

**DESIGN DESIGNATION**

CURRENT (1982) A.D.T. = 2450  
 DESIGN YEAR (2002) A.D.T. = 3575  
 DHV = 325  
 D = 50%  
 V = 30%  
 = 50 MPH

MICROFILMED  
 NOV 29 1990

STATE OF OHIO  
 DEPARTMENT OF TRANSPORTATION

MICROFILMED  
 JUL 2 1985

HUR-250-18.28	OHIO	1
ASD-250-0.08	FHWA REGION 5	32
BRF-47(15)	BRF-47(14)	FEDERAL PROJECT

**HUR-250-18.28 (PART 1)**  
**ASD-250-0.08 (PART 2)**

BRF-47(15) PART 1  
 BRF-47(14) PART 2

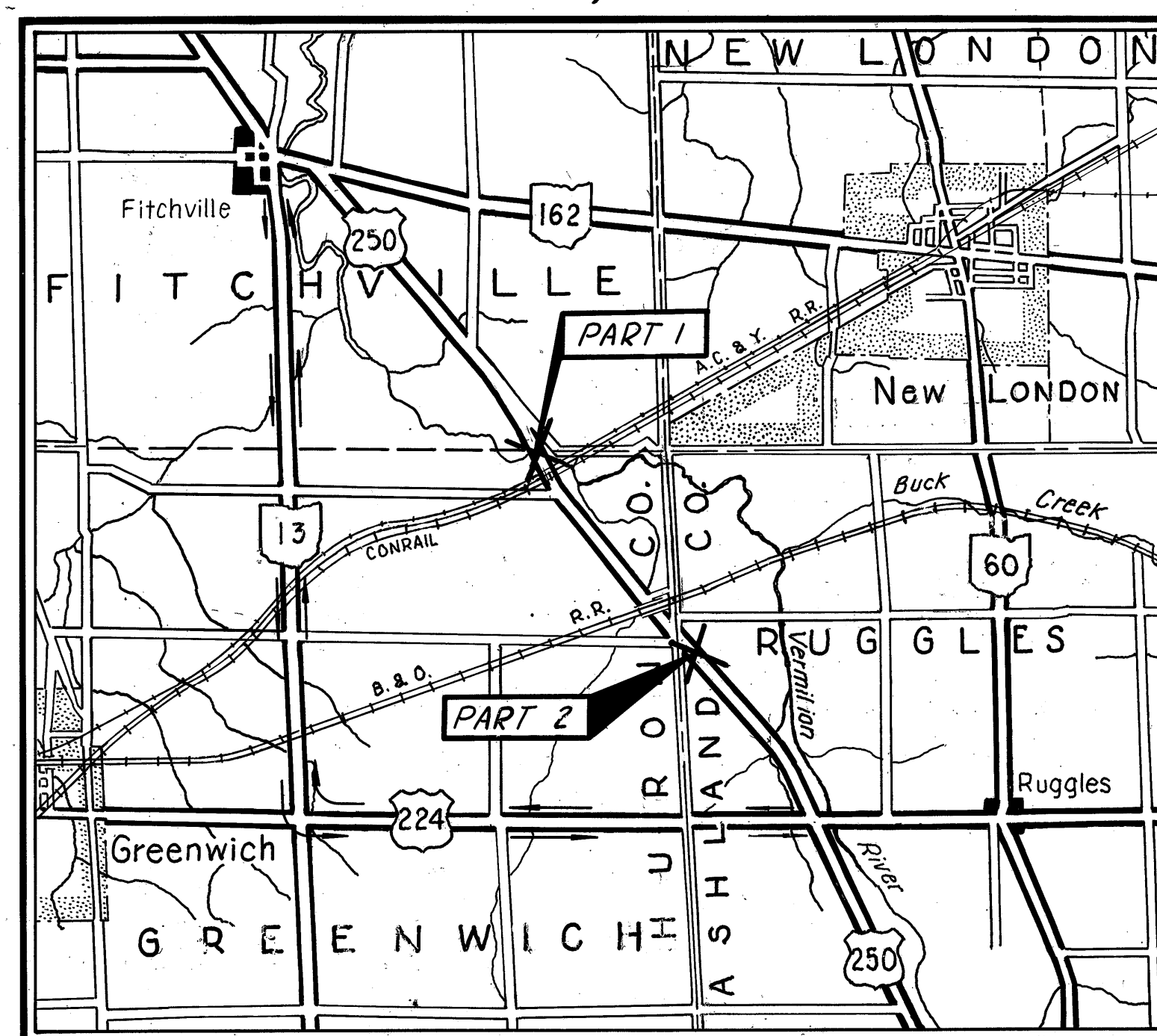
**FITCHVILLE AND GREENWICH TOWNSHIPS, HURON COUNTY**  
**RUGGLES TOWNSHIP, ASHLAND COUNTY**

**CONVENTIONAL SIGNS**

County Line \_\_\_\_\_ Limited Access (only) \_\_\_\_\_ LA \_\_\_\_\_  
 Township Line \_\_\_\_\_ Right of Way (only) \_\_\_\_\_ RW \_\_\_\_\_  
 Section Line \_\_\_\_\_ Limited Access & Right of Way \_\_\_\_\_ LA & RW \_\_\_\_\_  
 Corporation Line \_\_\_\_\_ Existing Right of Way \_\_\_\_\_  
 Fence Line (existing) -x-x- (proposed) -x-x-  
 Center Line \_\_\_\_\_ 352 \_\_\_\_\_ 353 \_\_\_\_\_  
 Trees (to be removed) (to be removed) (to be removed)  
 Utility Poles: Telephone φ, Power φ, Light φ

**INDEX OF SHEETS**

TITLE SHEET	1
TYPICAL SECTIONS	2
GENERAL NOTES	3 & 4
GENERAL SUMMARY	5
<b>PART 1 (HUR-250-18.28)</b>	
PLAN AND PROFILE	6
CROSS SECTIONS	7 & 8
CHANNEL DETAILS	9 & 10
<b>PART 2 (ASD-250-0.08)</b>	
PLAN AND PROFILE	11
CROSS SECTIONS	12 & 13
CHANNEL DETAILS	14 & 15
STRUCTURE DETAILS	16-30
RIGHT-OF-WAY	31 & 32



LOCATION MAP

SCALE IN MILES

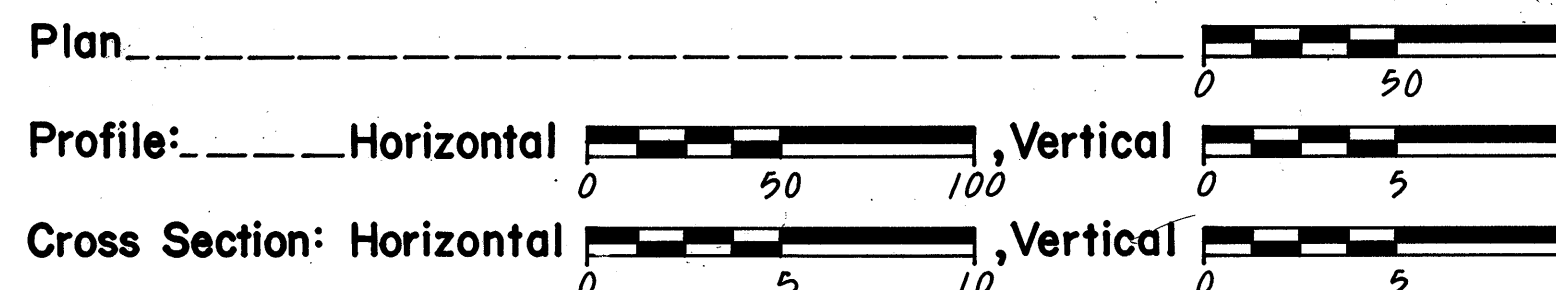
**LINE DATA**

PROJECT	WORK
<b>PART 1 (HUR-250-18.28)</b>	
BEGIN STA. 965+66.65	STA. 964+50
SUSPEND STA. 967+16.15	STA. 968+75
NET LENGTH 149.50 LIN.FT.	425.00 LIN.FT.
<b>PART 2 (ASD-250-0.08)</b>	
RESUME STA. 4+44.63	STA. 3+50
END STA. 5+22.87	STA. 6+50
NET LENGTH 78.24 LIN.FT.	300.00 LIN.FT.
<b>TOTAL PROJECT</b>	
NET LENGTH 227.74 LIN.FT.	725.00 LIN.FT.
OR 0.043 MILE	OR 0.137 MILE

**UNDERGROUND UTILITIES**  
 48 HOURS  
**BEFORE YOU DIG**  
 Call 800-362-2764 (Toll free)  
 OHIO UTILITIES PROTECTION SERVICE  
 NON-MEMBERS  
 MUST BE CALLED DIRECTLY

Portion to be improved \_\_\_\_\_  
 State & Federal Routes \_\_\_\_\_  
 Other Roads \_\_\_\_\_  
 Detour Route \_\_\_\_\_

**SCALES**



SUPPLEMENTAL SPECIFICATIONS	
803	5-27-83
939	6-28-82
824	10-8-82
836	3-12-75
849	10-19-81

Approved: *Ray M. Perry*  
 Date: 10/3/83 District Deputy Director of Transportation

Approved: *Robert B. Pfeiffer*  
 Date: 1-6-84 Engineer, Bureau of Bridges and Structural Design

Approved: *Wayne H. Kauble*  
 Date: 2-21-84 Chief Engineer, Planning and Design

Approved: *Walter J. Smith*  
 Date: 2-21-84 Director, Department of Transportation

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS					
	MC-3	6-1-73	AS-1-81	11-27-81	
BP-5	7-16-81	MC-4	7-26-76	DBR-2-73	4-10-73
				PSBD-1-81	9-18-81
GR-1	2-5-82	MC-10	5-1-76		
GR-2B	2-5-82			RB-1-55	2-2-59
GR-3	2-5-82			SD-1-69	6-12-69
GR-4	2-5-82			TS-EXJ-2-81	9-1-81
				CPP-2-73	4-10-73
		LA-1	6-1-79		

Plan Prepared By:  
 DISTRICT 3 DESIGN  
 (ROADWAY PLANS)  
 AND  
 SNELL ENVIRONMENTAL GROUP  
 AND  
 RICHLAND ENGINEERING LTD.  
 (STRUCTURE PLANS)

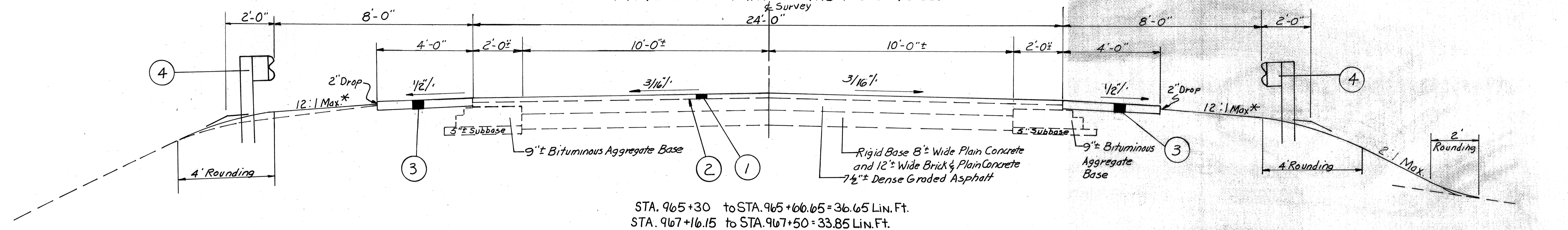
SEAL

DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 APPROVED:  
 DIVISION ADMINISTRATOR DATE



# TYPICAL SECTIONS TYPE 404

TYPICAL "A" - PART 1 (HUR-250-18.28)

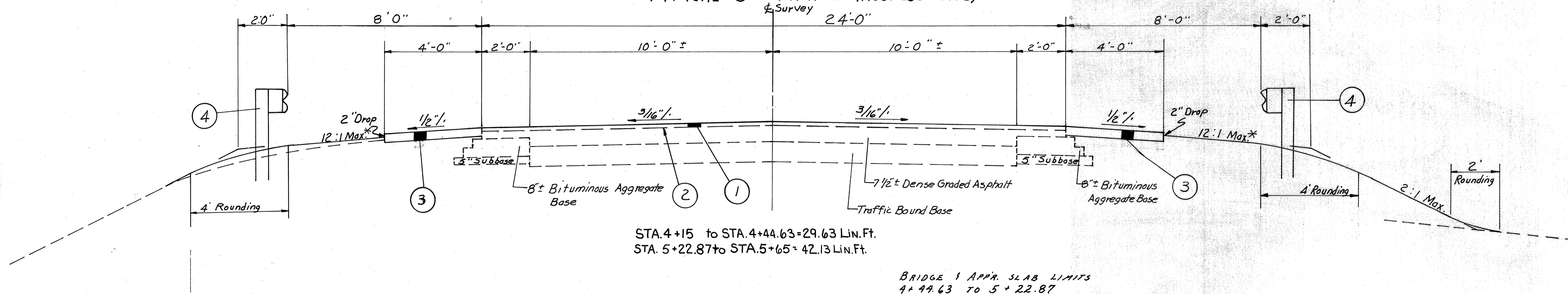


STA. 965+30 to STA. 965+66.65 = 36.65 Lin. Ft.  
STA. 967+16.15 to STA. 967+50 = 33.85 Lin. Ft.

BRIDGE & APPR. SLAB LIMITS  
965+66.65 TO 967+16.15

\* Shoulder slopes shall transition from normal 12:1 to meet the approach slab.

TYPICAL "B" - PART 2 (ASD-250-0.08)



STA. 4+15 to STA. 4+44.63 = 29.63 Lin. Ft.  
STA. 5+22.87 to STA. 5+65 = 42.13 Lin. Ft.

BRIDGE & APPR. SLAB LIMITS  
4+44.63 TO 5+22.87

### LEGEND

- ① Variable 404 Asphalt Concrete, AC-20
- ② 407 Tack Coat and Cover Aggregate - See General Note.
- ③ 4" 402 Asphalt Concrete, AC-20
- ④ 606 Guard Rail, Type 5



# GENERAL NOTES

HUR-250-1828  
ASD-250-0.08

FED RD DIVISION	STATE	PROJECT	
5	OHIO		3 32

Calc. by *POH 7/83*  
Chkd. by *POH 7/83*

## FIELD OFFICE:

THE CONTRACTOR SHALL PROVIDE A SUITABLE FIELD OFFICE HAVING A MINIMUM OF 300 SQ. FT. OF FLOOR SPACE.

PAYMENT SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 619.

## FIELD OFFICE:

## ROUNDING OF CORNERS SHOWN ON CROSS SECTIONS:

THE ROUNDED CORNERS SHOWN ON THE TYPICAL SECTIONS, APPLY TO ALL CROSS SECTIONS EVEN THOUGH OTHERWISE SHOWN ON THESE PLANS.

## ELEVATION DATUM:

ALL ELEVATIONS ARE BASED ON U.S.G.S. DATUM.

## CONTINGENCY QUANTITIES:

THE CONTRACTOR SHALL NOT ORDER MATERIALS OR PERFORM WORK FOR PLAN ITEMS SET UP TO BE USED "AS DIRECTED BY THE ENGINEER" UNLESS AUTHORIZED BY THE ENGINEER. THE ACTUAL WORK LOCATIONS AND QUANTITIES USED AT THE ENGINEER'S DISCRETION SHALL BE MADE A MATTER OF RECORD BY INCORPORATION INTO THE FINAL CHANGE ORDER GOVERNING COMPLETION OF THIS PROJECT.

## UNDERGROUND UTILITIES:

THE LOCATIONS OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE AS OBTAINED FROM THE OWNERS OF THE UTILITY AS REQUIRED BY SECTION 153.64 OF THE OHIO REVISED CODE.

## UTILITY NOTIFICATION:

AT LEAST TWO WORKING DAYS PRIOR TO COMMENCING CONSTRUCTION OPERATIONS IN ANY AREA WHICH MAY INVOLVE UNDERGROUND FACILITIES, THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER, THE REGISTERED UNDERGROUND UTILITY PROTECTION SERVICES AND THE OWNERS OF ALL UNDERGROUND UTILITY FACILITIES SHOWN IN THE PLANS.

AFTER NOTICE IS RECEIVED, THE OWNER OF ANY UNDERGROUND UTILITY FACILITY THAT IS TO REMAIN IN SERVICE DURING AND/OR AFTER CONSTRUCTION SHALL WITHIN FORTY-EIGHT (48) HOURS, EXCLUDING SATURDAYS, SUNDAYS, AND LEGAL HOLIDAYS, STAKE, MARK, OR OTHERWISE DESIGNATE THE LOCATION OF THE UNDERGROUND FACILITIES IN THE CONSTRUCTION AREA IN SUCH A MANNER AS TO INDICATE THEIR COURSE TOGETHER WITH THE APPROXIMATE DEPTH AT WHICH THEY WERE INSTALLED. THE MARKING OR LOCATING SHALL BE COORDINATED TO STAY APPROXIMATELY TWO DAYS AHEAD OF THE PLANNED CONSTRUCTION.

## UTILITY OWNERSHIP:

TELEPHONE: GENERAL TELEPHONE COMPANY OF OHIO  
117 NORTH SANDUSKY STREET (PARTS 1 & 2)  
BELLEVUE, OHIO 44811  
PHONE: (419) 483-8179

POWER: FIRELANDS ELECTRIC CO-OP  
55 WEST MAIN STREET (PARTS 1 & 2)  
NEW LONDON, OHIO 44851  
PHONE: (419) 929-1571

## 407 TACK COAT:

THE TACK COAT AND COVER AGGREGATE OPERATION SHALL BE DETERMINED AS PER SPECIFICATION 407.05. PLAN QUANTITIES INDICATE AVERAGE APPLICATION RATES OF 0.10 GALLONS PER SQUARE YARD OF TACK COAT AND 7 POUNDS PER SQUARE YARD OF COVER AGGREGATE FOR ESTIMATING PURPOSES ONLY.

## CONNECTIONS TO EXISTING PIPE:

WHERE THE PLANS PROVIDE FOR PROPOSED CONDUIT TO BE CONNECTED TO, OR TO CROSS EITHER OVER OR UNDER AN EXISTING SEWER, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE THE EXISTING PIPE BOTH AS TO LINE AND GRADE BEFORE HE STARTS TO LAY THE PROPOSED CONDUIT.

PAYMENT FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE PERTINENT 603 CONDUIT ITEMS.

## LOCATION OF GUARDRAIL:

THE LOCATIONS OF GUARDRAIL RUNS, AS SHOWN IN THESE PLANS, ARE SUBJECT TO ADJUSTMENT PRIOR TO FINAL ACCEPTANCE. THE ENGINEER SHALL BE SATISFIED THAT ALL INSTALLATIONS WILL AFFORD MAXIMUM PROTECTION FOR TRAFFIC.

## REMOVAL OF TREES AND STUMPS:

ALL TREES AND STUMPS SPECIFICALLY MARKED FOR REMOVAL WITHIN THE CONSTRUCTION LIMITS OF THIS PROJECT SHALL BE REMOVED UNDER THE LUMP SUM PRICE BID FOR ITEM 201 CLEARING AND GRUBBING, EXCEPT THAT THOSE TREES FOR WHICH PROTECTION AND PRESERVATION WORK IS INDICATED ELSEWHERE IN THESE PLANS SHALL NOT BE REMOVED.

THE FOLLOWING IS AN APPROXIMATE ESTIMATE OF THE NUMBER OF TREES AND STUMPS TO BE REMOVED:

SIZES	NO. TREES		NO. STUMPS	
	PART 1	PART 2	PART 1	PART 2
18"	5	20	1	0
30"	1	0	0	0
48"	1	1	0	0
60"	0	0	0	0

THE ABOVE ESTIMATE IS APPROXIMATE AND THE STATE OF OHIO RESERVES THE RIGHT TO ORDER THE REMOVAL OF ADDITIONAL TREES OR STUMPS OUTSIDE THE LIMITS OF CONSTRUCTION BUT WITHIN THE RIGHT-OF-WAY AND/OR EASEMENT LINES. PAYMENT FOR THE REMOVAL OF THESE ADDITIONAL TREES OR STUMPS SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 201 CLEARING AND GRUBBING.

## SEEDING:

QUANTITIES FOR SEEDING, WHERE REQUIRED BY PLAN, ARE CALCULATED FOR THE SOIL AREAS BETWEEN TEN (10) FEET OUTSIDE THE WORK LIMITS, AS SHOWN ON THE CROSS SECTIONS, OR TO THE RIGHT-OF-WAY OR TEMPORARY LINES, IF SUCH LINE IS LESS THAN TEN (10) FEET FROM THE WORK LIMITS.

## WATERING PERMANENT SEEDED AREAS:

THE FOLLOWING ESTIMATED QUANTITY IS TO BE USED AS DIRECTED BY THE ENGINEER TO PROMOTE GROWTH OF THE PERMANENT SEEDED AREAS AS PER 659.09:

ITEM 659	WATER	4 M-GAL.
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## EROSION CONTROL:

ITEMS 601 AND 667 ARE PROVIDED IN THE PLANS FOR EROSION CONTROL. ROCK OF A STABLE NATURE WILL NOT BE REMOVED IN ORDER TO PLACE ANY OF THESE ITEMS, AND TURF OF A STABLE NATURE WILL NOT BE REMOVED IN ORDER TO PLACE 667. THE ENGINEER SHALL CHECK AND NON-PERFORM QUANTITIES OR ADJUST LOCATIONS AND QUANTITIES FOR THESE ITEMS WHERE INDICATED BY FIELD CONDITIONS DURING CONSTRUCTION.

## DUST CONTROL:

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN PROVIDED IN THE GENERAL SUMMARY TO BE USED FOR DUST CONTROL AS DIRECTED BY THE ENGINEER:

ITEM 616	WATER	50 M-GAL.
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## SANITARY FLOW INTO HIGHWAY DRAINAGE SYSTEMS:

THIS PLAN MAKES NO PROVISION FOR CONNECTING, NOR SHALL THE ENGINEER OR CONTRACTOR CONNECT, ANY EXISTING OR NEW DRAINAGE INTO THE HIGHWAY DRAINAGE SYSTEM WHEN SUCH DRAINS CARRY FLOW FROM ANY PLUMBING FIXTURES INCLUDING FLOOR DRAINS AND SINK DRAINS OR DRAINS FROM LIVESTOCK LOTS OR BARN.

EXISTING PIPE CARRYING FLOW WHICH COMES WITHIN THE CATEGORY OUTLINED ABOVE SHALL BE PLUGGED WITH CLASS C CONCRETE AT THE RIGHT-OF-WAY LINE. PAYMENT FOR SAID PLUGGING SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 203 EXCAVATION OR THE PERTINENT 202 ITEM.

## TEMPORARY STREAM CROSSING FORDS:

WHERE STREAM CROSSING FORDS ARE REQUIRED FOR EQUIPMENT CROSSINGS, THE FOLLOWING SHALL APPLY TO THE CONTRACTORS' OPERATIONS:

THE CROSSING SHALL CONSIST OF CLEAN NON-TOXIC GRANULAR OR ROCK MATERIAL, PROPERLY MAINTAINED TO PREVENT EROSION WITH PROVISIONS FOR CONVEYANCE OF ANTICIPATED HIGH FLOWS.

FURTHERMORE, IT SHALL FOLLOW PART 330.5 SPECIFIC CATEGORIES OR DISCHARGES-NATIONALLY PERMITTED, PARAGRAPH (A) (14) MINOR ROAD CROSSING FILLS--OF THE FEDERAL REGISTER--CORPS OF ENGINEERS INTERIM FINAL REGULATIONS PUBLISHED JULY 22, 1982.

## FARM DRAINS:

ALL FARM DRAINS WHICH ARE ENCOUNTERED DURING CONSTRUCTION SHALL BE PROVIDED WITH UNOBSTRUCTED OUTLETS UNDER THE DIRECTION OF THE ENGINEER.

EXISTING COLLECTORS AND ISOLATED FARM DRAINS WHICH ARE ENCOUNTERED ABOVE THE ELEVATION OF THE ROADWAY DITCHES SHALL BE OUTLETTED INTO THE ROADWAY DITCH BY 603 TYPE F CONDUIT. THE OPTIMUM ELEVATION SHALL BE, IF POSSIBLE, ONE FOOT ABOVE THE FLOWLINE ELEVATION OF THE DITCH. LATERAL DRAINS WHICH CROSS THE ROADWAY SHALL BE INTERCEPTED BY 603 TYPE E CONDUIT AND CARRIED IN A LONGITUDINAL DIRECTION TO AN ADEQUATE OUTLET.

THE LOCATION, TYPE, SIZE AND GRADE OF REQUIRED REPLACEMENTS SHALL BE DETERMINED BY THE ENGINEER DURING CONSTRUCTION AND PAYMENT SHALL BE MADE ON FINAL MEASUREMENTS.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR THE WORK NOTED ABOVE:

ITEM 603	6" CONDUIT, TYPE E	100 LIN. FT.
ITEM 603	6" CONDUIT, TYPE F	20 LIN. FT.

NECESSARY BENDS AND BRANCHES SHALL BE INCLUDED FOR PAYMENT IN THE PERTINENT CONDUIT ITEM. NONE OF THE ABOVE MATERIALS SHALL BE ORDERED BY THE CONTRACTOR UNTIL REQUESTED BY THE ENGINEER.

## ITEM 601 - ROCK CHANNEL PROTECTION WITH FILTER:

WHERE THIS ITEM IS CALLED FOR IN THE PLANS, THE QUANTITIES SHOWN ARE BASED ON THE DIMENSIONS OF THE ROCK ONLY AND DO NOT INCLUDE THE VOLUME OF A SIX INCH (6") STONE FILTER BED. THE COST OF THE FILTER (EITHER FABRIC OR STONE) SHALL BE INCLUDED IN THE UNIT PRICE BID FOR "ITEM 601 - ROCK CHANNEL PROTECTION WITH FILTER". WHERE THE FABRIC FILTER OPTION IS USED THE FABRIC SHALL MEET THE REQUIREMENTS OF SUPPLEMENTAL SPEC. 939 TYPE B.

THE SURFACE TO RECEIVE THE FABRIC SHALL BE PREPARED TO A RELATIVELY SMOOTH SURFACE FREE OF OBSTRUCTION AND DEBRIS. THE FABRIC SHALL BE PLACED WITH THE LONG DIMENSION PARALLEL TO THE DIRECTION OF FLOW AND SHALL BE LAID LOOSELY BUT WITHOUT WRINKLES AND CREASES. WHERE JOINTS ARE NECESSARY, STRIPS SHALL BE PLACED TO PROVIDE A TWELVE INCH (12") MINIMUM OVERLAP WITH THE UPSTREAM STRIP OVERLAPPING THE DOWNSTREAM STRIP. SECURING PINS WITH WASHERS SHALL BE PLACED AT TWO FOOT (2') MINIMUM INTERVALS ALONG JOINTS AND AT (2', 3', OR 5')\*\* INTERVALS ELSEWHERE TO PREVENT SLIPPAGE OF THE FABRIC. THE SECURING PINS SHALL BE 3/16" DIAMETER OF STEEL POINTED AT ONE END AND FABRICATED WITH A HEAD TO RETAIN A STEEL WASHER HAVING AN OUTSIDE DIAMETER NOT LESS THAN 1-1/2". PIN LENGTHS SHALL BE GREATER THAN OR EQUAL TO 18".

\*\* 2' FOR FLOW DIRECTION SLOPES STEEPER THAN 3:1, 3' FOR SLOPES 3:1 TO 4:1 AND 5' FOR SLOPES LESS STEEP THAN 4:1.

## 614 MAINTAINING TRAFFIC:

THROUGH TRAFFIC ON U.S.R. 250 SHALL BE DETOURED AS SHOWN ON THE TITLE SHEET. THE DETOUR SHALL BE LIMITED TO A MAXIMUM OF SIX (6) CONSECUTIVE MONTHS DURATION.

THE CONTRACTOR SHALL COORDINATE HIS WORK ACTIVITY SO THAT LOCAL TRAFFIC SHALL BE MAINTAINED AT ALL TIMES ACROSS ONE OF THESE TWO BRIDGES.

ALL DETOUR SIGNING WILL BE PROVIDED BY STATE FORCES. THE CONTRACTOR SHALL NOTIFY THE DISTRICT TRAFFIC ENGINEER SEVEN (7) DAYS IN ADVANCE OF THE PLACEMENT OF THE DETOUR SIGNING.



# TEMPORARY PAVEMENT MARKINGS NOTE B

HUR-250-18.28  
ASD-250-0.08

4  
32

Calc. By PAJ 7/83  
CHK'd. By DL 7/83

GENERAL

THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN, AND WHEN NECESSARY, REMOVE TEMPORARY RETROREFLECTIVE PAVEMENT MARKINGS ON EXISTING, RECONSTRUCTED, RESURFACED OR TEMPORARY ROADS WITHIN THE WORK LIMITS, IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS.

THE MARKINGS SHALL BE MAINTAINED IN GOOD CONDITION DURING THE REQUIRED SERVICE PERIOD TO PROVIDE DAY AND NIGHT VISIBILITY. THE MARKINGS SHALL BE REPAIRED OR REPLACED AS DIRECTED BY THE ENGINEER TO MAINTAIN REQUIRED VISIBILITY AND/OR REFLECTIVITY AT NO ADDITIONAL COST TO THE STATE.

MATERIALS

UNLESS OTHERWISE INDICATED ON THE PLANS, TEMPORARY PAVEMENT MARKINGS MAY BE OF PAINT, PAVEMENT MARKING TAPE OR REMOVABLE PAVEMENT MARKING TAPE (TYPE R TAPE).

A. PAINT

PAINT SHALL COMPLY WITH 708.14 AND SHALL BE APPLIED IN ACCORDANCE WITH 621 EXCEPT AS MODIFIED HEREIN.

B. PAVEMENT MARKING TAPE

FLEXIBLE RETROREFLECTIVE PREFORMED PRESSURE SENSITIVE TAPE SHALL HAVE STRAIGHT EDGES AND BE FREE OF CRACKS. THE TAPE SHALL CONSIST OF PIGMENT AND FILLERS WITH SUFFICIENT BINDER AND PLASTICIZER TO RETAIN GLASS BEADS HAVING A REFRACTIVE INDEX MEETING THE MINIMUM REFLECTIVE INTENSITY STANDARD STATED IN THE MANUFACTURERS INFORMATION. THE TAPE SHALL BE FLEXOLITE "WET REFLECTIVE", 3M "SCOTCHLANE", OR AN APPROVED EQUAL.

THE GLASS BEADS SHALL BE DISTRIBUTED UNIFORMLY THROUGHOUT THE TAPE WITH SUFFICIENT SURFACE BEADS TO PROVIDE OPTIMUM REFLECTORIZATION AT ALL TIMES.

PAVEMENT MARKING TAPE SHALL COMPLY WITH THE COLOR REQUIREMENTS OF 708.14.

THE TAPE SHALL HAVE A PRECOATED ADHESIVE LAYER FOR PAVEMENT APPLICATION WITHOUT THE USE OF HEAT, SOLVENTS OR ADDITIONAL ADHESIVES. THE ADHESIVE SHALL BE SUFFICIENT TO RETAIN COMPLETE MARKINGS ON THE PAVEMENT SURFACE THROUGHOUT THE USEFUL LIFE OF THE MARKINGS.

IN ADDITION TO THE FOREGOING, ALL TEMPERATURE APPLICATION REQUIREMENTS AND OTHER APPLICABLE MANUFACTURERS MATERIAL AND APPLICATION INSTRUCTIONS SHALL BE FOLLOWED.

WHEN APPROVED BY THE ENGINEER THE CONTRACTOR MAY USE REMOVABLE PAVEMENT MARKING TAPE (TYPE R TAPE), IN LIEU OF THAT DESCRIBED ABOVE, TO FACILITATE REMOVAL OF MARKINGS.

C. REMOVABLE PAVEMENT MARKING TAPE (TYPE R TAPE)

THE MARKING MATERIAL SHALL BE A MIXTURE OF POLYMERIC MATERIALS, PIGMENTS, REINFORCING MEDIUM TO FACILITATE REMOVAL, GLASS BEADS THROUGHOUT THE PIGMENTED PORTION, AND A RETROREFLECTIVE LAYER OF GLASS BEADS BONDED TO THE TOP SURFACE.

THE TAPE SHALL BE PRECOATED WITH A PRESSURE SENSITIVE ADHESIVE CAPABLE OF TEMPORARILY BONDING TO ASPHALT CONCRETE OR PORTLAND CEMENT CONCRETE PAVEMENT AT AN AMBIENT TEMPERATURE OF NOT LESS THAN 50° F AND RISING, AT A PAVEMENT TEMPERATURE OF NOT LESS THAN 50° F NOR MORE THAN 150° F, WITHOUT THE USE OF HEAT, SOLVENTS, AND ADDITIONAL ADHESIVES OR ACTIVATORS.

MATERIALS SHALL CONFORM TO THE COLOR REQUIREMENTS OF 708.14.

THE TAPE SHALL BE REMOVABLE FROM ASPHALT AND PORTLAND CEMENT CONCRETE INTACT OR IN LARGE PIECES AT TEMPERATURES ABOVE 40° F WITHOUT USE OF HEAT, SOLVENTS, GRINDING, OR SANDBLASTING. REMOVAL SHALL NOT RESULT IN DAMAGE TO OR OBJECTIONABLE STAINING OF THE PAVEMENT.

GLASS BEADS SHALL BE PROVIDED IN A PROPER SIZE, QUANTITY AND DISTRIBUTION TO ASSURE OPTIMUM RETROREFLECTIVITY AS THE FILM WEARS. THE FOLLOWING INITIAL AVERAGE REFLECTANCE VALUES AT 86.0 ENTRANCE ANGLE AS MEASURED IN ACCORDANCE WITH THE TESTING PROCEDURES OF FEDERAL TEST METHOD 370 SHALL BE CERTIFIED:

	WHITE	YELLOW
OBSERVATION ANGLE	0.2 0.5	0.2 0.5
SPECIFIC LUMINANCE	1770 1270	1310 810
(MCD/FT <sup>2</sup> )/FC		

THE TAPE SHALL BE 3-M COMPANY'S "STAMARK, DETOUR GRADE (SERIES 57L0, 57L1, 6270, 6211)" OR AN APPROVED EQUAL.

THE CONTRACTOR SHALL FURNISH TO THE ENGINEER CERTIFICATION THAT THE MATERIAL SUPPLIED MEETS THE PROPERTIES SPECIFIED HEREIN.

LAYOUT

THE TEMPORARY MARKINGS SHALL BE ACCURATELY LAID OUT IN CONFORMANCE WITH 621.051 AND SHALL BE LOCATED IN A TRUE LINE ON THE CENTER LINE, LANE LINE, EDGE LINE, OR CHANNELIZING LINE WHERE PERMANENT MARKINGS WOULD LIE UNLESS OTHERWISE SPECIFIED IN THE PLANS.

PLACEMENT

TEMPORARY MARKINGS SHALL BE PLACED IN ACCORDANCE WITH LAYOUTS ON SHEETS AND THE FOLLOWING REQUIREMENTS, UNLESS OTHERWISE SPECIFIED IN THE PLANS.

TEMPORARY MARKINGS SHALL BE COMPLETE AND IN PLACE ON ALL PAVEMENT PRIOR TO EXPOSING IT TO TRAFFIC. WHEN TEMPORARY MARKINGS ARE NO LONGER NEEDED, THEY SHALL BE REMOVED BY THE CONTRACTOR IN ACCORDANCE WITH 621.134 AND NECESSARY PAVEMENT MARKINGS INSTALLED BEFORE THE FLOW OF TRAFFIC IS CHANGED TO THE NEXT PHASE OR RETURNED TO ITS NORMAL CHANNEL.

WHERE PERMANENT PAVEMENT MARKINGS ARE CALLED FOR IN THE PLANS, THE CONTRACTOR SHALL FURNISH AND PLACE THE PERMANENT MARKINGS WITHIN 30 CALENDAR DAYS FOLLOWING COMPLETION OF ALL SURFACE COURSES IN A SINGLE ROADWAY OR PRIOR TO THE END OF THE CONSTRUCTION SEASON, WHICHEVER COMES FIRST. PERMANENT MARKINGS SHALL NOT BE PLACED OVER ANY TAPE MARKINGS.

A. CLASS I MARKINGS

CLASS I MARKINGS SHALL BE AS DEFINED IN 621, EXCEPT AS FOLLOWS:

- 1) LANE LINES SHALL BE 4-INCHES IN WIDTH.
- 2) TRANSVERSE LINES SHALL BE 8-INCHES IN WIDTH.
- 3) STOP LINES SHALL BE 12-INCHES IN WIDTH.
- 4) CROSS WALK LINES SHALL BE 8-INCHES IN WIDTH.

GORE MARKINGS SHALL CONSIST OF TWO CHANNELIZING LINES PLACED AT THE THEORETICAL OR TEMPORARY GORE OF RAMPS AND DIVERGING OR CONVERGING ROADWAYS.

THE PAINT APPLICATION RATE SHALL BE NOT LESS THAN 16 GALLONS PER MILE FOR SOLID 4-INCH LINES, 24 GALLONS PER MILE FOR SOLID 6-INCH LINES, 48 GALLONS PER MILE FOR SOLID 12-INCH LINES, AND 4 GALLONS PER MILE FOR 4-INCH DASHED LINES.

B. CLASS II MARKINGS

CENTER LINES SHALL CONSIST OF SINGLE, YELLOW 12-INCH BY 4-INCH DASHES SPACED AT A MAXIMUM OF 40-FOOT INTERVALS.

LANE LINES SHALL CONSIST OF WHITE 12-INCH BY 4-INCH DASHES SPACED AT A MAXIMUM OF 40-FOOT INTERVALS.

CHANNELIZING LINES SHALL CONSIST OF WHITE 12-INCH BY 4-INCH DASHES SPACED AT A MAXIMUM OF 20-FOOT INTERVALS.

GORE MARKINGS SHALL BE TWO CONTINUOUS, WHITE 50-FOOT BY 4-INCH LINES PLACED AT THE THEORETICAL GORE OF AN EXIT RAMP OR DIVERGING ROADWAYS.

THE PAINT APPLICATION RATE SHALL BE NOT LESS THAN 16 GALLONS PER MILE FOR GORE MARKINGS, 0.8 GALLONS PER MILE FOR CHANNELIZING LINE, AND 0.4 GALLONS PER MILE FOR LANE LINE AND CENTER LINE.

CONFLICTING MARKINGS

THE CONTRACTOR SHALL, PRIOR TO PLACING TEMPORARY MARKINGS, REMOVE ALL EXISTING CONFLICTING MARKINGS VISIBLE TO THE TRAVELING PUBLIC DURING DAYLIGHT OR NIGHTTIME HOURS IN ACCORDANCE WITH 621.134. THE COST FOR REMOVAL OF CONFLICTING MARKINGS SHALL BE INCIDENTAL TO THE VARIOUS PAY ITEMS.

METHOD OF MEASUREMENT

TEMPORARY PAVEMENT MARKINGS WILL BE MEASURED COMPLETE IN PLACE, BY CLASS AND MATERIAL, IN THE UNITS DESIGNATED. DASHED LINE QUANTITIES WILL BE THE LENGTH OF THE COMPLETED STRIPE, INCLUDING GAPS, INTERSECTIONS, AND OTHER SECTIONS OF PAVEMENT NOT NORMALLY MARKED, IN ACCORDANCE WITH 621.15.

TEMPORARY PAVEMENT MARKINGS WILL INCLUDE THE LAYOUT, APPLICATION AND REMOVAL OF THE MARKINGS, WHEN REQUIRED.

BASIS OF PAYMENT

PAYMENT FOR ACCEPTED QUANTITIES COMPLETE IN PLACE WILL BE MADE AT THE CONTRACT UNIT PRICE. PAYMENT SHALL BE FULL

COMPENSATION FOR ALL MATERIALS, LABOR, INCIDENTALS AND EQUIPMENT FOR PLACEMENT, MAINTENANCE AND NECESSARY REMOVAL OF THE MARKINGS.

