

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

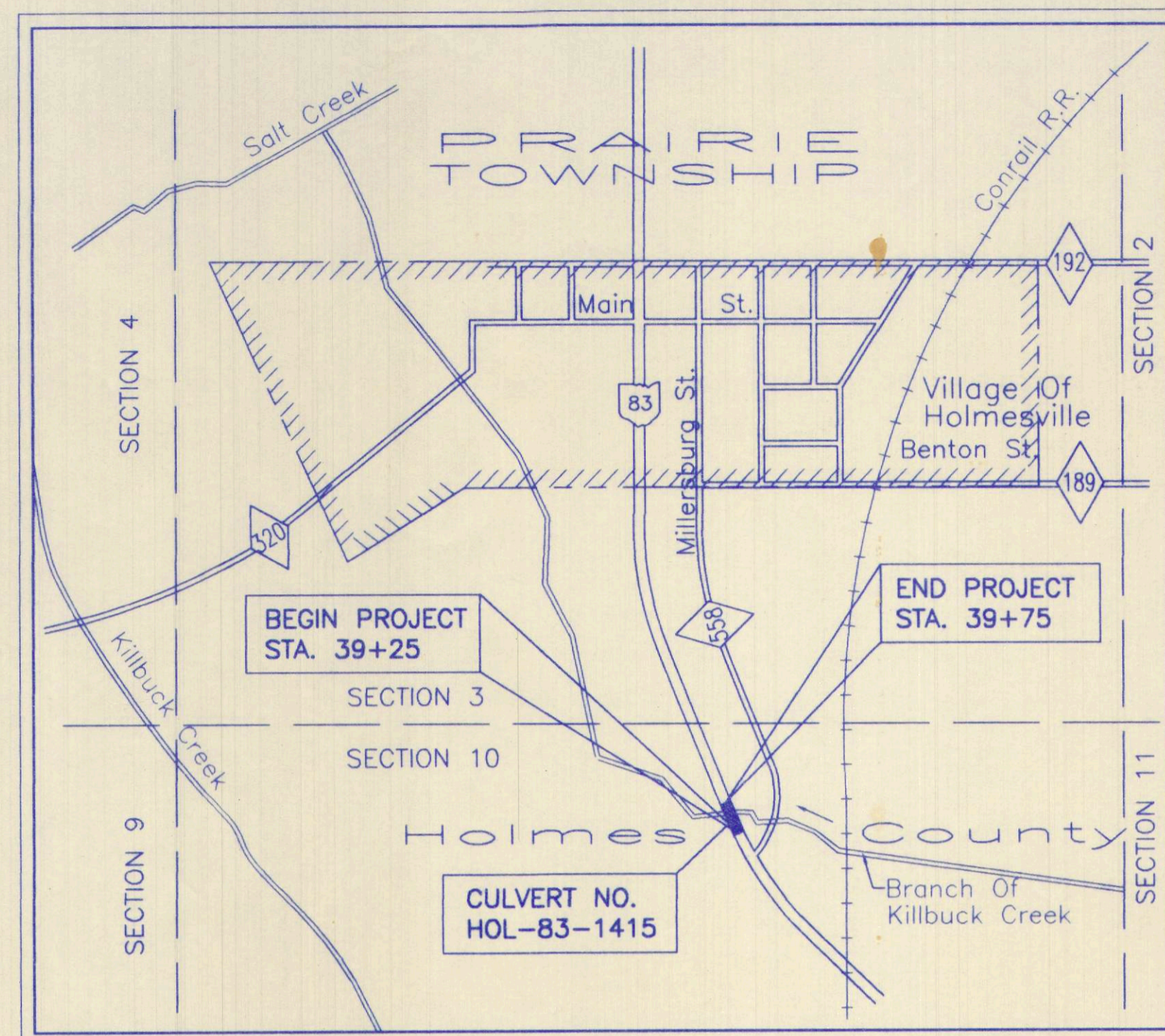
HOL-83-14.15

PRAIRIE TOWNSHIP HOLMES COUNTY

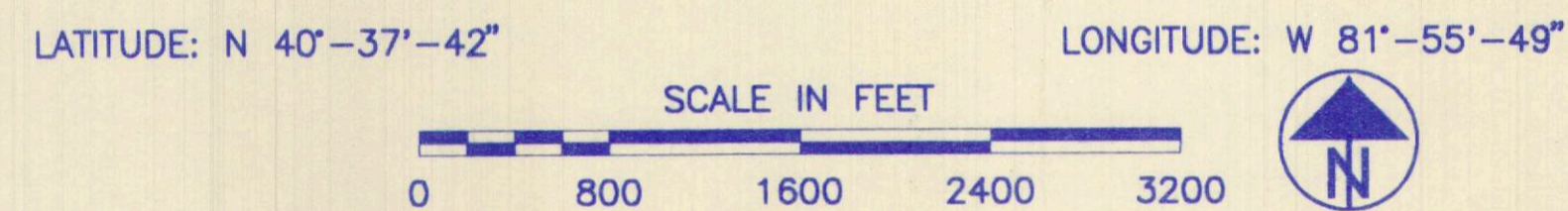
PROJECT DESCRIPTION:

Replacement of the existing culvert HOL-83-1415 over a branch of the Killbuck Creek located in Prairie Township, Holmes County, Ohio.

Project length is approximately 0.01 miles.



LOCATION MAP



Portion to be improved	-----	
State & Federal	-----	
Other Roads	-----	
Detour Route	-----	

DESIGN DESIGNATION

Current ADT (1994)	-----	= 7080
Design Year ADT (2014)	-----	= 11330
Design Hourly Volume (2014)	-----	= 1133
Directional Distribution	-----	= 55%
Trucks (24 Hour B&C)	-----	= 6%
Design Speed	-----	= 55 mph
Legal Speed	-----	= 55 mph
Design Functional Classification: Rural Arterial		

DESIGN EXCEPTIONS

Design Feature	Approval Date	Sheet No.
None		

UNDERGROUND UTILITIES

TWO WORKING DAYS

BEFORE YOU DIG

Call **1-800-362-2764** (Toll Free)

OHIO UTILITIES PROTECTION SERVICE

NON-MEMBERS
MUST BE CALLED DIRECTLY

Plans Prepared By:
G & T Associates Inc.
Consulting Engineers
11925 Pearl Road, Suite 401
Strongsville, Ohio 44136

INDEX OF SHEETS

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Drainage Details	_____	10-11

1993 SPECIFICATIONS

The standard specifications of the State of Ohio, Department of Transportation, including changes and supplemental specifications listed in the proposal shall govern this improvement.

