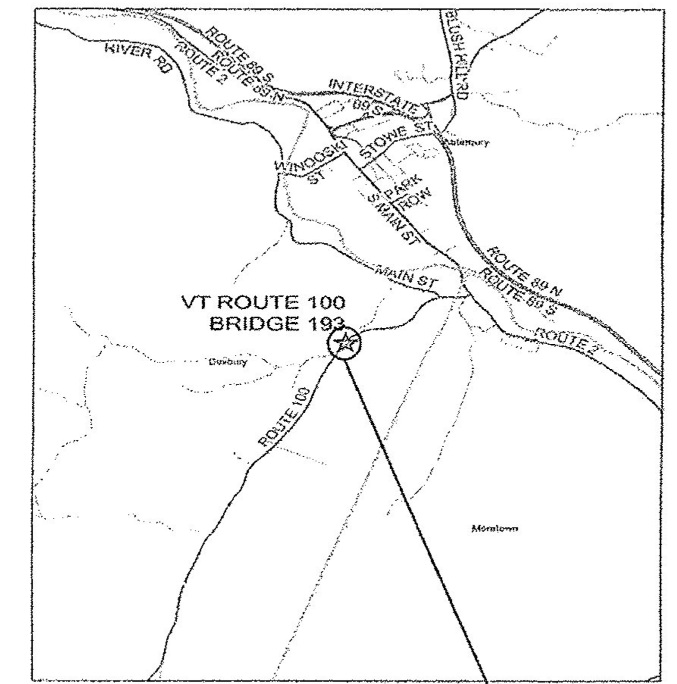
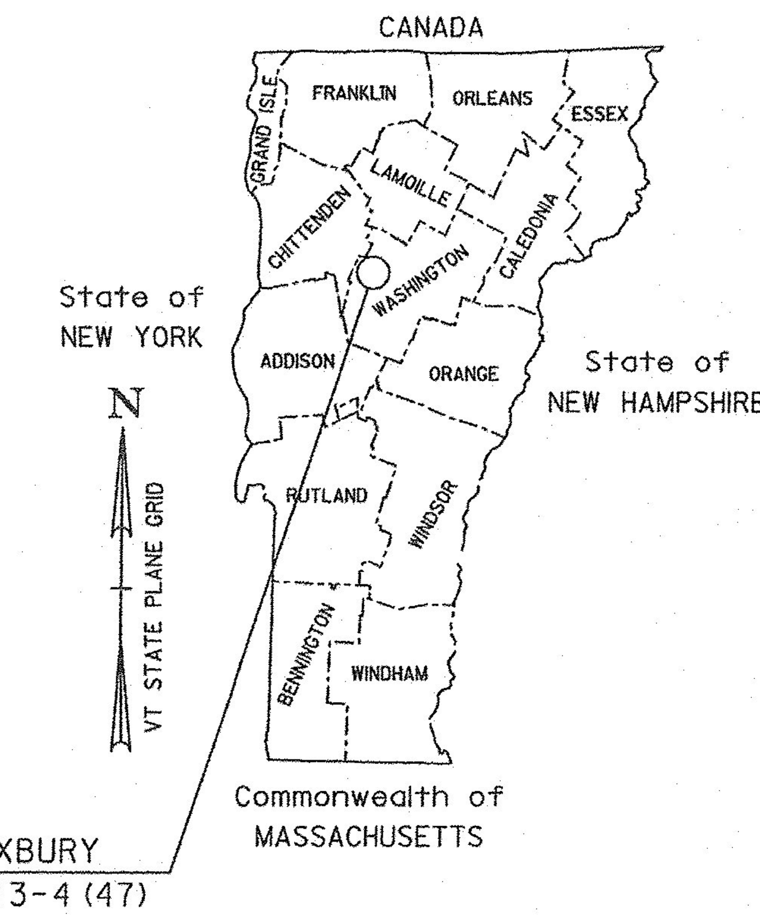
STATE OF VERMONT
AGENCY OF TRANSPORTATION





PROPOSED IMPROVEMENT
BRIDGE PROJECT

TOWN OF DUXBURY
COUNTY OF WASHINGTON

ROUTE NO : VT ROUTE 100, RURAL MINOR ARTERIAL

BRIDGE NO : 193

PROJECT LOCATION: 0.7 MILES SOUTH OF THE JUNCTION WITH US 2

PROJECT DESCRIPTION: REMOVAL AND REPLACEMENT OF EXISTING CULVERT ON EXISTING ALIGNMENT WITH ASSOCIATED CHANNEL AND APPROACH WORK

LENGTH OF STRUCTURE: 48.29 FEET
LENGTH OF ROADWAY: 176.71 FEET
LENGTH OF PROJECT: 225.00 FEET

RECORD PLANS

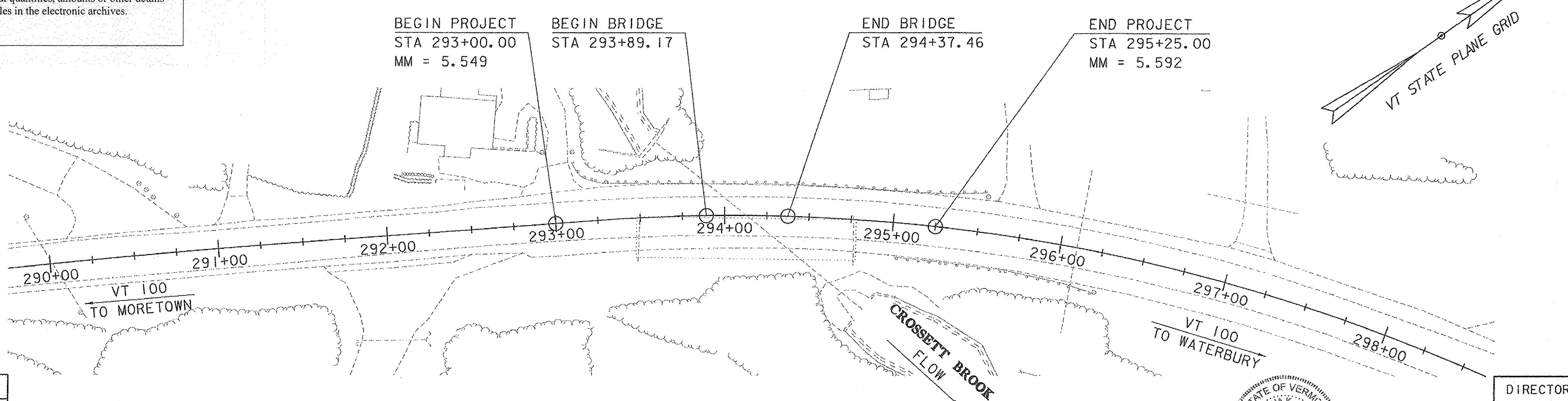
CONTRACTOR: J. A. MCDONALD INC. – LYNDON CENTER, VT
RESIDENT ENGINEER: TOM MANCINI
CONSTRUCTION BEGAN: JUNE 13, 2016
CONSTRUCTION COMPLETE: MAY 25, 2017
RECORD PLANS BY: TOM MANCINI & AARON WEAVER

I HEREBY CERTIFY THAT ALL THE CONSTRUCTION REQUIRED BY THIS SET OF DRAWINGS HAS BEEN ACCOMPLISHED AS INDICATED HEREIN.

BY *Tom Mancini* RESIDENT ENGINEER

DATE 4/20/18

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.



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

QUALITY ASSURANCE PROGRAM : LEVEL 2

SURVEYED BY : R. GILMAN
SURVEYED DATE : 04-12-2016

DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 83 (07)

SCALE 1" = 40'-0"
40 0 40

STATE OF VERMONT
JOSHUA K. OLUND
NO. 72818
Structural Part II
LICENSED PROFESSIONAL ENGINEER
5/23/2016

T·Y·LIN INTERNATIONAL

DIRECTOR OF PROJECT DELIVERY
APPROVED *[signature]* DATE 5/23/2016

PROJECT MANAGER : KRISTIN HIGGINS, P.E.

PROJECT NAME : DUXBURY
PROJECT NUMBER : BF 013-4 (47)

SHEET 1 OF 69 SHEETS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (BRIDGE)

Version
LRFD

INDEX OF SHEETS

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DETAIL SHEETS

SD-501.00	CONCRETE DETAILS AND NOTES	05-07-2010
SD-502.00	CONCRETE DETAILS AND NOTES	05-07-2010
HSD-621.06	GUARDRAIL TERMINAL LABEL DETAIL	11-03-2015

WATERLINE INSTALLATION SHEETS

C2-01	SITE PLAN FOR WATERLINE BYPASS	04-19-2016
C8-01	DETAILS	04-19-2016

TEMPORARY BRIDGE SHEETS

1	MABEY FOUNDATION DETAIL SHEET 1	09-02-2011
2	MABEY FOUNDATION DETAIL SHEET 2	09-02-2011

EXISTING STRUCTURE SHEETS

LAYOUT	12-01-1972
PROFILE	09-12-1974
CULVERT DETAILS	01-10-1975
INLET HEADWALL DETAILS	01-10-1975

STANDARDS LIST

B-5	SLOPE GRADING, EMBANKMENTS, MUCK	06-01-1994
B-71	STANDARD FOR RESIDENTIAL AND COMMERCIAL DRIVES	07-08-2005
E-121	STANDARD SIGN PLACEMENT - CONVENTIONAL ROAD	08-08-1995
E-175	POWER DROP STANCHIONS	06-08-2009
E-191	PAVEMENT MARKING DETAILS	02-01-1999
E-193	PAVEMENT MARKING DETAILS	08-18-1995
G-1	STEEL BEAM GUARDRAIL DETAILS (POST, DELINEATOR, TYPICALS)	02-10-2014
G-1D	STEEL BEAM GUARDRAIL DETAILS (END TERMINAL, ANCHOR, MEDI/	02-10-2014
G-19	GENERIC GRADING PLANS FOR GUARDRAIL END TERMINALS	11-15-2002
J-3	MAIL BOX SUPPORT DETAILS	08-07-1995
T-1	TRAFFIC CONTROL GENERAL NOTES	04-25-2016
T-2	TRAFFIC SIGN GENERAL NOTES	04-25-2016
T-10	CONVENTIONAL ROADS CONSTRUCTION APPROACH SIGNING	08-06-2012
T-17	TRAFFIC CONTROL MISCELLANEOUS DETAILS	08-06-2012
T-24	TRAFFIC CONTROL FOR MAINTENANCE PAVEMENT MARKING OPER	08-06-2012
T-28	CONSTRUCTION SIGN DETAILS	08-06-2012
T-29	CONSTRUCTION SIGN DETAILS	08-06-2012
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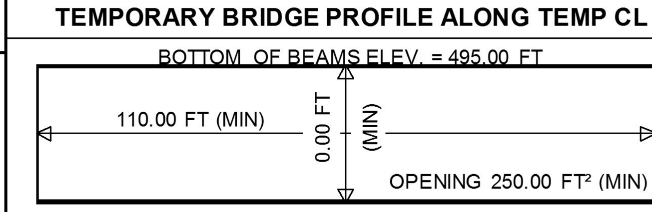
T-31	CONSTRUCTION SIGN DETAILS	08-06-2012
T-35	CONSTRUCTION ZONE LONGITUDINAL DROP-OFFS	08-06-2012
T-36	CONSTRUCTION ZONE LONGITUDINAL DROP-OFFS FOR PAVING	08-06-2012
T-40	DELINEATORS AND MILEPOSTS	01-02-2013
T-42	BRIDGE NUMBER PLAQUE	04-09-2014
T-44	MILEMARKER DETAILS STATE AND TOWN HIGHWAYS	04-09-2014
T-45	SQUARE TUBE SIGN POST AND ANCHOR	01-02-2013

FABRICATOR TO PROVIDE LOAD RATING

AS BUILT "REBAR" DETAIL

LEVEL I	LEVEL II	LEVEL III
TYPE:	TYPE:	TYPE:
GRADE:	GRADE:	GRADE:

TEMPORARY BRIDGE PROFILE ALONG TEMP CL



TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT						
2016	3800	500	54	5.7	280	20 year ESAL for flexible pavement from	2016	to	2036	:	1564000
2036	4300	560	54	9.6	530	40 year ESAL for flexible pavement from	2016	to	2056	:	3728000
						Design Speed :	40	mph			

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: May 2016

DRAINAGE AREA : 5.1 sq. mi.
CHARACTER OF TERRAIN : Mountainous, mostly forested, rural
STREAM CHARACTERISTICS : Sinuous and alluvial
NATURE OF STREAMBED : Gravel and cobbles

PEAK FLOW DATA - ANNUAL EXCEEDANCE PROBABILITY (AEP)

43% =	310 cfs	2% =	1120 cfs
10% =	660 cfs	1% =	1310 cfs
4% =	890 cfs	0.2% =	1830 cfs

DATE OF FLOOD OF RECORD: Unknown
ESTIMATED DISCHARGE: Unknown
WATER SURFACE ELEV.: Unknown
NATURAL STREAM VELOCITY: @ 2% AEP = 12.0 fps
ICE CONDITIONS : Moderate
DEBRIS: Light to moderate
DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? No
IS ORDINARY RISE RAPID? No
IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? No
IF YES, DESCRIBE:

WATERSHED STORAGE: <1%
HEADWATERS:
UNIFORM: X
IMMEDIATELY ABOVE SITE:

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: CGMPPA
YEAR BUILT: 1977
CLEAR SPAN(NORMAL TO STREAM): 15' - 10"
VERTICAL CLEARANCE ABOVE STREAMBED: 10' - 8"
WATERWAY OF FULL OPENING: 132 sq. ft.
DISPOSITION OF STRUCTURE: Remove and replace
TYPE OF MATERIAL UNDER SUBSTRUCTURE: See borings

WATER SURFACE ELEVATIONS AT:

43% AEP =	494.5'	VELOCITY =	10.4 fps
10% AEP =	496.7'	"	11.0 fps
4% AEP =	498.0'	"	14.5 fps
2% AEP =	499.4'	"	15.5 fps
1% AEP =	500.4'	"	16.3 fps

LONG TERM STREAMBED CHANGES: Scour hole at outlet

IS THE ROADWAY OVERTOPPED BELOW 1% AEP: No
FREQUENCY: N/A
RELIEF ELEVATION: 511.4'
DISCHARGE OVER ROAD @ 1% AEP: None

UPSTREAM STRUCTURE

TOWN: Duxbury
DISTANCE: 1000'
HIGHWAY # : Th 37
STRUCTURE #: 7
CLEAR SPAN:
CLEAR HEIGHT:
YEAR BUILT:
FULL WATERWAY:
STRUCTURE TYPE:

DOWNSTREAM STRUCTURE

TOWN: Duxbury
DISTANCE: 7000'
HIGHWAY # :
STRUCTURE #:
CLEAR SPAN:
CLEAR HEIGHT:
YEAR BUILT:
FULL WATERWAY:
STRUCTURE TYPE: Confluence with Winooski River

LRFR LOAD RATING FACTORS

LOADING LEVELS	TRUCK						
	H-20	HL-93	3S2	6 AXLE	3A. STR.	4A. STR.	5A. SEMI
TONNAGE	20	36	36	66	30	34.5	38
INVENTORY							
POSTING							
OPERATING							
COMMENTS:							

PROPOSED STRUCTURE

STRUCTURE TYPE: Precast Conspan Arch

CLEAR SPAN(NORMAL TO STREAM): 28'
VERTICAL CLEARANCE ABOVE STREAMBED: ~8.5'
WATERWAY OF FULL OPENING: 195 sq. ft.

WATER SURFACE ELEVATIONS AT:

43% AEP =	493.4'	VELOCITY=	7.0 fps
10% AEP =	494.8'	"	8.7 fps
4% AEP =	495.6'	"	9.8 fps
2% AEP =	496.3'	"	10.7 fps
1% AEP =	498.8'	"	11.1 fps

IS THE ROADWAY OVERTOPPED BELOW 1% AEP: No
FREQUENCY: N/A
RELIEF ELEVATION: 511.4'
DISCHARGE OVER ROAD @ 1% AEP: None

BRIDGE LOW CHORD ELEVATION: 499.8'
FREEBOARD: @ 2% AEP = 3.5'

SCOUR: Contraction scour at 0.5% AEP = 2.0'. Design foundations to be 6.0' below streambed.
REQUIRED CHANNEL PROTECTION: Stone Fill Type III*

PERMIT INFORMATION

		DEPTH OR ELEVATION:
AVERAGE DAILY FLOW:	10 cfs	
ORDINARY LOW WATER:	-	-
ORDINARY HIGH WATER:	135 cfs	-

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: Bridge
CLEAR SPAN (NORMAL TO STREAM): Minimum clear span 35'
VERTICAL CLEARANCE ABOVE STREAMBED: Minimum low beam elev. = 495.0'
WATERWAY AREA OF FULL OPENING: 250 sq. ft. minimum

ADDITIONAL INFORMATION

*Rebuild channel through structure with E-stone type E3

TRAFFIC MAINTENANCE NOTES

1. MAINTAIN TWO-WAY TRAFFIC ON A TEMPORARY BRIDGE.
2. TRAFFIC SIGNALS ARE NOT NECESSARY.
3. SIDEWALKS ARE NOT NECESSARY
4. THE APPROACHES FOR THE TEMPORARY BRIDGE SHALL BE PAVED.

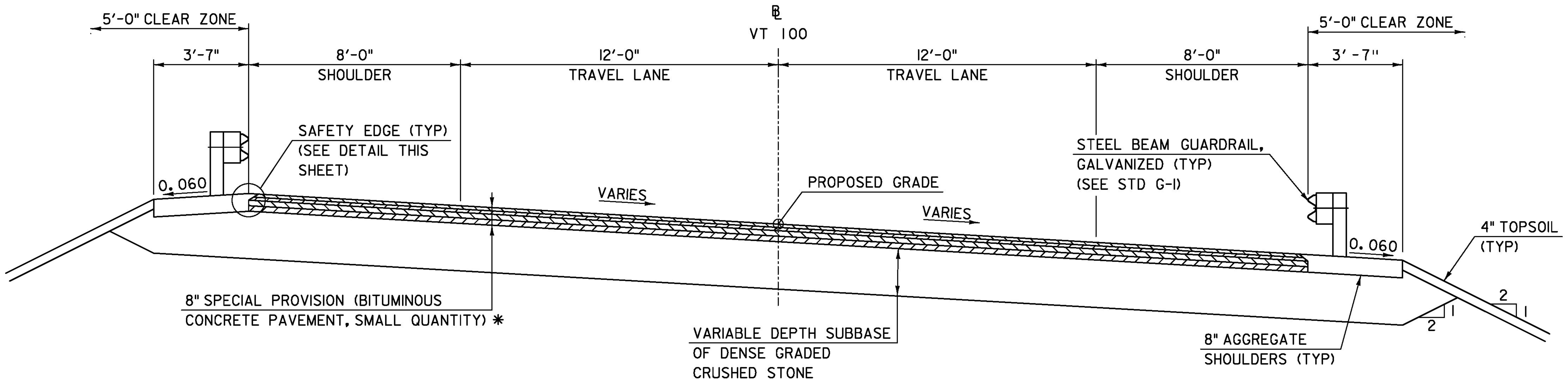
DESIGN VALUES

1.	DESIGN LIVE LOAD		HL-93
2.	FUTURE PAVEMENT	d_p:	3.0 INCH
3.	DESIGN SPAN	L:	28.00 FT
4.	MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ:	- - -
5.	PRESTRESSING STRAND	f_y:	- - -
6.	PRESTRESSED CONCRETE STRENGTH	f'_c:	- - -
7.	PRESTRESSED CONCRETE RELEASE STRENGTH	f'_{ci}:	- - -
8.	CONCRETE, HIGH PERFORMANCE CLASS AA	f'_c:	- - -
9.	CONCRETE, HIGH PERFORMANCE CLASS A	f'_c:	- - -
10.	CONCRETE, HIGH PERFORMANCE CLASS B	f'_c:	3.5 KSI
11.	CONCRETE, CLASS C	f'_c:	3.0 KSI
12.	REINFORCING STEEL	f_y:	60 KSI
13.	STRUCTURAL STEEL AASHTO M270	f_y:	- - -
14.	NOMINAL BEARING RESISTANCE OF SOIL	q_n:	- - -
15.	SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	- - -
16.	NOMINAL BEARING RESISTANCE OF ROCK	q_n:	34.5 KSF
17.	ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	0.45
18.	PILE RESISTANCE FACTOR	ϕ:	- - -
19.	LATERAL PILE DEFLECTION	Δ:	- - -
20.	BASIC WIND SPEED	V_{3s}:	- - -
21.	MINIMUM GROUND SNOW LOAD	p_g:	- - -
22.	SEISMIC DATA PGA: 0	S_s:	- - -
		S_1:	- - -
23.			
24.			- - -
25.			- - -
26.			- - -

PROJECT NAME: **DUXBURY**
PROJECT NUMBER: **BF 013-4(47)**

T·Y·LIN INTERNATIONAL

FILE NAME:	z16b001pi.dgn	PLOT DATE:	5/23/2016
PROJECT LEADER:	J. OLUND	DRAWN BY:	S. MORGAN
DESIGNED BY:	J.OLUND	CHECKED BY:	J. HOWE
PRELIMINARY INFORMATION SHEET 1		SHEET	2 OF 69

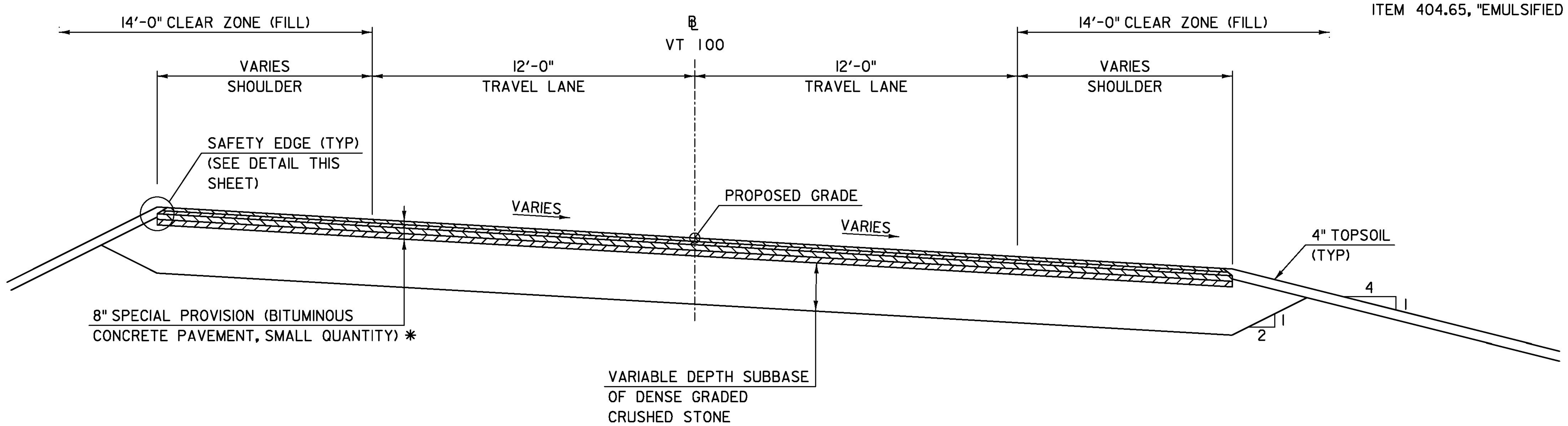


* 1½" TYPE IVS OVER
1½" TYPE IVS OVER
2½" TYPE IIS OVER
2½" TYPE IIS

ROADWAY TYPICAL SECTION
WITH GUARDRAIL
SCALE ⅜" = 1'-0"

NOTE: EMULSIFIED ASPHALT SHALL BE APPLIED TO ALL COLD PLANED BITUMINOUS CONCRETE PAVEMENT SURFACES AND BETWEEN ALL LIFTS OF PAVEMENT AT THE RATE OF 0.04 GAL/SY OR AS DIRECTED BY THE ENGINEER. PAYMENT WILL BE MADE UNDER ITEM 404.65, "EMULSIFIED ASPHALT."

MATERIAL TOLERANCES (IF USED ON PROJECT)	
SURFACE	
- PAVEMENT (TOTAL THICKNESS)	+/- ¼"
- AGGREGATE SURFACE COURSE	+/- ½"
SUBBASE	+/- 1"
SAND BORROW	+/- 1"



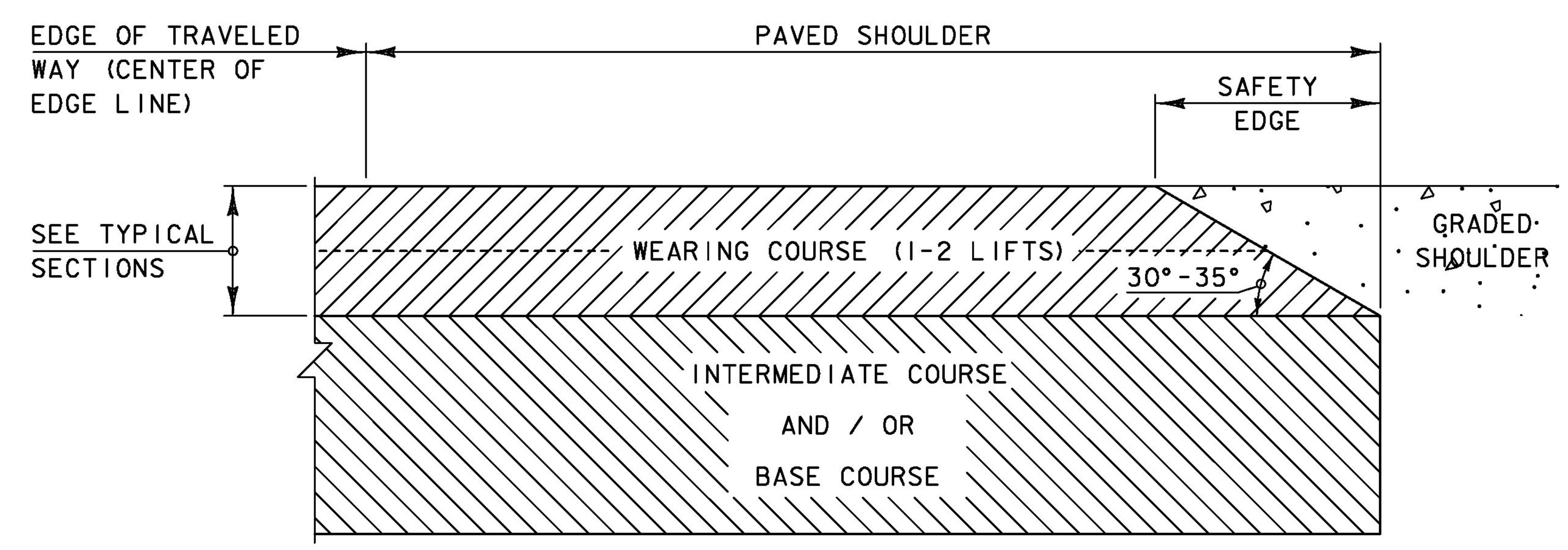
ROADWAY TYPICAL SECTION
WITHOUT GUARDRAIL
SCALE ⅜" = 1'-0"

SAFETY EDGE NOTES

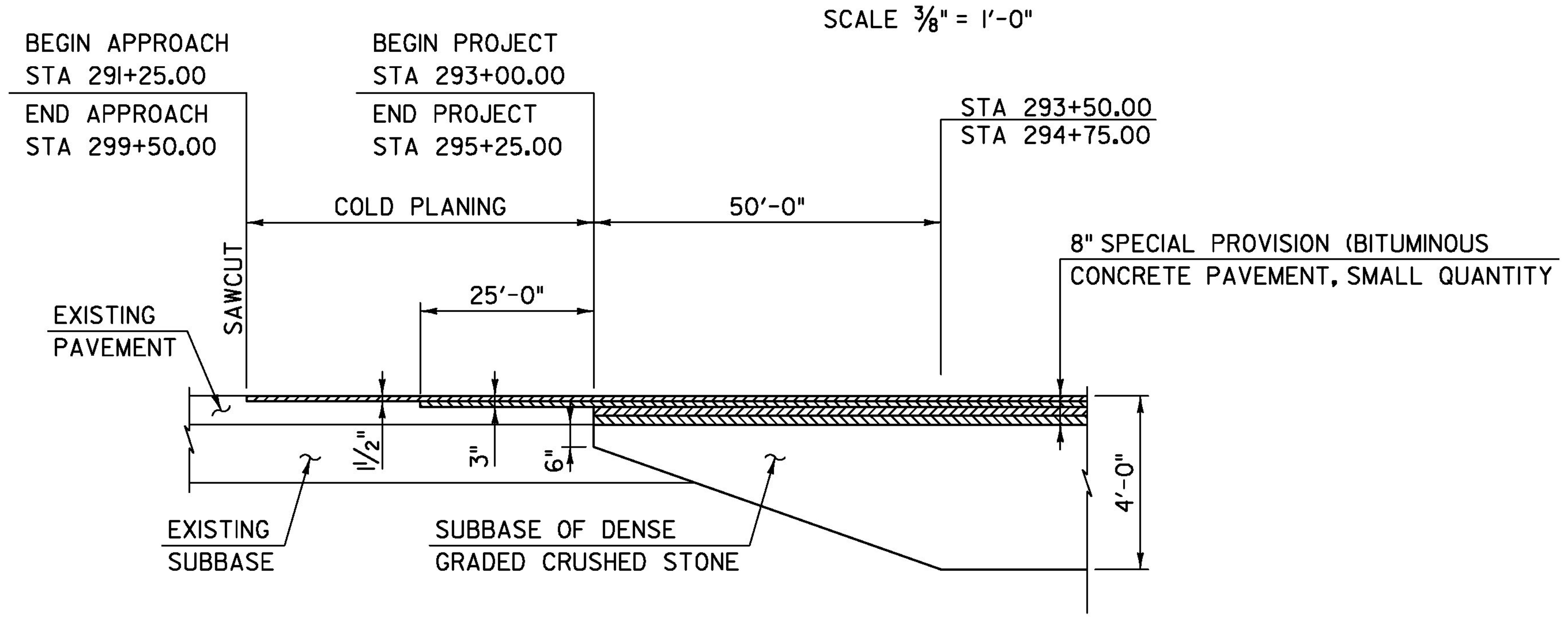
1. LEVELING COURSE MAY INCLUDE THE "SAFETY EDGE" AT THE CONTRACTOR'S CHOICE.

2. THE EDGE OF PAVEMENT SHALL BE FORMED IN SUCH A WAY THAT THE BITUMINOUS CONCRETE PAVEMENT IS EXTRUDED OR COMPRESSED TO FORM THE 30 TO 35 DEGREE ANGLE. DEVICES THAT SIMPLY STRIKE-OFF THE MIX WITHOUT PROVIDING ANY COMPACTIVE EFFORT WILL NOT BE ALLOWED.

3. THE PAVED SHOULDER EXTENDS FROM THE EDGE OF TRAVELED WAY TO THE EDGE OF THE WEARING COURSE, INCLUDING THE "SAFETY EDGE".

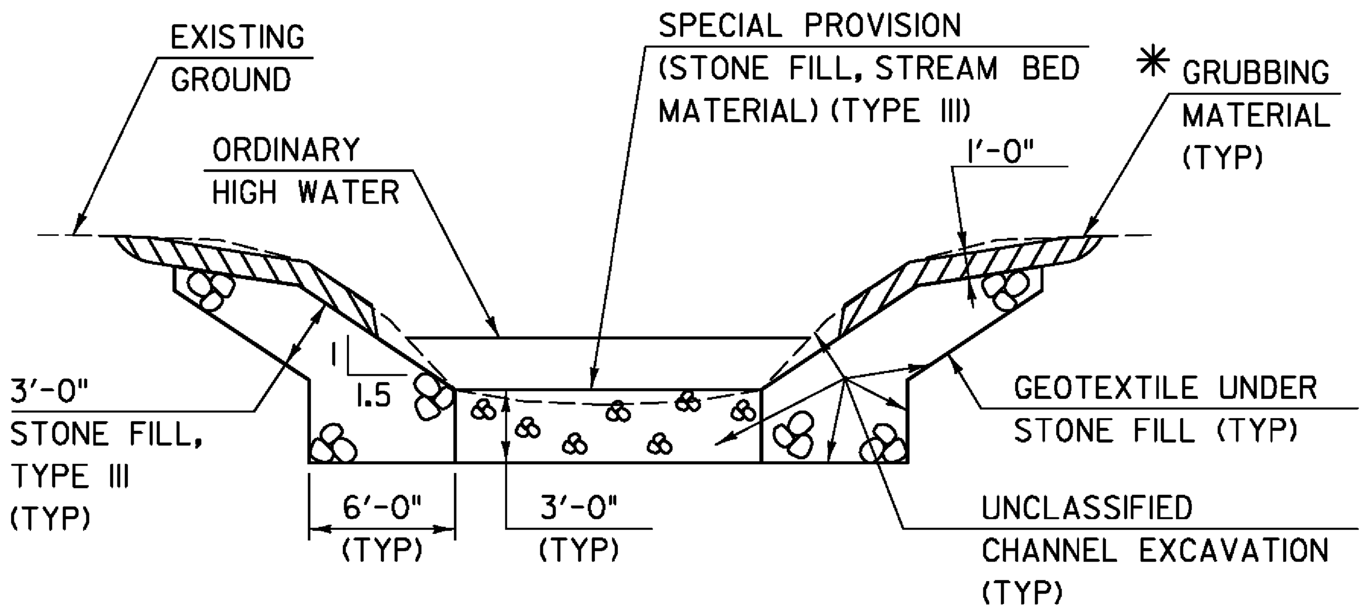


SAFETY EDGE DETAIL
NOT TO SCALE



APPROACH SECTION
(NOT TO SCALE)

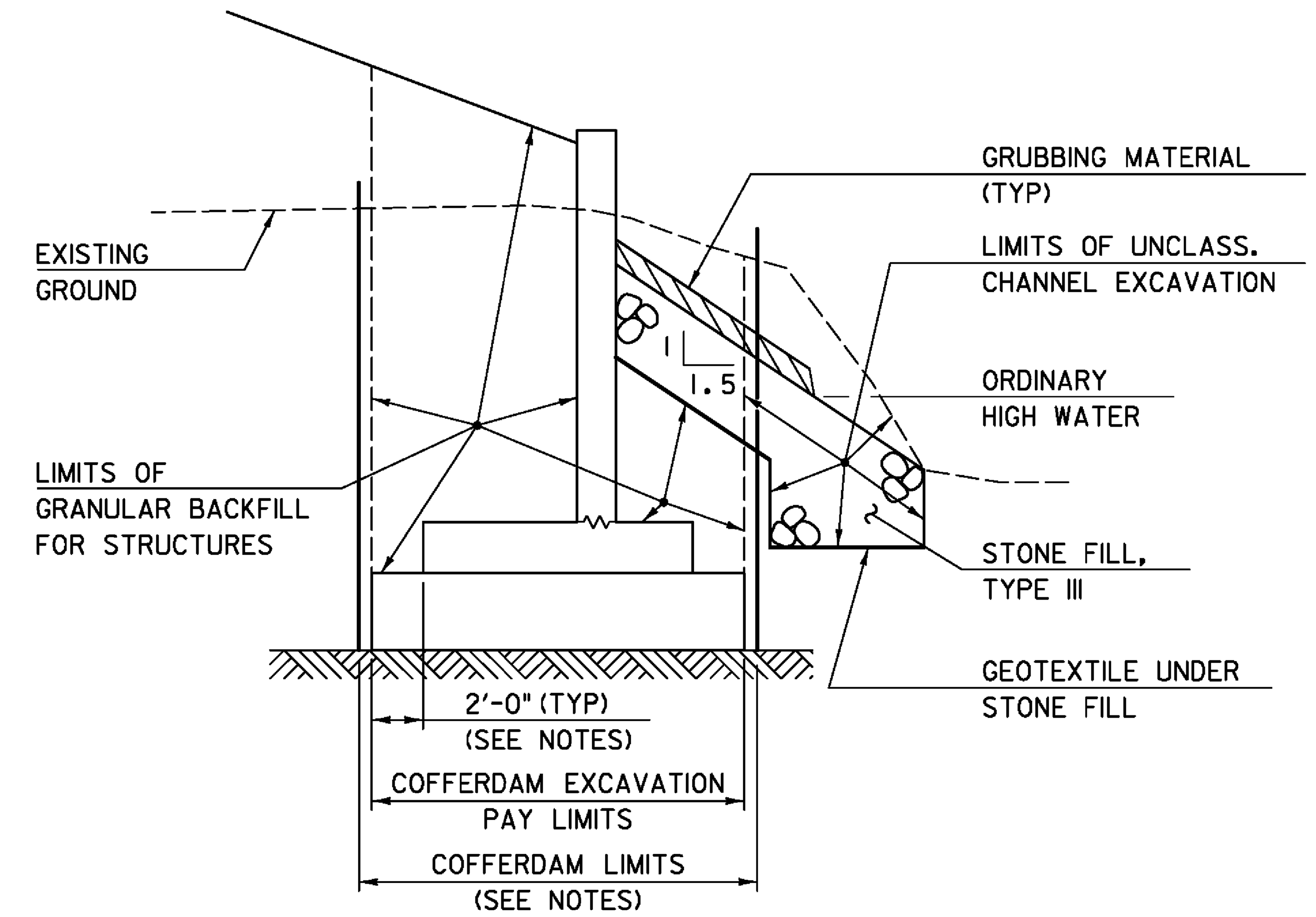
T·Y·LIN INTERNATIONAL	PROJECT NAME: DUXBURY PROJECT NUMBER: BF 013-4(47)	
	FILE NAME: z16b001typl.dgn PROJECT LEADER: J. OLUND DESIGNED BY: J. HOWE TYPICAL SECTIONS AND DETAILS 1	PLOT DATE: 5/23/2016 DRAWN BY: S. MORGAN CHECKED BY: J. OLUND SHEET 3 OF 69



TYPICAL CHANNEL SECTION

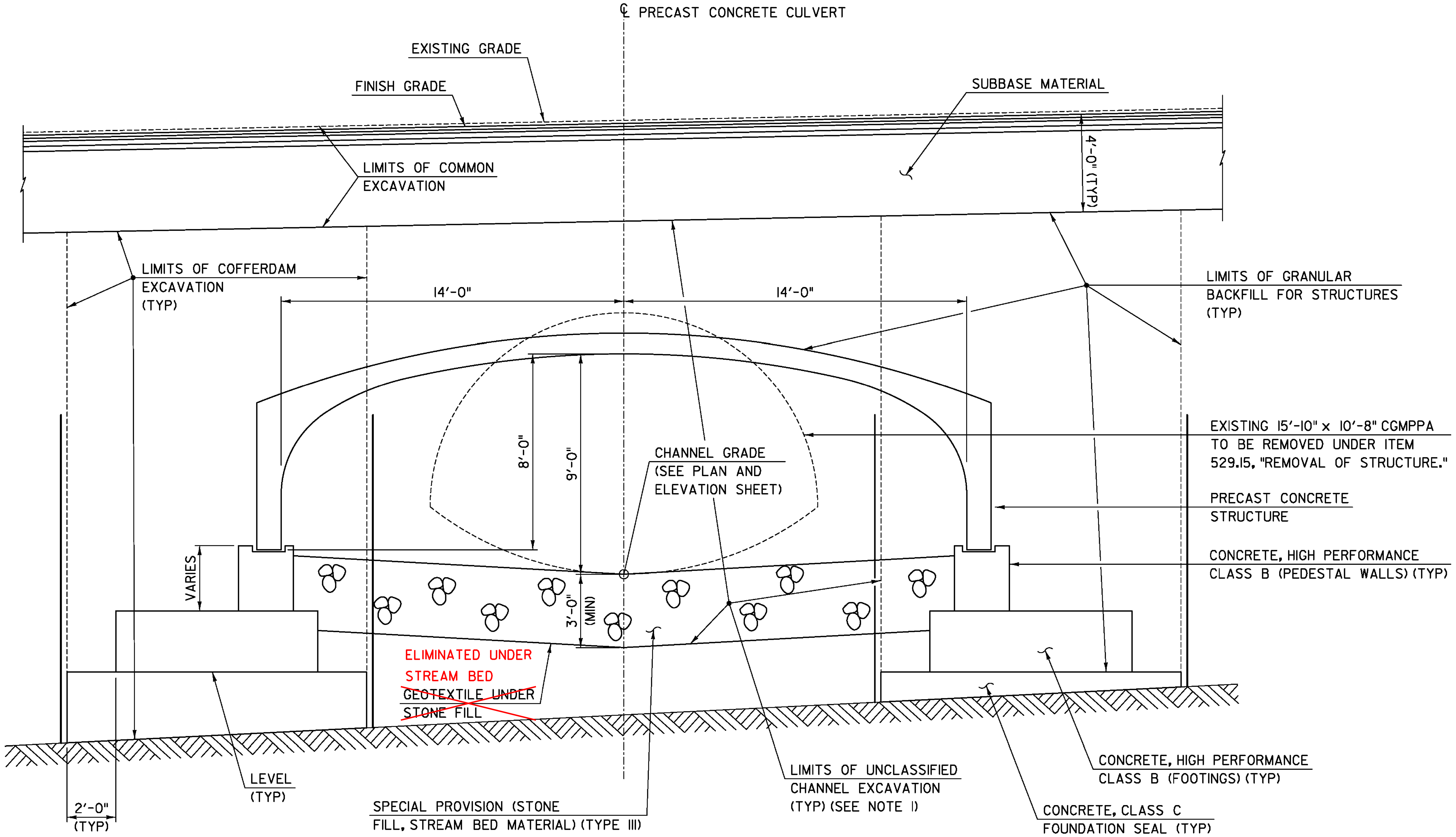
(NOT TO SCALE)

✳GRUBBING MATERIAL SHALL NOT BE PLACED ON THE STONE FILL IN THE AREA UNDER THE BRIDGE. WHENEVER CHANNEL SLOPE INTERSECTS ROADWAY SUBBASE, GRUBBING MATERIAL SHALL BEGIN AT THE BOTTOM OF SUBBASE.



TYPICAL WINGWALL EARTHWORK SECTION

(NOT TO SCALE)



PRECAST CONCRETE CULVERT AND EARTHWORK TYPICAL SECTION

(NORMAL TO CHANNEL ALIGNMENT)

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

NOTES:

1. LIMITS EXCLUDE EXISTING CGMPPA CULVERT. REMOVAL OF LEDGE NOT REQUIRED FOR PLACEMENT OF STONE FILL.

2. THE CONTRACTOR IS MADE AWARE OF THE POTENTIAL TO ENCOUNTER EXISTING SUBSTRUCTURE REMNANTS. REMOVAL OF ANY SOLID REMNANTS LARGER THAN 0.5 CUBIC YARDS WILL BE PAID UNDER ITEM 208.35, "COFFERDAM EXCAVATION, ROCK."

3. COFFERDAM DIMENSIONS TO BE DETERMINED BY THE CONTRACTOR.

4. THE PAY LIMITS OF EITHER "COFFERDAM EXCAVATION, EARTH" OR "COFFERDAM EXCAVATION, ROCK" SHALL BE 2'-0" OUTSIDE THE PERIMETER OF THE FOOTING AND FROM BOTTOM OF EXCAVATION UP TO THE EXISTING GROUND OR BOTTOM OF SUBBASE, WHICHEVER IS LOWER.

5. IF A COFFERDAM IS CONSTRUCTED WHICH IS LARGER THAN THE INDICATED COFFERDAM EXCAVATION PAY LIMITS, PAYMENT FOR ALL UNCLASSIFIED CHANNEL EXCAVATION, INCLUDING THAT PORTION WHICH IS INSIDE THE COFFERDAM BUT OUTSIDE THE COFFERDAM PAY LIMITS, WILL BE MADE AT THE CONTRACT UNIT PRICE FOR UNCLASSIFIED CHANNEL EXCAVATION. NO MEASUREMENT AND PAYMENT WILL BE MADE FOR COFFERDAM EXCAVATION AND GRANULAR BACKFILL FOR STRUCTURES OUTSIDE THE PAY LIMITS DEFINED IN NOTE 4.

PROJECT NAME: DUXBURY
PROJECT NUMBER: BF 013-4(47)

TYLININTERNATIONAL

FILE NAME: z16b001typ2.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: J. OLUND
TYPICAL SECTIONS AND DETAILS 2

PLOT DATE: 5/23/2016
DRAWN BY: P. BRYANT
CHECKED BY: B. TOOTHAKER
SHEET 4 OF 69

GENERAL

1. ALL MATERIALS, DESIGN, AND CONSTRUCTION SHALL CONFORM TO STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION, DATED 2011, WITH ITS LATEST REVISIONS AND THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 7TH EDITION WITH INTERIMS THROUGH 2016.

2. ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL, AND ARE GIVEN AT 68ºF, UNLESS OTHERWISE NOTED.

3. THE CONTRACTOR SHALL LOCATE WATER LINES PRIOR TO EXCAVATION FOR EXISTING STRUCTURE REMOVAL. PAYMENT WILL BE MADE UNDER ITEM 204.22, "TRENCH EXCAVATION OF EARTH, EXPLORATORY." REFER TO PROJECT SPECIAL PROVISIONS AND WATERLINE INSTALLATION SHEETS FOR ADDITIONAL INFORMATION.

EARTHWORK, REMOVAL, AND RELATED ITEMS

4. NO ONSITE DISPOSAL OF WASTE MATERIALS SHALL BE ALLOWED.

5. THE EXISTING CGMPPA, HEADWALLS AND WINGWALLS SHALL BE REMOVED IN THEIR ENTIRETY. PAYMENT FOR REMOVAL WILL BE MADE UNDER ITEM 529.15, "REMOVAL OF STRUCTURE (15.83' X 10.67' X 152' CGMPPA)."

6. THE CONTRACTOR SHALL SUBMIT FOR APPROVAL AND PROVIDE A METHOD OF MAINTAINING STREAM FLOW THROUGH THE PROJECT SITE. PAYMENT WILL BE MADE UNDER ITEM 900.645, "SPECIAL PROVISION (TEMPORARY RELOCATION OF STREAM)."

7. A LIMITED AMOUNT OF FILL IS AVAILABLE AT THE MIDDLESEX GARAGE FOR CONSTRUCTING THE TEMPORARY BRIDGE APPROACHES. SEE PROJECT SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

TRAFFIC CONTROL

8. THE EXISTING TEMPORARY BRIDGE AND CONSTRUCTION SIGNING ON EXISTING ALIGNMENT SHALL BE USED TO MAINTAIN TRAFFIC DURING CONSTRUCTION OF THE DOWNSTREAM TEMPORARY ROADWAY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE OF EXISTING TEMPORARY BRIDGE, APPROACHES, AND SIGNING DURING CONSTRUCTION OF THE DOWNSTREAM TEMPORARY ROADWAY. ONCE TRAFFIC IS TRANSFERRED TO THE DOWNSTREAM TEMPORARY ROADWAY, THE EXISTING TEMPORARY BRIDGE SHALL BE DISMANTLED AND DELIVERED TO THE VTRANS MAINTENANCE GARAGE IN MIDDLESEX ALONG WITH ALL EXISTING CONSTRUCTION SIGNING. THE TEMPORARY CONCRETE BLOCKS USED FOR SOIL RETENTION ALONG THE EXISTING TEMPORARY BRIDGE MAY BE USED BY THE CONTRACTOR FOR PARTIAL CONSTRUCTION OF THE TEMPORARY RETAINING WILL ALONG THE PROPOSED TEMPORARY ROADWAY. CONTACT HOBERT GATES AT (802) 505-0910 TO MAKE ARRANGEMENTS FOR DELIVERY. PAYMENT FOR MAINTENANCE, REMOVAL, AND DELIVERY OF THE EXISTING TEMPORARY BRIDGE, CONSTRUCTION SIGNING, AND CONCRETE BLOCKS WILL BE MADE UNDER ITEM 900.645, "SPECIAL PROVISION (REMOVAL OF TEMPORARY BRIDGE)."

9. TRAFFIC SHALL BE MAINTAINED ON A TWO WAY TEMPORARY BRIDGE INSTALLED DOWNSTREAM OF THE EXISTING CULVERT AS SHOWN ON THE PLANS. THE EXISTING TEMPORARY BRIDGE ON EXISTING ALIGNMENT SHALL NOT BE USED FOR THE PROPOSED TEMPORARY BRIDGE ALONG THE PROPOSED TEMPORARY ROADWAY. SEE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.

10. A TRAFFIC CONTROL PLAN FOR CONSTRUCTION AND OPERATION OF THE TEMPORARY ROADWAY IS PROVIDED HEREIN. THE CONTRACTOR SHALL SUBMIT FOR APPROVAL ANY NECESSARY MODIFICATIONS OR SUPPLEMENTS TO THE TRAFFIC CONTROL PLAN TO ACCOMMODATE SPECIFIC PHASING AND/OR OPERATIONS FOR THE CONTRACTOR'S INTENDED SEQUENCE OF OPERATIONS.

11. IN THE EVENT OF AN EMERGENCY VEHICLE TRAVERSING THROUGH THE PROJECT AREA, ALL WORK WILL BE IMMEDIATELY STOPPED AND A CLEAR TRAVEL LANE WILL BE PROVIDED TO THE EMERGENCY VEHICLE. WORK CREWS AND FLAGGERS WILL COMMUNICATE THROUGH RADIO AND ENSURE SAFE PASSAGE IS PROVIDED TO ALL EMERGENCY VEHICLES.

12. MAILBOXES FOR THE RESIDENCES LOCATED AT THE FOLLOWING ADDRESSES REQUIRE TEMPORARY RELOCATION AS SHOWN ON THE TRAFFIC CONTROL LAYOUT SHEETS. ANY CHANGES TO THE LOCATIONS OF THESE MAILBOXES SHALL BE COORDINATED WITH THE PROPERTY OWNER AND THE LOCAL POST OFFICE. PAYMENT WILL BE INCIDENTAL TO ITEM 641.10, "TRAFFIC CONTROL." ADDRESSES INCLUDE:

    5563 ROUTE 100 (BLACKMAN AND DOUGLAS PROPERTY)
    5611 ROUTE 100 (CARMINATI PROPERTY)
    5631 ROUTE 100 (WELCH PROPERTY)

CONCRETE

13. ALL SUBSTRUCTURE CONCRETE ABOVE THE FOUNDATION SEAL SHALL BE HIGH PERFORMANCE, CLASS B.

14. FOUNDATION SEAL CONCRETE SHALL BE CLASS C.

15. ALL HORIZONTAL CONSTRUCTION JOINTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STRUCTURES DETAIL SHEET SD-502.00.

16. WATER REPELLENT, SILANE SHALL BE APPLIED TO ALL CONCRETE SURFACES EXPOSED IN THE FINAL CONDITION, WITH THE EXCEPTION OF THE UNDERSIDE OF THE PRECAST CONCRETE ARCHES.

17. ALL REINFORCING STEEL WITHIN THE PRECAST ARCH, PRECAST WINGWALLS, AND PRECAST HEADWALLS SHALL MEET THE REQUIREMENTS FOR LEVEL I, EPOXY COATED CORROSION RESISTANCE IN ACCORDANCE WITH SECTION 507, UNLESS OTHERWISE NOTED.

18. ALL REINFORCING STEEL WITHIN THE FOOTINGS AND PEDESTAL WALLS SHALL MEET THE REQUIREMENTS FOR LEVEL I CORROSION RESISTANCE IN ACCORDANCE WITH SECTION 507, UNLESS OTHERWISE NOTED.

19. MINIMUM CLEAR COVER SHALL BE AS FOLLOWS:

- ALONG TOP SURFACE OF PRECAST ARCH STRUCTURE:	2 INCH
- ALONG BOTTOM SURFACE OF PRECAST ARCH STRUCTURE:	1 ½ INCH
- PRECAST WINGWALLS AND HEADWALLS:	2 INCH
- ELSEWHERE UNLESS OTHERWISE INDICATED:	3 INCH

20. TEST BARS SHALL BE PROVIDED IN ACCORDANCE WITH THE "VERMONT AGENCY OF TRANSPORTATION MATERIAL SAMPLING MANUAL" AVAILABLE ON THE AGENCY WEBSITE.

21. THE CONTRACTOR MAY FABRICATE THE PEDESTAL WALLS AND/OR FOOTINGS USING PRECAST CONCRETE. IF THE CONTRACTOR ELECTS TO USE PRECAST CONCRETE, THE CONTRACTOR SHALL SUBMIT WORKING DRAWINGS IN ACCORDANCE WITH SECTION 105. ANY JOINTS WITHIN THE PRECAST COMPONENTS SHALL BE FULLY DESIGNED AND DETAILED BY THE CONTRACTOR AND SUBMITTED FOR APPROVAL. ALL COSTS ASSOCIATED WITH DESIGN, DETAILING, AND IMPLEMENTATION OF PRECAST CONCRETE FOR USE ON THE PROJECT SHALL BE INCLUDED IN THE APPROPRIATE PAY ITEM.

PRECAST CONCRETE STRUCTURE

22. VTRANS HAS ACQUIRED AND ARRANGED FOR STORAGE OF PRECAST CONCRETE ARCHES, WINGWALLS, AND HEADWALLS AT WHITE MOUNTAIN PRECAST, LLC (MICHIE CORPORATION) IN HENNIKER, NH. PRECAST COMPONENTS ARE ANTICIPATED TO BE READY FOR DELIVERY ON SEPTEMBER 26, 2016. THE CONTRACTOR SHALL COORDINATE AND PAY FOR THE LOADING AND DELIVERY OF THE PRECAST CONCRETE COMPONENTS AND INSTALL IN ACCORDANCE WITH THESE PLANS, THE CORRESPONDING FABRICATION DRAWINGS, AND SECTION 540. PAYMENT FOR COORDINATION, DELIVERY, AND INSTALLATION SHALL BE MADE UNDER ITEM 540.10, "PRECAST CONCRETE STRUCTURE (ARCHES AND WALLS)." SEE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.

23. SHEET MEMBRANE WATERPROOFING, PREFORMED SHEET SHALL BE APPLIED TO THE TOP AND SIDES OF THE JOINTS BETWEEN ADJACENT PRECAST CONCRETE ARCHES, DOWN TO THE TOP OF PEDESTAL WALL AS SHOWN ON THE PLANS AND IN ACCORDANCE WITH SUBSECTION 540.10. PAYMENT SHALL BE INCIDENTAL TO ITEM 540.10, "PRECAST CONCRETE STRUCTURE (ARCHES AND WALLS)".

FOOTINGS ON BEDROCK

24. FOOTINGS AND/OR FOUNDATION SEALS FOR SUBSTRUCTURES FOUNDED ON BEDROCK SHALL BE PLACED ON CLEAN ROCK. ALL LOOSE ROCK AND DEBRIS SHALL BE REMOVED; INTACT WEATHERED ROCK MAY REMAIN.

25. THE CONTRACTOR SHALL NOTIFY THE ENGINEER 3 DAYS PRIOR TO ANTICIPATED EXCAVATIONS REACHING BEDROCK ELEVATION. THE STATE GEOTECHNICAL ENGINEER SHALL WITNESS MATERIALS EXCAVATED AT OR NEAR ANTICIPATED WEATHERED BEDROCK ELEVATION TO ENSURE SUITABLE MATERIAL IS PRESENT TO ATTAIN THE NECESSARY NOMINAL BEARING PRESSURE.

26. ONCE THE ELEVATION OF BEDROCK HAS BEEN DETERMINED, THE CONTRACTOR SHALL PROVIDE A BEDROCK PROFILE TO THE ENGINEER FOR PREPARATION OF AS-BUILT DRAWINGS. FOOTING ELEVATIONS SHALL NOT BE ADJUSTED WITHOUT APPROVAL OF THE ENGINEER.

27. THE PAY LIMITS OF THE FOUNDATION SEAL SHALL BE 2 FT OUTSIDE OF THE HORIZONTAL LIMITS OF THE FOOTING AND TO THE VERTICAL LIMITS DEFINED ON THE PLANS. NO CHANGES TO THESE PAY LIMITS WILL BE MADE FOR ENCOUNTERING EXISTING CONCRETE REMNANTS OR OTHER OBSTRUCTIONS UNLESS OTHERWISE AUTHORIZED BY THE ENGINEER. ANY CONCRETE REQUIRED FOR FOUNDATION SEALS WITHIN THE DEFINED PAY LIMITS SHALL BE PAID FOR WITH ITEM 541.30, "CONCRETE, CLASS C." AN ESTIMATED QUANTITY OF ITEM 541.30 HAS BEEN INCLUDED IN THE CONTRACT. ANY CONCRETE PLACED OUTSIDE OF THE IDENTIFIED PAY LIMITS WILL BE AT THE CONTRACTOR'S EXPENSE.

28. ANY BEDROCK THAT NEEDS TO BE REMOVED SHALL BE PAID FOR UNDER ITEM 208.35, "COFFERDAM EXCAVATION, ROCK." OVER-BREAKAGE BEYOND THE AVERAGE MAXIMUM ALLOWANCE SPECIFIED IN SUBSECTION 208.11 (C) WILL BE AT THE CONTRACTOR'S EXPENSE.

29. DOWELS SHALL BE DRILLED AND GROUTED THROUGH THE FOUNDATION SEAL (WHERE APPLICABLE) INTO BEDROCK IN LOCATIONS WHERE THE FOUNDATION SEAL IS LESS THAN 2 FT THICK OR WHERE THE FOOTING RESTS DIRECTLY UPON BEDROCK. THE DOWELS SHALL BE SPACED AND EMBEDDED AS SHOWN ON THE PLANS. PAYMENT WILL BE MADE UNDER ITEM 507.16, "DRILLING AND GROUTING DOWELS." AN ESTIMATED QUANTITY OF ITEM 507.16 HAS BEEN INCLUDED IN THE CONTRACT.

30. THE CONTRACTORS PROPOSED METHOD FOR DEWATERING THE COFFERDAM MAY BE PROVIDED WITH THE EROSION CONTROL PLAN SUBMITTAL INSTEAD OF WITH THE COFFERDAM SUBMITTAL.

ELECTRICAL

31. INSTALLATION OF THE FLASHING BEACON AND CORRESPONDING MATERIALS AND EQUIPMENT SHALL CONFORM TO SECTIONS 678 AND 679. ALL MATERIAL SHALL CONFORM TO SECTION 753. ALL CONDUCTORS SHALL BE COPPER.

32. THE EXISTING FLASHING BEACON NEAR STA 292+75, RT AND CORRESPONDING CONTROLLER CABINET SHALL BE SALVAGED AND REINSTALLED AFTER REMOVAL OF THE TEMPORARY ROADWAY. PAYMENT FOR REMOVAL AND REINSTALLATION WILL BE MADE UNDER ITEM 900.620, "SPECIAL PROVISION (RELOCATE FLASHING BEACON, GROUND MOUNTED)."

33. THE EXISTING METER AND DISCONNECT ASSOCIATED WITH THE EXISTING POWER DROP STANCHION NEAR STA 292+45, RT SHALL BE SALVAGED AND REINSTALLED AFTER REMOVAL OF THE TEMPORARY ROADWAY. PAYMENT WILL BE MADE UNDER ITEM 679.55, "POWER DROP STANCHION, STREET LIGHTING."

WATER LINE

34. THE CONTRACTOR SHALL INSTALL AN 8 INCH, CLASS 52 DUCTILE IRON WATER MAIN OVER THE PRECAST CULVERT IN ACCORDANCE WITH THE INCLUDED "WATERLINE INSTALLATION SHEETS". THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONNECTION TO EXISTING GATE VALVES AND TRANSFERRING SERVICE TO THIS NEW WATER MAIN. REMOVAL OF THE TEMPORARY WATER LINE WILL BE PERFORMED BY OTHERS.

35. THE PROPOSED WATER LINE SITUATED OVER THE PRECAST ARCH SHALL BE INSTALLED DURING BACKFILL OPERATIONS OF THE PRECAST ARCH; NO TRENCH EXCAVATION AFTER COMPLETION OF BACKFILL OPERATIONS WILL BE ALLOWED.

36. INSULATION BOARD(S) SHALL BE INSTALLED DIRECTLY BELOW THE WATERLINE AS NOTED ON WATERLINE INSTALLATION SHEET C2-01, APPROXIMATELY BETWEEN STA 293+15 AND 294+70. PAYMENT FOR FURNISHING AND INSTALLING THE INSULATION BOARD(S) SHALL BE INCIDENTAL TO ITEM 629.24, "DUCTILE IRON PIPE, CEMENT-LINED."

37. THE CONTRACTOR SHALL CONTACT THE WATER LINE ENGINEER A MINIMUM OF 1 WEEK PRIOR TO COMMENCING WORK ON THE WATER LINE. CONTACT JOHN PITROWISKI AT (802) 879-6331.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES					TOTALS		DESCRIPTIONS			
ROADWAY	TRAINING	EROSION CONTROL	BRIDGE	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND
1					1		LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	201.10	
1150					1150		CY	COMMON EXCAVATION	203.15	
			1875		1875		CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27	
130					130		CY	TRENCH EXCAVATION OF EARTH	204.20	
1					1		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22	
			2550		2550		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30	
			3000		3000		CY	COFFERDAM EXCAVATION, EARTH	208.30	
			150		150		CY	COFFERDAM EXCAVATION, ROCK	208.35	
			1		1		LS	COFFERDAM (ABUTMENT 1)	208.40	
			1		1		LS	COFFERDAM (ABUTMENT 2)	208.40	
2560					2560		SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10	
75					75		CY	SUBBASE OF GRAVEL	301.15	
1160					1160		CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35	
15					15		CY	AGGREGATE SURFACE COURSE	401.10	
85					85		TON	AGGREGATE SHOULDERS	402.12	
19					19		CWT	EMULSIFIED ASPHALT	404.65	
1					1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50	
								BEGIN **ALTERNATE A**		
			270		270		CY	CONCRETE, HIGH PERFORMANCE CLASS B (FOOTINGS)	501.34	
			73		73		CY	CONCRETE, HIGH PERFORMANCE CLASS B (PEDESTAL WALLS)	501.34	
			36900		36900		LB	REINFORCING STEEL, LEVEL I (FOOTINGS)	507.11	
			7000		7000		LB	REINFORCING STEEL, LEVEL I (PEDESTAL WALLS)	507.11	
								END **ALTERNATE A**		
			380		380		LF	DRILLING AND GROUTING DOWELS	507.16	
			10		10		GAL	WATER REPELLENT, SILANE	514.10	
			1		1		LS	MAINTENANCE OF STRUCTURES AND APPROACHES	527.10	
			1		1		LS	TWO-WAY TEMPORARY BRIDGE	528.11	
			1		1		EACH	REMOVAL OF STRUCTURE (15.83' X 10.67' X 158' CGMPPA)	529.15	
			1		1		LS	PRECAST CONCRETE STRUCTURE (ARCHES AND WALLS)	540.10	
								BEGIN **ALTERNATE B**		
			1		1		LS	PRECAST CONCRETE STRUCTURE (FOOTINGS)	540.10	
			1		1		LS	PRECAST CONCRETE STRUCTURE (PEDESTAL WALLS)	540.10	
								END **ALTERNATE B**		
			610		610		CY	CONCRETE, CLASS C	541.30	
115					115		MGAL	DUST CONTROL WITH WATER	609.10	
			270		270		CY	STONE FILL, TYPE III	613.12	
1					1		EACH	RELOCATE MAILBOX, SINGLE SUPPORT	617.10	
113					113		LF	WOVEN WIRE FENCE WITH STEEL POSTS	620.25	
1					1		EACH	STEEL BRACE FOR WOVEN WIRE FENCE	620.40	
113					113		LF	REMOVAL OF EXISTING FENCE	620.55	

DETAILED SUMMARY OF QUANTITIES

QUANTITIES	UNIT	ITEMS
		EARTHWORKS SUMMARY
1150	CY	COMMON EXCAVATION (1150 CY * 1.0)
130	CY	TRENCH EXCAVATION (130 CY * 1.0)
2250	CY	COFFERDAM EXCAVATION, EARTH (3000 CY * 0.75)
1406	CY	UNCLASSIFIED CHANNEL EXCAVATION (1875 CY * 0.75)
224	CY	COFFERDAM EXCAVATION, ROCK (150 CY * 1.495)
5160	CY	TOTAL MATERIAL AVAILABLE FOR FILL
334	CY	TOTAL FILL REQUIRED (290 CY * 1.15)
4827	CY	TOTAL MATERIAL TO WASTE
		TEMPORARY ROADWAY SUMMARY
140	CY	COMMON EXCAVATION (140 CY * 1.0)
140	CY	TOTAL MATERIAL AVAILABLE FOR FILL
1990	CY	TOTAL FILL REQUIRED (1730 CY * 1.15)
1850	CY	BORROW REQUIRED
		SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)
		(DOES NOT INCLUDE TEMPORARY ROADWAY)
400	TON	TYPE IVS
279	TON	TYPE IIS
679	TON	TOTAL

PROJECT NAME: DUXBURY
PROJECT NUMBER: BF 013-4(47)

T·Y·LIN INTERNATIONAL

FILE NAME: z16b00lqty.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: B. TOOTHAKER
QUANTITY SHEET 1
PLOT DATE: 5/25/2016
DRAWN BY: S. MORGAN
CHECKED BY: D. MYERS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 2

SUMMARY OF ESTIMATED QUANTITIES					TOTALS		DESCRIPTIONS			
ROADWAY	TRAINING	EROSION CONTROL	BRIDGE	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND
352					352		LF	STEEL BEAM GUARDRAIL, GALVANIZED	621.20	
2					2		EACH	MANUFACTURED TERMINAL SECTION, FLARED	621.50	
2					2		EACH	ANCHOR FOR STEEL BEAM RAIL	621.60	
463					463		LF	REMOVAL AND DISPOSAL OF GUARDRAIL	621.80	
80					80		LF	TEMPORARY TRAFFIC BARRIER	621.90	
2					2		EACH	ADJUST ELEVATION OF VALVE BOX	629.20	
250					250		LF	DUCTILE IRON PIPE, CEMENT-LINED (8") (CL 52)	629.24	
1					1		LS	TRANSFER TO NEW SYSTEM, WATER SYSTEM	629.42	
240					240		HR	UNIFORMED TRAFFIC OFFICERS	630.10	
1200					1200		HR	FLAGGERS	630.15	
				1	1		LS	FIELD OFFICE, ENGINEERS	631.10	
				1	1		LS	TESTING EQUIPMENT, CONCRETE	631.16	
				1	1		LS	TESTING EQUIPMENT, BITUMINOUS	631.17	
				3000	3000		DL	FIELD OFFICE TELEPHONE (N.A.B.I.)	631.26	
	540				540		HR	EMPLOYEE TRAINEESHIP	634.10	
1					1		LS	MOBILIZATION/DEMOBILIZATION	635.11	
1					1		LS	TRAFFIC CONTROL	641.10	
1660					1660		LF	4 INCH WHITE LINE	646.20	
1730					1730		LF	4 INCH YELLOW LINE	646.21	
47					47		LF	24 INCH STOP BAR	646.26	
8					8		EACH	LETTER OR SYMBOL	646.30	
1190					1190		LF	TEMPORARY 4 INCH WHITE LINE	646.600	
2550					2550		LF	TEMPORARY 4 INCH YELLOW LINE	646.610	
910					910		SF	REMOVAL OF EXISTING PAVEMENT MARKINGS	646.85	
250			1670		1920		SY	GEOTEXTILE UNDER STONE FILL	649.31	
		320			320		SY	GEOTEXTILE FOR SILT FENCE	649.51	
		360			360		SY	GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED	649.515	
		315			315		LB	SEED	651.15	
		2			2		LB	SEED, WINTER RYE	651.17	
		635			635		LB	FERTILIZER	651.18	
		3			3		TON	AGRICULTURAL LIMESTONE	651.20	
		3			3		TON	HAY MULCH	651.25	
130					130		CY	TOPSOIL	651.35	
			65		65		SY	GRUBBING MATERIAL	651.40	
		1			1		LS	EPSC PLAN	652.10	
		170			170		HR	MONITORING EPSC PLAN	652.20	
		1			1		LU	MAINTENANCE OF EPSC PLAN (N.A.B.I.)	652.30	
		390			390		SY	TEMPORARY EROSION MATTING	653.20	
		72			72		CY	VEHICLE TRACKING PAD	653.35	
		2			2		EACH	FILTER BAG	653.45	

DETAILED SUMMARY OF QUANTITIES		
QUANTITIES	UNIT	ITEMS

PROJECT NAME: DUXBURY
PROJECT NUMBER: BF 013-4(47)

T·Y·LIN INTERNATIONAL

FILE NAME: zl6b001qty.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: B. TOOTHAKER
QUANTITY SHEET 2
PLOT DATE: 5/25/2016
DRAWN BY: S. MORGAN
CHECKED BY: D. MYERS
SHEET 7 OF 69

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 3

SUMMARY OF ESTIMATED QUANTITIES					TOTALS		DESCRIPTIONS			
ROADWAY	TRAINING	EROSION CONTROL	BRIDGE	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND
		960			960		LF	BARRIER FENCE	653.50	
		620			620		LF	PROJECT DEMARCATION FENCE	653.55	
		14			14		EACH	DECIDUOUS SEEDLINGS (ACER RUBRUM) (CONT.) (5')	656.16	
		10			10		EACH	DECIDUOUS SEEDLINGS (QUERCUS BICOLOR) (CONT.) (5')	656.16	
		24			24		EACH	DECIDUOUS SHRUBS (CORNUS AMOMUM) (CONT.) (30")	656.35	
		72			72		EACH	DECIDUOUS SHRUBS (CORNUS SERICEA) (CONT.) (30")	656.35	
		48			48		EACH	DECIDUOUS SHRUBS (VIRURNUM LENTAGO) (CONT.) (36")	656.35	
		31			31		MGAL	LANDSCAPE WATERING	656.65	
		130			130		CY	LANDSCAPE BACKFILL, TRUCK MEASUREMENT	656.80	
9					9		SF	TRAFFIC SIGNS, TYPE A	675.20	
16					16		LF	SQUARE TUBE SIGN POST AND ANCHOR	675.341	
8					8		EACH	REMOVING SIGNS	675.50	
4					4		EACH	ERECTING SALVAGED SIGNS	675.60	
3					3		EACH	SETTING SALVAGED POSTS	675.61	
2					2		EACH	DELINEATOR WITH STEEL POST	676.10	
25					25		LF	WIRED CONDUIT (1") (SCH80 PVC)	678.23	
1					1		EACH	JUNCTION BOX	678.26	
1					1		EACH	POWER DROP STANCHION, STREET LIGHTING	679.55	
1					1		LU	PRICE ADJUSTMENT, FUEL (N.A.B.I.)	690.50	
			730		730		CY	SPECIAL PROVISION (STONE FILL, STREAM BED MATERIAL) (TYPE III)	900.608	
			10		10		EACH	SPECIAL PROVISION (CPM SCHEDULE)	900.620	
1					1		EACH	SPECIAL PROVISION (RELOCATE FLASHING BEACON, GROUND MOUNTED)	900.620	
								BEGIN **ALTERNATE C**		
			1		1		LS	SPECIAL PROVISION (CONTRACTOR-FABRICATED PRECAST CONCRETE STRUCTURE) (FOOTINGS)	900.645	
			1		1		LS	SPECIAL PROVISION (CONTRACTOR-FABRICATED PRECAST CONCRETE STRUCTURE) (PEDESTAL WALLS)	900.645	
								END **ALTERNATE C**		
			1		1		LS	SPECIAL PROVISION (REMOVAL OF TEMPORARY BRIDGE)	900.645	
			1		1		LS	SPECIAL PROVISION (TEMPORARY RELOCATION OF STREAM)	900.645	
1					1		LU	SPECIAL PROVISION (MAT DENSITY PAY ADJUSTMENT, SMALL QUANTITY) (N.A.B.I.)	900.650	
1					1		LU	SPECIAL PROVISION (MIXTURE PAY ADJUSTMENT) (N.A.B.I.)	900.650	
679					679		TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680	

DETAILED SUMMARY OF QUANTITIES		
QUANTITIES	UNIT	ITEMS

PROJECT NAME: DUXBURY
PROJECT NUMBER: BF 013-4(47)

T·Y·LIN INTERNATIONAL

FILE NAME: zl6b00lqty.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: B. TOOTHAKER
QUANTITY SHEET 3

PLOT DATE: 5/25/2016
DRAWN BY: S. MORGAN
CHECKED BY: D. MYERS
SHEET 8 OF 69

GENERAL INFORMATION

SYMBOLOGY LEGEND NOTE

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

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

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

COMMON TOPOGRAPHIC POINT SYMBOLS

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

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

PROPOSED GEOMETRY CODES

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

UTILITY SYMBOLOGY

UNDERGROUND UTILITIES

UGU	UTILITY (GENERIC-UNKNOWN)
UT	TELEPHONE
UE	ELECTRIC
UC	CABLE (TV)
UEC	ELECTRIC+CABLE
UET	ELECTRIC+TELEPHONE
UCT	CABLE+TELEPHONE
UECT	ELECTRIC+CABLE+TELEP.
G	GAS LINE
W	WATER LINE
S	SANITARY SEWER (SEPTIC)

ABOVE GROUND UTILITIES (AERIAL)

AGU	UTILITY (GENERIC-UNKNOWN)
T	TELEPHONE
E	ELECTRIC
C	CABLE (TV)
EC	ELECTRIC+CABLE
ET	ELECTRIC+TELEPHONE
AER E&T	ELECTRIC+TELEPHONE
CT	CABLE+TELEPHONE
ECT	ELECTRIC+CABLE+TELEP.
	UTILITY POLE GUY WIRE

PROJECT CONSTRUCTION SYMBOLOGY

PROJECT DESIGN & LAYOUT SYMBOLOGY

CZ	CLEAR ZONE
	PLAN LAYOUT MATCHLINE

PROJECT CONSTRUCTION FEATURES

	TOP OF CUT SLOPE
	TOE OF FILL SLOPE
	STONE FILL
	BOTTOM OF DITCH ℄
	CULVERT PROPOSED
	STRUCTURE SUBSURFACE
PDF PDF	PROJECT DEMARCATION FENCE
BF BF	BARRIER FENCE
	TREE PROTECTION ZONE (TPZ)
	STRIPING LINE REMOVAL
	SHEET PILES

CONVENTIONAL BOUNDARY SYMBOLOGY

BOUNDARY LINES

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

EPSC LAYOUT PLAN SYMBOLOGY

EPSC MEASURES

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

SEE EPSC DETAIL SHEETS FOR ADDITIONAL SYMBOLOGY

ENVIRONMENTAL RESOURCES

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

ARCHEOLOGICAL & HISTORIC

ARCH	ARCHEOLOGICAL BOUNDARY
HISTORIC DIST	HISTORIC DISTRICT BOUNDARY
HISTORIC	HISTORIC AREA
H	HISTORIC STRUCTURE

CONVENTIONAL TOPOGRAPHIC SYMBOLOGY

EXISTING FEATURES

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

PROJECT NAME:	DUXBURY
PROJECT NUMBER:	BF 013-4(47)

T.Y.LIN INTERNATIONAL

FILE NAME: zl6b00llegend.dgn	PLOT DATE: 5/23/2016
PROJECT LEADER: J. OLUND	DRAWN BY: T. POULIN
DESIGNED BY: T. POULIN	CHECKED BY: J. OLUND
CONVENTIONAL SYMBOLOGY LEGEND	SHEET 9 OF 69

GPS CONTROL POINTS

HVCTRL #1
"STATE FARM"
NORTH = 665405.5920
EAST = 1575241.4560
ELEV. = 456.5610

DUXBURY, VT.
THE MARK IS SET FLUSH WITH GROUND SURFACE IN THE TOP OF A 30 CM DIAMETER CONCRETE MONUMENT, AT THE SITE OF THE FORMER STATE OF VERMONT FARM STORAGE BARN. IT IS 24.7 M SOUTH OF AND 1.5 M HIGHER THAN THE CENTERLINE OF VT ROUTE 100, 9.4 M EAST-NORTHEAST OF THE CENTERLINE OF A PAVED DRIVE LEADING TO THE BARN, 36.1 M NORTH-NORTHWEST OF THE NORTH CORNER OF THE BARN, 23.1 M EAST-NORTHEAST OF POLE NO 2/2, AND 1.9 M SOUTH OF THE GRAVEL DRIVE LEADING TO HOUSE NO 11.

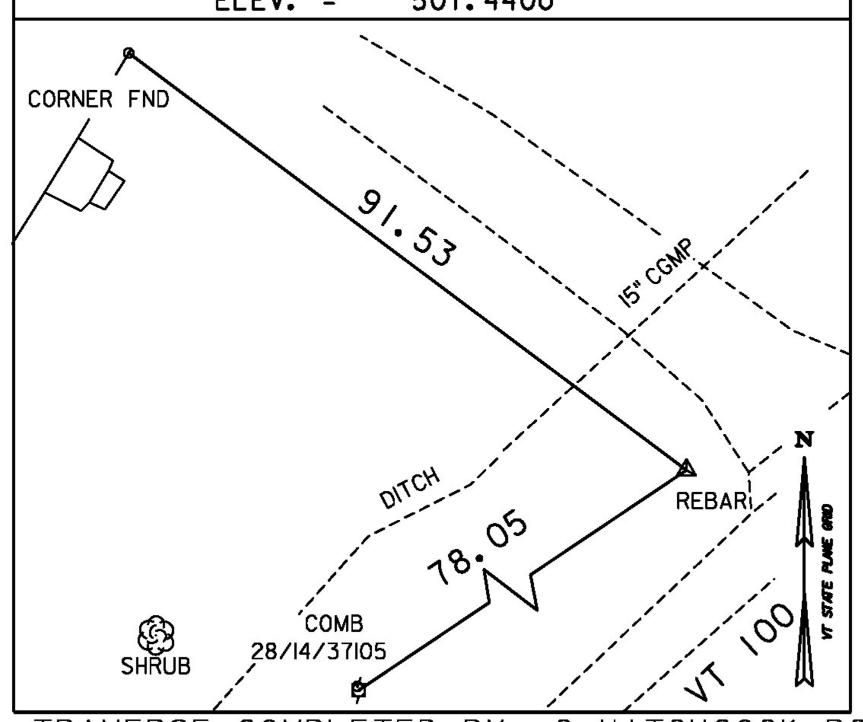
HVCTRL #2
"BEDELL"
NORTH = 664729.5220
EAST = 1574008.0820
ELEV. = 561.2400

DUXBURY, VT.
1.0 MI (1.6 KM) SOUTH SOUTHEAST OF WATERBURY, 4.4 MI (7.1 KM) WEST NORTHWEST OF MIDDLESEX, AND 5.3 MI (8.5 KM) NORTH OF MORETOWN. TO REACH FROM THE JUNCTION OF VERMONT ROUTE 100 SOUTH AND U.S. ROUTE 2 IN WATERBURY, PROCEED SOUTHWEST ALONG VERMONT ROUTE 100 FOR 0.5 MI (0.8 KM) TO AND OPEN KNOLL AND THE STATION SITE ON THE NORTHEAST SIDE OF ROUTE 100. THE MARK IS A STATE OF VERMONT SURVEY DISK SET IN THE TOP OF A CONCRETE MONUMENT 20 CM IN DIAMETER, FLUSH WITH THE GROUND SURFACE. IT IS LOCATED 252 FT (76.8 M) NORTHWEST OF A CONCRETE HIGHWAY BOUND, 194 FT (59.1 M) NORTHEAST OF THE CENTERLINE OF VERMONT ROUTE 100, 31.46 FT (9.59 M) SOUTH OF A CONCRETE HIGHWAY BOUND, 27 FT (8.2 M) SOUTHWEST OF THE STATE HIGHWAY RIGHT OF WAY FENCE, AND 5 FT (1.5 M) NORTHEAST OF A STEEL WITNESS POST. OWNERSHIP IS THE STATE OF VERMONT.

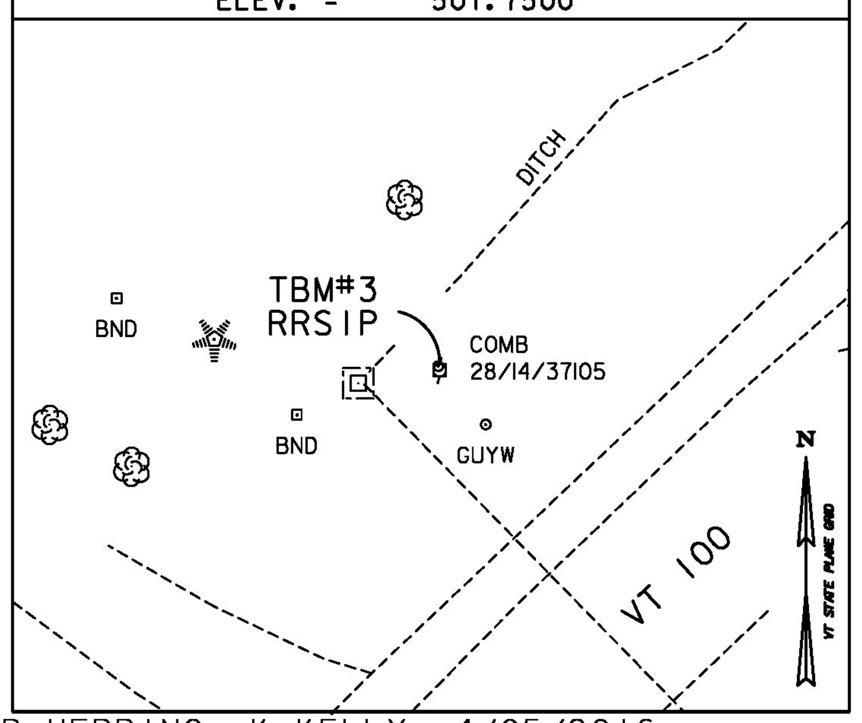
*GPS CONTROL PROVIDED BY VT GSU 2016

TRAVERSE TIES

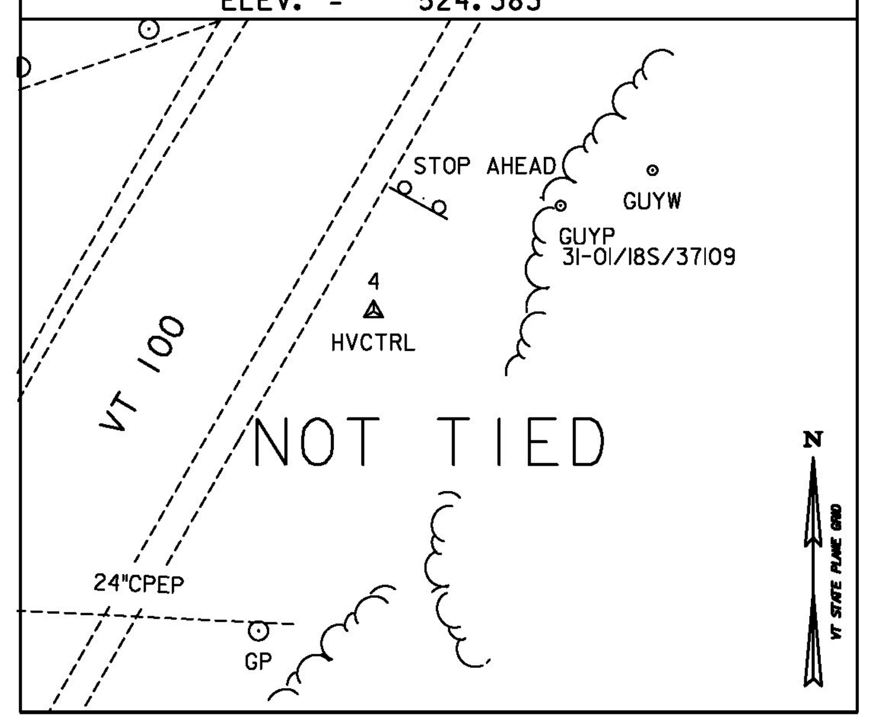
HVCTRL #3
NORTH = 664285.9820
EAST = 1573150.5320
ELEV. = 507.4400



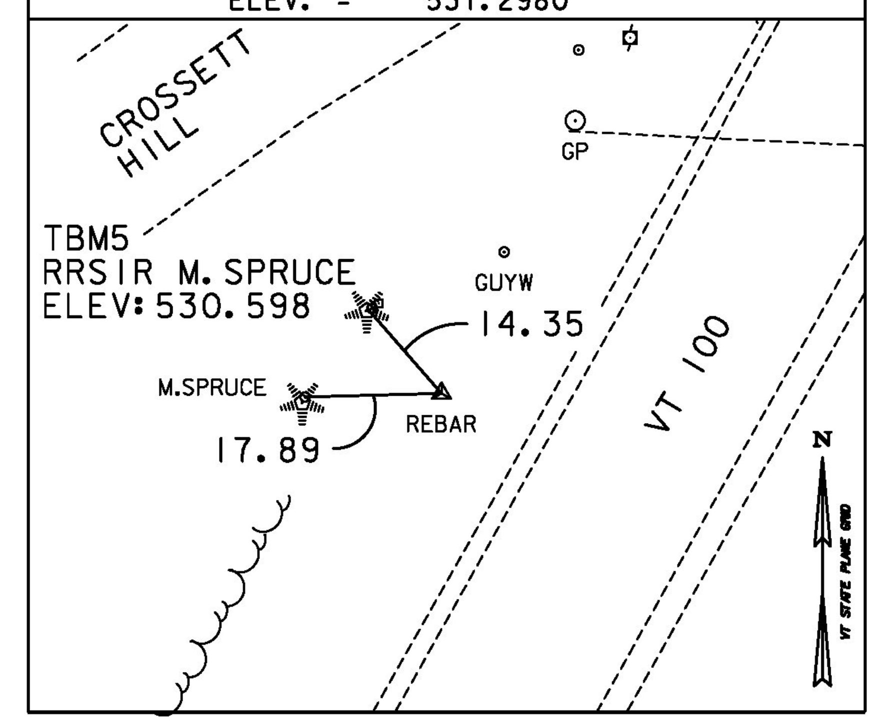
TBM #3
NORTH = 664242.8590
EAST = 1573084.6476
ELEV. = 501.7500



HVCRTL #4
NORTH = 663744.6293
EAST = 1572815.3574
ELEV. = 524.383



HVCTRL #5
NORTH = 663672.5990
EAST = 1572717.6950
ELEV. = 531.2980



*TRAVERSE COMPLETED BY: G.HITCHCOCK PC/ B.HERRING, K.KELLY, 4/05/2016

CHANNEL ALIGNMENT

HORIZONTAL ALIGNMENT NAME: CHANNEL ALIGNMENT

	STATION	NORTHING	EASTING
Element: Linear			
POB	19+25.00	664034.3448	1572799.524
PI	20+25.00	664034.5307	1572899.524
Tangential Direction:	N 89°°53'36.72" E		
Tangential Length:	100		
Element: Linear			
PI	20+25.00	664034.5307	1572899.524
PI	22+75.00	664103.6964	1573139.766
Tangential Direction:	N 73°°56'19.85" E		
Tangential Length:	250		
Element: Linear			
PI	22+75.00	664103.6964	1573139.766
POE	23+75.00	664104.5855	1573239.762
Tangential Direction:	N 89°°29'26.12" E		
Tangential Length:	100		

MAINLINE ALIGNMENT

HORIZONTAL ALIGNMENT NAME: BASELINE VT 100

	STATION	NORTHING	EASTING
Element: Linear			
POB	287+51.15	663486.4469	1572645.853
PC	289+51.36	663661.7050	1572742.653
Tangential Direction:	N 28°54'47.28" E		
Tangential Length:	200.21		
Element: Circular			
PC	289+51.36	663661.705	1572742.653
PI	290+51.37	663749.2493	1572791.006
CC		660891.5502	1577758.062
PT	291+51.36	663835.0527	1572842.385
Radius:	5729.58		
Delta:	2°00'00.00" Right		
Degree of Curvature:	1°00'00.00"		
Length:	200		
Tangent:	100.01		
Chord:	199.99		
Middle Ordinate:	0.87		
External:	0.87		
Tangent Direction:	N 28°54'47.28" E		
Radial Direction:	S 61°05'12.72" E		
Chord Direction:	N 29°54'47.28" E		
Radial Direction:	S 59°05'12.72" E		
Tangent Direction:	N 30°54'47.28" E		
Element: Linear			
PT	291+51.36	663835.0527	1572842.385
PC	293+25.55	663984.4984	1572931.873
Tangential Direction:	N 30°54'47.28" E		
Tangential Length:	174.19		

HORIZONTAL ALIGNMENT NAME: BASELINE VT 100 (CONTINUED)

	STATION	NORTHING	EASTING
Element: Circular			
PC	293+25.55	663984.4984	1572931.873
PI	298+75.05	664455.9369	1573214.17
CC		663423.8305	1573868.193
PT	303+43.66	664509.9043	1573761.009
Radius:	1091.35		
Delta:	53°27'02.22" Right		
Degree of Curvature:	5°14'59.97"		
Length:	1018.11		
Tangent:	549.5		
Chord:	981.59		
Middle Ordinate:	116.59		
External:	130.53		
Tangent Direction:	N 30°54'47.28" E		
Radial Direction:	S 59°05'12.72" E		
Chord Direction:	N 57°38'18.39" E		
Radial Direction:	S 5°38'10.50" E		
Tangent Direction:	N 84°21'49.50" E		
Element: Linear			
PT	303+43.66	664509.9043	1573761.009
POE	305+43.66	664529.5465	1573960.039
Tangential Direction:	N 84°21'49.50" E		
Tangential Length:	200		

DATUM

VERTICAL	NAVD 88
HORIZONTAL	NAD 83 (1996)
ADJUSTMENT	N/A

PROJECT NAME: DUXBURY
PROJECT NUMBER: BF 013-4(47)

T·Y·LIN INTERNATIONAL

FILE NAME: z16B001t1.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: J. HOWE
TIE SHEET
PLOT DATE: 5/23/2016
DRAWN BY: VTRANS
CHECKED BY: J. HOWE
SHEET 10 OF 69

REMOVAL OF STRUCTURE
STA 293+51.47 LT - 294+90.57 RT

CONSTRUCT DRIVES
291+61.79 RT - 292+78.98, LT
6' PAVED APRON
292+79.23 LT - 293+16.67 LT
8' PAVED APRON

REMOVAL AND DISPOSAL OF GUARDRAIL
STA 293+11.79 - 295+52.63, LT
STA 292+80.00 - 293+46.50, RT
STA 294+79.00 - 296+23.28, RT

ADJUST ELEVATION OF VALVE BOX
STA 292+60.00, LT
STA 294+95.00, LT

STEEL BEAM GUARDRAIL,GALVANIZED
STA 293+12.95 - ~~294+26.01, LT~~ 295+50.00 LT
STA 294+20.80 - 296+63.02, RT

ANCHOR FOR STEEL BEAM RAIL
STA 293+26.45, LT

WIRED CONDUIT (1") (SCH 80 PVC)
292+43.20, RT TO 292+74.57, RT

POWER DROP STANCHION, STREET LIGHTING
292+43.20, RT

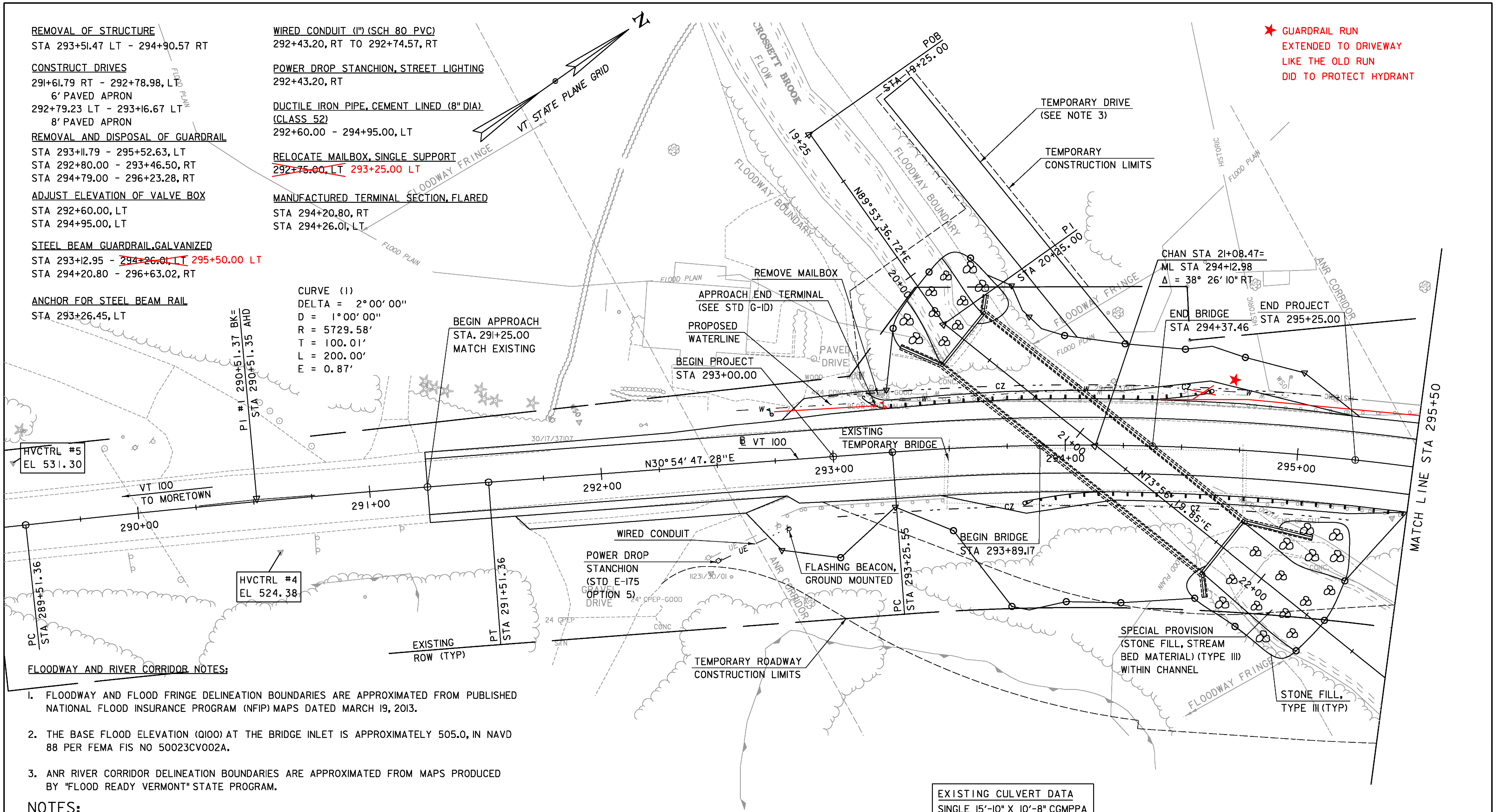
DUCTILE IRON PIPE, CEMENT LINED (8" DIA) (CLASS 52)
292+60.00 - 294+95.00, LT

RELOCATE MAILBOX, SINGLE SUPPORT
~~292+75.00, LT~~ 293+25.00 LT

MANUFACTURED TERMINAL SECTION, FLARED
STA 294+20.80, RT
STA 294+26.01, LT

CURVE (1)
DELTA = 2° 00' 00"
D = 1° 00' 00"
R = 5729.58'
T = 100.01'
L = 200.00'
E = 0.87'

★ GUARDRAIL RUN EXTENDED TO DRIVEWAY LIKE THE OLD RUN DID TO PROTECT HYDRANT



FLOODWAY AND RIVER CORRIDOR NOTES:

1. FLOODWAY AND FLOOD FRINGE DELINEATION BOUNDARIES ARE APPROXIMATED FROM PUBLISHED NATIONAL FLOOD INSURANCE PROGRAM (NFIP) MAPS DATED MARCH 19, 2013.

2. THE BASE FLOOD ELEVATION (Q100) AT THE BRIDGE INLET IS APPROXIMATELY 505.0, IN NAVD 88 PER FEMA FIS NO 50023CV002A.

3. ANR RIVER CORRIDOR DELINEATION BOUNDARIES ARE APPROXIMATED FROM MAPS PRODUCED BY "FLOOD READY VERMONT" STATE PROGRAM.

NOTES:

1. DRIVE APRONS SHALL BE ONE LIFT, 3" THICK, TYPE IVS, TO BE PAID UNDER ITEM 900.680, "SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)".

2. DISTURBED PORTIONS OF THE GRAVEL DRIVE NEAR STA 292+14, RT SHALL BE RECONSTRUCTED IN ACCORDANCE WITH STANDARD B-71 AFTER REMOVAL OF TEMPORARY ROADWAY.

3. TEMPORARY DRIVE FOR UTILITY ACCESS SHALL BE CONSTRUCTED PRIOR TO COMMENCEMENT OF EXCAVATION FOR THE PROPOSED BRIDGE. THE DRIVE SHALL BE 15 FT WIDE AND CONSIST OF 1 FT OF "SUBBASE OF GRAVEL" PLACED ON "GEOTEXTILE UNDER STONE FILL". PAYMENT WILL BE MADE UNDER APPLICABLE ITEMS. REMOVAL SHALL BE INCIDENTAL.

4. PROVIDE GUARDRAIL TERMINAL LABELS IN ACCORDANCE WITH HSD-621.06.

EXISTING CULVERT DATA
SINGLE 15'-10" X 10'-8" CGMPPA
CONSTRUCTED IN 1977
STRUCTURE LENGTH = 158'-0"

LAYOUT 1

SCALE 1" = 20'-0"
20 0 20

PROJECT NAME:	DUXBURY		
PROJECT NUMBER:	BF 013-4(47)		
FILE NAME:	z16b001bdr.dgn	PLOT DATE:	5/23/2016
PROJECT LEADER:	J. OLUND	DRAWN BY:	S. MORGAN
DESIGNED BY:	J. HOWE	CHECKED BY:	J. OLUND
LAYOUT SHEET 1		SHEET	11 OF 69

TYLIN INTERNATIONAL

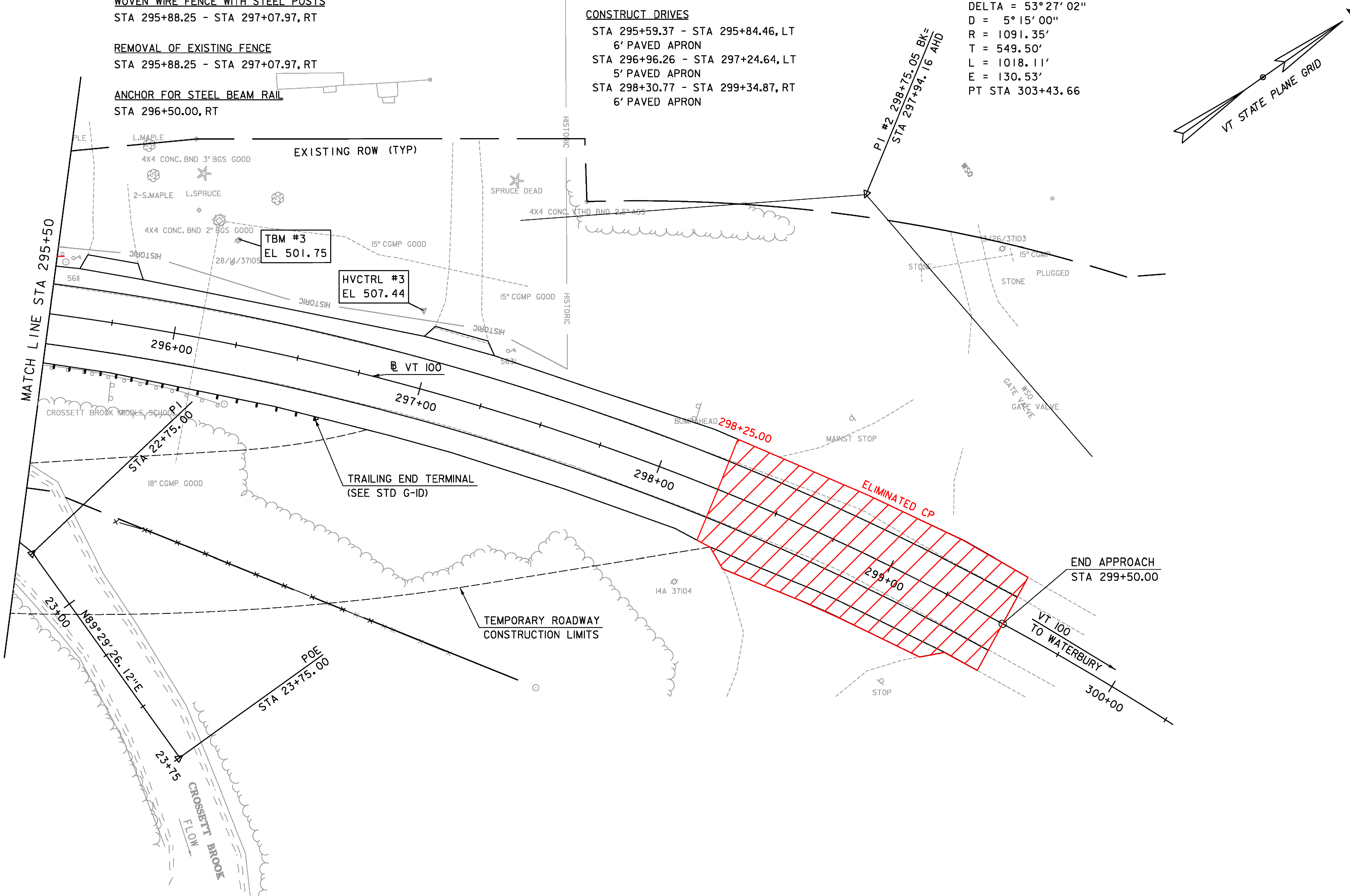
WOVEN WIRE FENCE WITH STEEL POSTS
STA 295+88.25 - STA 297+07.97, RT

REMOVAL OF EXISTING FENCE
STA 295+88.25 - STA 297+07.97, RT

ANCHOR FOR STEEL BEAM RAIL
STA 296+50.00, RT

CONSTRUCT DRIVES
STA 295+59.37 - STA 295+84.46, LT
6' PAVED APRON
STA 296+96.26 - STA 297+24.64, LT
5' PAVED APRON
STA 298+30.77 - STA 299+34.87, RT
6' PAVED APRON

CURVE (2)
DELTA = 53°27' 02"
D = 5°15' 00"
R = 1091.35'
T = 549.50'
L = 1018.11'
E = 130.53'
PT STA 303+43.66

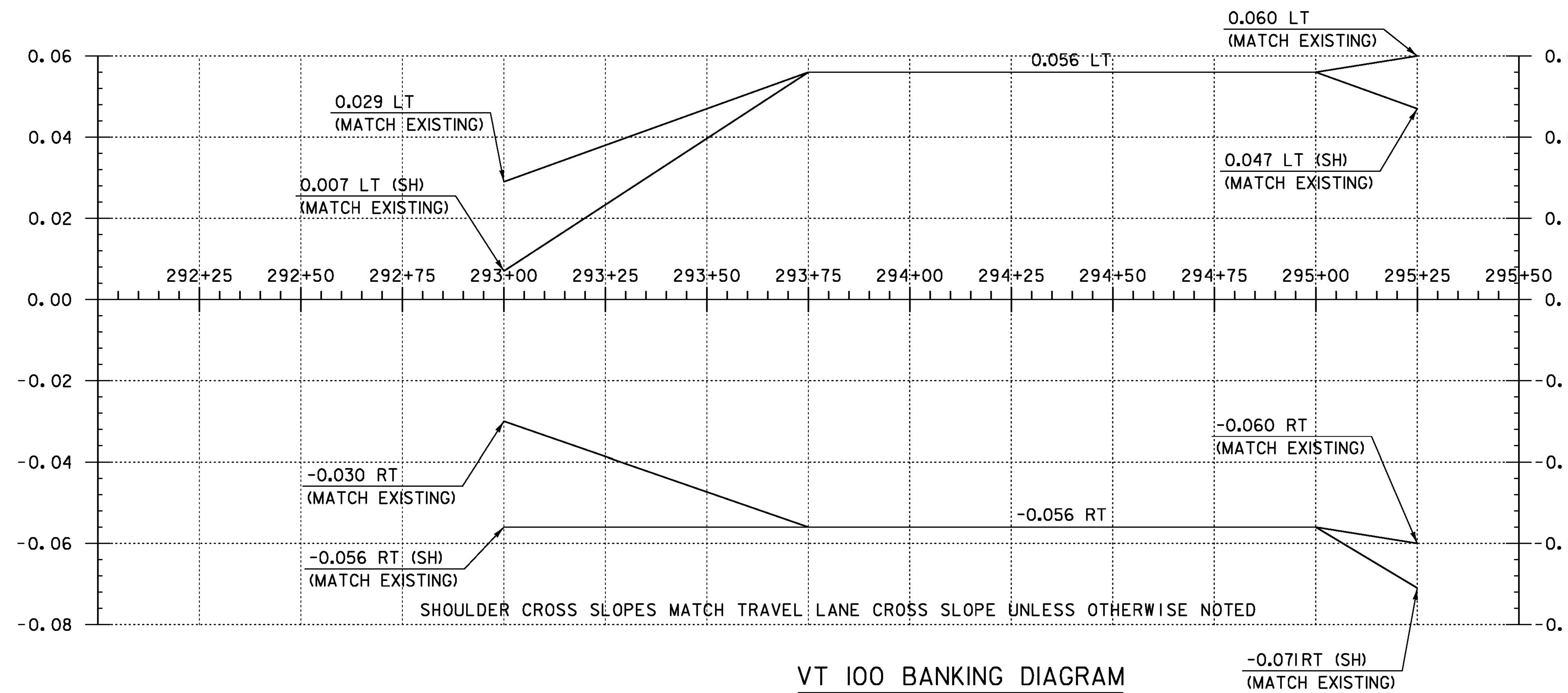


LAYOUT 2

SCALE 1" = 20'-0"
20 0 20

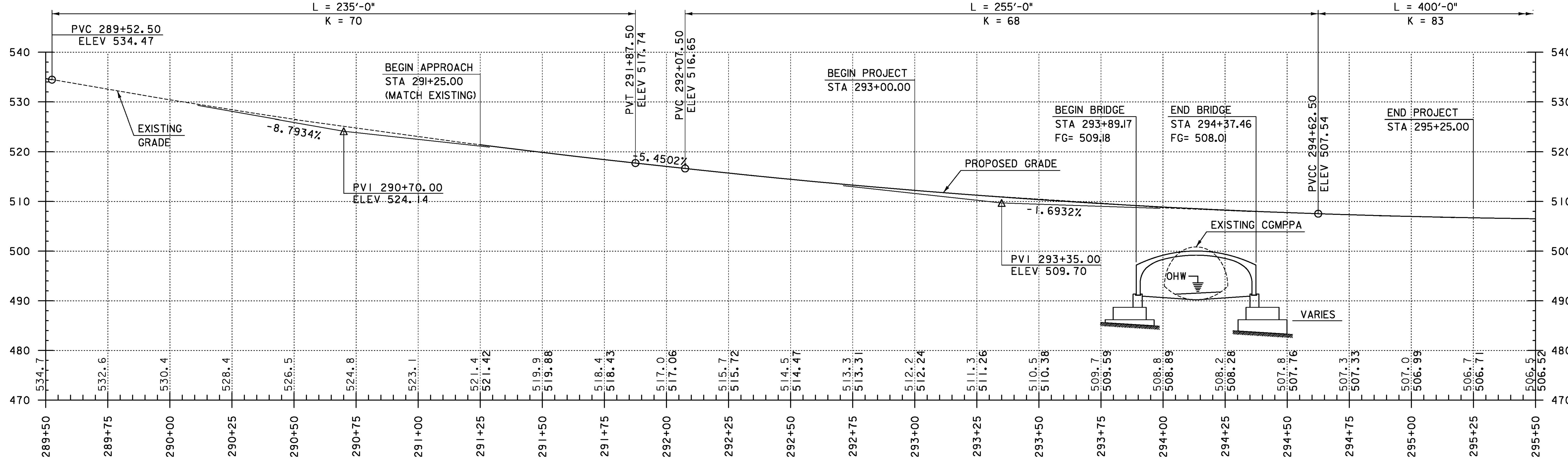
PROJECT NAME:	DUXBURY	
PROJECT NUMBER:	BF 013-4(47)	
FILE NAME: z16b001bdr.dgn		PLOT DATE: 5/23/2016
PROJECT LEADER: J. OLUND		DRAWN BY: S. MORGAN
DESIGNED BY: J. HOWE		CHECKED BY: J. OLUND
LAYOUT SHEET 2		SHEET 12 OF 69

T.Y.LIN INTERNATIONAL



VT 100 BANKING DIAGRAM

HORIZONTAL SCALE: 1"=20'
NO VERTICAL SCALE



VT 100 PROFILE 1

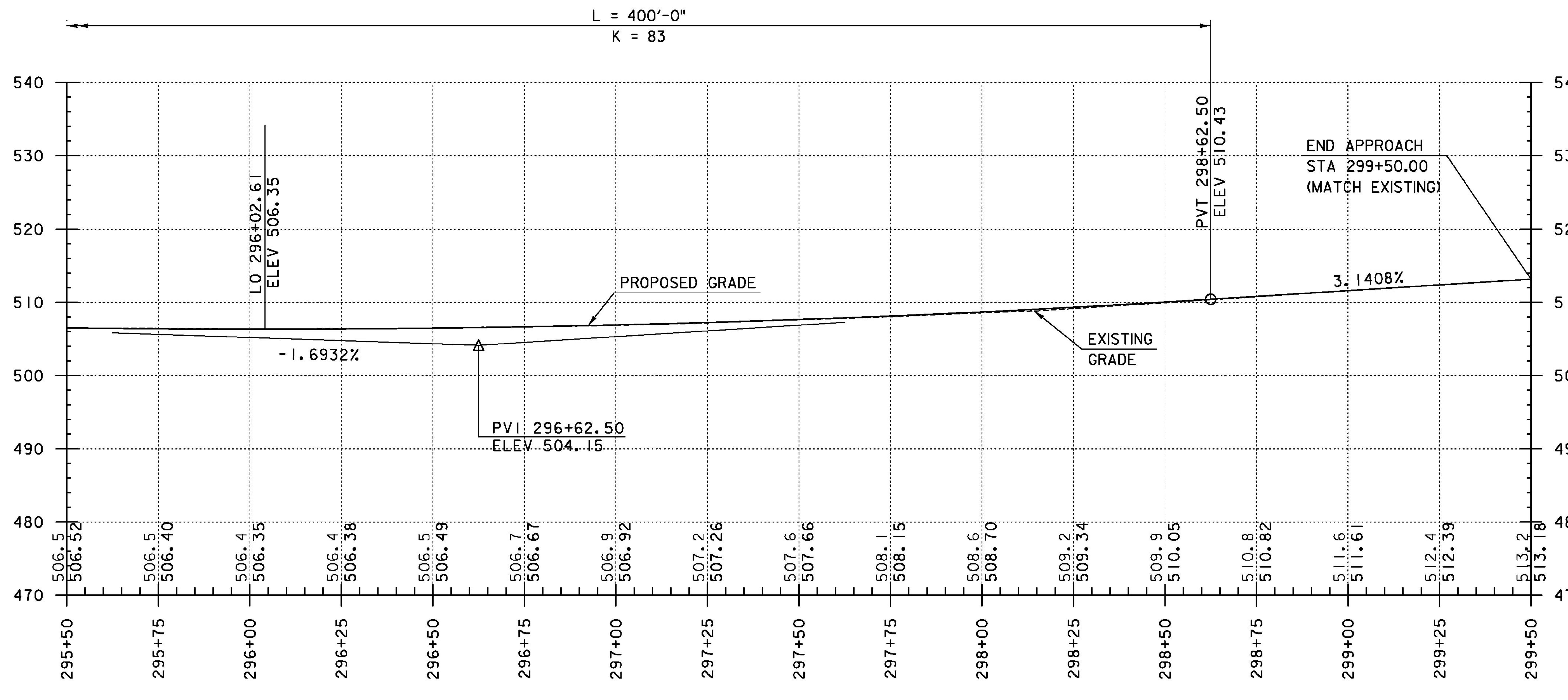
HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1" = 10'

NOTE:

GRADES SHOWN TO THE NEAREST TENTH ARE EXISTING GROUND ALONG ℄.

GRADES SHOWN TO THE NEAREST HUNDREDTH ARE FINISH GRADE ALONG ℄.

PROJECT NAME: DUXBURY	
PROJECT NUMBER: BF 013-4(47)	
T.Y.LIN INTERNATIONAL	
FILE NAME: z16b001pro.dgn	PLOT DATE: 5/23/2016
PROJECT LEADER: J. OLUND	DRAWN BY: S. MORGAN
DESIGNED BY: J. HOWE	CHECKED BY: B. TOOTHAKER
PROFILE SHEET 1	SHEET 13 OF 69



VT 100 PROFILE 2

HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1" = 10'

NOTE:

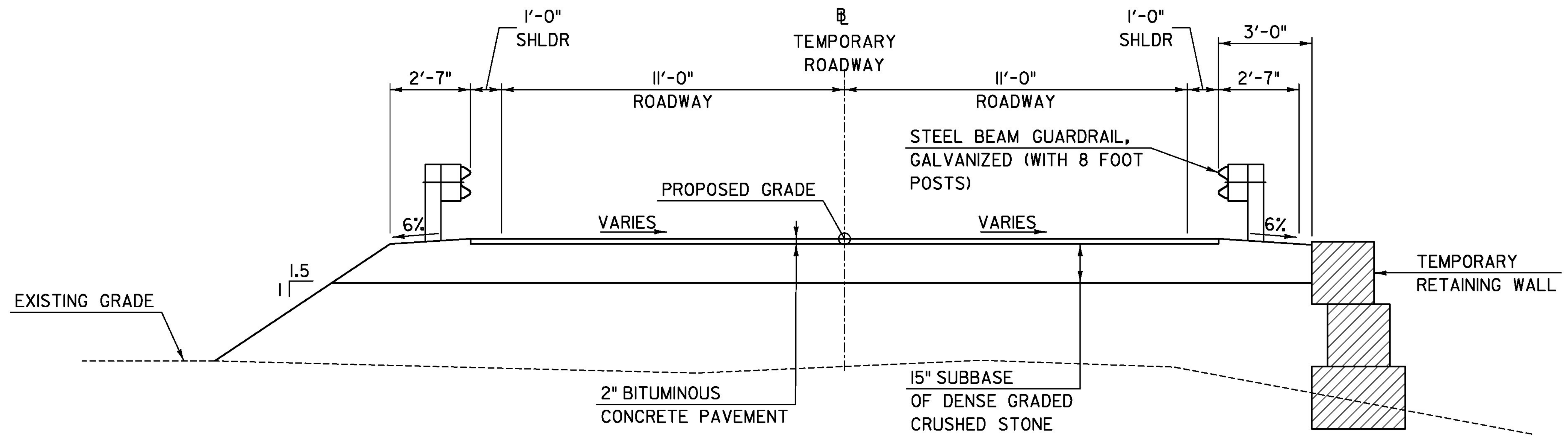
GRADES SHOWN TO THE NEAREST TENTH ARE EXISTING GROUND ALONG ℄.

GRADES SHOWN TO THE NEAREST HUNDREDTH ARE FINISH GRADE ALONG ℄.

	PROJECT NAME: DUXBURY	
	PROJECT NUMBER: BF 013-4(47)	
T·Y·LIN INTERNATIONAL	FILE NAME: z16b001pro.dgn PROJECT LEADER: J. OLUND DESIGNED BY: J. HOWE PROFILE SHEET 2	PLOT DATE: 5/23/2016 DRAWN BY: S. MORGAN CHECKED BY: B. TOOTHAKER SHEET 14 OF 69

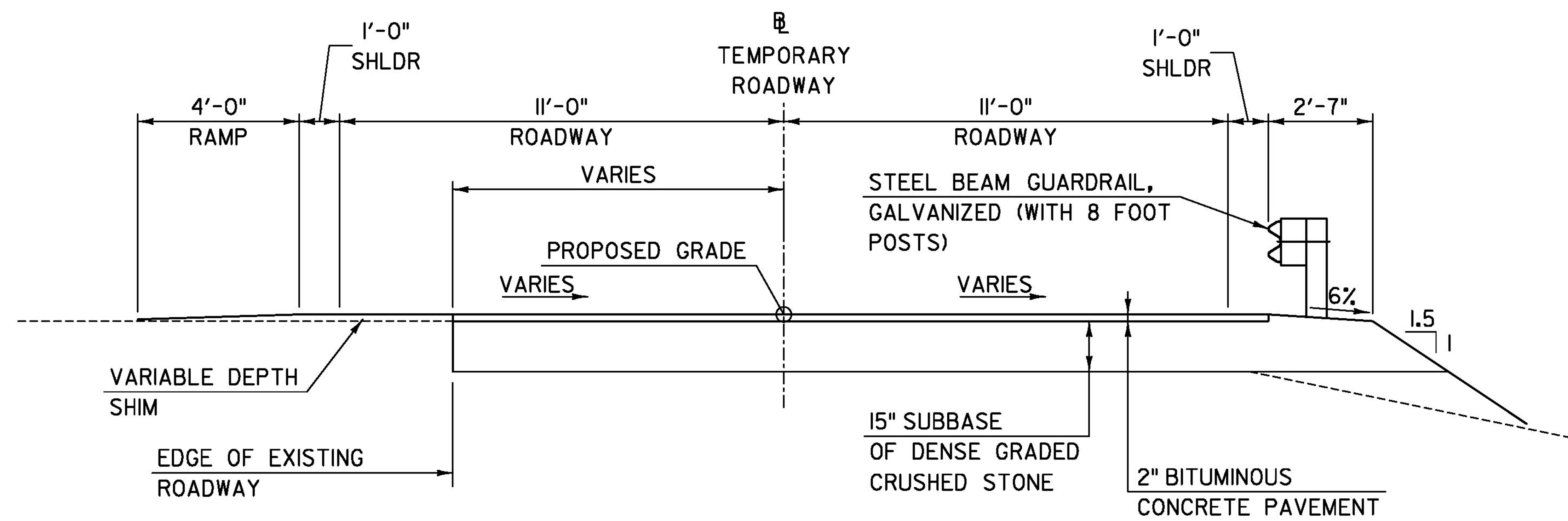
TEMPORARY ROADWAY ALIGNMENT

	Station	Northing	Easting
Element: Linear			
POB (1)	50+00.00	663748.3501	1572791.8006
PC (12)	50+90.47	663826.0835	1572838.0920
Tangential Direction:	N 30°46′28.37″ E		
Tangential Length:	90.47		
Element: Circular			
PC (12)	50+90.47	663826.0835	1572838.0921
PI ( )	51+85.39	663907.6317	1572886.6556
PRC (14)	52+74.32	663946.4075	1572973.2868
Radius:	300		
Delta:	35°06′44.69″Right		
Degree of Curvature (Arc):	19°05′54.94″		
Length:	183.85		
Tangent:	94.91		
Chord:	180.98		
Middle Ordinate:	13.97		
External:	14.66		
Tangent Direction:	N 30°46′28.37″ E		
Tangent Direction:	N 65°53′13.05″ E		
Element: Circular			
PRC (14)	52+74.32	663946.4075	1572973.2868
PI ( )	53+57.57	663980.4171	1573049.2700
PT (16)	54+36.73	664048.7180	1573096.8629
Radius:	300		
Delta:	31°01′03.61″Left		
Degree of Curvature (Arc):	19°05′54.94″		
Length:	162.41		
Tangent:	83.25		
Chord:	160.43		
Middle Ordinate:	10.92		
External:	11.34		
Tangent Direction:	N 65°53′13.05″ E		
Tangent Direction:	N 34°52′09.44″ E		
Element: Linear			
PT (16)	54+36.73	664048.7180	1573096.8629
PC (17)	55+66.55	664155.2344	1573171.0849
Tangential Direction:	N 34°52′09.44″ E		
Tangential Length:	129.83		
Element: Circular			
PC (17)	55+66.55	664155.2344	1573171.0849
PI ( )	56+04.62	664186.4633	1573192.8457
PRC (19)	56+42.28	664222.1371	1573206.1181
Radius:	300		
Delta:	14°27′41.94″Left		
Degree of Curvature (Arc):	19°05′54.94″		
Length:	75.72		
Tangent:	38.06		
Chord:	75.52		
Middle Ordinate:	2.39		
External:	2.4		
Tangent Direction:	N 34°52′09.44″ E		
Tangent Direction:	N 20°24′27.50″ E		
Element: Circular			
PRC (19)	56+42.28	664222.1371	1573206.1181
PI ( )	57+54.32	664327.1533	1573245.1892
PCC (21)	58+56.75	664380.8441	1573343.5367
Radius:	300		
Delta:	40°57′39.38″Right		
Degree of Curvature (Arc):	19°05′54.94″		
Length:	214.47		
Tangent:	112.05		
Chord:	209.93		
Middle Ordinate:	18.96		
External:	20.24		
Tangent Direction:	N 20°24′27.50″ E		
Tangent Direction:	N 61°22′06.88″ E		
Element: Circular			
PCC (21)	58+56.75	664380.8441	1573343.5367
PI ( )	58+90.78	664397.1497	1573373.4042
PT (22)	59+24.78	664411.4795	1573404.2684
Radius:	1046		
Delta:	3°43′35.70″ Right		
Degree of Curvature (Arc):	5°28′39.39″		
Length:	68.03		
Tangent:	34.03		
Chord:	68.02		
Middle Ordinate:	0.55		
External:	0.55		
Tangent Direction:	N 61°22′06.88″ E		
Tangent Direction:	N 65°05′42.57″ E		



TEMPORARY ROADWAY SECTION
FILL SECTION

SCALE 3/8" = 1′-0"



TEMPORARY ROADWAY SECTION
WIDENING SECTION

SCALE 3/8" = 1′-0"

TEMPORARY BRIDGE AND ROADWAY NOTES:

1. THE CONTRACTOR SHALL INSTALL THE TEMPORARY ROADWAY AND ALL SUPPORTING ELEMENTS AS SHOWN ON THE PLANS. PAYMENT FOR CONSTRUCTION, MAINTENANCE, AND REMOVAL OF THE TEMPORARY ROADWAY, INCLUDING BUT NOT LIMITED TO, EXCAVATION, EARTH BORROW, SUBBASE, PAVEMENT, GUARDRAIL, AND GEOTEXTILE AND FOR FURNISHING ALL LABOR, TOOLS, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK WILL BE MADE UNDER ITEM 528.11, "TWO-WAY TEMPORARY BRIDGE." THE TEMPORARY BRIDGE SHALL NOT BE PAVED.

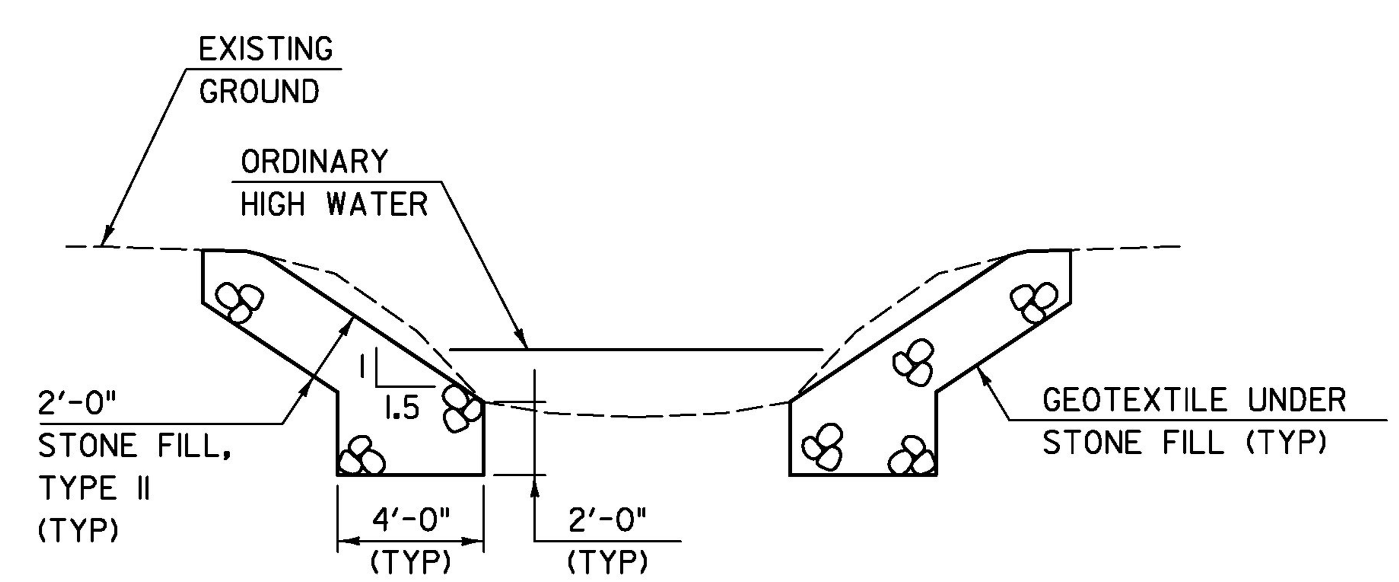
2. PAYMENT FOR FURNISHING, INSTALLING, AND REMOVING THE TEMPORARY RETAINING WALL WILL BE INCLUDED IN ITEM 528.11, "TWO-WAY TEMPORARY BRIDGE."

