H 8056

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

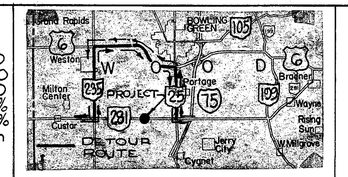
W00-281-9.35
LIBERTY TOWNSHIP
WOOD COUNTY

BRS-389(6)

OHIO	1/14
FHWA REGION 5	
BRS-389(6)	FEDERAL PROJECT

W00-281-9.35

DESIGN DESIGNATION
Current ADT (1982) = 1030
Design Year ADT. (2002) = 1300
DH,W = 1.30
D = 50%
T = 8%
V = 55 mph



DETOUR MAP
0 6 12 18
Scale in Miles

MICROFILMED AUG 3 0 1984

UNDERGROUND UTILITIES
48 HOURS
BEFORE YOU DIG
Call 800-362-2764 (Toll free)
OHIO UTILITIES PROTECTION SERVICE
Non-Members
Must be called directly

Begin Project Sta 493+70
End Project & Work Sta 496+61

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.
Limited Access (only) LA
Right of Way (only) RW
Limited Access & Right of Way LA & RW
Existing Right of Way
Property Line (in existing fence)
Railroad or
Guardrail (existing) (proposed)
Construction Limits

INDEX OF SHEETS

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Alignment and Profile 4
Roadway Cross Sections 5
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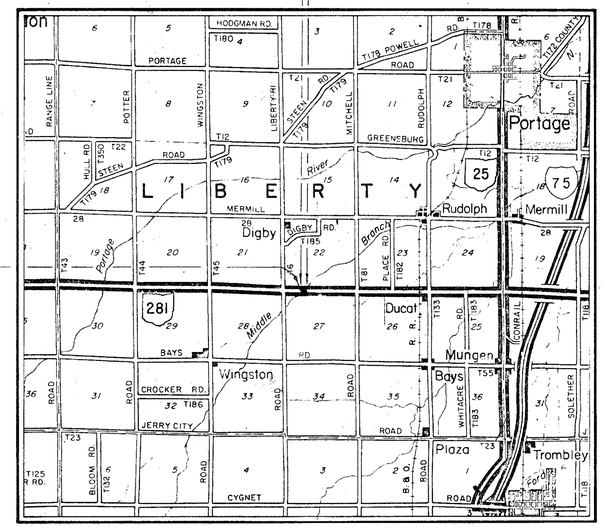
Structures over 20' span 7-12
Right of Way Plan 13
Temporary Pavement Markings 14

Begin Work Sta 493+50



LOCATION MAP

SCALE IN MILES
0 1 2 3 4

Portion to be improved
State & Federal Routes
Other Roads

SCALES

Plan 0' 20' 40' / 10' 30'
Profile: Horizontal 10' 30' / 0' 20' 40', Vertical 5' / 0' 10'
Cross Section: Horizontal 5' / 0' 10', Vertical 5' / 0' 10'

1981 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 Edwin R. Cyriacks
Date 11-10-82 District Deputy Director of Transportation

Approved Robert O. Geufer
Date 12-13-82 Engineer, Bureau of Bridges and Structural Design

Approved Warnett H. Kauble
Date 2-8-83 Chief Engineer, Planning and Design (Acting)

Approved Warren J. Smith
Date 2-8-83 Director, Department of Transportation

SUPPLEMENTAL SPECIFICATIONS		
	1001	1-3-77

LINE DATA

Project

Begin Project Sta 493+70
End Project Sta 496+61
Net length of project = 291.00 lin. ft. = 0.055 miles

Work

Begin Work Sta 493+50
End Work Sta 496+61
Net length of work = 311.00 lin. ft. = 0.059 miles

Plan Prepared By:
Structure: Kohli & Kaliher Associates, Limited
Roadway: District 2 O.D.O.T.

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS						
		HW-4A	4-1-80			
BP-5	7/16/81	HW-4B	4-1-80			
BP-6	6/1/65					
		MC-3	6-1-73			
		MC-4	7-26-76			
GR-1	2/5/82					
GR-2B	2/5/82	PSBD-1-81	9-18-81			
GR-3	2/5/82	DBR-2-73	4-10-73			
		AS-1-81	11-27-81			
GR-4	2/5/82					

SEAL

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED:

DIVISION ADMINISTRATOR DATE

Project: W00-281-9.35
Date of Letting _____ 19__, Contract No. _____

LD0300 Rev. 11-1-78

GENERAL NOTES

FED RD DIVISION	STATE	PROJECT	
5	OHIO	BRS-399( )	

W00 281-9.35

Quan. by 10/12/82
by JCW 10-22-82

MOBILIZATION AS PER PLAN:

THE CONTRACTOR SHALL PROVIDE A SUITABLE FIELD OFFICE HAVING A MINIMUM OF 150 SQ. FT. OF FLOOR SPACE WHICH SHALL BE IN ACCORDANCE WITH 619.01 AND 619.02.

PAYMENT SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 624 MOBILIZATION AS PER PLAN.

PROFILE:

THE PROPOSED PROFILE SHALL BE AS SHOWN ON ALIGNMENT AND PROFILE SHEET Nº 4.

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.

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.

LIGHTS AND SIGNS AT ADJACENT ROAD INTERSECTIONS:

THE CONTRACTOR SHALL, IN ADDITION TO THE GENERAL REQUIREMENTS OF ITEM 614 ON THIS PROJECT PERFORM THE FOLLOWING:

PROVIDE, ERECT, AND MAINTAIN STANDARD 48" X 30" SIZE "ROAD CLOSED" SIGNS, SIGN SUPPORTS, AND LIGHTS AT THE FOLLOWING LOCATIONS DURING THE PERIOD IN WHICH THE AFFECTED ROAD IS CLOSED TO TRAFFIC:

1. LIBERTY HI ROAD AND S.R. 281
2. MITCHELL ROAD AND S.R. 281

SIGN SUPPORTS AND LIGHTS FOR "ROAD CLOSED" SIGNS SHALL BE AS DETAILED IN THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. PAYMENT FOR PROVIDING, ERECTING, MAINTAINING, AND REMOVING LIGHTS, SIGNS, AND SIGN SUPPORTS SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614 MAINTAINING TRAFFIC.

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 ORC.

PERMANENT PAVEMENT MARKING:

ALL PERMANENT PAVEMENT MARKING SHALL BE FURNISHED AND PLACED BY ODOT.

IN ORDER TO PROVIDE AMPLE WORKING TIME FOR THE INSTALLATION OF THE PERMANENT PAVEMENT MARKING, THE PROJECT ENGINEER SHALL NOTIFY THE DISTRICT TRAFFIC ENGINEER A MINIMUM OF FIVE WORKING DAYS PRIOR TO OPENING THE ROAD TO TRAFFIC.

SHOULD THERE BE ANY REASON THAT THE PERMANENT PAVEMENT MARKING CANNOT BE INSTALLED PRIOR TO OPENING THE ROAD TO TRAFFIC, TEMPORARY PAVEMENT MARKING MUST BE INSTALLED. IN NO CIRCUMSTANCES CAN THE ROAD BE OPENED WITHOUT PAVEMENT MARKINGS BEING IN PLACE.

TEMPORARY PAVEMENT MARKINGS:

FOR TEMPORARY PAVEMENT MARKING NOTES, SEE SHEET NO. 14

UTILITY OWNERSHIP

The following utilities and owners are located within the work limits of this project:

OHIO POWER CO.
301 CLEVELAND AVE. SW
CANTON, OH 44701
TELEPHONE Nº 216-456-8173 EXT. 417

UNITED TELEPHONE CO.
122 SOUTH ELIZABETH ST.
LIMA, OH 45802
TELEPHONE Nº 419-226-6220

ELEVATION DATUM:

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

CONSTRUCTION NOISE:

IN ORDER TO MINIMIZE ANY ADVERSE CONSTRUCTION NOISE IMPACTS, ANY POWER-OPERATED CONSTRUCTION-TYPE DEVICE SHALL NOT BE OPERATED BETWEEN THE HOURS OF 10:00 P.M. AND 6:00 A.M. IN ADDITION, ANY POWER-OPERATED CONSTRUCTION-TYPE DEVICE SHALL NOT BE OPERATED IN SUCH A MANNER THAT THE NOISE CREATED SUBSTANTIALLY EXCEEDS THE NOISE CUSTOMARILY AND NECESSARILY ATTENDANT TO THE REASONABLE AND EFFICIENT PERFORMANCE OF SUCH EQUIPMENT.

EROSION CONTROL:

Item 601 is provided in the plans for erosion control. Rock of a stable nature will not be removed in order to place this item. The engineer shall check and non-perform quantities or adjust locations and quantities for this item where indicated by field conditions during construction.

SEEDING:

QUANTITIES FOR SEEDING 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 LINE, IF SUCH LINE IS LESS THAN TEN (10) FEET FROM THE WORK LIMITS.

UTILITIES NOTIFICATION:

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

THE OWNER OF THE UNDERGROUND UTILITY FACILITY SHALL, WITHIN FORTY-EIGHT HOURS, EXCLUDING SATURDAYS, SUNDAYS AND LEGAL HOLIDAYS, AFTER NOTICE IS RECEIVED, STAKE, MARK OR OTHERWISE DESIGNATE THE LOCATION OF THE UNDERGROUND UTILITY 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.

WATERING PERMANENT SEEDED AREAS:

The following estimated quantity is 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 2 M Gals.

GENERAL SUMMARY

Item	From Sh. Nº		Quan.	Unit	Description
					ROADWAY
202	3		204	Sq. Yd.	Wearing Course Removed
202	3		200	Lin. Ft	Guardrail Removed for Storage
203	6		228	Cu. Yd.	Excavation Not Including Embankment Construction
203	6		212	Cu. Yd.	Embankment
203	3		225	Sq. Yd.	Subgrade Compaction
606	3		112.22	Lin. Ft	Guardrail, Type 5
606	3		4	Each	Anchor Assembly, Standard Type A
606	3		4	Each	Bridge Terminal Assembly, Standard Type B
					EROSION CONTROL
601	3		174	Cu. Yd.	Rock Channel Protection, Type C Without Bedding
659	2		2	M. Gal.	Water
659	6		1,400	Sq. Yds.	Seeding and Mulching
659	6		0.13	Ton	Commercial Fertilizer
					DRAINAGE
602	3		0.5	Cu. Yd.	Concrete Masonry
603	3		203	Lin. Ft.	15" Conduit, Type C
603	3		24	Lin. Ft.	15" Conduit, Type F
					PAVEMENT
304	3		43	Cu. Yd.	Aggregate Base
305	3		25	Sq. Yd.	9.00" Portland Cement Concrete Base
310	3		40	Cu. Yd.	Subbase, Type II
402	3		10	Cu. Yd.	Asphalt Concrete, AC-20
403	3		10	Cu. Yd.	Asphalt Concrete, AC-20
404	3		15	Cu. Yd.	Asphalt Concrete, AC-20
407	3		54	Gal	Tack Coat
407	3		2	Ton	Cover aggregate
611	3		200	Sq. Yd.	Reinforced Concrete Approach Slabs (T=15")
					TRAFFIC CONTROL
614			0.06	Miles	Temporary Center Lines, Class II
614			Lump		Maintaining Traffic
623			Lump		Construction Layout Stakes
624			Lump		Mobilization, as per plan

For quantities of structure over 20', see Sh Nº 7

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.

