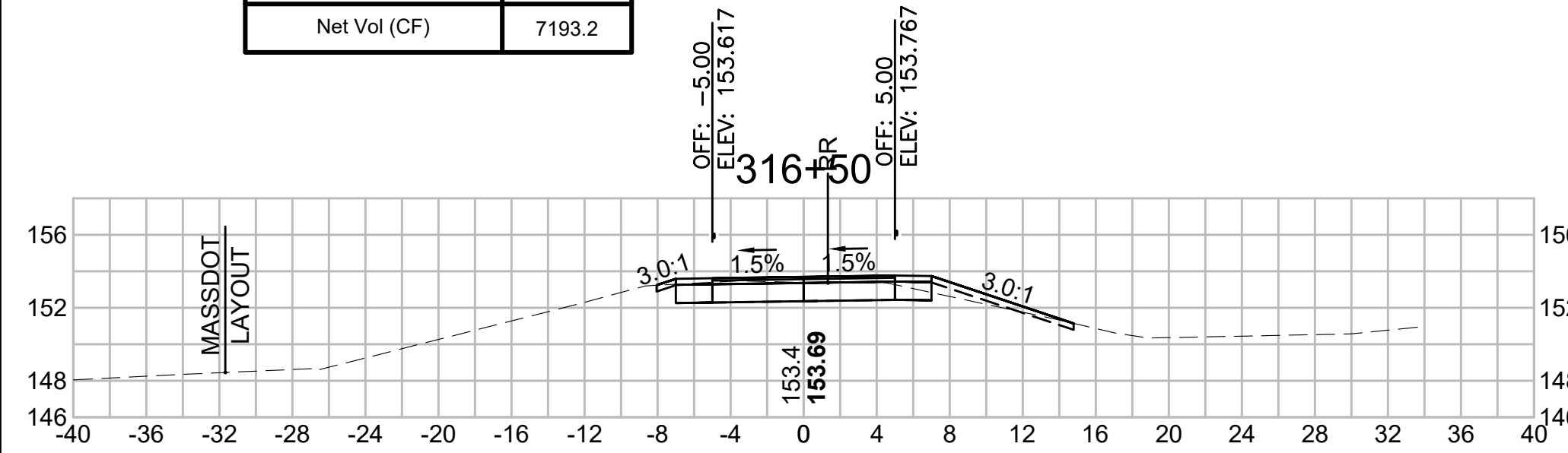
PROJECT FILE NO. 608164

CROSS SECTIONS

608164\_XSEC(CROSS SECTION LAYOUTS).DWG 12-May-2021

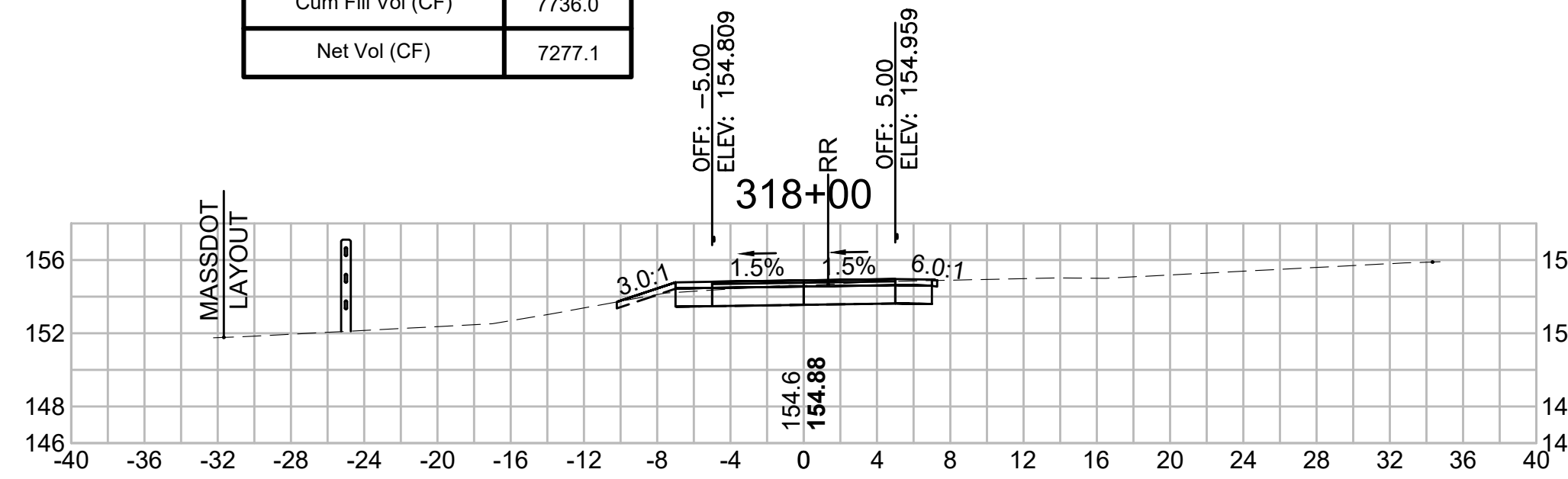
**Total Volume at Station 316+50.00**

Cut Area (SF)	18.222
Fill Area (SF)	1.292
Cut Vol (CF)	30.0
Fill Vol (CF)	5.5
Cum Cut Vol (CF)	14926.7
Cum Fill Vol (CF)	7733.5
Net Vol (CF)	7193.2



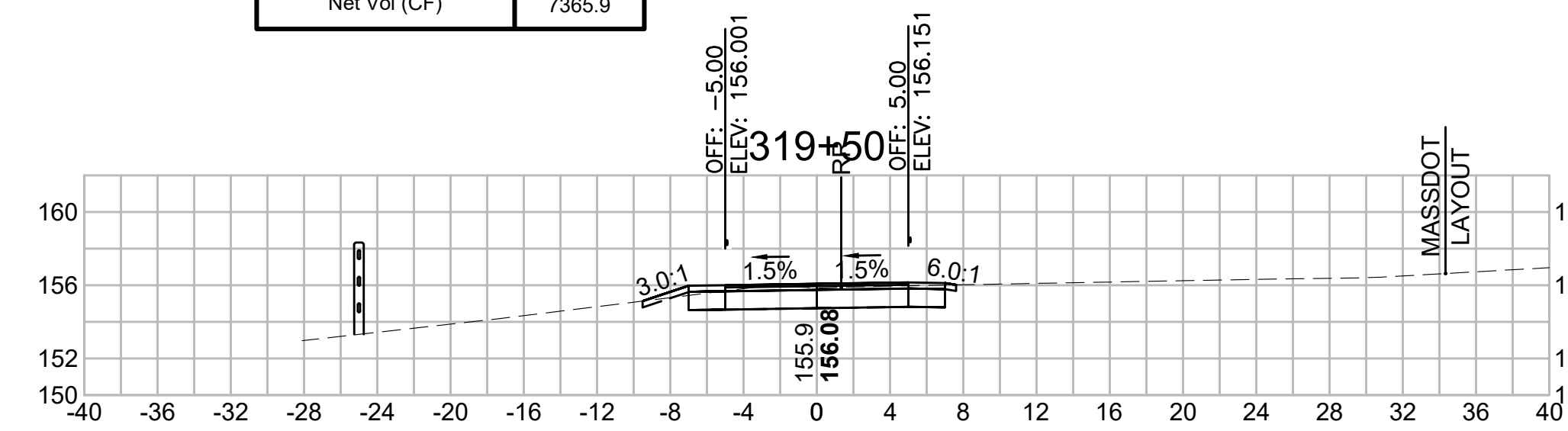
**Total Volume at Station 318+00.00**

Cut Area (SF)	15.594
Fill Area (SF)	0.080
Cut Vol (CF)	28.5
Fill Vol (CF)	0.1
Cum Cut Vol (CF)	15013.1
Cum Fill Vol (CF)	7736.0
Net Vol (CF)	7277.1



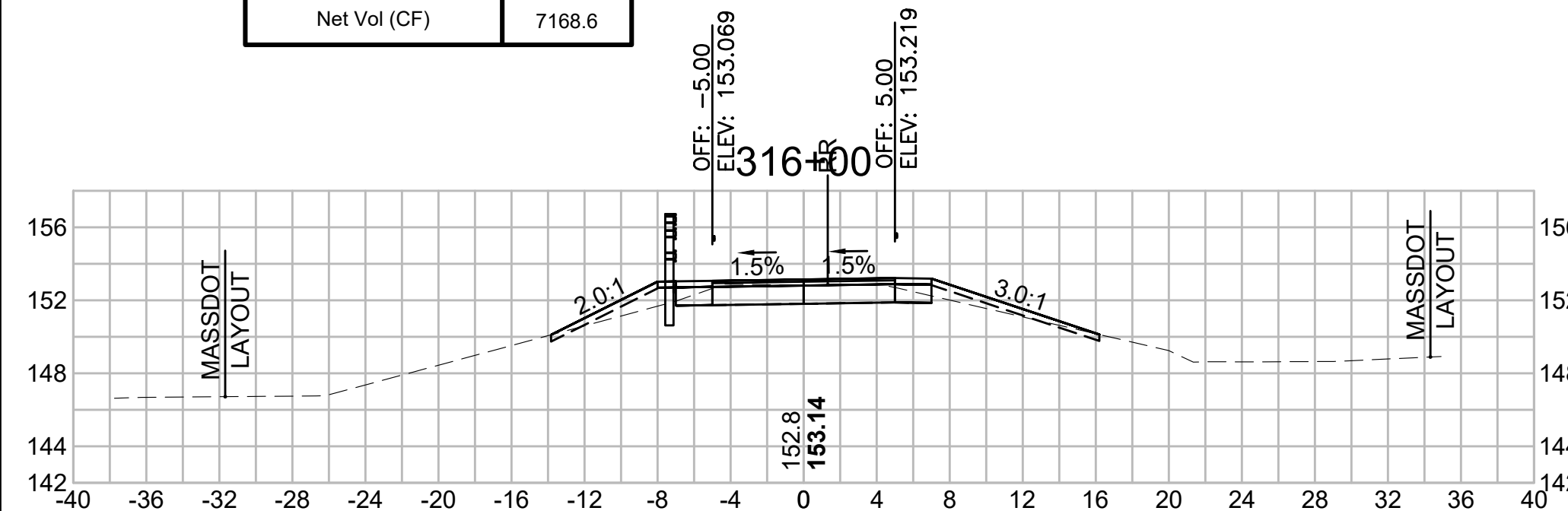
**Total Volume at Station 319+50.00**

Cut Area (SF)	24.589
Fill Area (SF)	0.078
Cut Vol (CF)	36.6
Fill Vol (CF)	1.8
Cum Cut Vol (CF)	15107.2
Cum Fill Vol (CF)	7741.3
Net Vol (CF)	7365.9



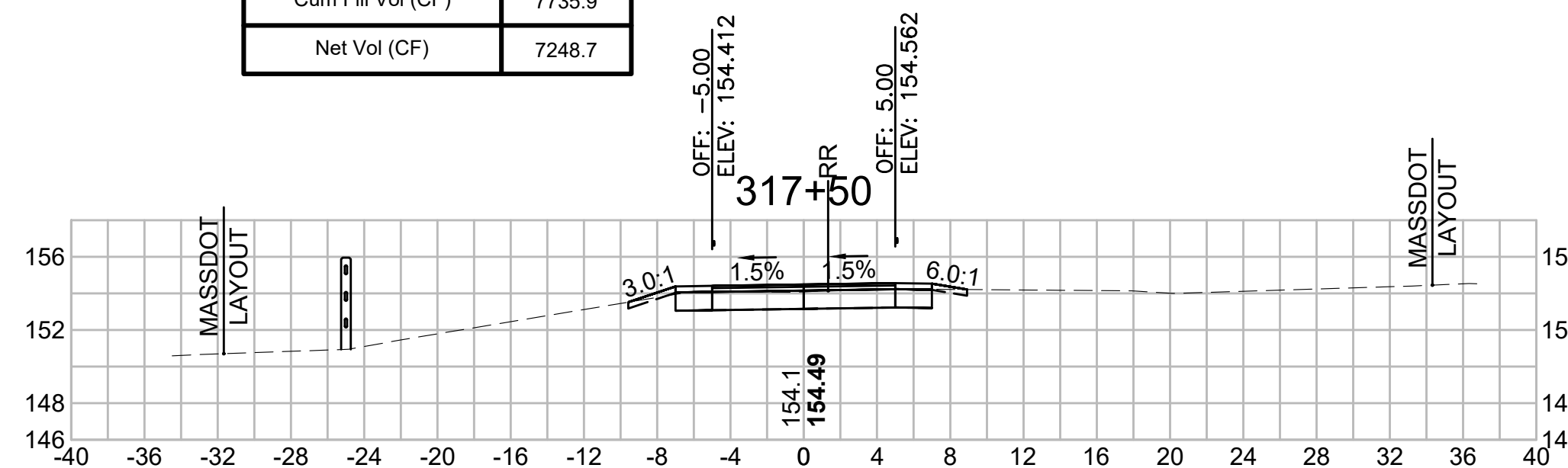
**Total Volume at Station 316+00.00**

Cut Area (SF)	14.228
Fill Area (SF)	4.661
Cut Vol (CF)	32.5
Fill Vol (CF)	6.6
Cum Cut Vol (CF)	14896.6
Cum Fill Vol (CF)	7728.0
Net Vol (CF)	7168.6



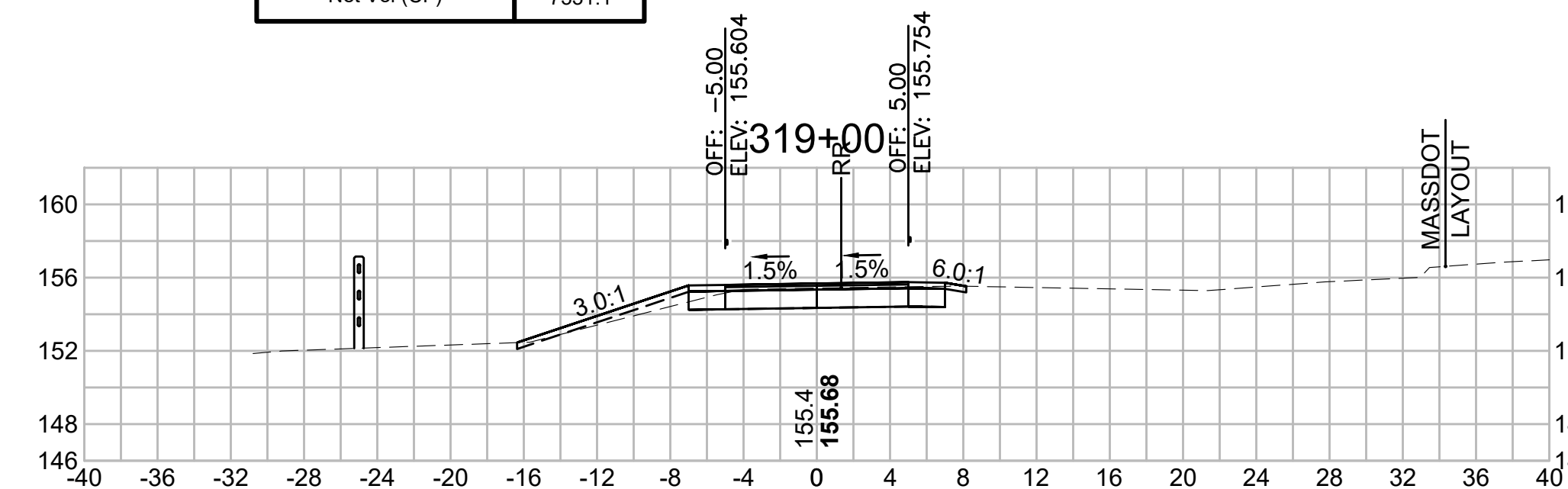
**Total Volume at Station 317+50.00**

Cut Area (SF)	15.227
Fill Area (SF)	0.021
Cut Vol (CF)	27.6
Fill Vol (CF)	0.6
Cum Cut Vol (CF)	14984.6
Cum Fill Vol (CF)	7735.9
Net Vol (CF)	7248.7



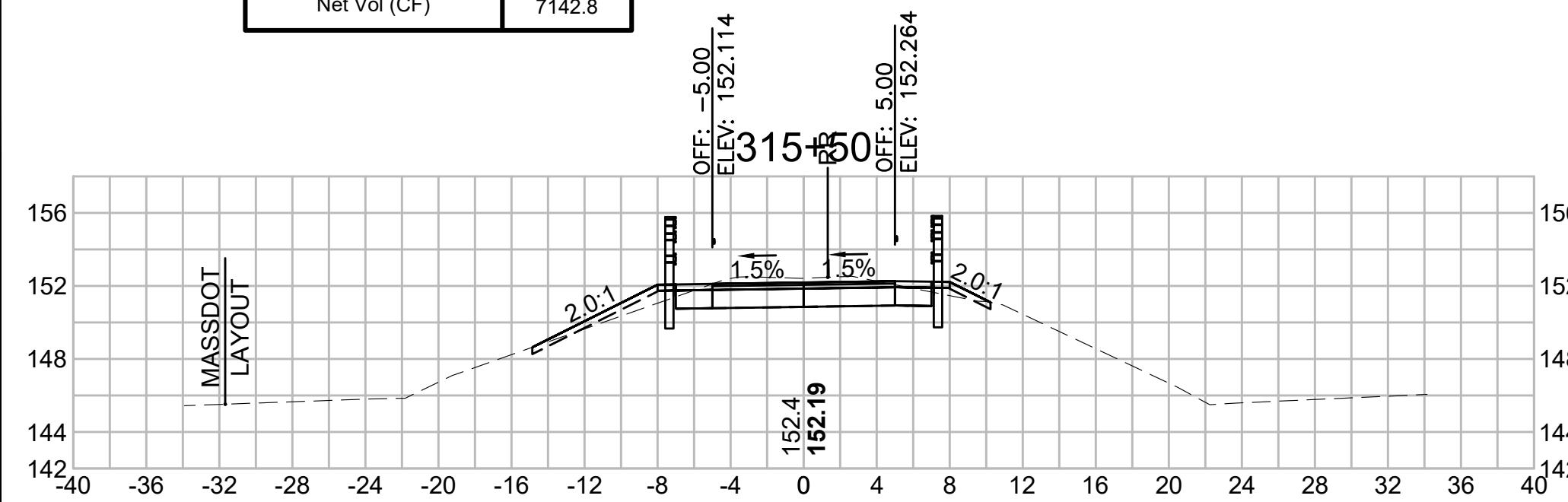
**Total Volume at Station 319+00.00**

Cut Area (SF)	14.916
Fill Area (SF)	1.909
Cut Vol (CF)	28.4
Fill Vol (CF)	2.6
Cum Cut Vol (CF)	15070.6
Cum Fill Vol (CF)	7739.5
Net Vol (CF)	7331.1



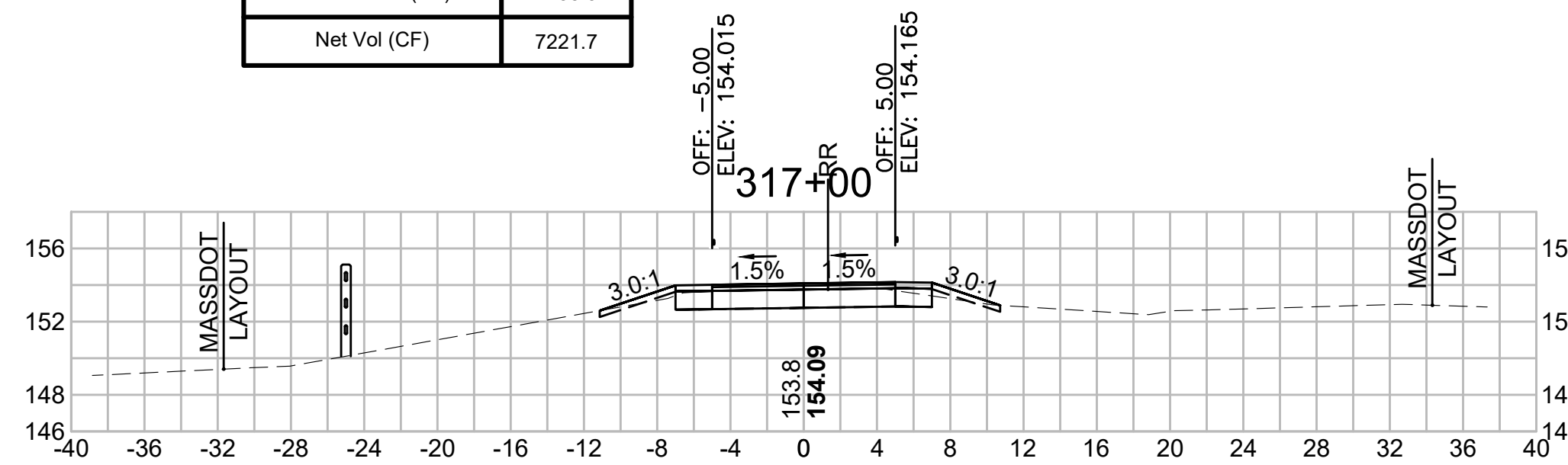
**Total Volume at Station 315+50.00**

Cut Area (SF)	20.826
Fill Area (SF)	2.479
Cut Vol (CF)	46.6
Fill Vol (CF)	2.3
Cum Cut Vol (CF)	14864.2
Cum Fill Vol (CF)	7721.4
Net Vol (CF)	7142.8



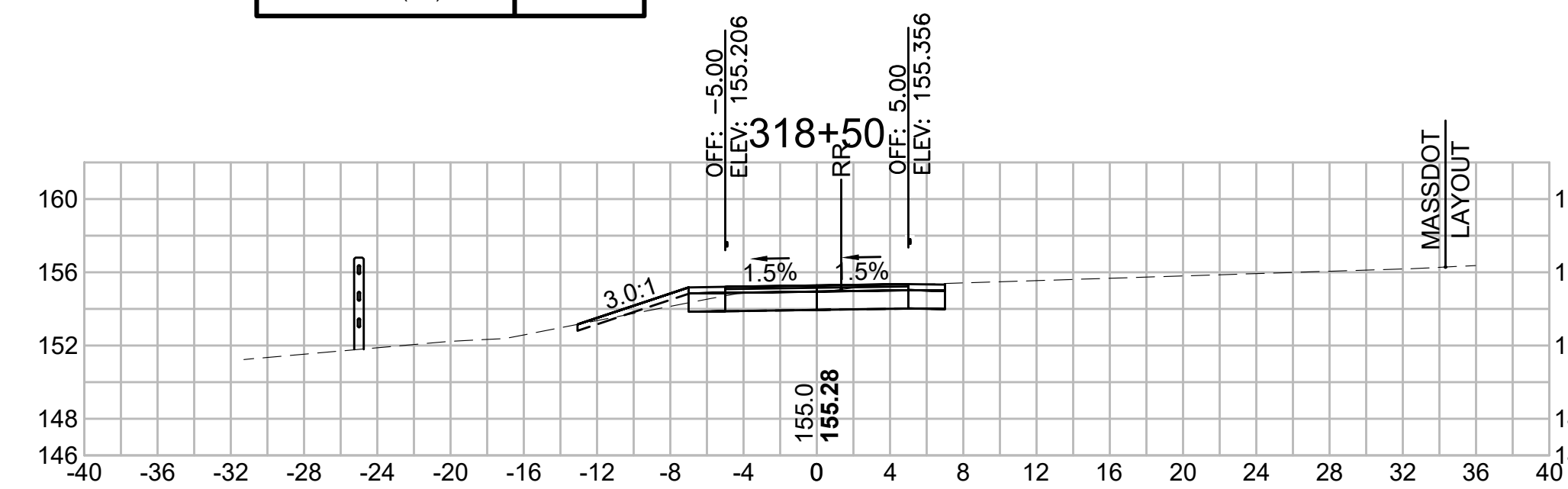
**Total Volume at Station 317+00.00**

Cut Area (SF)	14.546
Fill Area (SF)	0.634
Cut Vol (CF)	30.3
Fill Vol (CF)	1.8
Cum Cut Vol (CF)	14957.0
Cum Fill Vol (CF)	7735.3
Net Vol (CF)	7221.7



**Total Volume at Station 318+50.00**

Cut Area (SF)	15.772
Fill Area (SF)	0.874
Cut Vol (CF)	29.0
Fill Vol (CF)	0.9
Cum Cut Vol (CF)	15042.2
Cum Fill Vol (CF)	7736.9
Net Vol (CF)	7305.3



SUDBURY  
BRUCE FREEMAN RAIL TRAIL

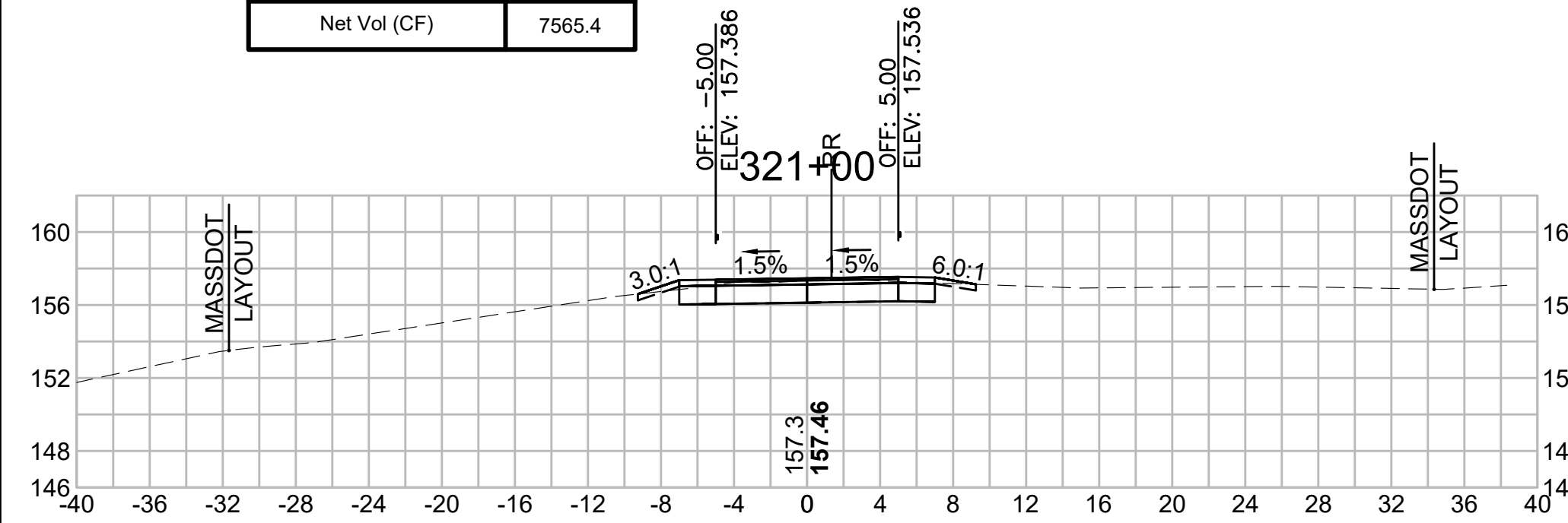
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	295	318

PROJECT FILE NO. 608164

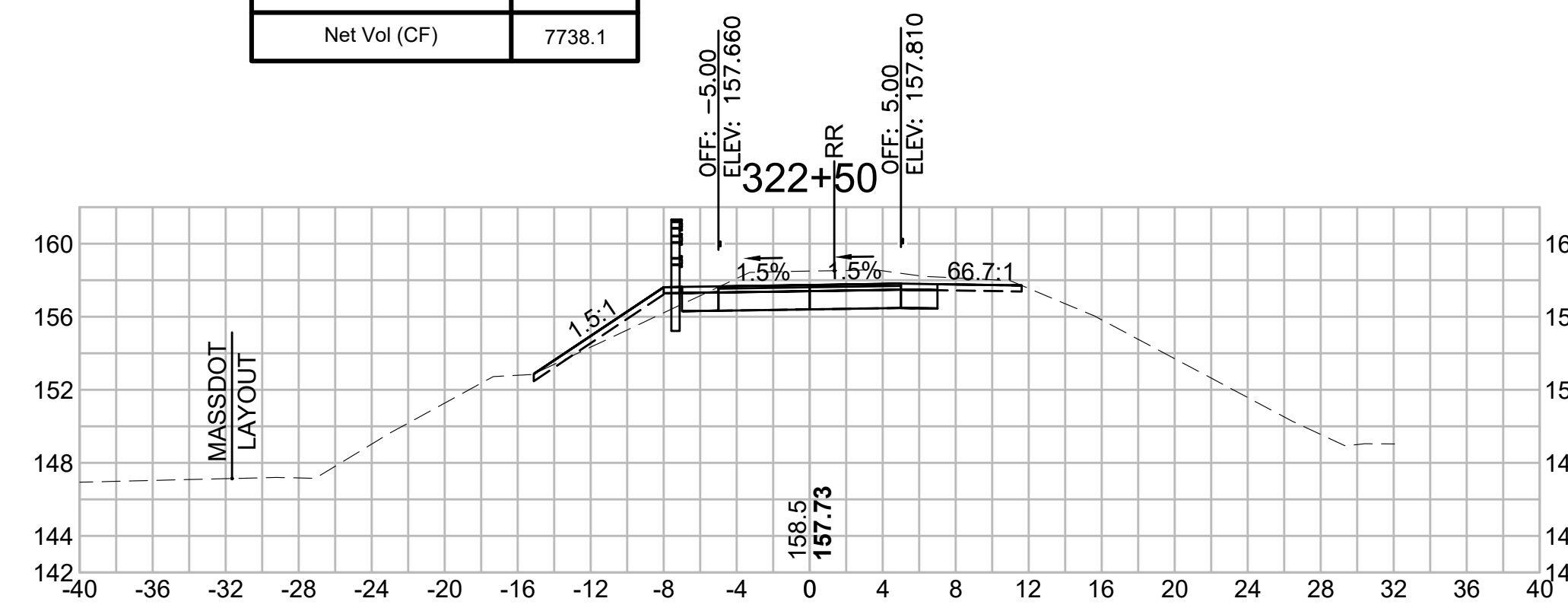
CROSS SECTIONS

608164\_XSEC(CROSS SECTION LAYOUTS).DWG 12-May-2021

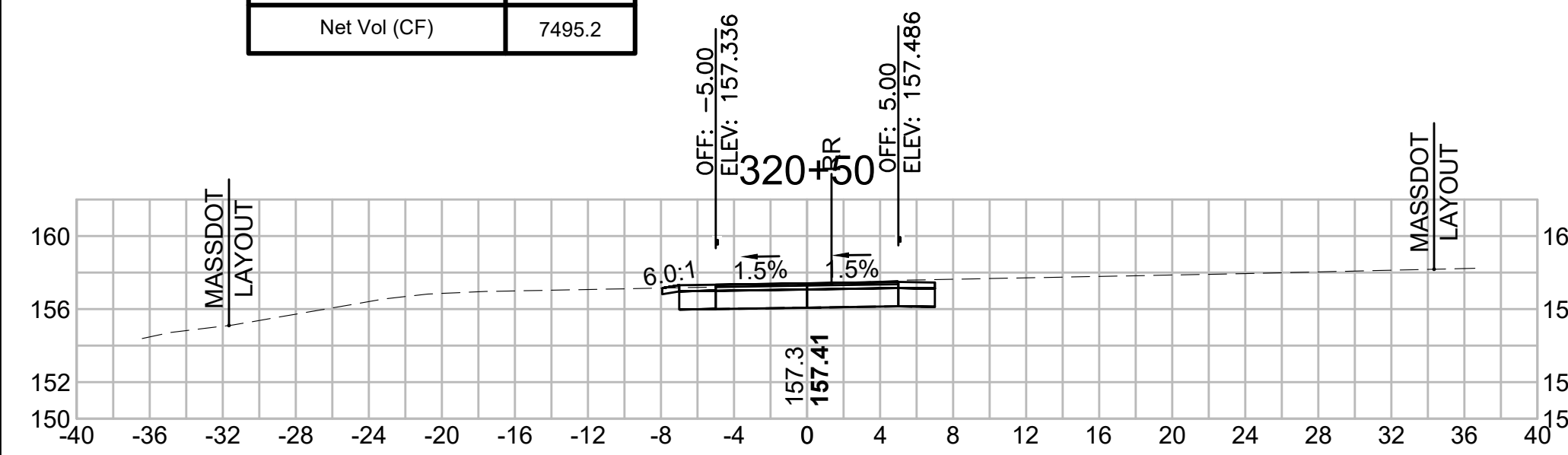
Total Volume at Station 321+00.00	
Cut Area (SF)	26.648
Fill Area (SF)	0.057
Cut Vol (CF)	70.3
Fill Vol (CF)	0.1
Cum Cut Vol (CF)	15306.9
Cum Fill Vol (CF)	7741.4
Net Vol (CF)	7565.4



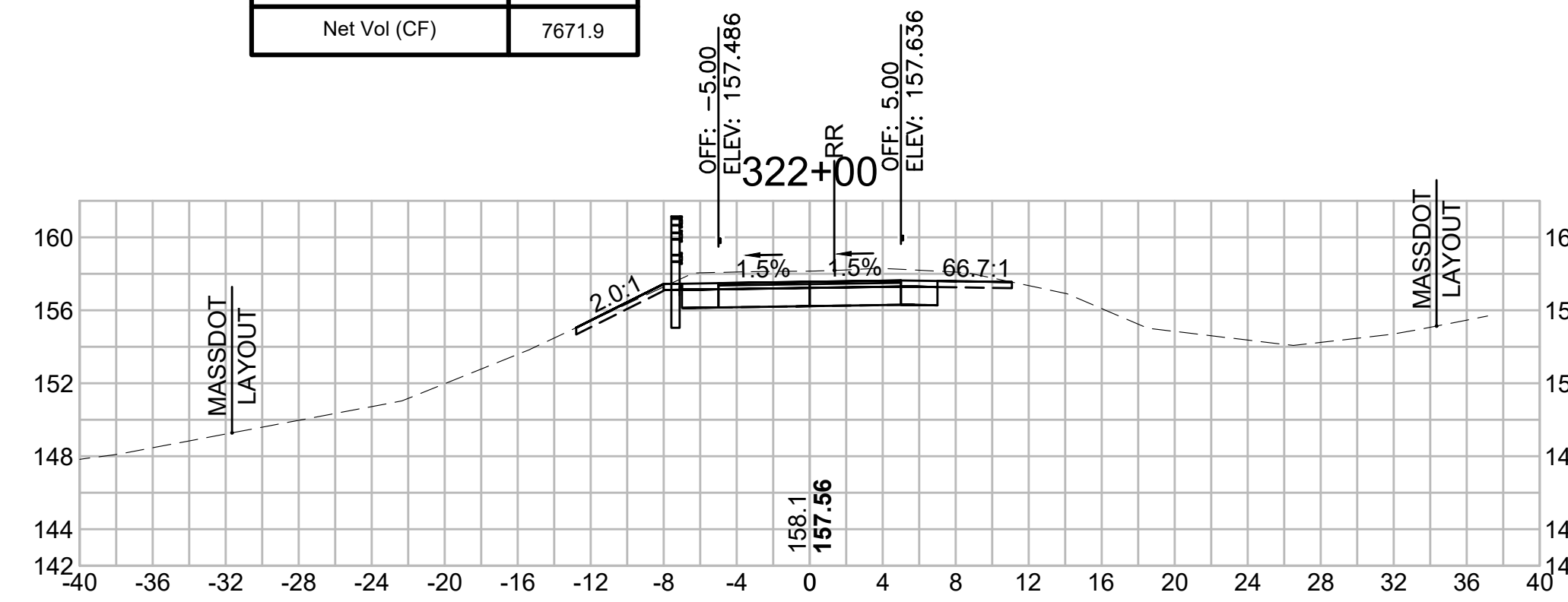
Total Volume at Station 322+50.00	
Cut Area (SF)	37.507
Fill Area (SF)	3.438
Cut Vol (CF)	71.9
Fill Vol (CF)	5.7
Cum Cut Vol (CF)	15491.1
Cum Fill Vol (CF)	7753.0
Net Vol (CF)	7738.1



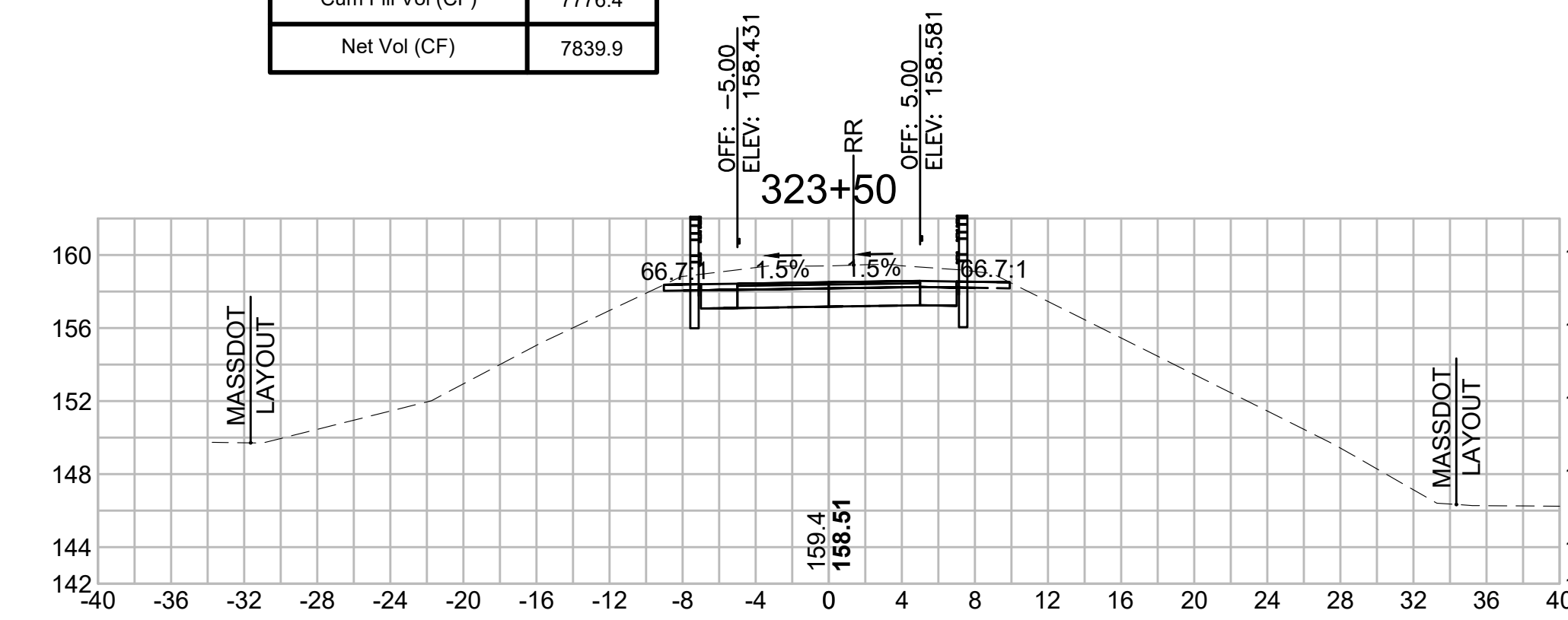
Total Volume at Station 320+50.00	
Cut Area (SF)	49.256
Fill Area (SF)	0.000
Cut Vol (CF)	76.1
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	15236.6
Cum Fill Vol (CF)	7741.4
Net Vol (CF)	7495.2



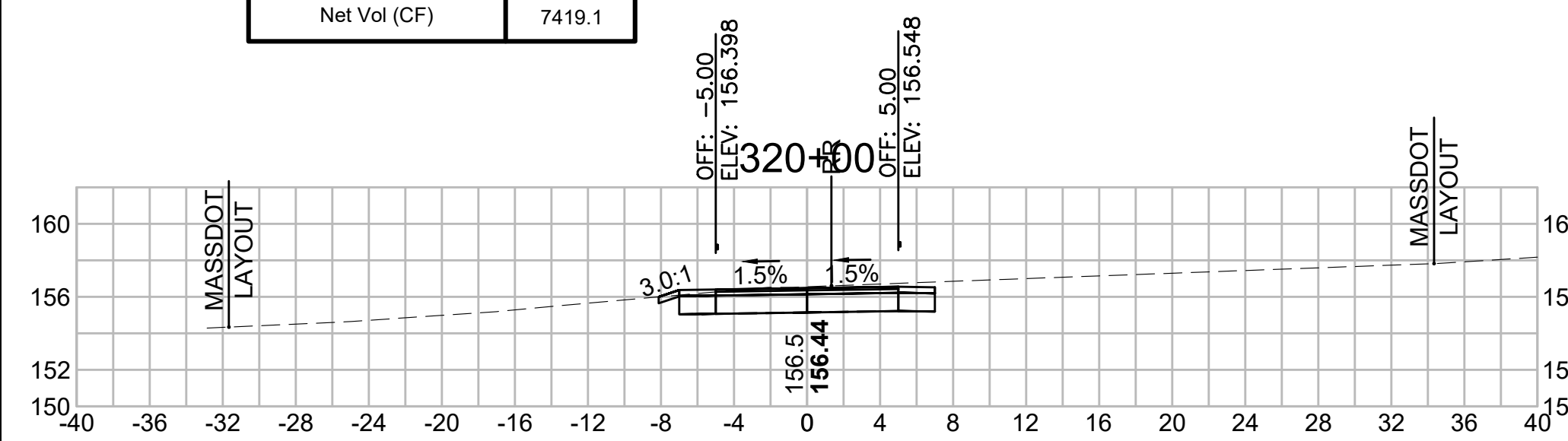
Total Volume at Station 322+00.00	
Cut Area (SF)	40.113
Fill Area (SF)	2.705
Cut Vol (CF)	62.4
Fill Vol (CF)	4.2
Cum Cut Vol (CF)	15419.2
Cum Fill Vol (CF)	7747.3
Net Vol (CF)	7671.9



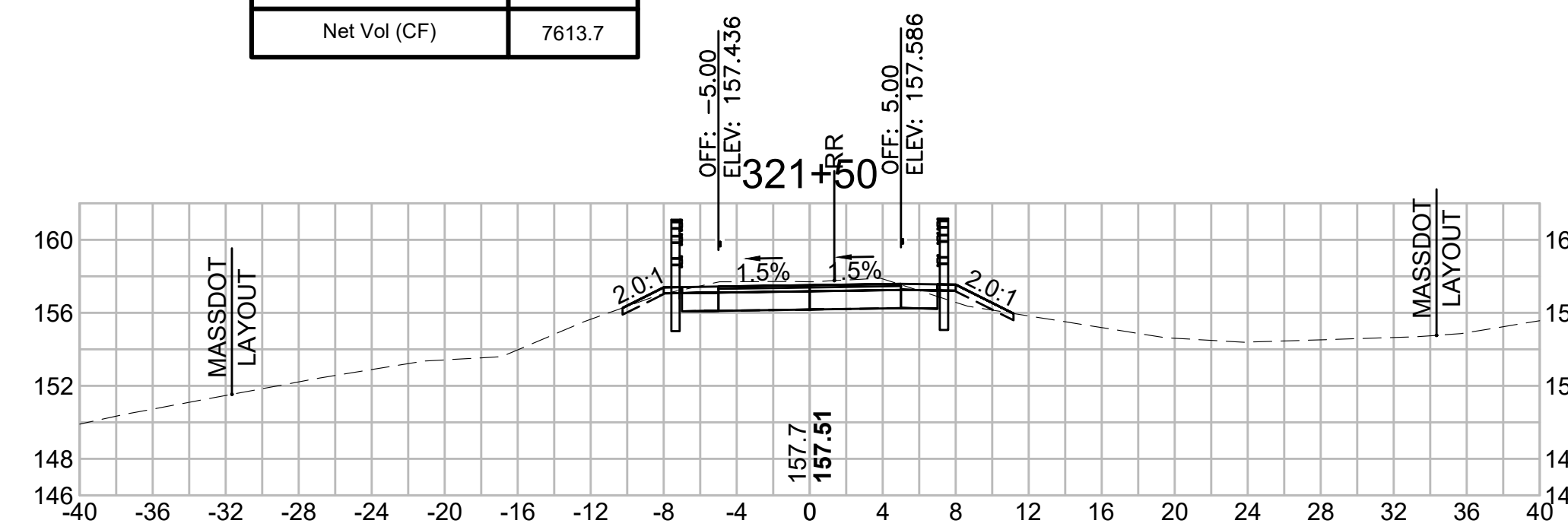
Total Volume at Station 323+50.00	
Cut Area (SF)	45.108
Fill Area (SF)	0.000
Cut Vol (CF)	66.2
Fill Vol (CF)	10.1
Cum Cut Vol (CF)	15616.3
Cum Fill Vol (CF)	7776.4
Net Vol (CF)	7839.9



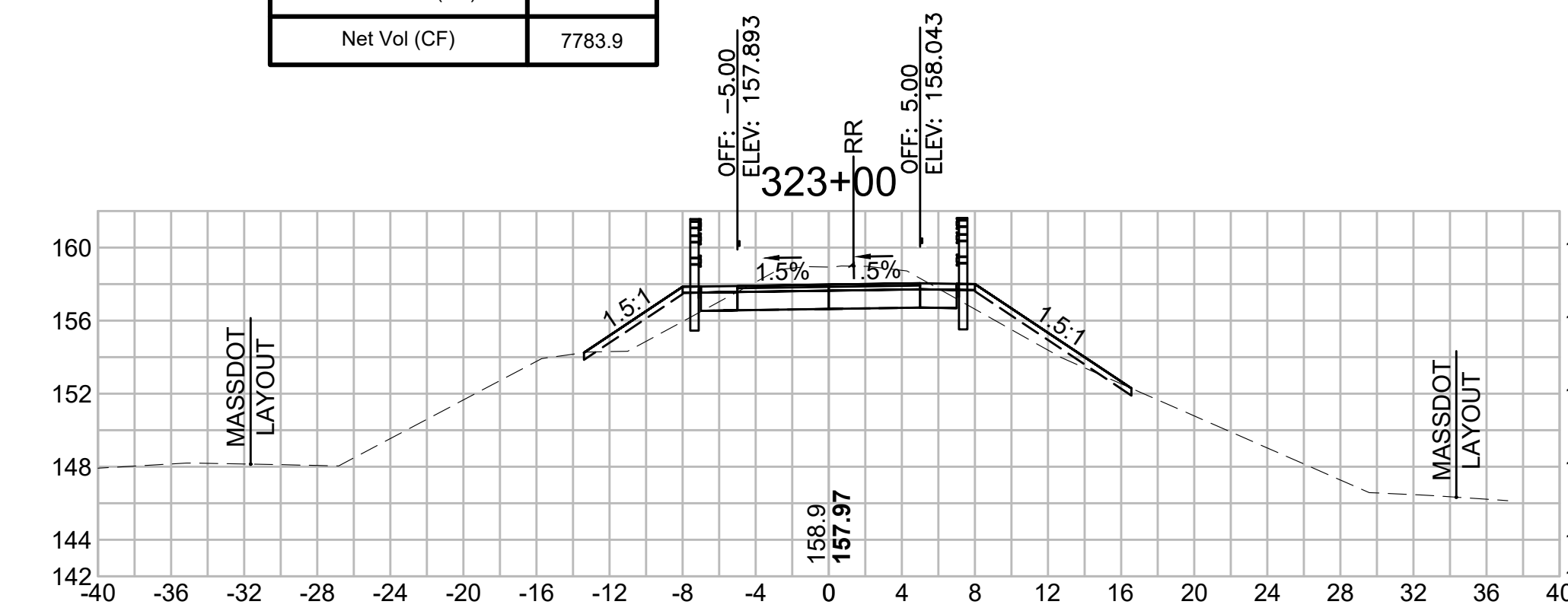
Total Volume at Station 320+00.00	
Cut Area (SF)	32.967
Fill Area (SF)	0.000
Cut Vol (CF)	53.3
Fill Vol (CF)	0.1
Cum Cut Vol (CF)	15160.4
Cum Fill Vol (CF)	7741.4
Net Vol (CF)	7419.1



Total Volume at Station 321+50.00	
Cut Area (SF)	27.287
Fill Area (SF)	1.779
Cut Vol (CF)	49.9
Fill Vol (CF)	1.7
Cum Cut Vol (CF)	15356.8
Cum Fill Vol (CF)	7743.1
Net Vol (CF)	7613.7



Total Volume at Station 323+00.00	
Cut Area (SF)	26.338
Fill Area (SF)	10.961
Cut Vol (CF)	59.1
Fill Vol (CF)	13.3
Cum Cut Vol (CF)	15550.2
Cum Fill Vol (CF)	7766.3
Net Vol (CF)	7783.9



