FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO	STATE	

18/24

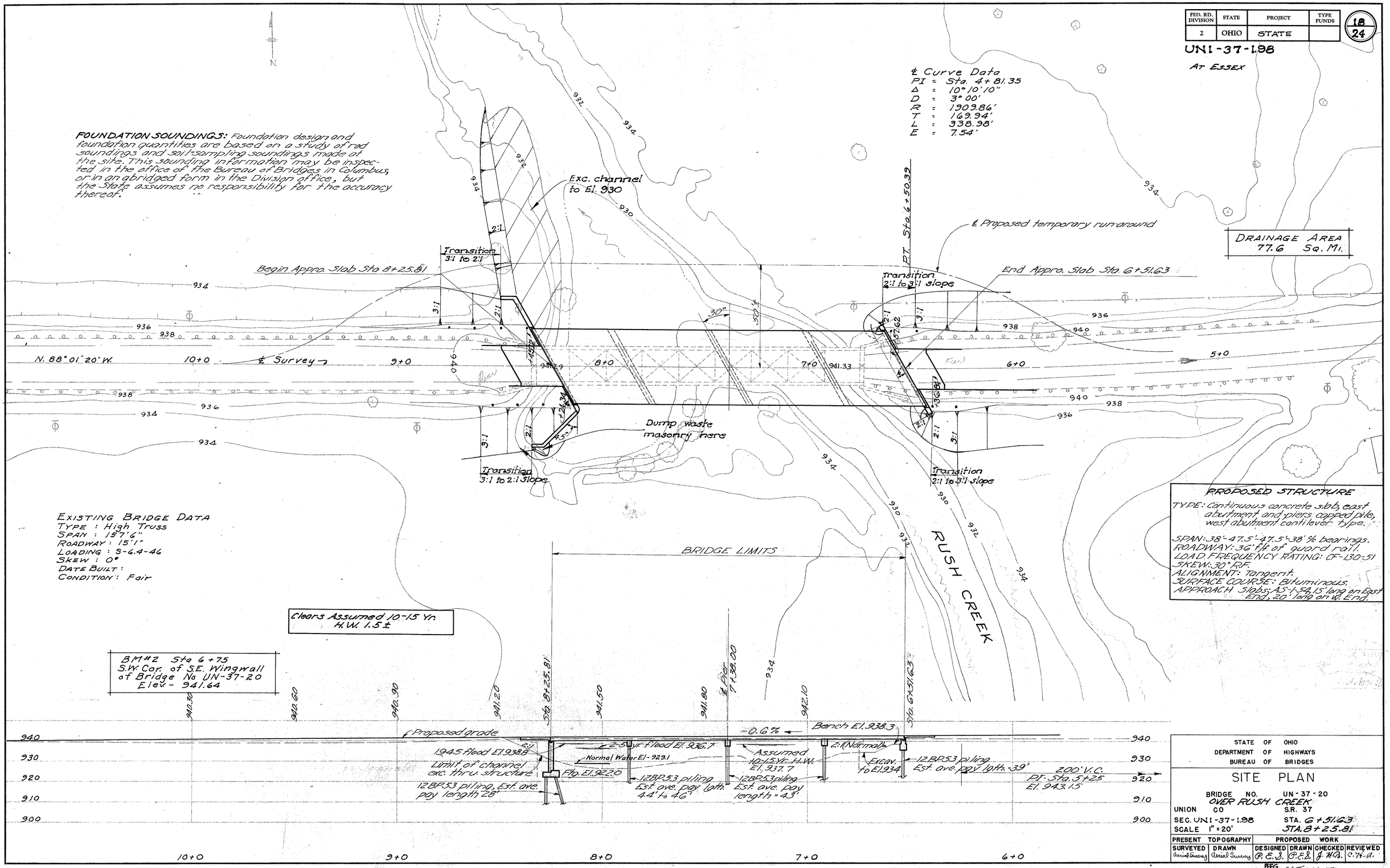
UNI-37-1.98

AT ESSEX

FOUNDATION SOUNDINGS: Foundation design and foundation quantities are based on a study of rod soundings and soil-sampling soundings made at the site. This sounding information may be inspected in the office of the Bureau of Bridges in Columbus, or in an abridged form in the Division office, but the State assumes no responsibility for the accuracy thereof.

