FHWA REGION	STATE	PROJECT	
5	OHIO	F-8(9)	

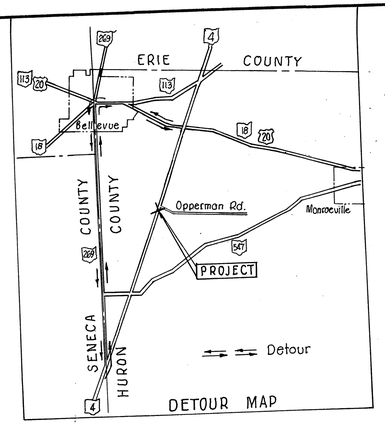
1/18

HUR-4-4.47

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION F-8(9)
HUR-4-4.47
HURON COUNTY
LYME TOWNSHIP

DESIGN DESIGNATION

CURRENT (1976) A.D.T.	=	1,200
DESIGN YEAR (1996) A.D.T.	=	2,100
D.H.V.	=	175
D (DIRECTIONAL DISTRIBUTION)	=	55%
T (PERCENT B&C TRUCKS)	=	25%
V (DESIGN SPEED)	=	60 M.P.H.



DETOUR MAP

CONVENTIONAL SIGNS

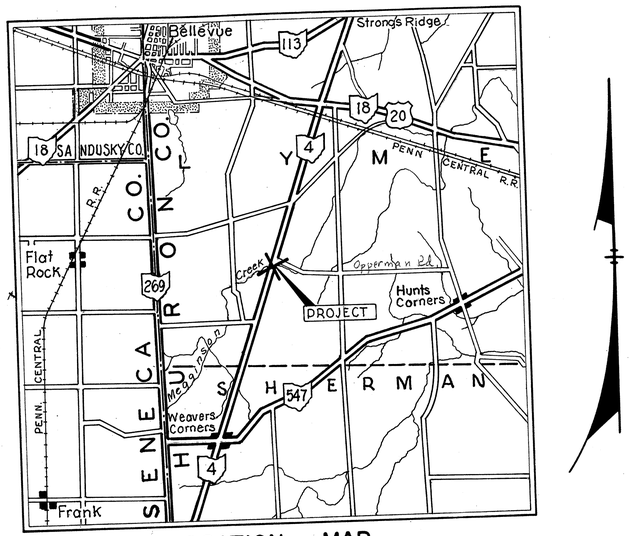
County Line
Township Line
Section Line
Corporation Line or
Fence Line (existing) (proposed)
Center Line 352 353
Trees, Stumps, (to be removed)
Utility Poles: Telephone, Power, Light

Right of Way (only) RW
Existing Right of Way
Property Line (in existing fence)
Railroad
Guardrail (existing) (proposed)

INDEX OF SHEETS

LINE DATA

	PROJECT	WORK	
BEGIN	STA 235+75	STA 233+50	
END	STA 239+50	STA 242+20	
NET LENGTH	375.00 LIN FT OR 0.071 MILES		870.00 LIN FT 0.164 MILES



LOCATION MAP

SCALE OF MILES 0 1 2 3 4

Portion to be improved
State and Federal Roads
Other Roads

SCALES

Plan 0 50' 100'
Profile: Horizontal 0 50' 100'
Profile: Vertical 0 5' 10'

1977 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 the plans.

Approved W. G. Reeder
Date 5-26-78 District Deputy Director of Transportation

DW1 Approved Robert B Pfeifer
Date 1-2-79 Engineer, Bureau of Bridges and Structures

Approved R. E. Gallion
Date 2-8-79 Chief Engineer, Planning and Design

Approved David L. Weir
Date 2-8-79 Director, Department of Transportation

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS

		L-1	6-1-73
BP-5	8-11-75	MC-3	6-1-73
BP-6	6-1-65	MC-4	7-26-76
GR-1	12-6-76	AS-1-72	6-30-72
GR-2B	12-6-76	PSBD-1-71	9-1-71
GR-3	12-6-76	DBR-2-73	4-10-73
GR-4	12-6-76		
GR-5	1-1-71		

SUPPLEMENTAL SPECIFICATIONS	
1001	1-3-77

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED:

DIVISION ADMINISTRATOR DATE

Project: HUR-4-4.47 HURON COUNTY
Date of Letting 19, Contract No.

LD 0300 3-1-72

NOTE: All Angles of change of Slope shall have a 4'± Rounding unless otherwise shown.

FHWA REGION	STATE	PROJECT	
5	OHIO		

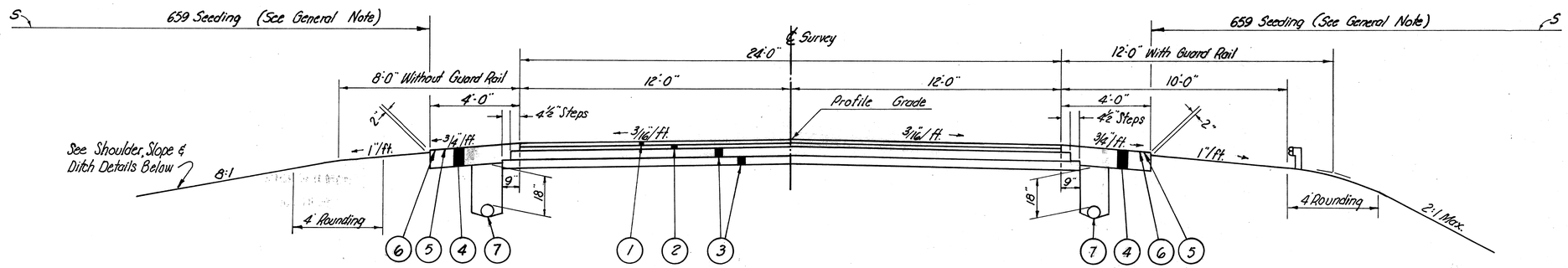
2/18

HUR-4-4.47

Calc. by: JKG 2/18
Chkd. by: DDB 5/18

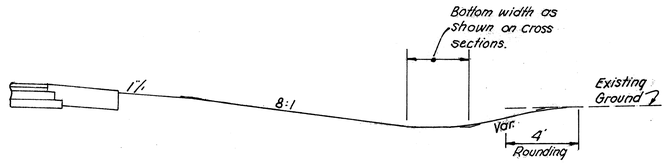
TYPICAL SECTION

TYPE 404 ON 301

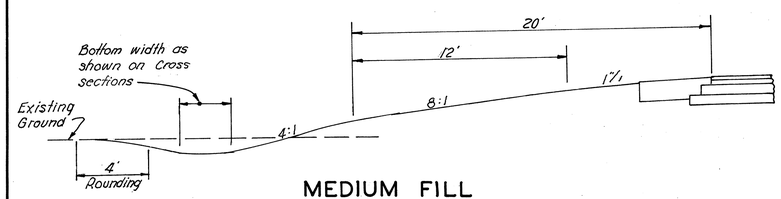


STA 235+75 TO STA 237+23.00 = 148.00 LIN. FT.
STA 238+19.34 TO STA 239+50 = 130.66 LIN. FT.
TOTAL = 278.66 LIN. FT.

TAPER SECTION
STA. 234+25 to 235+75 (18' to 24')
STA. 239+50 to 241+00 (24' to 18')



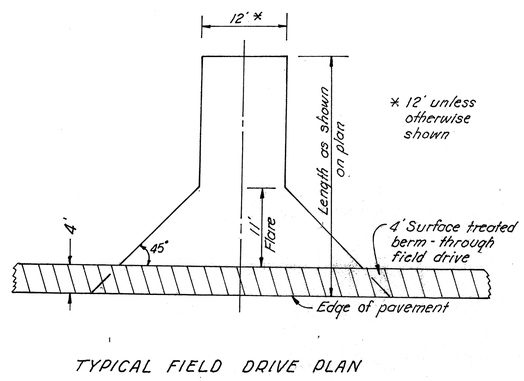
CUT OR LOW FILL



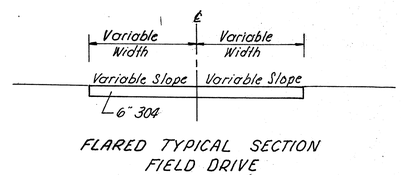
MEDIUM FILL

SHOULDER, SLOPE AND DITCH DETAILS WITHOUT GUARD RAIL

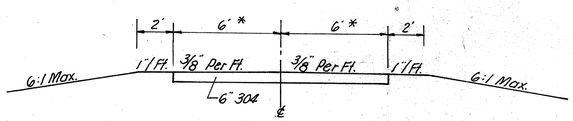
1. 1" 404 Asphalt Concrete, (AC-20)
2. 1½" 402 Asphalt Concrete, (AC-20)
3. 4½" 301 Bituminous Aggregate Base: (AC-20), RT-11 or RT-12 (2-4½" Courses, 9" Total Thickness)
4. 8" 304 Aggregate Base
5. 408 Bituminous Prime Coat: RT-2, RT-3, MC-30, MC-70 or Primer 20 applied at the rate of 0.4 Gal. per Sq. Yd.
6. Seal Coat Bituminous Material: RT-9, RT-10, MC-800, MC-3000, RS-1, RS-2, CRS-1, CRS-2, CBAE-800 Applied at the rate of 0.3 Gal. per Sq. Yd. and Cover Aggregate No. 8 applied at the rate of 0.008 Cu. Yd. per Sq. Yd.
7. 605 6" Shallow Pipe Underdrain, 707.01 or 707.12



TYPICAL FIELD DRIVE PLAN



FLARED TYPICAL SECTION
FIELD DRIVE



TYPICAL SECTION
FIELD DRIVE

DRIVE DETAILS

TYPICAL SECTIONS

FHWA REGION	STATE	PROJECT		3 / 18
5	OHIO			

HUR-4-4.47

CALC.BY: RDM 3/78
CHKD.BY: JKG 5-78

GENERAL NOTES

FIELD OFFICE:

THE CONTRACTOR SHALL PROVIDE A SUITABLE FIELD OFFICE HAVING A MINIMUM OF 150 SQ. FT. OF FLOOR SPACE AND IN ADDITION TO THE REQUIREMENTS OF ITEM 619, HE SHALL PROVIDE AND MAINTAIN SANITARY PROVISIONS AS PER 107.06. ALL THE ABOVE IS 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.

UNDERGROUND UTILITIES:

THE LOCATIONS OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS HAVE BEEN OBTAINED BY DILIGENT FIELD CHECKS AND SEARCHES OF AVAILABLE RECORDS. IT IS BELIEVED THAT THEY ARE ESSENTIALLY CORRECT, BUT THE STATE OF OHIO DOES NOT GUARANTEE THEIR ACCURACY OR COMPLETENESS.

UTILITY OWNERS:

THE FOLLOWING IS A LIST OF THE UTILITY OWNERS AFFECTED BY THIS PROJECT:

OHIO EDISON COMPANY
76 S. MAIN STREET
AKRON, OHIO, 44308

GENERAL TELEPHONE COMPANY
117 N. SANDUSKY STREET
BELLEVUE, OHIO, 44811

ELEVATION DATUM:

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

ESTIMATED QUANTITIES:

SPECIFIC LOCATIONS AND USAGE OF ESTIMATED QUANTITIES SET UP ON THIS PLAN TO BE USED "AS DIRECTED BY THE ENGINEER" SHALL BE MADE A MATTER OF RECORD BY INCORPORATION INTO THE FINAL CHANGE ORDER GOVERNING COMPLETION OF THIS PROJECT. ESTIMATED QUANTITIES OF MATERIALS SHALL NOT BE ORDERED FOR DELIVERY TO THE PROJECT UNLESS AUTHORIZED BY THE ENGINEER.

LOCATIONS OF GUARDRAIL:

THE LOCATIONS OF GUARDRAIL RUNS AS SHOWN IN THESE PLANS ARE SUBJECT TO ADJUSTMENT TO ASSURE THAT THE PLANNED 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
18"	2	0
30"	1	0
48"	0	0
60"	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 OF 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 ARE CALCULATED FOR THE SOIL AREAS BETWEEN THE WORK LIMITS, AS SHOWN ON THE CROSS SECTIONS BY THE SYMBOL: ⌐S.

SEEDING FORMULA:

THE FOLLOWING SEED MIXTURE SHALL, IN LIEU OF THE MIXTURES LISTED IN 659.09, BE USED THROUGHOUT THE LIMITS OF THIS PROJECT:

10% PERENNIAL RYEGRASS
30% KENTUCKY BLUEGRASS
60% KENTUCKY 31 FESCUE

REMOVAL OF EXISTING PIPE:

THE REMOVAL OF ALL EXISTING PIPE DRAINS WHICH WOULD NORMALLY BE REMOVED IN VARIOUS EXCAVATION ITEMS SHALL BE INCLUDED FOR PAYMENT IN THE UNIT PRICES BID FOR THE RESPECTIVE EXCAVATION ITEMS, UNLESS OTHERWISE ITEMIZED IN THE PLANS.

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.

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 BARNS.

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.

WATERING PERMANENT SEEDED AREAS:

THE FOLLOWING ESTIMATED QUANTITIES ARE TO BE USED AS DIRECTED BY THE ENGINEER TO PROMOTE GROWTH AND TO CARE FOR THE PERMANENT SEEDED AREAS, AS PER 659.09.

659 WATER 6 M GAL.

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 OUTLET 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.

Continued above

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	10 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.

PAVEMENT REMOVAL:

PAVEMENT REMOVAL QUANTITIES, ITEM 202, SHALL CONSIST OF RIGID TYPE ONLY. AREAS OF RIGID TYPE PAVEMENT REMOVAL ARE INDICATED ON THE PLAN BY SHADING. NON-RIGID TYPE PAVEMENT IS INCLUDED AND PAID FOR AS ITEM 203 EXCAVATION.

DUST CONTROL:

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY TO BE USED FOR DUST CONTROL AS DIRECTED BY THE ENGINEER:

ITEM 616	CALCIUM CHLORIDE	0.5 TONS
ITEM 616	WATER	50 M-GAL.

614 MAINTAINING TRAFFIC:

THROUGH TRAFFIC ON STATE ROUTE 4 SHALL BE DETOURED AS SHOWN ON SHEET 1.

THE DETOUR SHALL BE LIMITED TO THREE (3) CONSECUTIVE CALENDAR MONTHS DURATION.

LOCAL ACCESS TO THE FIELD DRIVES WITHIN THE PROJECT SHALL BE MAINTAINED AS PER 614.

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN PROVIDED TO MAINTAIN LOCAL TRAFFIC AS DIRECTED BY THE ENGINEER:

ITEM 410	TRAFFIC COMPACTED SURFACE, TYPE A OR B	20 CU. YDS.
ITEM 616	CALCIUM CHLORIDE	0.5 TON

WATER POLLUTION, SOIL EROSION AND SILTATION CONTROL:

THE FOLLOWING ESTIMATED QUANTITIES ARE TO BE USED AS DIRECTED BY THE ENGINEER FOR EROSION AND SILTATION CONTROL MEASURES:

ITEM 207	STRAW OR HAY BALES	15 EACH

APPROACH SLAB JACKING HOLES:

THE JACKING HOLES AS CALLED FOR ON STD. DWG. AS-1-72 WILL NOT BE REQUIRED ON THIS PROJECT.