Quantities by ✓ 10/8/82
by JCW 10-22-82

FHWA REGION	STATE	PROJECT	
5	OHIO	BRS-389( )	

3/14

Woo 281 - 9.35

TABLE "G" GUARD RAIL

Sheet No	Ref. No	Station From	Station To	Side Rt. or Lt.	202 Guardrail removed for storage (Lin. Ft)			606 Type 5 Guardrail (Lin. Ft)	606 Anchor Assembly Type A (Each)		606 Bridge Terminal Assembly Type B (Each)	
4	1-G	494+11	494+48.5	Lt.	37.5							
4	2-G	494+48.89	494+88.28	Lt.				14.39	1		1	
4	3-G	495+74	496+36.5	Lt.	62.5							
4	4-G	495+75.92	496+48.89	Lt				47.97	1		1	
4	5-G	494+07	494+57	Rt.	50							
4	6-G	494+04.31	494+52.28	Rt.				22.97	1		1	
4	7-G	495+39.02	495+91.81	Rt.				26.89	1		1	
4	8-G	495+43	495+93	Rt	50							
Totals To General Summary					200.0			112.22	4		4	

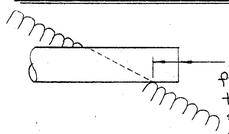
SUB SUMMARY FOR APPROACHES A, EXTRA PAVEMENT P AND DRAINAGE D

Sheet No	Ref. No	Station From	Station To	Side Rt. Lt. or Cts.	202 Wearing Course Removed (Sq. Yd.)		404 Bituminous Concrete 1" (Cu. Yd.)	403 Bituminous Concrete 0" Min (Cu. Yd.)	402 Bituminous Concrete 1 1/2" (Cu. Yd.)	407 Tack Bituminous Material (Gal.)	304 Aggregate Base 6" (Cu. Yds.)	304 Aggregate Base 8" (Cu. Yds.)	304 Aggregate Base Variable (Cu. Yds.)	305 Port. Cement Conc. Base 9" (Sq. Yd.)	310 6" Subbase Type II (Cu. Yd.)	203 Subgrade Compaction (Sq. Yd.)	611 Reinforced Concrete Apr. Slab T=15" (Sq. Yd.)	601 Rock Channel Protection Type C* without bedding (Cu. Yds)	602 Concrete Masonry (Cu. Yds)	603 Type C Conduit 15" (Lin. Ft.)	603 Type F Conduit 15" (Lin. Ft.)	407 Cover Aggregate 703.06 (Ton)
4	1-P	493+70	494+30.62		104.06		4.30	5.29		15.47			2.34									.54
4	2-P	494+30.62	494+45.23				0.34		0.51	1.22		0.80		12.23	2.25	12.23						.04
4	3-P	494+45.23	494+70.28				2.78		4.17	10.0					17.59	100.0	100.0					.35
4	4-P	495+57.92	495+82.92				2.78		4.17	10.0					17.59	100.0	100.0					.35
4	5-P	495+82.92	495+88.58				0.34		0.51	1.22		0.80		12.23	2.25	12.23						.04
4	6-P	495+88.58	496+61		100.00		4.47	4.89		16.09			2.50									.36
4	1-A	493+83		Lt							18.15											
4	2-A	493+85		Rt.							8.74											
4	3-A	496+16		Rt.							9.26											
4	1-D	493+87	495+14	Lt														5.6	0.25	115	12	
4	2-D	493+66	494+66	Rt															0.25	88	12	
4	3-D	1+05 ℄	1+83 ℄	①														85.6				
4	4-D	1+47 ℄	2+24 ℄	②														88.1				
			Sub Total								36.15	1.60	4.84									
Totals To General Summary					204.06		15.01	10.18	9.36	54.30		42.59		24.46	39.68	224.46	200.0	174.3	0.50	203	24	1.88

① = Lt of ℄ Stream
② = Rt of ℄ Stream

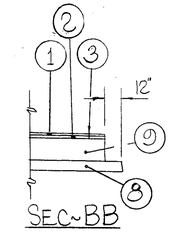
* Note - All rock channel protection 18" thick

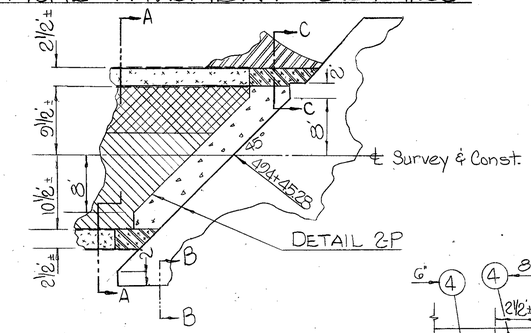
CONDUIT OUTLET DETAIL

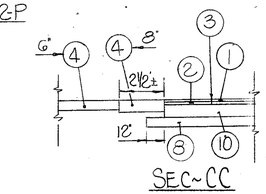


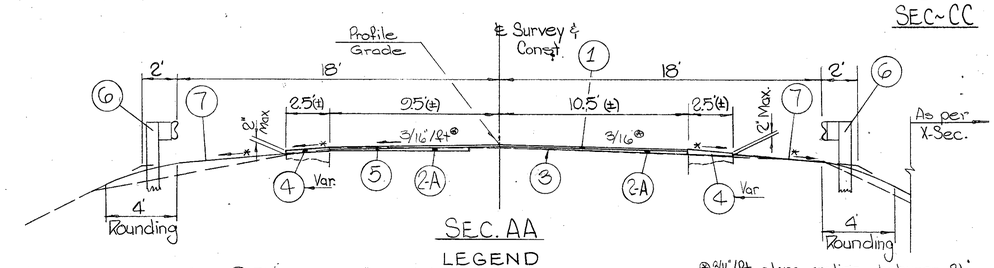
Conduit length shall be field adjusted so that the maximum dimension beyond the normal slope line shall not exceed 1 foot.

TYPICAL PAVEMENT DETAILS









SEC. AA

LEGEND

① Item 404 1" Asphalt Concrete, AC-20
(1A) Item 403 0" Min Asphalt Concrete, AC-20
② Item 402 1 1/2" Asphalt Concrete, AC-20
③ Item 407 Tack Coat applied at the rate of 0.10 gal. per sq. yd.
④ Item 304 (Thickness as shown) Aggregate Base
⑤ Item 202 Wearing course removed
⑥ Item 606 Guard Rail, Type 5
⑦ Item 659 Seeding and Mulching (See General Note)
⑧ Item 310 6" Subbase
⑨ Item 611 15" Reinforced Concrete Approach Slab (25' x 36')
⑩ Item 305 9" Portland Cement Concrete Base

* 3/16"/ft. slope applies between Sta 494+00 and Sta 496+31

Wearing course removed - 1" 404 on 0" 403 on 407 on exist. pavt.

1" 404 on 0" 403 on 407 on exist. pavt.

1" 404 on 1 1/2" 402 on 407 on 9" 305 on 6" 310

8" 304 Aggregate shoulder

Variable "T" 304 on exist. shoulders

6" 304 Aggregate approach (field drive)

Note: Approach slab 15" Reinforced Conc. surfaced with 1" 404 & 1 1/2" 402

Note: ——— * Vary shoulder slope from 1"/ft at 493+70 to 3/16"/ft at begin approach slab. Similarly vary shoulder slope from 3/16" ft. at end approach slab to 1"/ft. at 496+50.

PAVEMENT DETAILS AND SUB SUMMARIES

FED. RD. DIVISION	STATE	PROJECT	
5	OHIO	BRS-389( )	

4/14

WOO 281-9.35

DATA ON EXISTING STRUCTURE

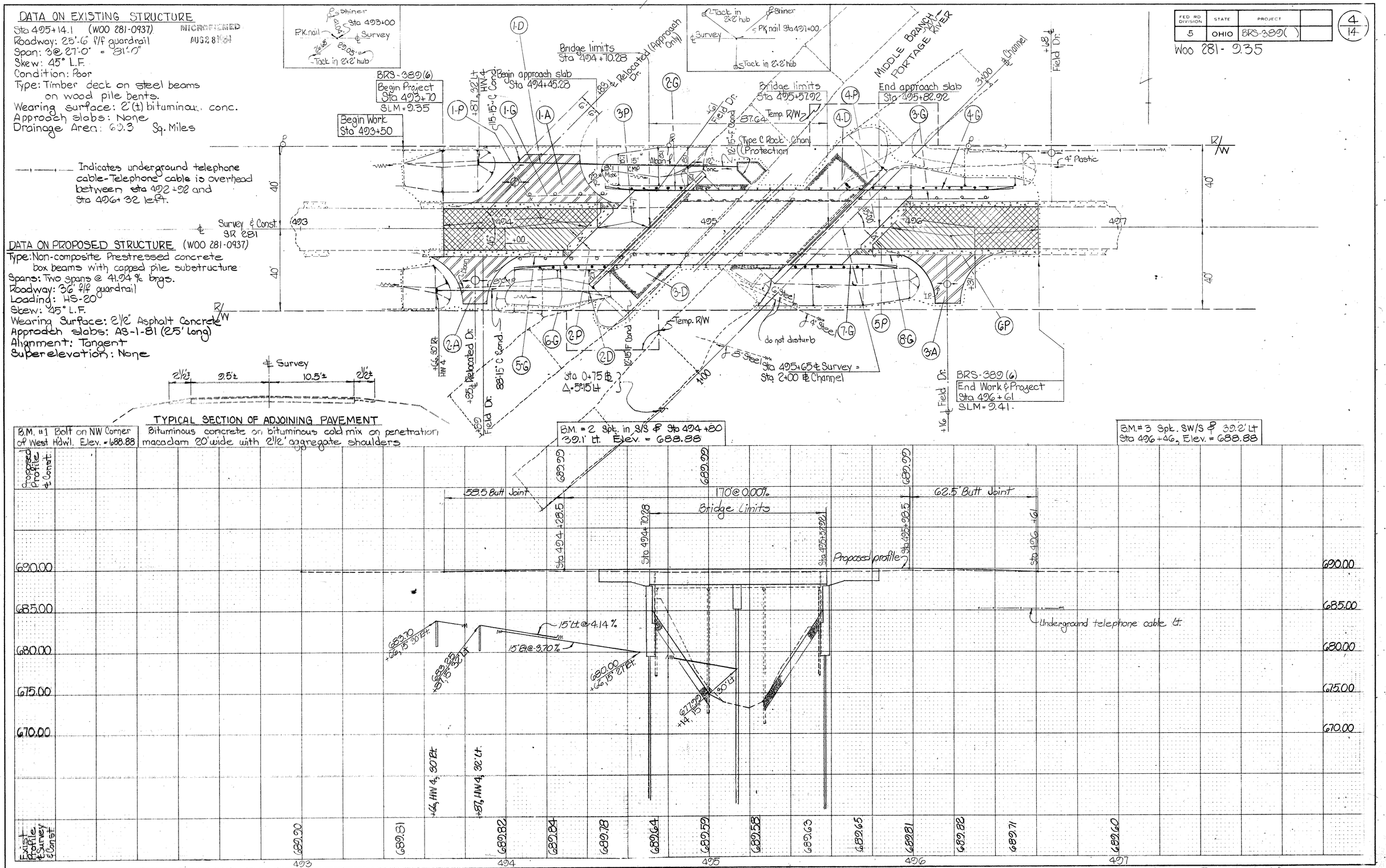
Sta 495+14.1 (WOO 281-0937)
Roadway: 25'-6" f/f guardrail
Span: 3@ 27'-0" = 81'-0"
Skew: 45° L.F.
Condition: Poor
Type: Timber deck on steel beams on wood pile bents.
Wearing surface: 2" (±) bituminous conc.
Approach slabs: None
Drainage Area: 60.3 Sq. Miles