I hereby approve these plans and declare that the making of this improvement will require the closing to traffic of the highway and that detours will be provided as indicated on sheet 9.

STANDARD CONSTRUCTION DRAWINGS

STD. DWG.	DATE	STD. DWG.	DATE	SUPPLEMENTAL SPECIFICATIONS	
BP-3.1	2/21/92			802	4/13/90
GR-1.1	5/6/91	MT-101.6	7/1/92		
GR-2.1	5/6/91				
MC-4	7/26/78				
MC-11	8/11/78				

APPROVED: _____
DATE: _____ District Deputy Director

APPROVED: _____
DATE: _____ Engineer, Bureau of Bridges and Structural Design

APPROVED: _____
DATE: _____ Deputy Director, Division of Design

APPROVED: _____
DATE: _____ Director, Department of Transportation

FEDERAL PROJECT NO. **NON-FEDERAL**

PID NO. **11606**

CONSTRUCTION PROJECT NO.

RAILROAD INVOLVEMENT **NONE**

HOL-83-14.15

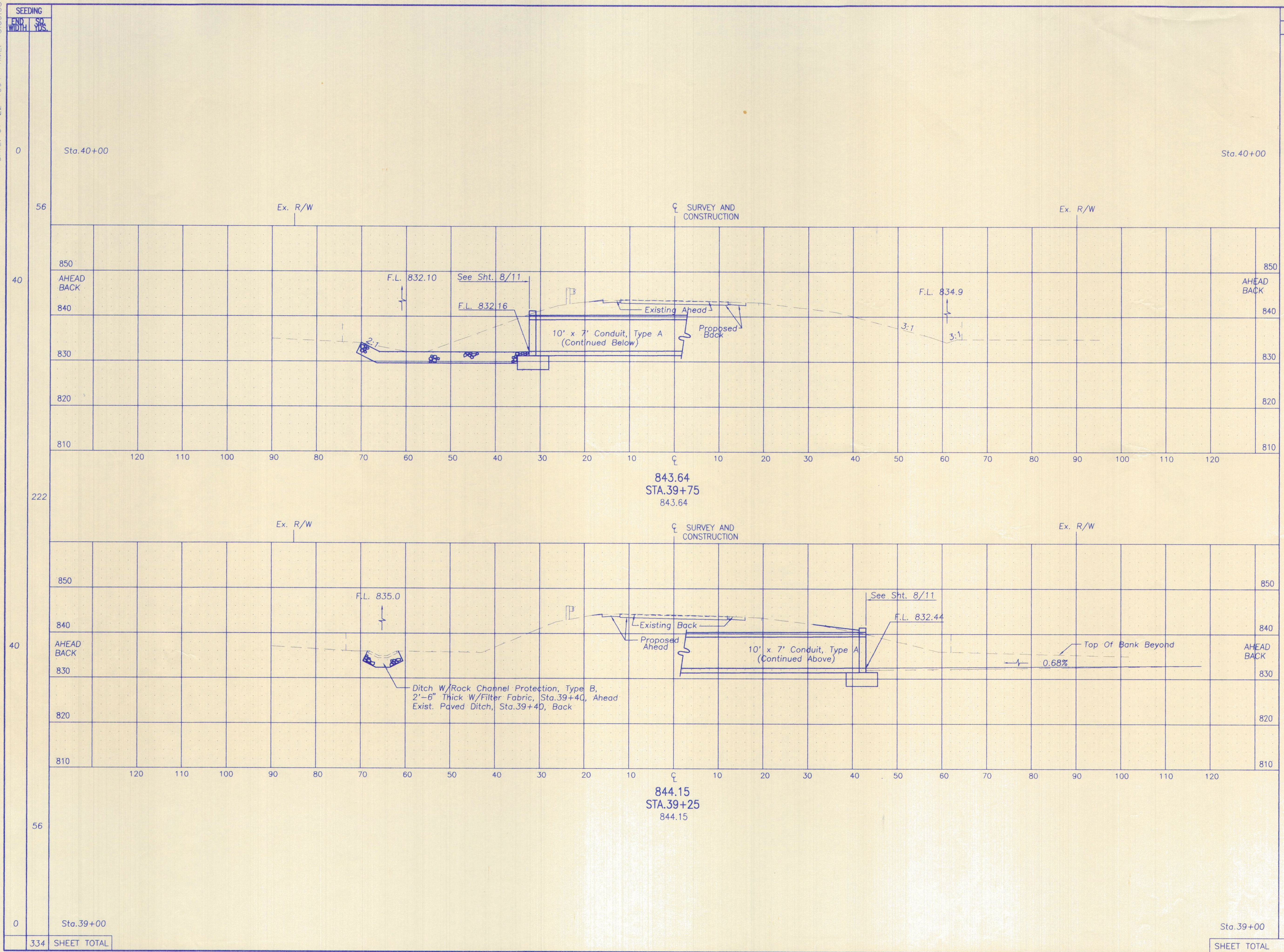
DATE: 07-25-1994 TIME: 12:12:54

11606ST.DWG. PLOT SCALE: 1"=1'