3. GUARDRAIL POSTS AS SHOWN ON STANDARD G-1 SHALL BE MODIFIED FROM THE INDICATED LENGTH OF 6 FEET TO A LENGTH OF 8 FEET, WITH AN EMBEDMENT OF 5′-7".

4. EMBANKMENTS FOR THE TEMPORARY ROADWAY SHALL BE CONSTRUCTED USING PROCEDURES AND MATERIALS IN ACCORDANCE WITH SUBSECTION 203.11.

5. UNFACTORED REACTIONS PER ABUTMENT FOR THE 110 FT TEMPORARY MABEY BRIDGE PROVIDED BY VTRANS ARE:

   DC = 73 KIP
   LL + IM = 246 KIP



TEMPORARY BRIDGE
TYPICAL CHANNEL SECTION

(NOT TO SCALE)

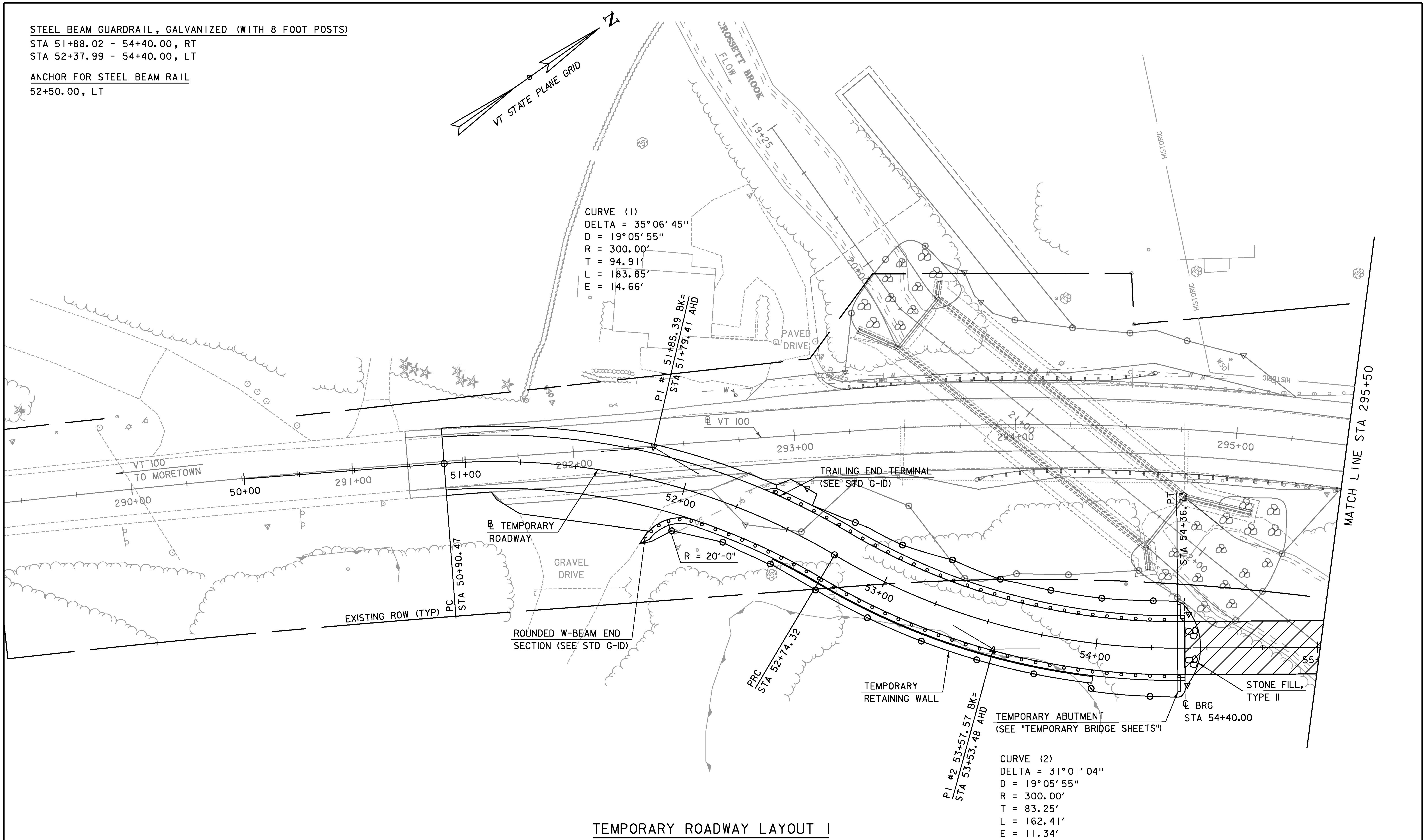
PROJECT NAME: DUXBURY
PROJECT NUMBER: BF 013-4(47)

T·Y·LIN INTERNATIONAL

FILE NAME: z16b001trdet.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: J. OLUND
TEMPORARY ROADWAY SECTIONS AND NOTES
PLOT DATE: 5/23/2016
DRAWN BY: S. MORGAN
CHECKED BY: D. BRYANT
SHEET 15 OF 69

STEEL BEAM GUARDRAIL, GALVANIZED (WITH 8 FOOT POSTS)
STA 51+88.02 - 54+40.00, RT
STA 52+37.99 - 54+40.00, LT

ANCHOR FOR STEEL BEAM RAIL
52+50.00, LT



TEMPORARY ROADWAY LAYOUT 1

SCALE 1" = 20′-0"
20 0 20

LIMITS OF STRUCTURE

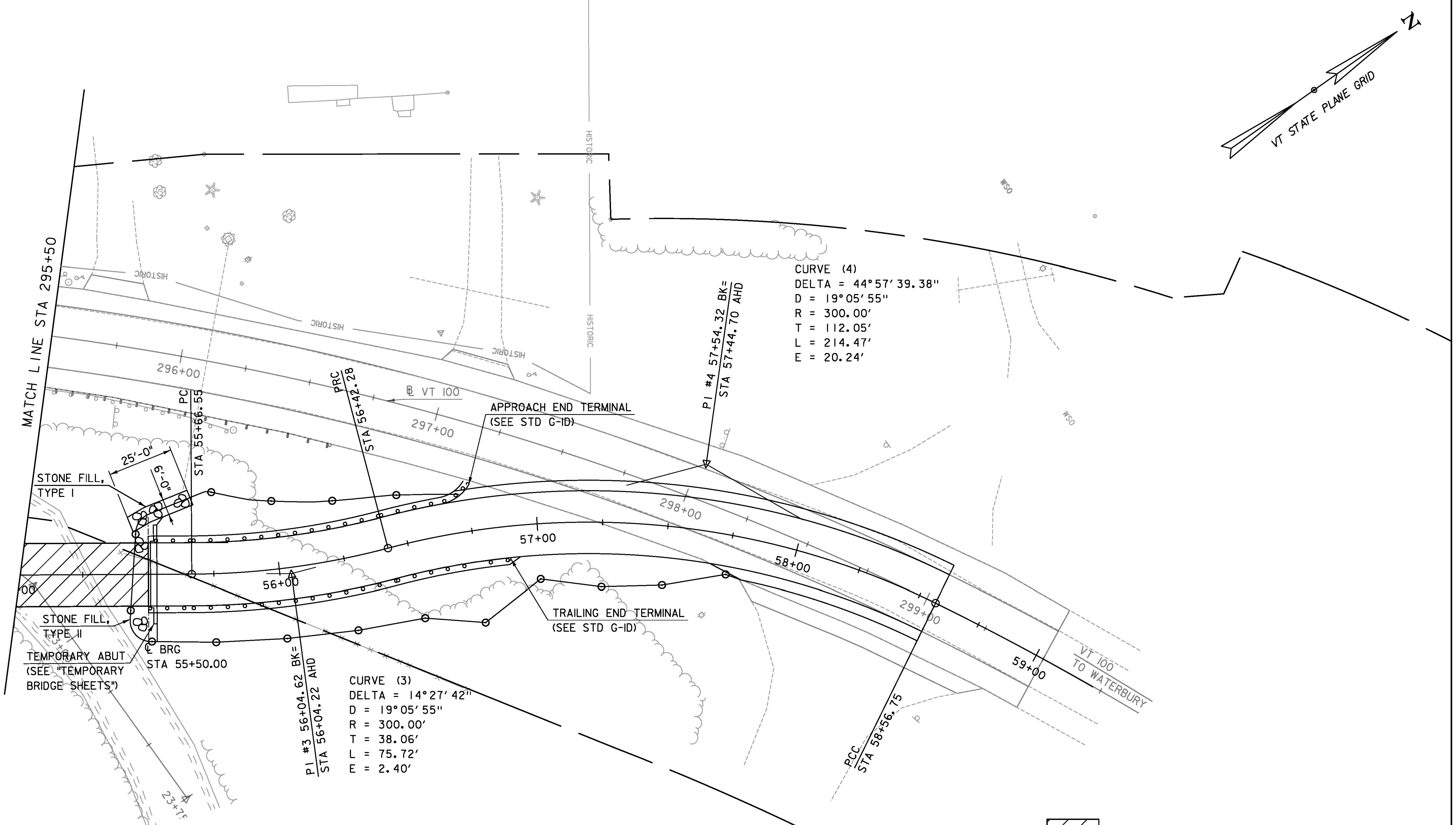
NOTE: ITEM DESCRIPTIONS AND STATION RANGES PROVIDED ARE TO AID IN THE LAYOUT AND CONSTRUCTION OF THE TEMPORARY ROADWAY. ALL ITEMS ARE INCIDENTAL TO ITEM 528.11, "TWO-WAY TEMPORARY BRIDGE."

PROJECT NAME: DUXBURY
PROJECT NUMBER: BF 013-4(47)

T·Y·LIN INTERNATIONAL

FILE NAME: z16b001trdwyl.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: T. KELLEY
TEMPORARY ROADWAY LAYOUT 1

PLOT DATE: 5/23/2016
DRAWN BY: T. KELLEY
CHECKED BY: D. BRYANT
SHEET 16 OF 69



LIMITS OF STRUCTURE

NOTE: ITEM DESCRIPTIONS AND STATION RANGES PROVIDED ARE TO AID IN THE LAYOUT AND CONSTRUCTION OF THE TEMPORARY ROADWAY. ALL ITEMS ARE INCIDENTAL TO ITEM 528.11, "TWO-WAY TEMPORARY BRIDGE."

STEEL BEAM GUARDRAIL, GALVANIZED (WITH 8 FOOT POSTS)

STA 55+50.00 - 56+76.31, LT
STA 55+50.00 - 56+88.02, RT

ANCHOR FOR STEEL BEAM RAIL

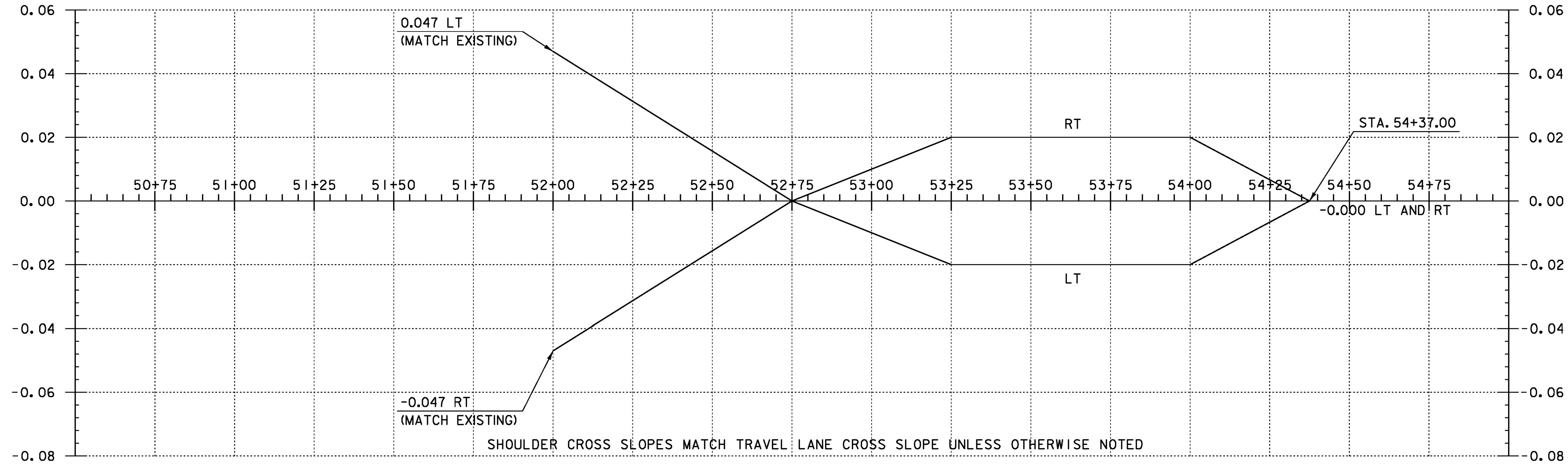
STA 56+65.00, LT
STA 56+75.00, RT

TEMPORARY ROADWAY LAYOUT 2

SCALE 1" = 20′-0"
20 0 20

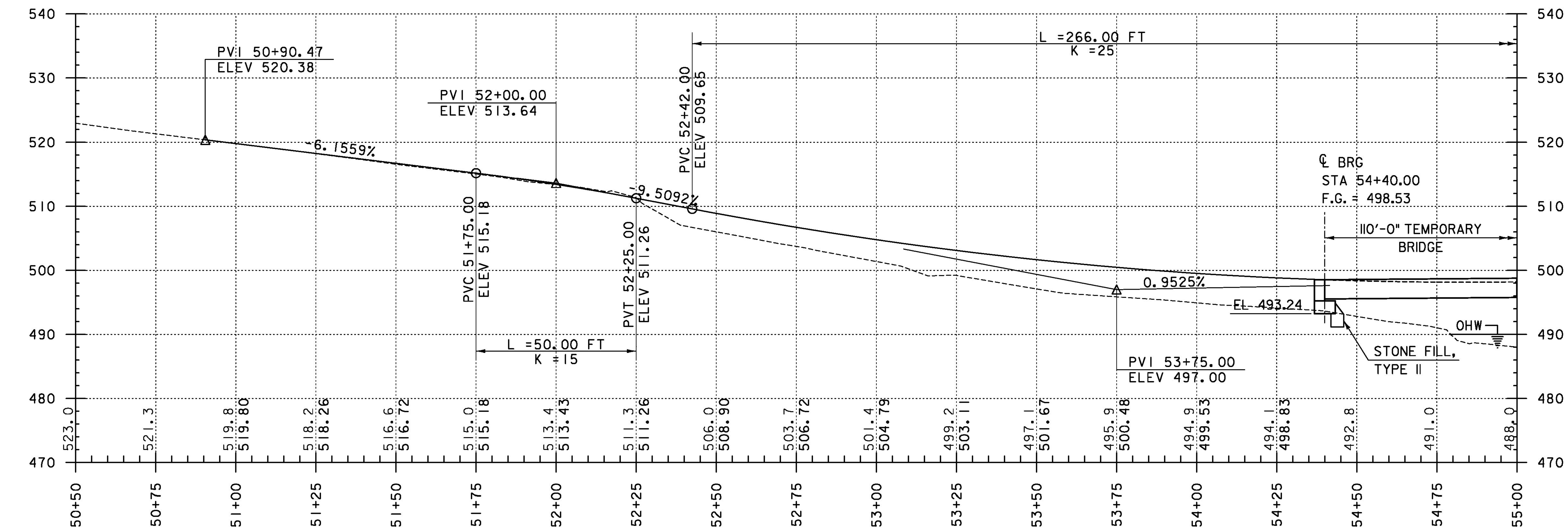
PROJECT NAME: DUXBURY	
PROJECT NUMBER: BF 013-4(47)	
FILE NAME: z16b001trdwyl.dgn	PLOT DATE: 5/23/2016
PROJECT LEADER: J. OLUND	DRAWN BY: T. KELLEY
DESIGNED BY: T. KELLEY	CHECKED BY: D. BRYANT
TEMPORARY ROADWAY LAYOUT 2	SHEET 17 OF 69

T·Y·LIN INTERNATIONAL



TEMPORARY ROADWAY BANKING DIAGRAM I

HORIZONTAL SCALE: 1"=20'
NO VERTICAL SCALE



TEMPORARY ROADWAY PROFILE I

HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1" = 10'

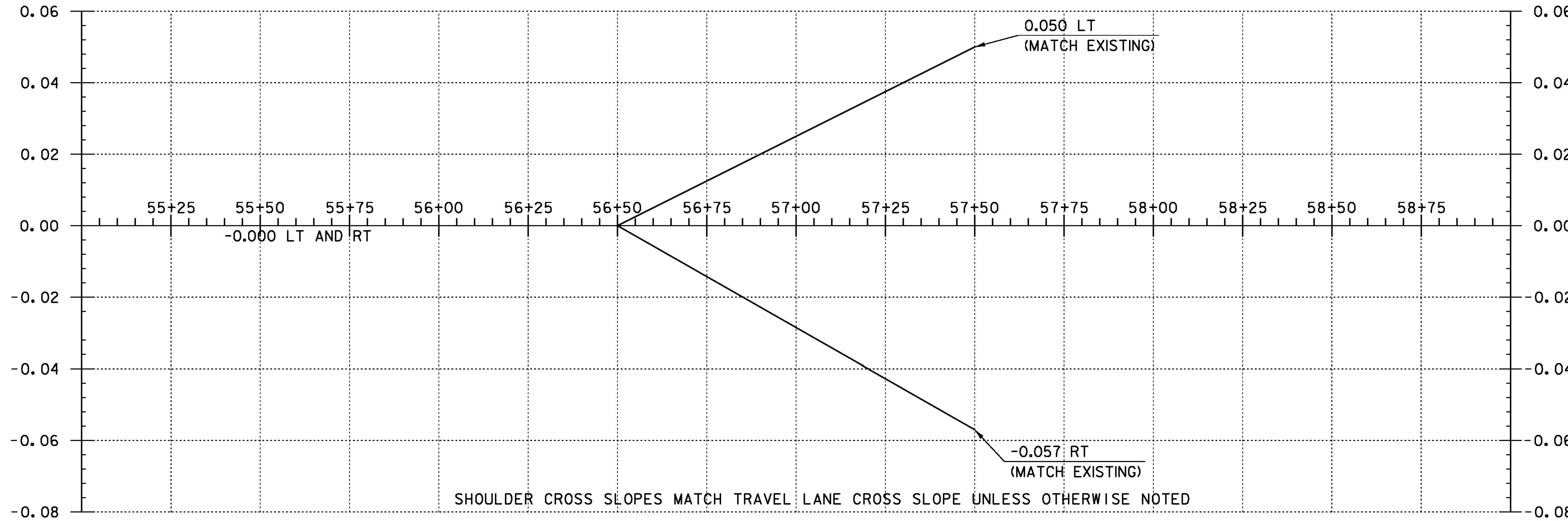
NOTE:

GRADES SHOWN TO THE NEAREST TENTH ARE EXISTING GROUND ALONG ℄.

GRADES SHOWN TO THE NEAREST HUNDREDTH ARE FINISH GRAGE ALONG ℄.

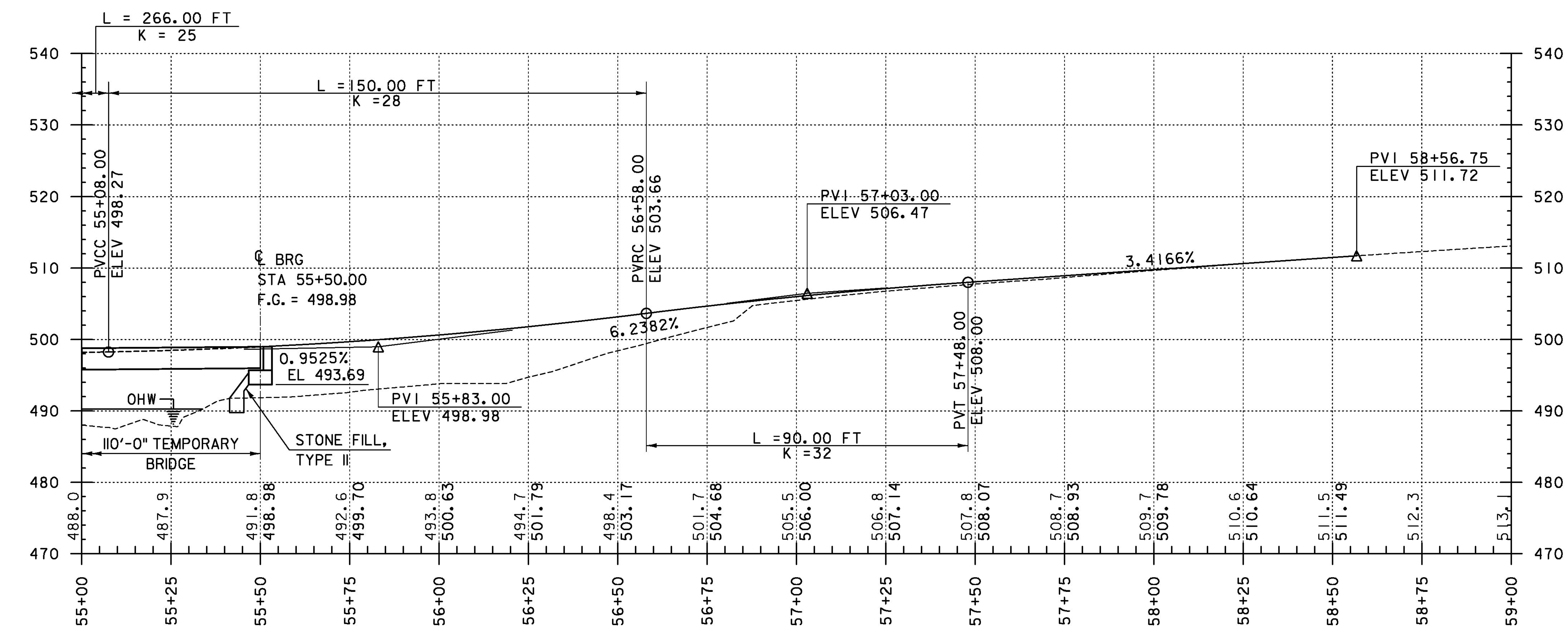
T·Y·LIN INTERNATIONAL

PROJECT NAME: DUXBURY	
PROJECT NUMBER: BF 013-4(47)	
FILE NAME: zl6b001trdwy2.dgn	PLOT DATE: 5/23/2016
PROJECT LEADER: J. OLUND	DRAWN BY: T. KELLEY
DESIGNED BY: T. KELLEY	CHECKED BY: K. DUCHARME
TEMPORARY ROADWAY PROFILE SHEET 1	SHEET 18 OF 69



TEMPORARY ROADWAY BANKING DIAGRAM 2

HORIZONTAL SCALE: 1"=20'
NO VERTICAL SCALE



TEMPORARY ROADWAY PROFILE 2

HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1" = 10'

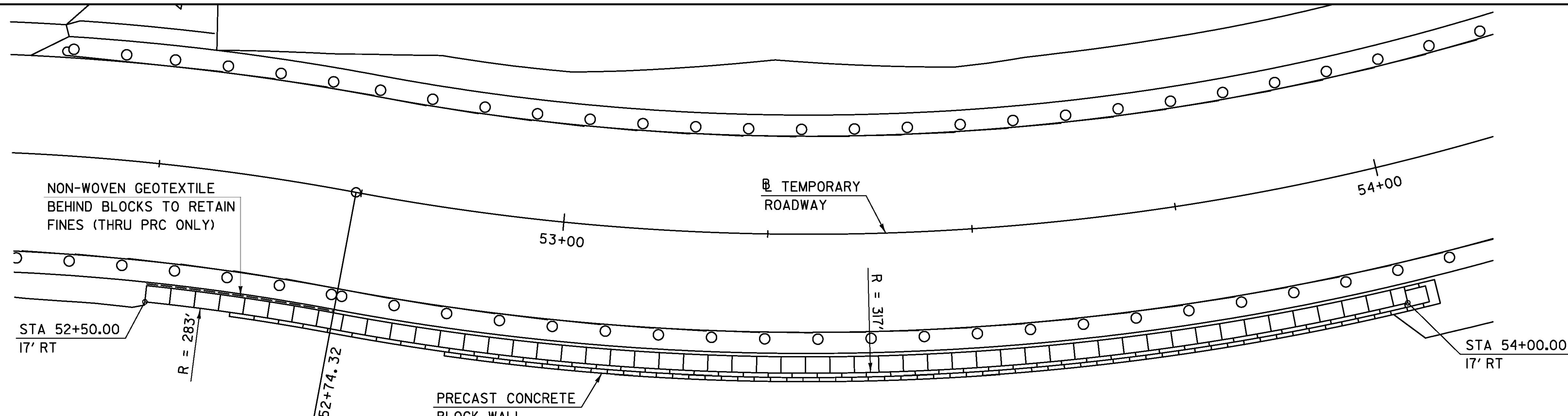
NOTE:

GRADES SHOWN TO THE NEAREST TENTH ARE EXISTING GROUND ALONG ℄.

GRADES SHOWN TO THE NEAREST HUNDREDTH ARE FINISH GRAGE ALONG ℄.

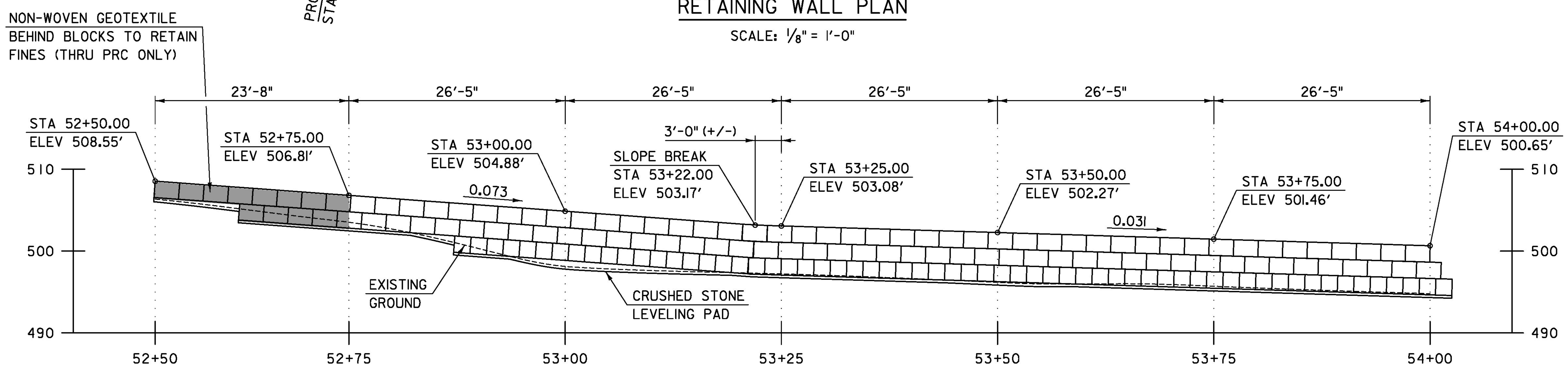
PROJECT NAME: DUXBURY	
PROJECT NUMBER: BF 013-4(47)	
FILE NAME: z16b001trdwy2.dgn	PLOT DATE: 5/23/2016
PROJECT LEADER: J. OLUND	DRAWN BY: T. KELLEY
DESIGNED BY: T. KELLEY	CHECKED BY: K. DUCHARME
TEMPORARY ROADWAY PROFILE SHEET 2	SHEET 19 OF 69

T·Y·LIN INTERNATIONAL



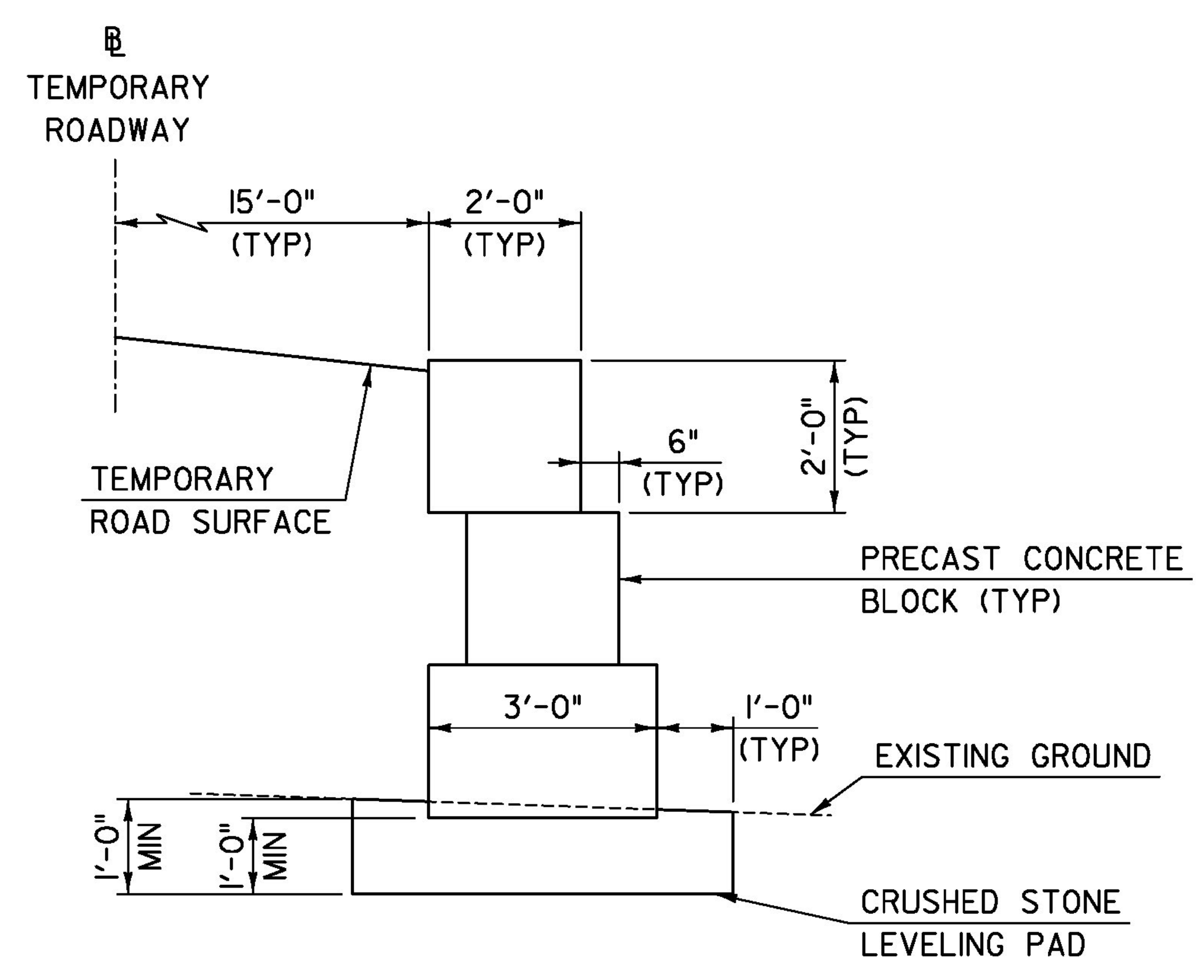
RETAINING WALL PLAN

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



RETAINING WALL ELEVATION

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



TYPICAL SECTION

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

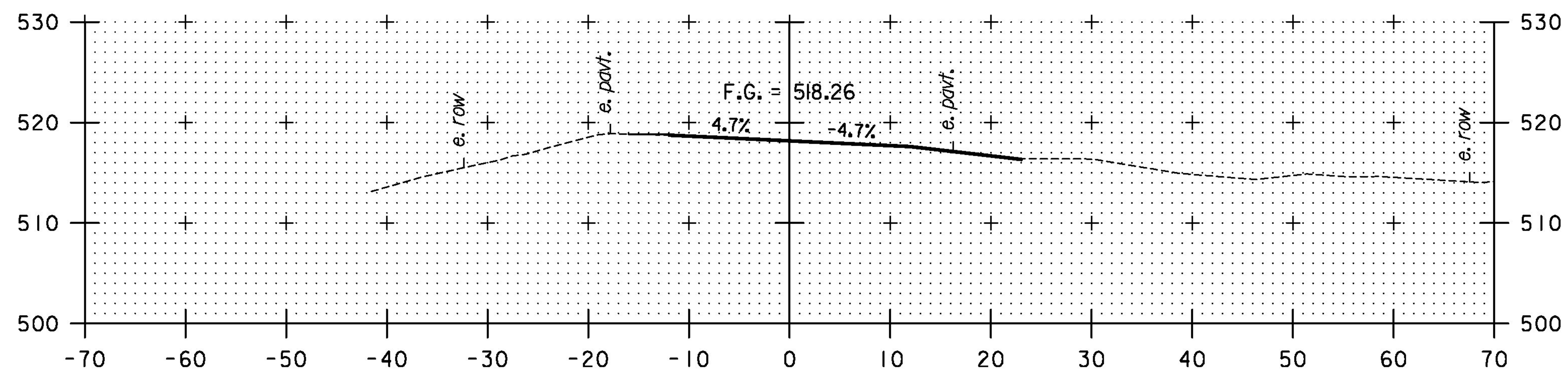
NOTES:

1. ALL DIMENSIONS ARE HORIZONTAL ALONG OUTSIDE FACE OF TOP ROW OF BLOCKS UNLESS OTHERWISE NOTED.
2. THE TEMPORARY RETAINING WALL SHALL BE COMPRISED OF CONCRETE WASTE BLOCKS, OR COMPONENTS OF SIMILAR GEOMETRY AND WEIGHT WITH APPROVAL OF THE ENGINEER. CONCRETE WASTE BLOCKS SHALL BE OF UNIFORM SHAPE AND FREE OF VISIBLE DEFECTS AND IRREGULARITIES.
3. MINOR GEOMETRIC FIELD ADJUSTMENTS TO THE PLAN AND ELEVATION LAYOUT OF INDIVIDUAL BLOCKS PROVIDED HEREIN ARE PERMITTED TO CONFORM TO THE NECESSARY RADIUS AND LONGITUDINAL SLOPE OF THE WALL.
4. ALTERNATE TEMPORARY RETAINING WALL DESIGNS MAY BE SUBMITTED TO THE ENGINEER FOR APPROVAL. CONSTRUCTION DRAWINGS AND CALCULATIONS SHALL BE SUBMITTED IN ACCORDANCE WITH SUBSECTION 105.03. PAYMENT WILL BE INCIDENTAL TO ITEM 528.11, "TWO-WAY TEMPORARY BRIDGE."

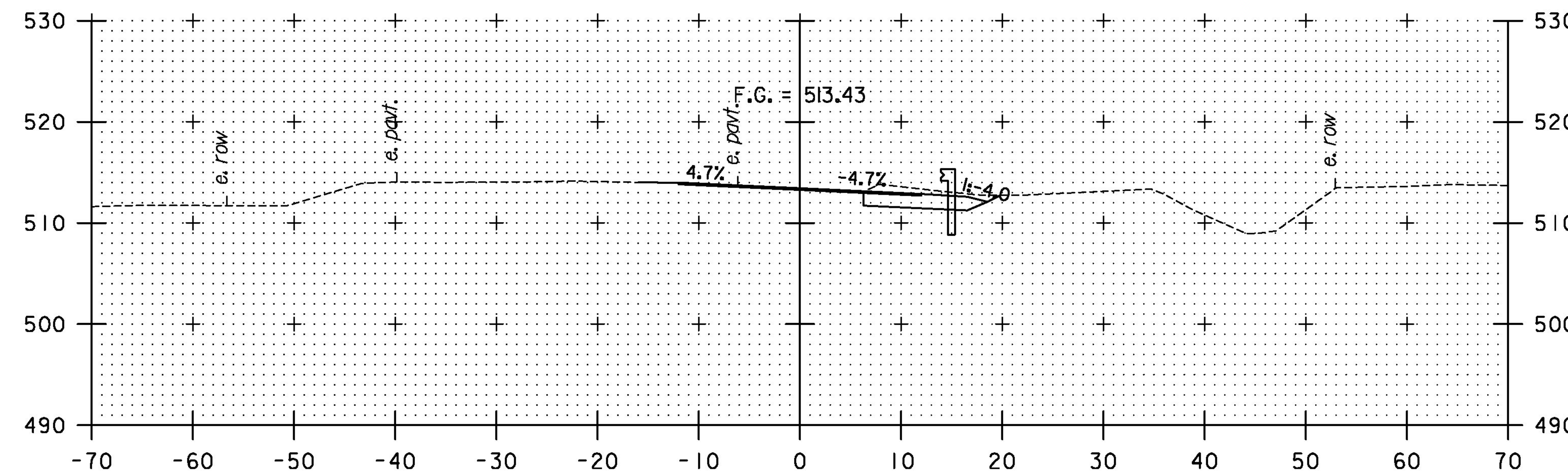
PROJECT NAME: DUXBURY
PROJECT NUMBER: BF 013-4(47)

T·Y·LIN INTERNATIONAL

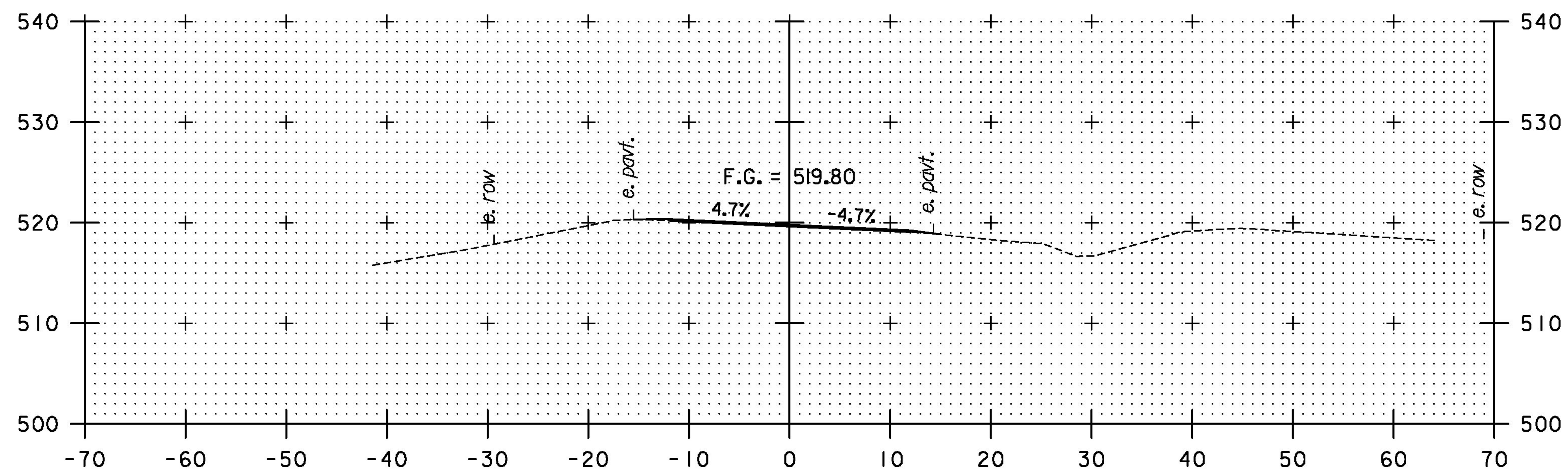
FILE NAME: z16b001retwall.dgn	PLOT DATE: 5/23/2016
PROJECT LEADER: J. OLUND	DRAWN BY: S. MORGAN
DESIGNED BY: B. TOOTHAKER	CHECKED BY: J. OLUND
TEMPORARY RETAINING WALL	SHEET 20 OF 69



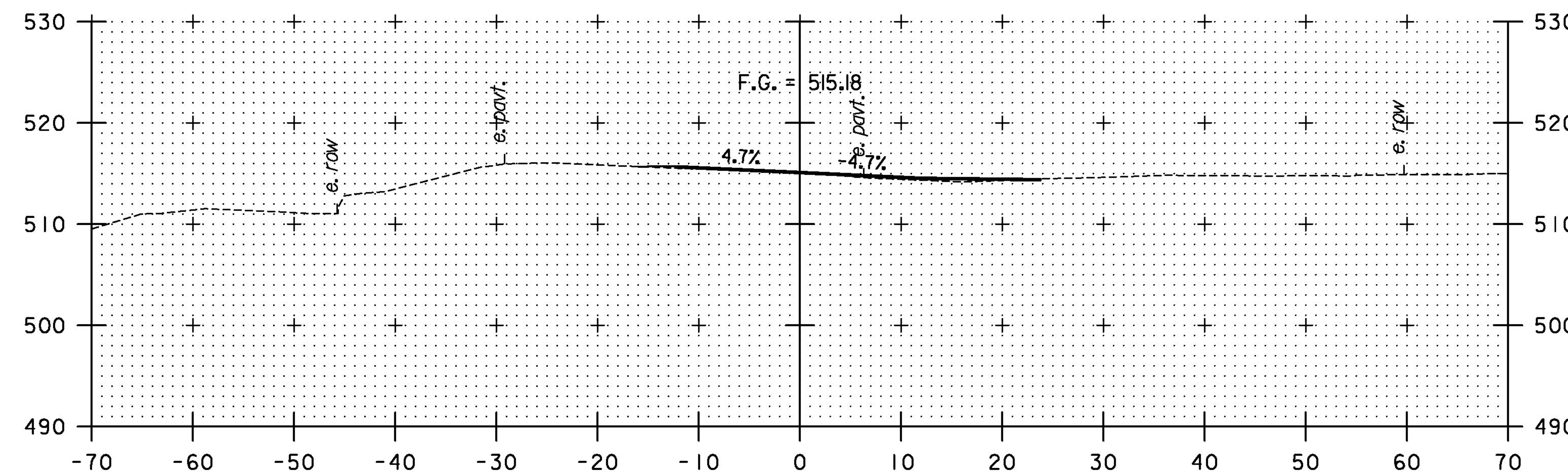
51+25



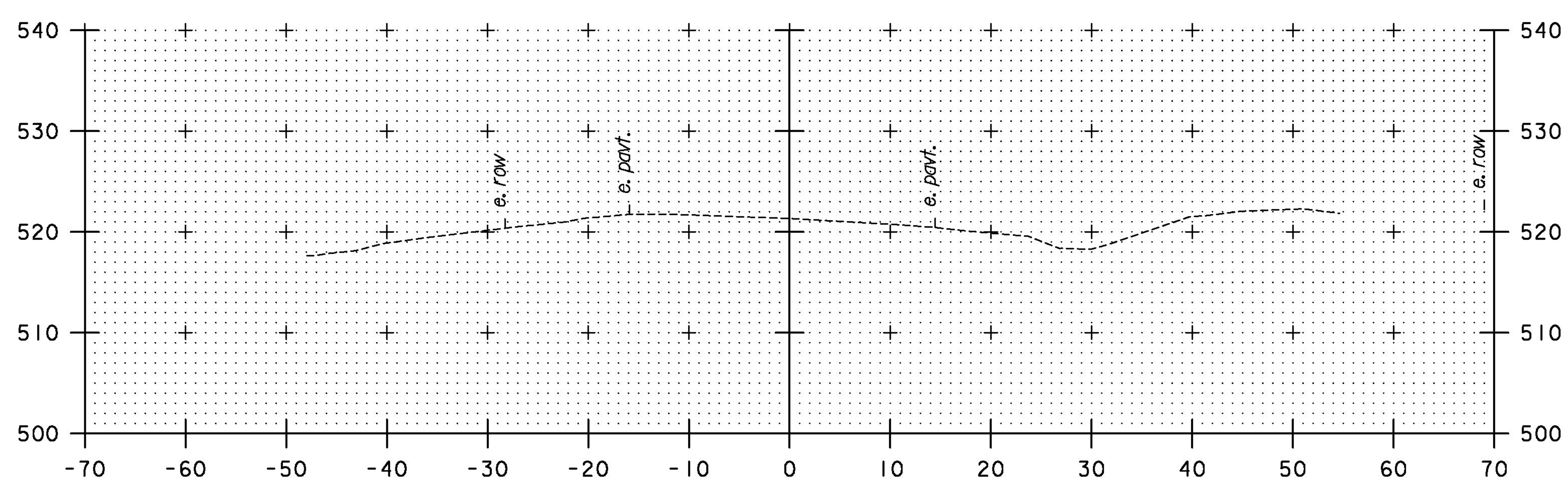
52+00



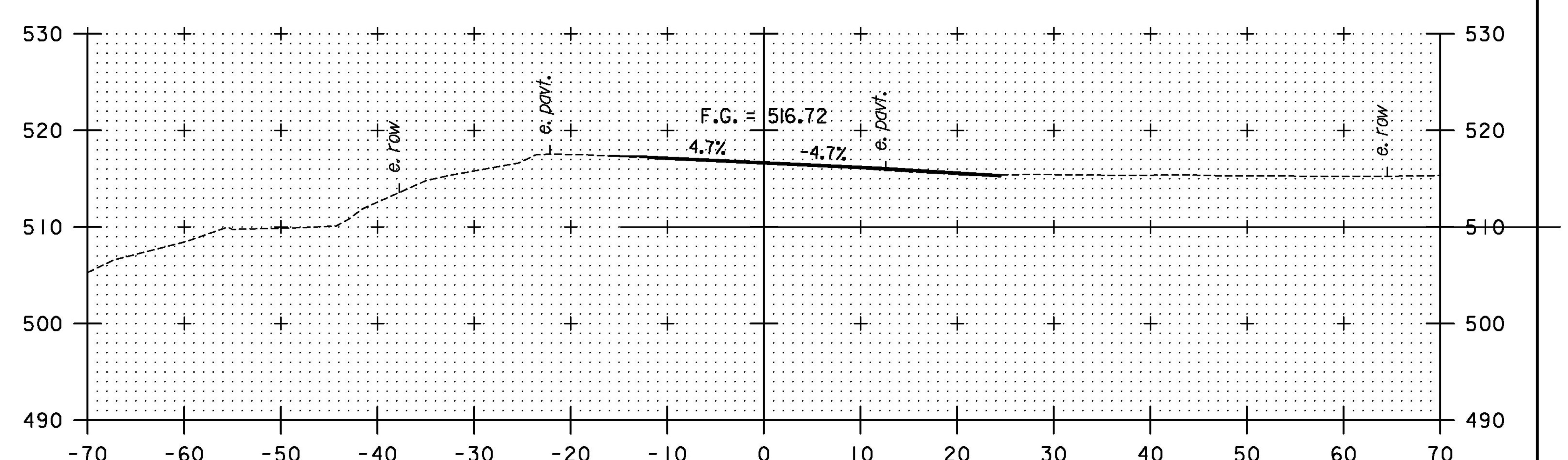
51+00



51+75



50+75

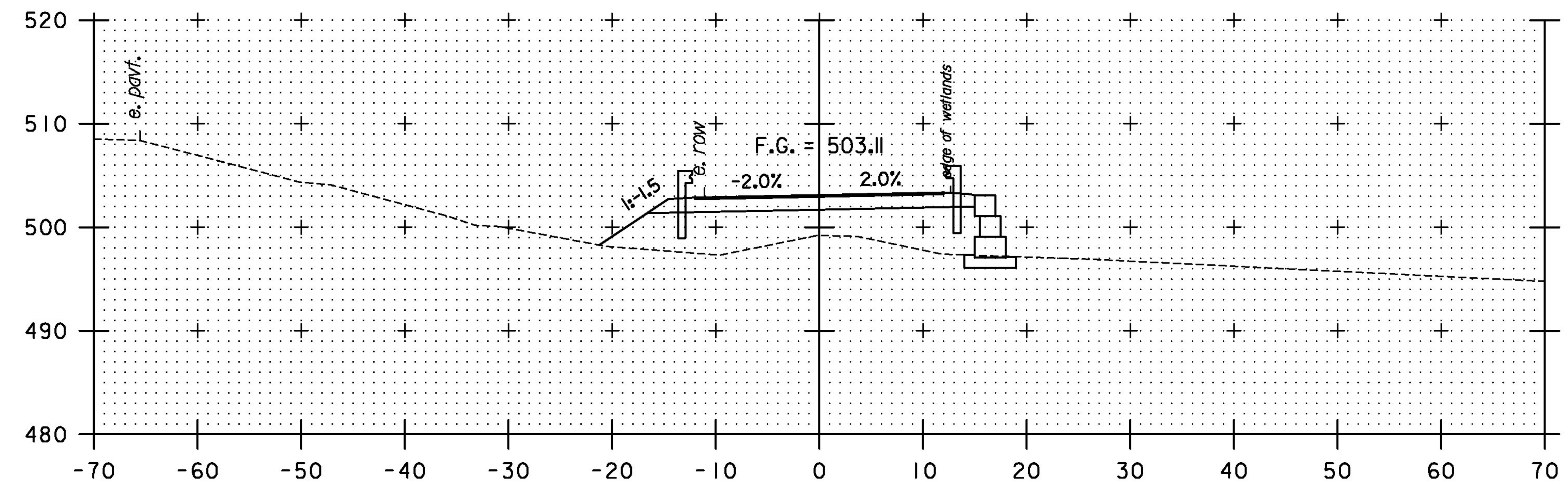


51+50

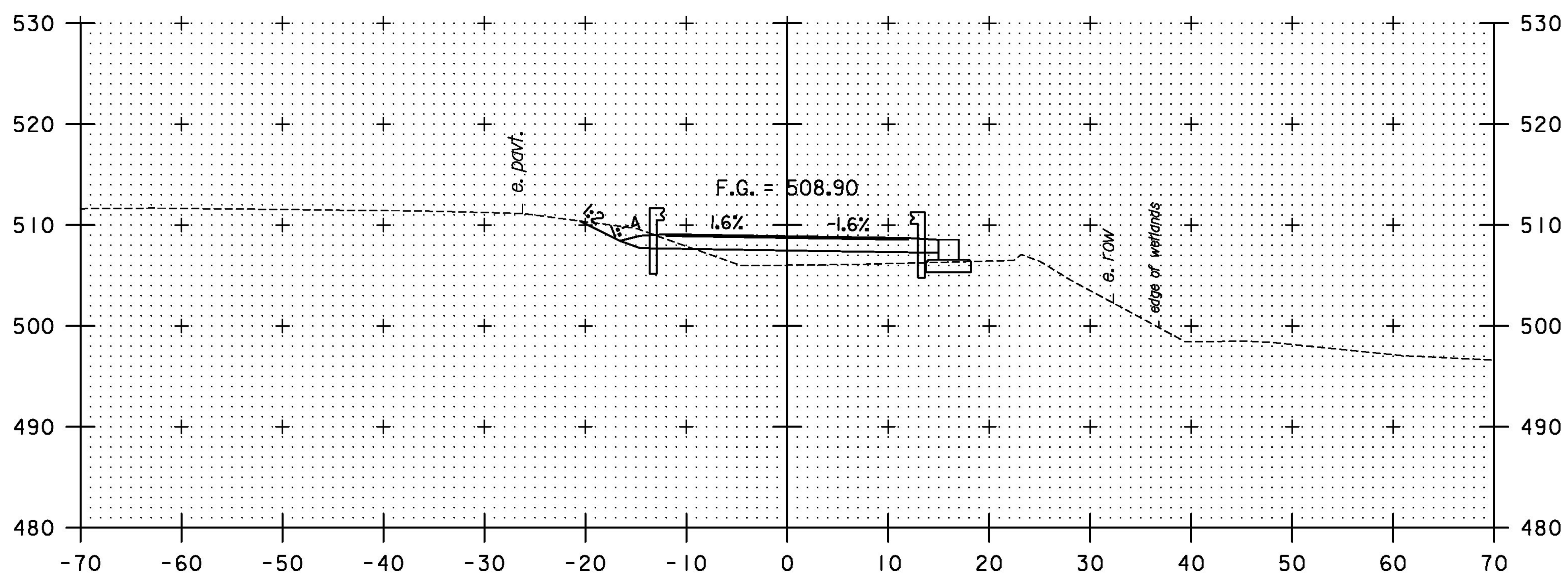
STA. 50+75 TO STA. 52+00

T·Y·LIN INTERNATIONAL

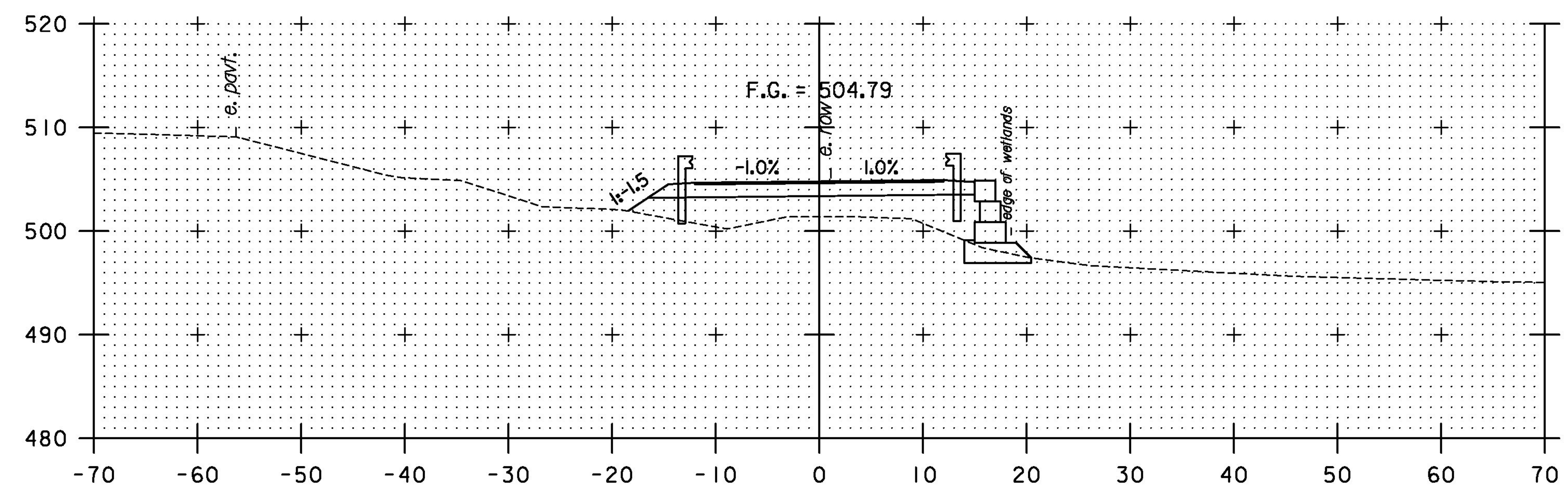
PROJECT NAME: DUXBURY	
PROJECT NUMBER: BF 013-4(47)	
FILE NAME: z16b001trdwy_xs.dgn	PLOT DATE: 5/23/2016
PROJECT LEADER: J. OLUND	DRAWN BY: T. KELLEY
DESIGNED BY: T. KELLEY	CHECKED BY: J. HOWE
TEMPORARY ROADWAY CROSS SECTIONS I	SHEET 21 OF 69



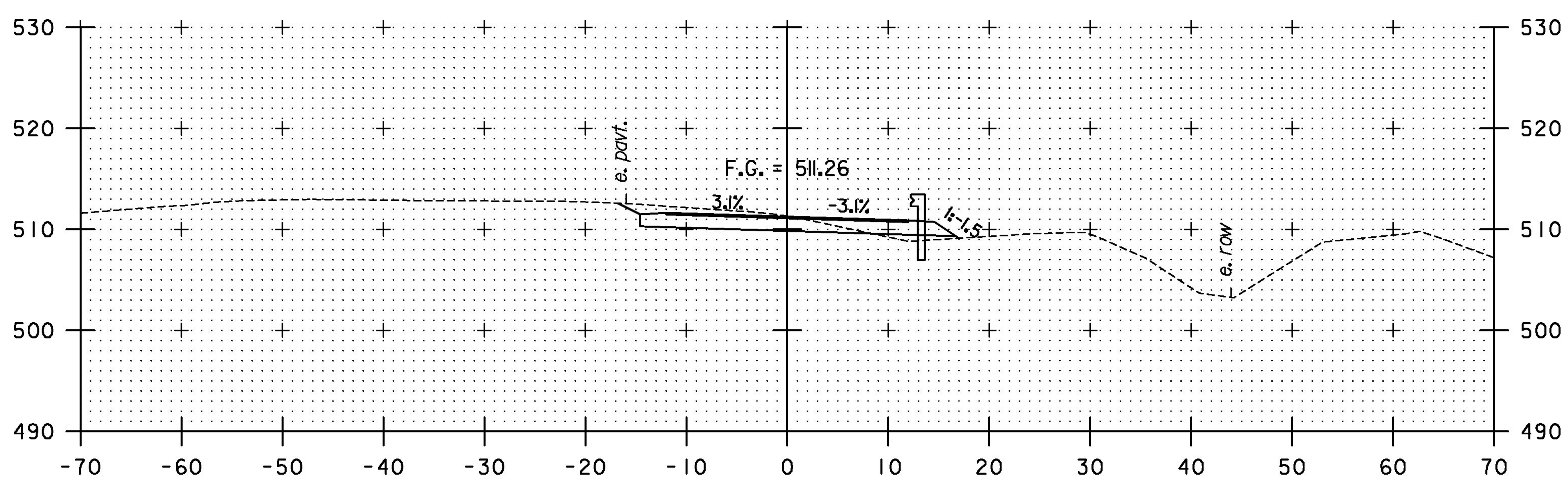
53+25



52+50



53+00



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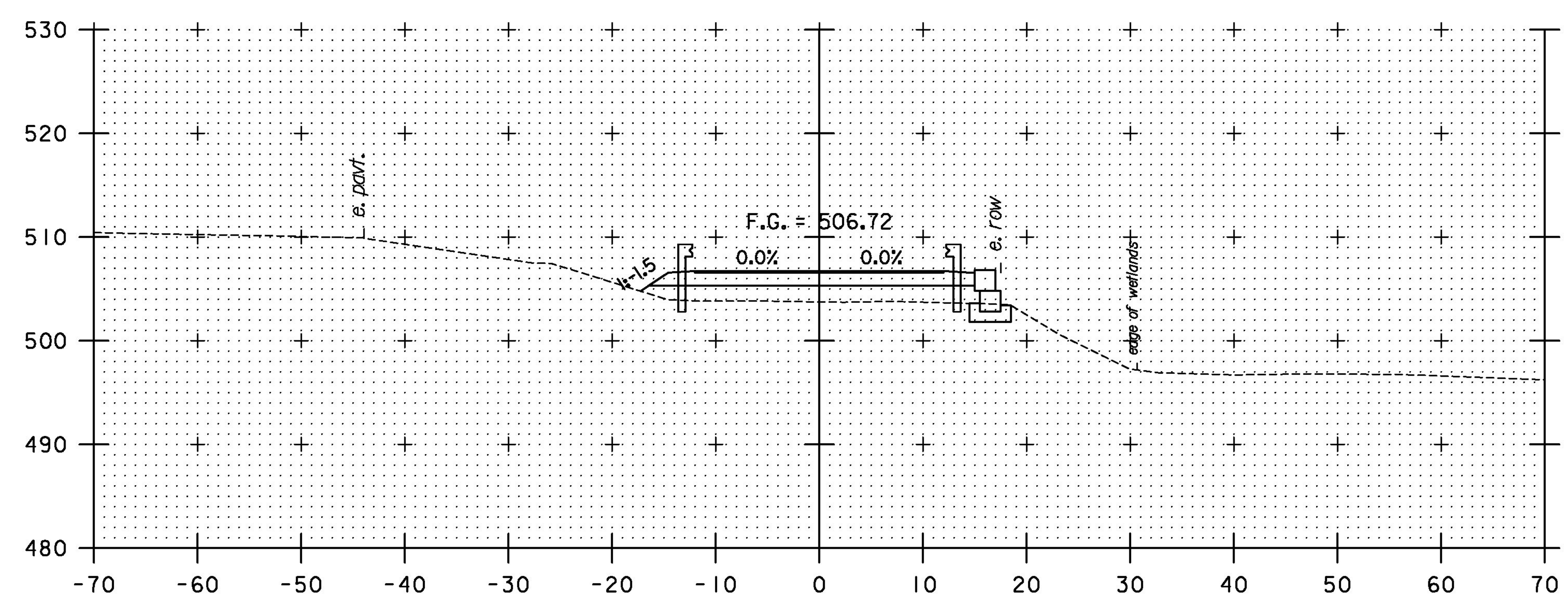
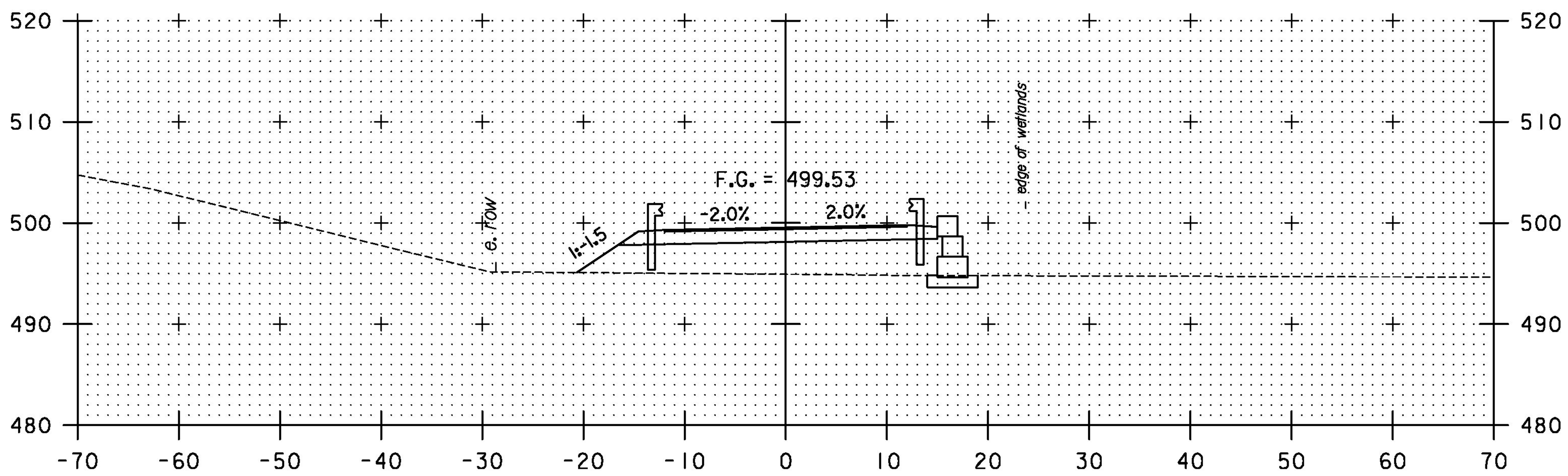


52+75

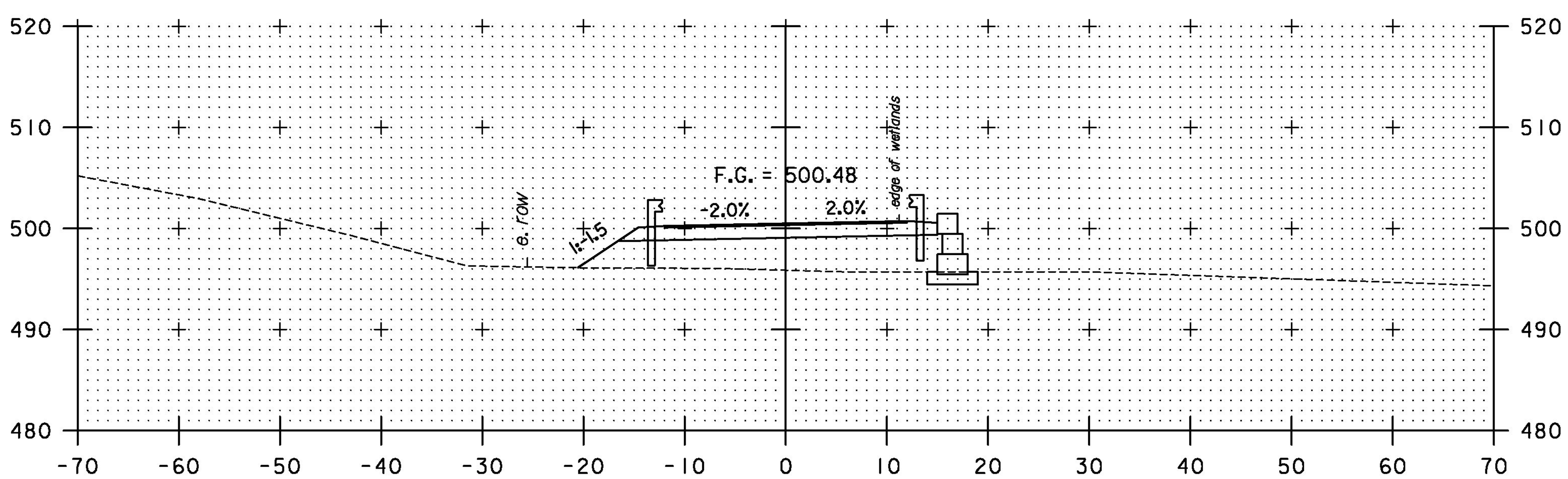
STA. 52+25 TO STA. 53+25

T·Y·LIN INTERNATIONAL

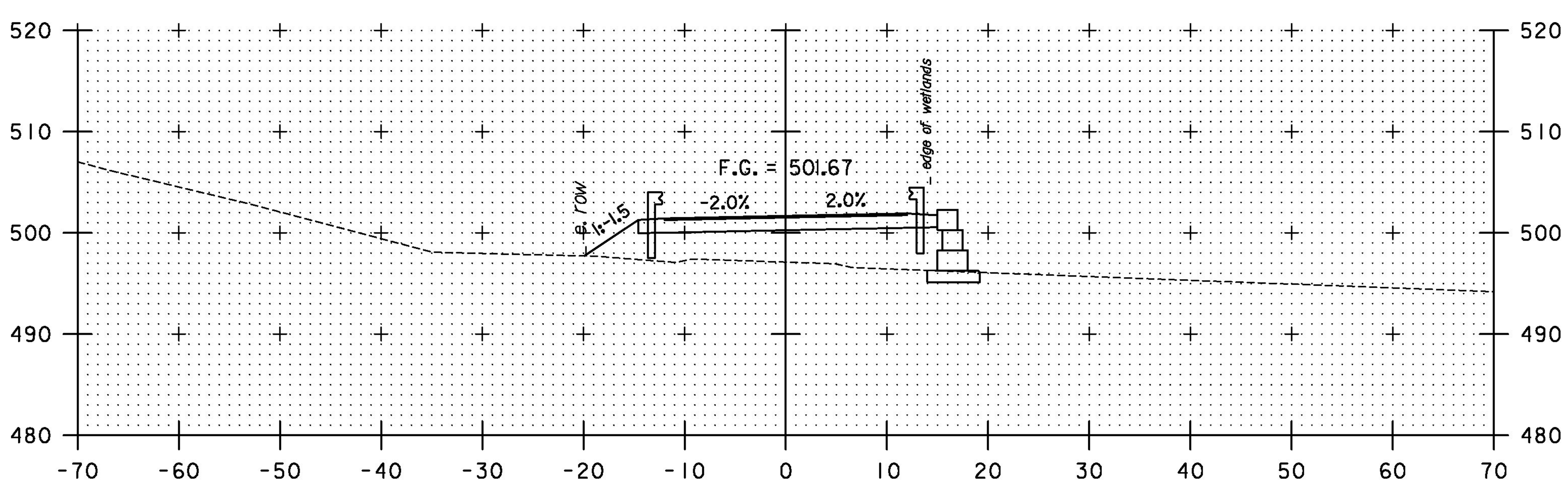
PROJECT NAME: DUXBURY	
PROJECT NUMBER: BF 013-4(47)	
FILE NAME: z16b001trdwy_xs.dgn	PLOT DATE: 5/23/2016
PROJECT LEADER: J. OLUND	DRAWN BY: T. KELLEY
DESIGNED BY: T. KELLEY	CHECKED BY: J. HOWE
TEMPORARY ROADWAY CROSS SECTIONS 2	SHEET 22 OF 69



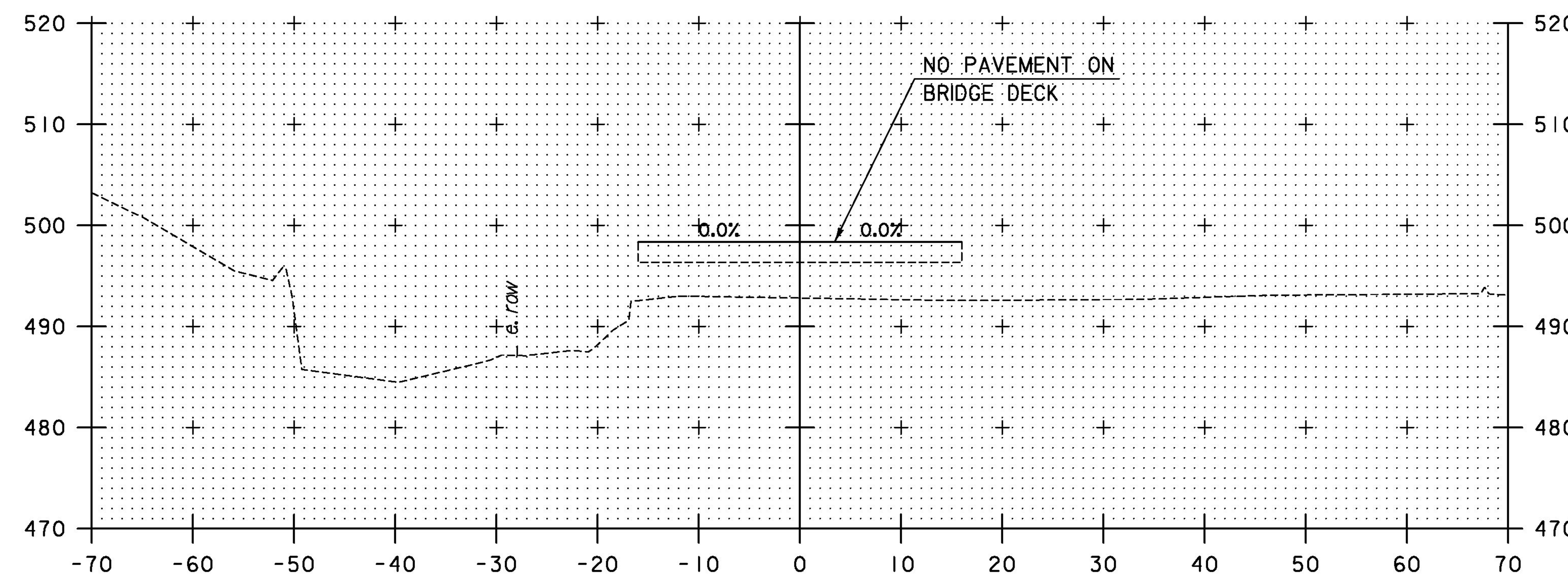
54+00



53+75

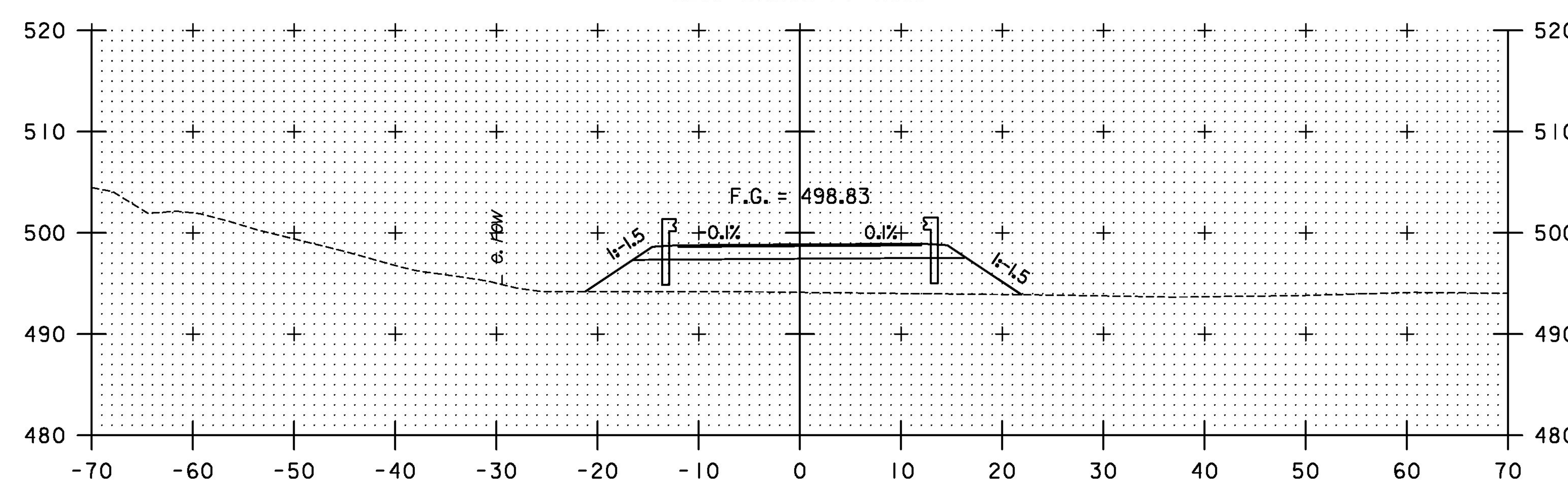


53+50



54+50

BEGIN BRIDGE 54+40.00



54+25

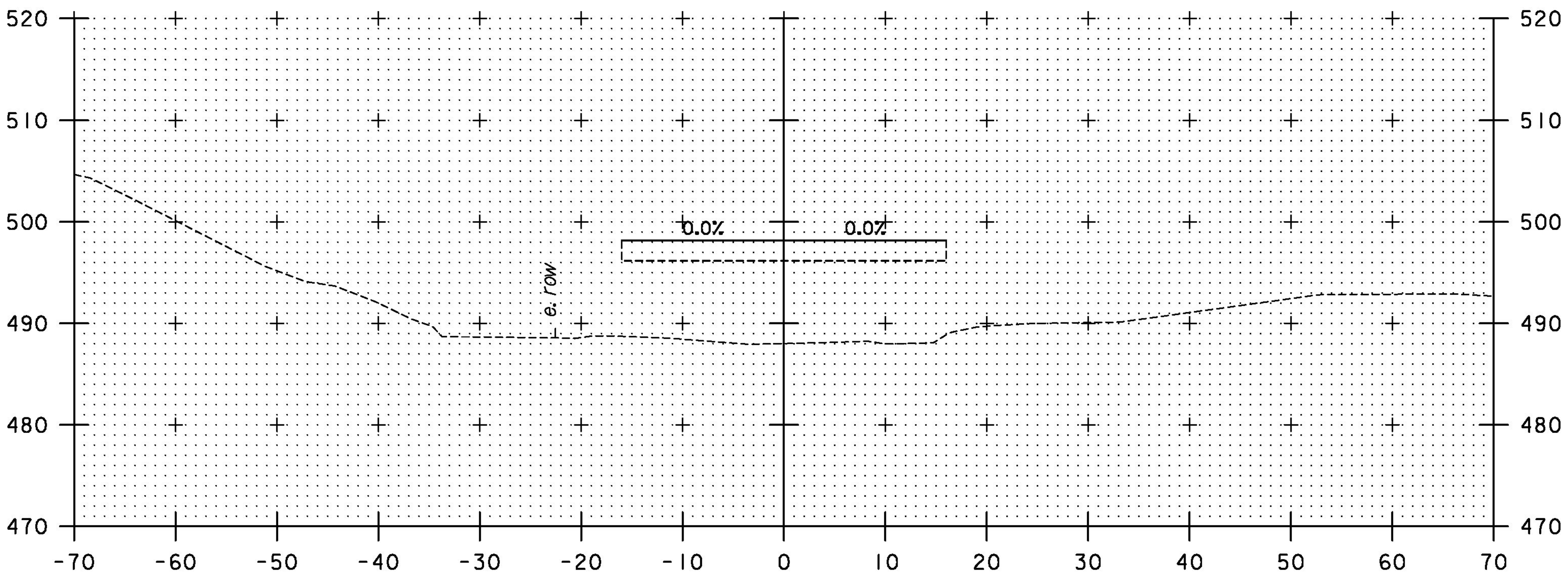
STA. 53+50 TO STA. 54+50

T·Y·LIN INTERNATIONAL

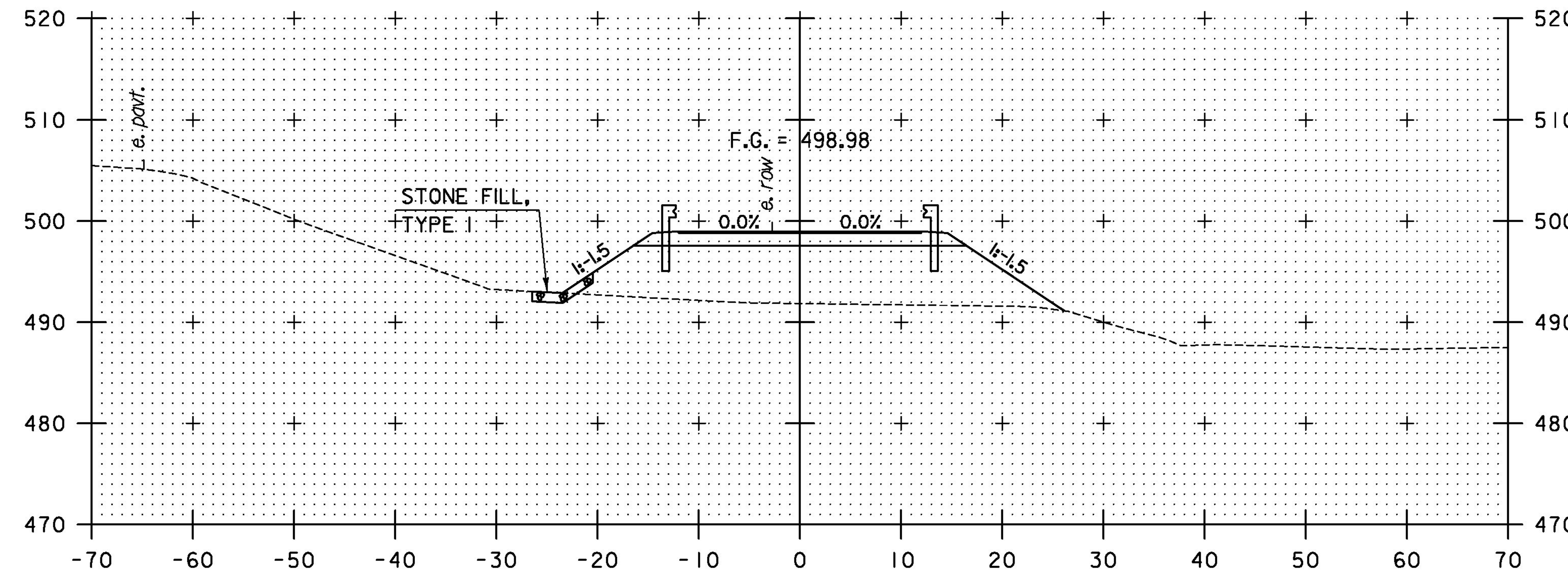
PROJECT NAME: DUXBURY
PROJECT NUMBER: BF 013-4(47)

FILE NAME: zl6b001trdwy_xs.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: T. KELLEY
TEMPORARY ROADWAY CROSS SECTIONS 3

PLOT DATE: 5/23/2016
DRAWN BY: T. KELLEY
CHECKED BY: J. HOWE
SHEET 23 OF 69

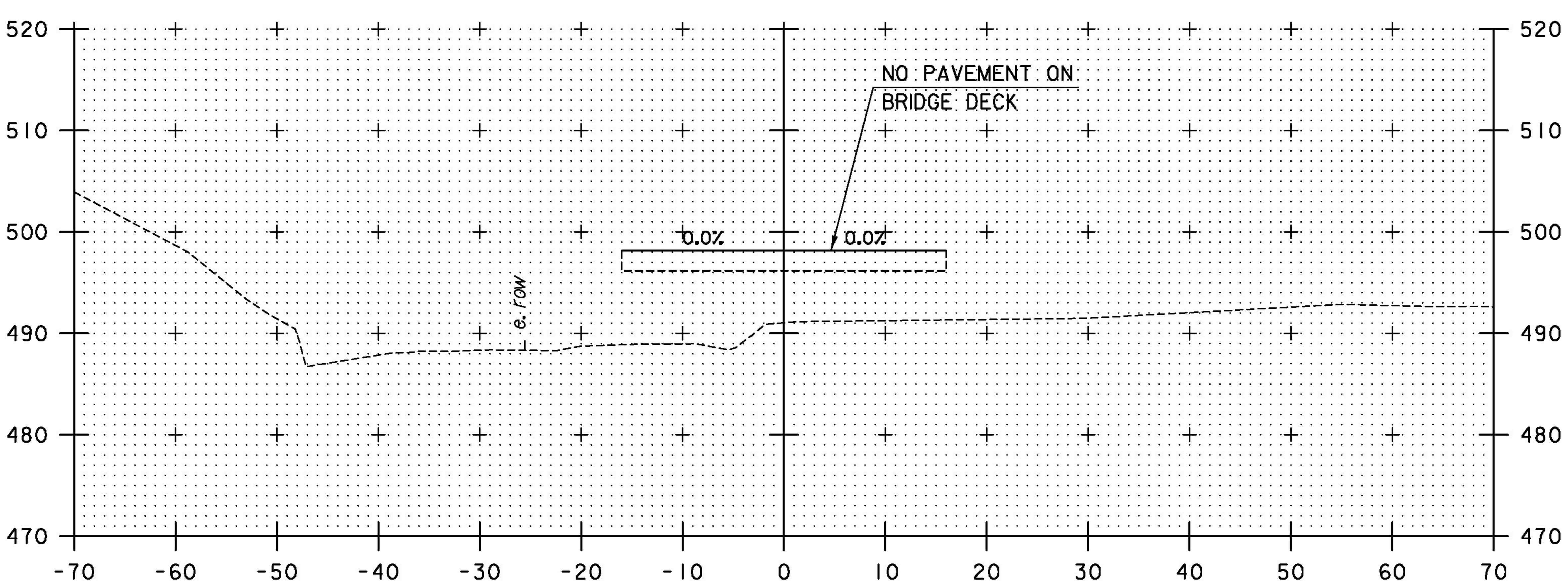


55+00

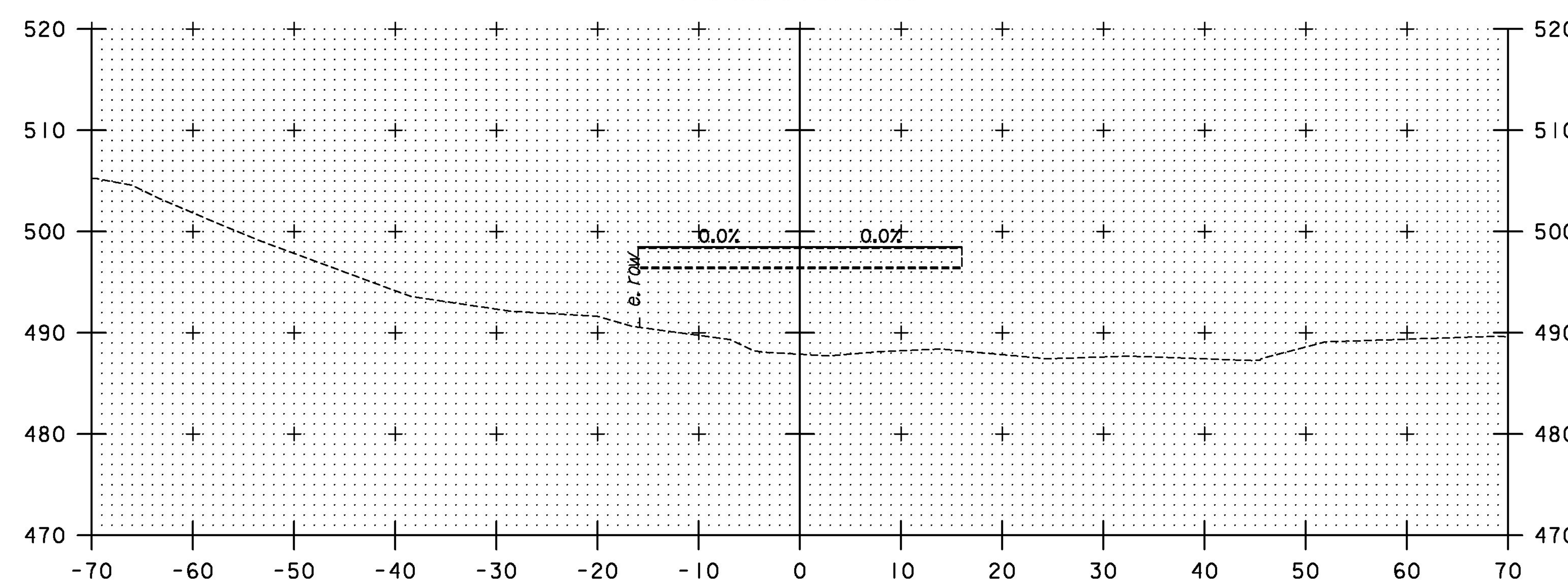


55+50

END BRIDGE 55+50.00



54+75

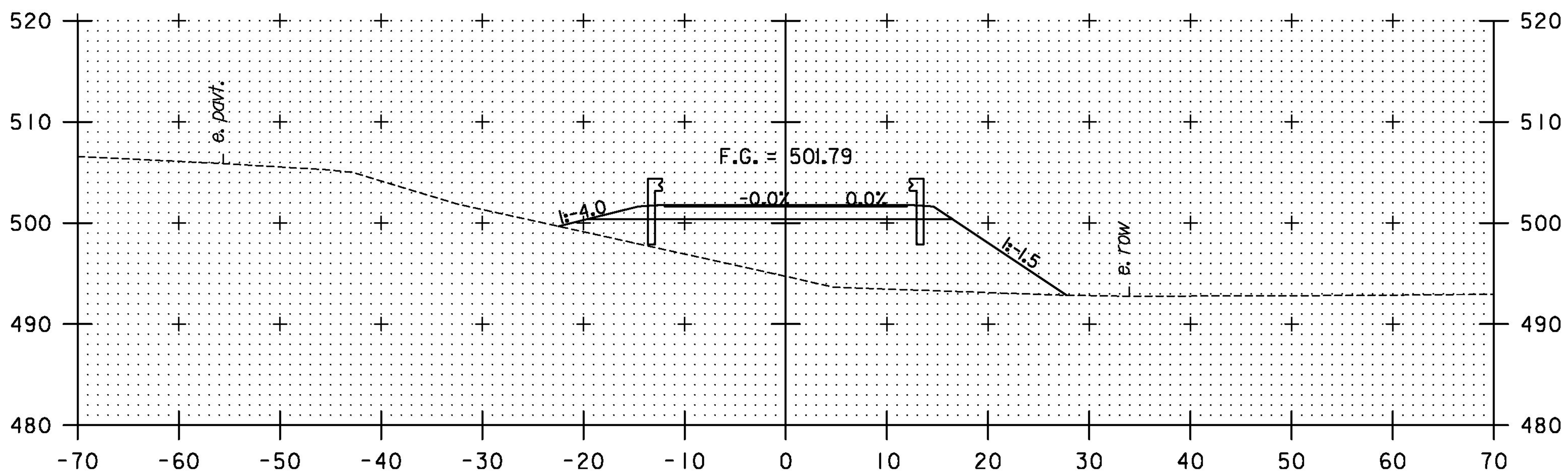


55+25

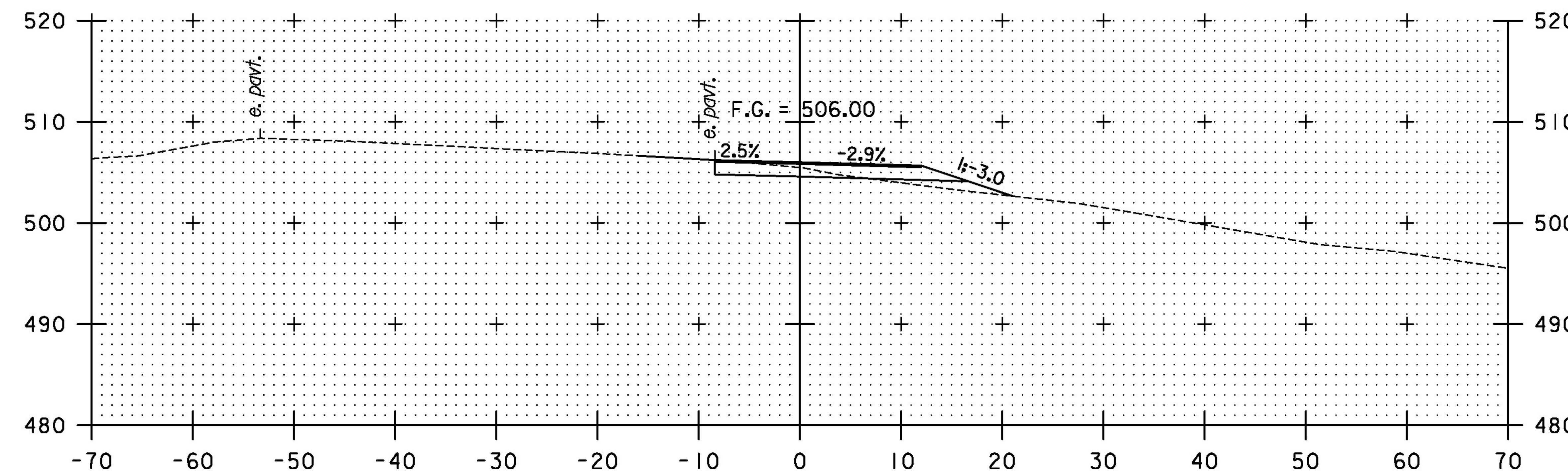
STA. 54+75 TO STA. 55+50

PROJECT NAME: DUXBURY	
PROJECT NUMBER: BF 013-4(47)	
FILE NAME: zl6b001trdwy_xs.dgn	PLOT DATE: 5/23/2016
PROJECT LEADER: J. OLUND	DRAWN BY: T. KELLEY
DESIGNED BY: T. KELLEY	CHECKED BY: J. HOWE
TEMPORARY ROADWAY CROSS SECTIONS 4	SHEET 24 OF 69

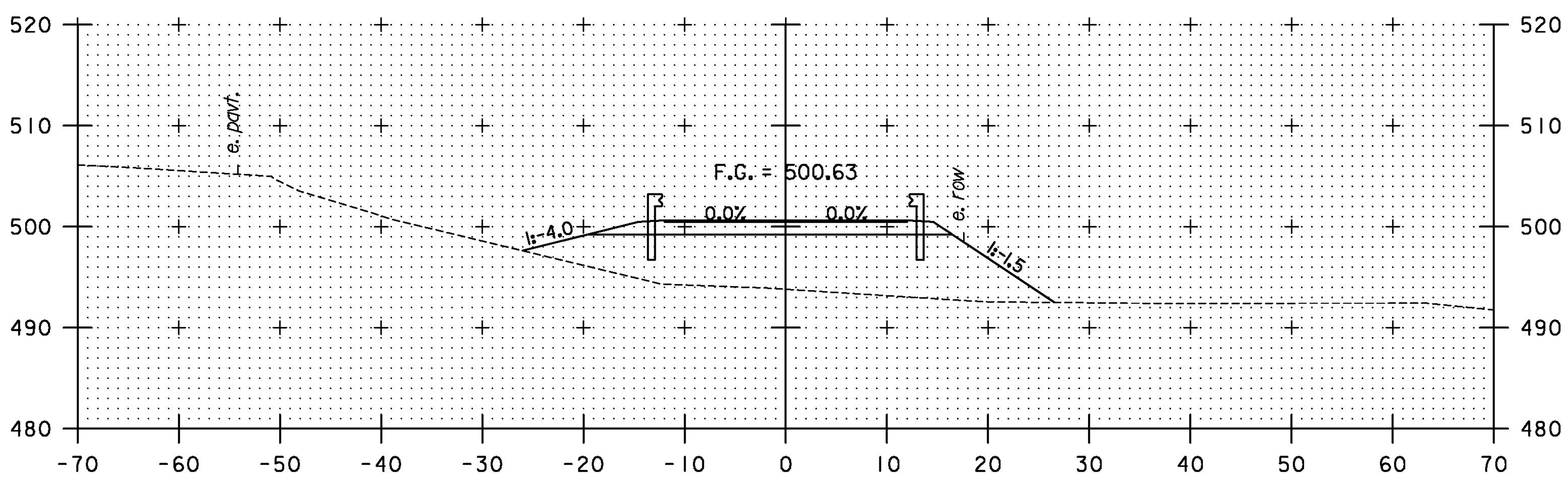
T·Y·LIN INTERNATIONAL



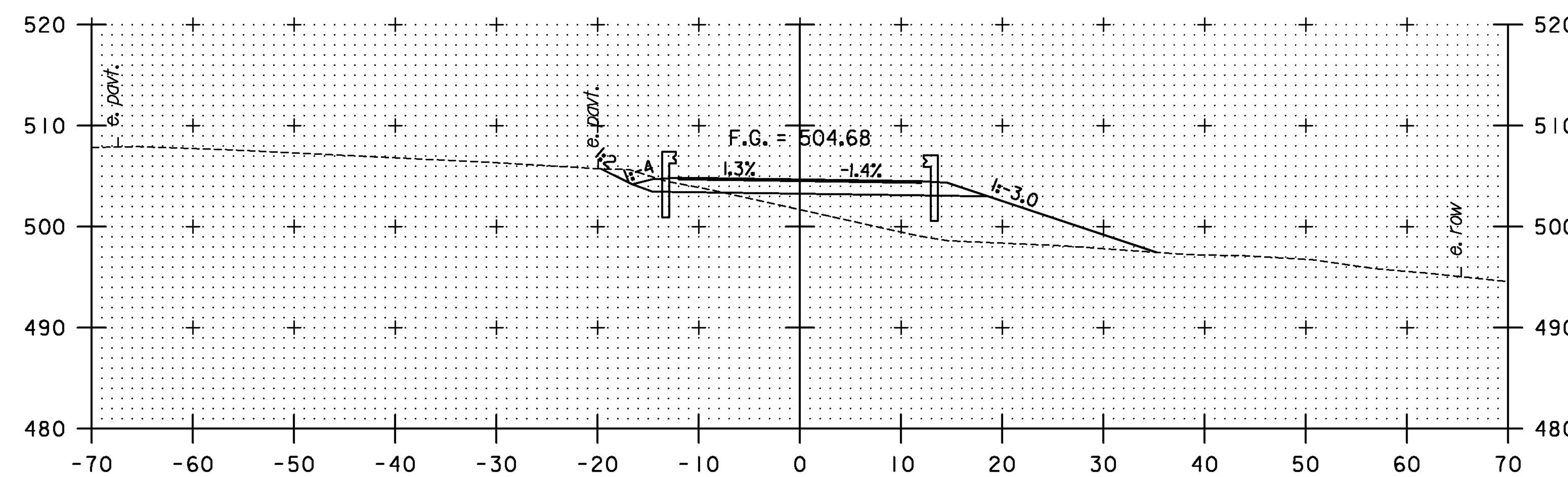
56+25



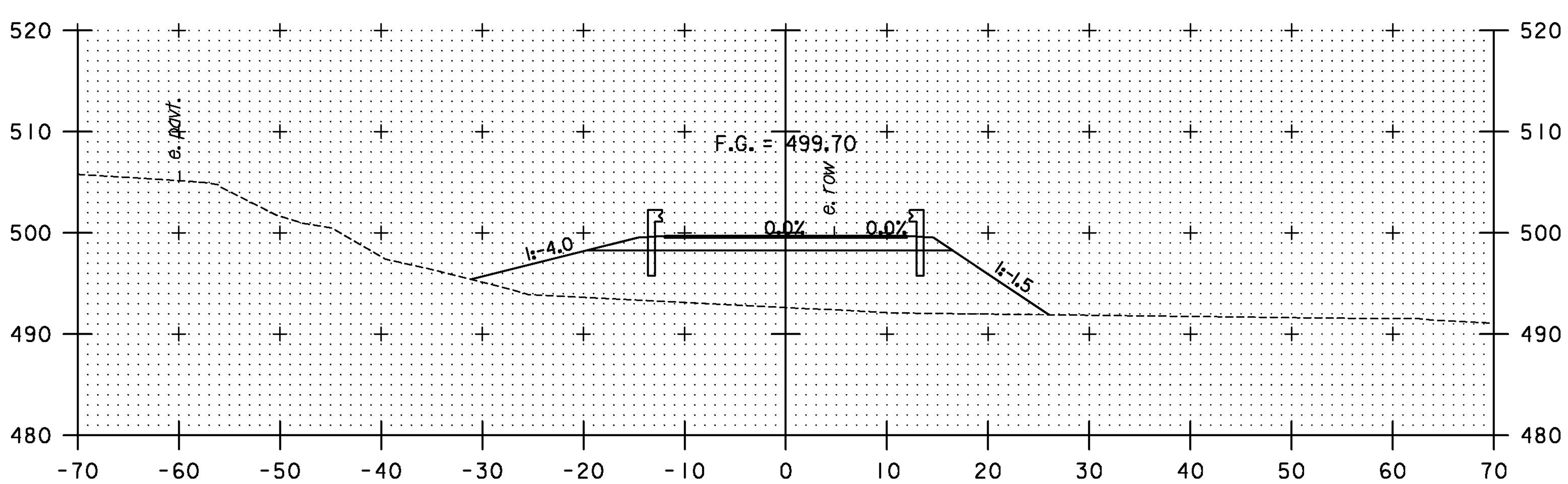
57+00



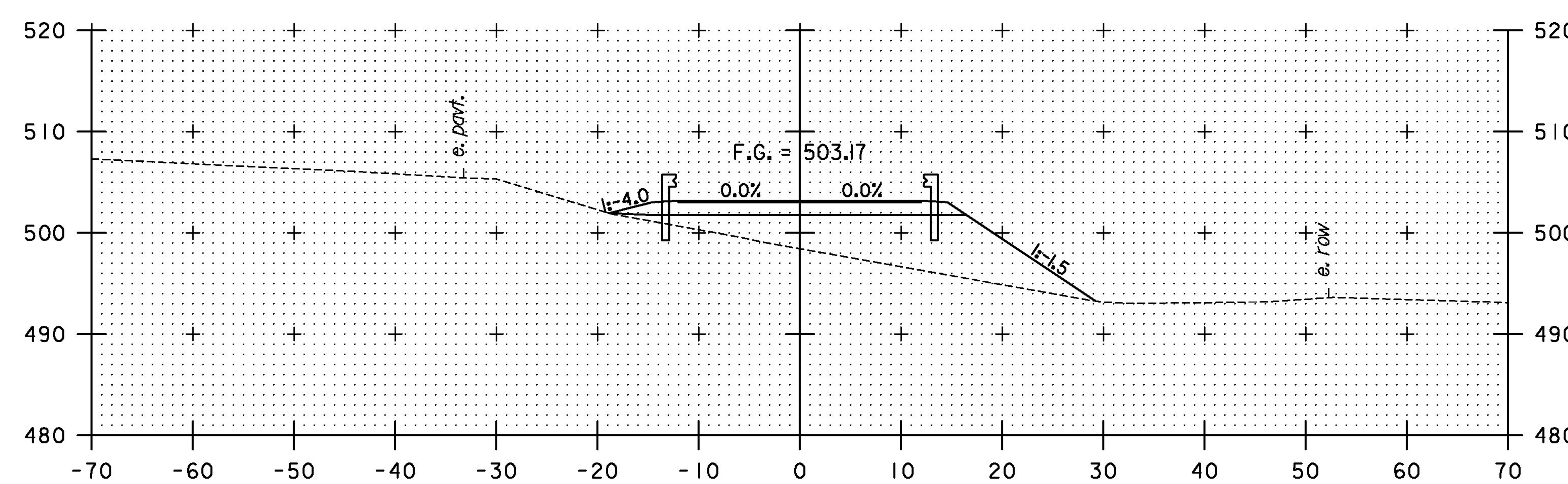
56+00



56+75



55+75



56+50

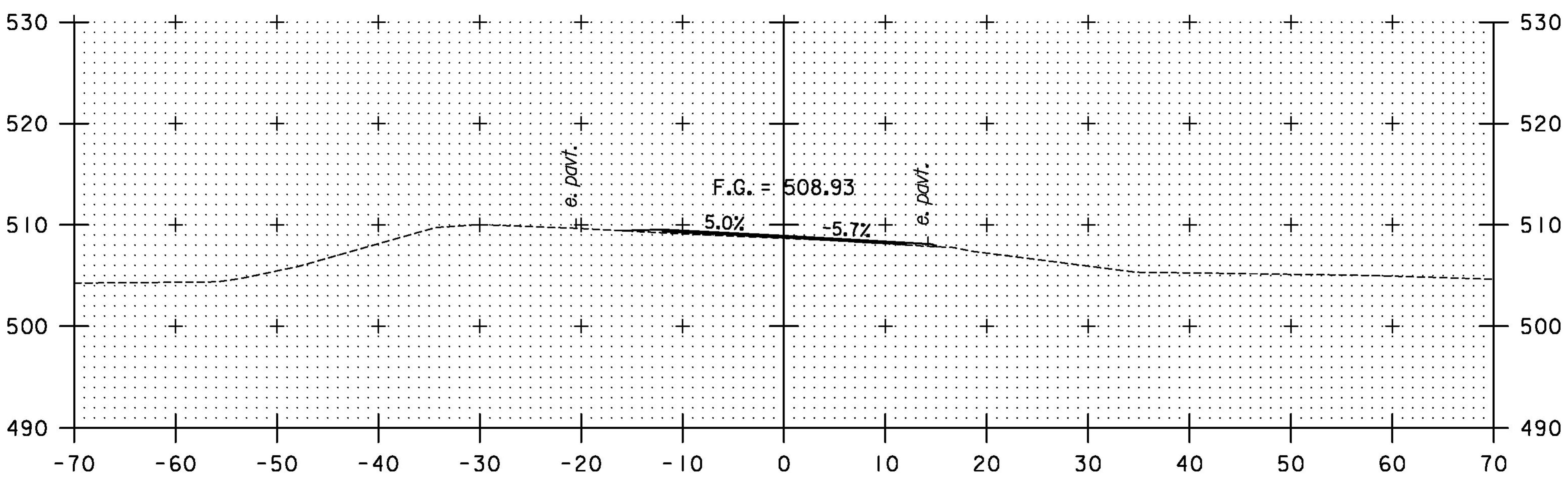
STA. 55+75 TO STA. 57+00

T·Y·LIN INTERNATIONAL

PROJECT NAME: DUXBURY
PROJECT NUMBER: BF 013-4(47)

FILE NAME: z16b001trdwy_xs.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: T. KELLEY
TEMPORARY ROADWAY CROSS SECTIONS 5

PLOT DATE: 5/23/2016
DRAWN BY: T. KELLEY
CHECKED BY: J. HOWE
SHEET 25 OF 69



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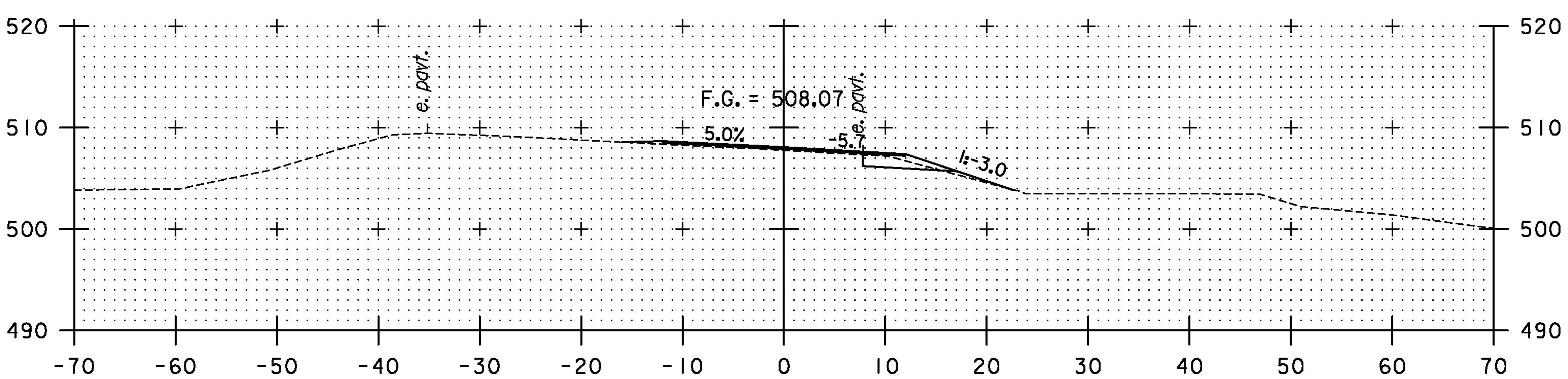
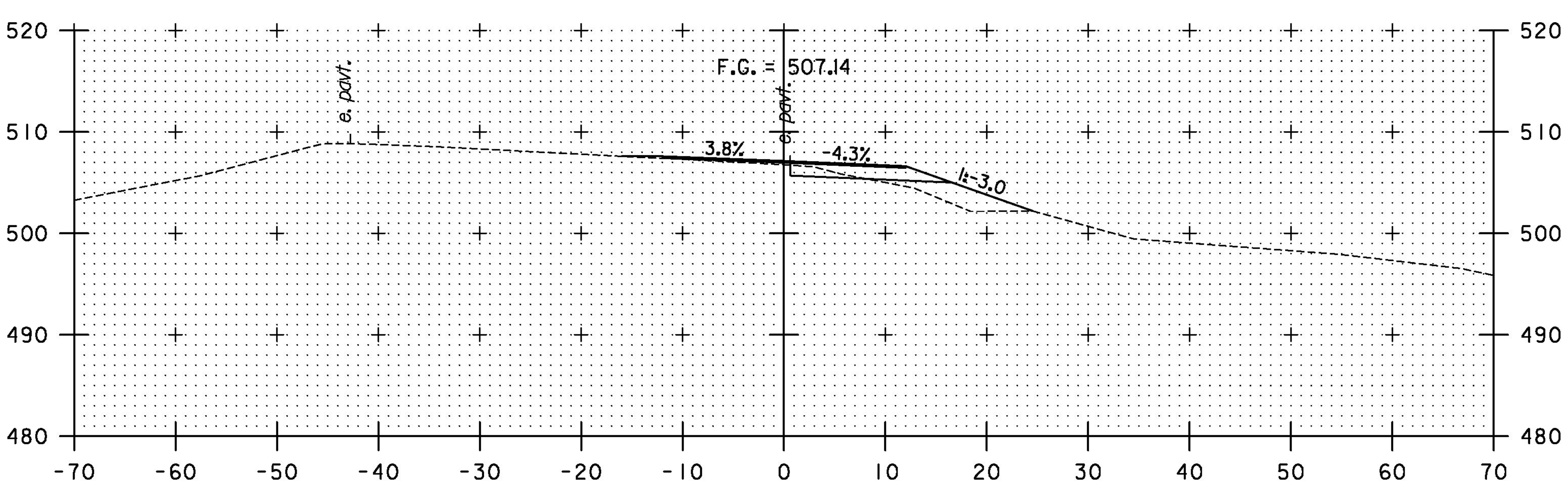
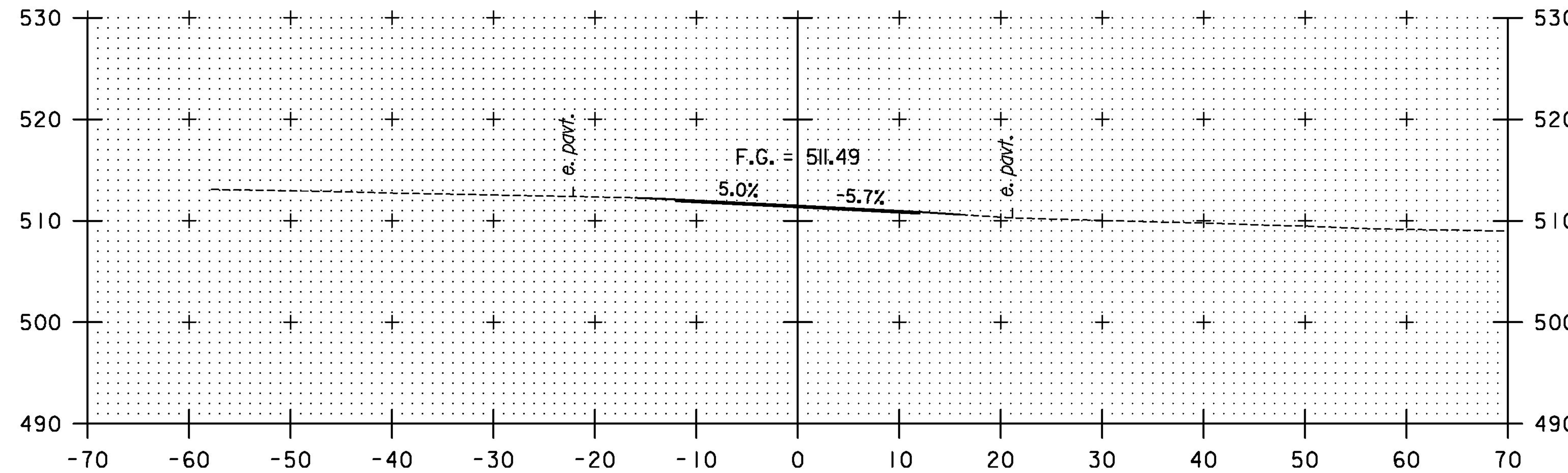


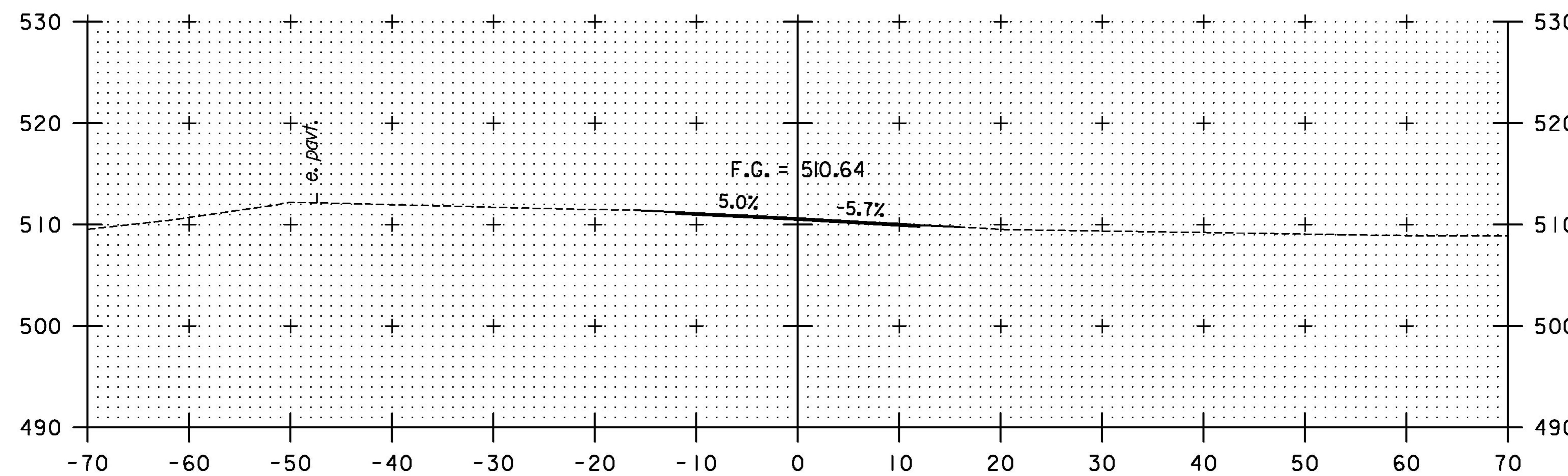
57+50



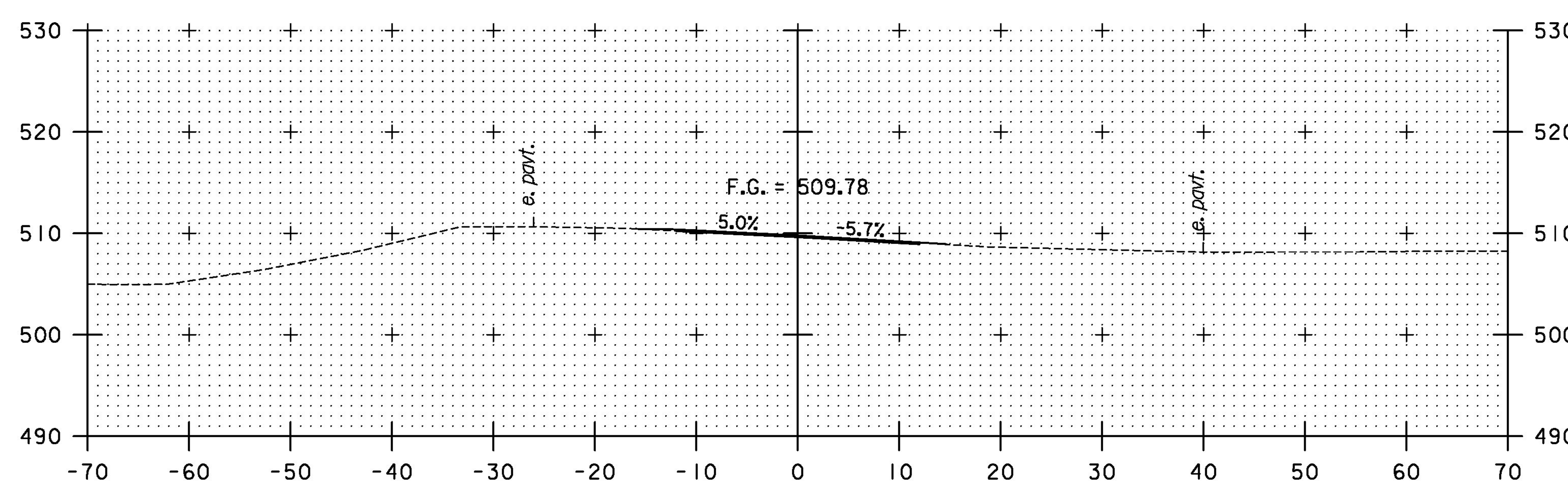
57+25



58+50



58+25



58+00

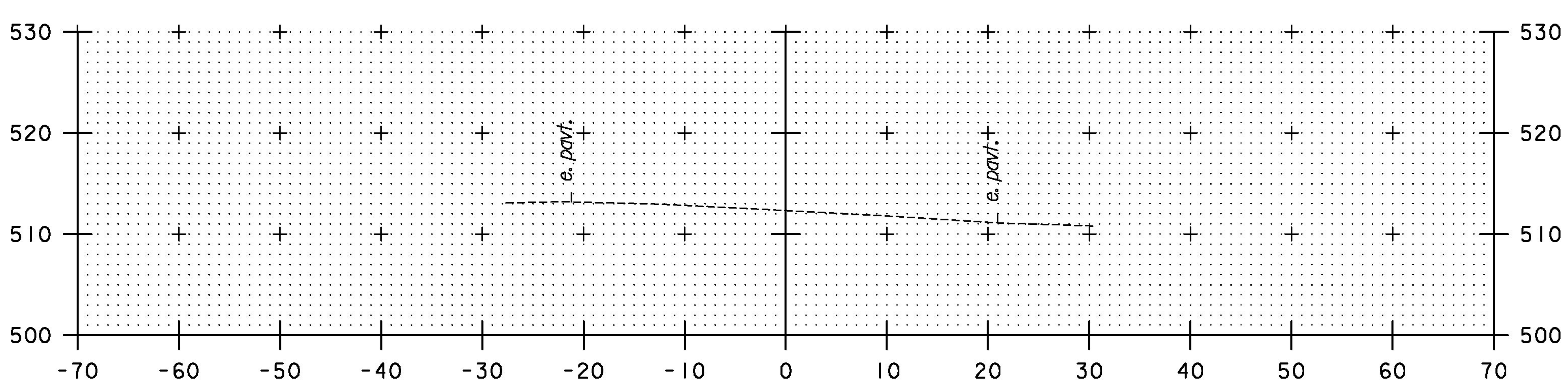
STA. 57+25 TO STA. 58+50

T·Y·LIN INTERNATIONAL

PROJECT NAME: DUXBURY
PROJECT NUMBER: BF 013-4(47)

FILE NAME: zl6b00ltrdwy_xs.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: T. KELLEY
TEMPORARY ROADWAY CROSS SECTIONS 6

PLOT DATE: 5/23/2016
DRAWN BY: T. KELLEY
CHECKED BY: J. HOWE
SHEET 26 OF 69

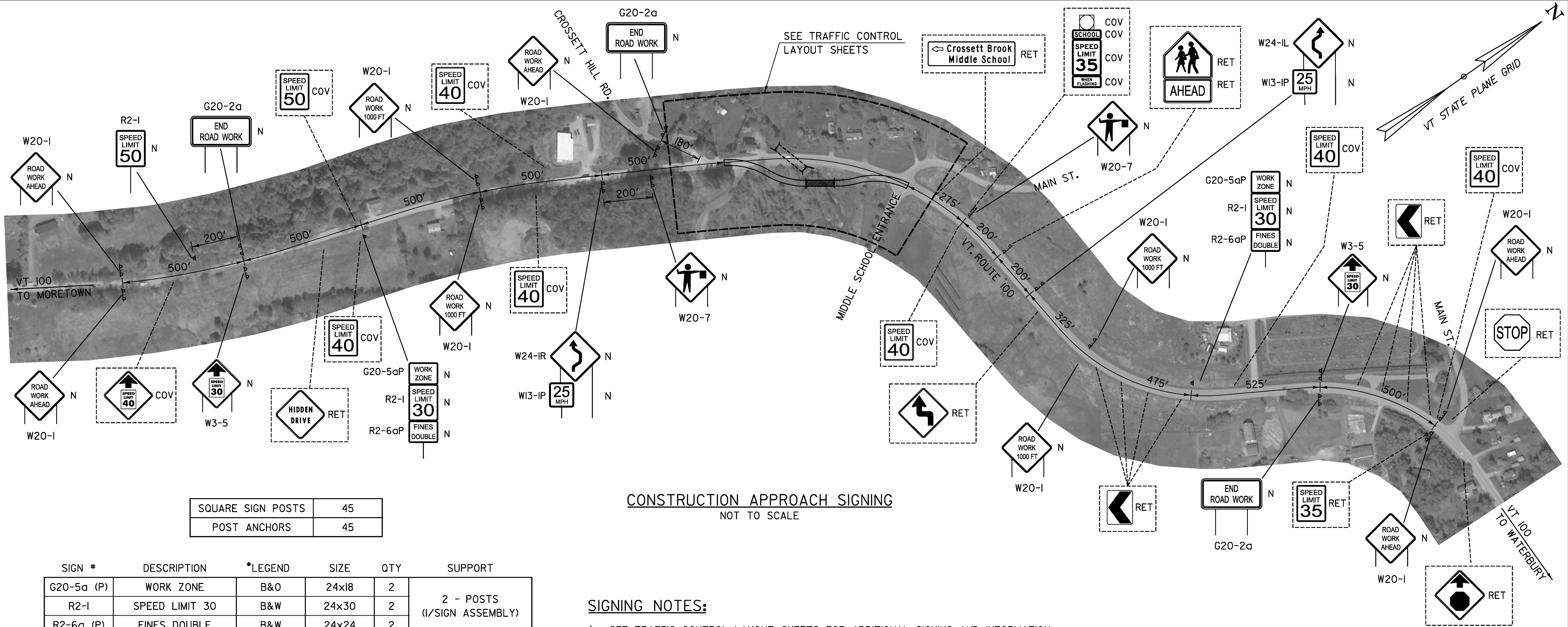


58+75

STA. 58+75 TO STA. 58+75

T·Y·LIN INTERNATIONAL

PROJECT NAME: DUXBURY	
PROJECT NUMBER: BF 013-4(47)	
FILE NAME: zl6b00ltrdwy_xs.dgn	PLOT DATE: 5/23/2016
PROJECT LEADER: J. OLUND	DRAWN BY: T. KELLEY
DESIGNED BY: T. KELLEY	CHECKED BY: J. HOWE
TEMPORARY ROADWAY CROSS SECTIONS 7	SHEET 27 OF 69



CONSTRUCTION APPROACH SIGNING

NOT TO SCALE

SQUARE SIGN POSTS	45
POST ANCHORS	45

SIGN #	DESCRIPTION	*LEGEND	SIZE	QTY	SUPPORT
G20-5a (P)	WORK ZONE	B&O	24x18	2	2 - POSTS (1/SIGN ASSEMBLY)
R2-1	SPEED LIMIT 30	B&W	24x30	2	
R2-6a (P)	FINES DOUBLE	B&W	24x24	2	
W24-1L	DOUBLE REVERSE CURVE (1 LANE)	B&O	48x48	1	2 - POSTS (2/SIGN ASSEMBLY)
W13-1P	25 MPH	B&O	24x24	1	
W24-1R	DOUBLE REVERSE CURVE (1 LANE)	B&O	48x48	1	2 - POSTS (2/SIGN ASSEMBLY)
W13-1P	25 MPH	B&O	24x24	1	
W8-13	GROOVED PAVEMENT	B&O	48x24	2	PORTABLE
W8-15P	MOTORCYCLE (SYMBOL)	B&O	24x18	2	
G20-2a	END ROAD WORK	B&O	48x24	5	10 - POSTS (2/SIGN)
R2-1	SPEED LIMIT 50	B&W	48x30	1	1- POST
R11-2	ROAD CLOSED	B&W	48x30	2	TEMPORARY BARRIER
W1-6	ONE DIR. LARGE ARROW	B&O	48x24	2	TYPE III BARRICADE
W3-5	SPEED LIMIT 35 (SPEED REDUCTION)	**B&O	48x48	2	4 - POSTS (2/SIGN)
W20-1	ROAD WORK AHEAD	B&O	48x48	8	16 - POSTS (2/SIGN)
W20-1	ROAD WORK 1000 FT	B&O	48x48	4	8 - POSTS (2/SIGN)
W20-7	FLAGGER (SYMBOL)	B&O	48x48	2	PORTABLE

* LEGEND: B&O - BLACK LEGEND ON ORANGE BACKGROUND
B&W - BLACK LEGEND ON WHITE BACKGROUND

** INSET LEGEND: B&W - BLACK LEGEND ON WHITE BACKGROUND

SIGNING NOTES:

1. SEE TRAFFIC CONTROL LAYOUT SHEETS FOR ADDITIONAL SIGNING AND INFORMATION.
2. ALL SIGN LOCATIONS AND DISTANCES SHOWN ARE APPROXIMATE.
3. MINIMUM 200' SIGN SPACING UNLESS OTHERWISE NOTED. ADJUST SIGN SPACING TO ACCOMMODATE EXISTING SIGNS OR OBSTRUCTIONS - TRIM BRANCHES AS NECESSARY.
4. WITH THE APPROVAL OF THE ENGINEER, THE CONTRACTOR SHALL MAKE ADJUSTMENTS TO THE PROVIDED SIGN PACKAGE AND LAYOUT BASED ON CHANGED FIELD CONDITIONS AND/OR EFFECTIVENESS. TREES AND SHRUBS WITHIN THE EXISTING RIGHT OF WAY AND OTHERWISE INTERFERING WITH VISIBILITY OF PROPOSED TRAFFIC CONTROL SIGNS SHALL BE TRIMMED ACCORDINGLY. PAYMENT FOR ADJUSTMENTS TO THE TRAFFIC CONTROL PLAN AND TRIMMING WILL BE MADE UNDER ITEM 641.10, "TRAFFIC CONTROL".
5. ALL SIGNS CURRENTLY INSTALLED FOR EXISTING TEMPORARY BRIDGE SHALL BE REMOVED BY THE CONTRACTOR ONCE TRAFFIC IS SHIFTED TO THE TEMPORARY ROADWAY. PAYMENT WILL BE MADE UNDER ITEM 900.645, "SPECIAL PROVISION (REMOVAL OF TEMPORARY BRIDGE)."
6. TYPE III MODIFIED BARRICADE SHALL BE TYPE III BARRICADE WITH THE ASSOCIATED SIGNING MOUNTED ON IT. ALL BARRICADES SHALL MEET "NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM" (NCHRP) REPORT 350 OR THE "AMERICAN ASSOCIATION OF STATE AND HIGHWAY TRANSPORTATION OFFICIALS" (AASHTO) "MANUAL FOR ASSESSING SAFETY HARDWARE" (MASH). THE APPROPRIATE RESOURCE SHALL BE DETERMINED AS DESCRIBED IN THE MASH PUBLICATION.

