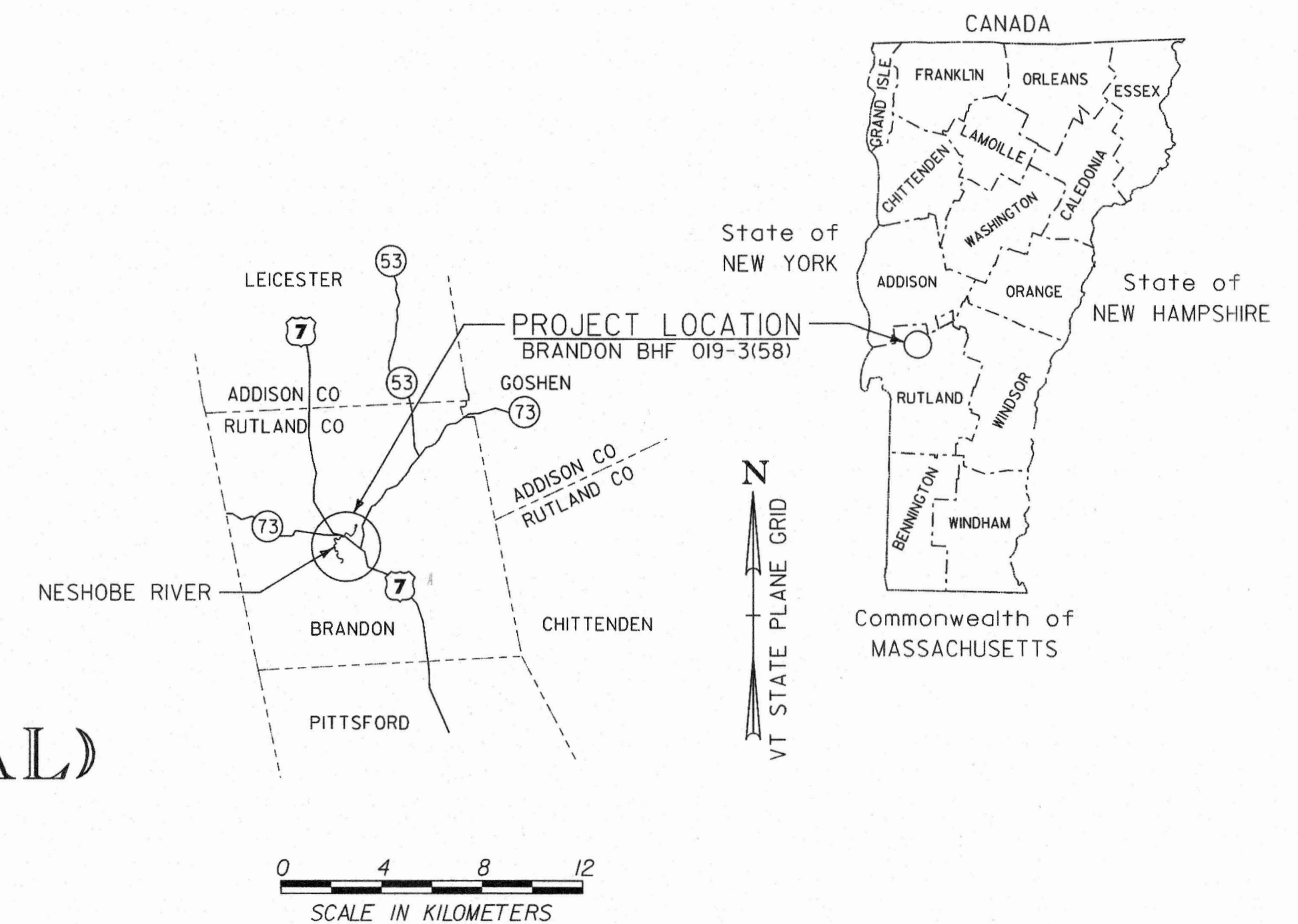




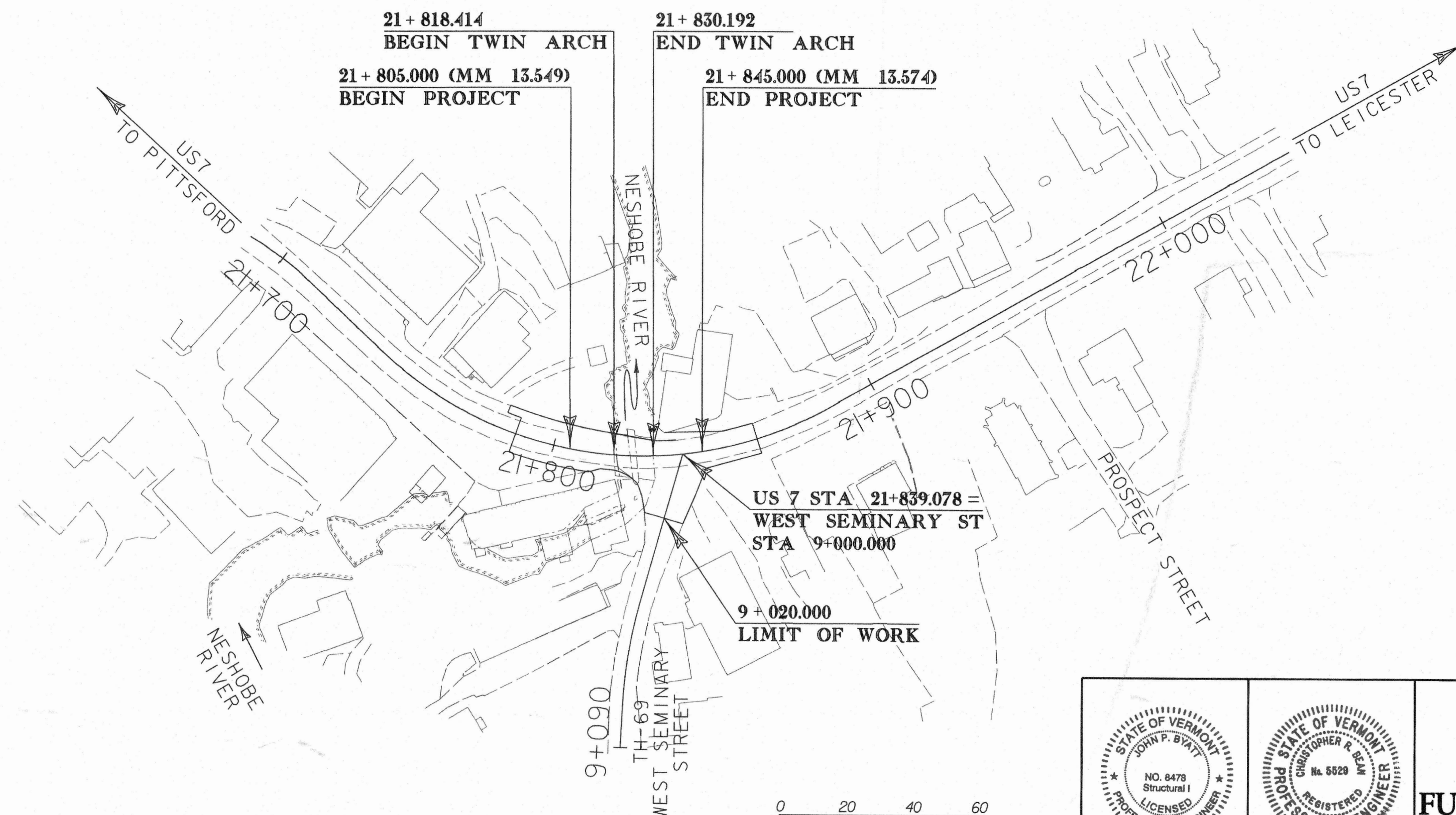
PROPOSED IMPROVEMENT
BRIDGE PROJECT
TOWN OF BRANDON
COUNTY OF RUTLAND
US ROUTE 7 (PRINCIPAL ARTERIAL)
BRIDGE NO. 114



PROJECT LOCATION:
LOCATED IN THE TOWN OF BRANDON ON US ROUTE 7, APPROXIMATELY
0.320 KM NORTHERLY OF THE INTERSECTION OF US ROUTE 7 AND
VT ROUTE 73 EAST AND EXTENDING NORTH WESTERLY APPROXIMATELY
40 METERS TO THE END.

PROJECT DESCRIPTION:
WORK TO BE PERFORMED INCLUDES THE REHABILITATION OF THE EXISTING
TWIN ARCH STRUCTURE, THE REPLACEMENT OF THE EXISTING SIDEWALK
BRIDGE, AND RELATED ROADWAY WORK.

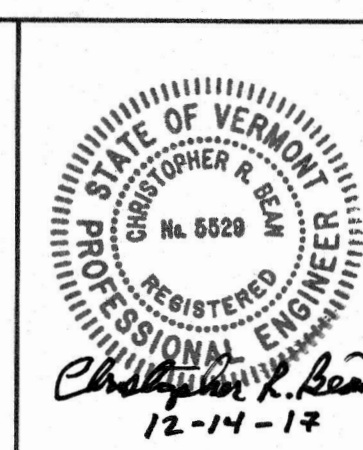
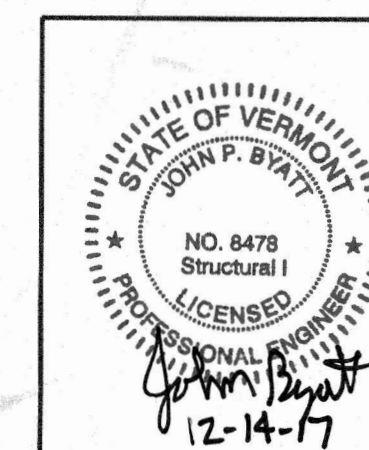
LENGTH OF STRUCTURE: 11.778 METERS
LENGTH OF ROADWAY: 28.222 METERS
LENGTH OF PROJECT 40.000 METERS



CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE
WITH THESE PLANS AND THE STANDARD SPECIFICATIONS
FOR CONSTRUCTION DATED 2011, AS APPROVED BY THE
FEDERAL HIGHWAY ADMINISTRATION ON JULY 20, 2011
FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT
REVISIONS AND SUCH REVISED SPECIFICATIONS AND
SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE
PLANS.

QUALITY ASSURANCE PROGRAM : LEVEL I	
SURVEYED BY :	VAOT
SURVEYED DATE :	5/99, 2013 UPDATES
DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83 (1992)

Metric
UNLESS NOTED OTHERWISE
STATIONS ARE IN KILOMETERS
ELEVATIONS ARE IN METERS
DIMENSIONS ARE IN MILLIMETERS



FUSS & O'NEILL
540 COMMERCIAL STREET
MANCHESTER, NH 03101
603.668.8223
www.fando.com

TOWN OF BRANDON
APPROVED: *Daryl Burlett* DATE 11-7-2017
PROJECT NAME : BRANDON
PROJECT NUMBER : BHF 019-3 (58)
SHEET 1 OF 79 SHEETS

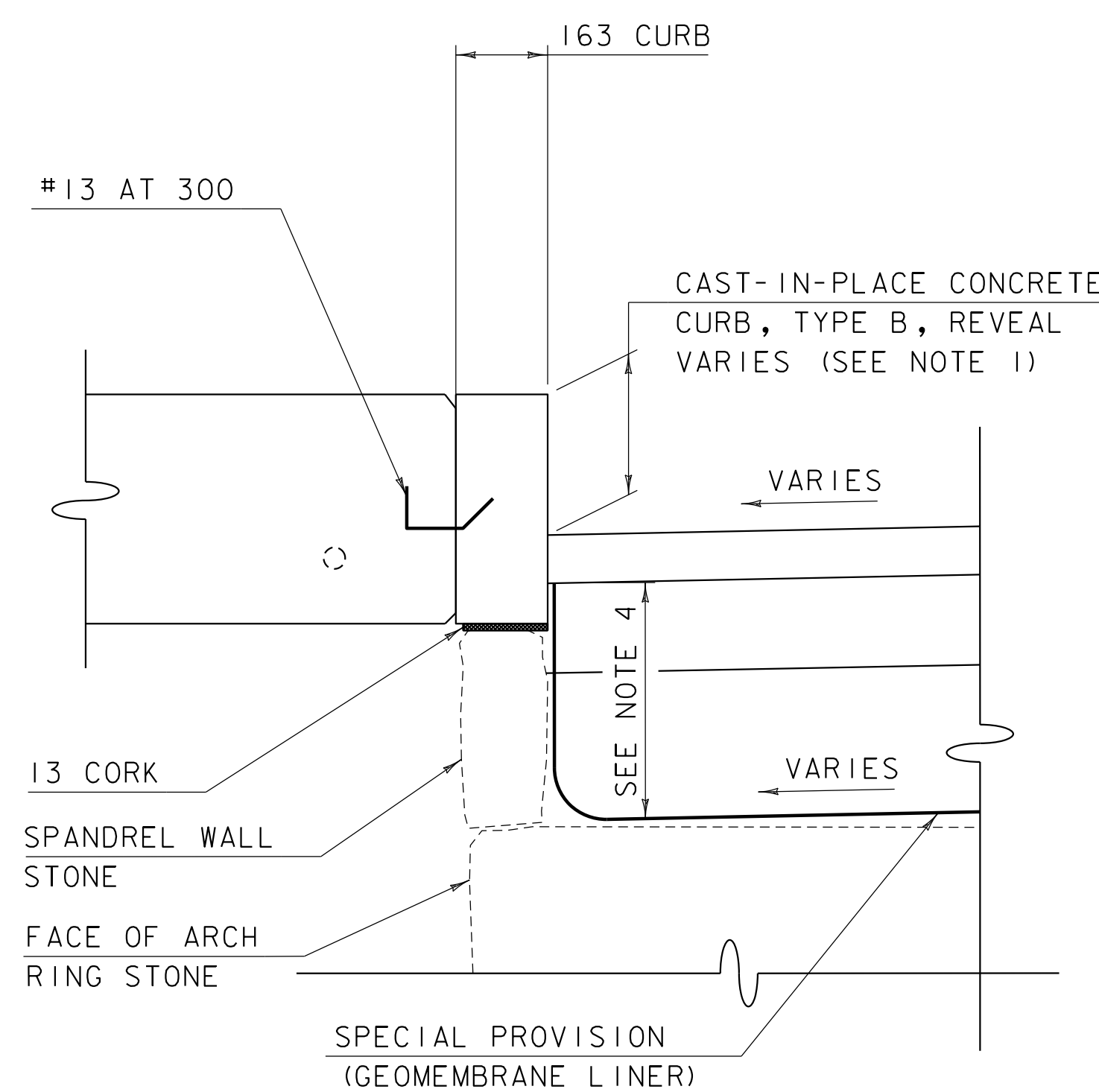
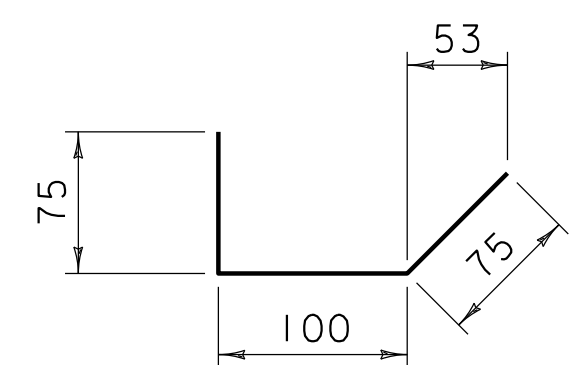
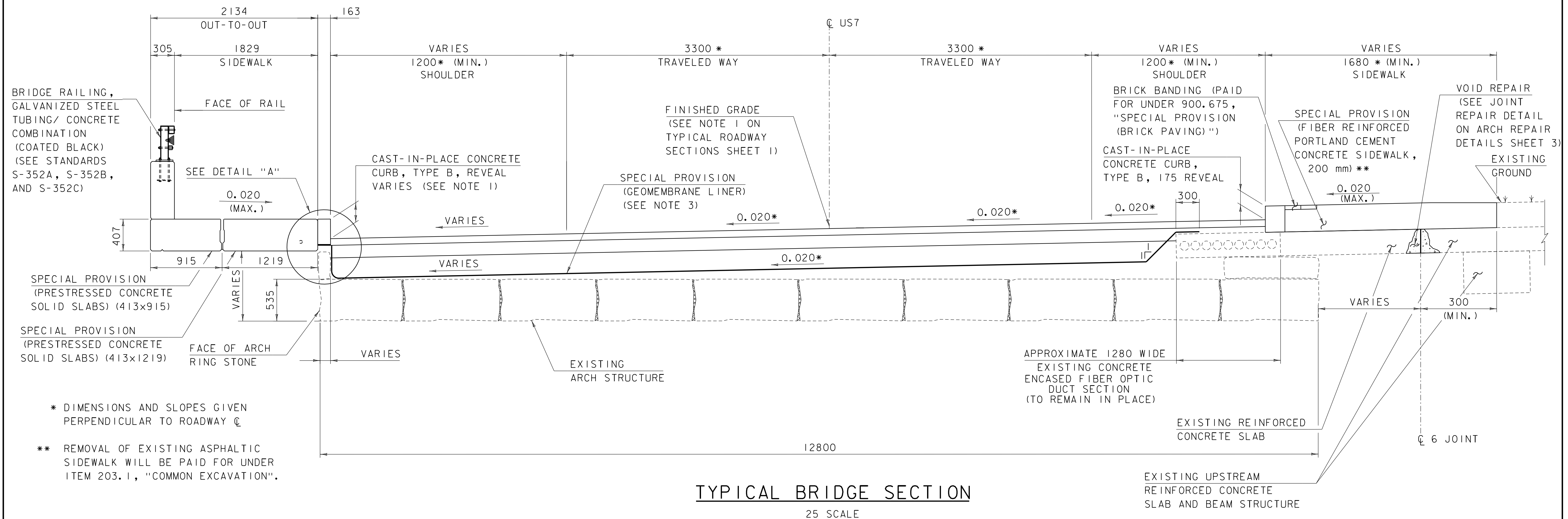
PRELIMINARY INFORMATION SHEET (BRIDGE)

LRFD

INDEX OF SHEETS										FINAL HYDRAULIC REPORT																			
PLAN SHEETS					STANDARDS LIST					HYDROLOGIC DATA										PROPOSED STRUCTURE									
1	TITLE SHEET				C-2A	PORTLAND CEMENT CONCRETE SIDEWALK DRIVE ENTRANCES WITH SIDEWALK A				10-14-2005	DRAINAGE AREA : 46.1 sq. km (17.8 sq. mi.)					STRUCTURE TYPE: Rehabilitate Arches with Single Span Concrete Sidewalk Structure													
2	PRELIMINARY INFORMATION SHEET				C-3B	SIDEWALK RAMPS AND MEDIAN ISLANDS				03-10-2008	CHARACTER OF TERRAIN: Hilly to mountainous, forested with open developed areas					CLEAR SPAN(NORMAL TO STREAM): approximately 34' total													
3 - 4	TYPICAL BRIDGE SECTIONS SHEETS 1-2				C-10	CURBING				02-11-2008	STREAM CHARACTERISTICS : Sinuous and semi-alluvial, probably incised					VERTICAL CLEARANCE ABOVE STREAMBED: ~3.5 m (~11.5')													
5 - 6	TYPICAL ROADWAY SECTIONS SHEETS 1-2				D-15	PRECAST REINF CONC. MH-GRATES, CAST IRON GRATE WITH FRAME, TYPE D & E				06-01-1994	NATURE OF STREAMBED : Cobbles or boulders					WATERWAY OF FULL OPENING: 24.63 sq. m (265.1 sq. ft.)													
7	TYPICAL EARTHWORK SECTIONS SHEET				D-30	UNDERDRAIN CONSTRUCTION DETAILS				08-13-2007	PEAK FLOW DATA - ANNUAL EXCEEDANCE PROBABILITY (AEP)					WATER SURFACE ELEVATIONS AT:													
8 - 10	PROJECT NOTES SHEETS 1-3				E-191	PAVEMENT MARKING DETAILS				02-01-1999	43% = 17.8 cms (630 cfs) 2% = 53.8 cms (1900 cfs)					43% AEP = 123.3 m (404.5') VELOCITY= 2.5 mps (8.2 fps)													
11 - 13	QUANTITY SHEETS 1-3				E-193	PAVEMENT MARKING DETAILS				08-18-1995	10% = 35.1 cms (1240 cfs) 1% = 62.3 cms (2200 cfs)					10% AEP = 123.5 m (405.2') " 3.0 mps (9.8 fps)													
14	CONVENTIONAL SYMBOLOGY LEGEND SHEET				F-2	CHAIN LINK FENCE, TYPE I DETAILS				06-01-1994	4% = 45.9 cms (1620 cfs) 0.2% = 79.3 cms (2800 cfs)					4% AEP = 123.7 m (405.8') " 3.2 mps (10.5 fps)													
15 - 16	TIE SHEETS 1-2				S-352A	BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION				08-22-2012	DATE OF FLOOD OF RECORD : August 28, 2011 (Tropical Storm Irene)					2% AEP = 123.8 m (406.2') " 3.4 mps (11.2 fps)													
17	ALIGNMENT AND PAVEMENT LAYOUT SHEET				S-352B	BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION				08-22-2012	ESTIMATED DISCHARGE: 70.8 cms (2500 cfs)					1% AEP = 123.9 m (406.5') " 3.5 mps (11.5 fps)													
18	ROADWAY LAYOUT SHEET				S-352C	BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION				08-22-2012	WATER SURFACE ELEV.: Unknown					IS THE ROADWAY OVERTOPPED BELOW 1% AEP: No, Overflow structure is being													
19	US ROUTE 7 PROFILE & BANKING DIAGRAM				S-352C	BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION				08-22-2012	NATURAL STREAM VELOCITY : @ 2% AEP = 4.6 mps (15.1 fps)					FREQUENCY: installed in a separate Town project to divert flows.													
20	US ROUTE 7 CURB LINE PROFILE SHEET				S-364A	BRIDGE RAILING, GALVANIZED 3 RAIL BOX BEAM				02-02-2017	ICE CONDITIONS : Moderate					RELIEF ELEVATION:													
21	WEST SEMINARY STREET PROFILE SHEET				T-1	TRAFFIC CONTROL GENERAL NOTES				04-25-2016	DEBRIS: Moderate					DISCHARGE OVER ROAD @ 1% AEP:													
22	TRAFFIC CONTROL DETAILS/NOTES SHEET				T-10	CONVENTIONAL ROADS CONSTRUCTION APPROACH SIGNING				08-06-2012	DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? No					BRIDGE LOW CHORD ELEVATION: 125.6 m (412.1')													
23	TRAFFIC CONTROL SHEET PHASE IA				T-28	CONSTRUCTION SIGN DETAILS				08-06-2012	IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? Yes					FREEBOARD: @ 2% AEP = 1.7 m (5.6')													
24	TRAFFIC CONTROL SHEET PHASE IB				T-30	CONSTRUCTION SIGN DETAILS				08-06-2012	IF YES, DESCRIBE: Several upstream structures restrict flow to the bridge resulting in overtopping of the road upstream. An overflow structure is being constructed upstream to prevent overtopping.					SCOUR: Minimal due to high ledge.													
25	TRAFFIC CONTROL SHEET PHASE 2				T-35	CONSTRUCTION ZONE LONGITUDINAL DROP-OFFS				08-06-2012	WATERSHED STORAGE: 0% HEADWATERS: UNIFORM: X IMMEDIATELY ABOVE SITE:					REQUIRED CHANNEL PROTECTION: Stone fill, Type III													
26 - 27	PHASING SECTIONS SHEETS 1-2				T-36	CONSTRUCTION ZONE LONGITUDINAL DROP-OFFS FOR PAVING				08-06-2012	EXISTING STRUCTURE INFORMATION					PERMIT INFORMATION													
28	DRAINAGE AND UTILITY PLAN				T-133	LIGHT POLE FOUNDATION DETAILS				07-25-2016	STRUCTURE TYPE: Twin Stone Arches with Downstream 2-Span Concrete Sidewalk Struct.					AVERAGE DAILY FLOW: - DEPTH OR ELEVATION:													
29	DRAINAGE DETAILS SHEET										YEAR BUILT: Arches - 1867, Sidewalk Structure - 1921					ORDINARY LOW WATER: -													
30	PAVEMENT MARKING SHEET										CLEAR SPAN(NORMAL TO STREAM): approximately 34' total					ORDINARY HIGH WATER: 123.0 m (403.54')													
31 - 33	LIGHTING NOTES/DETAIL SHEETS 1-3										VERTICAL CLEARANCE ABOVE STREAMBED: ~3.5 m (~11.5')					TEMPORARY BRIDGE REQUIREMENTS													
34	BORING INFORMATION SHEET										WATERWAY OF FULL OPENING: 26.18 sq. m (281.8 sq. ft.)					STRUCTURE TYPE: NA													
35 - 42	BORING LOGS SHEETS 1-8										DISPOSITION OF STRUCTURE: Repair Arches and Replace Sidewalk Structure					CLEAR SPAN (NORMAL TO STREAM):													
43	PLAN AND ELEVATION SHEET										TYPE OF MATERIAL UNDER SUBSTRUCTURE: See boring logs					VERTICAL CLEARANCE ABOVE STREAMBED:													
44	SIDEWALK STRUCTURE PLAN SHEET										WATER SURFACE ELEVATIONS AT:					WATERWAY AREA OF FULL OPENING:													
45 - 46	CONCRETE REMOVAL DETAILS SHEETS 1-2										43% AEP = 123.2 m (404.2') VELOCITY = 2.7 mps (8.9 fps)					ADDITIONAL INFORMATION													
47 - 50	ARCH REPAIR DETAILS SHEETS 1-4										10% AEP = 123.6 m (405.5') " 3.4 mps (11.2 fps)					Existing water surface elevations are based on existing conditions prior to construction of an													
51	FRAMING PLAN										4% AEP = 123.9 m (406.5') " 3.7 mps (12.1 fps)					overflow structure upstream. Proposed water surface elevations are based on proposed													
52 - 53	SUPERSTRUCTURE DETAILS SHEETS 1-2										2% AEP = 124.0 m (406.8') " 3.7 mps (12.1 fps)					conditions after construction of the bypass structure. Flows provided are flows upstream of both													
54	BEARING DETAILS SHEET										1% AEP = 124.1 m (407.2') " 3.8 mps (12.5 fps)					structures and are not representative of the flows that go through the arch in proposed conditions.													
55	WORKING POINT LAYOUT										LONG TERM STREAMBED CHANGES: Some 300 mm (1') to 600 mm (2') deep scour holes around upstream and downstream piers.					TRAFFIC MAINTENANCE NOTES													
56 - 57	ABUTMENT 1 DETAILS SHEETS 1-2										IS THE ROADWAY OVERTOPPED BELOW 1% AEP: Yes, but not as a result of arches.					1. MAINTAIN TWO-WAY TRAFFIC ON THE EXISTING STRUCTURE.													
58	ABUTMENT 2 DETAILS SHEET										FREQUENCY: At and above 4% AEP					2. TRAFFIC SIGNALS ARE NOT NECESSARY.													
59 - 60	RETAINING WALL 1 DETAILS SHEETS 1-2										RELIEF ELEVATION: 127.0 m (416.7')					3. INSTALL SIDEWALKS ON BOTH SIDES OF THE BRIDGE													
61	RETAINING WALL 2 DETAILS SHEET										DISCHARGE OVER ROAD @ 1% AEP: 20 cms (706.3 cfs)					NOTE: ONE SIDEWALK MAINTAINED PER PHASE													
62 - 64	BRIDGE RAIL DETAILS SHEETS 1-3										UPSTREAM STRUCTURE					DESIGN VALUES													
65	RAIL LAYOUT SHEET										TOWN: Former Town Offices Building DISTANCE: Immediate					1. DESIGN LIVE LOAD HS-25													
66	REINFORCING SCHEDULE SHEET										HIGHWAY #: STRUCTURE #: 5					2. FUTURE PAVEMENT dp: ---													
67 - 71	US ROUTE 7 CROSS SECTIONS SHEETS 1-5										CLEAR SPAN: 7.9 m (25.8') CLEAR HEIGHT: 3.3 m (10.8')					3. DESIGN SPAN L: 13411 MM													
72	CHANNEL CROSS SECTIONS SHEET										YEAR BUILT: FULL WATERWAY: 15.4 sm (165.3)					4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS) Δ: 42 MM													
73	MATERIAL TRANSITION DIAGRAM										STRUCTURE TYPE: Concrete Columns and Beams					5. PRESTRESSING STRAND (15 MM DIAMETER - LOW RELAX) fy: 1.862 GPa													
74	EPSC NARRATIVE SHEET										DOWNSTREAM STRUCTURE					6. PRESTRESSED CONCRETE STRENGTH f'c: 55.0 MPa													
75	EPSC EXISTING PLAN SHEET										TOWN: Brandon DISTANCE: 1.4km (0.8mi)					7. PRESTRESSED CONCRETE RELEASE STRENGTH f'ci: 37.9 MPa													
76	EPSC CONSTRUCTION PLAN SHEET										HIGHWAY #: TH#5 (Union Street) STRUCTURE #: 5					8. CONCRETE, HIGH PERFORMANCE CLASS AA f'c: ---													
77	EPSC FINAL PLAN SHEET										CLEAR SPAN: CLEAR HEIGHT:					9. CONCRETE, HIGH PERFORMANCE CLASS A f'c: 30.0 MPa													
78 - 79	EPSC DETAILS SHEETS 1-2										YEAR BUILT: FULL WATERWAY:					10. CONCRETE, HIGH PERFORMANCE CLASS B f'c: 25.0 MPa													
											STRUCTURE TYPE: NA - Too far downstream to influence arch structure.					11. CONCRETE, CLASS C f'c: ---													
											ASD LOAD RATING FACTORS					12. REINFORCING STEEL fy: 420 MPa													
											LOADING LEVELS					13. STRUCTURAL STEEL AASHTO M270 fy: ---													
											TONNAGE					14. NOMINAL BEARING RESISTANCE OF SOIL qn: 383.0 KPa													
											INVENTORY					15. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD) φ: 0.45													
											POSTING					16. NOMINAL BEARING RESISTANCE OF ROCK qn: 2633.0 KPa													
											OPERATING					17. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD) φ: 0.45													
											COMMENTS: FOR TWIN ARCH STRUCTURE					18. PILE RESISTANCE FACTOR φ: ---													
											TONNAGE SHOWN IN RATING TABLE IS IN ENGLISH TONS					19. LATERAL PILE DEFLECTION Δ: ---													
											SIDEWALK STRUCTURE IS A PEDESTRIAN BRIDGE WITH NON-MOUNTABLE CURB AND IS NOT RATED FOR HL-93. HOWEVER, THE STRUCTURE WAS DESIGNED TO ACCOMMODATE AN HL-93 TRUCK (NO LANE LOAD) AND AN IMPACT LOAD.					20. BASIC WIND SPEED V3s: ---													
																21. MINIMUM GROUND SNOW LOAD pg: ---													
																22. SEISMIC DATA PGA 12.6%g Ss: 27.7%g S1: 11.8%g													
																23. ---													
																24. ---													
																25. ---													
																26. ---													
TRAFFIC DATA										PROJECT NAME: BRANDON																			
YEAR ADT DHV % D % T ADTT										PROJECT NUMBER: BHF 019-3(58)																			
2015 10520 1115 55 13 1330										FILE NAME: z10b358pi.dgn PLOT DATE: 12/19/2017																			
2035 10730 1195 55 12.8 1375										PROJECT LEADER: J. BYATT DRAWN BY: M. SMITH																			
20 year ESAL for flexible pavement from 2015 to 2035 : 11061000										DESIGNED BY: S. BEAUMONT CHECKED BY: J. BYATT																			
40 year ESAL for flexible pavement from 2015 to 2055 : 30337000										PRELIMINARY INFORMATION SHEET SHEET 2 OF 79																			
Design Speed : 50 km/hr																													



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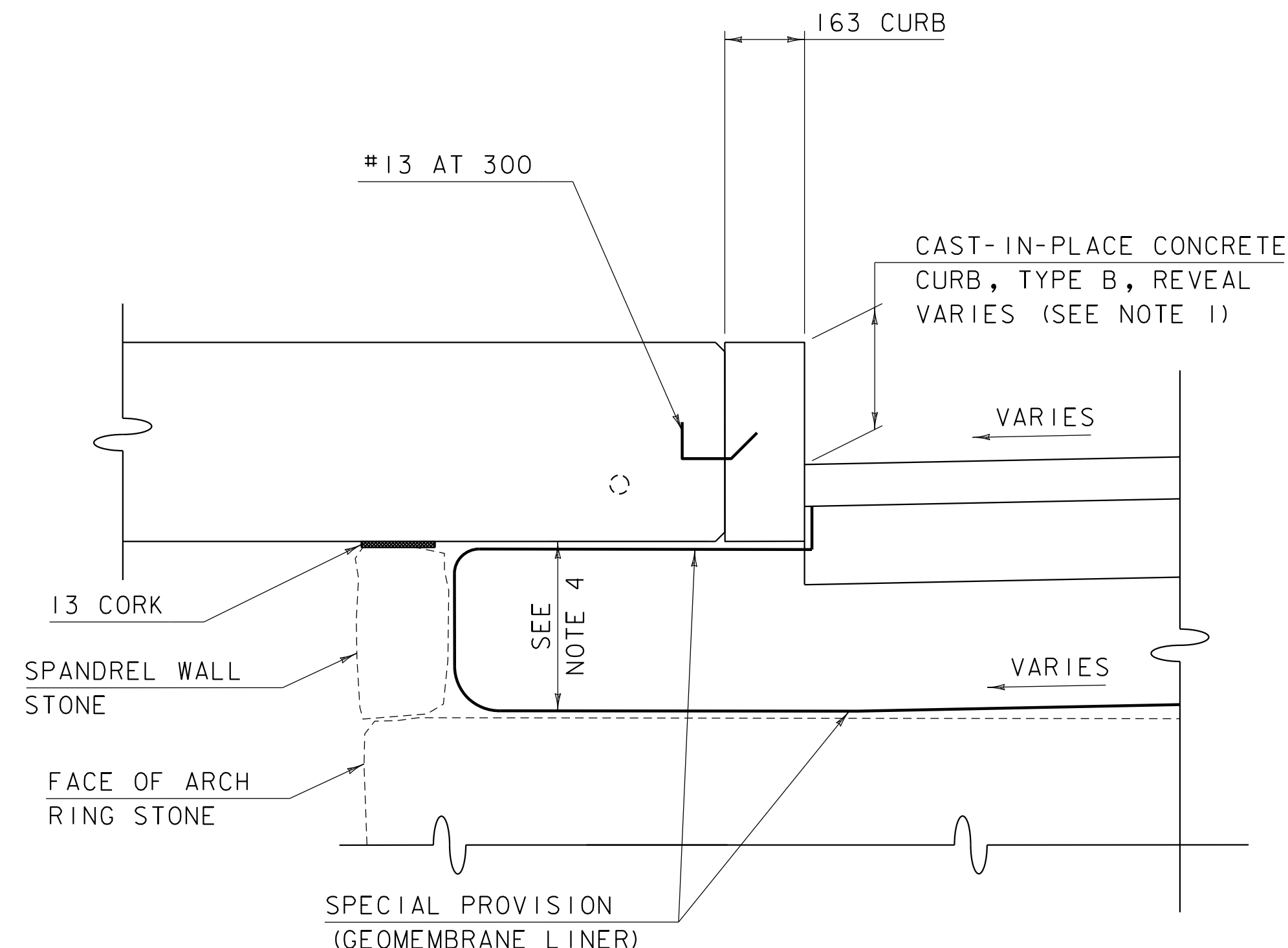


NOTE: CORK SHALL BE INCIDENTAL TO THE APPROPRIATE PRESTRESSED CONCRETE SOLID SLAB PAY ITEM.

SIDEWALK STRUCTURE AT FACE OF ARCH

DETAIL "A"

10 SCALE



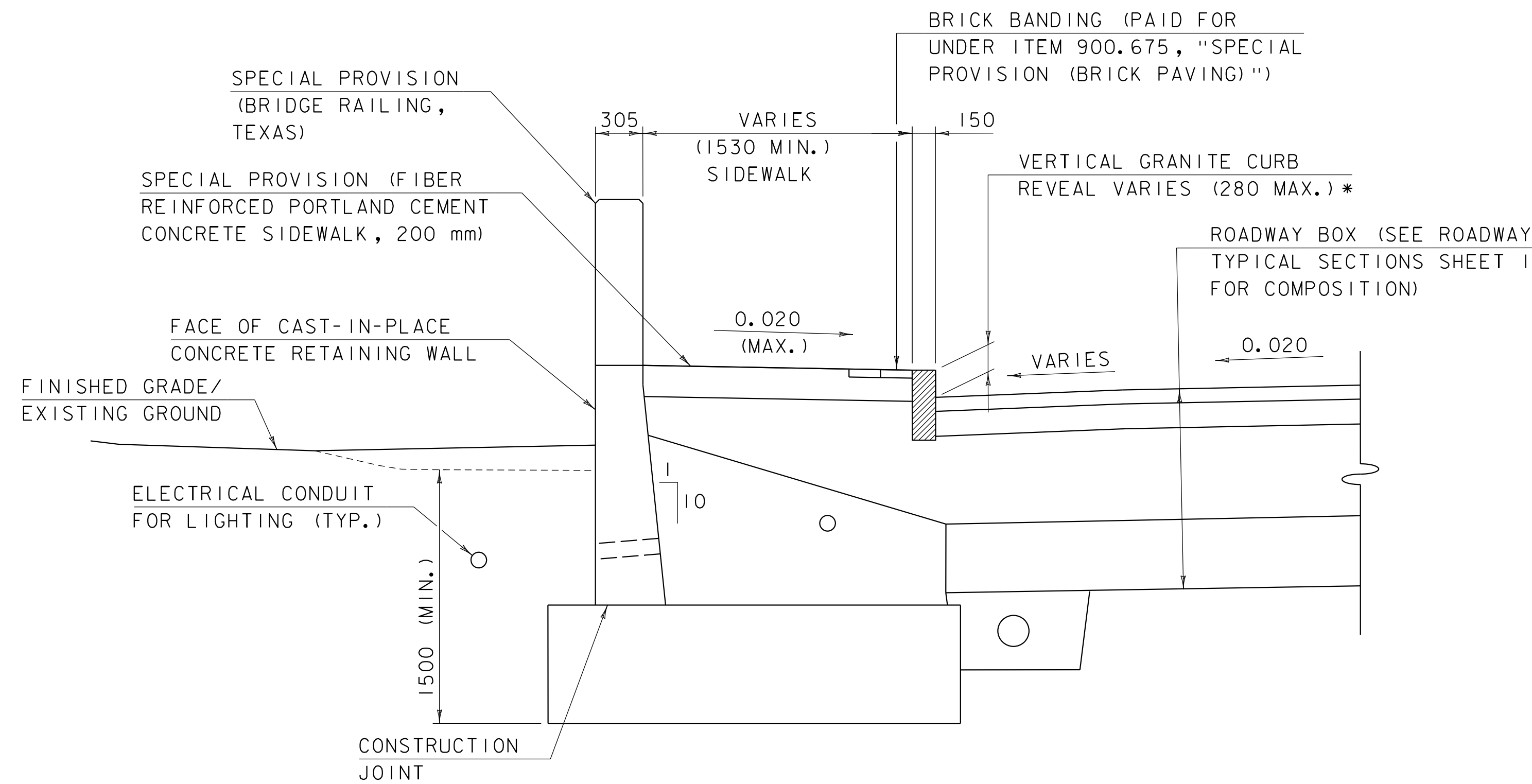
SIDEWALK STRUCTURE OVERHANGING ARCH

- NOTE:
1. SEE US ROUTE 7 CURB LINE PROFILE SHEET FOR CURB REVEAL AND BRIDGE PROFILE INFORMATION.
 2. SEE TYPICAL ROADWAY SECTIONS SHEET 1 AND MATERIAL TRANSITION DIAGRAM FOR ROADWAY BOX DEPTHS AND COMPOSITION.
 3. SEE GEOMEMBRANE ELEVATIONS AT CENTERLINE US7 ON ARCH REPAIR DETAILS SHEET 2.
 4. EXTEND GEOMEMBRANE UP FACE OF CURB TO TO TOP OF BASE COURSE OR TO BOTTOM OF SIDEWALK STRUCTURE, AS APPLICABLE.

PROJECT NAME: BRANDON
PROJECT NUMBER: BHF 019-3(58)

FILE NAME: z10b358sup.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: S. BEAUMONT
TYPICAL BRIDGE SECTIONS SHEET 1

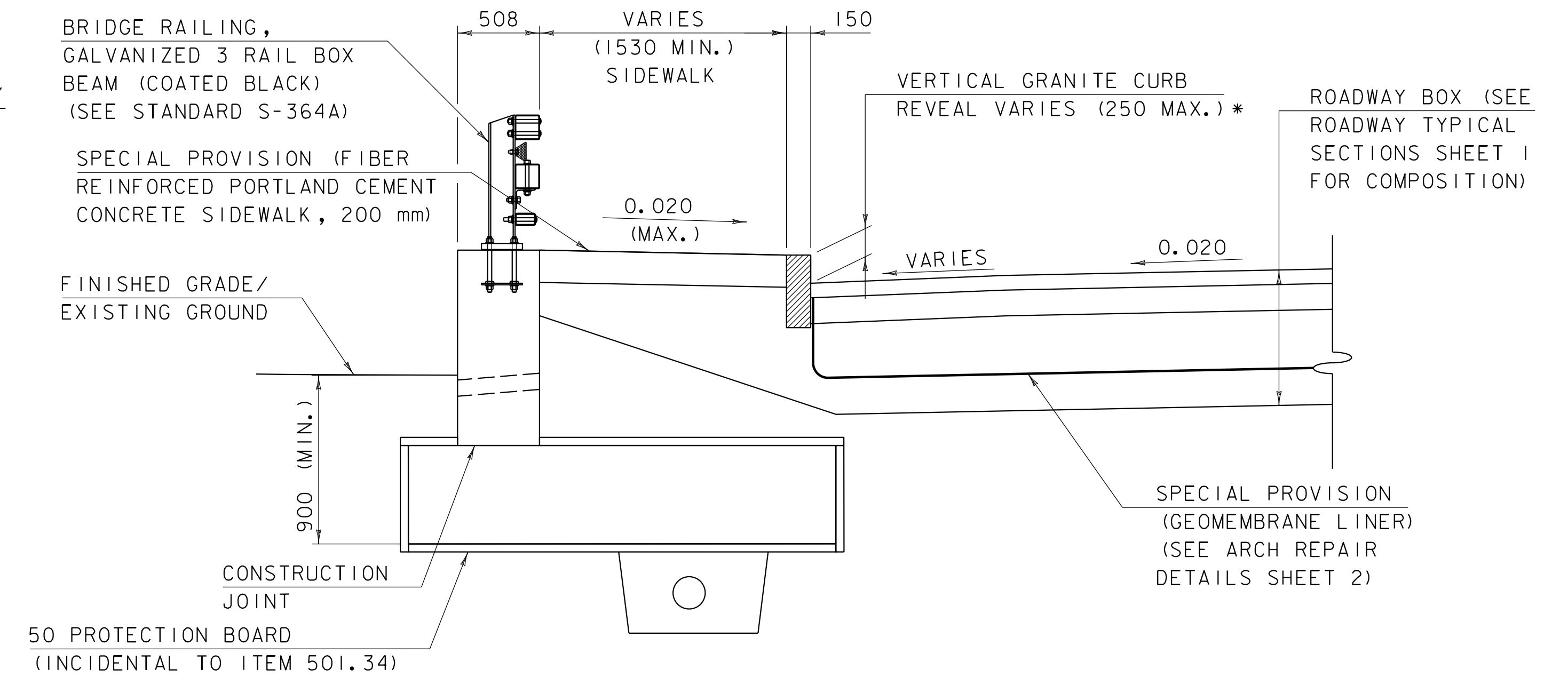
PLOT DATE: 12/19/2017
DRAWN BY: M. SMITH
CHECKED BY: J. BYATT
SHEET 3 OF 79



TYPICAL RETAINING WALL 1 SECTION

STA. 21+801.6 LT TO STA. 21+807.8 LT

25 SCALE

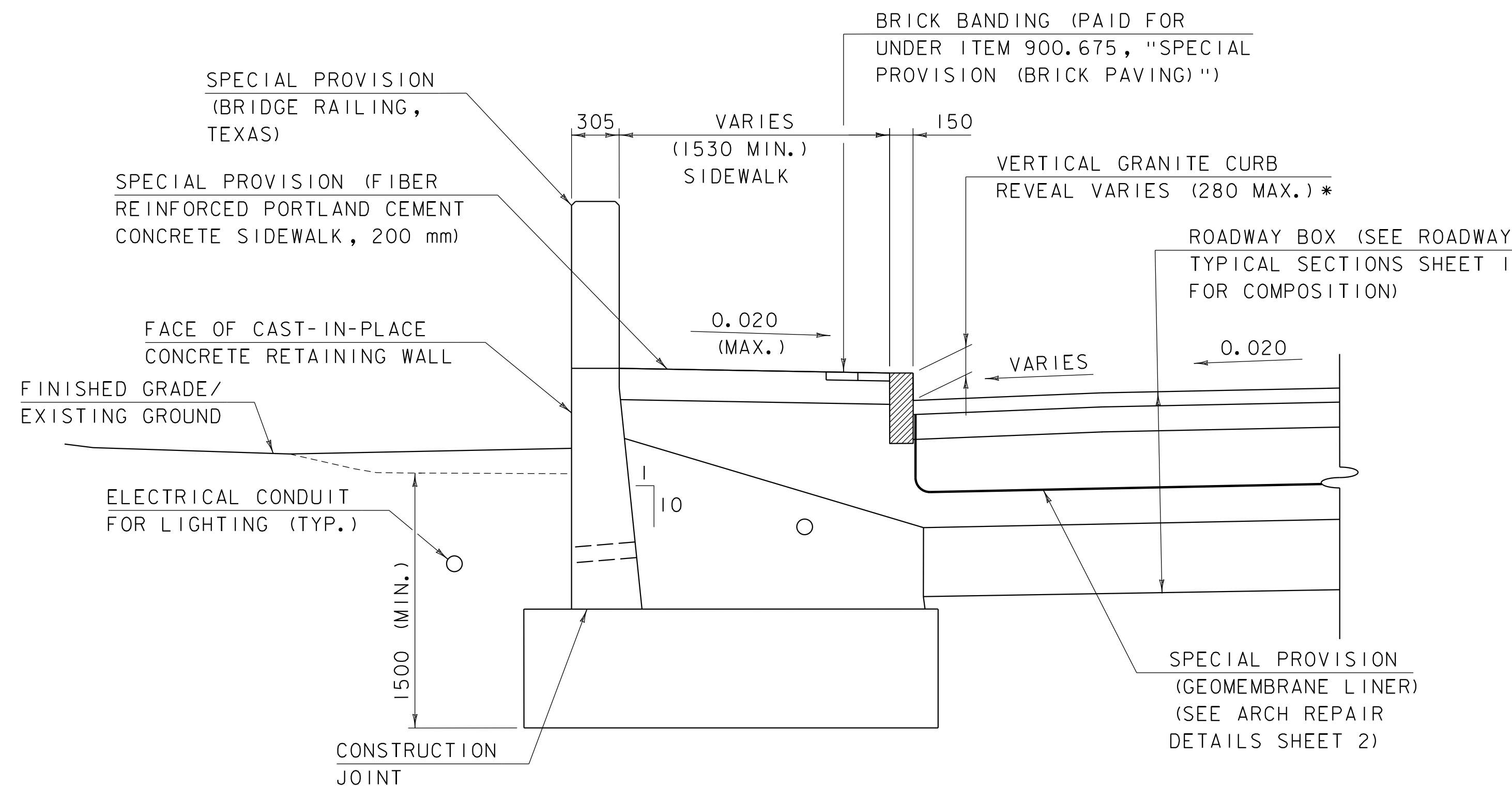


TYPICAL RETAINING WALL 2 SECTION

STA. 21+830.8 LT TO STA. 21+833.6 LT

25 SCALE

* 305 MIN. GRANITE CURB
EMBEDMENT BASED ON
FINISHED GRADE.



TYPICAL RETAINING WALL 1 SECTION

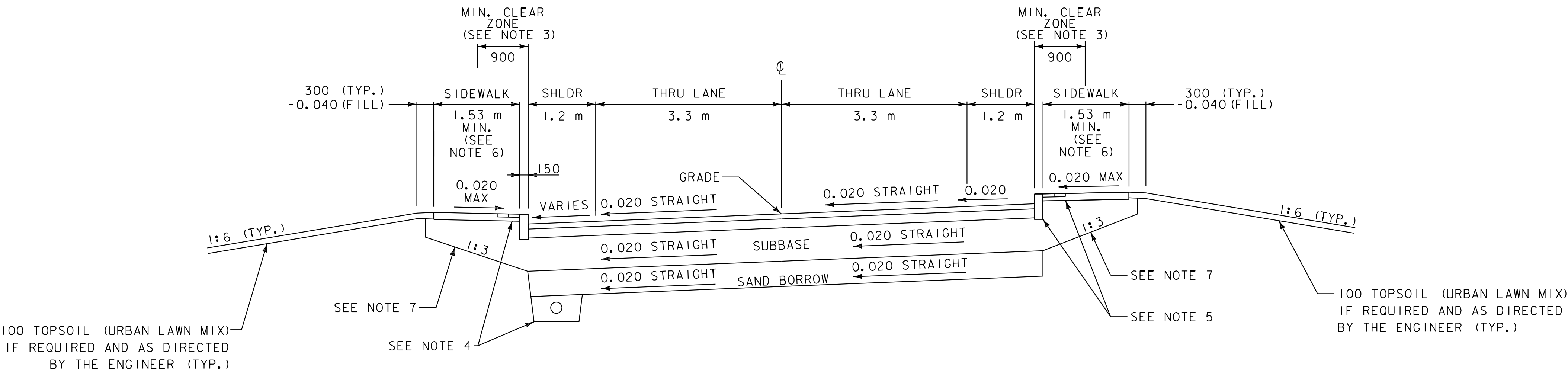
STA. 21+807.8 LT TO STA. 21+816.3 LT

25 SCALE

MATERIAL ITEM	THICKNESS TOLERANCE
PAVEMENT (TOTAL DEPTH ALL LAYERS)	+/- 5
SUBBASE	+/- 30
SAND BORROW	+/- 30

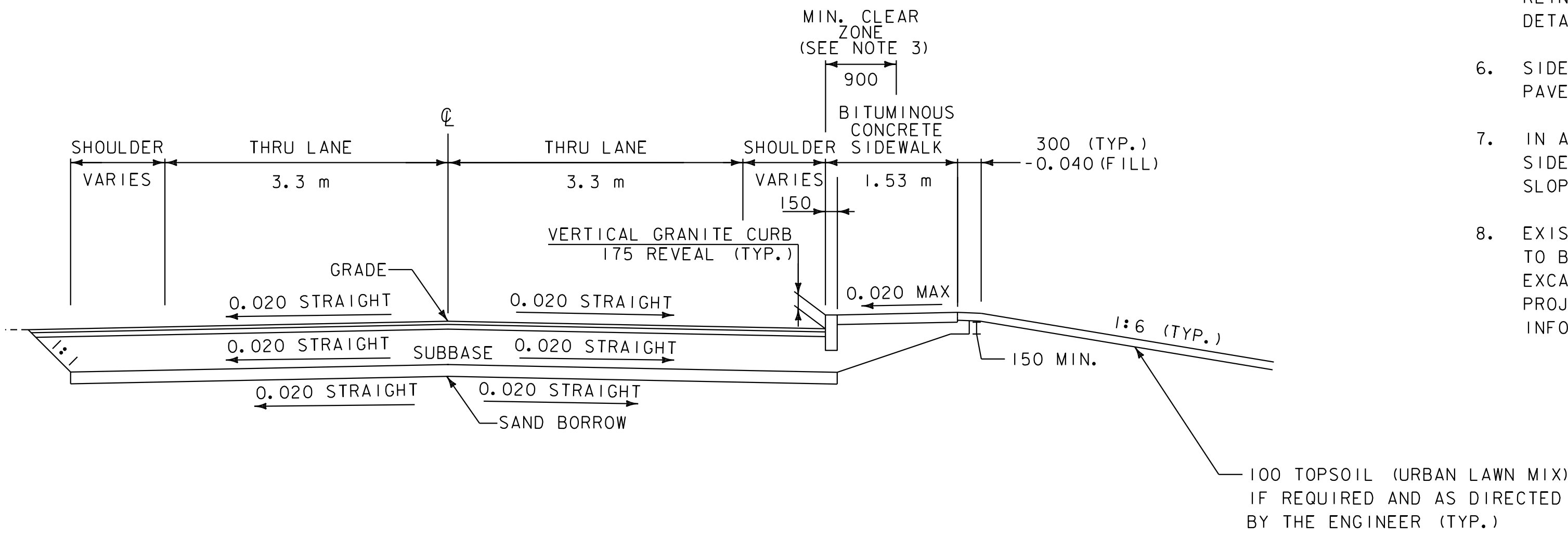


90 BITUMINOUS CONCRETE PAVEMENT (TYPE IIIS) (PG 70-28) (2 - 45 mm LIFTS) (SEE NOTE 1)
160 BITUMINOUS CONCRETE PAVEMENT (TYPE IS) (PG 70-28) (2 - 80 mm LIFTS)
590 SUBBASE OF DENSE GRADED CRUSHED STONE
450 SAND BORROW (SEE NOTE 2)



US ROUTE 7 - MAXIMUM BANKED SECTION 0.020

40 BITUMINOUS CONCRETE PAVEMENT (TYPE IVS) (PG 70-28)
60 BITUMINOUS CONCRETE PAVEMENT (TYPE IIS) (PG 70-28)
450 SUBBASE OF DENSE GRADED CRUSHED STONE
150 SAND BORROW



WEST SEMINARY STREET

- NOTES:
- PROJECT NH 019-3(496) TO CONSTRUCT FINAL 45 mm WEARING COURSE. THIS PROJECT TO ONLY INCLUDE THE 160 mm BASE COURSE AND FIRST 45 mm LIFT.
 - SAND BORROW ONLY INSTALLED AT LOCATIONS INDICATED BY THE MATERIAL TRANSITION DIAGRAM OR AS DIRECTED BY ENGINEER.
 - IN CURBED AREAS, CLEAR ZONE INDICATES MINIMUM HORIZONTAL OFFSET TO OBSTRUCTIONS FROM FACE OF CURB.
 - REFER TO UNDERDRAIN AND FIBER REINFORCED CONCRETE SIDEWALK DETAIL ON NEXT SHEET.
 - SIDEWALK AND CURB MATERIAL VARIES ON US ROUTE 7 RIGHT SIDE AS NOTED ON ROADWAY LAYOUT SHEET. REFER TO FIBER REINFORCED CONCRETE AND BITUMINOUS CONCRETE SIDEWALK DETAILS ON NEXT SHEET.
 - SIDEWALK WIDTH VARIES AS SHOWN ON ALIGNMENT AND PAVEMENT LAYOUT SHEET.
 - IN AREAS OF ROAD SUBBASE INSTALLATION WITH NO PROPOSED SIDEWALK, SUBBASE SHALL BE INSTALLED WITH 1:1 SIDE SLOPE FROM BOTTOM OF SUBBASE.
 - EXISTING PORTLAND CEMENT CONCRETE ROADBED (NOT SHOWN) TO BE REMOVED UNDER ITEM 203.16, "SOLID ROCK EXCAVATION (PORTLAND CEMENT CONCRETE REMOVAL)" WITHIN PROJECT LIMITS. SEE PROJECT NOTES FOR ADDITIONAL INFORMATION.

NOT TO SCALE

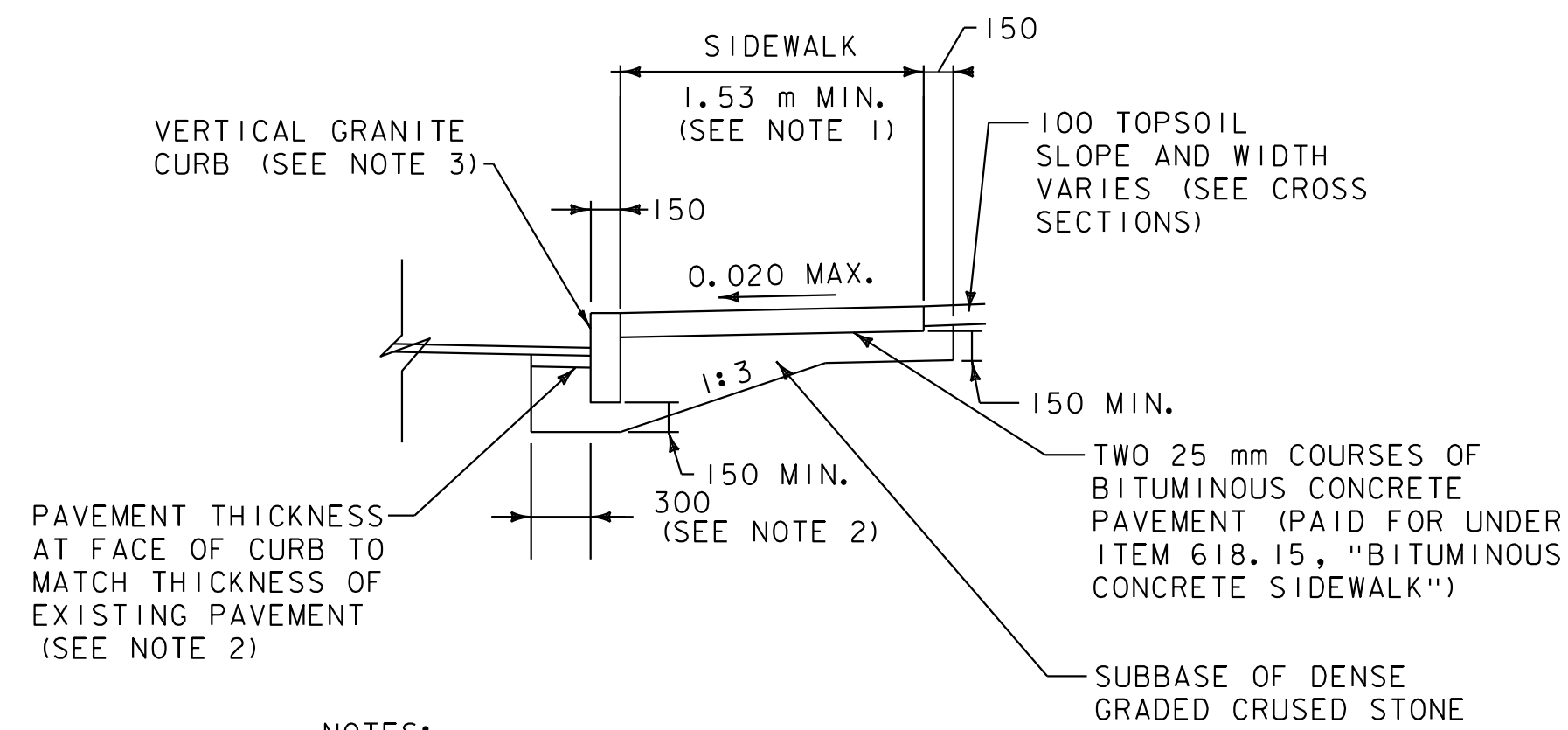


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PROJECT NAME: BRANDON
PROJECT NUMBER: BHF 019-3(58)

FILE NAME: z10b358frm.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: M. HALEY
TYPICAL ROADWAY SECTIONS SHEET 1

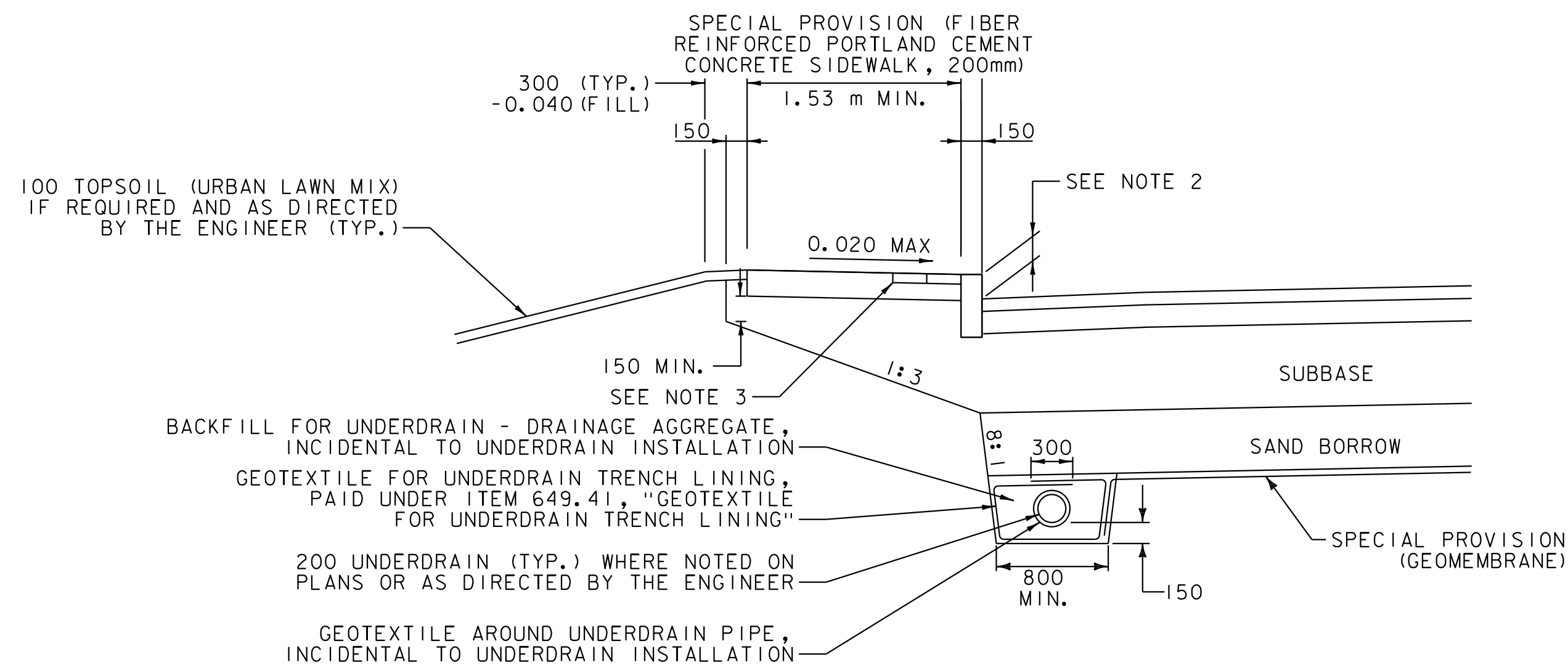
PLOT DATE: 12/19/2017
DRAWN BY: S. GOODWIN
CHECKED BY: D. MUNRO
SHEET 5 OF 79



NOTES:

1. SIDEWALK WIDTH VARIES AS SHOWN ON ALIGNMENT AND PAVEMENT LAYOUT SHEET.
2. DETAIL DEPICTS REQUIREMENTS FOR SUBBASE AND PAVEMENT IN COLD PLANE/OVERLAY AREAS. IN AREAS OF FULL DEPTH RECONSTRUCTION, INSTALL SUBBASE AND PAVEMENT PER TYPICALS ON PREVIOUS SHEET.
3. REVEAL FOR VERTICAL GRANITE CURB ON US ROUTE 7 LEFT SIDE VARIES. REFER TO BOTTOM AND TOP OF CURB PROFILES ON US ROUTE 7 CURB LINE PROFILE SHEETS. REVEAL ON US ROUTE 7 RIGHT SIDE AND ON WEST SEMINARY STREET SHALL TRANSITION FROM EXISTING REVEAL TO 175mm.

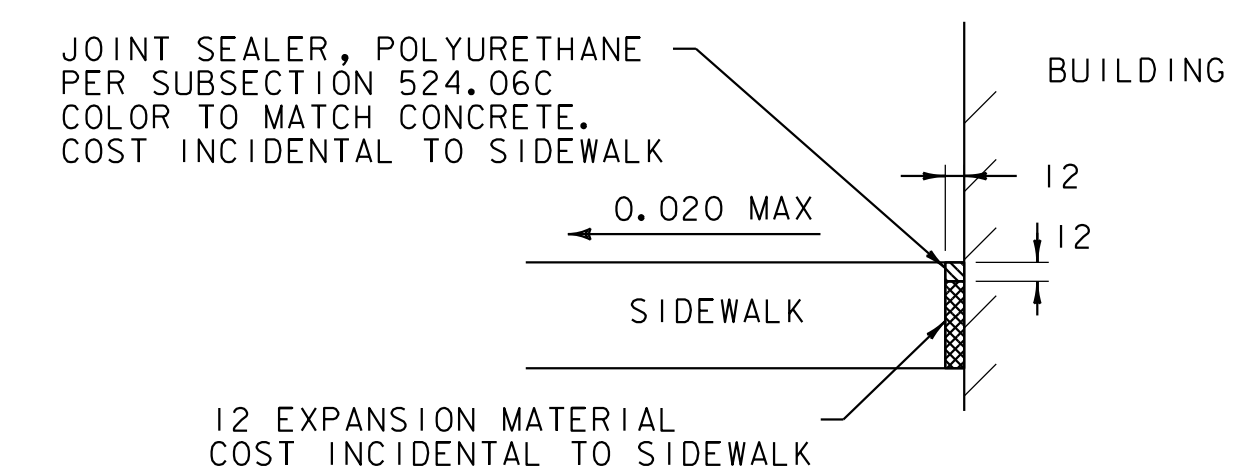
BITUMINOUS CONCRETE SIDEWALK DETAIL



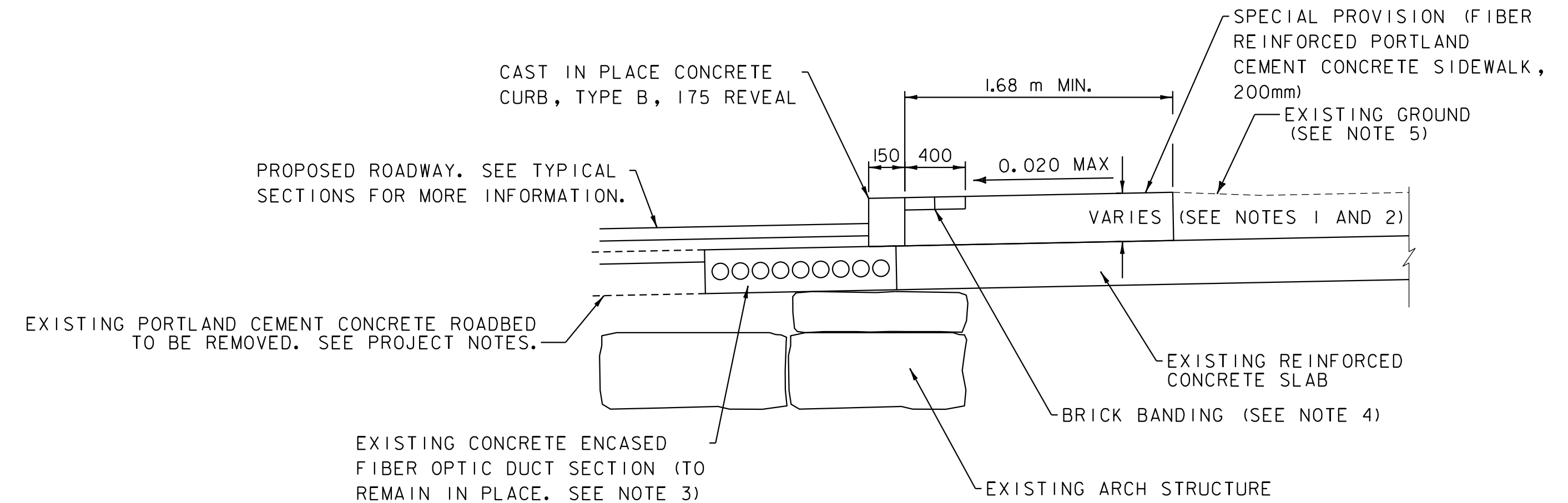
NOTES:

1. UNDERDRAIN DEPTH AND OFFSET VARIES AS SHOWN ON THE PLANS AND CROSS SECTIONS OR AS DIRECTED BY THE ENGINEER. WHEN SAND BORROW NOT PRESENT, EXTEND UNDERDRAIN BACKFILL UP TO BOTTOM OF SUBBASE.
2. REVEAL FOR VERTICAL GRANITE CURB ON US ROUTE 7 LEFT SIDE VARIES. REFER TO BOTTOM AND TOP OF CURB PROFILES ON US ROUTE 7 CURB LINE PROFILE SHEETS.
3. BRICK BANDING SHALL BE INSTALLED WHERE SHOWN ON THE PLANS AND SHALL CONSIST OF DOUBLE ROW HEADER COURSE BRICK PAVERS AND SHALL BE PAID UNDER ITEM 900.675, "SPECIAL PROVISION (BRICK PAVING)". SEE BRICK BANDING DETAIL.

UNDERDRAIN AND FIBER REINFORCED CONCRETE SIDEWALK DETAIL (LEFT SIDE)



DETAIL A

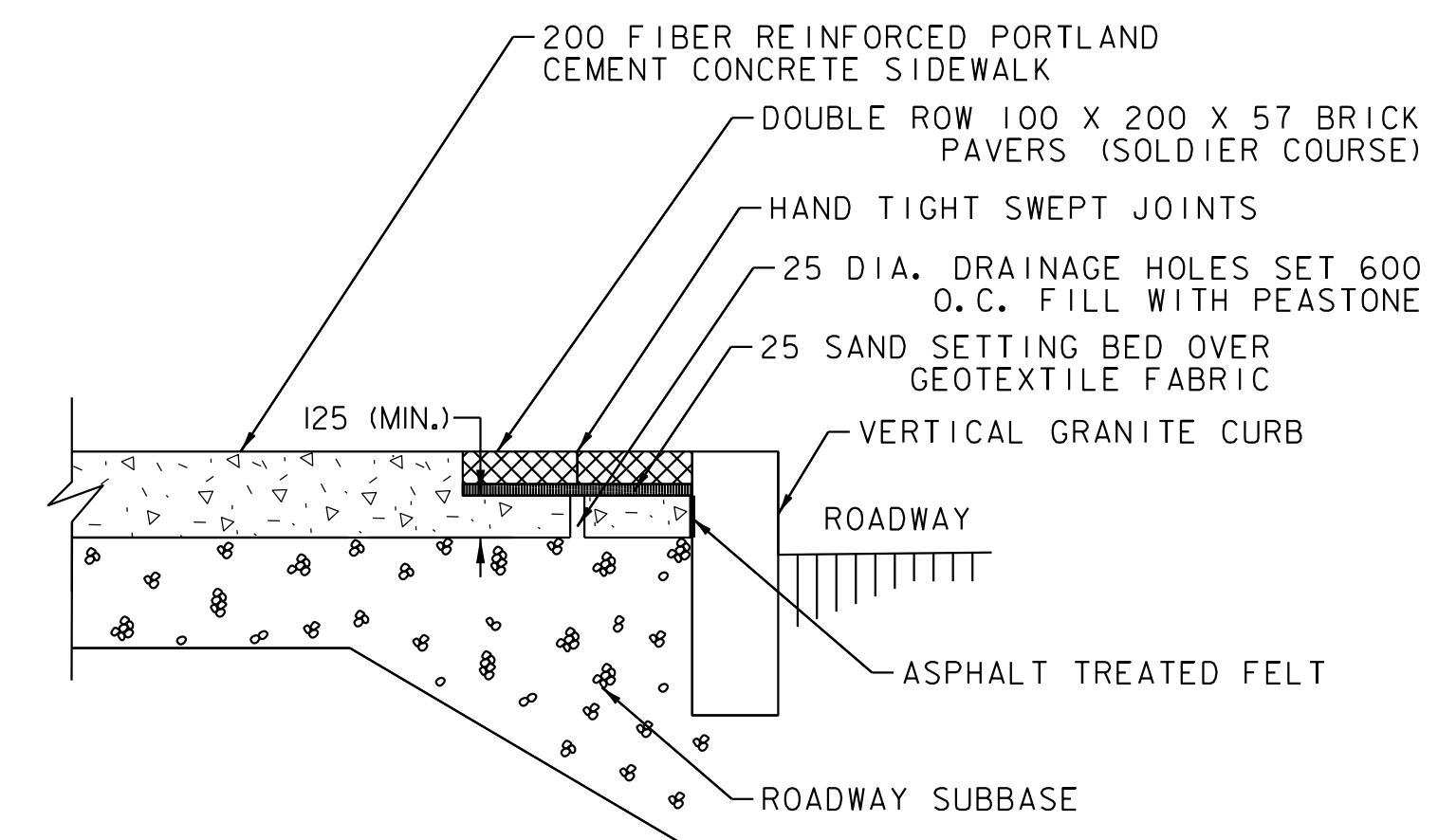


NOTES:

1. DEPTH OF NEW SIDEWALK MAY BE LESS THAN OR GREATER THAN 200mm AS IT WILL VARY TO EXTEND FROM TOP OF EXISTING SLAB UP TO PROPOSED GRADE. NO PAY FACTOR WILL BE APPLIED TO THE ITEM 900.675 "SPECIAL PROVISION (FIBER REINFORCED PORTLAND CEMENT CONCRETE SIDEWALK, 200mm)" FOR THIS WORK.
2. EXISTING BITUMINOUS PAVEMENT SHALL BE REMOVED TO TOP OF EXISTING CONCRETE SLAB. PAYMENT FOR REMOVAL OF EXISTING SIDEWALK SHALL BE PAID UNDER ITEM 203.15, "COMMON EXCAVATION".
3. CONTRACTOR SHALL USE CAUTION WHEN WORKING IN THE VICINITY OF EXISTING DUCT BANK. SEE PROJECT NOTES AND ROADWAY LAYOUT SHEET FOR ADDITIONAL INFORMATION.
4. BRICK BANDING SHALL BE INSTALLED WHERE SHOWN ON THE PLANS AND SHALL CONSIST OF DOUBLE ROW HEADER COURSE BRICK PAVERS INSTALLED IN MORTAR, TYPE IV PER SUBSECTION 707.03 AND SET IN RECESSED SECTION OF SIDEWALK AND PAID FOR UNDER ITEM 900.675, "SPECIAL PROVISION (BRICK PAVING)".
5. DETAIL DEPICTS MATCHING INTO EXISTING GROUND BEHIND SIDEWALK. IN AREAS ADJACENT TO BUILDING, PROVIDE EXPANSION MATERIAL BETWEEN SIDEWALK AND BUILDING PER DETAIL A ABOVE.
6. SEE TYPICAL BRIDGE SECTION FOR ADDITIONAL INFORMATION.

FIBER REINFORCED CONCRETE SIDEWALK DETAIL (RIGHT SIDE)

(21+814.7 RT TO 9+012.3 RT)

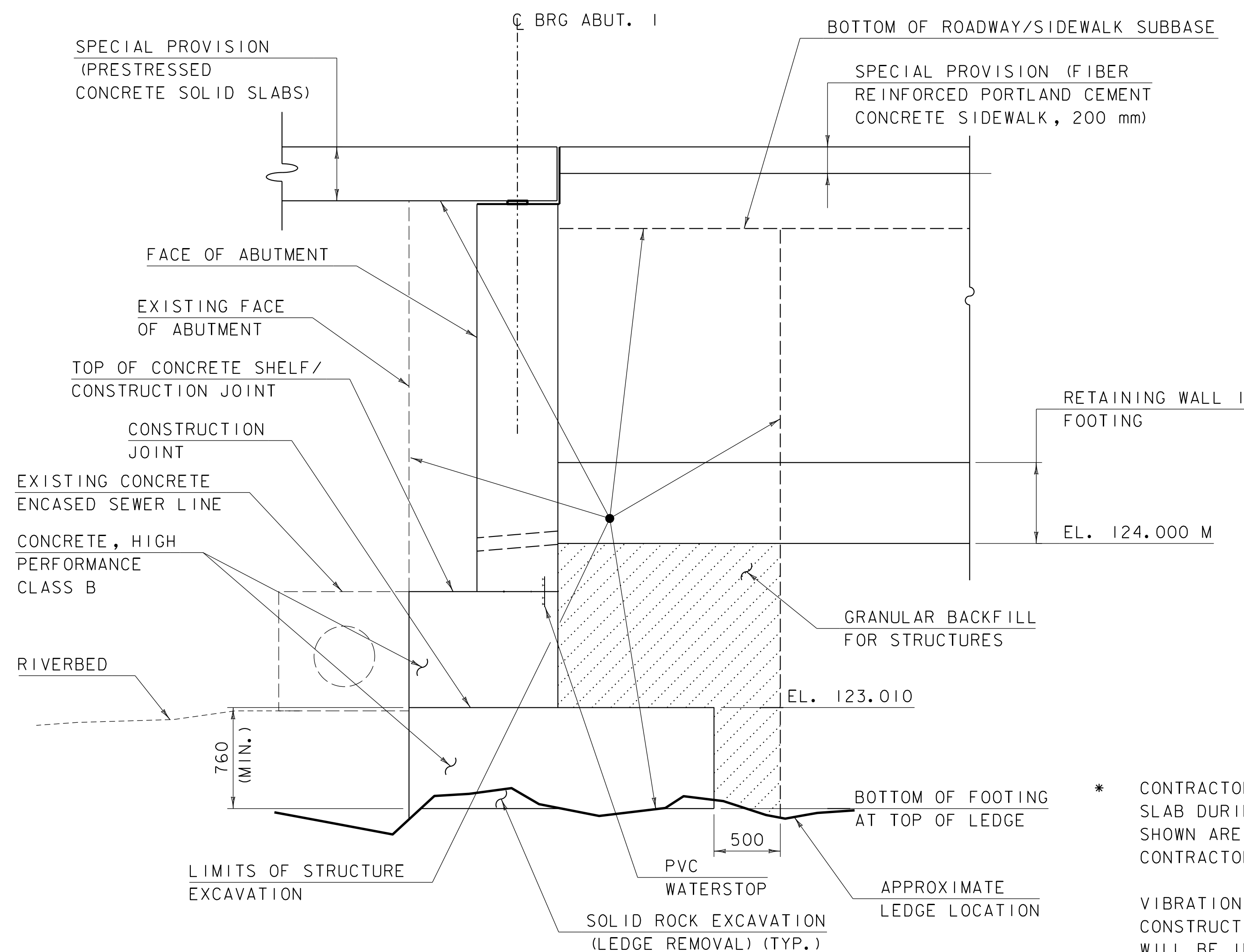


NOTES:

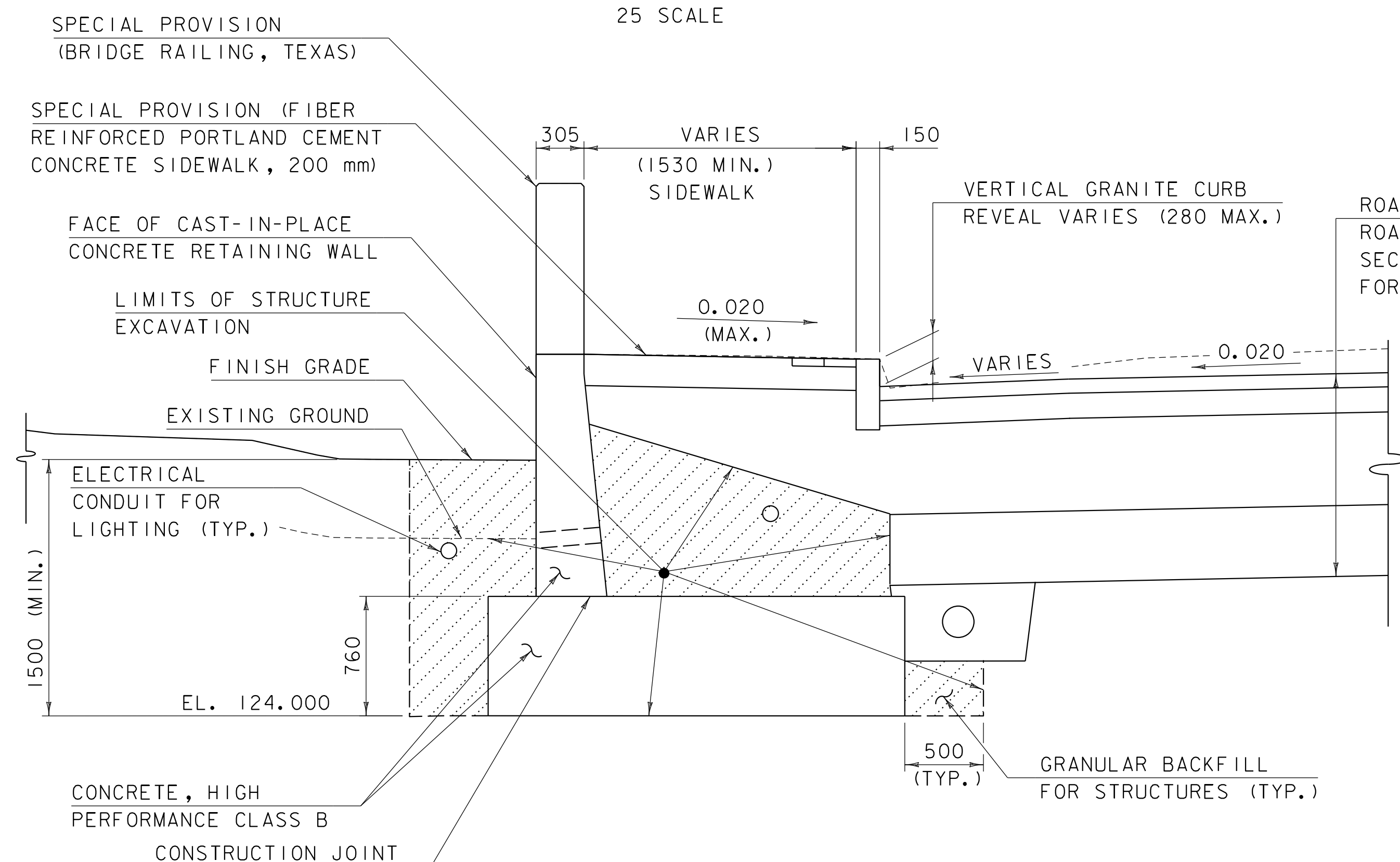
1. SIDEWALK MUST BE CONSTRUCTED SUCH THAT NO COLD JOINT IS FORMED ALONG BACK EDGE OF BRICK BANDING.
2. ASPHALT TREATED FELT SHALL BE PLACED BETWEEN THE SIDEWALK AND CURB FOR THE FULL DEPTH OF THE SIDEWALK. ALL MATERIAL AND WORK TO INSTALL TREATED FELT SHALL BE INCIDENTAL TO THE SIDEWALK PAY ITEM.

BRICK BANDING DETAIL

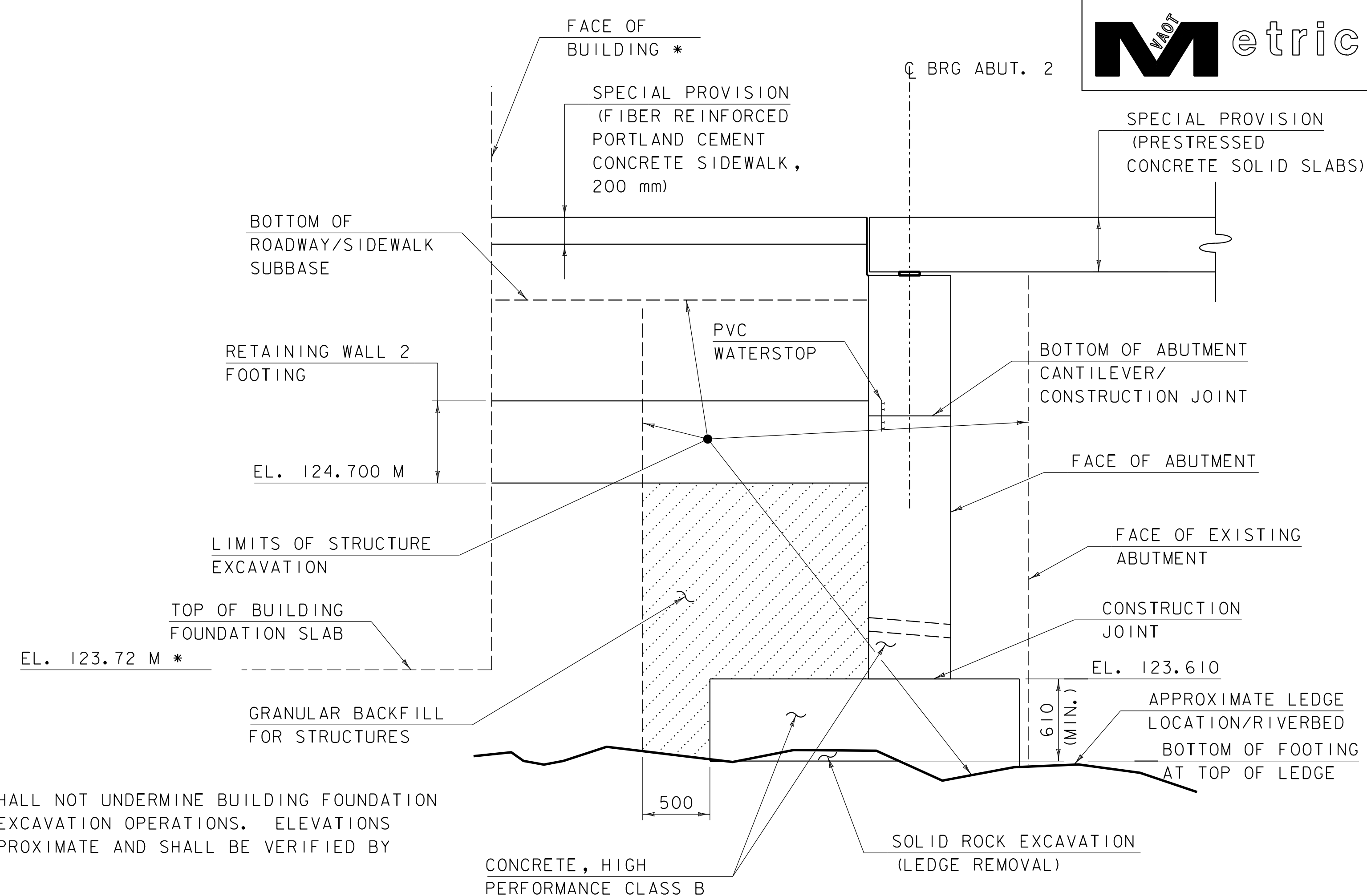
(21+800.0 TO 21+816.3 LT)



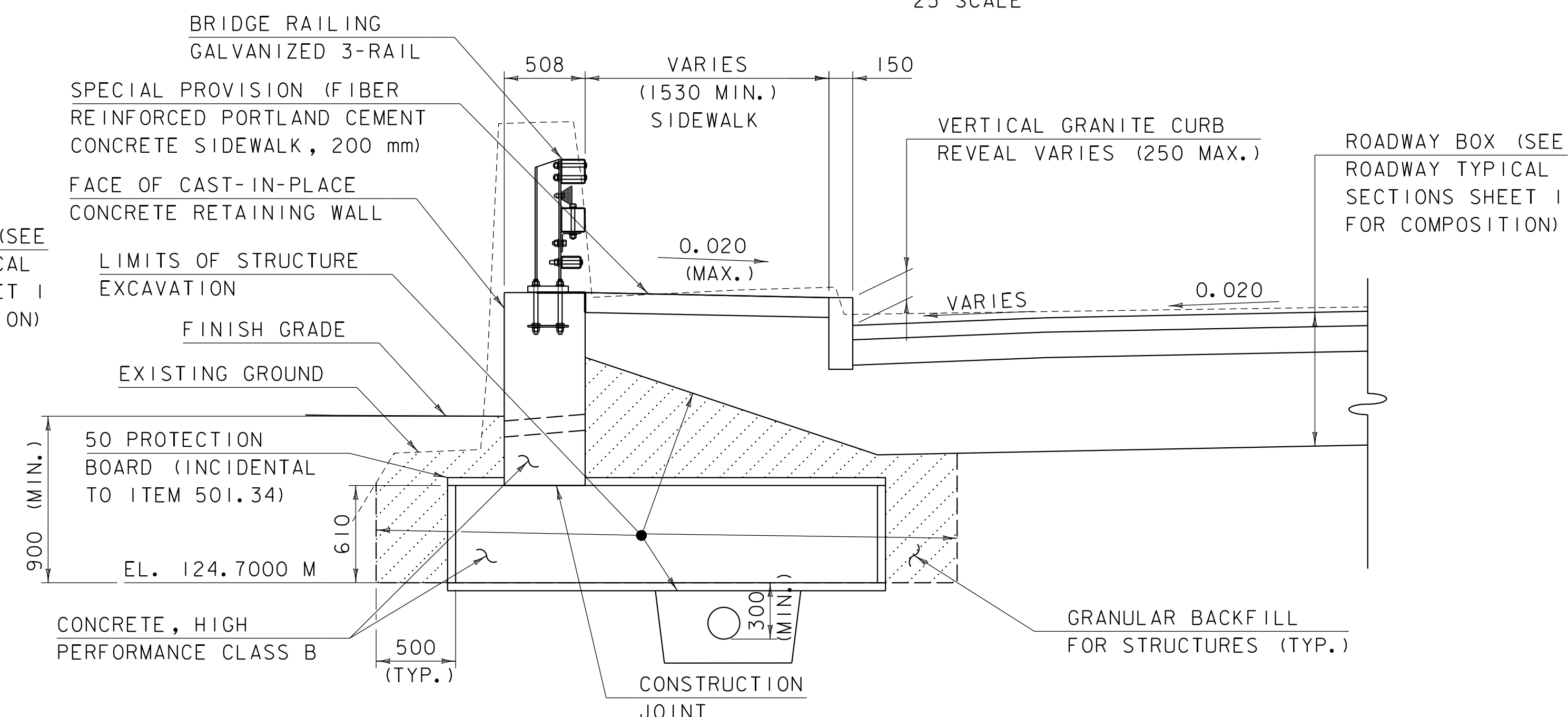
**TYPICAL SIDEWALK STRUCTURE
ABUTMENT 1 EARTHWORKS SECTION**
25 SCALE



TYPICAL RETAINING WALL 1 EARTHWORKS SECTION
25 SCALE



**TYPICAL SIDEWALK STRUCTURE
ABUTMENT 2 EARTHWORKS SECTION**
25 SCALE



TYPICAL RETAINING WALL 2 EARTHWORKS SECTION
25 SCALE

* CONTRACTOR SHALL NOT UNDERMINE BUILDING FOUNDATION SLAB DURING EXCAVATION OPERATIONS. ELEVATIONS SHOWN ARE APPROXIMATE AND SHALL BE VERIFIED BY CONTRACTOR.

VIBRATION AND CRACK MONITORING OF BUILDING DURING CONSTRUCTION IS REQUIRED. PAYMENT FOR THIS WORK WILL BE INCLUDED UNDER ITEM 900.645, "SPECIAL PROVISION (CONSTRUCTION VIBRATION AND CRACK MONITORING)".

NOTE: LIMITS OF ANY EARTH SUPPORT REQUIRED WILL BE DETERMINED BY THE CONTRACTOR AND PAID FOR UNDER ITEM 204.25, "STRUCTURE EXCAVATION".



FUSS & O'NEILL

PROJECT NAME: BRANDON
PROJECT NUMBER: BHF 019-3(58)

FILE NAME: z10b358sub.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: S. BEAUMONT
TYPICAL EARTHWORK SECTIONS SHEET

PLOT DATE: 12/19/2017
DRAWN BY: M. SMITH
CHECKED BY: J. BYATT
SHEET 7 OF 79

GENERAL

- ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2011, AND ITS LATEST REVISIONS, AND THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, DATED 2012, AND ITS LATEST REVISIONS.
- ALL DIMENSIONS SHOWN IN THE PLANS ARE HORIZONTAL OR VERTICAL AND ARE GIVEN AT 68 DEGREES FAHRENHEIT, UNLESS NOTED OTHERWISE.
- PROPOSED ABUTMENT, RETAINING WALL, AND TWIN ARCH DIMENSIONS AND ELEVATIONS ARE BASED ON SURVEY AND FIELD MEASUREMENTS. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND MATCH INTO THE EXISTING SITE GEOMETRY WHERE APPLICABLE.
- THIS PROJECT IS EXPECTED TO BE CONSTRUCTED CONCURRENT WITH NH 019-3(496) ROADWAY PROJECT. SOME PROPOSED ELEMENTS OF THIS PROJECT ARE INTENDED TO BE TEMPORARY AND ARE EXPECTED TO BE REMOVED/REPLACED BY THE ROADWAY PROJECT.
- THE NH 019-3(496) PROJECT WILL CONSTRUCT FINAL 45 mm WEARING COURSE PROJECT-WIDE. THE BHF 019-3(58) PROJECT SHALL INCLUDE THE 160 mm BASE COURSE AND FIRST 45 mm LIFT. ALL DIMENSIONS AND ELEVATIONS DEFINED IN THESE PLANS ARE BASED ON FINAL PAVEMENT FINISHED GRADE AFTER COMPLETION OF THE FINAL WEARING COURSE.
- SOME CONSTRUCTION ELEMENTS ARE OUTSIDE OF THE EXISTING RIGHT OF WAY. RIGHT OF WAY EASEMENTS HAVE BEEN ACQUIRED UNDER THE NH 019-3(496) PROJECT.
- ANY REQUIRED SAWCUT OF EXISTING PAVEMENT WILL BE CONSIDERED INCIDENTAL TO PAY ITEM 490.30, "SUPERPAVE BITUMINOUS CONCRETE PAVEMENT".
- TACK COAT: EMULSIFIED ASPHALT IS TO BE APPLIED AT A RATE OF 0.11 L/m2 BETWEEN SUCCESSIVE COURSES OF PAVEMENT AND 0.18 L/m2 ON COLD PLANED SURFACES OR AS DIRECTED BY THE ENGINEER.

EARTHWORK AND REMOVAL

- REMOVAL OF THE EXISTING SIDEWALK ABUTMENTS AND RETAINING WALLS SHALL BE PAID FOR UNDER ITEM 204.25, "STRUCTURE EXCAVATION". THE ABUTMENTS AND RETAINING WALLS SHALL BE REMOVED IN THEIR ENTIRETY.
- REMOVAL OF THE EXISTING SIDEWALK SUPERSTRUCTURE SHALL BE PAID FOR UNDER ITEM 529.15, "REMOVAL OF STRUCTURE". THIS WORK SHALL INCLUDE REMOVAL OF ANY PORTIONS OF THE EXISTING STRUCTURE; INCLUDING THE SUPERSTRUCTURE, ABUTMENTS, RETAINING WALLS, AND WINGWALLS; THAT FALL OUTSIDE THE LIMITS OF STRUCTURE EXCAVATION.
- REMOVAL OF THE EXISTING FLAG POLES AND ELECTRICAL CONDUIT MOUNTED TO THE EXISTING SIDEWALK STRUCTURE SHALL BE CONSIDERED INCIDENTAL TO ITEM 529.15, "REMOVAL OF STRUCTURE". THE FLAG POLES SHALL BE RETURNED TO THE TOWN. THE ELECTRICAL CONDUIT IS EXPECTED TO BE DEADENED, BUT THE CONTRACTOR SHALL TAKE PRECAUTIONS TO ENSURE THE LINE IS DEAD BEFORE REMOVAL PROCESSES COMMENCE.
- REMOVAL OF THE EXISTING PIER SHALL BE PAID FOR UNDER ITEM 529.20, "PARTIAL REMOVAL OF STRUCTURE". THE PIER SHALL BE REMOVED TO THE TOP OF ITS STONE FOOTING.
- REMOVAL OF ANY PORTIONS OF THE EXISTING CONCRETE RETAINING WALL ALONG THE RIVER ADJACENT TO ABUTMENT 1 REQUIRED TO BE REMOVED TO ACCOMMODATE THE CONSTRUCTION OF ABUTMENT 1 SHALL BE PAID FOR UNDER ITEM 204.25, "STRUCTURE EXCAVATION". THE COST TO SAWCUT THE EXISTING WALL TO COMPLETE THE REMOVAL WILL BE INCLUDED UNDER ITEM 204.25, "STRUCTURE EXCAVATION".
- A PORTION OF THE EXISTING STONE RETAINING WALL ALONG THE RIVER ADJACENT TO ABUTMENT 2 WILL BE REMOVED TO ACCOMMODATE THE CONSTRUCTION OF ABUTMENT 2 AND RETAINING WALL 2. PAYMENT FOR THIS WORK AND FOR RESETTING THE WALL WILL BE PAID FOR UNDER ITEM 602.35, "REBUILT STONE MASONRY".

EARTHWORK AND REMOVAL (CONTINUED)

- A QUANTITY OF ITEM 203.16, "SOLID ROCK EXCAVATION (PORTLAND CEMENT CONCRETE REMOVAL)" HAS BEEN ESTIMATED FOR REMOVAL OF PORTLAND CEMENT CONCRETE ROADBED AND PORTLAND CEMENT CONCRETE SIDEWALK. HOWEVER, THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER TO DETERMINE IF THE REMOVAL OF THESE ITEMS AND OTHER SIMILAR CONCRETE ITEMS LOCATED DURING CONSTRUCTION MEET THE REQUIREMENTS FOR ITEM 203.16 OR SHALL BE REMOVED INCIDENTAL TO ITEM 203.15, "COMMON EXCAVATION".
- STONE FILL, TYPE III IN THE RIVER CHANNEL IS INTENDED TO FILL THE SCOUR HOLES TO THE APPROXIMATE RIVERBED ELEVATION. STONE SHALL NOT EXTEND INTO THE MAIN CHANNEL.
- CARE SHOULD BE TAKEN WHEN COMPACTING SUBBASE AND PAVEMENT OVER THE TWIN ARCH STRUCTURE. HAND COMPACTION METHODS WILL BE REQUIRED.
- CRANES OR OTHER SIMILAR HEAVY EQUIPMENT SHALL NOT BE ALLOWED OVER THE FULL LENGTH OF THE TWIN ARCH STRUCTURE PLUS 5 M BEYOND THE FACES OF THE ARCH ABUTMENT WALLS. THE CONTRACTOR MAY SUBMIT A STRUCTURAL ANALYSIS STAMPED BY A PROFESSIONAL STRUCTURAL ENGINEER LICENSED IN THE STATE OF VERMONT VERIFYING THAT SPECIFIC EQUIPMENT CAN BE LOCATED CLOSER THAN 5 M WITHOUT EXCEEDING THE ALLOWABLE STRESSES OF THE TWIN ARCH STRUCTURE. THIS WORK WILL BE CONSIDERED INCIDENTAL TO THE CONTRACT.
- A MINIMUM OF 330 OF FILL OR COMBINATION OF FILL AND PAVEMENT MUST BE PLACED OVER THE FULL LENGTH OF THE ARCH PLUS 5 M BEYOND THE FACES OF THE ARCH ABUTMENT WALLS BEFORE TRAFFIC MAY BE PLACED OVER THE ARCH.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THE EXISTING TWIN ARCH STRUCTURE CAUSED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE AND TO THE SATISFACTION OF THE ENGINEER.

SUBSTRUCTURES ON BEDROCK

- LEDGE/BORING LOGS: DEPICTION OF BEDROCK AS SHOWN ON ROADWAY CROSS SECTIONS IS APPROXIMATE ONLY. THE BEDROCK PROFILES SHOWN ON THE CROSS-SECTIONS ARE OBTAINED FROM INTERPOLATIONS AND EXTRAPOLATIONS OF BEDROCK ELEVATIONS OBSERVED AT THE TEST BOREHOLE LOCATIONS, AND THEREFORE, MAY NOT REPRESENT THE ACTUAL BEDROCK ELEVATIONS. INFORMATION ON ACTUAL SUBSURFACE CONDITIONS EXISTS ONLY AT THE LOCATION OF TEST BOREHOLES. SUBSURFACE CONDITIONS AND GROUNDWATER LEVELS AT OTHER LOCATIONS MAY DIFFER FROM CONDITIONS FOUND AT THESE LOCATIONS. DETAILED SUBSURFACE DESCRIPTIONS ARE INCLUDED IN THE BOREHOLE LOGS. THE CONTRACTOR SHALL MAKE HIS OWN INTERPRETATION OF BEDROCK PROFILES BASED ON THIS INFORMATION AND OTHER INFORMATION COLLECTED SEPARATELY.
- THE FOOTINGS FOR SUBSTRUCTURES FOUNDED ON LEDGE SHALL BE PLACED ON CLEAN COMPETENT ROCK. ALL LOOSE ROCK AND DEBRIS SHALL BE REMOVED.
- UPON COMPLETION OF THE EXCAVATION FOR SUBSTRUCTURES FOUNDED ON LEDGE AND PRIOR TO PLACING FORMWORK, THE ENGINEER SHALL DETERMINE IF THE LEDGE IS COMPETENT TO OBTAIN THE NOMINAL BEARING RESISTANCE AS SHOWN ON THE PLANS. THE CONTRACTOR SHALL NOTIFY THE ENGINEER 72 HOURS PRIOR TO WHEN THE ANALYSIS WILL BE NEEDED.