F&OC SUBMITTAL 7/25/94

DATE: 07-22-1994 TIME: 15:39:38

- 1
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- 50



END AREA	VOLUME		CALCULATED LAR	CHECKED DS
	CUT	FILL		
0	0	0		
0	0	1		
0	41	1		
76	0	4		
41	0	3		
0	0	1		
0	0	0		
76	0	6		

CROSS SECTIONS
STA.39+25 TO STA.39+75

HOL-83-14.15

7
11

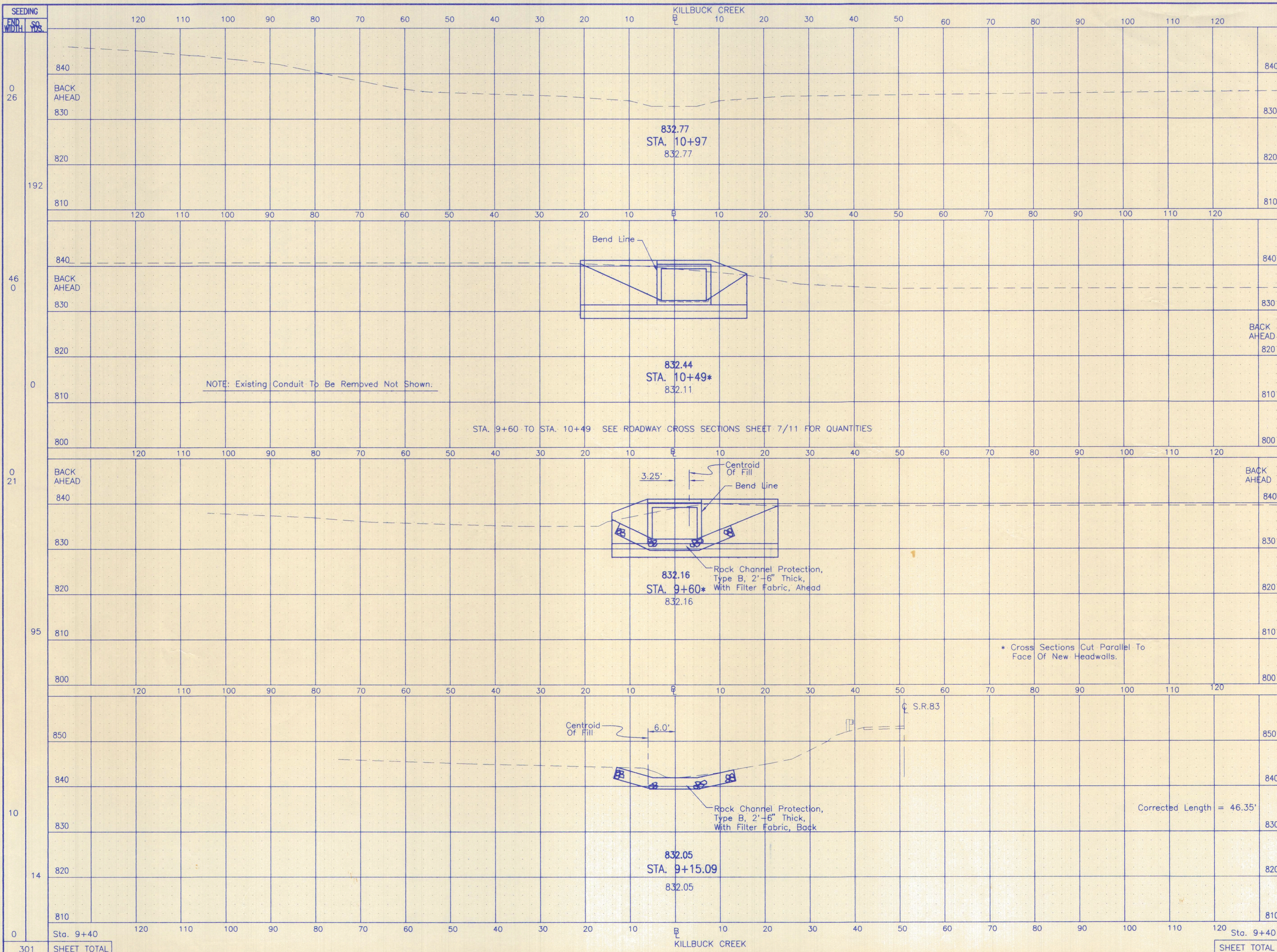
334 SHEET TOTAL

SHEET TOTAL

116065A.DWG, PLOT SCALE: 1=1

DATE: 07-22-1994 TIME: 15:44:02

HOLXC.DWG, PLOT SCALE: 1=1



END AREA		VOLUME	
CUT	FILL	CUT	FILL
0	0		
139	4		
156	4		
0	0		
159	0		
144	0		
9	0		
4	0		
0	0		
287	4		

CALCULATED LAR CHECKED DS

CREEK SECTIONS, KILLBUCK CREEK
STA. 9+15.09 TO STA. 10+97

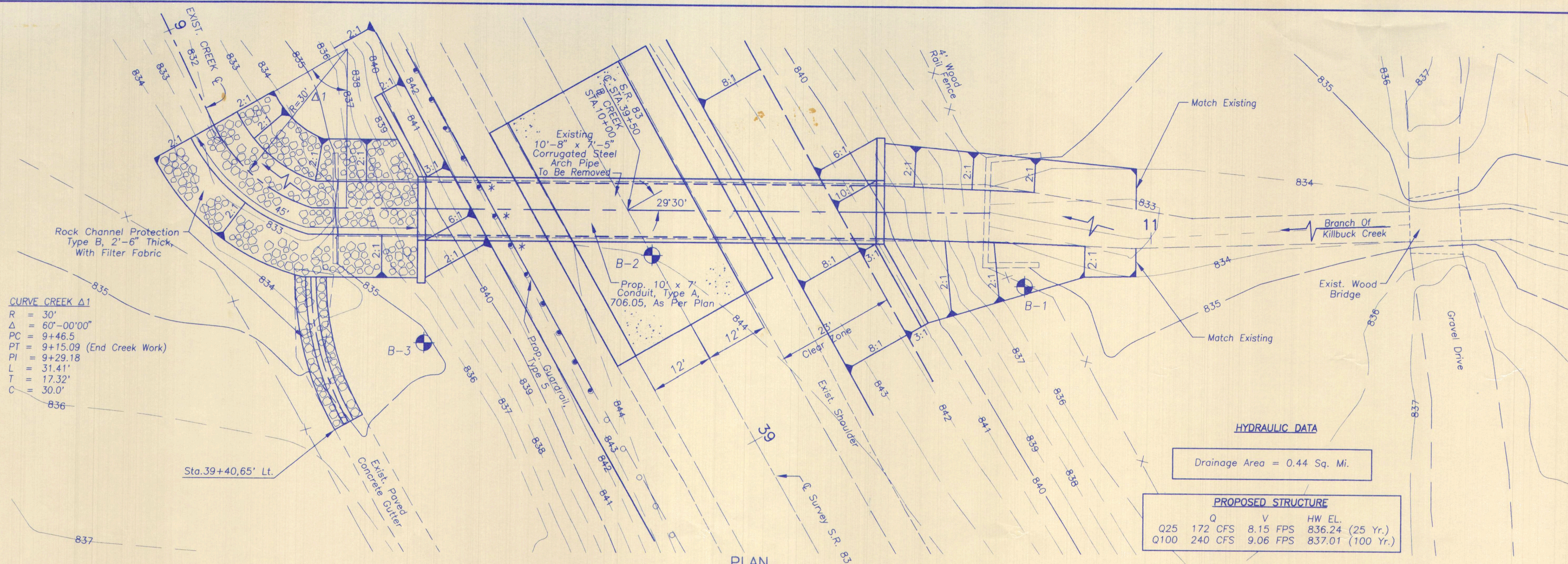
HOL-83-14.15

8
11

301 SHEET TOTAL

SHEET TOTAL

KILLBUCK CREEK

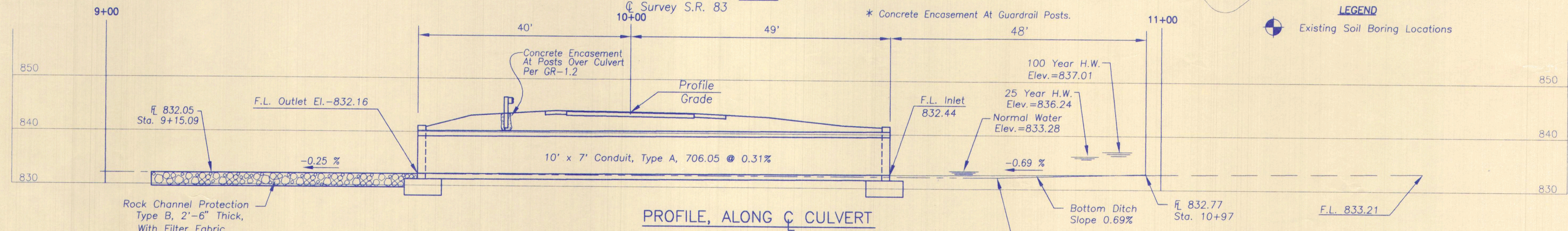


CURVE CREEK Δ1
 R = 30'
 Δ = 60°-00'00"
 PC = 9+46.5
 PT = 9+15.09 (End Creek Work)
 PI = 9+29.18
 L = 31.41'
 T = 17.32'
 C = 30.0'

HYDRAULIC DATA