SIGNING LEGEND

COV - COVER
N - NEW
R - REMOVE
RET - RETAIN
R&S - REMOVE AND SALVAGE
SIGN WITH 1 POST
SIGN WITH 2 POSTS
EXISTING ASSEMBLY

PROJECT NAME: DUXBURY
PROJECT NUMBER: BF 013-4(47)

T·Y·LIN INTERNATIONAL

FILE NAME: zl6b001tcsigns.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: T. KELLEY
CONSTRUCTION APPROACH SIGNING

PLOT DATE: 5/23/2016
DRAWN BY: T. KELLEY
CHECKED BY: K. DUCHARME
SHEET 28 OF 69

REMOVAL OF EXISTING PAVEMENT MARKINGS

STA 291+41.5 - STA. 293+24.0, RT
STA 291+41.5 - STA. 293+24.0, LT
STA 291+41.5 - STA. 293+24.0, CL
NOTE: SEE VT 100 LAYOUT SHEETS FOR STATIONING

TEMPORARY 4 INCH WHITE LINE

STA 50+90.47 - STA. 54+40.00, RT
STA 50+90.47 - STA. 54+40.00, LT

TEMPORARY 4 INCH YELLOW LINE

STA 50+90.47 - STA. 55+01.22, CL
NOTE: DYL NOT SHOWN FOR CLARITY

REMOVING SIGNS

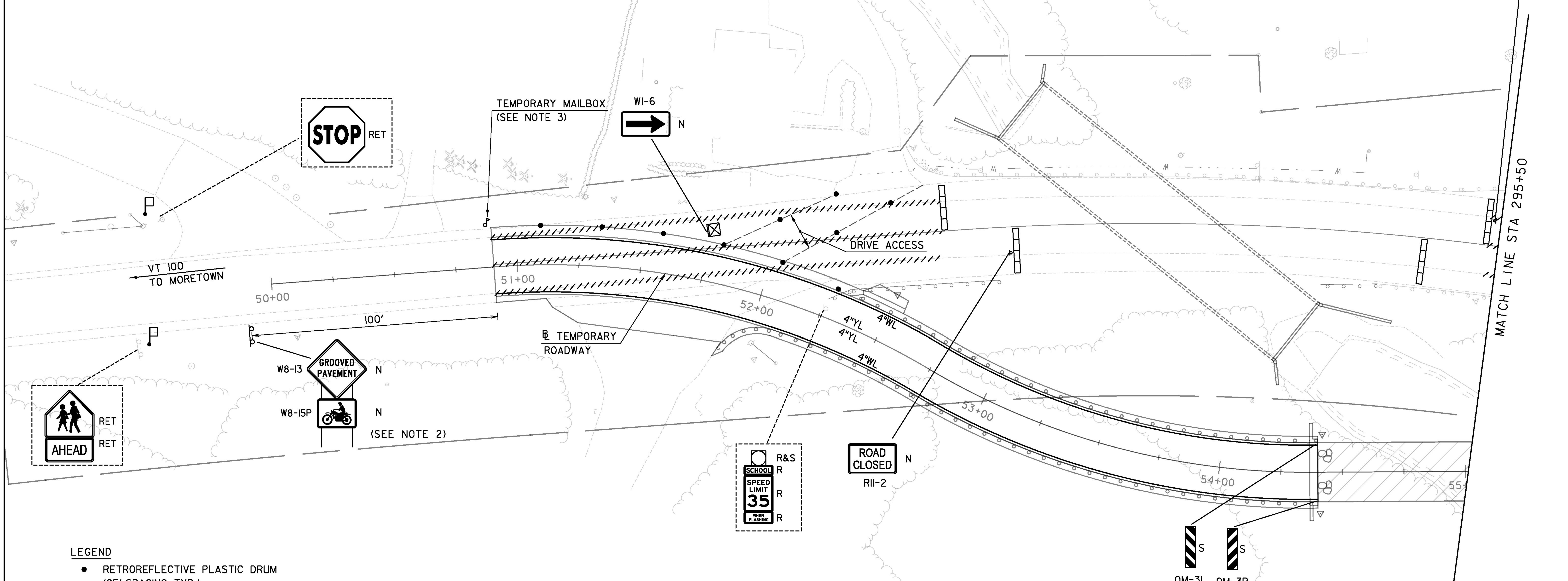
STA 292+74.57, RT (3 SIGNS)

NOTES:

1. SEE CONSTRUCTION APPROACH SIGNING SHEET FOR ADDITIONAL SIGNS AND NOTES.

2. USE GROOVED PAVEMENT SIGN STRUCTURES DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER.

3. TEMPORARILY RELOCATE MAILBOXES AS NOTED ON THE PLANS DURING ROAD CLOSURE. LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND MAY BE MODIFIED WITH APPROVAL OF THE ENGINEER.



LEGEND

- ● RETROREFLECTIVE PLASTIC DRUM (25' SPACING TYP.)
- SIGN WITH 1 POST
- SIGN WITH 2 POSTS
- 4" WL TEMPORARY 4" WHITE LINE
- 4" YL TEMPORARY 4" YELLOW LINE
- TYPE III BARRICADE
- TYPE III (MOD.) BARRICADE
- PAVEMENT MARKING REMOVAL
- TEMPORARY TRAFFIC BARRIER
- TEMPORARY BRIDGE
- FLAGGER STATION

SIGNING LEGEND

COV - COVER
N - NEW
R - REMOVE
RET - RETAIN
R&S - REMOVE AND SALVAGE
S - ERECT SALVAGED SIGN OR SUPPORT
EXISTING ASSEMBLY

TRAFFIC CONTROL LAYOUT 1

SCALE 1" = 20'-0"
20 0 20

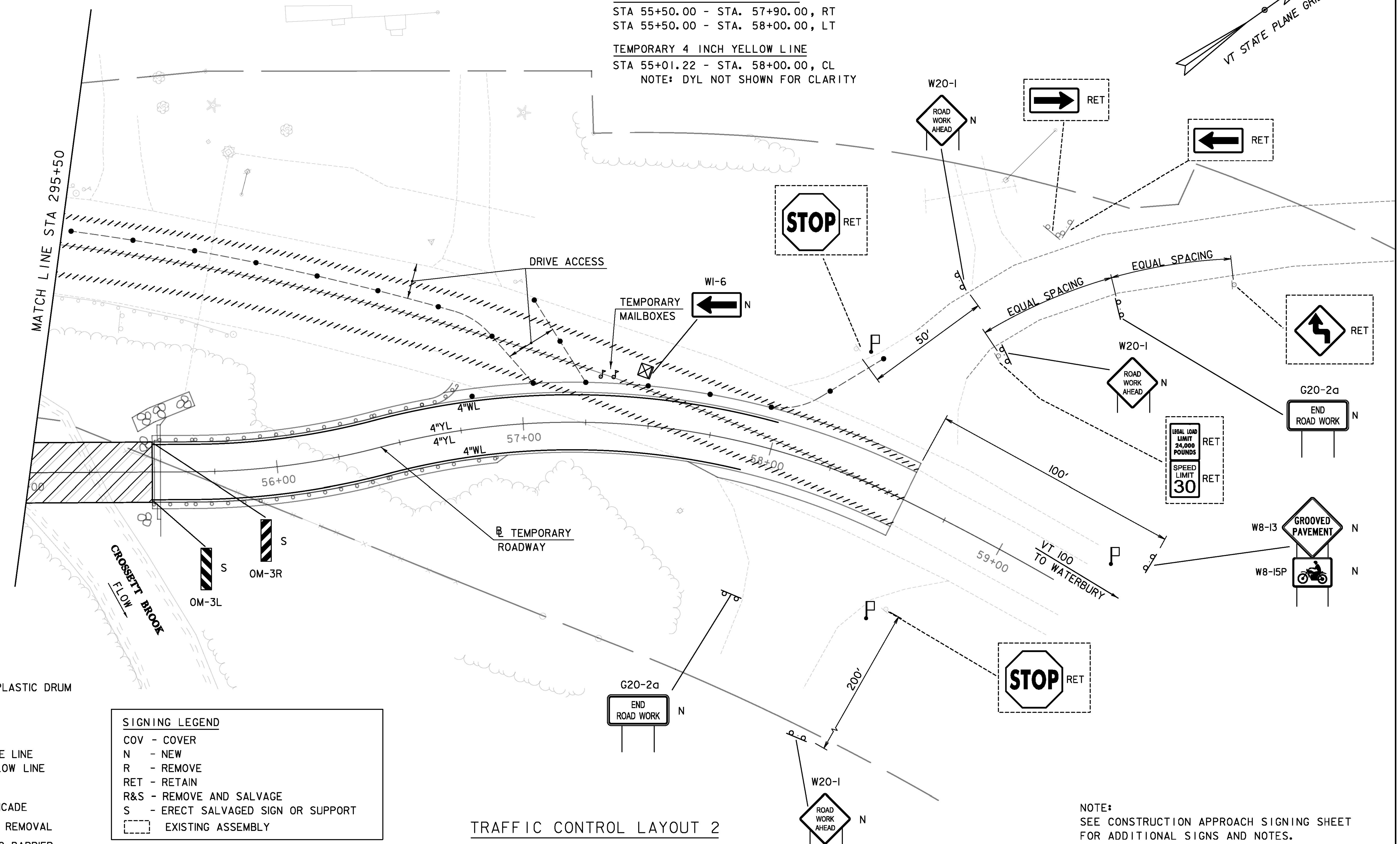
PROJECT NAME: DUXBURY	
PROJECT NUMBER: BF 013-4(47)	
FILE NAME: z16b001tclayout.dgn	PLOT DATE: 5/23/2016
PROJECT LEADER: J. OLUND	DRAWN BY: B. TOOTHAKER
DESIGNED BY: B. TOOTHAKER	CHECKED BY: K. DUCHARME
TRAFFIC CONTROL LAYOUT 1	SHEET 29 OF 69

T·Y·LIN INTERNATIONAL

REMOVAL OF EXISTING PAVEMENT MARKINGS
STA 295+46.00 - STA. 299+04.00, RT
STA 295+46.00 - STA. 299+04.00, LT
STA 295+46.00 - STA. 299+04.00, CL
NOTE: SEE VT 100 LAYOUT SHEETS FOR STATIONING

TEMPORARY 4 INCH WHITE LINE
STA 55+50.00 - STA. 57+90.00, RT
STA 55+50.00 - STA. 58+00.00, LT

TEMPORARY 4 INCH YELLOW LINE
STA 55+01.22 - STA. 58+00.00, CL
NOTE: DYL NOT SHOWN FOR CLARITY



LEGEND
- RETROREFLECTIVE PLASTIC DRUM (25' SPACING TYP.)
- SIGN WITH 1 POST
- SIGN WITH 2 POSTS
- 4" WL TEMPORARY 4" WHITE LINE
- 4" YL TEMPORARY 4" YELLOW LINE
- TYPE III BARRICADE
- TYPE III (MOD.) BARRICADE
- PAVEMENT MARKING REMOVAL
- TEMPORARY TRAFFIC BARRIER
- TEMPORARY BRIDGE
- FLAGGER STATION

SIGNING LEGEND
COV - COVER
N - NEW
R - REMOVE
RET - RETAIN
R&S - REMOVE AND SALVAGE
S - ERECT SALVAGED SIGN OR SUPPORT
EXISTING ASSEMBLY

TRAFFIC CONTROL LAYOUT 2

SCALE 1" = 20'-0"
20 0 20

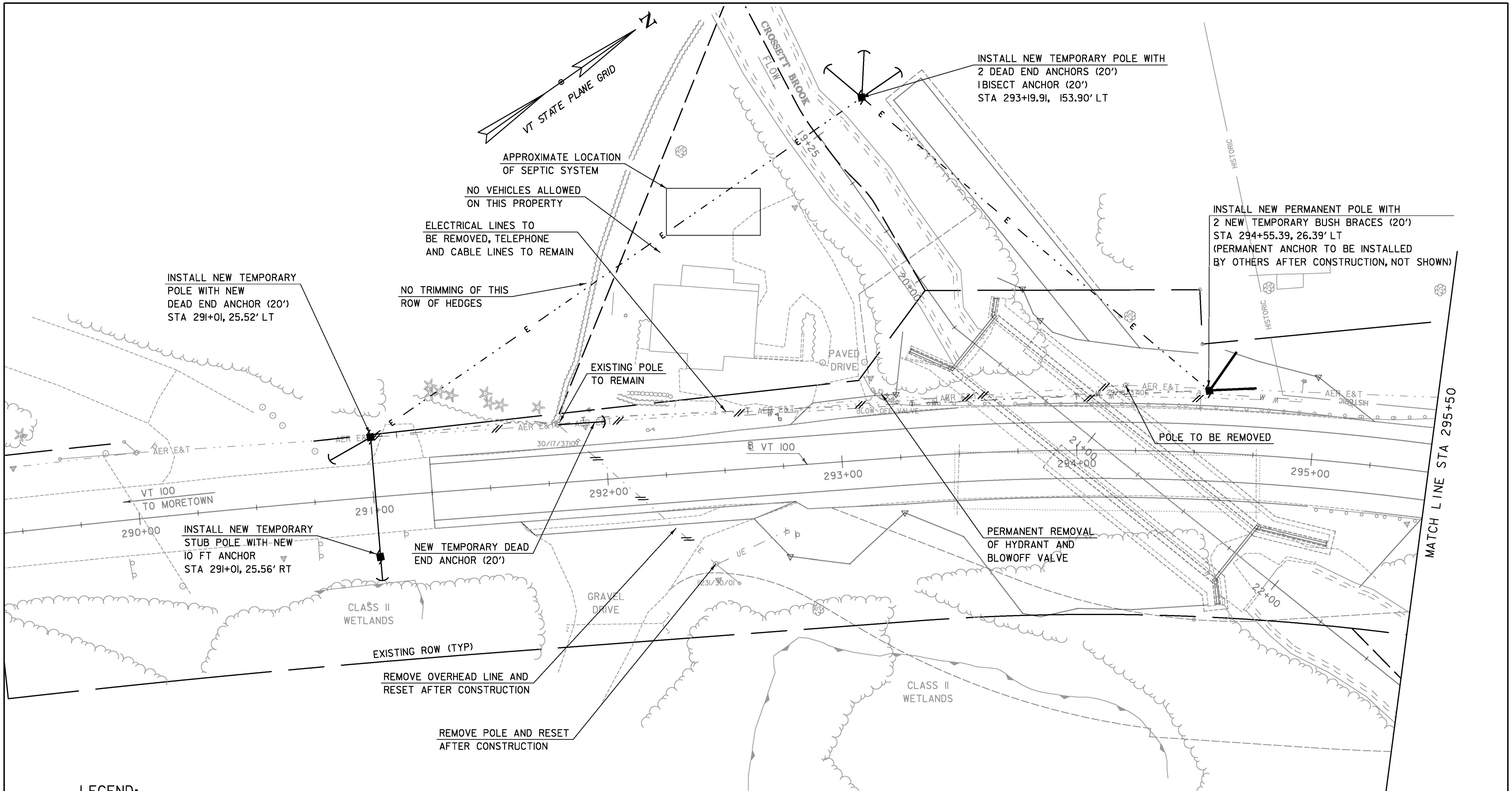
NOTE:
SEE CONSTRUCTION APPROACH SIGNING SHEET FOR ADDITIONAL SIGNS AND NOTES.

PROJECT NAME: DUXBURY
PROJECT NUMBER: BF 013-4(47)

T·Y·LIN INTERNATIONAL

FILE NAME: z16b001tclayout.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: B. TOOTHAKER
TRAFFIC CONTROL LAYOUT 2

PLOT DATE: 5/23/2016
DRAWN BY: S. MORGAN
CHECKED BY: K. DUCHARME
SHEET 30 OF 69



LEGEND:

- E — TEMPORARILY REMOVED ELECTRIC
- W — TEMPORARILY REMOVED WATERLINE

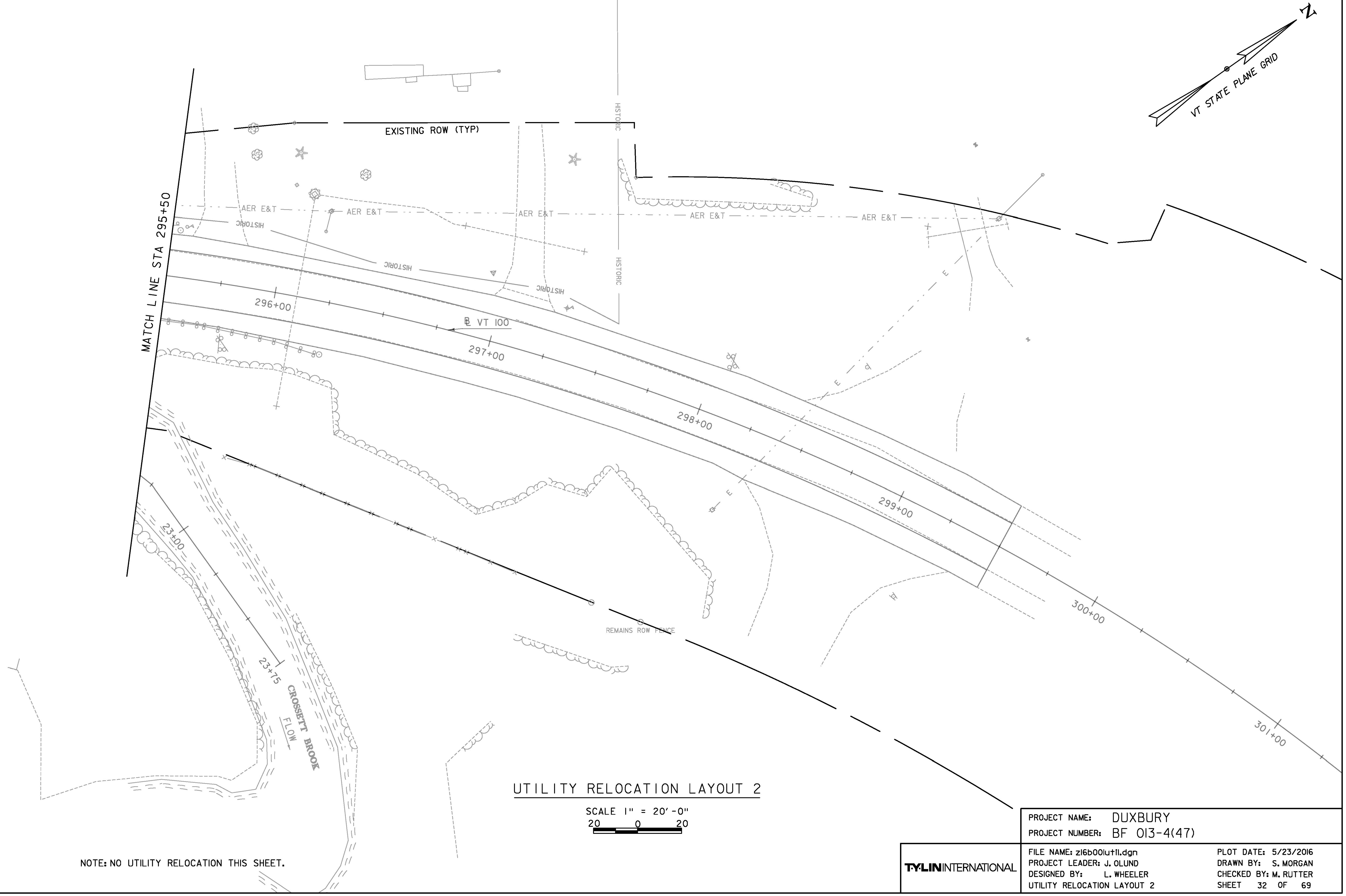
NOTE: OVERHEAD UTILITY AND UNDERGROUND WATERLINE RELOCATION EFFORTS SHOWN ON THIS SHEET ARE PERFORMED BY OTHERS AND ARE PROVIDED HEREIN FOR INFORMATION ONLY TO REFLECT CHANGED SITE CONDITIONS.

UTILITY RELOCATION LAYOUT 1

SCALE 1" = 20'-0"
20 0 20

PROJECT NAME: DUXBURY	
PROJECT NUMBER: BF 013-4(47)	
FILE NAME: z16b001utl1.dgn	PLOT DATE: 5/23/2016
PROJECT LEADER: J. OLUND	DRAWN BY: S. MORGAN
DESIGNED BY: L. WHEELER	CHECKED BY: M. RUTTER
UTILITY RELOCATION LAYOUT 1	SHEET 31 OF 69

T.Y.LIN INTERNATIONAL



UTILITY RELOCATION LAYOUT 2

SCALE 1" = 20'-0"
20 0 20

NOTE: NO UTILITY RELOCATION THIS SHEET.

PROJECT NAME: DUXBURY
PROJECT NUMBER: BF 013-4(47)

T·Y·LIN INTERNATIONAL

FILE NAME: zl6b00lutll.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: L. WHEELER
UTILITY RELOCATION LAYOUT 2

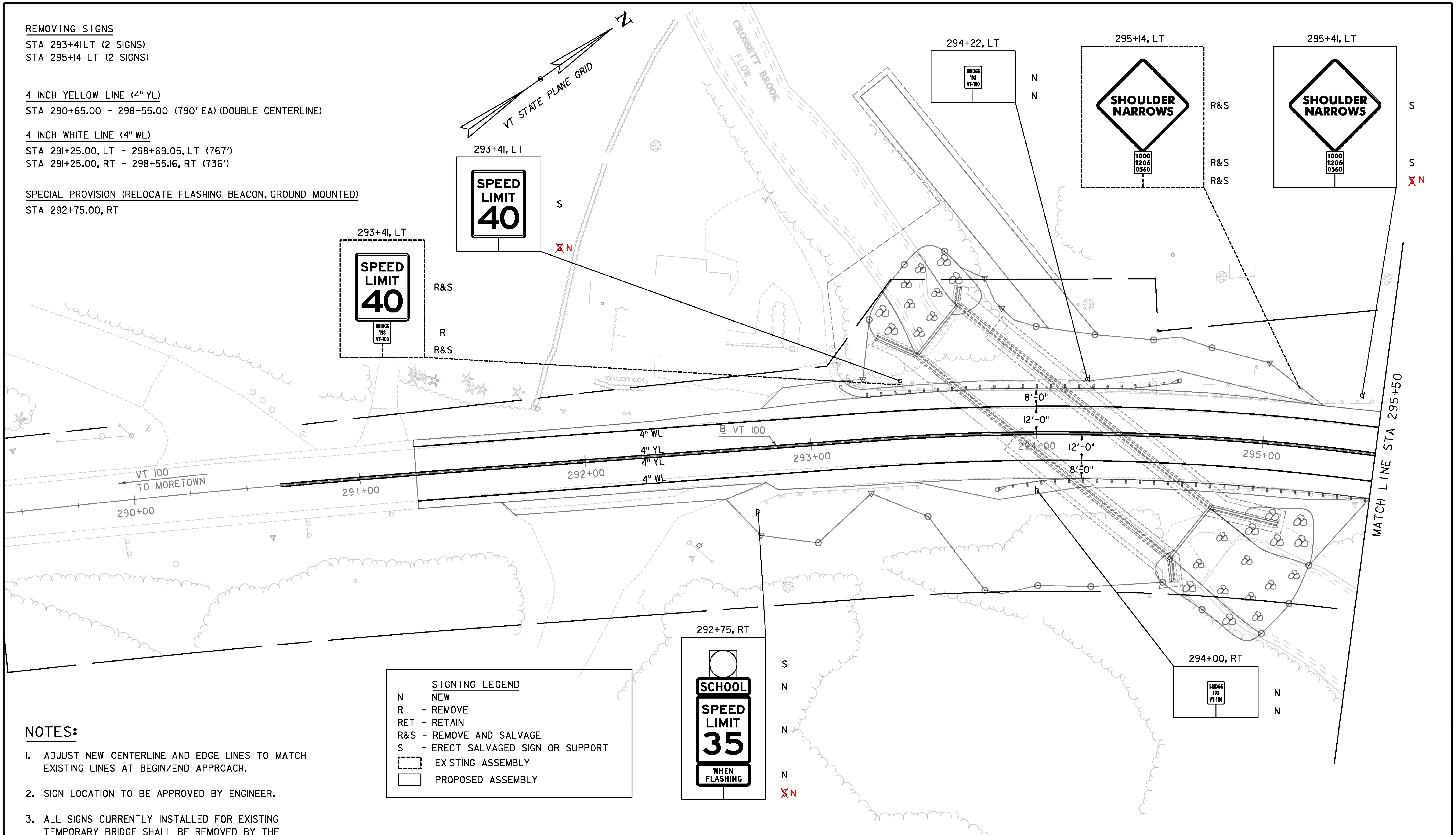
PLOT DATE: 5/23/2016
DRAWN BY: S. MORGAN
CHECKED BY: M. RUTTER
SHEET 32 OF 69

REMOVING SIGNS
STA 293+41 LT (2 SIGNS)
STA 295+14 LT (2 SIGNS)

4 INCH YELLOW LINE (4" YL)
STA 290+65.00 - 298+55.00 (790' EA) (DOUBLE CENTERLINE)

4 INCH WHITE LINE (4" WL)
STA 291+25.00, LT - 298+69.05, LT (767')
STA 291+25.00, RT - 298+55.16, RT (736')

SPECIAL PROVISION (RELOCATE FLASHING BEACON, GROUND MOUNTED)
STA 292+75.00, RT



SIGNING LEGEND

N	NEW
R	REMOVE
RET	RETAIN
R&S	REMOVE AND SALVAGE
S	ERECT SALVAGED SIGN OR SUPPORT
(dashed box)	EXISTING ASSEMBLY
(solid box)	PROPOSED ASSEMBLY

NOTES:

1. ADJUST NEW CENTERLINE AND EDGE LINES TO MATCH EXISTING LINES AT BEGIN/END APPROACH.
2. SIGN LOCATION TO BE APPROVED BY ENGINEER.
3. ALL SIGNS CURRENTLY INSTALLED FOR EXISTING TEMPORARY BRIDGE SHALL BE REMOVED BY THE CONTRACTOR ONCE TRAFFIC IS SHIFTED TO THE TEMPORARY ROADWAY. PAYMENT WILL BE MADE UNDER ITEM 900.645, "SPECIAL PROVISION (REMOVAL OF TEMPORARY BRIDGE)."

TRAFFIC SIGNS AND LINES LAYOUT 1

SCALE 1" = 20'-0"
20 0 20

PROJECT NAME: DUXBURY
PROJECT NUMBER: BF 013-4(47)

T.Y.LIN INTERNATIONAL

FILE NAME: z16b001ts.dgn	PLOT DATE: 5/23/2016
PROJECT LEADER: J. OLUND	DRAWN BY: B. TOOTHAKER
DESIGNED BY: B. TOOTHAKER	CHECKED BY: K. DUCHARME
TRAFFIC SIGNS AND LINES LAYOUT SHEET 1	SHEET 33 OF 69

4 INCH YELLOW LINE (4" YL)

STA 298+75.08 - 298+75.08 RT (18' EA) (DOUBLE CENTERLINE)
STA 299+05.00 - 299+60.00 (55' EA) (DOUBLE CENTERLINE)

4 INCH WHITE LINE (4" WL)

STA 298+87.75, RT - 298+87.75, RT (16')
STA 299+02.54, LT - 299+60.00, LT (78')
STA 299+07.66, RT - 299+60.00, RT (63')

REMOVING SIGNS

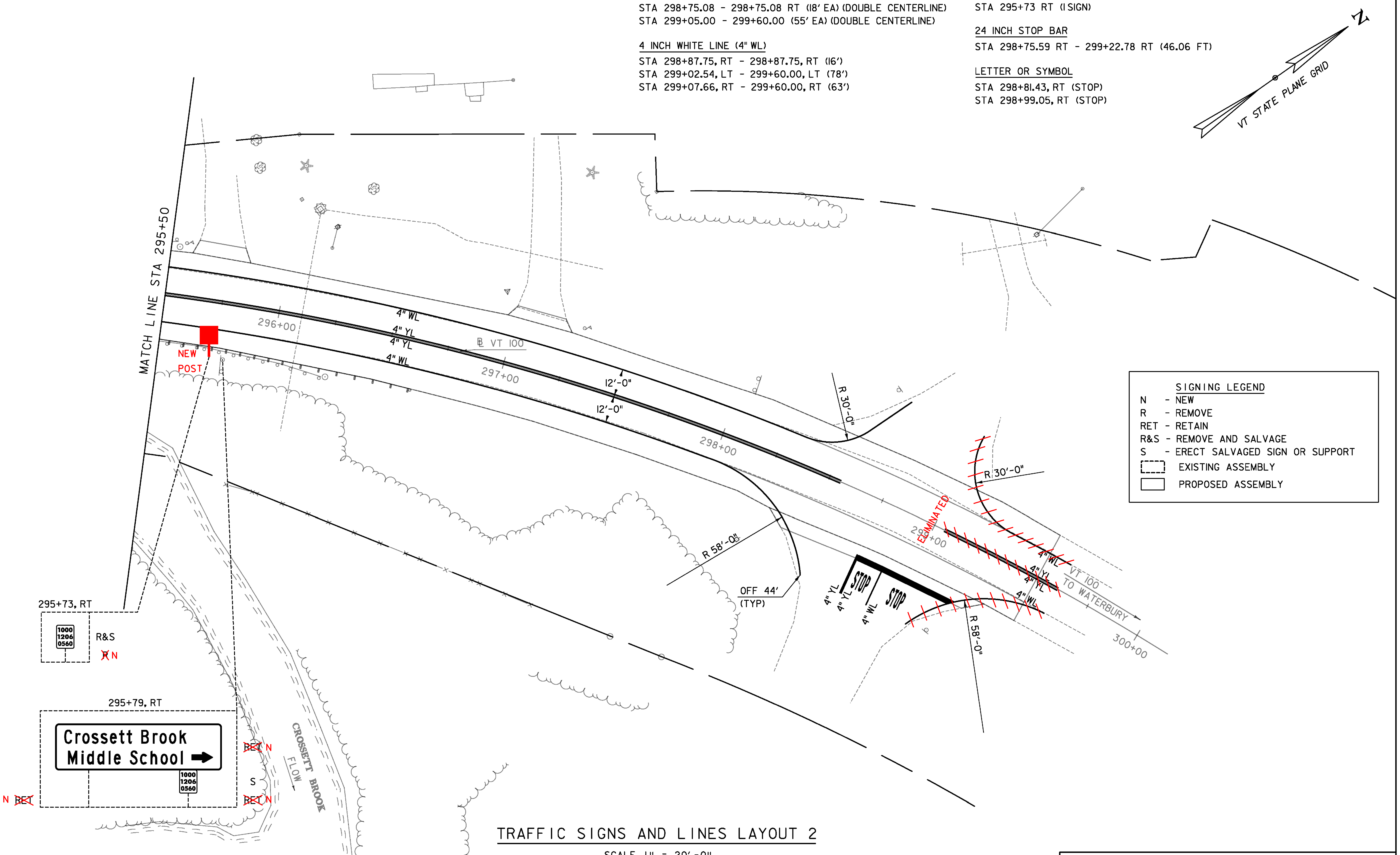
STA 295+73 RT (1 SIGN)

24 INCH STOP BAR

STA 298+75.59 RT - 299+22.78 RT (46.06 FT)

LETTER OR SYMBOL

STA 298+81.43, RT (STOP)
STA 298+99.05, RT (STOP)



SIGNING LEGEND	
N	- NEW
R	- REMOVE
RET	- RETAIN
R&S	- REMOVE AND SALVAGE
S	- ERECT SALVAGED SIGN OR SUPPORT
	EXISTING ASSEMBLY
	PROPOSED ASSEMBLY

TRAFFIC SIGNS AND LINES LAYOUT 2

SCALE 1" = 20'-0"
20 0 20

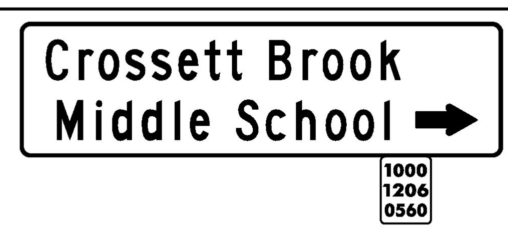
PROJECT NAME: DUXBURY
PROJECT NUMBER: BF 013-4(47)

TYLININTERNATIONAL

FILE NAME: z16b001ts.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: B. TOOTHAKER
TRAFFIC SIGNS AND LINES LAYOUT SHEET 2

PLOT DATE: 5/23/2016
DRAWN BY: S. MORGAN
CHECKED BY: K. DUCHARME
SHEET 34 OF 69

TRAFFIC SIGN SUMMARY SHEET

MILE MARKER, STATION OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS EACH	SIGN DIMENSIONS WIDTH (in)	SIGN DIMENSIONS HEIGHT (in)	NEW & SALVAGED SIGNS "A"	NEW & SALVAGED SIGNS "B"	SALV SIGN	SALV TIS	EXIST POST RETAIN	EXIST POST SALVAGE	NEW SIGN POSTS NO. OF POST	FLANGED CHANNEL (LB / FT) 1.12	FLANGED CHANNEL 2.00	FLANGED CHANNEL 3.00	SQUARE STEEL (in) 1.75 (LB / FT) 1.88	SQUARE STEEL 2.00 / 2.42	SQUARE STEEL 2.50 / 3.35	ANCHOR	SLEEVE	TUBULAR ALUMINUM Ø (IN) 3.00 (LB / FT) 1.30	TUBULAR ALUMINUM 4.00 / 1.70	TUBULAR ALUMINUM 4.0 MOD / 1.70	FOUNDATION	TUBULAR STEEL Ø (IN) 3.00 (LB / FT) 7.60	TUBULAR STEEL 3.50 / 9.00	TUBULAR STEEL 4.00 / 10.80	TUBULAR STEEL 5.00 / 14.60	W-SHAPE STEEL FTG. SIZE 24"	W-SHAPE STEEL FTG. SIZE 30"	WEIGHT	POST SIZE	SIGN FRAME REQUIRED	REMARKS	SIGN DETAIL: DETAIL ON SHEET NUMBER	SIGN DETAIL: STANDARD SHEET NUMBER
OPTION ITEMS																																			
292+75, RT		1	24.0	8.0	1.3																												STANDARD HIGHWAY SIGNS AND MARKINGS S4-3P; FLOURESCENT YELLOW GREEN		
		1	24.0	30.0	5.0					1.0								1.0															STANDARD HIGHWAY SIGNS AND MARKINGS R2-1		
		1	24.0	10.0	1.7																												STANDARD HIGHWAY SIGNS AND MARKINGS S4-4P; BLACK ON WHITE		
293+41, LT							1.0			1.0								1.0																	
294+00, RT		1	6.0	10.0	0.4						1.0					8.0		1.0																	T-42
294+22, LT		1	6.0	10.0	0.4						1.0					8.0		1.0																	T-42
295+41, LT							1.0			1.0								1.0																	
							1.0																												
295+79, RT									2.0																								RETAIN EXISTING SIGN		
							1.0																										INSTALL SALVAGED SIGN ON EXISTING POST BELOW RETAINED EXISTING SIGN		
												FT	FT	FT	FT	FT	FT	XXXXX	EA	LB	LB	LB		LB	LB	LB	LB								
												.	.	.	.	16.	.	XXXXX	.	.	.	.		.	.	.	.								
TOTALS					SF 8.8	SF .	EA. 4.	SF .	XXXXXXXXXXX	XXXXXXXXXXX	XXXXXXXXXXX	FT .			FT 16.					LB .			EA.	LB .				EA. .	EA. .						

FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE STANDARD SHEETS AND THE VTRANS "SIGN POST DESIGN GUIDELINE."

T·Y·LIN INTERNATIONAL

PROJECT NAME: DUXBURY
PROJECT NUMBER: BF 013-4(47)

FILE NAME: zl6b00lsignsum.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: B. TOOTHAKER
SIGN SUMMARY SHEET

PLOT DATE: 5/23/2016
DRAWN BY: B. TOOTHAKER
CHECKED BY: A. GREENLAW
SHEET 35 OF 69

SOIL CLASSIFICATION

AASHTO

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

ROCK QUALITY DESIGNATION

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

SHEAR STRENGTH

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

CORRELATION GUIDE OF "N" TO DENSITY/CONSISTENCY

DENSITY (GRANULAR SOILS)

N	DESCRIPTIVE TERM
<5	Very Loose
5-10	Loose
11-24	Med. Dense
25-50	Dense
>50	Very Dense

CONSISTENCY (COHESIVE SOILS)

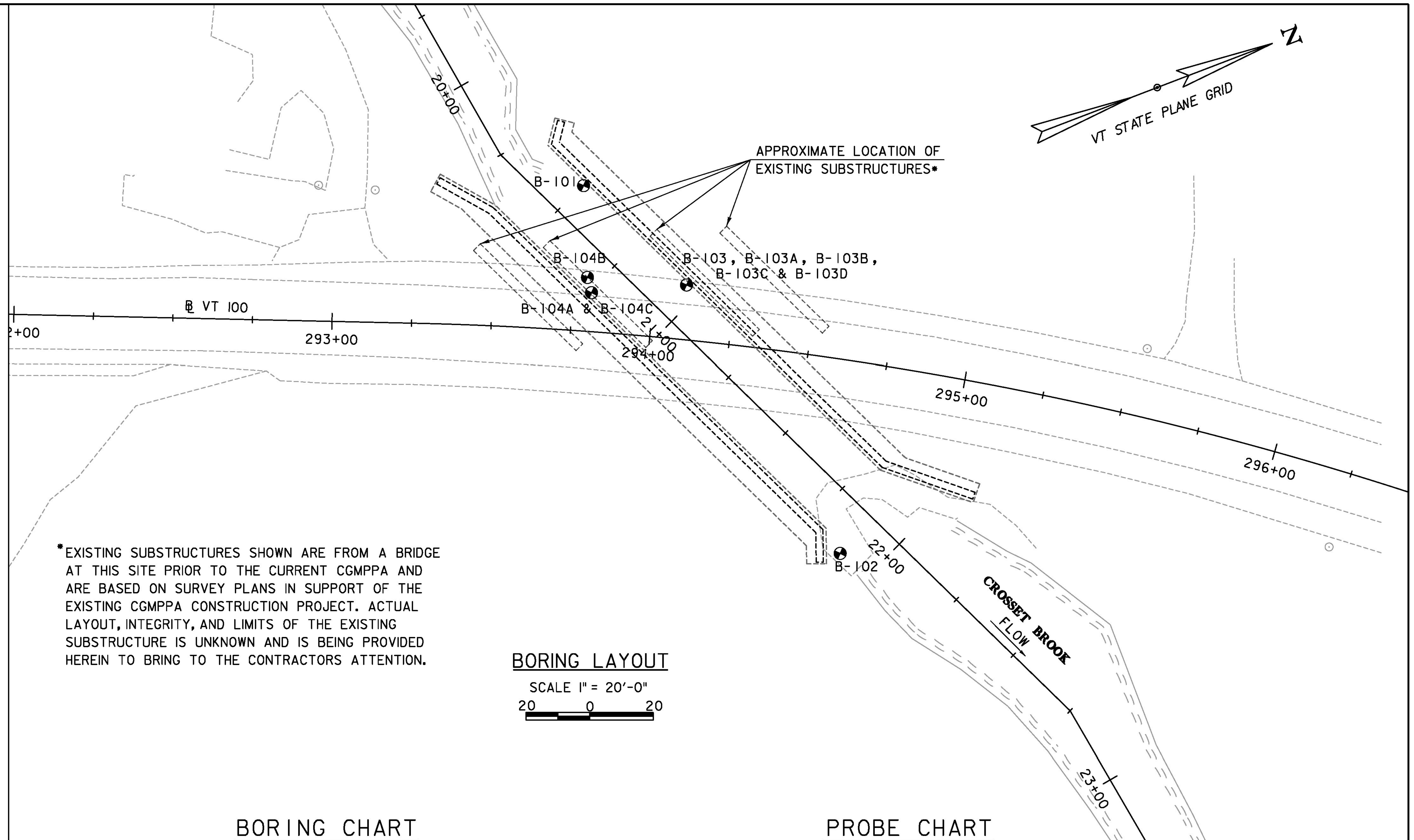
N	DESCRIPTIVE TERM
<2	Very Soft
2-4	Soft
5-8	Med. Stiff
9-15	Stiff
16-30	Very Stiff
31-60	Hard
>60	Very Hard

COMMONLY USED SYMBOLS

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

COLOR

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



*EXISTING SUBSTRUCTURES SHOWN ARE FROM A BRIDGE AT THIS SITE PRIOR TO THE CURRENT CGMPPA AND ARE BASED ON SURVEY PLANS IN SUPPORT OF THE EXISTING CGMPPA CONSTRUCTION PROJECT. ACTUAL LAYOUT, INTEGRITY, AND LIMITS OF THE EXISTING SUBSTRUCTURE IS UNKNOWN AND IS BEING PROVIDED HEREIN TO BRING TO THE CONTRACTORS ATTENTION.

BORING LAYOUT

SCALE 1" = 20'-0"

20 0 20

BORING CHART

HOLE NO.	SURV. STATION	OFFSET	NORTHING	EASTING	GROUND ELEV.	ELEV. TLOB
B-101	293+76.01	45.58' LT	664052.37	1572920.80	504.4	486.0
B-102	294+69.63	60.30' RT	664065.35	1573061.03	497.4	476.3
B-103	294+09.90	17.19' LT	664065.06	1572963.93	509.9	483.4
B-104b	293+79.15	16.90' LT	664039.17	1572946.47	510.6	488.1

PROBE CHART

HOLE NO.	SURV. STATION	OFFSET	NORTHING	EASTING	GROUND ELEV.
B-103A	294+09.13	13.81' LT	664062.47	1572966.24	509.9
B-103B	294+12.04	14.29' LT	664065.15	1572967.55	509.9
B-103C	294+15.43	15.50' LT	664068.65	1572968.57	509.8
B-103D	294+17.52	16.30' LT	664070.84	1572969.16	509.8
B-104A	293+80.17	12.44' LT	664037.55	1572950.75	510.5
B-104C	293+80.75	12.21' LT	664037.91	1572951.27	510.5

DEFINITIONS (AASHTO)

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

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

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

GRAVEL - Rounded particles of rock < 3" and > 0.0787" (#10 sieve).

SAND - Particles of rock < 0.0787" (#10 sieve) and > 0.0029" (#200 sieve).

SILT - Soil < 0.0029" (#200 sieve), non or slightly plastic and exhibits no strength when air-dried.

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

VARVED - Alternate layers of silt and clay.

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

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

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

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

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

DIP - Inclination of bed with a horizontal plane.

GENERAL NOTES

1. The subsurface explorations shown herein were made between April 17, 2015 and May 5, 2015 by the Agency.
2. Soil and rock classifications, properties and descriptions are based on engineering interpretation from available subsurface information by the Agency and may not necessarily reflect actual variations in subsurface conditions that may be encountered between individual boring or sample locations.
3. Observed water levels and/or conditions indicated are as recorded at the time of exploration and may vary according to the prevailing rainfall, methods of exploration and other factors.
4. Engineering judgment was exercised in preparing the subsurface information presented herein. Analysis and interpretation of subsurface data was performed and interpreted for Agency design and estimating purposes. Presentation of the information in the Contract is intended to provide the Contractor access to the same data available to the Agency. The subsurface information is presented in good faith and is not intended as a substitute for personal investigation, independent interpretation, independent analysis or judgment by the Contractor.
5. Pictorial structure details shown on the boring plan layout or soils profile are for illustrative purposes only and may not accurately portray final contract details.
6. Terminology used on boring logs to describe the hardness, degree of weathering, and spacing of fractures, joints and other discontinuities in the bedrock is defined in the AASHTO Manual on Subsurface Investigations, 1988.
7. Northing and Easting coordinates are shown in Vermont State Plane Grid North American Datum 1983 in meters and survey feet.

PROJECT NAME: DUXBURY
PROJECT NUMBER: BF 013-4(47)

FILE NAME: z16b001bor.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: VTRANS
BORING INFORMATION AND LAYOUT SHEET

PLOT DATE: 5/23/2016
DRAWN BY: P. BRYANT
CHECKED BY: J. OLUND

BORING LOG — B-101

STATE OF VERMONT
AGENCY OF TRANSPORTATION
CONSTRUCTION AND
MATERIALS BUREAU
CENTRAL LABORATORY

BORING LOG
DUXBURY
BF 013-4(47)
VT 100 Br. #193

Boring No.: B-101
Page No.: 1 of 1
Pin No.: 16b001
Checked By: MLM

Boring Crew: WHITLOCK, JUDKINS, NIETO
Date Started: 4/18/16 Date Finished: 4/18/16
VTSPG NAD83: N 664052.37 ft E 1572920.80 ft
Station: 20+50.3 Offset: -11.30
Ground Elevation: 504.4 ft

	Casing	Sampler
Type:	WB	SS
I.D.:	4 in	1.5 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.

Hammer/Rod Type: Auto/AWJ
Rig: CME 55 TRACK C_E = 1.41

Groundwater Observations

Date	Depth (ft)	Notes
04/18/16	12.9	W.T. after driling

Depth (ft)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
	A-1-b, SiSaGr, brn, Moist, Rec. = 0.8 ft, Lab Note: Broken rock and plant material was within sample. Field Note:, NXDC, cleaned out casing				1-5-12-28 (17)	14.1	41.4	38.5	20.1
	A-2-4, GrSa, brn-Lt/brn, Moist, Rec. = 1.1 ft, Lab Note: Broken rock was within sample.				6-4-3-4 (7)	13.2	29.1	56.5	14.4
5	A-2-4, Sa, Lt/brn, Moist, Rec. = 1.0 ft Field Note:, NXDC, cleaned out casing				4-4-3-2 (7)	10.6	4.3	83.6	12.1
	A-2-4, Sa, Lt/brn, Moist, Rec. = 0.5 ft				3-3-3-2 (6)	18.5	10.1	79.3	10.6
	A-1-b, SaGr, Lt/brn, Moist, Rec. = 0.6 ft				4-3-4-5 (7)	13.4	48.8	33.1	18.1
10	A-1-b, GrSa, brn, Moist, Rec. = 0.9 ft Field Note:, NXDC, cleaned out casing				9-5-17-9 (22)	12.4	36.3	50.6	13.1
	A-1-a, SaGr, gry-brn, Moist, Rec. = 1.0 ft, Lab Note: Broken rock was within sample. Field Note:, NXDC, cleaned out casing				6-43-20-9 (63)	10.5	60.2	27.9	11.9
15	A-1-a, SaGr, gry-brn, Moist, Rec. = 1.1 ft, Lab Note: A lot of broken and weathered rock was within sample. Field Note:, NXDC, cleaned out casing				12-12-18-39 (30)	12.4	61.6	28.4	10.0
	A-1-b, SaGr, gry-Dk/gry, Moist, Rec. = 0.7 ft, Lab Note: A lot of broken and weathered rock was within sample. Field Note:, NXDC, cleaned out casing				25-R@3.5" (R)	12.2	44.3	38.0	17.7
	A-1-b, SiSaGr, Dk/gry, Moist, Rec. = 0.4 ft, Lab Note: Sample consisted entirely of weathered rock.				R@5.0" (R)	11.0	48.7	30.4	20.9
20	18.4 ft - 23.4 ft, Dark gray to black, Pyrite bearing graphitic PHYLLITE, with siliceous laminae. Slight rust staining on joints. Hard, Very slightly weathered, Fair rock, NX, RMR=41	1 (75-80)	100 (44)	5, 5, 7, 7, 9					
25	23.4 ft - 28.4 ft, Dark gray to black, Slightly vuggy pyrite bearing graphitic PHYLLITE, with siliceous laminae. Very faint rust staining and some calcification on joints. Moderately hard, Very slightly weathered, Fair rock, NX, RMR=46	2 (75-80)	100 (53)	6, 7, 7, 8, 10					
30	Hole stopped @ 28.4 ft								

BOTTOM OF ABUT NO 2
FOOTING EL 486.00

Remarks:
Top of Bedrock at 18.4 feet.
Hole collapsed at 12.6 feet.

Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. C_E is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.

BORING LOG 2 DUXBURY BF 013-4(47).GPJ VERMONT AOT.GDT 4/26/16

BORING LOG — B-102

STATE OF VERMONT
AGENCY OF TRANSPORTATION
CONSTRUCTION AND
MATERIALS BUREAU
CENTRAL LABORATORY

BORING LOG
DUXBURY
BF 013-4(47)
VT 100 Br. #193

Boring No.: B-102
Page No.: 1 of 1
Pin No.: 16b001
Checked By: MLM

Boring Crew: WHITLOCK, JUDKINS, GARROW
Date Started: 4/13/16 Date Finished: 4/14/16
VTSPG NAD83: N 664065.35 ft E 157061.03 ft
Station: 21+88.5 Offset: 15.00
Ground Elevation: 497.4 ft

	Casing	Sampler
Type:	WB	SS
I.D.:	4 in	1.5 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.

Hammer/Rod Type: Auto/AWJ
Rig: CME 55 TRACK C_E = 1.41

Groundwater Observations

Date	Depth (ft)	Notes
04/14/16	6.4	W.T. before drilling

Depth (ft)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
	A-2-4, GrSiSa, brn, Moist, Rec. = 0.5 ft, Lab Note: Broken rock and plant material was within sample.				1-1-2-4 (3)	19.1	25.5	43.6	30.9
	Field Note:, No Recovery, Stone in end of sampler.				1-2-3-3 (5)				
5	A-3, GrSa, brn, MTW, Rec. = 1.0 ft				2-3-2-WH (5)	16.3	24.2	67.6	8.2
	A-2-4, Sa, brn, Wet, Rec. = 1.0 ft Field Note:, Cleaned out casing				2-2-4-8 (6)	20.7	17.6	69.7	12.7
10	A-1-b, SaSiGr, gry, MTW, Rec. = 0.7 ft, Lab Note: Broken rock, pieces of wood, and wood fibers were within sample. A small amount of clay was within sample. Sample tested non-plastic. Field Note:, Cleaned out casing				3-5-10-20 (15)	12.8	53.2	22.2	24.6
	A-1-b, SaGr, gry-brn, Moist, Rec. = 0.8 ft Field Note:, Cleaned out casing				18-18-15-8 (33)	12.1	47.8	35.4	16.8
	A-4, SaSi, brn, Moist, Rec. = 0.8 ft				3-4-4-5 (8)	25.5	2.8	44.9	52.3
	A-4, Si, gry, Moist, Rec. = 0.6 ft				8-8-6-6 (14)	30.0	0.8	10.4	88.8
15	A-2-4, SiSa, brn, Moist, Rec. = 0.7 ft					24.3	13.2	55.3	31.5
	A-4, SaSi, gry, MTW, Rec. = 1.2 ft				7-6-9-9 (15)	26.0	9.8	30.2	60.0
	A-2-4, SiSaGr, gry, Moist, Rec. = 1.1 ft, Lab Note: A lot of broken and weathered rock was within sample.				8-8-12-22 (20)	14.7	41.6	29.9	28.5
20	A-1-b, SiSaGr, gry, Moist, Rec. = 1.0 ft, Lab Note: A lot of broken and weathered rock was within sample.				30-28-R@1.0" (R)	12.4	47.1	31.5	21.4
25	21.1 ft - 26.1 ft, Dark gray, Vuggy pyrite bearing graphitic PHYLLITE, with siliceous laminae. Extensive rust staining on joints. Medium to soft, Moderately weathered, Poor rock, NX, RMR=30	1 (80)	60 (0)	4, 3, 2, 3, 2					
	26.1 ft - 27.2 ft, Dark brown, PHYLLITE, and silty gravel. Very soft, Very severely weathered, Poor rock, NX, RMR=36 27.2 ft - 30.1 ft, Dark gray, Pyrite bearing graphitic PHYLLITE, with siliceous laminae. Minor rust staining on joints. Hard, Very slightly weathered, Poor rock, RMR=36	2 (78)	56 (20)	2, 6, 5, 9					
30	30.1 ft - 35.1 ft, Dark gray to black, Pyrite bearing graphitic PHYLLITE, with siliceous laminae. Clean joints. Hard, Unweathered, Good rock, NX, RMR=61	3 (78)	90 (100)	4, 7, 5, 6, 5					
35	Hole stopped @ 35.1 ft								

BOTTOM OF ABUT NO 1
FOOTING EL 486.00

Remarks:
Top of Bedrock 21.1 feet.
Hole collapsed at 8.9 feet.

Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. C_E is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.

BORING LOG 2 DUXBURY BF 013-4(47).GPJ VERMONT AOT.GDT 4/26/16

PROJECT NAME:	DUXBURY
PROJECT NUMBER:	BF 013-4(47)

T·Y·LIN INTERNATIONAL

FILE NAME: z16b001blog1.dgn	PLOT DATE: 5/23/2016
PROJECT LEADER: J. OLUND	DRAWN BY: S. MORGAN
DESIGNED BY: VTRANS	CHECKED BY: J. OLUND
BORING LOGS 1	SHEET 37 OF 69

BOTTOM OF ABUT NO 2
FOOTING EL 486.00

STATE OF VERMONT — AGENCY OF TRANSPORTATION — CONSTRUCTION AND MATERIALS BUREAU — CENTRAL LABORATORY

BORING LOG — DUXBURY — BF 013-4(47) — VT 100 Br. #193

Boring No.: B-103 | Page No.: 1 of 1 | Pin No.: 16b001 | Checked By: MLM

Boring Crew: WHITLOCK, JUDKINS, NIETO
Date Started: 4/19/16 Date Finished: 4/19/16
VTSPG NAD83: N 664065.06 ft E 1572963.93 ft
Station: 20+95.4 Offset: -11.50
Ground Elevation: 509.9 ft

	Casing	Sampler
Type:	WB	SS
I.D.:	4 in	1.5 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.

Hammer/Rod Type: Auto/AWJ
Rig: CME 55 TRACK C_E = 1.41

Groundwater Observations		
Date	Depth (ft)	Notes
04/19/16	12.5	W.T. after drilling

Depth (ft)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
	Asphalt Pavement, 0.0 ft - 0.63 ft								
	A-1-b, GrSa, Lt/brn, Moist, Rec. = 1.1 ft				10-11-11-10 (22)	5.2	36.0	53.1	10.9
	Field Note:, Cleaned out casing								
5	A-2-4, GrSiSa, Lt/brn, Moist, Rec. = 1.2 ft				4-4-6-6 (10)	14.1	20.0	53.5	26.5
	Field Note:, Cleaned out casing								
10	A-2-4, Sa, Lt/brn, Moist, Rec. = 1.1 ft				7-6-6-7 (12)	9.6	15.7	70.2	14.1
15	Field Note:, Cleaned out casing								
	A-3, Sa, Lt/brn, Moist, Rec. = 0.9 ft				2-2-3-5 (5)	12.4	18.6	71.8	9.6
	Field Note:, Cleaned out casing								
20	A-1-a, SaGr, Lt/brn, Moist, Rec. = 2.0 ft, Lab Note: Broken rock was within sample.				15-18-16-14 (34)	8.8	67.6	27.1	5.3
	Field Note:, Cleaned out casing								
	A-1-b, SaGr, gry, Moist, Rec. = 0.7 ft, Lab Note: Broken and weathered rock was within sample.				16-49-R@5.0" (R)	12.3	50.0	30.8	19.2
	Field Note:, NXDC, Cleaned out casing								
25	A-1-b, SiGrSa, gry, Moist, Rec. = 0.4 ft, Lab Note: A lot of broken and weathered rock was within sample.				R@5.0" (R)	10.4	32.8	46.0	21.2
	A-1-a, SaGr, gry, Moist, Rec. = 0.2 ft, Lab Note: Sample consisted entirely of broken and weathered rock.				R@2.5" (R)	8.5	57.4	30.5	12.1
30	26.5 ft - 31.5 ft, Dark gray to black, Graphitic PHYLLITE, with siliceos laminae. Rust staining along joints. Medium hard, Slightly weathered, Poor rock, NX, RMR=27	1 (75-80)	62 (0)	3 4 6 5 5					
35	31.5 ft - 36.5 ft, Dark gray to black, Slightly vuggy pyrite bearing graphitic PHYLLITE, with siliceous laminae. Vertical rust stained joint at 31.5 feet to 32.15 feet. Remaining joints are fresh. Hard, Unweathered, Fair rock, NX, RMR=53	2 (75-80)	92 (78)	4 4 5 7 6					

Hole stopped @ 36.5 ft

Remarks:
Top of Bedrock at 26.5 feet.
Hole Collapsed at 16.6 feet.
1.) All water return stopped from 8.0-19.0 feet.

Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. C_E is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.

BORING LOG 2 DUXBURY BF 013-4(47).GPJ VERMONT AOT.GDT 4/26/16

STATE OF VERMONT — AGENCY OF TRANSPORTATION — CONSTRUCTION AND MATERIALS BUREAU — CENTRAL LABORATORY

BORING LOG — DUXBURY — BF 013-4(47) — VT 100 Br. #193

Boring No.: B-103A | Page No.: 1 of 1 | Pin No.: 16b001 | Checked By: MLM

Boring Crew: JUDKINS, NIETO
Date Started: 4/22/16 Date Finished: 4/22/16
VTSPG NAD83: N 664062.47 ft E 1572966.24 ft
Station: 20+96.9 Offset: -8.40
Ground Elevation: 509.9 ft

	Casing	Sampler
Type:	WB	SS
I.D.:	4 in	1.5 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.

Hammer/Rod Type: Auto/AWJ
Rig: CME 55 TRACK C_E = 1.41

Groundwater Observations		
Date	Depth (ft)	Notes

Depth (ft)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
	Asphalt Pavement, 0.0 ft - 0.62 ft					
12.5	Field Note:, NXDC					

Hole stopped @ 13.5 ft

Remarks:
Hole collapsed at 10.5 feet

1.) Advanced casing to 12.5 feet.
2.) Soil and rock fragments found in cuttings. Concrete was not encountered.
3.) Hit culvert at 13.5 feet and aborted drilling operations.

Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. C_E is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.

BORING LOG 2 DUXBURY BF 013-4(47).GPJ VERMONT AOT.GDT 4/28/16

STATE OF VERMONT — AGENCY OF TRANSPORTATION — CONSTRUCTION AND MATERIALS BUREAU — CENTRAL LABORATORY

BORING LOG — DUXBURY — BF 013-4(47) — VT 100 Br. #193

Boring No.: B-103B | Page No.: 1 of 1 | Pin No.: 16b001 | Checked By: MLM

Boring Crew: JUDKINS, NIETO
Date Started: 4/22/16 Date Finished: 4/22/16
VTSPG NAD83: N 664065.15 ft E 1572967.55 ft
Station: 20+98.9 Offset: -10.60
Ground Elevation: 509.9 ft

	Casing	Sampler
Type:	WB	SS
I.D.:	4 in	1.5 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.

Hammer/Rod Type: Auto/AWJ
Rig: CME 55 TRACK C_E = 1.41

Groundwater Observations		
Date	Depth (ft)	Notes
04/22/16	7.7	W.T. after drilling

Depth (ft)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
	Asphalt Pavement, 0.0 ft - 0.63 ft					
20	Field Note:, NXDC, Weathered rock					

Hole stopped @ 22.0 ft

Remarks:
Hole Collapsed at 10.5 feet.

1.) Advanced boulder breaker to 15.0 feet.
2.) Advanced casing to 20.0 feet.
3.) Concrete was not encountered.

Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. C_E is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.

BORING LOG 2 DUXBURY BF 013-4(47).GPJ VERMONT AOT.GDT 4/28/16

PROJECT NAME: DUXBURY
PROJECT NUMBER: BF 013-4(47)

T·Y·LIN INTERNATIONAL

FILE NAME: z16b001blog2.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: VTRANS
BORING LOGS 2

PLOT DATE: 5/23/2016
DRAWN BY: S. MORGAN
CHECKED BY: J. OLUND
SHEET 38 OF 69

BORING LOG B-103C

STATE OF VERMONT
AGENCY OF TRANSPORTATION
CONSTRUCTION AND
MATERIALS BUREAU
CENTRAL LABORATORY

DUXBURY
BF 013-4(47)
VT 100 Br. #193

Boring No.: B-103C
Page No.: 1 of 1
Pin No.: 16b001
Checked By: MLM

Boring Crew: JUDKINS, NIETO
Date Started: 4/22/16 Date Finished: 4/22/16
VTSPG NAD83: N 664068.65 ft E 1572968.57 ft
Station: 21+0.8 Offset: -13.70
Ground Elevation: 509.8 ft

	Casing	Sampler
Type:	WB	SS
I.D.:	4 in	1.5 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:		Auto/AWJ
Rig:	CME 55 TRACK	C_r = 1.41

Groundwater Observations

Date	Depth (ft)	Notes

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
0.0		Asphalt pavement, 0.0 ft - 0.61 ft					
9.5		Field Note:, NXDC, Broken rock and pieces of concrete found in sample. Largest piece of concrete recovered was 0.4 feet.					
12.5		Field Note:, NXDC through concrete, Pieces of broken rock and concrete.					

Hole stopped @ 16.0 ft

Remarks:
Hole collapsed at 11.7 feet.

1.) Advanced casing to 9.5 feet.
2.) Concrete was not encountered from 14.5 to 16.0 feet.

Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. C_r is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.

BORING LOG 2 DUXBURY BF 013-4(47).GPJ VERMONT AOT.GDT 4/28/16

BORING LOG B-103D

STATE OF VERMONT
AGENCY OF TRANSPORTATION
CONSTRUCTION AND
MATERIALS BUREAU
CENTRAL LABORATORY

DUXBURY
BF 013-4(47)
VT 100 Br. #193

Boring No.: B-103D
Page No.: 1 of 1
Pin No.: 16b001
Checked By: MLM

Boring Crew: JUDKINS, NIETO
Date Started: 4/22/16 Date Finished: 4/22/16
VTSPG NAD83: N 664070.84 ft E 1572969.16 ft
Station: 21+2.0 Offset: -15.60
Ground Elevation: 509.8 ft

	Casing	Sampler
Type:	WB	SS
I.D.:	4 in	1.5 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:		Auto/AWJ
Rig:	CME 55 TRACK	C_r = 1.41

Groundwater Observations

Date	Depth (ft)	Notes

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
0.0		Asphalt pavement, 0.0 ft - 0.72 ft					

Hole stopped @ 12.0 ft

Remarks:
1.) Advanced boulder breaker to 12.0 feet.
2.) Boring drilled to check for concrete. No concrete found, so hole was stopped at 12.0 feet.

Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. C_r is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.

BORING LOG 2 DUXBURY BF 013-4(47).GPJ VERMONT AOT.GDT 4/28/16

PROJECT NAME: DUXBURY
PROJECT NUMBER: BF 013-4(47)

T.Y.LIN INTERNATIONAL

FILE NAME: z16b001blog3.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: VTRANS
BORING LOGS 3

PLOT DATE: 5/23/2016
DRAWN BY: S. MORGAN
CHECKED BY: J. OLUND

BORING LOG B-104A

VTrans — Working to Get You There

STATE OF VERMONT
AGENCY OF TRANSPORTATION
CONSTRUCTION AND
MATERIALS BUREAU
CENTRAL LABORATORY

BORING LOG
DUXBURY
BF 013-4(47)
VT 100 Br. #193

Boring No.: **B-104A**
Page No.: 1 of 1
Pin No.: 16b001
Checked By: MLM

Boring Crew:	JUDKINS, NIETO
Date Started:	4/20/16
Date Finished:	4/20/16
VTSPG NAD83:	N 664037.55 ft E 1572950.75 ft
Station:	20+75.0
Offset:	11.30
Ground Elevation:	510.5 ft

	Casing	Sampler
Type:	WB	SS
I.D.:	4 in	1.5 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig:	CME 55 TRACK	C_E = 1.41

Groundwater Observations		
Date	Depth (ft)	Notes

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
0.0		Asphalt pavement, 0.0 ft - 0.93 ft						
8.9		8.9 ft - 13.0 ft, Gray, CONCRETE, 4.1 feet recovered. NX	1					
13.0		Hole stopped @ 13.0 ft						

Remarks:
1.) Advanced casing to 9.0 feet.
2.) Cored concrete and broke through at 13.0 feet.

Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. C_E is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.

BORING LOG 2 DUXBURY BF 013-4(47).GPJ VERMONT AOT.GDT 4/28/16

BOTTOM OF ABUT NO 2
FOOTING EL 486.00

BORING LOG B-104B

VTrans — Working to Get You There

STATE OF VERMONT
AGENCY OF TRANSPORTATION
CONSTRUCTION AND
MATERIALS BUREAU
CENTRAL LABORATORY

BORING LOG
DUXBURY
BF 013-4(47)
VT 100 Br. #193

Boring No.: **B-104B**
Page No.: 1 of 1
Pin No.: 16b001
Checked By: MLM

Boring Crew:	JUDKINS, NIETO
Date Started:	4/20/16
Date Finished:	4/21/16
VTSPG NAD83:	N 664039.17 ft E 1572946.47 ft
Station:	20+71.4
Offset:	8.50
Ground Elevation:	510.6 ft

	Casing	Sampler
Type:	WB	SS
I.D.:	4 in	1.5 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig:	CME 55 TRACK	C_E = 1.41

Groundwater Observations		
Date	Depth (ft)	Notes

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
0.0		Asphalt pavement, 0.0 ft - 0.95 ft								
20		A-1-b, SiSaGr, gry, Moist, Rec. = 1.2 ft, Lab Note: A lot of broken and weathered rock was within sample.				2-3-39-R@3.5" (42)	17.0	44.2	32.1	23.7
		Field Note:, NXDC, Cleaned out casing								
		A-1-b, SiGrSa, gry, Moist, Rec. = 0.4 ft, Lab Note: A lot of broken and weathered rock was within sample.				R@5.0" (R)	13.9	38.2	40.8	21.0
22.5		22.5 ft - 27.5 ft, Dark gray to black, Vuggy pyrite bearing graphitic PHYLLITE, with siliceous laminae. Rust staining and minor calcification along joints. Calcification noted in vugs. Seam/void noted at 23.7 feet to 24.05 feet. Hard, Slightly weathered, Poor rock, NX, RMR=27	1 (78-80)	94 (0)	3 3 3 4 5					
27.5		27.5 ft - 32.5 ft, Dark gray to black, Vuggy pyrite bearing graphitic PHYLLITE, with siliceous laminae. Rust and brown staining along joints. Calcification noted in vugs. Hard, Slightly weathered, Poor rock, NX, RMR=36	2 (75-80)	94 (12)	4 6 6 6 7					
32.5		Hole stopped @ 32.5 ft								

Remarks:
Top of Bedrock at 22.5 feet.
Hole collapsed at 18.9 feet.

Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. C_E is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.

BORING LOG 2 DUXBURY BF 013-4(47).GPJ VERMONT AOT.GDT 4/28/16

BORING LOG B-104C

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STATE OF VERMONT
AGENCY OF TRANSPORTATION
CONSTRUCTION AND
MATERIALS BUREAU
CENTRAL LABORATORY

BORING LOG
DUXBURY
BF 013-4(47)
VT 100 Br. #193

Boring No.: **B-104C**
Page No.: 1 of 1
Pin No.: 16b001
Checked By: MLM

Boring Crew:	JUDKINS, NIETO
Date Started:	4/21/16
Date Finished:	4/21/16
VTSPG NAD83:	N 664037.91 ft E 1572951.27 ft
Station:	20+75.7
Offset:	11.10
Ground Elevation:	510.5 ft

	Casing	Sampler
Type:	WB	SS
I.D.:	4 in	1.5 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig:	CME 55 TRACK	C_E = 1.41

Groundwater Observations		
Date	Depth (ft)	Notes

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
0.0		Asphalt pavement, 0.0 ft - 0.95 ft					
		Field Note:, NXDC, cobbles and stones with pieces of concrete					
		Field Note:, NXDC, cobbles and stones with pieces of concrete					
13.5		Hole stopped @ 13.5 ft					

Remarks:
Hole collapsed at 8.6 feet.

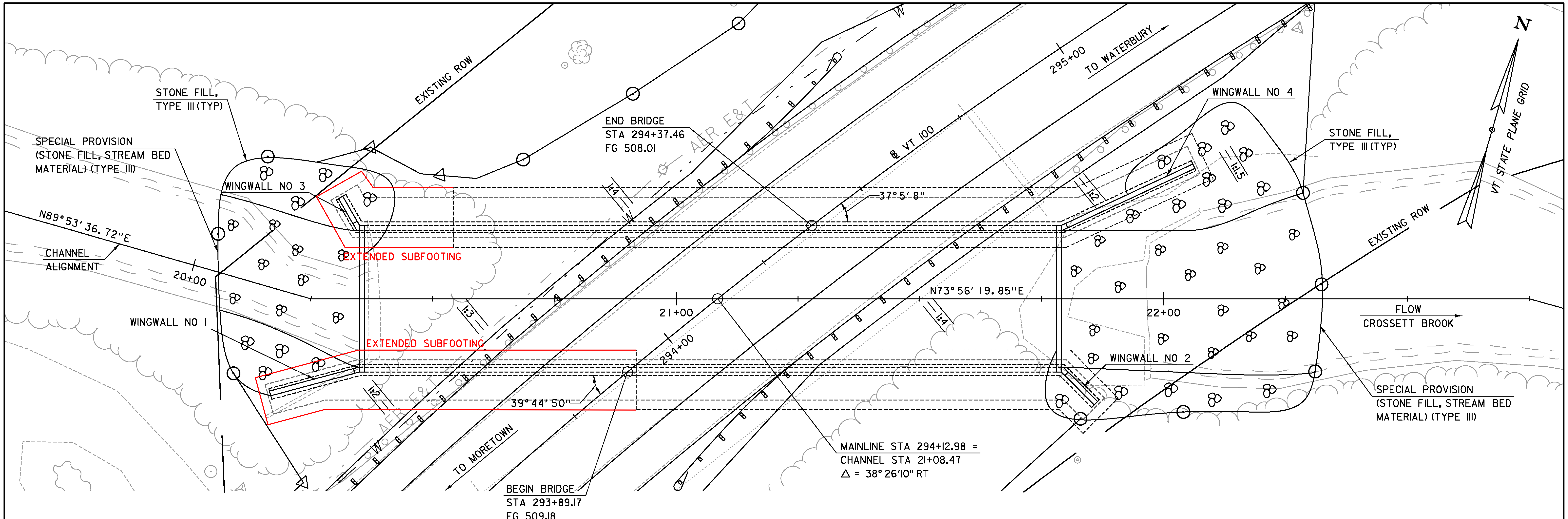
1.) Advanced casing to 11.0 feet.

Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. C_E is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.

BORING LOG 2 DUXBURY BF 013-4(47).GPJ VERMONT AOT.GDT 4/28/16

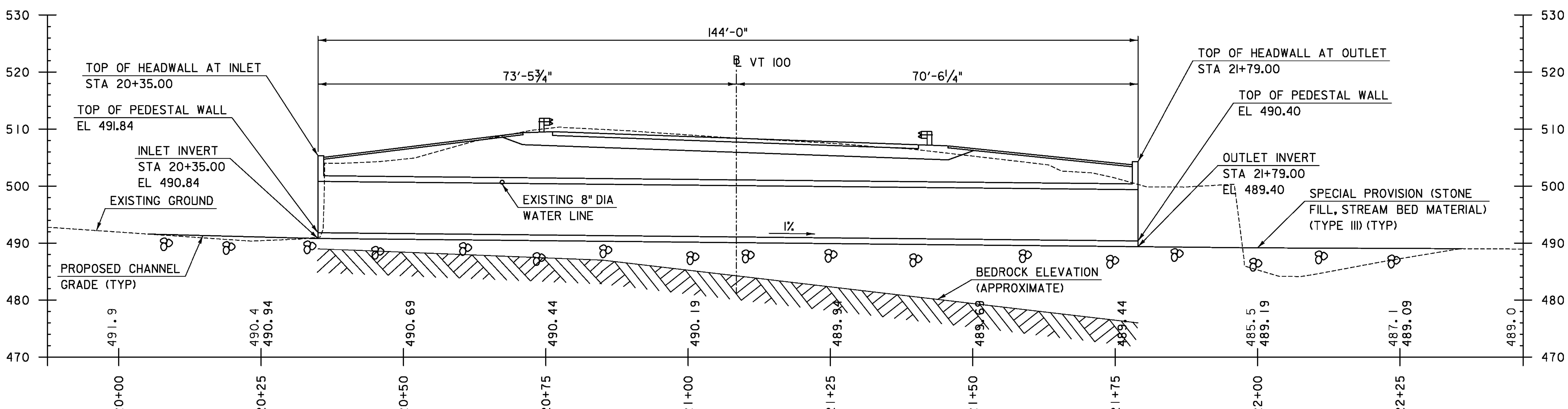
PROJECT NAME:	DUXBURY
PROJECT NUMBER:	BF 013-4(47)
FILE NAME:	z16b001blog4.dgn
PROJECT LEADER:	J. OLUND
DESIGNED BY:	VTRANS
	BORING LOGS 4
PLOT DATE:	5/23/2016
DRAWN BY:	S. MORGAN
CHECKED BY:	J. OLUND
SHEET	40 OF 69

T·Y·LIN INTERNATIONAL



PLAN

SCALE: 1" = 10′-0"



NOTE:

GRADES SHOWN TO THE NEAREST TENTH ARE EXISTING CHANNEL GRADE ALONG ℄.

GRADES SHOWN TO THE NEAREST HUNDREDTH ARE FINISH CHANNEL GRADE ALONG ℄.

LONGITUDINAL SECTION ALONG CHANNEL LINE

SCALE: 1" = 10′-0"

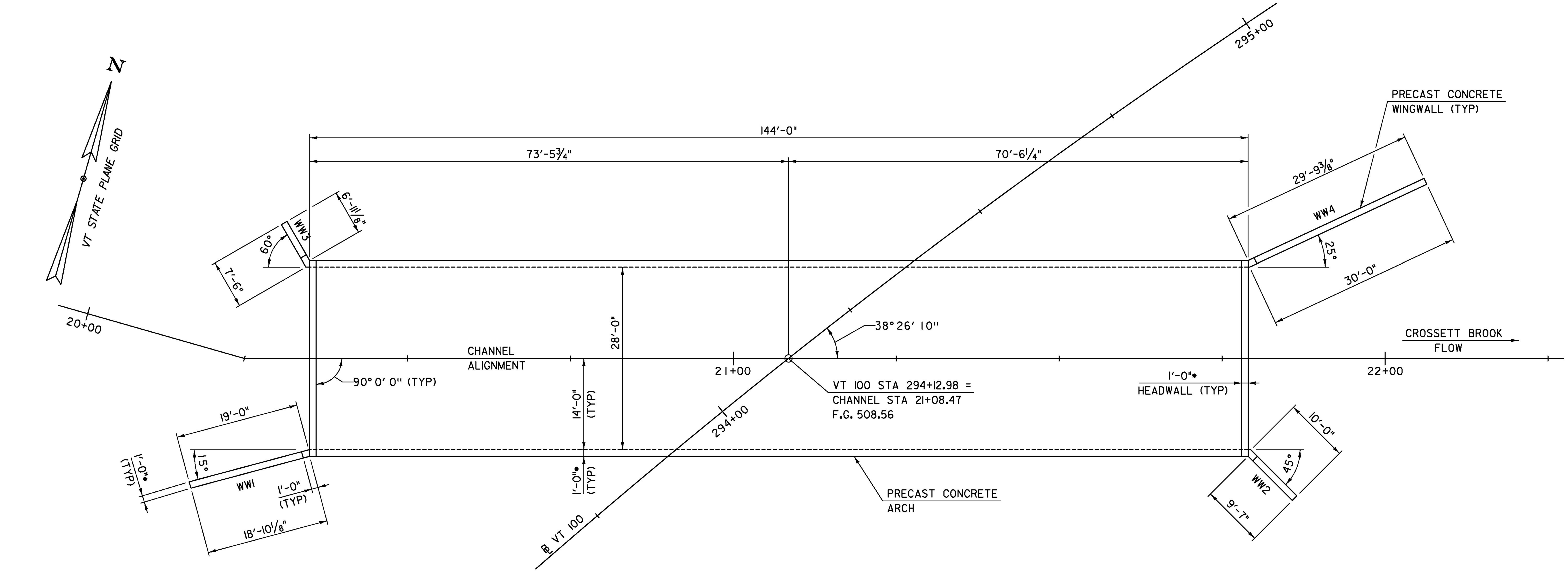
SCALE 1" = 10′-0"
10 0 10

TYLININTERNATIONAL

PROJECT NAME: DUXBURY
PROJECT NUMBER: BF 013-4(47)

FILE NAME: z16b001pe.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: D. MYERS
PLAN AND ELEVATION

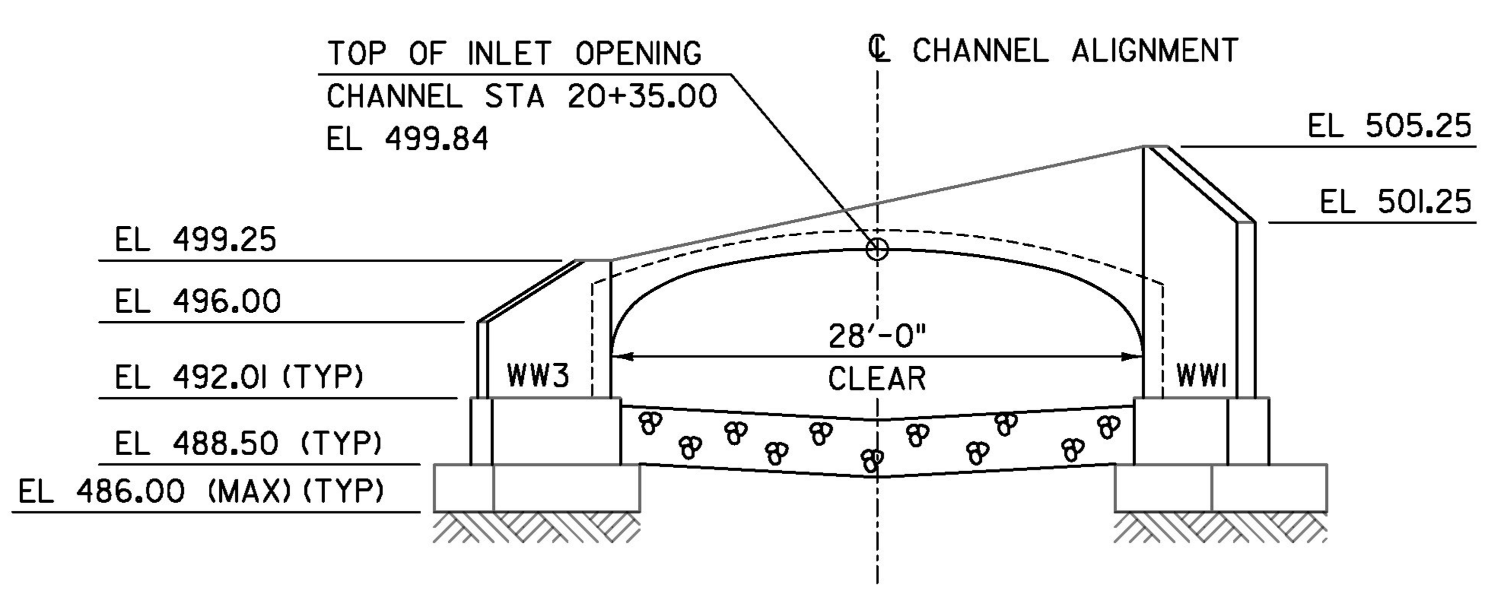
PLOT DATE: 5/23/2016
DRAWN BY: S. MORGAN
CHECKED BY: J. OLUND
SHEET 41 OF 69



• - FOR ESTIMATING PURPOSES ONLY. ACTUAL
DIMENSIONS SHALL BE DETERMINED BY THE FABRICATOR

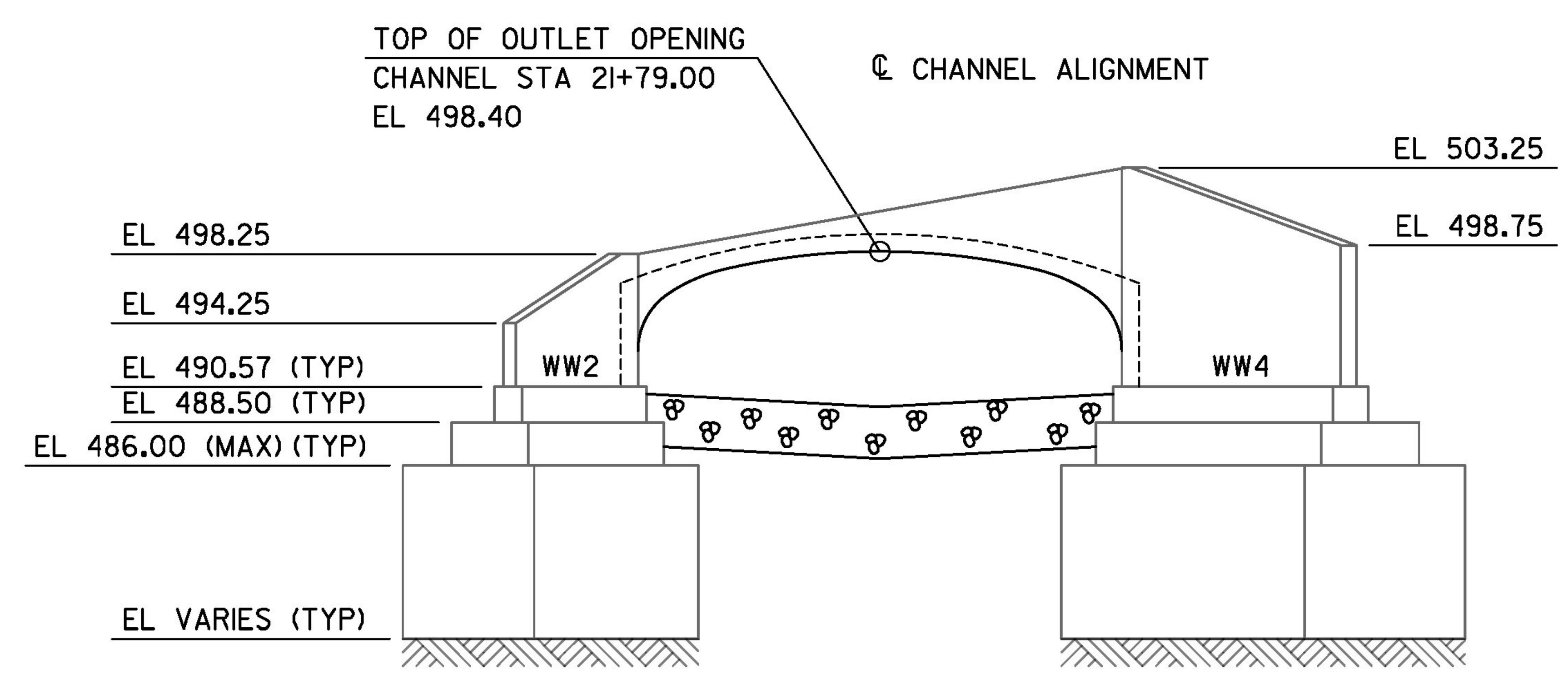
PRECAST CONCRETE STRUCTURE PLAN

SCALE ⅛" = 1'-0"



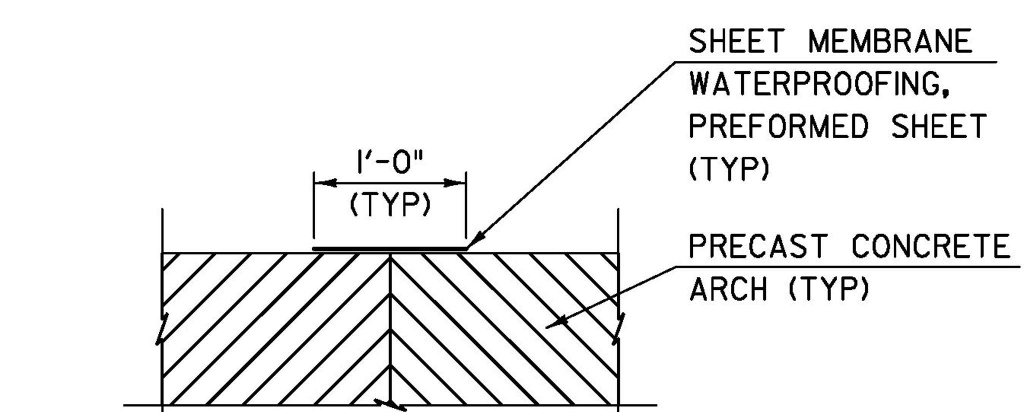
UPSTREAM ELEVATION LOOKING DOWNSTREAM

SCALE ⅛" = 1'-0"



DOWNSTREAM ELEVATION LOOKING UPSTREAM

SCALE ⅛" = 1'-0"



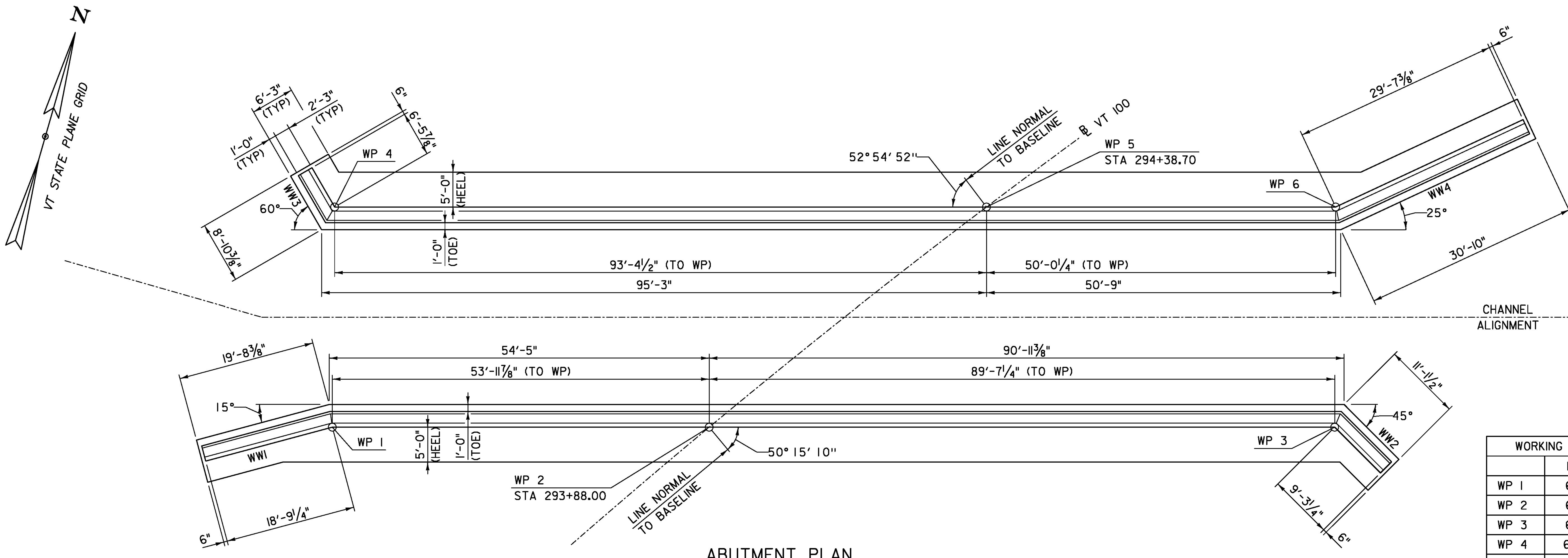
PRECAST ARCH JOINT COVER

SCALE 1" = 1'-0"

PROJECT NAME: DUXBURY
PROJECT NUMBER: BF 013-4(47)

T·Y·LIN INTERNATIONAL

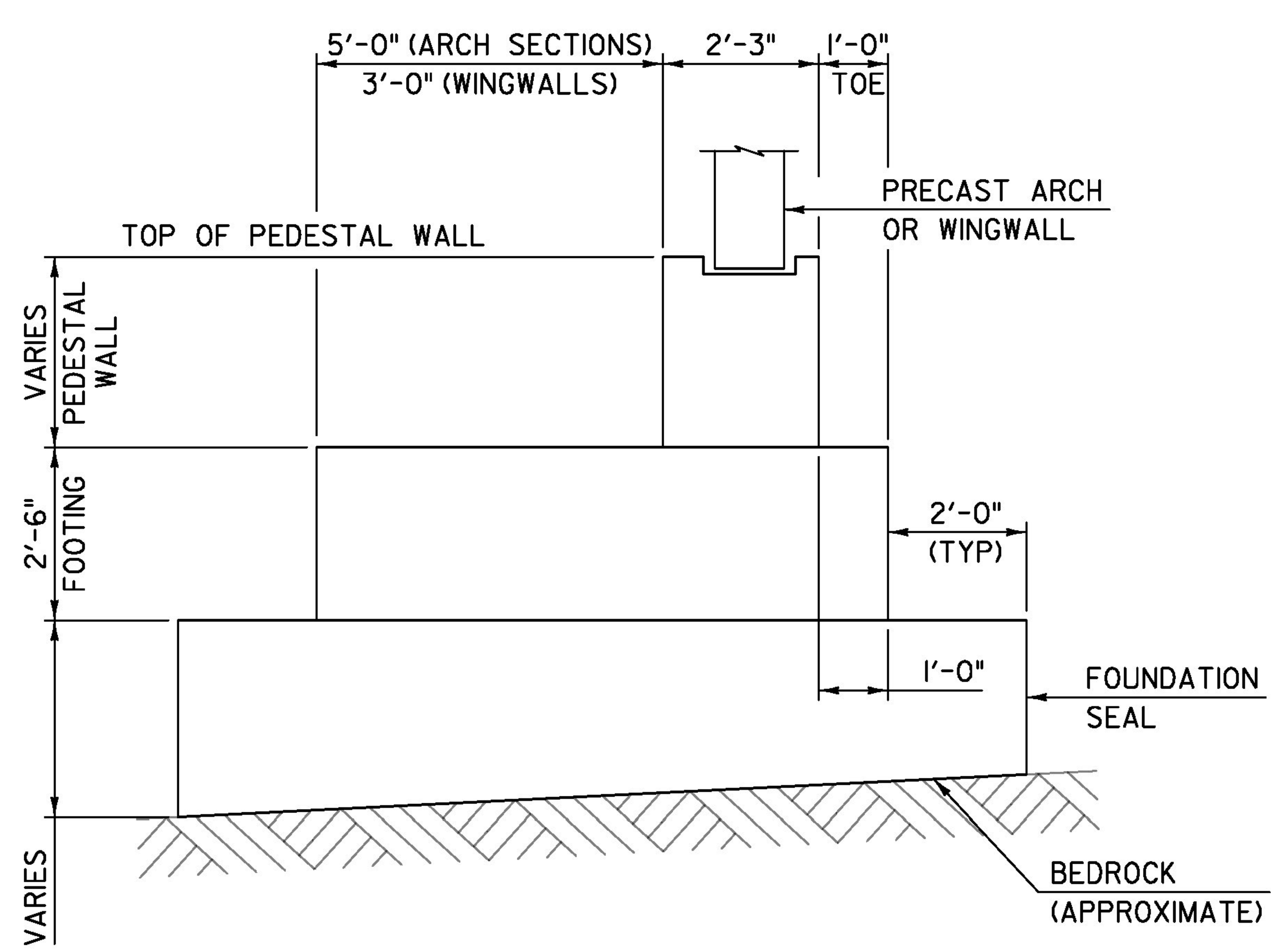
FILE NAME: z16b001struct.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: D. MYERS
PRECAST CONCRETE STRUCTURE PLAN
PLOT DATE: 5/23/2016
DRAWN BY: D. MYERS
CHECKED BY: B. TOOTHAKER
SHEET 42 OF 69



ABUTMENT PLAN

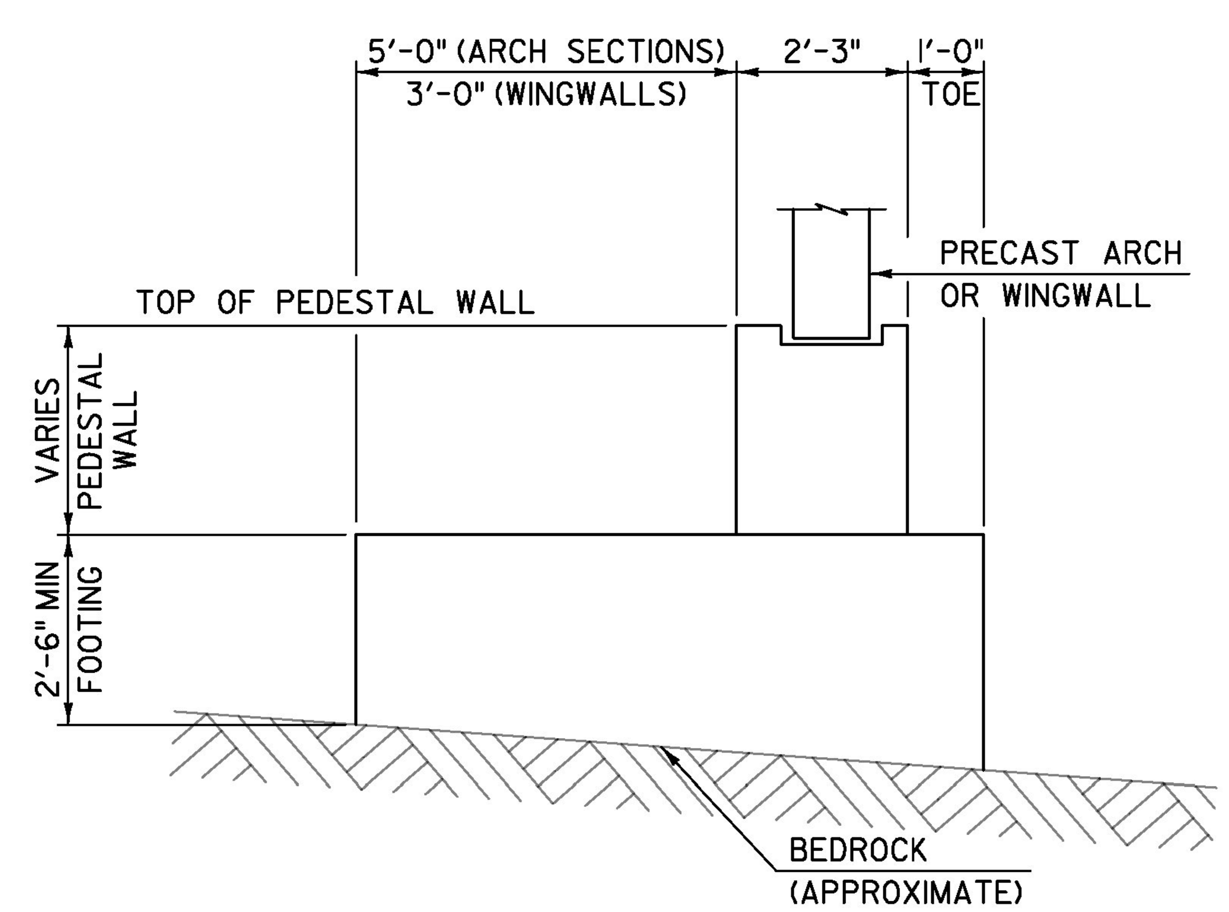
(FOUNDATION SEAL NOT SHOWN)
SCALE 1/8" = 1'-0"

WORKING POINT COORDINATES		
	NORTHING	EASTING
WP 1	664022.19	1572913.59
WP 2	664037.13	1572965.47
WP 3	664061.92	1573051.57
WP 4	664052.55	1572905.19
WP 5	664078.39	1572994.92
WP 6	664092.23	1573043.00



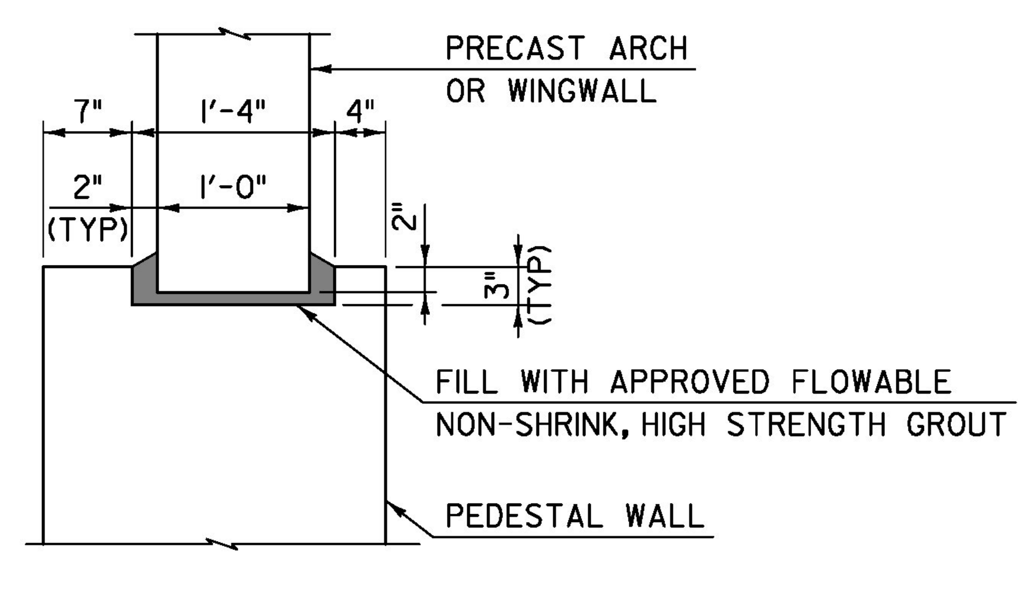
SECTION WITH FOUNDATION SEAL

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



SECTION WITHOUT FOUNDATION SEAL

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



PEDESTAL WALL TOP DETAIL

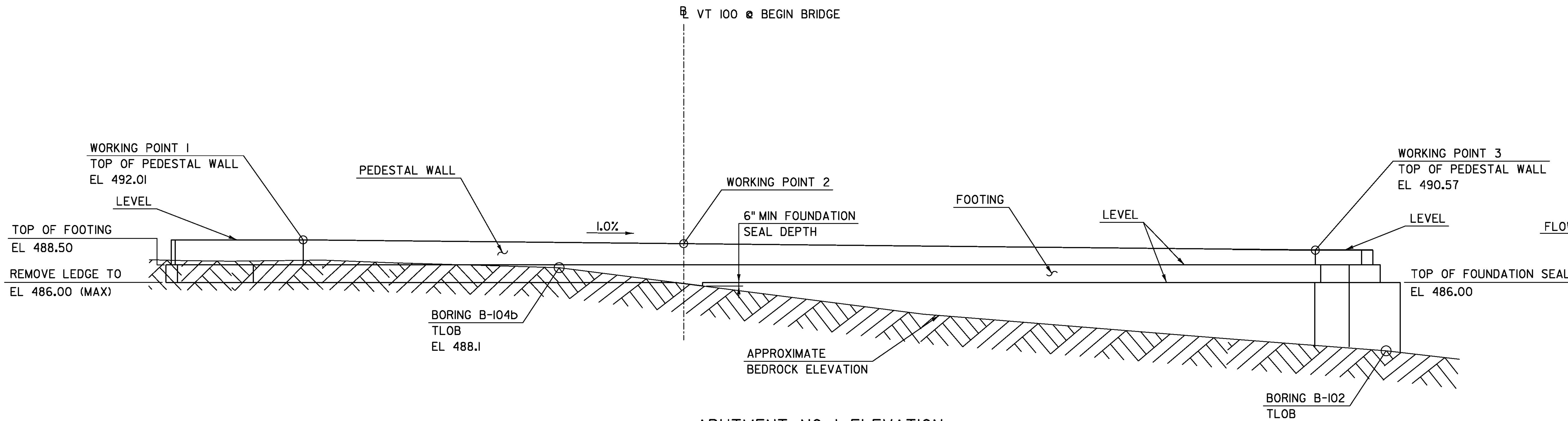
SCALE 1" = 1'-0"

PROJECT NAME: DUXBURY
PROJECT NUMBER: BF 013-4(47)

T·Y·LIN INTERNATIONAL

FILE NAME: z16b001found.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: D. MYERS
FOUNDATION PLAN AND SECTIONS

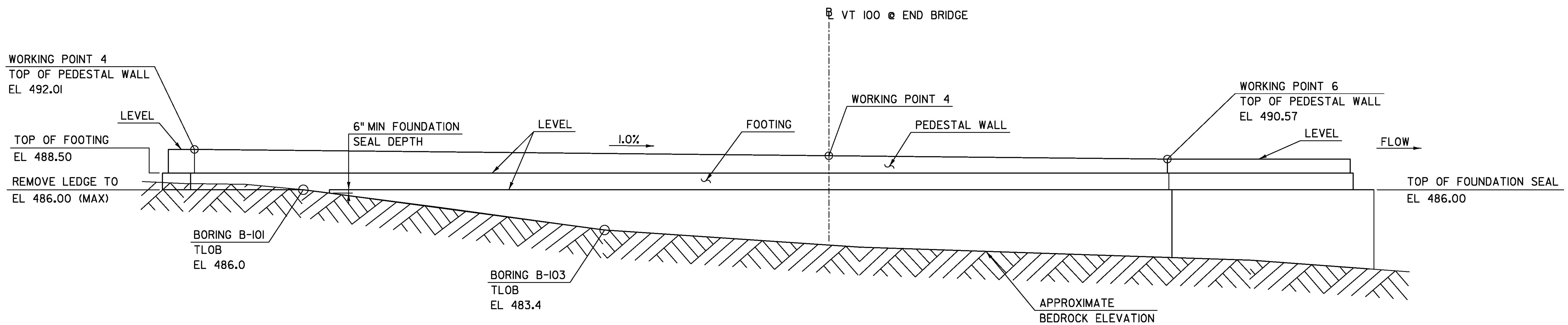
PLOT DATE: 5/23/2016
DRAWN BY: S. MORGAN
CHECKED BY: J. OLUND
SHEET 43 OF 69



ABUTMENT NO 1 ELEVATION

(LOOKING UPSTATION)

SCALE 1/8" = 1'-0"



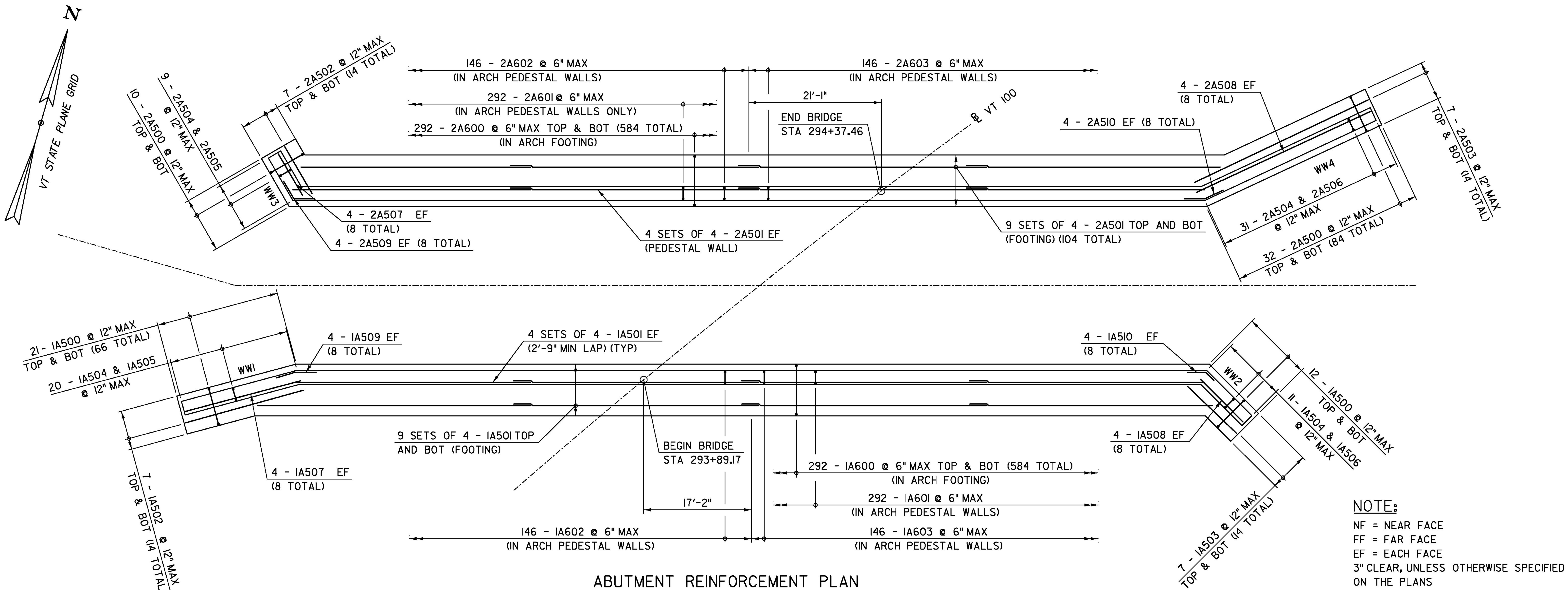
ABUTMENT NO 2 ELEVATION

(LOOKING UPSTATION)

SCALE 1/8" = 1'-0"

NOTE:
FOUNDATION SEAL MAY BE OMMITTED WHERE LEDGE ELEVATION EXCEEDS 485.5.

	PROJECT NAME: DUXBURY	
	PROJECT NUMBER: BF 013-4(47)	
T·Y·LIN INTERNATIONAL	FILE NAME: z16b001fndelev.dgn	PLOT DATE: 5/23/2016
	PROJECT LEADER: J. OLUND	DRAWN BY: S. MORGAN
	DESIGNED BY: D. MYERS	CHECKED BY: B. TOOTHAKER
	FOUNDATION ELEVATIONS	SHEET 44 OF 69

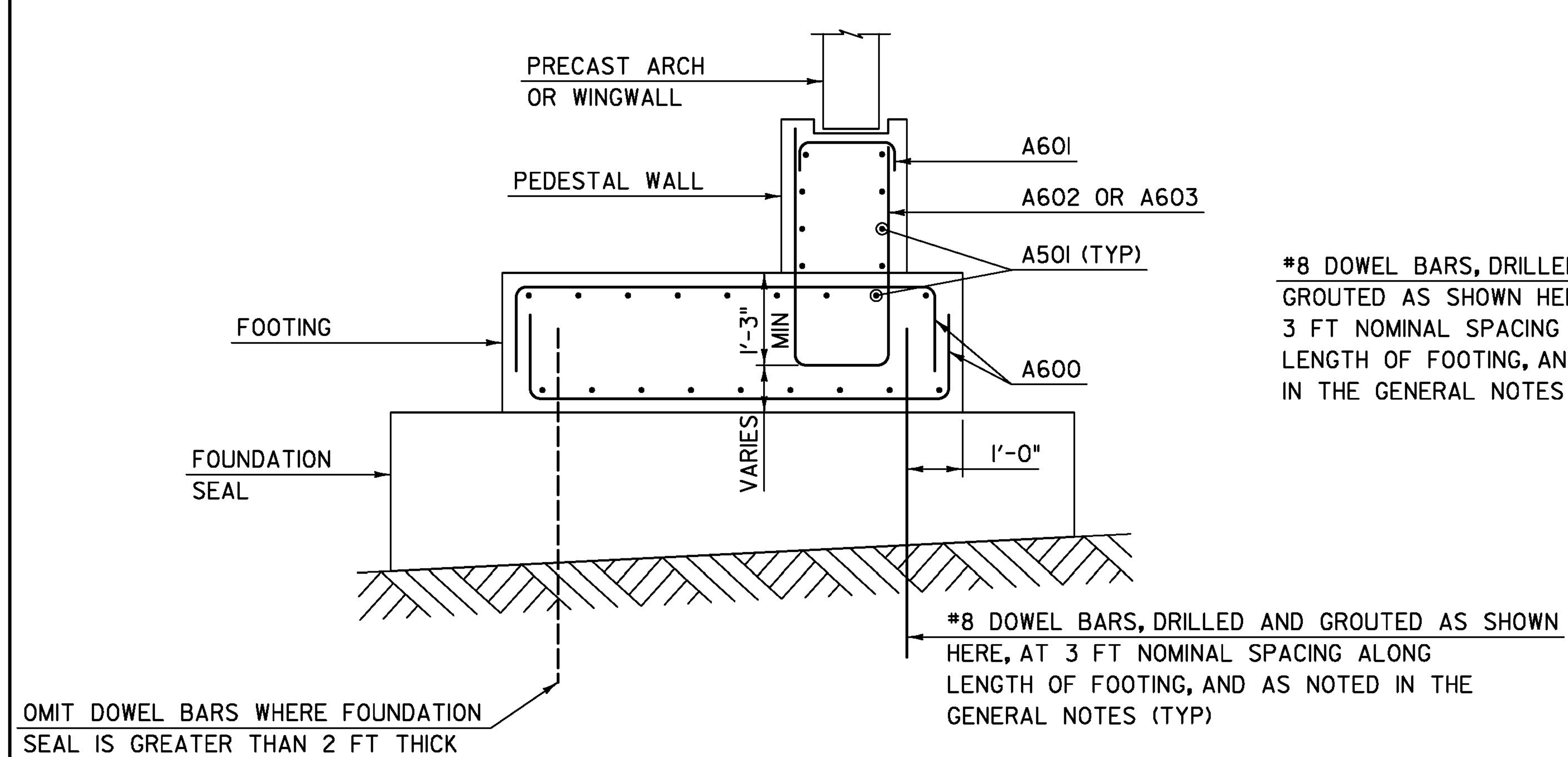


ABUTMENT REINFORCEMENT PLAN

SCALE 1/8" = 1'-0"
(FOUNDATION SEALS NOT SHOWN)

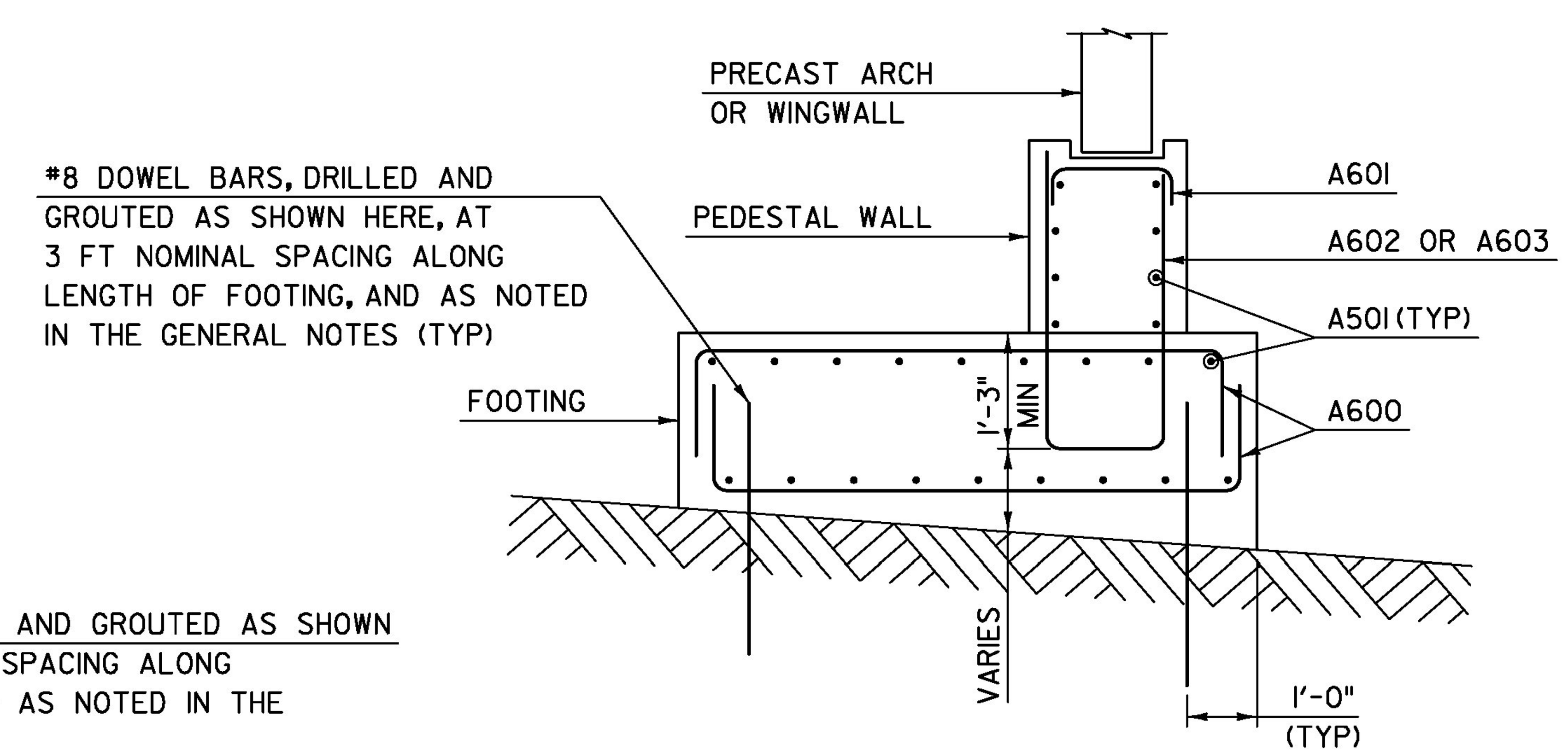
NOTE:

NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS
2'-9" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS



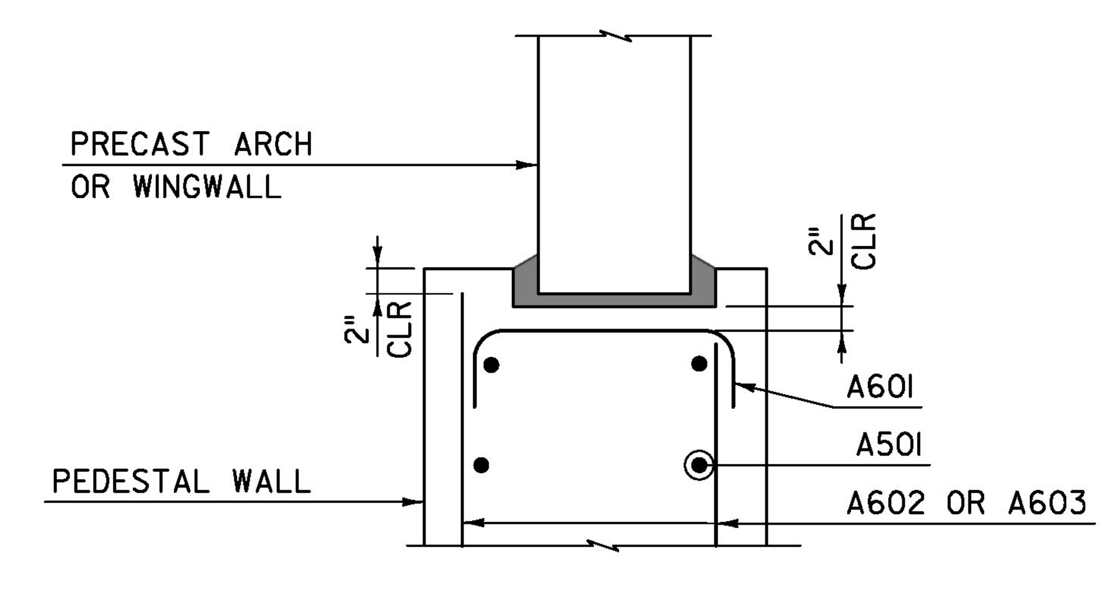
SECTION WITH FOUNDATION SEAL

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



SECTION WITHOUT FOUNDATION SEAL

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



PEDESTAL WALL TOP DETAIL

(WINGWALL BARS NOT LABELED)
SCALE 1" = 1'-0"

PROJECT NAME: DUXBURY	
PROJECT NUMBER: BF 013-4(47)	
FILE NAME: z16b001fndrelnf.dgn	PLOT DATE: 5/23/2016
PROJECT LEADER: J. OLUND	DRAWN BY: S. MORGAN
DESIGNED BY: T. POULIN	CHECKED BY: J. OLUND
FOUNDATION REINFORCEMENT	SHEET 45 OF 69

T.Y.LIN INTERNATIONAL

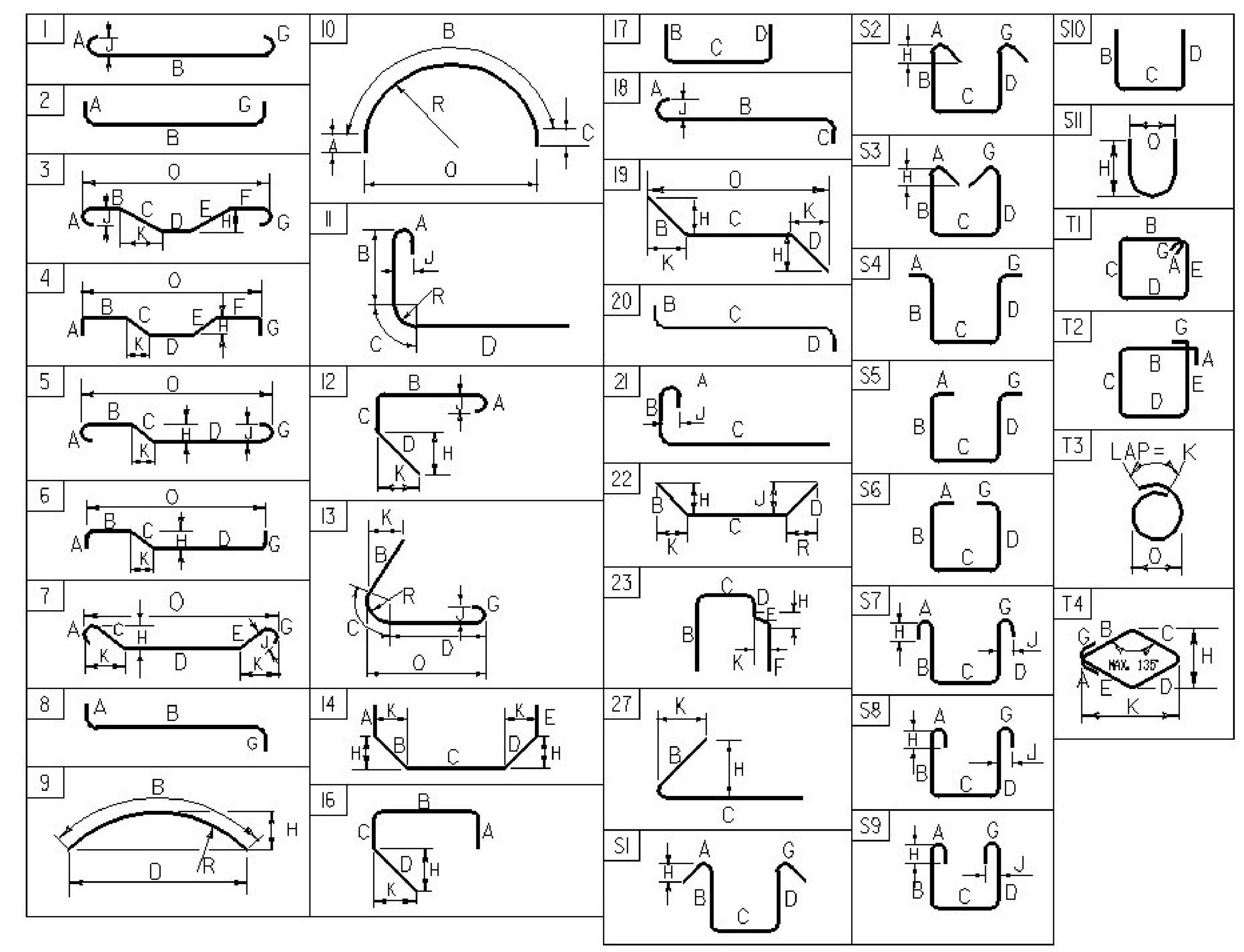
STATE OF VERMONT
AGENCY OF TRANSPORTATION

REINFORCING STEEL SCHEDULE

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
	ABUTMENT 1																
	66	5	8'- 9"	1A500	S10		1'- 6"	5'- 9"	1'- 6"								
	104	5	39'- 0"	1A501	STR												
	14	5	19'- 2"	1A502	STR												
	14	5	10'- 7"	1A503	STR												
	31	5	3'- 9"	1A504	2	1'- 0"	1'- 9"					1'- 0"					
	20	5	11'- 0"	1A505	S10		4'- 9"	1'- 9"	4'- 6"								
	11	5	9'- 6"	1A506	S10		4'- 0"	1'- 9"	3'- 9"								
	8	5	18'- 6"	1A507	STR												
	8	5	9'- 8"	1A508	STR												
	8	5	5'- 6"	1A509	22		2'- 9"	2'- 9"	0"				9"	0"	2'- 8"	0"	
	8	5	5'- 6"	1A510	22		2'- 9"	2'- 9"	0"				1'- 11"	0"	1'- 11"	0"	
✳	585	6	10'- 9"	1A600	S10		1'- 6"	7'- 9"	1'- 6"								
	292	6	3'- 9"	1A601	2	1'- 0"	1'- 9"					1'- 0"					
	146	6	11'- 0"	1A602	S10		4'- 9"	1'- 9"	4'- 6"								
	146	6	9'- 6"	1A603	S10		4'- 0"	1'- 9"	3'- 9"								
	ABUTMENT 2																
	84	5	8'- 9"	2A500	S10		1'- 6"	5'- 9"	1'- 6"								
	104	5	39'- 0"	2A501	STR												
	14	5	8'- 4"	2A502	STR												
	14	5	30'- 4"	2A503	STR												
	40	5	3'- 9"	2A504	2	1'- 0"	1'- 9"					1'- 0"					
	9	5	11'- 0"	2A505	S10		4'- 9"	1'- 9"	4'- 6"								
	31	5	9'- 6"	2A506	S10		4'- 0"	1'- 9"	3'- 9"								
✳	9	5	7'- 3"	2A507	STR												
	8	5	29'- 7"	2A508	STR												
	8	5	5'- 6"	2A509	22		2'- 9"	2'- 9"	0"				2'- 5"	0"	1'- 5"	0"	
	8	5	5'- 6"	2A510	22		2'- 9"	2'- 9"	0"				1'- 2"	0"	2'- 6"	0"	
	584	6	10'- 9"	2A600	S10		1'- 6"	7'- 9"	1'- 6"								
	292	6	3'- 9"	2A601	2	1'- 0"	1'- 9"					1'- 0"					
	146	6	11'- 0"	2A602	S10		4'- 9"	1'- 9"	4'- 6"								
	146	6	9'- 6"	2A603	S10		4'- 0"	1'- 9"	3'- 9"								

~ NOTES ~

1. 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.
2. FOR TYPICAL BENDING DETAILS, RECOMMENDED PIN DIAMETER "D" OF BENDS AND HOOKS, AND OTHER STANDARD PRACTICE, SEE CURRENT CONCRETE REINFORCING STEEL INSTITUTE "MANUAL OF STANDARD PRACTICE".
3. BARS WHICH REQUIRE MORE ACCURATE BENDING THAN STANDARD PRACTICES SHOULD HAVE LIMITS INDICATED.
4. ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT "A" AND "G" ON STANDARD 180 DEGREE AND 135 DEGREE HOOKS.
5. "J" DIMENSION ON 180 DEGREE HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE. OTHERWISE, STANDARD HOOKS ARE TO BE USED.
6. "H" DIMENSION ON STIRRUPS TO BE SHOWN ONLY WHEN NECESSARY TO MAINTAIN CLEARANCES.
7. WHERE SLOPE DIFFERS FROM 45 DEGREES, DIMENSIONS "H" AND "K" MUST BE SHOWN.
8. ▲ DENOTES BARS TO BE CUT IN FIELD.
9. ✳ DENOTES ONE EXTRA BAR ADDED FOR TESTING PURPOSES.
10. △ DENOTES TWO EXTRA BARS ADDED FOR TESTING PURPOSES.
11. E IN BAR MARK PREFIX DENOTES EPOXY COATED REINFORCING STEEL.