ARCH REHABILITATION

- ALL STONE MASONRY POINTING/INJECTIONS AND STONE MASONRY REPAIRS SHALL BE COMPLETED BEFORE ANY WORK ABOVE THE ARCH MAY COMMENCE.
- ALL CONCRETE REMOVED ALONG THE FACES OF THE ARCH MASONRY WALLS AND THE DOWNSTREAM FACE OF THE TWIN ARCH STRUCTURE, INCLUDING BUT NOT LIMITED TO, PREVIOUS REPAIRS, SHALL BE PAID FOR UNDER ITEM 529.25, "REMOVAL OF CONCRETE OR MASONRY". EXTREME CARE SHALL BE TAKEN TO ENSURE NO DAMAGE OCCURS TO THE EXISTING STONES.
- ALL REPAIRS TO STONE MASONRY, INCLUDING BEHIND EXISTING CONCRETE USED FOR PREVIOUS REPAIRS AND BEHIND THE EXISTING ABUTMENTS, PIERS, AND SIDEWALK STRUCTURE AFTER THEIR REMOVAL, SHALL BE PAID FOR UNDER ITEM 602.40, "REPAIRING STONE MASONRY". ANY NEW STONE REQUIRED SHALL MATCH THE EXISTING STONE IN TYPE AND COLOR, AND SHALL BE APPROVED BY THE ENGINEER AND HISTORIC PRESERVATION OFFICER.
- AREAS IDENTIFIED FOR STONE MASONRY REPAIRS IN THE PLANS ARE NOT ALL-INCLUSIVE. ANY AREAS OF CONCRETE USED PREVIOUSLY FOR STONE MASONRY REPAIRS SHALL BE IDENTIFIED IN THE FIELD AND REMOVED, AND THE STONE MASONRY REPAIRED. QUANTITIES FOR CONCRETE REMOVAL AND STONE MASONRY REPAIRS AS SHOWN IN THE QUANTITY SUMMARY SHEETS ARE ESTIMATED.
- ALL STONE MASONRY POINTING/INJECTIONS SHALL BE COMPLETED IN THE DRY AND PAID FOR UNDER ITEM 602.30, "REPOINTING MASONRY". QUANTITIES FOR THIS ITEM AS SHOWN IN THE QUANTITY SUMMARY SHEETS ARE ESTIMATED. PRESSURE INJECTION OF MORTAR FOR REPOINTING SHALL BE INCIDENTAL TO ITEM 602.30, "REPOINTING MASONRY".
- ANY TEMPORARY SHORING OF THE ARCH REQUIRED FOR ARCH REPAIRS SHALL BE PAID FOR UNDER ITEM 502.10, "SHORING SUPERSTRUCTURE".
- BACKFILLING OF THE ARCH DURING MEMBRANE AND ROADWAY SUBBASE PLACEMENT WILL BE DONE IN EQUAL LIFTS ALONG THE SIDES OF THE ARCHES.

CONCRETE REPAIRS

- ANY AREAS ON THE EXISTING UPSTREAM CONCRETE WALL AND EXISTING UPSTREAM PIER THAT ARE FOUND TO BE UNSOUND SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER. THE METHOD FOR DETERMINING AREAS OF UNSOUND CONCRETE SHALL BE APPROVED BY THE ENGINEER. THE ENGINEER SHALL DETERMINE THE LIMITS OF THE REPAIR. THE REPAIRS SHALL BE PAID FOR UNDER ITEM 580.14, "REPAIR OF CONCRETE SUBSTRUCTURE, CLASS II". THE QUANTITY FOR THIS ITEM AS SHOWN IN THE QUANTITY SUMMARY SHEET IS ESTIMATED.
- THE EXISTING REINFORCED CONCRETE SLAB AT THE UPSTREAM END OF THE ARCH STRUCTURE SHALL BE REPAIRED FROM ABOVE AND BELOW. THESE REPAIRS SHALL BE PAID FOR UNDER ITEM 580.11, "REPAIR OF CONCRETE SUPERSTRUCTURE, CLASS II". REPAIRS TO THE VOID AT THE JOINT BETWEEN THE EXISTING REINFORCED CONCRETE SLAB AND THE UPSTREAM REINFORCED CONCRETE SLAB AND BEAM STRUCTURE SHALL BE PAID FOR UNDER ITEM 580.12, "REPAIR OF CONCRETE SUPERSTRUCTURE, CLASS III". THE QUANTITIES FOR ITEMS 580.11 AND 580.12 AS SHOWN IN THE QUANTITY SUMMARY SHEET ARE ESTIMATED.



PROJECT NAME: BRANDON	
PROJECT NUMBER: BHF 019-3(58)	
FILE NAME: z10b358notes.dgn	PLOT DATE: 12/19/2017
PROJECT LEADER: J. BYATT	DRAWN BY: M. SMITH
DESIGNED BY: A. GIRALDI	CHECKED BY: S. BEAUMONT
PROJECT NOTES SHEET 1	SHEET 8 OF 79

CONCRETE AND REINFORCING STEEL

33. ITEM 514.10, "WATER REPELLENT, SILANE", SHALL BE APPLIED TO ALL EXPOSED CONCRETE OF THE UPSTREAM WALLS AND PIER AND THE CONCRETE SEWER ENCASEMENT OF THE TWIN ARCH STRUCTURE; AND THE SIDEWALK STRUCTURE AND SUBSTRUCTURE, INCLUDING THE CONCRETE BRIDGE RAIL AND CONCRETE SIDEWALKS, WITH THE EXCEPTION OF THE BOTTOM OF THE SOLID SLABS BETWEEN DRIP NOTCHES.
34. THE CORK JOINT BETWEEN THE SOLID SLAB STRUCTURE AND THE CONCRETE CHEEKWALL SHALL BE INCIDENTAL TO PAY ITEM 501.34, "CONCRETE, HIGH PERFORMANCE CLASS B".
35. GROUT FOR SHEAR KEYS BETWEEN THE PRESTRESSED SOLID SLABS SHALL BE MORTAR, TYPE IV IN ACCORDANCE WITH SECTION 510. GROUT FOR ANCHOR BOLTS SHALL BE MORTAR, TYPE IV IN ACCORDANCE WITH SECTION 531. POST-TENSIONING DUCTS SHALL BE GROUTED WITH A CEMENTITIOUS, PRE-BAGGED NONSHRINK GROUT SPECIFICALLY FORMULATED FOR POST-TENSIONING DUCTS.
36. ABUTMENT FOOTINGS SHALL BE FOUNDED ON LEDGE. TOP OF FOOTING ELEVATIONS WERE APPROXIMATED BASED ON BORINGS. IF LEDGE IS NOT ENCOUNTERED AT THE BOTTOM OF THE SPECIFIED MINIMUM FOOTING DEPTH, THE FOOTINGS SHALL BE EXTENDED TO THE TOP OF LEDGE.

PRESTRESSED SOLID SLABS

37. DESIGN VALUES:
- a. CONCRETE COMPRESSIVE STRENGTH: $f'c = 55 \text{ MPa}$
 - b. CONCRETE COMPRESSIVE STRENGTH AT RELEASE: $f'ci = 37.9 \text{ MPa}$
 - c. PRESTRESSING STRANDS: 15 MM DIAMETER, 1.862 GPa, LOW RELAXATION 7-WIRE STRANDS
 - d. JACKING FORCE PER PRESTRESSING STRAND = 195.5 kN.
 - e. POST-TENSIONING STRANDS: 15 MM DIAMETER, 1.862 GPa, LOW RELAXATION 7-WIRE STRANDS
 - f. THERE SHALL BE 2 STRANDS PER POST-TENSIONING DUCT.
 - g. ASSUMED MODULUS OF ELASTICITY FOR THE STRAND IS 196.5 kN.
38. ALL POST-TENSIONING STRANDS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 510. PAYMENT FOR GALVANIZED ANCHOR ASSEMBLIES, DUCTS, POST-TENSIONING STRANDS, AND GROUT SHALL BE INCLUDED UNDER THE APPROPRIATE PRESTRESSED CONCRETE SOLID SLAB PAY ITEM.
39. THE JOINTS BETWEEN THE SOLID SLAB SUPERSTRUCTURE AND THE PORTLAND CEMENT CONCRETE SIDEWALK APPROACHES, AS WELL AS BETWEEN THE CONCRETE COMBINATION BRIDGE RAIL ON THE SIDEWALK STRUCTURE AND THE TEXAS BRIDGE RAIL ON THE RETAINING WALLS, SHALL BE FILLED WITH AN IMPERMEABLE CLOSED-CELL JOINT SEAL WITH EPOXY ADHESIVE CAPABLE OF ACCOMMODATING 0.50 MM OF EXPANSION AND 2.86 MM OF CONTRACTION AT 68 DEGREES. A JOINT DETAIL SHALL BE SUBMITTED TO THE PROJECT MANAGER FOR REVIEW AND APPROVAL. ALL COMPONENTS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE APPROPRIATE PRESTRESSED CONCRETE SOLID SLAB PAY ITEM.
40. THE ALLOWABLE CAMBER TOLERANCE SHALL BE 19. DIFFERENTIAL CAMBER (AT ERECTION) BETWEEN ADJACENT MEMBERS SHALL BE LIMITED TO 6.
41. THE TOP 6 OF THE SOLID SLABS SURFACE SHALL BE DIAMOND GROUND TO A ROUGH FINISH AFTER INSTALLATION OF THE SIDEWALK STRUCTURE UTIIZING A HAND MACHINE. DIAMOND GRIND SHALL BE USED TO REMOVE ANY DIFFERENTIAL CAMBER BETWEEN BEAMS. PAYMENT FOR DIAMOND GRINDING SHALL BE CONSIDERED INCIDENTAL TO THE APPROPRIATE PRESTRESSED CONCRETE SOLID SLAB PAY ITEM.

PRESTRESSED SOLID SLABS (CONT.)

42. CENTERLINE CAMBER OF ALL SIMILAR MEMBERS SHALL BE MEASURED AT THE SAME TIME WITHIN THE FIRST 24 HOURS AFTER RELEASE OF THE PRESTRESS STRAND. BEAMS SHALL HAVE THEIR CAMBER MONITORED AT REGULAR TIME INTERVALS WITH A FREQUENCY SUFFICIENT TO ALL FOR CAMBER GROWTH TO BE RESTRAINED SHOULD IT BE PROJECTED TO EXCEED CONTRACT PLAN ESTIMATED MID SPAN CAMBER PLUS THE TOLERANCES NOTED ABOVE. THESE MEASUREMENTS SHALL BE PROVIDED TO THE ENGINEER FOR REVIEW. IF THE CAMBER IS PROJECTED TO EXCEED THE LIMIT, THE CONTRACTOR/MANUFACTURER SHALL SUBMIT A PROPOSED SOLUTION FOR APPROVAL.
43. THE FABRICATOR MAY SUBMIT DESIGN CAMBER VALUES THAT THEY CALCULATE. IF THESE CAMBERS DIFFER FROM THOSE SHOWN ON THE CONTRACT PLANS, THE ENGINEER'S APPROVAL OF THE FABRICATOR'S PROPOSED CAMBER IS REQUIRED BEFORE FABRICATION MAY COMMENCE.
44. BEAM CAMBER MONITORING AND CAMBER RESTRAINING PROCEDURES SHALL BE INCLUDED ON THE SHOP DRAWINGS. CALCULATONS OF CAMBER THAT VARIES FROM THE DESIGN CAMBER ON THE PLANS SHALL ALSO BE SUBMITTED IN THE SHOP DRAWINGS.

MISCELLANEOUS

45. ALL STEEL COMPONENTS OF BRIDGE RAILING SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. COMPONENTS SHALL BE POWDER COATED BLACK IN ACCORDANCE WITH ASTM D 7803 WITH TYPE A CERTIFICATION.
46. BRICK BANDING CONSISTING OF A DOUBLE ROW HEADER COURSE OF BRICK PAVERS WILL BE INSTALLED WHERE SPECIFIED IN THE PLANS. THE BRICK PAVERS WILL BE SET IN MORTER OR ON A SAND SETTING BED DEPENDING ON LOCATION AS IDENTIFIED BY THE DETAILS ON TYPICAL ROADWAY SECTION SHEET 2. BRICK BANDING, MORTAR, AND SAND WILL BE PAID FOR UNDER ITEM 900.675, "SPECIAL PROVISION (BRICK PAVING)". SEE DETAILS ON TYPICAL ROADWAY SECTIONS SHEET 2.
47. IN ADDITION TO THE REQUIREMENTS OF NOTE 62, VIBRATION MONITORING OF THE BUILDING ADJACENT TO RETAINING WALL 2 IS REQUIRED FOR THE DURATION OF THE PROJECT AND SHALL BE PAID FOR UNDER ITEM 900.645, "SPECIAL PROVISION (CONSTRUCTION VIBRATION AND CRACK MONITORING)".

STRUCTURAL ELEMENT	CONCRETE		REINFORCING STEEL	
	CONTRACT ITEM:	TO MEET THE REQUIREMENTS FOR:	TO MEET THE REQUIREMENTS FOR:	PAYMENT TO BE INCLUDED IN:
CAST-IN-PLACE CONCRETE FOOTINGS AND STEMS (ABUTMENTS AND RETAINING WALLS)	ITEM 501.34, "CONCRETE, HIGH PERFORMANCE CLASS B"	SECTION 501	REINFORCING STEEL, LEVEL 1: PLAIN AND EPOXY COATED**	ITEM 507.11, "REINFORCING STEEL, LEVEL 1"
PRECAST/PRESTRESSED CONCRETE SOLID SLABS	ITEM 900.640, "SPECIAL PROVISION (PRESTRESSED CONCRETE SOLID SLABS) (413 X 915)" OR ITEM 900.640, "SPECIAL PROVISION (PRESTRESSED CONCRETE SOLID SLABS) (413 X 1219)", AS APPROPRIATE	SECTION 510	REINFORCING STEEL, LEVEL 1 - EPOXY COATED	ITEM 900.640, "SPECIAL PROVISION (PRESTRESSED CONCRETE SOLID SLABS) (413 X 915)" OR ITEM 900.640, "SPECIAL PROVISION (PRESTRESSED CONCRETE SOLID SLABS) (413 X 1219)", AS APPROPRIATE
TEXAS BRIDGE RAILING*	ITEM 900.640, "SPECIAL PROVISION (BRIDGE RAILING, TEXAS)"	SECTION 501	REINFORCING STEEL, LEVEL 1 - EPOXY COATED	ITEM 900.640, "SPECIAL PROVISION (BRIDGE RAILING, TEXAS)"
BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION (COATED BLACK)*	ITEM 525.45, "BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION (COATED BLACK)"	SECTION 525	REINFORCING STEEL, LEVEL 1 - EPOXY COATED	ITEM 525.45, "BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION (COATED BLACK)"

* CONCRETE SHALL MEET THE REQUIREMENTS OF CONCRETE, HIGH PERFORMANCE CLASS A.

** EPOXY COATED REINFORCEMENT EXTENDS FROM THE ABUTMENTS/WINGWALLS INTO THE CONCRETE RAILING. ALL OTHER SUBSTRUCTURE REINFORCEMENT IS PLAIN. REFER TO REINFORCING SCHEDULE SHEET.



FUSS & O'NEILL

PROJECT NAME: BRANDON
PROJECT NUMBER: BHF 019-3(58)

FILE NAME: z10b358notes.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: A. GIRALDI
PROJECT NOTES SHEET 2

PLOT DATE: 12/19/2017
DRAWN BY: M. SMITH
CHECKED BY: S. BEAUMONT
SHEET 9 OF 79

BLASTING NOTES

48. THESE BLASTING NOTES APPLY TO LOCATIONS WHERE CONTRACTOR SELECTS BLASTING AS THE METHOD OF TRENCH EXCAVATION OF ROCK EITHER INSTEAD OF OR IN ADDITION TO, OTHER METHODS OF LEDGE REMOVAL, INCLUDING HAMMERING. BLASTING WILL NOT BE ALLOWED TO EXCAVATE LEDGE FOR THE SIDEWALK STRUCTURE ABUTMENTS.
49. PRE-BLAST ACTIVITIES, BLASTING, AND BLAST MONITORING SERVICES, INCLUDING SEISMOLOGIST, AS DEFINED IN THESE NOTES AND ON SUBSEQUENT PLANS, SHALL BE CONSIDERED INCIDENTAL TO ITEM 204.21, "TRENCH EXCAVATION OF ROCK".
50. AFTER CONTRACT AWARD, THE CONTRACTOR SHALL SUBMIT THE QUALIFICATIONS OF A PROPOSED INDEPENDENT SEISMOLOGIST. THE SEISMOLOGIST SHALL BE RESPONSIBLE FOR PRODUCING AND IMPLEMENTING THE PREBLAST SURVEY REPORT, BLAST VIBRATION MONITORING PLAN, AND POST-BLAST LOG(S).
51. PRE-DRILLING: BEFORE PRODUCTION DRILLING AND BLASTING IS CONDUCTED, THE BLASTER WILL ADVANCE DRILL STEM TO ESTIMATE THE LEDGE SURFACE. THIS WORK SHALL BE PERFORMED IN THE PRESENCE OF THE ENGINEER.
52. PAYMENT FOR ITEM 204.21, "TRENCH EXCAVATION OF ROCK" SHALL BE BASED ON THE STANDARD SPECIFICATIONS DESCRIPTION, REGARDLESS OF ADDITIONAL ROCK REMOVAL REQUIRED FOR SAFETY AND INSTALLATION REQUIREMENTS.
53. PREBLAST SURVEY REPORT:
- THE CONTRACTOR SHALL CONDUCT A SURVEY OF ALL STRUCTURES WITHIN A 150m LIMIT OF PROPOSED BLASTING LOCATIONS. TWO WEEKS PRIOR TO THE START OF BLASTING, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW A REPORT DESCRIBING THE RESULTS OF THIS SURVEY, INCLUDING ALL INFORMATION PERTINENT TO ANY DEFECTIVE CONDITIONS OF THE STRUCTURES SURVEYED, SUCH AS CRACKS, FOUNDATION PROBLEMS, WELL FUNCTION PROBLEMS, OR THE LIKE.
 - THE PREBLAST SURVEY REPORT SHALL INCLUDE PHOTOGRAPHIC OR VIDEO DATA WITH A WRITTEN OR RECORDED COMMENTARY WITH THE WRITTEN REPORT.
 - IF PROPERTY OWNERS WITHIN THE 150 m LIMIT REFUSE ENTRY, THE CONTRACTOR SHALL DOCUMENT DISCUSSION IN THE PREBLAST SURVEY REPORT.
 - THE CONTRACTOR SHALL PROVIDE COPIES OF THE REPORT TO THE ENGINEER AND PROPERTY OWNER.
54. THE CONTRACTOR AND SEISMOLOGIST SHALL REVIEW PROPOSED LEDGE BREAKING OPERATIONS WITH THE ENGINEER. LEDGE BLASTING LOCATIONS MUST BE APPROVED BY THE ENGINEER.

BLASTING NOTES (CONT.)

55. BLAST VIBRATION MONITORING PLAN: TWO WEEKS PRIOR TO THE START OF BLASTING, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW A DETAILED BLAST VIBRATION PLAN TO ADDRESS SEISMIC VIBRATIONS PRODUCED BY EACH BLAST. THE BLAST VIBRATION MONITORING PLAN SHALL INCLUDE, BUT NOT BE LIMITED TO:
- A DESCRIPTION AND IDENTIFICATION OF THE SEISMOGRAPH. SEISMOGRAPH SHALL PRODUCE DIGITAL ELECTRONIC OUTPUT OF VIBRATIONS, RECORDED IN PEAK PARTICLES VELOCITY IN INCHES/SECOND, OCCURRING ALONG THREE MUTUALLY PERPENDICULAR AXES TO THE GROUND LEVEL. THE RECORDING DEVICE SHALL BE CAPABLE OF MEASURING AND RECORDING PARTICLE VELOCITIES FROM 0.5 TO 125 MILLIMETERS/SECOND (0.02 TO 5.00 INCHES/SECOND).
 - PLANNED MONITORING LOCATIONS.
 - PROVISIONS FOR A TEST BLAST OR OTHER NECESSARY PROCEDURES FOR ESTABLISHING BLASTING PROCEDURES SUCH THAT BLAST VIBRATIONS COMPLY WITH THE SPECIFIED LIMITS.
 - PLANNED BLASTING PROCEDURES, EXPLOSIVE TYPE, PLANNED STEMMING, ANTICIPATED BLASTING PATTERN, DELAY, EXPLOSIVE QUANTITY PER DELAY, METHODS OF ADJUSTING BLASTING TECHNIQUES TO REDUCE SEISMIC VIBRATIONS, AND ANTICIPATED PROTECTION PLAN FOR LIFE AND PROPERTY ADJACENT TO BLASTING OPERATIONS.
56. POST-BLAST LOG: THE FOLLOWING INFORMATION SHALL BE RECORDED AND SUBMITTED TO THE ENGINEER EACH DAY:
- NAME OF CONTRACTOR OR SUBCONTRACTOR RESPONSIBLE FOR THE BLASTING OPERATION.
 - NAME AND SIGNATURE OF AN APPROVED SEISMOLOGIST OR SEISMOGRAPH OPERATOR, IF OTHER THAN THE APPROVED SEISMOLOGIST.
 - NAME AND LICENSE NUMBER OF BLASTER.
 - PREVAILING WEATHER CONDITIONS AT THE TIME OF THE SHOT, MAKING PARTICULAR REFERENCE TO CLOUD CONDITIONS AND TEMPERATURE, AND RELATIVE HUMIDITY RANGE.
 - SHOT LOCATION (STATIONING AND SKETCH), DATE AND TIME OF DAY OF THE SHOT. NUMBER OF HOLES, BURDEN, AND PATTERN. DIAMETER AND DEPTH OF HOLES.
 - SPECIFICATIONS OF EXPLOSIVES BEING USED, WHETHER IN PRODUCTION HOLES OR IN PRE SPLIT PORTIONS OF THE SHOT, OR BOTH. TOTAL WEIGHT OF EXPLOSIVES USED. MAXIMUM WEIGHT OF EXPLOSIVES PER DELAY.
 - SKETCH OF THE WIRING CIRCUIT USED, TYPE OF CAPS AND DELAY PERIOD USED.
 - DEPTH OF SAND BLANKET OR EXTENT OF BLASTING MAT, IF USED.
 - SEISMOGRAPH OUTPUT (INCHES/SECOND) OF EACH BLAST.
 - SEISMOGRAPH MAKE, MODEL AND SERIAL NUMBER, LOCATION AND DISTANCE (IN FEET) FROM SHOT.
 - REVIEW OF CONTRACTOR'S SUBMITTALS BY THE ENGINEER WILL NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITIES FOR THE ACCURACY, ADEQUACY, AND SAFETY OF BLASTING. THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR THE SAFETY OF ALL PERSONS AND PROPERTY DURING THE PERFORMANCE OF THE WORK.
57. THE CONTRACTOR SHALL RETAIN AND PAY FOR ANY INDEPENDENT SEISMIC CONSULTANT FOR MONITORING NOISE AND VIBRATION IF AND WHEN REQUESTED BY ADJACENT UTILITY OWNERS. THE CONTRACTOR SHALL SUBMIT A QUALIFICATIONS PACKAGE FOR THE SELECTED SEISMIC CONSULTANT FOR REVIEW AND APPROVAL BY THE ENGINEER AND UTILITY OWNER(S).

BLASTING NOTES (CONT.)

58. WHEN THE USE OF EXPLOSIVES IS NECESSARY FOR THE PROSECUTION OF THE WORK, THE CONTRACTOR SHALL EXERCISE THE UTMOST CARE NOT TO ENDANGER LIFE OR PROPERTY, INCLUDING NEW WORK. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL DAMAGE RESULTING FROM THE USE OF EXPLOSIVES.
59. NOTIFICATION:
- THE BRANDON FIRE CHIEF, OR HIS AUTHORIZED REPRESENTATIVE, SHALL BE NOTIFIED DAILY OF SCHEDULED BLASTS. ALL PERSONS WITHIN THE DANGER ZONE OF BLASTING OPERATIONS SHALL BE WARNED AND NO BLASTING SHALL BE DONE UNTIL THE ZONE IS CLEARED. SUFFICIENT FLAGGERS SHALL BE STATIONED OUTSIDE THE DANGER ZONE TO STOP ALL APPROACHING TRAFFIC DURING BLASTING OPERATIONS.
 - WRITTEN NOTICE OF THE BLASTING OPERATIONS SHALL BE GIVEN TO ALL PARTIES OWNING OR OPERATING SUBSURFACE UTILITIES 72 HOURS BEFORE COMMENCING BLASTING OPERATIONS. IN AREAS WHERE ROCK IS TO BE EXCAVATED AND UTILITIES OR STRUCTURES ARE SUBJECT TO STRUCTURAL OR ARCHITECTURAL DAMAGE, CONTROLLED BLASTING METHODS AND BLAST MONITORING MAY BE NECESSARY.
60. BLASTING CRITERIA: THE MAXIMUM PEAK PARTICLE VELOCITY (PPV) AS MEASURED AT THE CLOSEST STRUCTURE SHALL NOT EXCEED THE FOLLOWING:
- 12.5 mm/SECOND (0.5 INCHES/SECOND) FOR FREQUENCIES LESS THAN 20 HZ;
 - 25 mm/SECOND (1.0 INCHES/SECOND) FOR FREQUENCIES BETWEEN 20 AND 40 HZ;
 - 50 mm/SECOND (2.0 INCHES/SECOND) FOR FREQUENCIES GREATER THAN 40 HZ. THE MAXIMUM PPV SHALL CONSIST OF THE VECTOR SUM OF THE THREE PERPENDICULAR AXES PPV AT AN INSTANT IN TIME SELECTED TO YIELD THE MAXIMUM VALUE FROM THE BLAST RECORD.
61. PROSECUTION:
- CONDUCT BLASTING WITH A MINIMUM OF EXPLOSIVES AND SO AS TO LEAVE THE ROCK NOT TO BE EXCAVATED UNSHATTERED. TAKE CARE TO AVOID CRACKING ROCK ON WHICH ANY STRUCTURE WILL BE BUILT AND TO PREVENT INJURY TO EXISTING STRUCTURES. ROCK SHALL BE WELL COVERED WITH MATS.
 - ALL BLASTING SHALL BE COMPLETED WITHIN A DISTANCE OF 20 m BEFORE ANY PORTION OF NEW WORK IS INSTALLED OR ANY PIPE IS LAID.
 - EXPLOSIVES SHALL BE USED ONLY DURING DAYLIGHT HOURS, SHALL BE HANDLED ONLY BY COMPETENT WORKMEN, AND PARTICULAR CARE SHALL BE TAKEN TO ENSURE THAT NO UNEXPLODED CHARGES REMAIN IN THE WORK.
 - BLASTING OPERATIONS SHALL BE PERFORMED IN A MANNER WHICH WILL MINIMIZE NOISE AND VIBRATIONS. THE CONTRACTOR SHALL USE BLASTING PROCEDURES, COVERS (IN EXPOSED AREAS), PROVIDE EFFECTIVE SUPPRESSION OF NOISE AND VIBRATION, AND EMPLOY OTHER ABATEMENT MEASURES NECESSARY FOR THE PROTECTION OF EMPLOYEES AND THE PUBLIC.
62. AFTER INITIAL BLASTING, WHETHER FROM GROUND SURFACE OR WITHIN THE EXCAVATION, ALL LOOSE ROCK SHOULD BE COMPLETELY REMOVED. IF LOOSE ROCK IS OBSERVED BEHIND OR BENEATH A LATERAL SUPPORT WALL, THAT LOOSE ROCK SHALL BE REMOVED, AND MEASURES TAKEN TO PROTECT THE SAFETY OF THE EXCAVATION AND MINIMIZE ASSOCIATED GROUND LOSS FROM THE SURROUNDING AREA.
63. IF ROCK IS EXCAVATED BEYOND THE LIMITS OF PAYMENT, THE EXCESS EXCAVATION SHALL BE BACKFILLED AND COMPACTED WITH ITEM 203.31, "SAND BORROW" AT NO ADDITIONAL COST TO THE OWNER.



PROJECT NAME: BRANDON
PROJECT NUMBER: BHF 019-3(58)

FILE NAME: z10b358notes.dgn	PLOT DATE: 12/19/2017
PROJECT LEADER: J. BYATT	DRAWN BY: M. SMITH
DESIGNED BY: A. GIRALDI	CHECKED BY: S. BEAUMONT
PROJECT NOTES SHEET 3	SHEET 10 OF 79



QUANTITY SHEET 1



SUMMARY OF ESTIMATED QUANTITIES												TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
								ROADWAY	EROSION CONTROL	FULL C.E. ITEMS	BRIDGE 114	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
								680				680		CM	COMMON EXCAVATION	203.15	6.6			EARTHWORK SUMMARY
											10	10		CM	SOLID ROCK EXCAVATION (LEDGE REMOVAL)	203.16	EST.	680	CM	COMMON EXCAVATION
								120				120		CM	SOLID ROCK EXCAVATION (PORTLAND CEMENT CONCRETE REMOVAL)	203.16	EST.	60	CM	TRENCH EXCAVATION OF EARTH (ASSUME 75% SUITABLE)
								90				90		CM	SAND BORROW	203.31	4	15	CM	TRENCH EXCAVATION OF ROCK (ASSUME 75% SUITABLE)
								80				80		CM	TRENCH EXCAVATION OF EARTH	204.20	2.9	123	CM	STRUCTURE EXCAVATION (ASSUME 75% SUITABLE)
								20				20		CM	TRENCH EXCAVATION OF ROCK	204.21	3.3	878	CM	TOTAL FILL AVAILABLE
								1				1		CM	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22	-	0	CM	TOTAL FILL REQUIRED (INCLUDING 1.15 FILL FACTOR)
											163	163		CM	STRUCTURE EXCAVATION	204.25	0.59	878	CM	TOTAL WASTE
								5			74	79		CM	GRANULAR BACKFILL FOR STRUCTURES	204.30	1.21			SUPERPAVE BITUMINOUS CONCRETE PAVEMENT
								300				300		SM	COLD PLANING, BITUMINOUS PAVEMENT	210.10	5.6			US ROUTE 7
								400				400		CM	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35	2.6	234.0	TON	TYPE IS
								145				145		KG	EMULSIFIED ASPHALT	404.65	5.5	92.0	TON	TYPE IIIS
								1				1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50	-			WEST SEMINARY STREET
								380				380		T	SUPERPAVE BITUMINOUS CONCRETE PAVEMENT	490.30	3			
								1				1		LU	AIR VOIDS PAY ADJUSTMENT (N.A.B.I.)	490.31	-			
								1				1		LU	MAT DENSITY PAY ADJUSTMENT (N.A.B.I.)	490.32	-			
								1				1		LU	SURFACE TOLERANCE PAY ADJUSTMENT (N.A.B.I.)	490.33	-			
											59	59		CM	CONCRETE, HIGH PERFORMANCE CLASS B	501.34	0.25			
											1	1		LS	SHORING SUPERSTRUCTURE	502.10	-			
											3380	3380		KG	REINFORCING STEEL, LEVEL I	507.11	0.7			
											4	4		M	DRILLING AND GROUTING DOWELS	507.16	0.4			
											44	44		L	WATER REPELLENT, SILANE	514.10	0.4			
											3	3		M	BRIDGE RAILING, GALVANIZED 3 RAIL BOX BEAM (COATED BLACK)	525.335	-			
											15	15		M	BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION (COATED BLACK)	525.45	1			
											1	1		EACH	REMOVAL OF STRUCTURE (26 SM)	529.15	-			
											1	1		EACH	PARTIAL REMOVAL OF STRUCTURE	529.20	-			
											5	5		CM	REMOVAL OF CONCRETE OR MASONRY	529.25	EST.			
											8	8		EACH	BEARING DEVICE ASSEMBLY, PLAIN ELASTOMERIC PAD	531.16	-			
											5	5		SM	REPAIR OF CONCRETE SUPERSTRUCTURE SURFACE, CLASS II	580.11	EST.			
											1	1		CM	REPAIR OF CONCRETE SUPERSTRUCTURE SURFACE, CLASS III	580.12	EST.			
											6	6		SM	REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS II	580.14	EST.			
								15				15		M	450 CPEP(SL)	601.2615	0.6			
											82	82		SM	REPOINTING MASONRY	602.30	EST.			
											5	5		CM	REBUILT STONE MASONRY	602.35	EST.			
											21	21		SM	REPAIRING STONE MASONRY	602.40	EST.			
								1				1		EACH	PRECAST REINFORCED CONCRETE CATCH BASIN WITH CAST IRON GRATE (1.5 DIA.)	604.20	-			
								2				2		EACH	CHANGING ELEVATION OF DROP INLETS, CATCH BASINS, OR MANHOLES	604.40	-			
								1				1		EACH	CHANGING ELEVATION OF SEWER MANHOLES	604.42	-			
								40				40		M	200 MM UNDERDRAIN PIPE	605.11	0.9			

PROJECT NAME: BRANDON
PROJECT NUMBER: BHF 019-3(58)

FILE NAME: z10b358qss.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: A. GIRALDI
QUANTITY SHEET 1

PLOT DATE: 12/19/2017
DRAWN BY: M. SMITH
CHECKED BY: S. BEAUMONT
SHEET 11 OF 79



QUANTITY SHEET 2



SUMMARY OF ESTIMATED QUANTITIES												TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
								ROADWAY	EROSION CONTROL	FULL C.E. ITEMS	BRIDGE 114	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
								32				32		HR	ALL PURPOSE EXCAVATOR RENTAL, TYPE I	608.25	EST.			
								2				2		HR	POWER BROOM RENTAL, TYPE II	608.31	EST.			
								110				110		CM	DUST CONTROL WITH WATER	609.10	EST.			
											14	14		CM	STONE FILL, TYPE III	613.12	0.7			
								40				40		M	VERTICAL GRANITE CURB	616.21	1.3			
								28				28		M	CAST-IN-PLACE CONCRETE CURB, TYPE B	616.28	1.6			
								5.5				5.5		T	BITUMINOUS CONCRETE SIDEWALK (50 MM)	618.15	0.4			
								0.7				0.7		SM	DETECTABLE WARNING SURFACE	618.30	-			
								9				9		M	REMOVING AND RESETING FENCE	620.50	0.6			
								260				260		HR	UNIFORMED TRAFFIC OFFICERS	630.10	EST.			
								1000				1000		HR	FLAGGERS	630.15	EST.			
										1		1		LS	FIELD OFFICE, ENGINEERS	631.10	-			
										1		1		LS	TESTING EQUIPMENT, CONCRETE	631.16	-			
										1		1		LS	TESTING EQUIPMENT, BITUMINOUS	631.17	-			
										3000		3000		DL	FIELD OFFICE TELEPHONE (N.A.B.I.)	631.26	-			
								1				1		LS	MOBILIZATION/DEMOBILIZATION	635.11	-			
								4				4		EACH	PORTABLE CHANGEABLE MESSAGE SIGN	641.15	-			
								155				155		M	DURABLE 100 MM WHITE LINE, POLYUREA	646.404	4.6			
								135				135		M	DURABLE 100 MM YELLOW LINE, POLYUREA	646.414	3			
								4				4		M	DURABLE 600 MM STOP BAR, POLYUREA	646.484	0.7			
								4				4		EACH	DURABLE LETTER OR SYMBOL, POLYUREA	646.494	-			
								35				35		M	DURABLE CROSSWALK MARKING, POLYUREA	646.504	0.2			
								155				155		M	TEMPORARY 100 MM WHITE LINE	646.600	4.6			
								135				135		M	TEMPORARY 100 MM YELLOW LINE	646.610	3			
								4				4		M	TEMPORARY 600 MM STOP BAR	646.680	0.7			
								4				4		EACH	TEMPORARY LETTER OR SYMBOL	646.690	-			
								35				35		M	TEMPORARY CROSSWALK MARKING	646.700	0.2			
								130				130		EACH	LINE STRIPING TARGETS	646.76	3			
								200				200		SM	GEOTEXTILE FOR UNDERDRAIN TRENCH LINING	649.41	0.6			
									25			25		SM	GEOTEXTILE FOR SILT FENCE	649.51	1			
									2			2		KG	SEED	651.15	-			
									7			7		KG	FERTILIZER	651.18	0.7			
									0.1			0.1		T	AGRICULTURAL LIMESTONE	651.20	0.06			
									0.1			0.1		T	HAY MULCH	651.25	0.06			
								15				15		CM	TOPSOIL	651.35	4			
									1			1		LS	EPSC PLAN	652.10	-			
									50			50		HR	MONITORING EPSC PLAN	652.20	EST.			
									1			1		LU	MAINTENANCE OF EPSC PLAN (N.A.B.I.)	652.30	-			
									12			12		EACH	INLET PROTECTION DEVICE, TYPE I	653.40	-			
									1			1		EACH	FILTER BAG	653.45	-			



QUANTITY SHEET 3

[illegible]

GENERAL INFORMATION

SYMBOLGY LEGEND NOTE

THE SYMBOLGY ON THIS SHEET IS INTENDED TO COVER STANDARD CONVENTIONAL SYMBOLGY. THE SYMBOLGY IS USED FOR EXISTING & PROPOSED FEATURES WITH HEAVIER LINEWEIGHT, IN COMBINATION WITH PROJECT ANNOTATION, AS NOTED ON PROJECT PLAN SHEETS. THIS LEGEND SHEET COVERS THE BASICS. SYMBOLGY ON PLANS MAY VARY, PLAN ANNOTATIONS AND NOTES SHOULD BE USED TO CLARIFY AS NEEDED.

R.O.W. ABBREVIATIONS (CODES) & SYMBOLS

POINT	CODE	DESCRIPTION
	CH	CHANNEL EASEMENT
	CONST	CONSTRUCTION EASEMENT
	CUL	CULVERT EASEMENT
	D&C	DISCONNECT & CONNECT
	DIT	DITCH EASEMENT
	DR	DRAINAGE EASEMENT
	DRIVE	DRIVEWAY EASEMENT
	EC	EROSION CONTROL
	HWY	HIGHWAY EASEMENT
	I&M	INSTALL & MAINTAIN EASEMENT
	LAND	LANDSCAPE EASEMENT
	R&RES	REMOVE & RESET
	R&REP	REMOVE & REPLACE
	SR	SLOPE RIGHT
	UE	UTILITY EASEMENT
	(P)	PERMANENT EASEMENT
	(T)	TEMPORARY EASEMENT
■	BDNS	BOUND SET
▣	BDNS	BOUND TO BE SET
●	IPNS	IRON PIN SET
◎	IPNS	IRON PIN TO BE SET
⊠	CALC	EXISTING ROW POINT
○	PROW	PROPOSED ROW POINT
[LENGTH]		LENGTH CARRIED ON NEXT SHEET

COMMON TOPOGRAPHIC POINT SYMBOLS

POINT	CODE	DESCRIPTION
⊕	APL	BOUND APPARENT LOCATION
▣	BM	BENCHMARK
▣	BND	BOUND
▣	CB	CATCH BASIN
⊕	COMB	COMBINATION POLE
▣	DITHR	DROP INLET THROATED DNC
⊕	EL	ELECTRIC POWER POLE
⊙	FPOLE	FLAGPOLE
⊙	GASFIL	GAS FILLER
⊙	GP	GUIDE POST
⊗	GSO	GAS SHUT OFF
⊙	GUY	GUY POLE
⊙	GUYW	GUY WIRE
⊗	GV	GATE VALUE
⊕	H	TREE HARDWOOD
△	HCTRL	CONTROL HORIZONTAL
△	HVCTRL	CONTROL HORIZ. & VERTICAL
⊕	HYD	HYDRANT
⊙	IP	IRON PIN
⊙	IPIPE	IRON PIPE
⊕	LI	LIGHT - STREET OR YARD
⊕	MB	MAILBOX
⊙	MH	MANHOLE (MH)
▣	MM	MILE MARKER
⊙	PM	PARKING METER
▣	PMK	PROJECT MARKER
⊙	POST	POST STONE/WOOD
⊕	RRSIG	RAILROAD SIGNAL
⊕	RRSL	RAILROAD SWITCH LEVER
⊕	S	TREE SOFTWOOD
⊕	SAT	SATELLITE DISH
⊕	SHRUB	SHRUB
⊕	SIGN	SIGN
⊕	STUMP	STUMP
⊕	TEL	TELEPHONE POLE
⊙	TIE	TIE
⊕	TSIGN	SIGN W/DOUBLE POST
⊕	VCTRL	CONTROL VERTICAL
⊙	WELL	WELL
⊗	WSO	WATER SHUT OFF

THESE ARE COMMON VAOT SURVEY POINT SYMBOLS FOR EXISTING FEATURES, ALSO USED FOR PROPOSED FEATURES WITH HEAVIER LINEWEIGHT, IN COMBINATION WITH PROPOSED ANNOTATION.

PROPOSED GEOMETRY CODES

CODE	DESCRIPTION
PC	POINT OF CURVATURE
PI	POINT OF INTERSECTION
CC	CENTER OF CURVE
PT	POINT OF TANGENCY
PCC	POINT OF COMPOUND CURVE
PRC	POINT OF REVERSE CURVE
POB	POINT OF BEGINNING
POE	POINT OF ENDING
STA	STATION PREFIX
AH	AHEAD STATION SUFFIX
BK	BACK STATION SUFFIX
D	CURVE DEGREE OF (100FT)
R	CURVE RADIUS OF
T	CURVE TANGENT LENGTH
L	CURVE LENGTH OF
E	CURVE EXTERNAL DISTANCE

UTILITY SYMBOLGY

UNDERGROUND UTILITIES	
_____	UTILITY (GENERIC-UNKNOWN)
— UT —	TELEPHONE
— UE —	ELECTRIC
— UTV —	CABLE (TV)
_____	ELECTRIC+CABLE
_____	ELECTRIC+TELEPHONE
_____	CABLE+TELEPHONE
_____	ELECTRIC+CABLE+TELEP.
— G —	GAS LINE
— W —	WATER LINE
— S —	SANITARY SEWER (SEPTIC)
ABOVE GROUND UTILITIES (AERIAL)	
_____	UTILITY (GENERIC-UNKNOWN)
— T —	TELEPHONE
— E —	ELECTRIC
_____	CABLE (TV)
_____	ELECTRIC+CABLE
_____	ELECTRIC+TELEPHONE
_____	ELECTRIC+TELEPHONE
_____	CABLE+TELEPHONE
_____	ELECTRIC+CABLE+TELEP.
_____	UTILITY POLE GUY WIRE

PROJECT CONSTRUCTION SYMBOLGY

PROJECT DESIGN & LAYOUT SYMBOLGY	
----- CZ -----	CLEAR ZONE
=====	PLAN LAYOUT MATCHLINE

PROJECT CONSTRUCTION FEATURES	
△-----△-----△-----△	TOP OF CUT SLOPE
○-----○-----○-----○	TOE OF FILL SLOPE
⊗ ⊗ ⊗ ⊗ ⊗ ⊗	STONE FILL
-----	BOTTOM OF DITCH
=====	CULVERT PROPOSED
=====	STRUCTURE SUBSURFACE
PDF-----PDF-----PDF-----	PROJECT DEMARCATION FENCE
=====	BARRIER FENCE
=====	TREE PROTECTION ZONE (TPZ)
//////////	STRIPING LINE REMOVAL
=====	SHEET PILES

CONVENTIONAL BOUNDARY SYMBOLGY

BOUNDARY LINES	
-----	TOWN BOUNDARY LINE
-----	COUNTY BOUNDARY LINE
-----	STATE BOUNDARY LINE
-----	PROPOSED STATE R.O.W. (LIMITED ACCESS)
-----	PROPOSED STATE R.O.W.
-----	STATE ROW (LIMITED ACCESS)
-----	STATE ROW
-----	TOWN ROW
-----	PERMANENT EASEMENT LINE (P)
-----	TEMPORARY EASEMENT LINE (T)
-----	SURVEY LINE
-----	PROPERTY LINE (P/L)
△ SR ○ SR △ SR ○	SLOPE RIGHTS
-----	6F PROPERTY BOUNDARY
-----	4F PROPERTY BOUNDARY
HAZ-----HAZ-----HAZ-----HAZ	HAZARDOUS WASTE

EPSC LAYOUT PLAN SYMBOLGY

EPSC MEASURES	
ONNOONNOONNO	FILTER CURTAIN
-----	SILT FENCE
-----	SILT FENCE WOVEN WIRE
-----	CHECK DAM
-----	DISTURBED AREAS
-----	REQUIRING RE-VEGETATION
-----	EROSION MATTING

SEE EPSC DETAIL SHEETS FOR ADDITIONAL SYMBOLGY

ENVIRONMENTAL RESOURCES

-----	WETLAND BOUNDARY
-----	RIPARIAN BUFFER ZONE
-----	WETLAND BUFFER ZONE
-----	SOIL TYPE BOUNDARY
----- T&E -----	THREATENED & ENDANGERED SPECIES
HAZ-----HAZ-----	HAZARDOUS WASTE AREA
----- AG -----	AGRICULTURAL LAND
----- HABITAT -----	FISH & WILDLIFE HABITAT
----- FLOOD PLAIN -----	FLOOD PLAIN
----- OHW -----	ORDINARY HIGH WATER (OHW)
-----	STORM WATER
-----	USDA FOREST SERVICE LANDS
-----	WILDLIFE HABITAT SUIT/CONN

ARCHEOLOGICAL & HISTORIC

----- ARCH -----	ARCHEOLOGICAL BOUNDARY
----- HISTORIC DIST -----	HISTORIC DISTRICT BOUNDARY
----- HISTORIC -----	HISTORIC AREA
Ⓜ	HISTORIC STRUCTURE

CONVENTIONAL TOPOGRAPHIC SYMBOLGY

EXISTING FEATURES	
-----	ROAD EDGE PAVEMENT
-----	ROAD EDGE GRAVEL
-----	DRIVEWAY EDGE
-----	DITCH
-----	FOUNDATION
-----	FENCE (EXISTING)
-----	FENCE WOOD POST
-----	FENCE STEEL POST
-----	GARDEN
-----	ROAD GUARDRAIL
=====	RAILROAD TRACKS
-----	CULVERT (EXISTING)
-----	STONE WALL
-----	WALL
-----	WOOD LINE
-----	BRUSH LINE
-----	HEDGE
-----	BODY OF WATER EDGE
-----	LEDGE EXPOSED

PROJECT NAME:	BRANDON
PROJECT NUMBER:	BHF 019-3(58)
FILE NAME: z10b358frm.dgn	PLOT DATE: 12/19/2017
PROJECT LEADER: J. BYATT	DRAWN BY: S. GOODWIN
DESIGNED BY: M. HALEY	CHECKED BY: D. MUNRO
CONVENTIONAL SYMBOLGY LEGEND SHEET	SHEET 14 OF 79

HVCTRL #1

Standard Disk Stamped

Lawes Az Mk
NORTH = 145296.511
EAST = 451771.328
ELEV. = 128.496

GENERAL LOCATION, BRANDON, VT. TO REACH FROM THE INTERSECTION OF U.S. ROUTE 7 AND VT ROUTE 73 WEST AT THE NORTH END OF BRANDON VILLAGE GO NORTH ALONG U.S. ROUTE 7 FOR 0.5 MI (0.8 KM) TO THE INTERSECTION OF STEINBERG ROAD LEFT AND THE MARK ON THE LEFT IN THE NORTHWEST QUADRANT OF THE INTERSECTION. THE MARK IS SET FLUSH WITH GROUND SURFACE IN THE TOP OF A 0.3 M (1.0 FT) X 0.3 M (1.0 FT) ROCK OUTCROP. IT IS 11.8 M (38.7 FT) WEST SOUTHWEST OF AND ABOUT 1.2 M (3.9 FT) LOWER THAN THE CENTERLINE OF U.S. ROUTE 7, 17.9 M (58.7 FT) NORTH OF THE CENTERLINE OF STEINBERG ROAD, 9.0 M (29.5 FT) EAST OF THE MOST EASTERLY OF THREE 1 CM SPRUCES, AND 9.3 M (30.5 FT) NORTHEAST OF POLE NO.16-1 AND A FIBERGLASS WITNESS POST.

HVCTRL #2

Standard Disk Stamped

Lawes
NORTH = 144536.590
EAST = 452253.941
ELEV. = 126.319

GENERAL LOCATION, BRANDON, VT. TO REACH FROM THE INTERSECTION OF U.S. ROUTE 7 AND VT ROUTE 73 WEST AT THE NORTH END OF BRANDON VILLAGE GO SOUTH ALONG U.S. ROUTE 7 FOR ABOUT 40 M (131.2 FT) TO THE INTERSECTION OF PEARL STREET RIGHT. TURN RIGHT AND GO SOUTHWEST ALONG PEARL STREET FOR ABOUT 70 M (229.7 FT) TO THE SITE OF MARK ON THE LEFT IN A GRASS STRIP BETWEEN PEARL STREET AND THE BRICK OTTER VALLEY GROCERY STORE. IT IS ABOUT OPPOSITE THE MOST SOUTHWESTERLY POINT OF A TRIANGULAR SHAPED TOWN PARK. THE MARK IS SET 3 CM BELOW GROUND SURFACE IN THE TOP OF A 30 CM DIAMETER CONCRETE MONUMENT. IT IS 5.1 M (16.7 FT) SOUTHEAST OF AND ABOUT LEVEL WITH THE CENTERLINE OF PEARL STREET, 10.8 M (35.4 FT) NORTHWEST OF THE WEST CORNER OF THE BRICK OTTER VALLEY GROCERY STORE, 25.7 M (84.3 FT) SOUTHWEST OF THE NORTH CORNER OF THE STORE, 9.8 M (32.2 FT) WEST OF A 60 CM MAPLE, AND 16.0 M (52.5 FT) SOUTHWEST OF POLE NO.3/6 AND A FIBERGLASS WITNESS POST.

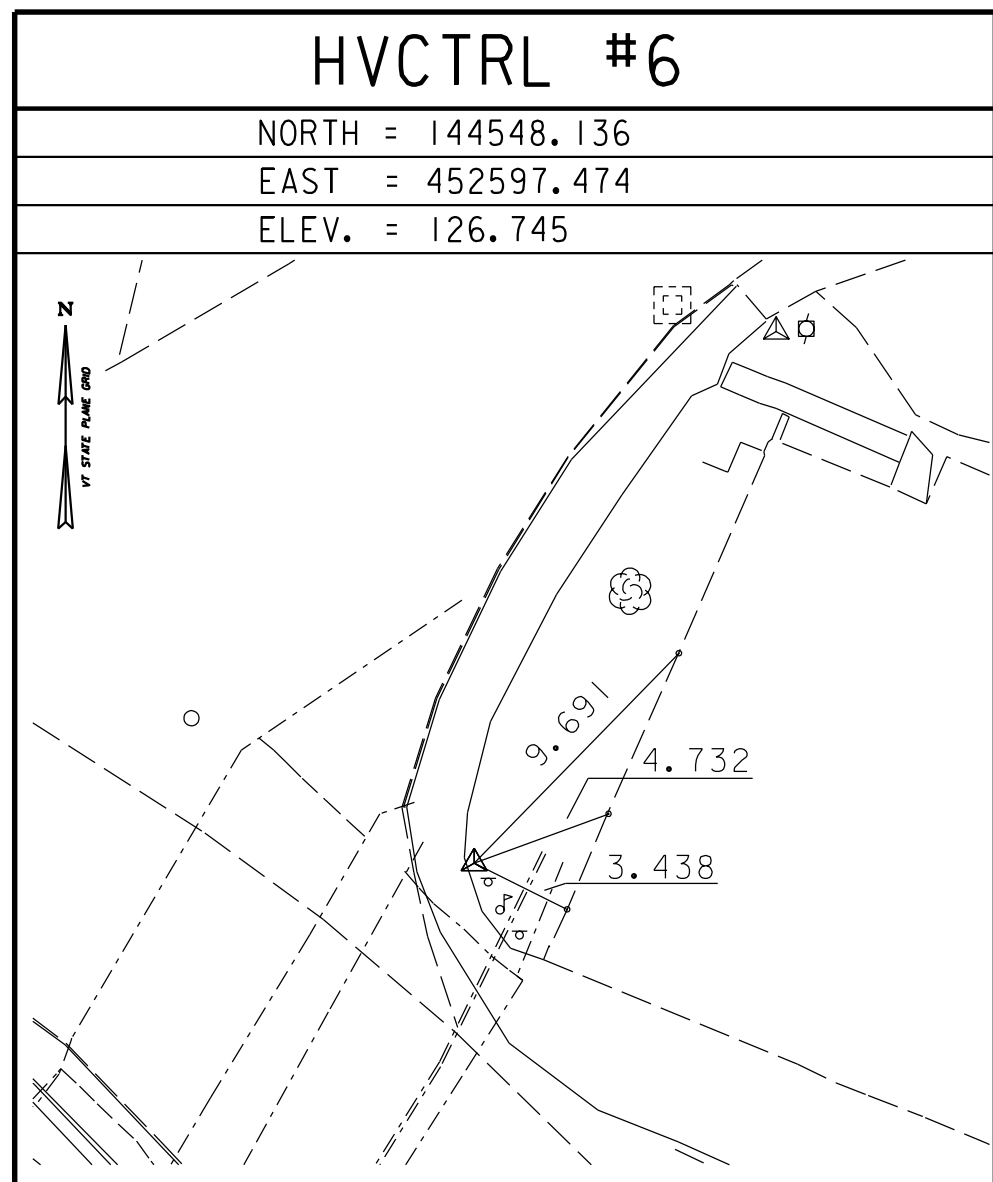
HVCTRL #12

Standard Disk Stamped

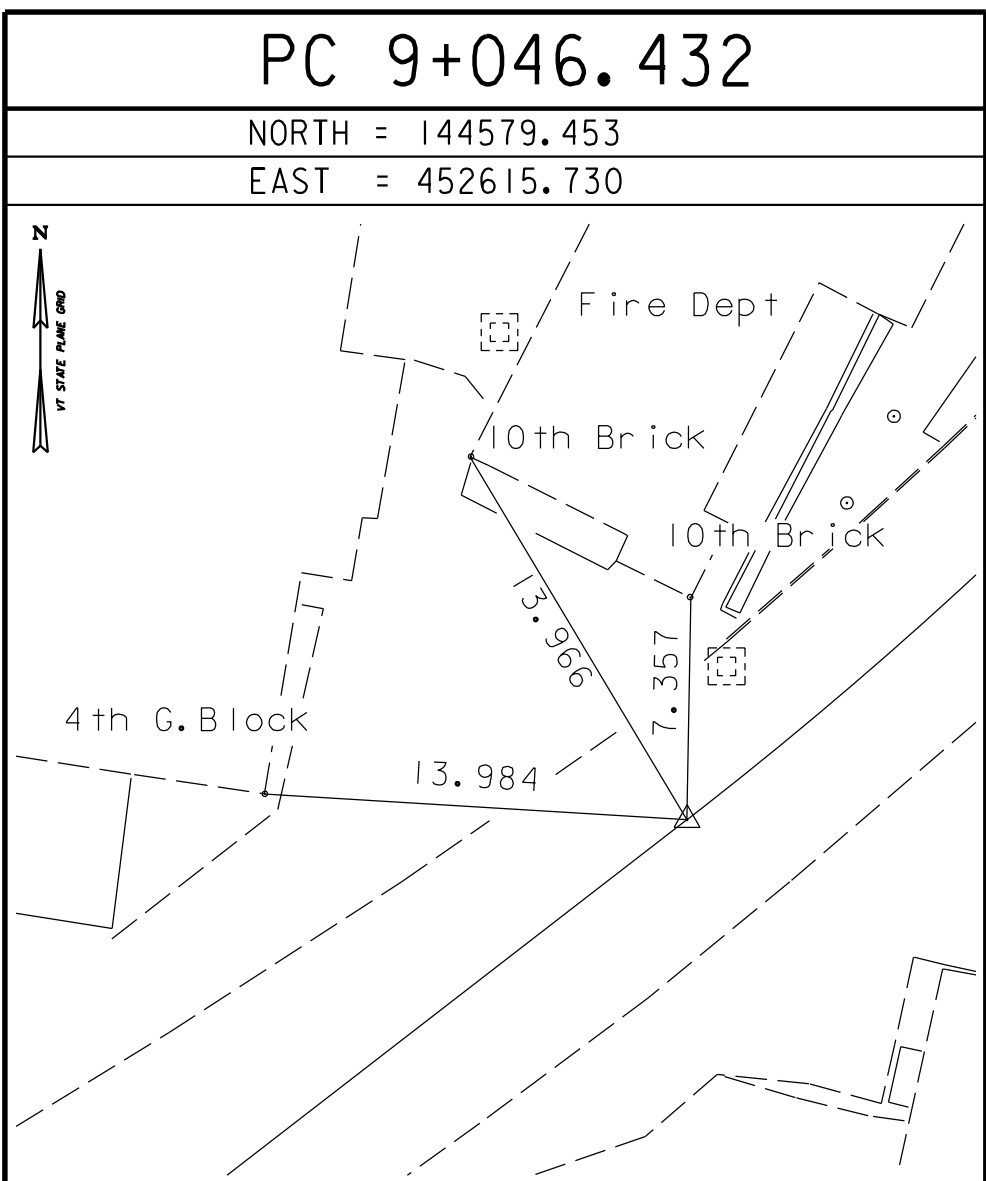
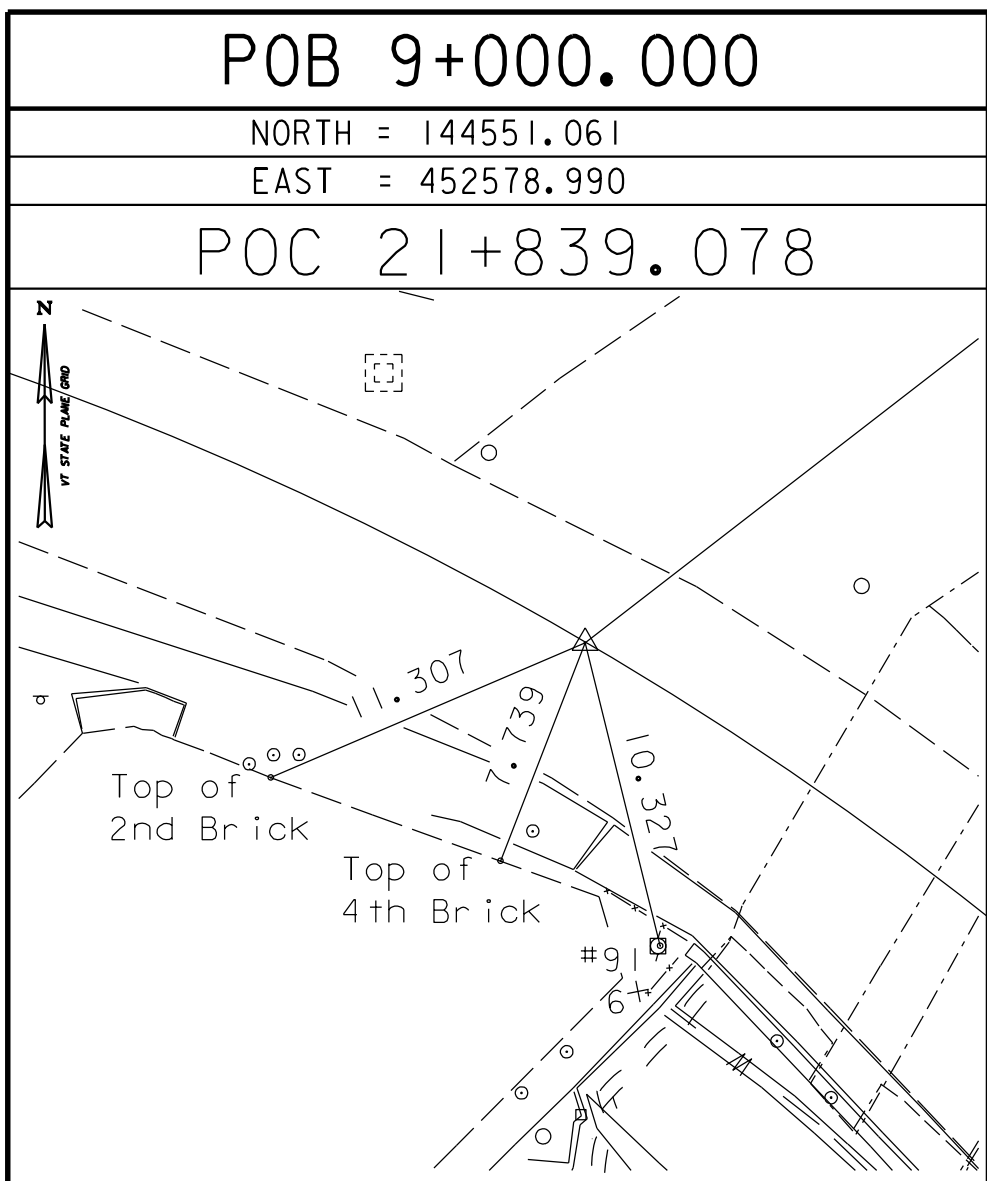
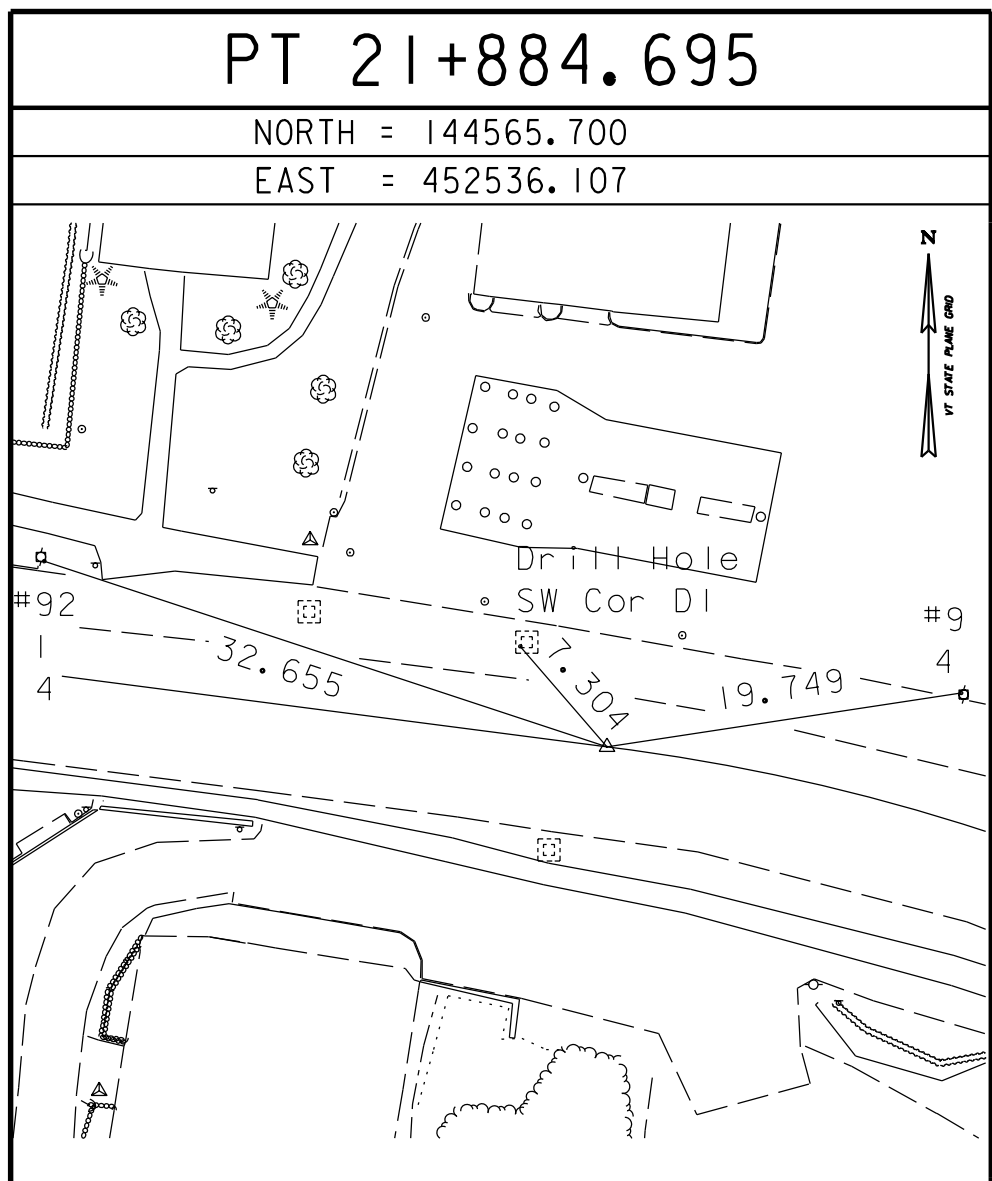
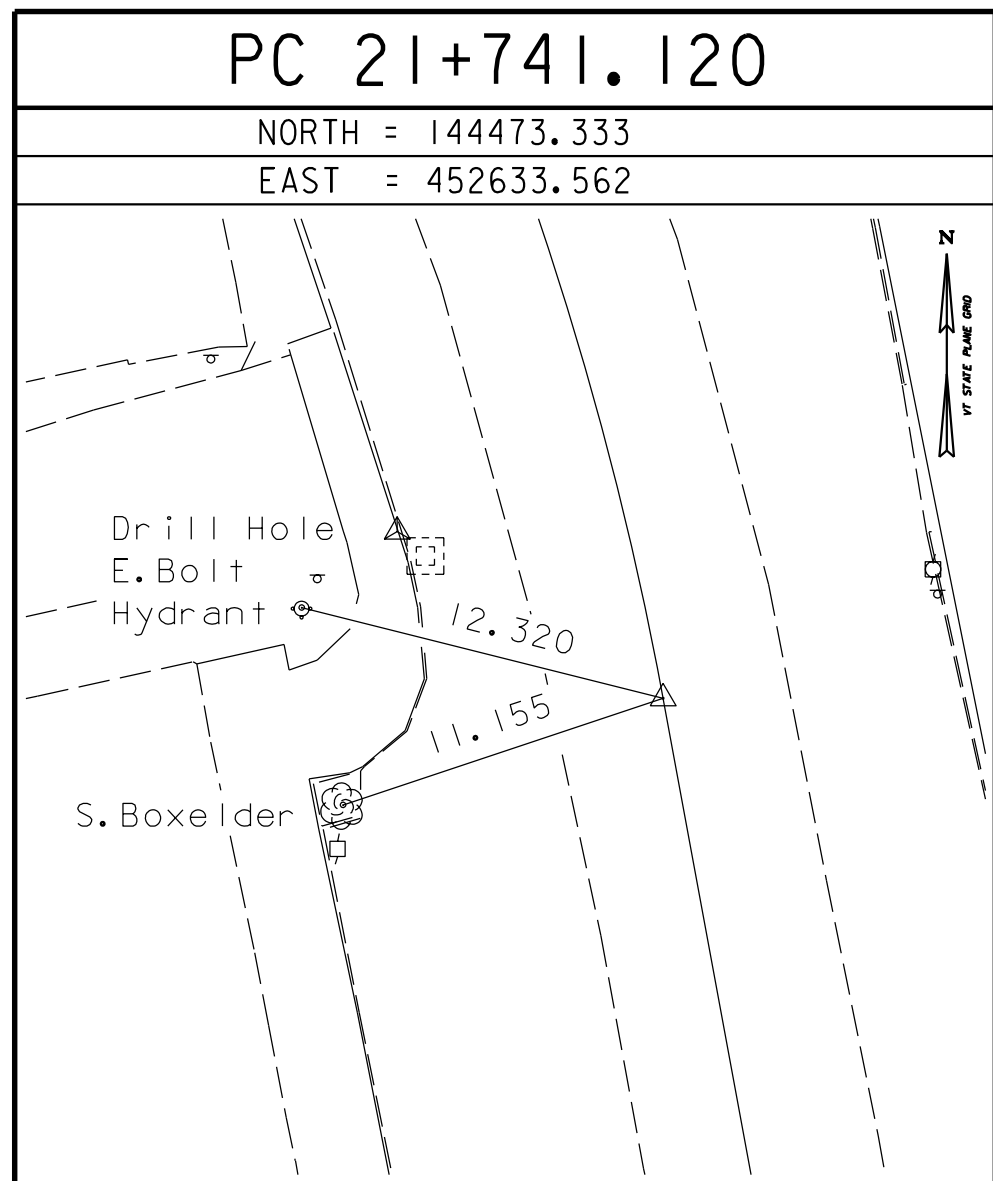
GRIFFIN AZ MK
NORTH = 143797.385
EAST = 453448.005
ELEV. = 153.690

TO REACH FROM THE INTERSECTION OF U.S.ROUTE 7 AND VT ROUTE 73 EAST IN BRANDON VILLAGE GO SOUTH ALONG U.S.ROUTE 7 FOR 0.5 MI (0.8 KM) TO THE MARK ON THE LEFT BETWEEN THE BRANDON AMERICAN LEGION POST AND THE SUSAN HAYDEN VETERINARY OFFICE. THE MARK IS SET FLUSH WITH GROUND SURFACE IN THE TOP OF A MASSIVE SLOPING ROCK OUTCROP ON THE WEST EDGE OF AN OLD QUARRY HOLE. IT IS 28.4 M (93.2 FT) EAST OF AND ABOUT 1.5 M (4.9 FT) HIGHER THAN THE CENTERLINE OF U.S.ROUTE 7, 5.3 M (17.4 FT) NORTH OF THE NORTHEAST CORNER OF THE VETERINARY OFFICE, 6.4 M (21.0 FT) NORTHEAST OF THE NORTHWEST CORNER OF THE OFFICE, 39.5 M (129.6 FT) SOUTH OF THE SOUTHWEST CORNER OF THE AMERICAN LEGION POST, 1.4 M (4.6 FT) WEST OF THE WEST FACE OF A STONE BLOCK WALL ON THE WEST EDGE OF THE QUARRY HOLE, AND 0.6 M (2.0 FT) WEST OF A FIBERGLASS WITNESS POST.

• Description provided by Vermont Agency of Transportation Geodetic Survey Unit



* Main Traverse Completed 05/04/99 by L.Orvis P.C. & J. Hulett & G. Wilson



* Alignment Staked 08/22/03 by L/ Orvis P.C. & J. Hulett & B. Farley

NOTE: ALL TIE DISTANCES ARE IN METERS



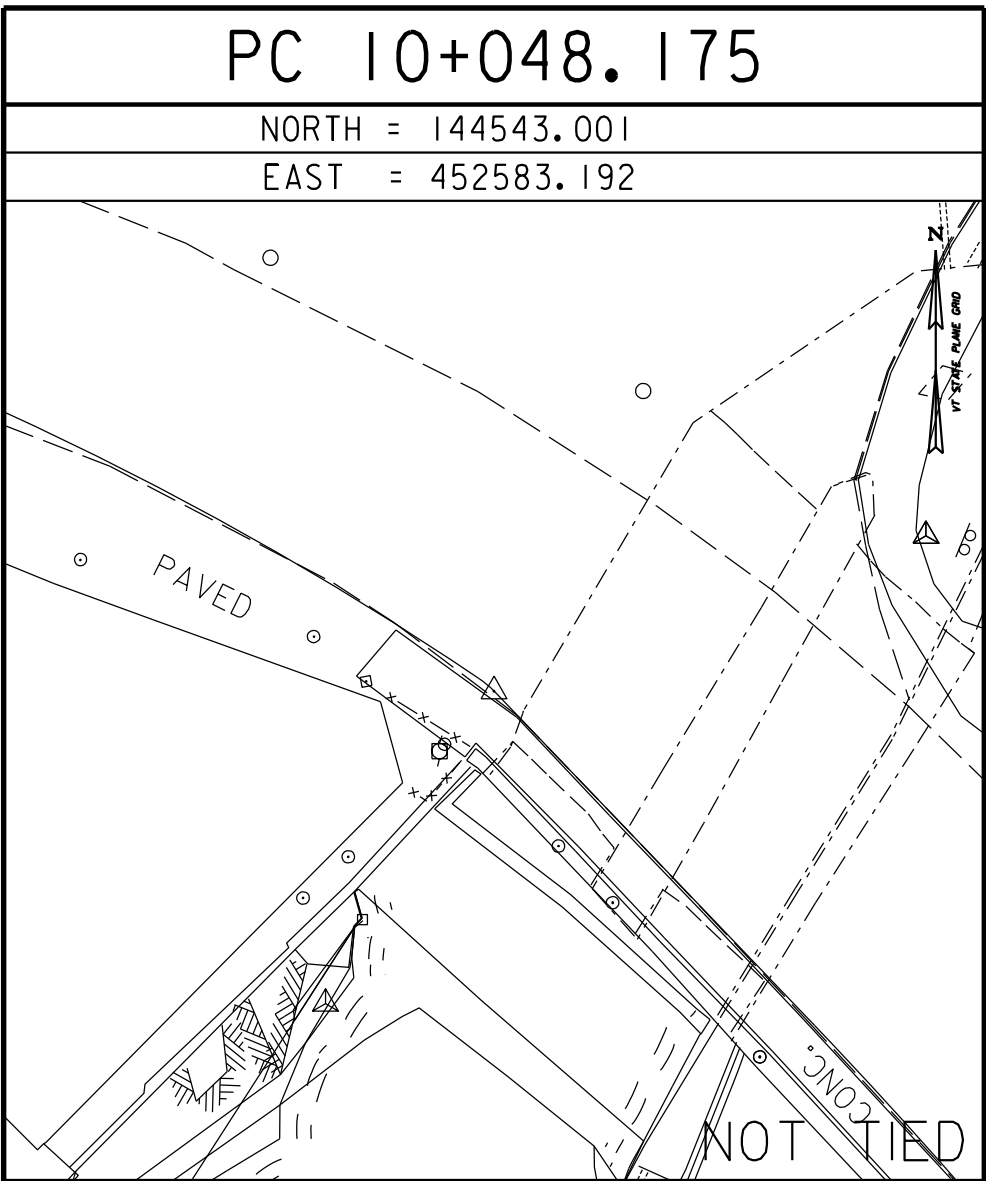
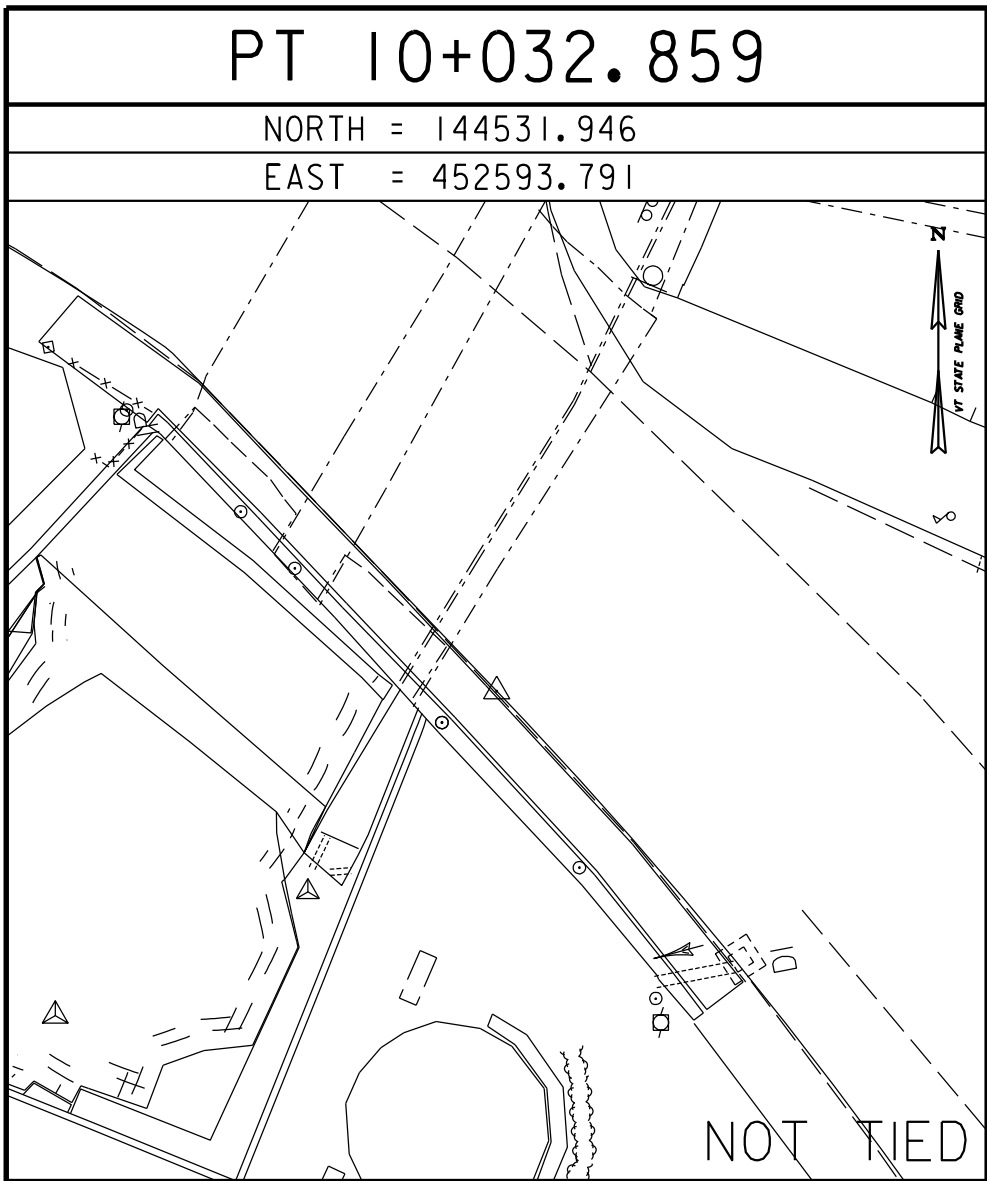
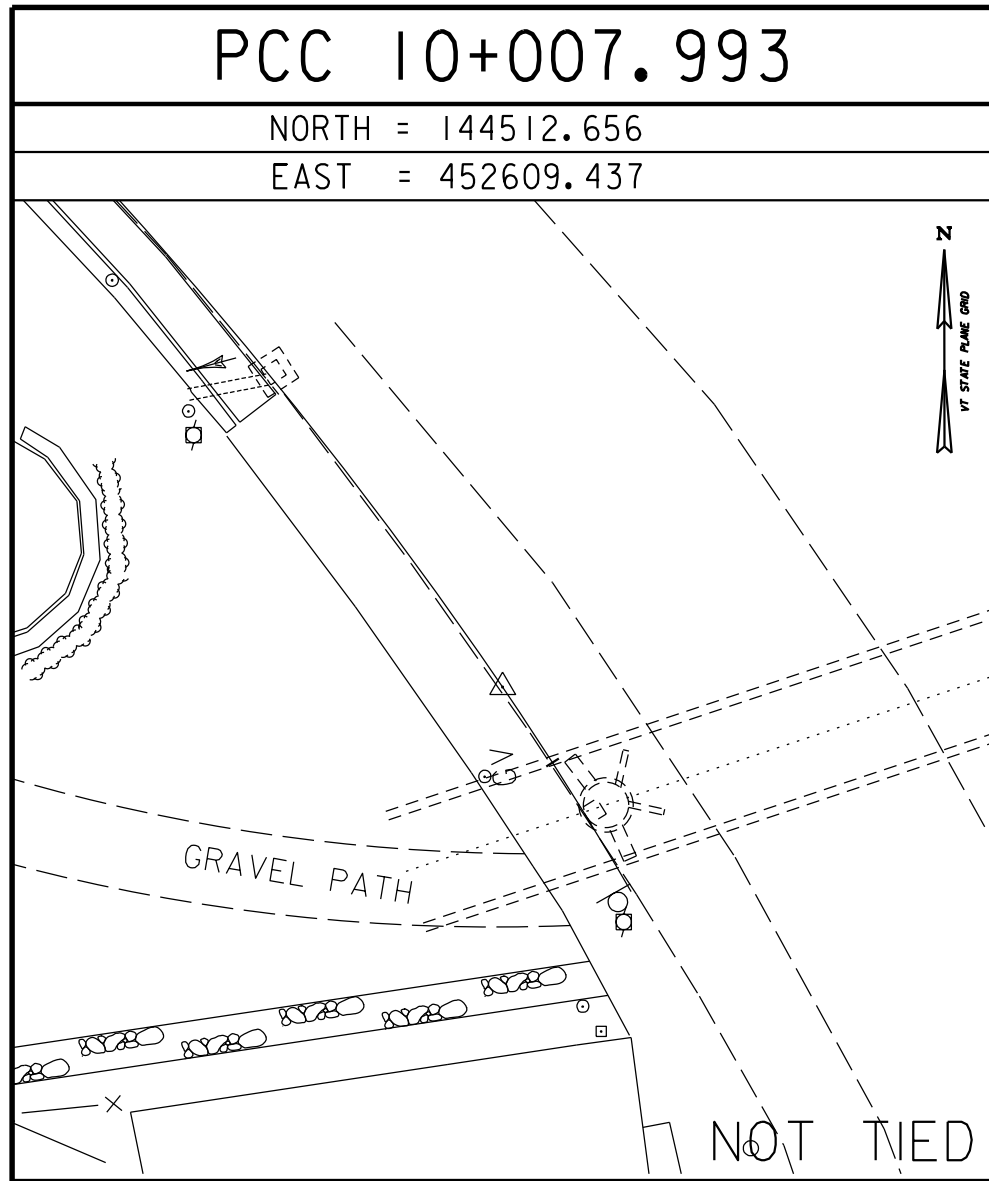
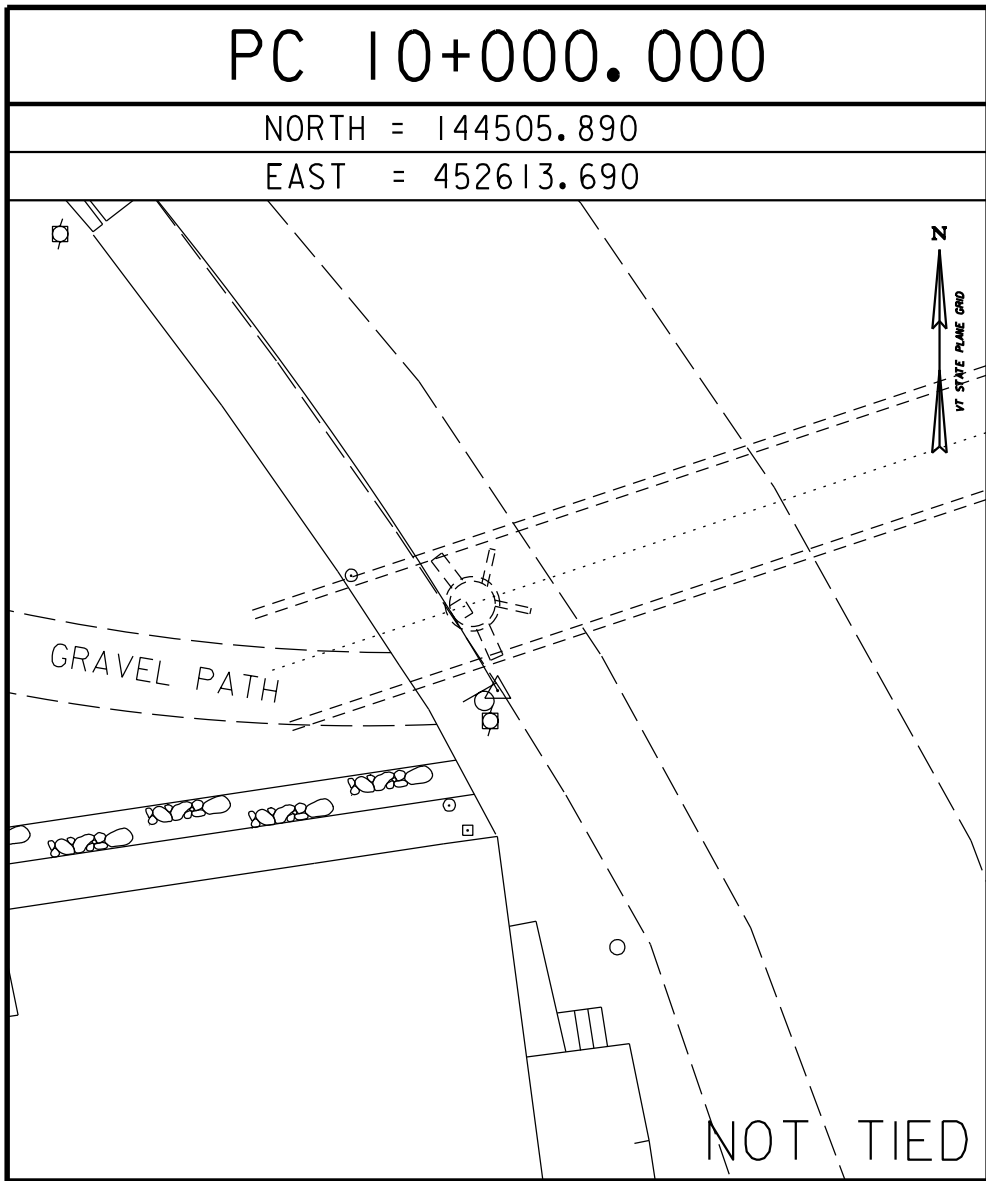
PROJECT NAME: BRANDON
PROJECT NUMBER: BHF 019-3(58)

FILE NAME: z10b358+1e.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: M. HALEY
TIE SHEET 1

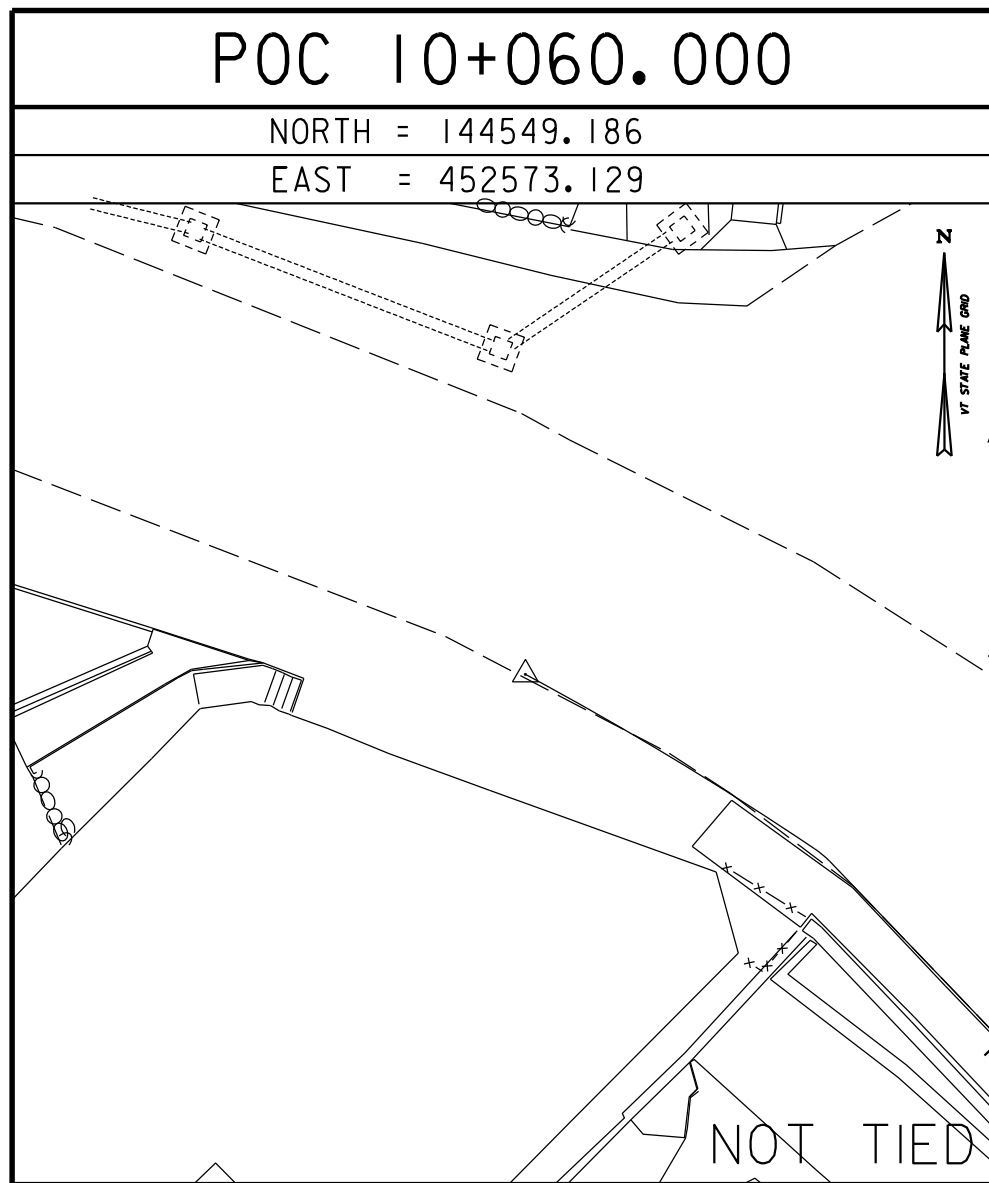
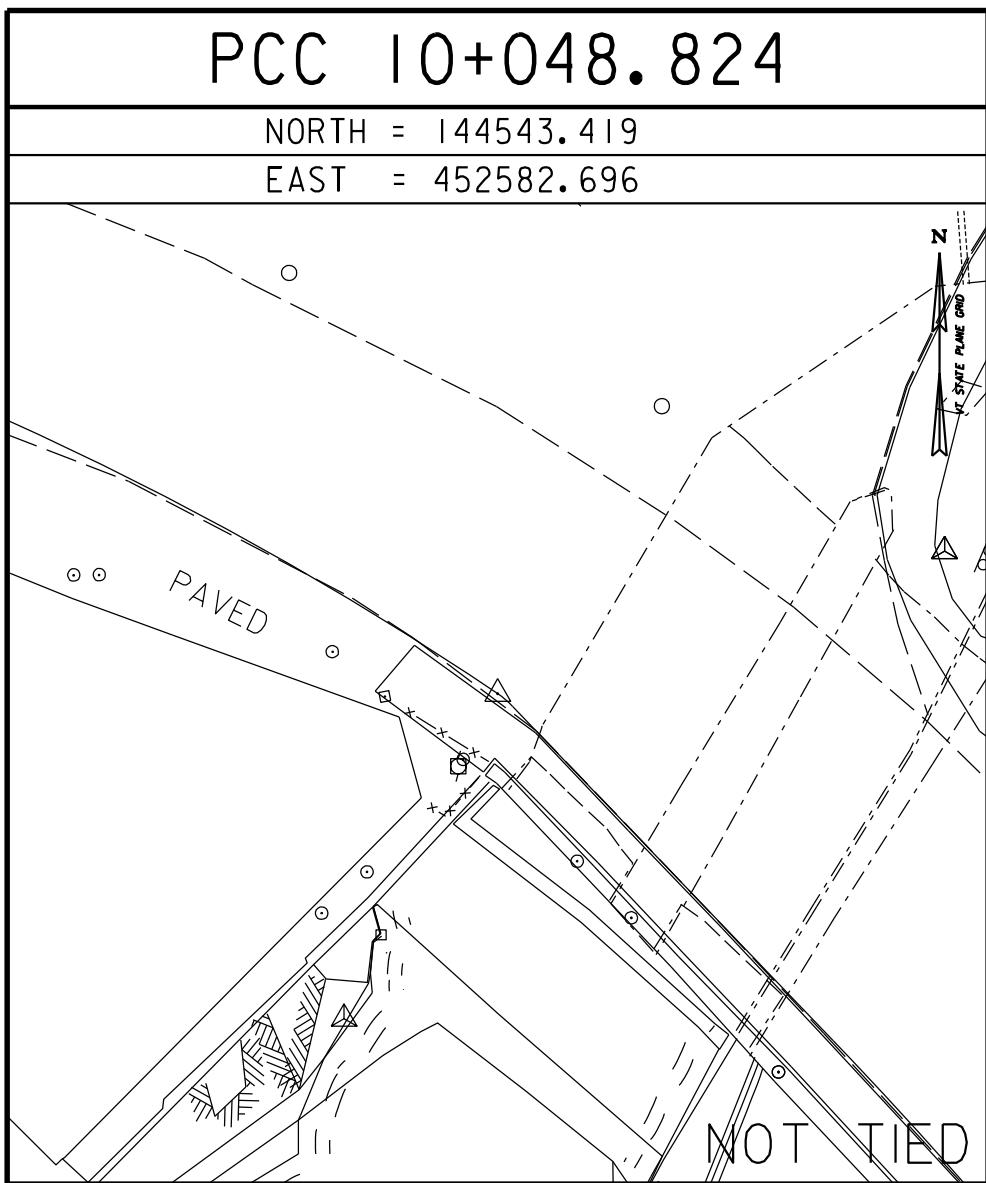
PLOT DATE: 12/19/2017
DRAWN BY: S. GOODWIN
CHECKED BY: D. MUNRO
SHEET 15 OF 79



ALIGNMENT TIES

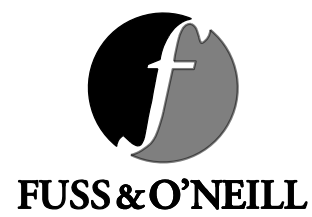


ALIGNMENT TIES



ALIGNMENT TIES

NOTE: ALL TIE DISTANCES ARE IN METERS



PROJECT NAME: BRANDON
PROJECT NUMBER: BHF 019-3(58)

FILE NAME: z10b358tie.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: M. HALEY
TIE SHEET 2

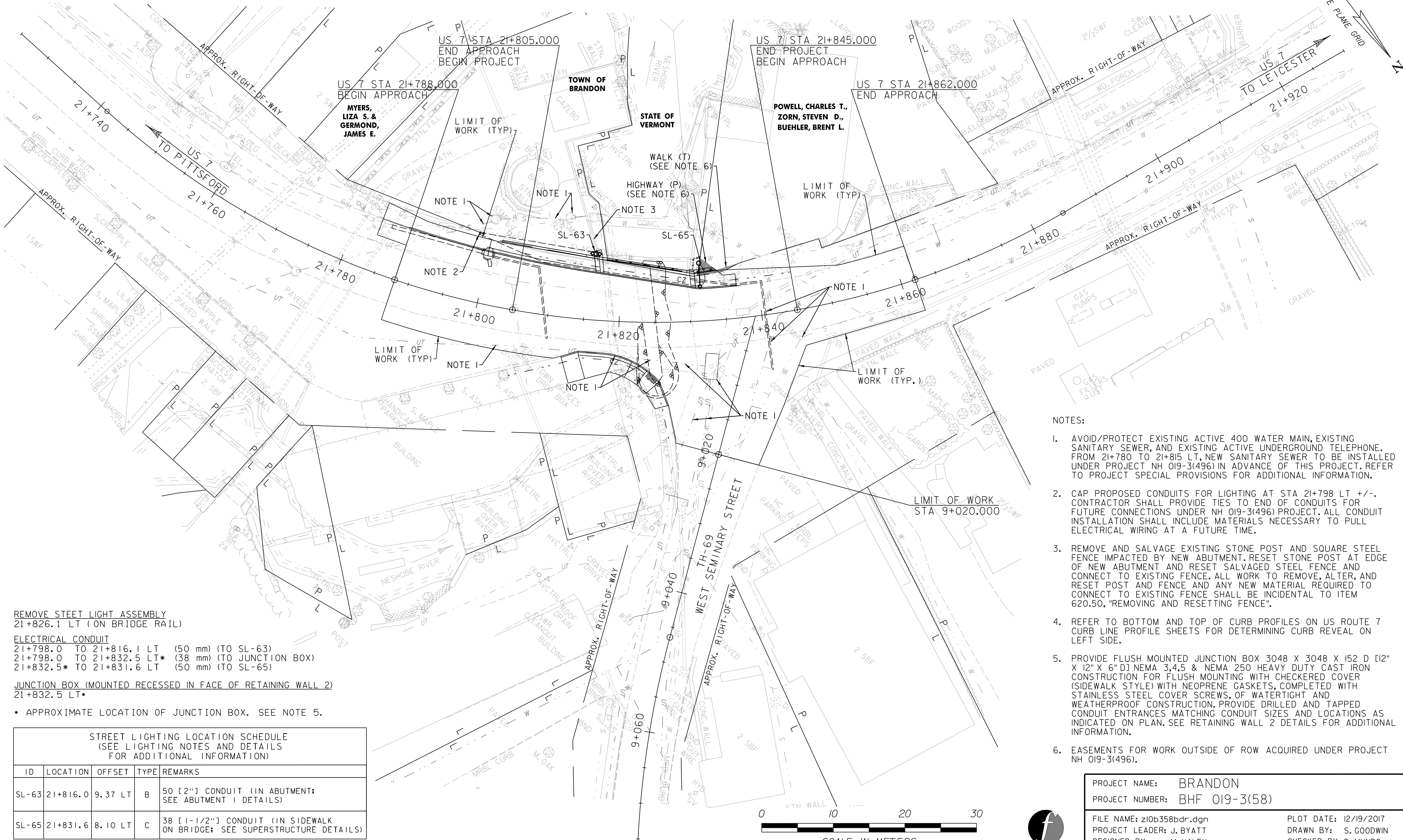
PLOT DATE: 12/19/2017
DRAWN BY: S. GOODWIN
CHECKED BY: D. MUNRO
SHEET 16 OF 79

VERTICAL GRANITE CURB
21+787.6 TO 21+816.3 LT (SEE NOTE 4)
21+812.4 TO 21+814.7 RT
21+830.9 TO 21+836.9 LT (SEE NOTE 4)
9+012.3 TO 9+015.2 RT
SPECIAL PROVISION (FIBER REINFORCED
PORTLAND CEMENT CONCRETE SIDEWALK, 200 mm)
21+800.0 TO 21+816.3 LT
21+814.7 TO 9+012.3 RT (INCL. TYPE 6 SIDEWALK RAMP)
21+830.9 TO 21+836.9 LT (1:12 RAMP TO XWALK LANDING)

BITUMINOUS CONCRETE SIDEWALK, 50 mm
21+783.5 TO 21+800.0 LT
21+812.4 TO 21+814.7 RT
9+012.3 TO 9+015.2 RT
CAST-IN-PLACE
CONCRETE CURB, TYPE B
21+814.7 TO 9+012.3 RT
21+816.3 TO 21+830.9 LT (SEE NOTE 4)
STONE FILL, TYPE III
GEOTEXTILE UNDER STONE FILL
21+820.8 TO 21+826.9 LT & RT

SPECIAL PROVISION (BRICK PAVING)
21+800.0 TO 21+816.3 LT (BRICK BANDING)
21+814.7 TO 21+823.9 RT (BRICK BANDING)
DETECTABLE WARNING SURFACE (YELLOW)
21+824.8 RT
REMOVAL OF EXISTING HAND RAILING
21+830.6 TO 21+834.2 LT
(BACK OF SWLK; INCIDENTAL TO STRUCTURE EXCAVATION)
REMOVING & RESETTING FENCE
21+815.9 TO 21+816.3 LT (ORNAMENTAL SQUARE STEEL FENCE)
21+830.6 TO 21+831.6 LT (CHAIN-LINK FENCE)

SPECIAL PROVISION
(BRIDGE RAILING, TEXAS)
21+801.7 TO 21+815.9 LT (SEE RAIL LAYOUT)
BRIDGE RAILING,
GALVANIZED STEEL TUBING/CONCRETE COMBINATION
(COATED BLACK)
21+815.9 TO 21+830.8 LT (SEE RAIL LAYOUT)
BRIDGE RAILING,
GALVANIZED 3 RAIL BOX BEAM
(COATED BLACK)
21+830.8 TO 21+834.0 LT (SEE RAIL LAYOUT)

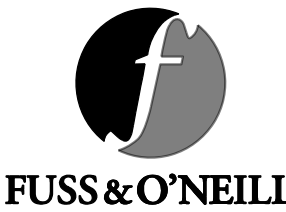


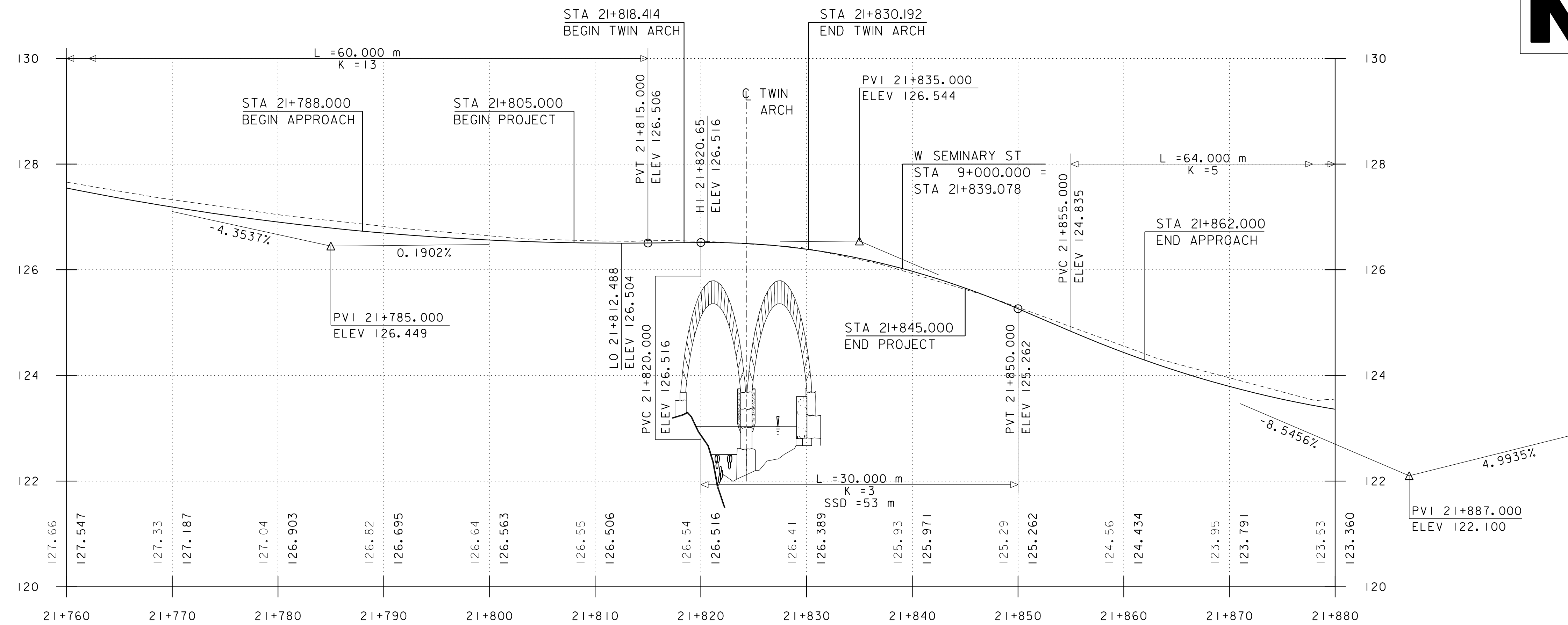
- NOTES:
- AVOID/PROTECT EXISTING ACTIVE 400 WATER MAIN, EXISTING SANITARY SEWER, AND EXISTING ACTIVE UNDERGROUND TELEPHONE. FROM 21+780 TO 21+815 LT, NEW SANITARY SEWER TO BE INSTALLED UNDER PROJECT NH 019-3(496) IN ADVANCE OF THIS PROJECT. REFER TO PROJECT SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.
 - CAP PROPOSED CONDUITS FOR LIGHTING AT STA 21+798 LT +/- . CONTRACTOR SHALL PROVIDE TIES TO END OF CONDUITS FOR FUTURE CONNECTIONS UNDER NH 019-3(496) PROJECT. ALL CONDUIT INSTALLATION SHALL INCLUDE MATERIALS NECESSARY TO PULL ELECTRICAL WIRING AT A FUTURE TIME.
 - REMOVE AND SALVAGE EXISTING STONE POST AND SQUARE STEEL FENCE IMPACTED BY NEW ABUTMENT. RESET STONE POST AT EDGE OF NEW ABUTMENT AND RESET SALVAGED STEEL FENCE AND CONNECT TO EXISTING FENCE. ALL WORK TO REMOVE, ALTER, AND RESET POST AND FENCE AND ANY NEW MATERIAL REQUIRED TO CONNECT TO EXISTING FENCE SHALL BE INCIDENTAL TO ITEM 620.50, "REMOVING AND RESETTING FENCE".
 - REFER TO BOTTOM AND TOP OF CURB PROFILES ON US ROUTE 7 CURB LINE PROFILE SHEETS FOR DETERMINING CURB REVEAL ON LEFT SIDE.
 - PROVIDE FLUSH MOUNTED JUNCTION BOX 3048 X 3048 X 152 D [12" X 12" X 6" D] NEMA 3, 4, 5 & NEMA 250 HEAVY DUTY CAST IRON CONSTRUCTION FOR FLUSH MOUNTING WITH CHECKERED COVER (SIDEWALK STYLE) WITH NEOPRENE GASKETS, COMPLETED WITH STAINLESS STEEL COVER SCREWS, OF WATERTIGHT AND WEATHERPROOF CONSTRUCTION. PROVIDE DRILLED AND TAPPED CONDUIT ENTRANCES MATCHING CONDUIT SIZES AND LOCATIONS AS INDICATED ON PLAN. SEE RETAINING WALL 2 DETAILS FOR ADDITIONAL INFORMATION.
 - EASEMENTS FOR WORK OUTSIDE OF ROW ACQUIRED UNDER PROJECT NH 019-3(496).

