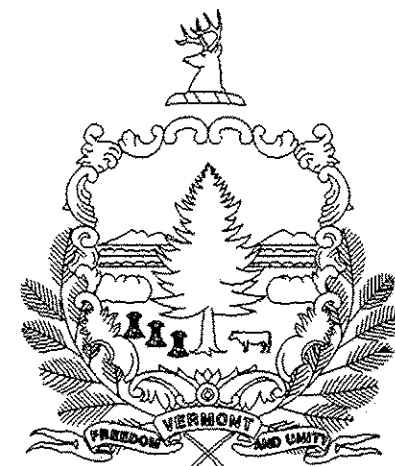


SEE SHEET 2 FOR INDEX OF SHEETS

STATE OF VERMONT
AGENCY OF TRANSPORTATION



PROPOSED IMPROVEMENT
BRIDGE PROJECT

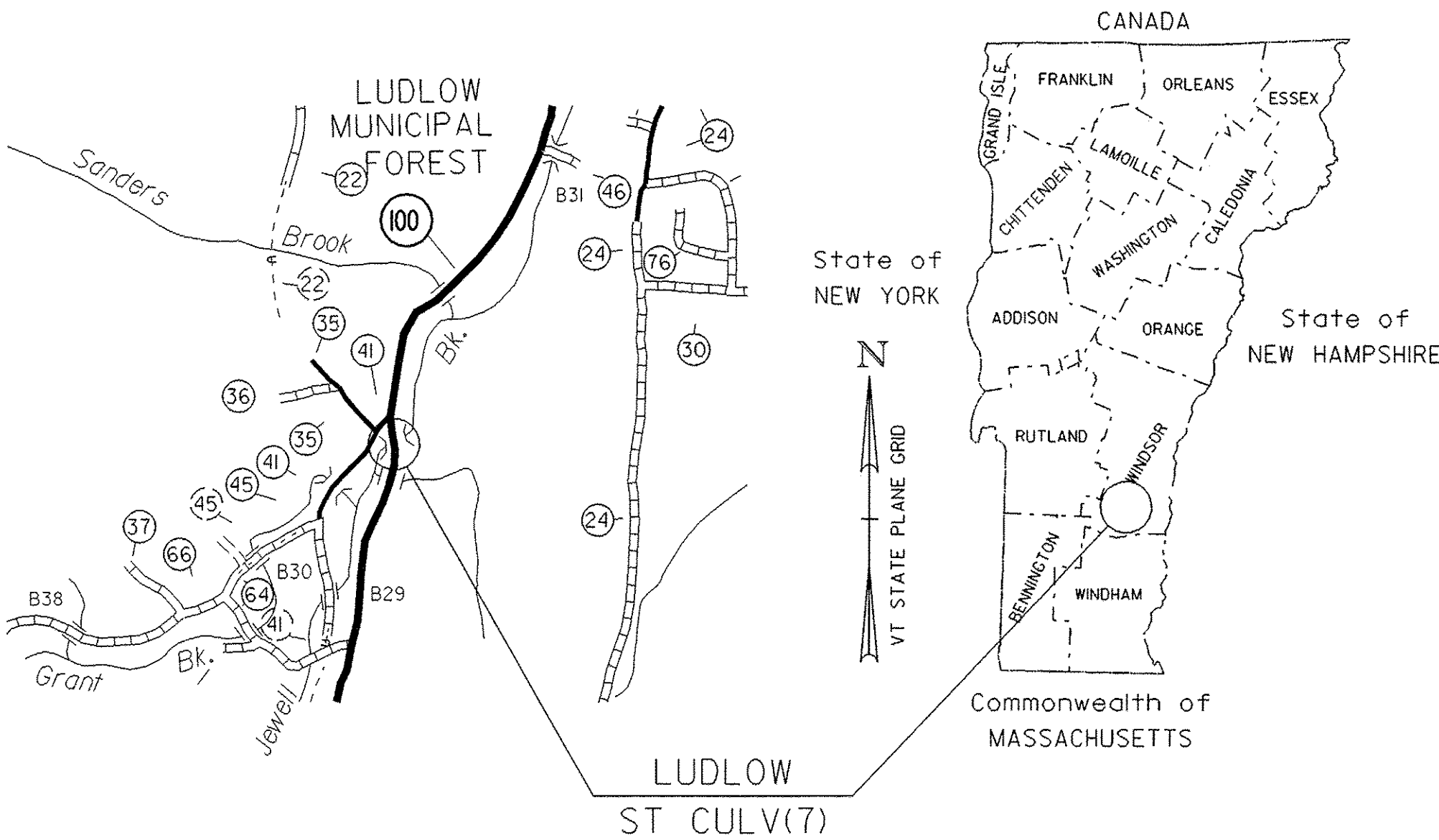
TOWN OF LUDLOW
COUNTY OF WINDSOR

ROUTE NO : VT 100 MINOR ARTERIAL BRIDGE NO : 98F

PROJECT LOCATION : BEGINNING AT A POINT APPROXIMATELY 0.02 MI FROM THE JUNCTION OF VT 100
AND BROOKS ROAD (TH41) AND EXTENDING NORTH ALONG VT 100 FOR 100 FEET.

PROJECT DESCRIPTION : REPLACE EXISTING CULVERT WITH A PRECAST CONCRETE ARCH.

LENGTH OF STRUCTURE : 36.30 FEET.
LENGTH OF ROADWAY : 63.70 FEET.
LENGTH OF PROJECT : 100.00 FEET.



RECORD PLANS

CONTRACTOR: MILLER CONSTRUCTION, INC. - WINDSOR, VT

RESIDENT ENGINEER: JEREMY REED

CONSTRUCTION BEGAN: APRIL 16, 2009

CONSTRUCTION COMPLETE: JUNE 17, 2010

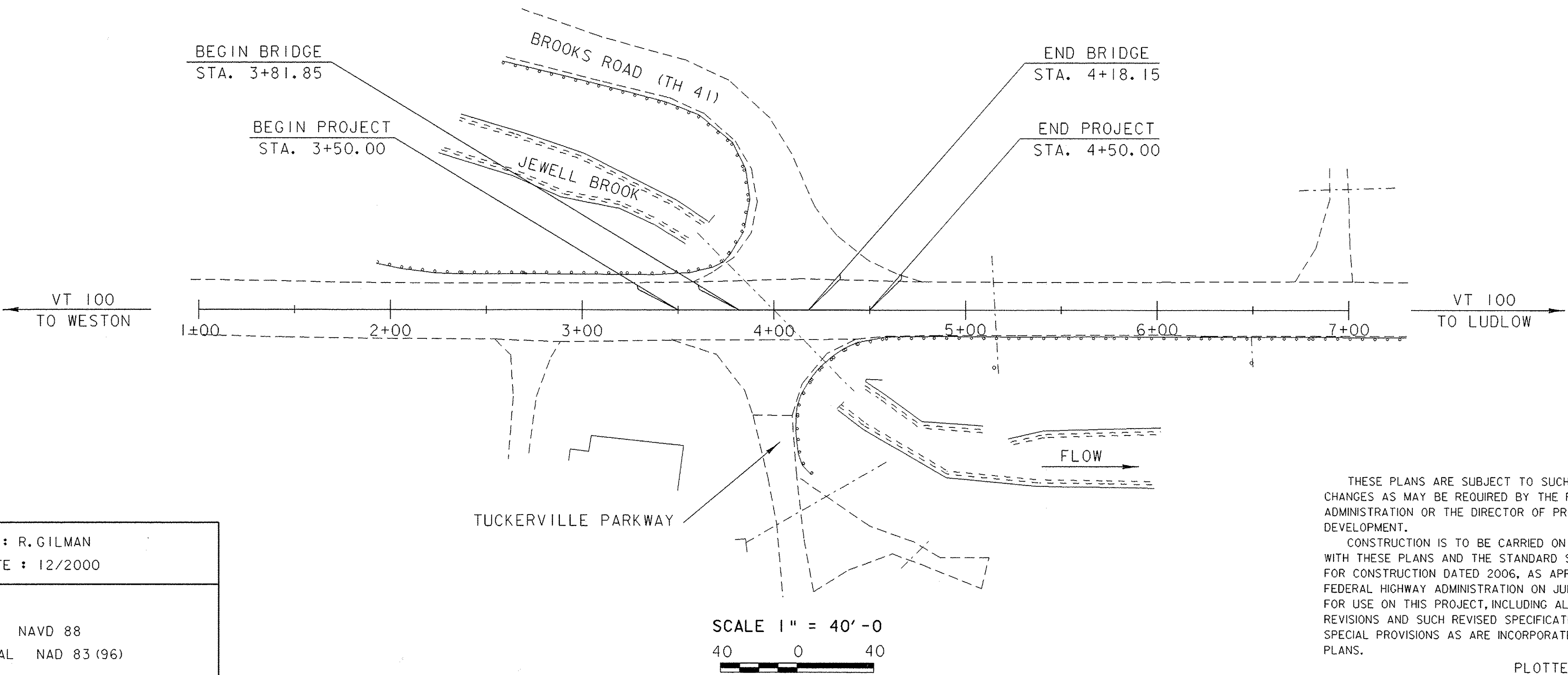
RECORD PLANS BY: JEREMY REED & JENNA HYDE

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

BY Jeremy Reed RESIDENT ENGINEER

DATE 1/23/14

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.



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

SURVEYED BY : R. GILMAN
SURVEYED DATE : 12/2000

DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 83 (96)

THESE PLANS ARE SUBJECT TO SUCH ENGINEERING CHANGES AS MAY BE REQUIRED BY THE FEDERAL HIGHWAY ADMINISTRATION OR THE DIRECTOR OF PROGRAM DEVELOPMENT.

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

DIRECTOR OF PROGRAM DEVELOPMENT

APPROVED [Signature] DATE 7/9/06

PROJECT MANAGER : C.P. WILLIAMS

PROJECT NAME : LUDLOW

PROJECT NUMBER : STP ST CULV (7)

SHEET 1 OF 34 SHEETS

PLOTTED 20-AUG-2008

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET

INDEX OF SHEETS

FINAL HYDRAULIC REPORT

INDEX OF SHEETS

1. TITLE SHEET
2. PRELIMINARY INFORMATION SHEET
3. QUANTITY SHEET 1
4. QUANTITY SHEET 2
5. GPS CONTROL AND TRAVERSE TIES
6. TYPICAL SECTIONS
7. EXCAVATION DETAILS
8. LAYOUT
9. VT 100 PROFILE
- 10-12. TRAFFIC CONTROL PHASING
13. BORING LAYOUT
14. BORING LOGS
15. ARCH LAYOUT & PROFILE
16. GENERAL NOTES
17. WINGWALL DETAILS
18. FOOTING REINFORCING DETAILS
19. CHANNEL STONE DETAILS
20. MISCELLANEOUS DETAILS
21. TRAFFIC SIGN SUMMARY SHEET
22. REINFORCING SHEET SCHEDULE
23. EROSION CONTROL NARRATIVE
24. EPSC EXISTING CONDITIONS SITE PLAN
25. EPSC CONSTRUCTION SITE PLAN
26. EPSC FINAL CONDITIONS SITE PLAN
- 27-28 EPSC DETAIL SHEETS
- 29-31 MAINLINE CROSS SECTIONS
- 32-34 CHANNEL CROSS SECTIONS

LIST OF STANDARDS

A-76	STANDARD FOR DEVELOPMENT ROADS	3/3/2003
B-71	RESIDENTIAL AND COMMERCIAL DRIVES	7/8/2005
E-100	CONSTRUCTION APPROACH SIGNS	1/2/2004
E-101	CONSTRUCTION SIGN DETAILS	5/30/2000
E-102	CONSTRUCTION SIGN DETAILS	6/30/2000
E-102A	CONSTRUCTION SIGN DETAILS	5/1/2004
E-106	TRAFFIC CONTROL - MISCELLANEOUS DETAILS	3/1/2004
E-107A	BREAKAWAY BARRICADE DETAILS	8/8/1995
E-120	STANDARD SIGN PLACEMENT - EXPRESSWAY & FREEWAY	8/8/1995
E-121	STANDARD SIGN PLACEMENT - CONVENTIONAL ROAD	8/8/1995
E-123	GUIDE SIGN PLACEMENT - MISCELLANEOUS DETAILS	3/16/2000
E-138	MILEMARKER DETAILS - STATE & TOWN HIGHWAYS	5/30/2000
E-141	REGULATORY SIGN DETAILS	9/20/1999
E-142	REGULATORY SIGN DETAILS	9/20/1999
E-143	REGULATORY SIGN DETAILS	6/15/2000
E-144	REGULATORY SIGN DETAILS	3/29/1999
E-151	WARNING SIGN DETAILS	5/1/2004
E-160	FLANGED CHANNEL STEEL SIGN POST	5/20/1999
E-164	SQUARE STEEL SIGN POST	5/20/1999
E-193	PAVEMENT MARKING DETAILS	8/18/1999
G-1	STEEL BEAM GUARDRAIL (50MPH & OVER)	1/3/2000
	HEAVY DUTY STEEL BEAM GUARDRAIL	
	TWISTED END TERMINAL	
	ANCHOR FOR STEEL BEAM RAIL	
G-1D	STEEL BEAM GUARDRAIL (40MPH & LESS)	1/3/2000
	HEAVY DUTY STEEL BEAM GUARDRAIL	
	STEEL BEAM MEDIAN BARRIER	
	ANCHOR FOR STEEL BEAM RAIL	
J-3	MAILBOX SUPPORT DETAILS	8/7/1995

HYDROLOGIC DATA

Date: May 2, 2007

DRAINAGE AREA :	4.6 sq. mi.
CHARACTER OF TERRAIN :	Mostly forested and mountainous drainage basin.
STREAM CHARACTERISTICS :	<u>Steep, sinuous, narrow, confined and armored channel at site.</u>
NATURE OF STREAMBED :	<u>Gravel, cobbles and boulders.</u>

PEAK FLOW DATA

Q 2.33 =	<u>250 cfs</u>	Q 50 =	<u>840 cfs</u>
Q 10 =	<u>520 cfs</u>	Q 100 =	<u>1000 cfs</u>
Q 25 =	<u>700 cfs</u>	Q 500 =	<u>4900 cfs</u>

DATE OF FLOOD OF RECORD	Unknown
ESTIMATED DISCHARGE:	Unknown
WATER SURFACE ELEV.:	Unknown
NATURAL STREAM VELOCITY:	@ Q50 = 16.4 fps
ICE CONDITIONS:	Moderate
DEBRIS:	Moderate
DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY?	No
IS ORDINARY RISE RAPID?	Yes
IS STAGE AFFECTED BYUPSTREAM OR DOWNSTREAM CONDITIONS?	Yes
IF YES, DESCRIBE:	There are two flood control dams upstream that reduce flood flows to the project site.

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

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE:	Corrugated galvanized metal plate pipe arch
YEAR BUILT:	1966
CLEAR SPAN(NORMAL TO STREAM):	15' - 4"
VERTICAL CLEARANCE ABOVE STREAMBED:	9' - 3"
WATERWAY OF FULL OPENING:	109 sq. ft.
DISPOSITION OF STRUCTURE:	Remove and replace.
TYPE OF MATERIAL UNDER SUBSTRUCTURE:	Unknown

WATER SURFACE ELEVATIONS AT:

Q2.33 =	1342.2'	VELOCITY =	12.2 fps
Q10 =	1344.9'	"	13.9 fps
Q25 =	1346.3'	"	15.3 fps
Q50 =	1347.7'	"	16.0 fps
Q100 =	1348.9'	"	16.8 fps

LONG TERM STREAMBED CHANGES: There may have been up to 2' of scour or channel degradation at the culvert outlet since it was installed in 1966.

IS THE ROADWAY OVERTOPPED BELOW Q100:	No
FREQUENCY:	Above Q100
RELIEF ELEVATION:	1351.4'
DISCHARGE OVER ROAD @Q100:	None

UPSTREAM STRUCTURE

TOWN:	Ludlow	DISTANCE:	900'
HIGHWAY #:	Private drive	STRUCTURE #:	
CLEAR SPAN:	15'	CLEAR HEIGHT:	8'
YEAR BUILT:	unknown	FULL WATERWAY:	120 sq. ft.
STRUCTURE TYPE:	Timber deck on concrete abutments.		

DOWNSTREAM STRUCTURE

TOWN:	NA - Confluence with Sanders Brook	DISTANCE:	_____
HIGHWAY #:	_____	STRUCTURE #:	_____
CLEAR SPAN:	_____	CLEAR HEIGHT:	_____
YEAR BUILT:	_____	FULL WATERWAY:	_____
STRUCTURE TYPE:	_____		

PROPOSED STRUCTURE

STRUCTURE TYPE: Precast concrete arch

CLEAR SPAN(NORMAL TO STREAM):	24'
VERTICAL CLEARANCE ABOVE STREAMBED:	8'
WATERWAY OF FULL OPENING:	162 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	<u>1341.2'</u>	VELOCITY=	<u>12.2 fps</u>
Q10 =	<u>1342.2'</u>	"	<u>13.3 fps</u>
Q25 =	<u>1342.9'</u>	"	<u>13.7 fps</u>
Q50 =	<u>1343.3'</u>	"	<u>14.0 fps</u>
Q100 =	<u>1343.7'</u>	"	<u>14.3 fps</u>

IS THE ROADWAY OVERTOPPED BELOW Q100:	No
FREQUENCY:	Above Q100
RELIEF ELEVATION:	1351.4'
DISCHARGE OVER ROAD @Q100:	None

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 1346.8' at top of arch at inlet
VERTICAL CLEARANCE: @ Q50 = 3.5' inlet, 2.6' outlet. Maximum at center of arch.

SCOUR: Contraction scour calculated as 2' at Q100, 3' at Q500, based on natural stream bed material in the arch. Grade control rock weirs in the arch may limit scour.

REQUIRED CHANNEL PROTECTION: Stone Fill, Type IV

PERMIT INFORMATION

AVERAGE DAILY FLOW:	10 cfs	DEPTH OR ELEVATION:
ORDINARY LOW WATER:	5 cfs	0.5'
ORDINARY HIGH WATER:	110 cfs	1.5'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: No temporary bridge required. Phased construction will be used.
 CLEAR SPAN (NORMAL TO STREAM): _____
 VERTICAL CLEARANCE ABOVE STREAMBED: _____
 WATERWAY AREA OF FULL OPENING: _____

ADDITIONAL INFORMATION

DESIGN CRITERIA

- | | |
|--|------------------------|
| 1. DESIGN LIVE LOAD AASHTO | HL-93 |
| 2. DESIGN SPAN | |
| 3. LRFD FOR SPREAD FOOTINGS ON SOIL | 6.43 ksf (12' FOOTING) |
| ON LEDGE | |
| 4. ALLOWABLE LOAD FOR PILING | |
| TYPE | |
| ESTIMATED LENGTH | |
| 5. STRUCTURAL STEEL AASHTO M270M/M270 GRADE | |
| 6. REINFORCING STEEL GRADE | 60 |
| 7. CONCRETE, HIGH PERFORMANCE CLASS A | fc: |
| CONCRETE, HIGH PERFORMANCE CLASS B | fc: |
| CONCRETE, CLASS C | fc: 3000 psi |
| 8. DESIGN SOIL UNIT WEIGHT | 140 pcf |
| 9. FACTORED LOAD FOR SPREAD FOOTINGS ON SOIL | 4.62 ksf |

TRAFFIC MAINTENANCE

- | | |
|--------------------------------------|---------------------|
| 1. IS TRAFFIC TO BE MAINTAINED? | YES |
| IF YES, ON EXISTING STRUCTURE? | PHASED CONSTRUCTION |
| OR ON TEMPORARY BRIDGE? | |
| ONE OR TWO-WAY TRAVEL? | TWO-WAY |
| 2. TRAFFIC CONTROL SIGNALS REQUIRED? | NO |
| 3. ARE SIDEWALKS REQUIRED? | NO |
| IF SO, ON WHAT SIDE? | |

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2006	2600	530	50.1	6	160
2026	3400	690	50.1	9.6	340

20 year ESAL for flexible pavement from	2006	to	2026	:	1,073,000
40 year ESAL for flexible pavement from	2026	to	2046	:	2,759,000
Design Speed :	50	mph			

PROJECT NAME: LUDLOW
PROJECT NUMBER: STP ST CULV(7)

FILE NAME:	s00b258excel.dgn	PLOT DATE:	9/11/2008
PROJECT LEADER:	C.P.WILLIAMS	DRAWN BY:	E.L.RUSTAY
DESIGNED BY:	E.L.RUSTAY	CHECKED	R.S.YOUNG
PRELIMINARY INFORMATION SHEET #1		SHEET	2 OF 34

QUANTITY SHEET 1

PROJECTNAME: LUDLOW	
PROJECTNUMBER: STP ST CULV (7)	
FILE NAME: s00b258excel.dgn	PLOT DATE: 09/11/2008
PROJECT MANAGER: C.P.WILLIAMS	DRAWN BY: D.D.BEARD
DESIGNED BY: E.RUSTAY	CHECKED BY: R.YOUNG
QUANTITY SHEET #1	SHEET 3 OF 34

QUANTITY SHEET 2

[illegible]

GPS CONTROL POINTS

HVCTRL # 1

STANDARD DISK STAMPED
TERRIBLE AZ MK

N = 310879.38
E = 1580428.75
ELEV. = 1710.76

GENERAL LOCATION, LUDLOW, VT. TO REACH FROM THE MOST SOUTHERLY INTERSECTION OF VT ROUTES 100 AND 103, IN LUDLOW VILLAGE, GO SOUTH ALONG VT ROUTE 100 FOR 3.2 MI (5.1 KM) TO THE Y-INTERSECTION OF ANDOVER ROAD LEFT. BEAR LEFT AND GO SOUTHWEST ALONG ANDOVER ROAD FOR ABOUT 65 M (213.3 FT) TO THE SITE OF THE MARK ON THE RIGHT. IT IS JUST SOUTHWEST OF A GRASS TRIANGLE FORMED BY THE INTERSECTION. THE MARK IS SET 2 CM BELOW GROUND SURFACE IN THE TOP OF A 30 CM DIAMETER CONCRETE MONUMENT POURED 1.3 M (4.3 FT) DEEP. IT IS 5.5 M (18.0 FT) NORTHWEST OF AND ABOUT 0.4 M (1.3 FT) LOWER THAN THE CENTERLINE OF ANDOVER ROAD, 23.2 M (76.1 FT) SOUTHEAST OF THE CENTERLINE OF VT ROUTE 100, 19.1 M (62.7 FT) NORTH OF POLE NO 195A/6600/1, AND 0.3 M (1.0 FT) NORTHEAST OF A FIBERGLASS WITNESS POST.

*TO ALLOW THE STATE PLANE COORDINATES TO FIT THE AGENCY DESIGN PLANE, SUBTRACT 300,000 FROM THE NORTHING AND SUBTRACT 1,500,000 FROM THE EASTING.
* DESCRIPTION PROVIDED BY VERMONT AGENCY OF TRANSPORTATION GEODETIC SURVEY UNIT

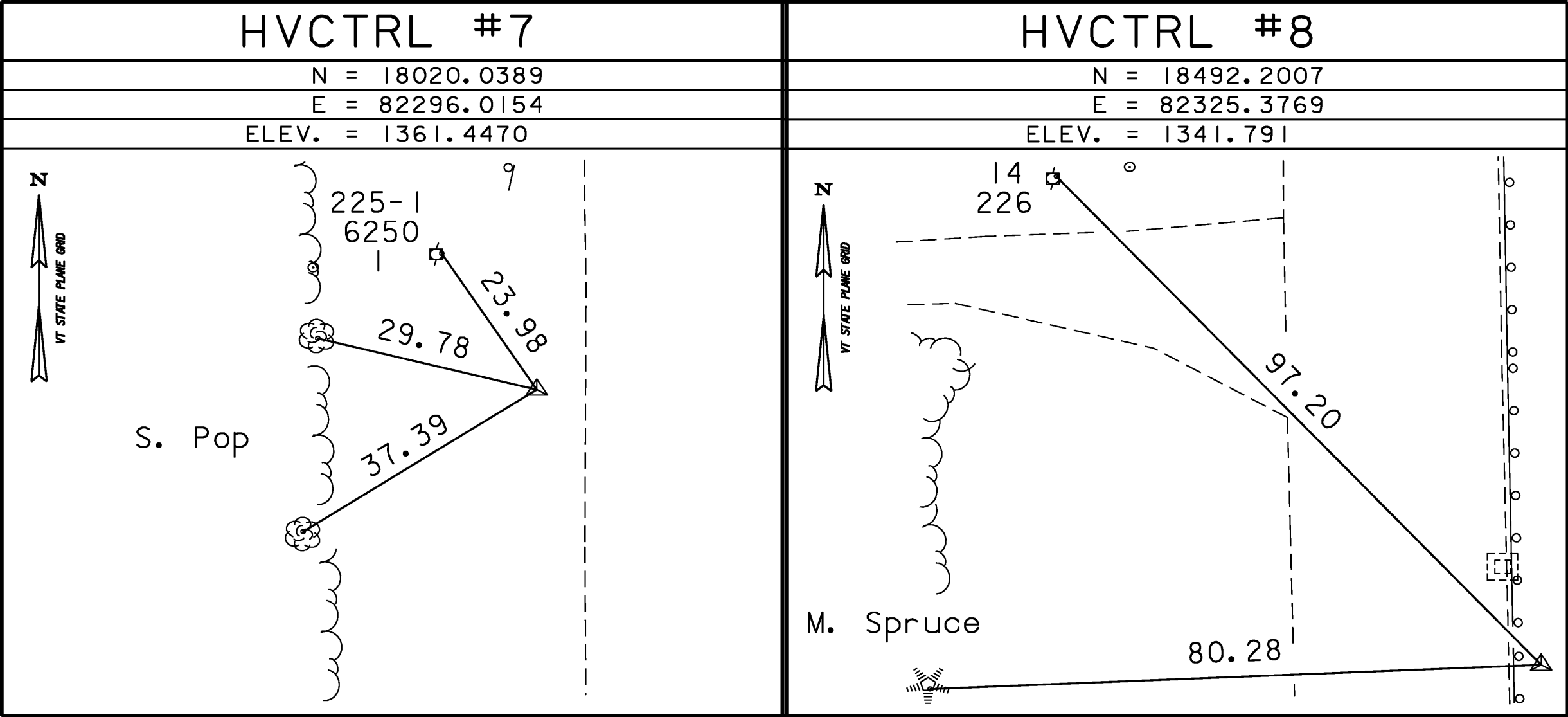
HVCTRL # 2

STANDARD DISK STAMPED
TERRIBLE

N = 314132.21
E = 1581443.86
ELEV. = 1653.08

GENERAL LOCATION, LUDLOW, VT. TO REACH FROM THE MOST SOUTHERLY INTERSECTION OF VT ROUTES 100 AND 103, IN LUDLOW VILLAGE, GO SOUTH ALONG VT ROUTE 100 FOR 2.6 MI (4.2 KM) TO THE INTERSECTION OF SITE NO 1 ROAD RIGHT. CONTINUE STRAIGHT AHEAD AND GO SOUTHWEST ALONG VT ROUTE 100 FOR 0.1 MI (0.2 KM) TO THE SITE OF THE MARK ON THE RIGHT, BEHIND A GUARD RAIL. THE MARK IS SET FLUSH WITH GROUND SURFACE IN THE TOP OF A 30 CM DIAMETER CONCRETE MONUMENT POURED 1.3 M (4.3 FT) DEEP. IT IS 5.5 M (18.0 FT) NORTHWEST OF AND ABOUT 0.1 M (0.3 FT) LOWER THAN THE CENTERLINE OF VT ROUTE 100, 15.4 M (50.5 FT) EAST OF POLE NO 206/77, 24.2 M (79.4 FT) NORTH NORTHEAST OF THE NORTHWEST (OUTLET) END OF A 45 CM DIAMETER METAL CULVERT, 0.5 M (1.6 FT) NORTHWEST OF A STEEL BEAM GUARD RAIL, AND 0.5 M (1.6 FT) SOUTHWEST OF A FIBERGLASS WITNESS POST.

TRAVERSE TIES



12/21/00 * MAIN TRAVERSE COMPLETED
by R. Gilman (P.C.) R. Bullock, & G. Wilson

ALIGNMENT TIES

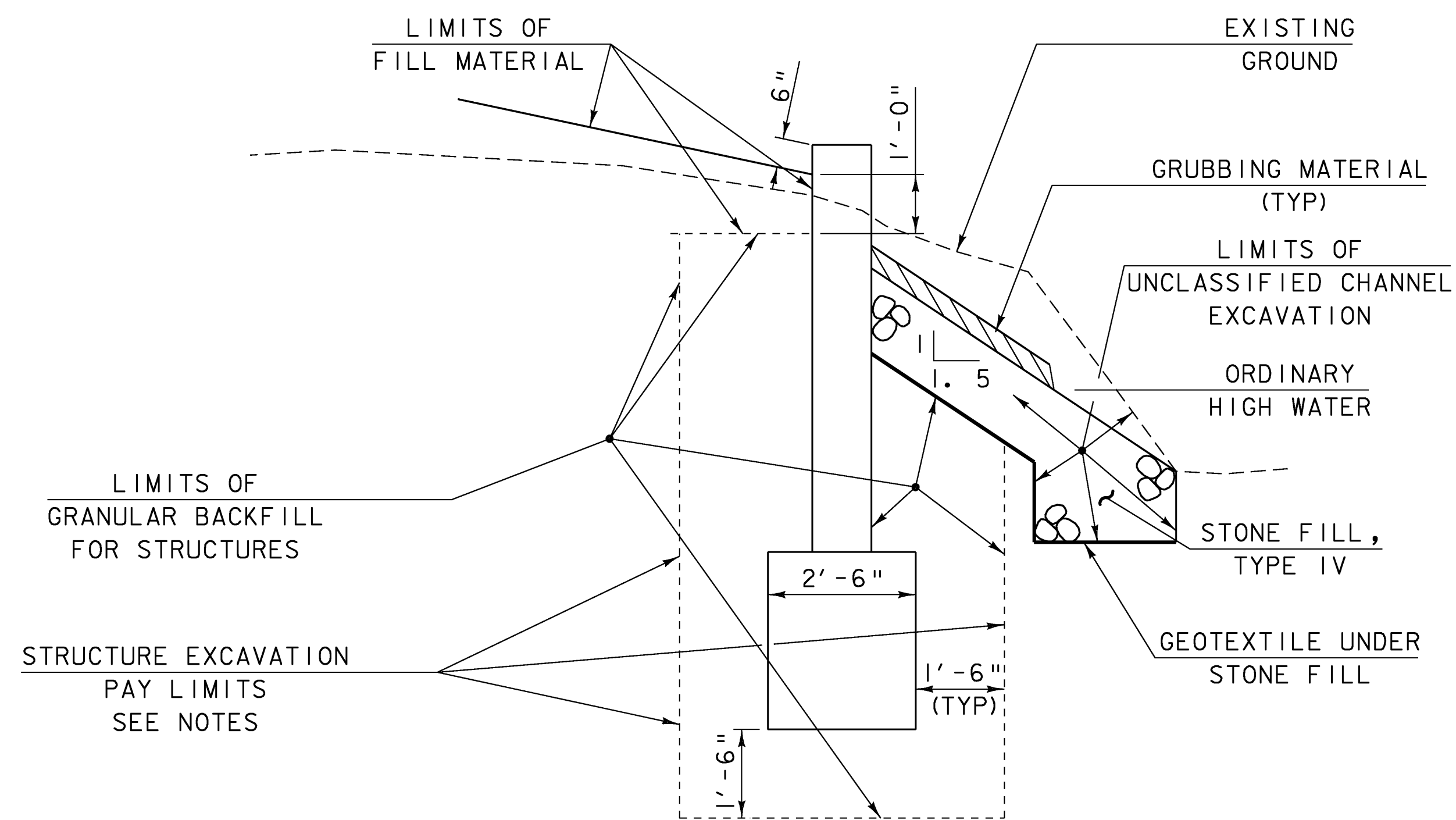
• ALIGNMENT STAKED

DATUM

VERTICAL NAVD 88
HORIZONTAL NAD 83/96
ADJUSTMENT COMPASS

PROJECT NAME: Ludlow
PROJECT NUMBER: ST CULV(7)

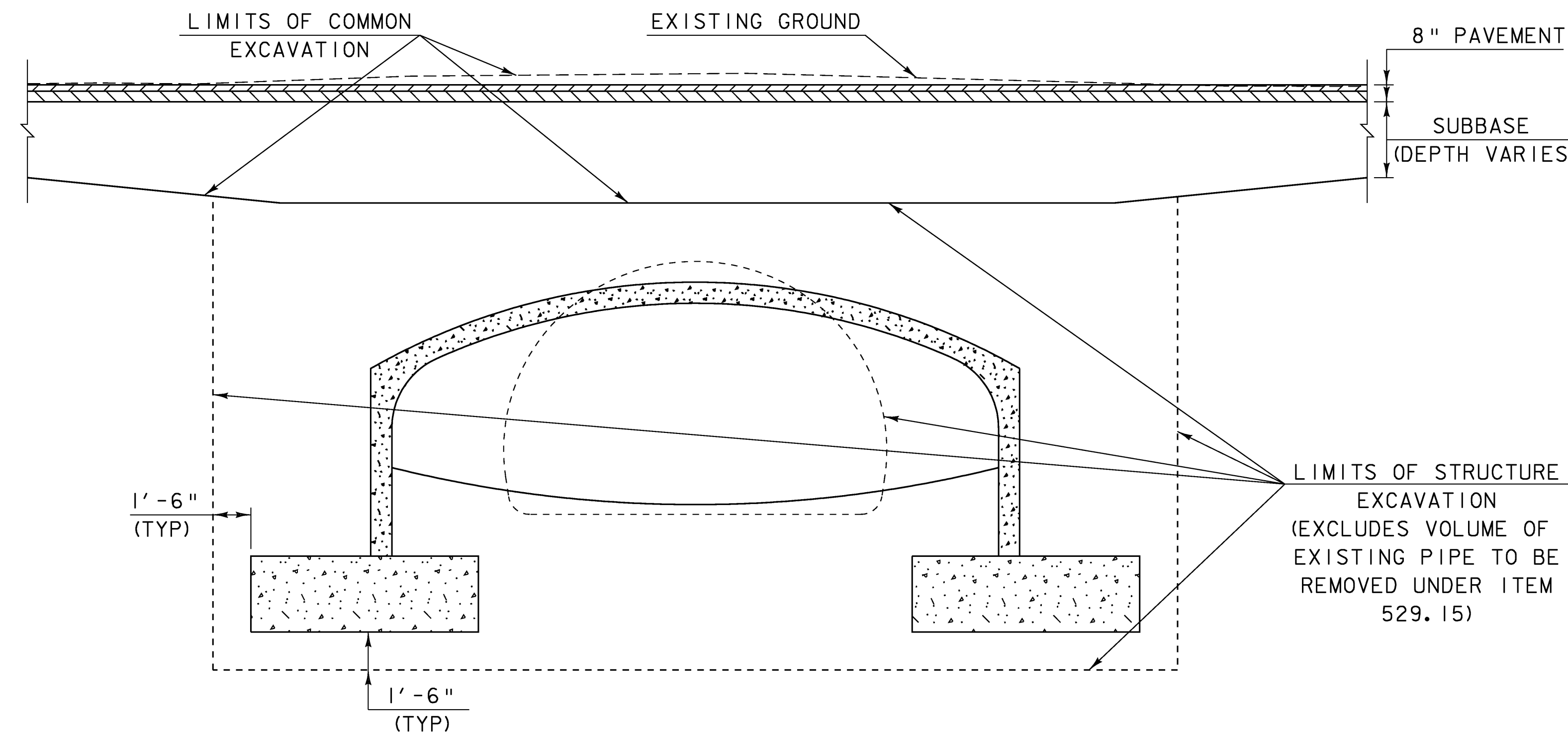
FILE NAME: 00b258/xb258+1.dgn	PLOT DATE: 11-SEP-2008
PROJECT LEADER: C.P. WILLIAMS	DRAWN BY: R. Bullock
DESIGNED BY: E. L. RUSTAY	CHECKED BY: R.S. YOUNG
GPS CONTROL AND TRAVERSE TIES	SHEET 5 OF 34



TYPICAL PRECAST WINGWALL SECTION
(NOT TO SCALE)

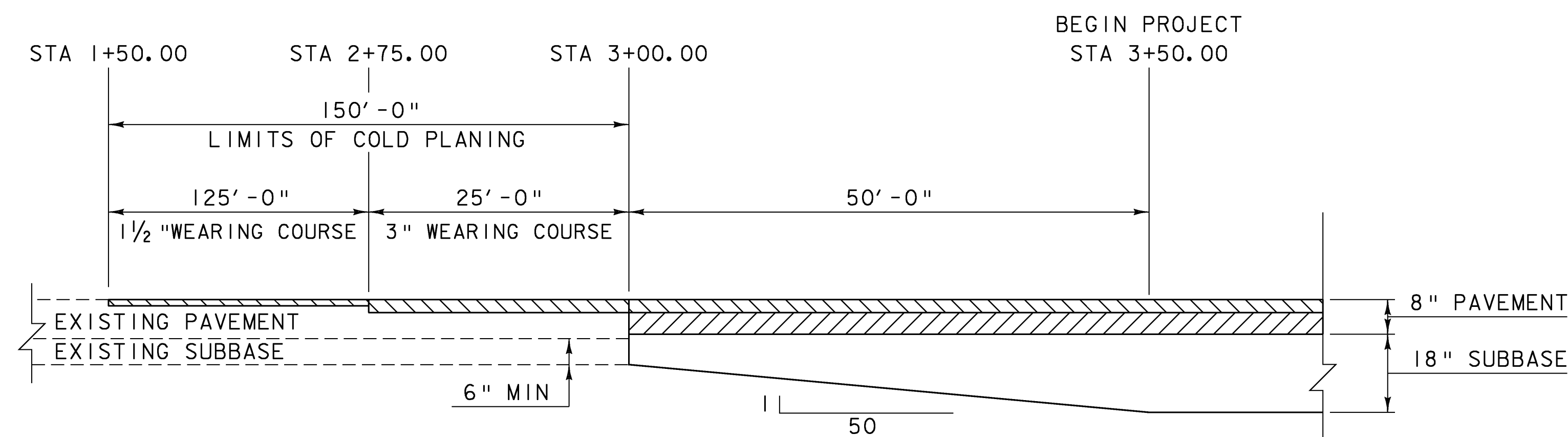
NOTE:

1) ACTUAL EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR. HOWEVER, ONLY THE EXCAVATION BETWEEN THE LIMITS SHOWN ABOVE WILL BE PAID FOR UNDER THE ITEM 204.25 "STRUCTURE EXCAVATION".

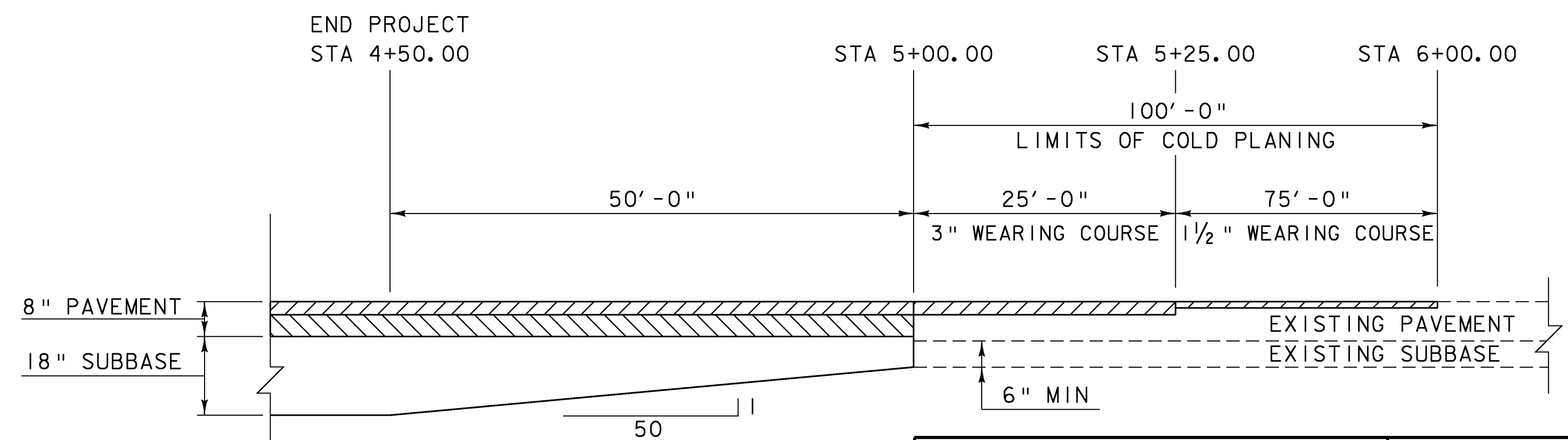


**TYPICAL PRECAST ARCH SECTION
EXCAVATION LIMITS**

SCALE $\frac{1}{4}" = 1' - 0"$
1 0 2 4 6

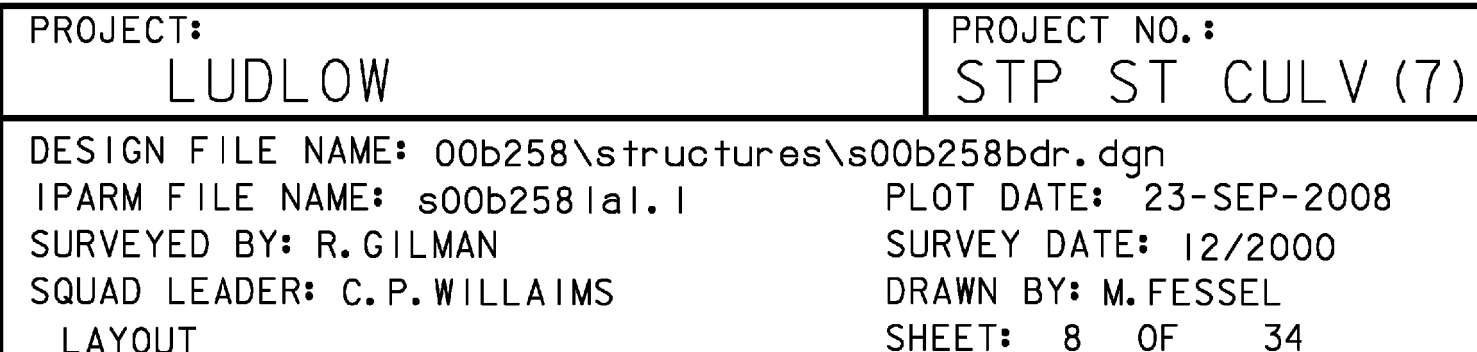


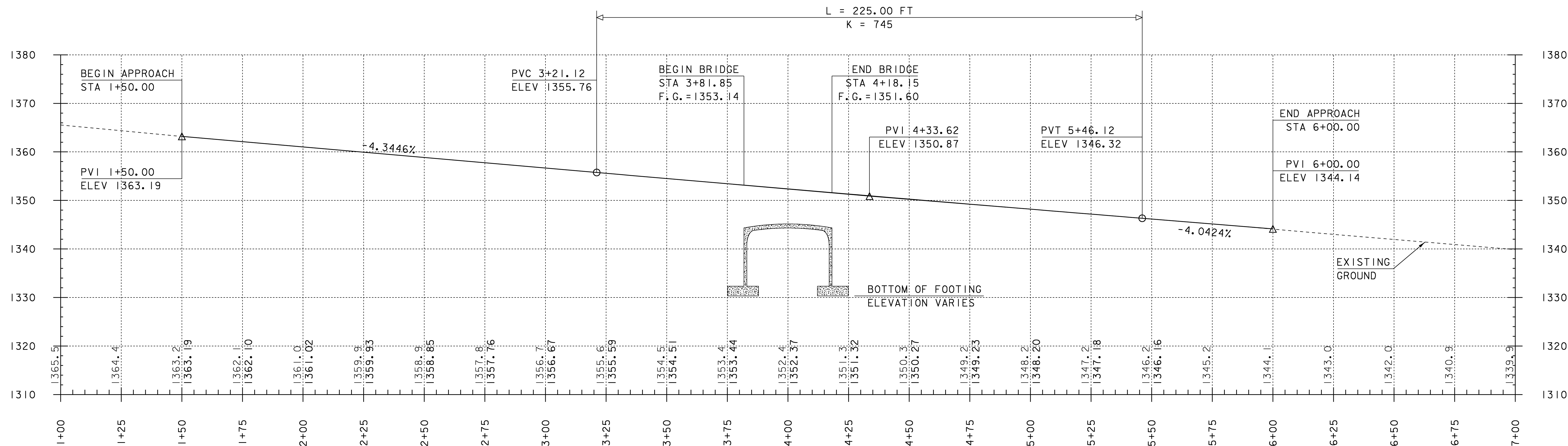
**BEGIN PROJECT
MATERIAL TRANSITION**
(NOT TO SCALE)



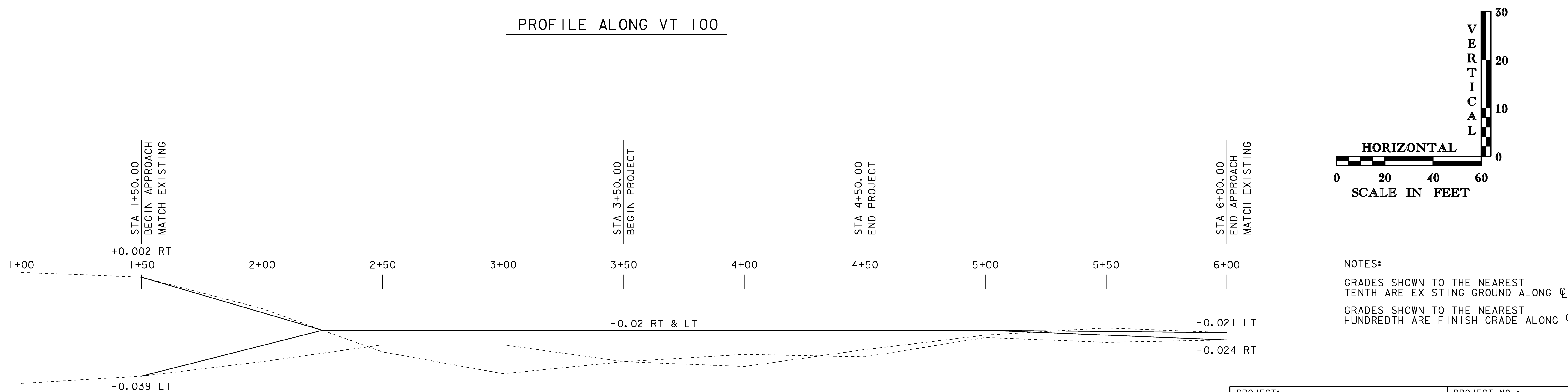
**END PROJECT
MATERIAL TRANSITION**
(NOT TO SCALE)

PROJECT:	PROJECT NO.:
LUDLOW	STP ST CULV (7)
DESIGN FILE NAME: 00b258\structures\s00b258.typ.dgn	PLOT DATE: 23-SEP-2008
IPARM FILE NAME: s00b258exc.det.i	DRAWN BY: D.D. BEARD
DESIGNED BY: E.L. RUSTAY	CHECKED BY: R.S. YOUNG
SQUAD LEADER: C.P. WILLIAMS	SHEET: 7 OF 34
EXCAVATION DETAILS	

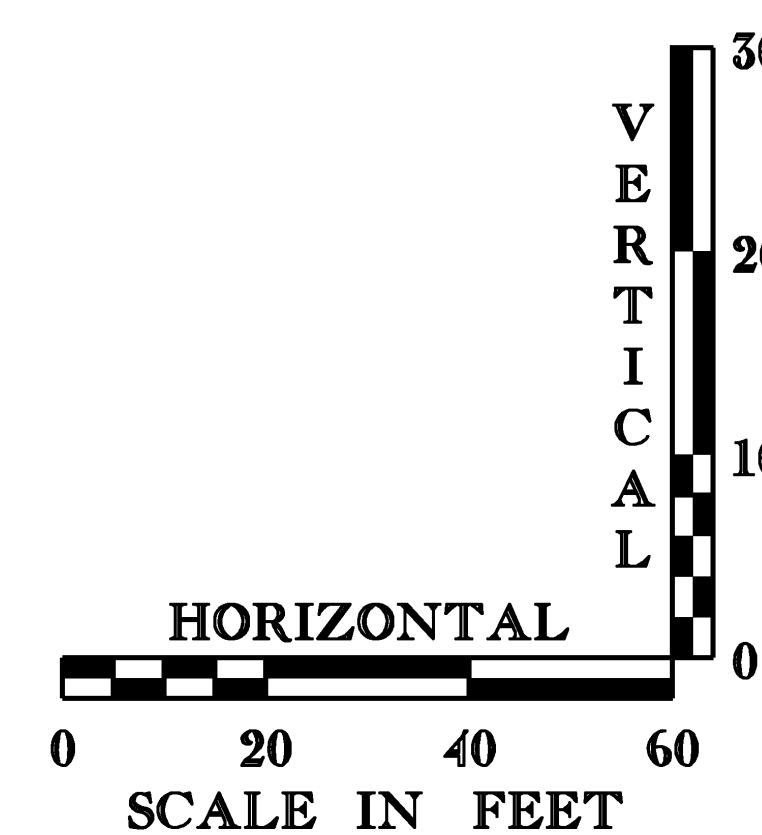




PROFILE ALONG VT 100



BANKING DIAGRAM



NOTES:
GRADES SHOWN TO THE NEAREST TENTH ARE EXISTING GROUND ALONG C
GRADES SHOWN TO THE NEAREST HUNDREDTH ARE FINISH GRADE ALONG C

PROJECT:	LUDLOW	PROJECT NO.:	STP ST CULV (7)
DESIGN FILE NAME:	00b258\structures\s00b258pro.dgn	PLOT DATE:	23-SEP-2008
IPARM FILE NAME:	s00b258pro.i	DRAWN BY:	D.D. BEARD
DESIGNED BY:	E.L. RUSTAY	CHECKED BY:	R.S. YOUNG
SQUAD LEADER:	C.P. WILLIAMS	SHEET:	9 OF 34
VT 100 PROFILE			

TRAFFIC PHASE DESCRIPTION :

PHASE 1: (SEE SHEET 11)

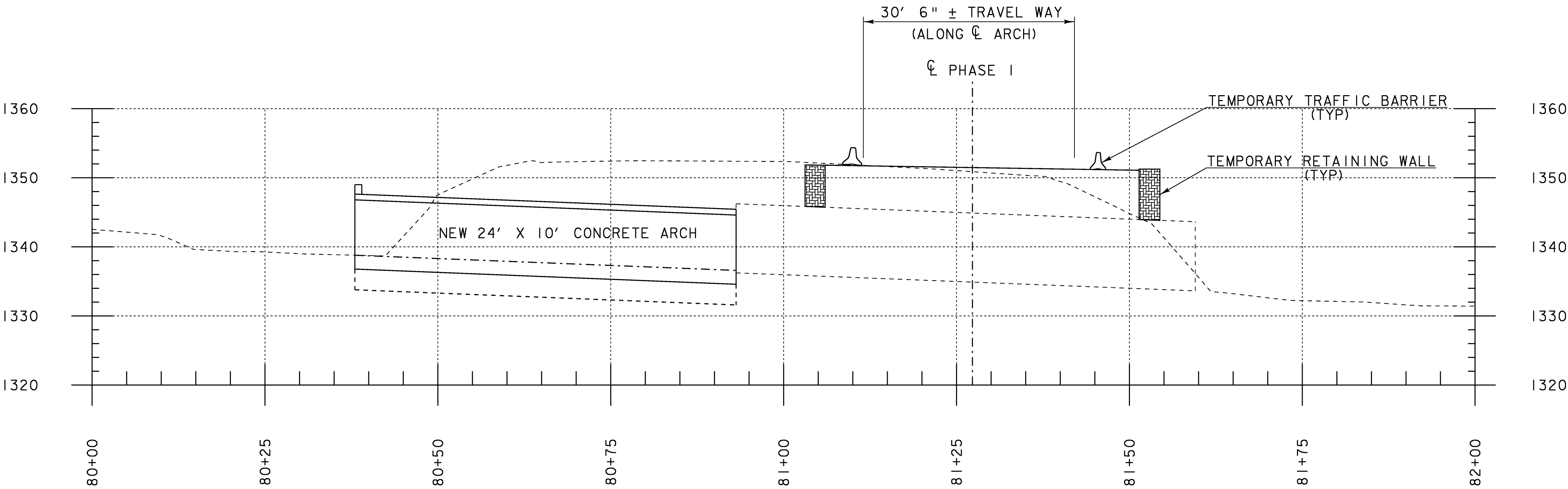
THE NORTH BOUND SHOULDER WILL NEED TO BE PAVED TO MAKE A NEW NORTH BOUND LANE. SOUTH BOUND TRAFFIC WILL NOW BE ON THE OLD NORTH BOUND LANE. DURING THIS PHASE THE UP STREAM END OF THE CULVERT WILL BE REMOVED AND REPLACED WITH A NEW CONCRETE ARCH.

PHASE 2: (SEE SHEET 12)

DURING THIS PHASE THE WEST BOUND SHOULDER OF BROOKS ROAD WILL NEED TO BE PAVED TO ALLOW TRAFFIC TO BE REROUTED ONTO THE NEW CONCRETE ARCH. AT THIS TIME THE DOWN STREAM END OF THE CULVERT WILL BE REMOVED AND REPLACED WITH THE NEW CONCRETE ARCH. AFTER THE ARCH IS FINISHED THE TRAFFIC IS TO BE RETURNED TO THE ORIGINAL ALIGNMENT AND ALL TEMPORARY PAVEMENT IS TO BE REMOVED AND THE SHOULDER RESTORED.