Drainage Area = 0.44 Sq. Mi.

PROPOSED STRUCTURE			
	Q	V	HW EL.
Q25	172 CFS	8.15 FPS	836.24 (25 Yr.)
Q100	240 CFS	9.06 FPS	837.01 (100 Yr.)



PROFILE, ALONG CULVERT

CALCULATIONS:

ITEM SPECIAL—MEMBRANE WATERPROOFING, SHEET TYPE 2
 $86' \times (11.67' \text{ Top} + (8.67' \times 2 \text{ Sides}))/9 + 4(1')(8.67')/9 = 281 \text{ S.Y.}$

ITEM 503—UNCLASSIFIED EXCAVATION, AS PER PLAN
 INLET WALLS $[(9' \times 2' \text{ Avg.} \times 9') + (18' \times 2' \text{ Avg.} \times 9')] +$
 OUTLET WALLS $(18' \times 2' \text{ Avg.} \times 9') + (9' \times 2' \text{ Avg.} \times 9') +$
 CULVERT ENDS $(11.67' \times 2' \times 9' \times 2)/27 = 51.6 \text{ C.Y. SAY } 52 \text{ C.Y.}$

ITEM 518—POROUS BACKFILL WITH FILTER FABRIC
 $[(6' \times (0' + 8')/2) + (15.5' \times (0' + 8')/2)] \times$
 $2 \times 2.0'/27 = 12.74 \text{ C.Y. SAY } 13 \text{ C.Y.}$

ITEM 601—ROCK CHANNEL PROTECTION, TYPE B WITH FABRIC FILTER
 $26' \times 45' \times 2.5' / 27 = 108 \text{ C.Y.}$

