

STATE OF VERMONT AGENCY OF TRANSPORTATION



PROPOSED IMPROVEMENT BRIDGE PROJECT TOWN OF TUNBRIDGE COUNTY OF ORANGE FOUNDRY ROAD (T.H. 25, CLASS 3) - BRIDGE NO. 31

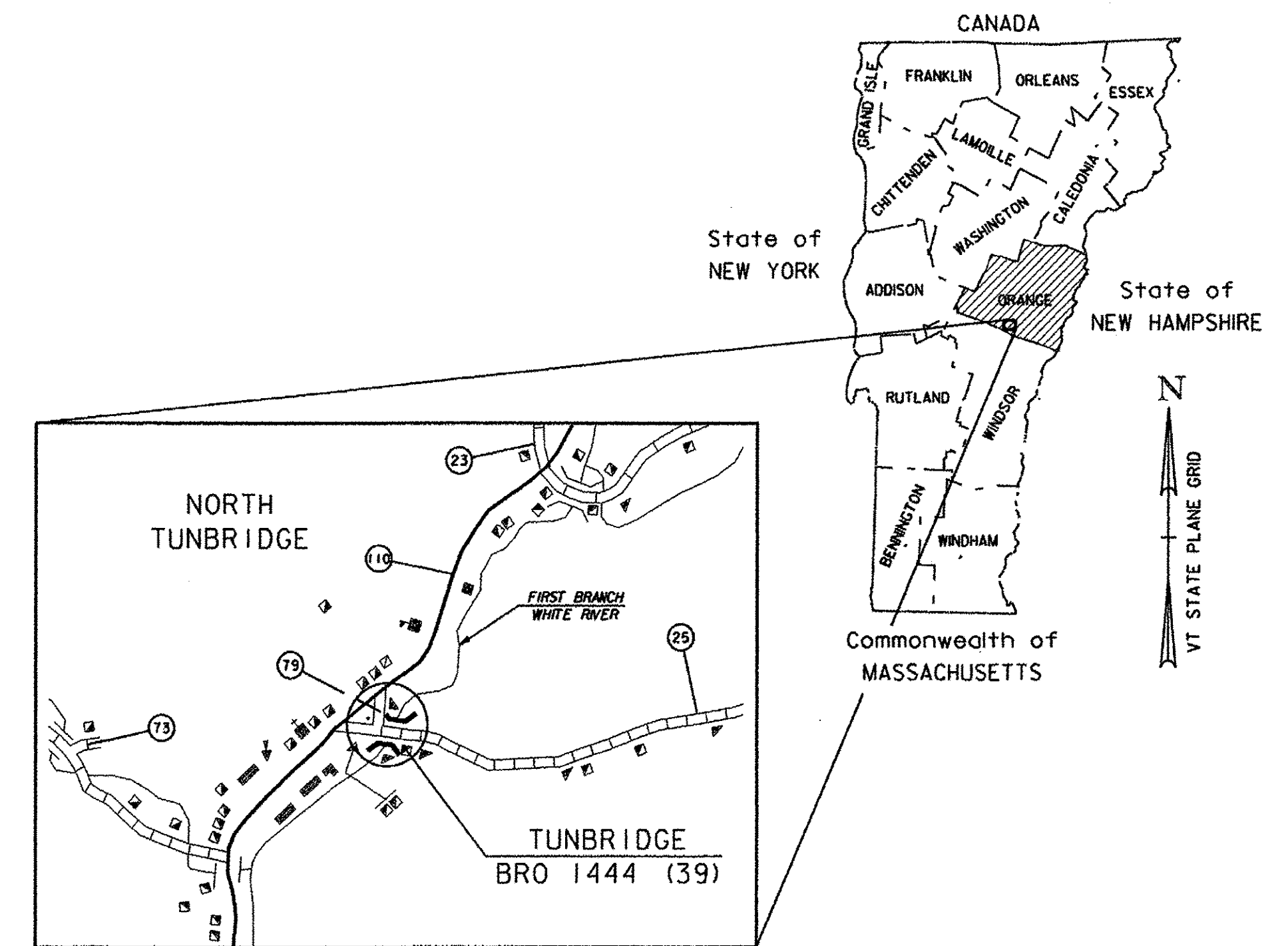
SEE SHEET 2 FOR INDEX OF SHEETS
AND INDEX OF STANDARDS

RECORD PLANS	
CONTRACTOR:	ALPINE CONSTRUCTION, LLC - SCHUYLerville, NY
RESIDENT ENGINEER:	DARYL BASSETT
CONSTRUCTION BEGAN:	NOVEMBER 30, 2009
CONSTRUCTION COMPLETE:	AUGUST 5, 2011
RECORD PLANS BY:	DARYL BASSETT & C. PIERCE
I HEREBY CERTIFY THAT ALL THE CONSTRUCTION REQUIRED BY THIS SET OF DRAWINGS HAS BEEN ACCOMPLISHED AS INDICATED HEREIN.	
BY <i>Daryl Bassett</i>	RESIDENT ENGINEER
DATE <u>4/13/12</u>	
NOTE: Any further information concerning final quantities, amounts or other details relative to this project may be found at Central Files in the electronic archives.	

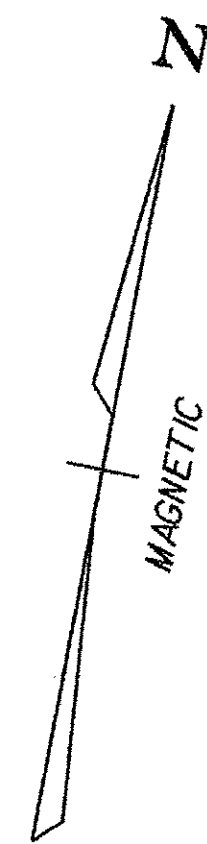
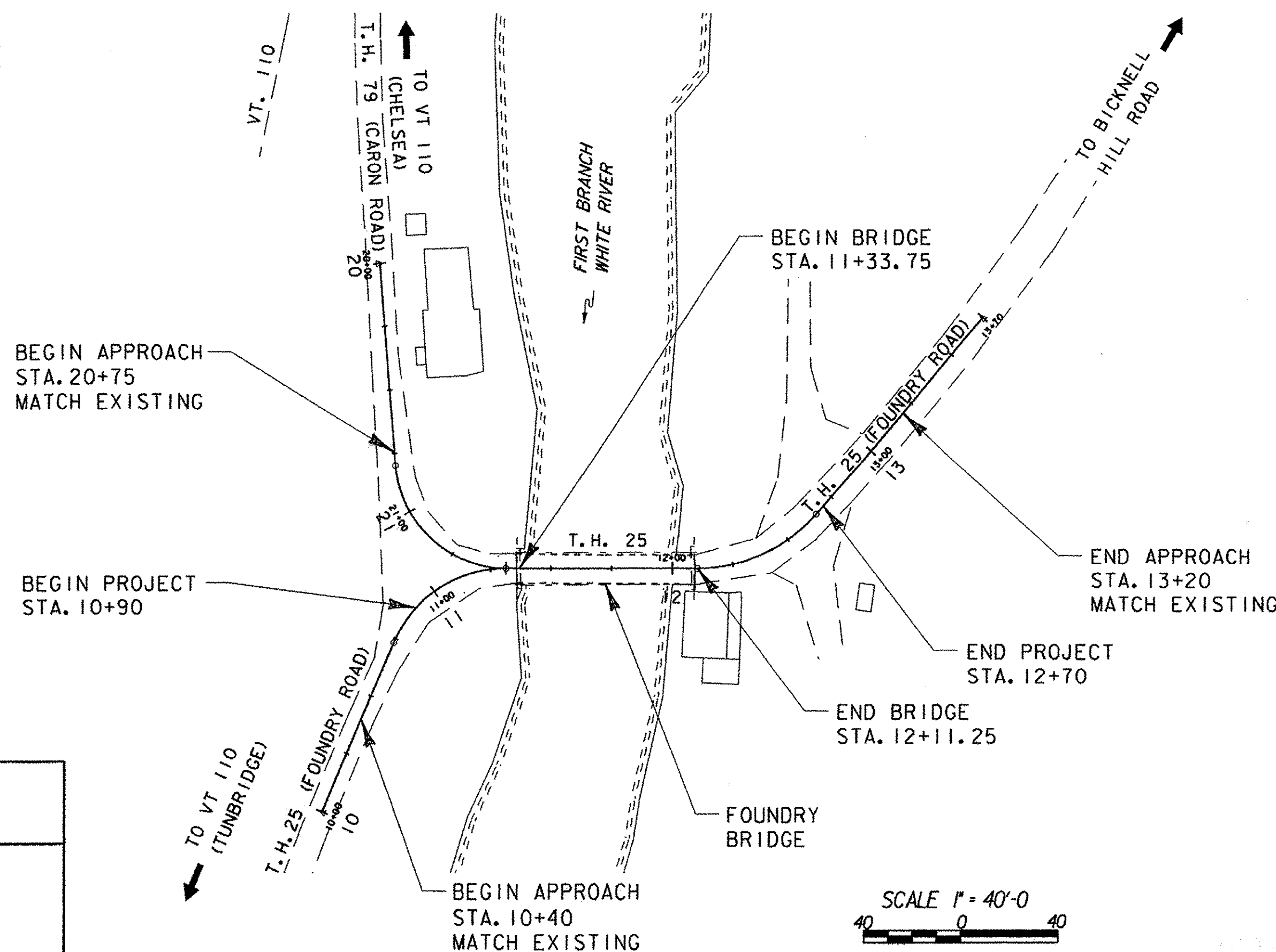
PROJECT LOCATION: BEGINNING AT A POINT ON T.H. 25, APPROXIMATELY 0.1 MILES NORTHERLY OF ITS INTERSECTION WITH VT 110, AND EXTENDING EASTERLY 0.034 MILES.

PROJECT DESCRIPTION: REHABILITATION OF HISTORIC FOUNDRY BRIDGE, INCLUDING PAINTING EXISTING TRUSS MEMBERS, NEW FLOORBEAMS, NEW TIMBER FLOOR SYSTEM, TRUSS MEMBER REPLACEMENT, MASONRY ABUTMENT CAPS, AND RELATED APPROACH WORK.

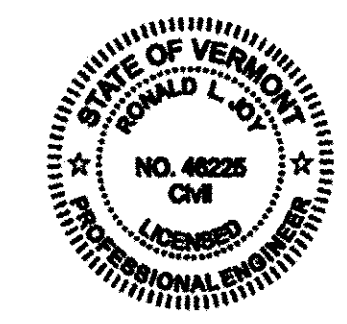
LENGTH OF STRUCTURE: 77.5 FEET = 0.015 MILES
LENGTH OF ROADWAY: 102.5 FEET = 0.019 MILES
LENGTH OF PROJECT: 180.0 FEET = 0.034 MILES



LOCATION MAP
NOT TO SCALE

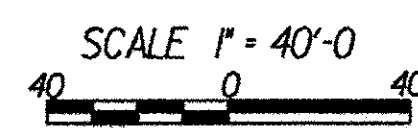


CONVENTIONAL SYMBOLS	
COUNTY LINE	
TOWN LINE	
LIMITS OF ACCESS	
POINT OF ACCESS	
FENCE LINE	
STONE WALL	
TRAVELED WAY	
GUARD RAIL	
RAILROAD	
SURVEY LINE	
CULVERT	
POWER POLE	
TELEPHONE POLE	
TREES	
CONTROL OF ACCESS	
PROPERTY LINE	
R.O.W. TAKING LINE	
SLOPE RIGHTS	
TOP OF CUT	
TOE OF SLOPE	



Ronald L. Joy 04/28/09

SURVEYED BY :	VTRANS
SURVEYED DATE :	2001
DATUM	
VERTICAL	NGVD 1929
HORIZONTAL	ASSUMED



THESE PLANS ARE SUBJECT TO SUCH ENGINEERING CHANGES AS MAY BE REQUIRED BY THE FEDERAL HIGHWAY ADMINISTRATION OR THE DIRECTOR OF PROGRAM DEVELOPMENT.
 CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2006, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JUNE 15, 2006 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

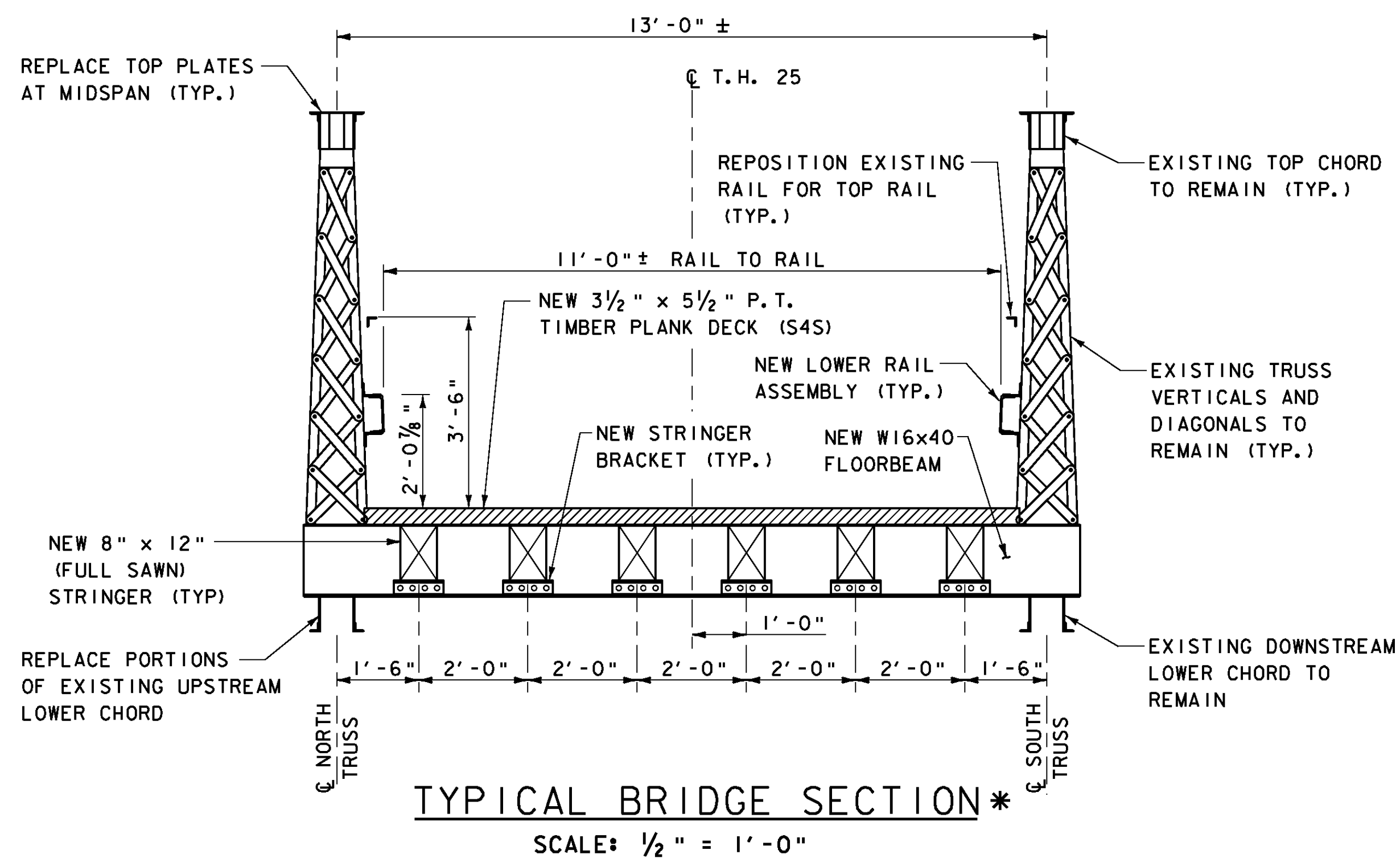
DIRECTOR OF PROGRAM DEVELOPMENT	
APPROVED <i>Rick Johnson</i>	DATE <u>4-30-09</u>
PROJECT MANAGER : KRISTIN M. HIGGINS	
PROJECT NAME : TUNBRIDGE	
PROJECT NUMBER : BRO 1444 (39)	
SHEET 1 OF 32 SHEETS	



MATERIAL TOLERANCES

(IF USED ON PROJECT)

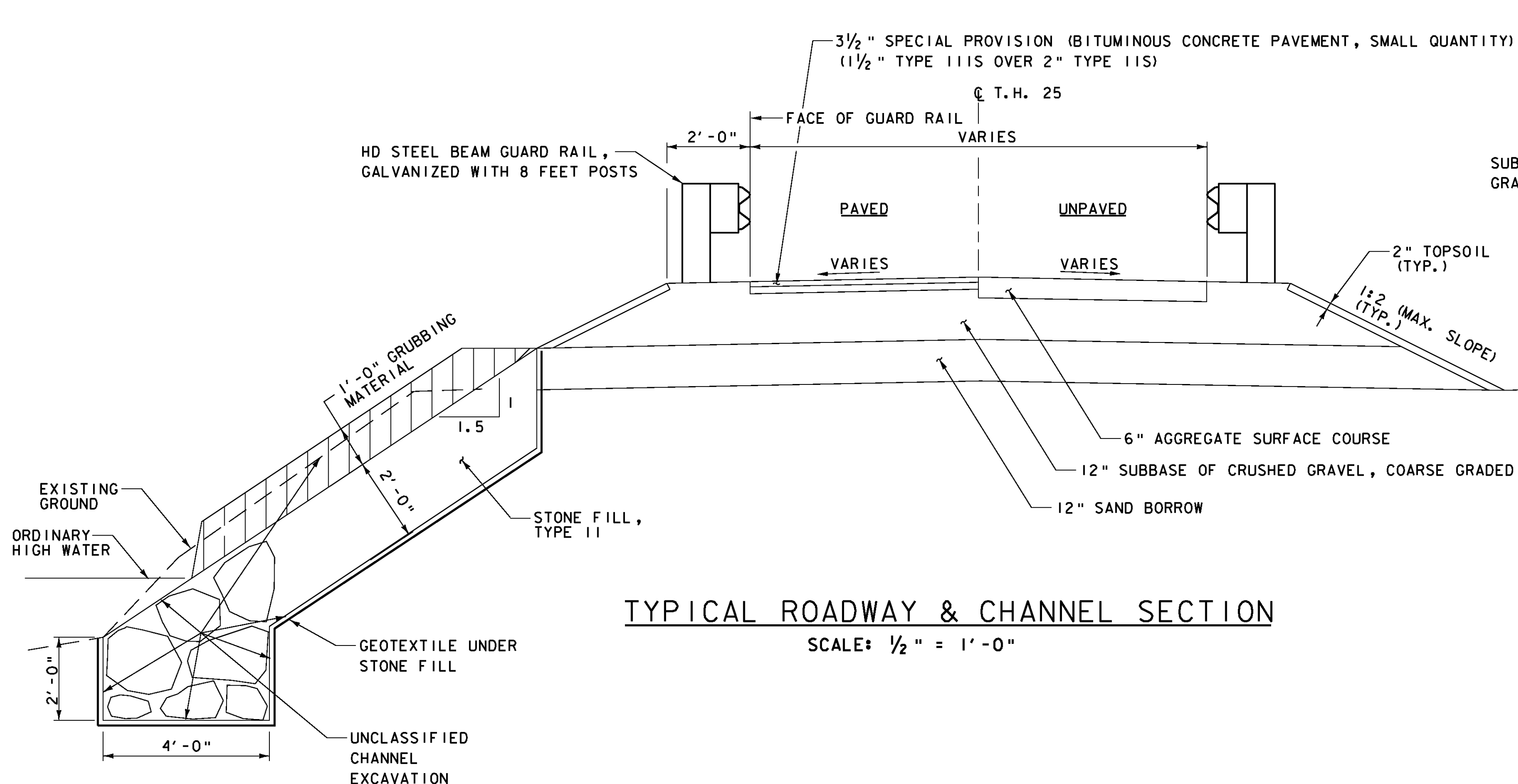
SURFACE	
- PAVEMENT (TOTAL THICKNESS)	+/- 1/4"
- AGGREGATE SURFACE COURSE	+/- 1/2"
SUBBASE	
	+/- 1"
SAND BORROW	
	+/- 1"



TYPICAL BRIDGE SECTION *

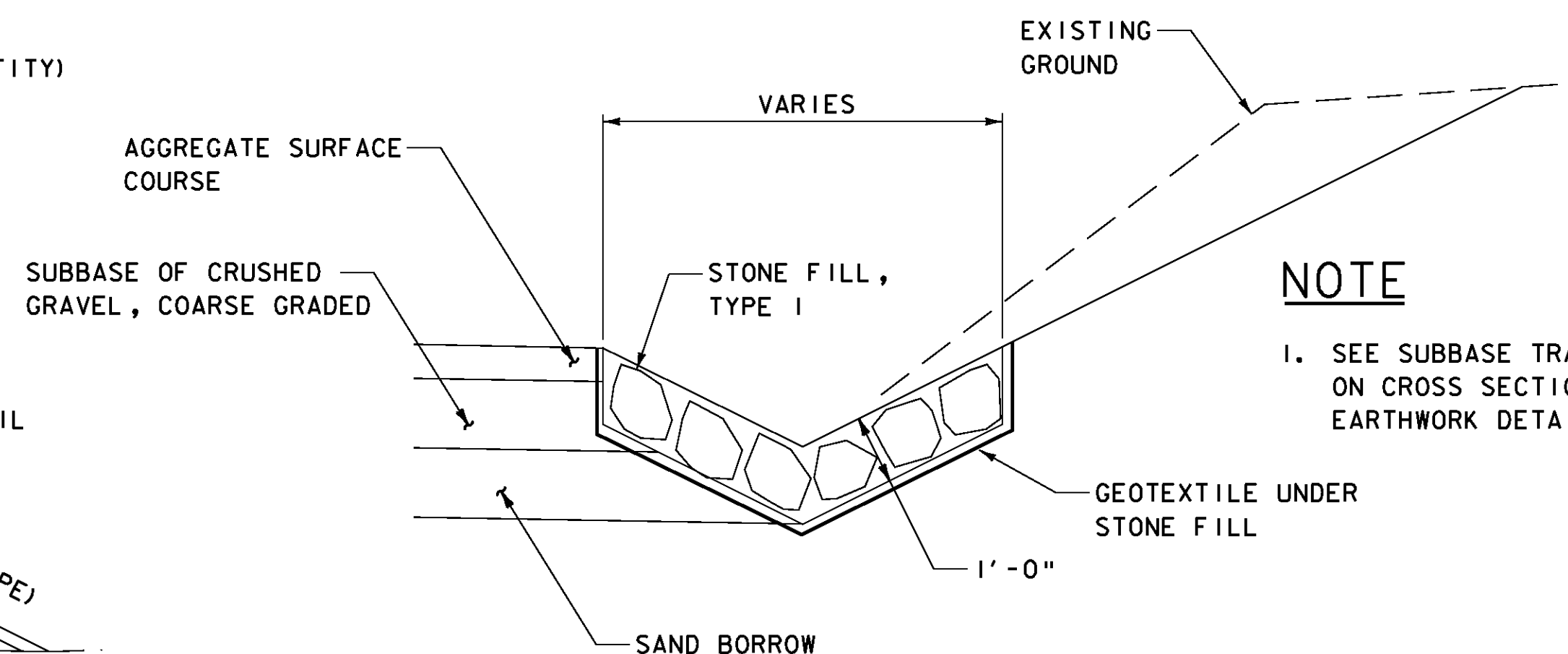
SCALE: 1/2" = 1'-0"

* SEE GENERAL NOTE 2 ON SHEET 17



TYPICAL ROADWAY & CHANNEL SECTION

SCALE: 1/2" = 1'-0"



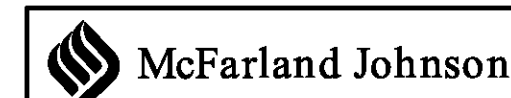
NOTE

1. SEE SUBBASE TRANSITION DETAIL ON CROSS SECTIONS FOR ABUTMENT EARTHWORK DETAILS.

DITCH SECTION

SCALE: 1/2" = 1'-0"

SCALE 1/2" = 1'-0"
1 0 1 2



SHEET NAME: PROJECT TYPICAL SECTIONS		
PROJECT NAME: TUNBRIDGE		
PROJECT NUMBER: BRO 1444 (39)		
FILE NAME: z99J10+yp.dgn	PLOT DATE: 26-MAY-2009	
PROJECT LEADER: K.M. Higgins	DRAWN BY: P. Dustin	
DESIGNED BY: S. Della/P. Dustin	CHECKED BY: R. Joy	
	SHEET 3 OF 32	

QUANTITY SHEET

SUMMARY OF ESTIMATED QUANTITIES

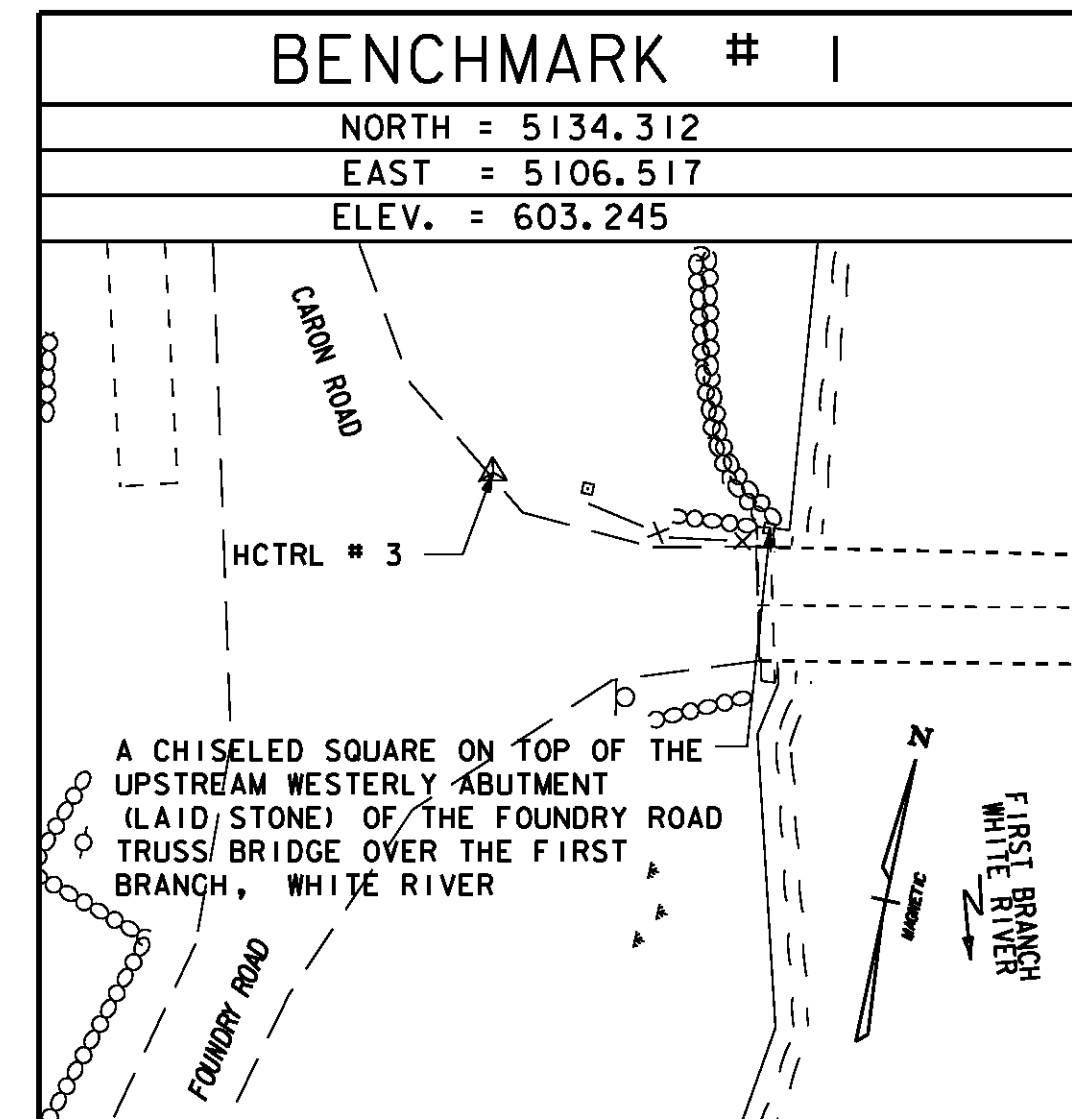
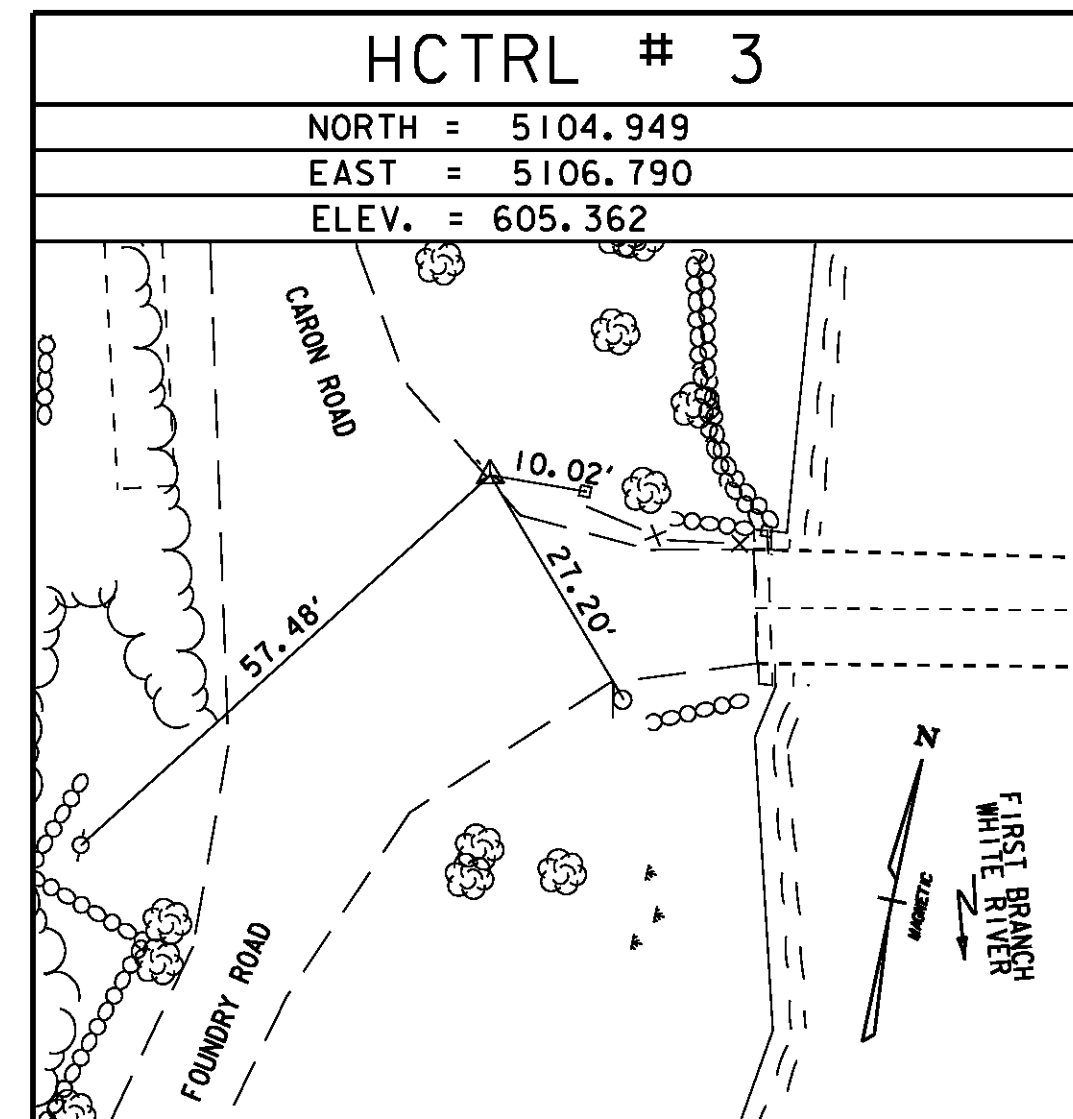
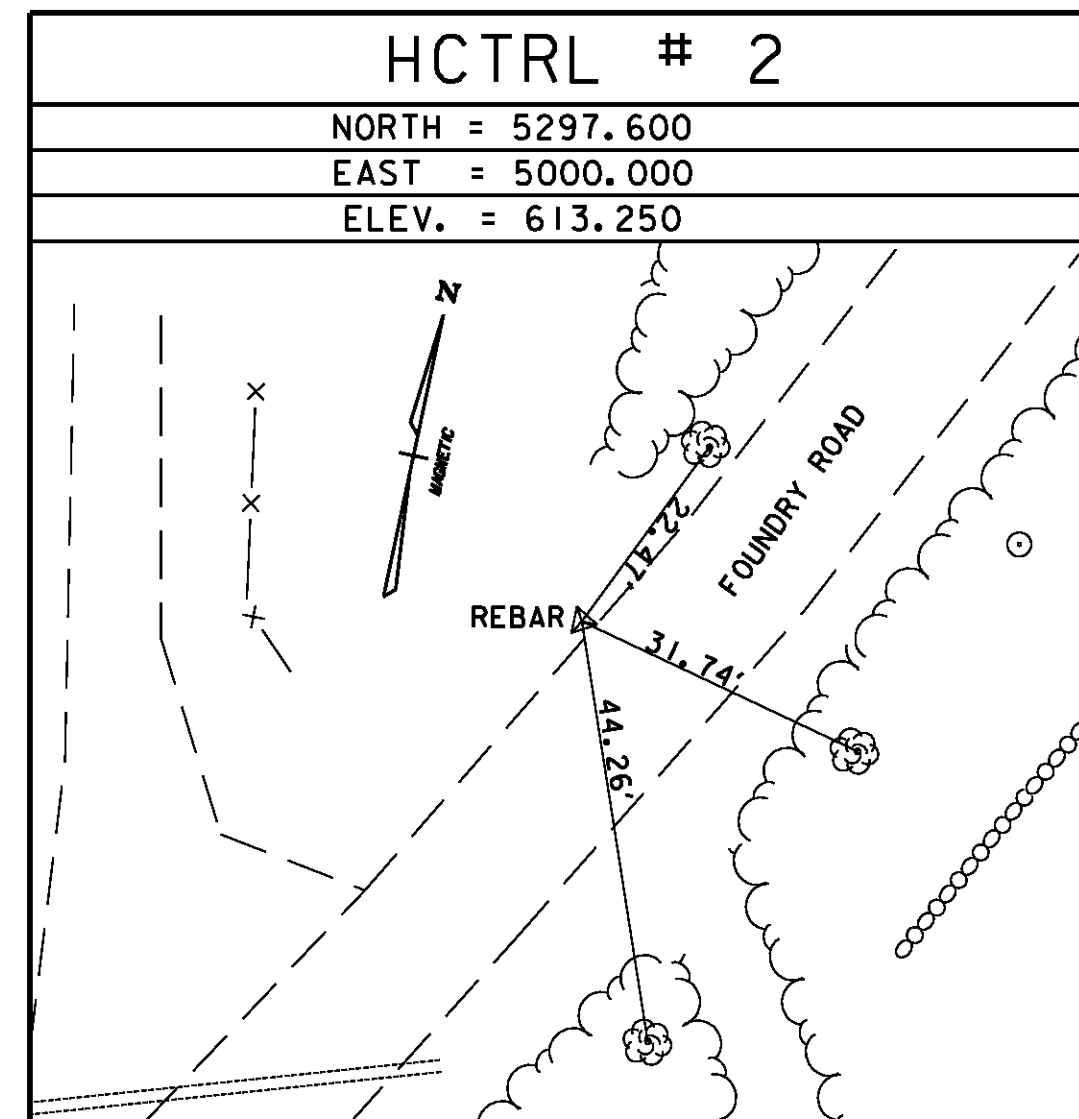
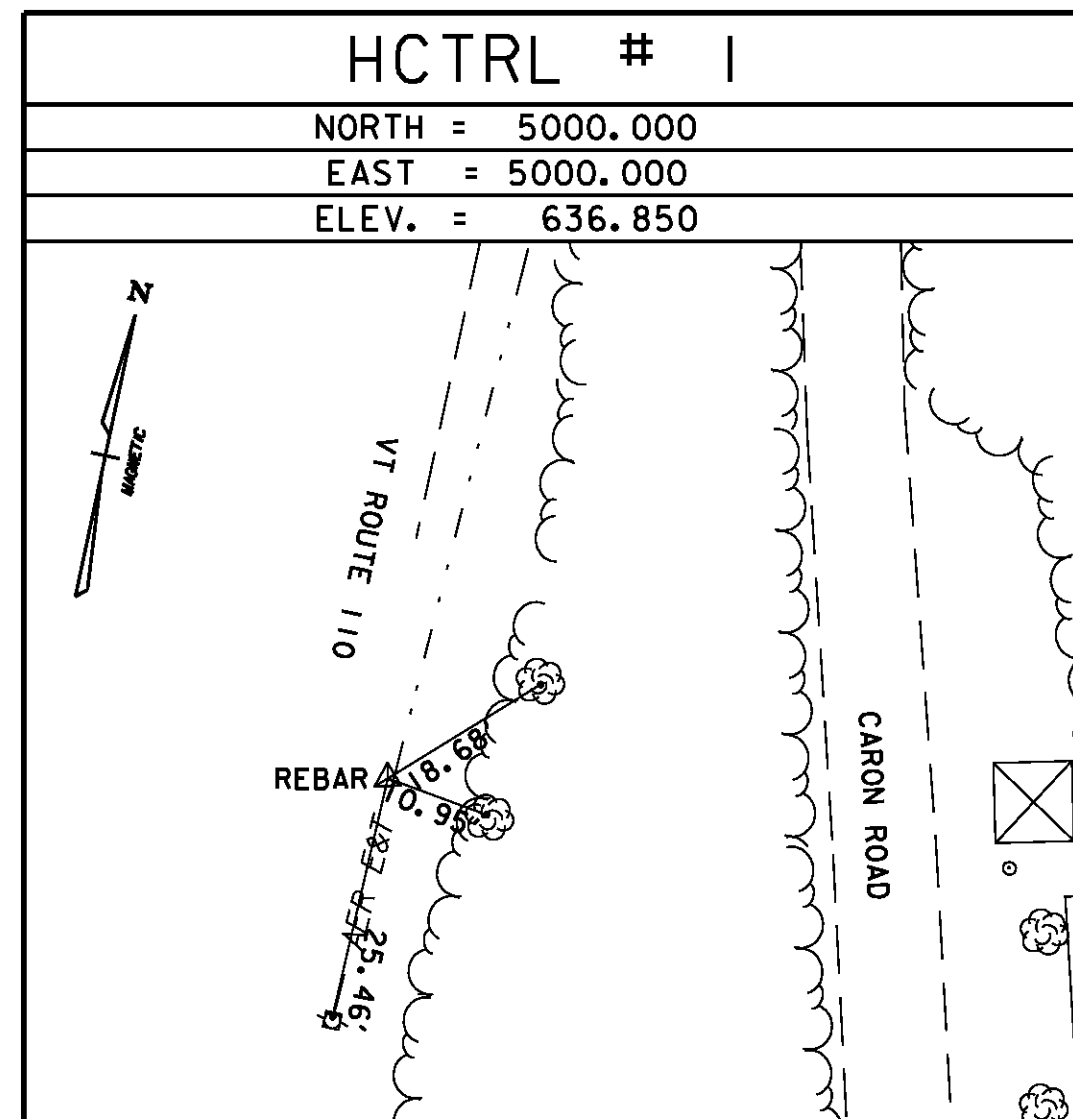
ITEM NUMBER	ITEM DESCRIPTION	UNIT	SUPER STRUCTURE	ABUT. NO. 1	ABUT. NO. 2	EROSION CONTROL	ROADWAY	FULL C.E. ITEMS	ALT. A	ALT. B	TOTAL
201.10	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	LS					1				1
203.15	COMMON EXCAVATION	CY					400				400
203.27	UNCLASSIFIED CHANNEL EXCAVATION	CY					160				160
203.31	SAND BORROW	CY					110				110
204.20	TRENCH EXCAVATION OF EARTH	CY					30				30
204.22	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	CY					10				10
204.25	STRUCTURE EXCAVATION	CY		48	42						90
204.30	GRANULAR BACKFILL FOR STRUCTURES	CY		36	34						70
301.25	SUBBASE OF CRUSHED GRAVEL, COARSE GRADED	CY					160				160
401.10	AGGREGATE SURFACE COURSE	CY					80				80
404.65	EMULSIFIED ASPHALT	CWT					1				1
406.50	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	LU					1				1
501.33	CONCRETE, HIGH PERFORMANCE CLASS A	CY		2	2						4
501.34	CONCRETE, HIGH PERFORMANCE CLASS B	CY		27	25		2				54
506.50	STRUCTURAL STEEL, ROLLED BEAM	LB	5400								5400
506.60	STRUCTURAL STEEL	LB	2600								2600
507.15	REINFORCING STEEL	LB		30	30		232				292
507.16	DRILLING AND GROUTING DOWELS	LF		10	10						20
507.17	EPOXY COATED REINFORCING STEEL	LB		3800	3800						7600
513.25	STRUCTURE PAINTING, SHOP APPLIED	LS	1								1
513.30	STRUCTURE PAINTING, FIELD APPLIED	LS	1								1
513.35	CONTAINMENT & ENVIRONMENTAL PROTECTION, SHOP	LS	1								1
513.36	CONTAINMENT & ENVIRONMENTAL PROTECTION, FIELD	LS	1								1
513.40	SURFACE PREPARATION, SHOP	LS	1								1
513.41	SURFACE PREPARATION, FIELD	LS	1								1
514.10	WATER REPELLENT, SILANE	GAL		7	8						15
522.25	STRUCTURAL LUMBER AND TIMBER, TREATED	MFBM	7.6	0.4	0.4						8.4
524.21	JOINT SEALER, POLYURETHANE	LF		12	12						24
525.41	BRIDGE RAILING, GALVANIZED HD STEEL BEAM / FASCIA MOUNTED	LF		38	38						76
529.25	REMOVAL OF CONCRETE OR MASONRY	CY		10	5						15
531.10	BEARING DEVICE ASSEMBLY, PREFORMED FABRIC PAD (EXPANSION)	EA			2						2
531.10	BEARING DEVICE ASSEMBLY, PREFORMED FABRIC PAD (FIXED)	EA		2							2
601.0015	18 INCH CSP .064 (2 - 2/3 X 1/2)	LF					55				55
613.10	STONE FILL, TYPE I	CY					20				20
613.11	STONE FILL, TYPE II	CY					150				150
620.50	REMOVING AND RESETTING FENCE	LF					25				25
621.215	HD STEEL BEAM GUARD RAIL, GALVANIZED W/ 8 FEET POSTS	LF					110				110
621.53	TERMINAL CONNECTOR FOR STEEL BEAM GUARDRAIL	EA					4				4
621.60	ANCHOR FOR STEEL BEAM RAIL	EA					3				3
621.80	REMOVAL AND DISPOSAL OF GUARDRAIL	LF					45				45

ITEM NUMBER	ITEM DESCRIPTION	UNIT	SUPER STRUCTURE	ABUT. NO. 1	ABUT. NO. 2	EROSION CONTROL	ROADWAY	FULL C.E. ITEMS	ALT. A	ALT. B	TOTAL
630.15	FLAGGERS	HR					80				80
631.10	FIELD OFFICE, ENGINEERS	LS						1			1
631.16	TESTING EQUIPMENT, CONCRETE	LS						1			1
631.17	TESTING EQUIPMENT, BITUMINOUS	LS						1			1
631.18	TESTING EQUIPMENT, PROTECTIVE COATINGS	LS						1			1
631.25	FIELD OFFICE TELEPHONE (N.A.B.I.)	LU						1			1
635.11	MOBILIZATION / DEMOBILIZATION	LS					1				1
641.10	TRAFFIC CONTROL	LS					1				1
649.31	GEOTEXTILE UNDER STONE FILL	SY					300				300
649.515	GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED	SY				90					90
649.61	GEOTEXTILE FOR FILTER CURTAIN	SY				10					10
651.15	SEED	LB				25					25
651.18	FERTILIZER	LB				25					25
651.20	AGRICULTURAL LIMESTONE	TON				0.1					0.1
651.25	HAY MULCH	TON				0.1					0.1
651.35	TOPSOIL	CY				15					15
651.40	GRUBBING MATERIAL	SY				200					200
652.10	EPSC PLAN	LS				1					1
652.20	MONITORING EPSC PLAN	HR				64					64
652.30	MAINTENANCE OF EPSC PLAN (N.A.B.I.)	LU				1					1
653.20	TEMPORARY EROSION MATTING	SY				20					20
653.25	TEMPORARY STONE CHECK DAM, TYPE I	CY				10					10
653.50	BARRIER FENCE	LF				170					170
653.55	PROJECT DEMARCATION FENCE	LF				300					300
675.20	TRAFFIC SIGNS, TYPE A	SF					34				34
675.341	SQUARE TUBE SIGN POST AND ANCHOR	LF					51				51
900.608	SPECIAL PROVISION (REBUILT STONE MASONRY)	CY		3	2						5
900.640	SPECIAL PROVISION (BRIDGE RAILING, TRUSS)	LF	155								155
900.650	SPECIAL PROVISION (MIXTURE PAY ADJUSTMENT) (N.A.B.I.)	LU					1				1
900.675	SPECIAL PROVISION (HAND-PLACED BITUMINOUS CONCRETE MATERIAL, DRIVES)	SY					25				25
900.680	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	TON					30				30
BEGIN ALTERNATE ITEMS											
ALTERNATE A (IN-PLACE REHABILITATION)											
502.10	SHORING SUPERSTRUCTURE	LS							1		1
529.20	PARTIAL REMOVAL OF STRUCTURE	EA							1		1
900.645	SPECIAL PROVISION (REHABILITATING TRUSS BRIDGE SUPERSTRUCTURE)	LS							1		1
ALTERNATE B (RELOCATED REHABILITATION)											
529.20	PARTIAL REMOVAL OF STRUCTURE	EA								1	1
900.645	SPECIAL PROVISION (HANDLING, TRANSPORT, AND RE-ERECTION OF TRUSS BRIDGE SUPERSTRUCTURE)	LS								1	1
900.645	SPECIAL PROVISION (REHABILITATING TRUSS BRIDGE SUPERSTRUCTURE)	LS								1	1
END ALTERNATE ITEMS											

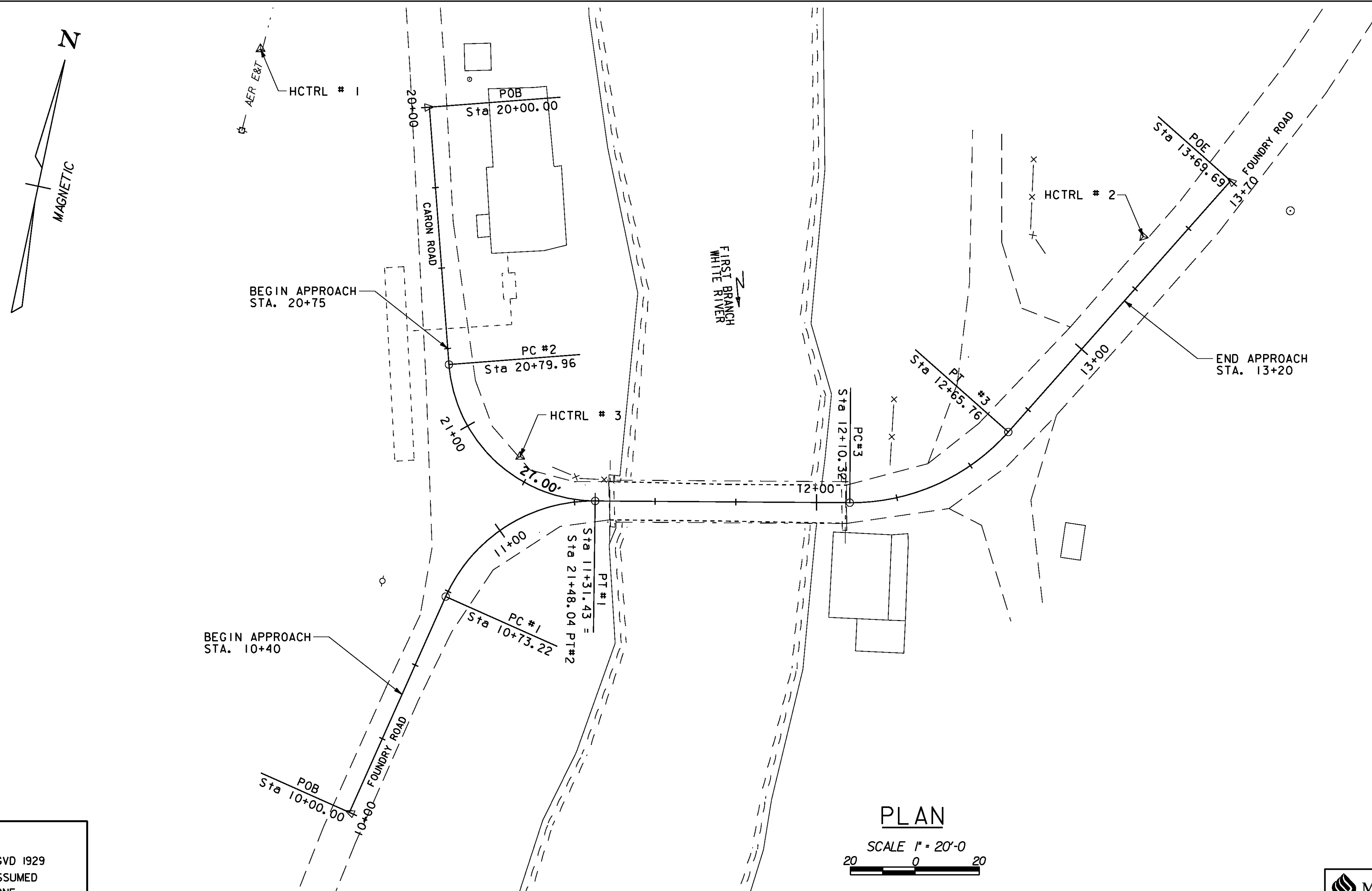
PROJECT NAME:	TUNBRIDGE		
PROJECT NUMBER:	BRO 1444 (39)		
FILE NAME:	z99J110qsh.xls	PLOT DATE:	1/27/2009
PROJECT LEADER:	K.M. Higgins	DRAWN BY:	P. Dustin
DESIGNED BY:	S. Delia / N. Powelson	CHECKED BY:	R. Joy
BRIDGE AND ROADWAY QUANTITY SHEET	SHEET	4	OF 32



TRAVERSE TIES
& BENCHMARK



ALIGNMENT TIES



COORDINATE TABLE

POINT	STATION	NORTHING	EASTING
BEGIN APPROACH	10+40.00	5084.4585	5186.5122
PC # 1	10+73.22	5091.3872	5154.0247
PT # 1	11+31.43	5130.5292	5115.4154
PC # 3	12+10.32	5207.8040	5099.5348
PT # 3	12+65.76	5251.2807	5067.8937
END APPROACH	13+20.00	5278.0090	5020.6925
BEGIN APPROACH	20+75.00	5076.0318	5078.7212
PC # 2	20+79.96	5077.4283	5083.4806

NOTE: NORTHINGS AND EASTINGS ARE BASED ON ASSUMED COORDINATES.

PLAN

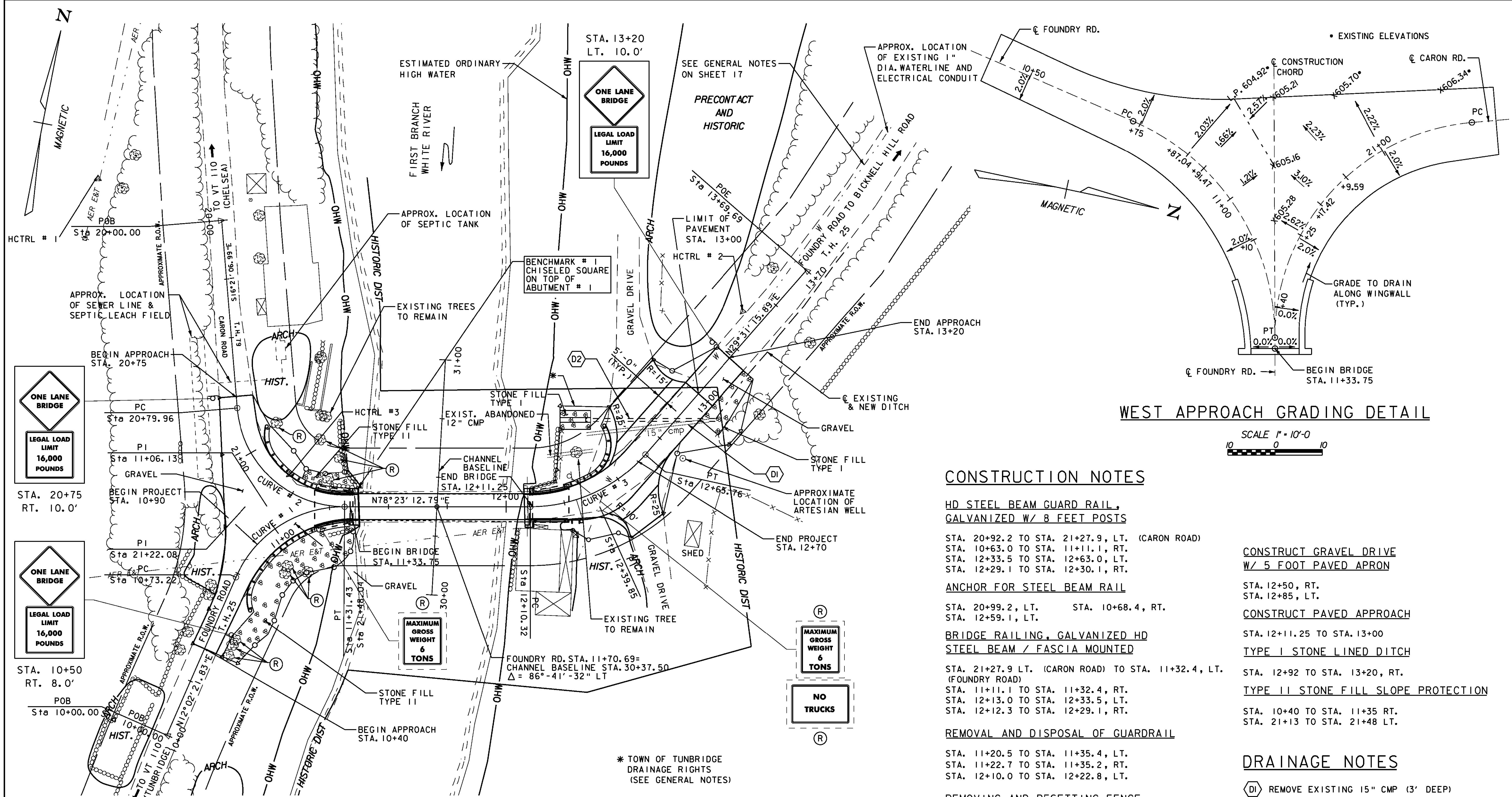
SCALE 1" = 20'-0"

DATUM
VERTICAL NGVD 1929
HORIZONTAL ASSUMED
ADJUSTMENT NONE

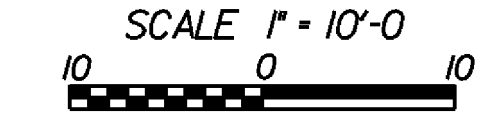
ALIGNMENT STAKED BY:



SHEET NAME: TIE SHEET	
PROJECT NAME: TUNBRIDGE	
PROJECT NUMBER: BRO 1444 (39)	
FILE NAME: z99j110tie.dgn	PLOT DATE: 29-APR-2009
PROJECT LEADER: K.M. Higgins	DRAWN BY: P. Dustin
DESIGNED BY: S. Della/P. Dustin	CHECKED BY: R. Joy
	SHEET 5 OF 32



WEST APPROACH GRADING DETAIL



CONSTRUCTION NOTES

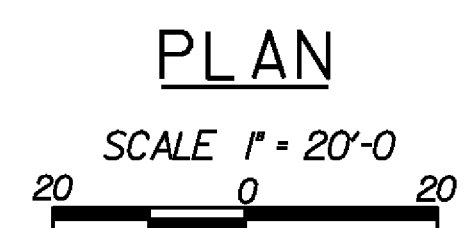
- HD STEEL BEAM GUARD RAIL, GALVANIZED W/ 8 FEET POSTS**
- STA. 20+92.2 TO STA. 21+27.9, LT. (CARON ROAD)
- STA. 10+63.0 TO STA. 11+11.1, RT.
- STA. 12+33.5 TO STA. 12+63.0, LT.
- STA. 12+29.1 TO STA. 12+30.1, RT.
- ANCHOR FOR STEEL BEAM RAIL**
- STA. 20+99.2, LT. STA. 10+68.4, RT.
- STA. 12+59.1, LT.
- BRIDGE RAILING, GALVANIZED HD STEEL BEAM / FASCIA MOUNTED**
- STA. 21+27.9 LT. (CARON ROAD) TO STA. 11+32.4, LT. (FOUNDRY ROAD)
- STA. 11+11.1 TO STA. 11+32.4, RT.
- STA. 12+13.0 TO STA. 12+33.5, LT.
- STA. 12+12.3 TO STA. 12+29.1, RT.
- REMOVAL AND DISPOSAL OF GUARDRAIL**
- STA. 11+20.5 TO STA. 11+35.4, LT.
- STA. 11+22.7 TO STA. 11+35.2, RT.
- STA. 12+10.0 TO STA. 12+22.8, LT.
- REMOVING AND RESETTING FENCE**
- STA. 12+25.0 TO STA. 12+35.0, LT.
- FENCE WAS NOT RESET DUE TO CONDITION.
- CONSTRUCT GRAVEL DRIVE W/ 5 FOOT PAVED APRON**
- STA. 12+50, RT.
- STA. 12+85, LT.
- CONSTRUCT PAVED APPROACH**
- STA. 12+11.25 TO STA. 13+00
- TYPE I STONE LINED DITCH**
- STA. 12+92 TO STA. 13+20, RT.
- TYPE II STONE FILL SLOPE PROTECTION**
- STA. 10+40 TO STA. 11+35 RT.
- STA. 21+13 TO STA. 21+48 LT.