REMOVE STEET LIGHT ASSEMBLY
21+826.1 LT (ON BRIDGE RAIL)
ELECTRICAL CONDUIT
21+798.0 TO 21+816.1 LT (50 mm) (TO SL-63)
21+798.0 TO 21+832.5 LT* (38 mm) (TO JUNCTION BOX)
21+832.5* TO 21+831.6 LT (50 mm) (TO SL-65)
JUNCTION BOX (MOUNTED RECESSED IN FACE OF RETAINING WALL 2)
21+832.5 LT*
• APPROXIMATE LOCATION OF JUNCTION BOX. SEE NOTE 5.

STREET LIGHTING LOCATION SCHEDULE (SEE LIGHTING NOTES AND DETAILS FOR ADDITIONAL INFORMATION)				
ID	LOCATION	OFFSET	TYPE	REMARKS
SL-63	21+816.0	9.37 LT	B	50 [2"] CONDUIT (IN ABUTMENT; SEE ABUTMENT 1 DETAILS)
SL-65	21+831.6	8.10 LT	C	38 [1-1/2"] CONDUIT (IN SIDEWALK ON BRIDGE; SEE SUPERSTRUCTURE DETAILS)

PROJECT NAME: BRANDON
PROJECT NUMBER: BHF 019-3(58)
FILE NAME: z10b358bdr.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: M. HALEY
ROADWAY LAYOUT SHEET
PLOT DATE: 12/19/2017
DRAWN BY: S. GOODWIN
CHECKED BY: D. MUNRO
SHEET 18 OF 79



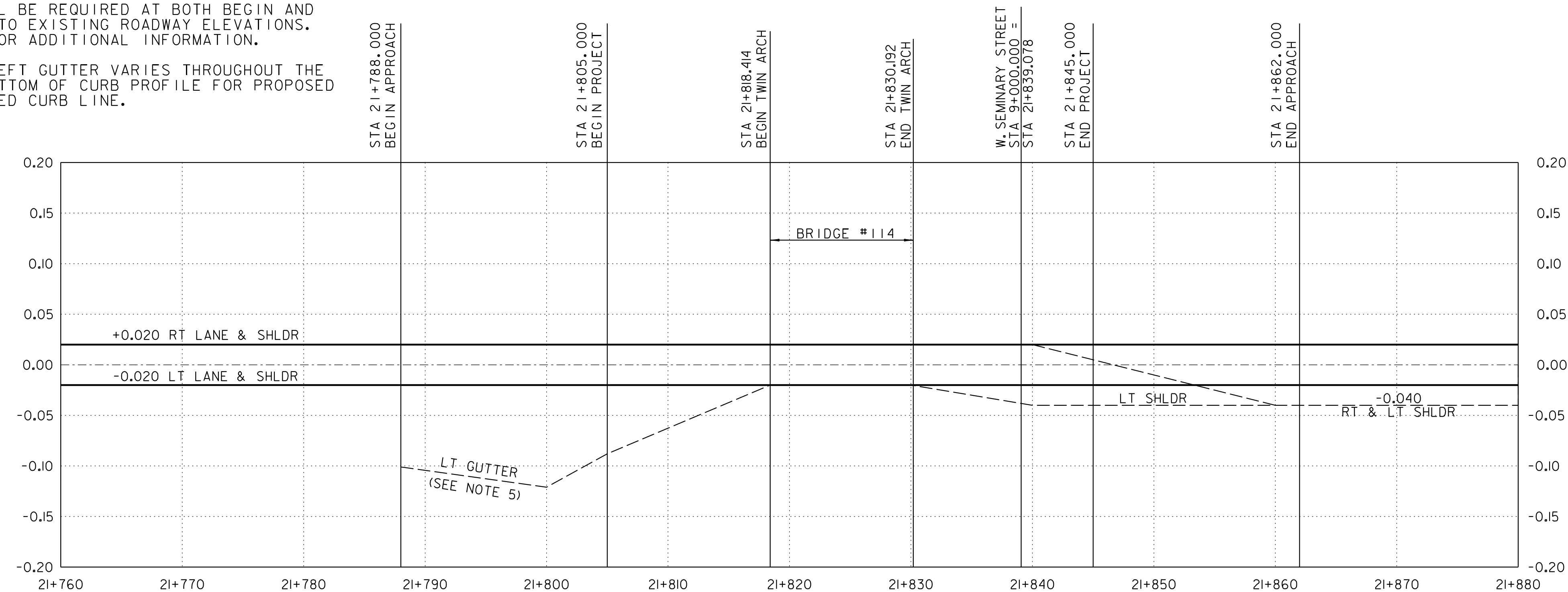


US ROUTE 7 PROFILE

HOR. SCALE = 1:250
VERT. SCALE = 1:50

NOTES:

1. THE ELEVATIONS SHOWN TO THE NEAREST HUNDREDTH ARE FOR EXISTING GROUND ALONG THE CENTERLINE.
2. THE ELEVATIONS SHOWN TO THE NEAREST THOUSANDTH ARE FOR FINISHED GRADE ALONG THE CENTERLINE.
3. THE PROPOSED ELEVATIONS AND CURVE INFORMATION SHOWN BEYOND THE LIMITS OF THIS PROJECT ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY. THE NH 019-3 (496) PROJECT WILL CONSTRUCT FEATURES OUTSIDE THE LIMITS OF THE BHF 019-3 (58) PROJECT.
4. A TEMPORARY WEDGE OF PAVEMENT WILL BE REQUIRED AT BOTH BEGIN AND END APPROACH STATIONS TO MATCH INTO EXISTING ROADWAY ELEVATIONS. SEE MATERIAL TRANSITION DIAGRAM FOR ADDITIONAL INFORMATION.
5. THE PROPOSED CROSS SLOPE OF THE LEFT GUTTER VARIES THROUGHOUT THE PROJECT LIMITS. SEE US ROUTE 7 BOTTOM OF CURB PROFILE FOR PROPOSED ELEVATIONS ALONG BOTTOM OF PROPOSED CURB LINE.



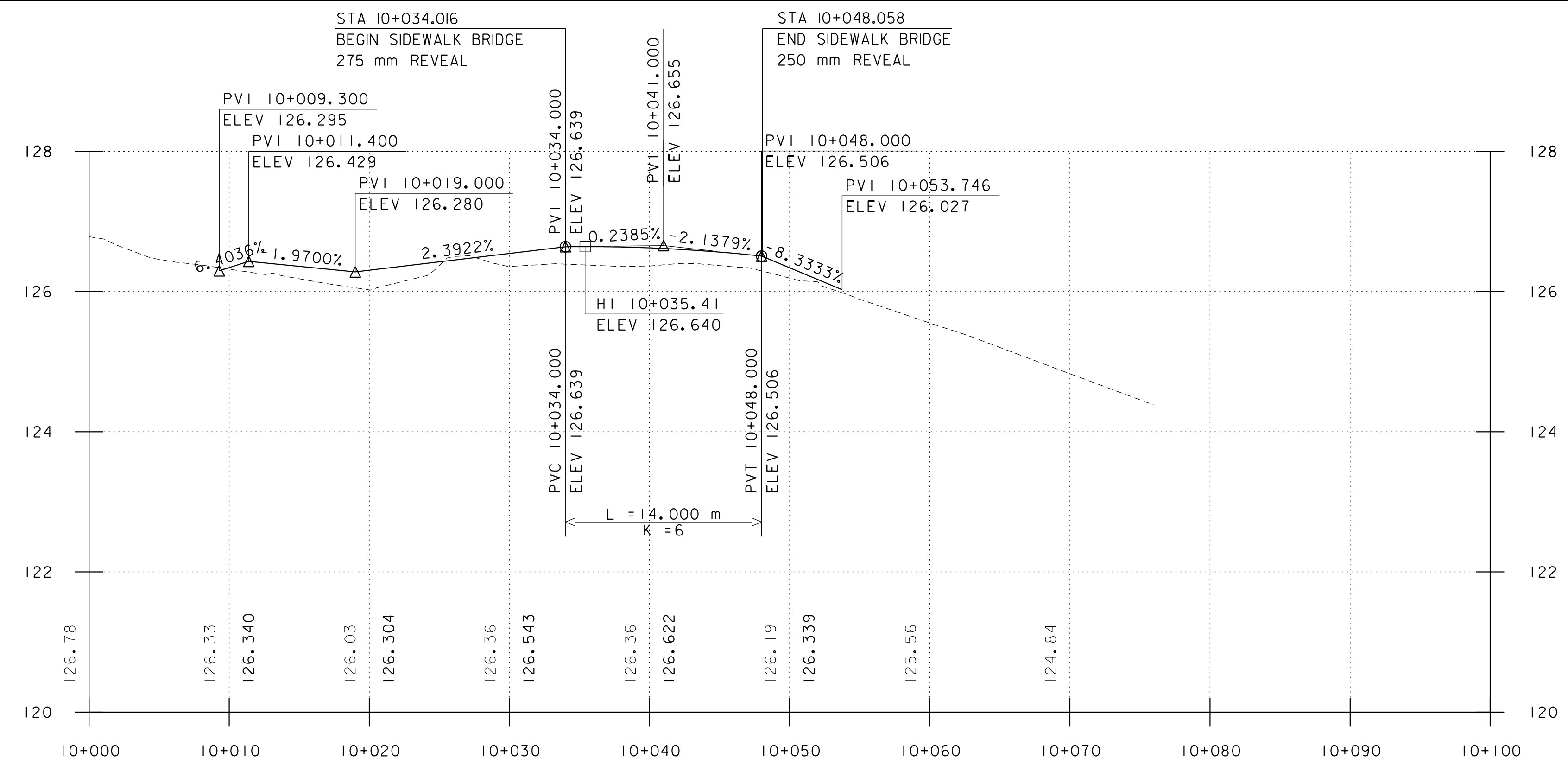
US ROUTE 7 BANKING DIAGRAM

NOT TO SCALE

PROJECT NAME: BRANDON
PROJECT NUMBER: BHF 019-3(58)

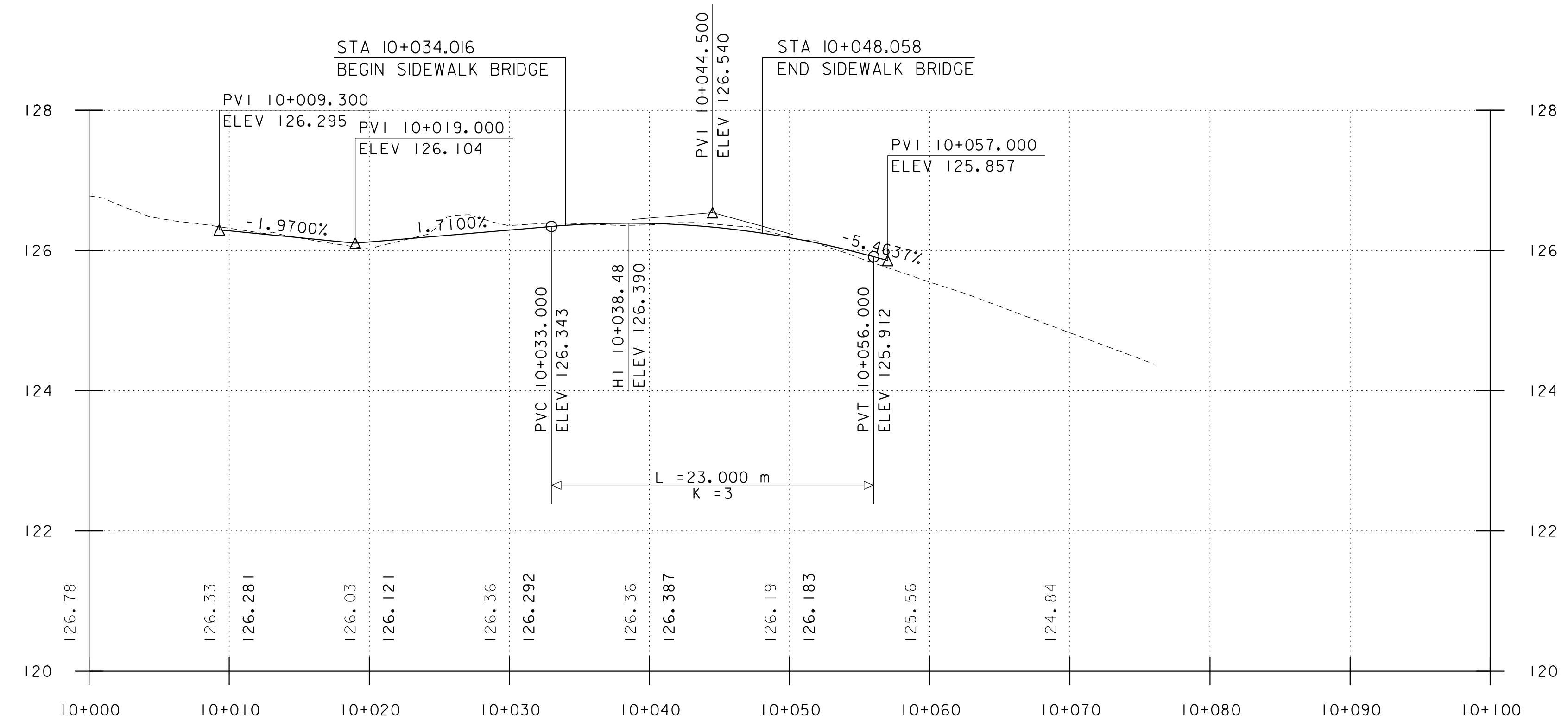
FILE NAME: z10b358pro.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: M. HALEY
US ROUTE 7 PROFILE & BANKING DIAGRAM

PLOT DATE: 12/19/2017
DRAWN BY: S. GOODWIN
CHECKED BY: D. MUNRO
SHEET 19 OF 79



US ROUTE 7 TOP OF CURB PROFILE

HOR. SCALE = 1:250
VERT. SCALE = 1:50



US ROUTE 7 BOTTOM OF CURB PROFILE

HOR. SCALE = 1:250
VERT. SCALE = 1:50

NOTES:

1. THE ELEVATIONS SHOWN TO THE NEAREST HUNDREDTH ARE FOR EXISTING GROUND.
2. THE ELEVATIONS SHOWN TO THE NEAREST THOUSANDTH ARE FOR FINISHED GRADE.
3. 305 MIN. GRANITE CURB EMBEDMENT BASED ON FINISHED GRADE.

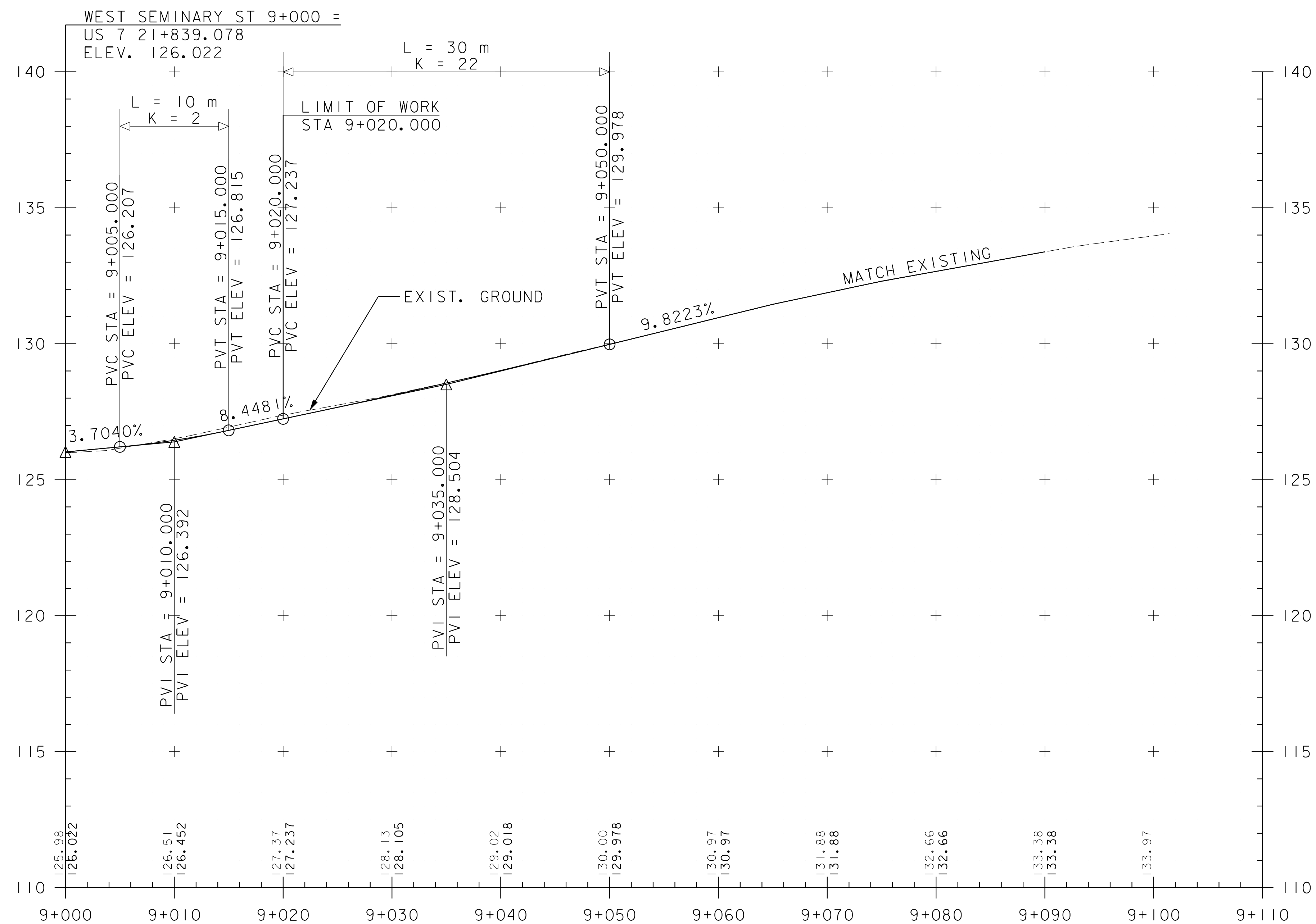


FUSS & O'NEILL

PROJECT NAME: BRANDON
PROJECT NUMBER: BHF 019-3(58)

FILE NAME: z10b358pro.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: M. HALEY
US ROUTE 7 CURB LINE PROFILE SHEET

PLOT DATE: 12/19/2017
DRAWN BY: S. GOODWIN
CHECKED BY: D. MUNRO
SHEET 20 OF 79



WEST SEMINARY ST PROFILE

HOR. SCALE = 1:250
VERT. SCALE = 1:50

NOTES:

1. THE ELEVATIONS SHOWN TO THE NEAREST HUNDREDTH ARE FOR EXISTING GROUND ALONG THE CENTERLINE.
2. THE ELEVATIONS SHOWN TO THE NEAREST THOUSANDTH ARE FOR FINISHED GRADE ALONG THE CENTERLINE.
3. THE PROPOSED ELEVATIONS AND CURVE INFORMATION SHOWN BEYOND THE LIMITS OF THIS PROJECT ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY. THE NH 019-3(496) PROJECT WILL CONSTRUCT FEATURES OUTSIDE THE LIMITS OF THE BHF 019-3(58) PROJECT.
4. A TEMPORARY WEDGE OF PAVEMENT WILL BE REQUIRED AT THE END APPROACH STATION TO MATCH INTO EXISTING ROADWAY ELEVATIONS. SEE MATERIAL TRANSITION DIAGRAM FOR ADDITIONAL INFORMATION.

PROJECT NAME: BRANDON
PROJECT NUMBER: BHF 019-3(58)

FILE NAME: z10b358pro.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: M. HALEY
WEST SEMINARY STREET PROFILE SHEET

PLOT DATE: 12/19/2017
DRAWN BY: S. GOODWIN
CHECKED BY: D. MUNRO
SHEET 21 OF 79



TEMPORARY TRAFFIC CONTROL GENERAL NOTES

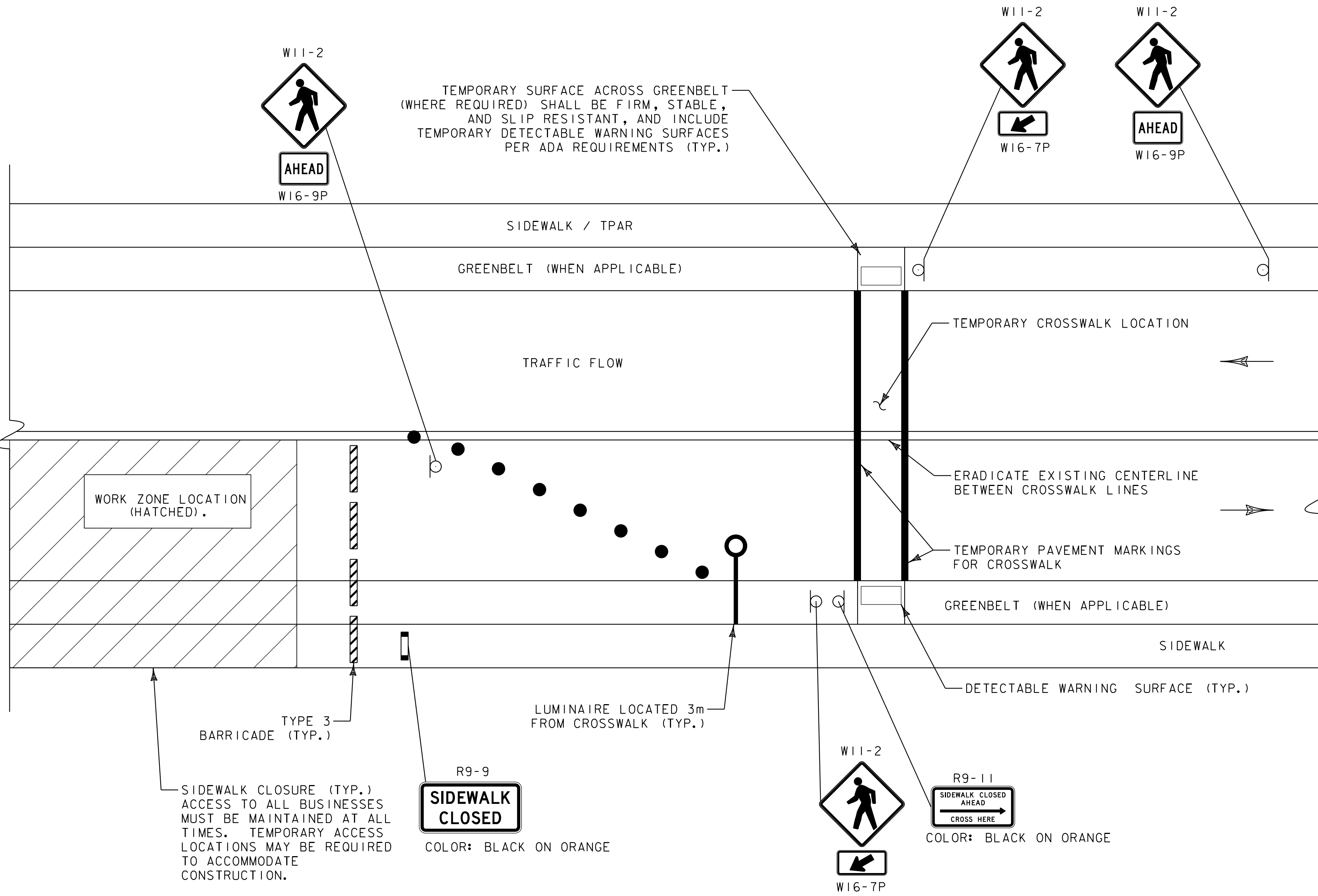
- 1. TRAFFIC CONTROL MEASURES SHOWN ON THE TRAFFIC CONTROL SHEETS ARE FOR BHF 019-3(58) PROJECT. SOME SIGNAGE MAY NOT BE REQUIRED OR MAY CONFLICT WITH OTHER PROPOSED TRAFFIC CONTROL SIGNAGE DEPENDING ON PROGRESS OF NH 019-3(496) PROJECT. CONTRACTOR SHALL COORDINATE TRAFFIC CONTROL MEASURES BETWEEN PROJECTS AS NECESSARY.
- 2. PHASES 1B AND 2 AS SHOWN ON THE TRAFFIC CONTROL SHEETS SHALL BE PERFORMED AS NIGHTWORK. THE CONTRACTOR SHALL RESTORE THE ROADWAY TO TWO LANES OF TRAFFIC AND RESTORE ON-STREET PARKING AT THE BEGINNING OF EACH DAY.
- 3. TRAFFIC CONTROL REQUIREMENTS FOR NIGHTWORK SHALL CONFORM TO NCHRP REPORT 476 AND TO MUTCD REQUIREMENTS, SECTION 6G.19, TEMPORARY TRAFFIC CONTROL DURING NIGHTTIME HOURS, TO PROVIDE TEMPORARY LIGHTING, ENHANCED AND ADDITIONAL TRAFFIC CONTROL DEVICES, AND INCREASED PROTECTION FOR WORKERS AND THE TRAVELING PUBLIC. LIGHTING SHALL BE DOWNCAST AND ONLY USED IN THE SPECIFIC AREA OF CONSTRUCTION. THE CONTRACTORS TRAFFIC CONTROL PLAN SHALL INCLUDE LOCATION OF TEMPORARY LIGHTING.
- 4. UTILIZATION OF ONE-WAY ALTERNATING TRAFFIC DURING OFF-PEAK HOURS DURING PHASE 1A MAY BE ALLOWED TO ACCOMMODATE ACCESS FOR CONSTRUCTION. TRAFFIC CONTROL SETUPS SIMILAR TO PHASE 1B AND PHASE 2 MAY BE UTILIZED.
- 5. THREE PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS) SHALL BE PROVIDED AND PLACED AT LOCATIONS TO WARN MOTORISTS OF UPCOMING WORK IN THE AREA. THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER TO DETERMINE SUITABLE LOCATIONS AND MESSAGES FOR THE PCMS. PCMS SHALL BE PAID FOR UNDER ITEM 641.15, "PORTABLE CHANGEABLE MESSAGE SIGNS".
- 6. THE LAYOUT OF CHANNELIZING DEVICES AS SHOWN ON THE TRAFFIC CONTROL SHEETS MAY BE MODIFIED BUT MUST CONSIDER WHEEL OFF-TRACKING FOR LARGE TRUCKS NEGOTIATING THE LANE CURVATURE.
- 7. CONTRACTOR SHALL INSTALL ENERGY ABSORPTION ATTENUATOR WHEN BARRIER ENDS CANNOT BE LOCATED OUTSIDE OF CLEAR ZONE.
- 8. ALL TEMPORARY SIGNS ADJACENT TO SIDEWALKS OR WALKWAYS SHALL BE INSTALLED WITH A MINIMUM OF 2.1m (7') CLEAR HEIGHT.

PEDESTRIAN TEMPORARY TRAFFIC CONTROL NOTES

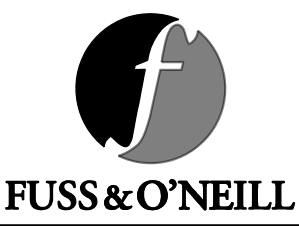
- 1. THE CONTRACTOR SHALL, FOR EACH PHASE, PROVIDE A TEMPORARY PEDESTRIAN TRAFFIC CONTROL PLAN (TPAR) FOR REVIEW AND WRITTEN APPROVAL BY THE RESIDENT ENGINEER A MINIMUM OF THREE WEEKS BEFORE SUCH PLAN IS IMPLEMENTED. THIS PLAN SHALL DETAIL THE CONSTRUCTION PHASING AND SCHEDULE AND THE SPECIFIC METHODS OF MAINTAINING SAFE PEDESTRIAN ACCESS THROUGHOUT THE CONSTRUCTION AREA. THIS PLAN SHALL PROVIDE THE LOCATION AND DETAILS OF TEMPORARY CONSTRUCTION SIGNING, MARKINGS, BARRICADES, CHANNELIZING DEVICES, TEMPORARY PEDESTRIAN ACCESS ROUTES (TPARS), AND METHODS TO MAINTAIN ACCESS TO ADJACENT PROPERTIES, BUSINESSES, RESIDENCES, ETC.
- 2. THE CONTRACTOR SHALL MAINTAIN PEDESTRIAN THROUGH MOVEMENTS FROM ONE END OF THE CONSTRUCTION AREA TO THE OTHER ON AT LEAST ONE SIDE OF THE STREET DURING CONSTRUCTION. ANY SIDEWALK CLOSURES SHALL MEET THE REQUIREMENTS OF THE MUTCD, PART 6.
- 3. PEDESTRIAN ACCESS SHALL BE PROVIDED TO ALL ADJACENT PROPERTIES, BUILDINGS, RESIDENCES, AND COMMERCIAL PROPERTIES AT ALL TIMES. THIS MAY INCLUDE TEMPORARY WALKWAYS SPANNING THE CONSTRUCTION AREA.
- 4. WHEN SIDEWALKS ARE CLOSED, SIGNS AND BARRICADES SHALL BE USED TO PROVIDE ADVANCE NOTICE OF THE CLOSURE AND THE ROUTE OF ANY PEDESTRIAN DETOURS. TPARS WILL BE REQUIRED WHEN SIDEWALKS ARE CLOSED FOR RECONSTRUCTION AND A SIDEWALK DETOUR CANNOT BE PROVIDED ON EXISTING OR ULTIMATE SIDEWALK ON THE OTHER SIDE OF THE STREET. THE TPAR SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF 1.2m (4 ft). IF THE TPAR IS LESS THAN 1.5m (5 ft) IN WIDTH, A 1.5m (5 ft) BY 1.5m (5 ft) PASSING SPACE SHOULD BE PROVIDED AT LEAST EVERY 61m (200 ft). THE SURFACE OF THE TPAR SHALL BE SMOOTH AND CONTINUOUS FOR THE LENGTH OF THE TPAR. THE TPAR SHALL MAINTAIN THE SAME LEVEL OF ACCESSIBILITY AND DETECTABILITY AS THE FACILITY THAT IS BEING CLOSED. THE TPAR SHALL NOT LEAD PEDESTRIANS INTO CONFLICTS WITH VEHICLES, EQUIPMENT, OR CONSTRUCTION OPERATIONS.
- 5. IF THE TPAR IS ADJACENT TO MOVING TRAFFIC, CONSTRUCTION OPERATIONS/EQUIPMENT, OR DROP-OFFS, THEN CRASH WORTHY CHANNELIZING DEVICES THAT MEET THE REQUIREMENTS OF THE MUTCD SHALL BE USED.
- 6. THE CONTRACTOR SHALL NOT STORE OR PLACE ANY CONSTRUCTION MATERIALS, EQUIPMENT, OR SIGNS IN THE PEDESTRIAN PATH OF TRAVEL.
- 7. THE CONTRACTOR'S OPERATIONS SHALL NOT OCCUPY EXISTING SIDEWALKS EXCEPT WHERE PROPER PROTECTION AND A TPAR HAVE BEEN PROVIDED.
- 8. INDIVIDUAL CHANNELIZING DEVICES, TAPE, OR ROPE USED TO CONNECT INDIVIDUAL DEVICES AND OTHER DISCONTINUOUS BARRIER AND DEVICES, PAVEMENT MARKINGS ARE NOT DETECTABLE BY PERSONS WITH VISUAL DISABILITIES. THESE MEASURES DO NOT PROVIDE ACCEPTABLE PATH GUIDANCE ON TEMPORARY OR RE-ALIGNED SIDEWALKS OR OTHER PEDESTRIAN FACILITIES. PEDESTRIAN CHANNELIZING DEVICES SHALL INCLUDE A CONTINUOUSLY DETECTABLE BOTTOM AND TOP EDGE THROUGHOUT THE LENGTH OF THE FACILITY SUCH THAT IT CAN BE FOLLOWED BY PEDESTRIANS USING LONG CANES FOR GUIDANCE.
- 9. CHANNELIZING DEVICES ON BOTH SIDES OF THE TPAR SHALL INCLUDE A CONTINUOUS SOLID TOP AND BOTTOM RAILS. THE TOP EDGE OF THE TOP RAIL SHALL BE BETWEEN 800 mm (32 inches) AND 950 mm (38 inches) ABOVE THE GROUND LEVEL. THE BOTTOM RAIL SHALL BE AT LEAST 150 mm (6 inches) WIDE, WITH THE BOTTOM EDGE OF THE BOTTOM RAIL SURFACE NO HIGHER THAN 50 mm (2 inches) ABOVE THE GROUND.
- 10. TEMPORARY CROSSWALKS WILL BE ALLOWED ONLY AT LOCATIONS AS SHOWN ON THE PLANS OR AS APPROVED BY THE ENGINEER IF SIGHT DISTANCE MEETS OR EXCEEDS THE STOPPING SIGHT DISTANCE OF THE POSTED SPEED LIMIT FOR THE WORK ZONE AND NO OTHER CROSSWALK IS WITHIN 60m OF SAID CROSSWALK. ALSO, THE PROPOSED TEMPORARY CROSSWALK CANNOT BE OBSTRUCTED BY PARKED VEHICLES OR CONSTRUCTION EQUIPMENT OR MATERIALS.
- 11. TEMPORARY DETECTABLE WARNINGS SHALL BE PLACED AT EACH END OF THE TEMPORARY CROSSWALKS. THE TEMPORARY CROSSWALK SHALL BE DELINEATED WITH TEMPORARY PAVEMENT MARKINGS OR TAPE. THE MARKINGS SHALL BE PARALLEL 300 mm (12 inches) WIDE WHITE LINES PLACED 2.1 m (7 ft) ON CENTER APART. IT SHOULD BE NOTED THAT CURB PARKING SHALL BE PROHIBITED FOR AT LEAST 15 m (50 ft) IN ADVANCE OF MIDBLOCK CROSSWALKS. TEMPORARY CROSSWALK SIGNS SHALL BE PROVIDED FOR THE CROSSWALKS.
- 12. DURING ACTIVE CONSTRUCTION OPERATIONS WHEN THE CROSSWALK IS LOCATED WITHIN OR ADJACENT TO THE WORK ZONE, AN INDEPENDENT FLAGGER SHALL BE PROVIDED TO CONTROL PEDESTRIAN MOVEMENT AND COORDINATE WITH VEHICULAR TRAFFIC FLAGGERS TO PROVIDE SAFE CROSSING.
- 13. TEMPORARY CROSSWALKS SHALL BE ESTABLISHED AT A PERMANENT LOCATION FOR THE DURATION OF EACH PHASE OF CONSTRUCTION, AND SHALL HAVE LIGHTING AS SHOWN IN THE DETAIL. WHEN RELOCATION OF A TEMPORARY CROSSWALK IS REQUIRED FOR AN INTERIM BASIS TO ALLOW FOR ACTIVE CONSTRUCTION OPERATIONS AT THE PERMANENT LOCATION, AN INDEPENDENT FLAGGER SHALL BE ASSIGNED AT THE INTERIM LOCATION TO PROVIDE ASSISTANCE TO PEDESTRIANS IN LOCATING THE INTERIM CROSSWALK AND SAFELY CROSSING. THE PERMANENT LOCATION OF THE TEMPORARY CROSSWALK SHALL BE RE-ESTABLISHED PRIOR TO CLOSE OF ACTIVITIES AT THE END OF THE WORK DAY. THE INTERIM LOCATION SHALL HAVE SIGNAGE AND STRIPING AS SHOWN IN THE DETAIL. LIGHTING WILL NOT BE REQUIRED FOR THE INTERIM LOCATION, UNLESS ACTIVE CONSTRUCTION IS OCCURRING PRIOR TO DAWN OR AFTER DUSK.
- 14. ALL PROPOSED TEMPORARY CROSSWALK LOCATIONS SHALL BE SHOWN IN THE CONTRACTOR'S TEMPORARY PEDESTRIAN TRAFFIC CONTROL PLAN, INCLUDING ALL SIGNAGE AND DEVICES, MEETING OR EXCEEDING THE REQUIREMENTS SHOWN ON DETAIL.
- 15. PROVISION OF THE TPAR AND ALL OF ITS ELEMENTS, INCLUDING BUT NOT LIMITED TO SIGNS, CHANNELIZING DEVICES, BARRICADES, TEMPORARY PAVEMENT MARKINGS, AND OTHER TRAFFIC CONTROL DEVICES IS TO BE PAID FOR INCIDENTAL TO SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE).

SUBBASE PHASING NOTES

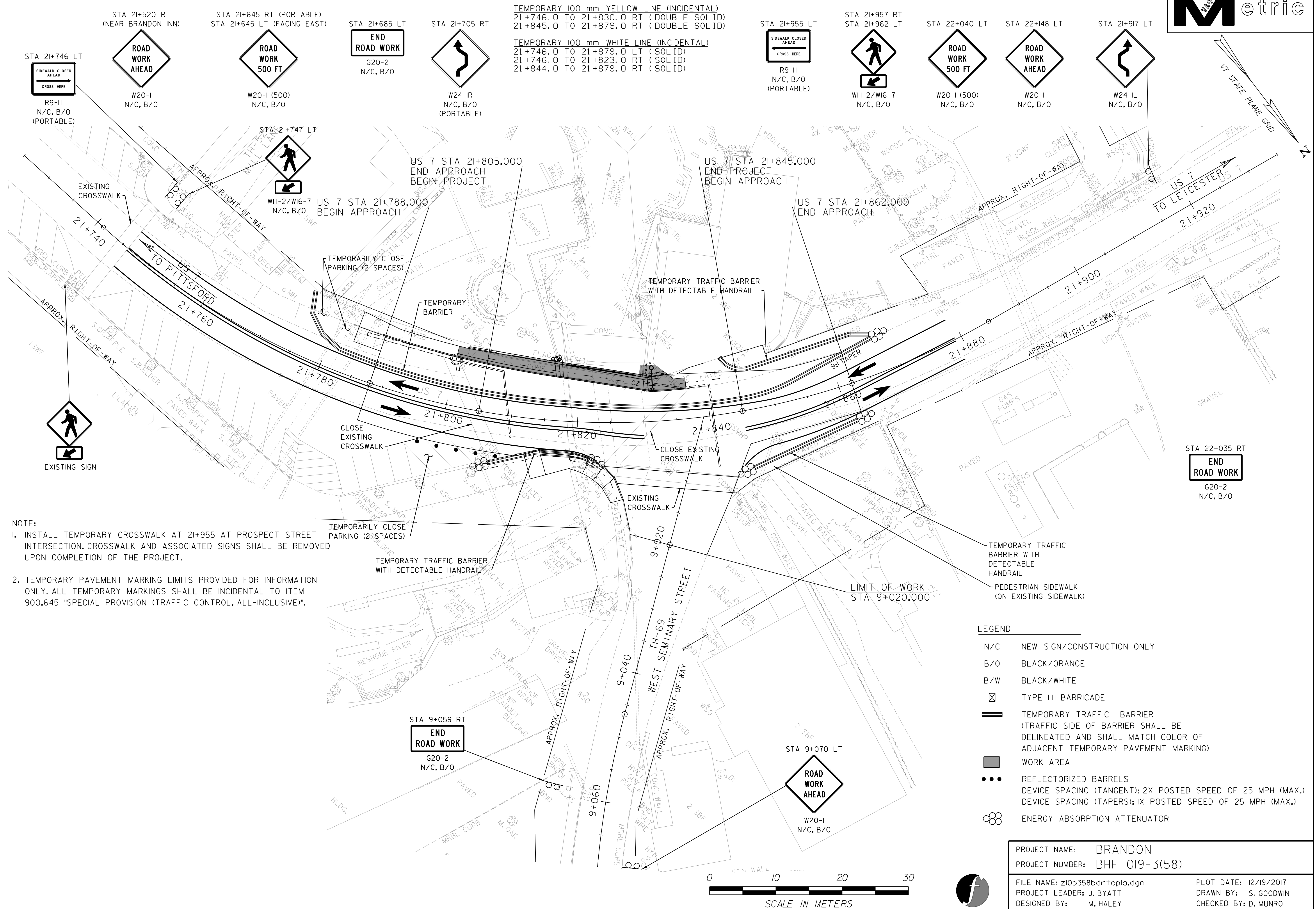
- 1. TEMPORARY FILL MAY BE USED INSTEAD OF PLACING PAVEMENT FOR EACH PHASE. NO PAYMENT WILL BE MADE FOR USE OF TEMPORARY FILL.
- 2. A MINIMUM OF 350 mm OF FILL OR COMBINATION OF FILL AND PAVEMENT MUST BE PLACED OVER THE FULL LENGTH OF THE ARCH PLUS 5 m BEYOND THE FACES OF THE ARCH ABUTMENT WALLS BEFORE TRAFFIC MAY BE PLACED OVER THE ARCH.

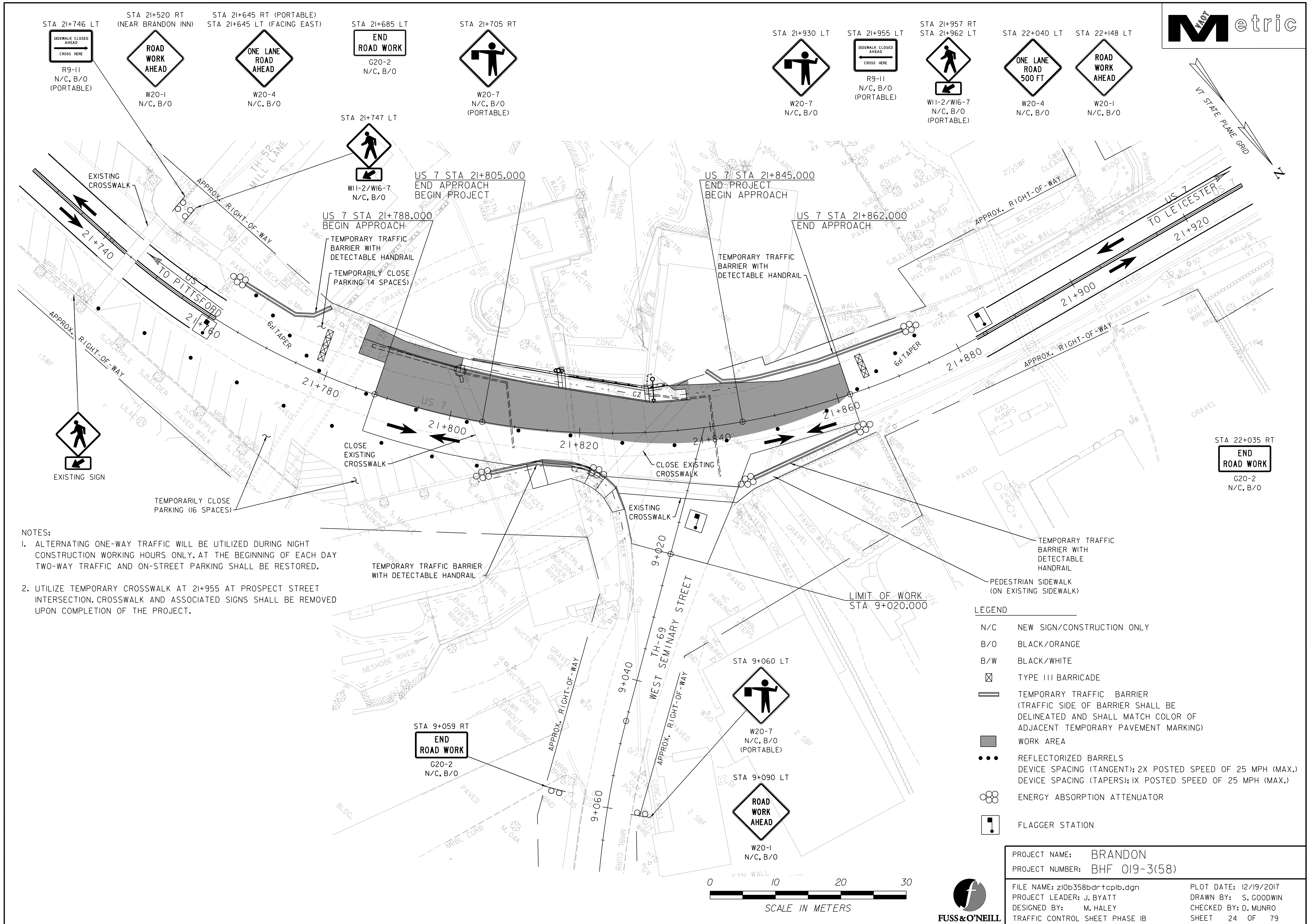


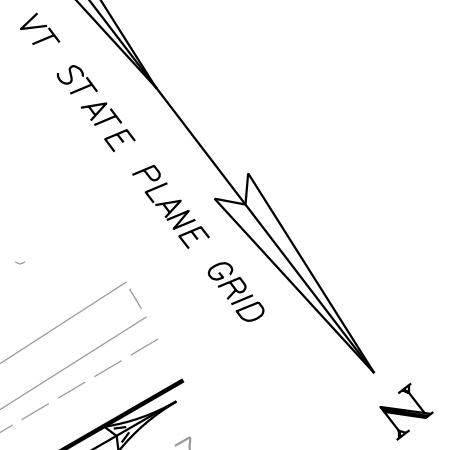
PEDESTRIAN TEMPORARY TRAFFIC CONTROL
NOT TO SCALE



PROJECT NAME:	BRANDON
PROJECT NUMBER:	BHF 019-3(58)
FILE NAME:	zi0b358+cp-def.dgn
PROJECT LEADER:	J. BYATT
DESIGNED BY:	M. HALEY
TRAFFIC CONTROL DETAILS/NOTES SHEET	PLOT DATE: 12/19/2017 DRAWN BY: J. FOWLER CHECKED BY: D. MUNRO SHEET 22 OF 79







- STA 21+520 RT
(NEAR BRANDON INN)

 W20-1
N/C, B/O
- STA 21+645 RT (PORTABLE)
 STA 21+645 LT (FACING EAST)

 W20-4
N/C, B/O
- STA 21+685 LT

 G20-2
N/C, B/O (PORTABLE)
- STA 21+705 RT

 W20-7
N/C, B/O (PORTABLE)
- STA 21+930 LT

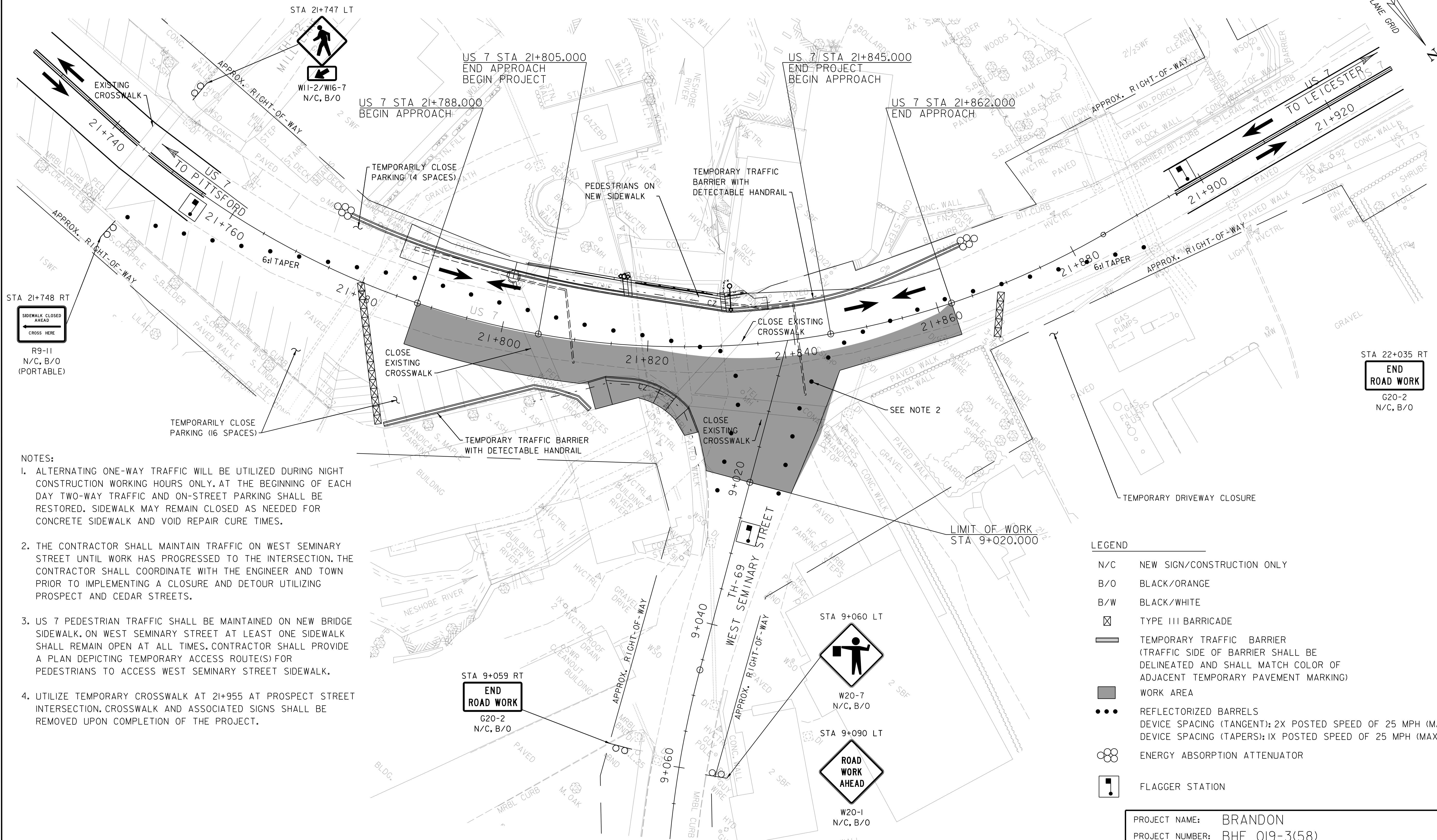
 W20-7
N/C, B/O
- STA 21+957 RT
 STA 21+962 LT

 W11-2/W16-7
N/C, B/O
- STA 21+960 RT

 R9-11
N/C, B/O (PORTABLE)
- STA 22+040 LT

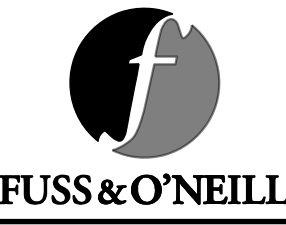
 W20-4
N/C, B/O
- STA 22+148 LT

 W20-1
N/C, B/O

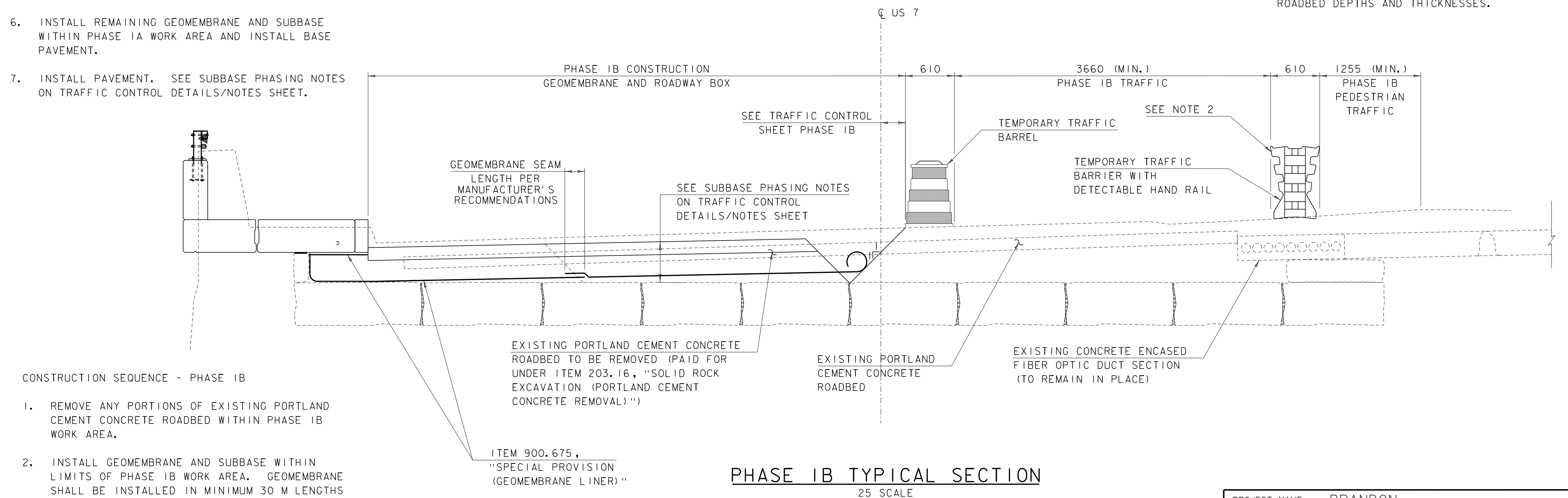
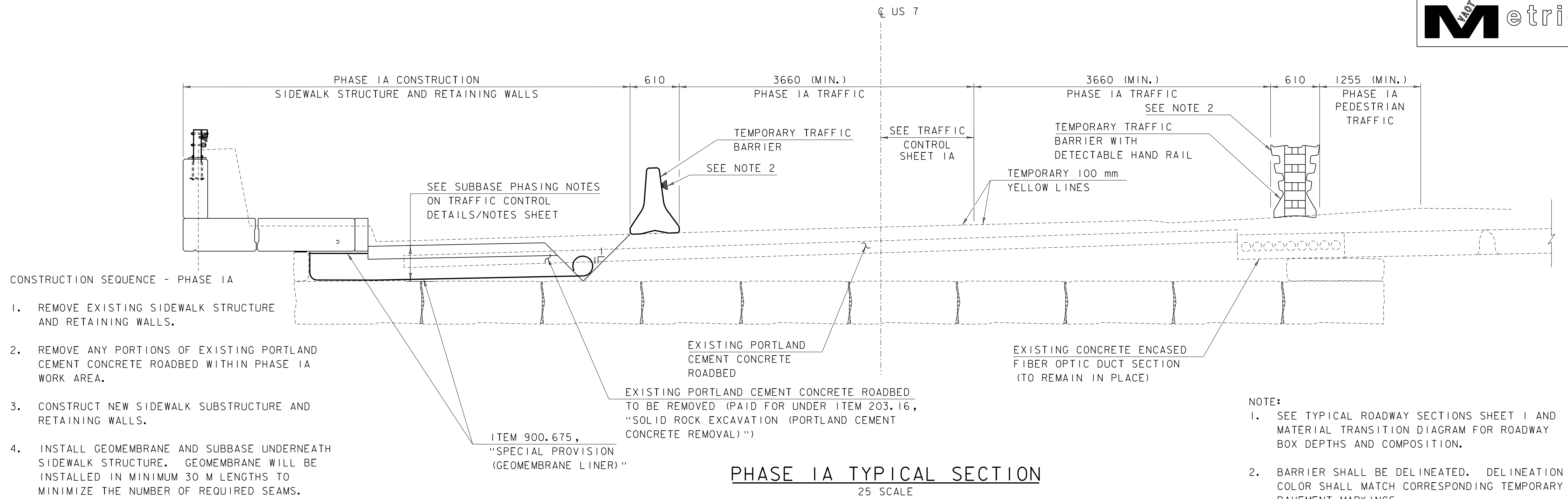


- NOTES:
1. ALTERNATING ONE-WAY TRAFFIC WILL BE UTILIZED DURING NIGHT CONSTRUCTION WORKING HOURS ONLY. AT THE BEGINNING OF EACH DAY TWO-WAY TRAFFIC AND ON-STREET PARKING SHALL BE RESTORED. SIDEWALK MAY REMAIN CLOSED AS NEEDED FOR CONCRETE SIDEWALK AND VOID REPAIR CURE TIMES.
 2. THE CONTRACTOR SHALL MAINTAIN TRAFFIC ON WEST SEMINARY STREET UNTIL WORK HAS PROGRESSED TO THE INTERSECTION. THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER AND TOWN PRIOR TO IMPLEMENTING A CLOSURE AND DETOUR UTILIZING PROSPECT AND CEDAR STREETS.
 3. US 7 PEDESTRIAN TRAFFIC SHALL BE MAINTAINED ON NEW BRIDGE SIDEWALK. ON WEST SEMINARY STREET AT LEAST ONE SIDEWALK SHALL REMAIN OPEN AT ALL TIMES. CONTRACTOR SHALL PROVIDE A PLAN DEPICTING TEMPORARY ACCESS ROUTE(S) FOR PEDESTRIANS TO ACCESS WEST SEMINARY STREET SIDEWALK.
 4. UTILIZE TEMPORARY CROSSWALK AT 21+955 AT PROSPECT STREET INTERSECTION. CROSSWALK AND ASSOCIATED SIGNS SHALL BE REMOVED UPON COMPLETION OF THE PROJECT.

- LEGEND
- N/C NEW SIGN/CONSTRUCTION ONLY
 - B/O BLACK/ORANGE
 - B/W BLACK/WHITE
 - ☒ TYPE III BARRICADE
 - ===== TEMPORARY TRAFFIC BARRIER (TRAFFIC SIDE OF BARRIER SHALL BE DELINEATED AND SHALL MATCH COLOR OF ADJACENT TEMPORARY PAVEMENT MARKING)
 - WORK AREA
 - ... REFLECTORIZED BARRELS
DEVICE SPACING (TANGENT): 2X POSTED SPEED OF 25 MPH (MAX.)
DEVICE SPACING (TAPERS): 1X POSTED SPEED OF 25 MPH (MAX.)
 - ⊗ ENERGY ABSORPTION ATTENUATOR
 - 🚧 FLAGGER STATION



PROJECT NAME:	BRANDON	PLOT DATE:	12/19/2017
PROJECT NUMBER:	BHF 019-3(58)	DRAWN BY:	S. GOODWIN
FILE NAME:	z10b358bdr+cp2.dgn	CHECKED BY:	D. MUNRO
PROJECT LEADER:	J. BYATT	SHEET	25 OF 79
DESIGNED BY:	M. HALEY		
TRAFFIC CONTROL SHEET PHASE 2			

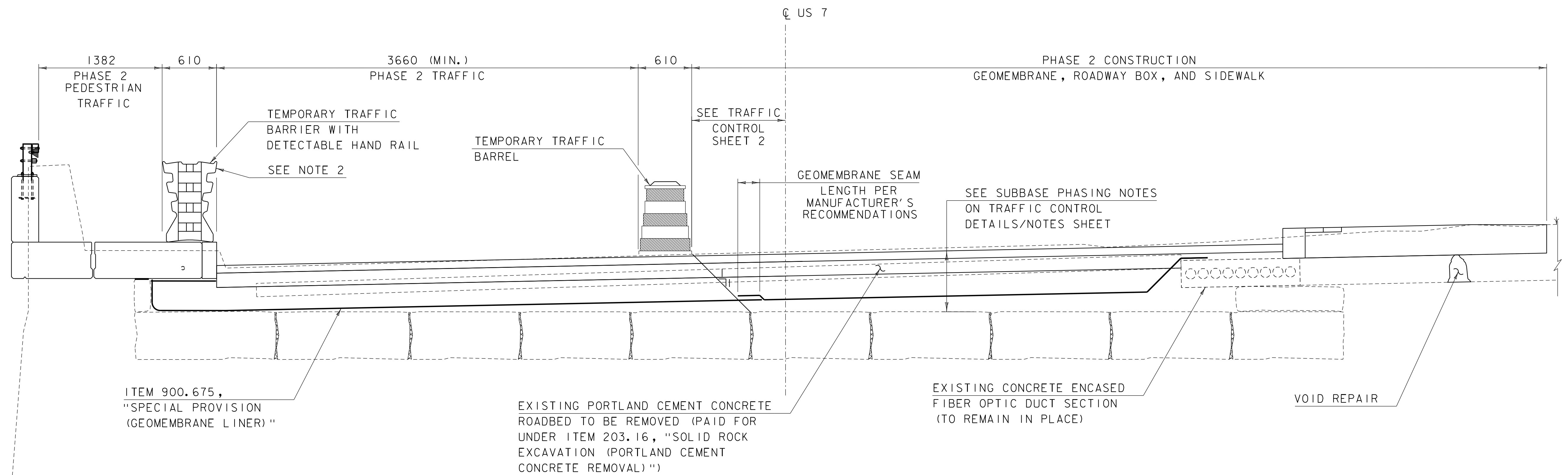


PROJECT NAME: BRANDON
PROJECT NUMBER: BHF 019-3(58)

FILE NAME: z10b358sup.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: S. BEAUMONT
PHASING SECTIONS SHEET 1

PLOT DATE: 12/19/2017
DRAWN BY: M. SMITH
CHECKED BY: J. BYATT
SHEET 26 OF 79





PHASE 2 TYPICAL SECTION

25 SCALE

CONSTRUCTION SEQUENCE - PHASE 2

1. REMOVE ANY REMAINING PORTIONS OF EXISTING PORTLAND CEMENT CONCRETE ROADBED WITHIN PROJECT LIMITS.
2. PERFORM SUPERSTRUCTURE REPAIRS AT VOID FROM ABOVE AND CONSTRUCT PHASE 2 SIDEWALK.
3. INSTALL REMAINING PORTIONS OF GEOMEMBRANE AND SUBBASE. GEOMEMBRANE SHALL BE INSTALLED IN MINIMUM 30 M LENGTHS TO MINIMIZE THE NUMBER OF REQUIRED SEAMS.
4. INSTALL PAVEMENT. SEE SUBBASE PHASING NOTES ON TRAFFIC CONTROL DETAILS/NOTES SHEET.

NOTE:

1. SEE TYPICAL ROADWAY SECTIONS SHEET 1 AND MATERIAL TRANSITION DIAGRAM FOR ROADWAY BOX DEPTHS AND COMPOSITION.
2. BARRIER SHALL BE DELINEATED. DELINEATION COLOR SHALL MATCH CORRESPONDING TEMPORARY PAVEMENT MARKINGS.

CHANGING ELEVATION OF DROP INLETS,
CATCH BASINS, OR MANHOLES
21+848.9 RT
21+859.3 RT

CHANGING ELEVATION OF SEWER MANHOLES
21+844.8 RT

SPECIAL PROVISION
(REMOVE TELEPHONE VAULT)
21+804.2 LT
21+837.4 LT

EXISTING DRAINAGE
1 21+802.3 LT TO 21+803.7 LT
EXISTING 310 mm CGMP W/ DI
REMOVAL INCIDENTAL TO EXCAVATION FOR
NEW UNDERDRAIN AND WALL FOOTING.

PROPOSED DRAINAGE
1 21+785.2 LT TO 21+800.0 LT
NEW 450 mm x 13.2 m CPEP(SL)
CONNECT TO EXIST. PIPE AT OUTLET
NEW 1.5 m PRCCB W/2 CI GRATES TYPE D AT 21+800 LT
NEW 450 mm x 1.2 m CPEP(SL) STUB FOR
NH 019-(496) CONNECTION

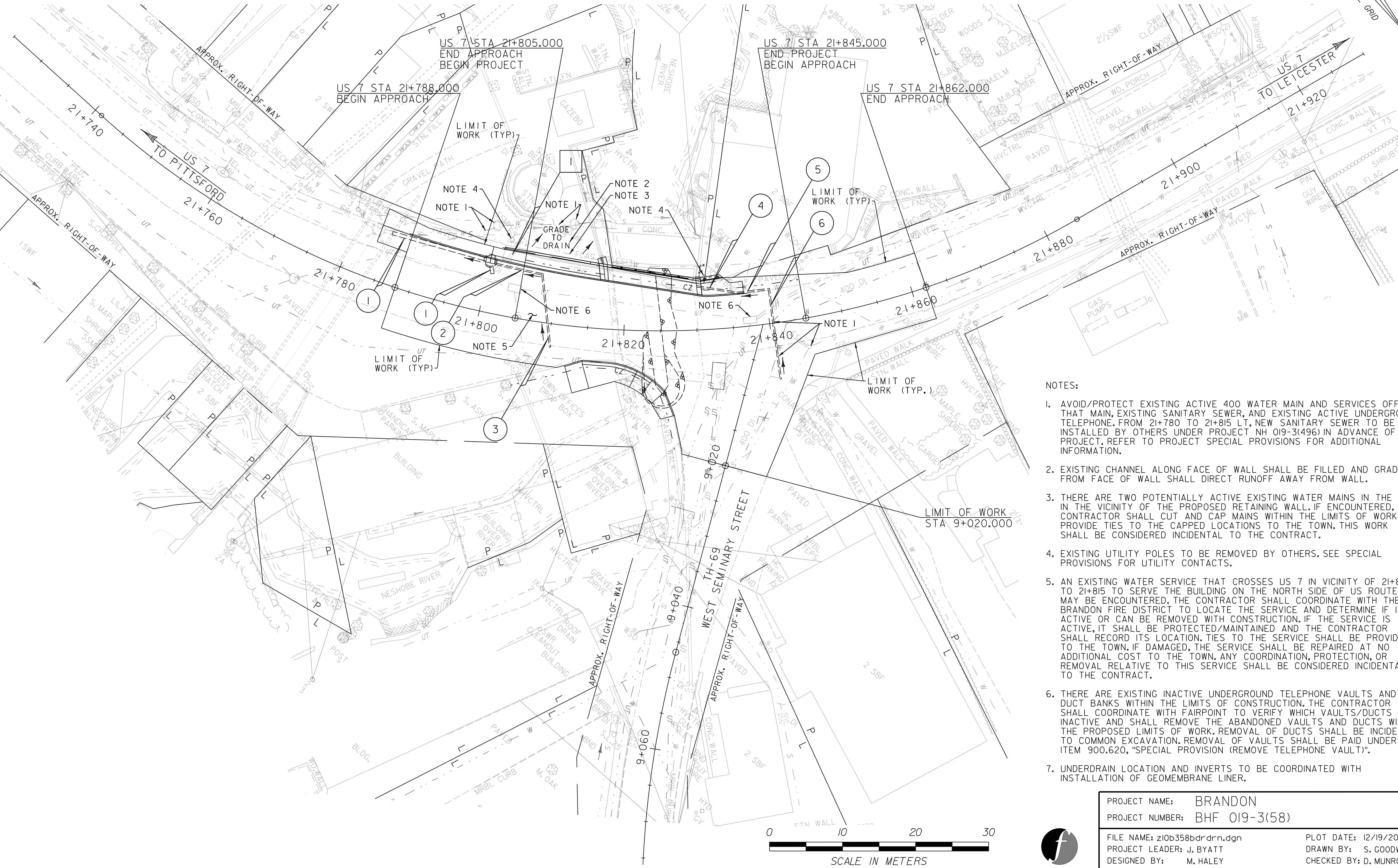
2 21+800.0 LT TO 21+807.8, 6.5 m LT
NEW 200 mm X 6.7 m UNDERDRAIN
INV IN= 124.698
INV OUT= 124.564

PROPOSED DRAINAGE
3 21+807.8, 6.5 m LT TO 21+810.2, 3.2 m RT
NEW 200 mm x 10.0 m UNDERDRAIN
INV IN= 124.898
INV OUT= 124.698
CONNECT TO PIPE NO. 2 WITH 110° ELBOW

4 21+830.2, 6.0 m LT TO 21+836.0, 4.7 m LT
NEW 200 mm x 5.7 m UNDERDRAIN
INV IN= 124.405
INV OUT= 124.348 (IN ABUTMENT)

PROPOSED DRAINAGE
5 21+836.0, 4.7 m LT TO 21+840.5, 4.7 m LT
NEW 200 mm x 4.3 m UNDERDRAIN
INV IN= 124.659
INV OUT= 124.405

6 21+840.5, 4.7 m LT TO 21+840.5, 7.7 m RT
NEW 200 mm X 12.4 m UNDERDRAIN
INV IN= 124.869
INV OUT= 124.659
CONNECT TO PIPE NO. 5 WITH 90° ELBOW



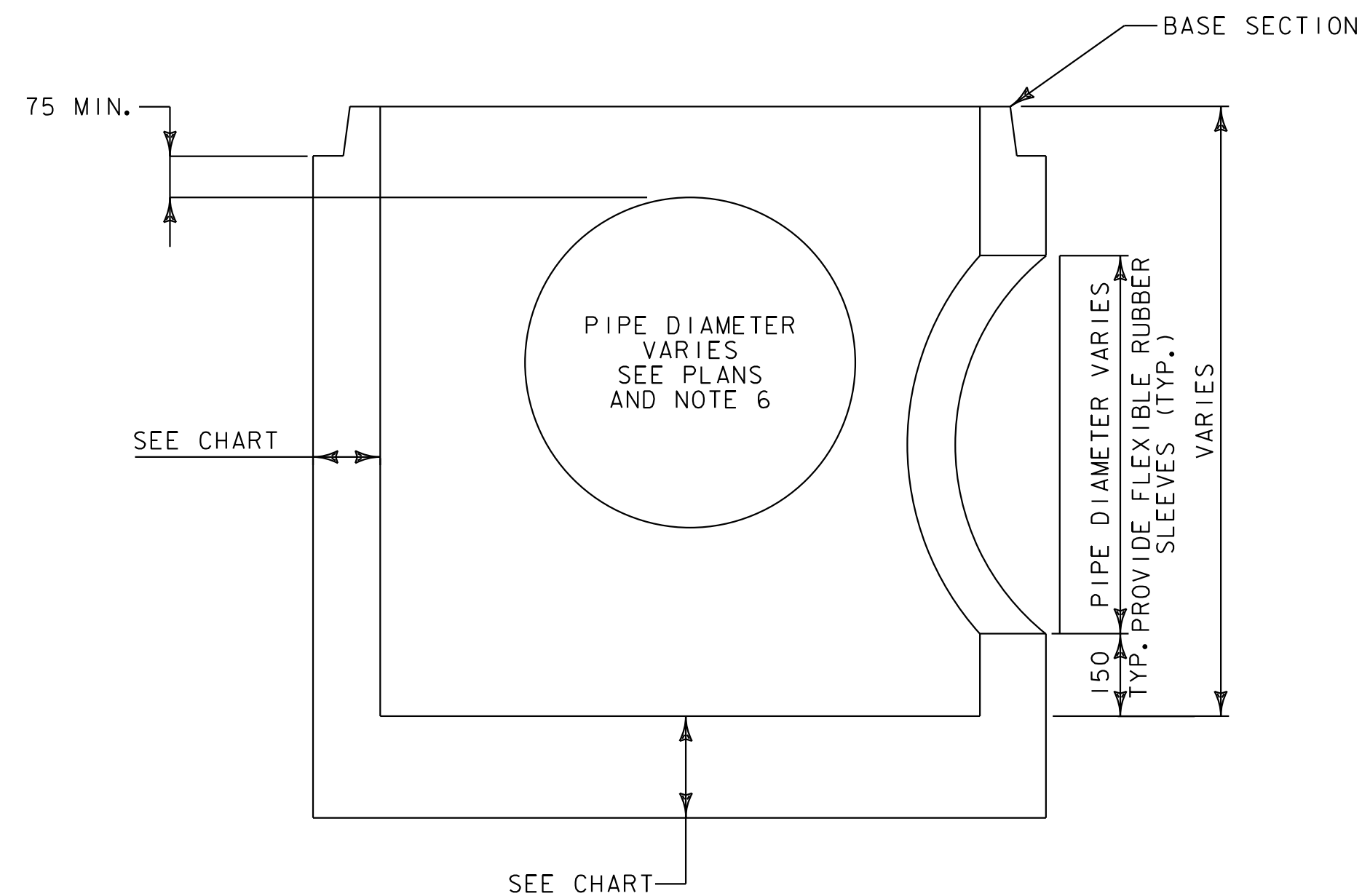
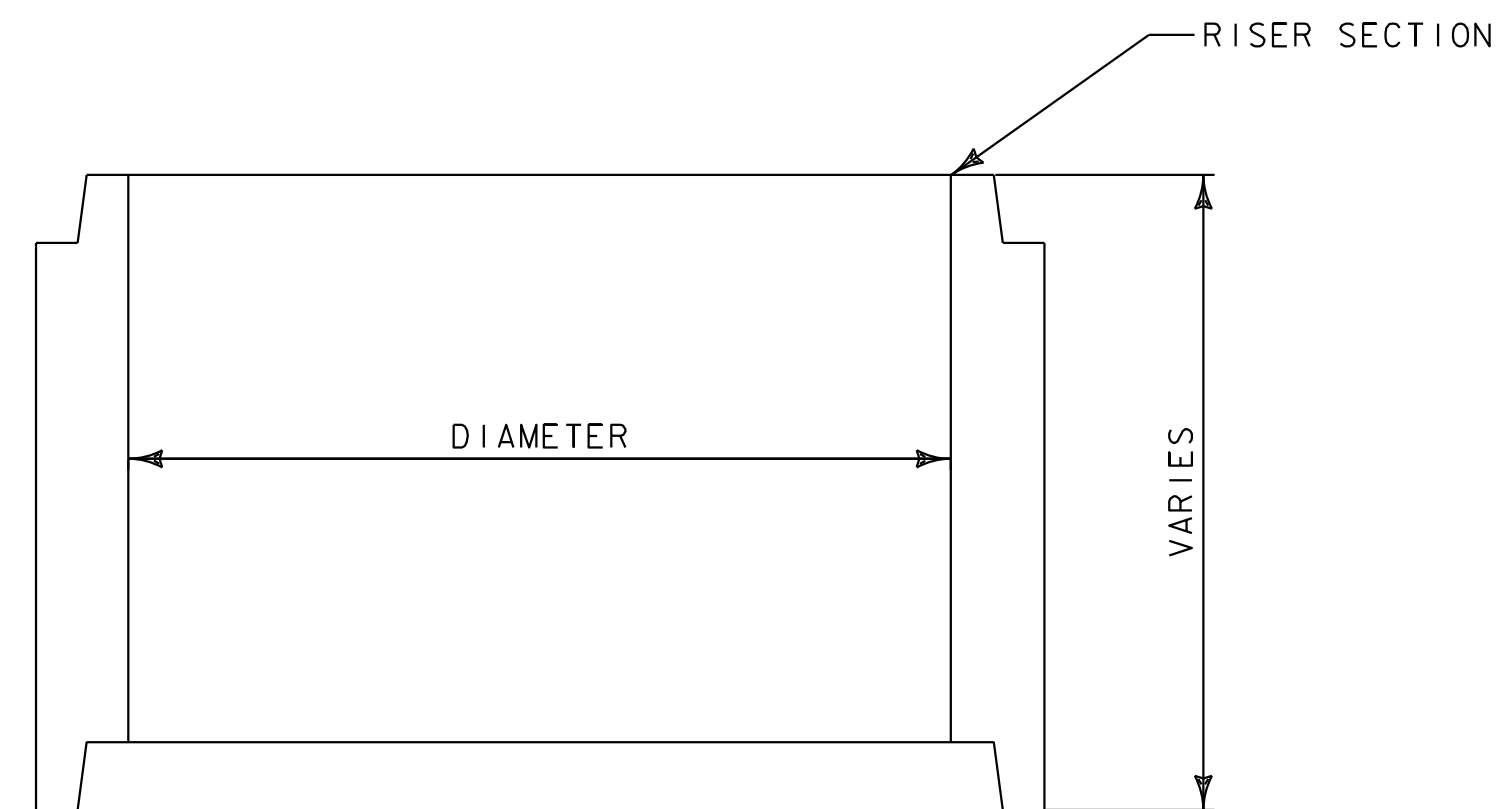
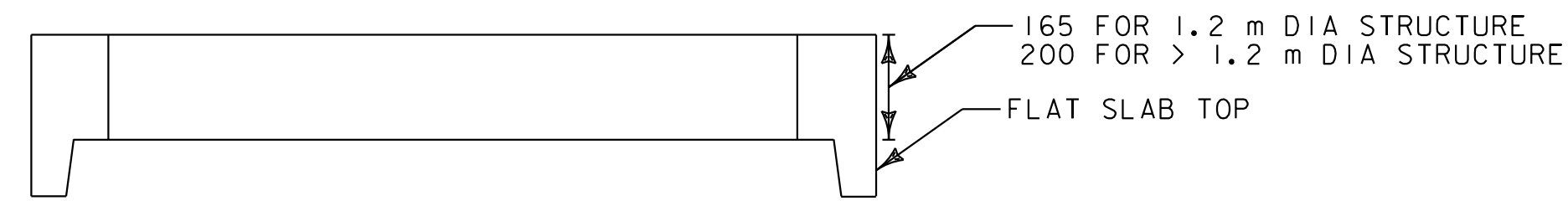
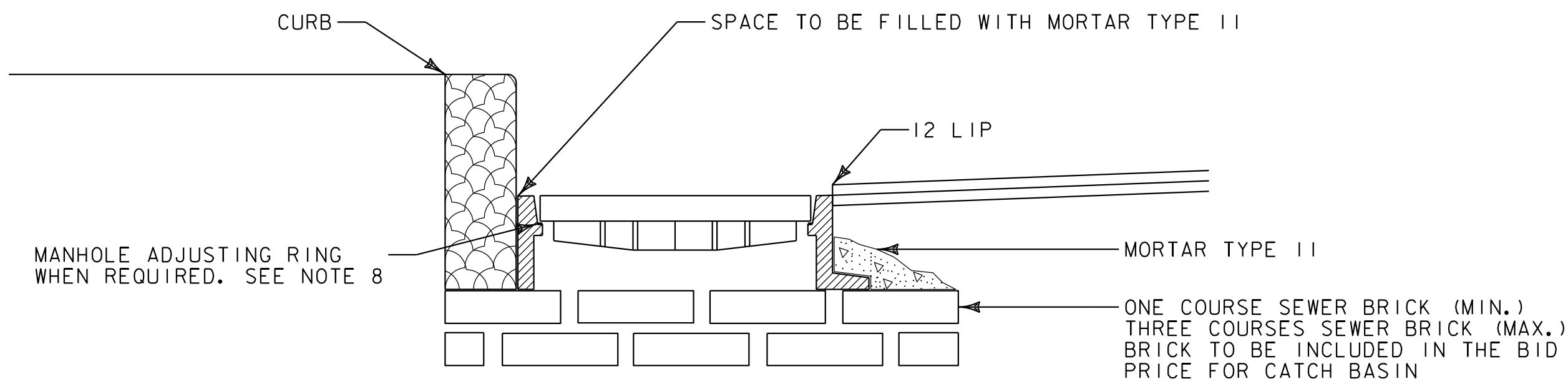
- NOTES:
1. AVOID/PROTECT EXISTING ACTIVE 400 WATER MAIN AND SERVICES OFF THAT MAIN, EXISTING SANITARY SEWER, AND EXISTING ACTIVE UNDERGROUND TELEPHONE. FROM 21+780 TO 21+815 LT, NEW SANITARY SEWER TO BE INSTALLED BY OTHERS UNDER PROJECT NH 019-3(496) IN ADVANCE OF THIS PROJECT. REFER TO PROJECT SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.
 2. EXISTING CHANNEL ALONG FACE OF WALL SHALL BE FILLED AND GRADING FROM FACE OF WALL SHALL DIRECT RUNOFF AWAY FROM WALL.
 3. THERE ARE TWO POTENTIALLY ACTIVE EXISTING WATER MAINS IN THE PARK IN THE VICINITY OF THE PROPOSED RETAINING WALL. IF ENCOUNTERED, CONTRACTOR SHALL CUT AND CAP MAINS WITHIN THE LIMITS OF WORK AND PROVIDE TIES TO THE CAPPED LOCATIONS TO THE TOWN. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT.
 4. EXISTING UTILITY POLES TO BE REMOVED BY OTHERS. SEE SPECIAL PROVISIONS FOR UTILITY CONTACTS.
 5. AN EXISTING WATER SERVICE THAT CROSSES US 7 IN VICINITY OF 21+800 TO 21+815 TO SERVE THE BUILDING ON THE NORTH SIDE OF US ROUTE 7 MAY BE ENCOUNTERED. THE CONTRACTOR SHALL COORDINATE WITH THE BRANDON FIRE DISTRICT TO LOCATE THE SERVICE AND DETERMINE IF IT IS ACTIVE OR CAN BE REMOVED WITH CONSTRUCTION. IF THE SERVICE IS ACTIVE, IT SHALL BE PROTECTED/MAINTAINED AND THE CONTRACTOR SHALL RECORD ITS LOCATION. TIES TO THE SERVICE SHALL BE PROVIDED TO THE TOWN. IF DAMAGED, THE SERVICE SHALL BE REPAIRED AT NO ADDITIONAL COST TO THE TOWN. ANY COORDINATION, PROTECTION, OR REMOVAL RELATIVE TO THIS SERVICE SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT.
 6. THERE ARE EXISTING INACTIVE UNDERGROUND TELEPHONE VAULTS AND DUCT BANKS WITHIN THE LIMITS OF CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE WITH FAIRPOINT TO VERIFY WHICH VAULTS/DUCTS ARE INACTIVE AND SHALL REMOVE THE ABANDONED VAULTS AND DUCTS WITHIN THE PROPOSED LIMITS OF WORK. REMOVAL OF DUCTS SHALL BE INCIDENTAL TO COMMON EXCAVATION. REMOVAL OF VAULTS SHALL BE PAID UNDER THE ITEM 900.620, "SPECIAL PROVISION (REMOVE TELEPHONE VAULT)".
 7. UNDERDRAIN LOCATION AND INVERTS TO BE COORDINATED WITH INSTALLATION OF GEOMEMBRANE LINER.

PROJECT NAME: BRANDON
PROJECT NUMBER: BHF 019-3(58)

FILE NAME: z10b358bdrn.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: M. HALEY
DRAINAGE AND UTILITY PLAN

PLOT DATE: 12/19/2017
DRAWN BY: S. GOODWIN
CHECKED BY: D. MUNRO
SHEET 28 OF 79



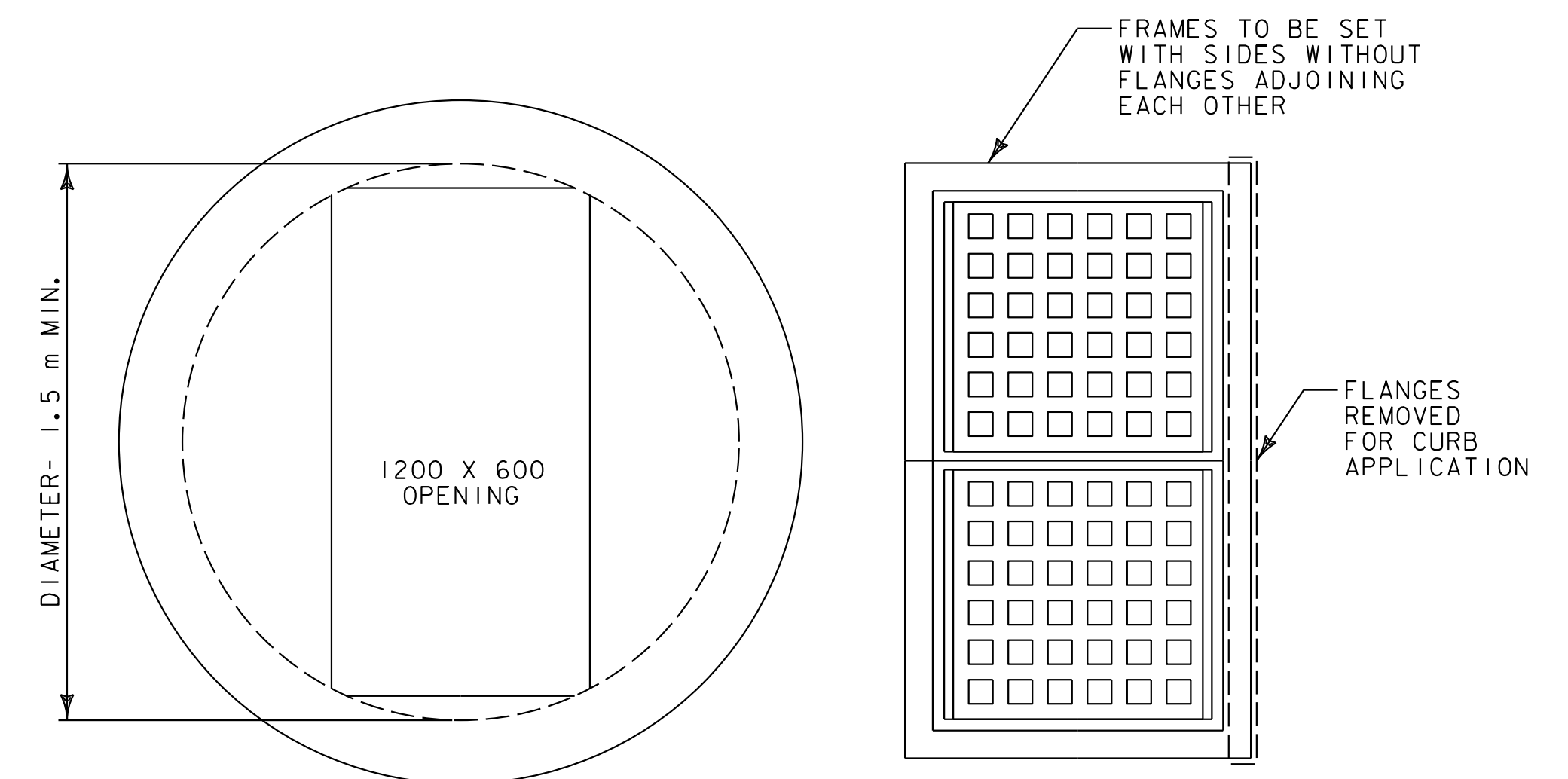


SECTION A-A

NOTES:

- ALL CATCH BASINS AND MANHOLES SHALL BE CONSTRUCTED WITH PRECAST CONCRETE BASE SECTIONS, RISER SECTIONS AND FLAT SLAB TOPS CONFORMING TO SUBSECTION 705.04 OF THE VERMONT STANDARD SPECIFICATIONS FOR CONSTRUCTION AND SHALL BE REINFORCED TO MEET OR EXCEED M-18 LOADING.
- PRECAST SECTIONS SHALL HAVE TONGUE AND GROOVE JOINT AND BE ASSEMBLED USING A BUTYL RUBBER OR APPROVED EQUAL SEALANT.
- ALL PIPE INVERTS AND PENETRATION ANGLES SHALL BE FIELD VERIFIED PRIOR TO PRECASTING.
- FACE OF PIPE SHALL NOT PROJECT MORE THAN TWO INCHES OR LESS THAN 1 INCH FROM INSIDE WALL OF STRUCTURE.
- ALL STRUCTURES WITH MULTIPLE PIPES SHALL HAVE A MINIMUM OF 300 mm OF INSIDE SURFACE BETWEEN HOLES, NO MORE THAN 75% OF A HORIZONTAL CROSS SECTION SHALL BE HOLES, AND THERE SHALL BE NO HOLES CLOSER THAN 75 mm TO JOINTS.
- PROVIDE FLEXIBLE RUBBER SLEEVES CONFORMING TO ASTM C-923, RESILIENT, OF SIZE REQUIRED, FOR EACH PIPE CONNECTING TO STRUCTURE. SLEEVES SHALL BE CAST INTO PRECAST STRUCTURE BY THE MANUFACTURER FOR ALL PIPE PENETRATIONS.
- GRATE AND FRAME SIZES VARY. REFER TO VTRANS STANDARD SHEETS (D SERIES) FOR DIMENSIONS.
- TWO COURSES MIN. OF BUILDING BRICK, CONFORMING TO SUBSECTION 705.01 (b) OF THE VERMONT STANDARD SPECIFICATIONS FOR CONSTRUCTION, TO BE PLACED ON TOP OF FLAT SLAB TOP PRIOR TO PLACING FRAME TO FACILITATE CHANGING ELEVATION OF CATCH BASIN OR MANHOLE WHEN REQUIRED. PROVIDE MANHOLE ADJUSTING RING WHEN REQUIRED TO BRING GRATE OR COVER UP TO WEARING COURSE SURFACE ELEVATION.

DIAMETER	WALL THICKNESS (MIN.)	FLOOR THICKNESS (MIN.)
1.5 m	150 mm	175 mm



FLAT SLAB TOP (DOUBLE GRATE)

**PRECAST REINFORCED CONCRETE
CATCH BASIN DETAIL**

NOT TO SCALE



FUSS & O'NEILL

PROJECT NAME: BRANDON	PLOT DATE: 12/19/2017
PROJECT NUMBER: BHF 019-3(58)	DRAWN BY: M. HALEY
FILE NAME: z10b358drndet.dgn	CHECKED BY: D. MUNRO
PROJECT LEADER: J. BYATT	SHEET 29 OF 79
DESIGNED BY: M. HALEY	
DRAINAGE DETAILS SHEET	

TEMPORARY 100 mm WHITE LINE
DURABLE 100 mm WHITE LINE, POLYUREA
21+788.0 TO 21+824.7 RT (SOLID)
21+788.0 TO 21+834.1 LT (SOLID)
21+838.1 TO 21+862.0 LT (SOLID)
21+838.9 TO 21+862.0 RT (SOLID)
9+011.3 TO 9+020.0 LT (SOLID)
9+012.6 TO 9+020.0 RT (SOLID)

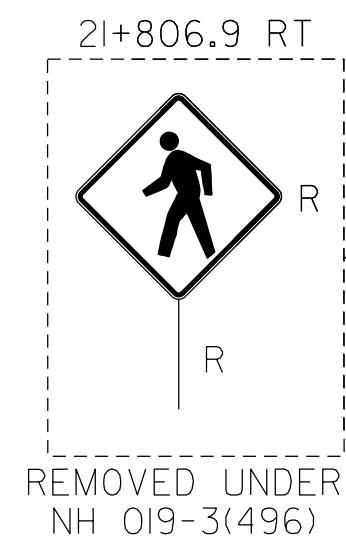
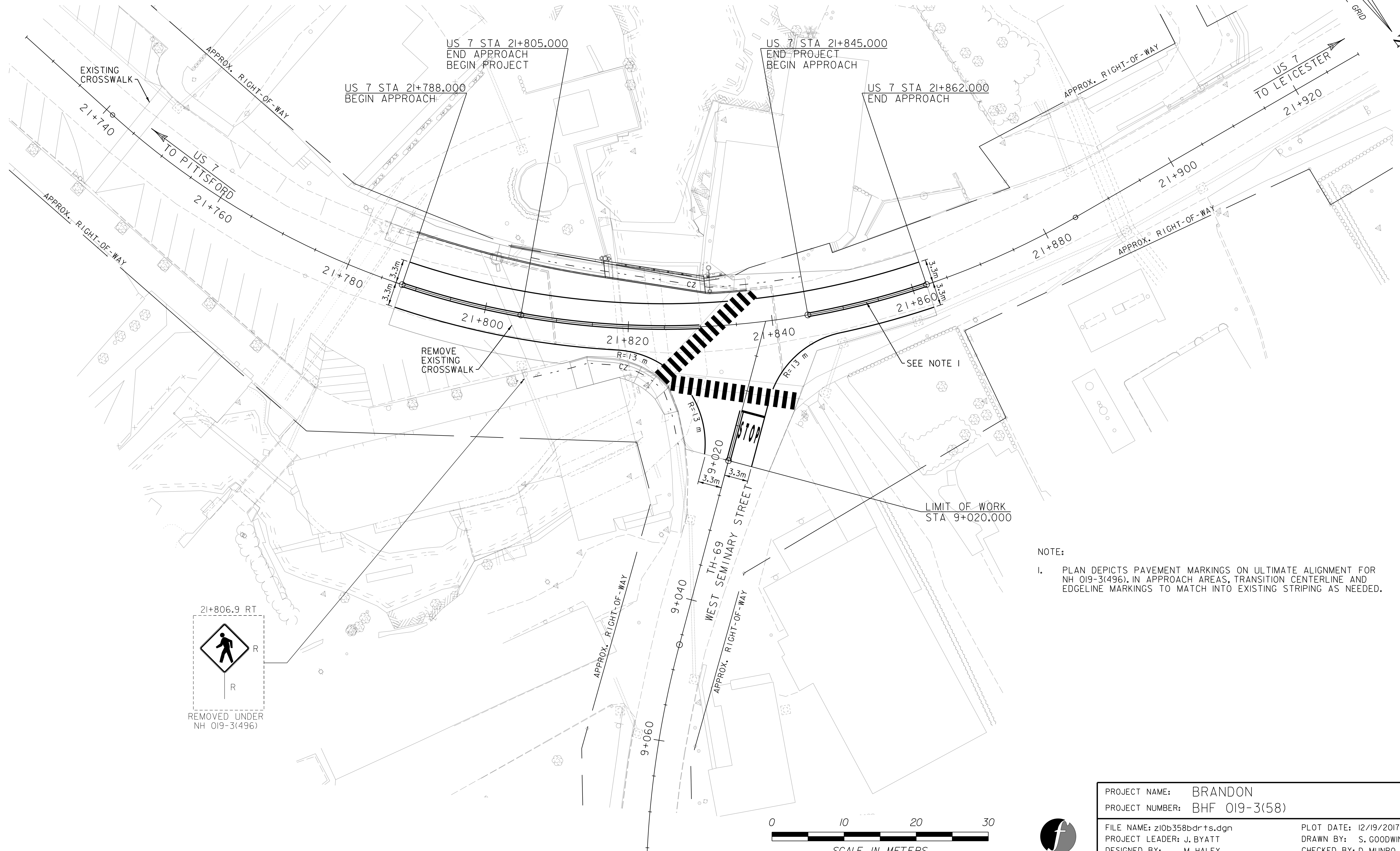
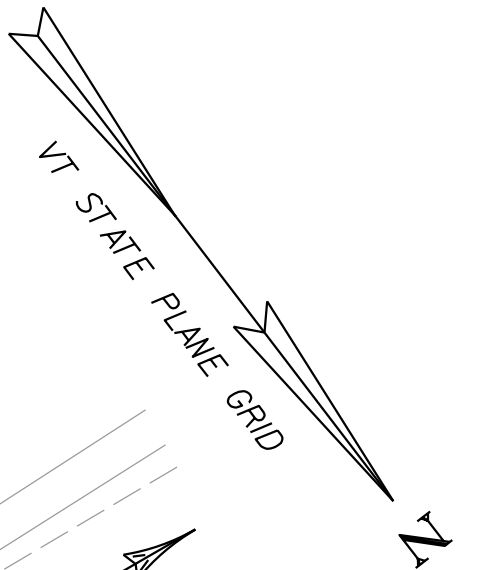
TEMPORARY 100 mm YELLOW LINE
DURABLE 100 mm YELLOW LINE, POLYUREA
21+788.0 TO 21+829.9 LT & RT (SOLID)
21+845.0 TO 21+862.0 LT & RT (SOLID)
9+012.9 TO 9+020.0 LT & RT (SOLID)

TEMPORARY 600 mm STOP BAR
DURABLE 600 mm STOP BAR, POLYUREA
9+012.9 LT (3.3 m)

TEMPORARY LETTER OR SYMBOL
DURABLE LETTER OR SYMBOL, POLYUREA
9+015.4 LT (STOP)

TEMPORARY CROSSWALK MARKING
DURABLE CROSSWALK MARKING, POLYUREA
21+824.5 RT TO 21+838.3 LT
9+009.6 LT TO 9+011.7 RT

REMOVAL OF EXISTING PAVEMENT MARKINGS
21+797.4 LT TO 21+809.4 RT (CROSSWALK)
(INCIDENTAL TO TRAFFIC CONTROL, ALL-INCLUSIVE)



NOTE:

- I. PLAN DEPICTS PAVEMENT MARKINGS ON ULTIMATE ALIGNMENT FOR NH 019-3(496). IN APPROACH AREAS, TRANSITION CENTERLINE AND EDGELINE MARKINGS TO MATCH INTO EXISTING STRIPING AS NEEDED.