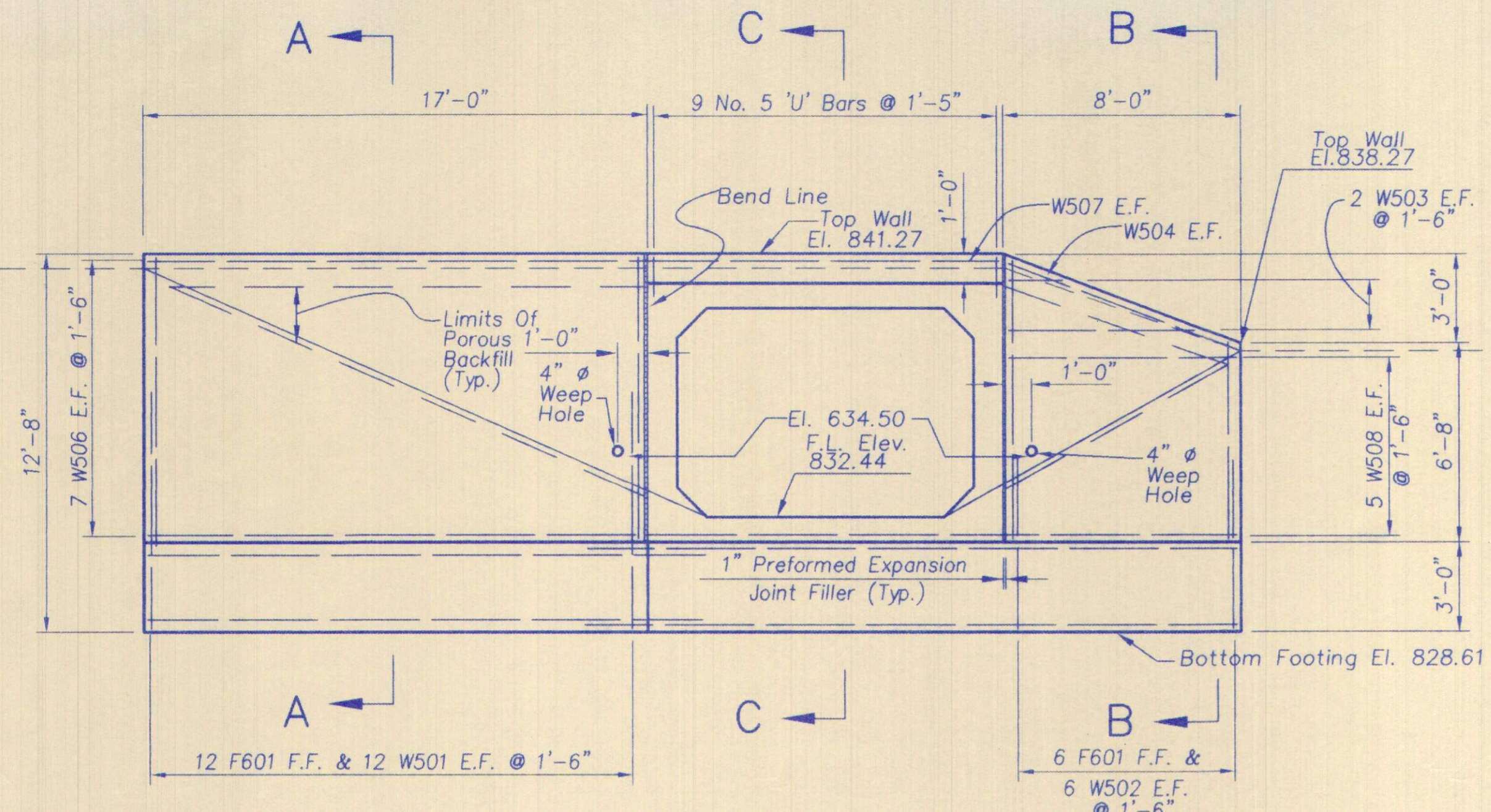
ITEM 602—CONCRETE MASONRY
 FOOTINGS $(2 \times 37.21' \text{ Ave.} \times 3' \times 7')/27 +$ CURBS $(2 + 1.0' \times 1.5' \times$
 $11.67')/27 +$ WALLS $((17' \times 9.67') + (8.0' \times (6.67' + 9.67')/2)) \times 2 \times 1.5'/27$
 $= 84.7 \text{ C.Y. SAY } 85 \text{ C.Y.}$

ITEM SPECIAL—SEALING CONCRETE SURFACES (EPOXY)
 $(((\text{BACK } 0.5' + \text{TOP } 1.5') \times 37.17' \times 2) + (\text{FACE CURB } 11.67' \times 1' \times 2)$
 $+ (\text{FACE WALLS } 2 \times (8' + 17') \times (0 + 9.67')/2))/9 = 46.0 \text{ S.Y. SAY } 46 \text{ S.Y.}$

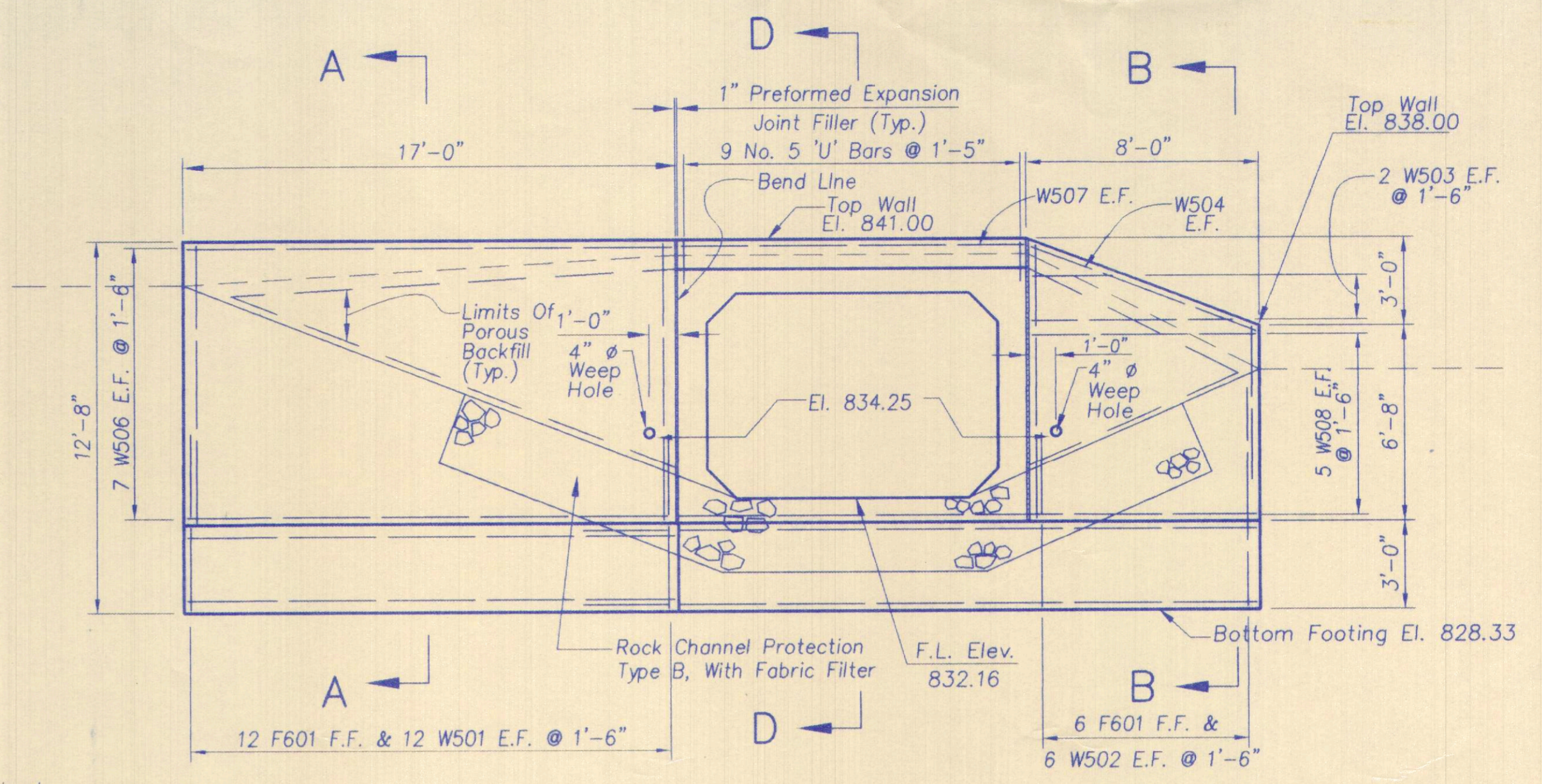
NOTES:

- Concrete above headwall construction joint shall not be placed until box sections are in their final position.
- 1" preformed expansion joint filler is included with Item 602, Concrete Masonry for payment.
- Foundation bearing pressure: Wingwall footings are designed to produce maximum bearing pressure of 1.1 ton per Sq. Ft. The Allowable Bearing Pressure Is 1.5 Ton Per Sq. Ft.
- ITEM SPECIAL, MEMBRANE WATERPROOFING**
 Item Special, Membrane Waterproofing (Sheet Type 2), shall be applied to the top surface of the precast culvert sections and shall extend vertically down the entire sides for all portions of the culvert which shall be in contact with the backfill. Payment for the membrane waterproofing shall be at the contract price bid per square yard for Item Special, Membrane Waterproofing, Sheet Type 2.
- ITEM 603, 10' X 7' CONDUIT, TYPE A, 706.05, AS PER PLAN**
 Joint wrap as specified in 603.06 and concrete sealing as specified in 603.08 are not required under the limits of the membrane waterproofing. The exterior joint gap on the top and sides between the precast culvert sections shall be filled with portland cement mortar prior to installing the membrane waterproofing.
- ITEM 503, UNCLASSIFIED EXCAVATION, AS PER PLAN**
 The foundation for the wingwall footings shall be firm for its full length. Unsuitable material encountered below the plan foundation shall be removed to the depth directed by the Engineer under the wingwall footings to the width of the trench and replaced with compacted Class B bedding material conforming to 603.02 and 603.04, placed over geotextile fabric as shown. Excavation of unsuitable material, replacement with compacted bedding material and geotextile fabric, shall be included in the unit price bid for Item 503, Unclassified Excavation, as per plan.

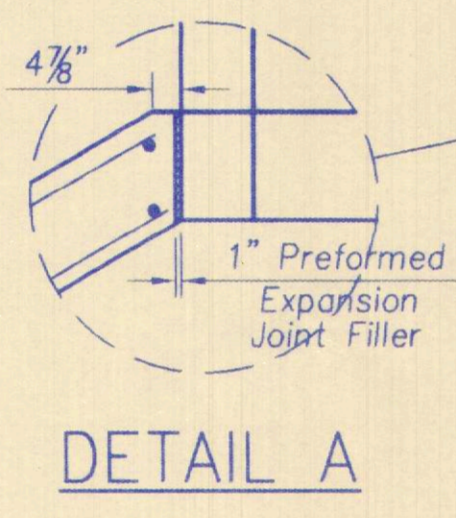
ESTIMATED QUANTITIES (To General Summary)			
Item No	Description	Quantity	Unit
202	Structure Removed	Lump	Lump
Special	Membrane Waterproofing, Sheet Type 2 (See Proposal Note)	281	S.Y.
503	Unclassified Excavation, As Per Plan	52	C.Y.
518	Porous Backfill With Filter Fabric	13	C.Y.
601	Rock Channel Protection, Type B With Fabric Filter	108	C.Y.
602	Concrete Masonry	85	C.Y.
603	10' x 7' Conduit, Type A, 706.05, As Per Plan	89	L.F.
Special	Sealing Of Concrete Surfaces (Epoxy) (See Proposal Note)	46	S.Y.