FHWA REGION	STATE	PROJECT	
5	OHIO		

4/18

HUR-4-4.47

CALCULATIONS

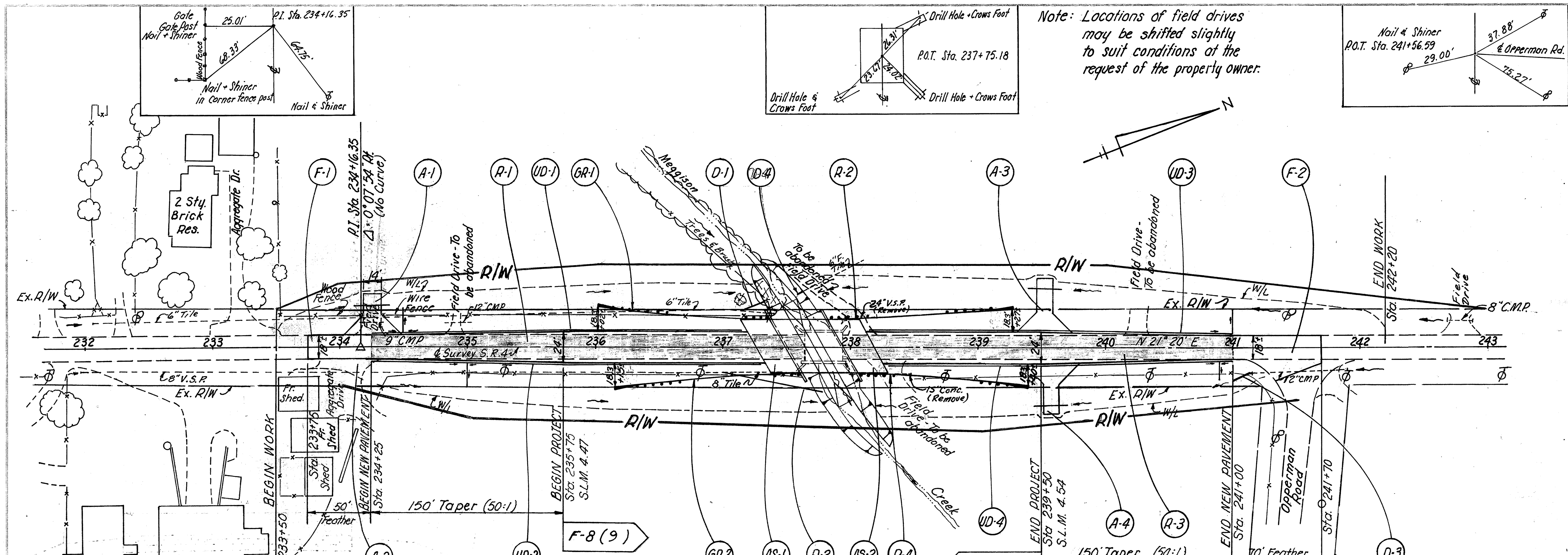
LINE	DESCRIPTION		QUANTITY
1	1" 404 ASPHALT CONCRETE		
2	FROM TYPICAL SECTION: 278.66 LIN. FT.		
3	FROM LINE 2: 278.66 x 24' ÷ 9 = 743.1 SQ. YD.		
4	STA. 234+25 TO STA. 235+75 = 150 LIN. FT. (TAPER)		
5	STA. 239+50 TO STA. 241+00 = 150 LIN. FT. (TAPER)		
6	FROM LINES 4 & 5: (150'+150') x 21' (AVE. WIDTH) ÷ 9 = 700 SQ. YDS.		
7	FROM LINES 3 & 6: (743.1+700.0) x 1" ÷ 36 = 40.1 CU. YDS.	USE	40 CU. YDS.
8			
9	1½" 402 ASPHALT CONCRETE		
10	FROM LINES 3 & 6: (743.1+700.0) x 1½" ÷ 36 = 60.1 CU. YDS.	USE	60 CU. YDS.
11			
12	9" BITUMINOUS AGGREGATE BASE		
13	FROM LINE 2: 278.66 x 25.125' (AVE WIDTH) ÷ 9 = 777.9 SQ. YDS.		
14	FROM LINES 4 & 5: (150+150) x 22.125' (AVE. WIDTH) ÷ 9 = 737.5 SQ. YDS.		
15	FROM LINES 13 & 14: (777.9+737.5) x 9" ÷ 36 = 378.8 CU. YDS.	USE	379 CU. YDS.
16			
17	203 SUBGRADE COMPACTION		
18	FROM LINES 3 & 6: 743.1 + 700.0 = 1443.1 SQ. YDS.	USE	1443 SQ. YD.
19			
20	8" 304 AGGREGATE BASE		
21	FROM LINES 2, 4 & 5: (278.66 + 150 + 150) x 2 = 1157.3 LIN. FT.		
22	STA. 233+75 TO STA. 234+25: 50' x 2 = 100 LIN. FT.		
23	STA. 241+00 TO STA. 241+70 LT = 70 LIN. FT.		
24	STA. 241+00 TO STA. 241+16 RT = 16 LIN. FT.		
25	TOTAL LINES 21 TO 24 (1157.3 + 100 + 70 + 16) = 1343.3 LIN. FT		
26	FROM LINE 25: 1343.3 x 2.464 SQ. FT/FT. ÷ 27 = 122.6 CU. YDS.	USE	123 CU. YDS.
27			
28	408 BITUMINOUS PRIME COAT		
29	FROM LINE 25: 1343.3 x 4' ÷ 9 = 597.0 SQ. YDS.		
30	FROM LINE 29: 597.0 x 0.4 GAL./SQ. YD. = 238.8 GAL.	USE	239 GAL.
31			
32	409 SEAL COAT BITUMINOUS MATERIAL		
33	FROM LINE 29: 597.0 x 0.3 GAL./SQ. YD = 179.1 GAL.	USE	179 GAL.
34			
35	409 SEAL COAT COVER AGGREGATE NO. 8		
36	FROM LINE 29: 597.0 x 0.008 CU. YD/SQ. YD = 4.8 CU. YD.	USE	5 CU. YDS.
37			
38	659 COMMERCIAL FERTILIZER		
39	FROM SUMMARY: 659 SEEDING = 5284 SQ. YD.		
40	FROM LINE 40: 5284 x 9 x 20 ÷ (1000 x 2000) = 0.48 TON	USE	0.48 TON
41			
42			
43			
44			
45			

GENERAL SUMMARY

CAL'C. BY: RDH 2/18
CHK'D. BY: JKG 5/18

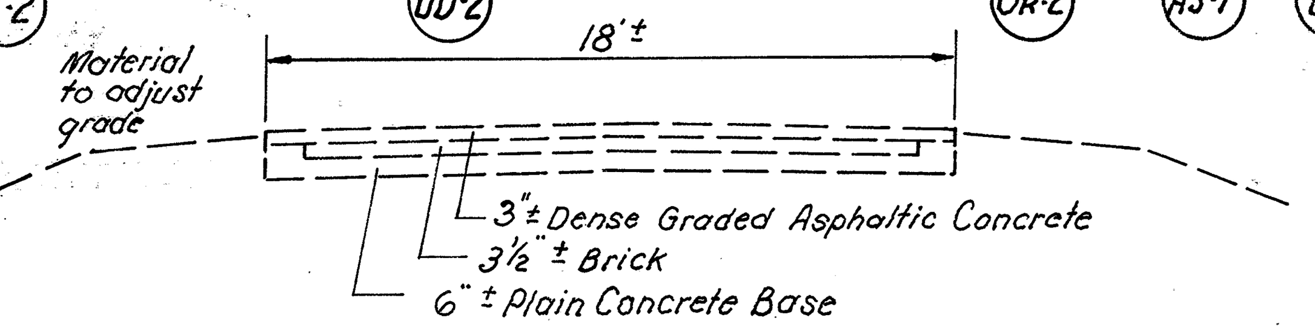
FROM SHEET NUMBER								ITEM	PLAN TOTAL	UNIT	TYPE CODE 6203 UNLESS OTHERWISE SHOWN — DESCRIPTION
3	4	5	10								ROADWAY
LUMP								201	LUMP	LUMP	CLEARING AND GRUBBING
		1088						202	1088	SQ.YD.	PAVEMENT REMOVED
		80						202	80	LIN.FT.	PIPE REMOVED, 24" AND UNDER
		732						203	732	CU. YD.	EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION
		2705						203	2705	CU. YD.	EMBANKMENT
	1443	244						203	1687	SQ. YD	SUBGRADE COMPACTION
20								410	20	CU. YD.	TRAFFIC COMPACTED SURFACE, TYPE A OR B
50								616	50	M-GAL.	WATER
1								616	1	TON	CALCIUM CHLORIDE
		457.32						606	457.32	LIN.FT	GUARD RAIL, TYPE 5
		4						606	4	EACH	ANCHOR ASSEMBLY, Standard Type A
		4						606	4	EACH	BRIDGE TERMINAL ASSEMBLY, Standard Type B
											EROSION CONTROL - TYPE CODE Y005
		5284						659	5284	SQ.YD.	SEEDING AND MULCHING, AS PER PLAN
	0.48							659	0.48	TONS	COMMERCIAL FERTILIZER (12-12-12)
6								659	6	M-GAL.	WATER
			103					601	103	CU. YD.	ROCK CHANNEL PROTECTION, TYPE C WITHOUT BEDDING
15								207	15	EACH	HAY OR STRAW BALES
											DRAINAGE
		16						603	16	LIN. FT.	12" CONDUIT, TYPE A, 707.05
		28						603	28	LIN. FT.	12" CONDUIT, TYPE D
		52						603	52	LIN. FT.	15" CONDUIT, TYPE D
100								603	100	LIN. FT.	6" CONDUIT, TYPE E
10		67						603	77	LIN. FT.	6" CONDUIT, TYPE F
		80						603	80	LIN. FT.	8" CONDUIT, TYPE F
		1183						605	1183	LIN. FT.	6" SHALLOW PIPE UNDERDRAINS, 707.01 TYPE III or 707.12 TYPE III
											PAVEMENT
	379							301	379	CU. YD.	BITUMINOUS AGGREGATE BASE: AC20; RT-11 OR RT-12
	123	31						304	154	CU. YD.	AGGREGATE BASE
	60	14						402	74	CU. YD.	ASPHALT CONCRETE, AC-20
	40	30						404	70	CU. YD.	ASPHALT CONCRETE, AC-20
		2						407	2	TON	COVER AGGREGATE
		53						407	53	GAL.	TACK COAT: RC-250, MS-2, RS-1, SS-1 or SS-1h
	239							408	239	GAL.	BITUMINOUS PRIME COAT: MC-30, MC-70, Primer 20, RT-2 or RT-3
	179							409	179	GAL.	SEAL COAT BITUMINOUS MATERIAL: MC-800, MC-3000, CBAE-800, RS-1, RS-2, CRS-1, CRS-2, RT-9 or RT-10
	5							409	5	CU. YD.	SEAL COAT COVER AGGREGATE NO. 8
		244						611	244	SQ. YD.	REINFORCED CONCRETE APPROACH SLAB (T=15")
											STRUCTURES
											STRUCTURE HUR-4-0451 QUANTITIES ON SHEET 14
LUMP								619	LUMP	LUMP	FIELD OFFICE
								623	LUMP	LUMP	CONSTRUCTION LAYOUT STAKES
LUMP								614	LUMP	LUMP	MAINTAINING TRAFFIC

Note: Locations of field drives may be shifted slightly to suit conditions of the request of the property owner.



B.M. R.R. Spike in 14" Walnut
Sta. 237+11, 36' Lt.
Elev. 786.985

B.M. R.R. Spike in Power Pole
Sta. 241+36, 71.5' Rt.
Elev. 787.175

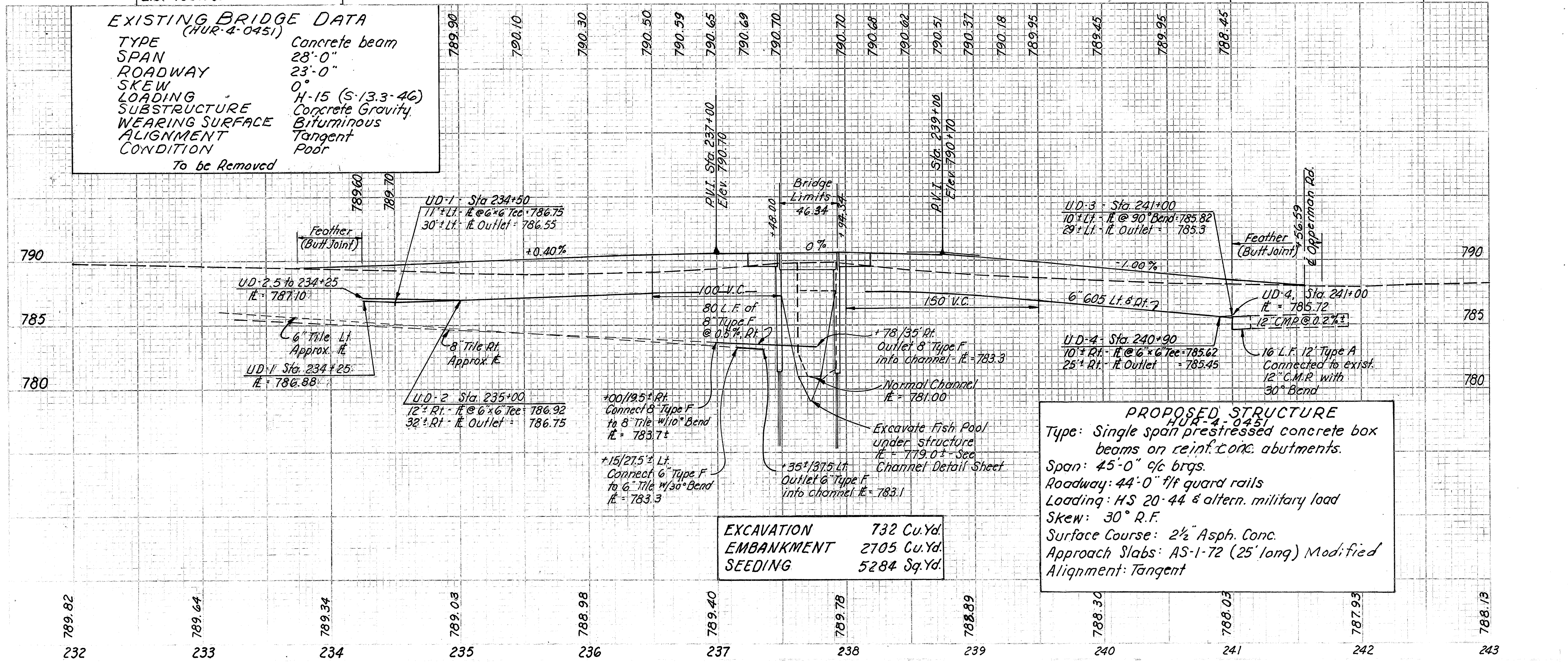


TYPICAL SECTION OF ADJOINING PAVEMENT

EXISTING BRIDGE DATA
(HUR-4-0451)

TYPE	Concrete beam
SPAN	28'-0"
ROADWAY	23'-0"
SKEW	0°
LOADING	H-15 (S-13.3-46)
SUBSTRUCTURE	Concrete Gravity
WEARING SURFACE	Bituminous
ALIGNMENT	Tangent
CONDITION	Poor

To be Removed



PROPOSED STRUCTURE
HUR-4-0451

Type: Single span prestressed concrete box beams on reinf. conc. abutments.
Span: 45'-0" c/c brgs.
Roadway: 44'-0" f/f guard rails
Loading: HS 20-44 & altern. military load
Skew: 30° R.F.
Surface Course: 2½" Asph. Conc.
Approach Slabs: AS-1-72 (25' long) Modified
Alignment: Tangent

EXCAVATION	732 Cu.Yd.
EMBANKMENT	2705 Cu.Yd.
SEEDING	5284 Sq.Yd.