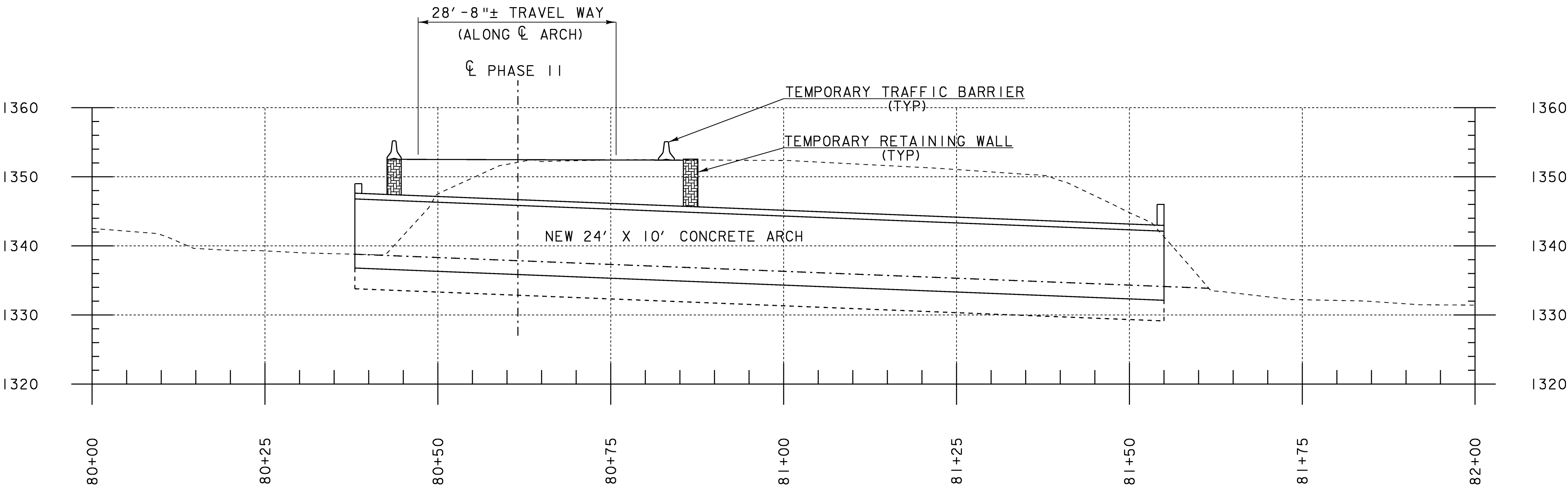
PHASING NOTES:

1. THE CONTRACTOR SHALL COORDINATE PHASED CONSTRUCTION CLEARANCES WITH THE CONCRETE ARCH FABRICATOR TO AVOID CONFLICTS. INTERMEDIATE SKEWED SECTIONS MAY BE REQUIRED.
2. TEMPORARY SHEET PILING AND RETAINING WALLS SHALL BE USED AS SHOWN ON SHEETS 11 AND 12 TO MAINTAIN TWO-WAY TRAFFIC ALONG A TEMPORARY DETOUR. EXTRA SHEET PILING FOR THE CONTRACTOR'S CONVENIENCE SHALL BE AT THE CONTRACTOR'S EXPENSE.
3. THE TEMPORARY SHEET PILING USED FOR THE TEMPORARY ROADWAY SHALL BE PAID FOR UNDER ITEM 505.36 TEMPORARY STEEL SHEET PILING AND THE TEMPORARY RETAINING WALLS SHALL BE PAID FOR UNDER ITEM 900.645 "SPECIAL PROVISION (TEMPORARY ROADWAY)". SEE SPECIAL PROVISIONS. ANY SHEET PILING REQUIRED FOR EXCAVATION OF MATERIAL FOR CONSTRUCTION OF THE ARCH SHALL BE INCIDENTAL TO ITEM 204.25 "STRUCTURE EXCAVATION."
4. THE TEMPORARY SHEET PILING AND RETAINING WALLS SHALL BE DESIGNED AND DETAILED BY A REGISTERED PROFESSIONAL CIVIL OR STRUCTURAL ENGINEER.
5. INSTALLATION OF STEEL SHEET PILING SHALL NOT DAMAGE DRAINAGE STRUCTURES THAT ARE TO BE LEFT IN PLACE. IF THE STRUCTURES ARE DAMAGED THEY SHALL BE REPLACED AT THE CONTRACTORS EXPENSE.
6. TEMPORARY TRAFFIC BARRIER WILL PROTECT THE TRAVELING PUBLIC FROM STEEL SHEET PILING AND RETAINING WALLS AT ALL TIMES.
7. NO TEMPORARY SHEET PILING SHALL OBSCURE SIGHT DISTANCE OF TRAFFIC ON VT RTE 100 OR TRAFFIC ENTERING OR LEAVING VT RTE 100.
8. EXCAVATION ITEMS SHALL BE PAID FOR ONCE. ALL ASSOCIATED COSTS WITH ANY ADDITIONAL WORK REQUIRED TO RELOCATE THE STREAM WHILE MAINTAINING TRAFFIC SHALL BE INCIDENTAL TO ITEM 900.645 SPECIAL PROVISION (TEMPORARY RELOCATION OF STREAM).
9. ALL WORK REQUIRED TO WIDEN BROOKS ROAD AS SHOWN ON SHEET 11, INCLUDING EXCAVATION, FILL MATERIALS, SUBBASE MATERIALS, TEMPORARY RETAINING STRUCTURES OR BRACING, BITUMINOUS CONCRETE PAVEMENT, PAVEMENT MARKINGS, AND MAINTAINING EXISTING DRAINAGE SHALL BE INCLUDED IN THE ITEM 900.645 "SPECIAL PROVISION (TEMPORARY ROADWAY) (PHASE 1)".



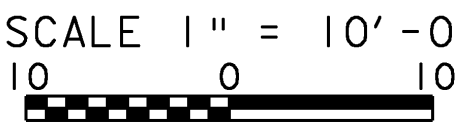
PHASE I DETOUR @ CL ARCH

SCALE : 1"=10'-0"



PHASE II DETOUR @ CL ARCH

SCALE : 1"=10'-0"



PROJECT:	LUDLOW	PROJECT NO.:	STP ST CULV (7)
DESIGN FILE NAME:	00b258\Structures\s00b258phasing.dgn	IPARM FILE NAME:	s00b258phasetyp.i
DESIGNED BY:	H. I. SALLS	PLLOT DATE:	23-SEP-2008
SQUAD LEADER:	C. P. WILLIAMS	DRAWN BY:	H. I. SALLS
PHASING TYPICALS		CHECKED BY:	R. S. YOUNG
		SHEET:	10 OF 34

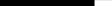


30

PROJECT:	PROJECT NO.:
LUDLOW	STP ST CULV (7
DESIGN FILE NAME: 00b258\structures\00b258bdr.dgn	
IPARM FILE NAME: s00b258\cphase1.i	PLOT DATE: 11-SEP-2008
DESIGNED BY: H. I. SALLS	DRAWN BY: H. I. SALLS
SQUAD LEADER: C. P. WILLIAMS	CHECKED BY: R. S. YOUNG
TRAFFIC CONTROL - PHASE I	SHEET: 11 OF 34

SCALE 1" = 20' - 0"

20 0 20

A horizontal graphic scale bar with alternating black and white segments. It is marked with '20', '0', and '20' from left to right, indicating distances of 20 feet, 0 feet, and 20 feet respectively.

NOT TO SCALE

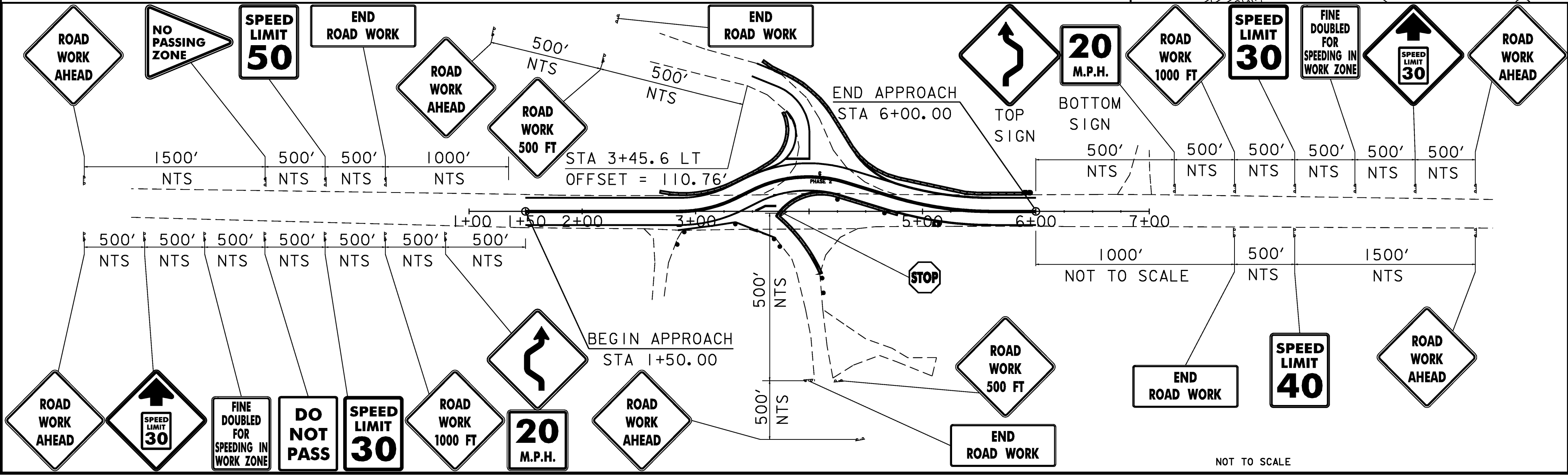
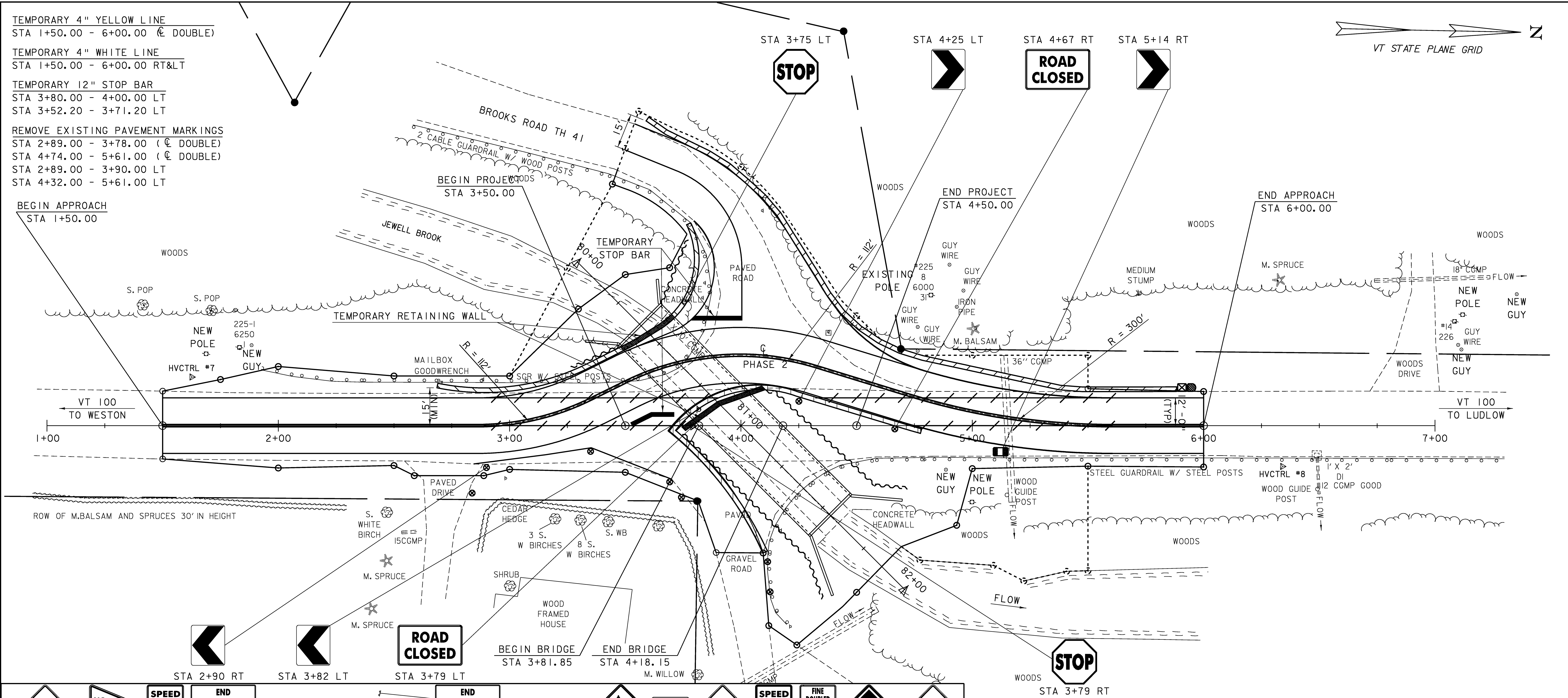
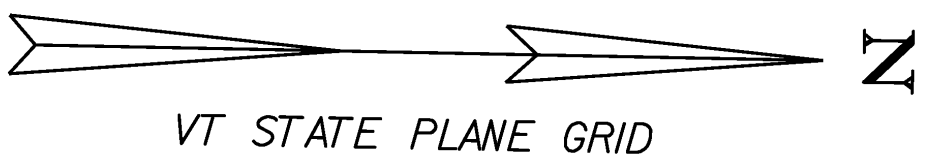
TEMPORARY 4" YELLOW LINE
STA 1+50.00 - 6+00.00 (C DOUBLE)

TEMPORARY 4" WHITE LINE
STA 1+50.00 - 6+00.00 RT<

TEMPORARY 12" STOP BAR
STA 3+80.00 - 4+00.00 LT
STA 3+52.20 - 3+71.20 LT

REMOVE EXISTING PAVEMENT MARKINGS
STA 2+89.00 - 3+78.00 (C DOUBLE)
STA 4+74.00 - 5+61.00 (C DOUBLE)
STA 2+89.00 - 3+90.00 LT
STA 4+32.00 - 5+61.00 LT

BEGIN APPROACH
STA 1+50.00



NOTE: TEMPORARY PAVEMENT MARKINGS AND THEIR REMOVAL
WILL BE INCLUDED IN THE COST BID FOR CONTRACT
ITEM 900.645 "SPECIAL PROVISION (TEMPORARY
ROADWAY) (PHASE I) OR (PHASE II)"

LEGEND

- REMOVAL OF EXISTING MARKINGS
- SIGN POSTS
- TYPE III BARRICADES (MOD.)
- TEMP. TRAFFIC BARRIER
- REFLECTORIZED BARREL
- ENERGY ABSORPTION ATTENUATOR
- TEMP. SHEET PILING

TRAFFIC CONTROL - PHASE 2

SCALE 1" = 20' - 0
20 0 20

PROJECT: LUDLOW	PROJECT NO.: STP ST CULV (7)
DESIGN FILE NAME: 00b258\structures\s00b258bdr.dgn	PLOT DATE: 11-SEP-2008
IPARM FILE NAME: s00b258tphase2.i	DRAWN BY: H. I. SALLS
DESIGNED BY: H. I. SALLS	CHECKED BY: R. S. YOUNG
SQUAD LEADER: C. P. WILLIAMS	TRAFFIC CONTROL - PHASE 2
	SHEET: 12 OF 34

SOIL CLASSIFICATION

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

ROCK QUALITY DESIGNATION

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

SHEAR STRENGTH

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

CORRELATION GUIDE OF "N" TO DENSITY/CONSISTENCY

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

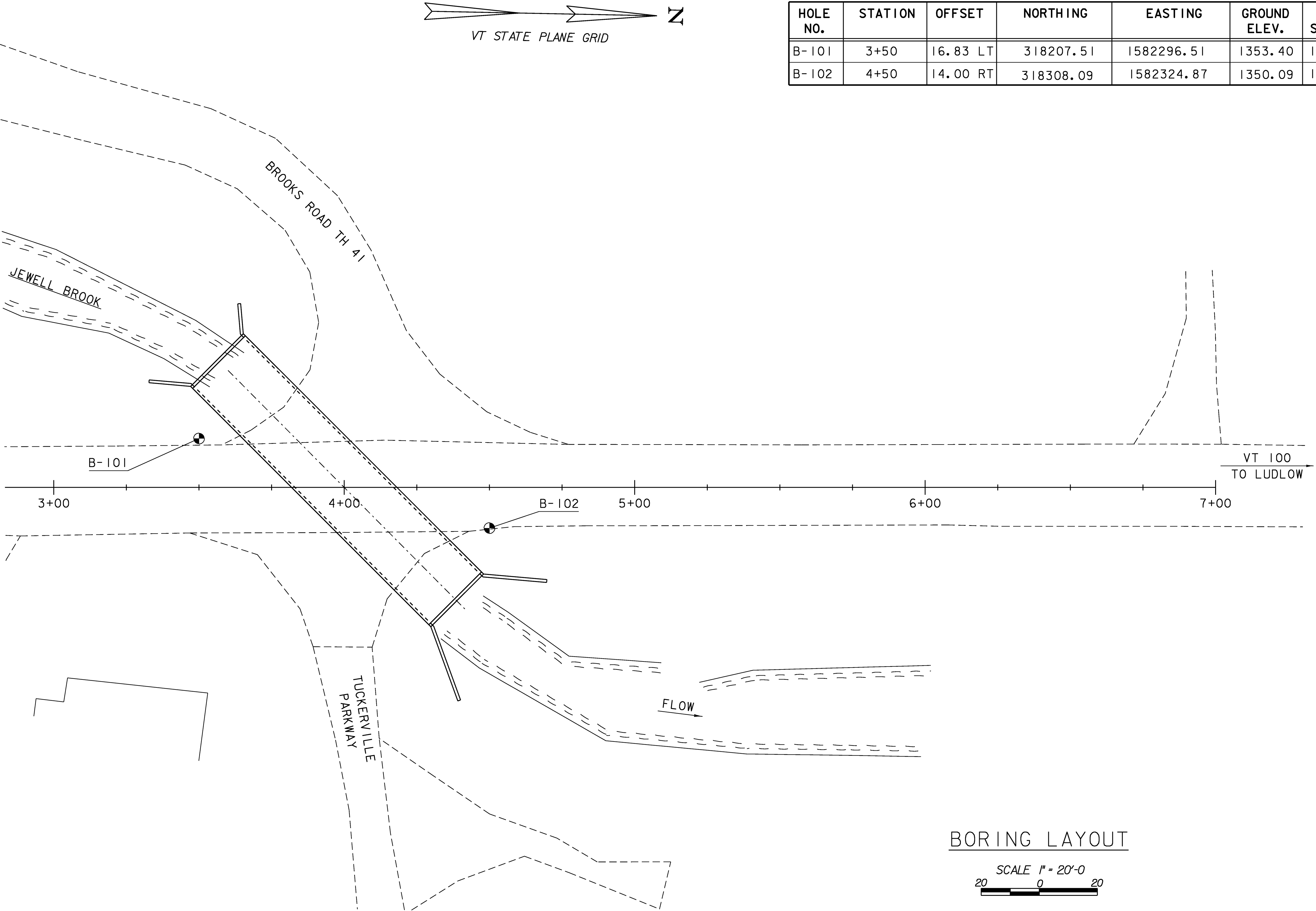
COMMONLY USED SYMBOLS

▼	Water Elevation
⊙	Standard Penetration Boring
⊕	Auger Boring
⊖	Rod Sounding
S	Sample
N	Standard Penetration Test
	Blow Count Per Foot For:
	2" O. D. Sampler
	1 3/8" I. D. Sampler
	Hammer Weight Of 140 Lbs.
	Hammer Fall Of 30"
VS	Field Vane Shear Test
US	Undisturbed Soil Sample
B	Blast
DC	Diamond Core
MD	Mud Drill
WA	Wash Ahead
HSA	Hollow Stem Auger
AX	Core Size 1 1/8"
BX	Core Size 1 3/8"
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
Sl	Silt
Cl	Clay
HP	Hardpan
Le	Ledge
NLTD	No Ledge To Depth
CNPF	Can Not Penetrate Further
TLOB	To 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)

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		

BORING CHART

HOLE NO.	STATION	OFFSET	NORTHING	EASTING	GROUND ELEV.	HOLE STOPPED
B-101	3+50	16.83 LT	318207.51	1582296.51	1353.40	1315.60
B-102	4+50	14.00 RT	318308.09	1582324.87	1350.09	1312.39



BORING LAYOUT

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

DEFINITIONS (AASHTO)

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

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

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

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

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

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

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

VARVED - Alternate layers of silt and clay.

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

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

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

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

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

DIP - Inclination of bed with a horizontal plane.

GENERAL NOTES

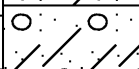
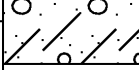
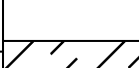
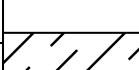
- The subsurface explorations shown herein were made between 5/15/07 and 5/23/07 by the Agency.
- Soil and rock classifications, properties and descriptions are based on engineering interpretation from available subsurface information by the Agency and may not necessarily reflect actual variations in subsurface conditions that may be encountered between individual boring or sample locations.
- 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.
- Engineering judgement 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 judgement by the Contractor.
- 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.
- 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.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

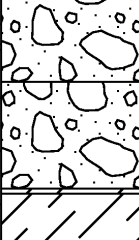
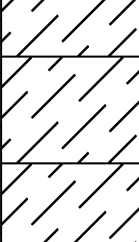
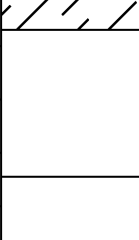
Town Of LUDLOW	Bridge No.
Highway No. VT 100	Log Sta.
	Surv. Sta.

BORING LAYOUT SHEET

Designed By H. I. SALLS	Drawn By H. I. SALLS
Checked By R. S. YOUNG	Bridge Design Supervisor C. P. WILLIAMS
PROJECT LUDLOW STP	PROJECT NO. ST CULV (7)
I.G.C. Info.	
Bridge Sheet No.	Sheet 13 of 34

			STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH SECTION SUBSURFACE INFORMATION			BORING NUMBER: B-101 SHEET 1 of 1 DATE STARTED: 5/15/07 DATE COMPLETED: 5/23/07		
PROJECT NAME: LUDLOW SITE NAME: VT-100 STATION: 3+50 OFFSET: -16.83 VTSPG: N 318207.51 ft E 1582296.51 ft			PROJECT NUMBER: ST CULV(7) SITE NUMBER: BR-98F GROUND ELEVATION: 1353.4 ft GROUNDWATER DEPTH: Hole Caved In @ 10.3' PROJECT PIN NUMBER: 00B258					
BORING CREW CREW CHIEF: GARROW DRILLER: GARROW LOGGER: CARRIERE			BORING RIG: LARGE SKID RIG w/AUTO HAMMER BORING TYPE: WASH BORE SAMPLE TYPE: SPLIT BARREL CHECKED BY: TDE					
DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)	
5		Field Note:, Asphalt						
		A-1-b, SaGr, brn, Moist, Rec. = 1.5 ft	16	6.5	47.5	39.6	12.9	
		A-2-4, SiSa, brn, Moist, Rec. = 1.3 ft	10	15.3	5.5	62.2	32.3	
		A-2-4, SiSa, brn, Moist, Rec. = 0.5 ft	7	14.0	16.6	55.8	27.6	
10		A-2-4, SiSa, brn, Moist, Rec. = 0.9 ft	2	14.3	11.9	61.5	26.6	
		A-1-b, GrSa, brn, Moist, Rec. = 0.8 ft	5	11.9	27.0	58.3	14.7	
		A-1-b, SaGr, brn, Moist, Rec. = 1.0 ft	71	9.2	48.2	39.7	12.1	
		A-2-4, GrSiSa with decayed wood, brn, Moist, Rec. = 0.6 ft	15	22.2	21.8	53.2	25.0	
15		A-2-4, SiSa with Trace of Organics(3.7%), brn, MTW, Rec. = 0.7 ft		34.6	1.1	77.9	21.0	
		A-2-4, Sa with Trace of Organics(2.9%), brn, MTW, Rec. = 0.2 ft	R	39.6	12.4	68.0	19.6	
		A-1-a, SaGr, gry, Moist, Rec. = 0.6 ft		10.3	74.0	20.9	5.1	
		A-1-a, SaGr, brn, Moist, Rec. = 1.4 ft	64	9.5	71.8	22.3	5.9	
20		A-4, SaGrSi, brn, Moist, Rec. = 1.0 ft	40	15.2	35.0	27.8	37.2	
		A-4, Si, gry, Moist, Rec. = 1.9 ft	42	23.4	0.4	11.7	87.9	
		A-4, Si, gry, Moist, Rec. = 1.8 ft	38	27.6	0.1	3.6	96.3	
		A-4, Si, gry, Moist, Rec. = 1.6 ft	38	28.8	0.0	0.6	99.4	
30								
		Field Note:, NXDC, Cleaned out casing.						
		A-4, SaGrSi, gry, Moist, Rec. = 1.5 ft	R	12.7	32.0	27.5	40.5	
35								
		A-4, GrSaSi, gry, Moist, Rec. = 1.8 ft	70	17.2	21.9	32.2	45.9	
		Hole stopped @ 37.8 ft						

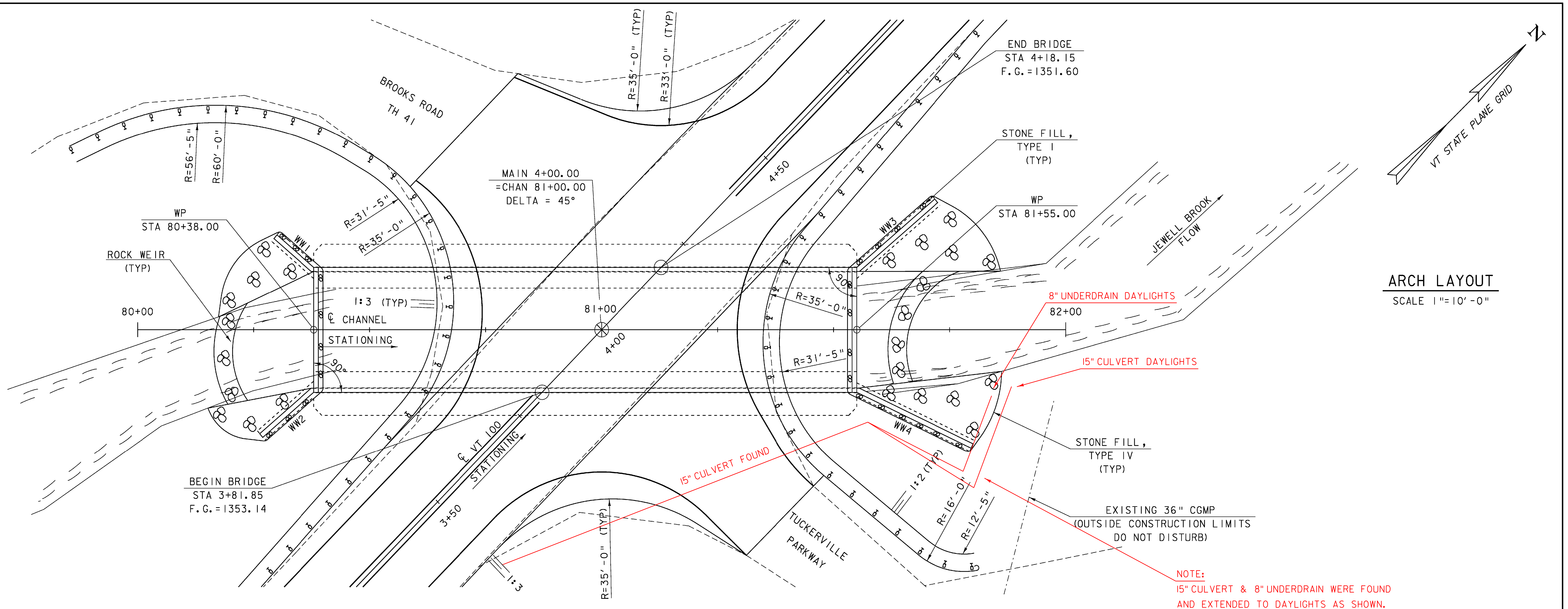
LOC OF BORING LUDLOW ST CULV(7).dgn VT AUT.GBT 7/19/07

		STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH SECTION SUBSURFACE INFORMATION		BORING NUMBER: B-102 SHEET 1 of 1 DATE STARTED: 5/16/07 DATE COMPLETED: 5/23/07			
PROJECT NAME: LUDLOW SITE NAME: VT-100 STATION: 4+50 OFFSET: 14.00 VTSPG: N 318308.09 ft E 1582324.87 ft				PROJECT NUMBER: ST CULV(7) SITE NUMBER: BR-98F GROUND ELEVATION: 1350.09 ft GROUNDWATER DEPTH: 14.1 ft 5/23/07 PROJECT PIN NUMBER: 00B258			
BORING CREW CREW CHIEF: GARROW DRILLER: GARROW LOGGER: CARRIERE				BORING RIG: LARGE SKID RIG w/AUTO HAMMER BORING TYPE: WASH BORE SAMPLE TYPE: SPLIT BARREL CHECKED BY: TDE			
DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)
5		Field Note:, Asphalt					
		A-1-b, SaGr, brn, Moist, Rec. = 1.2 ft	19	7.5	42.8	42.5	14.7
		A-2-4, SiSa, brn, Moist, Rec. = 0.8 ft	23	15.8	15.7	53.0	31.3
		A-1-b, GrSa, brn, Moist, Rec. = 1.1 ft	17	9.0	26.5	54.7	18.8
10		A-1-b, GrSa, brn, Moist, Rec. = 1.1 ft	19	14.5	27.0	53.8	19.2
		A-1-a, SaGr, brn, Moist, Rec. = 0.6 ft	R	12.0	54.1	33.1	12.8
		A-1-b, GrSa, brn, Moist, Rec. = 1.2 ft	R	11.4	37.3	49.5	13.2
		A-1-b, GrSa, brn, Moist, Rec. = 1.1 ft	18	16.7	33.2	56.0	10.8
15		A-1-b, GrSa with Trace of Organics(5.7%), brn, MTW, Rec. = 0.6 ft	7	46.4	31.0	55.3	13.7
		A-4, Si, brn, Moist, Rec. = 0.1 ft	71	19.9	13.9	18.2	67.9
		A-4, Si, gry, Moist, Rec. = 0.8 ft		22.5	0.3	5.6	94.1
		A-4, Si, gry, Moist, Rec. = 1.7 ft	52	21.5	0.4	13.1	86.5
20		A-4, Si, gry, Moist, Rec. = 1.5 ft	66	22.6	0.0	7.6	92.4
		A-4, Si, gry, Moist, Rec. = 1.5 ft	60	23.1	0.0	7.5	92.5
		A-4, Si, gry, Moist, Rec. = 1.6 ft	54	21.8	0.1	9.7	90.2
30							
		Field Note:, NXDC,Cleaned out casing.					
		A-4, Si, gry, Moist, Rec. = 1.45 ft	64	24.6	4.0	5.2	90.8
35							
		A-4, GrSaSi, gry, Moist, Rec. = 1.5 ft	81	14.7	23.5	26.3	50.2
		Hole stopped @ 37.7 ft					

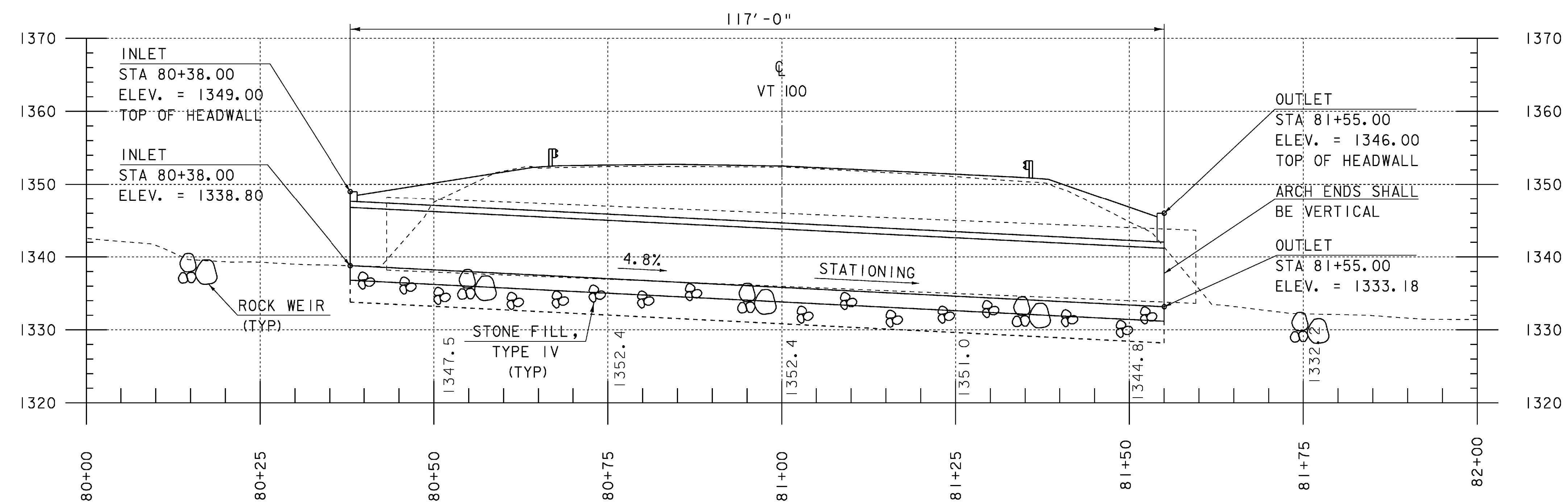
LOG OF BORING LUDLOW ST CULV(7).dgn VT AOT.GDT 7/19/07

LOC OF BORING LUDLOW ST CULV(7).dgn VT AUT.GBT 7/19/07

PROJECT: LUDLOW	PROJECT NO.: STP ST CULV (7)
DESIGN FILE NAME: 00b258\Structures\s00b258bor.dgn IPARM FILE NAME: s00b258bor log. i DESIGNED BY: SQUAD LEADER: C.P.WILLIAMS BORING LOGS	PLOT DATE: 11-SEP-2008 DRAWN BY: M & R LAB CHECKED BY: SHEET: 14 OF 34



ARCH LAYOUT
SCALE 1" = 10' - 0"



PROFILE ALONG CHANNEL
SCALE 1" = 10' - 0"

ALSO SEE LAYOUT SHEETS

PROJECT: LUDLOW	PROJECT NO.: STP ST CULV (7)
DESIGN FILE NAME: 00b258\structures\s00b258pipepro.dgn	PLOT DATE: 11-SEP-2008
IPARM FILE NAME: s00b258arch.i	DRAWN BY: E.L.RUSTAY
DESIGNED BY: E.L.RUSTAY	CHECKED BY: R.S.YOUNG
SQUAD LEADER: C.P.WILLIAMS	SHEET: 15 OF 34
ARCH LAYOUT & PROFILE	

GENERAL NOTES:

- ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO STATE OF VERMONT, AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION, DATED 2006, AND ITS LATEST REVISIONS, AND THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 2007 AND ITS LATEST REVISIONS.
- DESIGN CRITERIA:
DESIGN LIVE LOAD = HL-93
SOIL UNIT WEIGHT = 140 PCF
FILL OVER THE ARCH = 8 FEET
- ITEM 529.15 "REMOVAL OF STRUCTURE" SHALL BE USED FOR REMOVAL OF THE EXISTING PIPE ARCH AND CRADLES .ANY WORK REQUIRED FOR PARTIAL REMOVAL DUE TO PHASE CONSTRUCTION SHALL ALSO BE INCLUDED UNDER THIS ITEM.
- REINFORCING STEEL PLACEMENT TOLERANCES SHALL BE AS FOLLOWS:
SPACING +/- 1"
CLEARANCE +/-1/4"
- ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL AND ARE GIVEN AT 68° F OR AS NOTED OTHERWISE.
- THE MINIMUM COVER FOR REINFORCING STEEL IN THE FOOTINGS SHALL BE 2"
- ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1" X 1".
- JOINTS AND SCORE MARKS IN THE CONCRETE SHALL BE CONSTRUCTED AS INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
- WATER REPELLANT, SILANE SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES EXCEPT THE UNDERSIDE OF THE PRECAST CONCRETE ARCH.
- THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PREVENT SILTATION OR POLLUTION OF THE RIVER, ESPECIALLY THE DISCHARGE OF RAW CONCRETE INTO JEWELL BROOK AS DIRECTED BY THE RESIDENT ENGINEER AND STANDARD SPECIFICATIONS SECTION 105 - CONTROL OF THE WORK.
- THE ITEM 613.10 "STONE FILL, TYPE I" SHALL BE USED AT THE DISCRETION OF THE RESIDENT ENGINEER TO PREVENT EROSION BEHIND THE WING WALLS AND AS DIRECTED ON THE PLANS.
- THE CONTRACTOR SHALL TAKE CARE NOT TO DAMAGE THE 36" PIPE UNDER TUCKERVILLE PARKWAY. ANY DAMAGE INCURRED SHALL BE REPAIRED AT THE CONTRACTORS EXPENSE.
- THE RESIDENT ENGINEER SHALL BE RESPONSIBLE FOR RELOCATING THE MAIL BOX LOCATED AT STATION 2+69.35. THIS WORK SHALL BE PAID FOR UNDER ITEM 617.10 RELOCATE MAIL BOX, SINGLE SUPPORT.

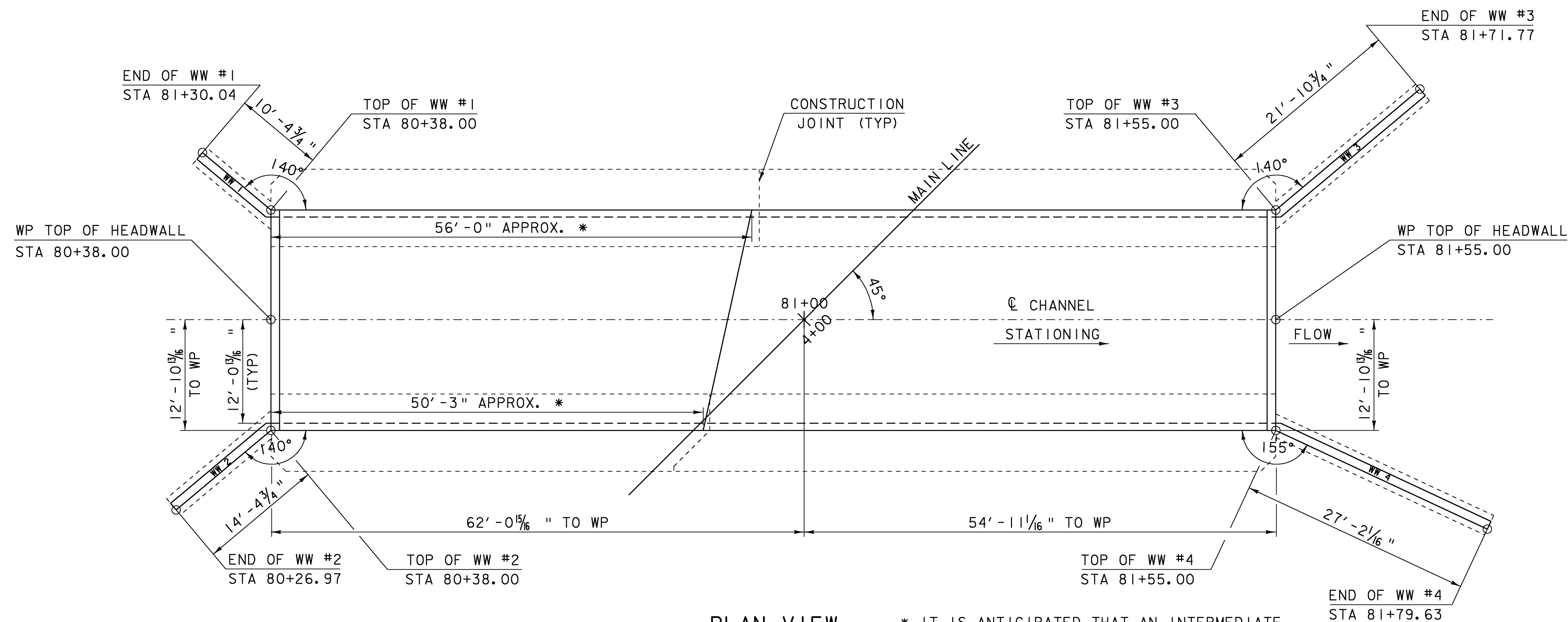
TRAFFIC NOTES:

- TRAFFIC SHALL BE MAINTAINED DURING CONSTRUCTION OF THE NEW ARCH BY PHASED CONSTRUCTION. SEE SHEET 10-12 AND SECTION 900 OF THE SPECIAL PROVISIONS.
- IT WILL BE THE RESPONSIBILITY OF THE RESIDENT ENGINEER TO MAKE ADJUSTMENTS AS NEEDED TO THE TRAFFIC CONTROL PLAN DUE TO CONFLICTS WITH EXISTING SIGNS AND DRIVEWAYS. ALL SIGNS REMOVED OR COVERED BY THE CONTRACTOR SHALL BE REPLACED OR UNCOVERED WHEN THE TRAFFIC CONTROL PLAN IS DISASSEMBLED.
- ALL ON AND OFF PROJECT SIGNS AND BARRICADES AS REQUIRED FOR THE DETOUR AND/OR ORDERED BY THE RESIDENT ENGINEER WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE PAID FOR UNDER THE ITEM 641.10 "TRAFFIC CONTROL". ALL SIGNS AND BARRICADES SHALL BE INSPECTED DAILY AND REPAIRED AS NECESSARY. ALL SIGNS AND BARRICADES SHALL BE CLEARED OF DUST AND DEBRIS WEEKLY.
- THE PASSING ZONES LOCATED SOUTH OF THE PROJECT WILL NEED TO BE CLOSED. THIS SHALL BE DONE BY COVERING THE DASHED YELLOW LINES WITH YELLOW TEMPORARY PAVEMENT MARKINGS. PAYMENT FOR THE MARKINGS AND THE REMOVAL OF THE MARKINGS SHALL BE INCLUDED UNDER ITEM 900.645 SPECIAL PROVISION (TEMPORARY ROADWAY) (PHASE I). PAYMENT FOR THE RESTRIPING OF THE PASSING ZONE AFTER THE PROJECT IS DONE SHALL BE PAID FOR UNDER ITEM 646.412 "DURABLE 4 INCH YELLOW LINE, THERMOPLASTIC".

ARCH NOTES:

- THE LUMP SUM COST FOR ITEM 540.10 "PRECAST CONCRETE STRUCTURE (24' X 10' X 117' ARCH) "SHALL INCLUDE PRECAST HEADWALLS, PRECAST WING WALLS, MECHANICAL CONNECTORS, ANY JOINT SEALER REQUIRED, AND ANY OTHER LABOR AND MATERIALS NECESSARY TO INSTALL THE ARCH.
- THE ARCH SHALL BE PLACED ON CAST-IN-PLACE FOOTINGS AS SHOWN ON THE PLANS AND SHALL BE IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS.
- BACKFILL AGAINST A WATERPROOFED JOINT WRAP SURFACE SHALL BE PLACED CAREFULLY -TO AVOID DAMAGE TO THE WATERPROOFING MATERIAL.
- BACKFILLING BEHIND THE ARCH AND USE OF EQUIPMENT ON OR ADJACENT TO THE ARCH SHALL BE IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.
- THE FABRICATOR SHALL PROVIDE FABRICATION DRAWINGS, CONFORMING TO VAOT STANDARD SPECIFICATION SUBSECTION 105.03 AND THE APPLICABLE PROVISIONS OF SUBSECTION 540.10 AND DESIGN CALCULATIONS TO THE PROJECT MANAGER FOR WRITTEN APPROVAL PRIOR TO CONSTRUCTION.
- NO HOLES SHALL BE DRILLED IN THE ARCH WITH OUT THE APPROVAL OF THE FABRICATOR AND THE AGENCY.
- CARE SHALL BE TAKEN WHEN DRIVING GUARDRAIL POSTS OVER ARCH AS TO NOT DAMAGE THE ARCH WITH THE STEEL POST.
- A TWO (2) FOOT WIDE STRIP OF MEMBRANE WATERPROOFING SHALL BE APPLIED AT EACH ARCH JOINT (TOP AND SIDES). MEMBRANE SHALL BE CENTERED ON THE JOINT AND COVER THE FULL WIDTH OF THE TOP AND FULL HEIGHT OF THE SIDES. THE SIDES SHALL BE COVERED FIRST AND THE TOP WILL FOLLOW. ANY OVERLAPPING OF MEMBRANE SHALL BE DONE IN A SHINGLE TYPE STYLE TO SHED WATER AND SHALL OVERLAP A MINIMUM OF ONE FOOT. PAYMENT FOR MEMBRANE SHALL BE UNDER ITEM 519.21 "SHEET MEMBRANE WATERPROOFING, PREFORMED SHEET".
- THE PRECAST ARCH DETAILS ARE SHOWN FOR REFERENCE ONLY. THE ACTUAL DIMENSIONS AND CONFIGURATION WILL BE DEPENDENT ON THE FABRICATOR. THE INSIDE CLEAR DIMENSION SHALL BE 24'-0" AND THE RISE SHALL BE 10'-0".

PROJECT NAME: LUDLOW	
PROJECT NUMBER: STP ST CULV (7)	
FILE NAME: 00b258note.dgn	PLOT DATE: 23-SEP-2008
PROJECT LEADER: C.P. WILLIAMS	DRAWN BY: H.J. SALLS
DESIGNED BY: H.J. SALLS	CHECKED BY: R.S. YOUNG
GENERAL NOTES	SHEET 16 OF 34

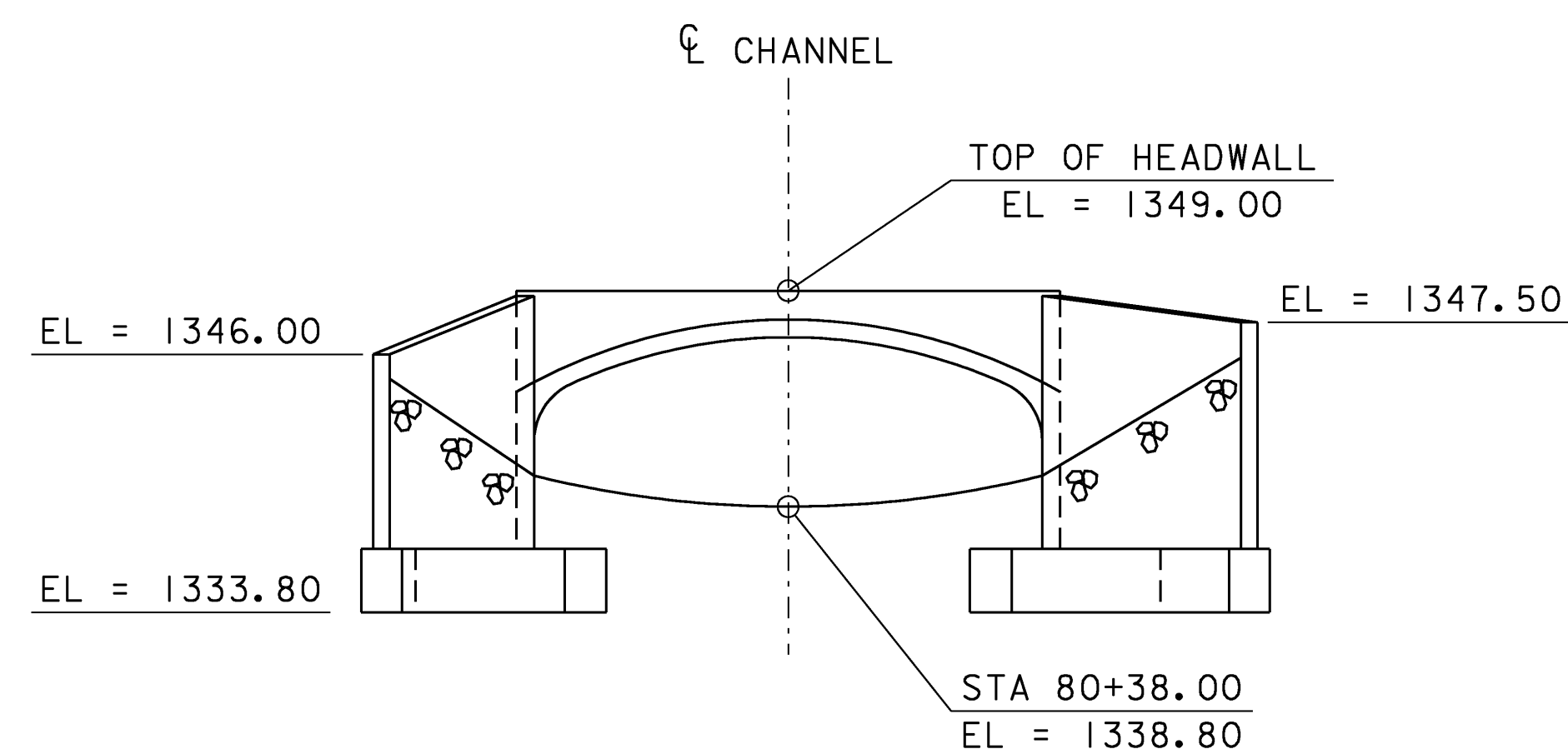


PLAN VIEW

SCALE 1/8" = 1'-0"

1 0 2 4 6 8

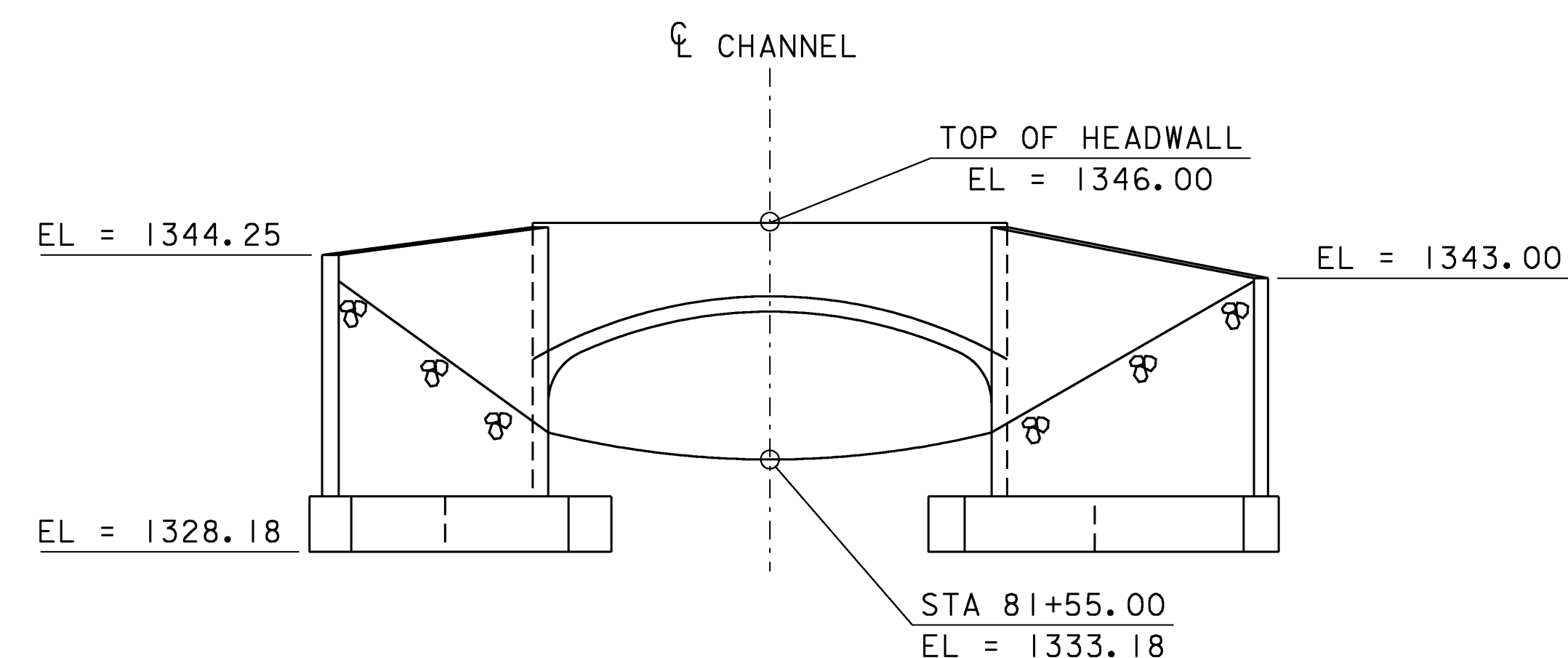
* IT IS ANTICIPATED THAT AN INTERMEDIATE SKEWED SECTION MAY BE NECESSARY, THE CONTRACTOR SHALL COORDINATE WITH THE FABRICATOR ON THE EXACT LOCATION.