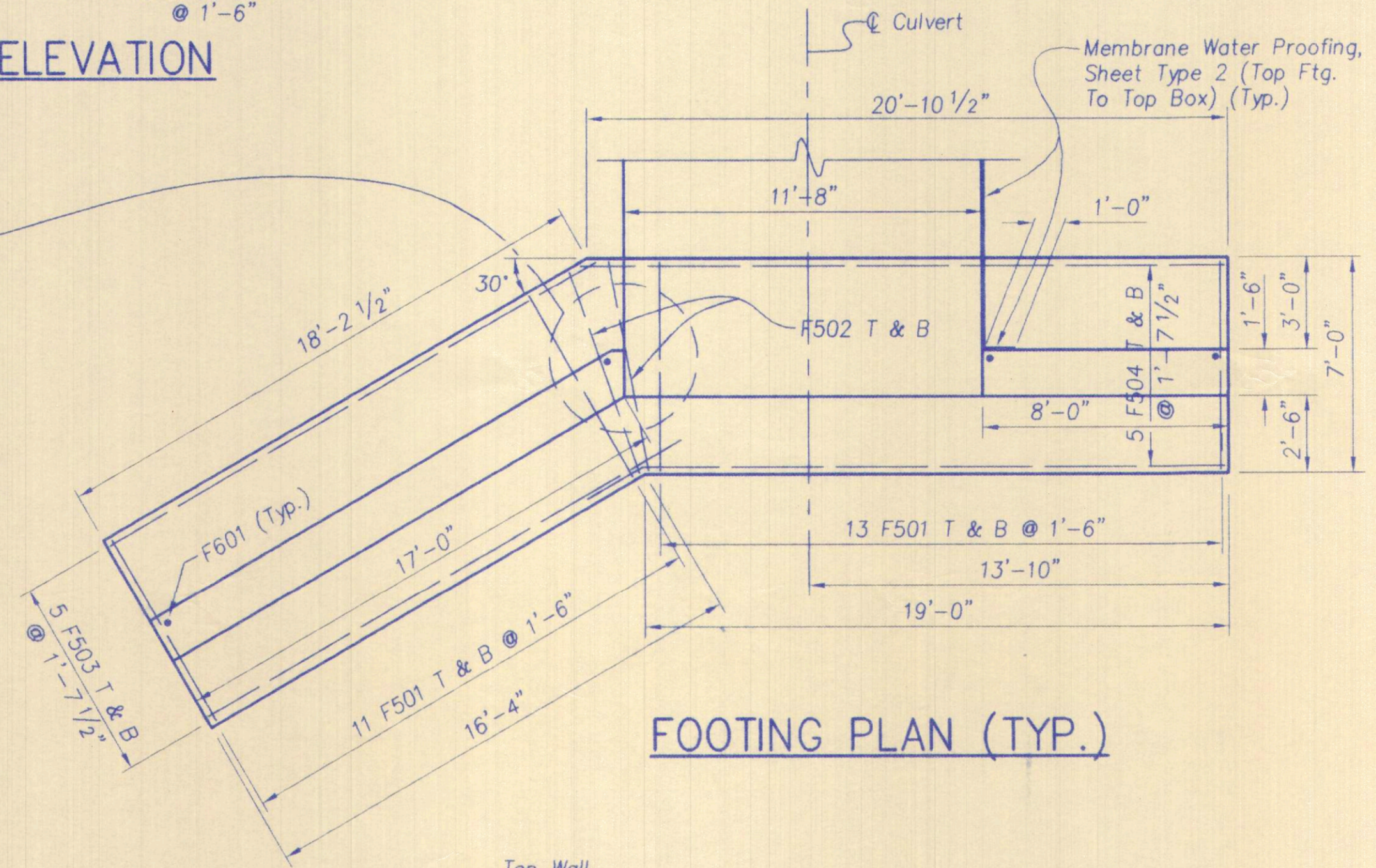
DEVELOPED INLET ELEVATION



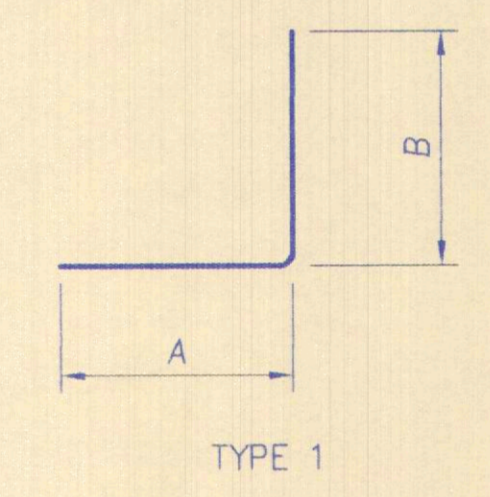
DEVELOPED OUTLET ELEVATION



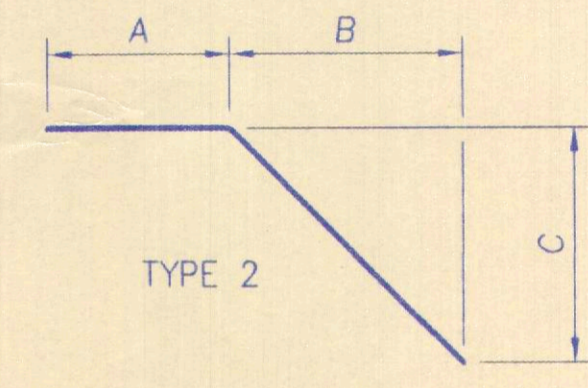
DETAIL A



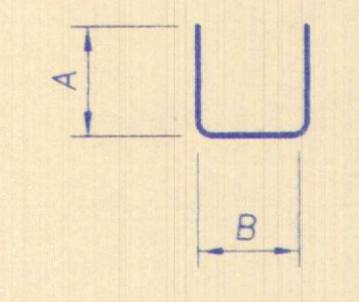
FOOTING PLAN (TYP.)