MICROFILMED AUG 28 1981

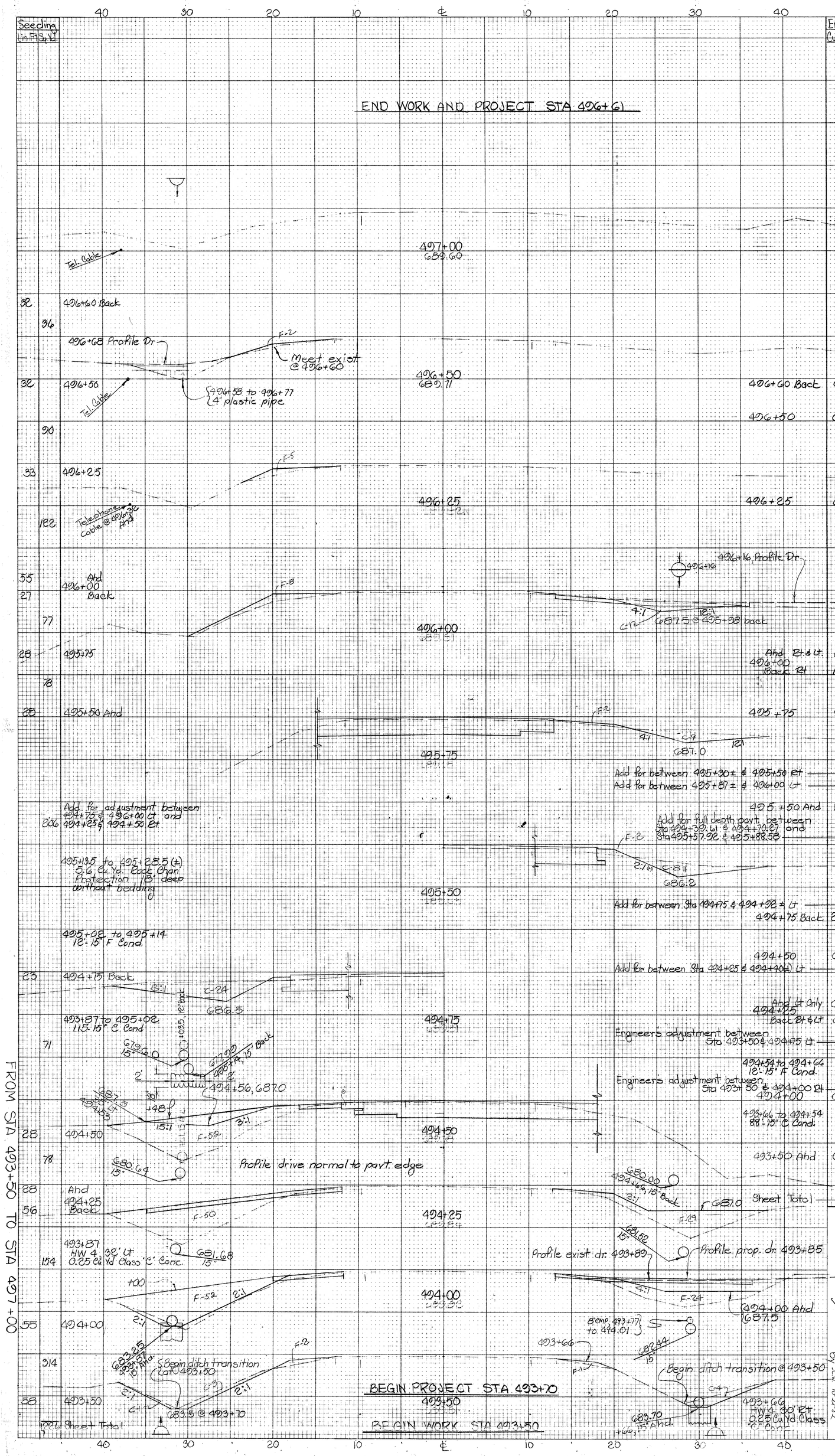
Indicates underground telephone cable-Telephone cable is overhead between sta 492+92 and Sta 496+32 left.

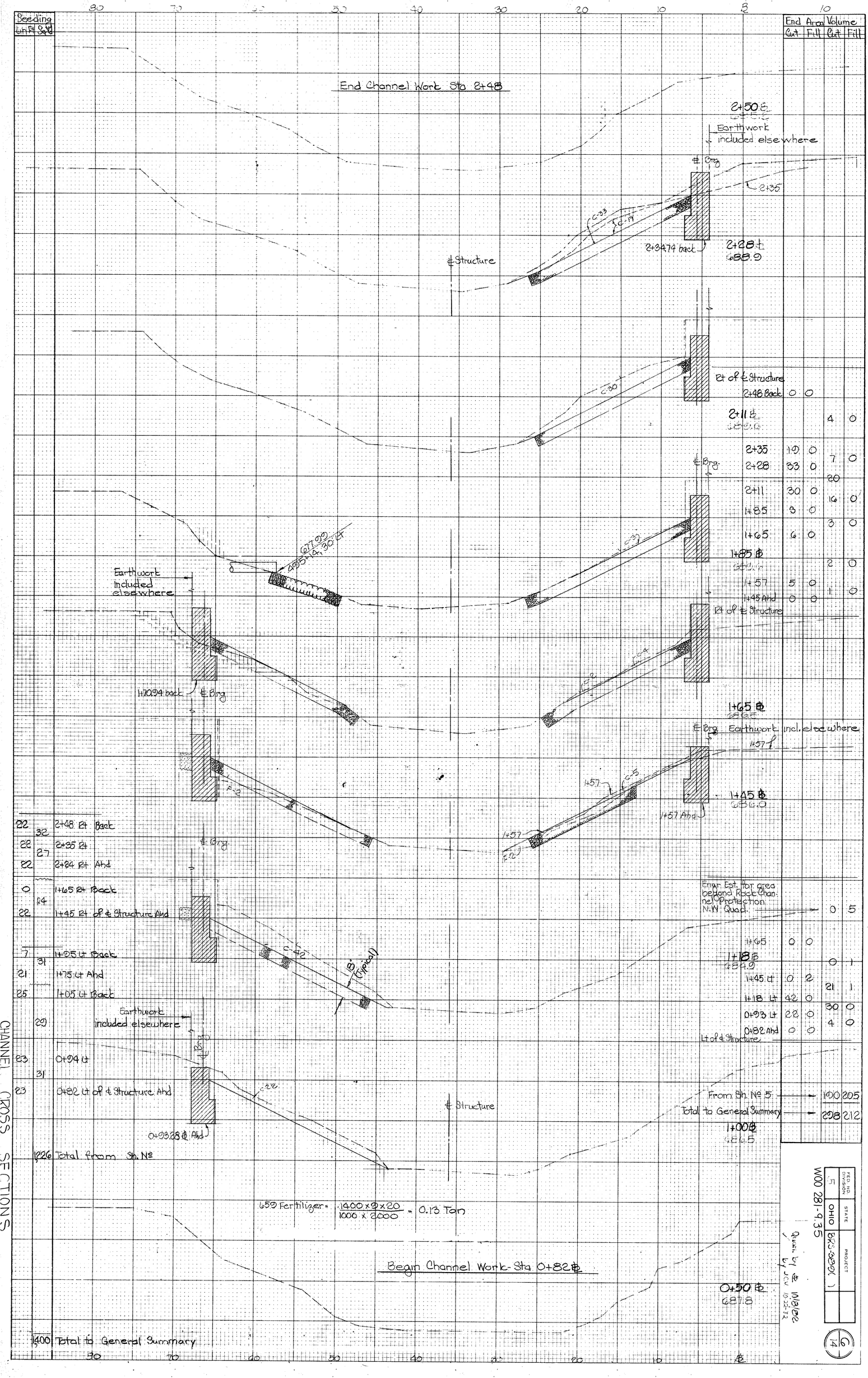
DATA ON PROPOSED STRUCTURE (WOO 281-0937)

Type: Non-composite Prestressed concrete box beams with capped pile substructure
Spans: Two spans @ 41.94' brgs.
Roadway: 36' f/f guardrail
Loading: HS-20
Skew: 45° L.F.
Wearing Surface: 2½" Asphalt Concrete
Approach slabs: AS-1-81 (25' long)
Alignment: Tangent
Superelevation: None



FROM STA 493+00 TO STA 497+00


Seeding
Lb. Fl. Sq. Yd.
End Area
Cut Fill
Cu. Yds.
Cut Fill
END WORK AND PROJECT STA 496+61
497+00
689.60
Tel. Cable
496+60 Back
496+68 Profile Dr.
Meet exist @ 496+60
496+50
680.71
496+58 to 496+77 4" plastic pipe
496+60 Back 0 0
496+50 0 2
496+25
Telephone Cable @ 496+36 Ahd
496+25 0 5
496+16 Profile Dr.
496+00 Ahd
496+00 Back
687.5 @ 495+98 back
Ahd Rt & Lt 0 8
496+00 Back Rt 12 0
495+75
495+50 Ahd
495+75 0 2
Add for between 495+30± & 495+50 Rt +7 1
Add for between 495+87± & 496+00 Lt 0 +4
Add for adjustment between 494+75 & 496+00 Lt and 494+25 & 494+50 Rt
495+50 Ahd 11 2
Add for full depth pavt. between Sta 494+30.61 & 494+70.87 and Sta 495+57.92 & 495+88.55 +126 0
495+13.5 to 495+28.5 (±) 5.6 Cu. Yd. Rock Chan. Protection 18" deep without bedding
686.2
495+50
Add for between Sta 494+75 & 494+92 ± Lt +15 0
494+75 Back 24 0
495+02 to 495+14 12"-15" F Cond.
494+50 0 52
Add for between Sta 494+25 & 494+40 Lt 0 +16
0 47
494+75 Back
686.5
Ahd Lt Only 0 50
494+75 Back Rt & Lt 0 70
493+87 to 495+02 115'-15" C. Cond.
Engineers adjustment between Sta 493+50 & 494+75 Lt +6 42
0 72
494+54 to 494+66 12"-15" F Cond.
Engineers adjustment between Sta 493+50 & 494+00 Rt +6 0
494+00 0 76
493+66 to 494+54 88'-15" C Cond.
0 70
494+50
Profile drive normal to pavt. edge
493+50 Ahd 0 0
494+25 Ahd
494+25 Back
Sheet Total 90 205
493+87 HW 4 32' Lt 0.85 Cu Yd Class "C" Conc.
Profile exist dr. 493+89
Profile prop. dr. 493+85
494+00
494+00 Ahd
Temp. 493+77 to 494.01
493+66
Begin ditch transition @ 493+50
Begin ditch transition
BEGIN PROJECT STA 493+70
493+50
493+50 Ahd
493+66 HW 4 30' Rt 0.85 Cu Yd Class "C" Conc.
683.5 @ 493+70
Sheet Total
BEGIN WORK STA 493+50
FROM STA 493+50 TO STA 497+00
Quantities by JCW 10/8/82
10-22-82
FED. RD. DIVISION 2
STATE OHIO
PROJECT BRS-2831(1)
WOO 281-9.35
5
14