INLET ELEVATION VIEW

SCALE 1/8" = 1'-0"

1 0 2 4 6 8



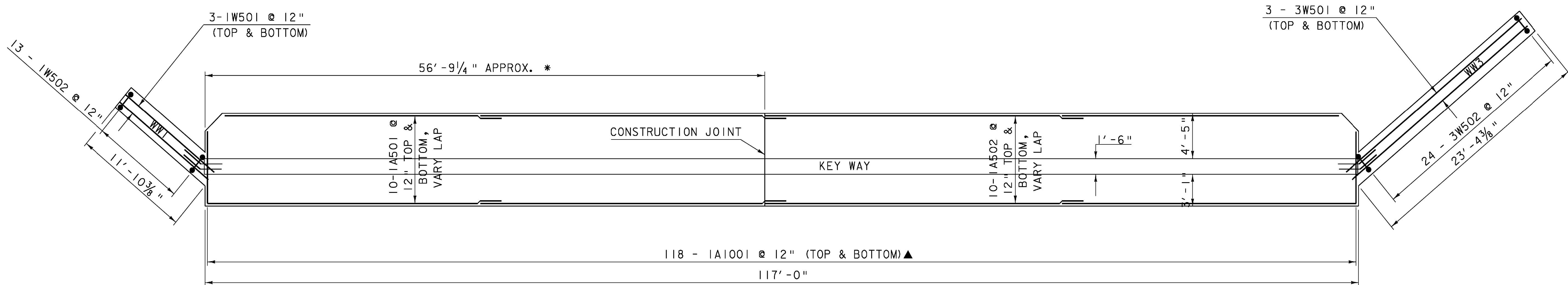
OUTLET ELEVATION VIEW

SCALE 1/8" = 1'-0"

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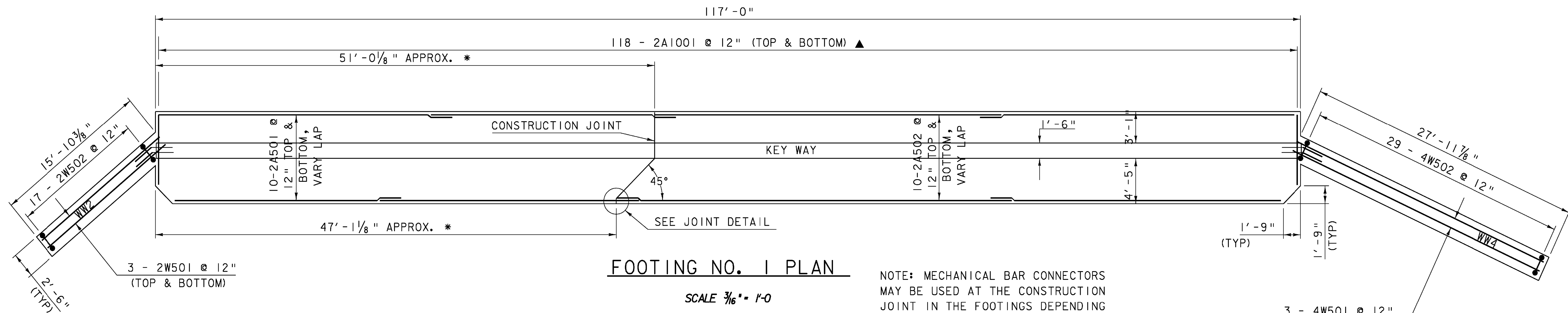
PROJECT: LUDLOW	PROJECT NO.: STP ST CULV (7)
DESIGN FILE NAME: 00b258\Structures\s00b258pipepro.dgn	PLOT DATE: 11-SEP-2008
IPARM FILE NAME: s00b258ww.i	DRAWN BY: E.L. RUSTAY
DESIGNED BY: E.L. RUSTAY	CHECKED BY: R.S. YOUNG
SQUAD LEADER: C.P. WILLIAMS	SHEET: 17 OF 34
WINGWALL DETAILS	

NOTE: FOOTINGS WERE CHANGED TO PRE-CAST - SEE SHOP DRAWINGS



FOOTING NO. 2 PLAN
SCALE 3/16" = 1'-0"

* CONSTRUCTION JOINTS ARE SHOWN
IN THEIR APPROXIMATE LOCATIONS

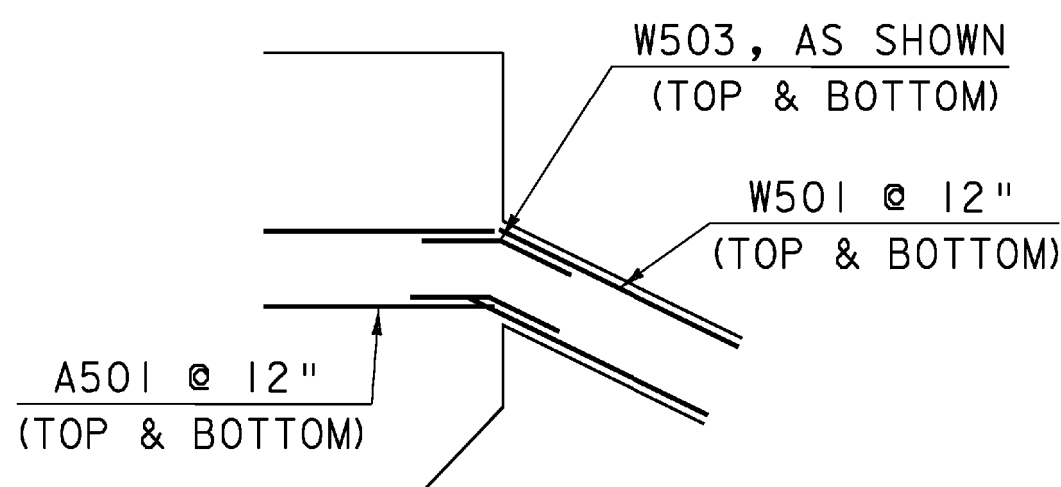


FOOTING NO. 1 PLAN
SCALE 3/16" = 1'-0"

NOTE: MECHANICAL BAR CONNECTORS
MAY BE USED AT THE CONSTRUCTION
JOINT IN THE FOOTINGS DEPENDING
ON WHERE THE SHEET PILING IS
INSTALLED.



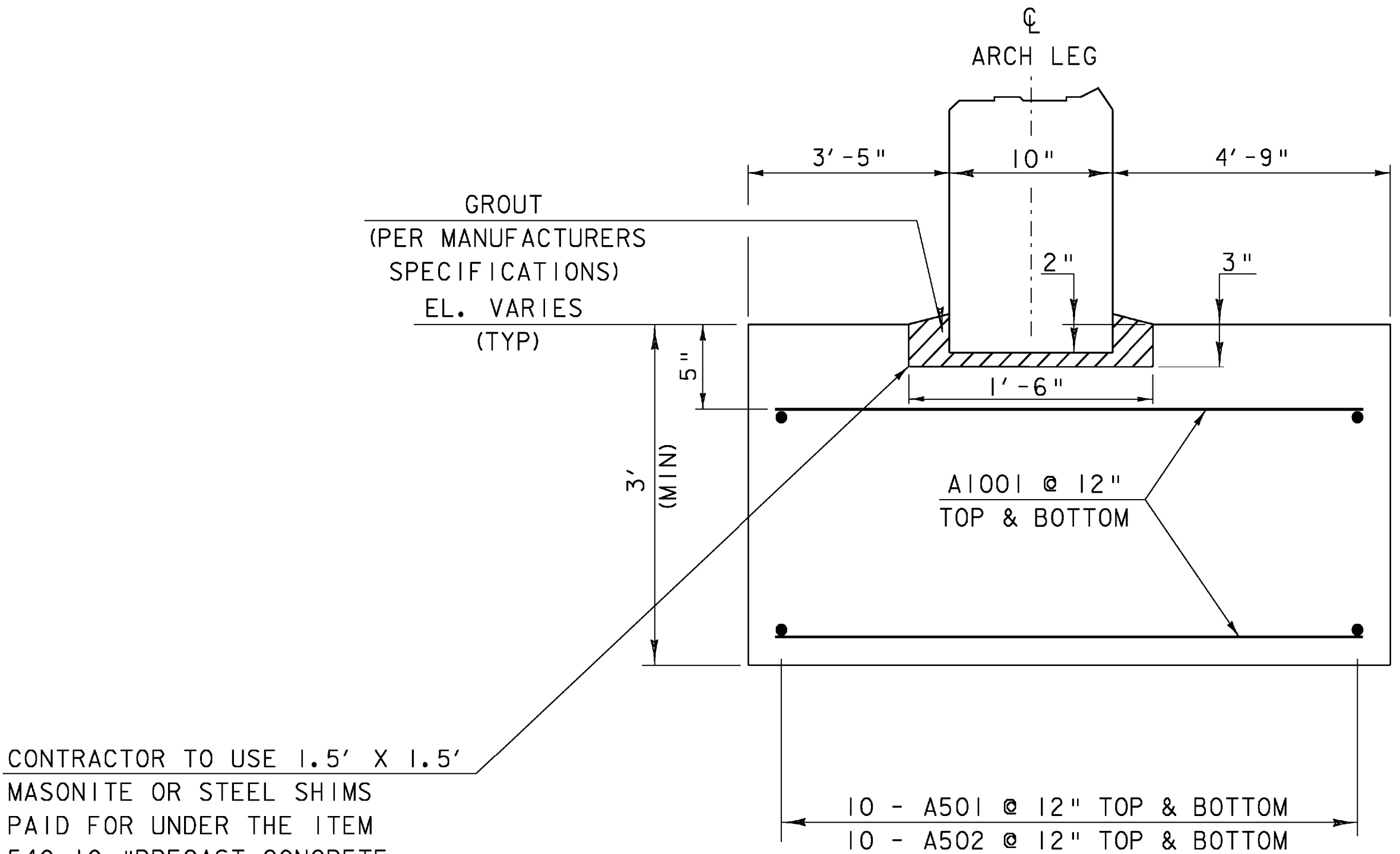
JOINT DETAIL
NTS



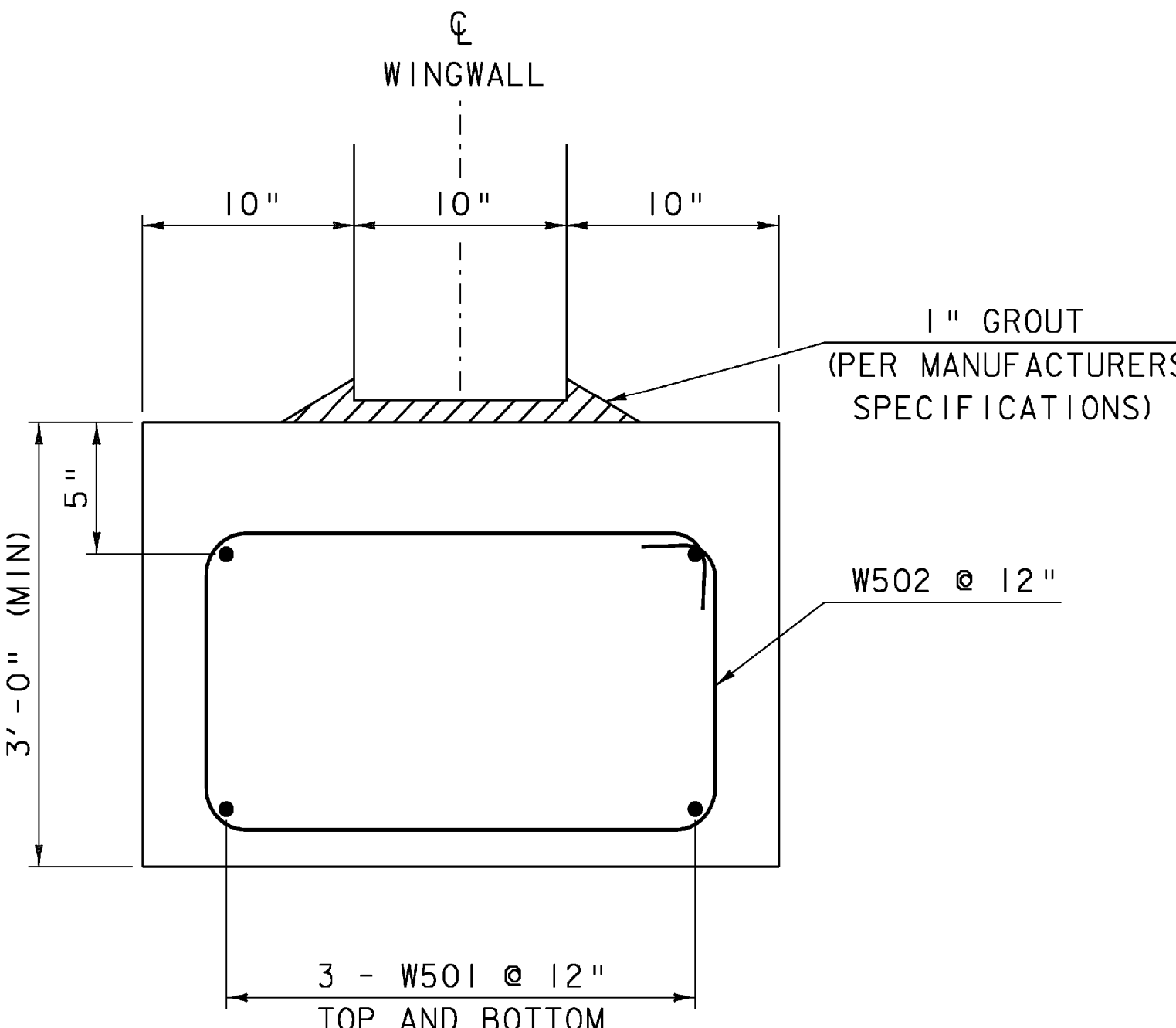
CORNER JOINT DETAIL
NTS

NOTES:

- NF = NEAR FACE
- FF = FAR FACE
- EF = EACH FACE
- ▲ = CUT TO FIT IN FIELD
- 3" CLEAR UNLESS OTHERWISE SPECIFIED ON THE PLANS
- ALL LAPS 2'-2" UNLESS OTHERWISE NOTED.



TYPICAL ARCH FOOTING SECTION
NTS

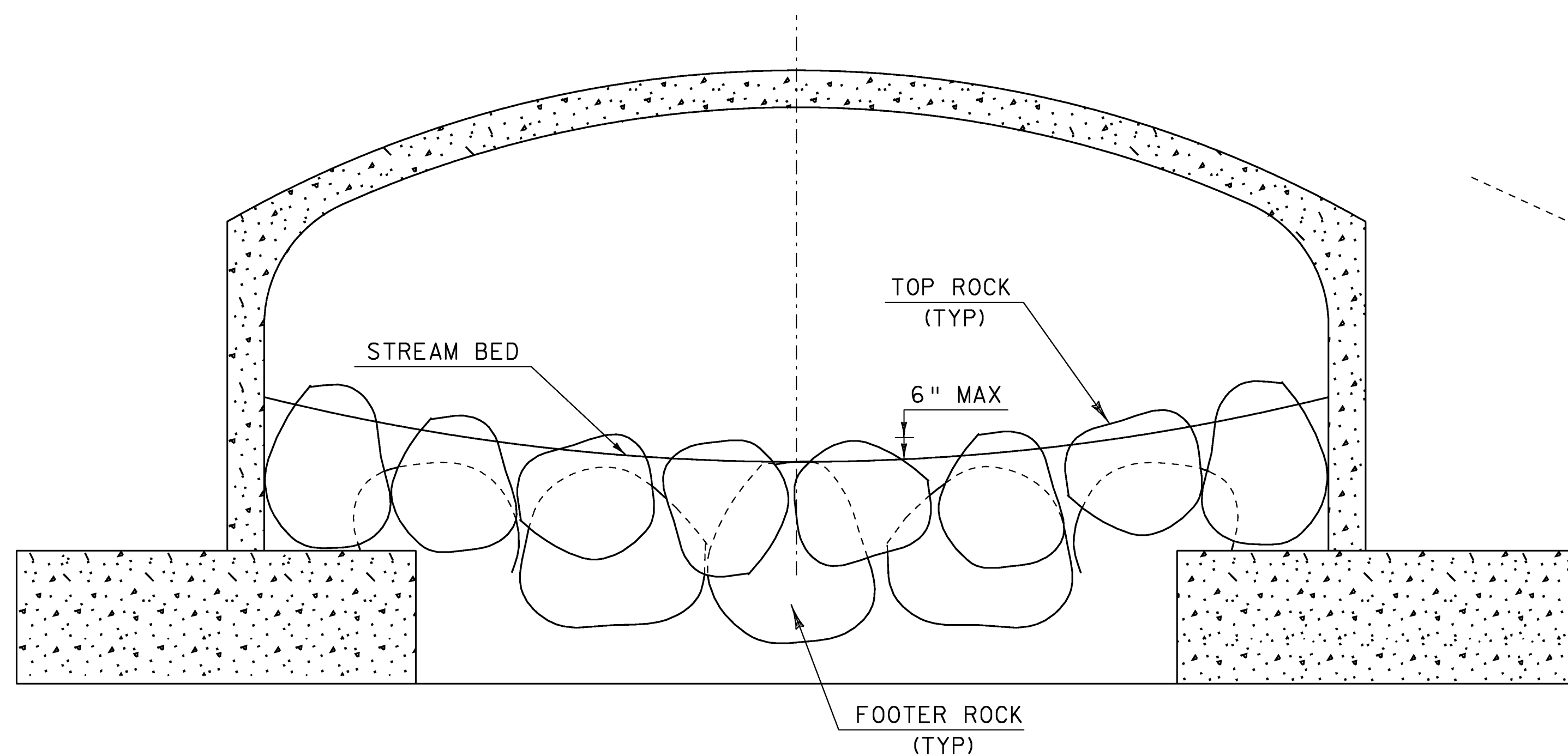


WINGWALL FOOTING SECTION
NTS

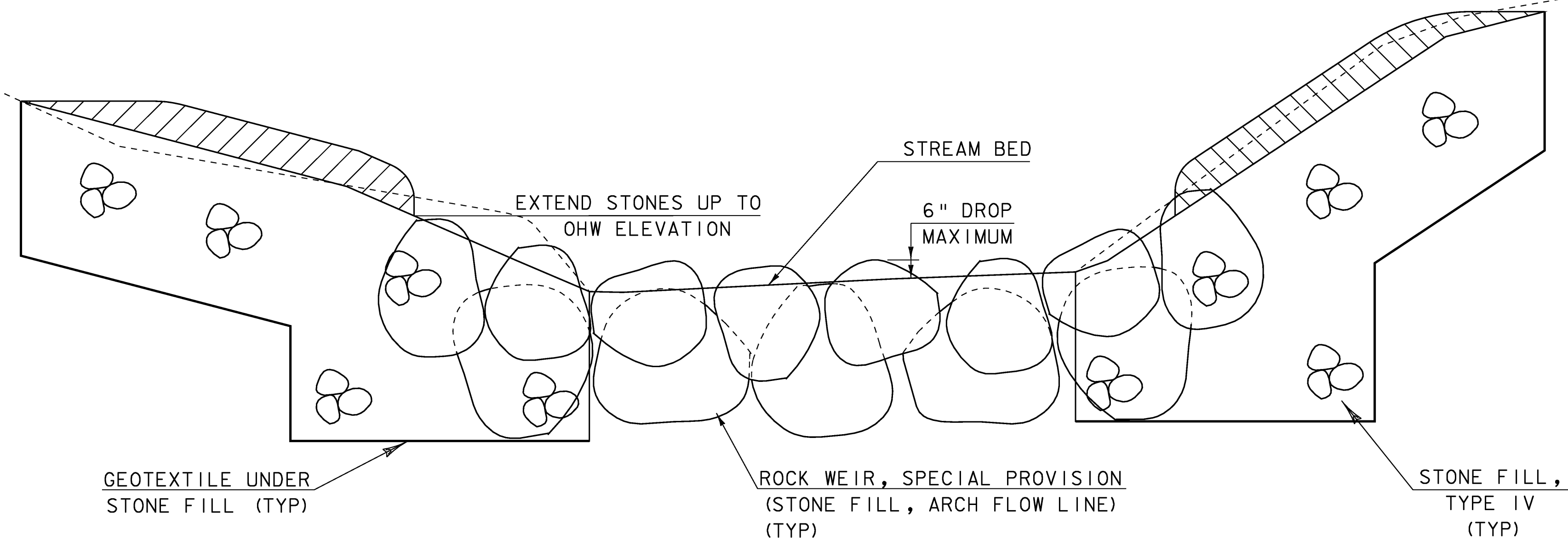
SCALE 3/16" = 1'-0"
1 0 2 4 6 8

CONTRACTOR TO USE 1.5' X 1.5'
MASONITE OR STEEL SHIMS
PAID FOR UNDER THE ITEM
540.10 "PRECAST CONCRETE
ARCH (24' X 10')"

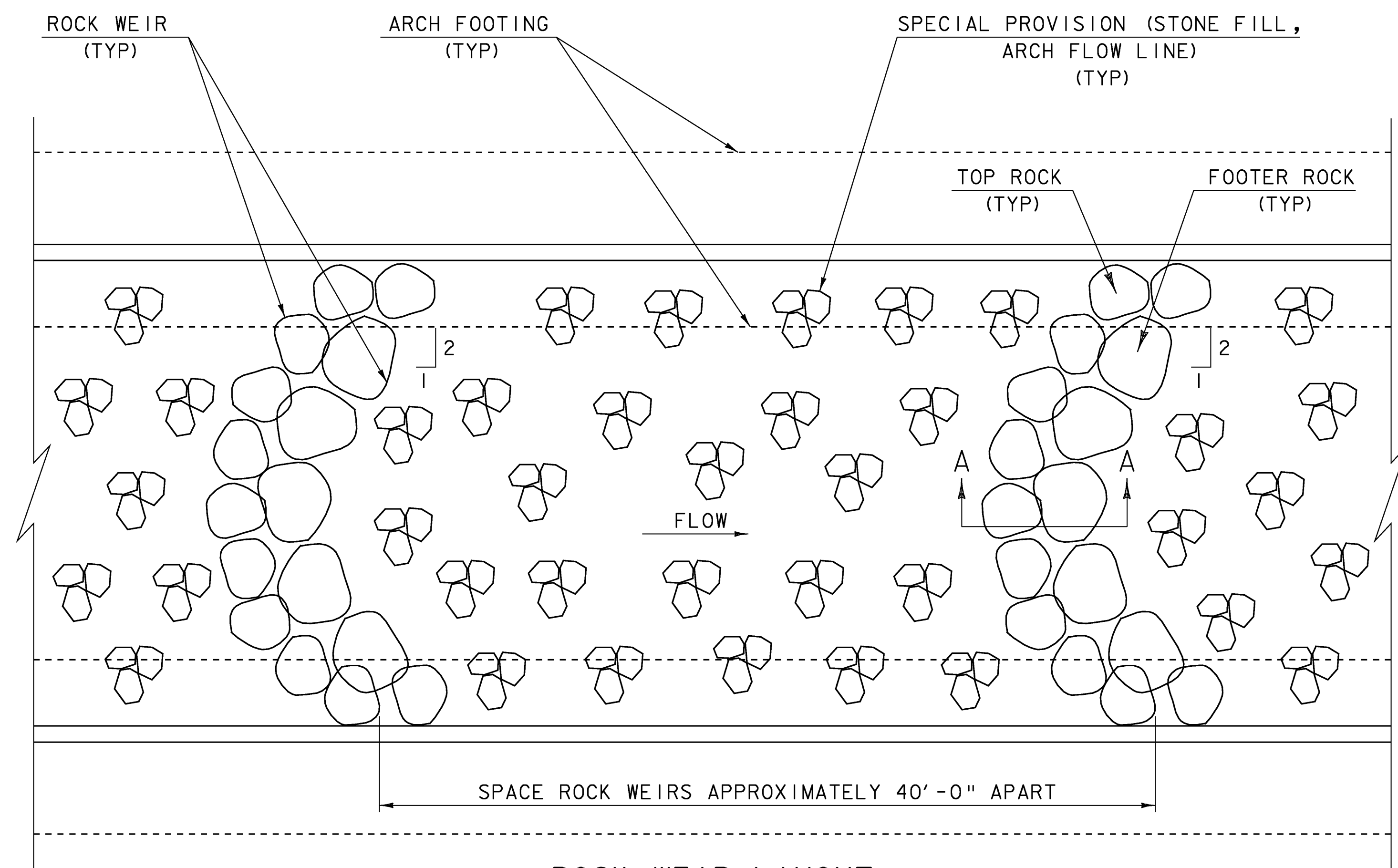
PROJECT NAME:	LUDLOW	PLOT DATE:	23-SEP-2008
PROJECT NUMBER:	STP ST CULV (7)	DRAWN BY:	H.J. SALLS
FILE NAME:	s00b258p1pepro	CHECKED BY:	R.S. YOUNG
PROJECT LEADER:	C.P. WILLIAMS	SHEET	18 OF 34
DESIGNED BY:	H.J. SALLS		
FOOTING REINFORCING DETAILS			



SECTION AT ROCK WEIR IN CULVERT
N. T. S.



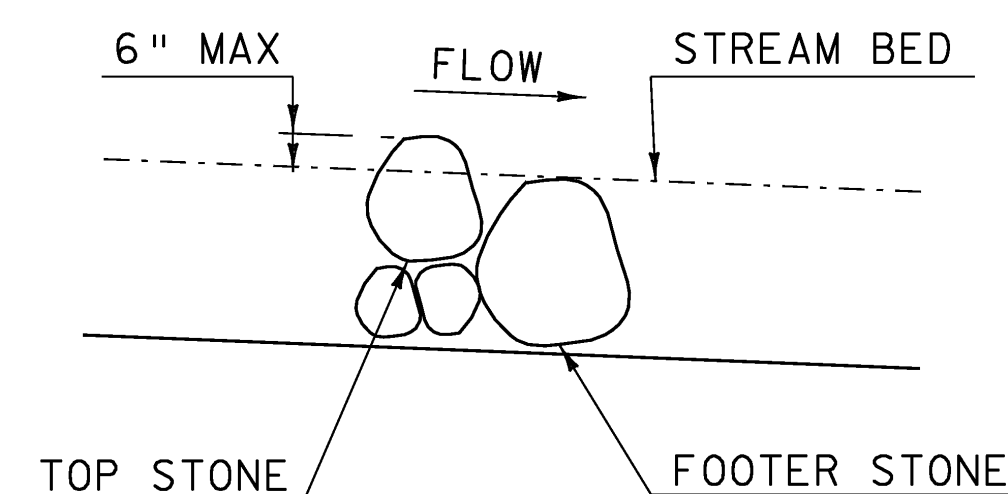
SECTION AT ROCK WEIR IN CHANNEL
N. T. S.



ROCK WEIR LAYOUT
SCALE: 1"=5' -0"

NOTES:

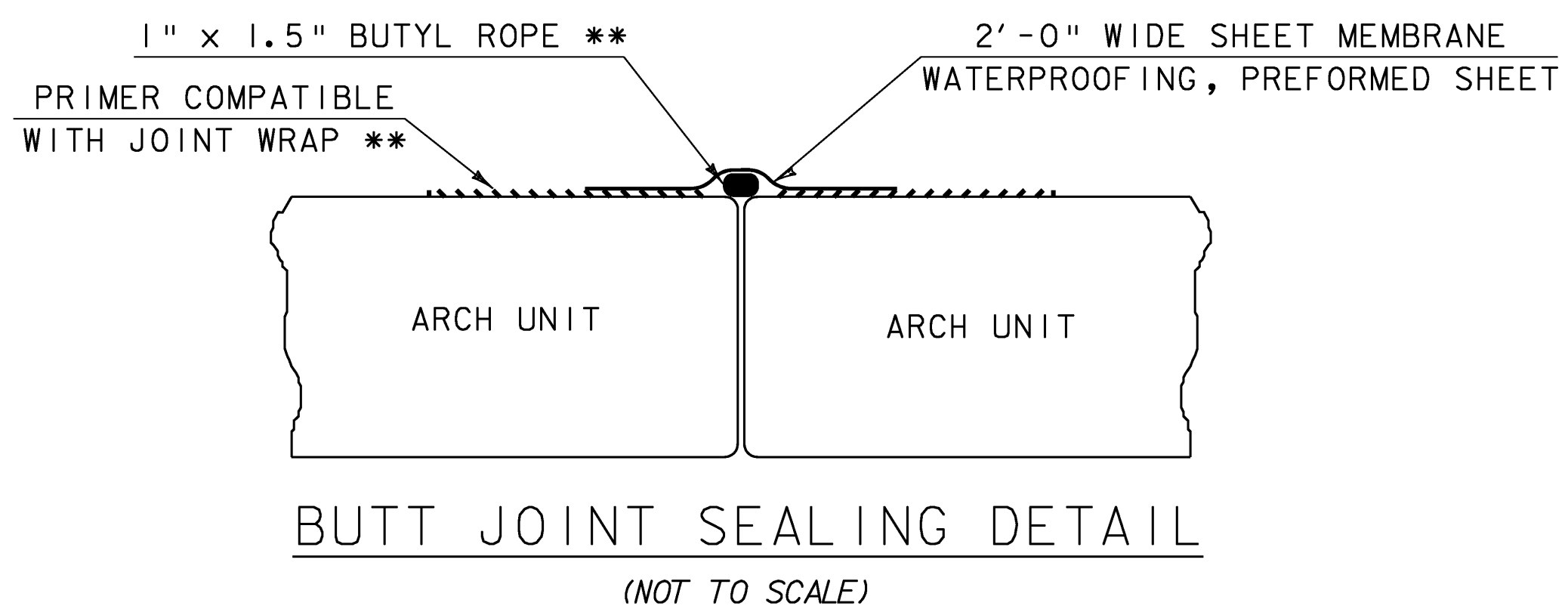
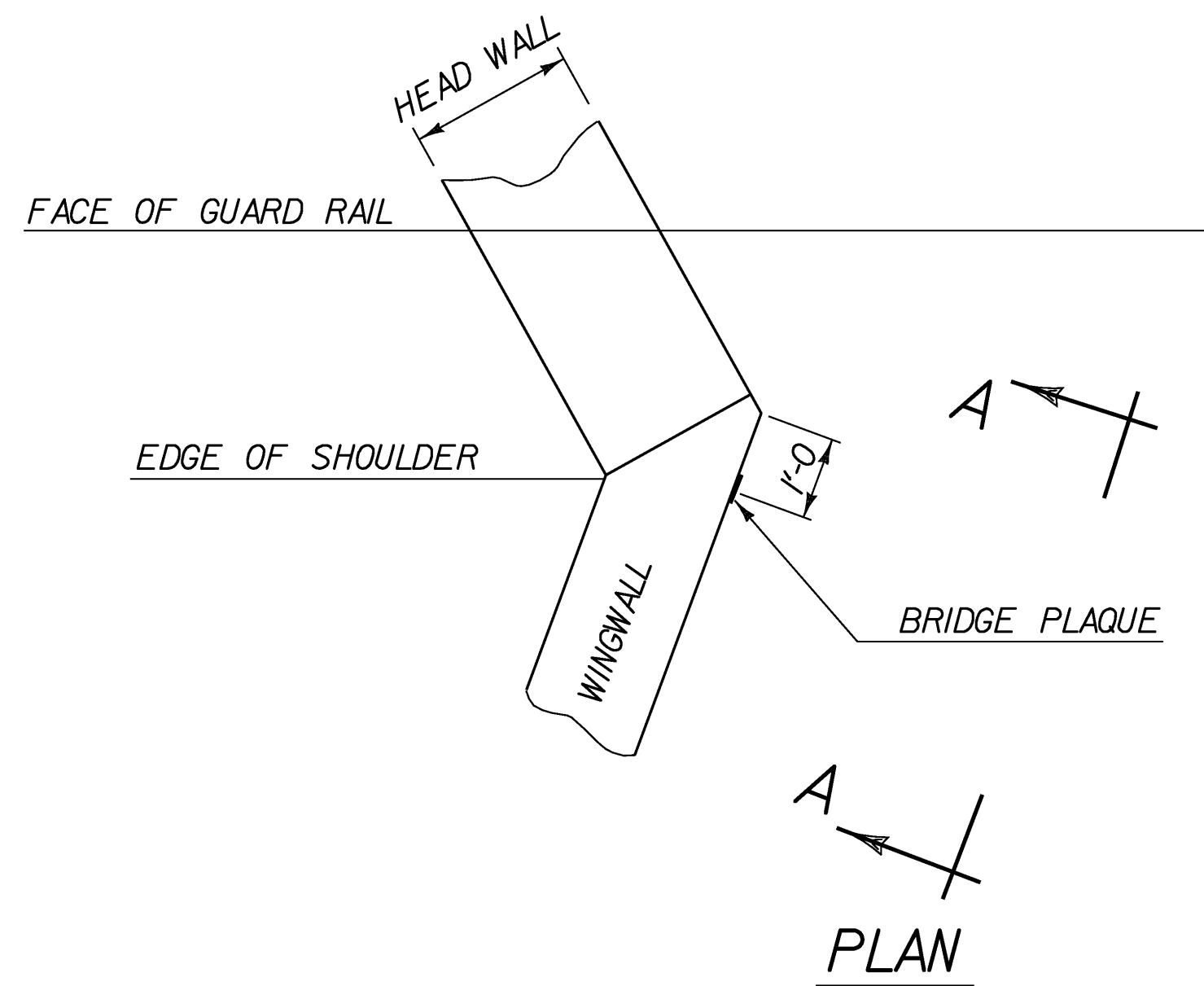
1. ROCK WEIRS SHALL BE USED FOR GRADE CONTROL. THE CONTRACTOR SHALL USE THE LARGER STONES FROM THE ARCH FLOW LINE MATERIAL TO FORM THE ROCK WEIRS DETAILED ON THIS SHEET. WORK AND MATERIALS NEEDED TO CONSTRUCT THE ROCK WEIRS SHALL BE PAID FOR UNDER ITEM 900.608 "SPECIAL PROVISION (STONE FILL, ARCH FLOW LINE)".
2. THERE SHALL BE FIVE ROCK WEIRS ALONG THE LENGTH OF THE CHANNEL, STARTING 15'-0" TO 20'-0" UPSTREAM FROM THE INLET OF THE ARCH.



SECTION A-A
SCALE: 1"=5' -0"

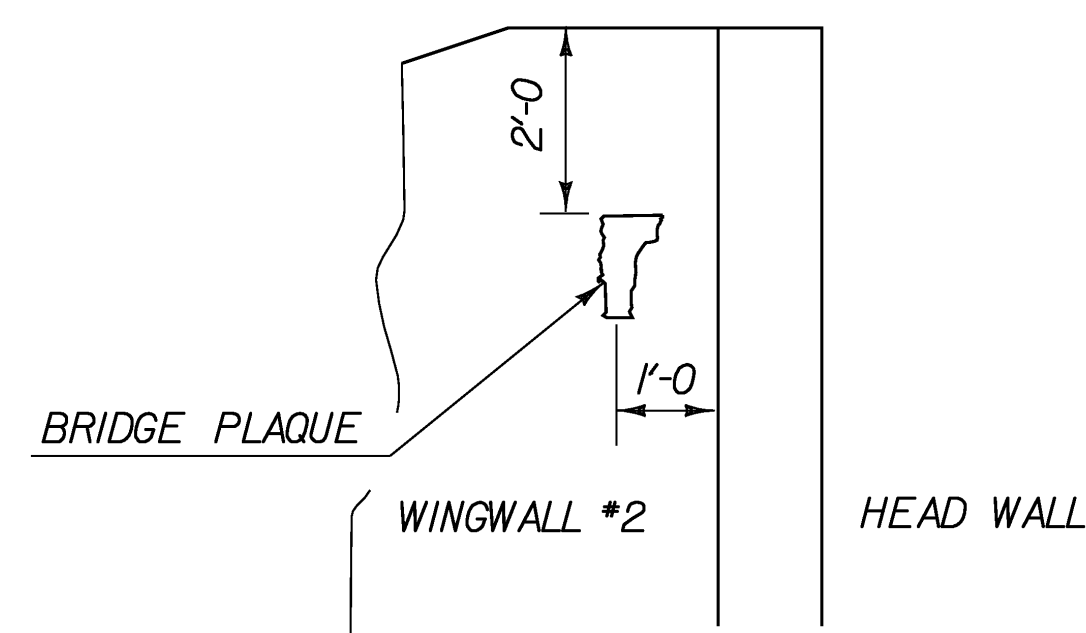
SCALE 1"=5'-0"
5 0 5

PROJECT: LUDLOW	PROJECT NO.: STP ST CULV (7)
DESIGN FILE NAME: 00b258\Structures\s00b258pipepro.dgn IPARM FILE NAME: s00b258chanstone.iPLOT DATE: 23-SEP-2008 DESIGNED BY: E.L.RUSTAY SQUAD LEADER: C.P.WILLIAMS	DRAWN BY: E.L.RUSTAY CHECKED BY: R.S.YOUNG CHANNEL STONE DETAILS SHEET: 19 OF 34



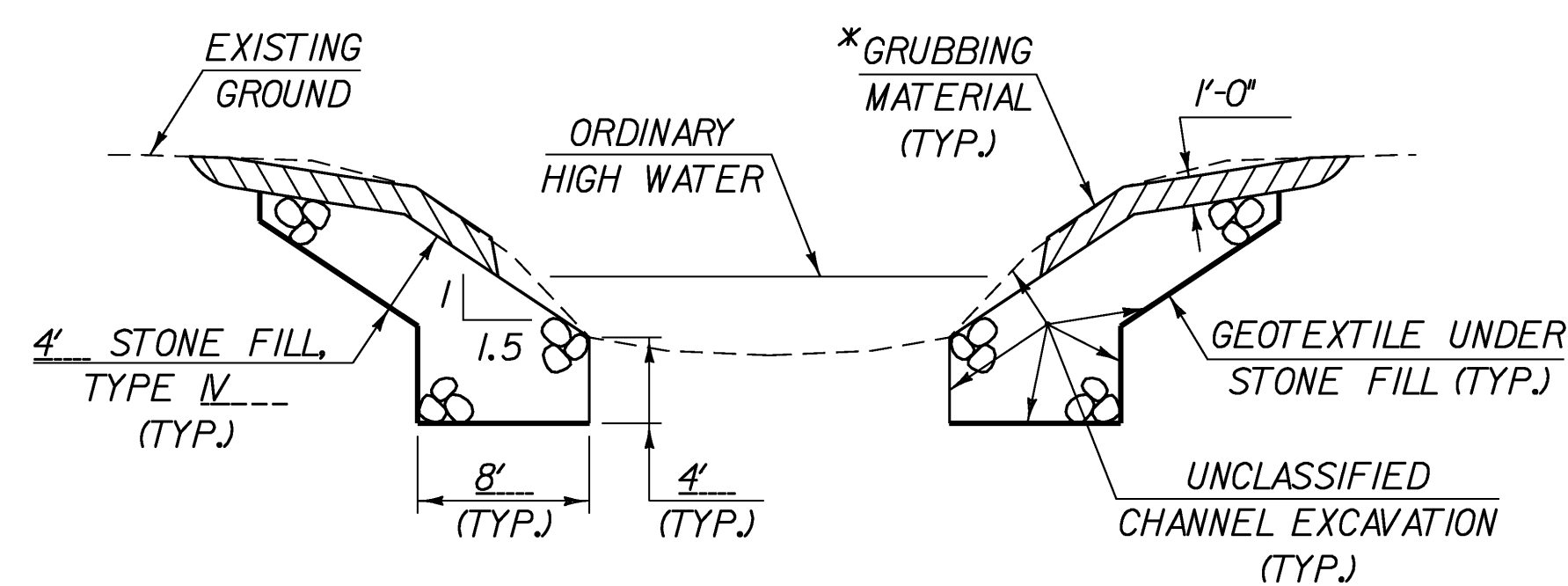
(NOT TO SCALE)

** PAYMENT INCIDENTAL TO ITEM 519.21
"SHEET MEMBRANE WATERPROOFING,
PREFORMED SHEET".



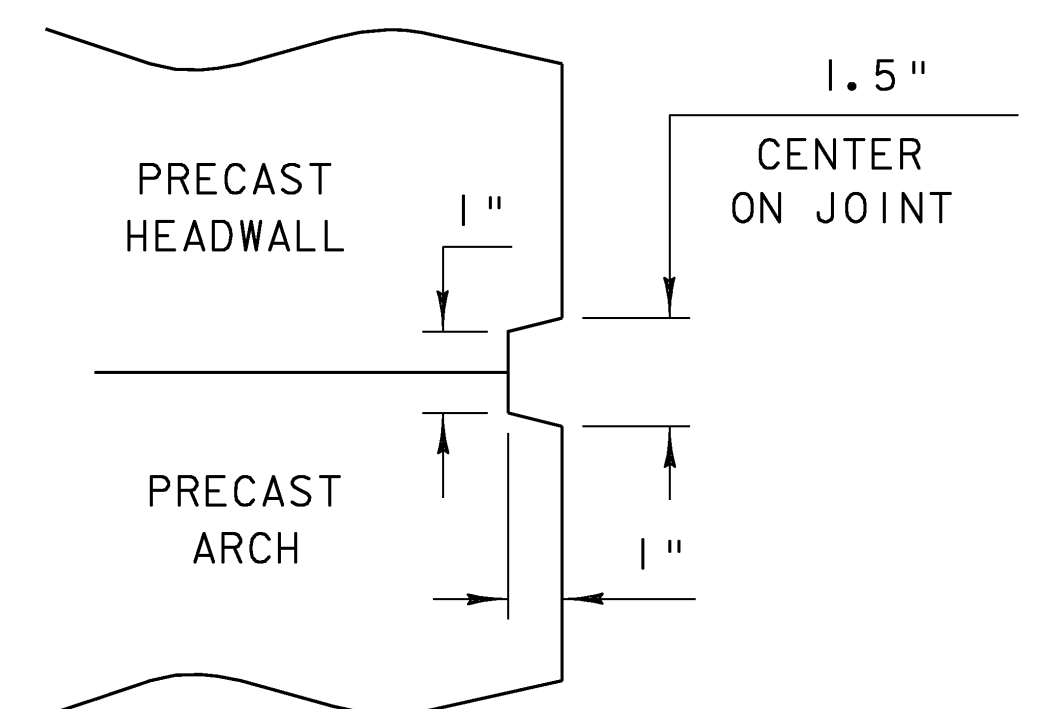
VIEW "A - A"
LOCATE BRIDGE PLAQUE

THE BRIDGE PLAQUE WILL BE SUPPLIED BY THE AGENCY OF TRANSPORTATION AND SHALL BE INSTALLED BY THE CONTRACTOR ON WING WALL #2 AS SHOWN OR AS DIRECTED BY THE ENGINEER.



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.



SCORE MARK DETAIL
(NOT TO SCALE)

PROJECT NAME: LUDLOW	
PROJECT NUMBER: STP ST CULV (7)	
FILE NAME: 00b258plpepro.dgn	PLOT DATE: 23-SEP-2008
PROJECT LEADER: C.P. WILLIAMS	DRAWN BY: H.J. SALLS
DESIGNED BY: H.J. SALLS	CHECKED BY: R.S. YOUNG
MISCELLANEOUS DETAILS	SHEET 20 OF 34

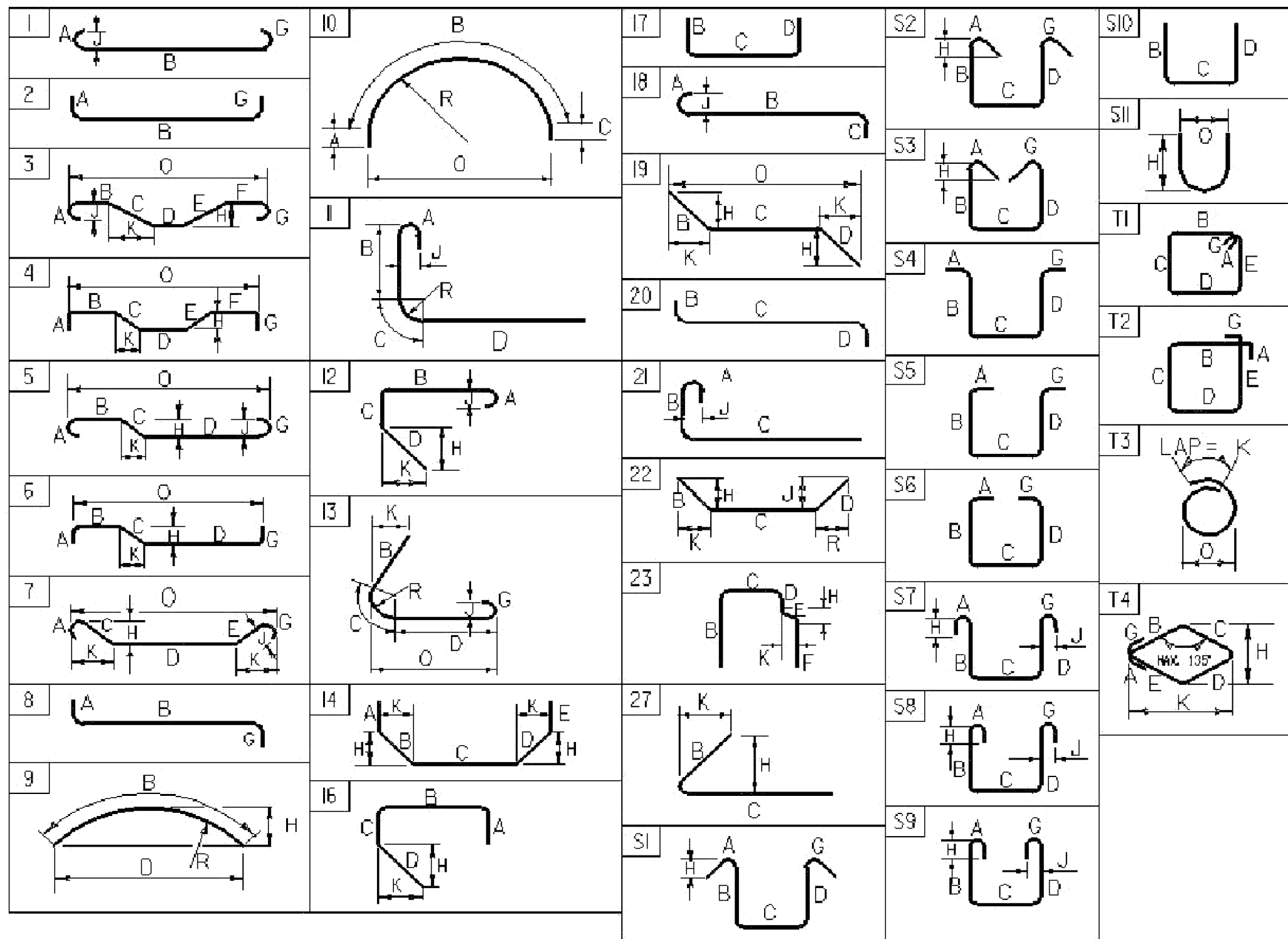
TRAFFIC SIGN SUMMARY SHEET

DESIGN FILE NAME: 00b258\Structures\s00b258tss.dgn	
IPARM FILE NAME: s00b258tss.i	PLOT DATE: 11-SEP-2008
DESIGNED BY: H. I. SALLS	DRAWN BY: H. I. SALLS
SQUAD LEADER: C. P. WILLIAMS	CHECKED BY: R. S. YOUNG
TRAFFIC SIGN SUMMARY SHEET	SHEET: 21 OF 34

REINFORCING STEEL SCHEDULE

[illegible]

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-S). 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.
0. △ DENOTES TWO EXTRA BARS ADDED FOR TESTING PURPOSES.
1. E IN BAR MARK PREFIX DENOTES EPOXY COATED REINFORCING STEEL.



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

PROJECT NAME: LUDLOW	
PROJECT NUMBER: STP ST CULV(7)	
FILE NAME: s00b258excel.dgn	PLOT DATE: 9/11/2008
PROJECT MANAGER: C.P.WILLIAMS	DRAWN BY: D.D.BEARD
DESIGNED BY: H.SALLS	CHECKED BY: H.SALLS
REINFORCING STEEL SCHEDULE SHEET	SHEET 22 OF 34

EROSION CONTROL NARRATIVE

1. 1 PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE REMOVAL OF CULVERT 98F AND ITS HEADWALLS. CULVERT 98F WILL BE REPLACED WITH A PRECAST ARCH WITH AN 8 FOOT RISE, SPANNING 24 FEET OVER JEWELL BROOK, ON NEW FOOTINGS ALONG THE SAME ALIGNMENT. CULVERT 98F IS LOCATED IN THE TOWN OF LUDLOW, OH VT ROUTE 100, APPROXIMATELY AT THE INTERSECTIONS OF VT ROUTE 100, BROOKS ROAD(TH 41), AND TUCKERVILLE PARKWAY. THE LENGTH OF THE CULVERT WILL BE SLIGHTLY INCREASED TO 117 FEET.

NOTE: AREA OF DISTURBANCE SHALL INCLUDE LIMITS OF EARTH DISTURBANCE WITHIN THE PROJECT AREA, INCLUDING ANY WASTE, STAGING AND BORROW AREAS WITHIN OR DIRECTLY ADJACENT TO THE PROJECT LIMITS.

TOTAL AREA OF DISTURBANCE IS APPROXIMATELY 0.90 ACRES.

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

1. 2 SITE INVENTORY

1.2. 1 OFF SITE DRAINAGE CHARACTERISTICS (UP AND DOWN-GRADIENT)

THE PROPERTY SURROUNDING THE PROJECT SITE CONSISTS OF WELL ESTABLISHED FOREST WITH MODERATE SLOPES AT THE PROJECT SITE. THERE ARE A FEW HOUSES UP SLOPE WITH GRASS AND TREE BUFFERS. DUE TO THE NATURE OF THE SURROUNDING TERRAIN THE PROJECT SITE COULD RECEIVE RUNOFF WATER FROM A FEW NEARBY SLOPES. IF THIS IS THE CASE, IT SHOULD BE MINIMAL.

1. 2. 2 DRAINAGE, WATERWAYS, BODIES OF WATER, AND PROXIMITY TO NATURAL OR MAN-MADE WATER FEATURES

THE JEWELL BROOK IS THE ONLY WATER SOURCE ON THE PROJECT SITE. THE BROOK IS CLASSIFIED AS STEEP, SINUOUS, NARROW, WITH A CONFINED AND ARMORED CHANNEL AT THE SITE. THE STREAM BED CONSISTS OF GRAVEL, COBBLES AND BOULDERS. THE TRIBUTARY AREA AT THE CULVERT CROSSING IS 4.6 SQUARE MILES. THERE ARE A NUMBER OF DROP INLETS ON SITE DRAINING FROM THE ROADWAY TO THE BROOK.

1.2. 3 TOPOGRAPHY, EXISTING ROADS, BUILDINGS, UTILITIES

THE TOPOGRAPHY OF THE AREA IS A SADDLE THAT IS MOSTLY WOODED WITH OCCASIONAL OPEN AREAS. VT ROUTE 100, BROOKS ROAD (TH 41), TUCKERVILLE PARKWAY, AND A PAVED DRIVEWAY ARE WITHIN THE PROJECT SITE. THERE IS A RESIDENCE ON THE EAST SIDE OF THE PROJECT, AND A FEW HOUSES UP SLOPE TO THE WEST. THERE ARE OVERHEAD UTILITIES WHICH WILL BE RELOCATED PRIOR TO CONSTRUCTION.

1.2. 4 VEGETATION

THE VEGETATION IN THE PROJECT AREA CONSISTS OF HARDWOOD TREES AND UNDERGROWTH. THE IMPACT TO VEGETATION WILL BE LIMITED TO THAT WHICH IS DIRECTLY AFFECTED BY REPLACEMENT 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. 5 SOILS

ALL SOIL DATA CAME FROM THE U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE FOR THE COUNTY OF WINDSOR, VERMONT. SOILS ON THE PROJECT SITE ARE BERKSHIRE AND MANADNOCK, FINE SANDY LOAM, 35% TO 65% SLOPES, “K FACTOR” = 0.28. THE SOIL IS COSIDERED HIGHLY ERODIBLE DUE TO SIGNIFICANT SLOPES.
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. 6 SENSITIVE RESOURCE AREAS

CRITICAL HABITATS: NO
HISTORICAL OR ARCHEOLOGICAL AREAS: NO
PRIME AGRICULTURAL LAND: NO
THREATENED AND ENDANGERED SPECIES: NO
WATER RESOURCE: JEWELL BROOK
WETLANDS: NO

1. 3 RISK EVALUATION

THIS PROJECT DOES NOT FALL UNDER THE JURISDICTION OF CONSTRUCTION GENERAL PERMIT 3-9020 BASED ON THE PROJECT IMPACT AREA. SHOULD CHANGES PRIOR TO OR DURING CONSTRUCTION RESULT IN ONE OR MORE ACRES OF EARTH DISTURBANCE OR SHOULD THE PROJECT BECOME PART OF A LARGER PLAN OF DEVELOPMENT, THEN THE SELECTED CONTRACTOR WILL BE RESPONSIBLE FOR ADDITIONAL PERMITTING WITH VANR VIA FILING OF THE APPROPRIATE NOTICE OF INTENT UNDER THE CONSTRUCTION GENERAL PERMIT PROCESS.

1.4 EROSION PREVENTION AND SEDIMENT CONTROL

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

EMPLOY TEMPORARY STABILIZATION PRACTICES IN INCREMENTAL STAGES (PHASING) AS CONSTRUCTION PROCEEDS. ADDITIONAL MEASURES MAY BE NEEDED DUE TO THE PHASING OF THE PROJECT AND AS DIRECTED BY THE ENGINEER.

PREVENTING INITIAL SOIL EROSION IS MUCH MORE EFFECTIVE THAN TREATING ERODED SEDIMENT. THEREFORE, STABILIZE ALL DISTURBED AREAS PROMPTLY AFTER CONSTRUCTION ACTIVITY HAS TEMPORARILY OR PERMANENTLY CEASED. 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.

(REFER TO THE LOW RISK SITE HANDBOOK AND APPROPRIATE DETAIL SHEETS FOR EACH PRACTICE REQUIRED ON THE PROJECT, WHICH MAY INCLUDE BUT IS NOT LIMITED TO THE FOLLOWING.)

1.4. 1 MARK SITE BOUNDARIES
PROJECT DEMARCATION FENCE

1.4. 2 LIMIT DISTURBANCE AREA
PHASING PLAN

1.4. 3 STABILIZE CONSTRUCTION EXIT
STABILIZED CONSTRUCTION ENTRANCE

1.4. 4 INSTALL SILT FENCE
SILT FENCE

1.4.5 DIVERT UPLAND RUNOFF
SWALE (STORM WATER FROM STREET COLLECTIONS DRAINAGE SYSTEM)

1.4.8 STABILIZE EXPOSED SOILS
SEED AND MULCH
EROSION MATTING

1.4.9 WINTER STABILIZATION
VARIOUS MEASURES SPECIFIC TO WINTER (SEE LOW RISK HANDBOOK)

1.4.10 STABILIZE SOIL AT FINAL GRADE
SEED AND MULCH
EROSION MATTTING

TEMPORARY EROSION PREVENTION MEASURES TO BE UTILIZED INCLUDE:

PROJECT DEMARCATION FENCING, DENOTED -PDF- ON THE PLANS, TO DELINEATE THE LIMITS THE CONTRACTOR CAN ACCESS WITH CONSTRUCTION EQUIPMENT. THIS MEASURE LIMITS THE AREA THAT CAN BE DISTURBED AND EXPOSED TO EROSION.

TRACKING OF ALL EXPOSED SLOPES, COMBINED WITH TEMPORARY MULCHING, WILL ALSO BE UTILIZED ON A REGULAR BASIS. ANY SLOPES TO BE EXPOSED FOR SEVERAL DAYS PRIOR TO FINAL GRADING SHALL BE TRACKED AND MULCHED. SLOPES SHALL BE STABILIZED WITHIN 48 HOURS OF FORECASTED RAIN.

SEEDING, MULCHING AND BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED TO STABILIZE ALL SLOPES STEEPER THAN 1:3. THESE SLOPES SHALL BE STABILIZED WITHIN 48 HOURS OF REACHING FINAL GRADE OR DURING INTERMITTENT PHASES OF CONSTRUCTION.

SILT FENCE SHALL BE INSTALLED PRIOR TO ANY UP SLOPE WORK. INSTALLATION SHALL BE PERFORMED PER INCLUDED DETAIL SHEET.