TYPE 1



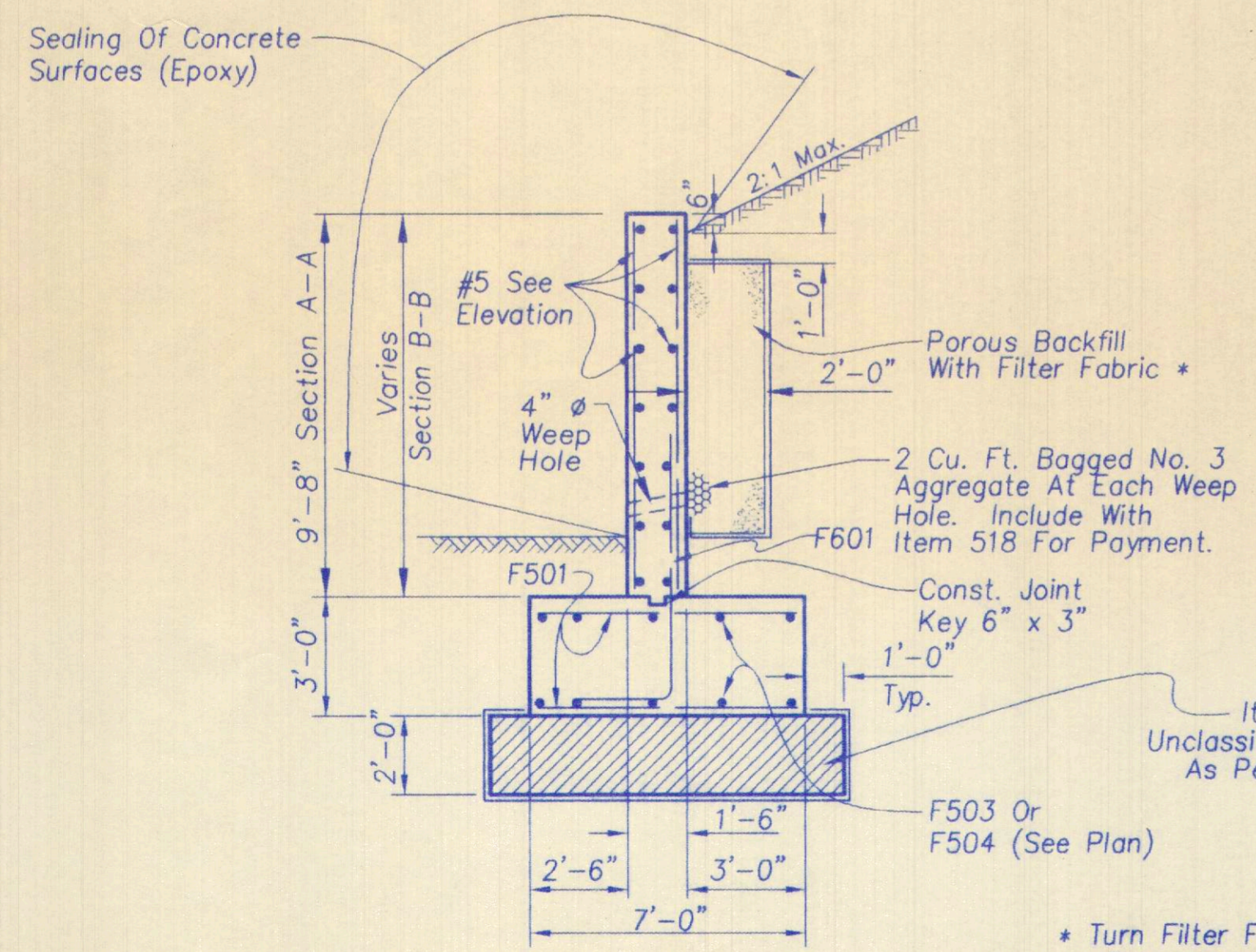
TYPE 2



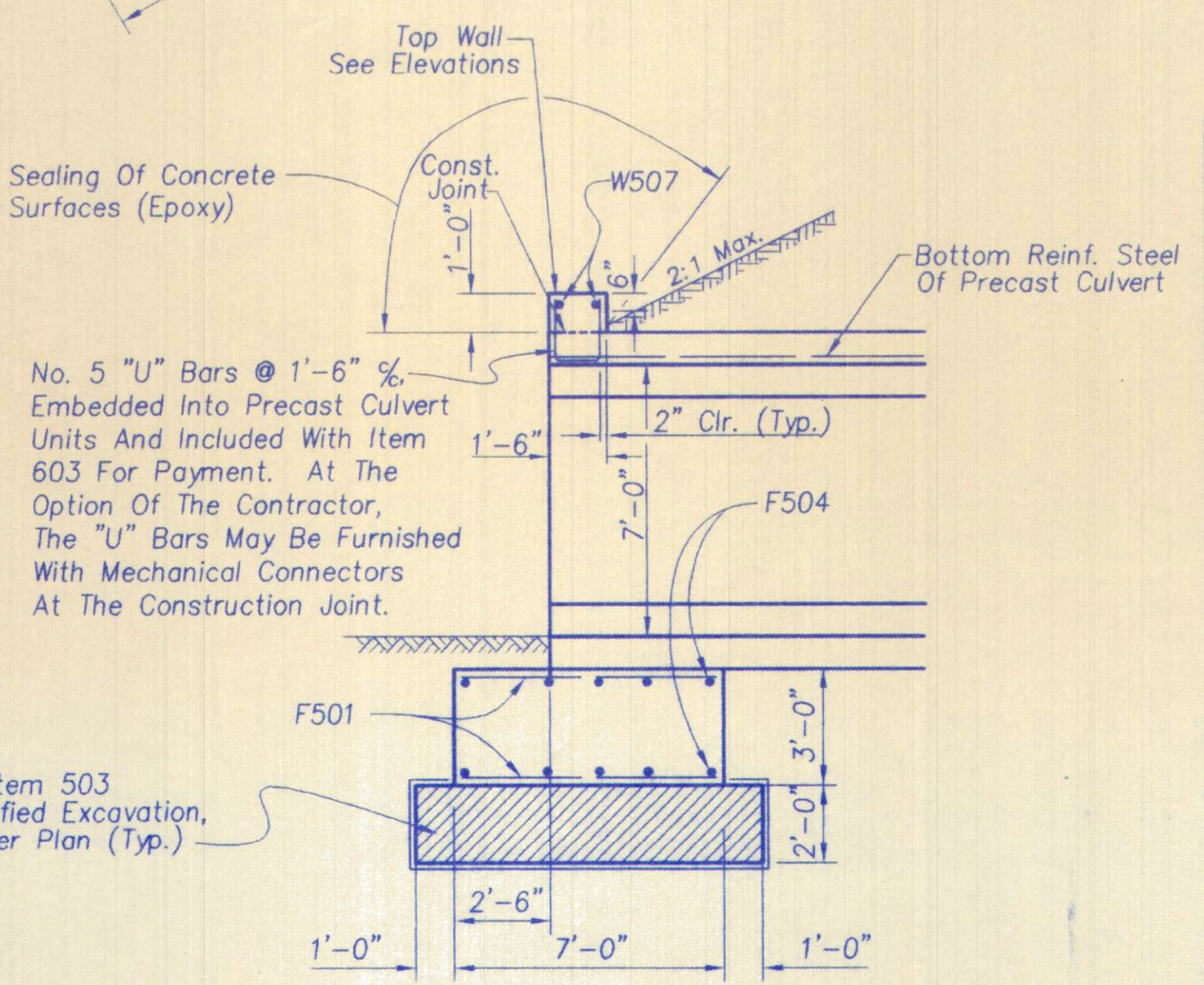
TYPE 3

LEGEND

- F.F. - For Face
- E.F. - Each Face
- T - Top
- B - Bottom



SECTION A-A & B-B



SECTION C-C & D-D

REINFORCING STEEL LIST								
MARK	NO.	LENGTH	WEIGHT*	TYPE	A	B	C	INCR.
F501	96	6'-6"		Str.				
F502	8	6'-9"		Str.				
F503	20	17'-6"		Str.				
F504	4 Series of 5	Varies 22'-5" To 20'-7"		2	Varies 20'-5" To 18'-7"	1'-9"	1'-0"	5 1/2"
F601	36	8'-6"		1	1'-11"	6'-9"		
W501	48	9'-4"		Str.				
W502	4 Series of 6	Varies 9'-4" To 6'-4"		Str.				7 1/2"
W503	4 Series of 2	Varies 6'-6" To 2'-6"		Str.				4"
W504	4	8'-3"		Str.				
W506	28	16'-6"		Str.				
W507	4	11'-4"		Str.				
W508	20	7'-8"		Str.				

* NOTE: All Reinforcing Is Included With Item 602, Concrete Masonry For Payment And Shall Be Epoxy Coated.