ASTM STANDARD REINFORCING BARS

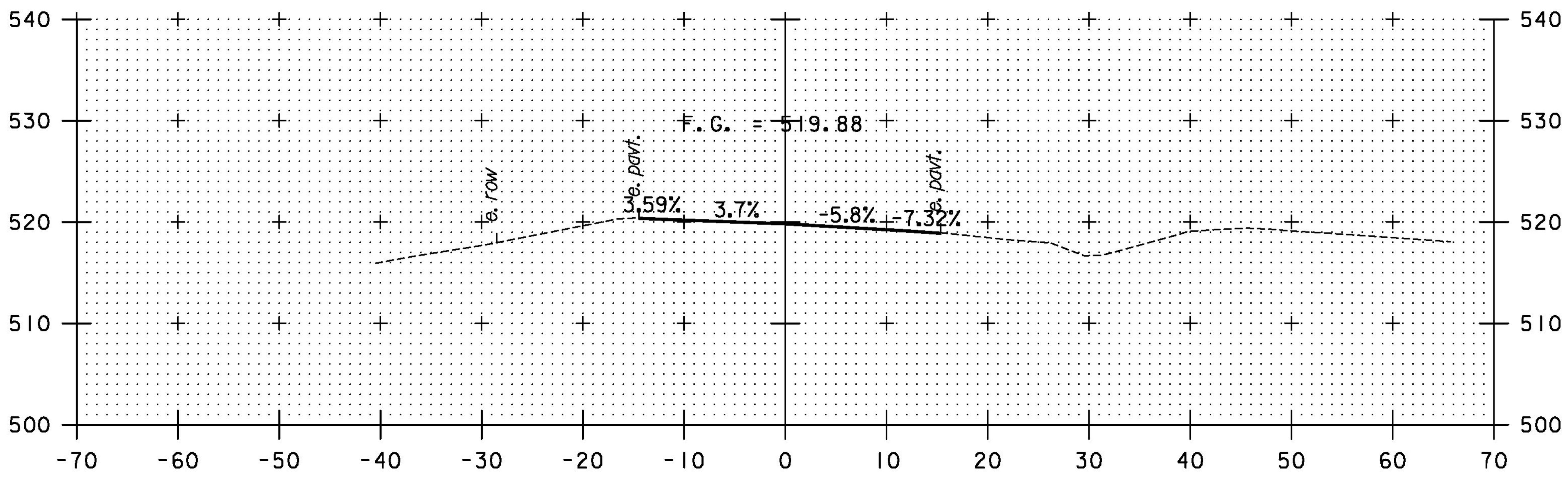
BAR SIZE DESIGNA-TION	WEIGHT POUNDS PER FOOT	NOMINAL DIMENSIONS ROUND SECTION DIAMETER INCHES	AREA INCHES ^{2}	PERIMETER INCHES
#3	0.376	0.375	0.11	1.178
#4	0.668	0.500	0.20	1.571
#5	1.043	0.625	0.31	1.963
#6	1.502	0.750	0.44	2.356
#7	2.044	0.875	0.60	2.749
#8	2.670	1.000	0.79	3.142
#9	3.400	1.128	1.00	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

T·Y·LIN INTERNATIONAL

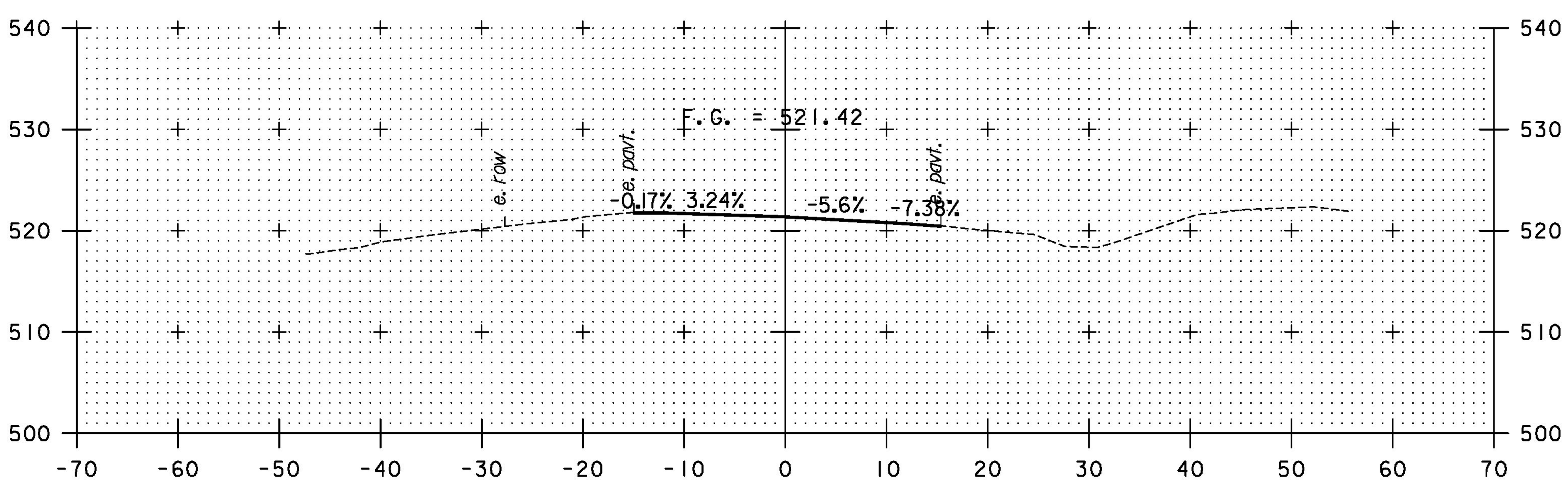
PROJECT NAME: **DUXBURY**
PROJECT NUMBER: **BF 013-4(47)**

FILE NAME: z16b001rss.dgn
PROJECT MANAGER: J. OLUND
DESIGNED BY: T. POULIN
REINFORCING STEEL SCHEDULE SHEET #1

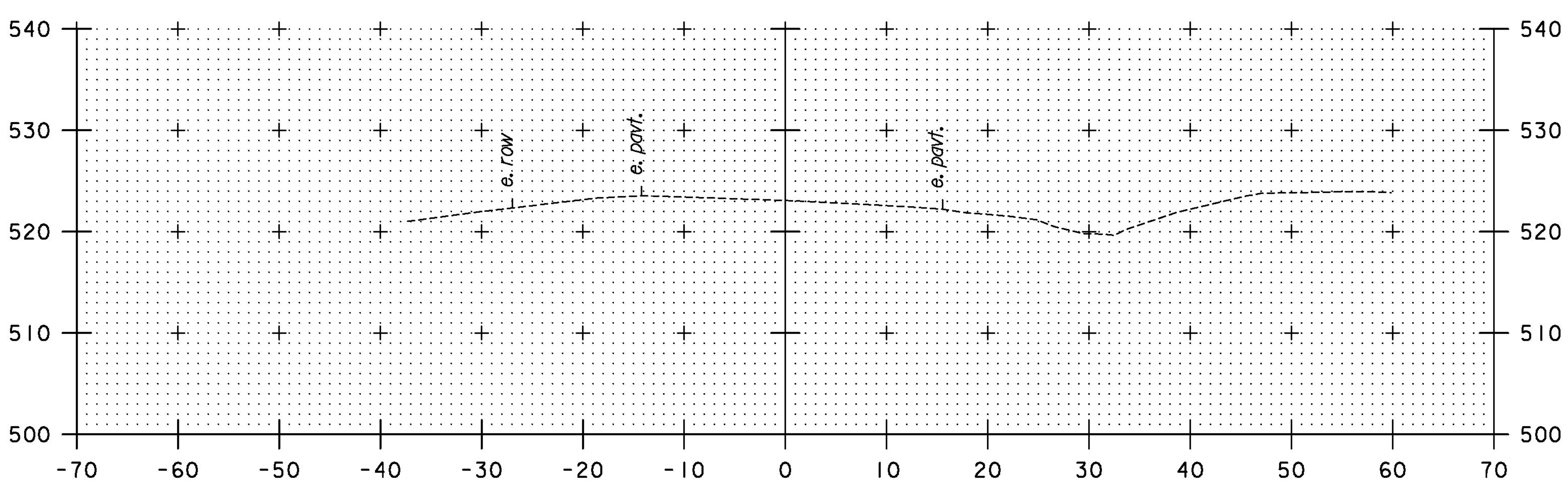
PLOT DATE: 5/23/2016
DRAWN BY: T. POULIN
CHECKED BY: J. OLUND
SHEET 46 OF 69



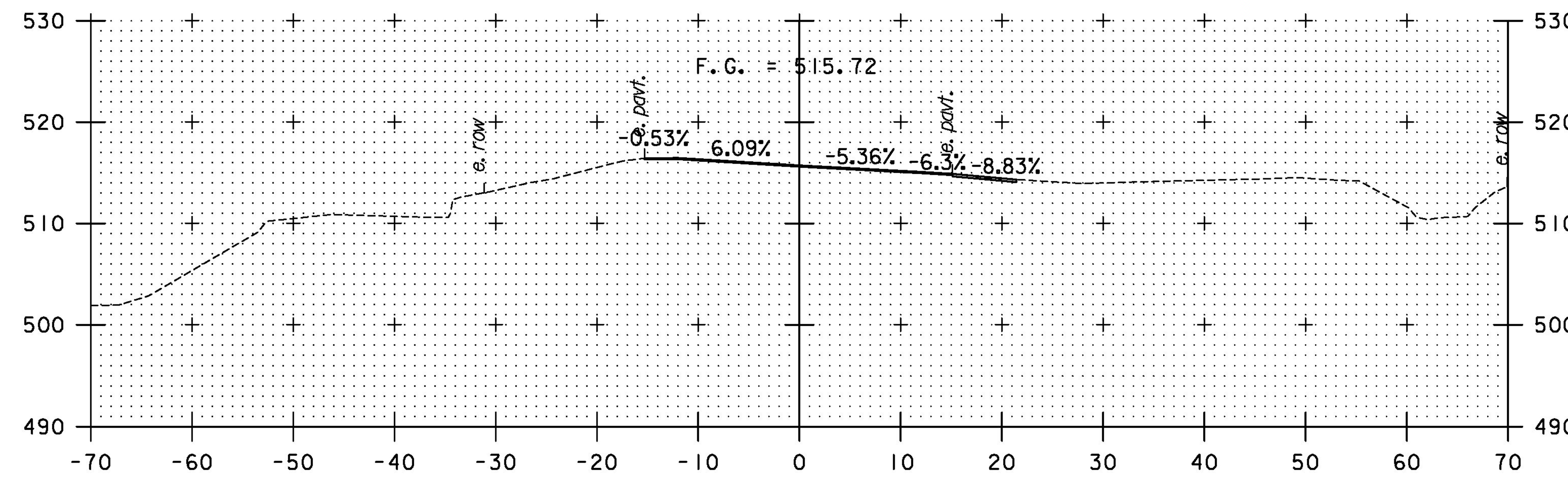
291+50



291+25
BEGIN APPROACH



291+00



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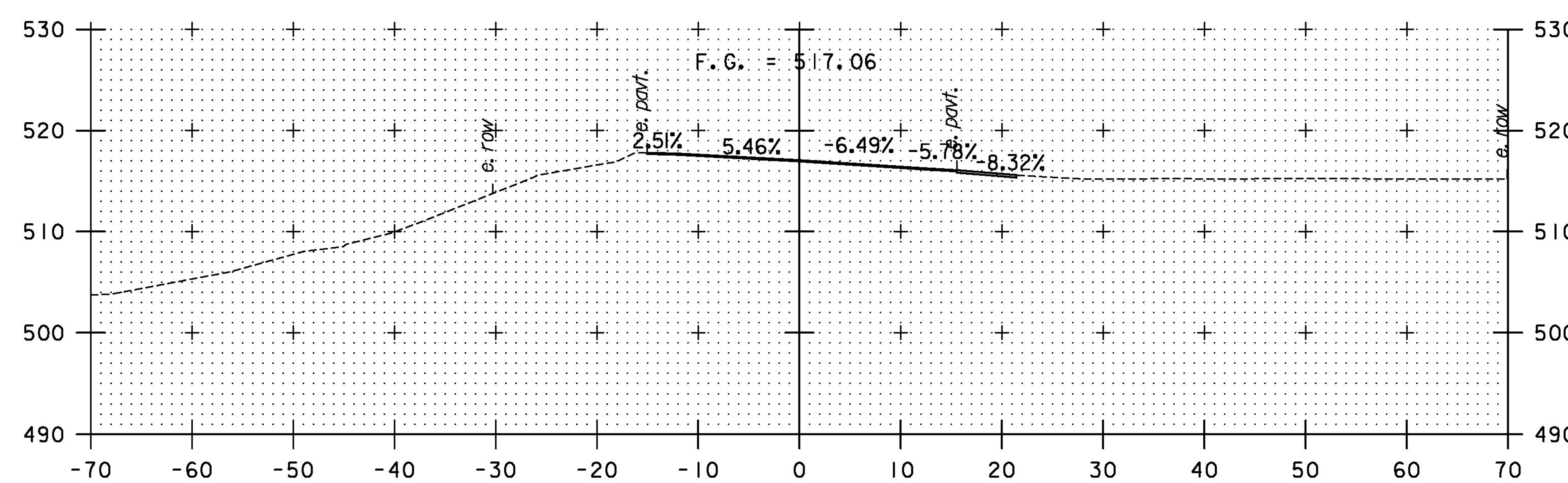
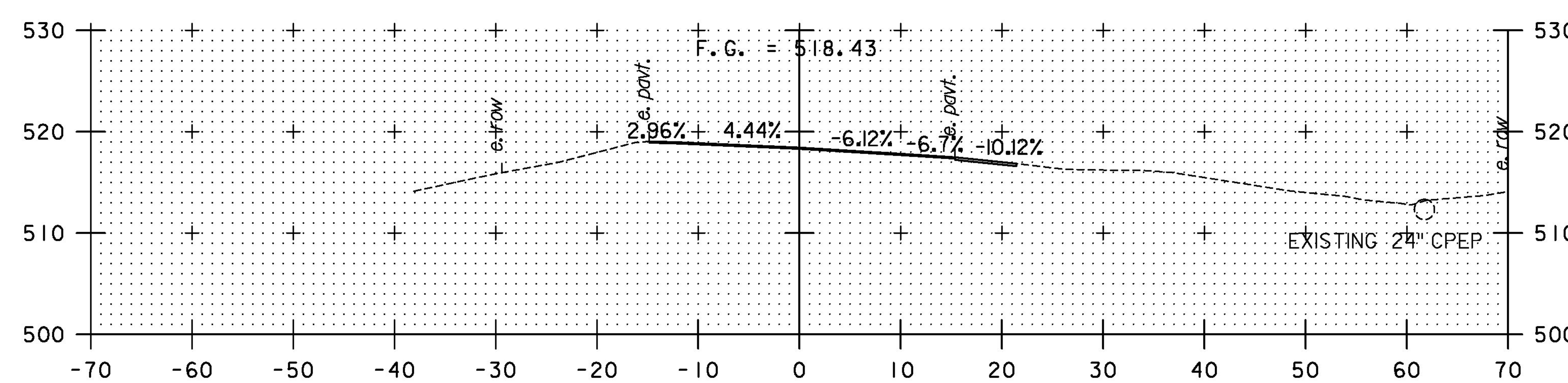


292+00



291+75

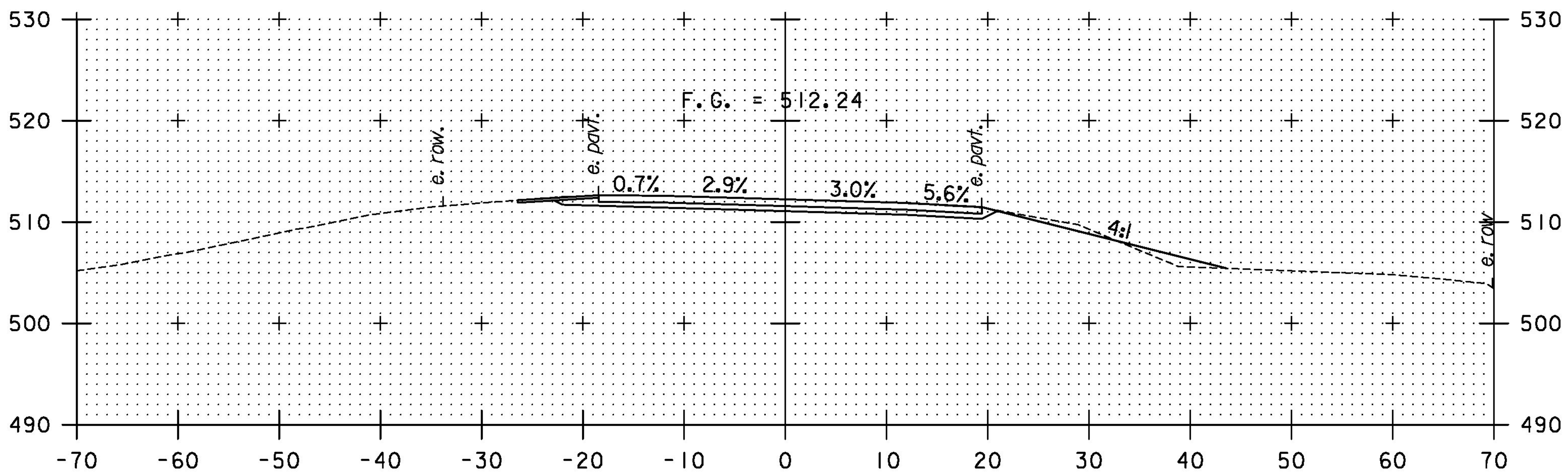
STA. 291+00 TO STA. 292+25

T·Y·LIN INTERNATIONAL

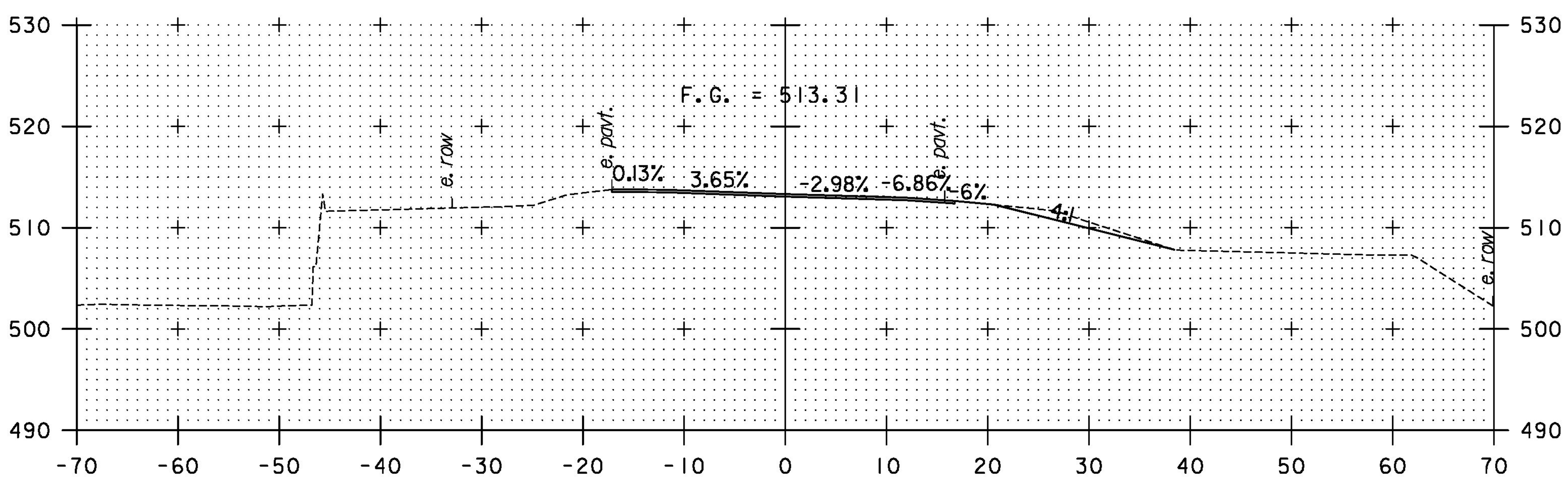
PROJECT NAME: DUXBURY
PROJECT NUMBER: BF 013-4(47)

FILE NAME: zl6b00lxs.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: J. HOWE
VT 100 CROSS SECTIONS I

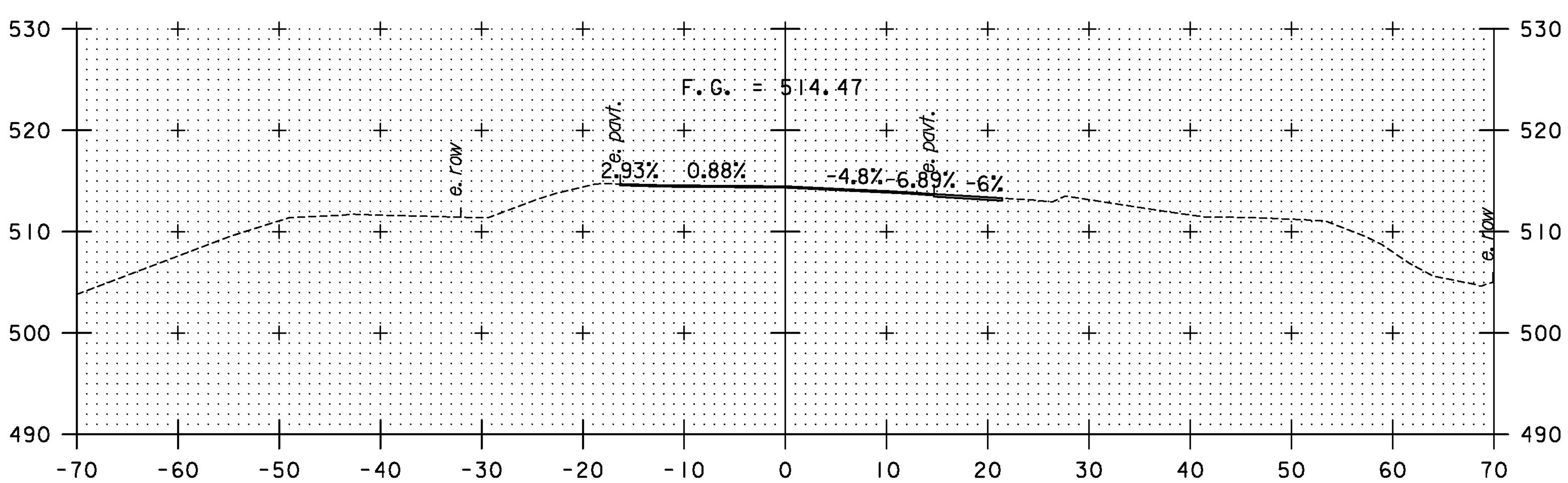
PLOT DATE: 5/23/2016
DRAWN BY: P. BRYANT
CHECKED BY: J. OLUND
SHEET 47 OF 69



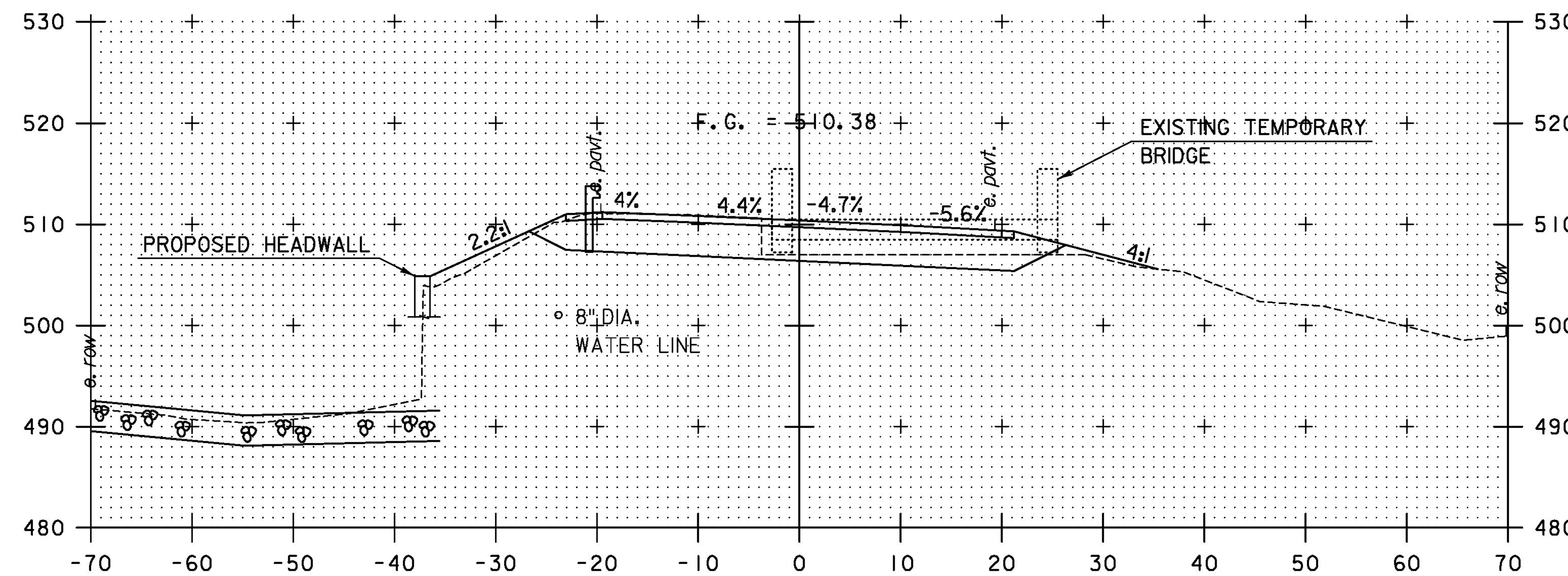
293+00
BEGIN PROJECT



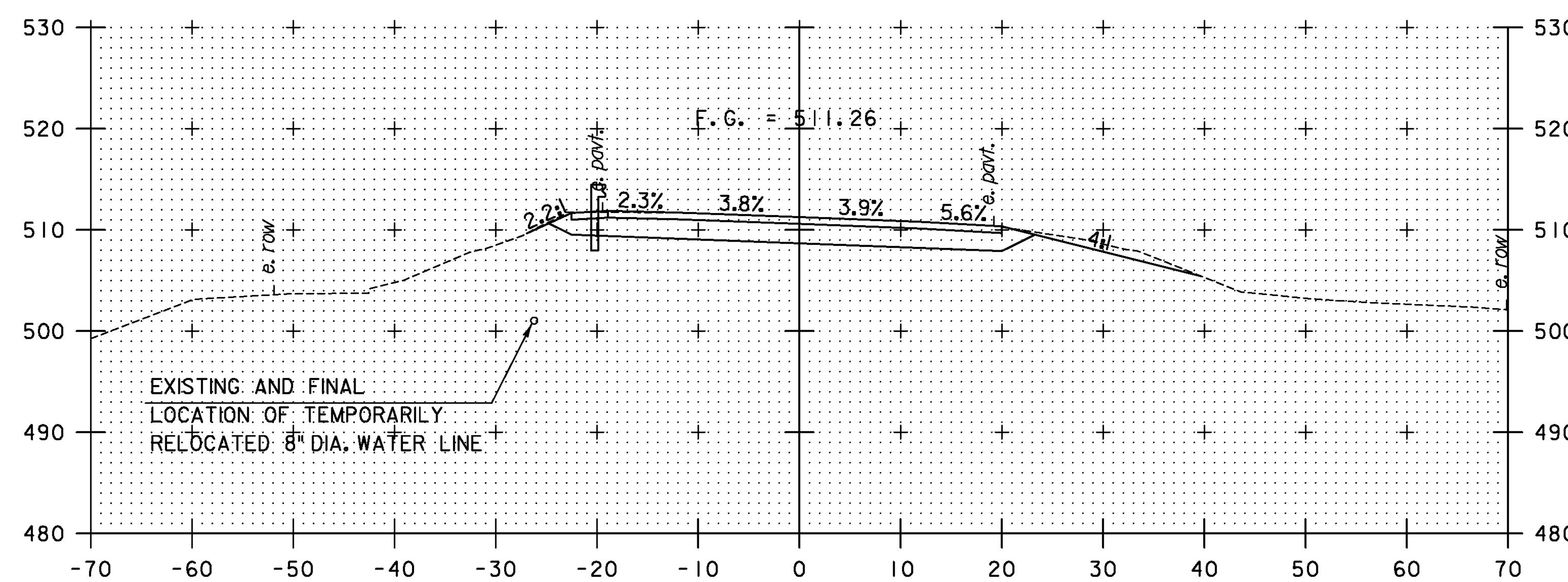
292+75



292+50



293+50



293+25

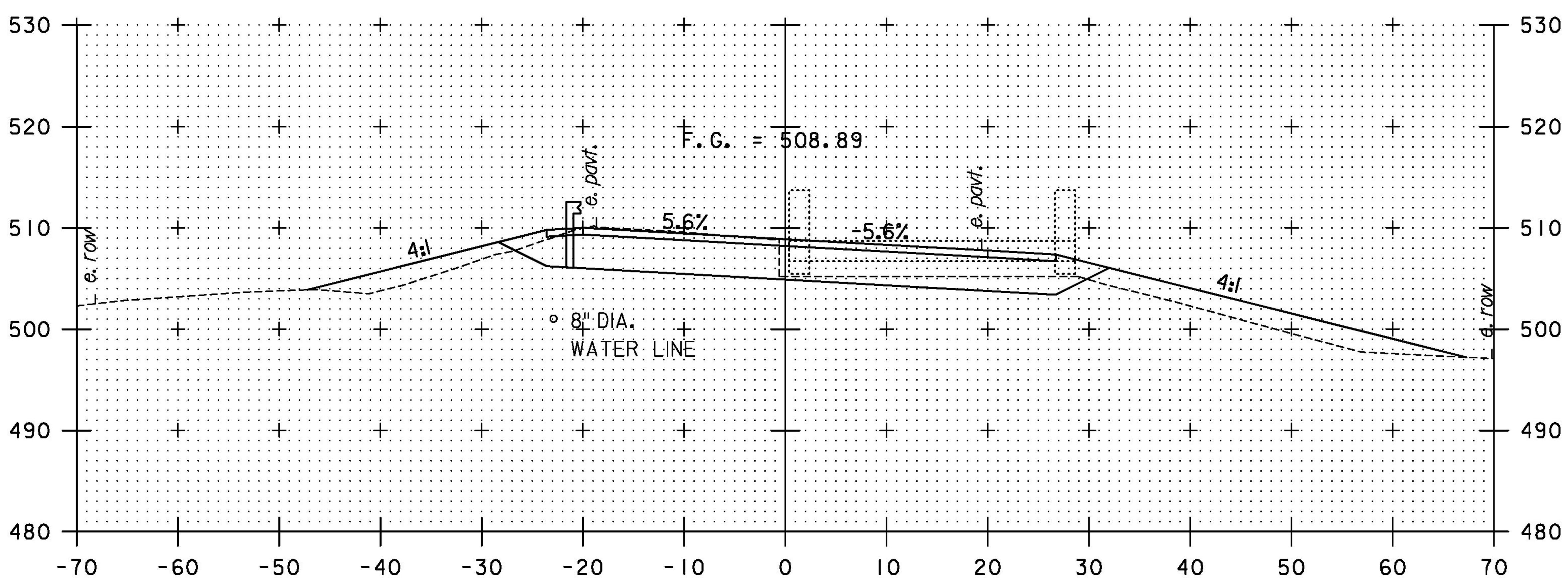
PROPOSED CULVERT NOT SHOWN.

STA. 292+50 TO STA. 293+50

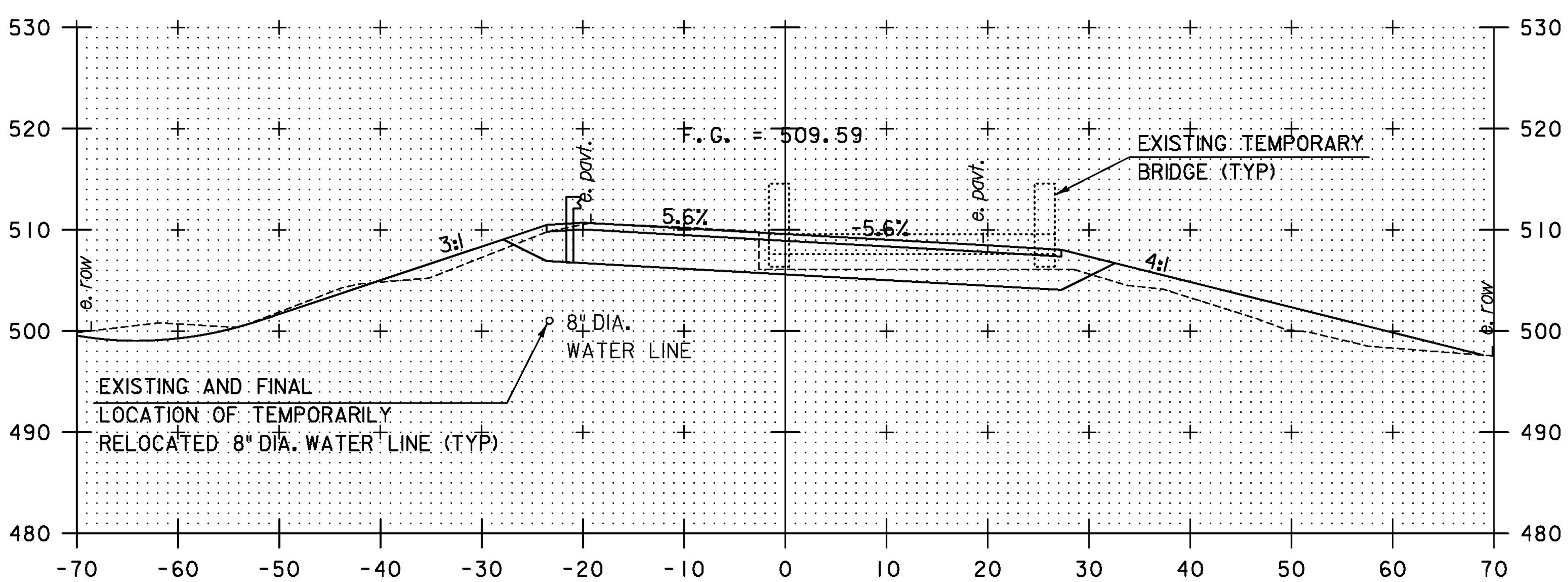
PROJECT NAME:	DUXBURY
PROJECT NUMBER:	BF 013-4(47)

T·Y·LIN INTERNATIONAL

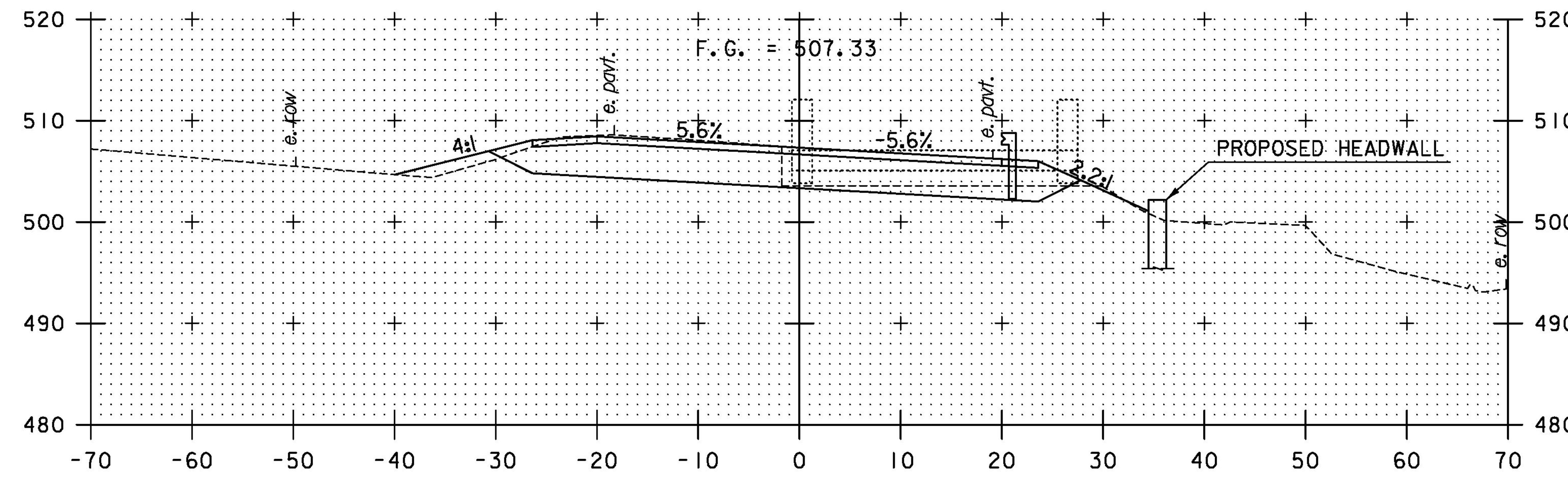
FILE NAME: zl6b00lxs.dgn	PLOT DATE: 5/23/2016
PROJECT LEADER: J. OLUND	DRAWN BY: P. BRYANT
DESIGNED BY: J. HOWE	CHECKED BY: J. OLUND
VT 100 CROSS SECTIONS 2	SHEET 48 OF 69



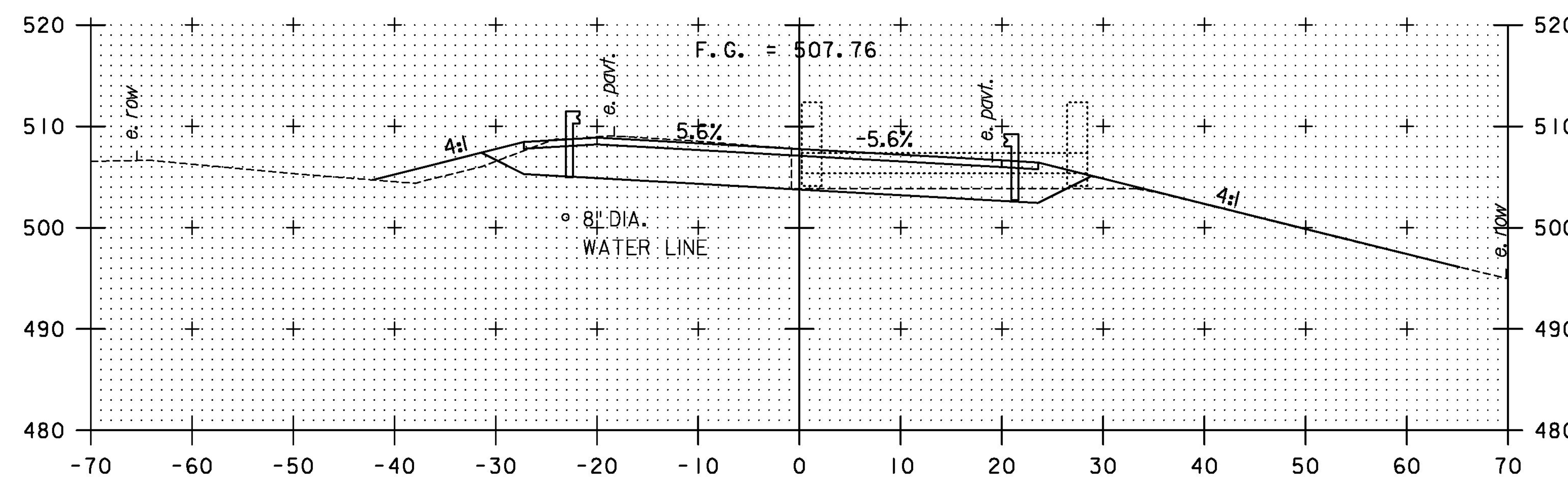
294+00
BEGIN BRIDGE 293+89.17



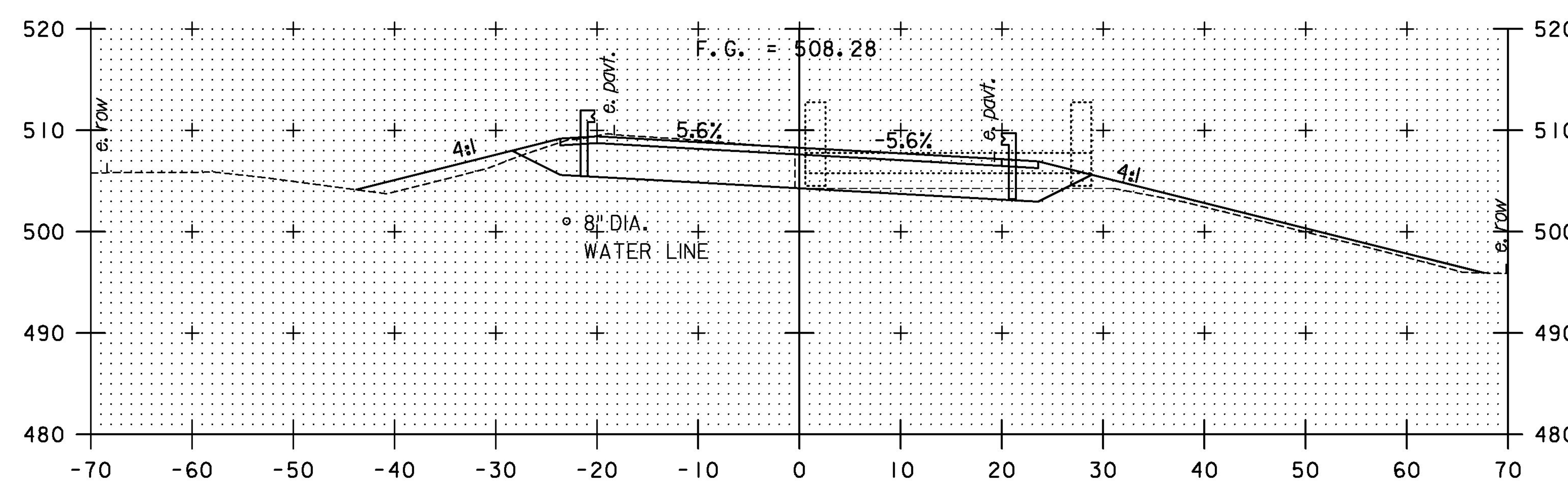
293+75



294+75



294+50
END BRIDGE 294+37.46



294+25

PROPOSED CULVERT NOT SHOWN.

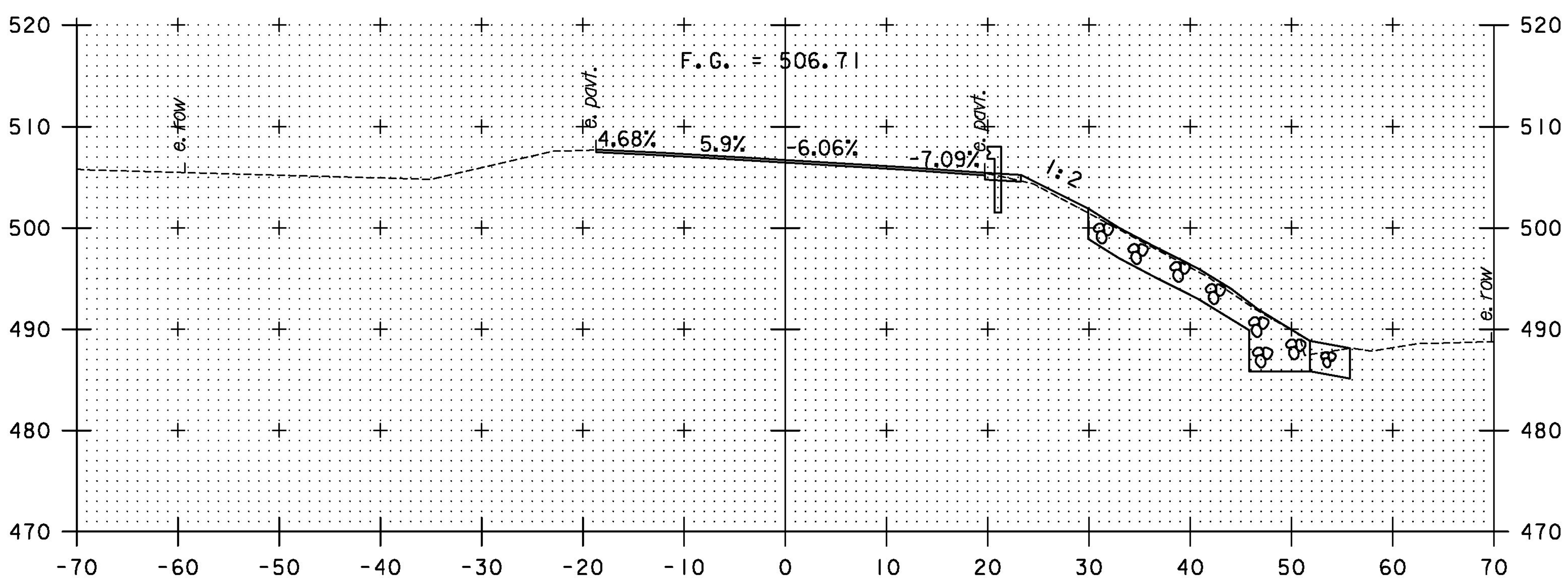
STA. 293+75 TO STA. 294+75

T·Y·LIN INTERNATIONAL

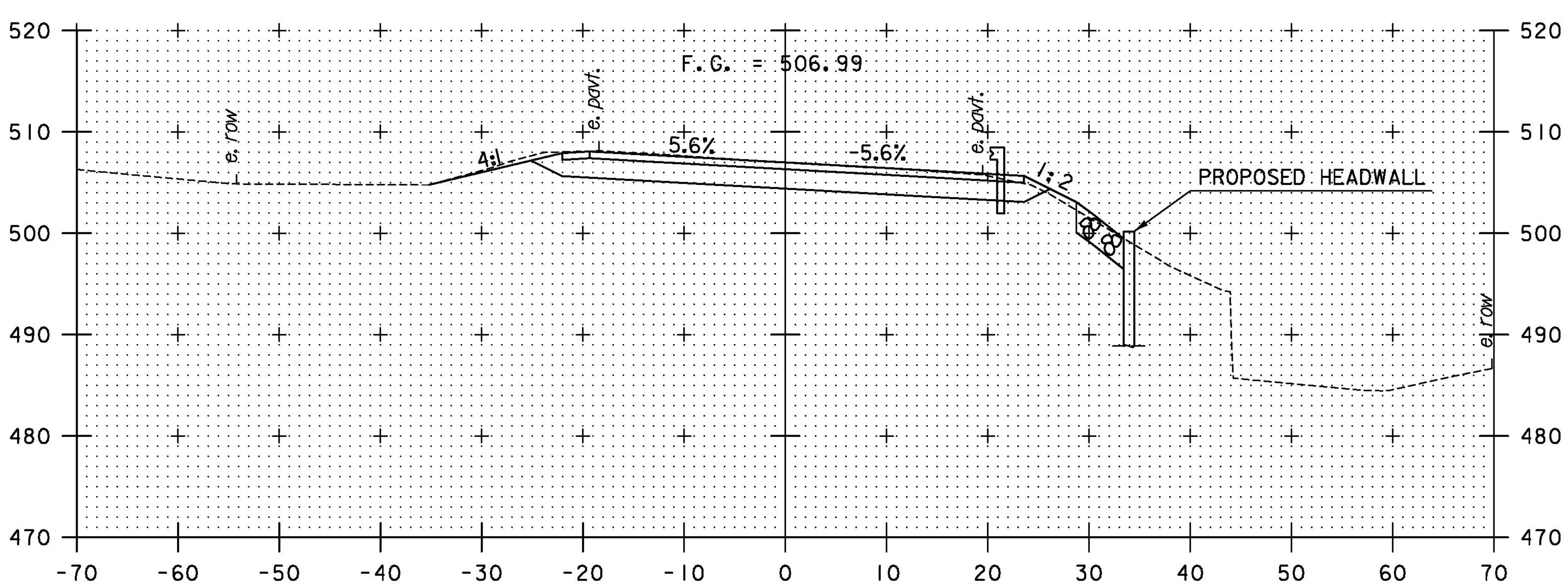
PROJECT NAME: DUXBURY
PROJECT NUMBER: BF 013-4(47)

FILE NAME: z16b001xs.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: J. HOWE
VT 100 CROSS SECTIONS 3

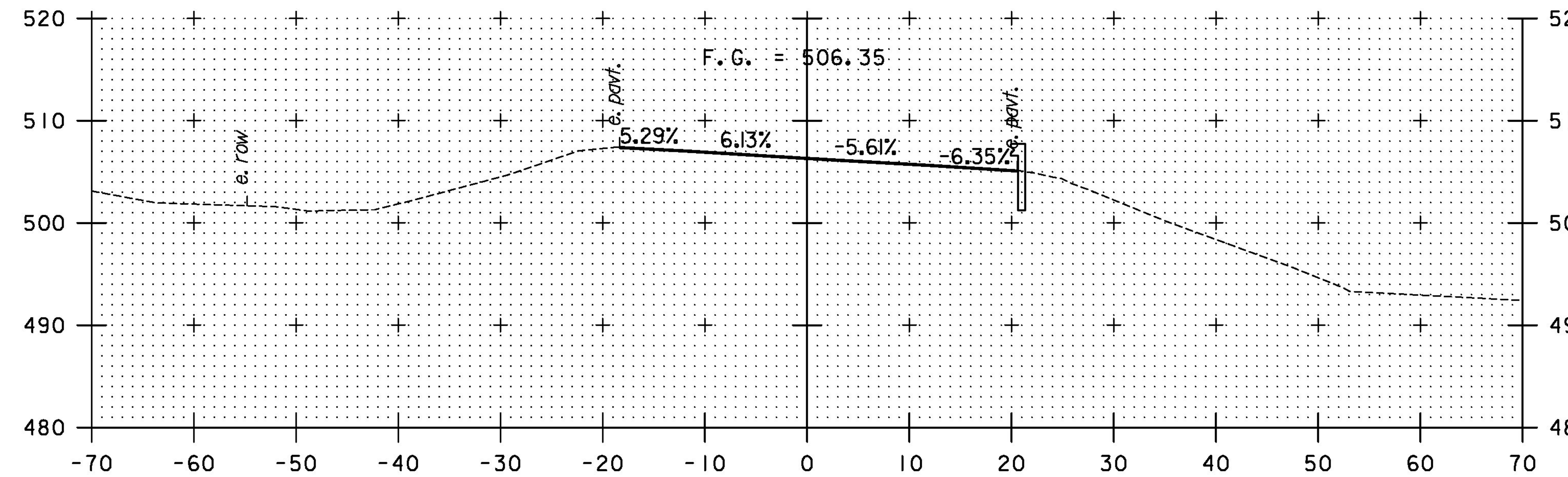
PLOT DATE: 5/23/2016
DRAWN BY: P. BRYANT
CHECKED BY: J. OLUND
SHEET 49 OF 69



295+25
END PROJECT



295+00



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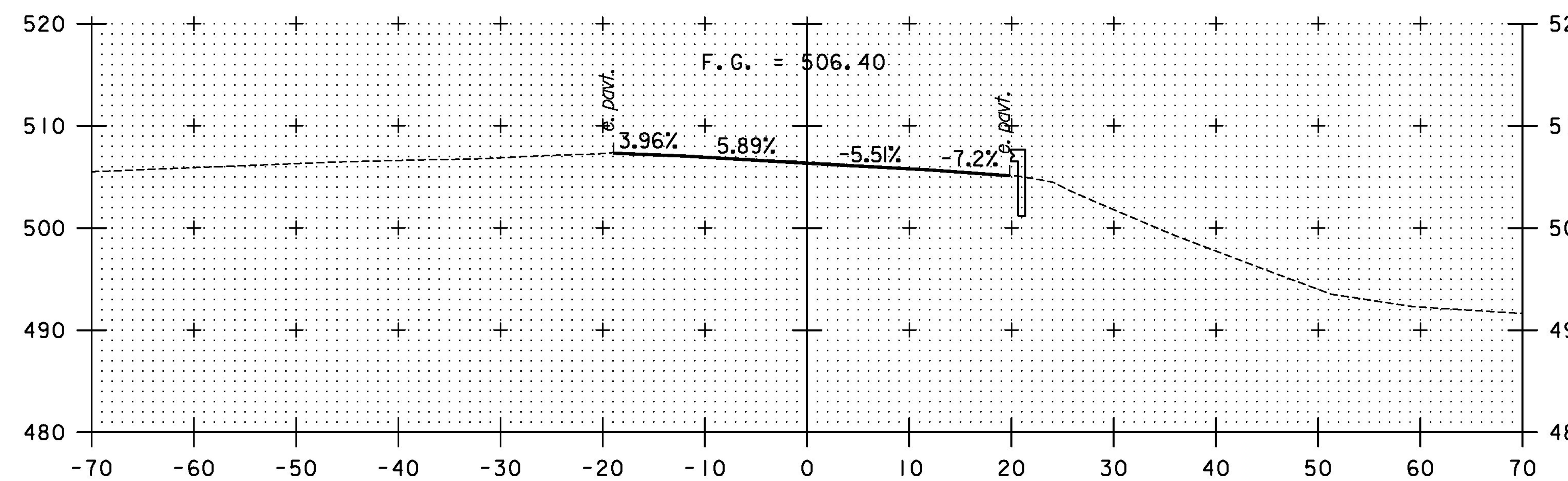

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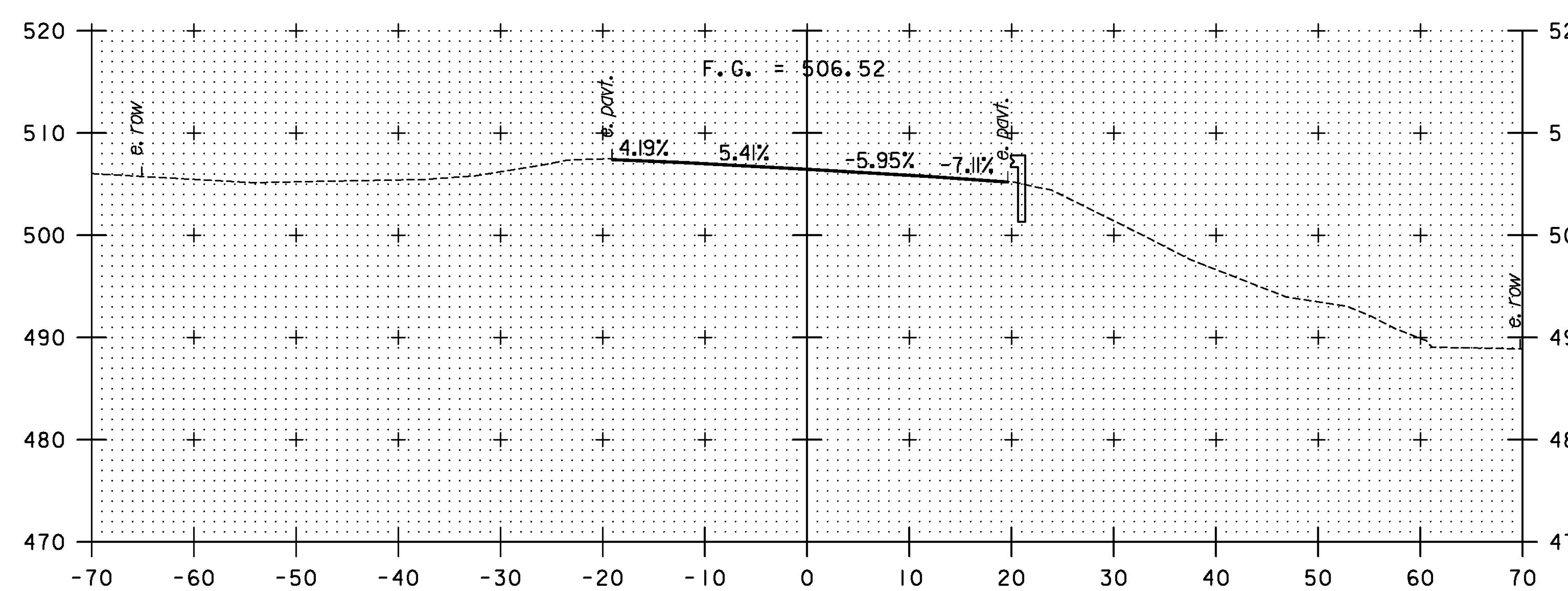


295+50

PROPOSED CULVERT NOT SHOWN.

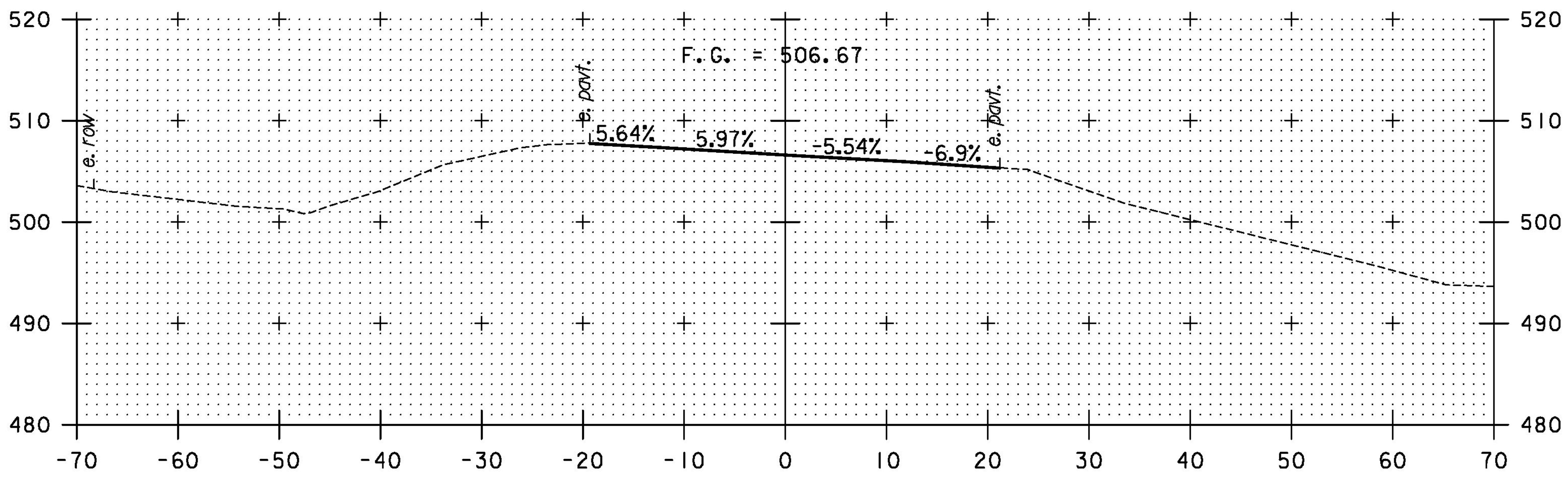
STA. 295+00 TO STA. 296+00

T·Y·LIN INTERNATIONAL

PROJECT NAME: DUXBURY
PROJECT NUMBER: BF 013-4(47)

FILE NAME: z16b001xs.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: J. HOWE
VT 100 CROSS SECTIONS 4

PLOT DATE: 5/23/2016
DRAWN BY: P. BRYANT
CHECKED BY: J. OLUND
SHEET 50 OF 69



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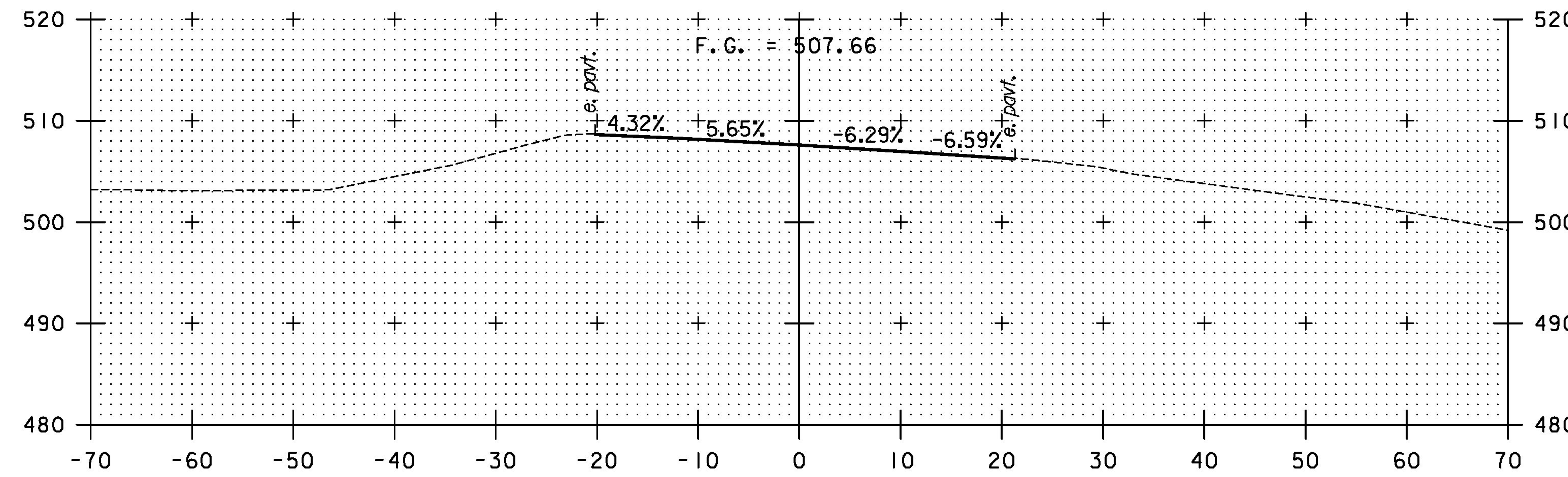

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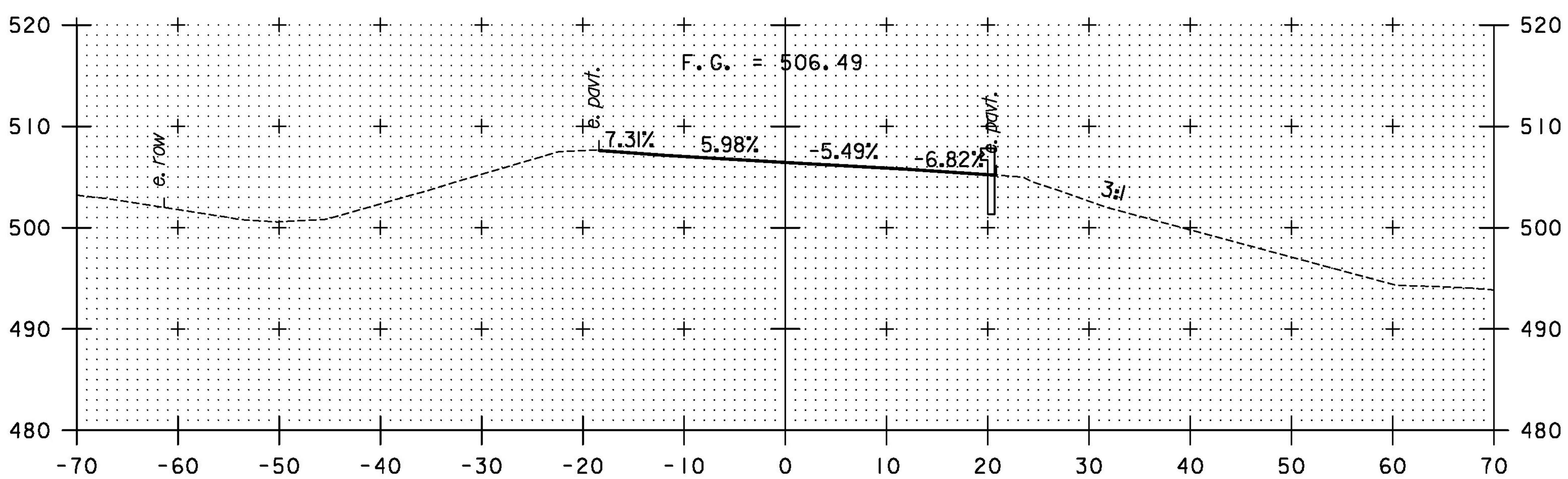

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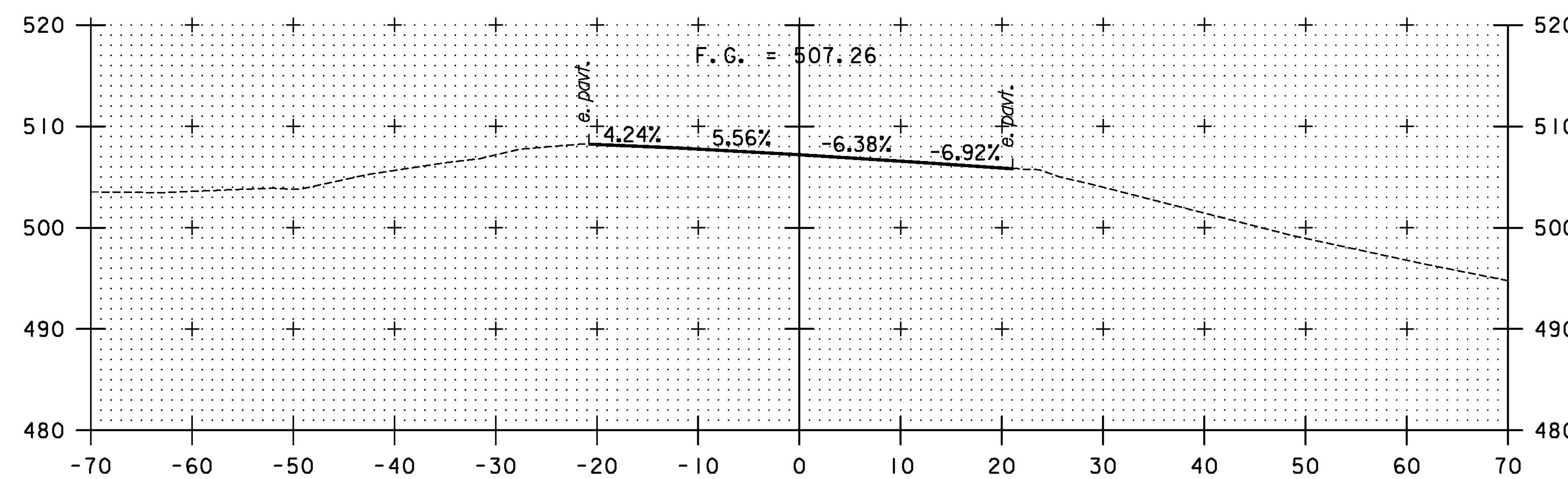

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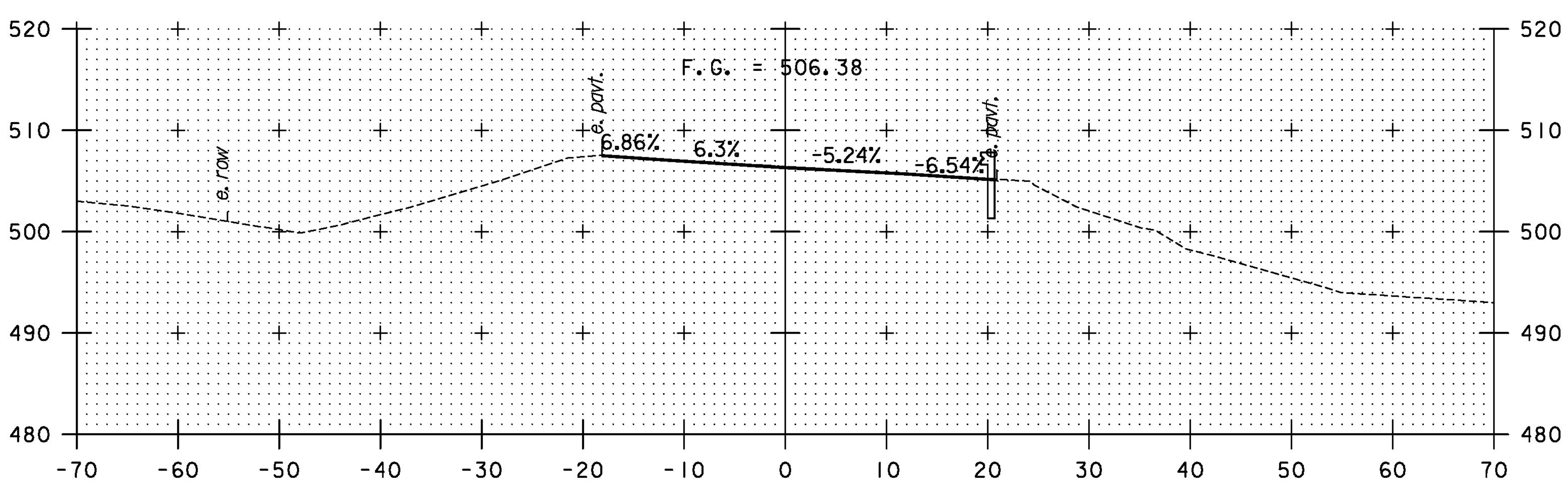

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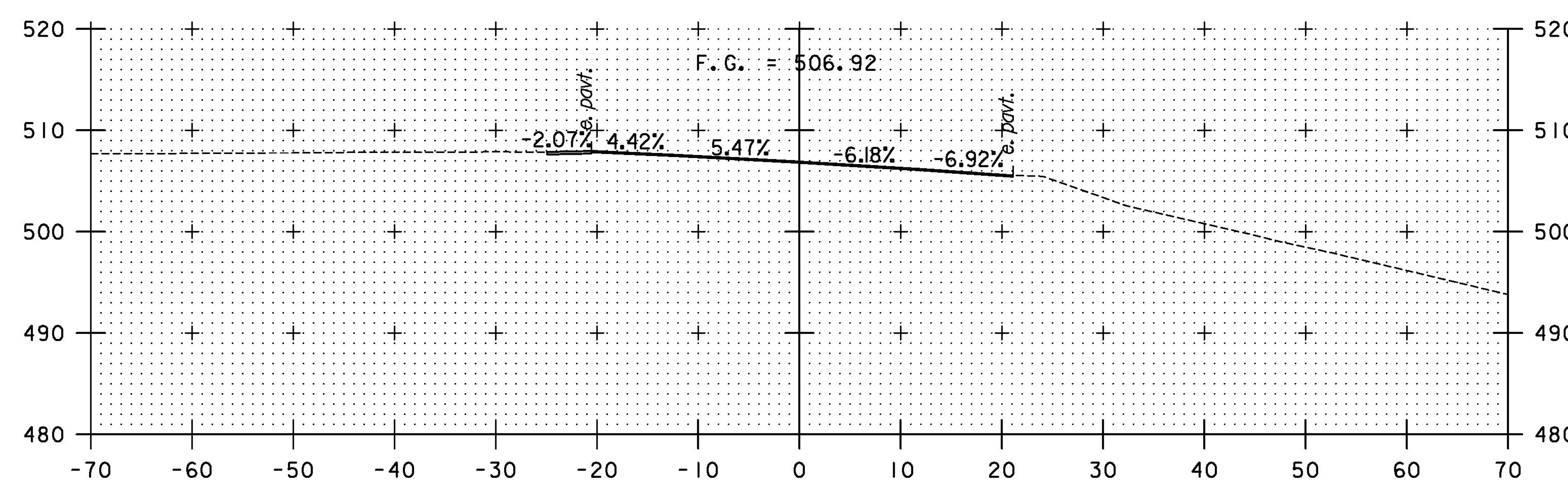
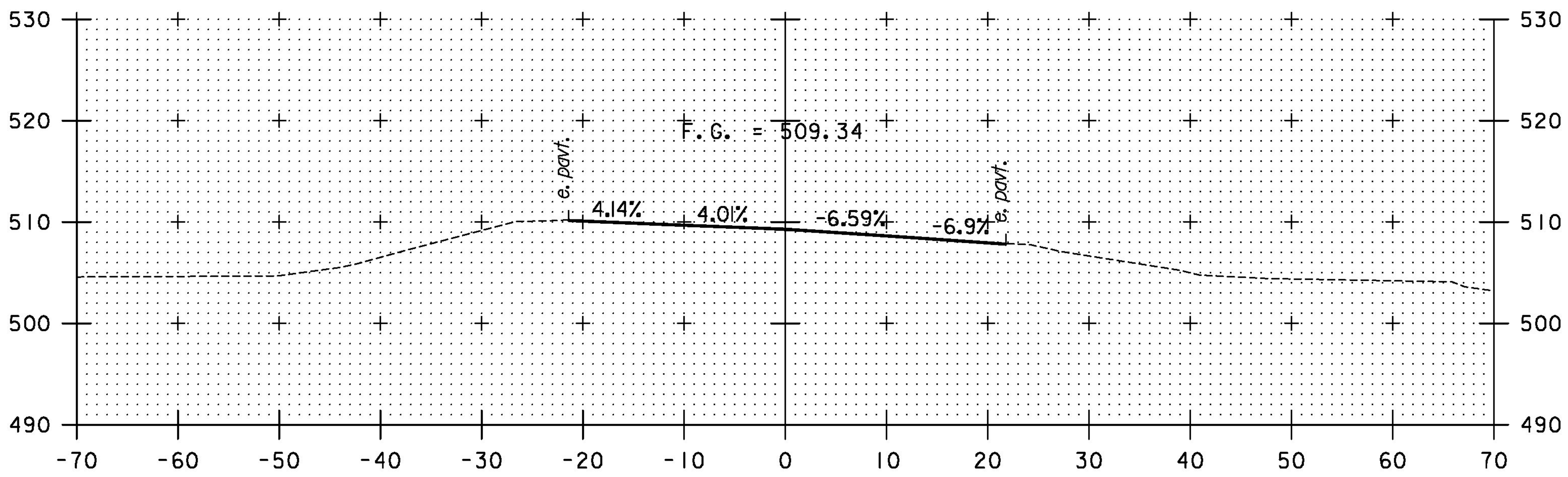


297+00

STA. 296+25 TO STA. 297+50

T·Y·LIN INTERNATIONAL

PROJECT NAME: DUXBURY	
PROJECT NUMBER: BF 013-4(47)	
FILE NAME: zl6b00lxs.dgn	PLOT DATE: 5/23/2016
PROJECT LEADER: J. OLUND	DRAWN BY: P. BRYANT
DESIGNED BY: J. HOWE	CHECKED BY: J. OLUND
VT 100 CROSS SECTIONS 5	SHEET 51 OF 69



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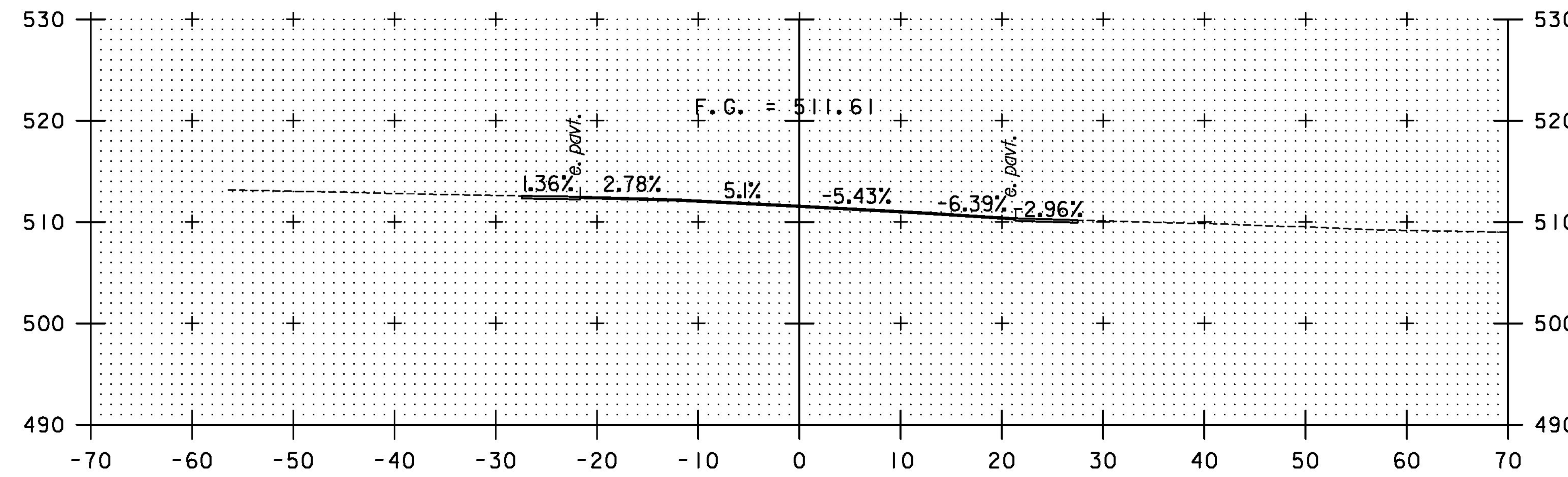

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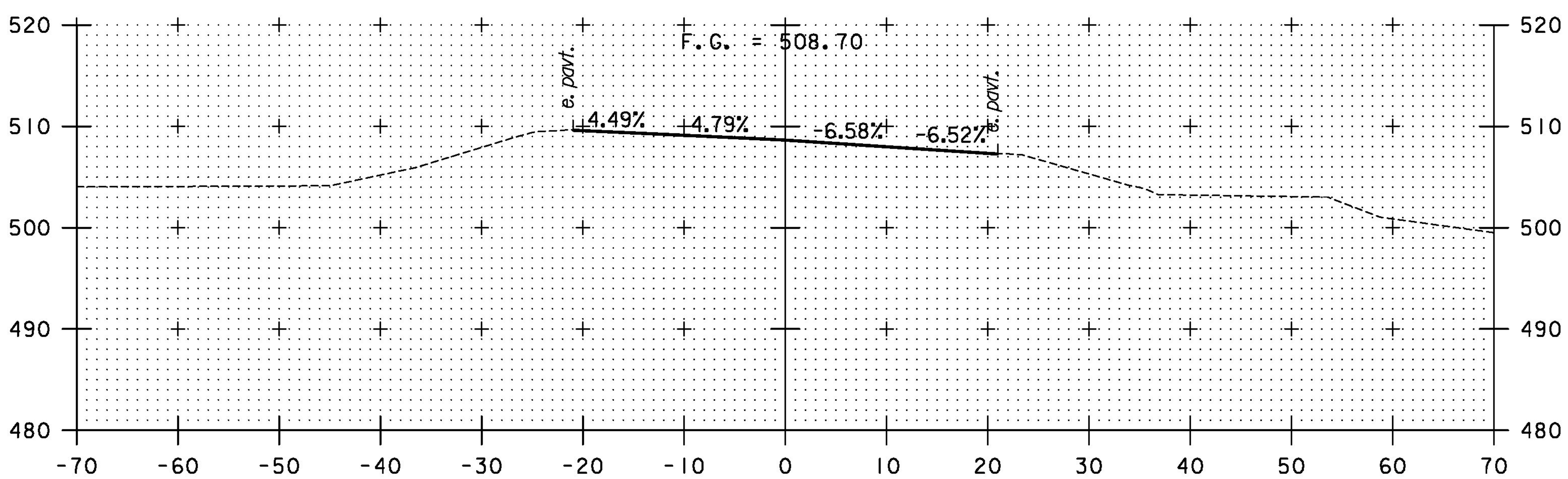

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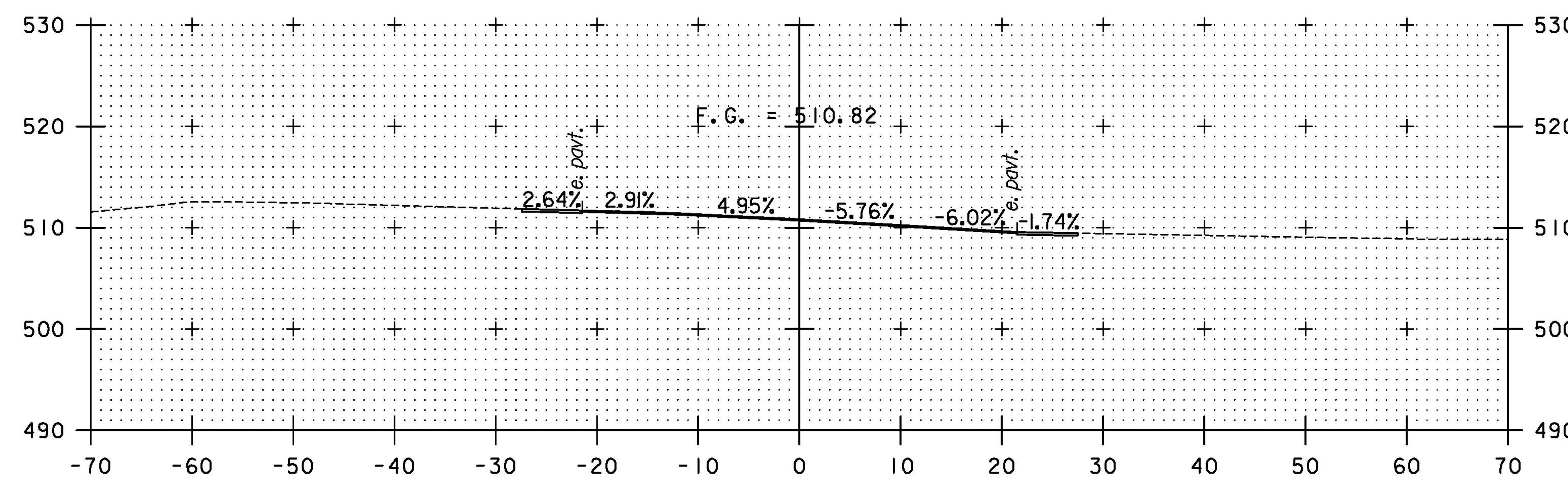

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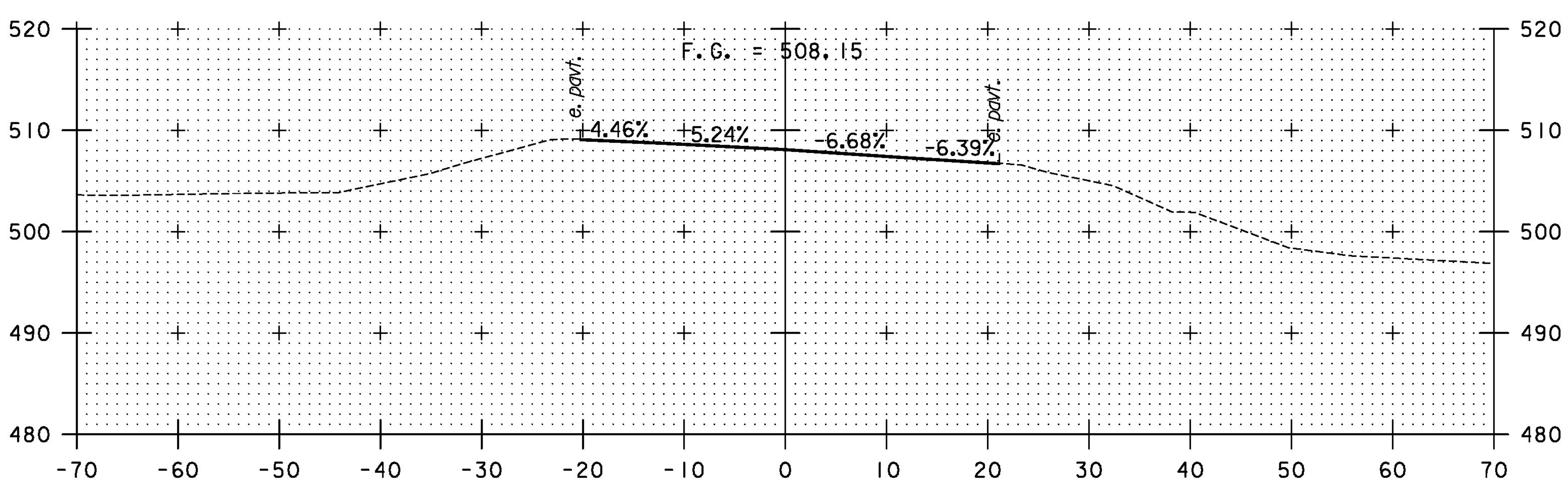

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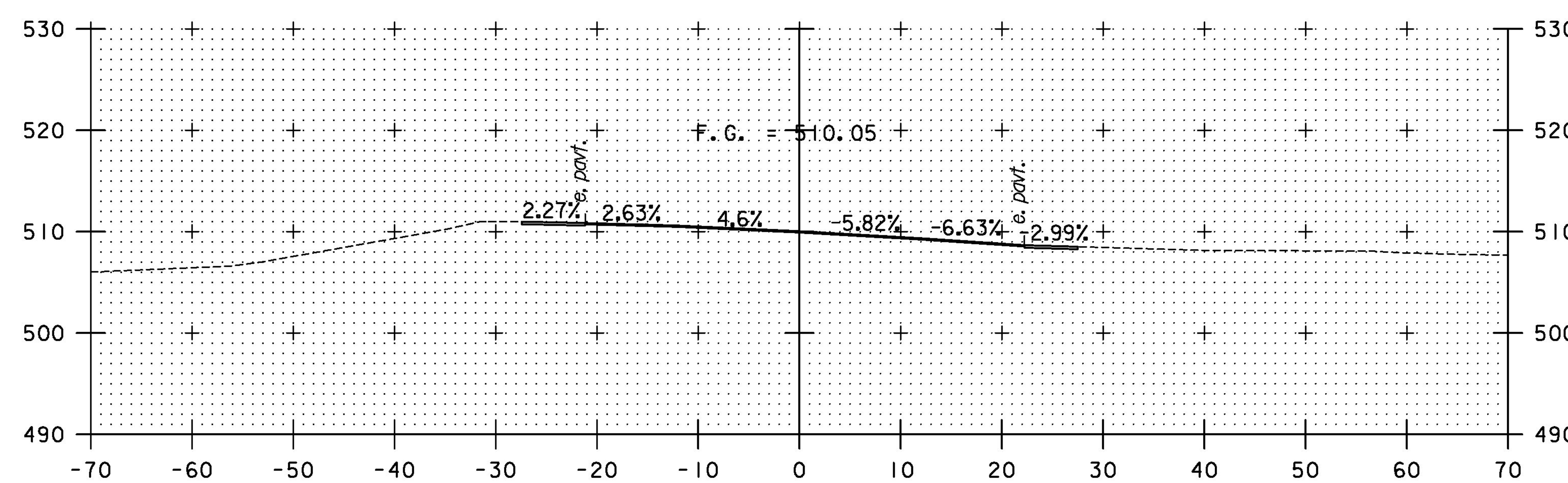
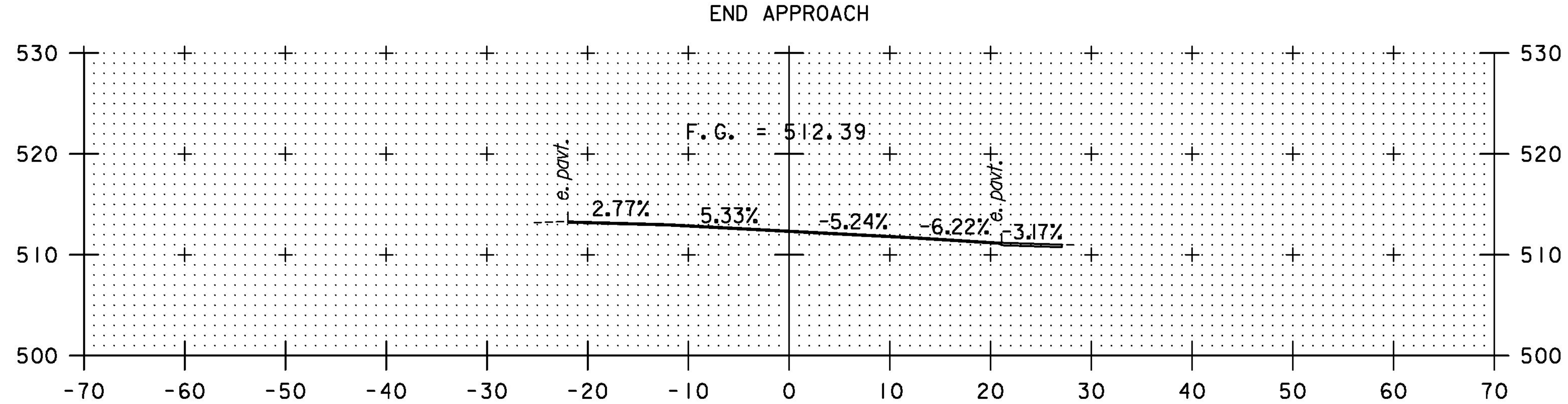


298+50

STA. 297+75 TO STA. 299+00

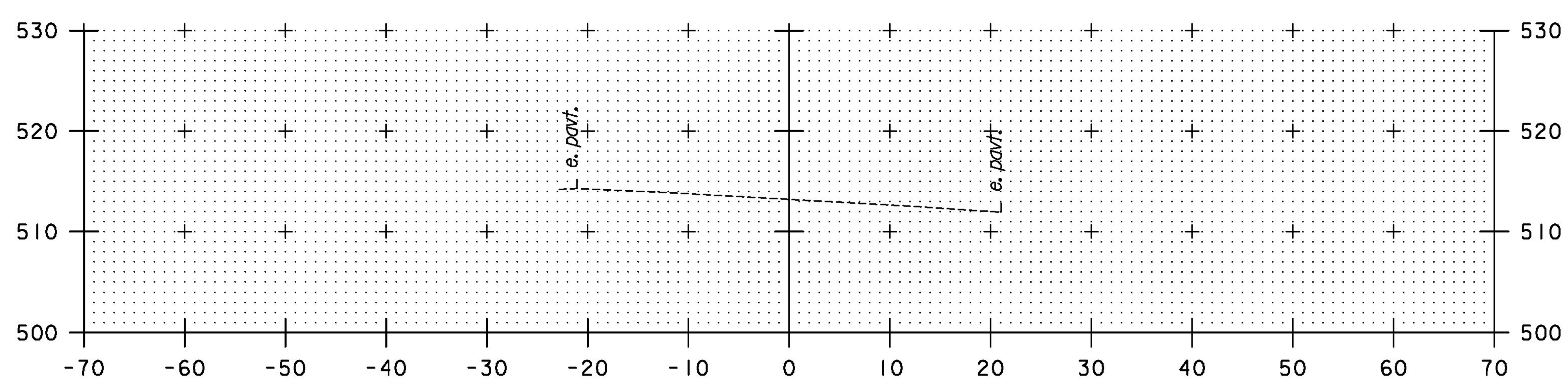
T·Y·LIN INTERNATIONAL

PROJECT NAME: DUXBURY	
PROJECT NUMBER: BF 013-4(47)	
FILE NAME: z16b001xs.dgn	PLOT DATE: 5/23/2016
PROJECT LEADER: J. OLUND	DRAWN BY: P. BRYANT
DESIGNED BY: J. HOWE	CHECKED BY: J. OLUND
VT 100 CROSS SECTIONS 6	SHEET 52 OF 69



299+50

END APPROACH



299+25

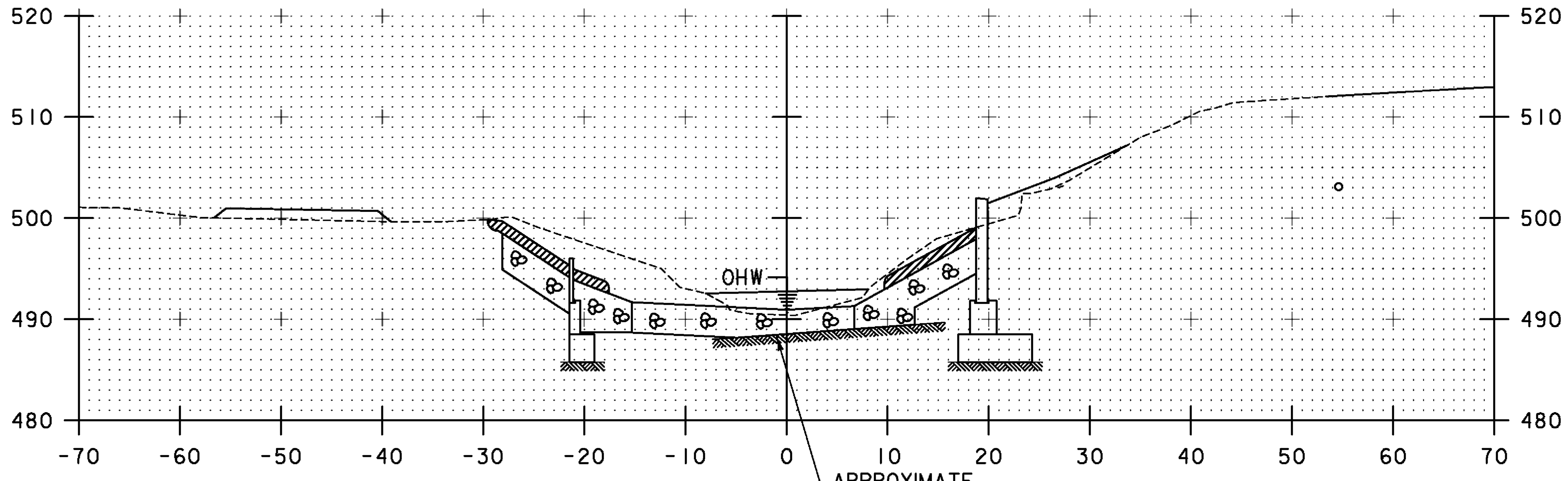
STA. 299+25 TO STA. 299+50

T.Y.LIN INTERNATIONAL

PROJECT NAME: DUXBURY
PROJECT NUMBER: BF 013-4(47)

FILE NAME: zl6b00lxs.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: J. HOWE
VT 100 CROSS SECTIONS 7

PLOT DATE: 5/23/2016
DRAWN BY: P. BRYANT
CHECKED BY: J. OLUND
SHEET 53 OF 69



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BEGIN UNCLASSIFIED CHANNEL EXCAVATION
~~BEGIN GEOTEXTILE UNDER STONE FILL~~
BEGIN STONE FILL TYPE III
BEGIN GRUBBING MATERIAL

20+25

STA 20+07.70, RT
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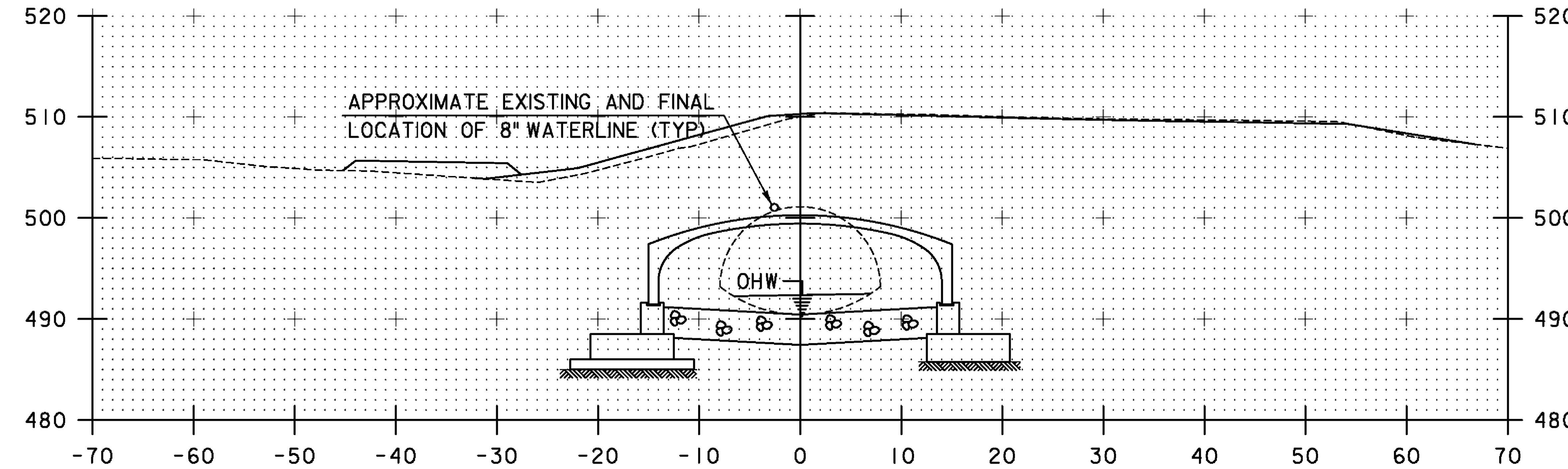
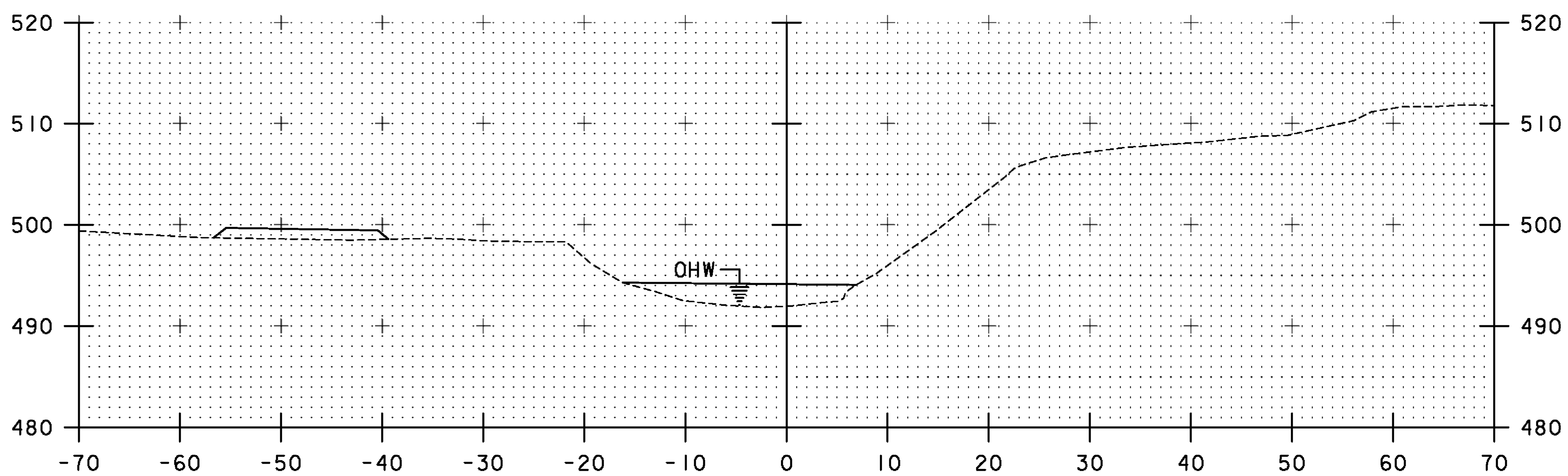
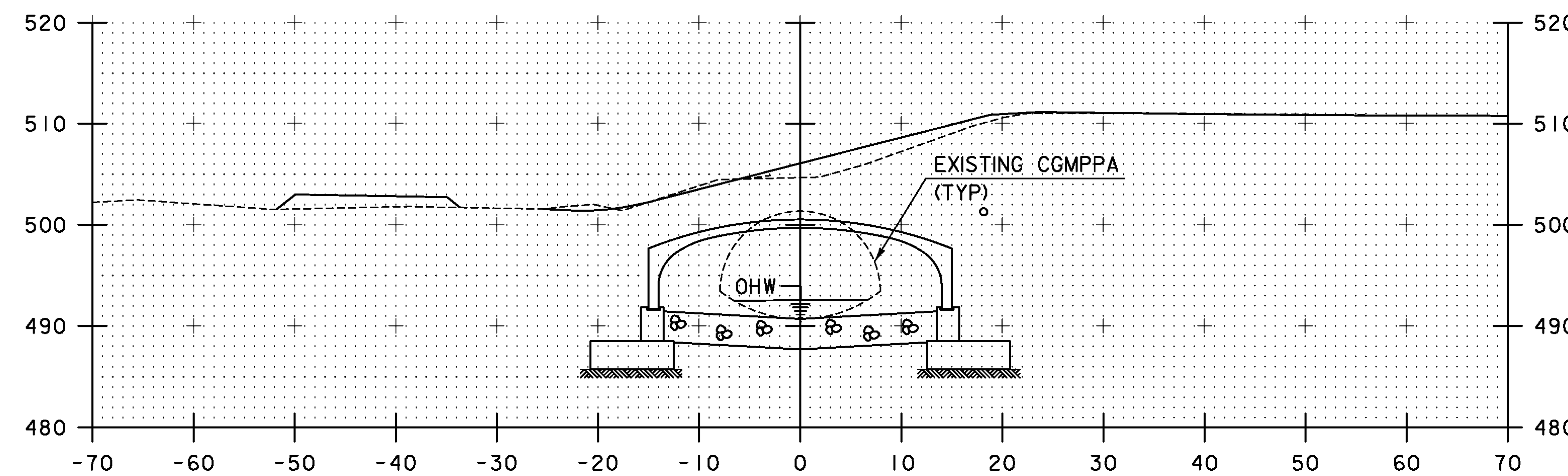
BEGIN UNCLASSIFIED CHANNEL EXCAVATION
~~BEGIN GEOTEXTILE UNDER STONE FILL~~
BEGIN STONE FILL TYPE III
BEGIN GRUBBING MATERIAL



20+75



20+00



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END GRUBBING MATERIAL

20+50

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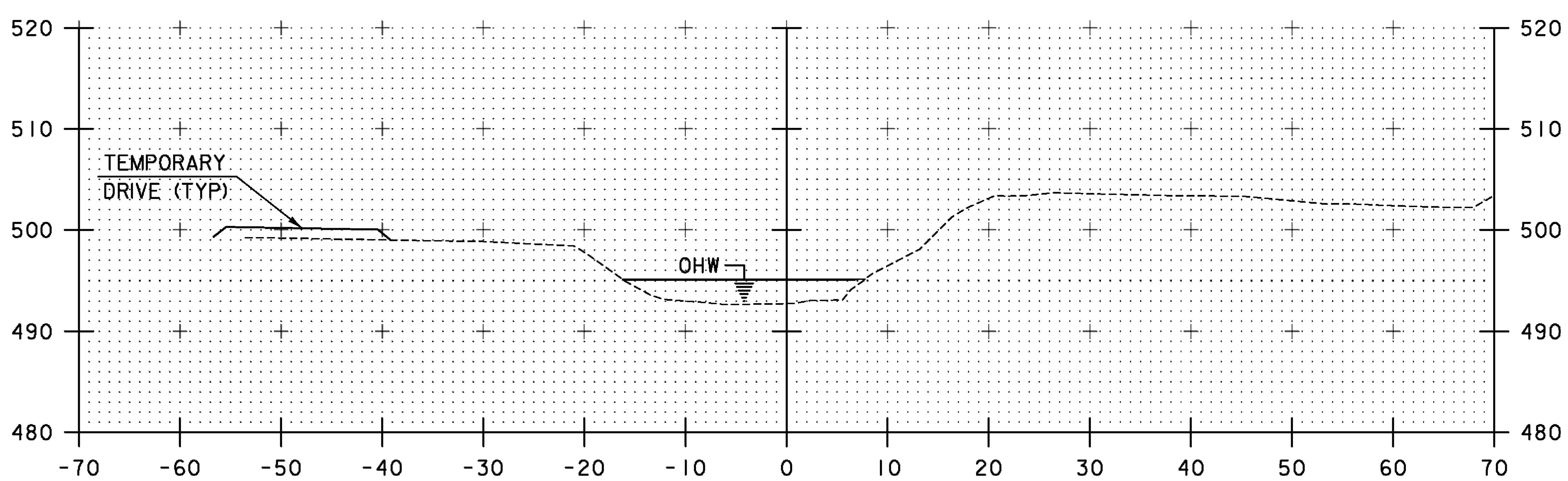
END STONE FILL TYPE III
END GRUBBING MATERIAL



19+75

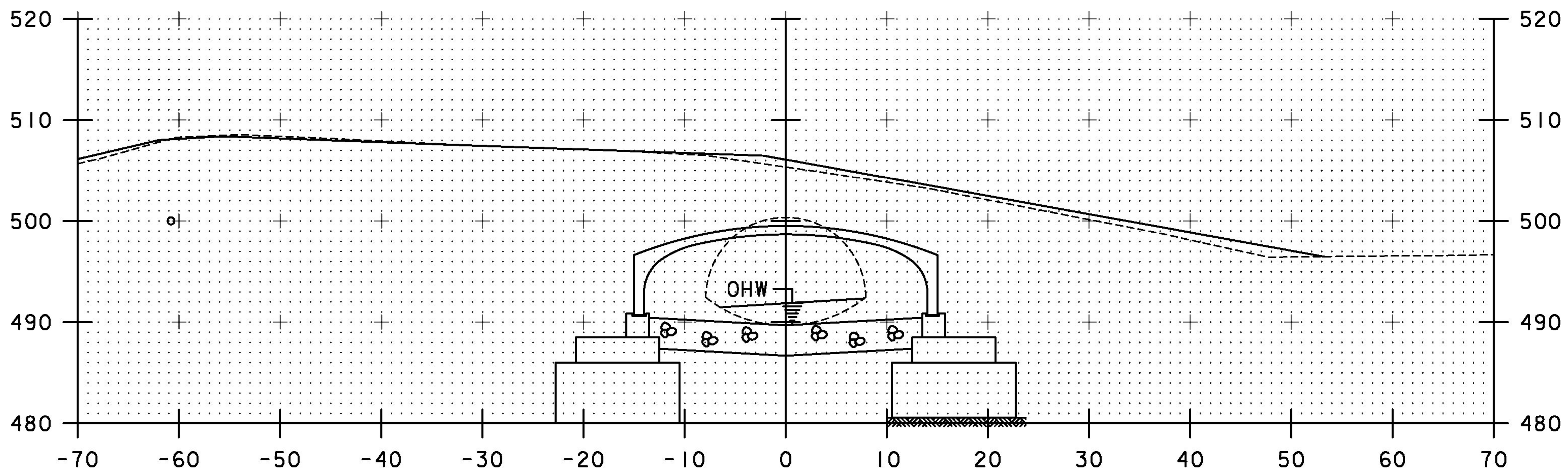
STA. 19+75 TO STA. 20+75

PROJECT NAME:	DUXBURY
PROJECT NUMBER:	BF 013-4(47)

TY·LIN INTERNATIONAL

FILE NAME: z16b001xschan.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: B. TOOTHAKER
CHANNEL SECTIONS I

PLOT DATE: 5/23/2016
DRAWN BY: B. TOOTHAKER
CHECKED BY: D. MYERS
SHEET 54 OF 69



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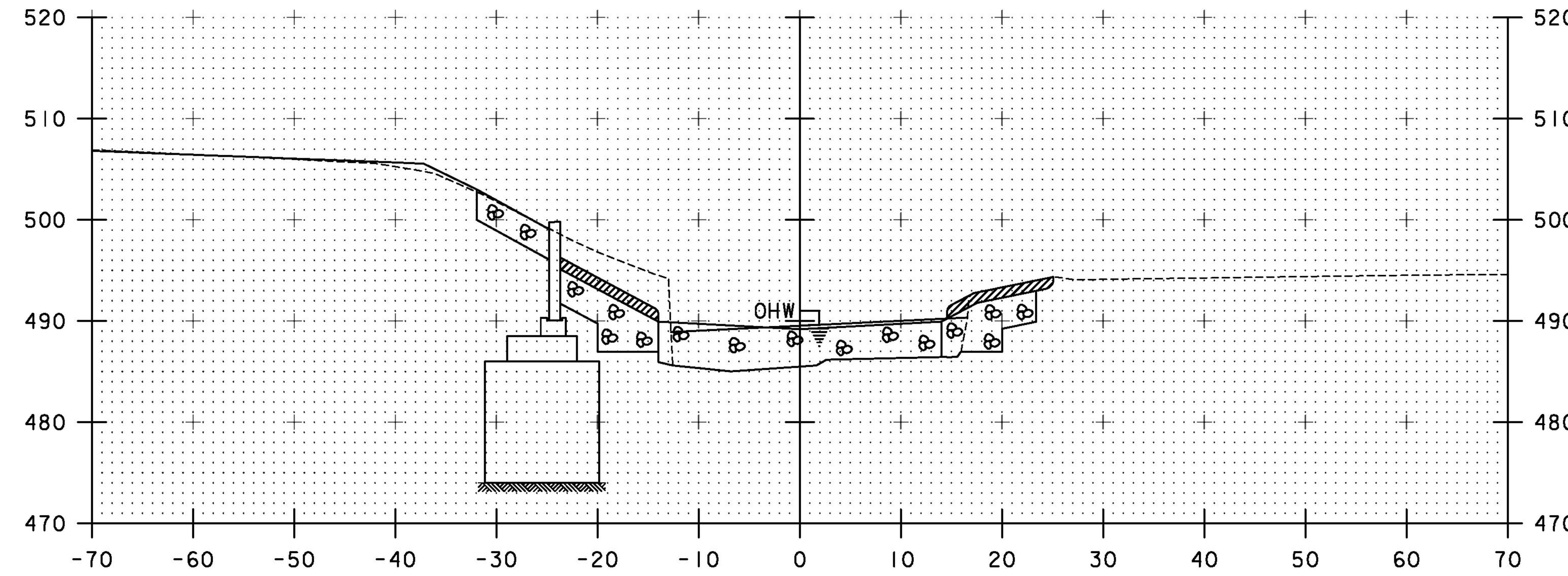

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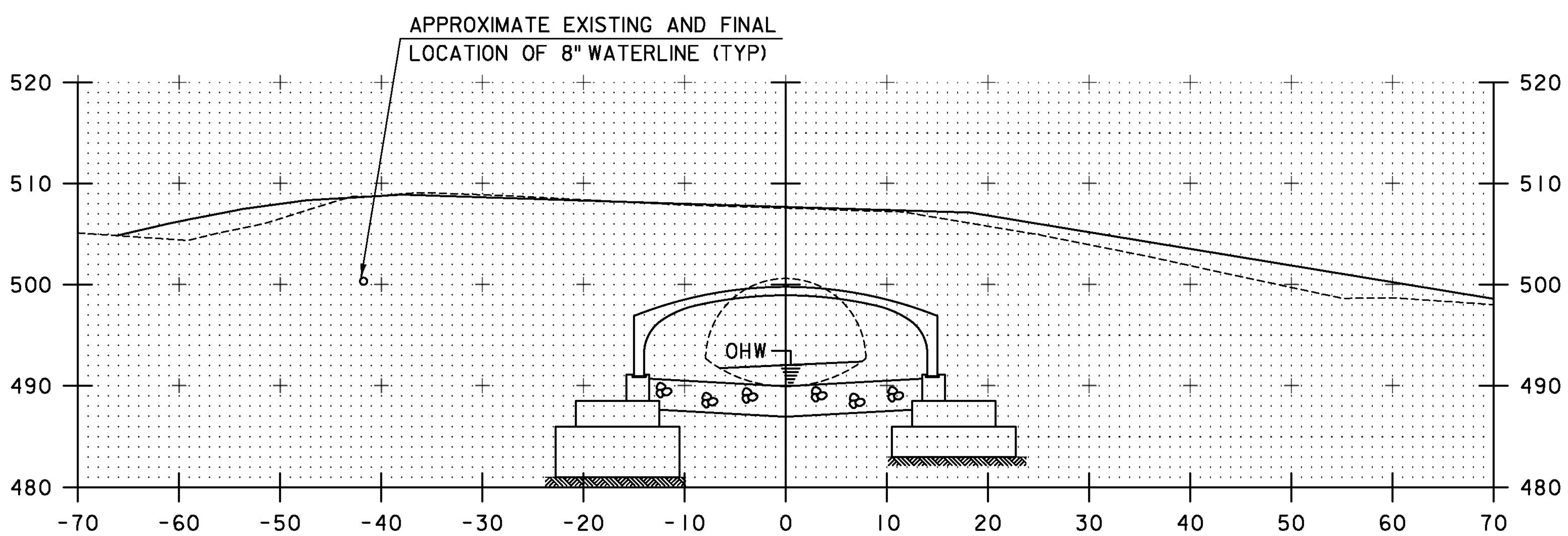
BEGIN STONE FILL TYPE III
BEGIN GRUBBING MATERIAL

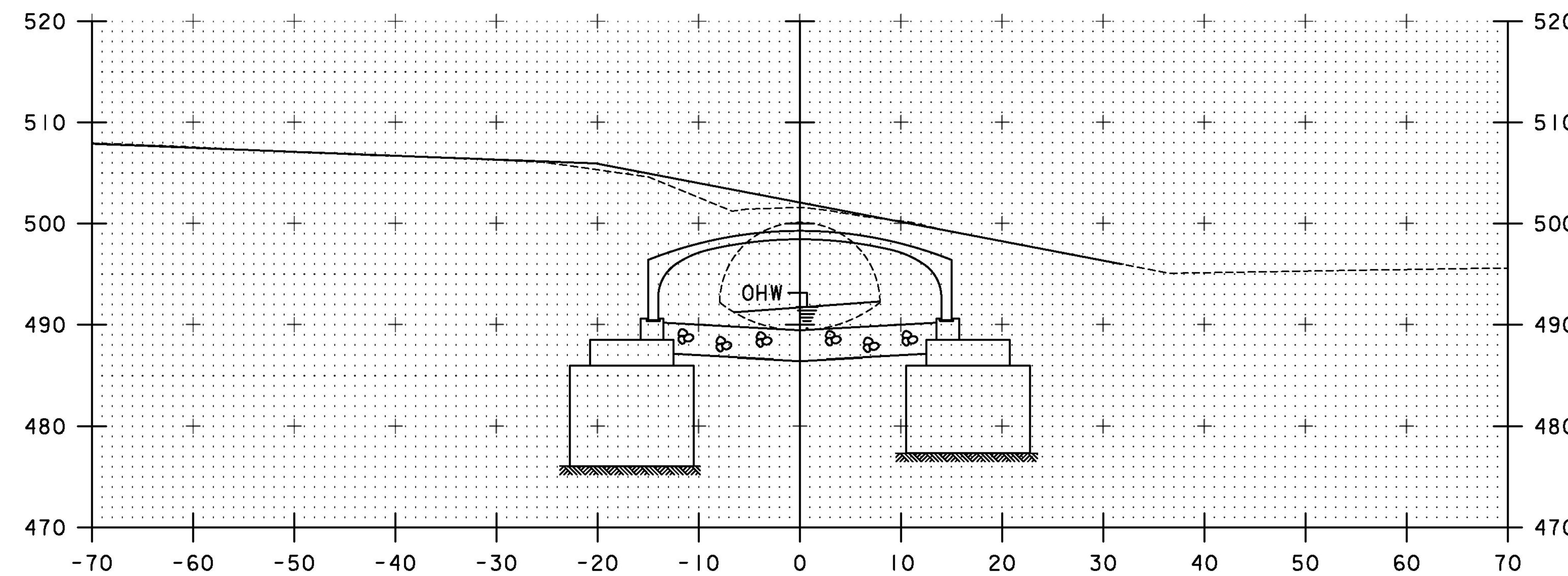
22+00

STA 21+75.71, RT
BEGIN STONE FILL TYPE III
BEGIN GRUBBING MATERIAL

STA 21+79+00, RT
BEGIN UNCLASSIFIED CHANNEL EXCAVATION



21+25



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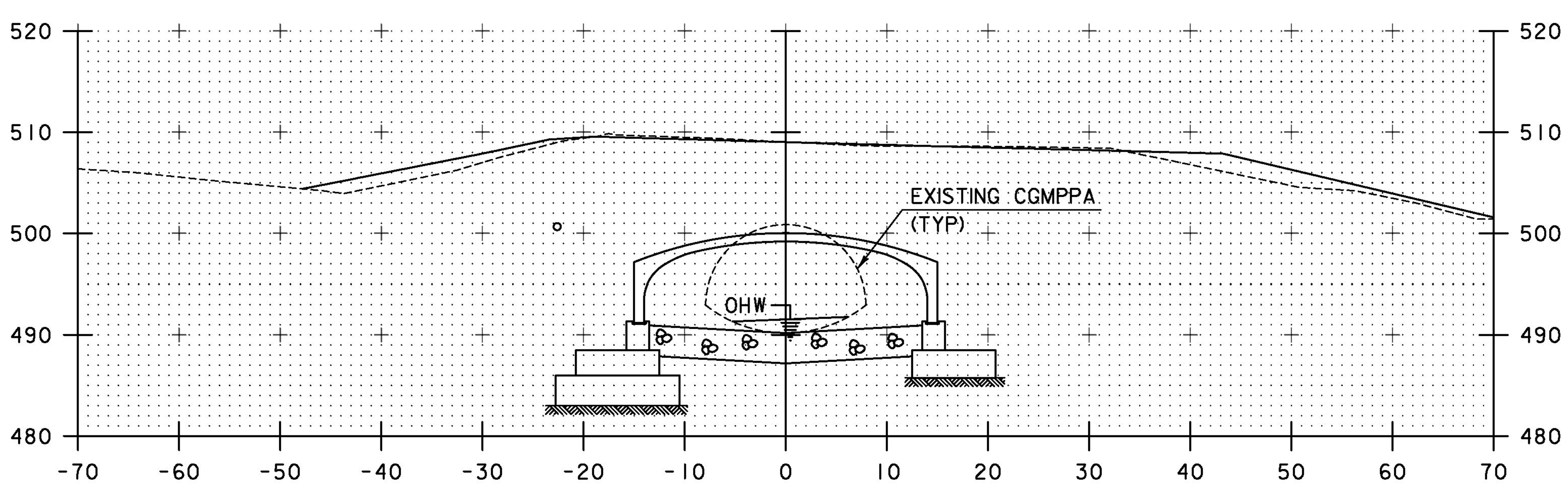
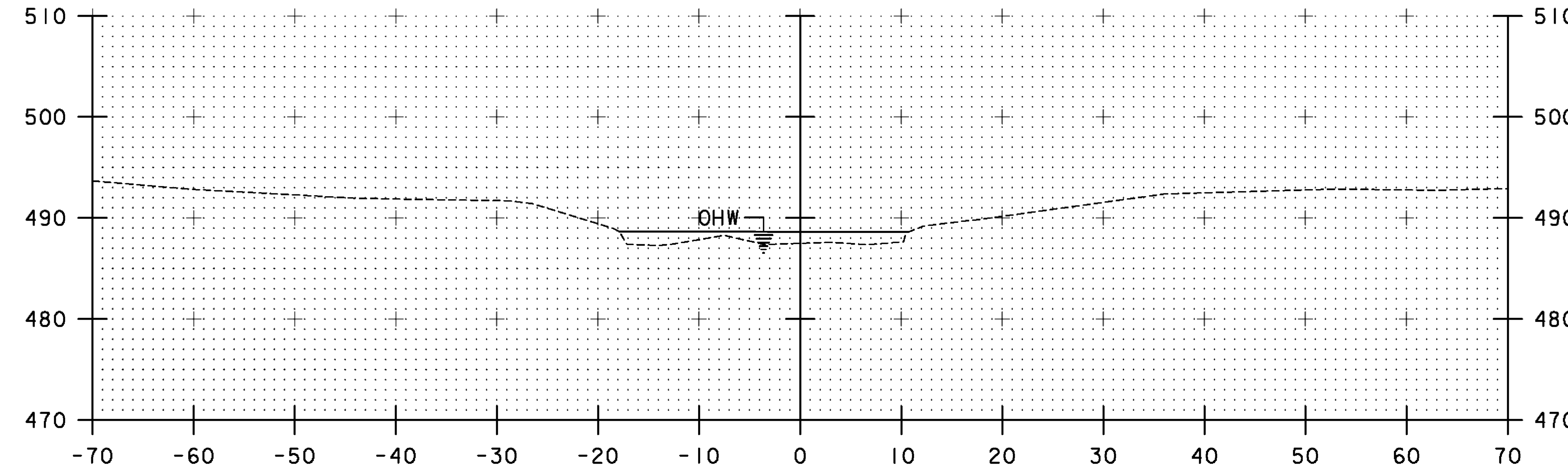


21+00

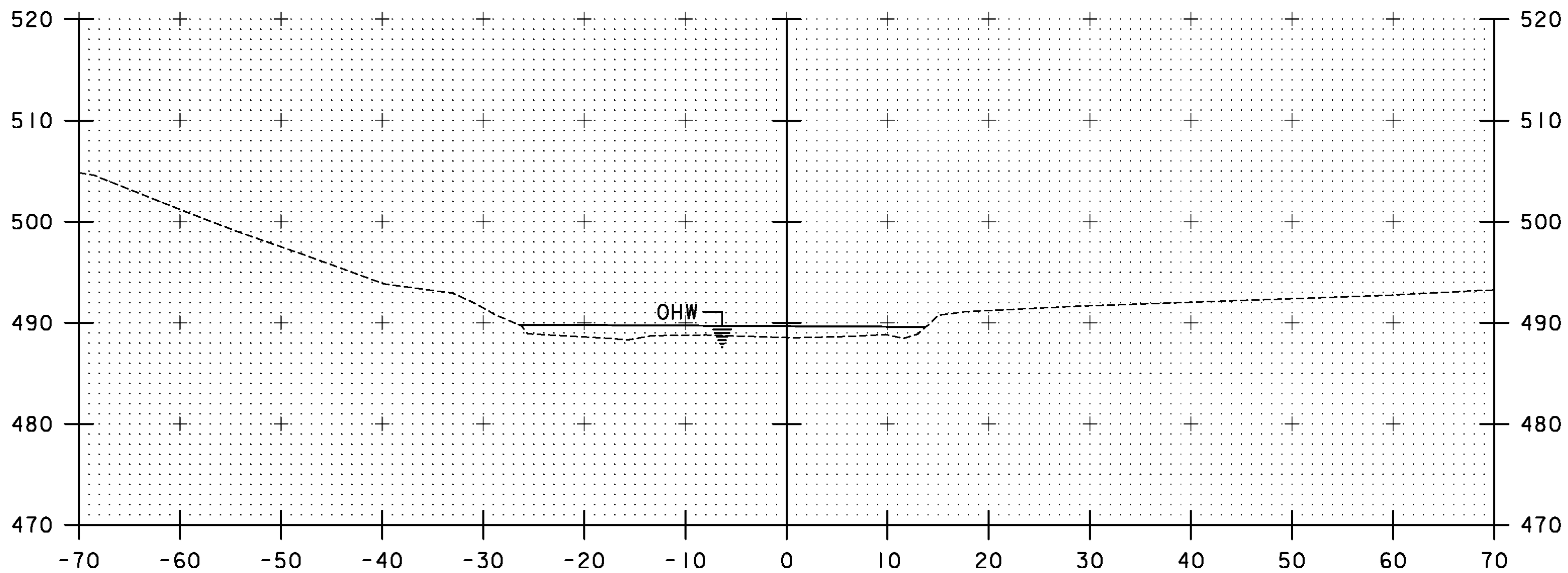
STA. 21+00 TO STA. 22+00

T·Y·LIN INTERNATIONAL

PROJECT NAME: DUXBURY	
PROJECT NUMBER: BF 013-4(47)	
FILE NAME: z16b001xschan.dgn	PLOT DATE: 5/23/2016
PROJECT LEADER: J. OLUND	DRAWN BY: B. TOOTHAKER
DESIGNED BY: B. TOOTHAKER	CHECKED BY: D. MYERS
CHANNEL SECTIONS 2	SHEET 55 OF 69



23+00



22+50

STA 22+32.39, LT
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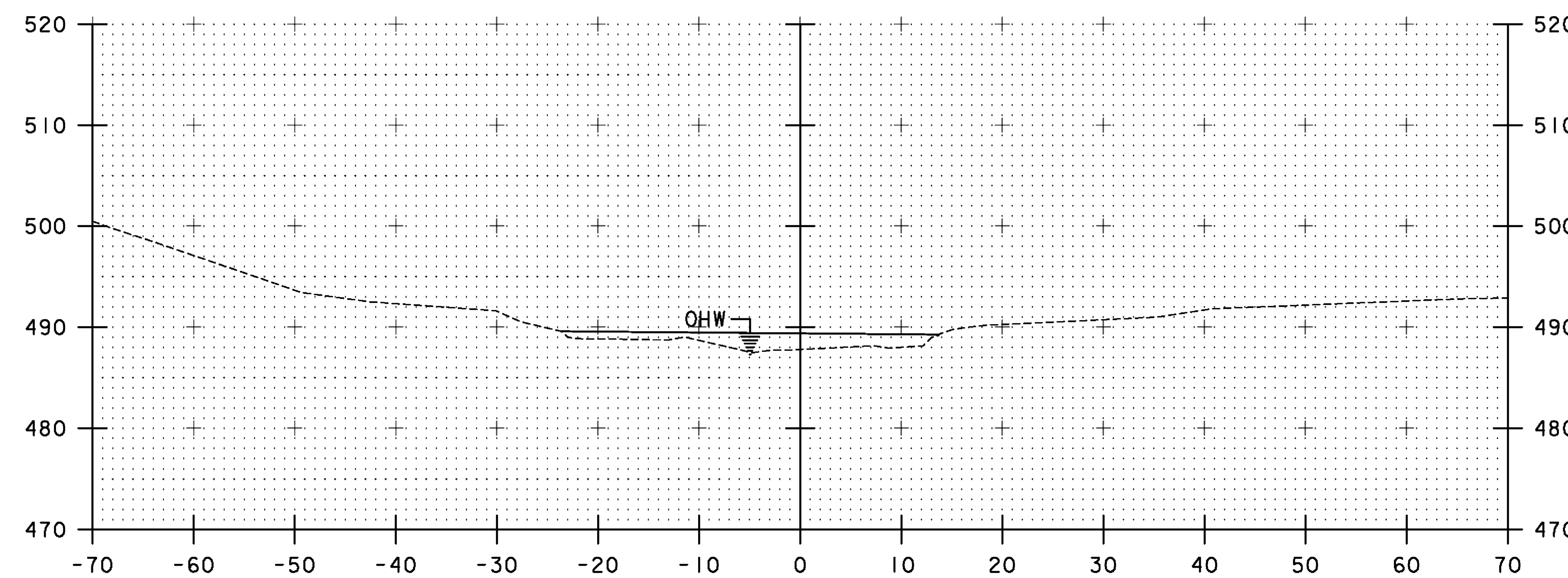
~~END GEOTEXTILE UNDER STONE FILL~~
END STONE FILL TYPE III
END GRUBBING MATERIAL

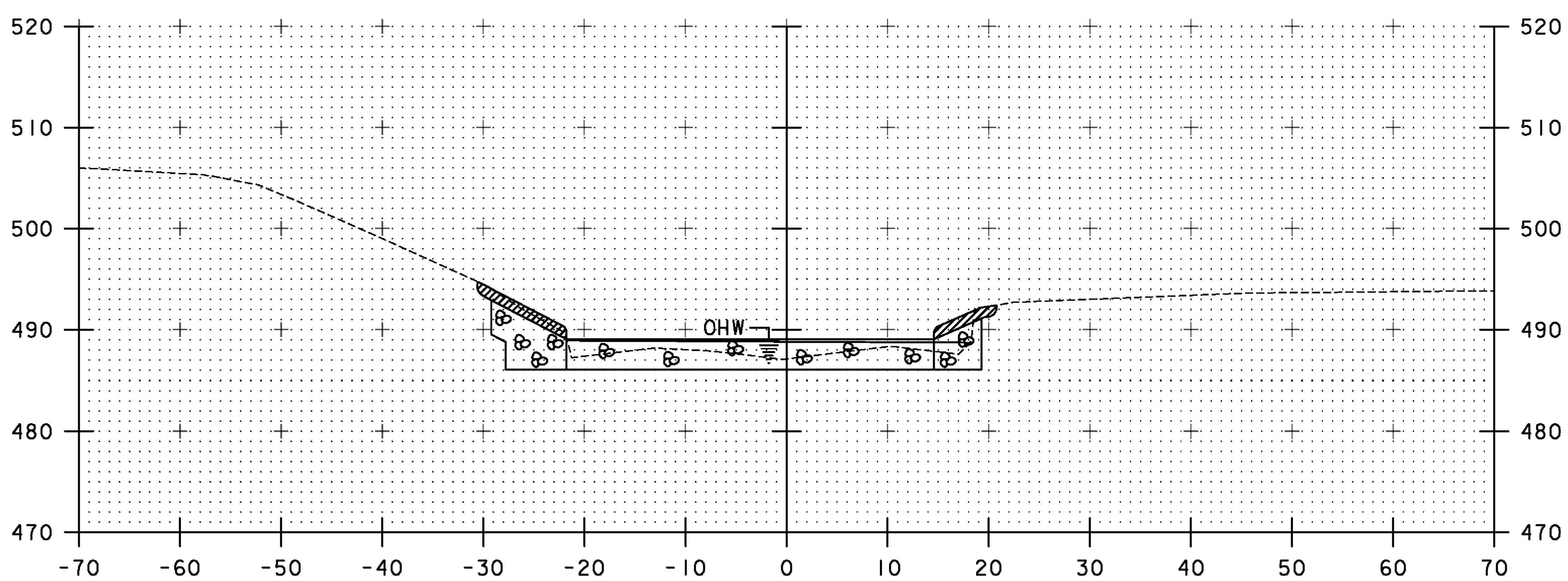
STA 22+32.39, LT & RT
END SPECIAL PROVISION
(STONE FILL, STREAM BED
MATERIAL) (TYPE III)

STA 22+32.39, RT
END UNCLASSIFIED CHANNEL EXCAVATION
~~END GEOTEXTILE UNDER STONE FILL~~
END STONE FILL TYPE III
END GRUBBING MATERIAL



22+75

NOTE: TEMPORARY BRIDGE AND ROADWAY NOT SHOWN



22+25

STA. 22+25 TO STA. 23+00

PROJECT NAME:	DUXBURY
PROJECT NUMBER:	BF 013-4(47)

TY·LIN INTERNATIONAL

FILE NAME: z16b001xschan.dgn	PLOT DATE: 5/23/2016
PROJECT LEADER: J. OLUND	DRAWN BY: B. TOOTHAKER
DESIGNED BY: B. TOOTHAKER	CHECKED BY: D. MYERS
CHANNEL SECTIONS 3	SHEET 56 OF 69

EPSC PLAN NARRATIVE

1.1 PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE REPLACEMENT OF BRIDGE 193 (BURIED CORRUGATED METAL PLATE PIPE ARCH) OVER CROSSETT BROOK IN THE TOWN OF DUXBURY. WITH A PRECAST ARCH WITH AN 9 FOOT RISE AND 28 FOOT SPAN, ON NEW FOOTINGS ALONG THE SAME ALIGNMENT. BRIDGE 193 IS LOCATED IN THE TOWN OF DUXBURY, ON VT ROUTE 100, APPROXIMATELY 0.7 MILES SOUTH OF THE JUNCTION WITH US ROUTE 2. THIS PROJECT ALSO INCLUDES THE CONSTRUCTION AND REMOVAL OF A DOWNSTREAM, OFF-ALIGNMENT TEMPORARY DETOUR ROADWAY
NOTE: AREA OF DISTURBANCE INCLUDES LIMITS OF EARTH DISTURBANCE WITHIN THE PROJECT AREA, AS WELL AS WASTE, BORROW AND STAGING AREAS, AND OTHER EARTH DISTURBING ACTIVITIES WITHIN OR DIRECTLY ADJACENT TO THE PROJECT LIMITS AS SHOWN ON THE ATTACHED EPSC PLAN.