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

PERMANENT EROSION CONTROL

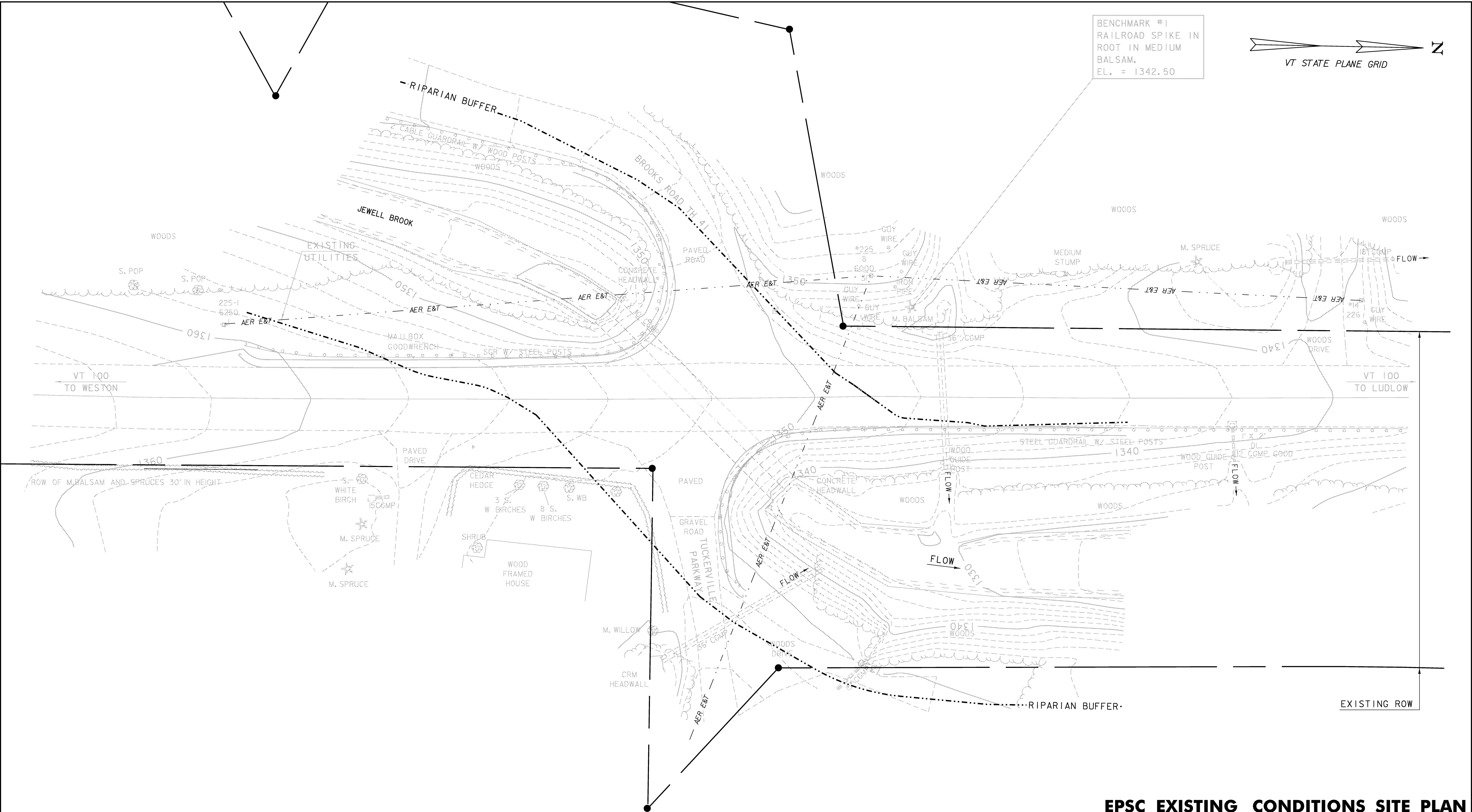
SEVERAL PERMANENT EROSION CONTROL MEASURES WILL BE UTILIZED

STREAM BANKS WILL BE ARMORED WITH STONE FILL TYPE IV AS SPECIFIED BY VTRANS ON THE PROJECT PLANS. THE STONE FILL WILL STABILIZE THE EXISTING BANK IN ORDER TO PROTECT FROM EROSION DURING STORM AND HIGH WATER EVENTS.

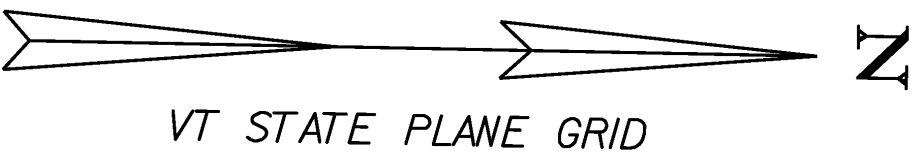
ALL DISTURBED AREAS WILL BE SEEDED AND MULCHED. AREAS WITH SLOPES STEEPER THAN 1:3 SHALL UTILIZE BIODEGRADABLE EROSION CONTROL MATTING.

STREAM BANK VEGETATION WILL BE INTRODUCED IN THE GRUBBING MATERIAL THAT IS TO BE PLACED OVER THE STREAM BANK STONE FILL.

PROJECT NAME:	LUDLOW
PROJECT NUMBER:	STP ST CULV(7)
FILE NAME:	00b258\Stp\00b258erodet.dgn
PLOT DATE:	11-SEP-2008
PROJECT LEADER:	C.P.WILLIAMS
DRAWN BY:	M.FESSEL
DESIGNED BY:	CHECKED BY: E.L.RUSTAY
EROSION CONTROL NARRATIVE	SHEET 23 OF 34



BENCHMARK #1
RAILROAD SPIKE IN
ROOT IN MEDIUM
BALSAM.
EL. = 1342.50



LEGEND	
	AER E&T
	— AER E&T —
	— RIPARIAN BUFFER ZONE

EPSC EXISTING CONDITIONS SITE PLAN

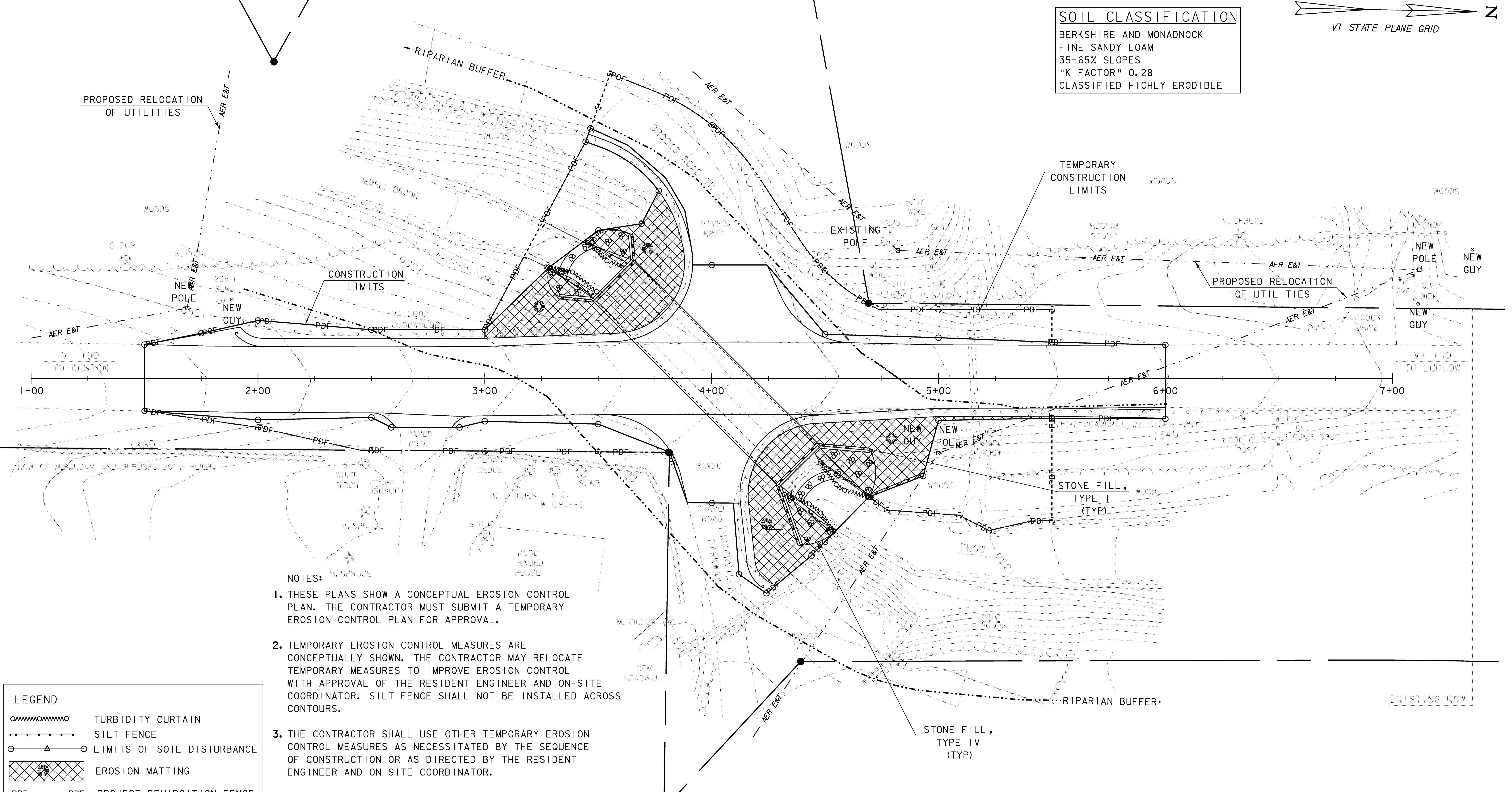
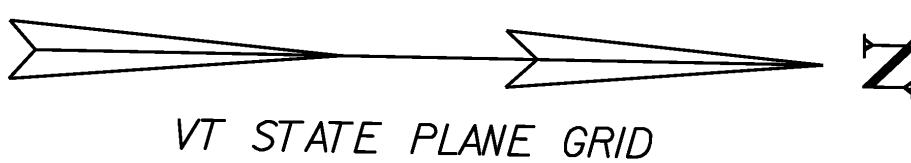
PROJECT:	LUDLOW	PROJECT NO.:	STP ST CULV (7)
DESIGN FILE NAME:	00b258\structures\s00b258bdr_ero.dgn	PLOT DATE:	11-SEP-2008
IPARM FILE NAME:	s00b258excon.1	SURVEY DATE:	12/2000
SURVEYED BY:	R. GILMAN	DRAWN BY:	D. D. BEARD
SQUAD LEADER:	C. P. WILLIAMS	SHEET:	24 OF 34
EPSC EXISTING CONDITIONS SITE PLAN			

SCALE 1" = 20' - 0
20 0 20

DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83 (96)

SOIL CLASSIFICATION

BERKSHIRE AND MONADNOCK
FINE SANDY LOAM
35-65% SLOPES
"K FACTOR" 0.28
CLASSIFIED HIGHLY ERODIBLE



NOTES:

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

LEGEND

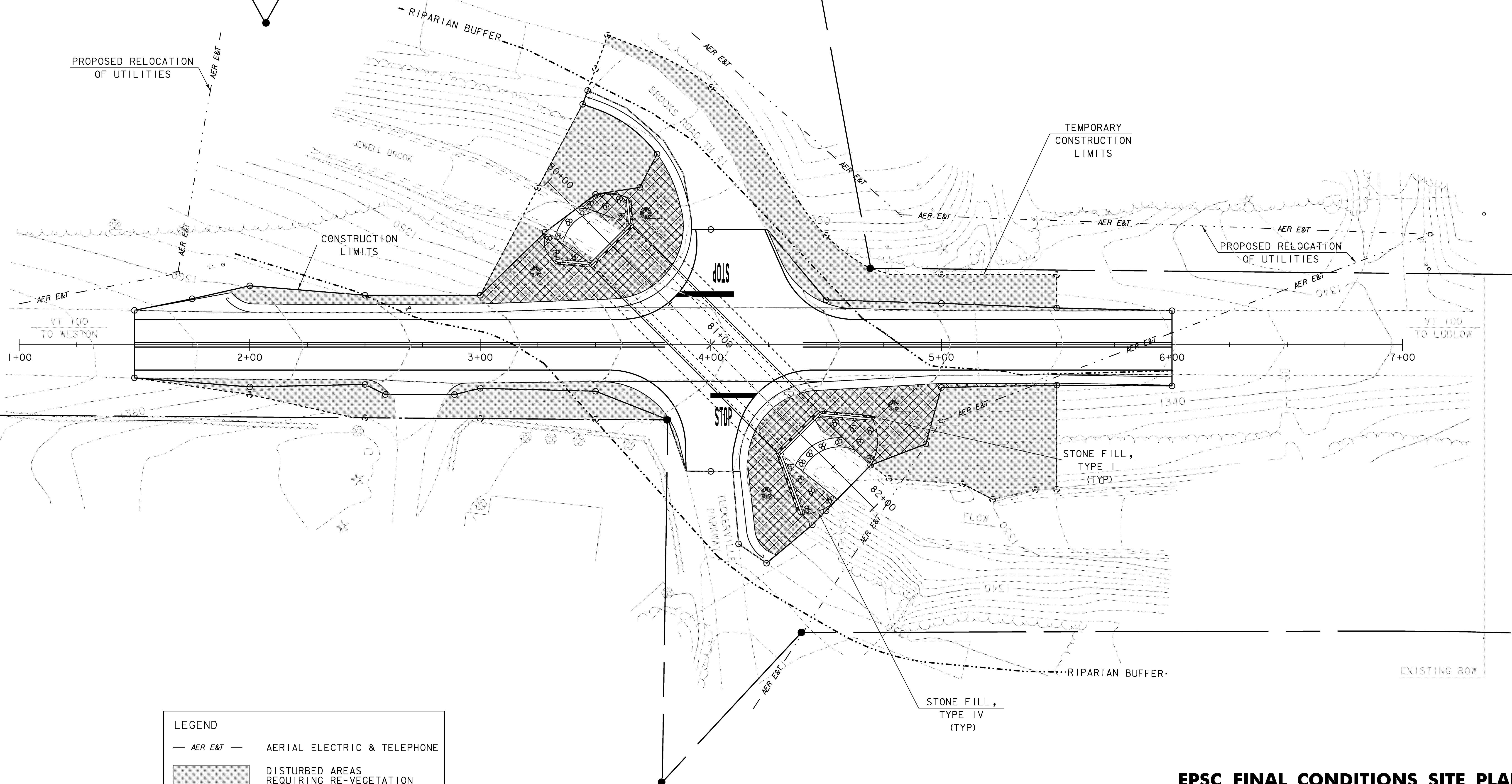
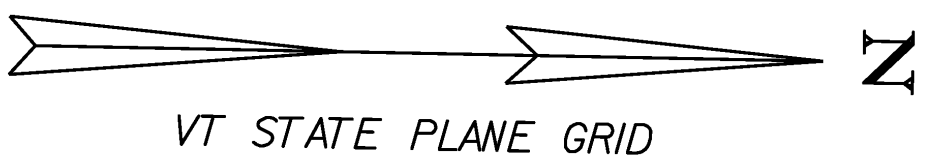
- TURBIDITY CURTAIN
- SILT FENCE
- LIMITS OF SOIL DISTURBANCE
- EROSION MATTING
- PROJECT DEMARCATION FENCE
- RIPARIAN BUFFER ZONE

EPSC CONSTRUCTION SITE PLAN

PROJECT:	LUDLOW	PROJECT NO.:	STP ST CULV (7)
DESIGN FILE NAME:	00b258\structures\s00b258bdr_ero.dgn	PLOT DATE:	11-SEP-2008
IPARM FILE NAME:	s00b258eropl.n.i	SURVEY DATE:	12/2000
SURVEYED BY:	R. GILMAN	SQUAD LEADER:	C. P. WILLIAMS
EPSC CONSTRUCTION SITE PLAN		SHEET:	25 OF 34

SCALE 1" = 20' -0
20 0 20

DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 83 (96)

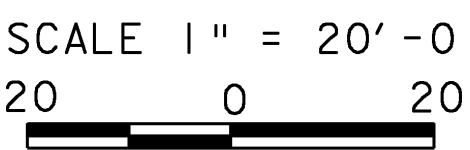


LEGEND

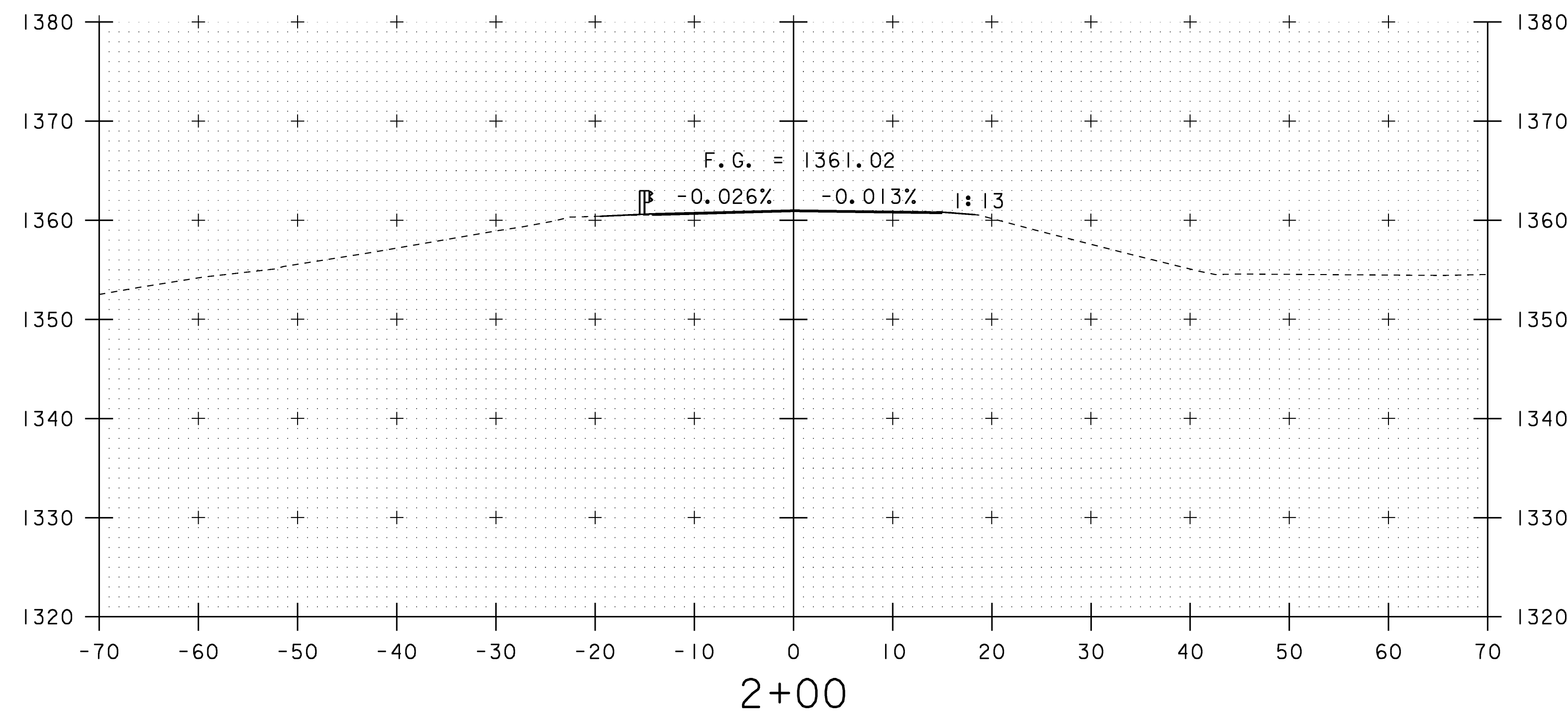
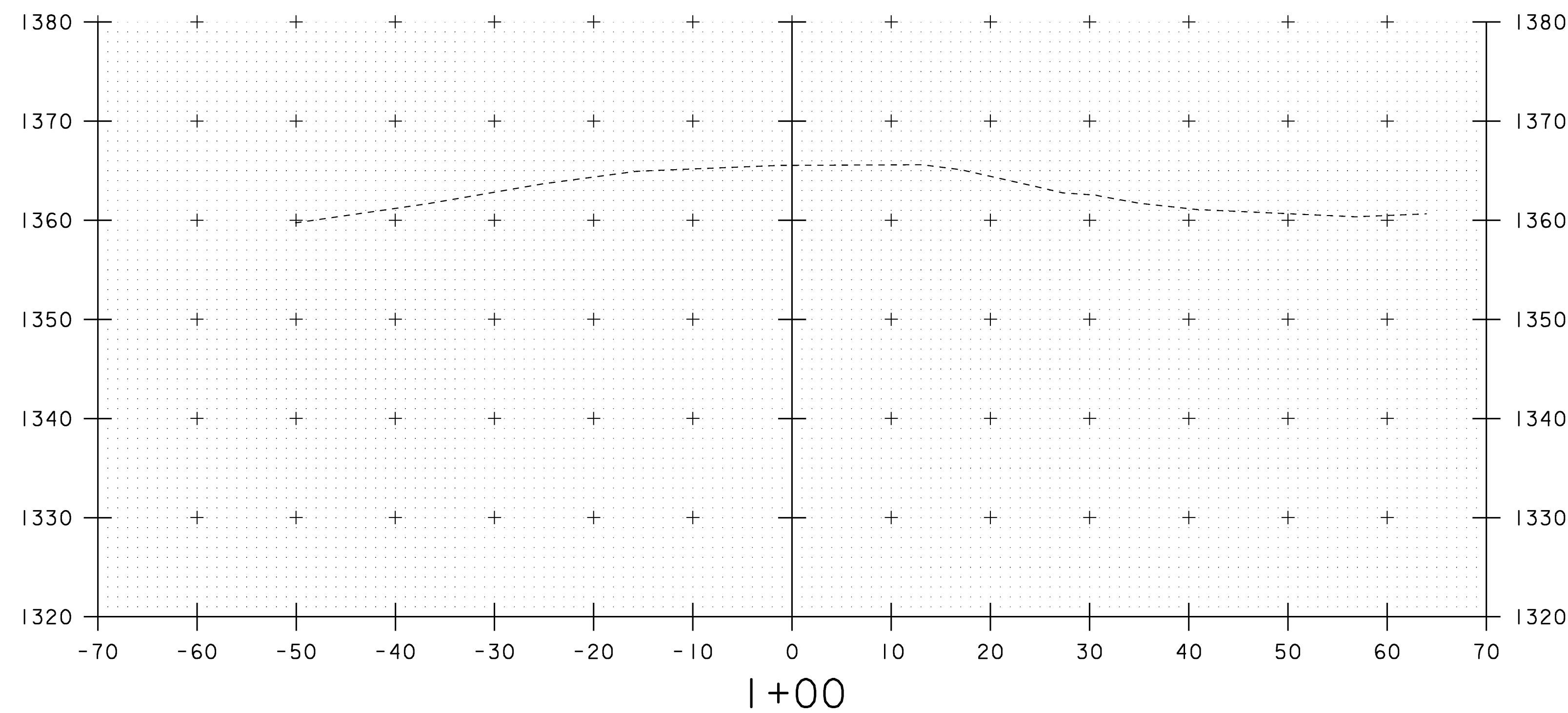
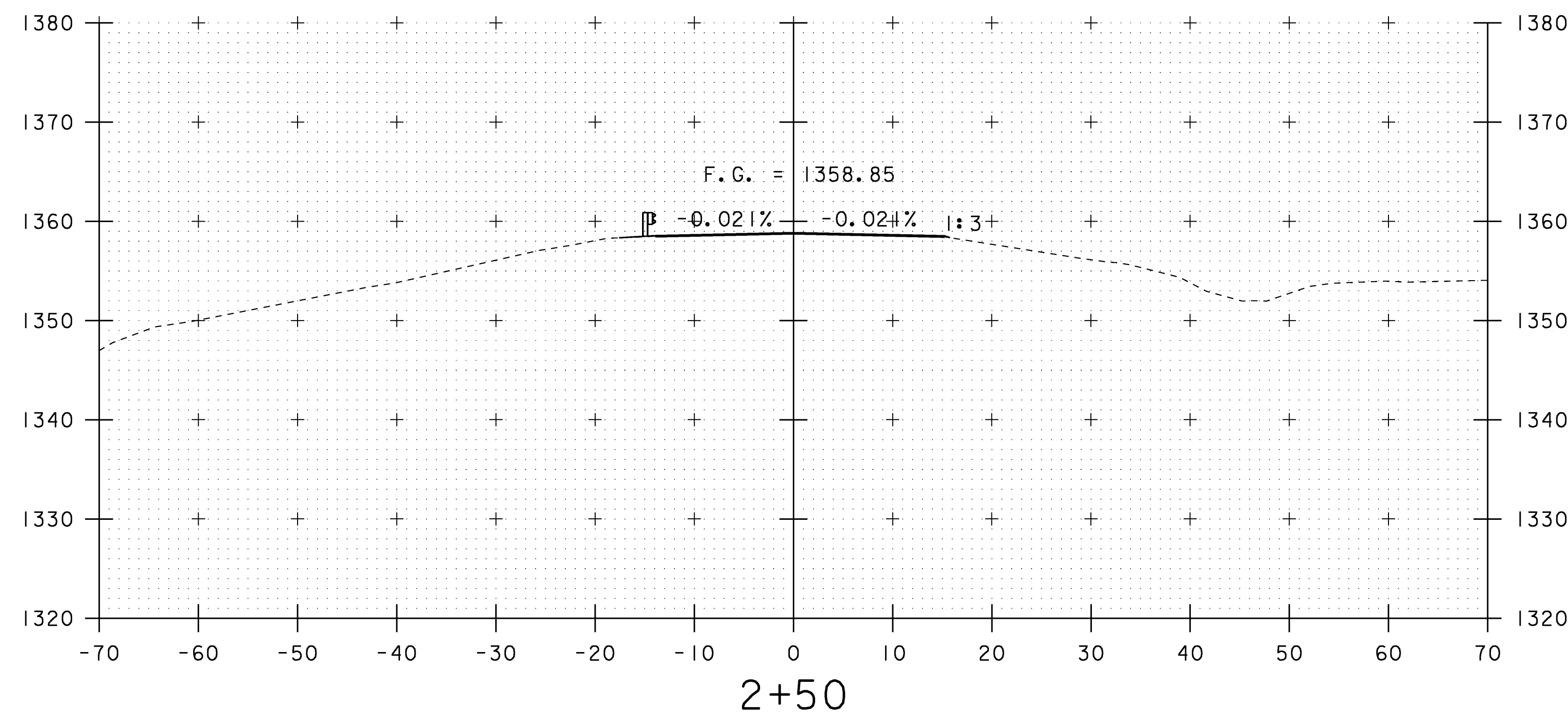
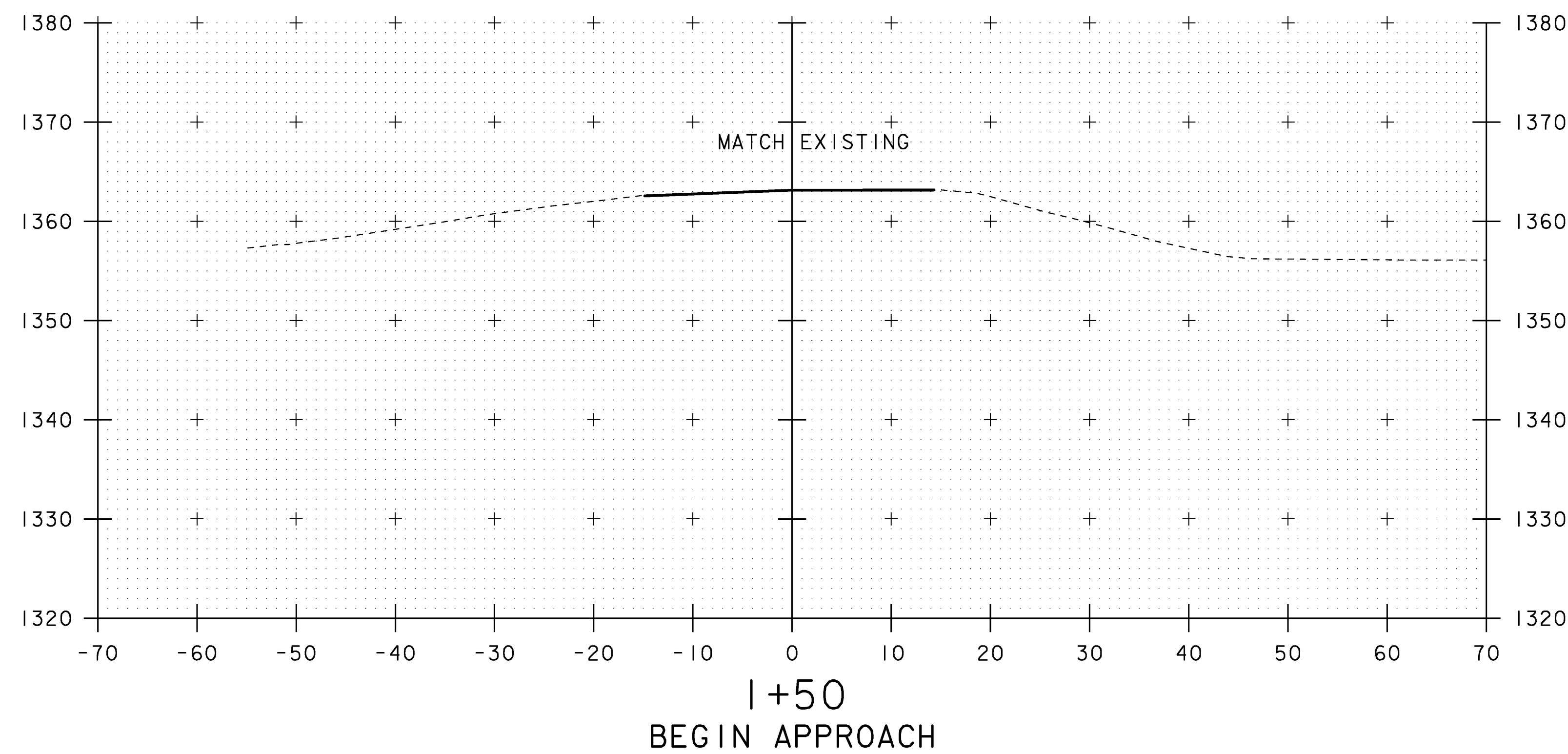
— AER E&T —	AERIAL ELECTRIC & TELEPHONE
	DISTURBED AREAS REQUIRING RE-VEGETATION
	EROSION MATTING
○ — △ — ○	LIMITS OF SOIL DISTURBANCE
- - - - -	RIPARIAN BUFFER ZONE

EPSC FINAL CONDITIONS SITE PLAN

PROJECT: LUDLOW	PROJECT NO.: STP ST CULV (7)
DESIGN FILE NAME: 00b258\structures\s00b258bdr_ero.dgn	PLOT DATE: 11-SEP-2008
IPARM FILE NAME: s00b258fincon.1	SURVEY DATE: 12/2000
SURVEYED BY: R.GILMAN	DRAWN BY: D.D.BEARD
SQUAD LEADER: C.P.WILLIAMS	SHEET: 26 OF 34
EPSC FINAL CONDITIONS SITE PLAN	



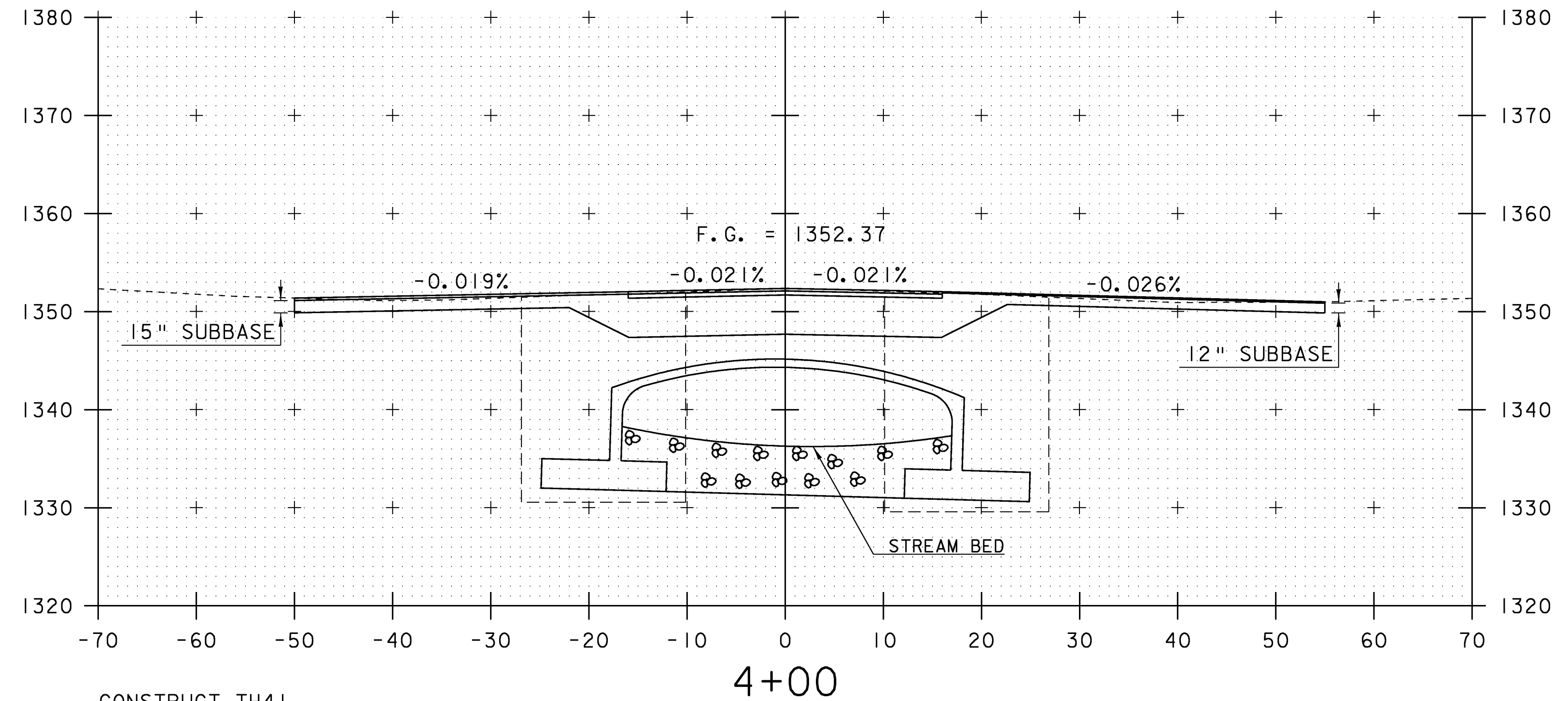
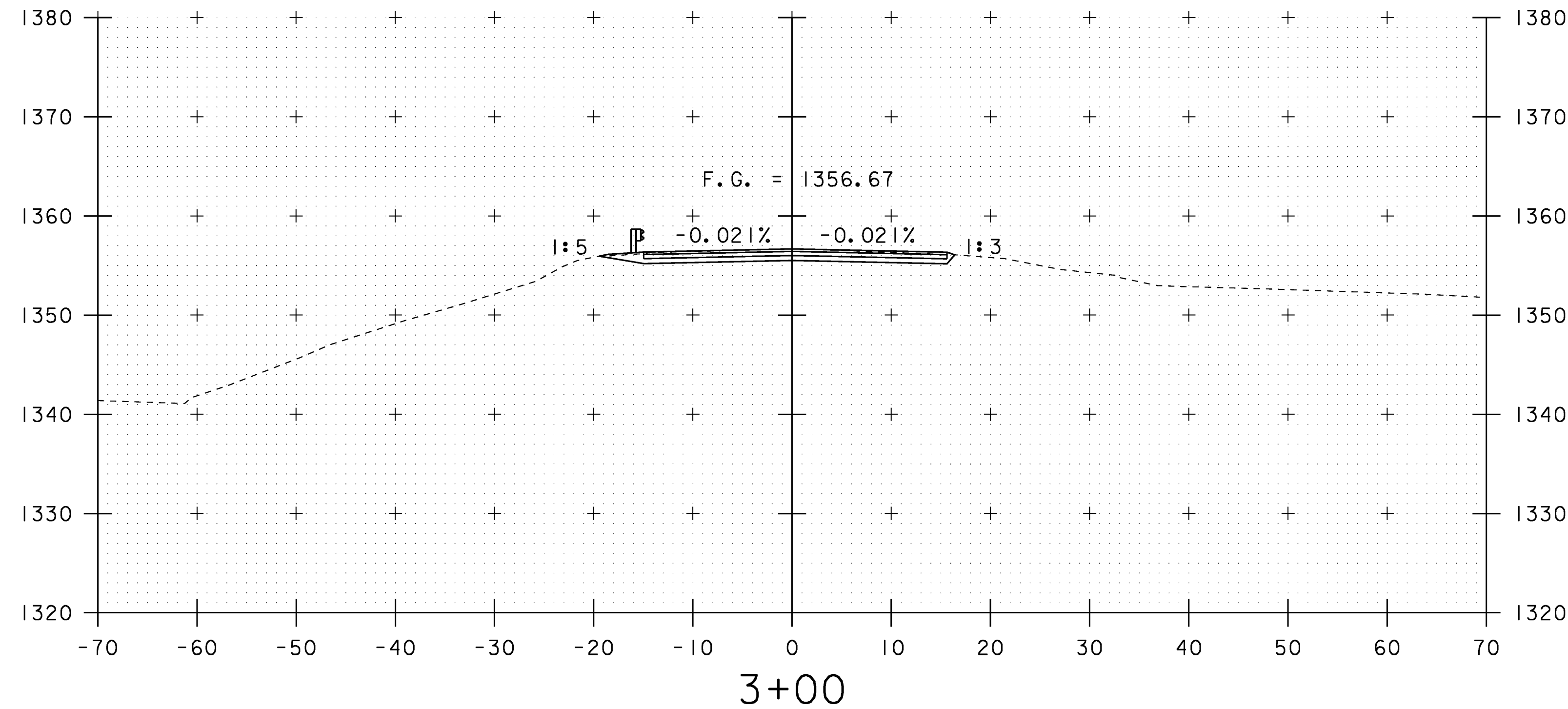
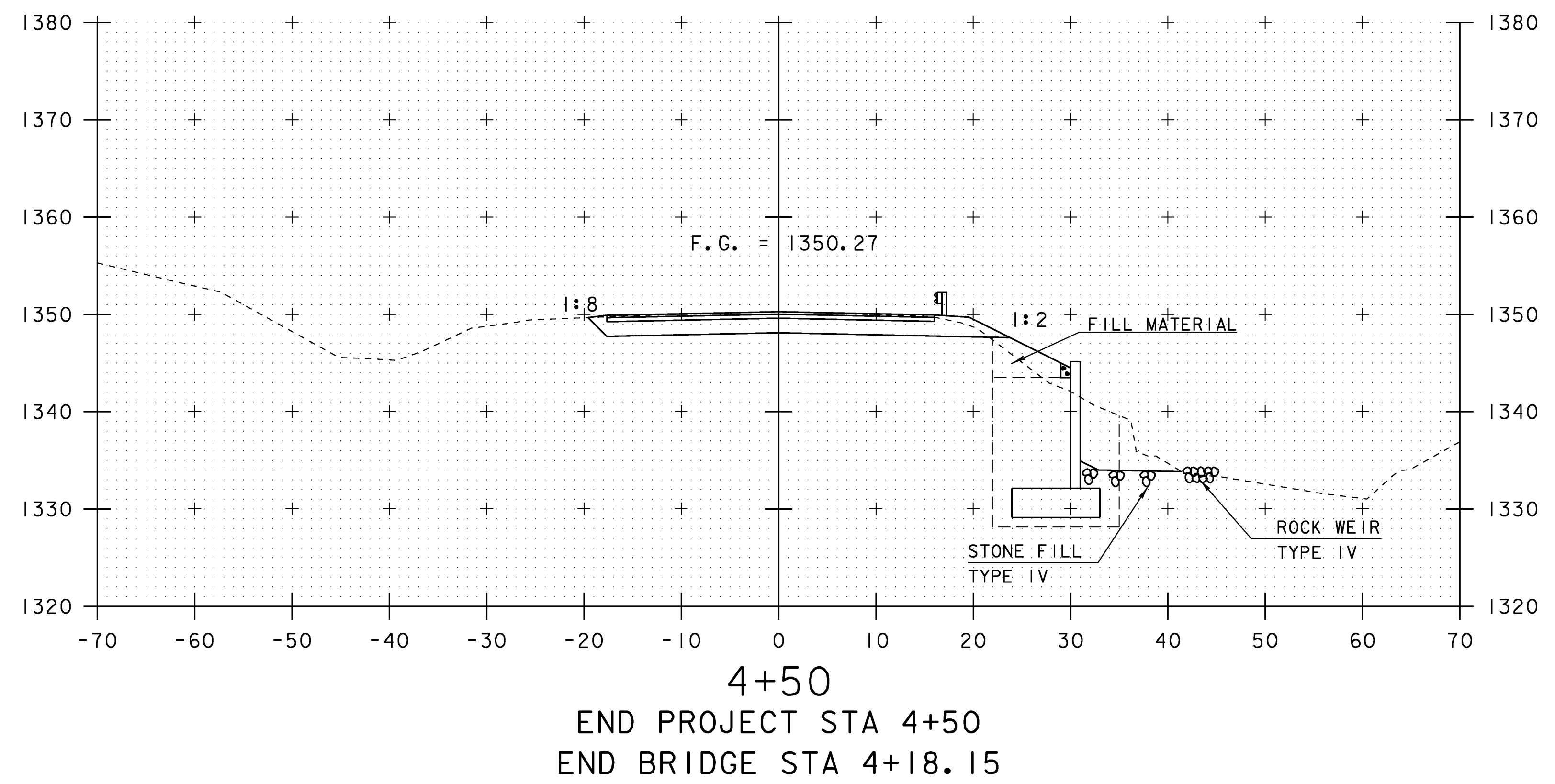
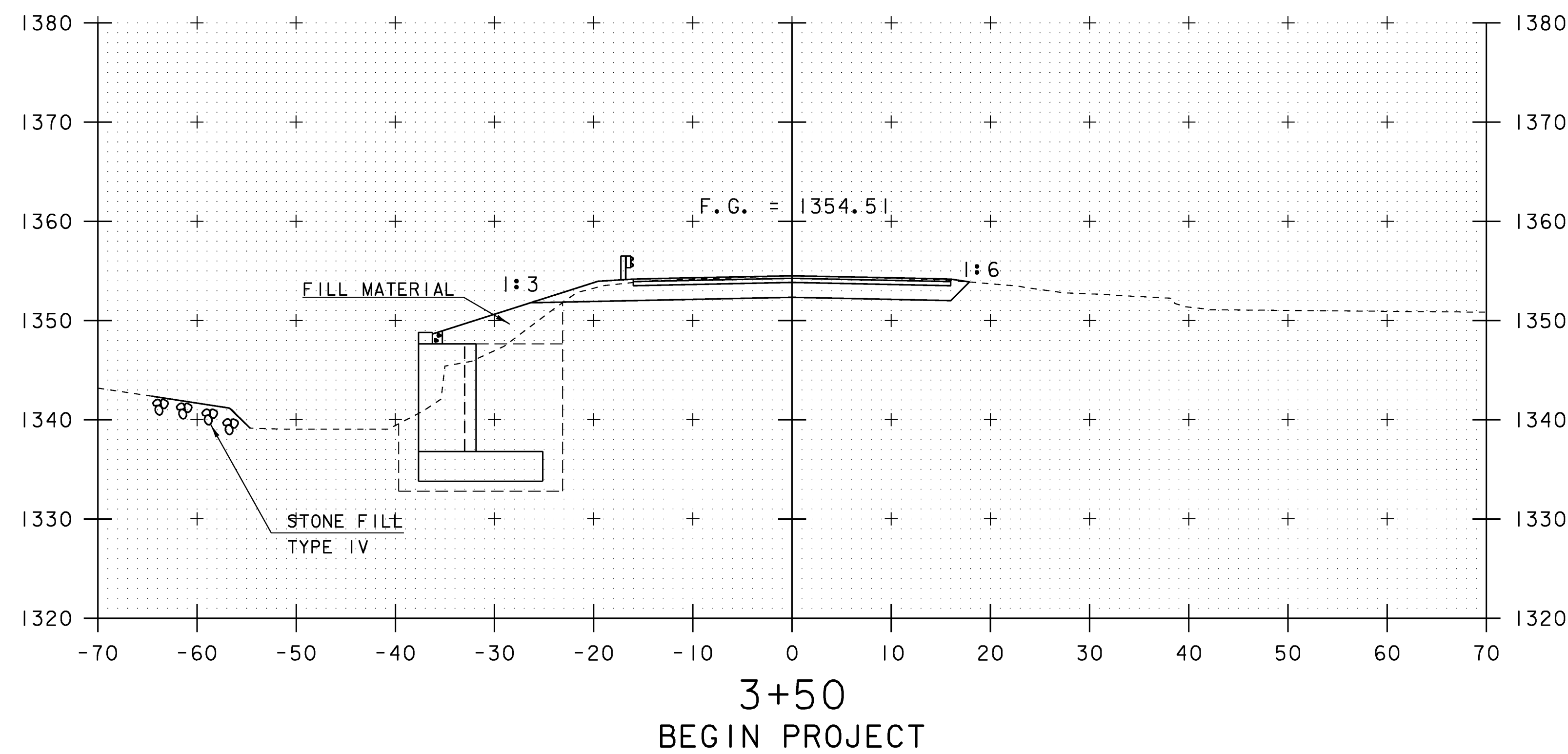
DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83 (96)



STA. 1+00 TO STA. 2+50

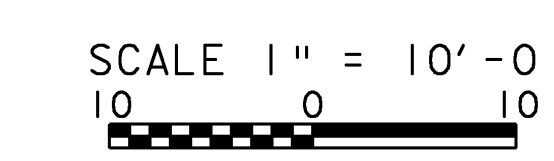
SCALE 1" = 10'-0"
10 0 10

PROJECT: LUDLOW	PROJECT NO.: STP ST CULV (7)
DESIGN FILE NAME: 00b258\Structures\s00b258xsl.dgn	PLOT DATE: 11-SEP-2008
IPARM FILE NAME: s00b258mll.i	DRAWN BY:
DESIGNED BY: E.L.RUSTAY	CHECKED BY: R.S.YOUNG
SQUAD LEADER: C.P.WILLIAMS	SHEET: 29 OF 34
MAINLINE CROSS SECTIONS	

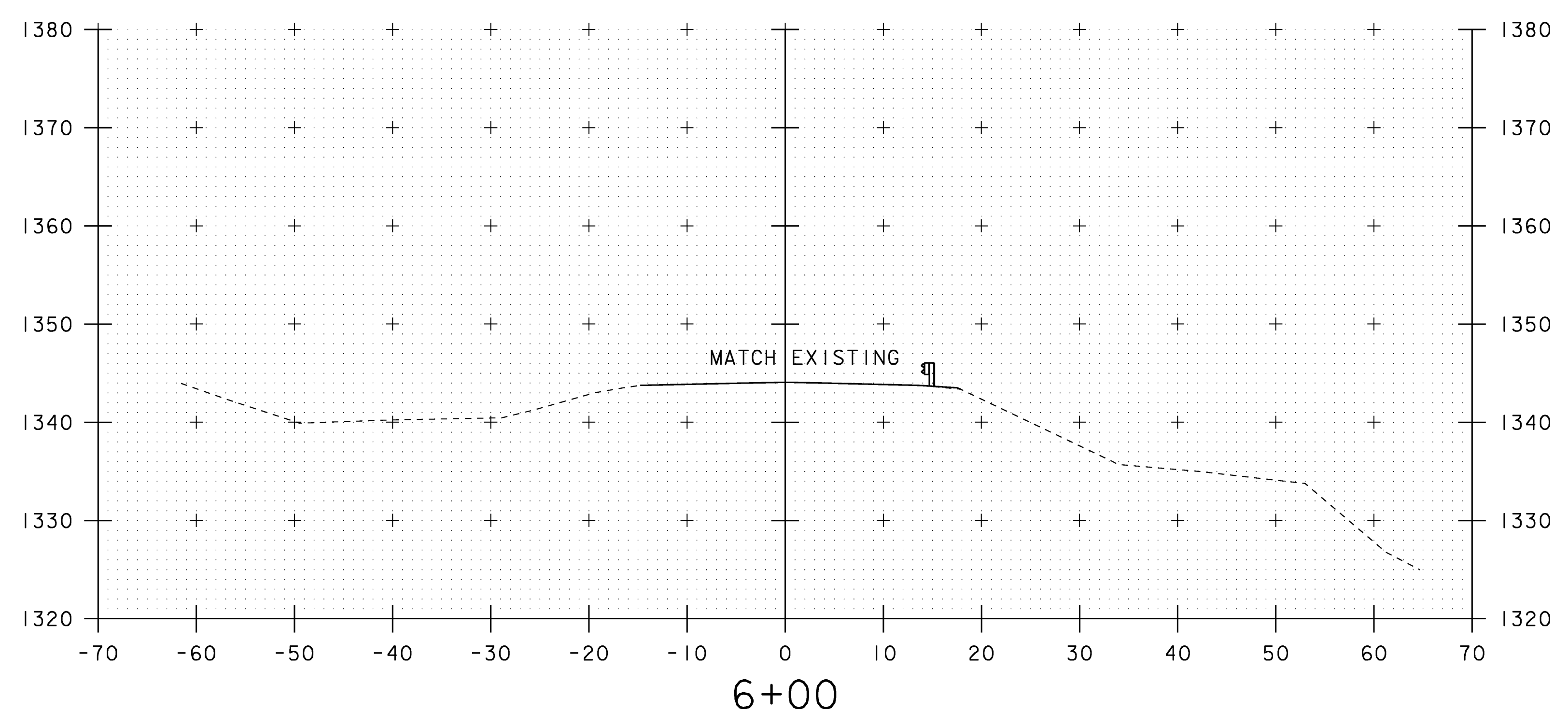
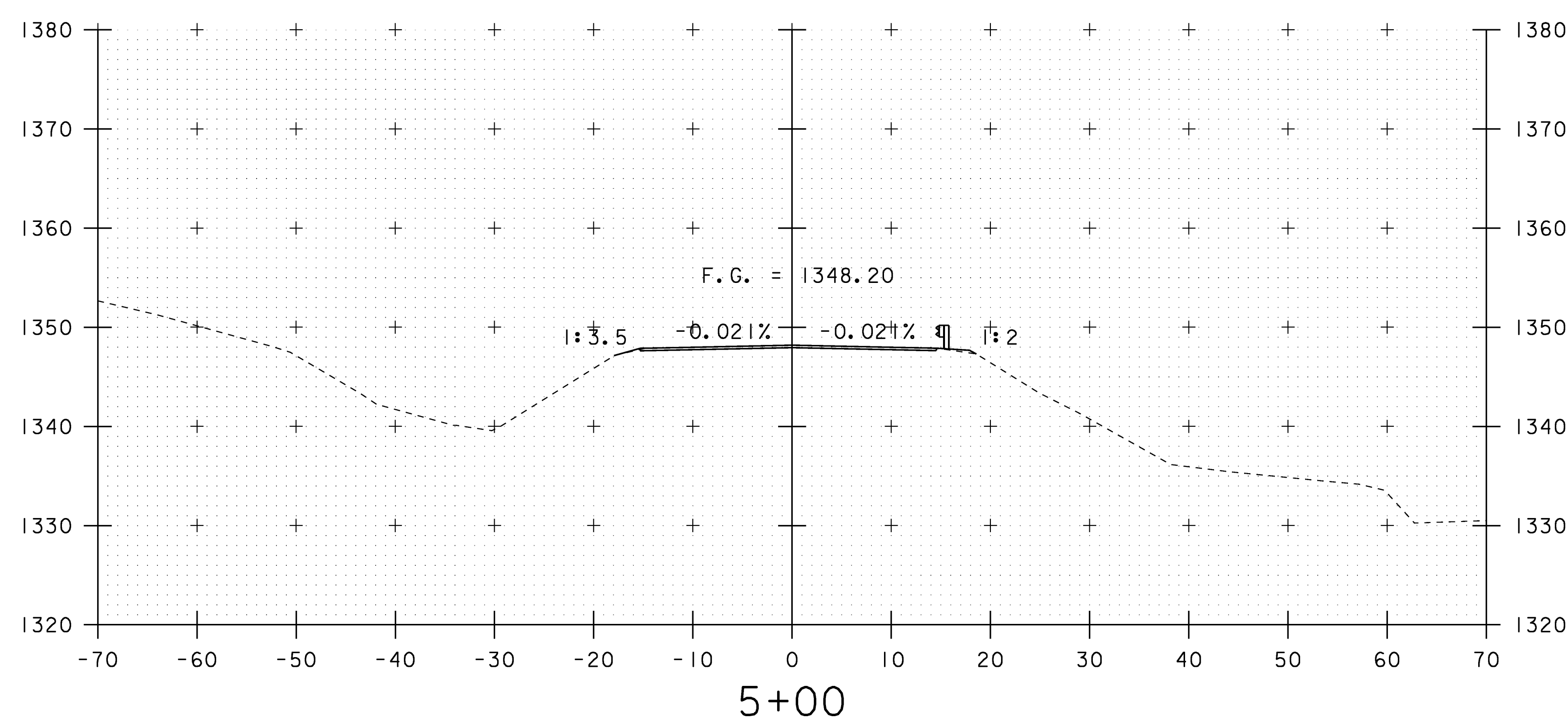
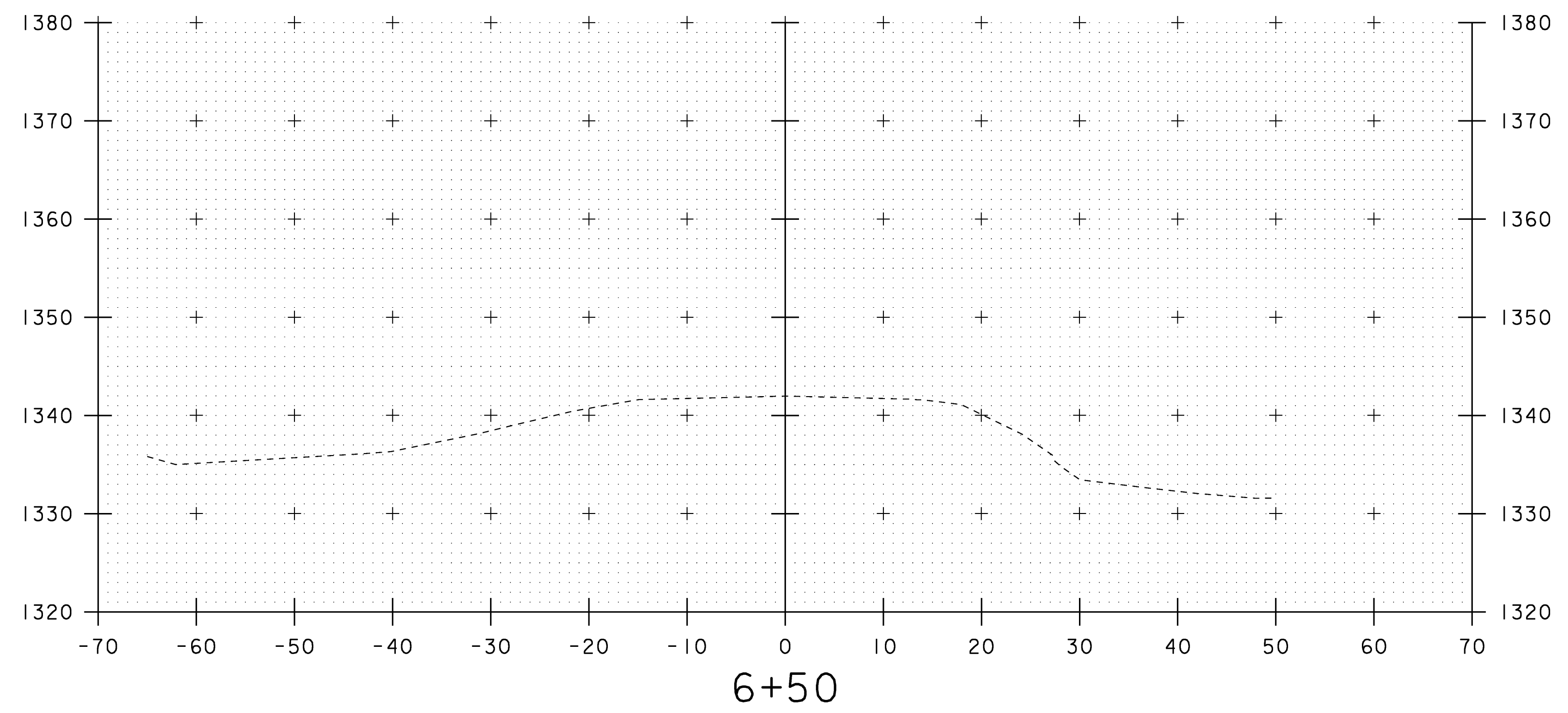
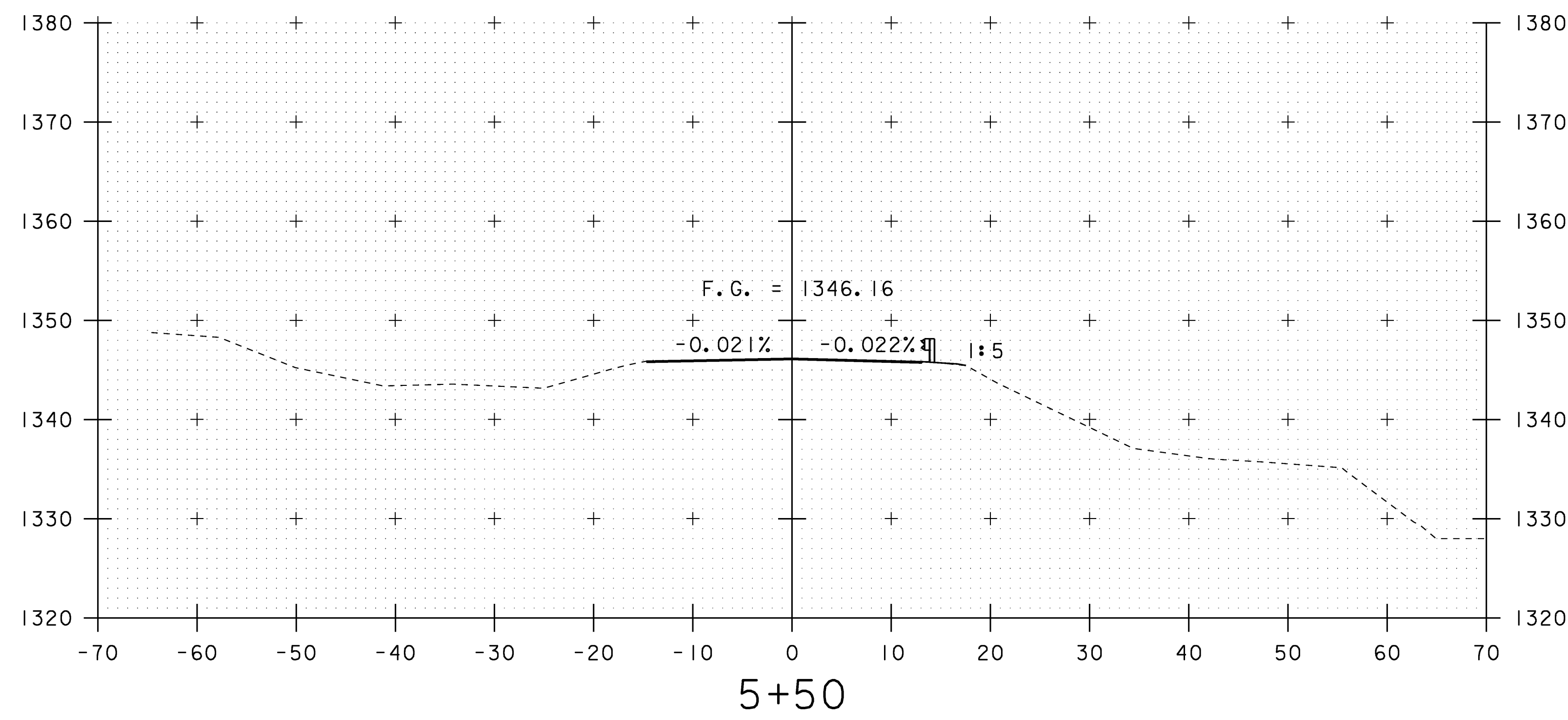