DRAINAGE NOTES

- (D1) REMOVE EXISTING 15" CMP (3' DEEP)
- (D2) NEW 18" DRAIN PIPE, 55 FT. LONG NEW REINFORCED CONCRETE CRADLE HEADWALL

CURVE DATA

CURVE NO. 1	CURVE NO. 2	CURVE NO. 3
Δ = 66°-42'-22.67" RT	Δ = 85°15'40.23" LT	Δ = 48°51'56.89" LT
D = 114°-35'-29.61"	D = 125°14'12.04"	D = 88°08'50.47"
R = 50.00'	R = 45.75'	R = 65.00'
T = 32.91'	T = 42.11'	T = 29.53'
L = 58.21'	L = 68.08'	L = 55.44'
E = 9.86'	E = 16.43'	E = 6.39'



EXISTING STRUCTURE

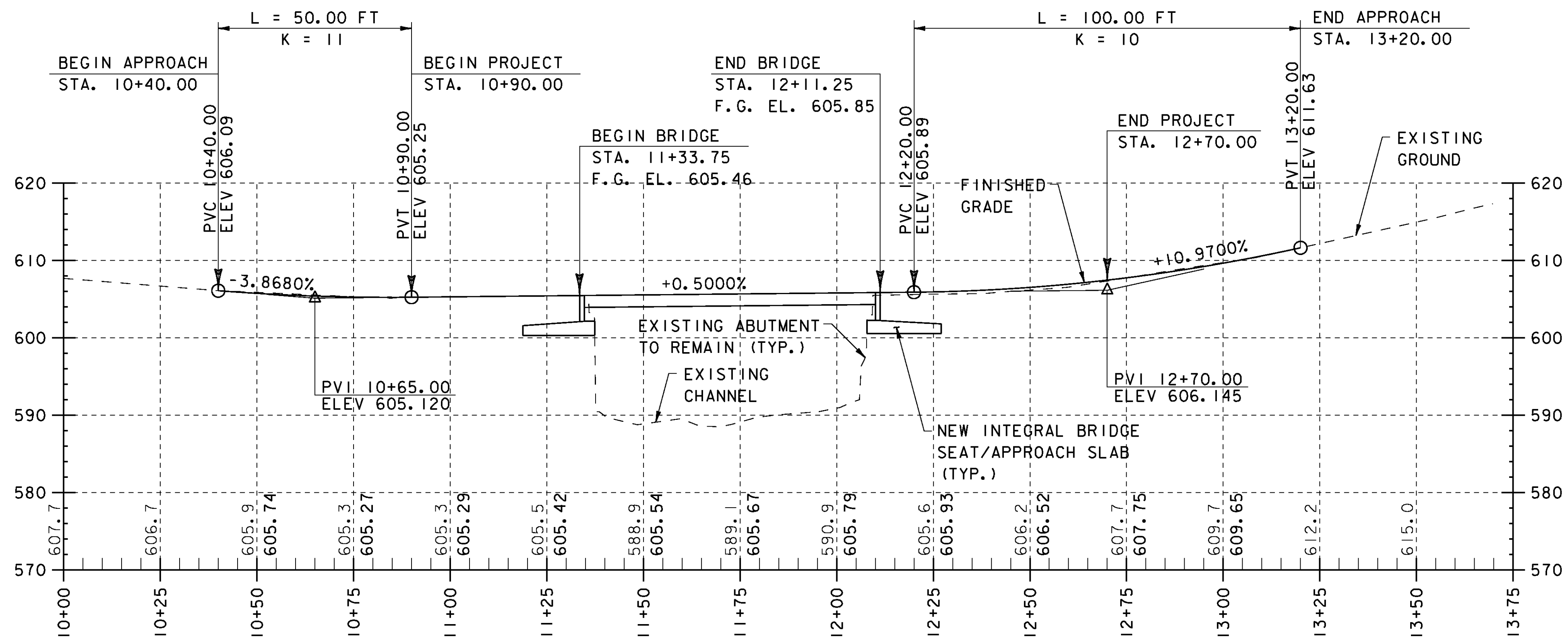
SINGLE SPAN IRON PONY TRUSS W/ TIMBER DECK
 SPAN LENGTH = 73'
 STONE ABUTMENTS
 BRIDGE WIDTH (RAIL TO RAIL) = 11.5'
 BUILT IN 1889

LEGEND

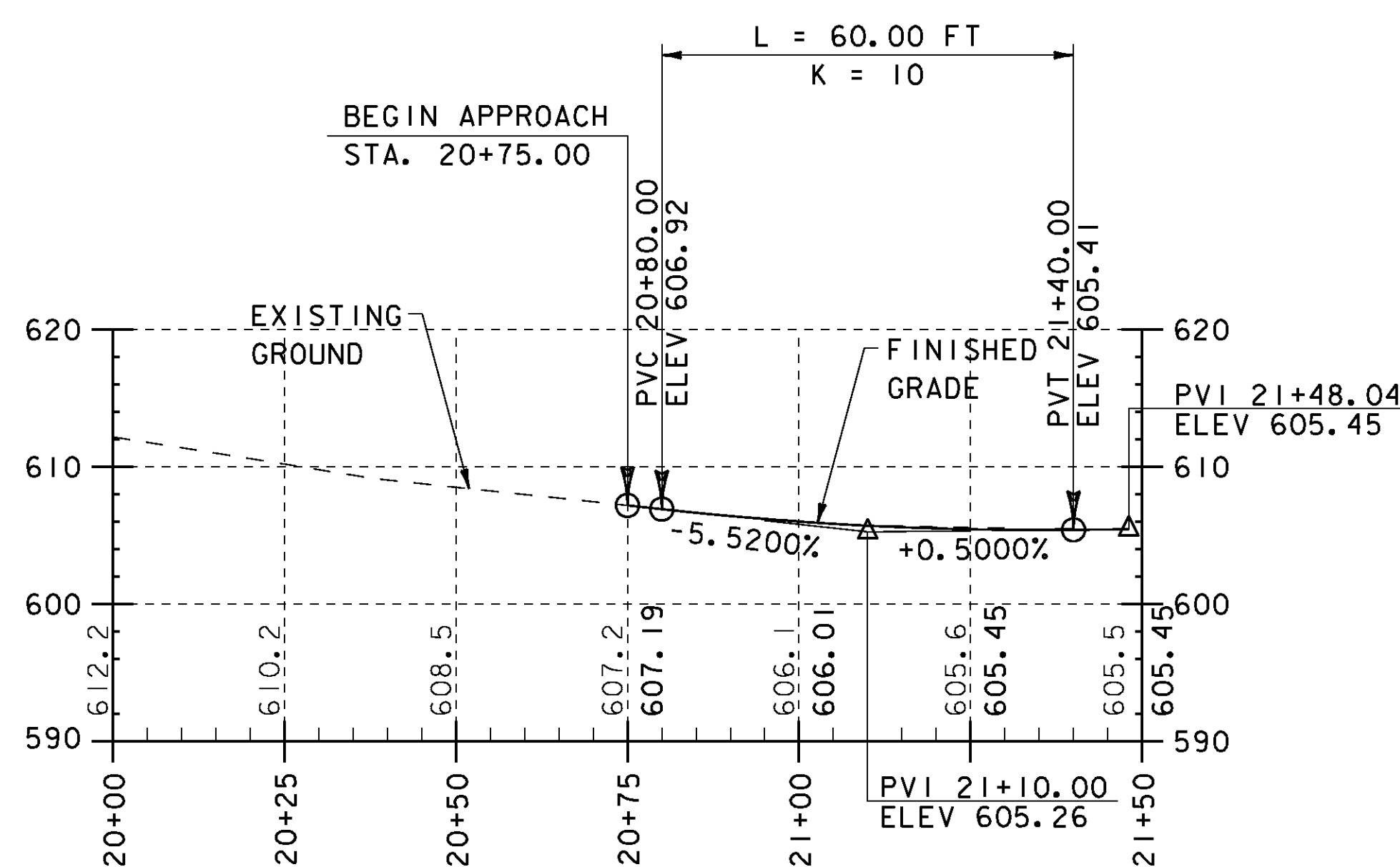
- (R) REMOVE
- OHW — ORDINARY HIGH WATER LIMITS
- REMOVE EXISTING SIGN
- NEW SIGN

SHEET NAME: PLAN SHEET	
PROJECT NAME: TUNBRIDGE	PROJECT NUMBER: BRO 1444 (39)
FILE NAME: z99j10pln.dgn	PLOT DATE: 30-APR-2009
PROJECT LEADER: K.M. Higgins	DRAWN BY: P. Dustin
DESIGNED BY: S. Dello/R. Joy	CHECKED BY: R. Joy
SHEET 6 OF 32	

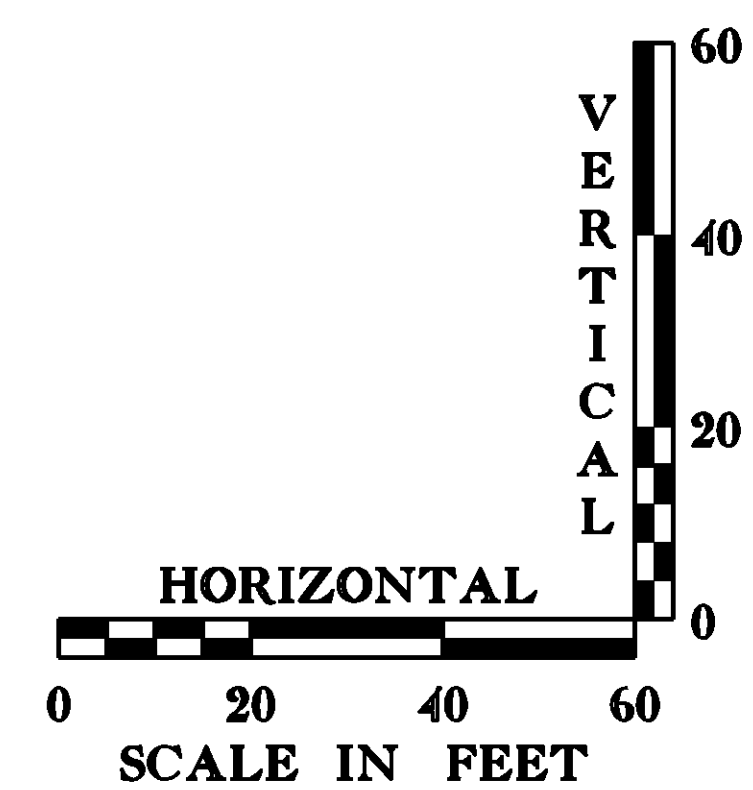




PROFILE - FOUNDRY ROAD



PROFILE - CARON ROAD

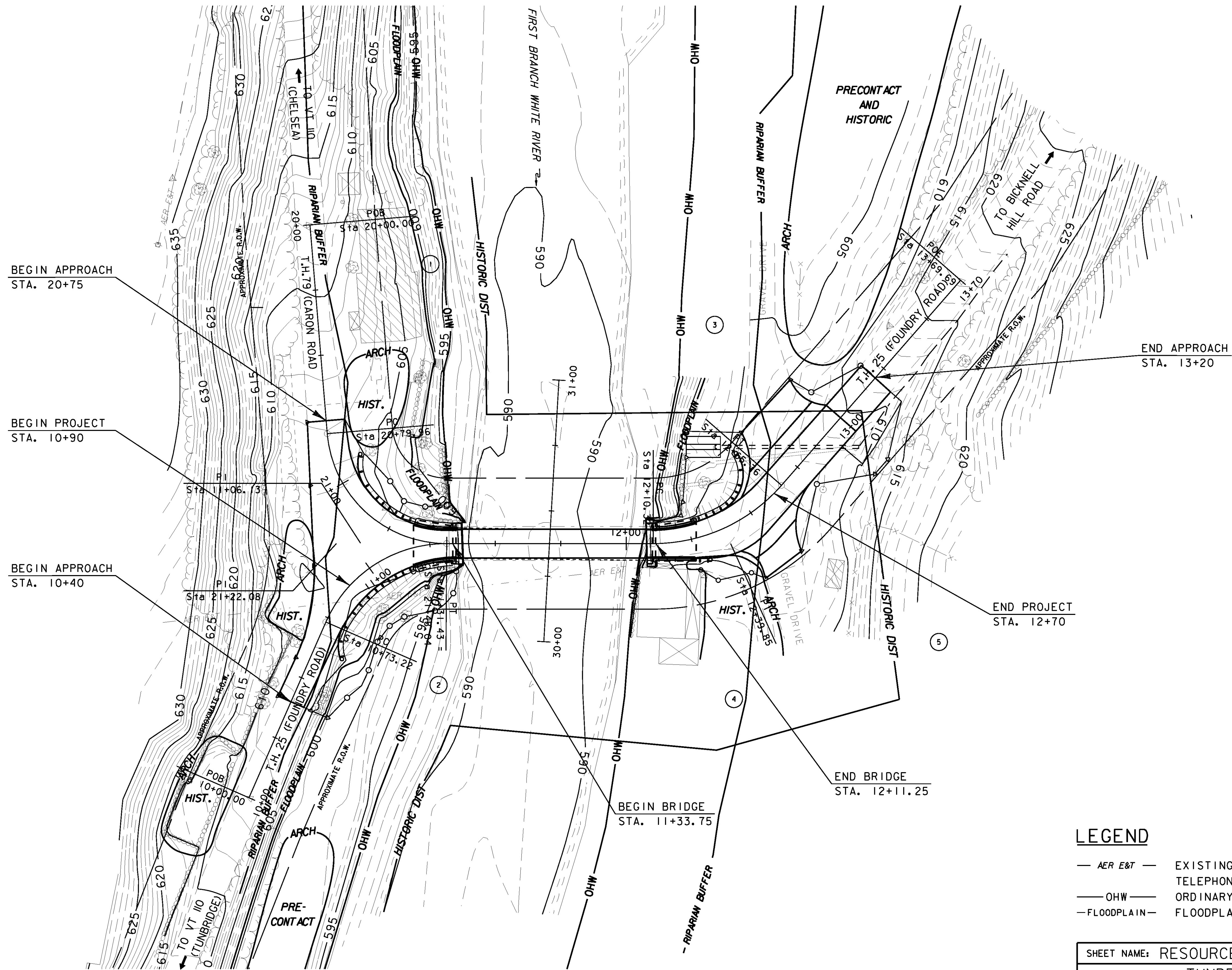
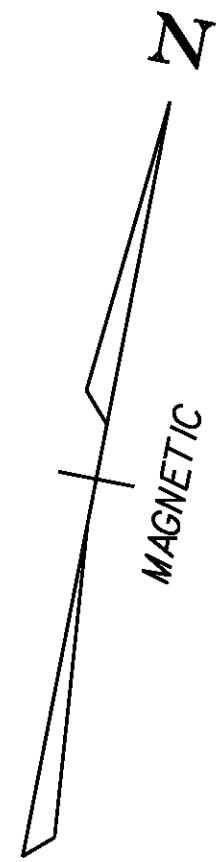


NOTE

THE GRADES SHOWN TO THE NEAREST TENTH ARE THE ORIGINAL GROUND ELEVATIONS ALONG THE PROPOSED CENTERLINE. THE GRADES SHOWN TO THE NEAREST HUNDREDTH ARE THE FINISH GRADES ALONG THE PROPOSED CENTERLINE.

SHEET NAME: PROFILE SHEET	
PROJECT NAME: TUNBRIDGE	
PROJECT NUMBER: BRO 1444 (39)	
FILE NAME: z99J110pro.dgn	PLOT DATE: 29-APR-2009
PROJECT LEADER: K.M. Higgins	DRAWN BY: P. Dustin
DESIGNED BY: S. Della	CHECKED BY: R. Joy
SHEET 7 OF 32	





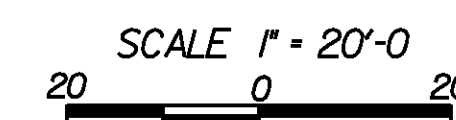
LEGEND

- AER E&T — EXISTING OVERHEAD ELECTRIC AND TELEPHONE
- OHW — ORDINARY HIGH WATER LIMITS
- FLOODPLAIN — FLOODPLAIN LIMITS

SHEET NAME: RESOURCE LAYOUT SHEET	
PROJECT NAME: TUNBRIDGE	
PROJECT NUMBER: BRO 1444 (39)	
FILE NAME: z99J110res.dgn	PLOT DATE: 30-APR-2009
PROJECT LEADER: K.M. Higgins	DRAWN BY: P. Dustin
DESIGNED BY: P. Dustin	CHECKED BY: R. Joy
	SHEET 8 OF 32

RESOURCE LAYOUT SHEET

SCALE: 1" = 20'



EROSION CONTROL NARRATIVE

1.1 PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE REHABILITATION OF THE BRIDGE AT THE INTERSECTION OF CARON ROAD AND FOUNDARY ROAD, OVER THE FIRST BRANCH WHITE RIVER, IN TUNBRIDGE VERMONT. THE EXISTING ABUTMENTS WILL BE MODIFIED. THE TOTAL ROADWAY WORK, INCLUDING THE APPROACHES, IS APPROXIMATELY 405 FEET. A REPLACEMENT OF AN EXISTING DRAINAGE PIPE WILL ALSO BE INCLUDED. NATURAL RESOURCES NEAR THAT PROJECT AREA HAVE BEEN CLEARLY IDENTIFIED AND SHOWN ON THE RESOURCE LAYOUT SHEET.

IT IS ANTICIPATED THAT THIS PROJECT WILL BE COMPLETED IN TWO CONSTRUCTION SEASONS WITH NO WORK BEING DONE OUTSIDE THE PLANTING SEASON.

TOTAL DISTURBED AREA (EXCLUDING WASTE, BORROW, AND STAGING AREAS): 8482 SF (0.19 ACRES)

1.2 SITE INVENTORY & ANALYSIS

1.2.1 OFF SITE DRAINAGE CHARACTERISTICS

THE PROPERTY SURROUNDING THE PROJECT SITE CONSISTS OF RESIDENTIAL PROPERTY EXCEPT FOR A PORTION OF WOODS LOCATED TO THE SOUTHWEST. THE RESIDENTIAL AREAS ARE GENERALLY FLAT WHILE THE WOODED AREA SLOPES DOWN TO THE RIVER. THERE ARE SCATTERED SMALL TREES LOCATED ON THE RESIDENTIAL PROPERTIES. ADJACENT TO THE RIVER ARE MEDIUM SIZE TREES LOCATED ALONG THE BANKS OF THE RIVER. THERE ARE STONE RETAINING WALLS LOCATED ON THE NORTHWEST, NORTHEAST, AND SOUTHEAST SIDES OF THE RIVER.

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

THE FIRST BRANCH WHITE RIVER IS LOCATED IN THE PROJECT AREA. THE FIRST BRANCH WHITE RIVER IS A RURAL MEANDERING WATERWAY THAT FLOWS IN AN OVERALL NORTH-SOUTH DIRECTION FROM ITS HEADWATERS IN WASHINGTON TO ITS OUTLET AT THE WHITE RIVER IN ROYALTON. THE FIRST BRANCH WHITE RIVER IS A SMALL STREAM WITH PERENNIAL, FLASHY FLOW. THE BED MATERIAL CONSISTS OF GRAVEL, COBBLES, BOULDERS, AND LEDGE. IN THE IMMEDIATE BRIDGE REACH, THE CHANNEL BED IS COMPRISED PRIMARILY OF LEDGE WITH POCKETS OF GRAVEL AND SMALL COBBLES. THE VALLEY SETTING PROVIDES MODERATE RELIEF WITH LITTLE OR NO NATURAL LEVEES AND FLOOD PLAINS. THE STREAM IS PROBABLY INCISED AND HAS NON-ALLOUVIAL CHANNEL BOUNDARIES. NO WETLANDS OCCUR WITHIN THE PROJECT LIMITS. HOWEVER, SMALL FRINGES OF WETLAND VEGETATION THAT OCCUR ALONG THE RIVER ARE BELOW THE OHW LINE AND THEREFORE ARE CONSIDERED PART OF THE WATER BODY. THERE ARE NO OTHER PRIMARY WATER BODIES OR WETLANDS WITHIN THE PROJECT AREA. ARCHAEOLOGICAL AND HISTORICAL AREAS ARE LOCATED WITHIN THE AREA AND ARE SHOWN ON THE RESOURCE LAYOUT SHEET.

TREES GENERALLY COVER 50 TO 90 PERCENT OF THE BANK, AND THE STREAM IS NOT BRAIDED OR ANABRANCHED WITHIN IMMEDIATE REACHES. THE CONTRIBUTING DRAINAGE AREA AT THE BRIDGE CROSSING IS 71.4 SQUARE MILES.

1.2.3 TOPOGRAPHY, EXISTING ROADS, BUILDINGS, UTILITIES

THE TOPOGRAPHY OF THE RESIDENTIAL PROPERTIES IS GENERALLY FLAT WITH THE GROUND SLOPING STEEPLY ADJACENT TO THE RIVER. THE WOODED AREA SLOPES STEEPLY DOWN TO THE RIVER AS WELL. FOUNDARY ROAD AND CARON ROAD ARE BOTH DIRT ROADS. THERE ARE RESIDENTIAL HOMES LOCATED ADJACENT TO THE PROJECT AREA WHICH CAN BE SEEN ON THE EXISTING CONDITIONS PLAN. AN OVERHEAD UTILITY LINE EXISTS ALONG THE DOWNSTREAM SIDE OF THE BRIDGE.

1.2.4 VEGETATION

THE VEGETATION ALONG FOUNDARY ROAD AND CARON ROAD IS A MIX OF GRASS AND SMALL TREES. THE MAJORITY OF VEGETATION ON THE RESIDENTIAL PROPERTIES IS GRASS WITH THE TREES BEING LOCATED CLOSE TO THE RIVER AND ALONG THE HILLSIDE LOCATED TO THE SOUTHWEST.

FOLLOWING CONSTRUCTION OF THE NEW BRIDGE, ANY DISTURBED CHANNEL SLOPES WILL BE STABILIZED WITH STONE FILL. ANY DISTURBED AREAS ADJACENT TO THE ROADWAY WILL BE REESTABLISHED WITH STANDARD SEEDING AND MULCHING PRACTICES. STEEP SLOPES SURROUNDING THE PROPOSED WINGWALLS WILL BE STABILIZED USING STONE FILL.

1.2.5 SOILS

THE SOILS IN THE AREA CONSIST OF A STETSON LOAM. THIS TYPE OF SOIL IS CONSIDERED TO HAVE A LOW ERODABILITY POTENTIAL.

1.2.6 SENSITIVE RESOURCE AREAS

HISTORICAL AND ARCHAEOLOGICAL AREAS ARE LOCATED ADJACENT TO THE PROJECT AREA. NONE OF THESE SENSITIVE AREAS ARE LOCATED WITHIN THE LIMITS OF DISTURBANCE, BUT THEY ARE LOCATED IN CLOSE PROXIMITY TO THE PROJECT. EACH OF THESE AREAS IS CLEARLY MARKED ON SHEET 8, RESOURCE LAYOUT SHEET. TEMPORARY EROSION CONTROL MEASURES WILL BE USED TO ENSURE THAT CONSTRUCTION ACTIVITIES WILL NOT AFFECT ANY SENSITIVE RESOURCE AREAS.

THERE HAVE BEEN NO THREATENED AND ENDANGERED SPECIES IDENTIFIED WITHIN THE PROJECT LIMITS.

1.3 RISK EVALUATION

THE DISTURBANCE OF SOIL WILL BE NECESSARY TO CONSTRUCT THE NEW WINGWALLS ADJACENT TO THE EXISTING ABUTMENT. THE DISTURBED AREAS WILL BE STABILIZED WITH STONE FILL ONCE THE CONSTRUCTION IS COMPLETE.

SHOULD CHANGES PRIOR TO OR DURING CONSTRUCTION RESULT IN ONE OR MORE ACRES OF EARTH DISTURBANCE OR SHOULD THE PROJECT BECOME PART OF A LARGER PLAN OF DEVELOPMENT THEN THE SELECTED CONTRACTOR WILL BE RESPONSIBLE FOR ADDITIONAL PERMITTING WITH VANR VIA FILING OF THE APPROPRIATE NOTICE OF INTENT UNDER THE CONSTRUCTION GENERAL PERMIT PROCESS.

1.4 EROSION PREVENTION AND SEDIMENT CONTROL

IF ANY EARTHWORK IS TO BE PERFORMED OUTSIDE THE CONSTRUCTION SEASON, A WINTER EROSION AND SEDIMENT CONTROL PLAN DESCRIBING ALTERNATIVE STABILIZATION METHODS SHALL BE SUBMITTED TO THE RESIDENT ENGINEER PRIOR TO AUGUST 15 FOR APPROVAL.

FUELING AND MAINTENANCE OF CONSTRUCTION VEHICLES SHALL BE LIMITED TO THE STAGING AREAS AND SHALL BE DONE BY QUALIFIED PERSONNEL.

THE EROSION CONTROL PLANS ARE MEANT AS A GUIDELINE FOR PREVENTING EROSION AND CONTROLLING SEDIMENT TRANSPORT. THE WORK OUTLINED IN THIS NARRATIVE CONSISTS OF APPLYING MEASURES THROUGHOUT THE LIFE OF THE PROJECT TO CONTROL EROSION AND MINIMIZE THE SEDIMENTATION OF RECEIVING WATERS. THE MEASURES INCLUDE STABILIZATION AND STRUCTURAL PRACTICES, STORM WATER CONTROLS, AND OTHER POLLUTION PREVENTION CONTROLS.

COORDINATE THE INSTALLATION, USE, AND REMOVAL OF EROSION AND SEDIMENT CONTROL MEASURES WITH CONSTRUCTION ACTIVITIES TO ENSURE ECONOMICAL, EFFECTIVE, AND CONTINUOUS EROSION AND SEDIMENT CONTROL. EMPLOY TEMPORARY STABILIZATION PRACTICES IN INCREMENTAL STAGES AS CONSTRUCTION PROCEEDS. THE CONTRACTOR SHALL USE ADDITIONAL EROSION CONTROL MEASURES AS NECESSITATED BY THE SEQUENCE OF CONSTRUCTION AND AS DIRECTED BY THE ENGINEER OR ONSITE COORDINATOR. SEE SUBSECTION 105.23 OF THE VERMONT AOT STANDARD SPECIFICATIONS FOR CONSTRUCTION, DATED 2006.

INSTALL ALL EROSION AND SEDIMENT CONTROL MEASURES AS SHOWN IN THE EROSION CONTROL PLAN OR AS DIRECTED BY THE ENGINEER OR ONSITE COORDINATOR. DO NOT MODIFY THE TYPE, SIZE, OR LOCATION OF ANY CONTROL OR PRACTICE WITHOUT APPROVAL OF THE ENGINEER OR ONSITE COORDINATOR. ANY CHANGES SHALL BE NOTED ON THE PLANS, IN THE WEEKLY INSPECTION REPORT, AND REPORTED TO THE APPROPRIATE AUTHORITY IN A TIMELY MANNER. INSPECT ALL CONTROL MEASURES WEEKLY AND AFTER EACH RAINFALL EVENT THAT PRODUCES RUNOFF FROM THE PROJECT SITE. REPAIR MEASURES PROMPTLY ONCE DAMAGE IS DISCOVERED.

PREVENTING INITIAL SOIL EROSION IS MUCH MORE EFFECTIVE THAN TREATING ERODED SEDIMENT THEREFORE, STABILIZE ALL DISTURBED AREAS PROMPTLY AFTER CONSTRUCTION ACTIVITY HAS TEMPORARILY OR PERMANENTLY CEASED. TEMPORARY VEGETATION SHALL BE ESTABLISHED IF THE AREA IS TO BE WITHOUT CONSTRUCTION ACTIVITY FOR A PERIOD OF 14 DAYS. PERIMETER CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY CONSTRUCTION ACTIVITY. INSTALL OTHER TEMPORARY CONTROLS IN INCREMENTAL STAGES AS CONSTRUCTION PROCEEDS.

MAINTAINING VEGETATED BUFFERS ALONG THE STREAM BANKS OR OTHER SENSITIVE AREAS IS A CRUCIAL EROSION AND SEDIMENT CONTROL MEASURE THAT SHOULD BE EMPLOYED WHENEVER POSSIBLE.

CONTROL ONLY SEDIMENT LADEN STORMWATER RUNOFF GENERATED BY THE PROJECT SITE. COLLECT AND ROUTE CLEAN STORMWATER AROUND THE PROJECT SITE WHENEVER POSSIBLE USING DIVERSION BERMS, CHANNELS, CULVERTS, OR TEMPORARY PIPES.

DO NOT ALLOW CONSTRUCTION EQUIPMENT TO OPERATE OUTSIDE OF PERIMETER CONTROL MEASURES.

TEMPORARY EROSION PREVENTION MEASURES TO BE UTILIZED INCLUDE:

PROJECT DEMARCATION FENCING, DENOTED -PDF- ON THE PLANS, TO DELINEATE THE LIMITS THE CONTRACTOR CAN ACCESS WITH CONSTRUCTION EQUIPMENT. THIS MEASURE LIMITS THE AREA THAT CAN BE DISTURBED AND EXPOSED TO EROSION. PDF MAY BE LOCATED IN CLOSE PROXIMITY TO THE LIMITS OF THE PROPOSED TOE OF SLOPES IN ORDER TO KEEP ALL WORK WITHIN THE EXISTING RIGHT-OF-WAY LIMITS.

SEEDING SHALL BE USED TO STABILIZE SLOPES FLATTER THAN 1:3. THESE SLOPES SHALL BE STABILIZED WITHIN 48 HOURS OF REACHING FINAL GRADE OR DURING INTERMITTENT PHASES OF CONSTRUCTION.

SILT FENCE WILL BE INSTALLED AT THE TOE OF FILL SLOPES TO PREVENT SEDIMENT TRANSPORT TO DOWN GRADIENT AREAS. EACH LINE OF SILT FENCE WILL BE PLACED ALONG THE CONTOUR WITH THE LOWER EDGE BURIED 6" TO PREVENT UNDERFLOW AND ENDS TURNED SLIGHTLY UP GRADE TO CREATE A PONDING EFFECT. SILT FENCE SHALL BE INSTALLED PRIOR TO ANY UPSLOPE EARTHWORK.

ROCK CHECK DAMS WILL BE INSTALLED IN DITCH LINES TO FORCE STORMWATER TO POND AND LIMIT SEDIMENT TRANSPORT. ROCK CHECK DAMS WILL BE PLACED AS SHOWN ON THE EROSION CONTROL PLAN AND PER THE DETAIL SHOWN IN THE PLANS.

TEMPORARY EROSION CONTROL MEASURES SHALL BE REGULARLY INSPECTED AND MAINTAINED FOR SEDIMENT BUILD-UP. SEDIMENT SHALL BE REMOVED WHEN THE LEVEL OF THE SEDIMENT REACHES ONE-HALF THE HEIGHT OF THE CONTROL MEASURE. SEDIMENT SHALL BE DISPOSED OF AT AN APPROVED SITE SUCH THAT IT WILL NOT BE SUBJECT TO EROSION.

DUE TO THE FACT THAT THE ROAD WILL BE CLOSED DURING CONSTRUCTION OF THE SUPERSTRUCTURE, THE STAGING AREA SHALL BE LOCATED ON THE EXISTING ROAD WITHIN THE EXISTING RIGHT-OF-WAY LIMITS. ONCE THE ROAD HAS BEEN RE-OPENED TO TRAFFIC, THE STAGING AREA SHALL BE MAINTAINED IN ONE LANE OF THE ROADWAY WITH TRAFFIC BEING MAINTAINED IN THE OTHER LANE. THE STAGING AREA SHALL NOT BE LOCATED OUTSIDE THE EXISTING RIGHT-OF-WAY LIMITS.

PERMANENT EROSION CONTROL MEASURES

PERMANT EROSION CONTROL MEASURES TO BE UTILIZED INCLUDE:

STEEP SLOPES WILL BE STABILIZED WITH STONE FILL.

ALL DISTURBED SOIL WILL BE STABILIZED WITH SEED IN AREAS FLATTER THAN 1:3. AREAS STEEPER THAN 1:3 WILL BE STABILIZED WITH STONE FILL.

1.4.8 STABILIZE EXPOSED SOILS

SEEDING AND MULCHING

TRACKING OF ALL EXPOSED SLOPES, COMBINED WITH TEMPORARY MULCHING, WILL BE UTILIZED ON A REGULAR BASIS. SLOPES SHALL BE STABILIZED WITHIN 48 HOURS OF FORECASTED RAIN. SEEDING, MULCHING AND BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED TO STABILIZE ALL SLOPES STEEPER THAN 1:3. THESE SLOPES SHALL BE STABILIZED WITHIN 48 HOURS OF REACHING INTERMITTENT PHASES OF CONSTRUCTION.

1.4.9 WINTER STABILIZATION

IF WINTER CONSTRUCTION IS REQUIRED, THE CONTRACTOR SHALL PROVIDE A WINTER EPSC PLAN.

1.4.10 STABILIZE SOIL AT FINAL GRADE

SEEDING AND MULCHING

1.4.11 DE-WATERING ACTIVITIES

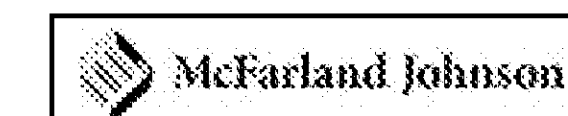
NO DEWATERING ACTIVITIES ANTICIPATED

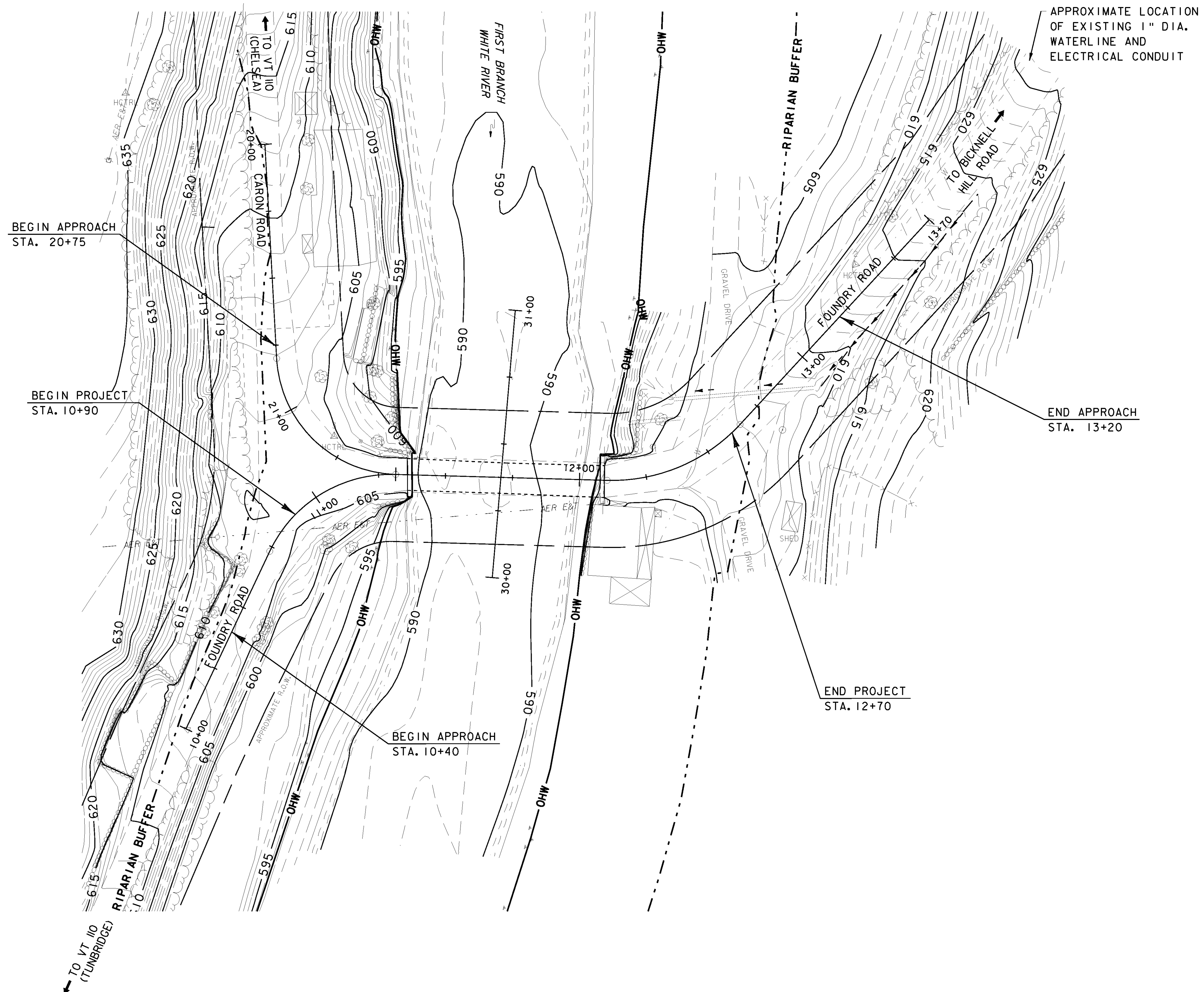
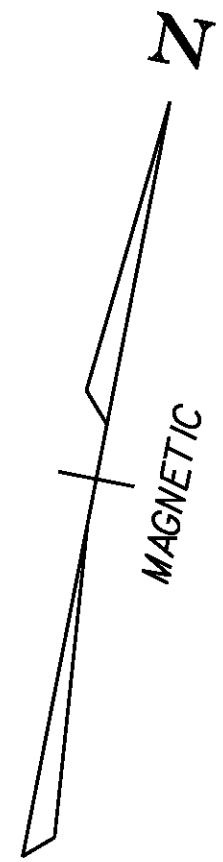
1.4.12 SEEDING AND MULCHING

1.4.13 INSPECT YOUR SITE

INSPECT SITE BASED ON PERMIT AUTHORIZATION OR SPECIAL PROVISION REQUIREMENTS.

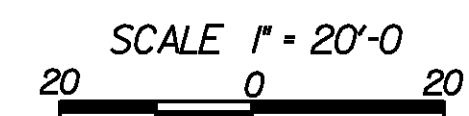
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PROJECT NUMBER:	BRO 1444 (39)		
FILE NAME:	z99j110ero.xls	PLOT DATE:	5/22/2009
PROJECT LEADER:	K.M. Higgins	DRAWN BY:	P. Dustin
DESIGNED BY:	N. Powelson	CHECKED BY:	R. Joy
EPSC NARRATIVE		SHEET	9 OF 32





EPSC EXISTING CONDITIONS SITE PLAN

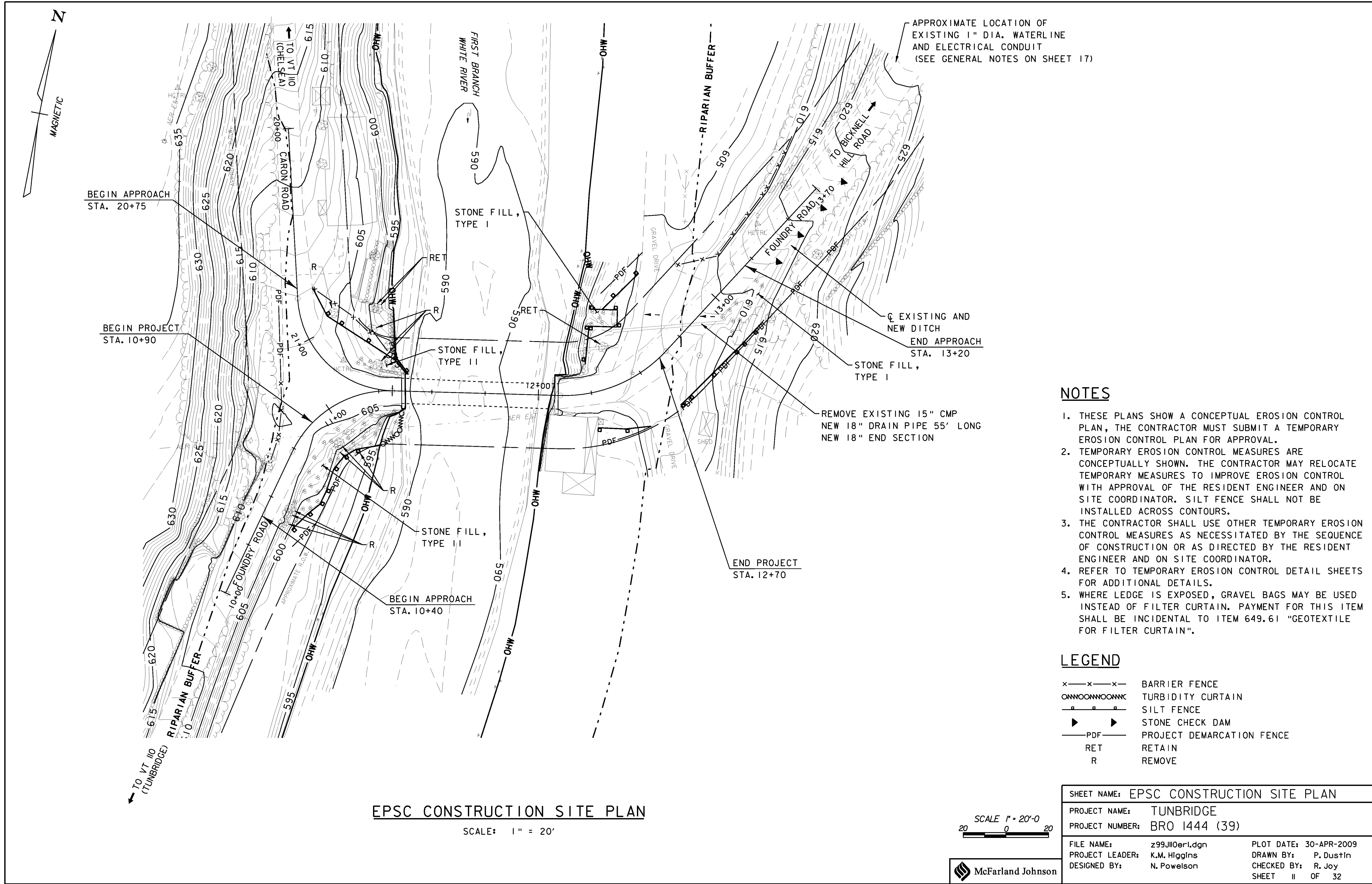
SCALE: 1" = 20'



LEGEND

- - - - - EXISTING DRAINAGE FLOW
- AER E&T - EXISTING OVERHEAD ELECTRIC AND TELEPHONE
- - - - - RIPARIAN BUFFER ZONE
- OHW - ORDINARY HIGH WATER LIMITS

SHEET NAME: EPSC EXISTING CONDITIONS SITE PLAN			
PROJECT NAME: TUNBRIDGE		PLOT DATE: 30-APR-2009	
PROJECT NUMBER: BRO 1444 (39)		DRAWN BY: P. Dustin	
FILE NAME: z99J10exc.dgn	PROJECT LEADER: K.M. Higgins	CHECKED BY: R. Joy	SHEET 10 OF 32
DESIGNED BY: N. Powelson			



APPROXIMATE LOCATION OF EXISTING 1" DIA. WATERLINE AND ELECTRICAL CONDUIT (SEE GENERAL NOTES ON SHEET 17)

NOTES

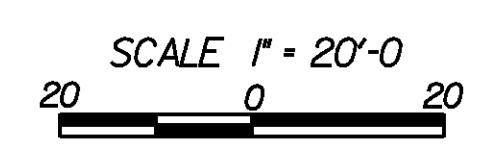
1. THESE PLANS SHOW A CONCEPTUAL EROSION CONTROL PLAN, THE CONTRACTOR MUST SUBMIT A TEMPORARY EROSION CONTROL PLAN FOR APPROVAL.
2. TEMPORARY EROSION CONTROL MEASURES ARE CONCEPTUALLY SHOWN. THE CONTRACTOR MAY RELOCATE TEMPORARY MEASURES TO IMPROVE EROSION CONTROL WITH APPROVAL OF THE RESIDENT ENGINEER AND ON SITE COORDINATOR. SILT FENCE SHALL NOT BE INSTALLED ACROSS CONTOURS.
3. THE CONTRACTOR SHALL USE OTHER TEMPORARY EROSION CONTROL MEASURES AS NECESSITATED BY THE SEQUENCE OF CONSTRUCTION OR AS DIRECTED BY THE RESIDENT ENGINEER AND ON SITE COORDINATOR.
4. REFER TO TEMPORARY EROSION CONTROL DETAIL SHEETS FOR ADDITIONAL DETAILS.
5. WHERE LEDGE IS EXPOSED, GRAVEL BAGS MAY BE USED INSTEAD OF FILTER CURTAIN. PAYMENT FOR THIS ITEM SHALL BE INCIDENTAL TO ITEM 649.61 "GEOTEXTILE FOR FILTER CURTAIN".

LEGEND

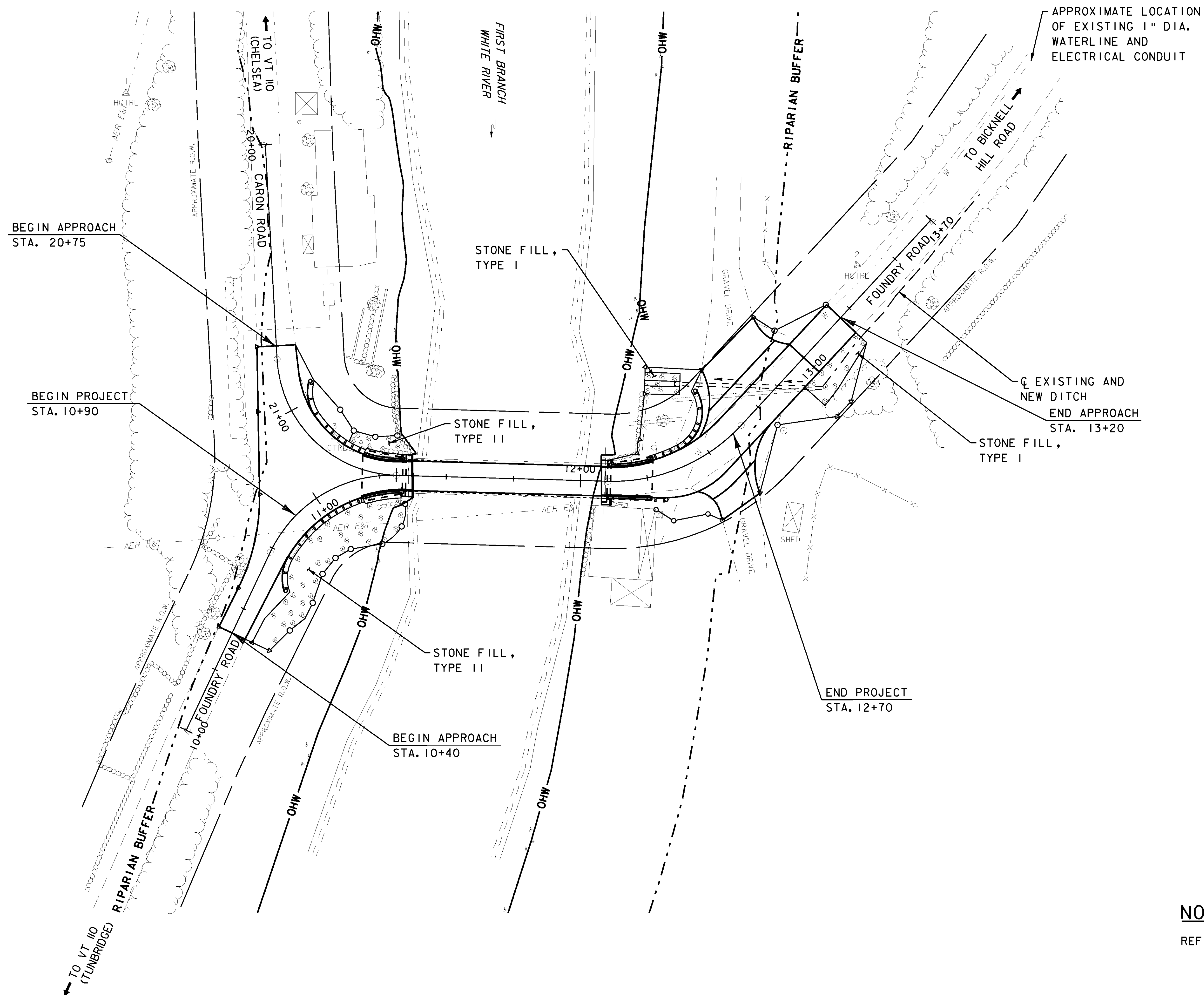
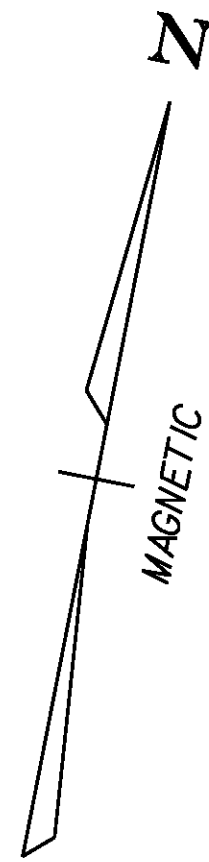
- x—x—x—x BARRIER FENCE
- ONNOONNOONNC TURBIDITY CURTAIN
- |—|—|—|— SILT FENCE
- ▶▶ STONE CHECK DAM
- PDF— PROJECT DEMARCATION FENCE
- RET RETAIN
- R REMOVE

EPSC CONSTRUCTION SITE PLAN

SCALE: 1" = 20'



SHEET NAME: EPSC CONSTRUCTION SITE PLAN	
PROJECT NAME: TUNBRIDGE	
PROJECT NUMBER: BRO 1444 (39)	
FILE NAME: z99Jll0er1.dgn	PLOT DATE: 30-APR-2009
PROJECT LEADER: K.M. Higgins	DRAWN BY: P. Dustin
DESIGNED BY: N. Powelson	CHECKED BY: R. Joy
	SHEET 11 OF 32

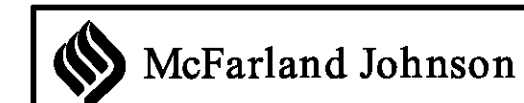


NOTE

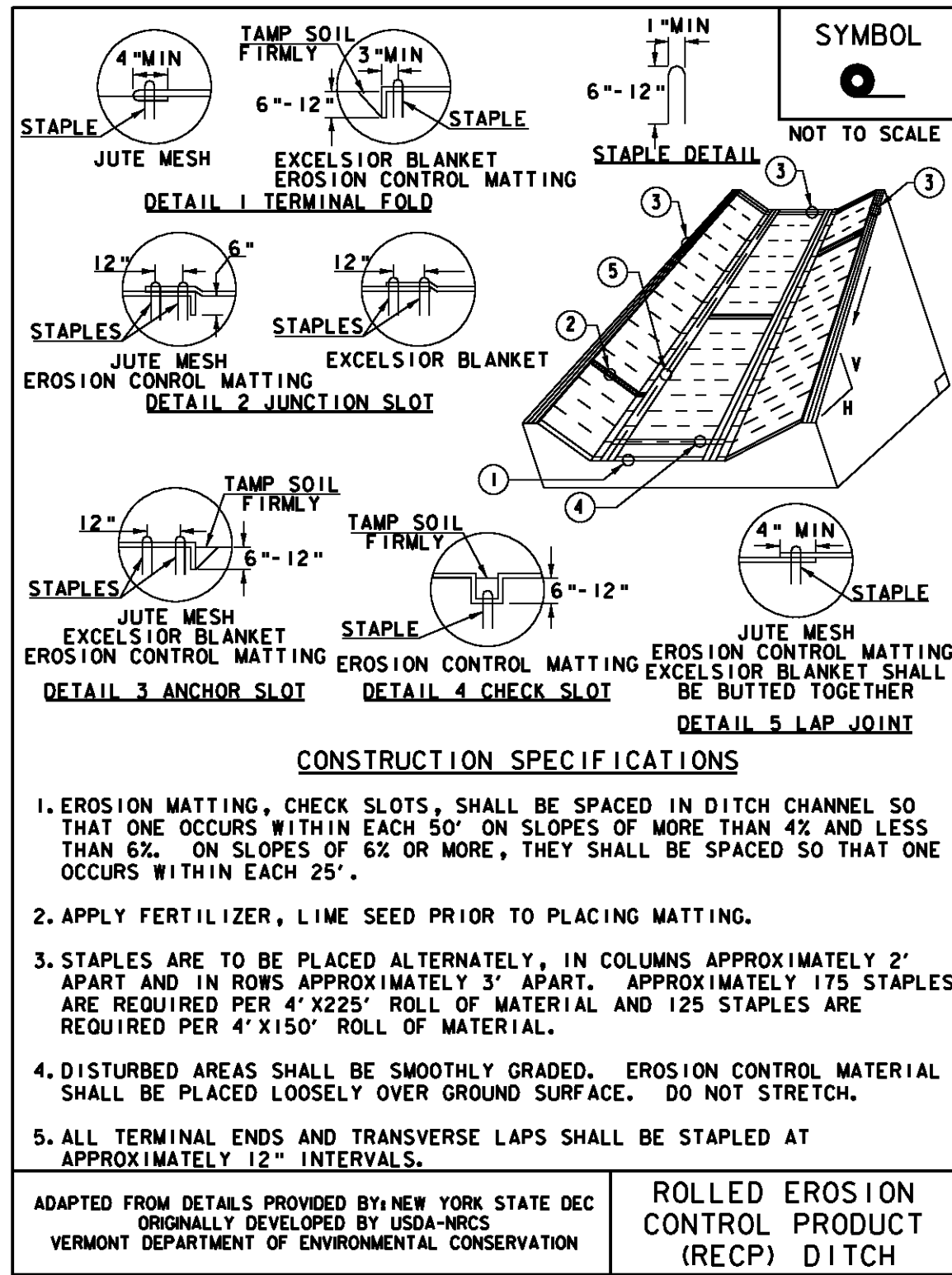
REFER TO CROSS SECTIONS FOR FINAL GRADING.

EPSC FINAL CONDITIONS SITE PLAN

SCALE: 1" = 20'



SHEET NAME: EPSC FINAL CONDITIONS SITE PLAN	
PROJECT NAME: TUNBRIDGE	
PROJECT NUMBER: BRO 1444 (39)	
FILE NAME: z99j110fnc.dgn	PLOT DATE: 30-APR-2009
PROJECT LEADER: K.M. Higgins	DRAWN BY: P. Dustin
DESIGNED BY: N. Powelson	CHECKED BY: R. Joy
	SHEET 12 OF 32



VAOT RURAL AREA MIX	
% WEIGHT	LBS/AC
37.5%	22.5
37.5%	22.5
5.0%	3
15.0%	9
5.0%	3
100%	60

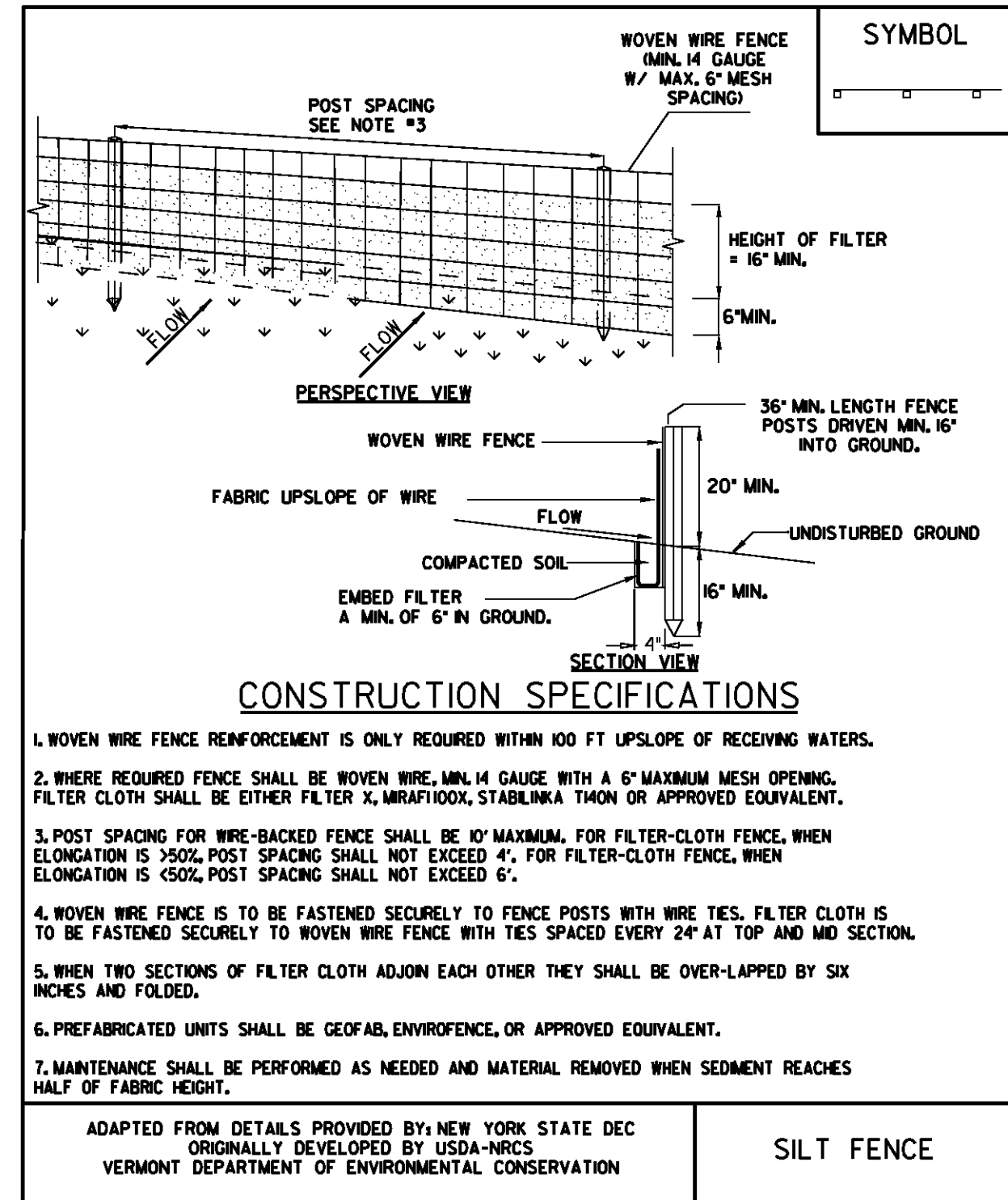
VAOT RURAL AREA MIX					
% WEIGHT	BROADCAST	HYDROSEED	NAME	GERM %	PURITY %
37.5%	22.5	45	CREeping RED FESCUE	85%	98%
37.5%	22.5	45	TALL FESCUE	90%	95%
5.0%	3	6	RED TOP	90%	95%
15.0%	9	18	BIRDSFOOT TREFOIL	85%	98%
5.0%	3	6	ANNUAL RYE GRASS	85%	95%
100%	60	120			

VAOT URBAN AREA MIX					
% WEIGHT	BROADCAST	HYDROSEED	NAME	GERM %	PURITY %
42.5%	34	68	CREeping RED FESCUE	85%	98%
10.0%	8	16	PERENNIAL RYE GRASS	90%	95%
42.5%	34	68	KENTUCKY BLUE GRASS	85%	85%
5.0%	4	8	ANNUAL RYE GRASS	85%	95%
100%	80	160			

GENERAL GUIDANCE			
BROADCAST	HYDROSEED	BROADCAST	HYDROSEED
10/20/20/10	19-19-19	PELLETIZED	LIQUID
500 LBS/AC		2 TONS/AC	4.4 GAL/AC

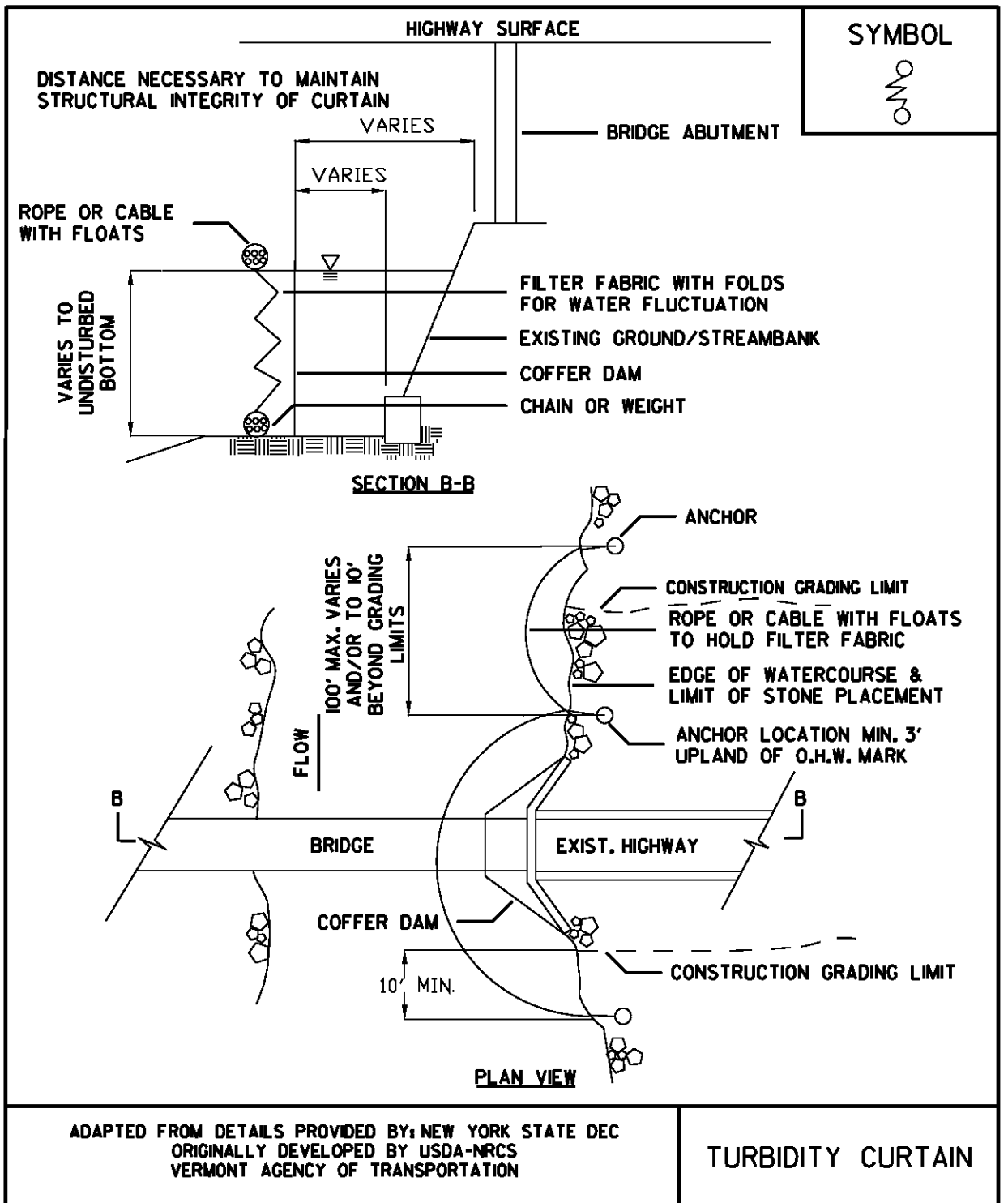
- CONSTRUCTION GUIDANCE**
- RURAL SEED MIX USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED UPLAND (NON WETLAND) AREAS DISTURBED BY THE CONTRACTOR.
 - URBAN SEED MIX USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED LAWN AREAS DISTURBED BY THE CONTRACTOR.
 - ALL SEED MIXTURES SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS SEED.
 - FERTILIZER AND LIMESTONE SHALL FOLLOW RATES SHOWN ON PLAN OR AS DIRECTED BY THE ENGINEER.
 - MULCH TO BE PLACED ON EARTH SLOPES AT THE RATE OF 2 TONS/ACRE, ACHIEVE 90% GROUND COVER OR AS DIRECTED BY THE ENGINEER.
 - TOPSOIL TO BE USED WITH SEED AS INDICATED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.
 - 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.
 - TURF ESTABLISHMENT: PLACING SEED, FERTILIZER, LIME AND MULCH PRIOR TO SEPTEMBER 15 AND AFTER APRIL 15 CAN BETTER ENSURE A VIGOROUS GROWTH OF GRASS.