SUDBURY  
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	296	318

PROJECT FILE NO. 608164

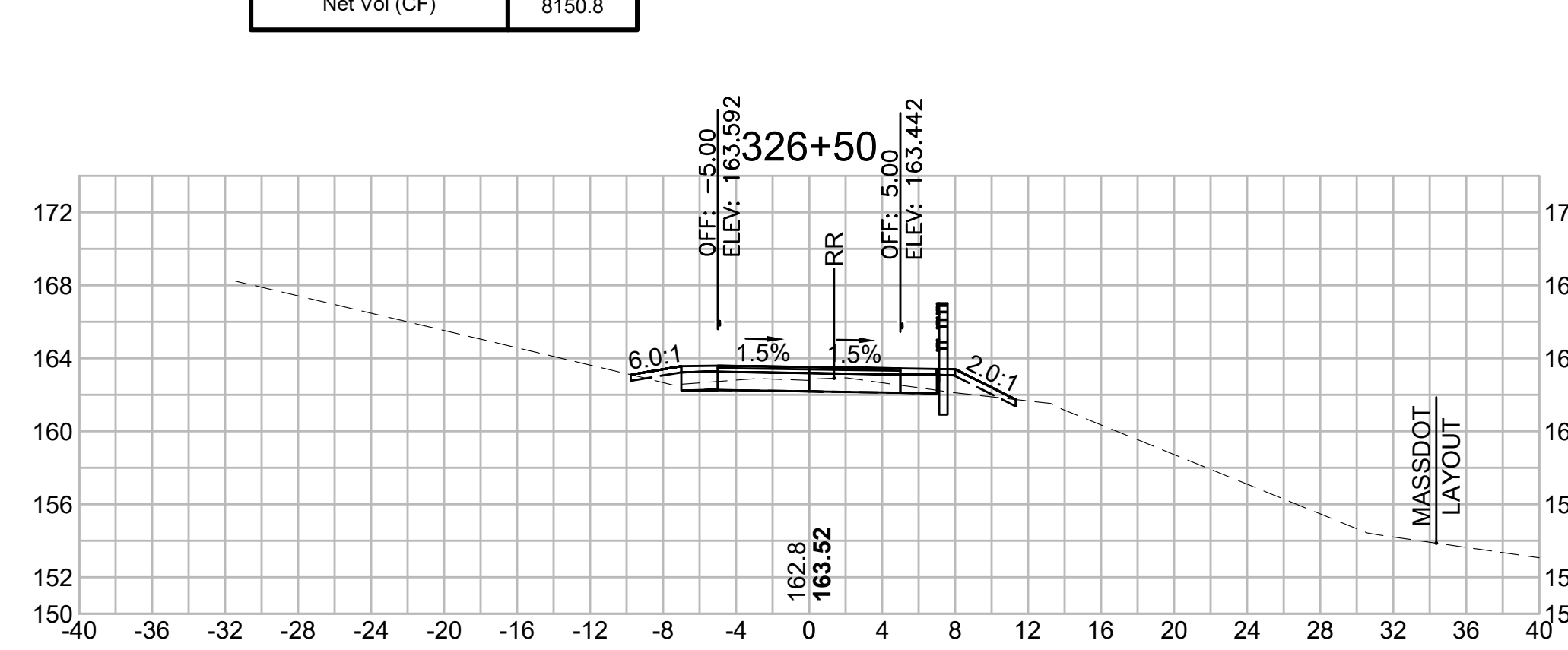
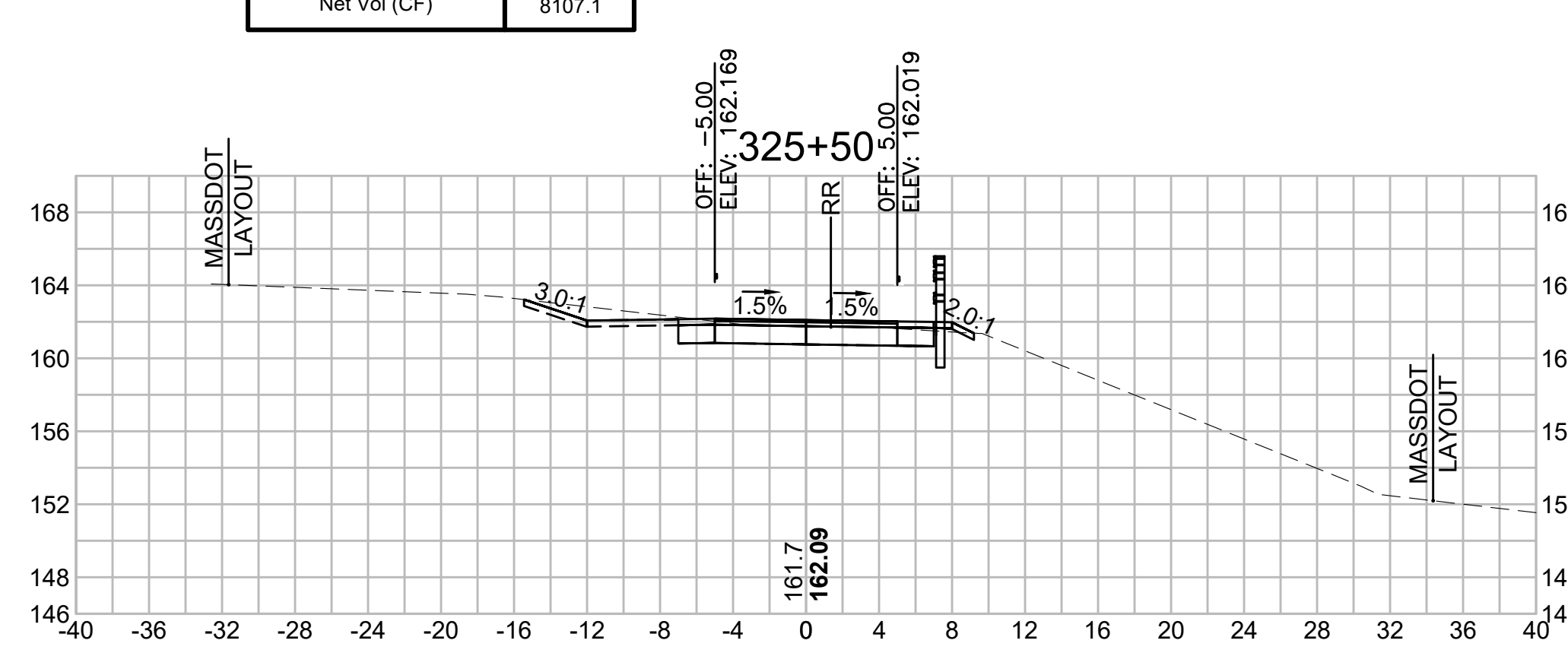
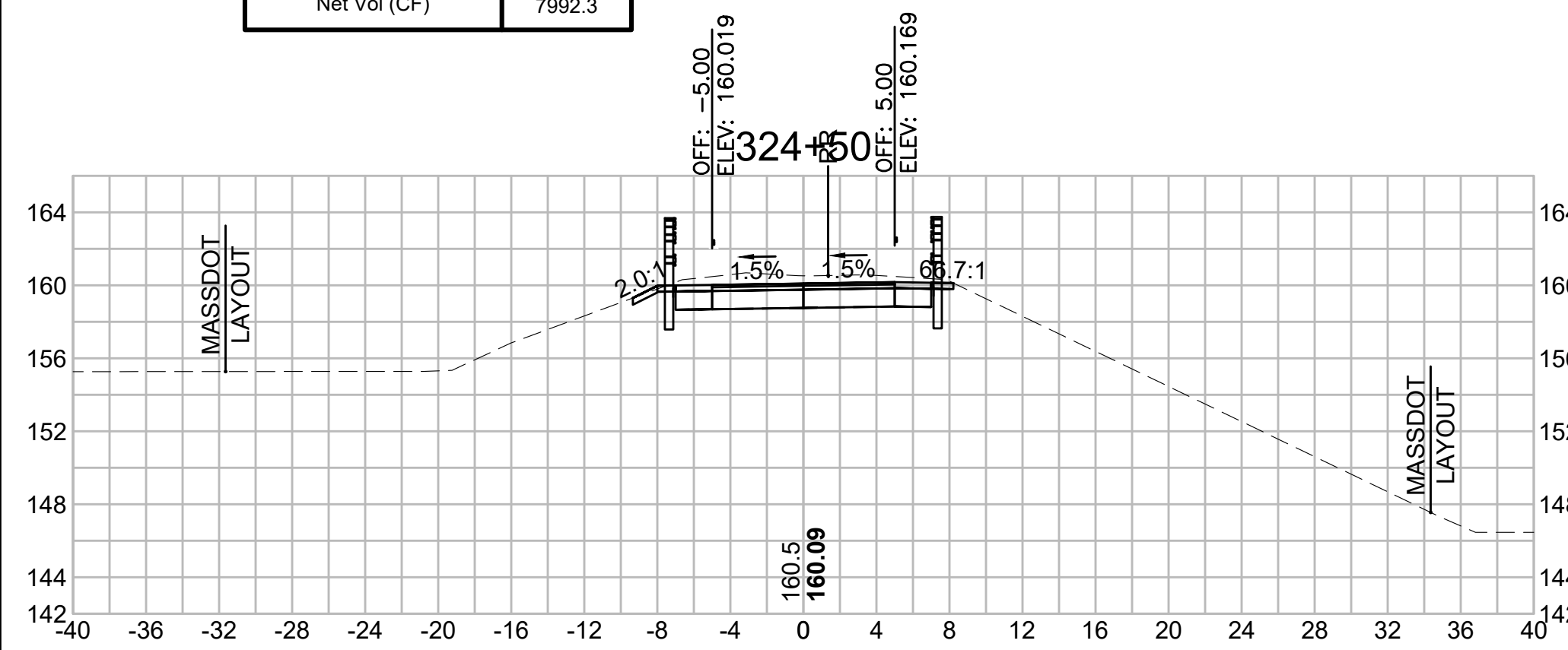
CROSS SECTIONS

608164\_XSEC\CROSS SECTION LAYOUTS.DWG 12-May-2021

Total Volume at Station 324+50.00	
Cut Area (SF)	35.553
Fill Area (SF)	0.000
Cut Vol (CF)	71.8
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	15768.7
Cum Fill Vol (CF)	7776.4
Net Vol (CF)	7992.3

Total Volume at Station 325+50.00	
Cut Area (SF)	21.576
Fill Area (SF)	0.211
Cut Vol (CF)	51.3
Fill Vol (CF)	0.5
Cum Cut Vol (CF)	15884.3
Cum Fill Vol (CF)	7777.2
Net Vol (CF)	8107.1

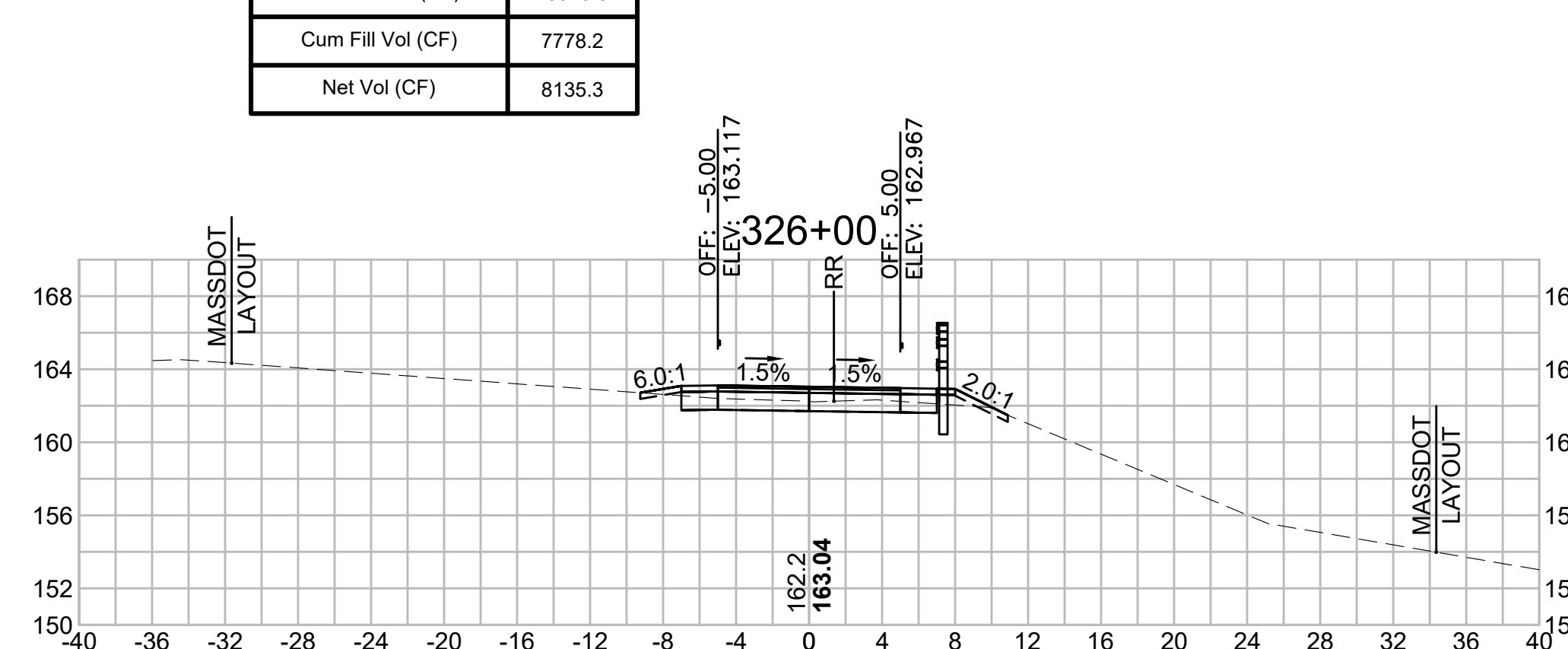
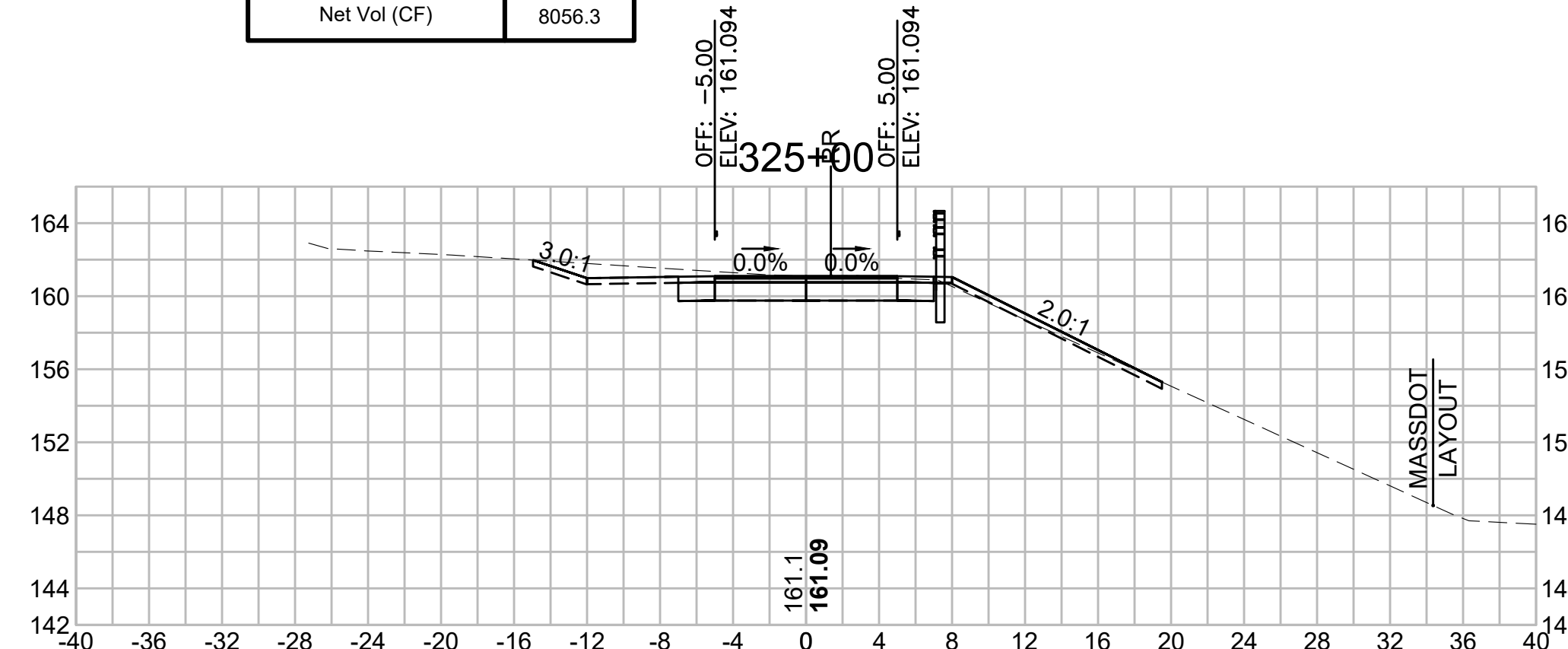
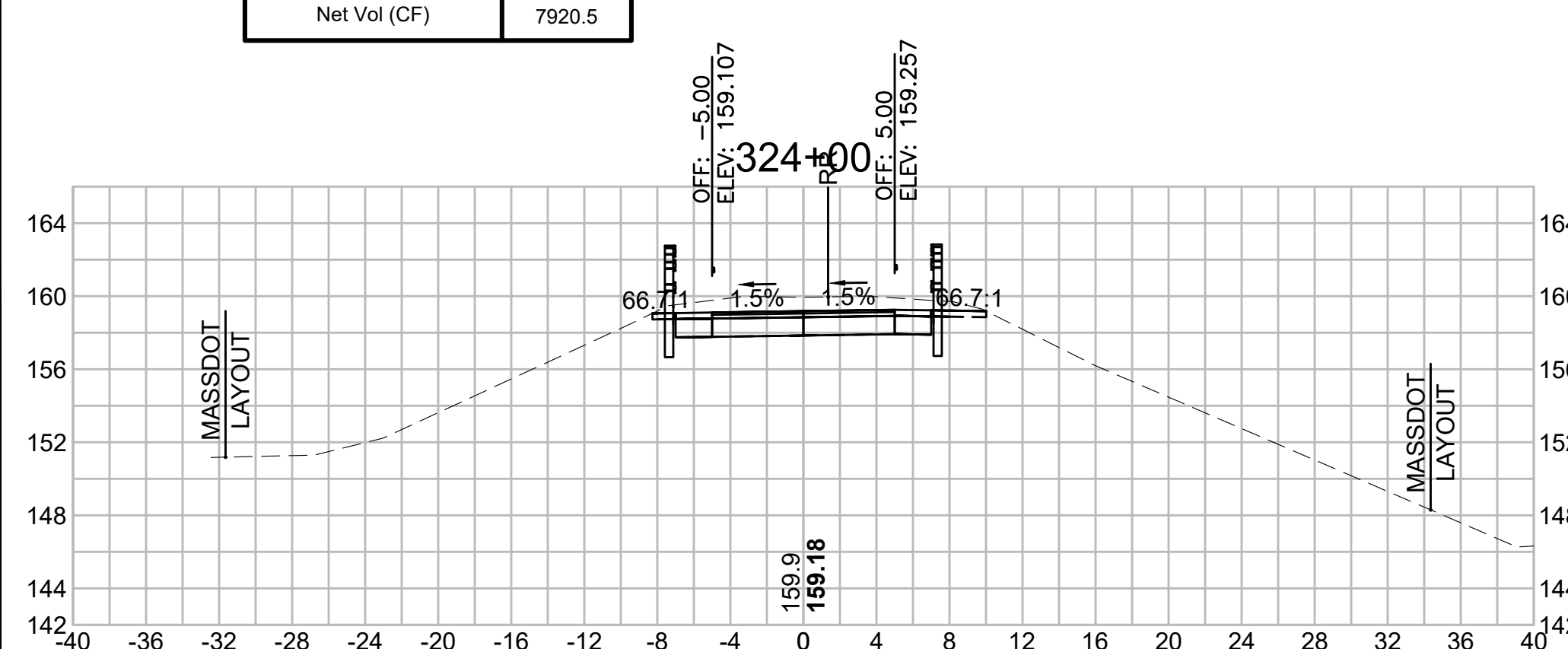
Total Volume at Station 326+50.00	
Cut Area (SF)	10.360
Fill Area (SF)	2.731
Cut Vol (CF)	18.9
Fill Vol (CF)	3.4
Cum Cut Vol (CF)	15932.4
Cum Fill Vol (CF)	7781.6
Net Vol (CF)	8150.8



Total Volume at Station 324+00.00	
Cut Area (SF)	41.953
Fill Area (SF)	0.000
Cut Vol (CF)	80.6
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	15697.0
Cum Fill Vol (CF)	7776.4
Net Vol (CF)	7920.5

Total Volume at Station 325+00.00	
Cut Area (SF)	33.827
Fill Area (SF)	0.286
Cut Vol (CF)	64.2
Fill Vol (CF)	0.3
Cum Cut Vol (CF)	15833.0
Cum Fill Vol (CF)	7776.7
Net Vol (CF)	8056.3

Total Volume at Station 326+00.00	
Cut Area (SF)	10.046
Fill Area (SF)	0.925
Cut Vol (CF)	29.3
Fill Vol (CF)	1.1
Cum Cut Vol (CF)	15913.5
Cum Fill Vol (CF)	7778.2
Net Vol (CF)	8135.3



SUDBURY  
BRUCE FREEMAN RAIL TRAIL

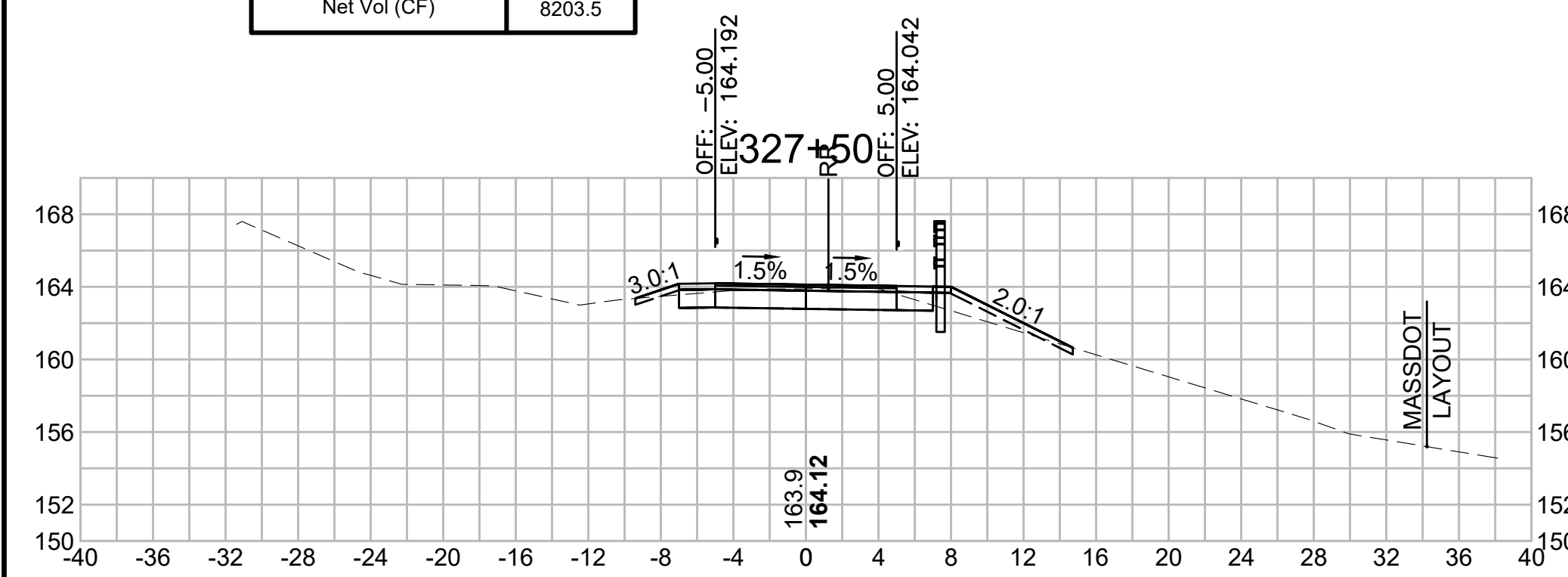
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	297	318

PROJECT FILE NO. 608164

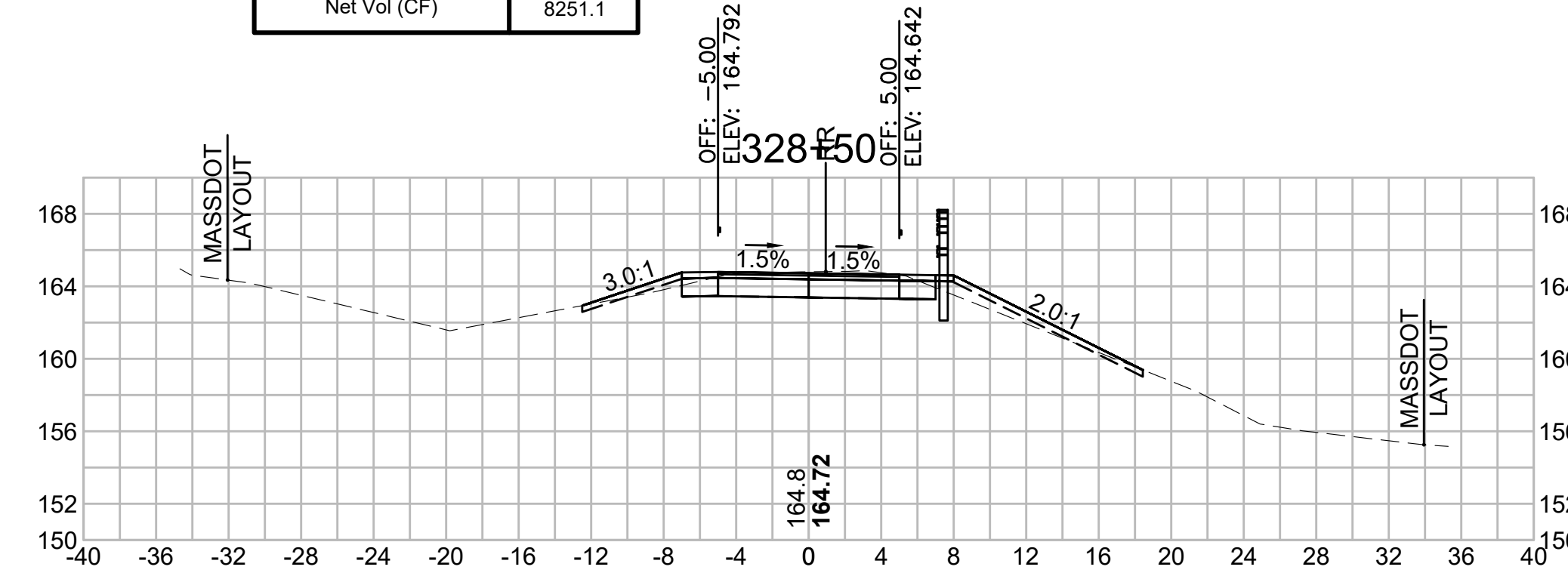
CROSS SECTIONS

608164\_XSEC(CROSS SECTION LAYOUTS).DWG 12-May-2021

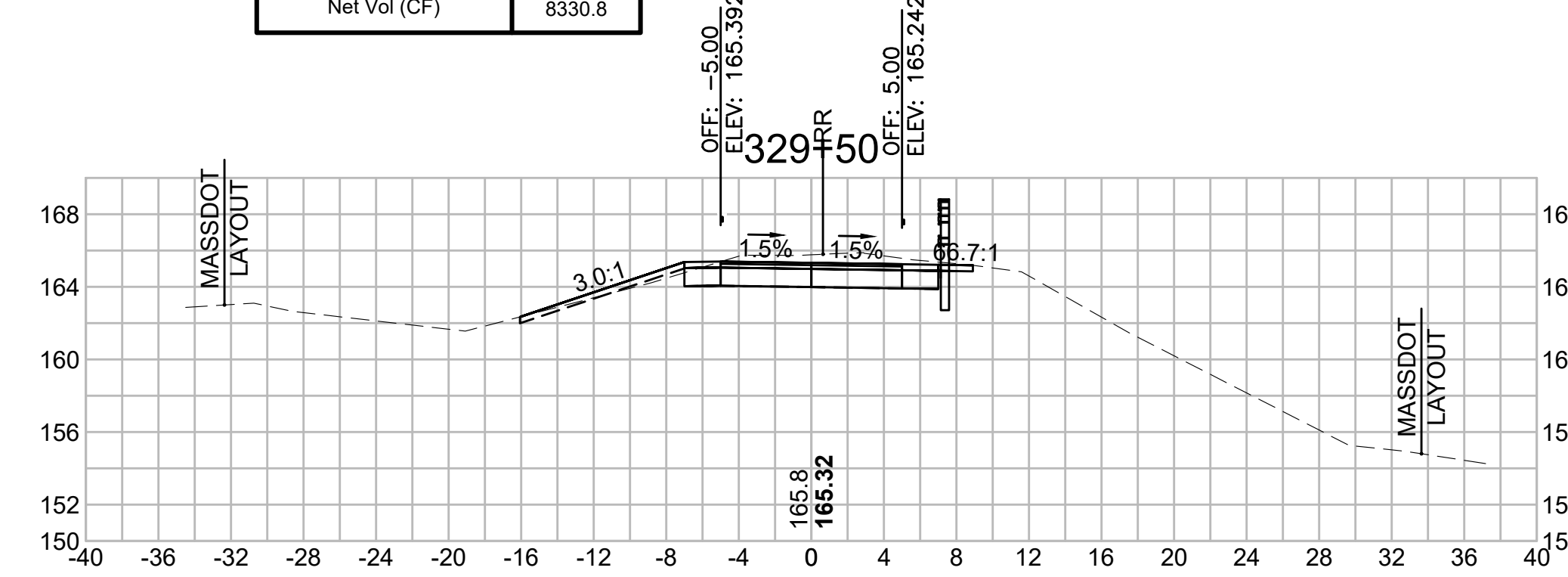
Total Volume at Station 327+50.00	
Cut Area (SF)	18.077
Fill Area (SF)	3.265
Cut Vol (CF)	33.9
Fill Vol (CF)	4.2
Cum Cut Vol (CF)	15993.0
Cum Fill Vol (CF)	7789.5
Net Vol (CF)	8203.5



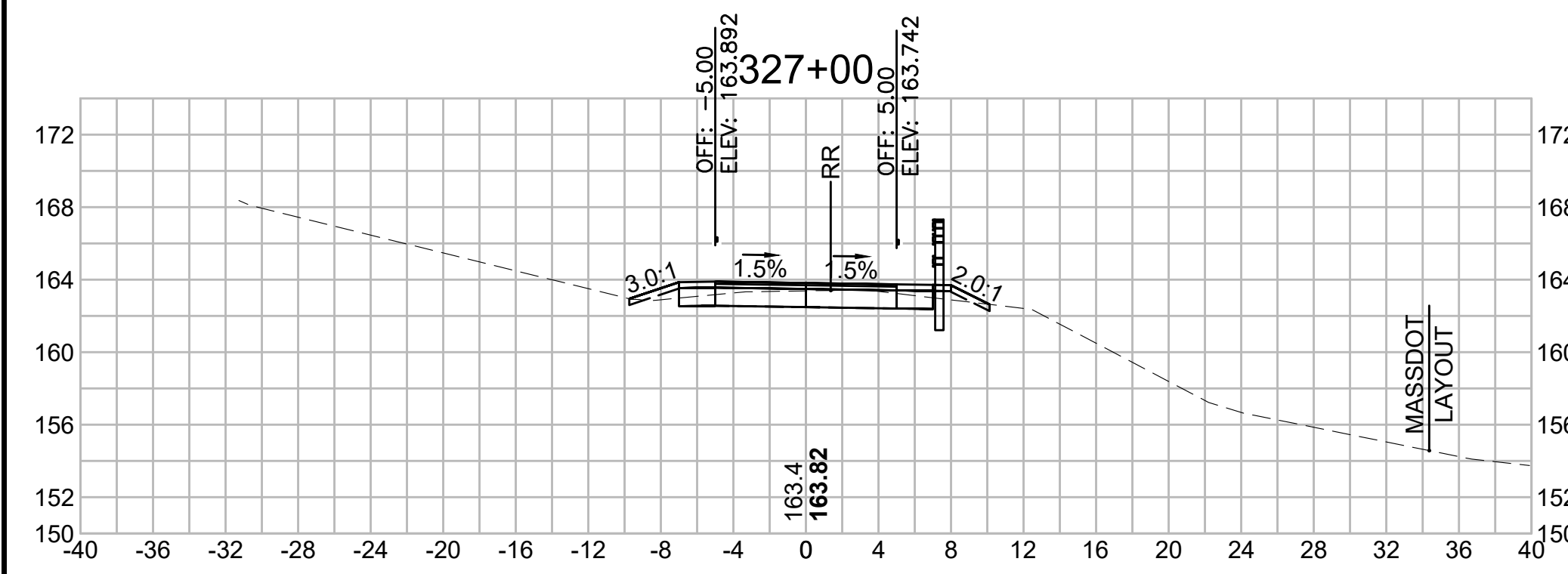
Total Volume at Station 328+50.00	
Cut Area (SF)	18.666
Fill Area (SF)	3.588
Cut Vol (CF)	33.0
Fill Vol (CF)	9.1
Cum Cut Vol (CF)	16058.5
Cum Fill Vol (CF)	7807.4
Net Vol (CF)	8251.1



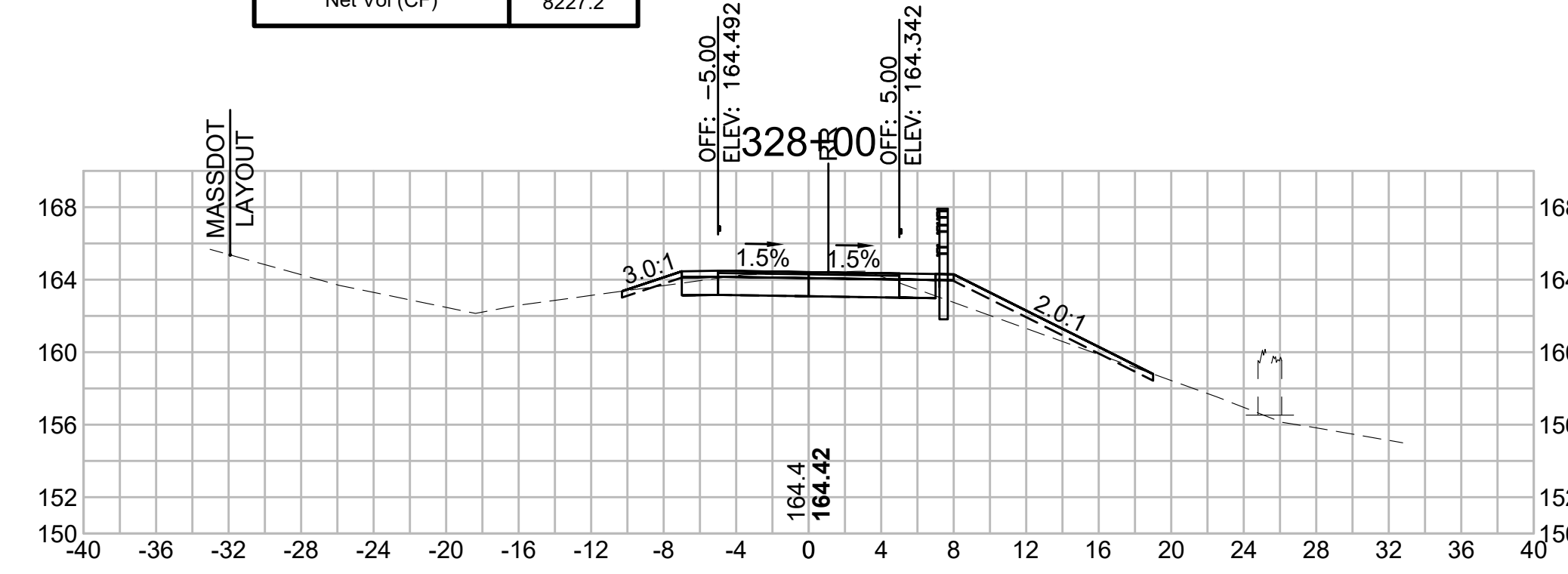
Total Volume at Station 329+50.00	
Cut Area (SF)	24.875
Fill Area (SF)	0.622
Cut Vol (CF)	44.8
Fill Vol (CF)	0.7
Cum Cut Vol (CF)	16142.4
Cum Fill Vol (CF)	7811.6
Net Vol (CF)	8330.8



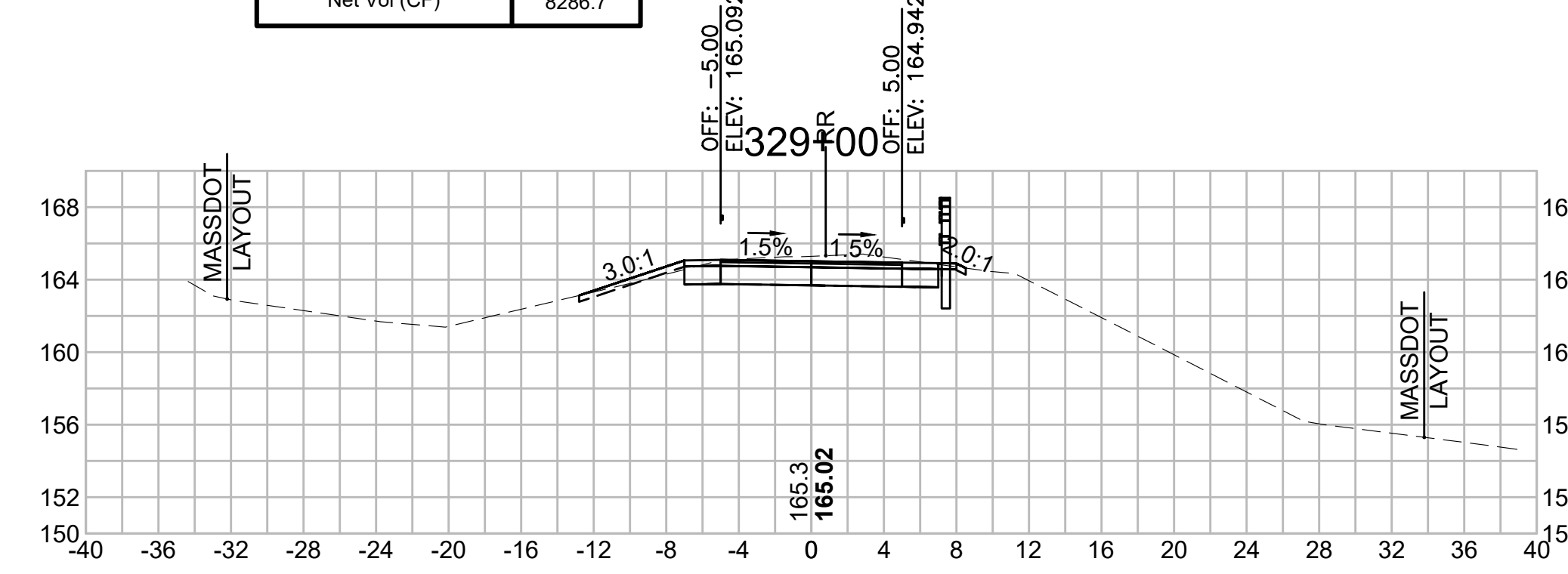
Total Volume at Station 327+00.00	
Cut Area (SF)	18.500
Fill Area (SF)	1.258
Cut Vol (CF)	26.7
Fill Vol (CF)	3.7
Cum Cut Vol (CF)	15959.2
Cum Fill Vol (CF)	7785.3
Net Vol (CF)	8173.9



Total Volume at Station 328+00.00	
Cut Area (SF)	16.999
Fill Area (SF)	6.252
Cut Vol (CF)	32.5
Fill Vol (CF)	8.8
Cum Cut Vol (CF)	16025.5
Cum Fill Vol (CF)	7798.3
Net Vol (CF)	8227.2



Total Volume at Station 329+00.00	
Cut Area (SF)	23.511
Fill Area (SF)	0.168
Cut Vol (CF)	39.1
Fill Vol (CF)	3.5
Cum Cut Vol (CF)	16097.6
Cum Fill Vol (CF)	7810.9
Net Vol (CF)	8286.7



SUDBURY  
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	298	318

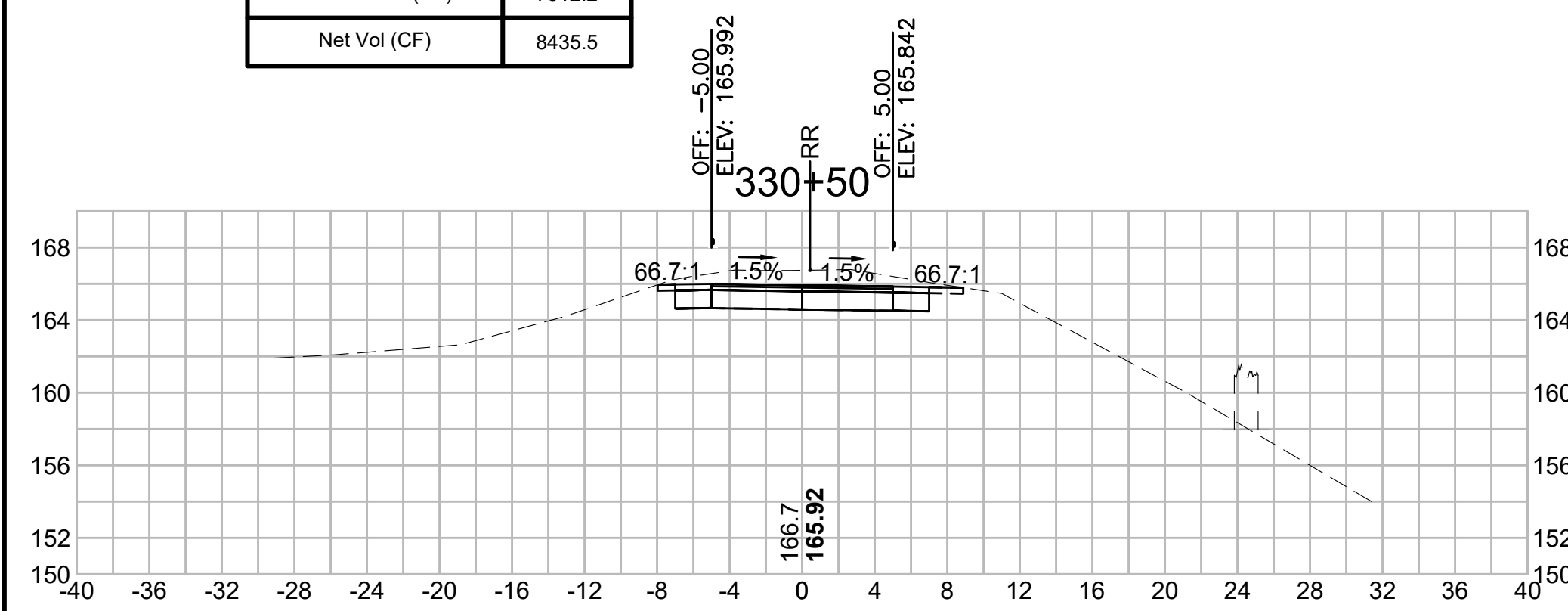
PROJECT FILE NO. 608164

CROSS SECTIONS

608164\_XSEC(CROSS SECTION LAYOUTS).DWG 12-May-2021

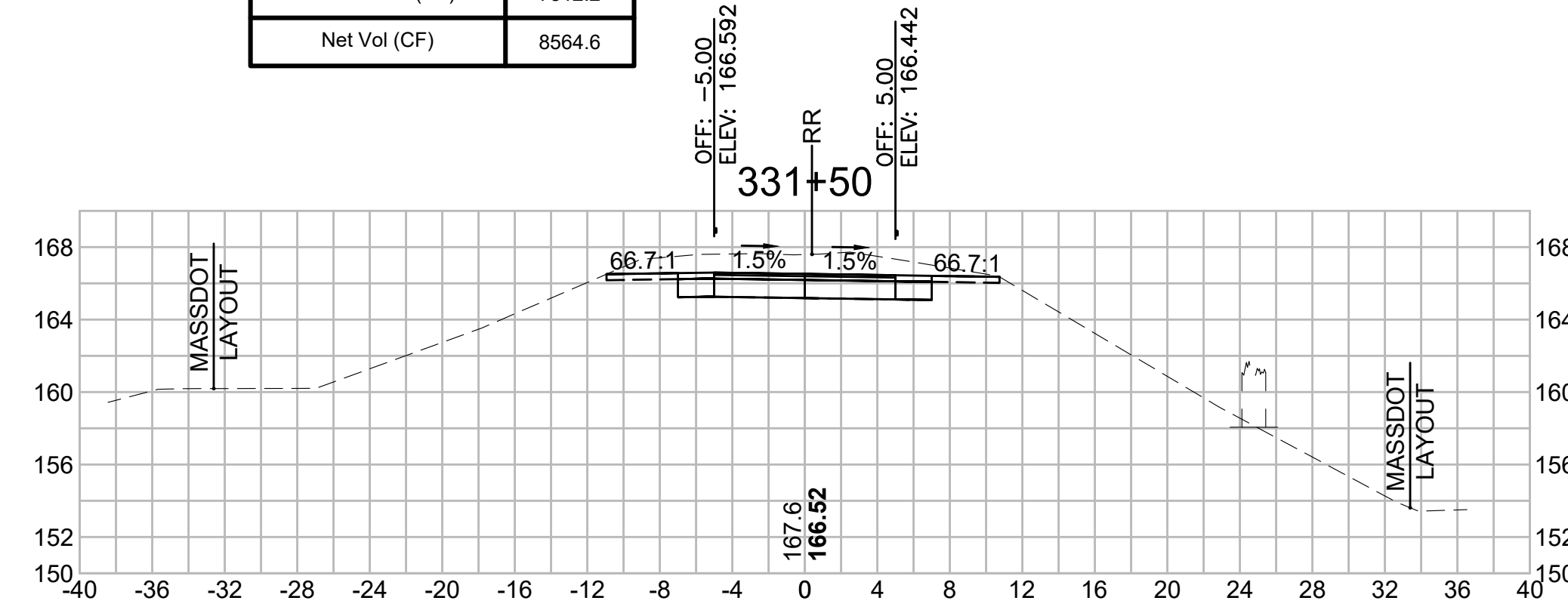
**Total Volume at Station 330+50.00**

Cut Area (SF)	31.474
Fill Area (SF)	0.000
Cut Vol (CF)	55.7
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	16247.7
Cum Fill Vol (CF)	7812.2
Net Vol (CF)	8435.5



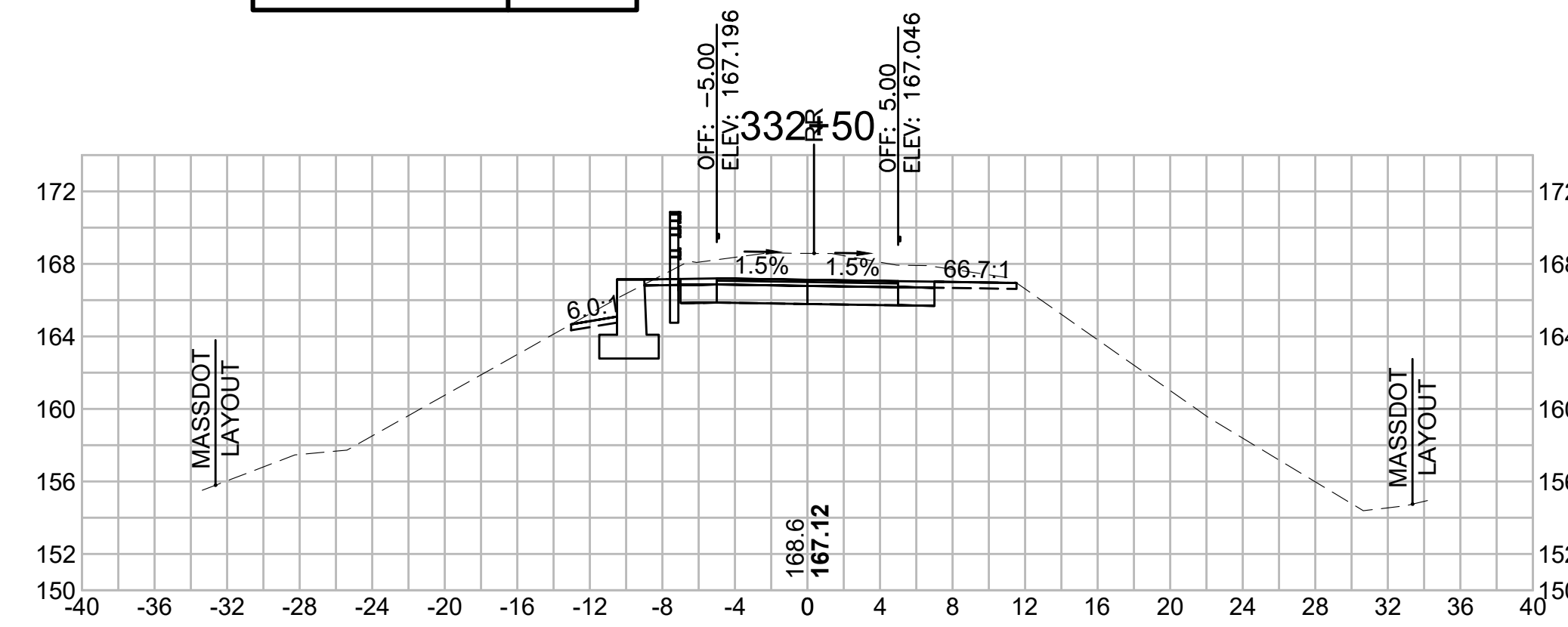
**Total Volume at Station 331+50.00**

Cut Area (SF)	39.244
Fill Area (SF)	0.000
Cut Vol (CF)	68.2
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	16376.8
Cum Fill Vol (CF)	7812.2
Net Vol (CF)	8564.6