CONSTRUCT TH41
3" TYPE III OR IV PAVEMENT OVER
15" SUBBASE

CONSTRUCT DRIVE
1 1/2" TYPE III OR IV PAVEMENT OVER
12" SUBBASE

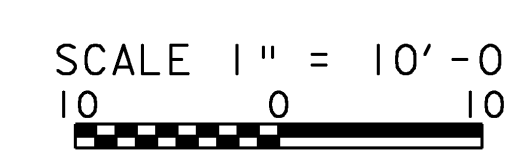


PROJECT: LUDLOW	PROJECT NO.: STP ST CULV (7)
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IPARM FILE NAME: s00b258m12.i	DRAWN BY:
DESIGNED BY: E.L.RUSTAY	CHECKED BY: R.S. YOUNG
SQUAD LEADER: C.P. WILLIAMS	SHEET: 30 OF 34
MAINLINE CROSS SECTIONS	

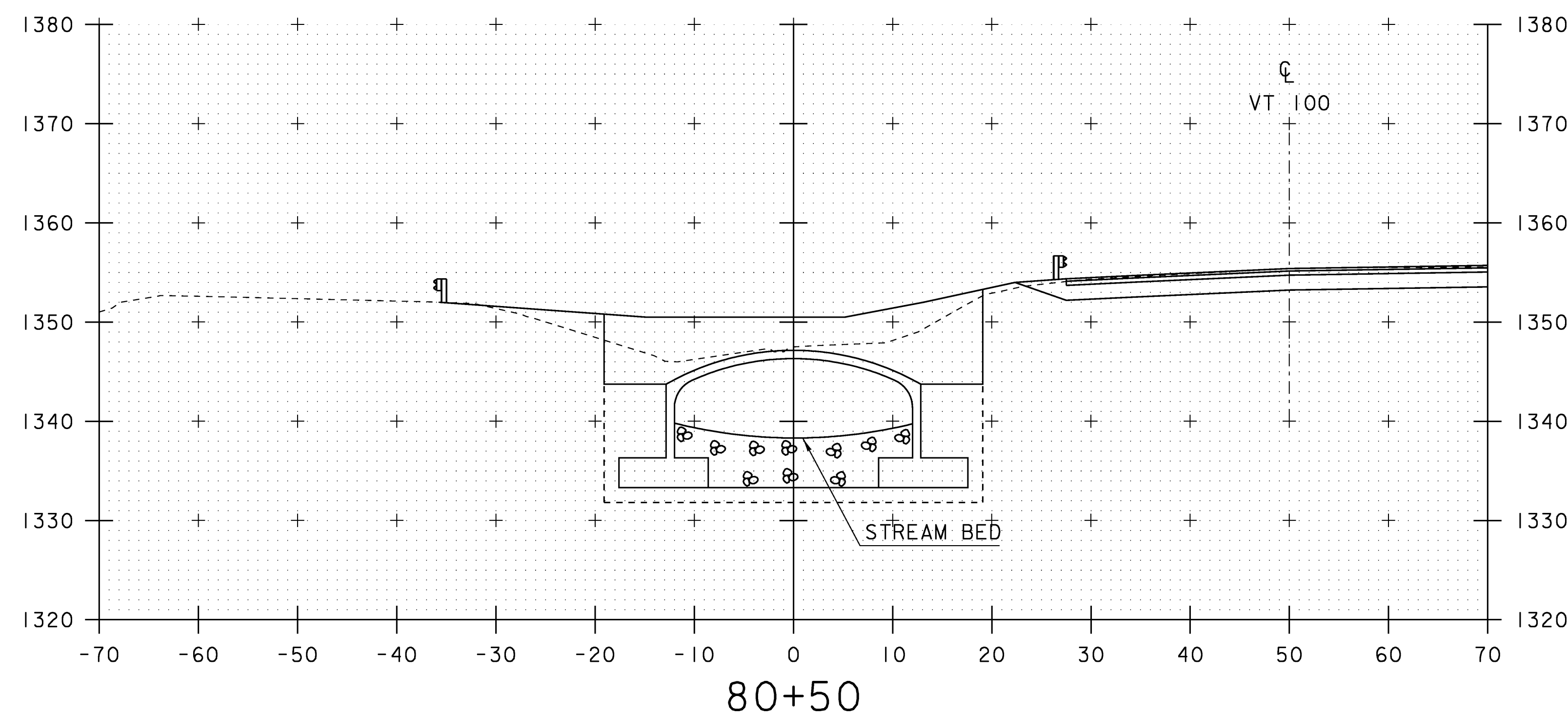
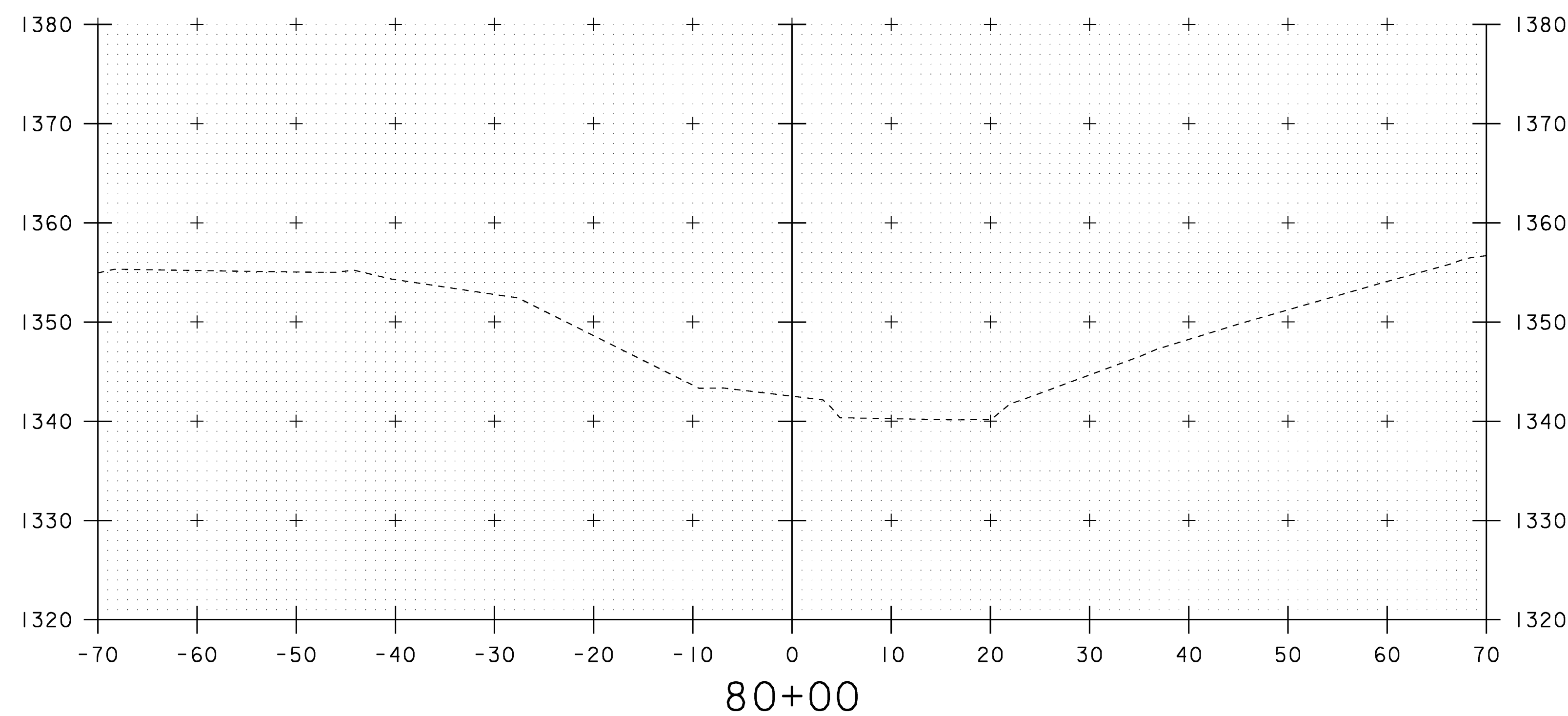
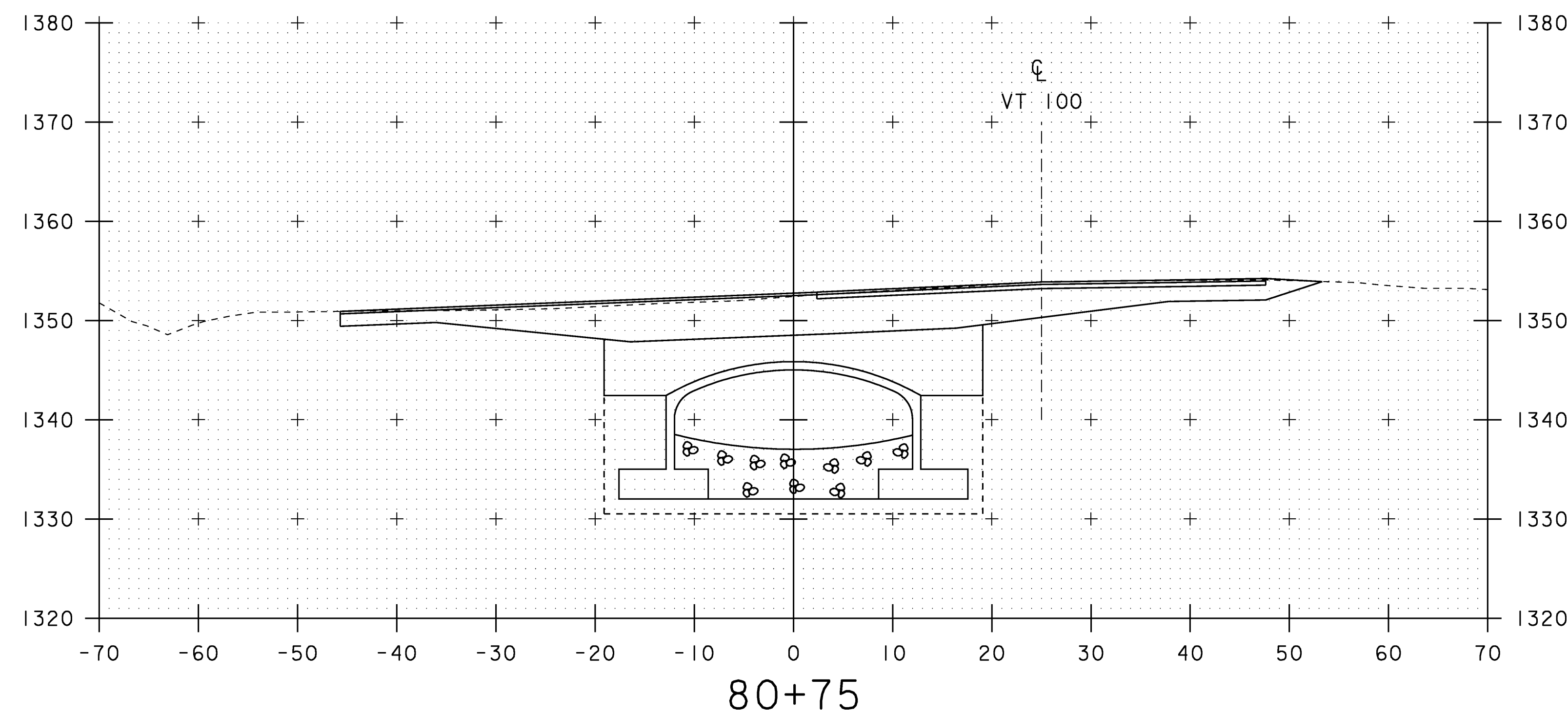
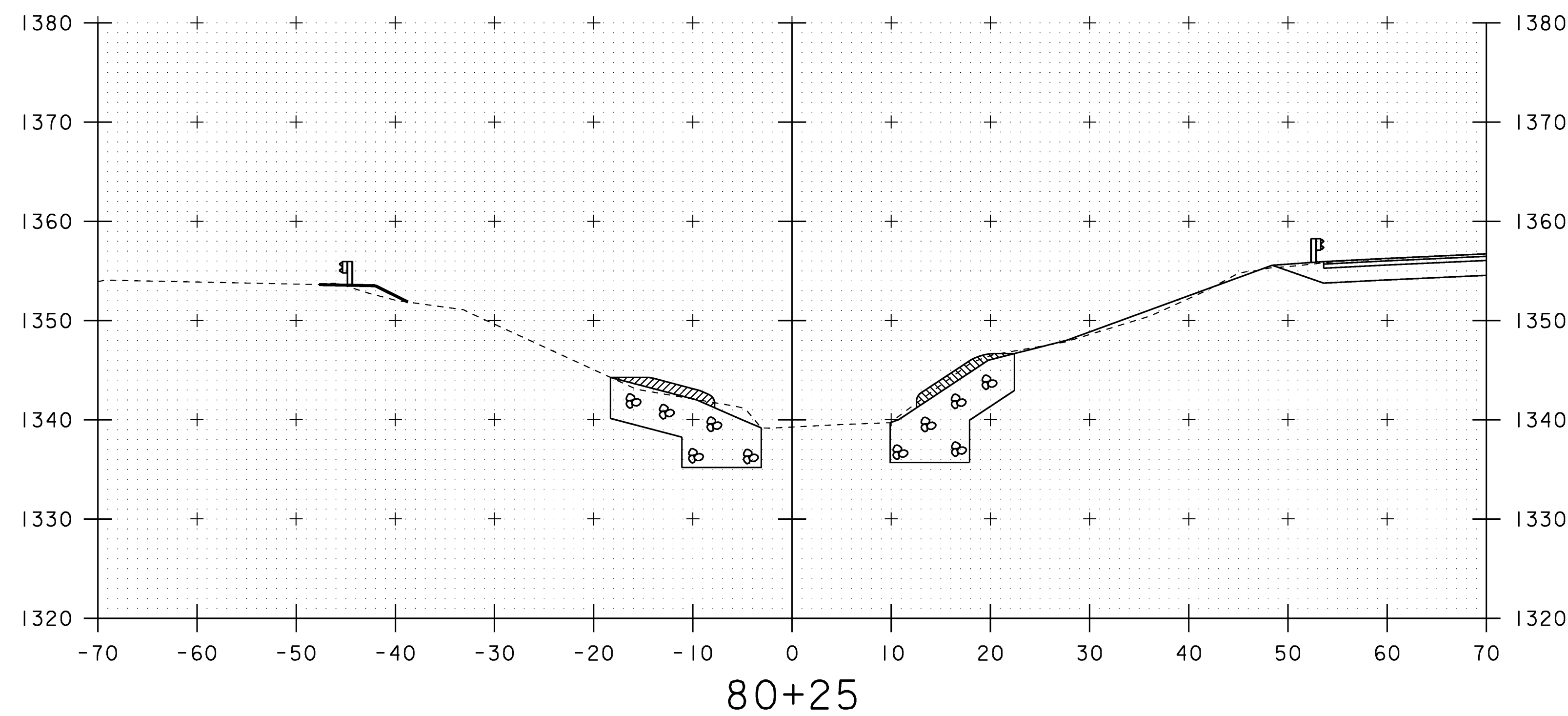


END APPROACH

STA. 5+00 TO STA. 6+50



PROJECT: LUDLOW	PROJECT NO.: STP ST CULV (7)
DESIGN FILE NAME: s00b258\Structures\s00b258xsl.dgn	PLOT DATE: 11-SEP-2008
IPARM FILE NAME: s00b258m13.i	DRAWN BY:
DESIGNED BY: E.L. RUSTAY	CHECKED BY: R.S. YOUNG
SQUAD LEADER: C.P. WILLIAMS	SHEET: 31 OF 34
MAINLINE CROSS SECTIONS	



STA 80+17.50 LT
BEGIN STONE FILL TYPE IV
BEGIN GEOTEXTILE UNDER STONE FILL
BEGIN GRUBBING MATERIAL
BEGIN UNCLASSIFIED CHANNEL EXCAVATION

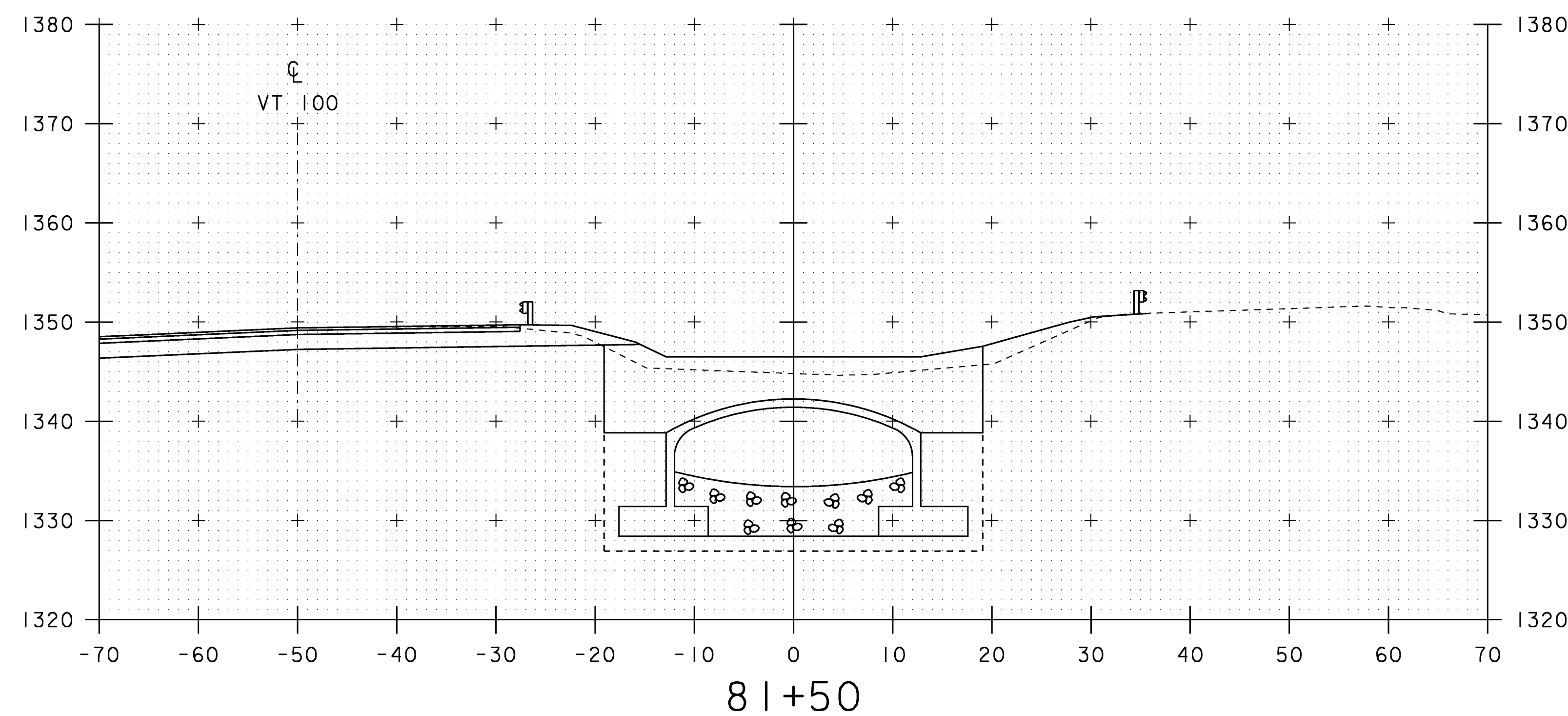
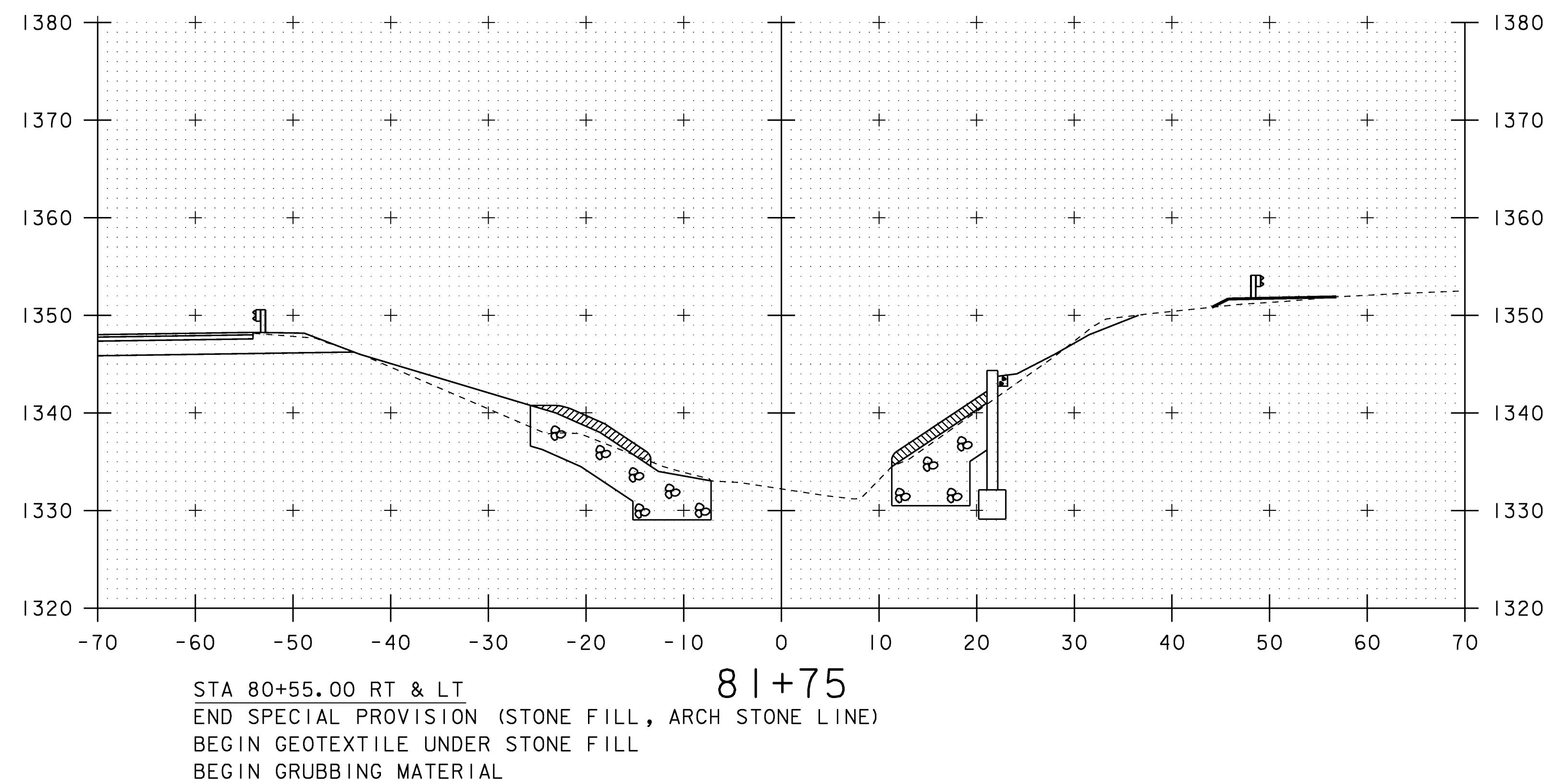
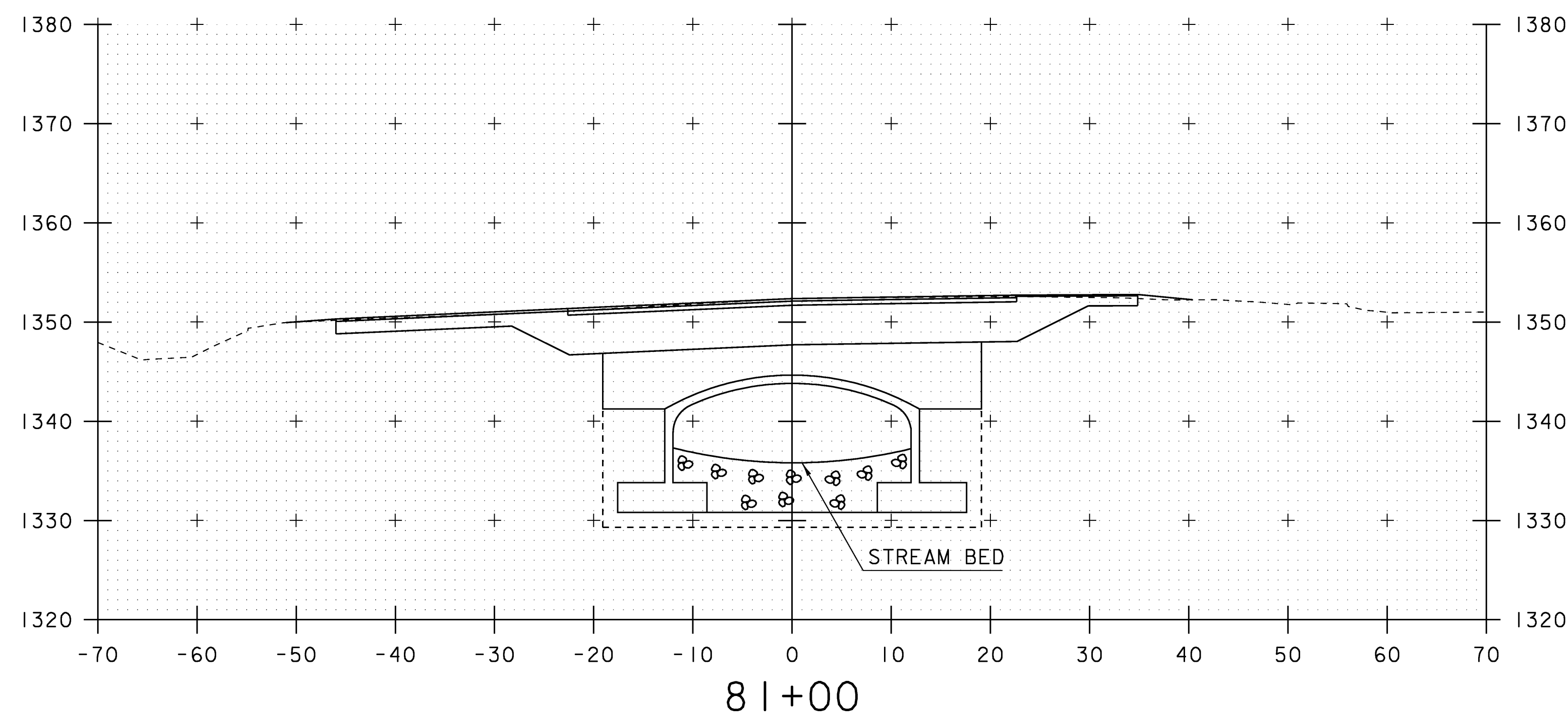
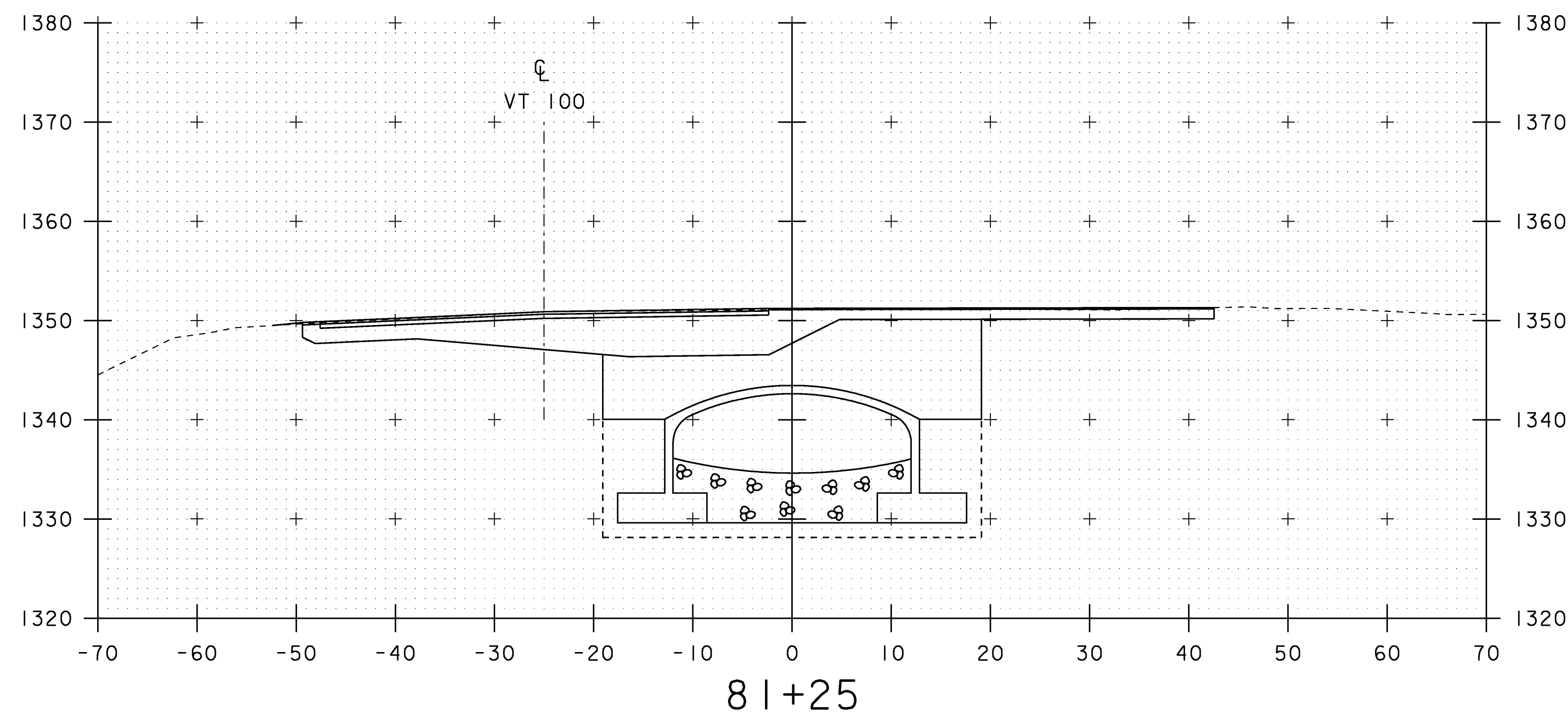
STA 80+14.50 RT
BEGIN STONE FILL TYPE IV
BEGIN GEOTEXTILE UNDER STONE FILL
BEGIN GRUBBING MATERIAL
BEGIN UNCLASSIFIED CHANNEL EXCAVATION

STA 80+38.00 RT & LT
END GEOTEXTILE UNDER STONE FILL
END GRUBBING MATERIAL
BEGIN SPECIAL PROVISION (STONE FILL, ARCH STONE LINE)

PROJECT: LUDLOW	PROJECT NO.: STP ST CULV (7)
DESIGN FILE NAME: 00b258\Structures\s00b258xsl.dgn	PLOT DATE: 11-SEP-2008
IPARM FILE NAME: s00b258chl.i	DRAWN BY:
DESIGNED BY: E.L.RUSTAY	CHECKED BY: R.S.YOUNG
SQUAD LEADER: C.P.WILLIAMS	SHEET: 32 OF 34
CHANNEL CROSS SECTIONS	

SCALE 1" = 10'-0"
10 0 10

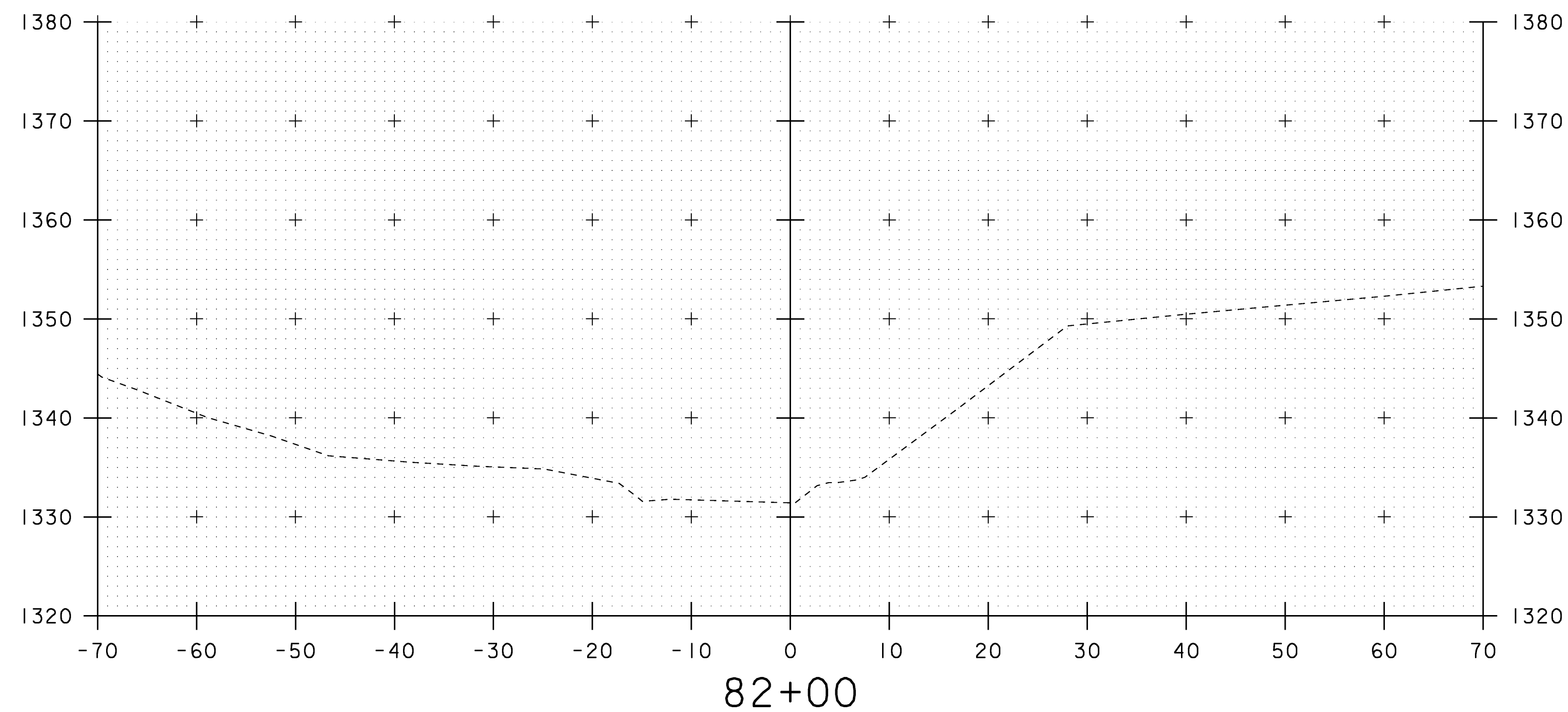
STA. 80+00 TO STA. 80+75



SCALE 1" = 10'-0"

STA. 81+00 TO STA. 81+75

PROJECT: LUDLOW	PROJECT NO.: STP ST CULV (7)
DESIGN FILE NAME: 00b258\Structures\s00b258xsl.dgn	PLOT DATE: 11-SEP-2008
IPARM FILE NAME: s00b258ch2.i	DRAWN BY:
DESIGNED BY: E.L. RUSTAY	CHECKED BY: R.S. YOUNG
SQUAD LEADER: C.P. WILLIAMS	SHEET: 33 OF 34
CHANNEL CROSS SECTIONS	



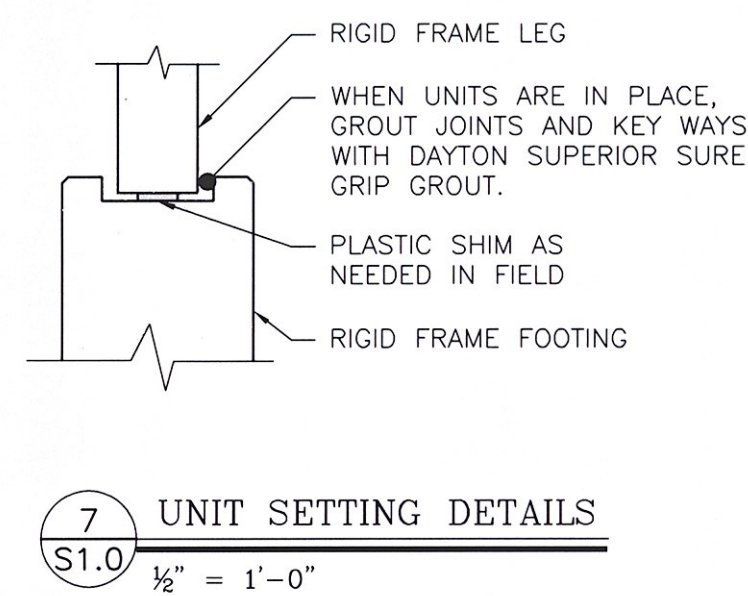
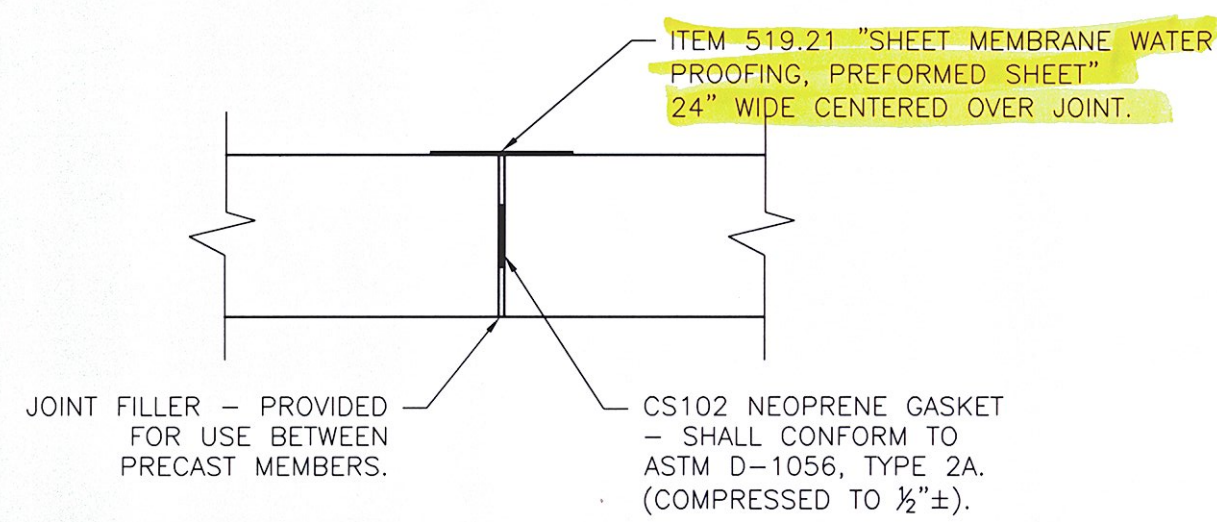
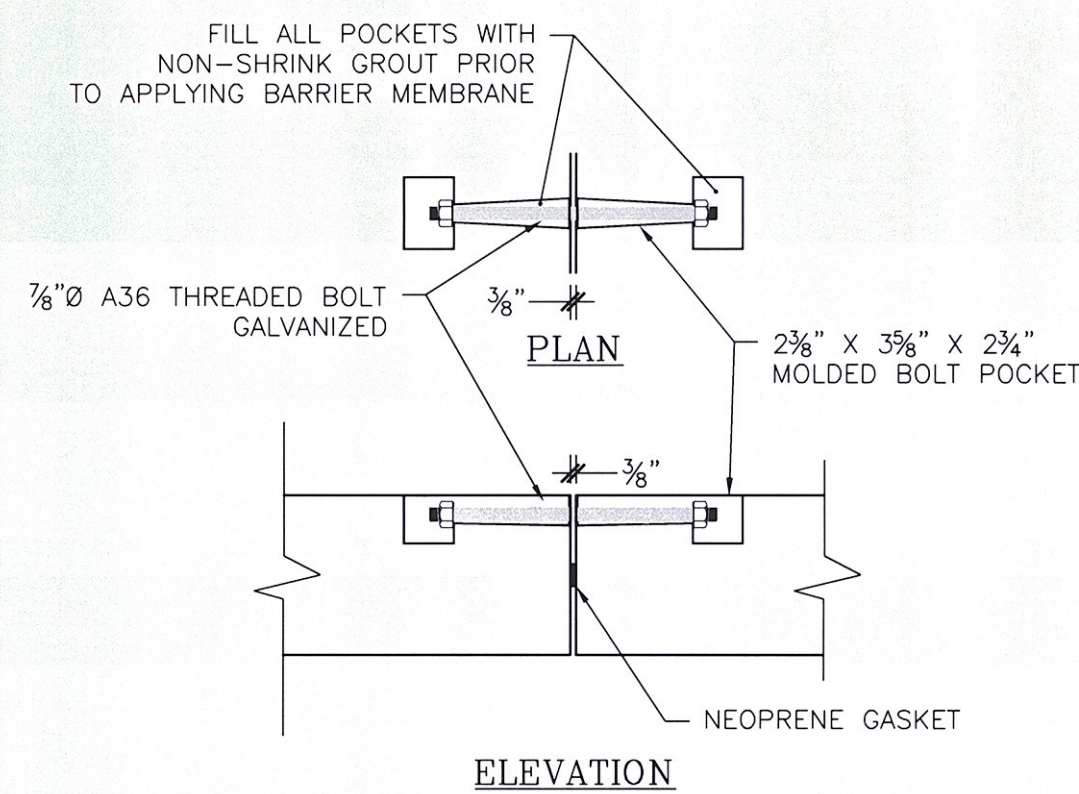
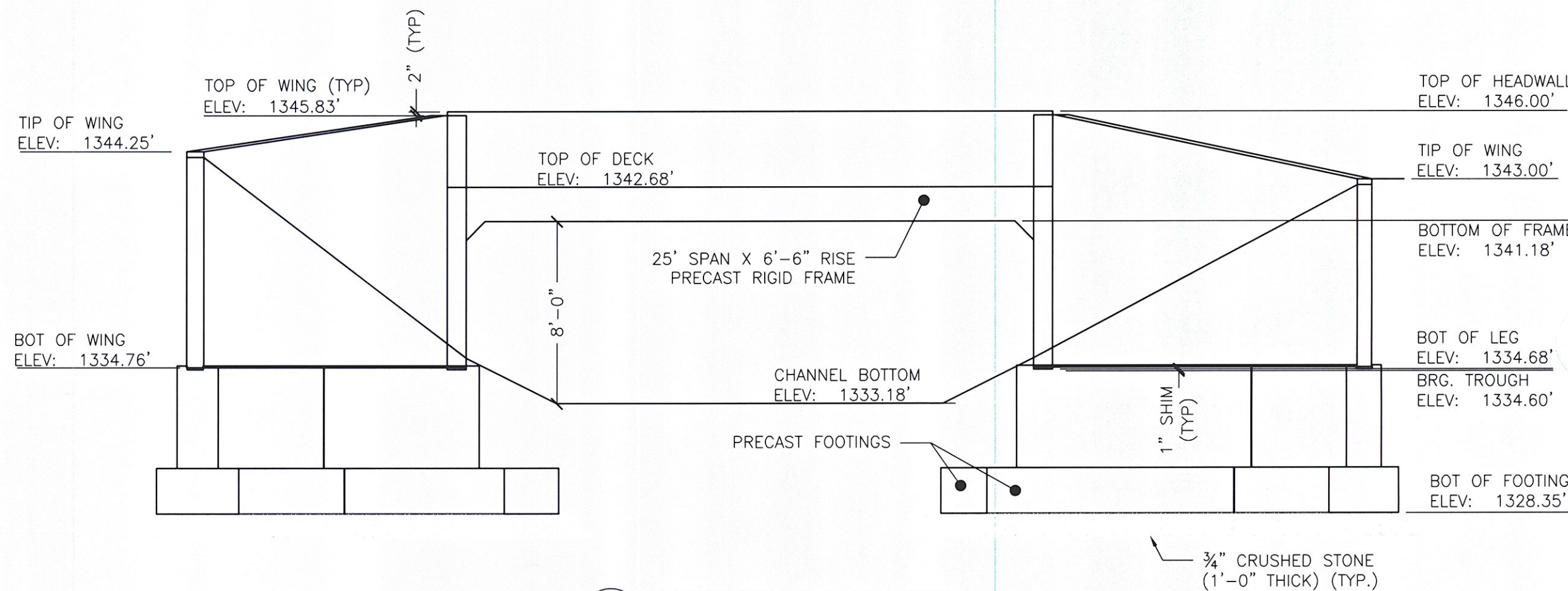
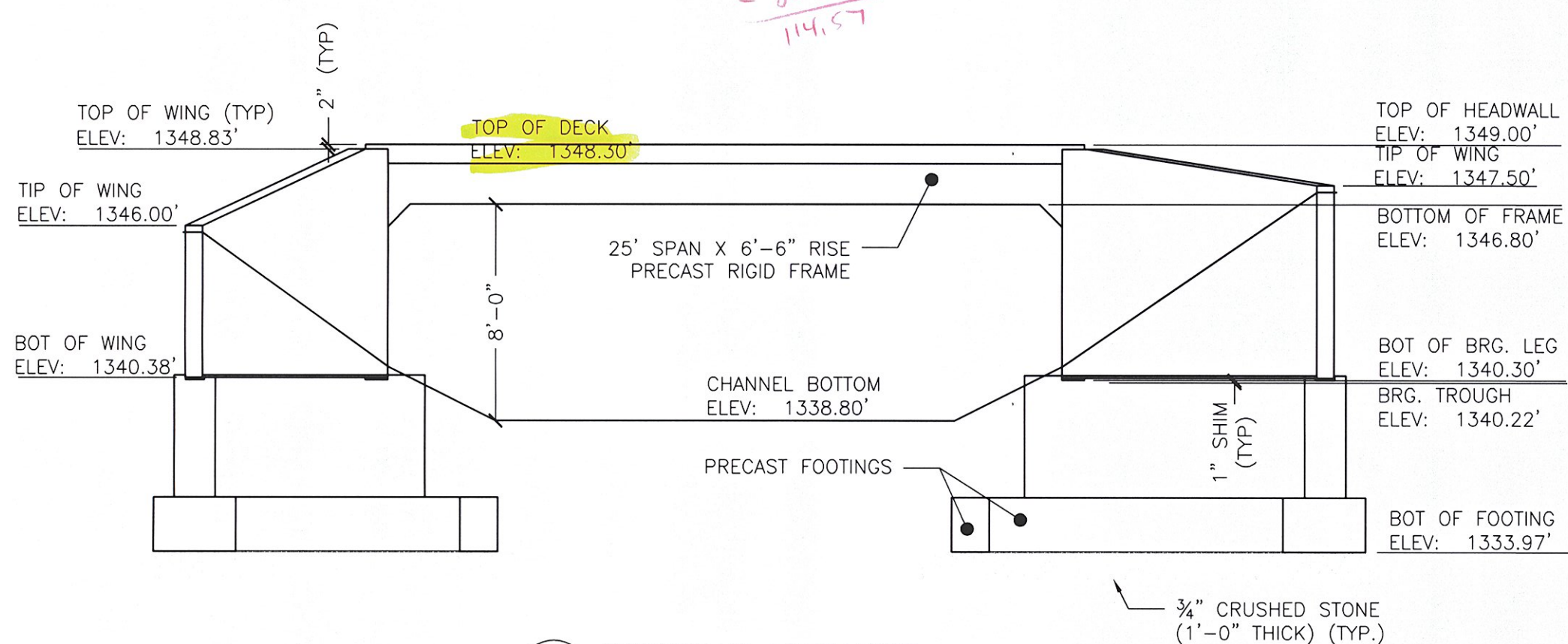
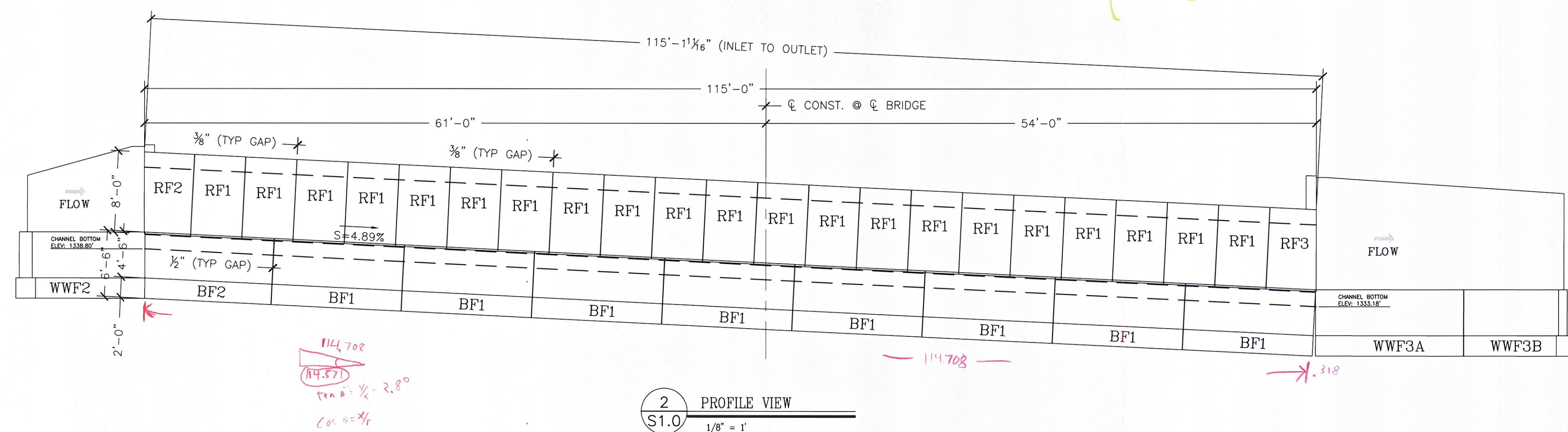
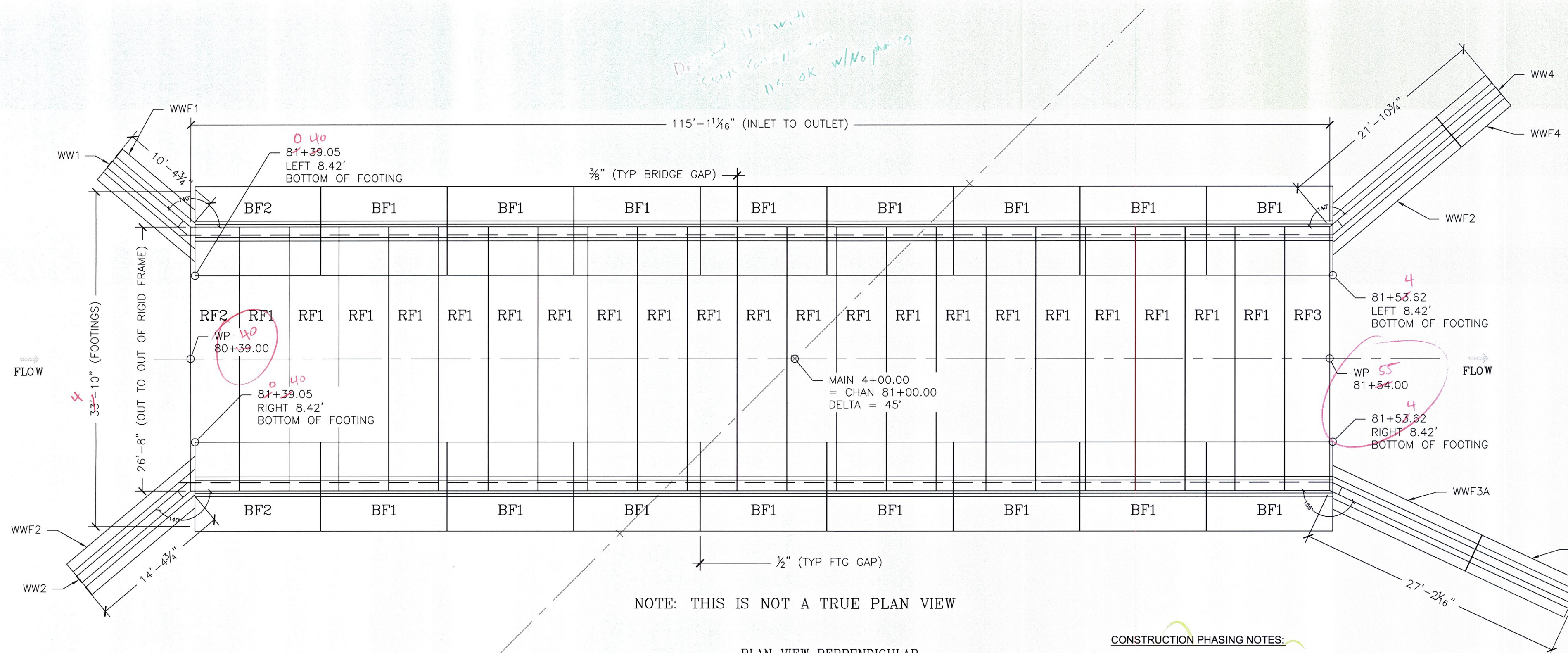
STA 81+86.00 LT
END STONE FILL TYPE IV
END GEOTEXTILE UNDER STONE FILL
END GRUBBING MATERIAL
END UNCLASSIFIED CHANNEL EXCAVATION

STA 81+87 RT
END STONE FILL TYPE IV
END GEOTEXTILE UNDER STONE FILL
END GRUBBING MATERIAL
END UNCLASSIFIED CHANNEL EXCAVATION

SCALE 1" = 10'-0"
10 0 10

PROJECT: LUDLOW	PROJECT NO.: STP ST CULV (7)
DESIGN FILE NAME: 00b258\Structures\s00b258xsl.dgn IPARM FILE NAME: s00b258ch3.i DESIGNED BY: E.L.RUSTAY SQUAD LEADER: C.P.WILLIAMS CHANNEL CROSS SECTIONS	PLOT DATE: 11-SEP-2008 DRAWN BY: CHECKED BY: R.S.YOUNG SHEET: 34 OF 34

© WHITE MOUNTAIN PRECAST, INC. 2009



25' Span x 6'-6" Rise Rigid Frame Bridge
Rte 100 Bridge Replacement
Ludlow, VT

Prepared for:
Miller Construction, Inc.
P.O. Box 86 Rte 5
Windsor, VT 05087

Project No. 5166
Date: 2/18/2009

Plan Elevation and Connection Details
Designed by: TL
Checked by: TAF

Scale: AS SHOWN

WHITE MOUNTAIN PRECAST, LLC
173 BUXTON INDUSTRIAL DRIVE, PO BOX 870
HENNIKER, NH 03242
PHONE: 603-428-3218
FAX: 603-428-7428

No.	Date	Revision	By	TAF
1	04/25/2009	REVISED PER VAOT		

RECEIVED

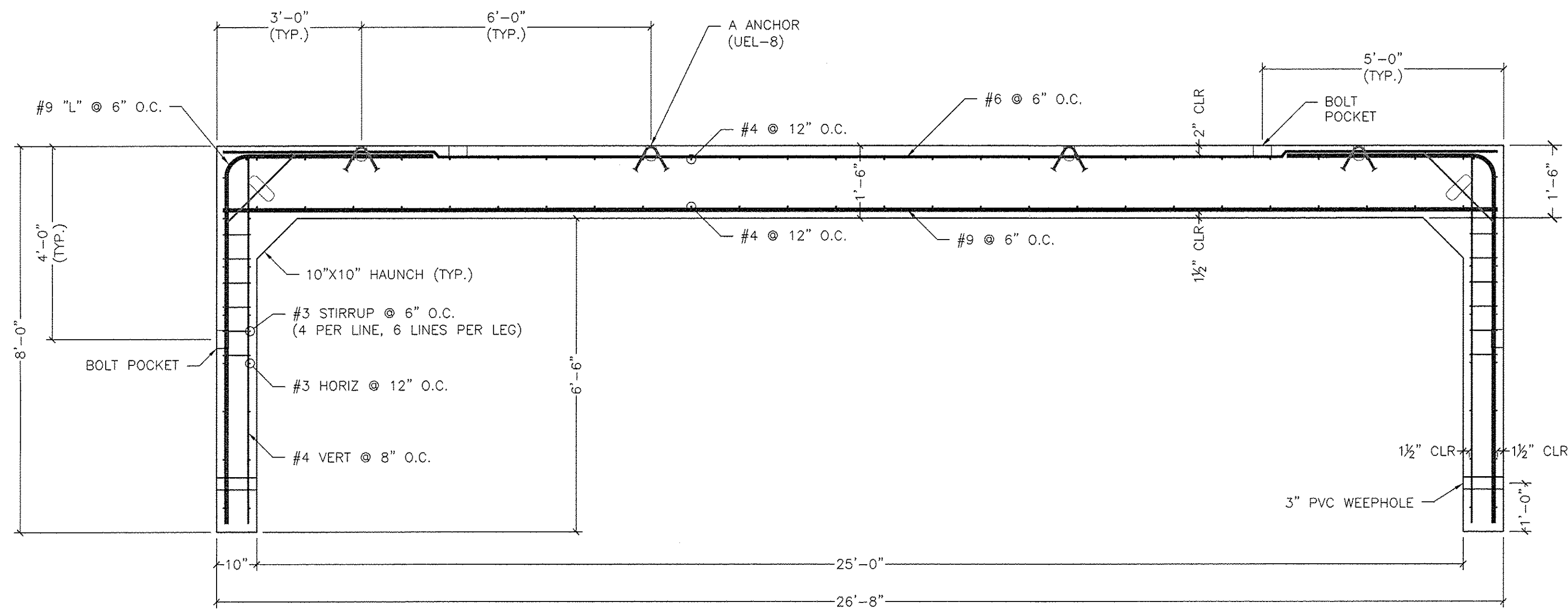
OK'D BY: J. J. OK'D BY: J. J.