PROJECT NAME: BRANDON
PROJECT NUMBER: BHF 019-3(58)

FILE NAME: z10b358bdr+ts.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: M. HALEY
PAVEMENT MARKING SHEET

PLOT DATE: 12/19/2017
DRAWN BY: S. GOODWIN
CHECKED BY: D. MUNRO
SHEET 30 OF 79



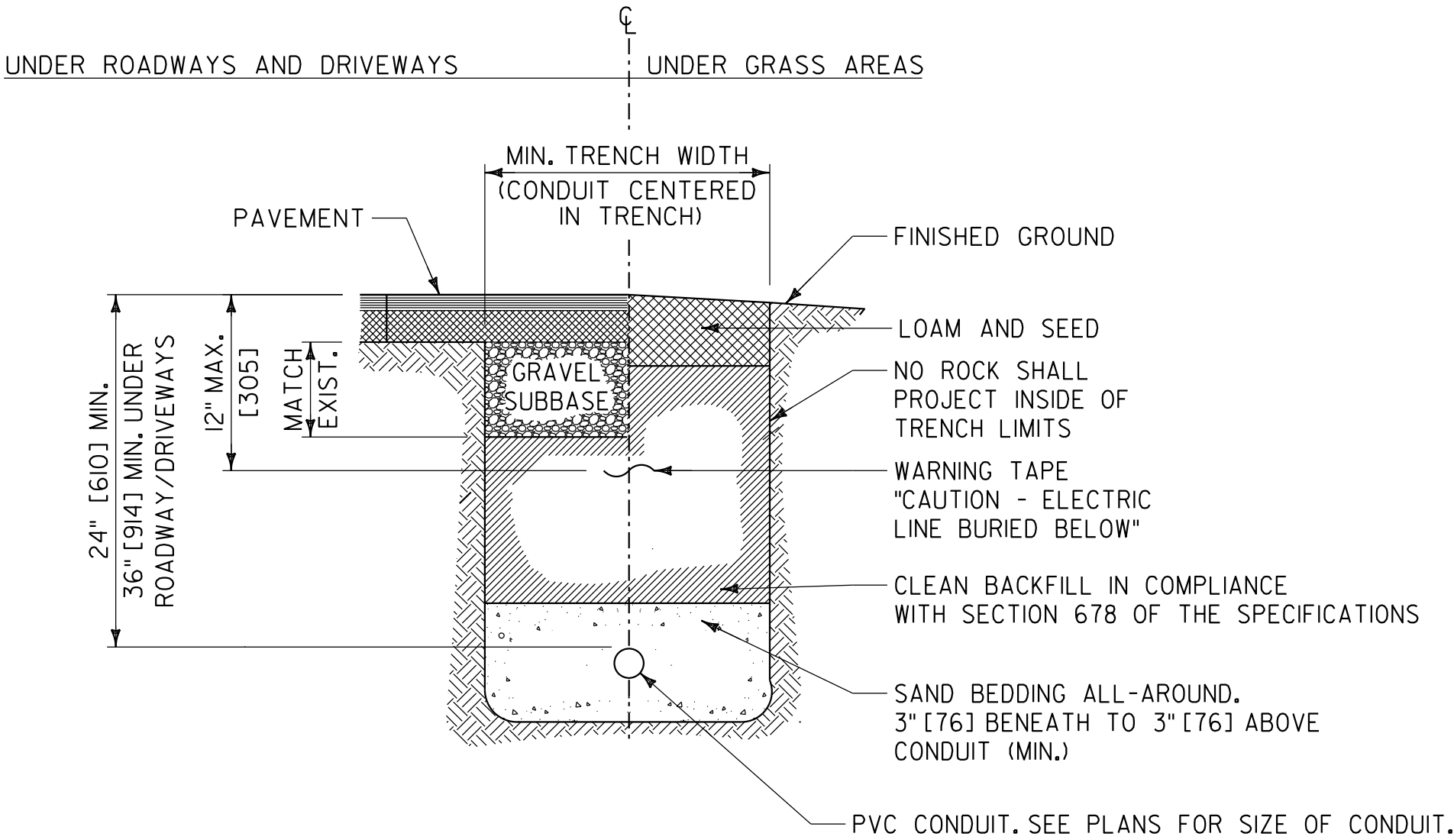
0 10 20 30
SCALE IN METERS

LIGHTING GENERAL NOTES:

1. ALL COMPONENTS OF DECORATIVE LIGHT POLES SHALL MATCH THE MODEL/STYLE OF COMPONENTS SELECTED FOR PROJECT NH 019-3(496) AS NOTED IN THE SPECIAL PROVISIONS.
2. THE SCOPE OF WORK IS TO PROVIDE ALL LABOR, MATERIALS, SERVICES, SUPPLIES, TOOLS, EQUIPMENT, TRANSPORTATION, AND FACILITIES NECESSARY TO FURNISH AND INSTALL STREET LIGHTING WORK AS CALLED FOR ON THE DRAWINGS, SPECIFIED, OR AS MAY REASONABLY BE IMPLIED AS BEING INCIDENTAL TO THIS WORK.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PERMITS, CERTIFICATES AND LICENSES NECESSARY TO COMPLETE THIS WORK.
4. DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENT OF WORK. BASIC DESIGN CONCEPTS INDICATED ARE TO BE EITHER FOLLOWED OR BETTERED. WORK IS INTENDED TO INCLUDE ITEMS NECESSARY FOR PROPER OPERATION AND COMPLETION. FIELD VERIFY ALL LOCATIONS, ELEVATIONS, AND DIMENSIONS.
5. EXECUTE ALL WORK IN A NEAT AND WORKMANLIKE MANNER IN CONFORMANCE WITH BEST MODERN TRADE PRACTICE, BY COMPETENT, EXPERIENCED MECHANICS, PRESENTING A NEAT APPEARANCE WHEN COMPLETED.
6. ALL MATERIALS AND INSTALLATION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE, AND ALL CODES, REGULATIONS AND REQUIREMENTS OF ALL MUNICIPAL, STATE, FEDERAL, AND OTHER PUBLIC OR PRIVATE AUTHORITIES WHICH HAVE JURISDICTION. IN EACH CASE, CODES ARE MINIMUM REQUIREMENTS.
7. SHOP DRAWINGS: SUBMIT COMPLETE CATALOG INFORMATION FOR ALL MATERIALS AND EQUIPMENT TO BE PURCHASED AND USED ON THIS PROJECT AND AS SPECIFIED ON THE DRAWINGS. DO NOT INSTALL MATERIALS OR EQUIPMENT WITHOUT APPROVAL. UNAPPROVED MATERIAL ALREADY INSTALLED SHALL BE SUBJECT TO REMOVAL AND REPLACEMENT WITH APPROVED MATERIALS AT THE CONTRACTOR'S EXPENSE.
8. MATERIALS AND EQUIPMENT SHALL BE LISTED BY UNDERWRITERS' LABORATORIES AND SHALL BE INSTALLED IN ACCORDANCE WITH SUCH LISTINGS.
9. THE CONTRACTOR SHALL GUARANTEE THAT MATERIALS, EQUIPMENT, AND WORKMANSHIP PROVIDED SHALL BE FREE FROM DEFECTS IN MATERIALS OR WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE OF THE WORK DONE UNDER THIS CONTRACT, AND SHALL REPLACE PARTS FOUND TO BE DEFECTIVE WITHIN THE PERIOD COVERED BY SUCH GUARANTEE, WITHOUT COST TO THE OWNER.
10. INSTALLATION SHALL BE MADE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
11. CONDUIT LOCATIONS SHOWN ARE INDICATIVE ONLY. CONDUIT WILL BE INSTALLED SO AS NOT TO INTERFERE WITH OTHER NEW OR EXISTING UTILITIES.
12. ALL DIMENSIONS SHOWN IN BRACKETS ON FOLLOWING SHEETS ARE IN MILLIMETERS.
13. CONDUITS SHALL BE INSTALLED SUCH THAT WIRING CAN BE PULLED AT A FUTURE TIME.

CONDUIT NOTES:

1. ALL CONDUIT SHALL BE SCHEDULE 80 PVC UNLESS OTHERWISE SPECIFIED.
2. A MAXIMUM OF 270° TOTAL BENDS PERMITTED IN SINGLE RUN OF CONDUIT.



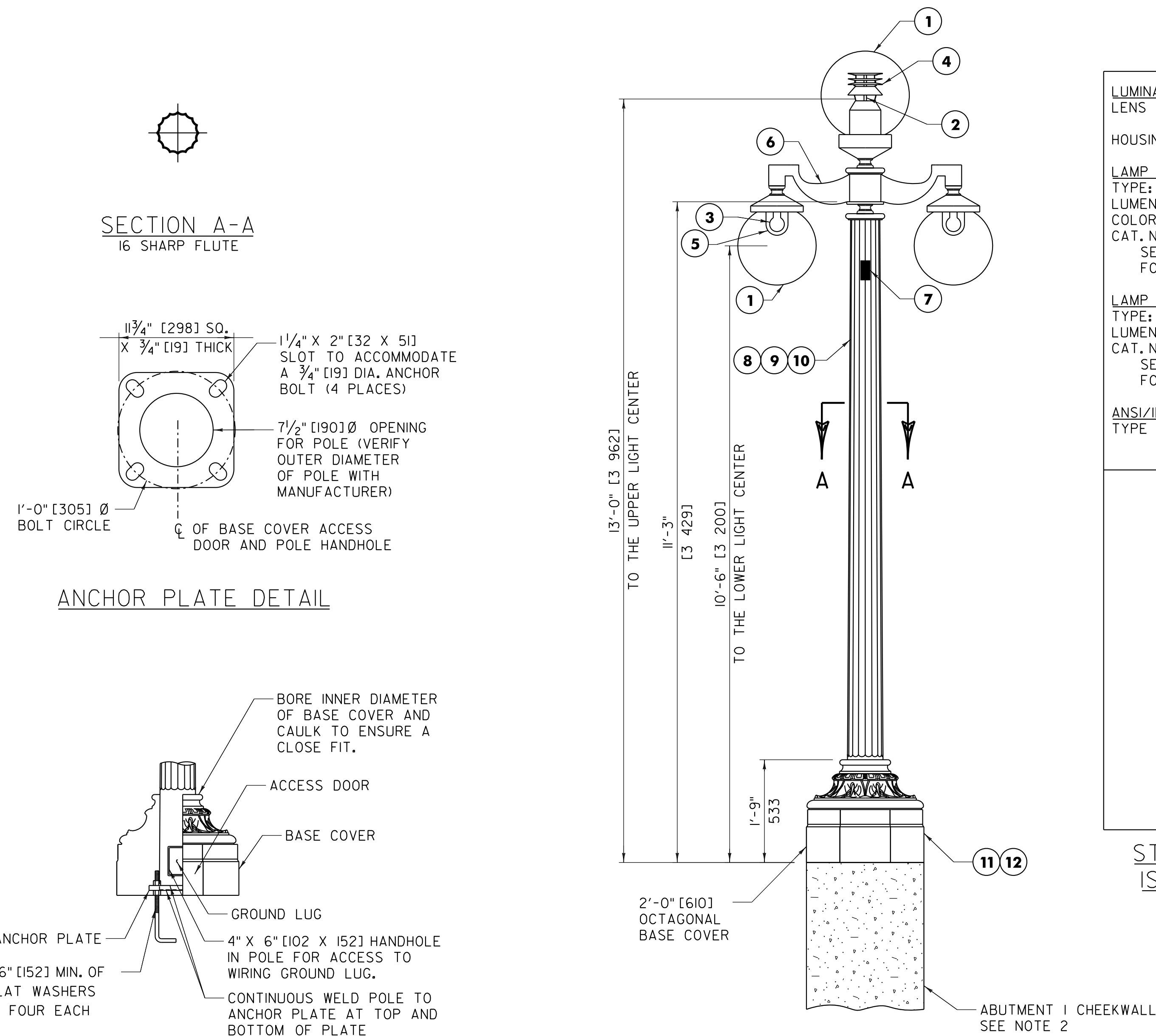
TYPICAL TRENCH SECTION
NOT TO SCALE



PROJECT NAME: BRANDON
PROJECT NUMBER: BHF 019-3(58)

FILE NAME: z10b358lightdet.dgn
PROJECT LEADER: R. KISCHKO
DESIGNED BY: E. DANIELS
LIGHTING NOTES/DETAILS SHEET 1

PLOT DATE: 11/6/2017
DRAWN BY: E. DANIELS
CHECKED BY: R. KISCHKO
SHEET 31 OF 79



LUMINAIRE: LENS FINISH: POLYCARBONATE (WHITE) HOUSING: ALUMINUM LAMP UPPER: TYPE: 60W LED LUMENS: 3600 COLOR TEMP: 4000K CAT. NO.: SEE SPECIAL PROVISIONS FOR MODEL LAMP LOWER (2): TYPE: 20W LED LUMENS: 1200 CAT. NO.: SEE SPECIAL PROVISIONS FOR MODEL ANSI/IES TYPE: TYPE V OPTICS	
MOUNTING HEIGHT: ~13'-0" [3 962] (UPPER) ~10'-6" [3 200] (LOWER) STREETSIDE HOUSESIDE 20'-0" [6 096] GRID DEPICTED STREET LIGHT TYPE 'B' ISO-FOOTCANDLE DATA	

DESCRIPTION OF COMPONENTS FOR TYPE "B" STREET LIGHT:

POLE: 13'-0" [3962] SEE SPECIAL PROVISIONS FOR MODEL.

LUMINAIRE: SEE ABOVE

- LENS: 18" [457] GLOBE - POLYCARBONATE (WHITE). THE LENS SHALL SEAL AGAINST FLANGE BY ONE PIECE OF EXTRUDED SILICONE GASKET WITH FUSED SEAM TO PRODUCE A FULLY SEALED OPTICAL CHAMBER.
- LAMP UPPER: 60 WATT LED, 3600 LUMENS
- LAMP LOWER: 20 WATT LED, 1200 LUMENS
- OPTICS UPPER: TYPE V INTERNAL STACKED REFLECTOR
- OPTICS LOWER: INTERNAL GLASS REFRACTOR
- ARM: MATCH SELECTED ARM FOR NH 019-3(496). SEE SPECIAL PROVISIONS.
- GFCI RECEPTACLES: TO BE INCLUDED ON TYPE B POLE. REFER TO SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.
- POLE: DUCTILE CAST IRON, TAPERED, 16 SHARP FLUTE, COLOR-BLACK. POLES SHALL WITHSTAND WINDS MEETING REQUIREMENTS OF SPECIFICATION 753.01.
- POLE FINISH: IRON OXIDE RED PRIMER; ASTM 2500 HOUR SALT SPRAY TEST ENDURANCE RATING. FINISH COLOR: BLACK.
- WIRING: INCLUDE WIRING FROM FIXTURE TO POLE BASE: 2*10, 1*10G CU. CONDUCTORS TO EXTEND 2'-0" [610] BEYOND BASE ACCESS DOOR. INCLUDE WIRING FOR RECEPTACLES WHERE APPLICABLE: 2*10, 1*10 GND, 1*10G CU. CONDUCTORS TO EXTEND 2'-0" [610] BEYOND BASE ACCESS DOOR.
- BASE COVER: TWO-PIECE, WRAP-AROUND CAST-IRON, MECHANICALLY SECURED WITH STAINLESS STEEL HARDWARE. INCLUDES 4" X 6" [102 X 152] ACCESS DOOR.

DESCRIPTION OF COMPONENTS FOR TYPE "B" STREET LIGHT (CONT.):

- FUSING: PROVIDE FUSE AT BASE. LIGHTS SHALL BE FUSED AT BASE WITH Y-TYPE FUSE KIT EQUAL TO HOMAC [FLOOD SEAL] FYC-6 AND 10 AMP FUSE.
- DRIVERS: ALL ELECTRICAL COMPONENTS ARE UL AND CSA RECOGNIZED AND FACTORY PREWIRED WITH QUICK-DISCONNECT PLUGS FOR ATTACHMENT TO THE INCOMING WIRES AND THE LAMP MODULES. ALL DRIVERS ARE HIGH POWER FACTOR WITH STARTING TEMPERATURE OF -20F [-29C] FOR LED DRIVERS. DRIVERS SHALL BE MULTI-TAP WIRED AT 240V.
- LUMINAIRE ASSEMBLY SHALL BE COMPLETE WITH A PROGRAMMABLE DRIVER LAPTOP OR CONTRACTOR FURNISHED LAPTOP OR PROGRAMMING DEVICE. PROGRAMMER SHALL BE TURNED OVER TO THE TOWN ONCE PROGRAMMING IS COMPLETED, TESTED, AND ACCEPTED. DRIVER SHALL ALLOW FOR FULL WATTAGE SELECTION OF 40W, 50W, AND 60W MINIMUM. PRESET DRIVER AT THE FACTORY TO 50W FOR THE 60W LUMINAIRES (UPPER GLOBE ASSEMBLY) LED ONLY. NOT REQUIRED FOR THE 20W (LOWER GLOBE ASSEMBLY). CONTRACTOR SHALL PROVIDE ALL NECESSARY HARDWARE, SOFTWARE, AND LAPTOP (OR PROGRAMMING DEVICE) TO ALLOW FOR FIELD RE-PROGRAMMING FOR ALL LUMINAIRES. INCLUDE ALL LABOR AND EQUIPMENT (BUCKET TRUCK, SIGNAGE, TRAFFIC CONTROL, ETC.) NECESSARY FOR THIS RE-PROGRAMMING IF REQUESTED.

WARNING: DO NOT INSTALL POLES WITHOUT LUMINAIRES OR STRENGTH GUARANTEE IS VOIDED. ANY UNAUTHORIZED ACCESSORIES SECURED TO POLE SHALL VOID STRENGTH GUARANTEE.

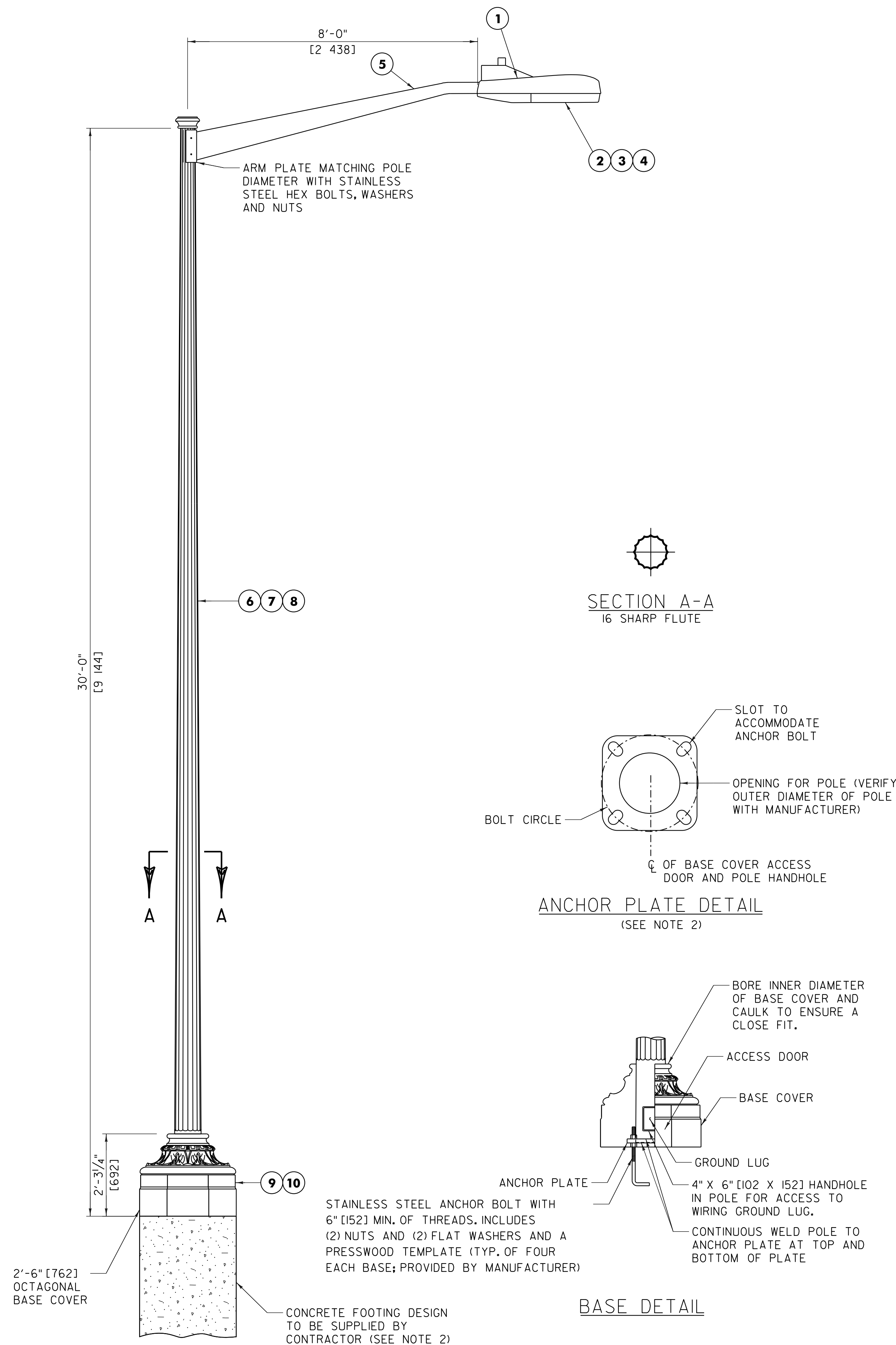
NOTES:

- THE PAY ITEM FOR EACH TYPE B ORNAMENTAL STREET LIGHT ASSEMBLY INCLUDES: (1) LIGHT POLE, (1) BRACKET ARM, (3) LUMINAIRES AND (1) LIGHT POLE BASE.
- WORKING DRAWINGS FOR ABUTMENT NO. 1 REINFORCEMENT SHOULD INCLUDE LAYOUT OF ELECTRICAL CONDUIT AND ANCHOR BOLTS IN CHEEKWALL.



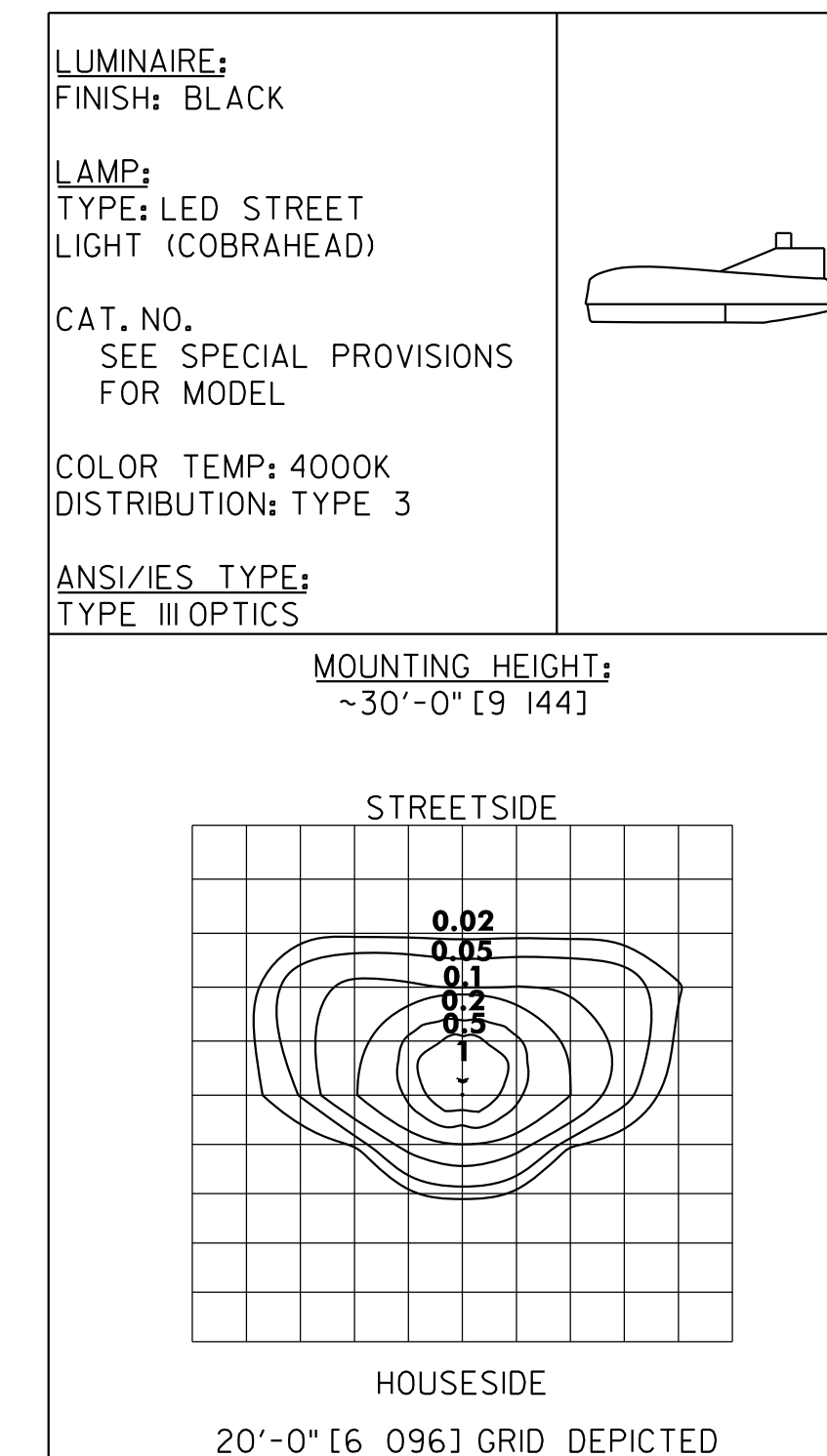
PROJECT NAME: BRANDON
PROJECT NUMBER: BHF 019-3(58)

FILE NAME: z10b358lightdet.dgn
PROJECT LEADER: R. KISCHKO
DESIGNED BY: E. DANIELS
LIGHTING NOTES/DETAILS SHEET 2
PLOT DATE: 11/6/2017
DRAWN BY: E. DANIELS
CHECKED BY: R. KISCHKO
SHEET 32 OF 79



TYPE 'C' STREET LIGHT DETAILS

NOT TO SCALE



STREET LIGHT TYPE 'C'
ISO-FOOTCANDLE DATA

DESCRIPTION OF COMPONENTS FOR TYPE 'C' STREET LIGHT:

POLE: 30'-0" [9144] SEE SPECIAL PROVISIONS FOR MODEL.

- LUMINAIRE: DIE-CAST ALUMINUM WITH ELECTROSTATICALLY APPLIED PAINT FINISH. COLOR IS BLACK, TEXTURE IS SMOOTH, "POWER DOOR" MOUNTED BALLAST, UL LISTED, MOUNTING HEIGHT SHALL BE 30'-0" [9 144] ABOVE ROADWAY SURFACE. DLC LISTED, DARK SKY COMPLIANT, IP 66 RATED.
- LAMP: 60 LED, 13400 LUMENS, EFFICACY (Lm/W):101, COLOR TEMPERATURE: 4000 K
- OPTICS: TYPE III, MEDIUM DISTRIBUTION, FULL CUTOFF.
- LENS: MICRO-LENS OPTICAL SYSTEM, ISNA TYPE 3 DISTRIBUTION.
- ARM: 8'-0" ARM MADE OF CAST ALUMINUM, MECHANICALLY SECURED TO THE RETAINING ADAPTER, UPSWEEP STYLE, MEETING REQUIREMENTS OF SPECIFICATION 753.01. COLOR-BLACK
- POLE: DUCTILE CAST IRON, 16 SHARP FLUTE, COLOR-BLACK, LIGHT POLES SHALL MEET REQUIREMENTS OF SPECIFICATION 753.01.
- POLE FINISH: IRON OXIDE RED PRIMER; ASTM 2500 HOUR SALT SPRAY TEST ENDURANCE RATING. FINISH COLOR: BLACK
- WIRING: INCLUDE WIRING FROM FIXTURE TO POLE BASE: 2*10, 1*10G CU. CONDUCTORS TO EXTEND 2'-0" [610] BEYOND BASE ACCESS DOOR.
- BASE COVER: TWO-PIECE, WRAP-AROUND CAST-IRON, MECHANICALLY SECURED WITH STAINLESS STEEL HARDWARE. INCLUDES 4" X 6" [102 X 152] ACCESS DOOR.
- FUSING: PROVIDE FUSE AT BASE. LIGHTS SHALL BE FUSED AT BASE WITH Y-TYPE FUSE KIT EQUAL TO HOMAC [FLOOD SEAL] FYC-6 AND 10 AMP FUSE.
- DRIVERS: ALL ELECTRICAL COMPONENTS ARE TO BE UL AND CSA RECOGNIZED AND FACTORY PRE-WIRED WITH QUICK DISCONNECT PLUGS FOR ATTACHMENT TO THE INCOMING WIRES AND THE LAMP MODULES. ALL DRIVERS SHALL BE HIGH POWER FACTOR WITH STARTING TEMPERATURES OF -20F [-29C]. ALL DRIVERS SHALL BE MULTI-TAP, WIRED AT 240V.

WARNING: DO NOT INSTALL POLES WITHOUT LUMINAIRES OR STRENGTH GUARANTEE IS VOIDED. ANY UNAUTHORIZED ACCESSORIES SECURED TO POLE SHALL VOID STRENGTH GUARANTEE.

NOTES:

- THE PAY ITEM FOR TYPE "C" ORNAMENTAL STREET LIGHT INCLUDES: (1) LIGHT POLE, (1) ARM, (1) LUMINAIRE, AND (1) LIGHT POLE BASE AND CONCRETE FOOTING.
- SEE STANDARD T-133 FOR ADDITIONAL INFORMATION RELATIVE TO THE INSTALLATION OF STREET LIGHTING WITH CONCRETE FOUNDATION.
- ANY EXCAVATION NECESSARY TO INSTALL LIGHT POLE FOUNDATION SHALL BE INCIDENTAL TO THE APPLICABLE STREET LIGHT ASSEMBLY PAY ITEM.



PROJECT NAME: BRANDON
PROJECT NUMBER: BHF 019-3(58)

FILE NAME: z10b358lightdet.dgn
PROJECT LEADER: R. KISCHKO
DESIGNED BY: E. DANIELS
LIGHTING NOTES/DETAILS SHEET 3

PLOT DATE: 11/6/2017
DRAWN BY: E. DANIELS
CHECKED BY: R. KISCHKO
SHEET 33 OF 79

SOIL CLASSIFICATION

AASHTO

A1	Gravel and Sand
A3	Fine Sand
A2	Silty or Clayey Gravel and Sand
A4	Silty Soil - Low Compressibility
A5	Silty Soil - Highly Compressible
A6	Clayey Soil - Low Compressibility
A7	Clayey Soil - Highly Compressible

ROCK QUALITY DESIGNATION

R.Q.D. (%)	ROCK DESCRIPTION
<25	Very Poor
25 to 50	Poor
51 to 75	Fair
76 to 90	Good
>90	Excellent

SHEAR STRENGTH

UNDRAINED SHEAR STRENGTH IN P.S.F.	CONSISTENCY
<250	Very Soft
250-500	Soft
500-1000	Med. Stiff
1000-2000	Stiff
2000-4000	Very Stiff
>4000	Hard

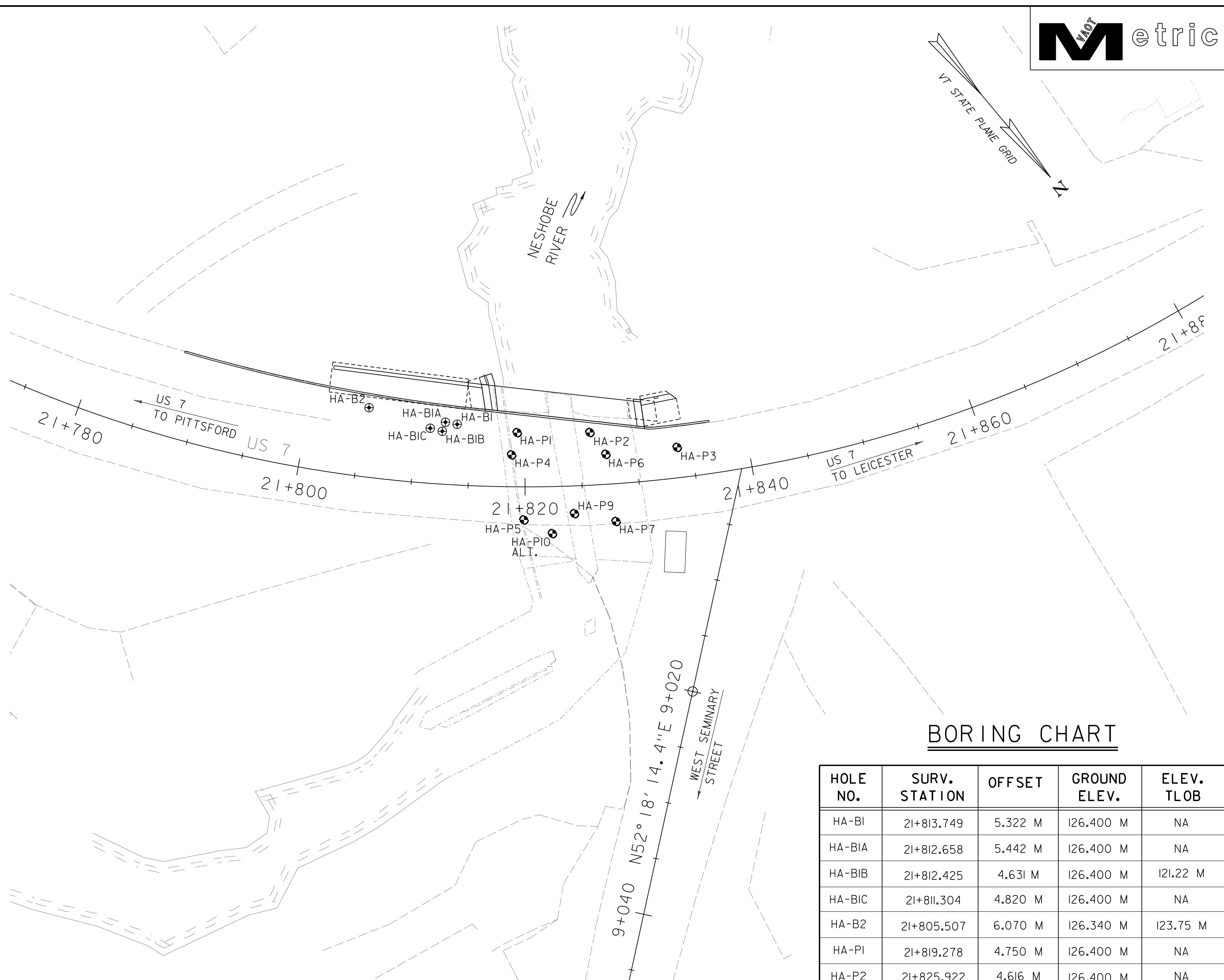
CORRELATION GUIDE OF "N" TO DENSITY/CONSISTENCY

DENSITY (GRANULAR SOILS)		CONSISTENCY (COHESIVE SOILS)	
N	DESCRIPTIVE TERM	N	DESCRIPTIVE TERM
<5	Very Loose	<2	Very Soft
5-10	Loose	2-4	Soft
11-24	Med. Dense	5-8	Med. Stiff
25-50	Dense	9-15	Stiff
>50	Very Dense	16-30	Very Stiff
		31-60	Hard
		>60	Very Hard

COMMONLY USED SYMBOLS

	Water Elevation
⊕	Standard Penetration Boring
⊕	Auger Boring
⊙	Rod Sounding
S	Sample
N	Standard Penetration Test
	Blow Count Per Foot For:
	2" O.D. Sampler
	1 3/8" I.D. Sampler
	Hammer Weight Of 140 Lbs.
	Hammer Fall Of 30"
VS	Field Vane Shear Test
US	Undisturbed Soil Sample
B	Blast
DC	Diamond Core
MD	Mud Drill
WA	Wash Ahead
HSA	Hollow Stem Auger
AX	Core Size 1 1/8"
BX	Core Size 1 5/8"
NX	Core Size 2 1/8"
M	Double Tube Core Barrel Used
LL	Liquid Limit
PL	Plastic Limit
PI	Plasticity Index
NP	Non Plastic
w	Moisture Content (Dry Wgt. Basis)
D	Dry
M	Moist
MTW	Moist To Wet
W	Wet
Sat	Saturated
Bo	Boulder
Gr	Gravel
Sa	Sand
Si	Silt
Cl	Clay
HP	Hardpan
Le	Ledge
NLTD	No Ledge To Depth
CNPF	Can Not Penetrate Further
TLOB	Top Of Ledge Or Boulder
NR	No Recovery
Rec.	Recovery
%Rec.	Percent Recovery
RQD	Rock Quality Designation
CBR	California Bearing Ratio
<	Less Than
>	Greater Than
R	Refusal (N > 100)
VTSPG	NAD83 - See Note 7

		<u>COLOR</u>	
blk	Black	pnk	Pink
bl	Blue	pu	Purple
brn	Brown	rd	Red
dk	Dark	tn	Tan
gry	Gray	wh	White
gn	Green	yel	Yellow
lt	Light	mitc	Multicolored
or	Orange		



BORING CHART

HOLE NO.	SURV. STATION	OFFSET	GROUND ELEV.	ELEV. TLOB
HA-BI	2I+8I3.749	5.322 M	I26.400 M	NA
HA-BIA	2I+8I2.658	5.442 M	I26.400 M	NA
HA-BIB	2I+8I2.425	4.63I M	I26.400 M	I2I.22 M
HA-BIC	2I+8II.304	4.820 M	I26.400 M	NA
HA-B2	2I+805.507	6.070 M	I26.340 M	I23.75 M
HA-PI	2I+8I9.278	4.750 M	I26.400 M	NA
HA-P2	2I+825.922	4.6I6 M	I26.400 M	NA
HA-P3	2I+833.686	2.656 M	I26.I90 M	NA
HA-P4	2I+8I8.788	2.793 M	I26.490 M	NA
HA-P5	2I+8I9.900	2.902 M	I26.6I0 M	NA
HA-P6	2I+827.253	2.624 M	I26.400 M	NA
HA-P7	2I+827.758	3.3I2 M	I26.490 M	NA
HA-P9	2I+824.243	2.434 M	I26.550 M	NA
HA-PIO ALT	2I+822.3I6	4.I27 M	I26.3I0 M	NA

DEFINITIONS (AASHTO)

BEDROCK (LEDGE) - Rock in its native location of indefinite thickness.

BOULDER - A rock fragment with an average dimension > 12 inches.

COBBLE - Rock fragments with an average dimension between 3 and 12 inches.

GRAVEL - Rounded particles of rock < 3" and > 0.075" (#10 sieve).

SAND - Particles of rock < 0.075" (#10 sieve) and > 0.0025" (#200 sieve).

SILT - Soil < 0.0025" (#200 sieve), non or slightly plastic and exhibits no strength when air-dried.

CLAY - Fine grained soil, exhibits plasticity when moist and considerable strength when air-dried.

VARVED - Alternate layers of silt and clay.

HARDPAN - Extremely dense soil, cemented layer, not softened when wet.

MUCK - Soft organic soil (containing > 10% organic material).

MOISTURE CONTENT - Weight of water divided by dry weight of soil.

FLOWING SAND - Granular soil so saturated (loose) that it flows into drill casing during extraction of wash rod.

STRIKE - Angle from magnetic north to line of intersection of bed with a horizontal plane.

DIP - Inclination of bed with a horizontal plane.

GENERAL NOTES

- | | | |
|---|-----------------------------|--|
| <p>1. The subsurface explorations shown herein were made between 8/3/2016 and 8/6/2016 by Haley & Aldrich.</p> <p>2. Soil and rock classifications, properties and descriptions are based on engineering interpretation from available subsurface information by the Agency and may not necessarily reflect actual variations in subsurface conditions that may be encountered between individual boring or sample locations.</p> <p>3. Observed water levels and/or conditions indicated are as recorded at the time of exploration and may vary according to the prevailing rainfall, methods of exploration and other factors.</p> | <p><u>GENERAL NOTES</u></p> | <p>4. Engineering judgment was exercised in preparing the subsurface information presented herein. Analysis and interpretation of subsurface data was performed and interpreted for Agency design and estimating purposes. Presentation of the information in the Contract is intended to provide the Contractor access to the same data available to the Agency. The subsurface information is presented in good faith and is not intended as a substitute for personal investigation, independent interpretation, independent analysis or judgment by the Contractor.</p> <p>5. Pictorial structure details shown on the boring plan layout or soils profile are for illustrative purposes only and may not accurately portray final contract details.</p> <p>6. Terminology used on boring logs to describe the hardness, degree of weathering, and spacing of fractures, joints and other discontinuities in the bedrock is defined in the AASHTO Manual on Subsurface Investigations, 1988.</p> <p>7. Northing and Easting coordinates are shown in Vermont State Plane Grid North American Datum 1983 in meters and survey feet.</p> |
|---|-----------------------------|--|

PROJECT NAME:	BRANDON
PROJECT NUMBER:	BHF 019-3(58)

FILE NAME: z10b358bor.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: S. BEAUMONT
BORING INFORMATION SHEET

PLOT DATE: 12/19/2017
DRAWN BY: M. SMITH
CHECKED BY: J. BYATT
SHEET 34 OF 79

HALEYALDRICH

TEST BORING REPORT

METRIC

Boring No. HA-B1

ProjectBRIDGE NO. 114 US ROUTE 7 OVER NESHOBE RIVER

LocationBRANDON, VERMONT

ClientCLD CONSULTING ENGINEERS, INC.

ContractorNEW ENGLAND BORING CONTRACTORS, INC.

File No.41107-100

Sheet No.1 of 1

Start4 Aug 2015

Finish4 Aug 2015

DrillerM. Thompson

H&A Rep.M. Hatton

Elevation126.40 m (est.)

DatumNAVD 88

LocationSee Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	--	Rig Make & Model: Mobile B57 Track
Inside Diameter (cm)	10.16	3.49	--	Bit Type: Roller Bit
Hammer Weight (kg)	136.08	63.50	-	Drill Mud: None
Hammer Fall (cm)	61.0	76.20	-	Casing: HW Drive to 1.43 m
				Hoist/Hammer: Winch, Automatic Hammer

Depth (m)	Sampler Blows per 15 cm	Sample No. & Rec. (cm)	Sample Depth (m)	Well Diagram	Elev./Depth (m)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel	Sand	Field Test							
								% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength
0					26.31 0.09		Note: Used 12.7 cm roller bit to cut through asphalt. Note: 10.12 cm asphalt. -ASPHALT-										
	10 11 10 21	S1 30	0.30 0.91			SP	Note: Roller bit into sand and gravel to 0.30 m prior to sampling. Medium dense brown poorly graded SAND with gravel (SP), mps 2.54 cm, no structure, oil-like odor at top 5.08 cm of sample, black staining at top 5.08 cm, dry	5	10	15	55	10	5				
1	14 11 42	S2 5	0.91 1.43		125.49 0.91		Note: When driving casing encountered possible 15.24 cm cobble at approximately 0.91 m. Poor recovery for S2.										
	14/5 cm				124.97 1.43		Note: Large cobble or boulder at 1.22 m. Very hard drilling. Encountered multiple cobbles when driving casing to 1.43 m.										
							Note: Attempted roller bit and split spoon to 1.43 m. Refusal on a possible granite block or steel plate. Driller lost water return. Hole terminated at 1.43 m (no rock core attempted at 1.43 m due to no water return). BOTTOM OF EXPLORATION 1.43 m										
							Note: Upon completion grouted hole and patched surface with asphalt patch.										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (m) to:	Water	
			Bottom of Casing	Bottom of Hole	Water (+/-)
		Not observed			

Sample Identification

O	Open End Rod
T	Thin Wall Tube
U	Undisturbed Sample
S	Split Spoon
G	Geoprobe

Well Diagram

	Riser Pipe
	Screen
	Filter Sand
	Cuttings
	Grout
	Concrete
	Bentonite Seal

Summary

Overburden (lin. m) 1.43

Rock Cored (lin. m)

Samples 2S

Boring No. HA-B1

METRIC

Field Tests:

Dilatancy: R-Rapid, S-Slow, N-None

Toughness: L-Low, M-Medium, H-High

Plasticity: N-Nonplastic, L-Low, M-Medium, H-High

Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

HALEYALDRICH

TEST BORING REPORT

METRIC

Boring No. HA-B1A

ProjectBRIDGE NO. 114 US ROUTE 7 OVER NESHOBE RIVER

LocationBRANDON, VERMONT

ClientCLD CONSULTING ENGINEERS, INC.

ContractorNEW ENGLAND BORING CONTRACTORS, INC.

File No.41107-100

Sheet No.1 of 1

Start4 Aug 2015

Finish4 Aug 2015

DrillerM. Thompson

H&A Rep.M. Hatton

Elevation126.40 m (est.)

DatumNAVD 88

LocationSee Plan

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (m) to:	Water	
			Bottom of Casing	Bottom of Hole	Water (+/-)
		Not observed			

Sample Identification

O	Open End Rod
T	Thin Wall Tube
U	Undisturbed Sample
S	Split Spoon
G	Geoprobe

Well Diagram

	Riser Pipe
	Screen
	Filter Sand
	Cuttings
	Grout
	Concrete
	Bentonite Seal

Summary

Overburden (lin. m) 2.74

Rock Cored (lin. m)

Samples 2S

Boring No. HA-B1A

METRIC

Field Tests:

Dilatancy: R-Rapid, S-Slow, N-None

Toughness: L-Low, M-Medium, H-High

Plasticity: N-Nonplastic, L-Low, M-Medium, H-High

Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

HALEYALDRICH

TEST BORING REPORT

METRIC

Boring No. HA-B1A

ProjectBRIDGE NO. 114 US ROUTE 7 OVER NESHOBE RIVER

LocationBRANDON, VERMONT

ClientCLD CONSULTING ENGINEERS, INC.

ContractorNEW ENGLAND BORING CONTRACTORS, INC.

File No.41107-100

Sheet No.1 of 1

Start4 Aug 2015

Finish4 Aug 2015

DrillerM. Thompson

H&A Rep.M. Hatton

Elevation126.40 m (est.)

DatumNAVD 88

LocationSee Plan

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (m) to:	Water	
			Bottom of Casing	Bottom of Hole	Water (+/-)
		Not observed			

Sample Identification

O	Open End Rod
T	Thin Wall Tube
U	Undisturbed Sample
S	Split Spoon
G	Geoprobe

Well Diagram

	Riser Pipe
	Screen
	Filter Sand
	Cuttings
	Grout
	Concrete
	Bentonite Seal

Summary

Overburden (lin. m) 2.74

Rock Cored (lin. m)

Samples 2S

Boring No. HA-B1A

METRIC

Field Tests:

Dilatancy: R-Rapid, S-Slow, N-None

Toughness: L-Low, M-Medium, H-High

Plasticity: N-Nonplastic, L-Low, M-Medium, H-High

Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

HALEYALDRICH

TEST BORING REPORT

METRIC

Boring No. HA-B1A

ProjectBRIDGE NO. 114 US ROUTE 7 OVER NESHOBE RIVER

LocationBRANDON, VERMONT

ClientCLD CONSULTING ENGINEERS, INC.

ContractorNEW ENGLAND BORING CONTRACTORS, INC.

File No.41107-100

Sheet No.1 of 1

Start4 Aug 2015

Finish4 Aug 2015

DrillerM. Thompson

H&A Rep.M. Hatton

Elevation126.40 m (est.)

DatumNAVD 88

LocationSee Plan

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (m) to:	Water	
			Bottom of Casing	Bottom of Hole	Water (+/-)
		Not observed			

Sample Identification

O	Open End Rod
T	Thin Wall Tube
U	Undisturbed Sample
S	Split Spoon
G	Geoprobe

Well Diagram

	Riser Pipe
	Screen
	Filter Sand
	Cuttings
	Grout
	Concrete
	Bentonite Seal

Summary

Overburden (lin. m) 2.74

Rock Cored (lin. m)

Samples 2S

Boring No. HA-B1A

METRIC

Field Tests:

Dilatancy: R-Rapid, S-Slow, N-None

Toughness: L-Low, M-Medium, H-High

Plasticity: N-Nonplastic, L-Low, M-Medium, H-High

Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

HALEYALDRICH

TEST BORING REPORT

METRIC

Boring No. HA-B1A

ProjectBRIDGE NO. 114 US ROUTE 7 OVER NESHOBE RIVER

LocationBRANDON, VERMONT

ClientCLD CONSULTING ENGINEERS, INC.

ContractorNEW ENGLAND BORING CONTRACTORS, INC.

File No.41107-100

Sheet No.1 of 1

Start4 Aug 2015

Finish4 Aug 2015

DrillerM. Thompson

H&A Rep.M. Hatton

Elevation126.40 m (est.)

DatumNAVD 88

LocationSee Plan

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (m) to:	Water	
			Bottom of Casing	Bottom of Hole	Water (+/-)
		Not observed			

Sample Identification

O	Open End Rod
T	Thin Wall Tube
U	Undisturbed Sample
S	Split Spoon
G	Geoprobe

Well Diagram

	Riser Pipe
	Screen
	Filter Sand
	Cuttings
	Grout
	Concrete
	Bentonite Seal

Summary

Overburden (lin. m) 2.74

Rock Cored (lin. m)

Samples 2S

Boring No. HA-B1A

METRIC

Field Tests:

Dilatancy: R-Rapid, S-Slow, N-None

Toughness: L-Low, M-Medium, H-High

Plasticity: N-Nonplastic, L-Low, M-Medium, H-High

Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

HALEYALDRICH

TEST BORING REPORT

METRIC

Boring No. HA-B1A

ProjectBRIDGE NO. 114 US ROUTE 7 OVER NESHOBE RIVER

LocationBRANDON, VERMONT

ClientCLD CONSULTING ENGINEERS, INC.

ContractorNEW ENGLAND BORING CONTRACTORS, INC.

File No.41107-100

Sheet No.1 of 1

Start4 Aug 2015

Finish4 Aug 2015

DrillerM. Thompson

H&A Rep.M. Hatton

Elevation126.40 m (est.)

DatumNAVD 88

LocationSee Plan



METRIC
Boring No. HA-B1B

File No.	41107-100
Sheet No.	1 of 1
Start	5 Aug 2015
Finish	5 Aug 2015
Driller	M. Thompson
H&A Rep.	K. Russ
Elevation	126.40 m (e)
Datum	NAVD 88
Location	See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures	Finish Date: 5 Aug 2015
Type	HW	S	NX	Rig Make & Model: Mobile B57 Track	Driller: M. Thompson
Inside Diameter (cm)	10.16	3.49	5.08	Bit Type: Roller Bit	H&A Rep. K. Russ
Hammer Weight (kg)	136.08	63.50	-	Drill Mud: None	Elevation 126.40 m (est.)
Hammer Fall (cm)	61.0	76.20	-	Casing: HW Drive to 5.18 m	Datum NAVD 88
				Hoist/Hammer: Winch, Automatic Hammer	Location See Plan

[illegible]

Water Level Data						Sample Identification		Well Diagram		Summary			
Date	Time	Elapsed Time (hr.)	Depth (m) to:			O Open End Rod	T Thin Wall Tube	U Undisturbed Sample	S Split Spoon	G Geoprobe	<div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>Riser Pipe Screen Filter Sand Cuttings Grout Concrete Bentonite Seal</div></div>	Overburden (lin. m)	5.18
			Bottom of Casing	Bottom of Hole	Water (+/-)							Rock Cored (lin. m)	Samples
		Not observed										Boring No. HA-B1B	METR
Field Tests:			Dilatancy:		R-Rapid, S-Slow, N-None		Plasticity: N-Nonplastic, L-Low, M-Medium, H-High						
			Toughness:		L-Low, M-Medium, H-High		Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High						
Note: Soil identification based on visual-manual methods of the USCS as practiced by Halev & Aldrich, Inc.													

TOP OF FOOTING
ABUTMENT I
EL. 123.010 M

HA-1-IB09-BOS.GLB	H&A TEST BORING METRIC CONVERT(CM)-09	11HALEYALDRICH.COMISHAREIMAN_COMMONW41107	BRANDON VT BRIDGE100FIELDGINT2015-0812-HAI-TEST BORING HA P1-HA P10-METRIC.GPJ	9 Jun 17
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Boring No. HA-B1B
File No. 41107-100
Sheet No. 2 of 1

Gravel		Sand		Field Test			
% Coarse	% Fine	% Coarse	% Medium	% Fines	Dilatancy	Toughness	Plasticity
		% Fine					Strength

[illegible]

HA-LIB09-BOS.GLB	H&A TEST BORING METRIC CONVERT(CM)-09	HALEY\ALDRICH.COM\SHARE\MAN_COMMON\41107_BRANDON VT BRIDGE\100\FIELD\GINT\2015-08\12-HA\1-TEST BORING HA P1-HA P10 -METRIC.GPJ	9 Jun 17
------------------	---------------------------------------	--	----------

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Halev & Aldrich, Inc.

Boring No. HA-B1B



FILE NAME: z10b358bor.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: S. BEAUMONT
BORING LOGS SHEET 2

PLOT DATE: 12/19/2017
DRAWN BY: M. SMITH
CHECKED BY: J. BYATT
SHEET 36 OF 79

HALEYALDRICH

TEST BORING REPORT

Project

BRIDGE NO. 114 US ROUTE 7 OVER NESHOBE RIVER

Location

BRANDON, VERMONT

Client

CLD CONSULTING ENGINEERS, INC.

Contractor

NEW ENGLAND BORING CONTRACTORS, INC.

Casing

Sampler

Barrel

Drilling Equipment and Procedures

Type

HW

-

--

Rig Make & Model: Mobile B57 Track

Inside Diameter (cm)

10.16

-

--

Bit Type: Roller Bit

Hammer Weight (kg)

136.08

-

-

Drill Mud: None

Hammer Fall (cm)

61.0

-

-

Casing: HW Drive to 2.44 m

Hoist/Hammer: Winch, None

File No.

41107-100

Sheet No.

1 of 1

Start

6 Aug 2015

Finish

6 Aug 2015

Driller

M. Thompson

H&A Rep.

K. Russ

Elevation

126.40 m (est.)

Datum

NAVD 88

Location

See Plan

Gravel

Sand

Field Test

% Coarse

% Fine

% Coarse

% Medium

% Fine

% Fines

Dilatancy

Toughness

Plasticity

Strength

Visual-Manual Identification and Description

(Density/consistency, color, GROUP NAME, structure, odor, moisture, optional descriptions, geologic interpretation)

Note: 4th attempt at HA-B1 vicinity. HA-B1C offset approximately 0.61 m southwest of HA-B1B.

Note: Advanced casing and roller bit to 2.44 m without sampling.

Note: Casing refusal at 2.44 m on possible obstruction.

Note: Advanced roller bit to 2.44 m where possible crimping on casing due to obstruction occurred. Hole terminated at 2.44 m due to broken equipment.

BOTTOM OF EXPLORATION 2.44 m

Note: Upon completion grouted hole and patched surface with asphalt patch.

Water Level Data

Sample Identification

Well Diagram

Summary

Date

Time

Elapsed Time (hr.)

Depth (m) to: Bottom of Casing Bottom of Hole Water (+/-)

O Open End Rod

T Thin Wall Tube

U Undisturbed Sample

S Split Spoon

G Geoprobe

Riser Pipe

Screen

Filter Sand

Cuttings

Grout

Concrete

Bentonite Seal

Overburden (lin. m)

2.44

Rock Cored (lin. m)

Samples

-

Boring No. HA-B1C

METRIC

Field Tests:

Dilatancy: R-Rapid, S-Slow, N-None

Toughness: L-Low, M-Medium, H-High

Plasticity: N-Nonplastic, L-Low, M-Medium, H-High

Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

HA-LIB08-BOS.GLB

HA-B TEST BORING METRIC CONVERT (CM)-08

INHALEYALDRICH.COM\SHARE\EMW

COMMON41107

BRANDON VT

BRIDGE1100\FIELD\DIGINT\2015-08\12-HAL-TEST BORING HA-P1-HA-P10-METRIC.GPJ

9 Jun 17

BOTTOM OF FOOTING
RETAINING WALL I
EL. 124.000 M

HALEYALDRICH

TEST BORING REPORT

Project

BRIDGE NO. 114 US ROUTE 7 OVER NESHOBE RIVER

Location

BRANDON, VERMONT

Client

CLD CONSULTING ENGINEERS, INC.

Contractor

NEW ENGLAND BORING CONTRACTORS, INC.

Casing

Sampler

Barrel

Drilling Equipment and Procedures

Type

HW

S

--

Rig Make & Model: Mobile B57 Track

Inside Diameter (cm)

10.16

3.49

--

Bit Type: Roller Bit

Hammer Weight (kg)

136.08

63.50

-

Drill Mud: None

Hammer Fall (cm)

61.0

76.20

-

Casing: HW Drive to 2.59 m

Hoist/Hammer: Winch, Automatic Hammer

File No.

41107-100

Sheet No.

1 of 1

Start

5 Aug 2015

Finish

5 Aug 2015

Driller

M. Thompson

H&A Rep.

K. Russ

Elevation

126.34 m (est.)

Datum

NAVD 88

Location

See Plan

Gravel

Sand

Field Test

% Coarse

% Fine

% Coarse

% Medium

% Fine

% Fines

Dilatancy

Toughness

Plasticity

Strength

Visual-Manual Identification and Description

(Density/consistency, color, GROUP NAME, structure, odor, moisture, optional descriptions, geologic interpretation)

Note: Used roller bit to cut through asphalt.

Note: 15.24 cm asphalt.

-ASPHALT-

Medium dense dark brown silty SAND with gravel (SM), mps 1.27 cm, no structure, asphalt-like odor, moist, upper 15.24 cm of sample possibly reclaimed asphalt mixed in with the soil matrix

Medium dense red-brown poorly graded SAND with silt (SP-SM), mps 1.27 cm, no structure, no odor, moist

-FILL-

Brown well graded SAND with gravel (SW), mps 3.81 cm, no structure, no odor, moist

Very loose dark brown silty SAND (SM), mps 0.64 cm, no structure, no odor, wet (from drilling wash)

-FOREST MAT-

Loose dark brown ORGANIC SOIL (OL/OH), mps 1.27 cm, no structure, organic odor, wet

PROBABLE TOP OF BEDROCK 2.59 m

Note: Probable bedrock at 2.59 m, advanced roller bit to 3.05 m, consistent rock chips in composition and color.

-PROBABLE BEDROCK-

BOTTOM OF EXPLORATION 3.05 m

Note: Upon completion grouted hole and patched surface with asphalt patch.

Water Level Data

Sample Identification

Well Diagram

Summary

Date

Time

Elapsed Time (hr.)

Depth (m) to: Bottom of Casing Bottom of Hole Water (+/-)

O Open End Rod

T Thin Wall Tube

U Undisturbed Sample

S Split Spoon

G Geoprobe

Riser Pipe

Screen

Filter Sand

Cuttings

Grout

Concrete

Bentonite Seal

Overburden (lin. m)

2.59

Rock Cored (lin. m)

Samples

5S

Boring No. HA-B2

METRIC

Field Tests:

Dilatancy: R-Rapid, S-Slow, N-None

Toughness: L-Low, M-Medium, H-High

Plasticity: N-Nonplastic, L-Low, M-Medium, H-High

Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

HA-LIB08-BOS.GLB

HA-B TEST BORING METRIC CONVERT (CM)-08

INHALEYALDRICH.COM\SHARE\EMW

COMMON41107

BRANDON VT

BRIDGE1100\FIELD\DIGINT\2015-08\12-HAL-TEST BORING HA-P1-HA-P10-METRIC.GPJ








9 Jun 17








BOTTOM OF FOOTING
RETAINING WALL I
EL. 124.000 M

PROJECT NAME: BRANDON
PROJECT NUMBER: BHF 019-3(58)

FILE NAME: z10b358bor.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: S. BEAUMONT
BORING LOGS SHEET 3

PLOT DATE: 12/19/2017
DRAWN BY: M. SMITH
CHECKED BY: J. BYATT
SHEET 37 OF 79

HALEY ALDRICH TEST BORING REPORT										METRIC Boring No. HA-P1														
Project BRIDGE NO. 114 US ROUTE 7 OVER NESHOBE RIVER										File No. 41107-100														
Location BRANDON, VERMONT										Sheet No. 1 of 1														
Client CLD CONSULTING ENGINEERS, INC.										Start 5 Aug 2015														
Contractor NEW ENGLAND BORING CONTRACTORS, INC.										Finish 5 Aug 2015														
	Casing	Sampler	Barrel	Drilling Equipment and Procedures																				
Type	-	-	--	Rig Make & Model: Mobile B57 Track																				
Inside Diameter (cm)	-	-	--	Bit Type: Roller Bit																				
Hammer Weight (kg)	-	-	-	Drill Mud: None																				
Hammer Fall (cm)	-	-	-	Casing: None																				
				Hoist/Hammer: None, None																				
				H&A Rep. K. Russ																				
				Elevation 126.40 m (est.)																				
				Datum NAVD 88																				
				Location See Plan																				
Depth (m)	Sampler Blows per 15 cm	Sample No. & Rec. (cm)	Sample Depth (m)	Well Diagram	Elev./Depth (m)	USCS Symbol	Visual-Manual Identification and Description					Gravel	Sand		Field Test									
0					26.28		Note: Used roller bit to cut through asphalt. Note: 11.43 cm asphalt. -ASPHALT- Dark brown well graded SAND with gravel (SW), mps 1.91 cm, no structure, asphalt-like odor, wet (due to drilling wash) Note: Sample was collected manually. -FILL- BOTTOM OF EXPLORATION 0.21 m Note: Upon completion patched surface with asphalt patch.					% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength			
		SI	0.12		0.12	SW						47	24	21	6	2								
			0.18		26.19																			
					0.21																			
NO WELL INSTALLED																								
Water Level Data				Sample Identification		Well Diagram		Summary																
Date	Time	Elapsed Time (hr.)	Depth (m) to:		O Open End Rod T Thin Wall Tube U Undisturbed Sample S Split Spoon G Geoprobe	 Riser Pipe  Screen  Filter Sand  Cuttings  Grout  Concrete  Bentonite Seal	Overburden (lin. m) 0.21																	
		Not observed	Bottom of Casing	Bottom of Hole			Water (+/-)	Rock Cored (lin. m)																
								Samples 1S																
							Boring No. HA-P1 METRIC																	
Field Tests:				Dilatancy: R-Rapid, S-Slow, N-None		Plasticity: N-Nonplastic, L-Low, M-Medium, H-High		Toughness: L-Low, M-Medium, H-High																
						Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High																		
Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.																								

HALEY ALDRICH TEST BORING REPORT										METRIC Boring No. HA-P2													
Project BRIDGE NO. 114 US ROUTE 7 OVER NESHOBE RIVER										File No. 41107-100													
Location BRANDON, VERMONT										Sheet No. 1 of 1													
Client CLD CONSULTING ENGINEERS, INC.										Start 5 Aug 2015													
Contractor NEW ENGLAND BORING CONTRACTORS, INC.										Finish 5 Aug 2015													
	Casing	Sampler	Barrel	Drilling Equipment and Procedures																			
Type	-	-	--	Rig Make & Model: Mobile B57 Track																			
Inside Diameter (cm)	-	-	--	Bit Type: Roller Bit																			
Hammer Weight (kg)	-	-	-	Drill Mud: None																			
Hammer Fall (cm)	-	-	-	Casing: None																			
				Hoist/Hammer: None, None																			
				H&A Rep. K. Russ																			
				Elevation 126.40 m (est.)																			
				Datum NAVD 88																			
				Location See Plan																			
Depth (m)	Sampler Blows per 15 cm	Sample No. & Rec. (cm)	Sample Depth (m)	Well Diagram	Elev./Depth (m)	USCS Symbol	Visual-Manual Identification and Description					Gravel	Sand		Field Test								
0					26.31		Note: Used roller bit to cut through asphalt. Note: 10.16 cm asphalt. -ASPHALT- Dark brown poorly graded SAND with gravel and silt (SP-SM), mps 3.18 cm., as trace coarse gravel, no structure, light asphalt-like odor, dry -FILL- Note: Fragments of asphalt within soil sample, probably from existing pavement. Note: Sample was collected manually. BOTTOM OF EXPLORATION 0.24 m Note: Upon completion patched surface with asphalt patch.					% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength		
		SI	0.09		0.09	SP-SM						28	22	32	9	9							
			0.34		26.16																		
					0.24																		
NO WELL INSTALLED																							
Water Level Data				Sample Identification		Well Diagram		Summary															
Date	Time	Elapsed Time (hr.)	Depth (m) to:		O Open End Rod T Thin Wall Tube U Undisturbed Sample S Split Spoon G Geoprobe	 Riser Pipe  Screen  Filter Sand  Cuttings  Grout  Concrete  Bentonite Seal	Overburden (lin. m) 0.24																
		Not observed	Bottom of Casing	Bottom of Hole			Water (+/-)	Rock Cored (lin. m)															
								Samples 1S															
							Boring No. HA-P2 METRIC																
Field Tests:				Dilatancy: R-Rapid, S-Slow, N-None		Plasticity: N-Nonplastic, L-Low, M-Medium, H-High		Toughness: L-Low, M-Medium, H-High															
						Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High																	
Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.																							



FUSS & O'NEILL

PROJECT NAME: BRANDON
PROJECT NUMBER: BHF 019-3(58)

FILE NAME: z10b358bor.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: S. BEAUMONT
BORING LOGS SHEET 4

PLOT DATE: 12/19/2017
DRAWN BY: M. SMITH
CHECKED BY: J. BYATT
SHEET 38 OF 79

<div>Haley Aldrich</div>							TEST BORING REPORT						METRIC Boring No. HA-P3								
Project BRIDGE NO. 114 US ROUTE 7 OVER NESHOBE RIVER Location BRANDON, VERMONT Client CLD CONSULTING ENGINEERS, INC. Contractor NEW ENGLAND BORING CONTRACTORS, INC.													File No. 41107-100 Sheet No. 1 of 1 Start 5 Aug 2015 Finish 5 Aug 2015 Driller M. Thompson H&A Rep. K. Russ								
		Casing	Sampler	Barrel	Drilling Equipment and Procedures								Elevation 126.19 m (est.) Datum NAVD 88 Location See Plan								
Type	-	-	--	Rig Make & Model: None																	
Inside Diameter (cm)	-	-	--	Bit Type: None																	
Hammer Weight (kg)	-	-	-	Drill Mud: None																	
Hammer Fall (cm)	-	-	-	Casing: None																	
				Hoist/Hammer: None, None																	
Depth (m)	Sampler Blows per 15 cm	Sample No. & Rec. (cm)	Sample Depth (m)	Well Diagram	Elev./Depth (m)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, structure, odor, moisture, optional descriptions, geologic interpretation)						Gravel % Coarse % Fine	Sand % Coarse % Medium % Fine	Fines % Fines	Dilatancy	Toughness	Plasticity	Strength		
0					126.03 0.15		Note: Driller used manual tools (no drilling rig) to cut through asphalt. Note: 13.97 cm asphalt. -ASPHALT- Note: Probable concrete slab below asphalt based on drillers observations. Note: No samples collected. BOTTOM OF EXPLORATION 0.15 m Note: Upon completion patched surface with asphalt patch.														
NO WELL INSTALLED																					
Water Level Data						Sample Identification			Well Diagram			Summary									
Date	Time	Elapsed Time (hr.)	Depth (m) to:			O	Open End Rod		Riser Pipe	Overburden (lin. m) 0.15 Rock Cored (lin. m) Samples - Boring No. HA-P3 METRIC											
			Bottom of Casing	Bottom of Hole	T	Thin Wall Tube		Screen													
					U	Undisturbed Sample		Cuttings													
					S	Split Spoon		Grout													
					G	Geoprobe		Concrete Bentonite Seal													
Field Tests:		Dilatancy:		R-Rapid, S-Slow, N=None		Plasticity:		N-Nonplastic, L-Low, M-Medium, H-High													
		Toughness:		L-Low, M-Medium, H-High		Dry Strength:		N=None, L-Low, M-Medium, H-High, V-Very High													
Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.																					

<h1 style="margin: 0;">TEST BORING REPORT</h1>										METRIC Boring No. HA-P4								
Project BRIDGE NO. 114 US ROUTE 7 OVER NESHOBE RIVER Location BRANDON, VERMONT Client CLD CONSULTING ENGINEERS, INC. Contractor NEW ENGLAND BORING CONTRACTORS, INC.										File No. 41107-100 Sheet No. 1 of 1 Start 3 Aug 2015 Finish 3 Aug 2015 Driller M. Thompson H&A Rep. M. Hutton Elevation 126.49 m (est.) Datum NAVD 88 Location See Plan								
		Casing	Sampler	Barrel	Drilling Equipment and Procedures													
Type	HSA	S	NX	Rig Make & Model: Mobile B57 Track														
Inside Diameter (cm)	10.16	3.49	5.08	Bit Type: Cutting Head														
Hammer Weight (kg)	-	63.50	-	Drill Mud: None														
Hammer Fall (cm)	-	76.20	-	Casing: HSA Spun to 0.12 m														
				Hoist/Hammer: Winch, Automatic Hammer														
Depth (m)	Sampler Blows per 15 cm	Sample No. & Rec. (cm)	Sample Depth (m)	Well Diagram	Elev./Depth (m)	USCS Symbol	Visual-Manual Identification and Description <small>(Density/consistency, color, GROUP NAME, structure, odor, moisture, optional descriptions, geologic interpretation)</small>					Gravel		Sand		Field Test		
							% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength		
0					26.37		Note: Used hollow stem augers with cutting head to cut through asphalt.											
					0.12		Note: 12.7 cm asphalt.											
					26.22		-ASPHALT-											
	24	S1	0.30		0.27	GW-GM	Note: Cored 12.7 cm and recovered 7.62 cm of concrete slab. Core barrel jammed at 12.7 cm, 5.08 cm of recovery at bottom of hole. Cored an additional 2.54 cm and recovered 7.62 cm (including the 5.08 cm from first core attempt)	23	26	10	15	16	10					
	6		0.91				-CONCRETE SLAB-											
	10	S2	0.91			GW-GM	Note: Core sample includes steel reinforcement at approximate depths of 0 cm and 6.35 cm Punched through slab at 0.27 m, gravel at bottom of hole.	23	26	10	15	16	10					
	30	10	1.22				Medium dense olive-gray to olive-brown well graded GRAVEL with sand and silt (GW-GM), mps 5.08 cm, no structure, no odor, dry											
	R				25.27		Dense olive-gray well graded GRAVEL with sand and silt (GW-GM), mps 5.08 cm, no structure, no odor, dry											
					1.22		BOTTOM OF EXPLORATION 1.22 m											
							Note: Upon completion grouted hole and patched surface with asphalt patch.											
Water Level Data							Sample Identification		Well Diagram		Summary							
Date	Time	Elapsed Time (hr.)	Depth (m) to:		Bottom of Casing	Bottom of Hole	Water (±1')	O Open End Rod		Riser Pipe Screen	Overburden (lin. m) 1.22 Rock Cored (lin. m) Samples 2S							
			Not observed				T Thin Wall Tube		Filter Sand									
							U Undisturbed Sample		Cuttings									
							S Split Spoon		Grout									
							G Geoprobe		Concrete									
Field Tests:							Dilatancy: R-Rapid, S-Slow, N=None		Plasticity: N-Nonplastic, L-Low, M-Medium, H-High		Boring No. HA-P4 METRIC							
							Toughness: L-Low, M-Medium, H-High		Dry Strength: N=None, L-Low, M-Medium, H-High, V-Very High									
Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.																		

<div><div>HALEYALDRICH</div><div>TEST BORING REPORT</div></div>										METRIC Boring No. HA-P5								
Project BRIDGE NO. 114 US ROUTE 7 OVER NESHOBE RIVER Location BRANDON, VERMONT Client CLD CONSULTING ENGINEERS, INC. Contractor NEW ENGLAND BORING CONTRACTORS, INC.										File No. 41107-100 Sheet No. 1 of 1 Start 3 Aug 2015 Finish 3 Aug 2015 Driller M. Thompson H&A Rep. M. Hutton								
		Casing	Sampler	Barrel	Drilling Equipment and Procedures					Elevation 126.61 m (est.) Datum NAVD 88								
Type		HSA	S	NX	Rig Make & Model: Mobile B57 Track					Location See Plan								
Inside Diameter (cm)		10.16	3.49	5.08	Bit Type: Cutting Head													
Hammer Weight (kg)		-	63.50	-	Drill Mud: None													
Hammer Fall (cm)		-	76.20	-	Casing: HSA Spun to 0.09 m													
					Hoist/Hammer: Winch,													
Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, structure, odor, moisture, optional descriptions, geologic interpretation)										Gravel		Sand		Field Test				
										% Coarse	% Fine	% Coarse	% Medium	% Fines	Dilatancy	Toughness	Plasticity	Strength
Note: Used hollow stem auger with cutting head to cut through asphalt. Note: 10.16 cm asphalt.																		
-ASPHALT-																		
-CONCRETE SLAB-																		
Note: Cored and recovered 15.24 cm of concrete slab. No reinforcement observed.																		
Dense olive-gray silty SAND with gravel (SM), mps 2.54 cm, no structure, no odor, dry																		
-FILL-																		
No recovery on S2																		
BOTTOM OF EXPLORATION 1.01 m																		
Note: Upon completion grouted hole and patched surface with asphalt patch.																		
NO WELL INSTALLED																		
Water Level Data										Sample Identification			Well Diagram			Summary		
Date	Time	Elapsed Time (hr.)	Depth (m) to:		O Open End Rod T Thin Wall Tube U Undisturbed Sample S Split Spoon G Geoprobe	Riser Pipe Screen Filter Sand Cuttings Grout Concrete Bentonite Seal	Overburden (lin. m)			1.01								
			Bottom of Casing	Bottom of Hole			Rock Cored (lin. m)											
							Samples			2S								
							Boring No. HA-P5			METRIC								
Field Tests:		Dilatancy:		R-Rapid, S-Slow, N-None		Plasticity:		N-Nonplastic, L-Low, M-Medium, H-High										
		Toughness:		L-Low, M-Medium, H-High		Dry Strength:		N-None, L-Low, M-Medium, H-High, V-Very High										
Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.																		

[illegible]

HALEY
ALDRICH

TEST BORING REPORT

Project
Location
Client
Contractor

BRIDGE NO. 114 US ROUTE 7 OVER NESHOBE RIVER
BRANDON, VERMONT
CLD CONSULTING ENGINEERS, INC.
NEW ENGLAND BORING CONTRACTORS, INC.

Metric Boring No.
HA-P7

File No.
Sheet No.
Start
Finish
Driller
H&A Rep.

41107-100
1 of 1
3 Aug 2015
3 Aug 2015
M. Thompson
M. Hatton

Type
Inside Diameter (cm)
Hammer Weight (kg)
Hammer Fall (cm)

HSA
10.16
-
-

S
3.49
63.50
76.20

NX
5.08
-
-

Drilling Equipment and Procedures
Rig Make & Model:
Bit Type:
Drill Mud:
Casing:
Hoist/Hammer:

Mobile B57 Track
Cutting Head
None
HSA Spun to 0.09 m
Winch, Automatic Hammer

Elevation
Datum
Location

126.49 m (est.)
NAVD 88
See Plan

Depth (m)
Sampler Blows per 15 cm
Sample No. & Rec. (cm)
Sample Depth (m)
Well Diagram
Elev./Depth (m)
USCS Symbol

0
9
17
10
12
R

S1
30

S2

0.24
0.85

0.85

NO WELL INSTALLED

26.40
0.09
26.25
0.24
25.64
0.85

SM

Visual-Manual Identification and Description
(Density/consistency, color, GROUP NAME, structure, odor, moisture, optional descriptions, geologic interpretation)

Note: Used hollow stem auger with cutting head to cut through asphalt.
Note: 10.16 cm asphalt.
-ASPHALT-
-CONCRETE SLAB-
Note: Cored and recovered 15.24 cm of concrete slab. No reinforcement observed.
Medium dense olive-gray to olive-brown silty SAND with gravel (SM), smp 5.08 cm, no structure no odor, dry
Immediate refusal on S2
-FILL-
BOTTOM OF EXPLORATION 0.85 m
Note: Upon completion grouted hole and patched surface with asphalt patch.

Gravel
Sand
Field Test

% Coarse
% Fine
% Coarse
% Medium
% Fine
% Fines

11
31
14
17
12
15

Dilatancy
Toughness
Plasticity
Strength

Water Level Data
Date
Time
Elapsed Time (hr.)
Depth (m) to:
Bottom of Casing
Bottom of Hole
Water (+/-)

Not observed

Sample Identification
O Open End Rod
T Thin Wall Tube
U Undisturbed Sample
S Split Spoon
G Geoprobe

Riser Pipe Screen

Filter Sand

Cuttings

Grout

Concrete

Bentonite Seal

Summary
Overburden (lin. m)
Rock Cored (lin. m)
Samples
Boring No. HA-P7
METRIC

0.85

2S

Field Tests:
Dilatancy:
Toughness:

R-Rapid, S-Slow, N=None
L-Low, M-Medium, H-High

Plasticity:
Dry Strength:

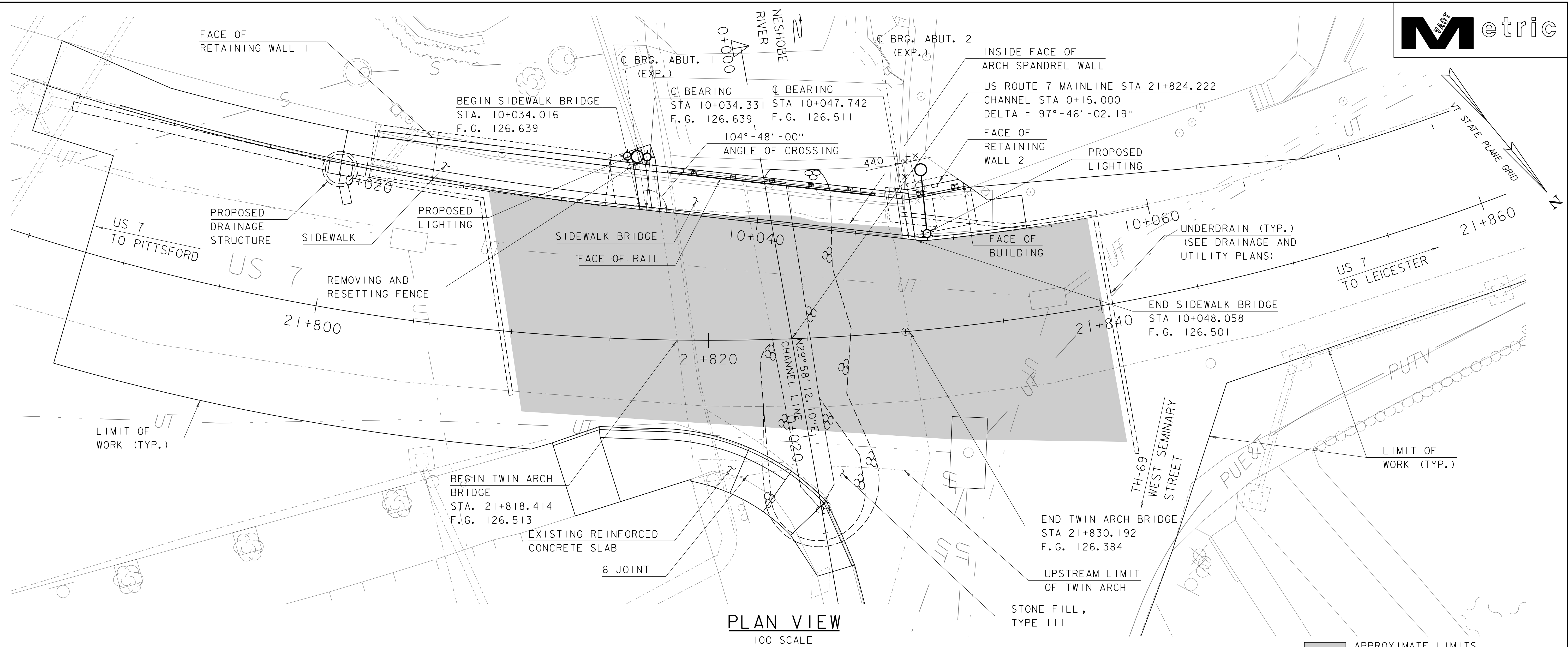
N-Nonplastic, L-Low, M-Medium, H-High
N=None, L-Low, M-Medium, H-High, V-Very High

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

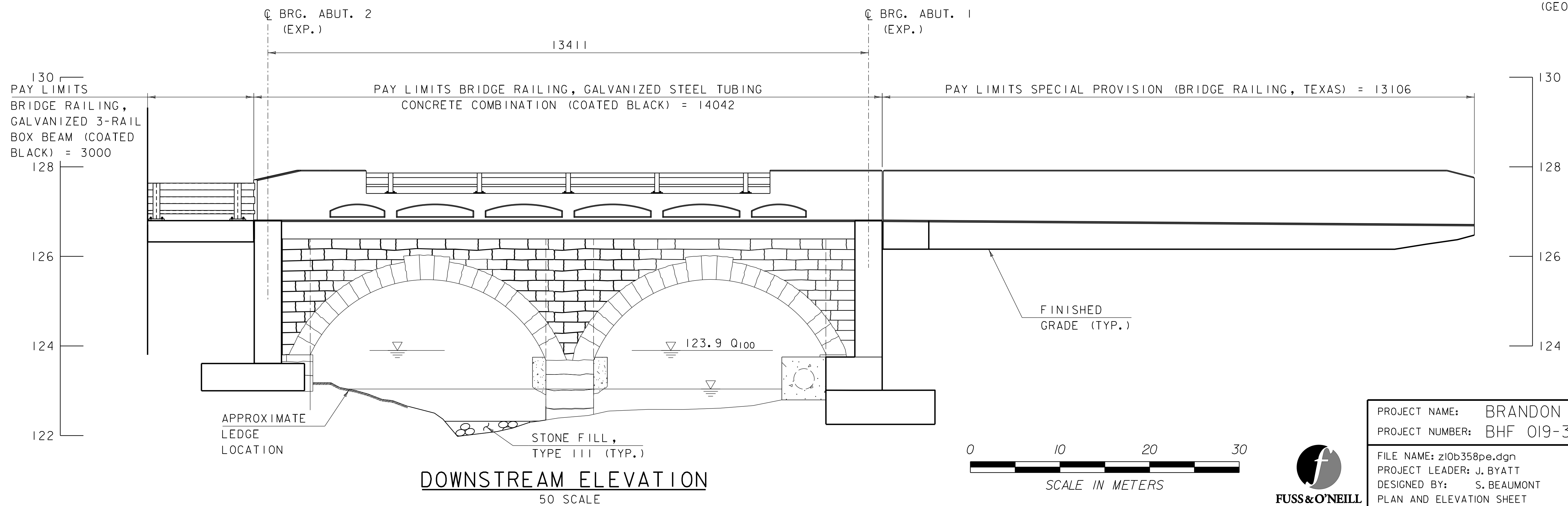
9 Jun 17
H&A TEST BORING METRIC FIELDGINT2015-0817-HA-TEST BORING HA-P7-HA P10 - METRIC.GPJ
COMMON41107 BRANDON VT BRIDGE1007.COMISHAREWAN
H&A-1009-BOS-GLB

[illegible]

HA-LIB09-BOS.GLB	H&A TEST BORING METRIC CONVERT(CM)-09	\\HALEY\ALDRICH.COM\SHARE\MAN_COMMON\4107_BRANDON_VT_BRIDGE\100\FIELD\GINT2015-0812-HA-TEST BORING HA P1-HA P10 -METRIC.GPJ	9 Jun 17
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PLAN VIEW
100 SCALE



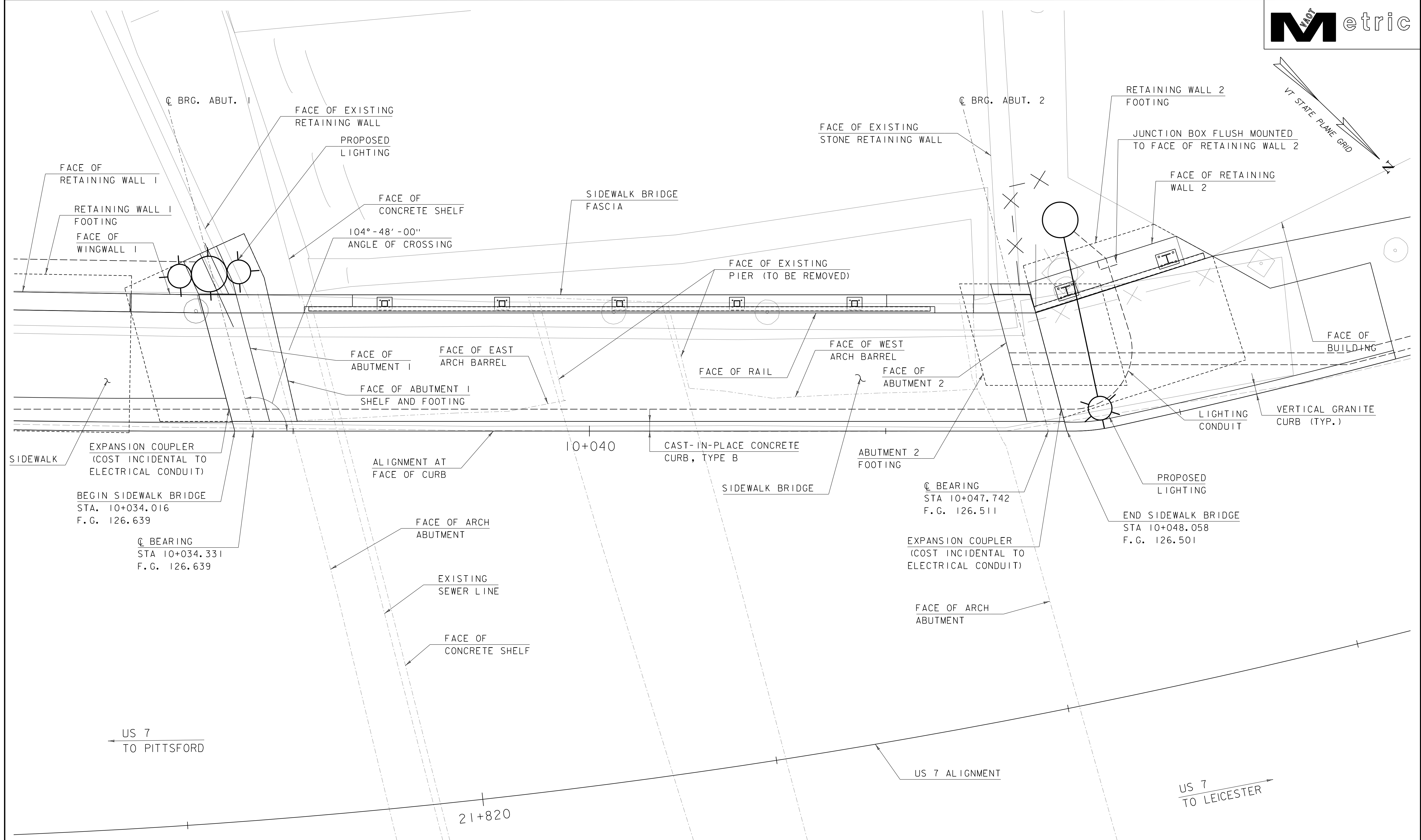
DOWNSTREAM ELEVATION
50 SCALE

PROJECT NAME: BRANDON
PROJECT NUMBER: BHF 019-3(58)

FILE NAME: z10b358pe.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: S. BEAUMONT
PLAN AND ELEVATION SHEET

PLOT DATE: 12/19/2017
DRAWN BY: M. SMITH
CHECKED BY: J. BYATT
SHEET 43 OF 79





SIDEWALK STRUCTURE PLAN

30 SCALE

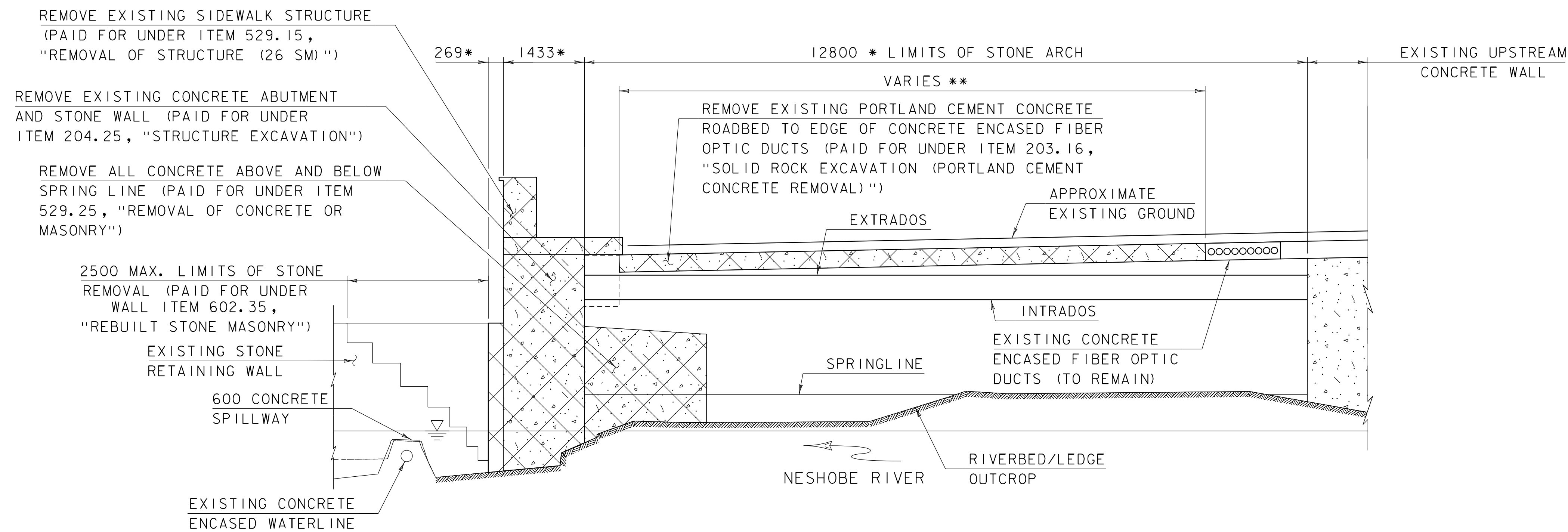


FUSS & O'NEILL

PROJECT NAME: BRANDON
PROJECT NUMBER: BHF 019-3(58)

FILE NAME: z10b358sup.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: S. BEAUMONT
SIDEWALK STRUCTURE PLAN

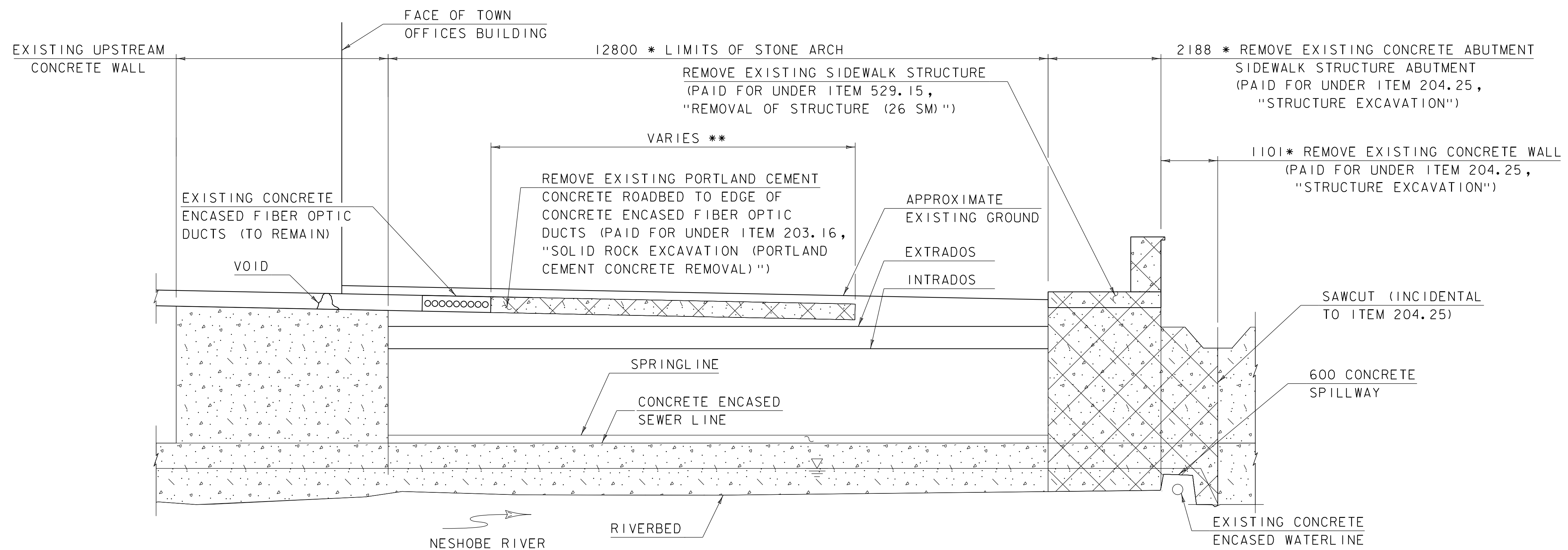
PLOT DATE: 12/19/2017
DRAWN BY: M. SMITH
CHECKED BY: J. BYATT
SHEET 44 OF 79



- * DIMENSIONS ARE APPROXIMATED BASED ON SURVEY AND FIELD MEASUREMENTS. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
- ** LIMITS OF PORTLAND CEMENT CONCRETE ROADBED ARE ESTIMATED. SEE EARTHWORK AND REMOVAL NOTES ON PROJECT NOTES SHEET 1.

WESTERN ARCH BARREL - ABUTMENT WALL ELEVATION CONCRETE REMOVAL LIMITS

50 SCALE



EASTERN ARCH BARREL - ABUTMENT WALL ELEVATION CONCRETE REMOVAL LIMITS

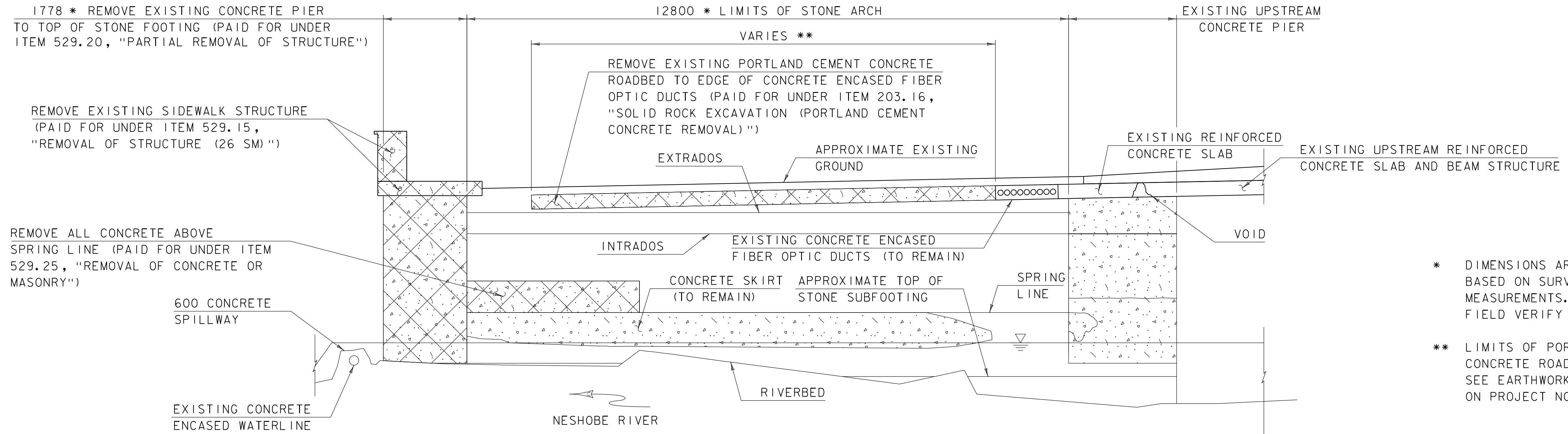
50 SCALE



PROJECT NAME: BRANDON
PROJECT NUMBER: BHF 019-3(58)

FILE NAME: z10b358removal.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: S. BEAUMONT
CONCRETE REMOVAL DETAILS SHEET 1

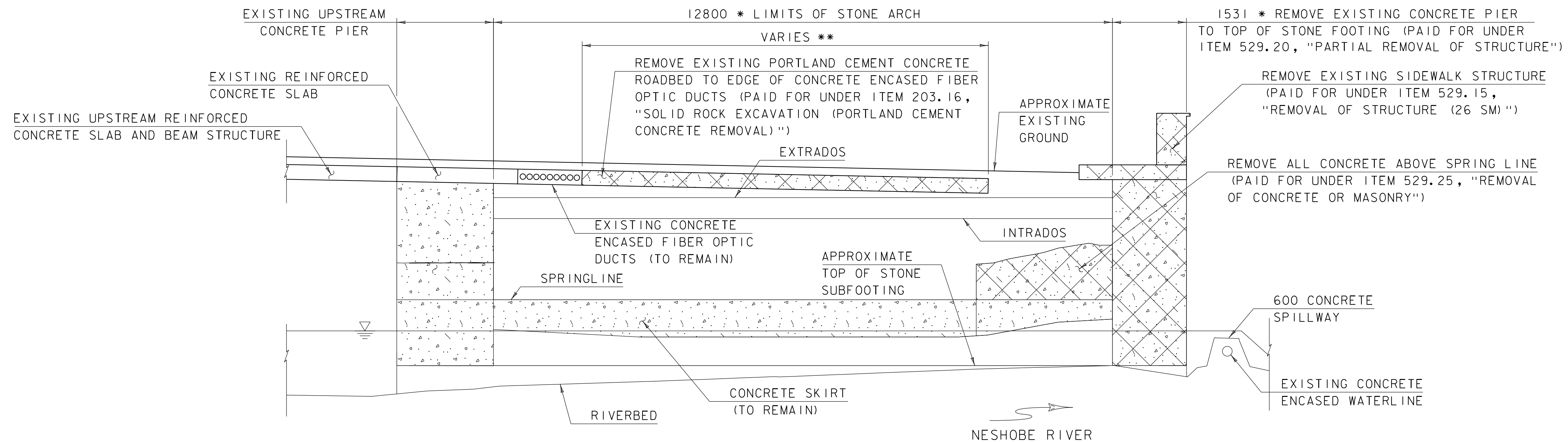
PLOT DATE: 12/19/2017
DRAWN BY: M. SMITH
CHECKED BY: J. BYATT
SHEET 45 OF 79



- * DIMENSIONS ARE APPROXIMATED BASED ON SURVEY AND FIELD MEASUREMENTS. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
- ** LIMITS OF PORTLAND CEMENT CONCRETE ROADBED ARE ESTIMATED. SEE EARTHWORK AND REMOVAL NOTES ON PROJECT NOTES SHEET 1.