ITEM	UNIT	DESCRIPTION
614	MILES	TEMPORARY LANE LINES, CLASS _____ (PAINT, TAPE OR TYPE R TAPE)
614	MILES	TEMPORARY CENTER LINES, CLASS _____ (PAINT, TAPE OR TYPE R TAPE)
614	MILES/LIN. FT.	TEMPORARY CHANNELIZING LINES, CLASS _____ (PAINT, TAPE OR TYPE R TAPE)
614	MILES	TEMPORARY EDGE LINES, CLASS I, (PAINT, TAPE OR TYPE R TAPE)
614	LIN. FT.	TEMPORARY GORE MARKING, CLASS II, (PAINT, TAPE OR TYPE R TAPE)
614	LIN. FT.	TEMPORARY STOP LINES, CLASS I, (PAINT, TAPE OR TYPE R TAPE)
614	LIN. FT.	TEMPORARY CROSSWALK LINES, CLASS I, (PAINT, TAPE OR TYPE R TAPE)
614	EACH	TEMPORARY LANE ARROWS, CLASS I, (PAINT, TAPE OR TYPE R TAPE)
614	EACH	TEMPORARY WORD "ONLY" ON PAVEMENT, 72-INCH, CLASS I, (PAINT OR TAPE)
614	LIN. FT.	TEMPORARY TRANSVERSE LINES, CLASS I, (PAINT, TAPE OR TYPE R TAPE)

THE FOLLOWING QUANTITY IS PROVIDED FOR TEMPORARY PAVEMENT MARKINGS ON THE COMPLETED 404 COURSES, BRIDGE DECKS, AND APPROACH SLABS:

614 TEMPORARY CENTER LINES, CLASS II 0.04 MILES PART I  
0.03 MILES PART 2

THESE TEMPORARY MARKINGS SHALL BE PLACED PRIOR TO REOPENING THE PROJECT TO THROUGH TRAFFIC.

NOTE: THE PERMANENT PAVEMENT MARKINGS WILL BE PROVIDED BY STATE FORCES.

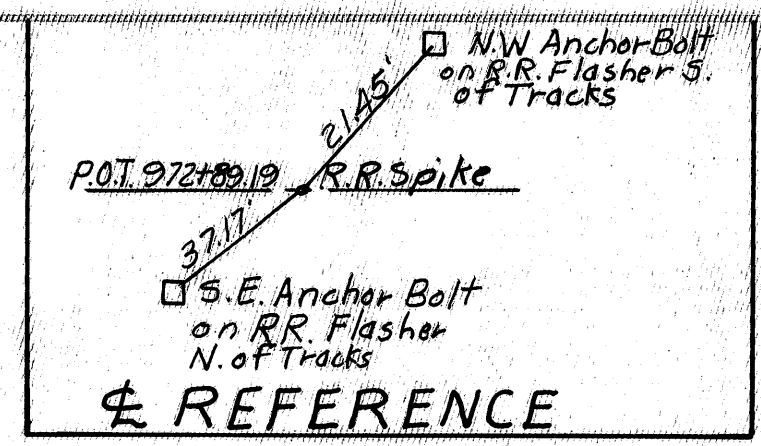
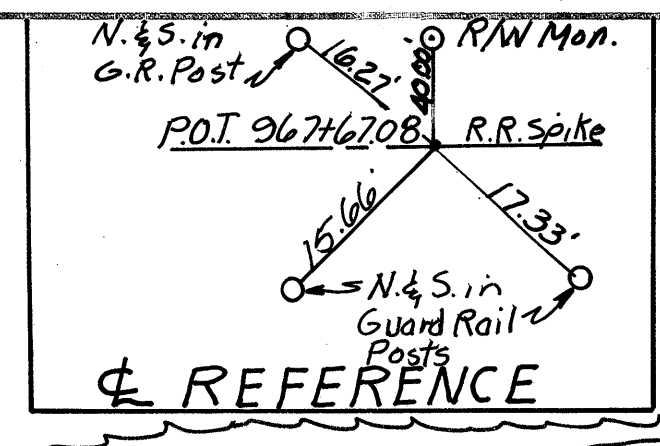
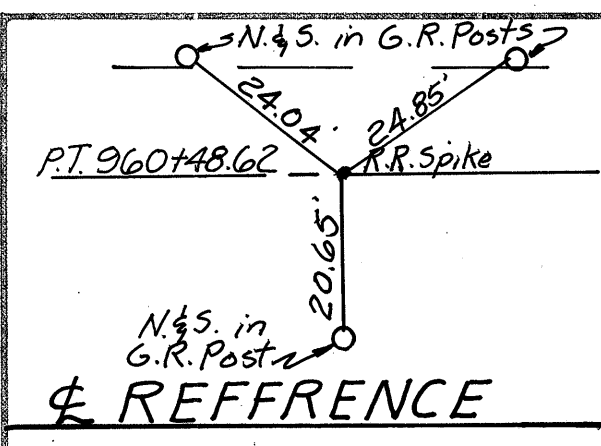


# GENERAL SUMMARY

CAL'C. BY: RJR 6/83  
CHK'D BY: TW 7/83

FROM SHEET NUMBER						ITEM	PLAN TOTAL	UNIT	DESCRIPTION	
PART 1 - BRF-47(15)			PART 2 - BRF-47(14)							
3	4	6	SUB-TOTAL	3	4	11	14	SUB-TOTAL		
Lump			Lump	Lump			Lump			
		96	96			82		82	201 LUMP CLEARING AND GRUBBING	
		68	68			228		228	202 82 LIN.FT. PIPE REMOVED 24" AND UNDER	
		500	500			167		167	202 96 SQ.YD. PAVEMENT REMOVED	
									203 296 CU.YD. EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION	
									203 667 CU.YD. EMBANKMENT	
		381.00	381.00			286.02		286.02	606 66702 LIN.FT. GUARDRAIL, TYPE 5	
		4	4			4		4	606 8 EACH ANCHOR ASSEMBLY, STANDARD TYPE A	
		4	4			4		4	606 8 EACH BRIDGE TERMINAL ASSEMBLY, STANDARD TYPE B	
	0.04		0.04		0.03			0.03	614 0.07 MILES TEMPORARY CENTER LINES, CLASS II	
25			25	25				25	616 50 M-GAL WATER	
		500	500						202 500 Lin.Ft. Guard Rail Removed For Storage	
		1492	1492			1423		1423	E R O S I O N      C O N T R O L	
		0.15	0.15			0.13		0.13	659 2915 SQ.YD. SEEDING AND MULCHING	
2			2	2				2	659 0.28 TON COMMERCIAL FERTILIZER	
									659 4 M-GAL WATER	
						47		47	601 47 CU.YD. ROCK CHANNEL PROTECTION TYPE C, WITH FILTER	
		139	139			13		13	667 152 SQ.YD. SEEDING AND JUTE MATTING	
									D R A I N A G E	
						100		100	603 100 LIN.FT. 8" CONDUIT, TYPE C	
						70		70	603 70 LIN.FT. 12" CONDUIT TYPE D	
									P A V E M E N T	
		16	16			7		7	402 23 CU.YD. ASPHALT CONCRETE AC-20	
		10	10			17		17	404 27 CU.YD. ASPHALT CONCRETE, AC-20	
		19	19			37		37	407 56 GAL. TACK COAT	
		1	1			1		1	407 2 TON COVER AGGREGATE	
		177	177			178		178	611 355 SQ.YD. REINFORCED CONCRETE APPROACH SLAB (T=13")	
									S T R U C T U R E S      O V E R      2 0      F E E T	
									HUR-250-1828	SEE SHEET 17
									ASD-250-0009	SEE SHEET 28
LUMP			LUMP	LUMP		LUMP		LUMP	619 LUMP	FIELD OFFICE
			LUMP			LUMP		LUMP	623 LUMP	CONSTRUCTION LAYOUT STAKES
			LUMP			LUMP		LUMP	624 LUMP	MOBILIZATION
LUMP			LUMP	LUMP		LUMP		LUMP	614 LUMP	MAINTAINING TRAFFIC

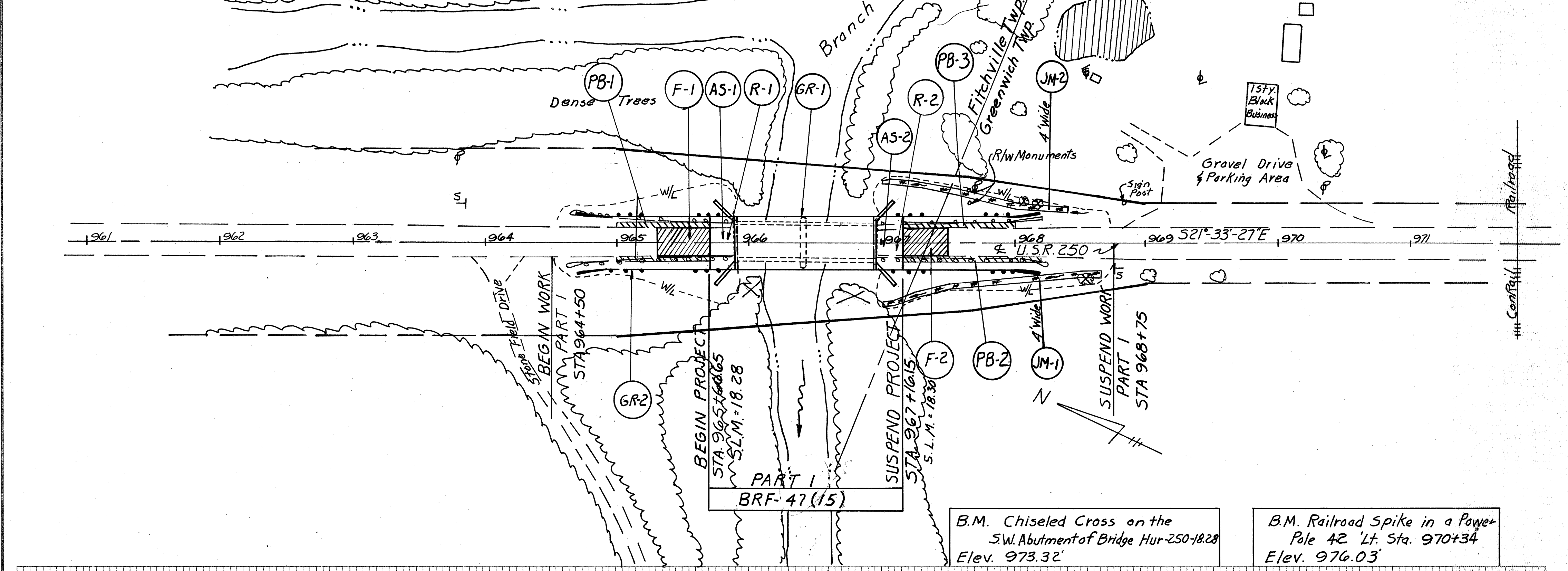




UNAPPROVED  
 JUL 2 1983  
 HUR-250-18.28  
 ASD-250-0.08  
 PART 1  
 Calc. by P.M. 7/83  
 Chkd. by J.O. 7/83

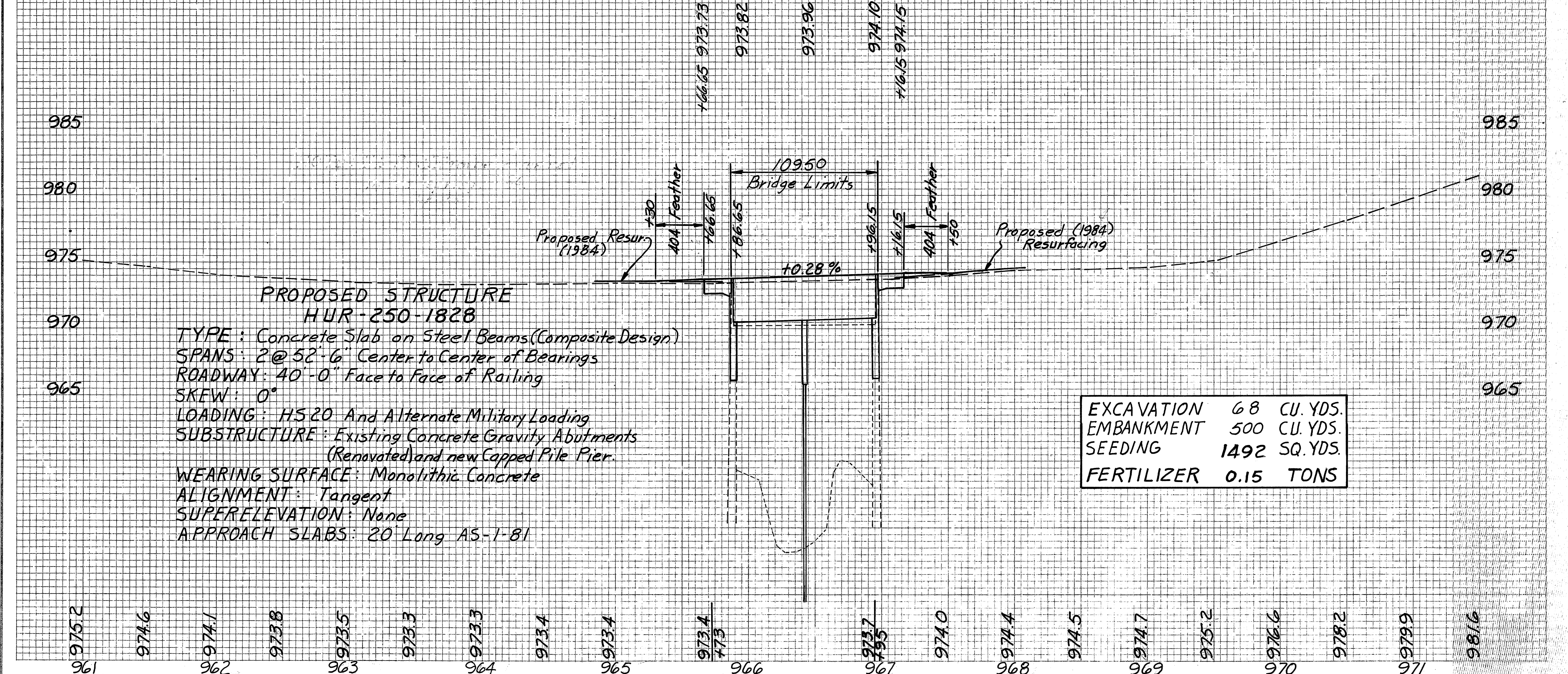
**EXISTING STRUCTURE**  
HUR-250-1828

TYPE: Steel Low-Truss  
 SPAN: 102'-4" Clear  
 ROADWAY: 24'-0" F/F Guardrail  
 SKEW: 0°  
 LOADING: 5-15.6  
 SUB-STRUCTURE: Concrete Gravity  
 WEARING SURFACE: 2 1/2" ± Asphalt  
 ALIGNMENT: Tangent  
 CONDITION: Poor  
 DATE BUILT: 1928



B.M. Chiseled Cross on the SW Abutment of Bridge Hur-250-18.28 Elev. 973.32'

B.M. Railroad Spike in a Power Pole 42' Lt. Sta. 970+34 Elev. 976.03'



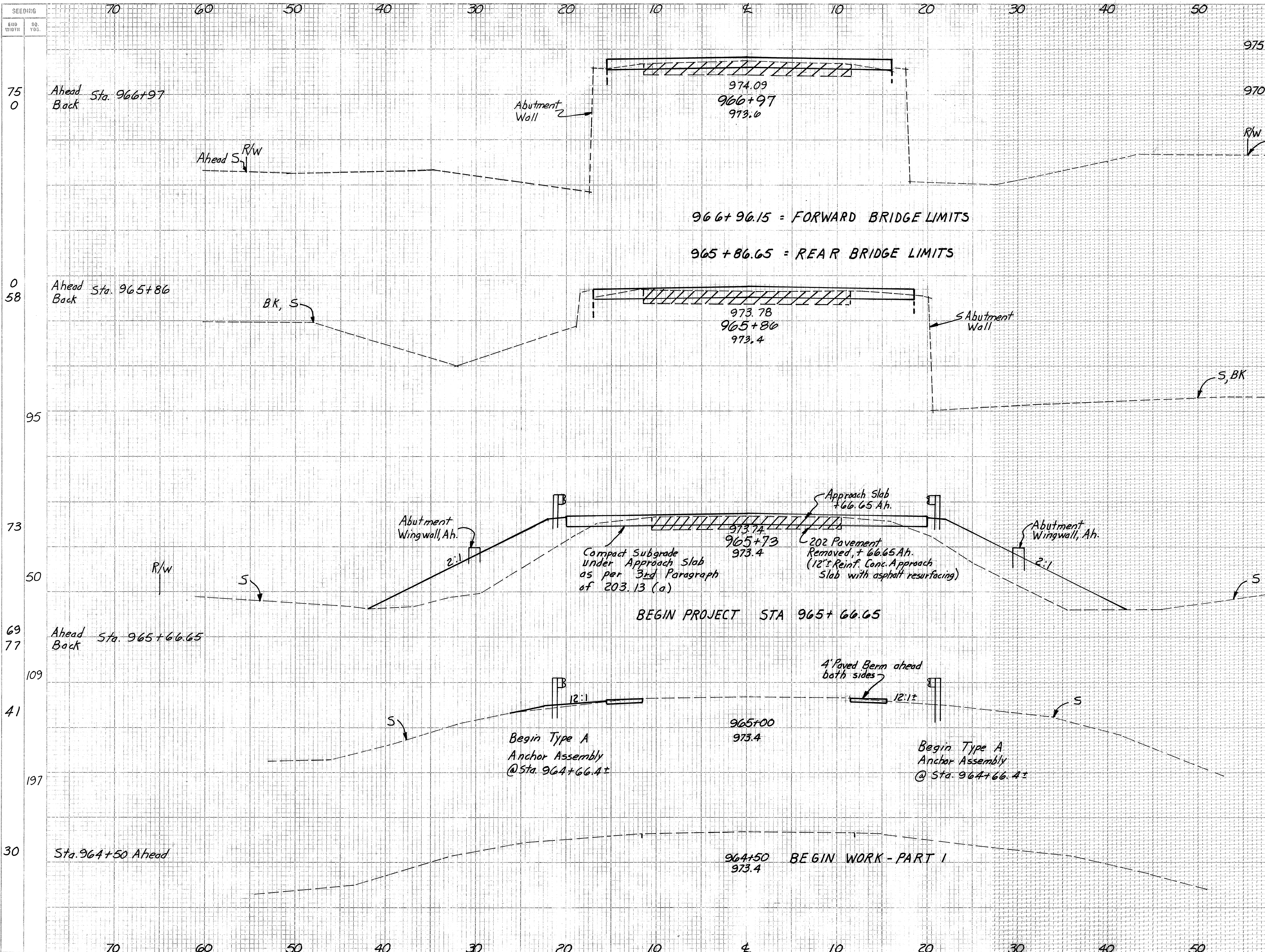
**PROPOSED STRUCTURE**  
 HUR-250-1828  
 TYPE: Concrete Slab on Steel Beams (Composite Design)  
 SPANS: 2 @ 52'-6" Center to Center of Bearings  
 ROADWAY: 40'-0" Face to Face of Railing  
 SKEW: 0°  
 LOADING: HS20 And Alternate Military Loading  
 SUBSTRUCTURE: Existing Concrete Gravity Abutments (Renovated) and new Capped Pile Pier.  
 WEARING SURFACE: Monolithic Concrete  
 ALIGNMENT: Tangent  
 SUPERELEVATION: None  
 APPROACH SLABS: 20' Long AS-1-81

EXCAVATION 68 CU. YDS.  
 EMBANKMENT 500 CU. YDS.  
 SEEDING 1492 SQ. YDS.  
 FERTILIZER 0.15 TONS

Station	Description	Units	Quantity	Station	Description	Units	Quantity
202	Pavement Removed	Sq. Yds.					
611	Reinforced Concrete Approach Slab T=13"	Sq. Yds.	88.3				
667	Seeding and Jute Matting	Sq. Yds.				76	63
407	Cover Aggregate	Tons					
407	Tack Coat	Gal.	9.8			9.0	0.3
402	Asphalt Concrete AC-20	Cu. Yds.					
404	Asphalt Concrete AC-20	Cu. Yds.	4.8			5.6	
202	Guardrail Removed For Storage*	Lin. Ft.				250	250
600	Type B Bridge Terminal Assembly	Each				2	2
600	Type A Anchor Assembly	Each				2	2
	Type 5 Guardrail	Lin. Ft.	190.50			190.50	
<b>SIDE</b>							
<b>STATION LIMITS</b>							
AS-1	965+66.65 to 965+86.65	LT.		RT.			
AS-2	966+96.15 to 967+16.15	LT.		RT.			
F-1	965+37 to 965+66.65	LT.		RT.			
F-2	967+16.15 to 967+50	LT.		RT.			
GR-1	964+66.45 to 968+16.45	LT.		RT.			
GR-2	964+66.45 to 968+16.45	LT.		RT.			
R-1	965+66.65 to 965+86.65	LT.		RT.			
R-2	966+96.70 to 967+16.70	LT.		RT.			
JM-1	967+00 to 968+70	LT.		RT.			
JM-2	967+00 to 968+40	LT.		RT.			
PB-1	965+00 to 965+66.65	LT.		RT.			
PB-2	967+16.15 to 968+20	LT.		RT.			
PB-3	967+16.15 to 968+00	LT.		RT.			
<b>TOTALS</b>			38100		4		

\* Store on the project for Removal by State Forces

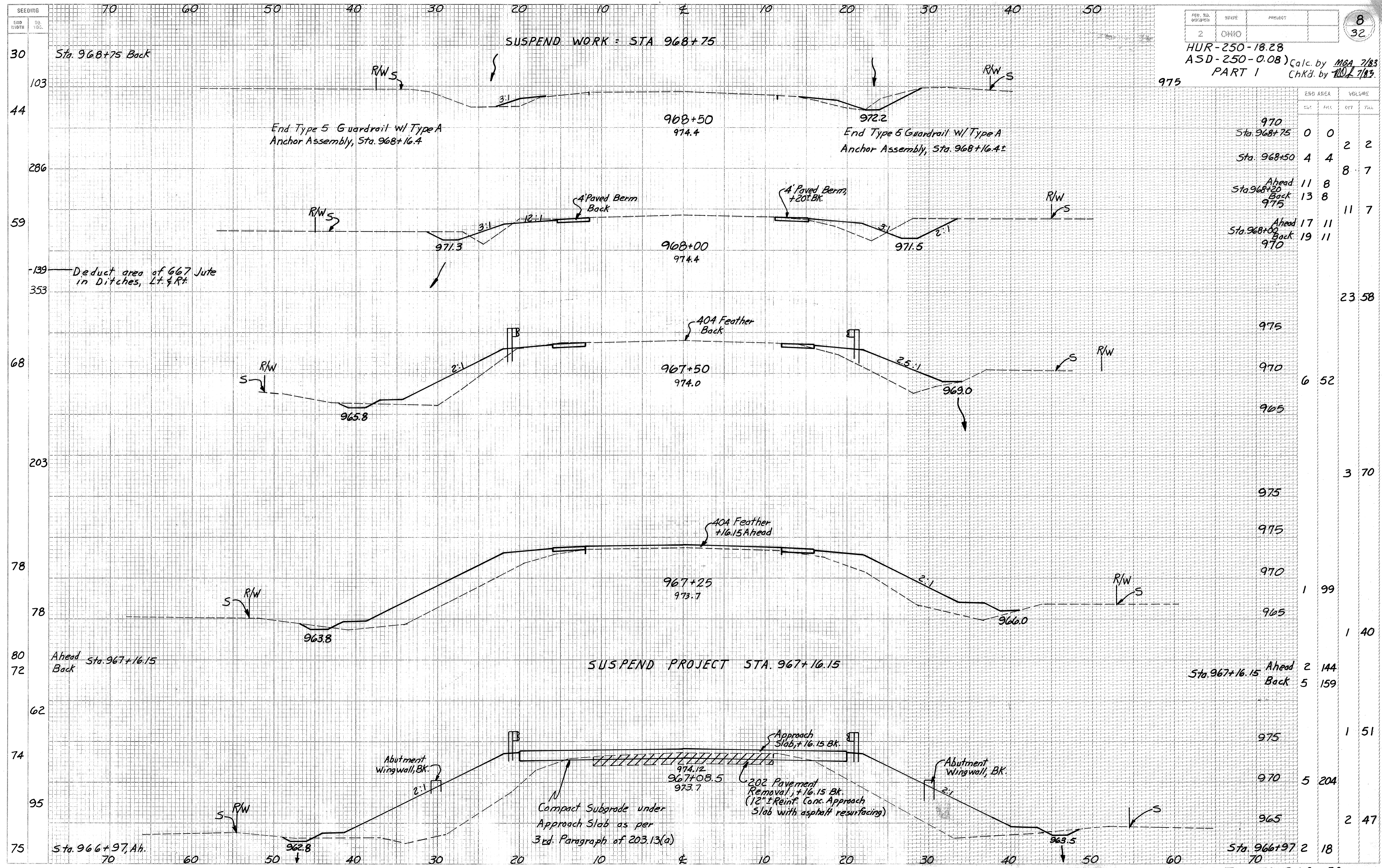




FED. RD. DIST. NO. 2  
 STATE OF OHIO  
 PROJECT HUR-250-18.28  
 ASD-250-0.08  
 PART I  
 Calc. by MGA 7/83  
 Chkd. by TOL 7/83

STA.	CUT		FILL		VOL.	CUM. VOL.
	AREA	CU YDS.	AREA	CU YDS.		
965	2	18				
960			1	1		
965+96.15	2	18				
965+86.65	0	0				
975	0	0				
970	8	16				
965						
960			4	43		
975						
970	8	137				
965			2	31		
965+66.65	8	124	3	113		
975			7	142		
970	3	2	0	2		
965			0	2		
975						
970	0	0				
965						

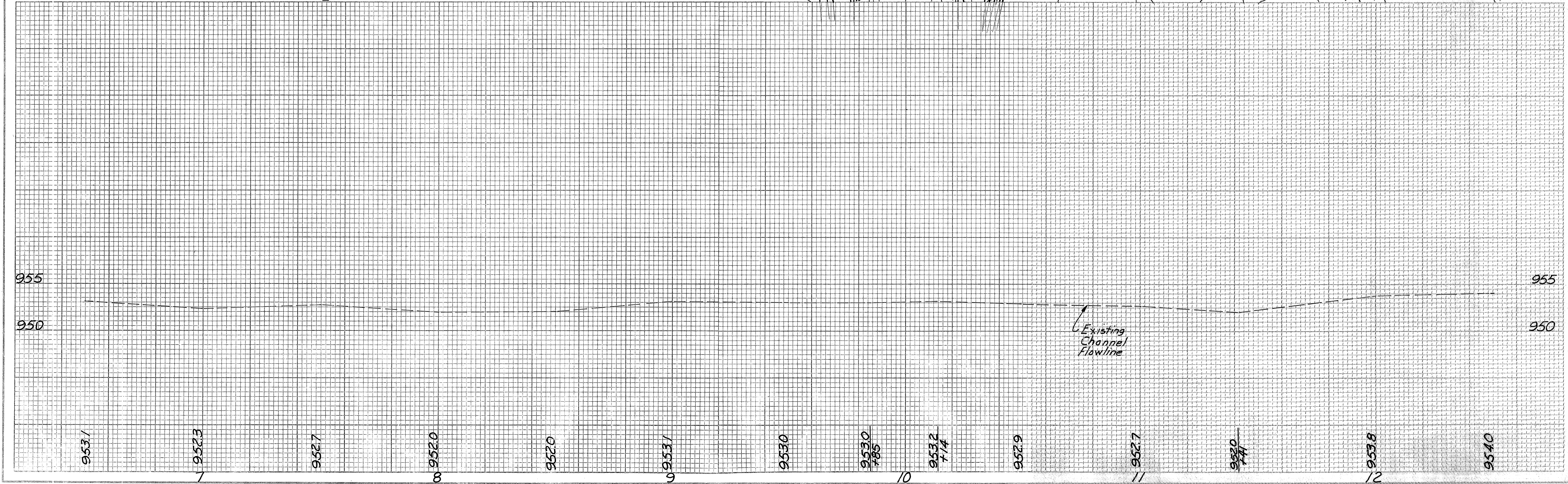
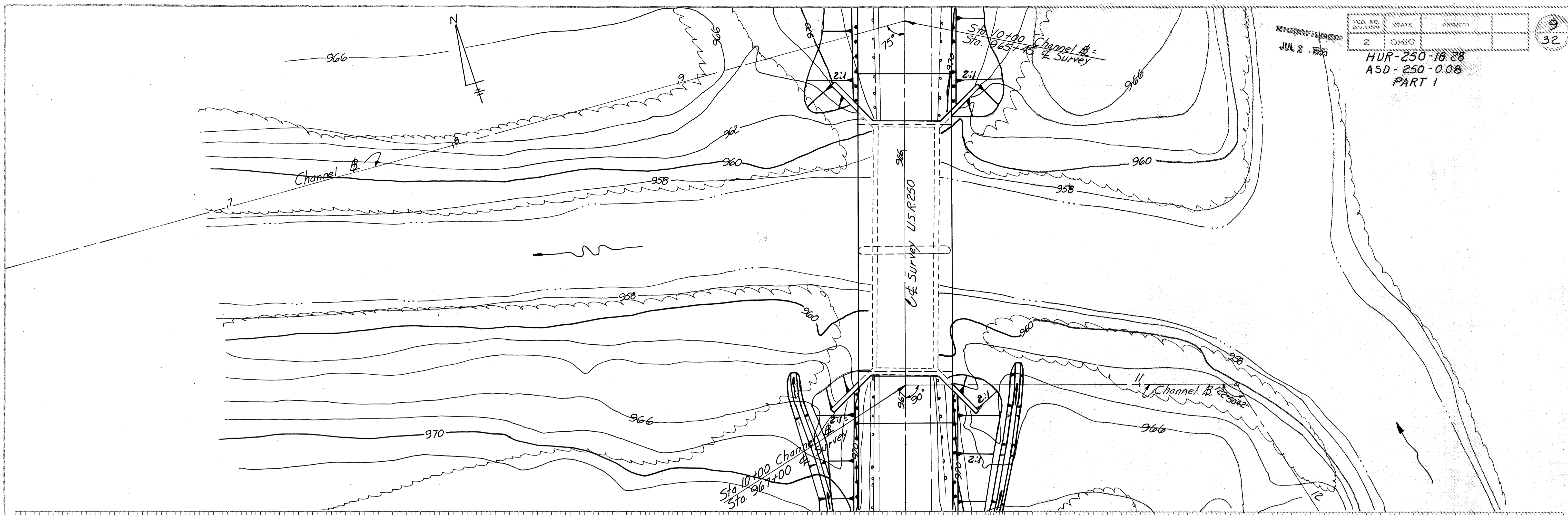




STA.	TYPE	CUT		FILL		VOL. (CY)
		AREA	FEET	AREA	FEET	
975						
970						
Sta. 968+75		0	0			2 2
Sta. 968+50		4	4			8 7
Ahead Sta. 968+20		11	8			
Back 975		13	8			11 7
Ahead Sta. 968+00		17	11			
Back 970		19	11			23 58
975						
970		6	52			
965						
975						3 70
975						
970		1	99			
965						1 40
975						
970		2	144			
Back 975		5	159			1 51
975						
970		5	204			
965						2 47
975						
970						
965						
Sta. 966+97		2	18			

X - SECTIONS STA. 967+08.5 TO STA. 968+50

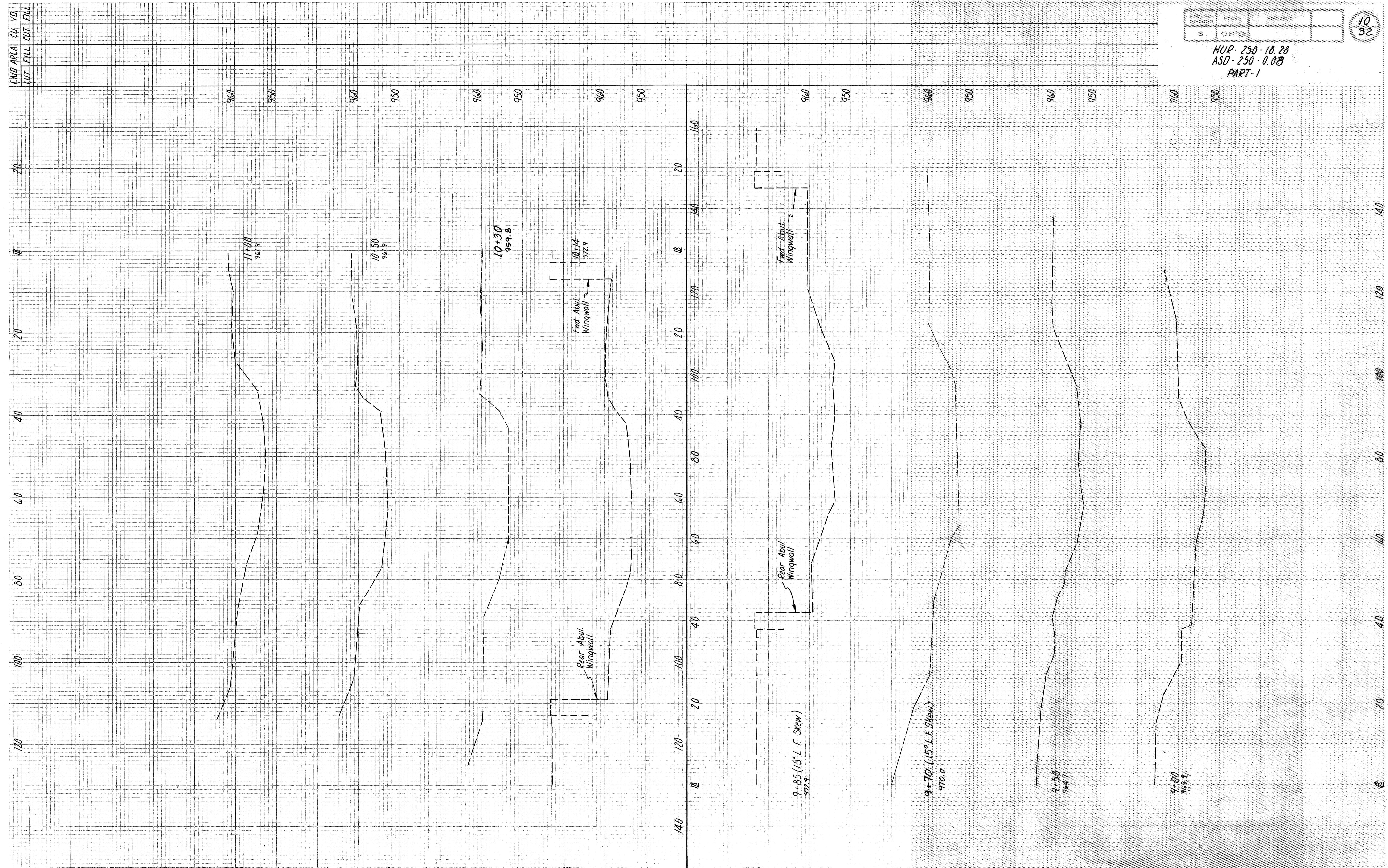




CHANNEL DETAILS - HUR-250-1828



HUR-250-18.28  
ASD-250-0.08  
PART-1



CHANNEL X-SECTIONS HUR-250-1828



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JUL 2 1985

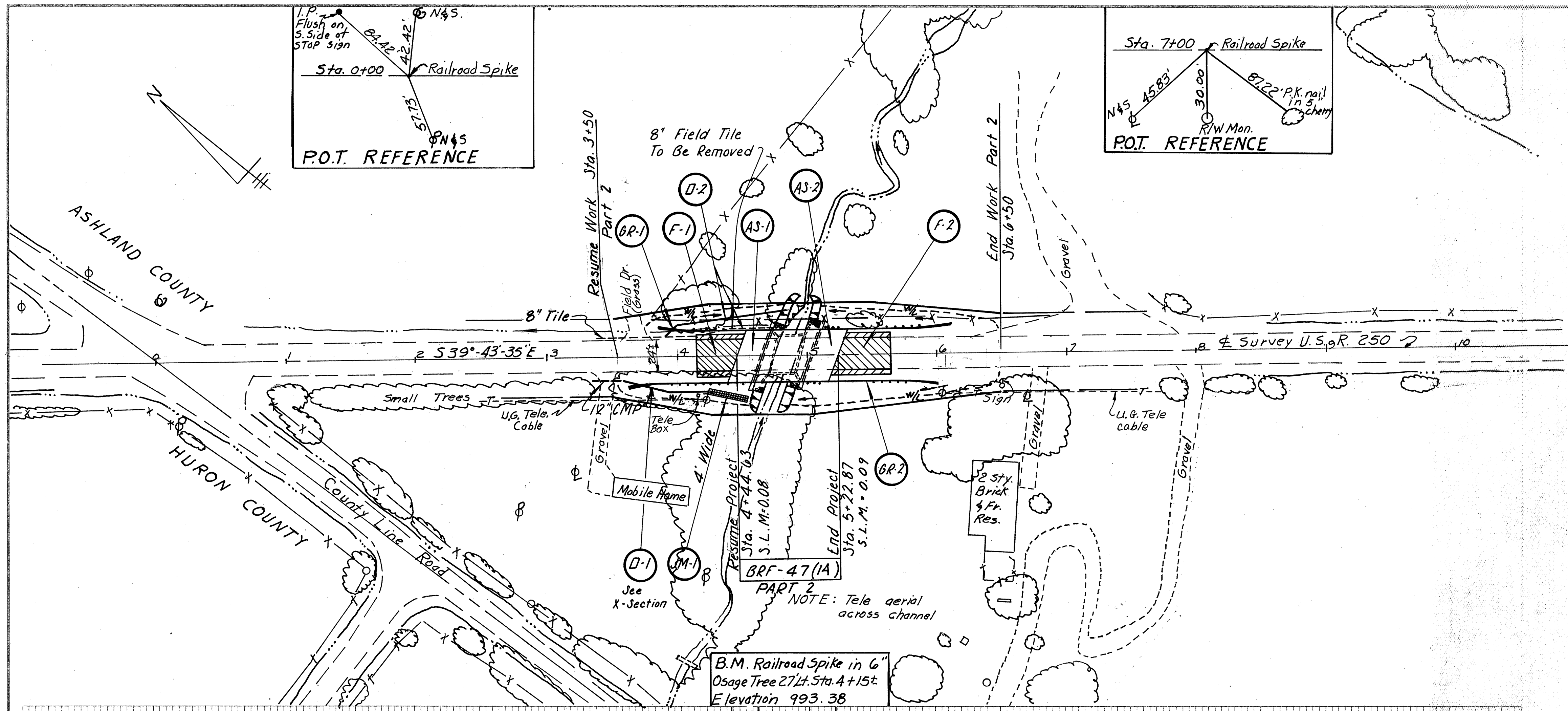
FED. DIVISION	STATE	PROJECT	11
2	OHIO		32

HUR-250-18.28  
ASD-250-0.08  
PART 2  
Calc. by RJR 6/83  
Chkd. by ROJ 7/83

**EXISTING BRIDGE DATA**  
ASD-250-0009

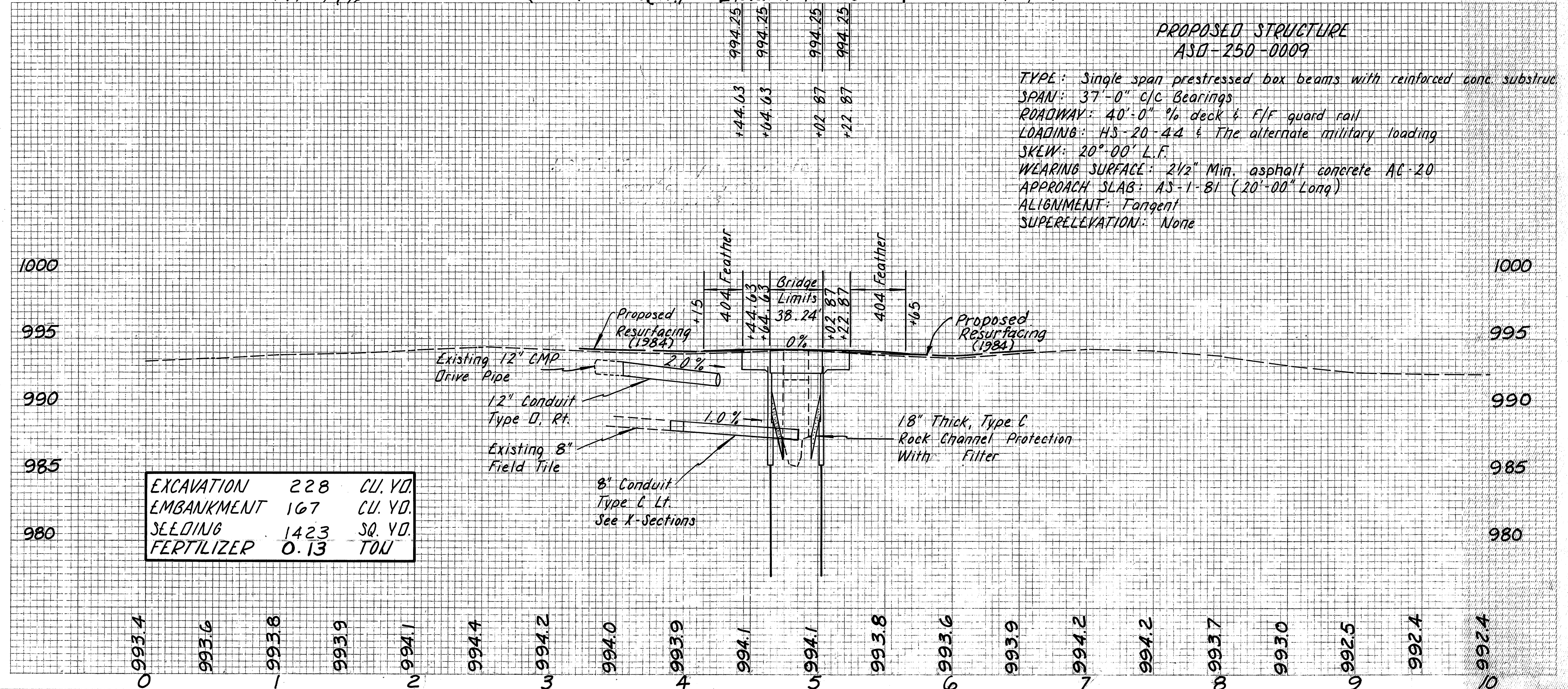
TYPE: Concrete Slab  
SPAN: 18'-6" Clear  
ROADWAY: 29'-0" F/F Curbs  
SKEW: 15° Left Forward  
LOADING: H-15  
SUB-STRUCTURE: Concrete Gravity  
WEARING SURFACE: 9"± Asphalt  
ALIGNMENT: Tangent  
CONDITION: Poor  
DATE BUILT: 1928