Ref. No.	Station	202 Pavement Removed (Sq.Yd.)	202 Pipe Removed 24" and Under (Lin.Ft.)	203 Subgrade Compaction (Sq.Yd.)	611 Reinforced Conc. Approach Slab T=15" (Sq.Yd.)	606 Guard Rail Type 5 (Lin.Ft.)	606 Anchor Assembly Type A (Each)	606 Bridge Terminal Assembly, Type B (Each)	603 Conduit 12" Type A 707.05 (Lin.Ft.)	603 Conduit 12" Type D (Lin.Ft.)	603 Conduit 15" Type D (Lin.Ft.)	603 Conduit 6" Type F (Lin.Ft.)	603 Conduit 8" Type F (Lin.Ft.)	605 Shallow Pipe Underdrain 6" (Lin.Ft.)	304 Aggregate Base 6" (Cu.Yd.)	304 Aggregate Base Var. (Cu.Yd.)	402 Asphalt Concrete Var. (Cu.Yd.)	404 Asphalt Concrete 2½" (Cu.Yd.)	404 Asphalt Concrete Var. (Cu.Yd.)	407 Tack Coat (Gal.)	407 Cover Aggregate (Ton)	Bends and Branches 6"x90° Bend	6"x30° Bend	6"x6" Tee	8"x10° Bend	12"x30° Bend
A-1	234+25 Lt. L=32'									28					9.5											
A-2	234+05± Rt.															1.0										
A-3	239+52 Lt. L=42'										26				10.7											
A-4	239+57 Rt. L=40'										26				10.2											
AS-1	237+23.0 to 237+48.0			122	122													8.5	2.5	12	0.4					
AS-2	237+94.35 to 238+19.34			122	122													8.5	2.5	12	0.4					
F-1	233+75 to 234+25																3.5		2.8	1.0	0.3					
F-2	241+00 to 241+70 *																10.5		5.3	19	0.7					
GR-1	236+02 to 239+27 Lt.					228.66	2	2																		
GR-2	236+15 to 239+40 Rt.					228.66	2	2																		
R-1	234+25 to 237+60±	470																								
R-2	237+88 to 238+20 Lt.		32																							
R-3	237+91± to 241+00	618																								
R-4	237+99± to 238+47 Rt.		48																							
D-1	237+15 to 237+35 Lt.											22											1			
D-2	237+00 to 237+78 Rt.												80												1	
D-3	241+00 to 241+14 Rt.								16																	1
D-4	237+60± to 237+65± Lt.											5														
UD-1	234+25 to 237+75 Lt.											10		299										1		
UD-2	234+25 to 237+30 Rt.											10		315										1		
UD-3	238+15 to 241+00 Lt.											10		294								1				
UD-4	238+30 to 241+00 Rt.											10		275										1		
Totals		1088	80	244	244	457.32	4	4	16	28	52	67	80	1183	31.4		14.0	30.1		53	1.8					

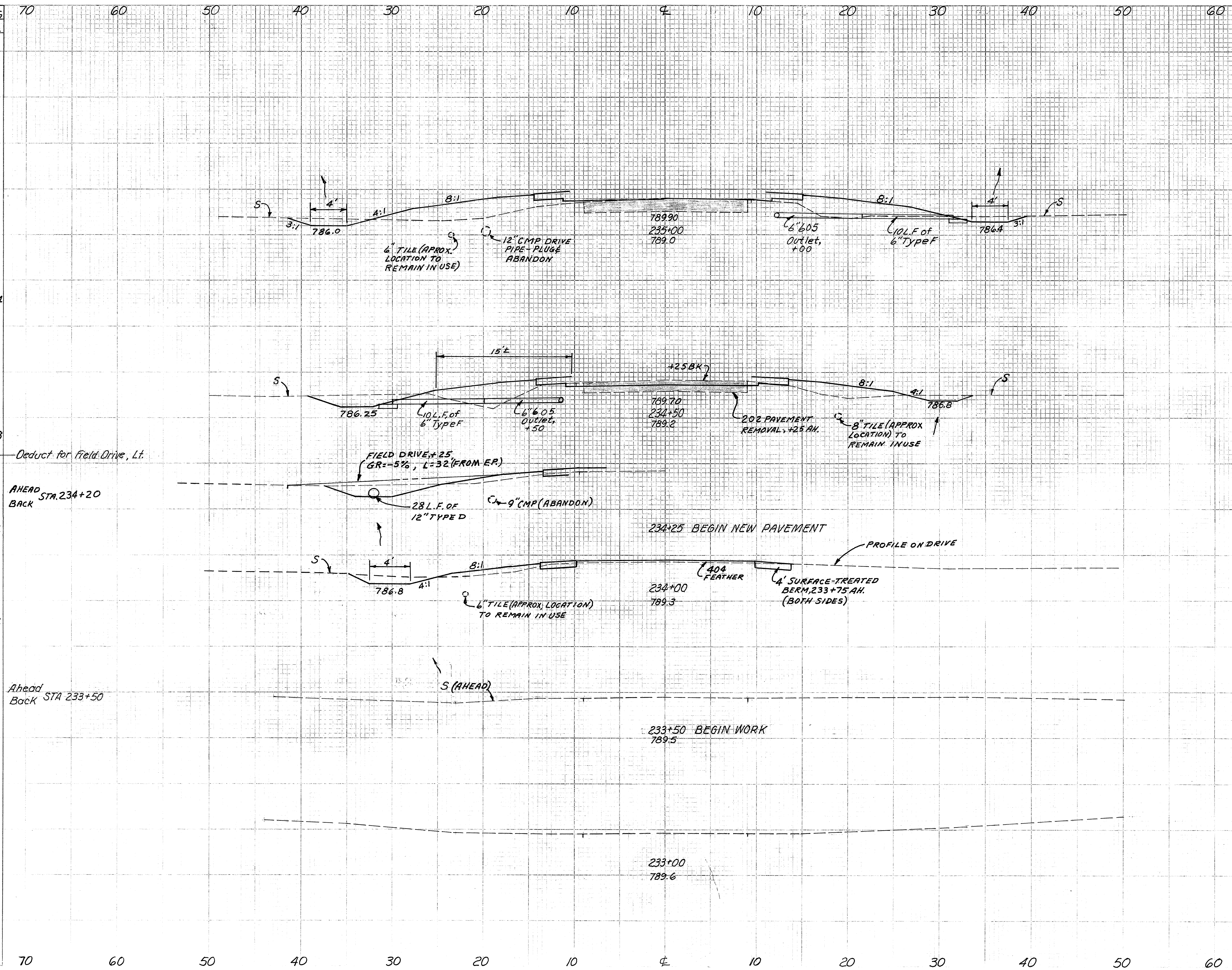
* Included Feather on Opperman Road Intersection

STA 232+00 TO STA 243+00

FHWA REGION	STATE	PROJECT	
5	OHIO		

HUR-4-4.47

Calc. by: Fea 3-78
Chkd. by: RLM 3-78



SEEDING

Station	End Width	Sq. Yds.
235+00	56	
		294
234+50	50	
		158
Deduct for Field Drive, Lt.		-57
STA. 234+20 Ahead	45	
STA. 234+20 Back	25	
		54
234+00	24	
		94
STA 233+50 Ahead	10	
STA 233+50 Back	0	

Station	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
235+00	8	79		
			19	114
234+50	13	44		
			11	35
STA. 234+25 AHEAD	10	31		
STA. 234+25 BACK	10	20		
Earthwork for Drive, 234+25, Lt.			2	6
			8	13
234+00	8	7		
			6	5
STA. 233+75 AHEAD	4	3		
STA. 233+75 BACK	0	3		
			0	1
233+50	0	0		

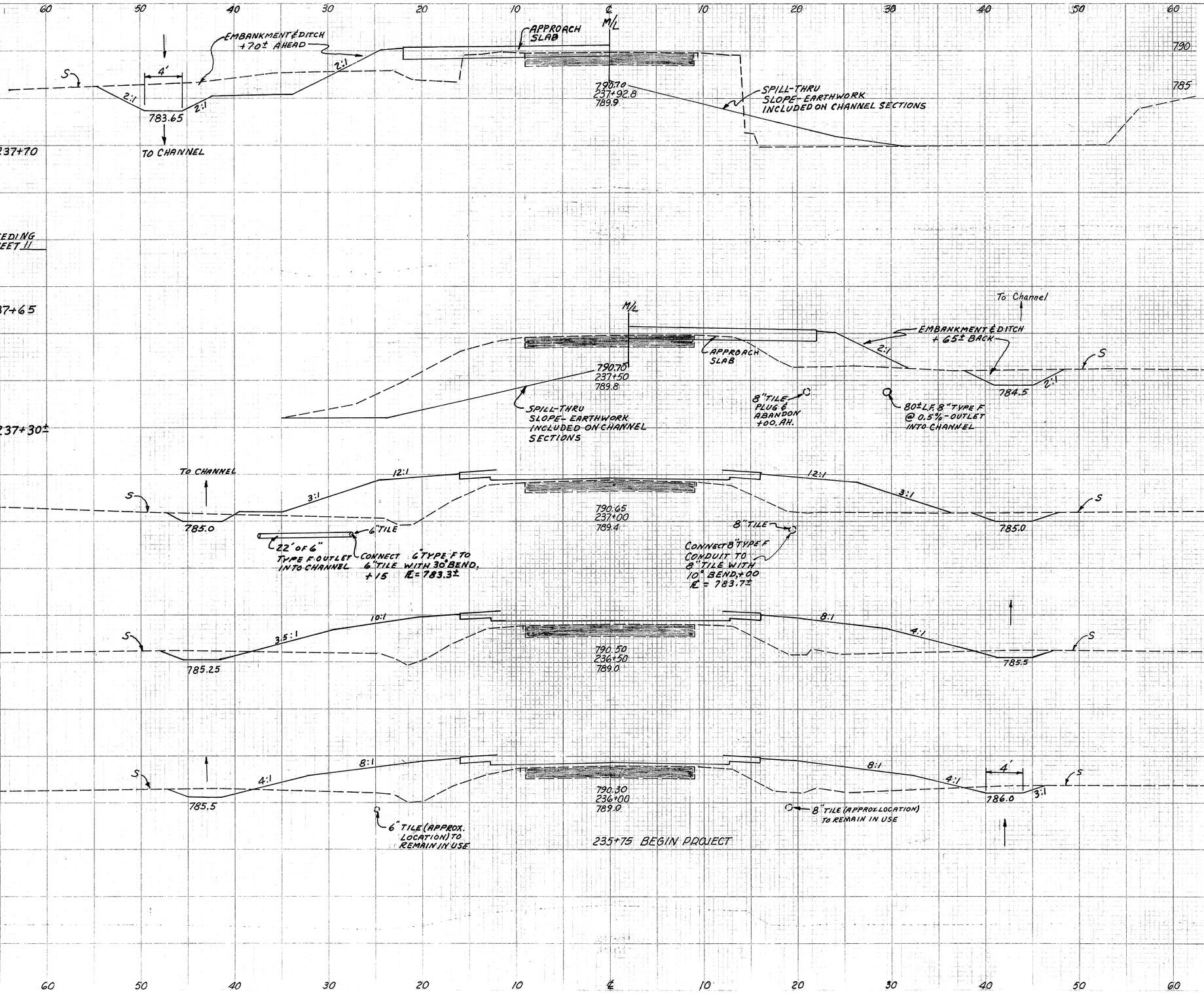
STA 233+00 TO STA 235+00

FHWA REGION	STATE	PROJECT		7 / 18
5	OHIO			

HUR-4-4.47

Calc. by: TEB 3-78
Chkd. by: RBM 3-78

SEEDING END WIDTH	SEEDING SQ. YDS.	
37	94	AHEAD STA 237+70
37	307	CHANNEL SEEDING FROM SHEET 11
29	48	BACK STA 237+65
29	70	
34	69	AHEAD BACK STA. 237+30±
69	230	
69	383	
69	378	
67	683	
56		STA. 235+00



	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
STA. 237+92.8	52	33		
			44	28
STA. 237+70± AHEAD	52	33		
BACK	0	0		
CHANNEL EARTHWORK FROM SHEET 11			213	158
STA. 237+65± AHEAD	0	0		
BACK	14	40		
			8	22
	14	40		
			23	178
	11	149		
			22	287
	13	161		
			21	298
	10	161		
			17	222
STA. 235+00	8	79		

STA. 236+00 TO STA. 237+92.8

FHWA REGION	STATE	PROJECT	
5	OHIO		

HUR-4-4.47

8/18

Calc. by: TB 3/78
Chkd. by: RBM 3-78

SEEDING

END WIDTH	SQ. YDS.	
25		AHEAD
43		BACK STA. 241+25
	119	
43		AHEAD
51		BACK STA. 241+00
	306	
	59	
	353	
	68	
	400	
-126		Deduct for Field Drives, Lt. & Rt.
	76	
	433	
	80	
	447	
	81	
	313	
80		AHEAD
36		BACK STA. 238+15±
	60	
36		
	29	
	37	STA. 237+92.8

70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70

4' 2:1 784.6 10 L.F. of 6" Type F 605 Outlet, +00 202. PAVEMENT REMOVAL, BK. 788.45 241+00 788.0 END NEW PAVEMENT AH BK. 605 Outlet, 240+90 12:1 4:1 10 L.F. of 6" Type F 4' S(BK) AHEAD S(AH) 784.5 BACK 12" CMP UNDER OPPERMAN RD. 16 L.F. 12" TYPE A CONNECTED TO 12" CMP WITH 30° BEND

S 784.45 788.95 240+50 788.1 4:1 784.35 S

S 784.3 789.45 240+00 788.3 784.2 S

FIELD DRIVE +52 GR=-11%±, L=42' 8:1 4:1 2:1 784.15 26 L.F. OF 15" TYPED 789.95 239+50 788.6 END PROJECT 8:1 FIELD DRIVE, +57 GR=-12%±, L=40' FROM E.P 4' 4:1 2:1 784.05 26 L.F. OF 15" TYPE D

Add for Drives, 239+52 Lt. 239+57 Rt.