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 651 FOR SEED (PAY ITEM 651.15)



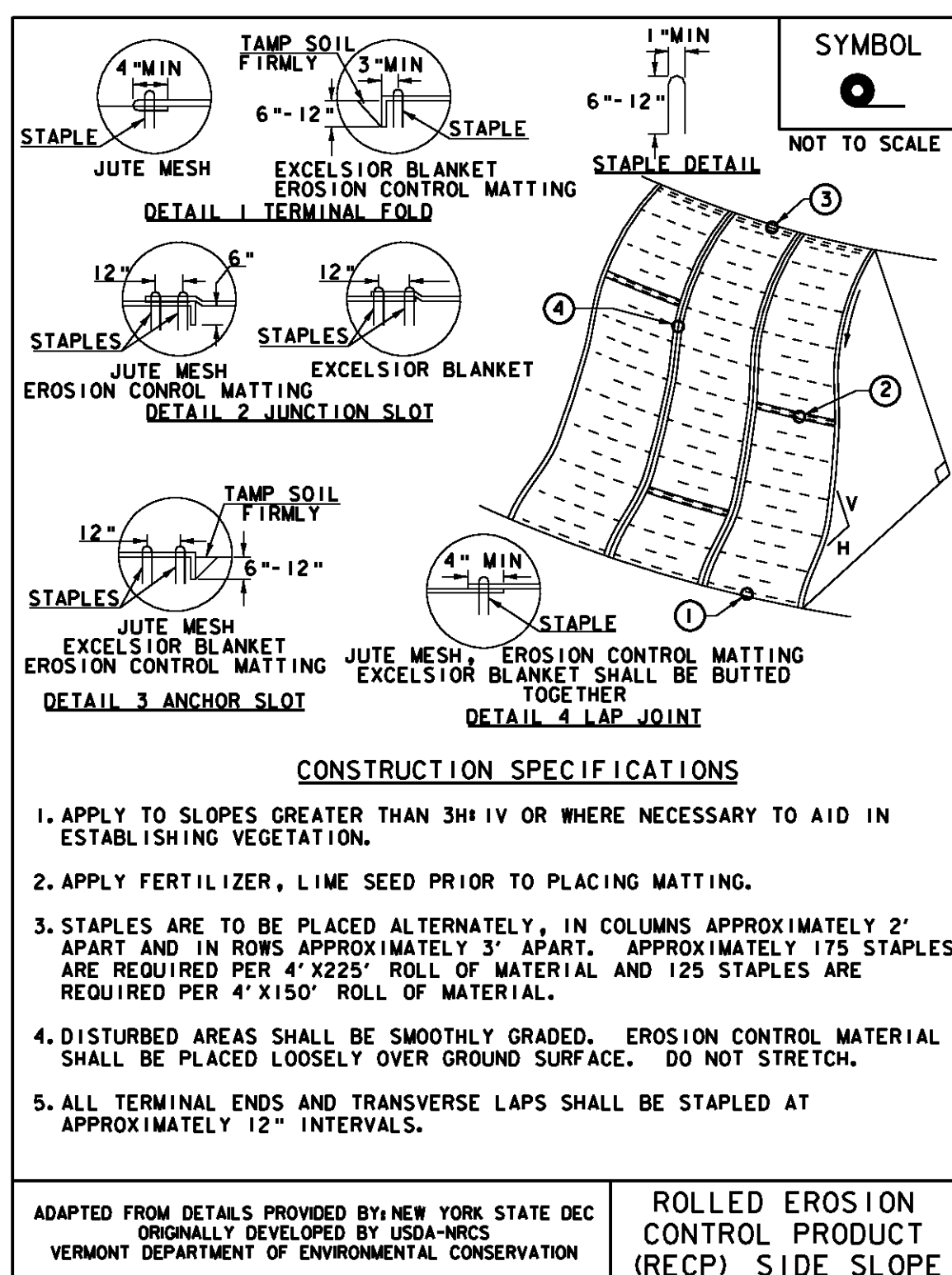
- CONSTRUCTION SPECIFICATIONS**
- WOVEN WIRE FENCE REINFORCEMENT IS ONLY REQUIRED WITHIN 100 FT UPSLOPE OF RECEIVING WATERS.
 - WHERE REQUIRED FENCE SHALL BE WOVEN WIRE MIN. 1/4 GAUGE WITH A 6" MAXIMUM MESH OPENING. FILTER CLOTH SHALL BE EITHER FILTER X, MRF1100X, STABLINKA T10M OR APPROVED EQUIVALENT.
 - POST SPACING FOR WIRE-BACKED FENCE SHALL BE 10' MAXIMUM. FOR FILTER-CLOTH FENCE, WHEN ELONGATION IS <50%, POST SPACING SHALL NOT EXCEED 4'. FOR FILTER-CLOTH FENCE, WHEN ELONGATION IS >50%, POST SPACING SHALL NOT EXCEED 6'.
 - 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.
 - WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY SIX INCHES AND FOLDED.
 - PREFABRICATED UNITS SHALL BE GEOFAB, ENVROFENCE, OR APPROVED EQUIVALENT.
 - MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN SEDIMENT REACHES HALF OF FABRIC HEIGHT.

PAYMENT FOR THIS WORK WILL BE MADE UNDER ITEM 649.515 GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED.



- CONSTRUCTION SPECIFICATIONS**
- STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION.
 - SET SPACING OF CHECK DAMS SO THAT THE ELEVATION OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION AS THE TOE OF THE UPSTREAM DAM.
 - EXTEND THE STONE A MINIMUM OF 1.5 FEET BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
 - PROTECT THE CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
 - ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONE. MAXIMUM DRAINAGE AREA 2 ACRES.

PAYMENT FOR THIS WORK WILL BE MADE UNDER ITEM 649.61 GEOTEXTILE FOR FILTER CURTAIN.



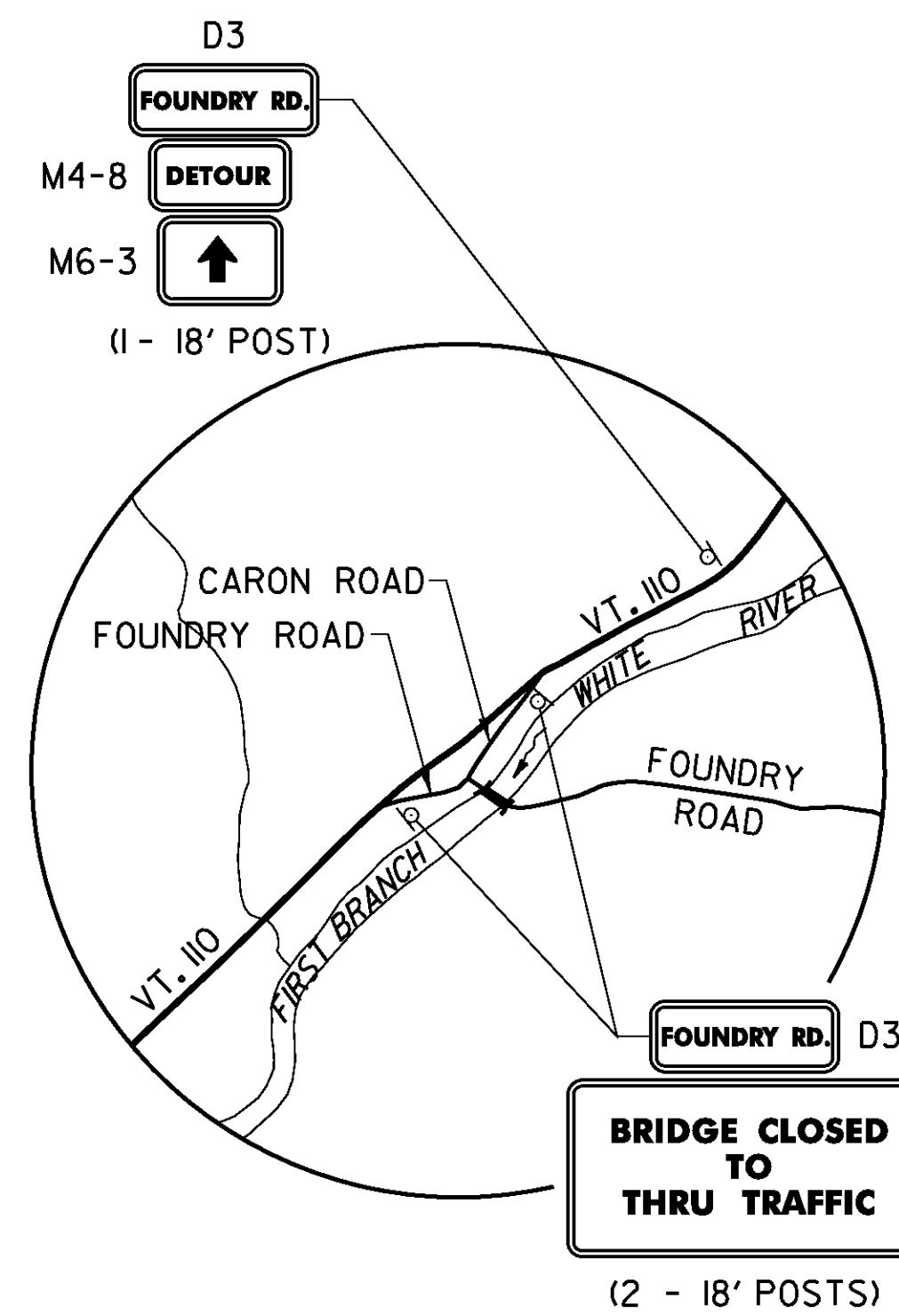
VAOT URBAN AREA MIX	
% WEIGHT	LBS/AC
42.5%	34
10.0%	8
42.5%	34
5.0%	4
100%	80



- CONSTRUCTION SPECIFICATIONS**
- STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION.
 - SET SPACING OF CHECK DAMS SO THAT THE ELEVATION OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION AS THE TOE OF THE UPSTREAM DAM.
 - EXTEND THE STONE A MINIMUM OF 1.5 FEET BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
 - PROTECT THE CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
 - ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONE. MAXIMUM DRAINAGE AREA 2 ACRES.

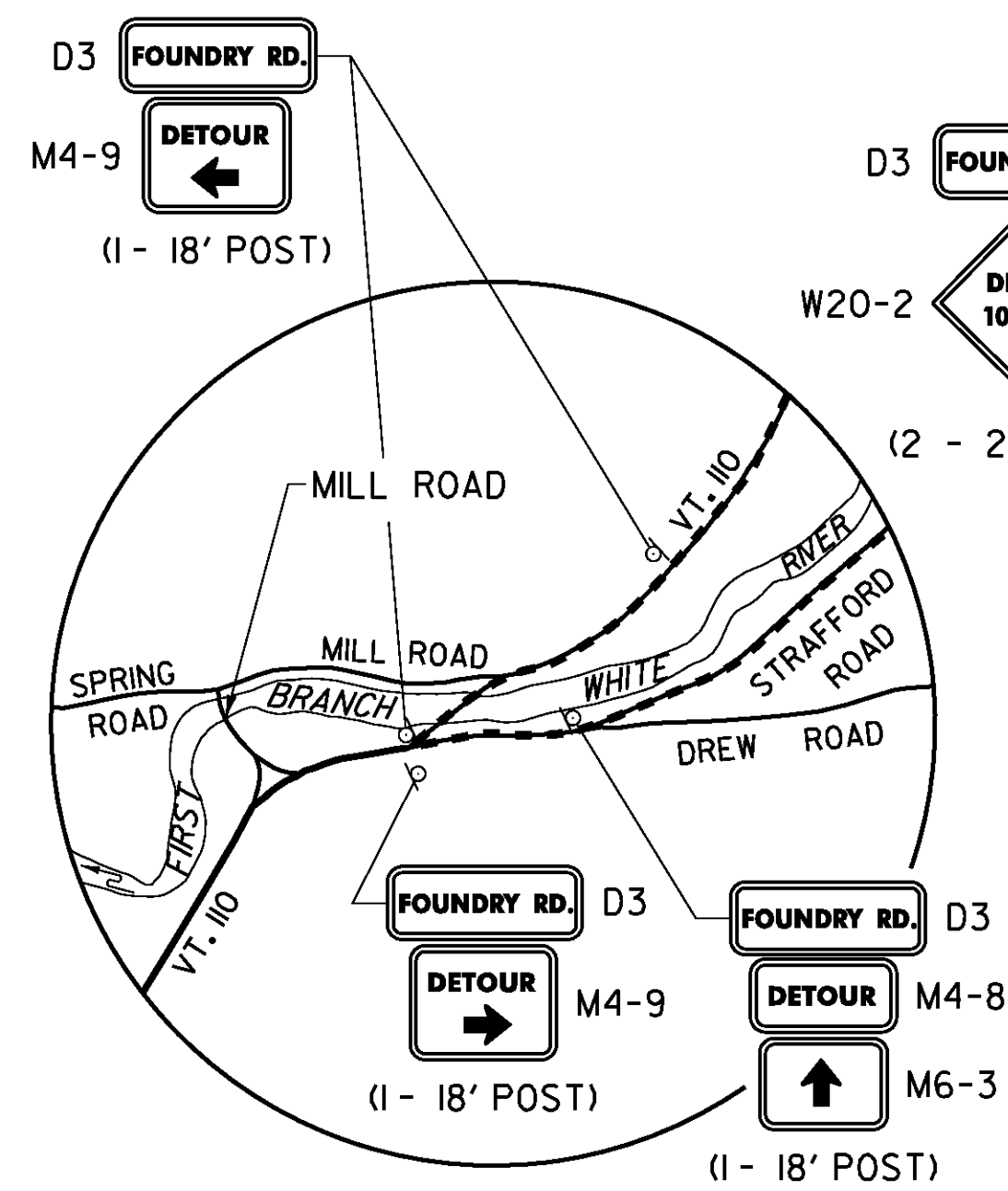
PAYMENT FOR THIS WORK WILL BE MADE UNDER ITEM 653.25 TEMPORARY STONE CHECK DAM, TYPE 1.

SHEET NAME: EPSC DETAILS SHEET	
PROJECT NAME: TUNBRIDGE	PLOT DATE: 26-MAY-2009
PROJECT NUMBER: BRO 1444 (39)	DRAWN BY: P. Dustin
FILE NAME: z99J10er2.dgn	DESIGNED BY: R. Joy
PROJECT LEADER: K.M. Higgins	CHECKED BY: N. Powelson
	SHEET 13 OF 32



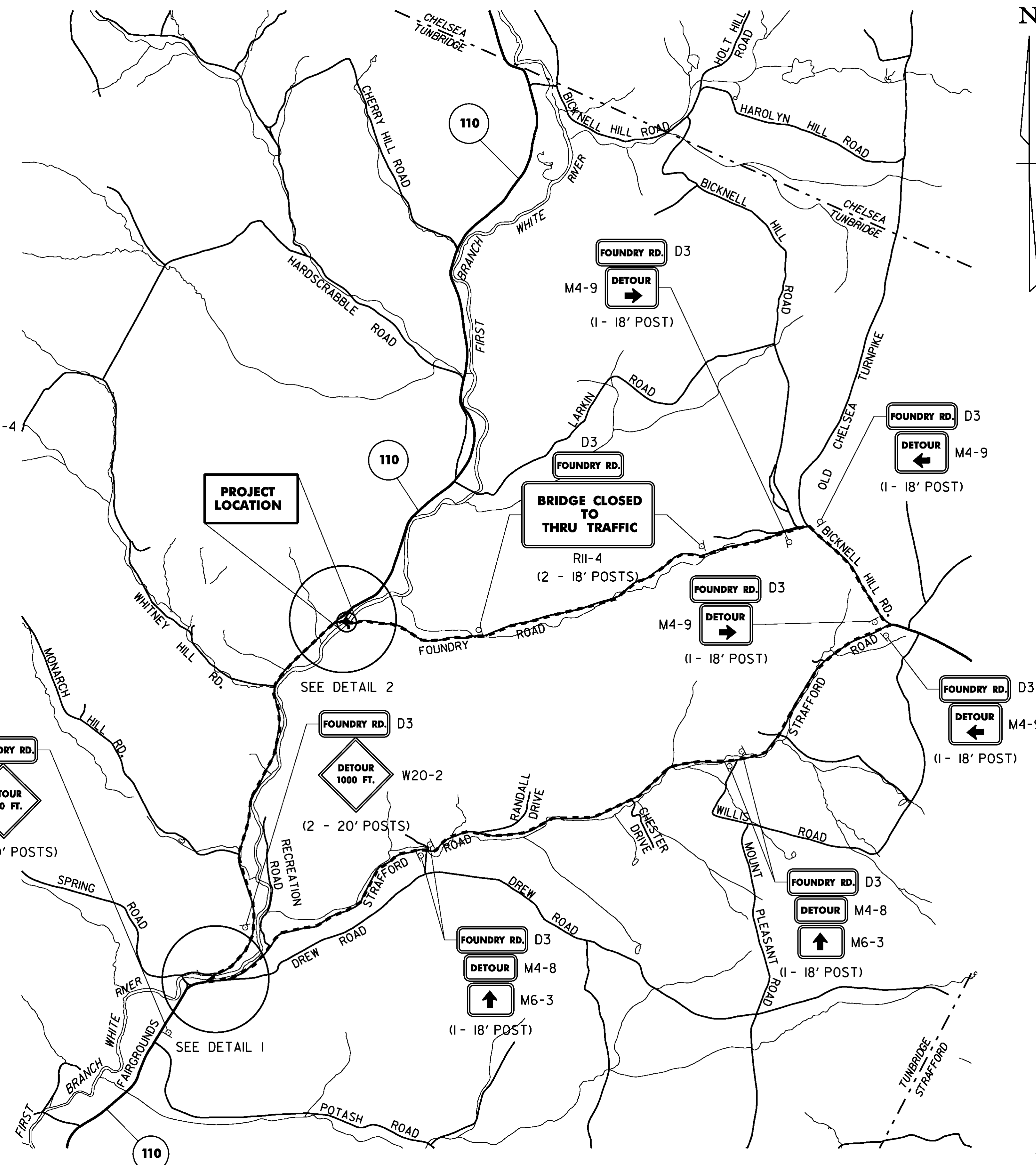
DETAIL 2

SCALE: 1" = 500'



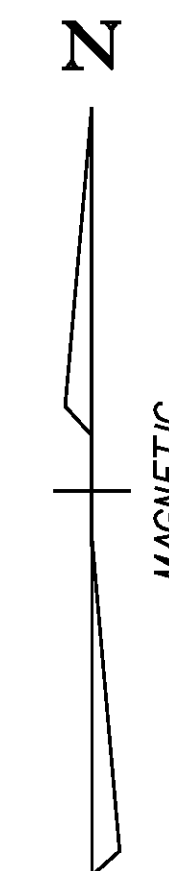
DETAIL 1

SCALE: 1" = 500'



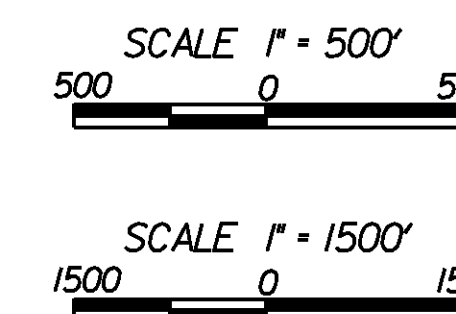
TEMPORARY DETOUR SIGNING PLAN

SCALE: 1" = 1500'

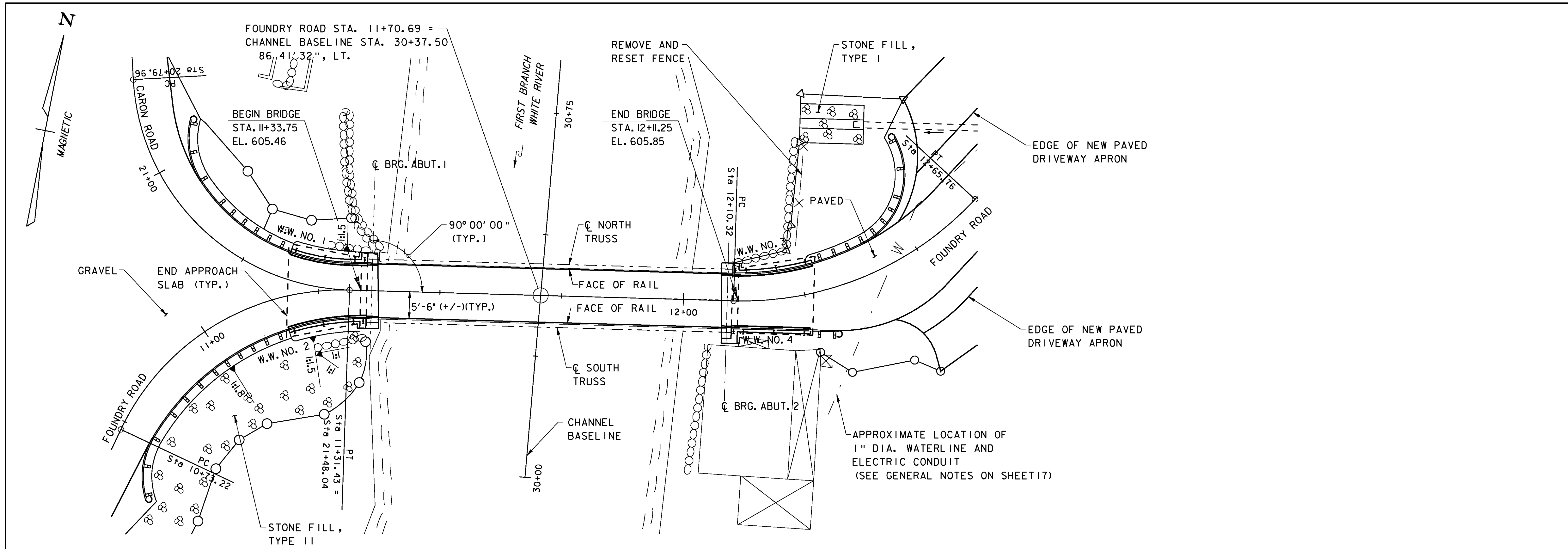


NOTES

1. FOR TRAFFIC CONTROL NOTES, SEE GENERAL NOTES.

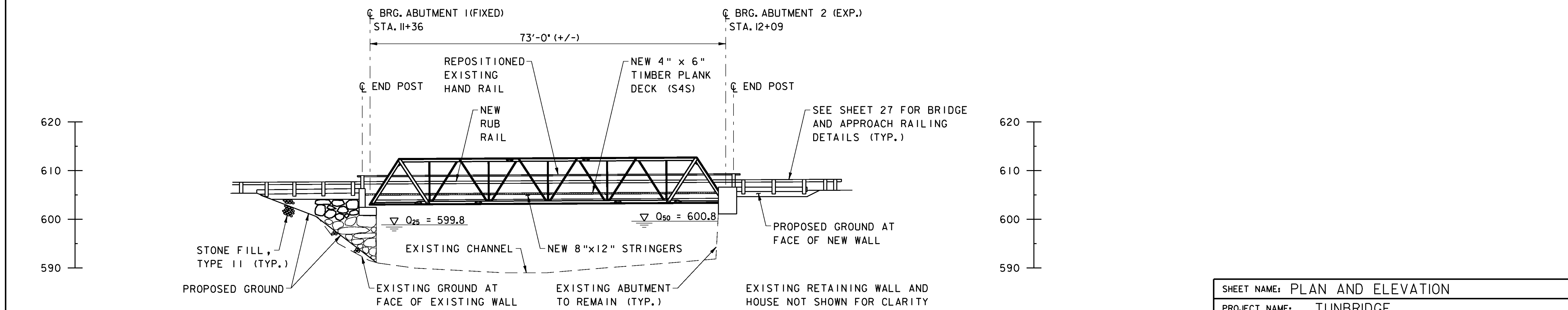


SHEET NAME: TRAFFIC CONTROL SHEET	
PROJECT NAME: TUNBRIDGE	PLOT DATE: 29-APR-2009
PROJECT NUMBER: BRO 1444 (39)	DRAWN BY: P. Dustin
FILE NAME: z99J10+cp.dgn	CHECKED BY: R. Joy
DESIGNED BY: P. Dustin	SHEET 14 OF 32



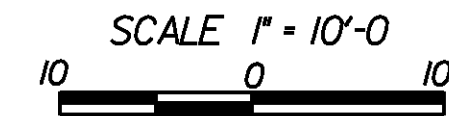
PLAN VIEW

SCALE: 1" = 10'



ELEVATION

SCALE: 1" = 10'



SHEET NAME: PLAN AND ELEVATION			
PROJECT NAME: TUNBRIDGE			
PROJECT NUMBER: BRO 1444 (39)			
FILE NAME:	z99J110gpe.dgn	PLOT DATE:	29-APR-2009
PROJECT LEADER:	K.M. Higgins	DRAWN BY:	P. Dustin
DESIGNED BY:	P. Dustin	CHECKED BY:	R. Joy
		SHEET 16 OF 32	

GENERAL NOTES

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO STATE OF VERMONT AGENCY OF TRANSPORTATION'S STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, DATED 2006, AND ITS LATEST REVISIONS, AND THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, 17TH EDITION, DATED 2002, AND ITS LATEST REVISIONS.
2. DIMENSIONS, ANGLES, BEARINGS, AND ELEVATIONS OF THE EXISTING BRIDGE SHOWN ON THESE PLANS HAVE BEEN OBTAINED FROM LIMITED FIELD INVESTIGATION AND MAY NOT ACCURATELY REFLECT ACTUAL FIELD CONDITIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAKING FIELD MEASUREMENTS OF ALL EXISTING STRUCTURE COMPONENTS IMPACTED BY THE NEW WORK TO ASSURE CONSISTENCY WITH THE PROPOSED MODIFICATIONS. ANY DISCREPANCIES IN DIMENSIONS, CHARACTER OR EXTENT OF THE EXISTING FEATURES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE ADVANCING THE WORK. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM THE DIMENSIONS AND DETAILS OF EXISTING BRIDGE FEATURES AND COMPONENTS AS SHOWN ON THE PLANS AND ATTAIN ADDITIONAL DIMENSIONS PRIOR TO THE FABRICATION OF NEW BRIDGE COMPONENTS. FABRICATION DRAWINGS SHALL NOT BE CHECKED OR APPROVED UNLESS DIMENSIONS ARE NOTED AS BEING VERIFIED BY THE CONTRACTOR.
3. ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL, AND ARE GIVEN AT 68 DEGREES FAHRENHEIT, OR AS NOTED OTHERWISE.
4. ALL WORK INCLUDING CONSTRUCTION STAGING SHALL BE WITHIN THE EXISTING RIGHT-OF-WAY LIMITS, EXCEPT THE DRAINAGE RIGHTS DESCRIBED IN NOTE 9 BELOW. IF THE CONTRACTOR DESIRES ADDITIONAL STAGING AREAS OUTSIDE OF THE EXISTING RIGHT-OF-WAY, ALL RIGHTS AND PERMITS REQUIRED SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
5. THERE IS A PRIVATE WATERLINE WITHIN THE EAST APPROACH TO THE BRIDGE. ITS APPROXIMATE LOCATION IS SHOWN ON THE PLANS. THE CONTRACTOR IS REQUIRED TO WORK AROUND THIS UTILITY AND AVOID DAMAGING IT. ITEM 204.22 "TRENCH EXCAVATION OF EARTH, EXPLORATORY" HAS BEEN INCLUDED IN THE PLANS TO LOCATE AND EXCAVATE AROUND THIS WATERLINE WHERE NECESSARY. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING THIS UTILITY THROUGH THE DURATION OF THE PROJECT.
6. ANY DAMAGE TO PRIVATE OR PUBLIC PROPERTY CAUSED BY THE CONTRACTOR SHALL BE REPAIRED BY AND AT THE EXPENSE OF THE CONTRACTOR.
7. THE LOCATION OF ANY UTILITY INFORMATION SHOWN ON THE PLANS IS APPROXIMATE. NO CLAIMS ARE MADE AS TO THE ACCURACY OR COMPLETENESS OF THE UTILITIES SHOWN. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR LOCATING AND PROTECTING FROM DAMAGE ALL UTILITIES ON SITE DURING ALL STAGES OF CONSTRUCTION. THE CONTRACTOR SHALL USE CAUTION WHEN WORKING AROUND OVERHEAD UTILITIES, AND COORDINATE TEMPORARY AND/OR PERMANENT UTILITY RELOCATION WITH THE UTILITY COMPANIES.
8. MINOR WORK MAY BE REQUIRED TO FIX THE EXISTING STONE WALLS ADJACENT TO WINGWALL NOS. 1 AND 3. COST SHALL BE PAID UNDER ITEM 900.608, SPECIAL PROVISION (REBUILT STONE MASONRY).
9. THE TOWN OF TUNBRIDGE HAS OBTAINED THE RIGHT-OF-WAY FOR THE INSTALLATION OF THE PIPE SHOWN ON THE PLANS BETWEEN APPROXIMATELY STA. 12+25 AND STA. 12+73, LT. INSTALLATION OF THE PIPE SHALL BE WITHIN THE CONSTRUCTION LIMITS AS SHOWN ON THE PLANS.

REINFORCED CONCRETE NOTES

1. ALL CONCRETE SHALL BE PAID UNDER ITEM 501.34, CONCRETE, HIGH PERFORMANCE CLASS B, EXCEPT THE CONCRETE CURBS IN THE WINGWALLS WHICH SHALL BE PAID UNDER ITEM 501.33, CONCRETE, HIGH PERFORMANCE CLASS A.
2. THE KEY IN CONCRETE CONSTRUCTION JOINTS SHALL BE MONOLITHIC AND CONTINUOUS FOR THE FULL LENGTH OF THE JOINT.
3. WATER REPELLENT, SILANE, SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES.
4. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1 INCH BY 1 INCH.
5. MINIMUM CLEAR COVER FOR REINFORCING STEEL SHALL BE TWO INCHES ALONG THE BACK FACES OF WALLS AGAINST EARTH AND THREE INCHES ELSEWHERE UNLESS NOTED OTHERWISE.
6. REINFORCING STEEL PLACEMENT TOLERANCES SHALL BE:
 - A. SPACING: +/- ONE INCH
 - B. CLEARANCE: +/- ONE-QUARTER INCH

TRAFFIC CONTROL NOTES

1. BRIDGE NO. 31 WILL BE CLOSED TO ALL PEDESTRIAN AND VEHICULAR TRAFFIC DURING CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE TOWN OF TUNBRIDGE AT LEAST 2 WEEKS PRIOR TO CLOSING THE BRIDGE TO TRAFFIC.
2. THE COST OF ALL DETOUR SIGNS AND REQUIRED SIGN POSTS SHALL BE INCLUDED IN ITEM 641.10 "TRAFFIC CONTROL".
3. ALL DETOUR SIGNS SHALL BE PLACED WITHIN EXISTING STATE AND TOWN RIGHTS-OF-WAY.
4. IN ADDITION TO THE DETOUR SIGNS DETAILED ON THE TRAFFIC CONTROL SHEET, THE CONTRACTOR SHALL BE RESPONSIBLE FOR DESIGNING, ERECTING, AND MAINTAINING (AS WELL AS REMOVING AND RESETTING) ALL ON-PROJECT TEMPORARY TRAFFIC CONTROL ZONE DEVICES, INCLUDING BUT NOT LIMITED TO CONSTRUCTION SIGNS, BARRICADES, CONCRETE TRAFFIC BARRIERS AND OTHER REQUIRED DEVICES USED TO REGULATE, WARN AND GUIDE TRAFFIC DURING CONSTRUCTION. TRAFFIC CONTROL DEVICE LAYOUT SHALL CONSIDER THE REQUIREMENTS OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND PERTINENT E-SERIES STANDARDS, AND SHALL BE SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL. THE COST OF ALL ON-PROJECT TEMPORARY TRAFFIC CONTROL ZONE DEVICES SHALL BE PAID FOR UNDER ITEM 641.10, TRAFFIC CONTROL.
5. PRECAST CONCRETE BARRIERS SHALL BE PLACED ON THE FOUNDRY ROAD AND CARON ROAD APPROACHES TO LIMITS APPROVED BY THE RESIDENT ENGINEER TO PREVENT TRAFFIC FROM ENTERING THE BRIDGE WORK AREA. COST SHALL BE INCLUDED IN THE UNIT BID PRICE FOR ITEM 641.10. BARRIERS SHALL BE FURNISHED IN ACCORDANCE WITH SECTION 621.

BEARING NOTES

1. BEARINGS SHALL CONFORM TO APPLICABLE SUBSECTIONS OF SECTIONS 531 AND 731.
2. ITEM 531.10, BEARING DEVICE ASSEMBLY, PREFORMED BEARING PAD, SHALL CONSIST OF THE PLACEMENT OF NEW EXPANSION AND FIXED BEARING ASSEMBLIES, DETAILED ON BEARING DETAILS SHEET. ALL OF THE ELEMENTS OF THE EXISTING BEARING TO REMAIN IN PLACE SHALL BE CLEANED AND PAINTED.
3. FABRICATION DRAWINGS CONFORMING TO SUBSECTION 531.03 SHALL BE SUBMITTED TO INCLUDE WELDING AND BONDING PROCEDURES.
4. THE CONCRETE SURFACE UNDER THE BEARING DEVICE SHALL BE LEVEL.
5. DESIGN CRITERIA:
 - A. PAD TO CONCRETE DESIGN PRESSURE = 1000 PSI MAXIMUM
 - B. MINIMUM DESIGN ROTATION = 0.015 RADIANS
 - C. HORIZONTAL CAPACITY = MINIMUM OF 10% VERTICAL CAPACITY
6. THE "A" DISTANCE PROVIDED IN THE TEMPERATURE ADJUSTMENT TABLE IS THE FINAL SETTING FOR THE BEARING PADS AFTER ALL DEAD LOAD HAS BEEN APPLIED. THE FINAL "A" DISTANCE MUST BE OBTAINED WITHIN ONE-EIGHTH INCH. THE "B" DISTANCE IS FOR SETTING THE BEARINGS BEFORE THE NEW FLOORBEAMS AND TIMBER FLOOR SYSTEM IS PLACED.
7. FABRICATION OF NEW BEARING ELEMENTS SHALL CONSIDER EXISTING BEARING DIMENSIONS, AS VERIFIED BY FIELD MEASUREMENTS.

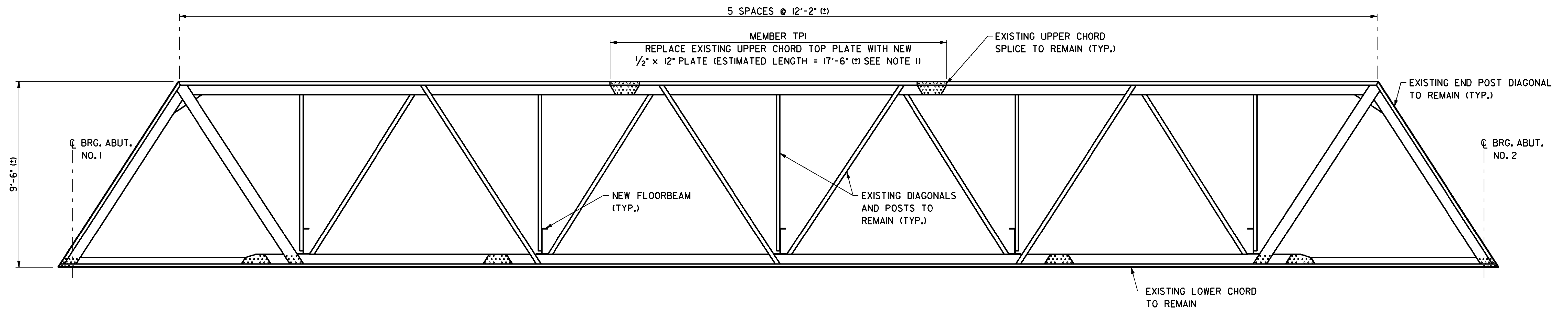
STRUCTURAL STEEL NOTES

1. ITEM 506.50, STRUCTURAL STEEL ROLLED BEAM, GRADE 50, SHALL INCLUDE THE FOLLOWING:
 - A. NEW FLOORBEAMS
 - B. STRINGER SUPPORT BRACKETS (FLOORBEAMS)
 - C. BEARING STIFFENERS (FLOORBEAMS)
 - D. BOTTOM LATERAL BRACING ANGLES
 - E. BOTTOM LATERAL BRACING CONNECTION PLATES
2. ITEM 506.60, STRUCTURAL STEEL, GRADE 50, SHALL INCLUDE THE FOLLOWING:
 - A. UPPER CHORD TOP PLATES (TP1)
 - B. ENDPPOST DIAGONAL TOP PLATE (TP2)
 - C. LOWER CHORD BUILT UP SECTION (LC1)
 - D. LOWER CHORD BUILT UP SECTION (LC2)
 - E. LOWER CHORD GUSSET PLATES
 - F. RAIL ANCHORAGE PLATES
3. ALL LAG SCREWS SHALL BE GALVANIZED AND SHALL COMPLY WITH THE REQUIREMENTS OF ASTM A307.

PAINT NOTES

1. THE SURFACE PREPARATION OF THE EXISTING STEEL SHALL INCLUDE 100% OF THE EXISTING PAINT SYSTEM.
2. THE EXISTING STRUCTURAL STEEL ON THIS PROJECT WAS PAINTED WITH A MATERIAL WHICH MAY CONTAIN LEAD. THE REMOVED STRUCTURAL STEEL IS THE PROPERTY OF THE CONTRACTOR. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE TOWN, STATE, THEIR OFFICERS, AND EMPLOYEES HARMLESS CONCERNING THE CONTRACTOR'S USE OR DISPOSITION OF THE STRUCTURAL STEEL.
3. THE COLOR OF THE FINAL COAT OF PAINT SHALL BE BLACK COLOR CHIP #27038 CONFORMING TO SUBSECTION 708.03.
4. THE AREA OF CONTACT BETWEEN ANY NEW STEEL AND EXISTING STEEL SHALL BE FREE OF EXISTING PAINT, CLEANED AND PRIMED TO MEET THE CONDITIONS OF A CLASS B SLIP COEFFICIENT PER SECTION 513.02 (b).
5. WHEN A CONNECTION IS FIELD DRILLED, THE CONTRACTOR SHALL CLEAN ALL SURFACES PRIOR TO BOLTING THE CONNECTION. IF THE CONNECTION IS BEING HELD IN PLACE BY CLAMPS, THE CLAMPS MUST BE REMOVED AND THE MEMBERS AND CONNECTION PLATES MUST BE INDIVIDUALLY CLEANED PRIOR TO BOLTING. ALL CONNECTIONS SHALL BE FREE OF OIL AND OTHER PARTICLES RESULTING FROM FIELD DRILLING.

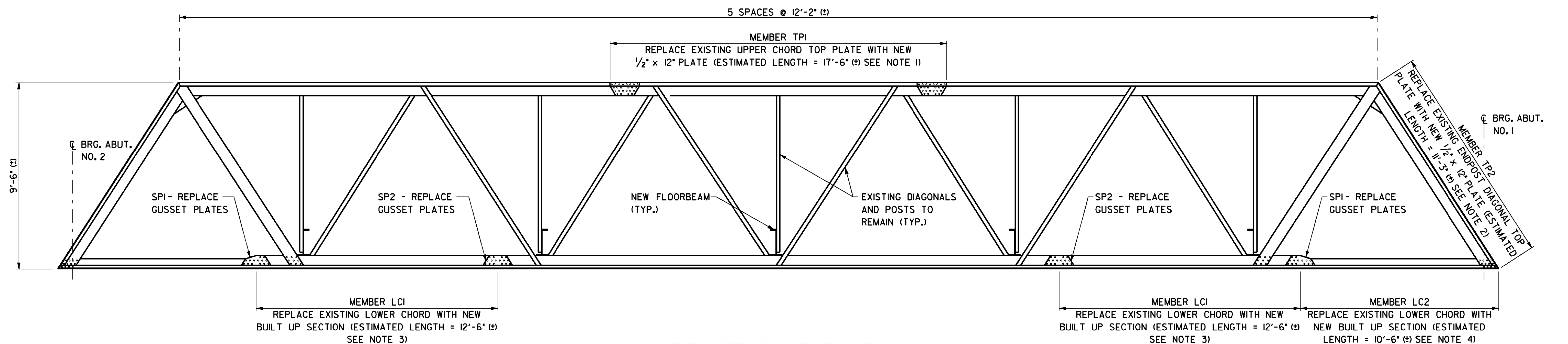
SHEET NAME: GENERAL NOTES			
PROJECT NAME:	TUNBRIDGE		
PROJECT NUMBER:	BRO 1444 (39)		
FILE NAME:	z99Jll0n+e.dgn	PLOT DATE:	26-MAY-2009
PROJECT LEADER:	K.M. Higgins	DRAWN BY:	P. Dustin
DESIGNED BY:	N. Powelson	CHECKED BY:	R. Joy
		SHEET	17 OF 32



SOUTH TRUSS ELEVATION

(LOOKING NORTH)
SCALE: $\frac{3}{8}$ " = 1'-0"

REFER TO APPROVED STRUCTURAL STEEL SHOP DRAWINGS FOR LIMITS OF REPLACED COMPONENTS.

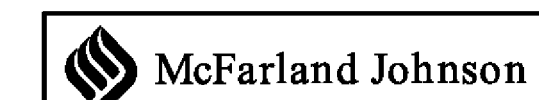
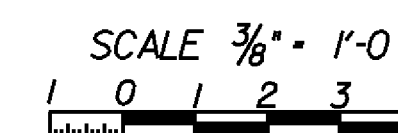


NORTH TRUSS ELEVATION

(LOOKING SOUTH)
SCALE: $\frac{3}{8}$ " = 1'-0"

NOTES

1. FOR UPPER CHORD TOP PLATE DETAIL (TPI), SEE SHEET 20.
2. FOR END POST DIAGONAL TOP PLATE DETAIL (TP2), SEE SHEET 20.
3. FOR LOWER CHORD DETAIL 1 (LC1), SEE SHEET 20.
4. FOR LOWER CHORD DETAIL 2 (LC2), SEE SHEET 20.
5. WHEN RIVET IS REMOVED, REPLACE WITH A HIGH STRENGTH BOLT WITH A DIAMETER THAT MATCHES THE EXISTING RIVET DIAMETER.



SHEET NAME: SUPERSTRUCTURE DETAILS (I)

PROJECT NAME: TUNBRIDGE

PROJECT NUMBER: BRO 1444 (39)

FILE NAME: z99j110sdl.dgn

PLOT DATE: 29-APR-2009

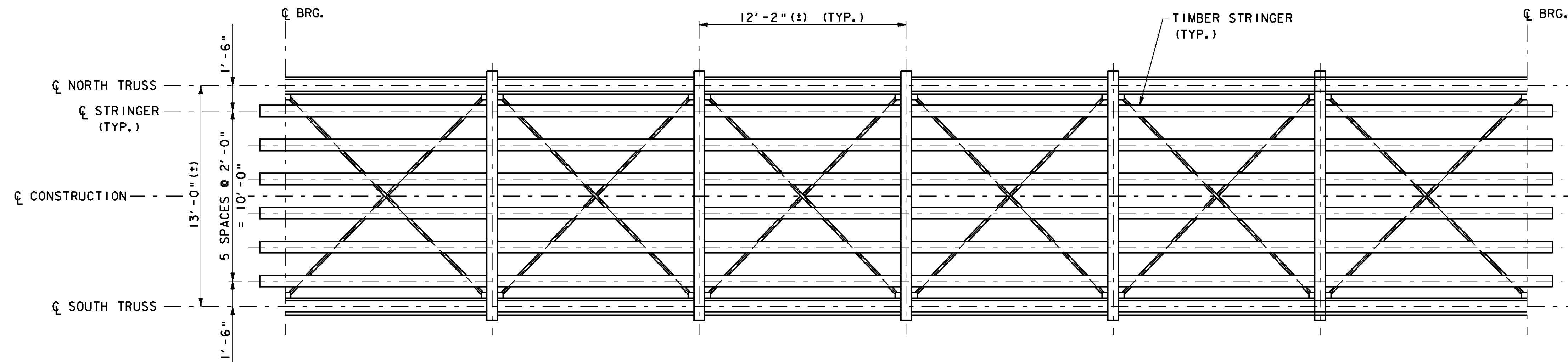
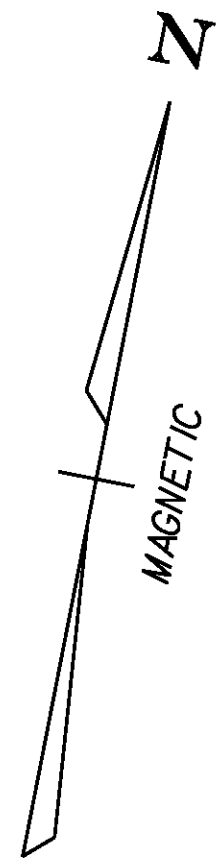
PROJECT LEADER: K.M. Higgins

DRAWN BY: P. Dustin

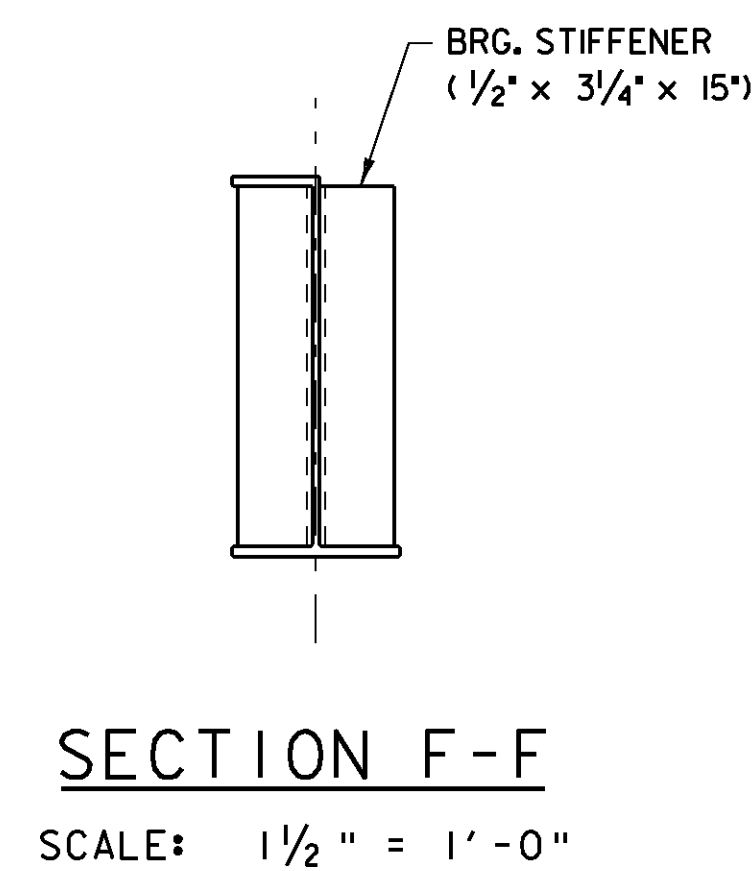
DESIGNED BY: N. Powelson

CHECKED BY: R. Joy

SHEET 18 OF 32

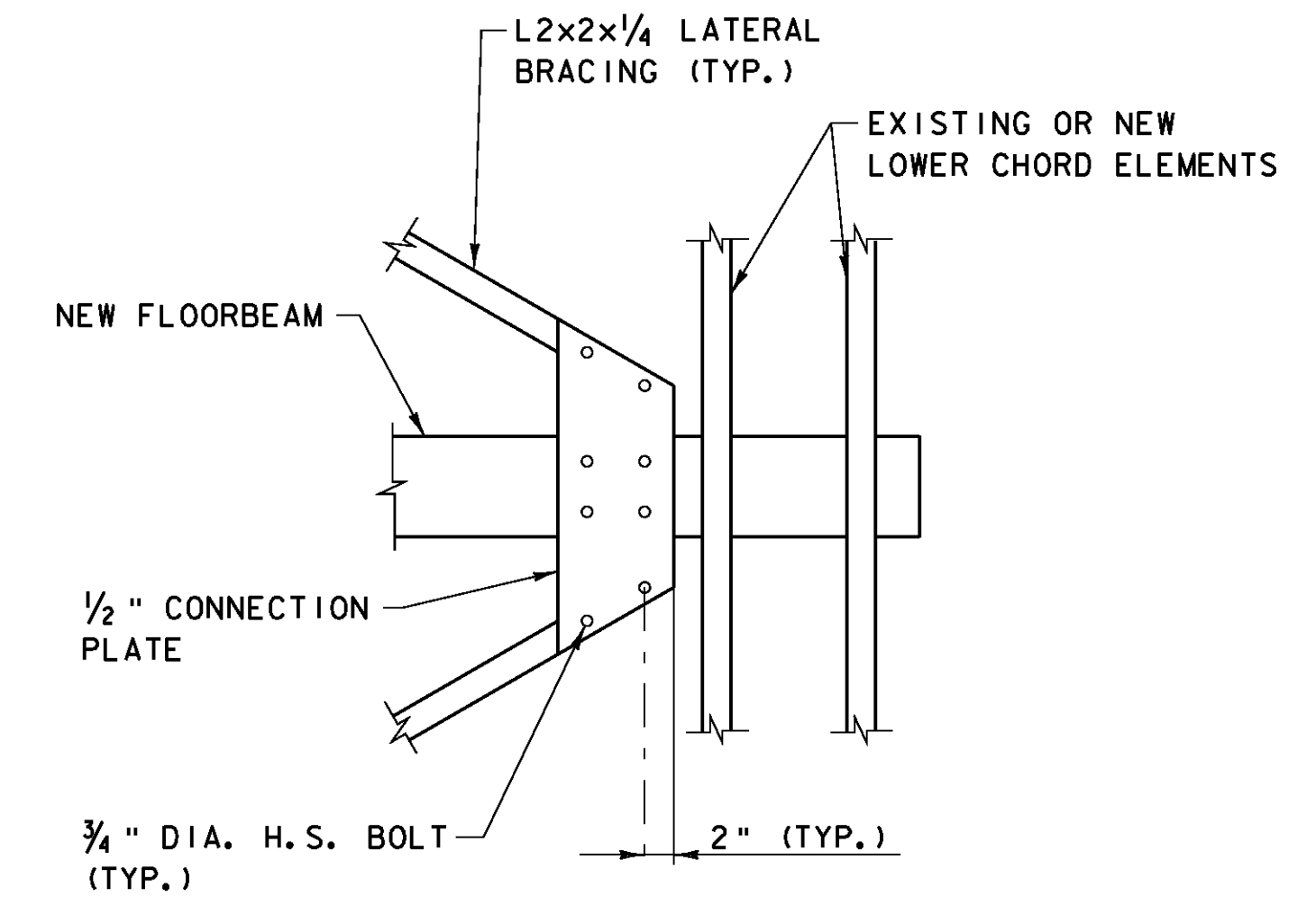


FRAMING PLAN
SCALE: 1/4" = 1'-0"

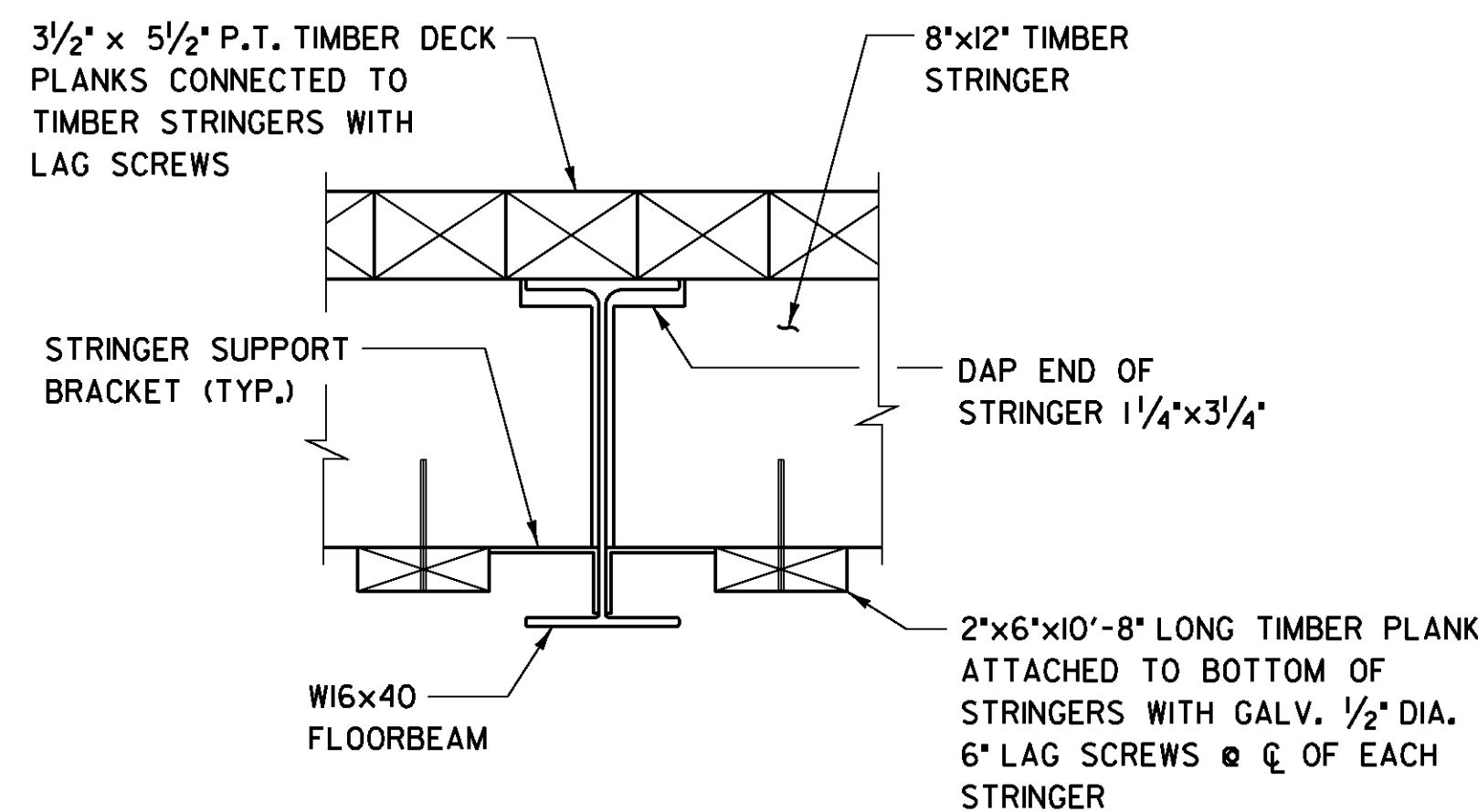


TIMBER TABLE FOR NEW MEMBERS					
TIMBER ELEMENT	SIZE (INCHES)	LENGTH (FEET)	TOTAL PIECES	QUANTITY MFBM	SPECIES AND GRADE
TOP SILL BEAM - ABUT. NO. 1	8 x 12	11.00	2	0.18	DOUGLAS FIR (NO. 1)
BOTTOM SILL BEAM - ABUT. NO. 1	8 x 12	10.33	2	0.17	DOUGLAS FIR (NO. 1)
SILL BEAM SPACER - ABUT. NO. 1	1 x 6	1.00	6	0.00	DOUGLAS FIR (NO. 1)
TOP SILL BEAM - ABUT. NO. 2	8 x 12	11.00	2	0.18	DOUGLAS FIR (NO. 1)
BOTTOM SILL BEAM - ABUT. NO. 2	8 x 12	10.33	2	0.17	DOUGLAS FIR (NO. 1)
SILL BEAM SPACER - ABUT. NO. 2	1 x 6	1.00	6	0.00	DOUGLAS FIR (NO. 1)
STRINGERS	8 x 12	12.00	24	2.30	RED MAPLE (SELECT STRUCTURAL)
STRINGERS	8 x 12	13.83	12	1.33	RED MAPLE (SELECT STRUCTURAL)
DECK (S4S)	3.5 x 5.5	12.00	156	3.00	WHITE OAK (NO. 1)
STRINGER ATTACHMENT PLANKS	2 x 6	10.67	10	0.11	DOUGLAS FIR (NO. 1)
END CURBING	5 x 10	4.00	8	0.13	DOUGLAS FIR (NO. 1)

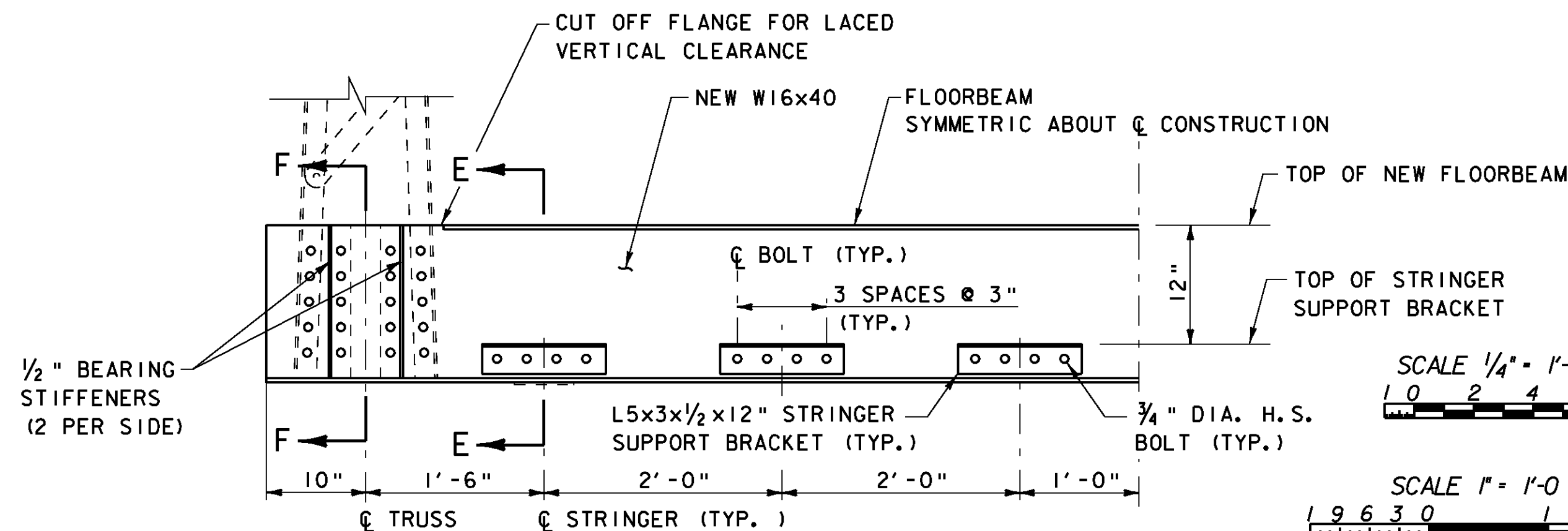
1. LUMBER DIMENSIONS: THE SIZE OF LUMBER AND TIMBER MEMBERS SHOWN IN THIS TABLE ARE THE ACTUAL FULL DIMENSIONS AFTER SEASONING, UNLESS NOTED OTHERWISE. CROSS SECTIONAL DIMENSION VARIATIONS UP TO ONE-EIGHTH INCH WILL BE ALLOWED. ALL TIMBER SHALL BE FULL SAWN.
2. LUMBER FINISH: ALL NEW LUMBER AND TIMBER SHALL BE ROUGH SURFACED, UNLESS DESIGNATED WITH A SURFACE (S4S) MARK.
3. ALL TIMBER PAID FOR UNDER ITEM 522.25.
4. ALL TIMBER DIMENSIONS TO BE VERIFIED BY THE CONTRACTOR PRIOR TO FABRICATION.