Item	Quantity	Unit	Value	Value	Value	Value	Value
Bench and Branches	12" x 15" Bend	Each					2
	8" x 45" Bend	Each					2
202	Pipe Removed, 24" and Under	Sq. Yd. Lin. Ft.					82
667	Seeding & Jute Matting	Sq. Yd.				13.3	13.3
611	Reinforced Concrete Approach Slab, T-13"	Sq. Yd.	88.9	88.9			177.8
	Cover Aggregate	Tons	0.31	0.31	0.28	0.39	1.29
	Tack Coat	Gal.	8.9	8.9	8.0	11.2	37.0
	Asphalt Concrete AC-20	T. 4"			2.9	4.2	7.1
	Asphalt Concrete AC-20	Var.	6.2*	6.2*	2.0	2.7	17.1
603	12" Conduit Type D	Lin. Ft.					70
	8" Conduit Type C	Lin. Ft.					100
	Type B Bridge Terminal Assembly	Each			2	2	4
606	Type A Anchor Assembly	Each					4
	Type 5 Guardrail	Lin. Ft.			136.76	149.24	286.02
<b>SIDE</b>							
<b>STATION LIMITS</b>							
REF. NO.	AS-1	4+44.63 to 4+64.63					
	AS-2	5+02.87 to 5+22.87					
	F-1	4+15 to 4+44.63					
	F-2	5+22.87 to 5+63					
	GR-1	3+87.9 to 6+12.9	Lt.				
	GR-2	3+60.8 to 5+98.3	Rt.				
	D-1	3+55± to 4+24±	Rt.				
	JM-1	4+24± to 4+53±	Rt.				
	D-2	3+90± to 4+85±	Lt.				
<b>TOTALS</b>							



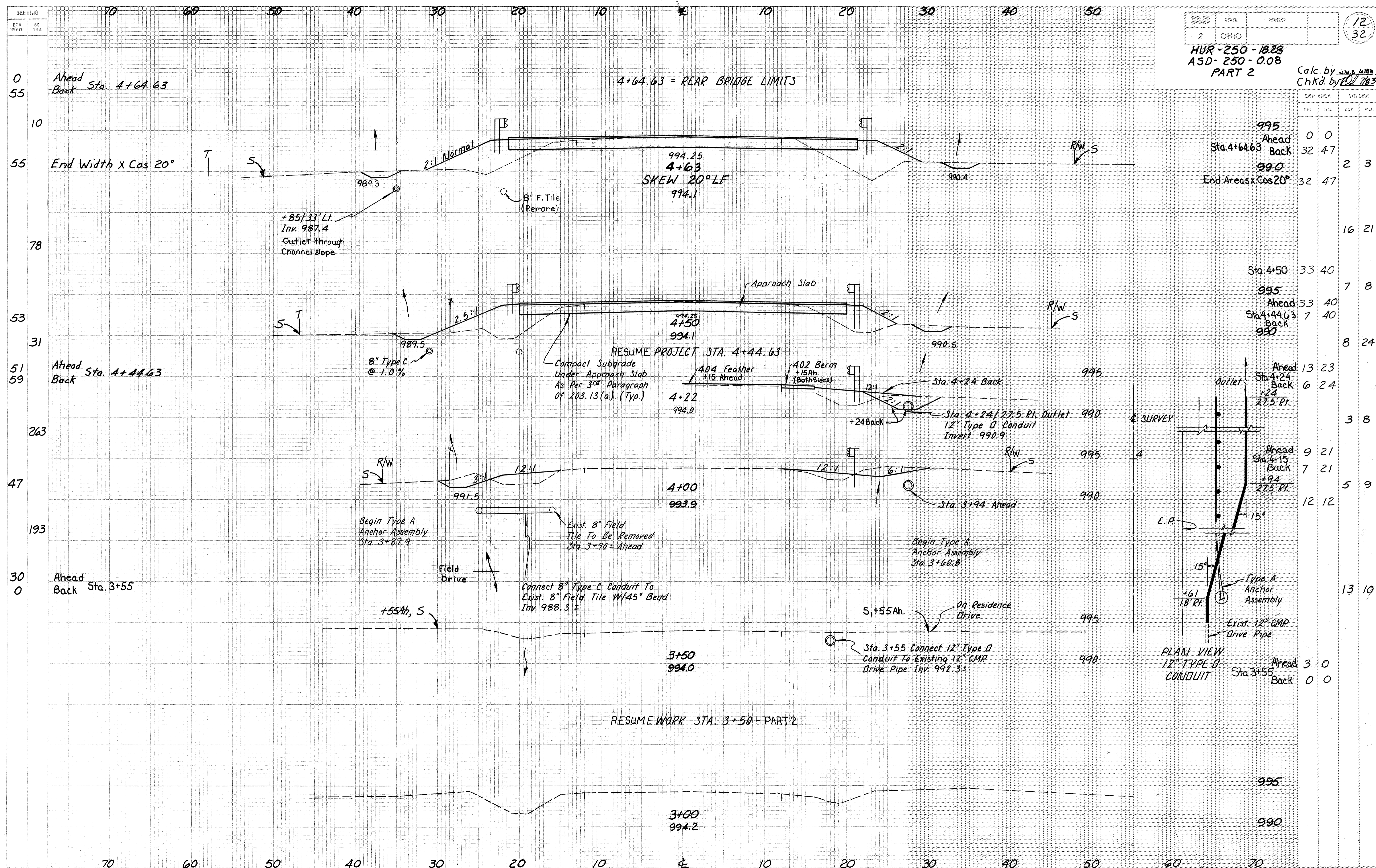
**PROPOSED STRUCTURE**  
ASD-250-0009

TYPE: Single span prestressed box beams with reinforced concrete substructure  
SPAN: 37'-0" c/c Bearings  
ROADWAY: 40'-0" % deck & F/F guard rail  
LOADING: HS-20-44 & Tne. alternate military loading  
SKEW: 20° 00' L.F.  
WEARING SURFACE: 2 1/2" Min. asphalt concrete AC-20  
APPROACH SLAB: AS-1-B1 (20'-00" Long)  
ALIGNMENT: Tangent  
SUPERELEVATION: None



EXCAVATION	228	CU. YD.
EMBANKMENT	167	CU. YD.
SEEDING	1423	SQ. YD.
FERTILIZER	0.13	TON

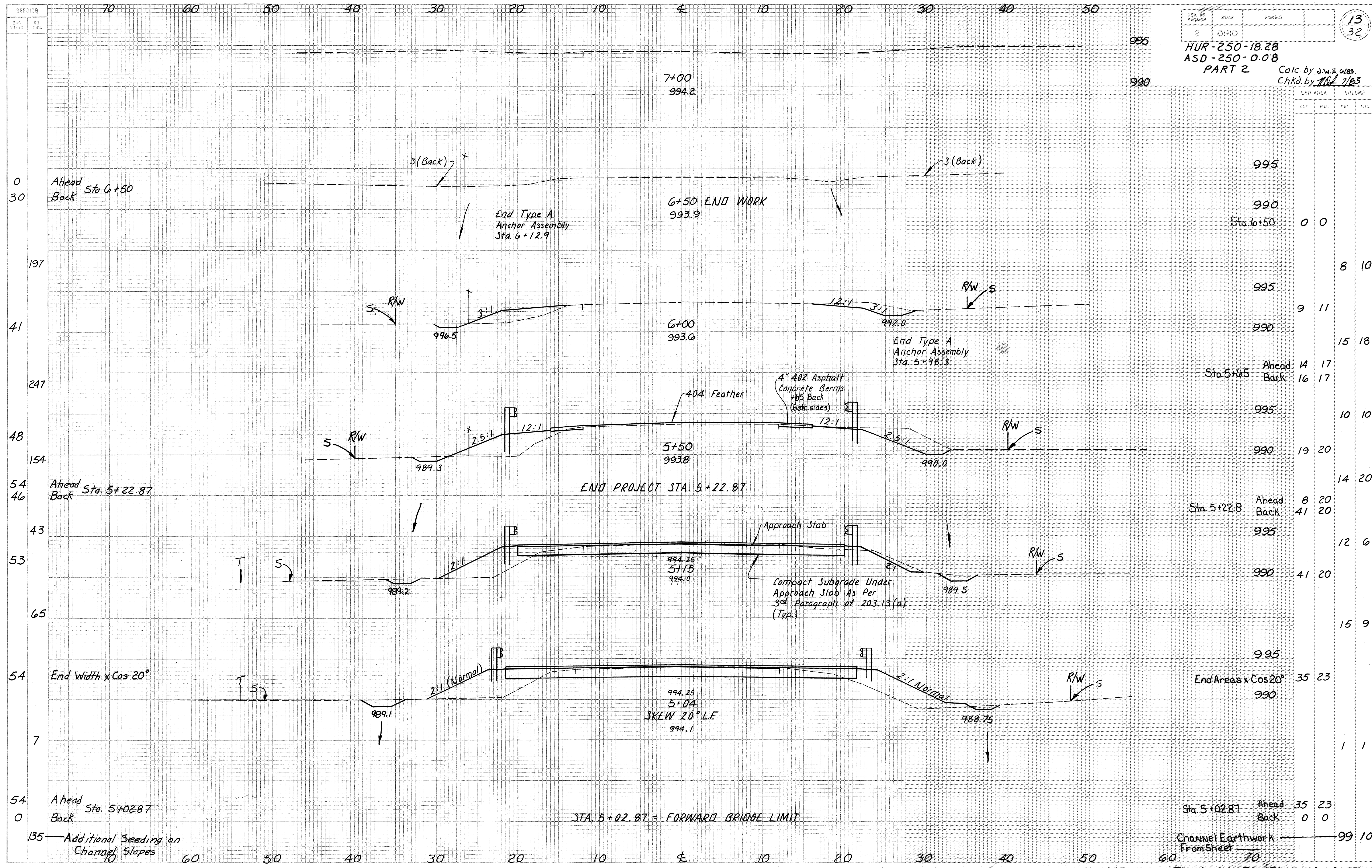




STA.	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
995	0	0		
Ahead Sta. 4+64.63	32	47		
Back 990			2	3
End Areas x Cos 20°	32	47		
			16	21
Sta. 4+50	33	40		
995			7	8
Ahead Sta. 4+44.63	33	40		
Back 990	7	40		
			8	24
Ahead Sta. 4+24	13	23		
Back +24	6	24		
+24			3	8
Ahead Sta. 4+15	9	21		
Back +94	7	21		
+94			5	9
			12	12
Ahead Sta. 3+55	3	0		
Back 990	0	0		
995				
990				

X-SECTIONS 3+00 to 4+63 PART 2





STATION	ELEVATION	END AREA		VOLUME	
		CUT	FILL	CUT	FILL
0	995				
30	990				
197	995	0	0	8	10
41	990	9	11	15	18
247	995	14	17	14	17
48	990	19	20	10	10
154	995	14	20	14	20
54	990	8	20	41	20
46	995	41	20	12	6
43	990	41	20	15	9
65	995	35	23		
54	990	35	23		
7	995			1	1
54	990	35	23		
0	995	0	0	35	23
135	990			99	10

X-SECTIONS STA. 5+04 TO STA. 7+00 PART 2

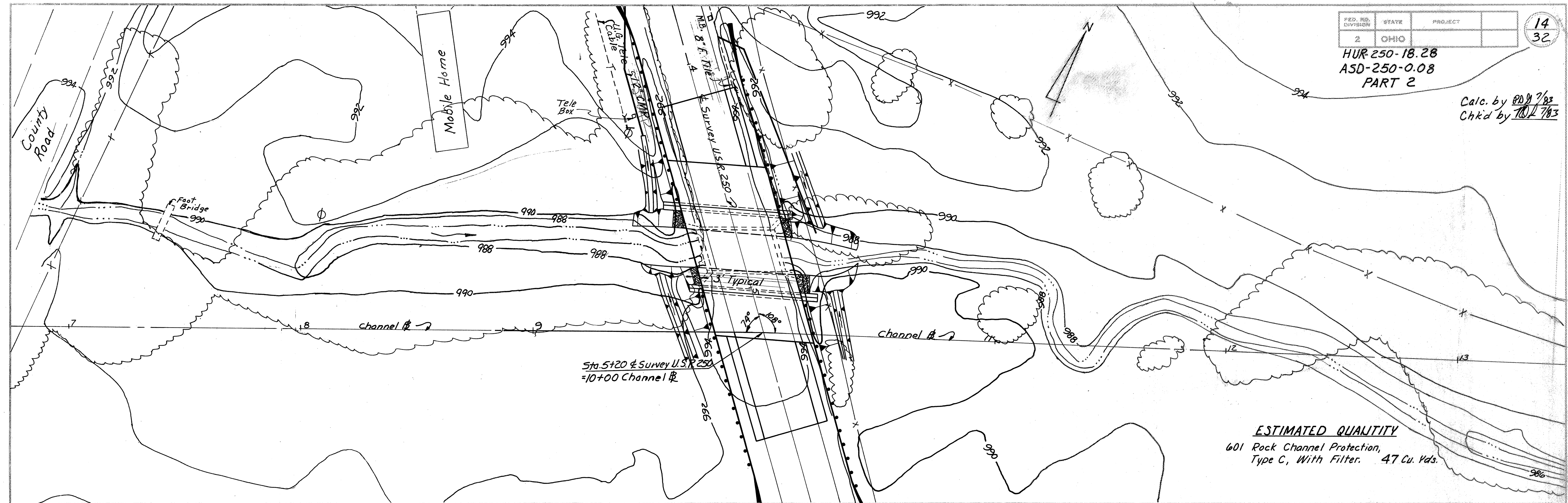


FED. DIST. DIVISION	STATE	PROJECT
2	OHIO	

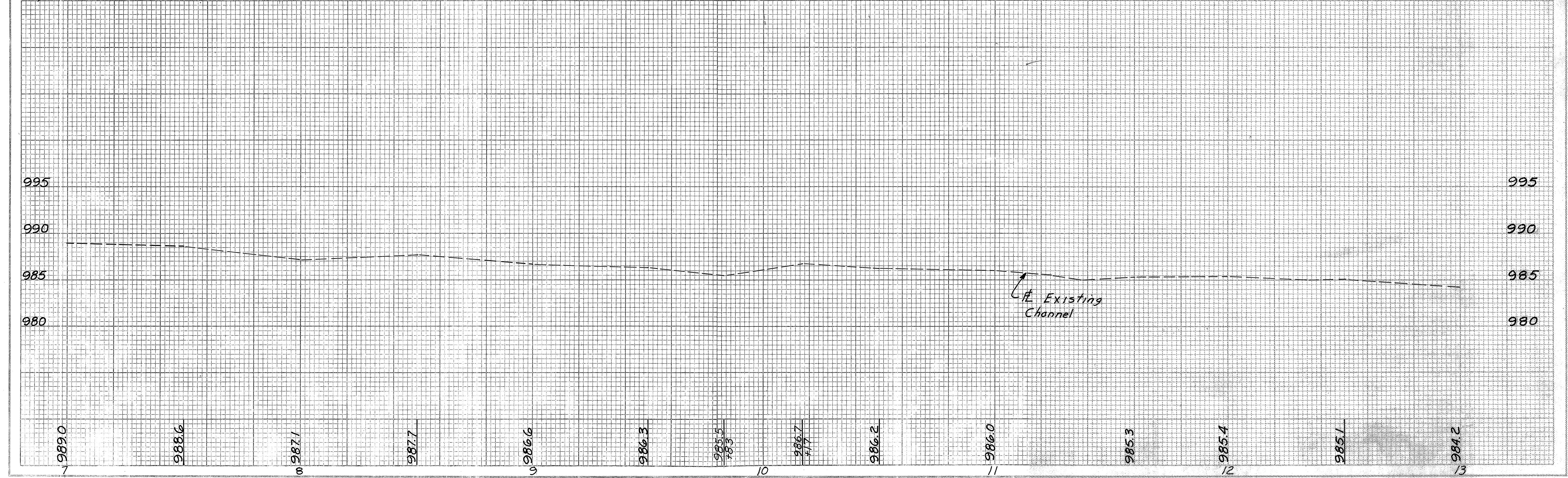
14  
32

HUR-250-18.28  
ASD-250-0.08  
PART 2

Calc. by P.D. 7/83  
Chkd by T.C. 7/83



**ESTIMATED QUALITY**  
601 Rock Channel Protection,  
Type C, With Filter. 47 Cu. Yds.







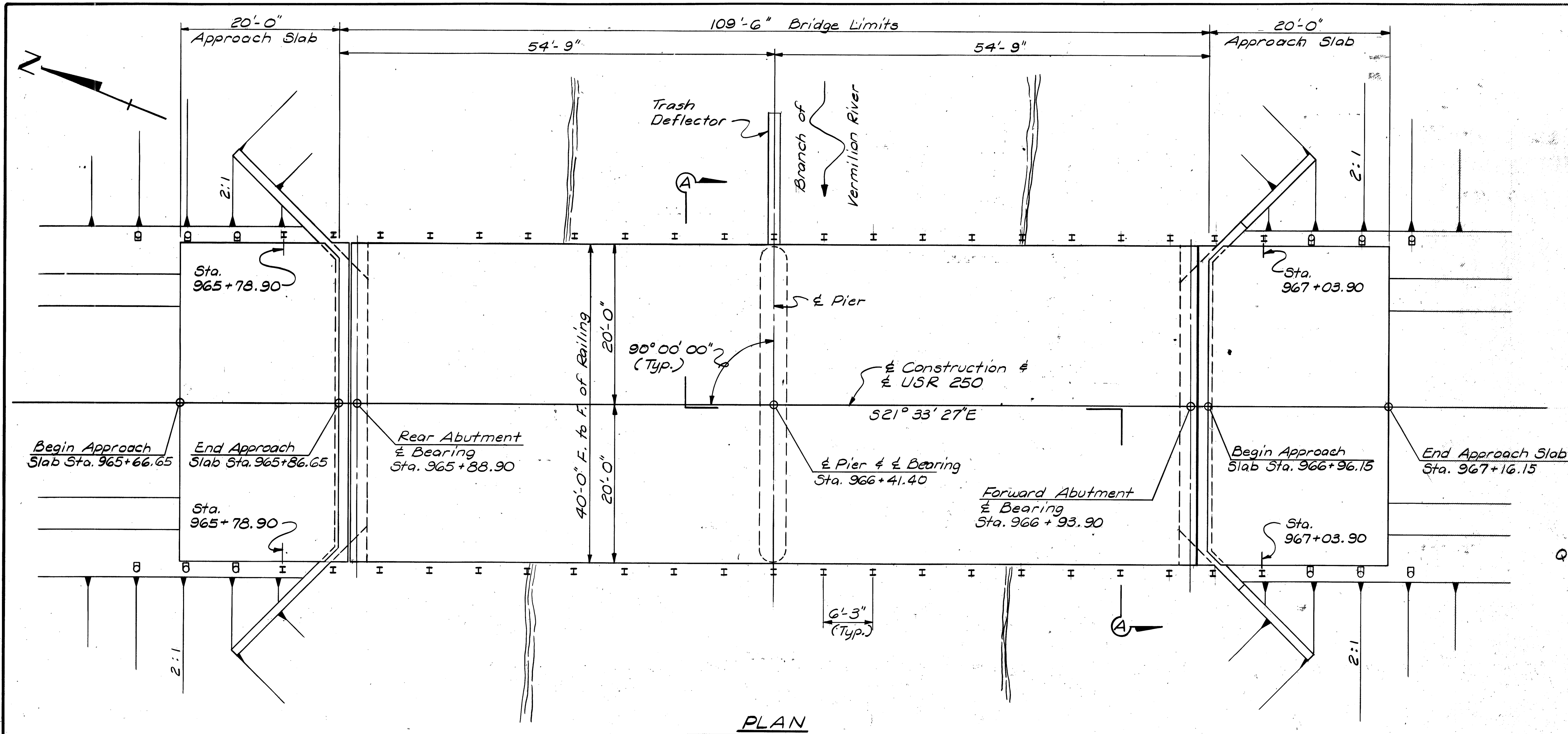


MICROFILMED  
JUL 20 1965

FHWA REGION	STATE	PROJECT
	OHIO	

16  
32

HUR-250-18.28  
ASD-250-0.08  
PART 1



**DESIGN TRAFFIC**

1982 ADT = 2450  
2002 ADT = 3575  
% Trucks = 30%

Q<sub>100</sub> = 5061 c.f.s. V<sub>100</sub> = 3.88 ft./sec. El. 969.90

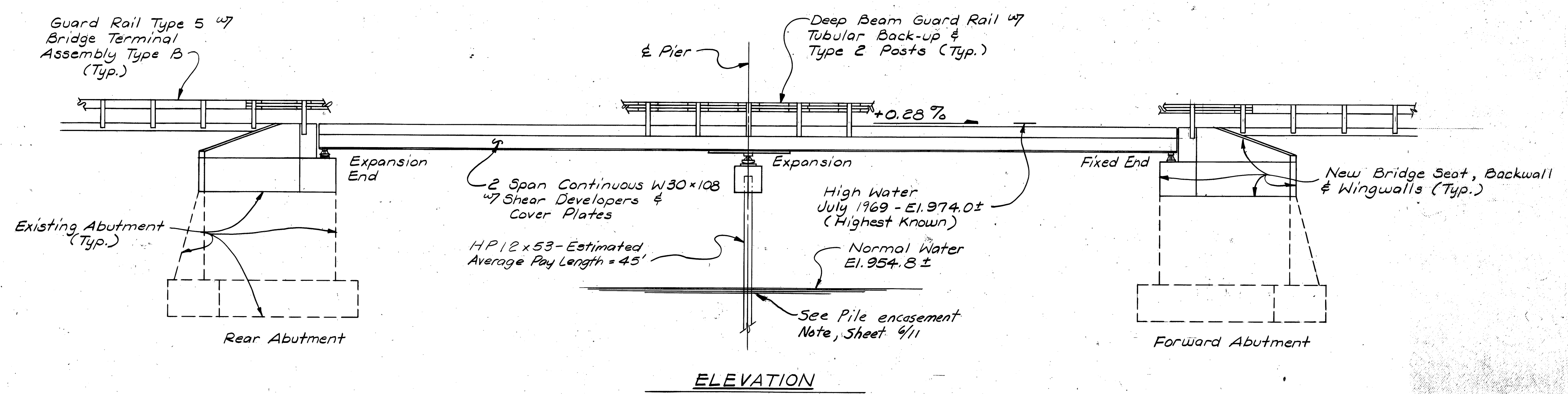
**EXISTING STRUCTURE**

TYPE: STEEL LOW-TRUSS  
SPAN: 182'-4" CLEAR  
ROADWAY: 24'-0" F. TO F. OF RAILING  
SKEN: 0°  
LOADING: S-15.6  
SUBSTRUCTURE: CONCRETE GRAVITY  
WEARING SURFACE: 2-1/2" ASPHALT ON TIMBER  
ALIGNMENT: TANGENT  
CONDITION: POOR  
DATE BUILT: 1928

**PROPOSED STRUCTURE**

TYPE: CONCRETE SLAB ON STEEL BEAMS (COMPOSITE DESIGN)  
SPANS: 2 @ 52'-6" C. TO C. OF BEARINGS  
ROADWAY: 40'-0" F. TO F. OF RAILING  
SKEN: 0°  
LOADING: HS20 AND ALTERNATE MILITARY LOADING  
SUBSTRUCTURE: EXISTING CONCRETE GRAVITY ABUTMENTS (RENOVATED) & NEW CAPPED PILE PIER  
WEARING SURFACE: MONOLITHIC CONCRETE  
ALIGNMENT: TANGENT  
SUPERELEVATION: NONE  
APPROACH SLABS: 20' LONG AS-1-B1

For Section See Sheet 3/11



**SEEG** Snell Environmental Group  
Engineers • Planners • Consultants  
1533 Commerce Drive / Stow, OH 44224  
P.O. Box 958 / Akron, OH 44309

**GENERAL PLAN & ELEVATION**  
BRIDGE NO. HUR-250-18.28 OVER  
BRANCH OF VERMILION RIVER

SEC.	STA.
SCALE	

PRESENT TOPOGRAPHY		PROPOSED WORK			
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
		JED	SUP	RGW	

REVISIONS	
-----------	--



RECORDED  
JUL 2 1985

HUR-250-18.28  
ASD-250-0.08  
PART 1

REFERENCE SHALL BE MADE TO SUPPLEMENTAL SPECIFICATIONS:

824 DATED 10-8-82  
836 DATED 3-18-75  
849 DATED 10-19-81

REFERENCE SHALL BE MADE TO STANDARD DRAWING(S):

RB-1-55 REVISED 2-2-59  
SD-1-69 DATED 8-12-69  
AS-1-81 DATED 11-20-81  
DBR-2-73 DATED 4-10-73  
TS-EXJ-2-81 DATED 8-8-81  
CPP-2-73 DATED 4-10-73

DESIGN SPECIFICATIONS: THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1977, INCLUDING THE 1978, 1979, 1980, 1981, AND 1982 INTERIM SPECIFICATIONS AND THE OHIO "SUPPLEMENT" TO THESE SPECIFICATIONS.

DESIGN LOADING: HS20-44 CASE II AND THE ALTERNATE MILITARY LOADING.

DESIGN STRESSES:

CONCRETE CLASS S - UNIT STRESS 1500 P.S.I. (SUPERSTRUCTURE)  
CONCRETE CLASS C - UNIT STRESS 1333 P.S.I. (SUBSTRUCTURE)  
REINFORCING STEEL ASTM A615, A616 OR A617; GRADE 60 - UNIT STRESS 24,000 P.S.I.  
STRUCTURAL STEEL ASTM A588 - UNIT STRESS 27,000 P.S.I.  
A36 - UNIT STRESS 20,000 P.S.I.

DECK PROTECTION METHOD: EPOXY COATED REINFORCING STEEL, TOP MAT ONLY.

MONOLITHIC WEARING SURFACE IS ASSUMED, FOR DESIGN PURPOSES, TO BE 1" THICK.

EXISTING STRUCTURE VERIFICATION: DETAILS AND DIMENSIONS SHOWN ON THESE PLANS PERTAINING TO THE EXISTING STRUCTURE HAVE BEEN OBTAINED FROM PLANS OF THE EXISTING STRUCTURE AND/OR FROM FIELD OBSERVATIONS AND MEASUREMENTS. CONSEQUENTLY, THEY ARE INDICATIVE OF THE EXISTING STRUCTURE AND THE PROPOSED WORK BUT THEY SHALL BE CONSIDERED TENTATIVE AND APPROXIMATE. THE CONTRACTOR IS REFERRED TO CMS SECTIONS 102.05, 105.02, AND 513.02. CONTRACT BID PRICES SHALL BE BASED UPON A RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PREBID EXAMINATION OF THE EXISTING STRUCTURE BY THE CONTRACTOR. HOWEVER, ALL PROJECT WORK SHALL BE BASED UPON ACTUAL DETAILS AND DIMENSIONS WHICH HAVE BEEN VERIFIED BY THE CONTRACTOR IN THE FIELD.

PORTIONS OF STRUCTURES REMOVED: WHEN NO LONGER NEEDED TO MAINTAIN TRAFFIC, THE EXISTING STRUCTURE SHALL BE REMOVED. ABUTMENTS SHALL BE REMOVED TO ELEVATIONS SHOWN ON THE PLANS.

PILE DESIGN LOADS: THE DESIGN LOAD FOR THE PIER PILES IS 60 TONS PER PILE.

THE PILE HAMMER USED TO INSTALL THE STEEL "H" BEARING PILES SHALL HAVE A STATE'S ENERGY RATING OF NOT LESS THAN 21,000 FOOT-POUNDS. THIS REQUIREMENT DOES NOT RELIEVE THE CONTRACTOR FROM 108.05 WHICH STATES THAT THE CONTRACTOR IS TO PROVIDE SUFFICIENT EQUIPMENT FOR PROSECUTING THE REQUIRED WORK.

ESTIMATED QUANTITIES BRF-47(15) Funds									
ITEM	AMOUNT	UNIT	DESCRIPTION	Rear Abutment	Forward Abutment	Pier	Super.		
202	Lump		Portions of Structures Removed	LUMP	LUMP		LUMP		
505	Lump		Pile Driving Equipment Mobilization			LUMP			
507	270	Lin.Ft.	Steel Piles, HP12 x 53 as per plan			270			
509	25,012	Lb.	Reinforcing Steel, Grade 60	5813	5813	1334	12,052		
510	196	Each	Dowel Holes	98	98				
511	156	Cu.Yd.	Class C Concrete, Abutments & Pier	70	70	16			
511	116	Cu.Yd.	Class S Concrete, Superstructure				116		
512	16	Sq.Yd.	Type A Waterproofing	8	8				
512	94	Sq.Yd.	Type B Waterproofing	47	47				
513	88,500	Lb.	Structural Steel (AISC Category I) ASTM A588				88,500		
513	1980	Each	Welded Stud Shear Connectors				1980		
516	79.7	Lin.Ft.	Elastomeric Compression Seals for Structural Steel Joints, 5" Width				79.7		
517	219.0	Lin.Ft.	Roiling (Deep Beam Guard Rail @ Tubular Backup & Type E Posts and bolts)				219.0		
518	90	Cu.Yd.	Porous Backfill	45	45				
518	140	Lin.Ft.	6" Perforated Helical Corrugated Steel Pipe 70701	70	70				
518	40	Lin.Ft.	6" Non-Perforated Helical Corrugated Steel Pipe, including Specials 70701	20	20				
824	15,975	Lb.	Epoxy Coated Reinforcing Steel, Grade 60				15,975		
Special	1443	Sq.Ft.	Protection of Concrete Surfaces (See Proposal Note)	627	638	168			
Special	Lump		Trash Deflector			LUMP			

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ESTIMATED QUANTITIES & GENERAL NOTES		2/11
BRIDGE NO. HUR - 250 - 18 28 OVER BRANCH OF VERMILION RIVER		
SEC.	STA.	
SCALE		
PRESENT TOPOGRAPHY	PROPOSED WORK	
SURVEYED	DRAWN	DESIGNED
		DRAWN
		CHECKED
		REVIEWED
	JED	SJP
		RGW
REVISIONS		

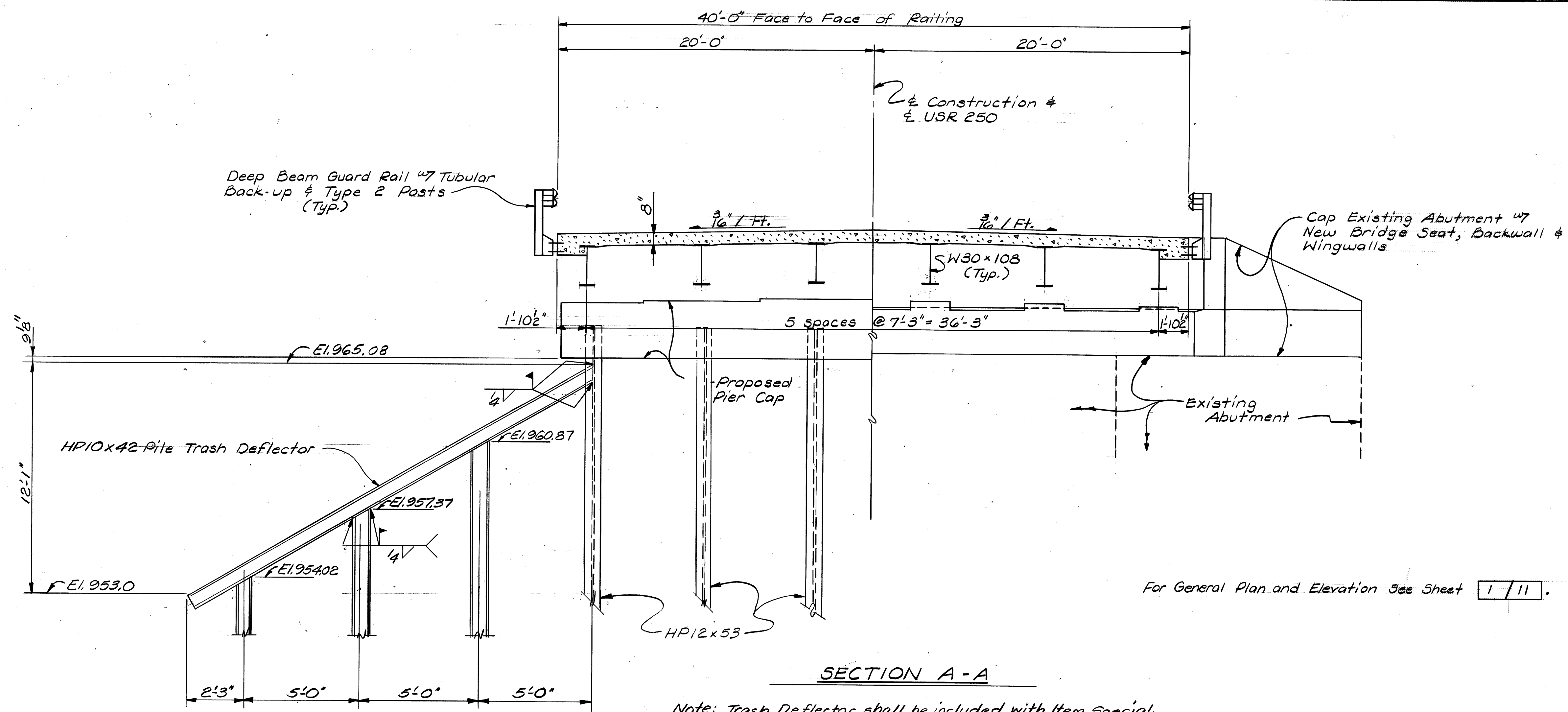


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FHWA REGION	STATE	PROJECT
	OHIO	

18  
32

HUR - 250 - 18.28  
ASD - 250 - 0.08  
PART 1



**SECTION A-A**

Note: Trash Deflector shall be included with Item Special, "Trash Deflector" for payment. Piles for trash deflector shall be driven a minimum of 10 ft. below stream bed. The sections may be HP12x53. All materials and painting shall be in accordance with Item 507. The contract price for Item Special, "Trash Deflector," shall be payment in full for furnishing all materials, equipment and labor necessary to complete the work including pile encasement as per note on Sheet 4/1.