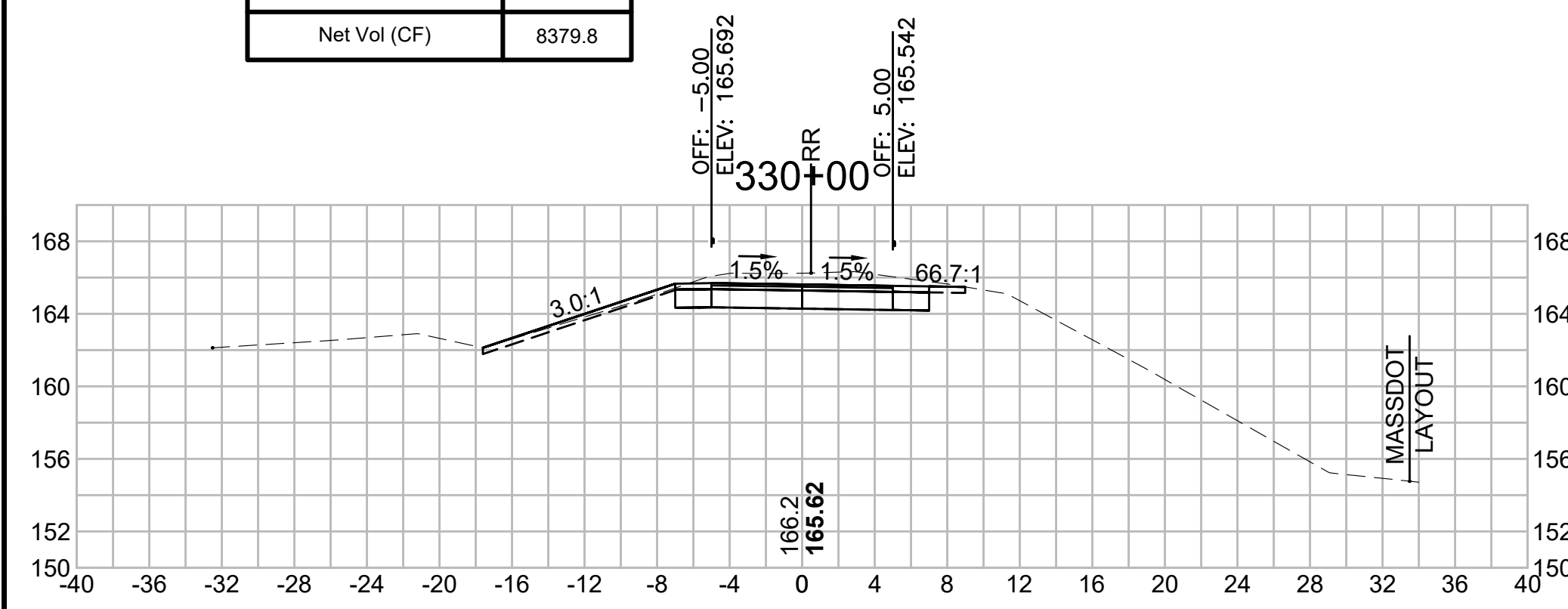
**Total Volume at Station 332+50.00**

Cut Area (SF)	53.006
Fill Area (SF)	0.008
Cut Vol (CF)	89.5
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	16543.0
Cum Fill Vol (CF)	7812.2
Net Vol (CF)	8730.8



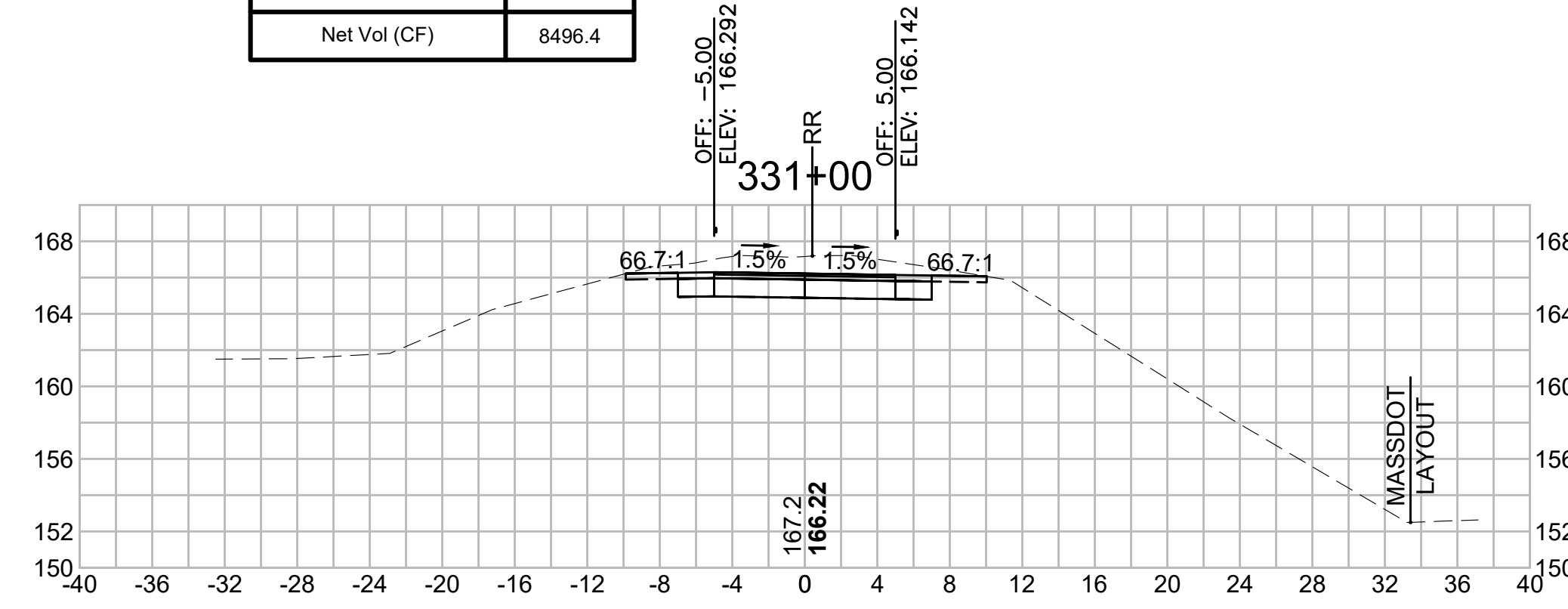
**Total Volume at Station 330+00.00**

Cut Area (SF)	28.671
Fill Area (SF)	0.000
Cut Vol (CF)	49.6
Fill Vol (CF)	0.6
Cum Cut Vol (CF)	16192.0
Cum Fill Vol (CF)	7812.2
Net Vol (CF)	8379.8



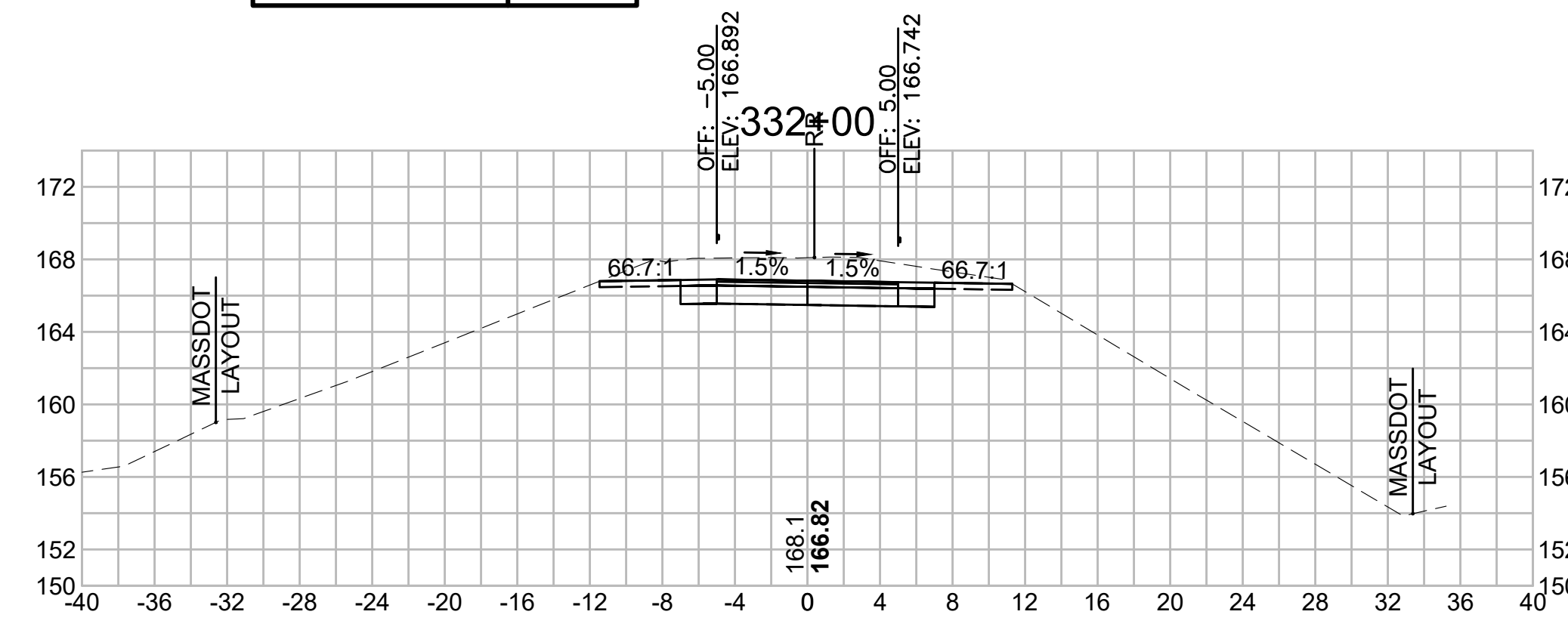
**Total Volume at Station 331+00.00**

Cut Area (SF)	34.386
Fill Area (SF)	0.000
Cut Vol (CF)	61.0
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	16308.6
Cum Fill Vol (CF)	7812.2
Net Vol (CF)	8496.4



**Total Volume at Station 332+00.00**

Cut Area (SF)	43.619
Fill Area (SF)	0.000
Cut Vol (CF)	76.7
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	16453.5
Cum Fill Vol (CF)	7812.2
Net Vol (CF)	8641.3



SUDBURY  
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	299	318

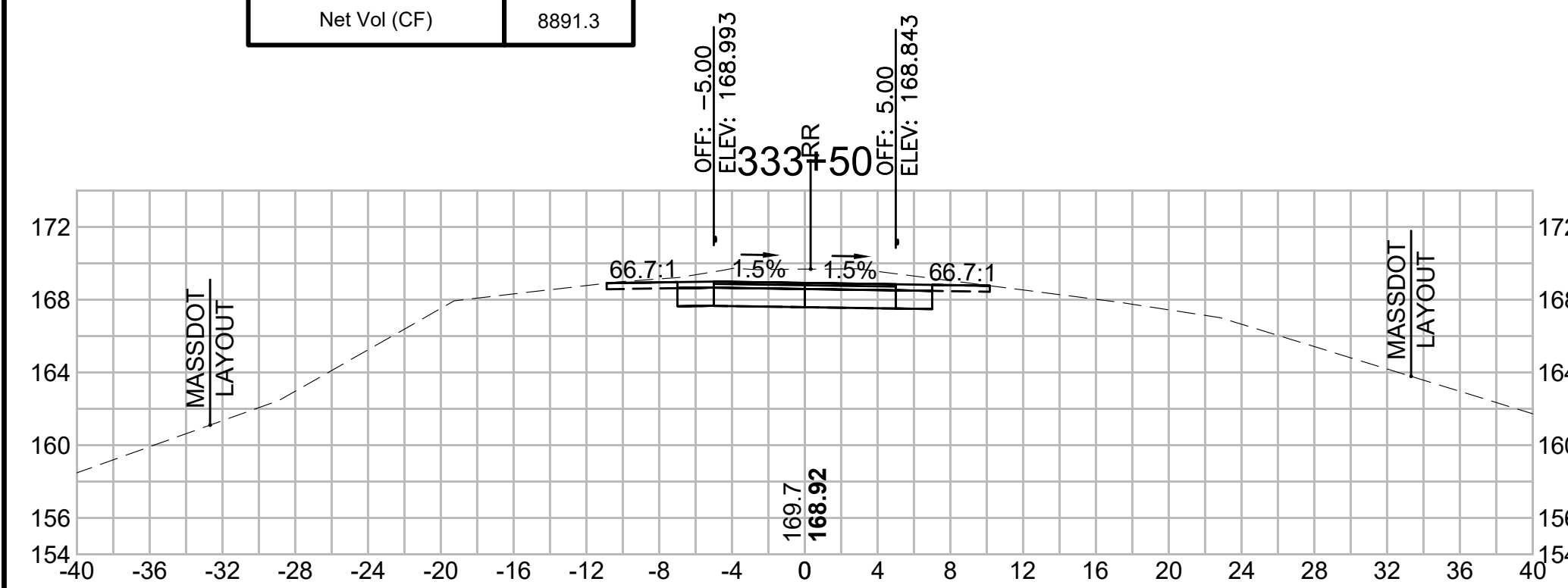
PROJECT FILE NO. 608164

CROSS SECTIONS

608164\_XSEC(CROSS SECTION LAYOUTS).DWG 12-May-2021

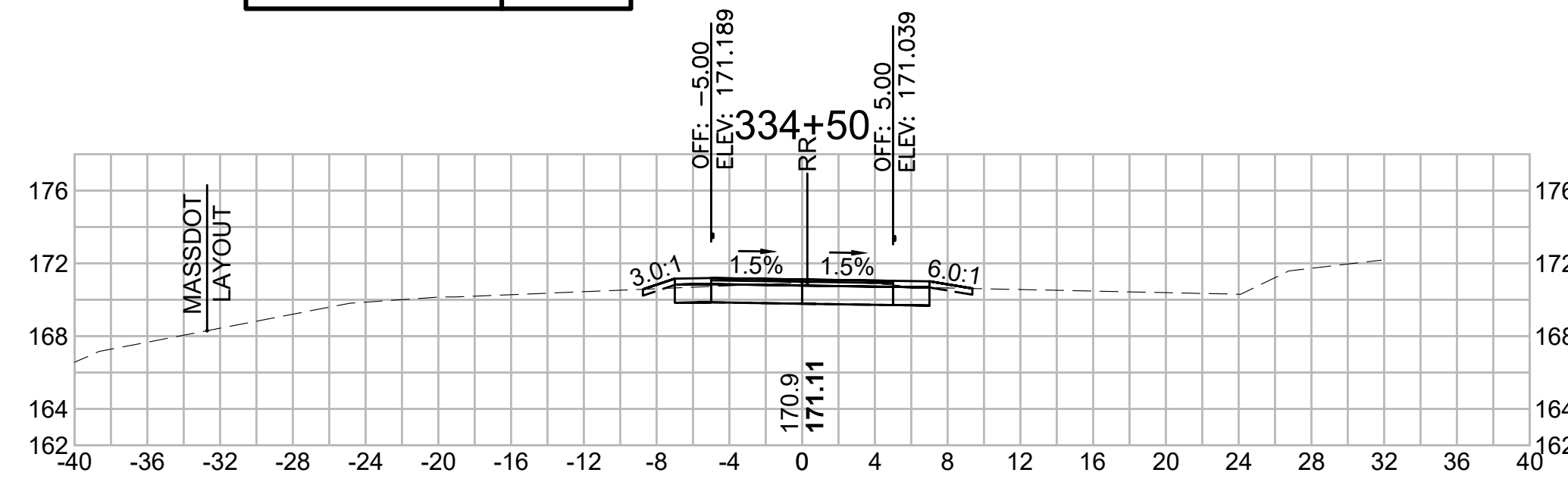
**Total Volume at Station 333+50.00**

Cut Area (SF)	31.997
Fill Area (SF)	0.000
Cut Vol (CF)	70.5
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	16703.5
Cum Fill Vol (CF)	7812.2
Net Vol (CF)	8891.3



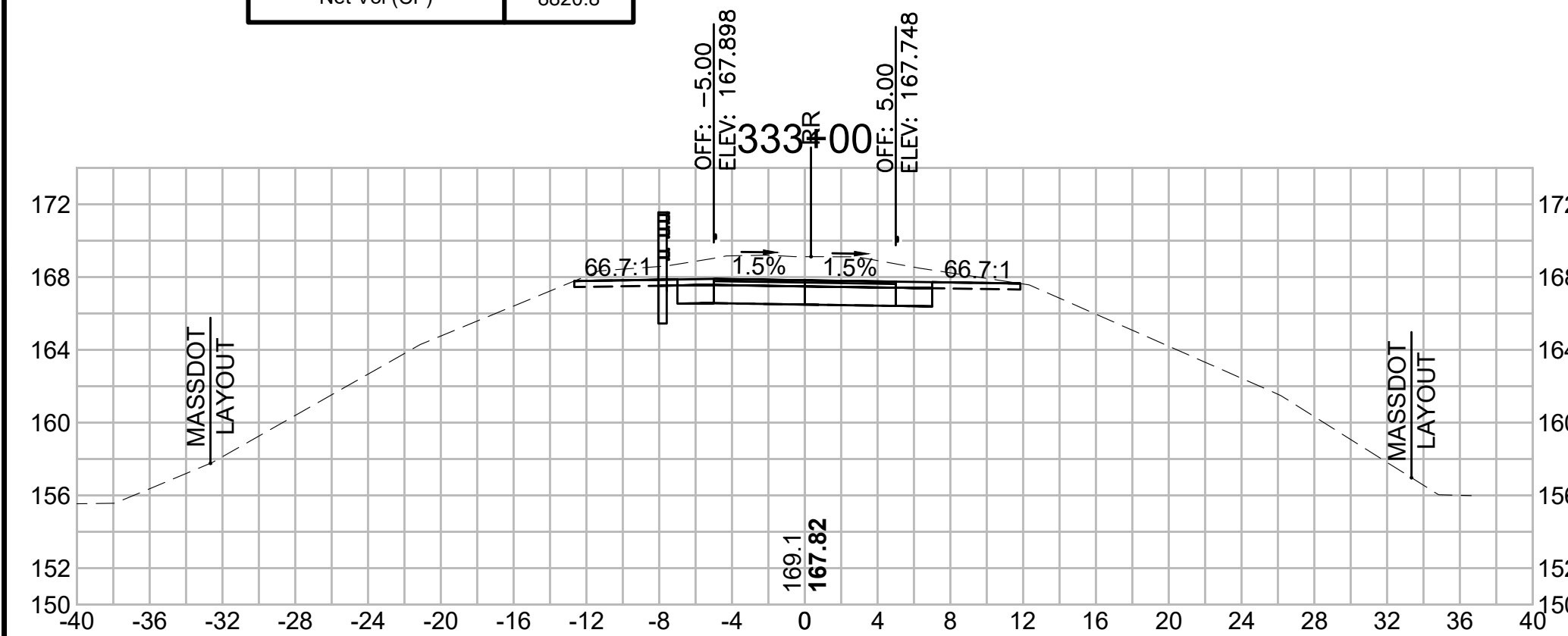
**Total Volume at Station 334+50.00**

Cut Area (SF)	18.660
Fill Area (SF)	0.046
Cut Vol (CF)	38.3
Fill Vol (CF)	0.3
Cum Cut Vol (CF)	16792.5
Cum Fill Vol (CF)	7812.7
Net Vol (CF)	8979.8



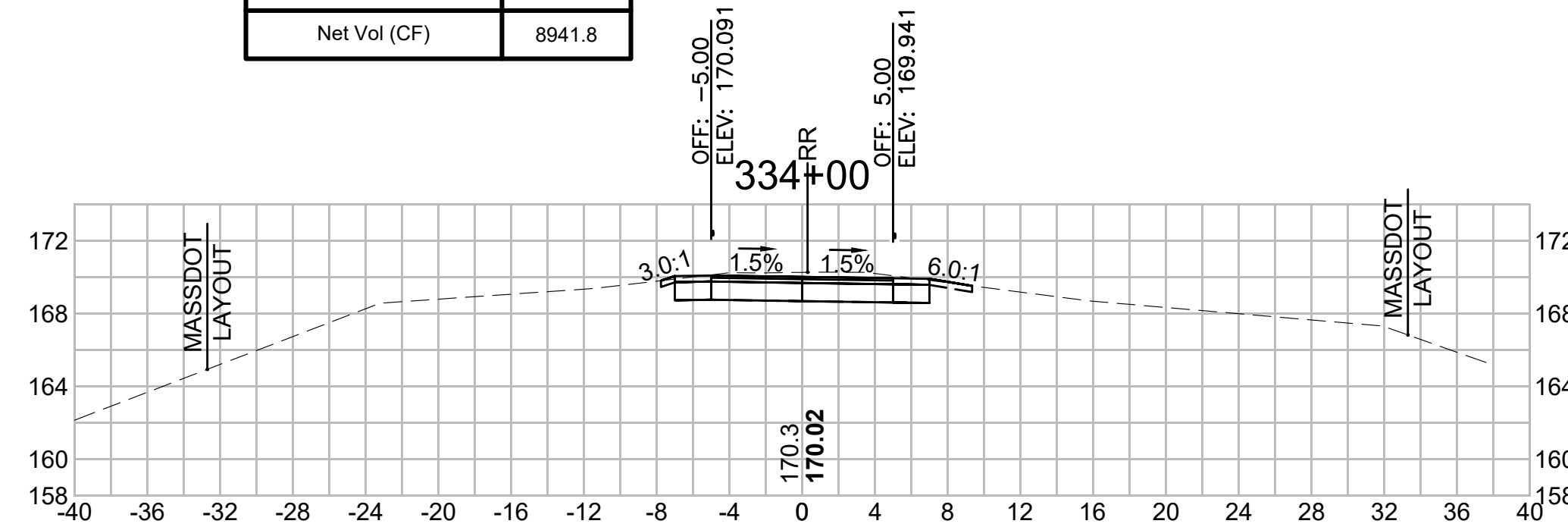
**Total Volume at Station 333+00.00**

Cut Area (SF)	44.181
Fill Area (SF)	0.000
Cut Vol (CF)	90.0
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	16633.0
Cum Fill Vol (CF)	7812.2
Net Vol (CF)	8820.8



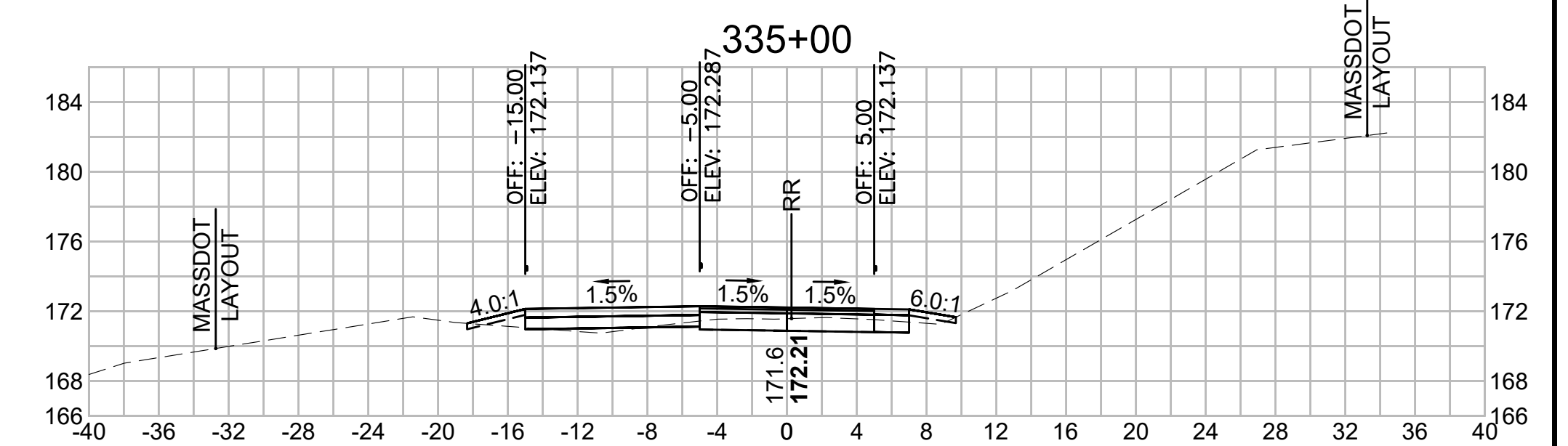
**Total Volume at Station 334+00.00**

Cut Area (SF)	22.718
Fill Area (SF)	0.248
Cut Vol (CF)	50.7
Fill Vol (CF)	0.2
Cum Cut Vol (CF)	16754.2
Cum Fill Vol (CF)	7812.4
Net Vol (CF)	8941.8



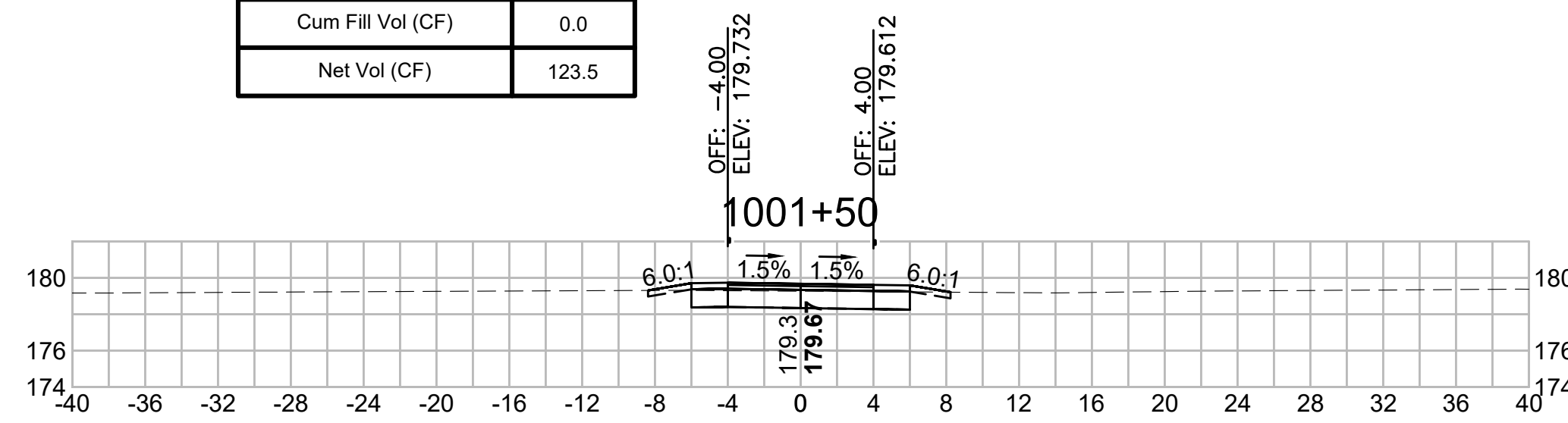
**Total Volume at Station 335+00.00**

Cut Area (SF)	9.103
Fill Area (SF)	2.279
Cut Vol (CF)	25.7
Fill Vol (CF)	2.2
Cum Cut Vol (CF)	16618.2
Cum Fill Vol (CF)	7814.9
Net Vol (CF)	9003.3



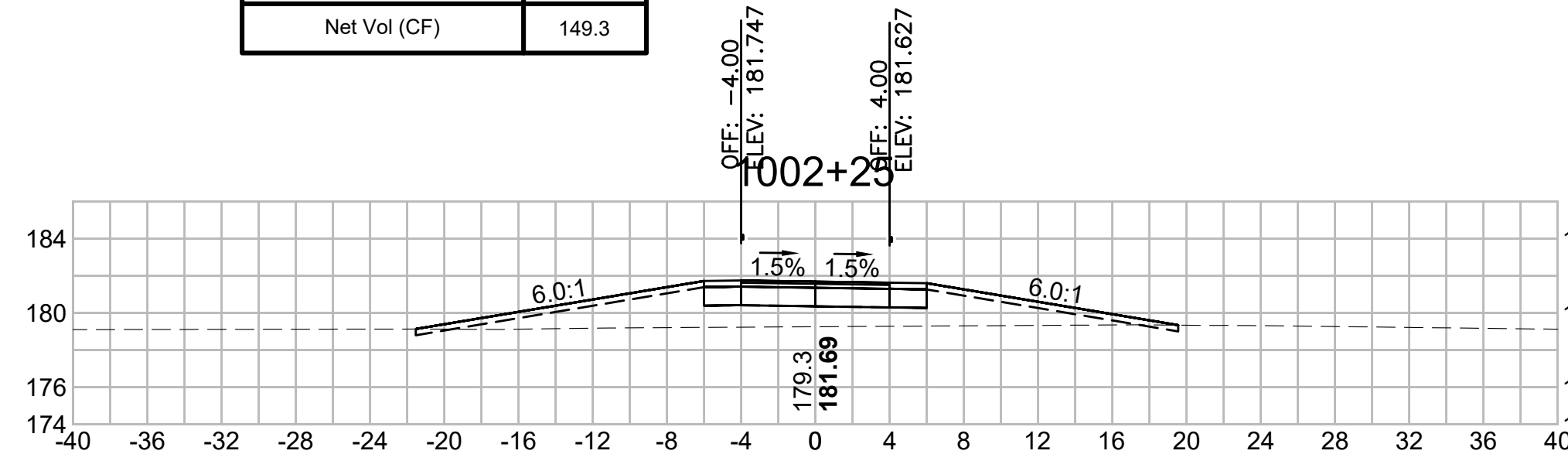
**Total Volume at Station 1001+50.00**

Cut Area (SF)	44.475
Fill Area (SF)	0.013
Cut Vol (CF)	52.4
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	123.5
Cum Fill Vol (CF)	0.0
Net Vol (CF)	123.5



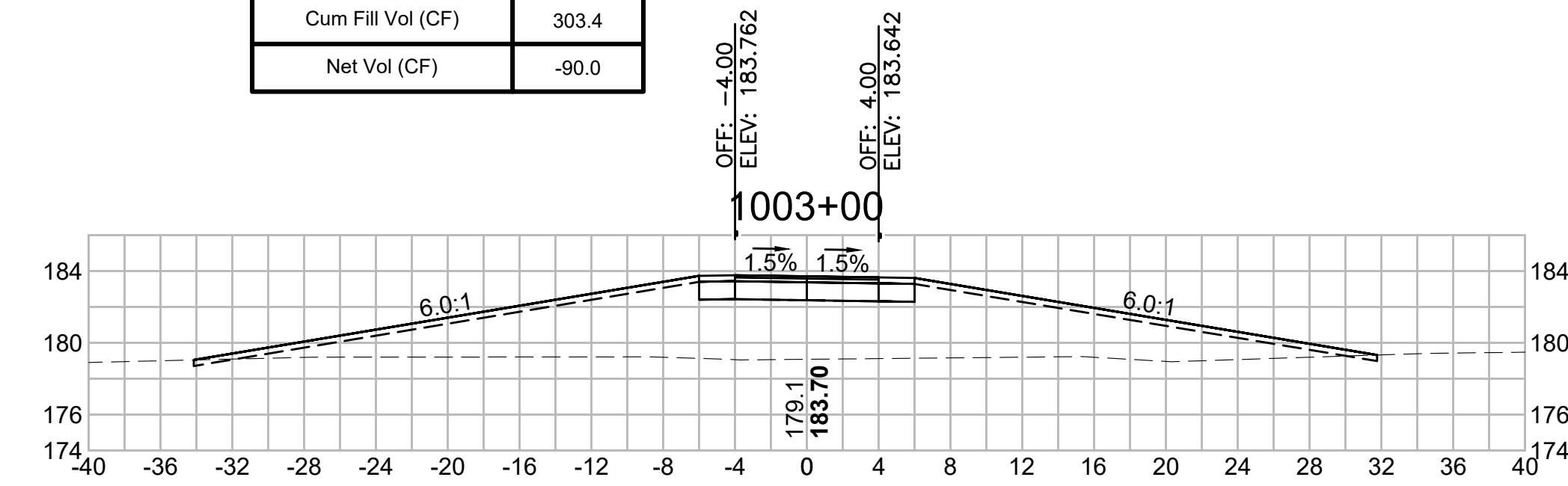
**Total Volume at Station 1002+25.00**

Cut Area (SF)	12.186
Fill Area (SF)	39.251
Cut Vol (CF)	12.8
Fill Vol (CF)	26.0
Cum Cut Vol (CF)	186.5
Cum Fill Vol (CF)	37.3
Net Vol (CF)	149.3



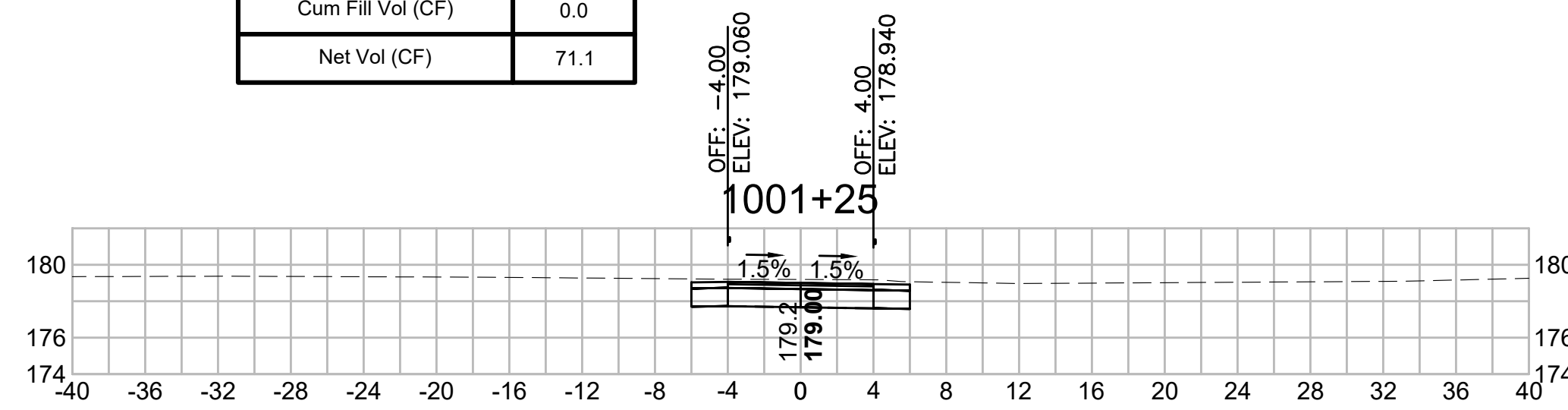
**Total Volume at Station 1003+00.00**

Cut Area (SF)	5.808
Fill Area (SF)	143.709
Cut Vol (CF)	7.4
Fill Vol (CF)	119.0
Cum Cut Vol (CF)	213.4
Cum Fill Vol (CF)	303.4
Net Vol (CF)	-90.0



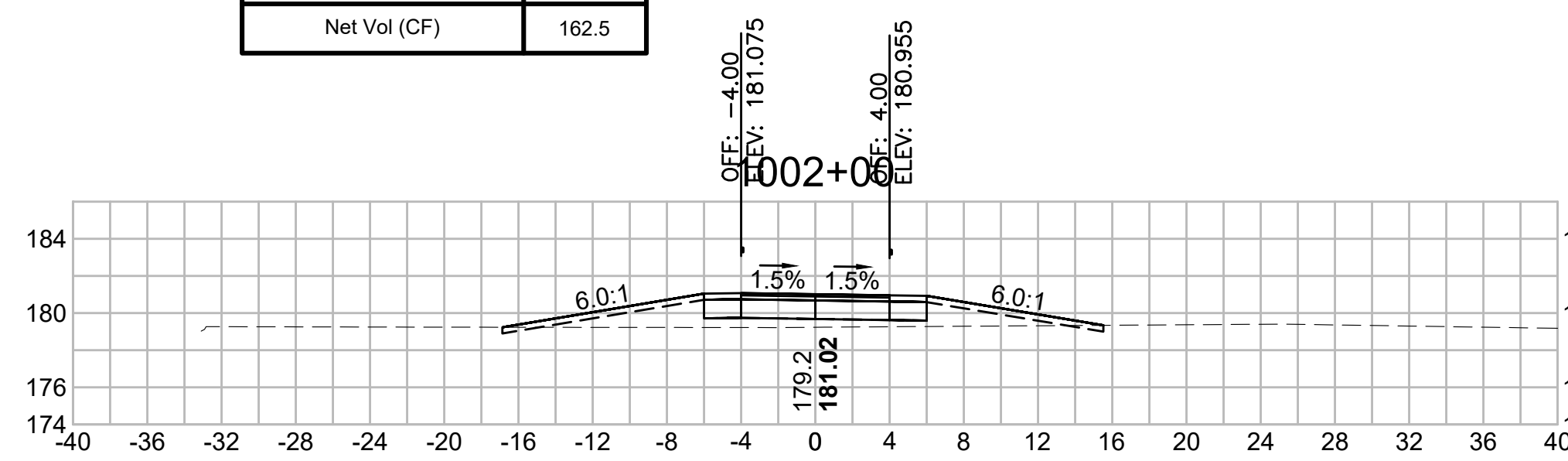
**Total Volume at Station 1001+25.00**

Cut Area (SF)	68.630
Fill Area (SF)	0.000
Cut Vol (CF)	71.1
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	71.1
Cum Fill Vol (CF)	0.0
Net Vol (CF)	71.1



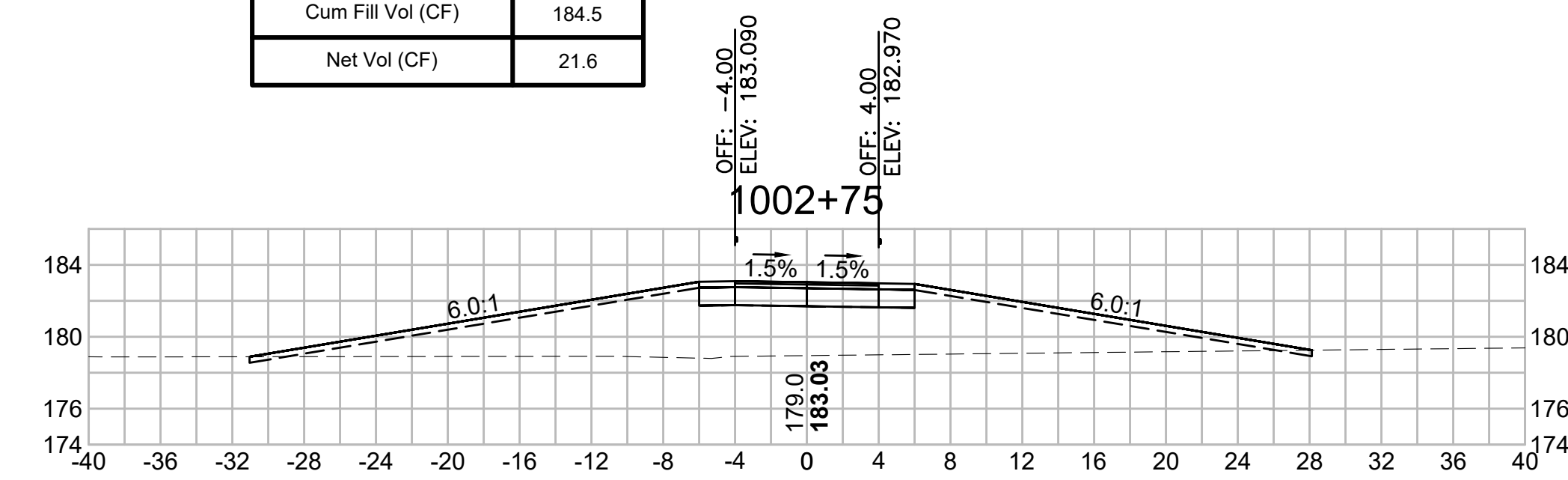
**Total Volume at Station 1002+00.00**

Cut Area (SF)	15.420
Fill Area (SF)	16.880
Cut Vol (CF)	18.4
Fill Vol (CF)	9.5
Cum Cut Vol (CF)	173.7
Cum Fill Vol (CF)	11.3
Net Vol (CF)	162.5



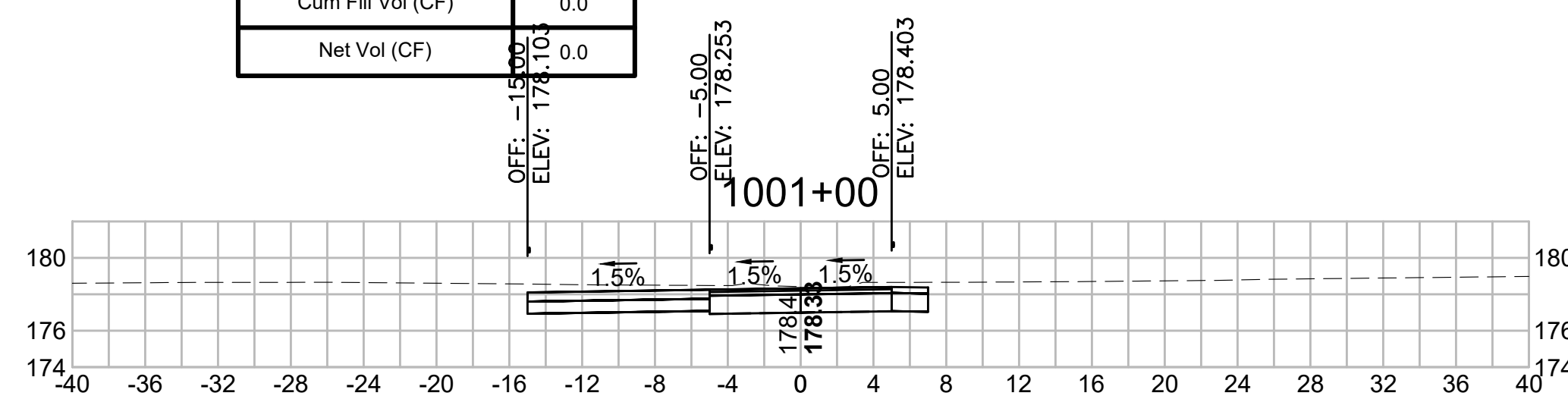
**Total Volume at Station 1002+75.00**

Cut Area (SF)	10.195
Fill Area (SF)	113.313
Cut Vol (CF)	9.3
Fill Vol (CF)	90.7
Cum Cut Vol (CF)	206.0
Cum Fill Vol (CF)	184.5
Net Vol (CF)	21.6



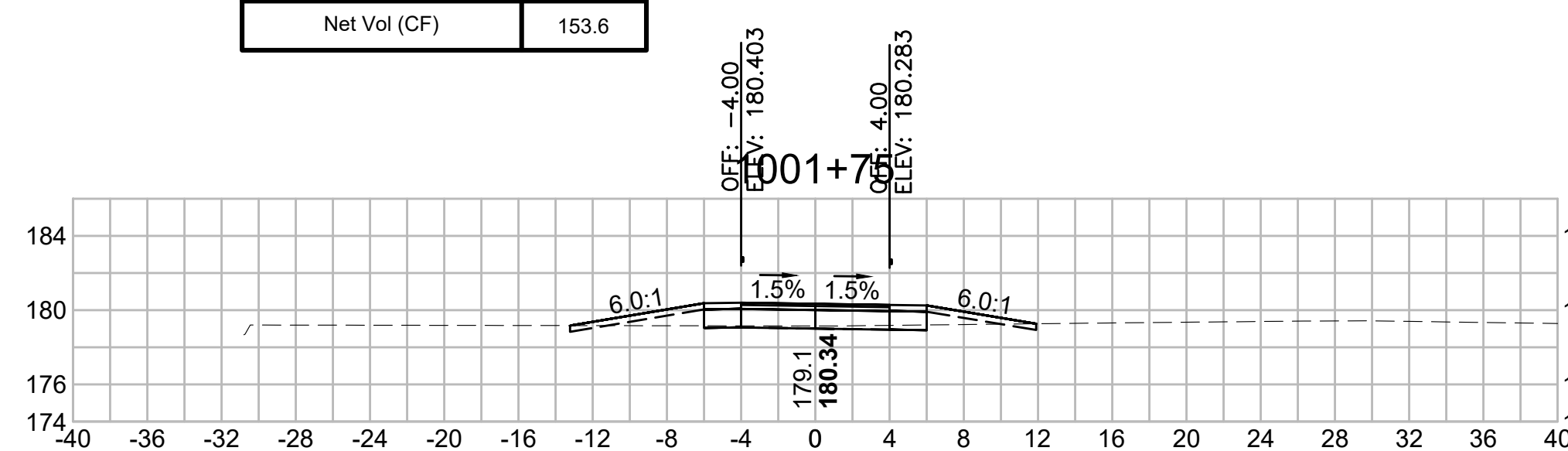
**Total Volume at Station 1001+00.00**

Cut Area (SF)	84.962
Fill Area (SF)	0.000
Cut Vol (CF)	0.0
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	0.0
Cum Fill Vol (CF)	0.0
Net Vol (CF)	0.0



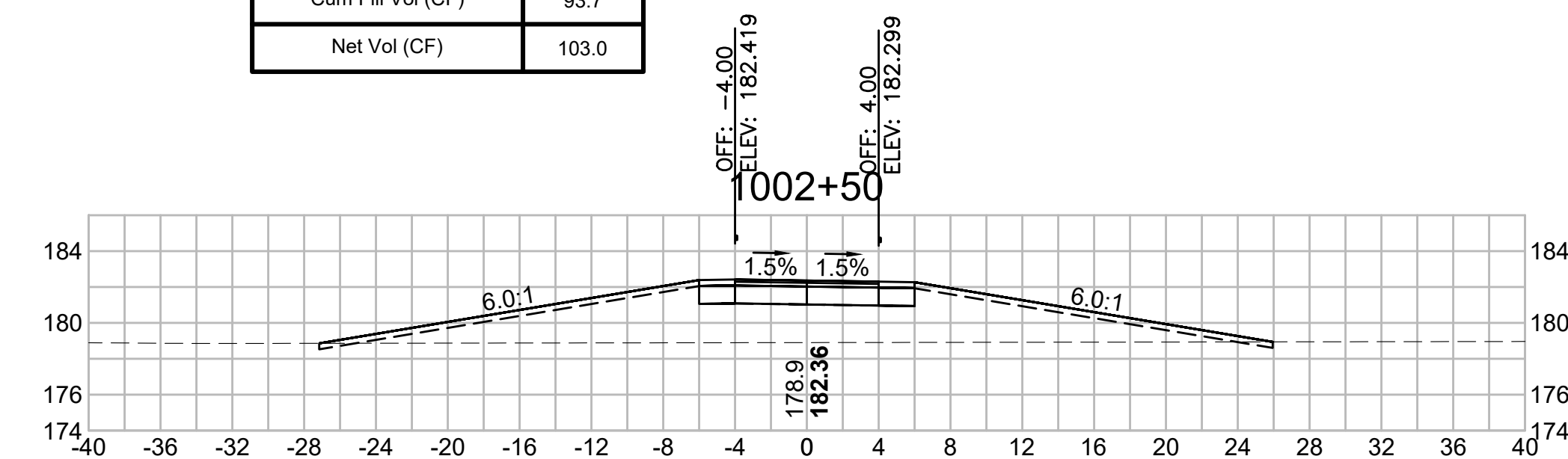
**Total Volume at Station 1001+75.00**

Cut Area (SF)	24.349
Fill Area (SF)	3.723
Cut Vol (CF)	31.9
Fill Vol (CF)	1.7
Cum Cut Vol (CF)	155.3
Cum Fill Vol (CF)	1.7
Net Vol (CF)	153.6



**Total Volume at Station 1002+50.00**

Cut Area (SF)	9.861
Fill Area (SF)	82.688
Cut Vol (CF)	10.2
Fill Vol (CF)	56.5
Cum Cut Vol (CF)	196.7
Cum Fill Vol (CF)	93.7
Net Vol (CF)	103.0





SUDBURY  
BRUCE FREEMAN RAIL TRAIL

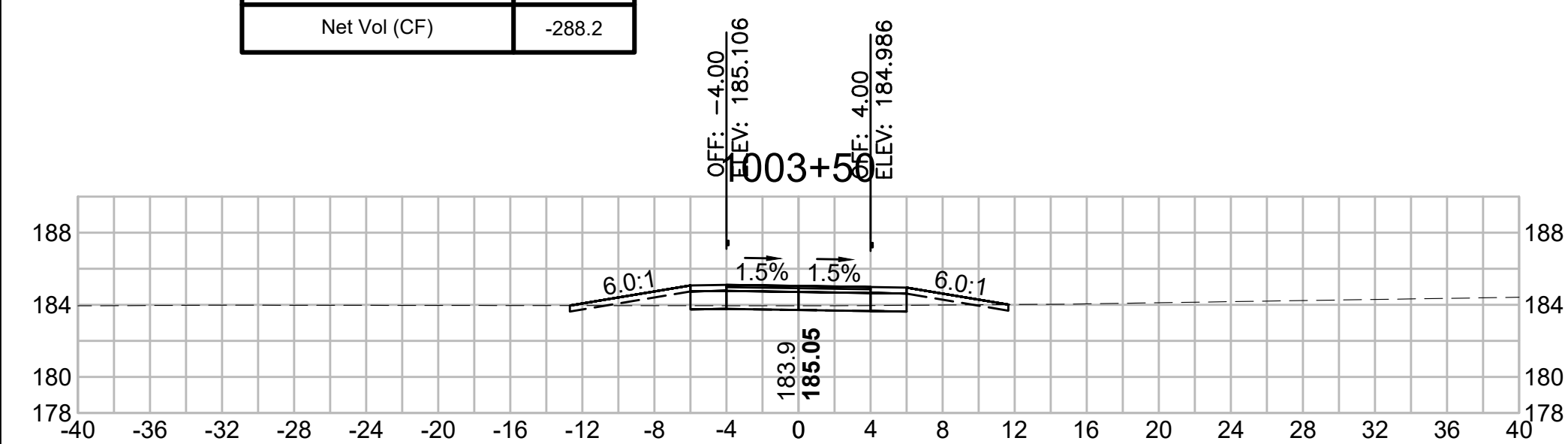
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	301	318
PROJECT FILE NO. 608164			