S 784.0 4:1 8:1 790.37 239+00 788.89 8:1 3:1 783.9 S

S 783.85 3:1 10:1 790.62 238+50 789.2 10:1 2.5:1 4' 2:1 783.75 TO CHANNEL

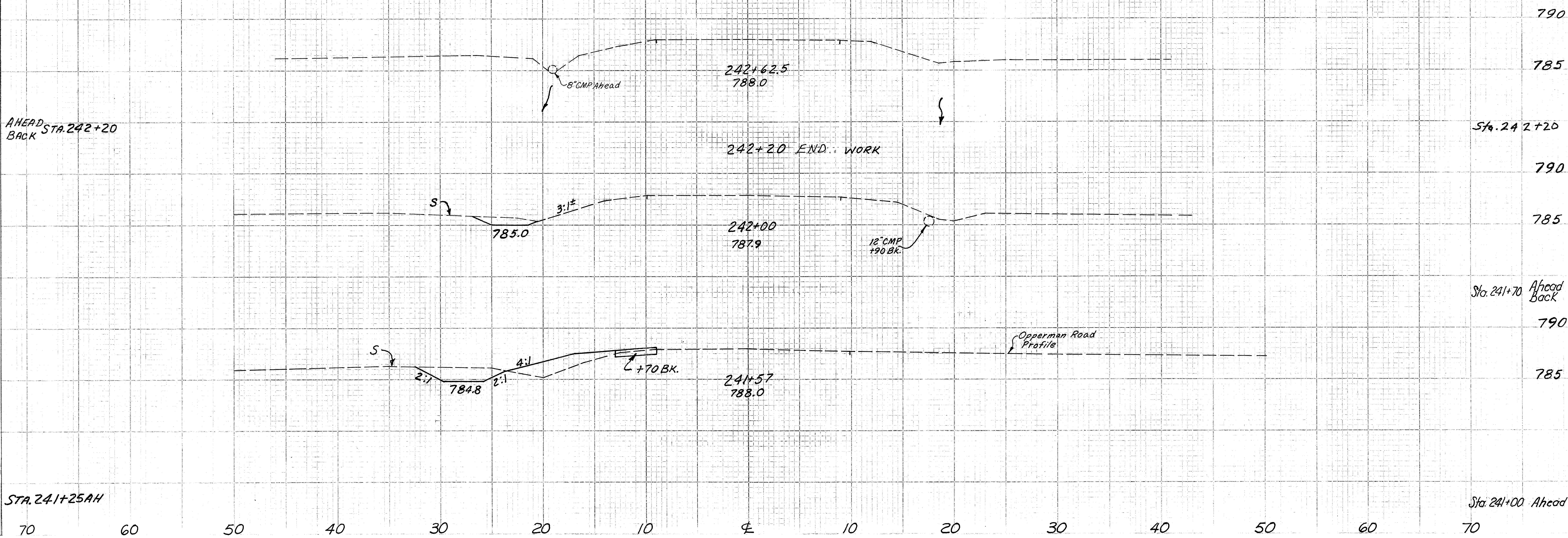
S 783.7 2:1 4' 2:1 2.5:1 12:1 APPROACH SLAB 790.70 238+00 789.8 ℄ 24" VSP (REMOVE) 15" CONCRETE PIPE (REMOVE) SPILL-THRU SLOPE-EARTHWORK INCLUDED ON CHANNEL SECTIONS STA. 237+92.8

	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
STA. 241+00 AHEAD	22	27		
BACK	23	40		
790			33	168
785	13	77		
790			31	174
785	20	111		
790			34	250
785	17	159		
790			42	293
785	28	157		
790			64	285
785	41	151		
790			70	164
785	35	26		
STA. 237+92.8	52	33	12	8
239+52 Lt.	2	9		
239+57 Rt.	2	7		

STA. 238+00 TO STA. 241+00

HUR-4-4.47

CALC. BY TB 3/78
CHKD BY RBM 3/78



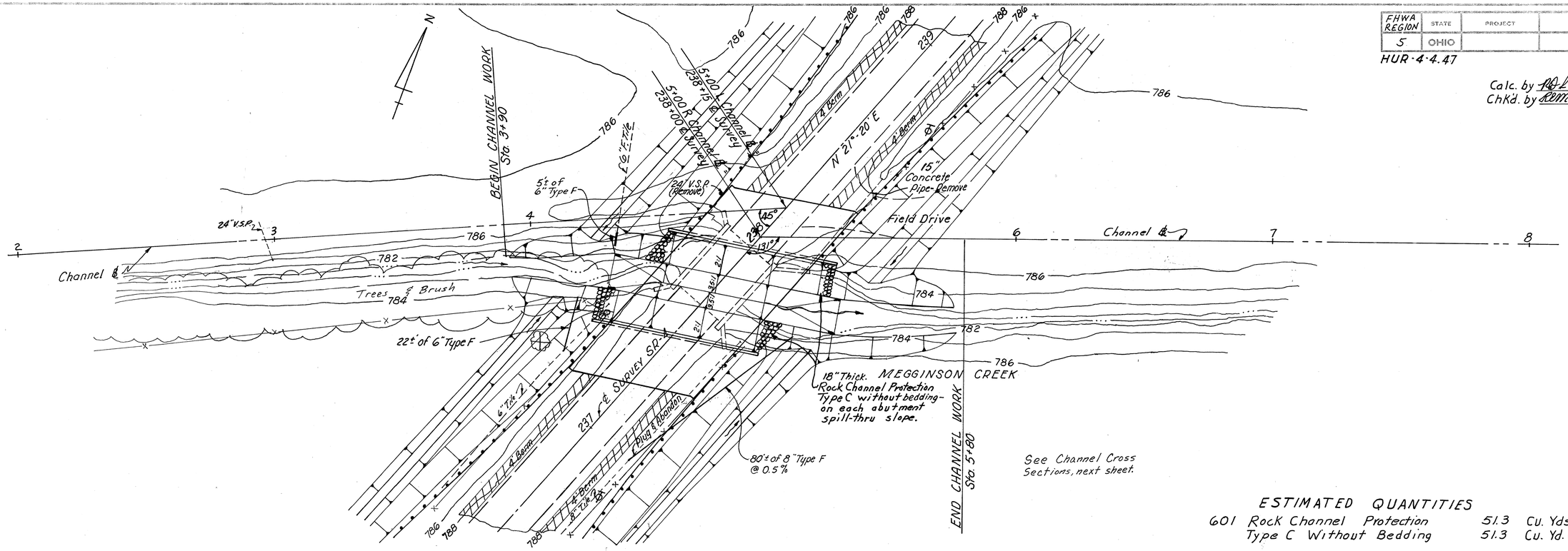
SEEDING End Width	SEEDING Sq. Yds.	Station	END AREA CUT	END AREA FILL	CU. YDS CUT	CU. YDS FILL
0 / 10		Sta. 242+20 (Ahead / Back)	0	0		
	32				1	0
19		Sta. 242+00	4	0		
	98				7	3
		Sta. 241+70 Ahead / Back	8 / 10	6 / 6		
					5	3
22		Sta. 241+57	11	8		
	84				35	37
25		Sta. 241+25 AH / Sta. 241+00 Ahead	22	27		

STA. 241+57 TO STA. 242+67.5

FHWA REGION	STATE	PROJECT		10
5	OHIO			18

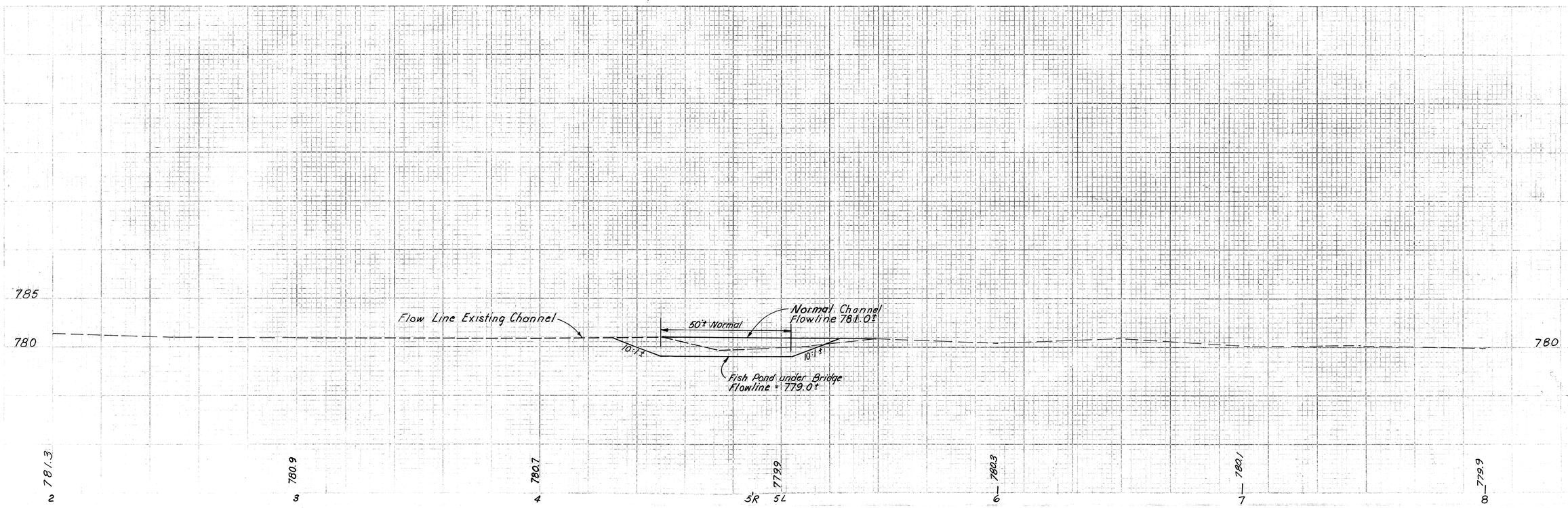
HUR-4-4.47

Calc. by RPL 5/78
Chk'd. by REM 5/78



ESTIMATED QUANTITIES

601 Rock Channel Protection Type C Without Bedding	51.3 Cu. Yds. (Rear)	51.3 Cu. Yd. (Forward)



CHANNEL DETAILS

FHWA REGION	STATE	PROJECT	
5	OHIO		

11 / 18

HUR-4 - 4.47

CALC. BY 7B 3/78
CHK'D BY RBM 3/78

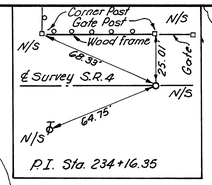
CHANNEL SECTIONS

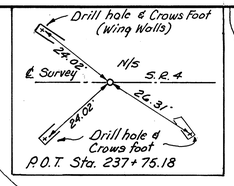
FHWA REGION	STATE	PROJECT	
5.	OHIO	F.F.-	

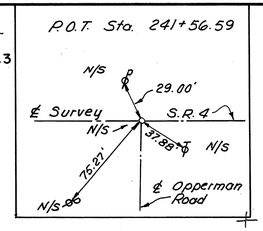
12/18

HUR-4-4.47
HURON COUNTY
Located 2.45 Miles North of S.R. 547

1976 ADT = 1200
1996 ADT = 2100
B&C = 30%
Traffic to be detoured







EXISTING BRIDGE DATA (HUR-4-0451)

TYPE:	Concrete beam
SPAN	28'-0" (Clear)
ROADWAY	21'-8" between curbs
SKEW	0°
LOADING:	H-15 (SI3.3-46)
SUBSTRUCTURE:	Stone & Conc. Gravity
WEARING SURFACE:	Bituminous
ALIGNMENT:	Tangent
CONDITION:	Poor

PROPOSED STRUCTURE

TYPE: Single span prestressed concrete box beams on reinforced concrete abutments.
SPAN 45'-0" c/c bearings
ROADWAY: 44'-0" f/f guard rails
LOADING: HS 20-44 & Alternate Military Load.
SKEW: 30° R.F.
SURFACE COURSE: 2½" Asph. Conc.
APPROACH SLABS: AS-1-72 (25' Long) Modified
ALIGNMENT: Tangent

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

11/6

SITE PLAN

BR. NO. HUR-4-0451
OVER MEGGINSON CREEK

SEC.
STA. 237+48.00
237+94.34
SCALE 1" = 20'

PRESENT TOPOGRAPHY		PROPOSED WORK			
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
		N.J.B.	N.J.B.	~~F.P.K.~~	~~D.H.S.~~

WJJ 10-31-78

FHWA REGION	STATE	PROJECT	
5	OHIO		

13/18

HUR-4-4.47

25'-0" Approach Slab | Bridge Limit 46.34' | 25'-0" Approach Slab

45'-0" c/c Brg.

22'-6" | 22'-6"

℄ Rear Abut. Brgs. | ℄ Bridge | ℄ Fwd. Abut Brgs.

2'-0" (Typical) | 2:1 | 6" | 3'-0" (Typical) | 2'-0" (Typical) | 2:1

N

44'-0" Approach Slab Width

10'-0" | 12'-0" | 12'-0" | 10'-0"

2:1 Slope

End App. Slab
Sta. 237+48.00

℄ Bridge
Sta. 237+71.17

44'-0" o/o Slab + Fit-Up

22'-0" + Fit-Up

30° Skew

2:1 Slope

Begin App. Slab
Sta. 237+94.34

℄ Survey S.R. 4

℄ Rear Abut.
Sta. 237+48.67

2:1 Slope

22'-0" + Fit-Up

2:1 Slope

℄ Fwd. Abut.
Sta. 237+93.67

8" | 3'-0" (Typical)

2:1 | 2:1

Bridge Guardrail 6 Panels
@ 6'-3" = 37'-6" Both Sides

V.C. = 100'
G_1 = +0.40% G_2 = 0.00%
P.V.I. Sta. 237+00
P.V.I. Elev. = 790.70

GENERAL PLAN

V.C. = 150'
G_1 = 0.00% G_2 = -1.00%
P.V.I. Sta. 238+75
P.V.I. Elev. 790.70

Top of Slope Elev. 786.9 | Deep Beam Rail with Tubular Backup | Top of Slope Elev. 786.9

0 %

2:1 (Norm.) | 2:1 (Norm.)

Footing Elev. 781.49

Excavate Channel Thru Structure to Elev. 780.5

18" Thick 601.08, Rock Channel Protection, Type B Without Bedding

Footing Elev. 781.49

Top of Rock Elev. 775.2

Top of Rock Elev. 775.4

Approx. Caisson Bearing Elev. 772.0

ELEVATION

Approx. Caisson Bearing Elev. 772.0

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
BUREAU OF BRIDGES AND STRUCTURAL DESIGN

2/6

GENERAL PLAN & ELEVATION

BRIDGE NO. HUR-4-0451
OVER MEGGINSON CREEK

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
CKT	CKT		INNES	WJJ	10-31-78	

HUR-4-4.47

GENERAL NOTES

1. REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:

   PSBD-1-71 DATED 9-1-71
   DBR-2-73 DATED 4-10-73

2. DESIGN SPECIFICATIONS: THIS STRUCTURE CONFORMS TO THE "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS, 1973, INCLUDING THE 1974 THROUGH 1977 INTERIM SPECIFICATIONS AND THE OHIO "SUPPLEMENT" TO THESE SPECIFICATIONS.