LATERAL BRACING PLAN
(VIEWED FROM BELOW)
SCALE: 1" = 1'-0"



SECTION E-E
SCALE: 1/2" = 1'-0"



FLOORBEAM DETAILS
SCALE: 1" = 1'-0"

SCALE 1/4" = 1'-0
1 0 2 4 6

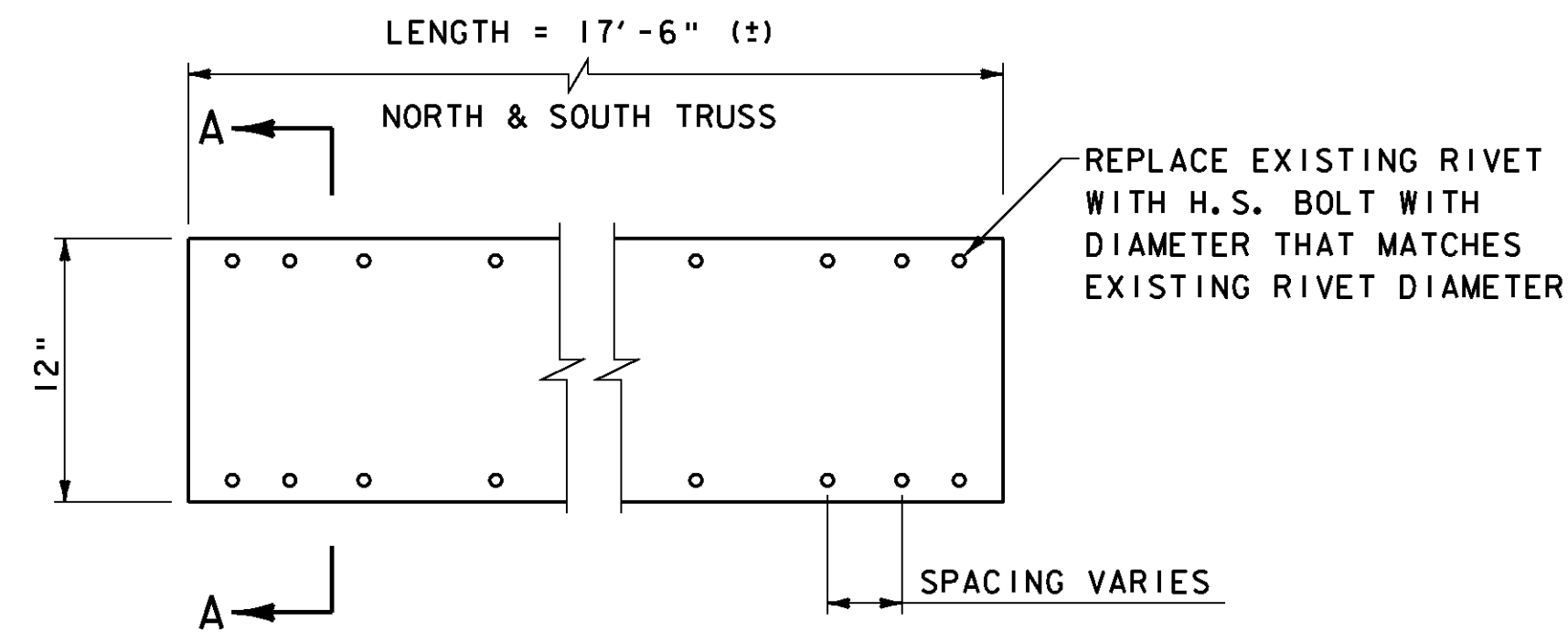
SCALE 1" = 1'-0
1 9 6 3 0 1

SCALE 1 1/2" = 1'-0
1 9 6 3 0 1

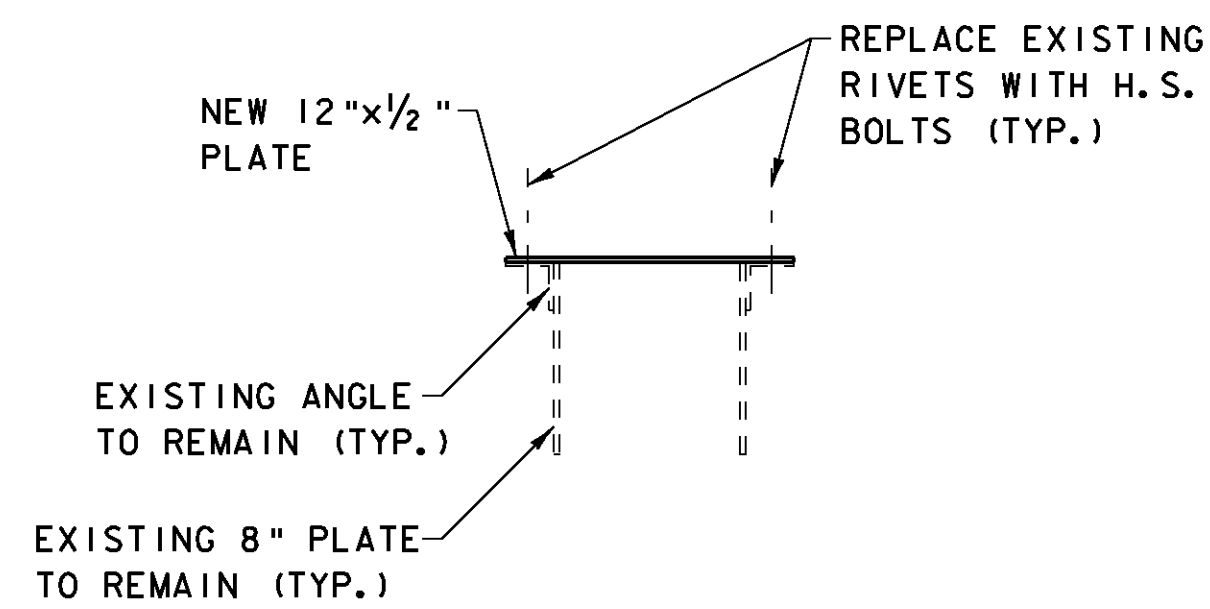
NOTES

1. SEE NOTES ON SHEET 17.

SHEET NAME: SUPERSTRUCTURE DETAILS (2)	
PROJECT NAME: TUNBRIDGE	
PROJECT NUMBER: BRO 1444 (39)	
FILE NAME: z99J10sd2.dgn	PLOT DATE: 26-MAY-2009
PROJECT LEADER: K.M. Higgins	DRAWN BY: P. Dustin
DESIGNED BY: N. Powelson	CHECKED BY: R. Joy
	SHEET 19 OF 32



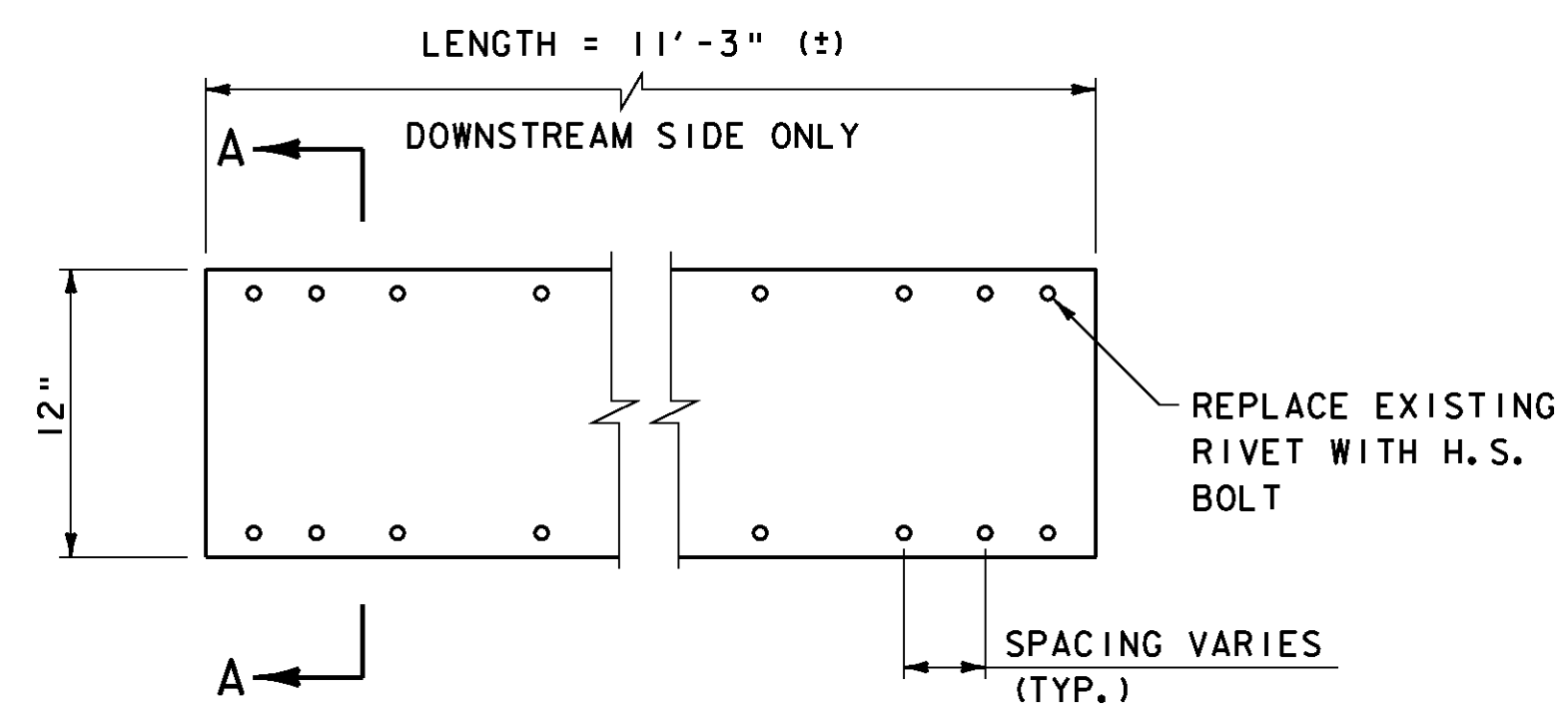
PLAN



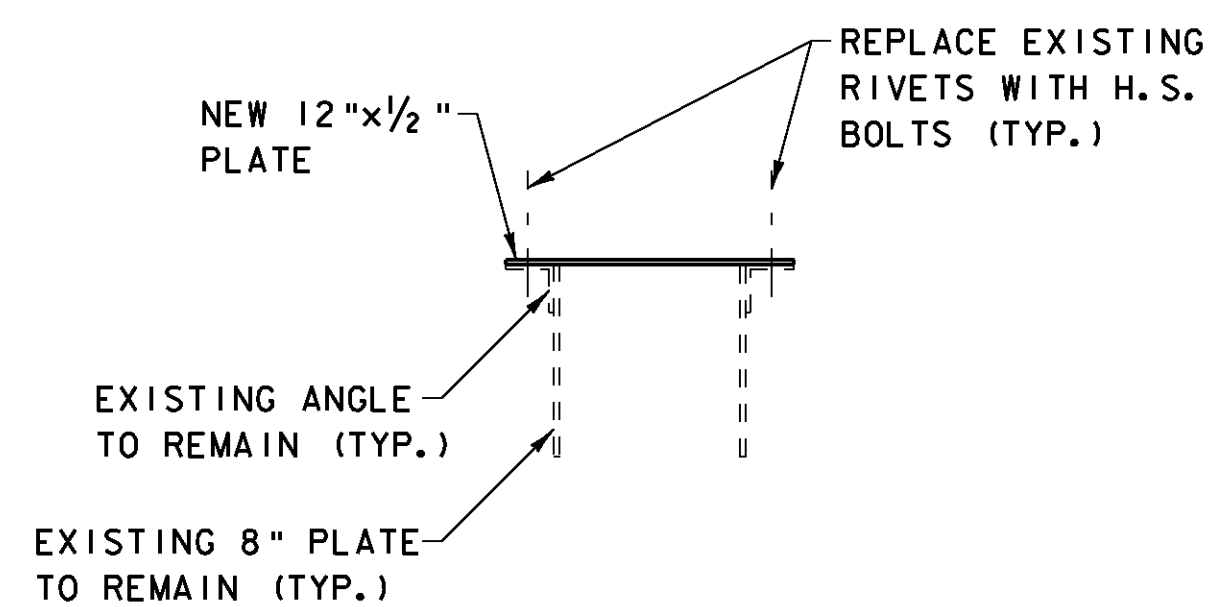
SECTION

UPPER CHORD TOP PLATE DETAIL (TP1) TOTAL = 2

SCALE: 1/2" = 1'-0"



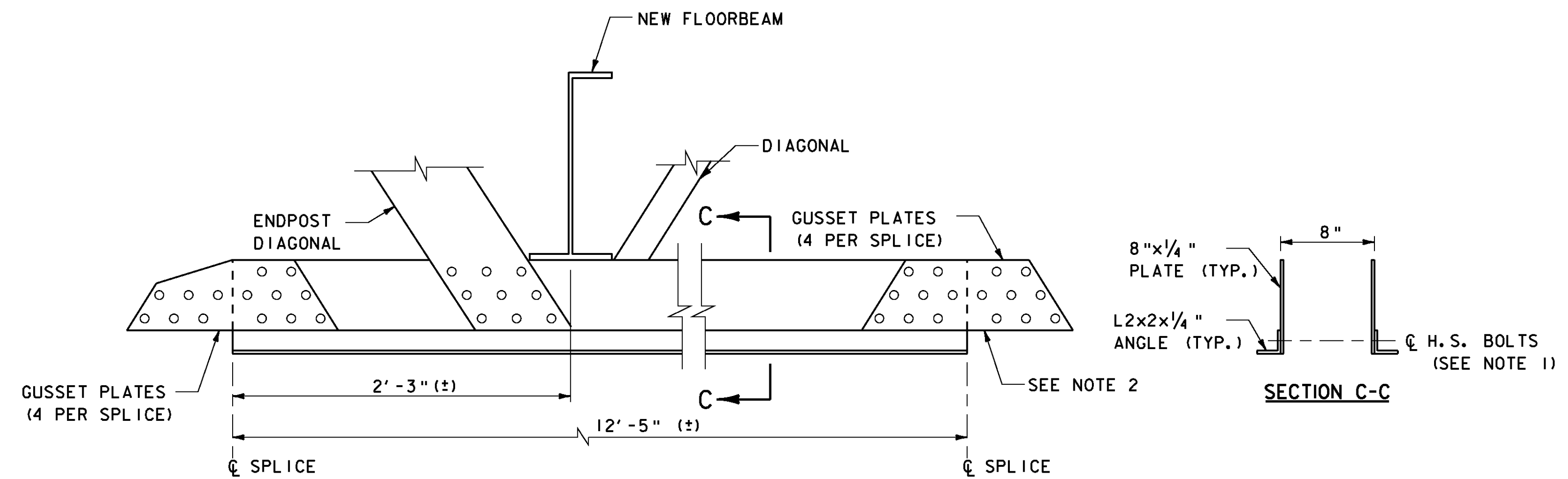
PLAN



SECTION

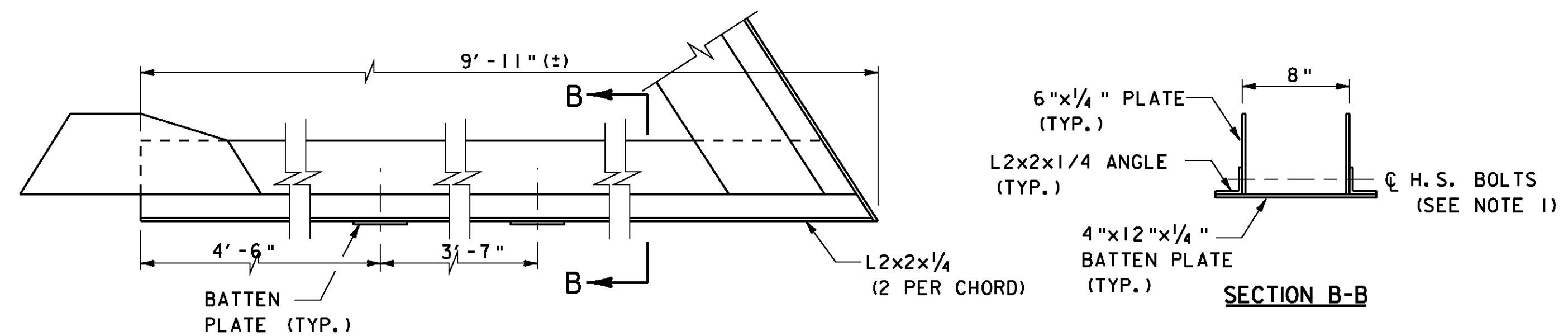
END POST DIAGONAL TOP PLATE DETAIL (TP2) TOTAL = 1

SCALE: 1/2" = 1'-0"



LOWER CHORD DETAIL (LC1)

(NORTH TRUSS ONLY)
SCALE: 1/2" = 1'-0"

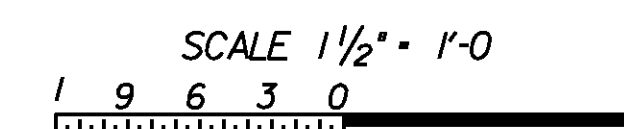


LOWER CHORD DETAIL (LC2)

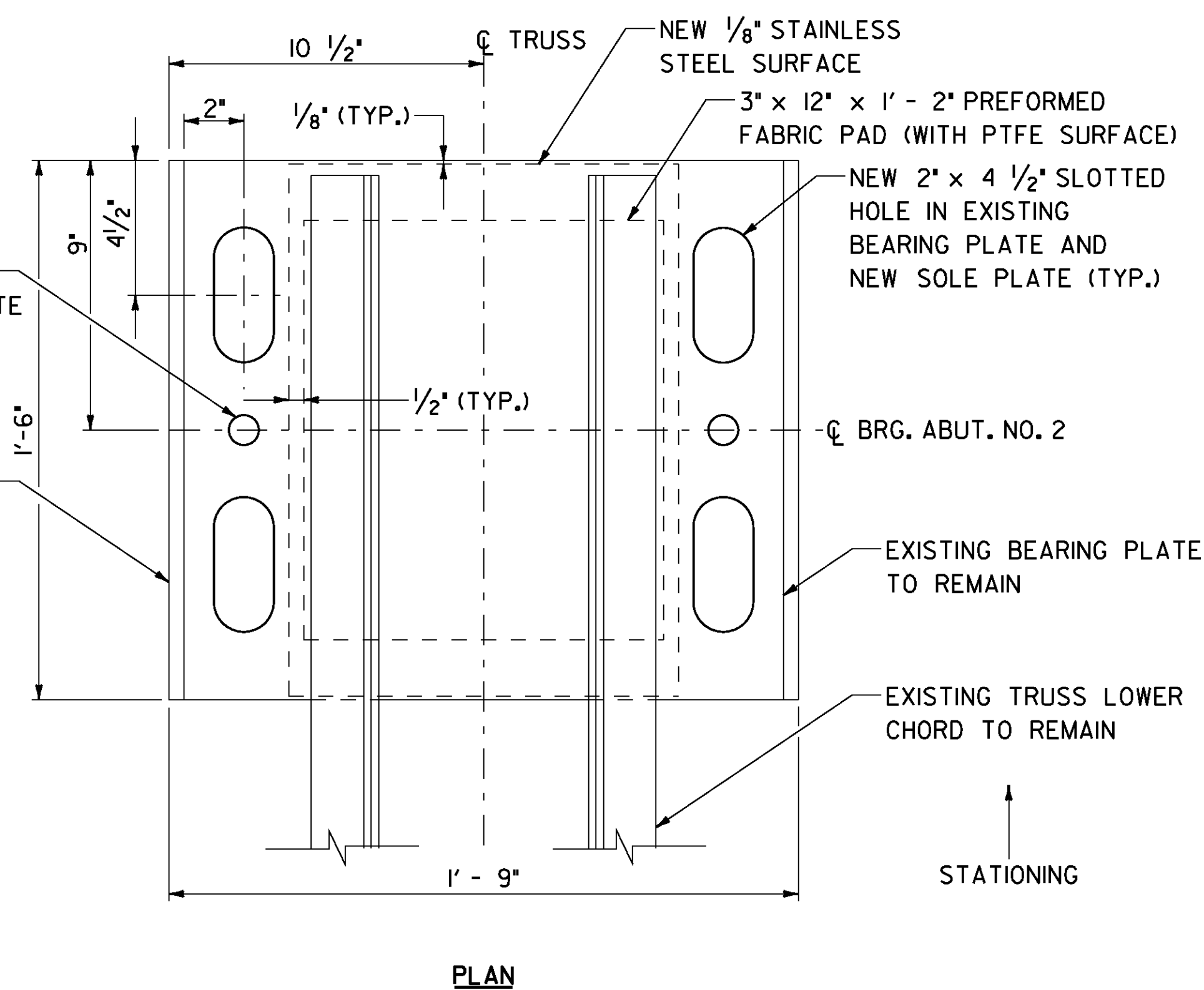
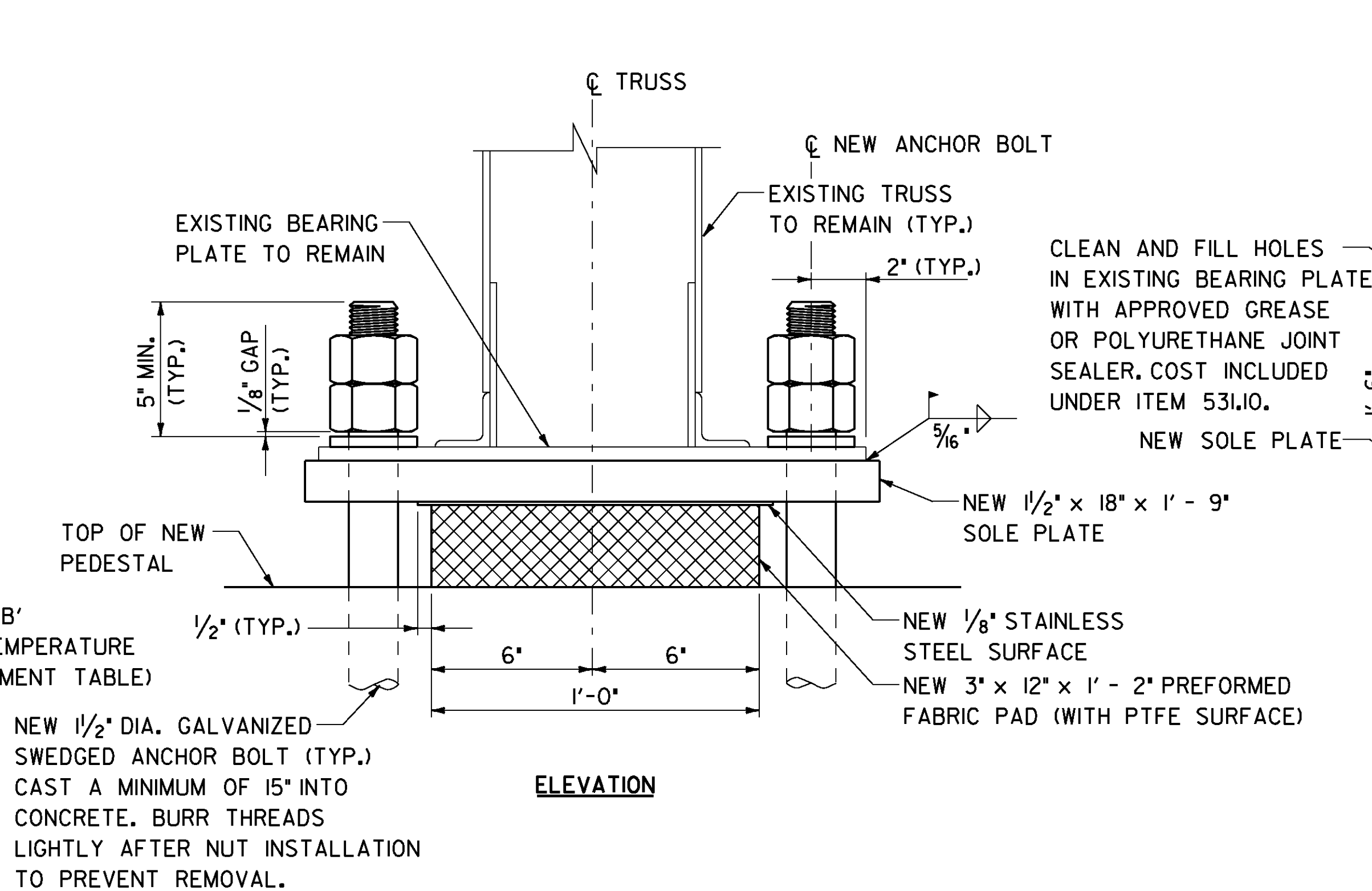
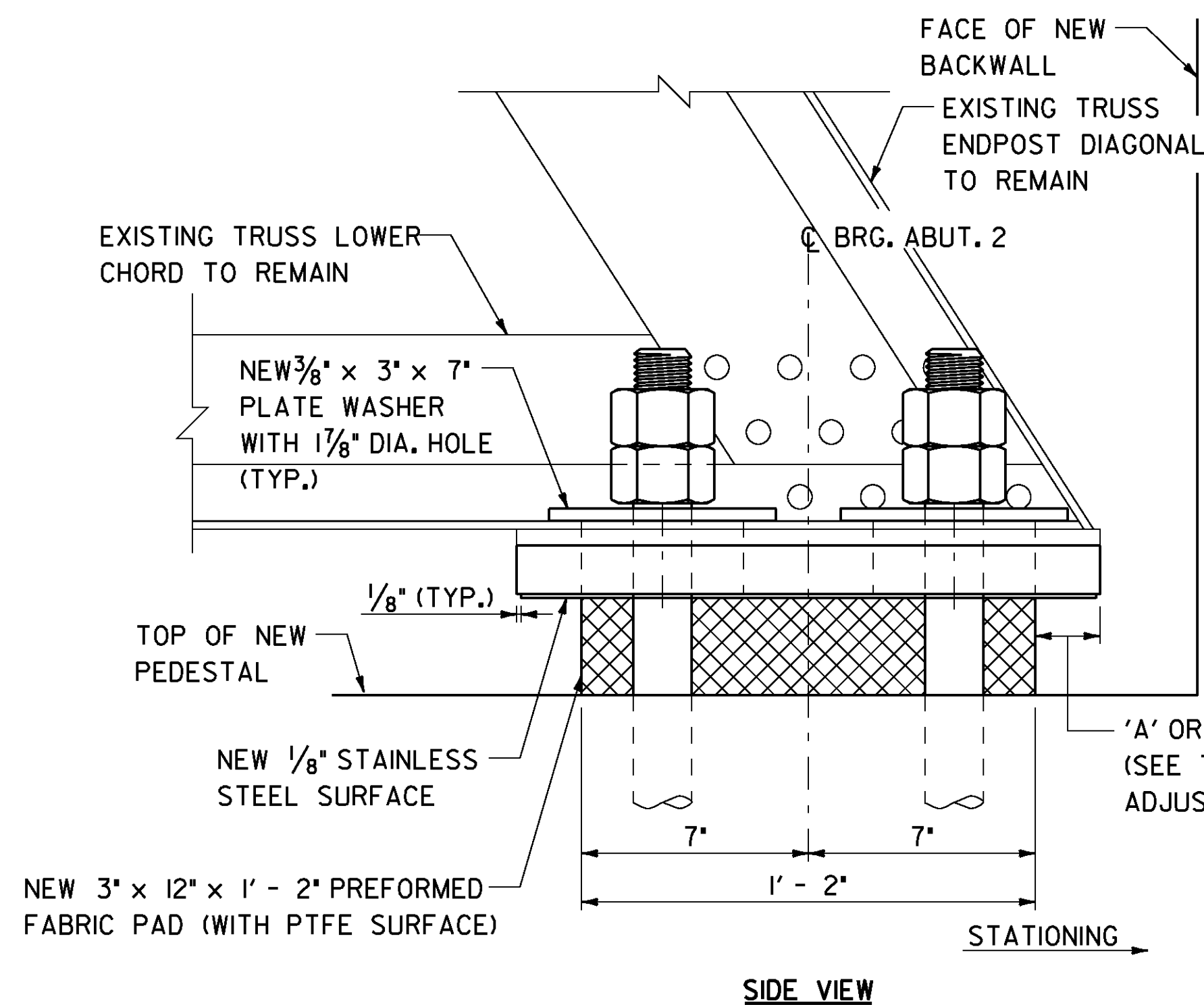
(NORTH TRUSS ONLY)
SCALE: 1/2" = 1'-0"

NOTES

1. SIZE AND NUMBER OF HIGH STRENGTH BOLTS TO MATCH EXISTING PATTERNS.
2. THE 1/2" GUSSET PLATE PROPORTIONS AND NUMBER OF REQUIRED HIGH STRENGTH BOLTS SHALL MATCH EXISTING PATTERNS.



SHEET NAME: SUPERSTRUCTURE DETAILS (3)	
PROJECT NAME: TUNBRIDGE	
PROJECT NUMBER: BRO 1444 (39)	
FILE NAME: z99J10sd3.dgn	PLOT DATE: 29-APR-2009
PROJECT LEADER: K.M. Higgins	DRAWN BY: P. Dustin
DESIGNED BY: N. Powelson	CHECKED BY: R. Joy
	SHEET 20 OF 32



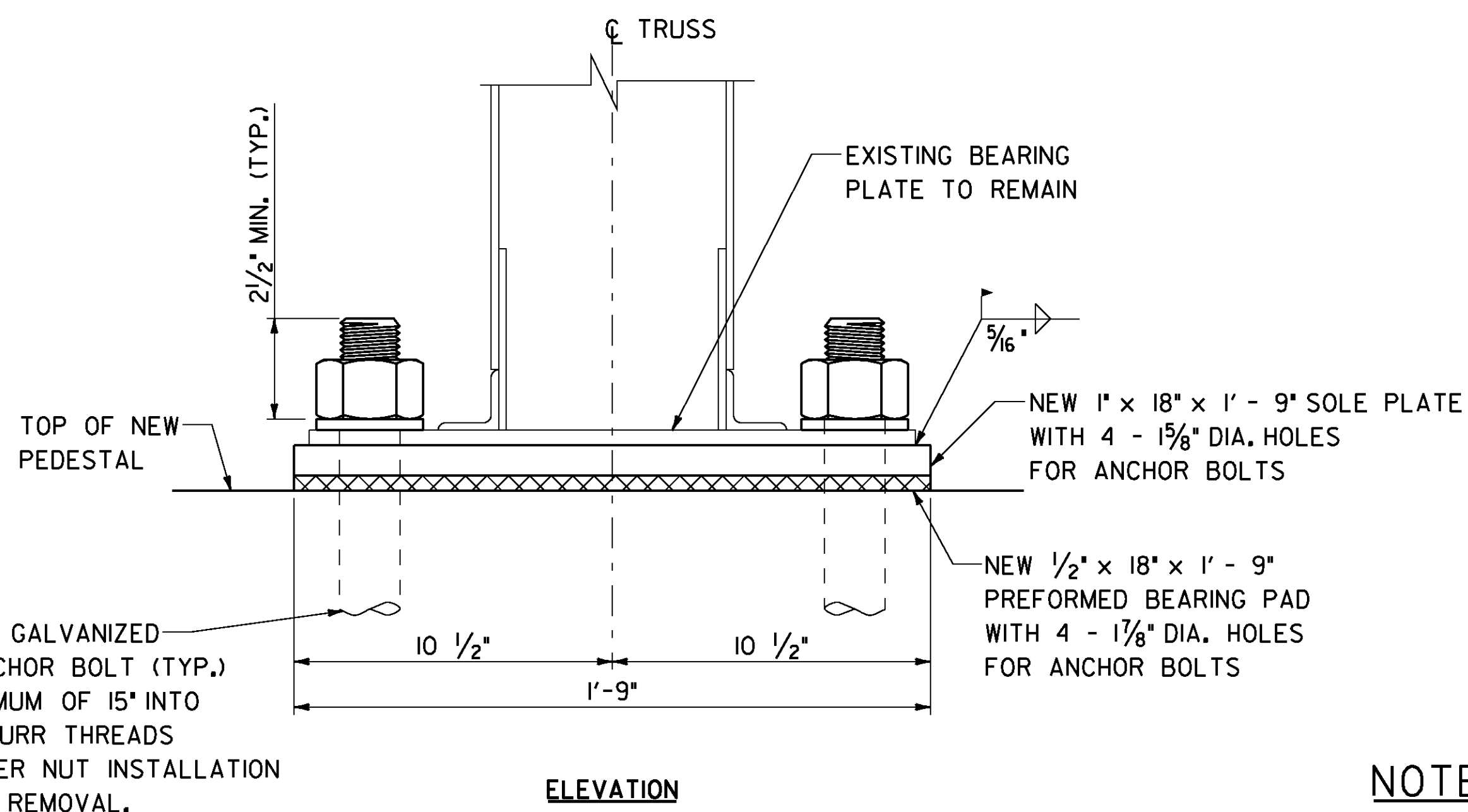
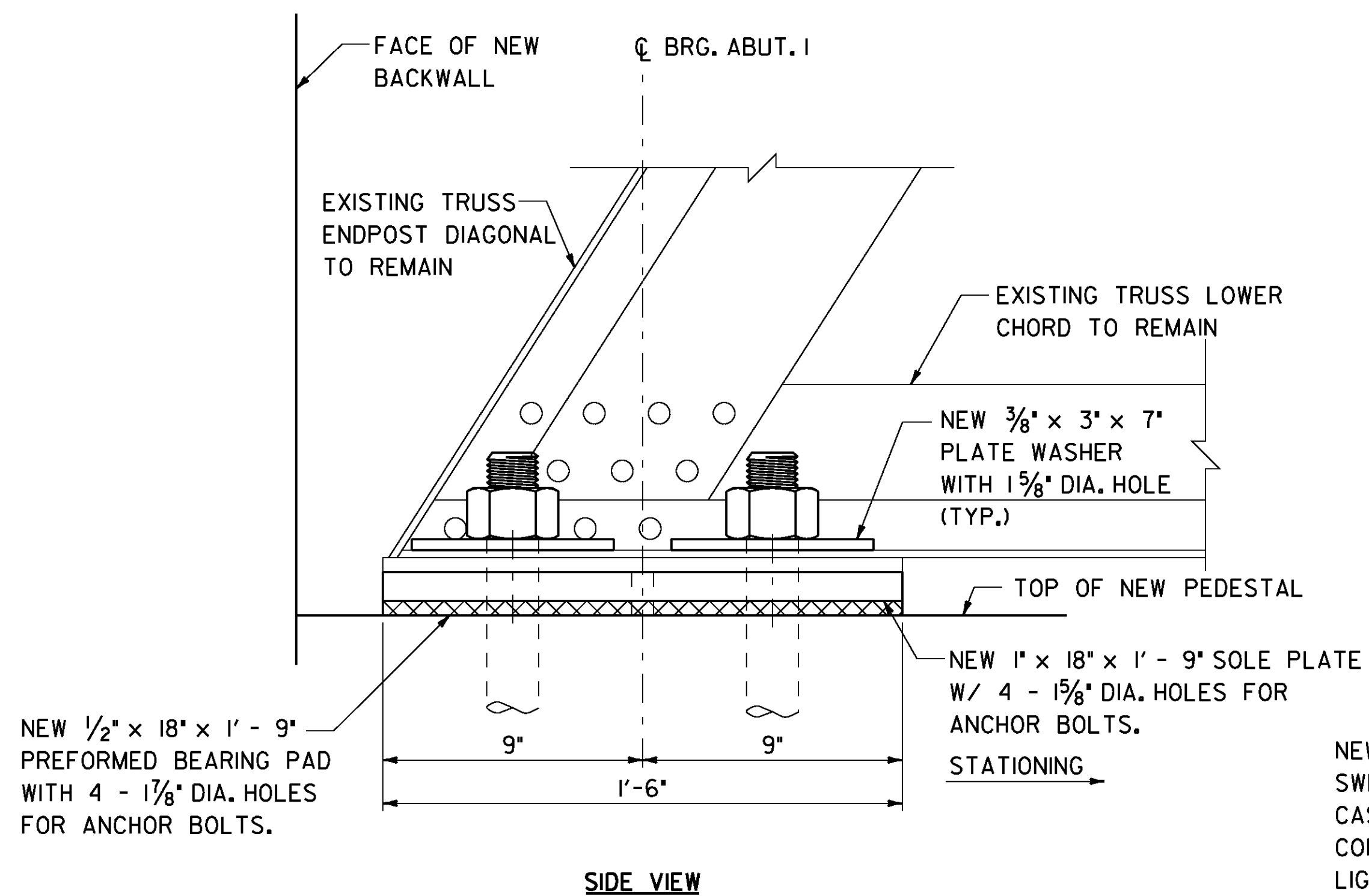
EXPANSION BEARING

(ABUTMENT NO. 2)
SCALE: 3" = 1'-0"

NEW 1/2" DIA. GALVANIZED SWAGED ANCHOR BOLT (TYP.) CAST A MINIMUM OF 15" INTO CONCRETE. BURR THREADS LIGHTLY AFTER NUT INSTALLATION TO PREVENT REMOVAL.

CLEAN AND FILL HOLES IN EXISTING BEARING PLATE WITH APPROVED GREASE OR POLYURETHANE JOINT SEALER. COST INCLUDED UNDER ITEM 531.10.

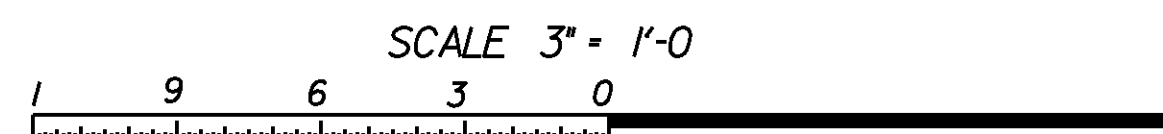
TEMPERATURE ADJUSTMENT TABLE		
TEMPERATURE	'A' (in)	'B' (in)
-15° F	1 11/16"	1 5/16"
0° F	1 3/4"	2"
15° F	1 13/16"	2 1/16"
30° F	1 5/8"	2 3/16"
45° F	2"	2 1/4"
60° F	2 1/16"	2 5/16"
75° F	2 3/16"	2 7/16"
90° F	2 1/4"	2 1/2"
105° F	2 5/16"	2 9/16"



FIXED BEARING *

(ABUTMENT NO. 1)
SCALE: 3" = 1'-0"

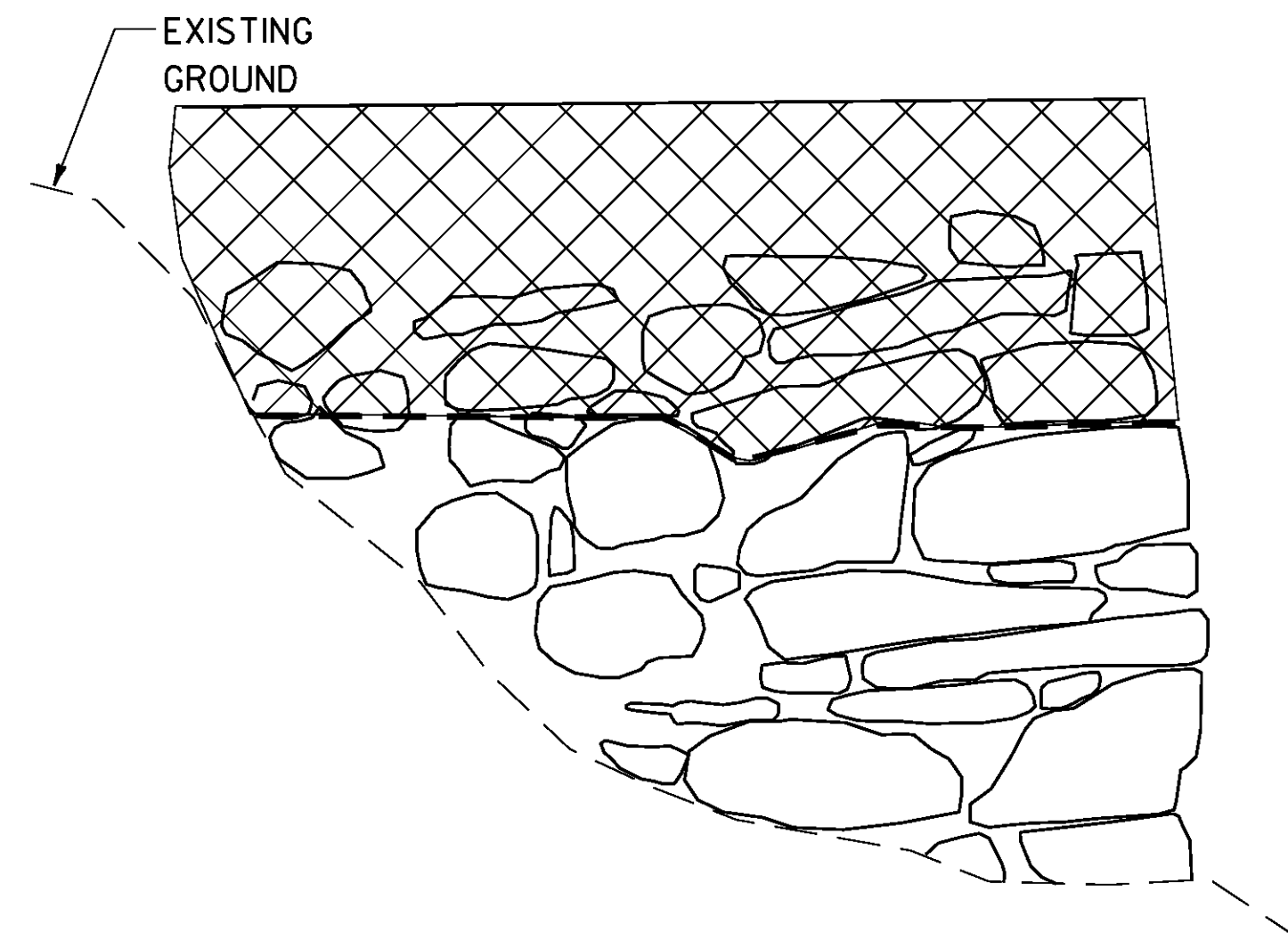
* PLAN VIEW OF FIXED BEARING SIMILAR TO EXPANSION BEARING EXCEPT SOLE PLATE DOES NOT HAVE SLOTTED HOLES.



NOTES

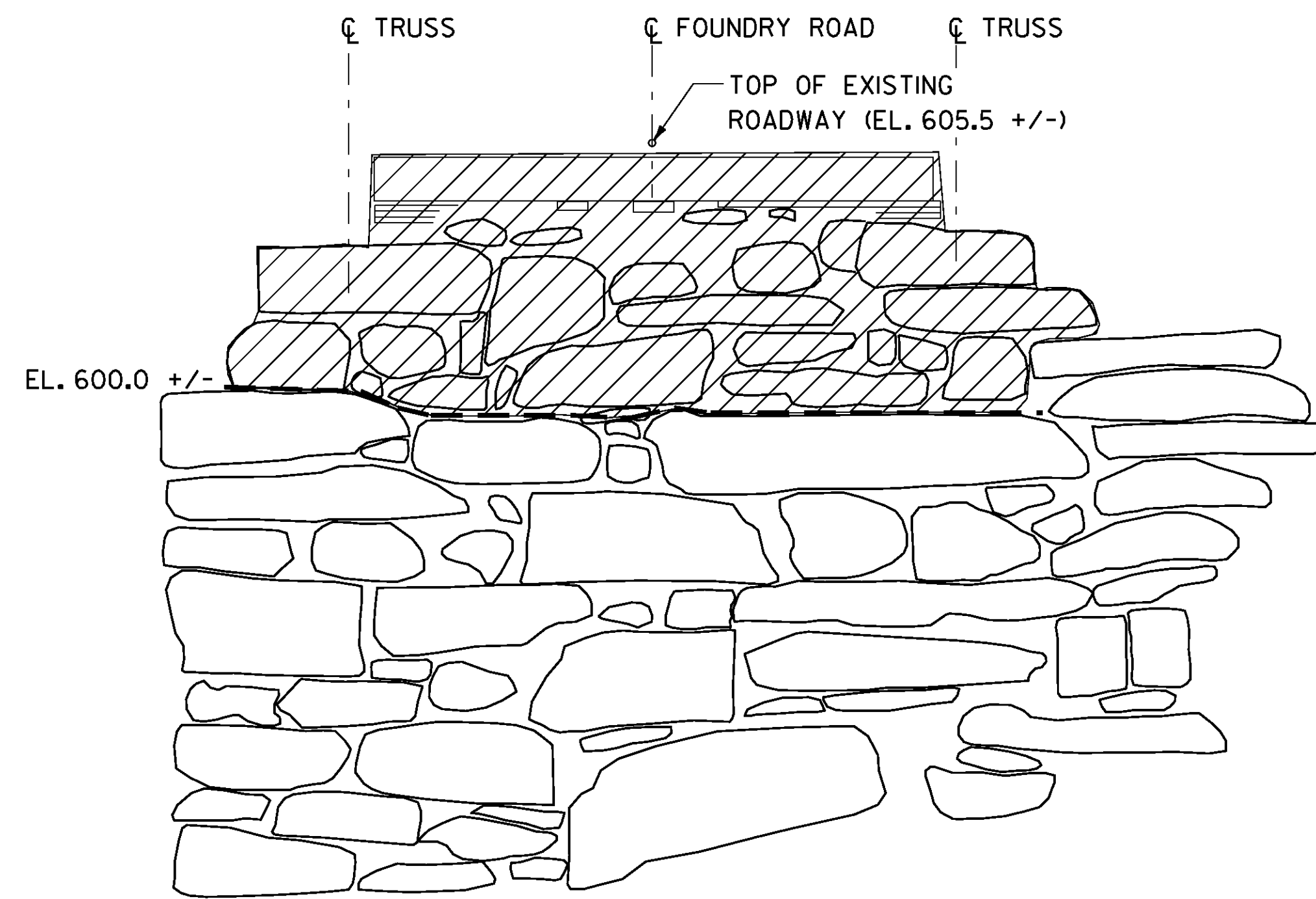
1. FOR BEARING NOTES, SEE GENERAL NOTES SHEET 17.