CROSS SECTIONS  
PARKINSON'S LOT ACCESS PATH

608164\_XSEC(CROSS SECTION LAYOUTS).DWG 12-May-2021

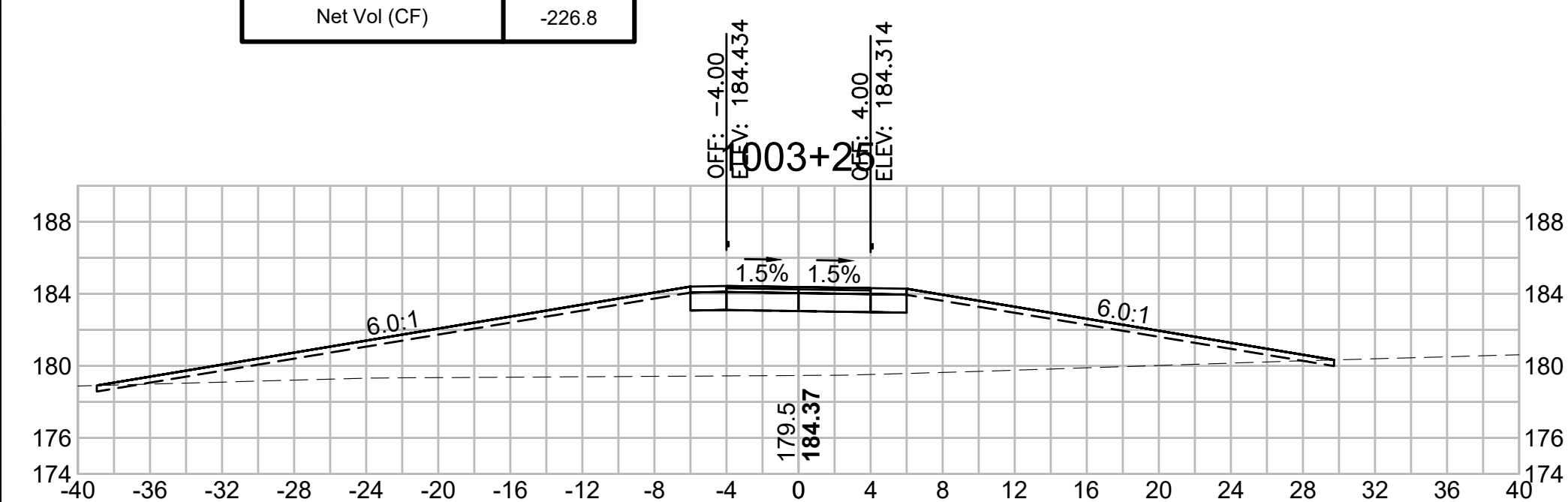
**Total Volume at Station 1003+50.00**

Cut Area (SF)	27,938
Fill Area (SF)	3,042
Cut Vol (CF)	13.7
Fill Vol (CF)	75.2
Cum Cut Vol (CF)	230.6
Cum Fill Vol (CF)	518.9
Net Vol (CF)	-288.2



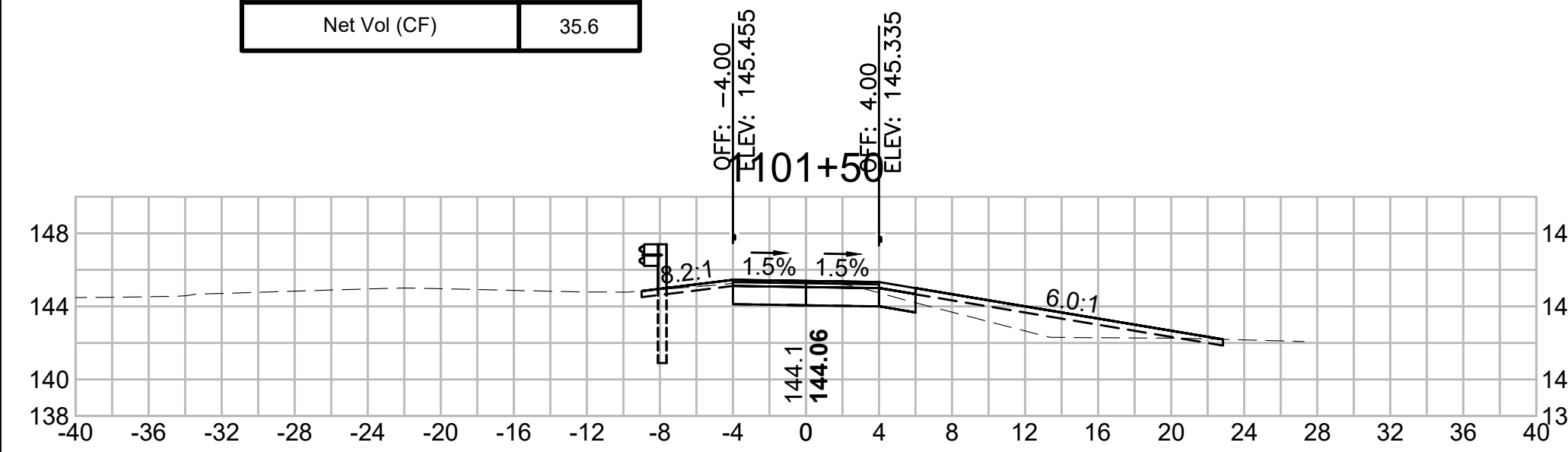
**Total Volume at Station 1003+25.00**

Cut Area (SF)	1,725
Fill Area (SF)	159,286
Cut Vol (CF)	3.5
Fill Vol (CF)	140.3
Cum Cut Vol (CF)	216.9
Cum Fill Vol (CF)	443.7
Net Vol (CF)	-226.8

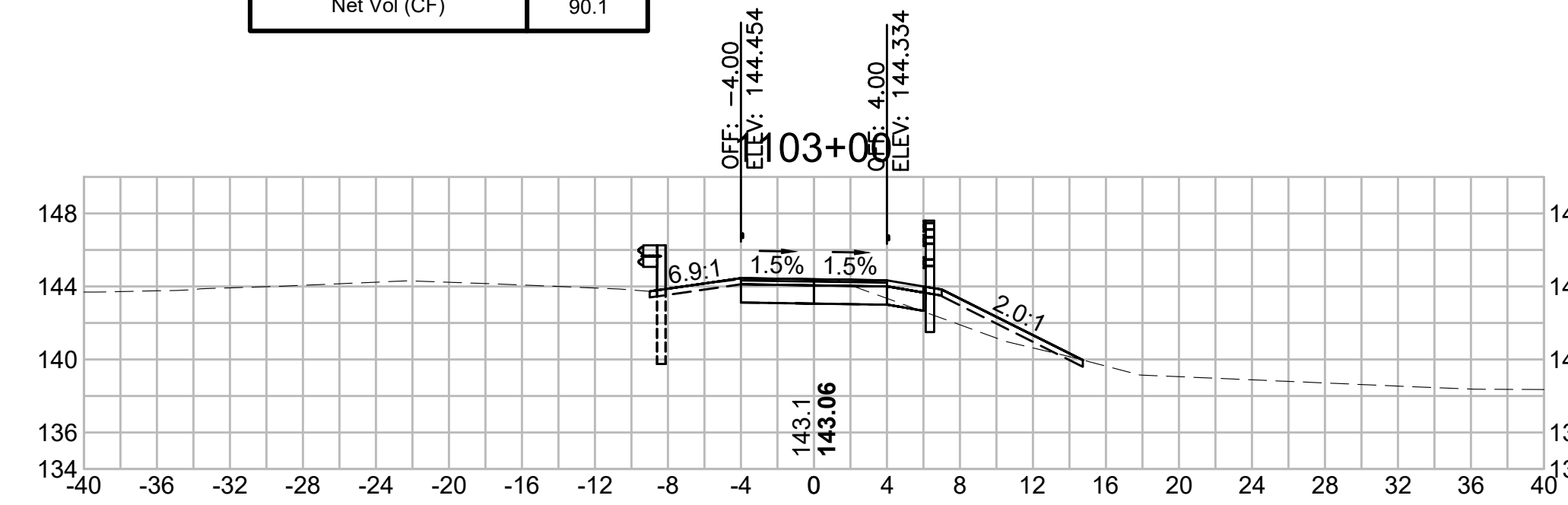


**CROSS SECTIONS  
DAVIS FIELD ACCESS PATH**

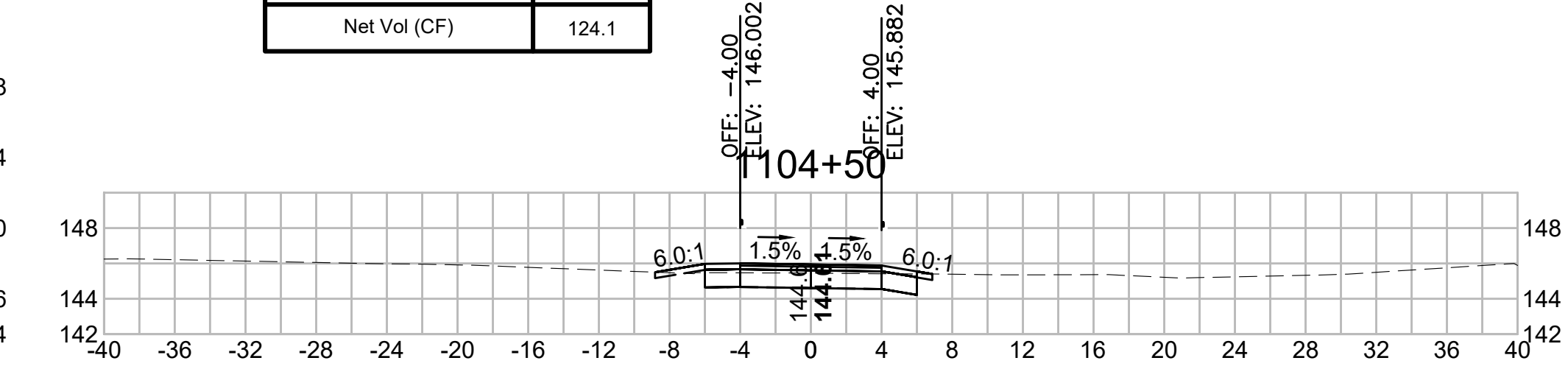
Total Volume at Station 1101+50.00	
Cut Area (SF)	12.344
Fill Area (SF)	9.860
Cut Vol (CF)	23.6
Fill Vol (CF)	9.1
Cum Cut Vol (CF)	45.0
Cum Fill Vol (CF)	9.5
Net Vol (CF)	35.6



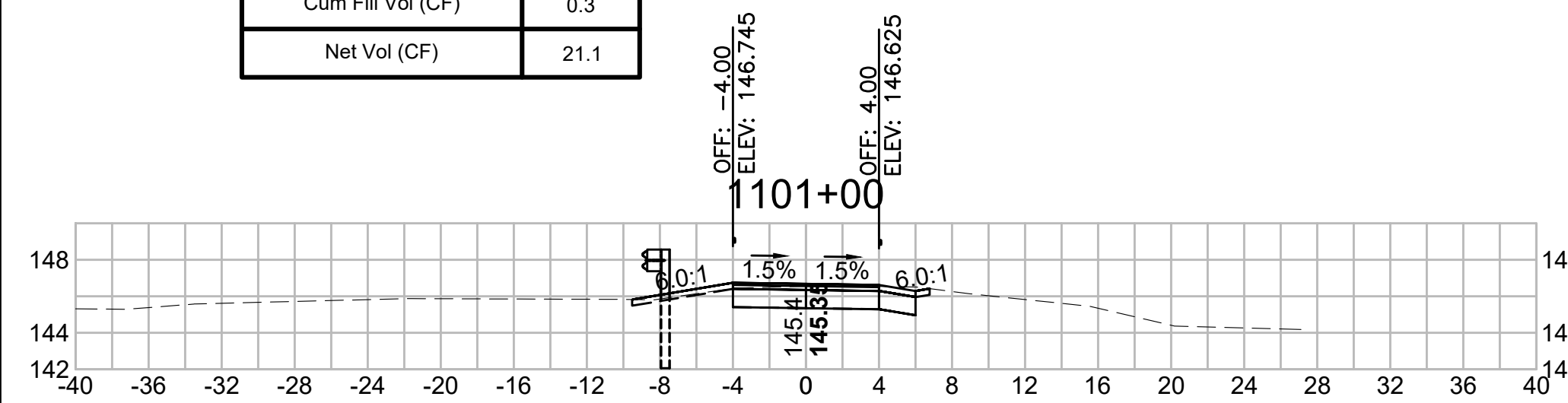
Total Volume at Station 1103+00.00	
Cut Area (SF)	11.283
Fill Area (SF)	5.526
Cut Vol (CF)	22.2
Fill Vol (CF)	7.1
Cum Cut Vol (CF)	124.4
Cum Fill Vol (CF)	34.4
Net Vol (CF)	90.1



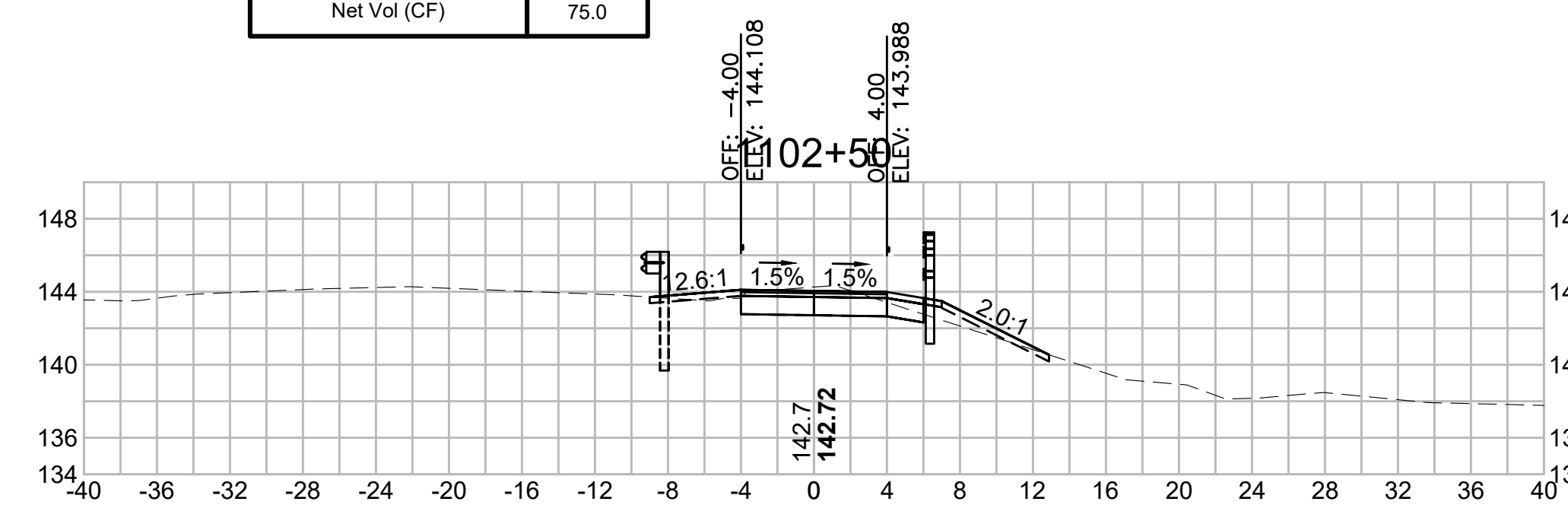
Total Volume at Station 1104+50.00	
Cut Area (SF)	10.903
Fill Area (SF)	0.099
Cut Vol (CF)	19.2
Fill Vol (CF)	0.3
Cum Cut Vol (CF)	178.0
Cum Fill Vol (CF)	54.0
Net Vol (CF)	124.1



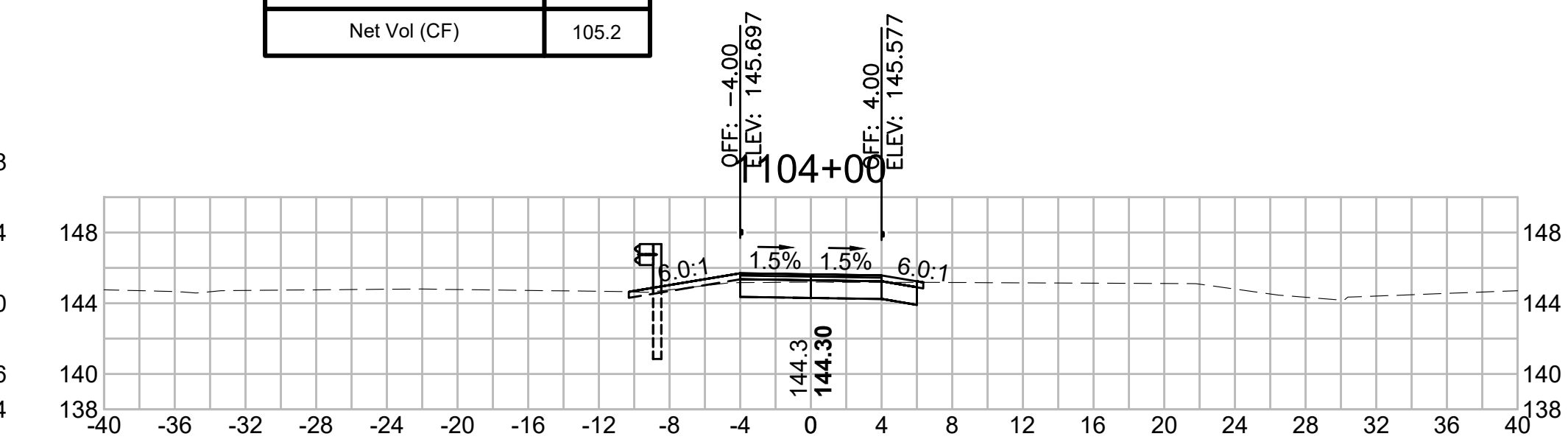
Total Volume at Station 1101+00.00	
Cut Area (SF)	13.171
Fill Area (SF)	0.000
Cut Vol (CF)	21.4
Fill Vol (CF)	0.3
Cum Cut Vol (CF)	21.4
Cum Fill Vol (CF)	0.3
Net Vol (CF)	21.1



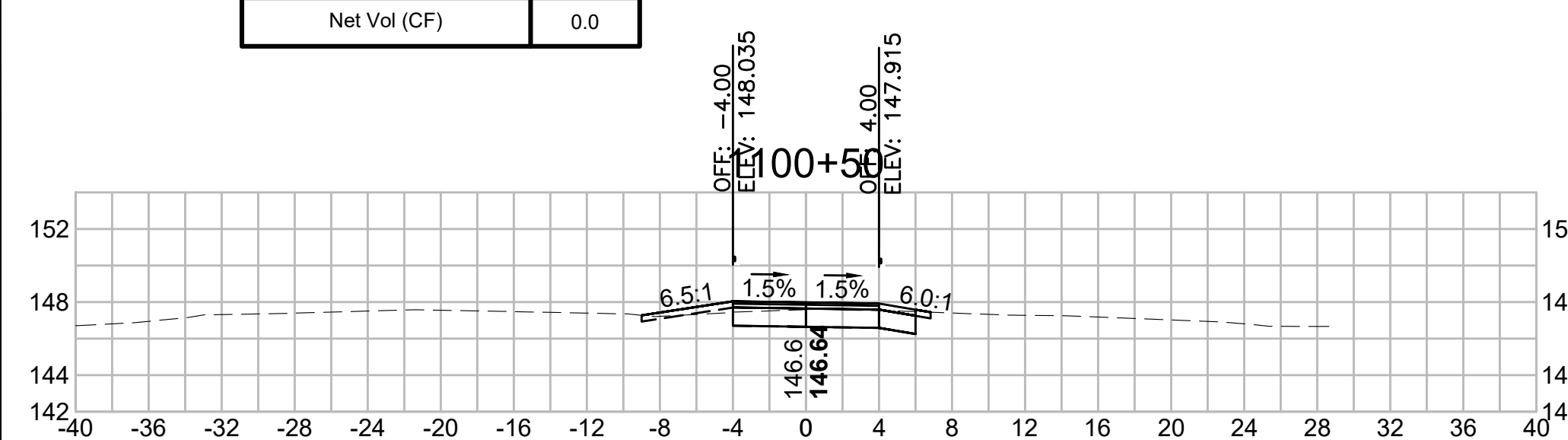
Total Volume at Station 1102+50.00	
Cut Area (SF)	12.683
Fill Area (SF)	2.123
Cut Vol (CF)	28.8
Fill Vol (CF)	5.3
Cum Cut Vol (CF)	102.2
Cum Fill Vol (CF)	27.3
Net Vol (CF)	75.0



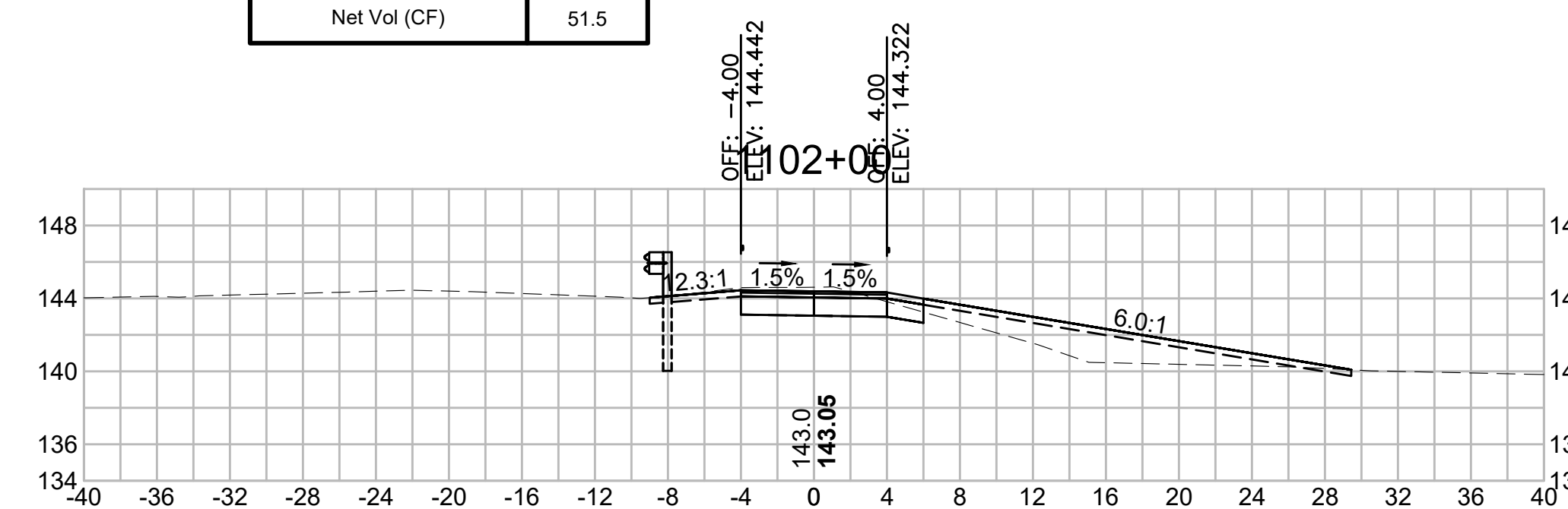
Total Volume at Station 1104+00.00	
Cut Area (SF)	9.816
Fill Area (SF)	0.185
Cut Vol (CF)	16.5
Fill Vol (CF)	7.2
Cum Cut Vol (CF)	158.9
Cum Fill Vol (CF)	53.7
Net Vol (CF)	105.2



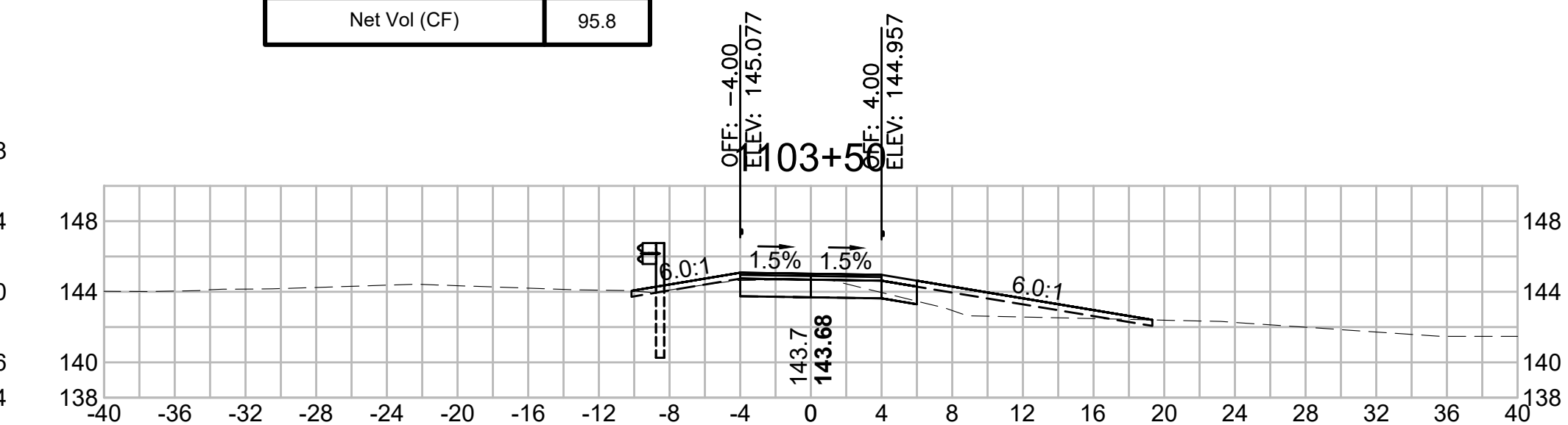
Total Volume at Station 1100+50.00	
Cut Area (SF)	9.964
Fill Area (SF)	0.368
Cut Vol (CF)	0.0
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	0.0
Cum Fill Vol (CF)	0.0
Net Vol (CF)	0.0



Total Volume at Station 1102+00.00	
Cut Area (SF)	18.374
Fill Area (SF)	3.620
Cut Vol (CF)	28.4
Fill Vol (CF)	12.5
Cum Cut Vol (CF)	73.5
Cum Fill Vol (CF)	22.0
Net Vol (CF)	51.5

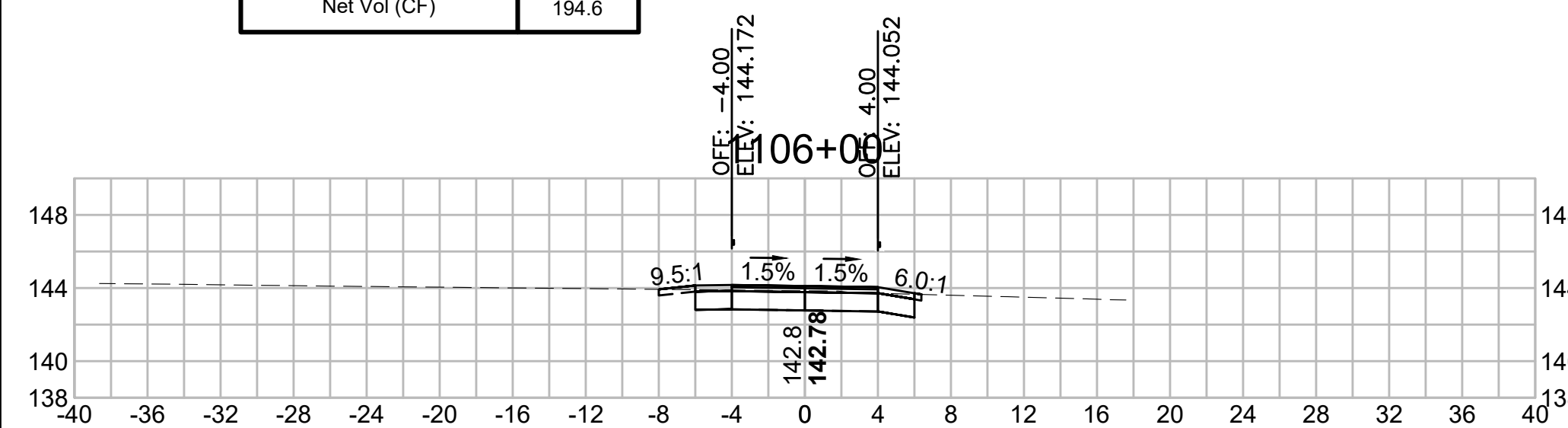


Total Volume at Station 1103+50.00	
Cut Area (SF)	8.037
Fill Area (SF)	7.586
Cut Vol (CF)	17.9
Fill Vol (CF)	12.1
Cum Cut Vol (CF)	142.3
Cum Fill Vol (CF)	46.5
Net Vol (CF)	95.8

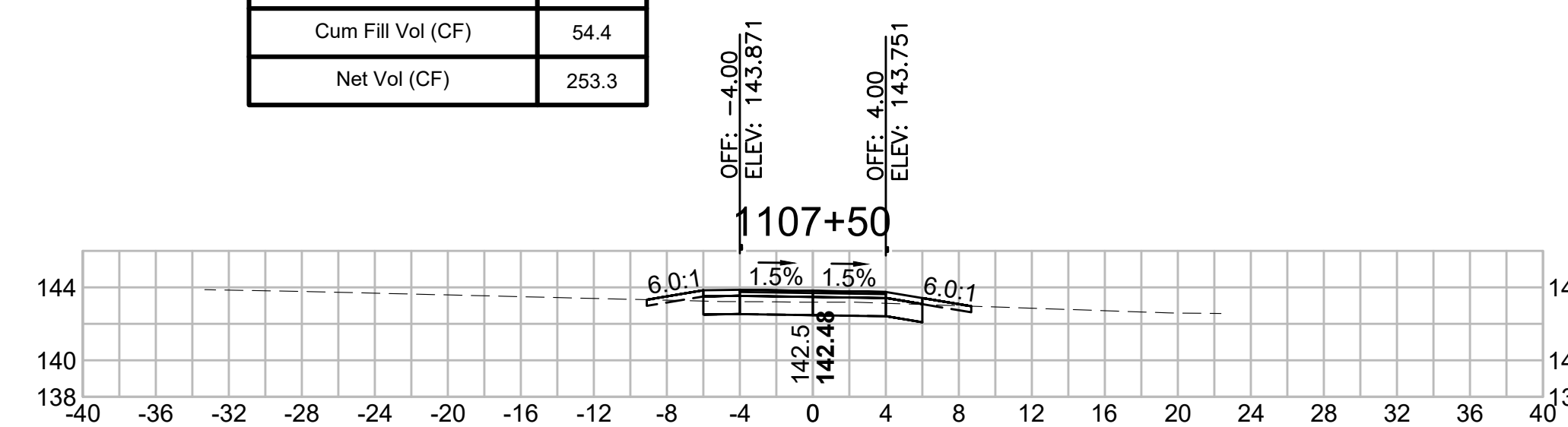


CROSS SECTIONS  
DAVIS FIELD ACCESS PATH

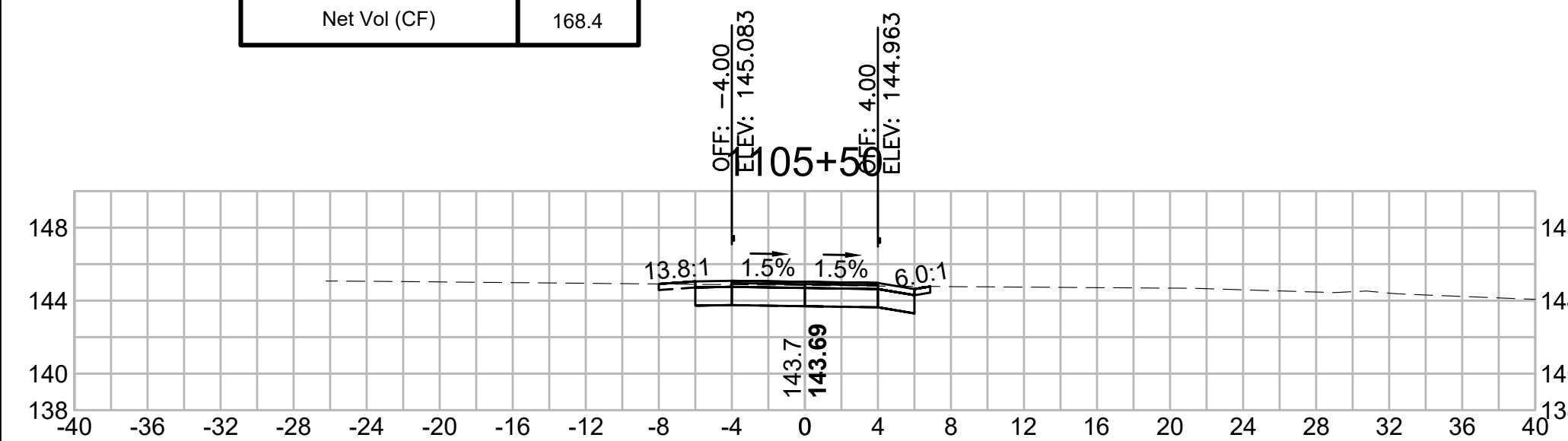
Total Volume at Station 1106+00.00	
Cut Area (SF)	13.425
Fill Area (SF)	0.000
Cut Vol (CF)	26.2
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	248.7
Cum Fill Vol (CF)	54.1
Net Vol (CF)	194.6



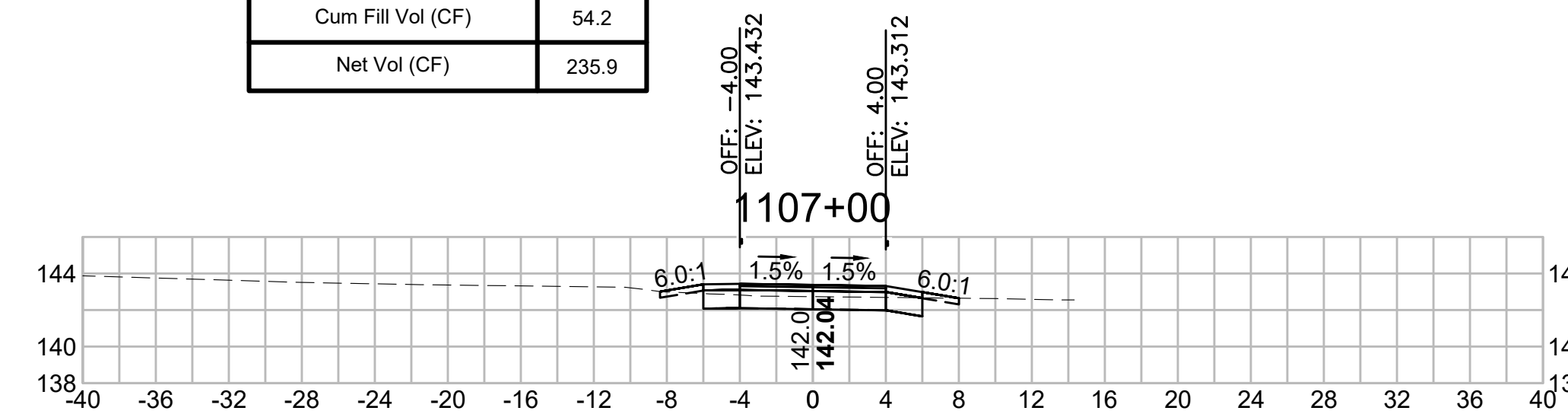
Total Volume at Station 1107+50.00	
Cut Area (SF)	9.520
Fill Area (SF)	0.169
Cut Vol (CF)	17.6
Fill Vol (CF)	0.2
Cum Cut Vol (CF)	307.6
Cum Fill Vol (CF)	54.4
Net Vol (CF)	253.3



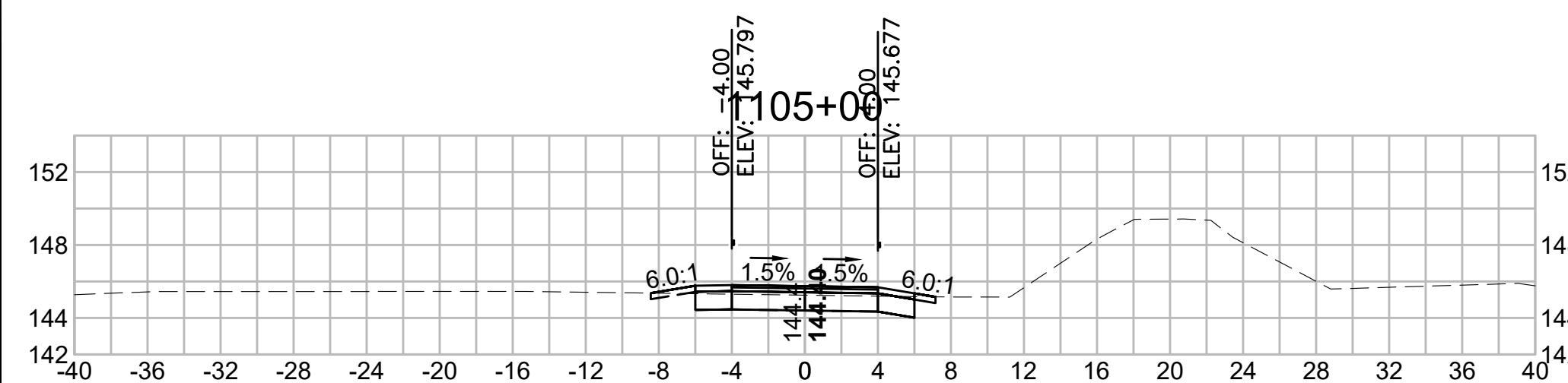
Total Volume at Station 1105+50.00	
Cut Area (SF)	14.923
Fill Area (SF)	0.000
Cut Vol (CF)	24.1
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	222.5
Cum Fill Vol (CF)	54.1
Net Vol (CF)	168.4



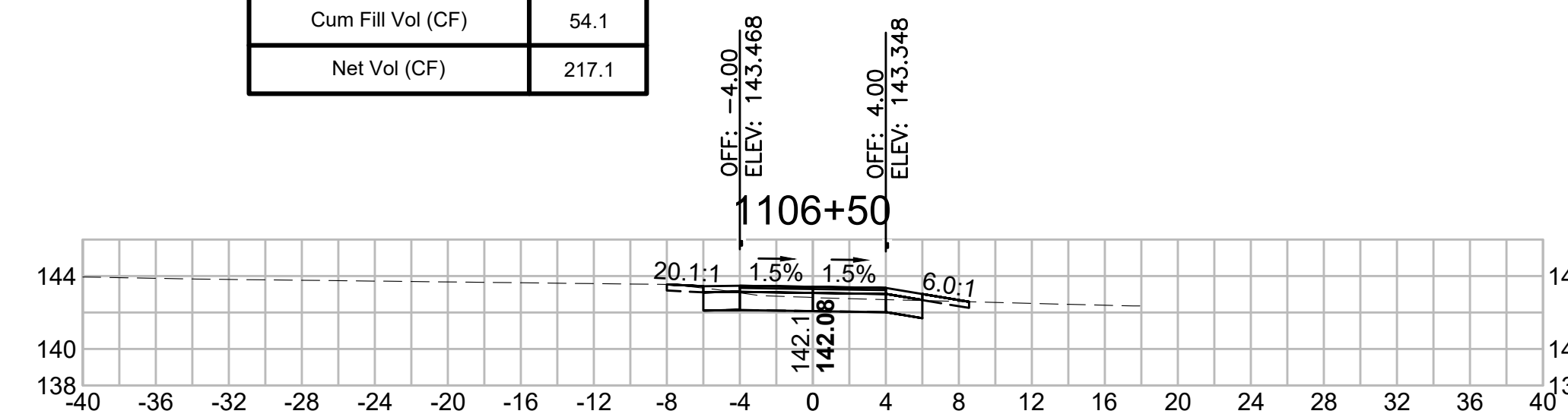
Total Volume at Station 1107+00.00	
Cut Area (SF)	9.448
Fill Area (SF)	0.063
Cut Vol (CF)	18.8
Fill Vol (CF)	0.1
Cum Cut Vol (CF)	290.1
Cum Fill Vol (CF)	54.2
Net Vol (CF)	235.9



Total Volume at Station 1105+00.00	
Cut Area (SF)	11.073
Fill Area (SF)	0.028
Cut Vol (CF)	20.3
Fill Vol (CF)	0.1
Cum Cut Vol (CF)	198.4
Cum Fill Vol (CF)	54.1
Net Vol (CF)	144.3



Total Volume at Station 1106+50.00	
Cut Area (SF)	10.901
Fill Area (SF)	0.002
Cut Vol (CF)	22.5
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	271.2
Cum Fill Vol (CF)	54.1
Net Vol (CF)	217.1

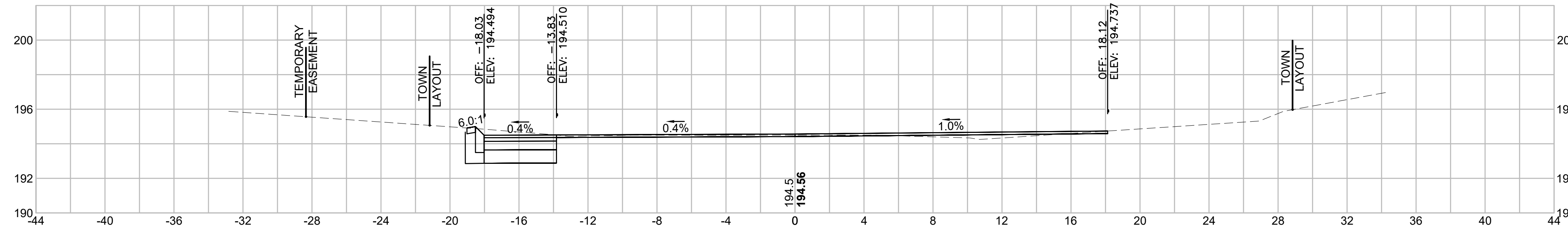


SUDBURY  
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	304	318

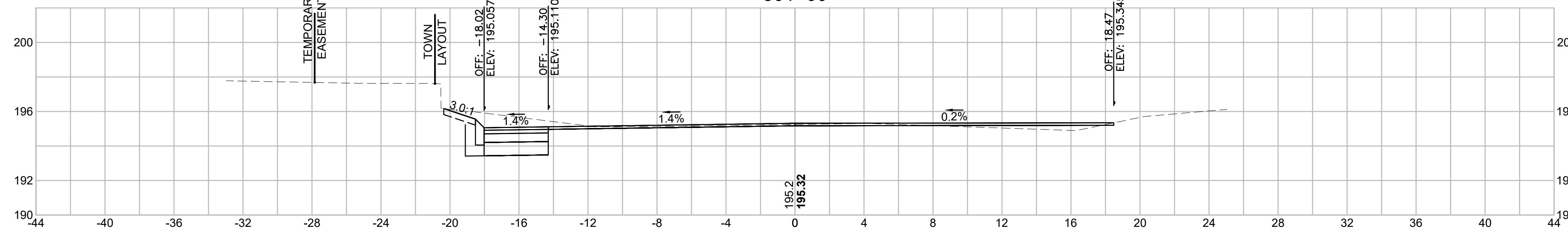
CROSS SECTIONS  
HUDSON ROAD

501+25



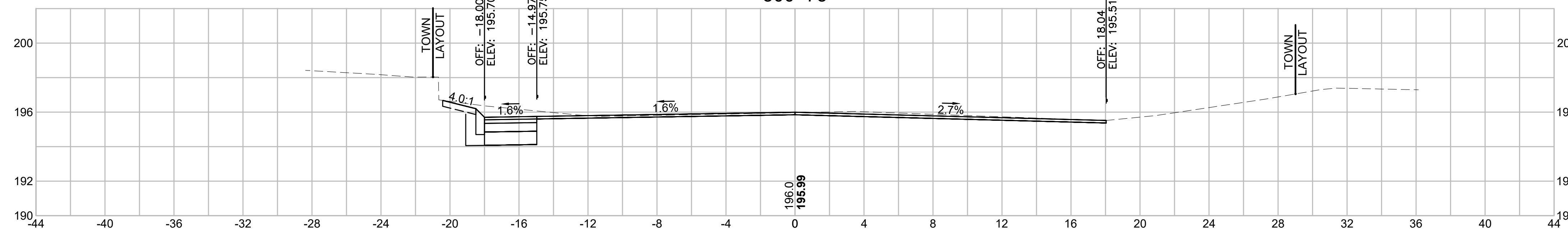
Total Volume at Station 501+25.00	
Cut Area (SF)	19,339
Fill Area (SF)	1,373
Cut Vol (CF)	18.8
Fill Vol (CF)	1.3
Cum Cut Vol (CF)	43.3
Cum Fill Vol (CF)	2.0
Net Vol (CF)	41.3

501+00



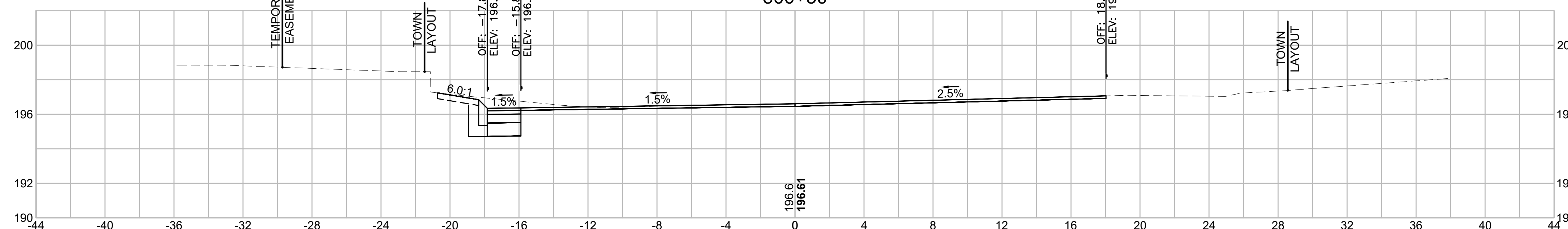
Total Volume at Station 501+00.00	
Cut Area (SF)	21,351
Fill Area (SF)	1,499
Cut Vol (CF)	15.0
Fill Vol (CF)	0.7
Cum Cut Vol (CF)	24.4
Cum Fill Vol (CF)	0.7
Net Vol (CF)	23.7

500+75



Total Volume at Station 500+75.00	
Cut Area (SF)	11,018
Fill Area (SF)	0,000
Cut Vol (CF)	9.5
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	9.5
Cum Fill Vol (CF)	0.0
Net Vol (CF)	9.5

500+50



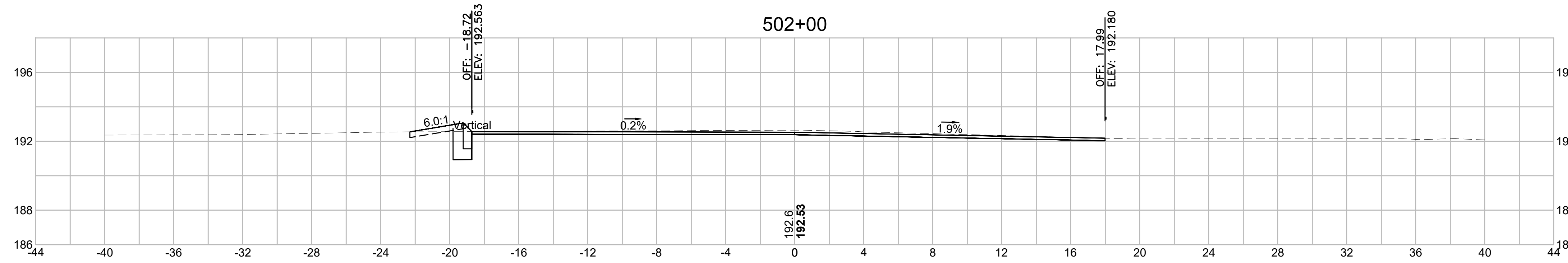
Total Volume at Station 500+50.00	
Cut Area (SF)	9,404
Fill Area (SF)	0,000
Cut Vol (CF)	0.0
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	0.0
Cum Fill Vol (CF)	0.0
Net Vol (CF)	0.0

SUDBURY  
BRUCE FREEMAN RAIL TRAIL

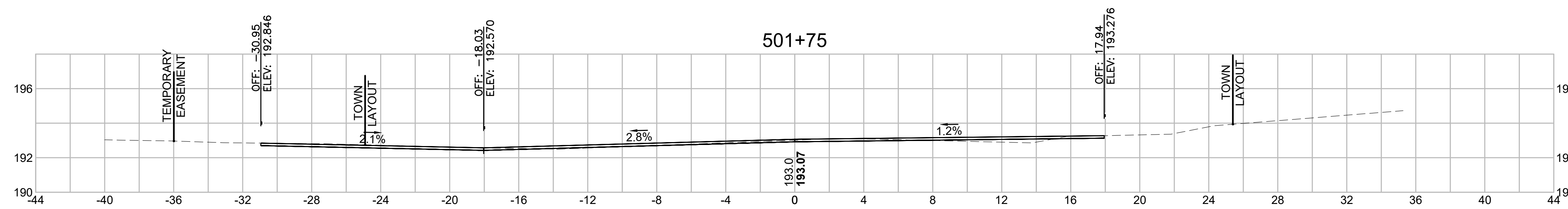
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	305	318