MAY 01 2009

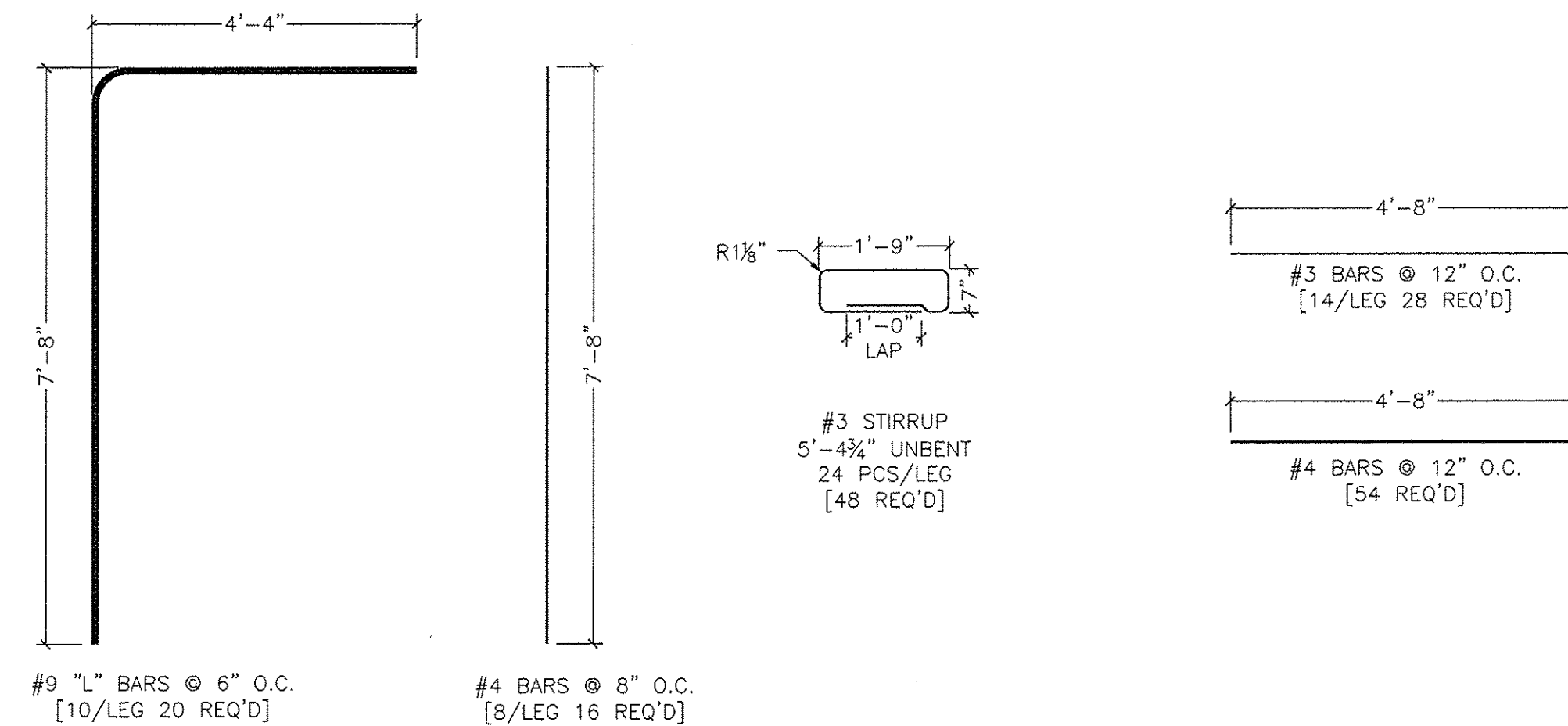
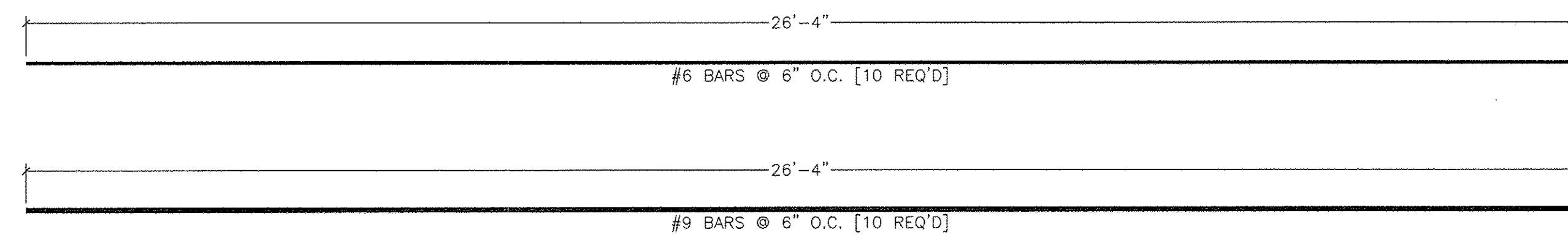
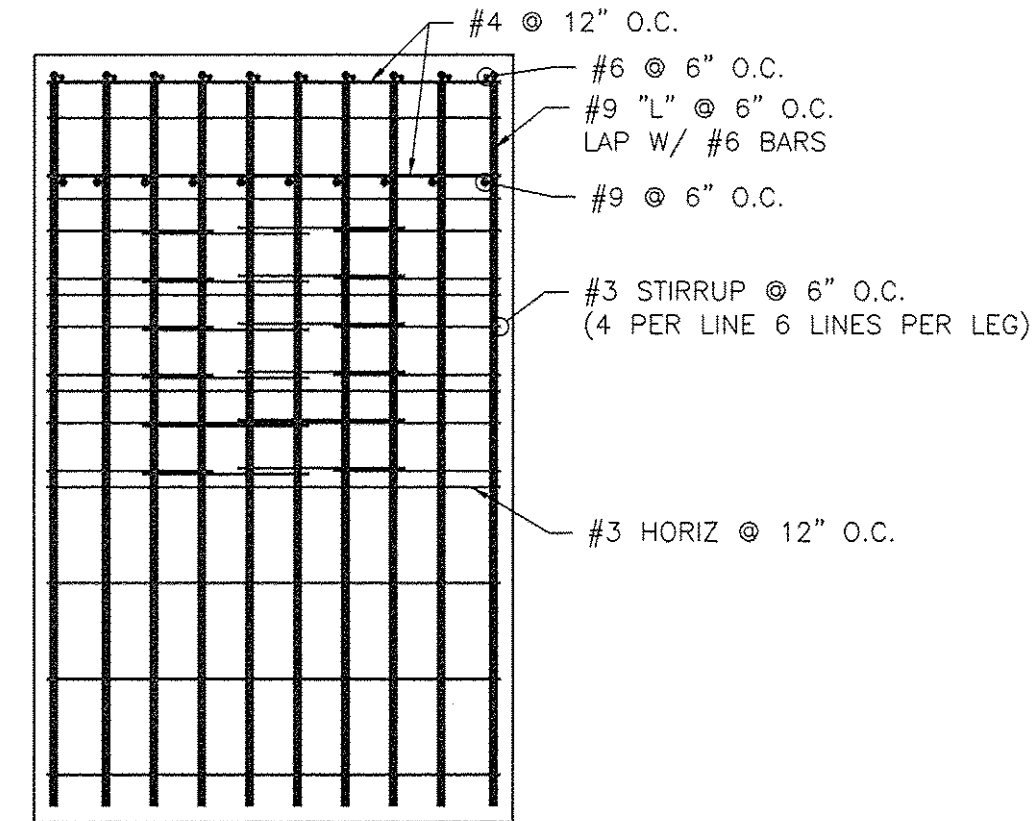
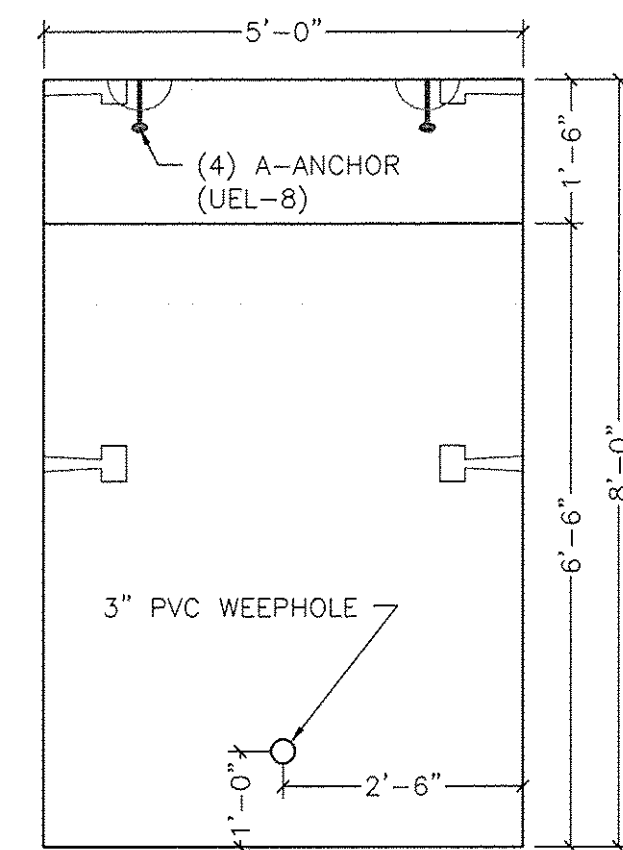
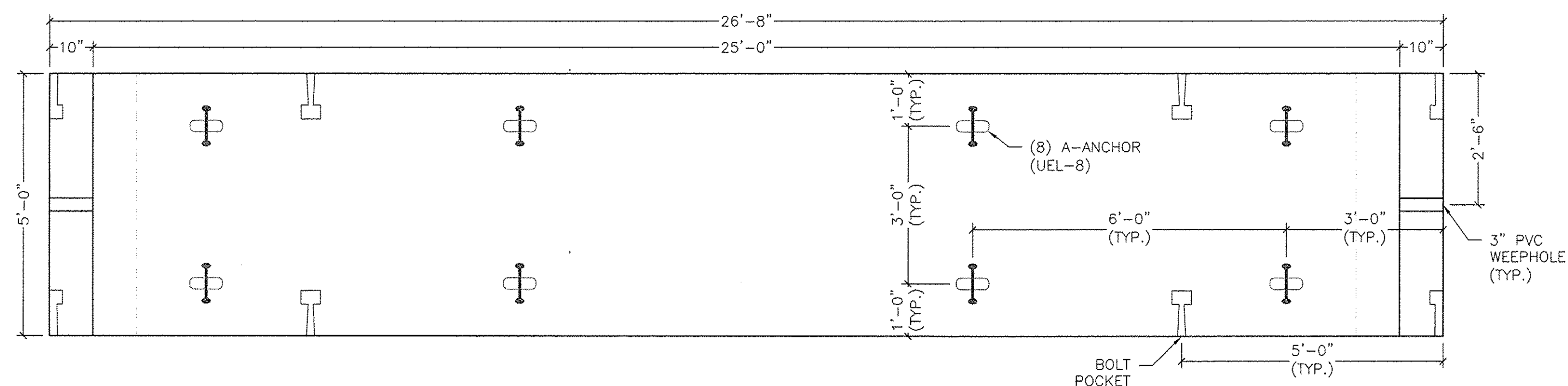
RESUBMIT APPROVED: A. J. W. / N. W.

BY: C. P. W. DATE: 5/12/09

DWG NO.
51.0



TYPE "RF1"-21 REQ'D
 BRIDGE UNIT- 9.54CY (40068#)



WHITE MOUNTAIN PRECAST, LLC
 173 BUXTON INDUSTRIAL DRIVE-PO BOX 870
 HENNIKER, NH 03242
 PHONE: 603-428-3218
 FAX: 603-428-7426

25' Span x 6'-6" Rise Rigid Frame Bridge
Rte 100 Bridge Replacement
Ludlow, VT

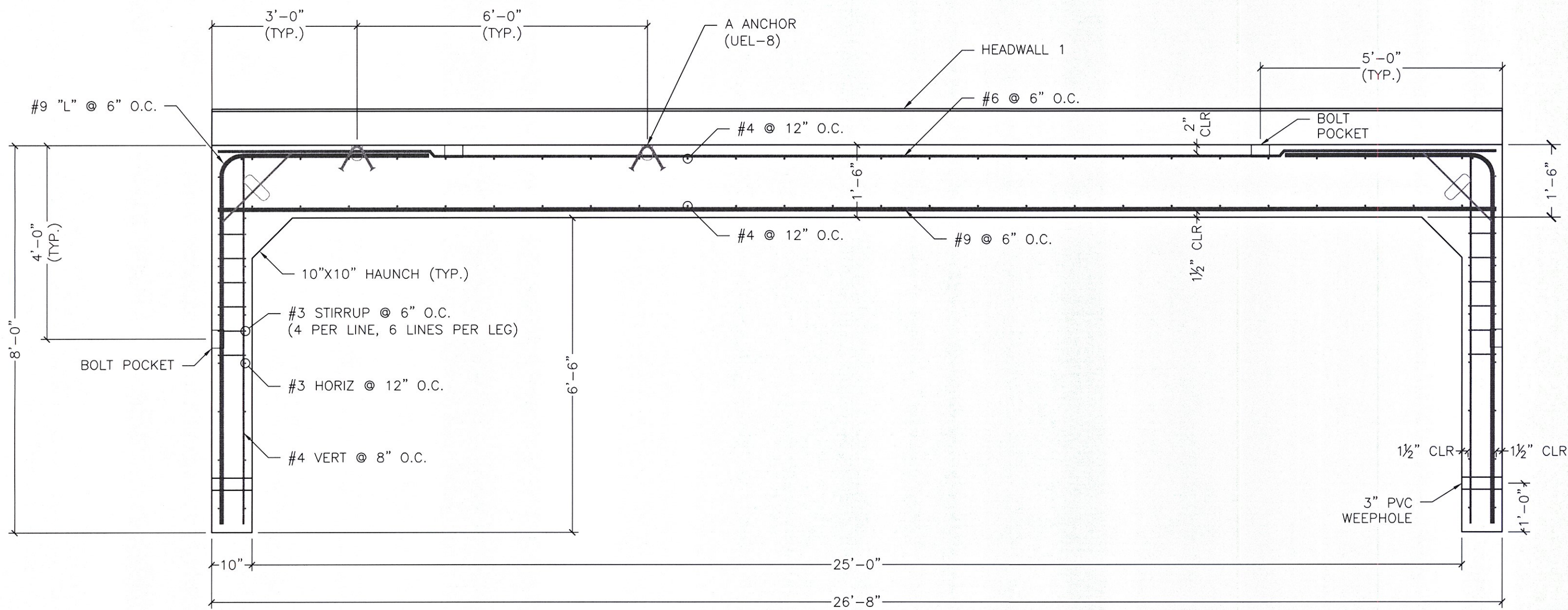
Prepared for:
Miller Construction, Inc.
P.O. Box 86 Rte 5
Windsor, VT 05087

Project No. 5166
 Date: 2/15/2009
 Designed by: TL
 Drawn by: PDI
 Checked by: TAF
 Scale: AS SHOWN
 RF1

No.	Date	Revision	By
1	04/23/2009	REVISED PER VAOT	TAF

RECEIVED
 OK'D BY: SS OK'D BY: _____
 MAY 11 2009
 RESUBMIT: _____ APPROVED: ✓
 BY: CPW DATE: 5/12/09

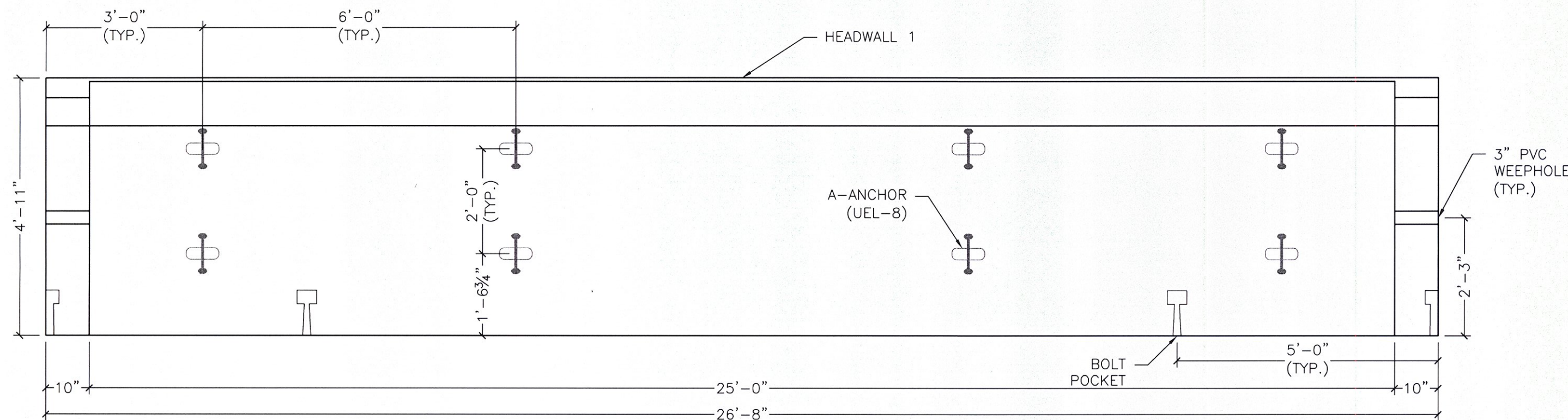
DWG NO.
 S 2.0



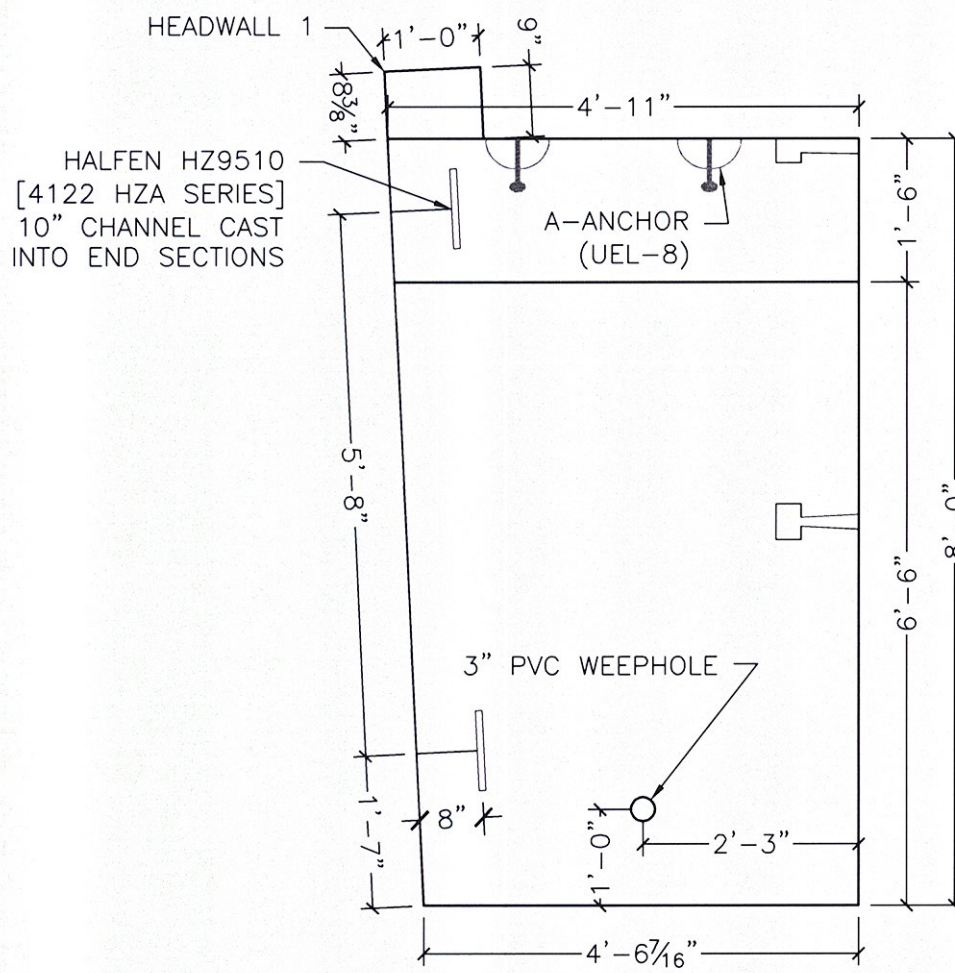
1 RF2 TYPICAL SECTION
S3.0 1/2" = 1'-0"

TYPE "RF2"-1 REQ'D

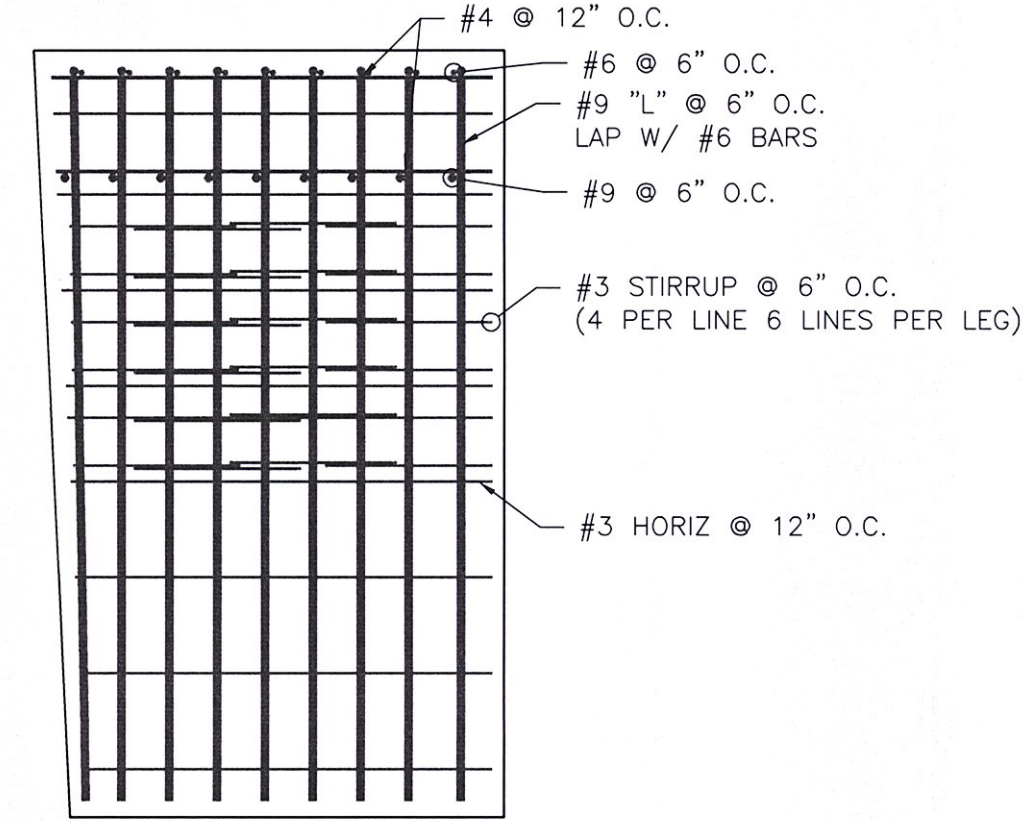
BRIDGE UNIT W/O CURBWALL- 9.30CY (39060#)
CURBWALL- .71CY (2982#)
BRIDGE UNIT W/ CURBWALL- 10.01CY (42042#)



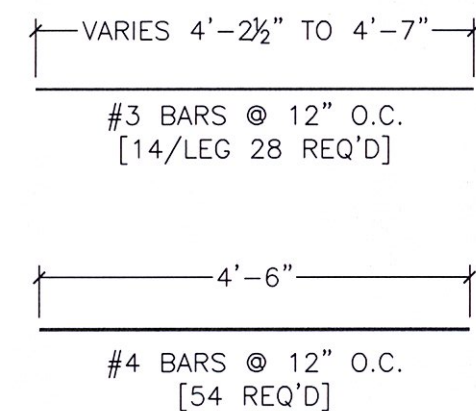
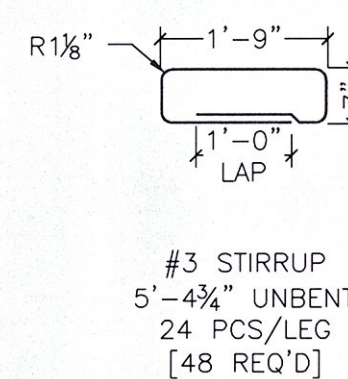
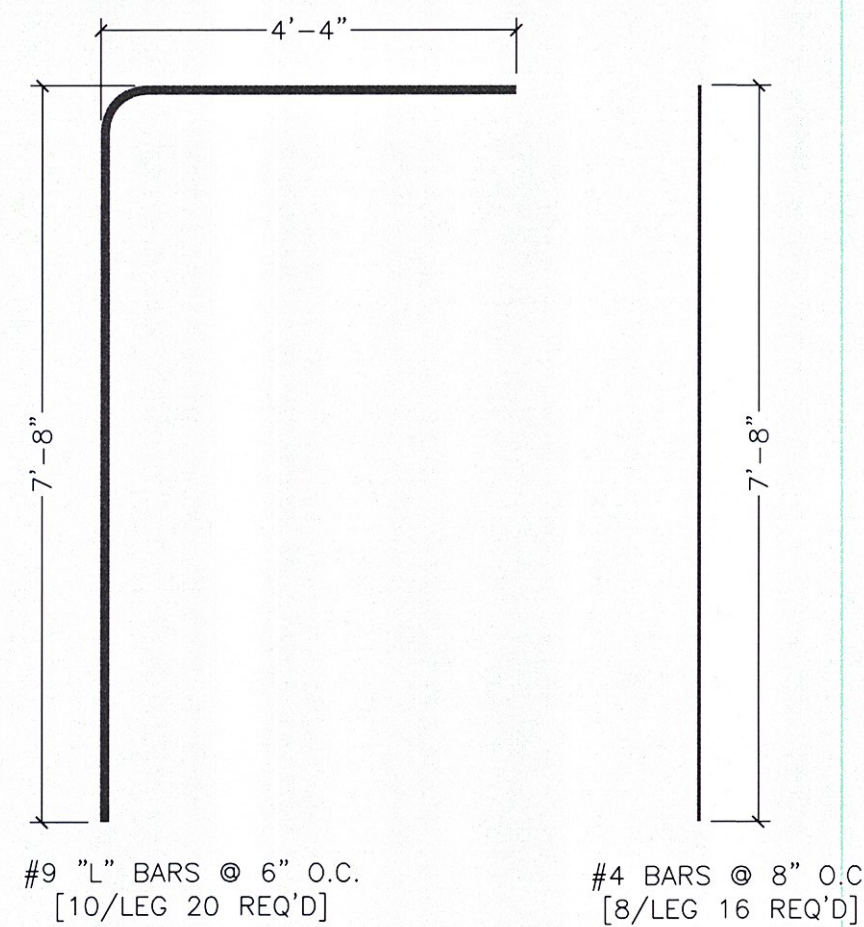
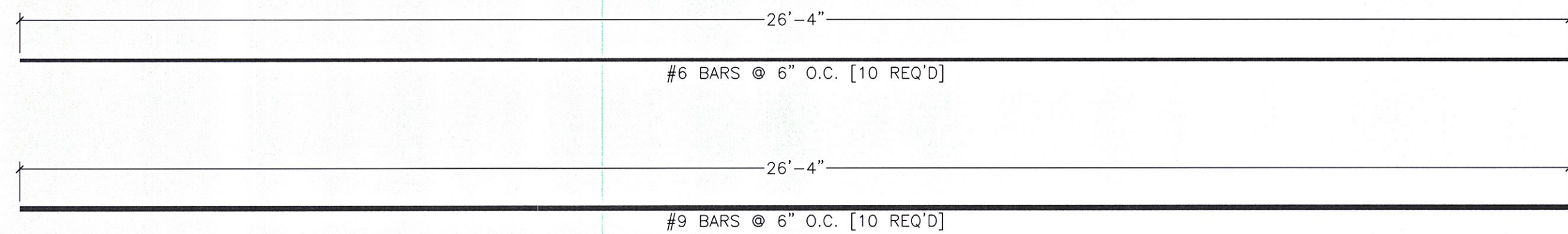
3 RF2 PLAN VIEW
S3.0 1/2" = 1'-0"



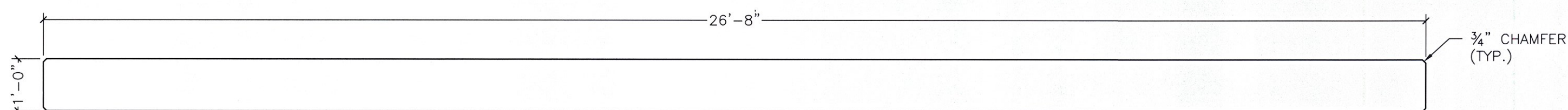
2 RF2 ELEVATION VIEW
S3.0 1/2" = 1'-0"



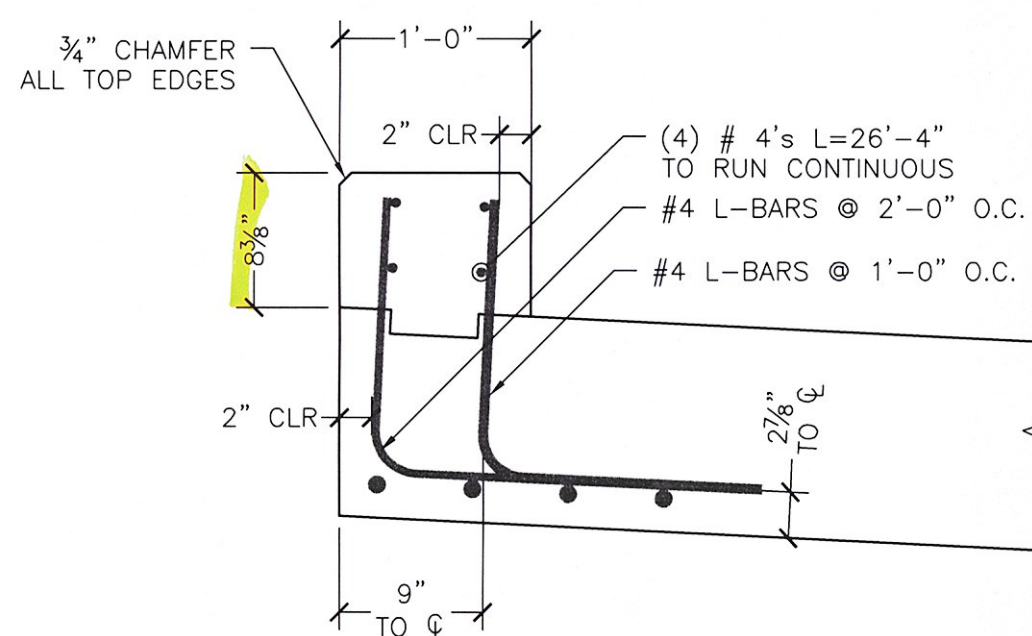
2A RF2 REINFORCING DETAIL
S3.0 1/2" = 1'-0"



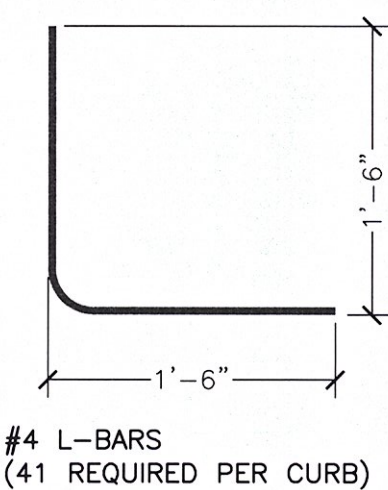
4 RF2 REINFORCING
S3.0 1/2" = 1'-0"



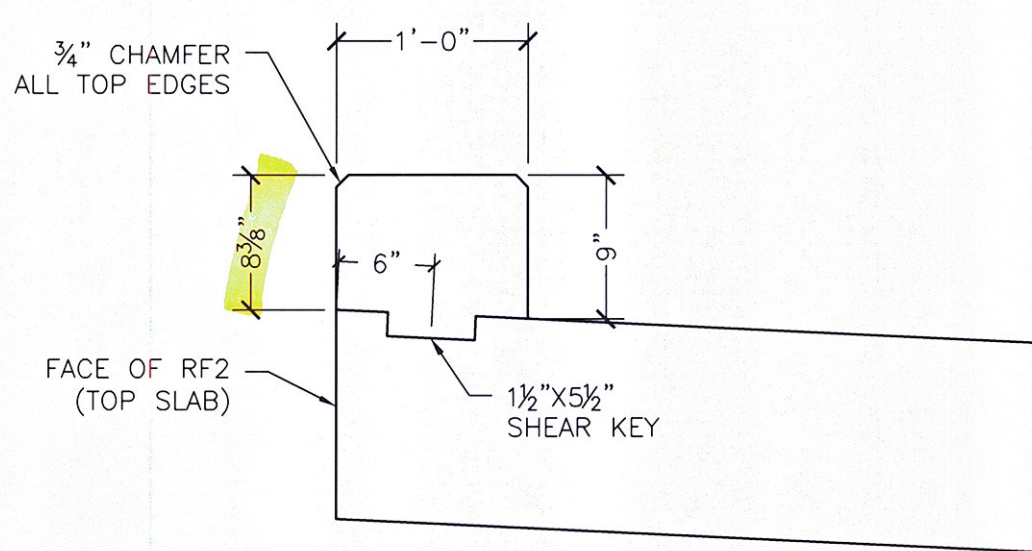
5 HEADWALL 1 PLAN
S3.0 1/2" = 1'-0"



6 HEADWALL 1 SECTION
S3.0 1" = 1'-0"



6A HEADWALL 1 REINFORCING
S3.0 1" = 1'-0"



7 HEADWALL 1 ELEVATION
S3.0 1" = 1'-0"



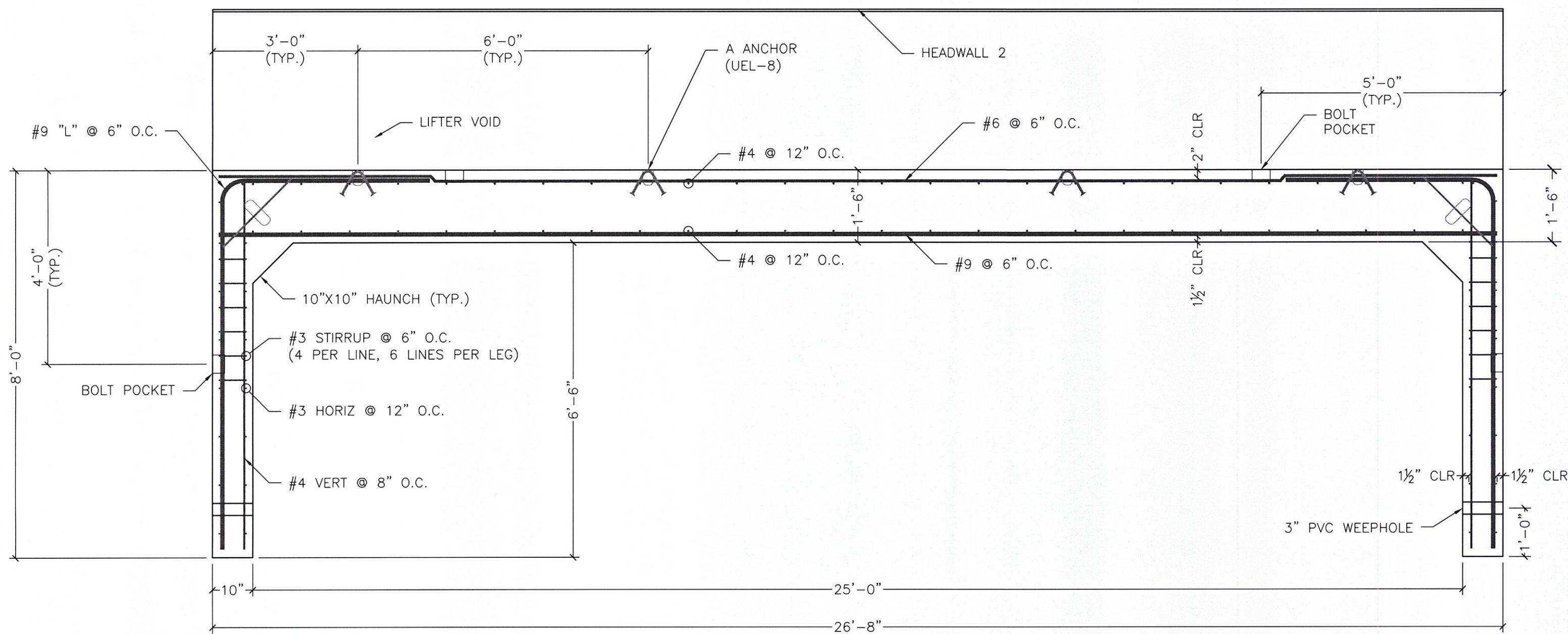
25' Span x 6'-6" Rise Rigid Frame Bridge
Rte 100 Bridge Replacement
Ludlow, VT

Prepared for:
Miller Construction, Inc.
P.O. Box 86 Rte 5
Windsor, VT 05087

DWG NO.
S3.0

Project No. 5166
Date: 2/16/2009
Designed by: TL
Drawn by: PDH
Checked by: TAF
Scale: AS SHOWN
RF2

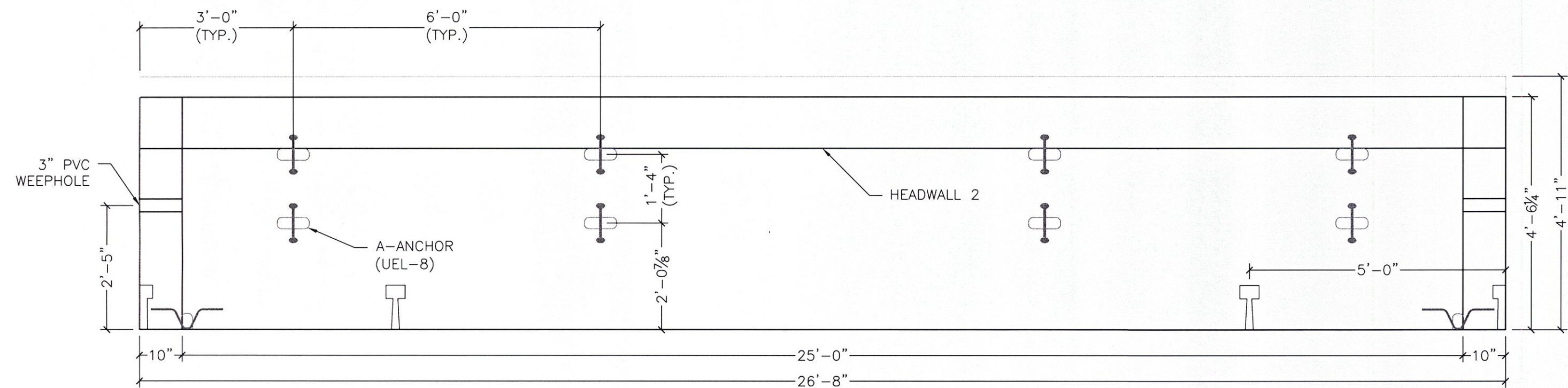
RECEIVED
CK'D BY: JSS OK'D BY: _____
MAY 11 2009
RESUBMIT: _____ APPROVED: _____
BY: CPW DATE: 5/12/09



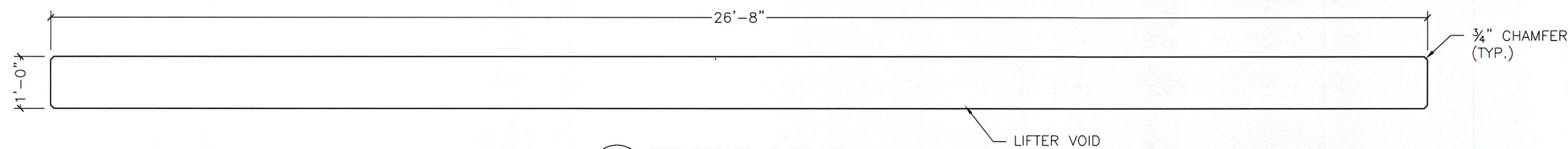
1 RF3 TYPICAL SECTION
S4.0 1/2" = 1'-0"

TYPE "RF3"-1 REQ'D

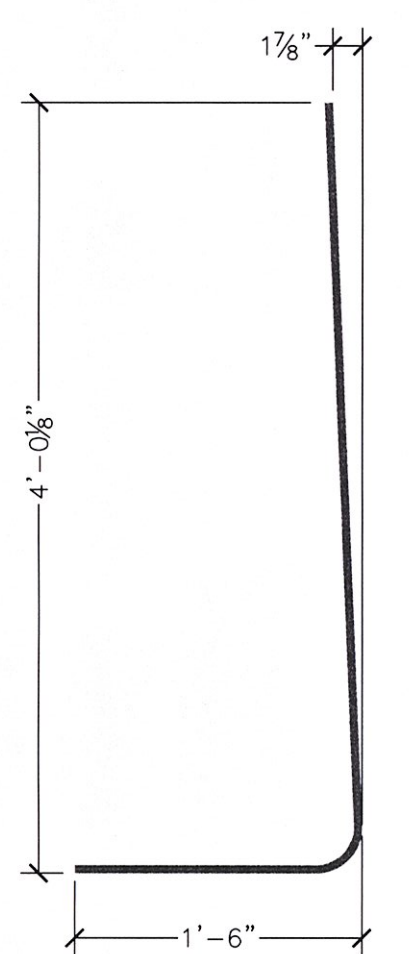
BRIDGE UNIT W/O CURB WALL- 8.76CY (36792#)
CURB WALL- 3.26CY (13692#)
BRIDGE UNIT W/ CURB WALL- 12.02CY (50484#)



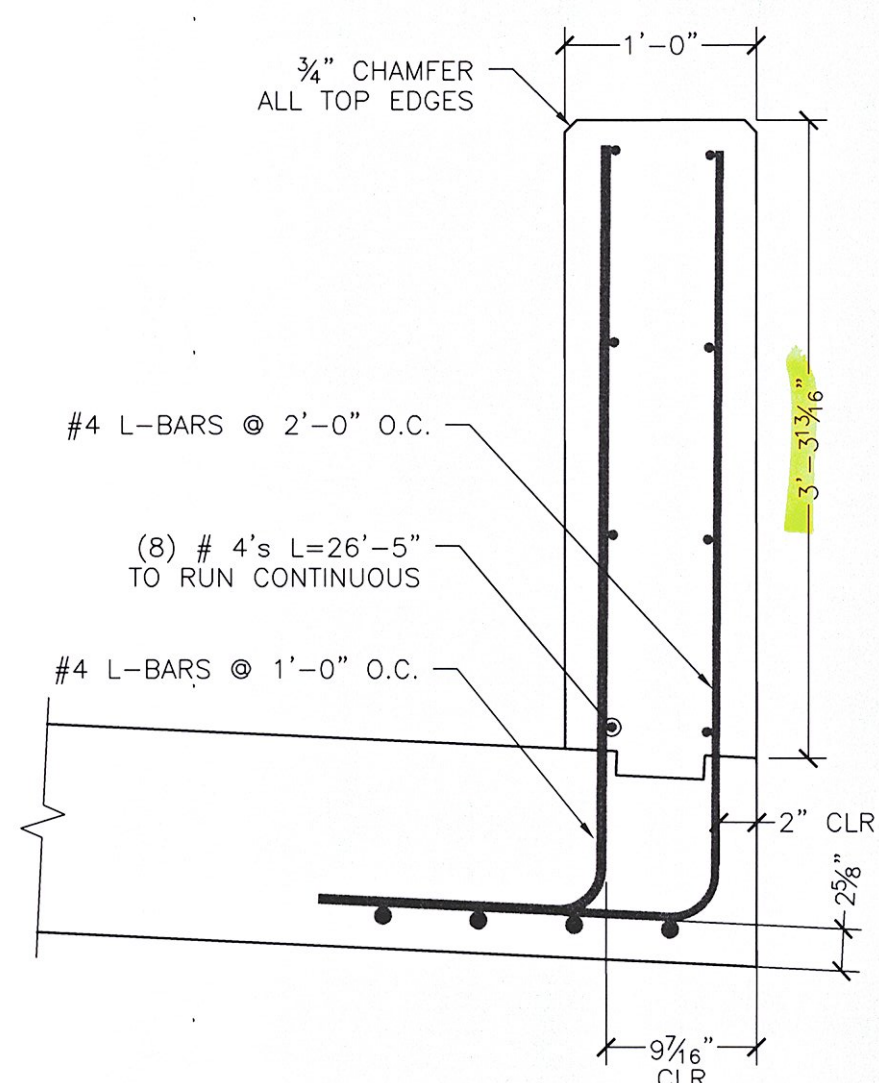
3 RF3 PLAN VIEW
S4.0 1/2" = 1'-0"



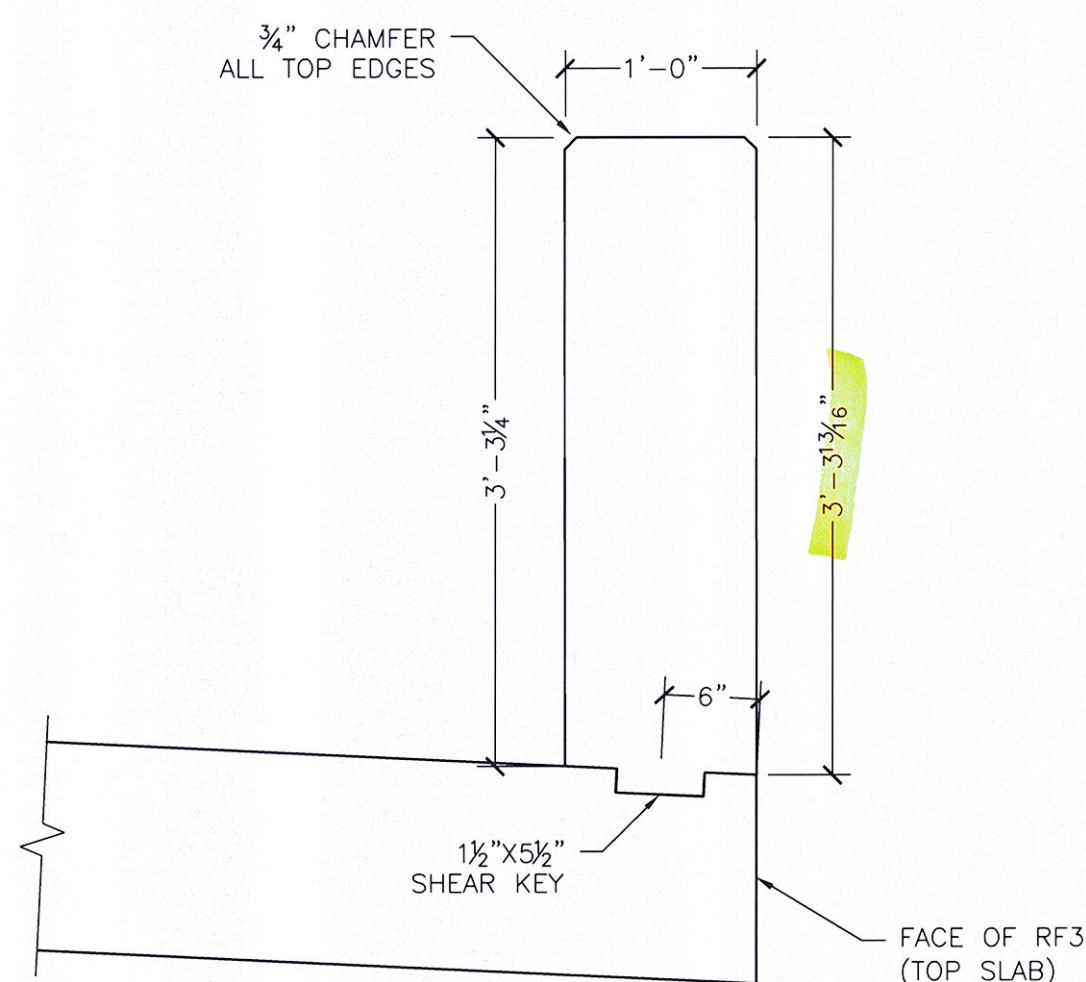
5 HEADWALL 2 PLAN
S4.0 1/2" = 1'-0"