EASTERN ARCH BARREL - PIER WALL ELEVATION CONCRETE REMOVAL LIMITS

50 SCALE



WESTERN ARCH BARREL - PIER WALL ELEVATION CONCRETE REMOVAL LIMITS

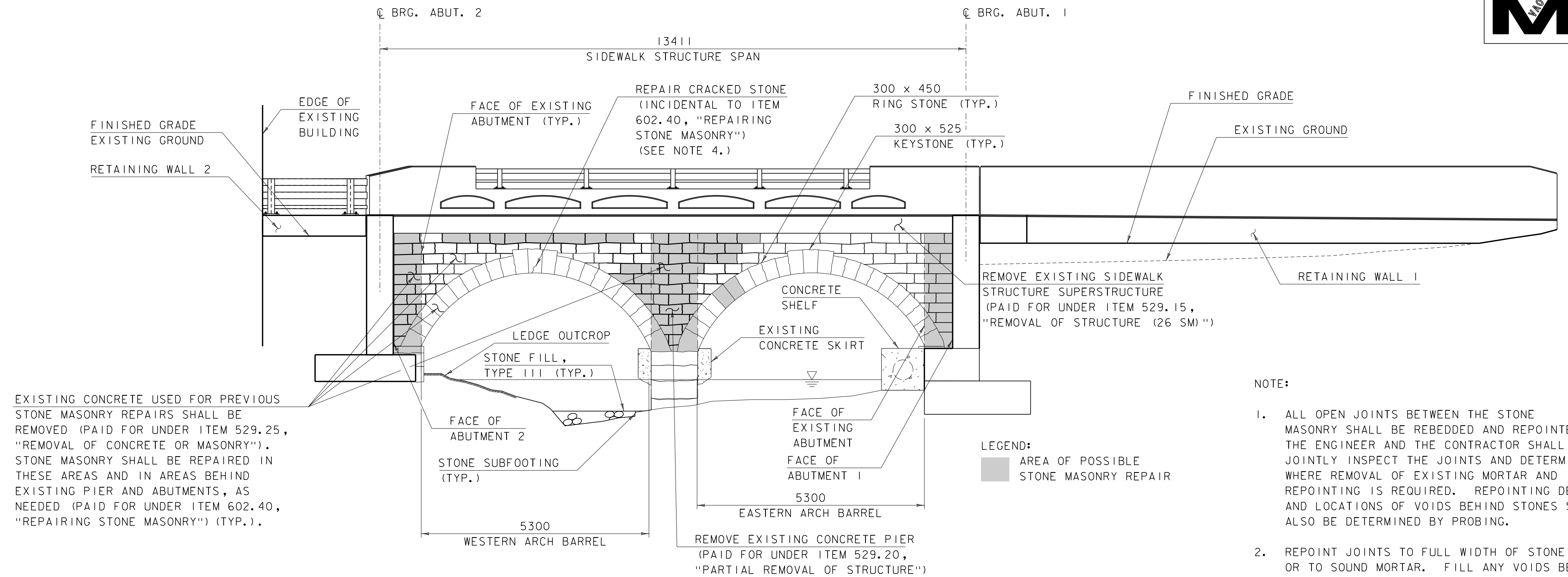
50 SCALE

PROJECT NAME: BRANDON
PROJECT NUMBER: BHF 019-3(58)

FILE NAME: z10b358removal.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: S. BEAUMONT
CONCRETE REMOVAL DETAILS SHEET 2

PLOT DATE: 12/19/2017
DRAWN BY: M. SMITH
CHECKED BY: J. BYATT
SHEET 46 OF 79



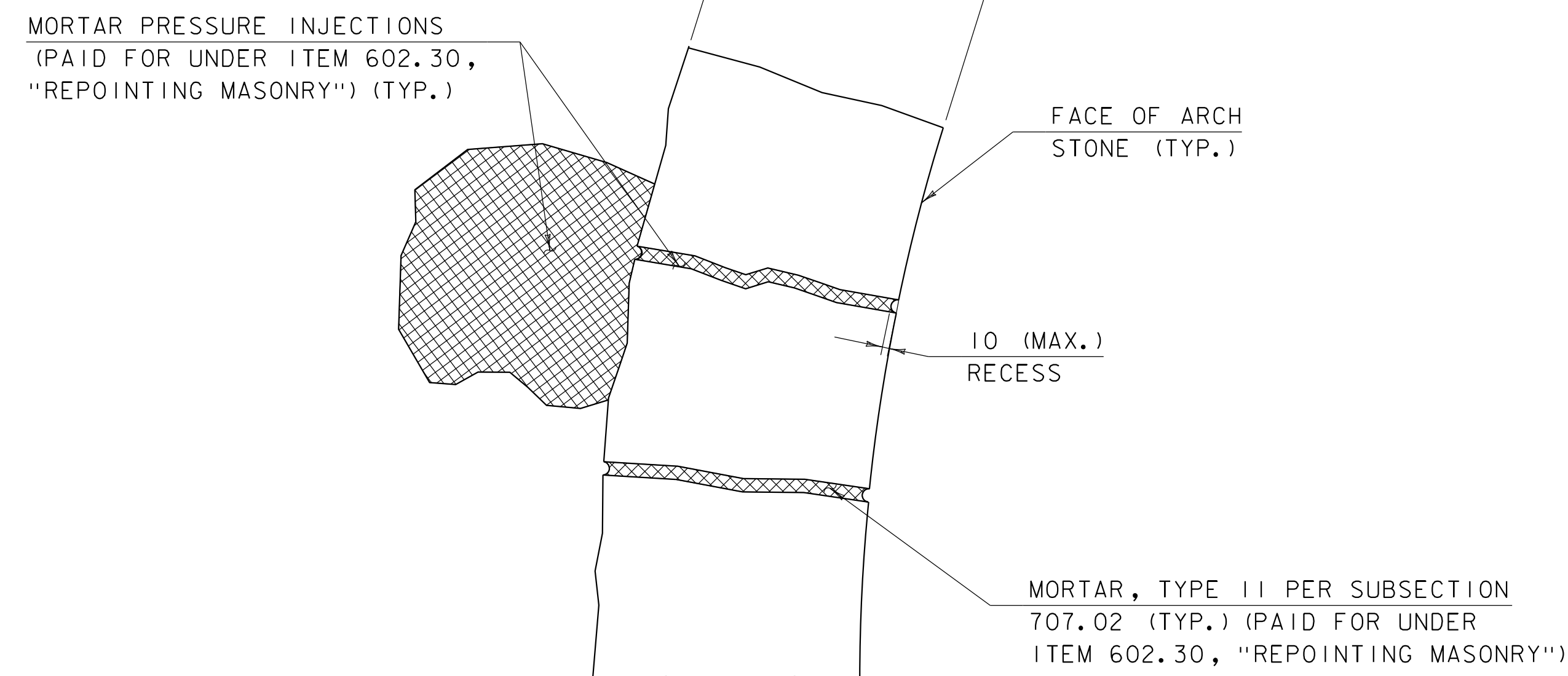


DOWNSTREAM ELEVATION

50 SCALE

NOTE:

1. ALL OPEN JOINTS BETWEEN THE STONE MASONRY SHALL BE REBEDDED AND REPOINTED. THE ENGINEER AND THE CONTRACTOR SHALL JOINTLY INSPECT THE JOINTS AND DETERMINE WHERE REMOVAL OF EXISTING MORTAR AND REPOINTING IS REQUIRED. REPOINTING DEPTHS AND LOCATIONS OF VOIDS BEHIND STONES SHALL ALSO BE DETERMINED BY PROBING.
2. REPOINT JOINTS TO FULL WIDTH OF STONE OR TO SOUND MORTAR. FILL ANY VOIDS BEHIND STONE AS NECESSARY.
3. PRESSURE INJECT MORTAR AS NEEDED. PRESSURE INJECTION SHALL BE INCIDENTAL TO ITEM 602.30, "REPOINTING MASONRY".
4. MORTAR, TYPE II USED TO REPAIR CRACKED STONE SHALL BE COLORED TO MATCH STONE.



TYPICAL REPOINTING DETAIL

50 SCALE

NOTE:

SEE ARCH REHABILITATION NOTES ON PROJECT NOTES SHEET 1.

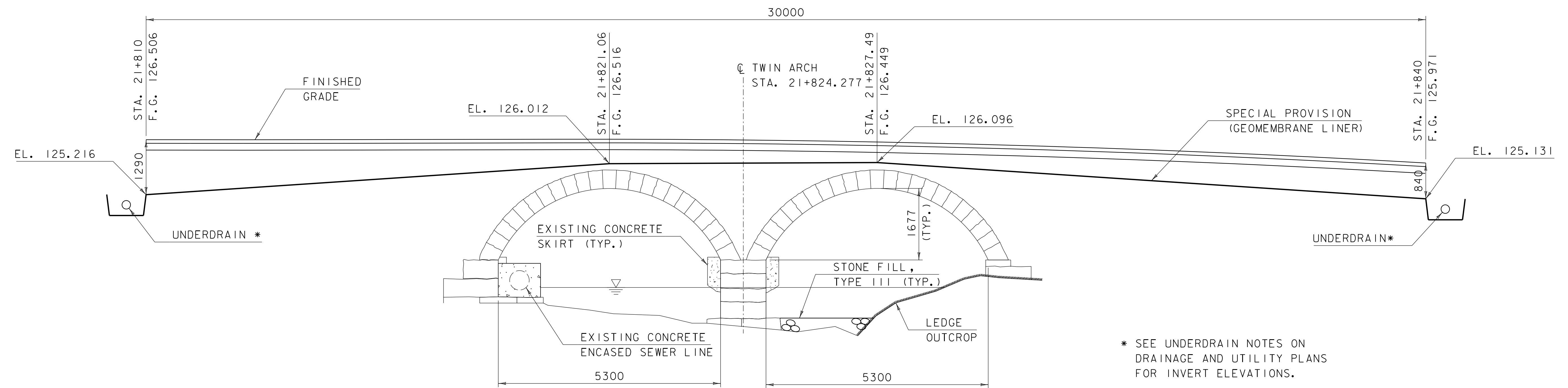
PROJECT NAME: BRANDON
PROJECT NUMBER: BHF 019-3(58)

FILE NAME: z10b358sub.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: S. BEAUMONT
ARCH REPAIR DETAILS SHEET 1

PLOT DATE: 12/19/2017
DRAWN BY: M. SMITH
CHECKED BY: J. BYATT
SHEET 47 OF 79



FUSS & O'NEILL



US7 PROFILE WITH MEMBRANE LAYOUT
50 SCALE

NOTE:

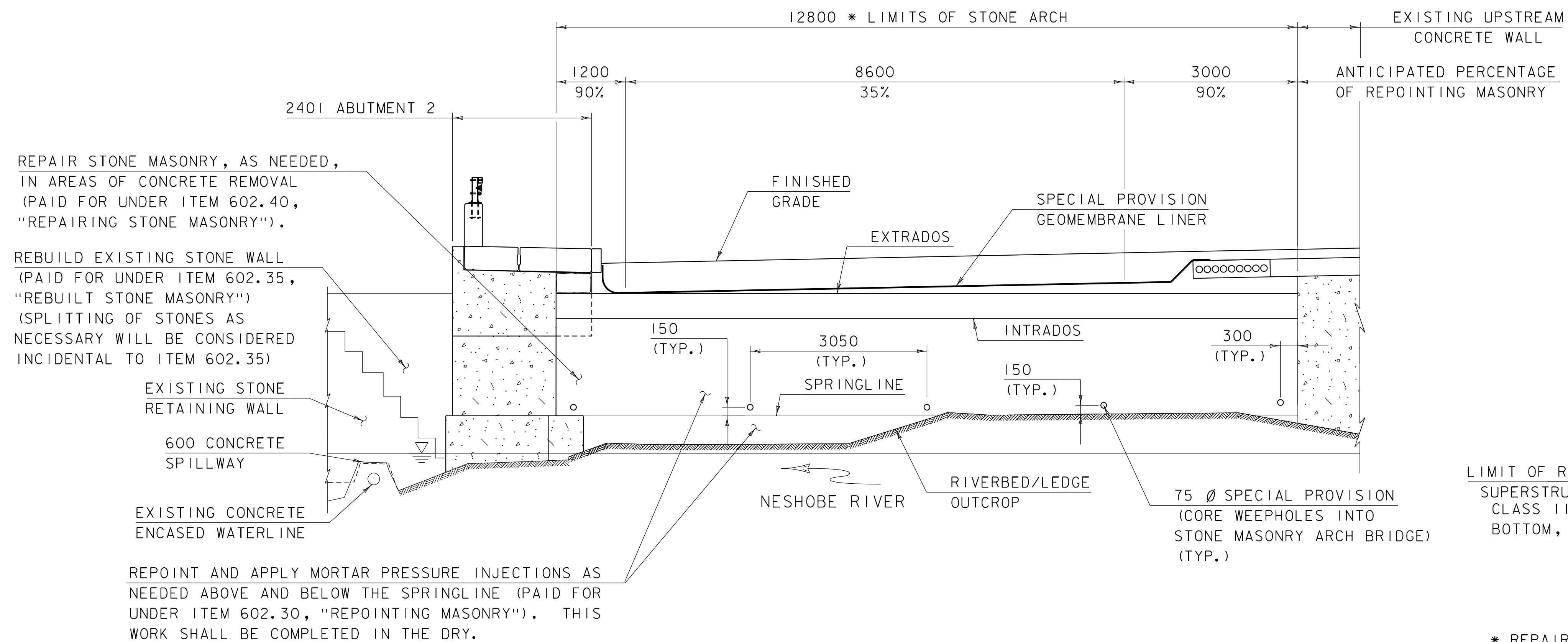
1. ROADWAY BOX NOT SHOWN. SEE TYPICAL ROADWAY SECTIONS SHEET 1 AND MATERIAL TRANSITION DIAGRAM FOR ROADWAY BOX DEPTHS AND COMPOSITION.
2. MEMBRANE SHALL BE SPLICED SO DOWNHILL SECTION IS BELOW UPHILL SECTION.
3. MEMBRANE SHALL BE PLACED IN MINIMUM 30 M LENGTHS WITH WIDTHS AS SHOWN ON PHASING SECTION SHEETS.

PROJECT NAME: BRANDON
PROJECT NUMBER: BHF 019-3(58)

FILE NAME: z10b358sub.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: S. BEAUMONT
ARCH REPAIR DETAILS SHEET 2

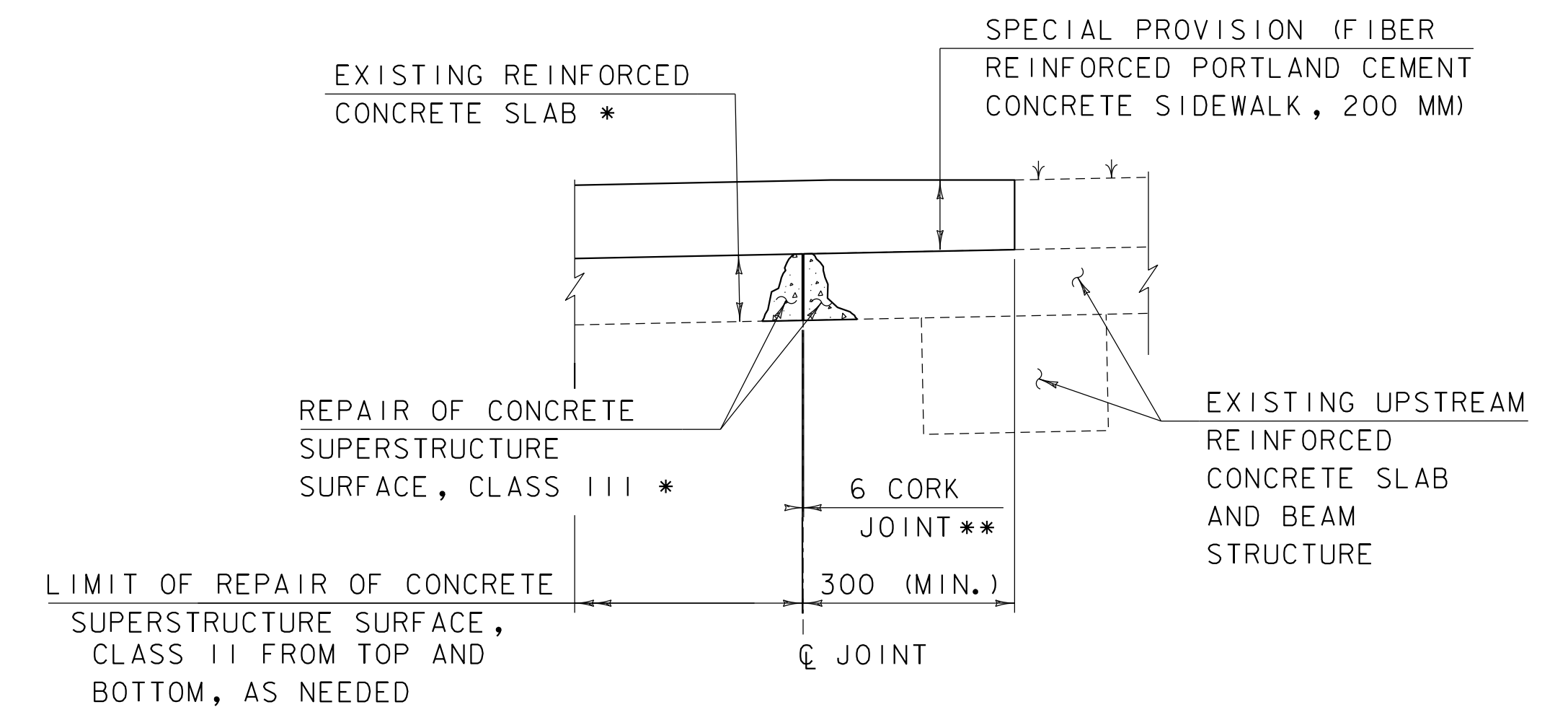
PLOT DATE: 12/19/2017
DRAWN BY: M. SMITH
CHECKED BY: J. BYATT
SHEET 48 OF 79





WESTERN ARCH BARREL - ABUTMENT WALL ELEVATION

50 SCALE

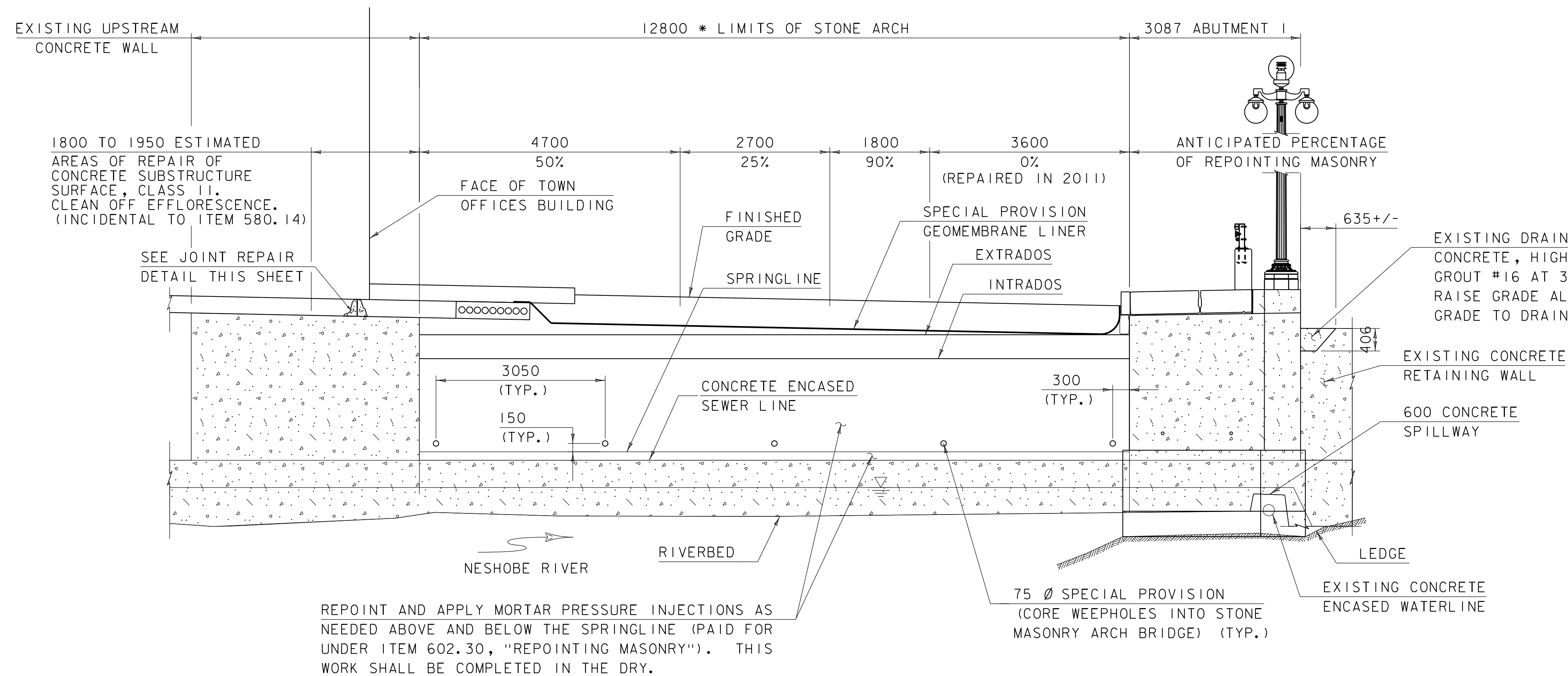


* REPAIRS TO EXISTING SLAB SHALL BE COMPLETED FROM ABOVE AND BELOW PRIOR TO CONSTRUCTION OF NEW PORTLAND CEMENT CONCRETE SIDEWALK

** COST OF CORK JOINT SHALL BE INCIDENTAL TO ITEM 580.12, 'REPAIR OF CONCRETE SUPERSTRUCTURE SURFACE, CLASS III'

JOINT REPAIR DETAIL

25 SCALE



EASTERN ARCH BARREL - ABUTMENT WALL ELEVATION

50 SCALE

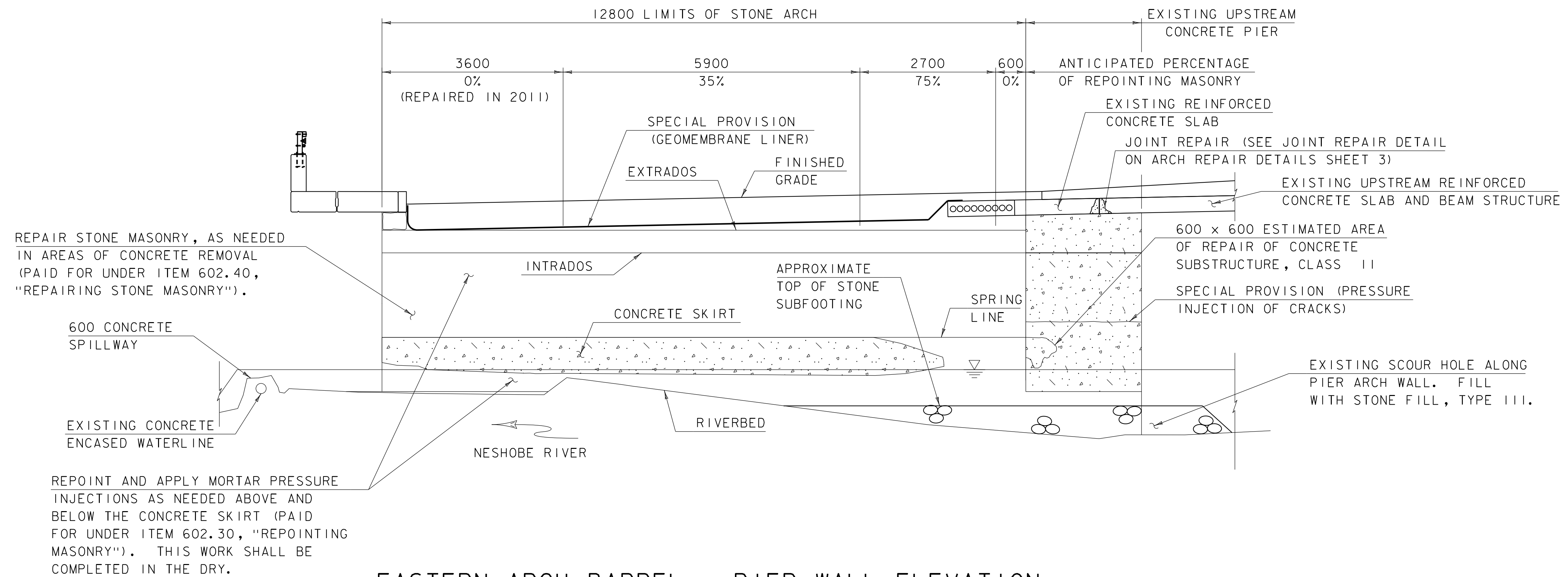
* DIMENSIONS ARE APPROXIMATED BASED ON SURVEY AND FIELD MEASUREMENTS. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSION.

NOTE: ALL EFFLORESCENCE SHALL BE CLEANED OFF THE ARCH STONES. THIS WORK SHALL BE INCIDENTAL TO ITEM 602.30, 'REPOINTING MASONRY'.

PROJECT NAME: BRANDON
PROJECT NUMBER: BHF 019-3(58)

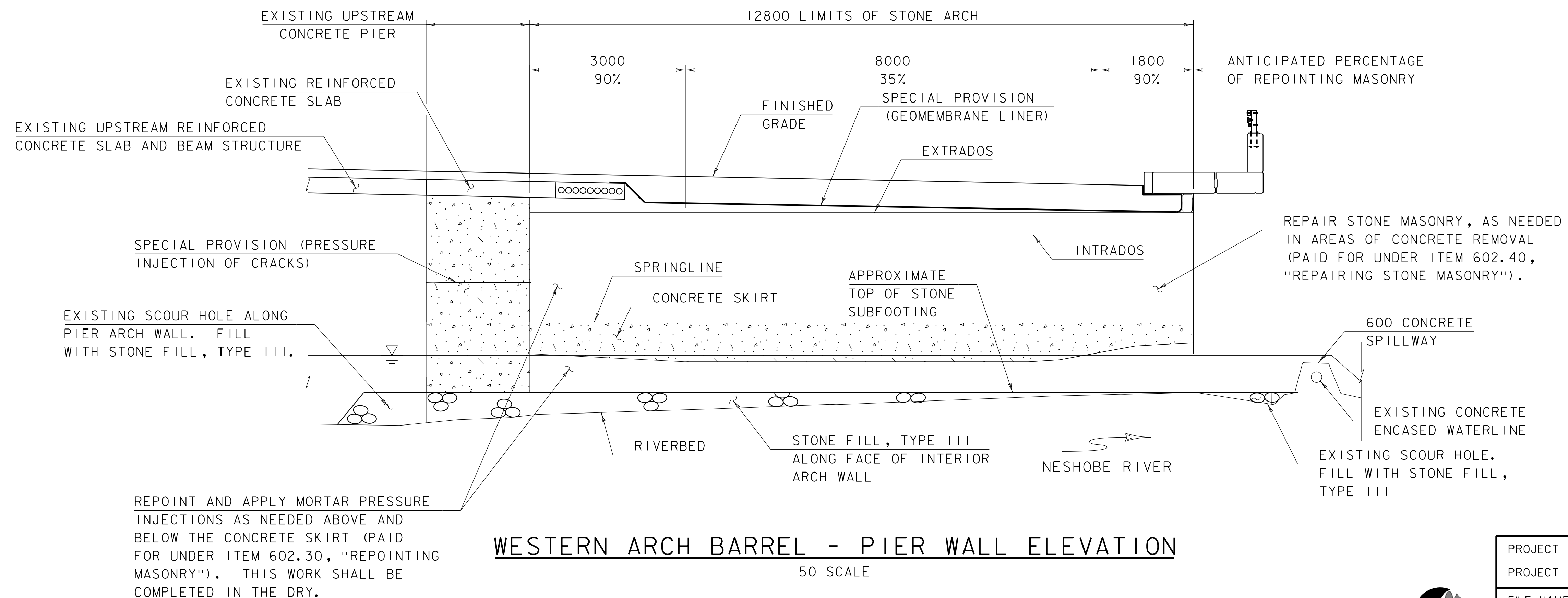
FILE NAME: z10b358sub.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: S. BEAUMONT
ARCH REPAIR DETAILS SHEET 3

PLOT DATE: 12/19/2017
DRAWN BY: M. SMITH
CHECKED BY: J. BYATT
SHEET 49 OF 79



EASTERN ARCH BARREL - PIER WALL ELEVATION

50 SCALE



WESTERN ARCH BARREL - PIER WALL ELEVATION

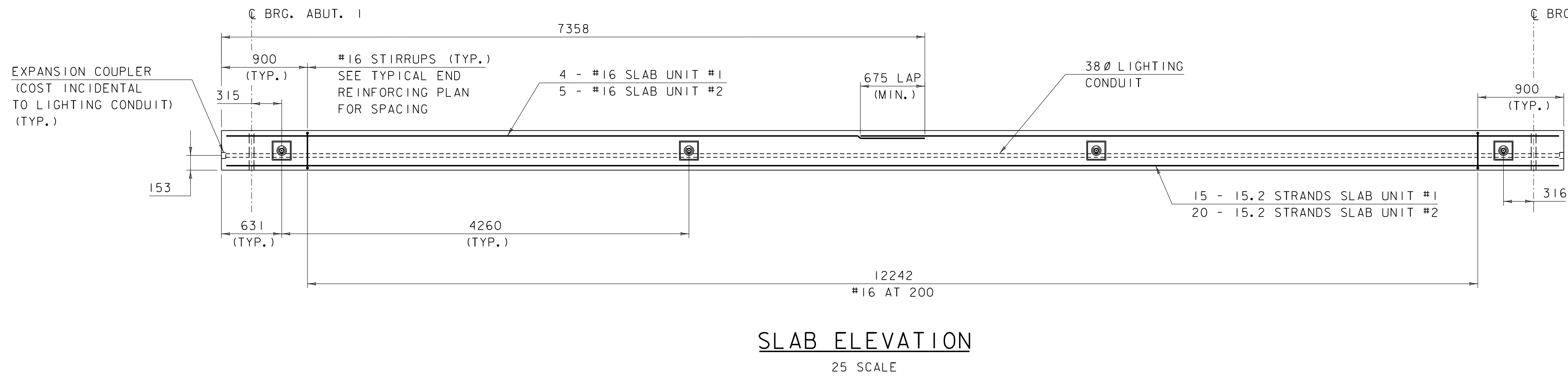
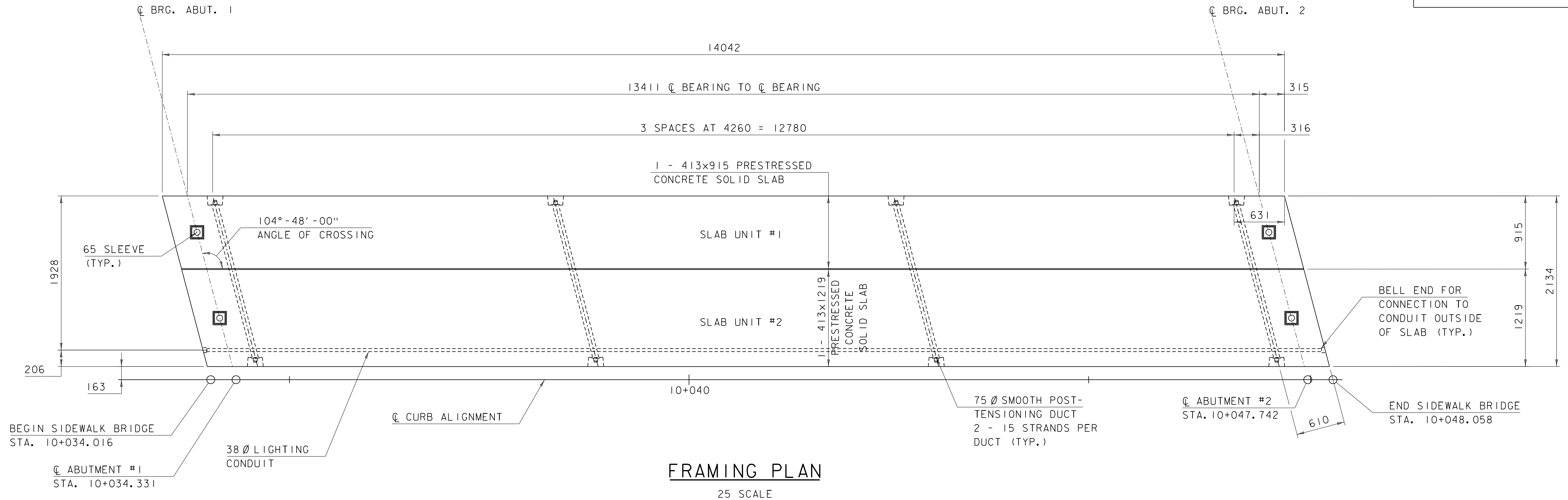
50 SCALE

PROJECT NAME: BRANDON
PROJECT NUMBER: BHF 019-3(58)

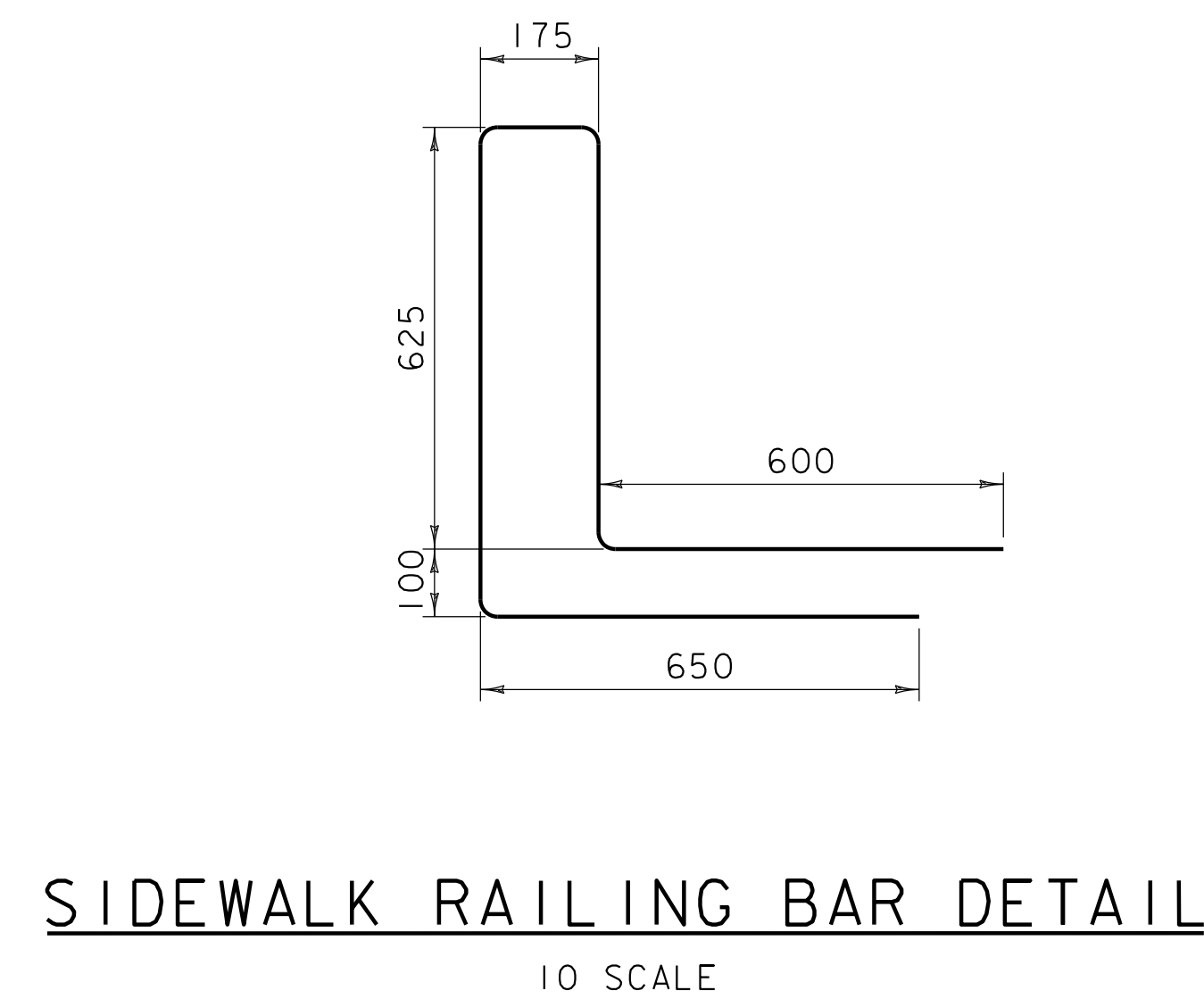
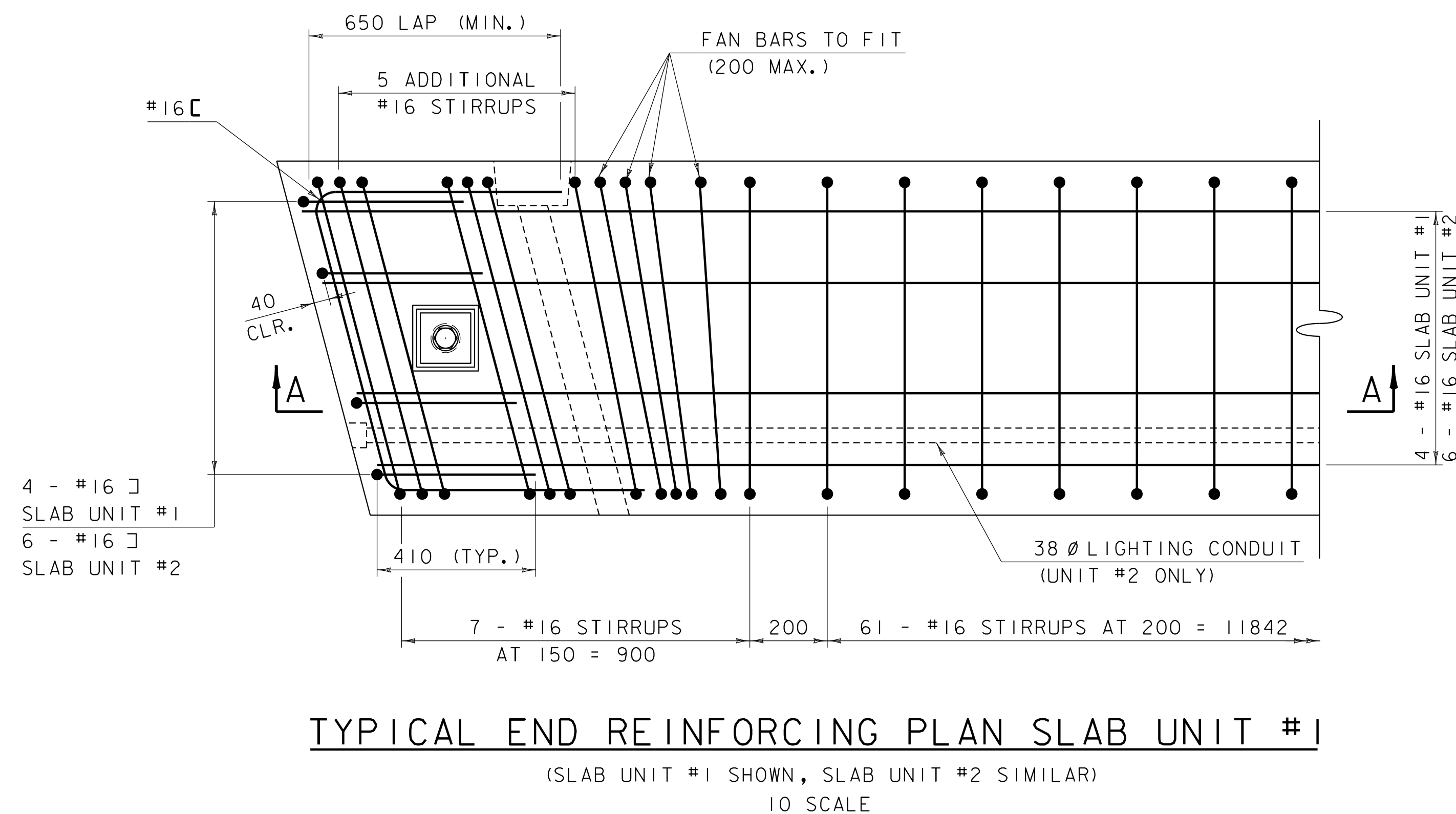
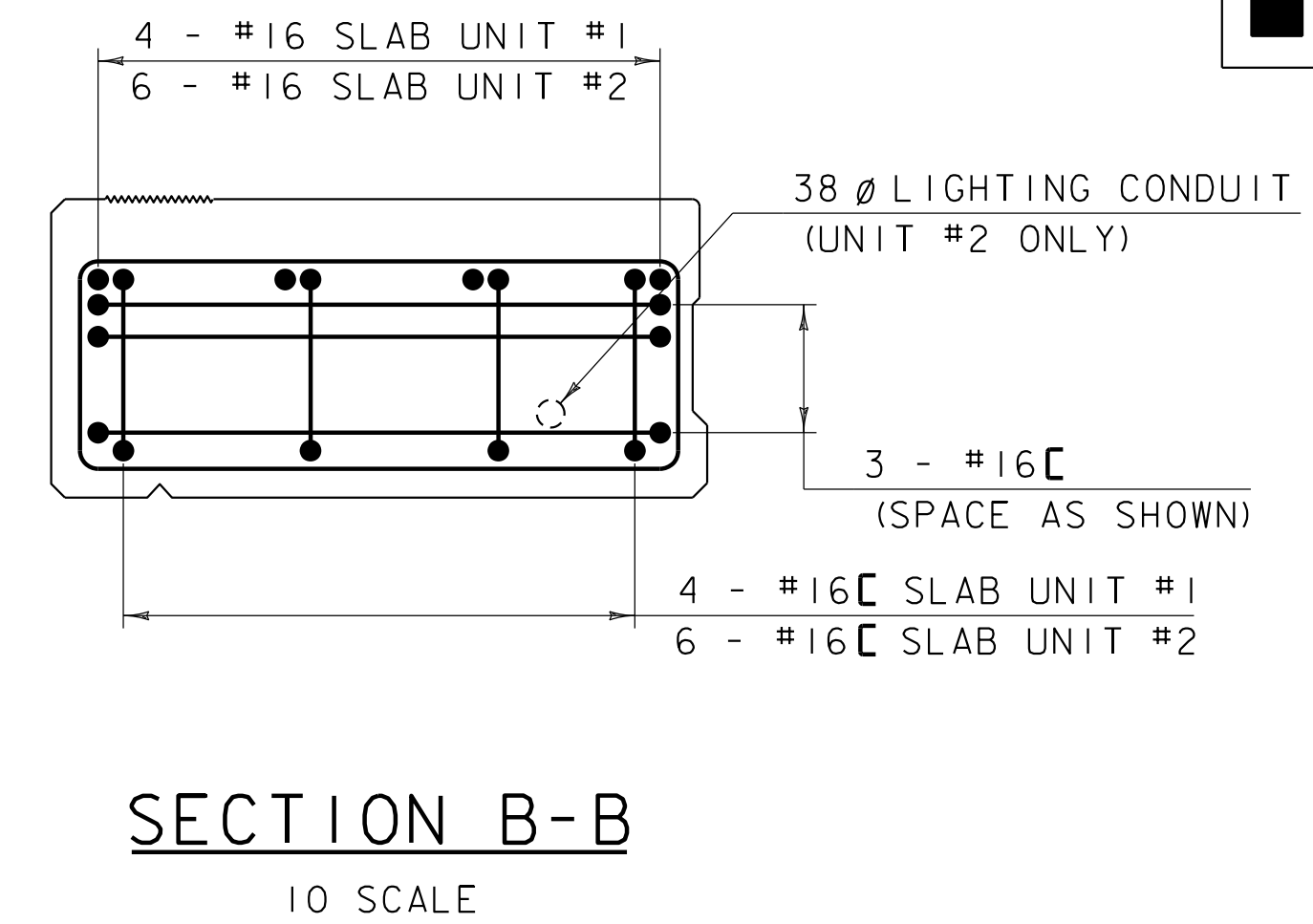
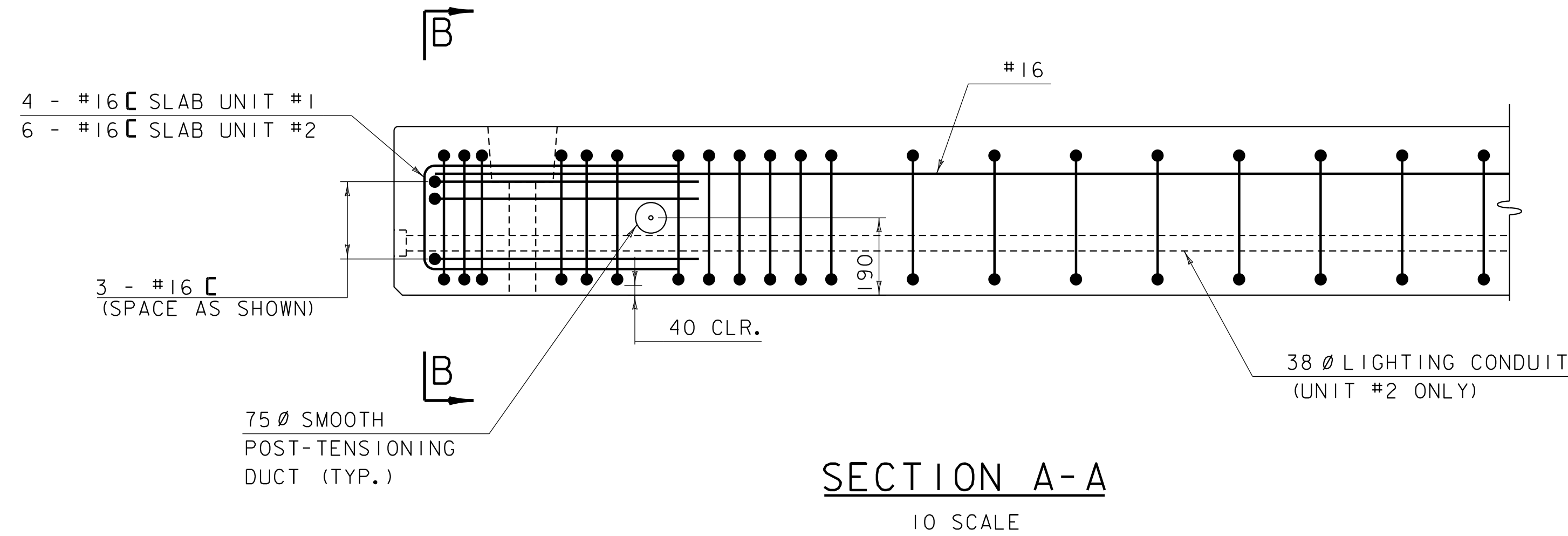
FILE NAME: z10b358sub.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: S. BEAUMONT
ARCH REPAIR DETAILS SHEET 4

PLOT DATE: 12/19/2017
DRAWN BY: M. SMITH
CHECKED BY: J. BYATT
SHEET 50 OF 79





NOTES:
ALL REINFORCING SHALL BE
LEVEL 1 - EPOXY COATED.

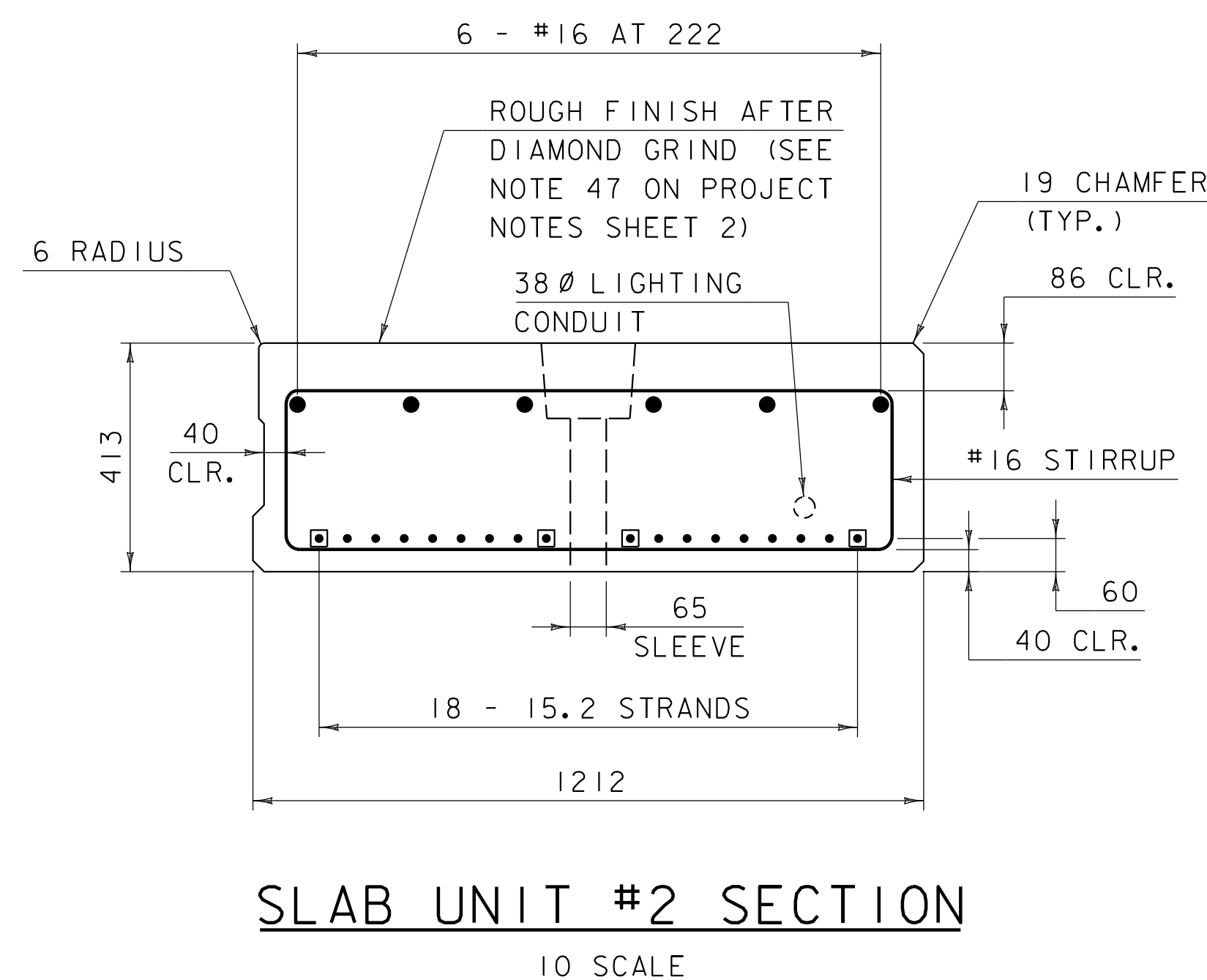
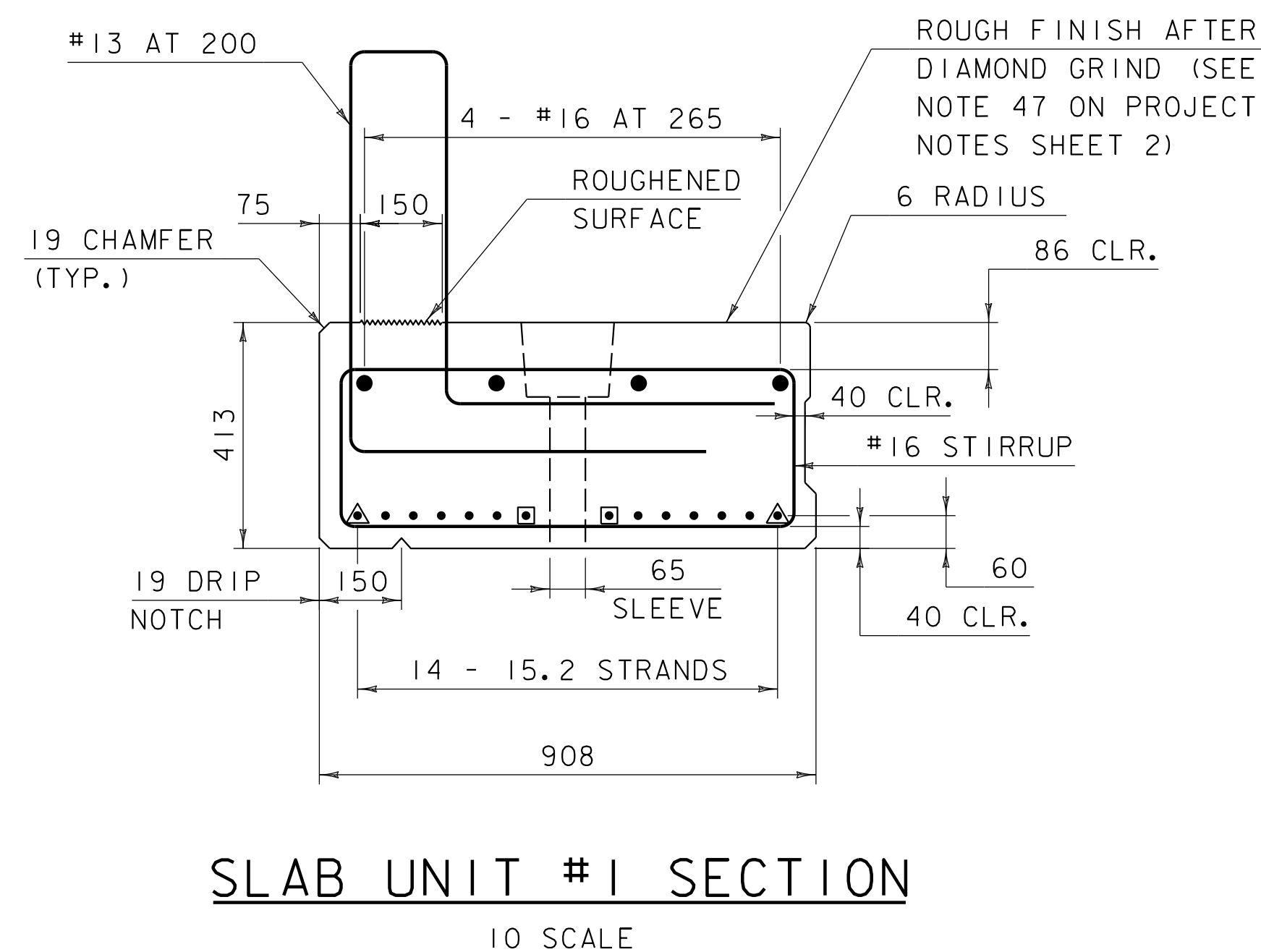


SLAB UNIT #1			
	CAMBER AT MIDSPAN		
	TRANSFER	MULT.	ERECTION
PRESTRESSING	60	1.80	107
SELF WEIGHT	-30	1.85	-56
SUBTOTAL	30	-	52
SUPERIMPOSED DL	-	-	-8
TOTAL			43

+ INDICATES UPWARD CAMBER
- INDICATES DOWNWARD CAMBER

SLAB UNIT #2			
	CAMBER AT MIDSPAN		
	TRANSFER	MULT.	ERECTION
PRESTRESSING	57	1.80	103
SELF WEIGHT	-30	1.85	-55
SUBTOTAL	27	-	48
SUPERIMPOSED DL	-	-	-6
TOTAL			42

+ INDICATES UPWARD CAMBER
- INDICATES DOWNWARD CAMBER



△ - 610 DEBOND EACH END
□ - 1220 DEBOND EACH END

NOTES:

- ALL REINFORCING SHALL BE LEVEL 1 - EPOXY COATED.
- THE LIGHTING CONDUIT SHALL BE FABRICATED AT THE APPROXIMATE LOCATION SHOWN. ACTUAL LOCATION OF THE CONDUIT MAY BE ADJUSTED TO ACCOMMODATE REINFORCEMENT, POST-TENSIONING DUCTS, AND PRESTRESSED STRANDS.

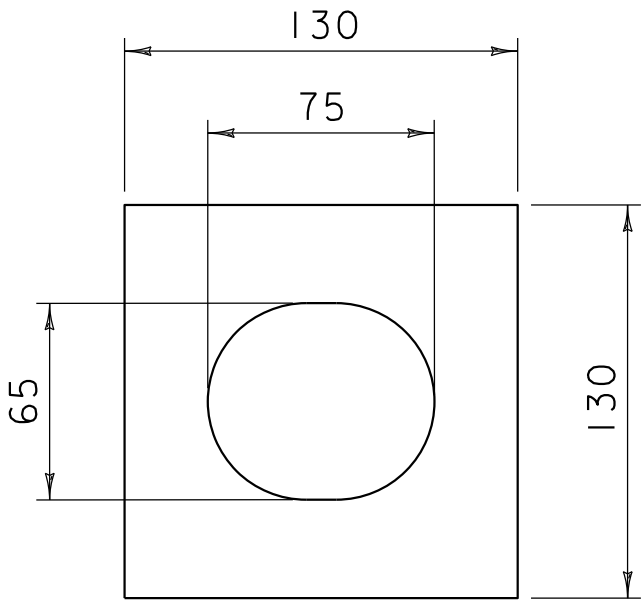
PROJECT NAME: BRANDON
PROJECT NUMBER: BHF 019-3(58)

FILE NAME: z10b358sup.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: S. BEAUMONT
SUPERSTRUCTURE DETAILS SHEET 1

PLOT DATE: 12/19/2017
DRAWN BY: M. SMITH
CHECKED BY: J. BYATT
SHEET 52 OF 79

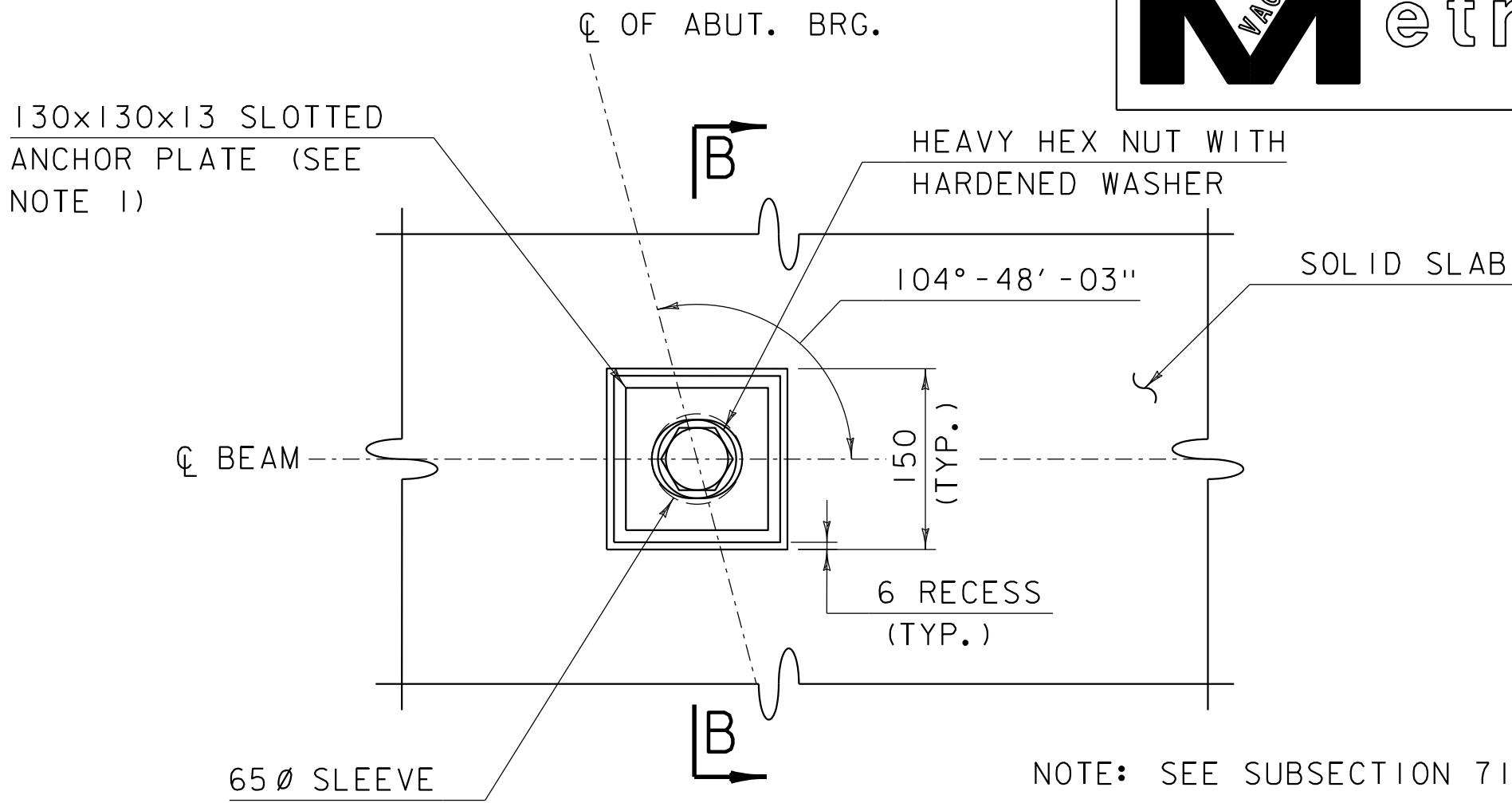
NOTES:

1. ANCHOR PLATES SHALL CONFORM TO AASHTO M 270M/M 270, GRADE 345 (GRADE 50) AND BE GALVANIZED IN ACCORDANCE WITH AASHTO M 111M/M 111.
2. ANCHOR PLATES FOR TRANSVERSE POST-TENSIONING ARE TO BE DESIGNED BY THE FABRICATOR FOR THE SPECIFIC POST-TENSIONING SYSTEM USED. DETAILS FOR THE ANCHOR PLATE SHALL BE PROVIDED ON THE FABRICATION DRAWINGS.
3. CORK MATERIAL SHALL BE SUPPLIED 3 mm THICKER THAN THE TOTAL BEARING HEIGHT AND SHALL BE ASSUMED TO COMPRESS 3 mm AFTER THE BEAMS HAVE BEEN SET.
4. EACH ANCHOR BOLT SHALL HAVE A SINGLE NUT. THE NUT SHALL BE HAND TIGHTENED AND THEN LOOSENED BY 1/2 TURN.
5. COSTS FOR ALL ANCILLARY ITEMS, INCLUDING BUT NOT LIMITED TO, THE ANCHOR BOLTS, CORK, JOINT SEALER, SLEEVES, ANCHOR PLATES, NUTS, WASHERS, PLUGS, AND MORTAR, SHALL BE CONSIDERED INCIDENTAL TO THE APPROPRIATE PRESTRESSED CONCRETE SOLID SLAB PAY ITEM.



**SLOTTED ANCHOR
PLATE DETAIL**

5 SCALE

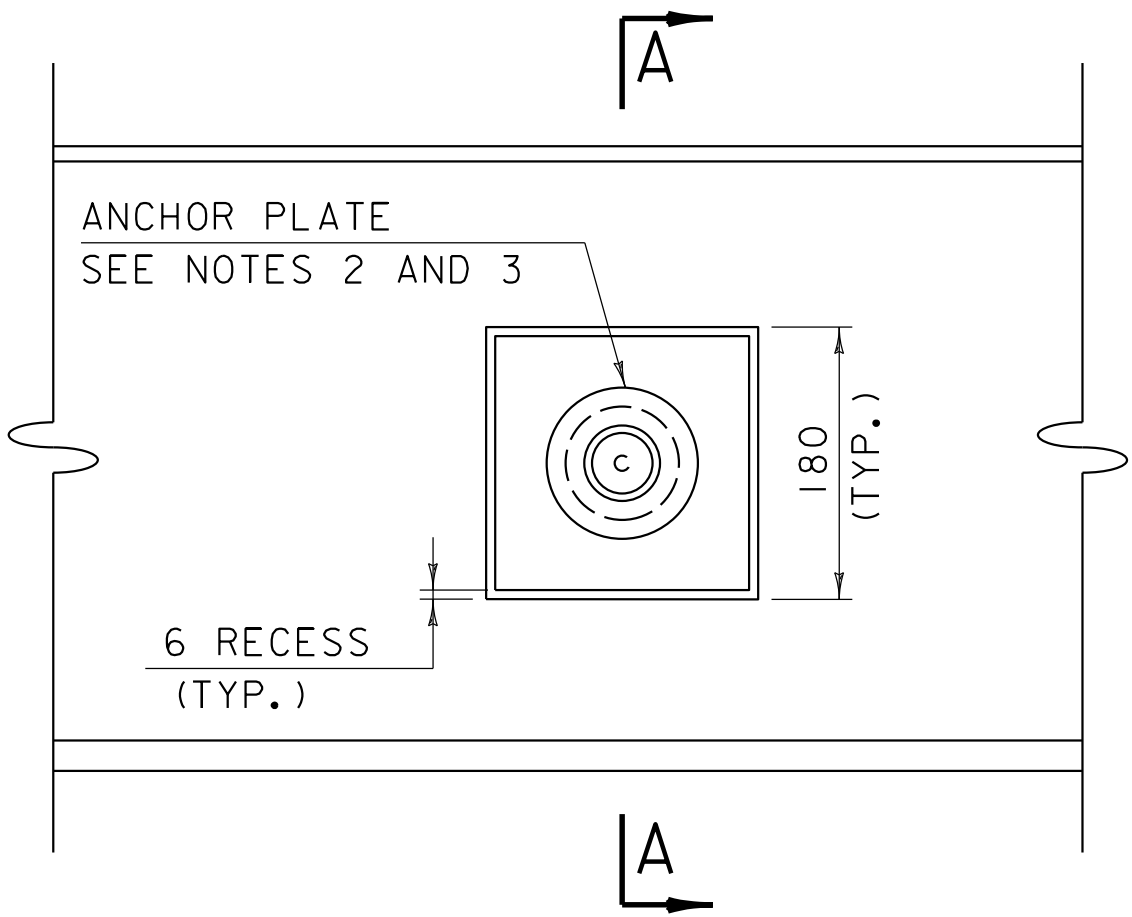


ANCHOR BOLT DETAIL

PLAN

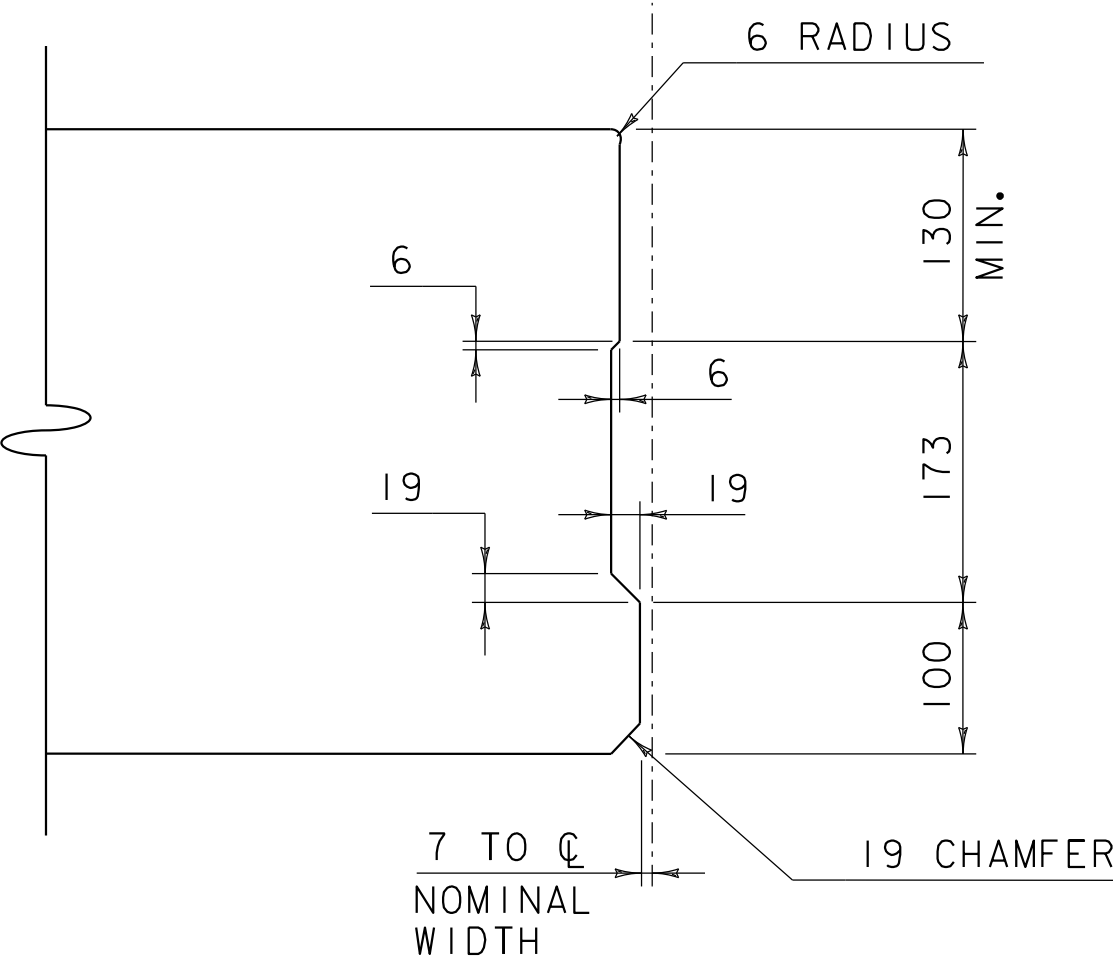
5 SCALE

NOTE: SEE SUBSECTION 714.08
FOR ANCHOR BOLTS AND
NUTS



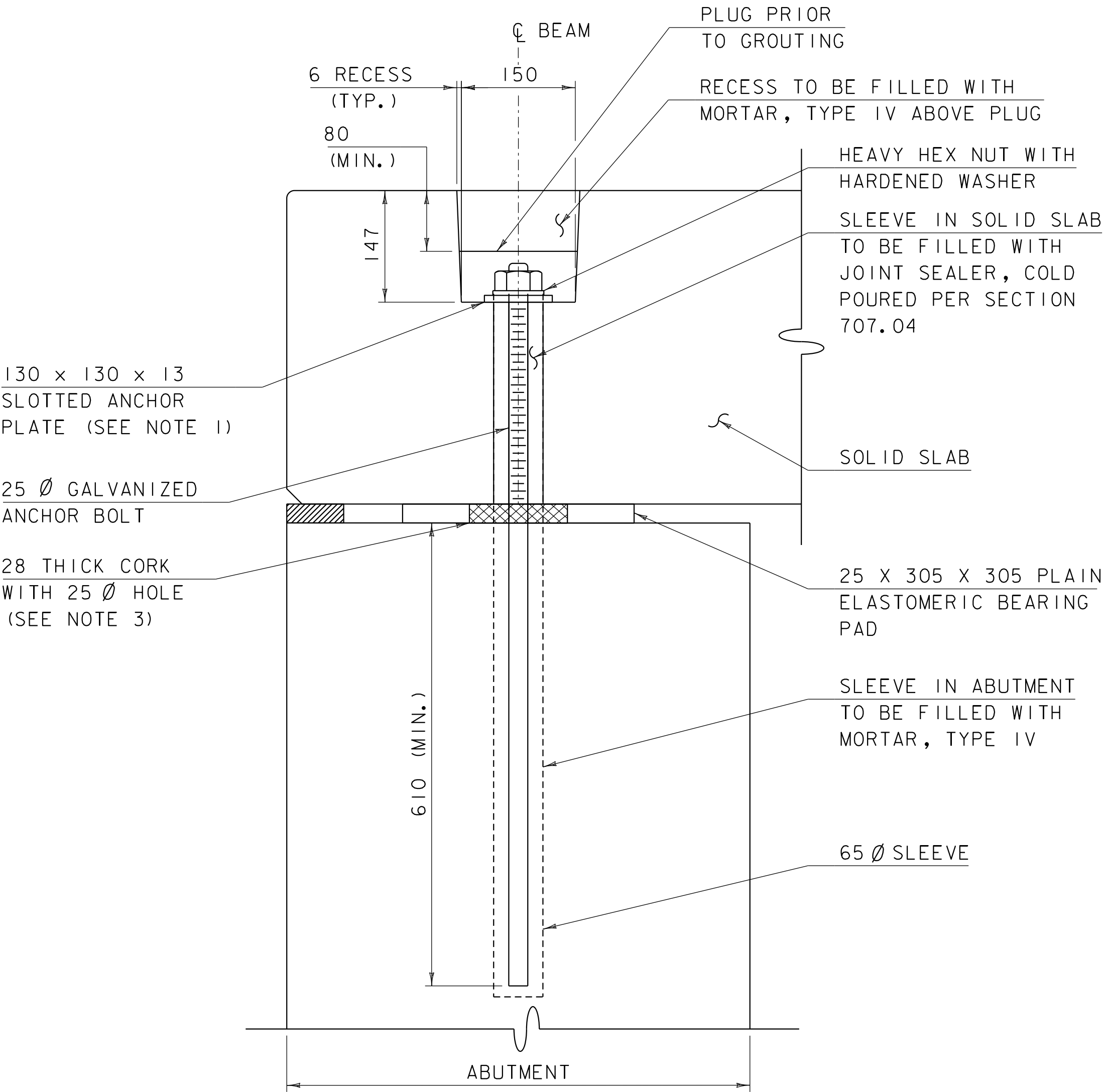
**TRANSVERSE POST-TENSIONING DETAIL
ELEVATION**

5 SCALE



SHEAR KEY DETAIL

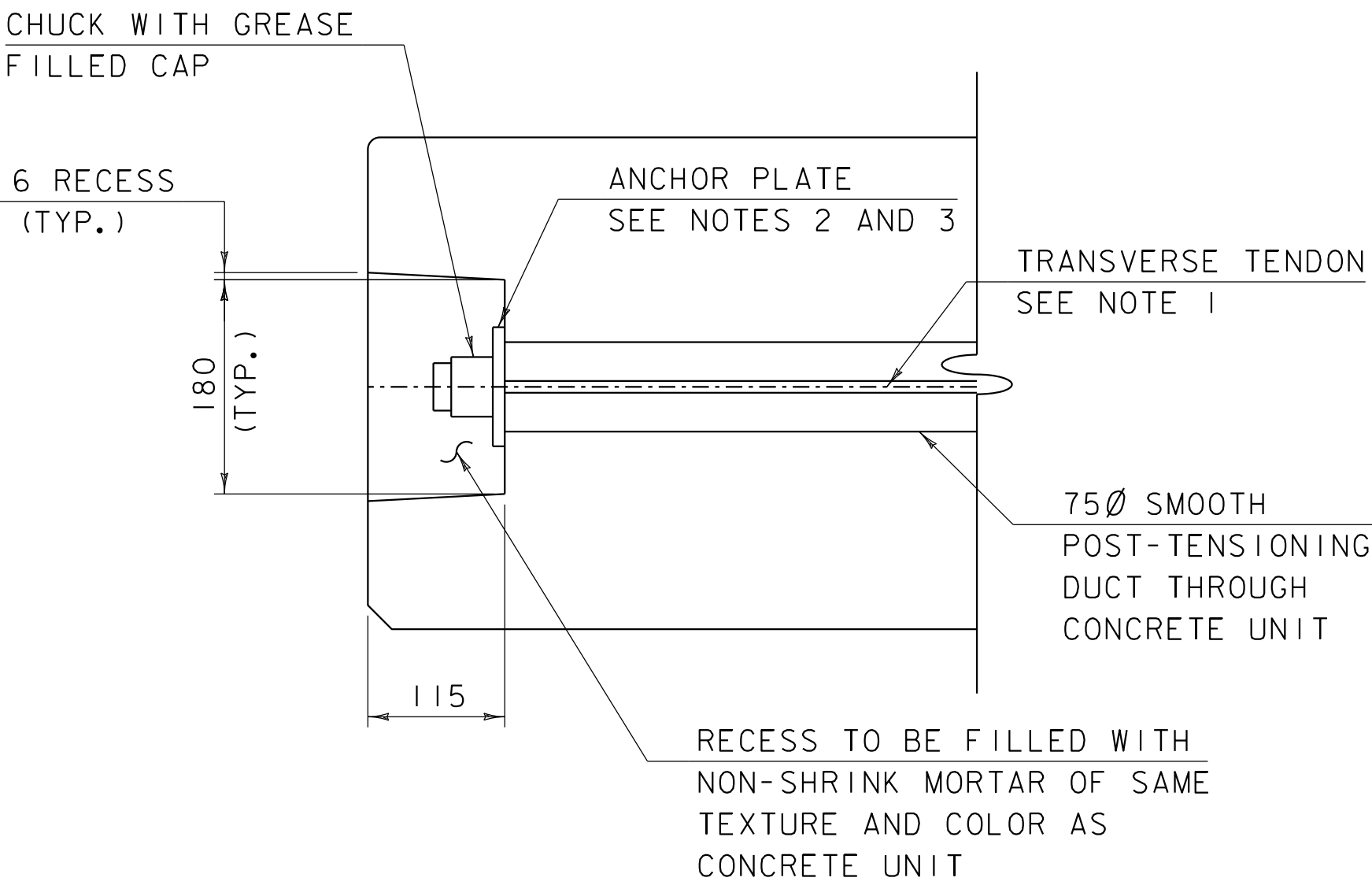
5 SCALE



ANCHOR BOLT DETAIL

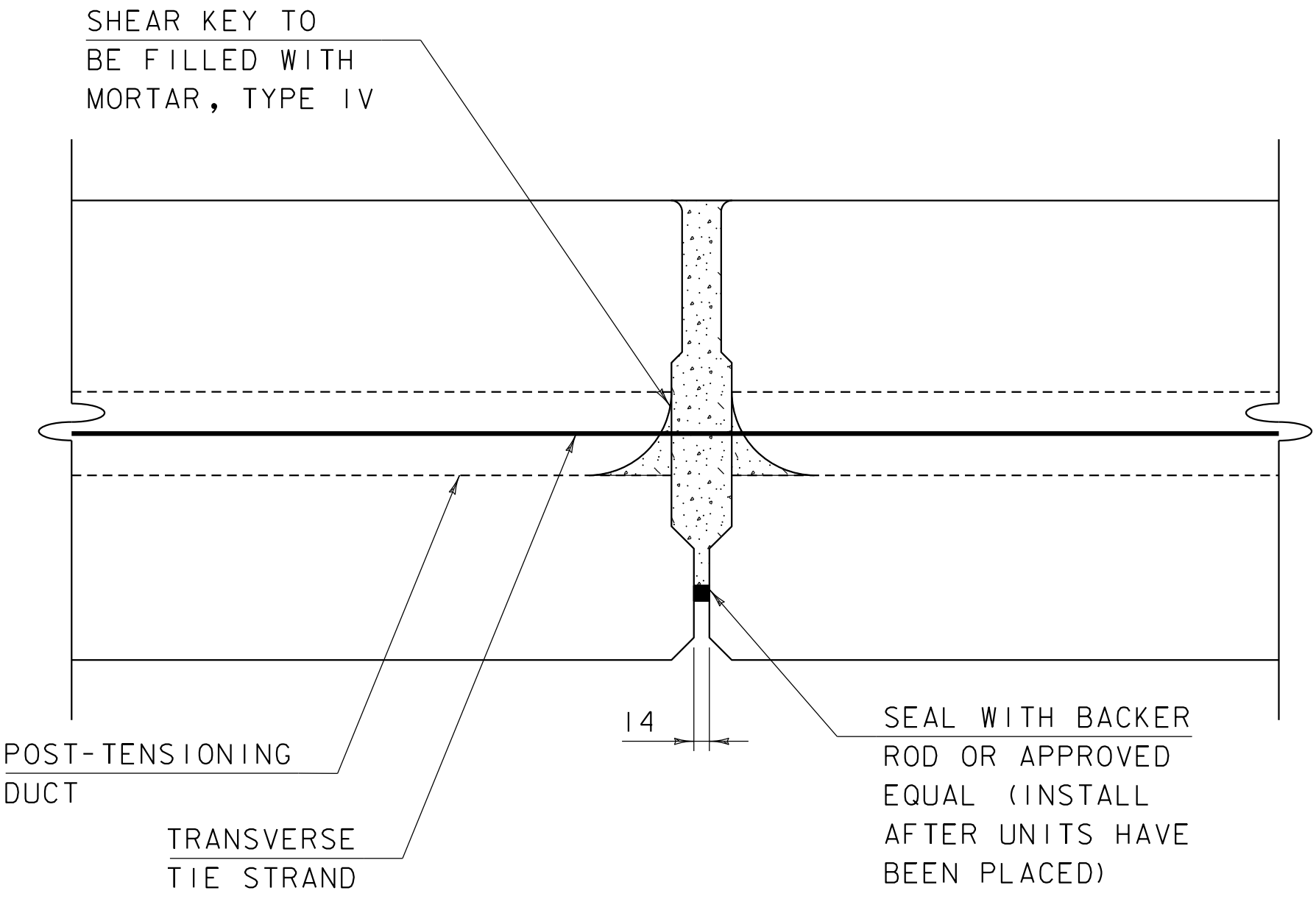
SECTION B-B

5 SCALE



**TRANSVERSE POST-TENSIONING DETAIL
SECTION A-A**

5 SCALE



SHEAR KEY SECTION

5 SCALE

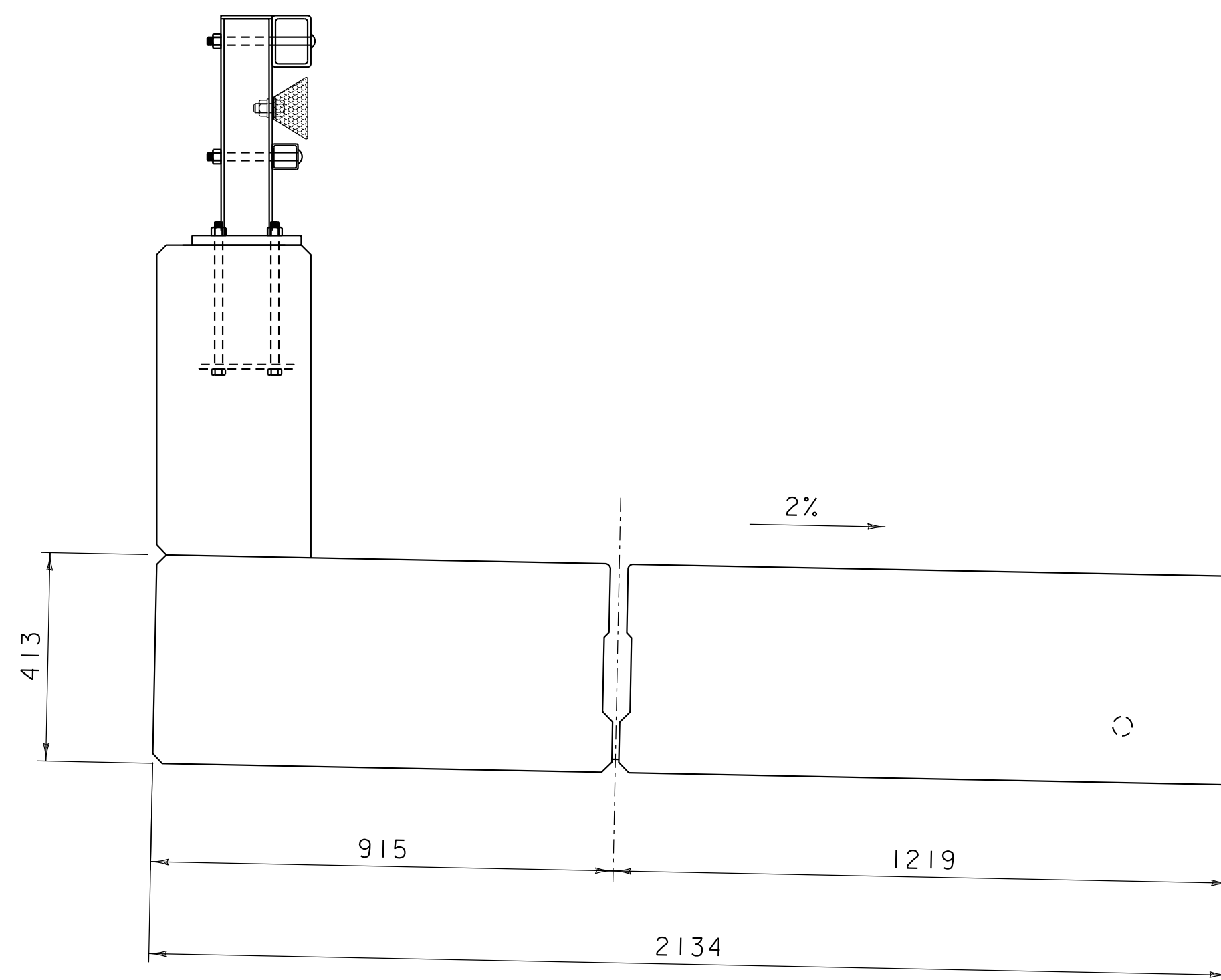


FUSS & O'NEILL

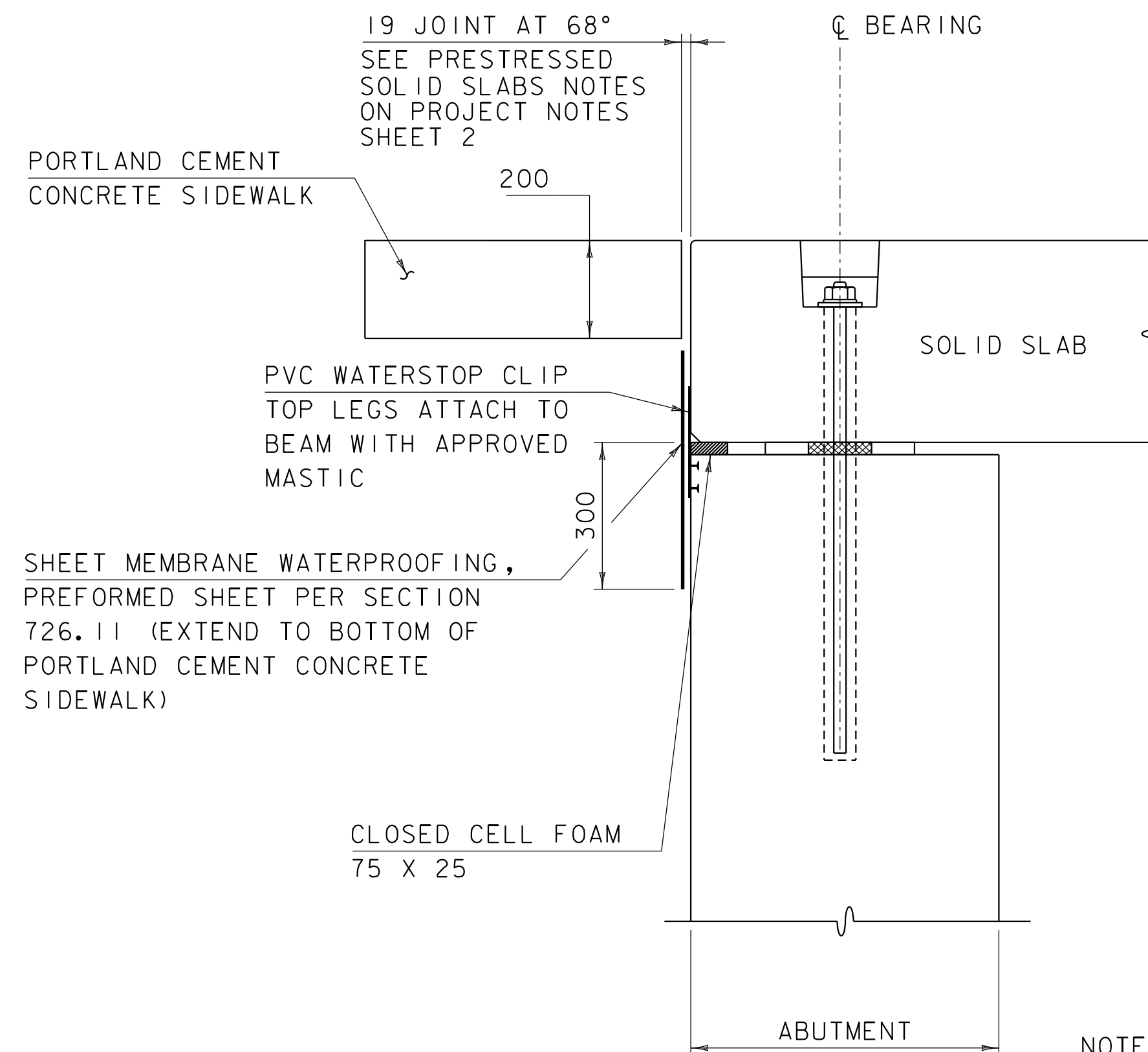
PROJECT NAME: BRANDON
PROJECT NUMBER: BHF 019-3(58)

FILE NAME: z10b358sup.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: S. BEAUMONT
SUPERSTRUCTURE DETAILS SHEET 2

PLOT DATE: 12/19/2017
DRAWN BY: M. SMITH
CHECKED BY: J. BYATT
SHEET 53 OF 79

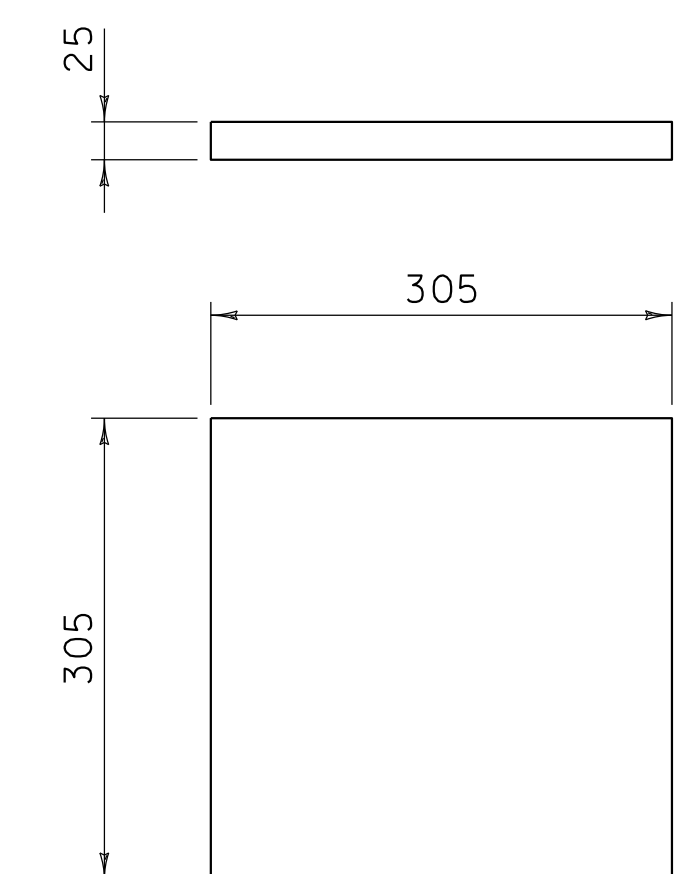


SIDEWALK TYPICAL SECTION
10 SCALE

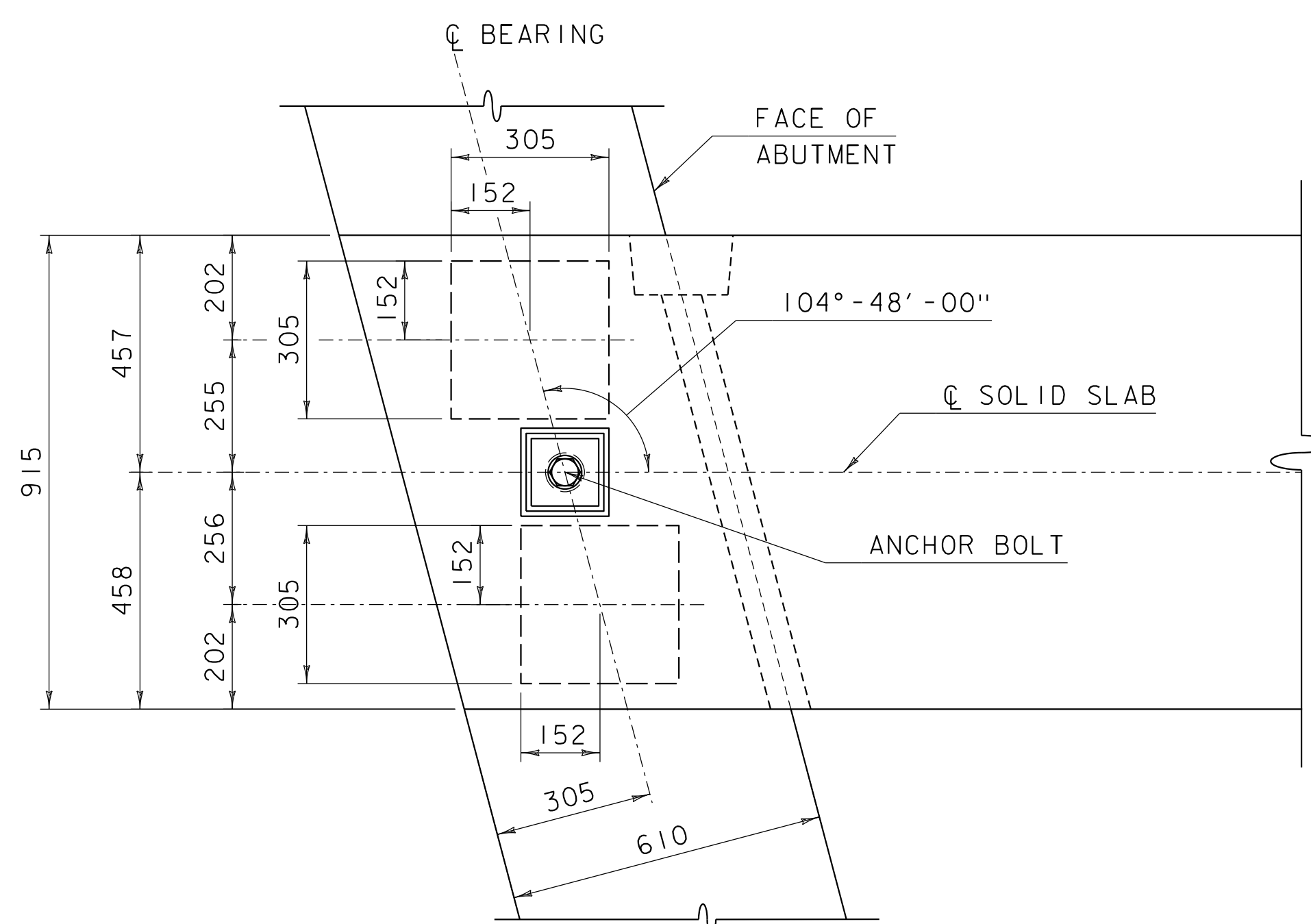


END SLAB DETAIL
10 SCALE

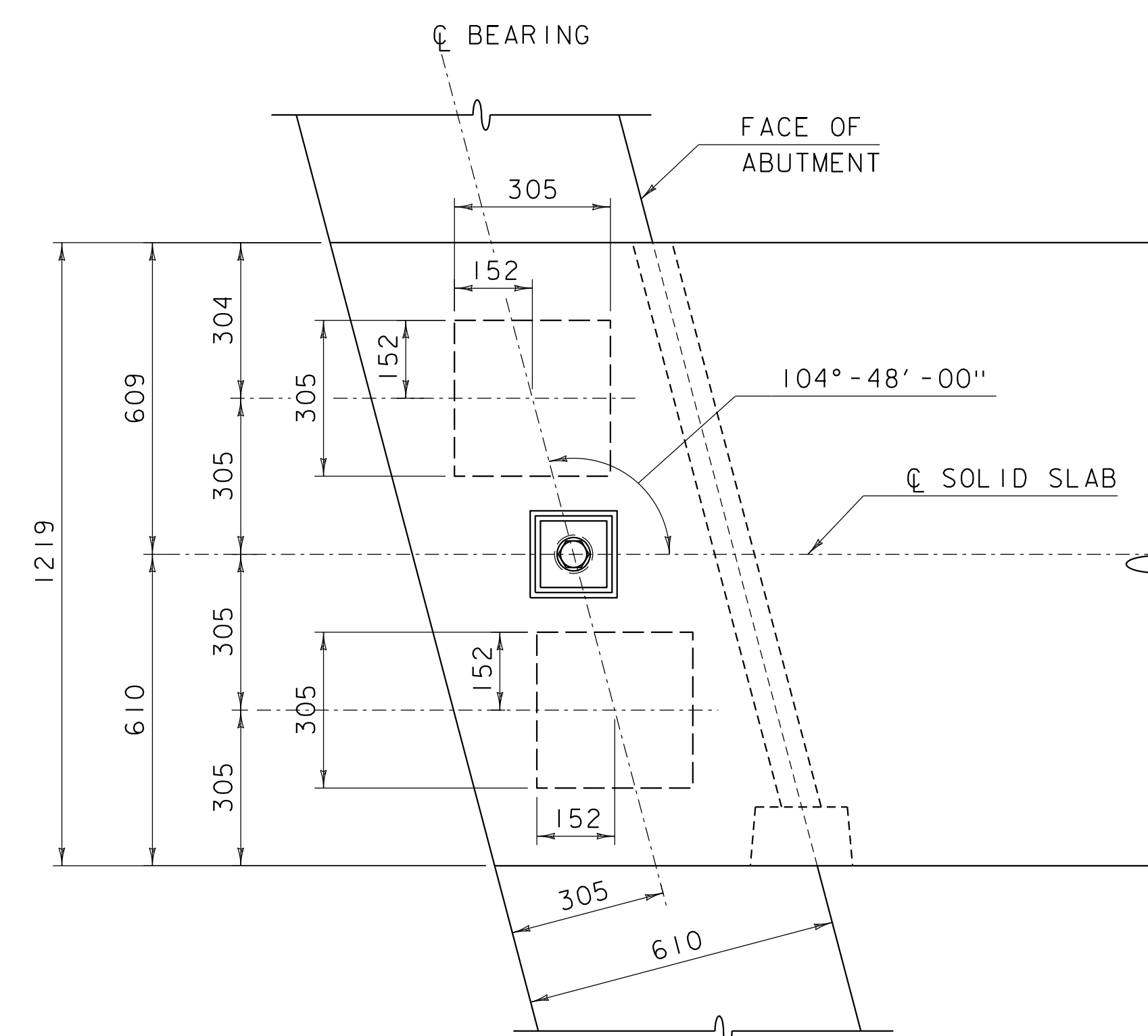
NOTE: PVC WATERSTOP, CLOSED CELL FOAM, AND SHEET MEMBRANE WATERPROOFING SHALL BE CONSIDERED INCIDENTAL TO THE APPROPRIATE PRESTRESSED CONCRETE SOLID SLAB PAY ITEM.



BEARING DETAIL
5 SCALE



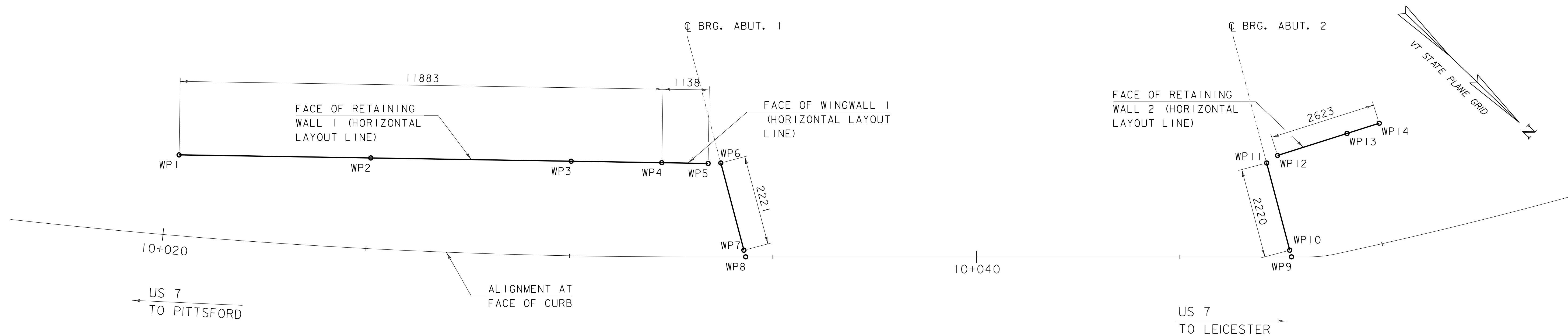
**BEARING PAD PLACEMENT DETAIL
FOR SLAB UNIT #1**
10 SCALE



**BEARING PAD PLACEMENT DETAIL
FOR SLAB UNIT #2**
10 SCALE

BEARING NOTES:

1. BEARINGS SHALL CONFORM TO THE APPLICABLE SUBSECTIONS OF SECTIONS 531 AND 731 AND BE PAID FOR UNDER ITEM 531.16, "BEARING DEVICE ASSEMBLY, PLAIN ELASTOMERIC PAD".
2. THE ELASTOMER WAS DESIGNED WITH A SHEAR MODULUS OF 655 KPa.
3. DESIGN SERVICE LOADS PER BEARING: (DESIGN METHOD A)
MAX DEAD LOAD: 47 KN
MAX LIVE LOAD: 64 KN
4. THE CONTRACTOR IS ADVISED TO HAVE A MINIMUM OF 8 - 6x305x305 GALVANIZED STEEL SHIMS AVAILABLE FOR USE FOR ELEVATION ADJUSTMENTS UPON THE SETTING OF THE SUPERSTRUCTURE UNITS. THE SHIMS SHALL BE FABRICATED ACCORDING TO SECTION 531 AND SHALL BE INCLUDED UNDER ITEM 531.16, "BEARING DEVICE ASSEMBLY, PLAIN ELASTOMERIC PAD".