CROSS SECTIONS  
HUDSON ROAD

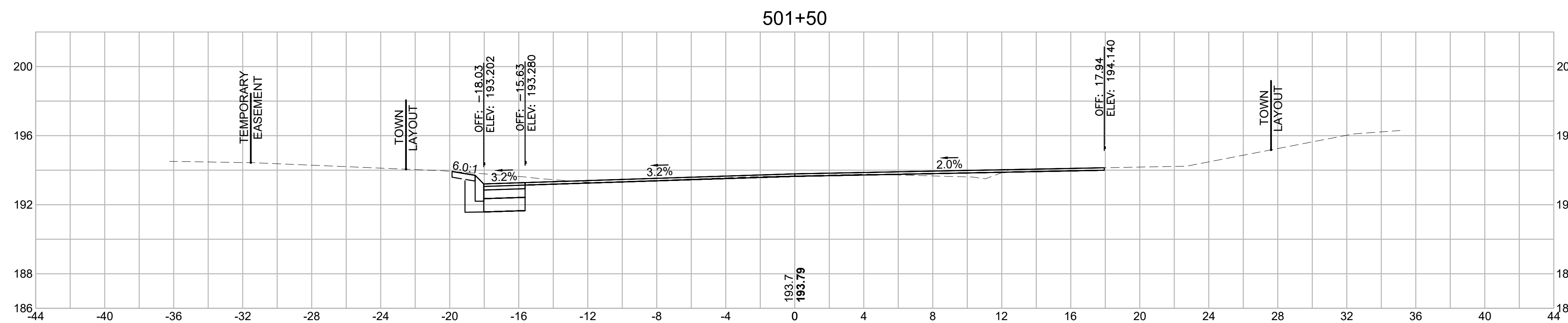
PROJECT FILE NO. 608164



Total Volume at Station 502+00.00	
Cut Area (SF)	22.126
Fill Area (SF)	0.086
Cut Vol (CF)	11.4
Fill Vol (CF)	0.9
Cum Cut Vol (CF)	85.2
Cum Fill Vol (CF)	5.4
Net Vol (CF)	79.8



Total Volume at Station 501+75.00	
Cut Area (SF)	2.528
Fill Area (SF)	1.892
Cut Vol (CF)	11.4
Fill Vol (CF)	1.4
Cum Cut Vol (CF)	73.8
Cum Fill Vol (CF)	4.5
Net Vol (CF)	69.3



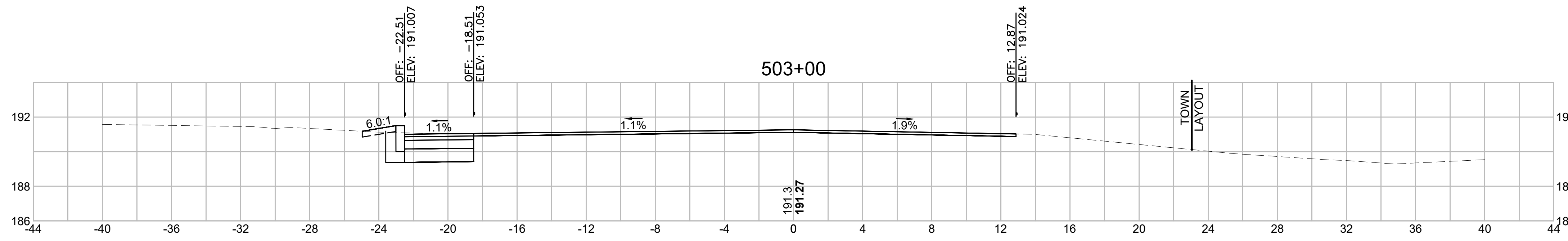
Total Volume at Station 501+50.00	
Cut Area (SF)	22.022
Fill Area (SF)	1.027
Cut Vol (CF)	19.1
Fill Vol (CF)	1.1
Cum Cut Vol (CF)	62.4
Cum Fill Vol (CF)	3.1
Net Vol (CF)	59.3

SUDBURY  
BRUCE FREEMAN RAIL TRAIL

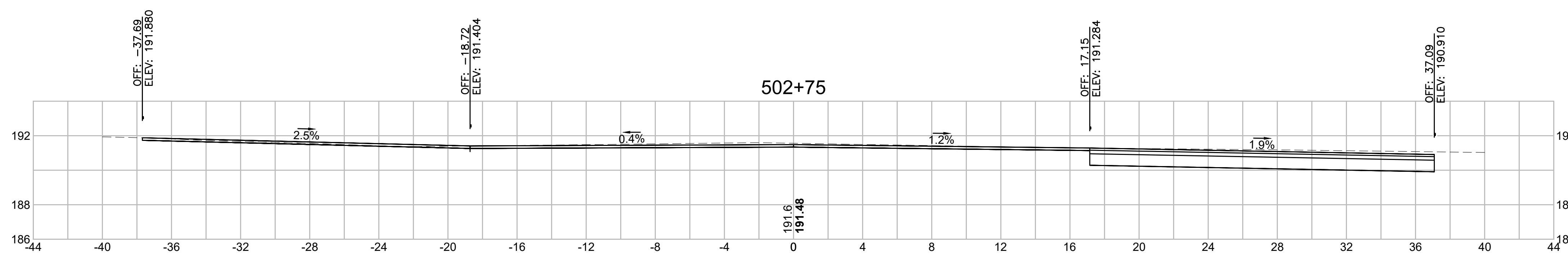
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	306	318

CROSS SECTIONS  
HUDSON ROAD

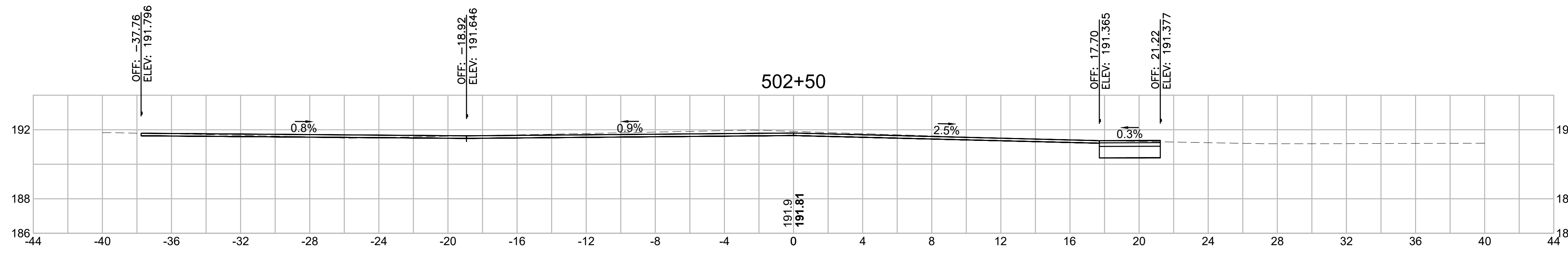
PROJECT FILE NO. 608164



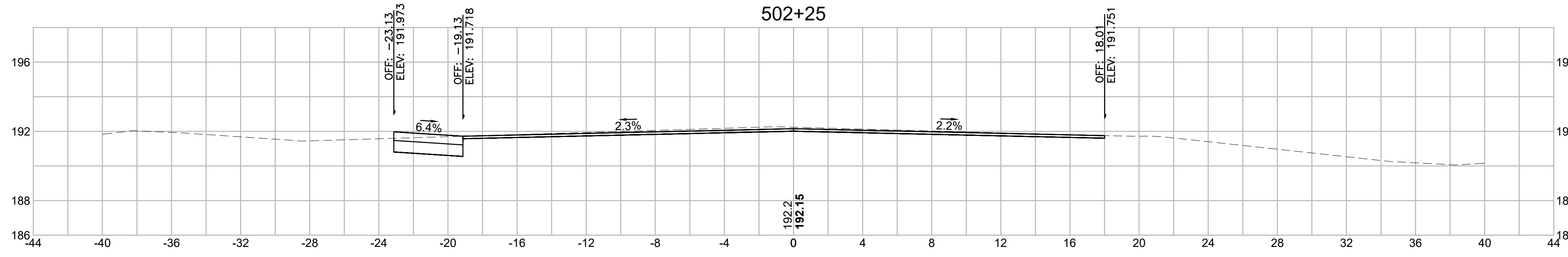
Total Volume at Station 503+00.00	
Cut Area (SF)	29.184
Fill Area (SF)	5.560
Cut Vol (CF)	29.8
Fill Vol (CF)	2.8
Cum Cut Vol (CF)	175.3
Cum Fill Vol (CF)	8.8
Net Vol (CF)	166.4



Total Volume at Station 502+75.00	
Cut Area (SF)	35.160
Fill Area (SF)	0.535
Cut Vol (CF)	26.6
Fill Vol (CF)	0.2
Cum Cut Vol (CF)	145.5
Cum Fill Vol (CF)	6.0
Net Vol (CF)	139.5

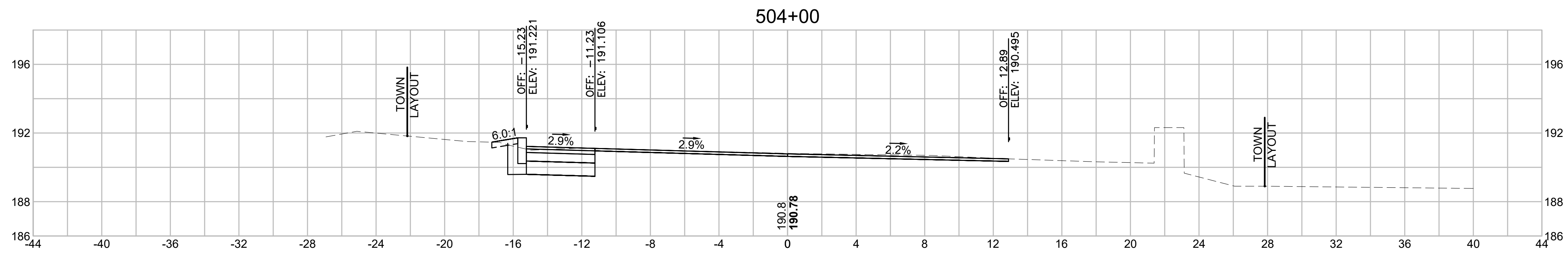


Total Volume at Station 502+50.00	
Cut Area (SF)	22.276
Fill Area (SF)	0.000
Cut Vol (CF)	16.9
Fill Vol (CF)	0.2
Cum Cut Vol (CF)	118.9
Cum Fill Vol (CF)	5.8
Net Vol (CF)	113.1

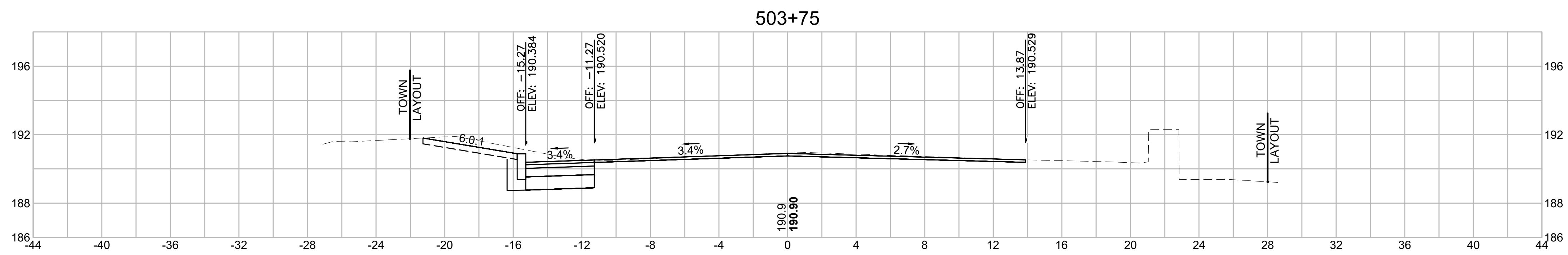


Total Volume at Station 502+25.00	
Cut Area (SF)	14.164
Fill Area (SF)	0.336
Cut Vol (CF)	16.8
Fill Vol (CF)	0.2
Cum Cut Vol (CF)	102.0
Cum Fill Vol (CF)	5.6
Net Vol (CF)	96.4

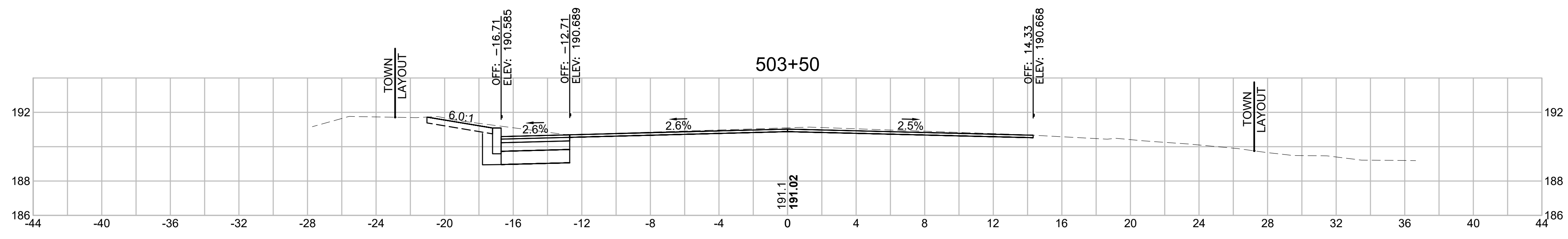
**CROSS SECTIONS  
HUDSON ROAD**



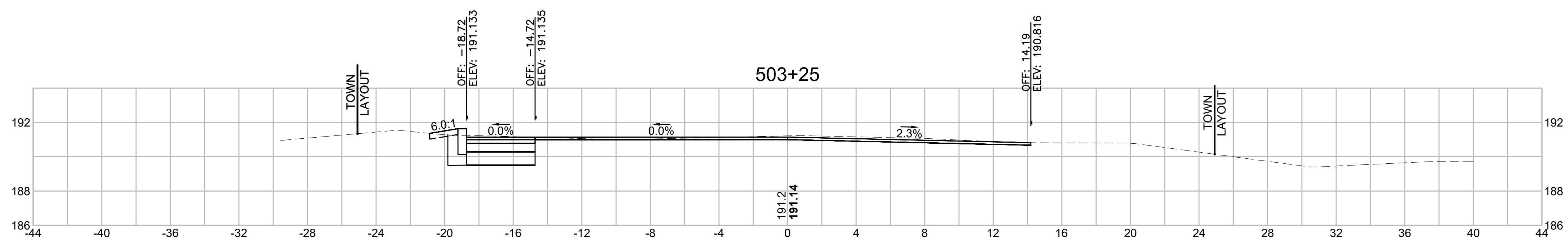
Total Volume at Station 504+00.00	
Cut Area (SF)	9.026
Fill Area (SF)	0.055
Cut Vol (CF)	16.0
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	239.4
Cum Fill Vol (CF)	13.8
Net Vol (CF)	225.6



Total Volume at Station 503+75.00	
Cut Area (SF)	25.454
Fill Area (SF)	0.000
Cut Vol (CF)	17.7
Fill Vol (CF)	0.2
Cum Cut Vol (CF)	223.4
Cum Fill Vol (CF)	13.8
Net Vol (CF)	209.6



Total Volume at Station 503+50.00	
Cut Area (SF)	12.869
Fill Area (SF)	0.405
Cut Vol (CF)	11.4
Fill Vol (CF)	1.2
Cum Cut Vol (CF)	205.7
Cum Fill Vol (CF)	13.6
Net Vol (CF)	192.1

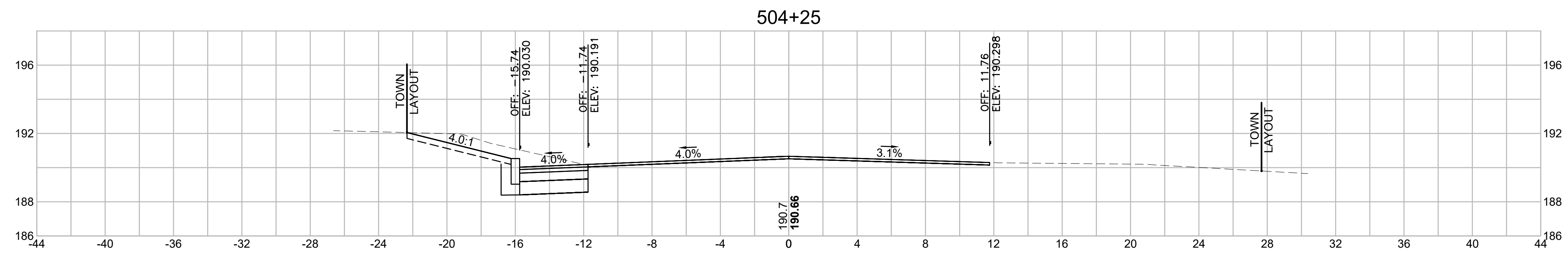


Total Volume at Station 503+25.00	
Cut Area (SF)	11.807
Fill Area (SF)	2.169
Cut Vol (CF)	19.0
Fill Vol (CF)	3.6
Cum Cut Vol (CF)	194.2
Cum Fill Vol (CF)	12.4
Net Vol (CF)	181.8

SUDBURY  
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXX-XXXX(XXX)X	308	318

PROJECT FILE NO. 608164  
CROSS SECTIONS  
HUDSON ROAD



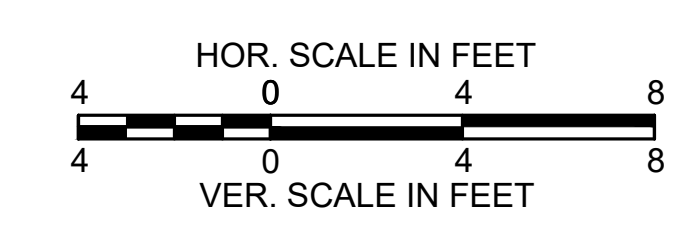
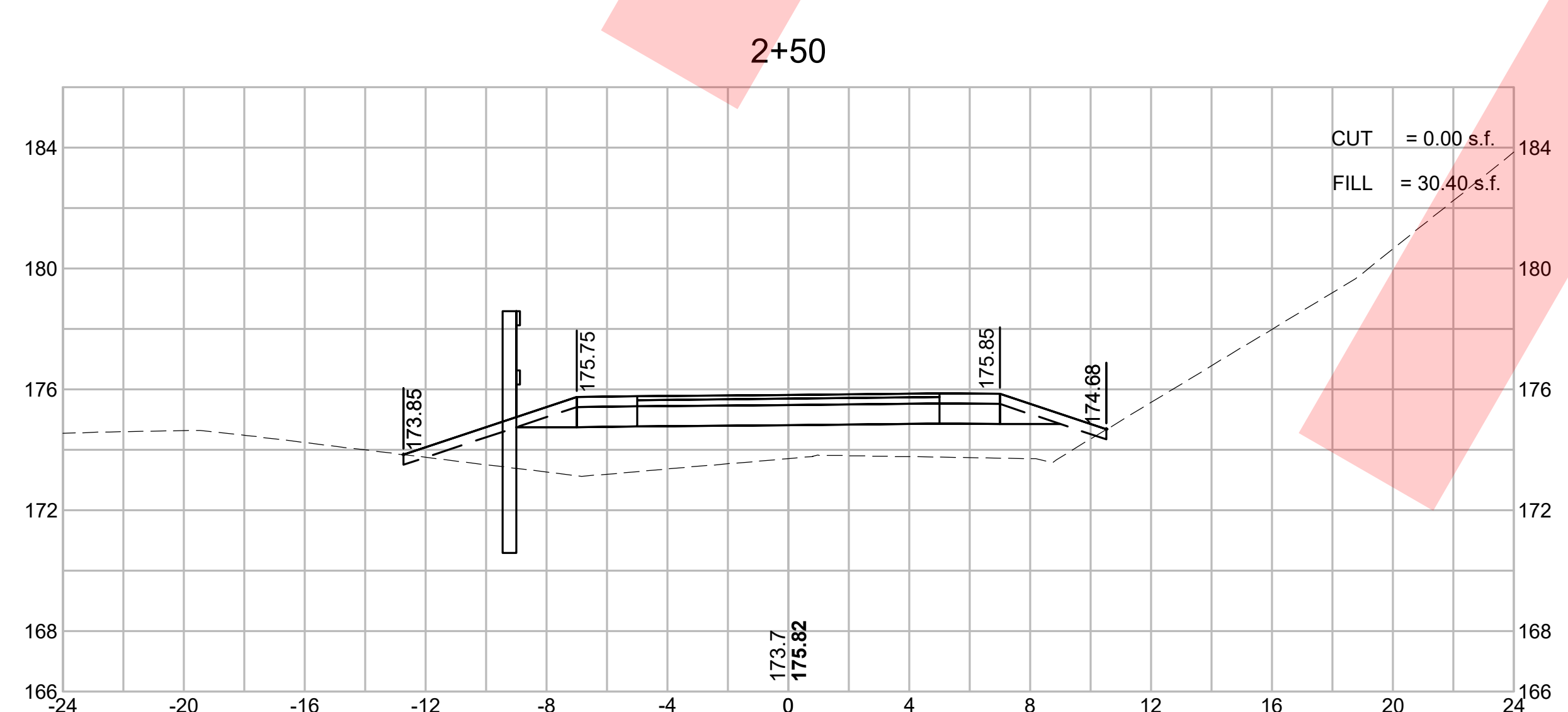
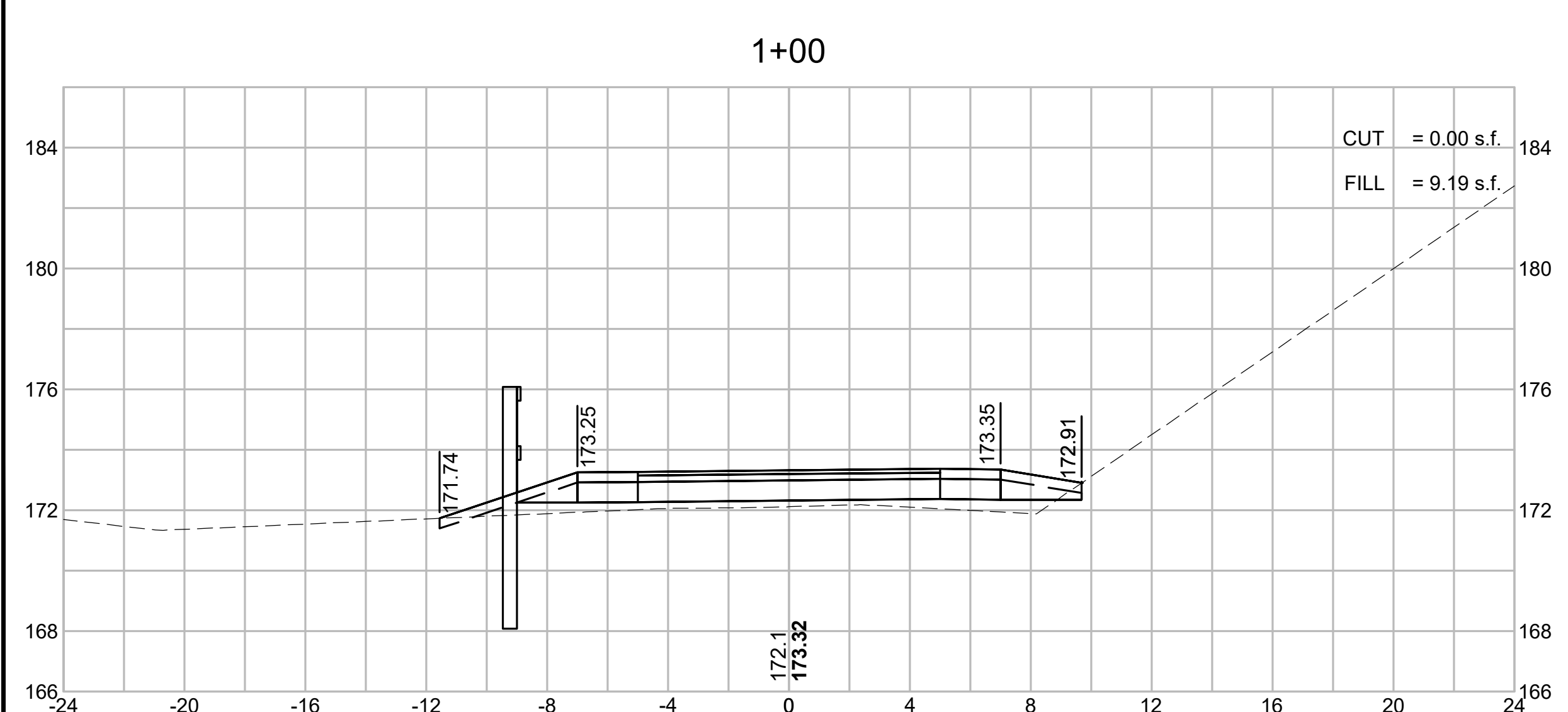
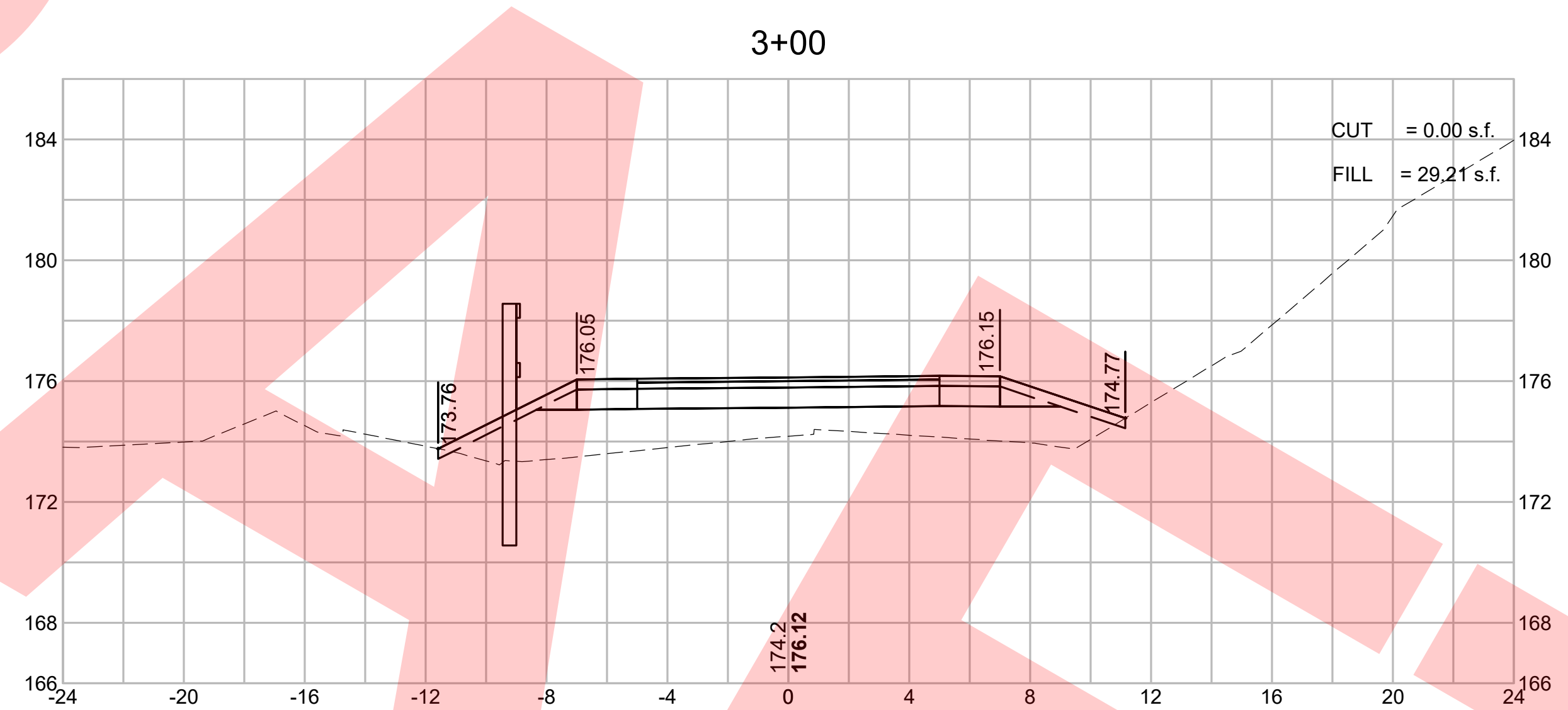
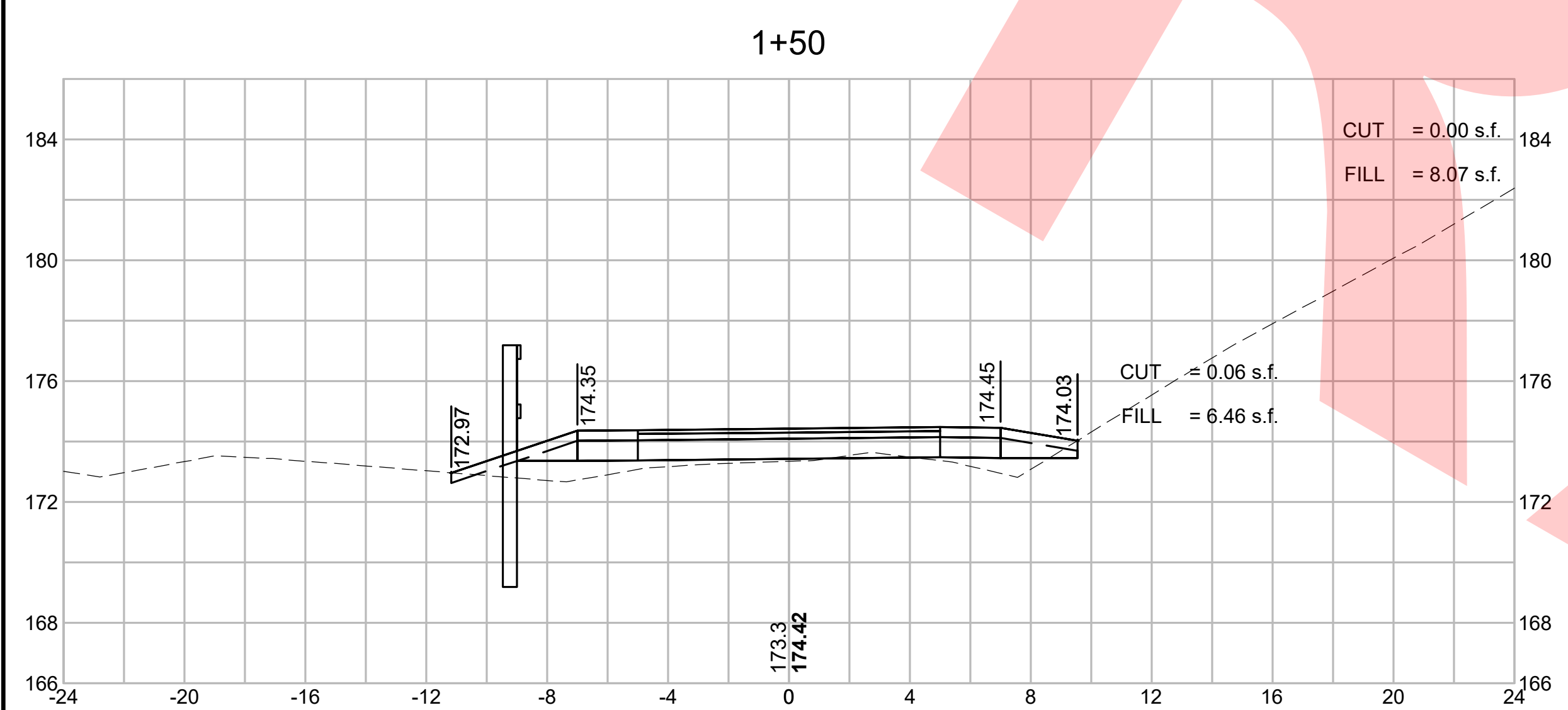
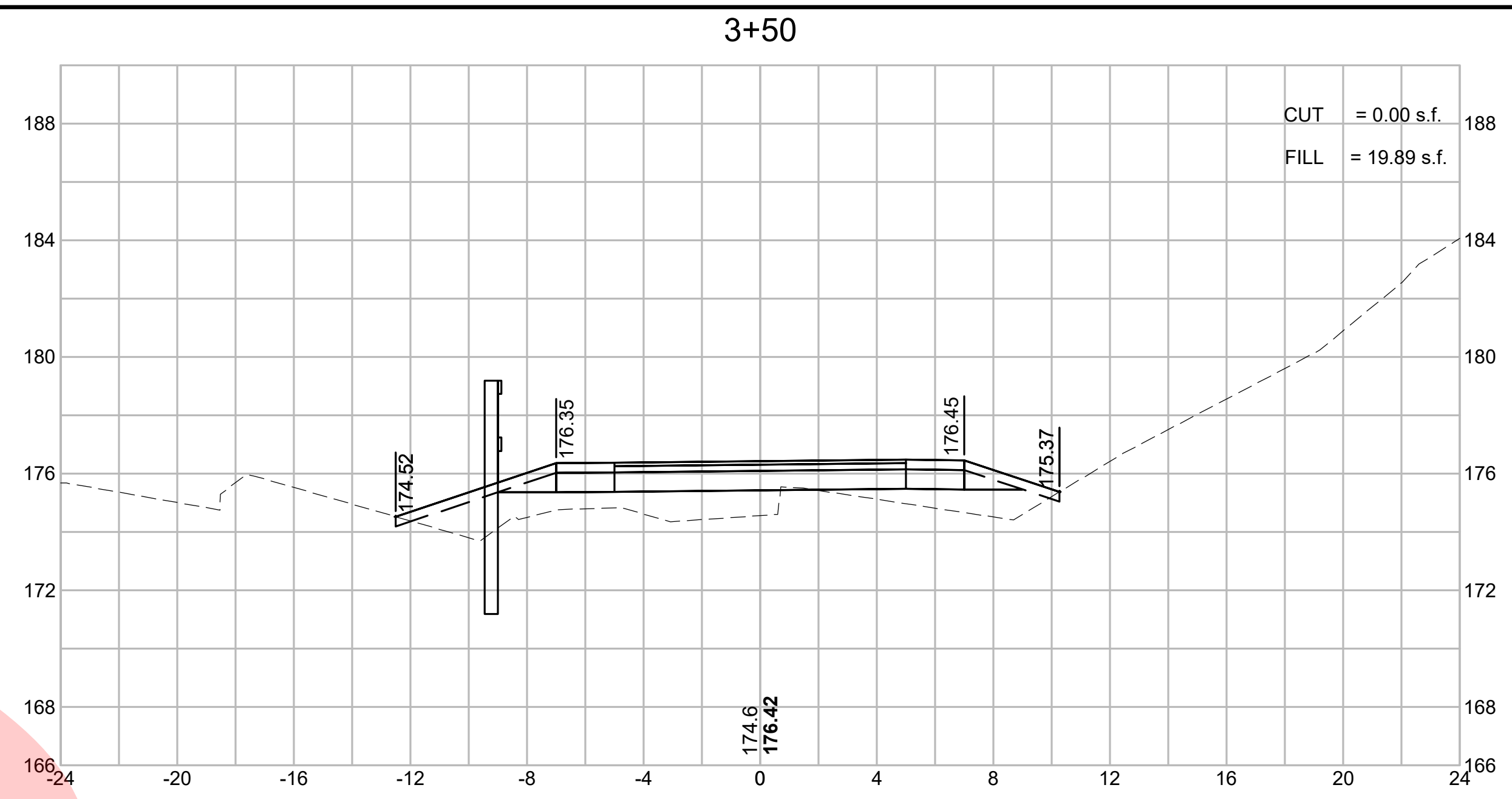
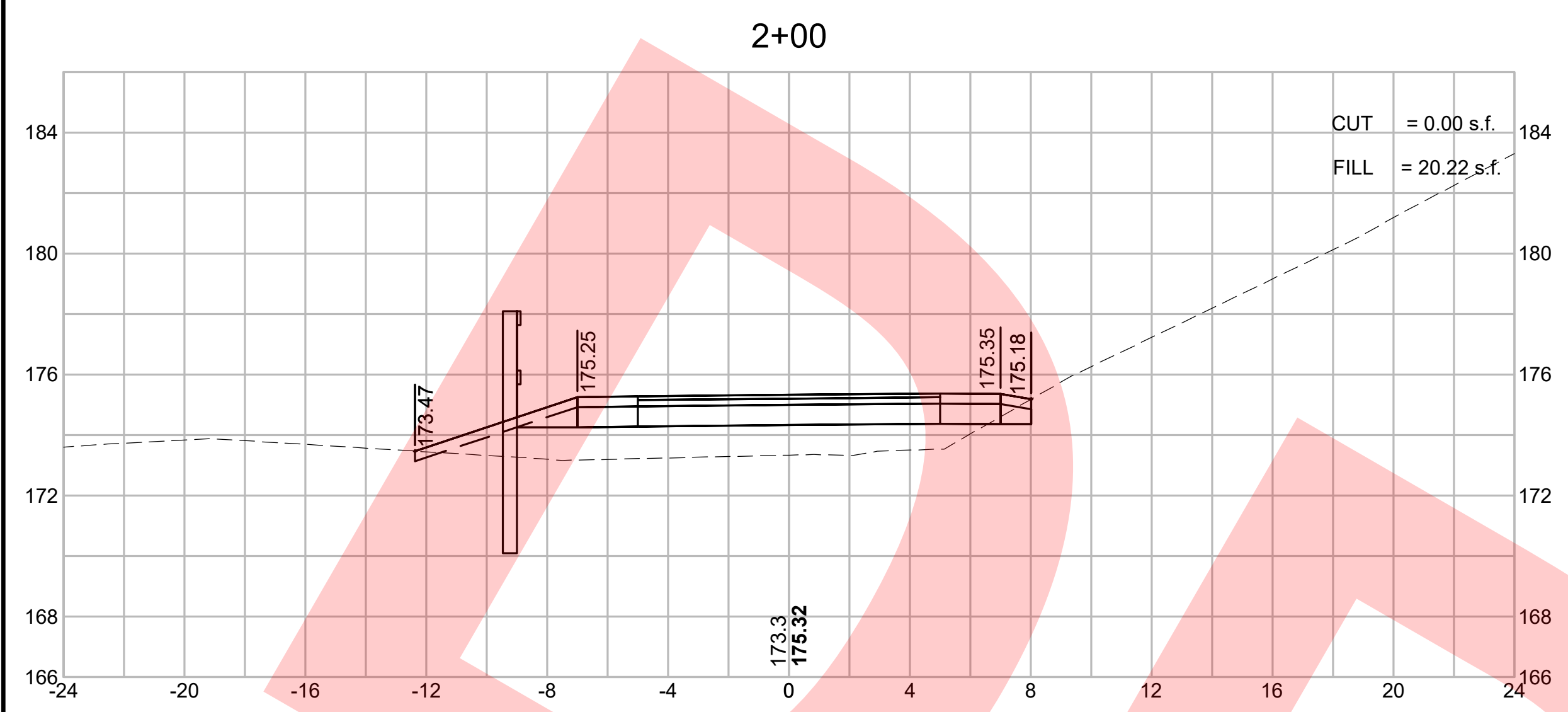
Total Volume at Station 504+25.00	
Cut Area (SF)	15.866
Fill Area (SF)	0.000
Cut Vol (CF)	11.5
Fill Vol (CF)	0.0
Cum Cut Vol (CF)	250.9
Cum Fill Vol (CF)	13.8
Net Vol (CF)	237.1



CONCORD  
BRUCE FREEMAN RAIL TRAIL PHASE 2D

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	23	32
PROJECT FILE NO.		608164	