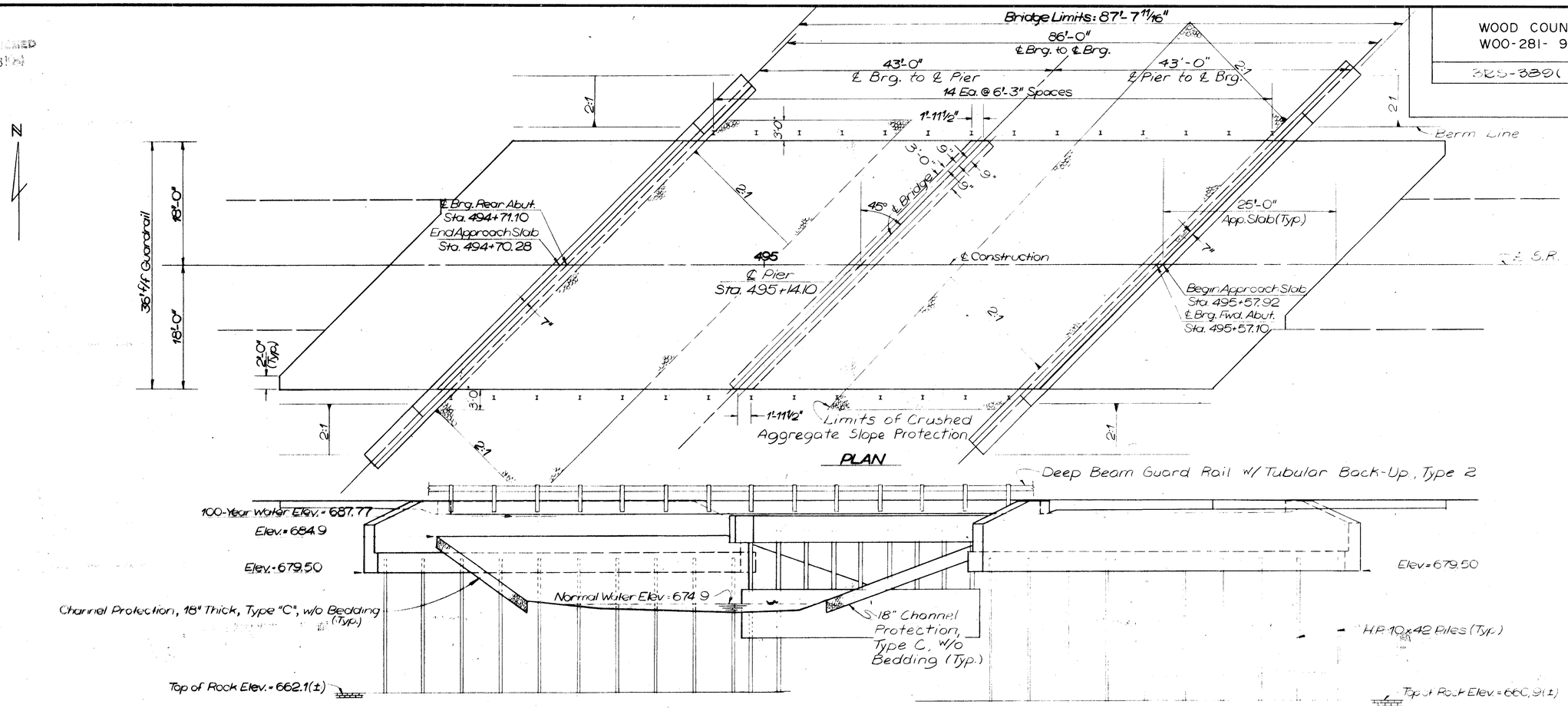


Seeding Lt Rt Sq.Yd	End Area Cut	End Area Fill	Volume Cut	Volume Fill

MICROFILMED
AUG 28 1992

WOOD COUNTY WOO-281- 9.35	OHIO
	FHWA REGION 5
BRS-3890( )	FEDERAL PROJECT

7/14



ELEVATION

All piles are H.P. 10 X 42 Steel Piles
Estimated pile pay lengths:
Rear Abutment = 20 ft
Forward Abutment = 21 ft
Pier = 25 ft

ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION	SUPER.	ABUT.	PIER	GEN'L
202	Lump		Structure Removed				Lump
511	4	Cu.Yd.	Class "S" Concrete, Superstructure	4			
403	19	Cu.Yd.	Asphalt Concrete, AC-20	19			
404	12	Cu.Yd.	Asphalt Concrete, AC-20	12			
511	20	Cu.Yd.	Class "C" Concrete, Pier Cap			20	
503	271	Cu.Yd.	Unclassified Excavation		246	25	
505	Lump		Test Pile		Lump		
503	Lump		Cofferdams, Cribs, and Sheeting				Lump
507	635	Lin.Ft.	Steel Piles, H.P. 10 x 42		410	225	
509	14,826	Lbs.	Reinforcing Steel	539	10582	3705	
510	36	Ea.	Dowel Holes		36		
511	81	Cu.Yd.	Class "C" Concrete, Footings		52	29	
511	74	Cu.Yd.	Class "C" Concrete, Abutments		74		
512	4	Sq.Yd.	Type "B" Waterproofing		4		
512	374	Sq.Yd.	Type "D" Waterproofing	374			
515	18	Ea.	Prestressed Concrete Bridge Members		18		
516	170	Sq.Ft.	1" Preformed Expansion Joint Filler		170		
516	72	Ea.	¾ x 5' x 10" Elastomeric Bearing Pads		72		
516	25	Sq.Ft.	1/8" Preformed Bearing Pads, 711.21		25		
517	175.28	Lin.Ft.	Railing (Deep Beam Railing with Steel Tubular Back-up & Steel Posts & Bolts)	175.28			
518	68	Cu.Yd.	Porous Backfill		68		
518	156	Lin.Ft.	6" Perforated, Helical Corrugated Steel Pipe, 707.01		156		
518	52	Lin.Ft.	6" Non-perforated, Helical Corrugated Steel Pipe, Including Specials, 707.01		52		
516	102	Lin. Ft.	Joint Sealer 705.01 or 705.02				
516	21	Sq.Ft.	½" Preformed Expansion Joint Filler		21		
516	51	Sq.Ft.	¾" Preformed Expansion Joint Filler			51	
Special	131	Sq.Ft.	Steel Drip Strip	131			

KOHLI AND KALIHER ASSOCIATES, LIMITED 1 / 2

GENERAL PLAN & ELEVATION
ESTIMATED QUANTITIES
Br. No. WOO-281-0937
over Middle Branch Portage River
Henry Twp. & Liberty Twp., Wood County, Ohio

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
DGB	M.G.B.		LAS	MGB	9/15/62	

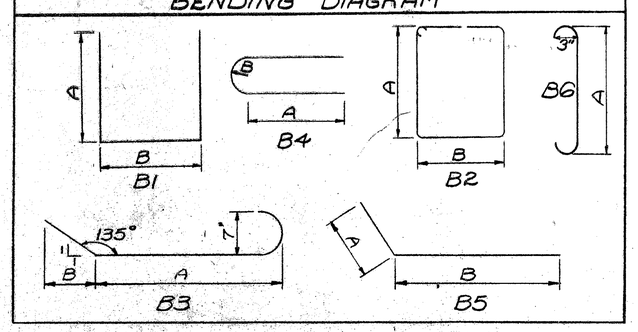
MICROFILMED
AUG 2 8 1984

WOOD COUNTY WOO-281- 9.35	OHIO FHWA REGION 5	8/14
BRS-389( )	FEDERAL PROJECT	

REINFORCING STEEL LIST

MARK	No.	LENGTH	WEIGHT	SHP.	A	B
FORWARD & REAR ABUTMENTS						
A401	40	8'-8"	231.57	B2	2'-9"	1'-6"
A501	40	39'-6"	1647.94	S		
A502	4	7'-10"	32.68	S		
A503	240	6'-7"	1647.93	B1	2'-1"	2'-8"
A504	2	4'-5"	9.21	S		
A505	2	6'-3"	13.04	S		
A506	2	11'-0"	22.95	S		
A507	2	12'-11"	26.94	S		
A508	80	5'-0"	417.20	S		
A509	80	15'-0"	1251.60	B1	6'-8"	1'-11"
			3261.06			
A512	4	13'-6"	56.32	B1	5'-7"	2'-7"
A513	4	13'-0"	54.24	B1	5'-7"	2'-1"
A514	8	12'-10"	107.08	B1	5'-7"	1'-11"
A515	24	7'-6" to 12'-2"	246.15	B1	2'-11" to 5'-3"	1'-11"
A521	4	6'-10"	28.51	B1	2'-7"	1'-11"
A522	4	6'-2"	25.73	B1	2'-3"	1'-11"
A532	4	10'-1"	42.07	S		
A534	2	8'-7"	17.90	S		
A535	2	6'-8"	13.91	S		
A536	2	15'-2"	31.64	S		
A537	2	13'-3"	27.64	S		
A801	16	39'-11"	1705.24	S		
D801	50	5'-11"	789.88	B3	3'-5"	1'-0"
A1001	16	31'-0"	2134.29	S		
			5886.60			
PIER						
P401	18	8'-8"	104.21	B2	2'-7"	1'-6"
P501	10	6'-4"	66.05	B4	1'-7"	1'-0"
P502	20	23'-6"	490.21	S		
P503	64	9'-5"	628.58	B1	3'-10"	2'-0"
P504	80	7'-5"	618.84	B1	2'-6"	2'-8"
P505	4	24'-11"	103.95	S		
P506	6	4'-3"	26.60	B5	2'-8"	1'-7"
P507	4	7'-2"	29.90	B1	2'-6"	2'-5"
P508	4	6'-5"	26.77	B1	2'-6"	1'-8"
P509	4	5'-8"	23.64	B1	2'-6"	11"
P901	4	25'-6"	346.80	S		
P902	4	25'-10"	351.33	S		
P1001	4	25'-8"	441.78	S		
P1002	4	26'-0"	447.51	S		
SUPERSTRUCTURE						
S401	8	25'-5"	135.83	S		
S402	117	4'-2"	325.65	B6	3'2"	
S601	2	25'-9"	77.35	S		

BENDING DIAGRAM



GENERAL NOTES

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

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 to the Ohio "Supplement" to these Specifications.

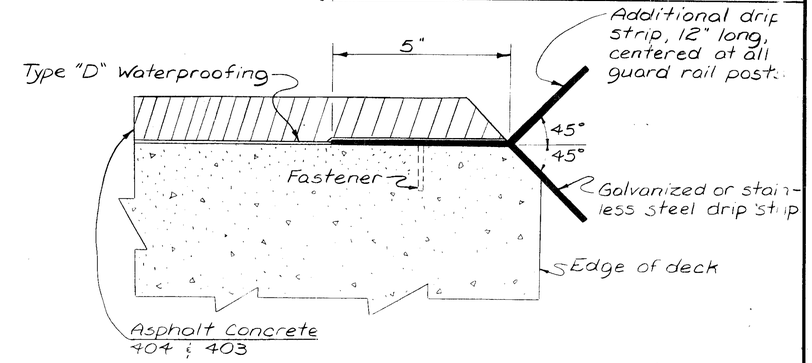
DESIGN DATA:
Design Loading: HS-20-44, and the alternate military loading.
Concrete Class "C": Unit stress 1333 p.s.i. for Substructure.
Reinforcing Steel: ASTM A615, A616, or A617 — Unit stress 20,000 p.s.i.
Concrete for Prestressed Concrete Beams: Unit stress — 2200 p.s.i. compression; 444 p.s.i. tension
Prestressing Strand ASTM A416 — f'_s = 270,000 p.s.i. Initial stress = 0.70 f'_s

REMOVAL OF EXISTING STRUCTURE: When no longer needed to maintain traffic, the existing structure shall be removed. Suitable waste masonry may be placed as Bank Protection as directed by the Engineer.

DECK PROTECTION METHOD: Type "D" waterproofing and asphalt concrete overlay.

PILES shall be driven to bedrock. The bearing capacity shall be considered obtained by refusal on hard bedrock or by penetrating soft bedrock for several inches with a minimum resistance of 20 blows per inch. The design load is 55 tons per pile for the abutment piles and 55 tons per pile for the pier piles.

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.