SHEET NAME: BEARING DETAILS		
PROJECT NAME: TUNBRIDGE		
PROJECT NUMBER: BRO 1444 (39)		
FILE NAME: z99J110sd4.dgn	PLOT DATE: 29-APR-2009	
PROJECT LEADER: K.M. Higgins	DRAWN BY: P. Dustin	
DESIGNED BY: S. Della	CHECKED BY: R. Joy	
	SHEET 21 OF 32	



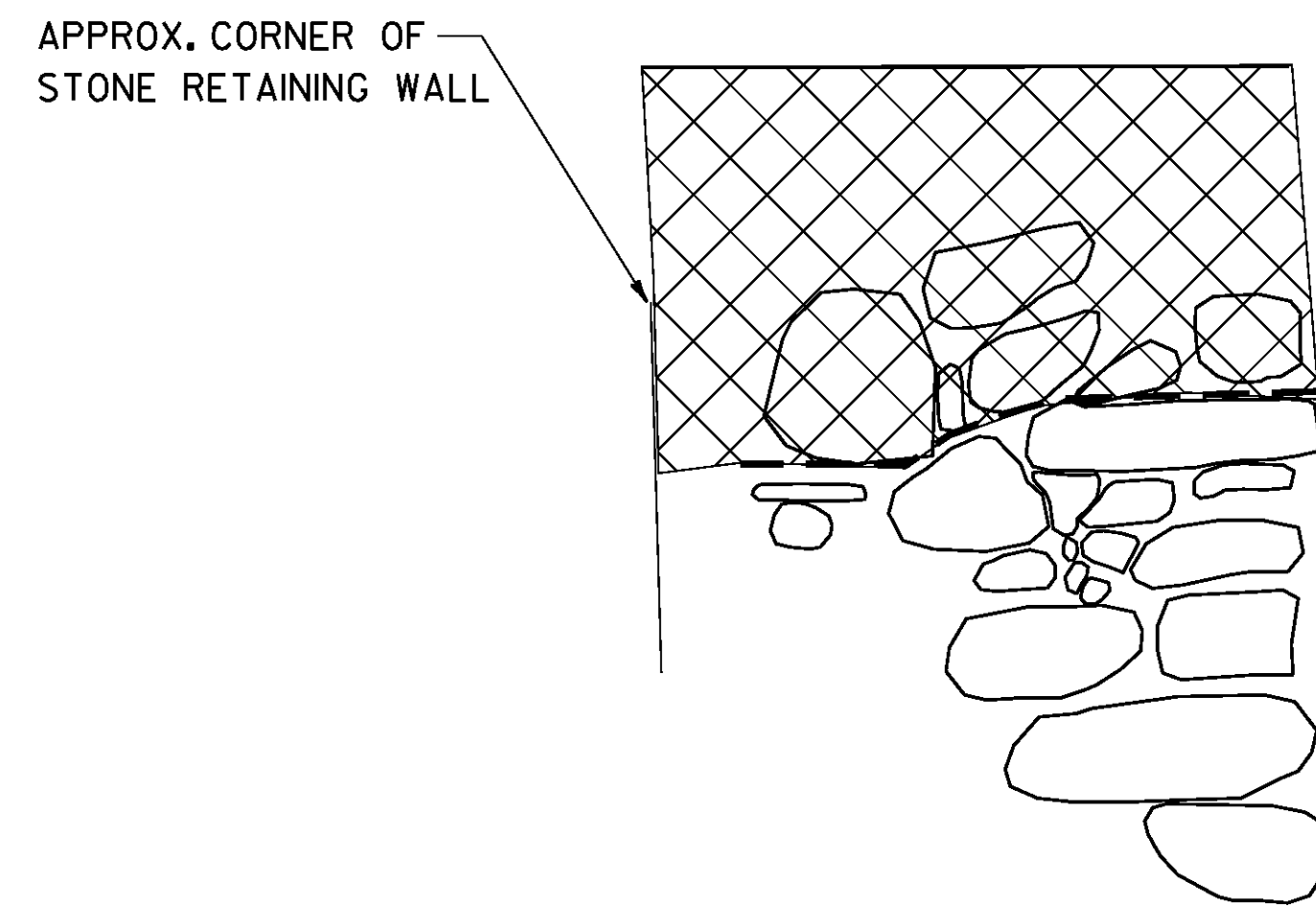
ELEVATION - WINGWALL NO. 2

SCALE: 3/8" = 1'-0"



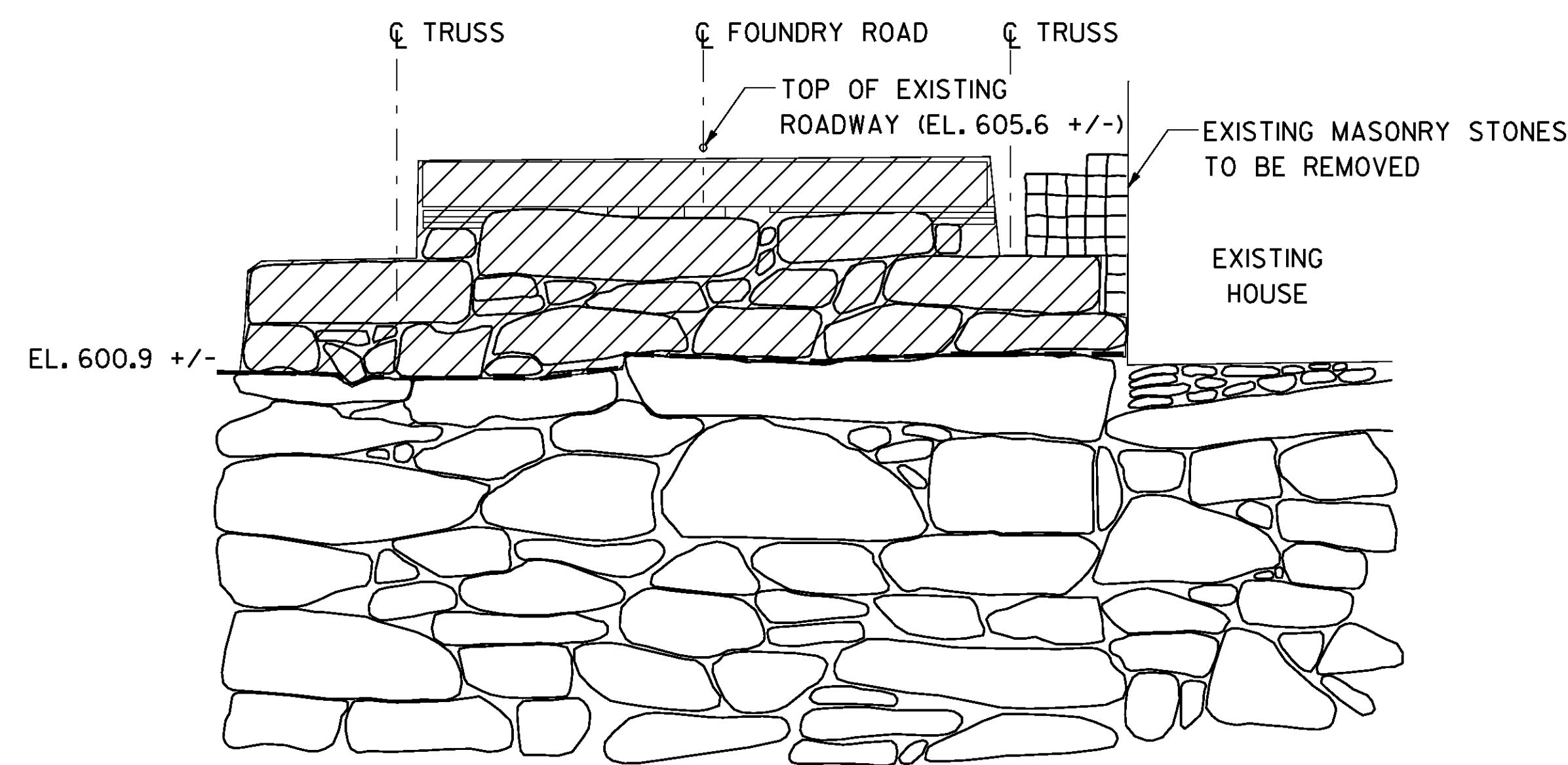
ELEVATION - ABUTMENT NO. 1

SCALE: 3/8" = 1'-0"



ELEVATION - WINGWALL NO. 3

SCALE: 3/8" = 1'-0"



ELEVATION - ABUTMENT NO. 2

SCALE: 3/8" = 1'-0"

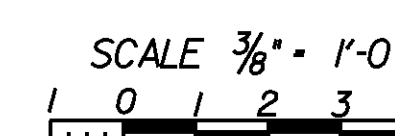
LEGEND



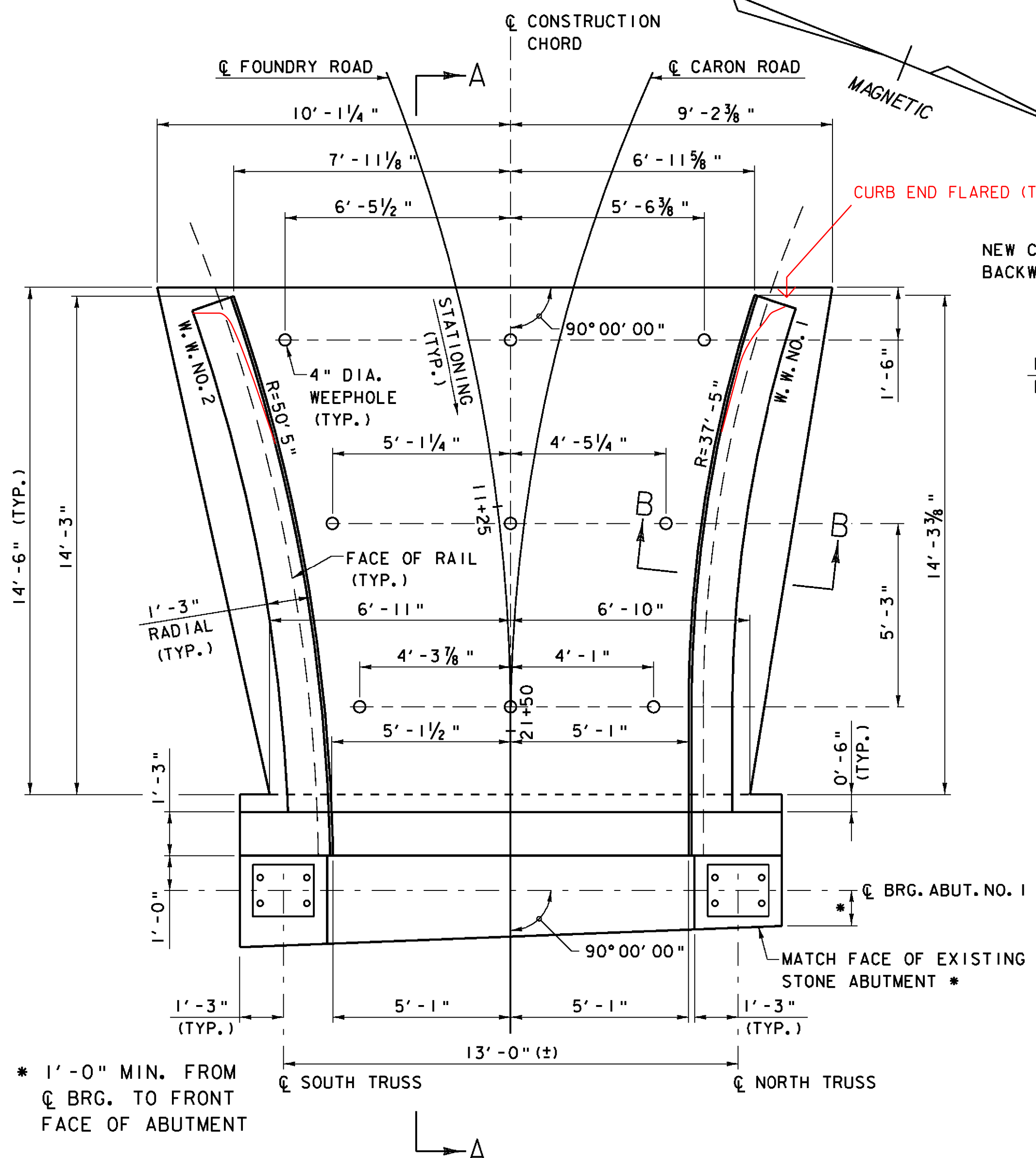
DENOTES APPROXIMATE PAY LIMITS OF ITEM 900.608, SPECIAL PROVISION (REBUILT STONE MASONRY)



DENOTES LIMIT OF EXISTING ABUTMENT REMOVAL (ITEM 529.25, REMOVAL OF CONCRETE OR MASONRY)

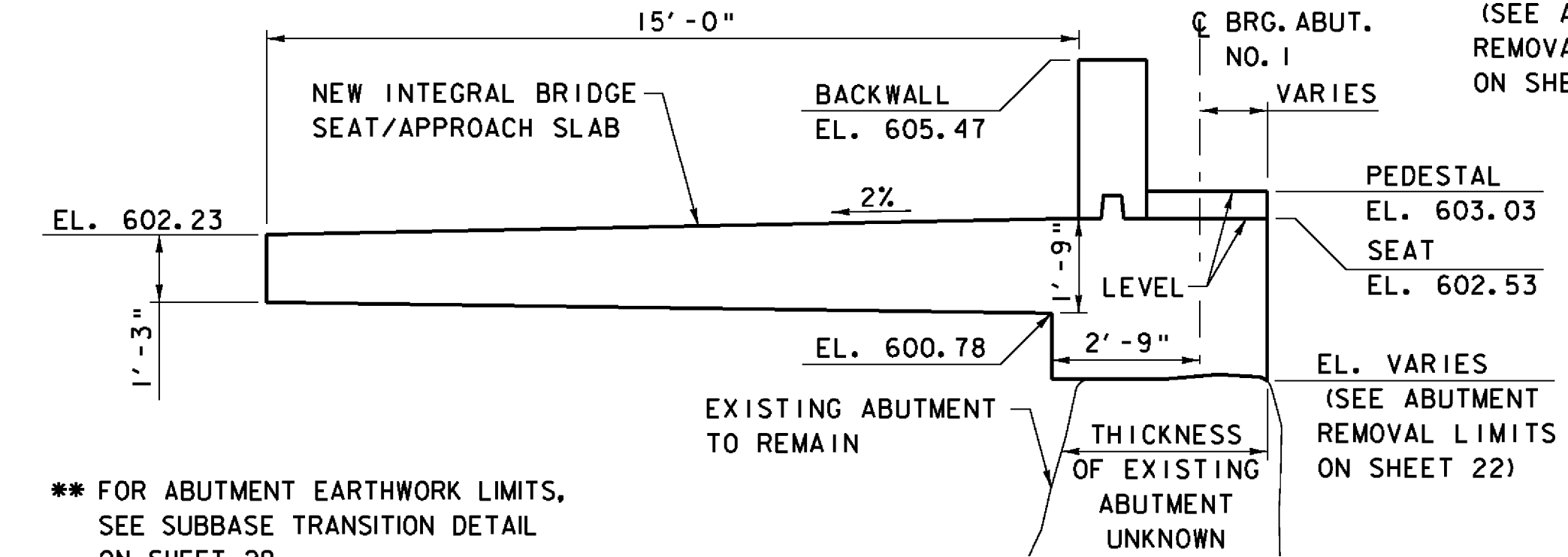


SHEET NAME: ABUTMENT REMOVAL DETAILS		
PROJECT NAME:	TUNBRIDGE	
PROJECT NUMBER:	BRO 1444 (39)	
FILE NAME:	z99J110abr.dgn	PLOT DATE: 29-APR-2009
PROJECT LEADER:	K.M. Higgins	DRAWN BY: P. Dustin
DESIGNED BY:	N. Powelson	CHECKED BY: R. Joy
		SHEET 22 OF 32



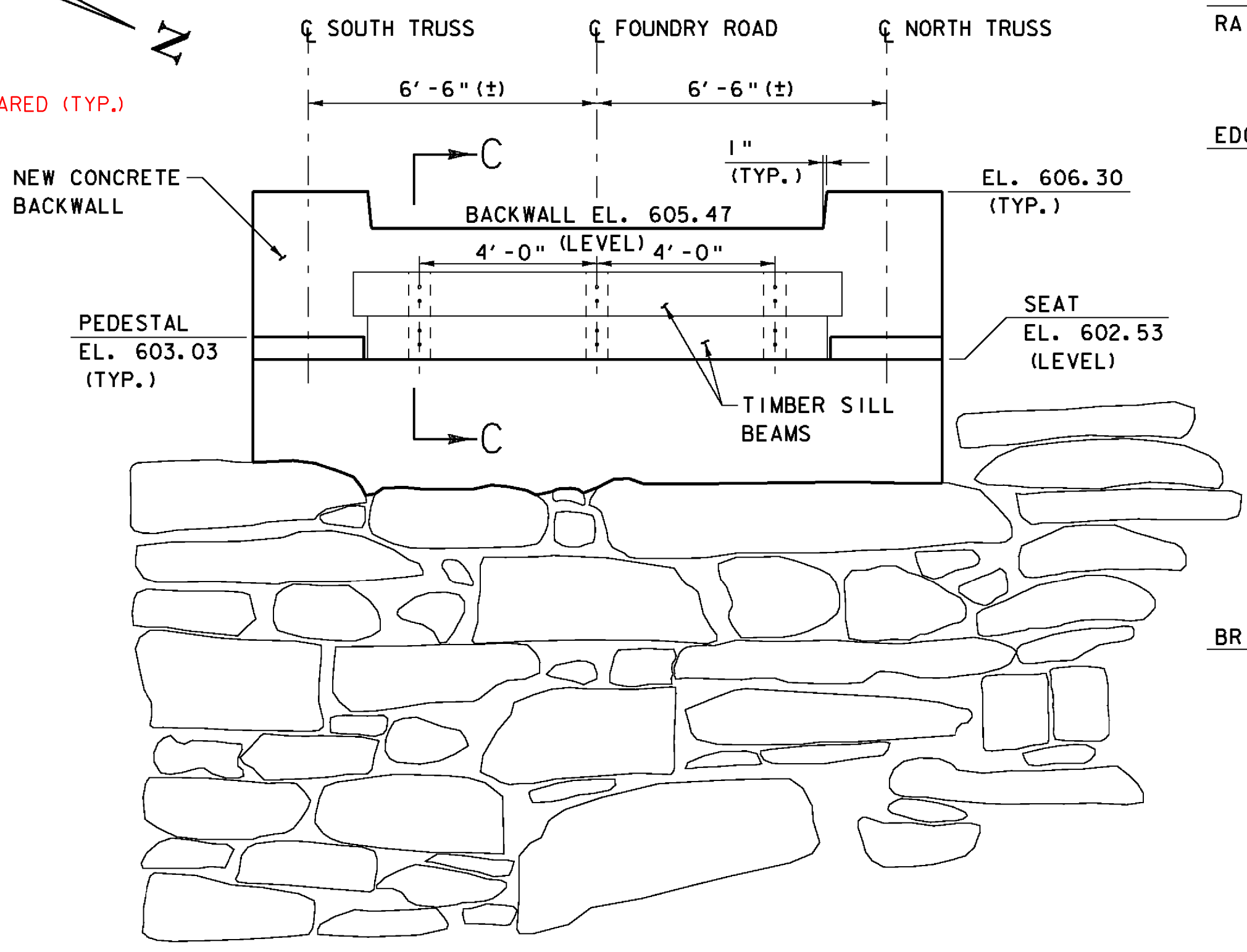
TIMBER SILL BEAMS NOT SHOWN IN PLAN VIEW FOR CLARITY.
EXISTING STONE RETAINING WALLS NOT SHOWN FOR CLARITY.

PLAN
SCALE: 3/8" = 1'-0"

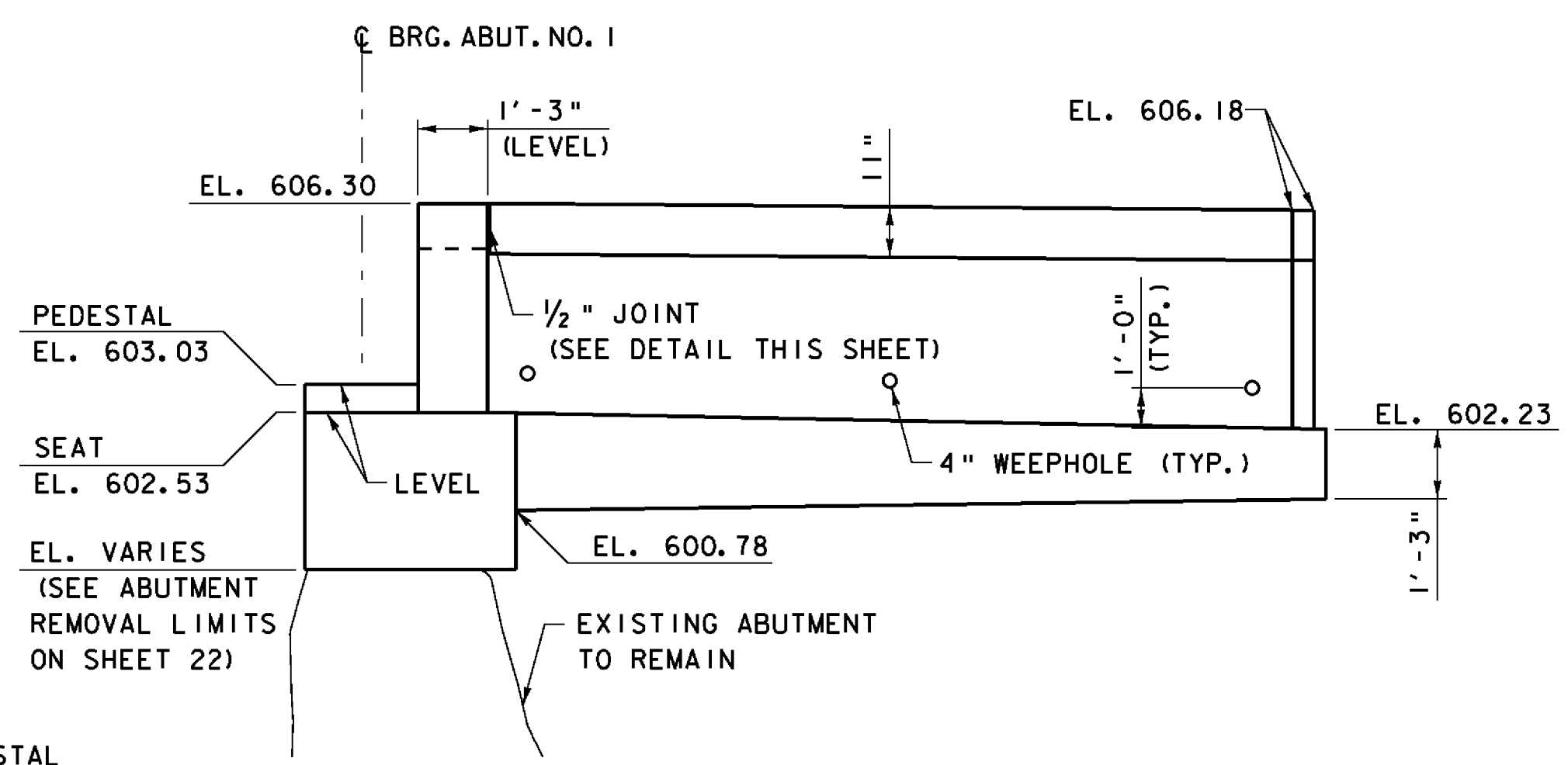


SECTION A-A **
SCALE: 3/8" = 1'-0"

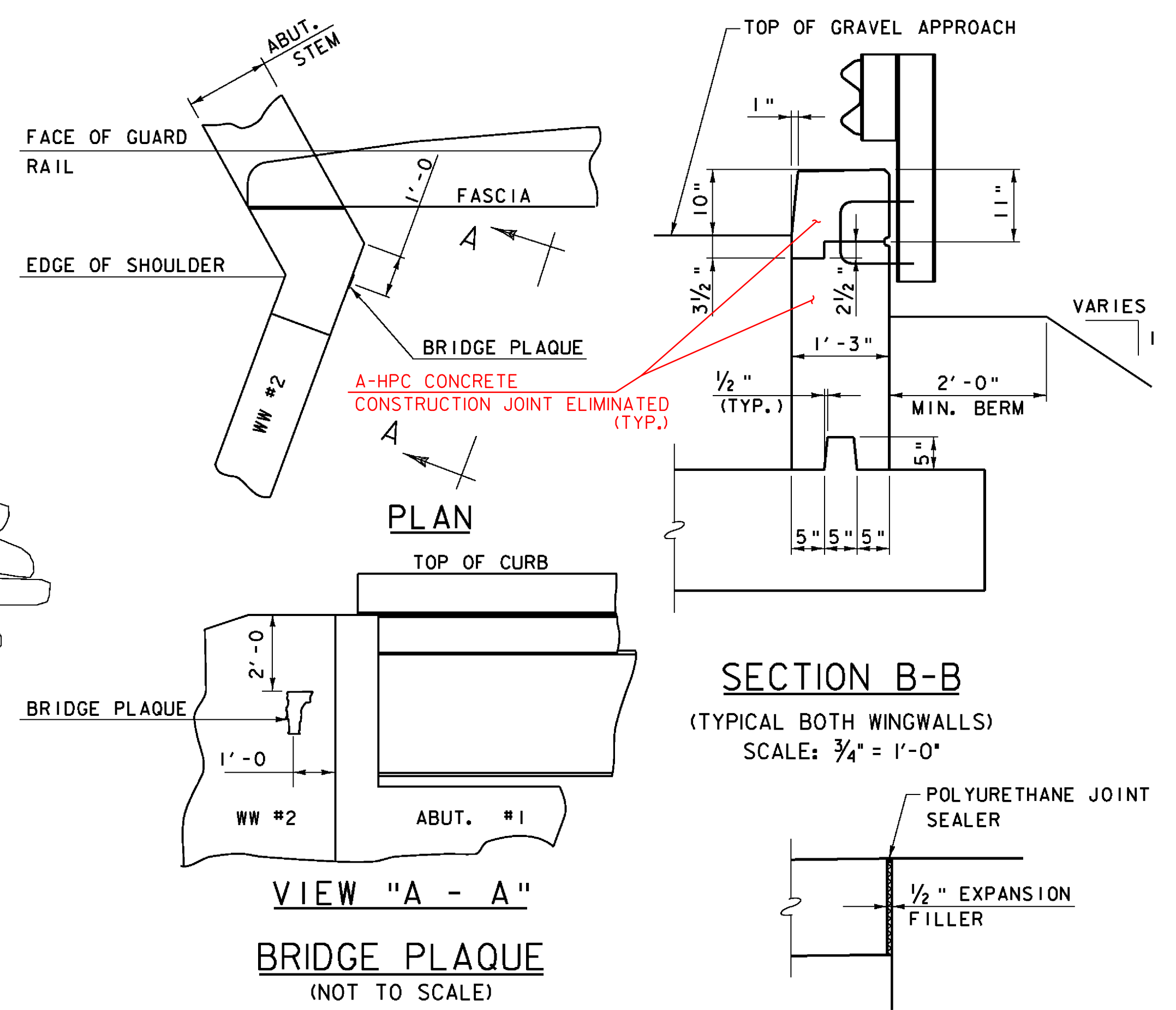
** FOR ABUTMENT EARTHWORK LIMITS, SEE SUBBASE TRANSITION DETAIL ON SHEET 29.



ELEVATION
SCALE: 3/8" = 1'-0"

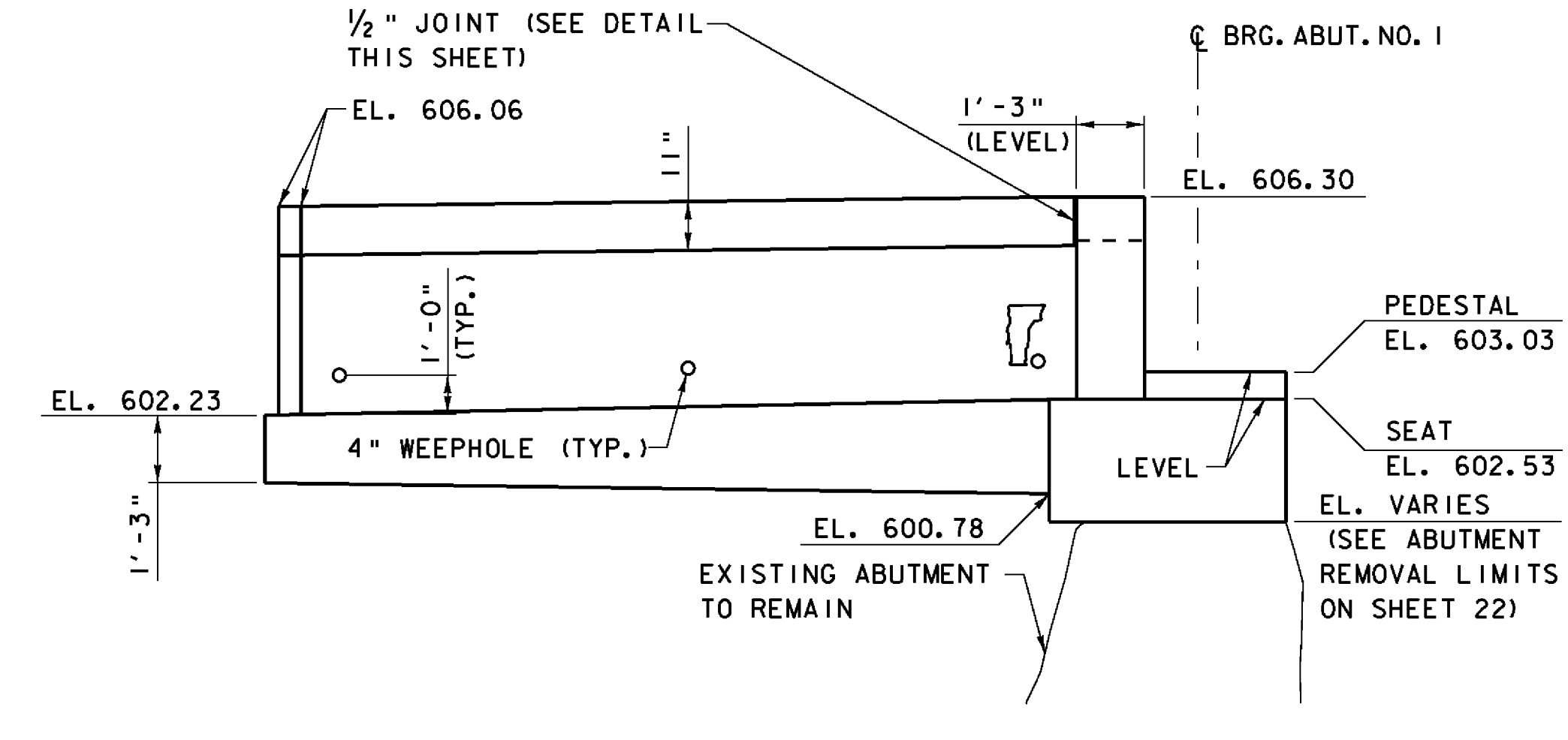


WINGWALL NO. 1 ELEVATION
SCALE: 3/8" = 1'-0"



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.

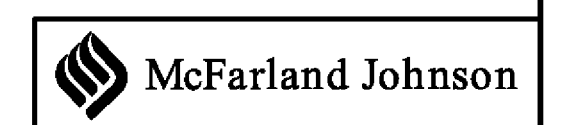
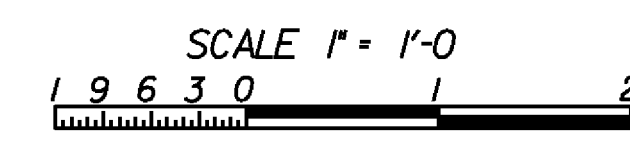
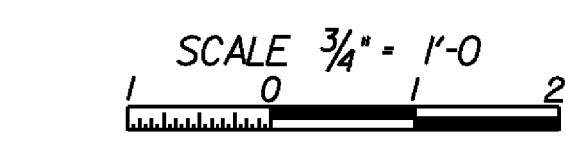
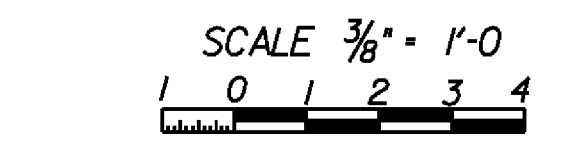
PAYMENT FOR INSTALLATION OF THE BRIDGE PLAQUE SHALL BE INCIDENTAL TO THE ADJACENT CONCRETE.



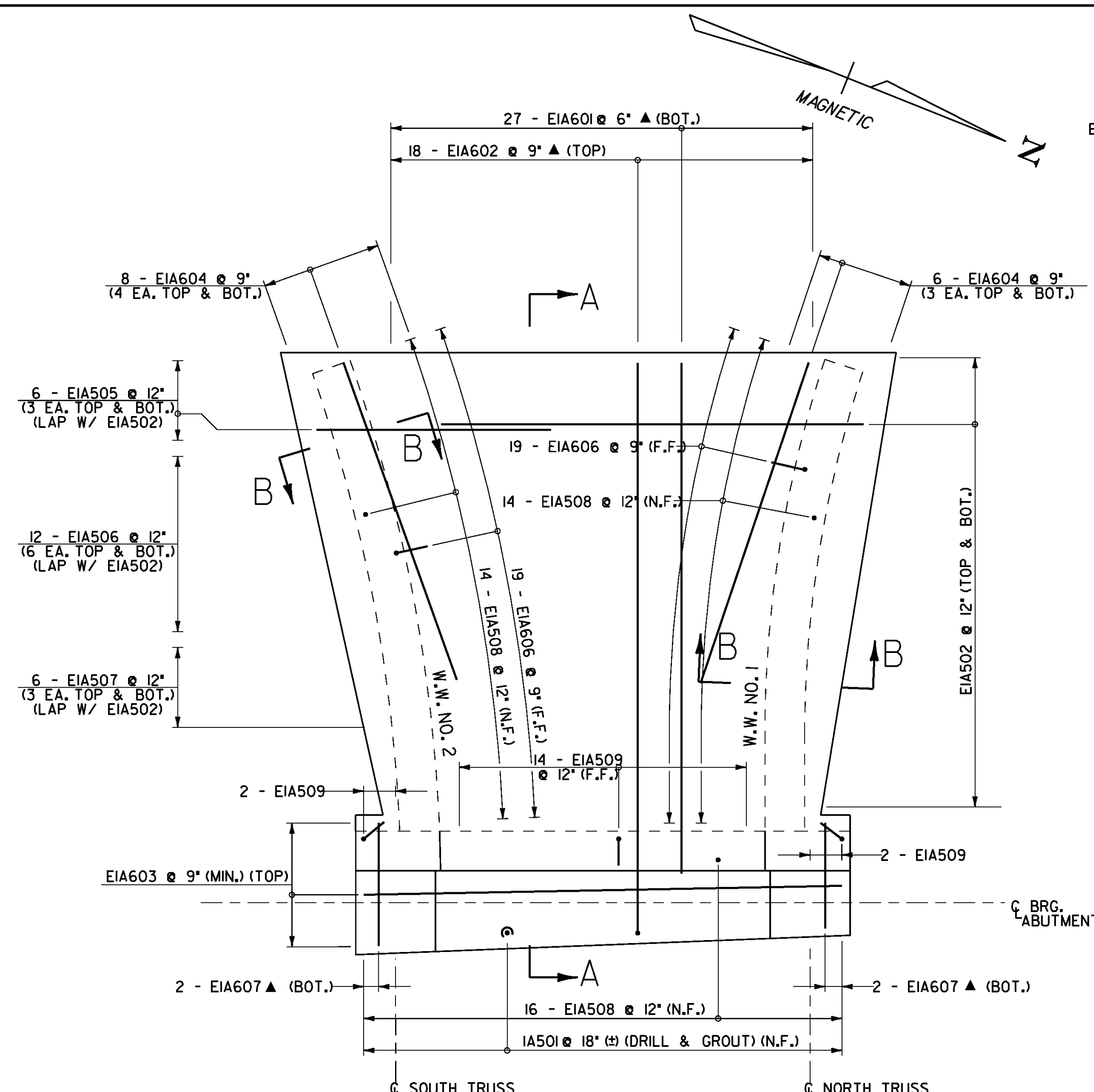
WINGWALL NO. 2 ELEVATION
SCALE: 3/8" = 1'-0"

NOTES

- FOR SECTION C-C, SEE SHEET 25.
- COST FOR JOINT SEALER AND EXPANSION MATERIAL TO BE INCLUDED IN ITEM 501.34.

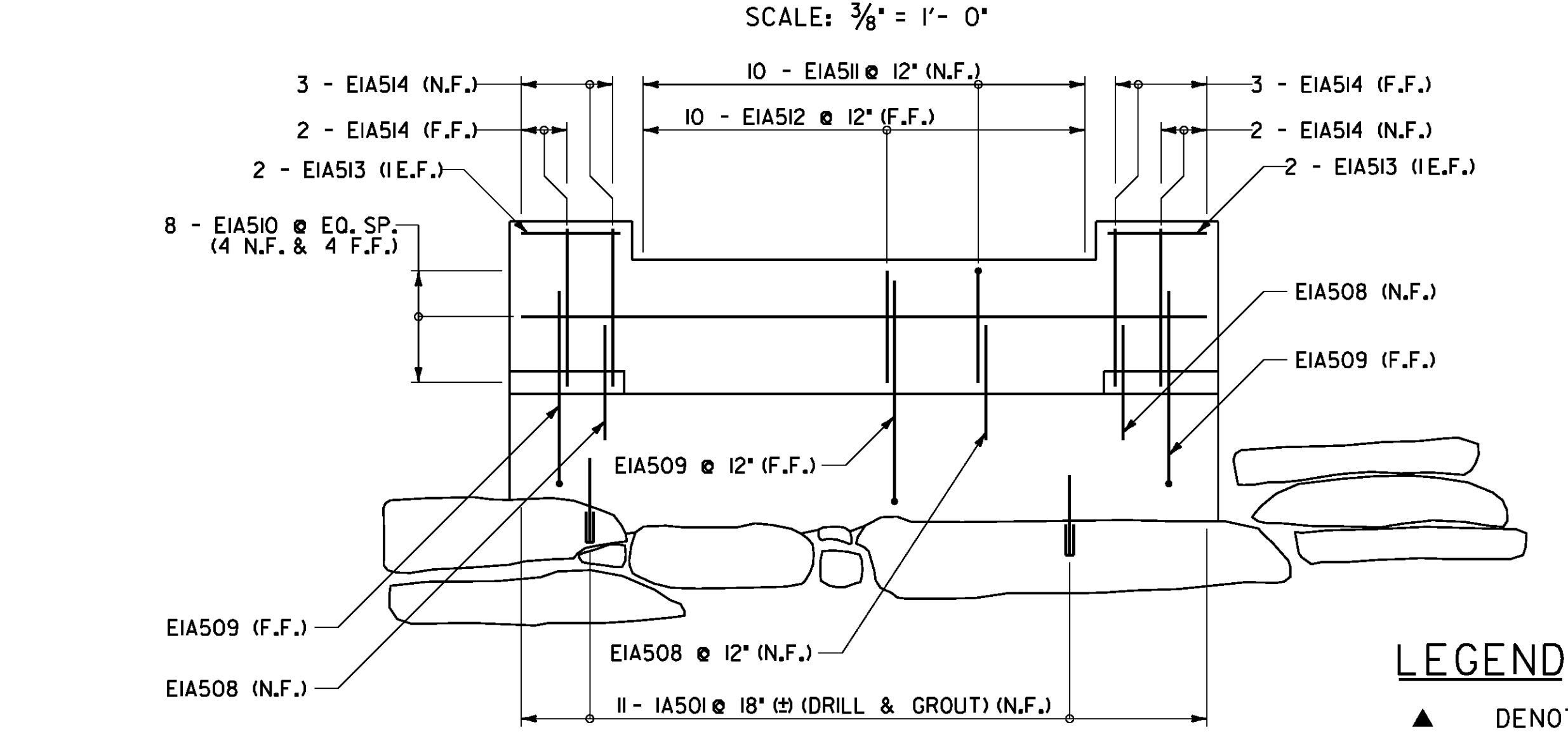


SHEET NAME: ABUTMENT NO. 1 MASONRY	
PROJECT NAME: TUNBRIDGE	PROJECT NUMBER: BRO 1444 (39)
FILE NAME: z99JII0abi.dgn	PLOT DATE: 26-MAY-2009
PROJECT LEADER: K.M. Higgins	DRAWN BY: P. Dustin
DESIGNED BY: N. Powelson	CHECKED BY: R. Joy
	SHEET 23 OF 32



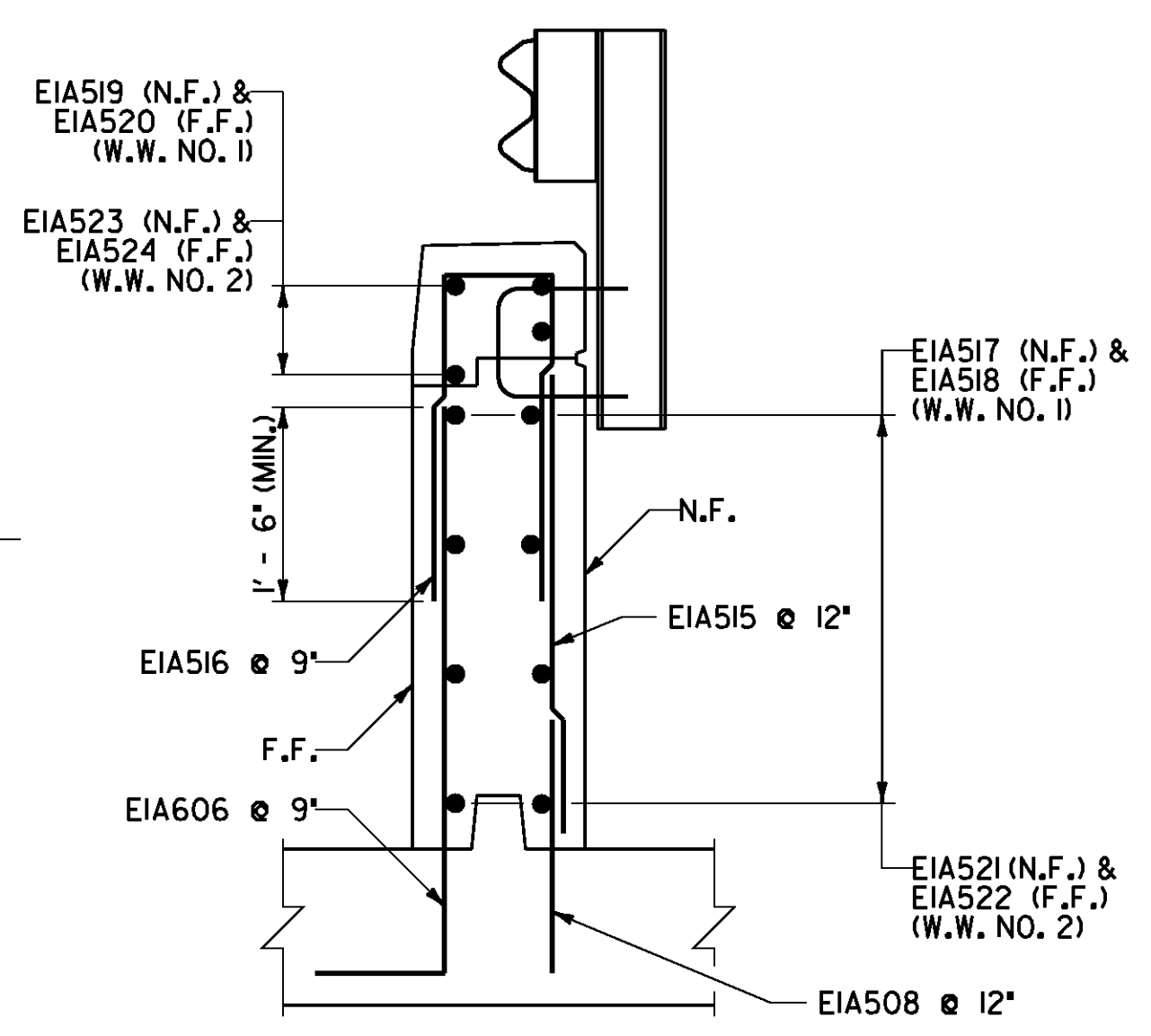
PLAN - ABUTMENT NO. 1

SCALE: 3/8" = 1'-0"



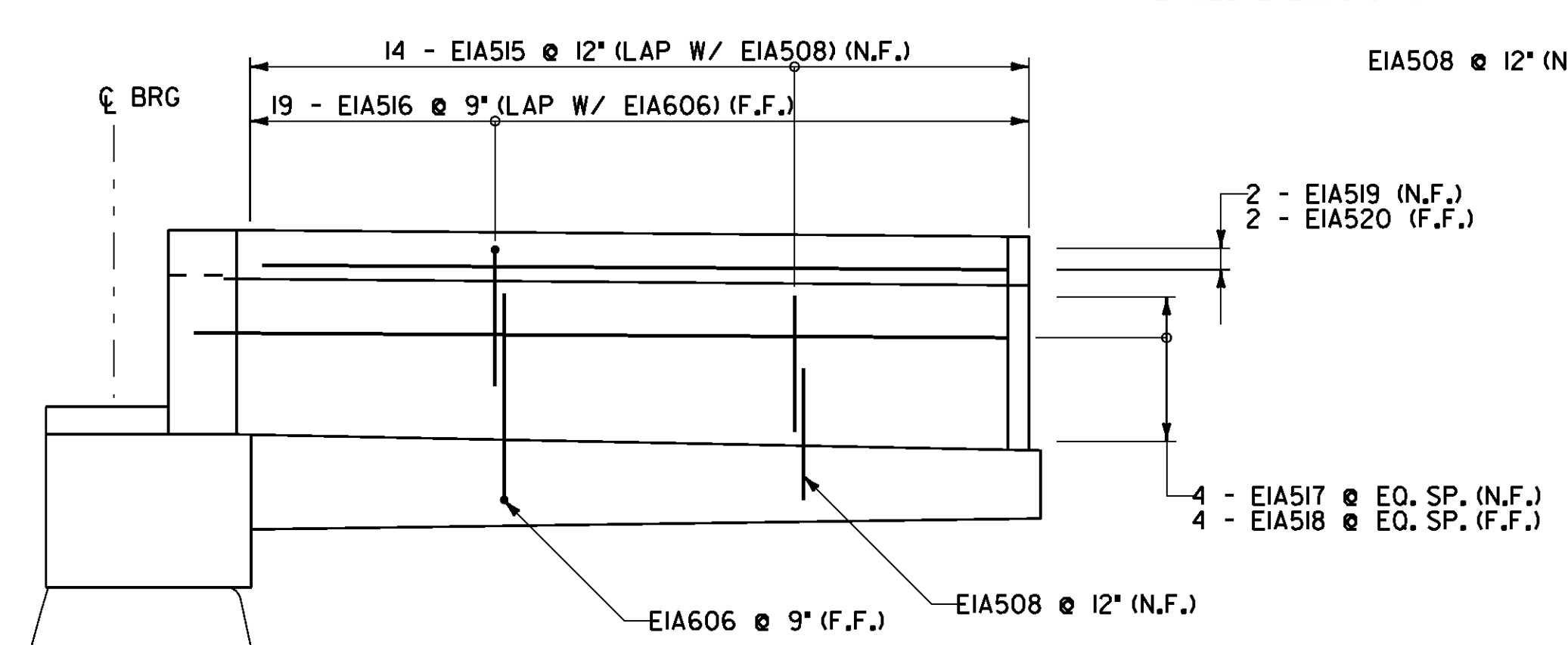
ELEVATION - ABUTMENT NO. 1

SCALE: 3/8" = 1'-0"



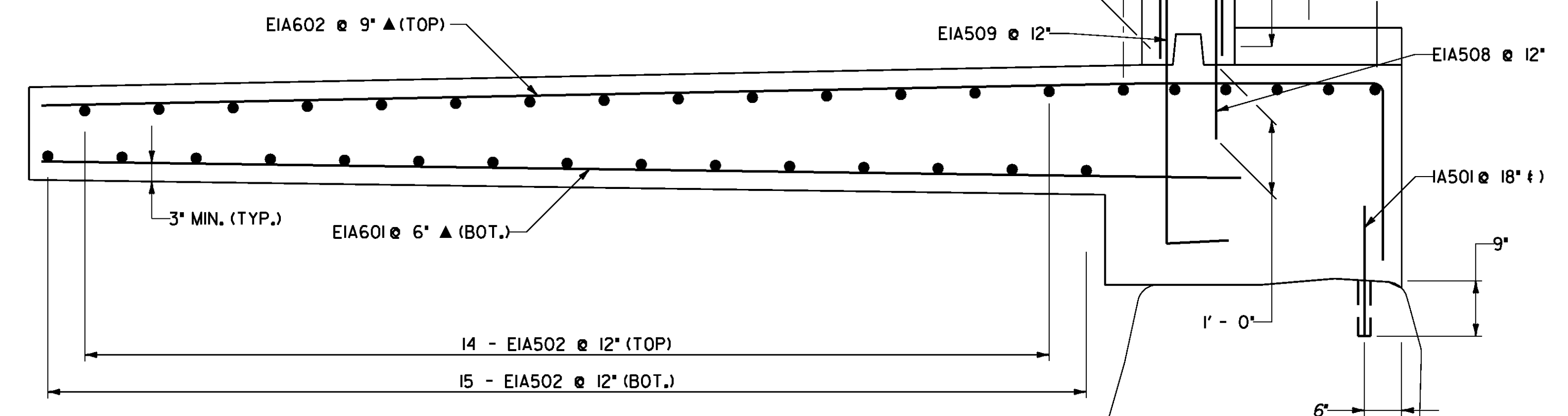
SECTION B-B

SCALE: 3/4" = 1'-0"



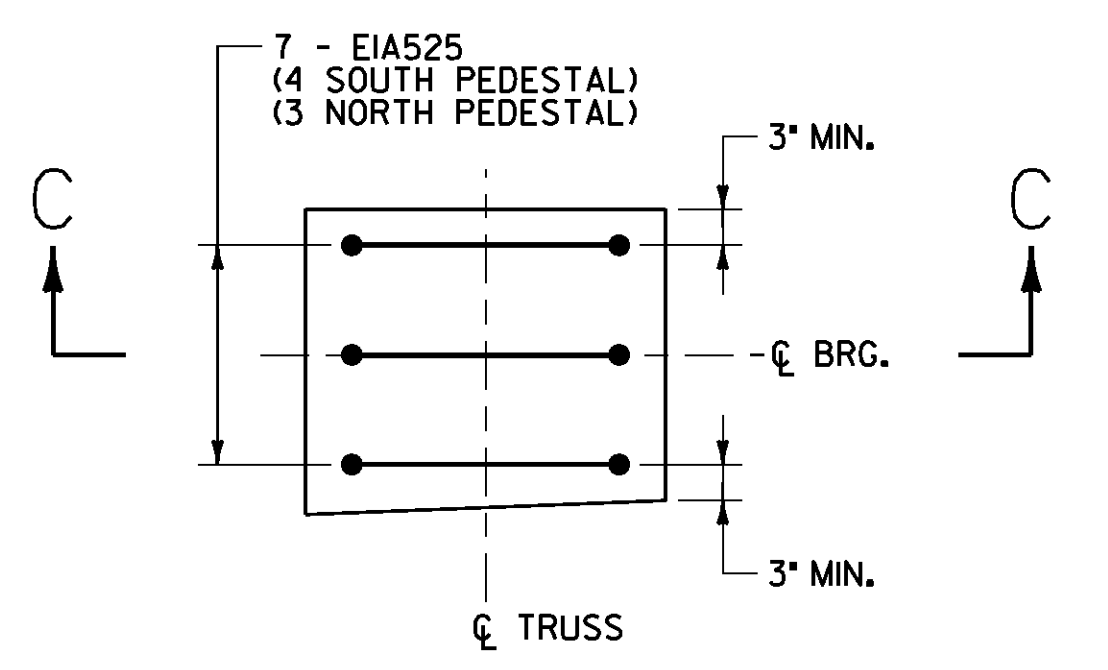
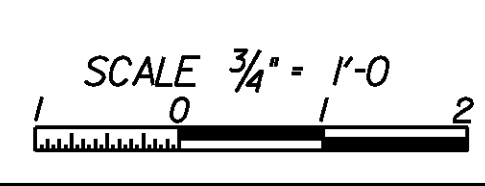
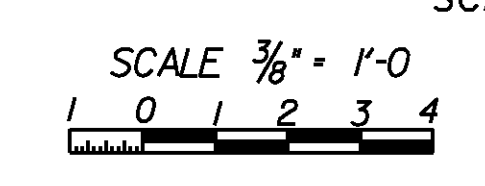
ELEVATION - WINGWALL NO. 1

SCALE: 3/8" = 1'-0"



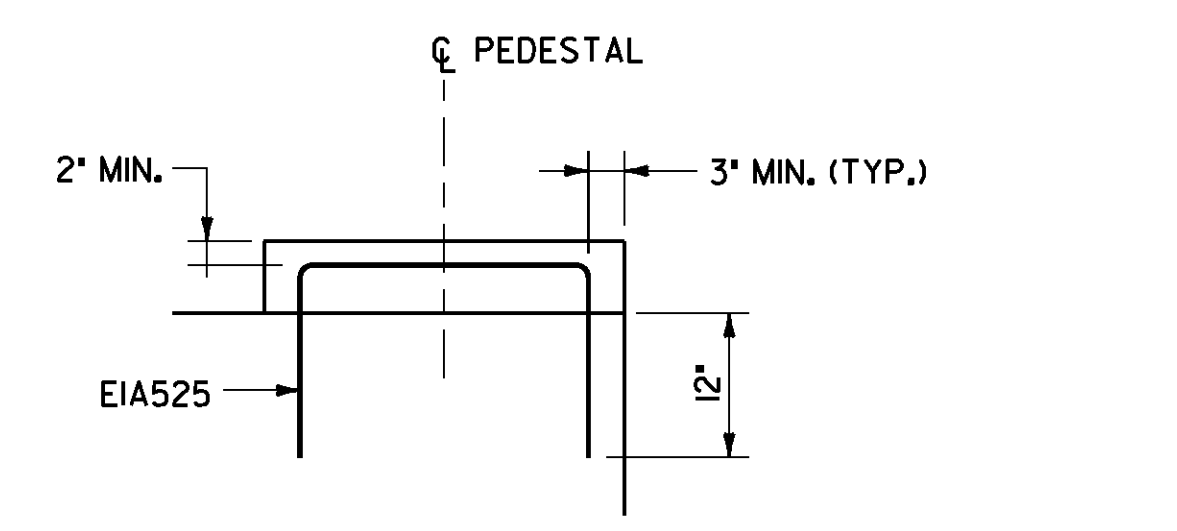
SECTION A-A

SCALE: 3/4" = 1'-0"



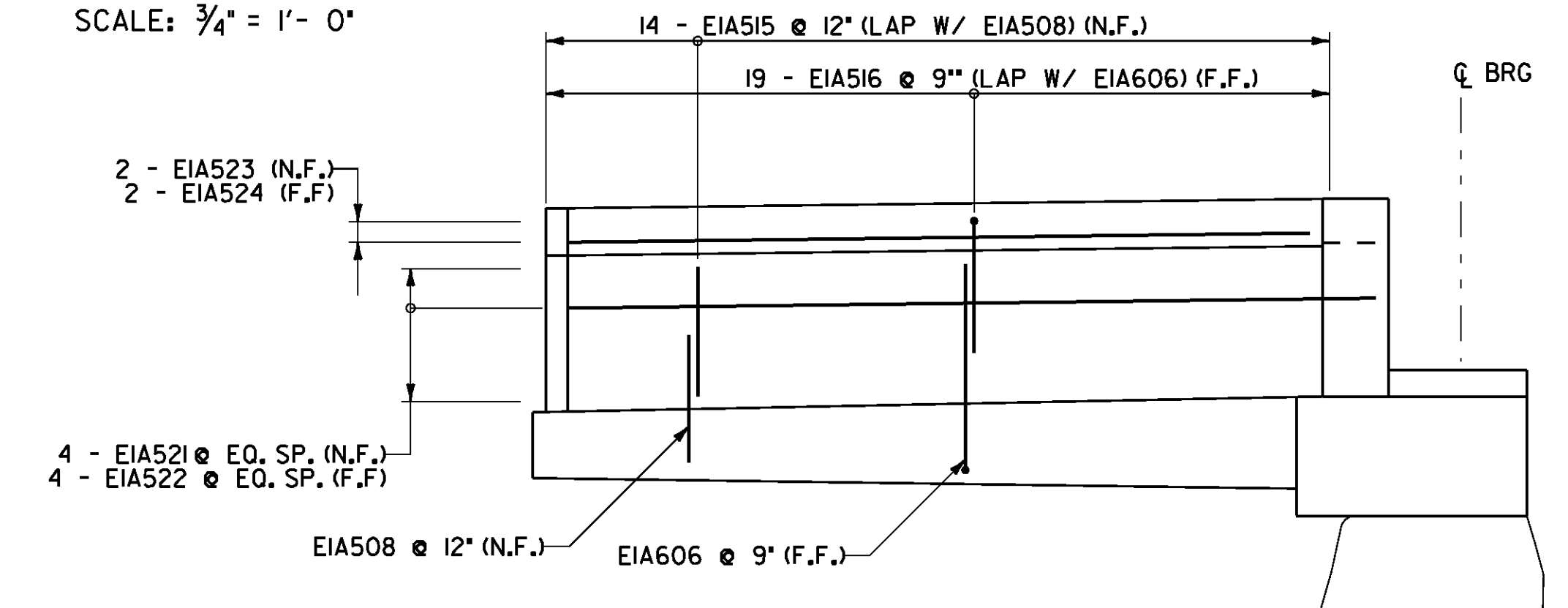
PLAN - PEDESTAL

SCALE: 3/4" = 1'-0"



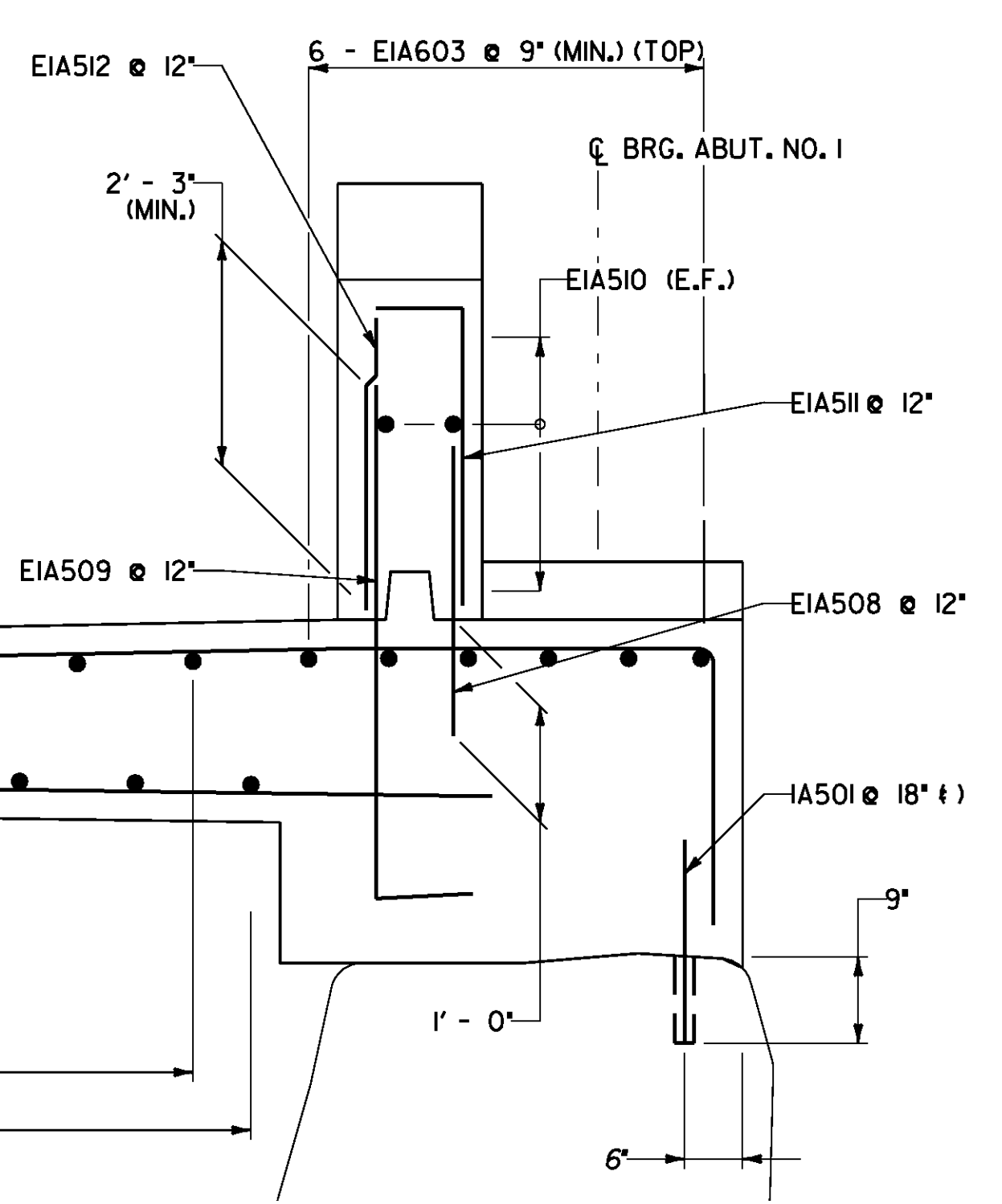
SECTION C-C

SCALE: 3/4" = 1'-0"



ELEVATION - WINGWALL NO. 2

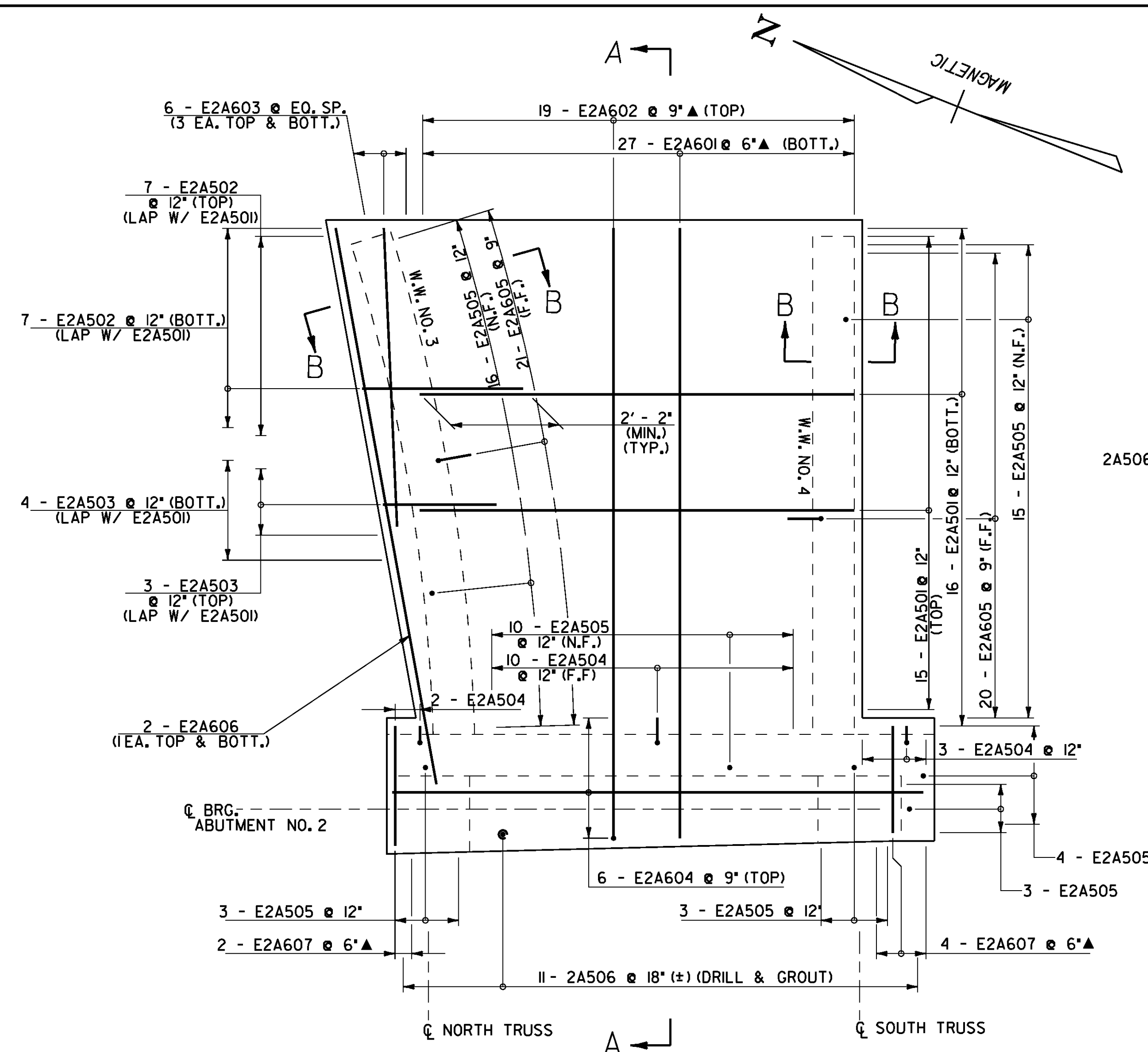
SCALE: 3/8" = 1'-0"