℄ Curve Data
PI = Sta. 4+81.35
Δ = 10°10'10"
D = 3°00'
R = 1909.86'
T = 169.94'
L = 338.98'
E = 7.54'

DRAINAGE AREA
77.6 Sq. Mi.



EXISTING BRIDGE DATA
TYPE : High Truss
SPAN : 157'6"
ROADWAY : 15'1"
LOADING : S-6.4-46
SKEW : 0°
DATE BUILT :
CONDITION : Fair

PROPOSED STRUCTURE
TYPE: Continuous concrete slab, east abutment and piers capped pile, west abutment cantilever type.
SPAN: 38'-47.5'-47.5'-38' ℄ bearings.
ROADWAY: 36' ℄ of guard rail
LOAD FREQUENCY RATING: CF-130-51
SKEW: 30° R.F.
ALIGNMENT: Tangent.
SURFACE COURSE: Bituminous.
APPROACH SLABS: 45'-1-54, 15' long on East End, 20' long on W. End.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

SITE PLAN

BRIDGE NO. UN-37-20
OVER RUSH CREEK
UNION CO S.R. 37
SEC. UNI-37-1.98 STA. 6+51.63
SCALE 1" = 20' STA. 8+25.81

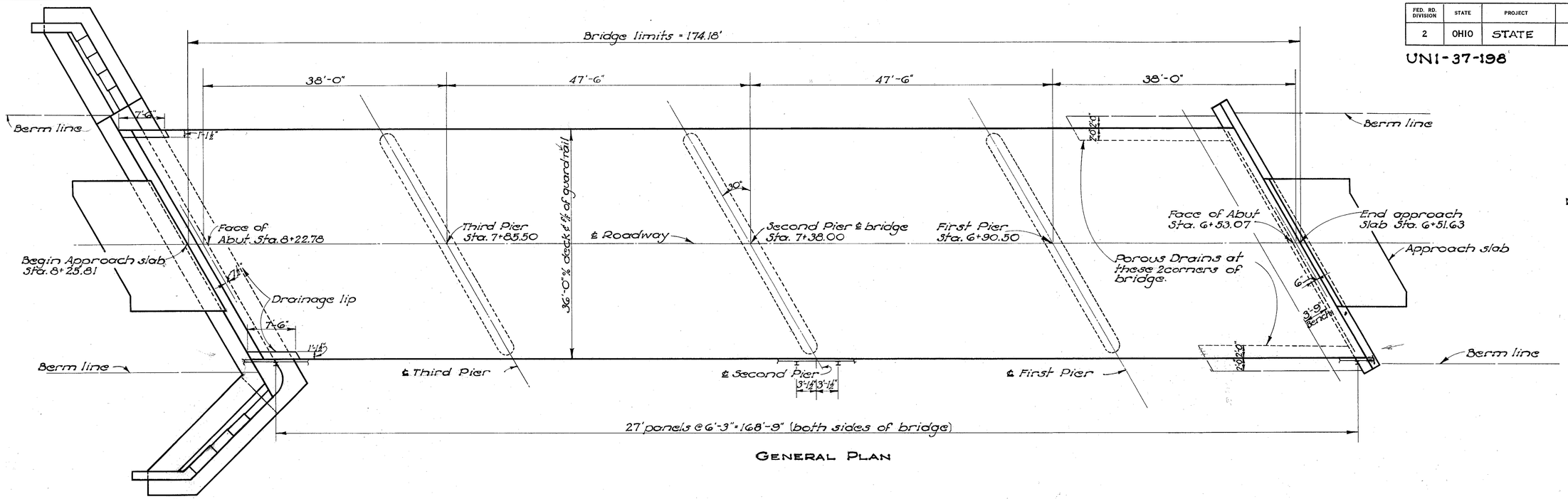
PRESENT TOPOGRAPHY		PROPOSED WORK			
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
Aerial Survey	Aerial Survey	P.E.J.	P.E.J.	J.H.B.	C.H.A.