TOTAL AREA OF DISTURBANCE AS SHOWN ON THE ATTACHED EPSC PLAN IS APPROXIMATELY 1.55 ACRES.
IT IS ANTICIPATED THAT THIS PROJECT WILL LAST ONE CONSTRUCTION SEASON.

1.2 SITE INVENTORY

1.2.1 TOPOGRAPHY

THE TOPOGRAPHY OF THE AREA IS MOUNTAINOUS COMPRISED OF FOREST AND LIGHTLY DEVELOPED RESIDENTIAL AREAS. VT ROUTE 100, FOUR UNPAVED DRIVEWAYS, AND A PAVED SCHOOL DRIVEWAY ARE WITHIN THE PROJECT SITE. THERE ARE THREE RESIDENCES ON THE NORTH SIDE OF THE PROJECT, A QUARRY TO THE SOUTHWEST AND A SCHOOL TO THE SOUTH EAST.

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

CROSSETT BROOK IS THE ONLY WATER SOURCE ON THE PROJECT SITE. THE BROOK IS CLASSIFIED AS STEEP, SINUOUS, AND ALLUVIAL. THE STREAM BED CONSISTS OF GRAVEL AND COBBLES. THE TRIBUTARY AREA AT THE CULVERT CROSSING IS 5.1 MILES^2. THERE ARE NO CLOSED DRAINAGE SYSTEMS OR CURBING ON THE PROJECT SITE. ONE DROP INLET CURRENTLY DRAINS FROM A LOW POINT NORTHEAST OF THE STRUCTURE THOUGH AN 18" DIAMETER CORRUGATE METAL PIPE WHICH PASSES UNDER THE ROADWAY AND DAYLIGHTS SOUTHEAST OF THE STRUCTURE. A 24" DIAMETER CPE PIPE PASSES UNDER THE GRAVEL DRIVEWAY TO THE QUARRY, ALLOWING WATER IN THE DITCH SOUTHWEST OF THE STRUCTURE TO DRAIN TOWARD CROSSETT BROOK. DUE TO THE NATURE OF THE SURROUNDING TERRAIN THE PROJECT SITE COULD RECEIVE RUNOFF WATER FROM A FEW NEARBY SLOPES.

1.2.3 VEGETATION

THE VEGETATION IN THE PROJECT AREA CONSISTS OF HARDWOOD AND SOFTWOOD TREES AND UNDERGROWTH. THE IMPACT TO VEGETATION WILL BE LIMITED TO THAT WHICH IS DIRECTLY AFFECTED BY REPLACEMENT OF THE EXISTING CULVERT AND THE CONSTRUCTION OF A TEMPORARY ROADWAY DOWNSTREAM OF THE EXISTING CULVERT. UPON PROJECT COMPLETION, THE CHANNEL WILL BE ARMORED WITH STONE FILL, TYPE IV AS SPECIFIED ON THE PLANS. DISTURBED VEGETATION WILL BE REESTABLISHED WITH STANDARD SEED AND MULCH PRACTICES.

1.2.4 SOILS

ALL SOIL DATA CAME FROM THE U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE FOR THE COUNTY OF WASHINGTON, VERMONT. SOILS ON THE PROJECT SITE ARE SALMON ADAMANT COMPLEX, LAMOINE SILT LOAM, RUMNEY FINE SANDY LOAM, ONDAWA FINE SANDY LOAM, BUXTON SILT LOAM, AND SALMON EVRY FINE SANDY LOAM. SEE EXISTING SITE PLANS FOR SOIL LOCATIONS AND DETAILS.

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

1.2.5 SENSITIVE RESOURCE AREAS

CRITICAL HABITATS: NO
HISTORICAL OR ARCHEOLOGICAL AREAS: YES (SEE EPSC – EXISTING SITE PLAN FOR LOCATIONS)
PRIME AGRICULTURAL LAND: NO
THREATENED AND ENDANGERED SPECIES: NO
WATER RESOURCE: CROSSETT BROOK
WETLANDS: YES (CLASS II)

1.3 RISK EVALUATION

THIS PROJECT FALLS UNDER THE JURISDICTION OF GENERAL PERMIT 3-9020 FOR STORMWATER RUNOFF FROM CONSTRUCTION SITES FOR LOW RISK PROJECTS. ANY MODIFICATIONS TO THE PROJECT THAT INCREASE THE RISK TO ENVIRONMENTAL RESOURCES SHALL BE EVALUATED IN ACCORDANCE WITH THE PERMIT REQUIREMENTS. THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY ADDITIONAL PERMITTING.

1.4 EROSION PREVENTION AND SEDIMENT CONTROL

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

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

1.4.1 MARK SITE BOUNDARIES

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

PROJECT DEMARCATION FENCING (PDF) SHALL BE USED TO PHYSICALLY MARK SITE BOUNDARIES. BECAUSE THIS PROJECT FALLS UNDER THE CGP 3-9020, BARRIER FENCE SHALL BE USED INSTEAD OF PROJECT DEMARCATION FENCE WITHIN 100 FEET OF A WATER RESOURCE (STREAM, BROOK, LAKE, POND, WETLAND, ETC).

1.4.2 LIMIT DISTURBANCE AREA

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

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

1.4.3 SITE ENTRANCE/EXIT STABILIZATION

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

STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AS PROPOSED ON THE EPSC PLAN AND ANYWHERE EQUIPMENT WILL BE GOING FROM AREAS OF EXPOSED SOILS TO PAVED SURFACES.

1.4.4 INSTALL SEDIMENT BARRIERS

SEDIMENT BARRIERS SHALL BE UTILIZED TO INTERCEPT RUNOFF AND ALLOW SUSPENDED SEDIMENT TO SETTLE OUT. THEY SHALL BE INSTALLED PRIOR TO ANY UP SLOPE WORK.
SILT FENCE WILL BE INSTALLED AS PROPOSED ON THE EPSC PLAN. BECAUSE THIS PROJECT FALLS UNDER THE CGP 3-9020, WOVEN WIRE REINFORCED SILT FENCE SHALL BE USED INSTEAD OF SILT FENCE WITHIN 100 FEET UPSLOPE OF RECEIVING WATERS.

1.4.5 DIVERT UPLAND RUNOFF

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

THE PROJECT AREA IS RELATIVELY FLAT; THEREFORE IT IS NOT ANTICIPATED THAT DIVERSION MEASURES WILL BE NECESSARY.

1.4.6 SLOW DOWN CHANNELIZED RUNOFF

CHECK STRUCTURES SHALL BE UTILIZED TO REDUCE THE VELOCITY, AND THUS THE EROSIVE POTENTIAL, OF CONCENTRATED FLOW IN CHANNELS.

THE USE OF CHECK DAMS IS NOT ANTICIPATED FOR THIS PROJECT.

1.4.7 CONSTRUCT PERMANENT CONTROLS

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

SEED AND MULCH WILL BE USED AS PERMANENT CONTROLS TO STABILIZE EXPOSED SOIL. STONE FILL WILL BE USED TO STABILIZE THE SLOPES AND STREAMBED AROUND HEADWALLS. STONE FILL, STREAM BEAD MATERIAL (TYPE IV) WILL BE USED IN THE BOTTOM OF THE CHANNEL TO PREVENT FUTURE SCOUR AND ESTABLISH A NATURAL STREAMBED.

1.4.8 STABILIZE EXPOSED SOILS DURING CONSTRUCTION

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

THE USE OF SURFACE ROUGHENING IS NOT ANTICIPATED FOR THIS PROJECT.

THE USE OF TEMPORARY EROSION MATTING (BIODEGRADABLE) DURING CONSTRUCTION IS NOT ANTICIPATED FOR THIS PROJECT.

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

1.4.9 WINTER STABILIZATION

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

SHOULD EARTH DISTURBANCE BE PERFORMED OUTSIDE THE CONSTRUCTION SEASON, A WINTER EROSION AND SEDIMENT CONTROL PLAN DESCRIBING ALTERNATIVE STABILIZATION METHODS SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO AUGUST 15 FOR APPROVAL.

1.4.10 STABILIZE SOIL AT FINAL GRADE

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

SEED, MULCH, FERTILIZER AND LIME SHALL BE USED TO ESTABLISH PERMANENT VEGETATION. FOR SLOPES STEEPER THAN 1:3, BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED INSTEAD OF MULCH.

THE USE OF PERMANENT EROSION CONTROL MATTING IS NOT ANTICIPATED FOR THIS PROJECT

1.4.11 DE-WATERING ACTIVITIES

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

TREATMENT OF DEWATERING COFFERDAM IS ANTICIPATED. TWO LOCATIONS FOR FILTER BAGS HAVE BEEN PROPOSED AND ARE SHOWN ON THE PLANS. HOWEVER THE SPECIFIC MEANS FOR TREATMENT OF DISCHARGE SHALL BE PROVIDED BY THE CONTRACTOR.

1.4.12 INSPECT YOUR SITE

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

1.5 SEQUENCE AND STAGING

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

1.5.1 CONSTRUCTION SEQUENCE

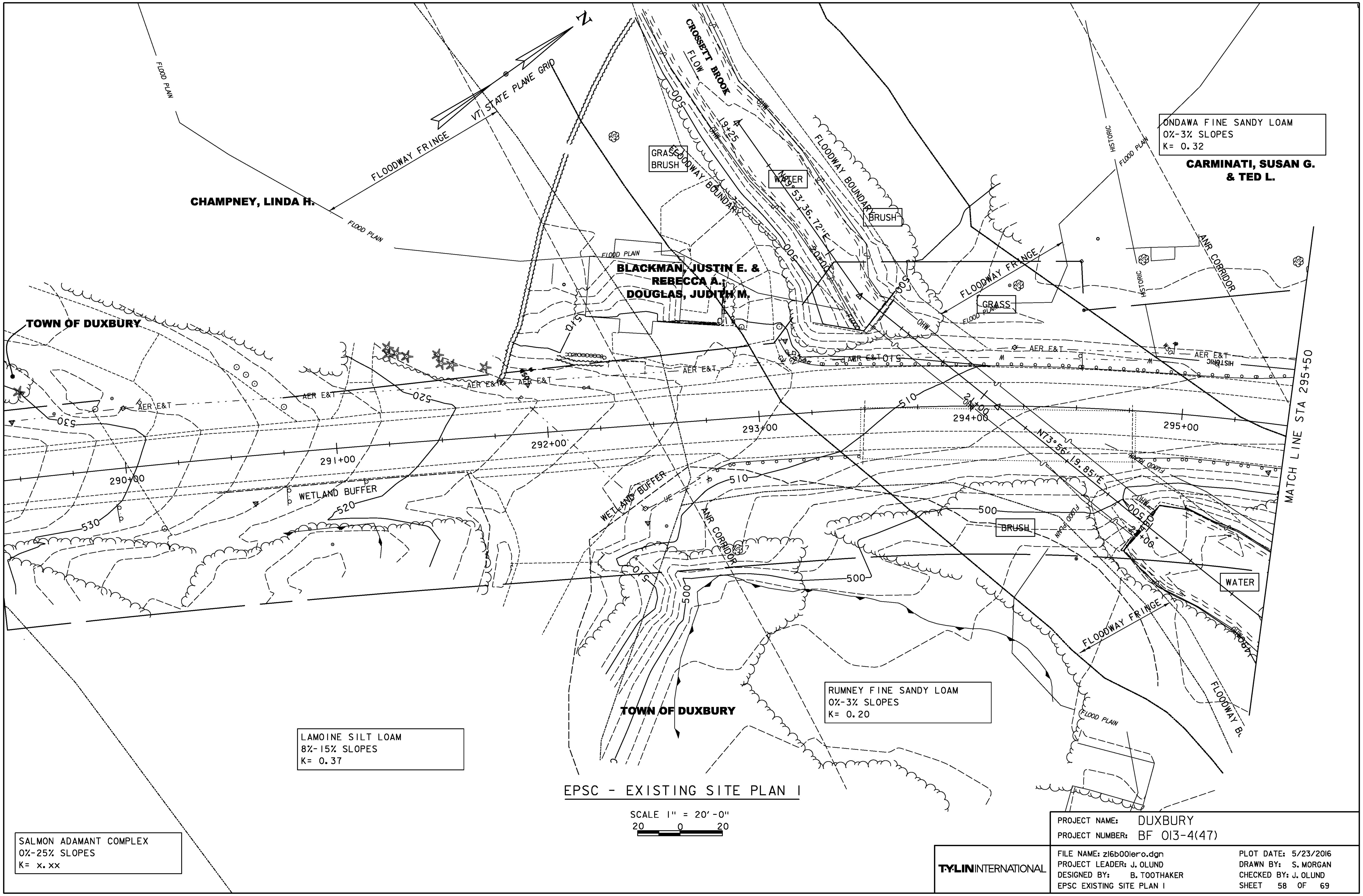
1.5.2 OFF-SITE ACTIVITIES

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

WASTE, BORROW, AND STAGING AREAS MUST BE APPROVED BY THE VTRANS ENVIRONMENTAL SECTION.

NO ONSITE DISPOSAL OF WASTE MATERIALS SHALL BE ALLOWED. THE CONTRACTOR IS ENCOURAGED TO USE EXEMPT SITES FOR EARTHEN AND/OR SOLID WASTES. INFORMATION REGARDING EXEMPT SITES MAY BE FOUND ON THE VTRANS ENVIRONMENTAL WEBSITE AT:
http://vtransengineering.vermont.gov/bureaus/pdb/environmental/off-site-activity

1.5.3 UPDATES



EPSC - EXISTING SITE PLAN I

SCALE 1" = 20'-0"

20 0 20

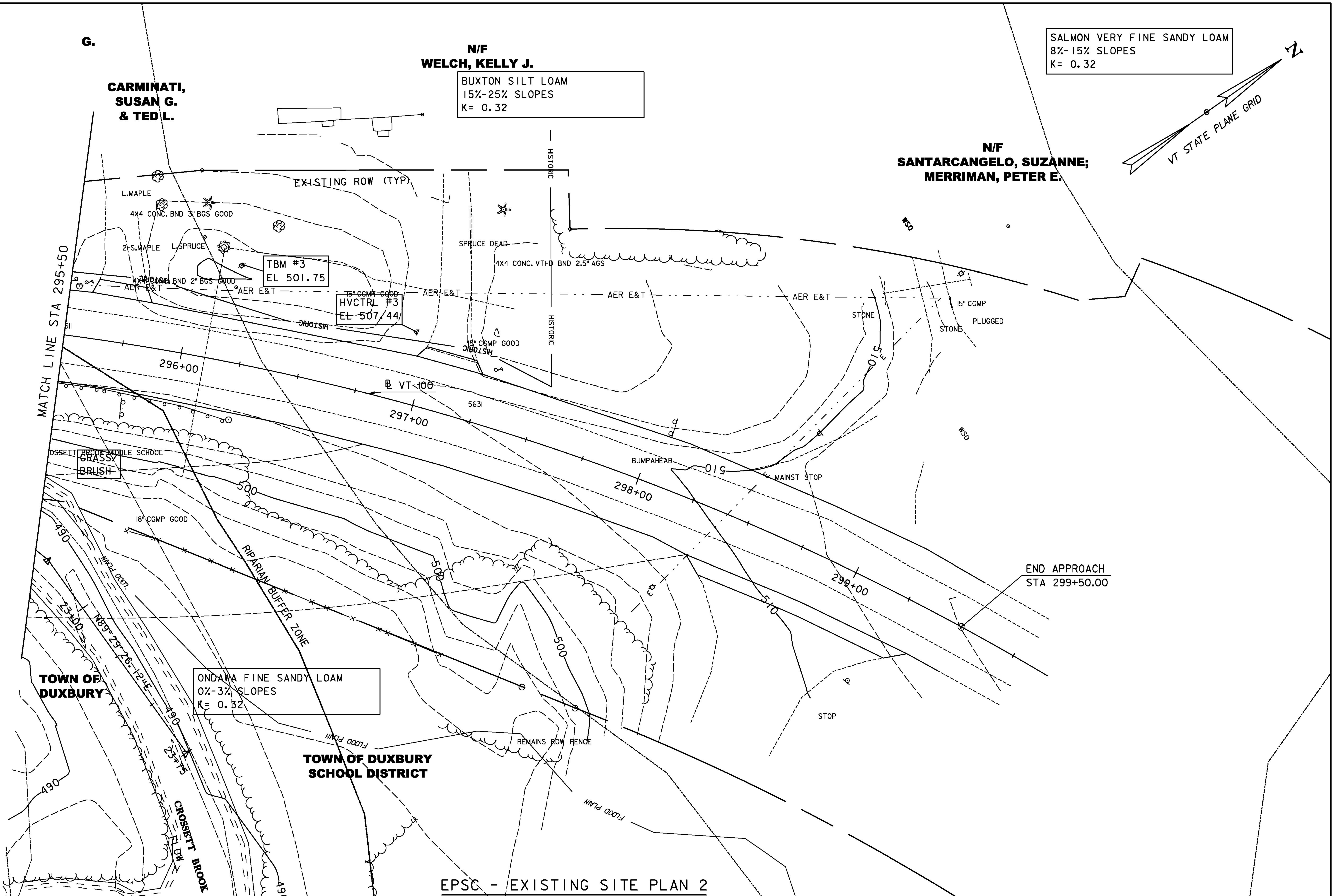
PROJECT NAME: DUXBURY

PROJECT NUMBER: BF 013-4(47)

T·Y·LIN INTERNATIONAL

FILE NAME: z16b001ero.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: B. TOOTHAKER
EPSC EXISTING SITE PLAN I

PLOT DATE: 5/23/2016
DRAWN BY: S. MORGAN
CHECKED BY: J. OLUND
SHEET 58 OF 69



EPSC - EXISTING SITE PLAN 2

SCALE 1" = 20'-0"
20 0 20

PROJECT NAME:	DUXBURY
PROJECT NUMBER:	BF 013-4(47)

T·Y·LIN INTERNATIONAL

FILE NAME: zl6b00lero.dgn	PLOT DATE: 5/23/2016
PROJECT LEADER: J. OLUND	DRAWN BY: S. MORGAN
DESIGNED BY: B. TOOTHAKER	CHECKED BY: J. OLUND
EPSC EXISTING SITE PLAN 2	SHEET 59 OF 69

EPSC - CONSTRUCTION SITE PLAN I

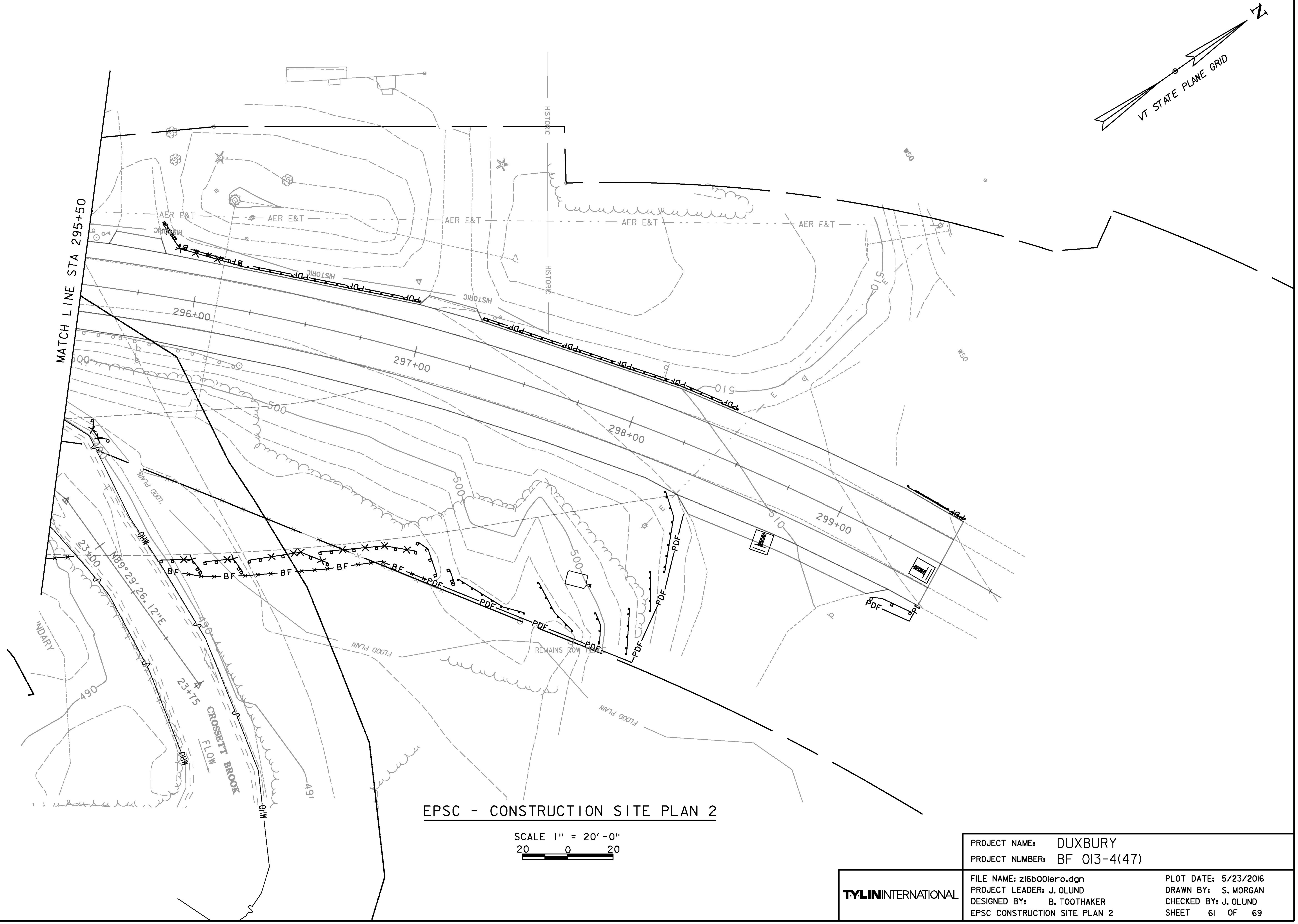
SCALE 1" = 20'-0"

20 0 20

PROJECT NAME:	DUXBURY
PROJECT NUMBER:	BF 013-4(47)

T·Y·LIN INTERNATIONAL

FILE NAME: z16b001ero.dgn	PLOT DATE: 5/23/2016
PROJECT LEADER: J. OLUND	DRAWN BY: S. MORGAN
DESIGNED BY: B. TOOTHAKER	CHECKED BY: J. OLUND
EPSC CONSTRUCTION SITE PLAN I	SHEET 60 OF 69



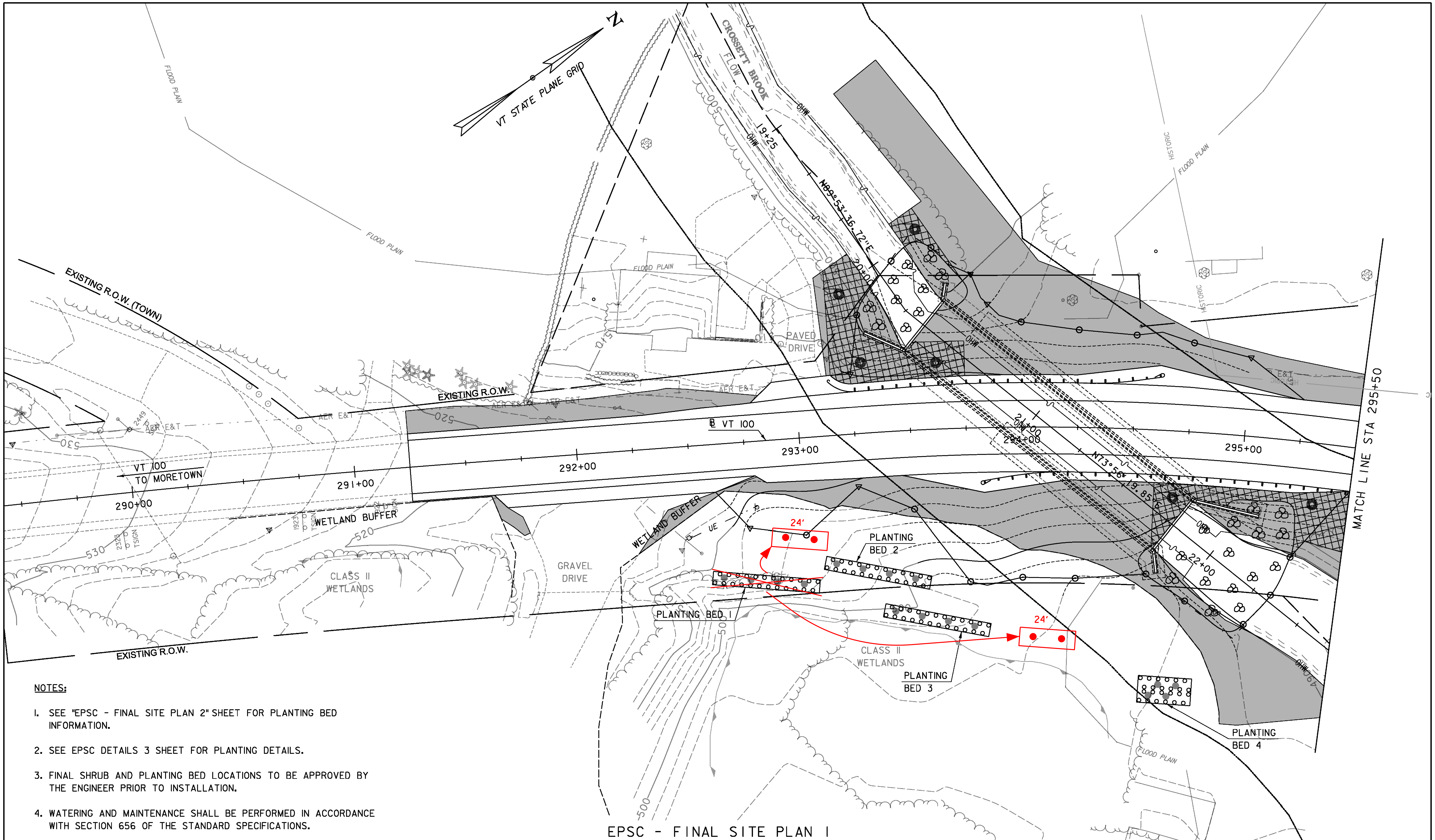
EPSC - CONSTRUCTION SITE PLAN 2

SCALE 1" = 20'-0"
20 0 20

PROJECT NAME:	DUXBURY
PROJECT NUMBER:	BF 013-4(47)

T·Y·LIN INTERNATIONAL

FILE NAME: zl6b00lero.dgn	PLOT DATE: 5/23/2016
PROJECT LEADER: J. OLUND	DRAWN BY: S. MORGAN
DESIGNED BY: B. TOOTHAKER	CHECKED BY: J. OLUND
EPSC CONSTRUCTION SITE PLAN 2	SHEET 61 OF 69



NOTES:

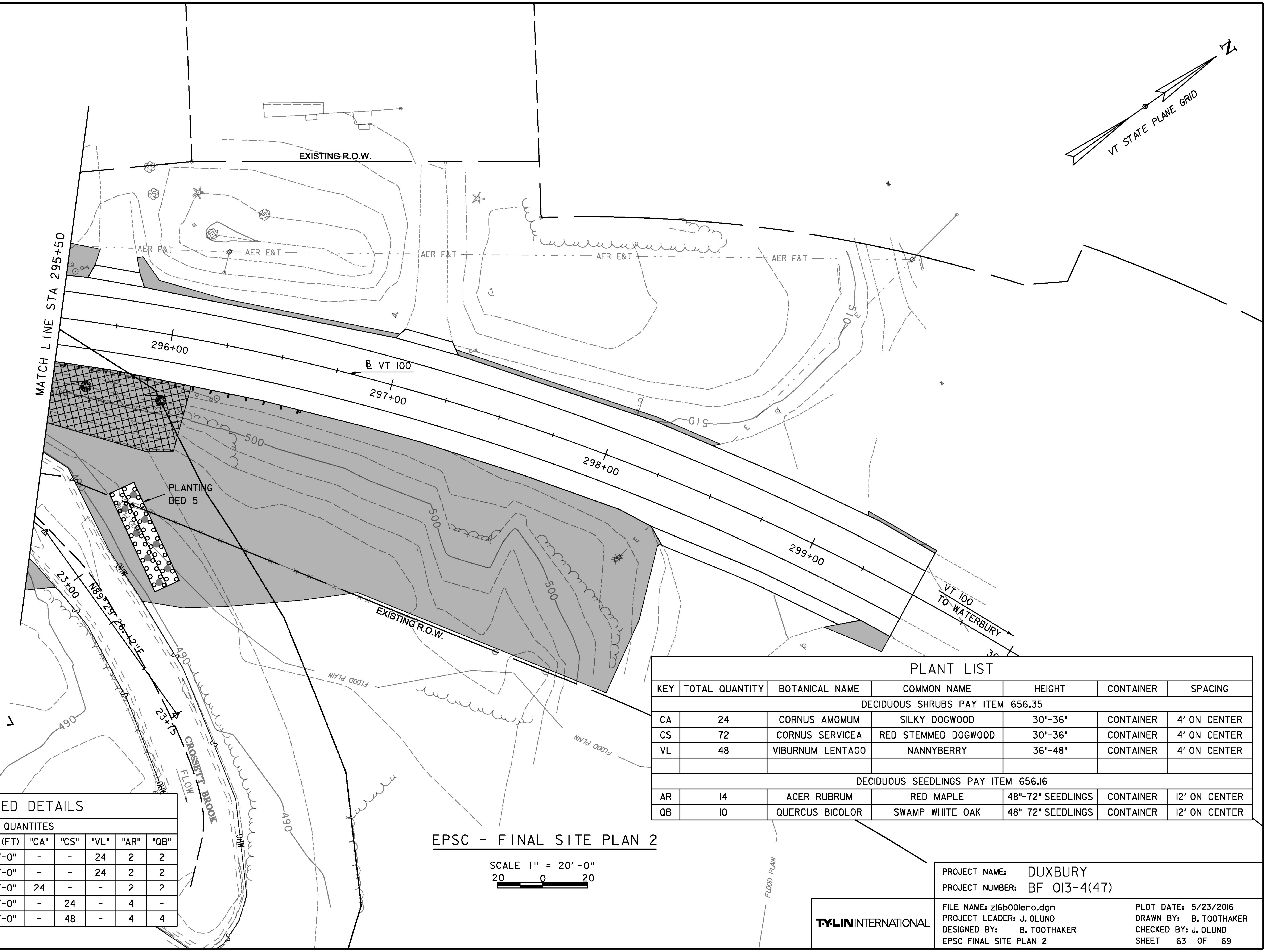
1. SEE "EPSC - FINAL SITE PLAN 2" SHEET FOR PLANTING BED INFORMATION.
2. SEE EPSC DETAILS 3 SHEET FOR PLANTING DETAILS.
3. FINAL SHRUB AND PLANTING BED LOCATIONS TO BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.
4. WATERING AND MAINTENANCE SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 656 OF THE STANDARD SPECIFICATIONS.

EPSC - FINAL SITE PLAN 1

SCALE 1" = 20'-0"

20 0 20

T.Y.LIN INTERNATIONAL	PROJECT NAME: DUXBURY	
	PROJECT NUMBER: BF 013-4(47)	
	FILE NAME: z16b001ero.dgn	PLOT DATE: 5/23/2016
	PROJECT LEADER: J. OLUND	DRAWN BY: B. TOOTHAKER
	DESIGNED BY: B. TOOTHAKER	CHECKED BY: J. OLUND
	EPSC FINAL SITE PLAN 1	SHEET 62 OF 69



PLANT BED DETAILS

PLANT QUANTITES								
PLANT BED	L (FT)	W (FT)	D (FT)	"CA"	"CS"	"VL"	"AR"	"QB"
1	48'-0"	6'-0"	2'-0"	-	-	24	2	2
2	48'-0"	6'-0"	2'-0"	-	-	24	2	2
3	48'-0"	6'-0"	2'-0"	24	-	-	2	2
4	24'-0"	12'-0"	2'-0"	-	24	-	4	-
5	48'-0"	12'-0"	2'-0"	-	48	-	4	4

PLANT LIST

KEY	TOTAL QUANTITY	BOTANICAL NAME	COMMON NAME	HEIGHT	CONTAINER	SPACING
DECIDUOUS SHRUBS PAY ITEM 656.35						
CA	24	CORNUS AMOMUM	SILKY DOGWOOD	30"-36"	CONTAINER	4' ON CENTER
CS	72	CORNUS SERVICEA	RED STEMMED DOGWOOD	30"-36"	CONTAINER	4' ON CENTER
VL	48	VIBURNUM LENTAGO	NANNYBERRY	36"-48"	CONTAINER	4' ON CENTER
DECIDUOUS SEEDLINGS PAY ITEM 656.16						
AR	14	ACER RUBRUM	RED MAPLE	48"-72" SEEDLINGS	CONTAINER	12' ON CENTER
QB	10	QUERCUS BICOLOR	SWAMP WHITE OAK	48"-72" SEEDLINGS	CONTAINER	12' ON CENTER

EPSC - FINAL SITE PLAN 2

SCALE 1" = 20'-0"
20 0 20

PROJECT NAME: DUXBURY
PROJECT NUMBER: BF 013-4(47)

T·Y·LIN INTERNATIONAL

FILE NAME: z16b001ero.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: B. TOOTHAKER
EPSC FINAL SITE PLAN 2

PLOT DATE: 5/23/2016
DRAWN BY: B. TOOTHAKER
CHECKED BY: J. OLUND
SHEET 63 OF 69

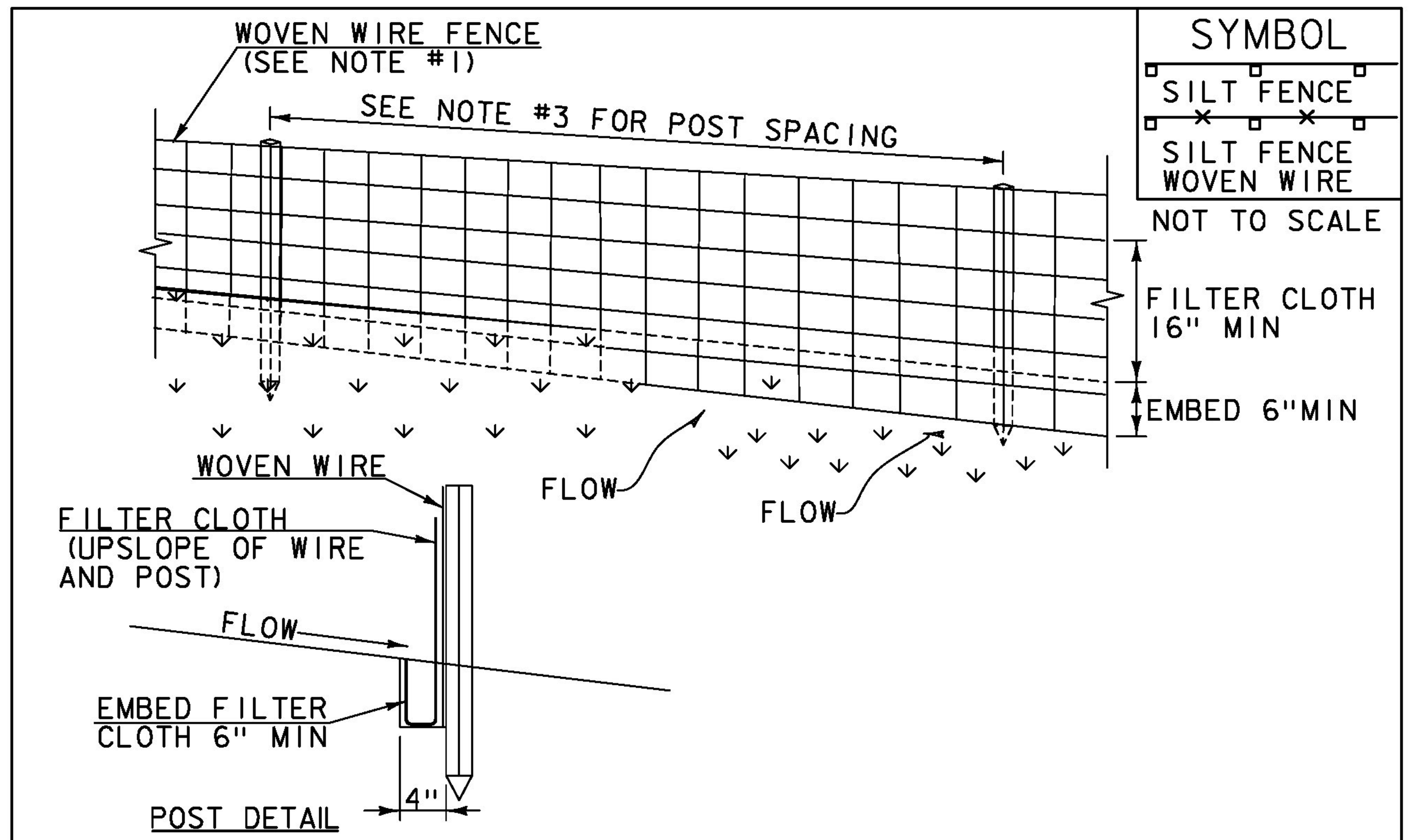
SILT FENCE

SYMBOL

SILT FENCE

SILT FENCE WOVEN WIRE

NOT TO SCALE



CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE REINFORCED FENCE IS REQUIRED WITHIN 100' UPSLOPE OF RECEIVING WATERS WHEN THE PROJECT FALLS UNDER A CONSTRUCTION STORMWATER PERMIT. WOVEN WIRE SHALL BE A MIN. 14 GAUGE WITH A 6" MAX. MESH OPENING.
2. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI100X, STABILINKA T140N OR APPROVED EQUIVALENT.
3. POST SPACING FOR WIRE-BACKED FENCE SHALL BE 10' MAXIMUM. FOR FILTER-CLOTH FENCE, WHEN ELONGATION IS >50%, POST SPACING SHALL NOT EXCEED 4' AND WHEN ELONGATION IS <50%, POST SPACING SHALL NOT EXCEED 6'.
4. WOVEN WIRE FENCE IS TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES. FILTER CLOTH IS TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
5. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY 6" AND FOLDED.
6. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN SEDIMENT REACHES HALF OF FABRIC HEIGHT.

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SILT FENCE

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

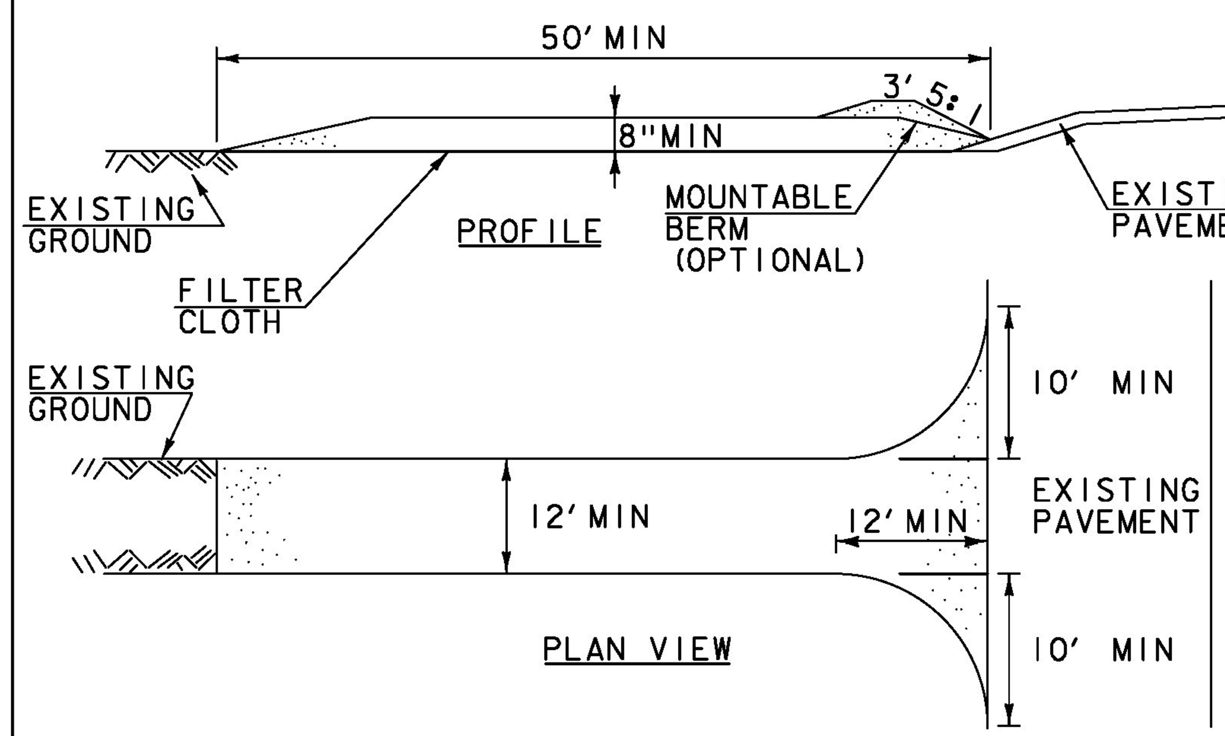
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 649 AND AS SHOWN IN THE PLANS FOR GEOTEXTILE FOR SILT FENCE (PAY ITEM 649.51) OR GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED (PAY ITEM 649.515).

REVISIONS	
MARCH 21, 2008	WHF
DECEMBER 11, 2008	WHF
JANUARY 13, 2009	WHF

STABILIZED CONSTRUCTION ENTRANCE

SYMBOL

NOT TO SCALE



CONSTRUCTION SPECIFICATIONS

1. STONE SIZE- USE 1-4" STONE, RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH- NOT LESS THAN 50' (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30' MINIMUM LENGTH APPLIES).
3. THICKNESS- NOT LESS THAN 8".
4. WIDTH- 12' MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. 24' IF SINGLE ENTRANCE TO SITE.
5. GEOTEXTILE MUST BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING STONE.
6. SURFACE WATER- ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE- THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY, ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED ACCORDING TO PERMIT REQUIREMENTS.

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

STABILIZED CONSTRUCTION ENTRANCE

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

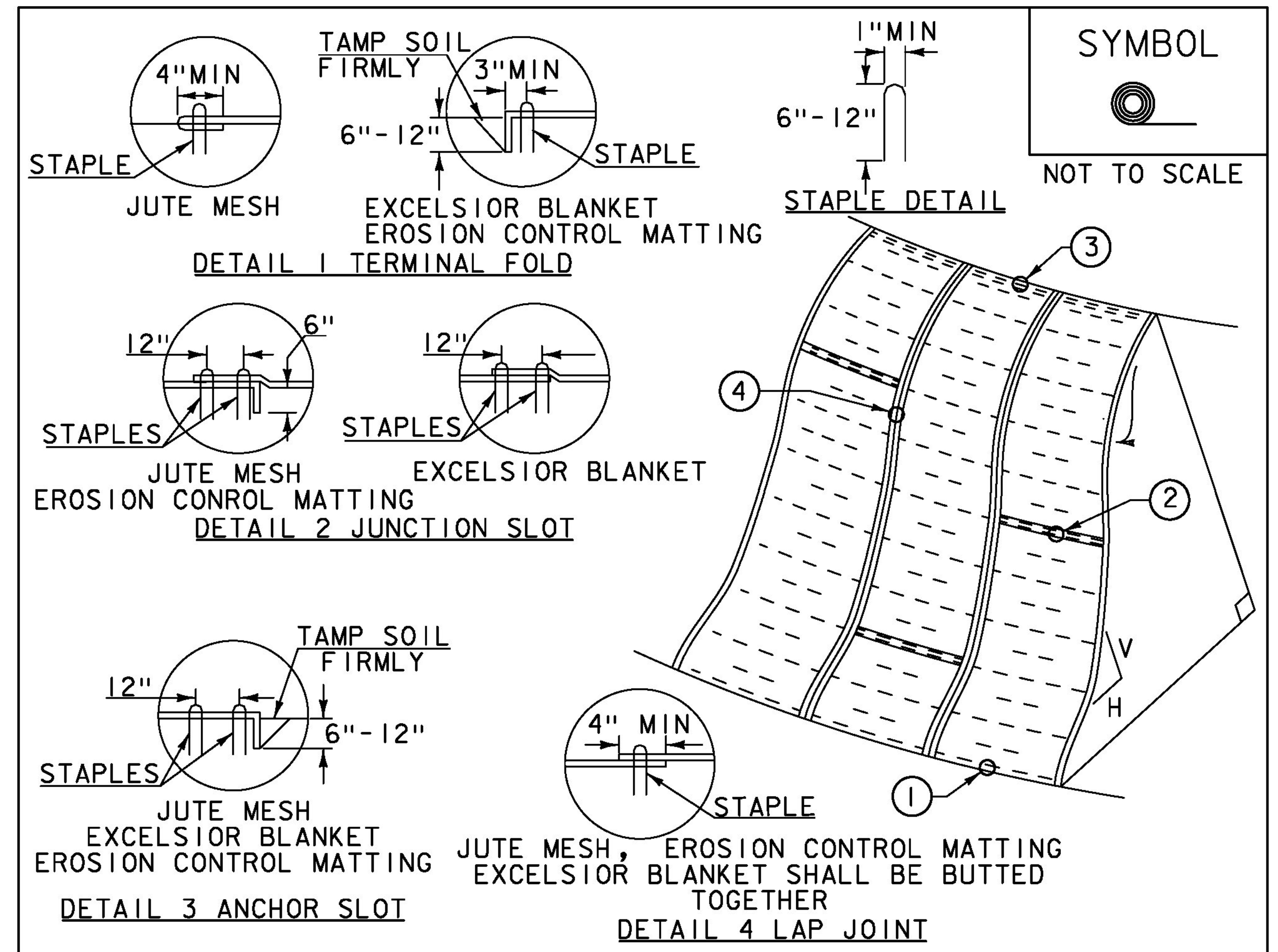
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR VEHICLE TRACKING PAD (PAY ITEM 653.35) OR AS SPECIFIED IN THE CONTRACT.

REVISIONS	
MARCH 24, 2008	WHF
JANUARY 13, 2009	WHF

ROLLED EROSION CONTROL PRODUCT (RECP) SIDE SLOPE

SYMBOL

NOT TO SCALE



CONSTRUCTION SPECIFICATIONS

1. APPLY TO SLOPES GREATER THAN 3H:1V OR WHERE NECESSARY TO AID IN ESTABLISHING VEGETATION.
2. APPLY FERTILIZER, LIME SEED PRIOR TO PLACING MATTING.
3. STAPLES ARE TO BE PLACED ALTERNATELY, IN COLUMNS APPROXIMATELY 2' APART AND IN ROWS APPROXIMATELY 3' APART. APPROXIMATELY 175 STAPLES ARE REQUIRED PER 4'X225' ROLL OF MATERIAL AND 125 STAPLES ARE REQUIRED PER 4'X150' ROLL OF MATERIAL.
4. DISTURBED AREAS SHALL BE SMOOTHLY GRADED. EROSION CONTROL MATERIAL SHALL BE PLACED LOOSELY OVER GROUND SURFACE. DO NOT STRETCH.
5. ALL TERMINAL ENDS AND TRANSVERSE LAPS SHALL BE STAPLED AT APPROXIMATELY 12" INTERVALS.

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

ROLLED EROSION CONTROL PRODUCT (RECP) SIDE SLOPE

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- " FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 AND AS SHOWN IN THE PLANS FOR TEMPORARY EROSION MATTING (PAY ITEM 653.20) ~~OR PERMANENT EROSION MATTING (PAY ITEM 653.21).~~

REVISIONS	
APRIL 16, 2007	JMF
JANUARY 13, 2009	WHF

PROJECT NAME: DUXBURY
PROJECT NUMBER: BF 013-4(47)

T·Y·LIN INTERNATIONAL

FILE NAME: z16b00lerodet.dgn	PLOT DATE: 5/23/2016
PROJECT LEADER: J. OLUND	DRAWN BY: B. TOOTHAKER
DESIGNED BY: B. TOOTHAKER	CHECKED BY: J. OLUND
EPSC DETAILS 1	SHEET 64 OF 69

VAOT LOW GROW/FINE FESCUE MIX						
	LBS/AC					
WEIGHT	BROADCAST	HYDROSEED	NAME	LATIN NAME	GERM	PURITY
38%	57	95	CREEPING RED FESCUE	FESTUCA RUBRA VAR. RUBRA	90%	98%
29%	43.5	72.5	HARD FESCUE	FESTUCA LONGIFOLIA	85%	95%
15%	22.5	37.5	CHEWINGS FESCUE	FESTUCA RUBRA VAR. COMMUTATA	87%	95%
15%	22.5	37.5	ANNUAL RYEGRASS	LOLIUM MULTIFLORUM	90%	95%
3%	4.5	7.5	INERTS			
100%	150	250				

VAOT RURAL AREA MIX						
	LBS/AC					
WEIGHT	BROADCAST	HYDROSEED	NAME	LATIN NAME	GERM	PURITY
37.5%	22.5	45	CREEPING RED FESCUE	FESTUCA RUBRA VAR. RUBRA	85%	98%
37.5%	22.5	45	TALL FESCUE	FESTUCA ARUNDINACEA	90%	95%
5.0%	3	6	RED TOP	AGROSTIS GIGANTEA	90%	95%
15.0%	9	18	WHITE FIELD CLOVER	TRIFOLIUM REPENS	85%	98%
5.0%	3	6	ANNUAL RYE GRASS	LOLIUM MULTIFLORUM	85%	95%
100%	60	120				

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

CONSTRUCTION GUIDANCE

1. SEED MIX: THE CONTRACTOR SHALL COORDINATE WITH THE RESIDENT ENGINEER ON WHICH SEED MIX TO USE.
2. SEED MIX: USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED UPLAND (NON WETLAND) AREAS DISTURBED BY THE CONTRACTOR.
3. ALL SEED MIXTURES: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS SEED.
4. FERTILIZER AND LIMESTONE: SHALL FOLLOW RATES SHOWN ON PLAN OR AS DIRECTED BY THE ENGINEER.
5. HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 2 TONS/ACRE, ACHIEVE 90% GROUND COVER OR AS DIRECTED BY THE ENGINEER.
6. HYDROSEEDING: ALTHOUGH GUIDANCE IS GIVEN ABOVE THE SITE CONDITIONS AND THE TYPE OF HYDROSEED PROPOSED FOR USE WILL ULTIMATELY DICTATE THE AMOUNTS AND TYPES OF SOIL AMENDMENTS TO BE APPLIED.
7. TURF ESTABLISHMENT: PLACING SEED, FERTILIZER, LIME AND MULCH PRIOR TO SEPTEMBER 15 AND AFTER APRIL 15 CAN BETTER ENSURE A VIGOROUS GROWTH OF GRASS.

ADAPTED FROM VTRANS TECHNICAL LANDSCAPE MANUAL FOR ROADWAYS AND TRANSPORTATION FACILITIES

TURF ESTABLISHMENT

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

REVISIONS	
JANUARY 12, 2015	WHF

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

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

CONSTRUCTION GUIDANCE

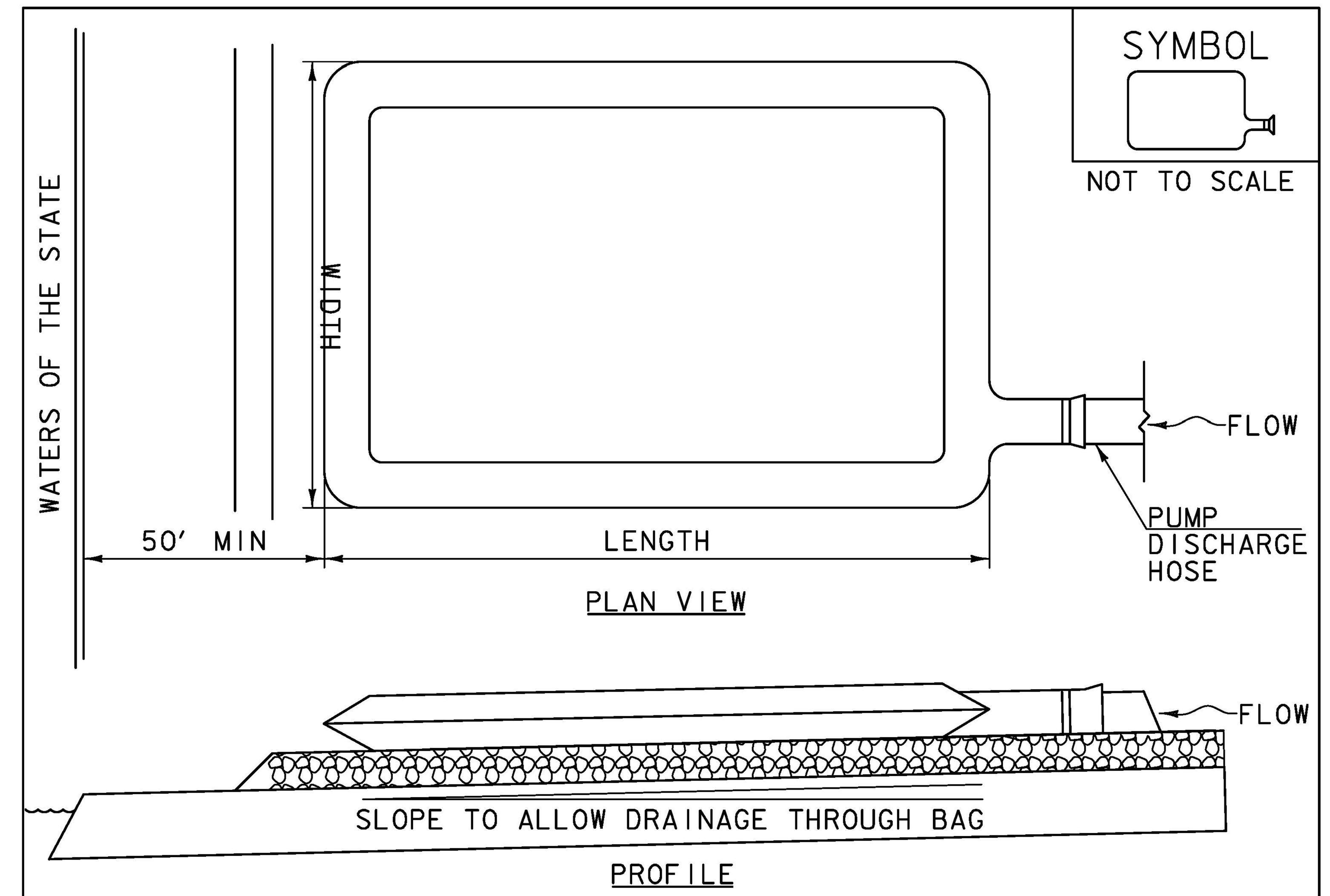
1. SEED MIX: THE URBAN AREA MIX SHALL NOT BE USED IN WETLANDS OR ANY WATERS OF THE STATE OF VERMONT.
2. SEED MIX: USE ONLY AS INDICATED IN THE PLANS.
3. SEED MIX: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS SEED.
4. FERTILIZER AND LIMESTONE: SHALL FOLLOW RATES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

ADAPTED FROM VTRANS TECHNICAL LANDSCAPE MANUAL FOR ROADWAYS AND TRANSPORTATION FACILITIES

TURF ESTABLISHMENT

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

REVISIONS	
JANUARY 22, 2015	WHF



CONSTRUCTION SPECIFICATIONS

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

FILTER BAG

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

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR FILTER BAG (PAY ITEM 653.45) AND AS SPECIFIED IN THE CONTRACT.

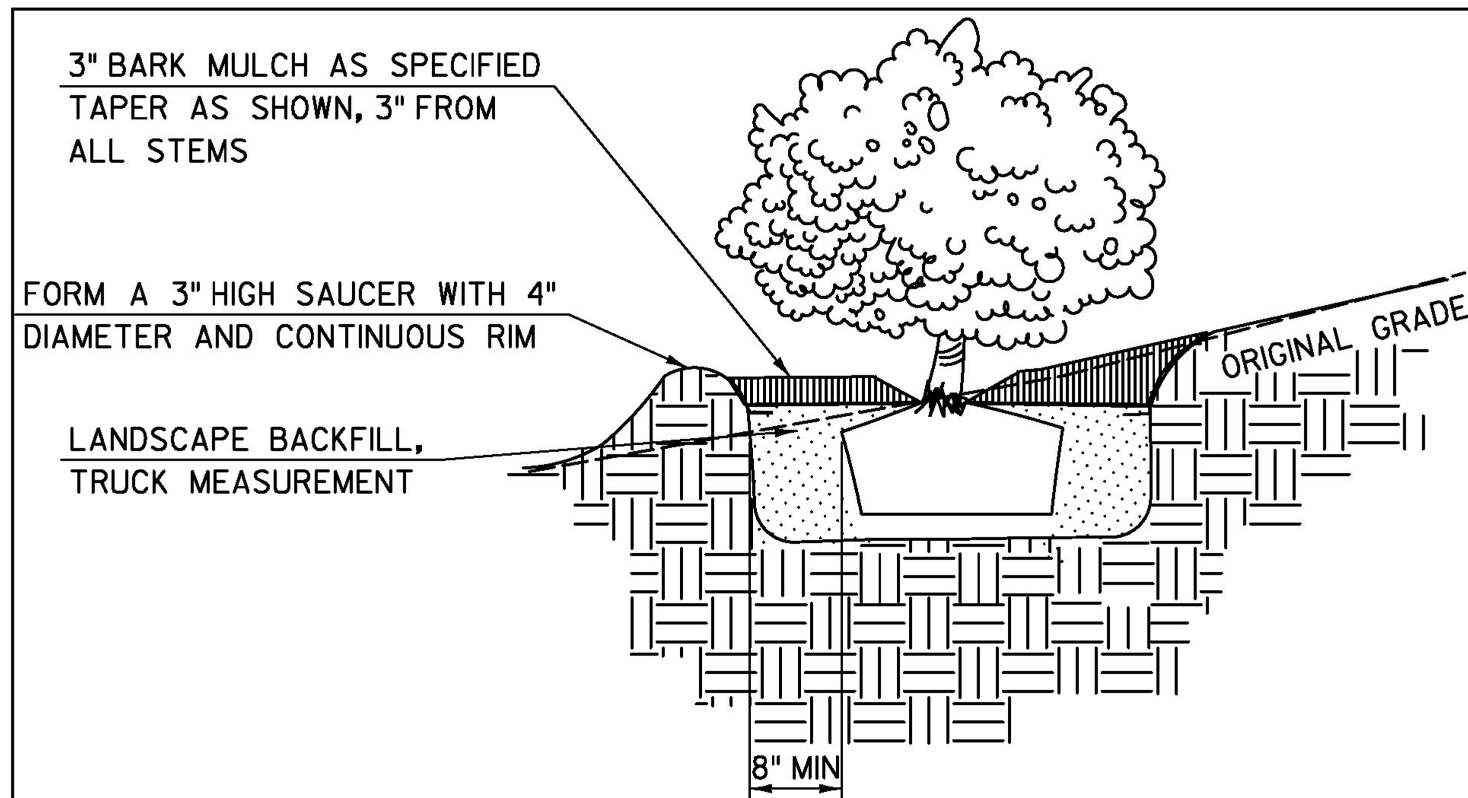
REVISIONS	
MARCH 24, 2008	WHF
JANUARY 13, 2009	WHF

PROJECT NAME: DUXBURY
PROJECT NUMBER: BF 013-4(47)

T·Y·LIN INTERNATIONAL

FILE NAME: z16b001erodet.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: B. TOOTHAKER
EPSC DETAILS 2

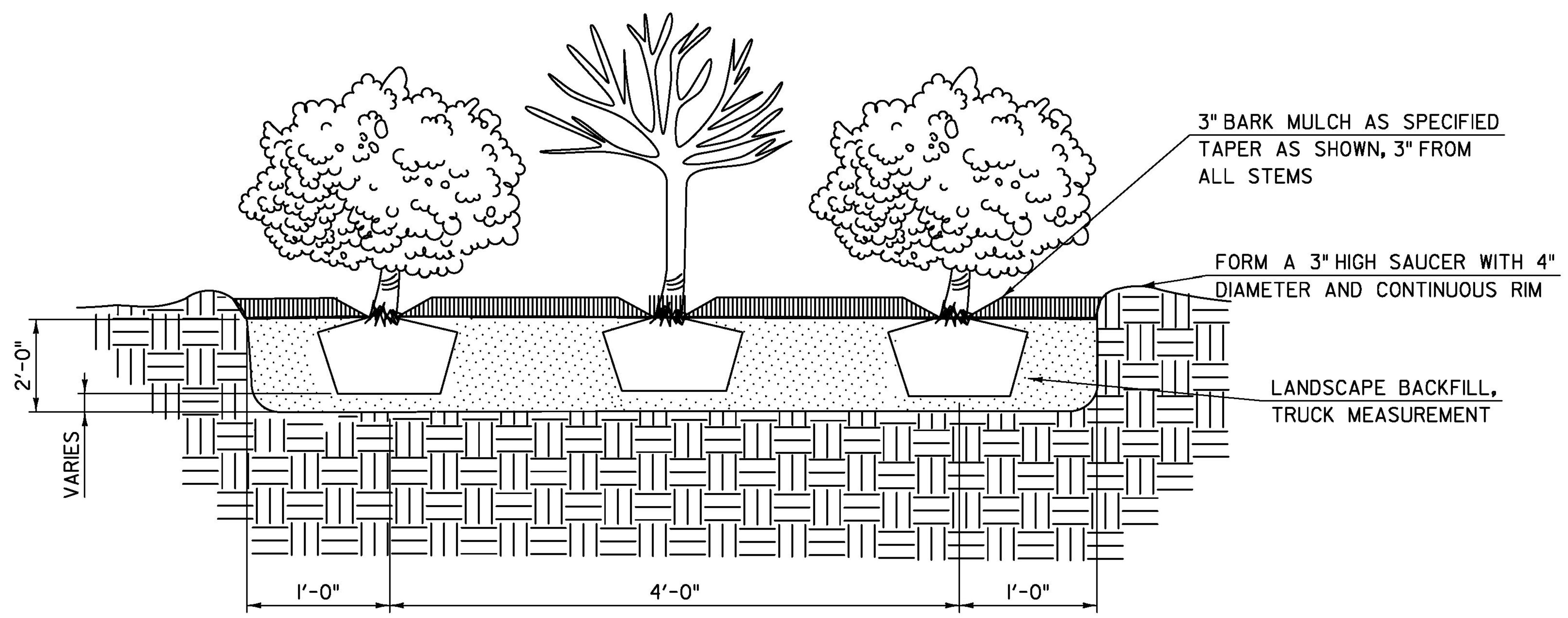
PLOT DATE: 5/23/2016
DRAWN BY: B. TOOTHAKER
CHECKED BY: J. OLUND
SHEET 65 OF 69



SHRUB PLANTING ON SLOPES DETAIL
NOT TO SCALE

NOTES:

1. ALL SHRUBS TO BE PLANTED 1'-0" FROM EDGE OF BED. PLANT IN ALTERNATING ROWS. PLANT TREES IN THE AREA BETWEEN TWO ROWS OF SHRUBS AT 12' ON CENTER.
2. MULCH THE ENTIRE BED WITH 3" LAYER OF BARK MULCH AS SPECIFIED. PAYMENT WILL BE INCIDENTAL TO RELATED PLANTING PAY ITEMS.
3. TILL THE COMPACTED ROADBED PRIOR TO PREPARING AND PLANTING BEDS TO LOOSEN NATIVE SOIL.
4. PLANTING BEDS WILL REQUIRE REMOVING COMPACTED FILL AND REPLACEMENT WITH APPROVED ITEM 656.80, "LANDSCAPE BACKFILL, TRUCK MEASUREMENT" TO A DEPTH OF 2'-0" FOR THE ENTIRE BED AS DIMENSIONED ON THE PLAN. TAMP SOIL WELL PRIOR TO PLANTING AND LET SETTLE. PLANT SHRUBS AND TREES SO THAT TOP ROOTS ARE EXPOSED AND ONLY COVERED BY MULCH.



SHRUB & TREE PLANTING DETAIL
NOT TO SCALE

	PROJECT NAME: DUXBURY PROJECT NUMBER: BF 013-4(47)	
T·Y·LIN INTERNATIONAL	FILE NAME: z16b001erodet.dgn PROJECT LEADER: J. OLUND DESIGNED BY: B. TOOTHAKER EPSC DETAILS 3	PLOT DATE: 5/23/2016 DRAWN BY: B. TOOTHAKER CHECKED BY: J. OLUND SHEET 66 OF 69

STATE OF VERMONT
AGENCY OF TRANSPORTATION

RIGHT - OF - WAY DETAIL SHEET

TABLE OF PROPERTY ACQUISITION

PARCEL NO.	PROPERTY OWNER	ROW LAYOUT NO.	BEGINNING STATION	ENDING STATION	TAKE	REMAINDER	RIGHT			RECORDING DATA					REMARKS
					AREA±	AREA±	TYPE	T / P	AREA ±	TITLE	DATE	TOWN / CITY	BOOK	PAGE	
1	CHAMPNEY, LINDA H.	1	290+77 LT	292+22 LT			UTILITY	T	3,155 SF						
2	BLACKMAN, JUSTIN E. & REBECCA A.;	1	292+01 LT	293+06 LT			UTILITY	T	2,524 SF						
	DOUGLAS, JUDITH M.		293+09.57 LT	293+39.70 LT			CONSTRUCTION	T	828 SF						INCL. BF & EC
3	CARMINATI, SUSAN G. & TED L.	1, 2	292+84 LT	294+24 LT			CONSTRUCTION	T	0.14 A						INCL. BF, EC, TEMP. UTILITIES & ACCESS DRIVE; 6,250 SF±
			293+40.38 LT	293+79.96 LT			CHANNEL	P	391 SF						INCL. STONE FILL
			294+51 LT	294+67 LT			CONSTRUCTION	T	93 SF						INCL. BF & EC
4	TOWN OF DUXBURY	1, 2	292+92 LT	295+90 LT			DETOUR	T	0.23 A						INCL. PDF, BF & EC; PLANT TREES & SHRUBS; 10,694 SF±
			294+66.97 RT	295+19.23 RT			CHANNEL	P	518 SF						INCL. STONE FILL
5	UNION SCHOOL DISTRICT NO. 45	1, 2	295+25 RT	297+08 RT			DETOUR	T	3,106 SF						INCL. BF & EC; PLANT TREES & SHRUBS
			295+88 RT	298+12 RT			ALL R. T. & I.								FENCE
6	GREEN MOUNTAIN POWER CORPORATION		290+77 LT	297+08 RT											UTILITY
7	COMCAST OF CONNECTICUT/GEORGIA/		290+77 LT	297+08 RT											UTILITY
	MASSACHUSETTS/NEW HAMPSHIRE/														
	NEW YORK/NORTH CAROLINA/VIRGINIA/														
	VERMONT, LLC														
8	TELEPHONE OPERATING COMPANY OF		290+77 LT	297+08 RT											UTILITY
	VERMONT LLC														
9	DUXBURY-MORETOWN FIRE DISTRICT #1		290+77 LT	297+08 RT											UTILITY
10	WATERBURY WATER DISTRICT		290+77 LT	297+08 RT											UTILITY

TABLE OF REVISIONS

REVISION NO.	ROW SET SHEET #	DESCRIPTION	DATE

PROJECT NAME:	**DUXBURY**
PROJECT NUMBER:	**BF 013-4(47)**
FILE NAME:	r16b001detail.xls
PLOT DATE:	05-MAY-2016
PROJECT LEADER:	K. HIGGINS
DRAWN BY:	M. TROTTIER
DESIGNED BY:	T. POLK
CHECKED BY:	S. PATTERSON
R.O.W. DETAIL SHEET #1	SHEET 67 OF 69

REMOVAL OF STRUCTURE
STA 293+51.47 LT - 294+90.57 RT

CONSTRUCT DRIVES
291+61.79 RT - 292+78.98, LT
6' PAVED APRON
292+79.23 LT - 293+16.67 LT
8' PAVED APRON

REMOVAL AND DISPOSAL OF GUARDRAIL
STA 293+11.79 - 295+52.63, LT
STA 295+02.47 - 296+23.08, RT

ADJUST ELEVATION OF VALVE BOX
STA 29X+XX.XX, LT

STEEL BEAM GUARDRAIL, GALVANIZED
STA 293+12.95 - 294+26.01, LT
STA 294+20.80 - 296+63.02, RT

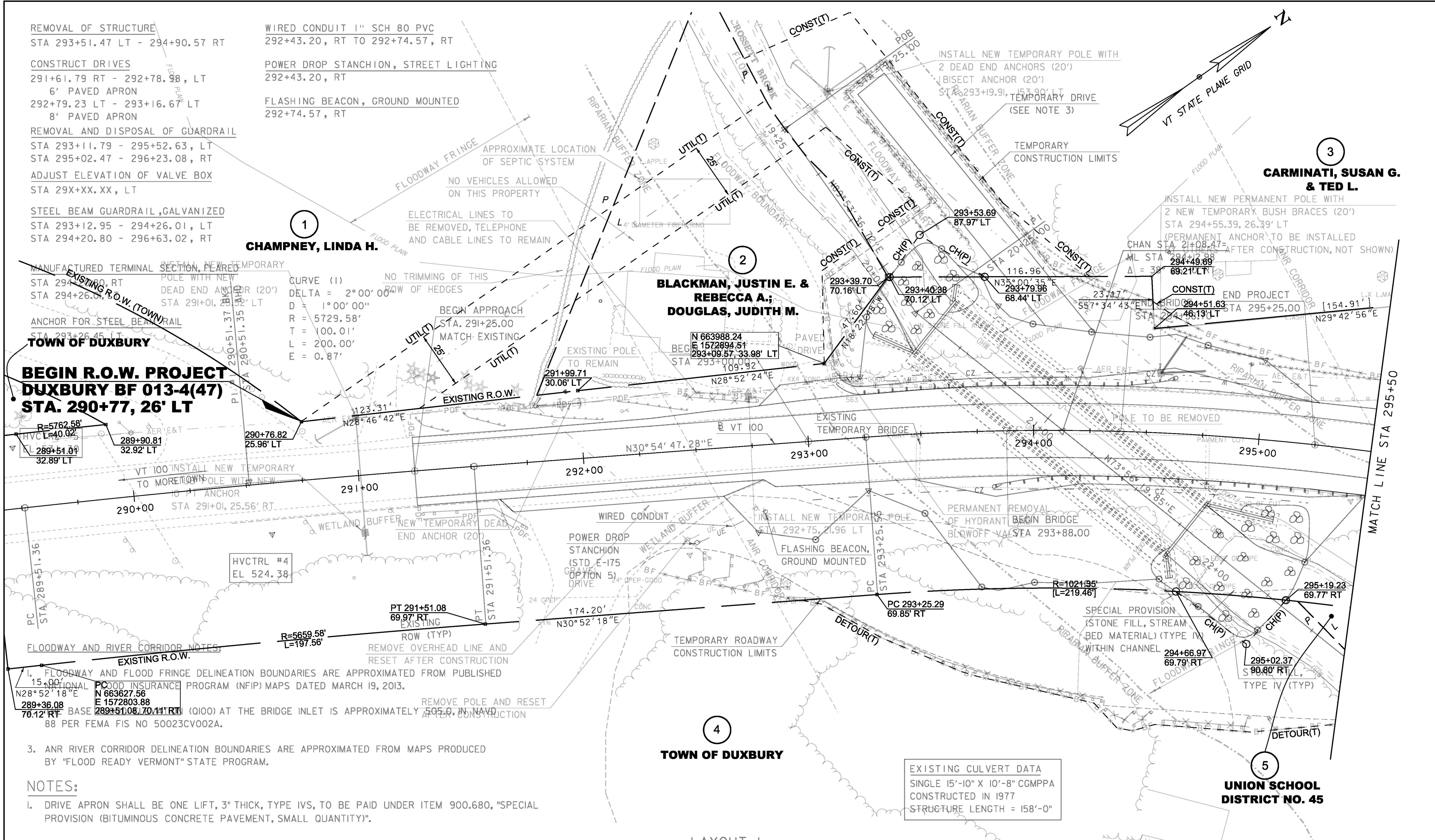
MANUFACTURED TERMINAL SECTION, FLARED
STA 294+..., RT
STA 294+26.01, RT

ANCHOR FOR STEEL BEAM RAIL
STA 293+26.45 LT

WIRED CONDUIT 1" SCH 80 PVC
292+43.20, RT TO 292+74.57, RT

POWER DROP STANCHION, STREET LIGHTING
292+43.20, RT

FLASHING BEACON, GROUND MOUNTED
292+74.57, RT



FLOODWAY AND RIVER CORRIDOR NOTES:

1. FLOODWAY AND FLOOD FRINGE DELINEATION BOUNDARIES ARE APPROXIMATED FROM PUBLISHED NATIONAL FLOOD INSURANCE PROGRAM (NFIP) MAPS DATED MARCH 19, 2013.
2. BASE FLOOD ELEVATION (Q100) AT THE BRIDGE INLET IS APPROXIMATELY 505.0, IN NAVD 88 PER FEMA FIS NO 50023CV002A.
3. ANR RIVER CORRIDOR DELINEATION BOUNDARIES ARE APPROXIMATED FROM MAPS PRODUCED BY "FLOOD READY VERMONT" STATE PROGRAM.

EXISTING CULVERT DATA
SINGLE 15'-10" X 10'-8" CGMPPA
CONSTRUCTED IN 1977
STRUCTURE LENGTH = 158'-0"

NOTES:

1. DRIVE APRON SHALL BE ONE LIFT, 3" THICK, TYPE IVS, TO BE PAID UNDER ITEM 900.680, "SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)".
2. DISTURBED PORTIONS OF THE GRAVEL DRIVE NEAR STA 292+14, RT SHALL BE RECONSTRUCTED IN ACCORDANCE WITH STANDARD B-71 AFTER REMOVAL OF TEMPORARY ROADWAY.
3. TEMPORARY DRIVE FOR UTILITY ACCESS SHALL BE 15 FT WIDE AND CONSIST OF 1 FT OF GRAVEL SUBBASE PLACED UPON GEOTEXTILE FOR STONE FILL. PAYMENT WILL BE MADE UNDER APPLICABLE ITEMS.

LAYOUT 1
SCALE 1" = 20'-0"
20 0 20

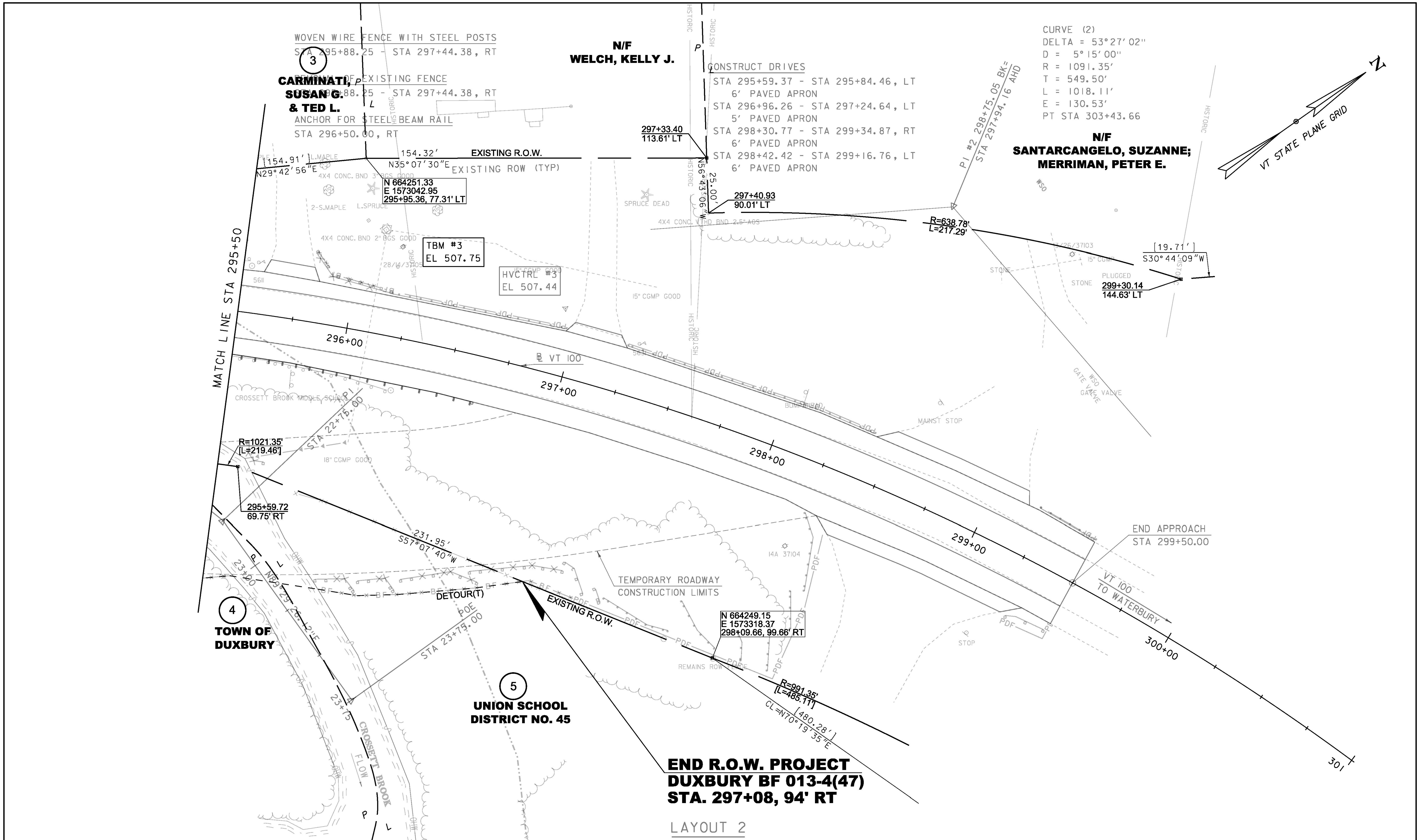
FOR R.O.W. USE ONLY

LINES SHOWN ON THIS PLAN AS EXISTING PROPERTY LINES P/L ARE BELIEVED TO BE ACCURATE BUT SHOULD NOT BE RELIED UPON FOR PURPOSES UNRELATED TO THE STATE OF VERMONT'S ACQUISITION OF LAND AND RIGHTS FOR THIS PROJECT.

PROJECT NAME: DUXBURY
PROJECT NUMBER: BF 013-4(47)

FILE NAME: r16b001layl.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: TYLIN
R.O.W. LAYOUT SHEET 1 OF 2

PLOT DATE: 05-MAY-2016
DRAWN BY: T. POLK
CHECKED BY: S. PATTERSON
SHEET 68 OF 69



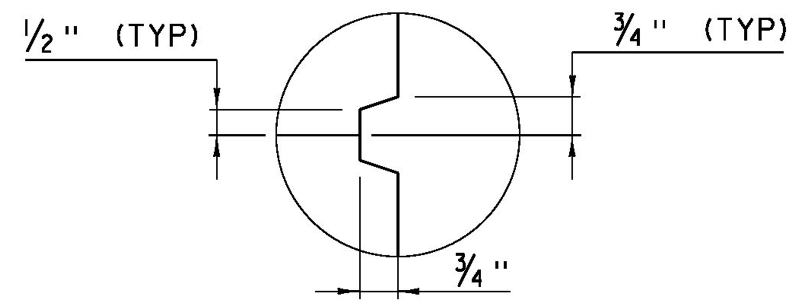
LINES SHOWN ON THIS PLAN AS EXISTING PROPERTY LINES P/L ARE BELIEVED TO BE ACCURATE BUT SHOULD NOT BE RELIED UPON FOR PURPOSES UNRELATED TO THE STATE OF VERMONT'S ACQUISITION OF LAND AND RIGHTS FOR THIS PROJECT.

FOR R.O.W. USE ONLY

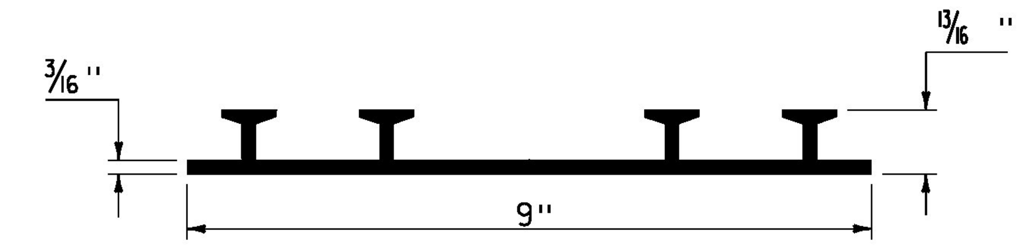
PROJECT NAME: DUXBURY	
PROJECT NUMBER: BF 013-4(47)	
FILE NAME: r16b001ley2.dgn	PLOT DATE: 05-MAY-2016
PROJECT LEADER: K. HIGGINS	DRAWN BY: T. POLK
DESIGNED BY: TYLIN	CHECKED BY: S. PATTERSON
R.O.W. LAYOUT SHEET 2 OF 2	SHEET 69 OF 69

CONCRETE GENERAL NOTES

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



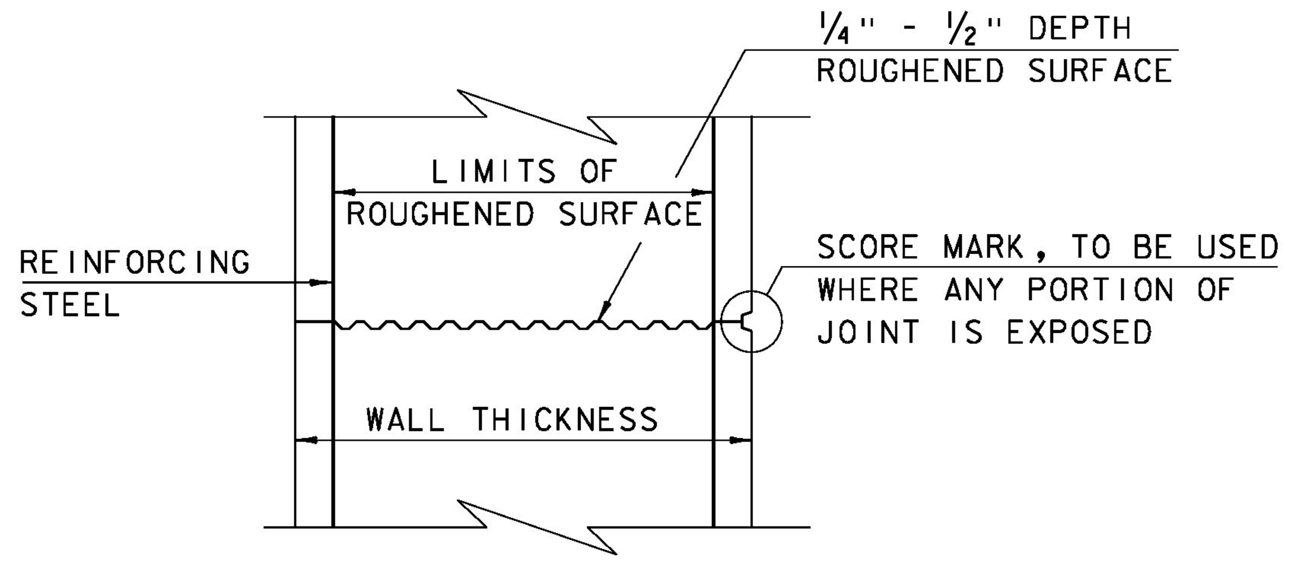
SCORE MARK DETAIL
(NOT TO SCALE)



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

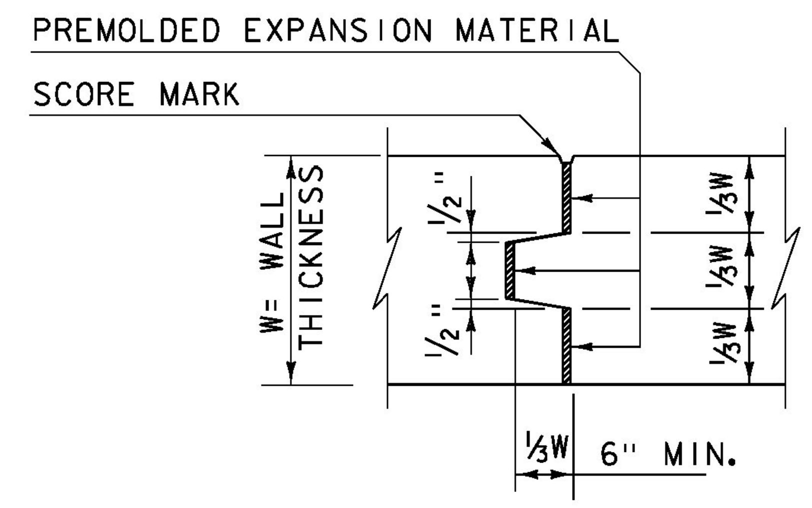
PAYMENT FOR THE P.V.C. WATERSTOP SHALL BE INCIDENTAL TO THE UNIT BID PRICE FOR THE ADJACENT CONCRETE.

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

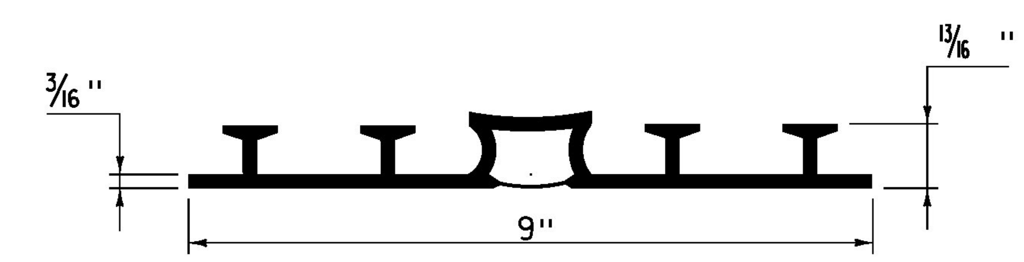


TYPICAL HORIZONTAL CONSTRUCTION JOINT
(NOT TO SCALE)

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



TYPICAL CONCRETE EXPANSION JOINT
(NOT TO SCALE)



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

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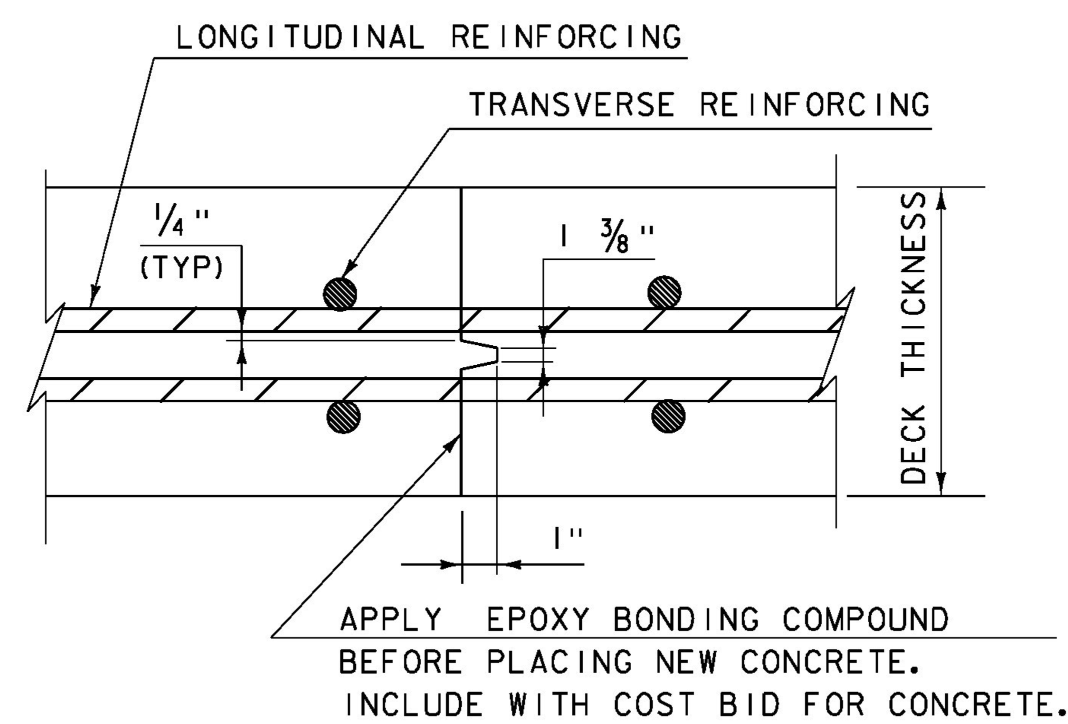
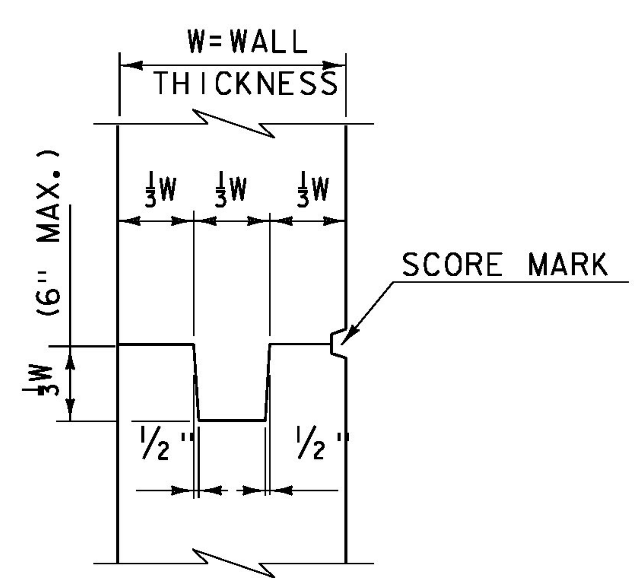
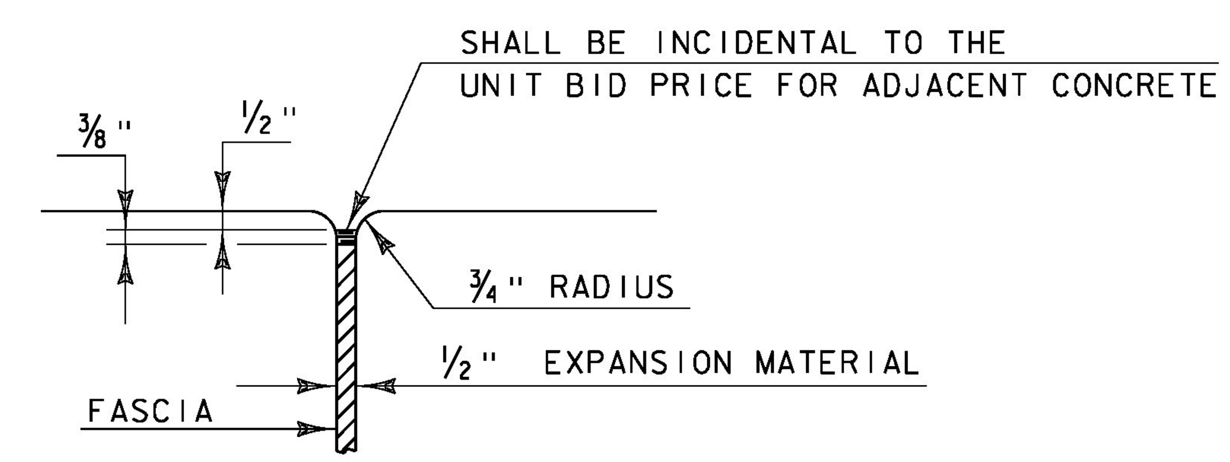


TRANSVERSE BRIDGE SLAB CONSTRUCTION JOINT DETAILS
(NOT TO SCALE)



TYPICAL CONCRETE CONSTRUCTION JOINT
(NOT TO SCALE)



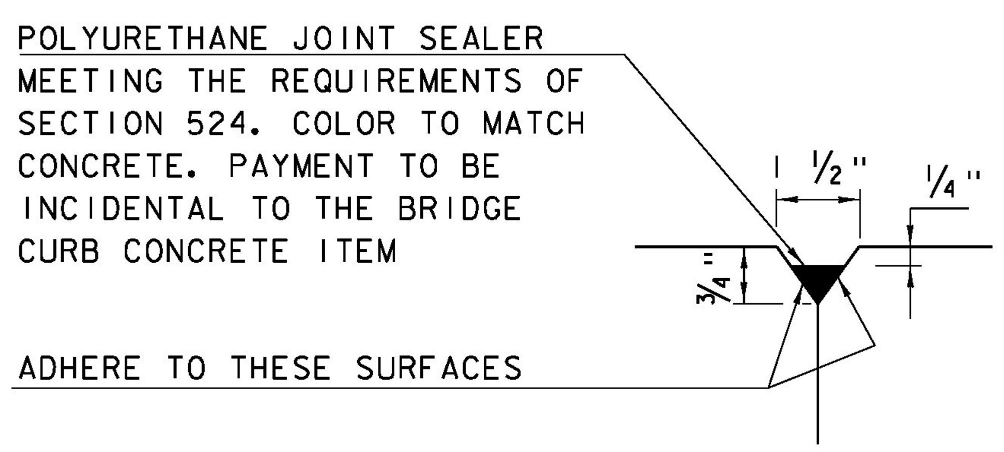
JOINT BETWEEN FASCIA AND WINGWALL
(NOT TO SCALE)

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

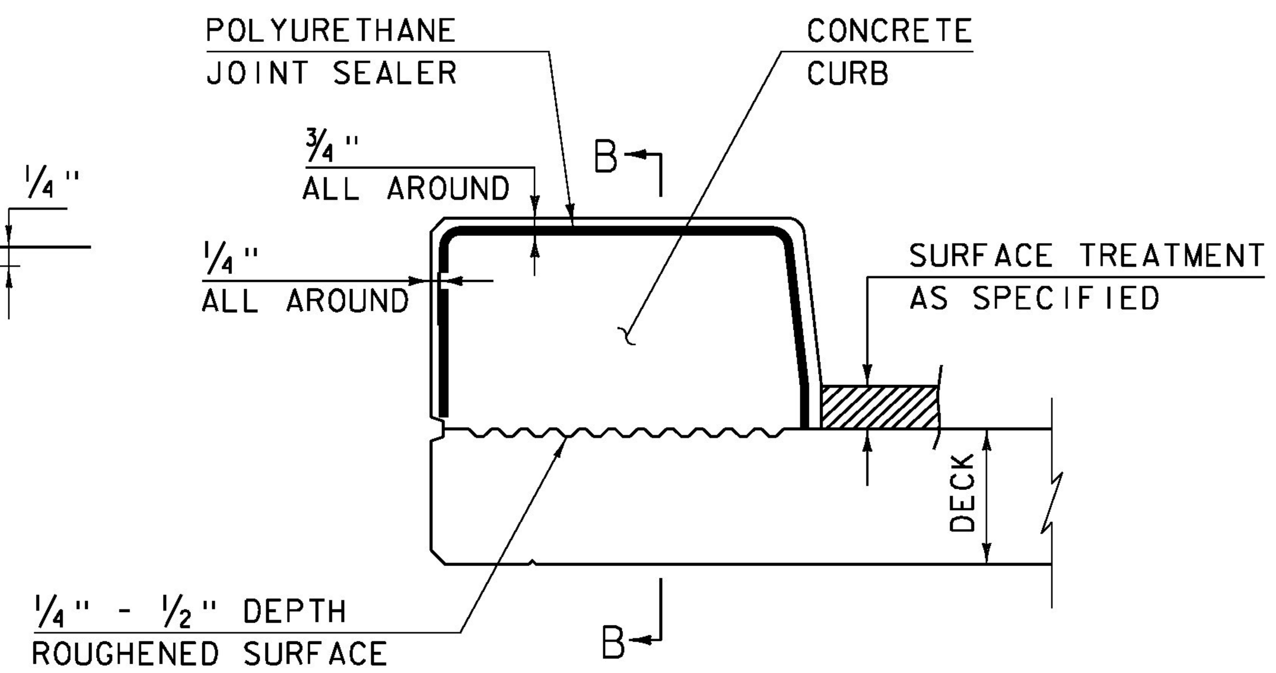
CONCRETE DETAILS AND NOTES

VERMONT AGENCY OF TRANSPORTATION — STRUCTURES SECTION

STRUCTURES DETAIL
SD-501.00

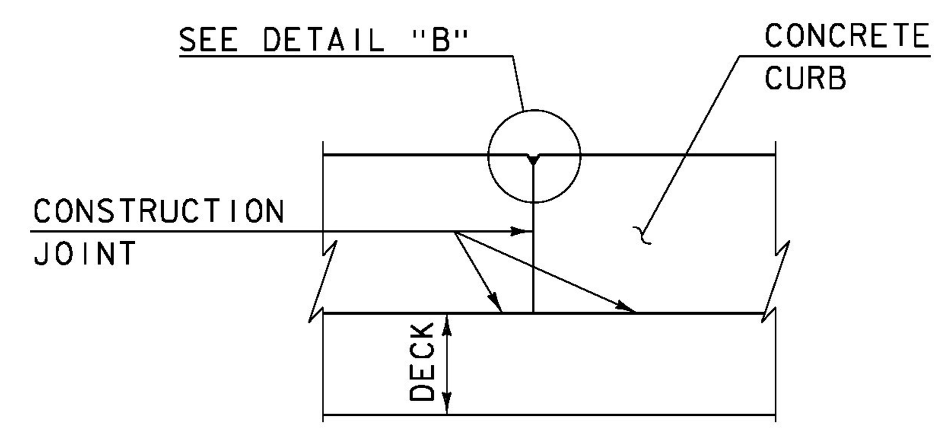


DETAIL "B"
(NOT TO SCALE)

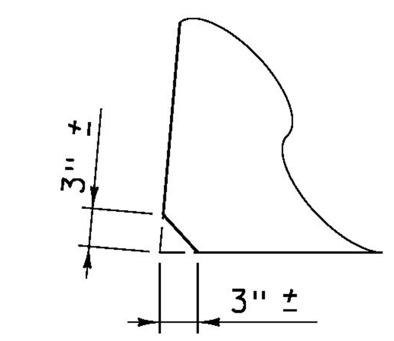


CONCRETE CURB JOINT SECTION
(NOT TO SCALE)

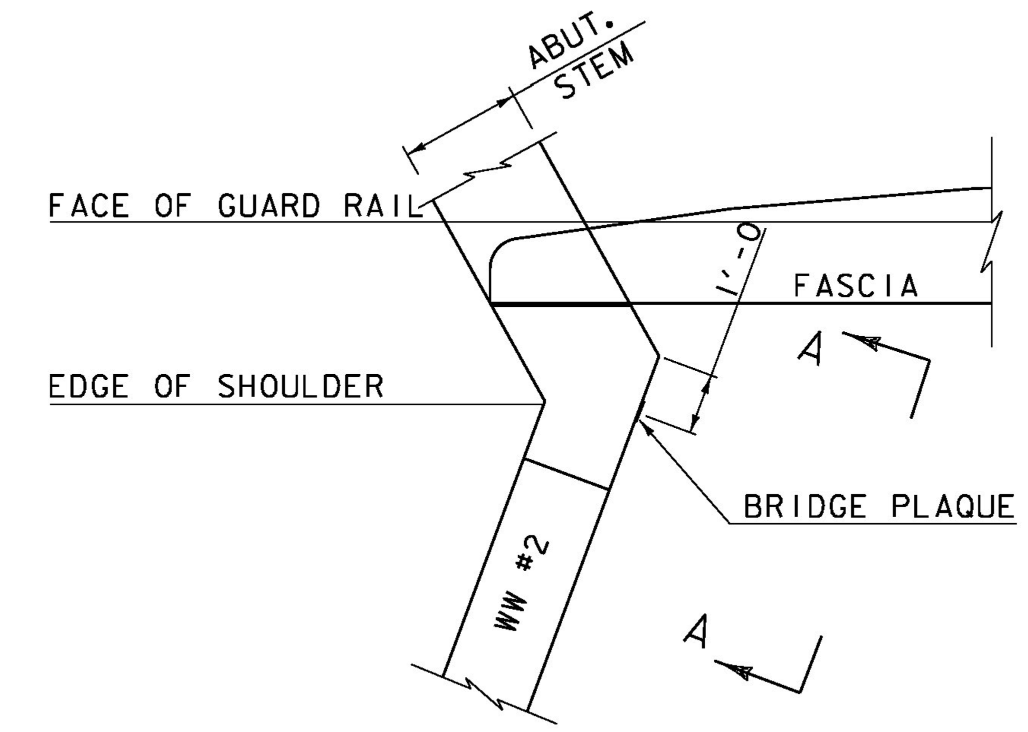
1. SEE TYPICAL HORIZONTAL CONSTRUCTION JOINT DETAIL FOR ADDITIONAL INFORMATION



SECTION B - B
(NOT TO SCALE)



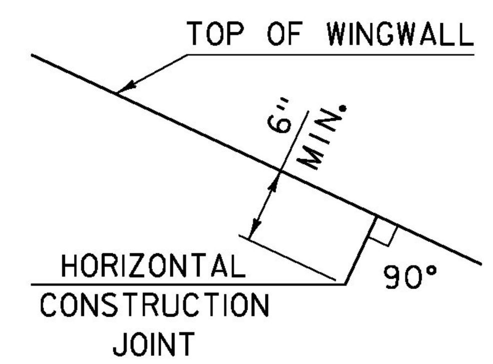
ACUTE ANGLE CLIP DETAIL
(NOT TO SCALE)



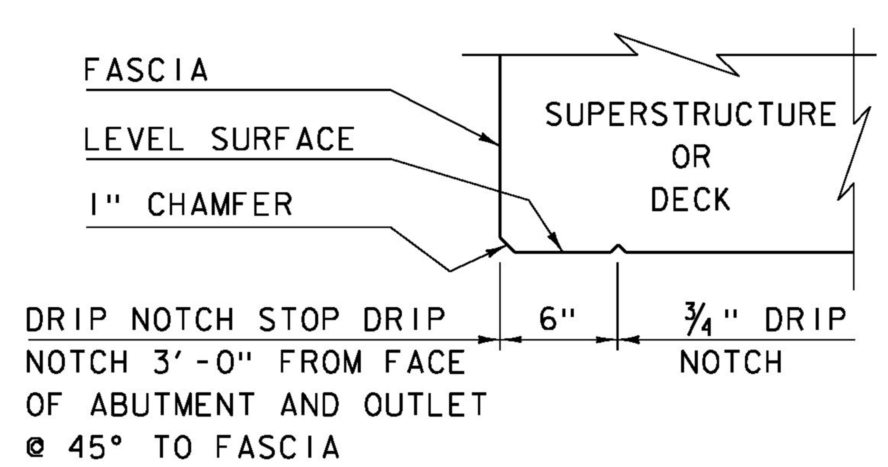
PLAN

CONCRETE CURB JOINT NOTES

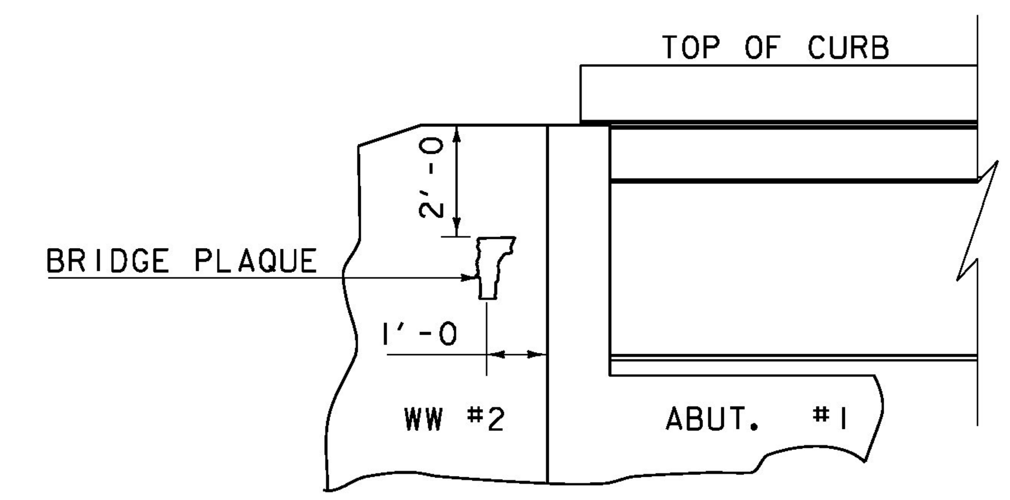
1. CONCRETE CURBS MAY BE PLACED IN ONE CONTINUOUS OPERATION IF AN APPROVED SHRINKAGE REDUCING ADMIXTURE LISTED IN THE SPECIAL PROVISIONS IS USED WITH THE CONCRETE MIX DESIGN. PAYMENT FOR THE SHRINKAGE REDUCING ADMIXTURE WILL BE INCIDENTAL TO THE BRIDGE CURB CONCRETE ITEM.
2. IF THE CONTRACTOR CHOOSES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



HORIZONTAL WINGWALL CONSTRUCTION JOINT
(NOT TO SCALE)



DRIP NOTCH DETAIL
(NOT TO SCALE)



VIEW "A - A"

BRIDGE PLAQUE
(NOT TO SCALE)

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

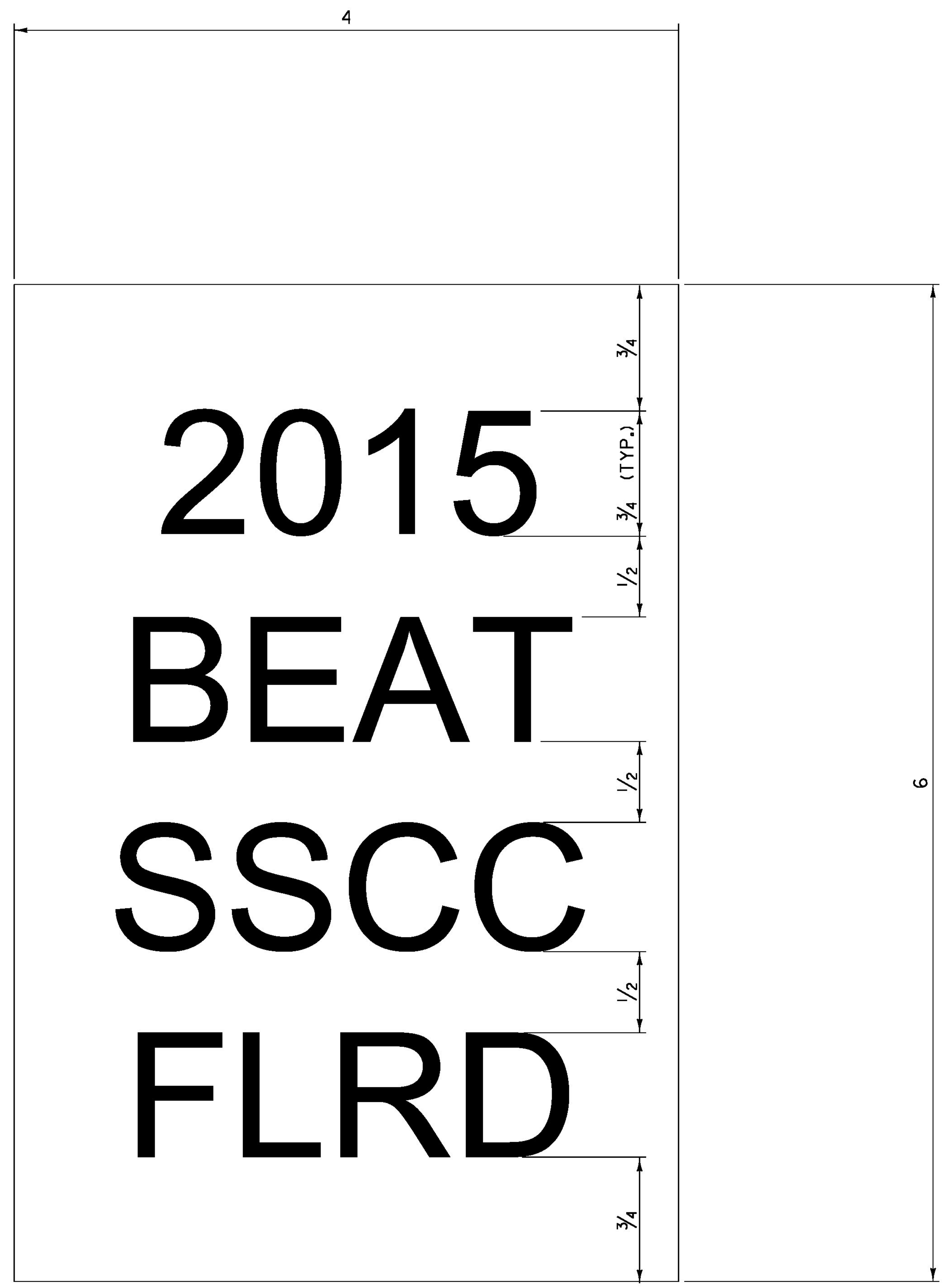
PAYMENT FOR INSTALLATION OF THE BRIDGE PLAQUE SHALL BE INCIDENTAL TO THE ADJACENT CONCRETE.

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

CONCRETE DETAILS AND NOTES

VERMONT AGENCY OF TRANSPORTATION · STRUCTURES - SECTION

STRUCTURES DETAIL SD-502.00



GENERAL NOTES:

1. LINE ONE SHALL INDICATE THE INSTALLATION YEAR (YYYY).
2. LINE TWO SHALL INDICATE THE MODEL AS IDENTIFIED ON THE APPROVED PRODUCTS LIST. FOR GENERIC INSTALLATIONS THE STANDARD DRAWING DESIGNATION OR NAME AS IDENTIFIED IN THE FHWA ELIGIBILITY LETTER SHALL BE USED.
3. LINE THREE SHALL SHALL INDICATE ADDITIONIAL MODEL INFORMATION IF NECESSARY.
4. LINE FOUR SHALL INDICATE FLARED (FLRD) OR TANGENT (TANG).
5. LEGEND SHALL BE ONE ARIEL FONT.
6. LEGEND SHALL BE BLACK ON A WHITE BACKGROUND, LENGEND AND BACKGROUND SHALL NOT BE REFLECTIVE.
7. SUITABLE MATERIAL SHALL BE USED SO AS TO NOT DETERIORATE DURING EXPOSURE TO WEATHER.
8. LABELS SHALL BE APPLIED IN SUCH A WAY THAT THEY REMAIN INTACT DURING THE LIFE OF THE TERMINAL.
9. FOR W-BEAM GUARDRAIL, LABEL SHALL BE PLACED ON THE TOP OF POST ONE FACING AWAY FROM TRAFFIC.
10. FOR BOX BEAM GUARDRAIL, LABEL SHALL BE PLACED ON THE BOX BEAM ADJACENT TO POST ONE FACING AWAY FROM TRAFFIC.
11. PAYMENT SHALL BE INCIDENTAL TO OTHER TRAFFIC BARRIER ITEMS.
12. ALL DIMENSIONS IN INCHES.

REV.	DATE	DESCRIPTION
0	NOV. 3, 2015	ORIGINAL APPROVAL

OTHER DETAILS REQUIRED: NONE

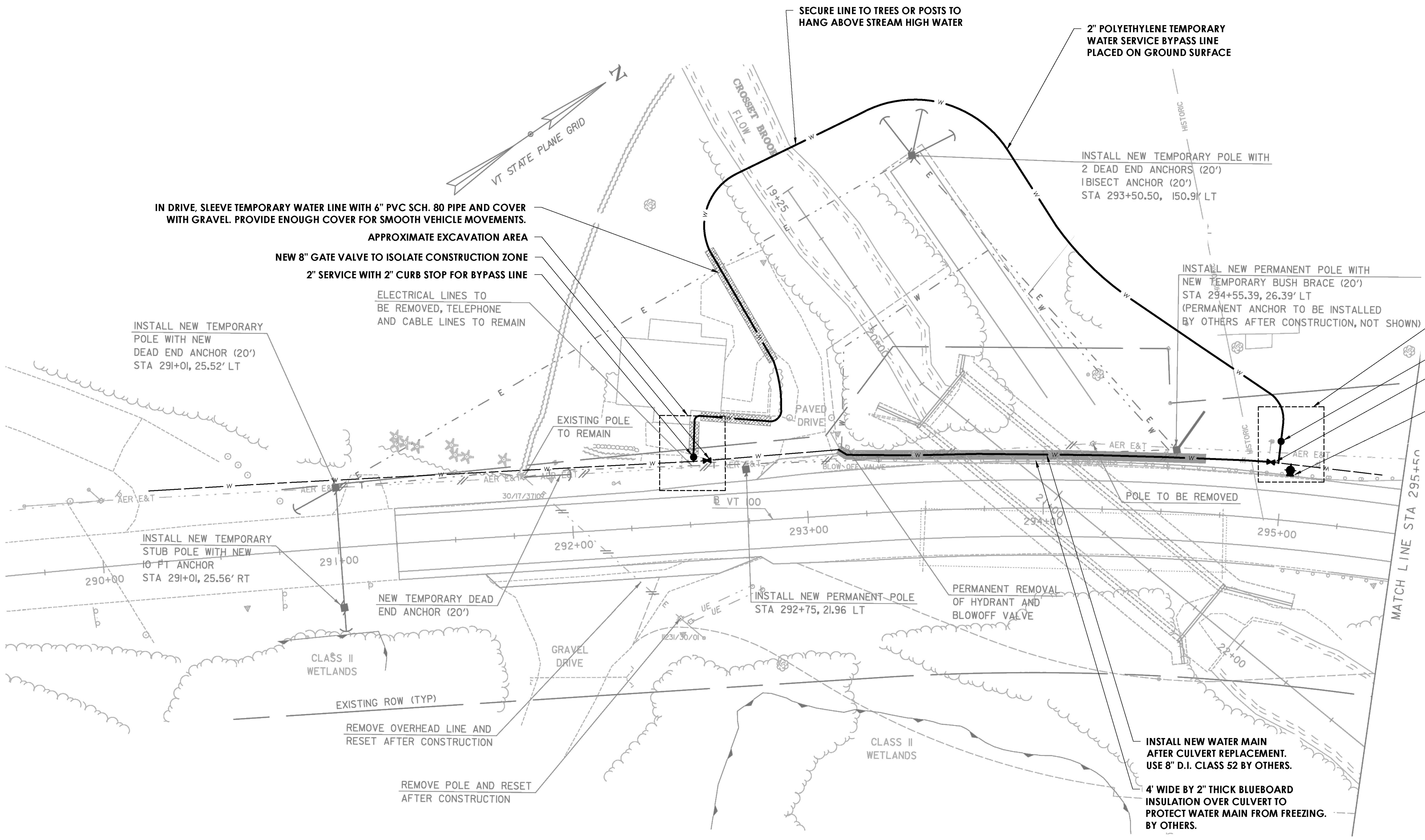
DETAILS APPROVED FOR USE BY HIGHWAY SAFETY & DESIGN

GUARDRAIL TERMINAL LABEL DETAIL

VTrans Working to Get You There VERMONT AGENCY OF TRANSPORTATION

HIGHWAY SAFETY & DESIGN DETAIL

HSD-621.06



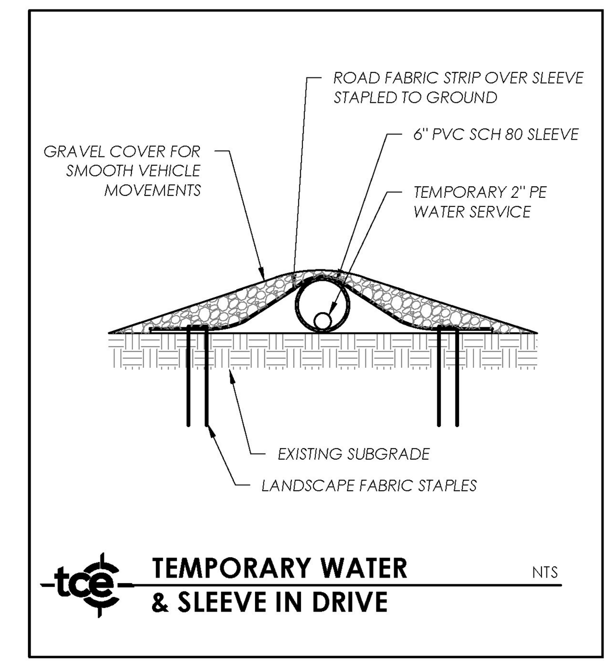
Project Reference:

TCE LEGEND

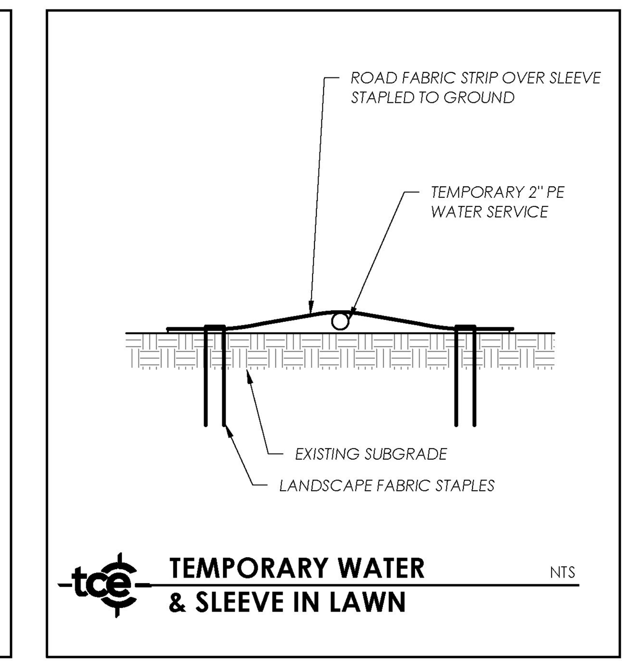
PROPOSED

- SLEEVE IN DRIVE
- BLUEBOARD INSULATION
- WATER MAINS AND SERVICES
- VALVE
- CURB STOP (CS)
- FIRE HYDRANT (HYD)

PROJECT LOCATION



TEMPORARY WATER & SLEEVE IN DRIVE NTS



TEMPORARY WATER & SLEEVE IN LAWN NTS

MATERIALS FOR BYPASS & NEW HYDRANT

1. TWO (2) 8" GATE VALVES
2. ONE (1) 6" GATE VALVE & HYDRANT
3. TWO (2) 2" CURB STOPS
4. 475 FT OF 2" POLYETHYLENE WATER PIPE OR EQUAL
5. 100 FT OF 6" PVC SCH. 80 SLEEVE
6. GRAVEL FOR COVERING SERVICE IN DRIVE. ASSUME 10-14 C.Y. (ONE LOAD)
7. FABRIC OVER TEMPORARY WATER LINE (SEE DETAIL)
8. TRAFFIC CONTROL
9. OTHER MEASURES AS NEEDED TO MAKE BYPASS WATER SERVICE FULLY OPERATIONAL.
10. UPON COMPLETION OF CULVERT PROJECT DECOMMISSION 2" CURB STOPS, BACKFILL, SEED AND MULCH DISTURBED AREA AND REMOVE TEMPORARY SERVICE, SLEEVE AND GRAVEL.

CONSTRUCTION PHASE:

LISTED BELOW IS A BRIEF SUMMARY OF CONSTRUCTION PHASE REQUIREMENTS. THIS LIST IS NOT INTENDED TO BE ALL-INCLUSIVE. CONSTRUCTION SPECIFICATIONS, PERMIT REQUIREMENTS AND SUBSEQUENT CONTRACTUAL AGREEMENTS FROM PARTIES INVOLVED SHALL PREVAIL.