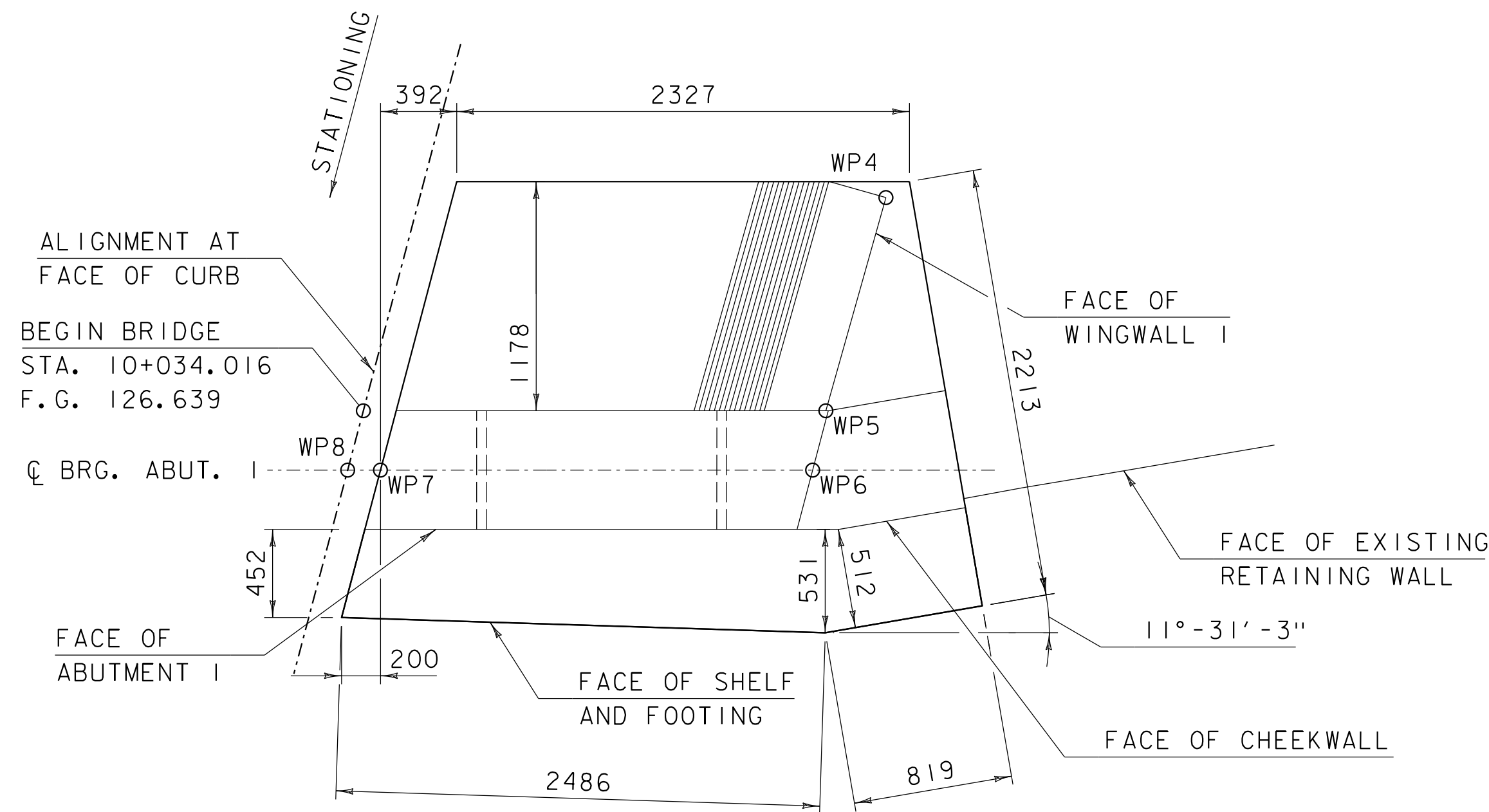


WORKING POINT LAYOUT

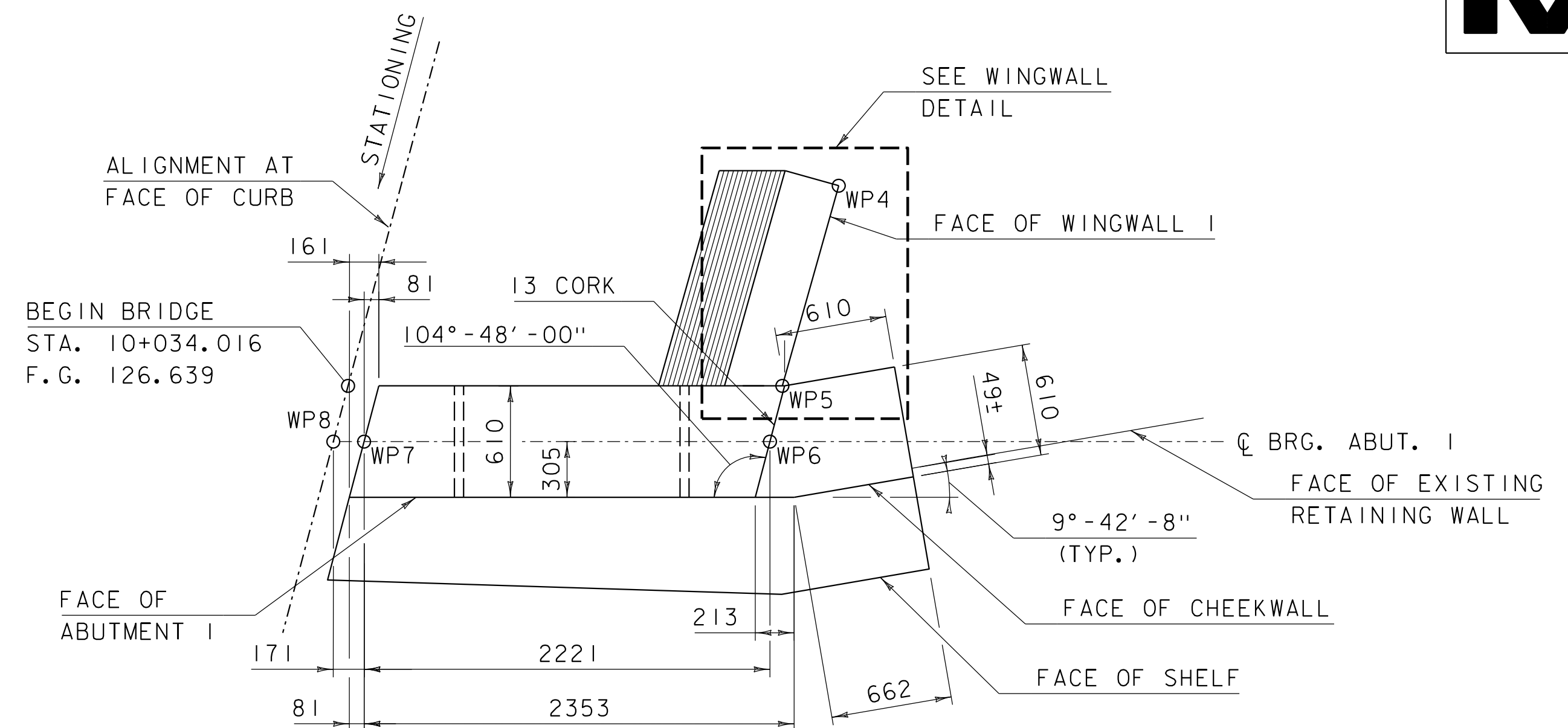
50 SCALE

NOTE: SEE ALIGNMENT AND PAVEMENT LAYOUT SHEET FOR ALIGNMENT INFORMATION.

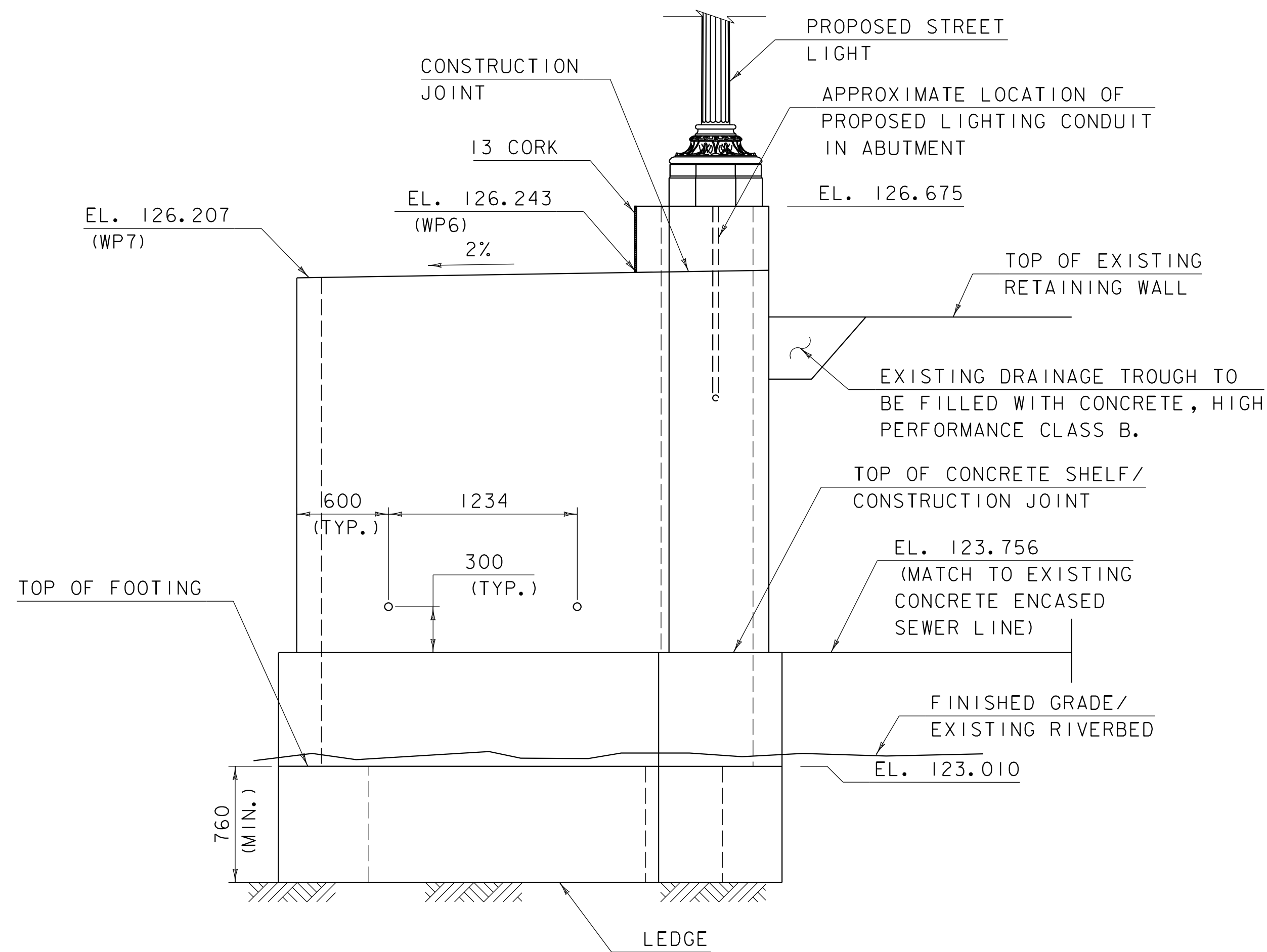
WORKING POINTS				
	STA.	OFFSET	NORTHING	EASTING
WP1	10+020.208	1.984 LT	144521.2084	452600.6096
WP2	10+025.000	2.230 LT	144524.6766	452597.3914
WP3	10+030.000	2.325 LT	144528.2866	452594.0416
WP4	10+032.261	2.314 LT	144529.9189	452592.5270
WP5	10+033.409	2.297 LT	144530.7530	452591.7530
WP6	10+033.721	2.310 LT	144530.9692	452591.5276
WP7	10+034.288	0.163 LT	144532.8646	452592.6848
WP8	10+034.331	0	144533.0085	452592.7727
WP9	10+047.742	0	144542.6888	452583.4911
WP10	10+047.699	0.163 LT	144542.5449	452583.4033
WP11	10+047.132	2.310 LT	144540.6495	452582.2461
WP12	10+047.401	2.484 LT	144540.7238	452581.9341
WP13	10+050.000	2.853 LT	144541.6894	452580.1477
WP14	10+050.608	2.903 LT	144541.9720	452579.6249



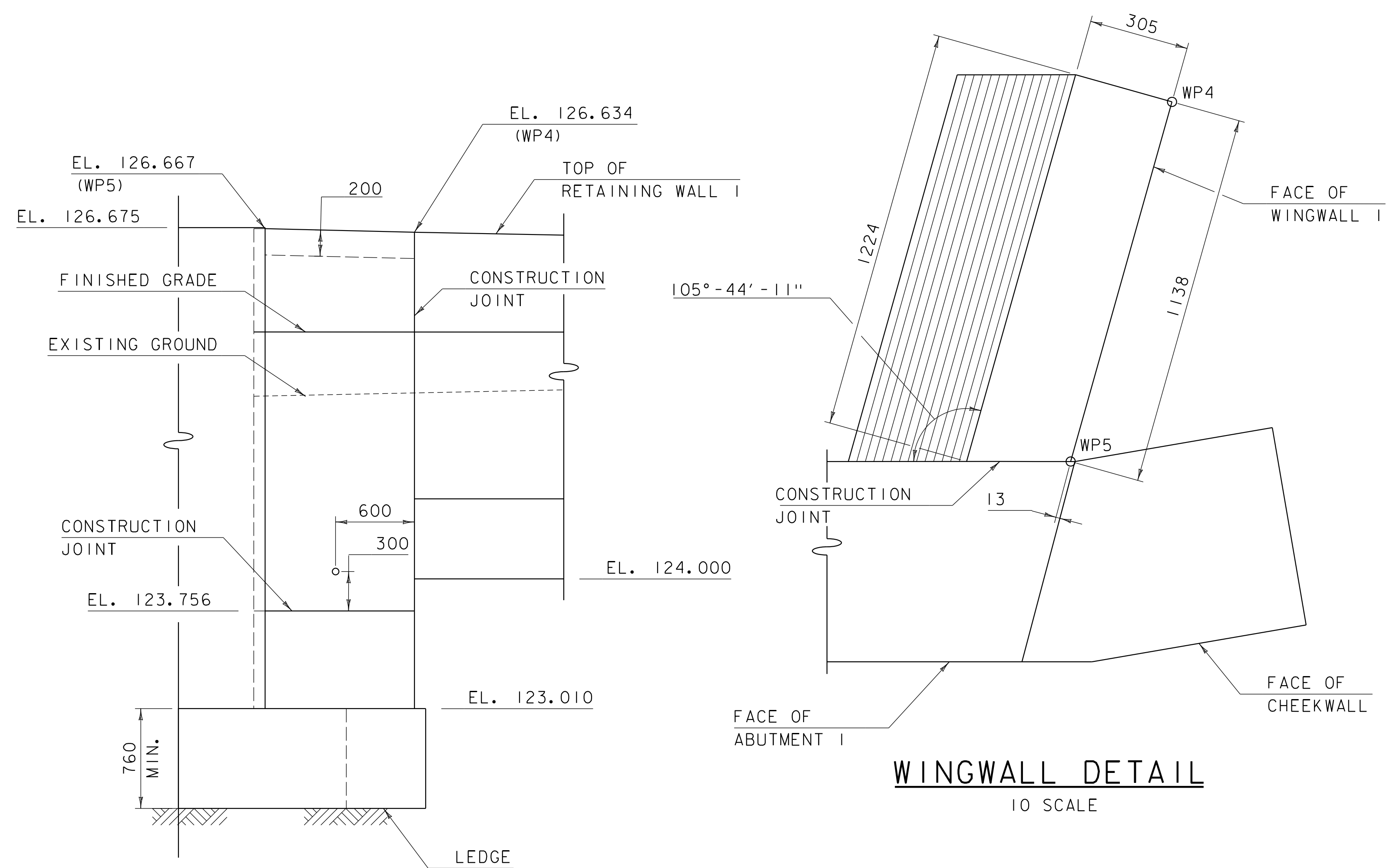
ABUTMENT 1 FOOTING MASONRY PLAN
25 SCALE



ABUTMENT 1 MASONRY PLAN
25 SCALE



ABUTMENT 1 MASONRY ELEVATION
25 SCALE



WINGWALL 1 MASONRY ELEVATION
25 SCALE

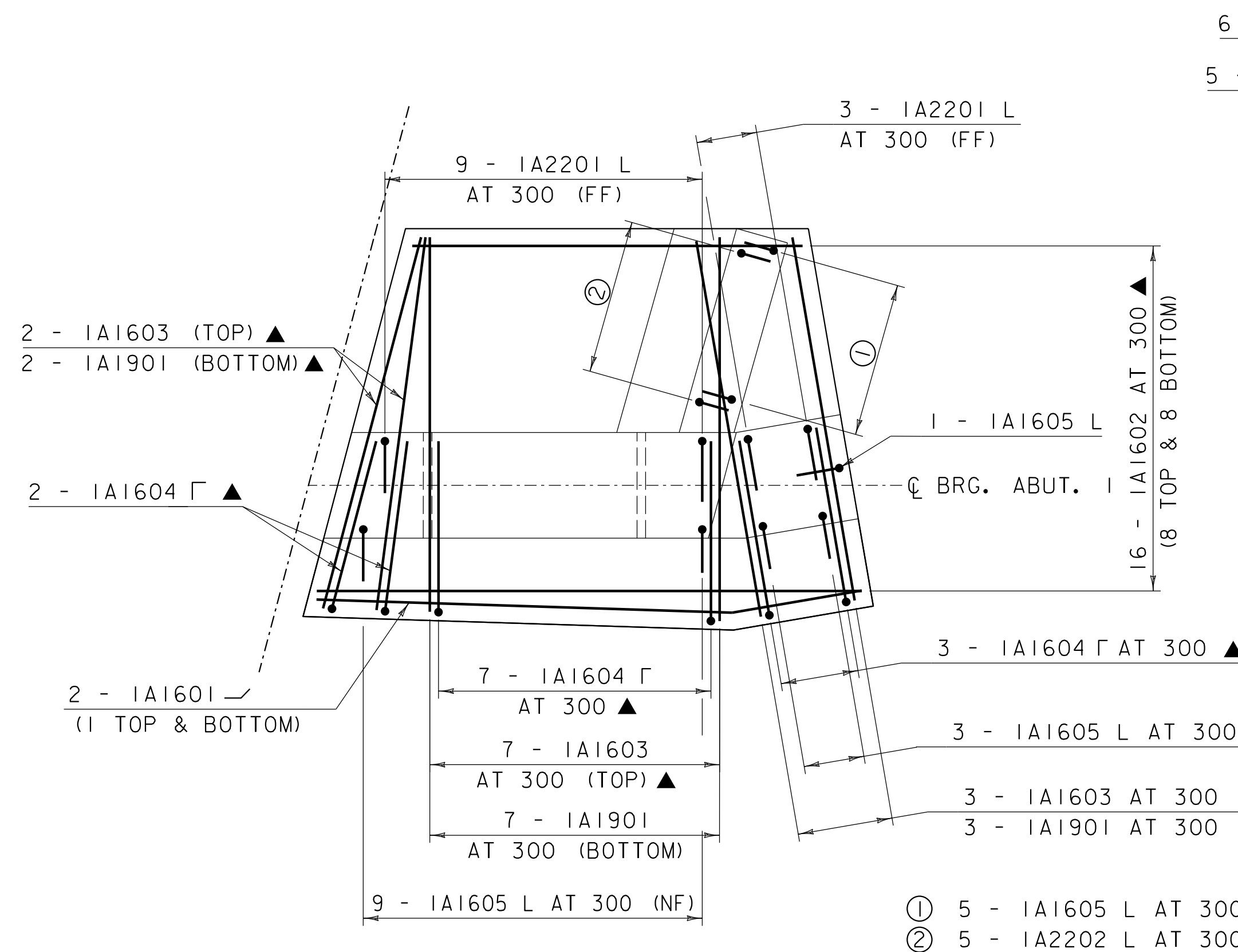
WINGWALL DETAIL
10 SCALE



PROJECT NAME: BRANDON
PROJECT NUMBER: BHF 019-3(58)

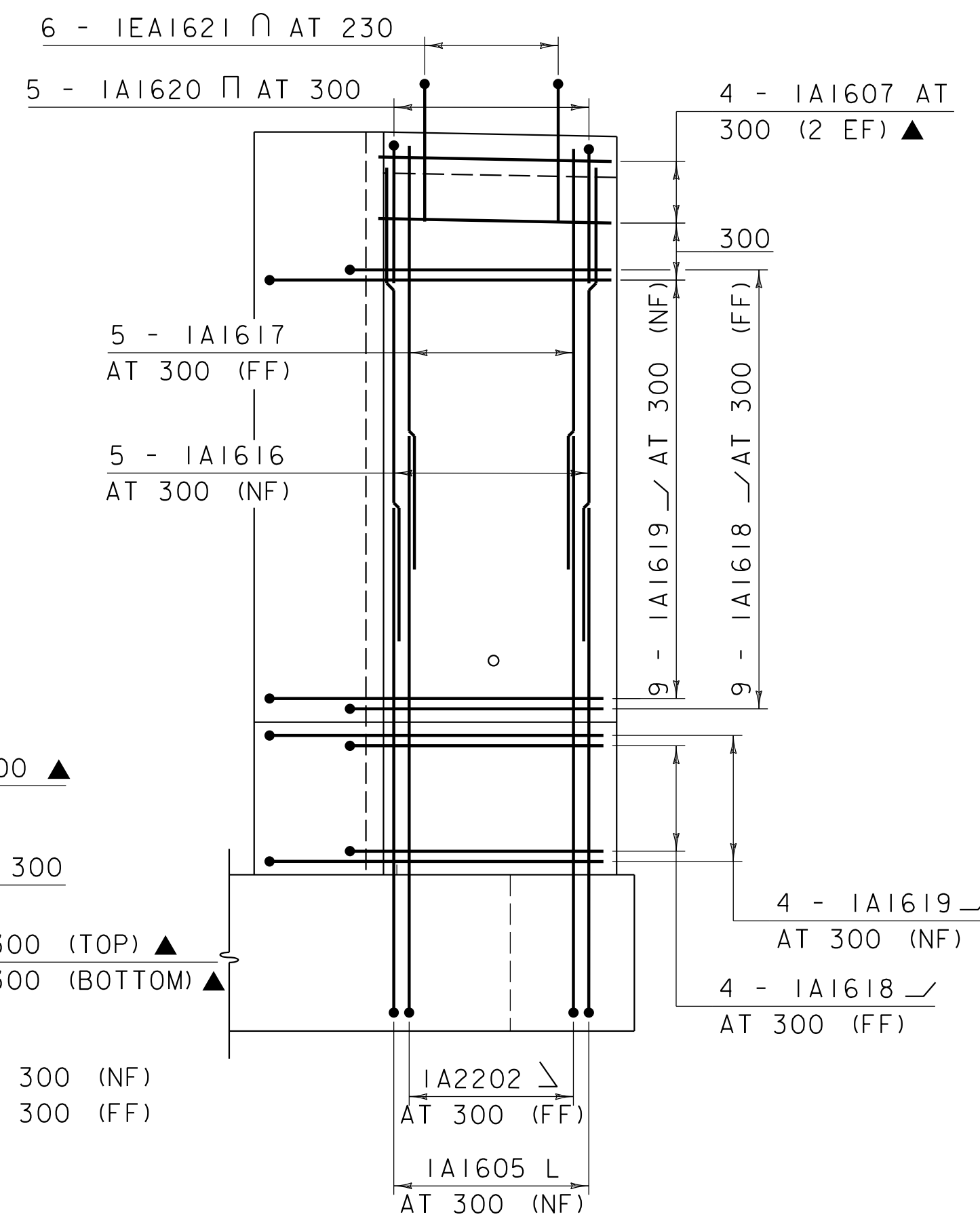
FILE NAME: z10b358sub.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: S. BEAUMONT
ABUTMENT 1 DETAILS SHEET 1

PLOT DATE: 12/19/2017
DRAWN BY: M. SMITH
CHECKED BY: J. BYATT
SHEET 56 OF 79



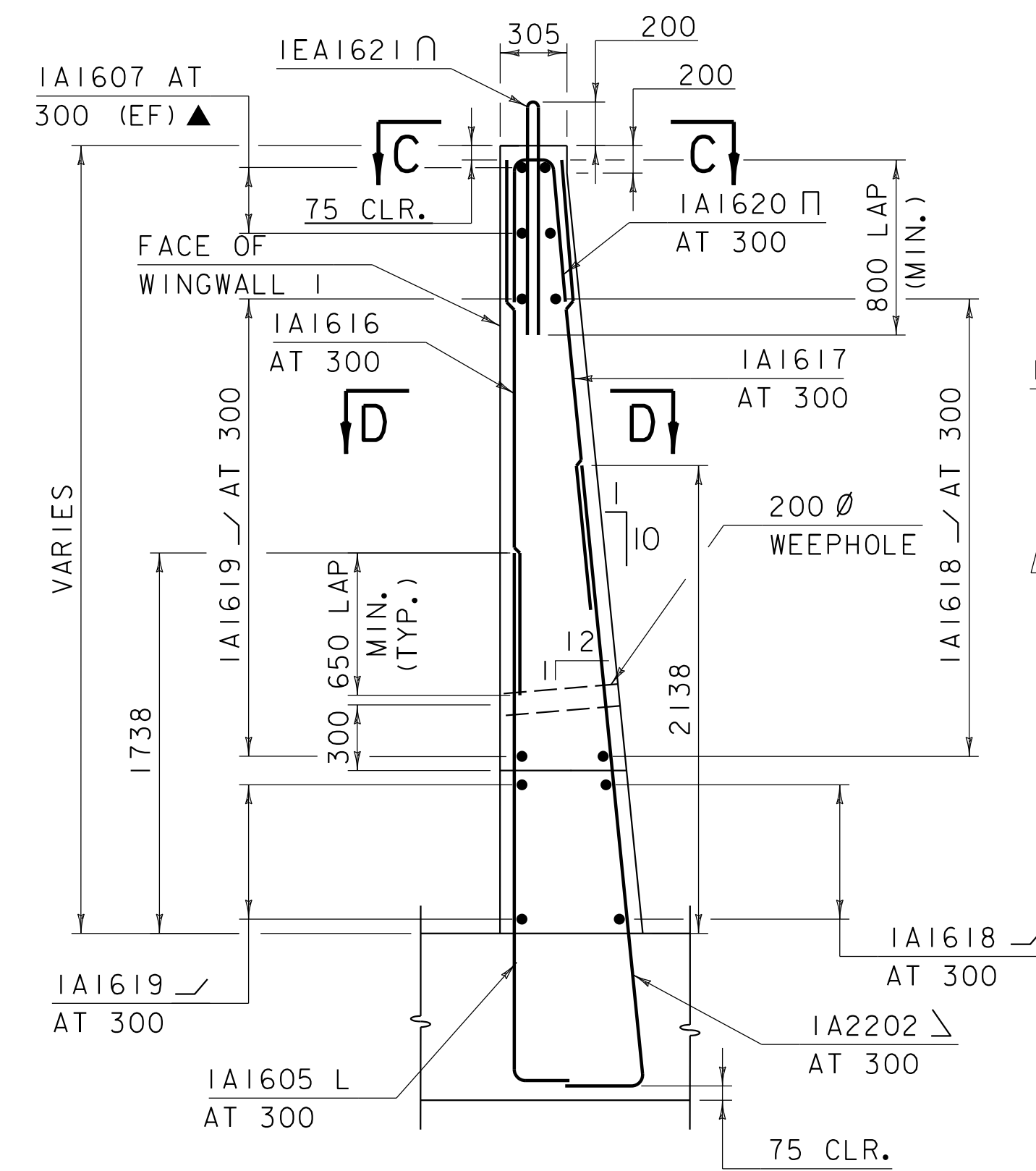
**ABUTMENT I FOOTING
REINFORCEMENT PLAN**

25 SCALE



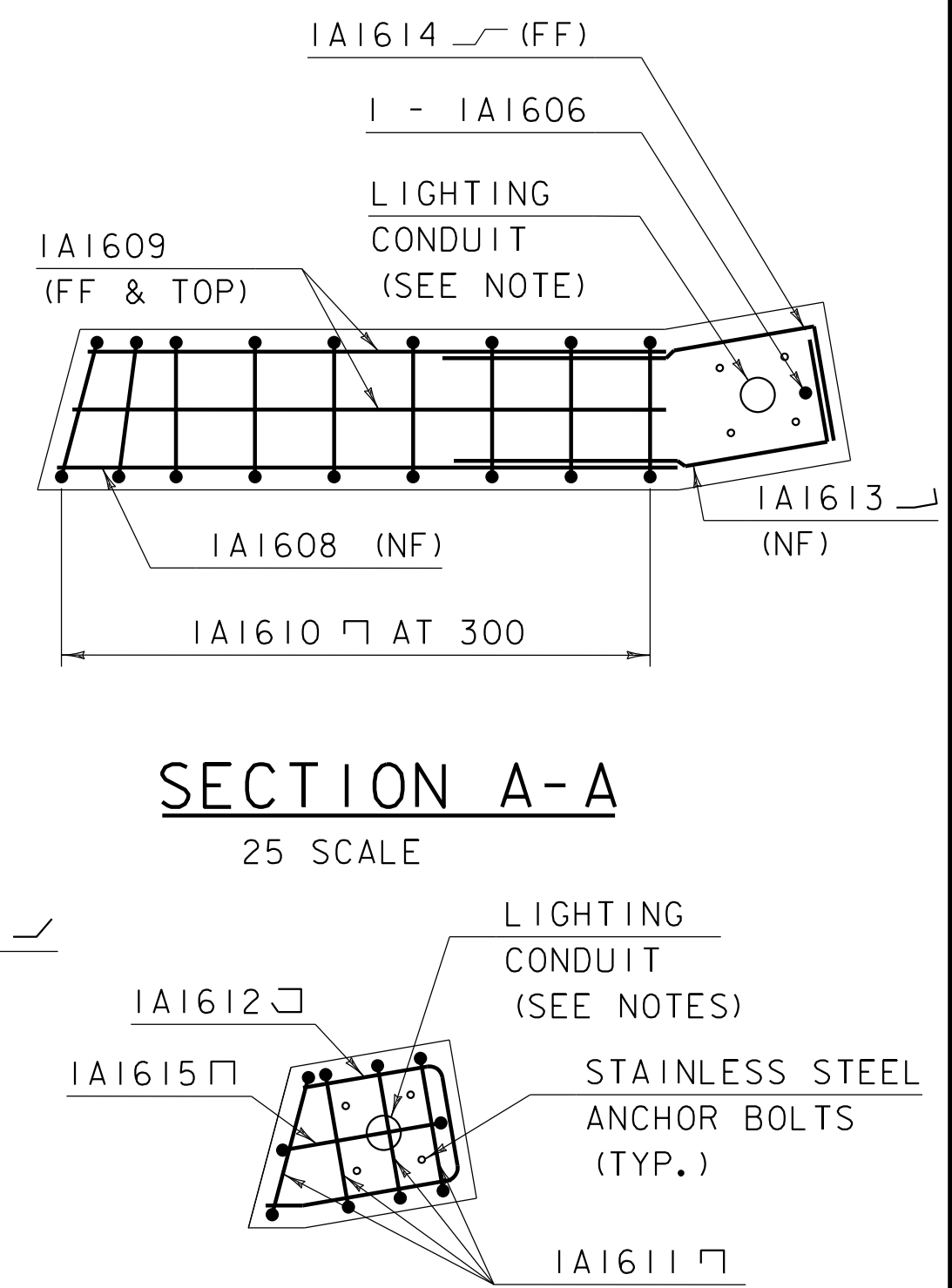
**WINGWALL I REINFORCEMENT
ELEVATION**

25 SCALE



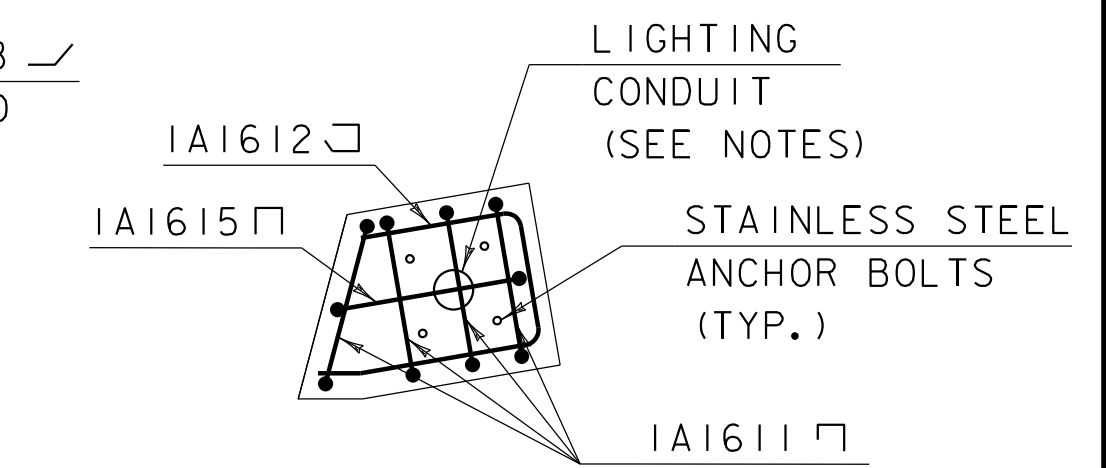
**WINGWALL I TYPICAL
SECTION**

25 SCALE



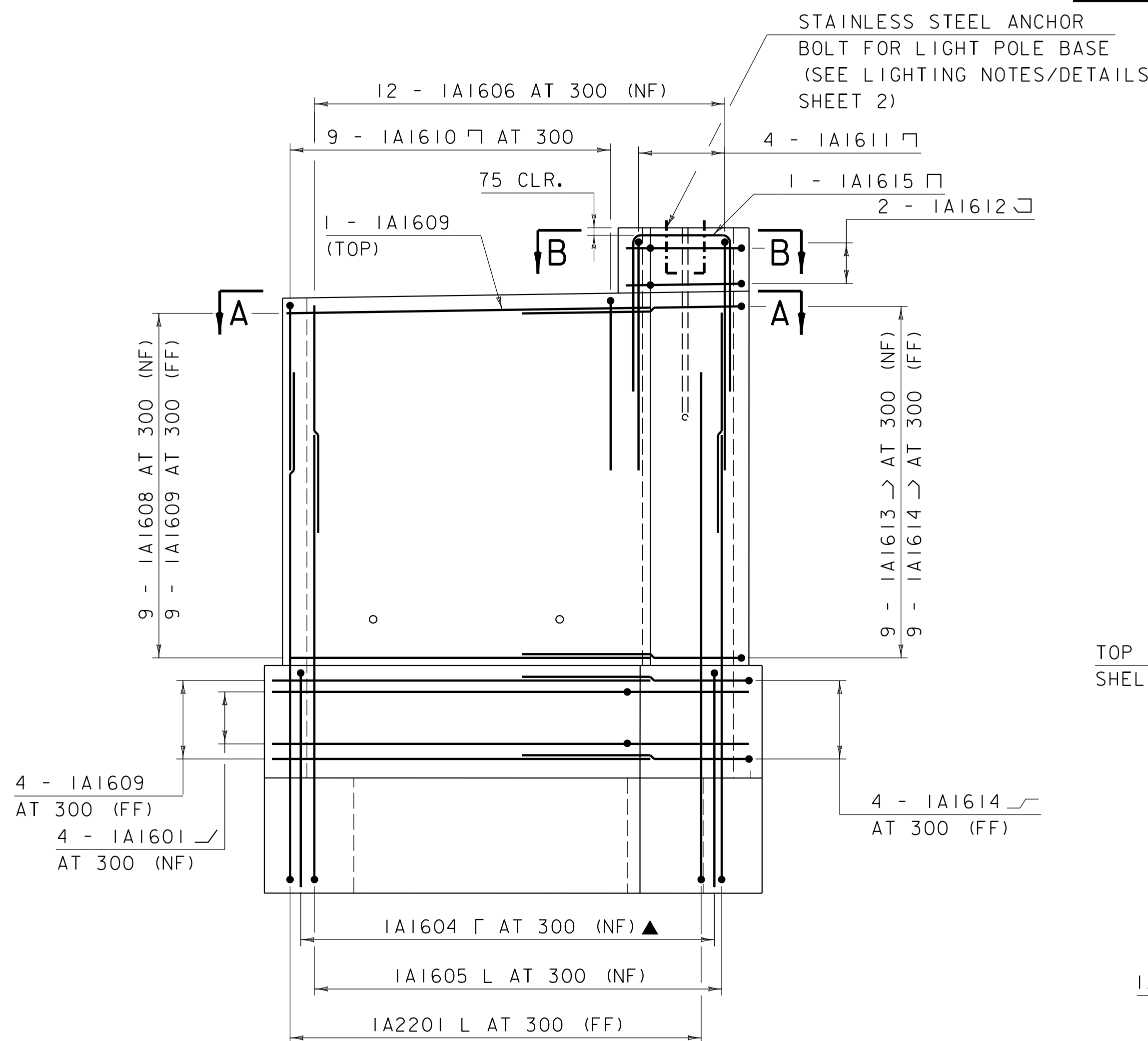
SECTION A-A

25 SCALE



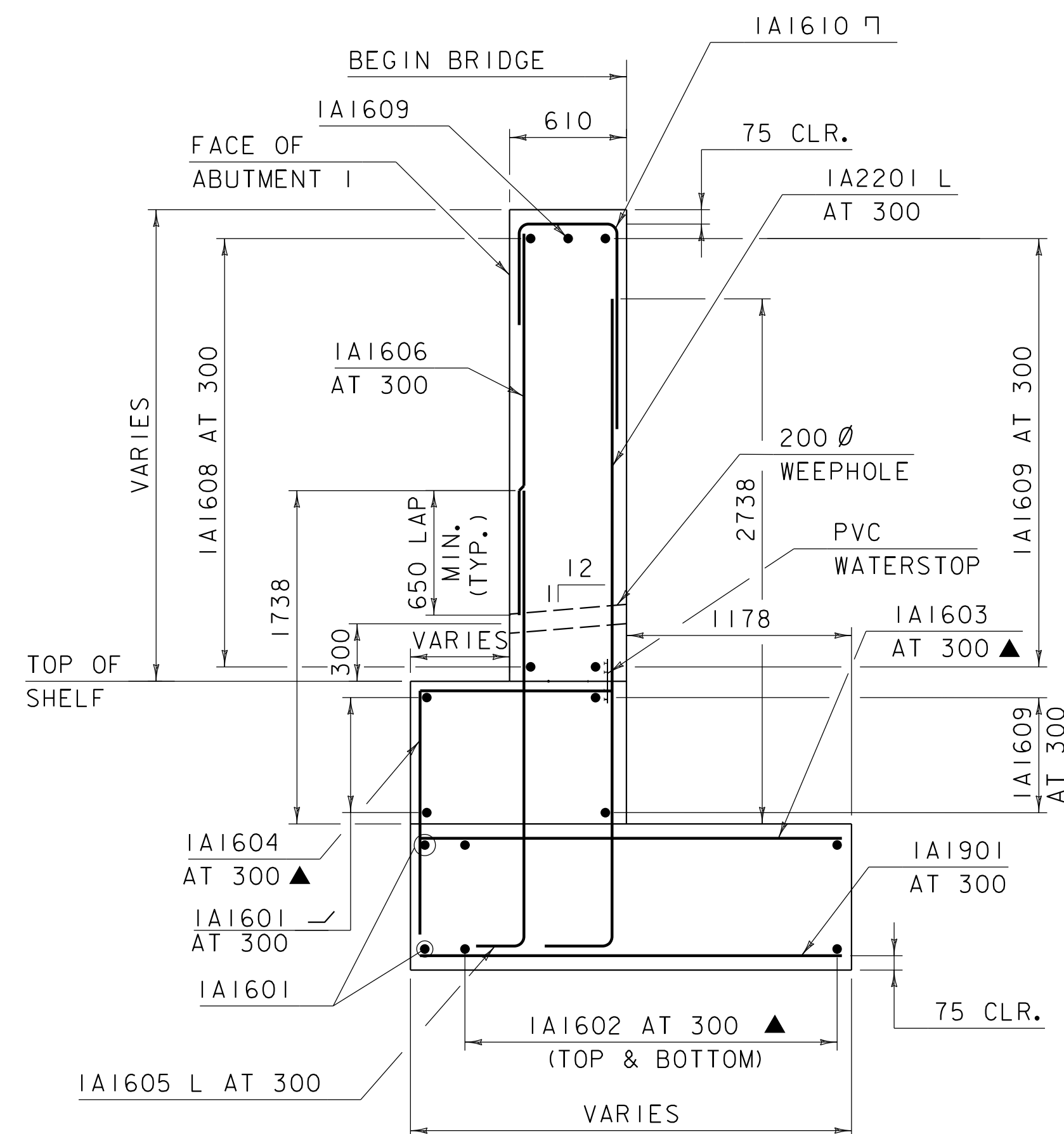
SECTION B-B

25 SCALE



ABUTMENT I REINFORCEMENT ELEVATION

25 SCALE



ABUTMENT I TYPICAL SECTION

25 SCALE

NOTES:

NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT IN FIELD
50 CLEAR, UNLESS OTHERWISE SPECIFIED ON THE THE PLANS.
650 VERTICAL LAP, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
850 HORIZONTAL LAP

STAINLESS STEEL ANCHOR BOLTS AND LIGHTING CONDUIT SHALL BE CAST IN THE ABUTMENT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FINALIZING FINAL STAINLESS STEEL ANCHOR BOLT AND LIGHTING CONDUIT CONFIGURATION IN ABUTMENT PRIOR TO POURING CONCRETE. ADJUSTMENTS TO REBAR LAYOUT MAY BE REQUIRED.

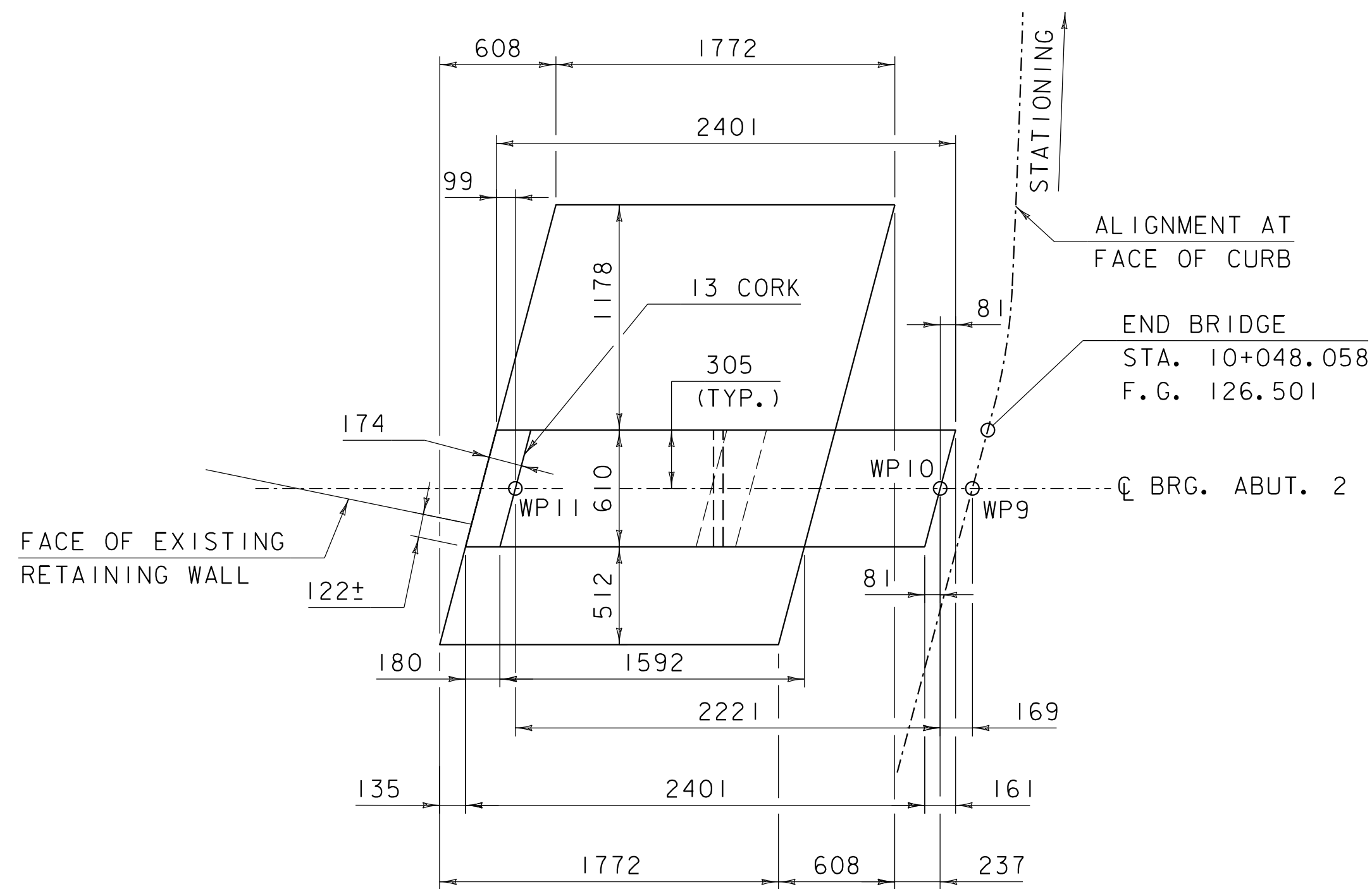
PROJECT NAME: BRANDON
PROJECT NUMBER: BHF 019-3(58)

FILE NAME: z10b358sub.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: S. BEAUMONT
ABUTMENT I DETAILS SHEET 2

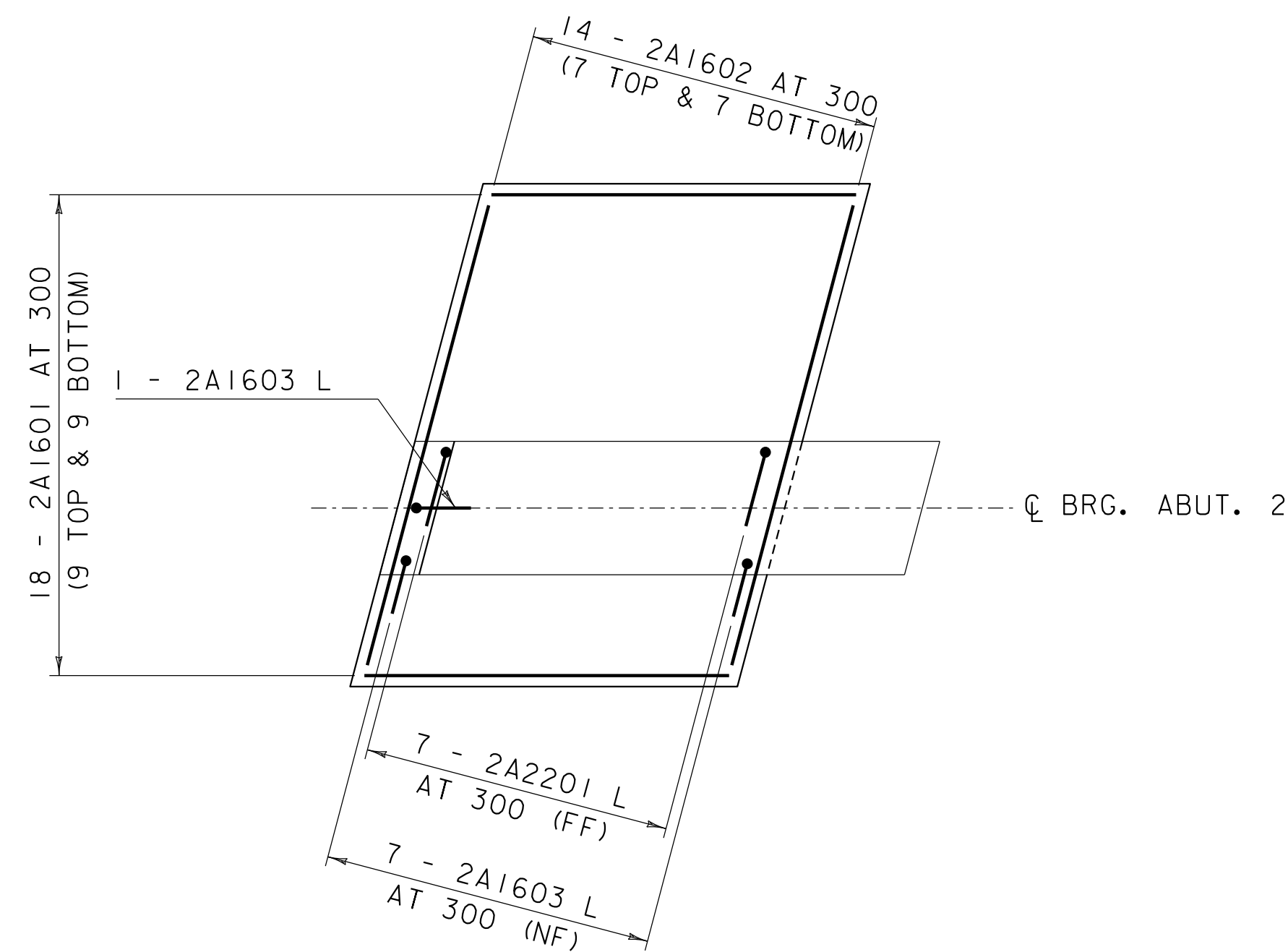
PLOT DATE: 12/19/2017
DRAWN BY: M. SMITH
CHECKED BY: J. BYATT
SHEET 57 OF 79



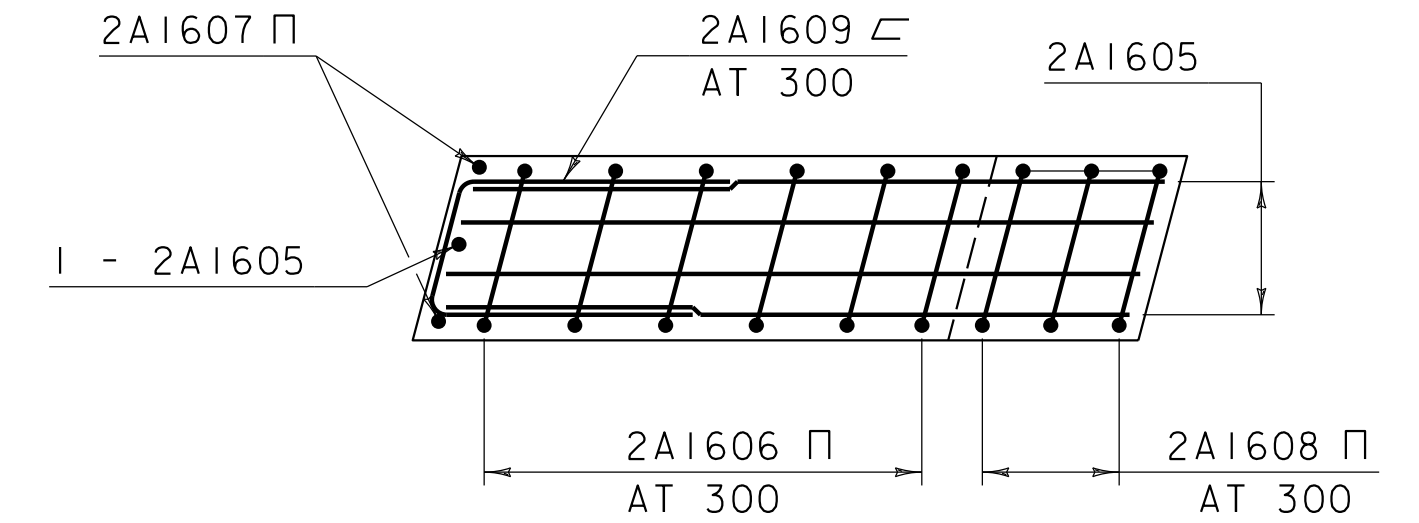
FUSS & O'NEILL



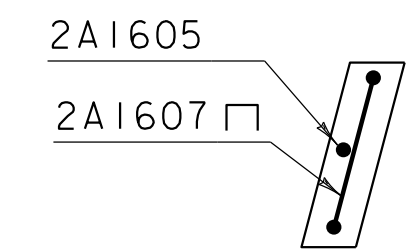
ABUTMENT 2 MASONRY PLAN
25 SCALE



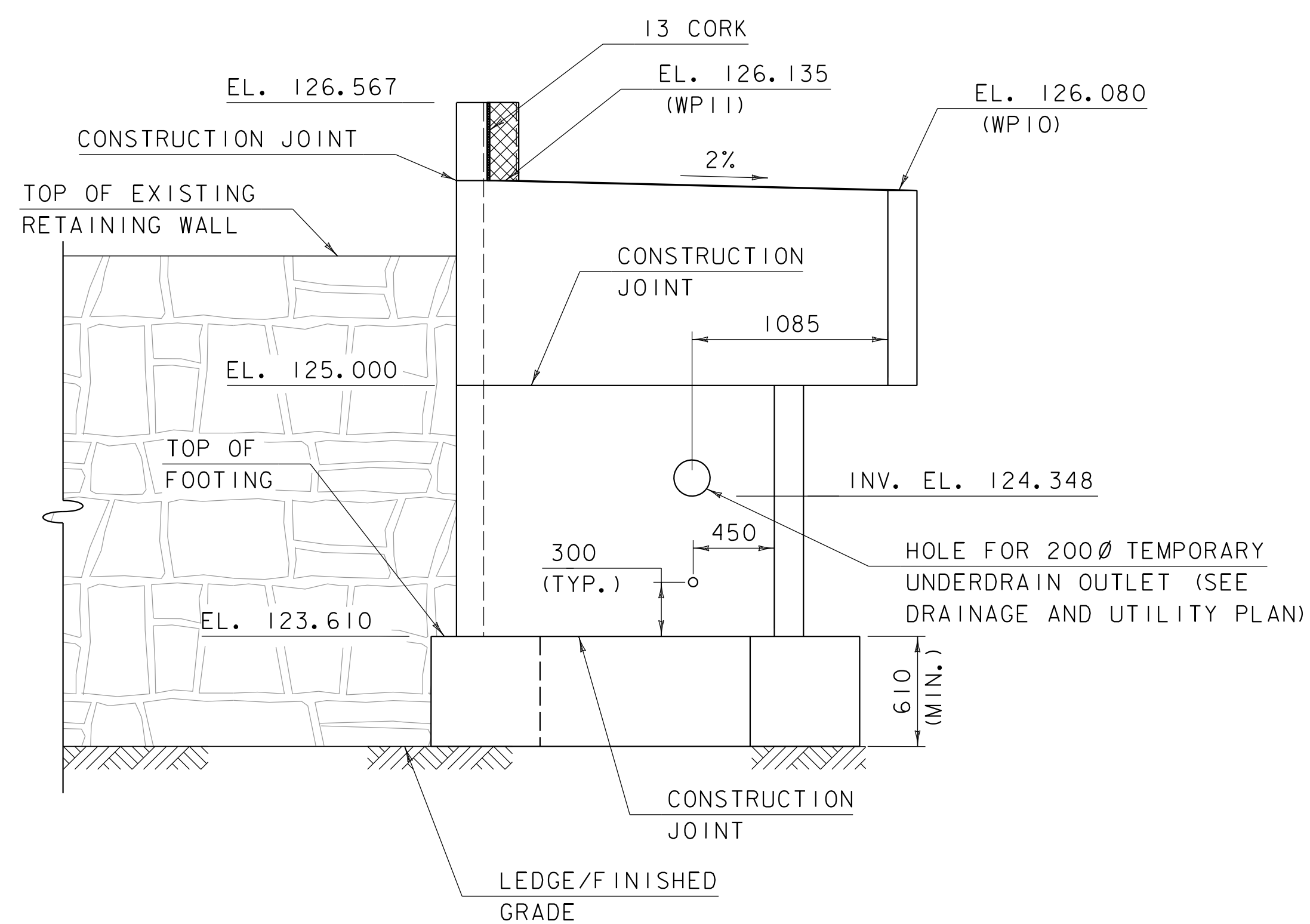
ABUTMENT 2 FOOTING REINFORCEMENT PLAN
25 SCALE



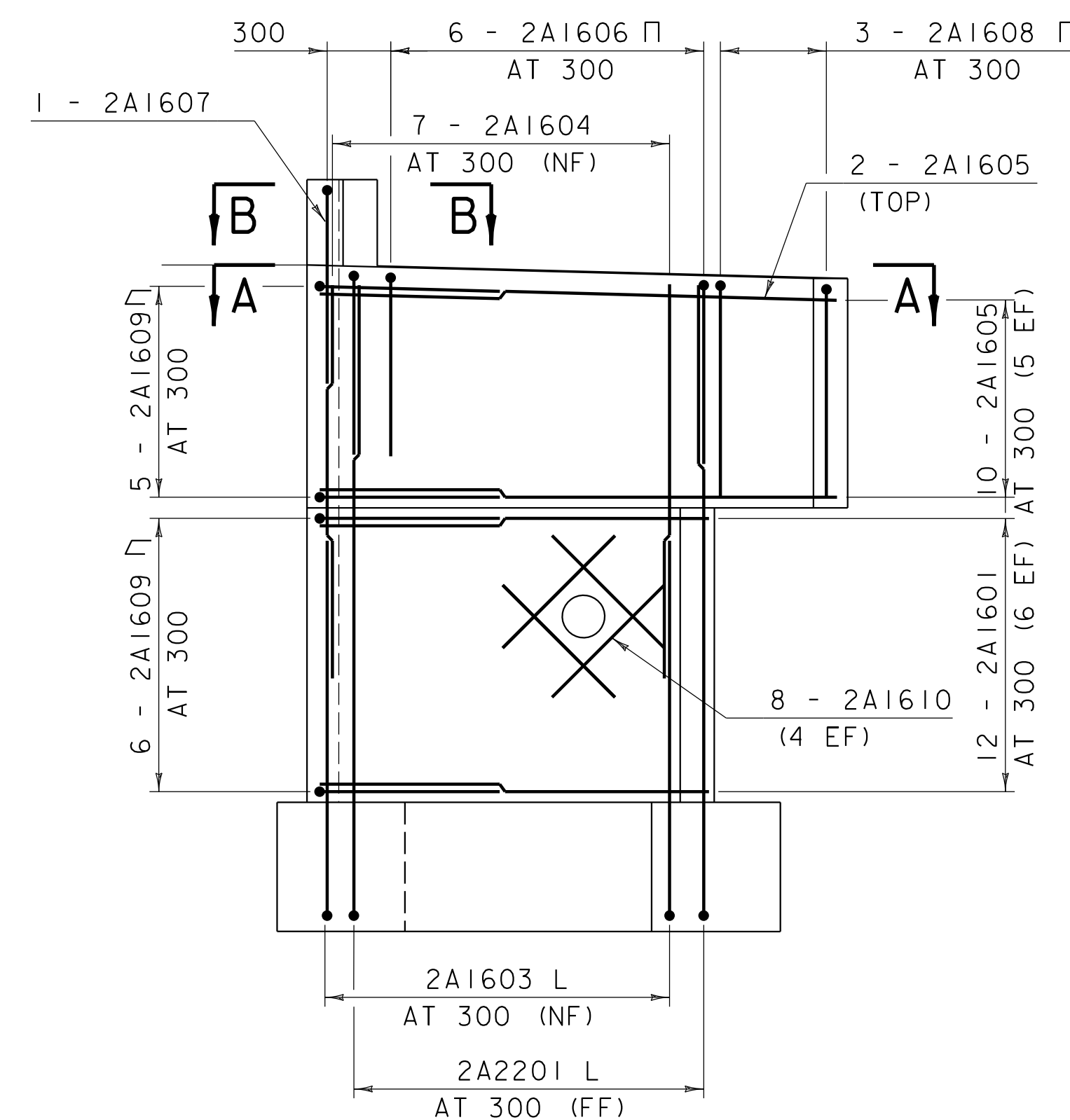
SECTION A-A
25 SCALE



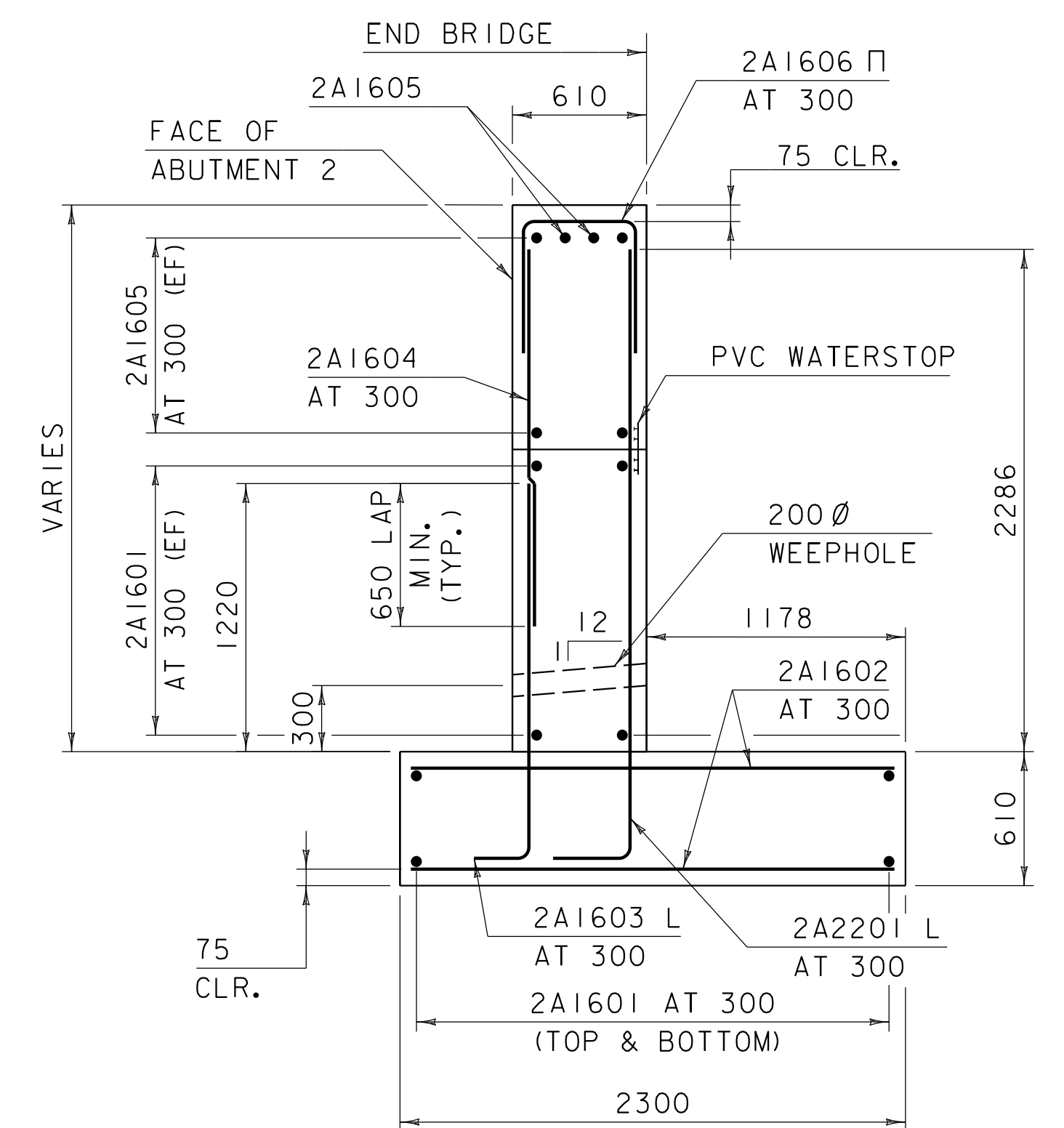
SECTION B-B
25 SCALE



ABUTMENT 2 MASONRY ELEVATION
25 SCALE



ABUTMENT 2 REINFORCEMENT ELEVATION
25 SCALE



ABUTMENT 2 TYPICAL SECTION
25 SCALE

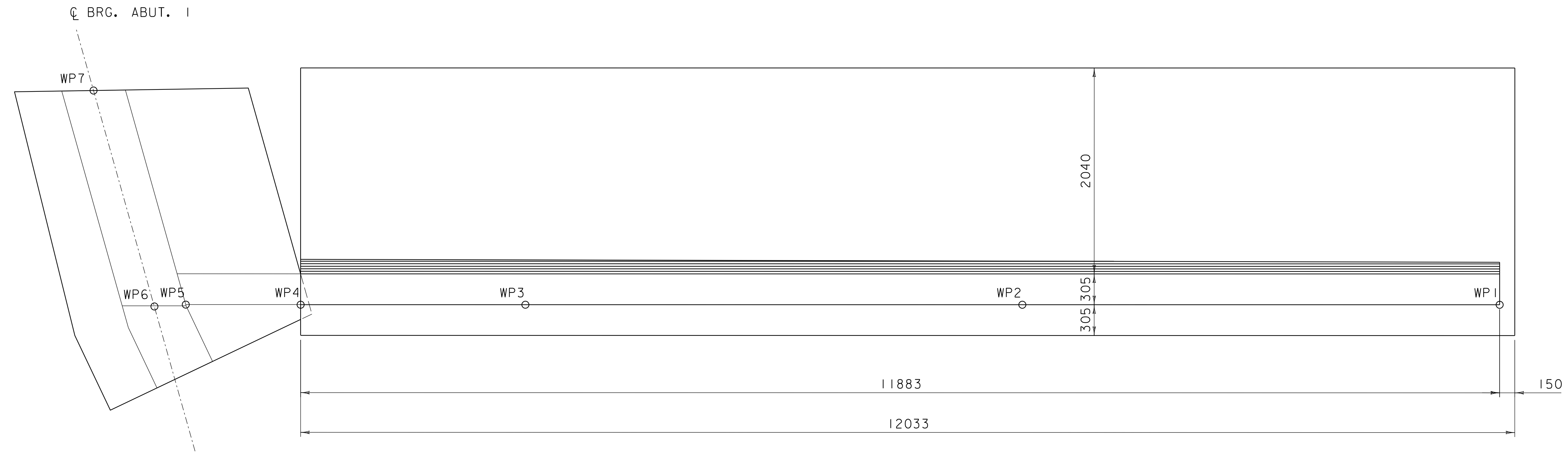
NOTES:

- NF = NEAR FACE
- FF = FAR FACE
- EF = EACH FACE
- ▲ = CUT IN FIELD
- 50 CLEAR, UNLESS OTHERWISE SPECIFIED ON THE THE PLANS.
- 650 VERTICAL LAP
- 850 HORIZONTAL LAP

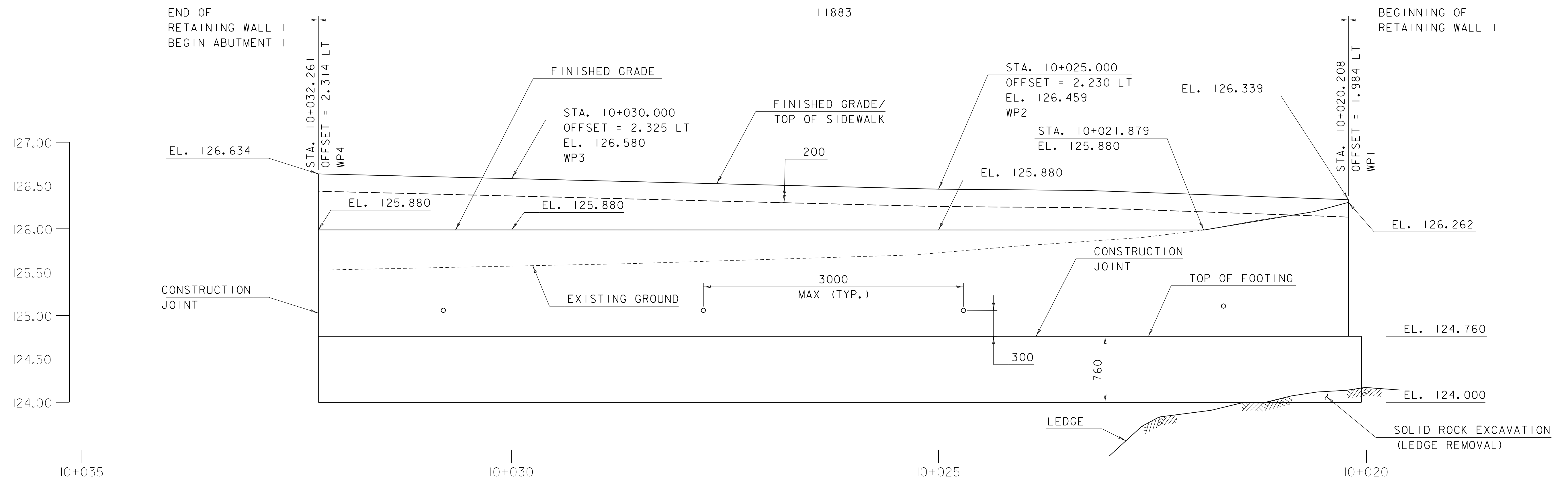
PROJECT NAME: BRANDON
PROJECT NUMBER: BHF 019-3(58)

FILE NAME: z10b358sub.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: S. BEAUMONT
ABUTMENT 2 DETAILS SHEET

PLOT DATE: 12/19/2017
DRAWN BY: M. SMITH
CHECKED BY: J. BYATT
SHEET 58 OF 79



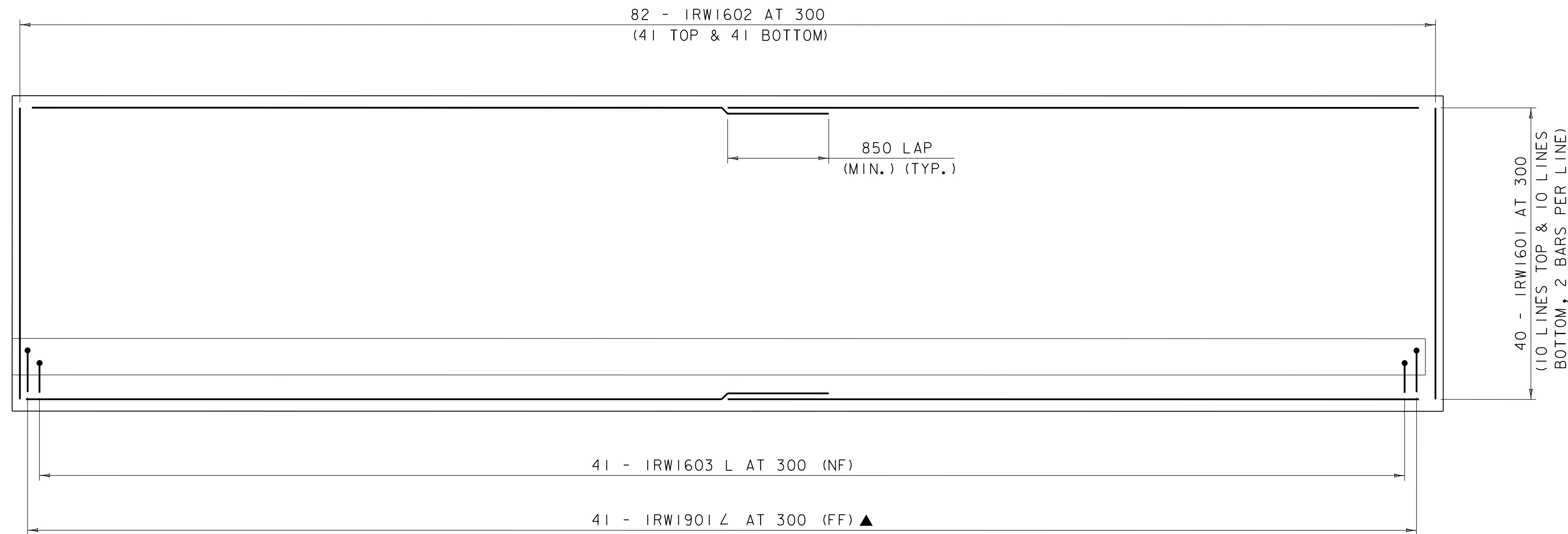
RETAINING WALL 1 PLAN
25 SCALE



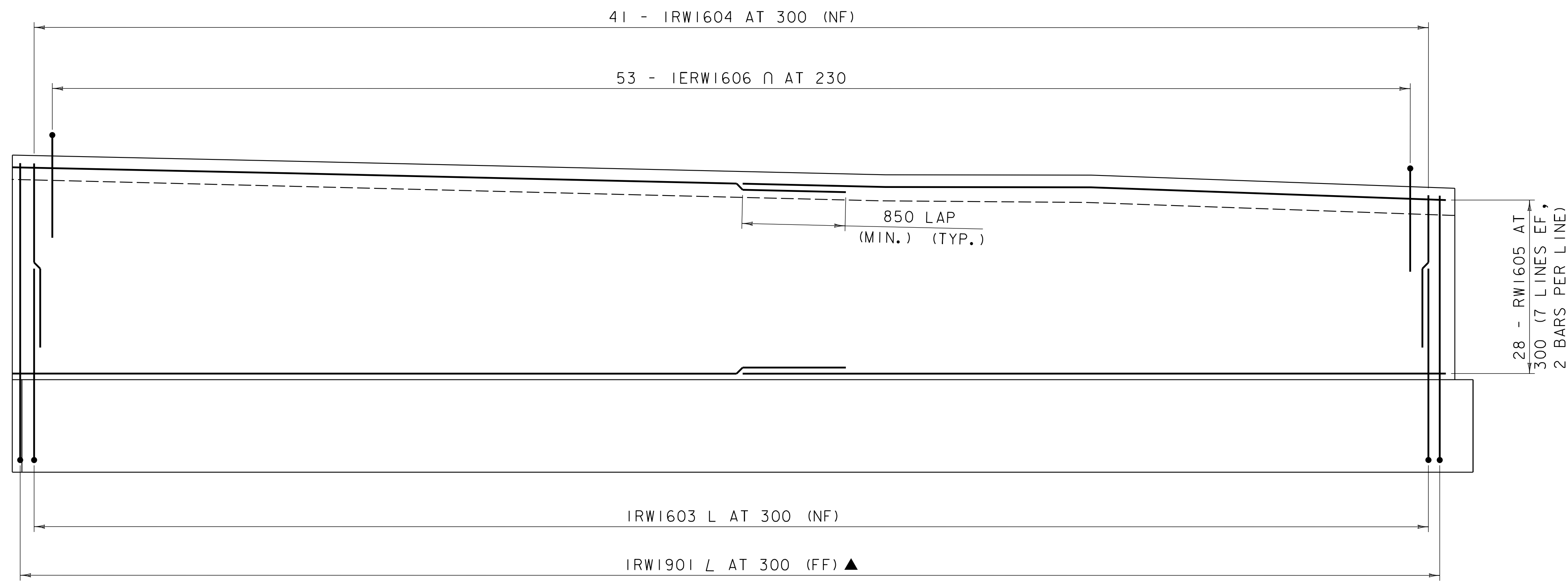
RETAINING WALL 1 ELEVATION
25 SCALE



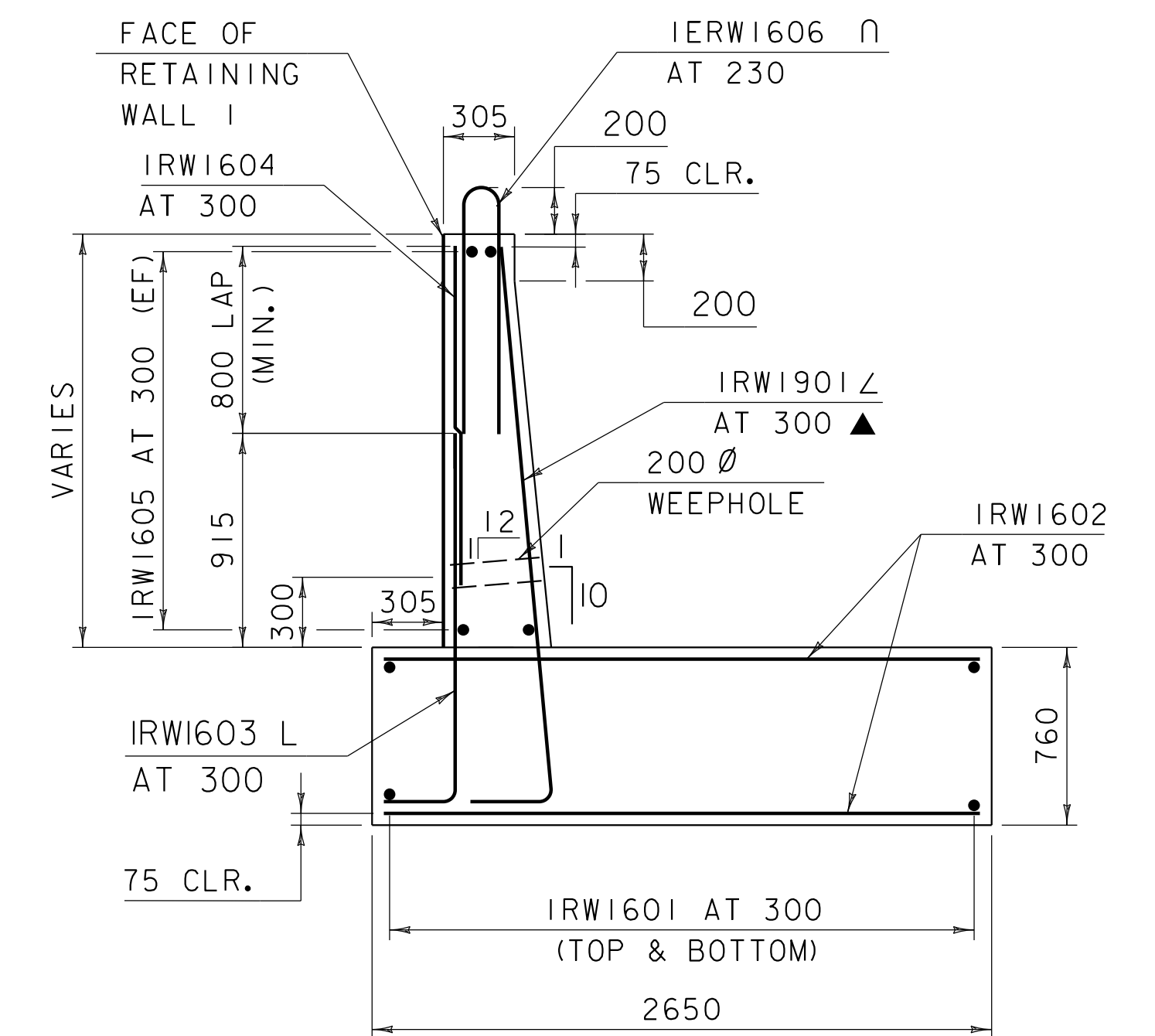
PROJECT NAME:	BRANDON
PROJECT NUMBER:	BHF 019-3(58)
FILE NAME:	z10b358sub.dgn
PROJECT LEADER:	J. BYATT
DESIGNED BY:	S. BEAUMONT
RETAINING WALL 1 DETAILS SHEET 1	
PLOT DATE:	12/19/2017
DRAWN BY:	M. SMITH
CHECKED BY:	J. BYATT
SHEET	59 OF 79



RETAINING WALL I FOOTING PLAN
25 SCALE



RETAINING WALL I ELEVATION
25 SCALE



**RETAINING WALL I
TYPICAL SECTION**
25 SCALE

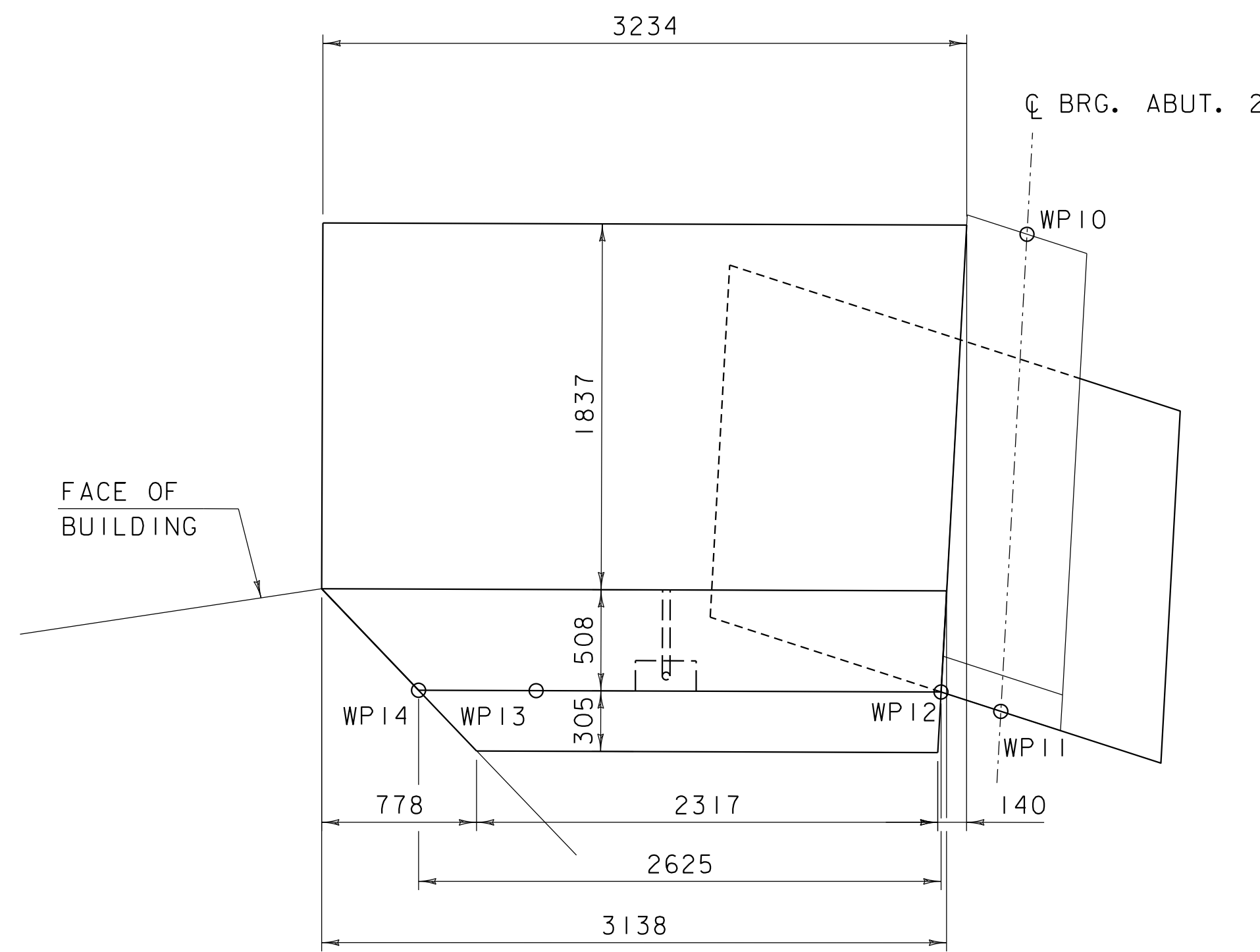
NOTES:

NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT IN FIELD
50 CLEAR, UNLESS OTHERWISE
SPECIFIED ON THE THE PLANS.
650 VERTICAL LAP, UNLESS
OTHERWISE SPECIFIED ON THE PLANS.
850 HORIZONTAL LAP

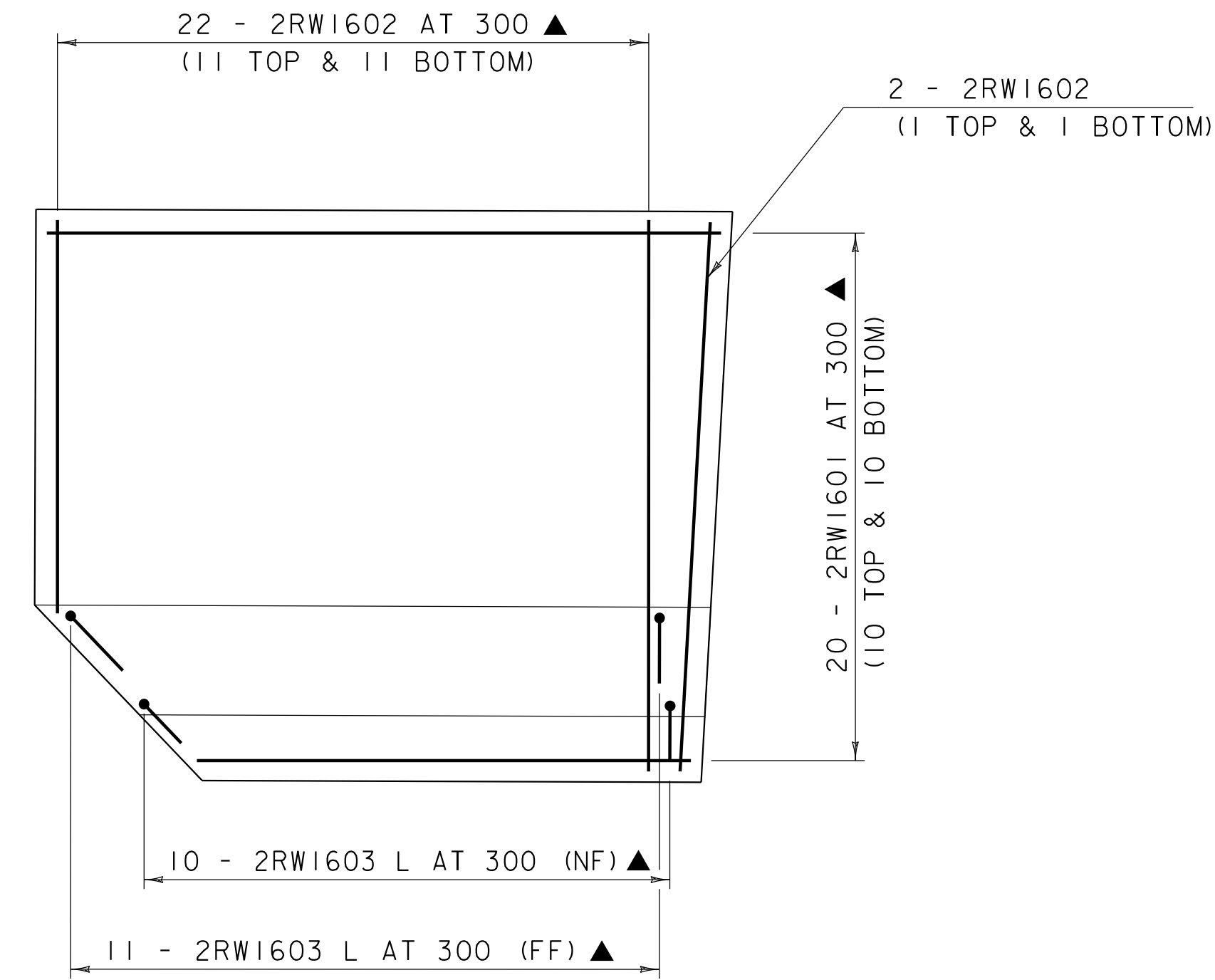
PROJECT NAME: BRANDON
PROJECT NUMBER: BHF 019-3(58)

FILE NAME: z10b358sub.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: S. BEAUMONT
RETAINING WALL I DETAILS SHEET 2

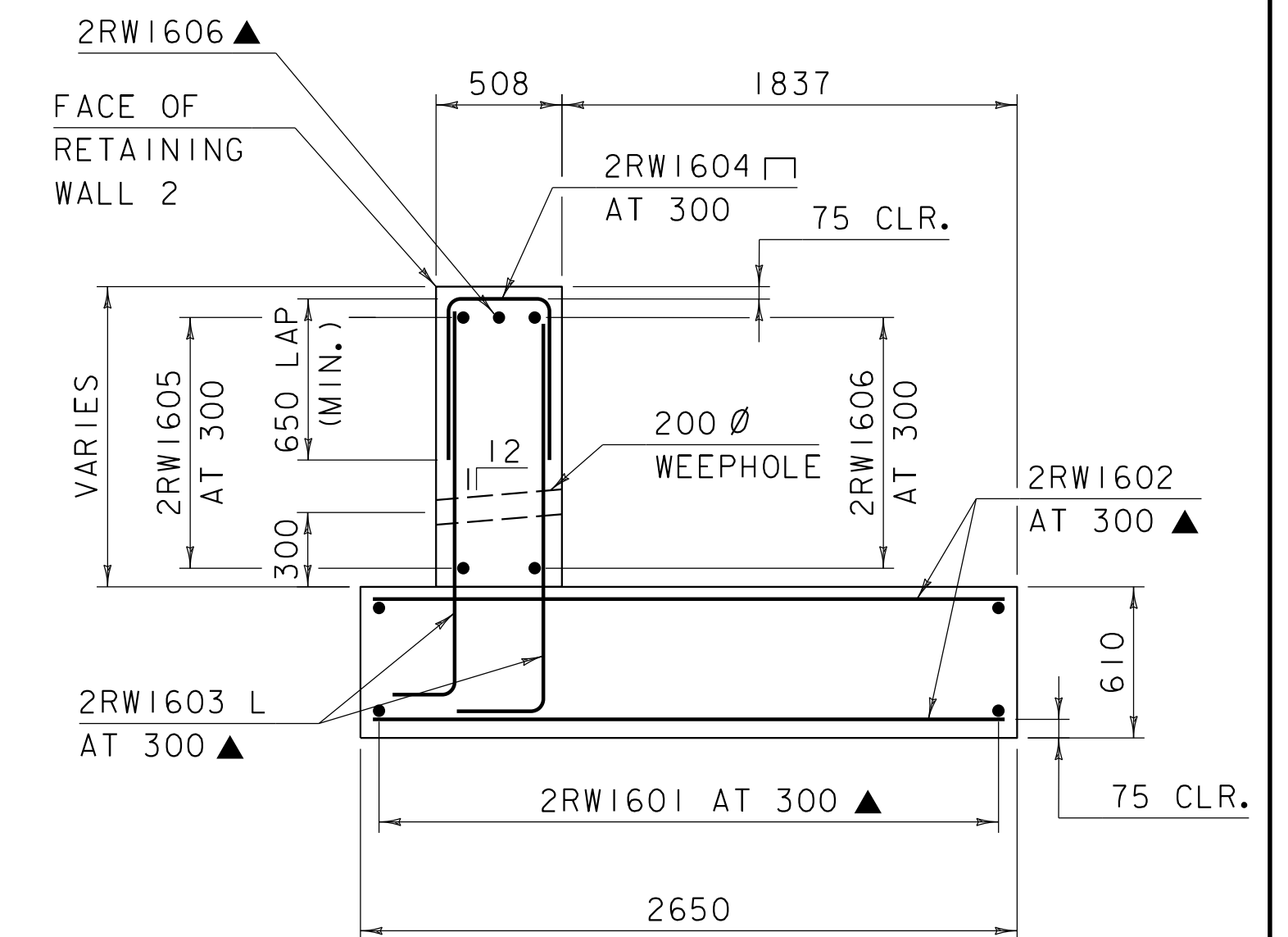
PLOT DATE: 12/19/2017
DRAWN BY: M. SMITH
CHECKED BY: J. BYATT
SHEET 60 OF 79



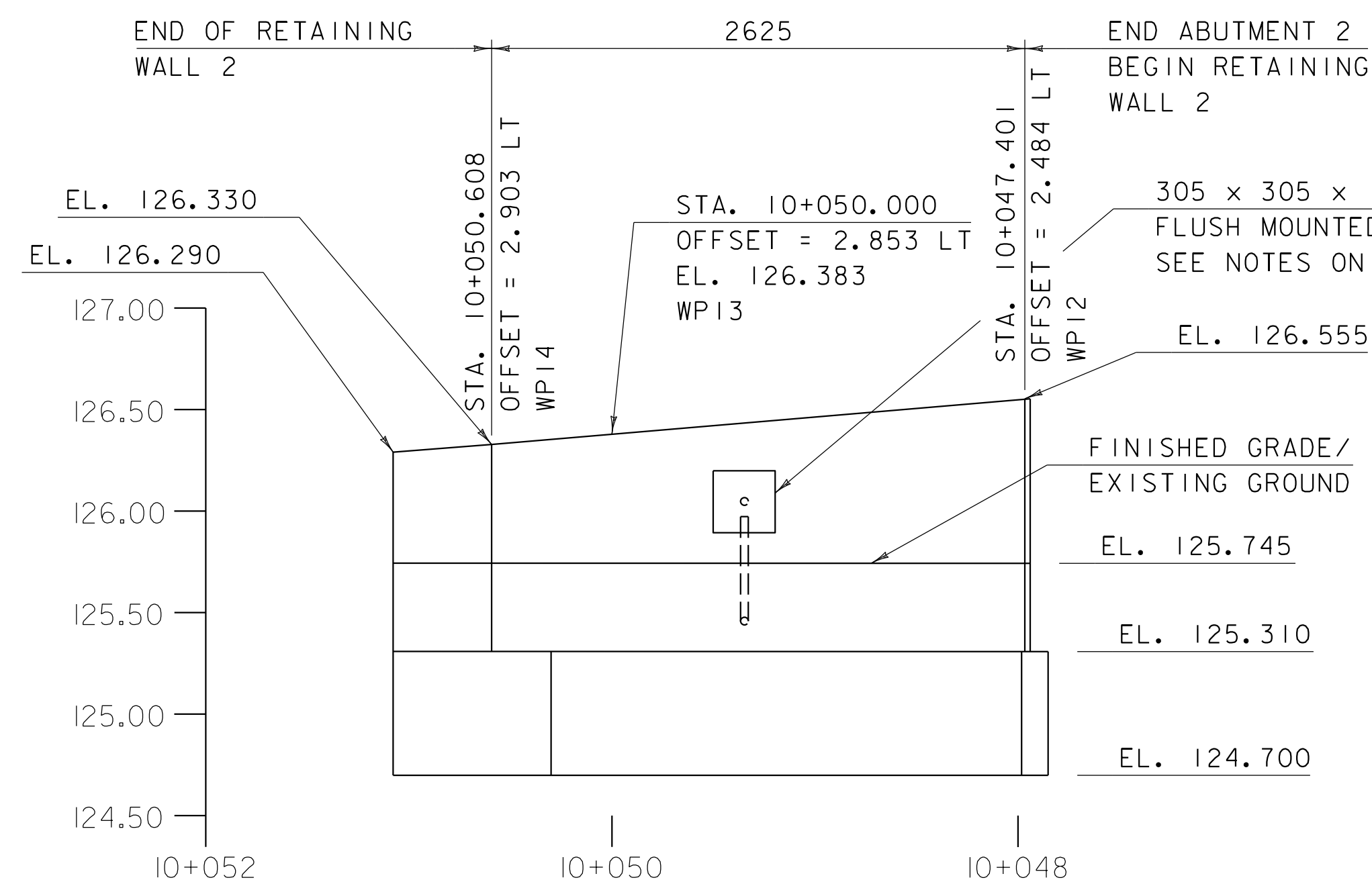
RETAINING WALL 2 MASONRY PLAN
25 SCALE



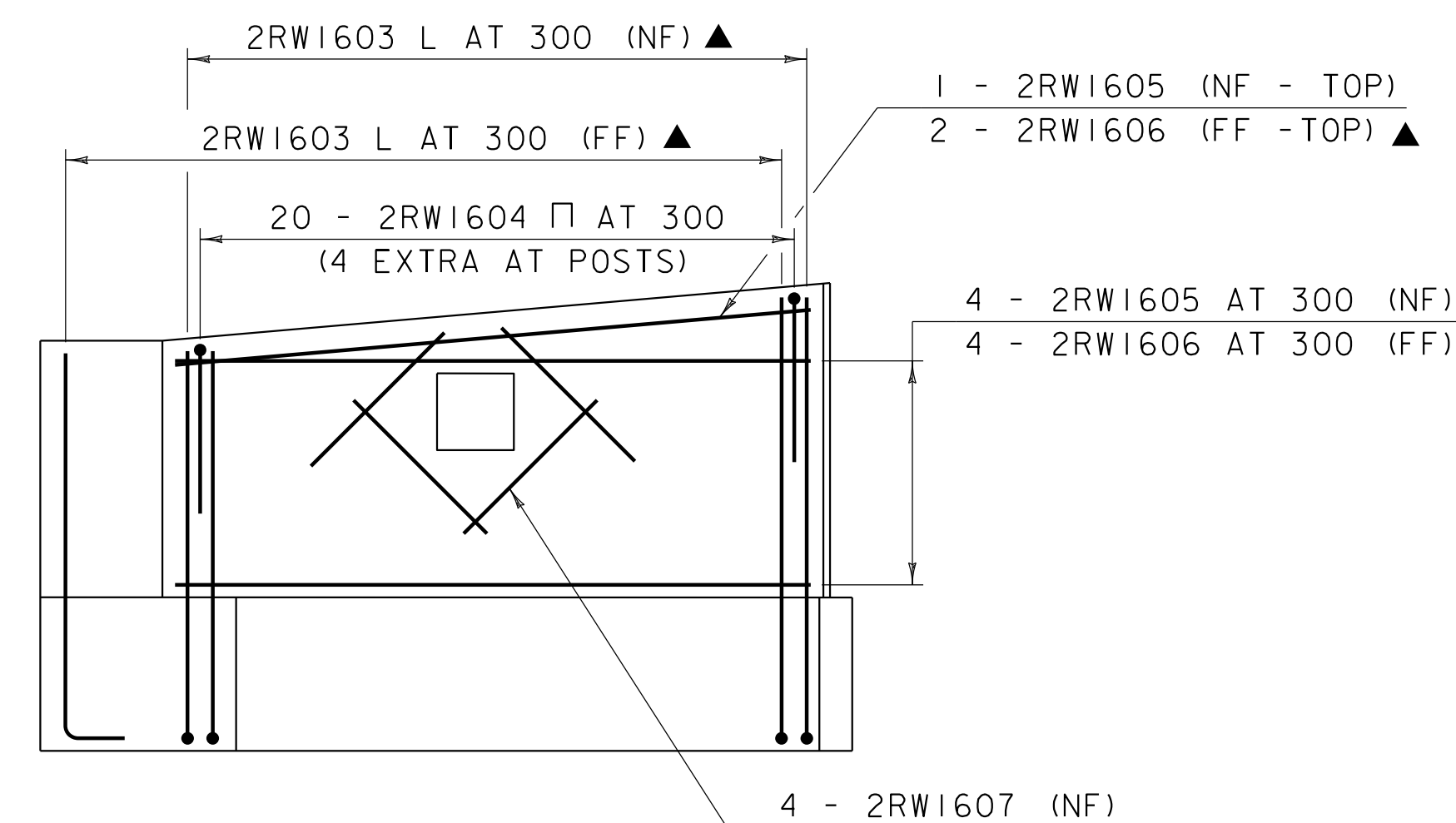
RETAINING WALL 2 FOOTING REINFORCEMENT PLAN
25 SCALE



RETAINING WALL 2 TYPICAL SECTION
25 SCALE

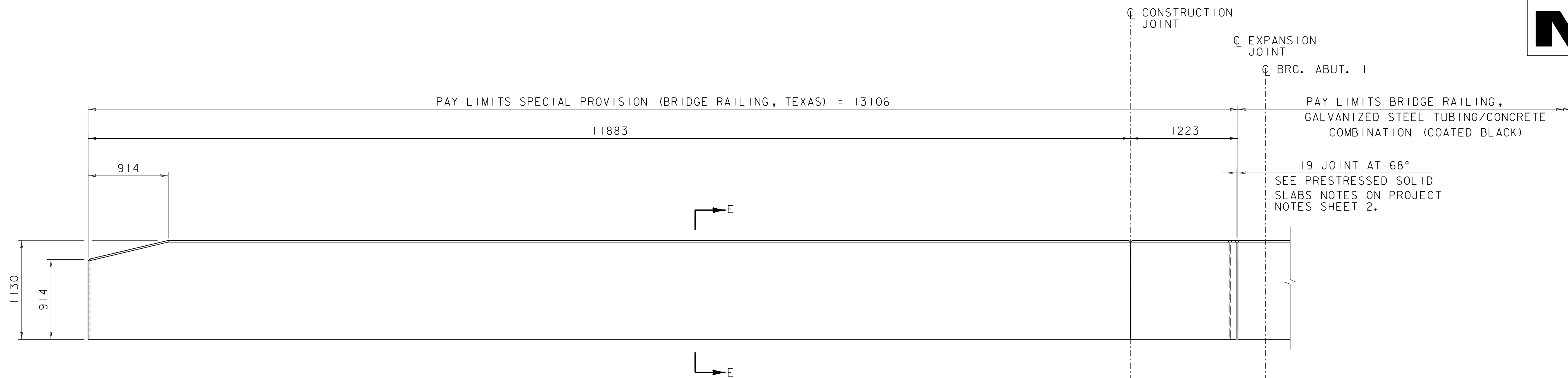


RETAINING WALL 2 MASONRY ELEVATION
25 SCALE



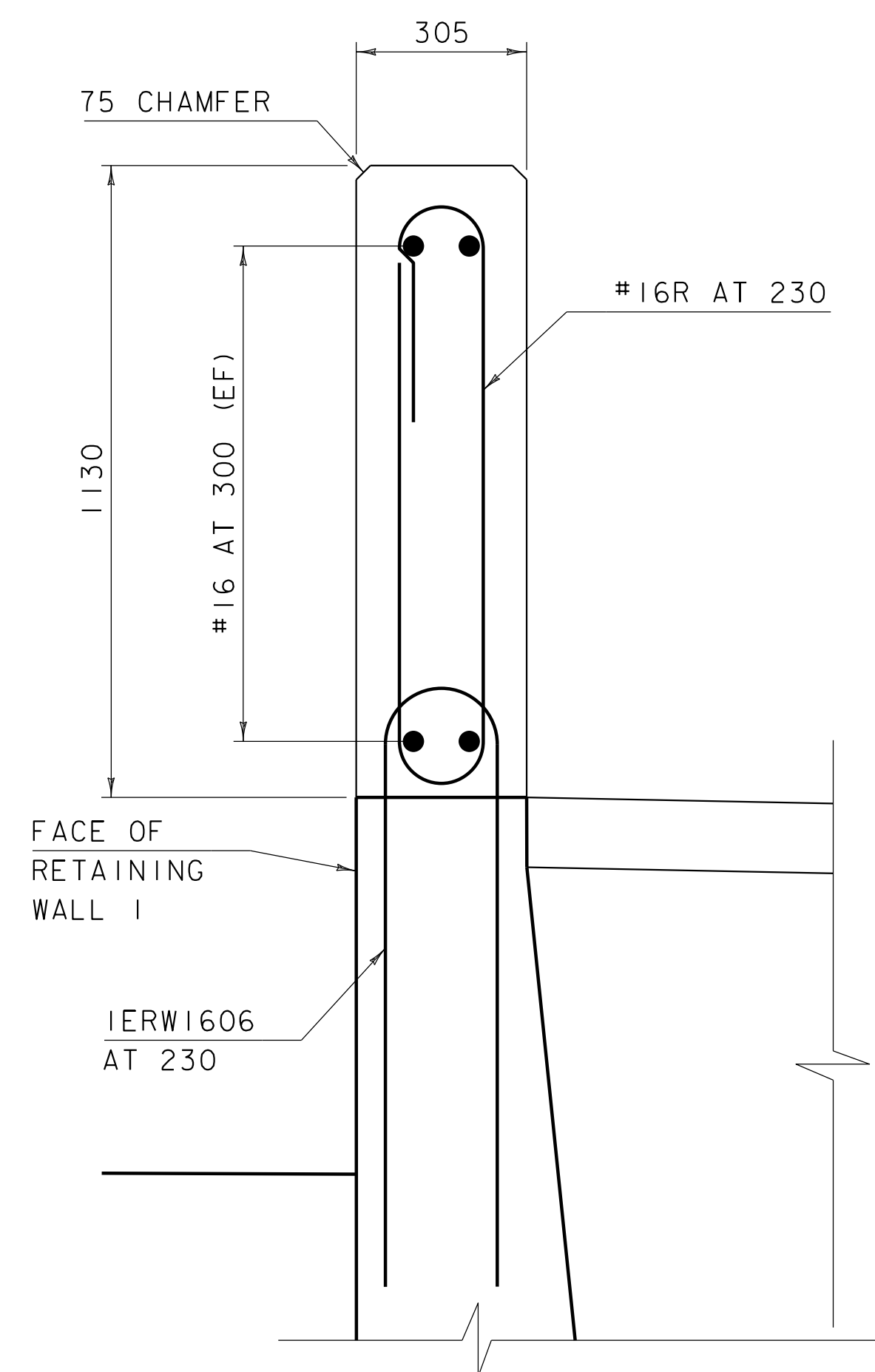
RETAINING WALL 2 REINFORCEMENT ELEVATION
25 SCALE

NOTES:
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT IN FIELD
50 CLEAR, UNLESS OTHERWISE SPECIFIED ON THE THE PLANS.
650 VERTICAL LAP
850 HORIZONTAL LAP



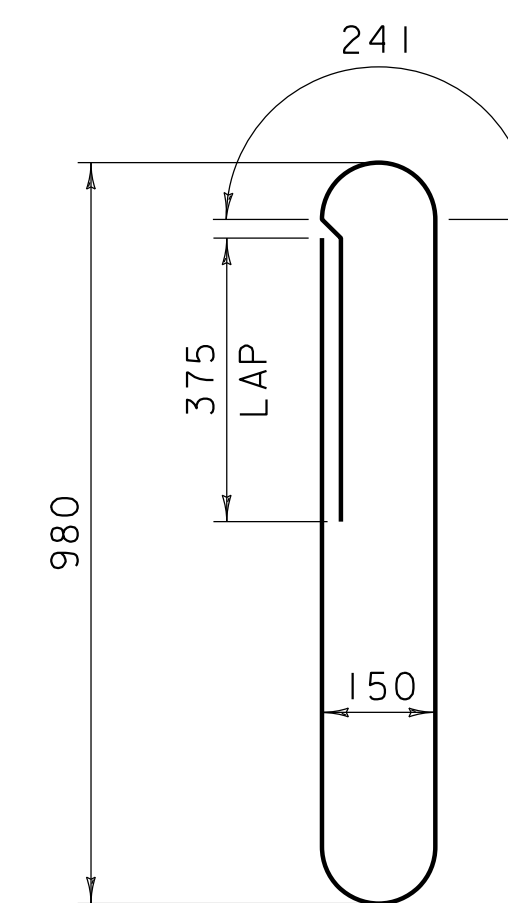
BRIDGE RAIL ROADWAY ELEVATION

25 SCALE



SECTION E-E

10 SCALE



BAR #16R

10 SCALE

59 REQUIRED

NOTES:

NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
75 CLEAR, UNLESS OTHERWISE SPECIFIED ON THE THE PLANS.
650 BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS

NOTES:

1. THE BRIDGE RAIL SHALL HAVE A RUBBED FINISH IN ACCORDANCE WITH SECTION 501.
2. THE EAST END OF THE RAIL SHALL BE FORMED TO MATCH INTO END OF RETAINING WALL STEM. THE WEST END OF THE RETAINING WALL SHALL BE FORMED PARALLEL TO THE BACK OF THE ABUTMENT.