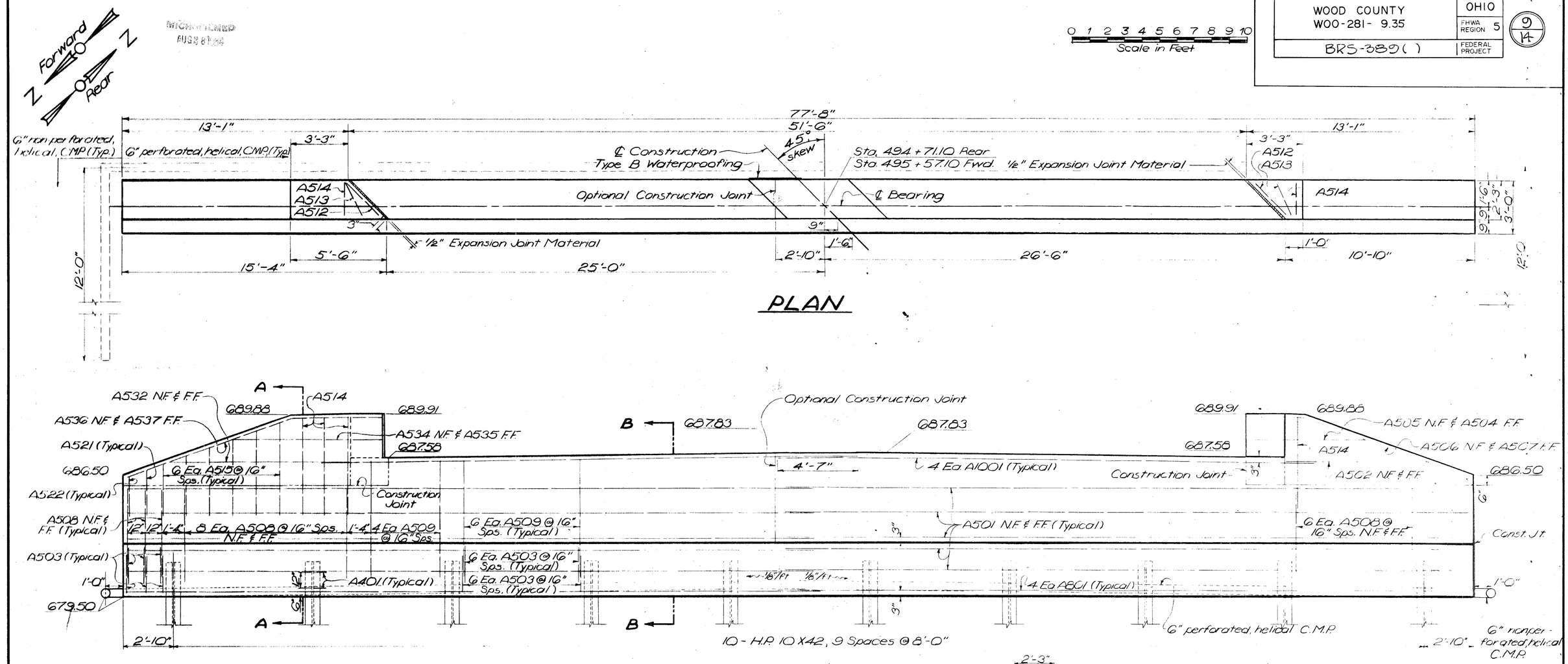
DRIP STRIP: Prior to applying deck membrane waterproofing, a bent drip strip shall be installed along the edges of the deck as shown. The strips shall be fastened at 1'-6" c/c maximum with power driven pins or #10 galvanized screws and expansion anchors, subject to the approval of the Engineer. The strips shall be placed the full length of the deck, ending at the face of the abutment wingwalls. Where splices are required a 3" (Min.) lap shall be used with a fastener through the lap. Fasteners shall be 1¼" x 3/32" x ¼" flat head driven pin & washer (Length x Shank dia. x Head dia.). 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 guage 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.

KOHLI AND KALIHER ASSOCIATES, LIMITED 2/2
CONSULTING ENGINEERS AND SURVEYORS
LIMA, OHIO

REINFORCING STEEL LIST
GENERAL NOTES
BR. No. Woo. 281 - 0937
Over Middle Branch Portage River
Henry Twp. & Liberty Twp, Wood Co.

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.G.B.	A.M.P.		LAS	MGB	9-15-82	

WOOD COUNTY WOO-281- 9.35	OHIO FHWA REGION 5	9/14
BRS-389( )	FEDERAL PROJECT	



Note: All reinforcing steel laps shall be 30 ϕ unless otherwise shown.

Note: Clearance between reinforcing steel and the face of concrete is 2" unless otherwise shown.

Reinforcing Steel Abbreviations:
N.F. - Near Face
F.F. - Far Face

Note: Concrete above horizontal construction joint near bridge seat level shall not be placed until after beams are erected.

KOHLI AND KALIHER ASSOCIATES, LIMITED — 3/6

REAR AND FORWARD ABUTMENT DETAILS
WOO 281-0937
Over Middle Branch Portage River
Henry Twp. & Liberty Twp., Wood Co.

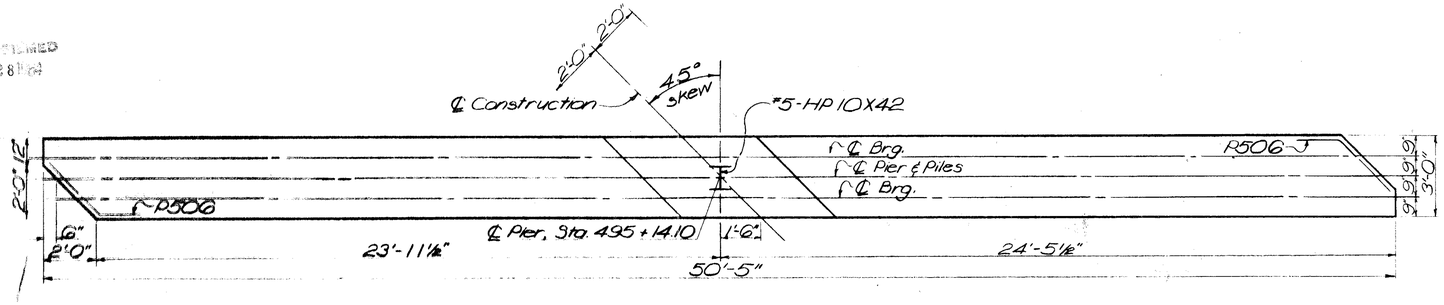
SCALE	DATE	DRAWN	CHECKED BY	DRAWING NO.
		LAS	DGB	

BRS-389( )

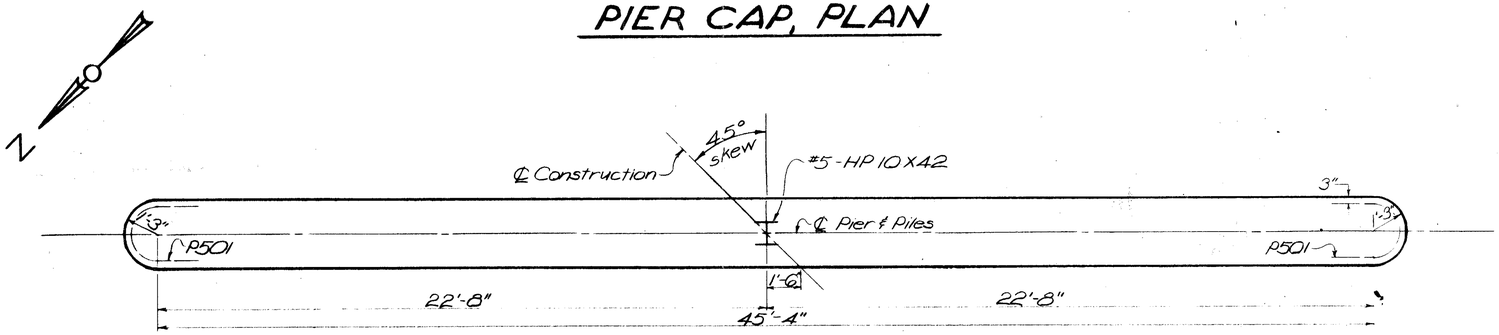
W00-281- 9.35

10/14

MICROFILMED AUG 28 1974



PIER CAP, PLAN

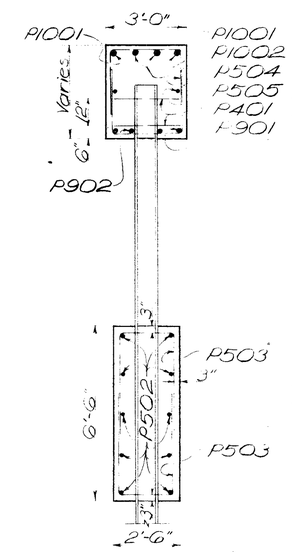


GRADE BEAM, PLAN

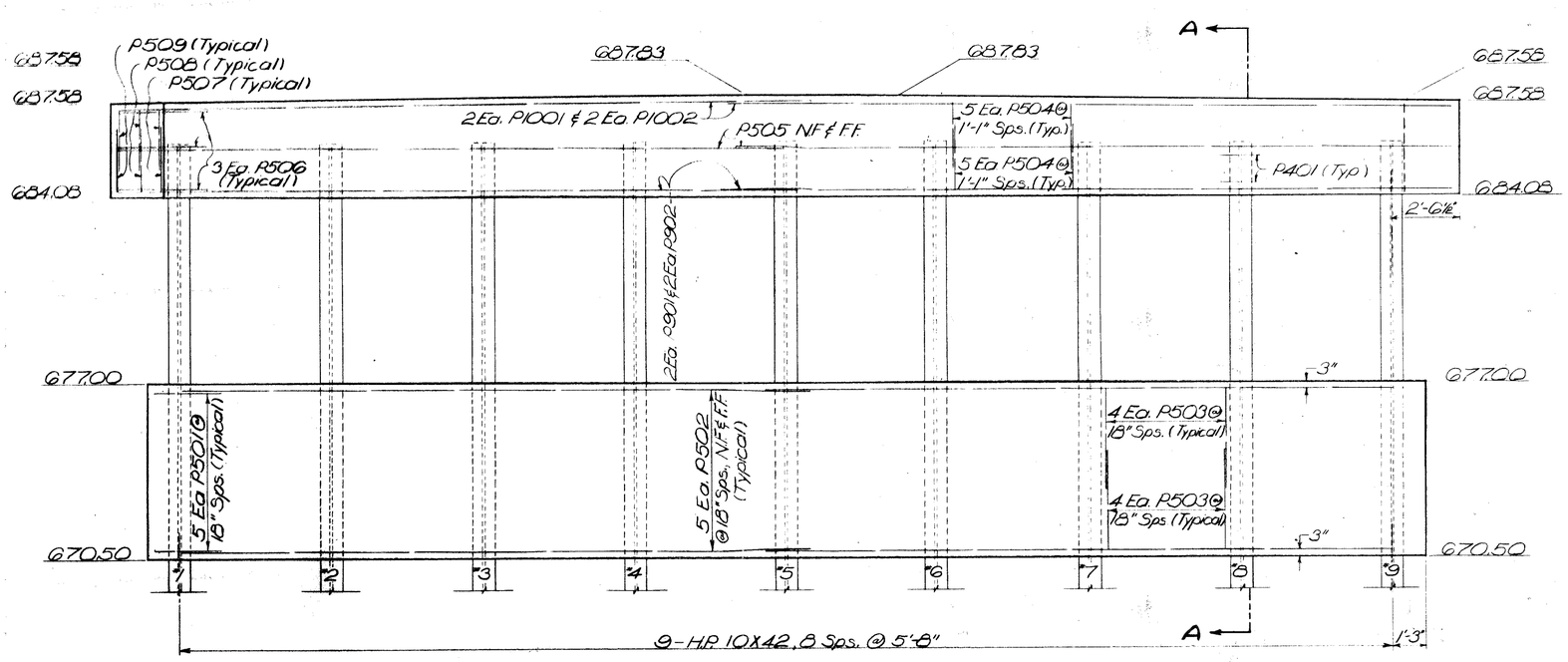
Note: Clearance between reinforcing steel and the face of concrete is 2 inches unless otherwise shown.