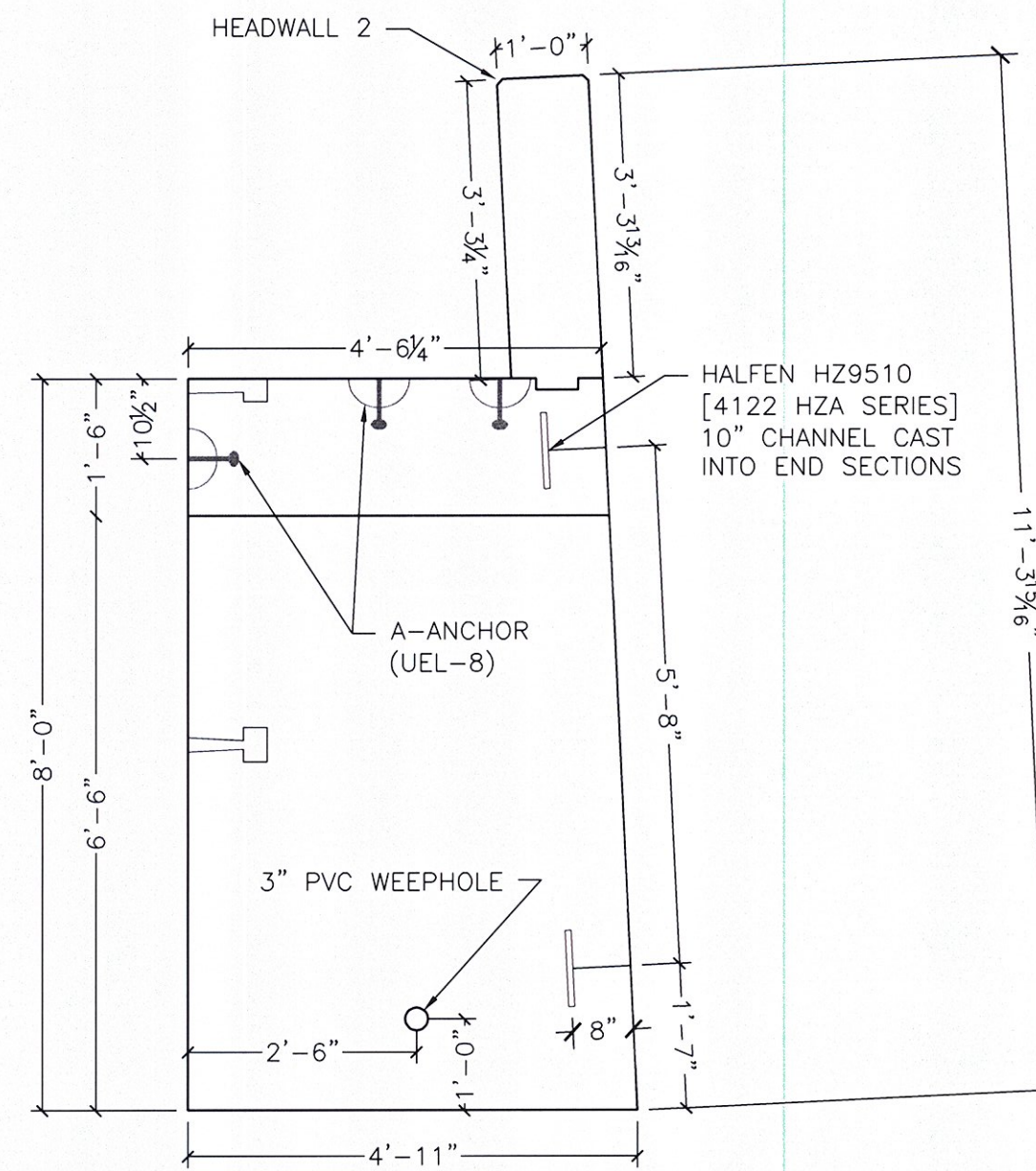
6A HEADWALL 2 REINFORCING
S4.0 1" = 1'-0"



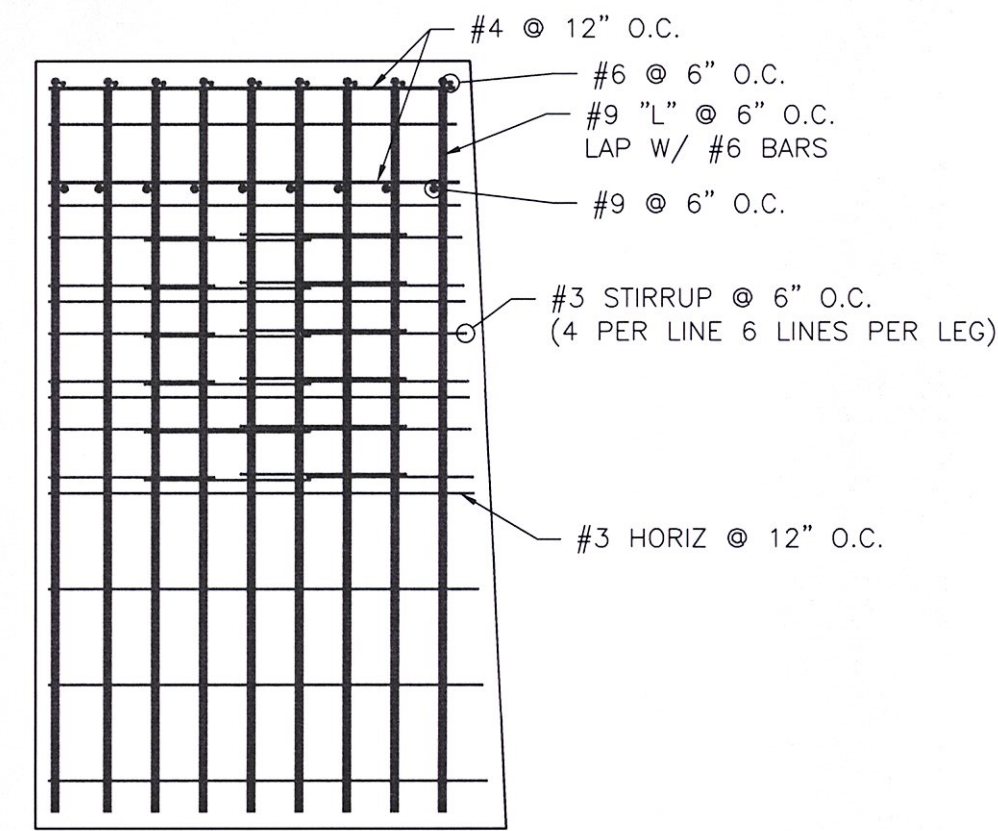
6 HEADWALL 2 SECTION
S4.0 1" = 1'-0"



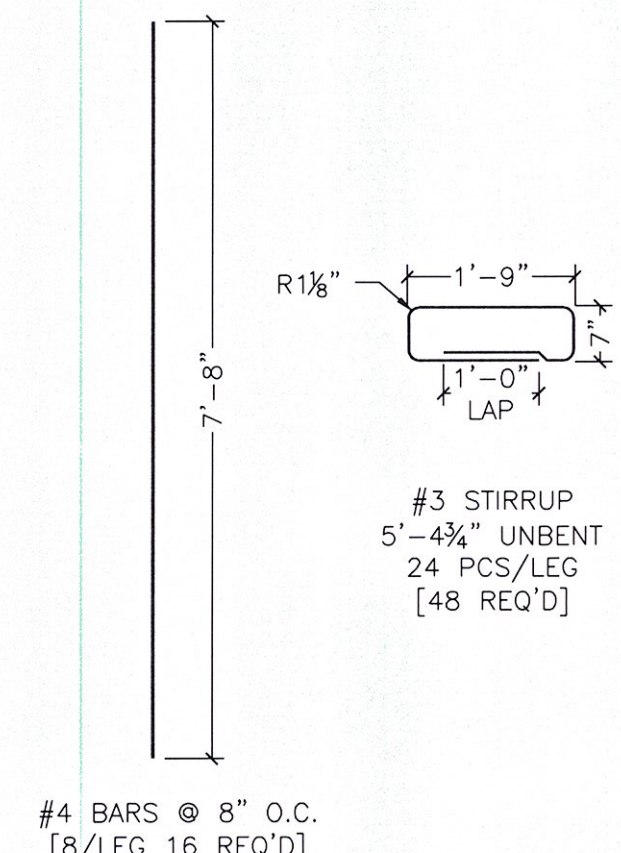
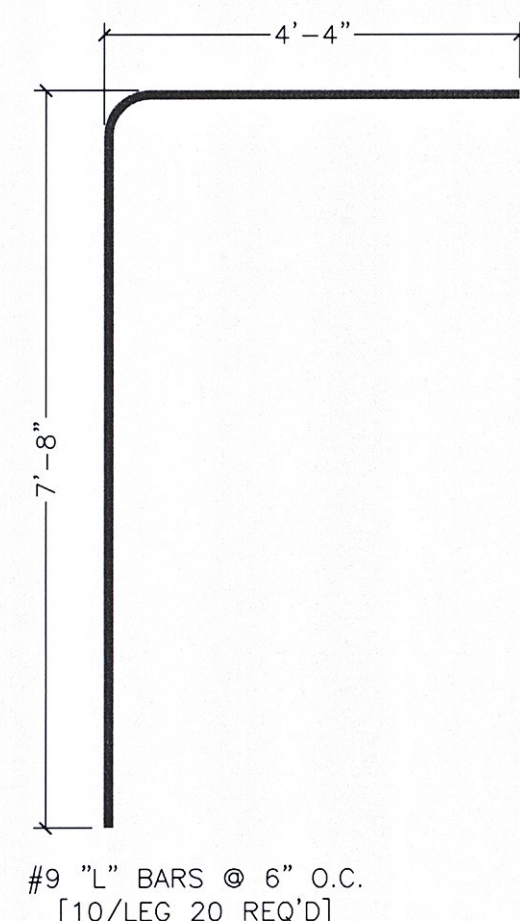
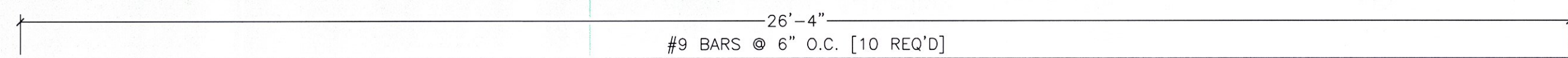
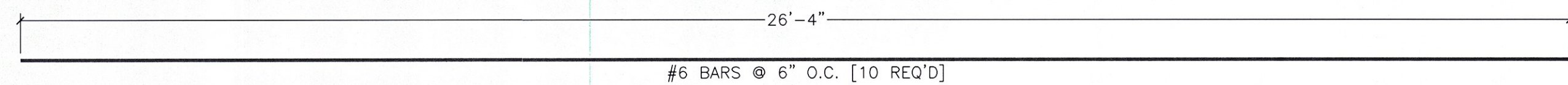
7 HEADWALL 2 ELEVATION
S4.0 1" = 1'-0"



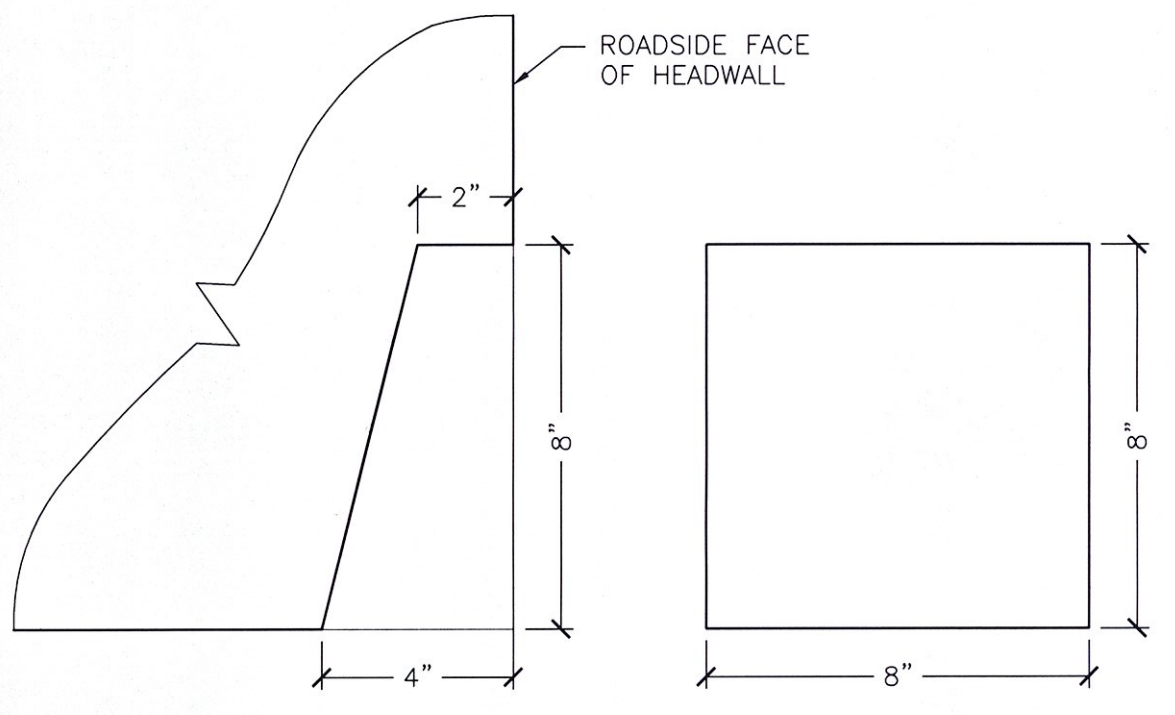
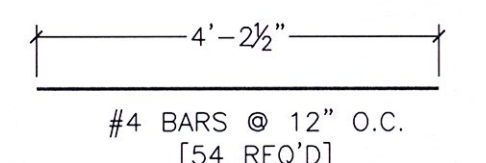
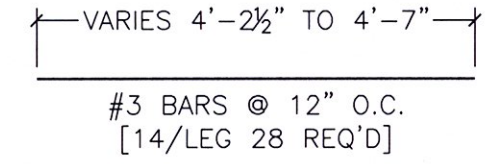
2 RF3 ELEVATION VIEW
S4.0 1/2" = 1'-0"



2A RF1 REINFORCING DETAIL
S4.0 1/2" = 1'-0"



4 RF3 REINFORCING
S4.0 1/2" = 1'-0"



8 CURB WALL LIFTER VOID DETAILS
S4.0 3" = 1'-0"

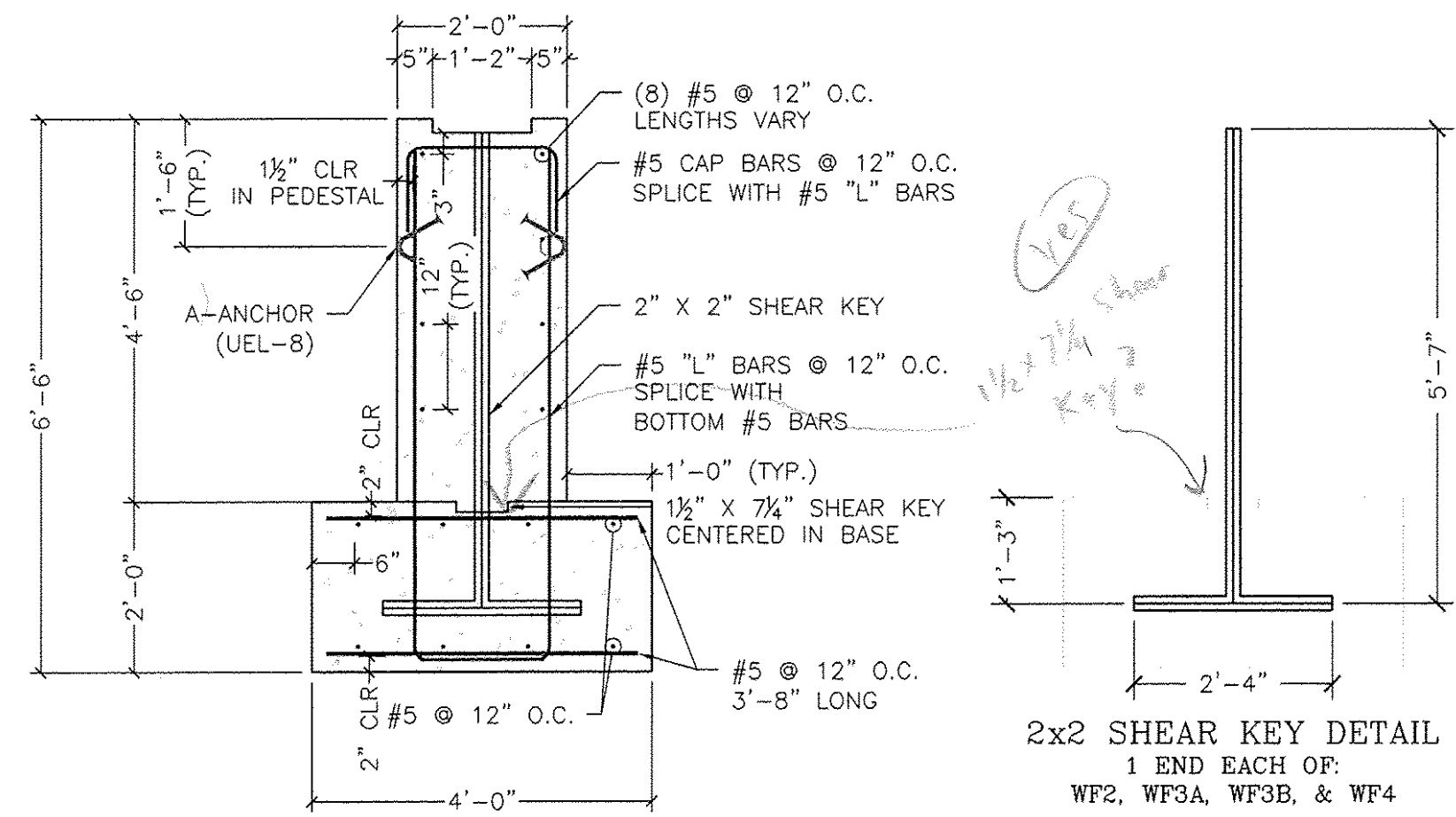
WHITE MOUNTAIN PRECAST, LLC
173 BUXTON INDUSTRIAL DRIVE PO BOX 870
HENNIKER, NH 03242
PHONE: 603-428-3218
FAX: 603-428-1426

**25' Span x 6'-6" Rise Rigid Frame Bridge
Rte 100 Bridge Replacement
Ludlow, VT**

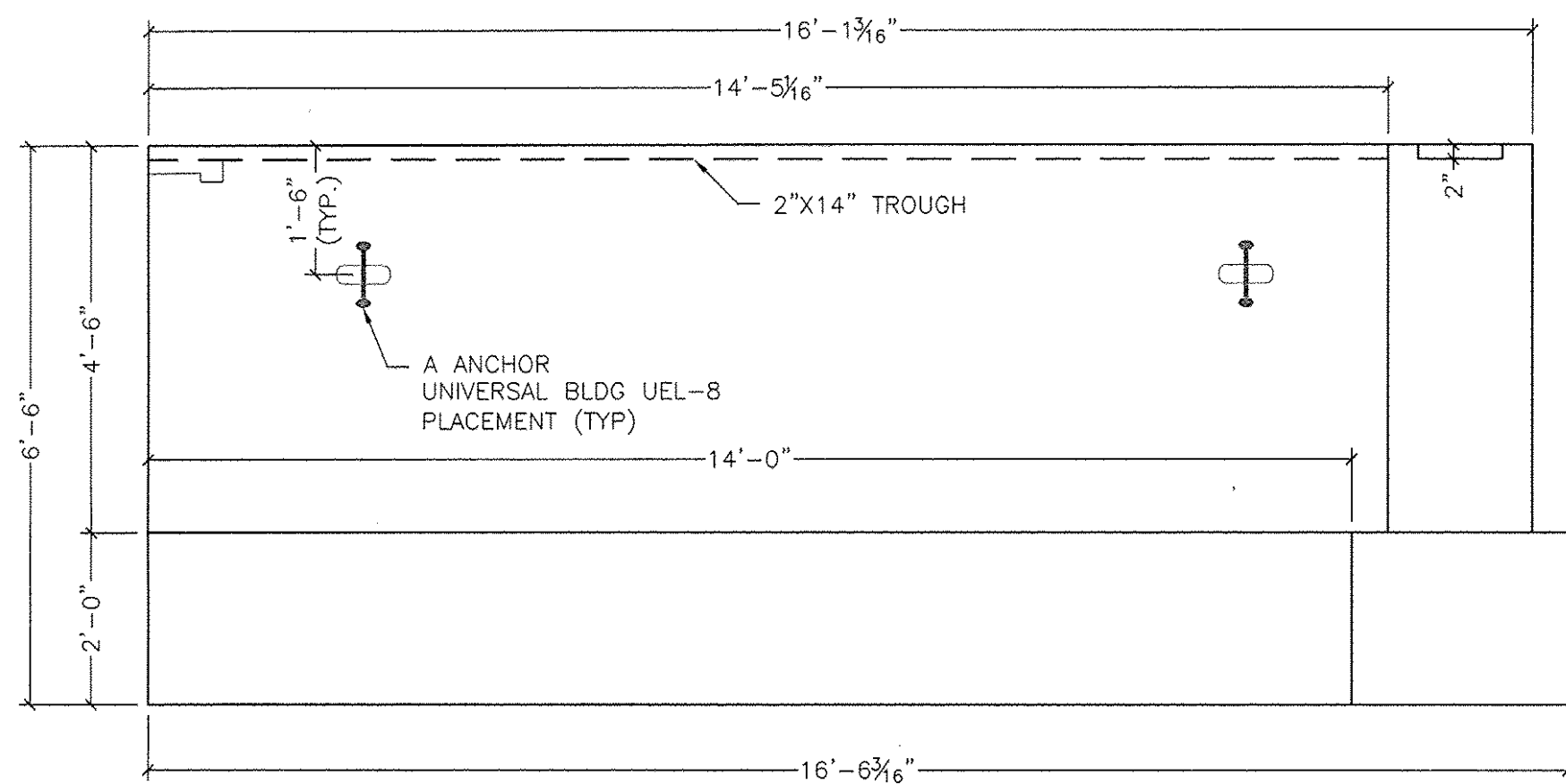
Prepared for:
Miller Construction, Inc.
P.O. Box 86 Rte 5
Windsor, VT 05087

DWG NO.
S4.0

Project No. 5166	Designed by: TL	Scale: AS SHOWN	Checked by: TAF	By
Date: 2/15/2009	Drawn by: PDH	RF3	REVISION	TAF
			04/29/2009	
			Date	
			Revision	
			REVIS PER VAO	



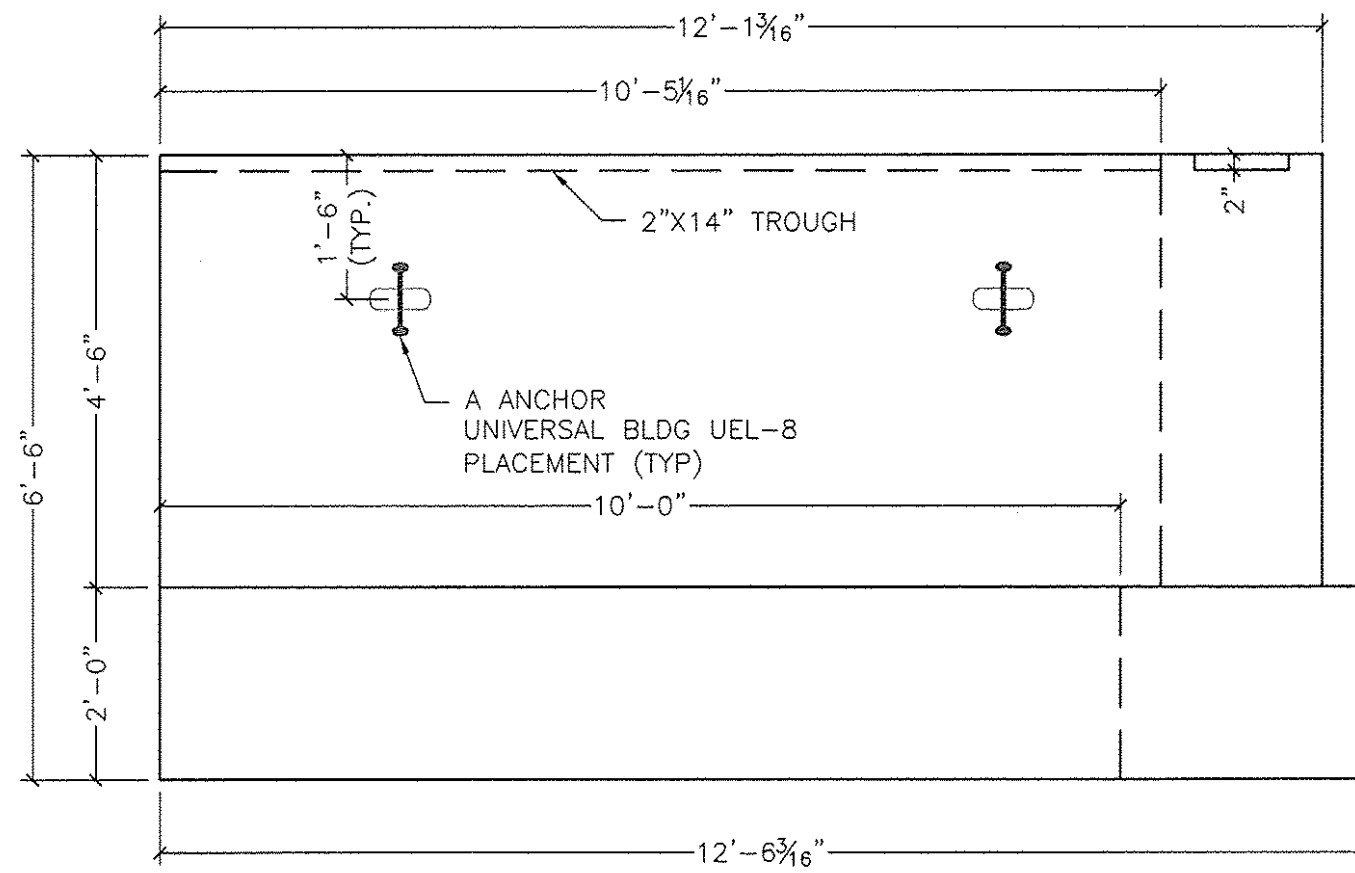
1 WINGWALL FOOTING CROSS SECTION
S6.0 1/2" = 1'-0"



3A WINGWALL FOOTING (WF2) ELEVATION
S6.0 1/2" = 1'-0"

TYPE "WF2"-2 REQ'D

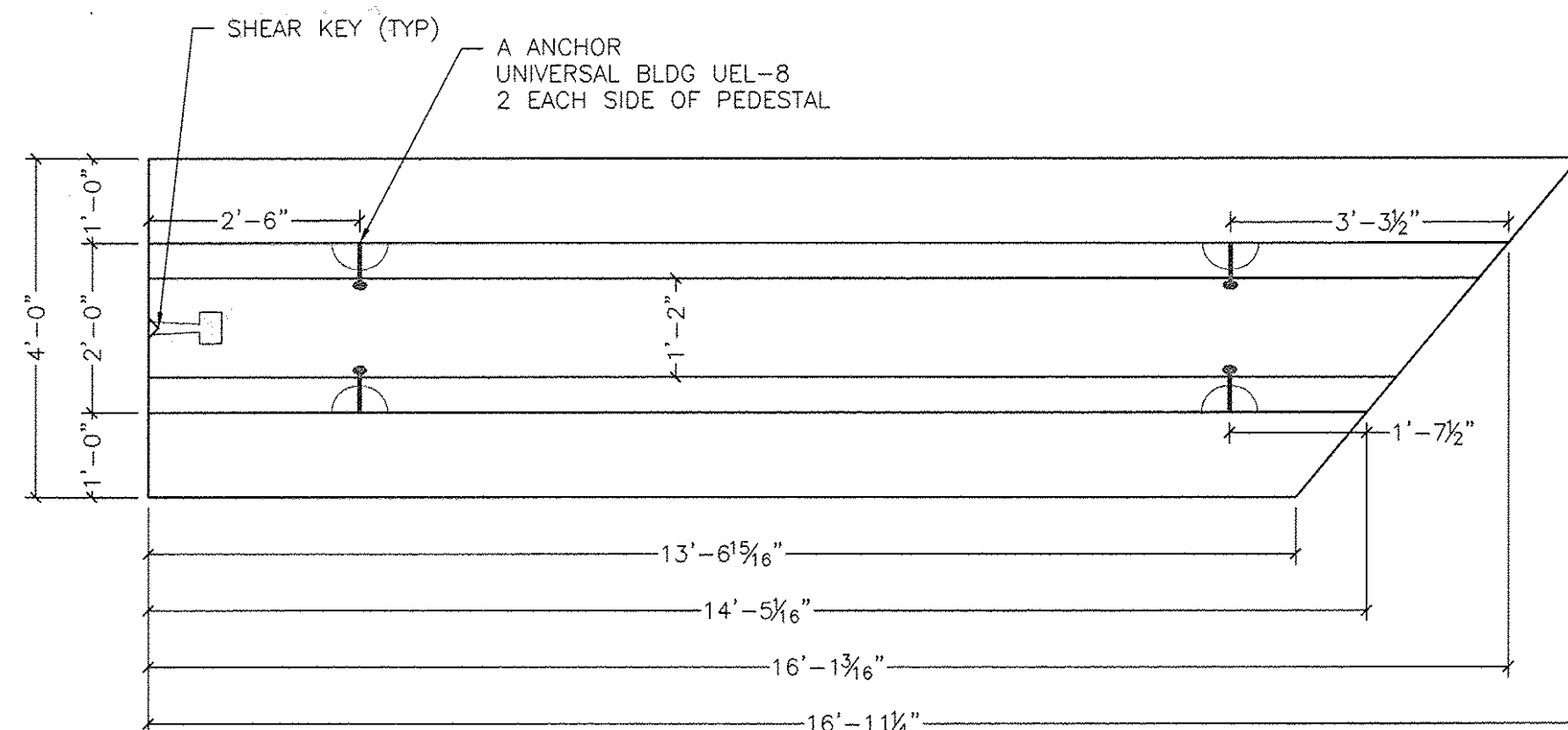
FOOTING- 4.52 CY
PEDESTAL- 4.98 CY
TOTAL WEIGHT: 39,900#



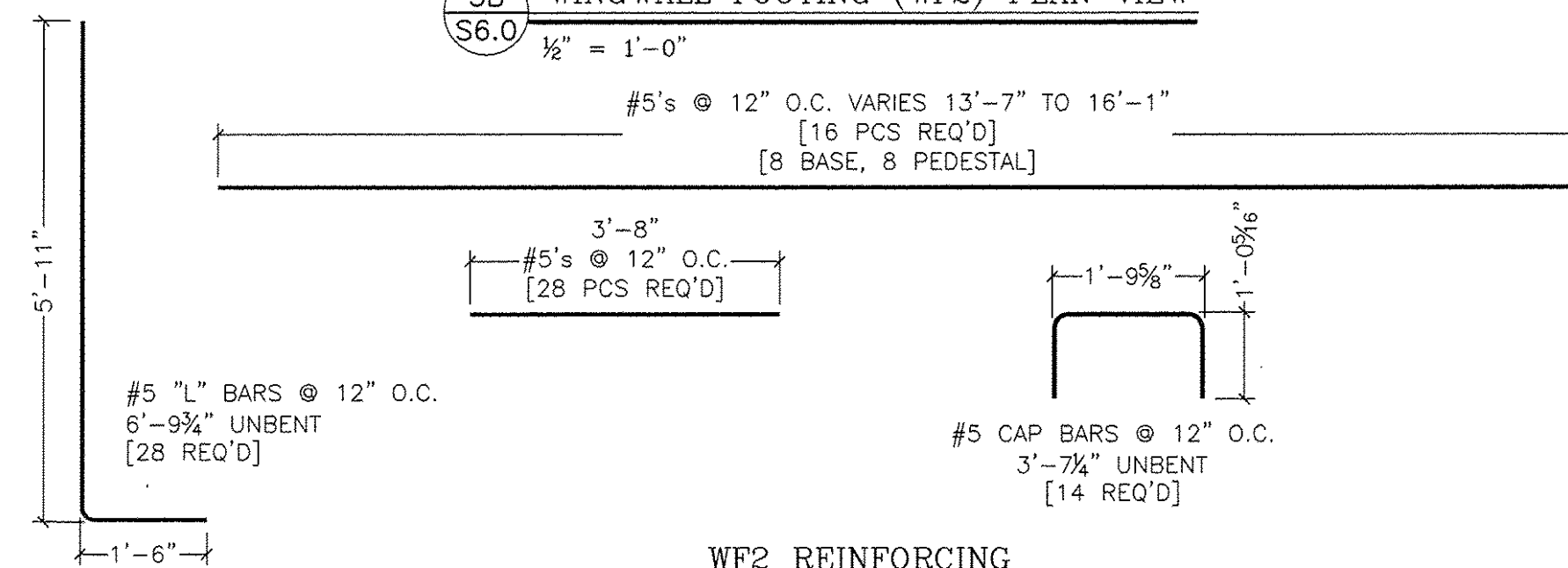
2A WINGWALL FOOTING (WF1) ELEVATION
S6.0 1/2" = 1'-0"

TYPE "WF1"-1 REQ'D

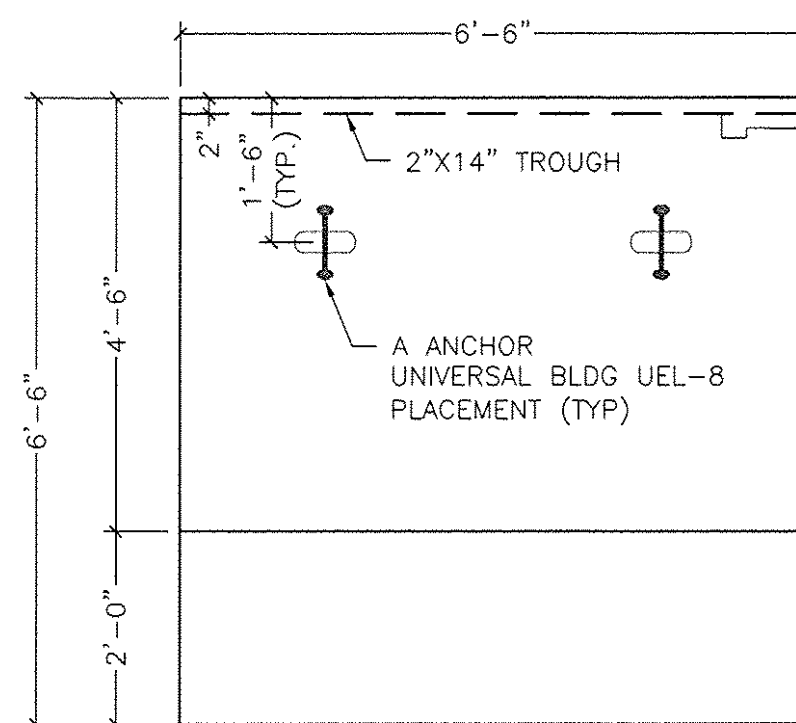
FOOTING- 3.34 CY
PEDESTAL- 3.67 CY
TOTAL WIEGHT 29,450#



3B WINGWALL FOOTING (WF2) PLAN VIEW
S6.0 1/2" = 1'-0"



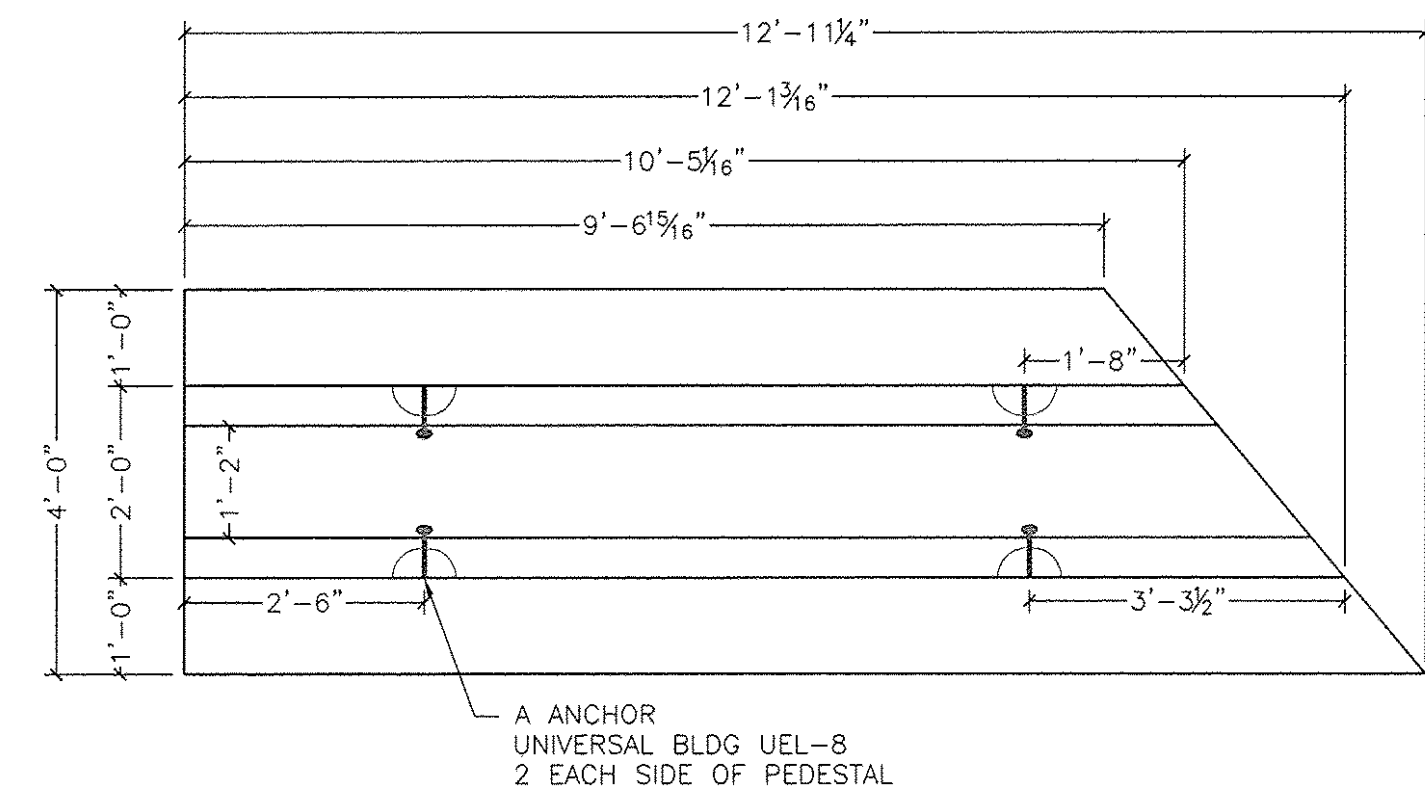
WF2 REINFORCING



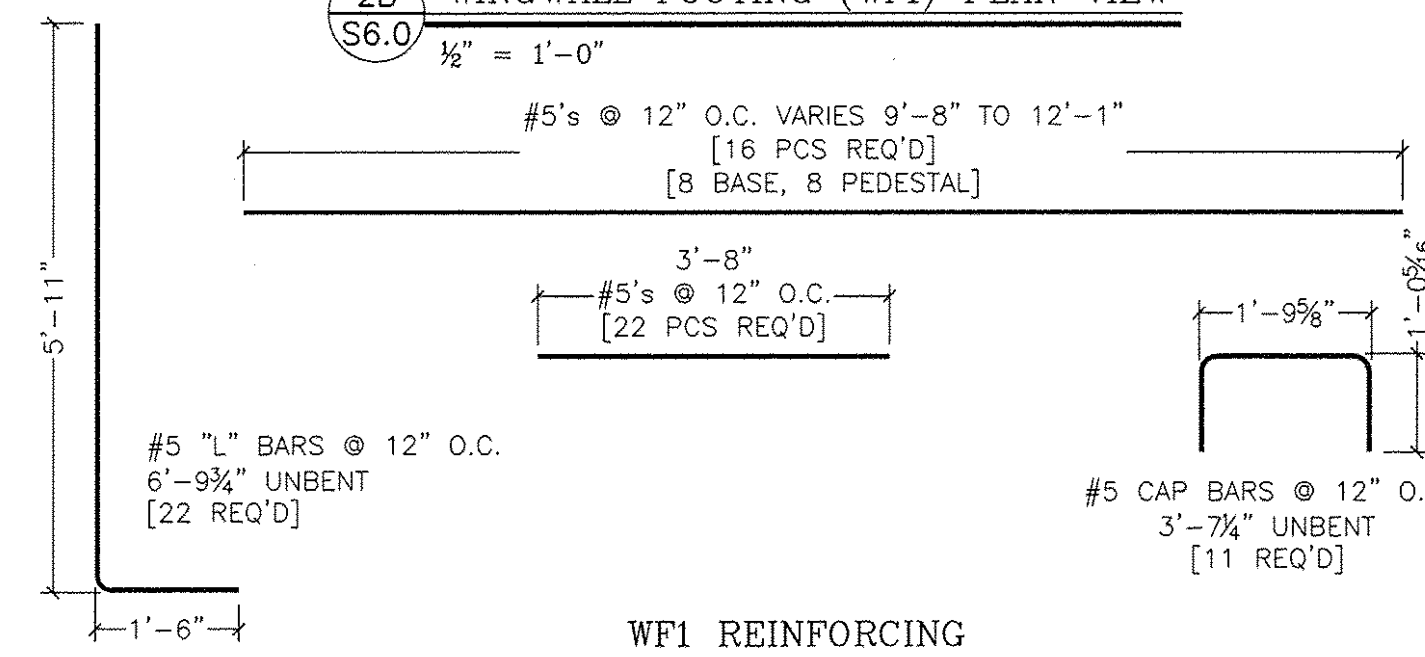
4A WINGWALL FOOTING WF4 ELEVATION
S6.0 1/2" = 1'-0"

TYPE "WF4"-1 REQ'D

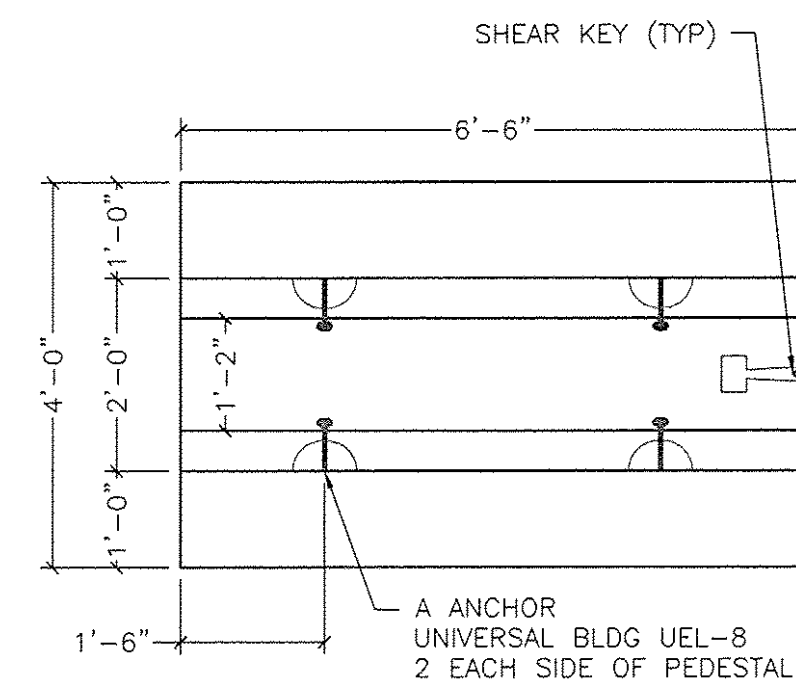
FOOTING- 1.90 CY
PEDESTAL- 1.66 CY
TOTAL WEIGHT: 14,950#



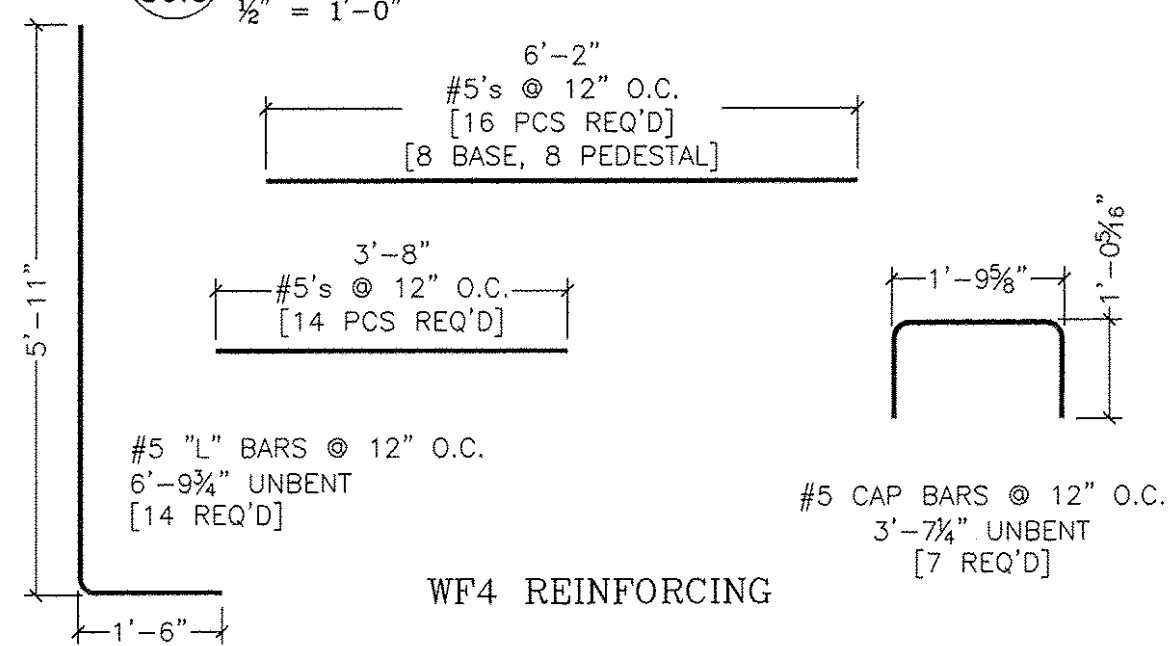
2B WINGWALL FOOTING (WF1) PLAN VIEW
S6.0 1/2" = 1'-0"



WF1 REINFORCING



4B WINGWALL FOOTING WF4 PLAN VIEW
S6.0 1/2" = 1'-0"



WF4 REINFORCING

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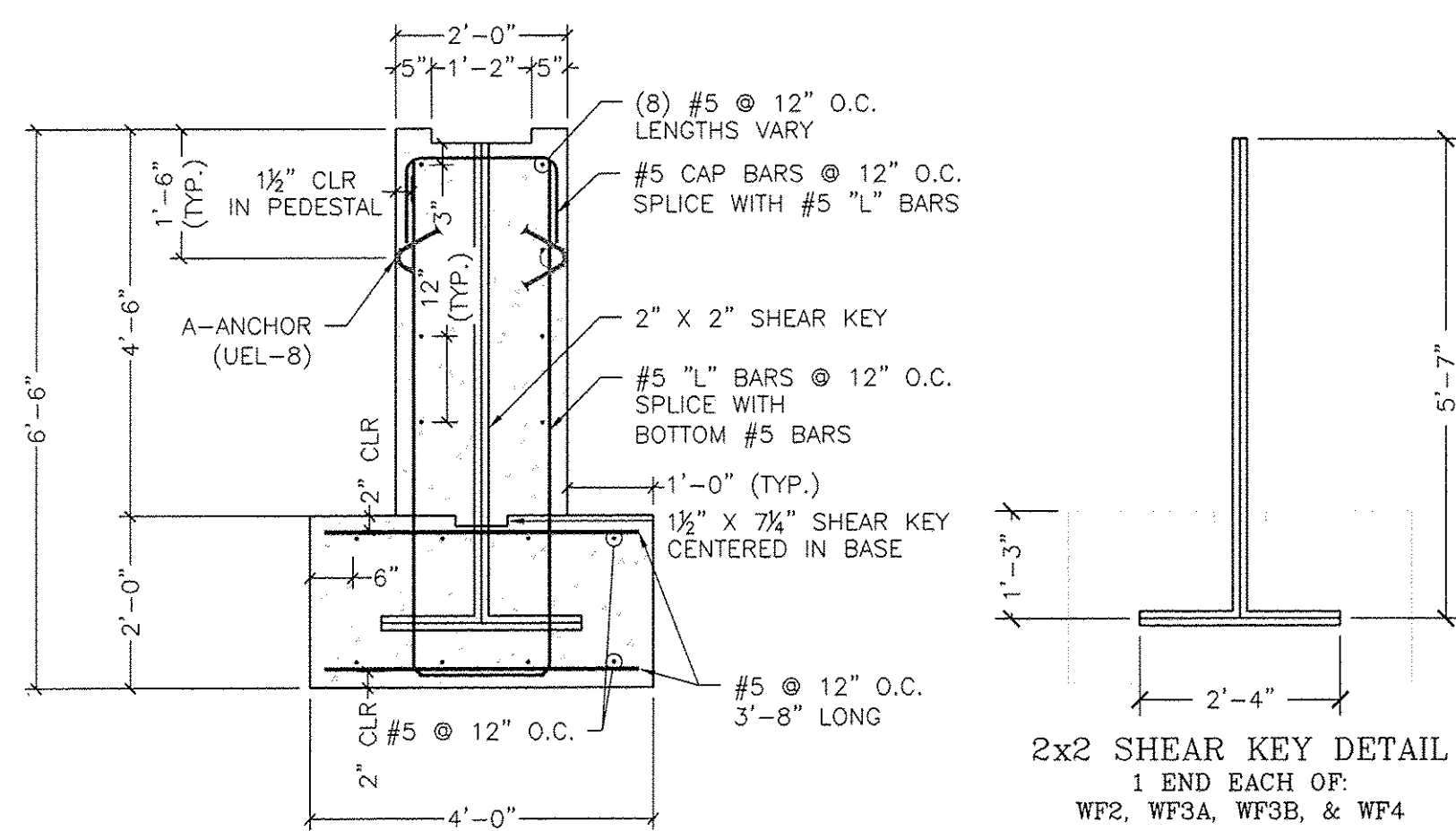
25' Span x 6'-6" Rise Rigid Frame Bridge
Rte 100 Bridge Replacement
Ludlow, VT

Prepared for:
Miller Construction, Inc.
P.O. Box 86 Rte 5
Windsor, VT 05087

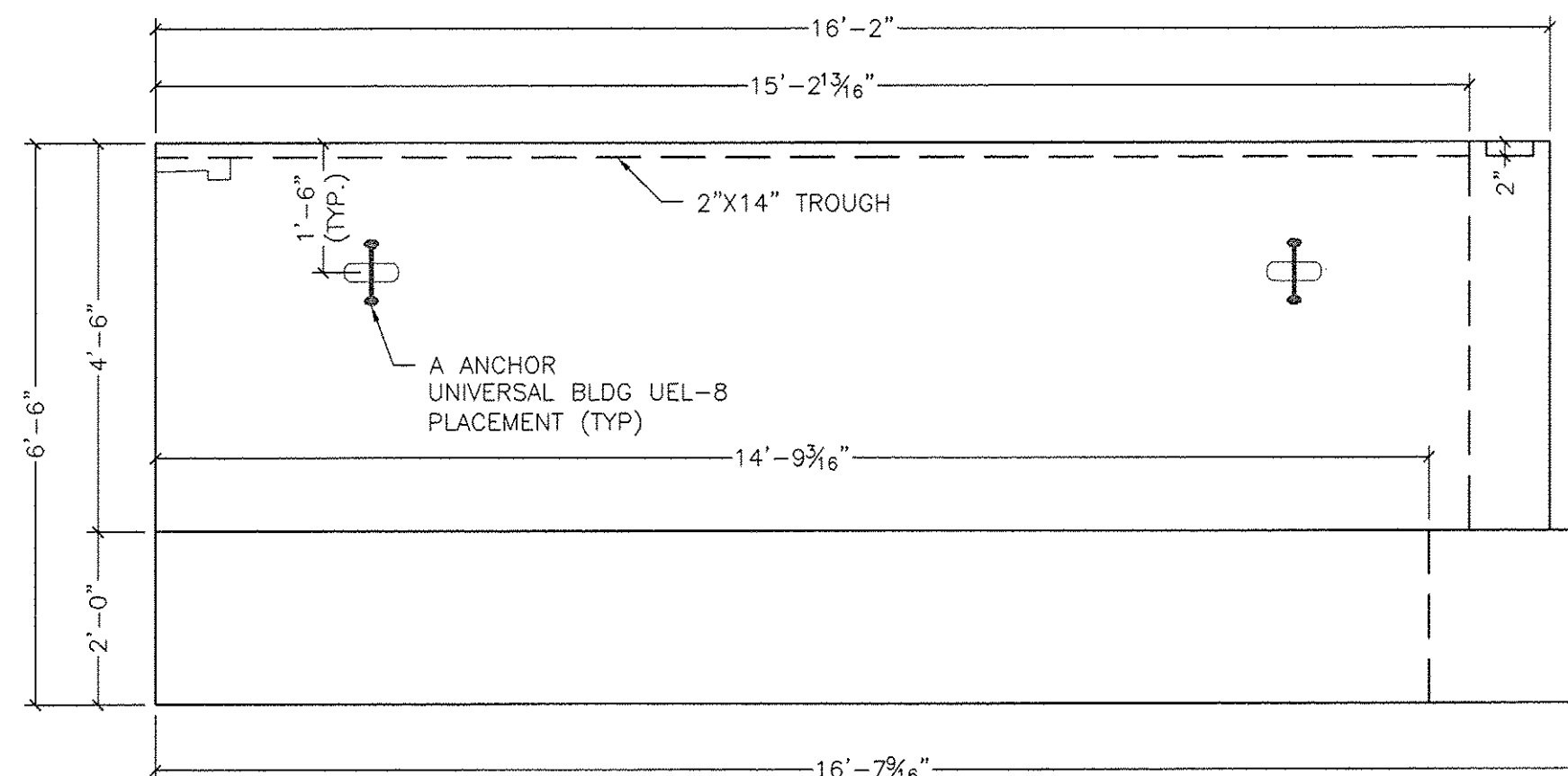
DWG NO.
S6.0

Project No. 5166 Wingwall Footings WWF1, WWF2 & WWF4 Scale: AS SHOWN
Date: 2/19/2009 Drawn by: FDH Checked by: TAF