PRE-CONSTRUCTION

- OWNER TO ESTABLISH SCOPE OF SERVICES WITH PROJECT ENGINEER(S) & CONTRACTOR
- OWNER TO IDENTIFY WORK SCOPE AND SCHEDULE
- MEETING BETWEEN OWNER, ENGINEER(S), CONTRACTOR(S), REGULATORY AUTHORITIES AND OTHER PERTINENT PARTIES TO REVIEW AND DISCUSS THE WORK

PRE-CONSTRUCTION MEETING

- CONTRACTOR TO IDENTIFY SUBCONTRACTORS, IF APPLICABLE
- CONTRACTOR TO ESTABLISH SCHEDULE
- CONTRACTOR TO DESIGNATE RESPONSIBLE PERSONNEL
- CONFIRM PROCEDURE FOR RFI'S, CHANGE ORDERS, EXTRAS AND PAY REQUESTS
- CONTRACTOR TO SUBMIT SHOP DRAWINGS
- CONTRACTOR TO OUTLINE SAFETY, SECURITY, AND WORKING HOURS
- CONTRACTOR OR OWNER TO IDENTIFY TESTING COMPANY

CONSTRUCTION PHASE

- INITIAL CONTROL SUPPLIED BY OWNER AND CONTRACTOR RESPONSIBLE FOR LAYOUT
- OWNER TO PROVIDE PROJECT ENGINEER TO OBSERVE CONSTRUCTION PERIODICALLY, DURING CRITICAL PHASES AND TESTING.
- WEEKLY JOB MEETINGS DURING CONSTRUCTION
- OWNER TO PROVIDE PROJECT ENGINEER TO REVIEW AND DISCUSS PLANS, ANSWER QUESTIONS, RESPOND TO CHANGES AND OTHER BUSINESS COMMON TO CONSTRUCTION SERVICES.
- OBSERVE TESTING AND COLLECT RESULTS
- OWNER AND CONTRACTOR TO COMPLY WITH PERMITS

APPROXIMATE LOCATION OF NEW HYDRANT

PHOTO A

APPROXIMATE LOCATION OF NEW GATE VALVE

PHOTO B

Graphic Scale

30 0 30 60 90 120 Feet

TRUDELL CONSULTING ENGINEERS
478 BLAIR PARK ROAD | WILLISTON, VERMONT 05495
802-879-6331 | WWW.TCEVT.COM

Revisions

No.	Description	Date	By

STATE OF VERMONT
JOHN P. PITROWISKI
No. 8104
CIVIL
LICENSED
PROFESSIONAL ENGINEER

Project Title

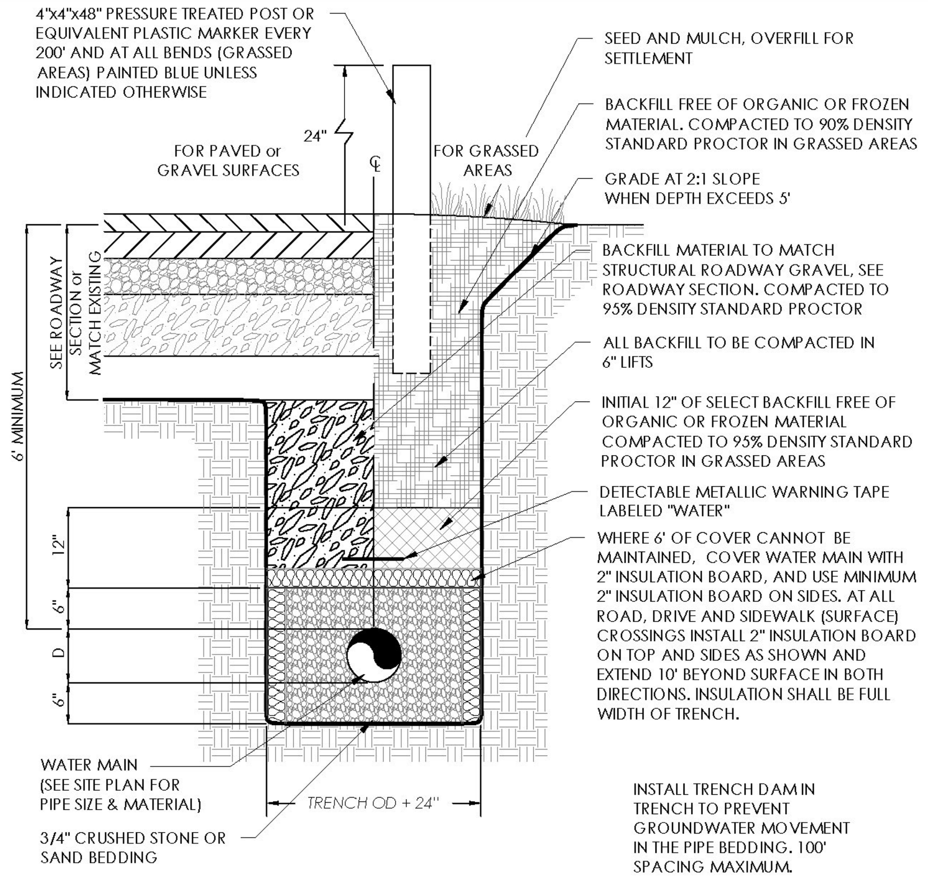
Duxbury/Moretown Fire District #1 Crosset Brook Culvert Replacement
Route 100
Duxbury, Vermont

Sheet Title

Site Plan for Water Line Bypass

Date:	04/19/16
Scale:	1" = 30'
Project Number:	16-052
Drawn By:	NPC
Project Engineer:	
Approved By:	
Field Book:	

C2-01

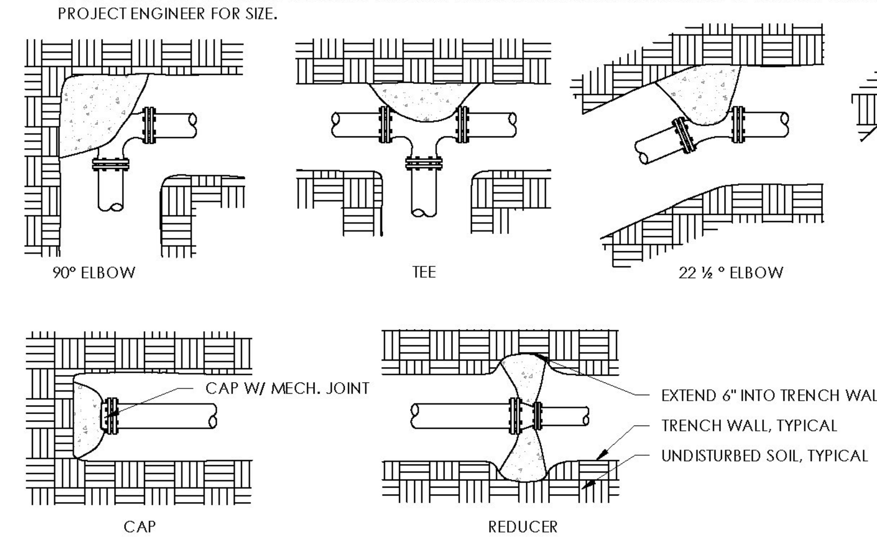


NOTES:

1. LENGTH OF OPEN TRENCH SHALL BE KEPT TO A MINIMUM.
2. IF UNSUITABLE MATERIAL IS REMOVED BELOW BEDDING, REPLACE WITH MATERIAL APPROVED BY ENGINEER AND COMPACT TO 95% MAXIMUM DENSITY.
3. NO MECHANICAL TAMPERS SHALL BE USED DIRECTLY OVER PIPE TO INSURE PIPE IS NOT DAMAGED.
4. BEDDING TO PROVIDE FIRM, STABLE, CONTINUOUS AND UNIFORM SUPPORT FOR THE FULL LENGTH OF PIPE.
5. INSTALL WATER MAIN IN ACCORDANCE WITH MANUFACTURES GUIDELINES.
6. IF 6' OF COVER CAN NOT BE MAINTAINED DISCUSS WITH PROJECT ENGINEER AND TOWN (IF APPLICABLE) PRIOR TO INSTALLING. ADDITIONAL INSULATION OR OTHER MEASURES MAY BE REQUIRED DEPENDING ON COVER.
7. SUBMIT SHOP DRAWINGS PRIOR TO INSTALLATION.
8. IN NO CASE SHALL THE WATER MAIN BE BURIED LESS THAN 4 1/2 FEET BELOW FINISHED GRADE.

TYPICAL WATER TRENCH

USE CLASS D (2500 PSI) CONCRETE FOR THRUST BLOCKS. PLACE 4 MIL POLYETHYLENE BETWEEN FITTING AND THRUST BLOCK. PLACE THRUST BLOCK AGAINST UNDISTURBED TRENCH WALL - CONCRETE BEARING AREA ON FITTING TO BE A MINIMUM OF 1/2 SQUARE FOOT. THRUST BLOCKS BASED ON 200 PSI WORKING PRESSURE PLUS SURGE ALLOWANCE OF 100 PSI. IF GREATER THAN 200 PSI SEE PROJECT ENGINEER FOR SIZE.



NOTE:

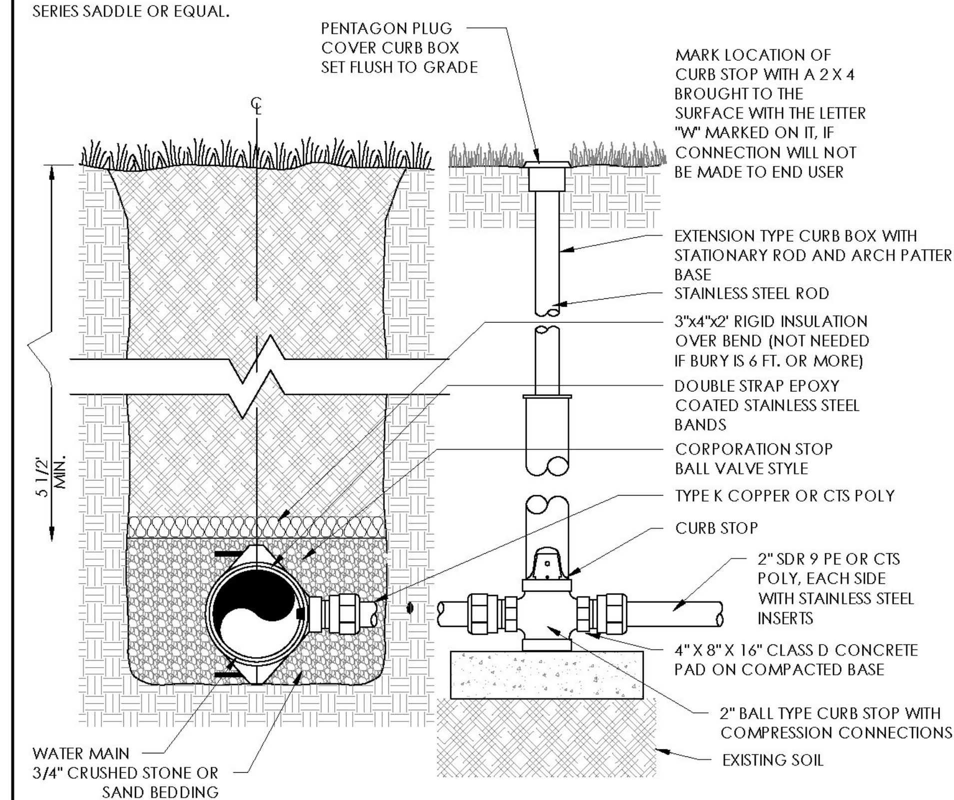
1. FOR REDUCERS, PROVIDE BEARING AREA FOR THE SOIL TYPE BASED ON 4000 LBS FOR EACH 2" REDUCTION IN SIZE.
2. PROJECT ENGINEER TO OBSERVE ALL THRUST BLOCKS PRIOR TO BACKFILL. PICTURES MAY BE USED AT ENGINEERS DISCRETION.
3. ALSO INCLUDE RETAINER GLANDS ON ALL BENDS, TEES, CAPS ETC.

THRUST BLOCK TABLE — MINIMUM BEARING AREA IN SQUARE FEET ON UNDISTURBED TRENCH WALL

SOIL TYPE	SAFE BEARING LOAD LBS/FT.²	2", 3" & 4"				6"				8"				10"				12"			
		CAP OR TEE	90°	45°	22.5°	CAP OR TEE	90°	45°	22.5°	CAP OR TEE	90°	45°	22.5°	CAP OR TEE	90°	45°	22.5°	CAP OR TEE	90°	45°	22.5°
CLAY	1000	5.0	7.0	4.0	2.0	10.5	15.0	8.0	4.0	18.0	25.0	14.0	7.0	28.0	38.0	21.0	10.5	39.0	55.0	30.0	15.0
SAND	2000	2.5	3.5	2.0	1.0	5.5	7.5	4.0	2.0	9.0	13.0	7.0	3.5	14.0	19.0	10.0	5.0	20.0	27.5	15.0	8.0
GRAVEL	3000	2.0	2.5	1.5	1.0	3.5	5.0	3.0	1.5	6.0	8.5	5.0	2.5	9.0	12.5	7.0	4.5	13.0	18.5	10.0	5.0
TILL	4000	1.5	2.0	1.0	0.5	3.0	4.0	2.0	1.0	4.5	6.5	3.5	2.0	7.0	9.5	5.0	2.5	10.0	14.0	7.5	4.0
SHALE	10000	0.5	1.0	0.5	0.5	1.0	1.5	1.0	0.5	2.0	2.5	1.5	1.0	3.0	3.5	2.0	1.0	4.0	5.5	3.0	1.5

TYPICAL WATER MAIN THRUST BLOCKS

FOR D.I. CLASS 52 A DIRECT TAP (WITHOUT A SADDLE) IS ACCEPTABLE. FOR PVC, PE, OR CLASS 350 D.I. USE SMITH-BLAIR 300 SERIES SADDLE OR EQUAL.



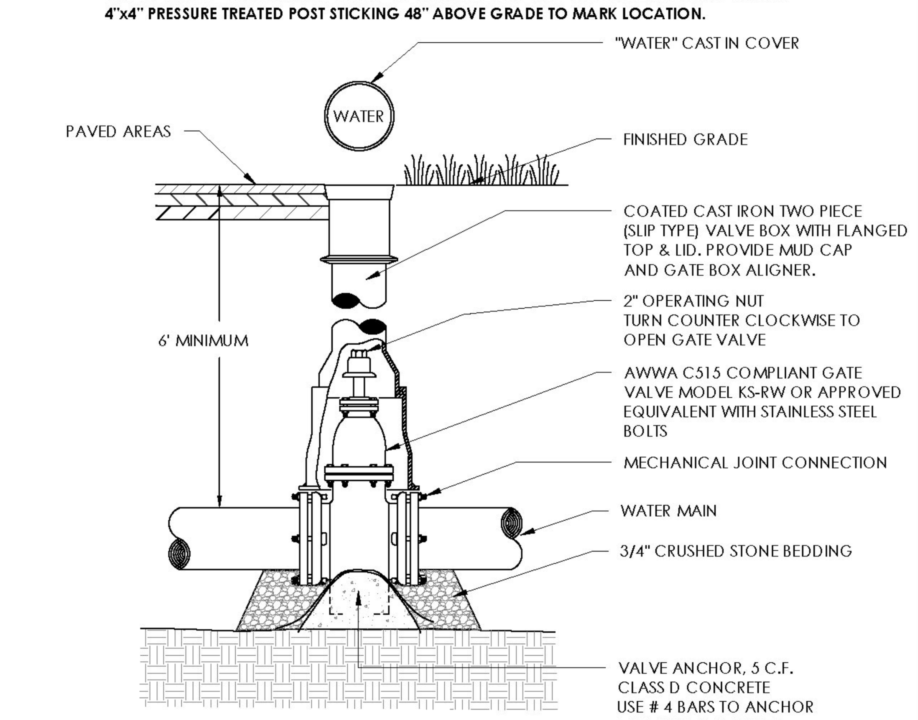
NOTES:

1. 3/4" AND 1" CORPORATIONS SHALL BE DIRECTLY TAPPED INTO DUCTILE IRON PIPE 6" AND LARGER IN DIAMETER. LARGER SIZE CORPORATIONS UP TO 2" SHALL REQUIRE USE OF A TAPPING SADDLE. A CONNECTION MADE TO A PIPE THAT REQUIRES A SADDLE OR IS NOT DUCTILE IRON WILL HAVE A BODY WITH A SUITABLE OUTLET, SEAL, AND SUITABLE MEANS FOR ATTACHMENT TO THE MAIN. THE SADDLE SHALL PROVIDE A DRIP TIGHT CONNECTION AND SHALL BE TEFLON OR EPOXY COATED WITH STAINLESS STEEL STRAPS, BOLTS, NUTS AND MECHANISM FOR ATTACHING TO THE PIPE BARREL.
2. INSTALL PER MANUFACTURES INSTALLATION GUIDELINES AND TOWN PUBLIC WORK STANDARDS WHEN APPLICABLE. ALSO COORDINATE WITH TOWN ENGINEER WHEN APPLICABLE.
3. PRIOR TO CONSTRUCTION SUBMIT SHOP DRAWING OF MATERIALS AND INSTALLATION PROCEDURE TO PROJECT ENGINEER.
4. CHLORINATE AND SUCCESSFULLY TEST WATER QUALITY PRIOR TO MAKING SERVICE AVAILABLE FOR USE.

TYPICAL COPPER SERVICE CONNECTION

NTS

NOTE: IN REMOTE AREAS SUCH AS CROSS COUNTRY WATER LINE ROUTES, PROVIDE A CONCRETE PAD 24"x24"x8" THICK BEDDED ON 12" OF GRAVEL AND FLUSH WITH GRADE. ALSO PROVIDE 4"x4" PRESSURE TREATED POST STICKING 48" ABOVE GRADE TO MARK LOCATION.



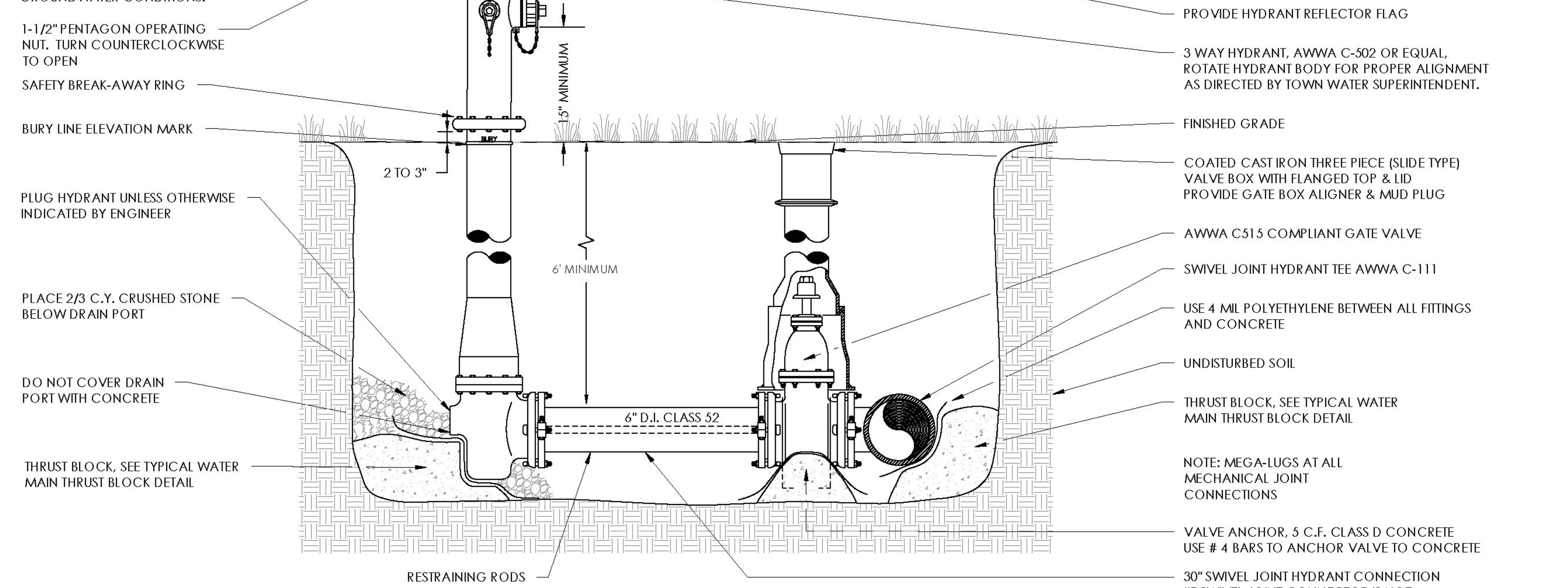
NOTES:

1. INSTALL IN ACCORDANCE WITH MANUFACTURES INSTALLATION GUIDELINES.
2. SUBMIT SHOP DRAWING TO PROJECT ENGINEER PRIOR TO INSTALLATION.
3. COORDINATE WITH TOWN PUBLIC WORK DEPARTMENT AND STANDARDS WHEN APPLICABLE.

TYPICAL GATE VALVE (4" - 12")

Project Reference:

NOTE:
DISCUSS WITH TOWN WATER SUPERINTENDENT IF HYDRANT SHALL HAVE ORIFICE PLUGGED. IF PLUGGED IT SHALL BE LABELED "ND" FOR NON-DRAINING. LOCATE "ND" ON BONNET FACING ROAD, PAINTED ORANGE. NORMALLY PLUGGED IN HIGH GROUNDWATER CONDITIONS.



FIRE PROTECTION HYDRANT

PIPE INSTALLATION SHALL COMPLY WITH APPENDIX A SECTION 8.5 OF THE VERMONT WATER SUPPLY RULE DECEMBER 1, 2010, INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING:

8.5 INSTALLATION OF MAINS

8.5.1 STANDARDS

8.5.1.1 JOB SPECIFICATIONS SHALL INCORPORATE APPLICABLE PROVISIONS OF THE AWWA STANDARDS. MANUFACTURER'S RECOMMENDED INSTALLATION PROCEDURES MAY BE SPECIFIED WHEN THEY ARE EQUAL TO OR BETTER THAN AWWA PROCEDURES.

8.5.1.2 PIPING, FITTINGS AND APPURTENANCES WHICH HAVE BEEN PREVIOUSLY USED FOR PURPOSES OTHER THAN FOR PUBLIC WATER SYSTEM USE SHALL NOT BE USED IN A PUBLIC WATER SYSTEM WITHOUT THE WRITTEN APPROVAL OF THE SECRETARY.

8.5.2 BEDDING
A CONTINUOUS AND UNIFORM BEDDING SHALL BE PROVIDED IN THE TRENCH FOR ALL BURIED PIPE. BACK FILL MATERIAL SHALL BE TAMPED IN LAYERS AROUND THE PIPE AND TO A SUFFICIENT HEIGHT ABOVE THE PIPE TO ADEQUATELY SUPPORT AND PROTECT THE PIPE. STONES FOUND IN THE TRENCH SHALL BE REMOVED FOR A DEPTH OF AT LEAST SIX INCHES BELOW THE BOTTOM OF THE PIPE.

8.5.3 THE OPEN ENDS OF EXPOSED PIPE SHALL BE LEFT PLUGGED IN EXCAVATIONS AT THE CONCLUSIONS OF THE DAY'S WORK. DURING PERIODS OF DELAY AND AT THE CONCLUSION OF THE DAY'S WORK, LENGTHS OF PIPE WITH OPEN ENDS SHALL BE TIGHTLY CLOSED WITH WATERTIGHT PLUGS, SPECIAL SEALS OR BY OTHER SUITABLE MEANS TO PREVENT THE ENTRY OF ANIMALS, FOREIGN MATTER AND TRENCH WATER. TRENCH WATER SHALL BE PUMPED OUT BEFORE THE SEALS, PLUGS OR OTHER CLOSURES ARE REMOVED.

8.5.4 COVER
ALL WATER MAINS SHALL BE COVERED WITH AT LEAST 5.5 FEET OF EARTH. INSULATION MAY BE USED IN LIEU OF COVER DEPTH WHEN APPROVED IN ADVANCE BY THE SECRETARY.

IN ADDITION, THE CONTRACTOR SHALL INSTALL PIPE BASED ON THE STRICTEST INTERPRETATION OF THE DESIGN PLAN, DESIGN SPECIFICATION, APPLICABLE REGULATIONS AND MANUFACTURE'S INSTALLATION REQUIREMENTS.

PIPE INSTALLATION

TESTING WATER MAINS

*ALL TESTING SHALL BE PERFORMED IN THE PRESENCE OF THE TOWN ENGINEER OR PUBLIC WORKS DEPARTMENT IF APPLICABLE OR PRIVATE OWNER/OPERATOR AND PROJECT ENGINEER (AS DESIGNATED BY OWNER). CONTRACTOR SHALL PRE-TEST SUCCESSFULLY PRIOR TO CONTACTING PROJECT ENGINEER. THE PRE-TEST IS TO ENSURE PASSING RESULTS PRIOR TO OFFICIAL TESTING OBSERVATION.

A. AFTER THE PIPE HAS BEEN LAID AND 7 DAYS AFTER THE CONCRETE THRUST BLOCKS AND ANCHORS HAVE BEEN PLACED, THE WATER MAIN SHALL BE HYDROSTATICALLY TESTED ACCORDING TO THE LATEST EDITION OF THE AWWA SPECIFICATION C-600.

B. CONTRACTOR SHALL SUPPLY ALL NECESSARY APPARATUS TO PERFORM THE HYDROSTATIC TEST.

C. TEST PRESSURE SHALL BE 200 POUNDS PER SQUARE INCH OR 1.5 TIMES THE WORKING PRESSURE MEASURED AT OR NEAR THE HIGH POINT IN THE SYSTEM, WHICHEVER IS GREATER. TEST SHALL BE A MINIMUM OF 2 HOURS IN DURATION. TESTING ALLOWANCE SHALL BE DEFINED AS THE QUANTITY OF MAKEUP WATER THAT MUST BE SUPPLIED INTO THE NEWLY LAID PIPE OR ANY VALVED SECTION THEREOF TO MAINTAIN PRESSURE WITHIN 5 PSI (34.5 kPa) OF THE SPECIFIED TEST PRESSURE AFTER THE PIPE HAS BEEN FILLED WITH WATER AND THE AIR HAS BEEN EXPELLED. TESTING ALLOWANCE SHALL NOT BE MEASURED BY A DROP IN PRESSURE IN A TEST SECTION OVER A PERIOD OF TIME. REFER TO PIPE MANUFACTURERS RECOMMENDED TESTING PROCEDURE INCLUDING PIPE STABILIZATION PRIOR TO START OF TEST.

D. THE PROJECT ENGINEER AND THE MUNICIPALITY SHALL BE CONTACTED 48 HOURS PRIOR TO TESTING.

E. ALL VALVES SHOULD BE VERIFIED AS BEING OPEN OR CLOSED AS APPROPRIATE FOR THE PORTION OF THE WATER MAIN BEING TESTED.

F. ALLOWABLE LEAKAGE SHALL BE COMPUTED BY THE FORMULA: $L=(S \times D \times \sqrt{P})/148{,}000$ WHERE L IS LEAKAGE IN GALLONS PER HOUR, S IS THE LENGTH OF PIPE TESTED IN FEET, D IS THE NOMINAL DIAMETER OF THE PIPE IN INCHES AND P IS THE AVERAGE TEST PRESSURE IN POUNDS PER SQUARE INCH DURING THE TEST.

G. REPLACE AND RETEST ANY WORK FOUND TO BE DEFECTIVE AT NO EXPENSE TO OWNER.

TESTING HYDRANTS (IF APPLICABLE)

A. AFTER TESTING THE WATER MAINS, OPEN THE HYDRANT FULLY AND FILL WITH WATER. TO PREVENT CAPS FROM BEING BLOWN OFF, VENT AIR FROM ONE OF THE CAPS WHILE IT IS BEING FILLED. WHEN ALL THE AIR HAS ESCAPED, TIGHTEN THE CAP.

B. ALLOW THE PRESSURE TO BUILD UP TO MAIN LINE PRESSURE AND CHECK FOR LEAKAGE AT FLANGES, NOZZLES AND THE OPERATING STEM. RECORD STATIC PRESSURE IN PSI.

C. FLOW HYDRANT AND RECORD FLOW RATE IN GPM AND RESIDUAL PRESSURE IN PSI.

D. CLOSE THE HYDRANT, REMOVE ONE NOZZLE CAP AND PLACE THE PALM OF YOUR HAND OVER THE OPENING. DRAINAGE SHOULD CREATE A NOTICEABLE SUCTION. IF NO SUCTION OR HYDRANT DOESN'T HAVE DRAIN, MANUALLY PUMP WATER OUT OF BARREL.

E. AT PROJECT ENGINEER DISCRETION ASSIST WITH FLOW TESTING. ENGINEER TO RECORD STATIC AND RESIDUAL PRESSURE AS WELL AS FLOW RATE.

TESTING WATER MAINS AND HYDRANTS

DISINFECTING WATER MAINS AND SYSTEMS

*ALL TESTING SHALL BE PERFORMED IN THE PRESENCE OF THE TOWN ENGINEER OR PUBLIC WORKS DEPARTMENT AND PROJECT ENGINEER (AS DESIGNATED BY OWNER).

A. PRIOR TO BEING PUT INTO SERVICE, WATER MAINS SHALL BE DISINFECTED ACCORDING TO THE LATEST EDITION OF AWWA SPECIFICATION C-651. THE TABLET METHOD IN AWWA STANDARD 651 IS NOT ACCEPTABLE.

B. THE NEW LINE SHALL BE FLUSHED AT A VELOCITY OF NOT LESS THAN 2.5 FEET PER SECOND (OPEN 2-1/2 INCH HYDRANT CONNECTION). FLUSH FOR A PERIOD DETERMINED BY THE PROJECT ENGINEER FOR THE LENGTH OF MAIN TO BE DISINFECTED.

C. CHLORINATION SHALL BE ACCOMPLISHED BY INTRODUCING A SODIUM HYPOCHLORITE SOLUTION FOR A RESULTANT CONCENTRATION OF GREATER THAN 25 PARTS PER MILLION OF FREE CHLORINE.

D. USING A NOZZLE AT EACH END HYDRANT, CONTROL THE RATE OF FLOW INTO THE NEW MAIN AND PROPORTIONALLY FEED THE SODIUM HYPOCHLORITE SOLUTION INTO THE MAIN. AFTER THE SOLUTION HAS REACHED ALL POINTS IN THE SYSTEM, CLOSE THE VALVE SUPPLYING WATER FROM THE EXISTING MAIN AND THE END HYDRANTS. MAINTAIN THE HEAVILY CHLORINATED WATER IN THE MAIN FOR 24 HOURS DURING WHICH TIME ALL MAIN LINE VALVES SHOULD BE OPERATED. AFTER 24 HOURS THE MINIMUM CHLORINE RESIDUAL MUST BE AT LEAST 10 PARTS PER MILLION.

E. FLUSH HEAVILY CHLORINATED WATER FROM THE LINE AND REFILL THE LINE FOR SERVICE (USE CHLORINE DIFFUSER). TAKE AND SUBMIT TWO BACTERIOLOGICAL SAMPLES (TAKEN 24 HOURS APART) OF THE WATER TO THE STATE OF VERMONT OR A STATE APPROVED TESTING LABORATORY. IF THE RESULTS ARE UNSATISFACTORY, THE DISINFECTION PROCEDURE WILL BE REPEATED UNTIL SATISFACTORY RESULTS ARE OBTAINED.

F. FINISHED WATER STORAGE STRUCTURES SHALL BE DISINFECTED IF APPLICABLE, IN ACCORDANCE WITH CURRENT AWWA STANDARD C652. TWO OR MORE SUCCESSIVE SETS OF SAMPLES, TAKEN AT 24 HOUR INTERVALS, SHALL INDICATE MICROBIOLOGICALLY SATISFACTORY WATER BEFORE THE FACILITY IS PLACES INTO OPERATION.

G. DISPOSAL OF HEAVILY CHLORINATED WATER FROM THE DISINFECTION PROCESS SHALL BE DE-CHLORINATED OR OTHERWISE HANDLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE VERMONT AGENCY OF NATURAL RESOURCES.

H. THE DISINFECTION PROCEDURE (AWWA CHLORINATION METHOD 3, SECTION 4.3 C652) WHICH ALLOWS USE OF THE CHLORINATED WATER HELD IN THE STORAGE TANK FOR DISINFECTION PURPOSES IS NOT RECOMMENDED. WHEN THAT PROCEDURE IS USED, IT IS REQUIRED THAT THE INITIAL HEAVILY CHLORINATED WATER BE PROPERLY DISPOSED IN ORDER TO PREVENT RELEASE OF WATER WHICH MAY CONTAIN VARIOUS CHLORINATED ORGANIC COMPOUNDS INTO THE DISTRIBUTION SYSTEM.

DISINFECTION OF WATER SYSTEM

1. CONTRACT DOCUMENTS: THESE PLANS WERE PREPARED BY TRUDELL CONSULTING ENGINEERS (TCE) AND ARE INTENDED TO BE USED IN CONJUNCTION WITH THE STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT, #C-700 PREPARED BY THE ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE (EJCDC), LATEST EDITION. COPIES ARE AVAILABLE AT WWW.NSPE.ORG/EJCDC
2. UNDERGROUND IMPROVEMENTS: THE LOCATION OF EXISTING UNDERGROUND UTILITIES AND IMPROVEMENTS SHOWN ARE ASSUMED BASED ON RESEARCH, UTILITY PLANS PROVIDED BY OTHERS, AND/OR SURFACE EVIDENCE AVAILABLE AND WERE OBTAINED IN A MANNER CONSISTENT WITH THE ORDINARY STANDARD OF PROFESSIONAL CARE AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR THE DESIGN ENGINEER.
3. DIFFERING SUBSURFACE OR PHYSICAL CONDITIONS: IF CONTRACTOR BELIEVES THAT ANY SUBSURFACE OR PHYSICAL CONDITION AT OR CONTIGUOUS TO THE SITE THAT IS UNCOVERED OR REVEALED EITHER: (1) IS OF SUCH A NATURE AS TO ESTABLISH THAT ANY "TECHNICAL DATA" ON WHICH CONTRACTOR RELIED IS MATERIALLY INACCURATE; OR (2) IS OF SUCH A NATURE AS TO REQUIRE A CHANGE IN THE PLANS/ CONTRACT DOCUMENTS; OR (3) DIFFERS MATERIALLY FROM THAT SHOWN OR INDICATED IN THE PLANS/CONTRACT DOCUMENTS; OR (4) IS OF AN UNUSUAL NATURE, AND DIFFERS MATERIALLY FROM CONDITIONS ORDINARILY ENCOUNTERED AND GENERALLY RECOGNIZED AS INHERENT IN WORK OF THE CHARACTER PROVIDED FOR IN THE PLANS/CONTRACT DOCUMENTS; THEN CONTRACTOR SHALL, PROMPTLY AFTER BECOMING AWARE THEREOF AND BEFORE FURTHER DISTURBING THE SUBSURFACE OR PHYSICAL CONDITIONS OR PERFORMING ANY WORK IN CONNECTION THEREWITH (EXCEPT IN AN EMERGENCY), NOTIFY OWNER AND ENGINEER ABOUT SUCH CONDITION. CONTRACTOR SHALL NOT FURTHER DISTURB SUCH CONDITION OR PERFORM ANY WORK IN CONNECTION THEREWITH (EXCEPT AS AFORESAID) UNTIL RECEIPT OF WRITTEN ORDER TO DO SO.
4. UTILITIES: PRIVATE AND PUBLIC UTILITIES SUCH AS ELECTRIC, TELEPHONE, GAS, CABLE, FIBER OPTIC ETC. ARE THE RESPONSIBILITY OF THE RESPECTIVE UTILITY COMPANY. ANY INFORMATION SHOWN BY TCE SHOULD BE CONSIDERED PRELIMINARY (USUALLY TO ASSIST WITH PERMITTING). FINAL DESIGN, CONSTRUCTION AND MAINTENANCE ARE THE RESPONSIBILITY OF RESPECTIVE UTILITY COMPANIES. COMPLIANCE WITH EASEMENTS AND REGULATIONS (STATE AND LOCAL) ARE THE RESPONSIBILITY OF RESPECTIVE UTILITY COMPANY.
5. DIGSAFE: IN ACCORDANCE WITH VERMONT STATE LAW (VSA TITLE 30 CHAPTER 86 AND PSB RULE 3,800) THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTACT DIGSAFE SYSTEMS, INC. "DIGSAFE" AT 1-888-344-7233 AT LEAST 48 HOURS , EXCLUDING SATURDAYS, SUNDAYS, AND LEGAL HOLIDAYS, BUT NOT MORE THAN 30 DAYS BEFORE COMMENCING EXCAVATION ACTIVITIES, EXCEPT IN AN EMERGENCY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PRE-MARKING THE SITE AND MAINTAINING DESIGNATED MARKINGS. FOR MORE INFORMATION ON DIGSAFE REQUIREMENTS SEE WWW.DIGSAFE.COM.
6. JOBSITE SAFETY: NEITHER THE PROFESSIONAL ACTIVITIES OF TRUDELL CONSULTING ENGINEERS (TCE), NOR THE PRESENCE OF TCE OR ITS EMPLOYEES AND SUB CONSULTANTS AT A CONSTRUCTION SITE, SHALL RELIVE THE GENERAL CONTRACTOR AND ANY OTHER ENTITY OF THEIR OBLIGATIONS, DUTIES AND RESPONSIBILITIES INCLUDING, BUT NOT LIMITED TO, CONSTRUCTION MEANS, METHODS, SEQUENCE, TECHNIQUES OR PROCEDURES NECESSARY FOR PERFORMING, SUPERINTENDING OR COORDINATING ALL PORTIONS OF THE WORK OF CONSTRUCTION IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND ANY HEALTH OR SAFETY PRECAUTIONS REQUIRED BY ANY REGULATORY AGENCIES. TCE AND ITS PERSONNEL HAVE NO AUTHORITY TO EXERCISE ANY CONTROL OVER ANY CONSTRUCTION CONTRACTOR OR OTHER ENTITY OR THEIR EMPLOYEES IN CONNECTION WITH THEIR WORK OR ANY HEALTH OR SAFETY PRECAUTIONS. THE CLIENT AGREES THAT THE GENERAL CONTRACTOR IS SOLELY RESPONSIBLE FOR JOBSITE SAFETY, AND WARRANTS THAT THIS INTENT SHALL BE MADE EVIDENT IN THE CLIENT'S AGREEMENT WITH THE GENERAL CONTRACTOR. THE CLIENT ALSO AGREES THAT THE CLIENT, TCE AND TCE'S CONSULTANTS SHALL BE INDEMNIFIED AND SHALL BE MADE ADDITIONAL INSURED UNDER THE GENERAL CONTRACTOR'S GENERAL LIABILITY INSURANCE POLICY.
7. CODES AND STANDARDS COMPLIANCE: TCE SHALL EXERCISE USUAL AND CUSTOMARY PROFESSIONAL CARE IN ITS EFFORTS TO COMPLY WITH CODES, STANDARDS, REGULATIONS, AND ORDINANCES IN EFFECT. THE OWNER ACKNOWLEDGES THAT SUCH REQUIREMENTS MAY BE SUBJECT TO VARIOUS AND CONTRADICTORY INTERPRETATIONS. TCE, THEREFORE, WILL MAKE REASONABLE PROFESSIONAL EFFORTS AND JUDGMENT TO INTERPRET APPLICABLE REQUIREMENTS AS THEY APPLY TO THE PROJECT. TCE, HOWEVER, CANNOT AND DOES NOT WARRANT OR GUARANTEE THAT THE PROJECT WILL COMPLY WITH ALL INTERPRETATIONS OF SUCH REQUIREMENTS.
8. CONSTRUCTION OBSERVATION: TCE MAY VISIT THE PROJECT AT APPROPRIATE INTERVALS DURING CONSTRUCTION TO BECOME GENERALLY FAMILIAR WITH THE PROGRESS AND QUALITY OF THE CONTRACTOR'S WORK AND TO DETERMINE IF THE WORK IS PROCEEDING IN GENERAL ACCORDANCE WITH THE CONTRACT DOCUMENTS. THE OWNER HAS NOT RETAINED TCE TO MAKE DETAILED INSPECTIONS OR TO PROVIDE EXHAUSTIVE OR CONTINUOUS PROJECT REVIEW AND OBSERVATION SERVICES. TCE DOES NOT GUARANTEE THE PERFORMANCE OF, AND SHALL NOT HAVE RESPONSIBILITY FOR, THE ACTS OR OMISSIONS OF ANY CONTRACTOR, SUB-CONTRACTOR, SUPPLIER OR ANY OTHER ENTITY FURNISHING MATERIALS OR PERFORMING ANY WORK ON THE PROJECT. TCE SHALL NOT SUPERVISE, DIRECT OR HAVE CONTROL OVER THE CONTRACTOR'S WORK NOR HAVE ANY RESPONSIBILITY FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES OF THE CONTRACTOR. IF THE OWNER DESIRES MORE EXTENSIVE PROJECT OBSERVATION OR FULL-TIME PROJECT REPRESENTATION, THE OWNER SHALL REQUEST SUCH SERVICES BE PROVIDED BY TCE AS ADDITIONAL SERVICES.

CONSTRUCTION NOTES

TRUDELL CONSULTING ENGINEERS
478 BLAIR PARK ROAD | WILLISTON, VERMONT 05495
802 879 6331 | WWW.TCEVT.COM

Revisions
No. Description Date By

Use of These Drawings
1. Unless otherwise noted, these Drawings are intended for preliminary planning, coordination with other disciplines or utilities, and/or approval from the regulatory authorities. They are not intended as construction drawings unless noted as such or marked approved by a regulatory authority.
2. By use of these drawings for construction of the Project, the Owner represents that they have reviewed, approved, and accepted the drawings, obtained all necessary permits, and have met with all applicable parties/disciplines, including but not limited to, the Engineer and the Architect, to insure these plans are properly coordinated including, but not limited to, contract documents, specifications, owner/contractor agreements, building and mechanical plans, private and public utilities, and other pertinent permits for construction.
3. Owner and Architect, are responsible for final design and location of buildings shown, including an area measured a minimum five (5) feet around any building and coordinating final utility connections shown on these plans.
4. Prior to using these plans for construction layout, the user shall contact TCE to ensure the plan contains the most current revisions.
5. These Drawings are specific to the Project and are not transferable. As instruments of service, these drawings, and copies thereof, furnished by TCE are its exclusive property. Changes to the drawings may only be made by TCE. If errors or omissions are discovered, they shall be brought to the attention of TCE immediately.
6. It is the User's responsibility to ensure this copy contains the most current revisions. If unsure, please contact TCE.

Project Title

Duxbury/Moretown Fire District #1 Crosset Brook Culvert Replacement

Route 100
Duxbury, Vermont

Sheet Title

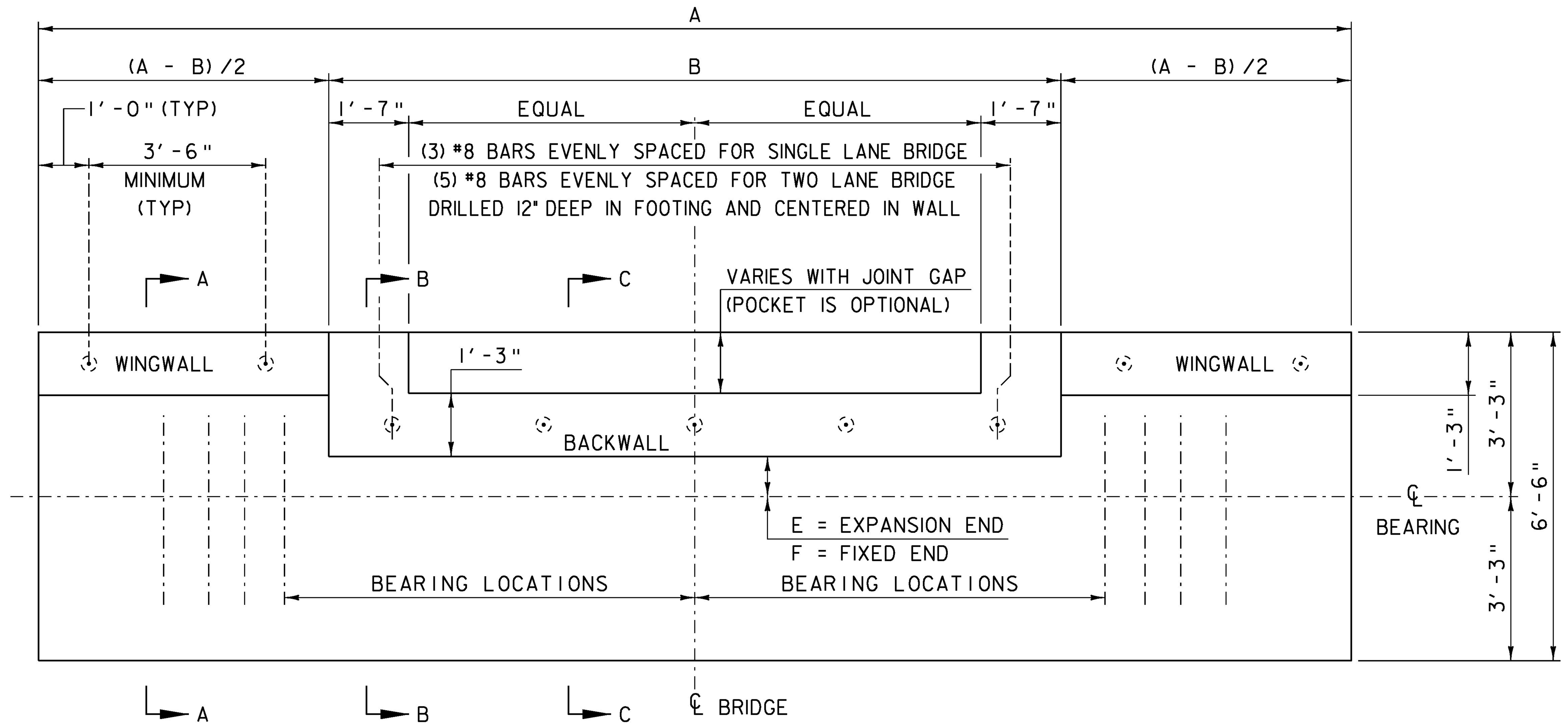
Details

Date:	04/19/16
Scale:	SHOWN
Project Number:	16-052
Drawn By:	NPC
Project Engineer:	
Approved By:	
Field Book:	

C8-01

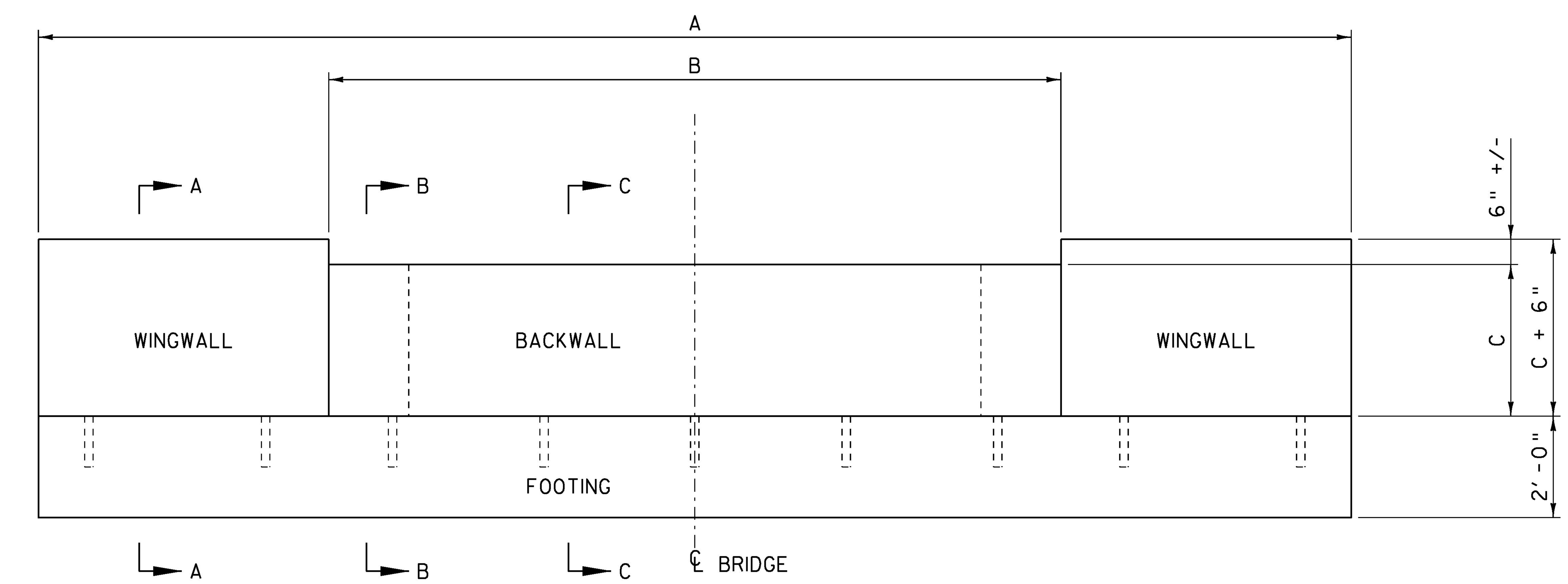
FOUNDATION NOTES:

1. THE TYPICAL FOUNDATION LAYOUTS REQUIRED TO DIMENSIONALLY FACILITATE THE INSTALLATION OF MABEY COMPACT 200 BRIDGES ARE SHOWN.
2. THE BRIDGE FOUNDATION FOOTING MUST BE PLACED ON SUITABLE MATERIAL. IF THE FOUNDATION MATERIAL IS UNSUITABLE, THE FOOTING SHOULD BE UNDERCUT 2'-0" AND REPLACED WITH GRANULAR BACKFILL FOR STRUCTURES.
3. THE ABUTMENT BALLAST WALLS SHOULD NOT BE CONSTRUCTED UNTIL THE BRIDGE HAS BEEN LAUNCHED AND JACKED DOWN INTO POSITION ON ITS BEARINGS.
4. IT IS ESSENTIAL THAT ALL OF THE BEARINGS ON AN ABUTMENT ARE SET AT THE SAME LEVEL, TO AVOID MALDISTRIBUTION OF STRESSES IN THE BRIDGE.
5. DIMENSIONS MARKED ANNOTATED WITH LETTER VALUES ARE LOCATED IN THE "BRIDGE FOUNDATION DIMENSION TABLE". DIMENSION "E" WILL ACCOUNT FOR BRIDGE EXPANSION DUE TO TEMPERATURE AND THE VALUE SHOWN IS TO BE ADDED TO THE VALUES SHOWN IN THE "EXPANSION GAP TEMPERATURE ADJUSTMENT" TABLE.
6. THE BRIDGE AND WALLS MAY BE PLACED ON THE FOOTING AFTER IT ACHIEVES A COMPRESSIVE STRENGTH OF 2000 PSI. THE LENGTH OF THE CURE CAN BE VERIFIED BY THE MIX DESIGN STRENGTHS OR CYLINDER BREAKS.



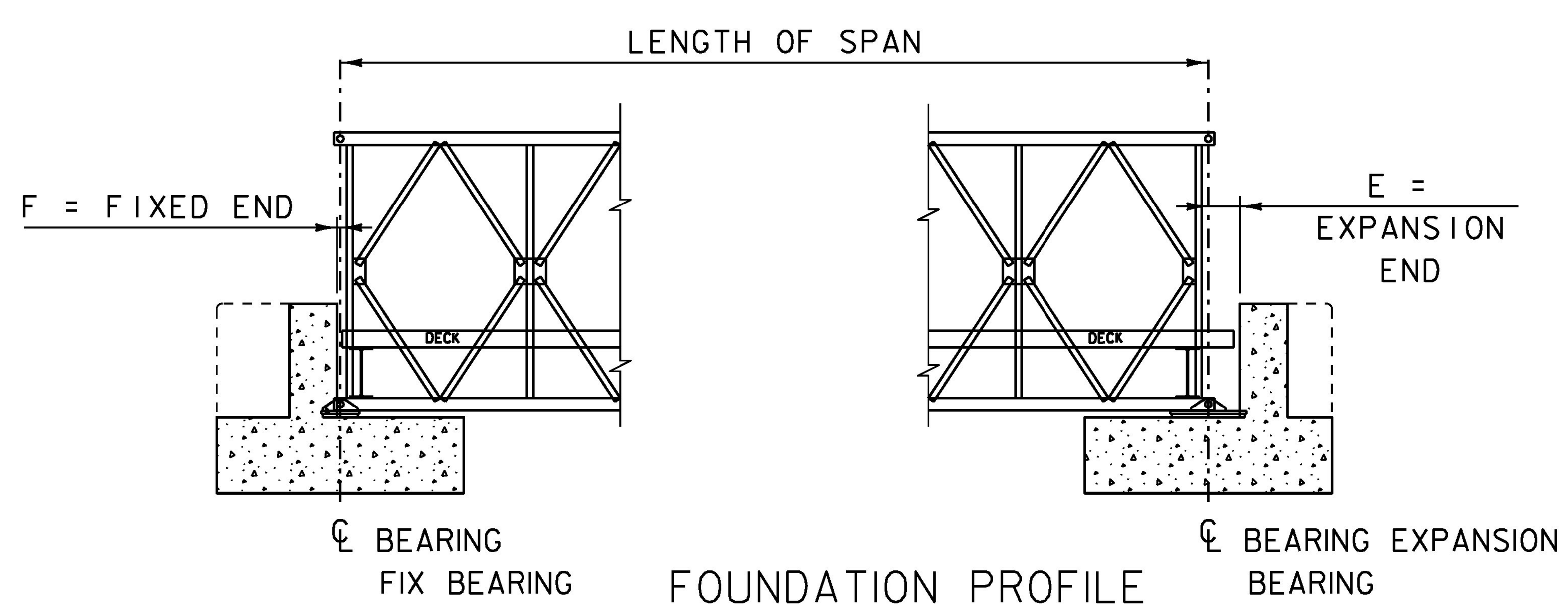
CAST-IN-PLACE FOUNDATION PLAN

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



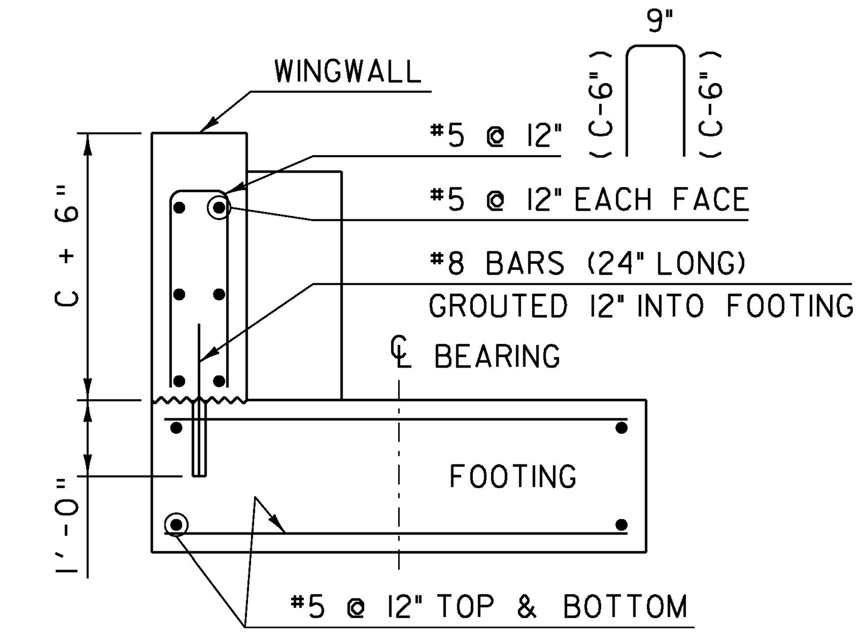
CAST-IN-PLACE FOUNDATION ELEVATION

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



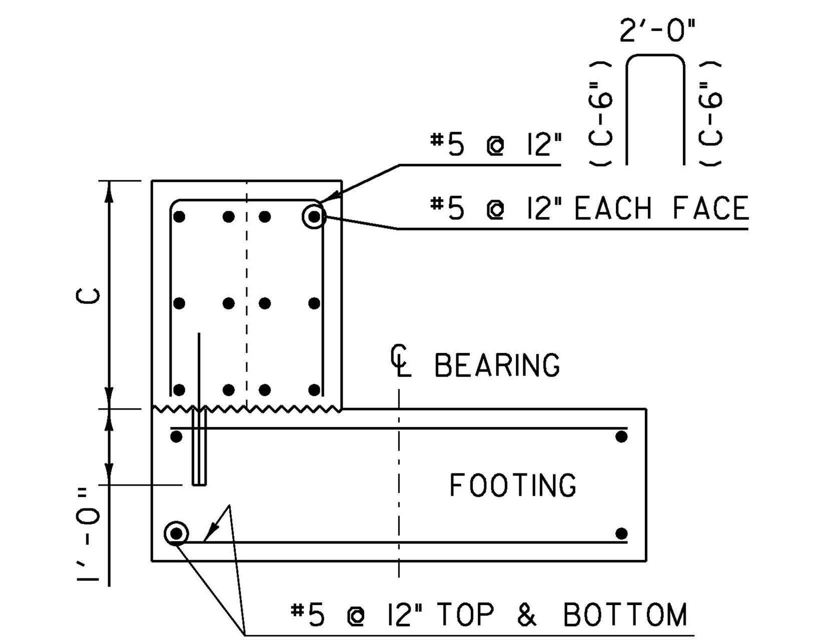
FOUNDATION PROFILE

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



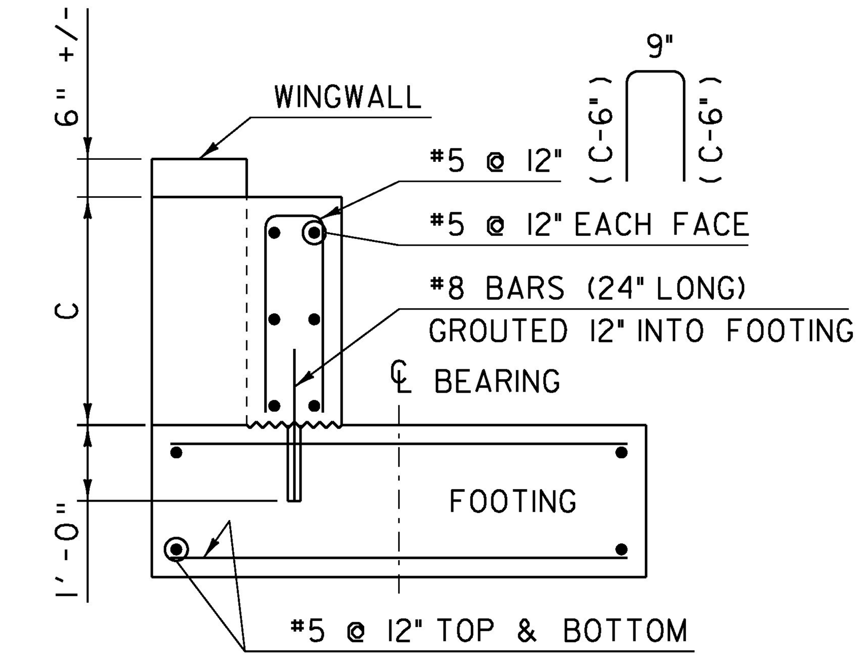
SECTION A-A CAST-IN-PLACE

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



SECTION B-B CAST-IN-PLACE

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



SECTION C-C CAST-IN-PLACE

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

BRIDGE FOUNDATION DIMENSIONS TABLE

DIMENSIONS	SINGLE LANE WIDTH		TWO LANE WIDTH	
	11 FT	14 FT	24 FT	24FT
	STANDARD	EXTRA WIDE	HS20	HA/MS250
A	23'-0"	26'-3"	37'-8"	37'-8"
B	11'-2"	14'-5"	25'-3"	25'-3"
C	2'-7 1/2"	2'-7 3/4"	3'-3 1/2"	3'-3 3/4"
E	(8 1/2" + H)	(8 1/2" + H)	(9" + H)	(9" + H)
F	3/8"	3/8"	5/8"	5/8"

EXPANSION GAP TEMPERATURE ADJUSTMENT

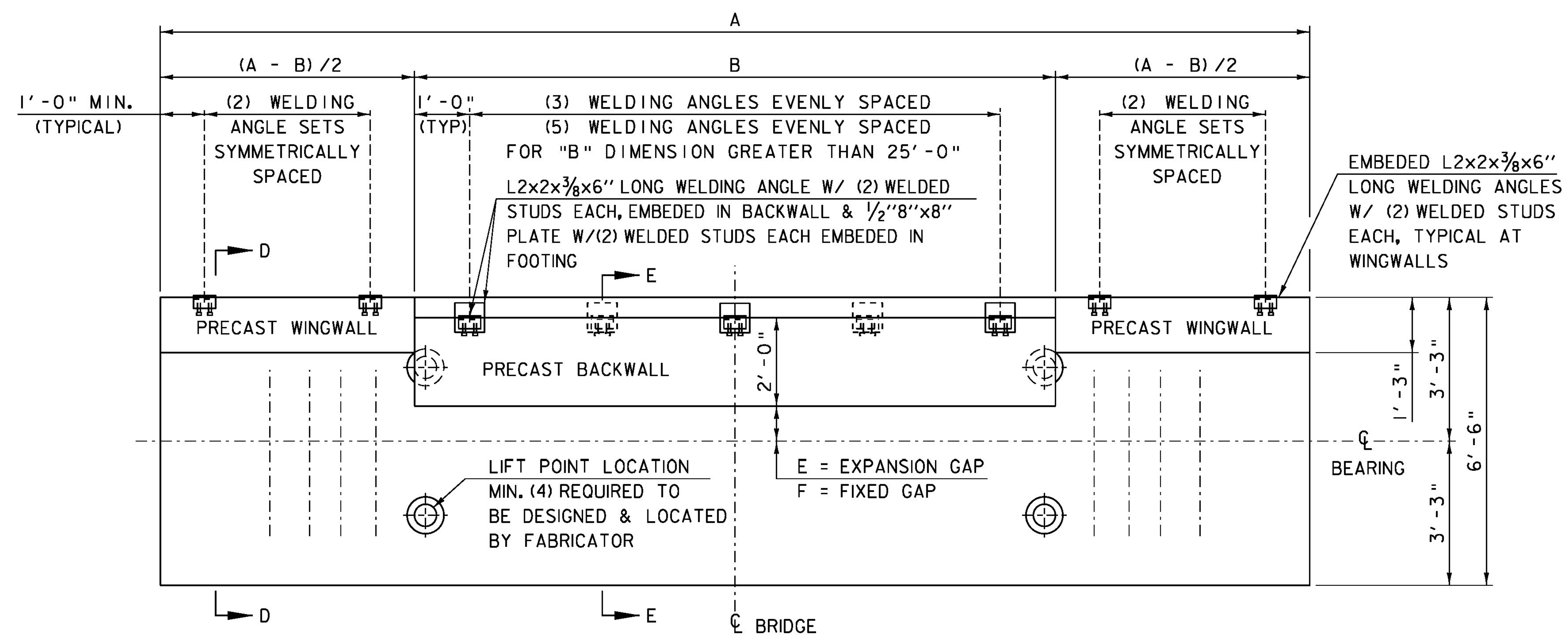
" H " Distance (in)

Temp (°F)	Expansion Length (ft)				
	100 - 120	>120 - 140	>140 - 160	>160 - 180	>180 - 200
0	1 5/8	1 5/16	1 1/2	1 11/16	1 7/8
15	1 1/2	1 1/8	1 5/16	1 1/2	1 5/8
30	1 5/16	1	1 1/8	1 1/4	1 3/8
45	1 3/16	13/16	15/16	1 1/16	1 3/16
60	1 1/16	5/8	3/4	13/16	15/16
75	15/16	1/2	9/16	5/8	11/16
90	3/4	5/16	3/8	7/16	7/16
105	5/8	3/16	3/16	3/16	1/4

1) Expansion Length: Length of span, from Expansion Joint to nearest Fixed Bearing.
2) Temp: Approximate temperature of steel during joint placement.

REBAR NOTE:
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

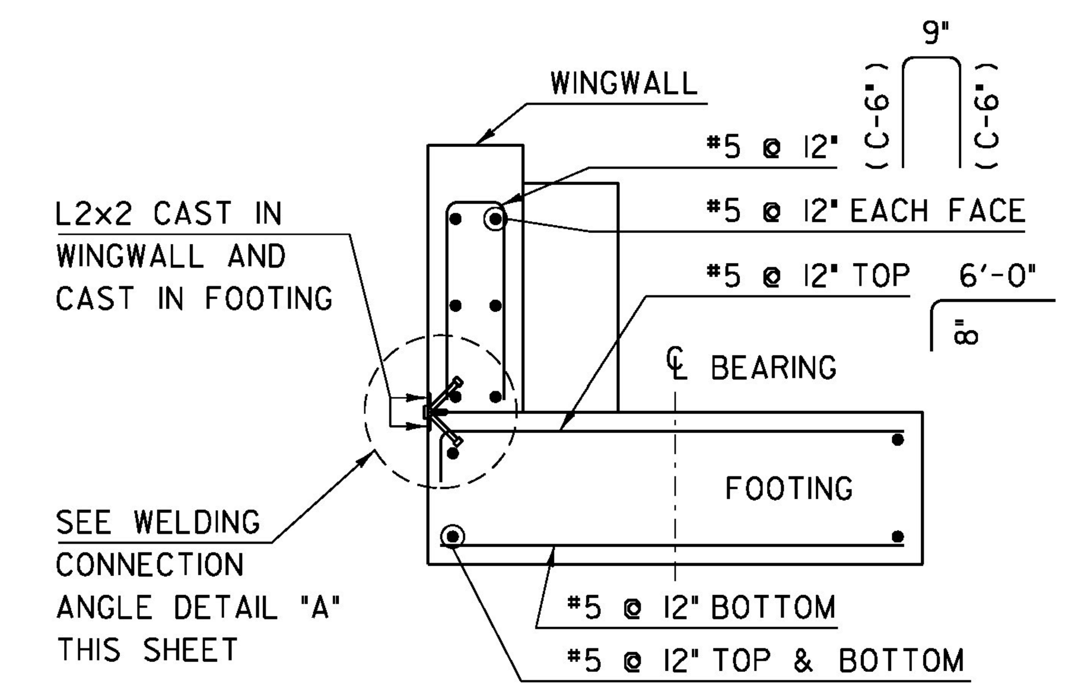
PROJECT NAME: MABEY BRIDGE FOUNDATION	
PROJECT NUMBER:	
FILE NAME: MaybeyDetails.dgn	PLOT DATE: 02-SEP-2011
PROJECT LEADER: VAOT	DRAWN BY: MCL
DESIGNED BY: VAOT	CHECKED BY: VAOT
MABEY FOUNDATION DETAIL SHEET 1	SHEET 1 OF 2



PRECAST FOUNDATION PLAN

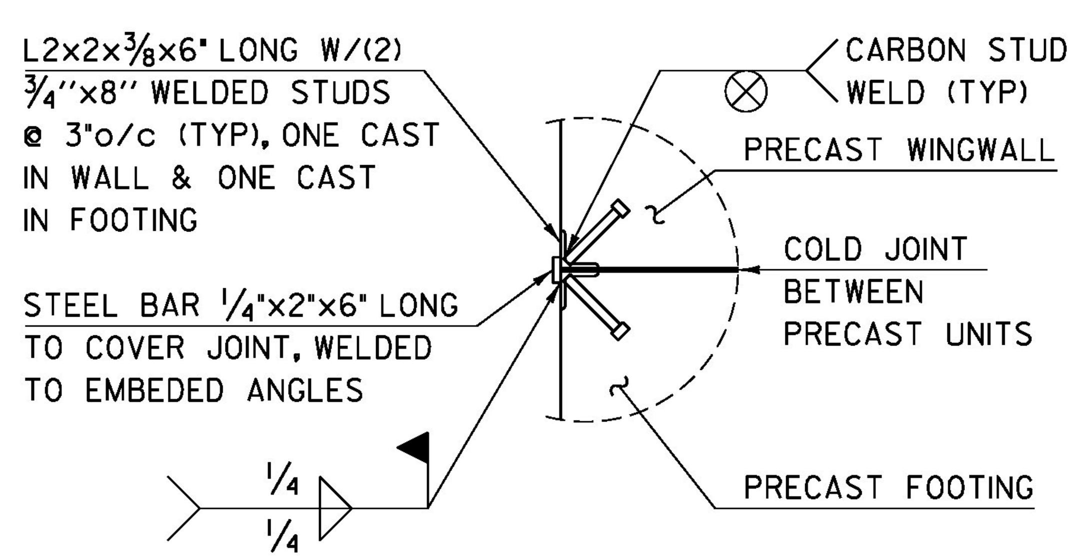
SCALE = 1/2" = 1'-0"

1.) FOUNDATION COMPONENTS MAY BE PRECAST AND ASSEMBLED AS SHOWN IN THESE DETAILS. DIMENSION AND DETAILS FOR THIS OPTION ARE SIMILAR TO THE CAST-IN-PLACE DETAILS. SEE SHEET 1, FOR NOTES AND DIMENSION TABLES.



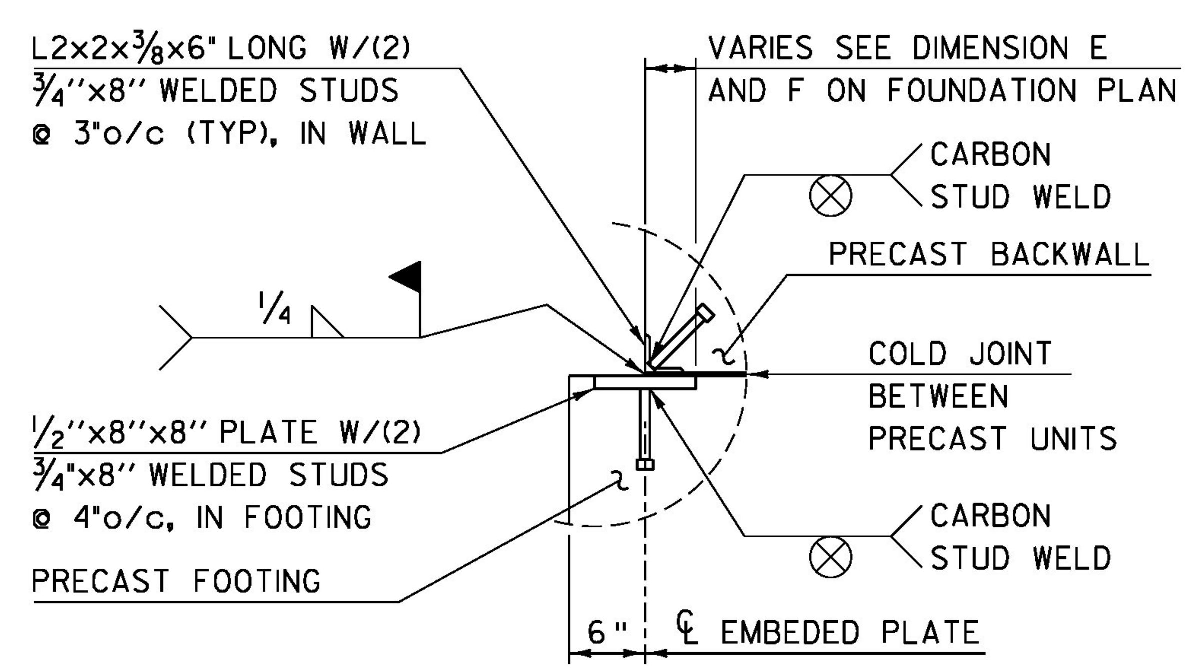
SECTION D-D PRECAST

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



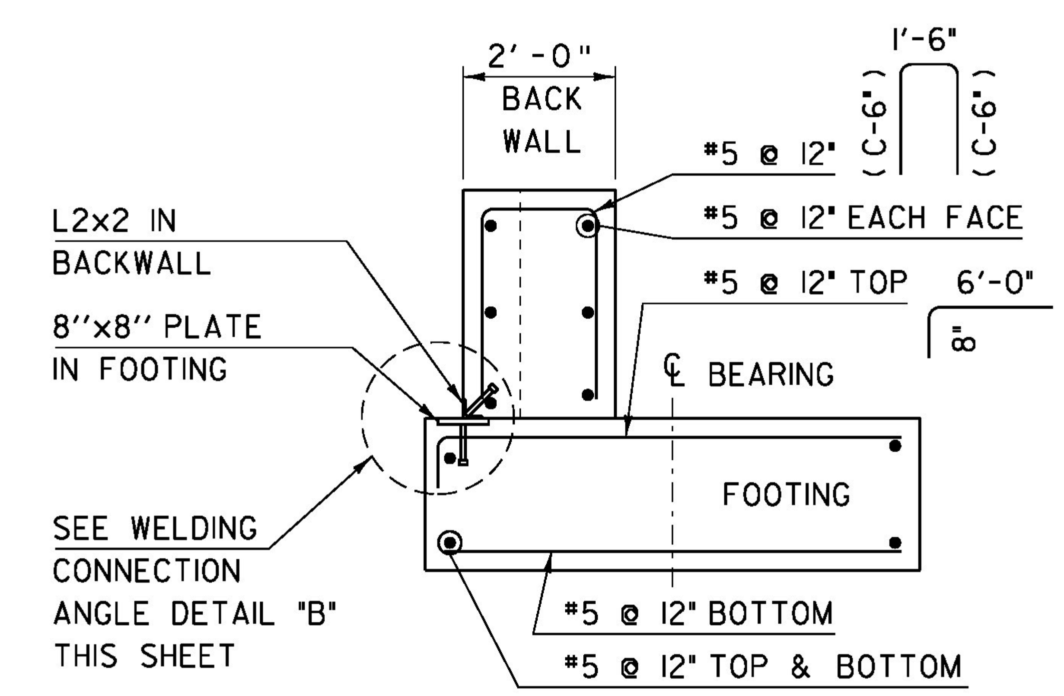
WELDING CONNECTION ANGLE DETAIL "A"

SCALE = 1" = 1'-0"



WELDING CONNECTION ANGLE DETAIL "B"

SCALE = 1" = 1'-0"



SECTION E-E PRECAST

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

REBAR NOTE:
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PROJECT NAME: MABEY BRIDGE FOUNDATION	
PROJECT NUMBER:	
FILE NAME: MaybeyDetails.dgn	PLOT DATE: 02-SEP-2011
PROJECT LEADER: VAOT	DRAWN BY: MCL
DESIGNED BY: VAOT	CHECKED BY: VAOT
MABEY FOUNDATION DETAIL SHEET 2	SHEET 2 OF 2

CONSTRUCT DRIVE

Lt.	Rt.
9+~~80~~ 90	9+30
12+~~50~~ 60	14+~~50~~ 40
14+00	
11+~~12~~ 05 (S.App.)	

GUARD RAIL, STD. STEEL BEAM w/WOOD POSTS, Type II (6'-3" Spacing)

Lt.	Rt.
10+~~00~~ 04 ~ 12+~~00~~ 18	9+~~95~~ 90 ~ 12+~~50~~ 97

WOVEN WIRE FENCE W/ STEEL POSTS

Lt.	Rt.
18+50 ~ 22+00	12+50 - 22+00

SPECIAL DITCH
(To be paid under item 203.15)

Lt.	Rt.
10+75 ~ 12+30	
13+00 ~ 13+80	
14+25 ~ 15+50	

DEMOLITION AND DISPOSAL OF BUILDING
#1 ℄ 13+75

24" SAND BORROW
18+~~15~~ 50 ~ 22+00

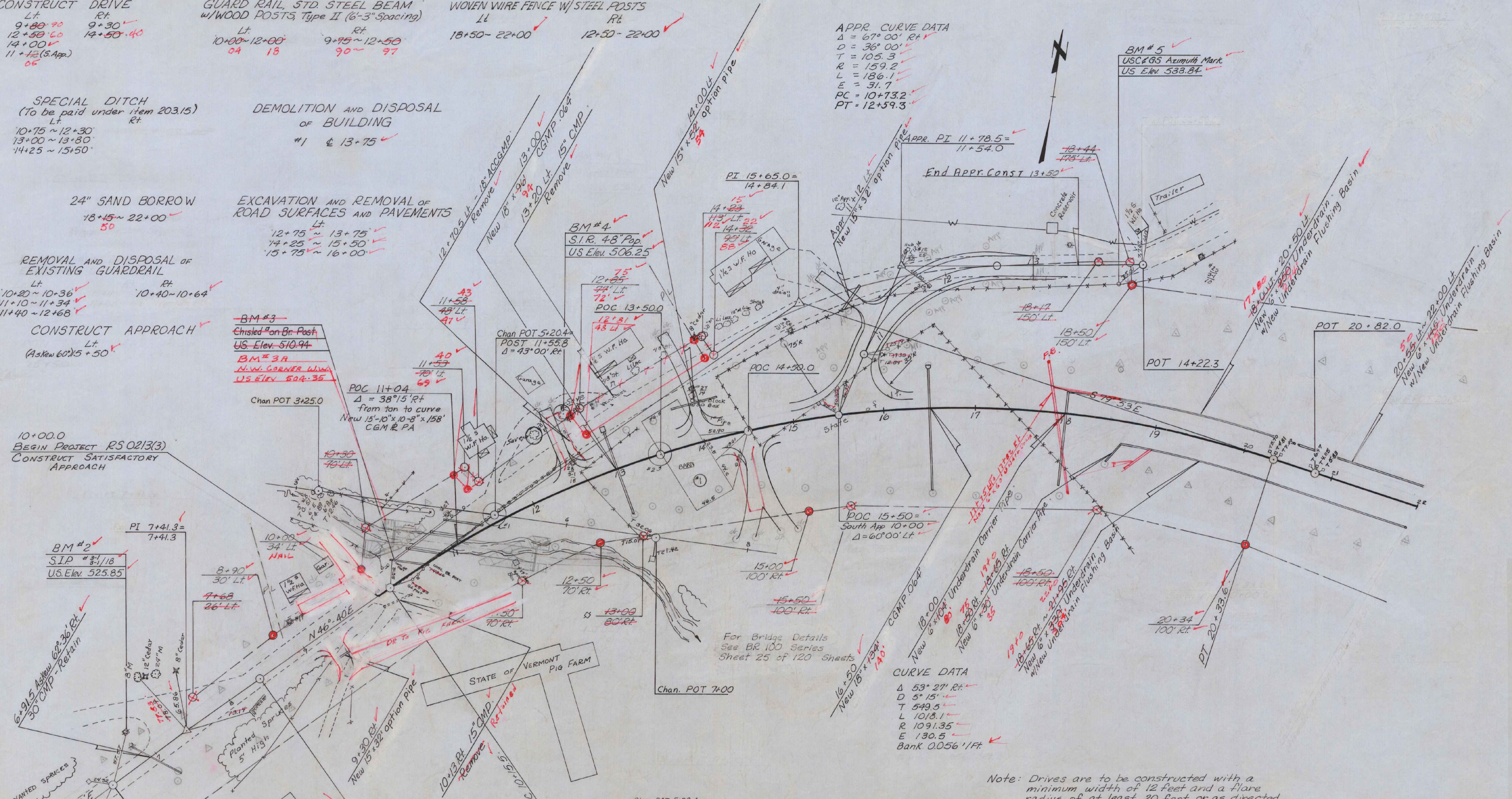
EXCAVATION AND REMOVAL OF ROAD SURFACES AND PAVEMENTS
Lt.
12+75 ~ 13+75
14+25 ~ 15+50
15+75 ~ 16+00

REMOVAL AND DISPOSAL OF EXISTING GUARDRAIL

Lt.	Rt.
10+20 ~ 10+36	10+40 ~ 10+64
11+10 ~ 11+34	
11+40 ~ 12+68	

CONSTRUCT APPROACH
Lt.
(As Skew 60°) 15+50

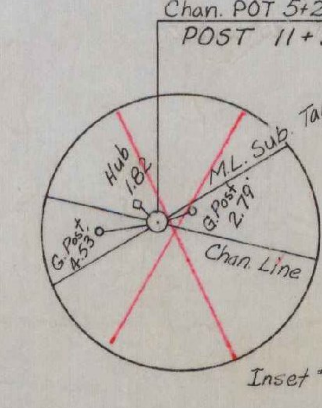
APPR. CURVE DATA
Δ = 67° 00' Rt.
D = 36° 00'
T = 105.3
R = 159.2
L = 186.1
E = 31.7
PC = 10+73.2
PT = 12+59.3

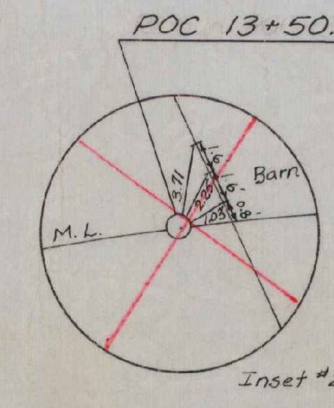


CURVE DATA
Δ 53° 21' Rt.
D 5° 15'
T 549.5
L 1018.1
R 1091.35
E 130.5
Bank 0.056'/Ft.

CURVE DATA
Δ 2° 00' Rt.
D 1° 00'
R 5729.58
T 100.0
L 200.0
E 0.9
Bank Do Not Bank

BRIDGE DATA
TYPE Concrete T-Beam
ROADWAY WIDTH 24'
OVERALL LENGTH 76'
CLEAR SPAN 72'
CLEAR HEIGHT 15'





Note: Drives are to be constructed with a minimum width of 12 feet and a flare radius of at least 20 feet or as directed by the Resident Engineer.

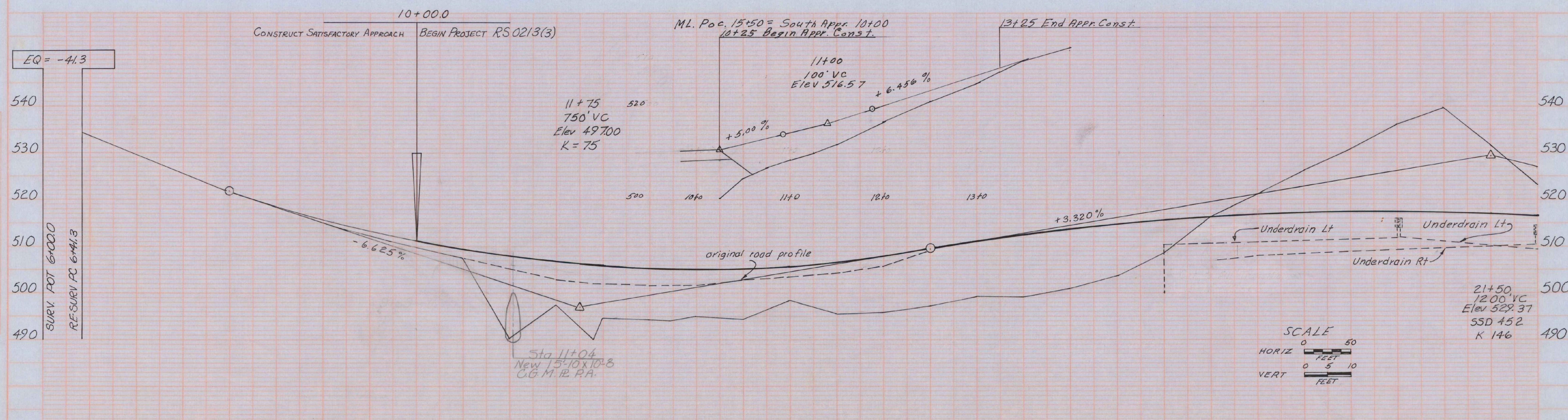
All existing pavement within 2 feet of the subgrade shall be thoroughly scarified and broken up, payment to be included under the bid price of Common Excavation, Item 203.15.

0 50 100
Feet

SURVEYED BY Fall DATE Jan 72
DRAWN BY D. Clark DATE Dec 72
TRACED BY D. Clark DATE Dec 72

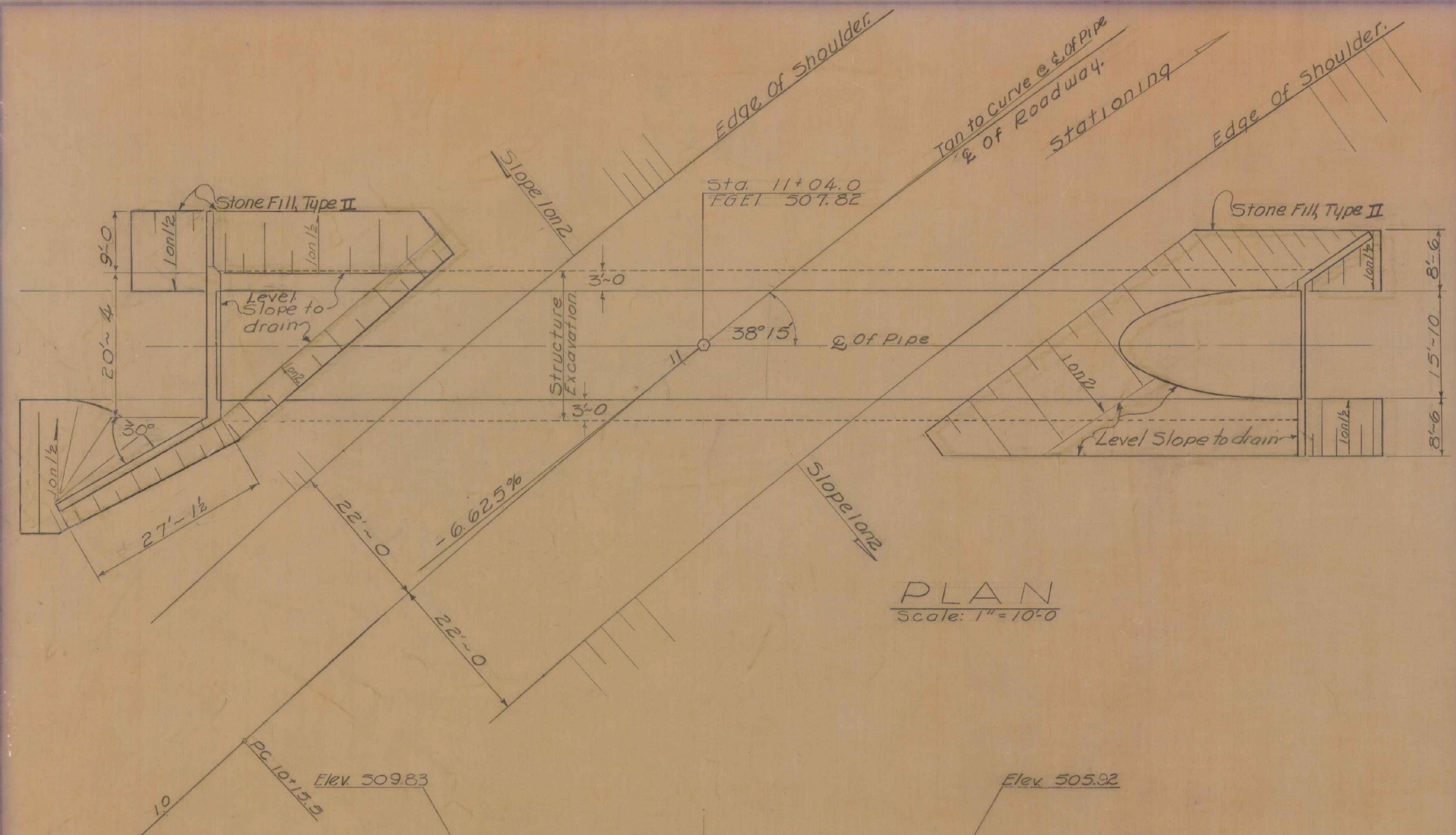
DUXBURY - MORETOWN
PROJ. RS NO. 0213(3)
SHEET 15 OF 120

D-7

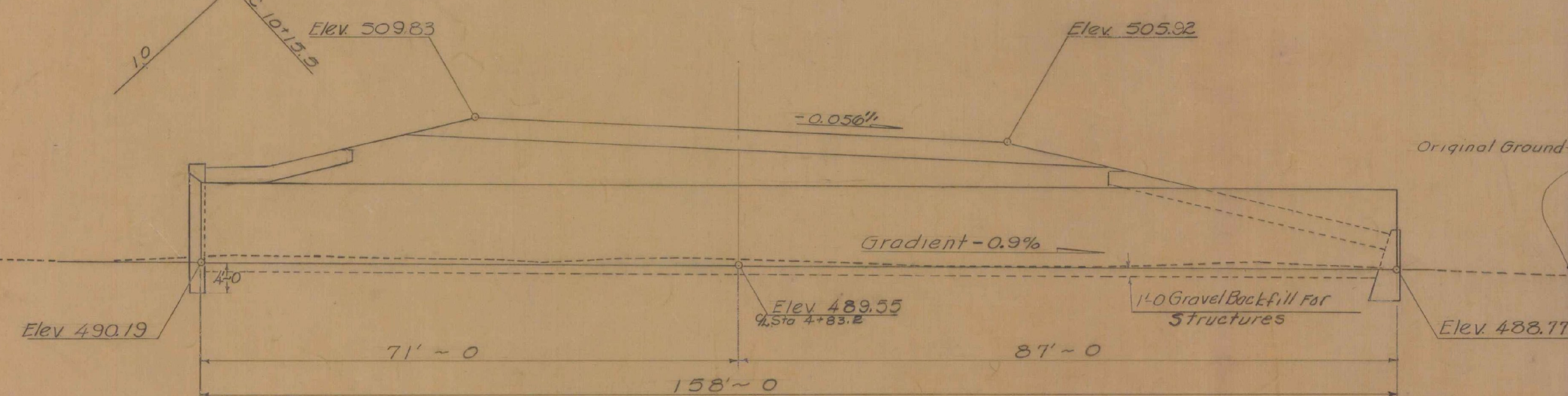


DUXBURY-MORETOWN
RS 0213 (3)

Sheet 16 of 120 Sheets



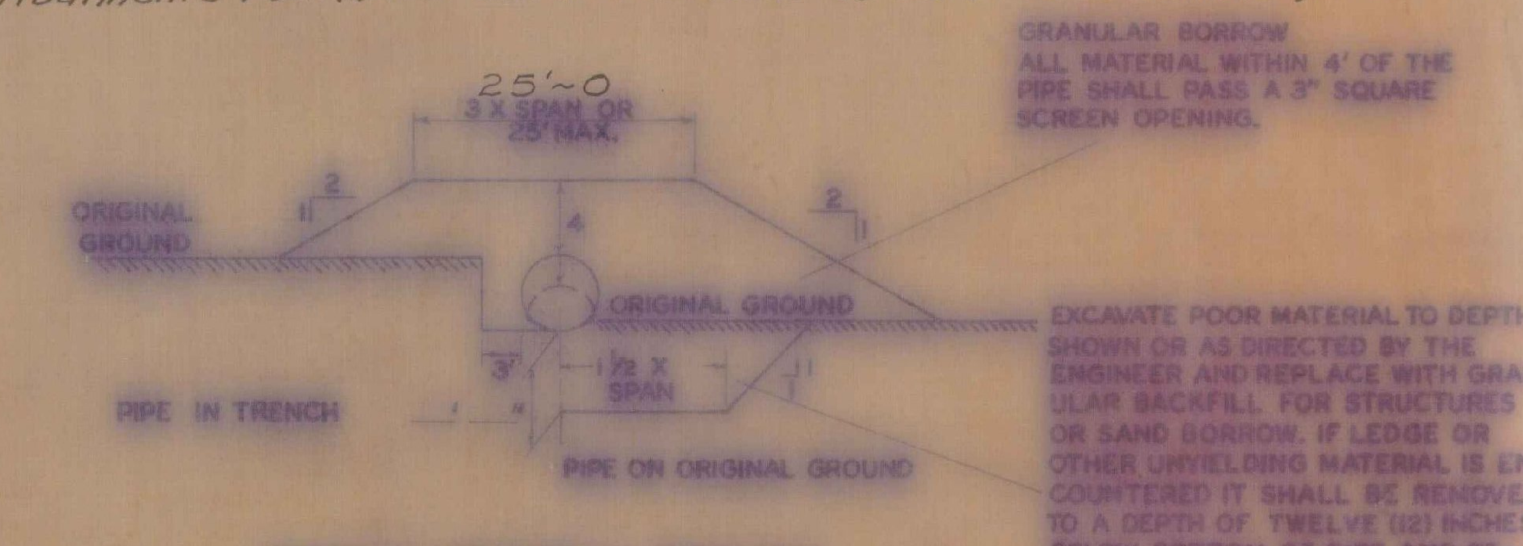
PLAN
Scale: 1" = 10'-0



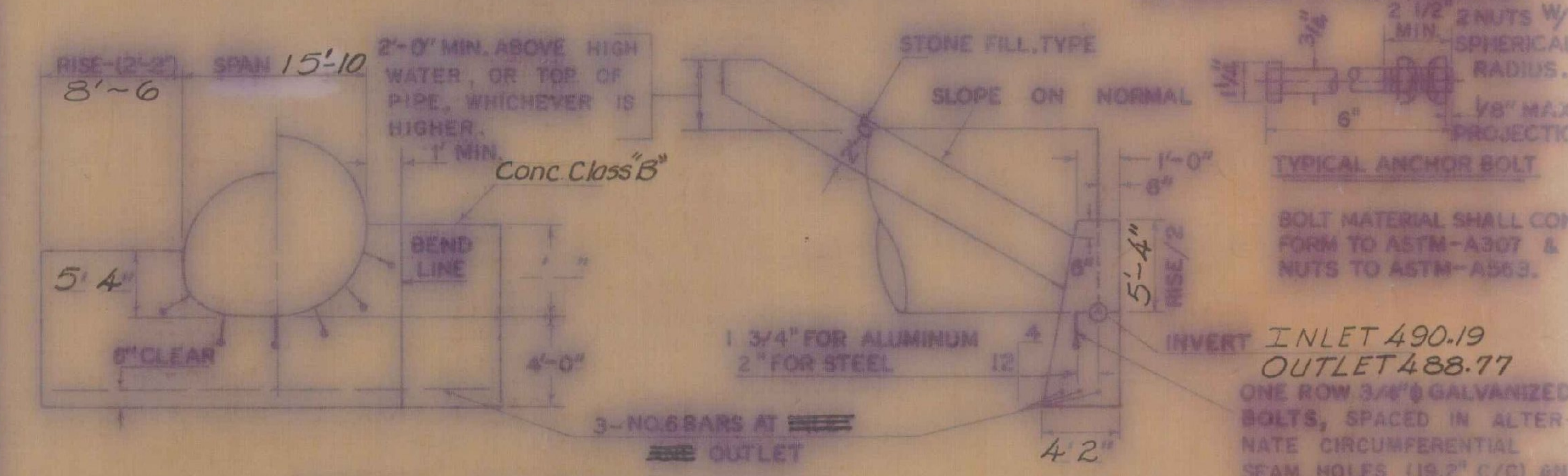
ELEVATION ALONG ℄ OF PIPE
Scale: 1" = 10'-0

NOTES

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT DEPARTMENT OF HIGHWAYS STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION DATED MAR. 1976 AND THE A.A.S.H.O. STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES DATED 1973 AND ITS LATEST REVISIONS. DESIGN IS FOR HS-20 LIVE LOADING.
2. UNLESS OTHERWISE INDICATED FOUR (4) BOLTS PER LINEAR FOOT FOR STEEL PLATES AND FIVE AND ONE THIRD (5 1/3) BOLTS FOR ALUMINUM PLATES ARE REQUIRED ALONG THE LONGITUDINAL SEAMS. ALL CONNECTIONS FOR STRUCTURAL PLATE SECTIONS SHALL BE MADE WITH GALVANIZED ASTM A-325 BOLTS (AASHO M164).
3. WHEN NORMAL CONSTRUCTION OR REGULAR ROADWAY TRAFFIC IS MAINTAINED OVER THE PIPE THE CONTRACTOR SHALL MAINTAIN A MINIMUM COVER OF 4 FEET OF COMPACTED MATERIAL.
4. ALUMINUM PIPE THAT IS TO BE IN CONTACT WITH CONCRETE SHALL HAVE CONTACT SURFACES THOROUGHLY COATED WITH ZINC CHROMATE, OR BITUMINOUS, OR ASPHALTIC PAINT.
5. PIPES SHALL BE FACTORY ELONGATED 5% (PIPE ARCHES SHALL NOT BE ELONGATED).
6. Removal Of Existing Superstructure. To be paid for under Item 202.20
7. Remove Abutments Four (4) feet below Finish Grade as Solid Rock Excavation; Item 203.16



TYPICAL BACKFILL SECTION



OUTLET CRADLE HEADWALL DETAILS

REINFORCING STEEL SCHEDULE

NO. PIECES	SIZE	LENGTH	MARK	TYPE

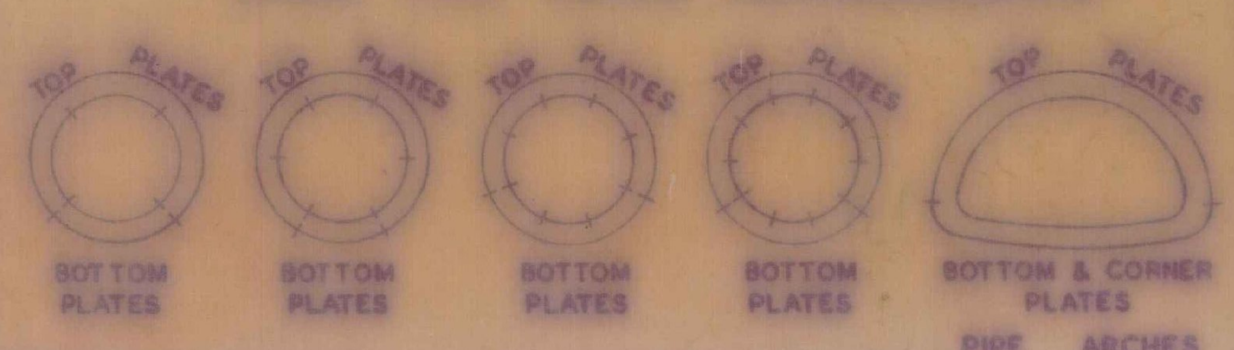
TYPICAL CHANNEL SECTION

* Roadway Quantity.

ESTIMATED QUANTITIES

NO.	ITEM	UNIT	TOTAL	FINAL
202.20	Removal Of Existing Superstructure	Ea	1	1
*203.16	Solid Rock Excavation	C.Y.	10	0
203.27	Unclassified Channel Excavation	C.Y.	280	286
*203.32	Granular-Borrow	C.Y.	1790	1790
204.25	Structure Excavation	C.Y.	590	383
204.30	Gravel Backfill For Structures	C.Y.	130	124
501.25	Concrete Class "B"	C.Y.	94	85.50
507.15	Reinforcing Steel	Lbs	5610	5610
511.15	15'-10 x 10'-8 x 158' C.G.M.P.P.A. (t = 0.168" Wt = 68,256#)	L.S.	1	1
613.11	Stone Fill, Type II	C.Y.	190	219
306.10	OVERHAUL (9.2 MILES)	CY/MI	1196	0

STEEL PIPE PLATE ARRANGEMENTS



DETAILS OF STRUCTURAL PLATE PIPE CULVERTS

PIPE DATA:	STEEL	ALUMINUM
CORRUGATIONS	6 x 2	
DIAMETER OF PIPE		
PIPE ARCH	15'-10 x 10'-8	
PLATE THICKNESS	0.168" (COATED) THICKNESS	
BOLT SIZE	3/4	
WT. LIN. FT.	432#	
TOTAL WEIGHT	68,256#	

HYDRAULIC DATA	
DRAINAGE AREA	5.1 SQ. MI.
DESIGN FREQUENCY-Q	50
DESIGN FLOW & HEADW. DEPTH	1000 CFS 8.6 FT.
CHECK DISCHARGE & HEADW. DEPTH	1200 CFS 9.8 FT.
TAILWATER DEPTH AT DESIGN FLOW	5.2 FT.
OUTLET VELOCITY AT DESIGN FLOW	12.9 FT/SEC
WATERWAY AREA	133 SQ. FT.

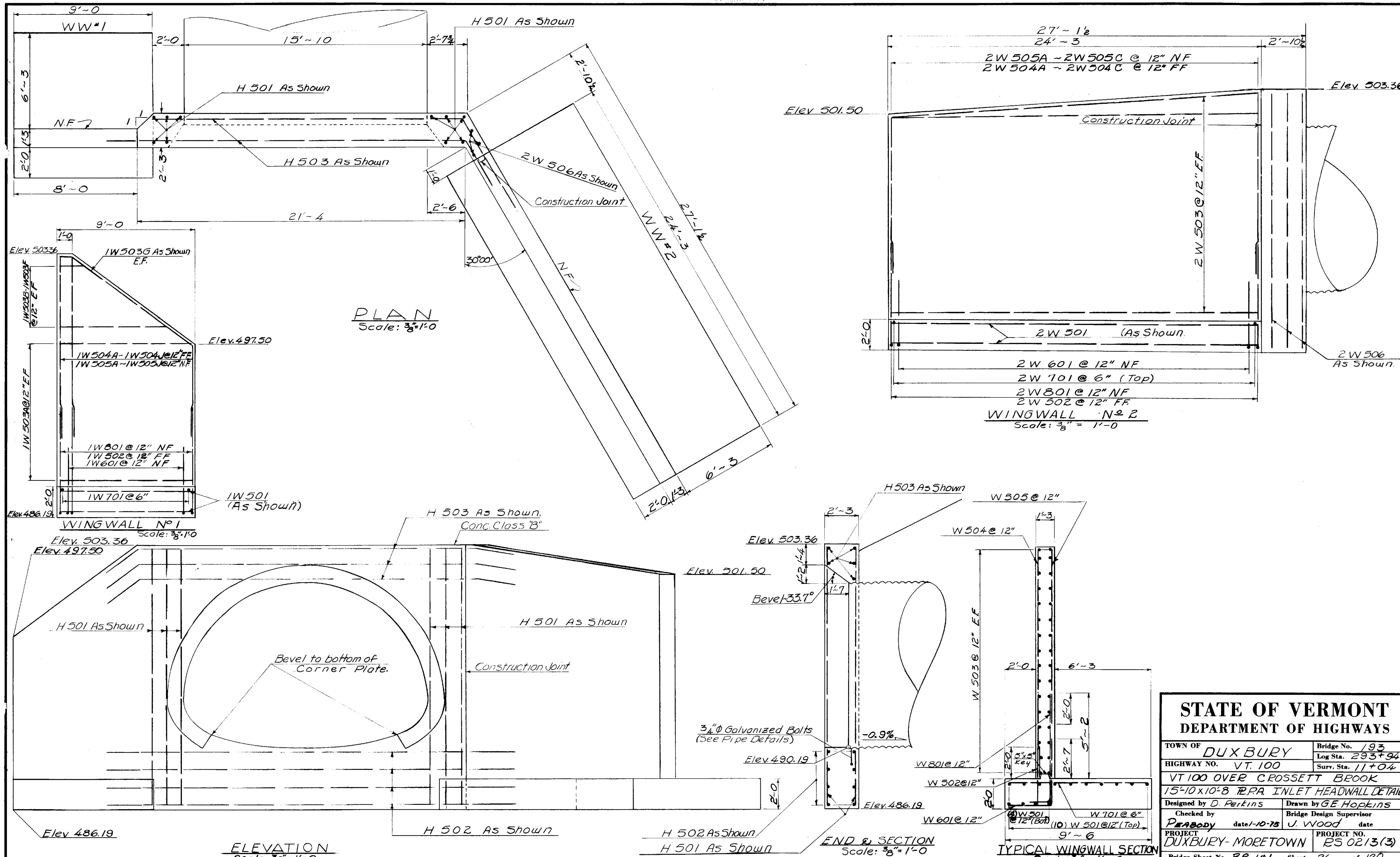
STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

TOWN OF: DUXBURY	Bridge No. 193
	Log Sta. 293+94
HIGHWAY NO. VT. 100	Surv. Sta. 11+04

VT100 OVER CROSSETT BROOK
15'-10 x 10'-8 C.G.M.P.P.A. DETAILS

Designed by G.E. Hopkins	Drawn by G.E. Hopkins
Checked by PEABODY date 1-10-75	Bridge Design Supervisor J. Wood date
PROJECT DUXBURY-MORETOWN	PROJECT NO. RS-0213(3)
Bridge Sheet No. BR100	Sheet 25 of 120

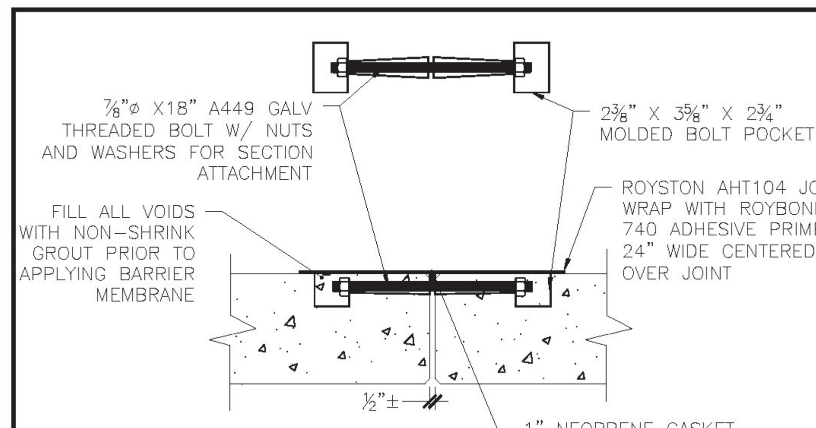
BR-9



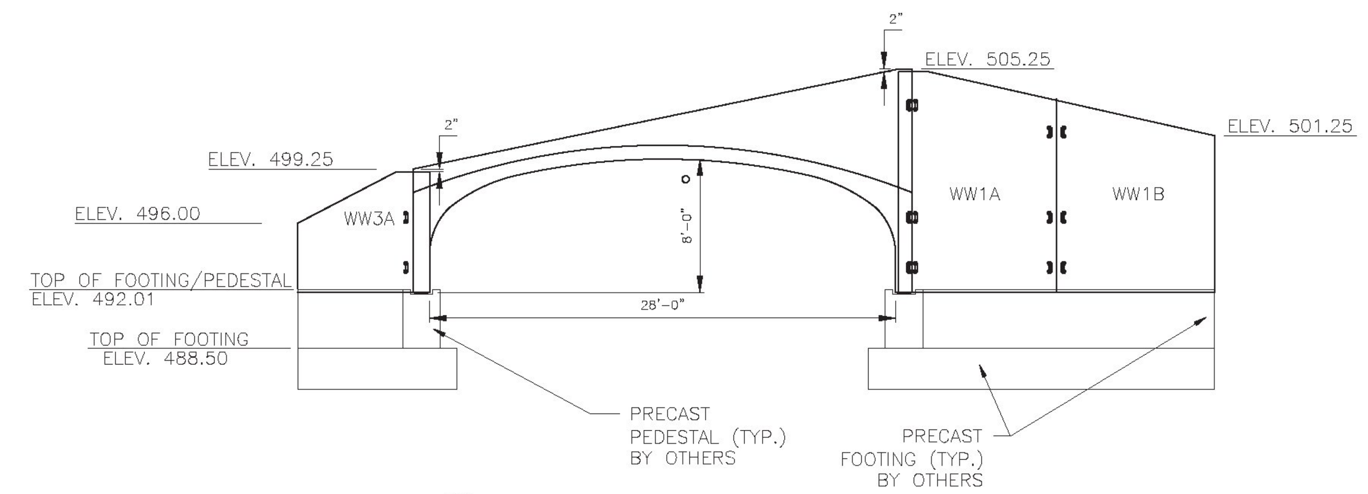
STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

TOWN OF DUXBURY	Bridge No. 193
	Log Sta. 293+94
HIGHWAY NO. VT. 100	Surv. Sta. 11+04
VT 100 OVER CROSSETT BROOK	
15'-10 x 10'-8 P.P.A. INLET HEADWALL DETAILS	
Designed by D. Perkins	Drawn by GE Hopkins
Checked by Peabody date 1-10-75	Bridge Design Supervisor J. Wood date
PROJECT DUXBURY- MORETOWN	PROJECT NO. RS 0213(3)
Bridge Sheet No. BR 101	Sheet 26 of 120

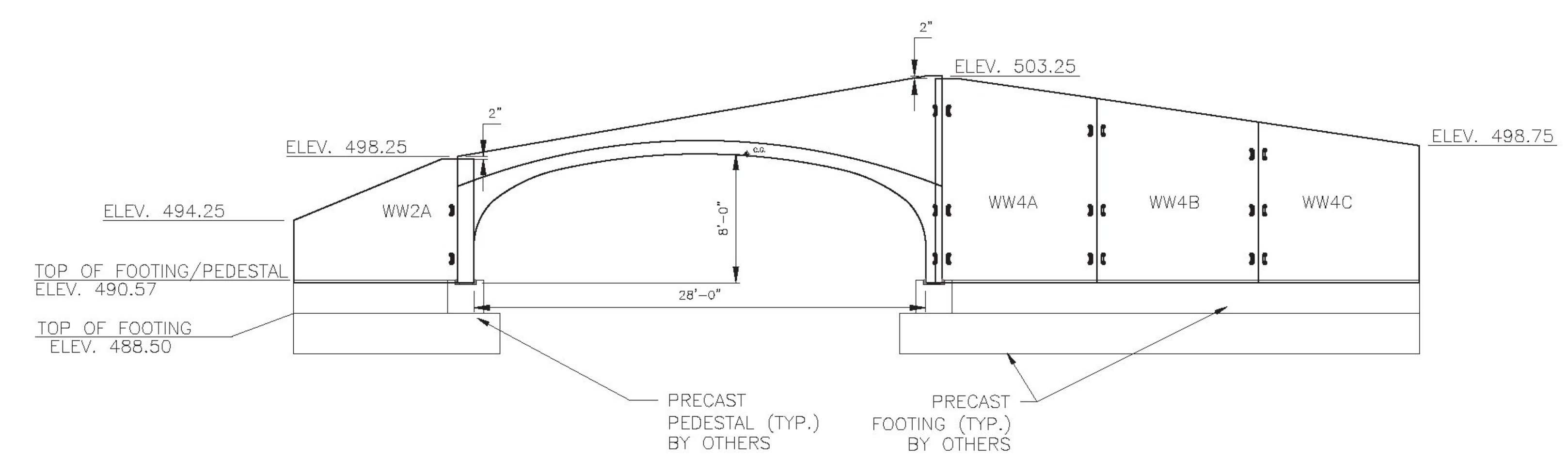
BR-9



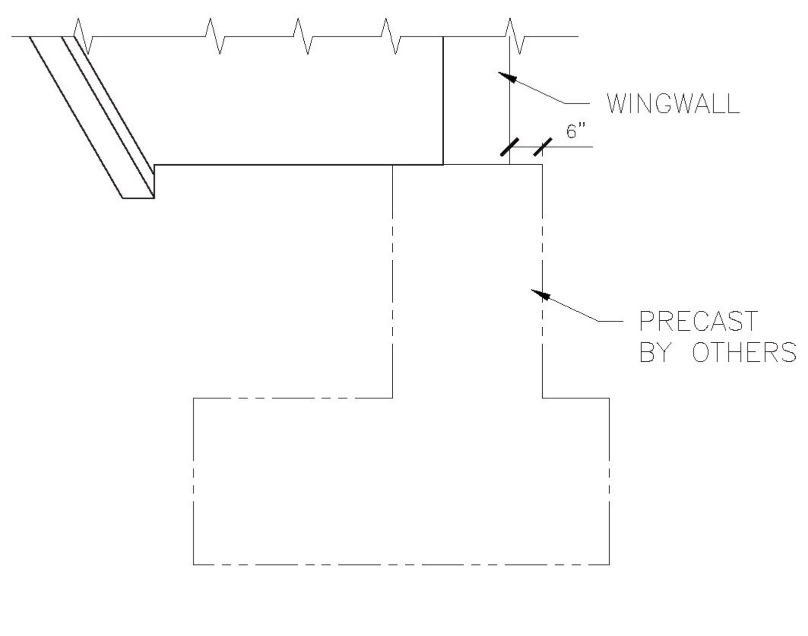
1 S1.0 ARCH CULVERT JOINT CONNECTION DETAIL
1" = 1'-0"



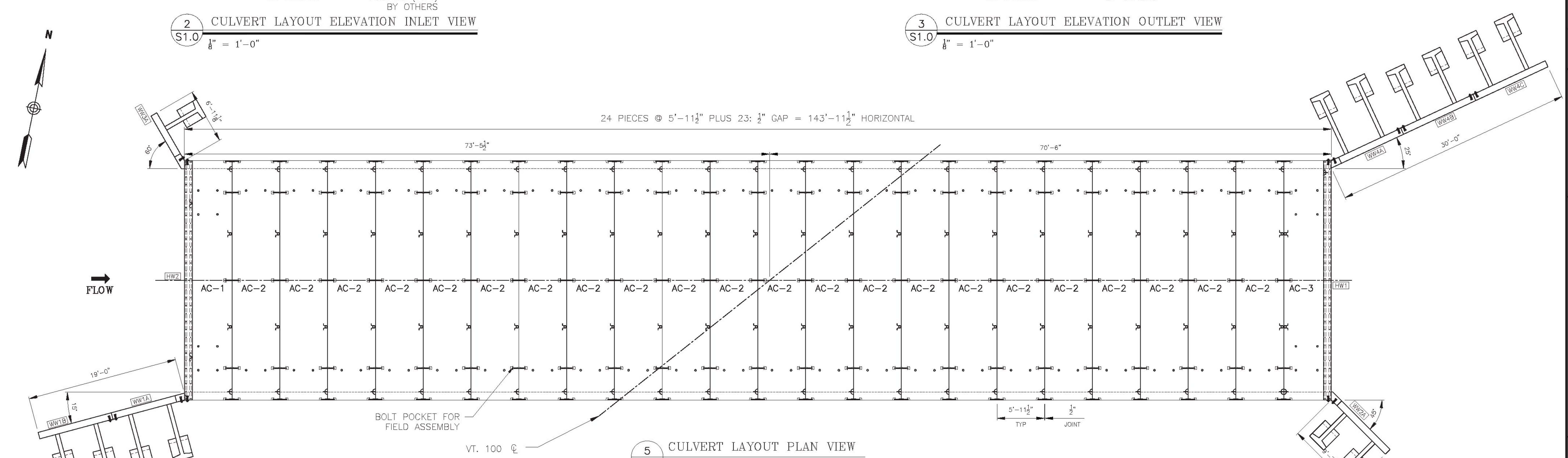
2 S1.0 CULVERT LAYOUT ELEVATION INLET VIEW
1/8" = 1'-0"



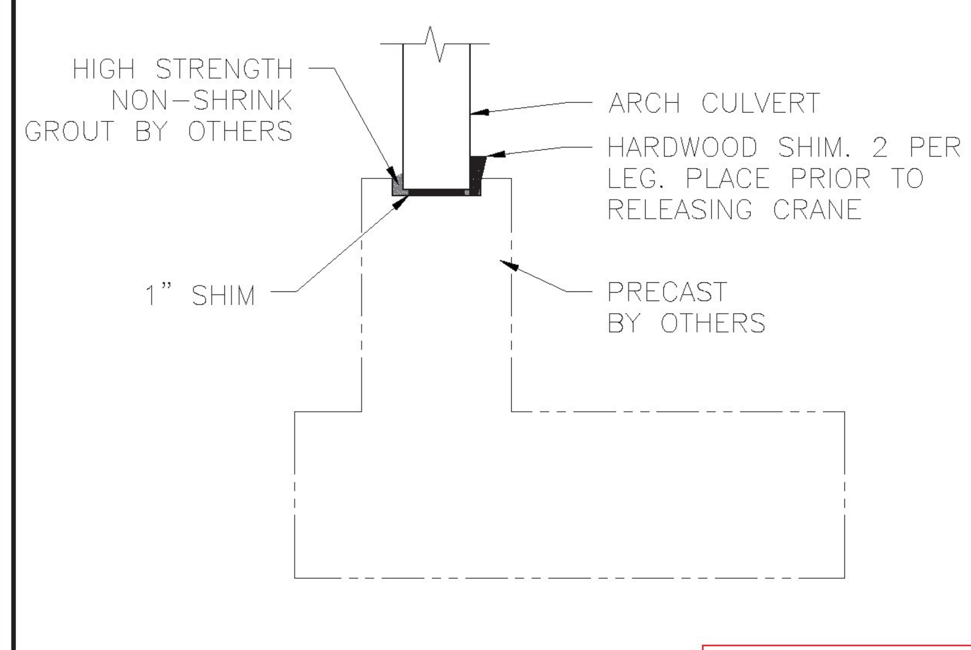
3 S1.0 CULVERT LAYOUT ELEVATION OUTLET VIEW
1/8" = 1'-0"

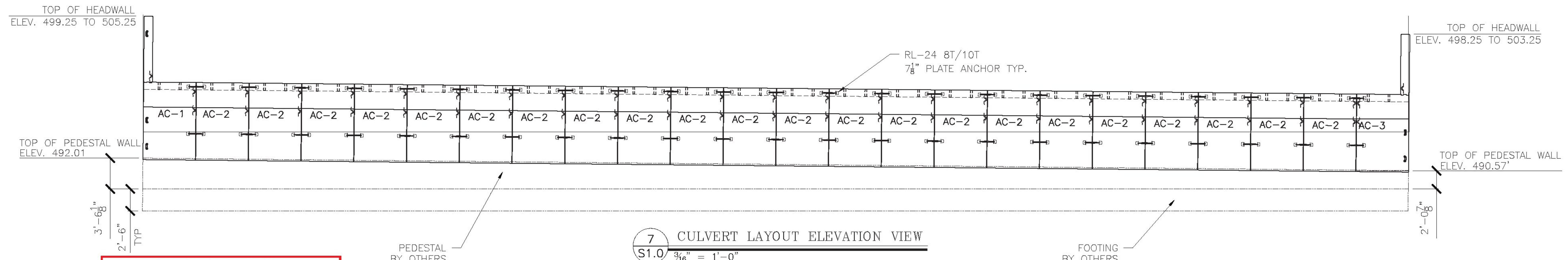


4 S1.0 WING WALL FOOTING SECTION
3/16" = 1'-0"



5 S1.0 CULVERT LAYOUT PLAN VIEW
3/16" = 1'-0"





7 S1.0 CULVERT LAYOUT ELEVATION VIEW
3/16" = 1'-0"

6 S1.0 CULVERT FOOTING SECTION
3/16" = 1'-0"

Design of lifting attachments in accordance with Subsections 540.04(h) and 105 is outstanding at this time. However, fabrication in accordance with these plans may proceed at the Fabricator's option with future submittal of the lifting device calculations.

T·Y·LIN INTERNATIONAL
The stamped documents are hereby:
____ Approved
__X_ Approved as noted
____ Revise and resubmit
See transmittal for additional information as applicable.
This review is for general conformance with design concept only. Any deviation from the plans or specifications not clearly noted by the Contractor has not been reviewed. Review by the Engineer shall not relieve the Contractor of the contractual responsibility for any errors or deviation from the contract requirements.
Josh Olund — Reviewer
09/13/2016 — Date

Vermont Agency of Transportation
RECEIVED
CK'D BY TYLin OK'D BY KMH
September 14, 2016
RESUBMIT No Approved AsNoted
BY Kristin Higgins DATE 09/14/2016

FOOTING NOTES:
BY OTHERS

LIST OF SHEETS:

S1.0 CULVERT LAYOUT—PLAN AND ELEVATION
S2.0 CULVERT SECTION AND ELEVATION
S3.0 CULVERT SECTIONS AND ELEVATIONS
S4.0 HEAD WALL DETAILS
S5.0 WINGWALL DETAILS
S6.0 WINGWALL DETAILS
S7.0 ANCHOR DETAILS
S8.0 LIFTING DETAILS

GENERAL NOTES:

1. THE PLANS ARE INTENDED TO BE DRAWN TO SCALE. HOWEVER, IF A CRITICAL DIMENSION IS NOT PROVIDED, MICHIE CORPORATION SHOULD BE CONTACTED FOR VERIFICATION.

2. IF ANY OF THE WORK TO BE DONE AS SHOWN ON THE DRAWINGS DOES NOT CORRESPOND WITH THE EXISTING FIELD CONDITIONS, CONTACT THE ENGINEER PRIOR TO PROCEEDING WITH THE WORK IN QUESTION.

3. FIELD—VERIFY ALL ELEVATIONS PRIOR TO THE START OF CONSTRUCTION. IF THERE ARE ANY DISCREPANCIES, CONSULT THE ENGINEER PRIOR TO PROCEEDING WITH THE WORK IN QUESTION.

4. MAINTAIN MINIMUM 60 DEGREE SLING ANGLE WHEN HANDLING PRECAST COMPONENTS.

5. PRECAST COMPONENTS SHALL REACH A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI PRIOR TO STRIPPING, AND THE MINIMUM DESIGN COMPRESSIVE STRENGTH PRIOR TO SHIPPING, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

6. HORIZONTAL JOINTS AND VOIDS SHALL BE FILLED WITH NON—SHRINK GROUT.

7. SHOP DRAWINGS WERE DEVELOPED USING THE FOLLOWING RESOURCES FOR THE CONTRACT:
- "TOWN OF DUXBURY, DUXBURY, VERMONT, VT100 ROAD CULVERT PROJECT PLANS.

8. IF THERE IS ADDITIONAL INFORMATION PERTINENT TO THE FABRICATION AND INSTALLATION OF THESE UNITS THAT IS NOT CONTAINED WITHIN THE RESOURCES LISTED ABOVE IT SHALL BE BROUGHT TO THE ATTENTION OF MICHIE CORPORATION. FAILURE TO MAKE SUCH ADDITIONAL INFORMATION AVAILABLE SHALL RELIEVE MICHIE CORPORATION OF ALL LIABILITIES ARISING FROM ERRORS OR OMISSIONS RELATED TO THE OMITTED INFORMATION.

9. ALL VOIDS SHALL BE FILLED WITH NON SHRINK GROUT.

ARCH CULVERT NOTES:

1. ARCH CULVERT SECTIONS ARE DESIGNED IN ACCORDANCE WITH
- AASHTO "LRFD BRIDGE DESIGN SPECIFICATIONS", 6TH EDITION.
- STANDARD SPECIFICATION AND GENERAL SPECIAL PROVISIONS SECTION 540.

2. THE FOLLOWING CRITERIA WAS USED FOR DESIGN:
- LIVE LOAD: HL—93
- EARTH COVER: 8.6 FEET
- BACKFILL SOIL UNIT WEIGHT: 140 PCF
- BACKFILL SOIL FRICTION ANGLE: 30 DEGREES
- CONCRETE STRENGTH: 6,500 PSI
- STEEL YIELD STRENGTH: 60,000 PSI

6,500 psi

3. ARCH CULVERT AND HEADWALL CONCRETE SHALL BE SELF—CONSOLIDATING CONFORMING TO SECTION 540 WITH A MINIMUM 28—DAY COMPRESSIVE STRENGTH OF 6,000 PSI. AGGREGATE SHALL CONFORM TO SECTION 540 WITH A MAXIMUM DIAMETER OF 3/4". CEMENT SHALL CONFORM TO ASTM C150. MICHIE MIX 6535CAS

4. REINFORCING SHALL BE GRADE 60, EPOXY COATED, CONFORMING TO ASTM A—615. ALL BARS SHALL BE BENT COLD.

5. ALL EXPOSED EDGES EXCEPT WHERE NOTED SHALL BE CHAMFERED 3/4".

6. SUBGRADE PREPARATION SHALL CONFORM TO PROJECT PLANS.

7. UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS, BACKFILL SHALL CONFORM TO VTRANS SECTION 708.04 GRANULAR BACKFILL FOR STRUCTURES. BACKFILL SHALL EXTEND BEYOND THE HORIZONTAL LIMITS OF THE STRUCTURE AS DETAILED IN THE CONTRACT DOCUMENTS. PLACEMENT SHALL CONFORM TO VTRANS SECTION 204.08.

8. EXPOSED SURFACES SHOULD BE COATED ONSITE WITH WATER REPELLENT, SILANE (SUPPLIED BY OTHERS).

9. EACH SECTION SHALL BE PROVIDED WITH BOLT POCKETS FOR ATTACHMENT TO ADJACENT SECTIONS. 7/8" DIA. GALV. THREADED ROD, WASHERS AND NUTS SHALL BE PROVIDED FOR ASSEMBLY IN THE FIELD. CLOSED—CELL NEOPRENE JOINT SEALANT SHALL BE USED IN ALL JOINTS UNLESS NOTED OTHERWISE.

10. 2FT WIDE ROYSTON JOINT WRAP WITH ADHESIVE PROVIDED BY MICHIE CORP, INSTALLED BY OTHERS, CENTER ON JOINT AFTER HORIZONTAL GROUTING. BARRIER MEMBRANE PROVIDED AND INSTALLED BY OTHERS OVER TOP OF STRUCTURE, AND DOWN SIDES TO 6" BELOW HORIZONTAL JOINT.

WING WALL NOTES:

1. SECTIONS ARE DESIGNED IN ACCORDANCE WITH
- AASHTO "LRFD BRIDGE DESIGN SPECIFICATIONS", 6TH EDITION
- STANDARD SPECIFICATION AND GENERAL SPECIAL PROVISIONS SECTION 540.

2. THE FOLLOWING SOIL PROPERTIES WERE USED IN THE DESIGN:

	SOIL WEIGHT [PCF]	FRICTION ANGLE [DEG]
• RETAINED SOIL	140	32
• FOUNDATION SOIL	140	32

- LIVE LOAD SURCHARGE = 2'
- BACKSLOPE ANGLE: ±8:1
- ALLOWABLE BEARING RESISTANCE = 6,000 PSF

3. CONCRETE SHALL BE SELF—CONSOLIDATING CONFORMING TO SECTION 540 WITH A MINIMUM 28—DAY COMPRESSIVE STRENGTH OF 4,000 PSI. AGGREGATE SHALL CONFORM TO SECTION 540 WITH A MAXIMUM DIAMETER OF 3/4". CEMENT SHALL CONFORM TO ASTM C150. MICHIE MIX 5035CAS.

4. REINFORCING SHALL BE GRADE 60, EPOXY COATED, CONFORMING TO ASTM A—774. ALL BARS SHALL BE BENT COLD.

5. ALL EXPOSED EDGES EXCEPT WHERE NOTED SHALL BE CHAMFERED 3/4".

6. UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS, BACKFILL SHALL CONFORM TO VTRANS SECTION 708.04 GRANULAR BACKFILL FOR STRUCTURES. BACKFILL SHALL EXTEND BEYOND THE HORIZONTAL LIMITS OF THE STRUCTURE AS DETAILED IN THE CONTRACT DOCUMENTS. PLACEMENT SHALL CONFORM TO VTRANS SECTION 204.08

CURING

1. THIS SECTION APPLIES TO ALL PRECAST PIECES CAST IN EACH RESPECTIVE LOT. AS SOON AS PRACTICAL AFTER CASTING, AND ONCE THE STRIPPING STRENGTH HAS BEEN ACHIEVED, THE PIECES WILL BE REMOVED FROM THE FORM AND PLACED ON FLAT BED TRAILERS. THE PIECES WILL THEN BE MOVED TO YARD STORAGE UNTIL DESIGN STRENGTH IS MET AND THEY CAN BE STAGED FOR SHIPPING/STORING.