		Snell Environmental Group Engineers • Planners • Consultants 1533 Commerce Drive / Stow, OH 44224 P.O. Box 988 / Akron, OH 44309	
		TRASH DEFLECTOR & GENERAL SECTION <span style="float: right;">3/11</span>	
BRIDGE NO. HUR - 250 - 18.28 OVER BRANCH OF VERMILION RIVER		SEC. _____ STA. _____	
PRESENT TOPOGRAPHY SURVEYED _____ DRAWN _____		PROPOSED WORK DESIGNED _____ DRAWN _____ CHECKED _____ REVIEWED _____ JED SUP RGW	
REVISIONS			

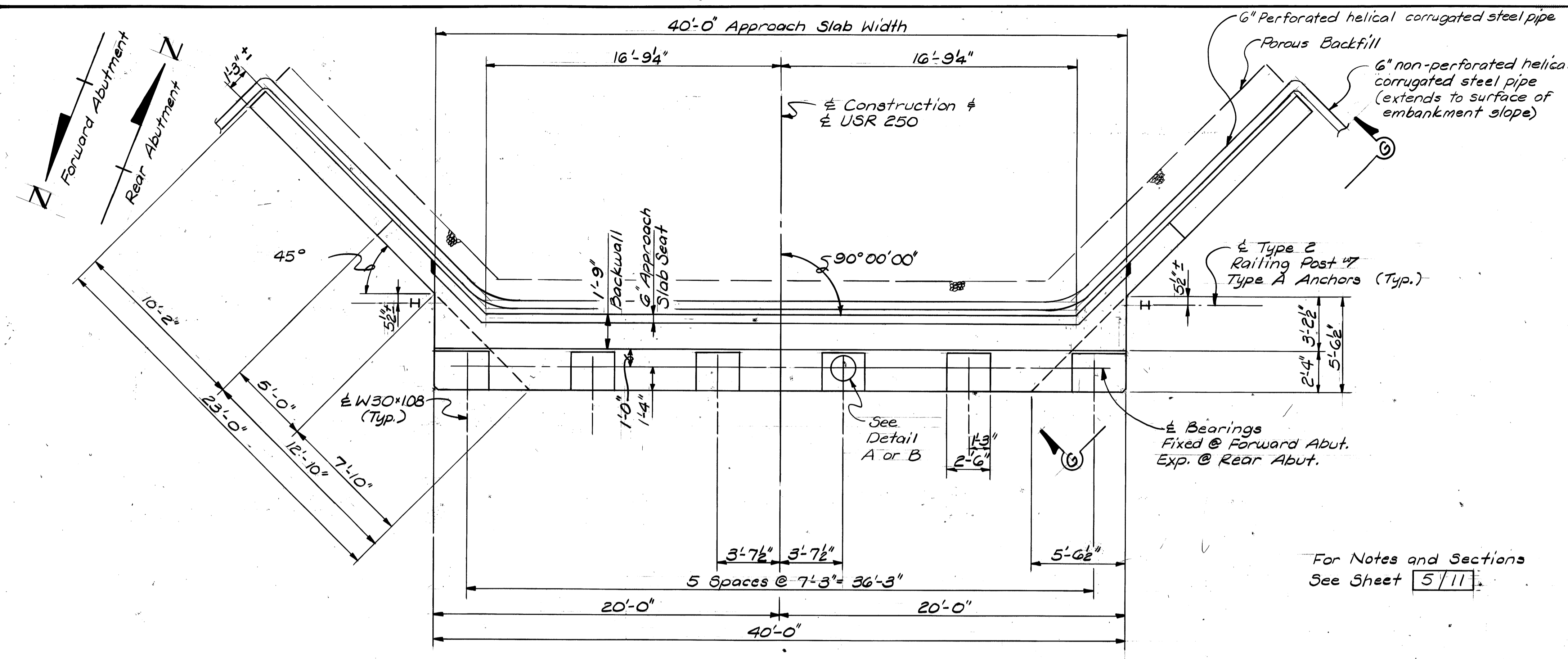


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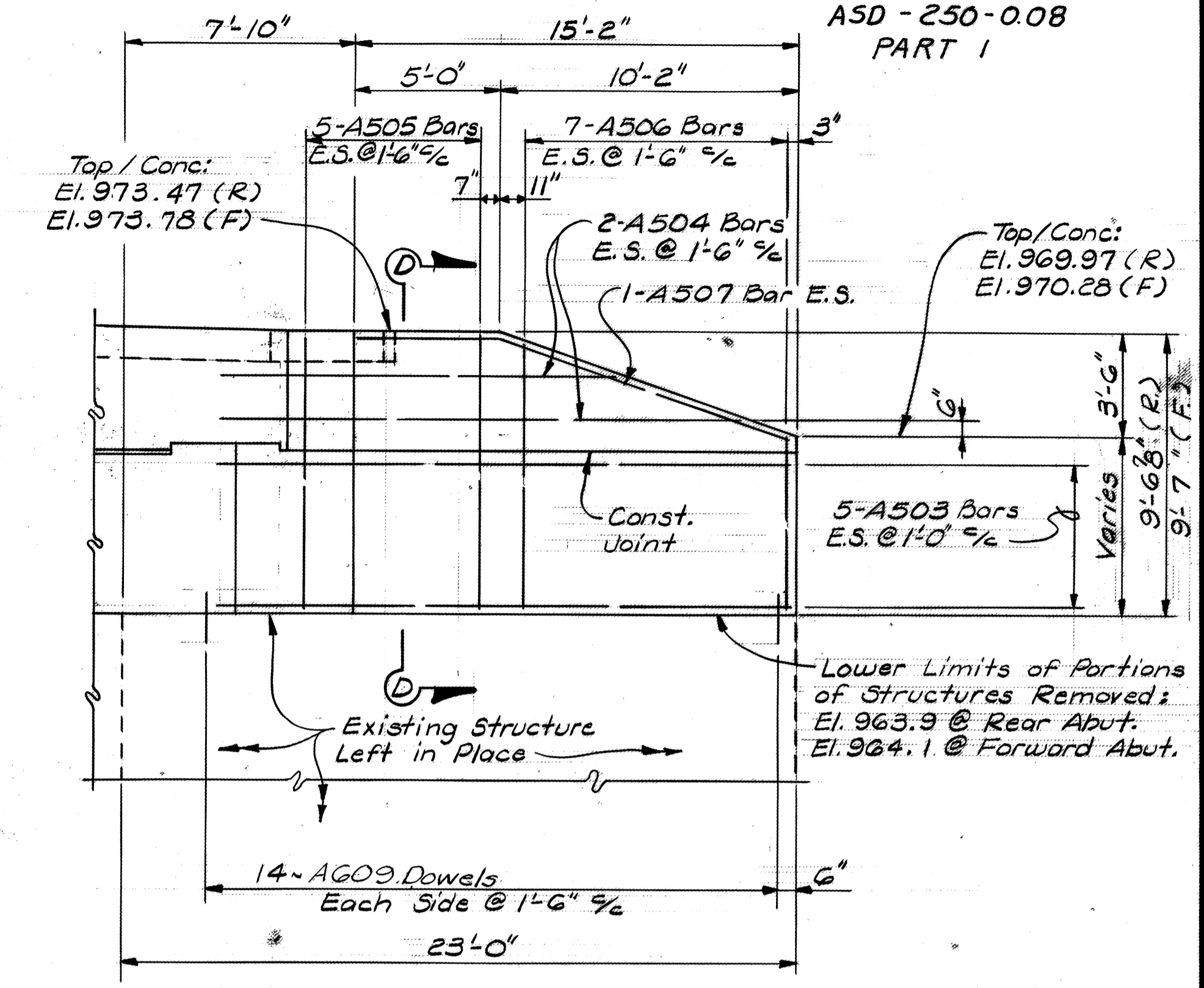
FHWA REGION	STATE	PROJECT
	OHIO	HUR-250-18.28 ASD-250-0.08

19  
32

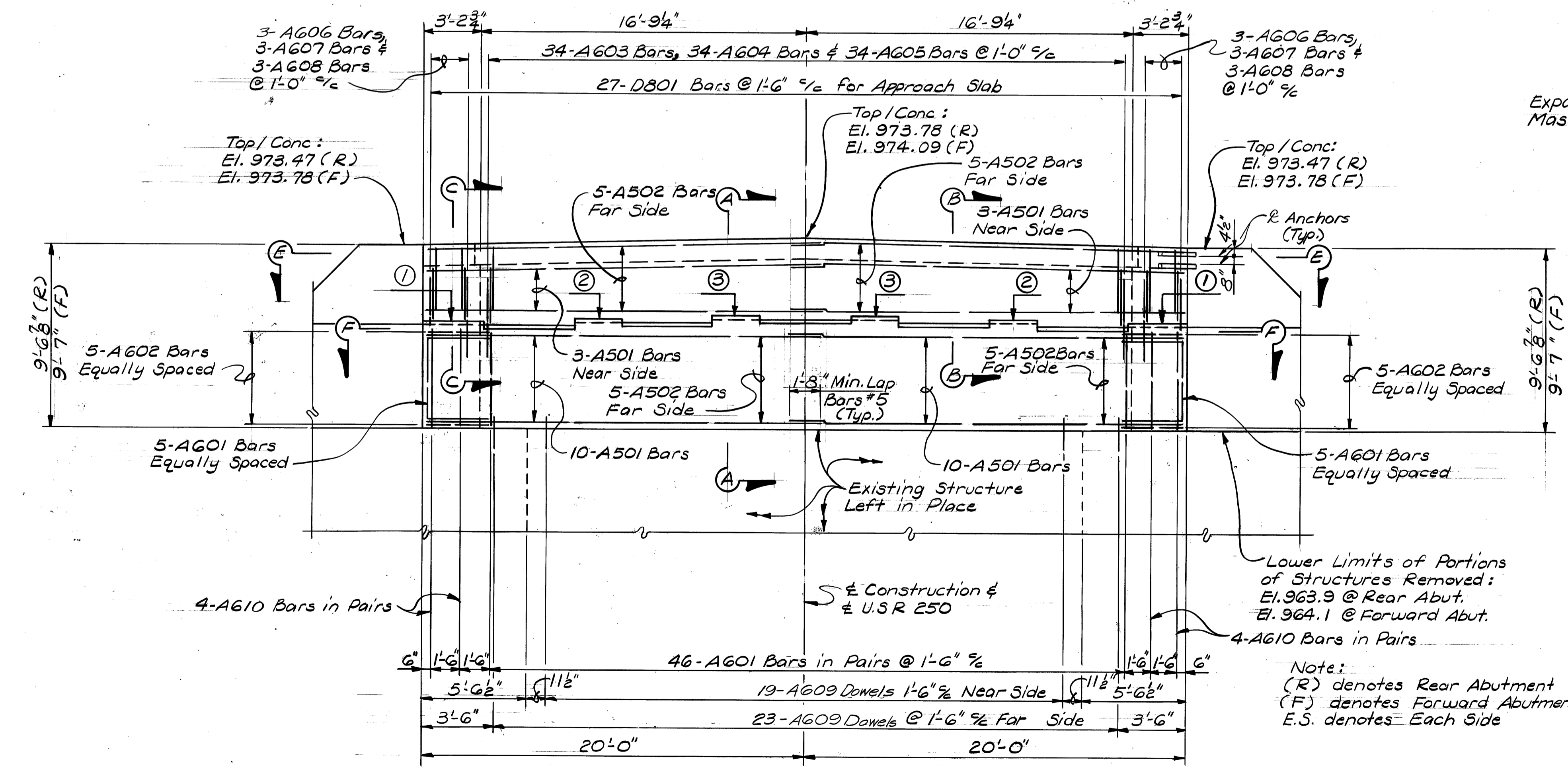
HUR-250-18.28  
ASD-250-0.08  
PART 1



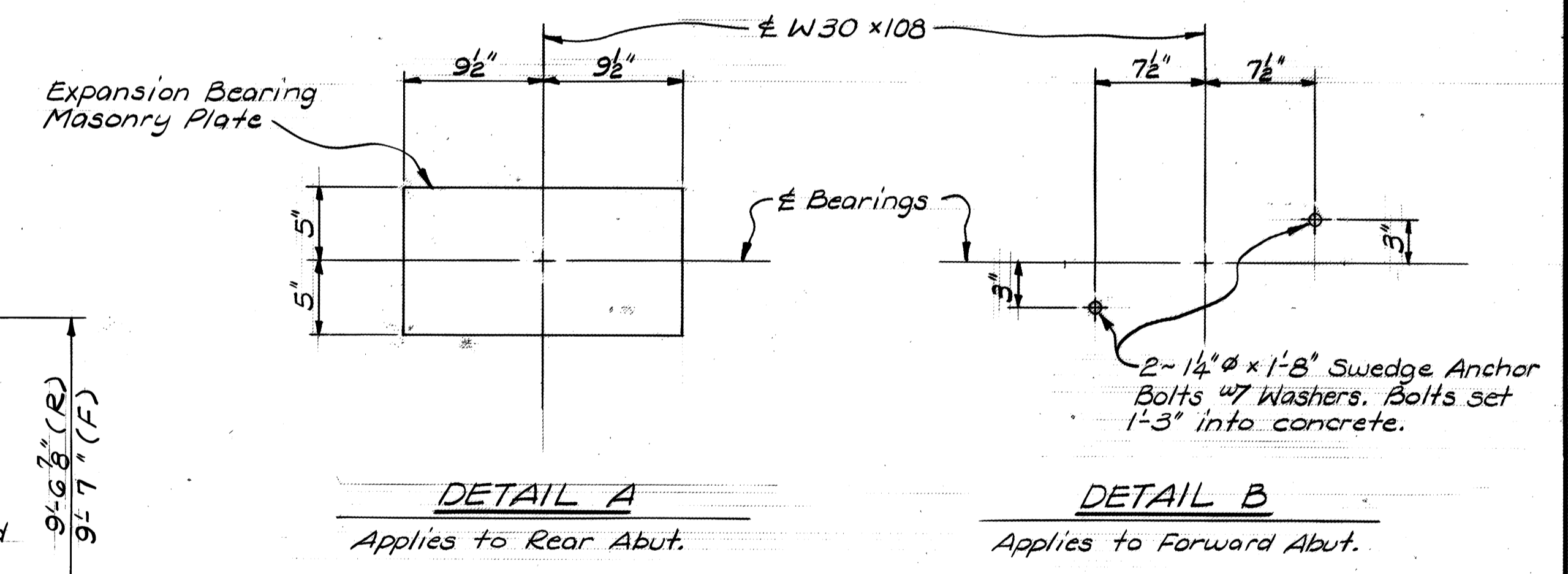
PLAN OF TOP



VIEW G-G



ELEVATION



TOP OF BRIDGE SEAT ELEVATIONS

- Rear Abutment
- ① El. 969.46
  - ② El. 969.57
  - ③ El. 969.68
- Forward Abutment
- ① El. 969.75
  - ② El. 969.86
  - ③ El. 969.97

Note:  
(R) denotes Rear Abutment  
(F) denotes Forward Abutment  
E.S. denotes Each Side

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		<p><b>ABUTMENT DETAILS</b> 4/11</p> <p>BRIDGE NO. HUR - 250-18.28 OVER BRANCH OF VERMILION RIVER</p>	
SEC. SCALE	STA.		
PRESENT TOPOGRAPHY	PROPOSED WORK		
SURVEYED	DRAWN	DESIGNED	DRAWN
		JED	SJP
			RGW
REVISIONS			

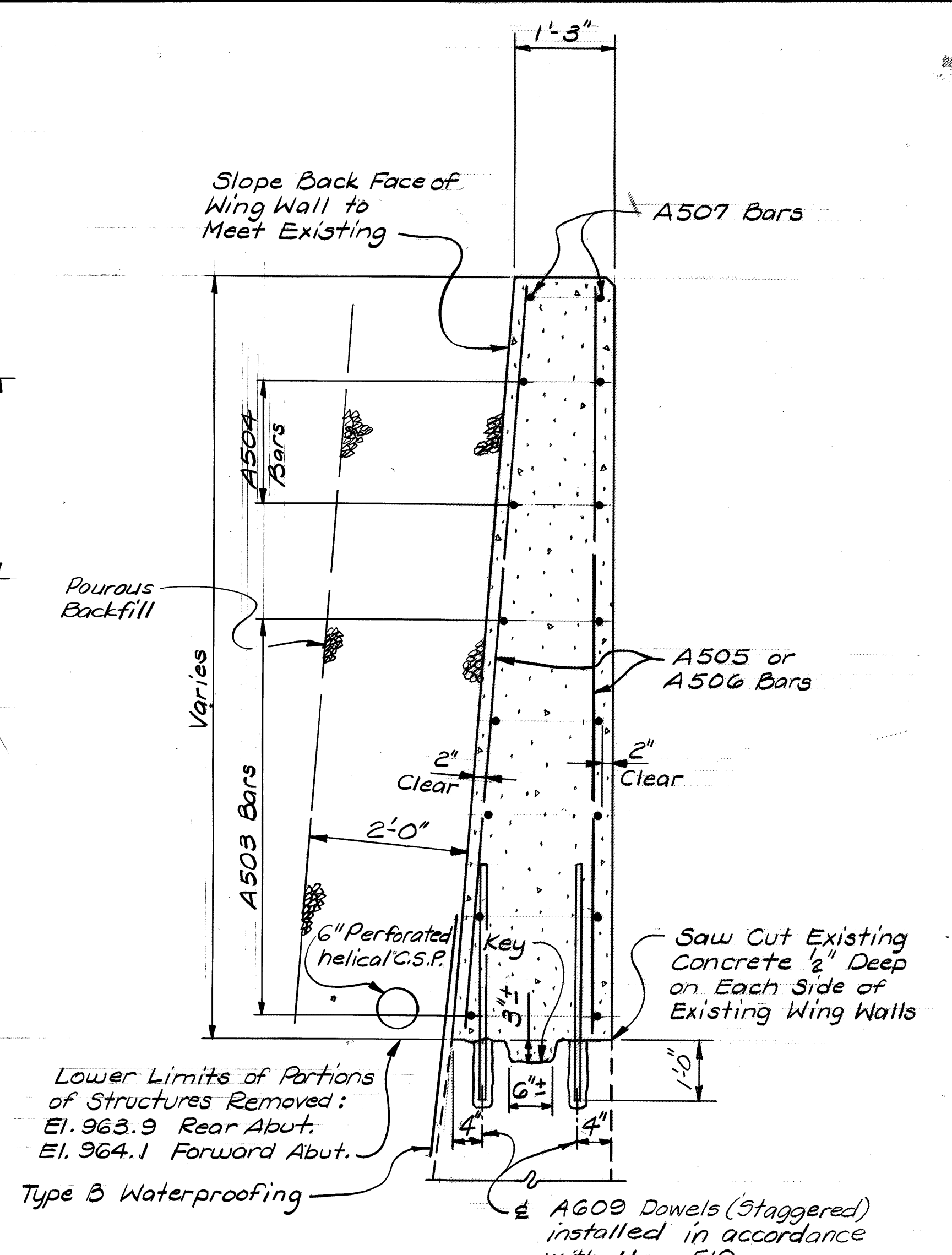
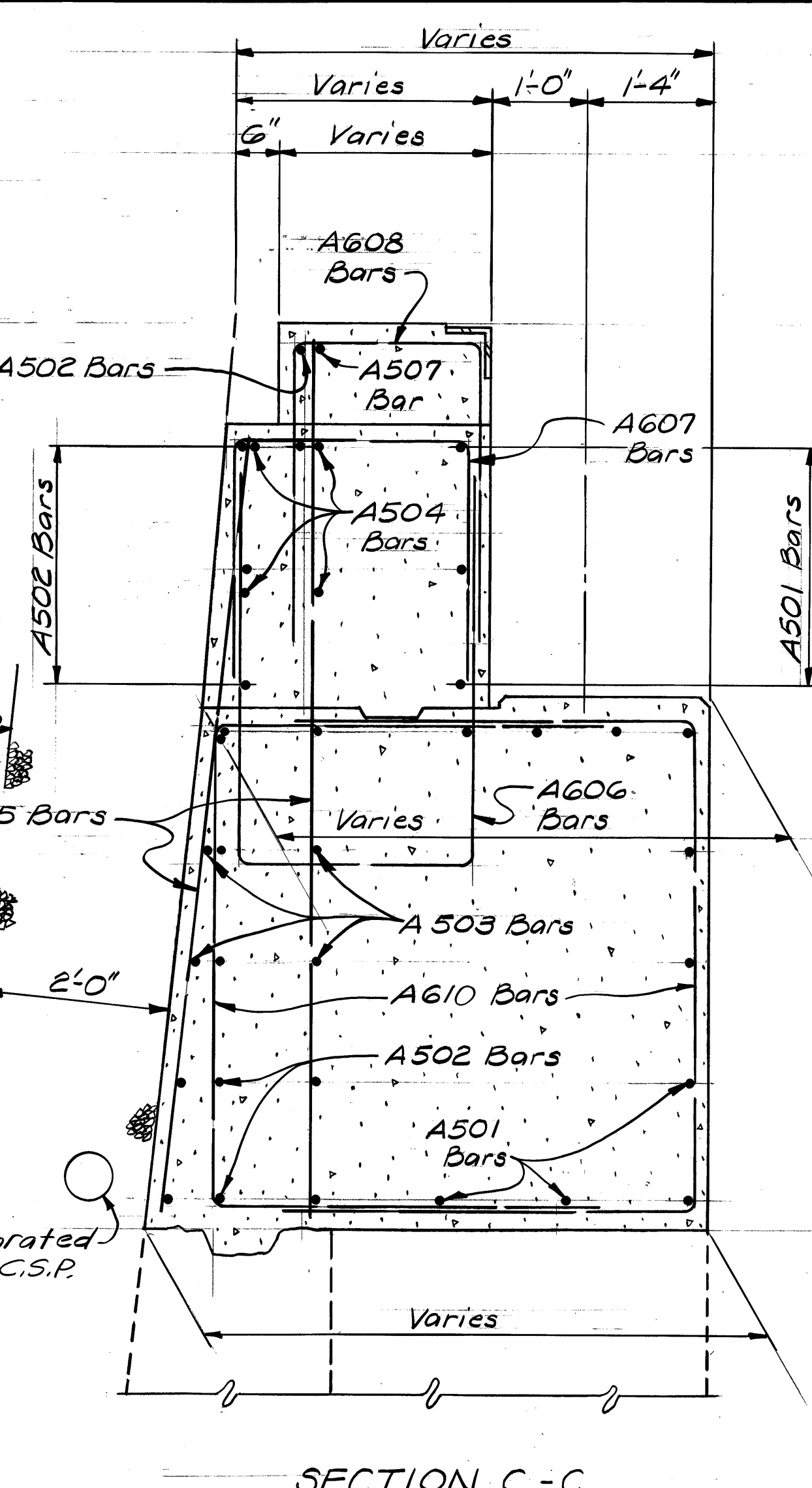
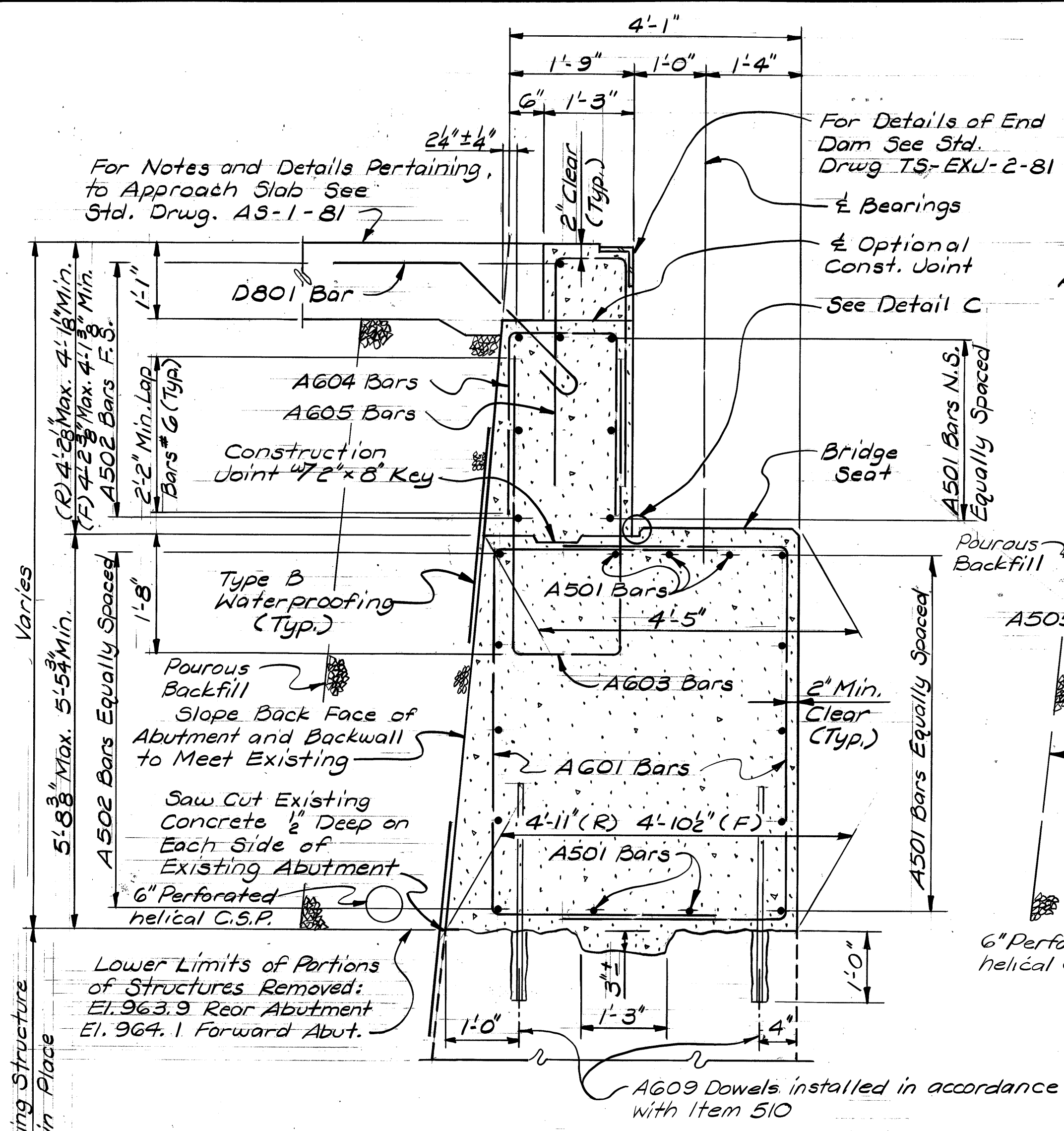


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FHWA REGION	STATE	PROJECT
	OHIO	

20  
32

HUR-250-18.28  
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**General Notes:**

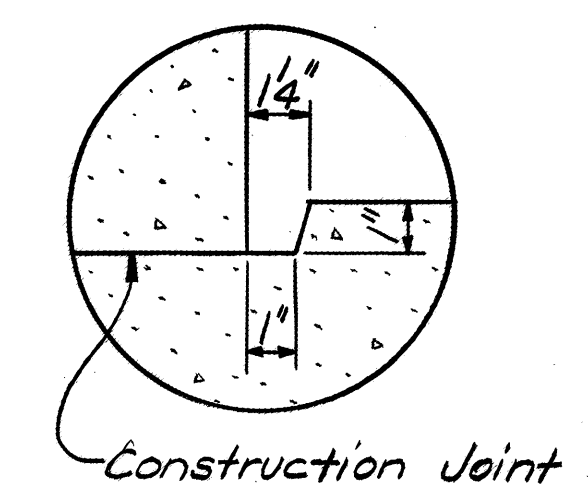
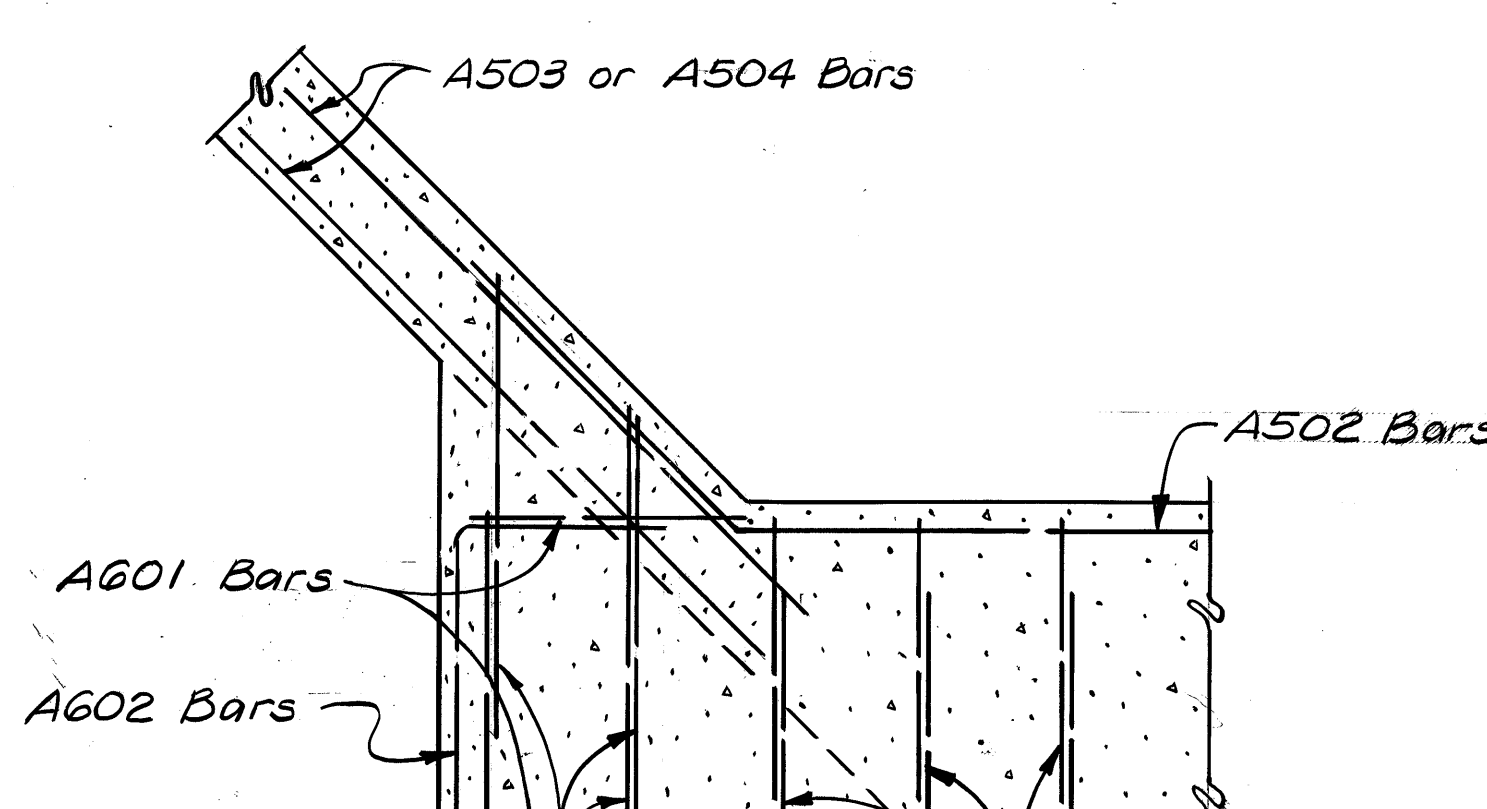
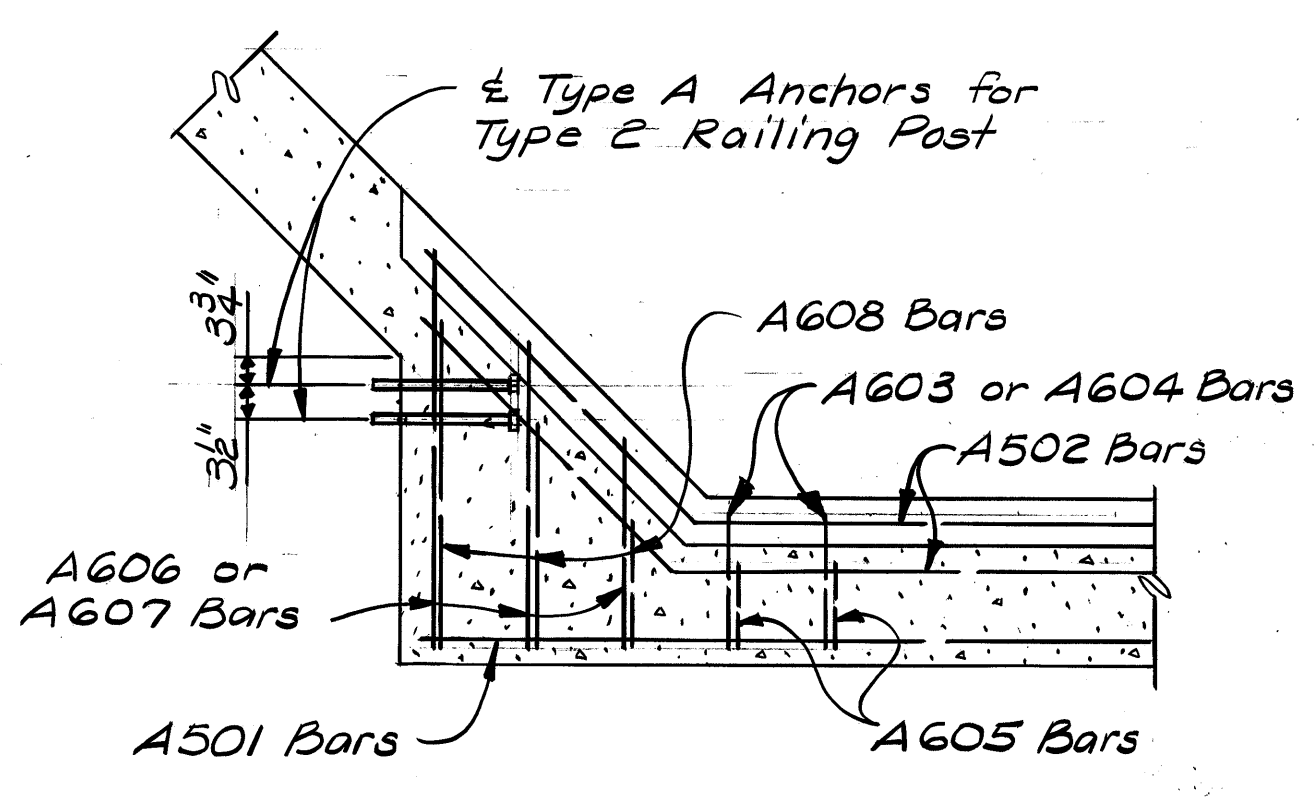
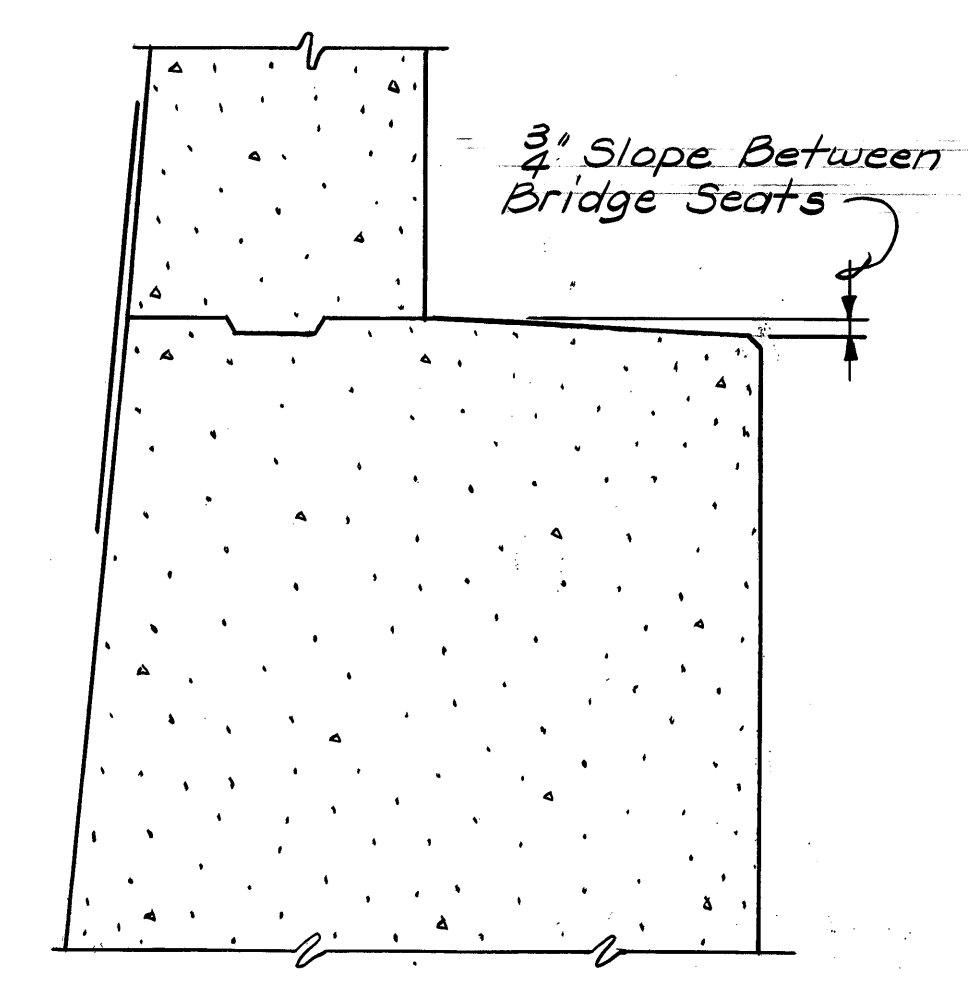
**Bridge Seat Reinforcing:** Reinforcing in the vicinity of the bridge seat shall be accurately placed to avoid interference with the drilling of bearing anchor holes or the pre-setting of bearing anchors.

**Bearing Anchors:** At the option of the Contractor, bearing anchors (or formed holes), located and supported by templates, may be cast in place.

**Backwall Concrete:** In addition to the provisions of 511.08, backwall concrete above the optional construction joint at the approach slab seat shall not be placed until after the deck concrete has been placed.

**Excavation for Reconstruction:** All excavation required for removal of backwall, abutment and wingwall concrete above the removal joint shall be included with item 202 "Portions of Structures Removed" for payment. Placing and compacting new embankment material behind the abutment shall also be included with this item for payment.