- LEGEND**
- ▲ DENOTES BARS TO BE CUT IN THE FIELD
 - E.F. EACH FACE
 - N.F. NEAR FACE
 - F.F. FAR FACE

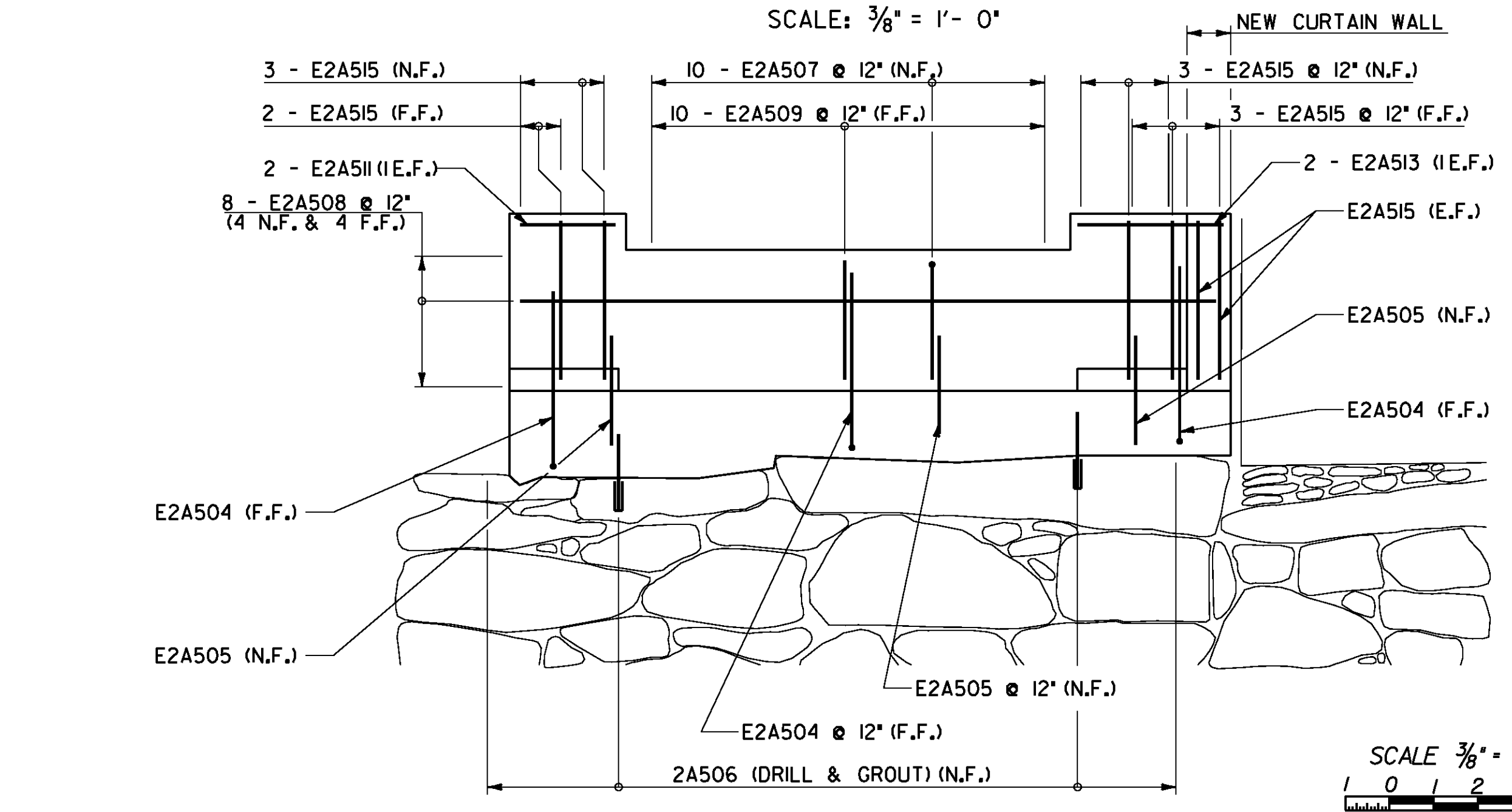


SHEET NAME: ABUTMENT NO. 1 REINFORCEMENT	
PROJECT NAME: TUNBRIDGE	
PROJECT NUMBER: BRO 1444 (39)	
FILE NAME: z99J110air.dgn	PLOT DATE: 29-APR-2009
PROJECT LEADER: K.M. Higgins	DRAWN BY: P. Dustin
DESIGNED BY: N. Powelson	CHECKED BY: R. Joy
	SHEET 24 OF 32



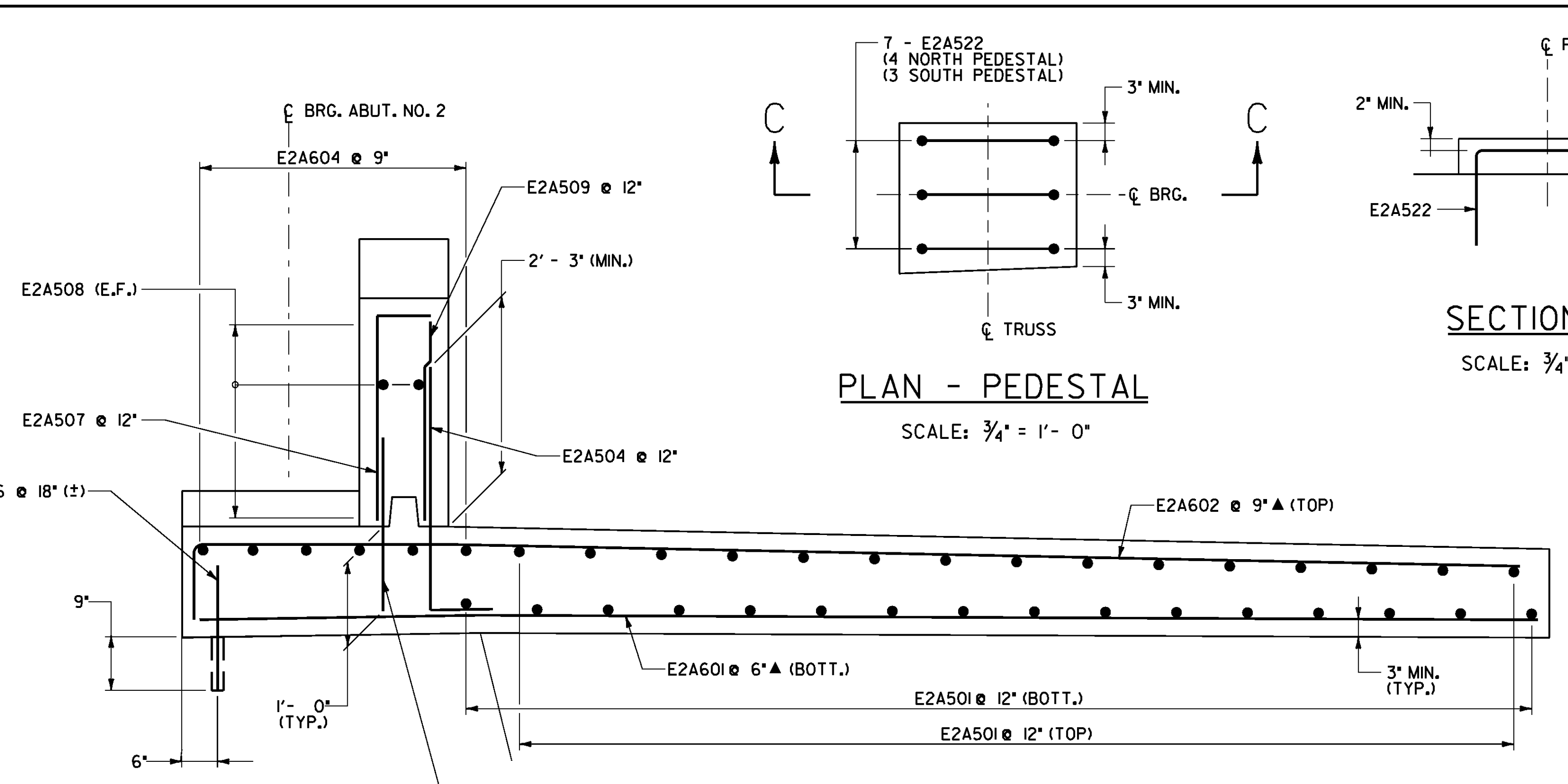
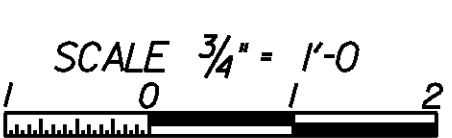
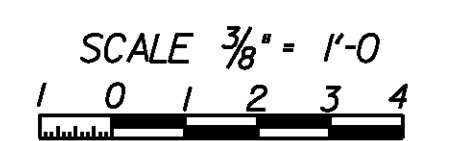
PLAN - ABUTMENT NO. 2

SCALE: 3/8" = 1'-0"



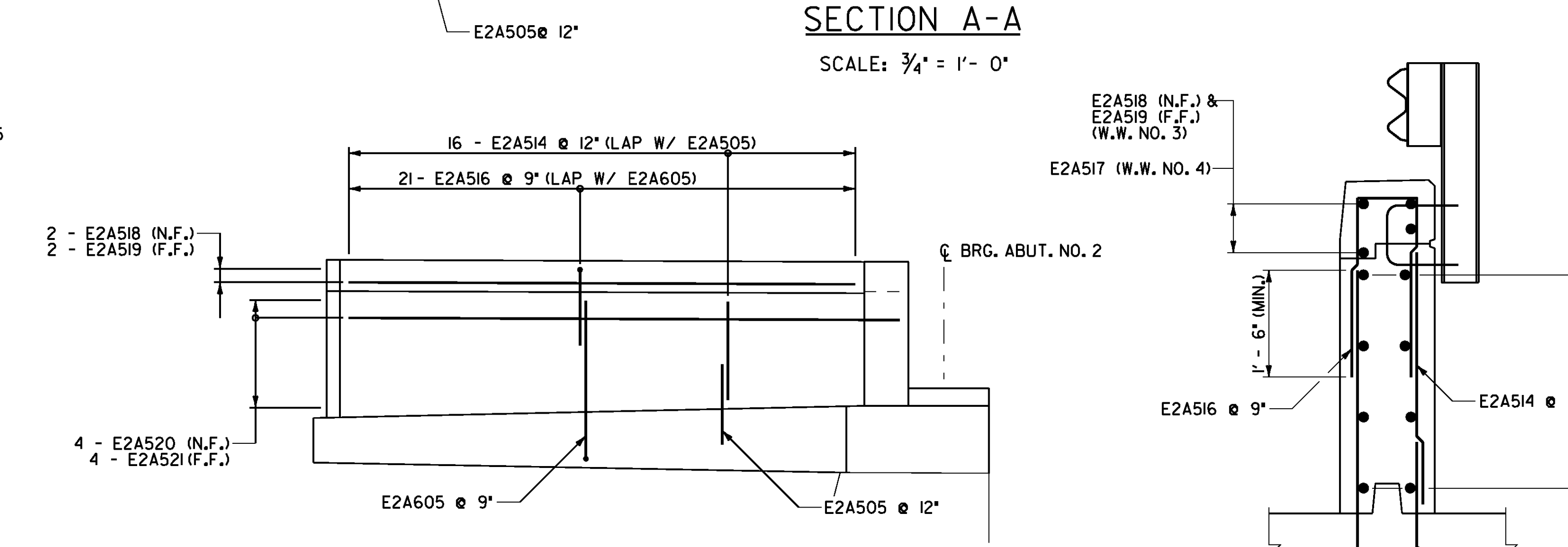
ELEVATION - ABUTMENT NO. 2

SCALE: 3/8" = 1'-0"



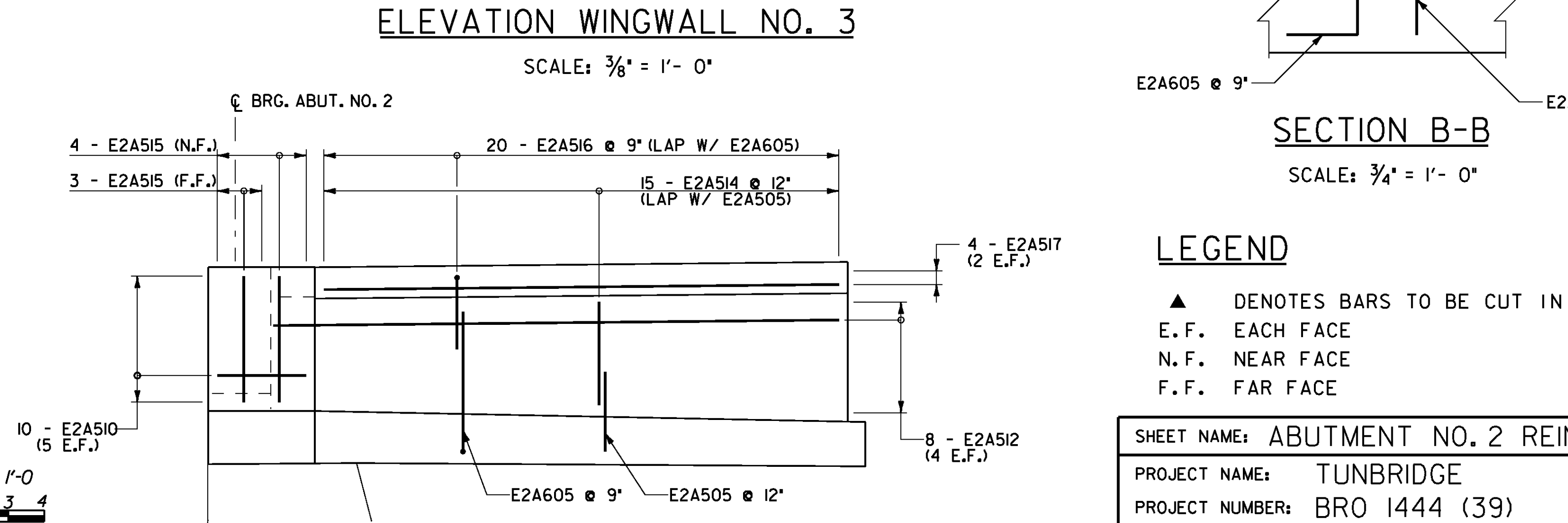
SECTION A-A

SCALE: 3/4" = 1'-0"



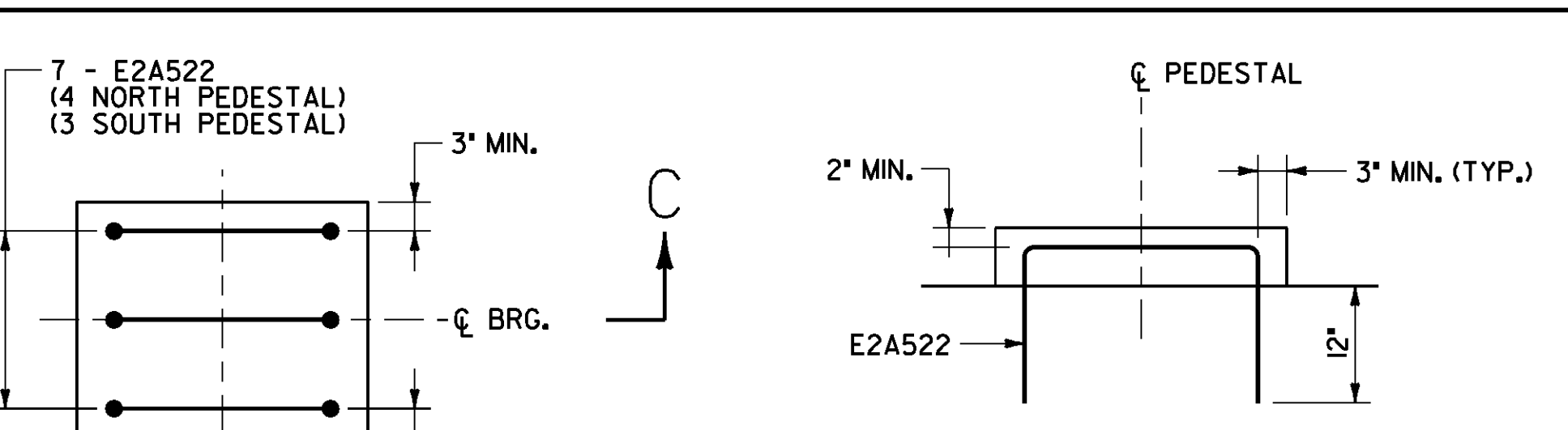
ELEVATION WINGWALL NO. 3

SCALE: 3/8" = 1'-0"



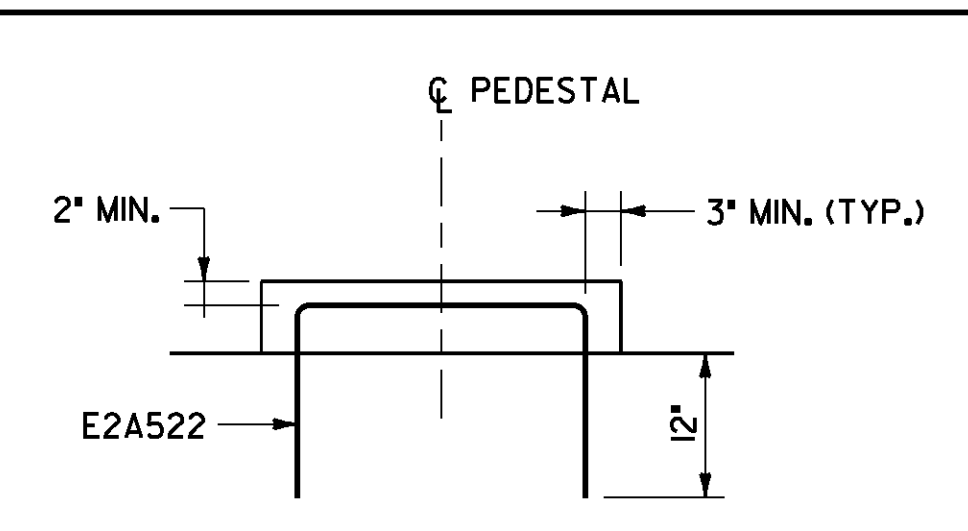
ELEVATION WINGWALL NO. 4

SCALE: 3/8" = 1'-0"



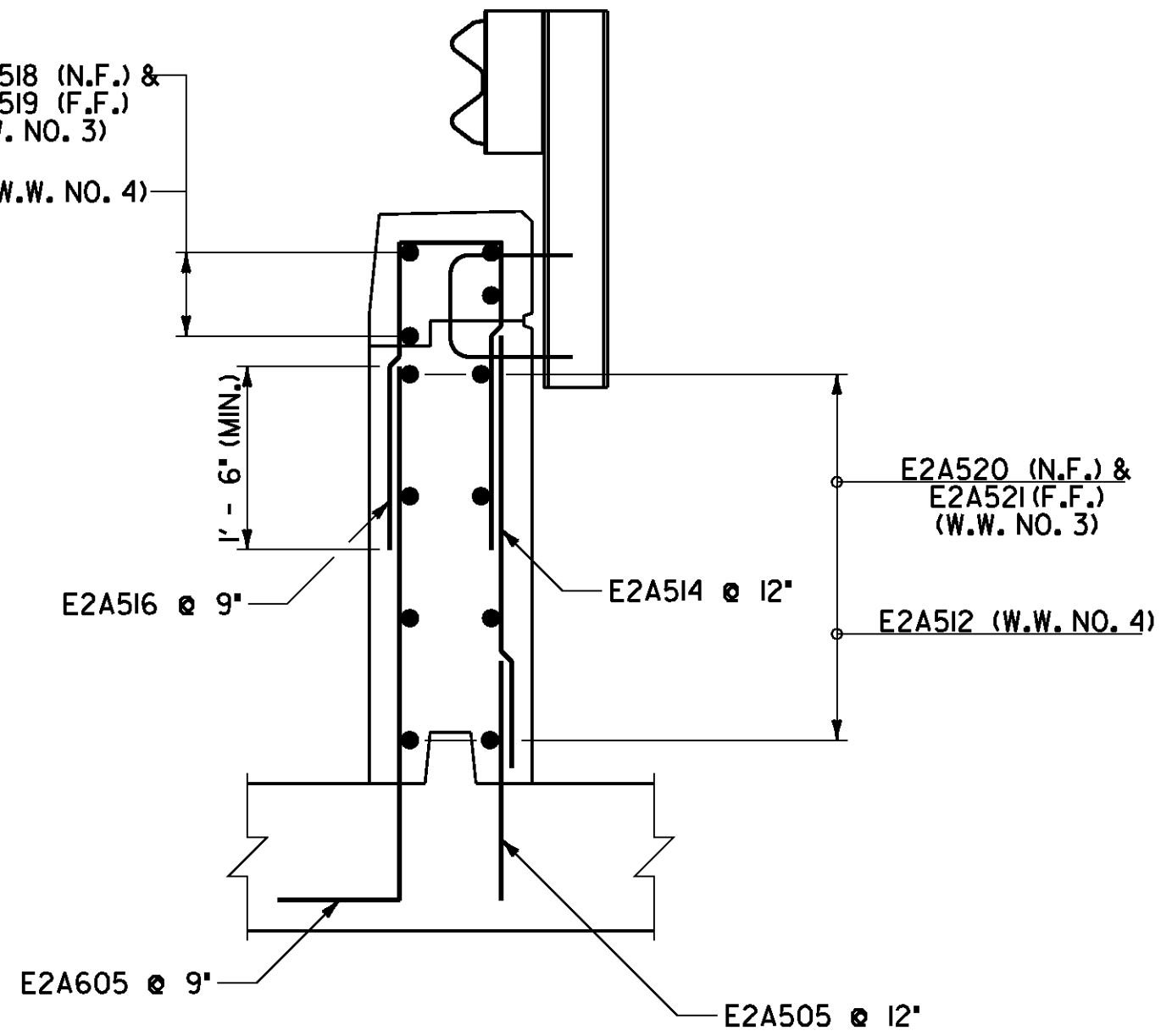
PLAN - PEDESTAL

SCALE: 3/4" = 1'-0"



SECTION C-C

SCALE: 3/4" = 1'-0"



SECTION B-B

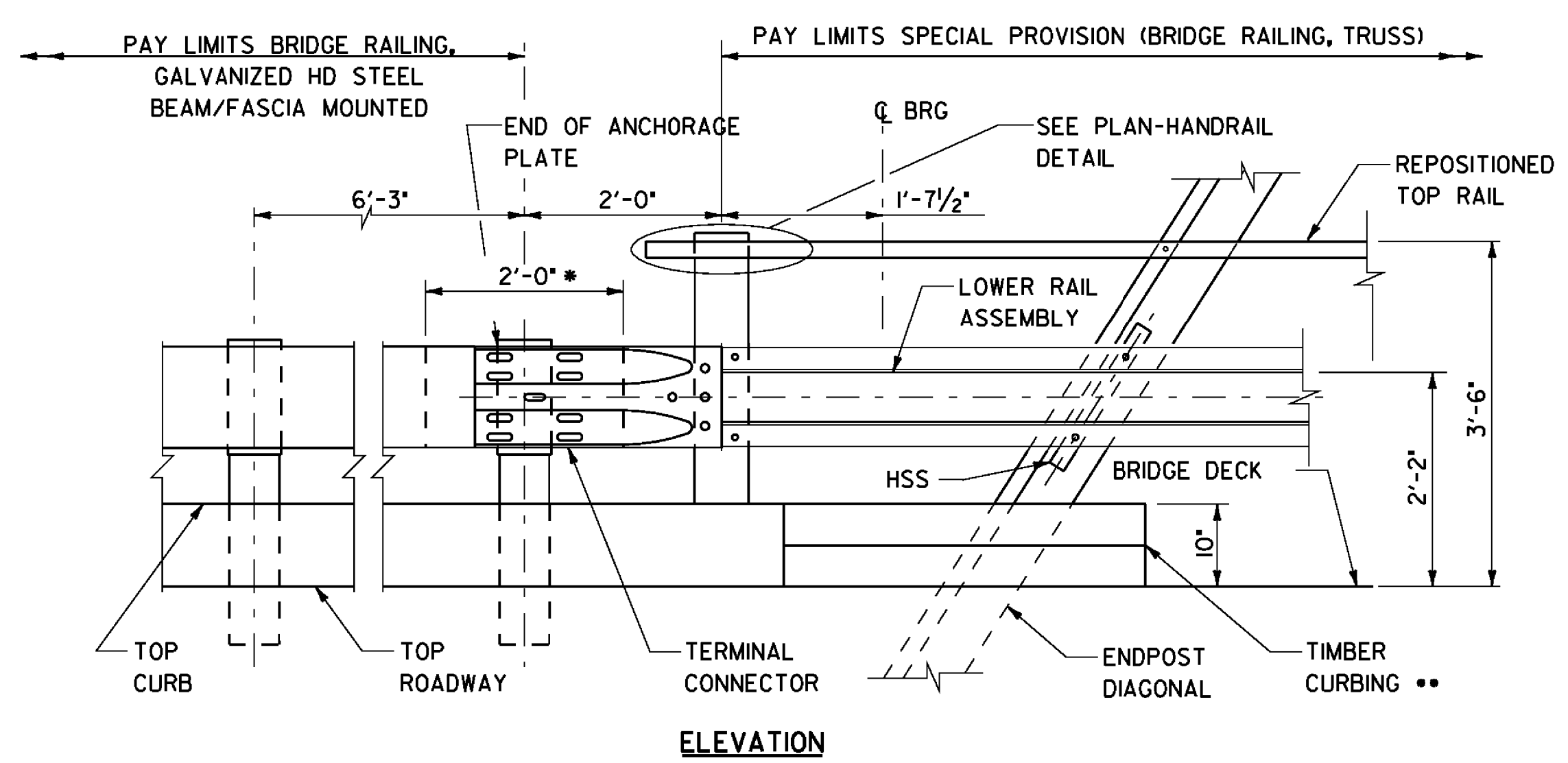
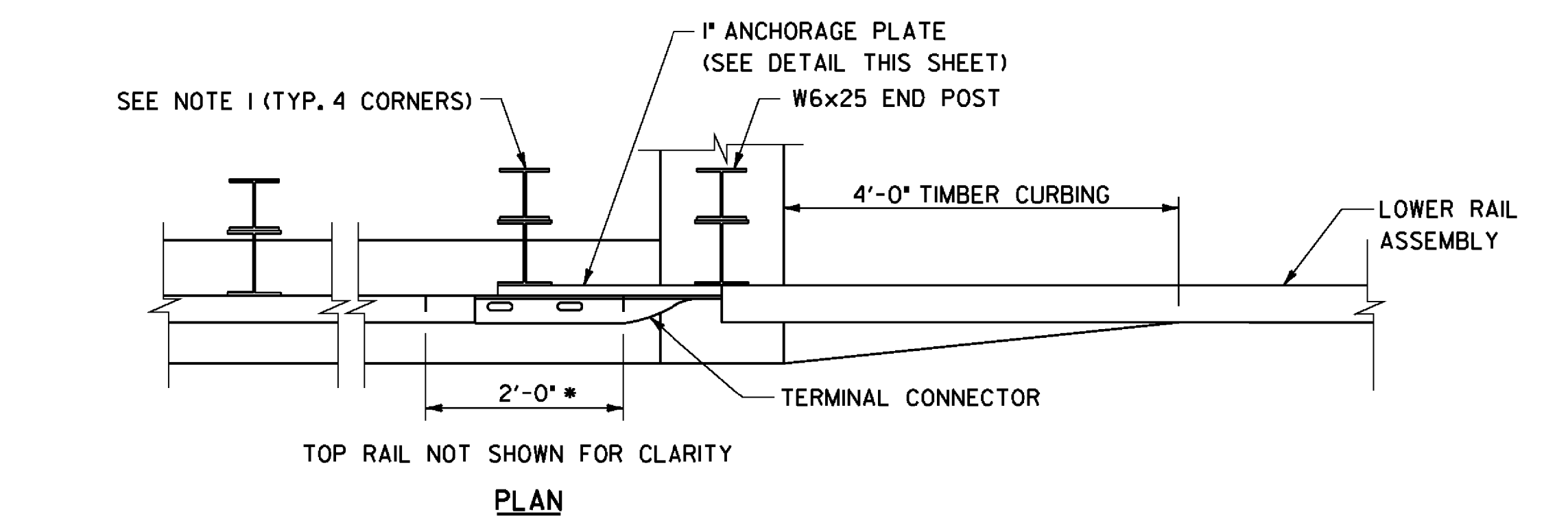
SCALE: 3/4" = 1'-0"

LEGEND

- ▲ DENOTES BARS TO BE CUT IN THE FIELD
- E.F. EACH FACE
- N.F. NEAR FACE
- F.F. FAR FACE

SHEET NAME: ABUTMENT NO. 2 REINFORCEMENT	
PROJECT NAME: TUNBRIDGE	
PROJECT NUMBER: BRO 1444 (39)	
FILE NAME: z99jll0a2r.dgn	PLOT DATE: 29-APR-2009
PROJECT LEADER: K.M. Higgins	DRAWN BY: P. Dustin
DESIGNED BY: N. Powelson	CHECKED BY: R. Joy
	SHEET 26 OF 32

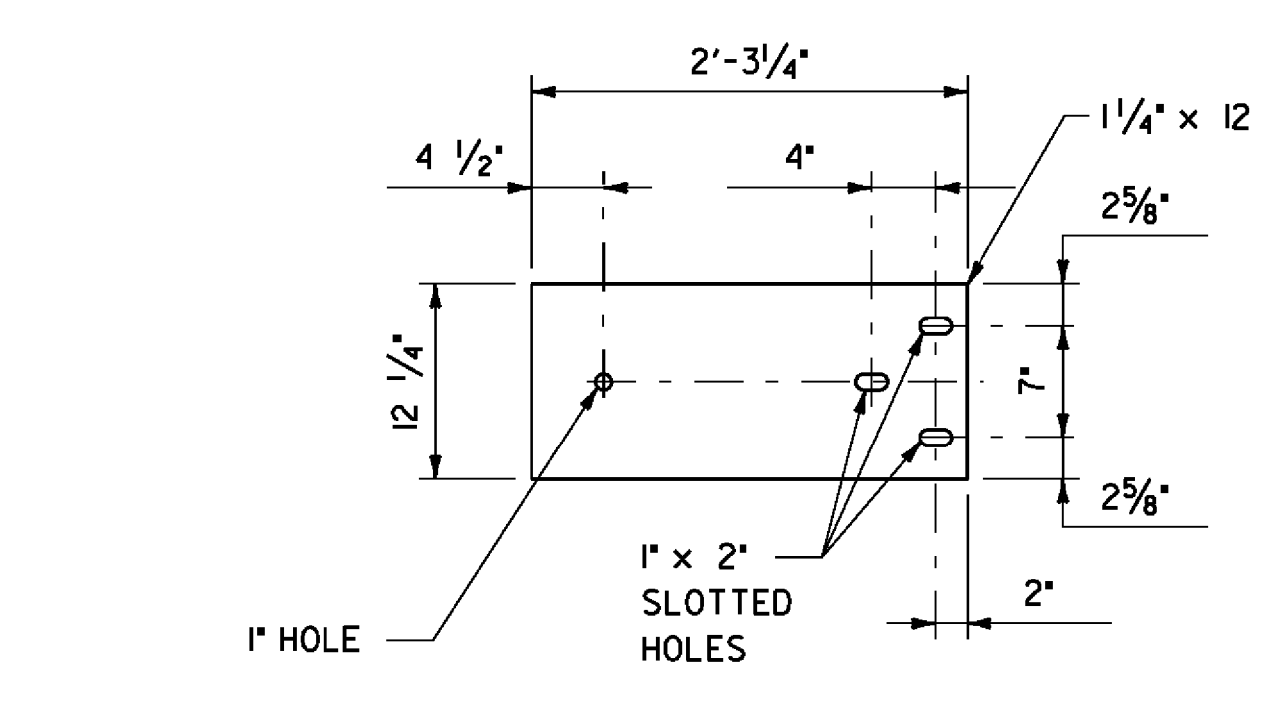




APPROACH RAIL DETAILS

SCALE: 3/4" = 1'-0"

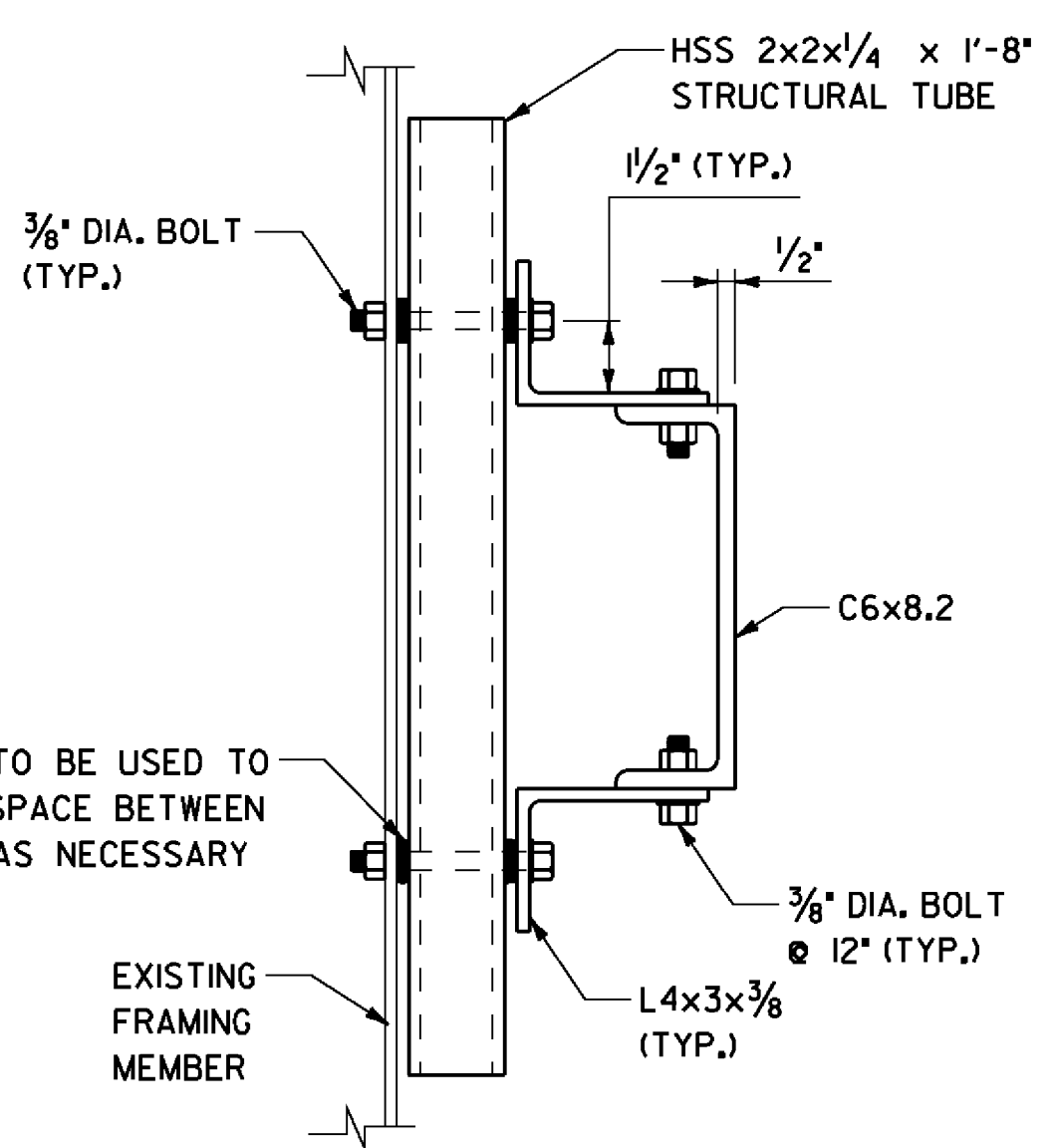
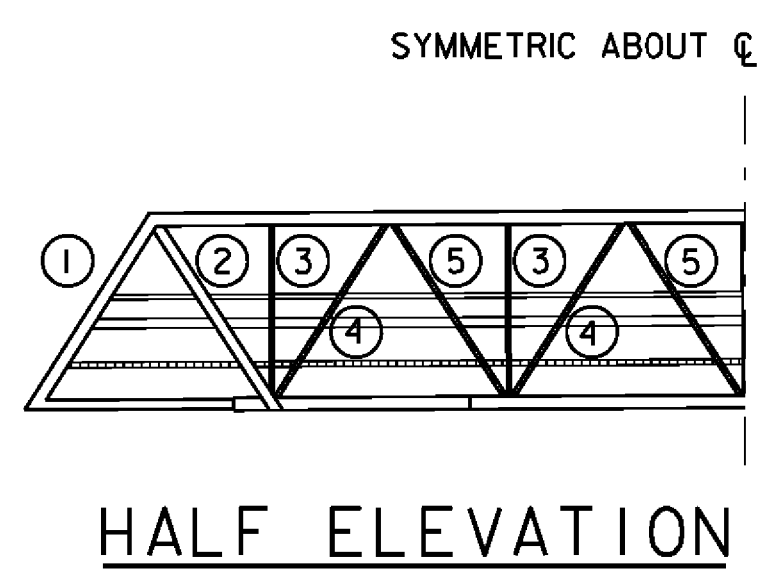
* DOUBLE NEST ADDITIONAL GUARDRAIL SECTION WITH INCOMING GUARDRAIL PANEL AND ATTACH TO TERMINAL CONNECTOR.
 ** TWIN 5x10 CONNECTED WITH CARRIAGE BOLTS.



ANCHORAGE PLATE DETAILS

(SEE NOTE 2)
 SCALE: 1" = 1'-0"

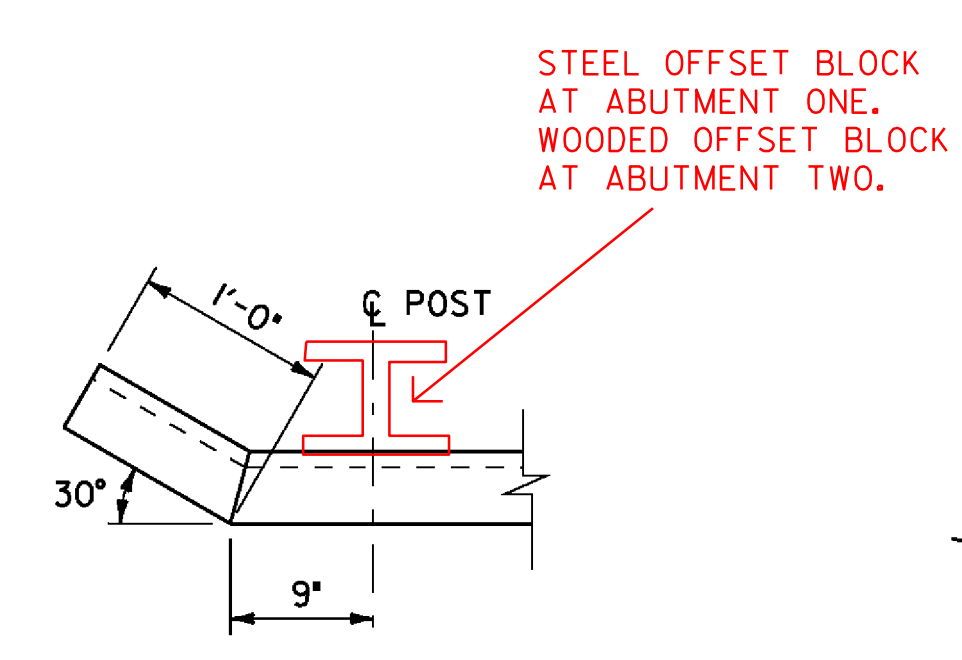
WASHERS TO BE USED TO TAKE UP SPACE BETWEEN MEMBERS AS NECESSARY (TYP.)



TYPICAL SECTION

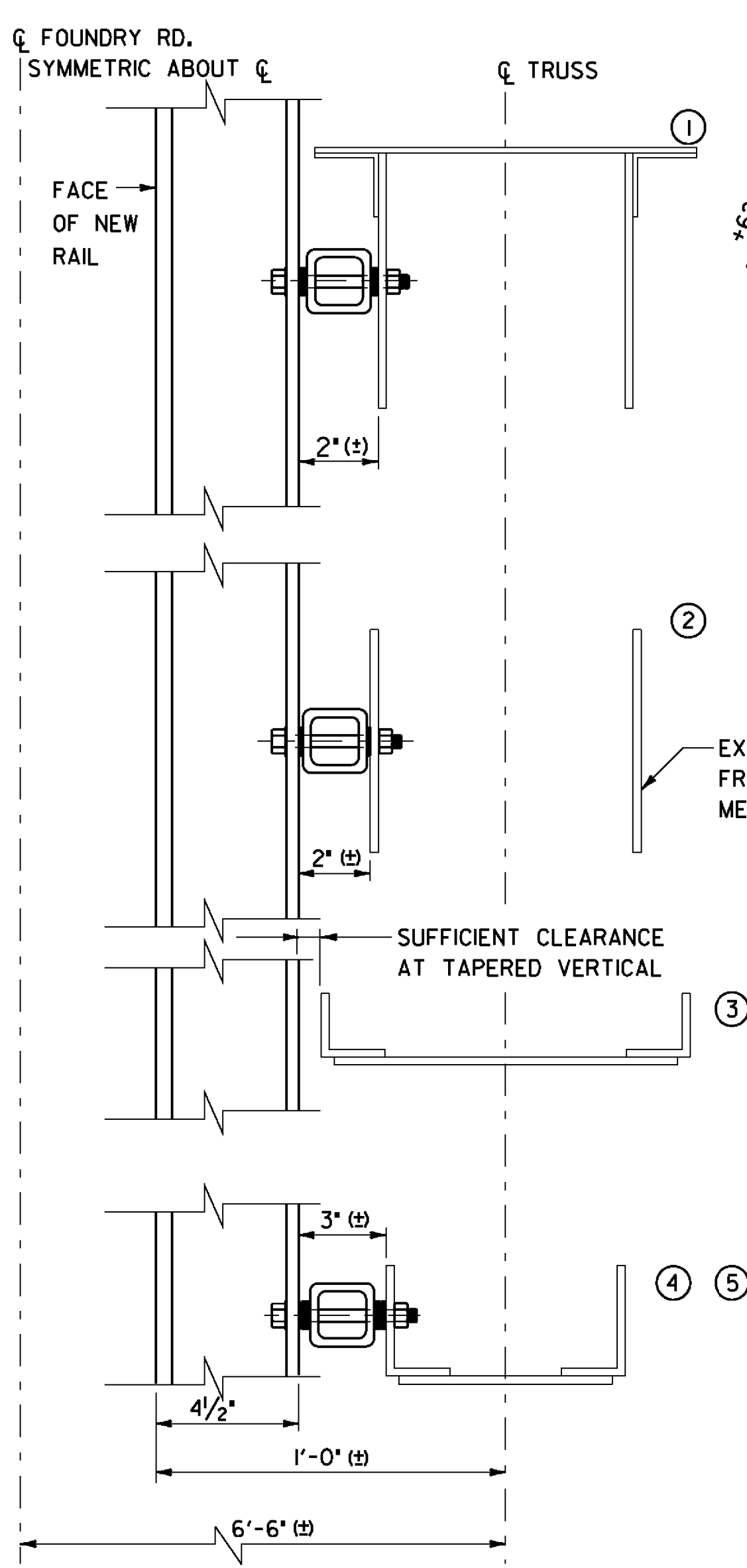
LOWER RAIL CONNECTION DETAILS

SCALE: 3" = 1'-0"



PLAN-HANDRAIL DETAIL

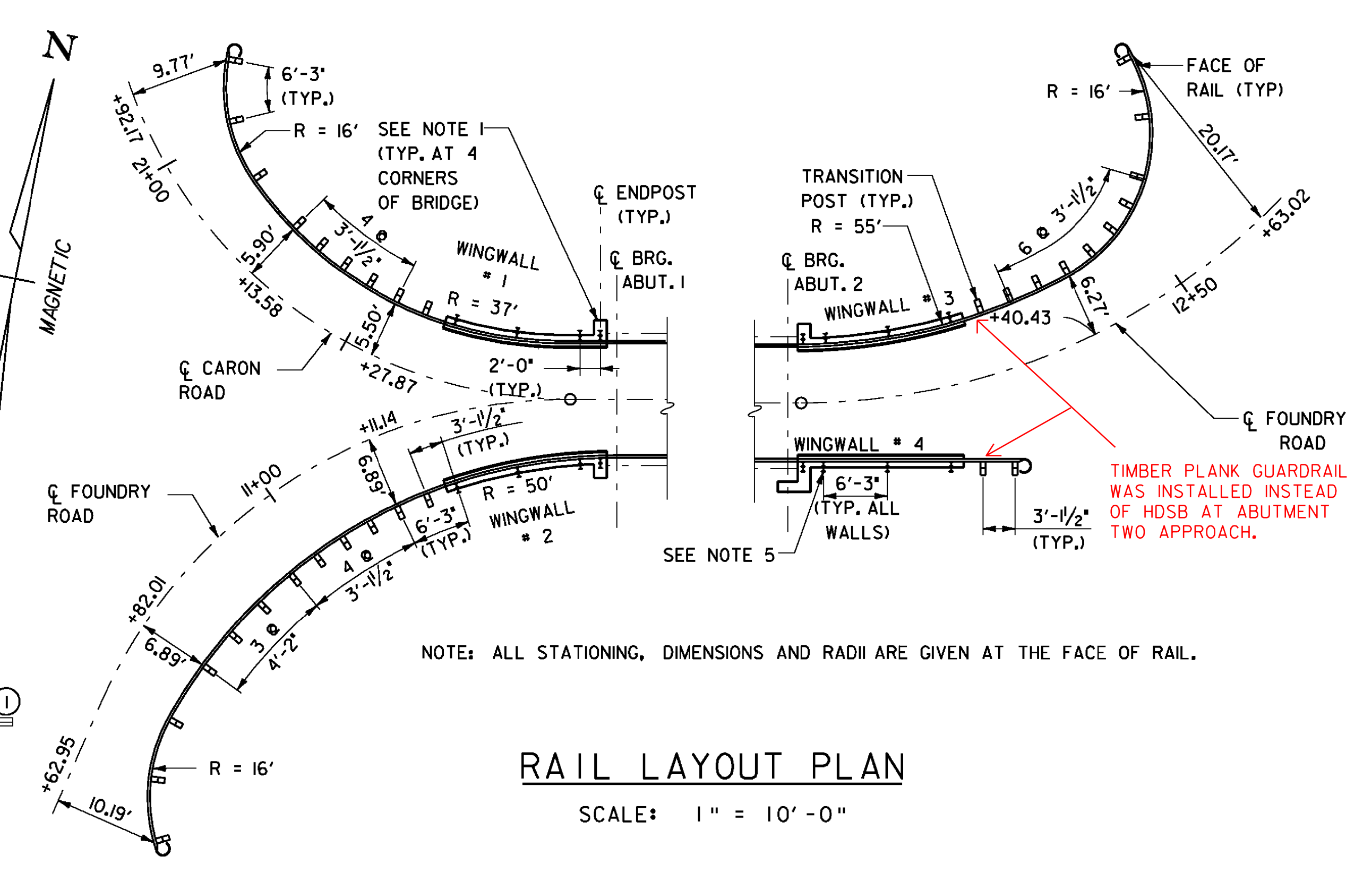
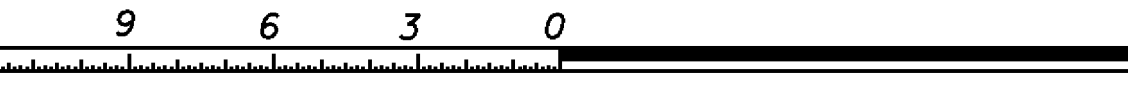
SCALE: 1" = 10'-0"



SECTION VIEW

SCALE 2" = 1'-0"

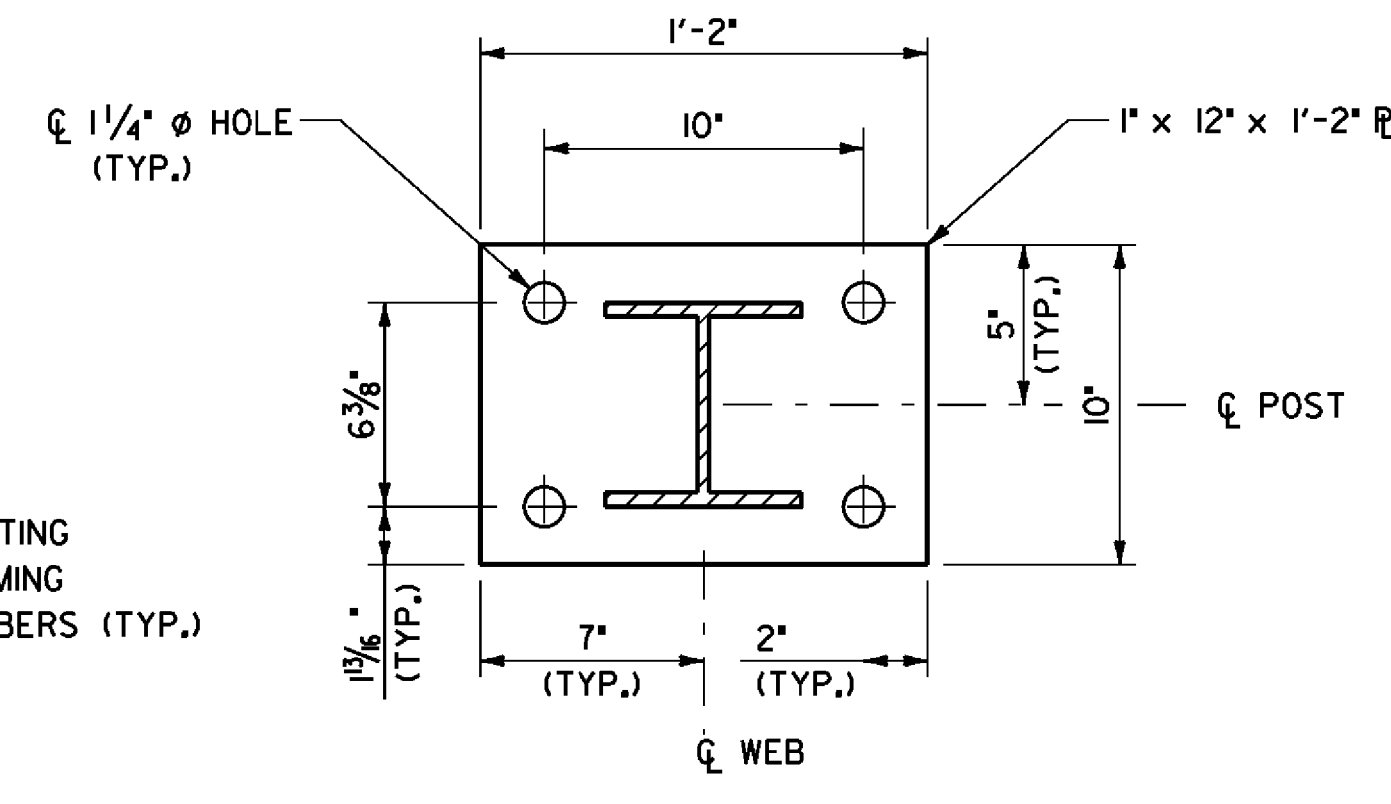
SCALE 3" = 1'-0"



RAIL LAYOUT PLAN

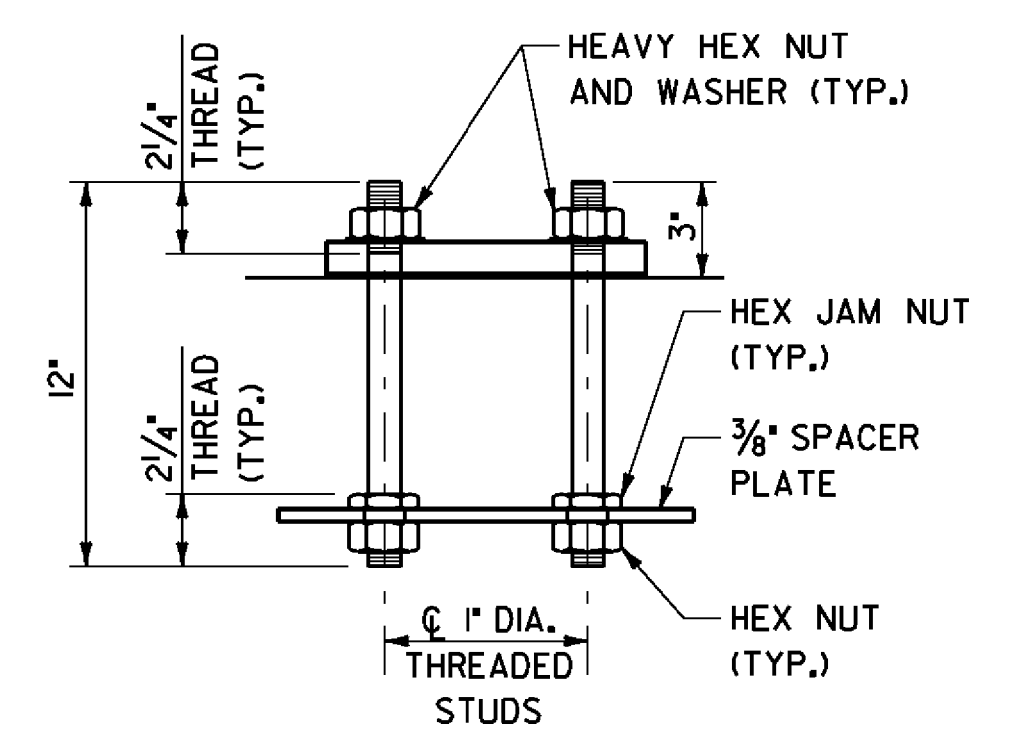
SCALE: 1" = 10'-0"

NOTE: ALL STATIONING, DIMENSIONS AND RADII ARE GIVEN AT THE FACE OF RAIL.



POST AND BASE PLATE

SCALE: 2" = 1'-0"



RAIL POST ANCHORAGE

SCALE: 2" = 1'-0"

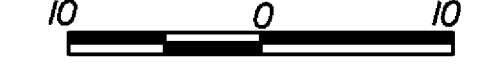
NOTES

1. ANCHOR U-BOLTS SHALL BE ADJUSTED TO ACCOMODATE THE 1" ANCHORAGE PLATE.
2. THE ANCHORAGE PLATES SHALL BE ASTM A36 STEEL AND GALVANIZED TO ASTM A123 AFTER FABRICATION. COST SHALL BE INCLUDED IN ITEM 506.60.
3. THE PRICE BID EACH FOR ITEM 621.53, TERMINAL CONNECTOR FOR STEEL BEAM GUARDRAIL, SHALL INCLUDE MATERIALS AS WELL AS THE FURNISHING OF ALL LABOR, TOOLS, EQUIPMENT, AND INCIDENTALS NECESSARY TO COMPLETE THE INSTALLATION OF EACH TERMINAL CONNECTOR AS DETAILED ON THIS SHEET.
4. SEE STANDARDS G-1, G-1d, AND G-16 FOR ADDITIONAL DETAILS.
5. THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE CLOSE PROXIMITY OF A NEW GUARD RAIL POST TO THE EXISTING CHIMNEY. THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL HIS METHODS OF DRIVING POST SO AS NOT TO DAMAGE THE EXISTING BUILDING.