Note: All reinforcing steel laps shall be 30 ϕ unless otherwise shown.

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



ELEVATION

0 1 2 3 4 5 6 7 8 9 10
Scale in Feet

KOHLI AND KALIHER ASSOCIATES, LIMITED
CONSULTING ENGINEERS AND ARCHITECTS

4/6

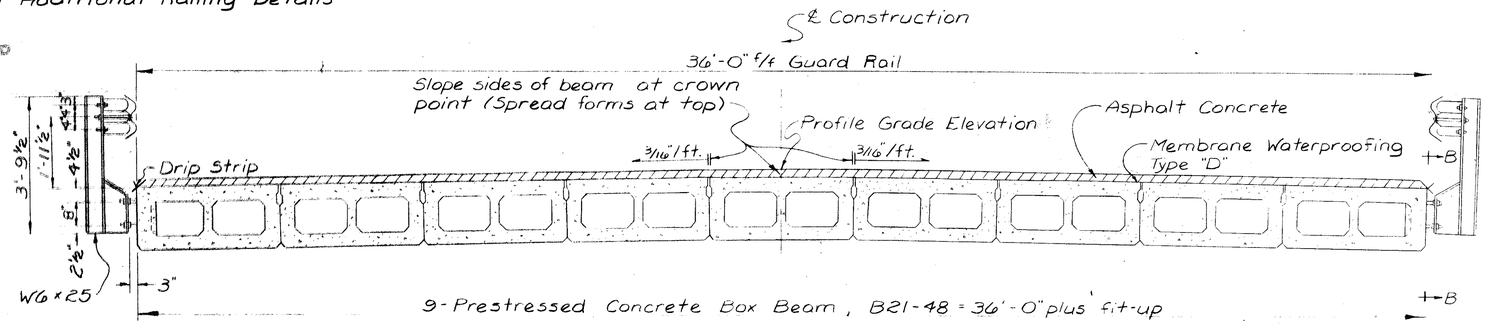
PIER DETAILS
WOO 281-0937
Over Middle Branch Portage River
Henry Twp. & Liberty Twp.
Wood County, Oh.

SCALE	DATE	DRAWN BY	CHECKED BY	DRAWING NO.
		LAS	DGB	

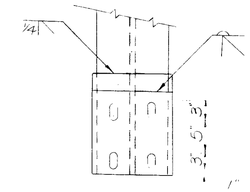
WOOD COUNTY WOO-281- 9.35	OHIO FHWA REGION 5	11/14
BRS-389( )	FEDERAL PROJECT	

NOTE: See Std. Dwg. DBR-2-73, Type 2 Post for Additional Railing Details

MICROFILMED AUG 28 1984



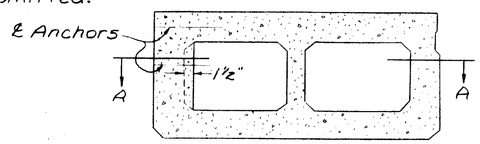
TRANSVERSE CROSS SECTION



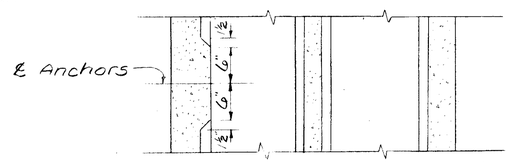
SECTION B-B

NOTE:
Slots shall be provided in all guard rail posts, so that vertical adjustments may be made after placement to provide a straight-smooth guard rail line across the structure

The keyway on the facia of the exterior beams shall be omitted.



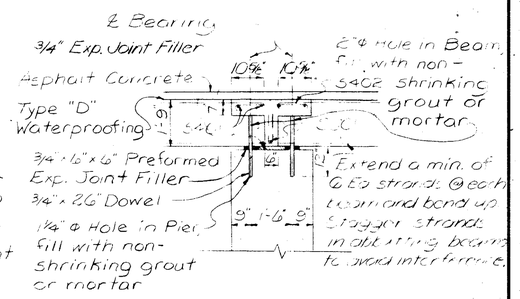
SECTION SHOWING WALL THICKENING AT GUARD RAIL ANCHORS



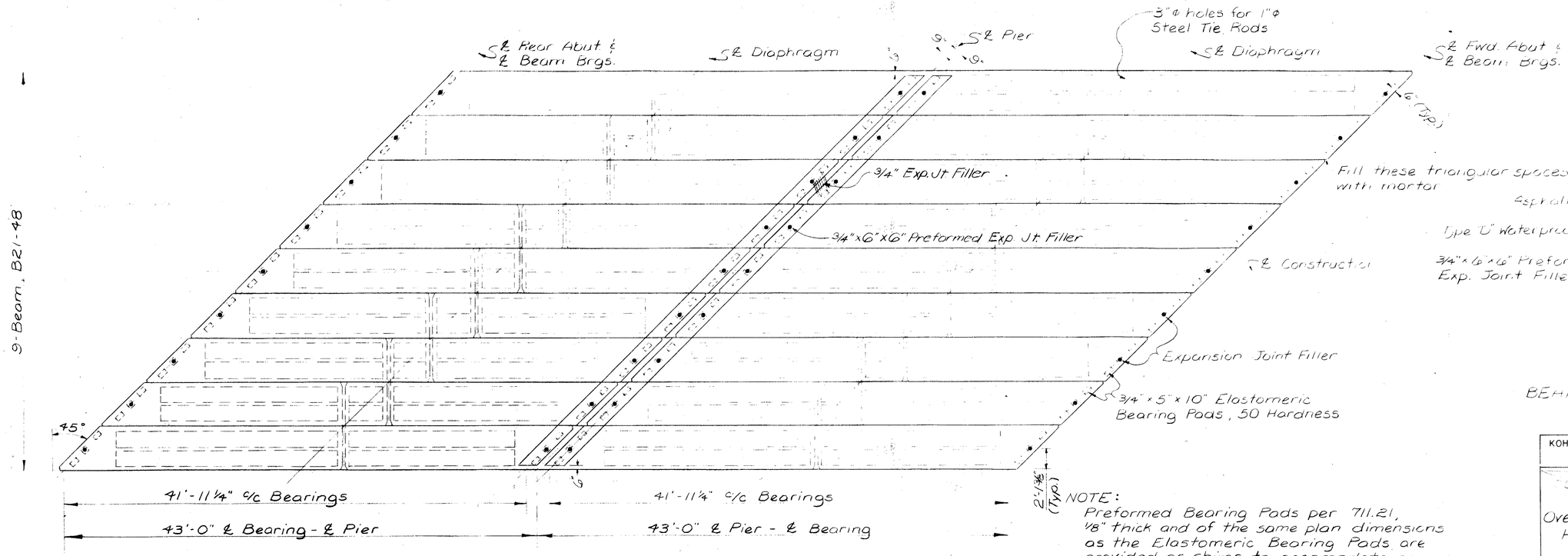
SECTION A-A

NOTE:
Calculated camber at the time of paving, including allowance for camber growth due to creep, is 1⅜". Calculated deflection due to weight of surface course and railing is 5/16". Net final camber is 1 9/16". This is 1 5/16" in excess of the amount required to place the top of the beam in parallel to profile grade. This excess amount will be compensated for by thickening the 403 leveling course from 1¼" at the centers of spans to 2 9/16" at the ends of spans

NOTE:
Asphalt concrete surface course shall consist of a variable thickness of 403 and a 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.

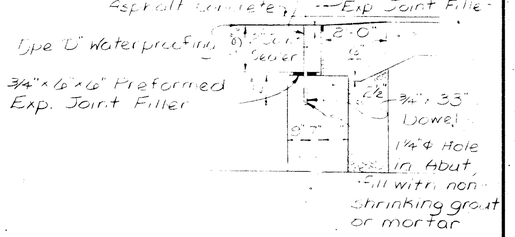


BEARING AT PIER



PLAN

NOTE:
Preformed Bearing Pads per 711.21, ⅛" thick and of the same plan dimensions as the Elastomeric Bearing Pads are provided as shims to accomodate any non-parallelism between bottom of beam and bridge seat.



BEARING AT ABUTMENT

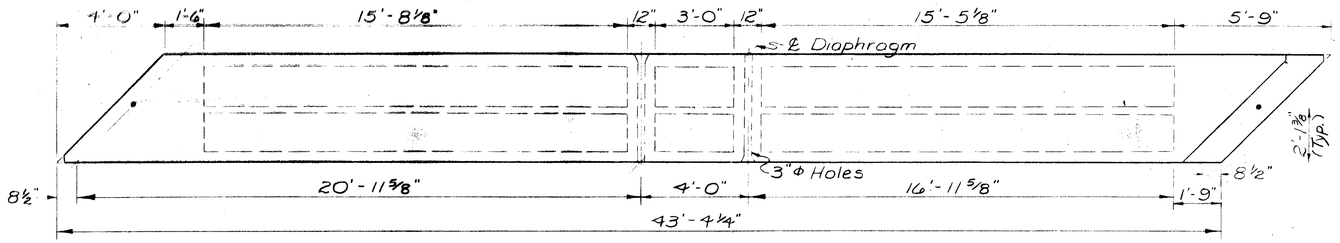
KOHLI AND KALIHER ASSOCIATES, LIMITED 5/6
CONSULTING ENGINEERS AND SURVEYORS
LIMA, OHIO

UPPERSTRUCTURE DETAILS
BR No. Woo. 281-0937
Over Middle Branch Portage River
Henry Twp & Liberty Twp
Wood County, Oh.

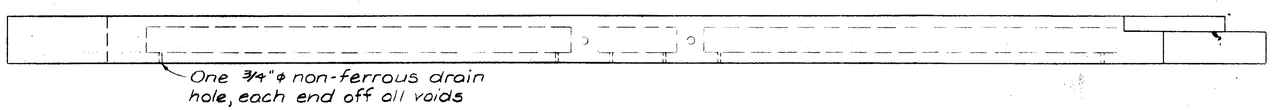
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
DGB	AMF		LAS	MGB	9-5-52	

MICROFILMED
AUG 28 1992

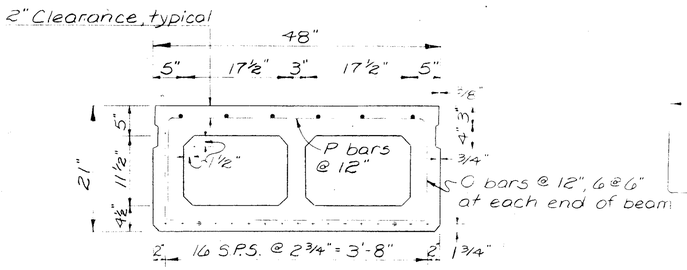
WOOD COUNTY WOO-281- 9.35	OHIO	12/14
BRS-389( )	FHWA REGION 5	
	FEDERAL PROJECT	



PLAN

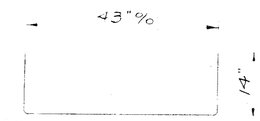


ELEVATION

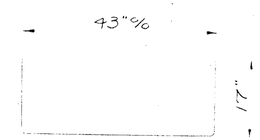


+ Indicates Strand Locations
• Indicates Strands To Be Debonded For 1'-6"