3. DESIGN DATA:

   DESIGN LOADING - HS20-44 AND THE ALTERNATE MILITARY LOADING.

   CLASS C CONCRETE - UNIT STRESS 1333 PSI FOR SUBSTRUCTURE.

   CONCRETE FOR PRESTRESSED CONCRETE BEAMS - UNIT STRESS
   2200 PSI - COMPRESSION
   444 PSI - TENSION

   REINFORCING STEEL - ASTM - A615, A616, OR A617 UNIT STRESS 20,000 PSI

   PRESTRESSING STRANDS - ASTM-A416
   f's = 270,000 PSI
   INITIAL STRESS = 0.70f's

   DECK PROTECTIVE SYSTEM - MEMBRANE WATER-PROOFING AND ASPHALT CONCRETE OVERLAY.

4. REMOVAL OF STRUCTURE: WHEN NO LONGER NEEDED TO MAINTAIN TRAFFIC, THE EXISTING STRUCTURE SHALL BE REMOVED.

5. EXISTING TEMPORARY STEEL BENT: A TEMPORARY STEEL BENT CONSISTING OF STEEL PILES AND A STEEL CAP HAS BEEN PLACED AT MIDSPAN UNDER THE EXISTING BRIDGE IN ORDER TO KEEP THE STRUCTURE IN SERVICE UNTIL THE ROADWAY DETOUR FOR THIS CONTRACT IS PUT IN SERVICE. THE TEMPORARY BENT SHALL BE REMOVED AND PAYMENT FOR THE REMOVAL SHALL BE INCLUDED WITH ITEM 202.

6. CAISSON BEARING PRESSURE: CAISSONS ARE DESIGNED FOR A MAXIMUM BEARING PRESSURE OF 20 TONS PER SQUARE FOOT.

7. SPECIFICATIONS FOR DRILLED CAISSONS:

   CAISSONS: THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING CAISSONS OF THE KIND AND SIZE CALLED FOR ON THE PLANS AND IN THE FOLLOWING SPECIFICATIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FURNISH ALL LABOR, MATERIALS, TESTS AND APPURTENANCES REQUIRED TO COMPLETE THE WORK AS SPECIFIED. IN NO WAY WILL THE CONTRACTOR'S RESPONSIBILITY BE AFFECTED IF THE ESTIMATED PAY LENGTH OF THE CAISSONS SHOWN ON THE PLANS IS DIFFERENT FROM THAT FOUND AT THE SITE.

   THE CONTRACTOR SHALL LOCATE THE CENTER OF EACH CAISSON WITHIN A ONE-INCH RADIUS OF THE POSITION SHOWN ON THE PLAN. CAISSONS NOT LOCATED PROPERLY SHALL BE REINSTALLED AT THE CONTRACTOR'S EXPENSE.

   THE TOP ELEVATION OF EACH CAISSON SHALL BE AS ESTABLISHED BY THE CONTRACT DRAWINGS. UPON THE COMPLETION OF A CAISSON, THE ENGINEER SHALL RECORD ITS LOCATION, SIZE, DEPTH OF PENETRATION, METHOD OF INSTALLATION, AND BEHAVIOR DURING INSTALLATION. FOR EACH CAISSON, A RECORD OF THE LOCATION, SIZE, DEPTH OF PENETRATION, METHOD OF INSTALLATION AND BEHAVIOR OF EACH CAISSON DURING INSTALLATION SHALL BE KEPT. THIS DATA SHALL BE RECORDED BY THE ENGINEER UPON COMPLETION OF THE INSTALLATION OF A CAISSON. DURING THE INSTALLATION OF A CAISSON, NO JETTING TO AID IN THE PENETRATION OF THE CAISSON SHALL BE PERMITTED WITHOUT THE APPROVAL OF THE DIRECTOR.

   THE CAISSONS SHALL BE INSTALLED PLUMB OR AT THE SPECIFIED BATTER AND SHALL NOT DEVIATE MORE THAN ONE-SIXTEENTH OF AN INCH PER FOOT FROM THE SPECIFIED AXIS. IF THE CAISSON AXIS VARIES MORE THAN THIS, THE ALIGNMENT OF THE CAISSON SHALL BE CORRECTED OR IF NECESSARY, ADDITIONAL CAISSONS SHALL BE INSTALLED AT NO ADDITIONAL COST TO THE STATE. WHERE OBSTACLES SUCH AS LARGE BOULDERS ARE ENCOUNTERED, THEY SHALL BE REMOVED. BLASTING OF SUCH OBSTACLES MAY BE PERMITTED, PROVIDED THE CONTRACTOR CARRIES INSURANCE FOR LIABILITY. IF WATER IS ENCOUNTERED DURING THE INSTALLATION, OF ANY CAISSON, OR IF THE NATURE OF THE EXCAVATION IS SUCH THAT THERE IS DANGER OF FOREIGN SUBSTANCES, EARTH, OR OTHER DEBRIS CONTAMINATING OR FALLING INTO THE CONCRETE MIX DURING THE PLACING OPERATIONS, THEN THE CONTRACTOR SHALL USE STEEL SHELLS FOR THE PLACING OF THE CAISSON CONCRETE. THESE STEEL SHELLS MAY BE LEFT IN PLACE, OR WITHDRAWN, AS THE CONCRETE IS PLACED PROVIDED THE CONCRETE COMPLETELY FILLS THE EXCAVATED SPACE TO THE TOP OF THE CAISSONS. THE CONCRETE FOR THE CAISSONS IS INTENDED TO BE PLACED AGAINST THE EXISTING SUBSOILS WITHOUT THE USE OF PERMANENT FORMS, PROVIDED THE FOLLOWING CONDITIONS ARE MET: THE EARTH EXCAVATION IS CLEAN, THERE IS NO EXCESSIVE LOSS OF CONCRETE, AND THE DIAMETER OF THE EXCAVATION IS MAINTAINED AT ALL TIMES. IF AN ARTESIAN WATER CONDITION IS ENCOUNTERED DURING THE INSTALLATION OF ANY CAISSON, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY SPECIAL PROCEDURES NECESSARY TO ACCOMPLISH THE INSTALLATION, TO THE SATISFACTION OF THE DIRECTOR.

   IF TWO CAISSONS ARE SPACED RELATIVELY CLOSE TOGETHER, ONE OF THE HOLES SHALL BE DRILLED, POURED, AND THE CONCRETE PERMITTED TO SET, PRIOR TO DRILLING THE OTHER HOLE.

   DEPTH OF CAISSONS: EACH CAISSON SHALL PENETRATE 36 INCHES INTO FIRM BEDROCK. THIS DEPTH SHALL BE CONFIRMED BY THE ENGINEER AFTER INSPECTION OF EACH HOLE.

   EXAMINATION OF CAISSONS: BEFORE THE PLACING OF THE CAISSON CONCRETE, THE CAISSON EXCAVATION SHALL BE CLEAN AND FREE FROM ALL FOREIGN MATTER. IN ALL CASES, THE EXCAVATION SHALL BE INSPECTED AND APPROVED BY THE ENGINEER. UPON HIS APPROVAL, THE REINFORCEMENT MAY THEN BE INSTALLED AND THE CONCRETE PLACED. THERE SHALL BE NO WATER IN THE HOLE WHEN THE CONCRETE IS PLACED, EXCEPT UNDER CERTAIN CONDITIONS WHEN ARTESIAN WATER IS ENCOUNTERED.

   MATERIALS: CONCRETE FOR ALL CAISSONS SHALL BE CLASS "C" CONCRETE AND SHALL BE CONTROLLED AND PLACED ACCORDING TO THE REQUIREMENTS OF ITEM 511 FOR STRUCTURES OVER 20 FEET. REINFORCING STEEL SHALL MEET THE REQUIREMENTS OF ITEM 509 AND THE VERTICAL BARS SHALL BE DEFORMED. METAL SHELLS SHALL BE WATER-TIGHT AND SHALL BE OF SUFFICIENT STRENGTH TO WITHSTAND THE EARTH PRESSURES DURING THE INSTALLATION PROCEDURES.

   METHOD OF MEASUREMENT: THE LENGTH OF EACH CAISSON TO BE PAID FOR SHALL BE THE COMPLETED AND ACCEPTED LENGTH, MEASURED ALONG THE AXIS OF THE CAISSON FROM THE BOTTOM OF THE DRILLED HOLE TO THE ELEVATION OF THE TOP OF THE CAISSON.

   BASIS OF PAYMENT: THE QUANTITY OF DRILLED CAISSONS, MEASURED AS DESCRIBED ABOVE, SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER LINEAR FOOT BID UNDER "SPECIAL ITEMS - DRILLED CAISSONS," COMPLETE IN PLACE. THIS UNIT PRICE AND PAYMENT THEREOF SHALL CONSTITUTE FULL COMPENSATION FOR FURNISHING ALL MATERIALS, EXCEPT REINFORCING STEEL. FOR ALL LABOR, THE USE OF TOOLS AND EQUIPMENT, AND ALL INCIDENTALS NECESSARY TO COMPLETE THIS ITEM.

   REINFORCING STEEL: THE REINFORCING STEEL SHALL NOT BE INCLUDED IN THE UNIT PRICE BID PER LINEAR FOOT OF CAISSONS, BUT SHALL BE PAID FOR UNDER ITEM 509.

8. APPROACH SLABS: THE CONCRETE COVER OVER THE TOP REINFORCING STEEL AS SHOWN ON STANDARD DRAWING AS-1-72 SHALL BE INCREASED FROM 2 INCHES TO 3 INCHES AND THE JACKING HOLES SHOWN ON THIS STANDARD SHALL NOT BE PROVIDED.

9. LONGITUDINAL GRADE OF APPROACH SLABS: THE TOP CONCRETE SURFACE OF THE APPROACH SLABS SHALL VARY IN DISTANCE BELOW THE FINISHED GRADE FROM 2 1/2 INCHES AT STATIONS 237+23.00 AND 238+19.34 TO 4 INCHES AT STATIONS 237+48.00 AND 237+94.34, RESPECTIVELY.

ESTIMATED QUANTITIES

Lump	Total	Unit	Description	Abut.	Super.	Gen'l.
202	Lump	Sum	Structure removed			Lump
403	11	Cu.Yd.	Asphalt concrete - AC 30		11	
404	8	Cu.Yd.	Asphalt concrete - AC 20		8	
503	140	Cu.Yd.	Unclassified excavation	140		
509	29,333	Lb.	Reinforcing steel	28,333		
510	20	Each	Dowel holes	20		
511	89	Cu.Yd.	Class C concrete, abutments	89		
512	246	Sq.Yd.	Type D waterproofing		246	
515	11	Each	Prestressed conc. bridge member B31-48		11	
516	44	Each	½" thick elastomeric bearing pads, 50 durometer hardness		44	
516	10	Sq.Ft.	½" thick preformed bearing pads, 711.21, as per plan		10	
516	170	Sq.Ft.	1" Preformed expansion joint filler	170		
516	102	Lin.Ft.	Joint sealer, 705.02	102		
517	92.68	Lin.Ft.	Railing (Deep beam rail with tubular steel back up, Type 2 posts and bolts)		92.68	
518	44	Cu.Yd.	Porous backfill	44		
601	98	Cu.Yd.	Rock channel protection type B without bedding			98
Spec.	70	Sq.Ft.	Galvanized steel drip strip		70	
Spec.	76	Lin.Ft.	Drilled caisson	76		

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
BUREAU OF BRIDGES AND STRUCTURAL DESIGN

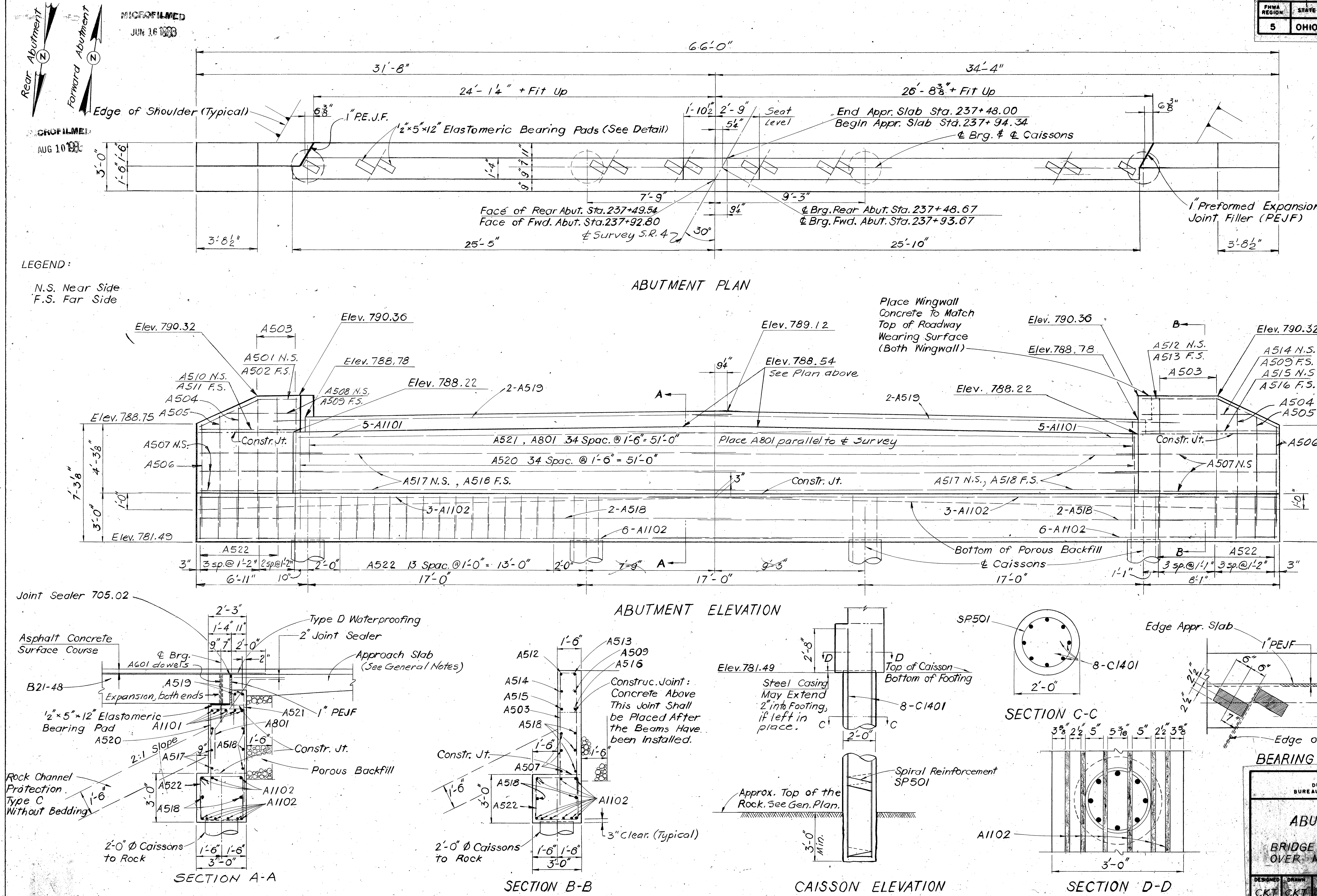
3/6

GENERAL NOTES & ESTIMATED QUANTITIES
BRIDGE NO. HUR 4-0451
OVER MEGGINSON CREEK

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
CKT	BOB		JNNES 10-5-78	WJJ	10-31-78	