FINISH

1. ALL PRECAST COMPONENTS WILL HAVE A STEEL FORM FINISH ON THE VISIBLE FACES. THE BURIED SIDE OF THE WINGWALLS AND CURBWALLS WILL BE THE POUR FACE AND WILL HAVE A STEEL TROWEL FINISH. THE ARCH SECTIONS WILL HAVE A STEEL FORM FINISH ON ALL FACES EXCEPT ONE END FOR POURING, THIS END WILL HAVE A STEEL TROWEL FINISH.
2. ANY AND ALL REPAIR PROCEDURES WILL ADHERE TO NPCA BEST PRACTICES, AND WILL BE GENERATED SPECIFICALLY FOR THE APPLICATION AT THE TIME OF NEED.

HANDLING/STORAGE

1. ONCE STRIPPING STRENGTH HAS BEEN ACHIEVED, ALL PRECAST COMPONENTS WILL BE REMOVED FROM THE FORMS USING OVERHEAD CRANES. THE PIECES WILL THEN BE PLACED ON FLATBED TRAILERS AND TRANSPORTED TO THE STORAGE YARD WHERE THEY WILL EITHER BE PLACED ON DUNNAGE (WINGWALLS) OR DIRECTLY ON THE GROUND (CULVERT). ONCE DESIGN STRENGTH HAS BEEN MET THEY WILL BE HANDLED USING THE INDICATED LIFTERS/ANCHORS AND APPROPRIATE RIGGING, IN PREPARATION FOR SHIPPING ON FLAT BED TRAILERS. PLACEMENT OF THE DUNNAGE WILL GENERALLY FOLLOW THE 1/4 RULE OR BE PLACED UNDER THE LIFTERS, HOWEVER FINAL DECISIONS REGARDING PLACEMENT WILL BE THAT OF THE MANUFACTURER/DESIGNER.

PRODUCTION CONTROL PROCEDURES

1. CYLINDER SAMPLING AND CURING:
A. A MINIMUM OF EIGHT (8) CYLINDERS PER LOT WILL BE MADE IN ACCORDANCE WITH ASTM C31. CYLINDERS WILL BE TESTED IN ACCORDANCE WITH ASTM C39.
B. UNIT WEIGHT (ASTM CI38), AIR CONTENT (ASTM C231), SPREAD PER SCC GUIDELINES, AND TEMPERATURE TESTS WILL BE TAKEN INITIALLY FOR EACH BATCH. NOT TO EXCEED NINE (9) CUBIC YARDS. THE FREQUENCY OF SOME TESTS MAY BE REDUCED WHEN THE VTRANS REPRESENTATIVE DETERMINES THAT THE PRECASTER IS CONSISTENT IN HIS BATCHING OPERATION. THESE TESTS WILL BE TAKEN PRIOR TO PLACING CONCRETE IN FORM.

NOTE: 1 AIR TEST PER BATCH (OR DELIVERY TRUCK) IS REQUIRED, AND SHALL NOT BE REDUCED

C. ALL CAST CYLINDERS WILL BE CURED IN THE SAME MANNER AS THE PIECES THEY REPRESENT.

2. CYLINDER BREAKS:
A. FOR EARLY STRENGTH VERIFICATION, CYLINDERS MAY BE BROKEN AT ANY TIME UP TO 28 DAYS AFTER CASTING. IF THE AVERAGE STRENGTH OF TWO (2) CYLINDERS MEETS OR EXCEEDS THE REQUIRED 28 DAY STRENGTH (WITH EACH CYLINDER HAVING A MINIMUM OF 95% OF THE REQUIRED 28 DAY STRENGTH), THE LOT SHALL BE ACCEPTED FOR STRENGTH.

3. QUALITY CONTROL TEST AND EQUIPMENT:

CYLINDER TESTER:	FORNEY 500 SERIES WITH DR—2 DIGITAL READOUT CALIBRATED BIANNUALLY
AIR METER:	PRESSURE METER BY FORNEY (CALIBRATED MONTHLY)
SLUMP CONE:	STANDARD 8" BASE, 4" AT RIM, 12" IN HEIGHT MEASURED IN ACCORDANCE WITH SCC GUIDELINES
SCALES FOR UNIT WEIGHT:	MEASURED IN ACCORDANCE WITH ASTM C143 100 LBS. CAPACITY CALIBRATED ANNUALLY TO THE NEAREST 1/10TH POUND
CYLINDER MOLDS:	4" DIAMETER X 8" PLASTIC

4. CONCRETE TESTING AND AIR METER CALIBRATION WILL BE DONE BY PLANT PERSONNEL (ACI GRADE I CERTIFIED) ALL TESTING PRODUCERS WILL BE OBSERVED BY VERMONT INSPECTORS OR AUTHORIZED REPRESENTATIVES.

No.	Date	Revision	By

STATE OF VERMONT — DARYL D. BURNS — No. 9031 — Structural I — LICENSED PROFESSIONAL ENGINEER — 9/12/16

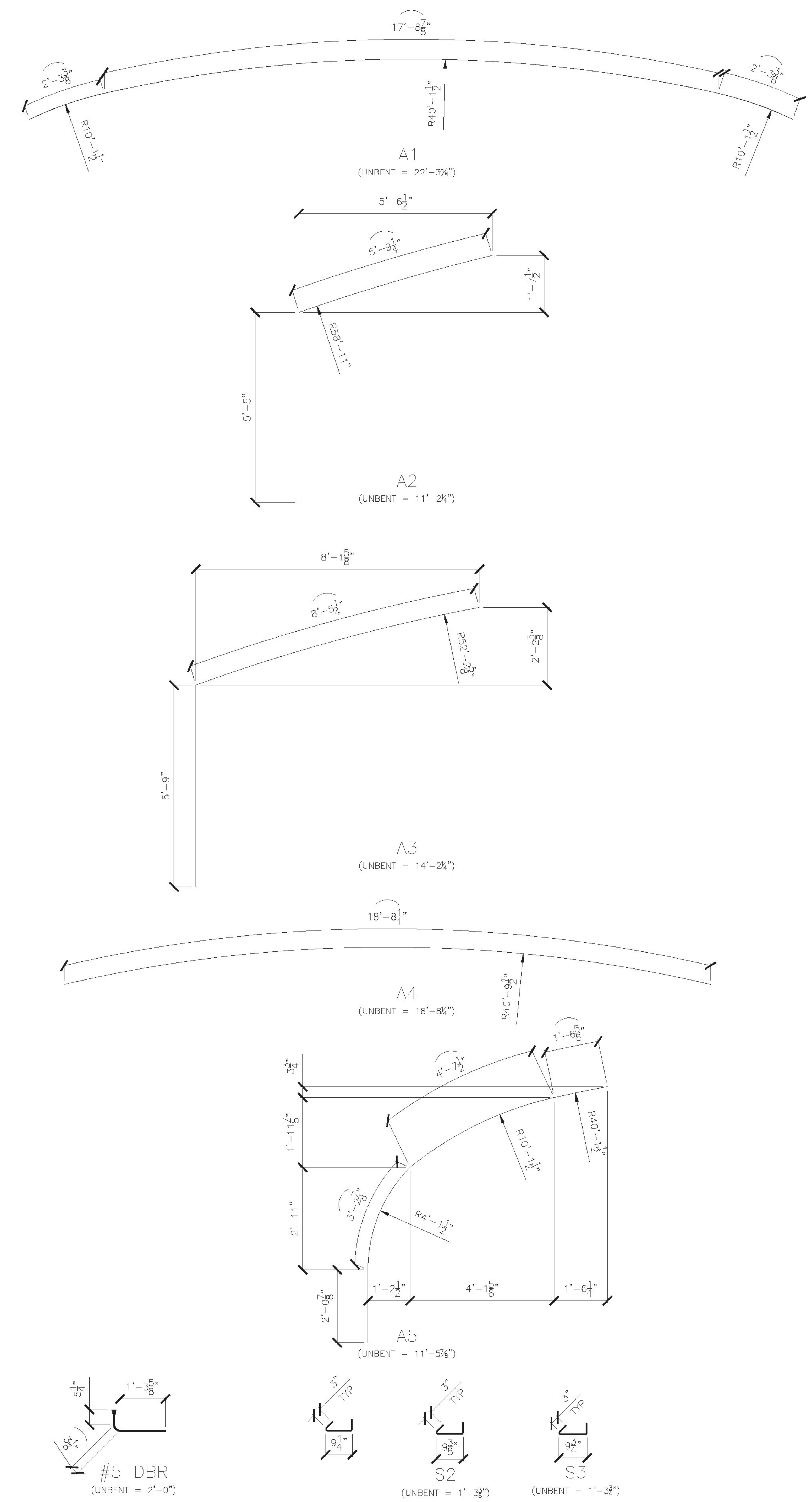
DESIGNED AND DETAILED BY;
DELTA
ENGINEERS, ARCHITECTS, & LAND SURVEYORS
860 HOOPER ROAD, ENDWELL, NY 13760-1564
TEL: (607) 231-6600 FAX: (607) 231-6650

VT 100 Road Culvert
Duxbury, Vermont
Culvert Layout - Plan and Elevation

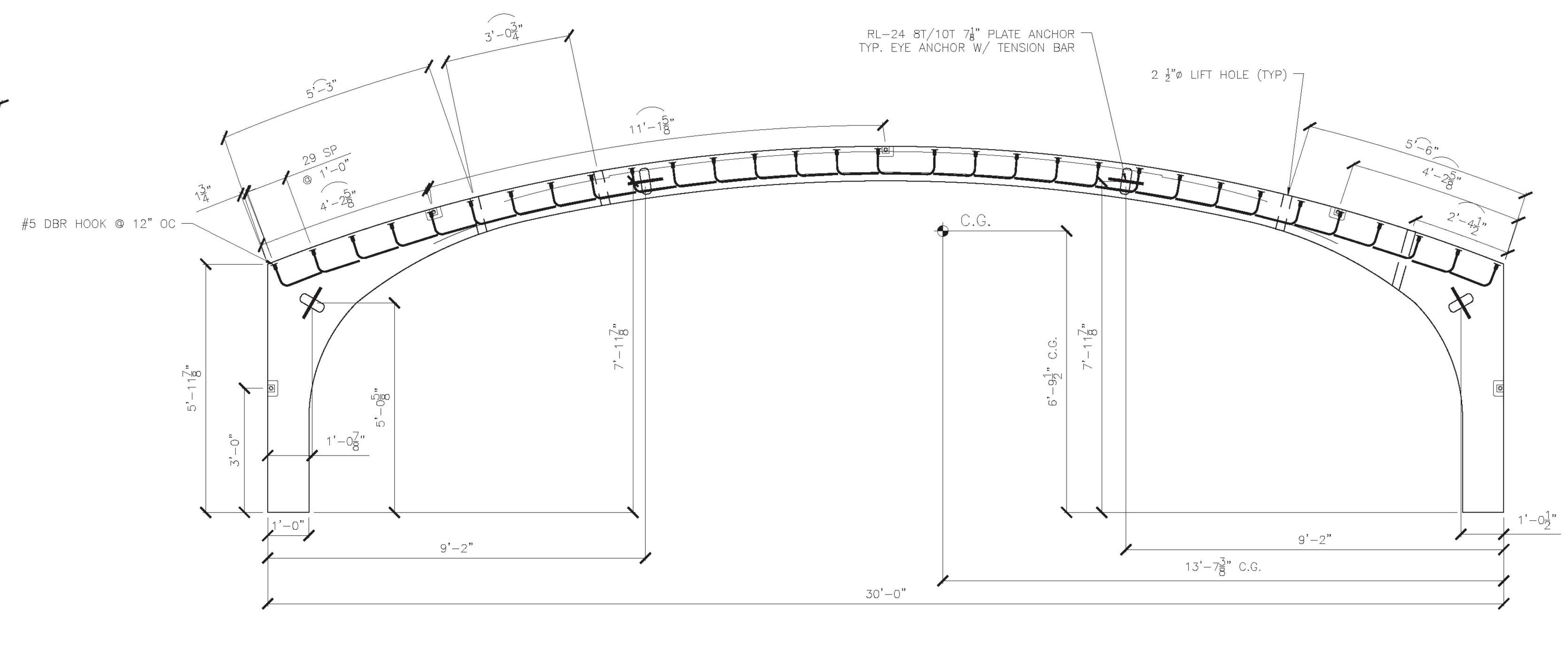
Scale: AS SHOWN
Project No. 7347 | Date: 6/29/16 | Designed by: DELTA | Drawn by: GSC | Checked by:

PREPARED FOR ;
MICHIE
MICHIE CORPORATION, INC.
173 BUXTON INDUSTRIAL DRIVE-PO BOX 870
HENNIKER, NH 03242
PHONE: 603-428-3218
FAX: 603-428-7426

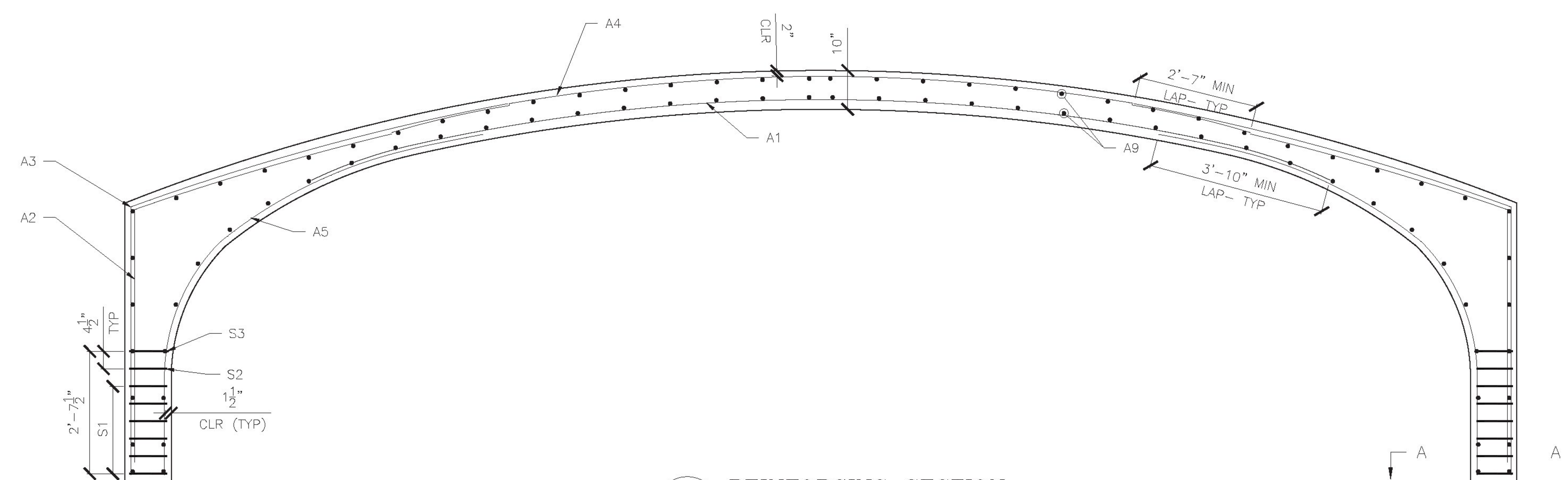
DWG NO.
S1.0



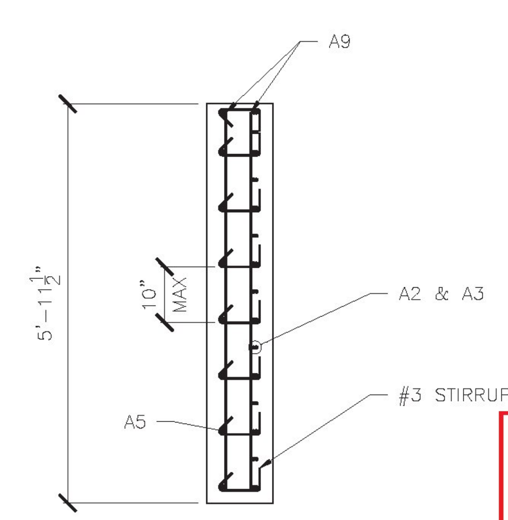
A1 (UNBENT = 22'−3⅝") · A2 (UNBENT = 11'−2¼") · A3 (UNBENT = 14'−2¼") · A4 (UNBENT = 18'−8¼") · A5 (UNBENT = 11'−5⅞") · #5 DBR (UNBENT = 2'−0") · S2 (UNBENT = 1'−3⅜") · S3 (UNBENT = 1'−3¾")



1/S2.0 ELEVATION VIEW
⅜" = 1'−0"
AC−1 SHOWN, AC−3 SIMILAR



2/S2.0 REINFORCING SECTION
⅜" = 1'−0"



SECTION A−A

Vermont Agency of Transportation
RECEIVED
CK'D BY TYLin OK'D BY KMH
September 14, 2016
RESUBMIT No Approved
BY Kristin Higgins DATE 09-14-2016

T·Y·LIN INTERNATIONAL
The stamped documents are hereby:
___ Approved
_X_ Approved as noted
___ Revise and resubmit
See transmittal for additional information as applicable.
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Josh Olund 09/13/2016
Reviewer Date

REINFORCING SCHEDULE

BAR MARK	TYPE	SIZE/SPACING	CUT LENGTH	# OF PCS
A1	RADIUS	#6@5"	22'−3⅝"	15
A2	L	#5@5"	11'−2¼"	30
A3	L	#6@5"	14'−2¼"	30
A4	RADIUS	#4@10"	18'−8¼"	8
A5	L	#6@10"	11'−5⅞"	8/LEG
A9	STRAIGHT	#4@12"	5'−7½"	84
S1	STIRRUP	#3@4½"	1'−3¼"	48/LEG
S2	STIRRUP	#3@4½"	1'−3⅜"	8/LEG
S3	STIRRUP	#3@4½"	1'−3¾"	8/LEG

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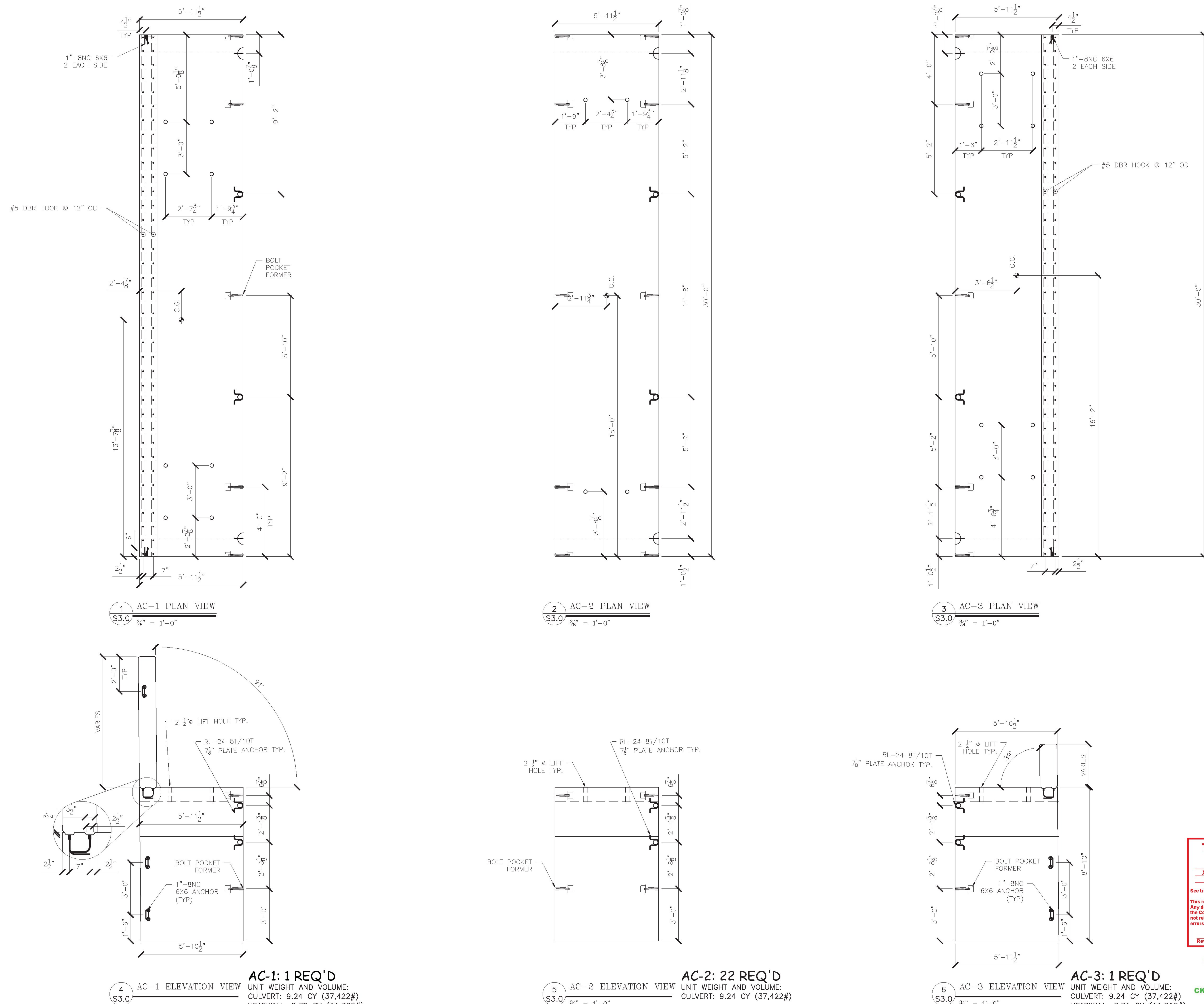
860 HOOPER ROAD, ENDWELL, NY 13760-1564
TEL (607) 231-6600 FAX (607) 231-6650

VT 100 Road Culvert
Duxbury, Vermont
Culvert Section and Elevation

Scale: AS SHOWN
Checked by:
Drawn by: GSC
Designed by: DELTA
Project No. 7347
Date: 6/29/16

PREPARED FOR:
MICHIE CORPORATION, INC.
173 BUXTON INDUSTRIAL DRIVE-PO BOX 870
HENNIKER, NH 03242
PHONE 603-428-3218
FAX 603-428-7426

DWG NO.
S2.0



AC-1: 1 REQ'D
UNIT WEIGHT AND VOLUME:
CULVERT: 9.24 CY (37,422#)
HEADWALL: 2.79 CY (11,300#)
TOTAL WEIGHT: 48,722#

AC-2: 22 REQ'D
UNIT WEIGHT AND VOLUME:
CULVERT: 9.24 CY (37,422#)
TOTAL WEIGHT: 37,422#

AC-3: 1 REQ'D
UNIT WEIGHT AND VOLUME:
CULVERT: 9.24 CY (37,422#)
HEADWALL: 2.71 CY (11,016#)
TOTAL WEIGHT: 48,438#

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Josh Olund 09/13/2016
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No.	Date	Revision	By

STATE OF VERMONT
DARYL D. BURNS
No. 9031
Structural I
LICENSED PROFESSIONAL ENGINEER
9/12/16

DESIGNED AND DETAILED BY;
DELTA
ENGINEERS, ARCHITECTS, & LAND SURVEYORS
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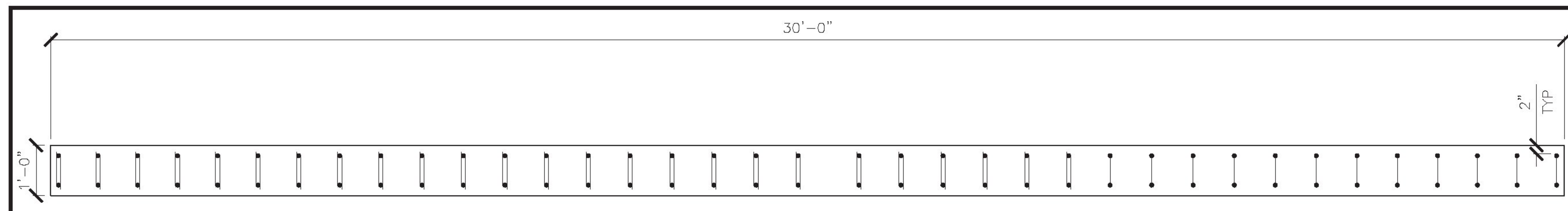
VT 100 Road Culvert
Duxbury, Vermont
Culvert Plans And Elevations

Scale: AS SHOWN
Project No. 7347
Date: 6/29/16
Designed by: DELTA
Drawn by: GSC
Checked by:

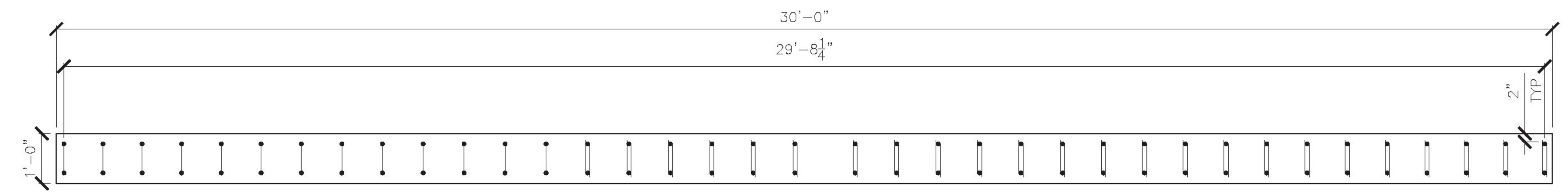
PREPARED FOR ;
MICHIE
MICHIE CORPORATION, INC.
173 BUXTON INDUSTRIAL DRIVE-PO BOX 870
HENNIKER, NH 03242
PHONE: 603-428-3218
FAX: 603-428-7426

DWG NO.
S3.0



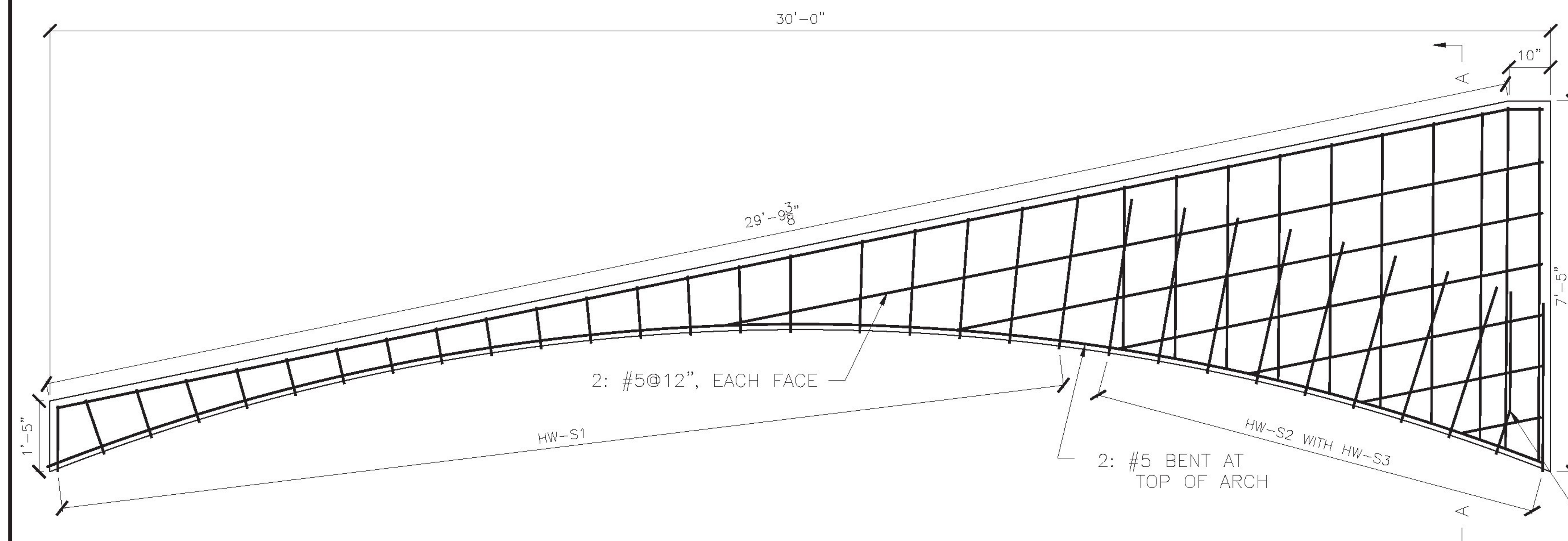
1 S4.0 INLET HEAD WALL PLAN VIEW
½" = 1'-0"

HW2 ONE REQUIRED
EACH PIECE WEIGHS: 11,300 LB
HEAD WALL: 2.79 CY

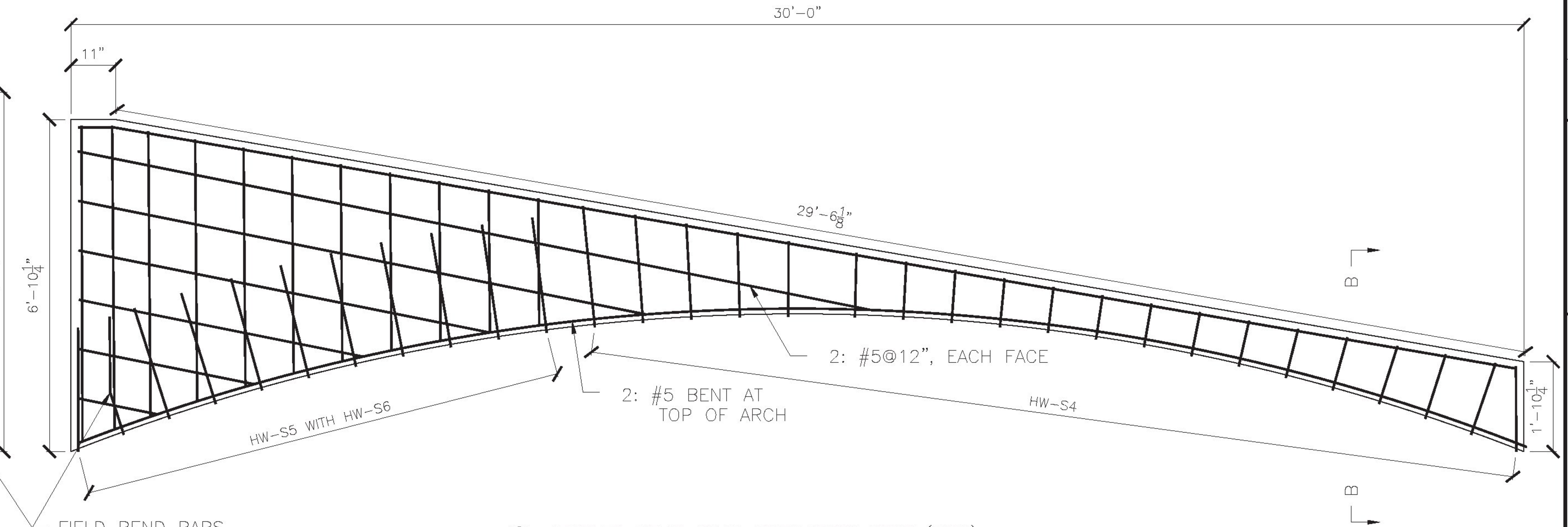


2 S4.0 OUTLET HEAD WALL PLAN VIEW
½" = 1'-0"

HW1 ONE REQUIRED
EACH PIECE WEIGHS: 11,016 LB
HEAD WALL: 2.72 CY

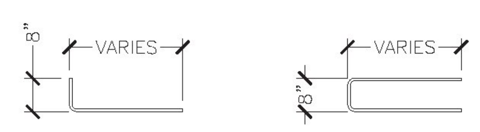


FIELD BEND BARS



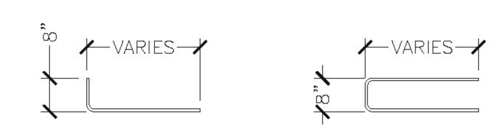
3 S4.0 INLET HEAD WALL ELEVATION VIEW (HW2)
½" = 1'-0"

4 S4.0 OUTLET HEAD WALL ELEVATION VIEW (HW1)
½" = 1'-0"



MK-HW-S1 "L" BAR

MK-HW-S2 "U" BAR



MK-HW-S4 "L" BAR

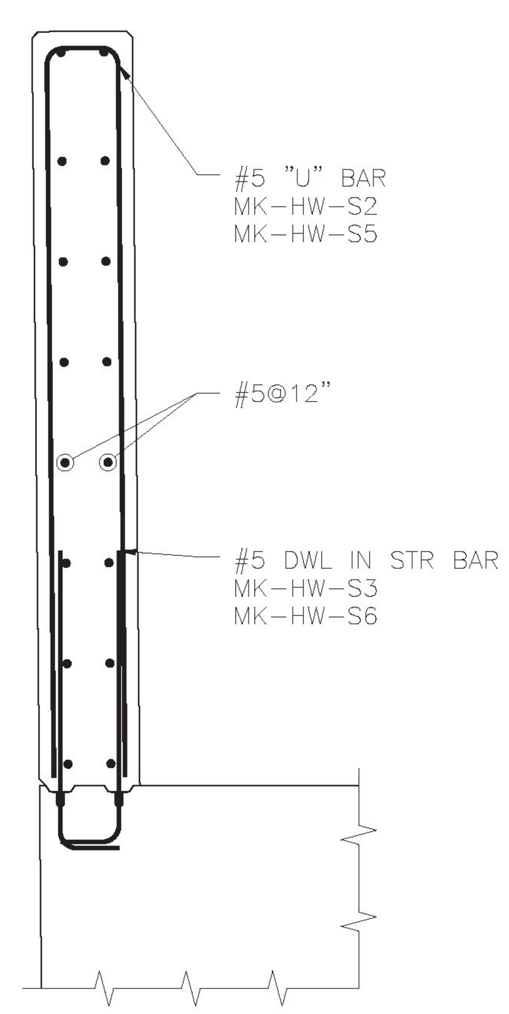
MK-HW-S5 "U" BAR

INLET HW2 REINFORCING SCHEDULE				
BAR MARK	TYPE	SIZE/SPACING	CUT LENGTH	# OF PCS
MK-HW-S1	BENT	#5@10"	1'-4$\frac{3}{16}$" TO 3'-7½"	21
MK-HW-S2	BENT	#5@10"	6'-11½" TO 14'-9¼"	10
MK-HW-S3	STRAIGHT DWL IN	#5	3'-2"	20

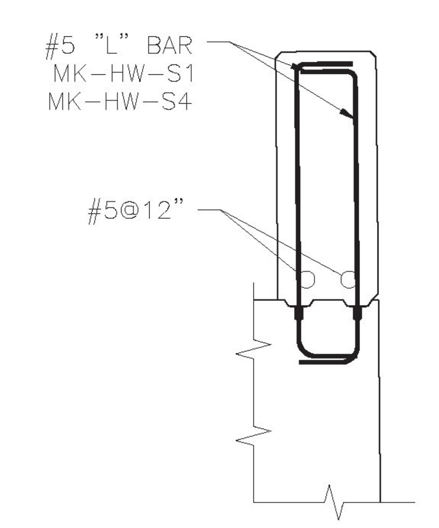
ALL REBAR TO BE EPOXY COATED

OUTLET HW1 REINFORCING SCHEDULE				
BAR MARK	TYPE	SIZE/SPACING	CUT LENGTH	# OF PCS
MK-HW-S4	BENT	#5@10"	1'-6½" TO 3'-0¾"	27
MK-HW-S5	BENT	#5@10"	5'-8½" TO 13'-7½"	11
MK-HW-S6	STRAIGHT DWL IN	#5	3'-2"	22

ALL REBAR TO BE EPOXY COATED



SECTION A-A



SECTION B-B

Vermont Agency of Transportation
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RESUBMIT No Approved
BY Kristin Higgins DATE 09-14-2016

T·Y·LIN INTERNATIONAL
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_____ Approved as noted
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Josh Olund 09/13/2016
Reviewer Date

No. | Date | Revision | By

STATE OF VERMONT DARYL D. BURNS No. 9031 Structural I LICENSED PROFESSIONAL ENGINEER 9/12/16

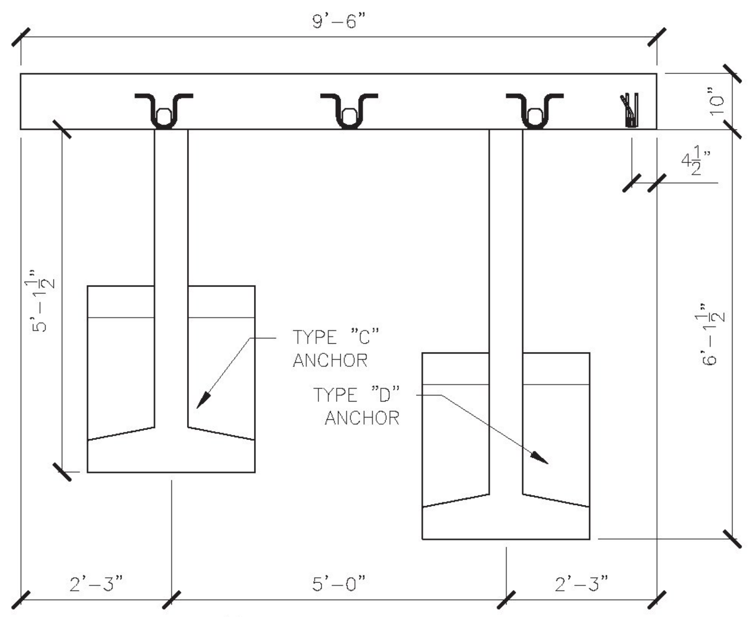
DESIGNED AND DETAILED BY;
DELTA
ENGINEERS, ARCHITECTS, & LAND SURVEYORS
860 HOOPER ROAD, ENDWELL, NY 13760-1564
TEL: (607) 231-6600 FAX: (607) 231-6650

VT 100 Road Culvert
Duxbury, Vermont
Head Wall Details

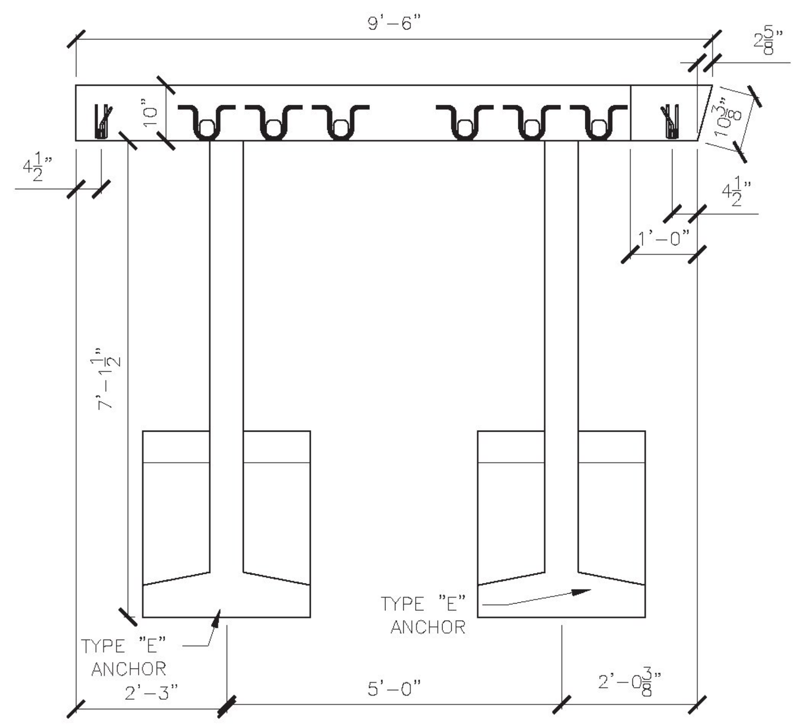
Scale: AS SHOWN
Project No. 7347
Date: 6/29/16 | Designed by: DELTA | Drawn by: GSC | Checked by:

PREPARED FOR ;
MICHIE
MICHIE CORPORATION, INC.
173 BUXTON INDUSTRIAL DRIVE-PO BOX 870
HENNIKER, NH 03242
PHONE: 603-428-3218
FAX: 603-428-7426

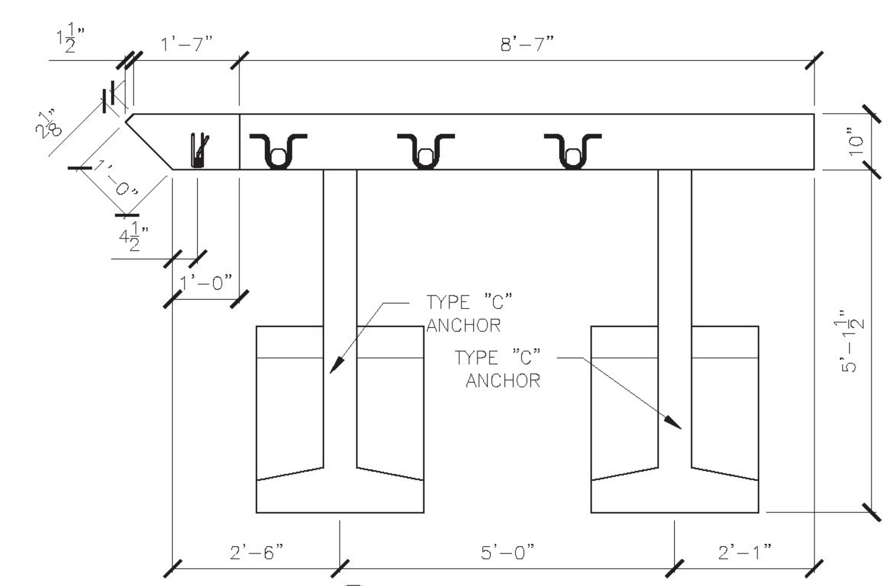
DWG NO.
S4.0



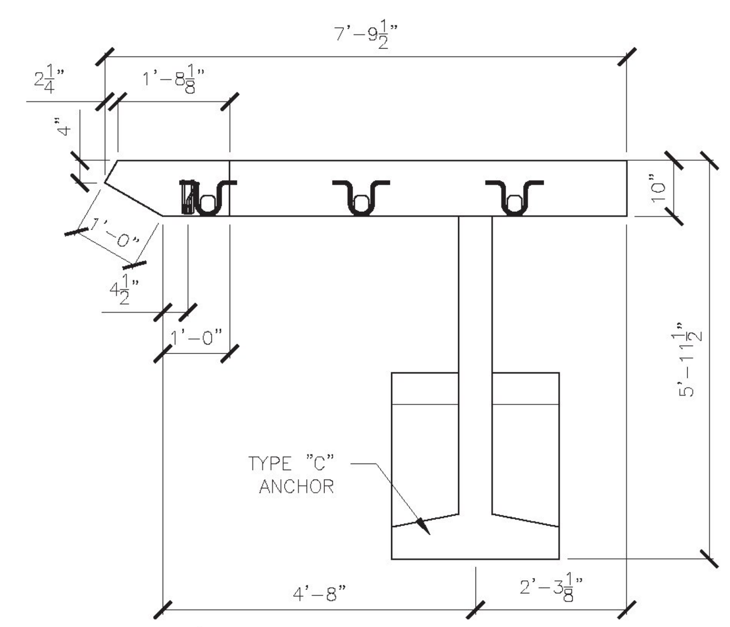
1 WW1B PLAN VIEW S5.0 ½" = 1'-0"



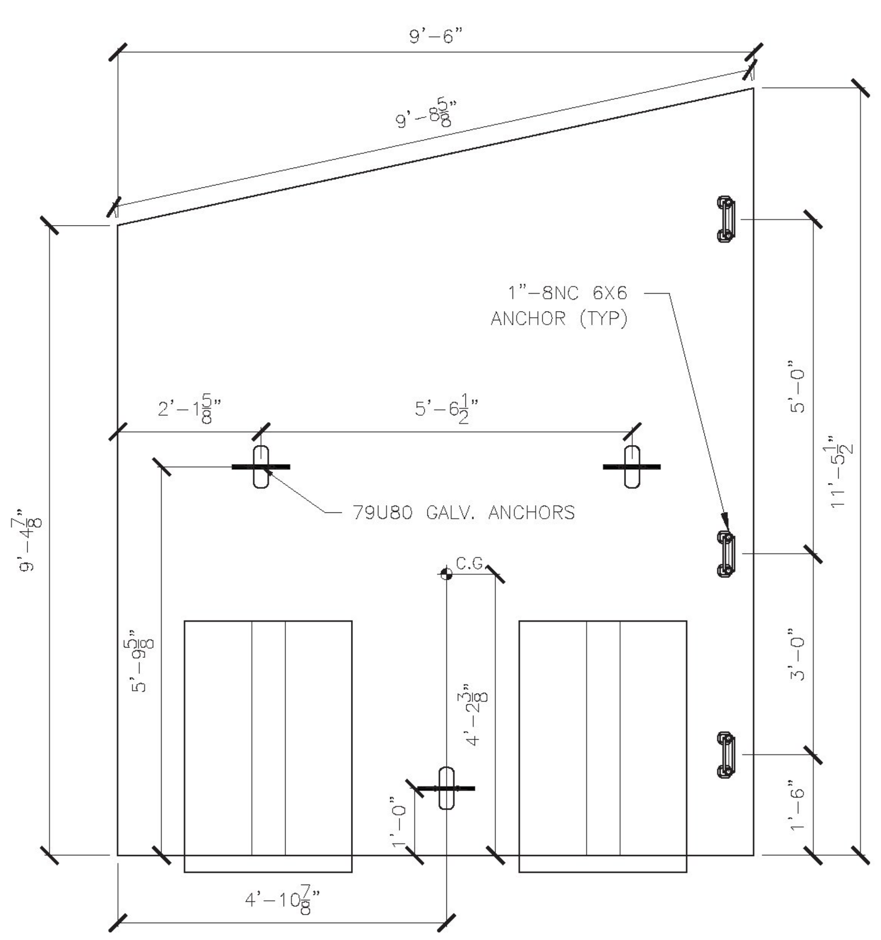
2 WW1A PLAN VIEW S5.0 ½" = 1'-0"



3 WW2A PLAN VIEW S5.0 ½" = 1'-0"

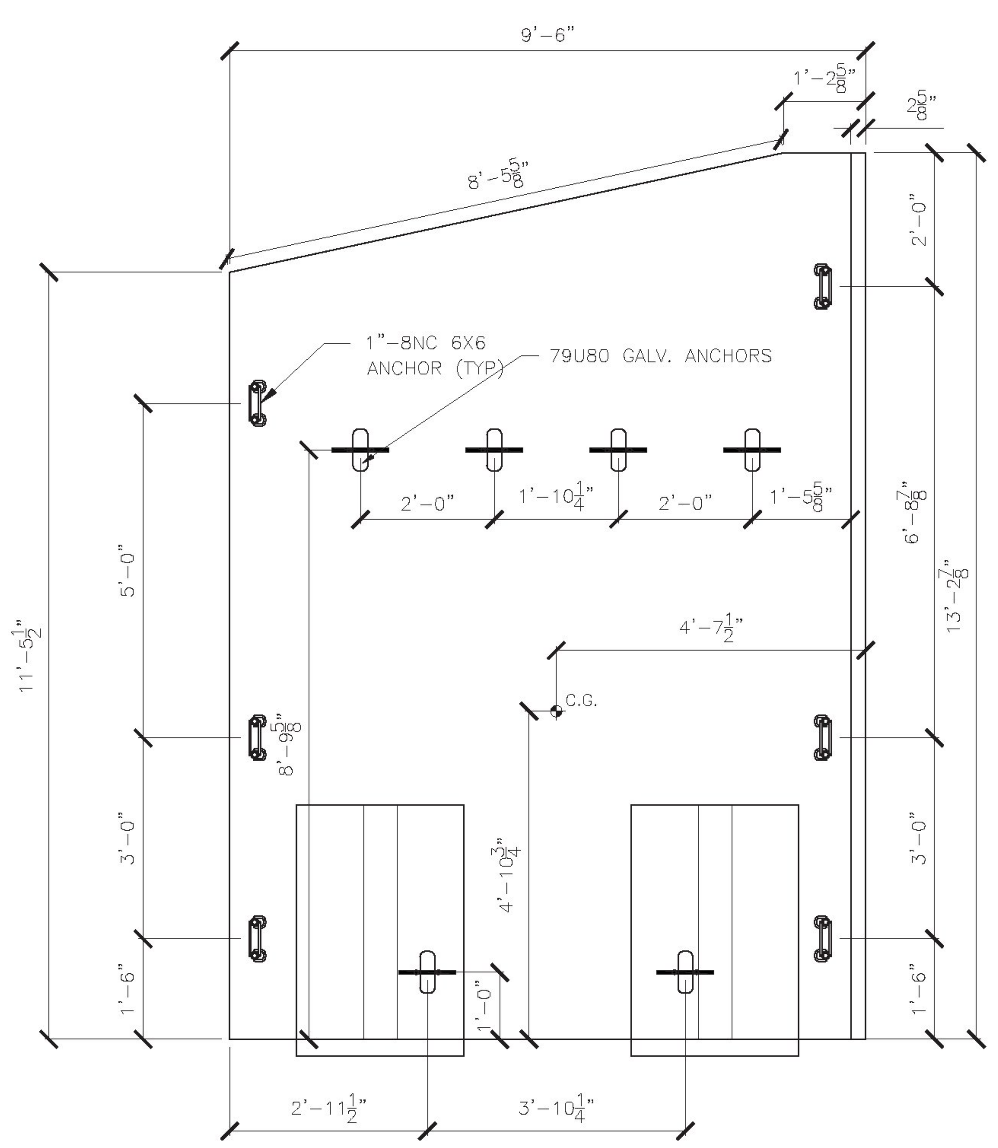


4 WW3A PLAN VIEW S5.0 ½" = 1'-0"



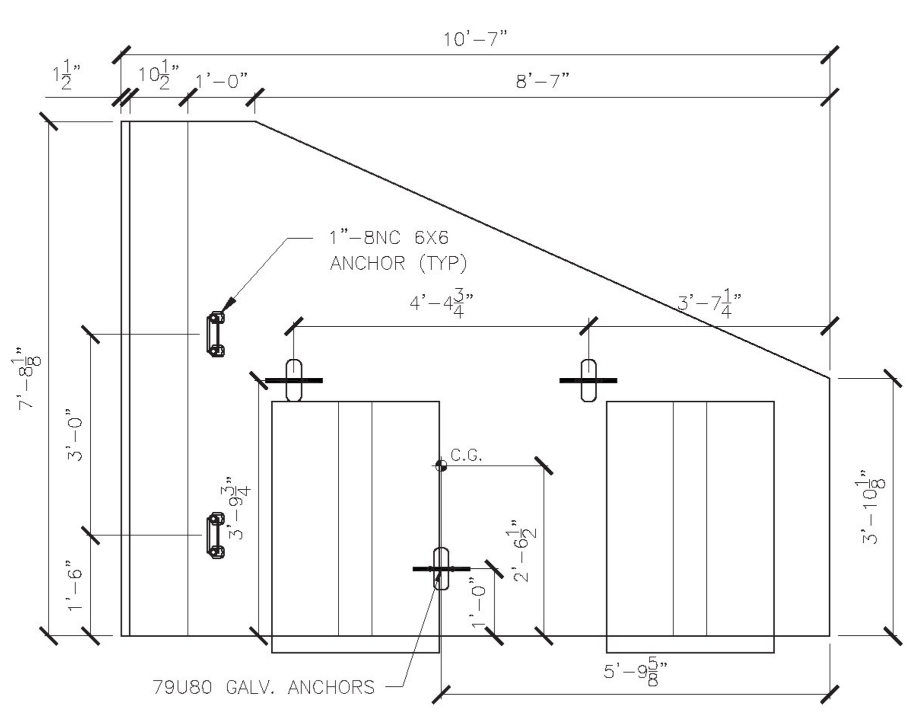
5 WW1B ELEVATION S5.0 ½" = 1'-0"

1 WW1B REQUIRED
UNIT WEIGHT AND VOLUME:
TOTAL: 16,478#
WALL: (2.98 CY)
D ANCHOR: 0.58 CY
C ANCHOR: 0.51 CY



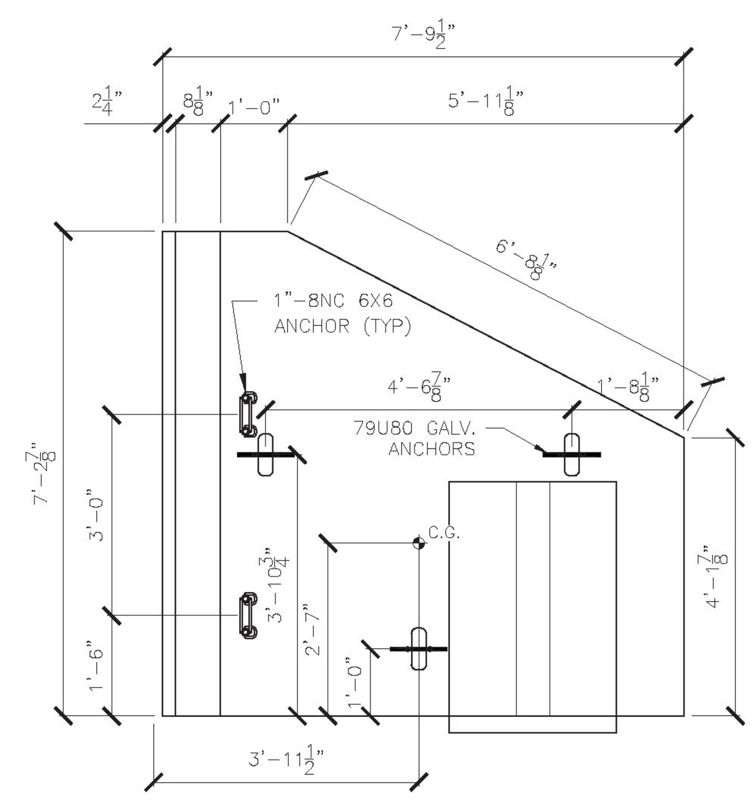
6 WW1A ELEVATION S5.0 ½" = 1'-0"

1 WW1A REQUIRED
UNIT WEIGHT AND VOLUME:
TOTAL: 19,619#
WALL: (3.56 CY)
E ANCHOR: 0.64 CY
E ANCHOR: 0.64 CY



7 WW2A ELEVATION S5.0 ½" = 1'-0"

1 WW2A REQUIRED
UNIT WEIGHT AND VOLUME:
TOTAL: 11,688#
WALL: (1.87 CY)
C ANCHOR: 0.51 CY
C ANCHOR: 0.51 CY



8 WW3A ELEVATION S5.0 ½" = 1'-0"

1 WW3A REQUIRED
UNIT WEIGHT AND VOLUME:
TOTAL: 7,540#
WALL: (1.35 CY)
C ANCHOR: 0.51 CY

Vermont Agency of Transportation
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BY Kristin Higgins DATE 09-14-2016

TYLIN INTERNATIONAL
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Approved
X Approved as noted
Revise and resubmit
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Josh Olund 09/13/2016
Reviewer Date

No. Date Revision By

DESIGNED AND DETAILED BY:
DELTA
ENGINEERS, ARCHITECTS, & LAND SURVEYORS

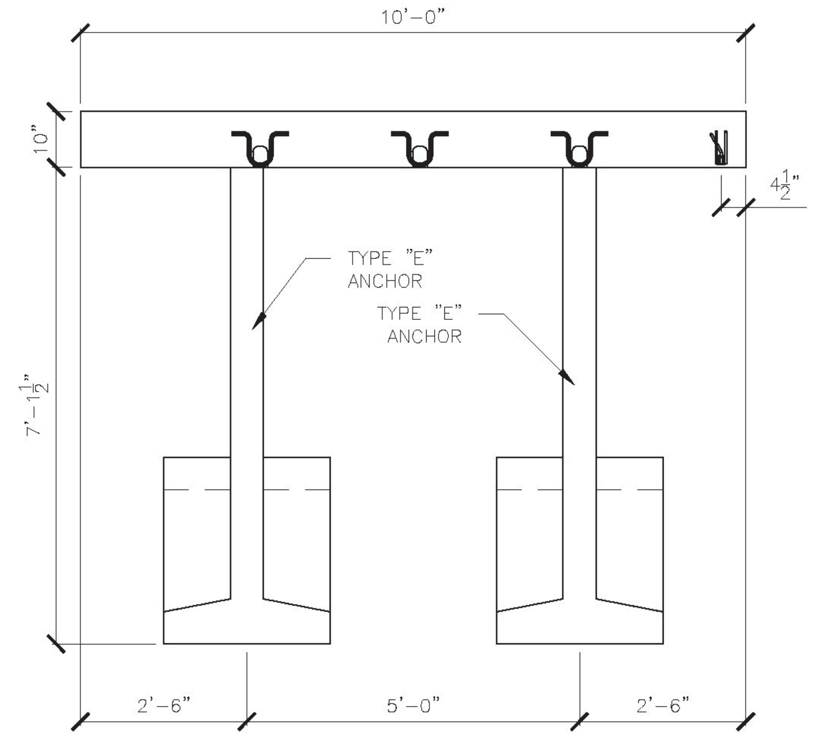
Scale: AS SHOWN

VT 100 Road Culvert
Duxbury, Vermont
Wingwall Details

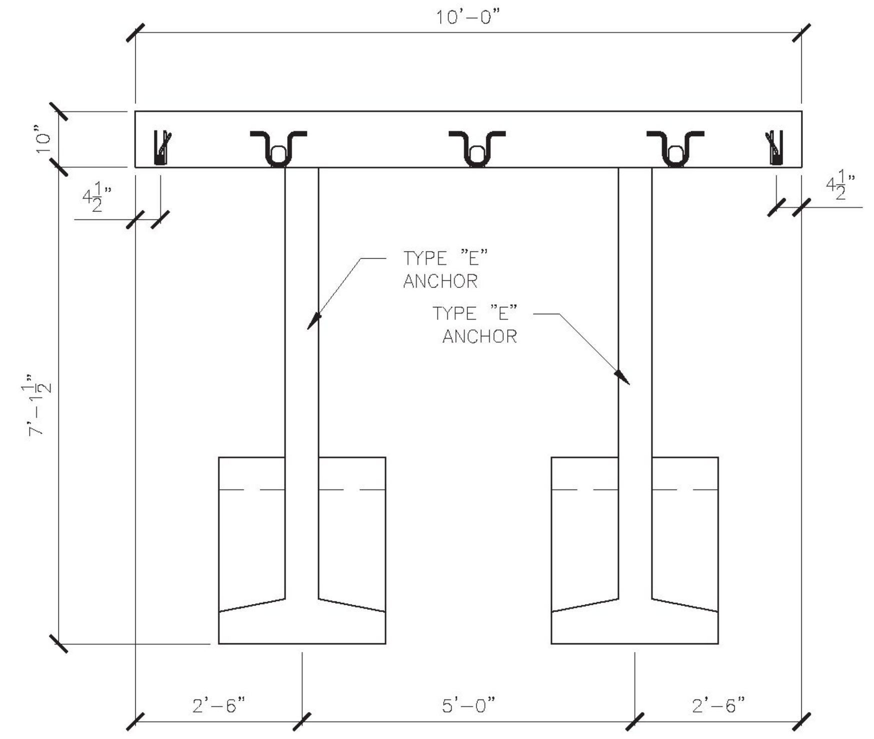
Project No. 7347 Date: 6/29/16 Designed by: DELTA Drawn by: OSC Checked by:

PREPARED FOR:
MICHIE CORPORATION, INC.
173 BUXTON INDUSTRIAL DRIVE-PO BOX 870
HENNIKER, NH 03242
PHONE 603-428-7426
FAX 603-428-7426

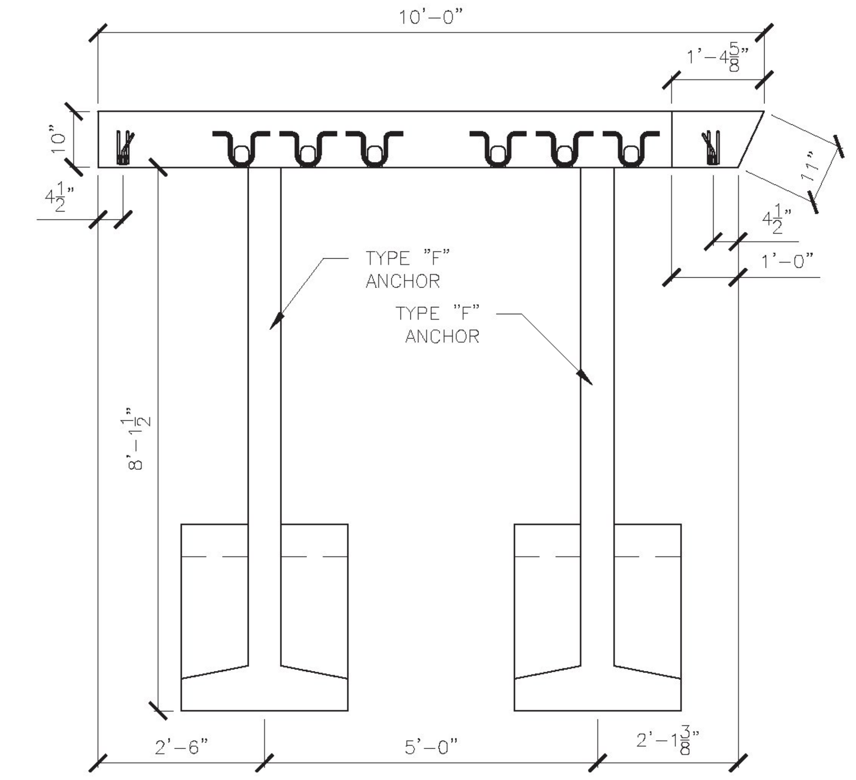
DWG NO.
S5.0



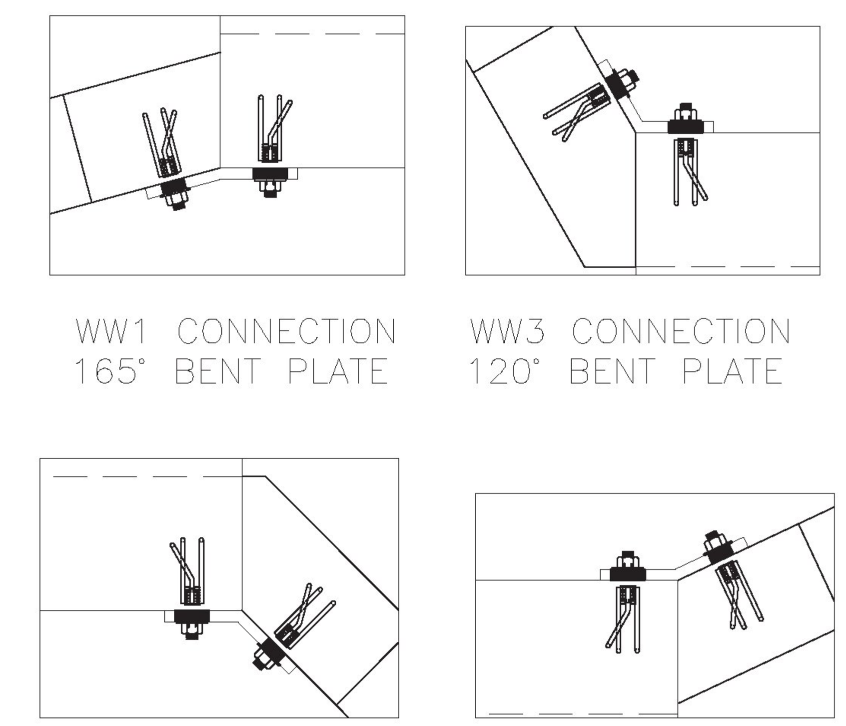
1 WW4C PLAN VIEW
S6.0 ½" = 1'-0"



2 WW4B PLAN VIEW
S6.0 ½" = 1'-0"



3 WW4A PLAN VIEW
S6.0 ½" = 1'-0"

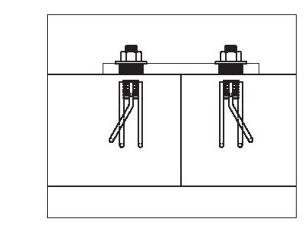


WW1 CONNECTION
165° BENT PLATE

WW3 CONNECTION
120° BENT PLATE

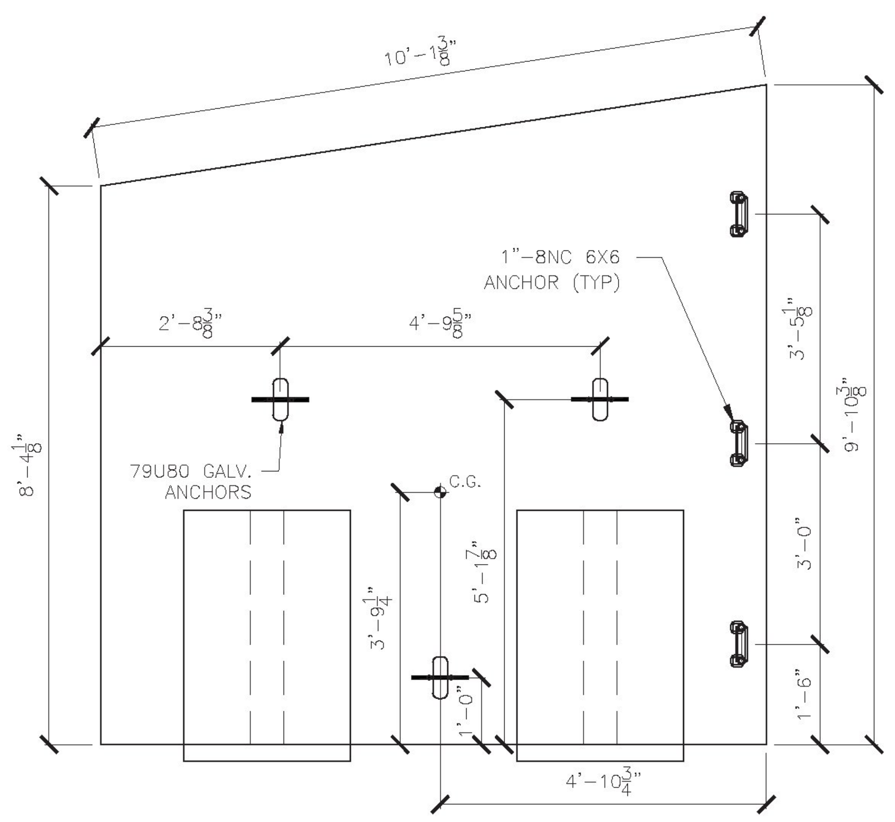
WW2 CONNECTION
135° BENT PLATE

WW4 CONNECTION
155° BENT PLATE



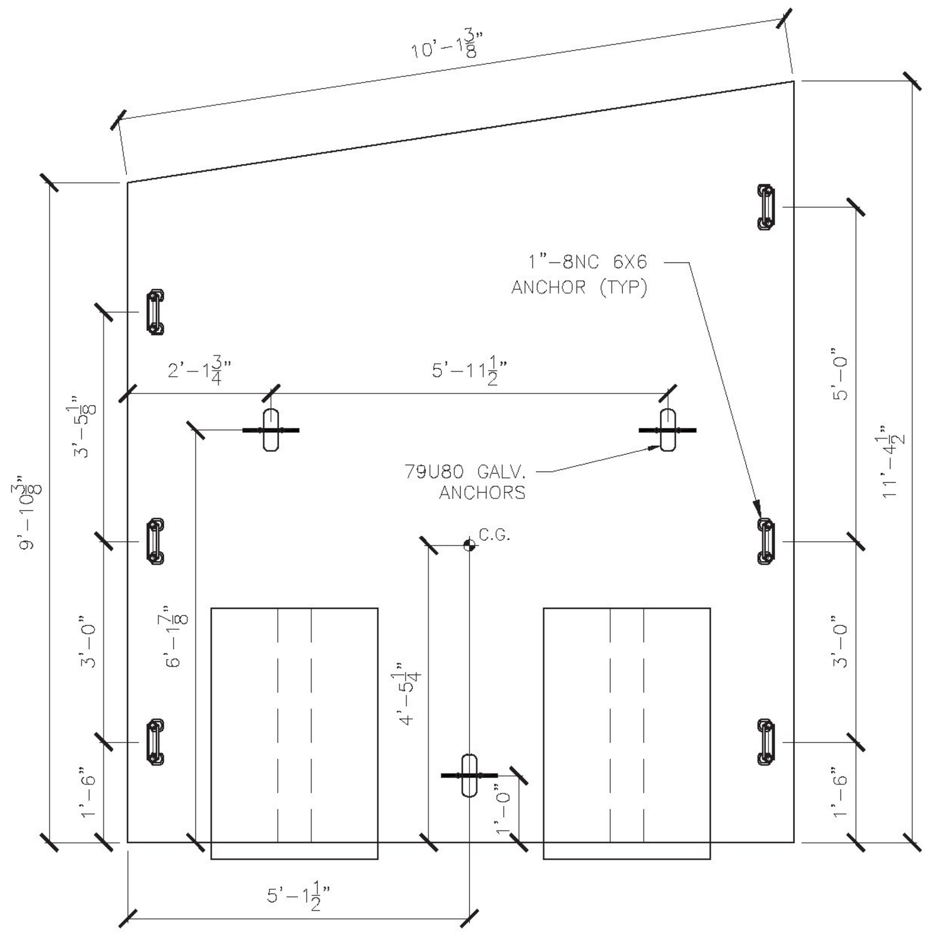
MIDWALL CONNECTION
180° PLATE

ALL CONNECTIONS USE
1" – 8NC 6X6 DOUBLE
WINGWALL ANCHORS
WITH 1" BENT PLATES



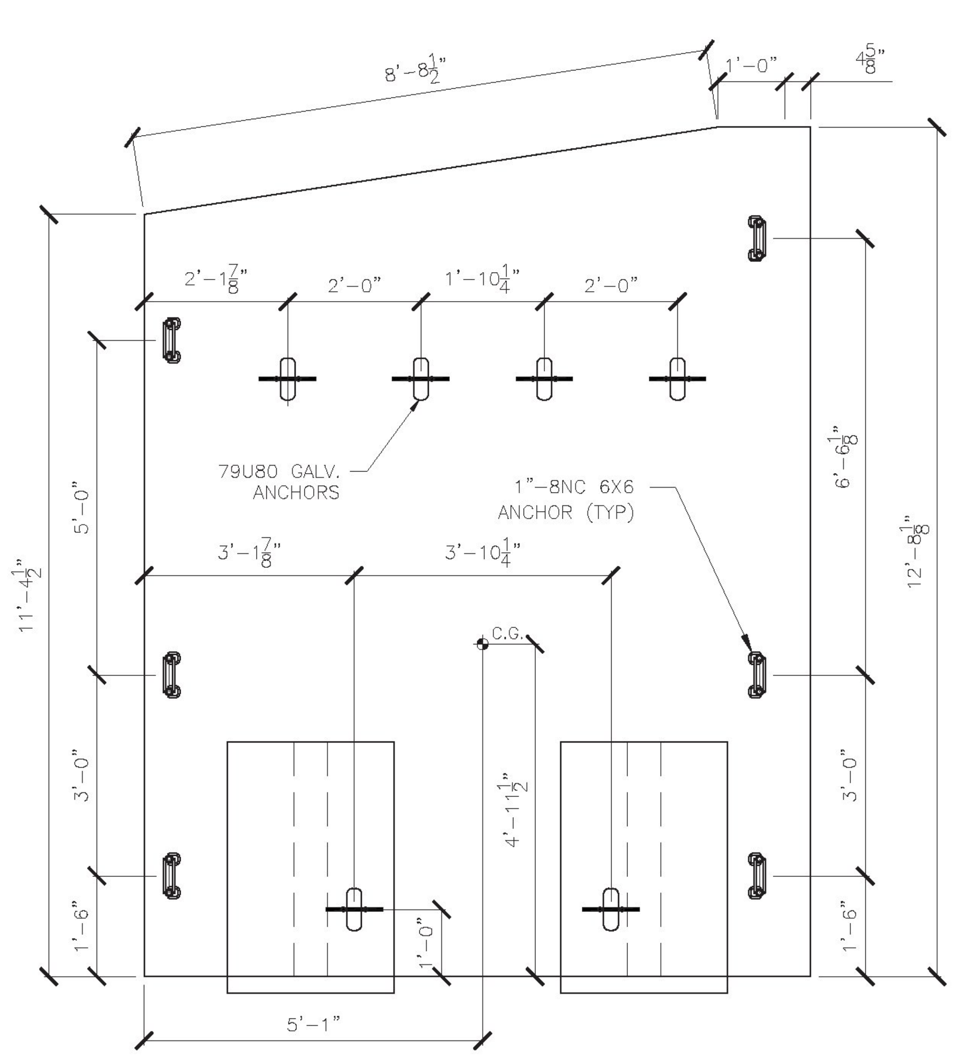
4 WW4C ELEVATION
S6.0 ½" = 1'-0"

1 WW4C
REQUIRED
UNIT WEIGHT AND VOLUME:
TOTAL: 16,429#
WALL: (2.78 CY)
E ANCHOR: 0.64 CY
E ANCHOR: 0.64 CY



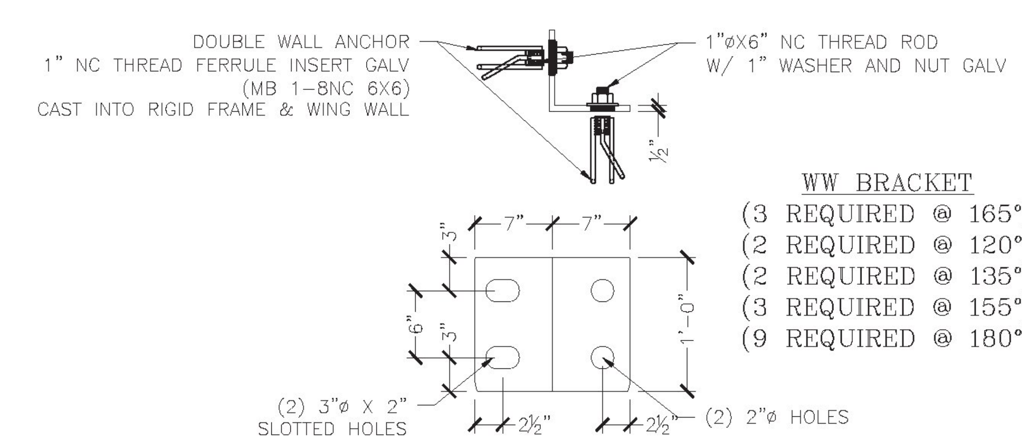
5 WW4B ELEVATION
S6.0 ½" = 1'-0"

1 WW4B
REQUIRED
UNIT WEIGHT AND VOLUME:
TOTAL: 18,262#
WALL: (3.23 CY)
E ANCHOR: 0.64 CY
E ANCHOR: 0.64 CY



6 WW4A ELEVATION
S6.0 ½" = 1'-0"

1 WW4A
REQUIRED
UNIT WEIGHT AND VOLUME:
TOTAL: 20,655#
WALL: (3.68 CY)
F ANCHOR: 0.71 CY
F ANCHOR: 0.71 CY



WW BRACKET
(3 REQUIRED @ 165°)
(2 REQUIRED @ 120°)
(2 REQUIRED @ 135°)
(3 REQUIRED @ 155°)
(9 REQUIRED @ 180°)

PLATES TO BE MADE OF ¾" MILD STEEL,
PLASMA CUT, AND BENT AS REQUIRED.
(HOT DIPPED GALVANIZED AFTER BENDING)

3 WINGWALL BRACKET DETAIL
S5.0 1" = 1'-0"

Vermont Agency of Transportation
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Josh Olund 09/13/2016
Reviewer Date

No.	Date	Revision	By

PROFESSIONAL ENGINEER, STATE OF VERMONT, Structural, LICENSED, 9/12/16

DESIGNED AND DETAILED BY:
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TEL (607) 231-6600 FAX (607) 231-6650

VT 100 Road Culvert
Duxbury, Vermont
Wingwall Details

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Project No. 7347
Date: 6/29/16

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DWG NO.
S6.0

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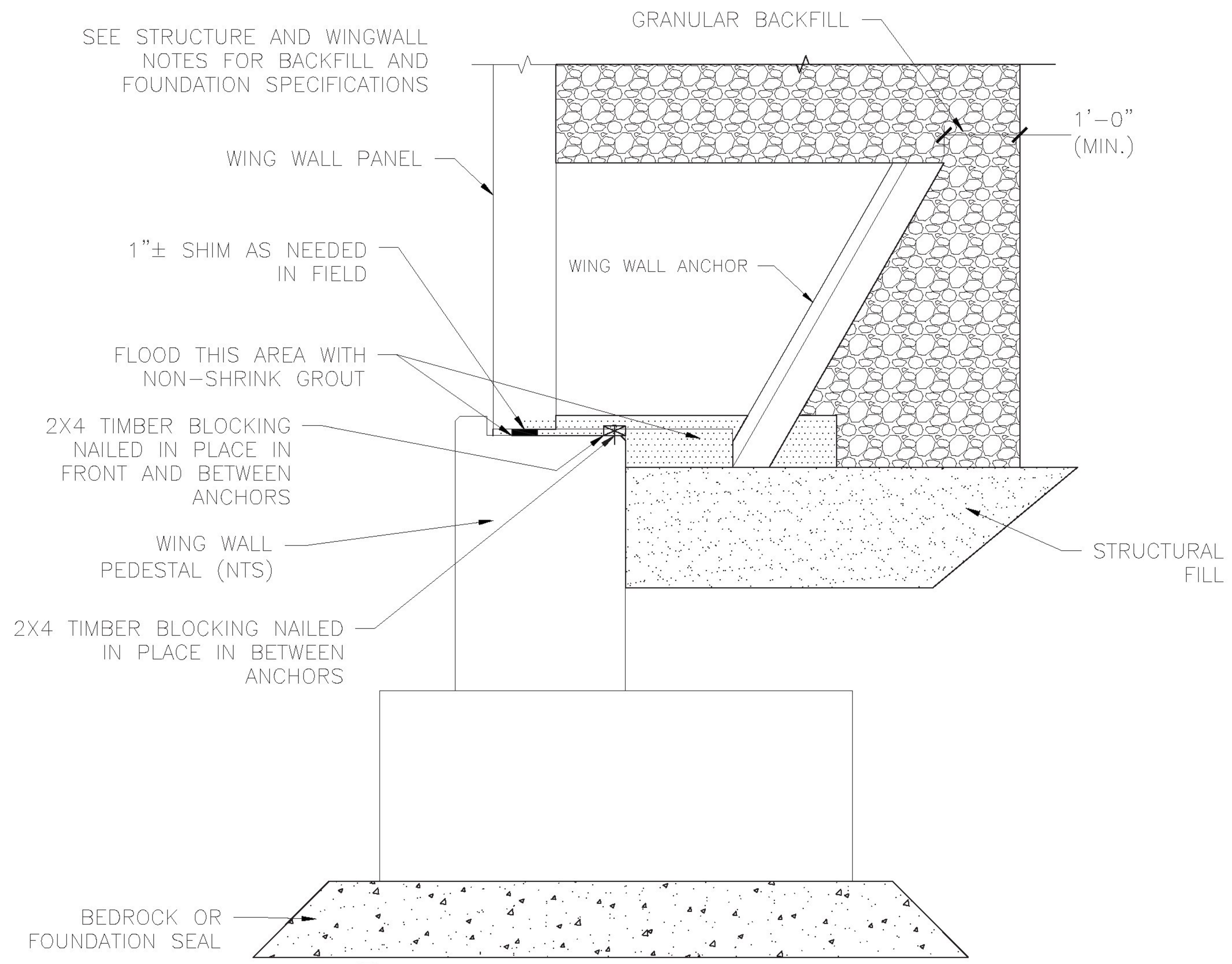


5 / S7.0 FOOTING TO WW ATTACHMENT DETAIL
¾" = 1'-0"

NOTE: BAR COUNTS REPRESENT 1 UNIT.

WW1A REINFORCING SCHEDULE					
BAR MARK	LOCATION	TYPE	SIZE/SPACING	CUT LENGTH	# OF PCS
VERTICAL	OSF	STRAIGHT	#5 @ 12"	12'-8" TO 10'-10"	9
VERTICAL	ISF	STRAIGHT	#5 @ 5"	12'-8" TO 10'-10"	22
HORIZONTAL	OSF	STRAIGHT	#5 @ 12"	9'-2"	13
HORIZONTAL	ISF	STRAIGHT	#5 @ 12"	8'-11"	13
DIAGONAL	FOLLOW SLOPE	STRAIGHT	#4	8'-10"	2

WW1B REINFORCING SCHEDULE					
BAR MARK	LOCATION	TYPE	SIZE/SPACING	CUT LENGTH	# OF PCS
VERTICAL	OSF	STRAIGHT	#5 @ 12"	10'-10" TO 8'-10"	10
VERTICAL	ISF	STRAIGHT	#5 @ 5"	10'-10" TO 8'-10"	23
HORIZONTAL	OSF	STRAIGHT	#5 @ 12"	9'-2"	11
HORIZONTAL	ISF	STRAIGHT	#5 @ 12"	9'-2"	11
DIAGONAL	FOLLOW SLOPE	STRAIGHT	#4	9'-4"	2

WW2A REINFORCING SCHEDULE					
BAR MARK	LOCATION	TYPE	SIZE/SPACING	CUT LENGTH	# OF PCS
VERTICAL	OSF	STRAIGHT	#5 @ 12"	7'-1" TO 3'-4"	10
VERTICAL	ISF	STRAIGHT	#5 @ 12"	7'-1" TO 3'-4"	10
HORIZONTAL	OSF	STRAIGHT	#5 @ 12"	6'-9"	8
HORIZONTAL	ISF	STRAIGHT	#5 @ 12"	9'-4"	8
DIAGONAL	FOLLOW SLOPE	STRAIGHT	#4	6'-0"	2

WW3A REINFORCING SCHEDULE					
BAR MARK	LOCATION	TYPE	SIZE/SPACING	CUT LENGTH	# OF PCS
VERTICAL	OSF	STRAIGHT	#5 @ 12"	5'-8" TO 3'-7"	8
VERTICAL	ISF	STRAIGHT	#5 @ 12"	5'-8" TO 3'-7"	7
HORIZONTAL	OSF	STRAIGHT	#5 @ 12"	6'-7"	6
HORIZONTAL	ISF	STRAIGHT	#5 @ 12"	9'-2"	6
DIAGONAL	FOLLOW SLOPE	STRAIGHT	#4	9'-4"	2

WW4A REINFORCING SCHEDULE					
BAR MARK	LOCATION	TYPE	SIZE/SPACING	CUT LENGTH	# OF PCS
VERTICAL	OSF	STRAIGHT	#5 @ 5"	12'-3" TO 10'-10"	10
VERTICAL	ISF	STRAIGHT	#5 @ 12"	12'-3" TO 10'-10"	10
HORIZONTAL	OSF	STRAIGHT	#5 @ 12"	9'-8"	12
HORIZONTAL	ISF	STRAIGHT	#5 @ 12"	9'-3"	12
DIAGONAL	FOLLOW SLOPE	STRAIGHT	#4	9'-4"	2

WW4B REINFORCING SCHEDULE					
BAR MARK	LOCATION	TYPE	SIZE/SPACING	CUT LENGTH	# OF PCS
VERTICAL	OSF	STRAIGHT	#5 @ 5"	10'-10" TO 9'-4"	10
VERTICAL	ISF	STRAIGHT	#5 @ 12"	10'-10" TO 9'-4"	10
HORIZONTAL	OSF	STRAIGHT	#5 @ 12"	9'-8"	12
HORIZONTAL	ISF	STRAIGHT	#5 @ 12"	9'-8"	12
DIAGONAL	FOLLOW SLOPE	STRAIGHT	#4	9'-4"	2

WW4C REINFORCING SCHEDULE					
BAR MARK	LOCATION	TYPE	SIZE/SPACING	CUT LENGTH	# OF PCS
VERTICAL	OSF	STRAIGHT	#5 @ 12"	9'-4" TO 7'-11"	10
VERTICAL	ISF	STRAIGHT	#5 @ 12"	9'-4" TO 7'-11"	10
HORIZONTAL	OSF	STRAIGHT	#5 @ 12"	9'-8"	10
HORIZONTAL	ISF	STRAIGHT	#5 @ 12"	9'-8"	10
DIAGONAL	FOLLOW SLOPE	STRAIGHT	#4	9'-4"	2

5 REQ'D

ANCHOR TYPE "C"					
CONCRETE QUANTITY				0.48 CY	
WEIGHT				2010 LB	
W1				2'-4"	
W2				4'-5⅜"	
X =	2'-8¾"	Y=	1'-8½"		
BAR LIST					
MARK	QTY	SIZE	L	TYPE	LENGTH
B501	1	#5	5'-4½"	1	12'-1½"
B502	1	#5	5'-0½"	1	11'-5"
B503	1	#5	4'-8¼"	1	10'-9"
B504	1	#5	4'-0"	1	9'-4½"
B505	2	#5	3'-8½"	2	4'-7"
B506	4	#5	----	Str.	3'-3"
B507	4	#5	----	Str.	4'-4½"
B508	7	#5	----	Str.	2'-3"

1 REQ'D

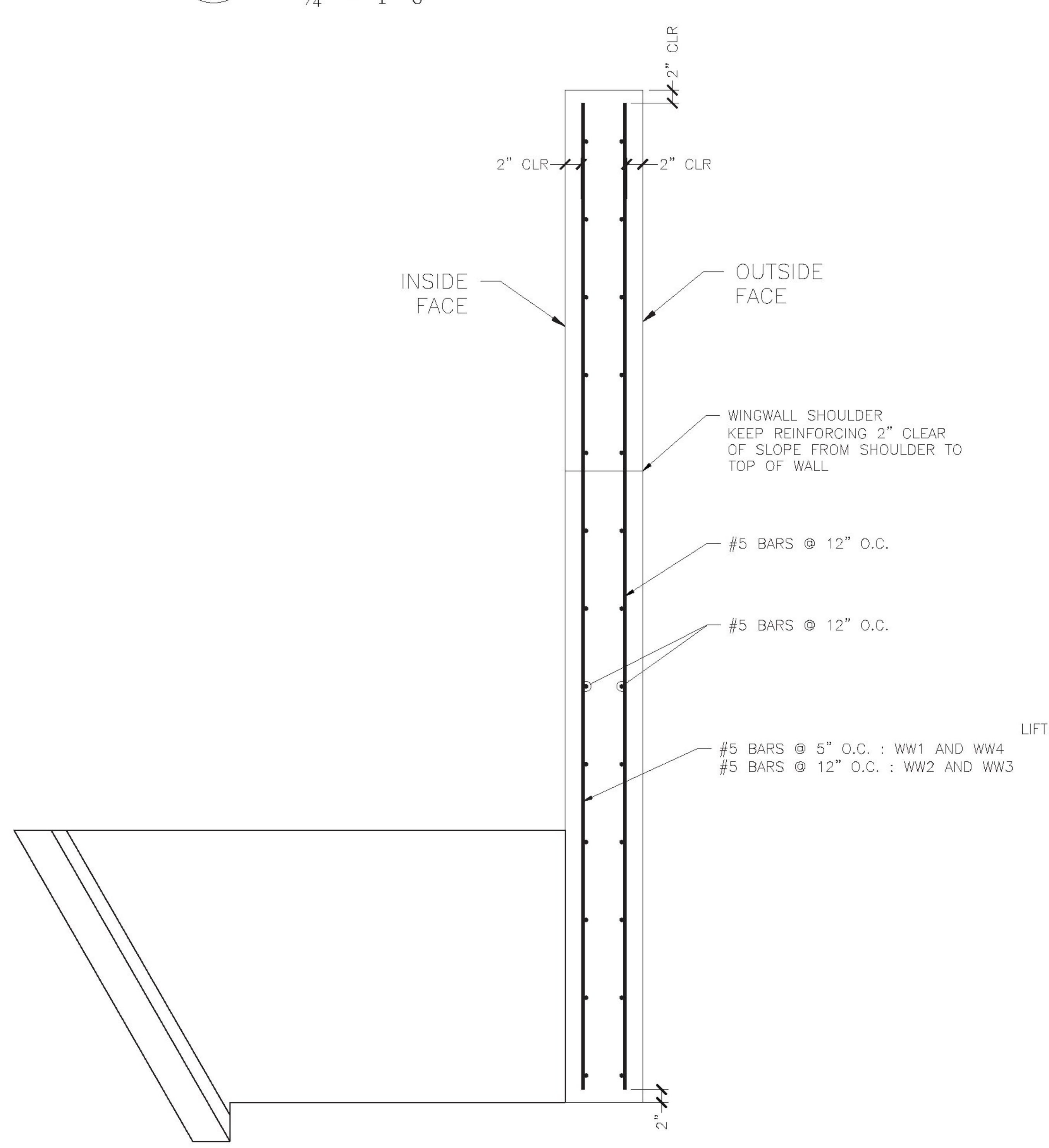
ANCHOR TYPE "D"					
CONCRETE QUANTITY				0.48 CY	
WEIGHT				2020 LB	
W1				3'-4"	
W2				5'-5⅜"	
X =	3'-5⅛"	Y=	1'-8½"		
BAR LIST					
MARK	QTY	SIZE	L	TYPE	LENGTH
B501	1	#5	6'-4½"	1	14'-1½"
B502	1	#5	6'-0½"	1	13'-5"
B503	1	#5	5'-8¼"	1	12'-9"
B504	1	#5	5'-0"	1	11'-4½"
B505	2	#5	3'-8½"	2	4'-7"
B506	6	#5	----	Str.	3'-3"
B507	4	#5	----	Str.	4'-4½"
B508	7	#5	----	Str.	2'-3"

6 REQ'D

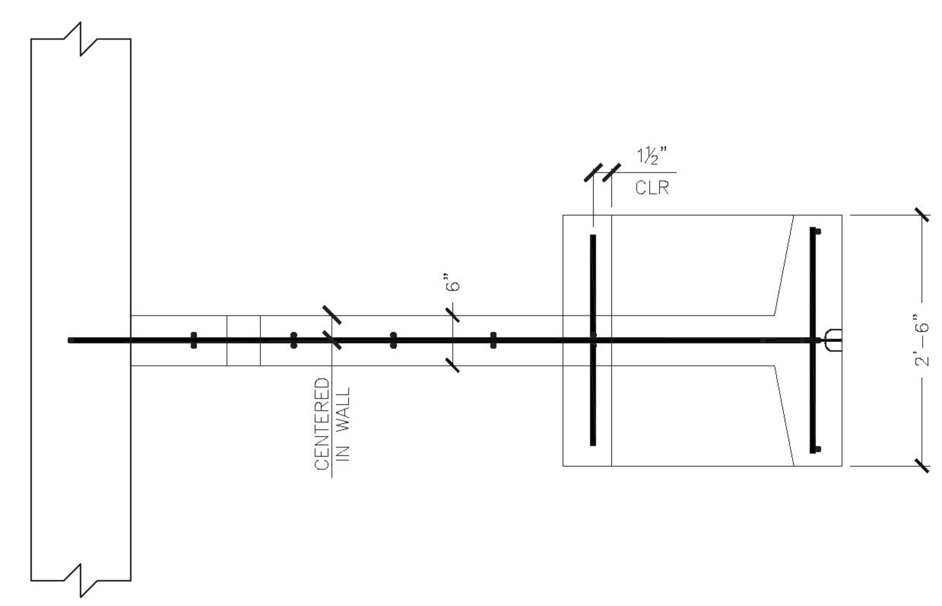
ANCHOR TYPE "E"					
CONCRETE QUANTITY				0.61 CY	
WEIGHT				2550 LB	
W1				4'-4"	
W2				6'-5⅜"	
X =	4'-0"	Y=	1'-8⅝"		
BAR LIST					
MARK	QTY	SIZE	L	TYPE	LENGTH
B501	1	#7	7'-4½"	1	16'-1½"
B502	1	#7	7'-0½"	1	15'-5"
B503	1	#7	6'-8¼"	1	14'-9"
B504	1	#5	6'-0"	1	13'-4½"
B505	2	#5	3'-8½"	2	4'-8½"
B506	8	#5	----	Str.	3'-3"
B507	4	#5	----	Str.	4'-4½"
B508	7	#5	----	Str.	2'-3"

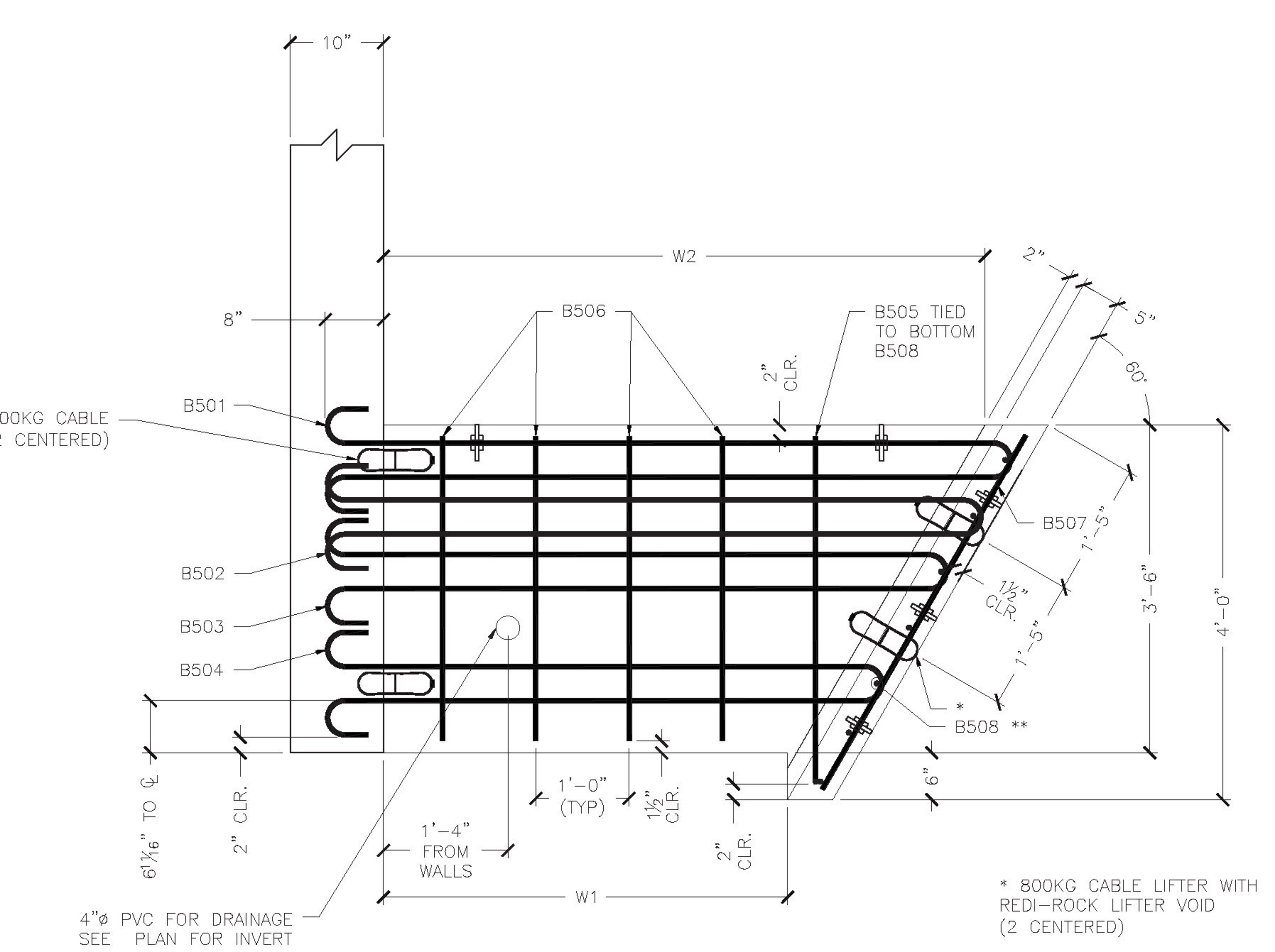
2 REQ'D

ANCHOR TYPE "F"					
CONCRETE QUANTITY				0.68 CY	
WEIGHT				2860 LB	
W1				5'-4"	
W2				7'-5⅜"	
X =	4'-7⅝"	Y=	1'-8⅝"		
BAR LIST					
MARK	QTY	SIZE	L	TYPE	LENGTH
B501	1	#7	8'-4½"	1	18'-1½"
B502	1	#7	8'-0½"	1	17'-5"
B503	1	#7	7'-8¼"	1	16'-9"
B504	1	#7	7'-0"	1	15'-4½"
B505	2	#5	3'-8½"	2	4'-8½"
B506	10	#5	----	Str.	3'-3"
B507	4	#5	----	Str.	4'-4½"
B508	7	#5	----	Str.	2'-3"



1 / S7.0 WINGWALL REINFORCING (TYP)
¾" = 1'-0"

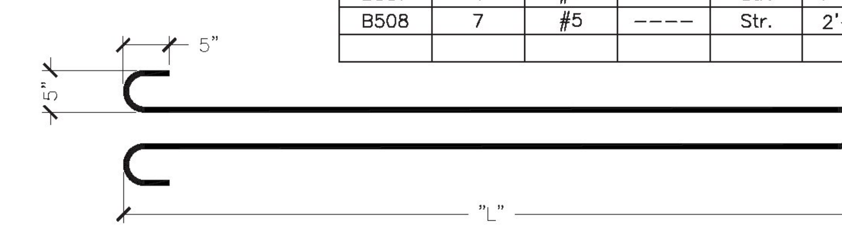




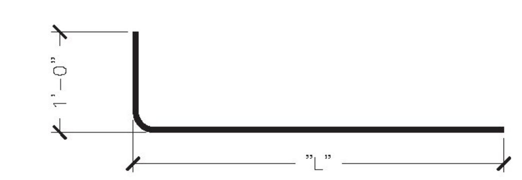
2 / S7.0 ANCHOR DETAIL
¾" = 1'-0"

* 800KG CABLE LIFTER WITH REDI-ROCK LIFTER VOID (2 CENTERED)

** PLACE (1) B508 THROUGH EACH HOOP BARS, (1) CENTERED BETWEEN HOOP BARS 503 & 504, AND (2) BELOW B504 HOOP BAR W/ BOTTOM B508 2" CLEAR FROM BOTTOM (7 TOTAL)



TYPE 1



TYPE 2

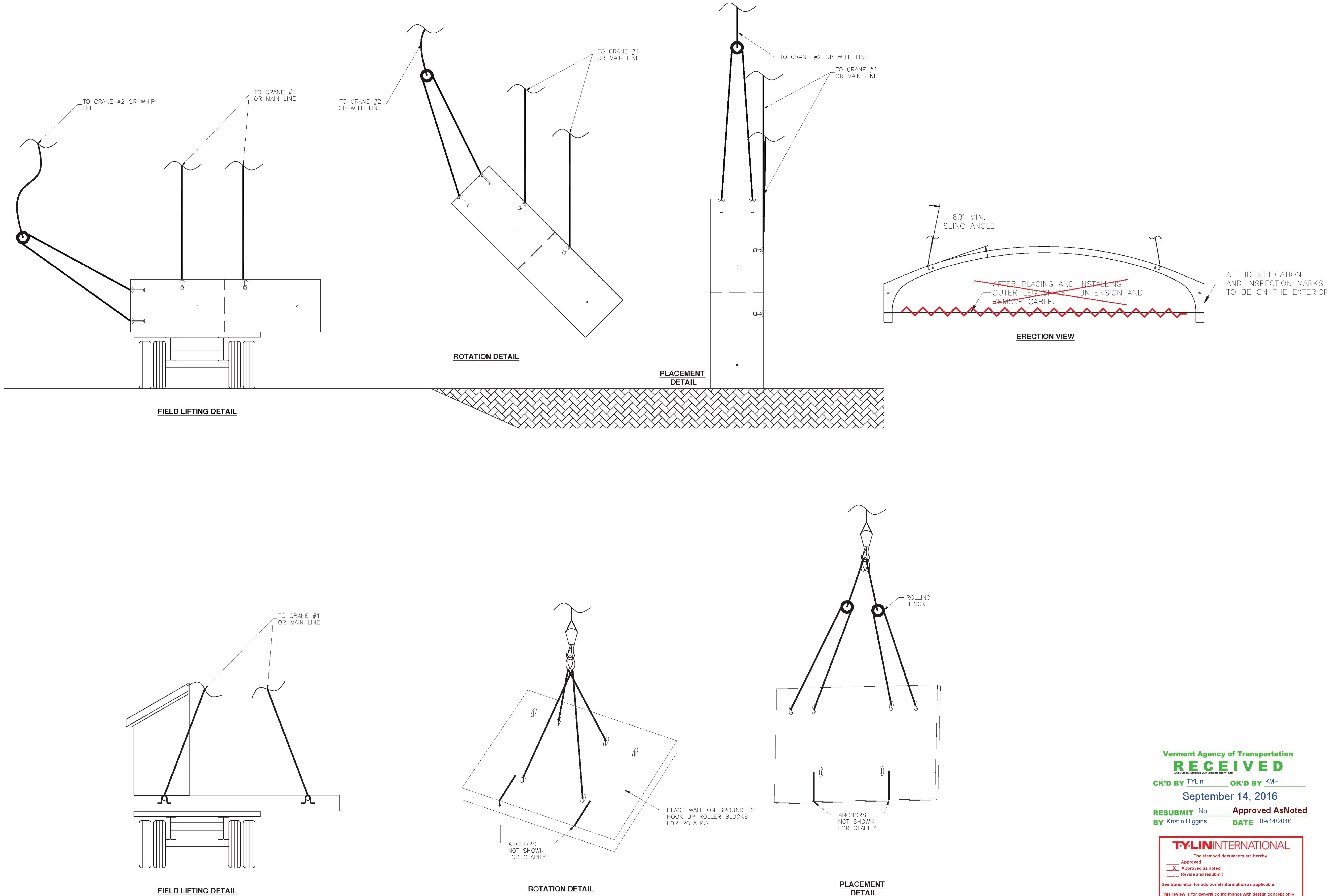
DESIGNED AND DETAILED BY:
DELTA
ENGINEERS, ARCHITECTS, & LAND SURVEYORS
860 HOOPER ROAD, ENDWELL, NY 13760-1564
TEL: (607) 231-6600 FAX: (607) 231-6650

VT 100 Road Culvert
Duxbury, Vermont
Anchor Details

Scale: AS SHOWN
Project No. 7347
Date: 6/29/16
Designed by: DELTA

PREPARED FOR:
MICHIE
MICHIE CORPORATION, INC.
173 BUXTON INDUSTRIAL DRIVE-PO BOX 870
HENNIKER, NH 03242
PHONE 603-428-3218
FAX 603-428-7426

DWG NO.
S7.0



Vermont Agency of Transportation
RECEIVED

CK'D BY TYLin OK'D BY KMH

September 14, 2016

RESUBMIT No Approved AsNoted
BY Kristin Higgins DATE 09/14/2016

TYLININTERNATIONAL
The stamped documents are hereby:
___ Approved
_X_ Approved as noted
___ Revise and resubmit

See transmittal for additional information as applicable.

This review is for general conformance with design concept only. Any deviation from the plans or specifications not clearly noted by the Contractor has not been reviewed. Review by the Engineer shall not relieve the Contractor of the contractual responsibility for any errors or deviation from the contract requirements.

Josh Olund 09/13/2016
Reviewer Date

No.	Date	Revision	By

DESIGNED AND DETAILED BY;
DELTA
ENGINEERS, ARCHITECTS, & LAND SURVEYORS
860 HOOPER ROAD, ENDWELL, NY 13760-1564
TEL: (607) 231-6600 FAX: (607) 231-6650

VT 100 Road Culvert
Duxbury, Vermont
Lifting Details

Project No. 7347 | Scale: AS SHOWN
Date: 6/29/16 | Designed by: DELTA | Drawn by: GSC | Checked by:

PREPARED FOR ;
MICHIE
MICHIE CORPORATION, INC.
173 BUXTON INDUSTRIAL DRIVE-PO BOX 870
HENNIKER, NH 03242
PHONE: 603-428-3218
FAX: 603-428-7426

DWG NO.
S8.0

Proposed Bridge Improvement Project

DUXBURY BF 013-4(47) - RTE 100

Precast Footings with Pedestal Walls

Concrete:

Mix Designation: P60TER

1. Specified Mix Design	5000 PSI
2. Proposed Mix Design	6000 PSI
3. Stripping/Handling Strength	3000 PSI
4. Shipping Strength	5000 PSI
5. Install Strength	5000 PSI
6. Traffic Loading	5000 PSI

Fabrication Tolerances:

1. Width	±1/4"
2. Height	±1/4"
3. Length	±1/2"
4. Rebar Cover	3" Min. (Unless Noted Otherwise)
5. Rebar Spacing	±1/2"
6. Rebar Clearance	±1/4"
7. Insert Placement	±1/4"

Design Notes:

1. Built in accordance to PCI MNL 135 & VT AOT spec 540.
2. All overall footing & stem wall dimensions and reinforcing is per sheets 5,42,43,44,45,& 46 of the state plan sheets.
3. SDI has not performed any design work for these pieces other than lifting calculations.

Curing Procedure:

1. Once precast sections are poured and finished, crews will cover each piece with poly and/or insulated blankets and secure them in place.
2. Blankets to remain in place until stripping strength has been achieved.
3. Once stripping strength has been achieved, our crews will proceed with pouring pedestal walls and/or placing pieces in the yard to await delivery.

Reinforcing:

General Notes:

1. Reinforcing Steel - Precast Footing Sections shall be Level I Black Bar ASTM A615.
2. Bar tied at every intersection for spacing 12" and over. Bars spaced less than 12" apart shall be tied at every other intersection. All perimeter intersections to be tied.
3. (2) 5' long pieces of bar will be provided for each bar size for testing.

Tolerances:

1. Spacing	±1/2"
2. Clearance	±1/4"

Lap Lengths: (If Needed)

1. Per AASHTO 5.11.2.1.1 & 5.11.5.3.1

Lap Length for Level I (Plain):

#4 Bar	21"
#5 Bar	26"
#6 Bar	31"

Miscellaneous:

1. All bolt pocket hardware and embedded plates to be grade 60 domestic 1" Ø black coil rod(ASTM A29) w/ nuts at each end. Provided by SD Ireland. 24" overall length(coil rod).
2. All rebar, lift anchors, and mechanical joint hardware to be made in USA
3. Water repellent, silane shall be applied to all concrete surfaces exposed in the final condition, with exception of the underside of the precast concrete arches. (Per note 16 on page 5 of contract plans)
4. All rebar chairs and spacers will be PVC.
5. All vertical joints to be match cast.

Installation:

1. Installing contractor to offload and set in place with appropriate rated crane & rigging.
2. Contractor to shim under precast footings as needed to maintain final lines and grades.
3. See last 3 pages of submittal for J.A. McDonald grouting procedure. Sleeves to be used for drilling to bedrock and for placement of grout.
4. Contractor to install sheet membrane waterproofing. Preformed sheets in accordance with section 540 and the contract plans.
5. All lift devices recesses and bolt pockets to be grouted with type IV mortar after installation in accordance with subsection 540.11.