SCALE 3/4" = 1'-0"



SCALE 1" = 10'-0"



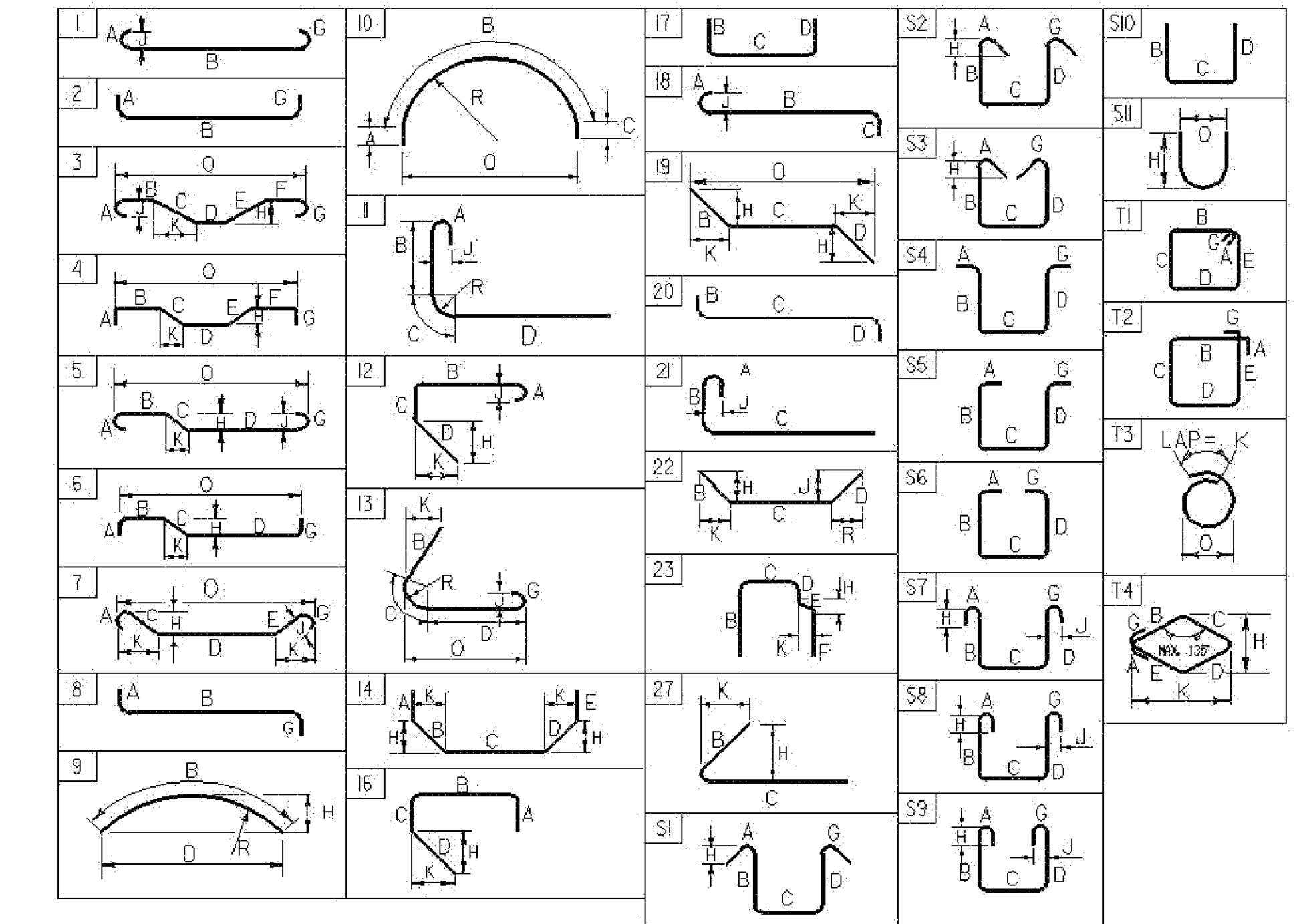
SHEET NAME: RAIL LAYOUT AND DETAILS	
PROJECT NAME: TUNBRIDGE	
PROJECT NUMBER: BRO 1444 (39)	
FILE NAME: z99J10gr1.dgn	PLOT DATE: 29-APR-2009
PROJECT LEADER: K.M. Higgins	DRAWN BY: P. Dustin
DESIGNED BY: N. Powelson	CHECKED BY: R. Joy
	SHEET 27 OF 32

REINFORCING STEEL SCHEDULE

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O	ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O				
ABUTMENT NO. 1																																							
11	5	1'- 9"	E1A501																																				
29	5	13'- 6"	E1A502																																				
6	5	8'- 2"	E1A505																																				
12	5	5'- 9"	E1A506																																				
6	5	3'- 8"	E1A507																																				
44	5	3'- 6"	E1A508																																				
14	5	4'- 10"	E1A509	2	0'- 10"	4'- 0"					0'- 0"																												
8	5	15'- 0"	E1A510																																				
10	5	3'- 6"	E1A511	2	0'- 10"	2'- 5"					0'- 0"																												
10	5	2'- 5"	E1A512																																				
4	5	2'- 0"	E1A513																																				
10	5	3'- 3"	E1A514																																				
▲	28	5	5'- 0"	E1A515																																			
38	5	5'- 11"	E1A516	S10		2'- 7"	0'- 9"	2'- 7"																															
4	5	14'- 5"	E1A517																																				
4	5	14'- 8"	E1A518																																				
2	5	14'- 7"	E1A519																																				
2	5	14'- 3"	E1A520																																				
4	5	14'- 6"	E1A521																																				
4	5	14'- 9"	E1A522																																				
2	5	14'- 3"	E1A523																																				
2	5	14'- 8"	E1A524																																				
7	5	5'- 4"	E1A525	S 10	1'- 8"	1'- 8"	2'- 0"																																
▲	27	6	16'- 0"	E1A601																																			
▲	18	6	21'- 1"	E1A602	17		2'- 3"	18'- 10"																															
6	6	15'- 0"	E1A603																																				
14	6	10'- 6"	E1A604																																				
▲	38	6	5'- 0"	E1A606	2	1'- 0"	5'- 0"				0'- 0"																												
▲	4	6	3'- 11"	E1A607																																			
ABUTMENT NO. 2																																							
31	5	13'- 1"	E2A501																																				
14	5	5'- 3"	E2A502																																				
7	5	3'- 6"	E2A503																																				
15	5	5'- 1"	E2A504	2	0'- 10"	4'- 3"					0'- 0"																												
54	5	3'- 2"	E2A505																																				
11	5	1'- 9"	E2A506																																				
10	5	3'- 7"	E2A507	2	0'- 10"	2'- 9"					0'- 0"																												
8	5	16'- 0"	E2A508																																				
10	5	2'- 9"	E2A509																																				
10	5	2'- 6"	E2A510																																				
2	5	2'- 2"	E2A511																																				
8	5	15'- 9"	E2A512																																				
2	5	3'- 4"	E2A513																																				
▲	31	5	3'- 2"	E2A514																																			
18	5	4'- 1"	E2A515																																				
▲	41	5	5'- 5"	E2A516	S10		2'- 4"	0'- 9"	2'- 4"																														
4	5	14'- 6"	E2A517																																				
2	5	14'- 10"	E2A518																																				
2	5	14'- 7"	E2A519																																				
4	5	14'- 10"	E2A520																																				
4	5	14'- 7"	E2A521																																				
7	5	5'- 4"	E2A522	S10	1'- 8"	1'- 8"	2'- 0"																																
▲	27	6	18'- 10"	E2A601																																			
▲	19	6	19'- 9"	E2A602	17		1'- 1"	18'- 8"																															
6	6	9'- 0"	E2A603																																				
6	6	16'- 0"	E2A604																																				
41	6	5'- 2"	E2A605	2	1'- 0"	4'- 2"					0'- 0"																												
2	6	17'- 0"	E2A606																																				
▲	6	6	3'- 7"	E2A607																																			

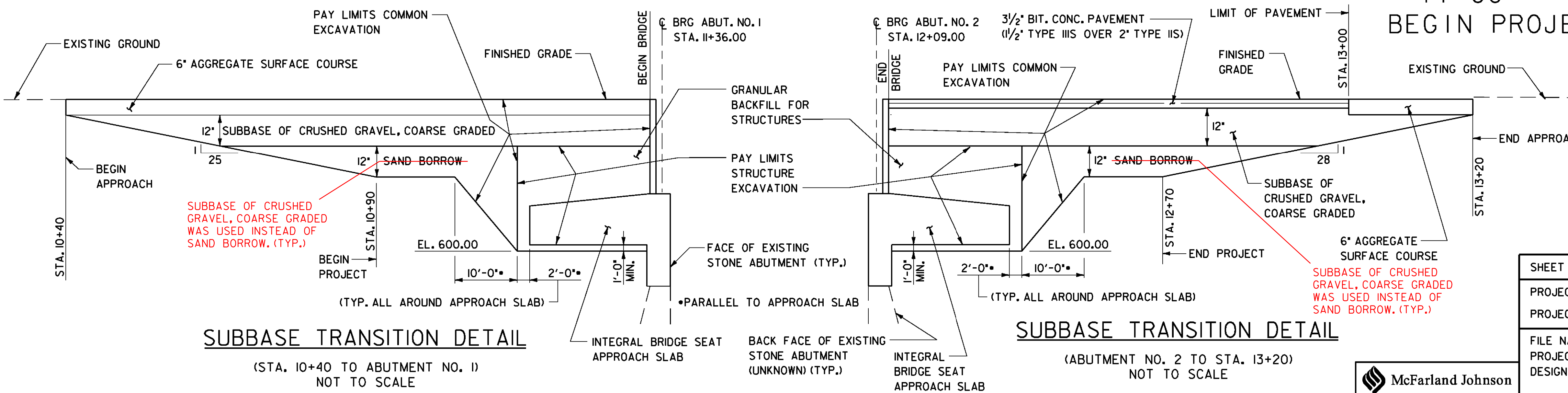
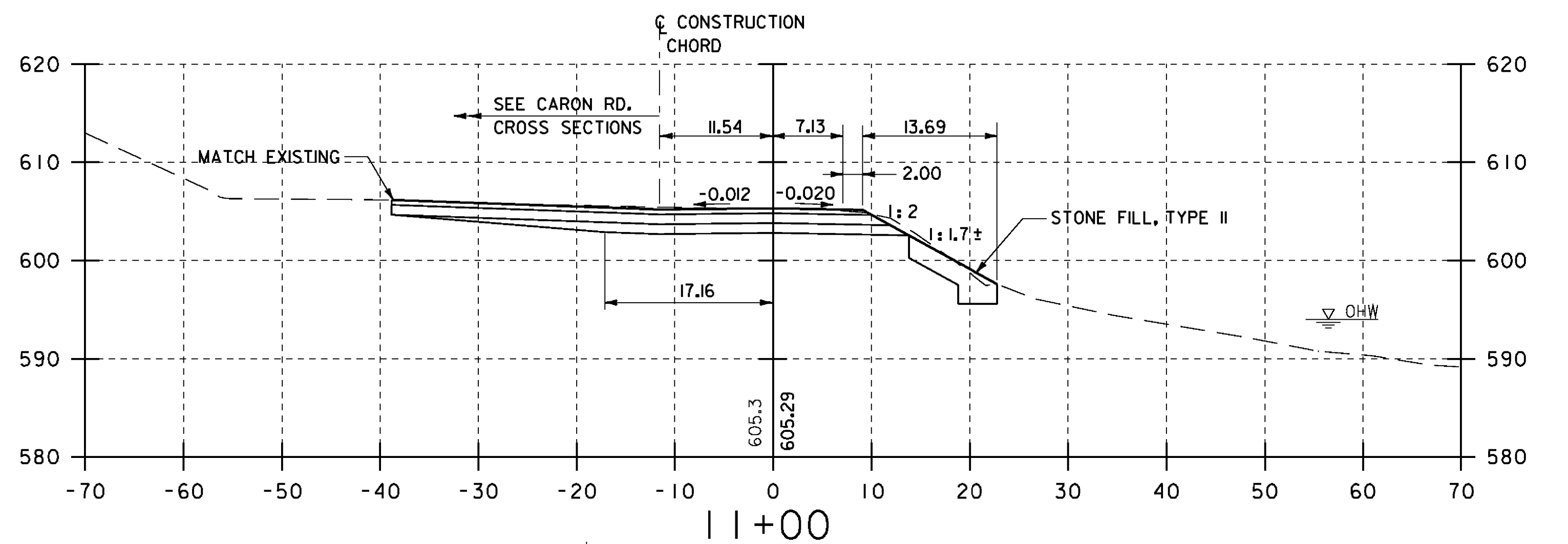
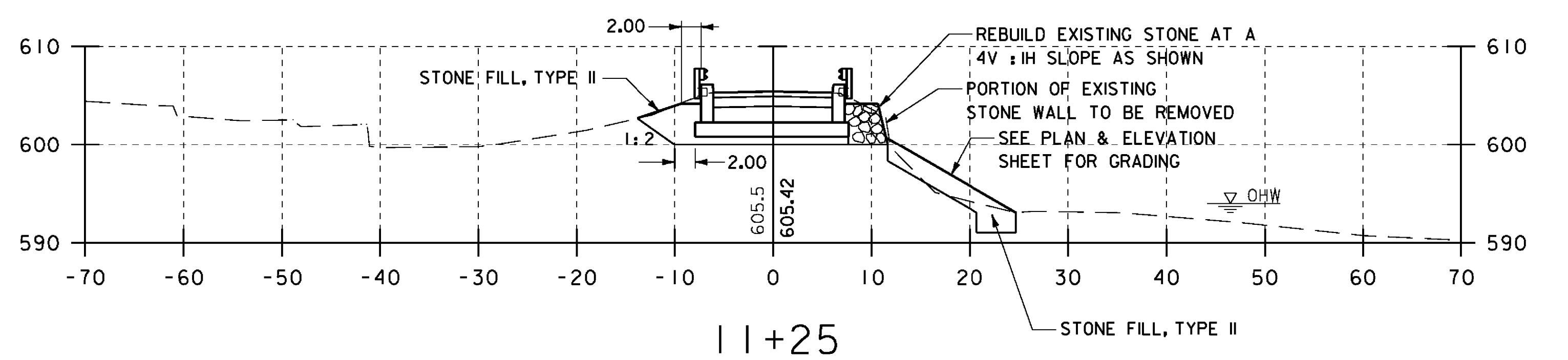
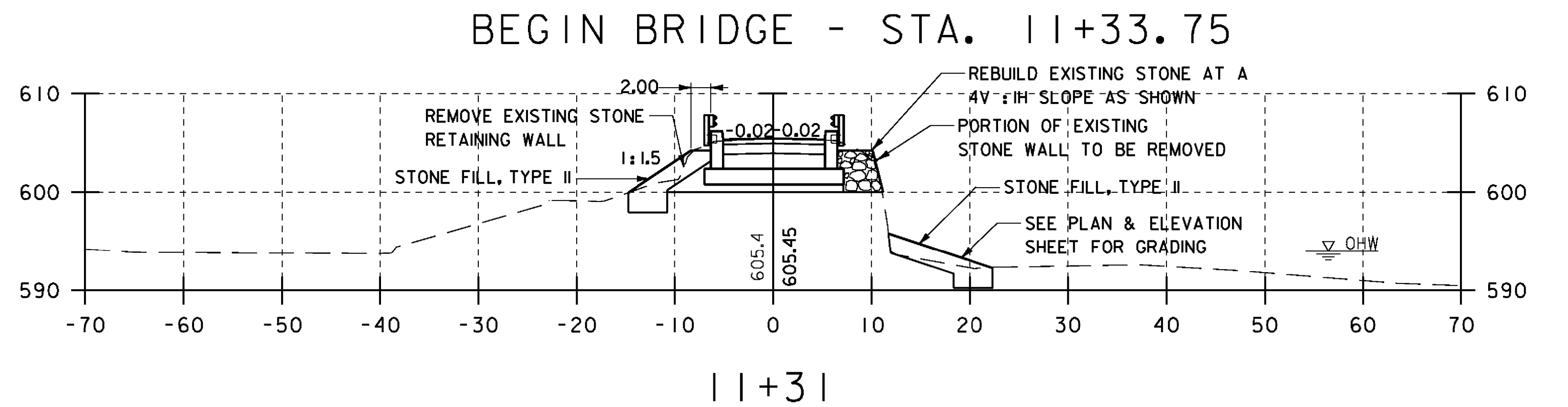
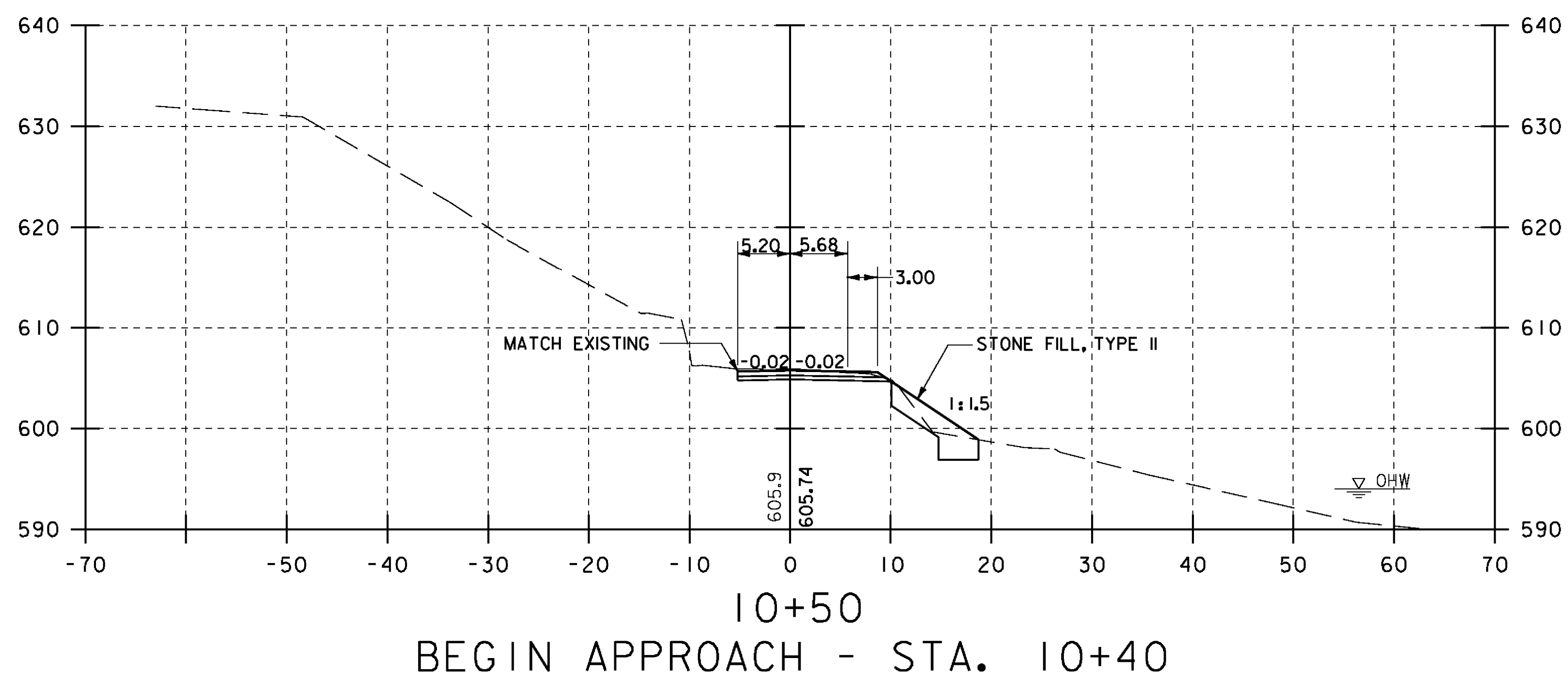
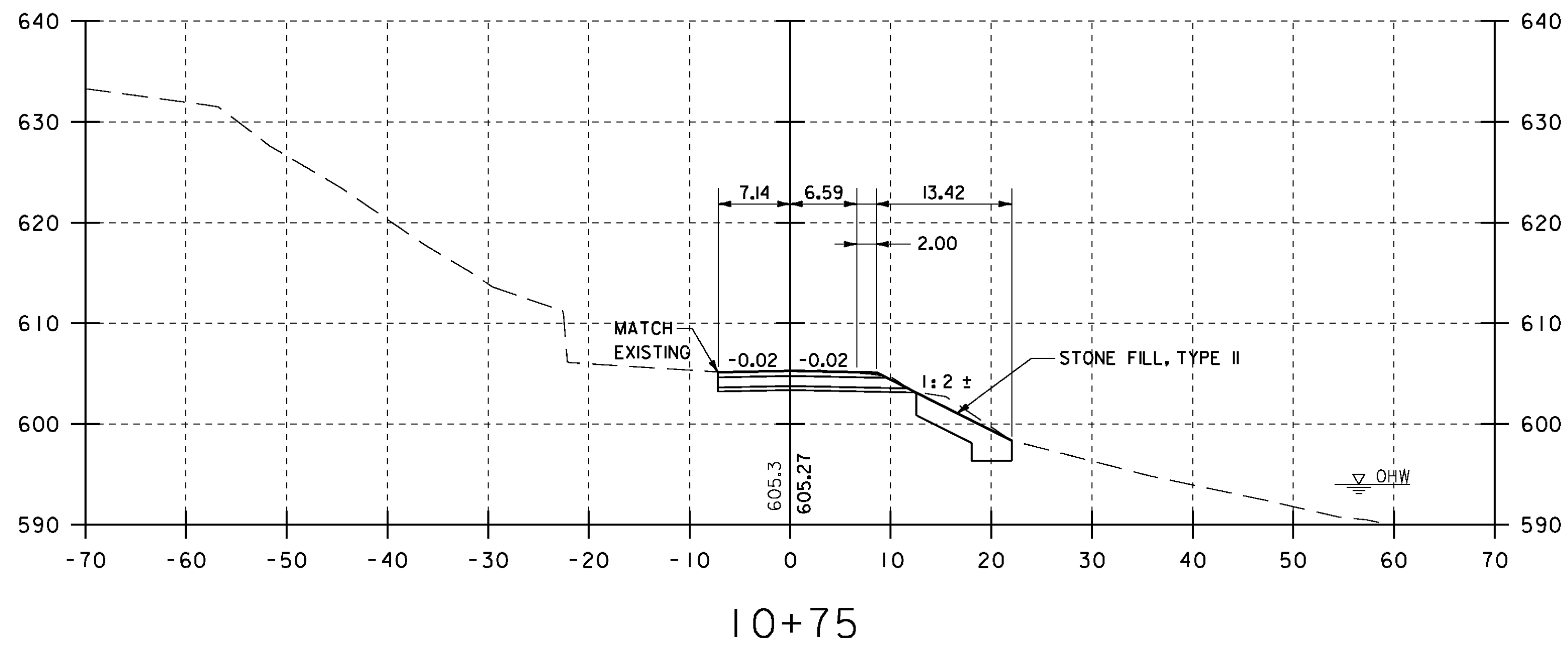
~ NOTES ~

- UNLESS OTHERWISE DESIGNATED, ALL BAR REINFORCEMENT FOR CONCRETE IN SIZES UP TO AND INCLUDING NO. 18 SHALL CONFORM TO THE REQUIREMENTS OF THE "SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT", AASHTO M 31 (ASTM A 615-SI). ALL BARS SHALL BE GRADE 60, UNLESS OTHERWISE DESIGNATED.
- 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".
- BARS WHICH REQUIRE MORE ACCURATE BENDING THAN STANDARD PRACTICES SHOULD HAVE LIMITS INDICATED.
- ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT "A" AND "G" ON STANDARD 180 DEGREE AND 135 DEGREE HOOKS.
- "J" DIMENSION ON 180 DEGREE HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE. OTHERWISE, STANDARD HOOKS ARE TO BE USED.
- "H" DIMENSION ON STIRRUPS TO BE SHOWN ONLY WHEN NECESSARY TO MAINTAIN CLEARANCES.
- WHERE SLOPE DIFFERS FROM 45 DEGREES, DIMENSIONS "H" AND "K" MUST BE SHOWN.
- ▲ DENOTES BARS TO BE CUT IN FIELD.
- * DENOTES ONE EXTRA BAR ADDED FOR TESTING PURPOSES.
- △ DENOTES TWO EXTRA BARS ADDED FOR TESTING PURPOSES.
- E IN BAR MARK PREFIX DENOTES EPOXY COATED REINFORCING STEEL.



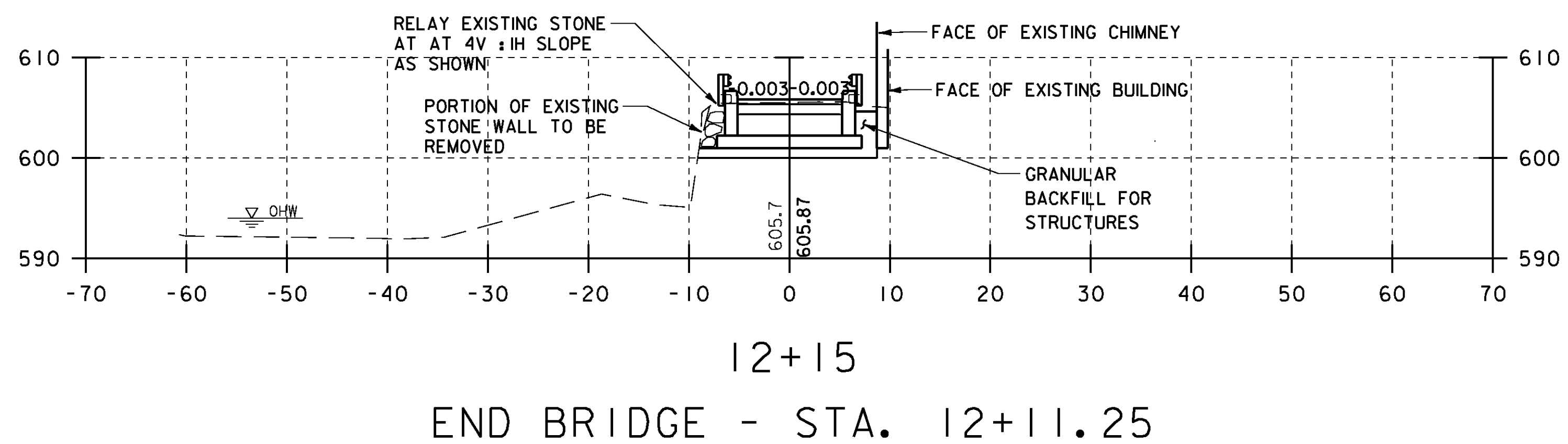
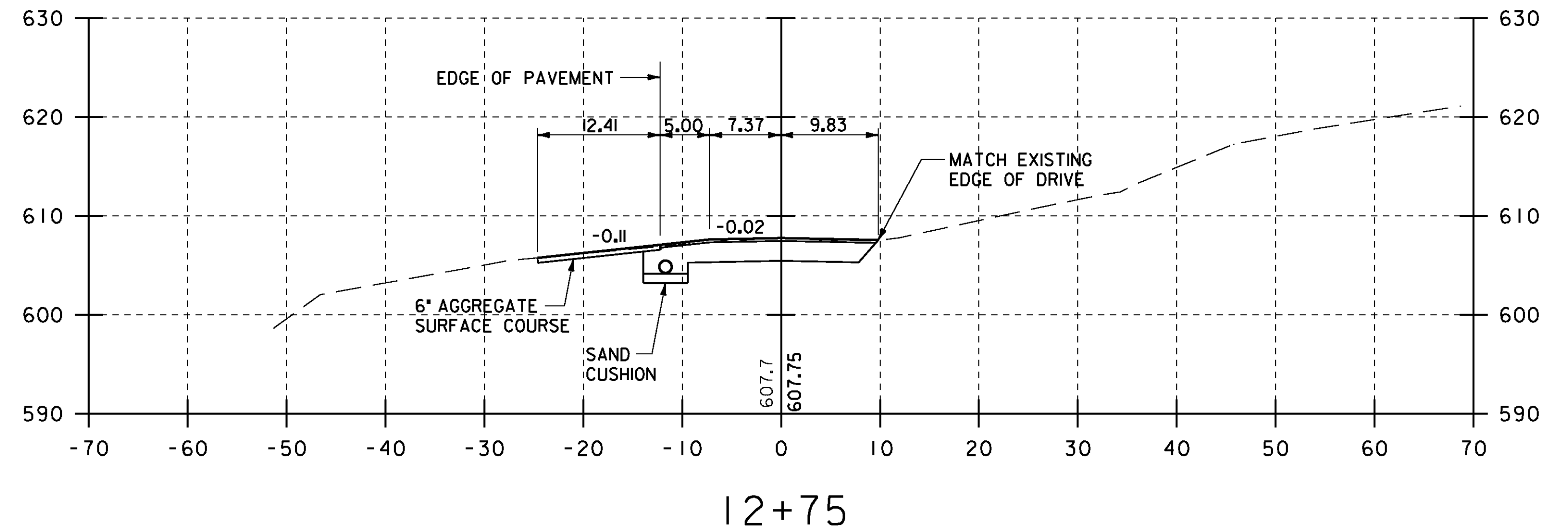
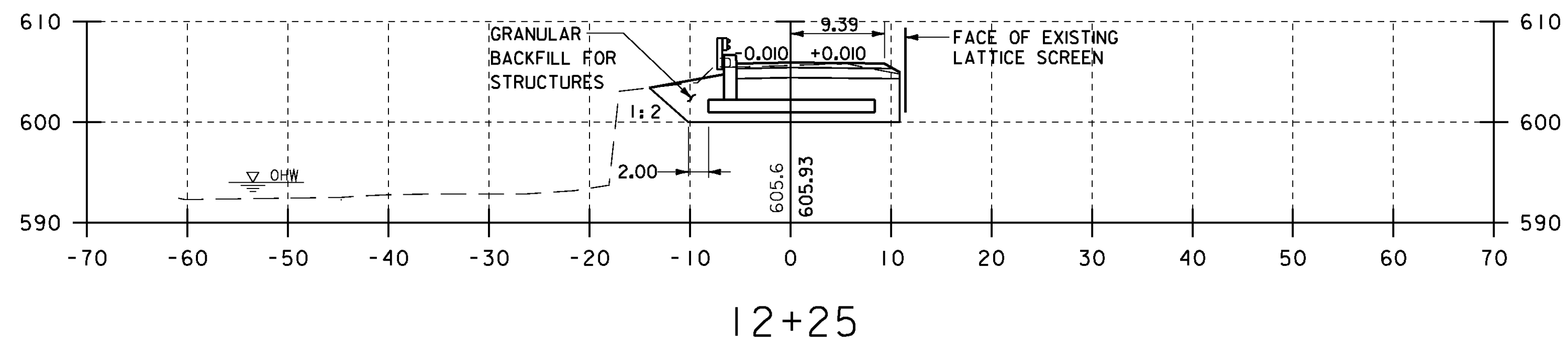
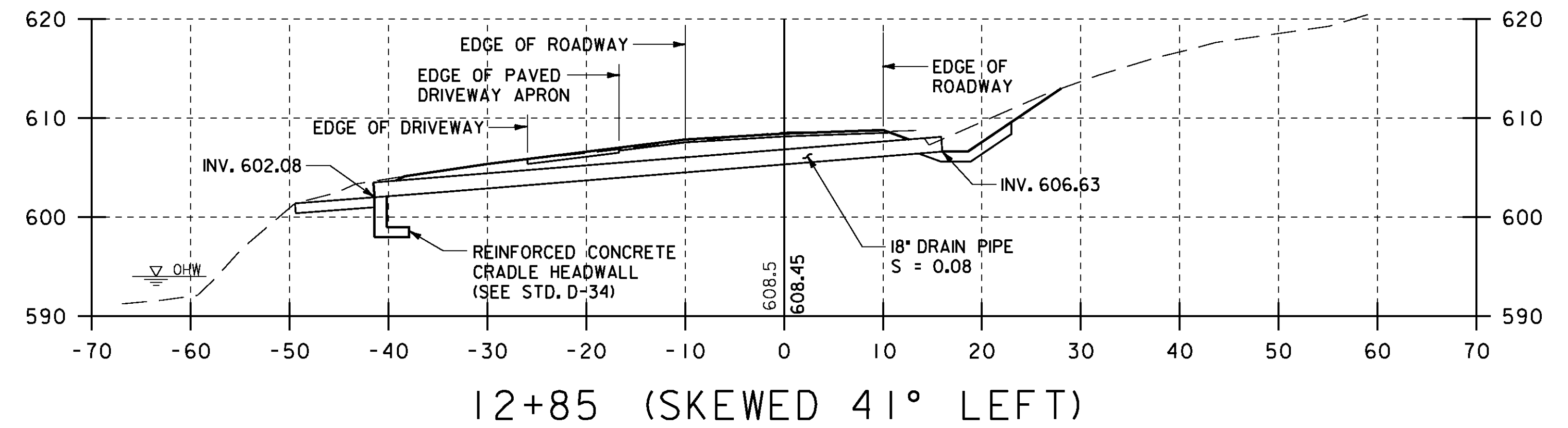
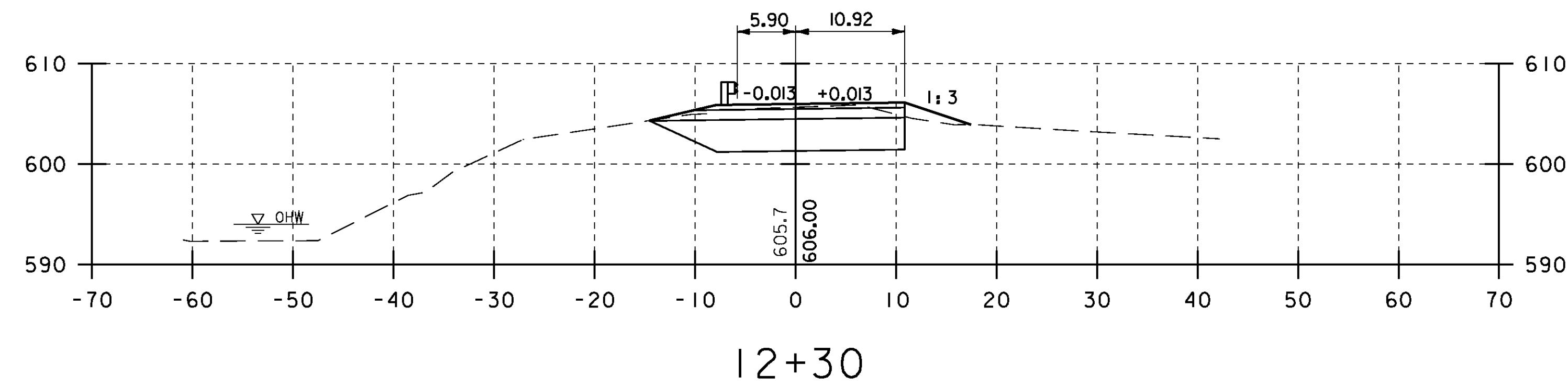
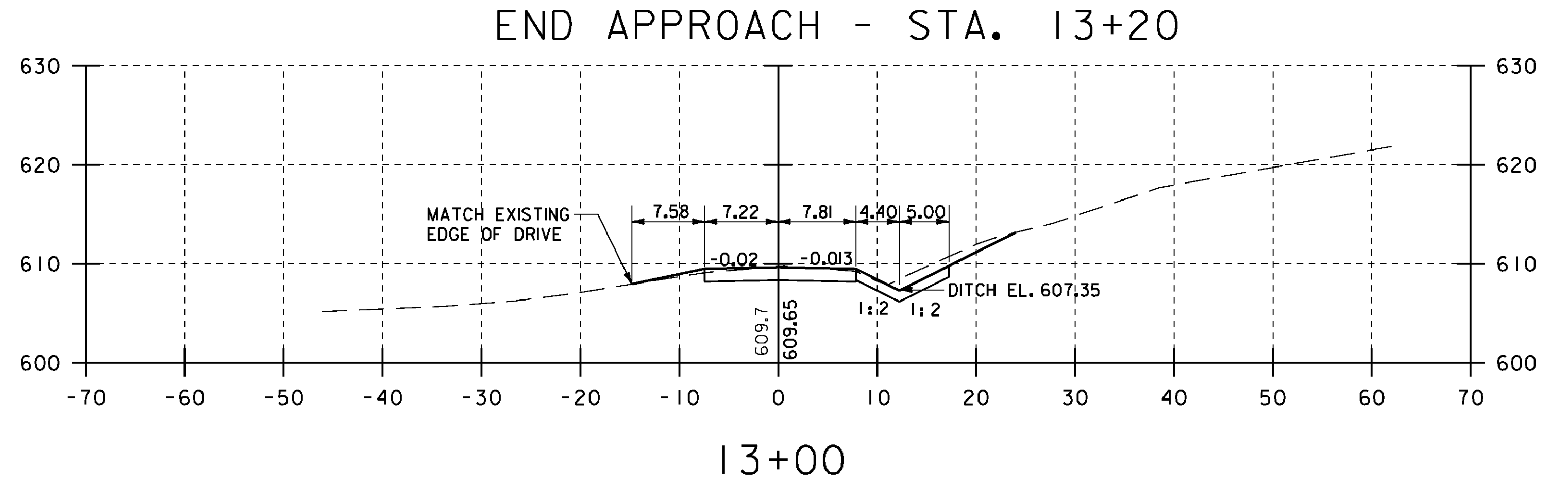
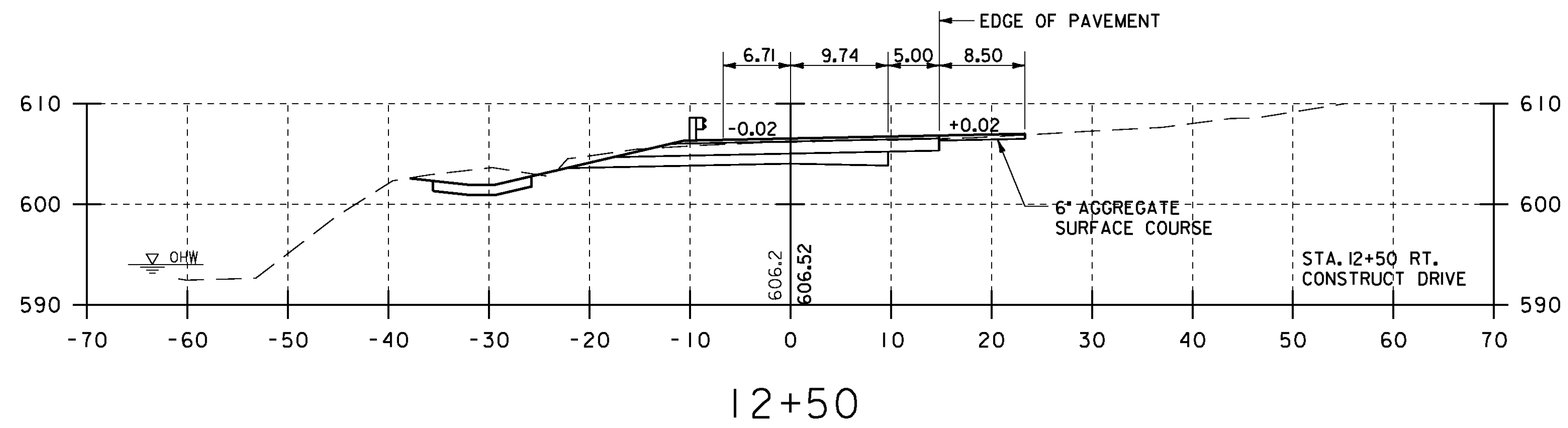
ASTM STANDARD REINFORCING BARS				
BAR SIZE DESIGNATION	WEIGHT POUNDS PER FOOT	NOMINAL DIMENSIONS ROUND SECTION		
		DIAMETER INCHES	AREA INCHES ²	PERIMETER INCHES
#3	0.376	0.375	0.11	1.178
#4	0.668	0.500	0.20	1.571
#5	1.043	0.625	0.31	1.963
#6	1.502	0.750	0.44	2.356
#7	2.044	0.875	0.60	2.749
#8	2.670	1.000	0.79	3.142
#9	3.400	1.128	1.00	3.544
#10	4.303	1.270	1.27	3.990
#11	5.313	1.410	1.56	4.430
#14	7.65	1.693	2.25	5.32
#18	13.60	2.257	4.00	7.09

PROJECT NAME: **TUNBRIDGE**
PROJECT NUMBER: **BRO 1444(39)**
FILE NAME: z99J110reinf.xls PLOT DATE: 4/29/2009
PROJECT MANAGER: K. M. HIGGINS DRAWN BY: N. Powelson



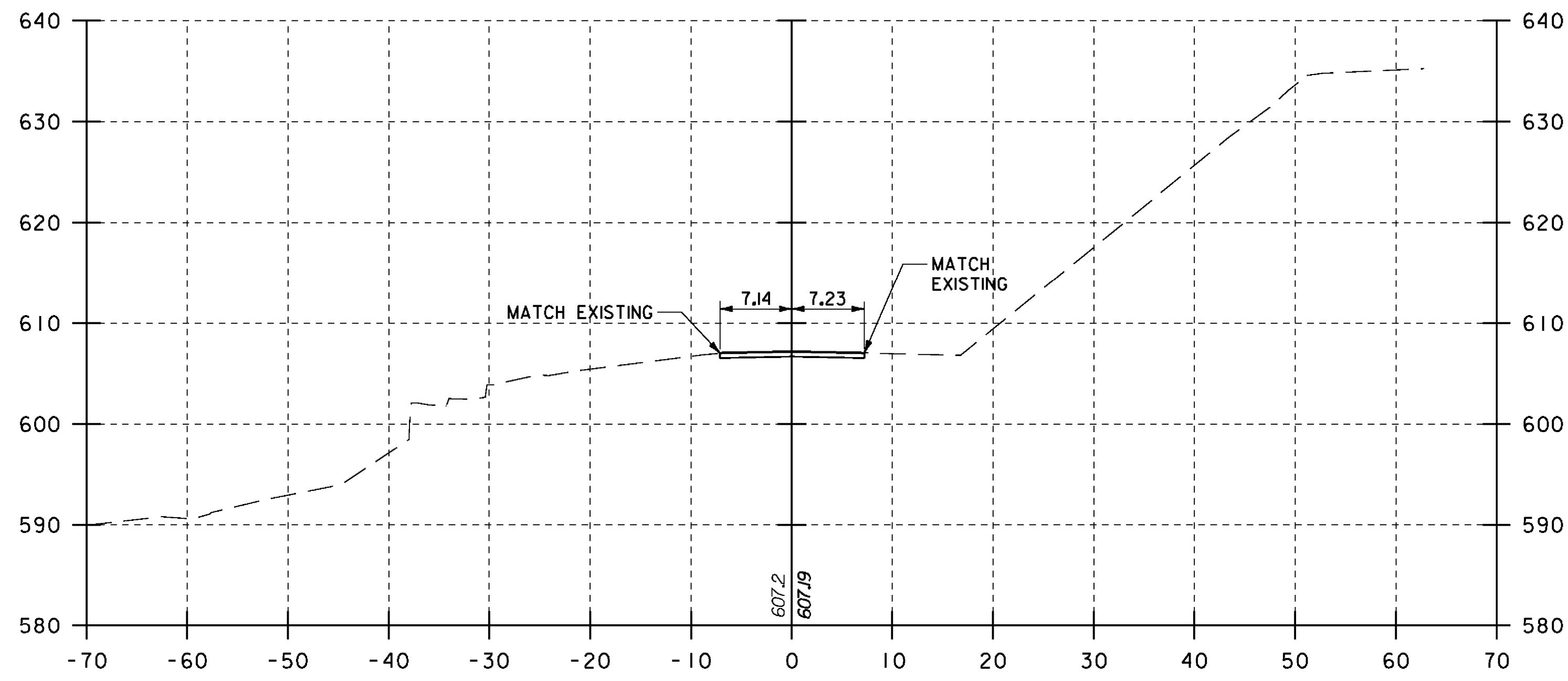
SHEET NAME: T.H. 25 CROSS SECTIONS (I)			
PROJECT NAME: TUNBRIDGE			
PROJECT NUMBER: BRO 1444 (39)			
FILE NAME: z99J10xsl.dgn	DRAWN BY: P. Dustin		PLOT DATE: 29-APR-2009
PROJECT LEADER: K.M. Higgins	DESIGNED BY: S. Delia		CHECKED BY: R. Joy
			SHEET 29 OF 32



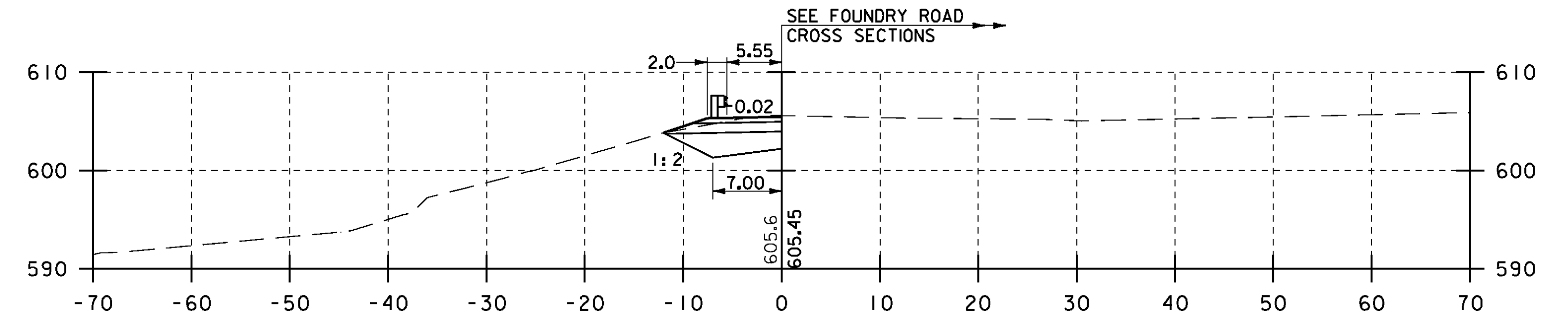


SHEET NAME: T.H. 25 CROSS SECTIONS (2)	
PROJECT NAME: TUNBRIDGE	
PROJECT NUMBER: BRO 1444 (39)	
FILE NAME: z99J110xsl.dgn	PLOT DATE: 26-MAY-2009
PROJECT LEADER: K.M. Higgins	DRAWN BY: P. Dustin
DESIGNED BY: S. Della	CHECKED BY: R. Joy
SHEET 30 OF 32	

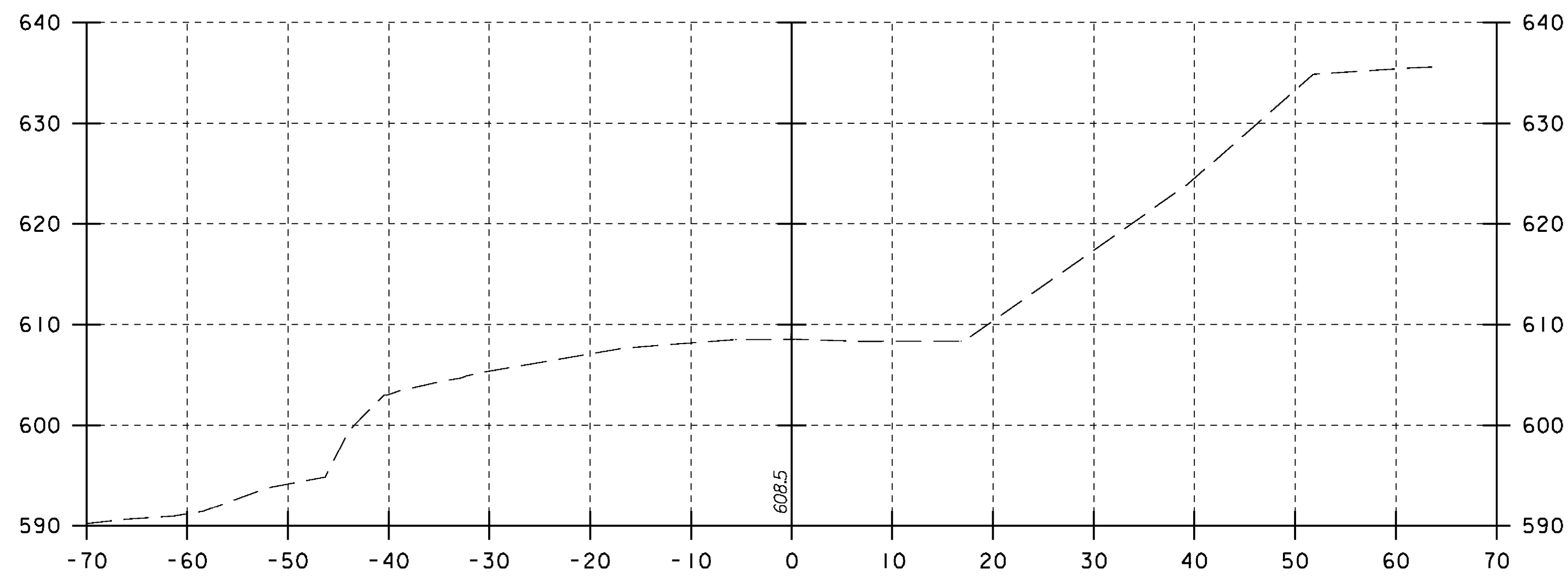




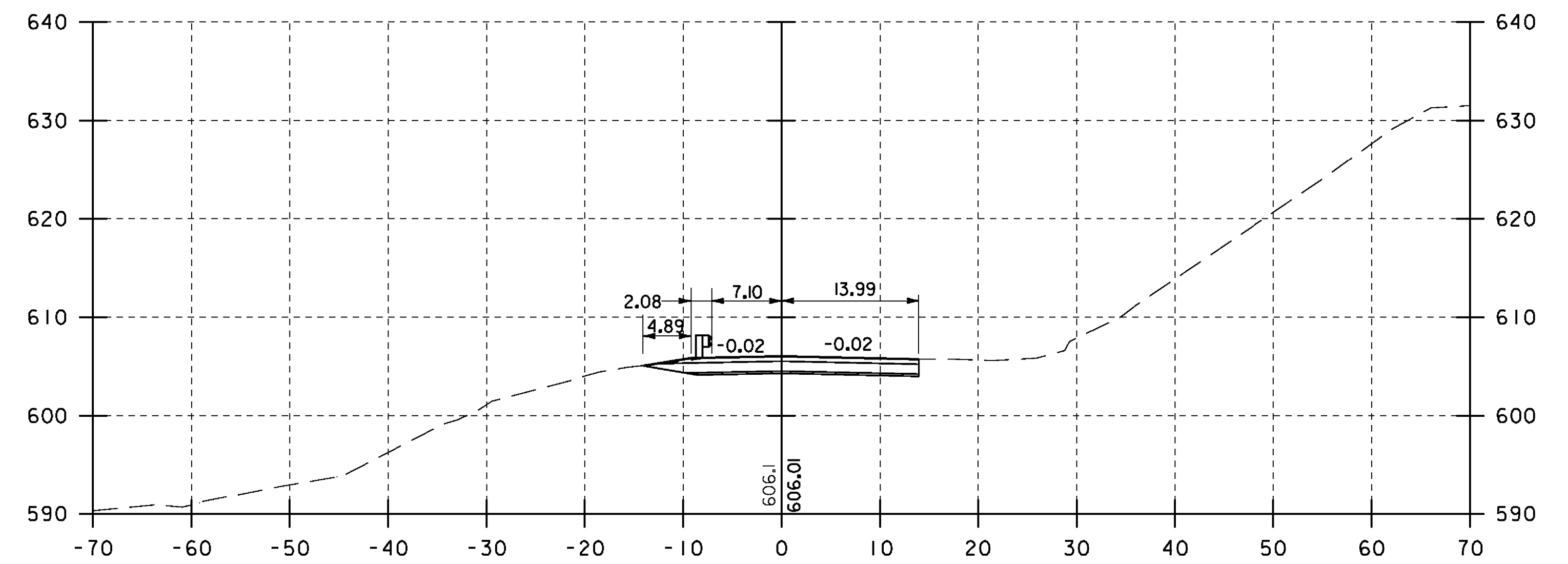
20+75
BEGIN APPROACH - STA. 20+75



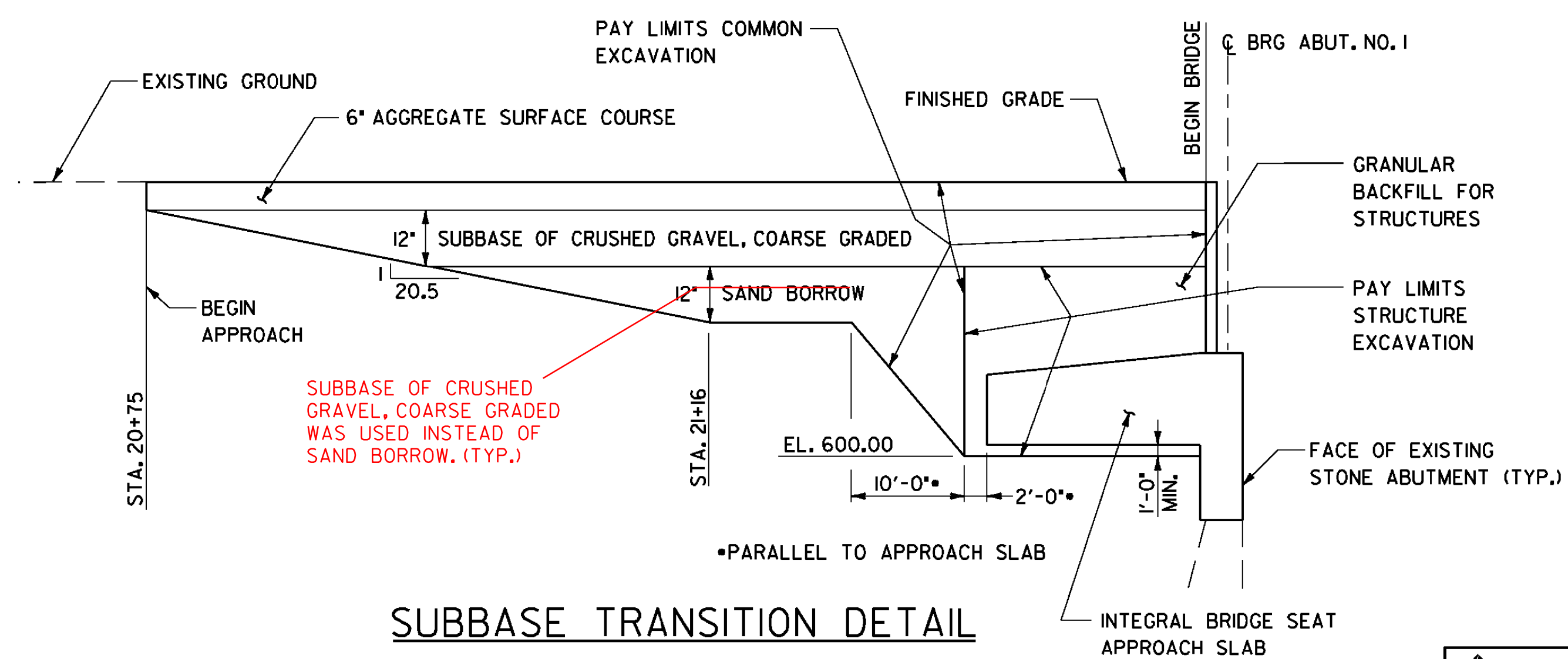
21+25



20+50



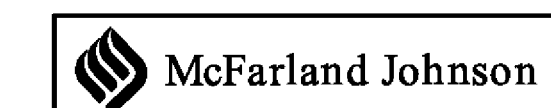
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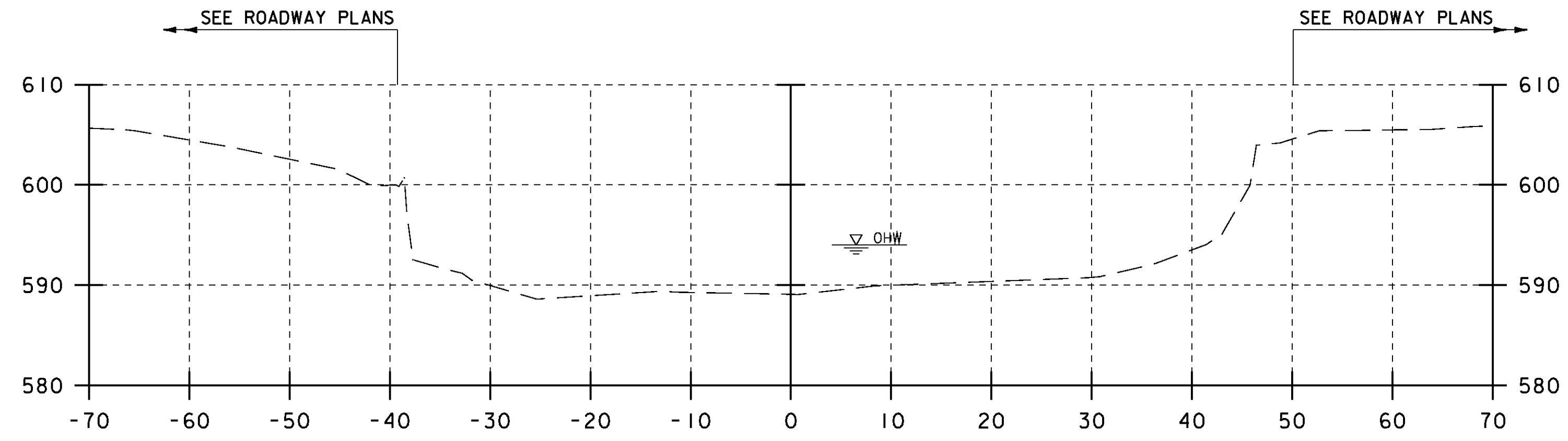


SUBBASE TRANSITION DETAIL

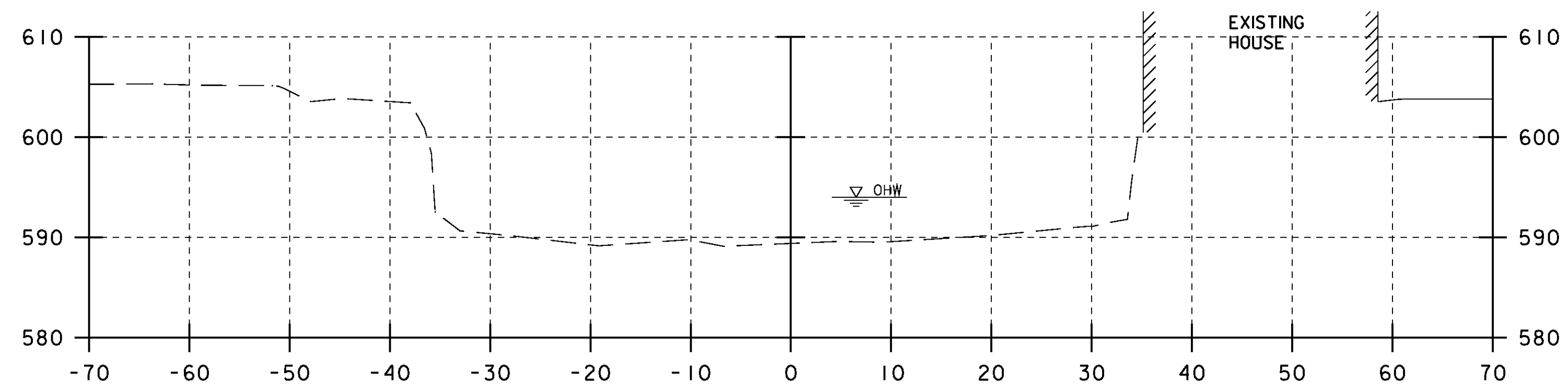
NOT TO SCALE

SHEET NAME: T.H. 79 CROSS SECTIONS	
PROJECT NAME: TUNBRIDGE	
PROJECT NUMBER: BRO 1444 (39)	
FILE NAME: z99J110xs2.dgn	PLOT DATE: 29-APR-2009
PROJECT LEADER: K.M. Higgins	DRAWN BY: P. Dustin
DESIGNED BY: S. Della	CHECKED BY: R. Joy
SHEET 31 OF 32	

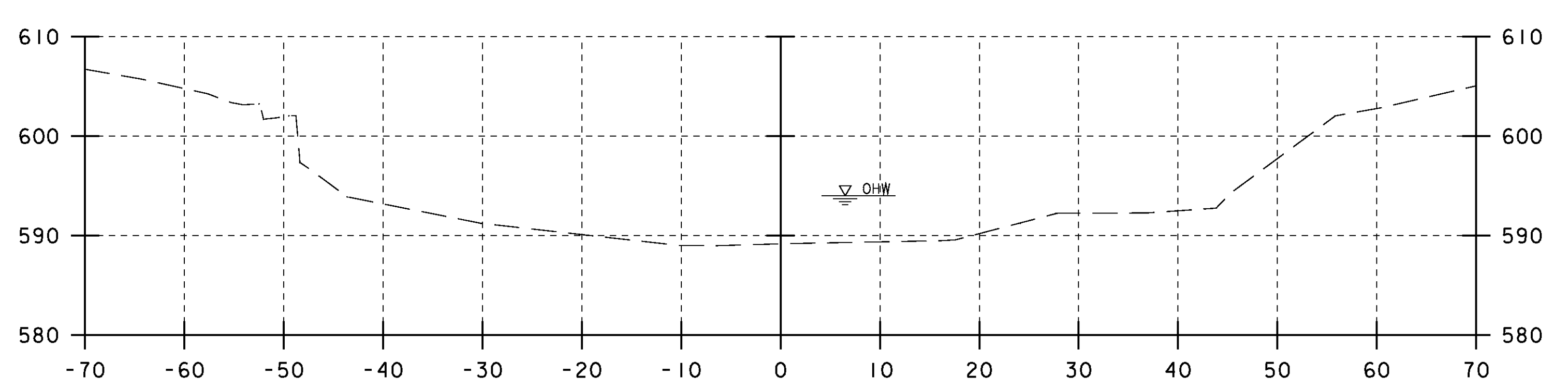




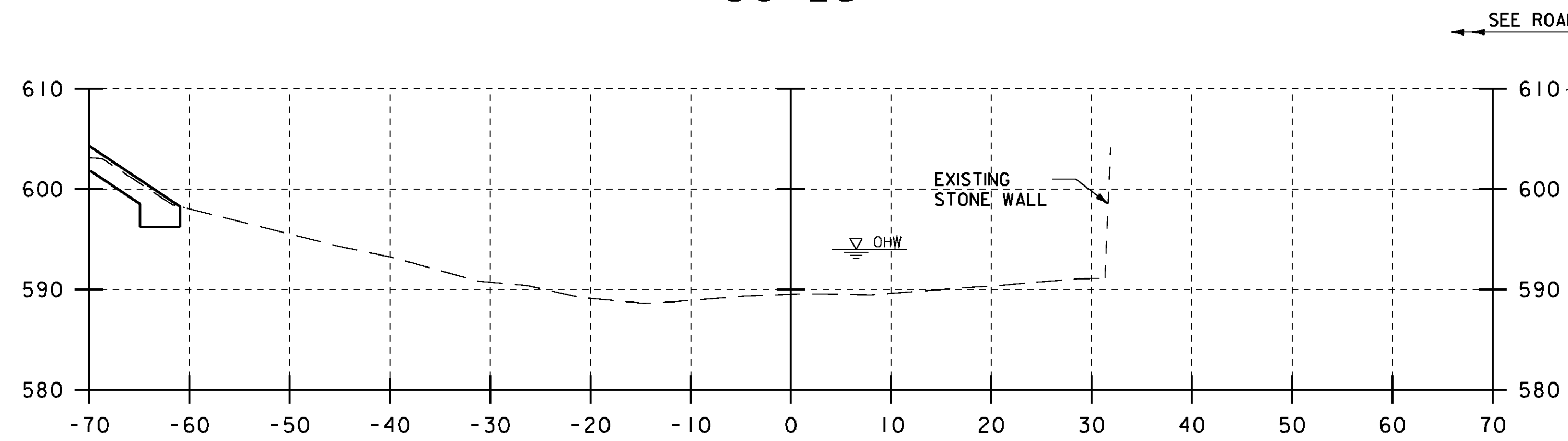
30+50



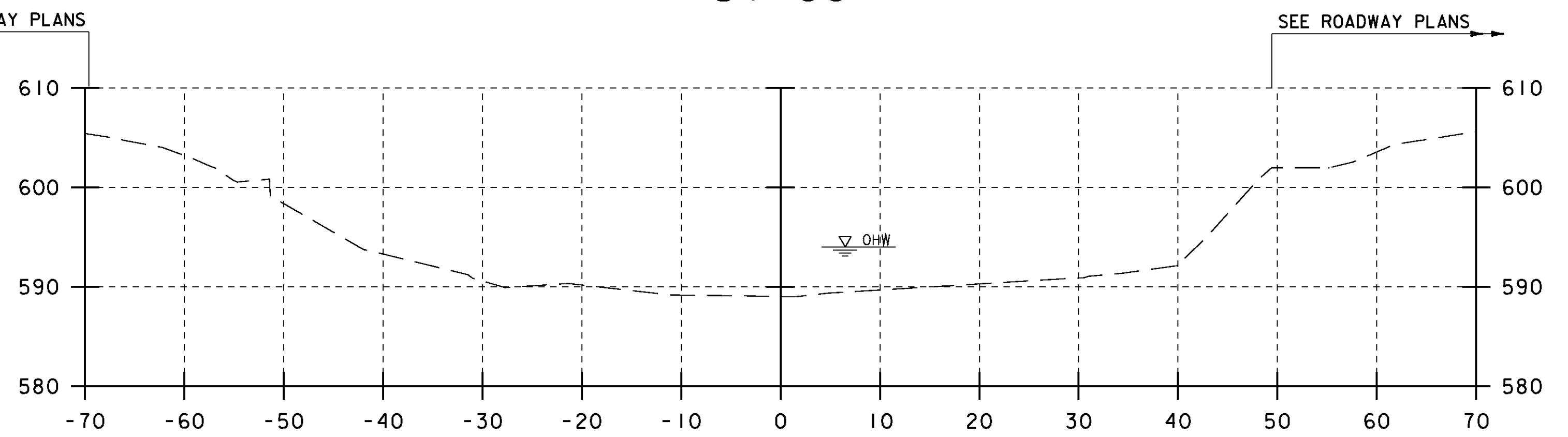
30+25



31+00



30+00



30+75

SHEET NAME: CHANNEL CROSS SECTIONS			
PROJECT NAME: TUNBRIDGE			
PROJECT NUMBER: BRO 1444 (39)			
FILE NAME:	z99J110xsc.dgn	PLOT DATE:	29-APR-2009
PROJECT LEADER:	K.M. Higgins	DRAWN BY:	P. Dustin
DESIGNED BY:	S. Della	CHECKED BY:	R. Joy
		SHEET	32 OF 32





State of Vermont
PDD/Structures Design Section
National Life Building - Drawer 33
Montpelier, VT 05633-5001
www.rol.state.vt.us

[phone] 802-828-2621
[fax] 802-828-3556
[toll] 800-253-0191

Agency of Transportation

February 25, 2010

D.S. Brown Company
300 East Cherry Street
North Baltimore, Ohio 45872-0158

Project Name: Tunbridge Project #: BRO 1444 (39)

Structure Identification: Bridge 31 over First Branch White River

The following Bridge Bearing fabrication drawings, for the above project (General Contractor - Alpine Construction, LLC.), have been reviewed and are being returned herewith.