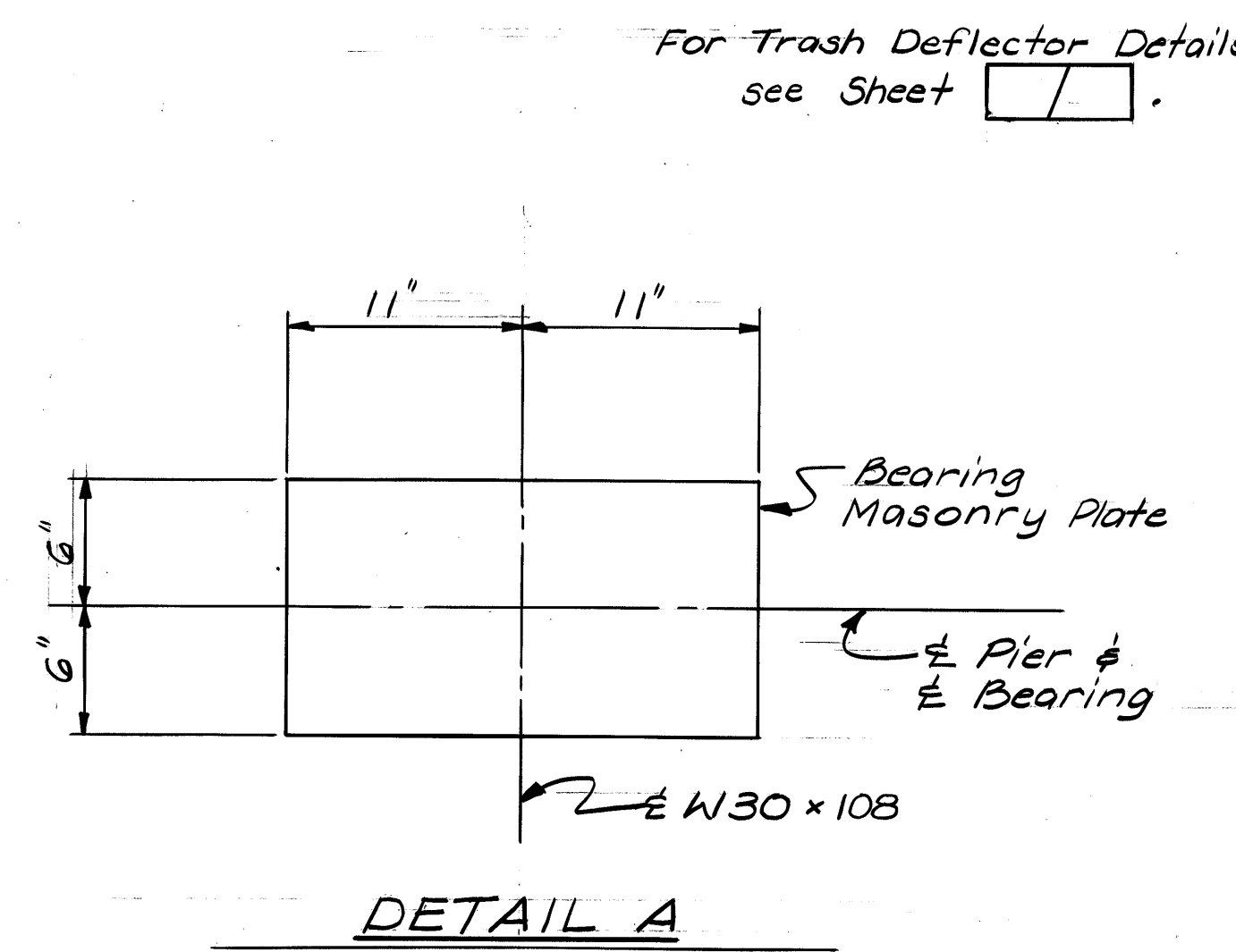
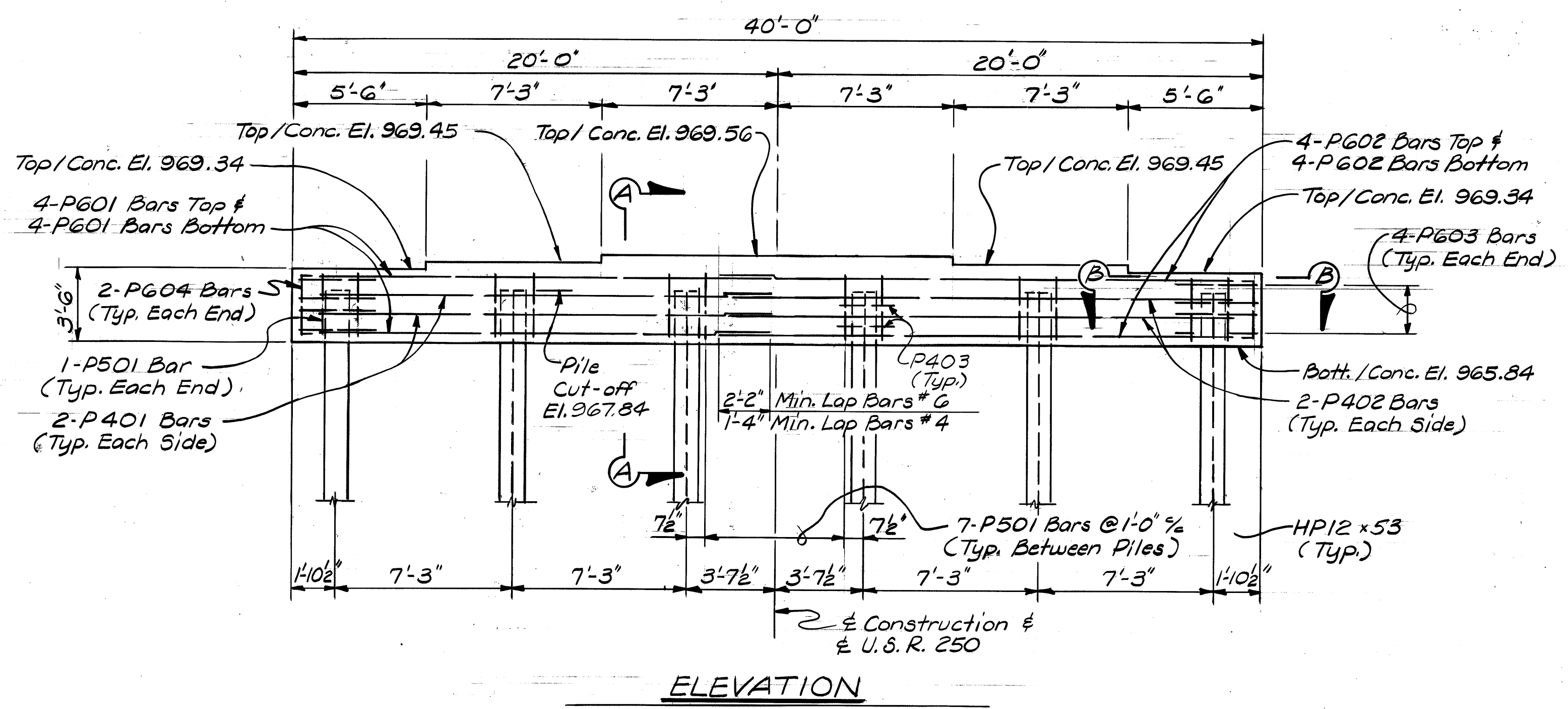
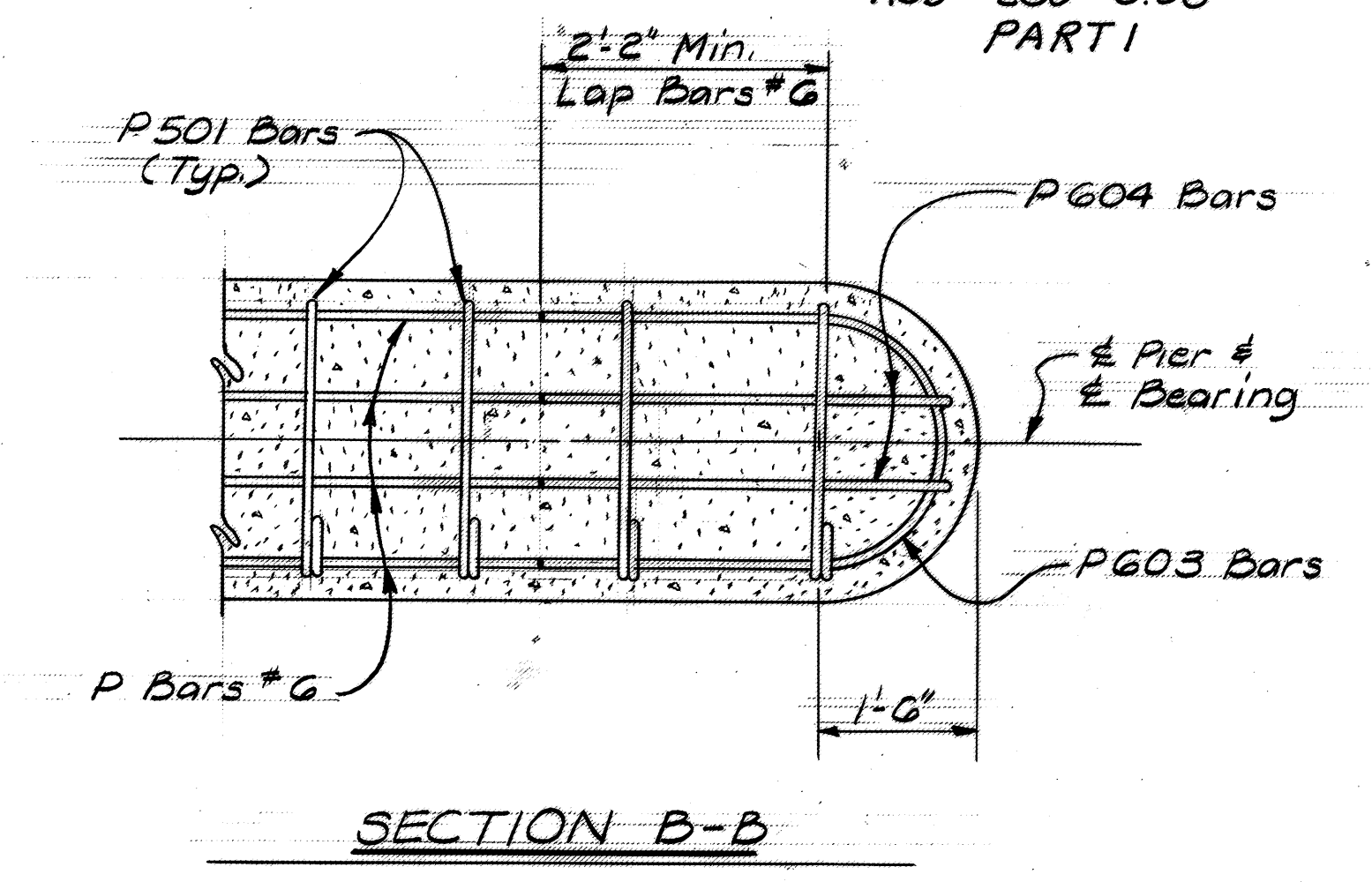
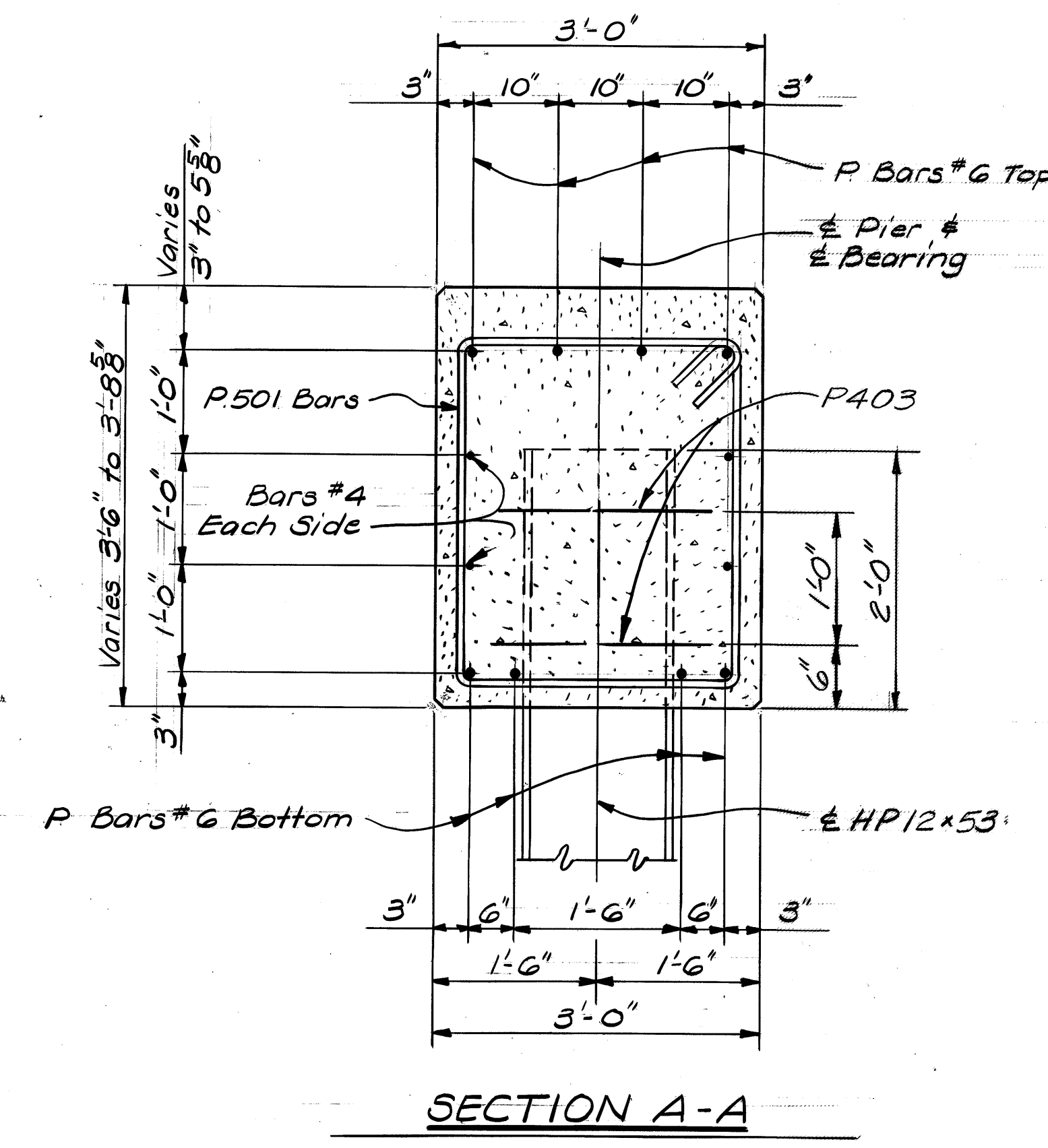
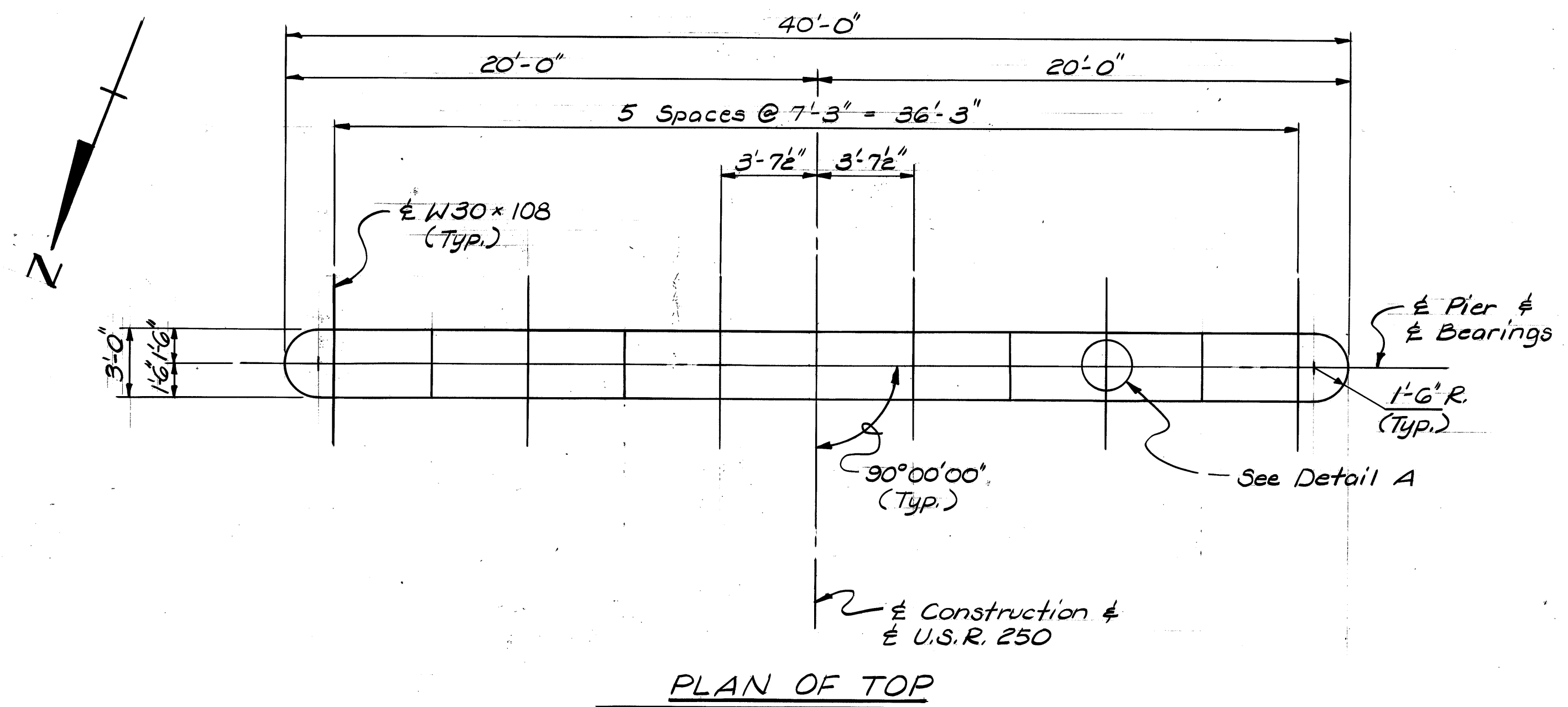
**POROUS BACKFILL,** 2 ft. thick, shall extend up to the plane of the subgrade and laterally to the ends of the wingwalls.



For Plan & Elevations See Sheet 4/11.

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<b>ABUTMENT DETAILS</b> 5/11					
BRIDGE NO. HUR-250-18.28 OVER BRANCH OF VERMILION RIVER					
SEC.	STA.				
SCALE	SCALE				
PRESENT TOPOGRAPHY	DESIGNED		PROPOSED WORK		
SURVEYED	DRAWN	JED	DRAWN	CHECKED	REVIEWED
			SUP	RGW	
REVISIONS					





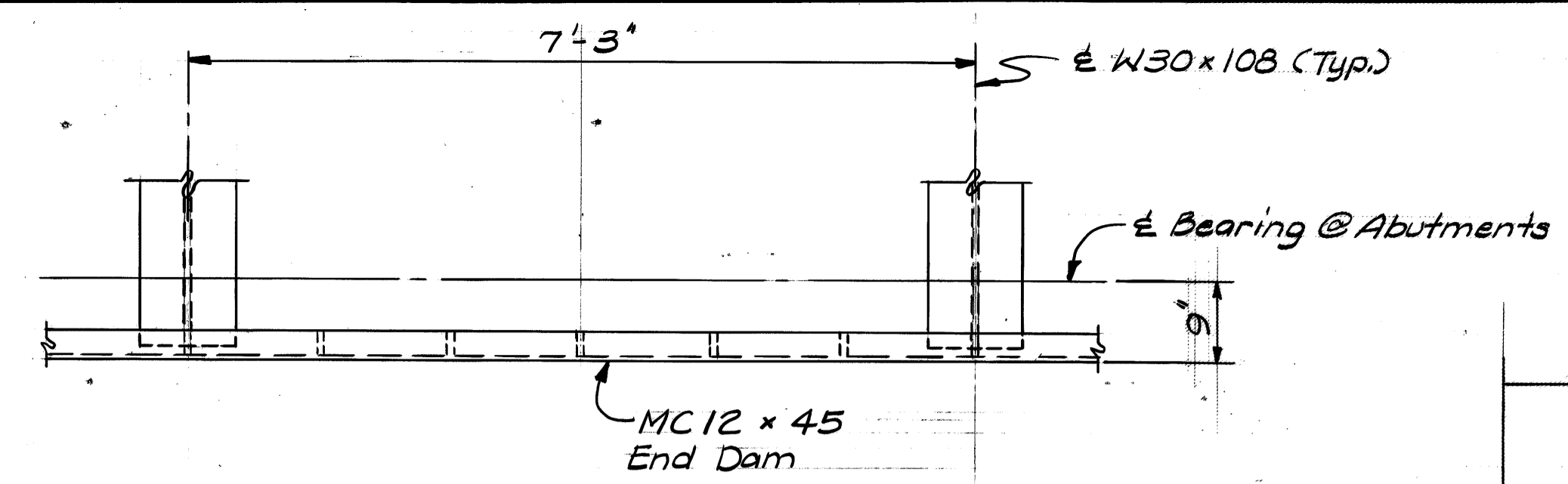
507 STEEL PILES, HP 12x53 AS PER PLAN  
Pile Encasement as shown on Standard Drawing CPP-2-73 is required for all vertical piles in pier and trash deflector. Include in Item 507 and Item Special for payment.

<b>OSCO</b>		Snell Environmental Group Engineers • Planners • Consultants 1533 Commerce Drive / Stow, OH 44224 P.O. Box 988 / Akron, OH 44309			
<b>PIER DETAILS</b>		6/11			
BRIDGE NO. HUR - 250 - 18 28 OVER BRANCH OF VERMILION RIVER					
SEC.	STA.				
SCALE					
PRESENT TOPOGRAPHY			PROPOSED WORK		
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
		JED	SUP	RGW	
REVISIONS					

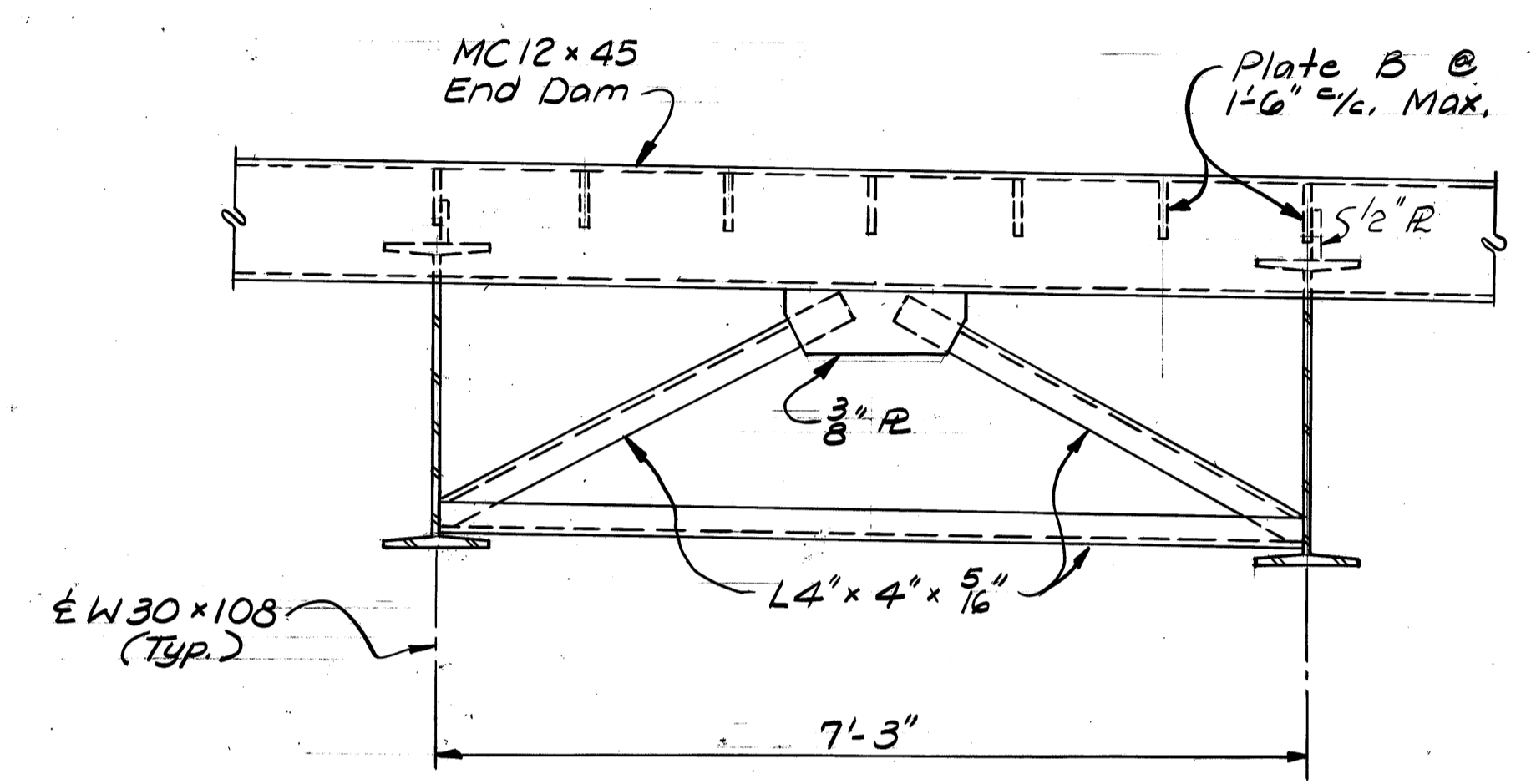






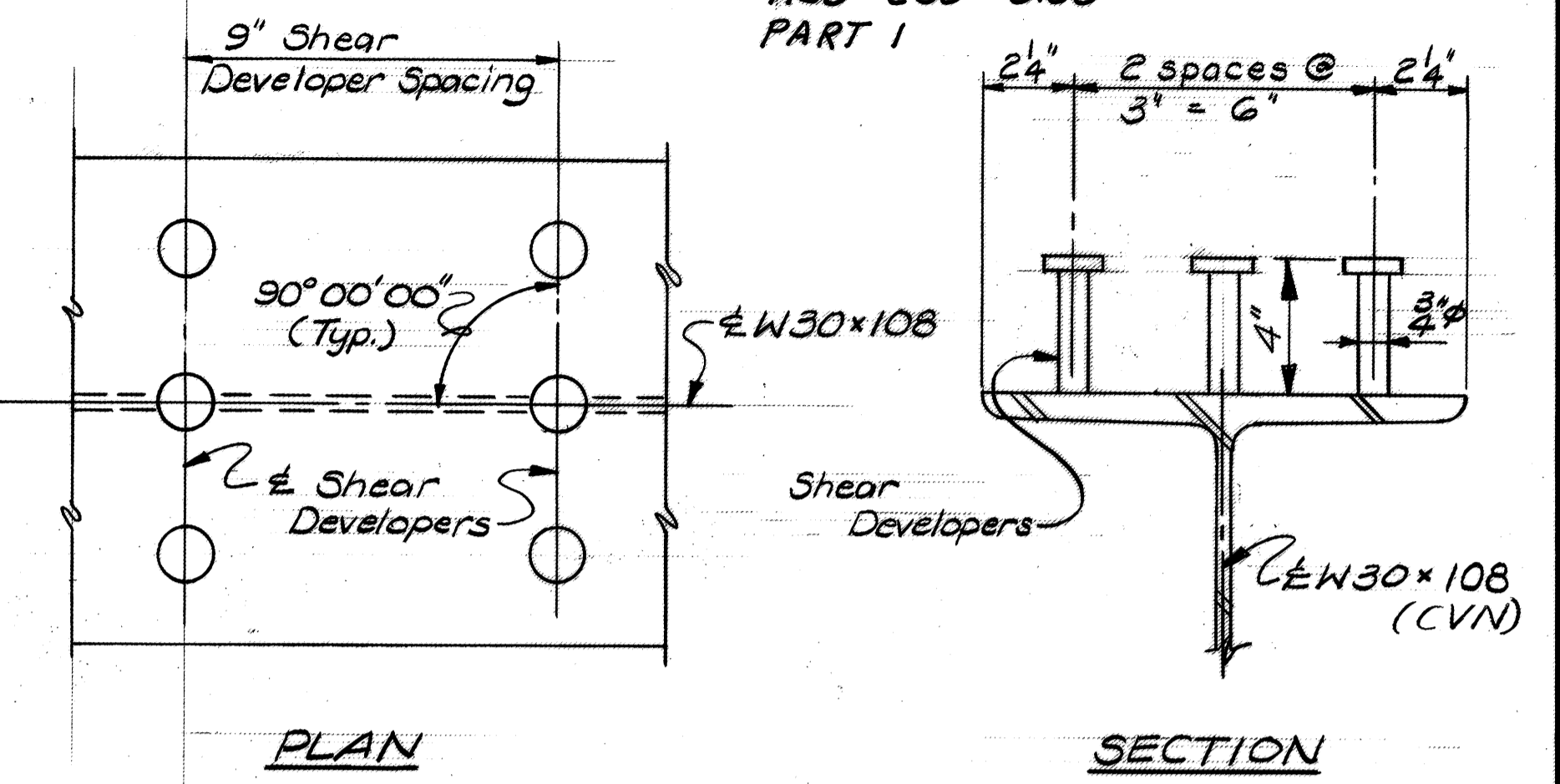


PLAN OF CROSSFRAME CF 1

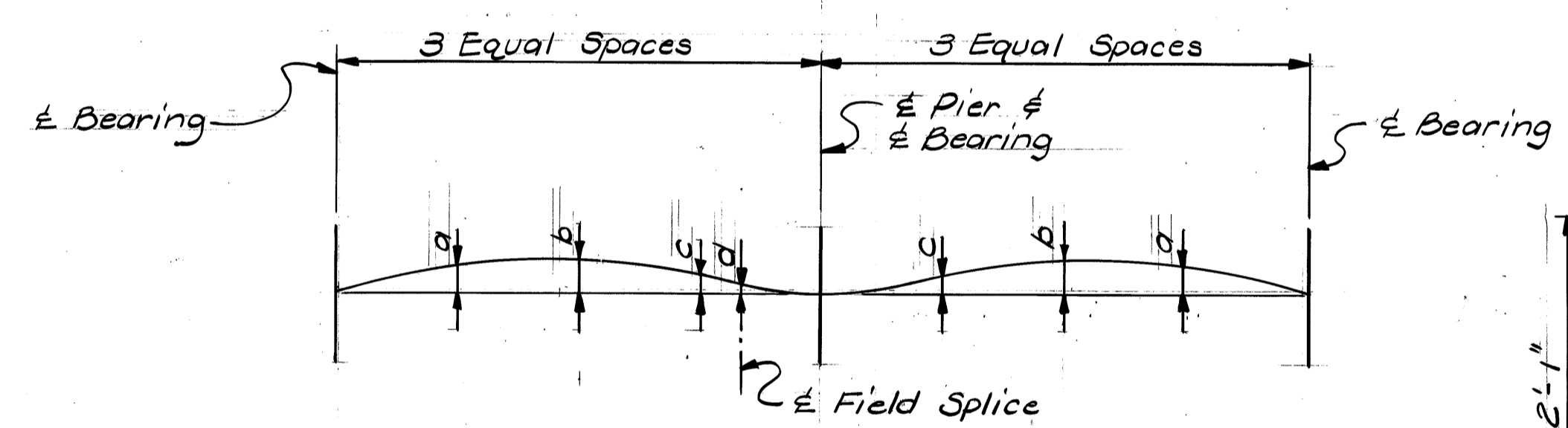


ELEVATION OF CROSSFRAME CF 1

For Notes and Details Pertaining to Crossframe and End Dam See Std. Drwgs. TS-EXJ-2-81 and SD-1-69, Sheet 1.

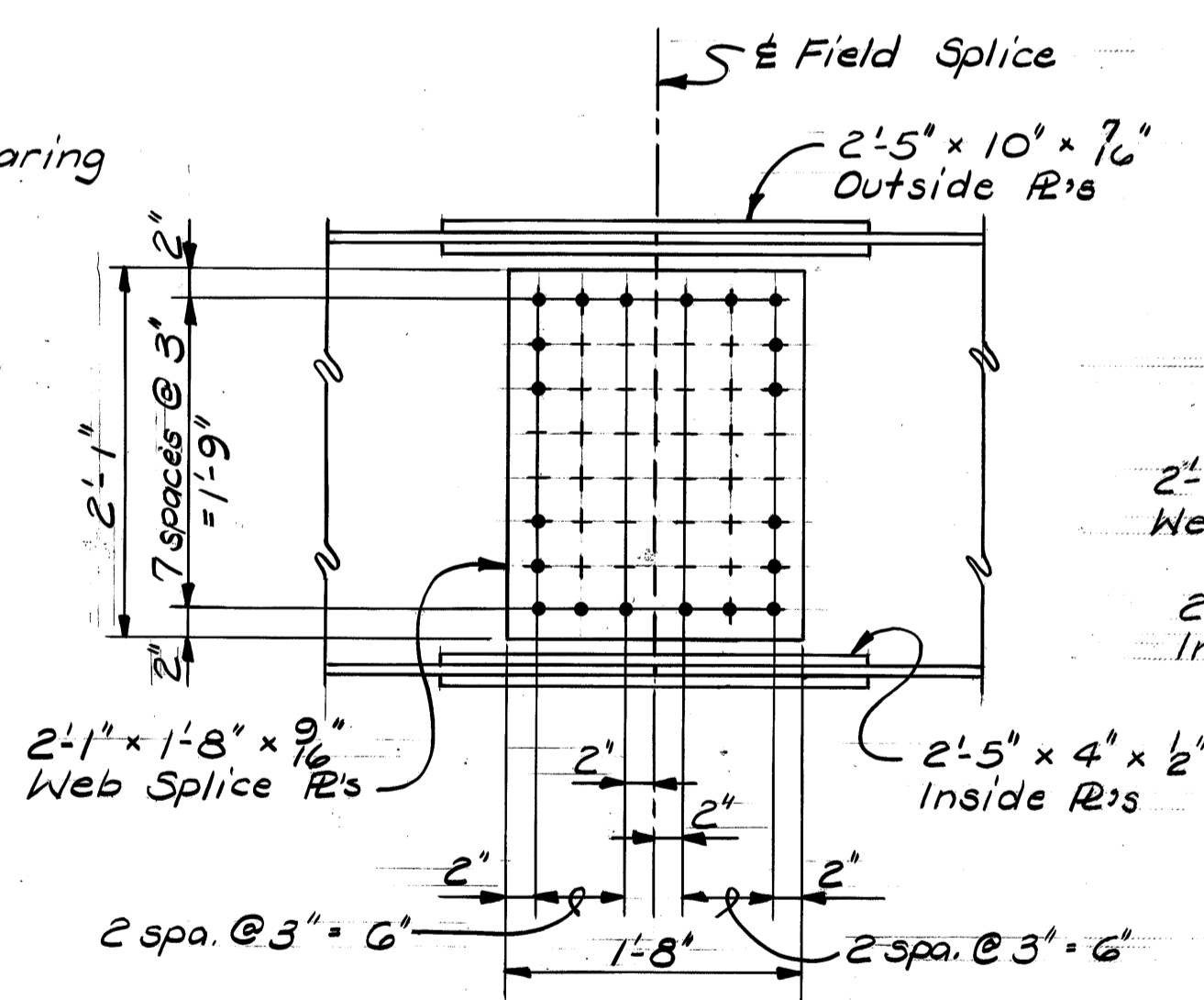


SHEAR DEVELOPER DETAILS

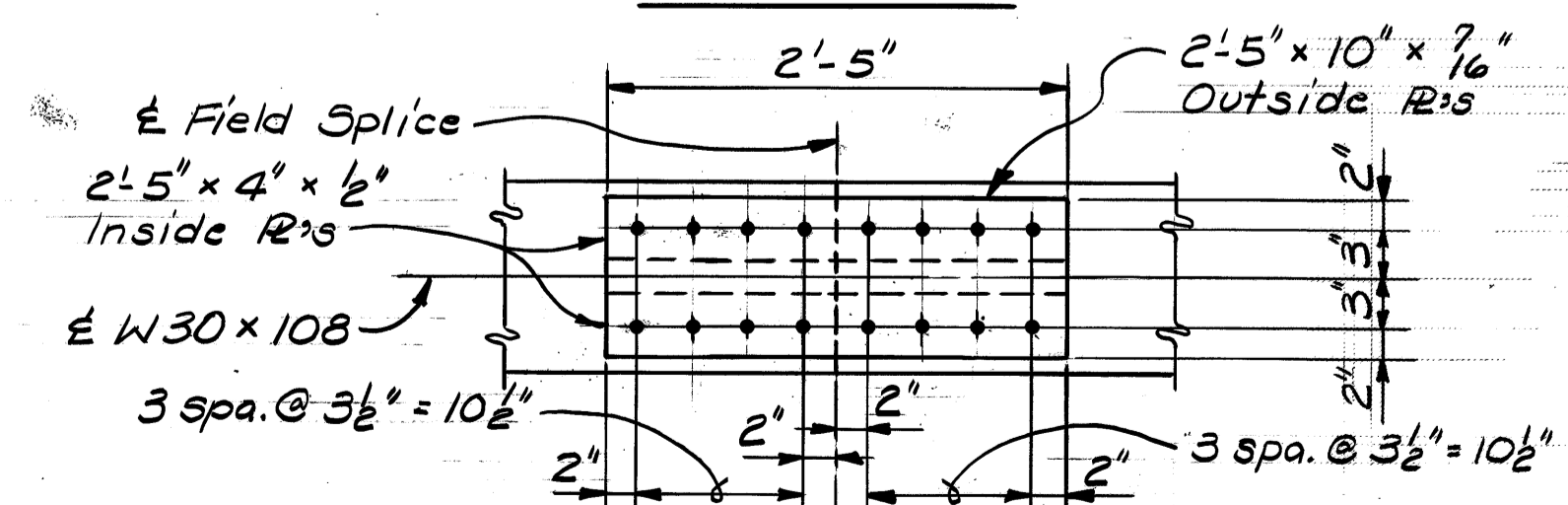


CAMBER DIAGRAM

DEFLECTION AND CAMBER				
Point	a	b	c	d
Deflection Due to Weight of Steel	1/16"	1/16"	0	0
Deflection Due to Remaining Dead Load	5/16"	7/16"	1/4"	8/16"
Required Shop Camber	3/8"	1/2"	1/4"	8/16"

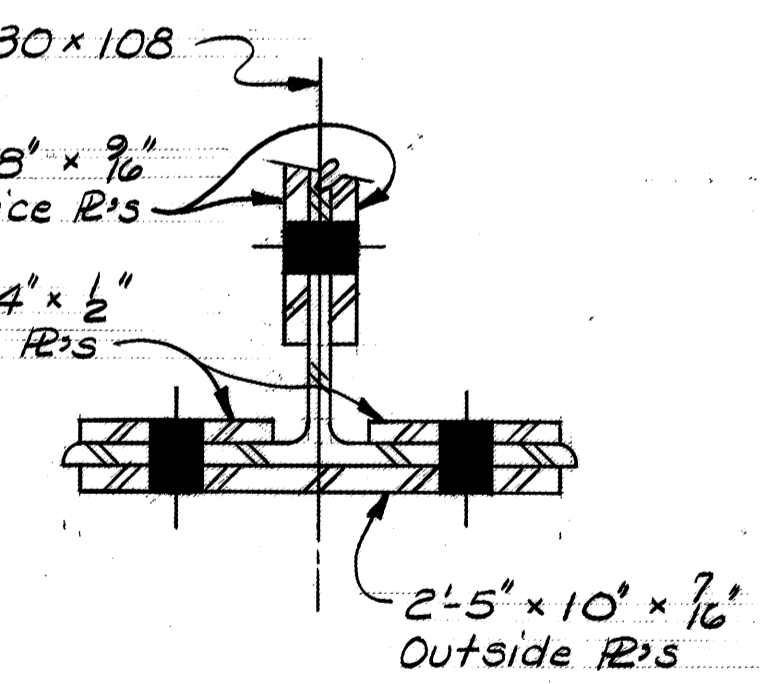


WEB SPLICE



FLANGE SPLICE

FIELD SPLICE DETAILS



PARTIAL SECTION

For Erection Diagram, Beam Elevation and Notes See Sheet 7/11.

Note: Field Splices will be bolted with 1" High Strength bolts (ASTM A325 Type 3)  
All splice material shall be (CVN)

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**STRUCTURAL STEEL DETAILS** 8/11  
BRIDGE NO. HUR - 250 - 18 28 OVER  
BRANCH OF VERMILION RIVER

SEC. SCALE STA.

PRESENT TOPOGRAPHY	PROPOSED WORK				
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
		UED	SJP	RGW	

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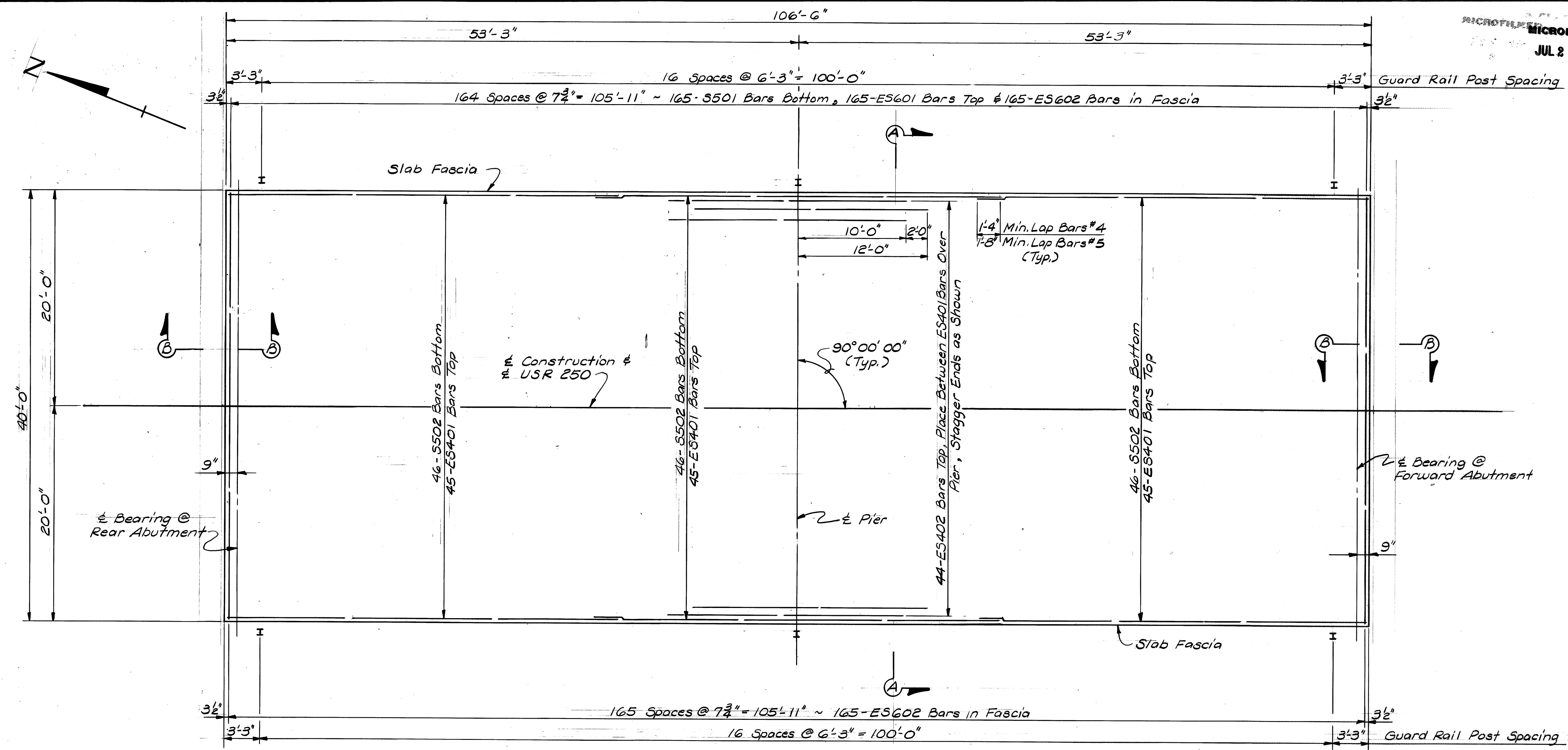


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FHWA REGION	STATE	PROJECT
	OHIO	

24  
32

HUR-250-18,28  
ASD-250-0.08  
PART 1



PLAN OF SLAB

For Notes and Details See Sheet 10/11

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P.O. Box 988 / Akron, OH 44309

**SUPERSTRUCTURE DETAILS** 9/11

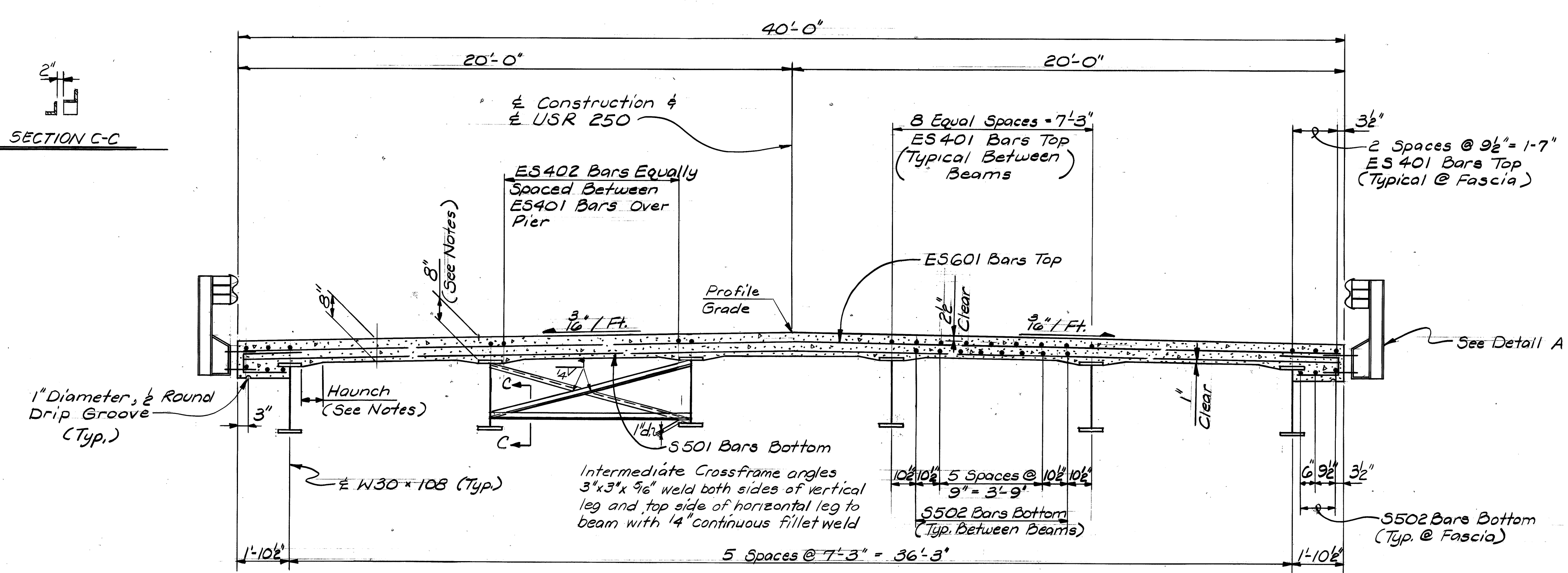
BRIDGE NO. HUR-250-18 28 OVER  
BRANCH OF VERMILION RIVER