BFG 9-4 1-24-58 8.1514

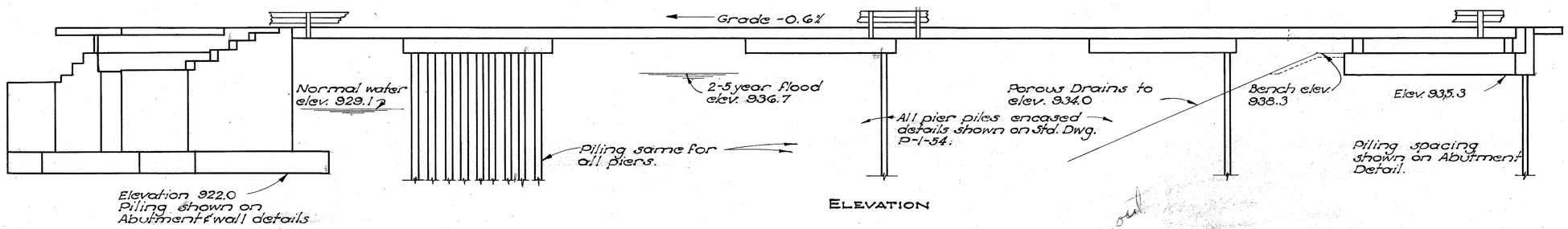
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	STATE	

UNI-37-198

19
24



GENERAL PLAN



ELEVATION

ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION	SUPER	E. ABUT.	W. ABUT.	WING WALLS	PIER	GENERAL
E-2	Lump	Sum	Cofferdams, cribs and sheeting			Lump			
E-2	340	Cu.Yd.	Unclassified excavation		30	310			
E-3	320	Cu.Yd.	Channel excavation						320
S-1	380	Cu.Yd.	Class "C" concrete, superstructure & pier caps	358				22	
S-1	75	Cu.Yd.	Class "E" concrete, footings			45	30		
S-1	136	Cu.Yd.	Class "E" concrete, abutment & wingwalls		25	75	36		
S-3	752	Sq.Yd.	Type "C" waterproofing	752					
S-4	104,505	lbs.	Reinforcing steel	89,483	2,784	4,569	2,317	5,107	245
S-9	223	lbs.	¼" leaded Bronze sliding plates	223					
S-9	2600	lbs.	Structural steel expansion joint	2600					
S-9	50	Sq.Ft.	½" premolded expansion joint filler	50					
S-14	348.36	Lin.Ft.	Railing (Type T-15.13 with galvanized steel posts)	348.36					
S-15	Lump	Sum	Temporary run-around bridge & approaches						Lump
S-16	Lump	Sum	First test pile						Lump
S-18	2460	Lin.Ft.	Steel piling, 12BP53		270	620	390	1180	
S-24	Lump	Sum	Removal of existing structure						Lump
S-29	73	Cu.Yd.	Porous backfill		14	59			
S-29	5	Cu.Yd.	Porous drains on embankment slopes		5				
T-35	43	Cu.Yd.	Asphaltic concrete surface course Type "A" or "C" (70-80)	43					

GENERAL NOTES

REFERENCE shall be made to Standard Drawings P-1-54, CS-1-54 and A-1-54, all revised 12-1-54.

TEMPORARY RUN-AROUND BRIDGE & APPROACHES Bridge frequency rating CF-30 if new bridge is built. Existing bridge may be moved and used as temporary run-around if posting is retained. Roadway 26' % of shoulders. Grade same as existing. Surface course on approaches Class "B".