Revision
04/25/2009
Date
TAF
By



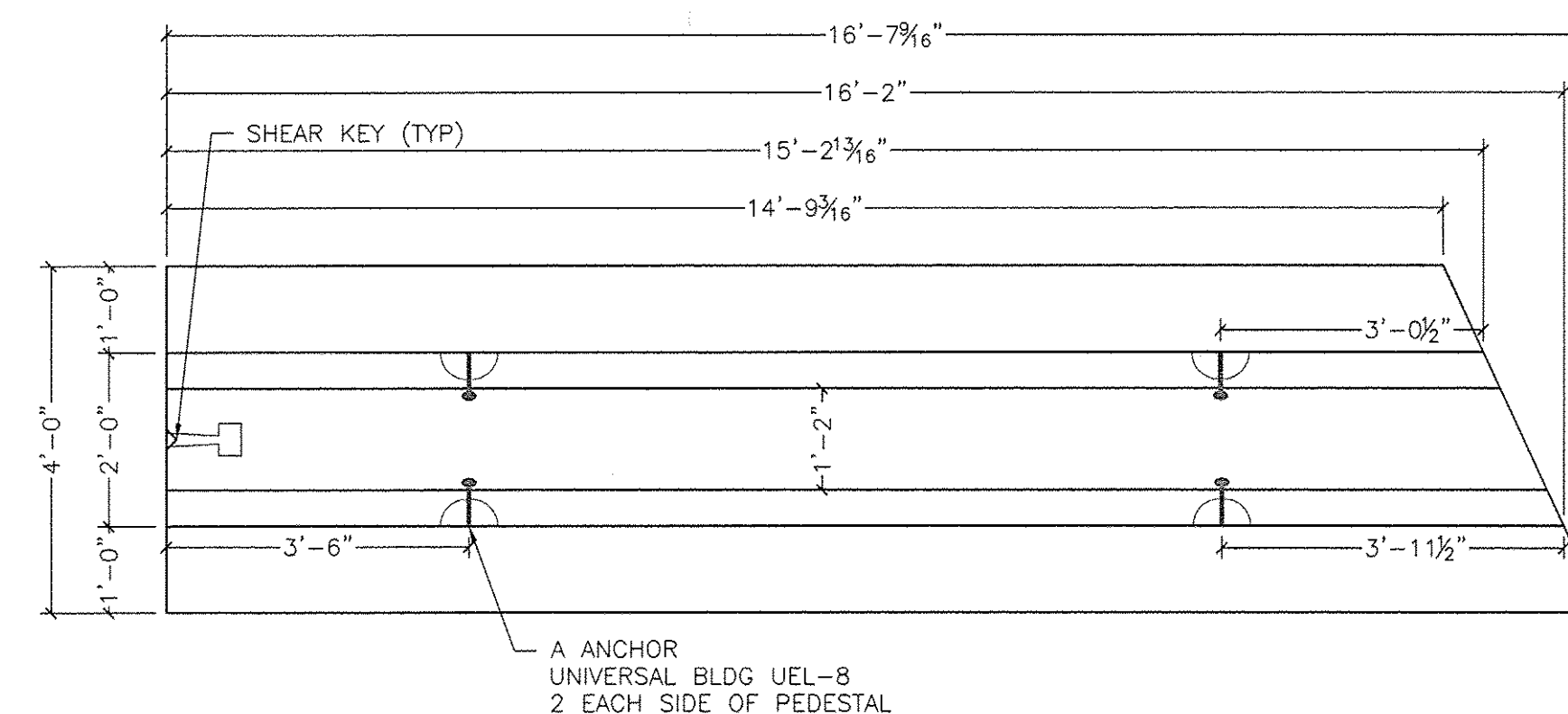
1 WINGWALL FOOTING CROSS SECTION
S7.0 1/2" = 1'-0"



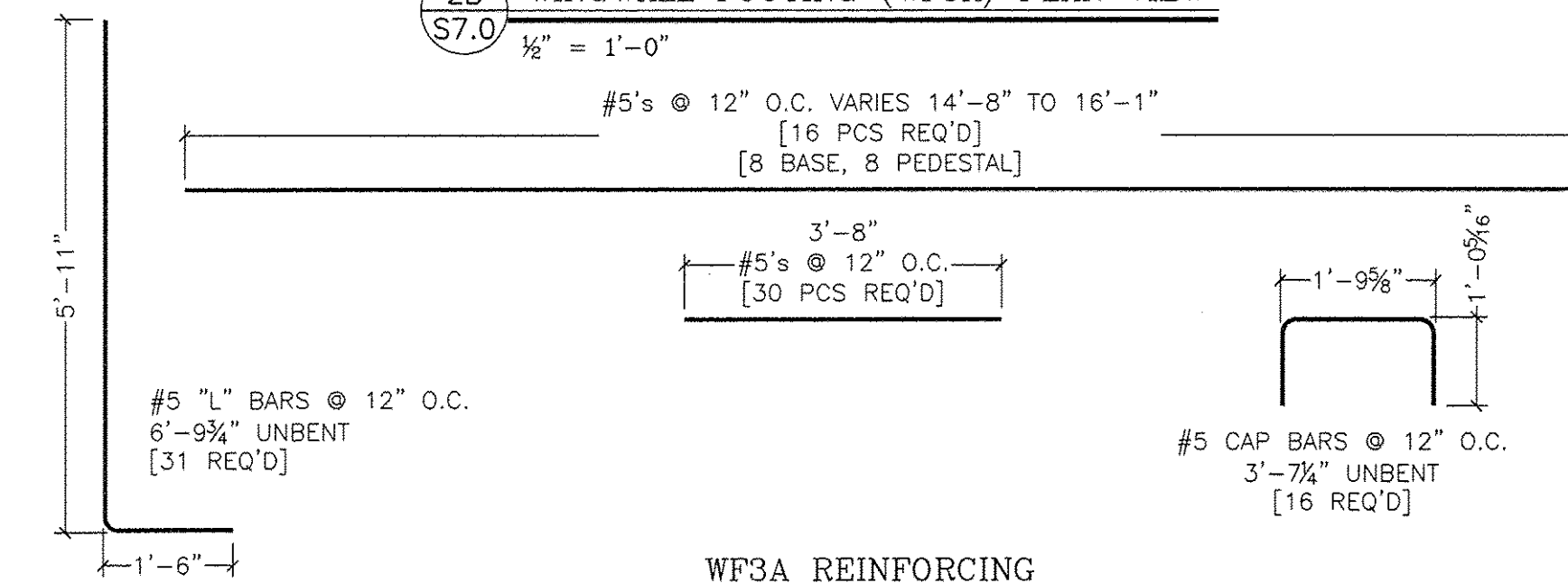
2A WINGWALL FOOTING (WF3A) ELEVATION
S7.0 1/2" = 1'-0"

TYPE "WF3A"-1 REQ'D

BASE- 4.65 CY
PEDESTAL- 5.23 CY
WEIGHT: 41,500#



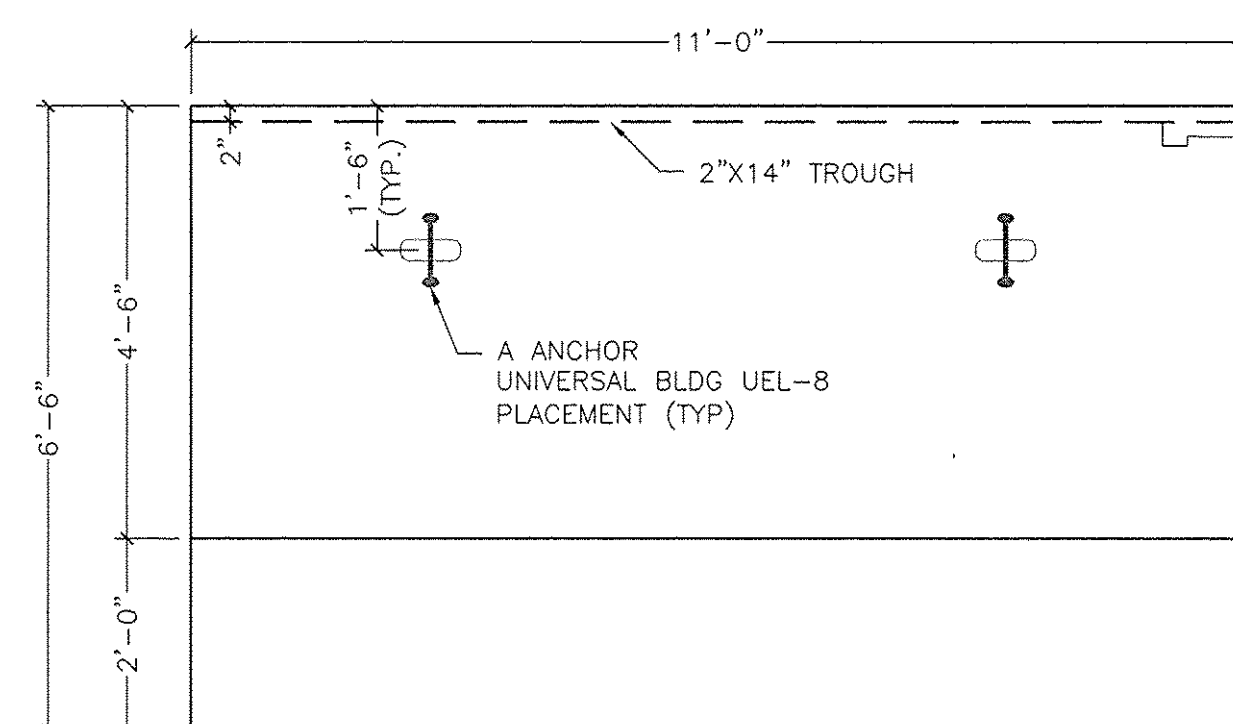
2B WINGWALL FOOTING (WF3A) PLAN VIEW
S7.0 1/2" = 1'-0"



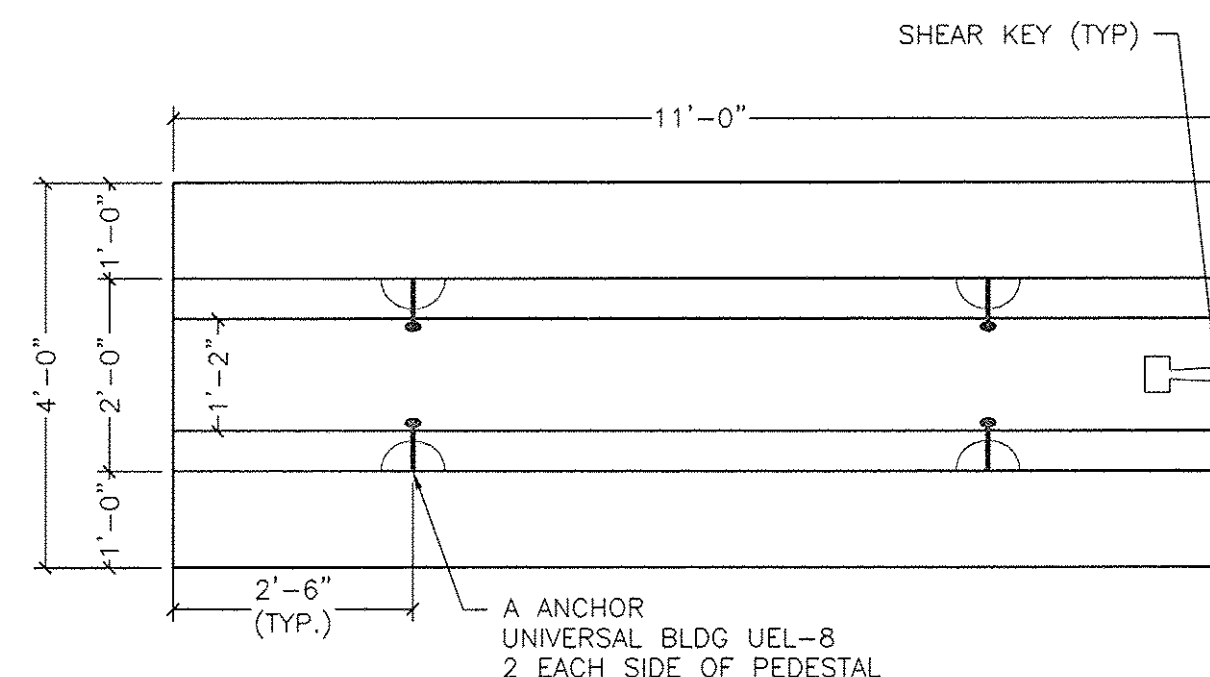
WF3A REINFORCING

TYPE "WF3B"-1 REQ'D

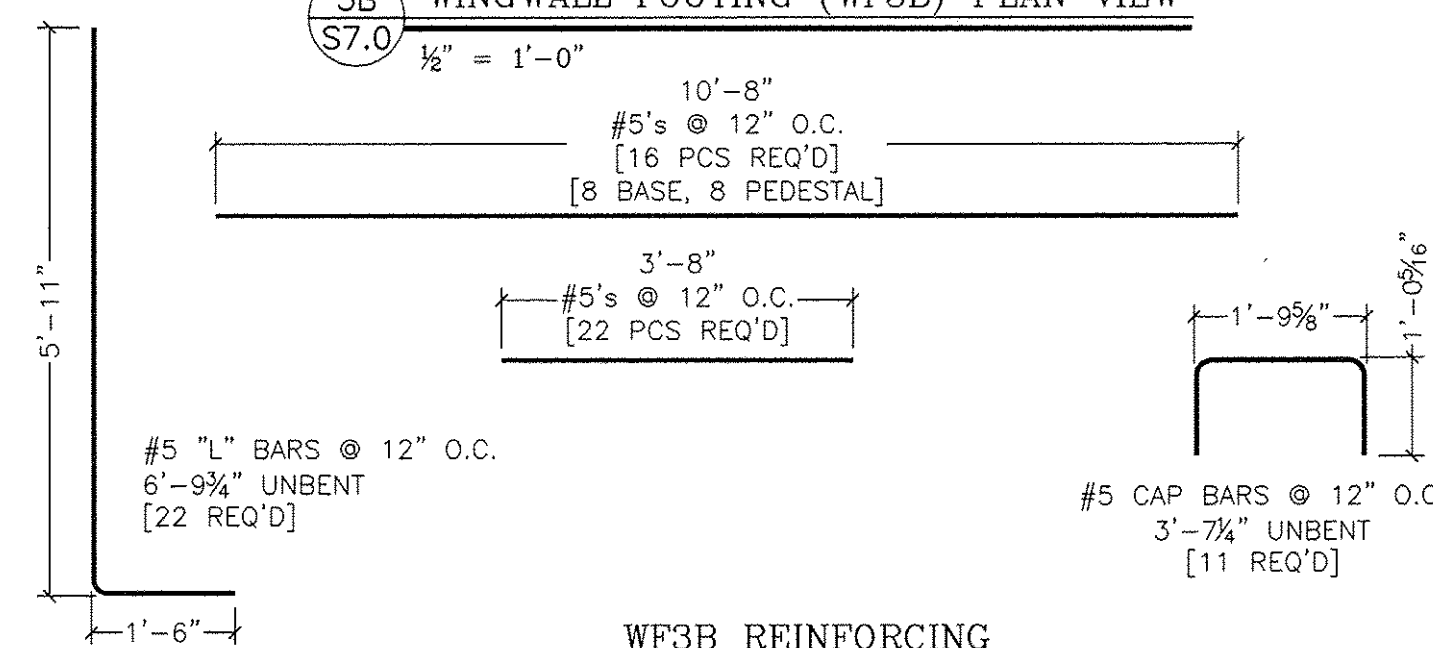
BASE- 2.41 CY
PEDESTAL- 3.62 CY
WEIGHT: 25,325#



3A WINGWALL FOOTING (WF3B) ELEVATION
S7.0 1/2" = 1'-0"



3B WINGWALL FOOTING (WF3B) PLAN VIEW
S7.0 1/2" = 1'-0"



WF3B REINFORCING

25' Span x 6'-6" Rise Rigid Frame Bridge
Rte 100 Bridge Replacement
Ludlow, VT

Prepared for:
Miller Construction, Inc.
P.O. Box 86 Rte 5
Windsor, VT 05087

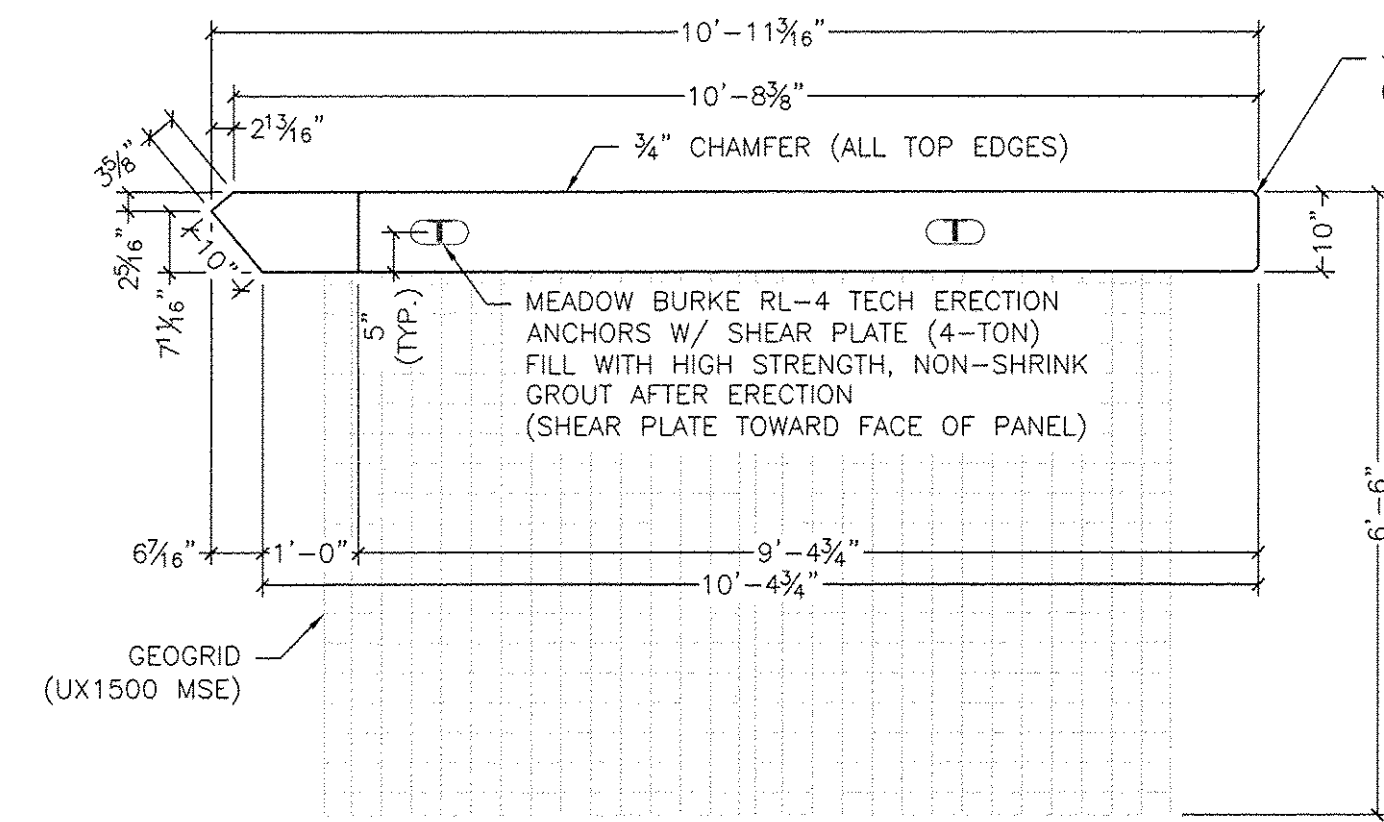
Project No. 5166 Wingwall Footings WWF3A, WWF3B
Date: 2/19/2009
Designed by: TL
Drawn by: FDH
Scale: AS SHOWN
Checked by: TAF

WHITE MOUNTAIN PRECAST, LLC
173 BUXTON INDUSTRIAL DRIVE-PO BOX 870
HENNIKER, NH 03242
PHONE: 603-428-3218
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REVISIONS
Date
By
TAF

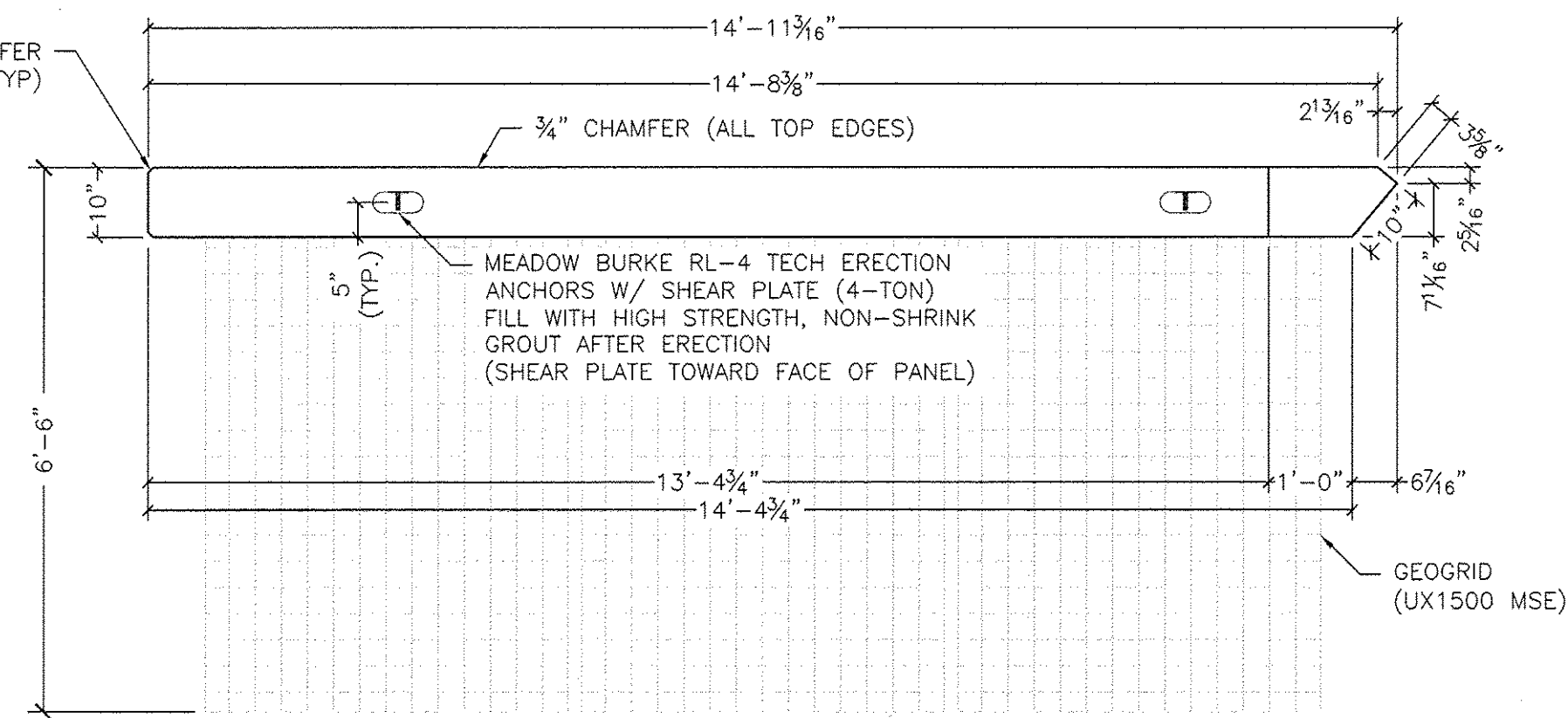
RECEIVED
OK'D BY: JSS OK'D BY: RSC
MAY 9 1 2009
RESUBMIT APPROVED
BY: CPW DATE: 5/12/09

DWG. NO.
S7.0



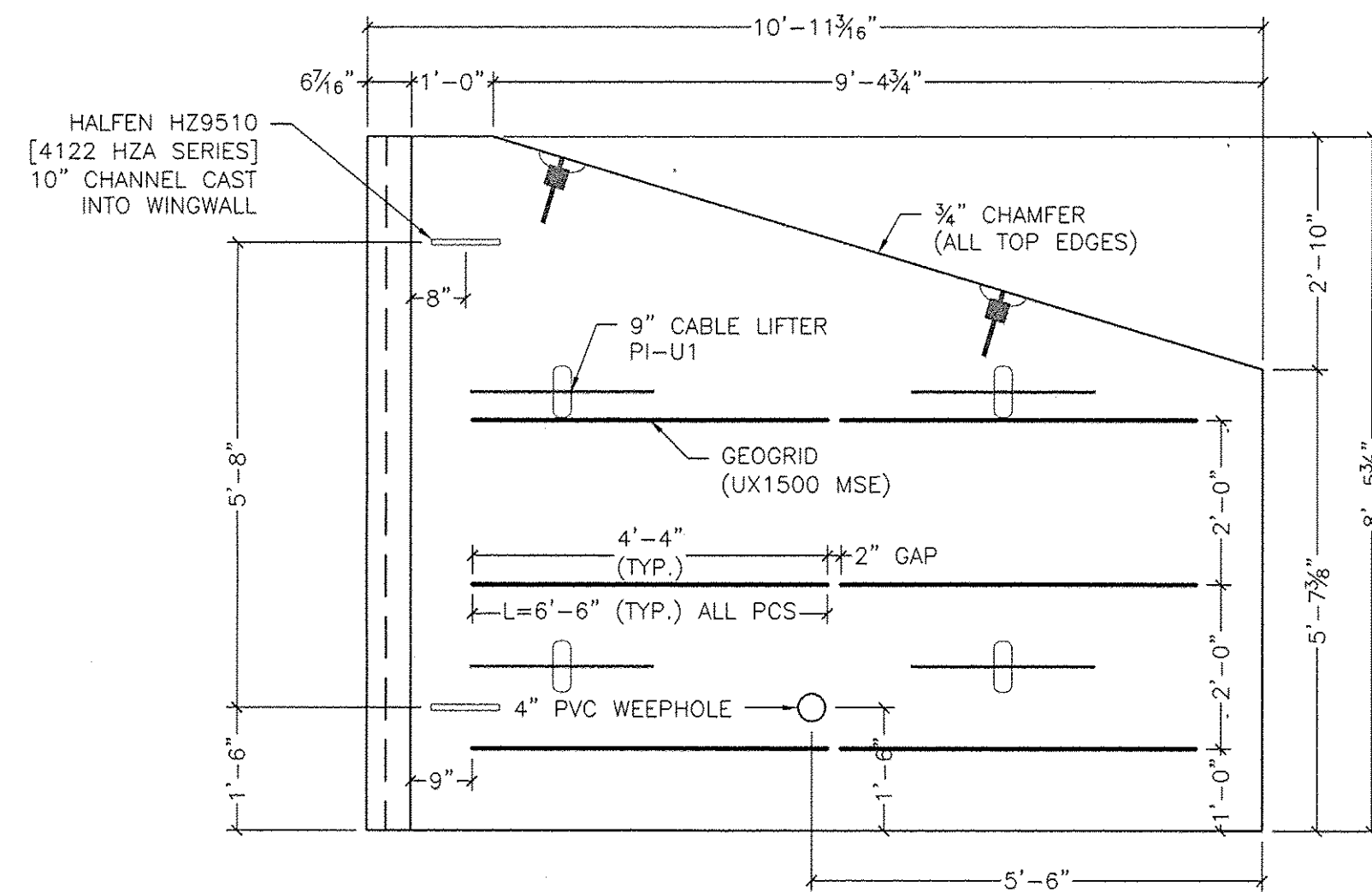
1 WW1 PLAN VIEW
S8.0 1/2" = 1'-0"

WW1 1 REQ'D
10,250# (2.44CY)

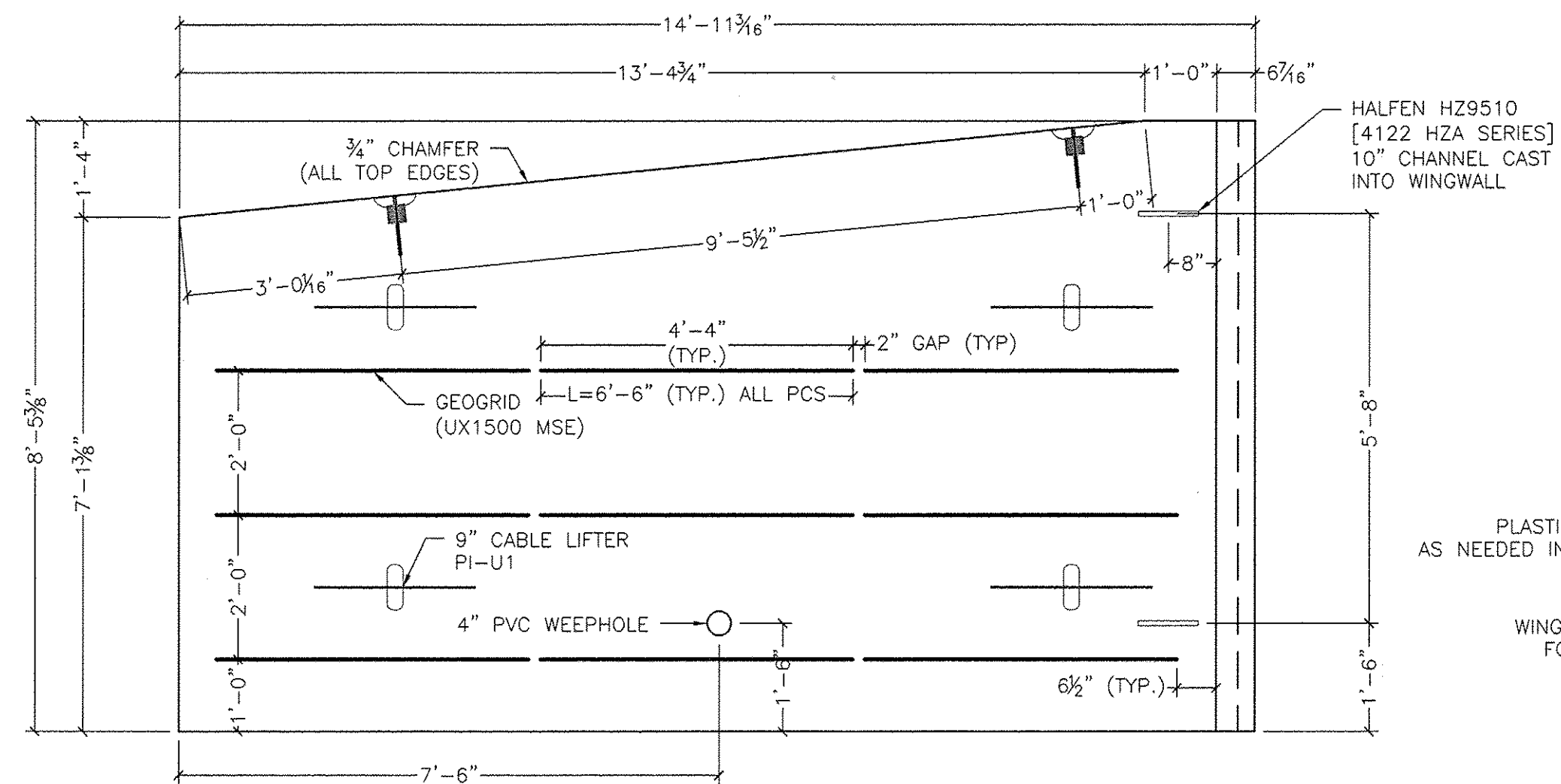


2 WW2 PLAN VIEW
S8.0 1/2" = 1'-0"

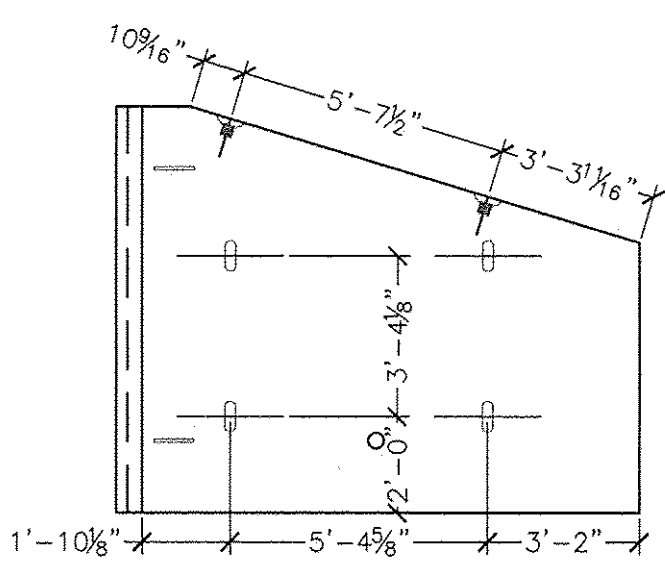
WW2 1 REQ'D
15,200# (3.62CY)



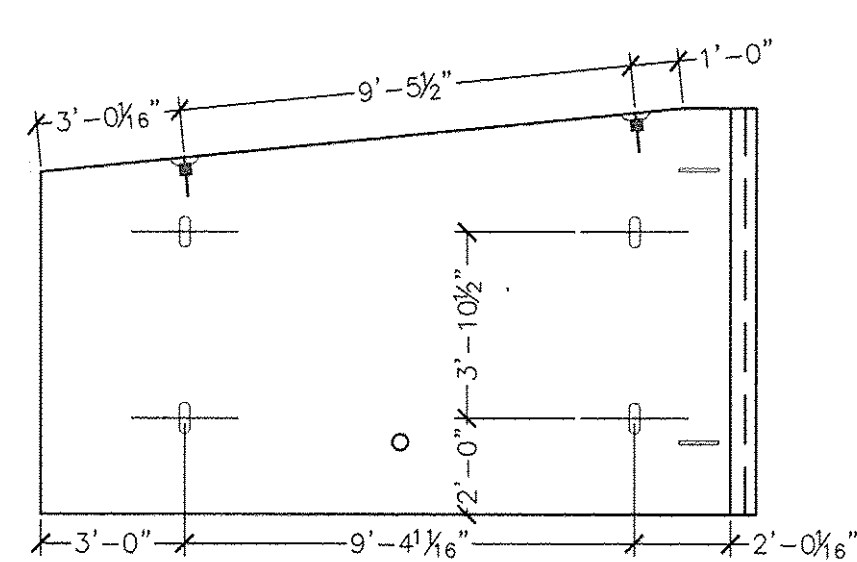
3 WW1 ELEVATION VIEW (LOOKING AT BACK)
S8.0 1/2" = 1'-0"



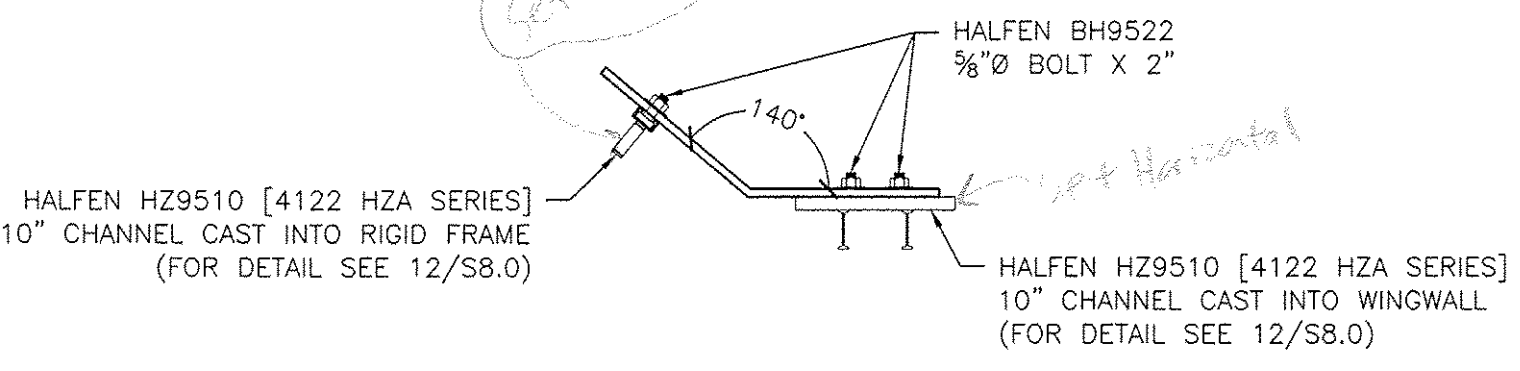
4 WW2 ELEVATION VIEW (LOOKING AT BACK)
S8.0 1/2" = 1'-0"



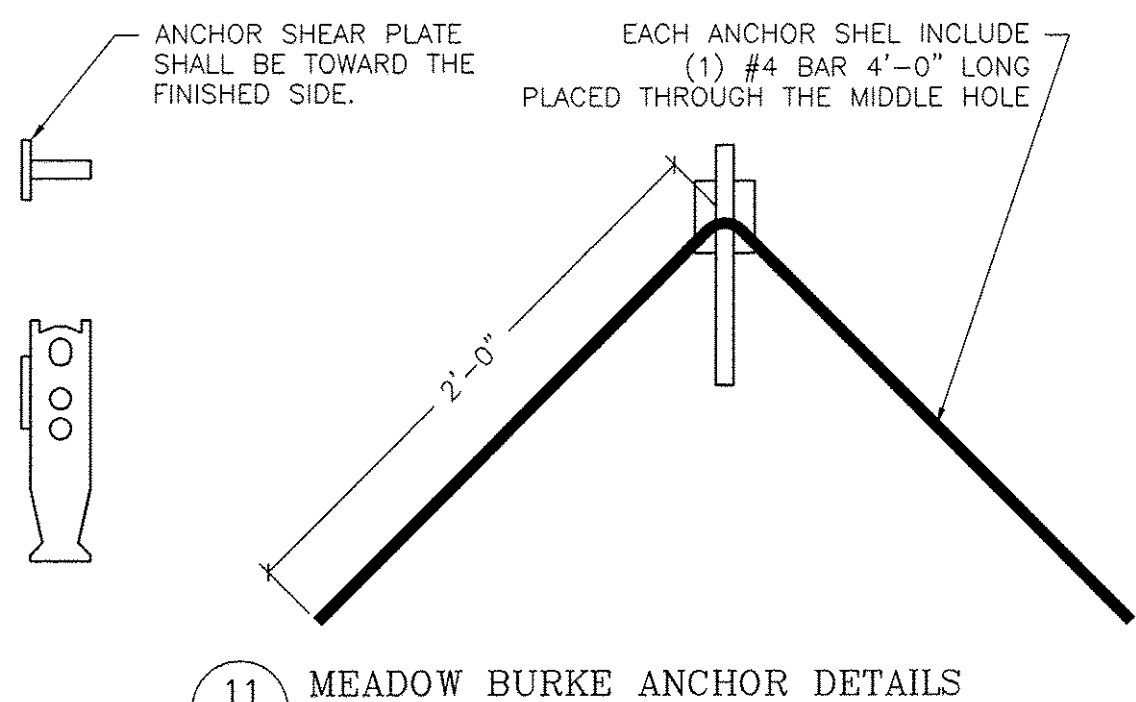
5 WW1 LIFTER LAYOUT (LOOKING AT BACK)
S8.0 1/2" = 1'-0"



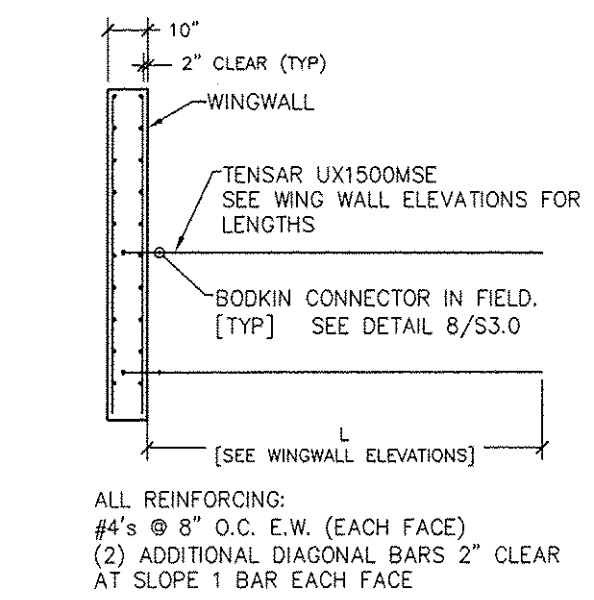
6 WW2 LIFTER LAYOUT (LOOKING AT BACK)
S8.0 1/2" = 1'-0"



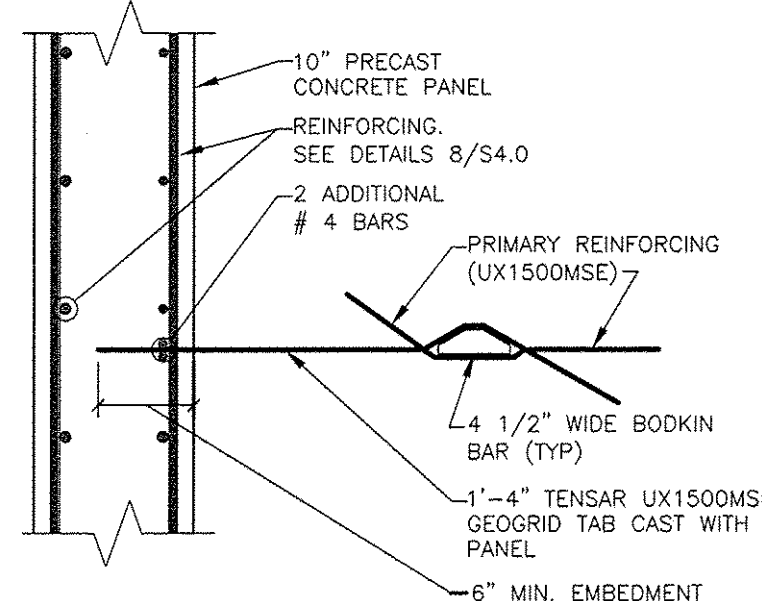
7 WINGWALL BRACKET DETAIL
S8.0 1" = 1'-0"



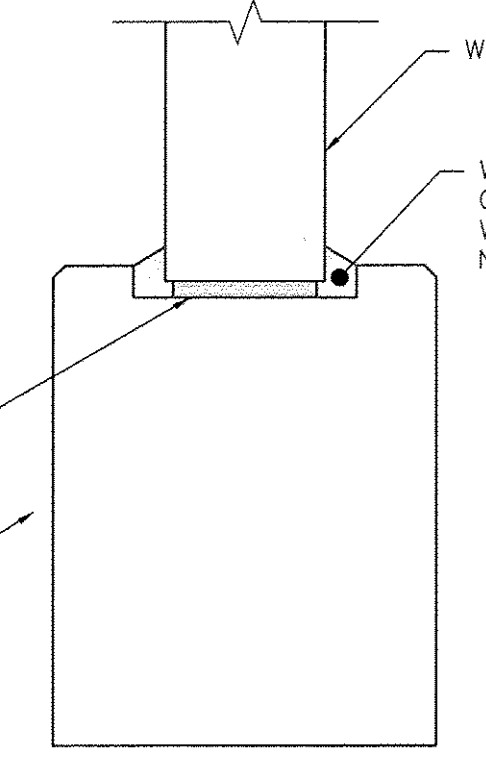
11 MEADOW BURKE ANCHOR DETAILS
S8.0 1/2" = 1'



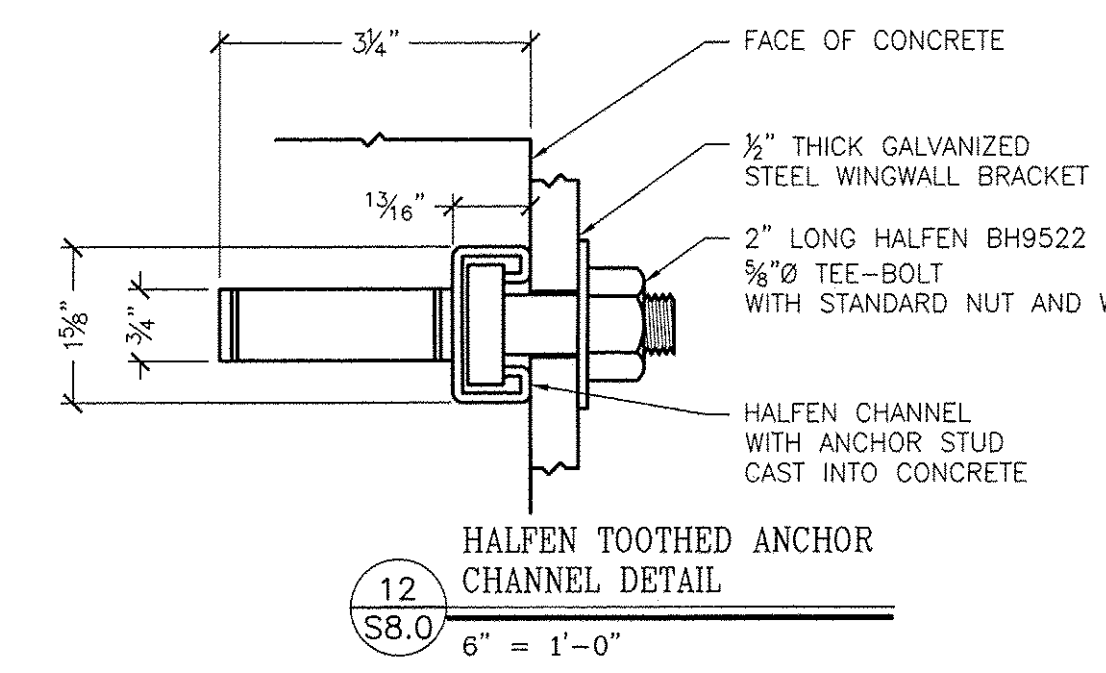
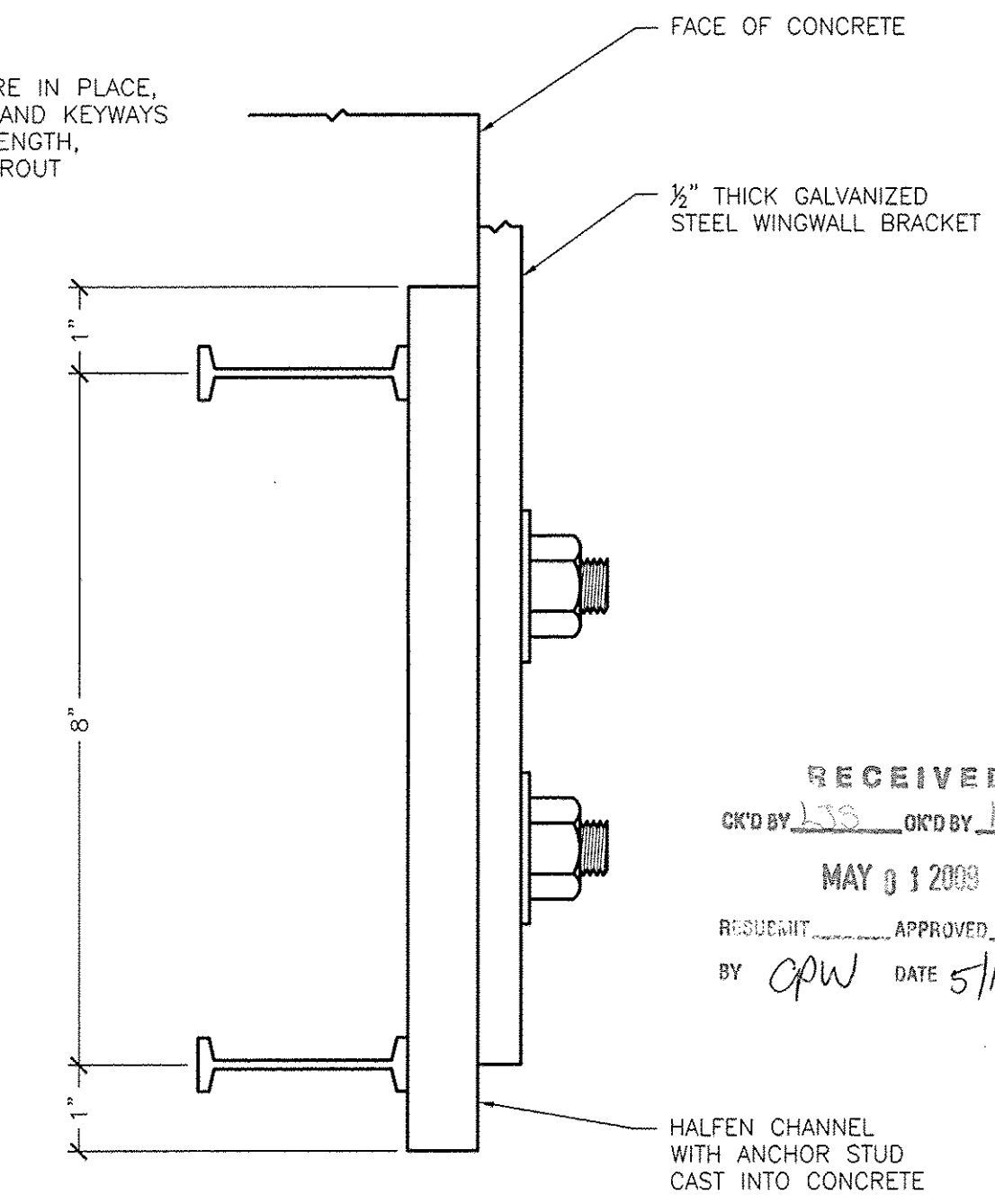
8 TYPICAL WINGWALL PANEL SECTION
S8.0 1/4" = 1'



9 BODKIN CONNECTION DETAIL
S8.0 1" = 1'-0"



10 FOOTING TO WW ATTACHMENT DETAIL
S8.0 1" = 1'-0"



12 HALFEN TOOTHED ANCHOR CHANNEL DETAIL
S8.0 6" = 1'-0"

PANEL WING WALL NOTES:

1. PANEL WING WALLS ARE DESIGNED IN ACCORDANCE WITH AASHTO "LRFD BRIDGE DESIGN SPECIFICATIONS", 4TH EDITION AND "MSE EARTH WALLS AND REINFORCED SOIL SLOPES DESIGN & CONSTRUCTION GUIDELINES" FHWA-NHI-00-043, MARCH 2001.
2. PANEL WING WALLS ARE DESIGNED FOR NO LIVE LOAD SURCHARGE (PER AASHTO) AND BACKFILL MATERIAL IS ASSUMED TO HAVE A MINIMUM INTERNAL FRICTION ANGLE OF 34 DEGREES AT 140 PCF.
3. PANEL WALLS SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 5,000 POUNDS PER SQUARE INCH (P.S.I.). THE CONCRETE SHALL BE SELF CONSOLIDATING CONCRETE.
4. THE PROCEDURE FOR BACKFILLING THE WING WALLS SHALL BE AS FOLLOWS:
 - a) BACKFILL AND COMPACT PER NOTE 5 UP TO THE BOTTOM OF THE FIRST GEOGRID LAYER.
 - b) USING BODKIN BARS, CONNECT THE REQUIRED LENGTH OF GEOGRID TO THE WING PANEL.
 - c) PULL GEOGRID AWAY FROM PANEL UNTIL IT IS TAUGHT AND STAKE INTO THE GROUND IN TO MAINTAIN TENSION IN THE GEOGRID.
 - d) PLACE BACKFILL ON GEOGRID AT BACK OF PANEL AND FILL AWAY FROM THE PANEL IN A MANNER SO AS TO NOT DISRUPT TENSION IN GEOGRID.
 - e) COMPACT BACKFILL AT BACK OF PANEL FIRST AND WORK AWAY FROM PANEL. THIS SHALL BE DONE IN LIFTS AS SPECIFIED IN NOTE 5.
 - f) REPEAT PROCEDURE FOR EACH LAYER OF GEOGRID.
5. ALL BACKFILL SHALL COMPLY WITH VAOT STANDARD SPECIFICATIONS, ITEM 204, GRANULAR BACKFILL FOR STRUCTURES. THE BACKFILL SHALL BE PLACED PER VAOT SPECIFICATIONS. BEGIN LIFTS AT PANEL FACE AND WORK AWAY FROM WALL TO MAINTAIN TENSION ON GEOGRID. BACKFILL SHALL EXTEND 2'-0" MINIMUM BEYOND THE LIMITS OF THE GEOGRID.
6. ALL EXPOSED EDGES EXCEPT WHERE NOTED SHALL BE CHAMFERED 3/4". ALL EXPOSED SURFACES SHALL BE TREATED WITH SILANE-SILOXANE TO 1'-0" BELOW FINISHED GRADE.
7. TENSAR UX1500MSE SHALL BE CAST INTO WALLS AS SHOWN WITH THE STRONG DIRECTION PERPENDICULAR TO THE WALL FACE.
8. THE CONTRACTOR SHALL MAKE THE NECESSARY ARRANGEMENT WITH THE WALL SUPPLIER TO HAVE A TECHNICAL REPRESENTATIVE ON THE PROJECT TO ASSIST WITH INITIAL PLACEMENT OF THE MSE WALL. THE TECHNICAL REPRESENTATIVE SHALL ALSO BE REQUIRED TO BE ON-SITE ANY TIME DURING WALL INSTALLATION AS REQUESTED BY THE RESIDENT ENGINEER. THE REPRESENTATIVE SHALL BE AVAILABLE FOR AT LEAST 20 WORKDAYS.

WHITE MOUNTAIN PRECAST, LLC
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PHONE: 603-428-3218
FAX: 603-428-7428

Scale: AS SHOWN
Checked by: TAF
Drawn by: PDH
Project No. 5166
Date: 01/18/2009

25' Span x 6'-6" Rise Rigid Frame Bridge
Rte 100 Bridge Replacement
Ludlow, VT

Prepared for:
Miller Construction, Inc.
P.O. Box 86 Rte 5
Windsor, VT 05087

Wingwalls WW1 & WW2
DWG NO.
S8.0