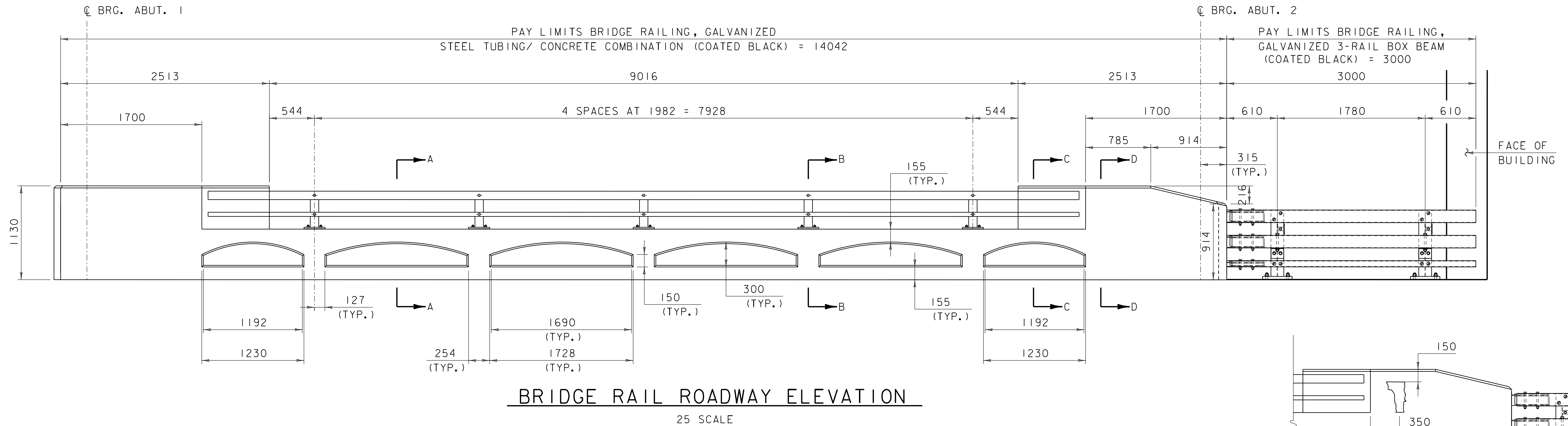
PROJECT NAME: BRANDON
PROJECT NUMBER: BHF 019-3(58)

FILE NAME: z10b358rail.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: S. BEAUMONT
BRIDGE RAIL DETAILS SHEET 1

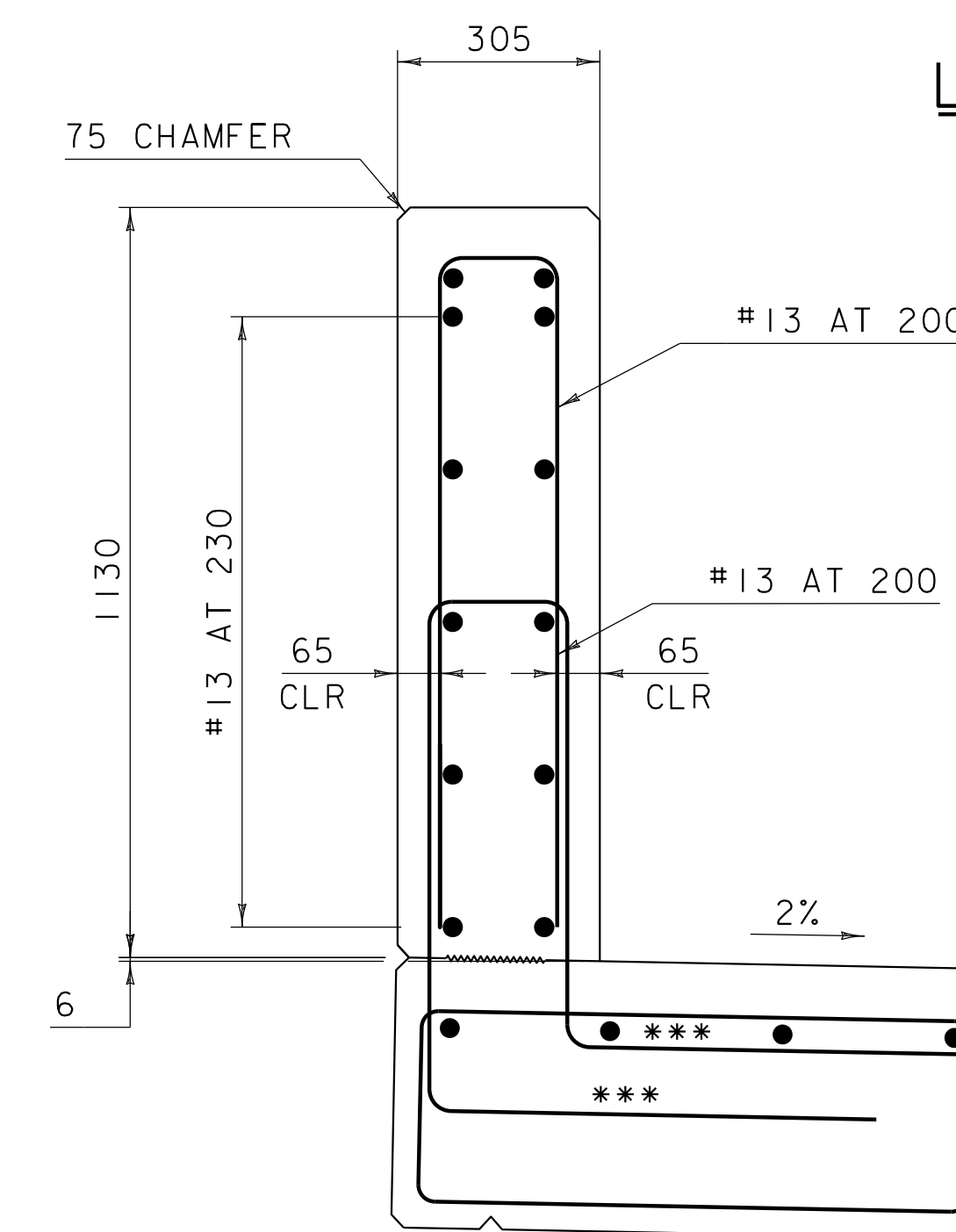
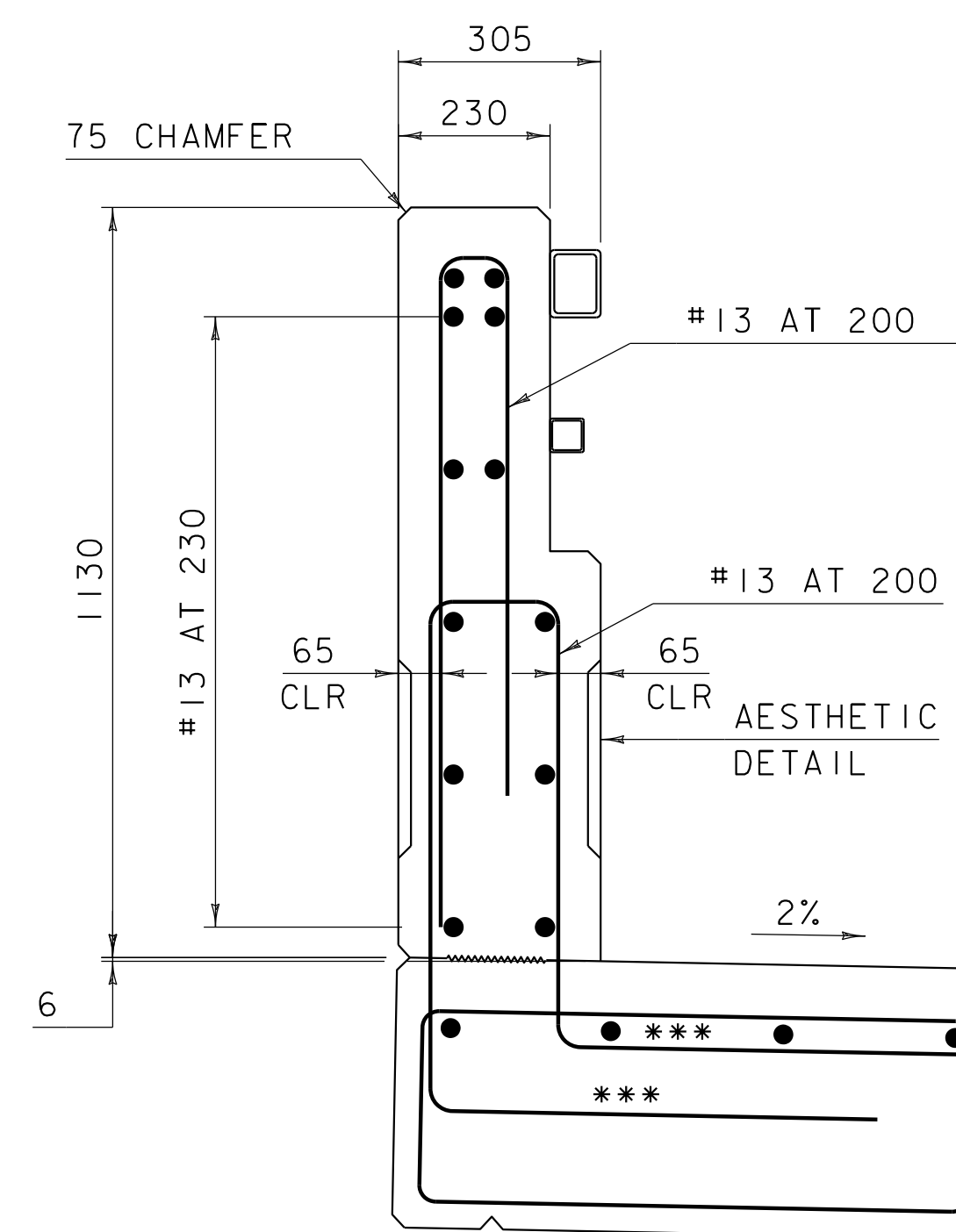
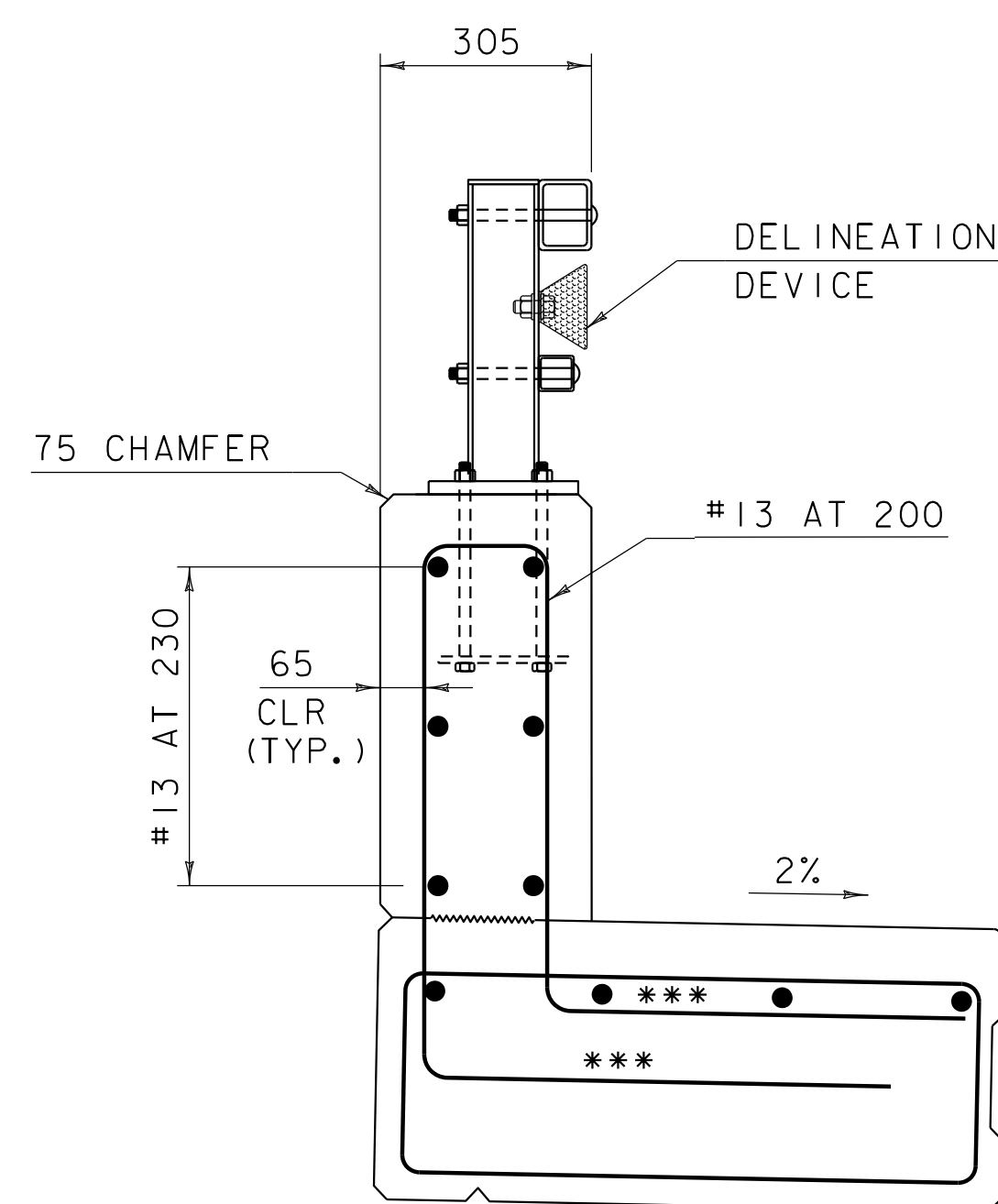
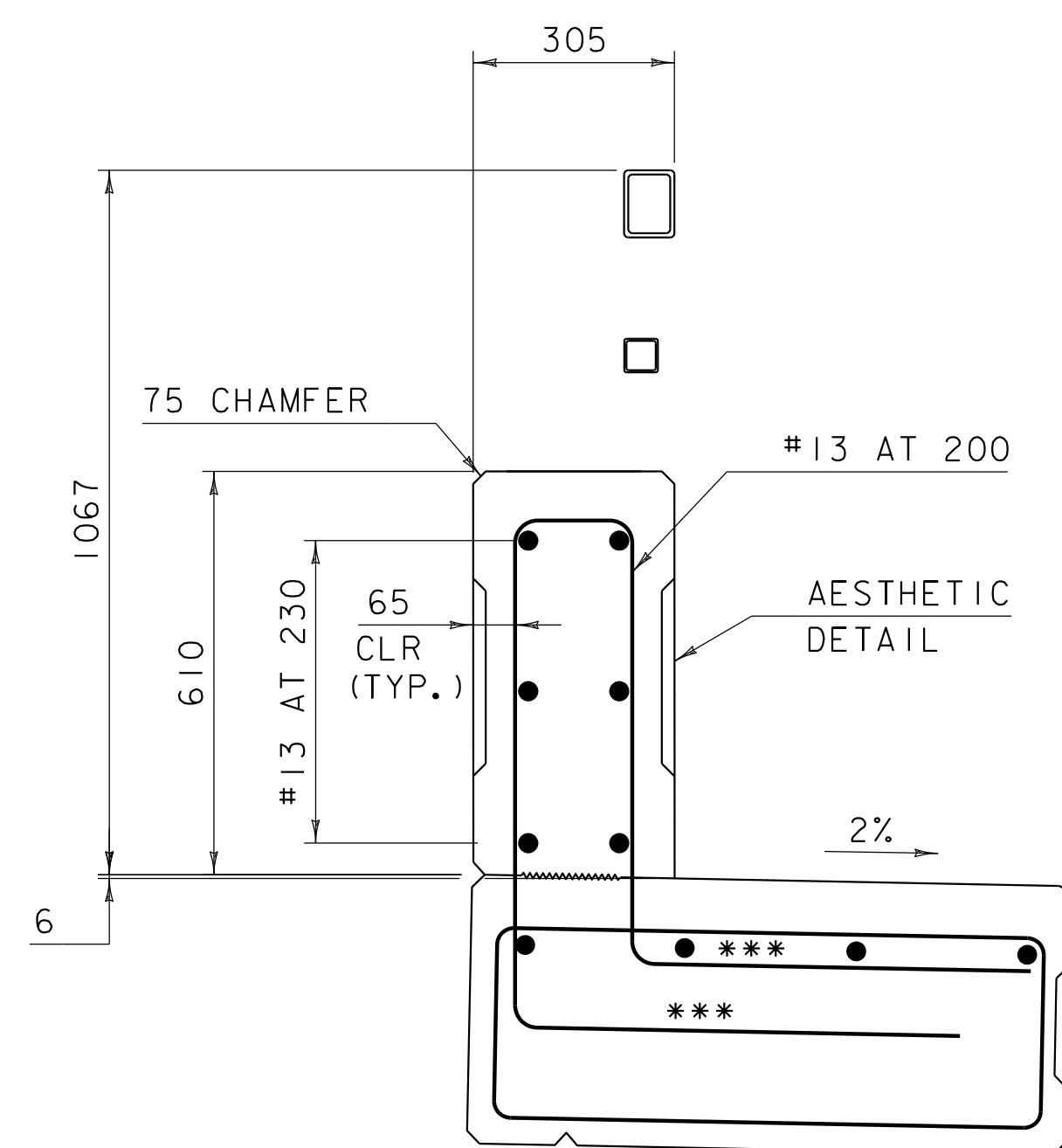
PLOT DATE: 12/19/2017
DRAWN BY: M. SMITH
CHECKED BY: J. BYATT
SHEET 62 OF 79



FUSS & O'NEILL



**BRIDGE PLAQUE
LOCATION DETAIL**
25 SCALE



NOTES:

1. SEE STANDARDS S-352A, S-352B, AND S-352C FOR ADDITIONAL INFORMATION.
2. THE BRIDGE PLAQUE FURNISHED BY THE AGENCY SHALL BE CAST INTO THE FACE OF THE RAIL AT THE WEST END OF THE BRIDGE CORNER AS SHOWN IN THE BRIDGE PLAQUE LOCATION DETAIL BELOW. ALL WORK TO INSTALL THE PLAQUE WILL BE CONSIDERED INCIDENTAL TO CONTRACT ITEM 525.45, "BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION (COATED BLACK)". SEE STRUCTURES DETAIL SD-502.00 FOR FURTHER DETAILS.
3. WEST END OF RAIL SHALL BE FORMED PERPENDICULAR TO 3-RAIL BOX BEAM TO ACCOMMODATE WELDED CONNECTION. EAST END OF RAIL SHALL BE FORMED IN LINE WITH BACK OF ABUTMENT.
4. SEE RAIL LAYOUT SHEET FOR 3-RAIL BOX BEAM CONNECTION.

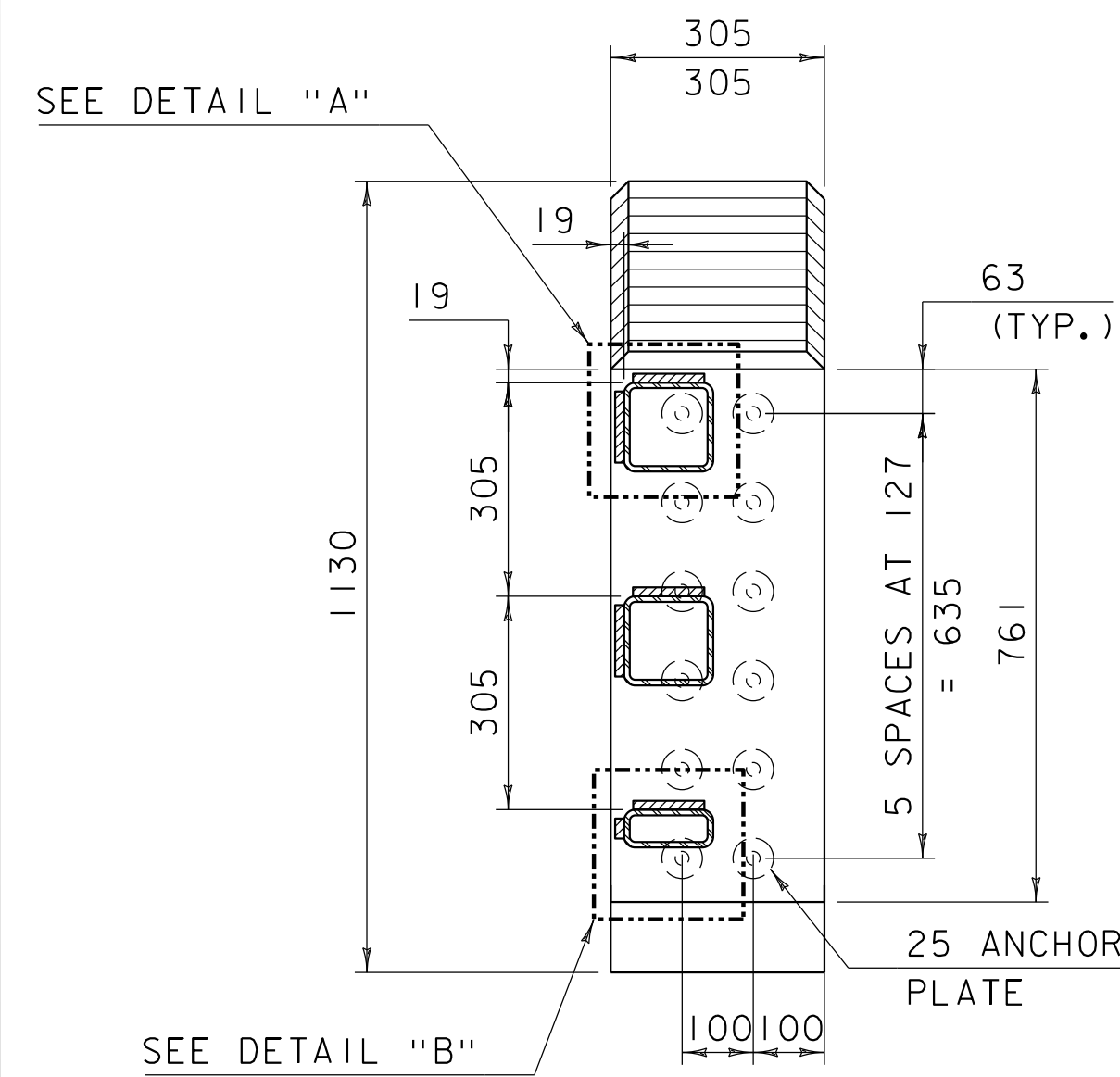
NOTES:

NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
75 CLEAR, UNLESS OTHERWISE SPECIFIED ON THE THE PLANS.
650 BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS
*** MATCH SLOPE TO NEAREST TRANSVERSE STEEL

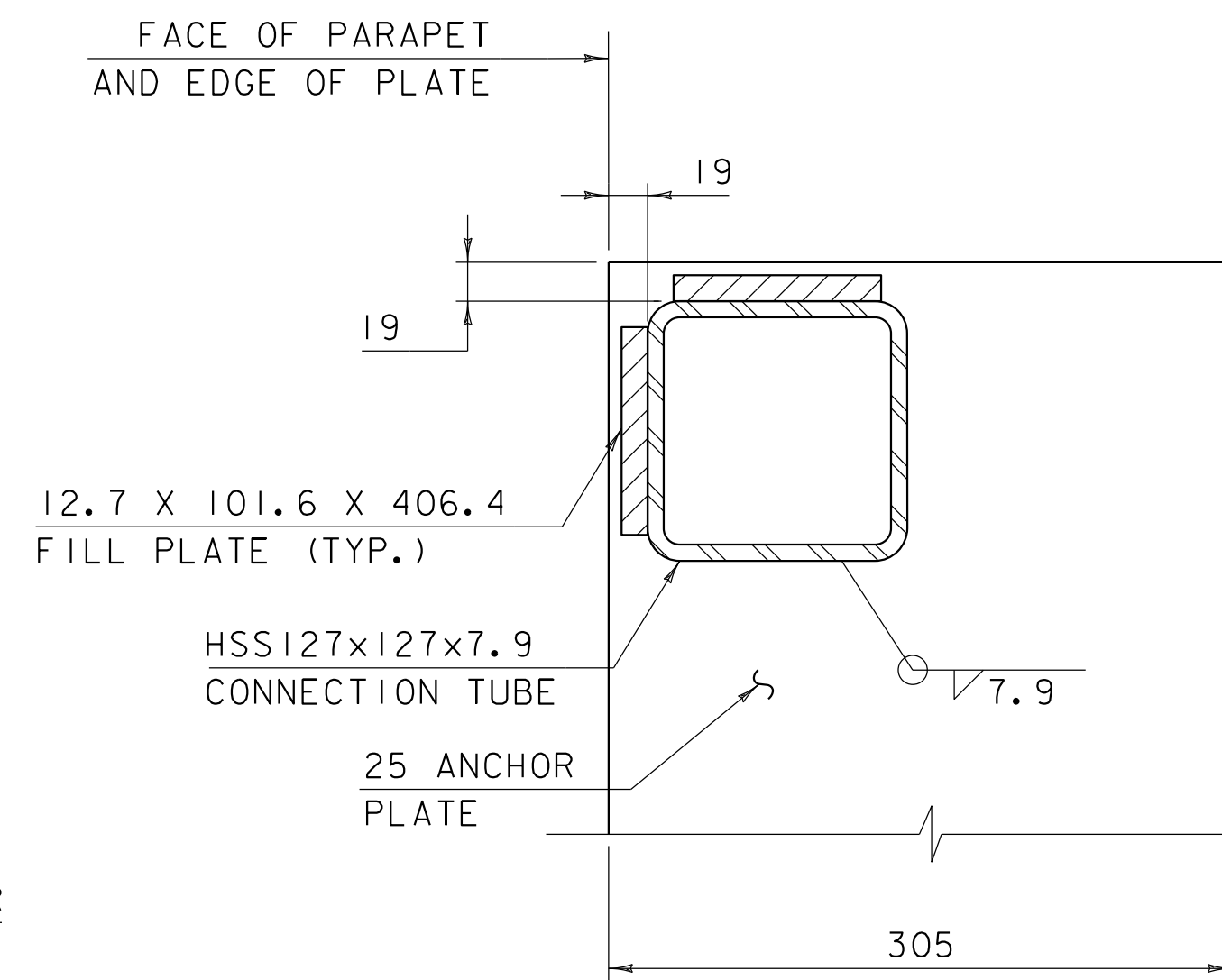
PROJECT NAME: BRANDON
PROJECT NUMBER: BHF 019-3(58)

FILE NAME: z10b358rail.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: S. BEAUMONT
BRIDGE RAIL DETAILS SHEET 2

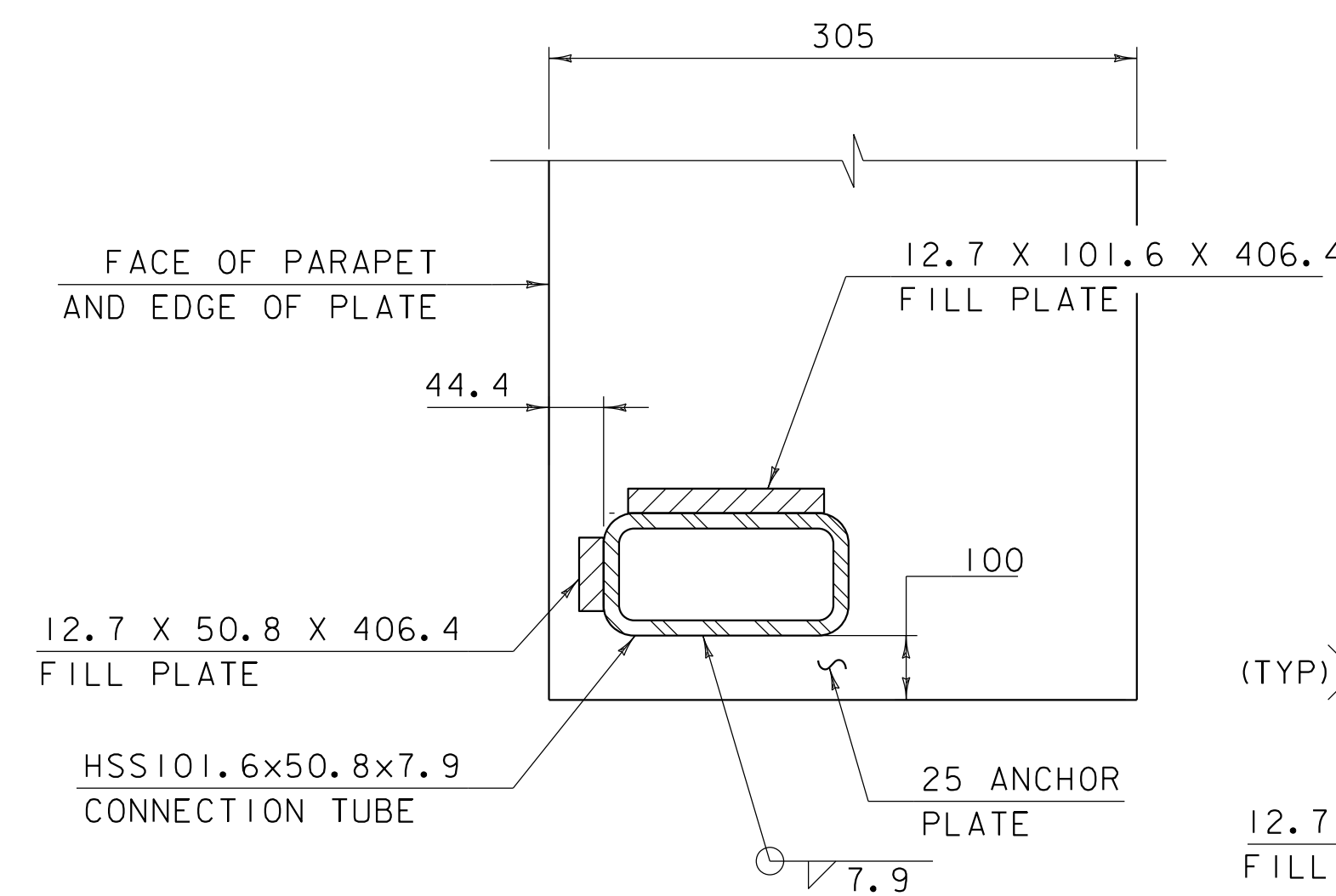
PLOT DATE: 12/19/2017
DRAWN BY: M. SMITH
CHECKED BY: J. BYATT
SHEET 63 OF 79



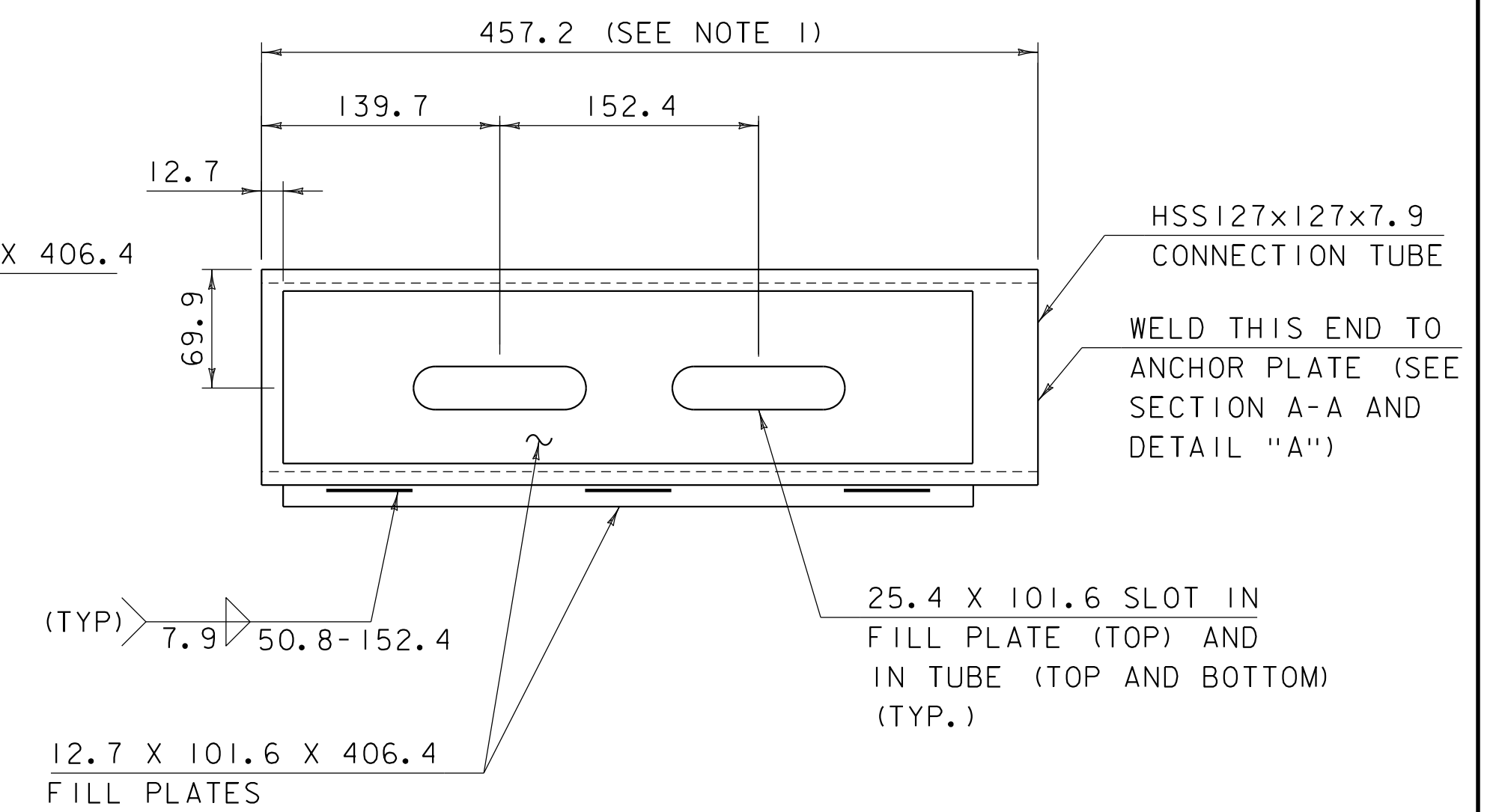
SECTION A-A
10 SCALE



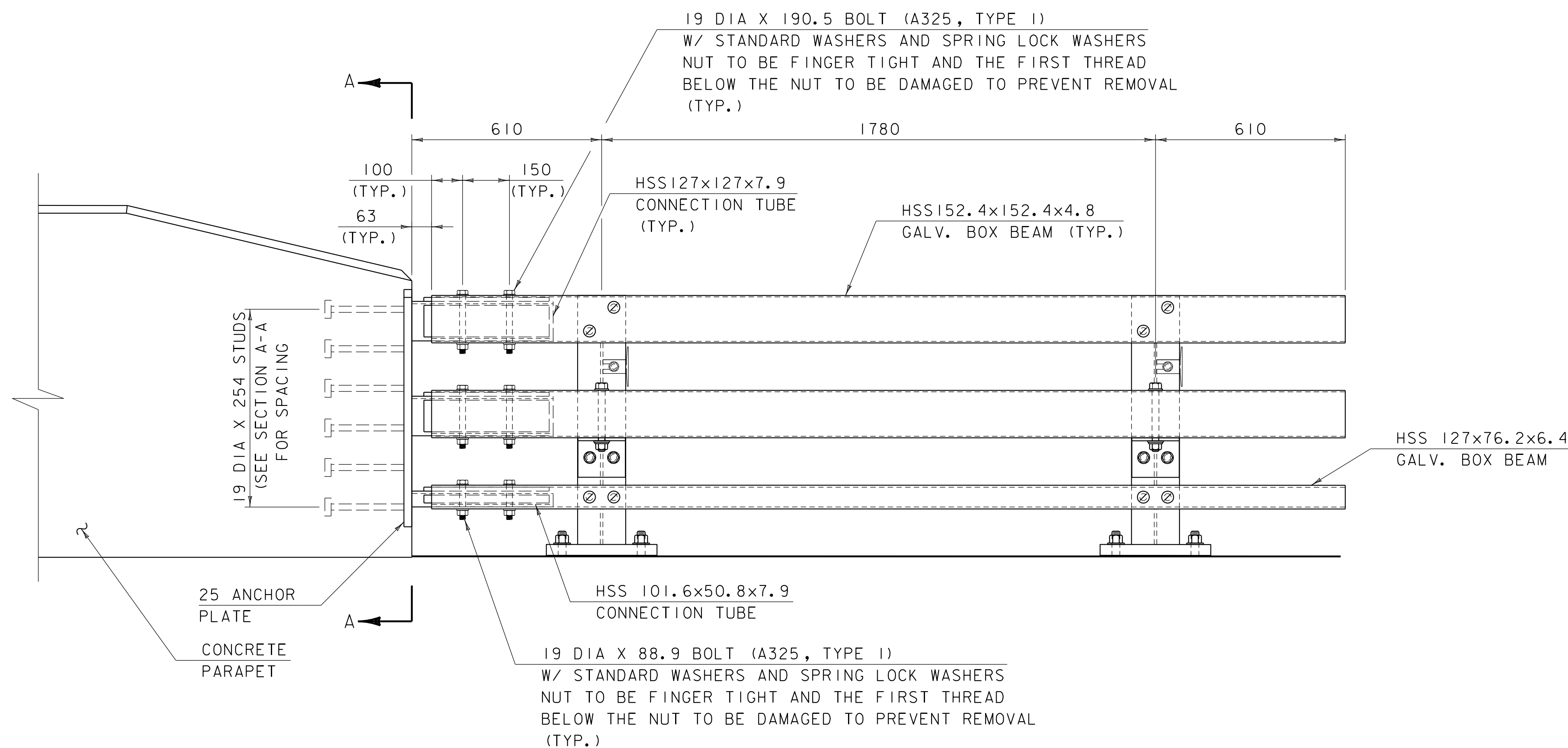
DETAIL "A"
NOT TO SCALE



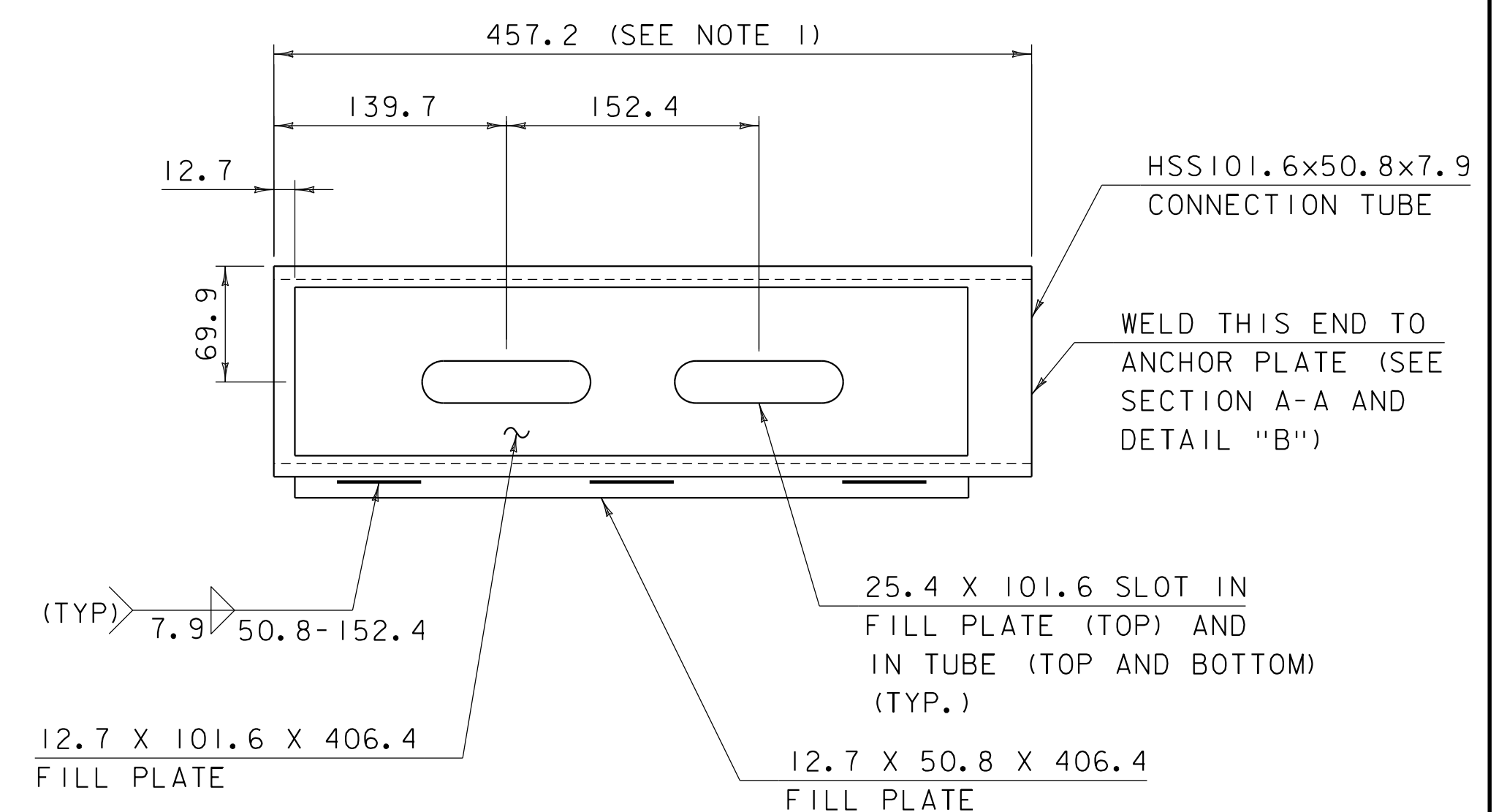
DETAIL "B"
NOT TO SCALE



CONNECTION TUBE DETAIL PLAN
HSS 127x127x7.9
NOT TO SCALE



APPROACH RAIL CONNECTION DETAIL
10 SCALE



CONNECTION TUBE DETAIL PLAN
HSS 101.6x50.8x7.9
NOT TO SCALE

NOTES:

1. ADJUST LENGTH/ANGLE OF CONNECTION TUBES TO ACCOMMODATE ANGLE CHANGE IN RAIL AT END BRIDGE LOCATION.

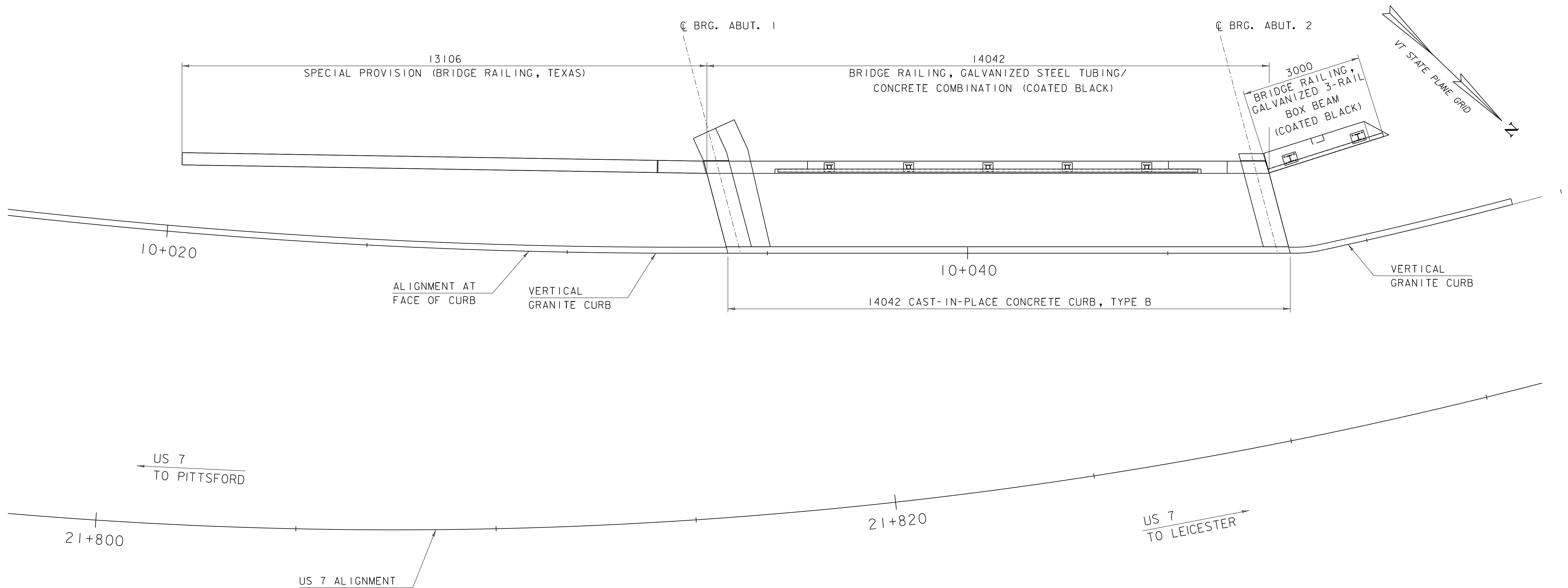


FUSS & O'NEILL

PROJECT NAME: BRANDON
PROJECT NUMBER: BHF 019-3(58)

FILE NAME: z10b358rail.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: S. BEAUMONT
BRIDGE RAIL DETAILS SHEET 3

PLOT DATE: 12/19/2017
DRAWN BY: M. SMITH
CHECKED BY: J. BYATT
SHEET 64 OF 79



RAIL LAYOUT PLAN

50 SCALE

NOTES:

1. SEE STANDARDS S-352A, S-352B, S-352C, S-364A, AND SPECIAL PROVISIONS.
2. SEE ALIGNMENT AND PAVEMENT LAYOUT SHEET FOR ALIGNMENT INFORMATION.

PROJECT NAME: BRANDON
PROJECT NUMBER: BHF 019-3(58)

FILE NAME: z10b358rail.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: S. BEAUMONT
RAIL LAYOUT SHEET

PLOT DATE: 12/19/2017
DRAWN BY: M. SMITH
CHECKED BY: J. BYATT
SHEET 65 OF 79



~ NOTES ~

1. UNLESS OTHERWISE DESIGNATED, ALL BAR REINFORCEMENT FOR CONCRETE IN SIZES UP TO AND INCLUDING 55M SHALL CONFORM TO THE REQUIREMENTS OF THE "SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT", AASHTO M 31M (ASTM A 615M-SI). ALL BARS SHALL BE GRADE 420, UNLESS OTHERWISE DESIGNATED.
2. FOR TYPICAL BENDING DETAILS, RECOMMENDED PIN DIAMETER "D" OF BENDS AND HOOKS, AND OTHER STANDARD PRACTICE, SEE CURRENT CONCRETE REINFORCING STEEL INSTITUTE "MANUAL OF STANDARD PRACTICE".
3. BARS WHICH REQUIRE MORE ACCURATE BENDING THAN STANDARD PRACTICES SHOULD HAVE LIMITS INDICATED.
4. ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT "A" AND "G" ON STANDARD 180 DEGREE AND 135 DEGREE HOOKS.
5. "J" DIMENSION ON 180 DEGREE HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE. OTHERWISE, STANDARD HOOKS ARE TO BE USED.
6. "H" DIMENSION ON STIRRUPS TO BE SHOWN ONLY WHEN NECESSARY TO MAINTAIN CLEARANCES.
7. WHERE SLOPE DIFFERS FROM 45 DEGREES, DIMENSIONS "H" AND "K" MUST BE SHOWN.
8. ▲ DENOTES BARS TO BE CUT IN FIELD.
9. * DENOTES ONE EXTRA BAR ADDED FOR TESTING PURPOSES.
10. △ DENOTES TWO EXTRA BARS ADDED FOR TESTING PURPOSES.
11. E IN BAR MARK PREFIX DENOTES EPOXY COATED REINFORCING STEEL.


ASTM STANDARD REINFORCING BARS

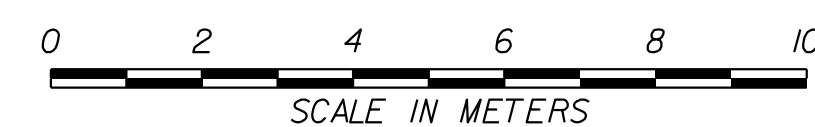
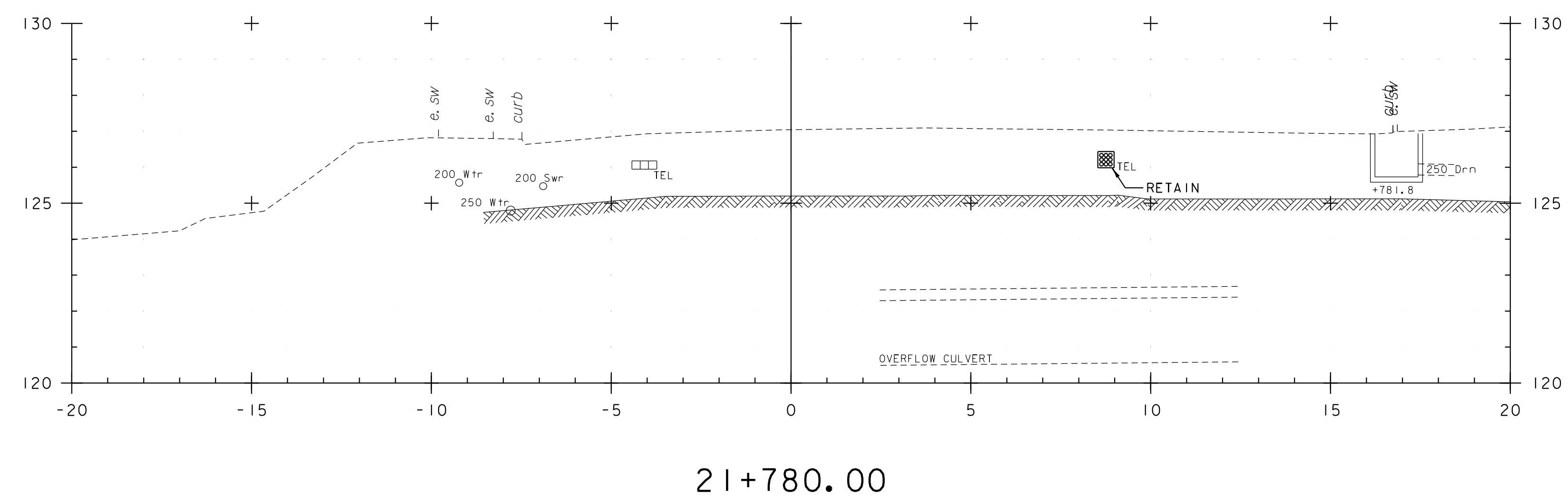
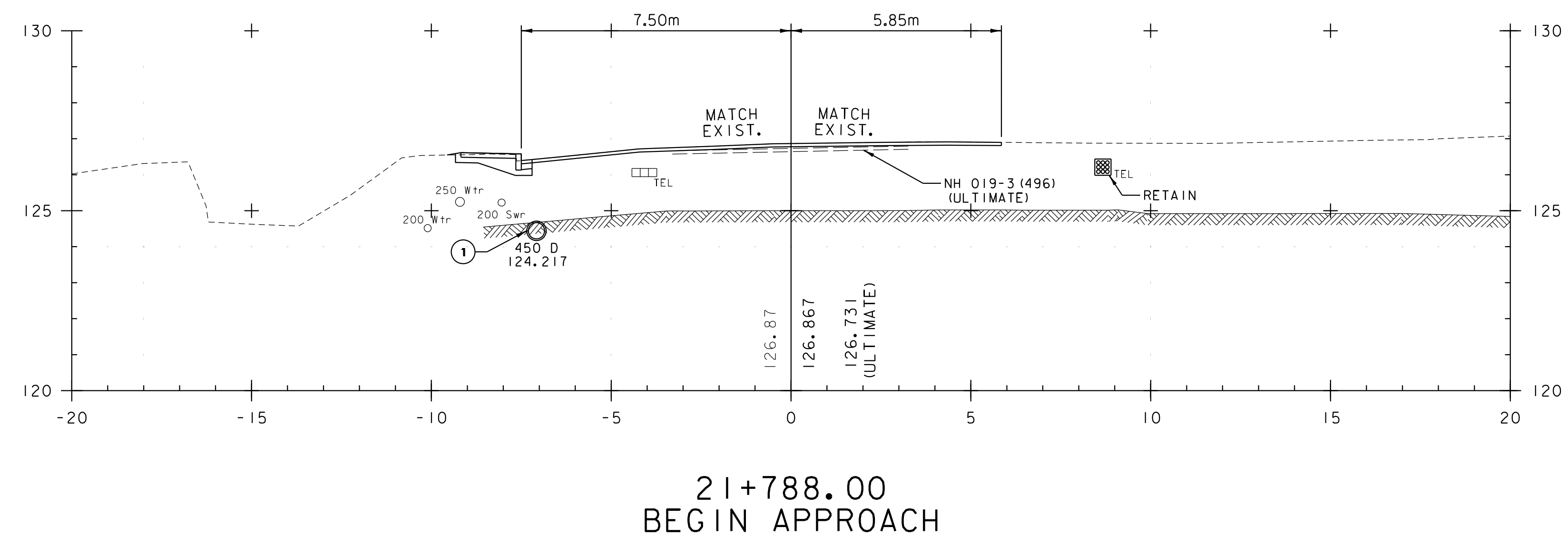
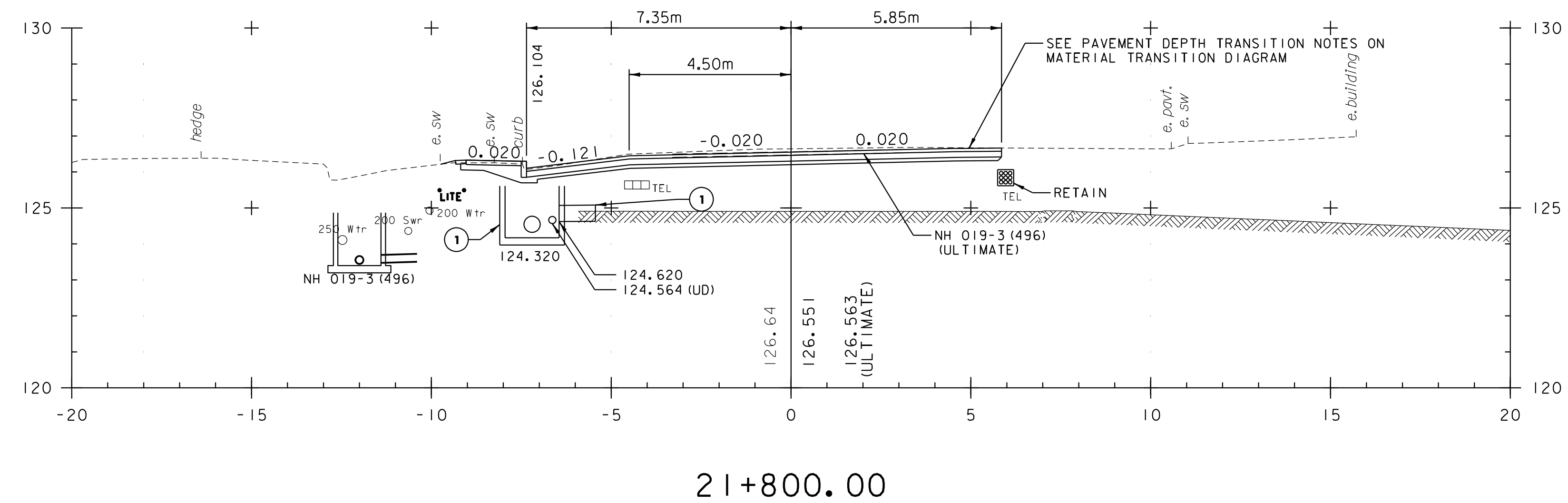
BAR SIZE	NOMINAL MASS (Kg/m)	NOMINAL DIMENSIONS ROUND SECTION		
		DIAMETER (mm)	CROSS SECTIONAL AREA (mm²)	PERIMETER (mm)
#10	0.560	9.5	71	29.84
#13	0.994	12.7	129	39.90
#16	1.552	15.9	199	49.95
#19	2.235	19.1	284	60.00
#22	3.042	22.2	387	69.74
#25	3.973	25.4	510	79.80
#29	5.060	28.7	645	90.16
#32	6.404	32.3	819	101.47
#36	7.907	35.8	1006	112.47
#43	11.380	43.0	1452	135.09
#57	20.240	57.3	2581	180.01

PROJECT NAME: BRANDON
PROJECT NUMBER: BHF 019-3(58)

FILE NAME: z10b358schedule.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: A. GIRALDI
REINFORCING STEEL SCHEDULE

PLOT DATE: 12/19/2017
DRAWN BY: M. SMITH
CHECKED BY: S. BEAUMONT
SHEET 66 OF 79


FUSS & O'NEILL



STA 21+780 TO STA 21+800

NOTES:

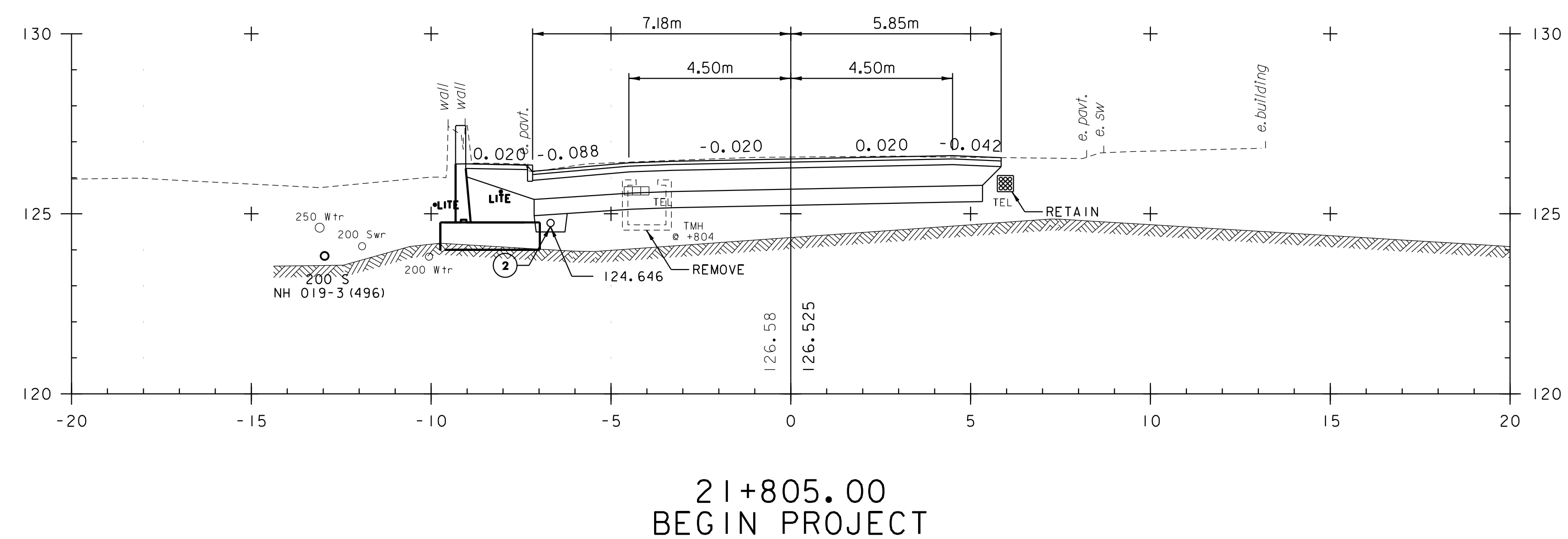
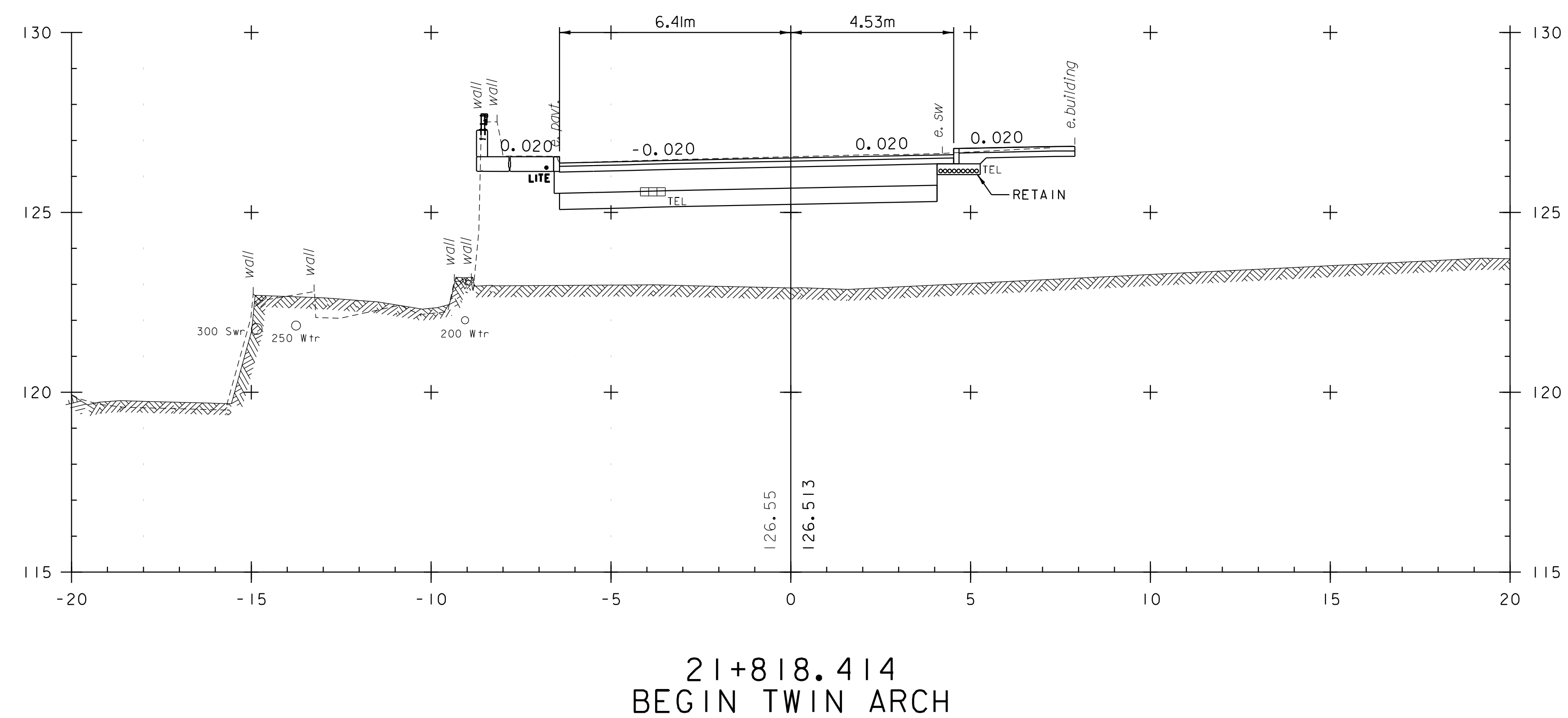
1. LEDGE INFORMATION IS APPROXIMATE AND MAY VARY FROM ACTUAL FIELD CONDITIONS.
2. EXISTING UTILITY INFORMATION SHOWN IS APPROXIMATE. CONTRACTOR SHALL USE CAUTION WHEN EXCAVATING IN THE VICINITY OF EXISTING UTILITIES.

PROJECT NAME: BRANDON
PROJECT NUMBER: BHF 019-3(58)

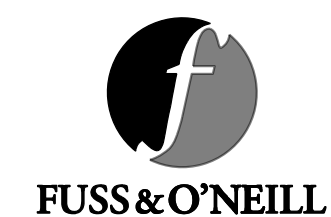
FILE NAME: z10b358xs.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: M. HALEY
US ROUTE 7 CROSS SECTIONS I

PLOT DATE: 12/19/2017
DRAWN BY: S. GOODWIN
CHECKED BY: D. MUNRO
SHEET 67 OF 79





STA 21+805 TO STA 21+818.414



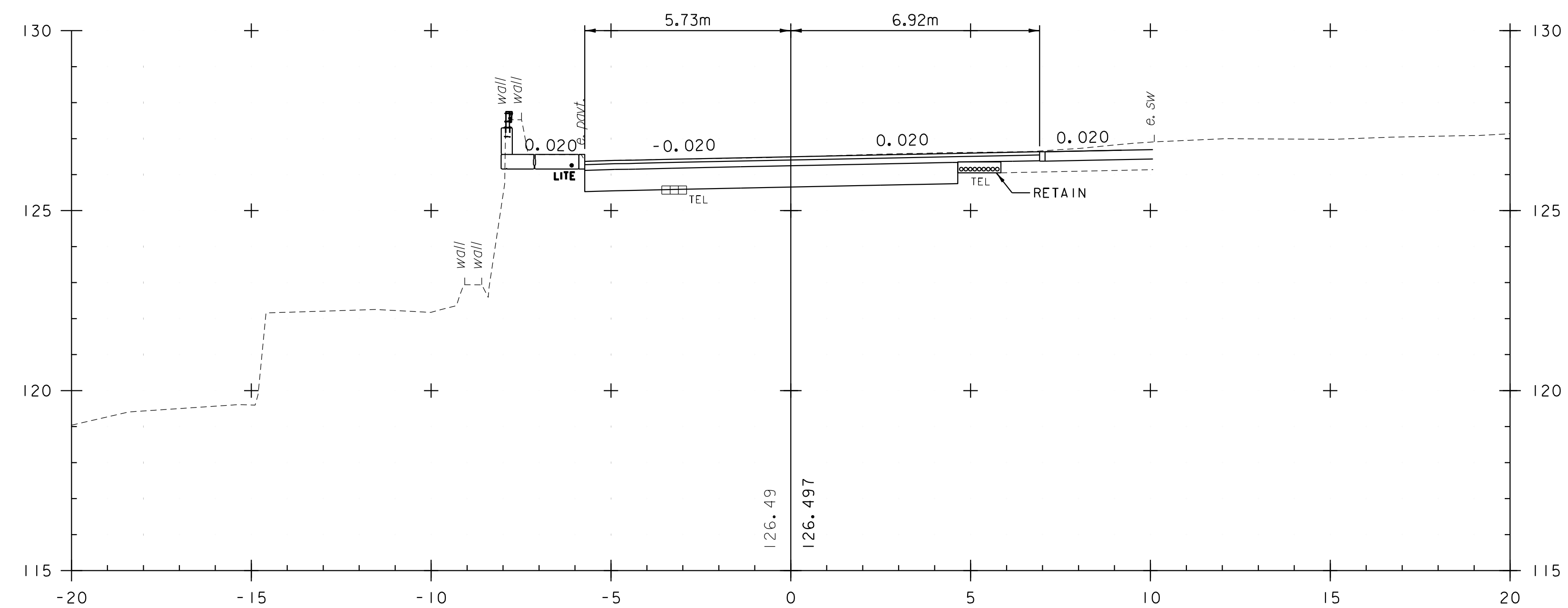
NOTES:

1. LEDGE INFORMATION IS APPROXIMATE AND MAY VARY FROM ACTUAL FIELD CONDITIONS.
2. EXISTING UTILITY INFORMATION SHOWN IS APPROXIMATE. CONTRACTOR SHALL USE CAUTION WHEN EXCAVATING IN THE VICINITY OF EXISTING UTILITIES.

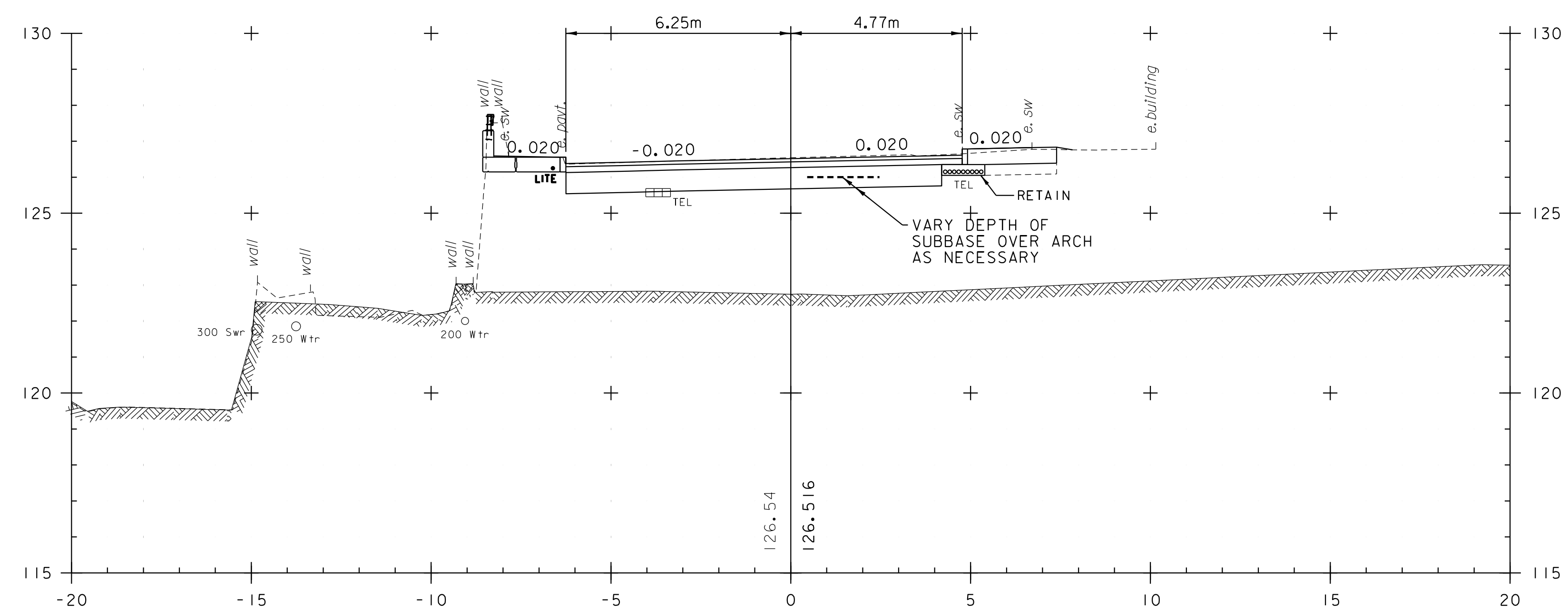
PROJECT NAME: BRANDON
PROJECT NUMBER: BHF 019-3(58)

FILE NAME: z10b358xs.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: M. HALEY
US ROUTE 7 CROSS SECTIONS 2

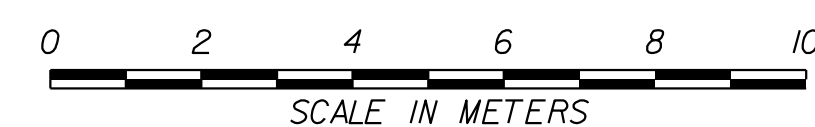
PLOT DATE: 12/19/2017
DRAWN BY: S. GOODWIN
CHECKED BY: D. MUNRO
SHEET 68 OF 79



21+824.222
TWIN ARCH



21+820.00



STA 21+820 TO STA 21+824.222

NOTES:

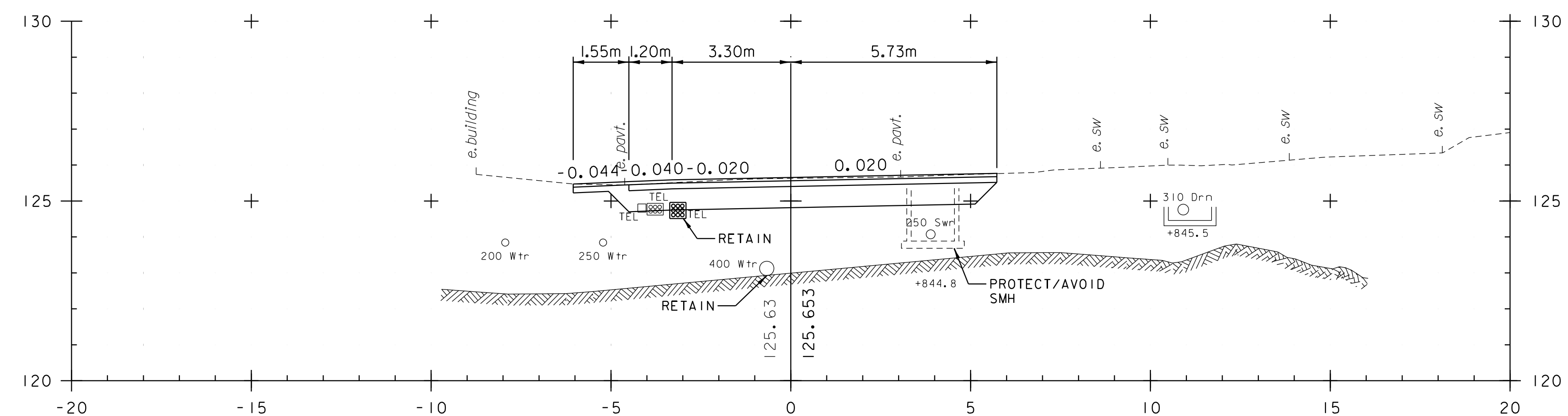
1. LEDGE INFORMATION IS APPROXIMATE AND MAY VARY FROM ACTUAL FIELD CONDITIONS.
2. EXISTING UTILITY INFORMATION SHOWN IS APPROXIMATE. CONTRACTOR SHALL USE CAUTION WHEN EXCAVATING IN THE VICINITY OF EXISTING UTILITIES.

PROJECT NAME: BRANDON
PROJECT NUMBER: BHF 019-3(58)

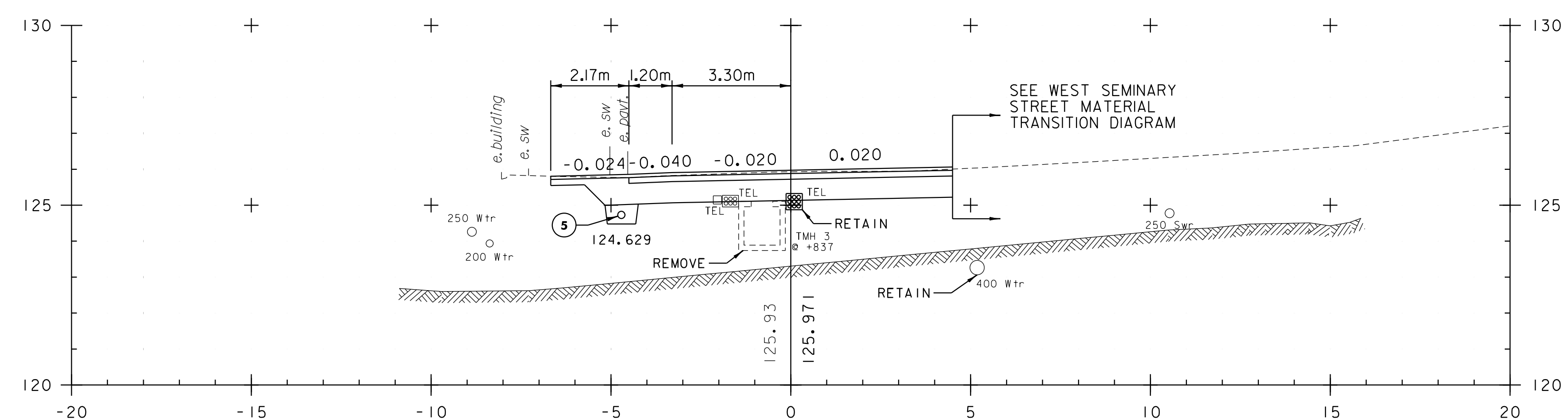
FILE NAME: z10b358xs.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: M. HALEY
US ROUTE 7 CROSS SECTIONS 3

PLOT DATE: 12/19/2017
DRAWN BY: S. GOODWIN
CHECKED BY: D. MUNRO
SHEET 69 OF 79

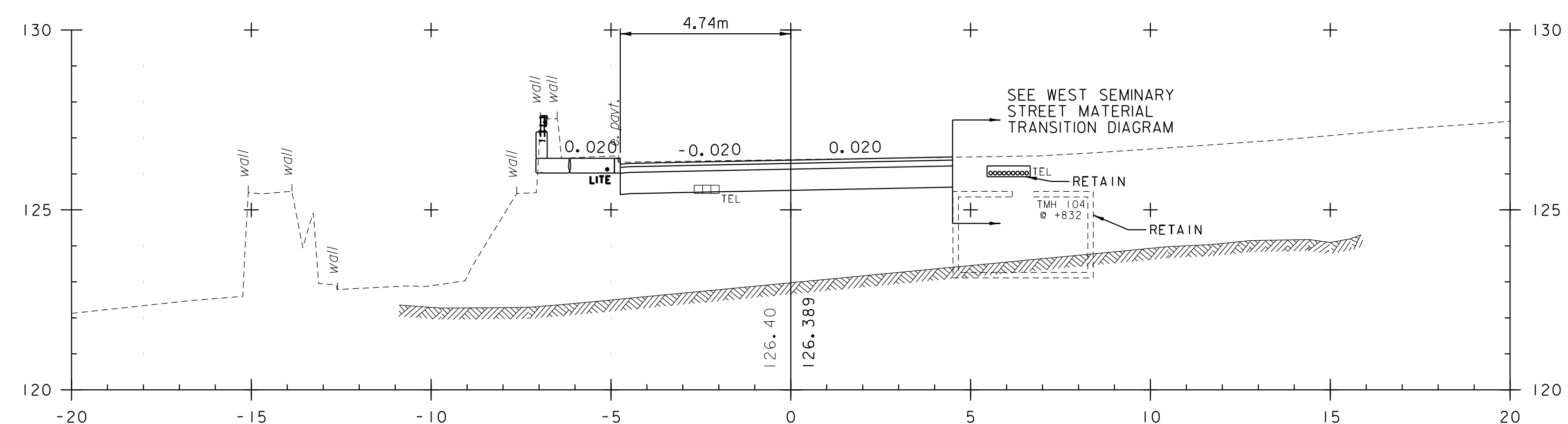




21+845.00
END PROJECT



21+840.00



21+830.192
END TWIN ARCH



STA 21+830.192 TO STA 21+845

NOTES:

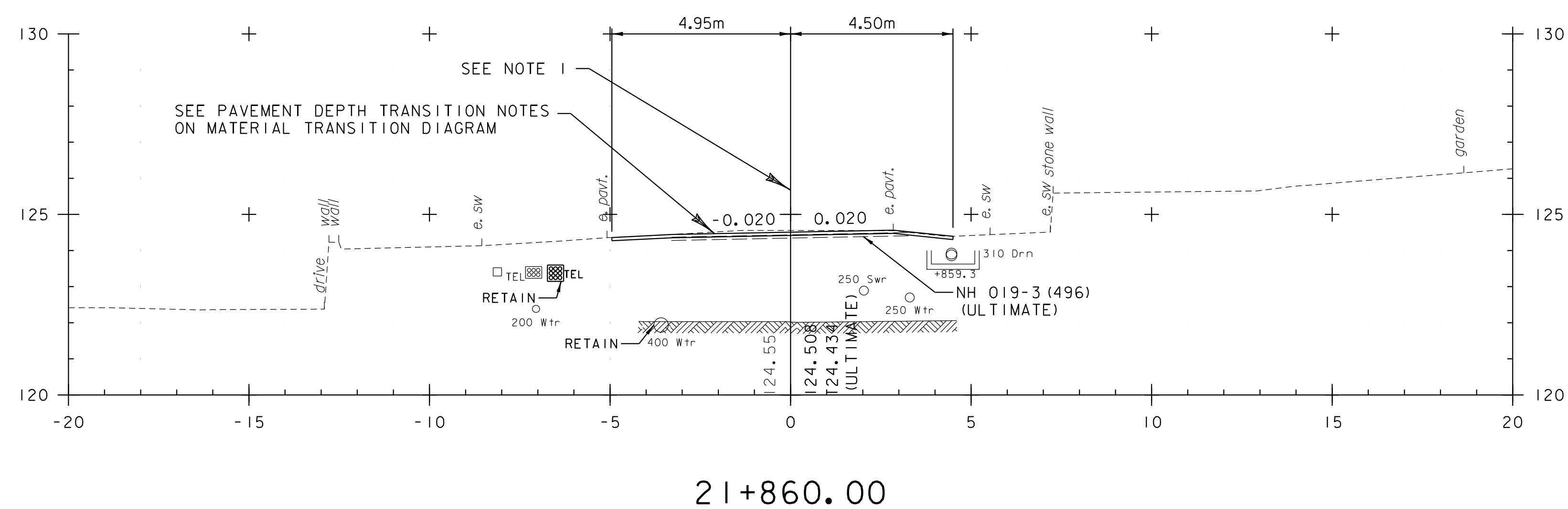
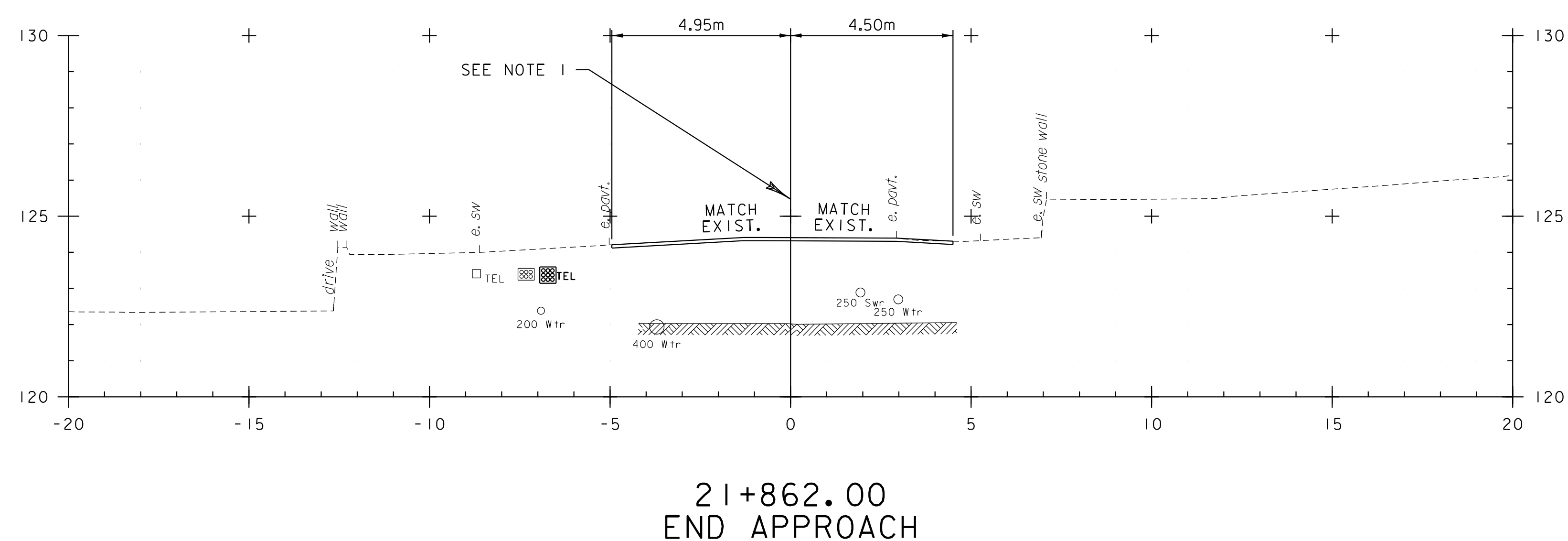
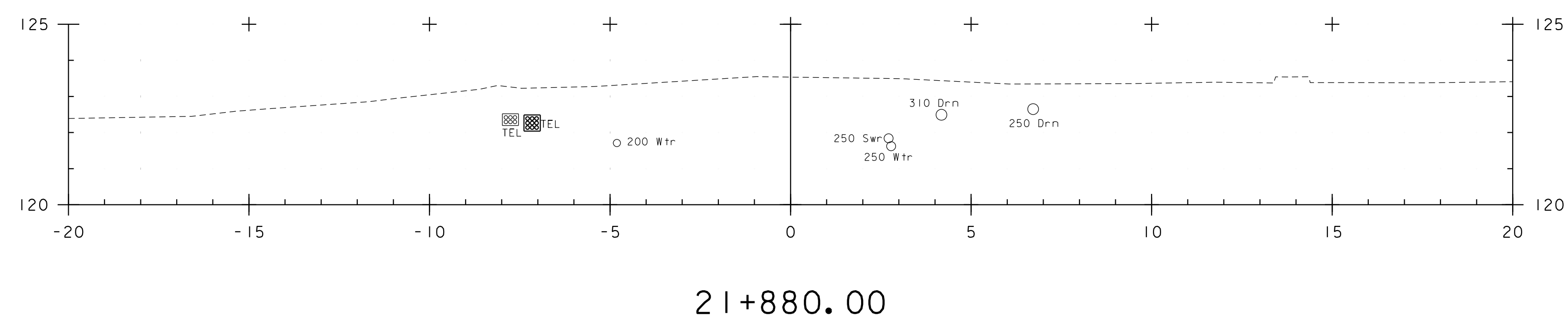
1. LEDGE INFORMATION IS APPROXIMATE AND MAY VARY FROM ACTUAL FIELD CONDITIONS.
2. EXISTING UTILITY INFORMATION SHOWN IS APPROXIMATE. CONTRACTOR SHALL USE CAUTION WHEN EXCAVATING IN THE VICINITY OF EXISTING UTILITIES.

PROJECT NAME: BRANDON
PROJECT NUMBER: BHF 019-3(58)

FILE NAME: z10b358xs.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: M. HALEY

PLOT DATE: 12/19/2017
DRAWN BY: S. GOODWIN
CHECKED BY: D. MUNRO
SHEET 70 OF 79





NOTES:

1. CENTERLINE OF CROSS SECTIONS THIS SHEET REFLECT ULTIMATE ALIGNMENT FOR NH 019-3(496). CENTERLINE PAVEMENT MARKING SHALL TRANSITION TO MATCH EXISTING STRIPING.
2. EDGE INFORMATION IS APPROXIMATE AND MAY VARY FROM ACTUAL FIELD CONDITIONS.
3. EXISTING UTILITY INFORMATION SHOWN IS APPROXIMATE. CONTRACTOR SHALL USE CAUTION WHEN EXCAVATING IN THE VICINITY OF EXISTING UTILITIES.