SEC. \_\_\_\_\_ STA. \_\_\_\_\_  
SCALE \_\_\_\_\_

PRESENT TOPOGRAPHY		PROPOSED WORK			
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
		JED	JJP	RGW	

REVISIONS



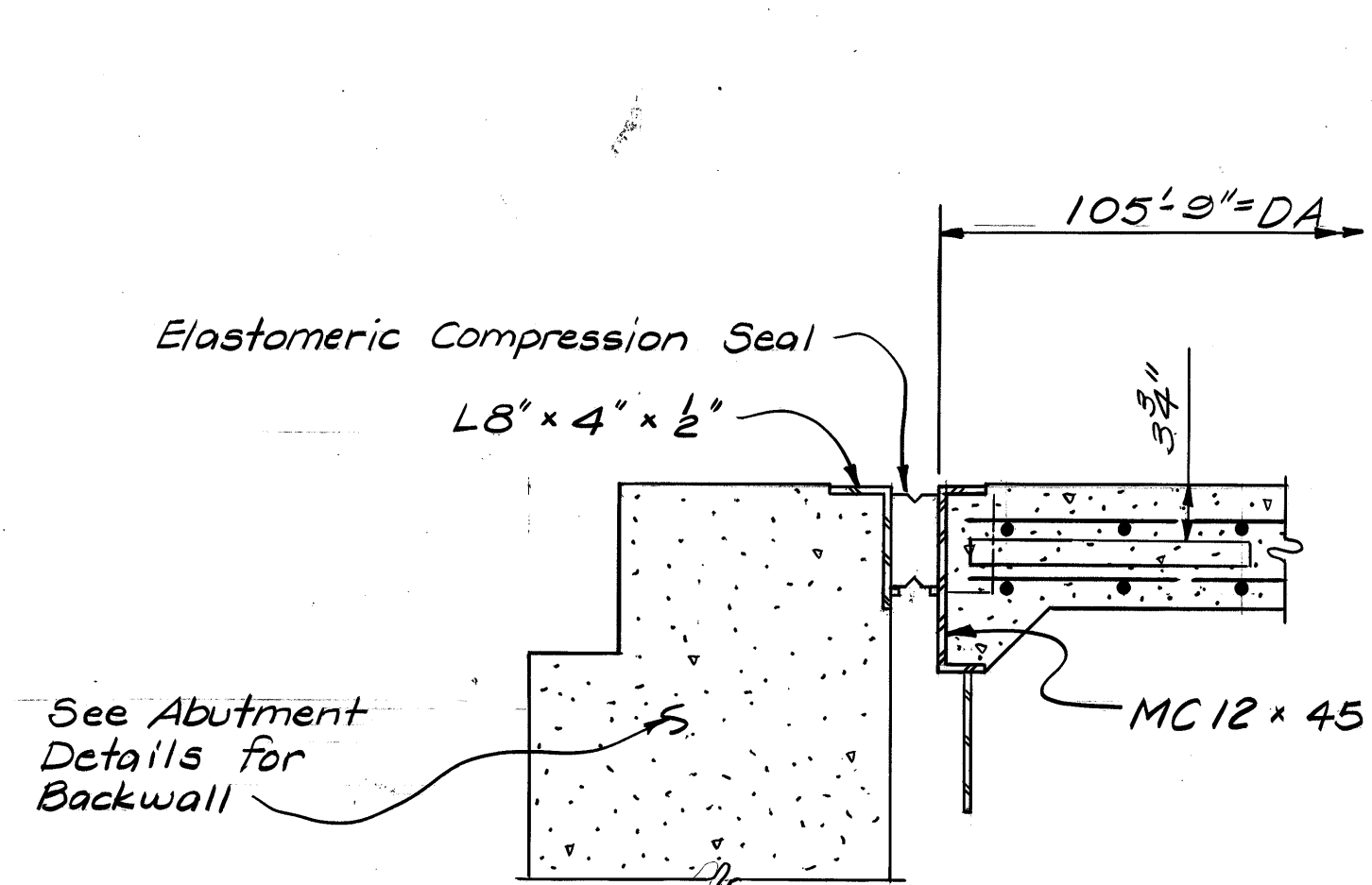


NOTES:

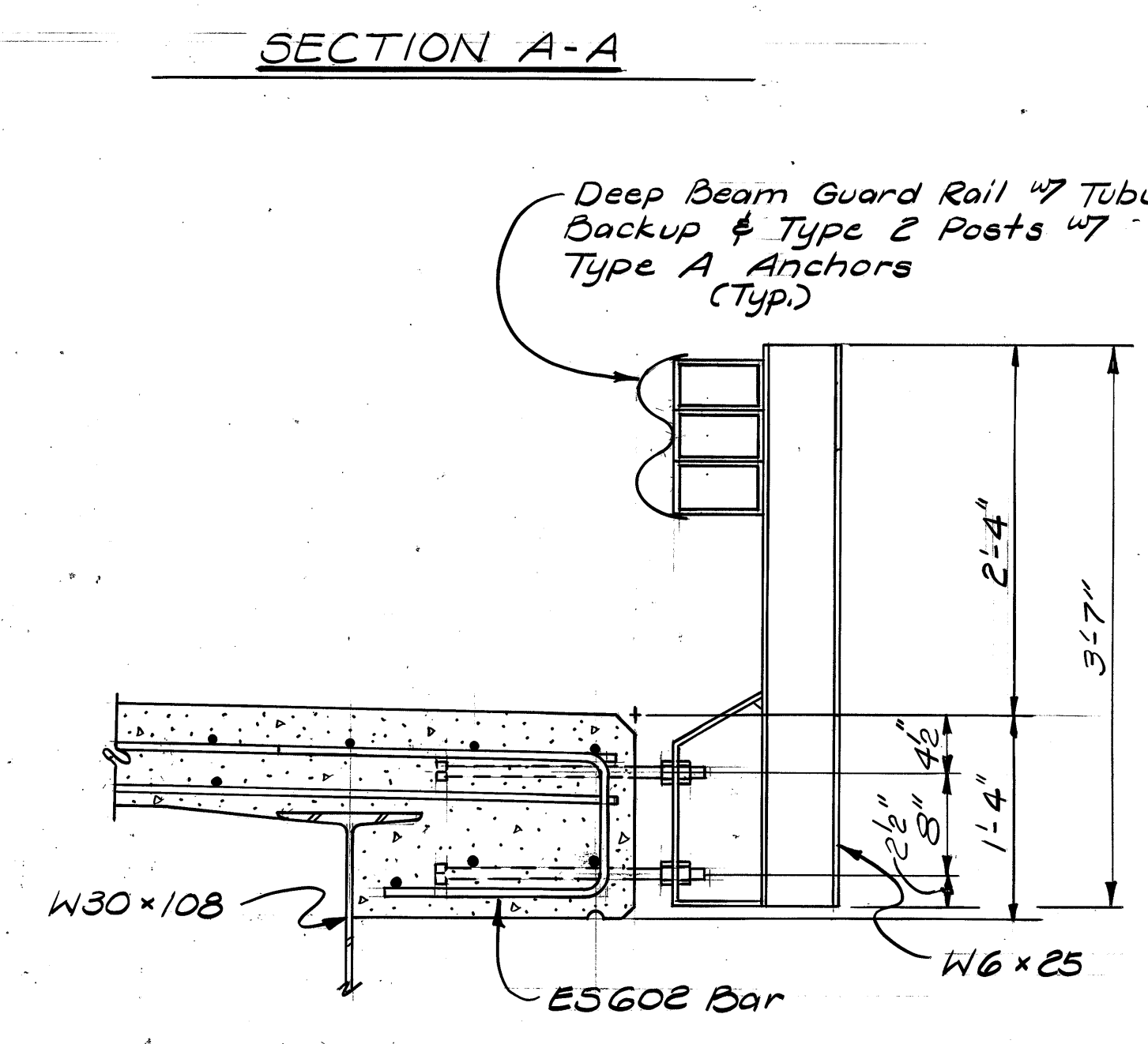
Deck Slab Depth: The distance shown from top of deck slab to top of steel beam is the design dimension. The quantity of deck concrete to be paid for is based on this dimension, even though deviation from it may be necessary because the top flange of the beam may not have the exact camber or conformation required to place it parallel to the finished grade.

Deck Haunch Width: A haunch width of 9" was used for computing quantity of concrete. However, the haunch width may vary between 6" and 12".

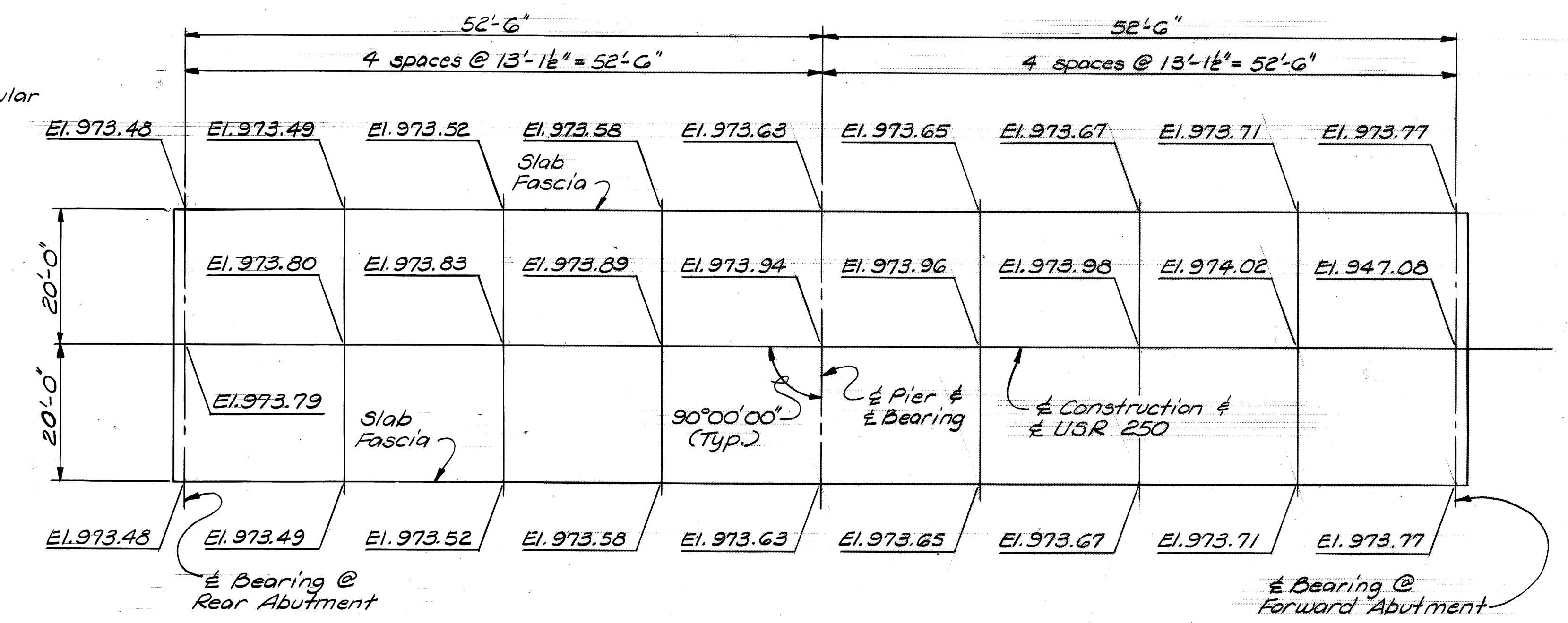
Screed Elevations are based on the condition that no slab concrete has been cast and that formwork, shear developers and steel reinforcement are in place.



SECTION B-B  
 For Notes and Details Pertaining to Compressive Seal Expansion Joints See Std. Drwg. TS-EXU-2-81



DETAIL A  
 For Notes and Details Pertaining to Deep Beam Bridge Guard Rail See Std. Drwg. DBR-2-73.



SCREED ELEVATIONS

For Plan View See Sheet 9/11

		Snell Environmental Group Engineers • Planners • Consultants 1533 Commerce Drive / Stow, OH 44224 P.O. Box 988 / Akron, OH 44309	
		SUPERSTRUCTURE DETAILS 10/11	
BRIDGE NO. HUR - 250 - 18 28 OVER BRANCH OF VERMILION RIVER			
SEC.	STA.		
SCALE	SCALE		
PRESENT TOPOGRAPHY	PROPOSED WORK		
SURVEYED	DRAWN	DESIGNED	DRAWN
		JED	SUP
			RGW
REVISIONS			



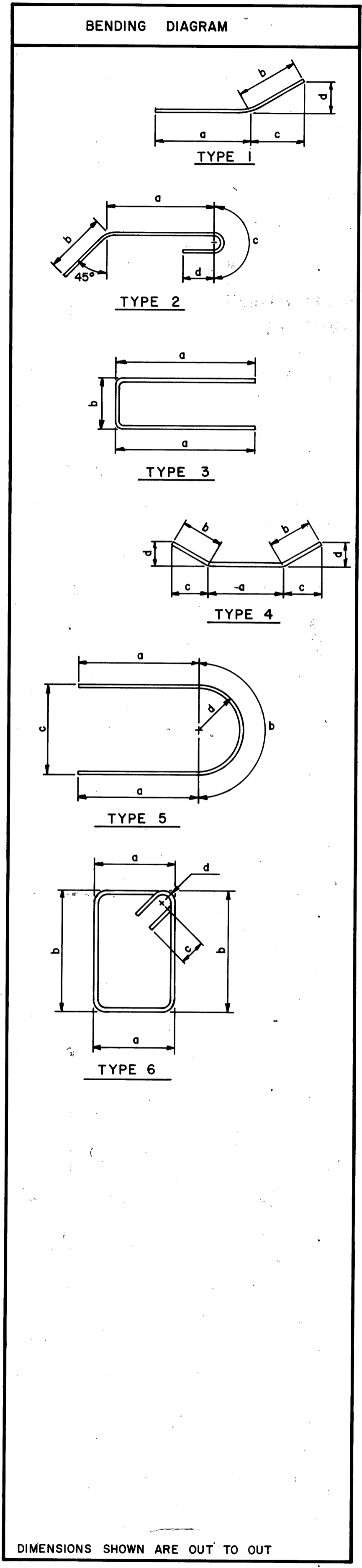
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	OHIO	

26  
32

HUR - 250 - 18.28  
A5D - 250 - 0.08  
PART 1

NOTES  
REINFORCING STEEL SAMPLES: REFER TO CMS SECTIONS 106.03, 700, 709.01 THROUGH 709.05 AND 709.08. SUFFICIENT ADDITIONAL REINFORCING STEEL SHALL BE PROVIDED FOR SAMPLING. RANDOM SAMPLES SHALL BE REPLACED IN THE STRUCTURES BY THE ADDITIONAL STEEL, SPLICED IN ACCORDANCE WITH 509.08.



MARK	NO.	LENGTH	WEIGHT	TYPE	a	b	c	d	REMARKS
<u>REAR ABUTMENT</u>									
A501	26	20'-7"	558	S					
A502	20	21'-10"	455	1	18'-6"	3'-4"	2'-4 1/2"	2'-4 1/2"	
A503	20	19'-3"	402	S					
A504	8	13'-5" & 17'-9"	130	S					4 Sets of 2
A505	20	9'-0"	188	S					
A506	28	5'-8" to 8'-8"	209	S					Varies by 6" 4 Sets of 7
A507	4	15'-9"	66	1	10'-9"	5'-0"	4'-8 3/4"	1'-7 1/2"	
A601	56	11'-6"	967	3	3'-2"	5'-2"			
A602	10	10'-1"	151	3	3'-0"	4'-1"			
A603	39	10'-3"	600	3	4'-5"	1'-5"			
A604	39	7'-1"	415	3	2'-10"	1'-5"			
A605	39	7'-5"	435	3	3'-3"	0'-11"			
A606	6	11'-0" to 13'-0"	108	3	4'-5"	2'-0"			"b" Varies by 1'-0" 2 Sets of 3
A607	6	7'-10" to 9'-10"	80	3	2'-10"	2'-0"			"b" Varies by 1'-0" 2 Sets of 3
A608	6	8'-2" to 10'-2"	83	3	3'-3"	1'-8"			"b" Varies by 1'-0" 2 Sets of 3
A609	98	3'-0"	442	S					
A610	8	13'-2"	158	3	4'-0"	5'-2"			
DB01	27	5'-1"	366	2	2'-4"	1'-5"	0'-10"	0'-6"	
Rear Abut. Total =			5813						
<u>FORWARD ABUTMENT</u>									
A501	26	20'-7"	558	S					
A502	20	21'-10"	455	1	18'-6"	3'-4"	2'-4 1/2"	2'-4 1/2"	
A503	20	19'-3"	402	S					
A504	8	13'-5" & 17'-9"	130	S					4 Sets of 2
A505	20	9'-0"	188	S					
A506	28	5'-8" to 8'-8"	209	S					Varies by 6" 4 Sets of 7
A507	4	15'-9"	66	1	10'-9"	5'-0"	4'-8 3/4"	1'-7 1/2"	
A601	56	11'-6"	967	3	3'-2"	5'-2"			
A602	10	10'-1"	151	3	3'-0"	4'-1"			
A603	39	10'-3"	600	3	4'-5"	1'-5"			
A604	39	7'-1"	415	3	2'-10"	1'-5"			
A605	39	7'-5"	435	3	3'-3"	0'-11"			
A606	6	11'-0" to 13'-0"	108	3	4'-5"	2'-0"			"b" Varies by 1'-0" 2 Sets of 3
A607	6	7'-10" to 9'-10"	80	3	2'-10"	2'-0"			"b" Varies by 1'-0" 2 Sets of 3
A608	6	8'-2" to 10'-2"	83	3	3'-3"	1'-8"			"b" Varies by 1'-0" 2 Sets of 3
A609	98	3'-0"	442	S					
A610	8	13'-2"	158	3	4'-0"	5'-2"			
DB01	27	5'-1"	366	2	2'-4"	1'-5"	0'-10"	0'-6"	
Forward Abut. Total =			5813						
<u>PIER</u>									
P401	4	19'-0"	51	S					
P402	4	20'-4"	54	S					
P403	12	9'-0"	72	6	1'-9"	2'-6"	0'-3"	0'-3"	
P501	37	13'-5"	518	6	2'-8"	3'-2"	0'-6"	0'-3"	
P601	8	19'-0"	228	S					
P602	8	21'-2"	254	S					
P603	8	8'-5"	101	5	2'-2"	4'-1"	1'-3 3/4"	2'-0 3/4"	
P604	4	9'-3"	56	3	3'-4"	2'-7"			
Pier Total =			1334						

MARK	NO.	LENGTH	WEIGHT	TYPE	a	b	c	d	REMARKS
<u>SUPERSTRUCTURE NOT COATED</u>									
S501	165	39'-6"	6798	S					
S502	138	36'-6"	5254	S					
Not Coated									
Superstructure Total =			12,052						
<u>SUPERSTRUCTURE EPOXY COATED</u>									
ES401	135	36'-3"	3269	S					
ES402	44	22'-0"	647	S					
ES601	165	39'-6"	9789	S					
ES602	330	4'-7"	2270	3	1'-1 1/2"	0'-10"			One leg = 1'-7", One leg = 2'-2" One bar length = 1'-7" + 2'-2" + 0'-10"
Epoxy Coated									
Superstructure Total =			15,975						

**REINFORCING STEEL LIST** 11/11

BRIDGE NO. HUR - 250 - 18.28 OVER  
BRANCH OF VERMILION RIVER

SEC. \_\_\_\_\_ STA. \_\_\_\_\_

SCALE \_\_\_\_\_

PRESENT TOPOGRAPHY		PROPOSED WORK			
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
		JED	SUP	RGW	

REVISIONS

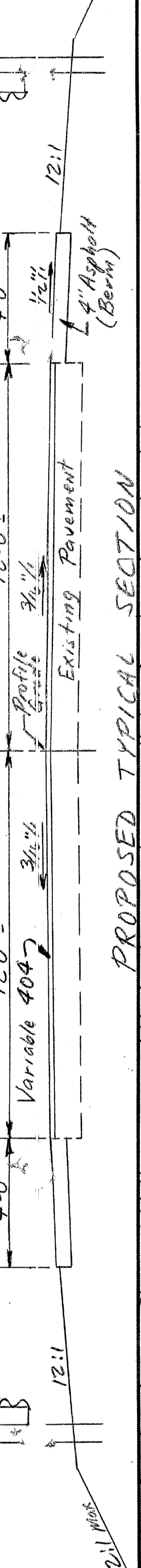
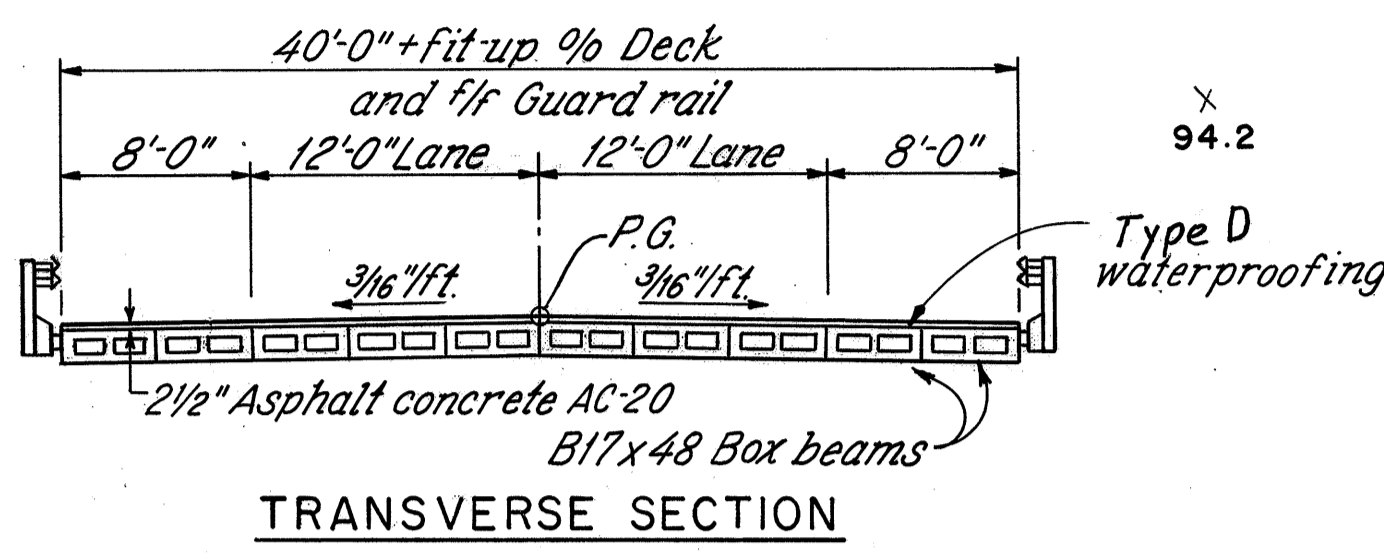
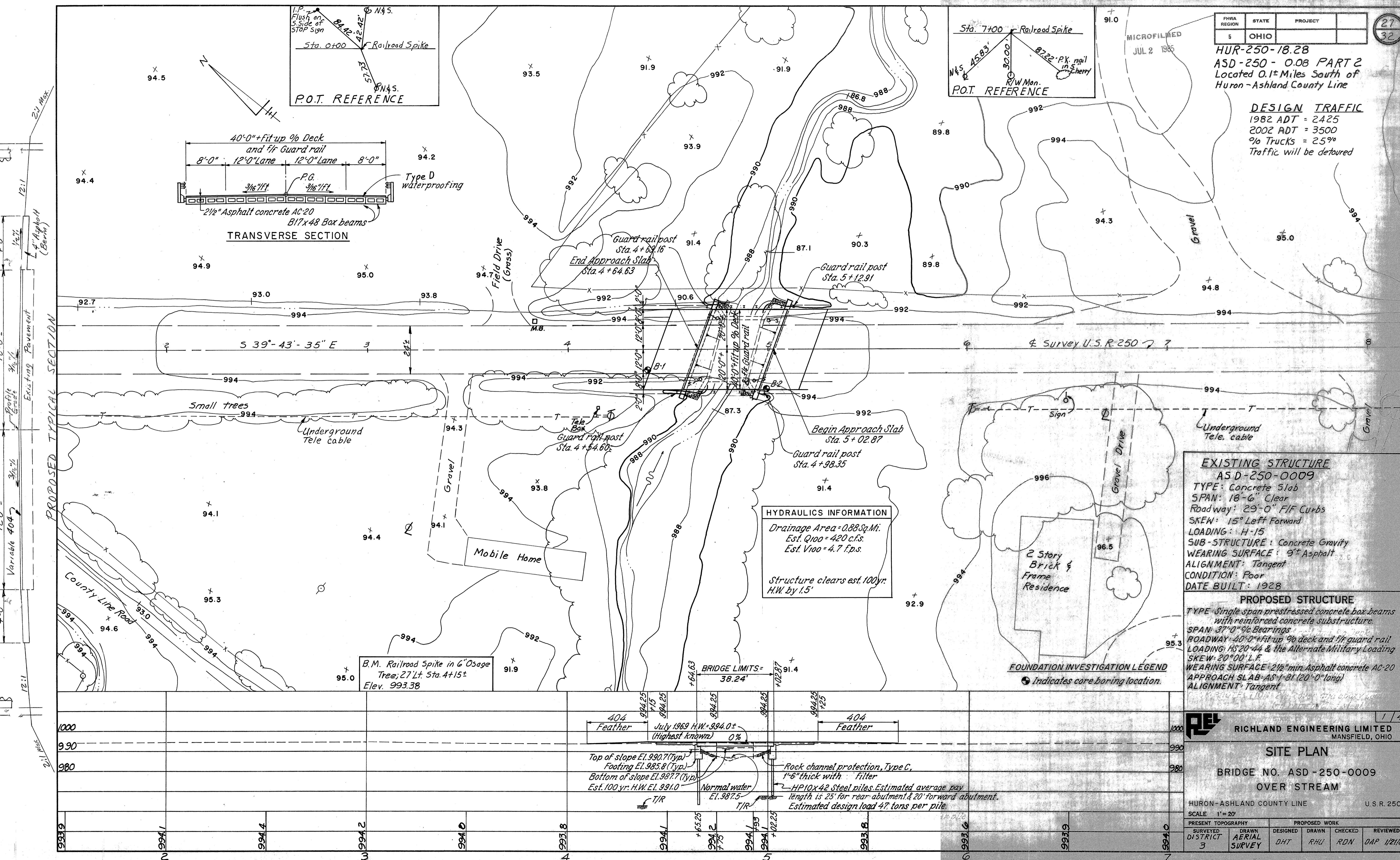


FHWA REGION	STATE	PROJECT
5	OHIO	

HUR-250-18.28  
ASD-250-0.08 PART 2  
Located 0.1 Miles South of  
Huron - Ashland County Line

**DESIGN TRAFFIC**  
1982 ADT = 2425  
2002 ADT = 3500  
% Trucks = 25%  
Traffic will be detoured

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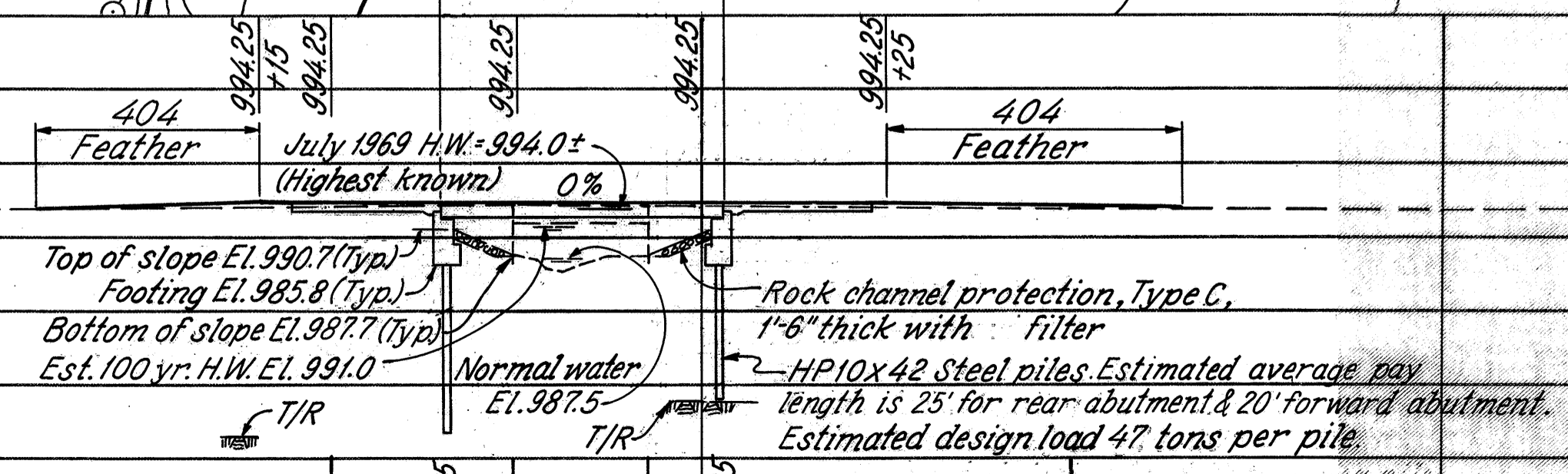
**HYDRAULICS INFORMATION**  
Drainage Area = 0.88 Sq. Mi.  
Est. Q100 = 420 c.f.s.  
Est. V100 = 4.7 f.p.s.  
  
Structure clears est. 100 yr.  
H.W. by 1.5'

**EXISTING STRUCTURE**  
ASD-250-0009  
TYPE: Concrete Slab  
SPAN: 18'-6" Clear  
Roadway: 29'-0" F/F Curbs  
SKEW: 15° Left Forward  
LOADING: H-15  
SUB-STRUCTURE: Concrete Gravity  
WEARING SURFACE: 9" Asphalt  
ALIGNMENT: Tangent  
CONDITION: Poor  
DATE BUILT: 1928

**PROPOSED STRUCTURE**  
TYPE: Single span prestressed concrete box beams with reinforced concrete substructure.  
SPAN: 37'-0" @ Bearings  
ROADWAY: 40'-0" fit-up % deck and flt guard rail  
LOADING: HS 20-44 & the Alternate Military Loading  
SKEW: 20°00' L.F.  
WEARING SURFACE: 2 1/2" min. Asphalt concrete AC-20  
APPROACH SLAB: AS 1-81 (20'-0" long)  
ALIGNMENT: Tangent

**FOUNDATION INVESTIGATION LEGEND**  
● Indicates core boring location.

B.M. Railroad Spike in G Osage  
Tree; 27 Lt. Sta. 4+15±  
Elev. 993.38



**RICHLAND ENGINEERING LIMITED**  
MANSFIELD, OHIO

**SITE PLAN**  
BRIDGE NO. ASD-250-0009  
OVER STREAM

HURON - ASHLAND COUNTY LINE U.S.R. 250

PRESENT TOPOGRAPHY		PROPOSED WORK			
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
DISTRICT 3	AERIAL SURVEY	DHT	RHL	RDN	DAP 1/21/83



MICROFILMED  
JUL 2 1985

QUANTITIES	
CALCULATED	2/83
CHECKED	7/83

FHWA REGION	STATE	PROJECT
5	OHIO	

28  
32

HUR - 250-18.28  
ASD - 250 - 0.08 PART 2

**GENERAL NOTES**

**REFERENCE** shall be made to Standard Drawings:  
DBR-2-73 (dated 4-10-73)  
PSBD-1-81, sheets 1, 2, 3 and 4 of 4 (dated 9-18-81)  
AS-1-81, sheets 1, 2 and 3 of 3 (dated 11-27-81)

**DESIGN SPECIFICATIONS:** This structure conforms to "Standard Specifications for Highway Bridges" adopted by the American Association of State Highway Officials, 1977, including the 1978, 1979, 1980, 1981 and 1982 Interim Specifications and the Ohio "Supplement" to these specifications.

**DESIGN DATA:** Design Loading - HS20-44 and the Alternate Military Loading  
Concrete Class S -  $f'_c = 4500$  p.s.i. for superstructure  
Concrete Class C -  $f'_c = 4000$  p.s.i. for substructure  
Reinforcing Steel - ASTM A615, A616, A617 - Grade 60 minimum yield strength 60,000 p.s.i.  
Concrete for prestressed beams -  $f'_c = 5500$  p.s.i. at 28 days (min.)  
Prestressing strand ASTM A416 -  $f'_s = 270,000$  p.s.i. Initial stress 0.70  $f'_s$   
Deck Protection Method: Type D waterproofing and asphalt concrete overlay

**BEAM FABRICATION:** Beams shall be fabricated as to include provisions for lifting into place. Unit price bid for prestressed concrete beams shall include transverse tie bars, anchor dowels, bolts, studs and nuts for guard rail, dowel holes in precast beams located as per plan. Shear key surfaces shall be roughened by application of an approved retarder to the forms prior to casting beams or by sandblasting after removal of forms. Diaphragms shall be located as shown on plans.

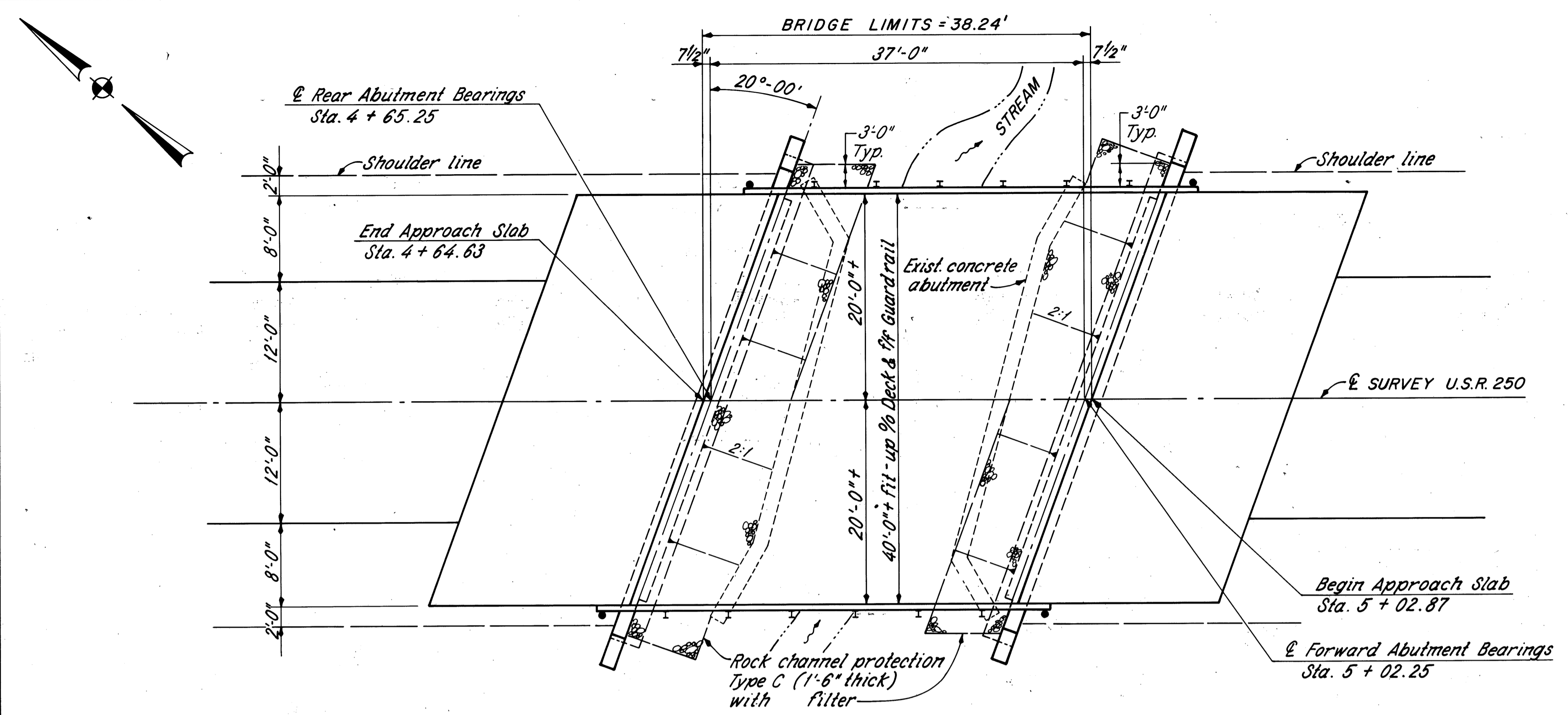
**EMBANKMENT CONSTRUCTION:** The embankments shall be constructed to the level of the subgrade for a minimum distance of 200 feet back of the abutments. Excavation shall then be made for the abutments.

**UTILITY LINES:** All expense involved in relocating the affected utility lines shall be borne by the owners. The Contractor and Owners are requested to cooperate by arranging their work in such a manner that inconvenience to either will be held to a minimum.

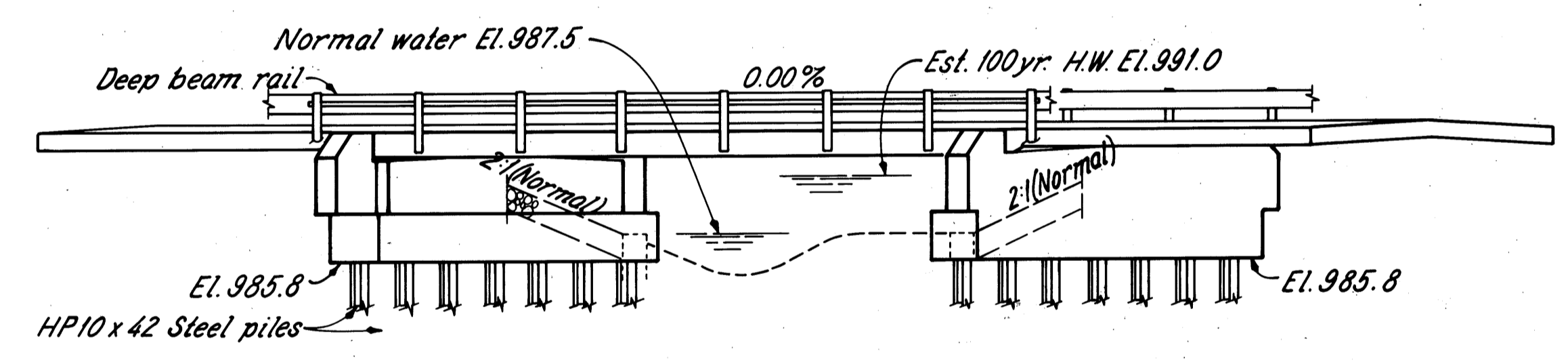
**REMOVAL OF EXISTING STRUCTURE:** The existing structure shall be removed in accordance with Item 202 Specifications.

**PILES** shall be driven to refusal on bedrock. Refusal shall be considered as obtained by penetrating soft bedrock for several inches with a minimum resistance of 20 blows per inch or refusal shall be considered as obtained after the pile has contacted hard bedrock and the pile has then received at least 20 blows.

The Pile Hammer used to install the steel "H" bearing piles shall have a State's Energy Rating of not less than 15,000 foot-pounds. This requirement does not relieve the Contractor from 108.05 which states that the Contractor is to provide sufficient equipment for prosecuting the required work.