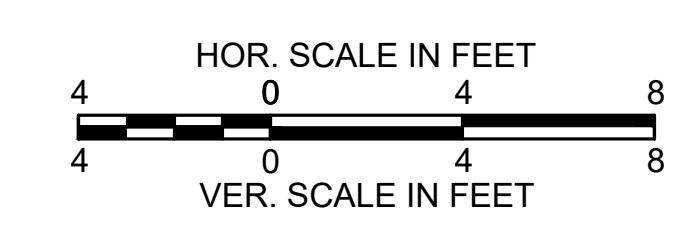
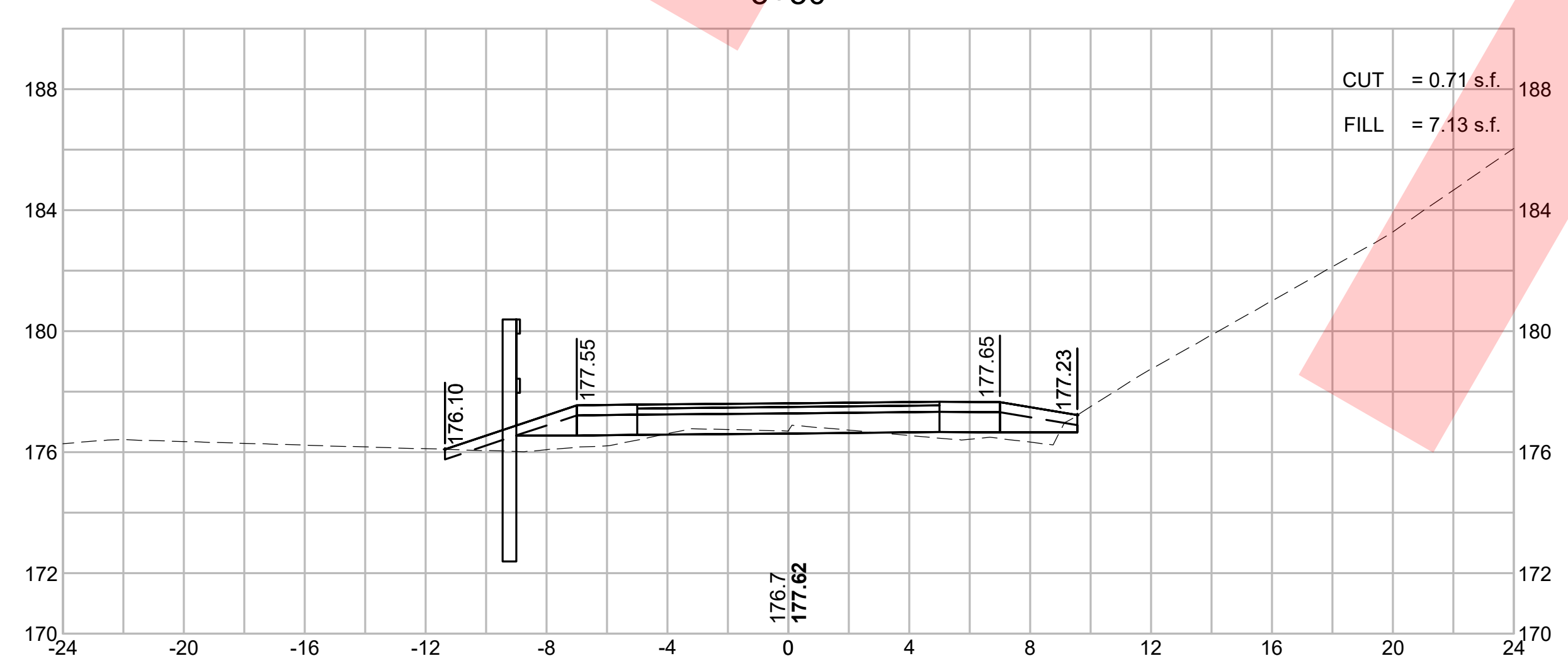
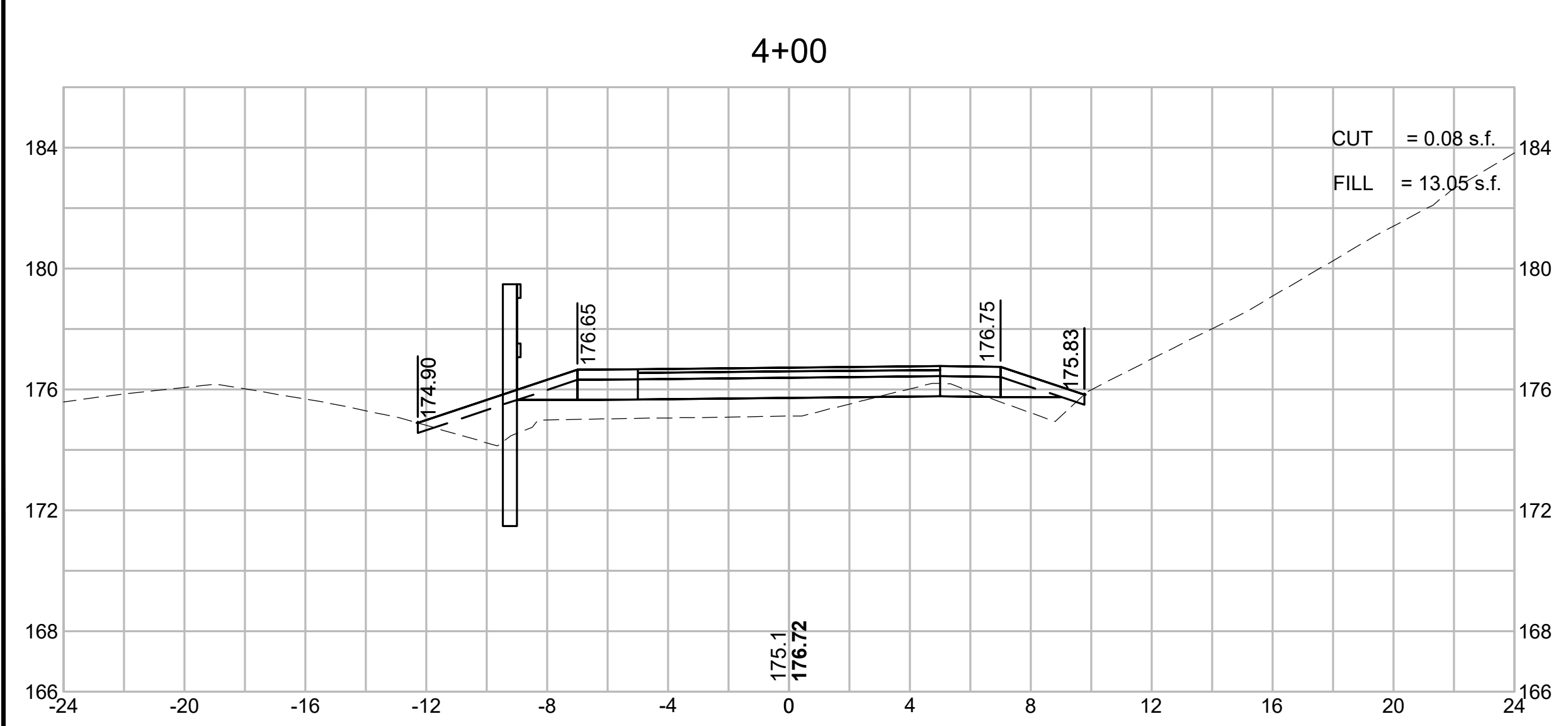
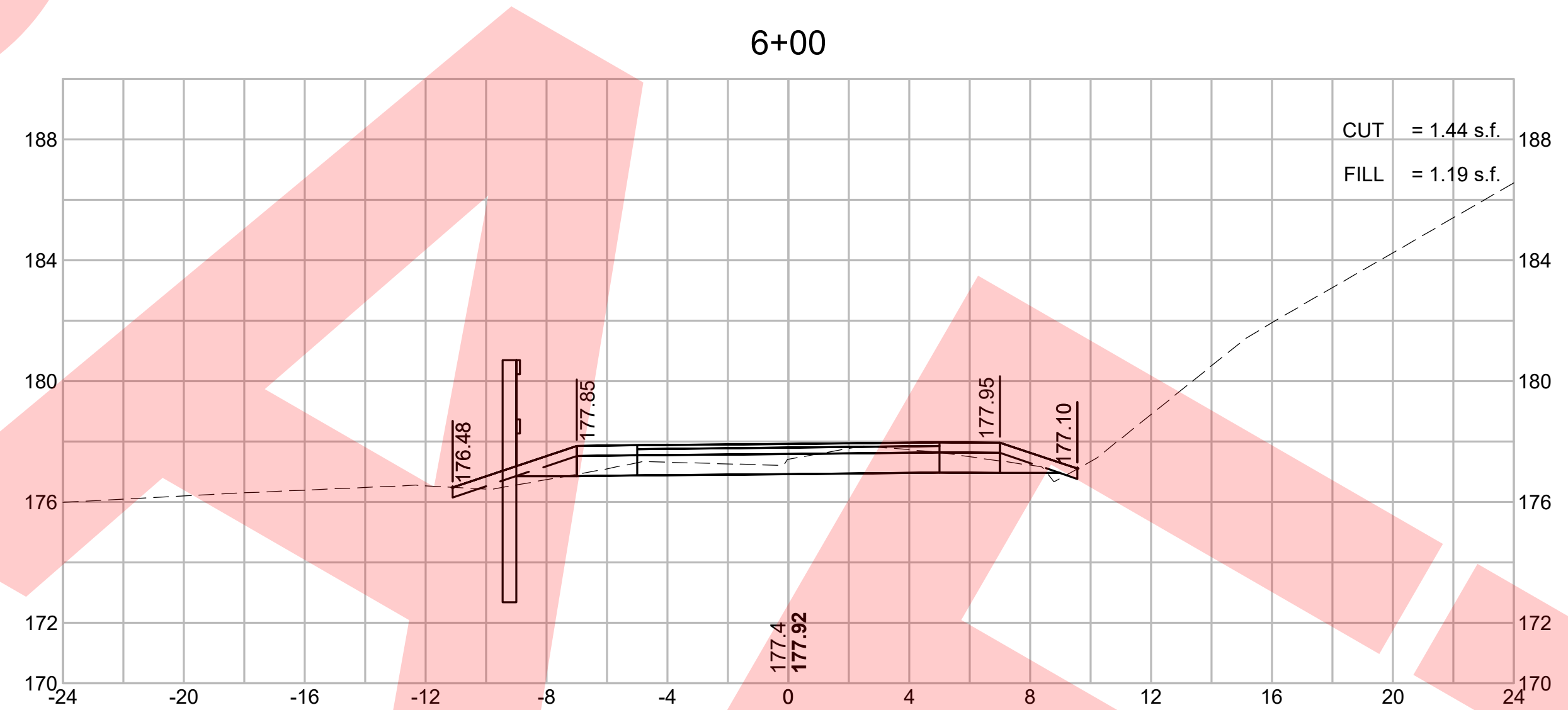
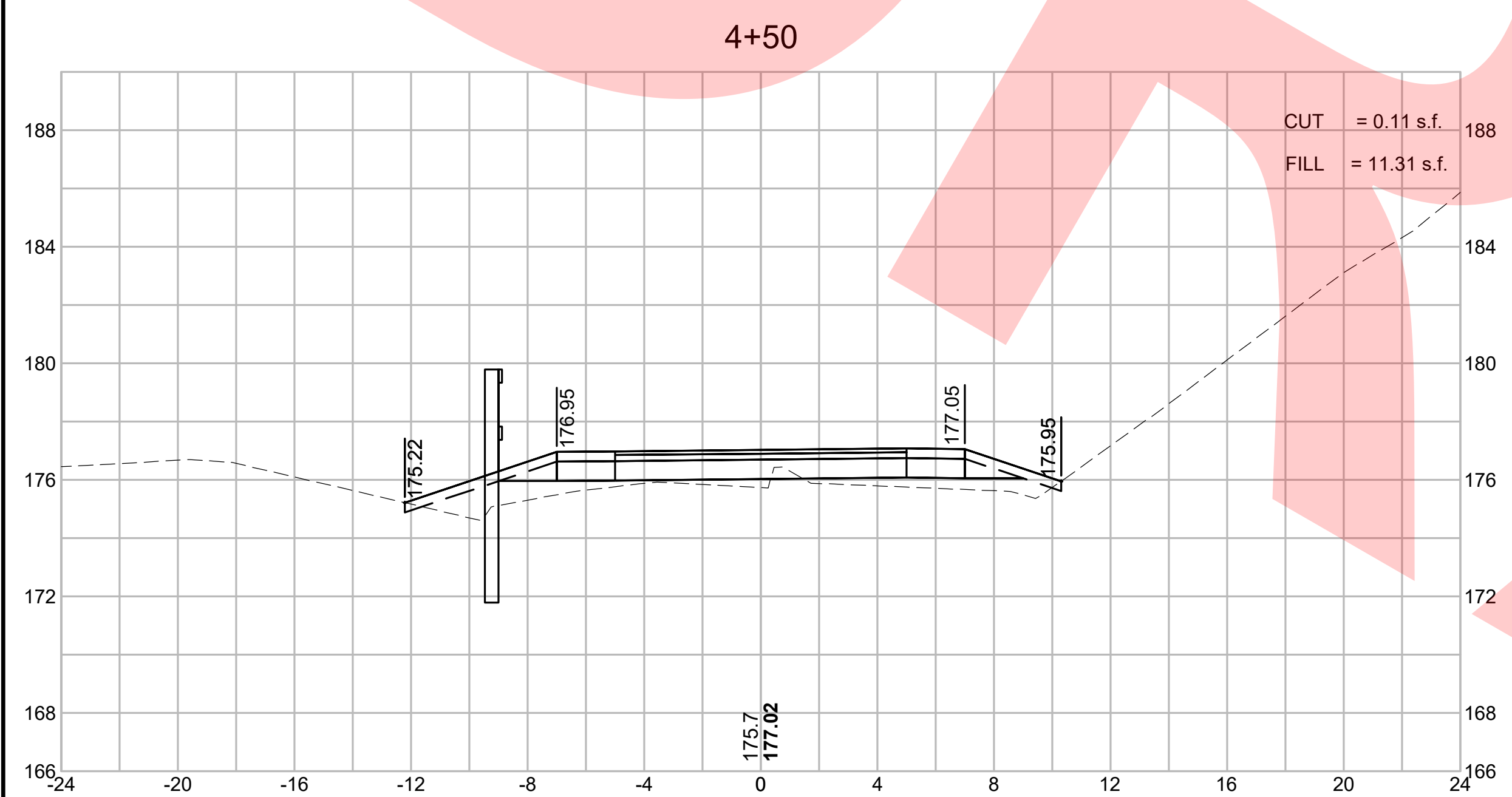
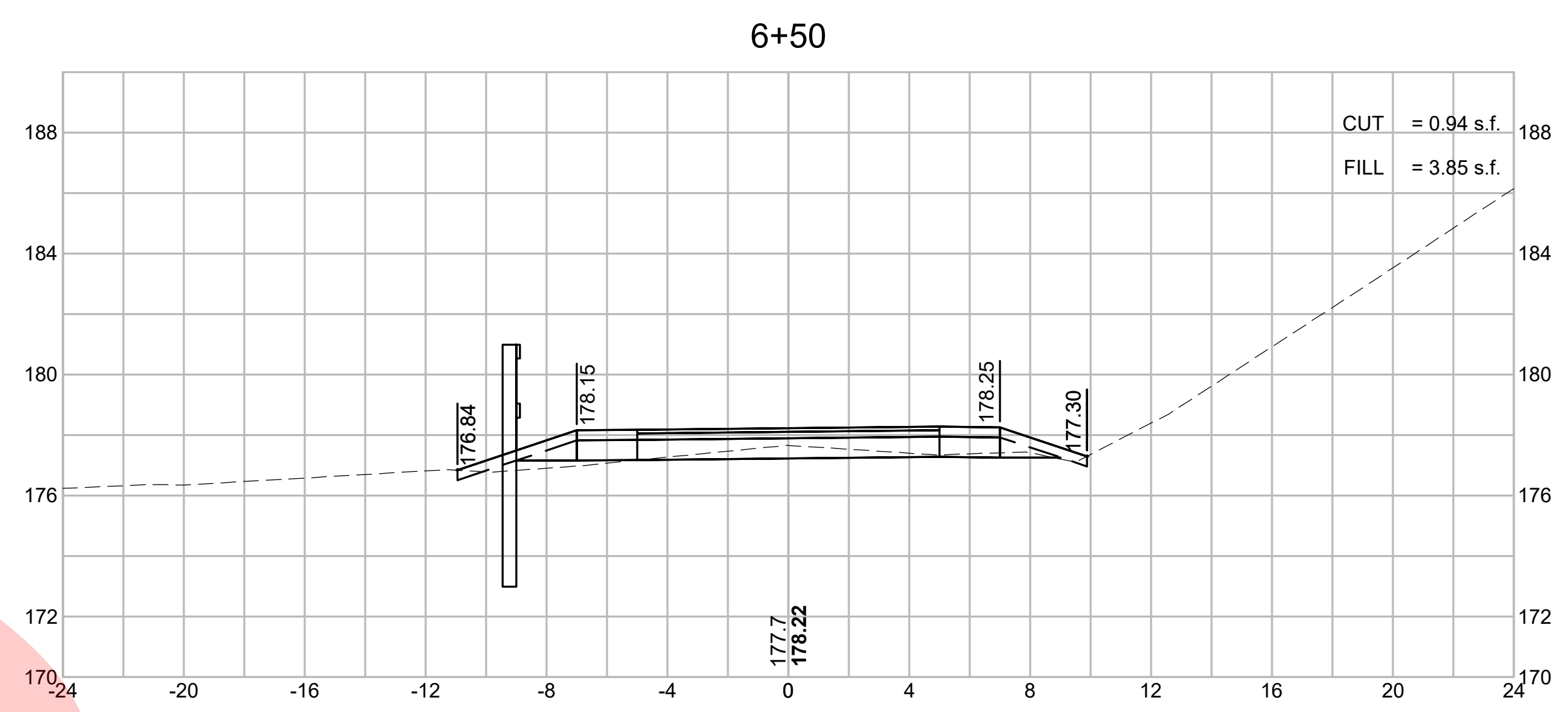
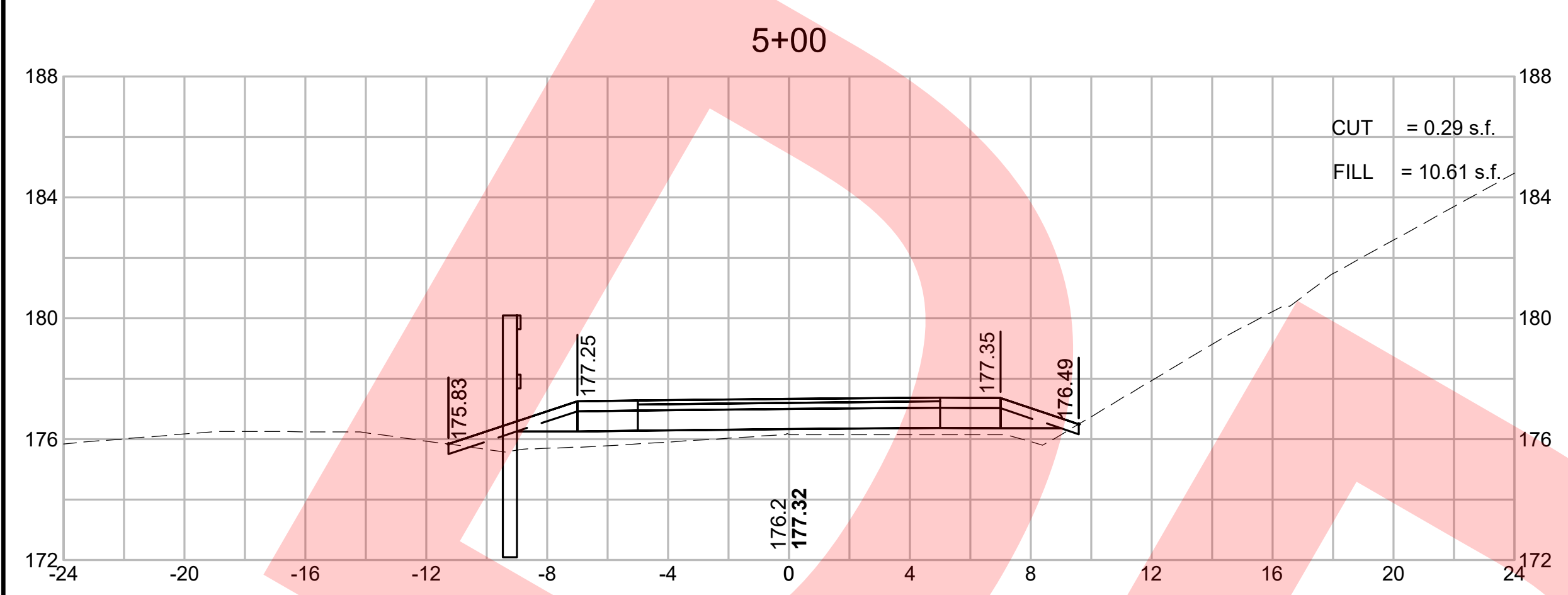
CROSS SECTIONS



CONCORD  
BRUCE FREEMAN RAIL TRAIL PHASE 2D

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	24	32
PROJECT FILE NO.		608164	

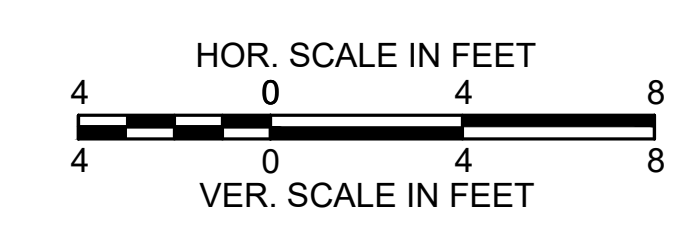
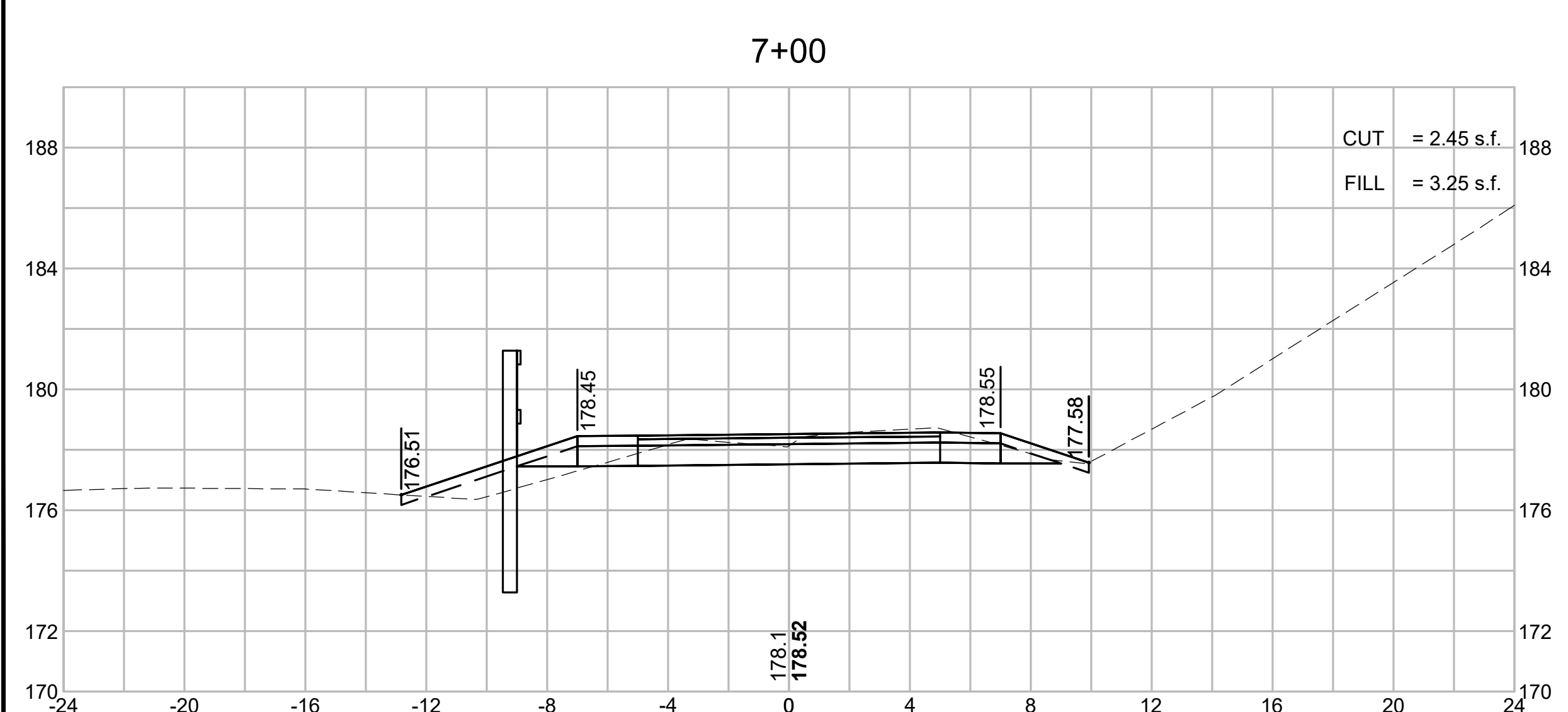
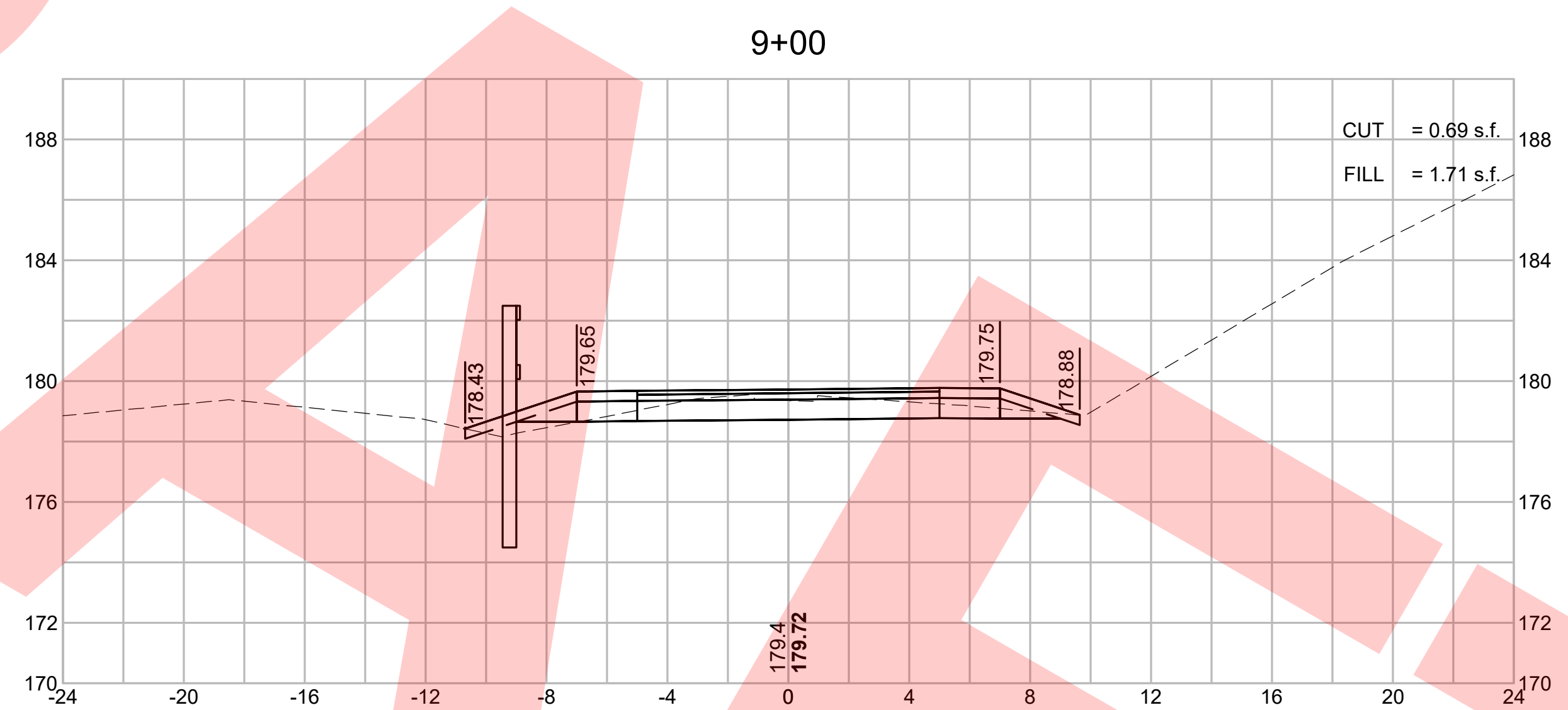
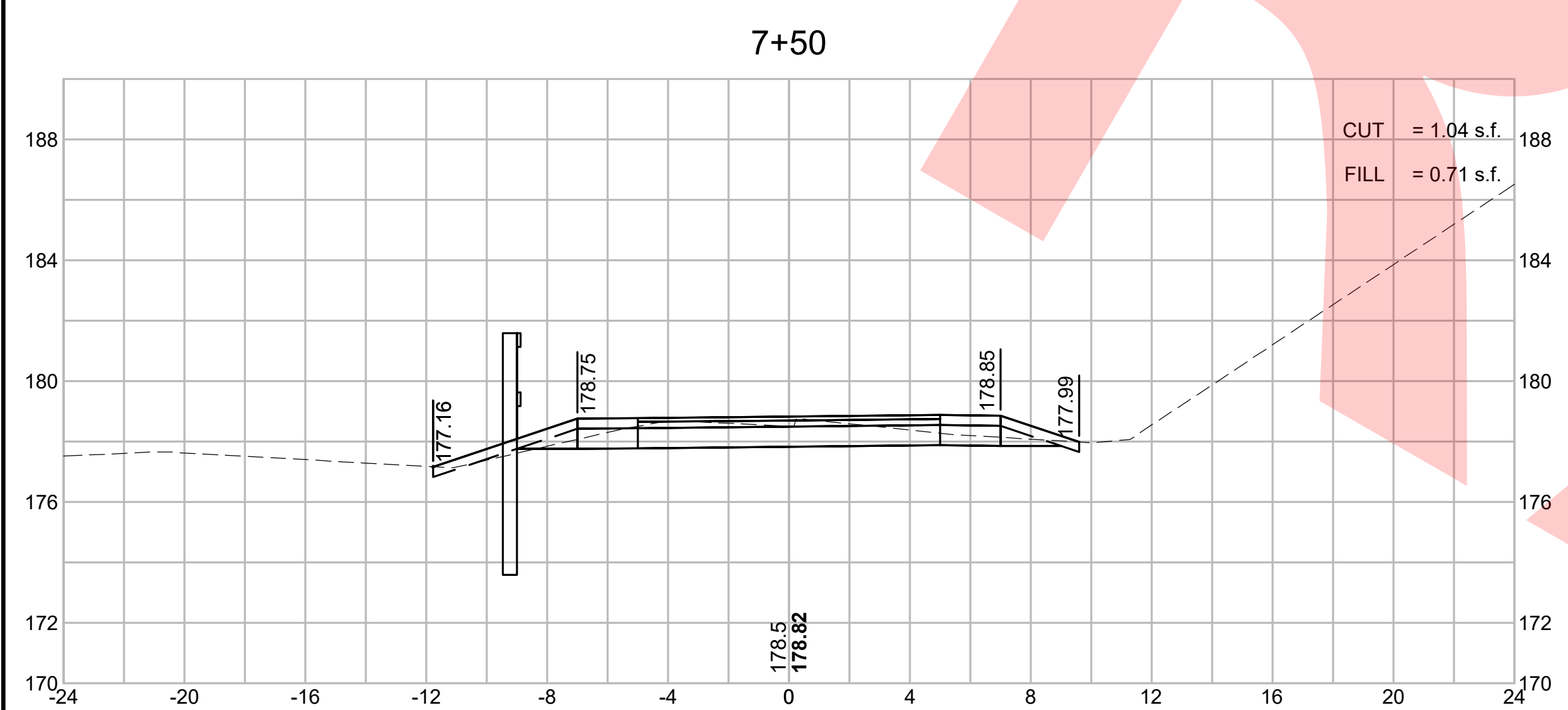
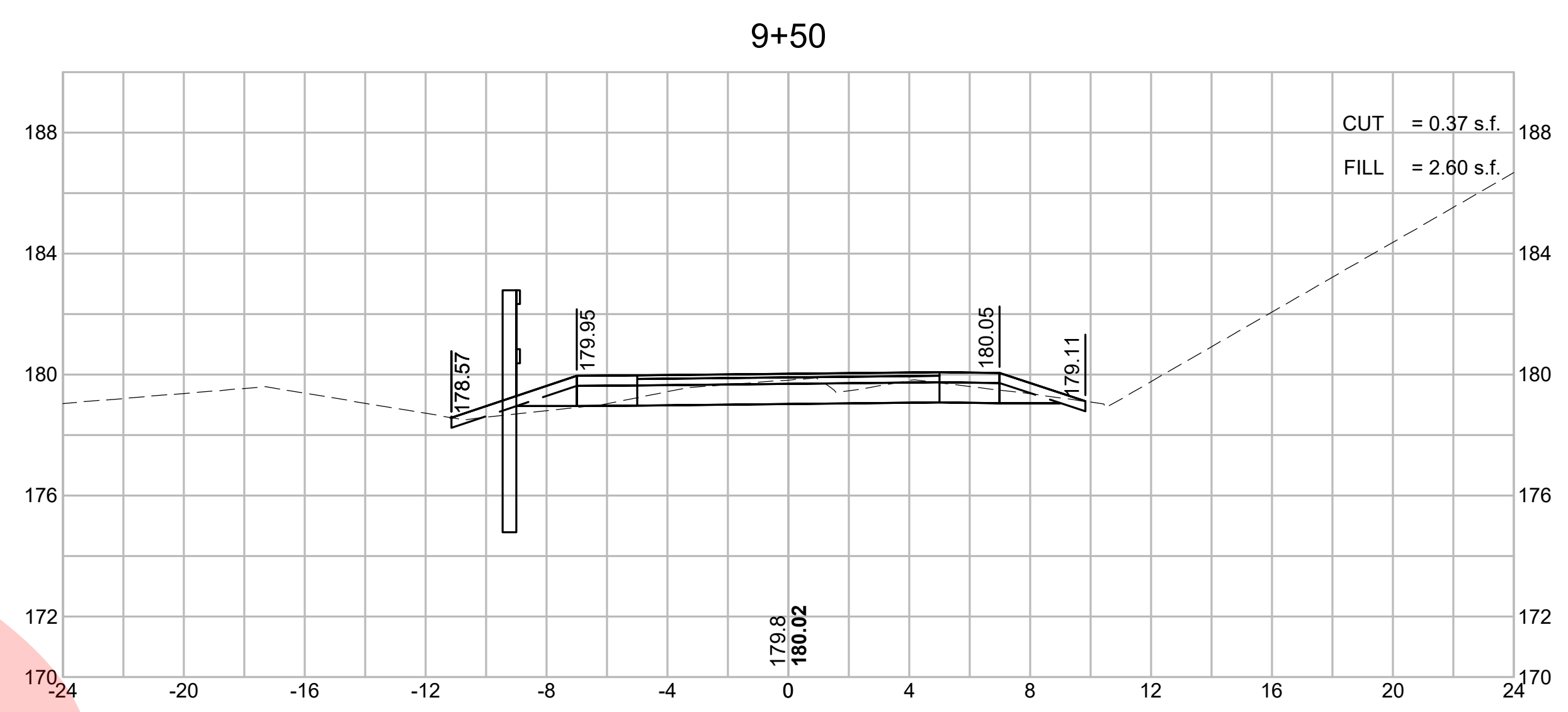
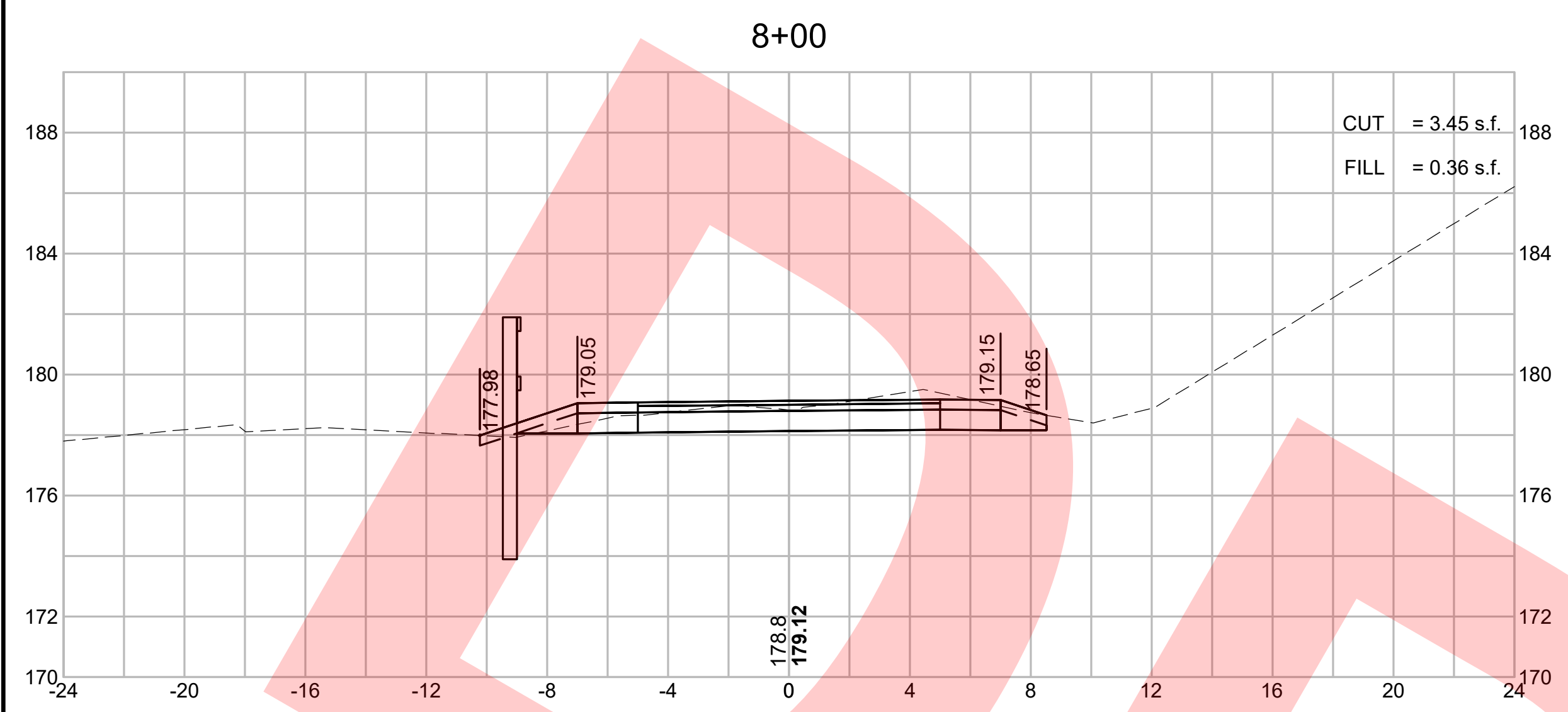
CROSS SECTIONS



CONCORD  
BRUCE FREEMAN RAIL TRAIL PHASE 2D

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	25	32
PROJECT FILE NO.		608164	

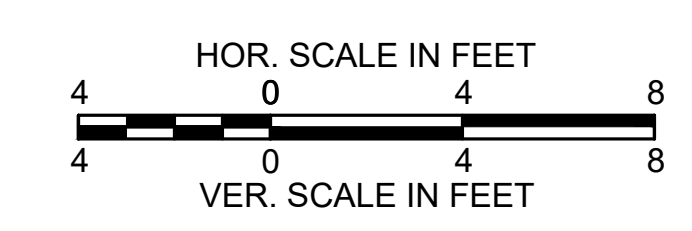
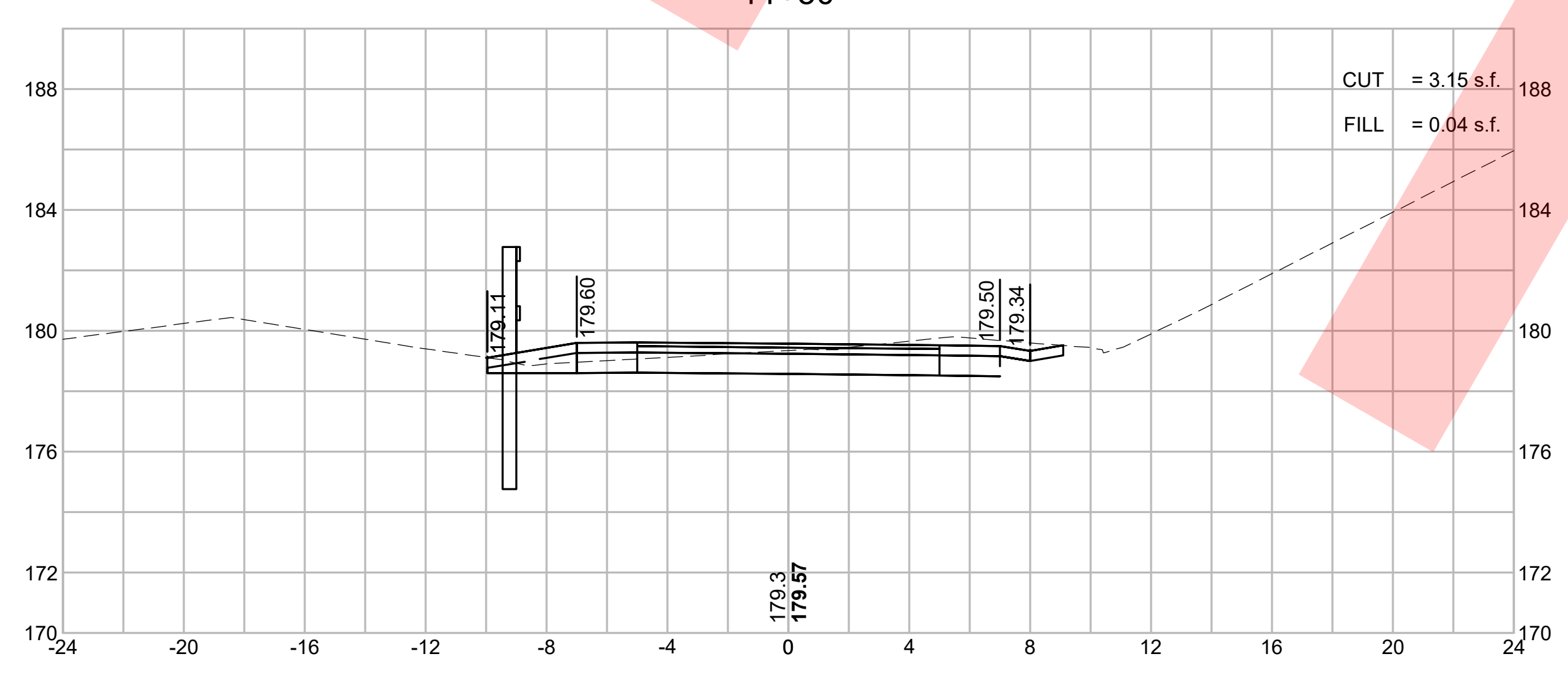
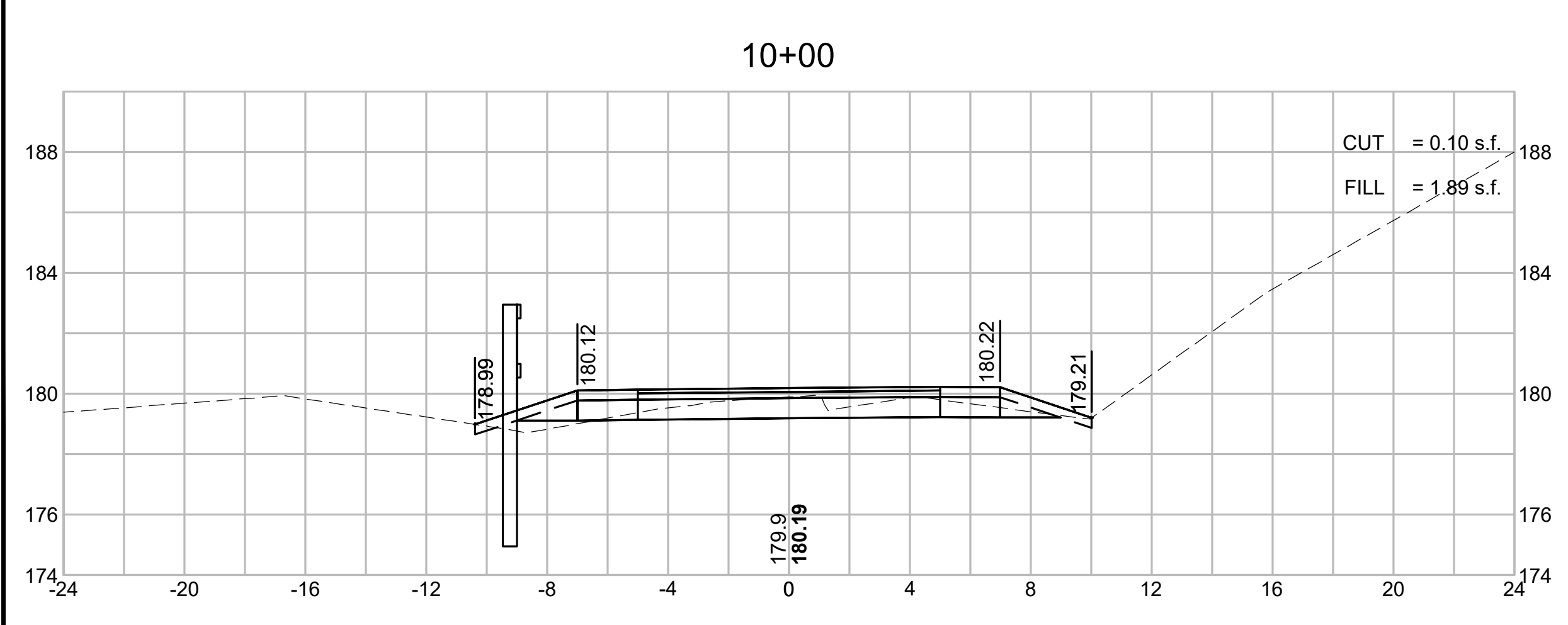
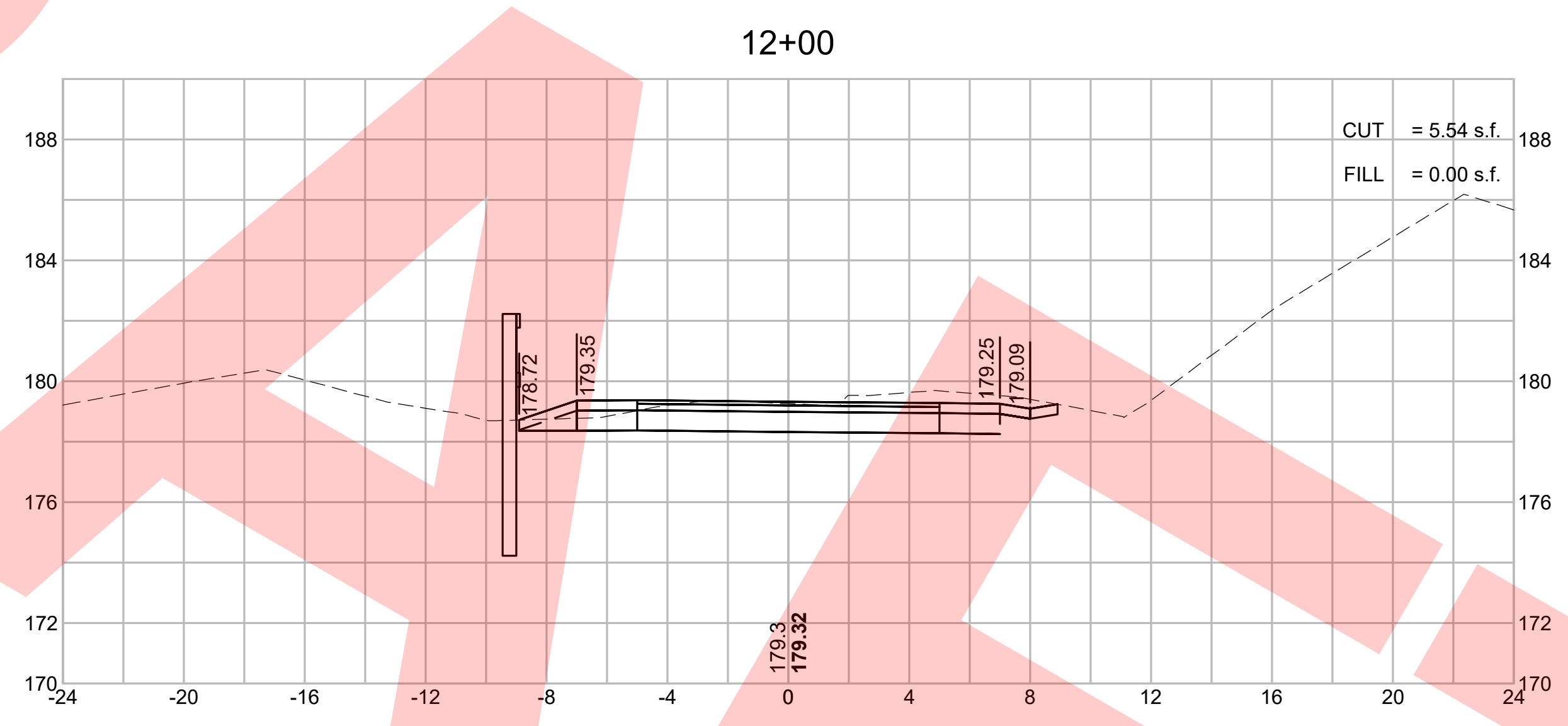
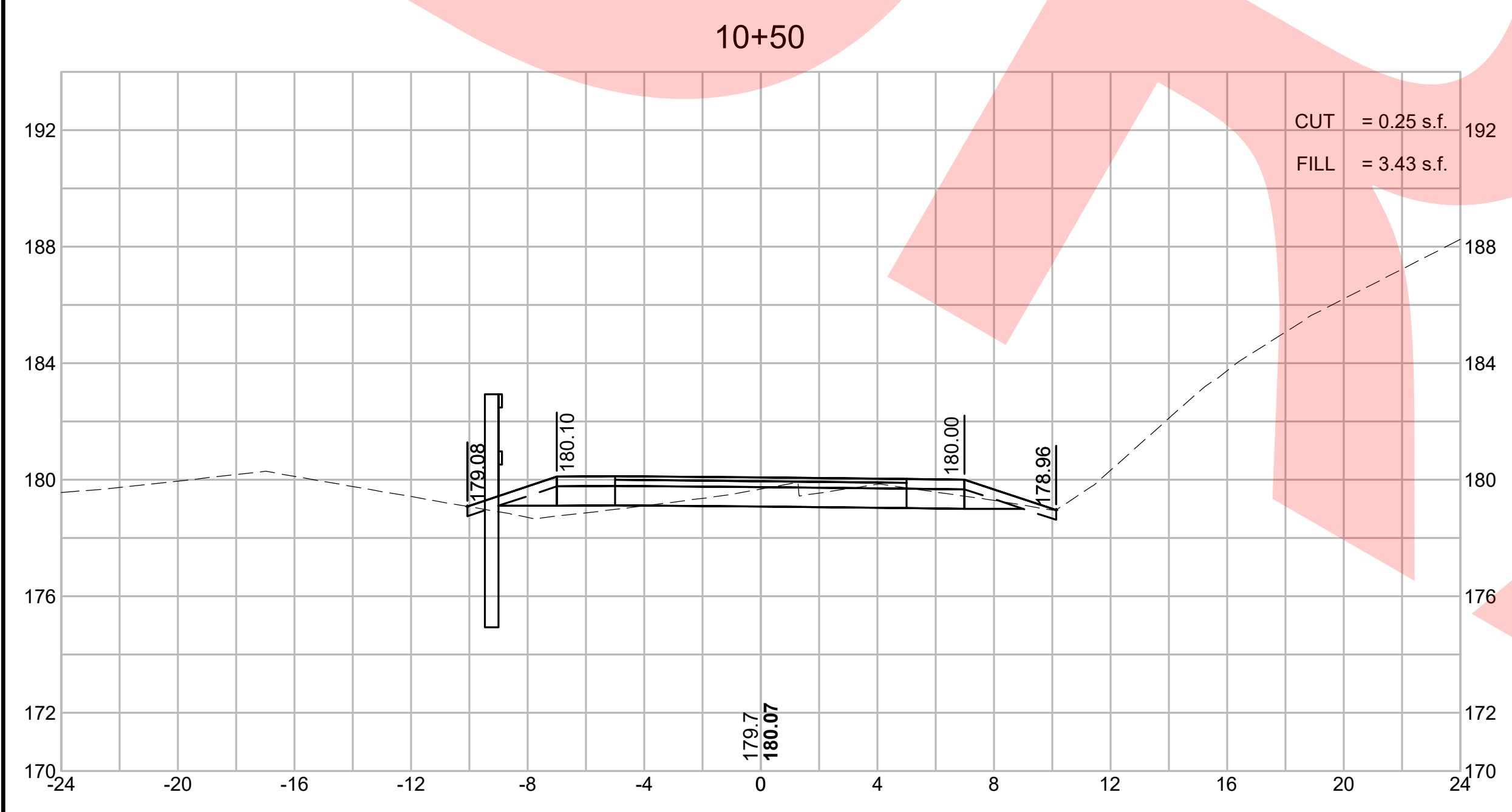
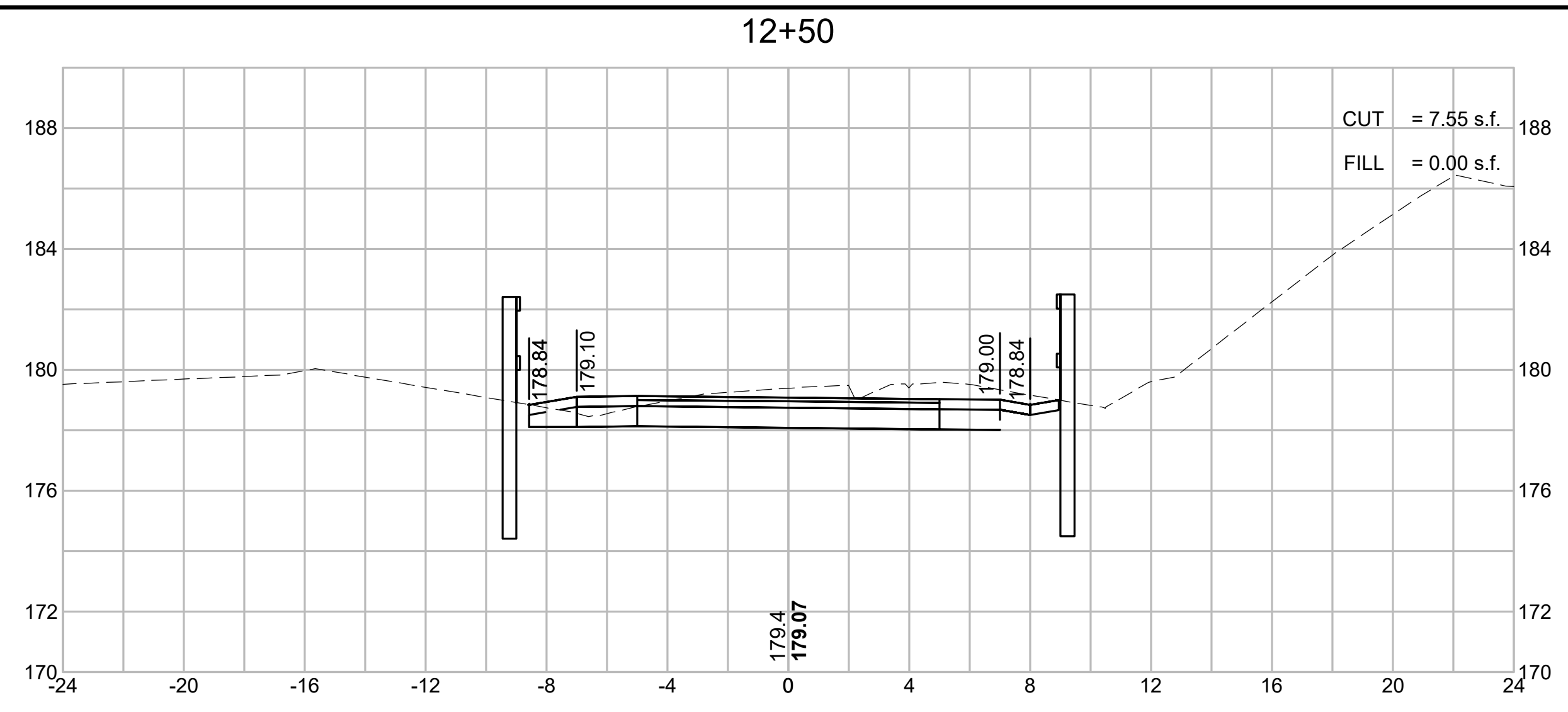
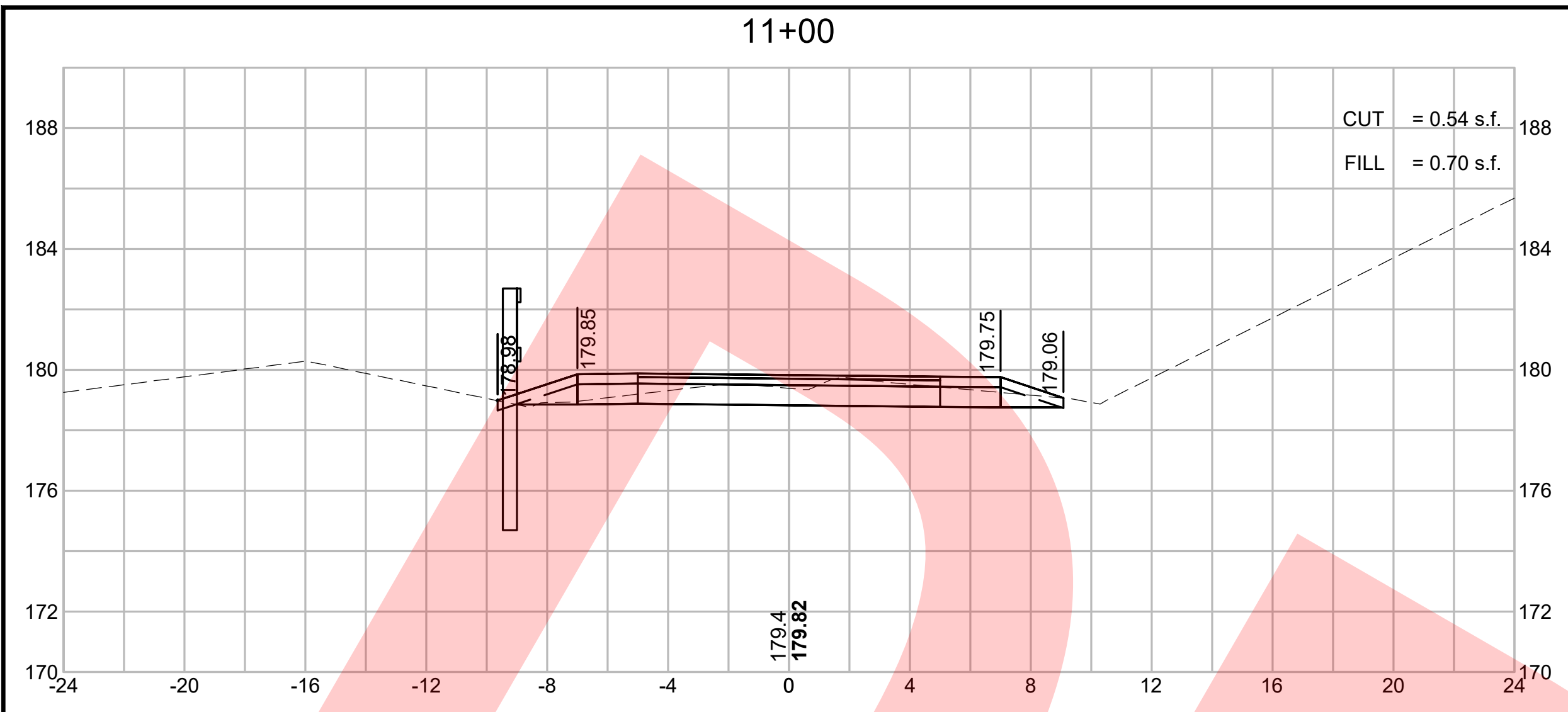
CROSS SECTIONS