STRAND PATTERN DETAILS - B21-48

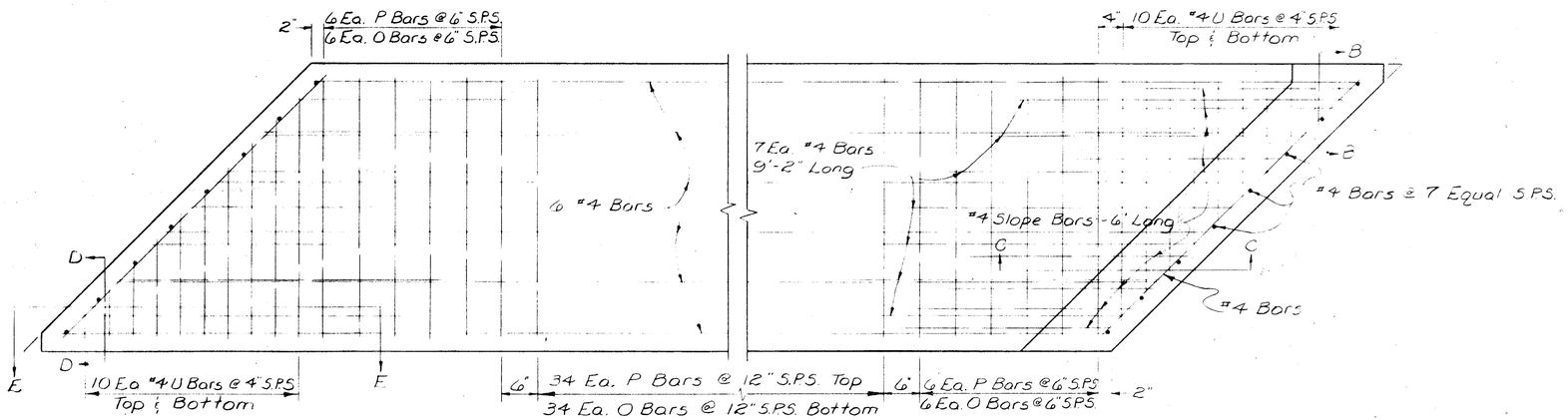


P BAR - #4



O BAR - #4

MILD REINFORCEMENT



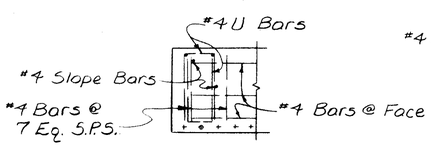
PLAN SHOWING BEAM REINFORCEMENT

NOTES: Fascia Beams: To avoid interference with the anchors for the Bridge Railing Posts, the longitudinal reinforcing bars near the fascia shall be shifted as necessary. Fabricator's shop drawings shall show complete details of beam reinforcement.

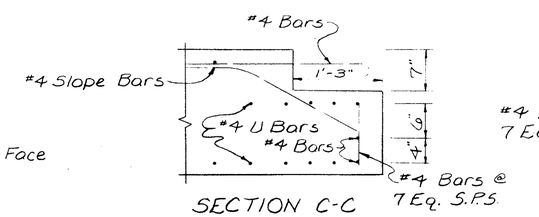
For additional details see sheet 5/6 and standard drawing PSBD-1-81, sheets 1, 2, 3 & 4 of 4.

List of details to be used from standard drawing PSBD-1-81:

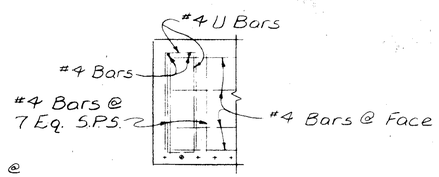
1. Beam lifting inserts
2. Anchor dowels
3. Details and reinforcement of beam ends
4. End details of transverse tie rod anchorage
5. Beam dimensional tolerance
6. Plan - Fascia Beam with notch



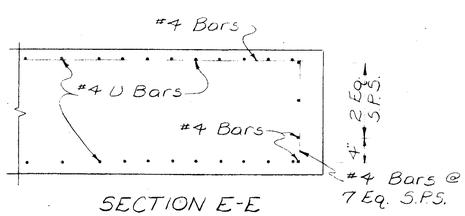
SECTION B-B



SECTION C-C



SECTION D-D



SECTION E-E

DETAILS AND REINFORCEMENT OF BEAM ENDS

KOHLI AND KALIHER ASSOCIATES, LIMITED CONSULTING ENGINEERS AND SURVEYORS LIMA, OHIO	6/2
PRESTRESSED BEAM DETAILS B21-48 BR. No WOO. 281-0937 Over Middle Branch Portage River Henry Twp. & Liberty Twp. Wood County, Oh.	

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
DGB	A.M.P.		LAS	MGE	9-15-52	

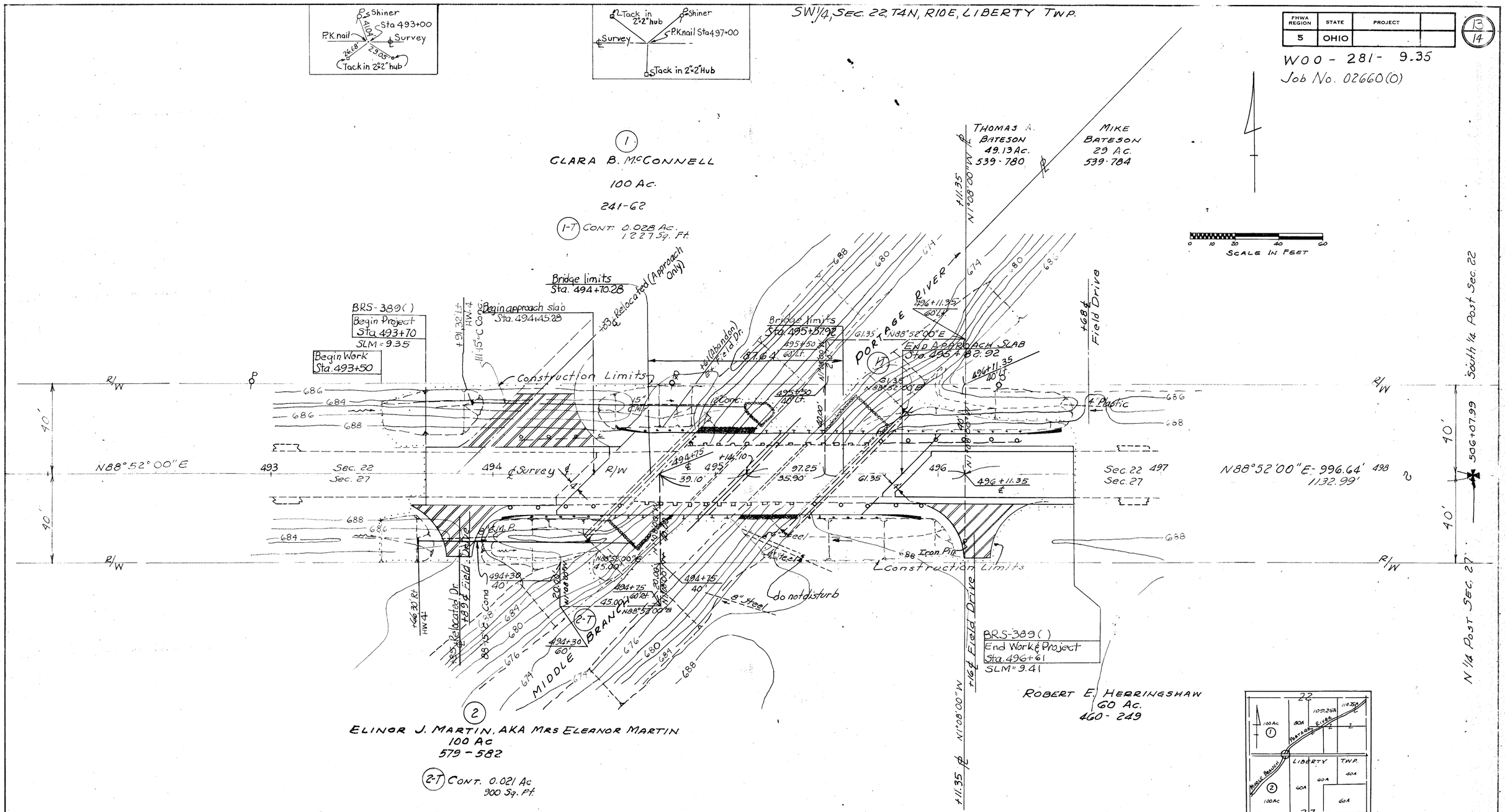
SW 1/4, SEC. 22, T4N, R10E, LIBERTY TWP.

FHWA REGION	STATE	PROJECT	
5	OHIO		

13/14

WOO - 281 - 9.35

Job No. 02660(0)



LOCATION MAP
SCALE IN FEET
0 1000 2000

R/W SUMMARY

PARCEL NO	OWNER	DEED RECORD VOLUME	DEED RECORD PAGE	DEED AREA ACRES	TOTAL PRO ACRES	TOTAL TAKE ACRES	PRO IN TAKE ACRES	NET TAKE ACRES	RESIDUE ACRES	REMARKS
1	CLARA B. McCONNELL	241	62	100				0.028 Ac.		To Shape Slope at end of Bridge Abutment
2	ELINOR J. MARTIN AKA MRS ELEANOR MARTIN	579	582	100				0.021 Ac.		To Shape Slope at end of Bridge Abutment

DATE	PAR	REMARKS
10-27-82		Complete

NW 1/4, SEC. 27, T4N, R10E LIBERTY TWP.

WOO-281 - 9.35

TEMPORARY PAVEMENT MARKINGS
NOTE B

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 SENSITVE 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 APSHALT 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/FT²)/FC

THE TAPE SHALL BE 3-M COMPANY'S "STAMARK, DETOUR GRADE (SERIES 57L0, 57I1, 6270, 62I1)" 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)

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WOOD COUNTY
WOO-281-9.35
BRS-3890(7)

1/2

GEOLOGY OF THE SITE

THE STRUCTURE SITE IS LOCATED IN THE RELATIVELY FLAT GLACIATED LAKE PLAIN REGION, IN AN AREA WHERE MODERATELY DEEP GLACIAL AND ALLUVIAL DEPOSITS OVERLIE LIMESTONE BEDROCK, OF THE MONROE FORMATION.

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 BETWEEN NOVEMBER 25 AND DECEMBER 1, 1981.

INVESTIGATIONAL FINDINGS AND OBSERVATIONS

THE BORINGS DISCLOSED THAT INTERVALS OF MEDIUM-DENSE TO EXTREMELY DENSE UNSTRATIFIED SILTS AND CLAYS MODIFIED WITH SAND AND GRAVEL THAT GRADUALLY INCREASE (ERRATIC AT TIMES) IN DENSITY WITH INCREASE IN DEPTH OVERLIE VERY GENTLY SLOPING BEDROCK SURFACE. MATERIAL BEARING A TRACE OF ORGANIC WAS ENCOUNTERED IN BORING B-2 AT 5.0-FOOT DEPTH, ELEVATION 683.9 FEET. BORING B-1 (IN THE VICINITY OF THE REAR ABUTMENT) ENCOUNTERED BEDROCK SURFACE AT 27.0-FOOT DEPTH, ELEVATION 662.1 FEET AND WAS TERMINATED AT 35.0-FOOT DEPTH, ELEVATION 654.1 FEET, AFTER PENETRATING 8.0 FEET BELOW BEDROCK SURFACE. BORING B-2 (IN THE VICINITY OF THE FORWARD ABUTMENT) ENCOUNTERED BEDROCK SURFACE AT 28.0-FOOT DEPTH, ELEVATION 660.9 FEET AND WAS TERMINATED AT 35.0-FOOT DEPTH, ELEVATION 653.9 FEET, AFTER PENETRATING 7.0 FEET BELOW BEDROCK SURFACE.