CONTRACTORS VTSPE:

Vermont Agency of Transportation
RECEIVED
CK'D BY TY Lin OK'D BY KMH
August 2, 2016
RESUBMIT No Approved
BY Kristin Higgins DATE 08/03/2016

TYLIN INTERNATIONAL
The stamped documents are hereby:
X Approved
Approved as noted
Revise and resubmit
See transmittal for additional information as applicable.
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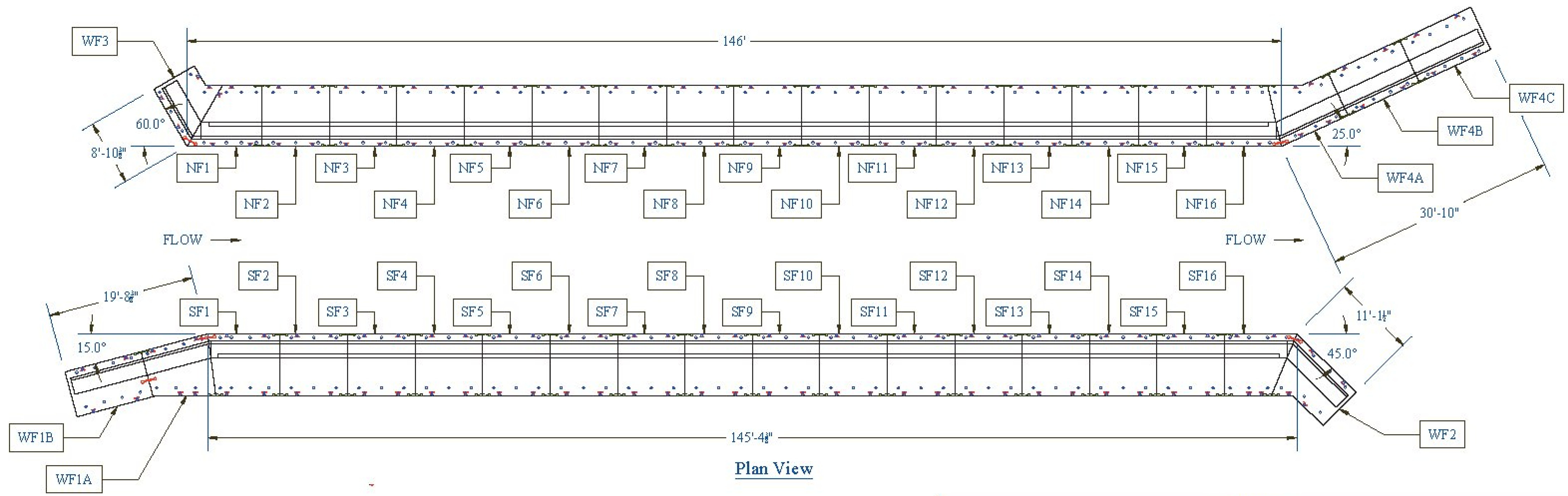
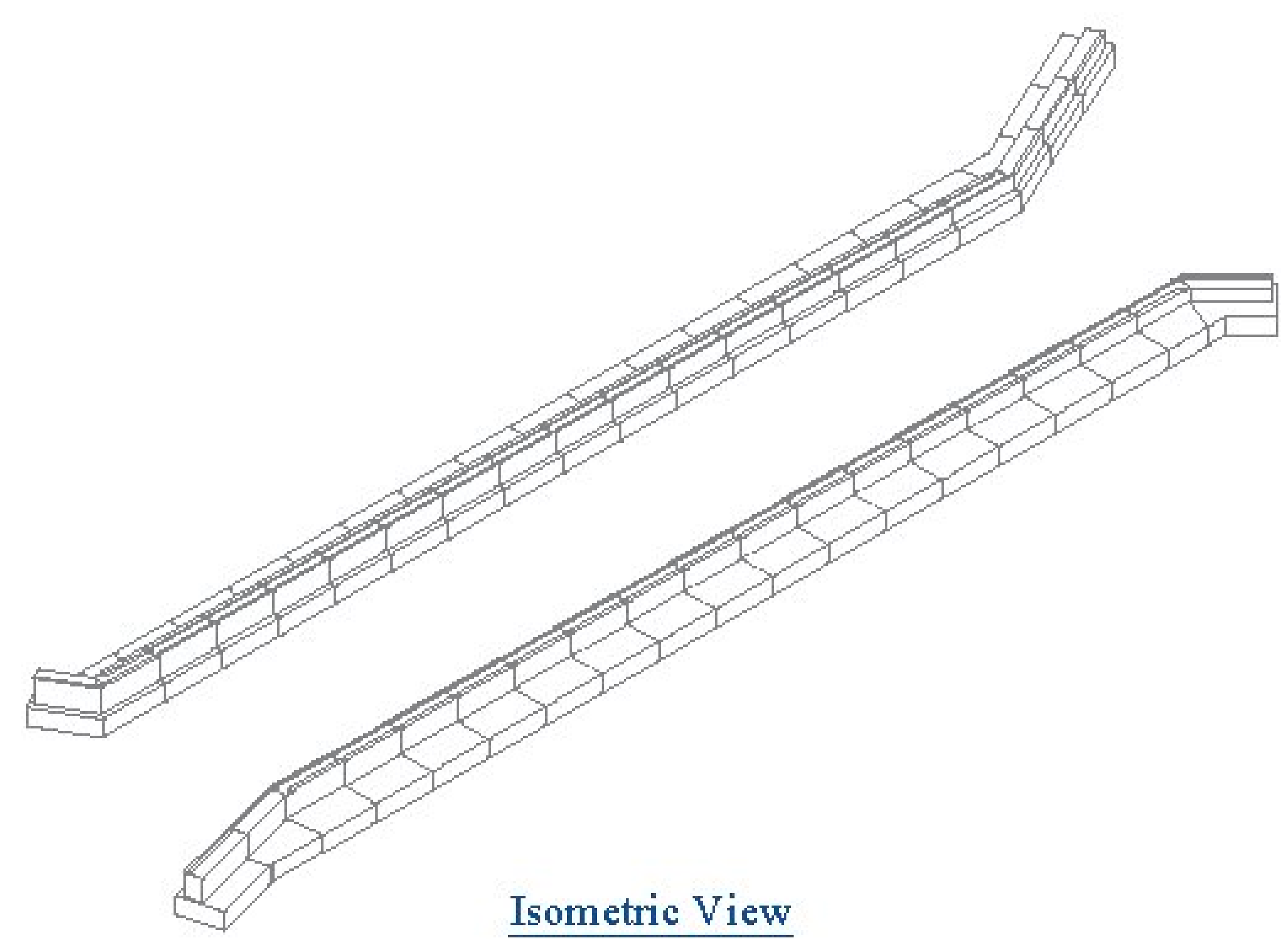
Josh Olund 08/03/2016
Reviewer Date

PRECAST CONCRETE BOX CULVERT SHOP DRAWINGS (SDI JOB #17682)		INSTALLER: J.A. MCDONALD 585 Gilman Rd Lyndon Ctr, VT 05850	FABRICATOR: 193 INDUSTRIAL AVE. WILLISTON, VT 05495 Ph: (802) 658-0201 SD Ireland PRECAST
SUPERVISOR: E. Barendse	PROJECT NAME: DUXBURY		
DETAILER: I. ADAMS	PROJECT #: BF 013-4(47)		
CHECKER: E. Barendse	LOCATION: DUXBURY, VT	07/29/16	TEXT 1_OF_12



Plan View

Elevations		
Location	Inlet Elev.	Outlet Elev.
Bottom of Footing	486.00	486.00
Top of Keyway	491.76	490.32
Top of Pedestal Wall	492.01	490.57



Isometric View

Table of Units								
Mark	Vol.(yd^3)	Weight(lbs)	Mark	Vol.(yd^3)	Weight(lbs)	Mark	Vol.(yd^3)	Weight(lbs)
NF1	8.24	39,960	NF14	8.50	34,000	SF11	8.70	34,800
NF2	9.30	37,200	NF15	8.44	33,760	SF12	8.64	34,560
NF3	9.24	36,960	NF16	8.51	34,040	SF13	8.57	34,280
NF4	9.17	36,680	SF1	9.57	38,280	SF14	8.50	34,000
NF5	9.10	36,400	SF2	9.30	37,200	SF15	8.44	33,760
NF6	9.03	36,120	SF3	9.24	36,960	SF16	7.53	30,120
NF7	8.97	35,880	SF4	9.17	36,680	WF1A	8.25	33,000
NF8	8.90	35,600	SF5	9.10	36,400	WF1B	8.82	35,280
NF9	8.84	35,360	SF6	9.03	36,120	WF2	7.46	29,840
NF10	8.77	35,080	SF7	8.97	35,880	WF3	6.26	25,040
NF11	8.70	34,800	SF8	8.90	35,600	WF4A	7.17	28,680
NF12	8.64	34,560	SF9	8.84	35,360	WF4B	7.70	30,800
NF13	8.57	34,280	SF10	8.77	35,080	WF4C	7.62	30,480

TY·LIN INTERNATIONAL
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X Approved
___ Approved as noted
___ Revise and resubmit
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Josh Olund — Reviewer
08/03/2016 — Date

CONTRACTORS VTSPE:

Vermont Agency of Transportation
RECEIVED
CK'D BY TY Lin OK'D BY KMH
August 2, 2016
RESUBMIT No Approved
BY Kristin Higgins DATE 08/03/2016

PRECAST CONCRETE BOX CULVERT SHOP DRAWINGS (SDI JOB #17682)
SUPERVISOR: E. Barendse
DETAILER: I. ADAMS
CHECKER: E. Barendse
PROJECT NAME: DUXBURY
PROJECT #: BF 013-4(47)
LOCATION: DUXBURY, VT

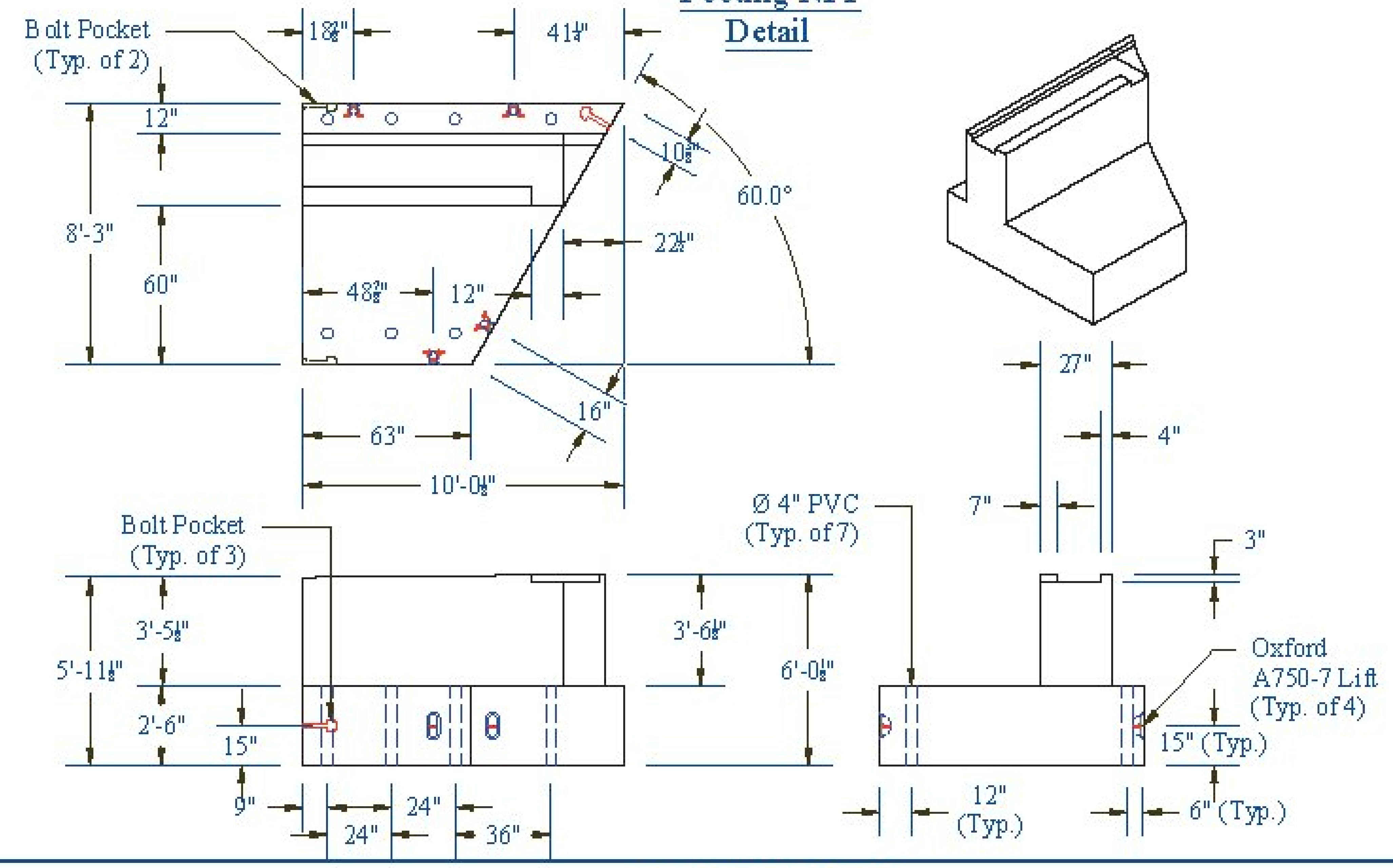
INSTALLER:
J.A. MCDONALD
585 Gilman Rd
Lyndon Ctr, VT 05850

FABRICATOR:
193 INDUSTRIAL AVE.
WILLISTON, VT 05495
Ph: (802) 658-0201

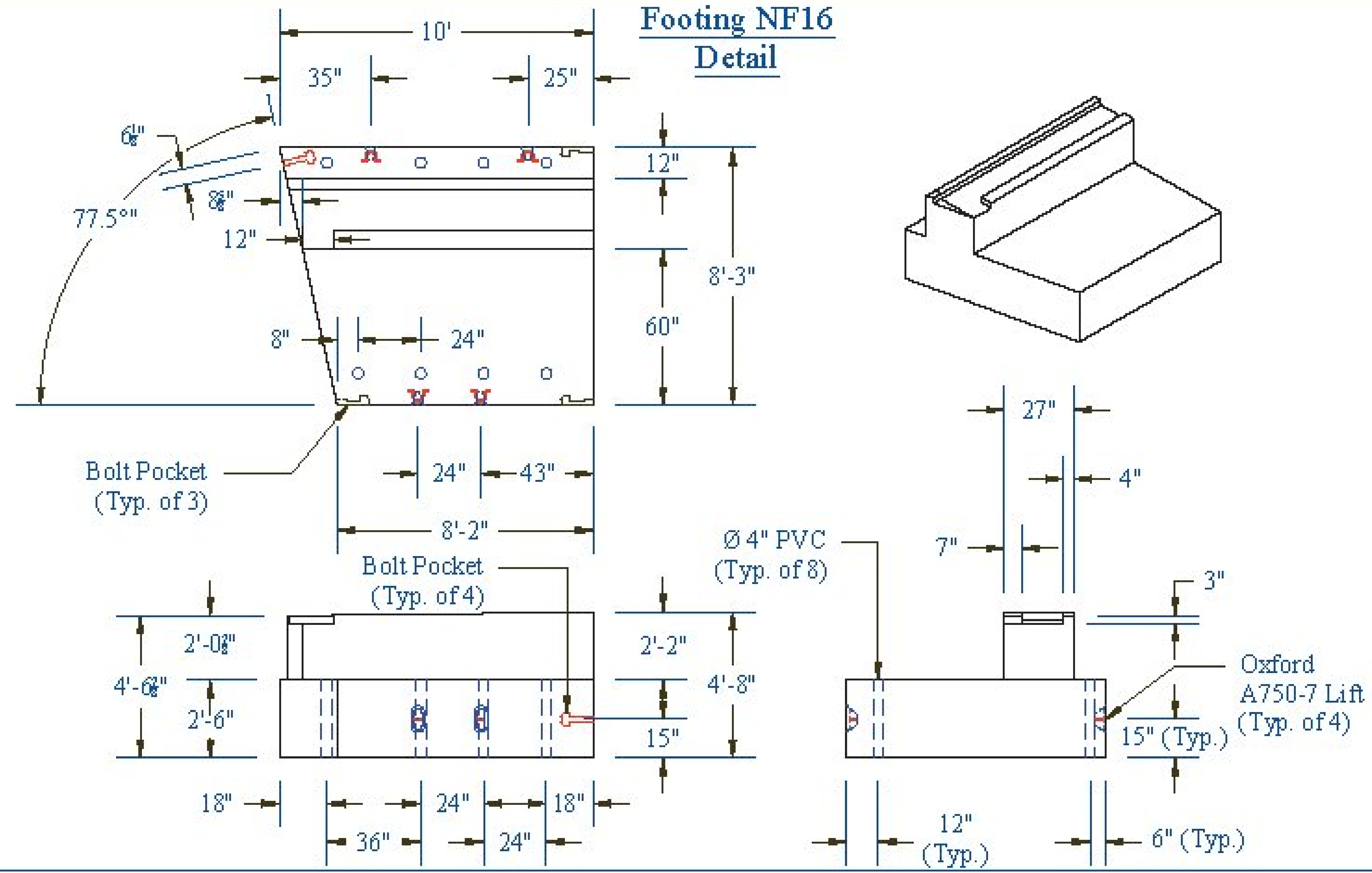
SD Ireland PRECAST

07/29/16 | PLAN | 2_OF_12

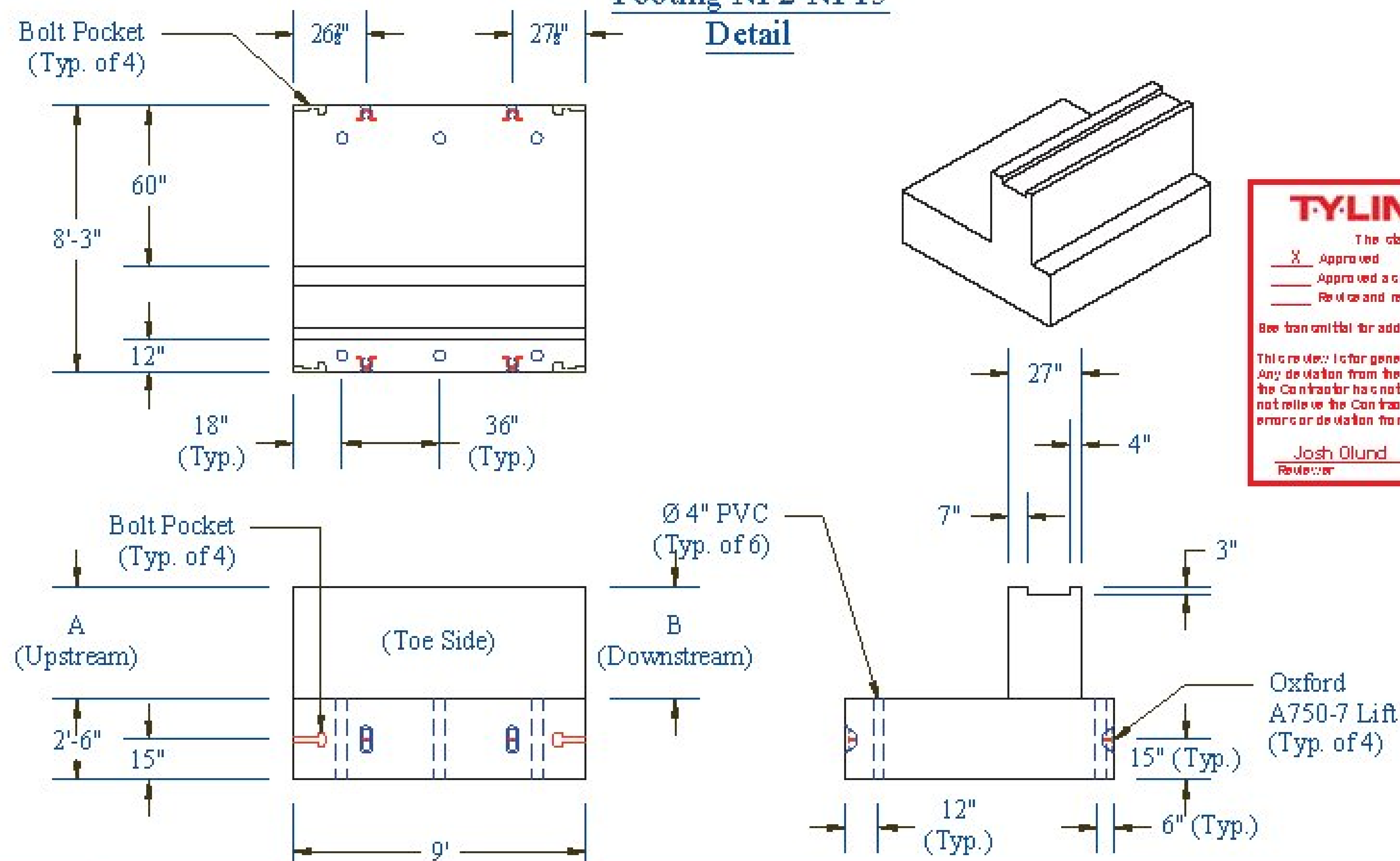
Footing NF1 Detail



Footing NF16 Detail



Footing NF2-NF15 Detail



TYLIN INTERNATIONAL

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Josh Olund — 08/03/2016

Reviewer — Date

Pedestal Wall Heights					
Mark	A	B	Mark	A	B
NF2	3'-5 1/8"	3'-4"	NF9	2'-9 1/2"	2'-8 1/2"
NF3	3'-4"	3'-3"	NF10	2'-8 1/2"	2'-7 3/8"
NF4	3'-3"	3'-1 7/8"	NF11	2'-7 3/8"	2'-6 3/8"
NF5	3'-1 7/8"	3'-0 3/4"	NF12	2'-6 3/8"	2'-5 1/4"
NF6	3'-0 3/4"	2'-11 3/4"	NF13	2'-5 1/4"	2'-4 1/8"
NF7	2'-11 3/4"	2'-10 5/8"	NF14	2'-4 1/8"	2'-3"
NF8	2'-10 5/8"	2'-9 1/2"	NF15	2'-3"	2'-2"

CONTRACTORS VTSPE:

Vermont Agency of Transportation
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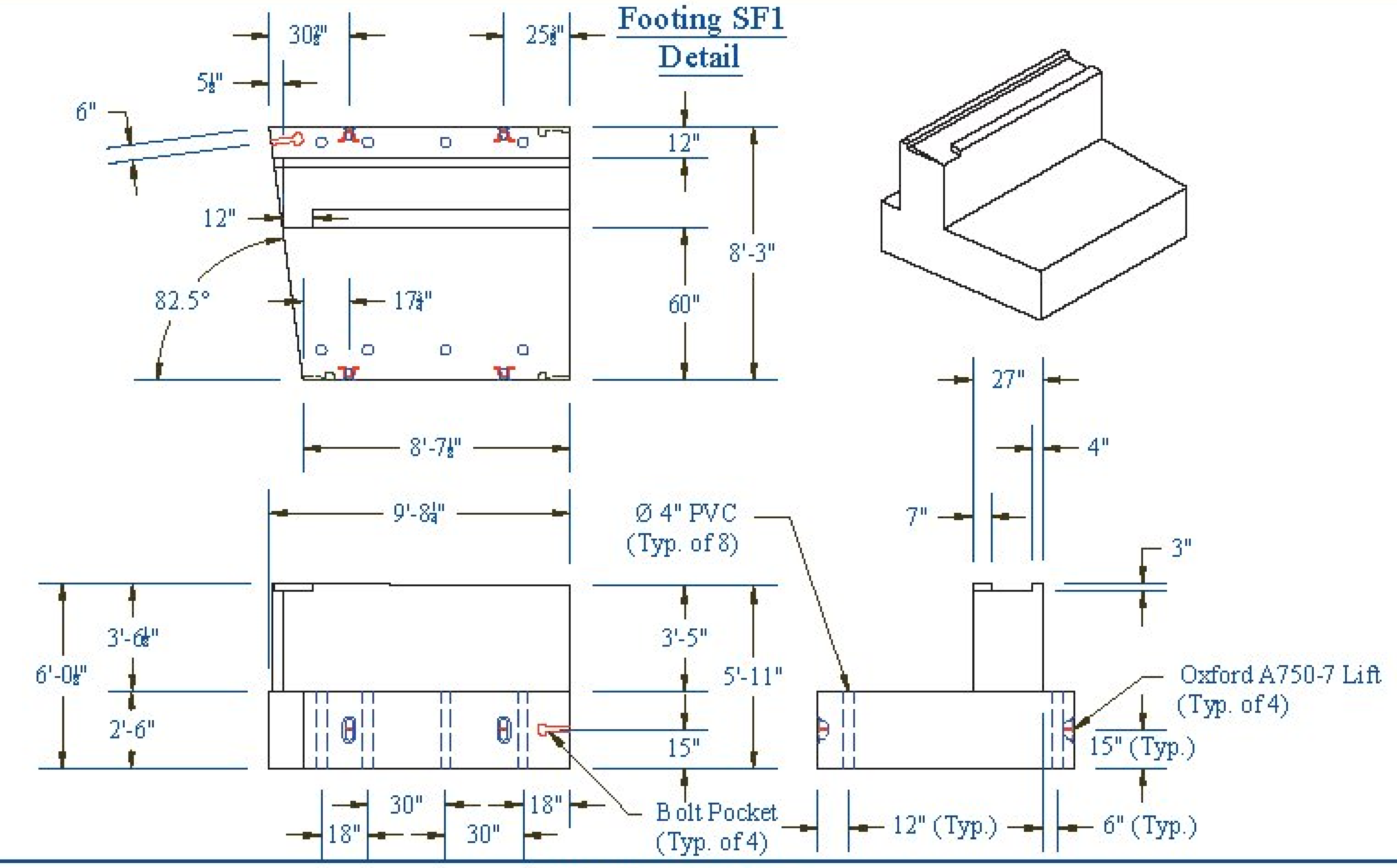
CK'D BY TY Lin — CK'D BY KMH
August 2, 2016
RESUBMIT No — Approved
BY Kristin Higgins — DATE 08/03/2016

PRECAST CONCRETE BOX CULVERT SHOP DRAWINGS (SDI JOB #17682)		INSTALLER: J.A. MCDONALD 585 Gilman Rd Lyndon Ctr, VT 05850	FABRICATOR: 193 INDUSTRIAL AVE. WILLISTON, VT 05495 Ph: (802) 658-0201 — SD Ireland PRECAST
SUPERVISOR: E. Barendse	PROJECT NAME: DUXBURY		
DETAILER: I. ADAMS	PROJECT #: BF 013-4(47)		
CHECKER: E. Barendse	LOCATION: DUXBURY, VT	07/29/16	NORTH_FOOTINGS — 3_OF_12

Footing SF1 Detail



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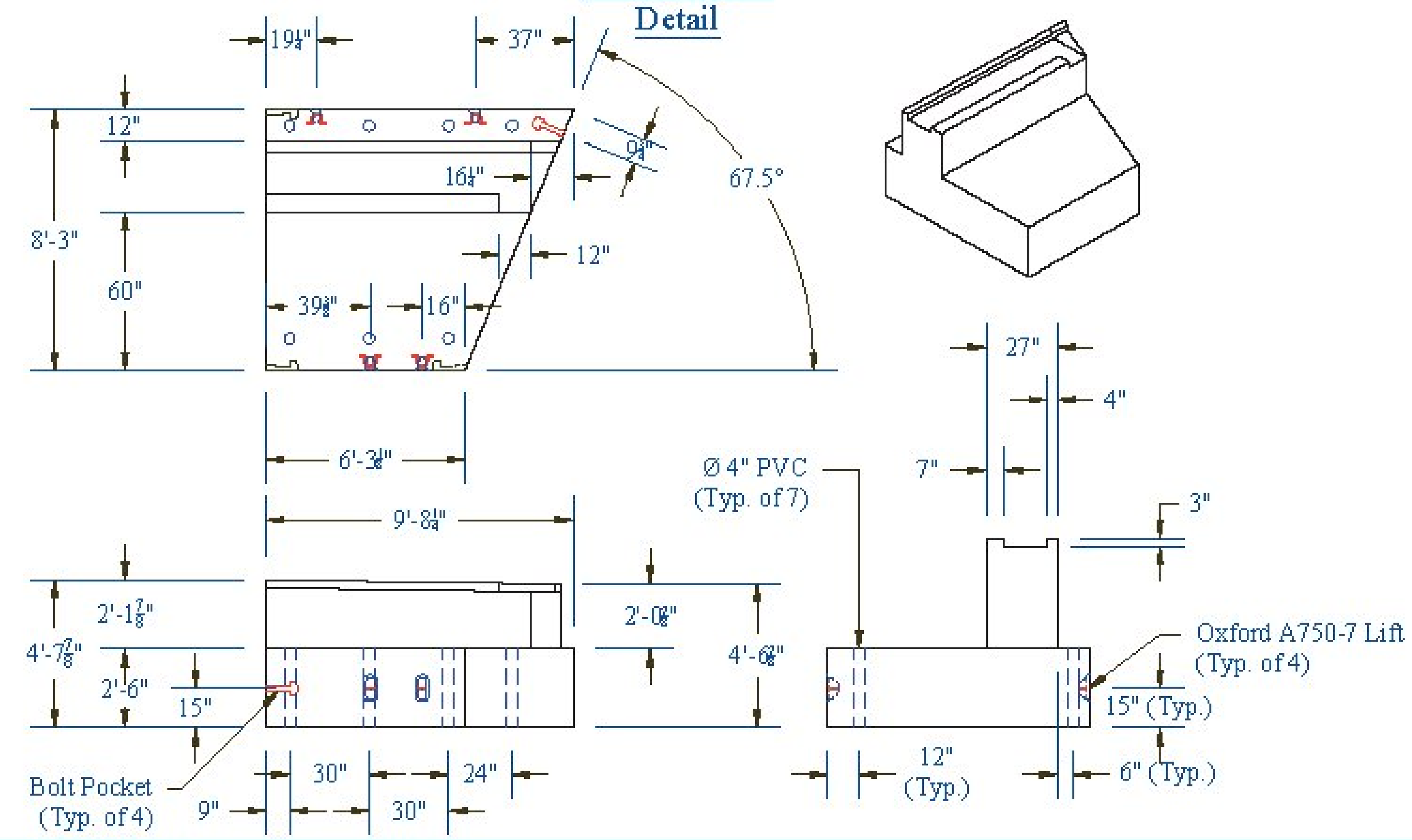
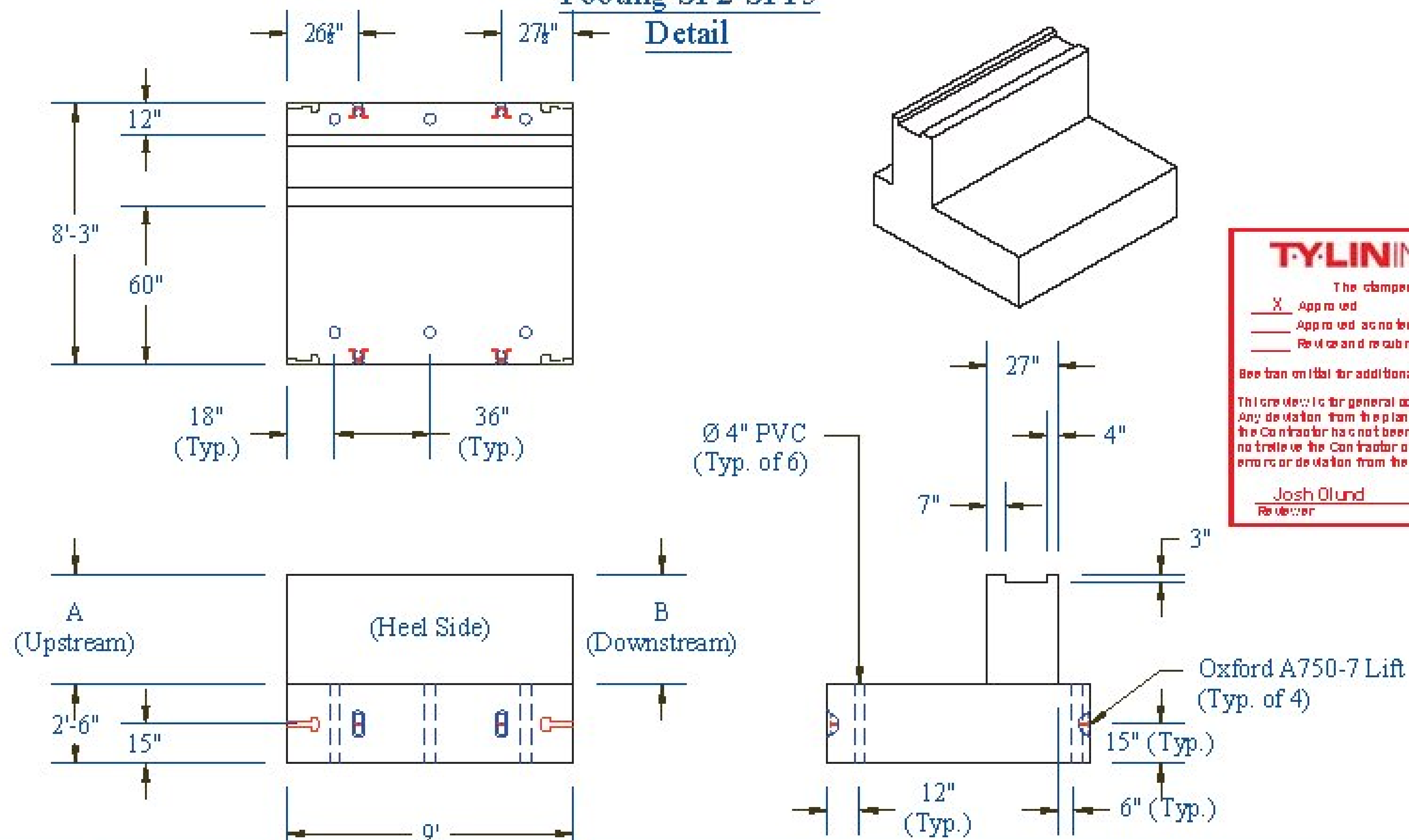


Footing SF2-SF15 Detail



T·Y·LIN INTERNATIONAL

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X Approved

___ Approved as noted

___ Revise and resubmit

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Josh Olund — 08/03/2016

Reviewer — Date

Pedestal Wall Heights					
Mark	A	B	Mark	A	B
SF2	3'-5"	3'-3 7/8"	SF9	2'-9 1/2"	2'-8 3/8"
SF3	3'-3 7/8"	3'-2 7/8"	SF10	2'-8 3/8"	2'-7 1/4"
SF4	3'-2 7/8"	3'-1 3/4"	SF11	2'-7 1/4"	2'-6 1/4"
SF5	3'-1 3/4"	3'-0 5/8"	SF12	2'-6 1/4"	2'-5 1/8"
SF6	3'-0 5/8"	2'-11 5/8"	SF13	2'-5 1/8"	2'-4"
SF7	2'-11 5/8"	2'-10 1/2"	SF14	2'-4"	2'-3"
SF8	2'-10 1/2"	2'-9 1/2"	SF15	2'-3"	2'-1 7/8"

CONTRACTORS VTSPE:

Vermont Agency of Transportation
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CK'D BY TY Lin   OK'D BY KRH
August 2, 2016
RESUBMIT No   Approved
BY Kristin Higgins   DATE 08/03/2016

PRECAST CONCRETE BOX CULVERT SHOP DRAWINGS (SDI JOB #17682)

SUPERVISOR: E. Barendse
DETAILER: I. ADAMS
CHECKER: E. Barendse

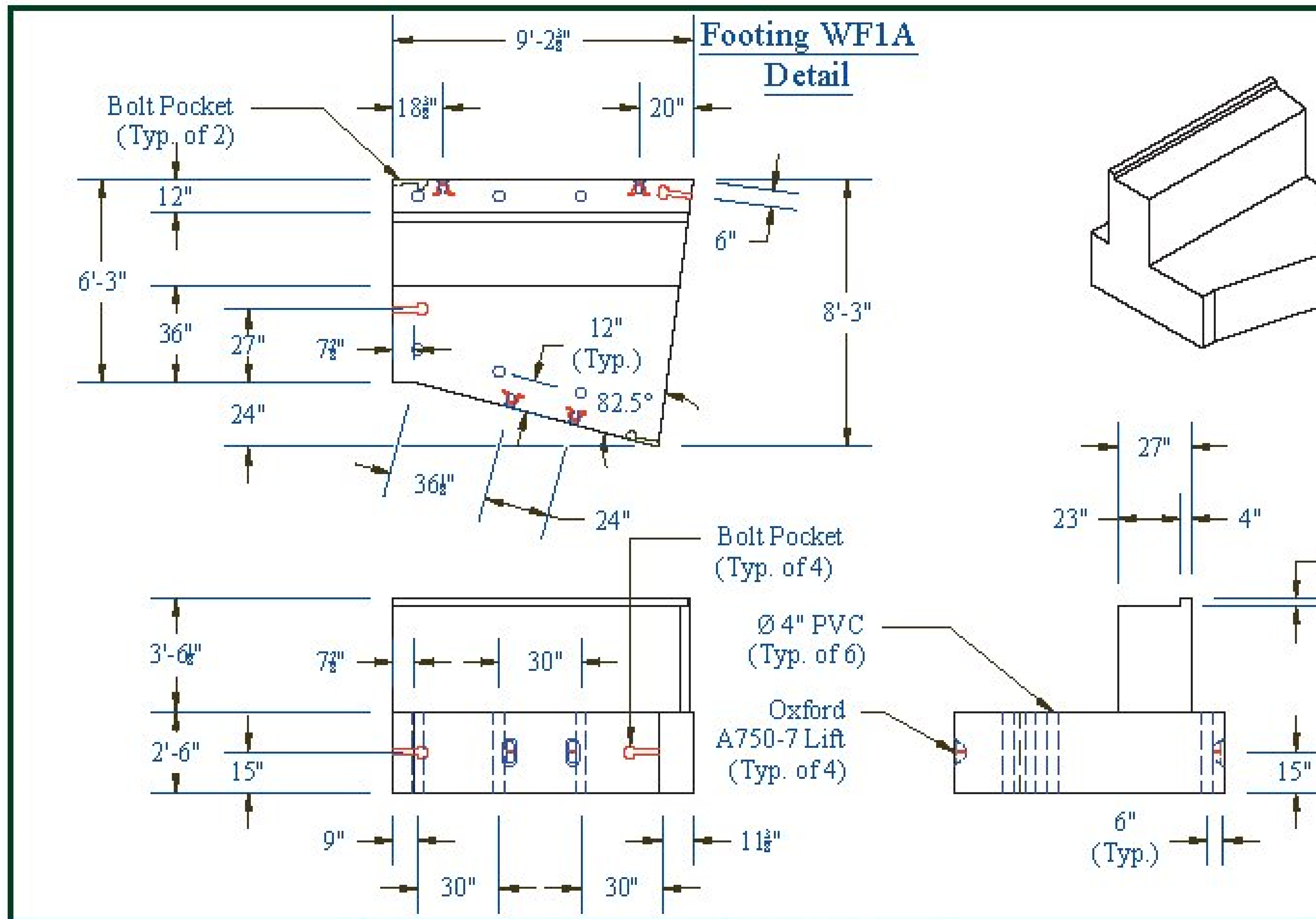
PROJECT NAME: DUXBURY
PROJECT #: BF 013-4(47)
LOCATION: DUXBURY, VT

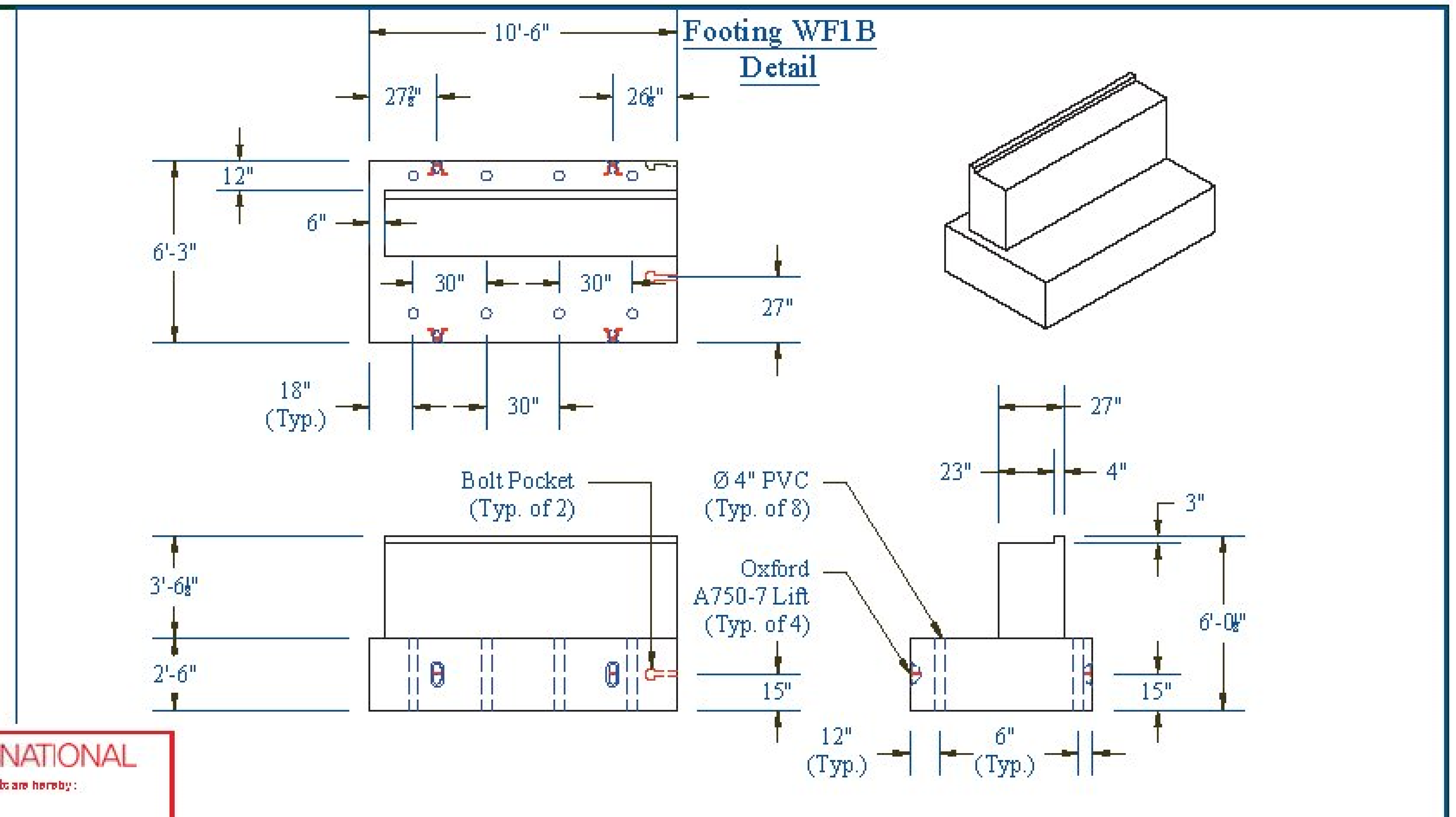
INSTALLER:
J.A. MCDONALD
585 Gilman Rd
Lyndon Ctr, VT 05850

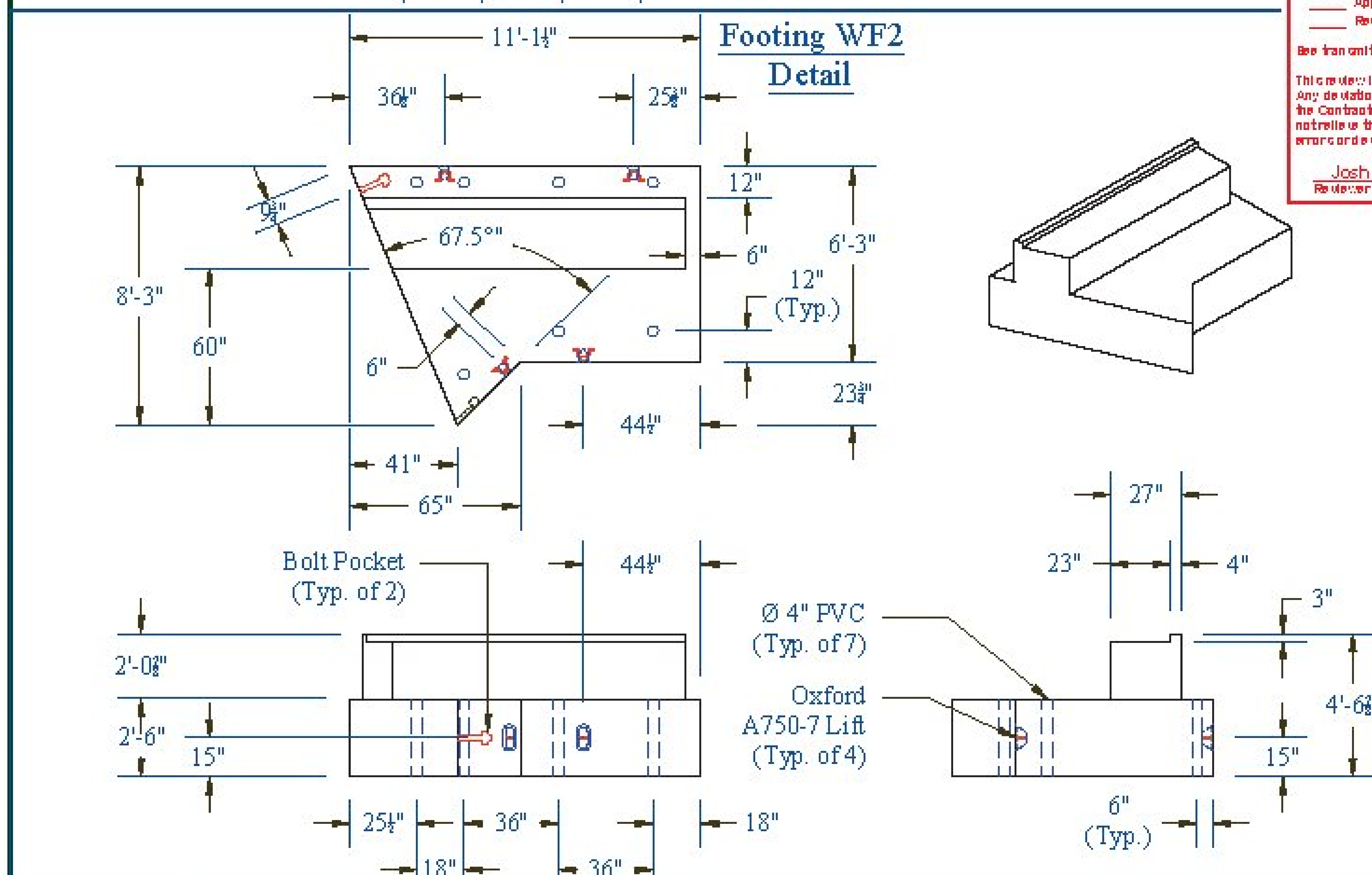
FABRICATOR:
193 INDUSTRIAL AVE.
WILLISTON, VT 05495
Ph: (802) 658-0201

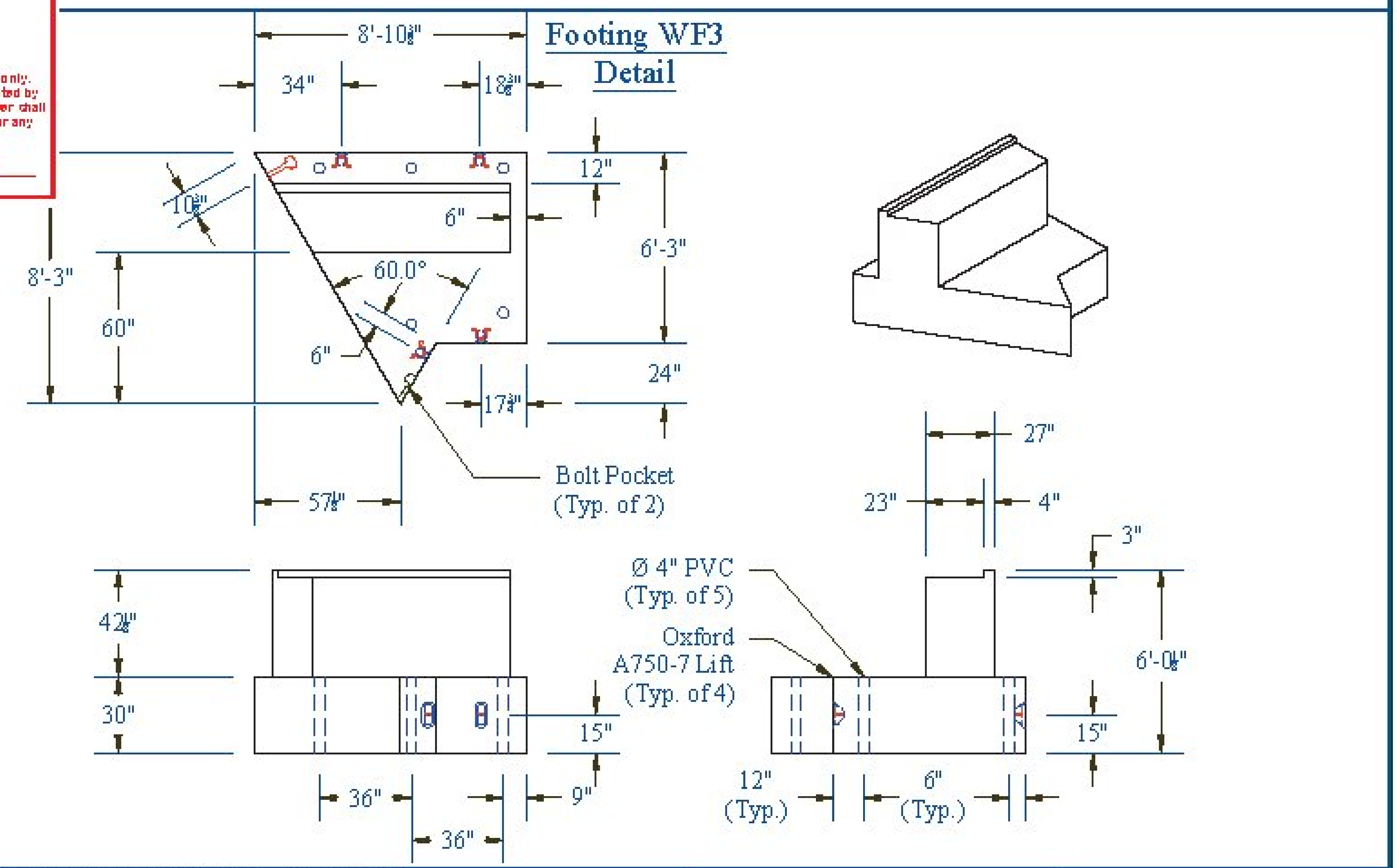
SD Ireland PRECAST

07/29/16 | SOUTH_FOOTINGS | 4_OF_12









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The stamped documents are hereby:

X Approved
Approved as noted
Revise and resubmit

See transmittal for additional information as applicable.

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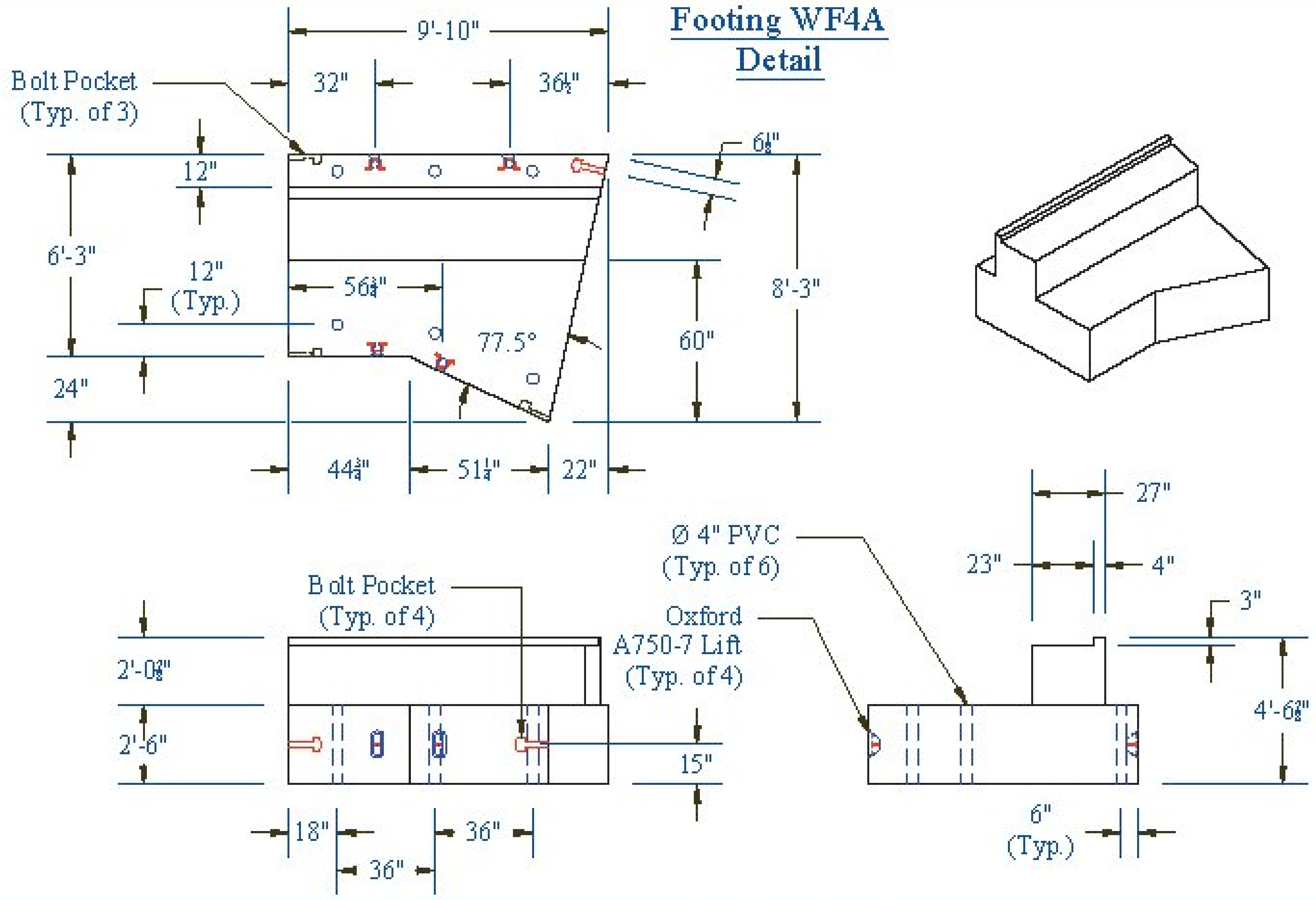
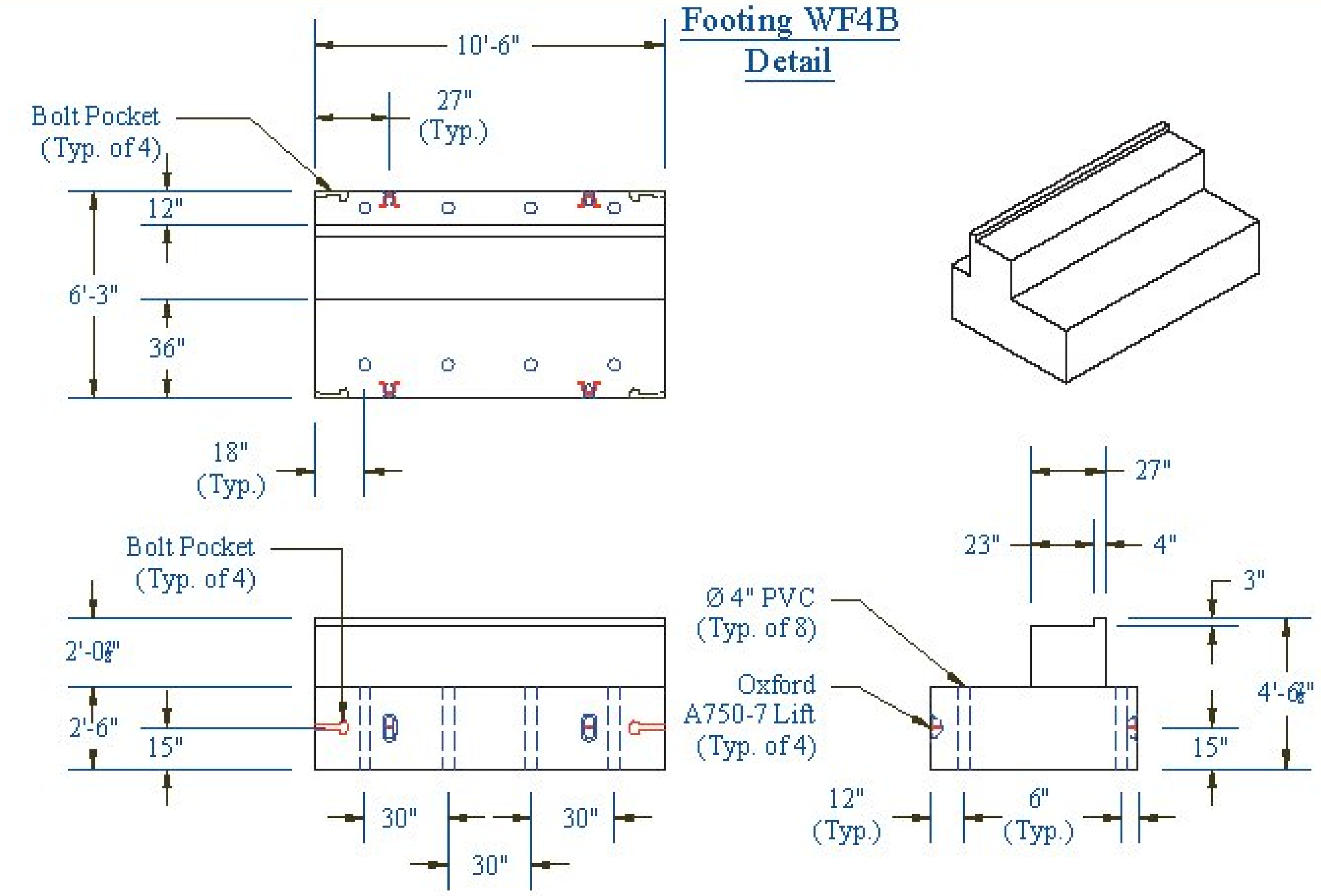
Josh Olund 08/03/2016
Reviewer Date

CONTRACTORS VTSPE:	Vermont Agency of Transportation RECEIVED CK'D BY TY Lin OK'D BY HHH August 2, 2016 RESUBMIT No Approved BY Kristin Higgins DATE 08/03/2016	PRECAST CONCRETE BOX CULVERT SHOP DRAWINGS (SDI JOB #17682) SUPERVISOR: E. Barendse DETAILER: I. ADAMS CHECKER: E. Barendse	PROJECT NAME: DUXBURY PROJECT #: BF 013-4(47) LOCATION: DUXBURY, VT	INSTALLER: J.A. MCDONALD 585 Gilman Rd Lyndon Ctr, VT 05850	FABRICATOR: 193 INDUSTRIAL AVE. WILLISTON, VT 05495 Ph: (802) 658-0201	SD Ireland PRECAST
				07/29/16	WING_FOOTINGS	5_OF_12

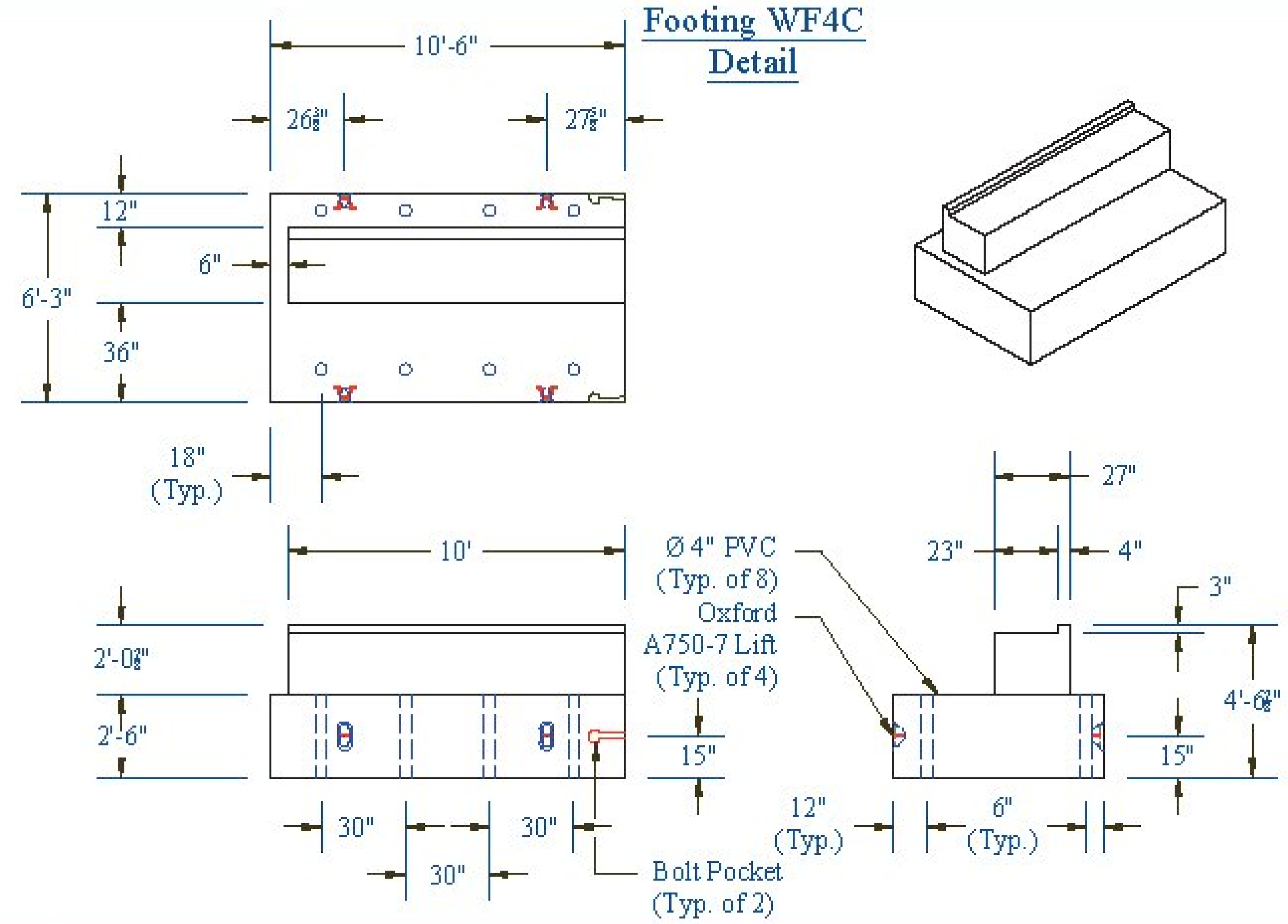
Footing WF4A Detail



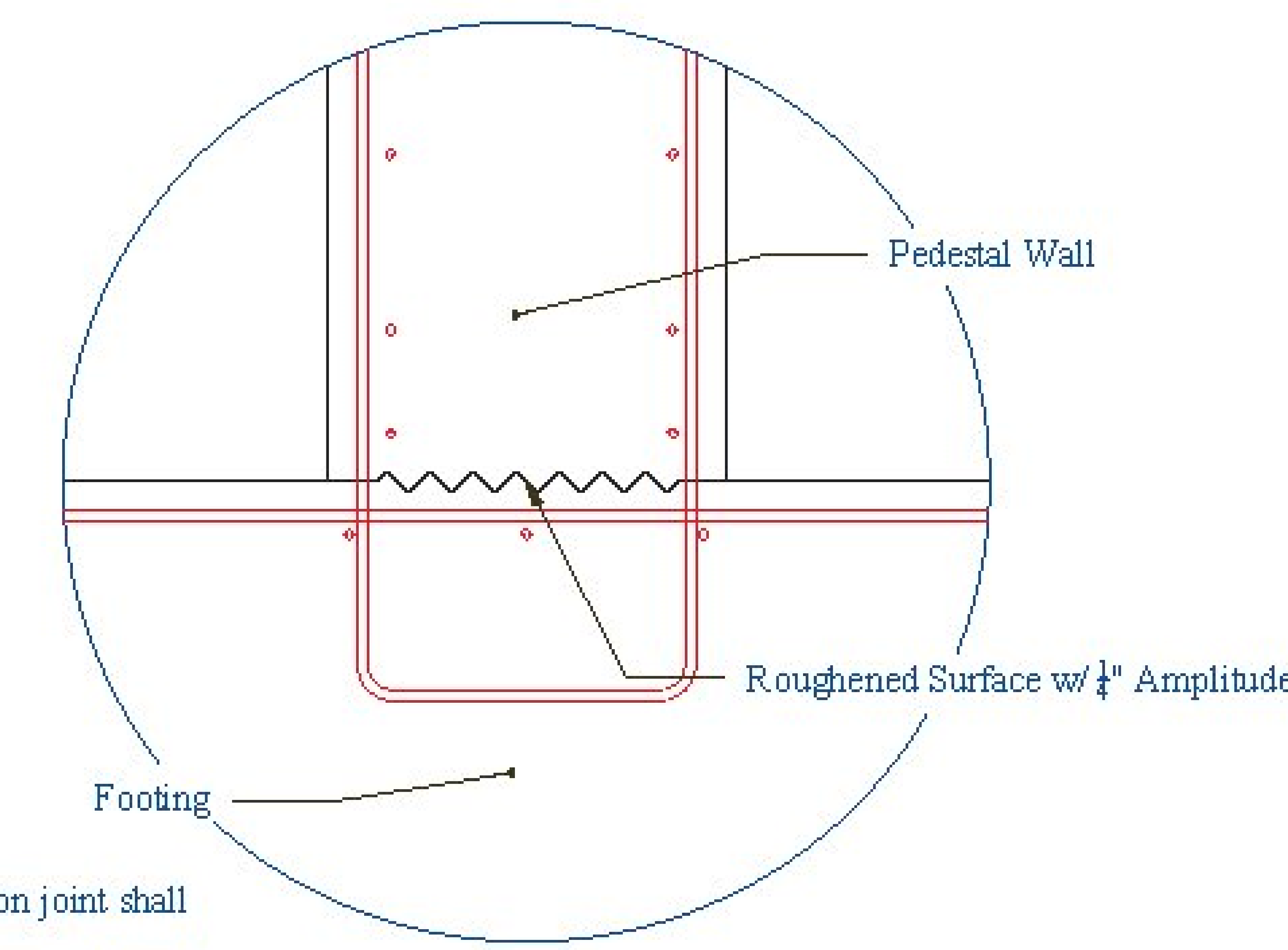
Footing WF4B Detail



Footing WF4C Detail



Typical Contruction Joint Detail



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Josh Olund 08/03/2016
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Note:
- Surface of concrete construction joint shall be cleaned and free of laitance.
- Immediately before new concrete is placed, all CJ surfaces shall be wetted and standing water removed.

CONTRACTORS VTSPE:

Vermont Agency of Transportation
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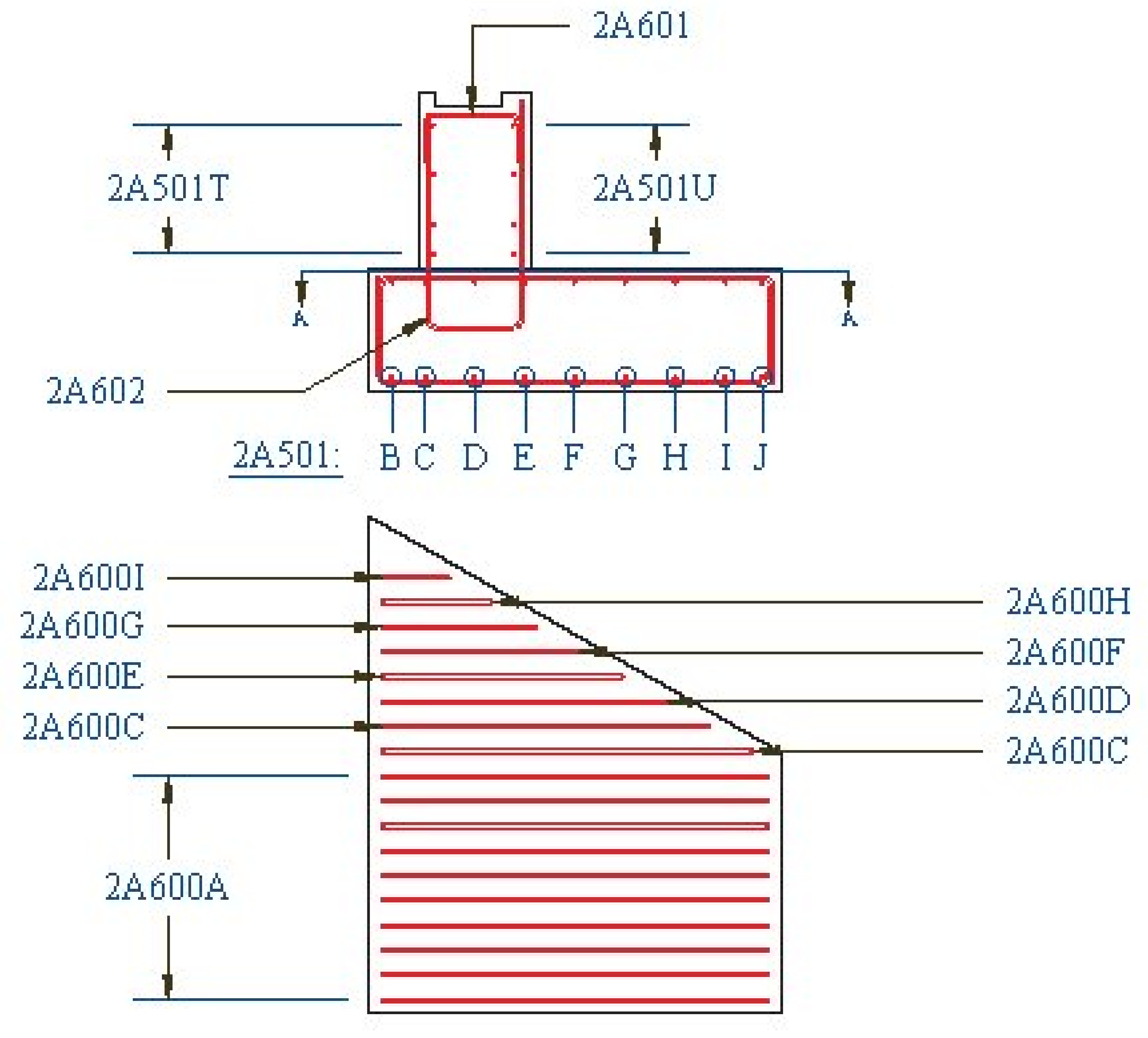
August 2, 2016
RESUBMIT BY No Kristin Higgins Approved
DATE 08/03/2016

PRECAST CONCRETE BOX CULVERT SHOP DRAWINGS (SDI JOB #17682)
SUPERVISOR: E. Barendse
DETAILER: I. ADAMS
CHECKER: E. Barendse
PROJECT NAME: DUXBURY
PROJECT #: BF 013-4(47)
LOCATION: DUXBURY, VT

INSTALLER:
J.A. MCDONALD
585 Gilman Rd
Lyndon Ctr, VT 05850
07/29/16

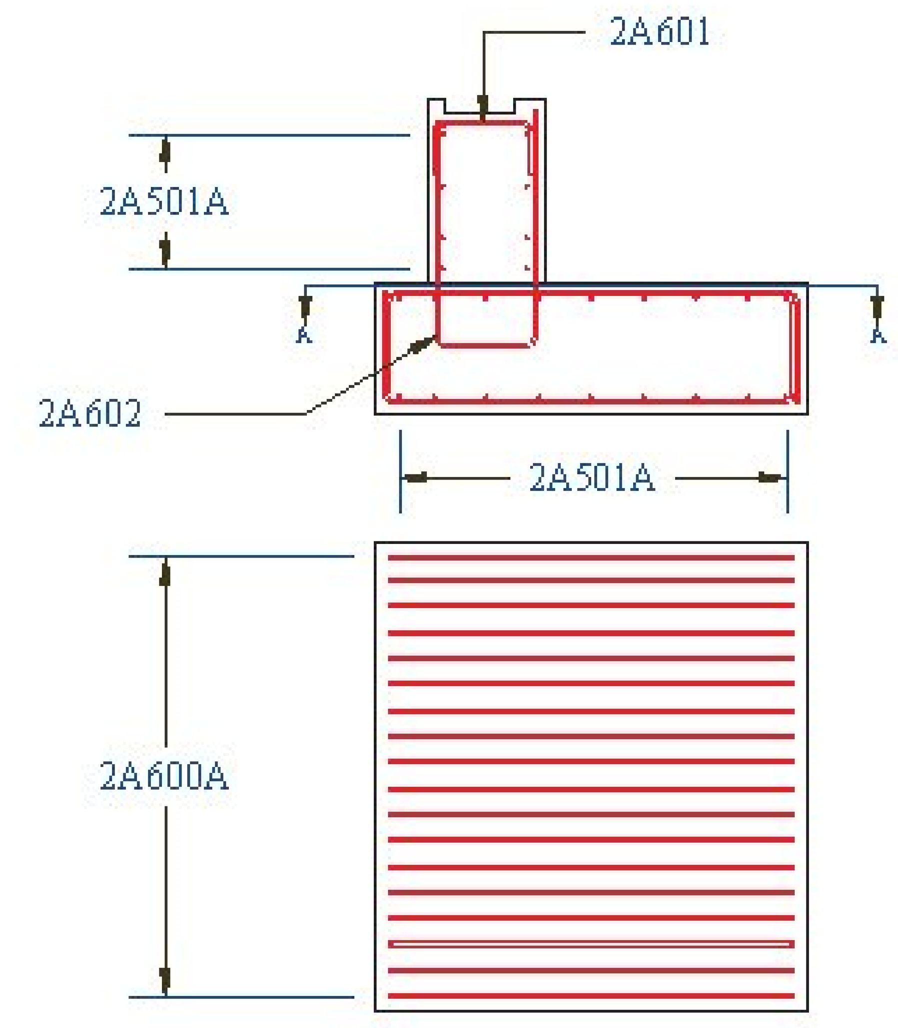
FABRICATOR:
193 INDUSTRIAL AVE.
WILLISTON, VT 05495
Ph: (802) 658-0201
SD Ireland PRECAST
WING_FOOTINGS
6_OF_12

NF1 Reinforcing Detail



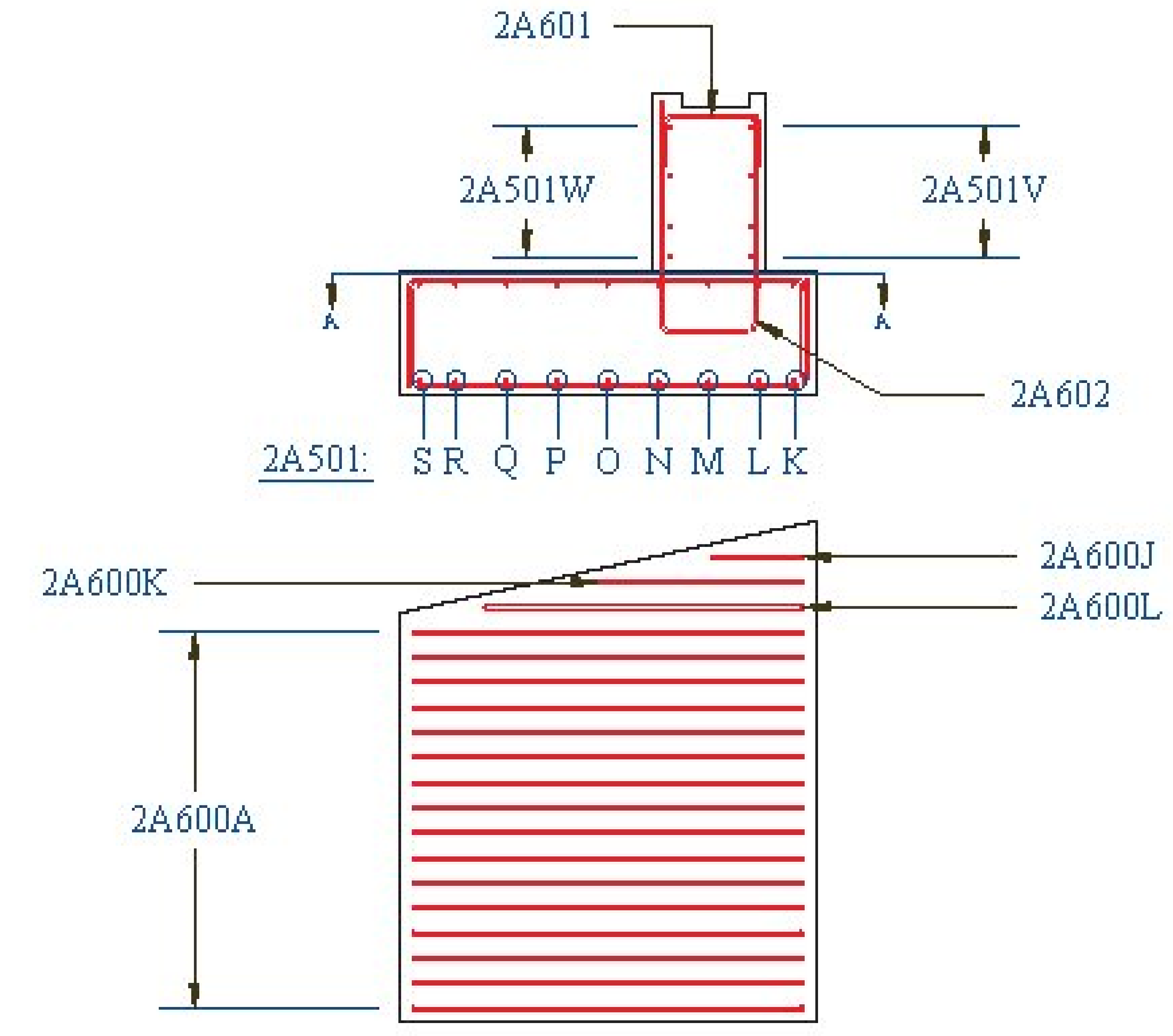
Section A-A

NF2-NF15 Reinforcing Detail



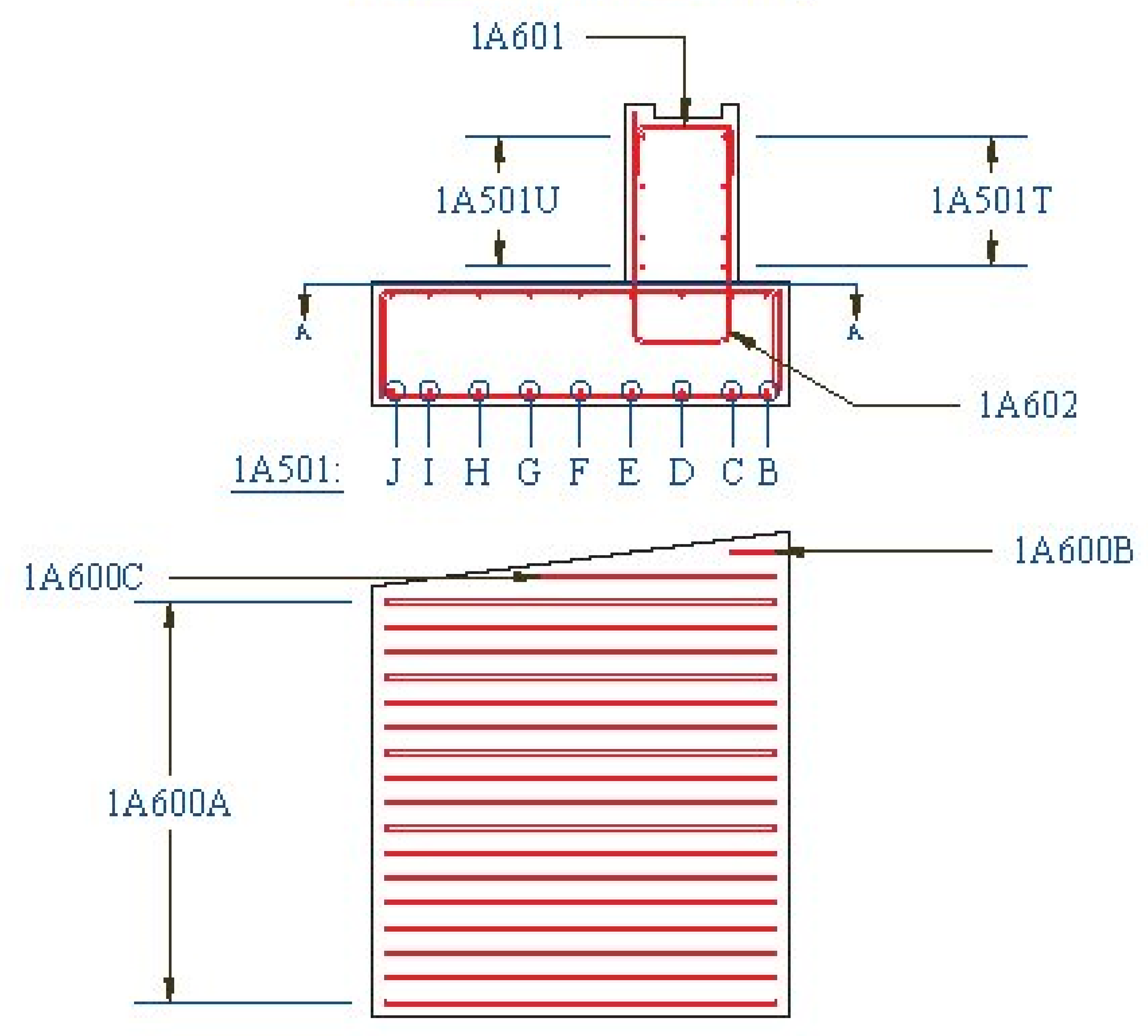
Section A-A

NF16 Reinforcing Detail



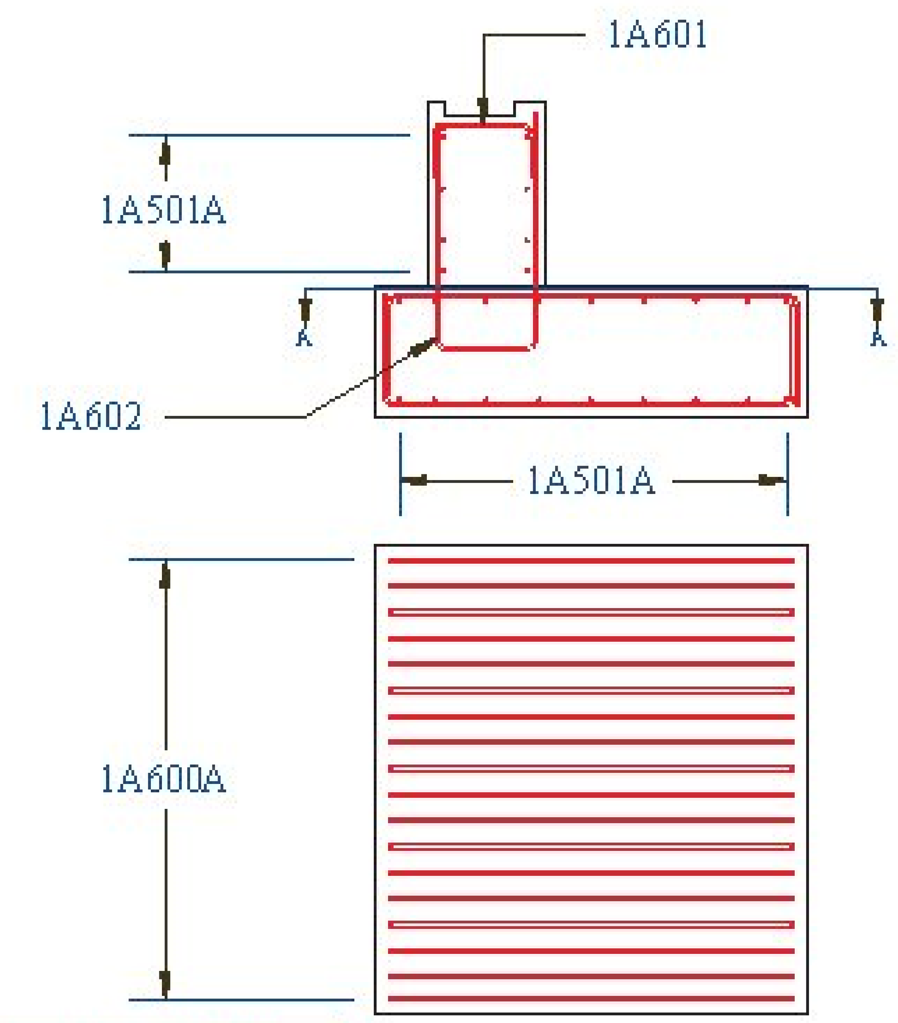
Section A-A

SF1 Reinforcing Detail



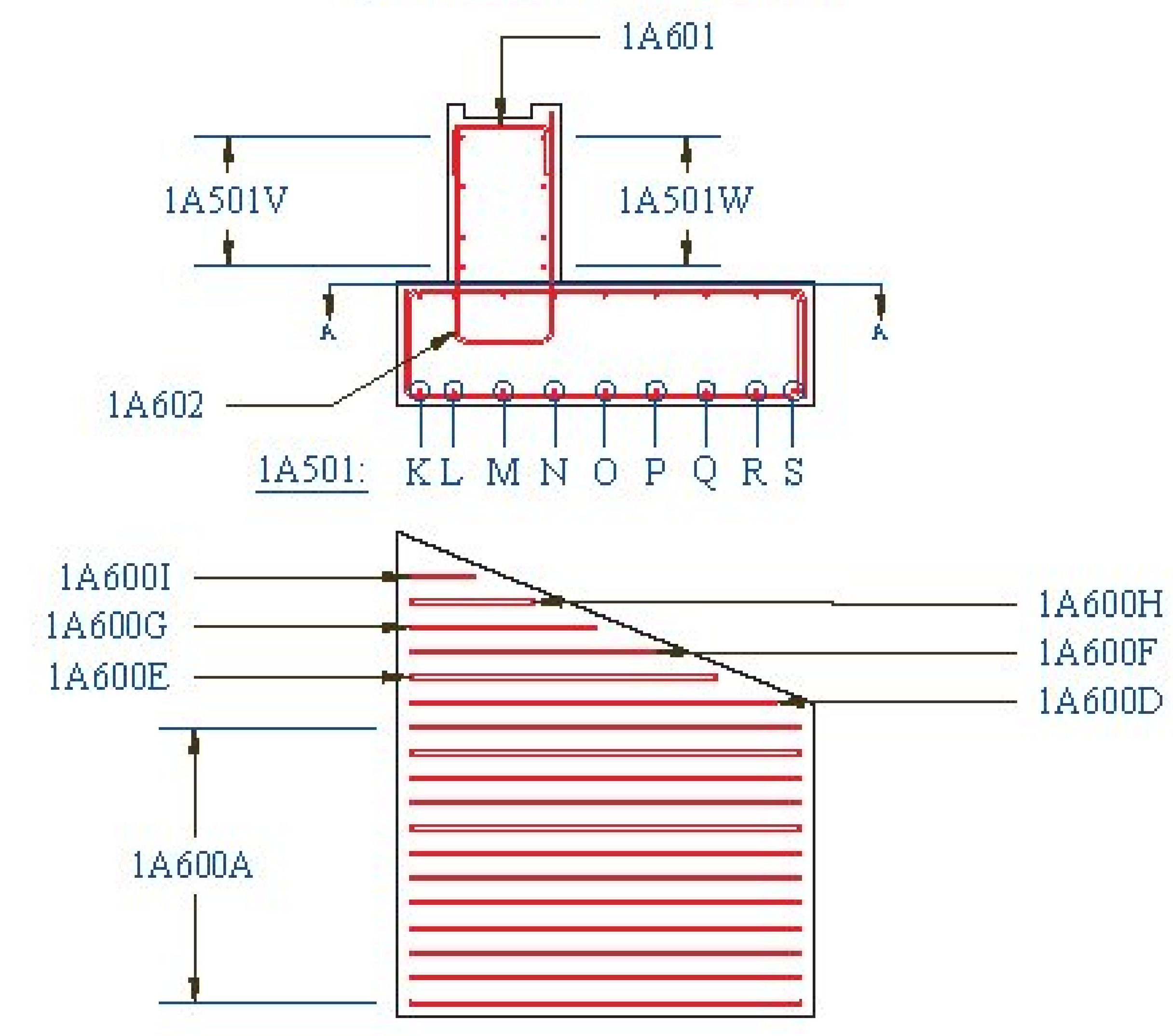
Section A-A

SF2-SF15 Reinforcing Detail



Section A-A

SF16 Reinforcing Detail



Section A-A

CONTRACTORS VTSPE:

Vermont Agency of Transportation
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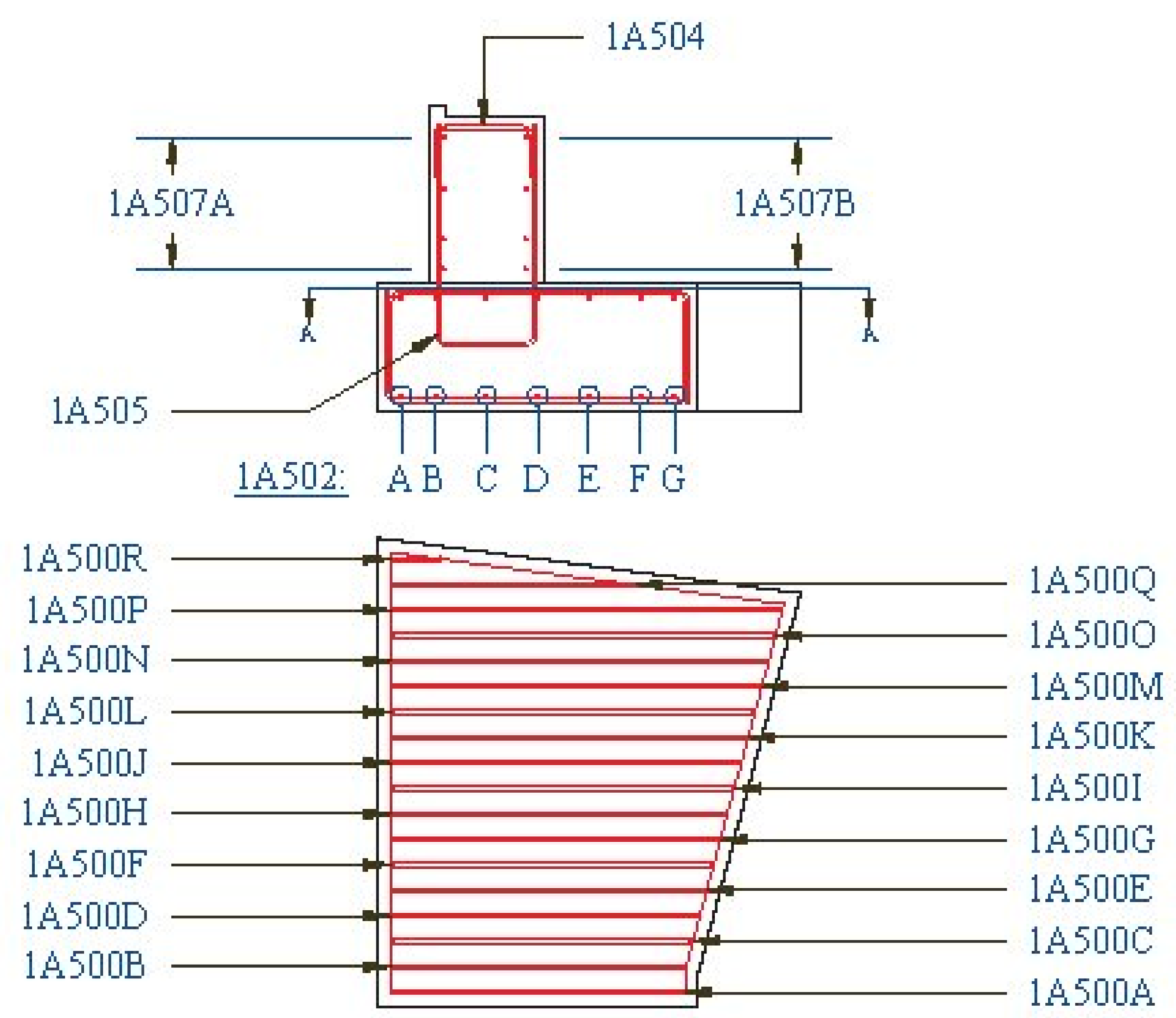
Josh Olund 08/03/2016
Reviewer Date

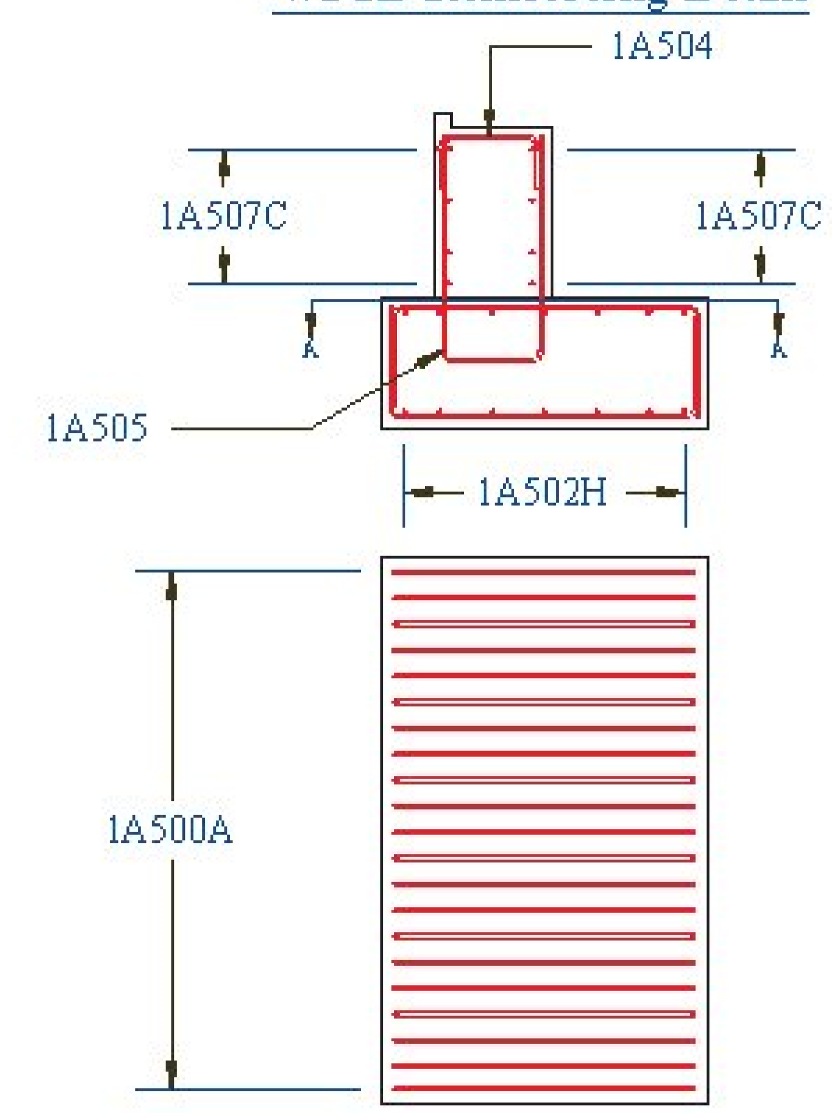
PRECAST CONCRETE BOX CULVERT SHOP DRAWINGS (SDI JOB #17682)		INSTALLER: J.A. MCDONALD 585 Gilman Rd Lyndon Ctr, VT 05850	FABRICATOR: 193 INDUSTRIAL AVE. WILLISTON, VT 05495 Ph: (802) 658-0201	SD Ireland PRECAST
SUPERVISOR: E. Barendse	PROJECT NAME: DUXBURY			
DETAILER: I. ADAMS	PROJECT #: BF 013-4(47)			
CHECKER: E. Barendse	LOCATION: DUXBURY, VT	07/29/16	REINFORCING	7_OF_12

WF1A Reinforcing Detail



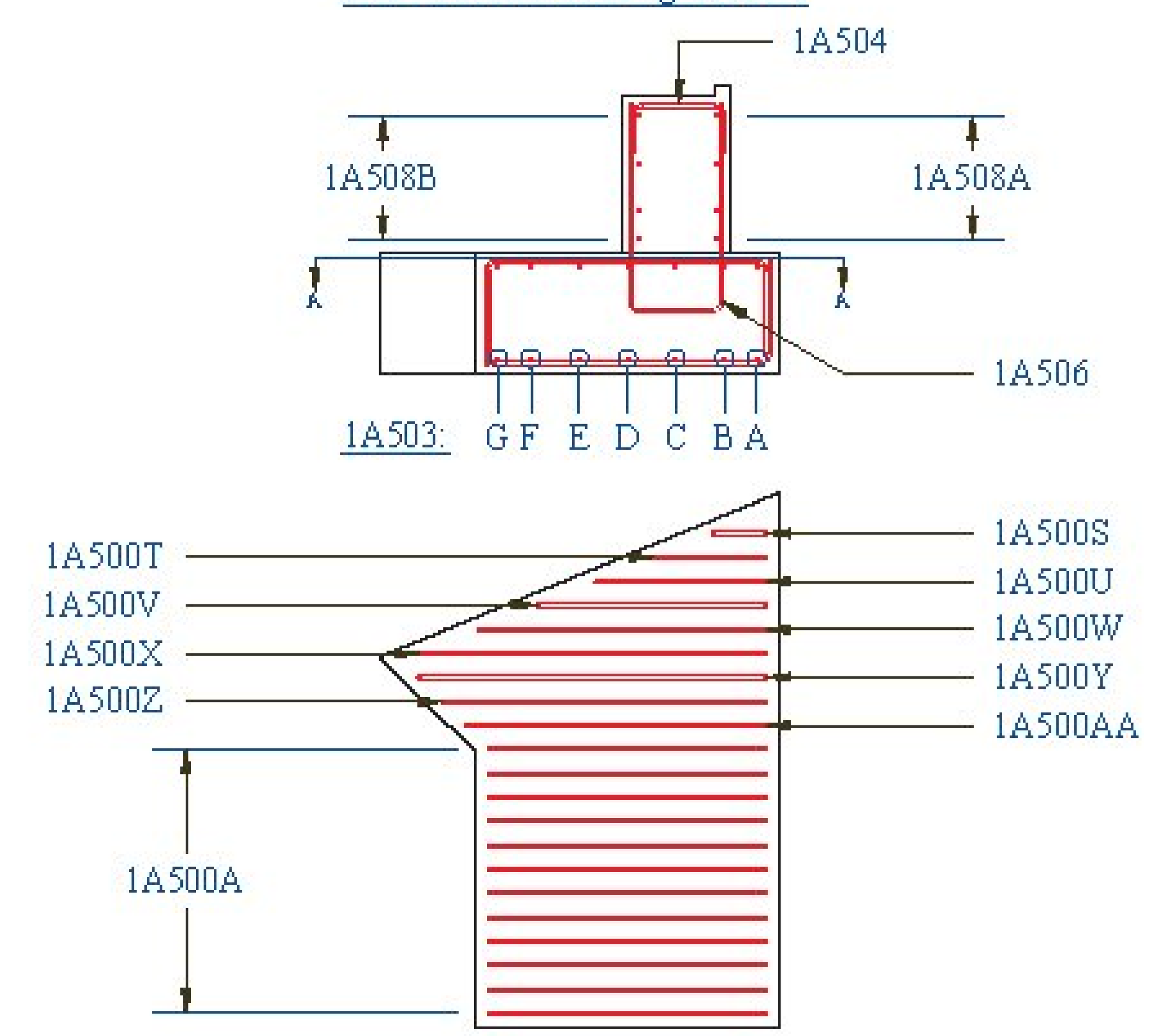
Section A-A

WF1B Reinforcing Detail



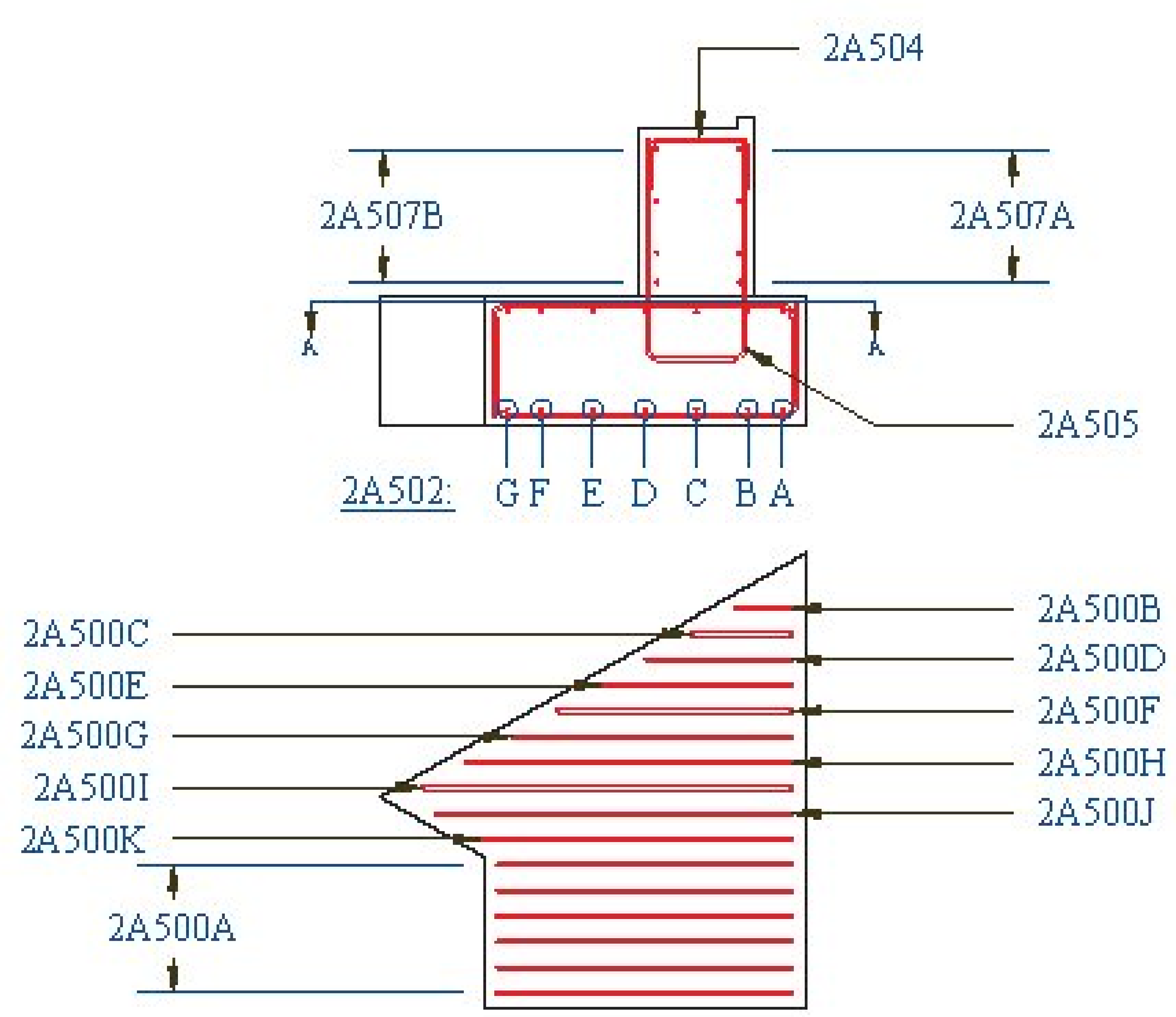
Section A-A

WF2 Reinforcing Detail



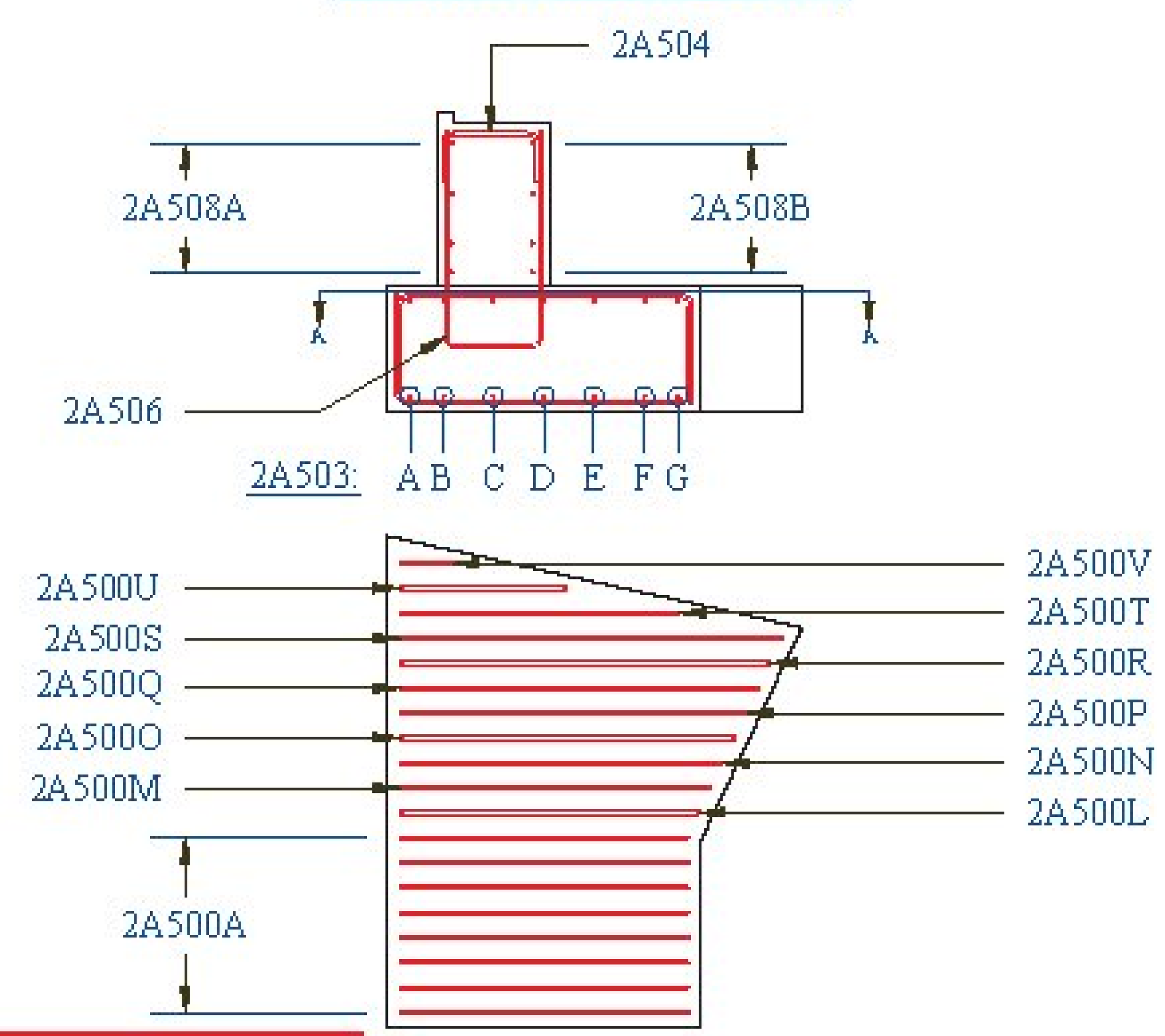
Section A-A

WF3 Reinforcing Detail



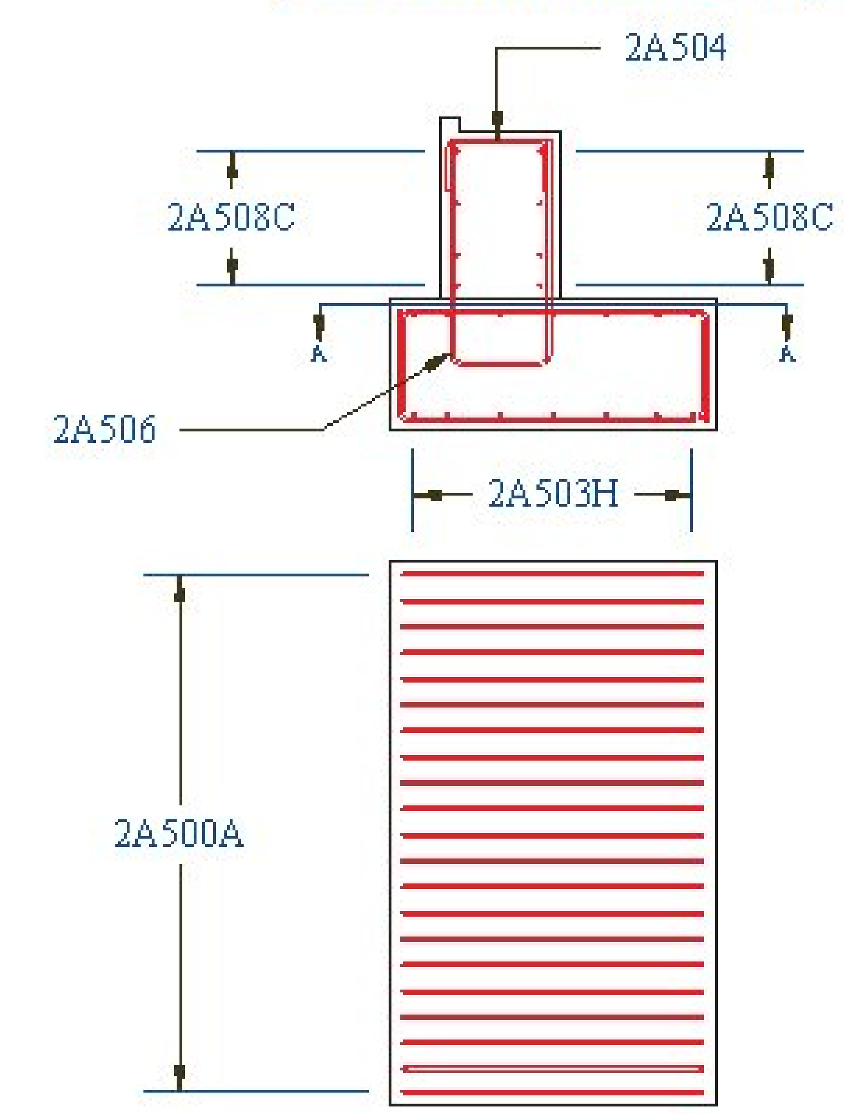
Section A-A

WF4A Reinforcing Detail



Section A-A

WF4B Reinforcing Detail



Section A-A

CONTRACTORS VTSPE:

Vermont Agency of Transportation
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August 2, 2016
RESUBMIT No Approved
BY Kristin Higgins DATE 08/03/2016

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Reviewer Date

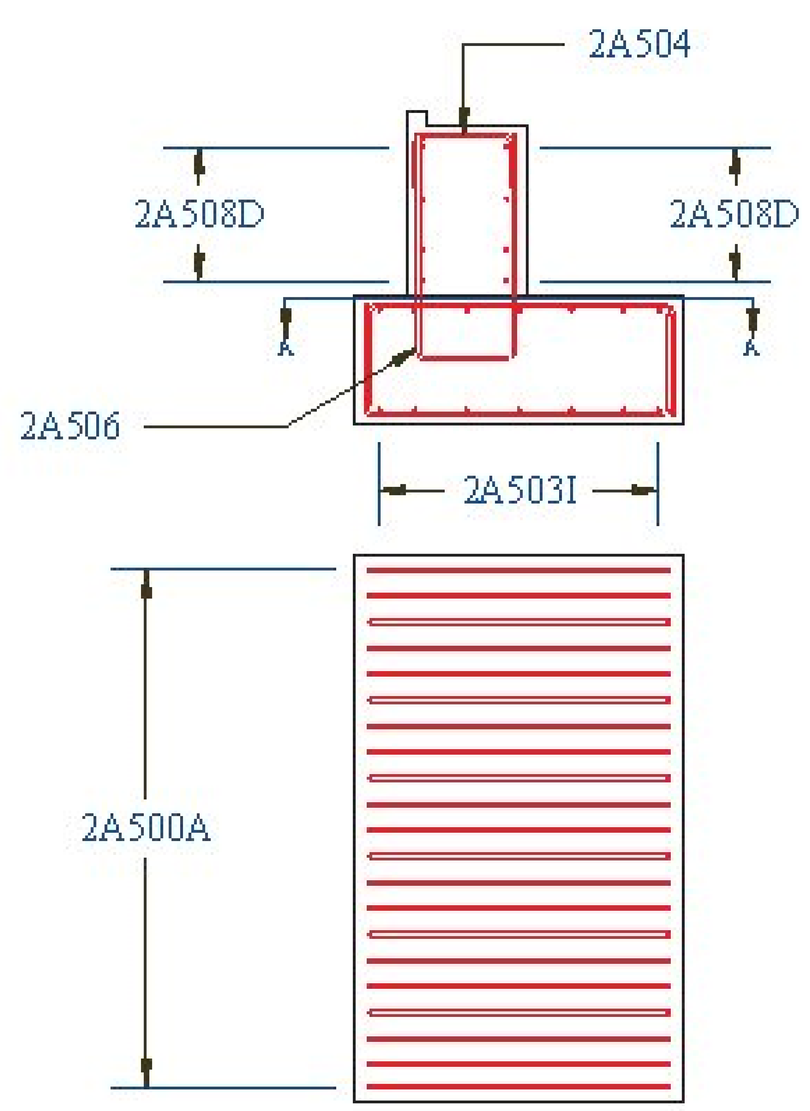
PRECAST CONCRETE BOX CULVERT SHOP DRAWINGS (SDI JOB #17682)		INSTALLER: J.A. MCDONALD 585 Gilman Rd Lyndon Ctr, VT 05850	FABRICATOR: 193 INDUSTRIAL AVE. WILLISTON, VT 05495 Ph: (802) 658-0201 SD Ireland PRECAST
SUPERVISOR: E. Barendse	PROJECT NAME: DUXBURY		
DETAILER: I. ADAMS	PROJECT #: BF 013-4(47)		
CHECKER: E. Barendse	LOCATION: DUXBURY, VT	07/29/16	WING_REINFORCING 8_OF_12

Reinforcing Schedule												
Mark	Quantity	Size	Spacing	Length	Type	A	B	C	D	E	F	G
1A500A	68	#5	1'-0"	8'-9"	S10		1'-6"	5'-9"	1'-6"			
1A500B	2	#5	1'-0"	8'-9 1/4"	S10		1'-6"	5'-9 1/4"	1'-6"			
1A500C	2	#5	1'-0"	8'-10 7/8"	S10		1'-6"	5'-10 7/8"	1'-6"			
1A500D	2	#5	1'-0"	9'-0 1/2"	S10		1'-6"	6'-0 1/2"	1'-6"			
1A500E	2	#5	1'-0"	9'-2 1/8"	S10		1'-6"	6'-2 1/8"	1'-6"			
1A500F	2	#5	1'-0"	9'-3 3/4"	S10		1'-6"	6'-3 3/4"	1'-6"			
1A500G	2	#5	1'-0"	9'-5 3/8"	S10		1'-6"	6'-5 3/8"	1'-6"			
1A500H	2	#5	1'-0"	9'-7"	S10		1'-6"	6'-7"	1'-6"			

Note:

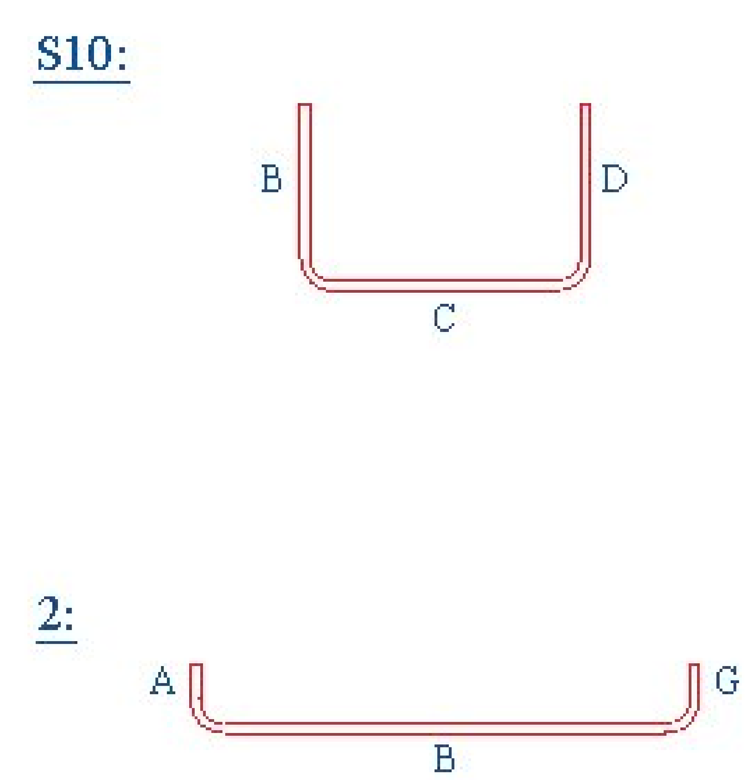
- 3" Clear unless noted otherwise.
- 1A505, 1A506, 2A505, 2A506, 1A602, 2A602 to be embedded greater than the 15" min as needed OR tops cut to length, after being cast in to footing, as needed to maintain pedestal wall slope.
- See reinforcing note 3 for test bars.

WF4C Reinforcing Detail



Section A-A

Rebar Bend Types



Reinforcing Schedule												
Mark	Quantity	Size	Spacing	Length	Type	A	B	C	D	E	F	G
1A500I	2	#5	1'-0"	9'-8 1/2"	S10		1'-6"	6'-8 1/2"	1'-6"			
1A500J	2	#5	1'-0"	9'-10 1/8"	S10		1'-6"	6'-10 1/8"	1'-6"			
1A500K	2	#5	1'-0"	9'-11 3/4"	S10		1'-6"	6'-11 3/4"	1'-6"			
1A500L	2	#5	1'-0"	10'-1 5/8"	S10		1'-6"	7'-1 5/8"	1'-6"			
1A500M	2	#5	1'-0"	10'-3"	S10		1'-6"	7'-3"	1'-6"			
1A500N	2	#5	1'-0"	10'-4 5/8"	S10		1'-6"	7'-4 5/8"	1'-6"			
1A500O	2	#5	1'-0"	10'-6 1/4"	S10		1'-6"	7'-6 1/4"	1'-6"			
1A500P	2	#5	1'-0"	10'-7 3/4"	S10		1'-6"	7'-7 3/4"	1'-6"			
1A500Q	2	#5	1'-0"	7'-9 3/4"	S10		1'-6"	4'-9 3/4"	1'-6"			
1A500R	2	#5	1'-0"	4'-0"	S10		1'-6"	1'-0"	1'-6"			
1A500S	2	#5	1'-0"	4'-1 5/8"	S10		1'-6"	1'-1 5/8"	1'-6"			
1A500T	2	#5	1'-0"	5'-4 1/8"	S10		1'-6"	2'-4 1/8"	1'-6"			
1A500U	2	#5	1'-0"	6'-6 5/8"	S10		1'-6"	3'-6 5/8"	1'-6"			
1A500V	2	#5	1'-0"	7'-9 1/8"	S10		1'-6"	4'-9 1/8"	1'-6"			
1A500W	2	#5	1'-0"	8'-11 1/2"	S10		1'-6"	5'-11 1/2"	1'-6"			
1A500X	2	#5	1'-0"	10'-2"	S10		1'-6"	7'-2"	1'-6"			
1A500Y	2	#5	1'-0"	10'-2 5/8"	S10		1'-6"	7'-2 5/8"	1'-6"			
1A500Z	2	#5	1'-0"	9'-8 5/8"	S10		1'-6"	6'-8 5/8"	1'-6"			
1A500AA	2	#5	1'-0"	9'-2 5/8"	S10		1'-6"	6'-2 5/8"	1'-6"			
1A501A	364	#5	1'-0"	8'-6"	STR							
1A501B	2	#5	1'-0"	9'-1 3/4"	STR							
1A501C	2	#5	1'-0"	9'-0 3/8"	STR							
1A501D	2	#5	1'-0"	8'-10 7/8"	STR							
1A501E	2	#5	1'-0"	8'-9 1/4"	STR							
1A501F	2	#5	1'-0"	8'-7 5/8"	STR							
1A501G	2	#5	1'-0"	8'-6 1/8"	STR							
1A501H	2	#5	1'-0"	8'-4 1/2"	STR							
1A501I	2	#5	1'-0"	8'-2 7/8"	STR							
1A501J	2	#5	1'-0"	8'-1 1/2"	STR							
1A501K	2	#5	1'-0"	9'-0 5/8"	STR							
1A501L	2	#5	1'-0"	8'-8 3/8"	STR							
1A501M	2	#5	1'-0"	8'-3 3/8"	STR							

CONTRACTORS VTSPE:

Vermont Agency of Transportation
RECEIVED
CK'D BY TY Lin OK'D BY KMH
August 2, 2016
RESUBMIT No Approved
BY Kristin Higgins DATE 08/03/2016

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Josh Olund 08/03/2016
Reviewer Date

PRECAST CONCRETE BOX CULVERT SHOP DRAWINGS (SDI JOB #17682)
SUPERVISOR: E. Barendse
DETAILER: I. ADAMS
CHECKER: E. Barendse
PROJECT NAME: DUXBURY
PROJECT #: BF 013-4(47)
LOCATION: DUXBURY, VT

INSTALLER:
J.A. MCDONALD
585 Gilman Rd
Lyndon Ctr, VT 05850

FABRICATOR:
193 INDUSTRIAL AVE.
WILLISTON, VT 05495
Ph: (802) 658-0201

SD Ireland PRECAST

07/29/16 REINFORCING_SCHEDULE 9_OF_12

Reinforcing Schedule

Mark	Quantity	Size	Spacing	Length	Type	A	B	C	D	E	F	G
1A501N	2	#5	1'-0"	7'-10⅜"	STR							
1A501O	2	#5	1'-0"	7'-5½"	STR							
1A501P	2	#5	1'-0"	7'-0½"	STR							
1A501Q	2	#5	1'-0"	6'-7½"	STR							
1A501R	2	#5	1'-0"	6'-2½"	STR							
1A501S	2	#5	1'-0"	5'-10¼"	STR							
1A501T	4	#5	1'-0"	9'-0¼"	STR							
1A501U	4	#5	1'-0"	8'-9½"	STR							
1A501V	4	#5	1'-0"	8'-7⅝"	STR							
1A501W	4	#5	1'-0"	7'-11⅛"	STR							
1A502A	2	#5	1'-0"	8'-7⅞"	STR							
1A502B	2	#5	1'-0"	8'-6⅝"	STR							
1A502C	2	#5	1'-0"	8'-5"	STR							
1A502D	2	#5	1'-0"	8'-3⅜"	STR							
1A502E	2	#5	1'-0"	8'-1⅞"	STR							
1A502F	2	#5	1'-0"	8'-0¼"	STR							
1A502G	2	#5	1'-0"	7'-10⅞"	STR							
1A502H	14	#5	1'-0"	10'-0"	STR							
1A503A	2	#5	1'-0"	10'-5⅞"	STR							
1A503B	2	#5	1'-0"	10'-1⅝"	STR							
1A503C	2	#5	1'-0"	9'-8¾"	STR							
1A503D	2	#5	1'-0"	9'-3¾"	STR							
1A503E	2	#5	1'-0"	8'-10¾"	STR							
1A503F	2	#5	1'-0"	8'-5¾"	STR							
1A503G	2	#5	1'-0"	8'-1⅝"	STR							
1A504	57	#5	1'-0"	3'-9"	2	1'-0"	1'-9"					1'-0"
1A505	38	#5	1'-0"	10'-5¼"	S10		4'-4⅛"	1'-9"	4'-4⅛"			
1A506	19	#5	1'-0"	10'-5¼"	S10		4'-4⅛"	1'-9"	4'-4⅛"			
1A507A	4	#5	1'-0"	8'-6⅜"	STR							
1A507B	4	#5	1'-0"	8'-3⅝"	STR							
1A507C	8	#5	1'-0"	9'-6¾"	STR							
1A508A	4	#5	1'-0"	9'-6⅞"	STR							

Note:
- 3" Clear unless noted otherwise.
- 1A505, 1A506, 2A505, 2A506, 1A602, 2A602 to be embedded greater than the 15" min as needed OR tops cut to length, after being cast in to footing, as needed to maintain pedestal wall slope.
- See reinforcing note 3 for test bars.

Reinforcing Schedule

Mark	Quantity	Size	Spacing	Length	Type	A	B	C	D	E	F	G
1A508B	4	#5	1'-0"	8'-10½"	STR							
1A600A	562	#6	6"	10'-9"	S10		1'-6"	7'-9"	1'-6"			
1A600B	2	#6	6"	3'-11"	S10		1'-6"	11"	1'-6"			
1A600C	2	#6	6"	7'-8¼"	S10		1'-6"	4'-8¼"	1'-6"			
1A600D	2	#6	6"	10'-3⅝"	S10		1'-6"	7'-3⅝"	1'-6"			
1A600E	2	#6	6"	9'-1⅛"	S10		1'-6"	6'-1⅛"	1'-6"			
1A600F	2	#6	6"	7'-10¾"	S10		1'-6"	4'-10¾"	1'-6"			
1A600G	2	#6	6"	6'-8¼"	S10		1'-6"	3'-8¼"	1'-6"			
1A600H	2	#6	6"	5'-5¾"	S10		1'-6"	2'-5¾"	1'-6"			
1A600I	2	#6	6"	4'-3⅜"	S10		1'-6"	1'-3⅜"	1'-6"			
1A601	287	#6	6"	3'-9"	2	1'-0"	1'-9"	11"				1'-0"
1A602	287	#6	6"	10'-8¼"	S10		4'-7⅛"	1'-9"	4'-4⅛"			
2A500A	112	#5	1'-0"	8'-9"	S10		1'-6"	5'-9"	1'-6"			
2A500B	2	#5	1'-0"	4'-1½"	S10		1'-6"	1'-1½"	1'-6"			
2A500C	2	#5	1'-0"	4'-11⅞"	S10		1'-6"	1'-11⅞"	1'-6"			
2A500D	2	#5	1'-0"	5'-10⅜"	S10		1'-6"	2'-10⅜"	1'-6"			
2A500E	2	#5	1'-0"	6'-8¾"	S10		1'-6"	3'-8¾"	1'-6"			
2A500F	2	#5	1'-0"	7'-7⅛"	S10		1'-6"	4'-7⅛"	1'-6"			
2A500G	2	#5	1'-0"	8'-5½"	S10		1'-6"	5'-5½"	1'-6"			
2A500H	2	#5	1'-0"	9'-3⅞"	S10		1'-6"	6'-3⅞"	1'-6"			
2A500I	2	#5	1'-0"	10'-2⅜"	S10		1'-6"	7'-2⅜"	1'-6"			
2A500J	2	#5	1'-0"	9'-11¼"	S10		1'-6"	6'-11¼"	1'-6"			
2A500K	2	#5	1'-0"	9'-0⅞"	S10		1'-6"	6'-0⅞"	1'-6"			
2A500L	2	#5	1'-0"	8'-11¾"	S10		1'-6"	5'-11¾"	1'-6"			
2A500M	2	#5	1'-0"	9'-2⅝"	S10		1'-6"	6'-2⅝"	1'-6"			
2A500N	2	#5	1'-0"	9'-5⅜"	S10		1'-6"	6'-5⅜"	1'-6"			
2A500O	2	#5	1'-0"	9'-8¼"	S10		1'-6"	6'-8¼"	1'-6"			
2A500P	2	#5	1'-0"	9'-11"	S10		1'-6"	6'-11"	1'-6"			
2A500Q	2	#5	1'-0"	10'-1⅞"	S10		1'-6"	7'-1⅞"	1'-6"			
2A500R	2	#5	1'-0"	10'-4⅝"	S10		1'-6"	7'-4⅝"	1'-6"			
2A500S	2	#5	1'-0"	10'-7½"	S10		1'-6"	7'-7½"	1'-6"			
2A500T	2	#5	1'-0"	8'-7"	S10		1'-6"	5'-7"	1'-6"			

CONTRACTORS VTSPE:

Vermont Agency of Transportation
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August 2, 2016
RESUBMIT No Approved
BY Kristin Higgins DATE 08/03/2016

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Approved as noted
Revise and resubmit
See transmittal for additional information as applicable.
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Josh Olund 08/03/2016
Reviewer Date

PRECAST CONCRETE BOX CULVERT SHOP DRAWINGS (SDI JOB #17682)		INSTALLER: J.A. MCDONALD 585 Gilman Rd Lyndon Ctr, VT 05850	FABRICATOR: 193 INDUSTRIAL AVE. WILLISTON, VT 05495 Ph: (802) 658-0201 SD Ireland PRECAST
SUPERVISOR: E. Barendse DETAILER: I. ADAMS CHECKER: E. Barendse	PROJECT NAME: DUXBURY PROJECT #: BF 013-4(47) LOCATION: DUXBURY, VT	07/29/16	REINFORCING_SCHEDULE 10_OF_12

Reinforcing Schedule

Mark	Quantity	Size	Spacing	Length	Type	A	B	C	D	E	F	G
2A500U	2	#5	1'-0"	6'-4"	S10		1'-6"	3'-4"	1'-6"			
2A500V	2	#5	1'-0"	4'-1"	S10		1'-6"	1'-1"	1'-6"			
2A501A	364	#5	1'-0"	8'-6"	STR							
2A501B	2	#5	1'-0"	9'-3 3/4"	STR							
2A501C	2	#5	1'-0"	8'-9 7/8"	STR							
2A501D	2	#5	1'-0"	8'-3"	STR							
2A501E	2	#5	1'-0"	7'-8"	STR							
2A501F	2	#5	1'-0"	7'-1 1/8"	STR							
2A501G	2	#5	1'-0"	6'-6 1/8"	STR							
2A501H	2	#5	1'-0"	5'-11 1/4"	STR							
2A501I	2	#5	1'-0"	5'-4 3/8"	STR							
2A501J	2	#5	1'-0"	4'-10 1/2"	STR							
2A501K	2	#5	1'-0"	9'-5 1/4"	STR							
2A501L	2	#5	1'-0"	9'-2 7/8"	STR							
2A501M	2	#5	1'-0"	9'-0 1/4"	STR							
2A501N	2	#5	1'-0"	8'-9 5/8"	STR							
2A501O	2	#5	1'-0"	8'-6 7/8"	STR							
2A501P	2	#5	1'-0"	8'-4 1/4"	STR							
2A501Q	2	#5	1'-0"	8'-1 5/8"	STR							
2A501R	2	#5	1'-0"	7'-10 7/8"	STR							
2A501S	2	#5	1'-0"	7'-8 5/8"	STR							
2A501T	2	#5	1'-0"	8'-8 7/8"	STR							
2A501U	2	#5	1'-0"	7'-9 1/8"	STR							
2A501V	2	#5	1'-0"	9'-2 1/2"	STR							
2A501W	2	#5	1'-0"	8'-10"	STR							
2A502A	2	#5	1'-0"	8'-2"	STR							
2A502B	2	#5	1'-0"	7'-8 1/8"	STR							
2A502C	2	#5	1'-0"	7'-1 1/4"	STR							
2A502D	2	#5	1'-0"	6'-6 1/4"	STR							
2A502E	2	#5	1'-0"	5'-11 3/8"	STR							
2A502F	2	#5	1'-0"	5'-4 3/8"	STR							
2A502G	2	#5	1'-0"	4'-10 1/2"	STR							

Note:
- 3" Clear unless noted otherwise.
- 1A505, 1A506, 2A505, 2A506, 1A602, 2A602 to be embedded greater than the 15" min as needed OR tops cut to length, after being cast in to footing, as needed to maintain pedestal wall slope.
- See reinforcing note 3 for test bars.

Reinforcing Schedule

Mark	Quantity	Size	Spacing	Length	Type	A	B	C	D	E	F	G
2A503A	2	#5	1'-0"	9'-3 1/4"	STR							
2A503B	2	#5	1'-0"	9'-0 7/8"	STR							
2A503C	2	#5	1'-0"	8'-10 1/4"	STR							
2A503D	2	#5	1'-0"	8'-7 5/8"	STR							
2A503E	2	#5	1'-0"	8'-4 7/8"	STR							
2A503F	2	#5	1'-0"	8'-2 1/4"	STR							
2A503G	2	#5	1'-0"	8'-0"	STR							
2A503H	14	#5	1'-0"	10'-0"	STR							
2A503I	14	#5	1'-0"	10'-0"	STR							
2A504	73	#5	1'-0"	3'-9"	2	1'-0"	1'-9"					1'-0"
2A505	14	#5	1'-0"	10'-5 1/4"	S10		4'-4 1/8"	1'-9"	4'-4 1/8"			
2A506	59	#5	1'-0"	10'-5 1/4"	S10		4'-4 1/8"	1'-9"	4'-4 1/8"			
2A507A	4	#5	1'-0"	7'-1 1/8"	STR							
2A507B	4	#5	1'-0"	6'-1 3/8"	STR							
2A508A	4	#5	1'-0"	9'-0 1/2"	STR							
2A508B	4	#5	1'-0"	8'-8"	STR							
2A508C	8	#5	1'-0"	10'-0"	STR							
2A508D	8	#5	1'-0"	9'-6"	STR							
2A600A	556	#5	6"	10'-9"	S10		1'-6"	7'-9"	1'-6"			
2A600B	2	#5	6"	10'-5 3/8"	S10		1'-6"	7'-5 3/8"	1'-6"			
2A600C	2	#5	6"	9'-7"	S10		1'-6"	6'-7"	1'-6"			
2A600D	2	#5	6"	8'-8 1/2"	S10		1'-6"	5'-8 1/2"	1'-6"			
2A600E	2	#5	6"	7'-10 1/8"	S10		1'-6"	4'-10 1/8"	1'-6"			
2A600F	2	#5	6"	6'-11 3/4"	S10		1'-6"	3'-11 3/4"	1'-6"			
2A600G	2	#6	6"	6'-1 3/8"	S10		1'-6"	3'-1 3/8"	1'-6"			
2A600H	2	#6	6"	5'-3"	S10		1'-6"	2'-3"	1'-6"			
2A600I	2	#6	6"	4'-4 1/2"	S10		1'-6"	1'-4 1/2"	1'-6"			
2A600J	2	#6	6"	4'-10"	S10		1'-6"	1'-10"	1'-6"			
2A600K	2	#6	6"	7'-1"	S10		1'-6"	4'-1"	1'-6"			
2A600L	2	#6	6"	9'-4"	S10		1'-6"	6'-4"	1'-6"			
2A601	289	#6	6"	3'-9"	2	1'-0"	1'-9"					1'-0"
2A602	289	#6	6"	10'-8 1/4"	S10		4'-7 1/8"	1'-9"	4'-4 1/8"			

CONTRACTORS VTSPE:

Vermont Agency of Transportation
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August 2, 2016
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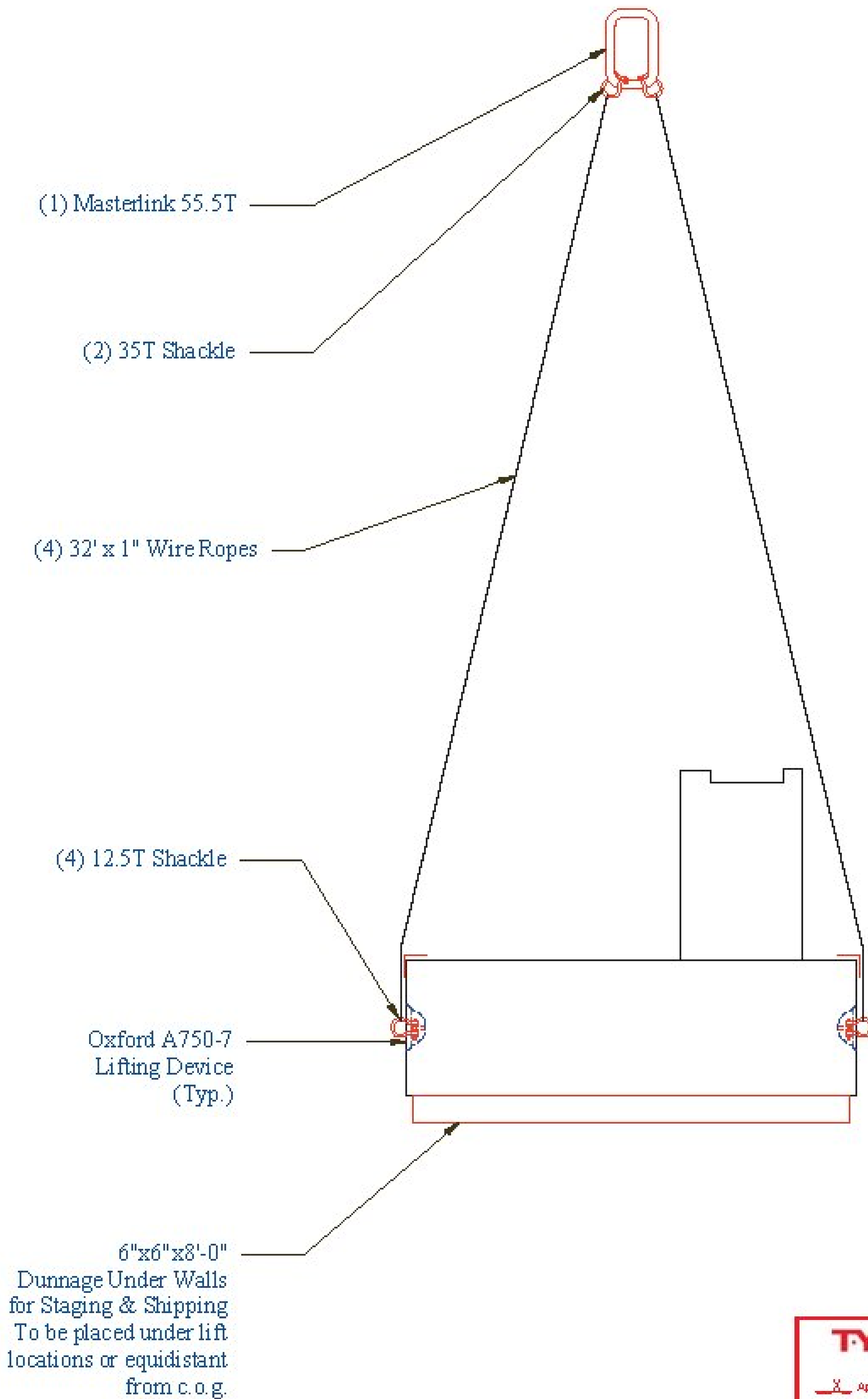
Josh Olund 08/03/2016
Reviewer Date

PRECAST CONCRETE BOX CULVERT SHOP DRAWINGS (SDI JOB #17682)
SUPERVISOR: E. Barendse
DETAILER: I. ADAMS
CHECKER: E. Barendse
PROJECT NAME: DUXBURY
PROJECT #: BF 013-4(47)
LOCATION: DUXBURY, VT
INSTALLER: J.A. MCDONALD 585 Gilman Rd Lyndon Ctr, VT 05850
FABRICATOR: 193 INDUSTRIAL AVE. WILLISTON, VT 05495 Ph: (802) 658-0201
SD Ireland PRECAST
07/29/16
REINFORCING_SCHEDULE
11_OF_12

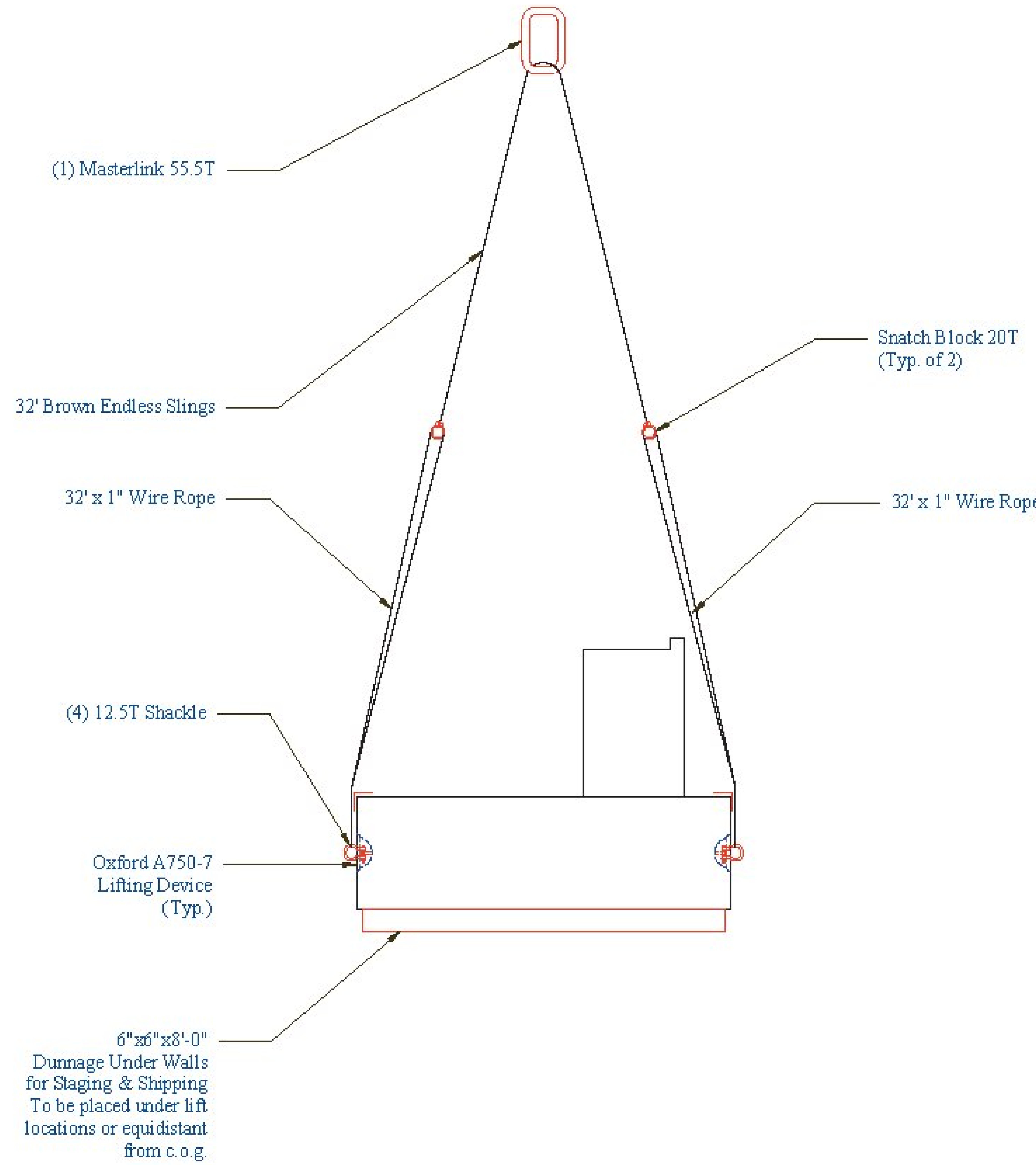
Footing SF2-15/NF2-NF15 Detail

Heaviest Section: NF-2



Footing SF1,SF16,NF1,NF16,& WF Footings Detail

Heaviest Section: NF-1



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SUPERVISOR: E. Barendse	PROJECT NAME: DUXBURY			
DETAILER: I. ADAMS	PROJECT #: BF 013-4(47)			
CHECKER: E. Barendse	LOCATION: DUXBURY, VT	07/29/16	LIFTING_DETAIL	12_OF_12