CONCORD  
BRUCE FREEMAN RAIL TRAIL PHASE 2D

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	26	32
PROJECT FILE NO.		608164	

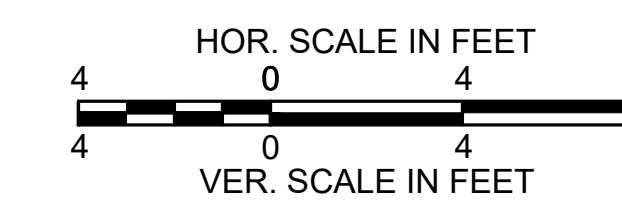
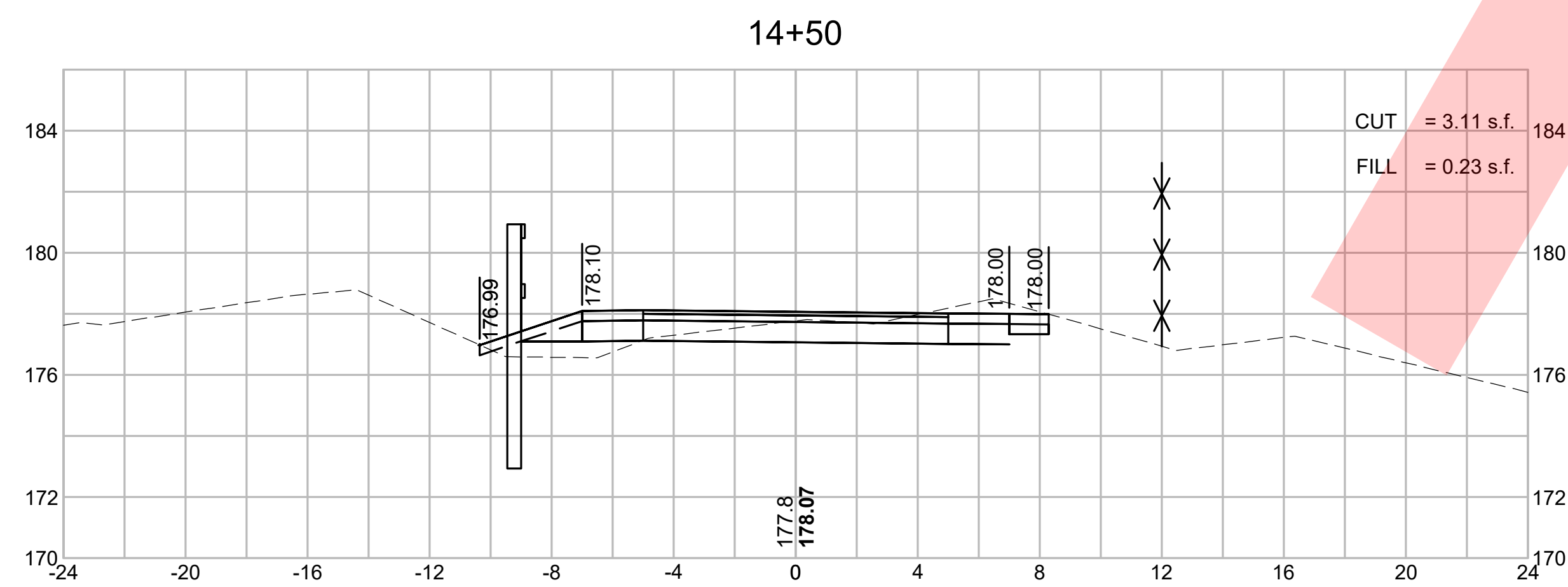
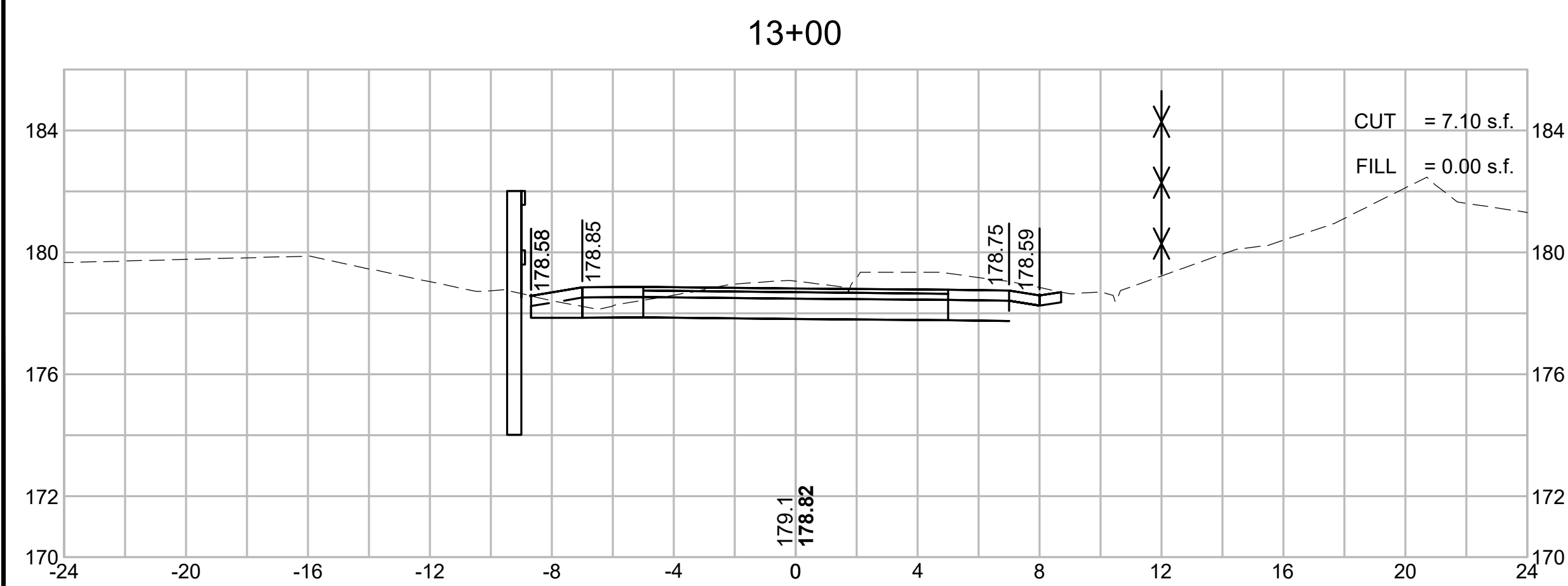
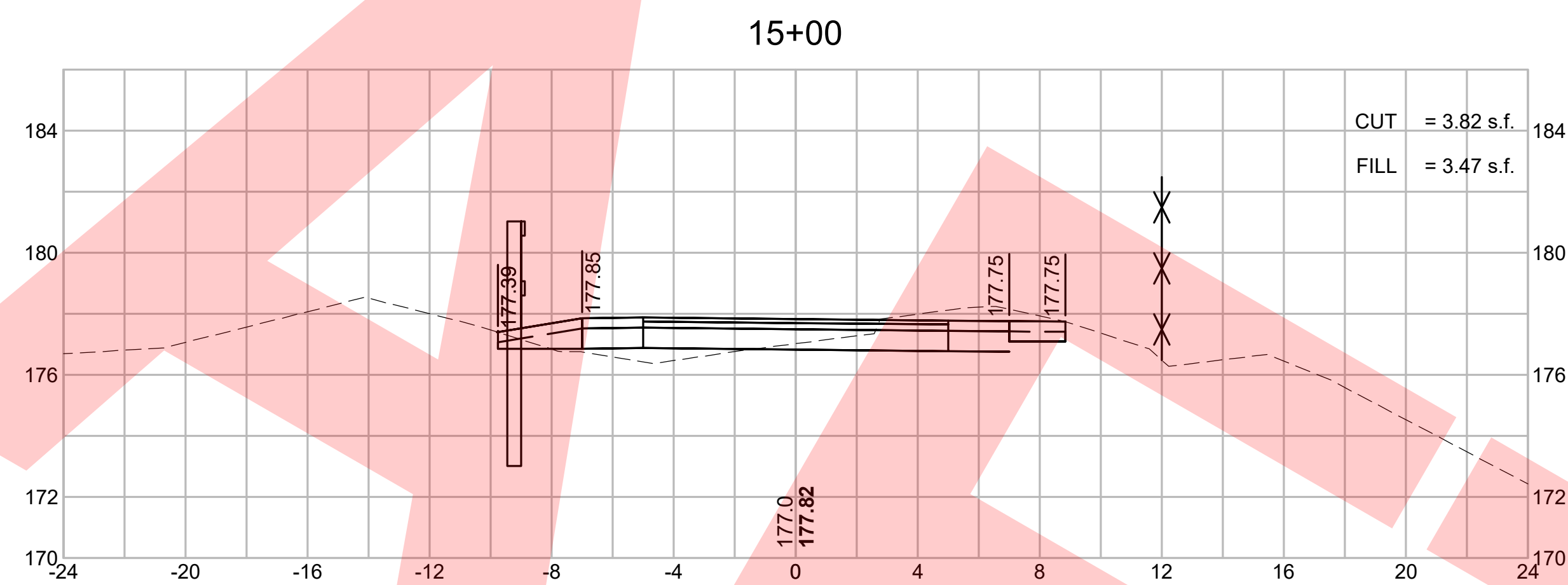
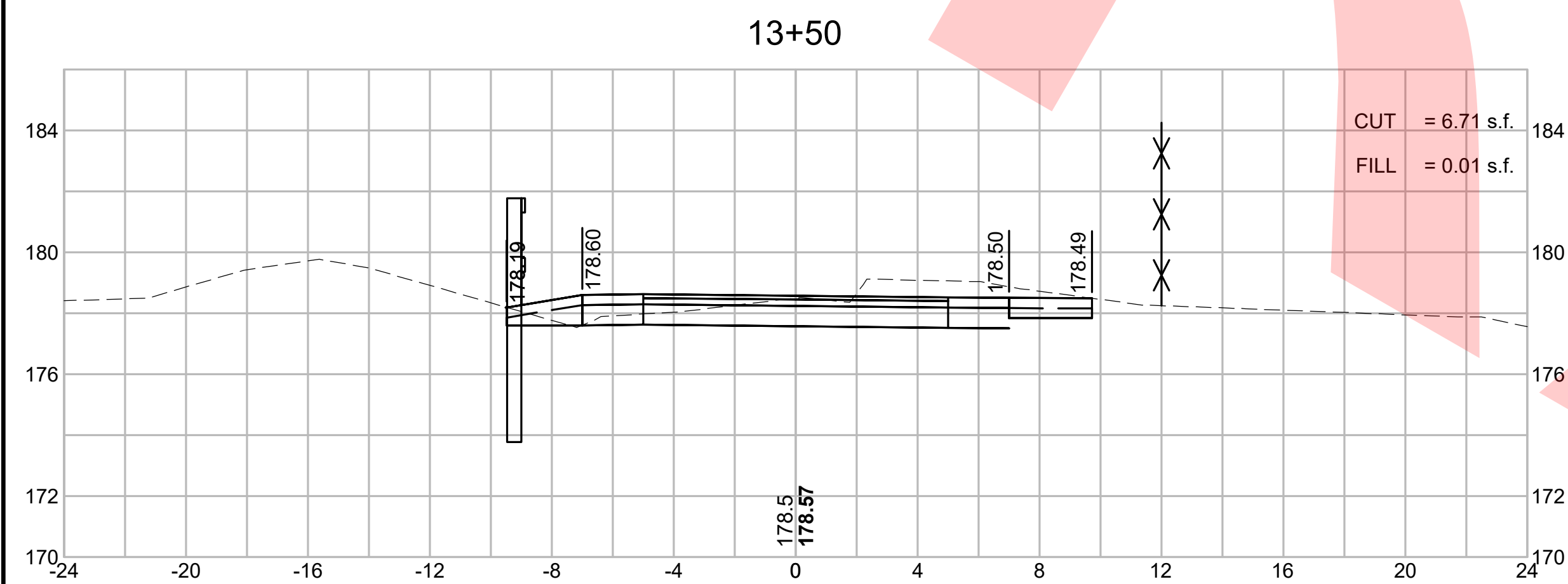
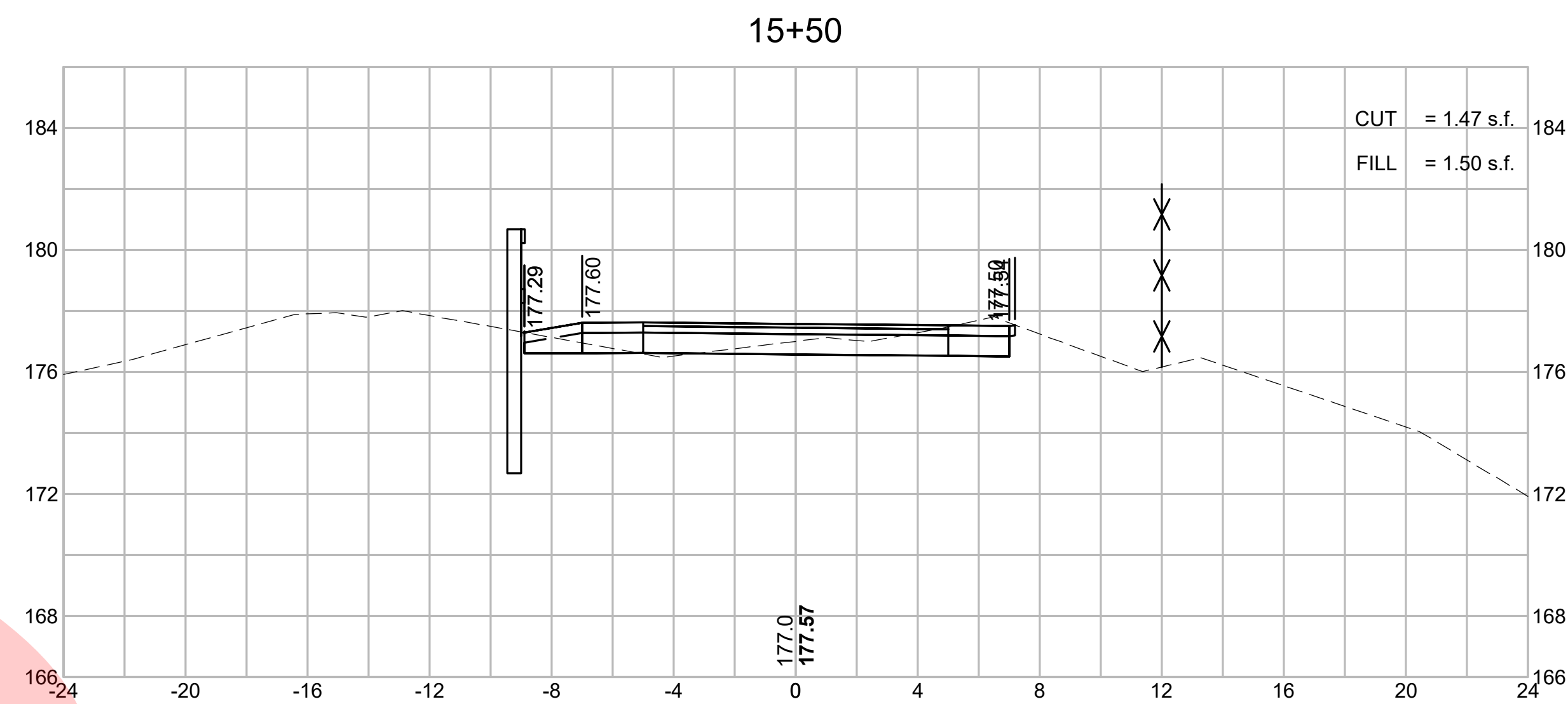
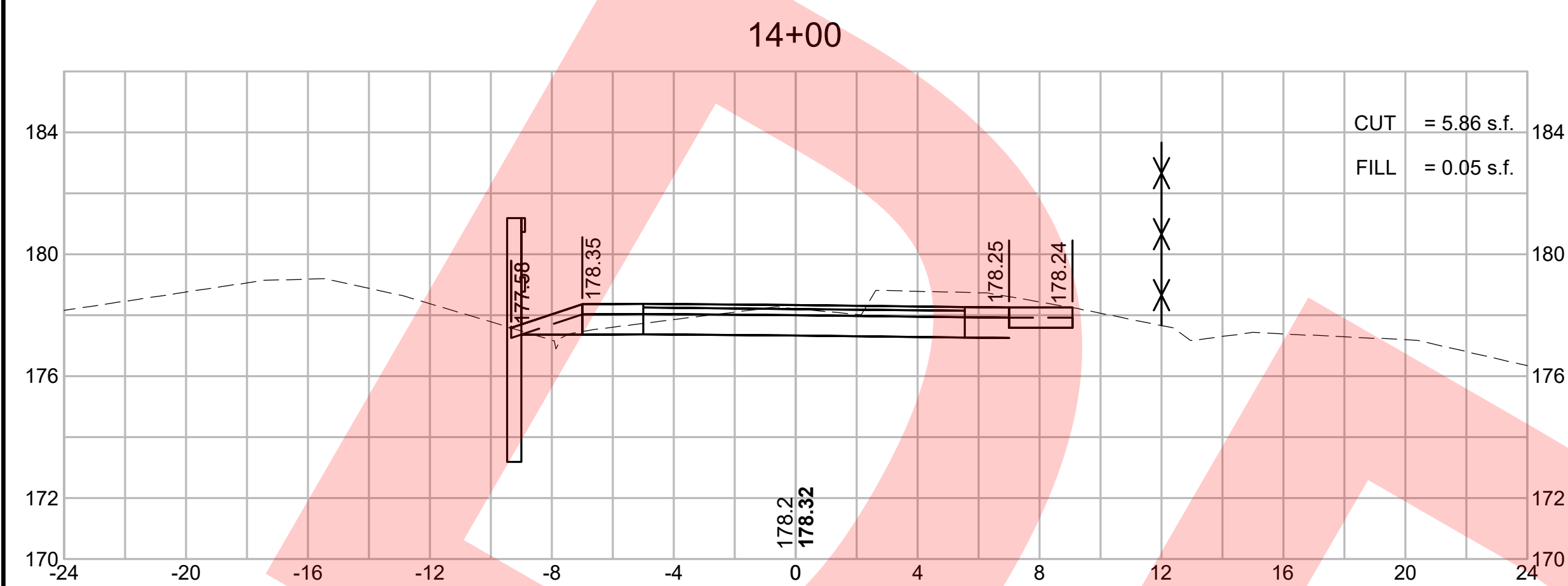
CROSS SECTIONS



CONCORD  
BRUCE FREEMAN RAIL TRAIL PHASE 2D

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	27	32
PROJECT FILE NO.		608164	

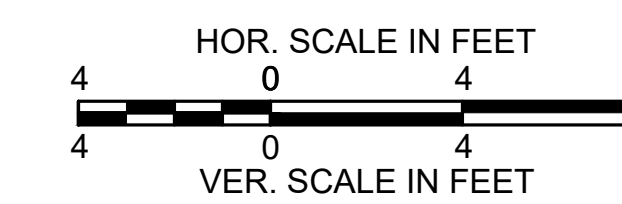
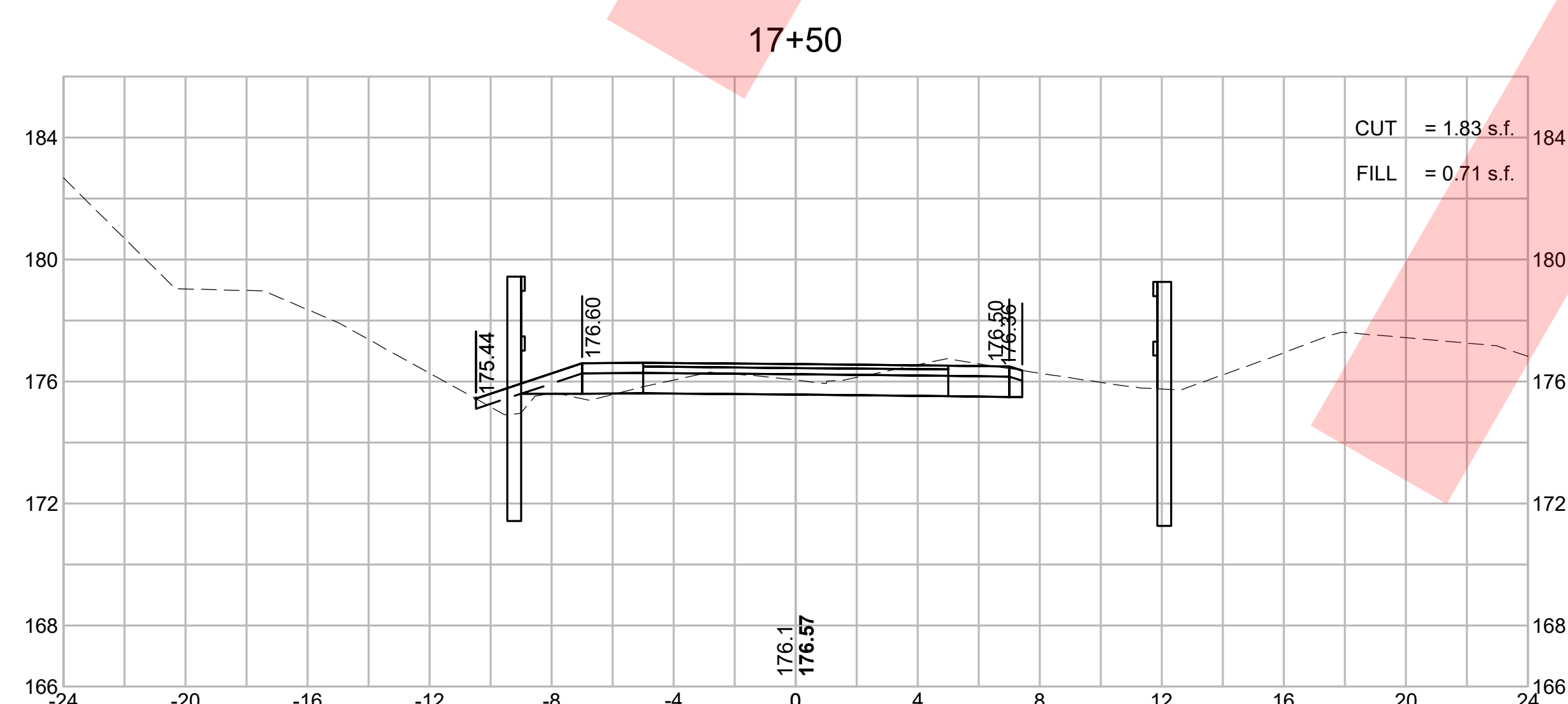
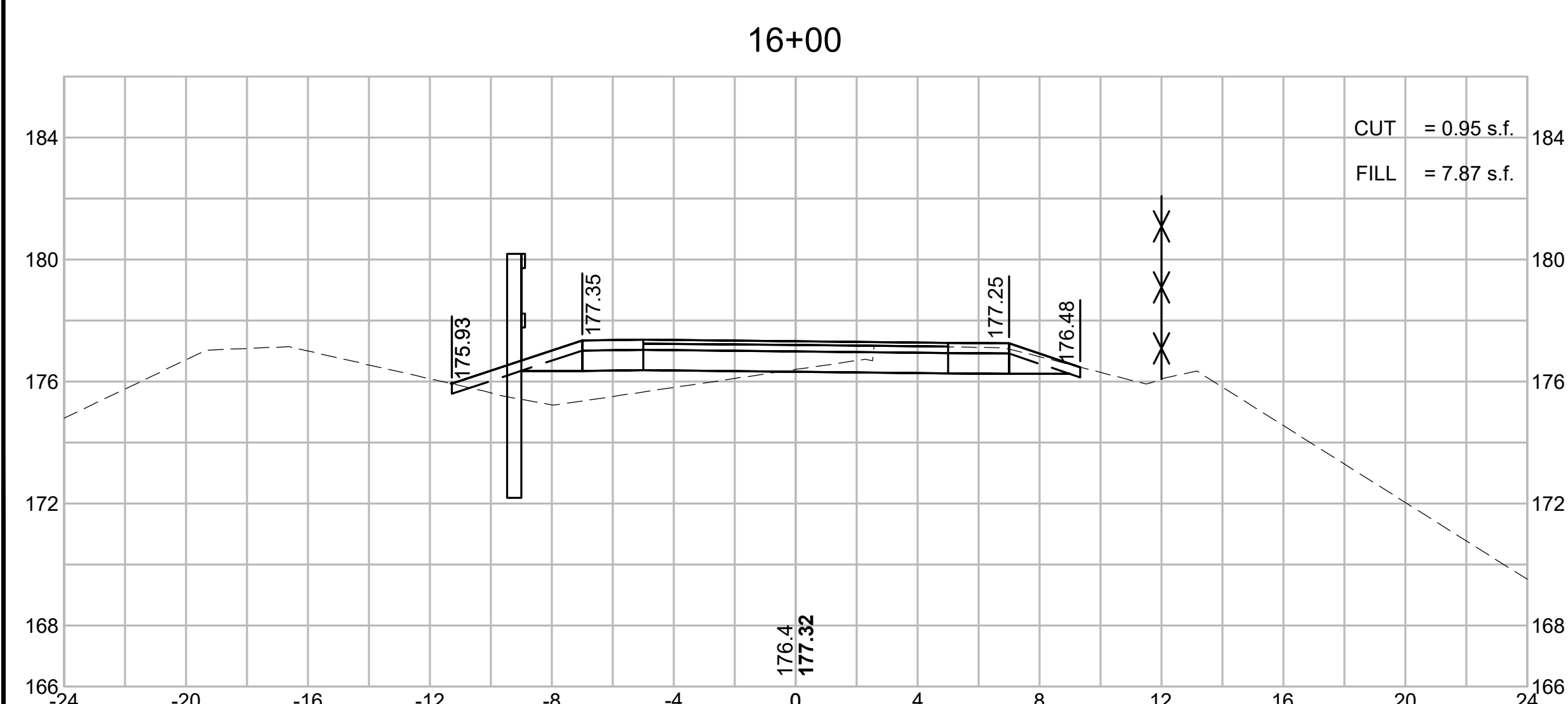
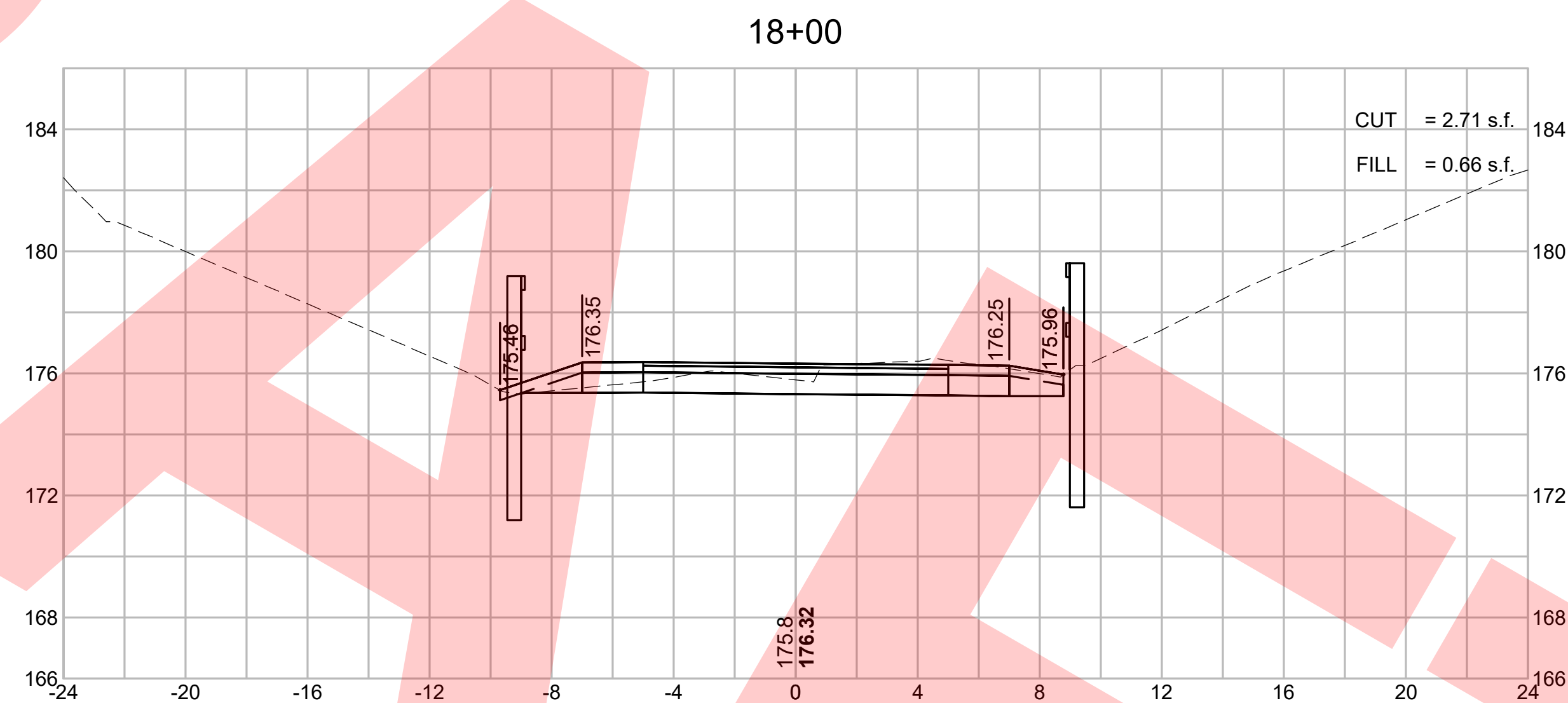
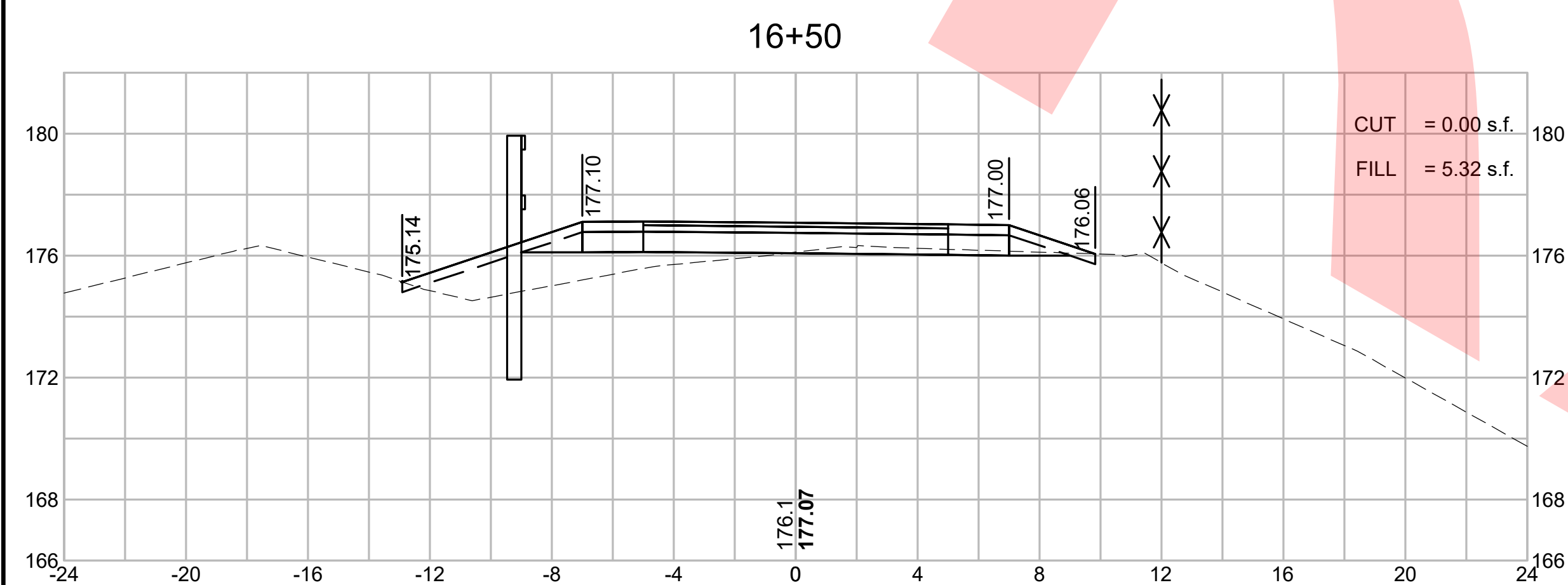
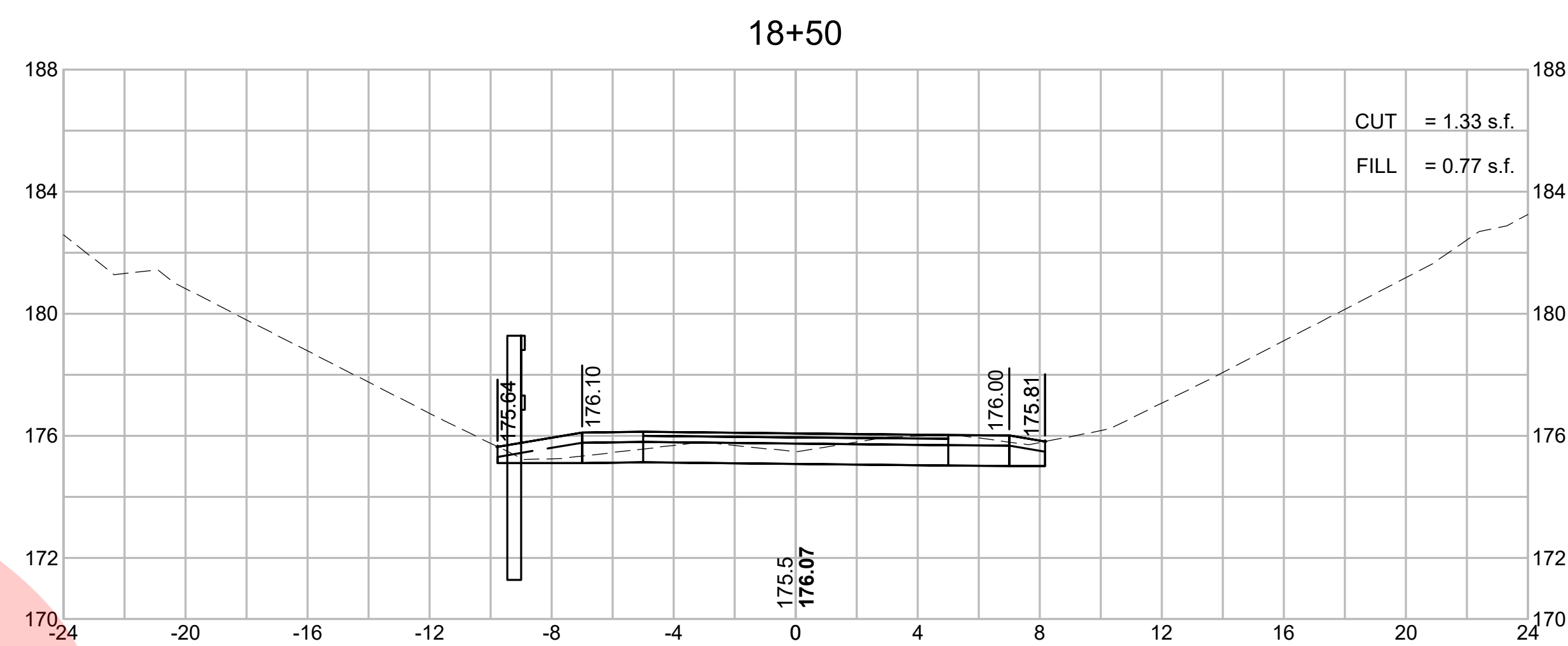
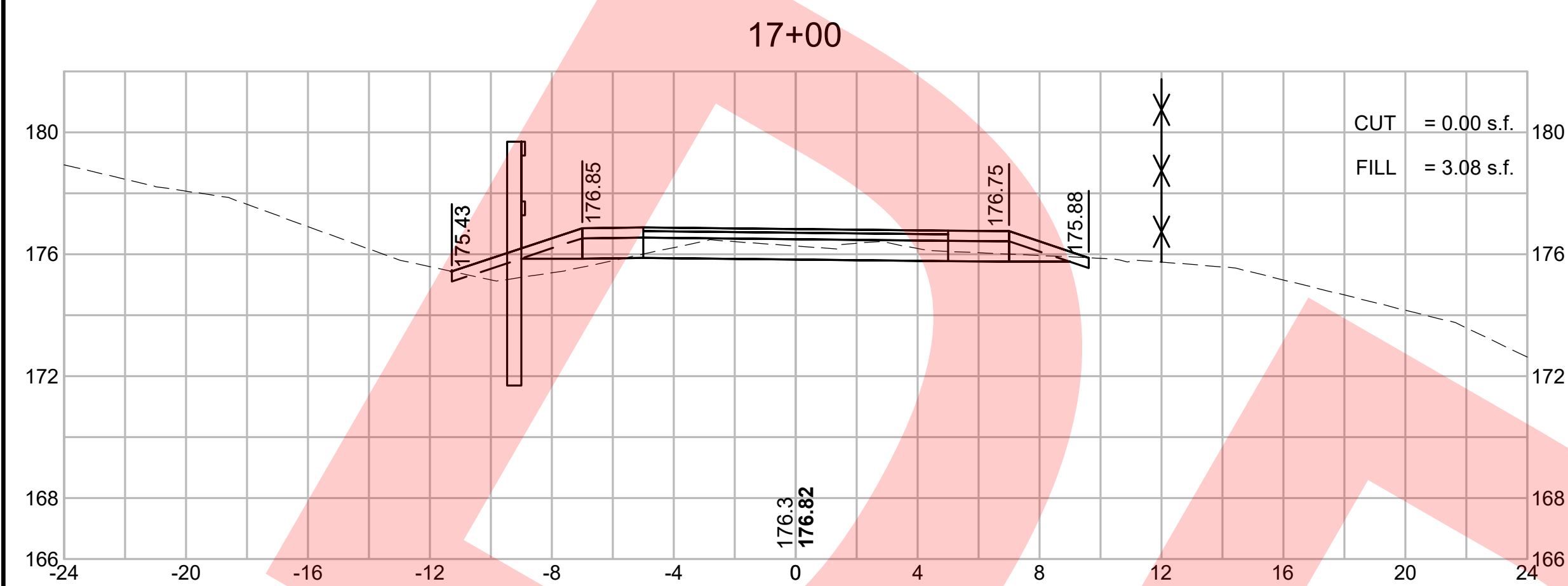
CROSS SECTIONS



CONCORD  
BRUCE FREEMAN RAIL TRAIL PHASE 2D

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	28	32
PROJECT FILE NO.		608164	