FHWA REGION	STATE	PROJECT	
5	OHIO		

HUR-4-4.47

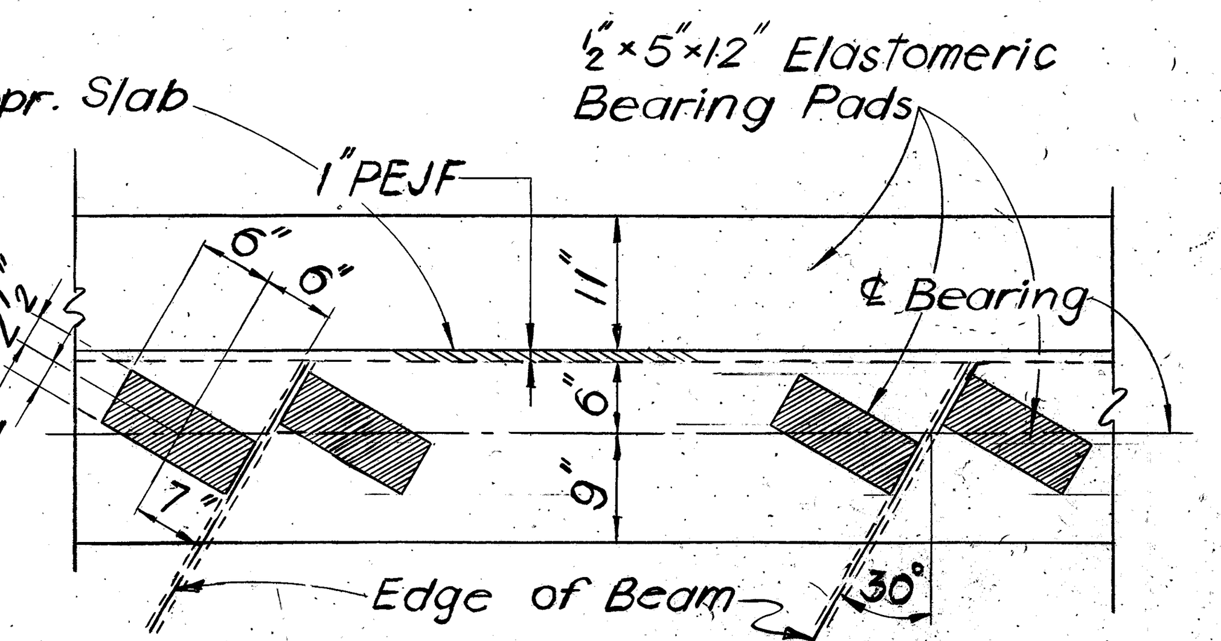


Note:

Porous Backfill Shall Extend Upward to the Plane of Subgrade and Laterally to the Surface of Embankment Slopes.

Portions of Wingwalls Above Beam Seats Shall be Poured Subsequent to Placement of Beams.

Horizontal Bars in the Wingwall May be Field Shortened as Required by Beam Fit-Up.



BEARING DETAIL

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
BUREAU OF BRIDGES AND STRUCTURAL DESIGN

4/6

ABUTMENT DETAILS

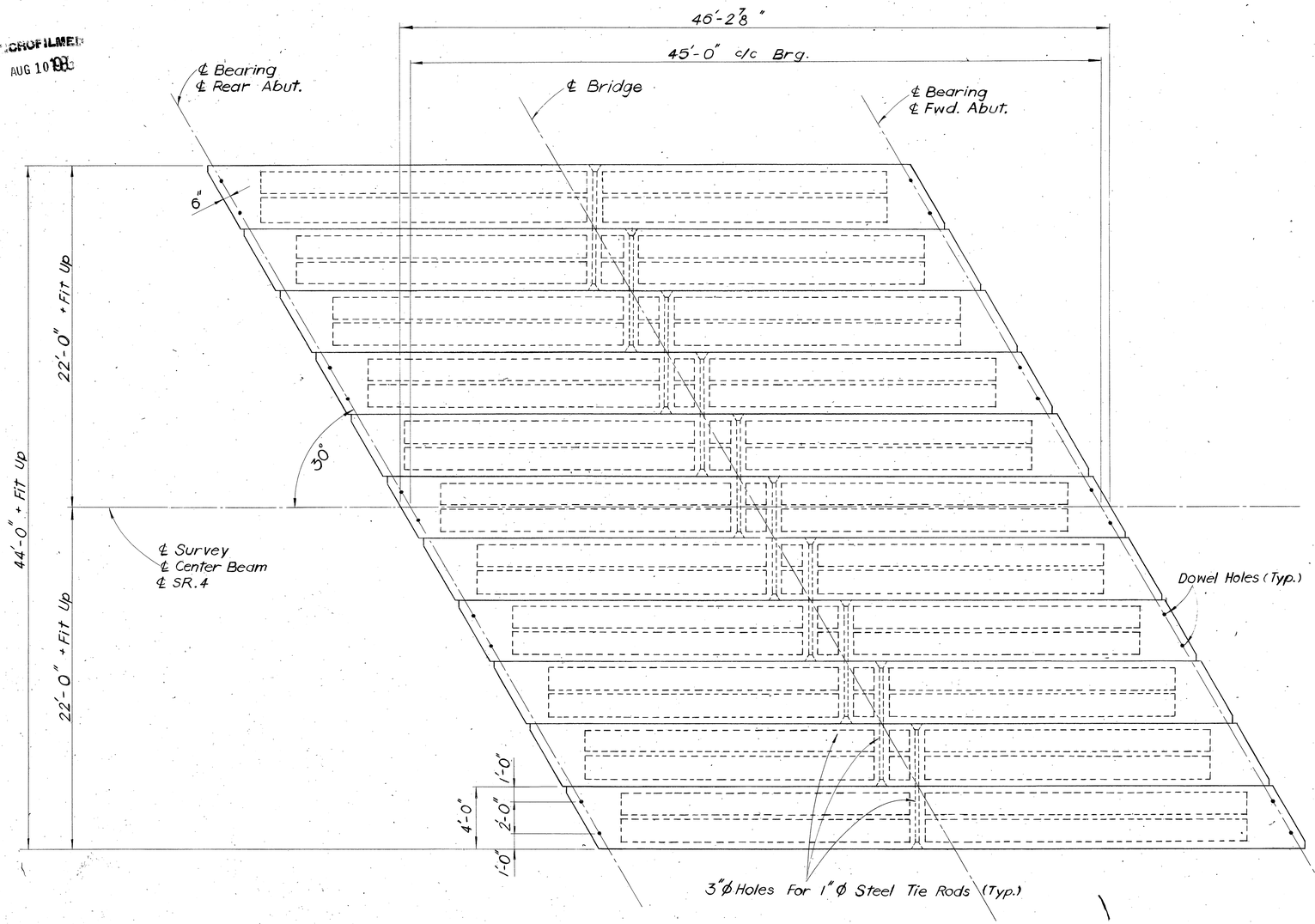
BRIDGE NO. HUR-4-0451
OVER MEGGINSON CREEK

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
CKT	CKT		INNES	WJJ	10-31-78	

FHWA REGION	STATE	PROJECT	
5	OHIO		

16/18

HUR-4-4.47



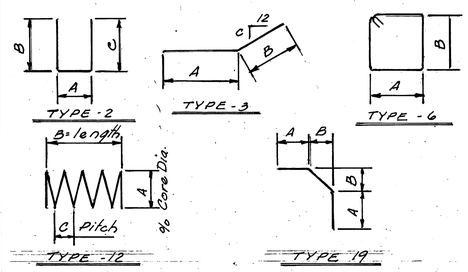
SUPERSTRUCTURE PLAN

N

REINFORCING STEEL LIST

Mark	No.	Length	Weight	Type	A	B	C	D	E
		ABUTMENT							
A1101	20	27'-6"	2922	St.					
A1102	36	37'-0"	7077	St					
A801	70	5'-11"	1106	19	1'-1"	2'-9"			
A601	20	2'-9"	82	St					
A501	2	6'-1"	13	3	2'-4"	3'-9"	0'-5"		
A502	2	6'-11"	14	3	3'-2"	3'-9"	0'-5"		
A503	14	15'-9"	230	2	1'-2"	7'-5"	7'-5"		
A504	4	14'-7"	61	2	1'-2"	6'-10"	6'-10"		
A505	4	13'-5"	56	2	1'-2"	6'-3"	6'-3"		
A506	4	12'-3"	51	2	1'-2"	5'-8"	5'-8"		
A507	12	9'-6"	119	St					
A508	2	4'-2"	9	St					
A509	4	5'-0"	21	St					
A510	2	6'-0"	13	St					
A511	2	6'-10"	14	St					
A512	2	7'-10"	16	3	4'-1"	3'-9"	0'-5"		
A513	2	7'-0"	15	3	3'-3"	3'-9"	0'-5"		
A514	2	5'-10"	12	St					
A515	2	7'-7"	16	St					
A516	2	6'-9"	14	St					
A517	12	27'-4"	342	St					
A518	20	34'-4"	716	St					
A519	8	29'-0"	242	St					
A520	70	12'-8"	925	2	1'-11"	5'-6"	5'-6"		
A521	70	5'-10"	426	2	0'-7"	2'-9"	2'-9"		
A522	108	10'-11"	1230	6	2'-8"	2'-7"			
C1401	64	12'-0"	5875	St.					
SP501	8	9'-4"	1716	12	1'-6"	9'-4"	0'-3"		

Bending Diagrams



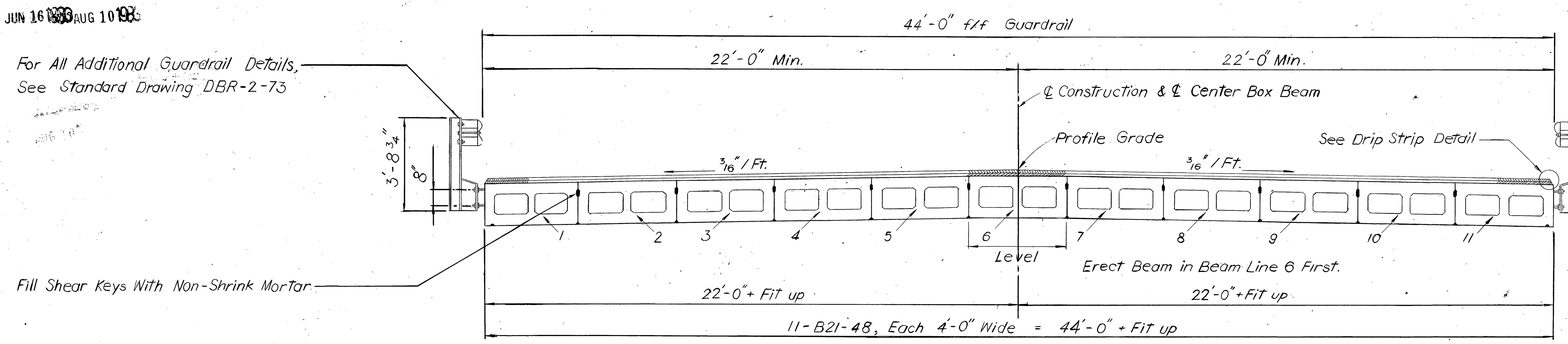
REINFORCING STEEL SAMPLES
Refer to CMS Sections 106.03, 700 and 709.01 through 709.05 and 709.08. Sufficient additional reinforcing steel shall be provided for sampling. Random samples shall be replaced in the structures by the additional steel, spliced in accordance with 509.08

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
BUREAU OF BRIDGES AND STRUCTURAL DESIGN