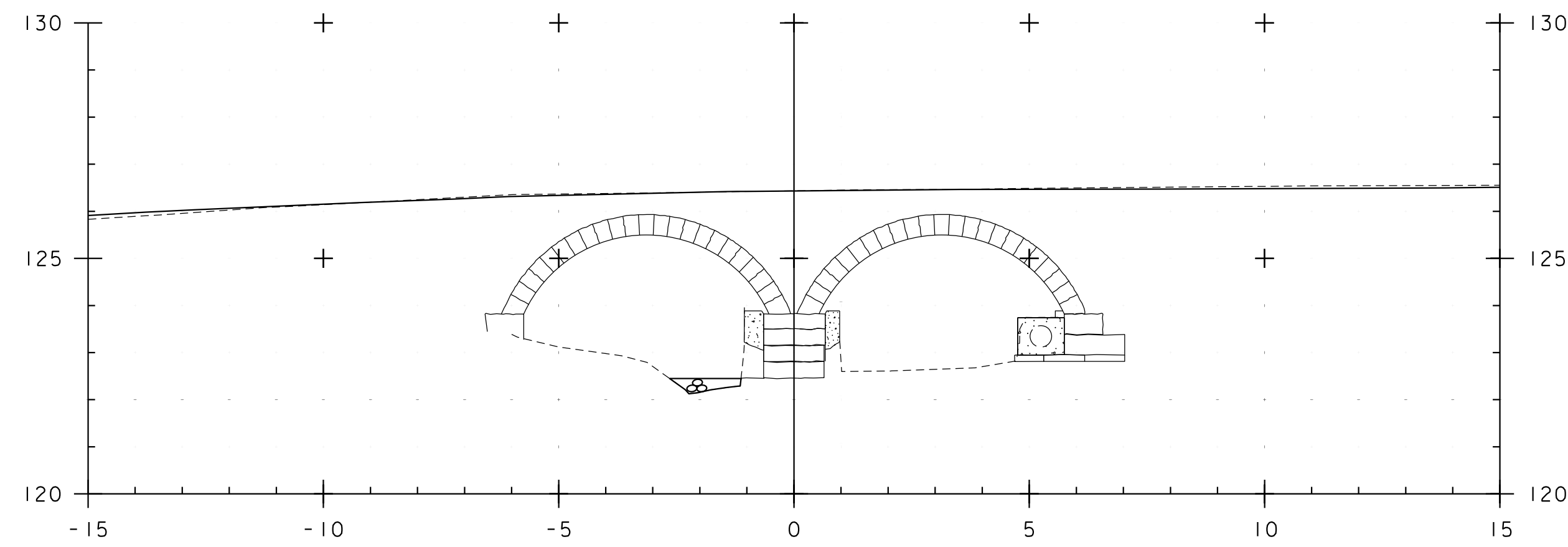


STA 21+860 TO STA 21+880

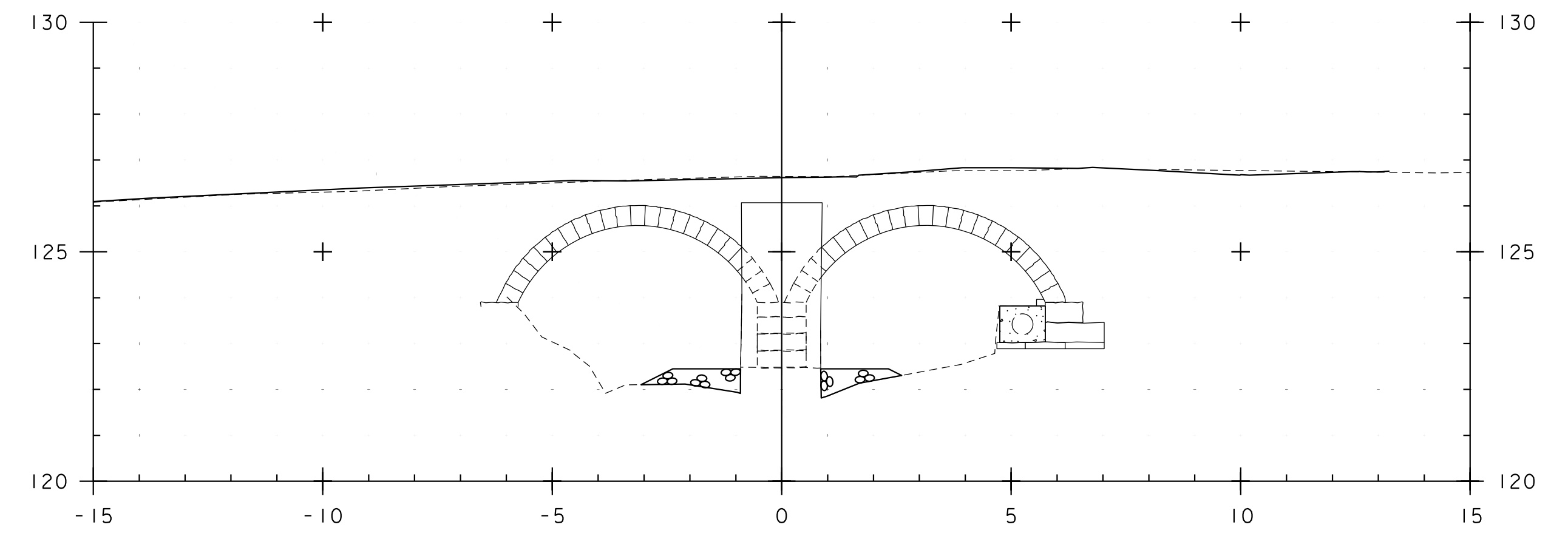


PROJECT NAME:	BRANDON
PROJECT NUMBER:	BHF 019-3(58)

FILE NAME: z10b358xs.dgn	PLOT DATE: 12/19/2017
PROJECT LEADER: J. BYATT	DRAWN BY: S. GOODWIN
DESIGNED BY: M. HALEY	CHECKED BY: D. MUNRO
US ROUTE 7 CROSS SECTIONS 5	SHEET 71 OF 79



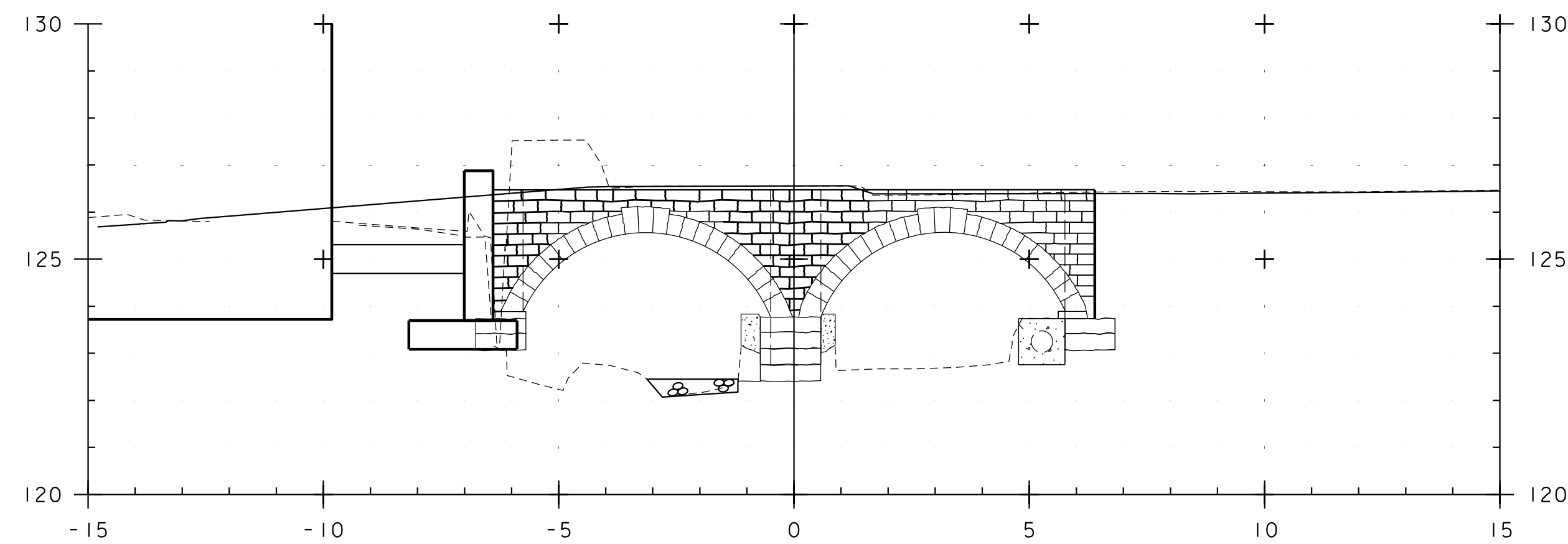
0+011.80



STA. 0+025.664 LT
END STONE FILL, TYPE III

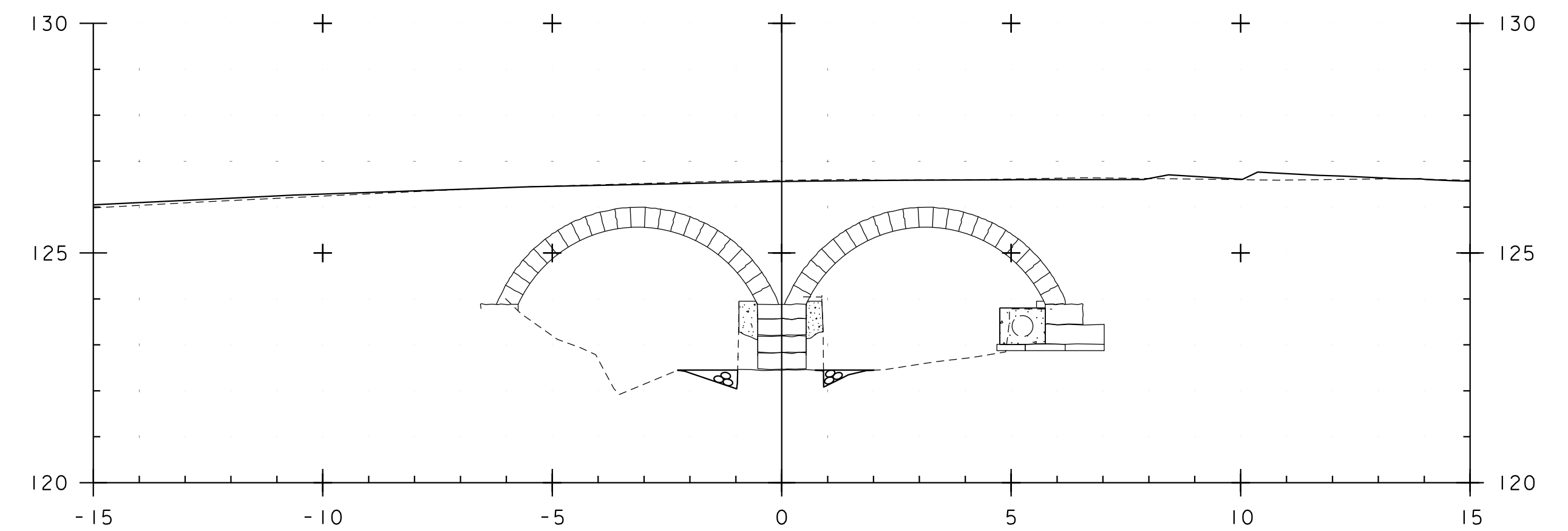
0+021.40

STA. 0+025.664 RT
END STONE FILL, TYPE III

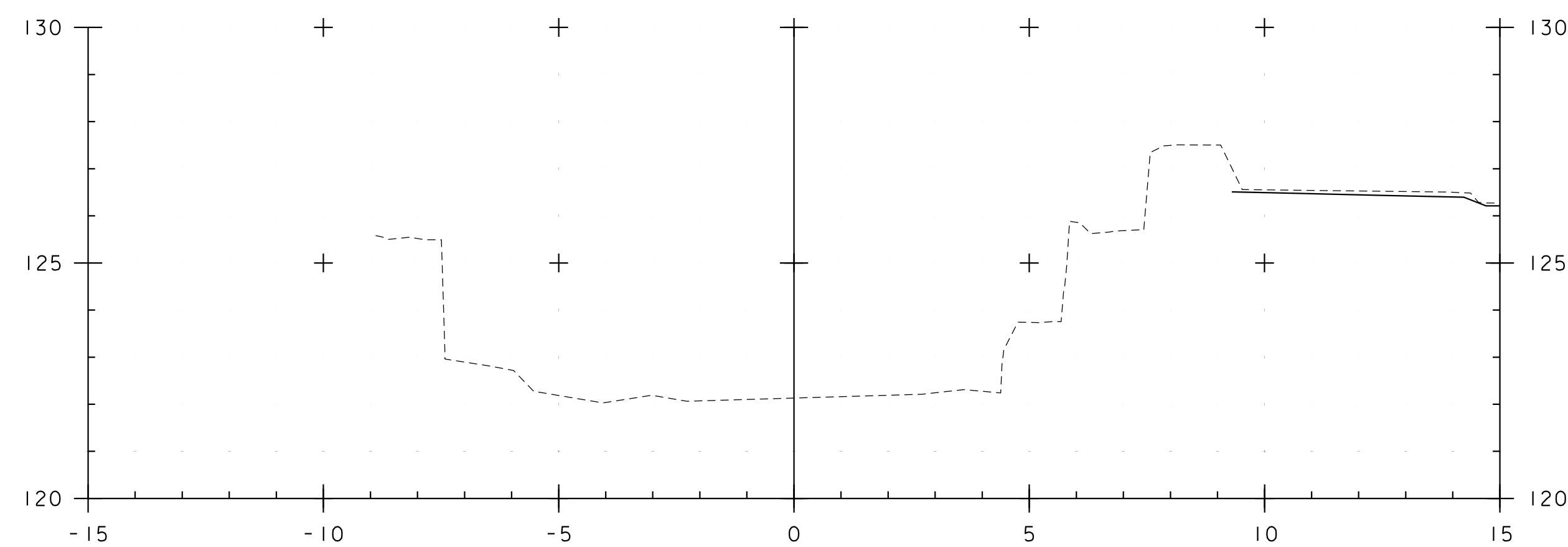


STA. 0+006.352 LT
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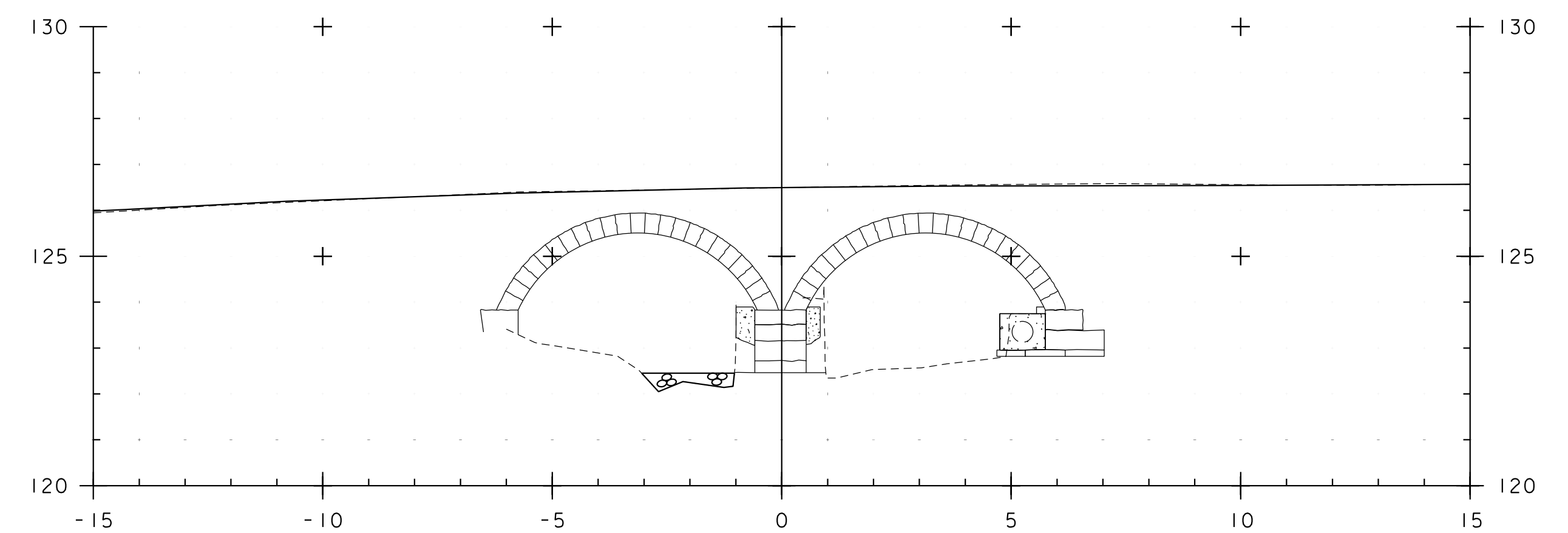
0+008.60



0+018.20



0+004.60



0+015.00

STA. 0+015.000 RT
BEGIN STONE FILL, TYPE III



STA. 0+004.60 TO STA. 0+021.40

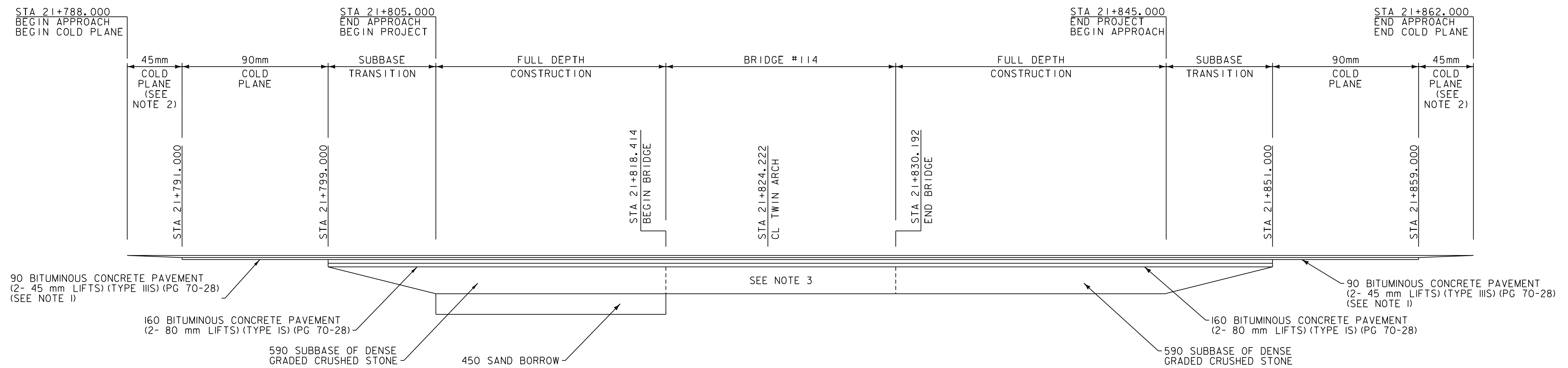


FUSS & O'NEILL

PROJECT NAME: BRANDON
PROJECT NUMBER: BHF 019-3(58)

FILE NAME: z10b358xs_channel.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: S. BEAUMONT
CHANNEL CROSS SECTIONS SHEET

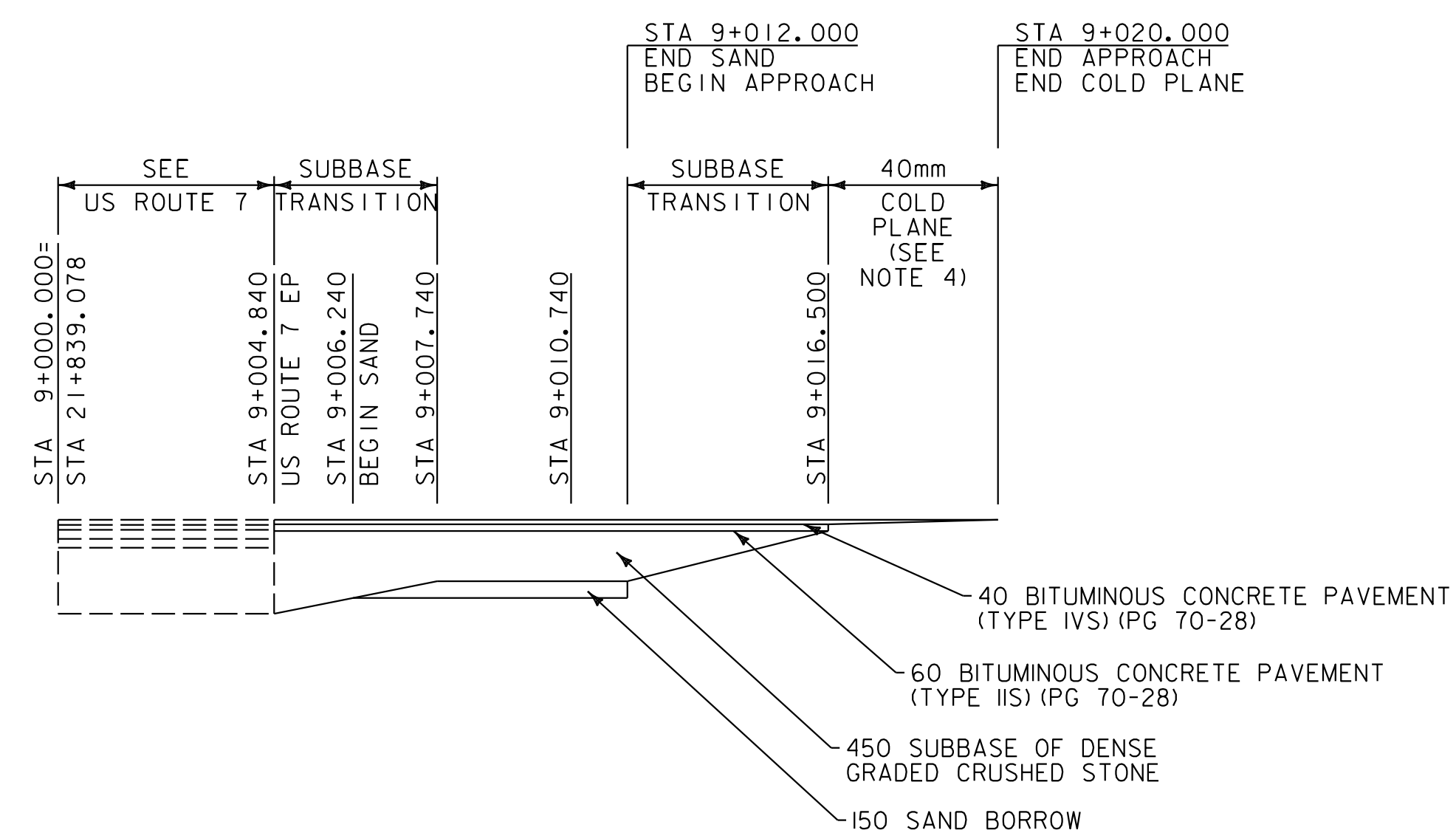
PLOT DATE: 12/19/2017
DRAWN BY: M. SMITH
CHECKED BY: J. BYATT
SHEET 72 OF 79



US ROUTE 7 MATERIAL TRANSITION DIAGRAM

NOTES:

- ONLY ONE 45 mm LIFT OF THE 90 mm BITUMINOUS CONCRETE PAVEMENT TO BE INSTALLED. PROJECT NH 019-3(496) WILL INSTALL FINAL 45mm WEARING COURSE.
- PROJECT PROFILE IS BASED ON NH 019-3(496) PROFILE FOR ULTIMATE GRADE. FROM APPROXIMATELY STA 21+788 TO 21+791 AND STA 21+859 TO 21+862, CONTRACTOR SHALL PROVIDE A TEMPORARY WEDGE OF TYPE IIS BITUMINOUS CONCRETE PAVEMENT TO MEET EXISTING GRADE. IN APPROACH SECTIONS, DEPTH OF COLD PLANE MAY VARY FROM DEPTHS SHOWN ON MATERIAL TRANSITION DIAGRAM IN ORDER TO MEET EXISTING GRADE.
- DEPTH OF SUBBASE WILL VARY OVER ARCHES.
- PROJECT PROFILE IS BASED ON NH 019-3(496) PROFILE FOR ULTIMATE GRADE. FROM STA 9+016.500 TO STA 9+020.000, CONTRACTOR SHALL PROVIDE A TEMPORARY WEDGE OF TYPE IVS BITUMINOUS CONCRETE PAVEMENT TO MEET EXISTING GRADE. DEPTH OF COLD PLANE MAY VARY FROM DEPTHS SHOWN ON MATERIAL TRANSITION DIAGRAM IN ORDER TO MEET EXISTING GRADE.



WEST SEMINARY STREET
MATERIAL TRANSITION DIAGRAM

NOT TO SCALE



PROJECT NAME: BRANDON
PROJECT NUMBER: BHF 019-3(58)

FILE NAME: z10b358frm.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: M. HALEY
MATERIAL TRANSITION DIAGRAMS

PLOT DATE: 12/19/2017
DRAWN BY: S. GOODWIN
CHECKED BY: D. MUNRO
SHEET 73 OF 79

EPSC PLAN NARRATIVE

1.1 PROJECT DESCRIPTION

THE BRANDON US ROUTE 7 SEGMENT 6 IMPROVEMENT PROJECT WILL BE COMPLETED UNDER TWO PHASES. PHASE 1 OF THIS PROJECT INCLUDED WATER MAIN AND UTILITY DUCTBANK INSTALLATION AND WAS COMPLETED IN 2015. PHASE 2 BEGINS AT A POINT ON US ROUTE 7 APPROXIMATELY 5.373 KM NORTHERLY OF THE PITTSFORD/BRANDON TOWN LINE AND EXTENDS NORTHERLY THROUGH BRANDON VILLAGE 1.852 KM TO A POINT JUST NORTH OF THE VT ROUTE 73 (WEST) INTERSECTION WITH ROUTE 7.

AS PART OF PHASE 2, BRIDGE 114 OVER THE NESHOBIE RIVER WILL BE REHABILITATED TO REPAIR DAMAGE TO THE HISTORIC ARCHES OF THE BRIDGE. ALSO INCLUDED AS PART OF THE BRIDGE PROJECT ARE SOME ELEMENTS OF THE PHASE 2 ROADWAY PROJECT IN THE VICINITY OF THE BRIDGE INCLUDING NEW SIDEWALKS, CURBING, DRAINAGE, PAVEMENT AND OTHER HIGHWAY RELATED ITEMS.

TOTAL AREA OF DISTURBANCE AS SHOWN ON THE ATTACHED EPSC PLAN IS APPROXIMATELY 0.13 HA (0.31 ACRES).

IT IS ANTICIPATED THAT THE PROJECT WILL LAST ONE CONSTRUCTION SEASON.

1.2 SITE INVENTORY

1.2.1 TOPOGRAPHY

THE TOPOGRAPHY OF THE AREA IS GENTLY SLOPING AND IS CHARACTERIZED BY THE DEVELOPED RESIDENTIAL AND DOWNTOWN COMMERCIAL AREA OF THE VILLAGE OF BRANDON. US ROUTE 7 TRAVELS THROUGH THE CENTER OF TOWN WHICH IS LOCATED AT THE BASE OF THE GREEN MOUNTAINS, UPHILL FROM OTTER CREEK AND ITS FLOODPLAIN. MOST, IF NOT ALL, OF THE DRAINAGE ASSOCIATED WITH THIS SECTION OF US ROUTE 7 EVENTUALLY DRAINS TO OTTER CREEK. THE VILLAGE OF BRANDON IS SITUATED IN A VALLEY ALONG THE NESHOBIE RIVER WHERE US ROUTE 7 INTERESTS WITH VERMONT ROUTE 73. THERE ARE ALSO SEVERAL SIDE ROADS ALONG US ROUTE 7.

1.2.2 DRAINAGE, WATERWAYS, BODIES OF WATER, AND PROXIMITY TO NATURAL OR MAN-MADE WATER FEATURES

SEGMENT 6 OF THE US ROUTE 7 RECONSTRUCTION PROJECT CROSSES TWO UNNAMED TRIBUTARIES OF THE NESHOBIE RIVER AND IS ADJACENT TO A WETLAND. AT ITS NEAREST POINT, THE PROJECT IS LOCATED OVER 500 FEET FROM THE OTTER CREEK. THE NESHOBIE RIVER RUNS THROUGH THE PROJECT AREA AND IS SINUOUS WITH A MODERATE STREAM GRADE. THE STREAM BED AT THE PROJECT SITE CONSISTS OF LEDGE, GRAVEL, COBBLES, AND BOULDERS. IMPACTS TO THE WATERCOURSE WILL INCLUDE INSTALLATION OF STONE FILL ALONG THE CENTER PIER, CONSTRUCTION OF FOOTINGS FOR ABUTMENTS, AND REHABILITATION OF THE EXISTING STONE ARCHES BELOW WATERLINE.

1.2.3 VEGETATION

THE VEGETATION IN THE PROJECT AREA CONSISTS OF UNDERGROWTH, SOFTWOOD AND HARDWOOD TREES ALONG US ROUTE 7. BRIDGE 114 IS IN THE HEART OF DOWNTOWN AND IS SURROUNDED BY BUILDINGS ON THREE OF FOUR CORNERS. GREEN PARK IS LOCATED SOUTHEAST OF THE BRIDGE AND CONSISTS OF MAINTAINED LAWN AREA. THE IMPACTED AREAS OF THE PARK WILL BE RESTORED TO NATURAL CONDITIONS AFTER CONSTRUCTION USING STANDARD SEED AND MULCH PRACTICES.

1.2.4 SOILS

ALL SOIL DATA CAME FROM THE U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE FOR THE COUNTY OF RUTLAND, VERMONT. A MAJORITY OF THE SOILS ON THE PROJECT SITE ARE WINDSOR LOAMY SAND, 3% TO 8% SLOPES, “K FACTOR” = 0.17. THE SOIL IS CONSIDERED TO HAVE LOW EROSION POTENTIAL. IT IS IN HYDRAULIC GROUP A.

ADDITIONALLY, THERE IS A PRESENCE OF LEDGE IN AND ALONG THE BANKS OF THE NESHOBIE RIVER.

NOTE: K-VALUES GENERALLY INDICATE THE FOLLOWING:
0.0-0.23 = LOW EROSION POTENTIAL
0.24-0.36 = MODERATE EROSION POTENTIAL
0.37 AND HIGHER = HIGH EROSION POTENTIAL

1.2.5 SENSITIVE RESOURCE AREAS

CRITICAL HABITATS: NO
HISTORICAL OR ARCHEOLOGICAL AREAS: YES. BRIDGE 114 IS A CONTRIBUTING RESOURCE TO BRANDON’S EXISTING HISTORIC DISTRICT. A NUMBER OF PROPERTIES SURROUNDING THE PROJECT AREA ARE CONSIDERED HISTORIC RESOURCES.
PRIME AGRICULTURAL LAND: NO
THREATENED AND ENDANGERED SPECIES: NORTHERN LONG - EARED BAT.
WATER RESOURCE: NESHOBIE RIVER
WETLANDS: NO

1.3 RISK EVALUATION

THE OVERALL HIGHWAY RECONSTRUCTION PROJECT WILL REQUIRE A STORMWATER PERMIT FOR CONSTRUCTION ACTIVITIES. THAT PERMIT IS BEING ACQUIRED SEPARATELY FROM THIS PROJECT.

THE BRIDGE ASPECTS OF PHASE 2 DO NOT FALL UNDER THE JURISDICTION OF GENERAL PERMIT 3-9020 FOR STORMWATER RUNOFF FROM CONSTRUCTION SITES. SHOULD CHANGES PRIOR TO OR DURING CONSTRUCTION RESULT IN ONE OR MORE ACRES OF EARTH DISTURBANCE, THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY ADDITIONAL PERMITTING.

1.4 EROSION PREVENTION AND SEDIMENT CONTROL

THE EROSION CONTROL PLANS ARE MEANT AS A GUIDELINE FOR PREVENTING EROSION AND CONTROLLING SEDIMENT TRANSPORT. THE PRINCIPLES OUTLINED IN THIS NARRATIVE CONSIST OF APPLYING MEASURES THROUGHOUT CONSTRUCTION OF THE PROJECT IN ORDER TO MINIMIZE SEDIMENT TRANSPORT TO THE RECEIVING WATERS. THE MEASURES INCLUDE STABILIZATION AND STRUCTURAL PRACTICES, STORM WATER CONTROLS AND OTHER POLLUTION PREVENTION PRACTICES. THEY HAVE BEEN PROPOSED BY THE DESIGNER AS A BASIS FOR PROTECTING RESOURCES AND WILL NEED TO BE BUILT UPON BASED ON THE SPECIFIC MEANS AND METHODS OF THE CONTRACTOR. REFER TO THE LOW RISK SITE HANDBOOK AND APPROPRIATE DETAIL SHEETS FOR SPECIFIC GUIDANCE AND CONSTRUCTION DETAILING.

ALL MEASURES SHALL BE REGULARLY MAINTAINED AND SHALL BE CHECKED FOR SEDIMENT BUILD-UP. SEDIMENT SHALL BE DISPOSED OF AT AN APPROVED SITE WHERE IT WILL NOT BE SUBJECT TO EROSION.

1.4.1 MARK SITE BOUNDARIES

SITE BOUNDARIES AND AREAS CONSTRUCTION EQUIPMENT CAN ACCESS SHALL BE DELINEATED.

PROJECT DEMARCATION FENCING (PDF) SHALL BE USED TO PHYSICALLY MARK SITE BOUNDARIES.

1.4.2 LIMIT DISTURBANCE AREA
PREVENTING INITIAL SOIL EROSION BY MINIMIZING THE EXPOSED AREA IS MUCH MORE EFFECTIVE THAN TREATING ERODED SEDIMENT. EARTH DISTURBANCE CAN BE MINIMIZED THROUGH CONSTRUCTION PHASING BY ONLY OPENING UP EARTH AS NECESSARY. THIS CAN LIMIT THE AREA THAT WILL BE DISTURBED AND EXPOSED TO EROSION. EMPLOY TEMPORARY CONSTRUCTION STABILIZATION PRACTICES IN INCREMENTAL STAGES AS PHASES CHANGE. FOR PROJECTS WHICH FALL UNDER THE CONSTRUCTION GENERAL PERMIT, ONLY THE ACREAGE LISTED ON THE PERMIT AUTHORIZATION MAY BE EXPOSED AT ANY GIVEN TIME.

MAINTAINING VEGETATED BUFFERS ALONG STREAM BANKS, WETLANDS OR OTHER SENSITIVE AREAS IS A CRUCIAL EROSION AND SEDIMENT CONTROL MEASURE THAT SHOULD BE ESTABLISHED WHEREVER POSSIBLE.

1.4.3 SITE ENTRANCE/EXIT STABILIZATION
TRACKING OF SEDIMENT ONTO PUBLIC HIGHWAYS SHALL BE MINIMIZED TO REDUCE THE POTENTIAL FOR RUNOFF ENTERING RECEIVING WATERS. INSTALLATION SHALL COINCIDE WITH THE CONTRACTORS PROGRESS SCHEDULE.

STABILIZED CONSTRUCTION ENTRANCES ARE NOT ANTICIPATED ON THIS PROJECT. THE EXISTING ROADWAY WILL BE UTILIZED TO ACCESS THE BRIDGE.

1.4.4 INSTALL SEDIMENT BARRIERS
SEDIMENT BARRIERS SHALL BE UTILIZED TO INTERCEPT RUNOFF AND ALLOW SUSPENDED SEDIMENT TO SETTLE OUT. THEY SHALL BE INSTALLED PRIOR TO ANY UP SLOPE WORK.

SILT FENCE WILL BE INSTALLED AS PROPOSED ON THE EPSC PLAN.

1.4.5 DIVERT UPLAND RUNOFF
DIVERSIONARY MEASURES SHALL BE USED TO INTERCEPT RUNOFF FROM ABOVE THE CONSTRUCTION AND DIRECT IT AROUND THE DISTURBED AREA SO THAT CLEAN WATER DOES NOT BECOME MUDDIED WHILE TRAVELING OVER EXPOSED SOILS ON THE CONSTRUCTION SITE.

THE PROJECT AREA IS RELATIVELY FLAT, AS SUCH, THE ONLY DIVERSIONARY METHODS BEING UTILIZED ARE THE DROP INLET PROTECTION DEVICES AS SHOWN ON THE CONSTRUCTION CONDITION EPSC SHEETS.

1.4.6 SLOW DOWN CHANNELIZED RUNOFF
CHECK STRUCTURES SHALL BE UTILIZED TO REDUCE THE VELOCITY, AND THUS THE EROSION POTENTIAL, OF CONCENTRATED FLOW IN CHANNELS.

NO EXISTING OR PROPOSED CHANNELS ARE LOCATED IN OR ADJACENT TO THE CONSTRUCTION AND, THEREFORE, CHECK STRUCTURES HAVE NOT BEEN INCLUDED ON THE PLANS. IF DEEMED NECESSARY, OR AS DIRECTED BY THE ENGINEER, STONE CHECK DAMS SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 653.

1.4.7 CONSTRUCT PERMANENT CONTROLS
PERMANENT STORMWATER TREATMENT DEVICES SHALL BE INSTALLED AS SHOWN ON THE PLANS AND IN ACCORDANCE WITH PERMIT CONDITIONS.

NO PERMANENT STORMWATER TREATMENT PRACTICES ARE PROPOSED AS PART OF THE BRIDGE PORTION OF PHASE 2. PERMANENT SAND FILTERS ARE PROPOSED AS PART OF PHASE 2 ROADWAY CONSTRUCTION. SEED AND MULCH APPLIED ON AREAS REQUIRING RE-VEGETATION.

1.4.8 STABILIZE EXPOSED SOILS DURING CONSTRUCTION
ALL AREAS OF DISTURBANCE MUST HAVE TEMPORARY STABILIZATION IN PLACE WITHIN 48 HOURS OF DISTURBANCE OR IN ACCORDANCE WITH THE CONSTRUCTION GENERAL PERMIT 3-9020 AUTHORIZATION.

SURFACE ROUGHENING OF ALL EXPOSED SLOPES, COMBINED WITH TEMPORARY MULCHING, SHALL BE UTILIZED ON A REGULAR BASIS. BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED TO STABILIZE ALL SLOPES STEEPER THAN 1:3. SURFACE ROUGHENING AND TEMPORARY EROSION MATTING ARE NOT ANTICIPATED TO BE NEEDED ON THIS PROJECT.

THE FORECAST OF RAINFALL EVENTS SHALL TRIGGER IMMEDIATE PROTECTION OF EXPOSED SOILS.

APPLY SEED AND MULCH ON AREAS REQUIRING RE-VEGETATION.

1.4.9 WINTER STABILIZATION
VARIOUS MEASURES SPECIFIC TO WINTER MAY BE NECESSARY SHOULD THE PROJECT EXTEND INTO WINTER (OCTOBER 15 THROUGH APRIL 15). REFER TO THE LOW RISK SITE HANDBOOK FOR GUIDANCE.

1.4.10 STABILIZE SOIL AT FINAL GRADE
EXPOSED SOIL MUST BE STABILIZED WITHIN 48 HOURS OF REACHING FINAL GRADE.

SEED, MULCH, FERTILIZER AND LIME SHALL BE USED TO ESTABLISH PERMANENT VEGETATION. FOR SLOPES STEEPER THAN 1:3, BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED INSTEAD OF MULCH. NO SLOPES STEEPER THAN 1:3 ARE PROPOSED. EROSION CONTROL MATTING IS NOT ANTICIPATED ON THIS PROJECT.

1.4.11 DE-WATERING ACTIVITIES
DISCHARGE FROM DEWATERING ACTIVITIES THAT FLOWS OFF OF THE CONSTRUCTION SITE MUST NOT CAUSE OR CONTRIBUTE TO A VIOLATION OF THE VERMONT WATER QUALITY STANDARDS.

WATER FROM DEWATERING ACTIVITIES THAT FLOWS OFF OF THE CONSTRUCTION SITE MUST BE CLEAR. WATER MUST NOT BE PUMPED INTO STORM SEWERS, LAKES, OR WETLANDS UNLESS WATER IS CLEAR. FILTER BAGS SHALL BE INSTALLED AS PROPOSED ON THE EPSC PLAN OR IN OTHER SUITABLE LOCATIONS BY THE CONTRACTOR, SUBJECT TO APPROVAL BY THE ENGINEER.

THE SPECIFIC MEANS FOR TREATMENT OF DISCHARGE SHALL BE PROVIDED BY THE CONTRACTOR. PAYMENT WILL BE MADE UNDER ITEM 653.45, FILTER BAG.

1.4.12 INSPECT YOUR SITE
INSPECT THE PROJECT SITE BASED ON SPECIAL PROVISION REQUIREMENTS OR CONSTRUCTION GENERAL PERMIT AUTHORIZATION STIPULATIONS.

1.5 SEQUENCE AND STAGING

THIS SECTION WILL BE DEVELOPED BY THE CONTRACTOR USING THE GUIDANCE OUTLINED IN THE VTRANS EPSC PLAN CONTRACTOR CHECKLIST.

THE ENTIRETY OF THE NESHOBIE RIVER FLOW MAY BE TEMPORARILY DIVERTED TO ONE BARREL OF THE DOUBLE ARCH STRUCTURE TO FACILITATE CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEVELOPING A WATER DIVERSION PLAN. THIS WORK WILL BE PAID FOR UNDER ITEM 900.645, SPECIAL PROVISION (TEMPORARY RELOCATION OF STREAM).

1.5.1 CONSTRUCTION SEQUENCE

1.5.2 OFF-SITE ACTIVITIES
IN ADDITION TO THE CONTRACTOR CHECKLIST ANY ACTIVITIES OUTSIDE THE CONSTRUCTION LIMITS SHALL FOLLOW SPECIFICATION 105.25- 105.29 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION.

1.5.3 UPDATES

PROJECT NAME: BRANDON
PROJECT NUMBER: BHF 019-3(58)

FILE NAME: z10b358erodet.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: M. HALEY
EPSC NARRATIVE

PLOT DATE: 12/19/2017
DRAWN BY: S. GOODWIN
CHECKED BY: D. MUNRO
SHEET 74 OF 79



FUSS & O'NEILL

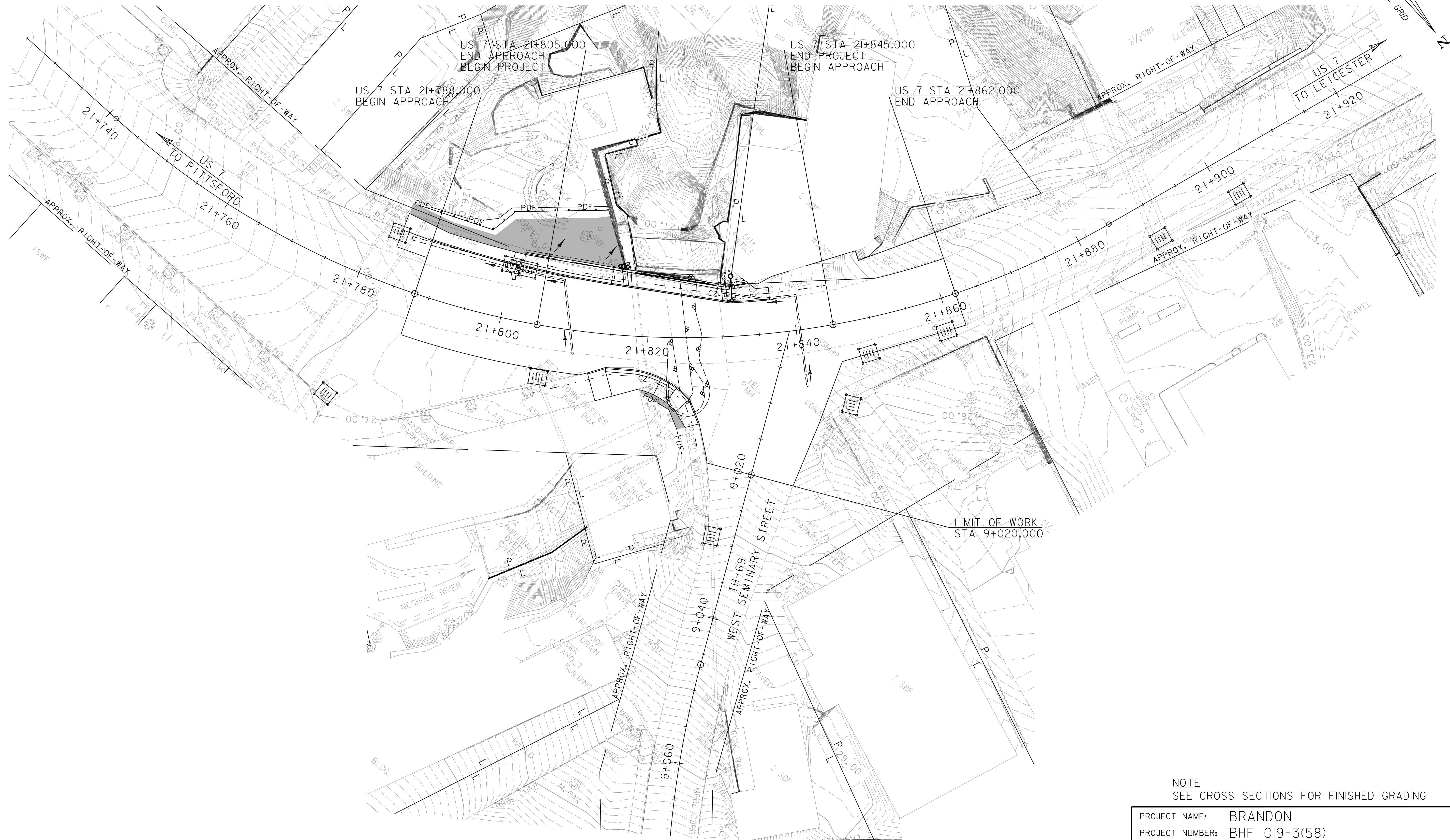
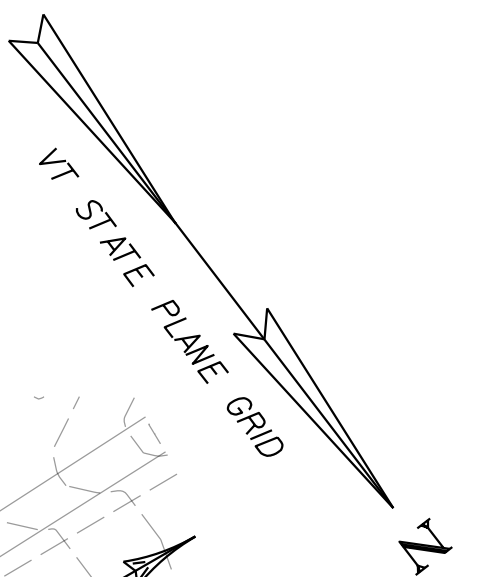
SOIL INFORMATION: WINDSOR LOAMY SAND,
3 TO 8 PERCENT SLOPES
K = 0.17, NOT HIGHLY ERODIBLE
HYDROLOGIC SOIL GROUP: A



SOIL INFORMATION: WINDSOR LOAMY SAND,
3 TO 8 PERCENT SLOPES
K = 0.17, NOT HIGHLY ERODIBLE
HYDROLOGIC SOIL GROUP: A

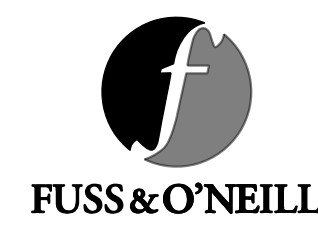
SOIL INFORMATION: WINDSOR LOAMY SAND,
8 TO 15 PERCENT SLOPES
K = 0.17, POTENTIALLY HIGHLY ERODIBLE
HYDROLOGIC SOIL GROUP: A





NOTE
SEE CROSS SECTIONS FOR FINISHED GRADING

PROJECT NAME:	BRANDON
PROJECT NUMBER:	BHF 019-3(58)
FILE NAME:	z10b358bdrerocn.dgn
PROJECT LEADER:	J. BYATT
DESIGNED BY:	M. HALEY
EPSC CONSTRUCTION PLAN SHEET	
PLOT DATE:	12/19/2017
DRAWN BY:	S. GOODWIN
CHECKED BY:	D. MUNRO
SHEET	76 OF 79





NOTE
SEE CROSS SECTIONS FOR FINISHED GRADING

PROJECT NAME:	BRANDON	FILE NAME:	z10b358bdrerofl.dgn	PLOT DATE:	12/19/2017
PROJECT NUMBER:	BHF 019-3(58)	PROJECT LEADER:	J. BYATT	DRAWN BY:	S. GOODWIN
		DESIGNED BY:	M. HALEY	CHECKED BY:	D. MUNRO
		EPSC FINAL PLAN SHEET		SHEET	77 OF 79



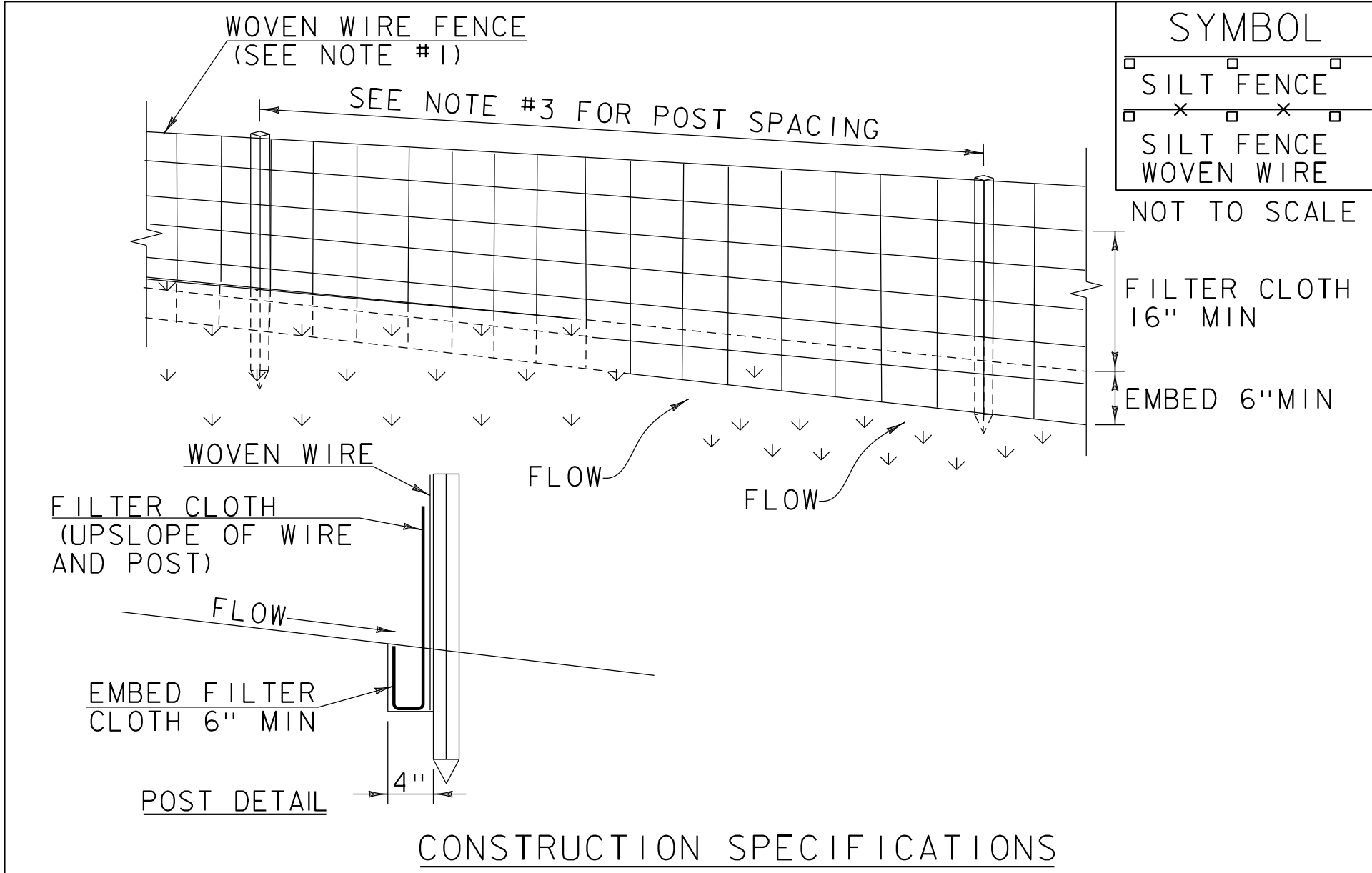
VAOT URBAN LAWN MIX						
LBS/AC						
WEIGHT	BROADCAST	HYDROSEED	NAME	LATIN NAME	GERM	PURITY
42.5%	34	68	CREEPING RED FESCUE	FESTUCA RUBRA X RUBRA	85%	98%
20.0%	16	32	PERENNIAL RYE GRASS	LOLIUM PERENNE	90%	95%
32.5%	26	52	KENTUCKY BLUE GRASS	POA PRATENSIS	85%	85%
5.0%	4	8	ANNUAL RYE GRASS	LOLIUM MULTIFLORUM	85%	95%
100%	80	160				

GENERAL AMENDMENT GUIDANCE		
FERTILIZER	LIME	
10/20/10	AG LIME	PELLITIZED
500 LBS/AC	2 TONS/AC	1 TONS/AC

CONSTRUCTION GUIDANCE

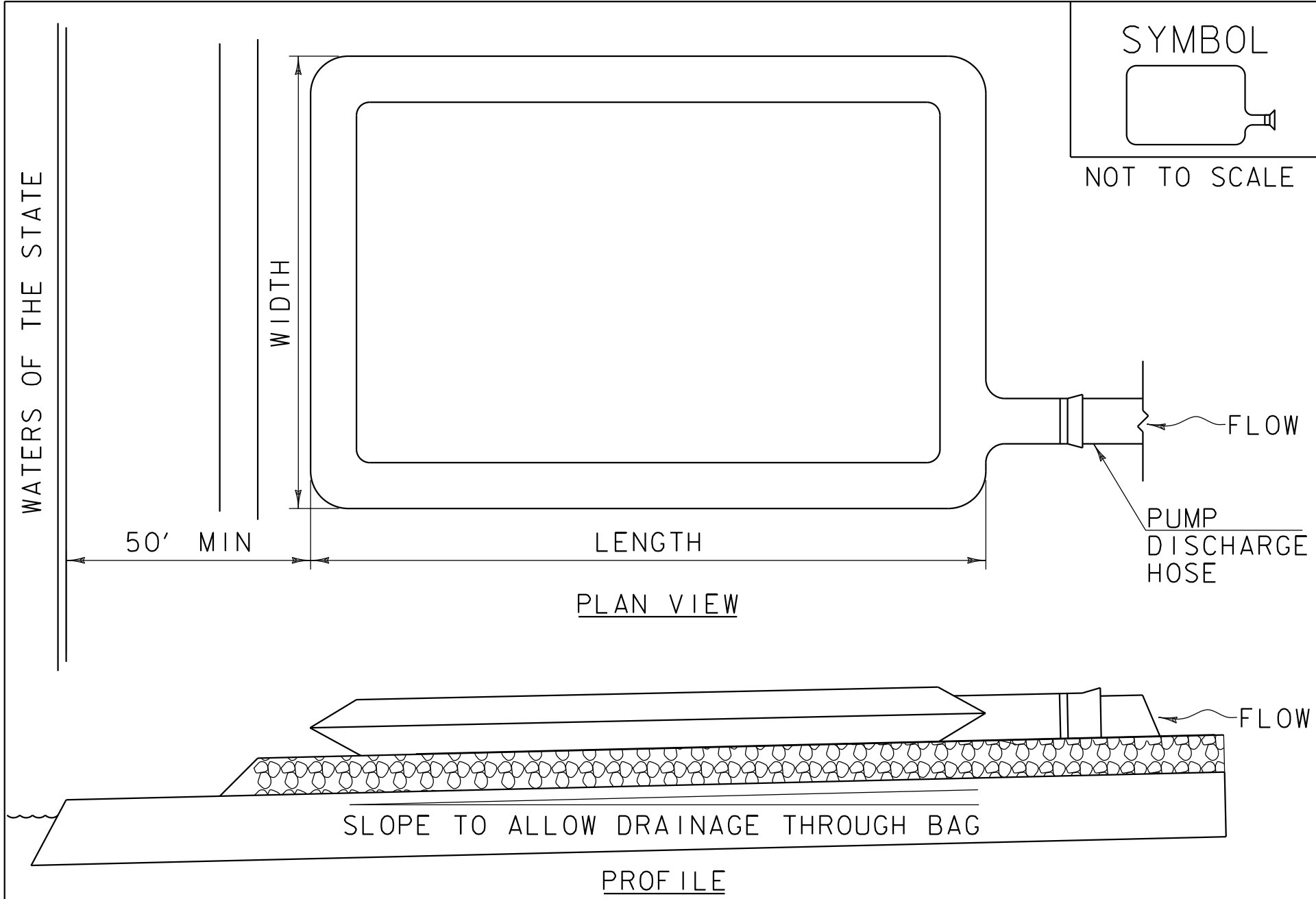
1. SEED MIX: THE URBAN AREA MIX SHALL NOT BE USED IN WETLANDS OR ANY WATERS OF THE STATE OF VERMONT.
2. SEED MIX: USE ONLY AS INDICATED IN THE PLANS.
3. SEED MIX: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS SEED.
4. FERTILIZER AND LIMESTONE: SHALL FOLLOW RATES SHOWN ON PLAN OR AS DIRECTED BY THE ENGINEER
5. HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 2 TONS/ACRE, ACHIEVE 90% GROUND COVER OR AS DIRECTED BY THE ENGINEER.
6. HYDROSEEDING: ALTHOUGH GUIDANCE IS GIVEN ABOVE THE SITE CONDITIONS AND THE TYPE OF HYDROSEED WILL ULTIMATELY DICTATE THE AMOUNTS AND TYPES OF SOIL AMENDMENTS TO BE APPLIED
7. TURF ESTABLISHMENT: PLACING SEED, FERTILIZER, LIME AND MULCH PRIOR TO SEPTEMBER 15 AND AFTER APRIL 15 CAN BETTER ENSURE A VIGOROUS GROWTH OF GRASS.

ADAPTED FROM VTRANS TECHNICAL LANDSCAPE MANUAL FOR ROADWAYS AND TRANSPORTATION FACILITIES	TURF ESTABLISHMENT
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 651 FOR SEED (PAY ITEM 651.15)	REVISIONS
	JANUARY 22, 2015 WHF



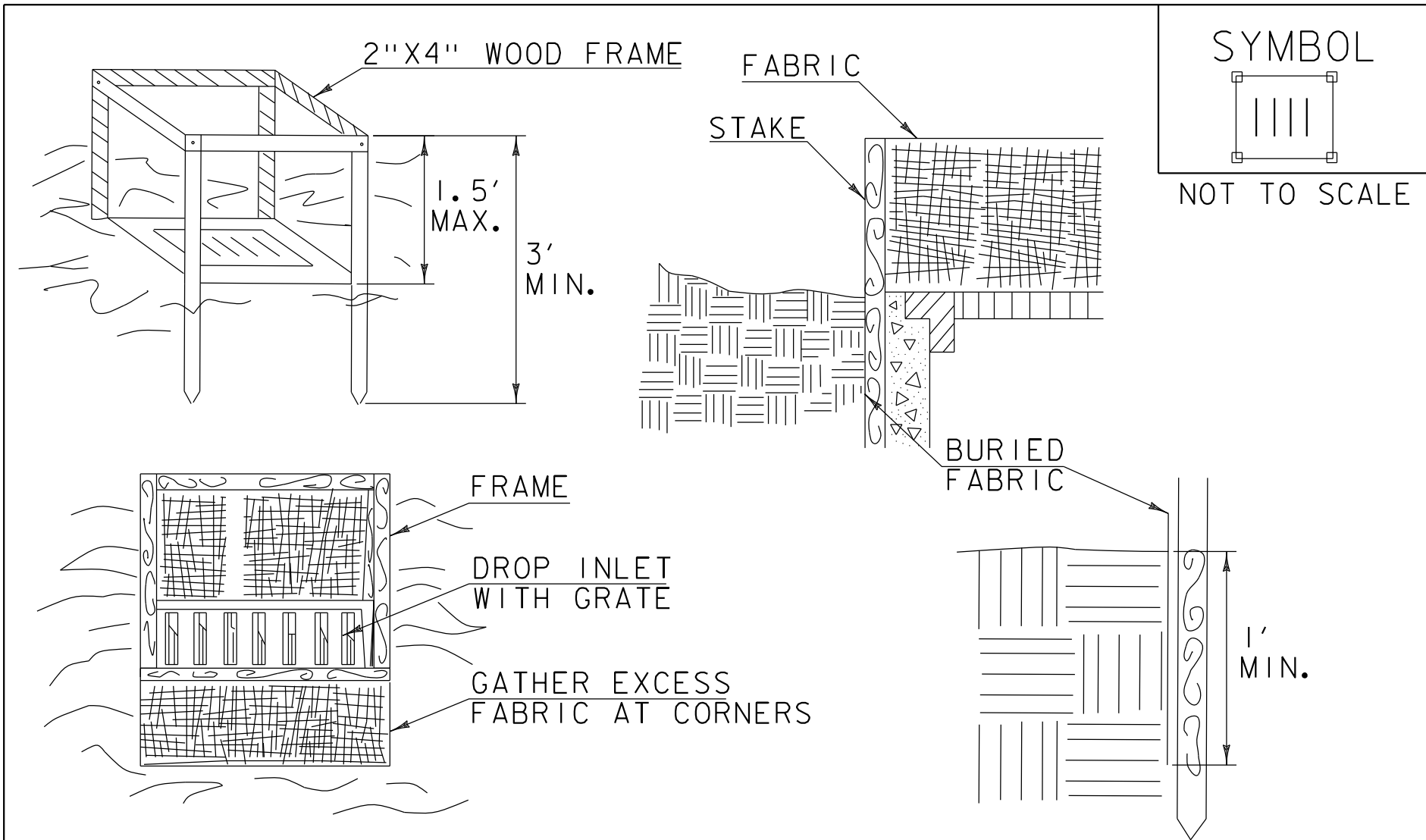
- CONSTRUCTION SPECIFICATIONS
1. WOVEN WIRE REINFORCED FENCE IS REQUIRED WITHIN 100' UPSLOPE OF RECEIVING WATERS WHEN THE PROJECT FALLS UNDER A CONSTRUCTION STORMWATER PERMIT. WOVEN WIRE SHALL BE A MIN. 14 GAUGE WITH A 6" MAX. MESH OPENING.
 2. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFIL100X, STABILINKA T140N OR APPROVED EQUIVALENT.
 3. POST SPACING FOR WIRE-BACKED FENCE SHALL BE 10' MAXIMUM. FOR FILTER-CLOTH FENCE, WHEN ELONGATION IS >50%, POST SPACING SHALL NOT EXCEED 4' AND WHEN ELONGATION IS <50%, POST SPACING SHALL NOT EXCEED 6'.
 4. WOVEN WIRE FENCE IS TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES. FILTER CLOTH IS TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
 5. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY 6" AND FOLDED.
 6. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN SEDIMENT REACHES HALF OF FABRIC HEIGHT.

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC ORIGINALLY DEVELOPED BY USDA-NRCS VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION	SILT FENCE
NOTES: REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.	
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 649 AND AS SHOWN IN THE PLANS FOR GEOTEXTILE FOR SILT FENCE (PAY ITEM 649.51) OR GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED (PAY ITEM 649.515).	REVISIONS
	MARCH 21, 2008 WHF
	DECEMBER 11, 2008 WHF
	JANUARY 13, 2009 WHF



- CONSTRUCTION SPECIFICATIONS
1. THE PRIMARY PURPOSE OF FILTER BAG IS TO RETAIN SILT, SAND, AND FINES DURING DEWATERING OPERATIONS.
 2. FILTER BAGS SHALL BE INSTALLED ON A VEGETATED SLOPE GRADED TO ALLOW INCOMING WATER TO FLOW THROUGH THE BAG.
 3. FILTER BAGS MAY ALSO BE PLACED ON COARSE AGGREGATE, STONE, OR HAYBALES TO INCREASE FILTRATION EFFICIENCY.
 4. FILTER BAGS SHALL BE LOCATED A MINIMUM OF 50' FROM WATERS OF THE STATE UNLESS OTHERWISE APPROVED BY THE ENGINEER.
 5. THE NECK OF THE FILTER BAG SHALL BE STRAPPED TIGHTLY TO THE DISCHARGE HOSE.
 6. A FILTER BAG IS FULL WHEN IT NO LONGER CAN EFFICIENTLY FILTER SEDIMENT OR ALLOW WATER TO PASS AT A REASONABLE RATE.
 7. FILTER BAG SHALL BE DISPOSED OF AS APPROVED IN THE EPSC PLAN OR AS DIRECTED BY THE ENGINEER.

	FILTER BAG
NOTES: REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.	
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR FILTER BAG (PAY ITEM 653.45) AND AS SPECIFIED IN THE CONTRACT.	REVISIONS
	MARCH 24, 2008 WHF
	JANUARY 13, 2009 WHF



CONSTRUCTION SPECIFICATIONS

1. FILTER FABRIC SHALL HAVE AN APPARENT OPENING SIZE OF 40-85. BURLAP MAY BE USED FOR SHORT TERM APPLICATIONS.
2. CUT FABRIC FROM A CONTINUOUS ROLL TO ELIMINATE JOINTS. IF JOINTS ARE NEEDED THEY WILL BE OVERLAPPED TO THE NEXT STAKE.
3. STAKE MATERIALS WILL BE STANDARD 2" x 4" WOOD OR EQUIVALENT METAL WITH A MINIMUM LENGTH OF THREE FEET.
4. SPACE STAKES EVENLY AROUND INLET THREE FEET APART AND DRIVE A MINIMUM 18" DEEP. SPANS GREATER THAN THREE FEET MAY BE BRIDGED WITH THE USE OF WIRE MESH BEHIND THE FILTER FABRIC FOR SUPPORT.
5. FABRIC SHALL BE EMBEDDED 1' MINIMUM BELOW GROUND AND BACKFILLED. IT SHALL BE SECURELY FASTENED TO THE STAKES AND FRAME.
6. A 2" x 4" WOOD FRAME SHALL BE COMPLETED AROUND THE CREST OF THE FABRIC FOR OVER FLOW STABILITY.
7. MAXIMUM DRAINAGE AREA ONE ACRE

FILTER FABRIC
DROP INLET
PROTECTION

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR INLET PROTECTION DEVICE, TYPE I(PAY ITEM 653.40).

REVISIONS		
MARCH 7, 2008	WHF	
JANUARY 13, 2009	WHF	



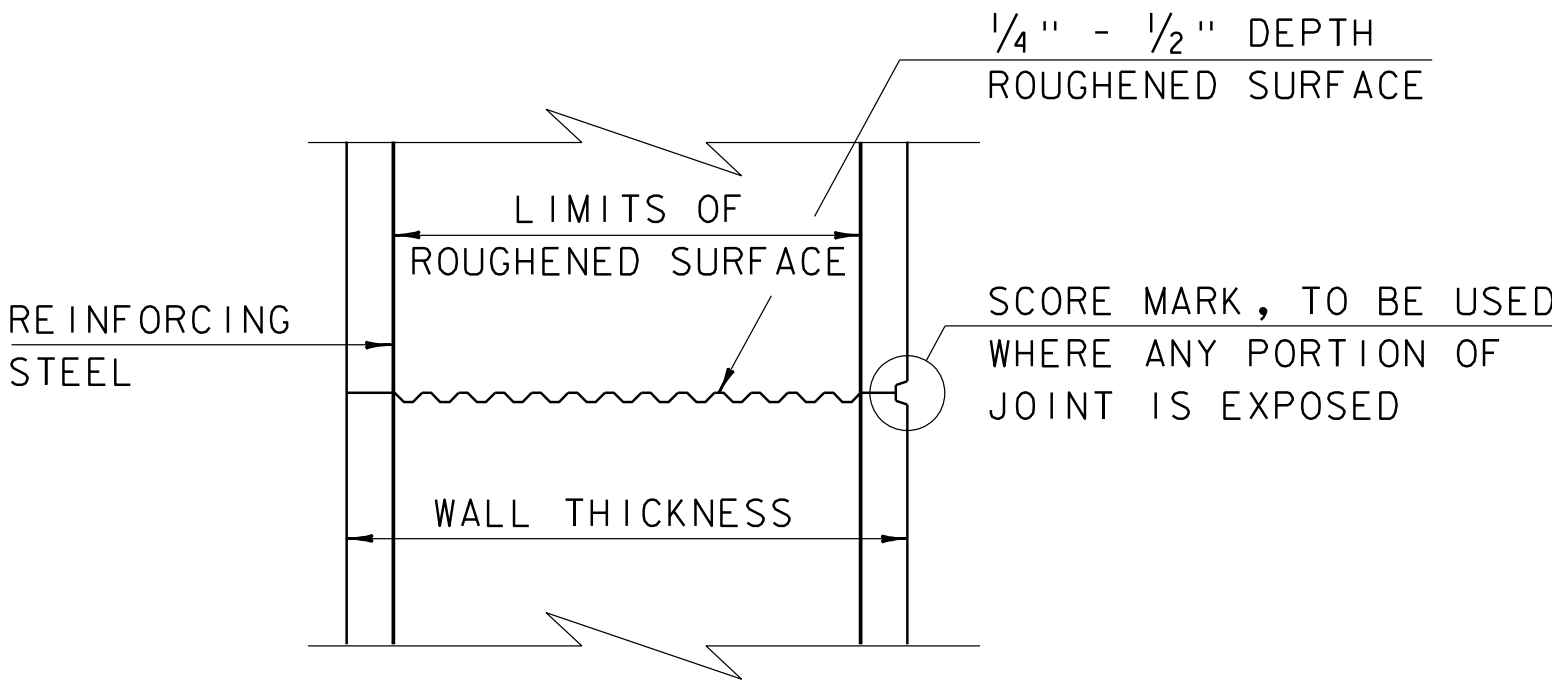
FUSS & O'NEILL

PROJECT NAME: BRANDON
PROJECT NUMBER: BHF 019-3(58)

FILE NAME: z10b358erodet.dgn	PLOT DATE: 12/19/2017
PROJECT LEADER: J. BYATT	DRAWN BY: S. GOODWIN
DESIGNED BY: M. HALEY	CHECKED BY: D. MUNRO
EPSC DETAILS SHEET 2	SHEET 79 OF 79

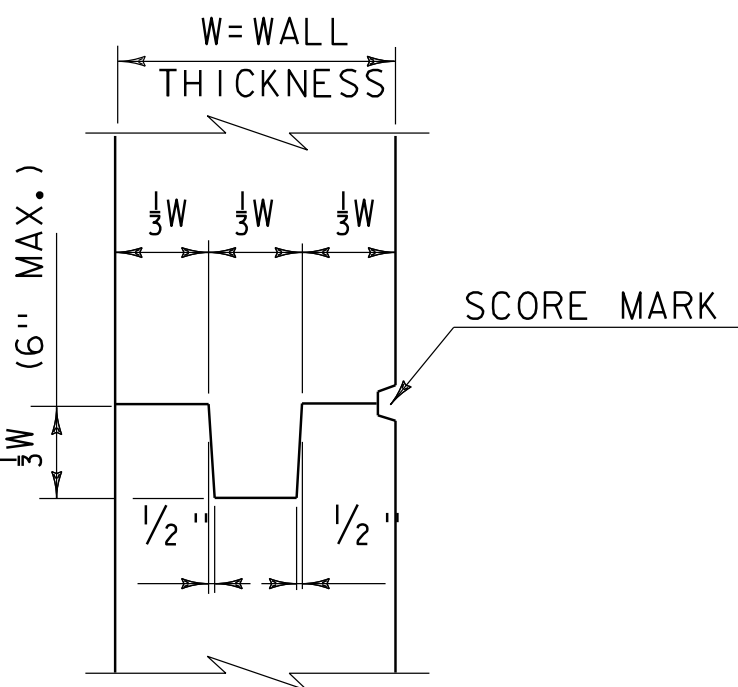
CONCRETE GENERAL NOTES

- 1. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1" x 1"
- 2. REINFORCING STEEL SIZE AND SPACING SHOWN IN THE PLANS IS BASED ON 60 KSI STEEL, UNLESS NOTED OTHERWISE. WITH THE ENGINEER'S PERMISSION, BAR SIZE AND SPACING MAY BE MODIFIED ACCORDING TO THE LATEST AASHTO LRFD BRIDGE DESIGN SPECIFICATION AND STRUCTURES DESIGN MANUAL WHEN USING HIGHER STRENGTH STEEL.

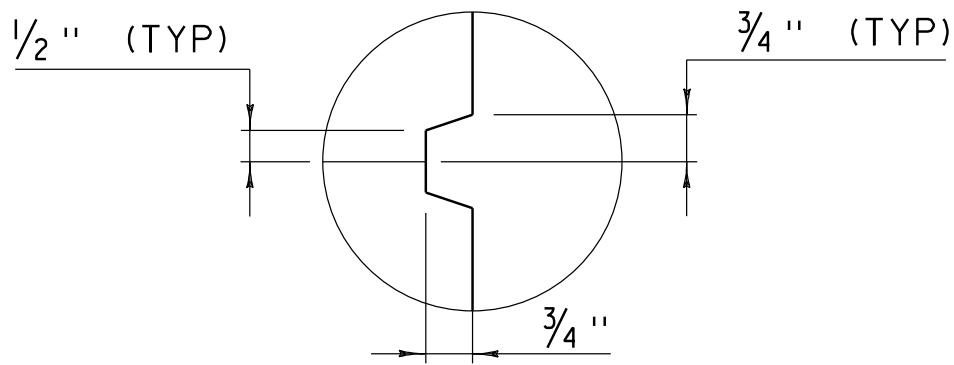


TYPICAL HORIZONTAL CONSTRUCTION JOINT
(NOT TO SCALE)

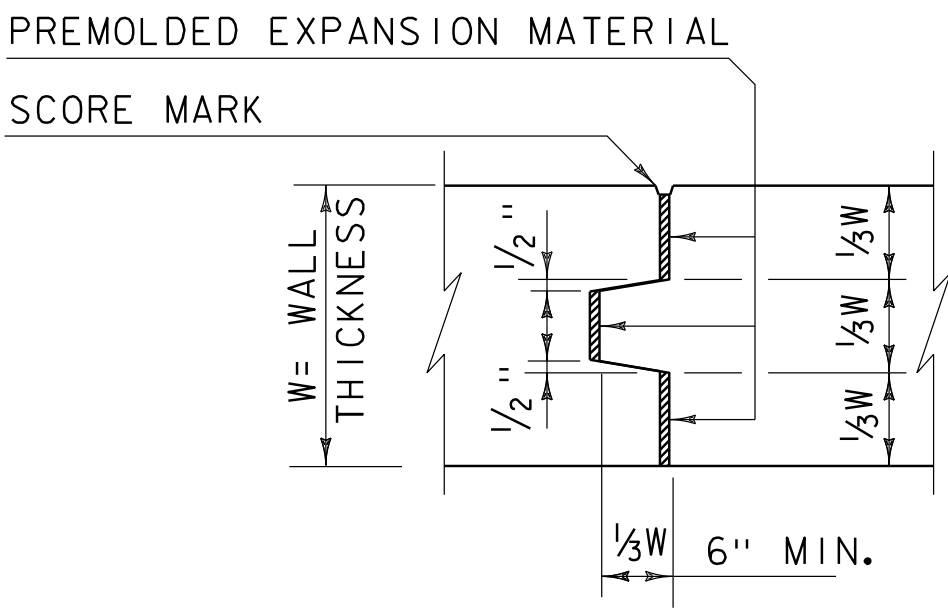
- 1. THE SURFACE OF THE CONCRETE CONSTRUCTION JOINTS SHALL BE CLEANED AND FREE OF LAITANCE.
- 2. IMMEDIATELY BEFORE NEW CONCRETE IS PLACED, ALL CONSTRUCTION JOINTS SHALL BE WETTED AND STANDING WATER REMOVED.



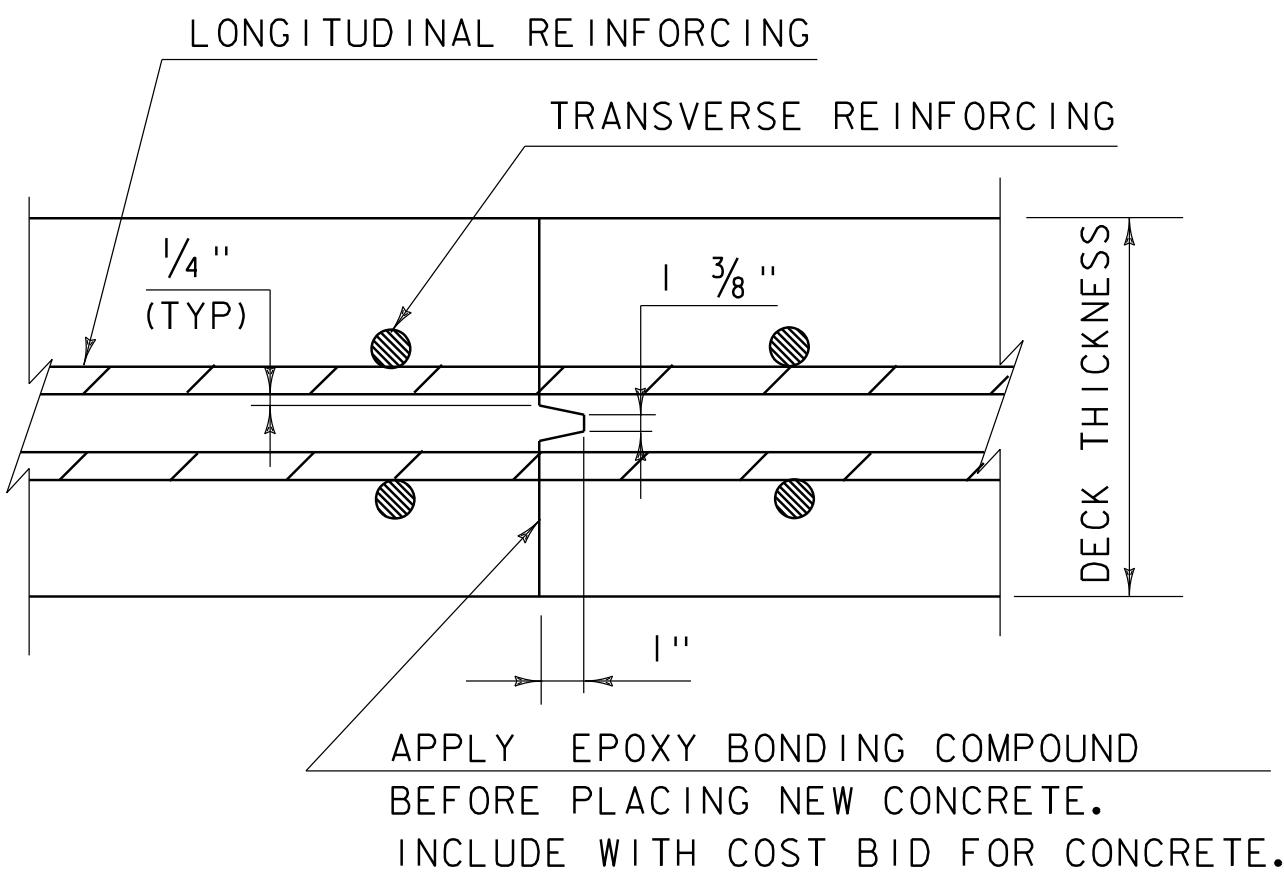
TYPICAL CONCRETE CONSTRUCTION JOINT
(NOT TO SCALE)



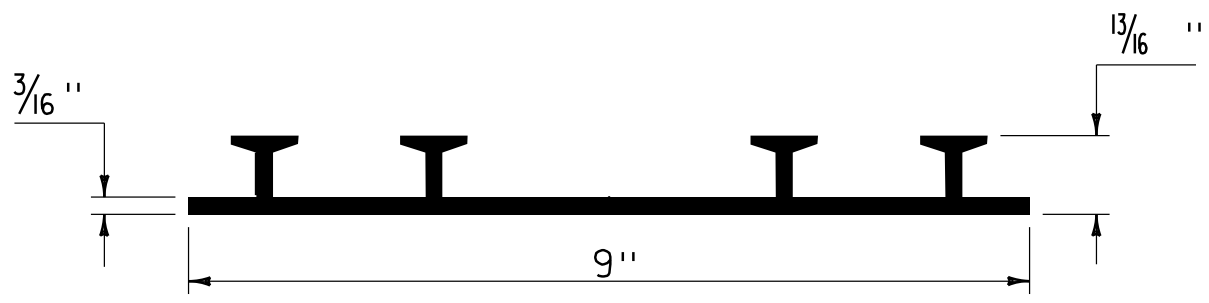
SCORE MARK DETAIL
(NOT TO SCALE)



TYPICAL CONCRETE EXPANSION JOINT
(NOT TO SCALE)



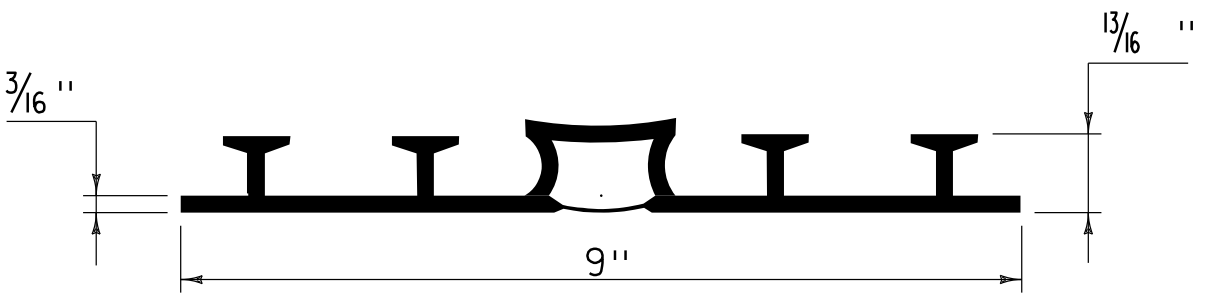
TRANSVERSE BRIDGE SLAB
CONSTRUCTION JOINT DETAILS
(NOT TO SCALE)



P.V.C. WATERSTOP FOR
CONSTRUCTION JOINTS
(NOT TO SCALE)

PAYMENT FOR THE P.V.C. WATERSTOP SHALL BE INCIDENTAL TO THE UNIT BID PRICE FOR THE ADJACENT CONCRETE.

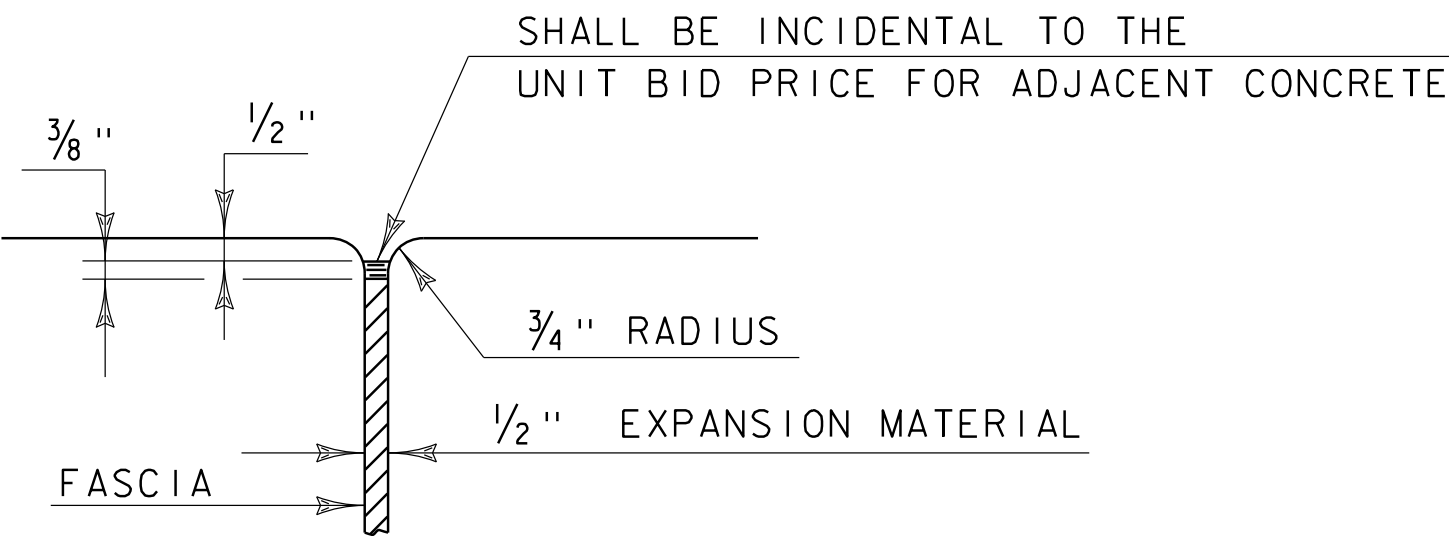
OTHER CONFIGURATIONS OF WATERSTOP MAY BE USED UPON APPROVAL OF THE ENGINEER.



P.V.C. WATERSTOP FOR
EXPANSION JOINTS
(NOT TO SCALE)

PAYMENT FOR THE P.V.C. WATERSTOP SHALL BE INCIDENTAL TO THE UNIT BID PRICE FOR THE ADJACENT CONCRETE.

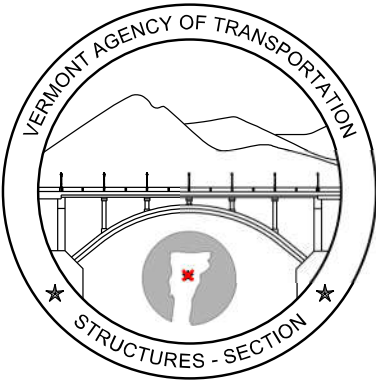
OTHER CONFIGURATIONS OF WATERSTOP MAY BE USED UPON APPROVAL OF THE ENGINEER.



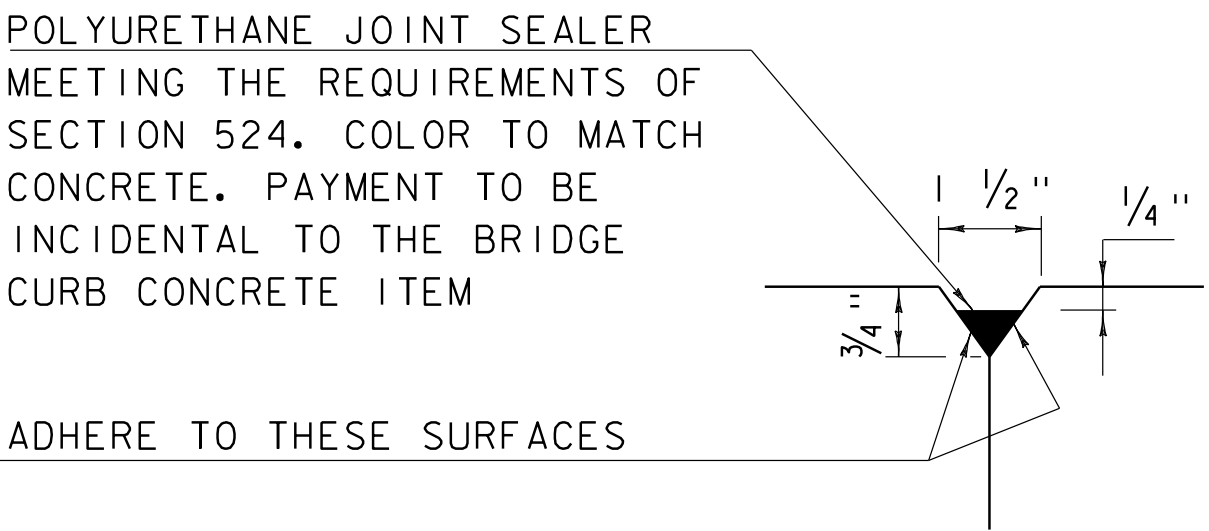
JOINT BETWEEN FASCIA
AND WINGWALL
(NOT TO SCALE)

REVISIONS	
MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION
FEBRUARY 9, 2012	REBAR SUBSTITUTION ALLOWANCE ADDED TO CONCRETE GENERAL NOTES.

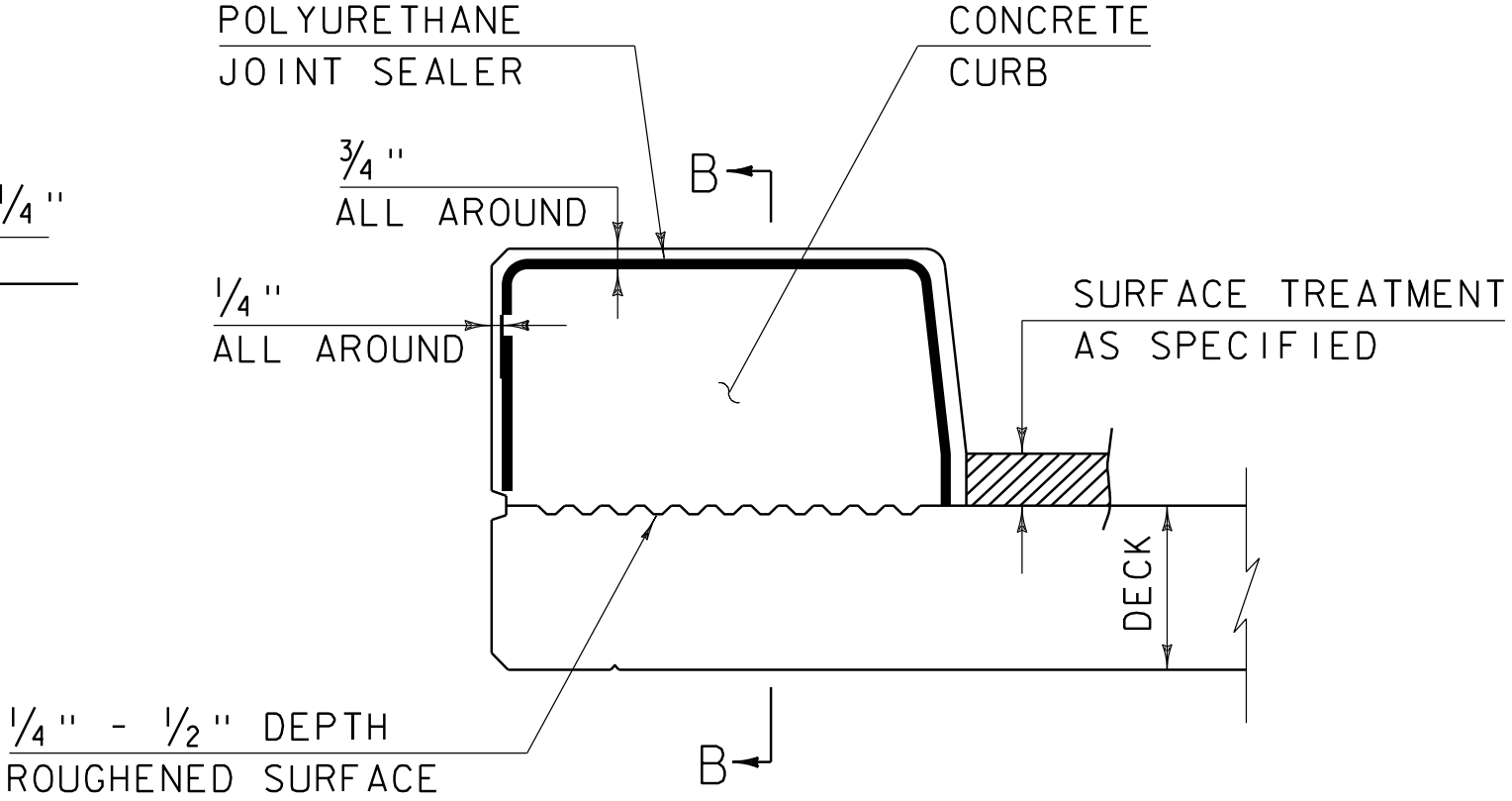
CONCRETE
DETAILS AND NOTES



STRUCTURES
DETAIL
SD-501.00

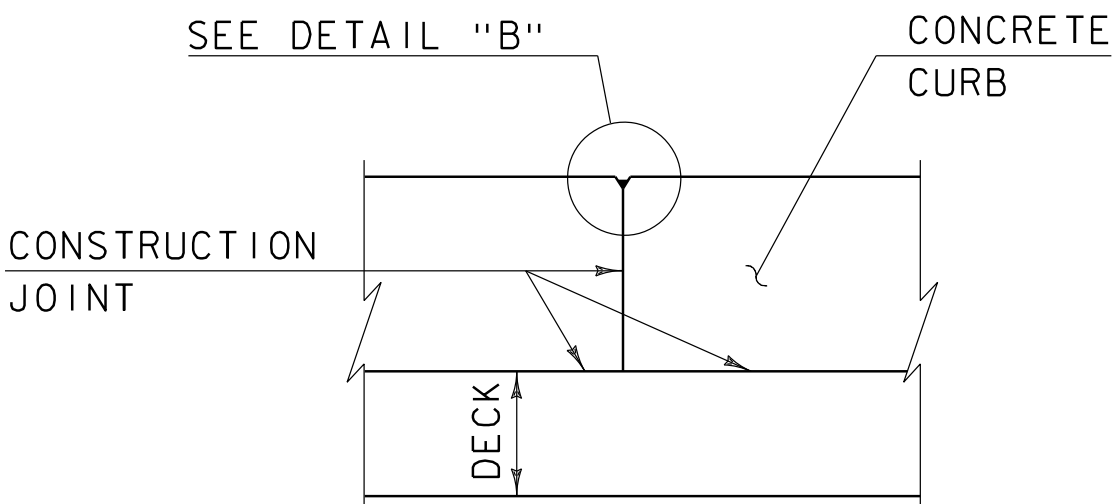


DETAIL "B"
(NOT TO SCALE)

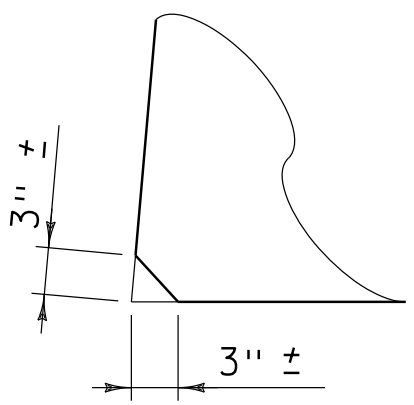


CONCRETE CURB JOINT SECTION
(NOT TO SCALE)

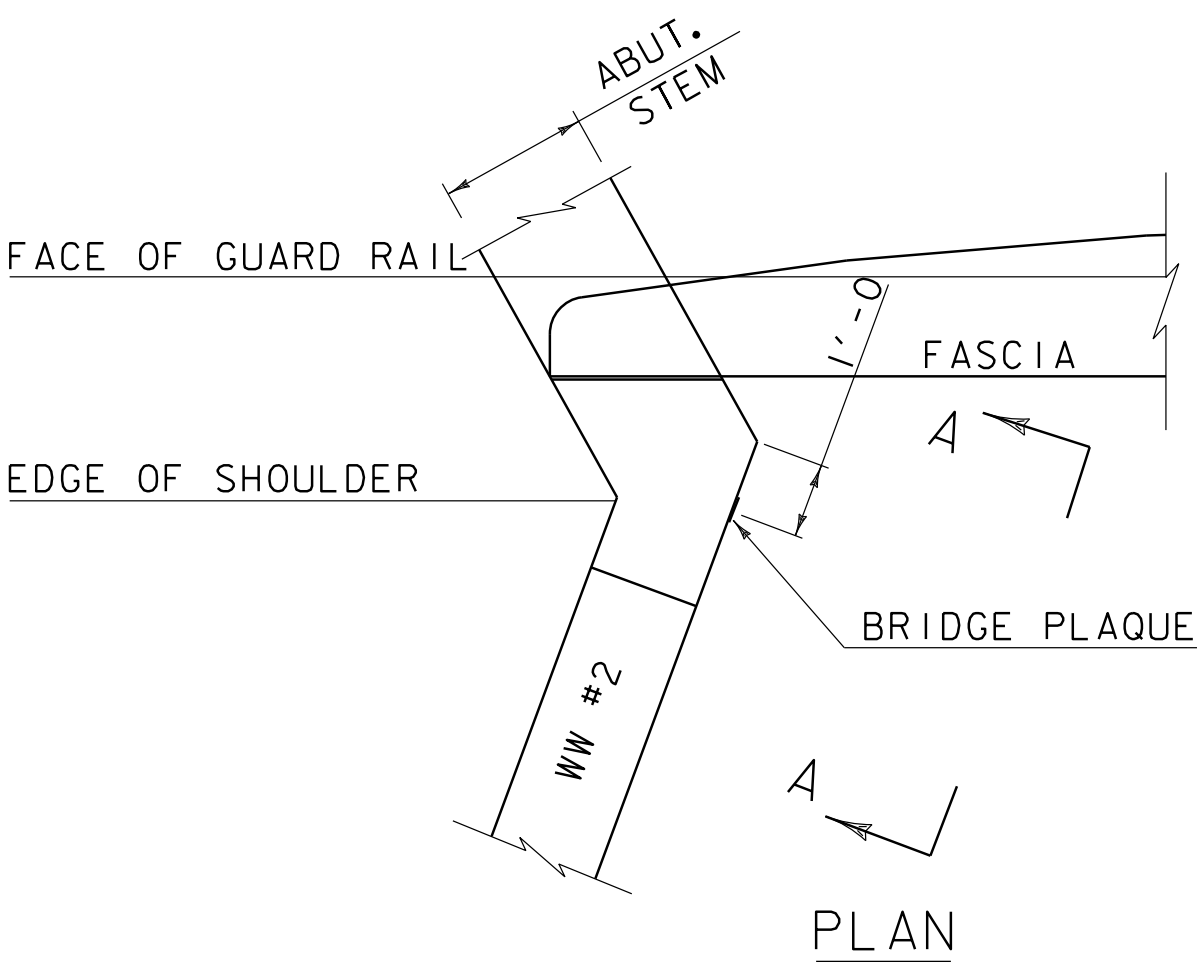
1. SEE TYPICAL HORIZONTAL CONSTRUCTION JOINT
DETAIL FOR ADDITIONAL INFORMATION



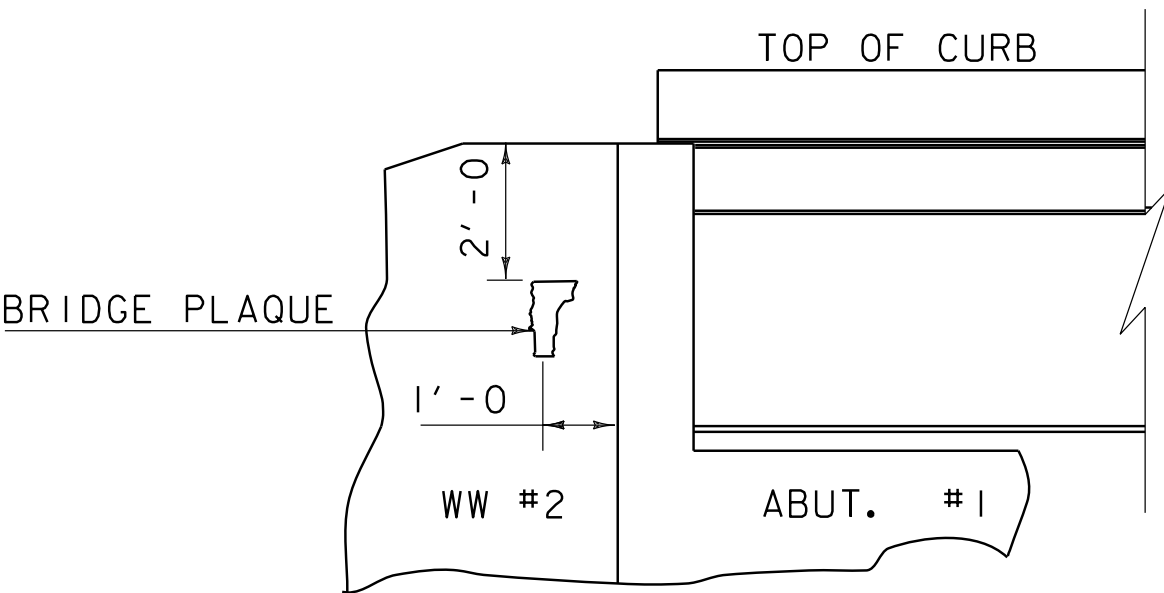
SECTION B - B
(NOT TO SCALE)



ACUTE ANGLE
CLIP DETAIL
(NOT TO SCALE)



PLAN



VIEW "A - A"

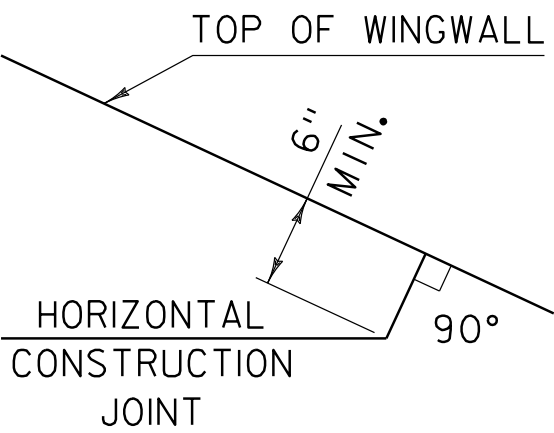
BRIDGE PLAQUE
(NOT TO SCALE)

THE BRIDGE PLAQUE WILL BE SUPPLIED BY THE AGENCY OF
TRANSPORTATION AND SHALL BE INSTALLED BY THE CONTRACTOR AT
ABUTMENT #1 ON THE RIGHT SIDE AS SHOWN OR AS DIRECTED BY
THE ENGINEER.

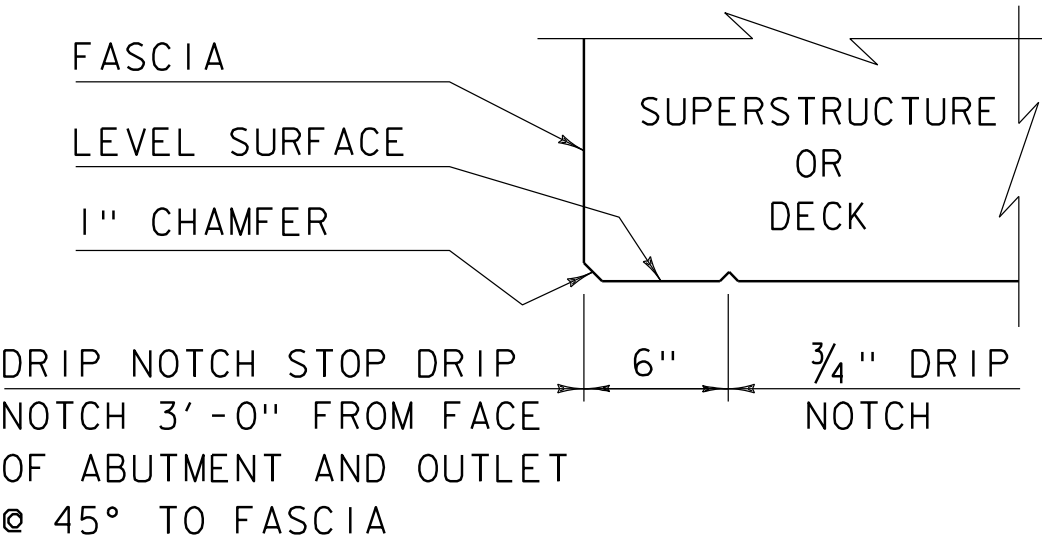
PAYMENT FOR INSTALLATION OF THE BRIDGE PLAQUE SHALL BE
INCIDENTAL TO THE ADJACENT CONCRETE.

CONCRETE CURB JOINT NOTES

1. CONCRETE CURBS MAY BE PLACED IN ONE CONTINUOUS OPERATION IF
AN APPROVED SHRINKAGE REDUCING ADMIXTURE LISTED IN THE
SPECIAL PROVISIONS IS USED WITH THE CONCRETE MIX DESIGN.
PAYMENT FOR THE SHRINKAGE REDUCING ADMIXTURE WILL BE
INCIDENTAL TO THE BRIDGE CURB CONCRETE ITEM.
2. IF THE CONTRACTOR CHOOSES NOT TO USE AN APPROVED SHRINKAGE
REDUCING ADMIXTURE, THE CURBS SHALL BE CONSTRUCTED WITH
CONSTRUCTION JOINTS SPACED AT A MAXIMUM OF 15'-0" CENTER TO
CENTER AND 2'-0" MINIMUM FROM THE CENTER OF NEAREST BRIDGE
RAILING POST.
3. ON MULTI-SPAN CONTINUOUS SUPERSTRUCTURES, REGARDLESS OF
WHETHER APPROVED SHRINKAGE REDUCING ADMIXTURE IS USED, CURB
JOINTS SHALL BE LOCATED OVER THE CENTERLINE OF PIERS AND
7'-0" EACH SIDE OF THE CENTERLINE OF EACH PIER.
4. WHEN CURB JOINTS ARE USED THE CURBS SHALL BE PLACED IN
ALTERNATE SECTIONS WITH A MINIMUM OF 48 HOUR DELAY BETWEEN
ADJACENT PLACEMENTS.
5. LONGITUDINAL REINFORCING SHALL BE CONTINUOUS THROUGH CURB
CONSTRUCTION JOINTS. CURB STIRRUP BARS SHALL BE TURNED AS
NECESSARY TO MAINTAIN COVER IN THE FLARED CURB ENDS.
6. THE JOINT SPACING AND DETAILS SHOWN SHALL APPLY TO
SIDEWALKS WHEN SHOWN IN THE PLANS.



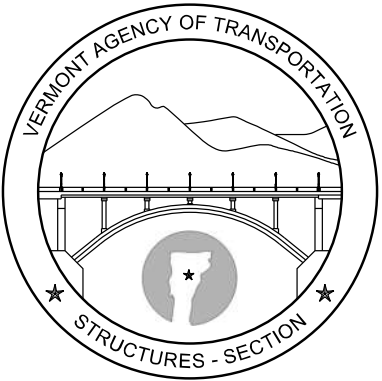
HORIZONTAL WINGWALL
CONSTRUCTION JOINT
(NOT TO SCALE)



DRIP NOTCH DETAIL
(NOT TO SCALE)

REVISIONS	
MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION
JUNE 4, 2010	MODIFIED AND ADDED TWO DETAILS
OCTOBER 10, 2012	MODIFIED HORZ. JOINT WINGWALL ADD 6" MIN. DIMENSION

CONCRETE
DETAILS AND NOTES



STRUCTURES
DETAIL
SD-502.00