**GENERAL PLAN**



**GENERAL ELEVATION**

ESTIMATED QUANTITIES BRF-47 (14)							
ITEM	TOTAL	UNIT	DESCRIPTION	SUPER.	ABUTS.	PIERS	GENERAL
202	Lump		Structure removed				Lump
403	9	Cu. Yd.	Asphalt concrete, AC-20	9			
404	6	Cu. Yd.	Asphalt concrete, AC-20	6			
503	Lump		Cofferdams, cribs and sheeting				Lump
503	75	Cu. Yd.	Unclassified excavation		75		
505	Lump		Pile driving equipment mobilization				Lump
507	315	Lin. Ft.	Steel piles, HP10 x 42, as per plan		315		
509	7535	Lbs.	Reinforcing steel, grade 60		7535		
511	33	Cu. Yd.	Class C concrete, abutments above footings		33		
511	34	Cu. Yd.	Class C concrete, footings		34		
512	190	Sq. Yd.	Type D waterproofing	190			
515	10	Each	Prestressed concrete bridge members, B17 x 48	10			
516	124	Sq. Ft.	1" Preformed expansion joint filler	124			
516	40	Each	1/2" x 5" x 12" Elastomeric bearing pads (50 Durometer)	40			
516	20	Each	1/8" x 5" x 12" Preformed bearing pads, used as shims	20			
516	86	Lin. Ft.	Joint sealer, 705.02	86			
517	76.48	Lin. Ft.	Railing (deep beam with steel tubular back-up, Type 2 posts and bolts)	76.48			
518	28	Cu. Yd.	Porous backfill		28		
518	103	Lin. Ft.	6" Perforated, helical corrugated steel pipe, 707.01		103		
518	24	Lin. Ft.	6" Non-perforated, helical corrugated steel pipe, including specials, 707.01		24		
Special	58	Sq. Ft.	Steel drip strip	58			

**REL** RICHLAND ENGINEERING LIMITED  
MANSFIELD, OHIO

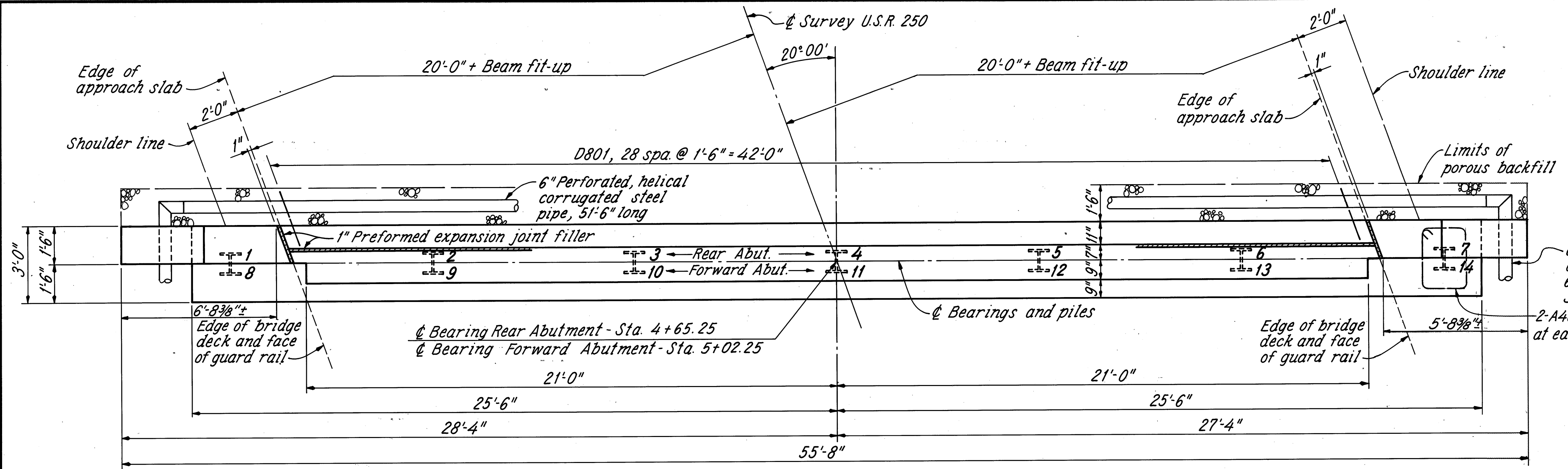
2/4

**GENERAL PLAN, GENERAL NOTES AND ESTIMATED QUANTITIES**  
**BRIDGE NO. ASD-250-0009**  
**OVER STREAM**

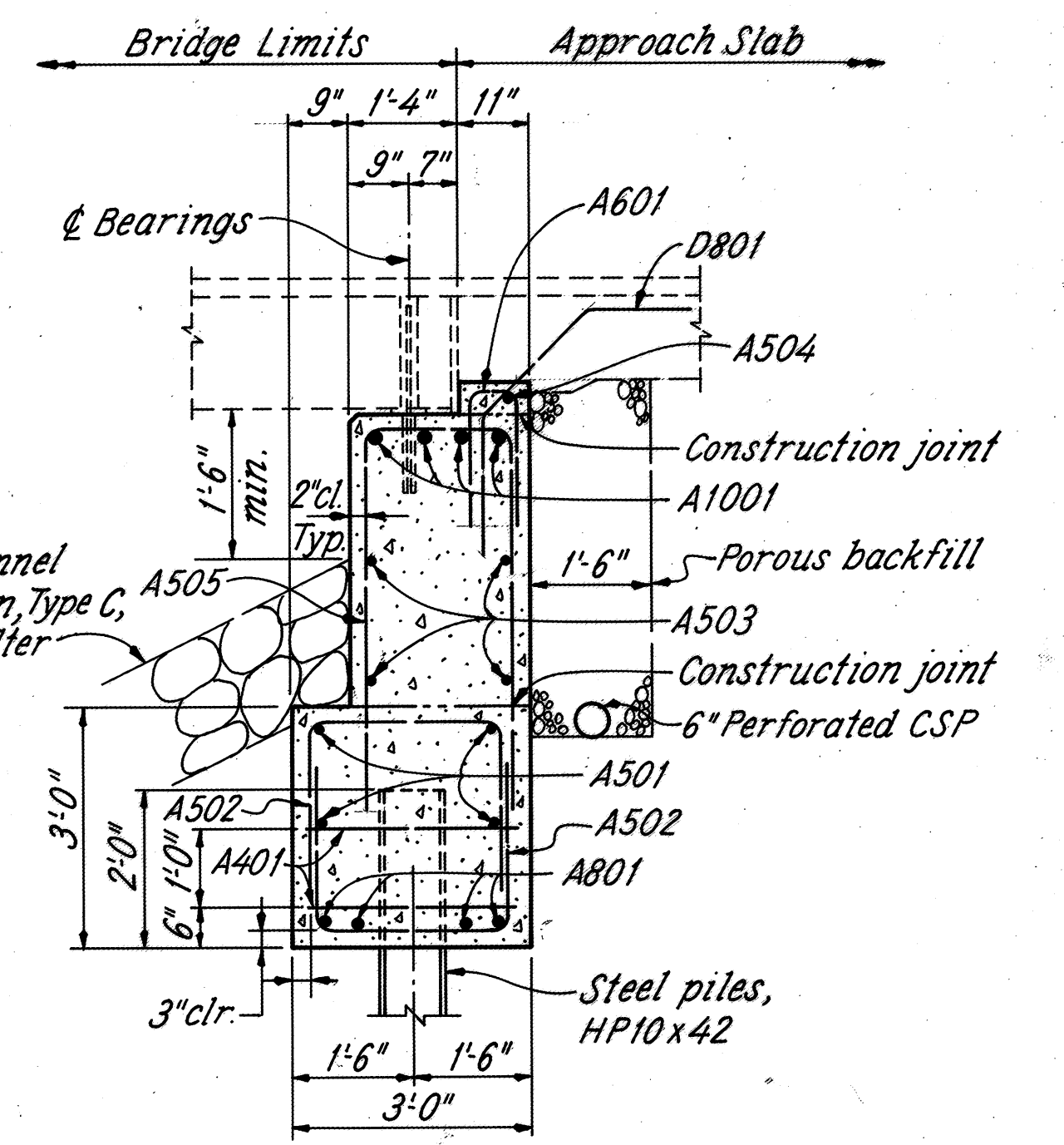
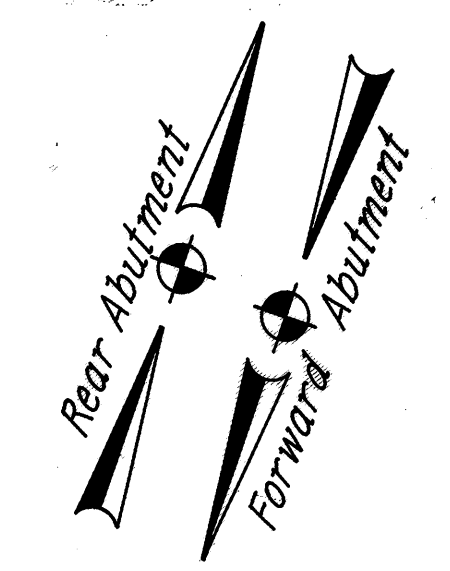
HURON - ASHLAND COUNTY LINE U.S.R. 250

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RON	TWH	TWH	RHU	DAP	3/1/83	



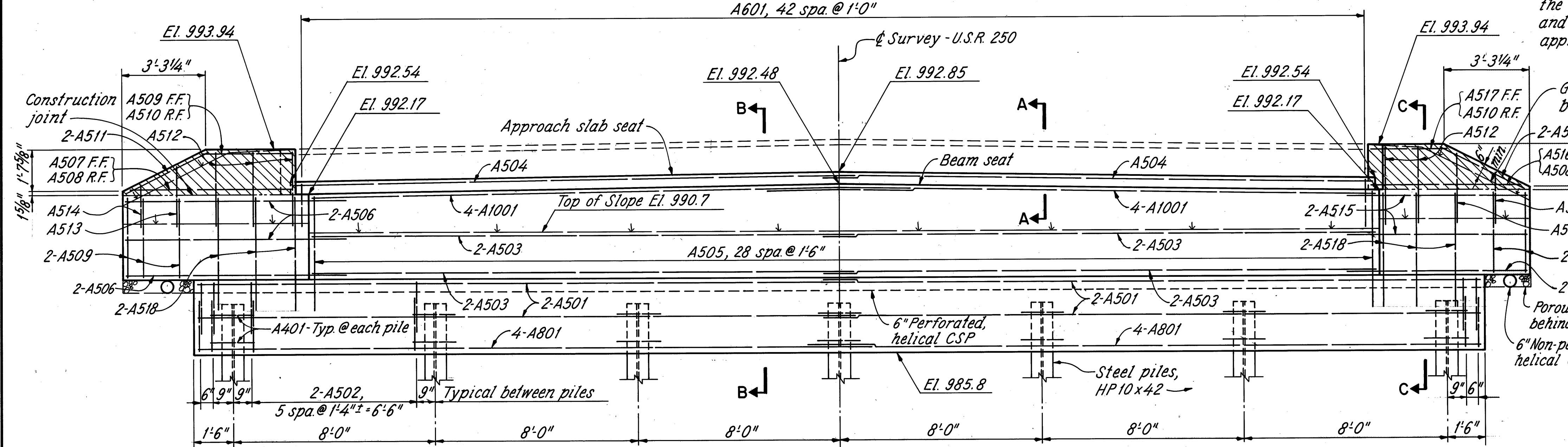


PLAN



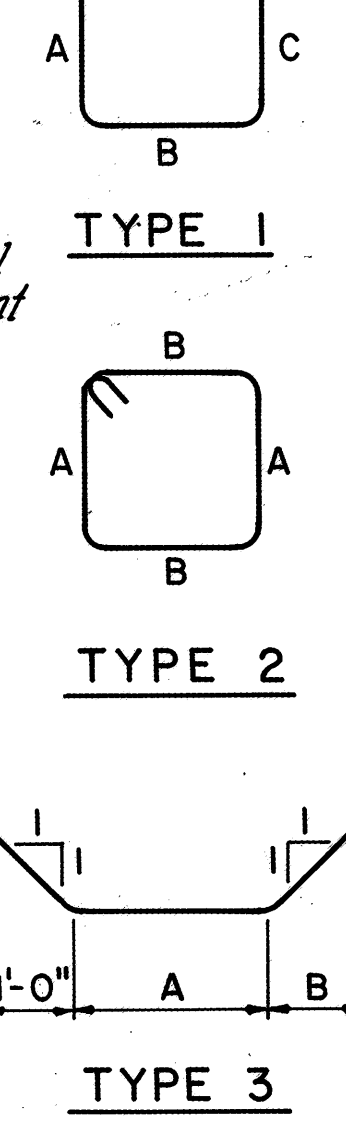
SECTION B-B

Note: Shaded areas indicates concrete to be poured after the beams have been set and prior to placing the approach slabs.



ELEVATION

REINFORCING STEEL LIST										
MARK	REAR	FWD.	NO.	LENGTH	TYPE	A	B	C	WEIGHT	
A401	14	14	28	8'-8"	2	2'-4 3/4"	1'-9"		162	
A501	8	8	16	28'-4"	Str.				473	
A502	80	80	160	6'-3"	1	2'-0"	2'-6"	2'-0"	1043	
A503	8	8	16	21'-6"	Str.				359	
A504	2	2	4	22'-0"	Str.				92	
A505	29	29	58	10'-8"	1	4'-6"	1'-11"	4'-6"	645	
A506	6	6	12	8'-6"	Str.				106	
A507	1	1	2	6'-4"	Str.				13	
A508	2	2	4	5'-10"	Str.				24	
A509	11	11	22	3'-0"	Str.				69	
A510	2	2	4	2'-6"	Str.				10	
A511	4	4	8	3'-4"	Str.				28	
A512	5	5	10	6'-11"	1	3'-0"	1'-2"	3'-0"	72	
A513	2	2	4	5'-7"	1	2'-4"	1'-2"	2'-4"	23	
A514	2	2	4	4'-3"	1	1'-8"	1'-2"	1'-8"	18	
A515	6	6	12	7'-3"	Str.				91	
A516	1	1	2	5'-4"	Str.				11	
A517	1	1	2	2'-0"	Str.				4	
A518	12	12	24	4'-6"	Str.				113	
A601	43	43	86	4'-3"	1	2'-0"	7"	2'-0"	549	
A801	8	8	16	29'-0"	Str.				1239	
A1001	8	8	16	23'-8"	Str.				1629	
D801	29	29	58	4'-11"	3	1'-9"	1'-3"		762	
									TOTAL	7535



BENDING DIAGRAMS

**NOTES**

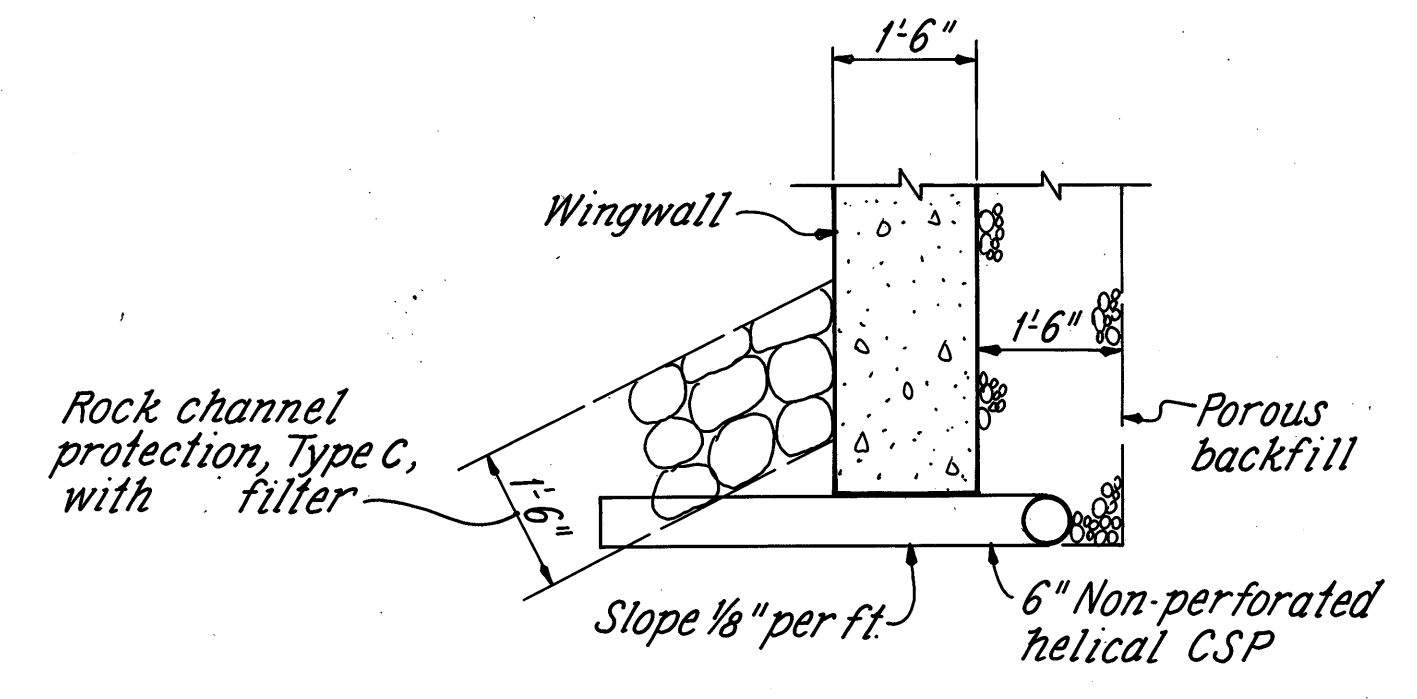
**POROUS BACKFILL** shall extend upward to the plane of the subgrade and laterally to the surface of the embankment slopes.

**NOTATION:** R.A. - Rear Abutment; F.A. - Forward Abutment; F.F. - Front Face; R.F. - Rear Face.

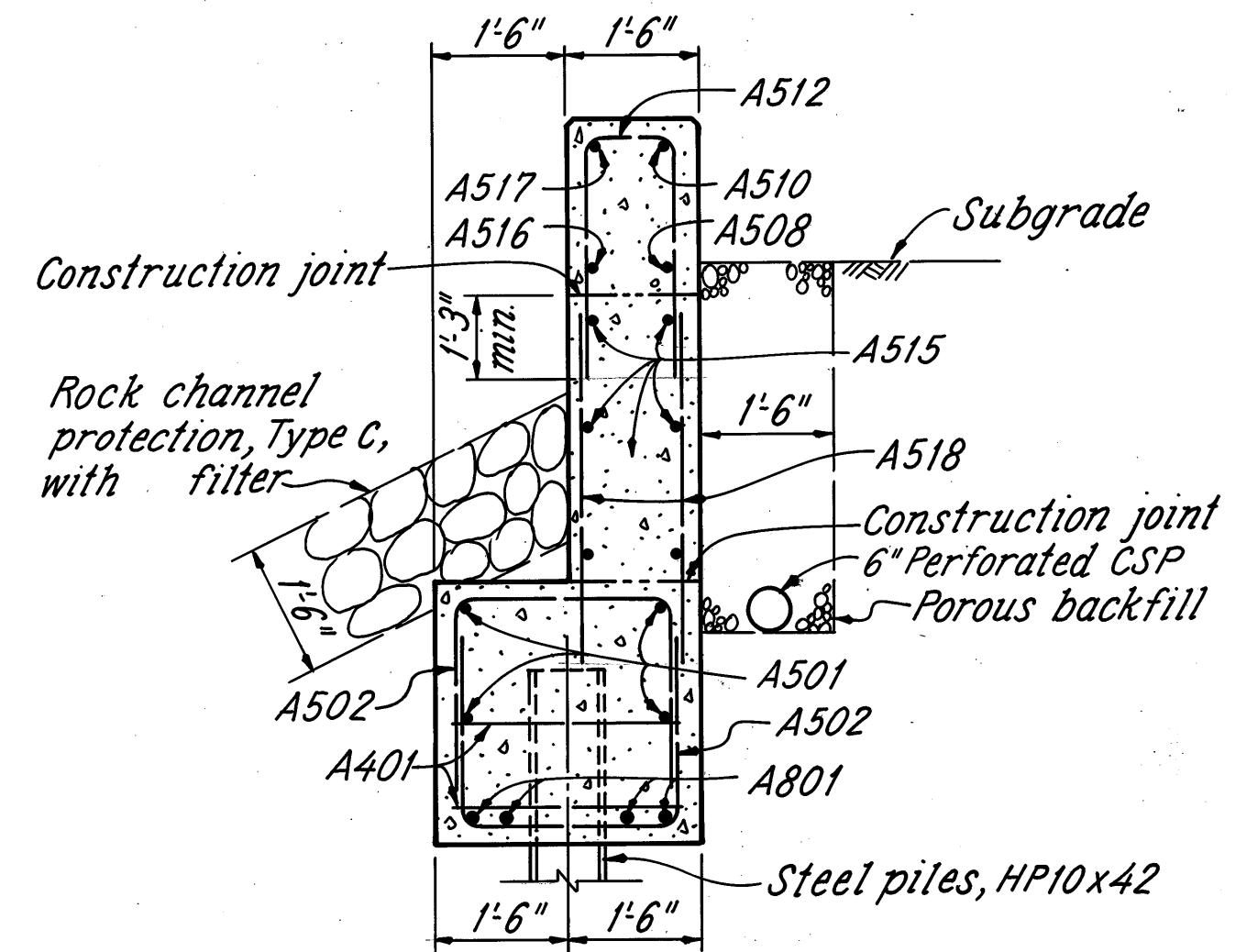
**REINFORCING SPLICE LENGTHS** shall be 1'-3" for #5 bars, 2'-6" for #8 bars and 5'-7" for #10 bars.

**BRIDGE SEAT REINFORCING:** Reinforcing steel in the vicinity of the bridge seat shall be accurately placed to avoid interference with the drilling of anchor bar holes.

**SECTION A-A:** See Sheet 4/4



TERMINATION OF 6" NON-PERFORATED CSP



SECTION C-C

**REL RICHLAND ENGINEERING LIMITED**  
MANSFIELD, OHIO

**ABUTMENTS**  
BRIDGE NO. ASD-250-0009  
OVER STREAM

HURON - ASHLAND COUNTY LINE U.S.R. 250

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RDN	GPS	JPS	RHU	DAP	3/1/83	



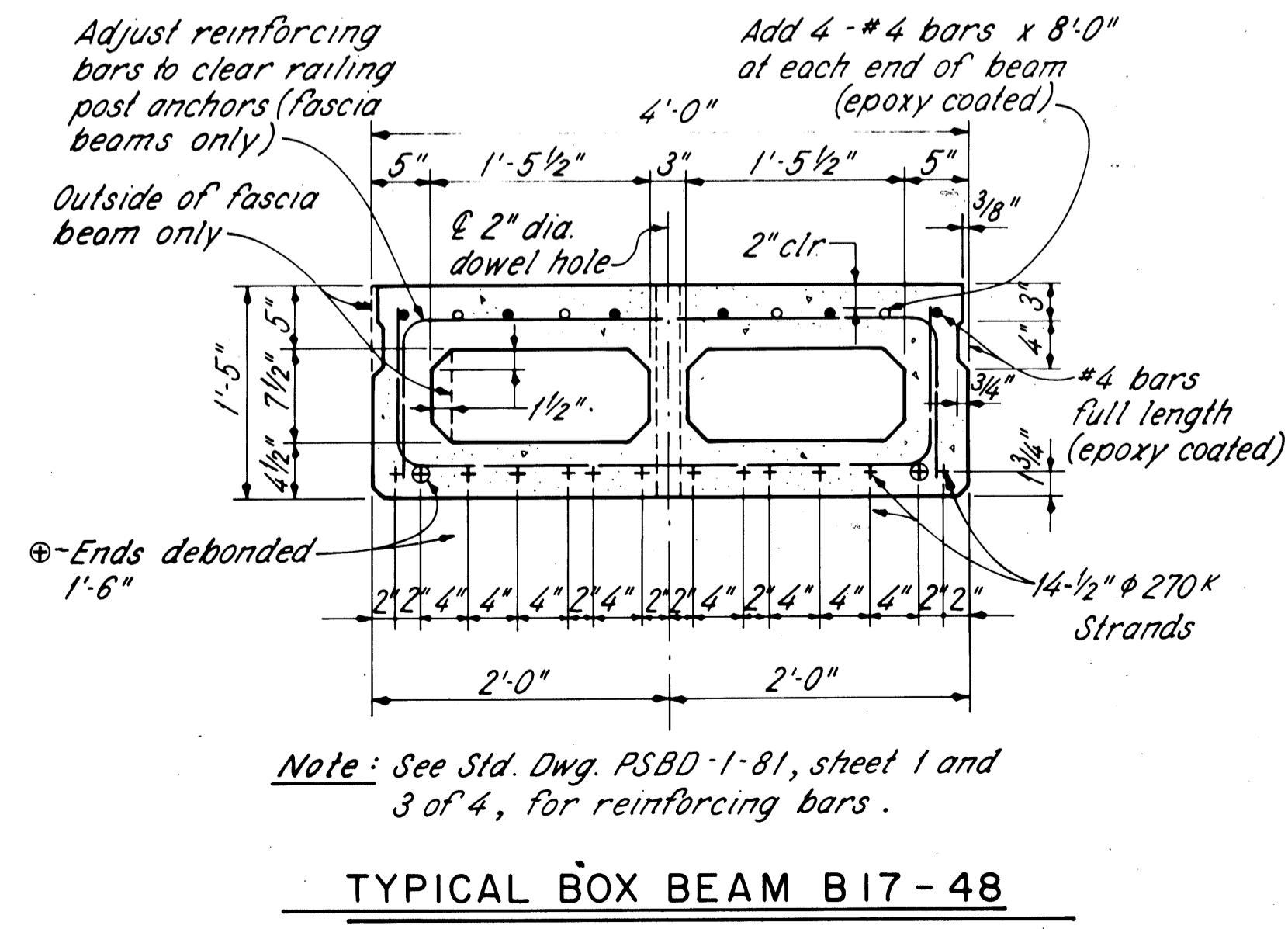
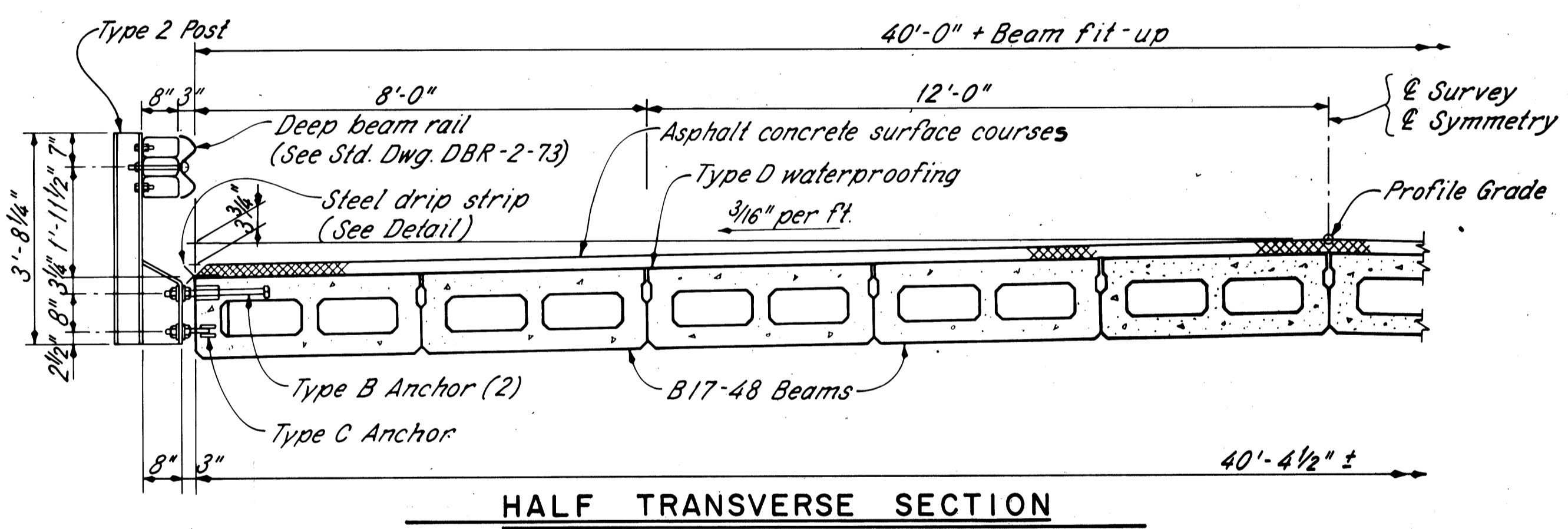
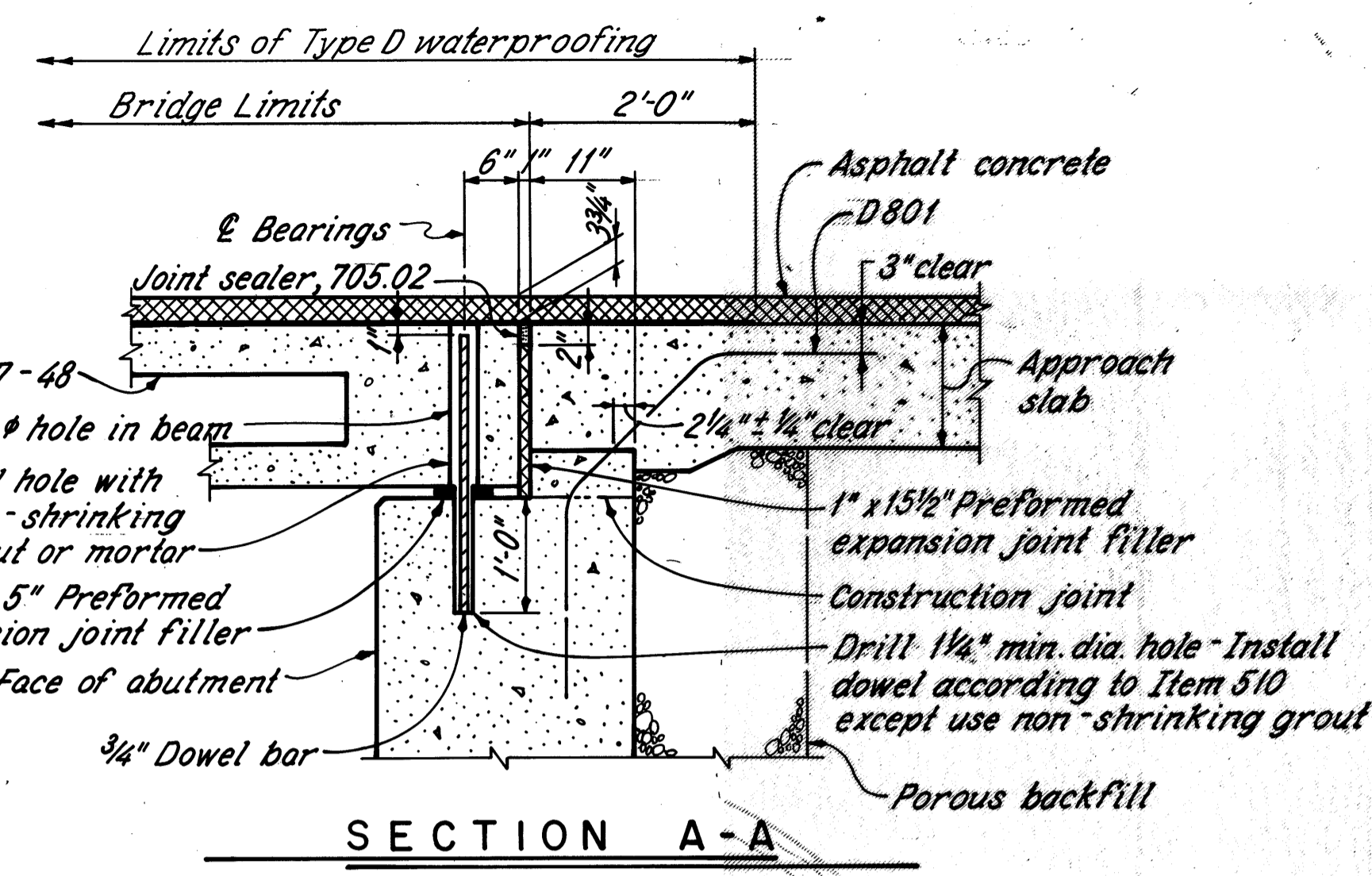
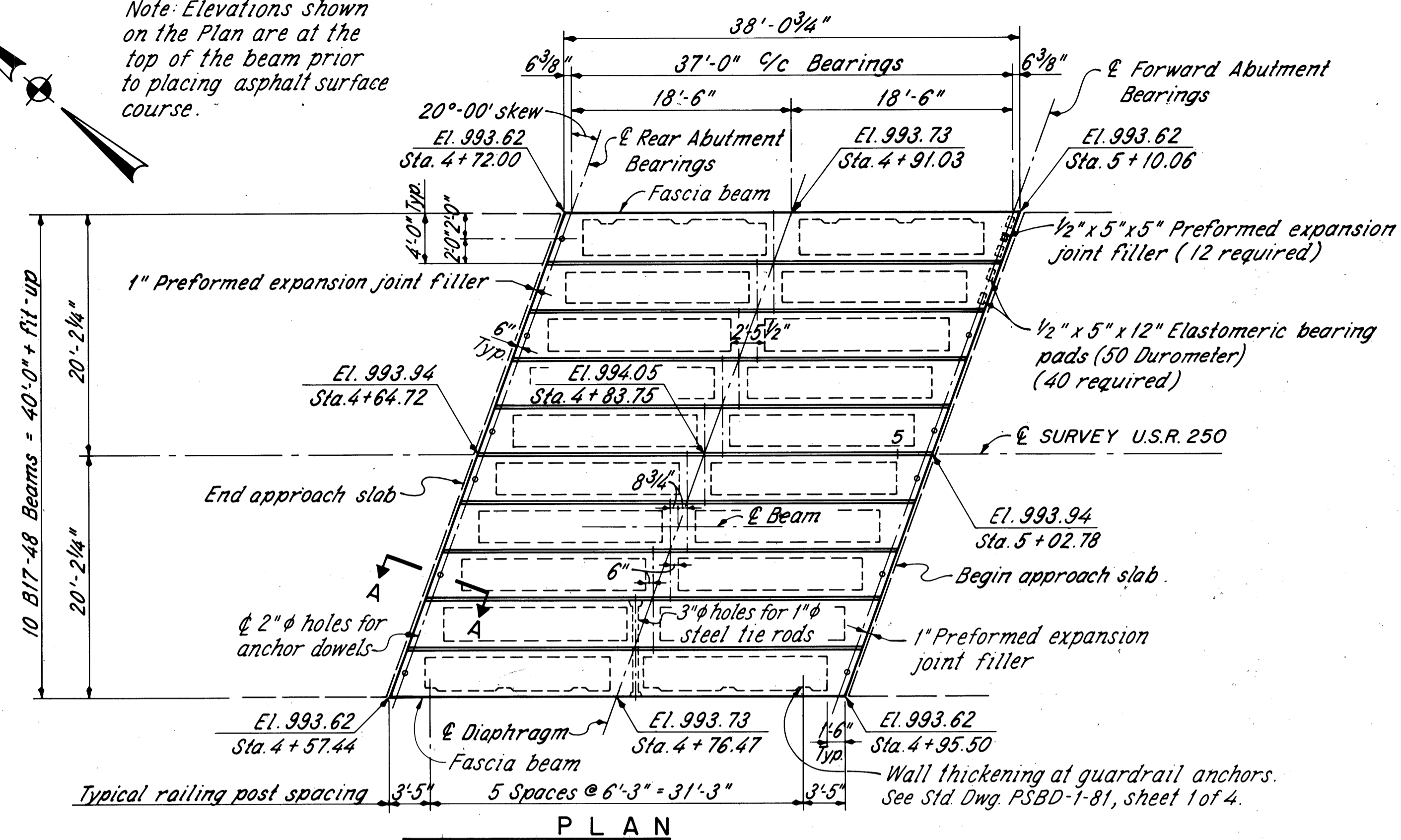
FHWA REGION	STATE	PROJECT	
5	OHIO		

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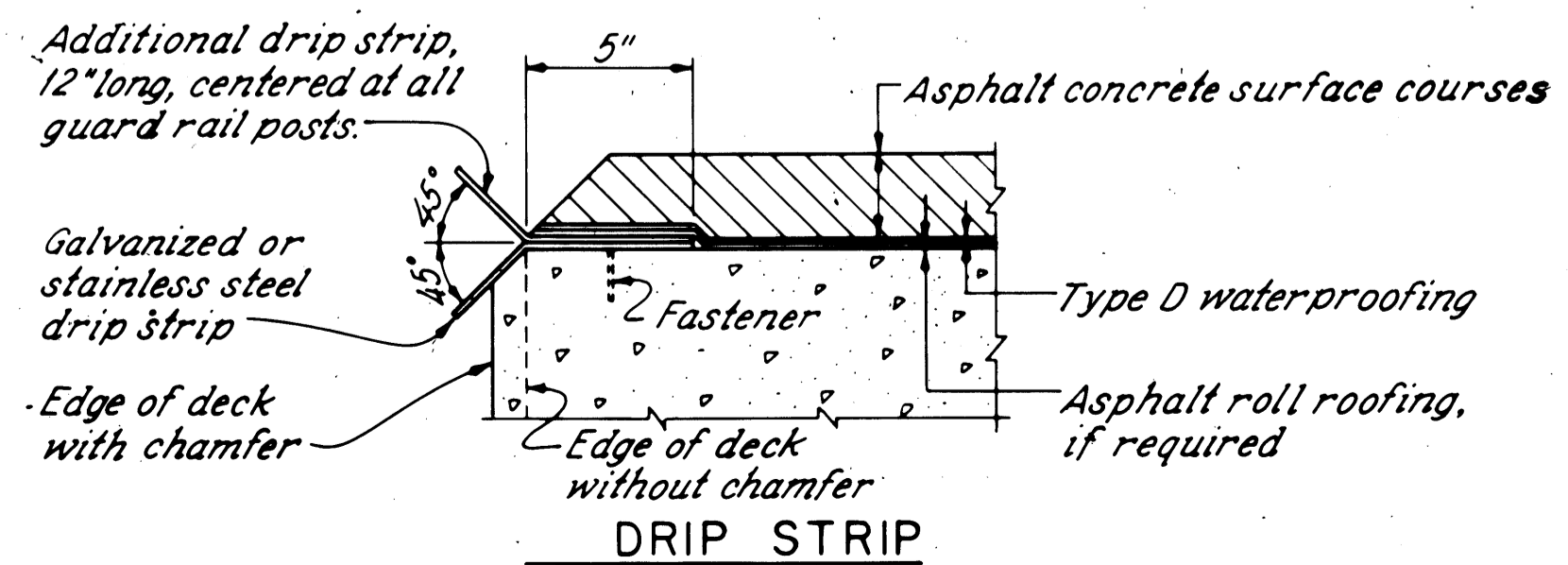
HUR - 250-18.28  
ASD - 250 - 0.08 PART 2

MICROFILMED

Note: Elevations shown on the Plan are at the top of the beam prior to placing asphalt surface course.



**DRIP STRIP:** Prior to applying deck membrane waterproofing, a bent drip strip shall be installed along the edges of the deck as shown. The strips shall be fastened at 1'-6" maximum with 1/4" x 3/8" x 1/4" flat head drive pin and washer. (Length x Shank Dia. x Head Dia.) or #10 galvanized screws and expansion anchors, subject to the approval of the Engineer. The strips shall be placed the full length of the deck, ending at the face of the abutment wingwall. Where splices are required a 3" (min.) lap shall be used with a fastener through the lap. Steel for galvanized strips shall be 8" x 0.105" and shall meet the requirements of ASTM A568. Galvanizing shall be in accordance with 711.02. Stainless steel shall be 20 gauge ASTM A167, Type 304, mill finish. Payment shall be at the contract price bid for Item Special, Sq Ft, Steel Drip Strip, which shall include all materials, labor, tools and incidentals necessary to complete the item.



**NOTES**

**ASPHALT CONCRETE SURFACE COURSE** shall consist of a variable thickness of 403 and 1/4" thickness of 404. The 403 shall be placed in two operations. The first course shall be of 1/4" uniform thickness. The second course shall be feathered to place the surface parallel to and 1/4" below final pavement surface elevation.

**ADDITIONAL DETAILS:** See Standard Drawing PSBD-1-81, sheets 1, 2, and 4 of 4 for Beam Lifting Inserts, End Details of Transverse Tie Rod Anchorage, Normal Crown Treatment at Roadway, Beam Dimensional Tolerances, and Beam Connection Over Piers.

**ADDITIONAL NOTES:** See Standard Drawing PSBD-1-81, sheet 1 of 4 for notes on Transverse Tie Rods, Galvanizing, Notches, Anchor Dowels, Non-shrinking Mortar and Grout, and Mortaring of Shear Keys.

**BEARING PAD SHIMS:** Two 1/8" preformed bearing pads per beam shall be provided for use as shims where needed for proper seating of the prestressed beams. 20 pads, 1/8" x 5" x 12", shall be provided, at no extra cost, by the State for this purpose.

**CONCRETE STRESSES:** Minimum concrete strength at 28 days  $f'c = 5500$  psi. Minimum concrete strength at time of initial prestress  $f'ci = 4000$  psi.

**PRESTRESSING STRANDS:** 1/2" dia. 270K seven-wire, uncoated, stress-relieved strand.  $A_s = .154$  sq. in. Initial Tension = 28,900 lbs. per strand. Tension at release = 26,600 lbs. per strand (Assumed). Final Tension = 21,700 lbs. per strand after all losses. (Assumed)

**CALCULATED CAMBER** at time of paving, including allowance for camber growth due to creep, is 1 1/16". Calculated deflection due to weight of surface course and railing is 1/16". Net final camber of beams is 1/4". This is 1/4" in excess of the amount required to place the top of the beam parallel to profile grade. This excess amount shall be compensated for by thickening the 403 leveling course from 1/4" at center of spans to 2 1/2" at ends of spans.

**RAILING:** See Standard Drawing DBR-2-73.

**EPOXY COATED REINFORCEMENT** shall be used for the top stirrups (N bars) and top longitudinal bars in the prestressed box beams.