All sheets are approved

The Welding and Bonding Procedures are approved

Sincerely,

Kristin Higgins
Structures Project Manager

Attachments

- cc: [X] Resident Engineer w/prints - Daryl Bassette
[X] Shop Inspector w/prints - Jeff Clark
[X] Contractor w/prints - Alpine Construction, LLC
[X] Construction Division - letter only
[X] Materials & Research Section (C&IA Unit) - letter only
[X] Files

033 Bridge Bearing





The D.S. Brown Company
300 E. Chazy Street
North Baltimore, Ohio 44872
419-257-3551
Fax: 419-257-2200
www.dsbrown.com

Bonding Procedure

The bonding process for laminating PTFE to the fabric pad is as follows:

The fabric pad surface to be bonded is prepared for lamination. A two-part structural grade epoxy is then applied per the manufacturer's instructions. The PTFE is cut slightly oversize to account for the possible drift. The PTFE is then applied to the fabric pad and put into a vacuum press at the appropriate pressure for the necessary time period.

Once the fabric pad PTFE is removed from the press, the PTFE is trimmed to plan size and the pads are submitted for quality control review.

Leads Engineering Company
4201 Howe Drive
Clermont, Missouri 65118
572-339-2000
Fax: 572-349-7000

International Division
51 Pioneer Road
Singapore 63992
65-692-8988
Fax: 65-692-6255
e-mail: dsbrown@nicor24sigmat.com.sg

TRANS RECEIVED
CHK BY: JLC
JAN 22 2010
RESUBMIT APPROVED
BY: DATE 01/24/10

DSBROWN Production Joint Welding Procedure Specification (D1.5-08)

Procedure No: A-GTP-01 Date Issued: 1-9-04 Revision No: 01 Rev. Date: 5-15-09

Contractor (Fabricator) D.S. Brown Company Prepared by: James R. Connor, Quality Assurance Manager

1. Non-Fracture Critical Fracture Critical WPS Expiration Date: _____

2. Qualified in accordance with: AWS D1.5-2008, AWS D1.6-07

Referenced PQR No(s): PQR-GTAW-01(07)NY

Referenced FWST No(s): PQR-GTAW-01(03)

3. Material specification(s) ASTM A709 Gr. 36, 50, 50W, 304SS, 316SS For DOT Approval

4. Material Thickness (es) Unlimited

5. Welding process GTAW

6. Manual , machine , or semiautomatic

7. Position(s) of welding 1F, 2F

8. Filler metal specification AWS A5.9

9. Filler metal class and brand name ER309L (Murrex)

10. Flux class & brand N/A, Type N/A

11. Shielding gas 100% Argon Flow rate 20 CFH

12. Single pass Or multiple pass

13. Single arc Or multiple arc

14. Welding Current DCEN

15. Polarity Straight

16. Welding progression stringers

17. Root treatment Clean to bright sound metal or per AWS D1.5 (3.2.1 & 3.11)

18. Postheat treatment N/A

19. Calculated Heat Input (KJ/in) Min 10.9 KJ Max 20.4 KJ

20. Electrode extension (electrical stickout) N/A

APPROVED BY: [Signature] DATE: 1/27/09

Weld Size (in)	Pass	Electrode Size (in)	Welding Process Variables		Travel Speed (IPM)	Travel Speed (mm/min)	Joint Detail (Flare Bevel) Show all dimensions, weld sizes, passes, and AWS symbols
			AMPS/WFS*	VOLTS			
20 ga.	1	1/8"	170-200	15-17	10-14		
16 ga.	1	1/8"	170-200	15-17	10-14		
14 ga.	1	1/8"	170-200	15-17	10-14		
12 ga.	1	1/8"	170-200	15-17	10-14		
11 ga.	1	1/8"	170-200	15-17	10-14		
10 ga.	1	1/8"	170-200	15-17	10-14		
8 ga.	1	1/8"	170-200	15-17	10-14		
3/16"	1	1/8"	170-200	15-17	10-14		

* Wire feed speed may be used along with amperage (include chart)

Base Metal Thickness range	Preheat and Interpass Temperature Chart	
	Minimum Preheat (°F)	Max Preheat & Interpass (°F)
= 3/4"	50°F	450°F
>3/4" to =1.5"	70°F	450°F
>1.5" to =2.5"	150°F	450°F
>2.5"	225°F	450°F

Prepared By: [Signature] DSB QA Manager

Project: _____

DSB Job: _____

Note: When this procedure is used for A709Gr50W materials, it shall be limited to 5/16" single pass or material be coated.



State of Vermont
PDD/Structures Design Section
National Life Building - Drawer 33
Montpelier, VT 05633-5001
www.not.state.vt.us

(phone) 802-828-2621
(fax) 802-828-3566
(tdd) 800-253-0191

Agency of Transportation

May 5, 2010

Jeffords Steel and Engineering Company
P.O. Box 40 - 4398 Route 22
Plattsburgh, NY 12901

Project Name: Tunbridge Project #: BRO 1444 (39)

Structure Identification: Bridge #31 over First Branch White river

The structural steel fabrication drawings and welding procedures [506.50 Structural Steel, Rolled Beam and 506.60 Structural Steel] for the above project (General Contractor - Alpine Construction LLC.) have been reviewed and are being returned herewith.

All sheets are approved with sheet 14 being approved as noted.

Please submit extended weights for our approval. Partial payment for this item will be withheld until extended weights are received and approved.

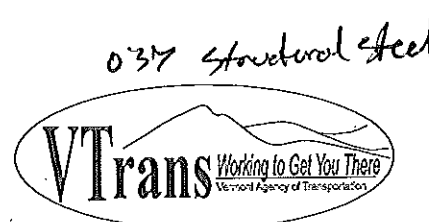
You must provide notice to our fabrication inspector, Jeff Clark, as to the date fabrication represented by these drawings will begin. Jeff must receive and acknowledge your notice at least seven days prior to that date, as per Specification 506.03. You may contact Jeff by phone at (802)828-0044 or email at jeff.clark@state.vt.us. Any material fabricated prior to the notification date is subject to rejection without further cause.

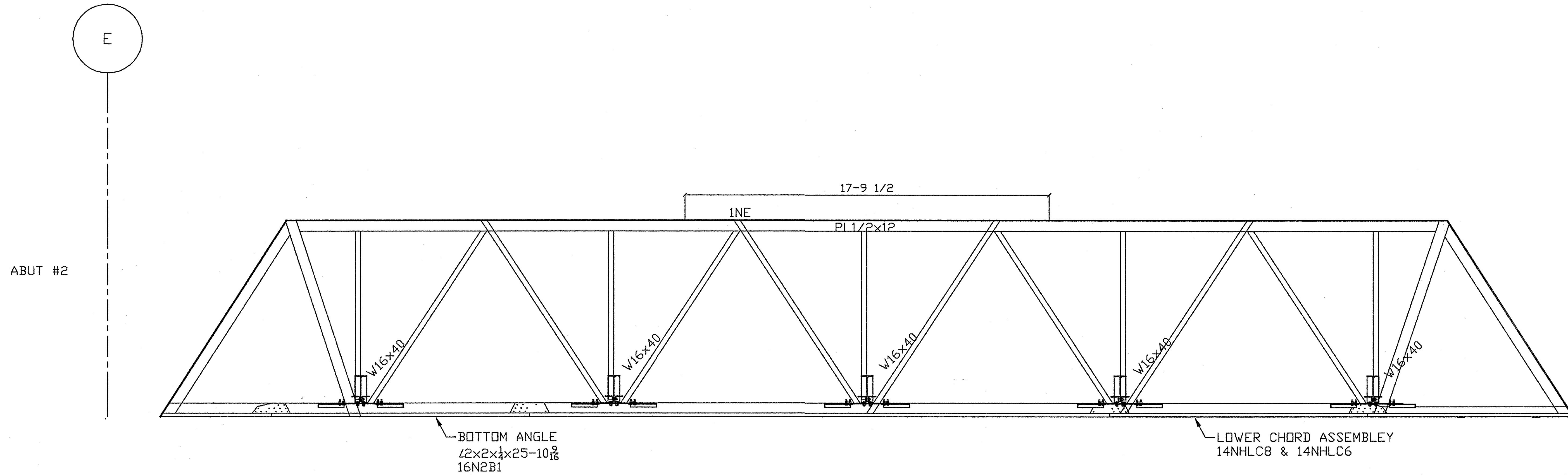
Sincerely,

Kristin M. Higgins P.E.
Project Manager

Attachments

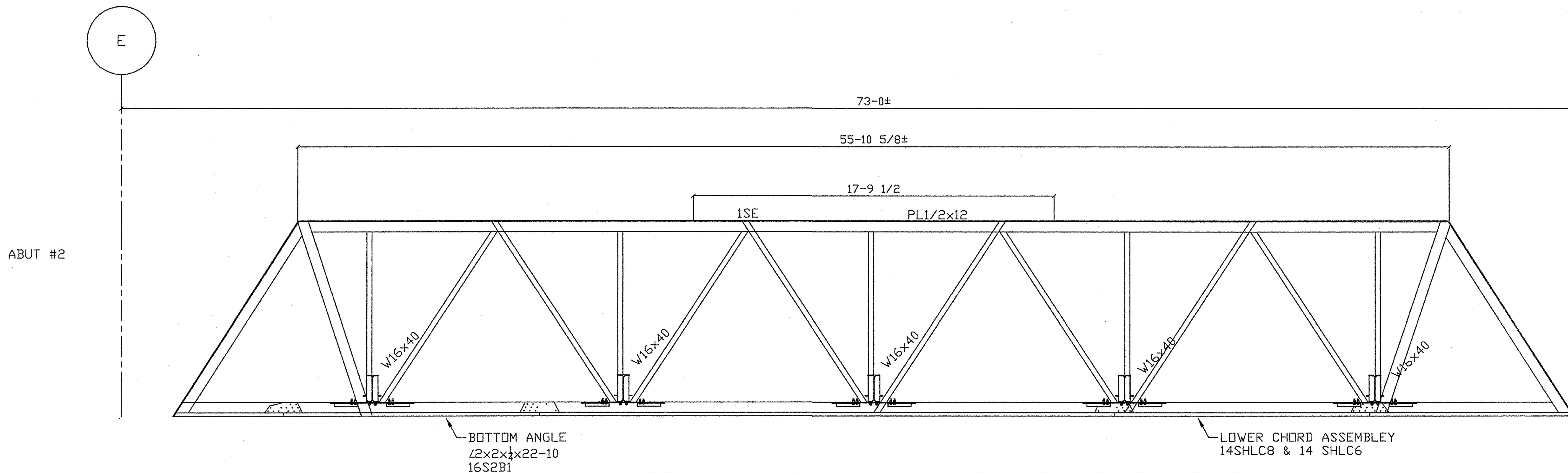
cc: [x] Resident Engineer - Daryl Bassett w/prints
[x] Shop Inspector - Jeff Clark w/prints
[x] Contractor - Alpine Construction, LLC. w/prints
[x] Construction Division - letter only
[x] Materials & Research Section (C&IA Unit) - letter only
[x] Files (Structures & Central)





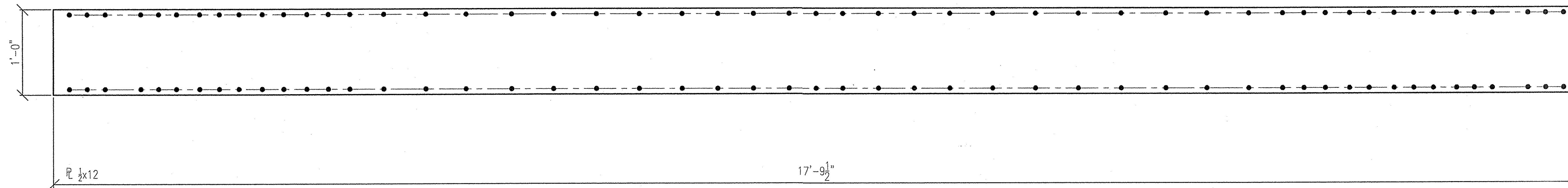
SECTION @ GRID LINE T- LOOKING SOUTH

REF. PG/ 18



ELEVATION @ GRID LINE T-LOOKING SOUTH

REF. PG/ 18



ONE ~ 1SE
 MATCH EXISTING PL MRK'D "SE"

SHOP NOTE:
 -EASE ALL SHARP EDGES
 -DRILL ALL HLS
 -USE EXISTING PLATE MRK'D NE & SE
 AS TEMPLATE FOR LOCATION OF HLS

Vermont Agency of Transportation

RECEIVED

CK'D BY RJ OK'D BY _____

10:47 am, May 0

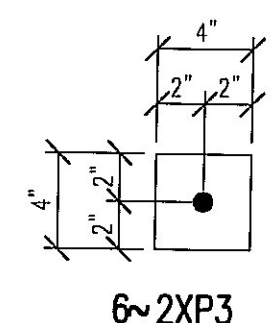
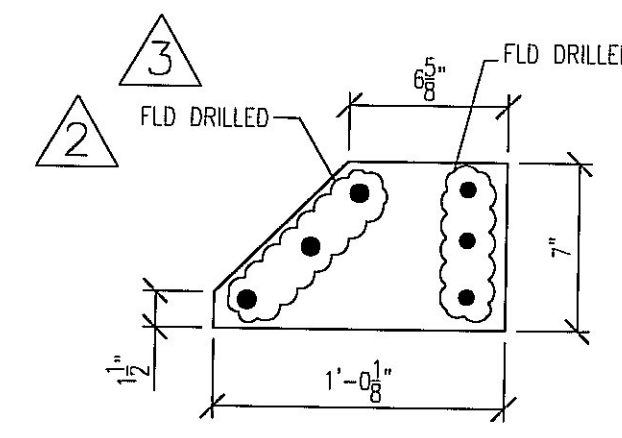
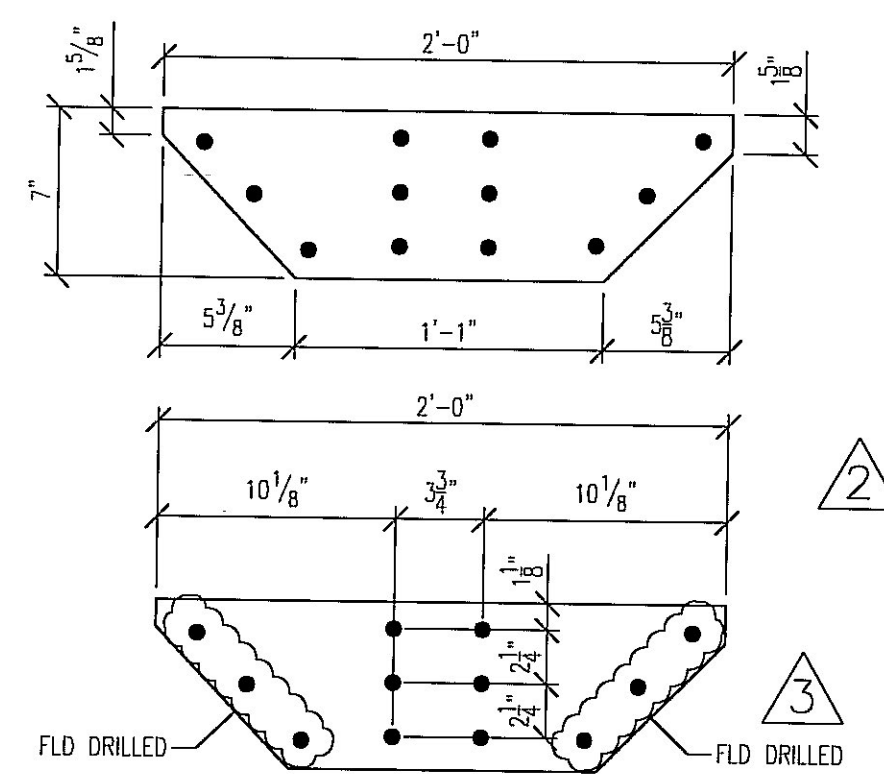
RESUBMIT _____ APPR _____
 BY KMH DATE _____

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SHOP NOTE:
 -EASE ALL SHARP EDGES
 -DRILL ALL HLS

BILL OF MATERIAL A572/A992 GR.50

QTY	MARK	MATERIAL	LENGTH		REMARKS	WGHT
			FEET	INCHES		
10	2XP1	R 1/4x7	2	0	A572/A992	110
4	2XP2	R 1/4x7	1	0 1/8	A572/A992	25
6	2XP3	R 1/4x4	0	4	A572/A992	



Vermont Agency of Transportation
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 RESUBMIT APPROVED X
 BY KMH DATE 5-5-2010

project: ALPINE CONSTRUCTION
 10 BROAD ST
 SCHUYLERVILLE, NY 12871
 customer: TUNBRIDGE BRIDGE
 3 BEST AVENUE
 MECHANICVILLE, NY 12118

Jeffords
 STEEL AND ENGINEERING COMPANY
 P.O. BOX 40-4388 ROUTE #22
 PLATTSBURGH, NY 12051
 518-581-4061

JOB No: 4022-1000
 DATE: 3-11-10
 DRAWN BY: ARH
 CHECKED BY: MCB

HOLES: 13/16" U.N.O.
 SURFACE PREP: N/A
 PAINT: N/A
 ELECTRODES: N/A
 STD COPE: 1/2" min.

revision		print record	
#	date	description	
1	3-26	ADDED DIMS	2 SHOP 3-19
2	3-31	REV'D DIMS	2 SHOP 3-26
3	4-28	REV'D HLS	2 SHOP 3-31
4	5-4	REV'D PER APP'L & GC	

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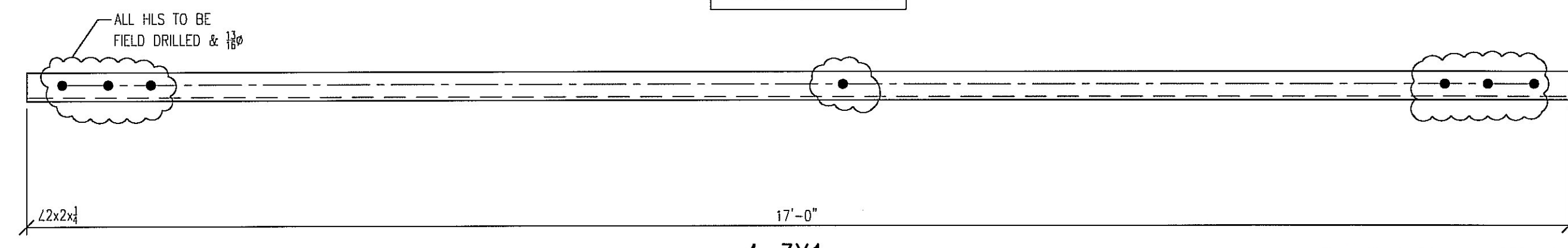
BILL OF MATERIAL

QTY	MARK	MATERIAL	LENGTH		REMARKS	WGHT
			FEET	INCHES		
4	3X1	L2x2x1/4	17	0		

A529/A572/A992 GR.50

SHOP NOTE: EASE ALL SHARP EDGES

FIELD CUT TO LGTH & FIELD DRILL



4~3X1
MATCH EXISTING PIECE MRK'D "X1"

Vermont Agency of Transportation
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BY KMH DATE 5-5-2010

project: ALPINE CONSTRUCTION
10 BROAD ST
SCHUYLERVILLE, NY 12871
customer: TUNBRIDGE BRIDGE
3 BEST AVENUE
MECHANICVILLE, NY 12118

Jeffords
STEEL AND ENGINEERING COMPANY
P.O. BOX 40-4398 ROUTE #22
PLATTSBURGH, NY 12801
518-561-4881

JOB NO: 4022-1000
DATE: 3-11-10
DRAWN BY: ARH
CHECKED BY: MCB
3

revision			print record	
#	date	description	2	SHOP
1	3-24	ADD'ED DIM	2	SHOP 3-18
2	4-27	OMIT HLS	2	SHOP 3-25

HOLES: 13/16" U.N.O.
SURFACE PREP: SSPC-SP2
PAINT: 1 S/C PPG 84-232 GRAY
ELECTRODES: E70XX (LOW HYDROGEN)
STD COPE: 1/8" min.

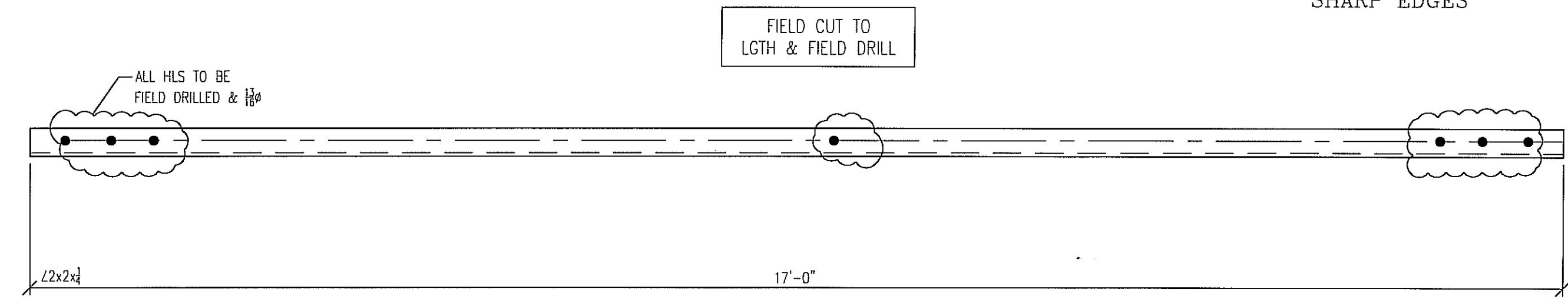
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BILL OF MATERIAL

QTY	MARK	MATERIAL	LENGTH		REMARKS	WGHT
			FEET	INCHES		
4	4X2	L2x2x1/4	17	0		

A529/A572/A992 GR.50

SHOP NOTE: EASE ALL SHARP EDGES



4~4X2
MATCH EXISTING PIECE MRK'D "X2"

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BY KMH DATE 5-5-2010

project: ALPINE CONSTRUCTION
10 BROAD ST
SCHUYLERVILLE, NY 12871
customer: TUNBRIDGE BRIDGE
3 BEST AVENUE
MECHANICVILLE, NY 12118

Jeffords
STEEL AND ENGINEERING COMPANY
P.O. BOX 40-4398 ROUTE #22
PLATTSBURGH, N.Y. 12901
518-561-4001

JOB No: 4022-1000
DATE: 3-11-10
DRAWN BY: ARH
CHECKED BY: MCB

HOLES: 13/16" U.N.O.
SURFACE PREP: SSPC-SP2
PAINT: 1 S/C PPG 84-232 GRAY
ELECTRODES: E70XX (LOW HYDROGEN)
STD COPE: 1/2" min.

revision			print record	
#	date	description		
1	3-24	ADD'ED DIM	2	SHOP 3-18
2	4-27	OMIT HLS	2	SHOP 3-25

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Vermont Agency of Transportation
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RESUBMIT APPROVED X

BY KMH DATE 5-5-2010

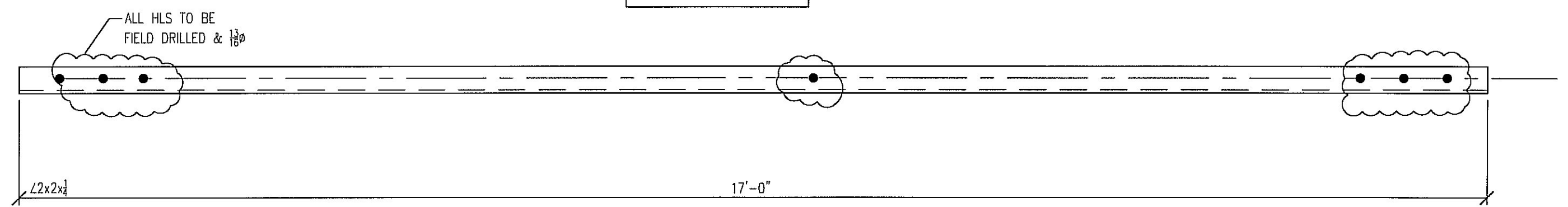
BILL OF MATERIAL

QTY	MARK	MATERIAL	LENGTH		REMARKS	WGHT
			FEET	INCHES		
4	5X3	L2x2x1/4	17	0		

A529/A572/A992 GR.50

SHOP NOTE: EASE ALL SHARP EDGES

FIELD CUT TO LGTH & FIELD DRILL



4~5X3
MATCH EXISTING PIECE MRK'D "X3"

project: ALPINE CONSTRUCTION
10 BROAD ST
SCHUYLERVILLE, NY 12871
customer: TUNBRIDGE BRIDGE
3 BEST AVENUE
MECHANICVILLE, NY 12118

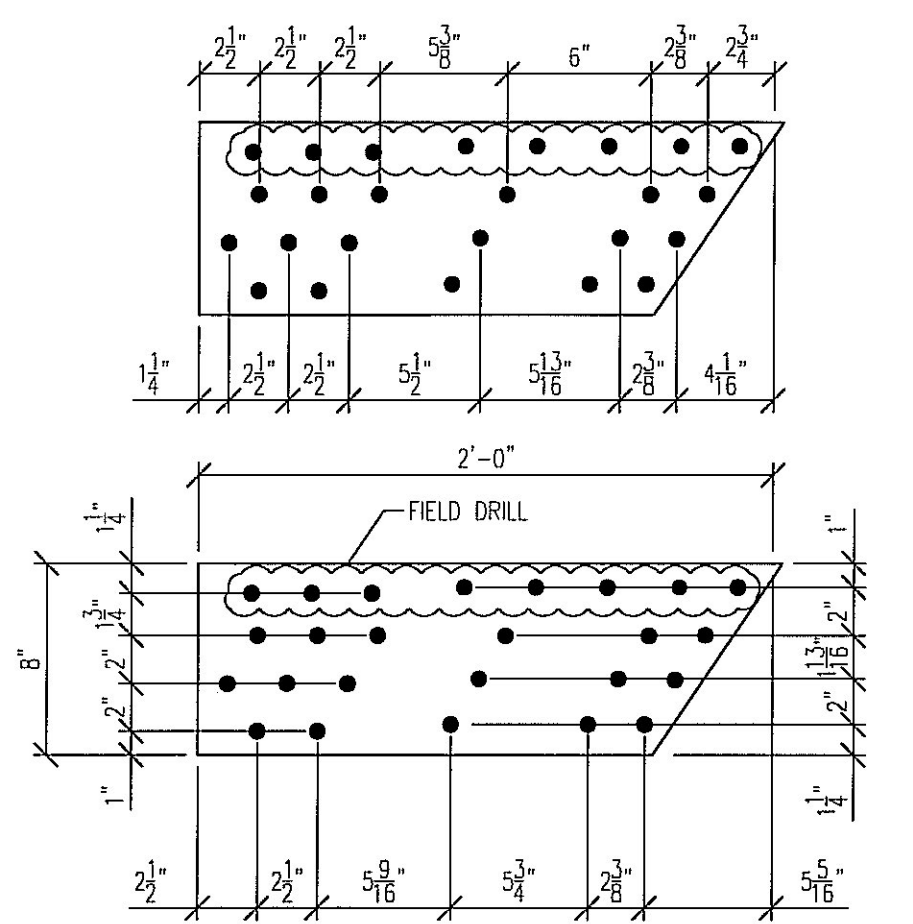
Jeffords
STEEL AND ENGINEERING COMPANY
P.O. BOX 40-4398 ROUTE #22
PLATTSBURGH, N.Y. 12801
518-561-4061

JOB No: 4022-1000
DATE: 3-11-10
DRAWN BY: ARH
CHECKED BY: MCB
5

revision			print record	
#	date	description	2	SHOP
1	3-24	ADD'ED DIM	2	SHOP 3-25
2	4-27	OMIT HLS	2	SHOP

HOLES: 19/16" U.N.O.
SURFACE PREP: N/A
PAINT: N/A
ELECTRODES: E70XX (LOW HYDROGEN)
STD COPE: 1/2" min.

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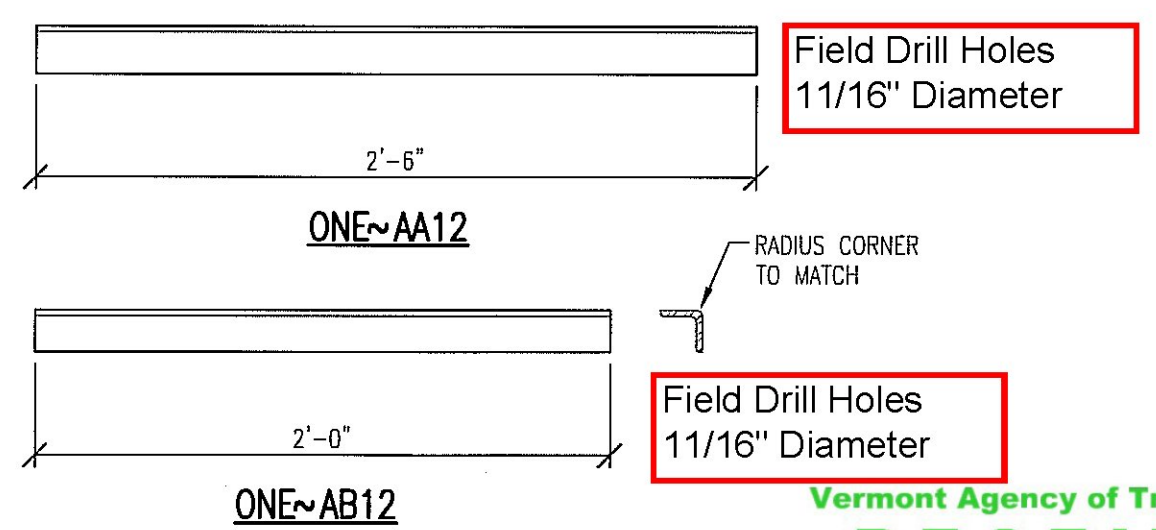


ONE~12EPS
MATCH EXISTING PIECE MRK'D "END POST"

BILL OF MATERIAL						
QTY	MARK	MATERIAL	LENGTH		REMARKS	WGHT
			FEET	INCHES		
ONE	12EPS	BR 1/4x8	2	0		13
ONE	AA12	L2x2x1/4	2	6		
ONE	AB12	L1-3/4x1-3/4x1/4	2	0		

A529/A572/A992 GR.50

SHOP NOTE:
-EASE ALL SHARP EDGES
-DRILL ALL HLS



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BY KMH DATE 5-5-2010

Project: ALPINE CONSTRUCTION
10 BROAD ST
SCHUYLERVILLE, NY 12871
Customer: TUNBRIDGE BRIDGE
3 BEST AVENUE
MECHANICVILLE, NY 12118

Jeffords
STEEL AND ENGINEERING COMPANY
P.O. BOX 40-4388 ROUTE #22
PLATTSBURGH, NY 12901
518-561-4081

JOB No: 4022-1000
DATE: 3-11-10
DRAWN BY: ARH
CHECKED BY: MCB
12

revision		print record	
#	date	description	
1	3-26	ADDED DIMS	2 SHOP 3-19
			2 SHOP 3-26

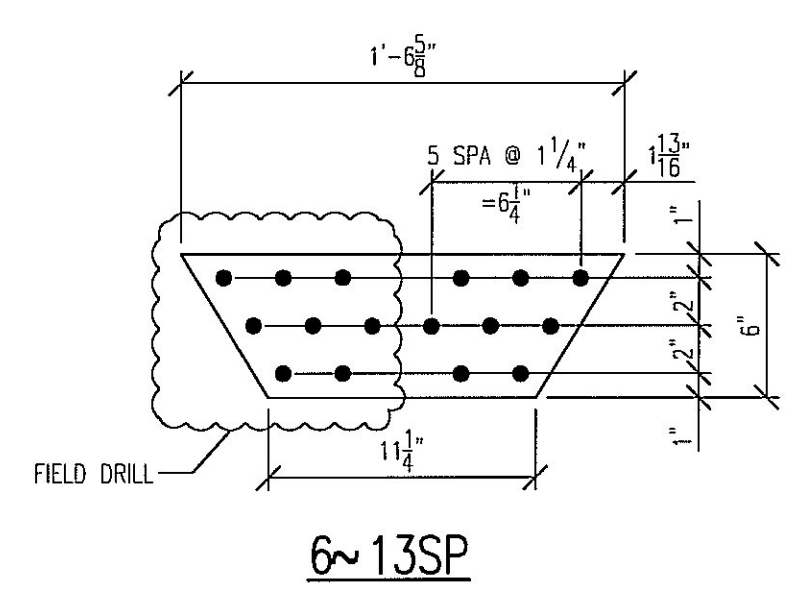
HOLES: 11/16" U.N.O.
SURFACE PREP: N/A
PAINT: N/A
ELECTRODES: E70XX (LOW HYDROGEN)
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BILL OF MATERIAL

QTY	MARK	MATERIAL	LENGTH		REMARKS	WGHT
			FEET	INCHES		
6	13SP	BR 1/4x6	1	5 5/8		45

A529/A572/A992 GR.50



SHOP NOTE:
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 -DRILL ALL HLS

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project: ALPINE CONSTRUCTION
 10 BROAD ST
 SCHUYLERVILLE, NY 12871
 customer: TUNBRIDGE BRIDGE
 3 BEST AVENUE
 MECHANICVILLE, NY 12118

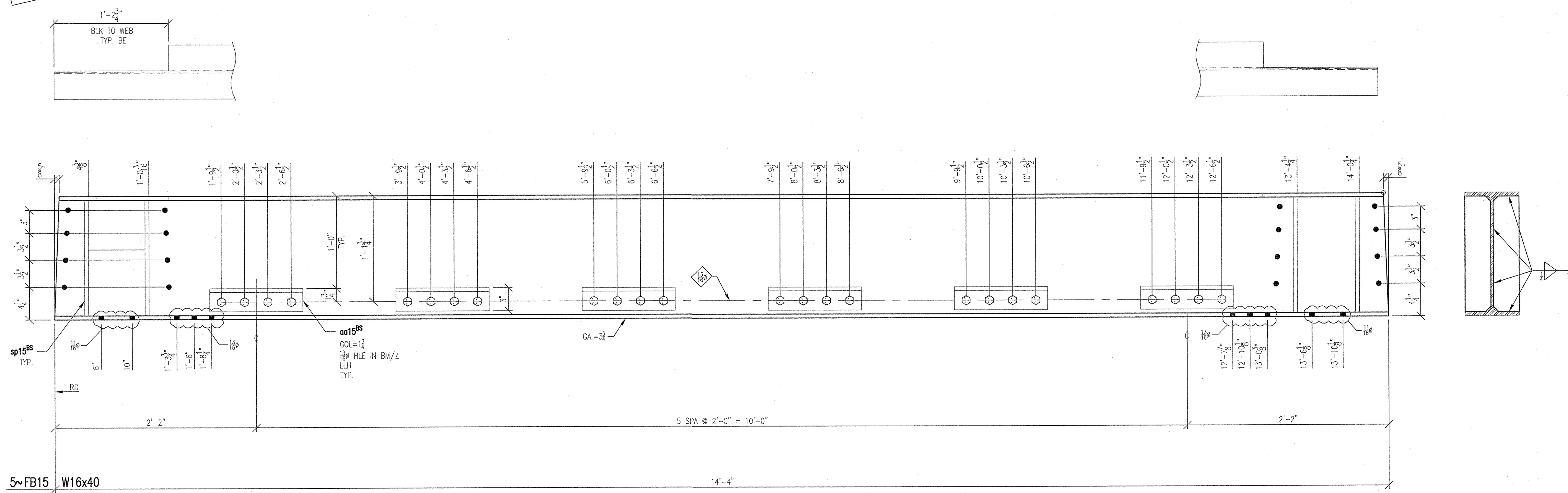
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 STEEL AND ENGINEERING COMPANY
 P.O. BOX 40-4398 ROUTE #22
 PLATTSBURGH, NY 12801
 518-561-4081

JOB NO: 4022-1000
 DATE: 3-11-10
 DRAWN BY: ARH
 CHECKED BY: MCB
 HOLES: 11/16"
 SURFACE PREP: N/A
 PAINT: N/A
 ELECTRODES: E70XX (LOW HYDROGEN)
 STD COPE: 1/8" min.

revision			print record	
#	date	description		
1	3-26	ADDED DIMS	2	SHOP 3-19
			2	SHOP 3-26

13

MATCH EXISTING
HOLE SIZE, LOCATION
& QTY



5~FB15 W16x40

14'-4"

∠ - A529, A572, A992 GR.50
P. - A572, A992 GR.50

BILL OF MATERIAL						
QTY	MARK	MATERIAL	LENGTH		REMARKS	WGHT
			FEET	INCHES		
5	FB15	W16x40	14	4	A992 GR.50	2868
60	aa15	∠5x3x1/2	1	0		768
40	sp15	PL 1/2x3 3/8	1	3		280
120	XB15	3/4" A325 H.H. BOLT	0	2 1/2	GALV	
TOTAL WEIGHT: 3916						

print record
2 SHOP 3-18
2 SHOP 3-25

job no. 4022-1000
date 3-17-10
drawn by ARH
checked by MCB

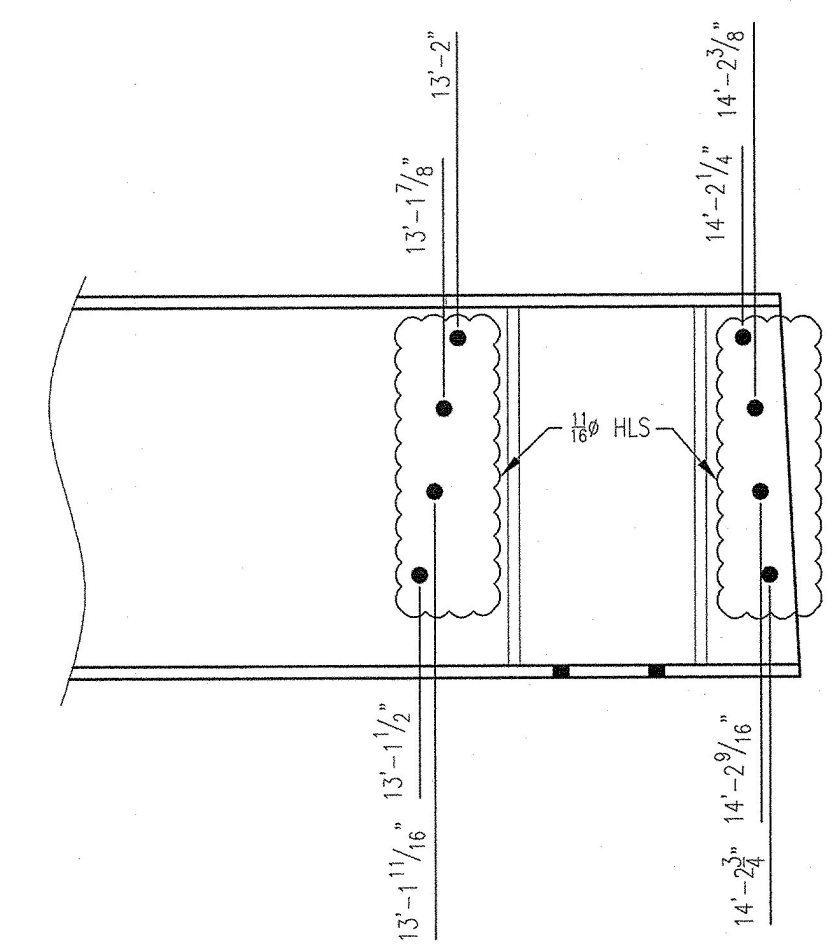
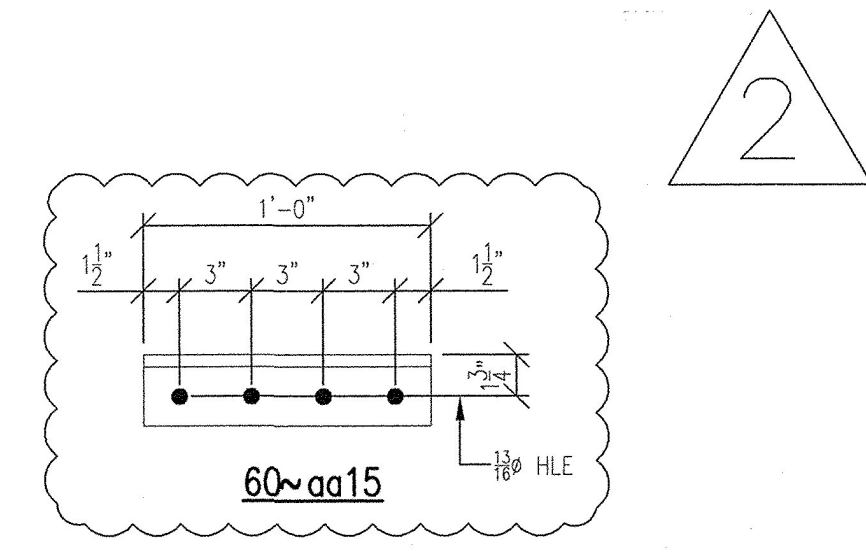
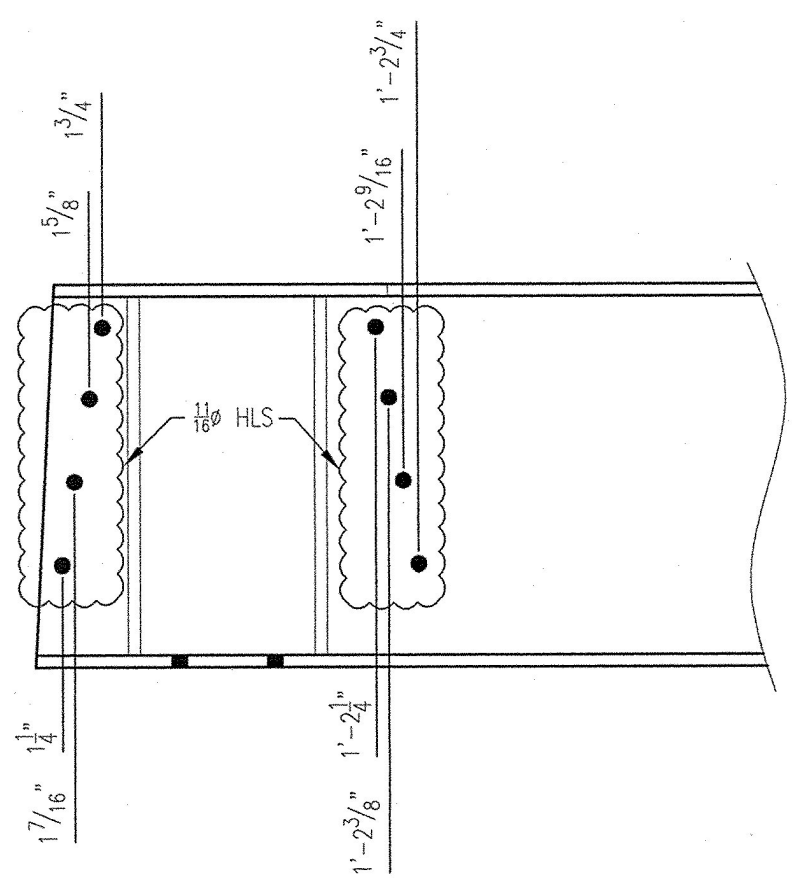
rev#	date	description
1	3-25	ADDED DIMS
2	4-27	FAB NEW C/S and 1

JEFFORDS
STEEL AND ENGINEERING COMPANY
P.O. BOX 40-4898 ROUTE #22
PLATTSBURGH, NY 12901
518-581-4061

customer:
TUNBRIDGE BRIDGE
3 BEST AVENUE
MECHANICVILLE, NY 12118

project
ALPINE CONSTRUCTION
10 BROAD ST
SCHUYLERVILLE, NY 12871

sheet
15

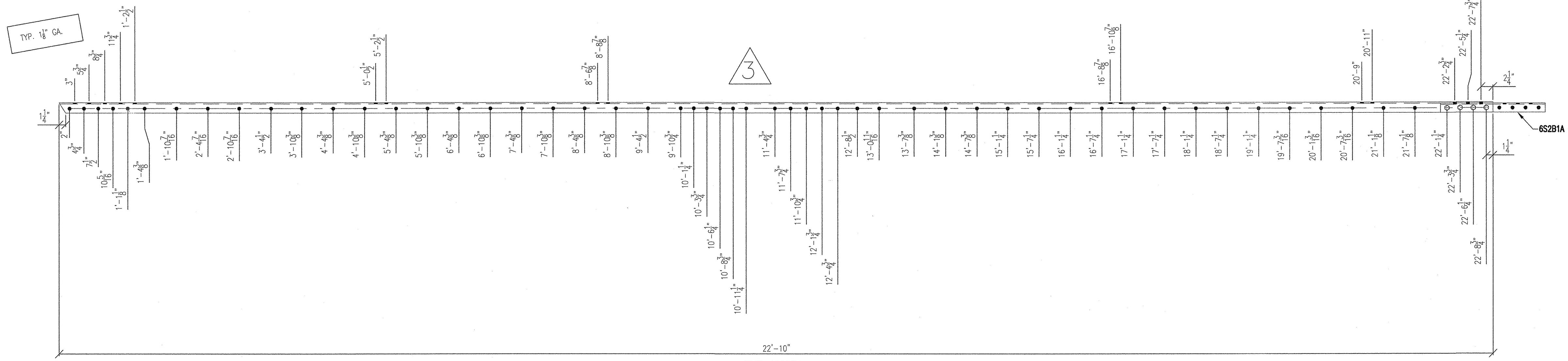


SHOP NOTE:
-EASE ALL SHARP EDGES OF L'S
-DRILL ALL HLS

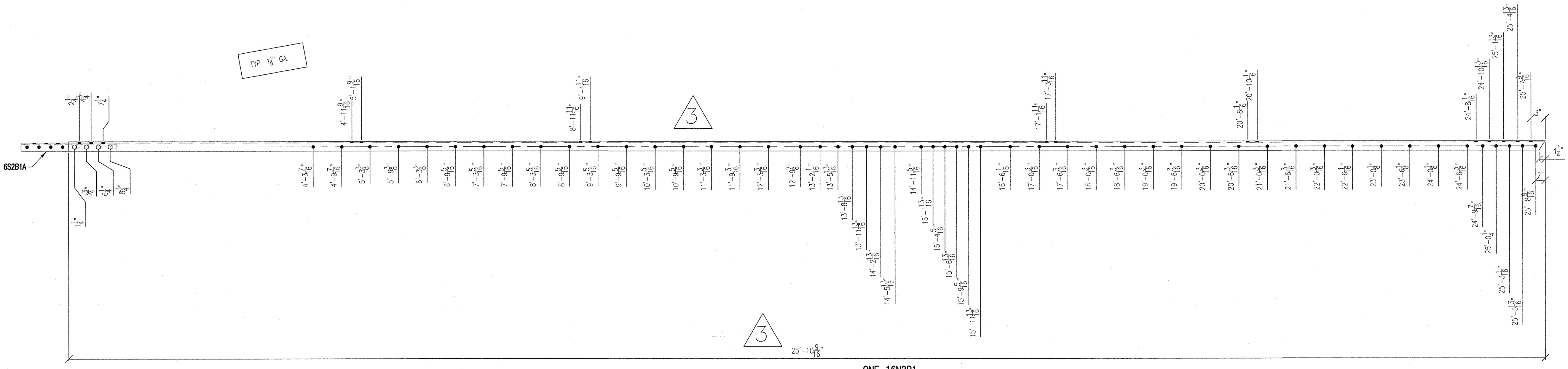
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BY KMH DATE 5-5-2010

HOLES: AS NOTED
SURFACE PREP: SSPC-SP2
PAINT: N/A
ELECTRODES: N/A

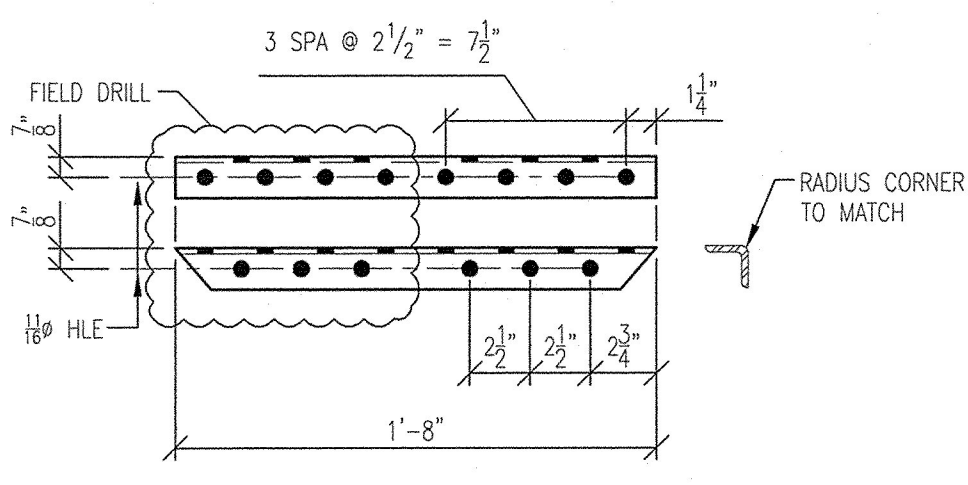
GENERAL NOTES:
ALL DIMENSIONS FROM END OF MAIN MATERIAL UNLESS NOTED.
ALL VERTICAL SPACING OF HOLES TO BE 3" UNLESS NOTED.
ALL COPES TO HAVE 1/2" MINIMUM RADIUS.
CHARGES FOR CORRECTIVE WORK WILL NOT BE HONORED UNLESS PREVIOUS APPROVAL IS OBTAINED FROM JEFFORDS STEEL AND ENGINEERING COMPANY.
MEMBERS ARE TO BE ERECTED SO THAT MARKED END IS IN THE SAME LOCATION AS ON ERECTION DRAWING.



ONE-16S2B1
MATCH EXISTING R MRK'D "S2B1"



ONE-16N2B1
MATCH EXISTING R MRK'D "N2B1"



DETAIL OF 6S2B1A

BILL OF MATERIAL					
QTY	MARK	MATERIAL	LENGTH		REMARKS
			FEET	INCHES	
ONE	16S2B1	L2x2x1/4	22	10	
ONE	6S2B1A	L1 3/4x1 3/4x1/4	1	8	
4	XB14	5/8 A325 H.H. BOLT	0	1 3/4	W/N&W - GALV
ONE	16N2B1	L2x2x1/4	25	10 9/16	
ONE	6S2B1A				
4	XB14				

L - A529, A572, A992 GR.50

SHOP NOTE:
-EASE ALL SHARP EDGES
-DRILL ALL HLS

print record	
2	SHOP 3-18
2	SHOP 3-26
job no	4022-1000
date	3-17-10
drawn by	ARH
checked by	MCB

JEFFORDS
STEEL AND ENGINEERING COMPANY
P.O. BOX 40-4888 ROUTE 222
PLATTSBURGH, NY 12001
518-581-4081

customer
TUNBRIDGE BRIDGE
3 BEST AVENUE
MECHANICVILLE, NY 12118

project
ALPINE CONSTRUCTION
10 BROAD ST
SCHUYLERVILLE, NY 12871

sheet
16

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BY KMH DATE 5-5-2010

HOLES: 11/16 U.N.O.
SURFACE PREP: SSPC-SP2
PAINT: N/A
ELECTRODES: N/A

GENERAL NOTES:
ALL DIMENSIONS FROM END OF MAIN MATERIAL UNLESS NOTED.
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MEMBERS ARE TO BE ERECTED SO THAT MARKED END IS IN THE SAME LOCATION AS ON ERECTION DRAWING.



State of Vermont
PDD/Structures Design Section
National Life Building - Drawer 33
Montpelier, VT 05633-5001
www.aot.state.vt.us

[phone] 802-828-2621
[fax] 802-828-3566
[tdd] 800-253-0191

Agency of Transportation

F.R Lafayette
52 Kellog Road
Essex Junction, VT 05452

May 13, 2010

Project Name: Tunbridge Project #: BRO 1444 (39)


Structure Identification: Bridge 31 over First Branch White River

The following Bridge Rail fabrication drawings, for the above project (General Contractor--Alpine Construction, LLC.), have been reviewed and are being returned herewith.

Bridge Rail fabrication drawing is approved as noted. Please note comments in red on sheet 1 of 1. The contractor is responsible for all dimensions requiring verification.

The Welding and Bonding Procedures are approved

Sincerely,


Kristin Higgins
Structures Project Manager

Attachments

- cc: Resident Engineer w/prints - Daryl Bassette
 Shop Inspector w/prints - Jeff Clark
 Contractor w/prints - Alpine Construction, LLC
 Construction Division - letter only
 Materials & Research Section (C&IA Unit) - letter only
 Highway Safety Corp

MAY 13 2010

049 Bridge Rail



Highway Safety Corporation
Glastonbury, CT
Welding Procedure Specification

Material specification A572 gr 50, A709 Gr 50
 Welding process Gas Metal Arc Welding (GMAW)
 Manual, semi-automatic, or automatic Semi-Automatic
 Position of welding Flat (1F) or Horizontal (2F)
 Filler metal specification AWS A5.18
 Filler metal classification ER70S-3
 Electrode and manufacturer Lincoln Electric Lincoln Weld L-50
 Flux and manufacturer N/A
 Shielding gas 85% Argon / 15% CO2 Flow rate 19-27 L / min
 Single or multiple pass Single or Multiple
 Single or multiple arc Single
 Welding current DCEP
 Polarity Reverse - electrode positive
 Welding progression Stringers
 Root treatment clean base metal
 Preheat and interpass temperature base metal up to 3/4" (60°F); over 3/4 thru 1-1/2" (150°F); over 1-1/2" thru 2-1/2" (225°F)
 Postheat treatment None
 Electrode extension 3/4" ± 1/4"

WELDING PROCEDURE

Weld size	Pass no.	Electrode size	Welding parameters		Travel speed	Joint detail
			Amperes	Volts		
5/16"	1	0.062"	275 A ± 25	25 V ± 2	8-10 ipm	
7/16"	1 & 2	0.062"	↓	↓	8-10 ipm	

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 BY KMH DATE 3/15/10

This procedure may vary due to fabrication sequence, fit-up, pass size, etc. within the limitation of variables given in section 5 of latest edition AWS D1.5

WPS no. W-1737 Fabricator Highway Safety Corporation PAUL RADICE
 Revision no. 0 Prepared By: Paul Radice CHW
 Supporting PQR no. Pre-Qualified Date 3/16/10 CHW
 Project Name Tunbridge, VT Project Number BRO 1444(39) CHW