NO FREE WATER OBSERVATIONS WERE MADE DURING OR AT THE CONCLUSION OF DRILLING OPERATIONS, HOWEVER A WET ZONE WAS NOTED IN BORING B-1 AT 25.0-FOOT DEPTH, ELEVATION 664.1 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	Cobbles	Gravel	Coarse Sand	Fine Sand	Silt	Clay
	12" – 3"	3" – 2.0mm (No. 10 sieve)	2.0mm – 0.42mm (No. 40 sieve)	0.42mm – 0.074mm (No. 200 sieve)	0.074mm – 0.005mm	

LOG OF BORING

Date Started 12/1/81 — Sampler Type SS — Dia. 1 3/8" — Wet Zone Elev. 664.1'
Date Completed 12/1/81 — Casing: Length — Dia. — Water Elev.
Boring No. B-1 — Station & Offset 494+76 - 19' LT. (REAR ABUTMENT) — Surface Elev. 689.1'

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.
689.1	0														
	2														
	4														
684.1															
	6	3/5/7			BROWN-GRAY SANDY CLAY	10	2	4	31	16	47	39	12	17	A-6a
681.6	8	6/8/11			BROWN SANDY CLAY	11	7	6	13	25	49	34	17	16	A-6b
679.1	10	9/14/16			BROWN SANDY CLAY	12	8	6	13	29	44	35	18	14	A-6b
676.6	12	9/16/23			GRAY-BROWN SANDY CLAY	13	6	6	11	28	49	36	19	12	A-6b
674.1	14	13/19/23			GRAY-BROWN SILTY CLAY	14	2	5	11	24	58	35	18	14	A-6b
671.6	16	7/14/21			GRAY-BROWN SILTY CLAY	15	2	4	11	23	60	34	16	15	A-6b
669.1	18	6/8/11			GRAY-BROWN CLAY	16	0	1	2	4	93	48	25	29	A-7-6
666.6	20	4/8/15			GRAY-BROWN SANDY CLAY	17	3	6	16	25	50	26	11	24	A-6a
664.1	22	10/18/15			TOP OF ROCK — GRAY-BROWN GRAVELLY SANDY SILT	18	21	11	19	23	26	19	5	10	A-4a
662.1	24														
	26														
	28		2.4	0.1	DOLOMITIC-LIMESTONE, GRAY, HARD, DENSE, BROKEN AND JOINTED. CORE LOSS 2%.										
	30														
	32		4.9	0.1											
	34														
654.1															

BOTTOM OF BORING

NOTE - DRILLER REPORTED ENCOUNTERING CRUDE PETROLEUM ODOR BETWEEN ELEVS. 676.6 AND 670.1'

LOG OF BORING

Date Started 11/25/81 — Sampler Type SS — Dia. 1 3/8" — Water Elev.
Date Completed 12/1/81 — Casing: Length — Dia.
Boring No. B-2 — Station & Offset 495+55 - 22' RT. (FORWARD ABUTMENT) — Surface Elev. 688.9'

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.
688.9	0														
	2														
	4														
683.9															
	6	3/5/7			BROWN-GRAY SANDY CLAY-TRACE OF ORGANIC	1	0	2	37	17	44	33	15	23	A-6a
681.4	8	5/7/12			BROWN-GRAY SANDY CLAY	2	5	5	14	27	49	33	14	16	A-6a
678.9	10	9/14/22			GRAY-BROWN SANDY CLAY	3	4	7	13	27	49	29	13	13	A-6a
676.4	12	12/20/27			GRAY-BROWN SANDY CLAY	4	7	6	12	25	50	30	14	12	A-6a
673.9	14	10/18/24			GRAY-BROWN SANDY CLAY	5	5	5	11	23	56	31	16	14	A-6b
671.4	16	8/15/21			GRAY-BROWN SILTY CLAY	6	4	5	10	24	57	33	17	15	A-6b
668.9	18	4/10/12			GRAY-BROWN SILT AND CLAY	7	2	5	11	24	58	31	14	25	A-6a
666.4	20	5/10/24			BROWN-GRAY GRAVELLY SANDY SILT	8	25	9	19	25	22	18	4	15	A-4a
663.9	22	26/33/50			BROWN-GRAY SANDY SILT — TOP OF ROCK	9	14	9	14	27	36	25	10	10	A4a
660.9	24														
	26														
	28		1.2	0.3	DOLOMITIC-LIMESTONE, GRAY, HARD, DENSE, BROKEN AND JOINTED. CORE LOSS 9%.										
	30														
	32		4.7	0.3											
	34														
653.9															

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. WOO-281-0937
OVER MIDDLE BRANCH PORTAGE RIVER
SEC. WOO-281-9.35

CHECKED BY	REVIEWED BY	DATE
L. N. L.	R. D. R.	1/19/82

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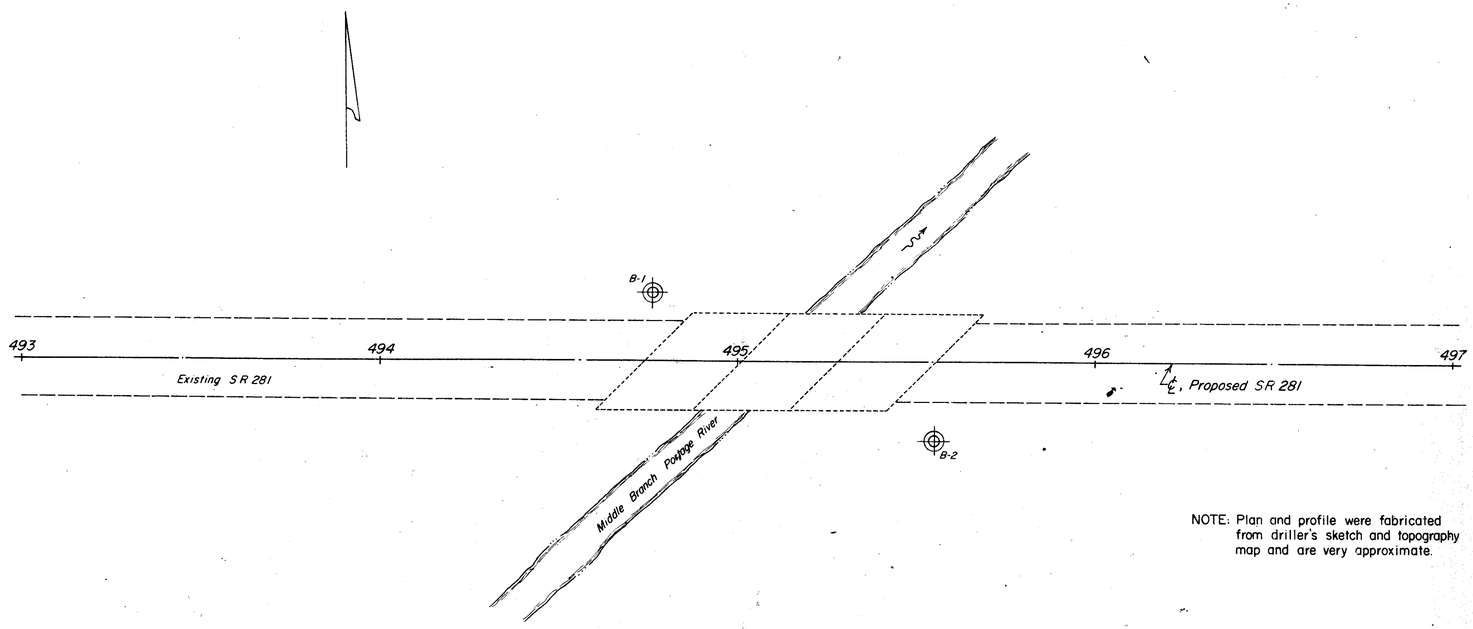
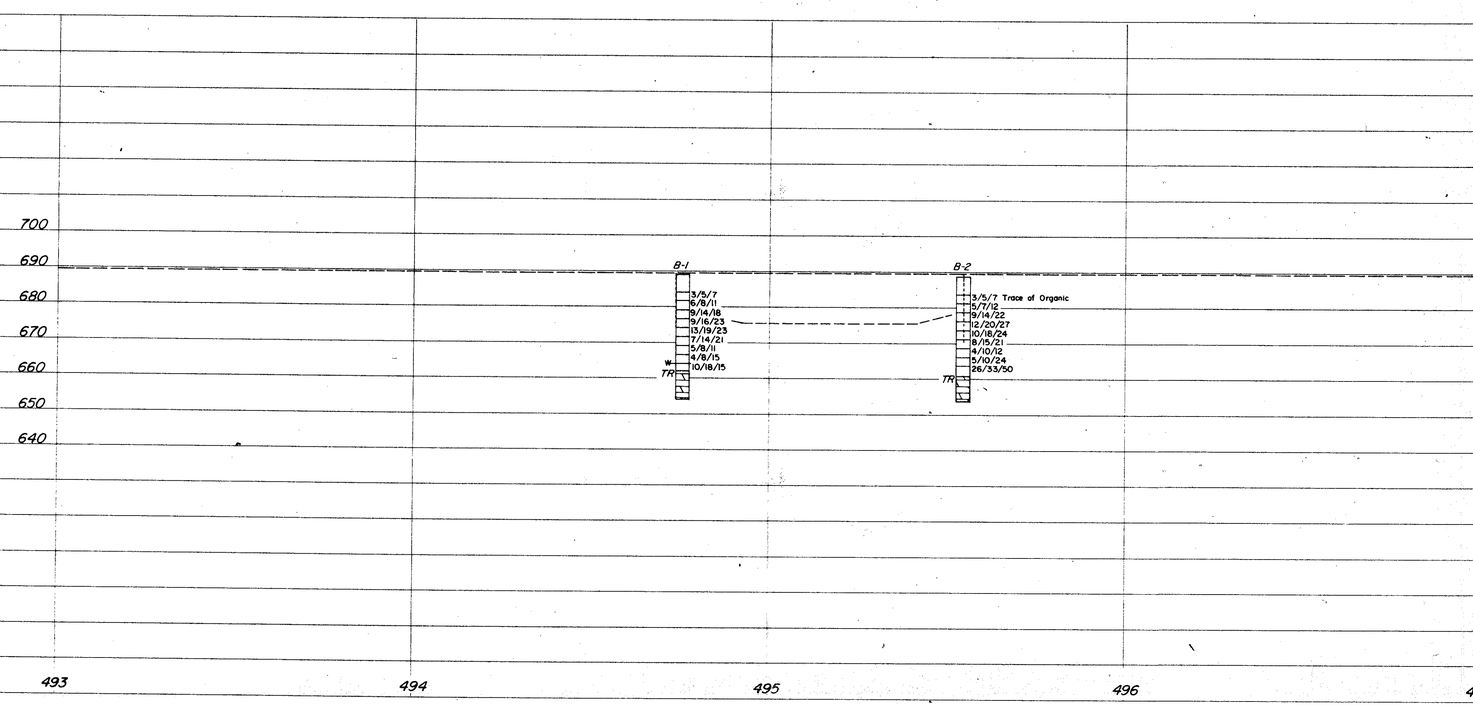


NOTE: Plan and profile were fabricated from driller's sketch and topography map and are very approximate.



SCALE: 1" = 20'

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

STRUCTURE FOUNDATION INVESTIGATION

BRIDGE NO. W00-281-0937
OVER MIDDLE BRANCH PORTAGE RIVER
SEC. W00-281-9.35

PLAN AND PROFILE

DRAWN BY	CHECKED BY	REVIEWED BY	DATE
L. N. L.	L. N. L.	R. D. R.	1/19/82

W00-281-0937
H2-C1