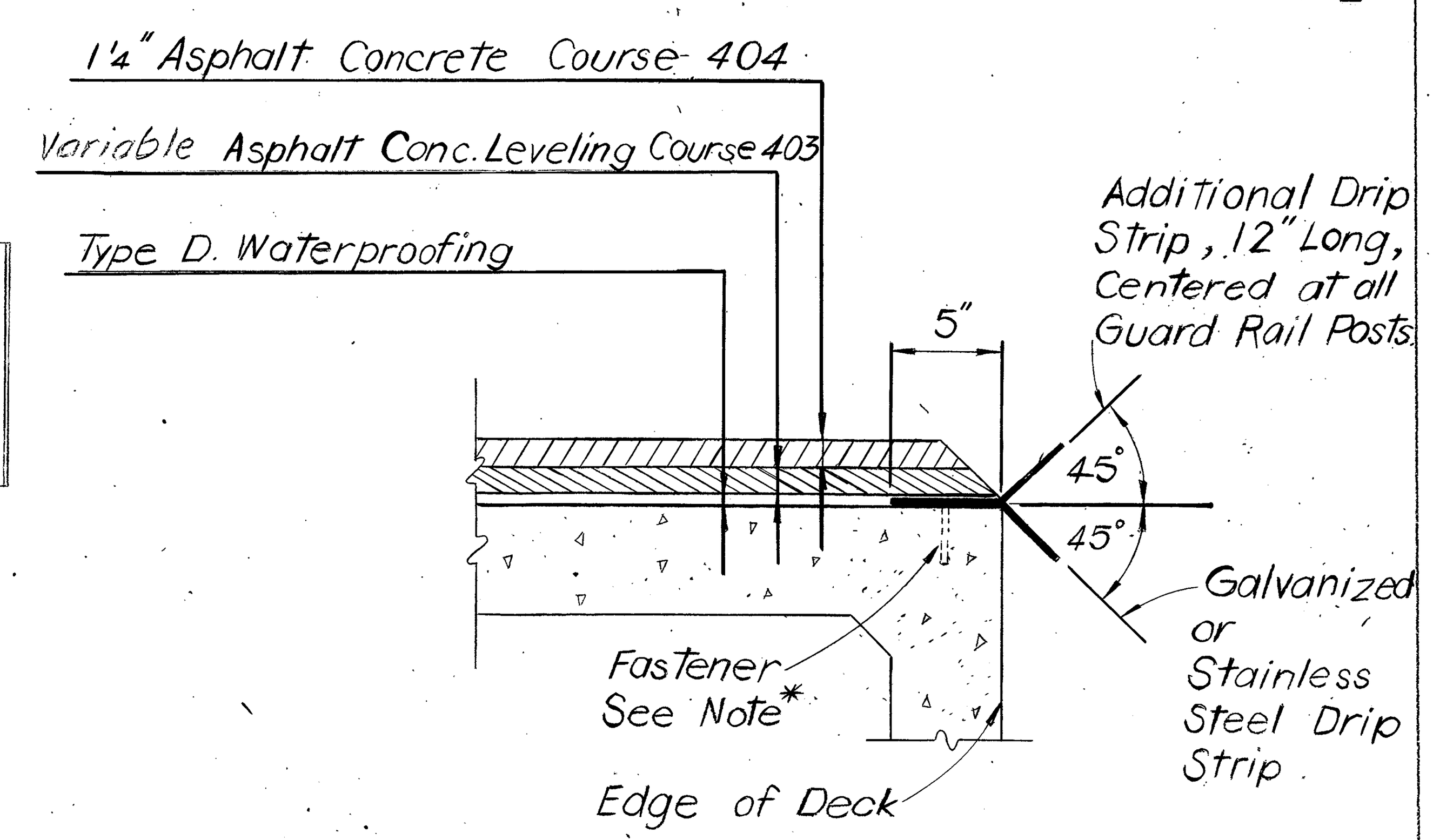
5/6

SUPERSTRUCTURE PLAN AND ABUTMENT REINFORCING STEEL LIST
BRIDGE NO. HUR-4-0451
OVER, MEGGINSON CREEK

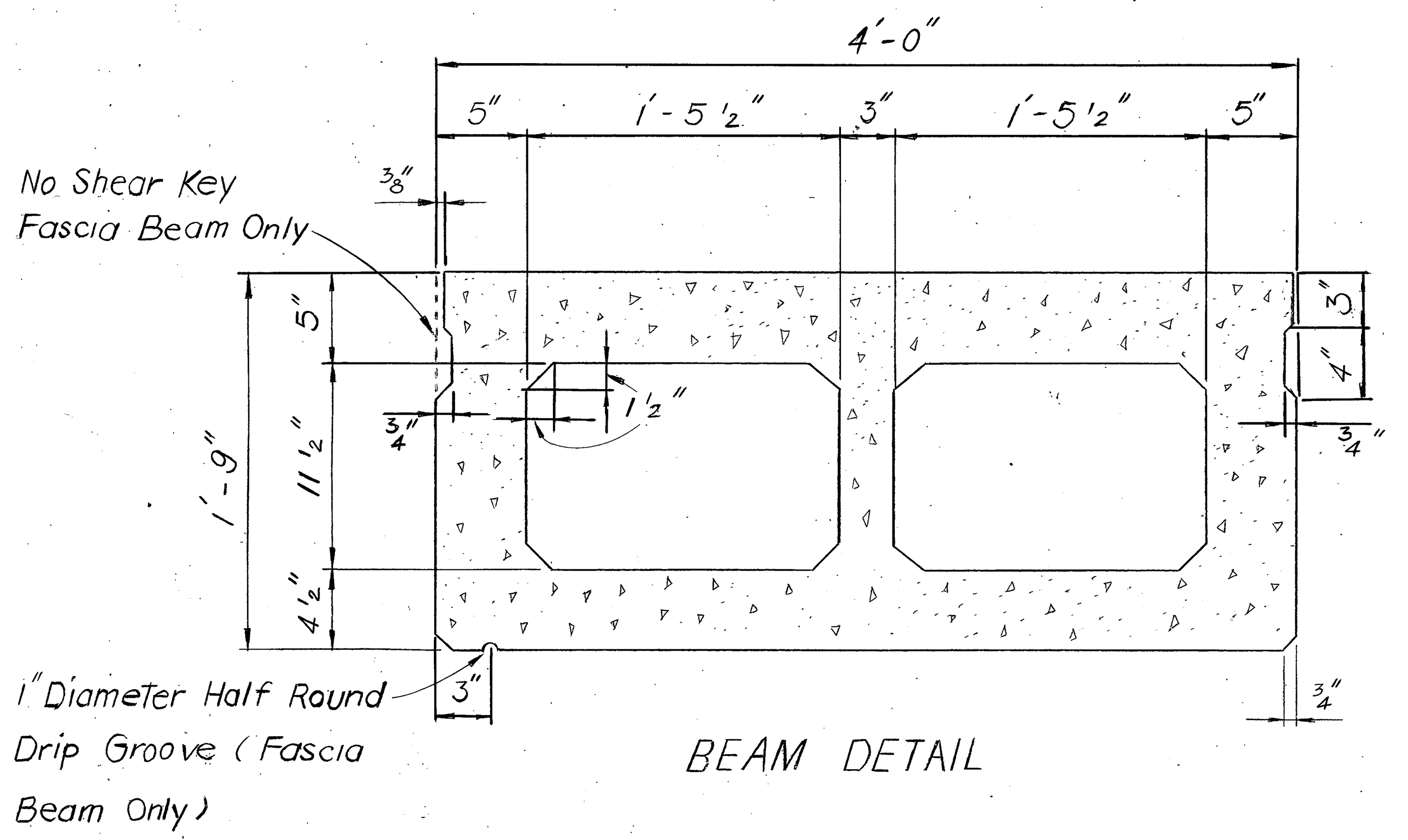
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
CKT	CKT		INNES	WJJ	10-31-78	



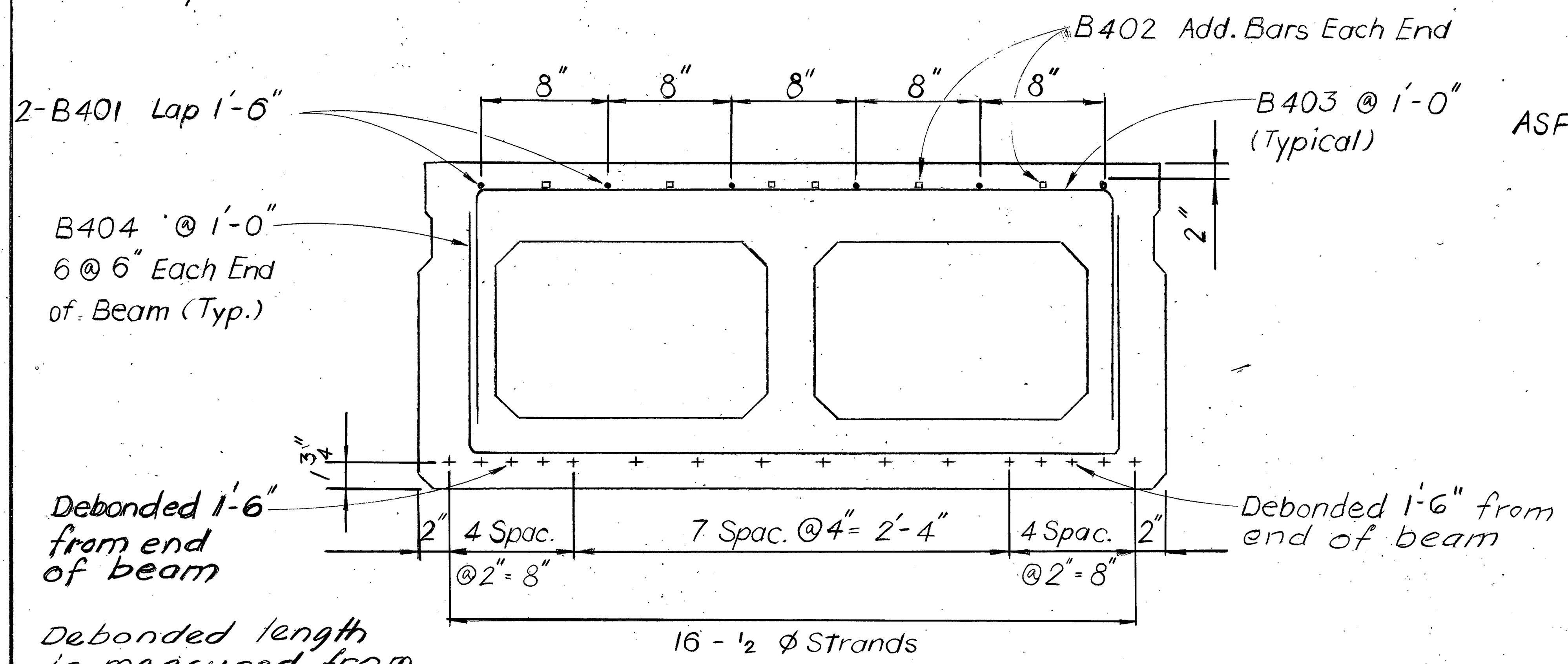
TYPICAL TRANSVERSE SECTION



DRIP STRIP DETAIL



BEAM DETAIL



Debonded length is measured from end of beam.

REINFORCING SECTION

Beam Reinforcing *			
Mark	PSBD-1-71 Mark	Length	PSBD-1-71 Type
B401	-	24'-6"	St. Bars.
B402	-	8'-3"	St. Bars.
B403	P	5'-3"	1
B404	O	6'-3"	1

* See Standard Drawing PSBD-1-71 for Reinforcement for Beam Ends.

NON SHRINKING MORTAR: In Lieu of the Requirements for Non-Shrinking Mortar and Grout Given on Standard Drawing PSBD-1-71, Non-Shrinking Mortar Shall be Made With Materials and Proportions as Follows:

2680 LBS. Sand, 703.02, @ 6 % Moisture
9 Bags Cement, 701.05
40 Gallons Water, 499.02
9 LBS. Expanding Grouting Aid Admixture, Intraplast-N by Sika Chemical Corporation, or Approved Equal

The Cement, Sand and Water Shall be Mixed First, After Which the Admixture Shall be Added. Batch Size Shall be Limited so Placement can be Completed Within 30 Minutes. Water Shall not be Added to Increase Flowability Which Has been Decreased by Delayed Use of Mortar.

Non-Shrinking Grout Used to Fill the Beam Keyways and the Tie Rod Recesses in the Fascia Beams and the Anchor Dowel Holes in the Abutments shall be Included With Item 515 For Payment.

ASPHALT CONCRETE SURFACE COURSE: Shall Consist of a Variable Thickness of 403 and 1¼" Thickness of 404. The 403 Shall be Placed in Two Operations. The First Course Shall be of 1¼" Uniform Thickness. The Second Course Shall be Feathered to Place the Surface Parallel to and 1¼" Below Final Pavement Surface Elevation.

Calculated Camber of Time of Paving is 1 9/16". This Includes Allowance for Camber Growth Due to Creep.
Calculated Deflection Due to Weight of Surface Course and Railing is 1/16".
Net Final Camber of Beams is 1½". This is 1½" 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 1¼" At Midspan to 2¾" At the End of Span.

Top Surface of Prestressed Box Beams Shall be Textured With a Burlap Drag or by Other Means to Provide a Uniform Surface With a Gritty Texture.

Cover For Mild Steel Reinforcing Bars in Top Slab of Box Beams Shall be 2" Instead of 1" as Shown on Standard Drawing PSBD-1-71, Sheet 3.

PRESTRESSING STRANDS: ½" Dia., 270K, seven strand uncoated, stress-relieved strands. A_s = 0.154 sq.in. Initial tension = 28,900 lbs. per strand.

PREFORMED BEARING PADS: In lieu of the hardness requirement of 711.21, preformed bearing pads shall have a Shore A durometer hardness of 80 ± 10. Two pads, each ⅛" thick and 5"x12" shall be furnished per beam and used as required for seating of the beams.

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" c/c Maximum With Power Driven Pins* 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 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" × 0.105" and Shall meet the Requirements of ASTM A588. 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 Item.

Note*: 1¼" × 3/32" × ¼" Flat Head Power Drive Pin and Washer (Length × Shank Dia. × Head Dia.)

REFER TO STANDARD DRAWING PSBD-1-71 for the following details:
Lifting inserts and anchor dowels.
Mild steel reinforcement and bending diagrams.
Diaphrams and tie rods.
Wall thickening for guard rail anchors.
Beam dimensional tolerances.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
BUREAU OF BRIDGES AND STRUCTURAL DESIGN

6/6

SUPERSTRUCTURE DETAILS

BRIDGE NO. HUR-4-0451
OVER MEGGINSON CREEK

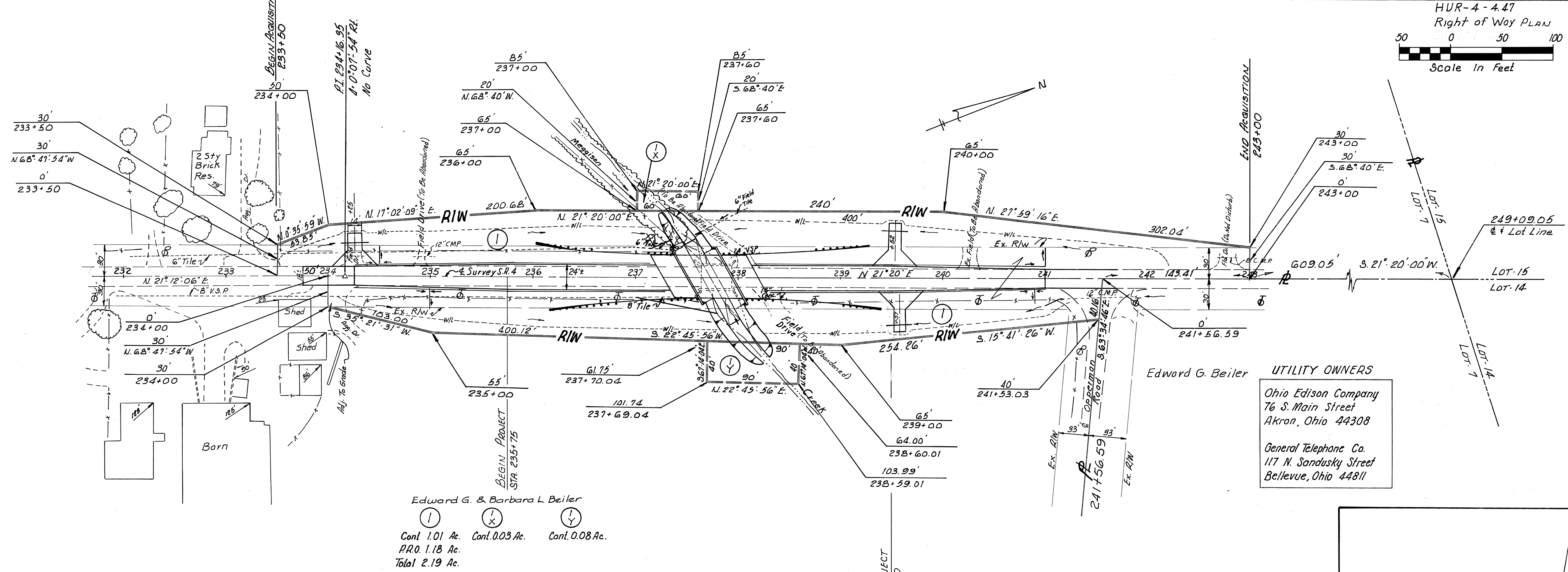
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
CKT	CKT		INNES	WJJ	10-31-78	

STATE JOB NUMBER	FHWA REGION	STATE	PROJECT	
03317(0)	5	OHIO	F-8 (9)	