**REL** RICHLAND ENGINEERING LIMITED  
MANSFIELD, OHIO

**SUPERSTRUCTURE**  
BRIDGE NO. ASD - 250-0009  
OVER STREAM

HURON - ASHLAND COUNTY LINE U.S.R. 250

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RDN	TWH	WH	RHU	DAP	3/1/83	

4/4

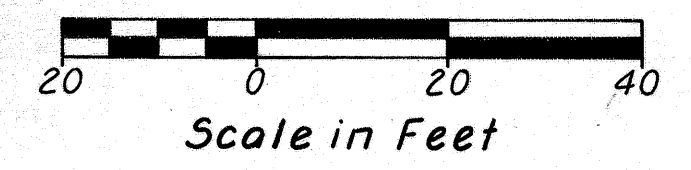


**NOTE SUPERSEDED BY**

STATE JOB NUMBER	FHWA REGION	STATE	PROJECT
03854 (0)	5	OHIO	BRF - 47 ( )

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32  
1  
1

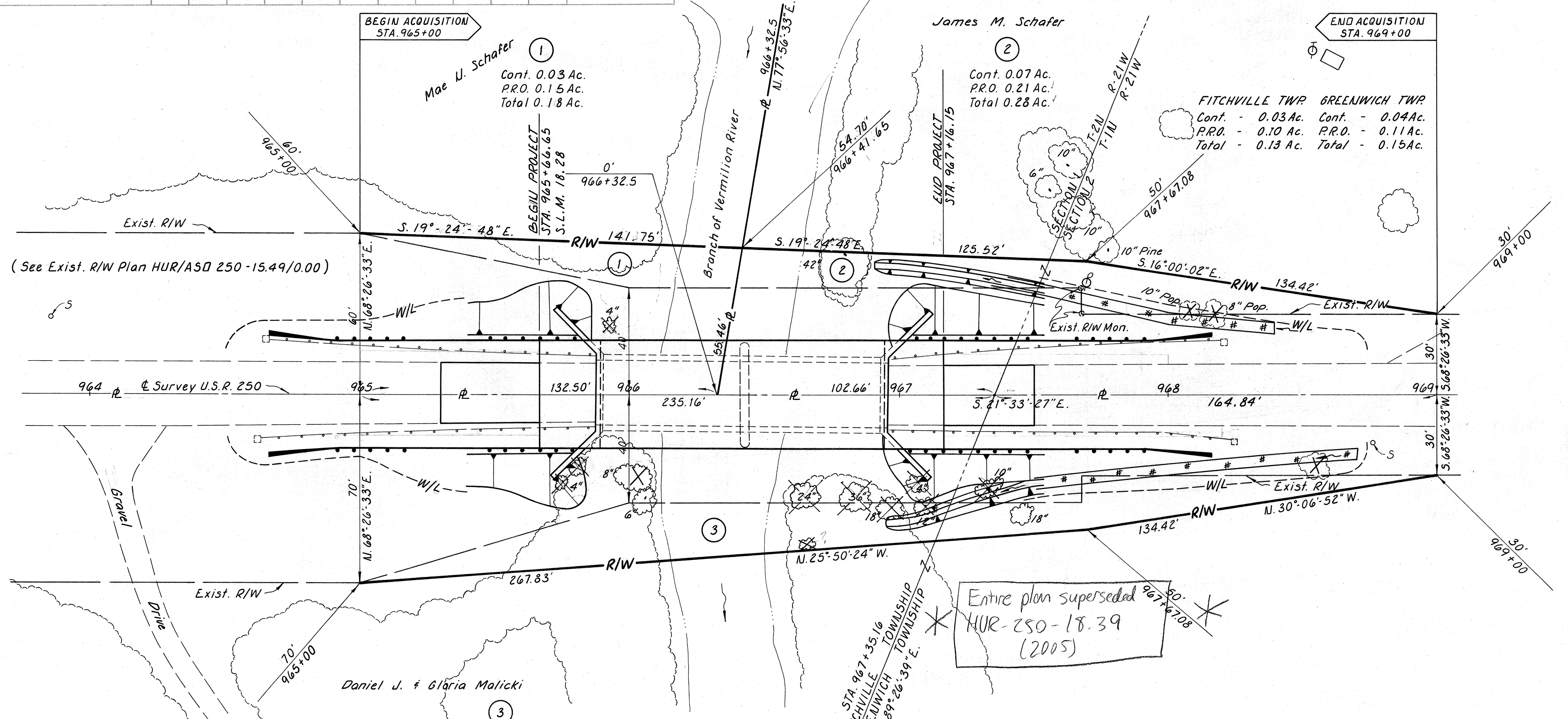
HUR - 250 - 18.28 PART I  
RIGHT OF WAY PLAN



**SUMMARY OF ADDITIONAL RIGHT OF WAY REQUIRED**

NO. OF STRUCTURES 0 NO. OF PROPERTY OWNERS 3 NO. OF TOTAL TAKES 0

PARCEL NO.	TYPE FUNDS	PROPERTY OWNER	RECORDED		DEED AREA	TOTAL P.R.O.	GROSS TAKE	P.R.O. INTAKE	NET TAKE	NET RESIDUE		BLDG.	SHEET NO.	REMARKS
			VOL.	PAGE						LEFT	RIGHT			
1	STATE	Mae W. Schafer	250	8	3.00	0.44	0.18	0.15	0.03	1.53	-	NO	1	
2	"	James M. Schafer	184	269	1.20	0.29	0.28	0.21	0.07	0.84	-	NO	1	
3	"	Daniel J. & Gloria J. Malicki	332	128	88.535	2.76	0.49	0.37	0.12	-	85.655	NO	1	



(See Exist. R/W Plan HUR/ASD 250-15.49/0.00)

Entire plan superseded  
HUR-250-18.39  
(2005)

**UTILITY OWNERSHIP:**

**TELEPHONE:** General Telephone Company of Ohio  
117 North Sandusky Street  
Bellevue, Ohio 44811  
Phone: (419) 483-8179

**POWER:** Firelands Electric Co-Op  
55 West Main Street  
New London, Ohio 44851  
Phone: (419) 929-1571

Cont. 0.12 Ac. P.R.O. 0.37 Ac. Total 0.49 Ac.	FITCHVILLE TWP Cont. - 0.07 Ac. P.R.O. - 0.25 Ac. Total - 0.32 Ac.	GREENWICH TWP Cont. - 0.05 Ac. P.R.O. - 0.12 Ac. Total - 0.17 Ac.
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FITCHVILLE TOWNSHIP, SEC - 1, T-2N, R-21W GREENWICH TOWNSHIP, SEC-2, T-1N, R-21W  
HURON COUNTY

TYPE FUNDS: STATE

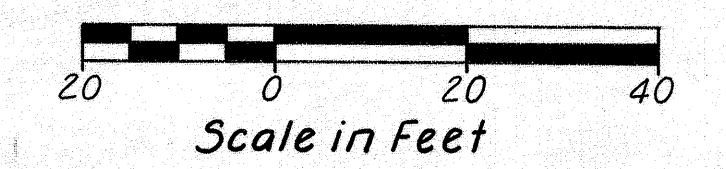
Revision Date	Description
JEC 11-2-83	Rev. Pdr 2 area in Fitchville Twp.



STATE JOB NUMBER	FHWA REGION	STATE	PROJECT
03848 (0)	5	OHIO	BRF-47( )

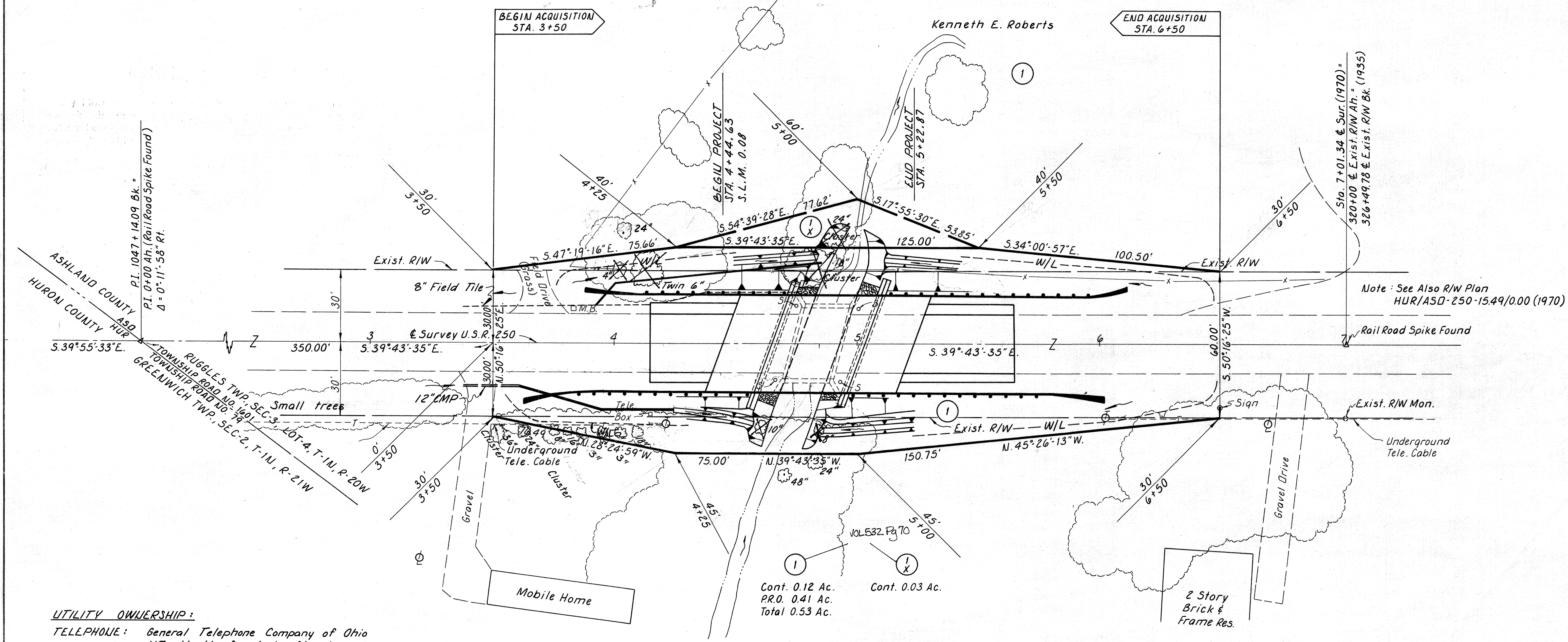
32  
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1

ASD - 250 - 0.08 PART 2  
RIGHT OF WAY PLAN



SUMMARY OF ADDITIONAL RIGHT OF WAY REQUIRED

PARCEL NO.	TYPE FUNDS	PROPERTY OWNER	NO. OF PROPERTY OWNERS			NO. OF TOTAL TAKES					REMARKS			
			RECORDED VOL.	DEED PAGE	TOTAL AREA	GROSS TAKE P.R.O.	NET TAKE INTAKE	NET TAKE	NET RESIDUE LEFT	NET RESIDUE RIGHT		BLDG.	SHEET NO.	
1	State	Kenneth E. Roberts	278	291	65	4.70	0.53	0.41	0.12	41.10	19.08	No		
1X	"	"					0.03	0	0.03			No		Channel Work



Note: See Also R/W Plan HUR/ASD-250-1549/0.00 (1970)

**UTILITY OWNERSHIP:**  
**TELEPHONE:** General Telephone Company of Ohio  
 117 North Sandusky Street  
 Bellevue, Ohio 44811  
 Phone: (419) 483-8179  
**POWER:** Firelands Electric Co-Op  
 55 West Main Street  
 New London, Ohio 44851  
 Phone: (419) 929-1571

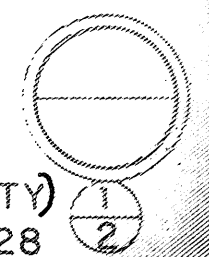
ASHLAND COUNTY, RUGGLES TOWNSHIP, SECTION-3, LOT-4, T-1N, R-20W

TYPE FUNDS: STATE	
PLAN COMPLETED 8-17-83	
Revision Date	Description
8-17-83	



MICROFILMED  
JUL 2 1985

(HURON COUNTY)  
HUR-250-18.28  
ASP-250-0.08



**GEOLOGY OF THE SITE**

THE STRUCTURE SITE IS LOCATED IN THE GENTLY ROLLING GLACIATED PORTION OF THE MISSISSIPPI VALLEY PLAIN REGION, IN AN AREA WHERE EXTREMELY DEEP GLACIAL AND ALLUVIAL DEPOSITS OVERLIE BEDROCK OF MISSISSIPPIAN AGE.

**EXPLORATION**

THE EXPLORATION CONSISTED OF ONE DRIVE SAMPLE BORING MADE BY MEANS OF A MECHANICALLY-POWERED HOLLOW STEM AUGER MOUNTED ON A MOBILE PLATFORM, PERFORMED ON SEPTEMBER 22, 1982.

**INVESTIGATIONAL FINDINGS AND OBSERVATIONS**

THE BORING ENCOUNTERED INTERVALS OF EXTREMELY LOOSE TO EXTREMELY DENSE UNSTRATIFIED BASIC SILTS AND GRAVEL MODIFIED WITH CLAYS AND SAND AND VARYING AMOUNTS OF EACH OTHER THAT RAPIDLY INCREASE (ERRATIC AT TIMES) IN DENSITY WITH INCREASE IN DEPTH. MATERIAL BEARING A TRACE OF ORGANIC WAS ENCOUNTERED AT 10.1-FOOT DEPTH, ELEVATION 943.6 FEET. BORING B-4 (IN THE VICINITY OF THE PROPOSED CENTER PIER) PENETRATED TO A DEPTH OF 36.6 FEET, ELEVATION 917.1 FEET AND WAS TERMINATED AFTER PENETRATING IN EXCESS OF 21.5 FEET OF MATERIAL REQUIRING IN EXCESS OF 30 BLOWS PER FOOT IN THE STANDARD PENETRATION TEST.

BEDROCK SURFACE WAS NOT ENCOUNTERED IN THE TEST BORING PERFORMED.

NO FREE WATER OBSERVATIONS WERE MADE DURING OR AT THE CONCLUSION OF DRILLING OPERATIONS.

**LEGEND**

- Auger Boring Location - Plan View.
- Press and / or Drive Sample and / or Core Boring Location - Plan View.
- Drive Rod Penetration Resistance Sounding Location - Plan View.
- Capped Pile
- Footing
- Footing on Pile
- Top of Rock

- Horizontal Bar on Boring Log Indicates the Depth the Sample Was Taken.
- Figures Beside the Boring Log in Profile Indicate the Number of Blows for Standard Penetration Test.  
X = Number of Blows for First 6 inches.  
Y = Number of Blows for Second 6 inches.  
Z = Number of Blows for Third 6 inches.
- Drive Rod Penetration Resistance Sounding Log - Profile
- Casing  
Resistance "R" < 10,000 lbs.  
Resistance "R" > 10,000 lbs.
- Z Indicates Final Measurement of Penetration, in Inches.
- W Indicates Free Water Elevation.
- Indicates Static Water Elevation.

**SYMBOLS OF ROCK TYPES**

- Coal
- Weathered Mudstone or Claystone
- Mudstone or Claystone
- Weathered Shale
- Shale
- Weathered Siltstone
- Siltstone
- Weathered Sandstone
- Sandstone
- Leached Dolomite
- Dolomite
- Leached Limestone
- Limestone
- Boulders or Cobbles

**GENERAL INFORMATION**

**Drive Rod Penetration Sounding Tests**

Drive rod penetration resistance tests constitute driving a 1.315-inch diameter steel rod, with a 45° cone point, into the ground, using a 122-pound drop-hammer with a free fall of five feet. At one or two-foot depth intervals, a measurement is taken to determine the amount of penetration achieved in three hammer drops. This reading is converted to an empirical value for capacity "R", in thousands of pounds (which is a measure of both the point resistance and frictional resistance on the rod), by using charts prepared by the Ohio Department of Highways, Bureau of Bridges, on the basis of correlation study of rod penetration with past performance of pile driving. For interpretation, a graph is prepared by plotting the value "R" against the depth at which the reading was taken, and connecting the plotted points. The curve so obtained reflects the density of subsurface materials in a manner that can be readily compared with data from similar tests at other locations on the structure site. From this comparison, the overall uniformity of subsurface condition may be evaluated.

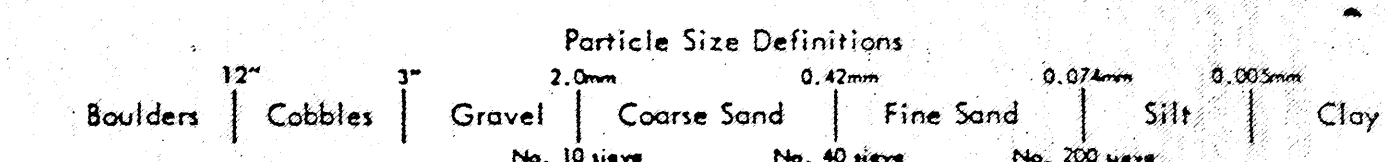
**Drive Sample Borings - Drive-Press Sample Borings**

Drive sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1-3/8" I.D. sampler, at 2-1/2' or 5-foot depth intervals, driven by means of a 140-pound drop-hammer with a free fall of 30 inches. The number of blows required to drive the sampler 18 inches is considered the standard penetration test.

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NOTE: Information shown by this subsurface investigation was obtained solely for the use in establishing design criteria for the project. The State of Ohio does not guarantee the accuracy of this data and it is not to be construed as a part of the plans governing construction of the project.

OHIO DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS - TESTING LABORATORY  
1600 WEST BROAD STREET, COLUMBUS, OHIO 43223

STRUCTURE FOUNDATION INVESTIGATION  
BRIDGE NO HUR-250-1828

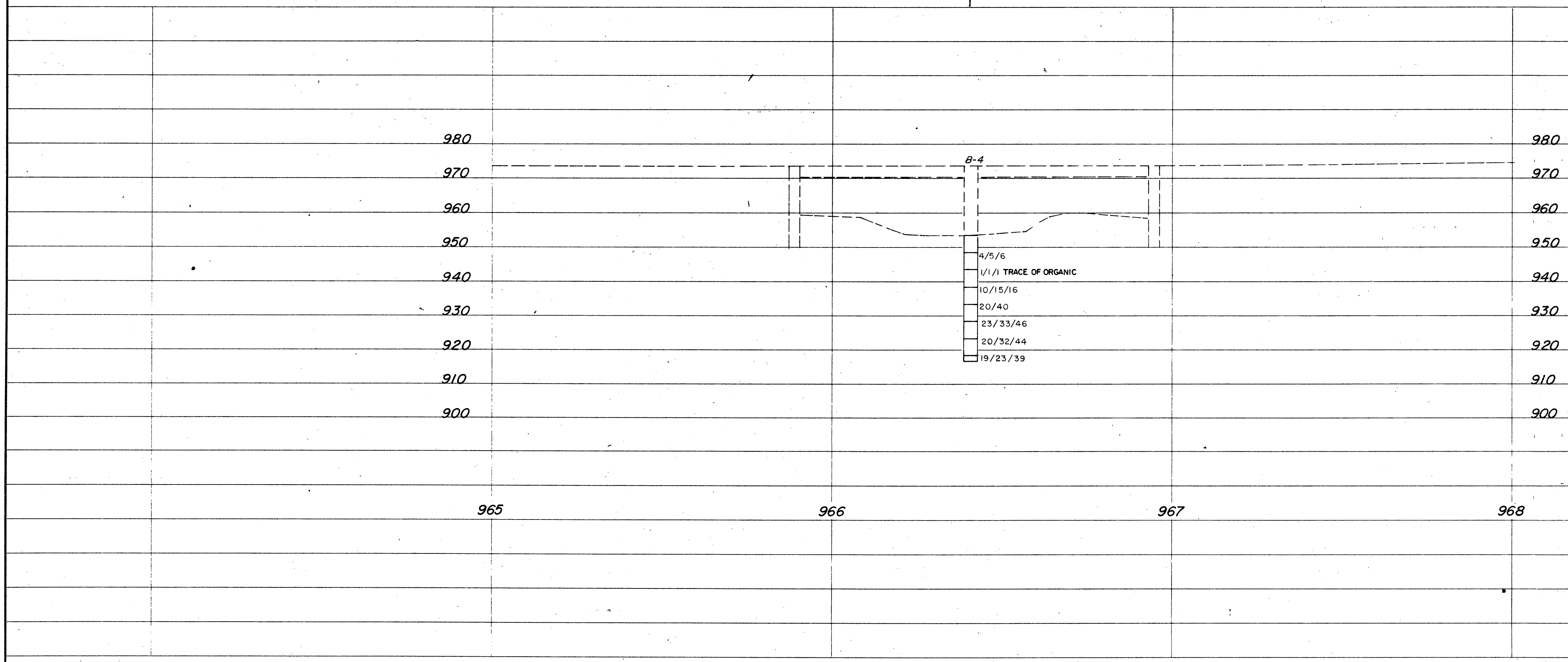
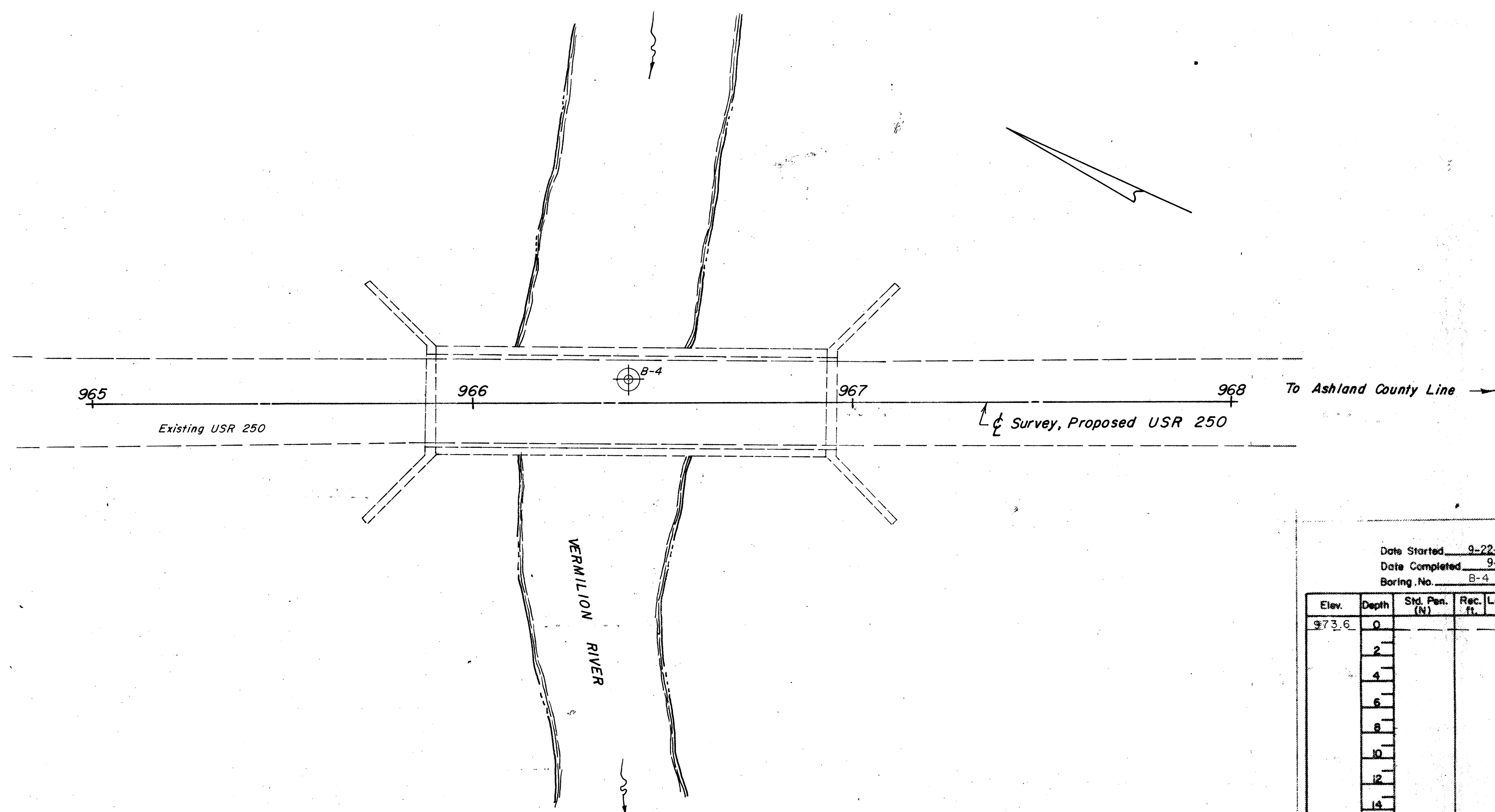
OVER VERMILION RIVER  
SEC. HUR-250-18.28

CHECKED BY: L. N. L. REVIEWED BY: R. D. R. DATE: 1/21/83



MICROFILMED  
JUL 2 1985

HUR-250-18.28  
ASD-250-0.08



Date Started 9-22-82 Date Completed 9-22-82 Boring No. B-4  
 Sampler Type SS Dia 1 3/8" Casing Length Dia Station & Offset 966+41-6 LT (CENTER PIER)  
 Water Elev. BRIDGE DECK ELEV. 973.06'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics							SHTL Class.			
							% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	PI		W.C.		
973.6	0				BRIDGE DECK												
	2																
	4																
	6																
	8																
	10																
	12																
	14																
	16																
	18																
963.7	20				TOP OF GROUND SURFACE												
	22																
948.6	26	4/5/6			GRAY WITH BROWN SANDY SILT	1	9	7	13	37	34	23	7	11			A-4a
	28																
943.6	30	1/1/1			GRAY WITH BROWN SANDY SILT TRACE OF ORGANIC	2	8	4	18	37	33	21	6	23			A-4a
	32																
938.6	34																
	36	10/15/16			GRAY GRAVELLY SANDY SILT	3	16	10	17	41	16	17	2	18			A-4a
	38																
933.6	40	20/40			GRAY SILTY SANDY GRAVEL	4	65	12	10	9	4	NP	NP	11			A-1-a
	42																
928.6	44																
	46	23/33/46			GRAY SILTY SANDY GRAVEL	5	45	24	13	13	5	NP	NP	12			A-1-b
	48																
923.6	50	20/32/44			GRAY GRAVELLY SANDY SILT	6	15	5	15	43	22	19	4	14			A-4a
	52																
	54																
918.6	56	19/23/39			GRAY SILTY SANDY GRAVEL	7	52	19	8	12	9	-	-	14			VISUAL
917.1																	

OHIO DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS-TESTING LABORATORY  
 1600 WEST BROAD STREET, COLUMBUS, OHIO 43223

**STRUCTURE FOUNDATION INVESTIGATION**  
 BRIDGE NO. HUR-250-1828  
 OVER VERMILION RIVER  
 HUR-250-18.28  
 SEC.

PLAN AND PROFILE

DRAWN BY A.F. CHECKED BY L.N.L. REVIEWED BY R.D.R. DATE 1/21/83

SCALE: 1" = 20'



**GEOLOGY OF THE SITE**

THE STRUCTURE SITE IS LOCATED IN THE GENTLY ROLLING, DISSECTED AND GLACIATED PORTION OF THE MISSISSIPPI VALLEY PLAIN REGION, IN AN AREA WHERE MODERATELY DEEP GLACIAL-DERIVED MATERIAL AND ALLUVIAL DEPOSITS OVERLIE SHALE BEDROCK, OF MISSISSIPPIAN AGE.

**EXPLORATION**

THE EXPLORATION CONSISTED OF ONE DRIVE SAMPLE BORING AND ONE DRIVE SAMPLE-CORE BORING MADE BY MEANS OF A MECHANICALLY-POWERED HOLLOW STEM AUGER MOUNTED ON A MOBILE PLATFORM, PERFORMED ON SEPTEMBER 15 AND 16, 1982.

**INVESTIGATIONAL FINDINGS AND OBSERVATIONS**

THE BORINGS ENCOUNTERED INTERVALS OF EXTREMELY LOOSE TO EXTREMELY DENSE UNSTRATIFIED SILTS AND SAND MODIFIED WITH CLAYS, GRAVEL AND VARYING AMOUNTS OF EACH OTHER THAT GRADUALLY INCREASE (ERRATIC AT TIMES) IN DENSITY WITH INCREASE IN DEPTH OVERLIE SLOPING BEDROCK SURFACE. BORING B-1 (IN THE VICINITY OF THE REAR ABUTMENT) ENCOUNTERED BEDROCK SURFACE AT 30.0-FOOT DEPTH, ELEVATION 963.7 FEET AND WAS TERMINATED AT 30.5-FOOT DEPTH, ELEVATION 963.2 FEET, AFTER PENETRATING 0.5 FOOT BELOW BEDROCK SURFACE. BORING B-2 (IN THE VICINITY OF THE FORWARD ABUTMENT) ENCOUNTERED BEDROCK SURFACE AT 25.0-FOOT DEPTH, ELEVATION 968.7 FEET AND WAS TERMINATED AT 35.0-FOOT DEPTH, ELEVATION 958.7 FEET, AFTER PENETRATING 10.0 FEET BELOW BEDROCK SURFACE.

FREE WATER WAS OBSERVED AND MEASURED IN BORING B-1 AND BORING B-2 AT 8.0-FOOT DEPTH, ELEVATION 985.7 FEET.

- Auger Boring Location - Plan View.
- Press and / or Drive Sample and / or Core Boring Location - Plan View.
- Drive Rod Penetration Resistance Sounding Location - Plan View.
- Capped Pile
- Footing
- Footing on Pile
- Top of Rock

- Coal
- Weathered Mudstone or Claystone
- Mudstone or Claystone
- Weathered Shale
- Shale
- Weathered Siltstone
- Siltstone

**LEGEND**

- Horizontal Bar on Boring Log Indicates the Depth the Sample Was Taken.
- Figures Beside the Boring Log in Profile Indicate the Number of Blows for Standard Penetration Test.  
X = Number of Blows for First 6 inches.  
Y = Number of Blows for Second 6 inches.  
Z = Number of Blows for Third 6 inches.
- Drive Rod Penetration Resistance Sounding Log - Profile
- Casing
- Resistance "R" < 10,000 lbs.
- Resistance "R" > 10,000 lbs.
- Z Indicates Final Measurement of Penetration, in Inches.
- W Indicates Free Water Elevation.
- Indicates Static Water Elevation.

**SYMBOLS OF ROCK TYPES**

- Weathered Sandstone
- Sandstone
- Leached Dolomite
- Dolomite
- Leached Limestone
- Limestone
- Boulders or Cobbles

**GENERAL INFORMATION**

**Drive Rod Penetration Sounding Tests**

Drive rod penetration resistance tests constitute driving a 1.315-inch diameter steel rod, with a 45° cone point, into the ground, using a 122-pound drop-hammer with a free fall of five feet. At one or two-foot depth intervals, a measurement is taken to determine the amount of penetration achieved in three hammer drops. This reading is converted to an empirical value for capacity "R", in thousands of pounds (which is a measure of both the point resistance and frictional resistance on the rod), by using charts prepared by the Ohio Department of Highways, Bureau of Bridges, on the basis of correlation study of rod penetration with post performance of pile driving. For interpretation, a graph is prepared by plotting the value "R" against the depth at which the reading was taken, and connecting the plotted points. The curve so obtained reflects the density of subsurface materials in a manner that can be readily compared with data from similar tests at other locations on the structure site. From this comparison, the overall uniformity of subsurface condition may be evaluated.

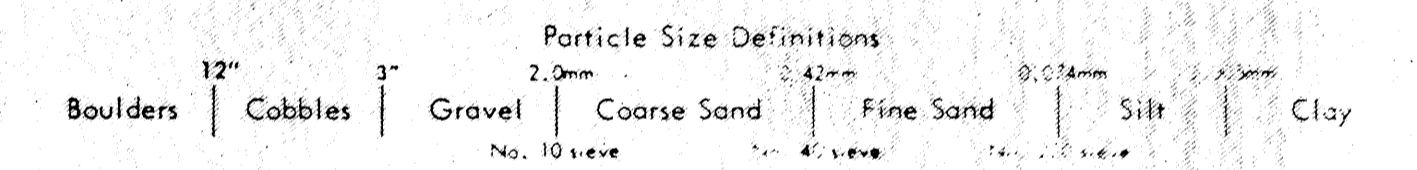
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**LOG OF BORING**  
 Date Started: 9-15-82, Date Completed: 9-16-82, Boring No.: B-1, Station & Offset: 4+56 12' RT. (REAR ABUTMENT), Surface Elev.: 993.7', Water Elev.: 985.7', Sampler Type: SS, Dia.: 1 3/8"

Elev.	Depth	Std. Pen. (N)	Rec. Ft.	Loss Ft.	Description	Sample No.	Physical Characteristics							SHTL Class.			
							% Agg.	% C.S.	% F.S.	% Silt	% Clay	LL	PI		W.C.		
993.7	0																
991.2	2	2/2/2			BROWN SANDY SILT	1	5	6	32	31	26	NP	NP	18	A-4a		
988.7	4	0*			BROWN SANDY SILT	2	11	7	37	22	23	20	5	19	A-4a		
986.2	6	0/0/1			BROWN SANDY SILT	3	0	1	55	29	15	NP	NP	27	A-4a		
983.7	8	0/0/1			GRAY SANDY SILT	4	0	0	32	58	10	NP	NP	26	A-4b		
981.2	10	3/2/8			GRAY SANDY SILT	5	0	0	40	46	14	NP	NP	28	A-4a		
978.7	12	2/3/4			GRAY SANDY SILT	6	0	0	38	51	11	NP	NP	26	A-4b		
976.2	14	2/3/4			GRAY SANDY SILT	7	2	1	21	50	26	NP	NP	23	A-4b		
973.7	16	10/8/8			GRAY GRAVELLY SANDY SILT	8	16	4	23	38	19	NP	NP	12	A-4a		
968.7	18	14/18/50 (0.3')			GRAY GRAVELLY SILT	9	13	3	6	39	39	27	7	13	A-4a		
963.7	20	52(0.5')			GRAY WEATHERED CLAY SHALE	10	52	0	3	25	20				10-VISUAL		

TOP OF ROCK  
 BOTTOM OF BORING  
 \* PENETRATED BY WEIGHT OF DRILLING TOOLS.

**LOG OF BORING**  
 Date Started: 9-15-82, Date Completed: 9-16-82, Boring No.: B-2, Station & Offset: 5+15 20' RT. (FORWARD ABUTMENT), Surface Elev.: 993.7', Water Elev.: 985.7', Sampler Type: SS, Dia.: 1 3/8"

Elev.	Depth	Std. Pen. (N)	Rec. Ft.	Loss Ft.	Description	Sample No.	Physical Characteristics							SHTL Class.			
							% Agg.	% C.S.	% F.S.	% Silt	% Clay	LL	PI		W.C.		
993.7	0				TOPSOIL												
993.3	0																
991.2	2	2/4/2			BROWN GRAVELLY SANDY SILT	1	20	11	20	28	21	28	7	28	A-4a		
988.7	4	2/3/2			BROWN WITH GRAY SANDY SILT	2	11	12	33	23	21	24	10	17	A-4a		
986.2	6	1/1/1			BROWN SILTY SAND	3	0	2	65	15	18	NP	NP	22	A-3a		
983.7	8	1/1/1			BROWN WITH GRAY SILTY SAND	4	0	5	61	14	20	NP	NP	23	A-3a		
981.2	10	1/1/4			GRAY SILTY SAND	5	1	1	66	25	7	NP	NP	26	A-3a		
978.7	12	2/6/18			GRAY SILTY SAND	6	3	6	52	28	11	NP	NP	22	A-4a		
976.2	14	10/10/14			GRAY SILTY SAND	7	7	21	44	18	10	NP	NP	18	A-3a		
973.7	16	8/13/27			GRAY SANDY SILT	8	11	14	22	45	8	NP	NP	22	A-4a		
968.7	18	12/51			GRAY WEATHERED CLAY SHALE	9	37	1	2	33	27	34	11	13	VISUAL		
963.7	20																
958.7	34		5.0	0.0	CLAY SHALE, GRAY, MEDIUM-FIRM, FISSILE WITH SCATTERED THIN CLAY SEAMS, BROKEN. NO CORE LOSS.												

TOP OF ROCK  
 BOTTOM OF BORING

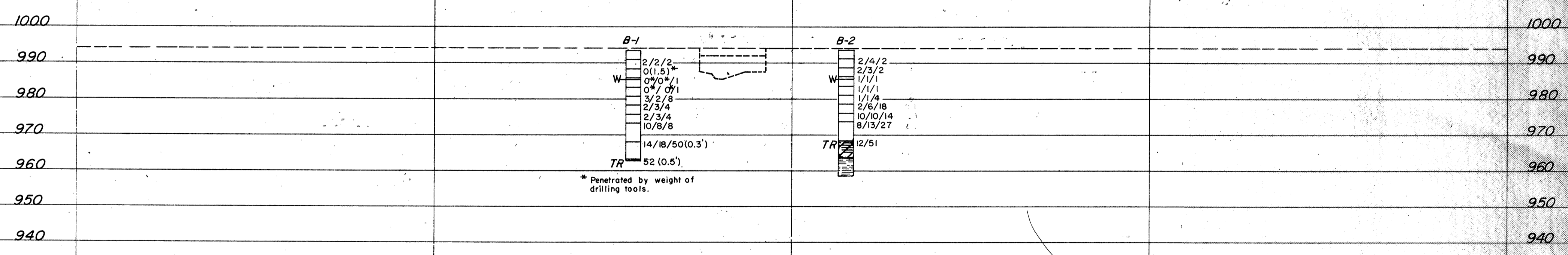
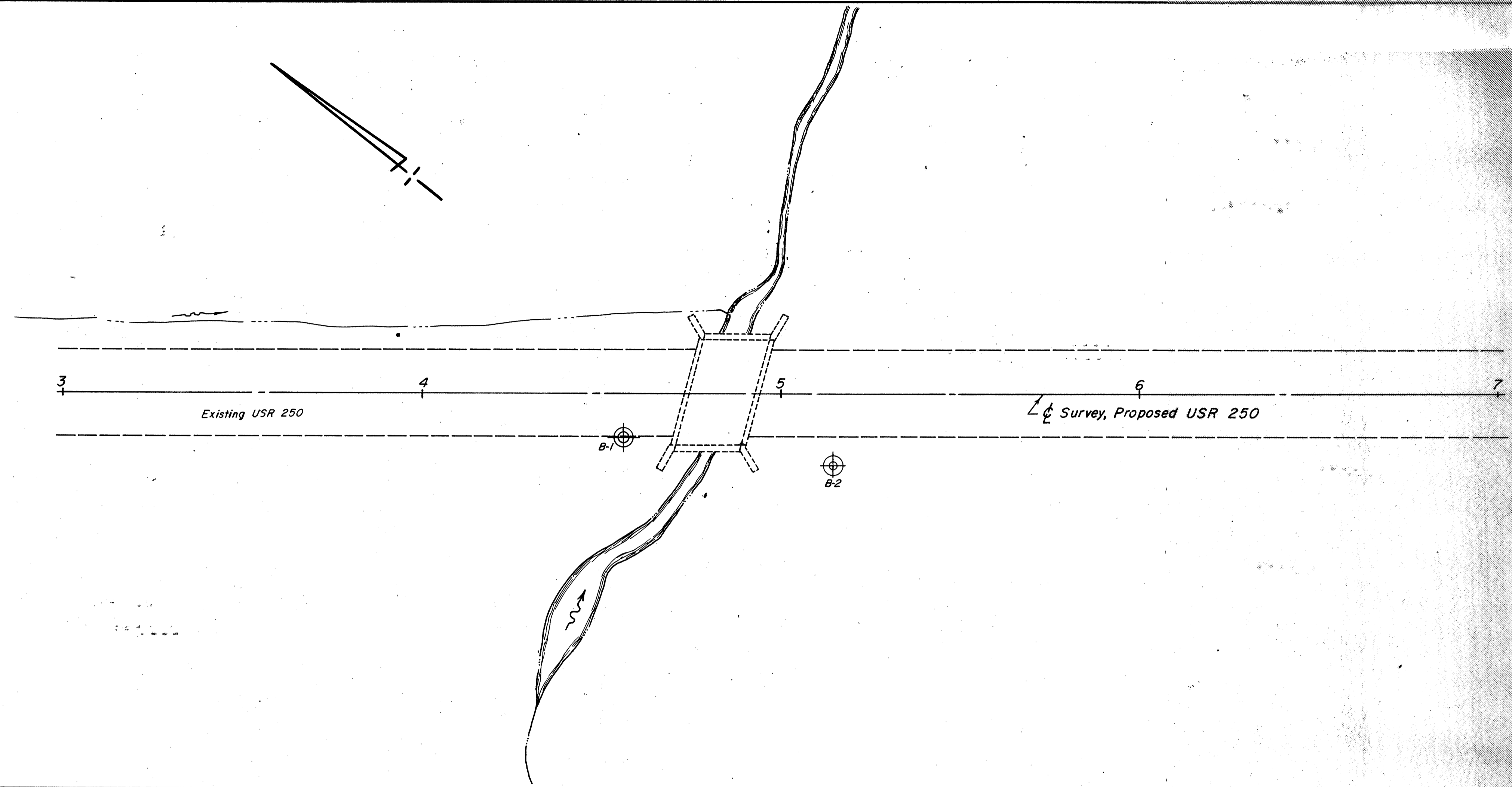
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OHIO DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS - TESTING LABORATORY  
 1600 WEST BROAD STREET, COLUMBUS, OHIO 43223

STRUCTURE FOUNDATION INVESTIGATION  
 BRIDGE NO. ASD-250-0009  
 OVER STREAM  
 SEC. ASD-250-0.08

CHECKED BY: L. N. L. REVIEWED BY: R. D. R. DATE: 11/30/82





\* Penetrated by weight of drilling tools.

OHIO DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS-TESTING LABORATORY  
1600 WEST BROAD STREET, COLUMBUS, OHIO 43225

**STRUCTURE FOUNDATION INVESTIGATION**  
BRIDGE NO. ASD-250-0009  
OVER STREAM  
SEC. ASD-250-0.08

PLAN AND PROFILE

DRAWN BY A. F.	CHECKED BY L. N. L.	REVIEWED BY R. D. R.	DATE 11/30/82
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32075

SCALE: 1" = 20'