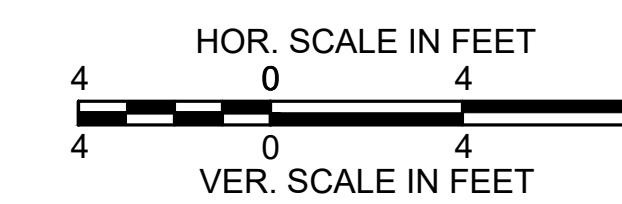
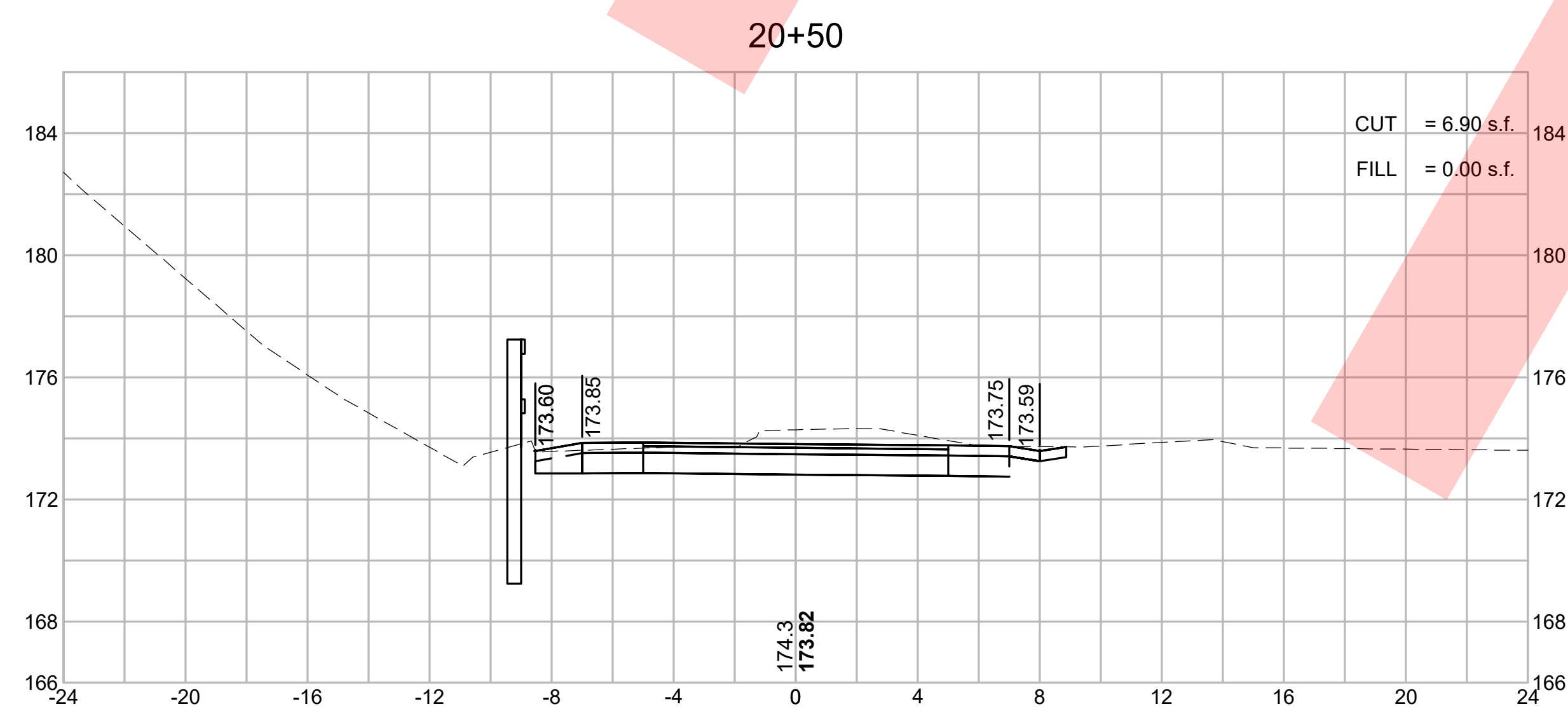
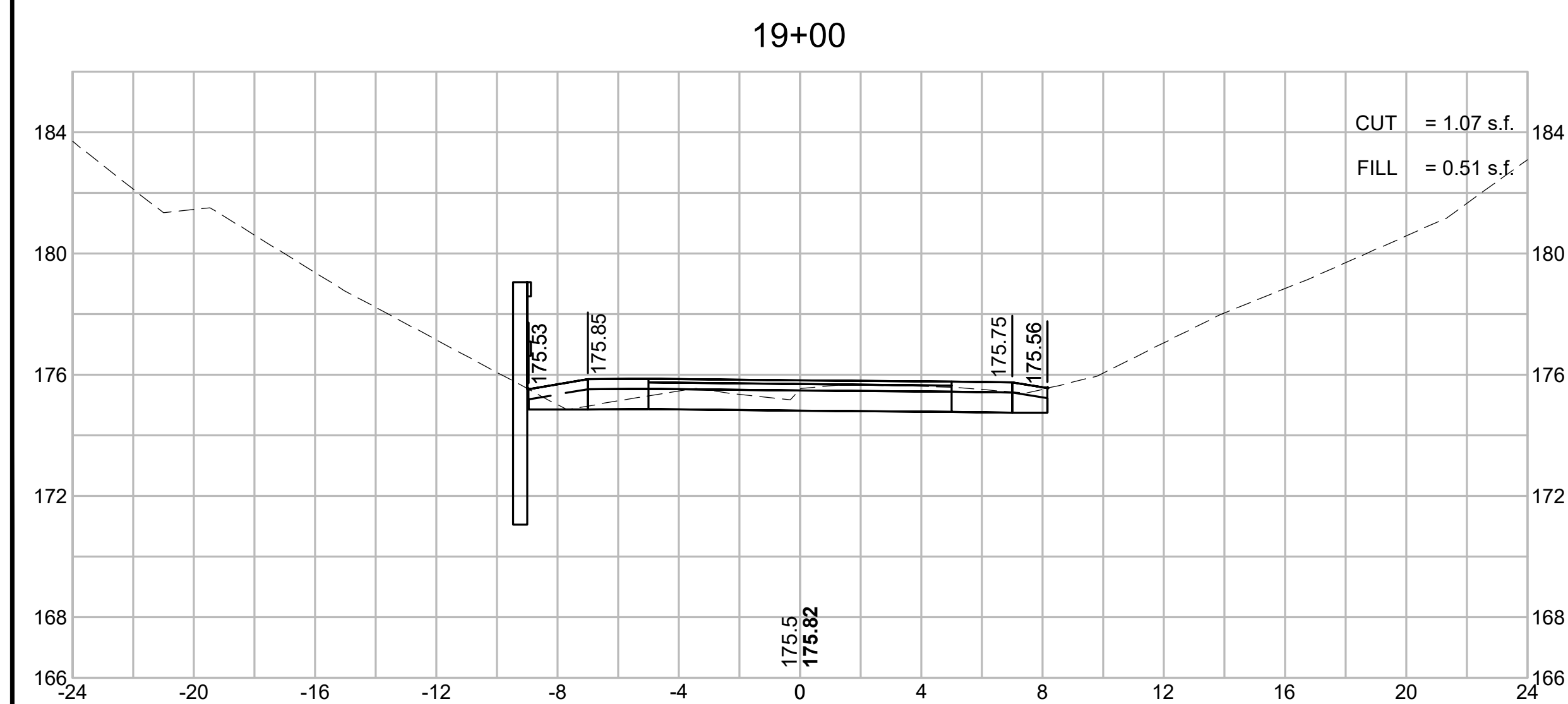
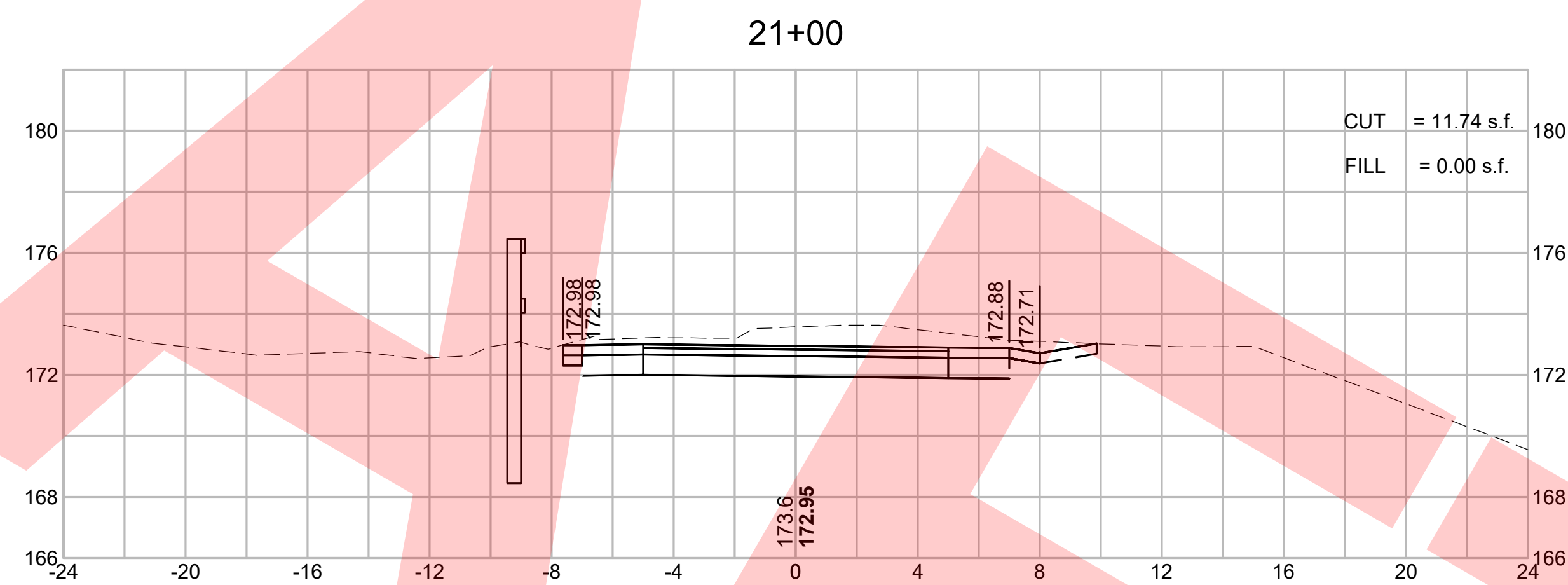
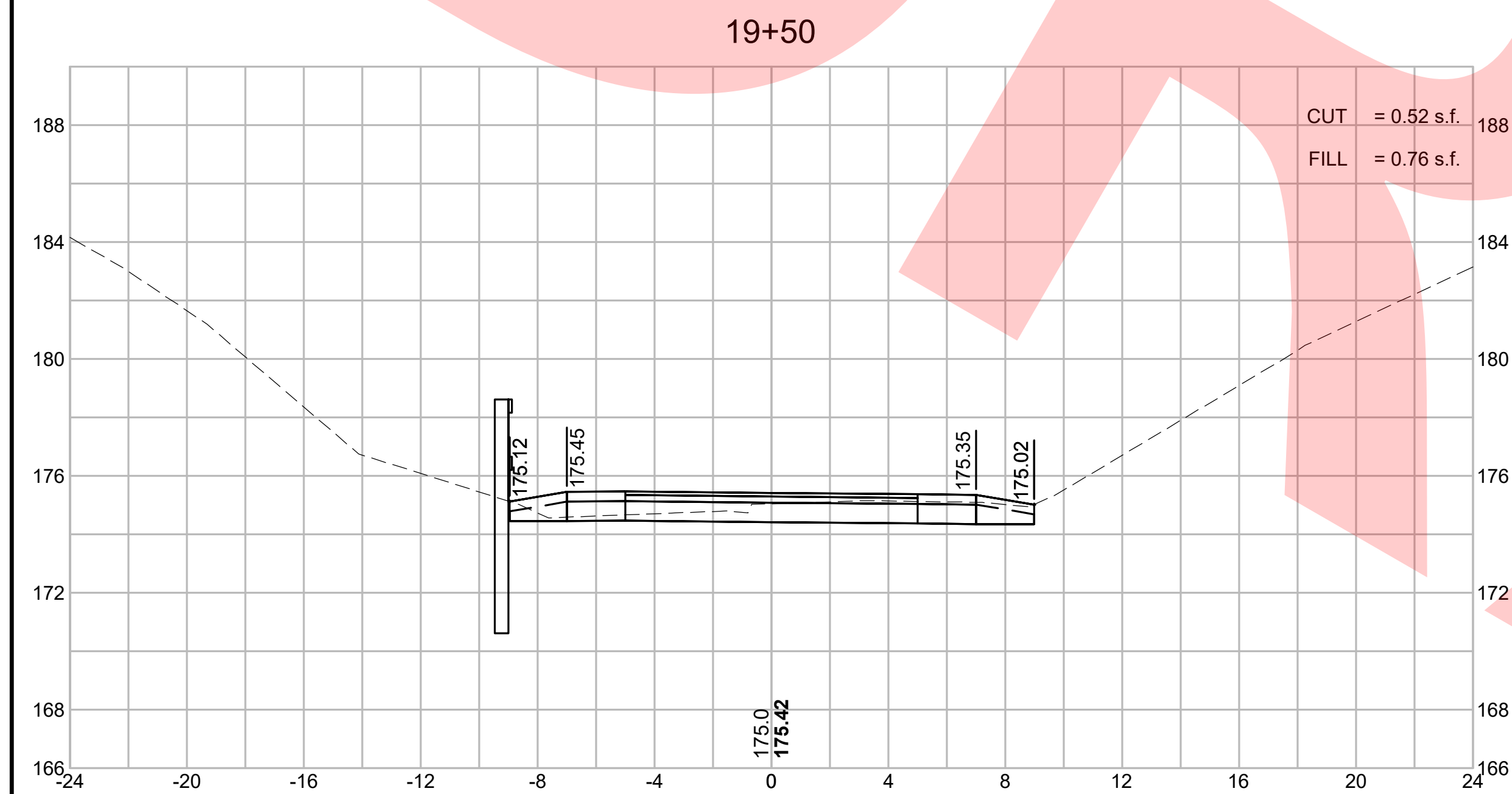
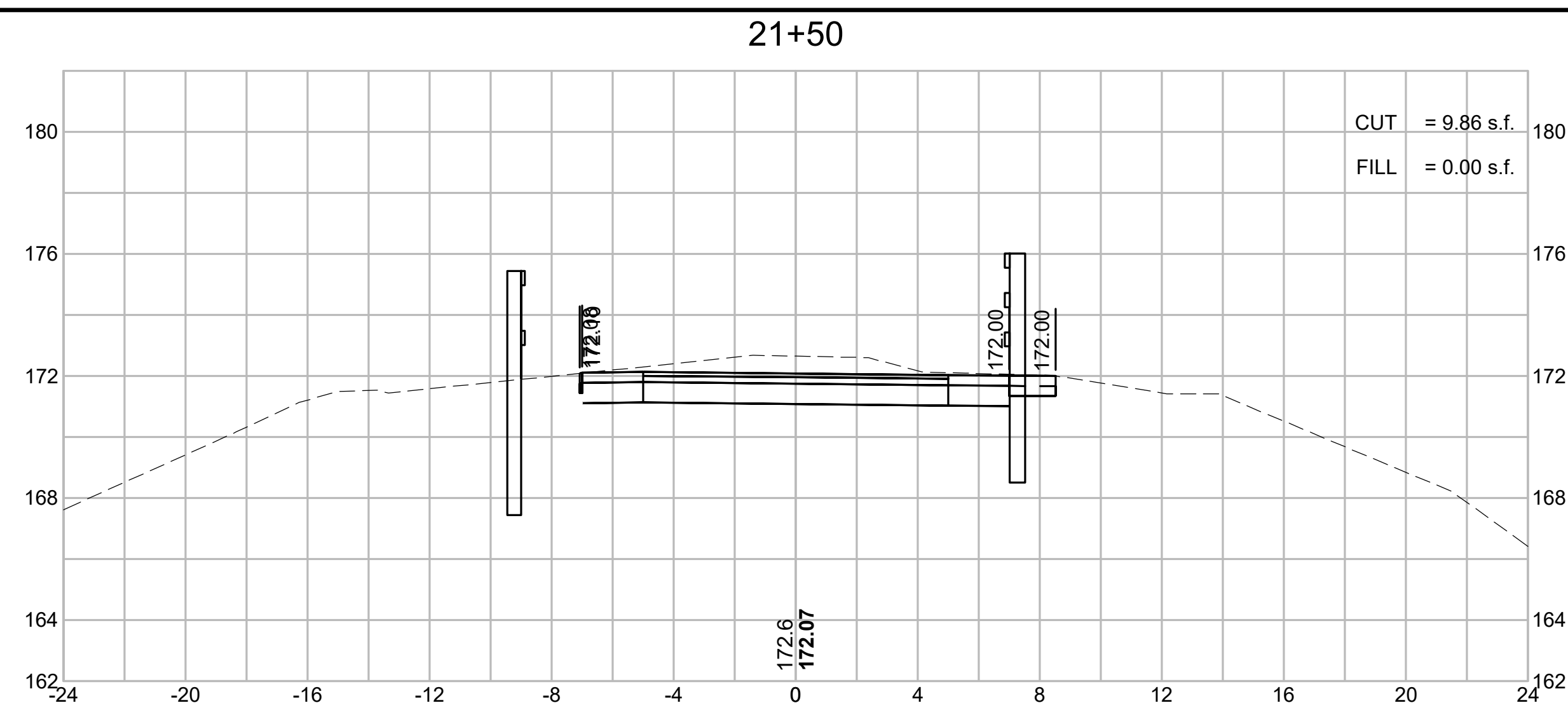
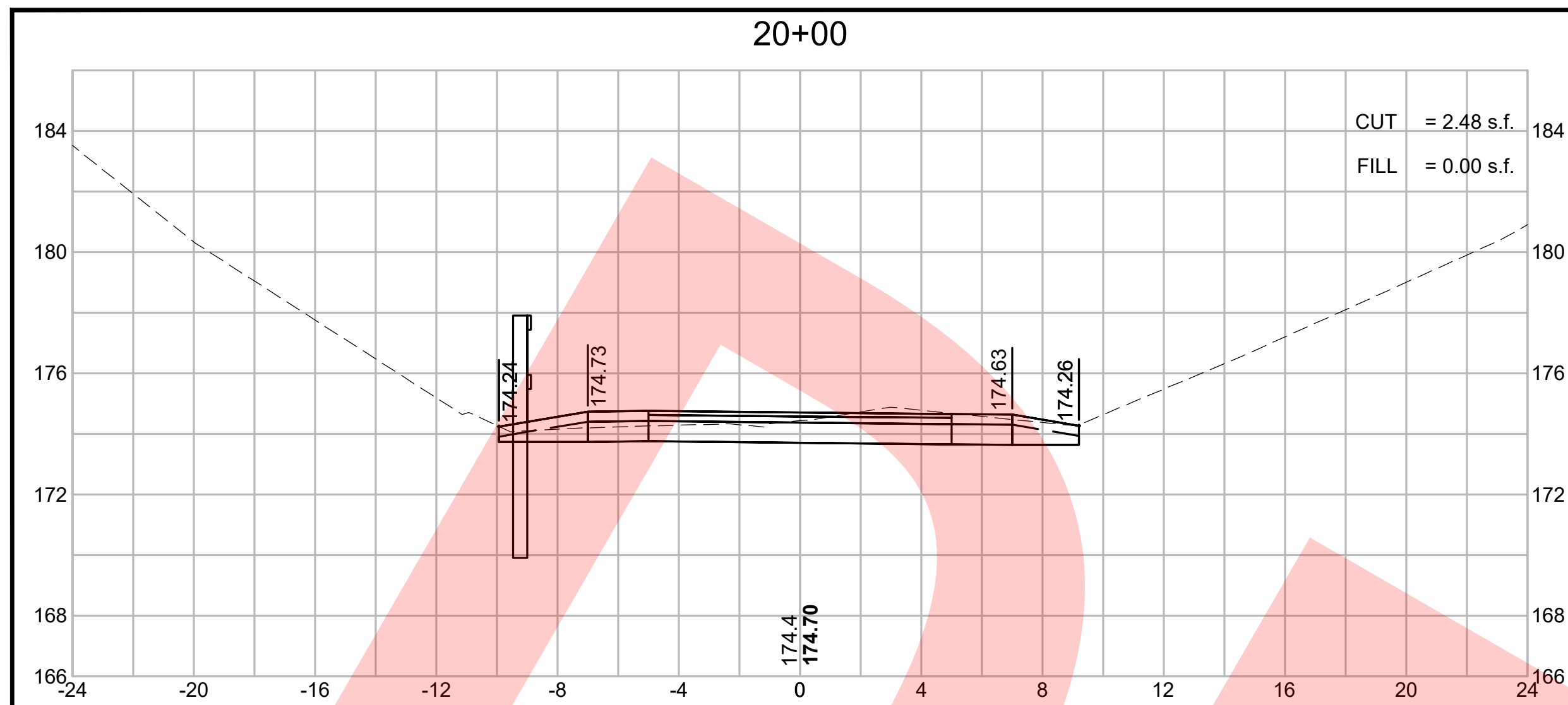
CROSS SECTIONS



CONCORD  
BRUCE FREEMAN RAIL TRAIL PHASE 2D

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	29	32
PROJECT FILE NO.		608164	

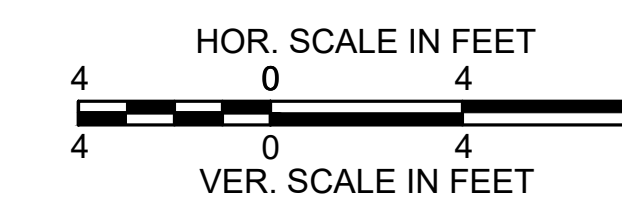
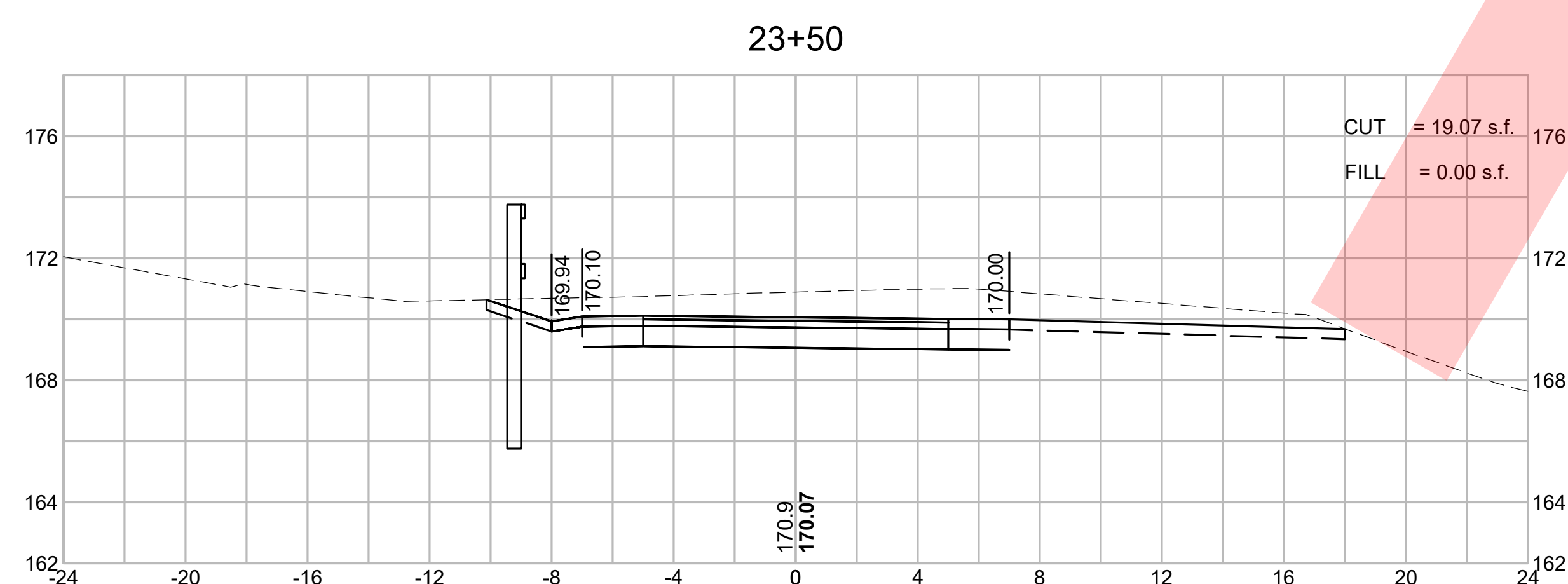
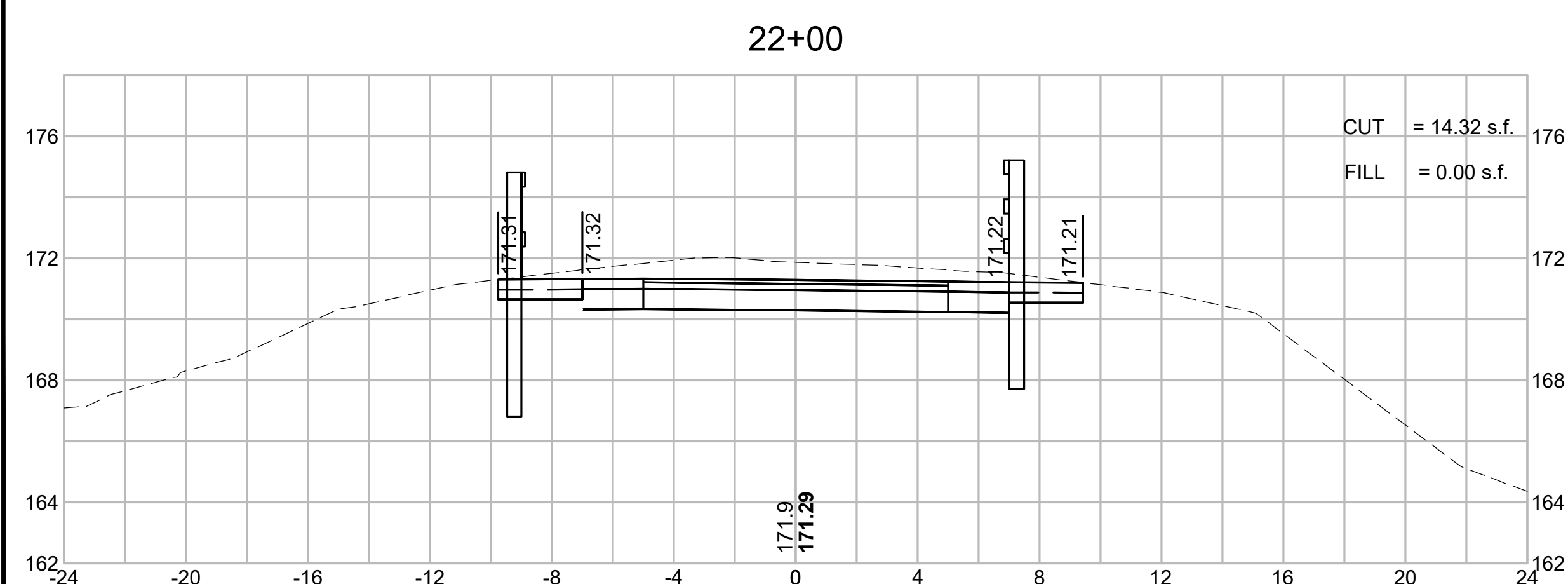
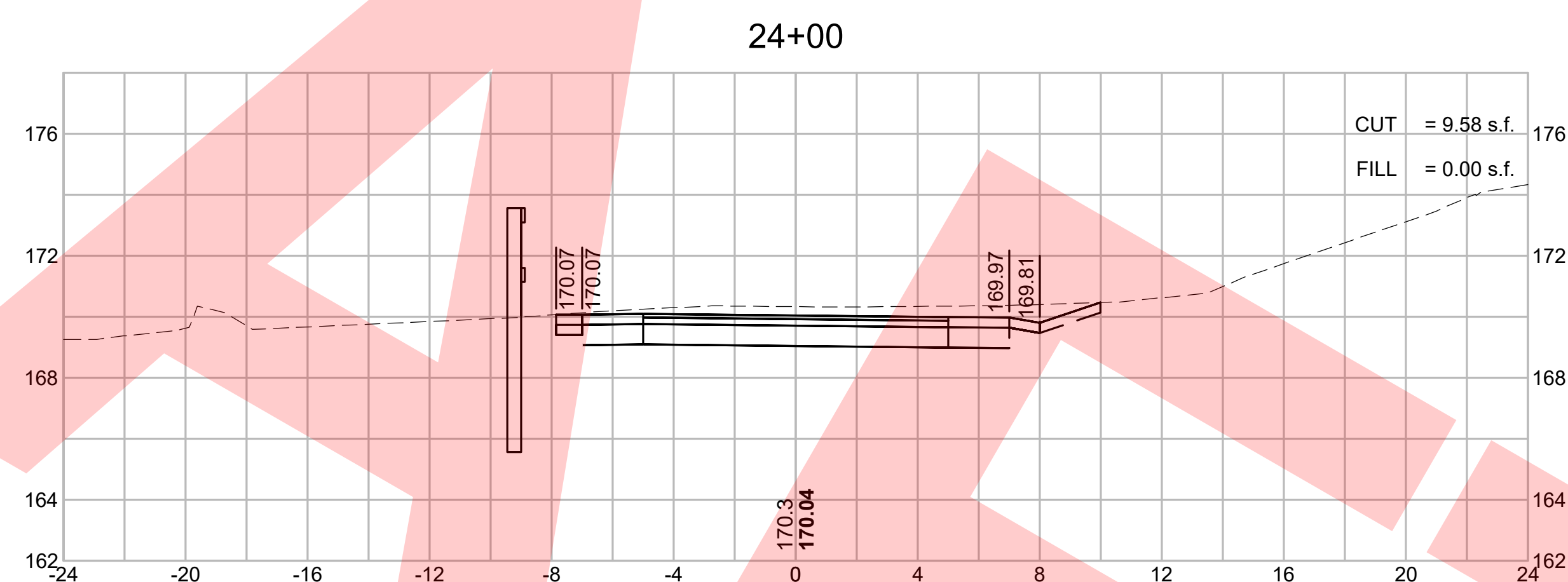
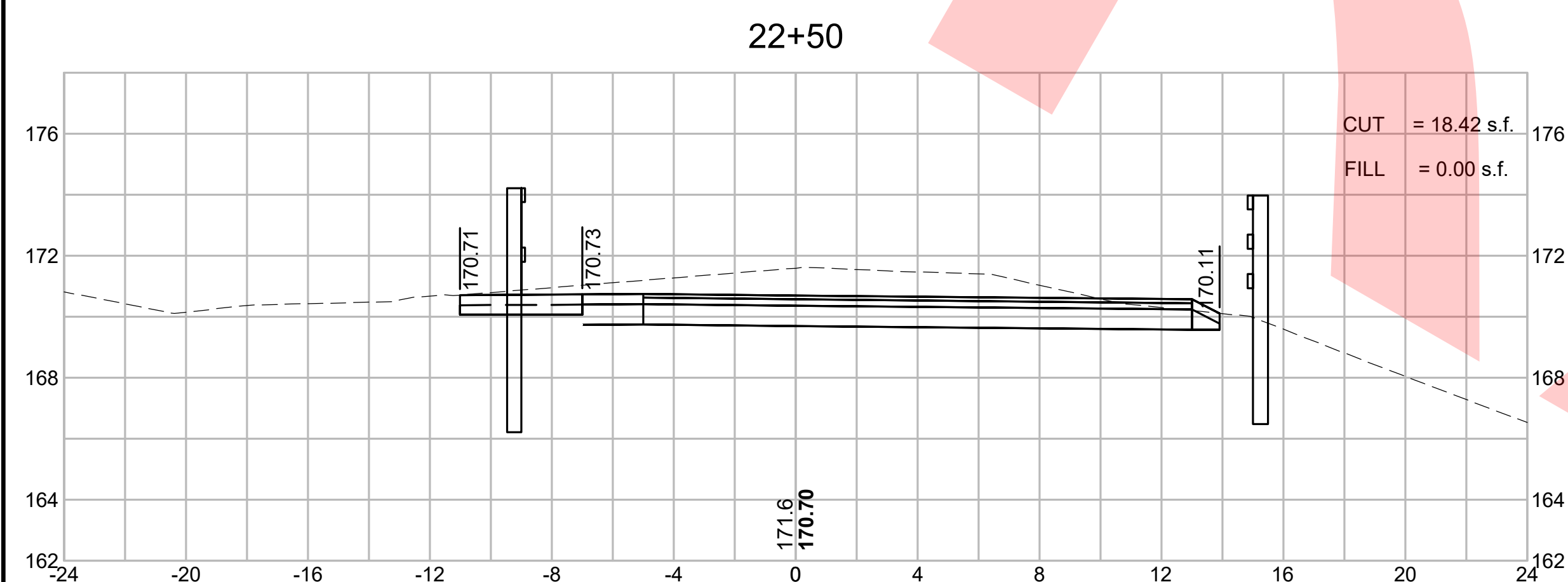
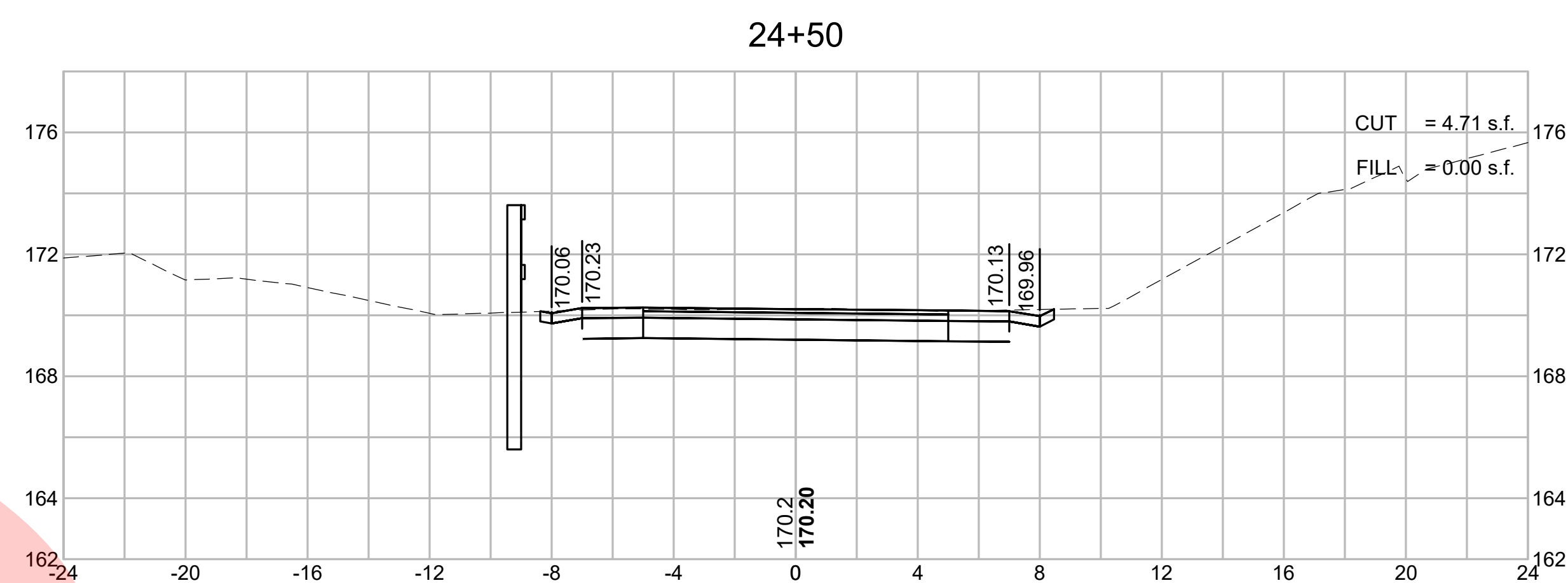
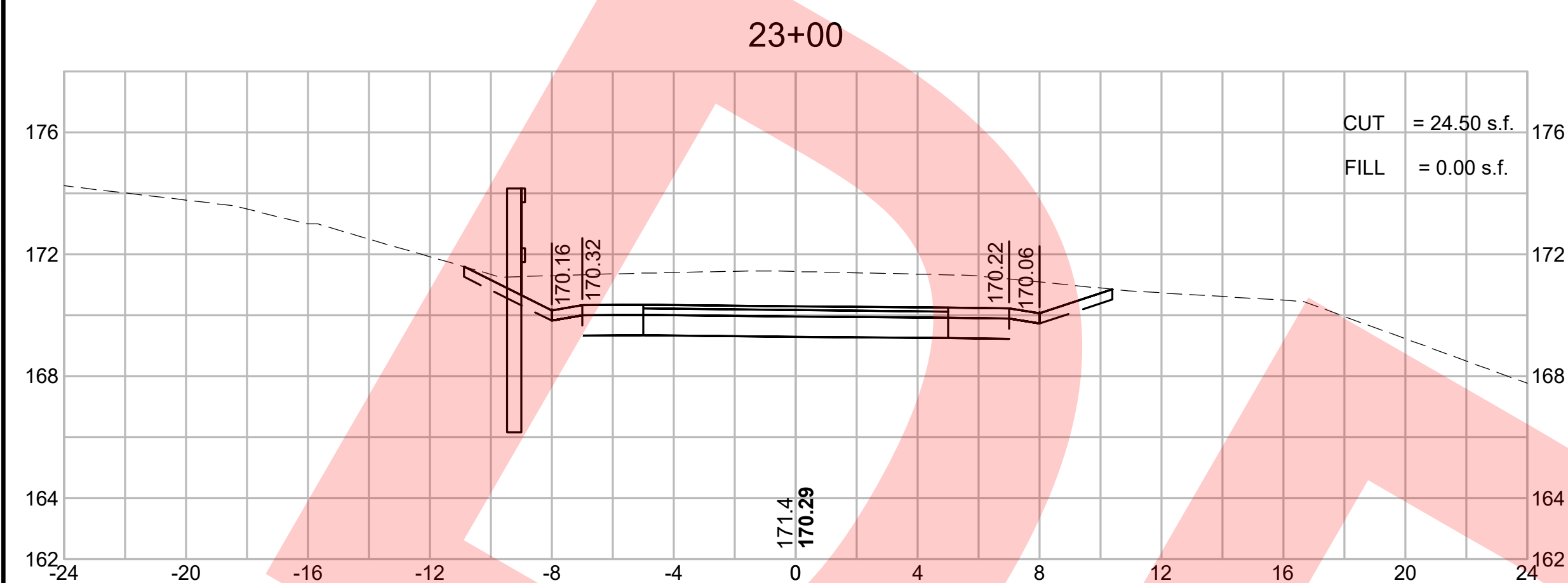
CROSS SECTIONS



CONCORD  
BRUCE FREEMAN RAIL TRAIL PHASE 2D

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	30	32
PROJECT FILE NO.		608164	

CROSS SECTIONS

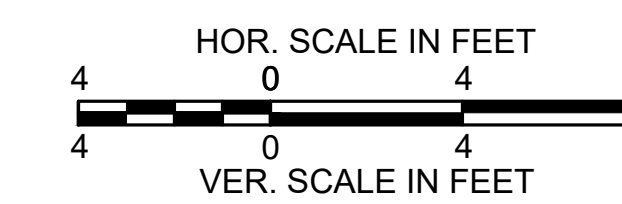
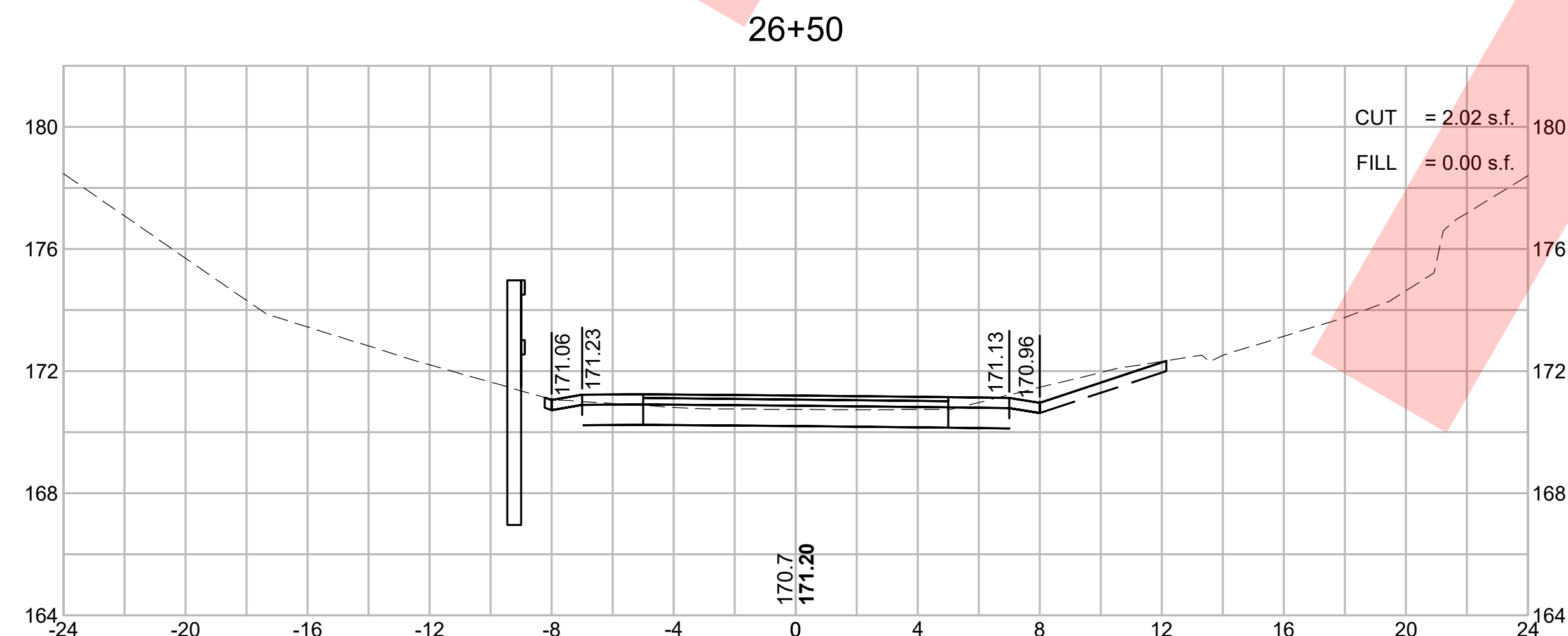
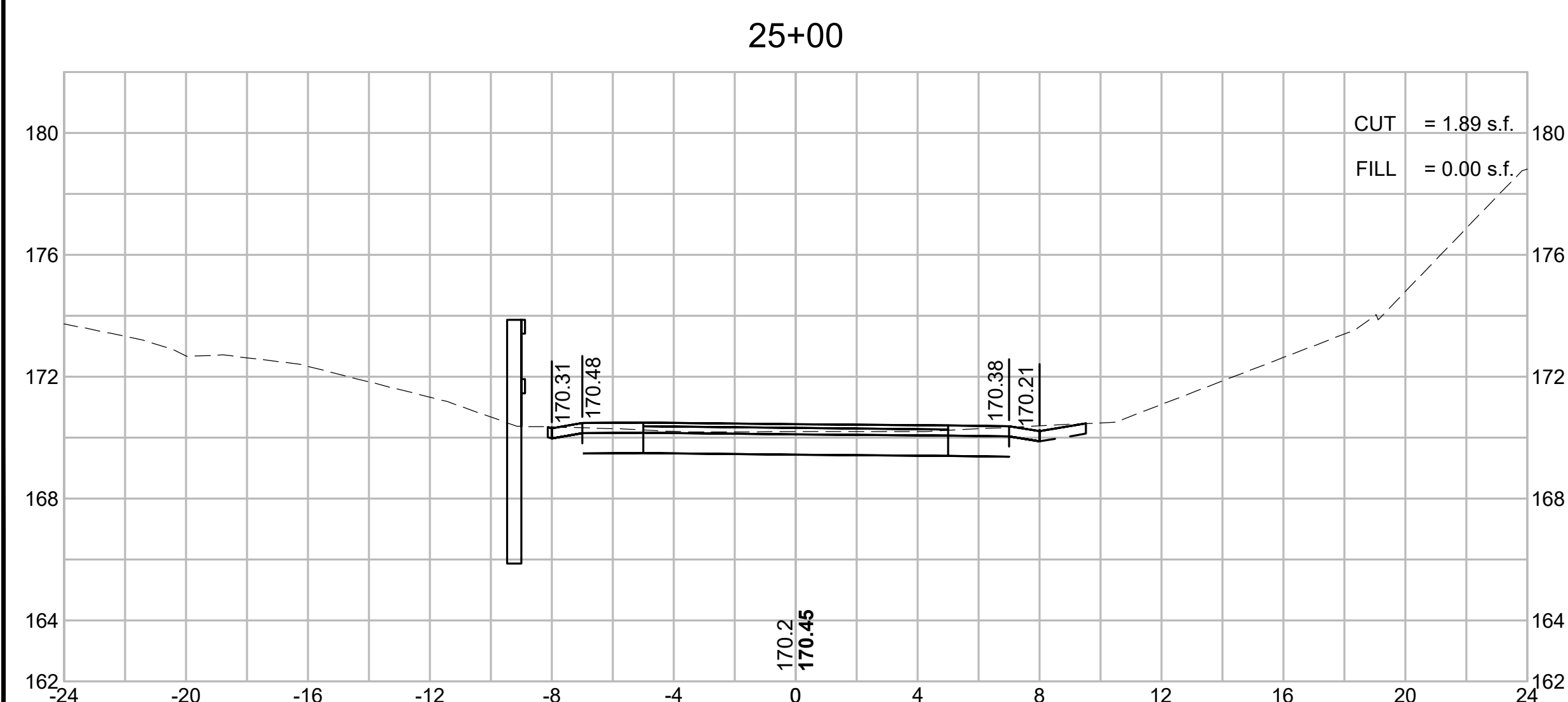
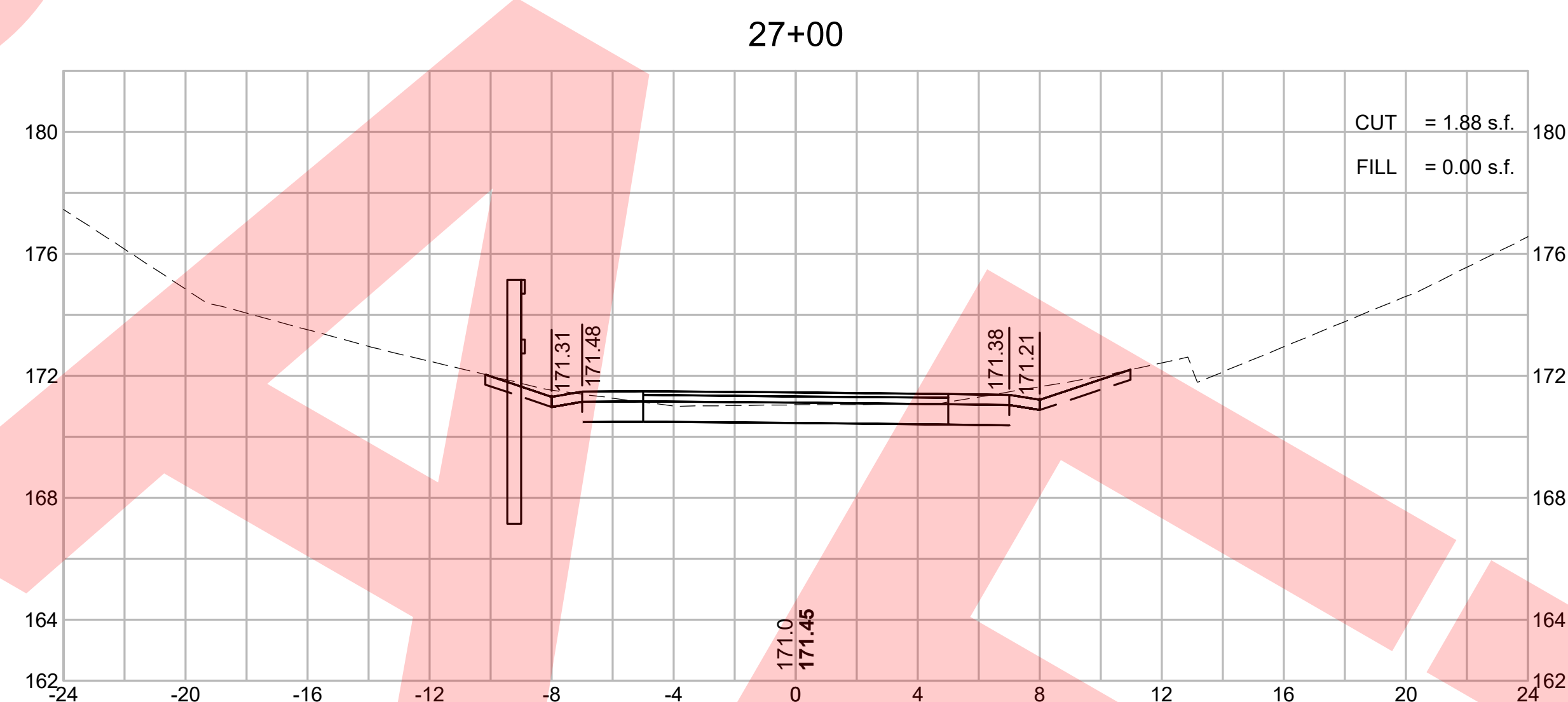
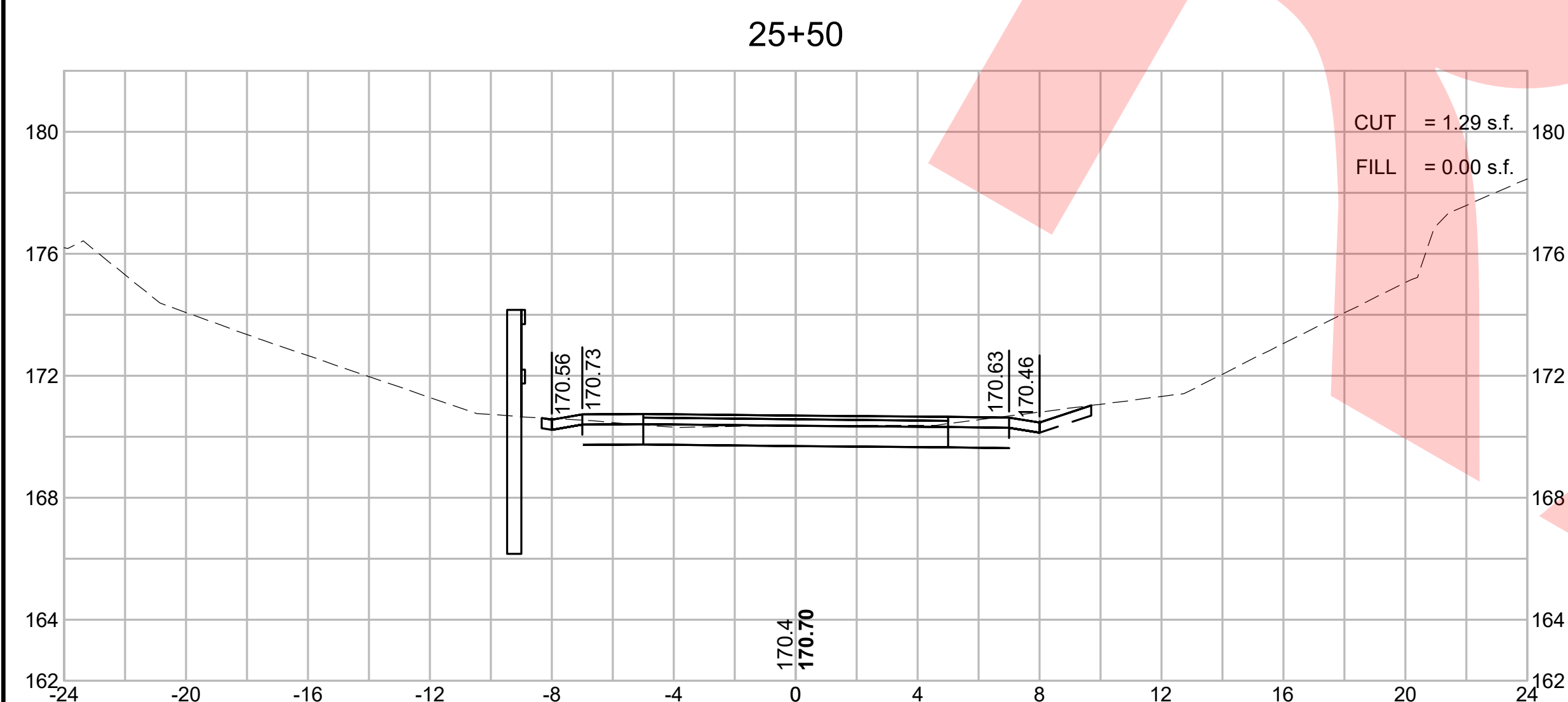
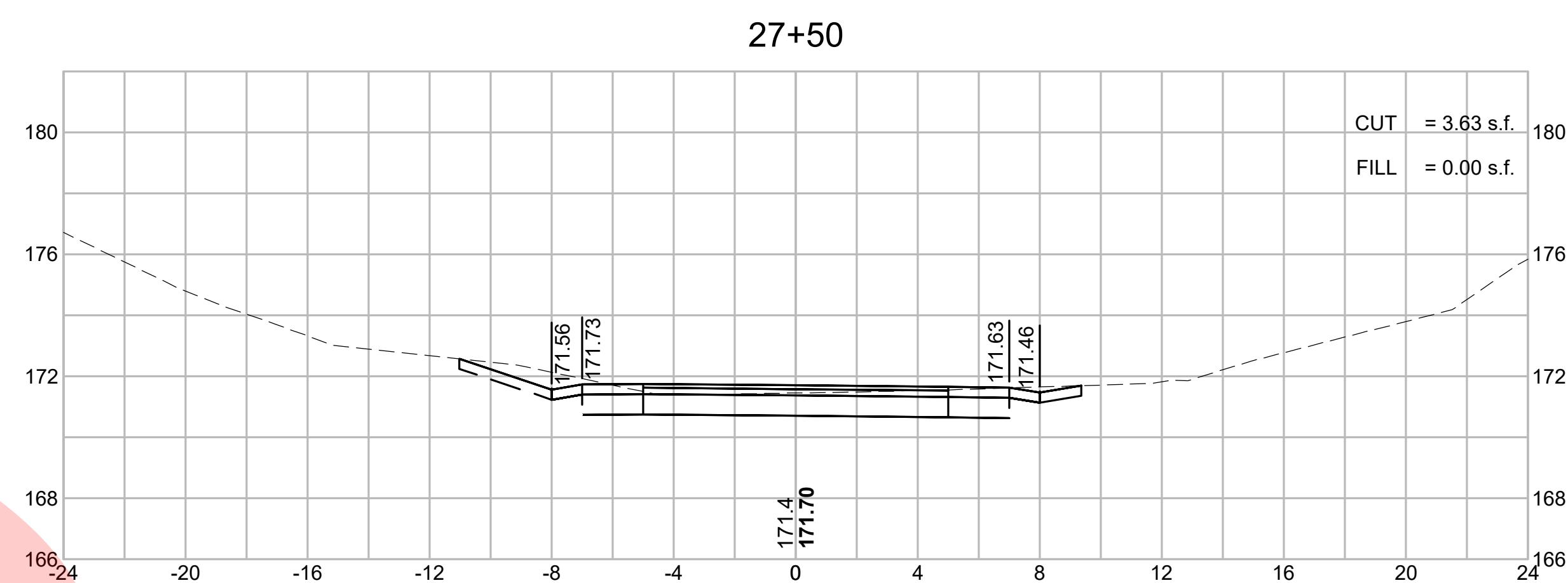
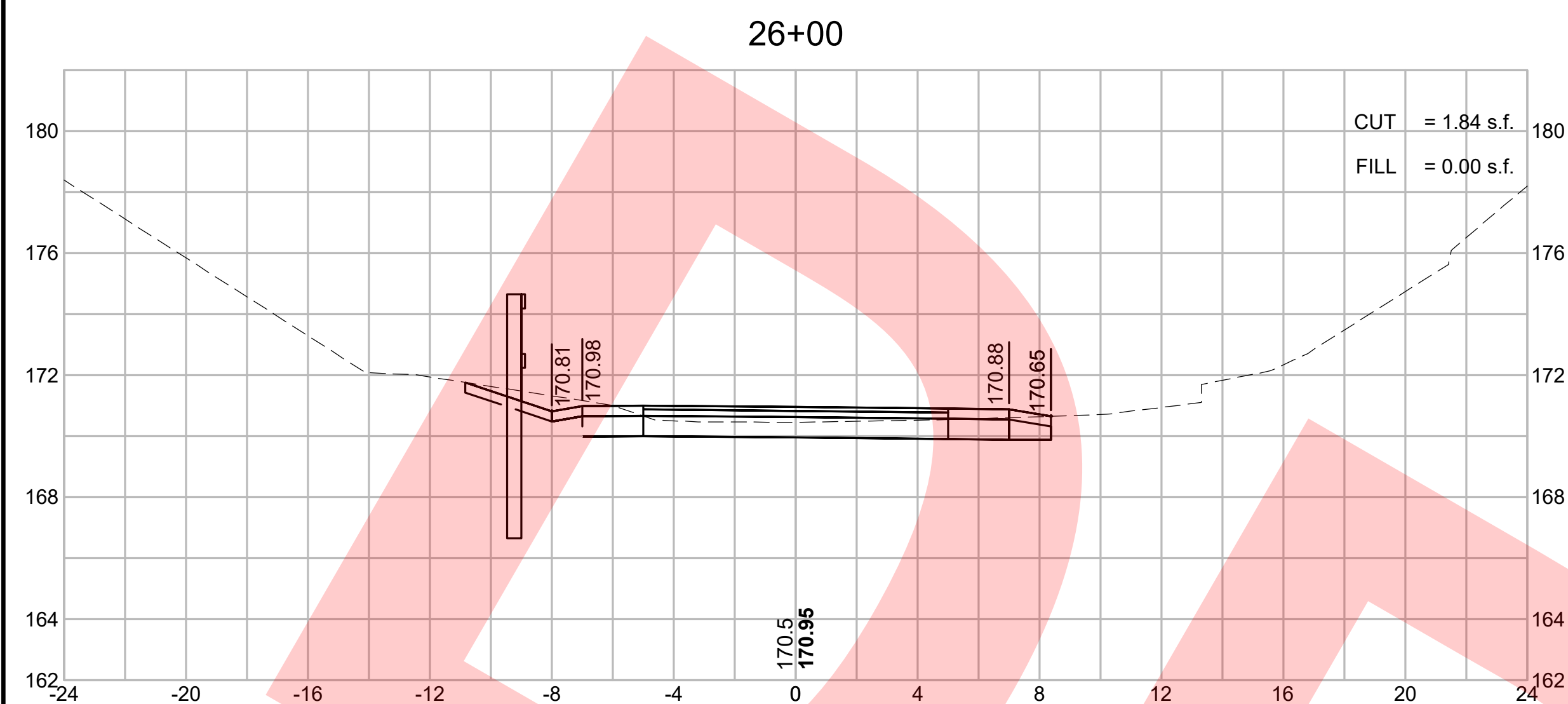




CONCORD  
BRUCE FREEMAN RAIL TRAIL PHASE 2D

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	31	32
PROJECT FILE NO.		608164	

CROSS SECTIONS



STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	32	32
PROJECT FILE NO.		608164	

CROSS SECTIONS

DRAFT

27+75