REMOVAL OF EXISTING STRUCTURE: When no longer needed to maintain traffic the existing structure shall be removed. The joists and floor beams shall be carefully salvaged and piled, near the site for use by State Forces. The east abutment shall be removed to 6" below the finished ground line. The west abutment shall be removed to 3' below proposed grade. Both abutments shall be removed to whatever extent is necessary to avoid interference with new construction, including pile driving. Suitable waste masonry shall be dumped where shown on site plan and in East Abutment upstream spill-around corner. The remainder of the removed materials shall become the property of the Contractor.

PILES shall be driven with a hammer of not less than 7,000'# energy per blow, to firm contact with rock which shall be considered as attained when the capacity according to the formula in Sec. S-18.05 is at least 55+ tons per pile for the pier piles and 40 tons for the abutment and wingwall piles if a 7,000'# steam hammer is used, or 40+ tons for the pier piles and 31 tons for the abutment and wingwall piles if a steam hammer or drop hammer of 15,000'# or greater energy is used and if the length of penetration is approximately equal to the depth to rock according to the bridge foundation investigation report. If the energy rating of the hammer is between these values, the required formula capacity shall be determined by interpolation. (The design load is 38 tons per pile for the pier piles and 31 tons for the abutment and wingwall piles.)

WELDING in End Finish shall be Class "A".

GRAVEL, if used as the coarse aggregate, shall be according to Sec. M-3.93 instead of M-3.91. For Class "C" concrete superstructure and pier caps. Gravel meeting the requirements of Sec. M-3.93 also may be used for other concrete in this structure.

POROUS DRAINS, extending from face of abutment to Elev. 934 shall be provided at the two east corners of the bridge. The drains shall be 4 ft. wide and one foot thick.

ASPHALTIC CONCRETE SURFACE COURSE, Item T-35, laid in two courses, shall be provided.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

GENERAL PLAN, ELEVATION, NOTES AND ESTIMATED QUANTITIES

BRIDGE NO. UN-37-20
OVER RUSH CREEK

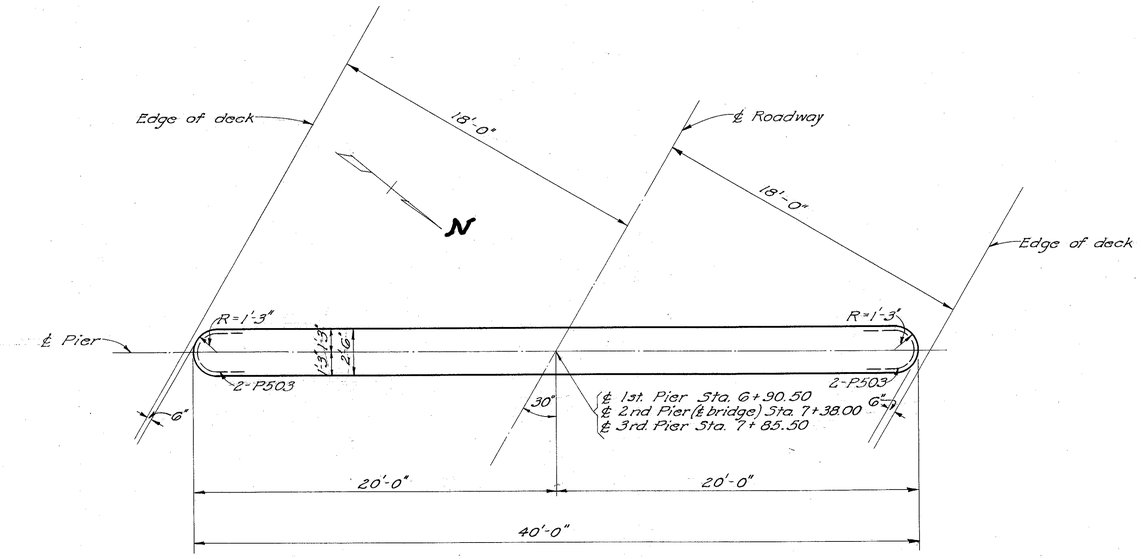
UNION COUNTY — STA. 6+51.63
SEC. UNI-37-1.98 — 8+25.81