18/18

HUR-4-4.47
Right of Way Plan

1/1



UTILITY OWNERS

Ohio Edison Company
76 S. Main Street
Akron, Ohio 44308

General Telephone Co.
117 N. Sandusky Street
Bellevue, Ohio 44811

SUMMARY OF ADDITIONAL RIGHT OF WAY REQUIRED

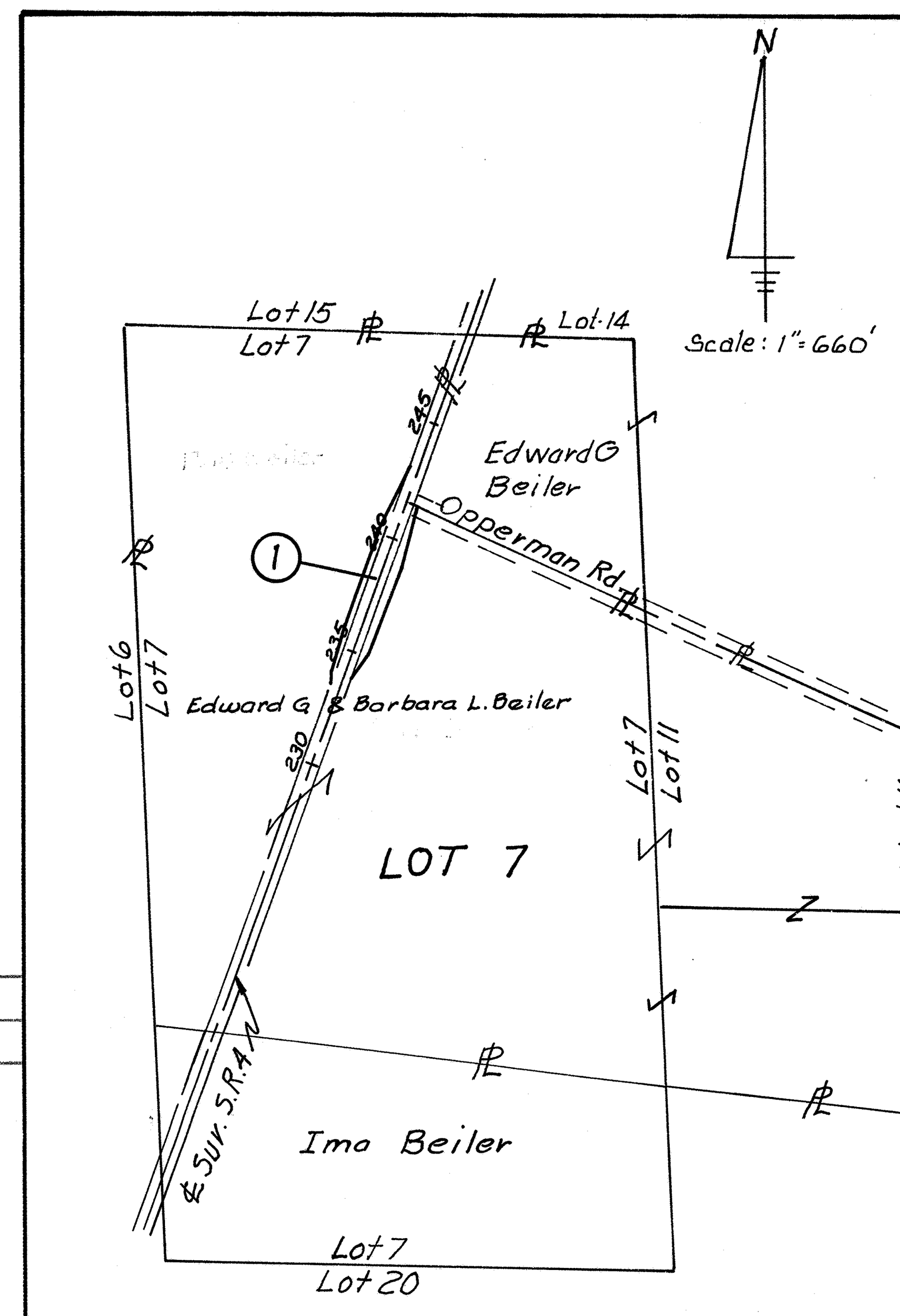
TOTAL NO. OWNERS 1 TOTAL NO. COMPLETE TAKES 0 TOTAL NO. OWNERS WITH STRUCTURES INVOLVED 0

Parcel Number	Property Owner	Deed Record Book	Deed Record Page	Deed Record Date	Deed Area	Total P.R.O.	Total Take	P.R.O. in Take	Net Take	Net Res. Lt.	Net Res. Rt.	Bldg's Acq'd.	Sheet No.	Remarks	Type Funds
1	Edward G. & Barbara L. Beiler	327	234	12-21-76	166.78	6.27	2.19	1.18	1.01	50.3	109.2	No	1		State
1X	" " "								0.03					Channel Easement	State
1Y	" " "								0.08					" "	State

TYPE FUNDS: STATE

	Plan Completed 2-28-78
Rev. Date	Revision Description
5-25-78	Rev. East drive location; Added Utilities Own's.
9-13-79	Rev. Owners Name

J.E.C.
E.H.



PROPERTY MAP
HURON COUNTY LYME TOWNSHIP
SECTION 4 LOT 7
TWP 4N RANGE 24 W

HURON COUNTY LYME TOWNSHIP SECTION 4 LOT 7 TWP-4N RANGE-24 W

GEOLOGY OF THE SITE

THE STRUCTURE SITE IS LOCATED IN THE GLACIATED, GENTLY ROLLING MISSISSIPPI VALLEY PLAIN REGION, ON THE BROAD FLOODPLAIN OF AND OVER MEGGINSON CREEK, IN AN AREA WHERE THIN GLACIAL AND ALLUVIAL DEPOSITS OVERLIE CLAY SHALE BEDROCK, OF DEVONIAN AGE.

EXPLORATION

THE EXPLORATION CONSISTED OF TWO DRIVE SAMPLE-CORE BORINGS MADE BY MEANS OF A MECHANICALLY-POWERED HOLLOW STEM AUGER MOUNTED ON A MOBILE PLATFORM, PERFORMED ON MAY 25 AND 26, 1977.

INVESTIGATIONAL FINDINGS AND OBSERVATIONS

THE BORINGS DISCLOSED THAT EXTREMELY LOOSE TO MEDIUM-DENSE STRATIFIED SANDY SILTS AND CLAYS WITH SOME STONE FRAGMENTS THAT INCREASE IN DENSITY WITH INCREASE IN DEPTH OVERLIES RELATIVELY FLAT-LYING BEDROCK SURFACE, ENCOUNTERED AT 13 TO 14-FOOT DEPTH, ELEVATION 775 FEET. THE BORINGS WERE TERMINATED AT 19 TO 20-FOOT DEPTH, ELEVATION 770 TO 768 FEET, AFTER PENETRATING 5 TO 7 FEET BELOW BEDROCK SURFACE.

FREE WATER WAS OBSERVED AND MEASURED IN BORING B-3 AT 5-FOOT DEPTH, ELEVATION 784 FEET.

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
TR	Top of Rock
├┤	Horizontal Bar on Boring Log Indicates the Depth the Sample Was Taken.
X/Y/Z	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 and / 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.

Drive-press sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1-3/8" I.D. drive sampler, and 3" O.D. thin-wall press sampler. The press sampler is advanced by continuous uniform pressure, applied by the drill rig.

The boring log sheets show a graphic plot of the information obtained, including depth and elevation of the sample, number of blows for the standard penetration tests in three 6-inch increments, depth of press samples, field sample number, sample description - based on laboratory tests and the Casagrande AC classification system-and gradation, plasticity, and moisture content determinations. Results of strength and consolidation testing, if performed, appear on separate enclosures.

At depths where materials are bouldery or gravelly to the extent that the sampler can not be driven, a wash sample is procured for visual classification, in order to determine the general character of the material. These samples are not considered sufficiently representative to warrant laboratory testing.

Particle Size Definitions

Boulders	12"	Cobbles	3"	Gravel	2.0mm (No. 10 sieve)	Coarse Sand	0.42mm (No. 40 sieve)	Fine Sand	0.074mm (No. 200 sieve)	Silt	0.005mm	Clay

HOLLOW STEM LOG OF BORING

Date Started 5/26/77 Date Completed 5/26/77 Boring No. B-2
Sampler Type AUGER Dia. ___ Casing: Length ___ Dia. ___ Station & Offset 237+60 12' RT (REAR ABUTMENT)
Water Elev. ___ Surface Elev. 789.4'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class.
789.4	0				BERM 0.3'										
789.1															
787.4	2														
	4	AUGERED			GRAY SANDY CLAY	6	9	3	19	36	33	37	16	25	A-6b
784.4	6	2/3/4			BROWN AND GRAY SANDY CLAY	7	8	3	16	35	38	44	20	29	A-7-6
781.9	8	8/9/17			BROWN AND GRAY SANDY CLAY	8	5	4	16	34	41	33	14	16	A-6a
779.4	10														
776.9	12	8/10/16			GRAY SILTY SAND AND STONE FRAGMENTS	9	40	10	10	15	25	20	3	12	A-4a
775.4	14	11/18			GRAY SILTY SAND AND STONE FRAGMENTS	10	43	13	8	20	16	23	4	12	A-4a
					TOP OF ROCK										
	16		5.0	0.0	CLAY SHALE, DARK-GRAY, FIRM, FISSILE, PETROLIFIC, BROKEN. NO CORE LOSS.										
770.4	18														

BOTTOM OF BORING

HOLLOW STEM LOG OF BORING

Date Started 5/25/77 Date Completed 5/25/77 Boring No. B-3
Sampler Type AUGER Dia ___ Casing: Length ___ Dia ___ Station & Offset 238+10, 22' LT (FORWARD ABUTMENT)
Water Elev. 783.7' Surface Elev. 788.2'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class.
788.2	0														
786.2	2														
	4	AUGERED			BROWN SANDY CLAY	1	5	8	14	31	42	36	16	16	A-6b
783.2	6	2/3/5			BROWN AND GRAY CLAY	2	6	2	10	35	47	44	25	19	A-7-6
780.7	8														
778.2	10	1/2/3			BROWN AND GRAY SILT	3	2	4	22	50	22	22	4	16	A-4b
	12	5/8/9			GRAY SANDY SILT	4	9	5	23	43	20	16	3	15	A-4a
775.2	14	50(0.1')			GRAY LIMESTO[illegible]	5	53	11	6	23	7	23	4	11	VISUAL
					GRAY SOFT CLAY SHALE. TOP OF ROCK										
773.2	16														
	18		5.0	0.0	CLAY SHALE, DARK-GRAY, FIRM, FISSILE, PETROLIFIC, BROKEN. NO CORE LOSS.										
768.2	20														

BOTTOM OF BORING

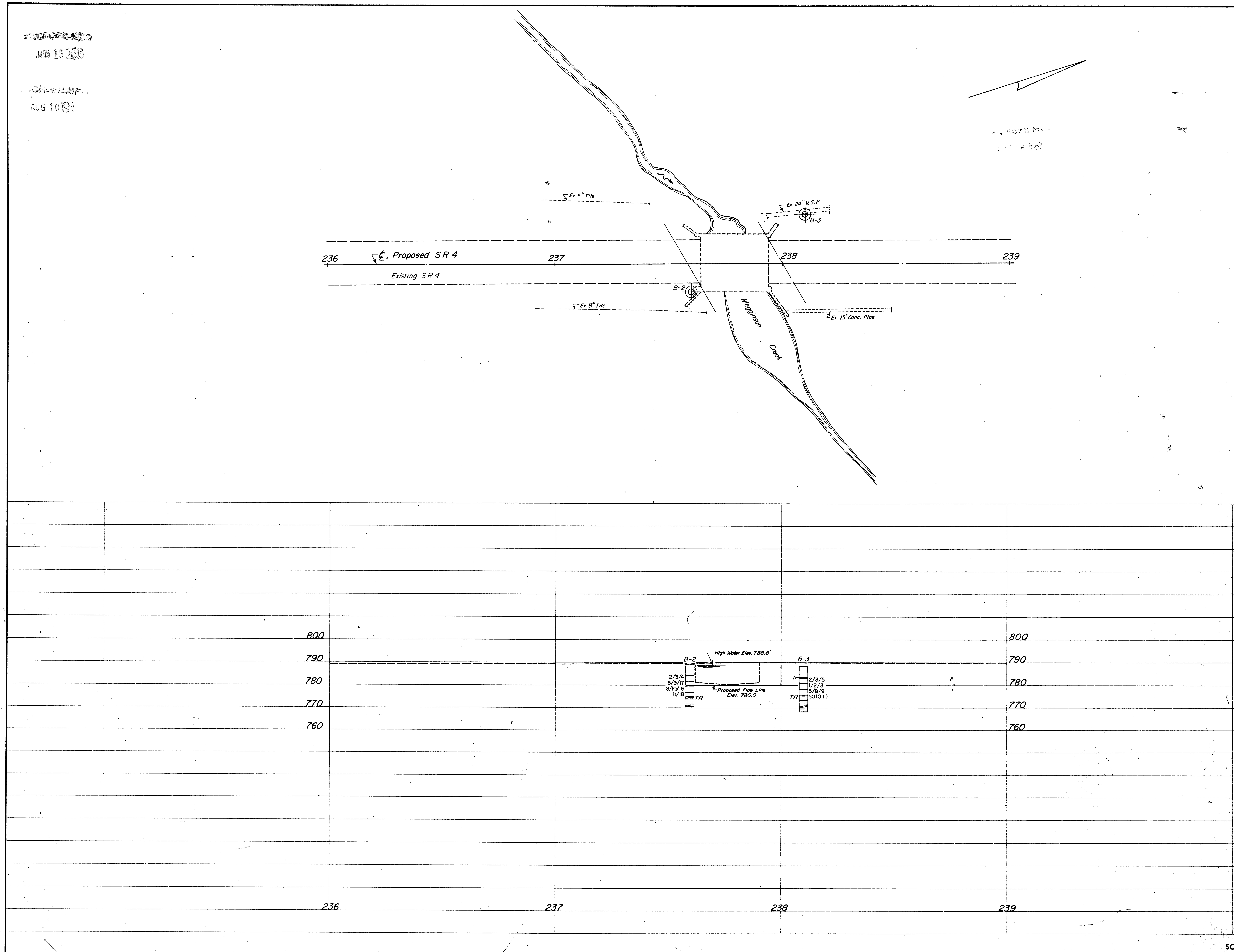
NOTE - ALL AVAILABLE SOIL AND BEDROCK INFORMATION WHICH CAN BE CONVENIENTLY SHOWN ON THE STRUCTURE FOUNDATION INVESTIGATION SHEETS HAS BEEN SO REPORTED. ADDITIONAL SUBSURFACE INVESTIGATIONS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED IN THE DISTRICT DEPUTY DIRECTOR'S OFFICE, THE BUREAU OF TESTS AT 1600 WEST BROAD STREET, THE PAVEMENT AND SOILS SECTION OF THE BUREAU OF LOCATION AND DESIGN OR IN THE BRIDGE BUREAU AT 25 SOUTH FRONT STREET.

NOTE: Information shown by this subsurface investigation was obtained solely for the use in establishing design controls 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-4-0451
OVER MEGGINSON CREEK
SEC. HUR-4-4.

CHECKED BY	REVIEWED BY	DATE
L. N. L.	R. D. R.	6/20/77



SCALE: 1" = 20'

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

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. HUR-4-0451
OVER MEGGINSON CREEK
SEC. HUR-4-4.

PLAN AND PROFILE

DRAWN BY	CHECKED BY	REVIEWED BY	DATE
L. N. L.	L. N. L.	R. D. R.	6/20/77