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JD	JD	RCB	GHB	BPG	1-24-55	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	STATE	

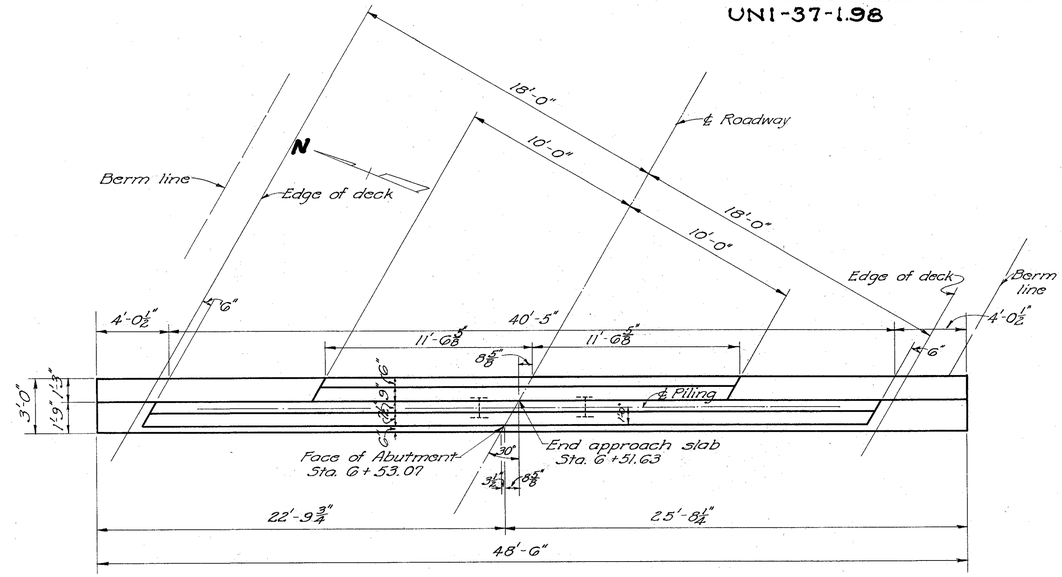
20/24

UNI-37-1.98

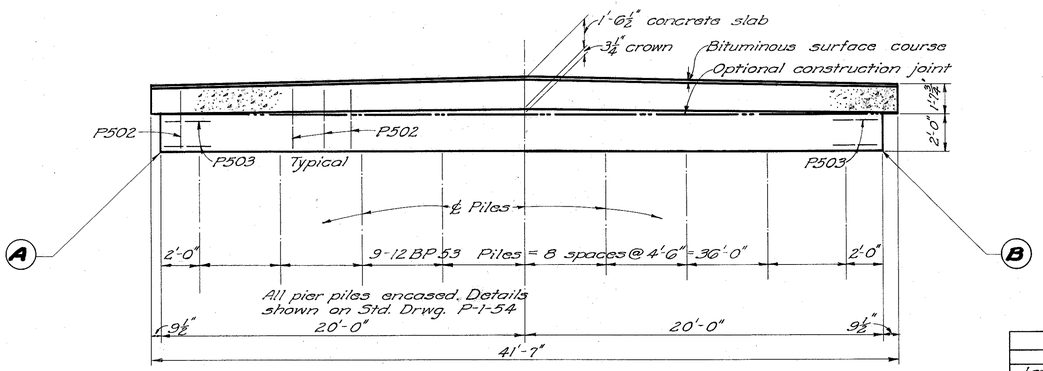


PIER PLAN

NOTE: All piers have same dimensions



EAST ABUTMENT PLAN

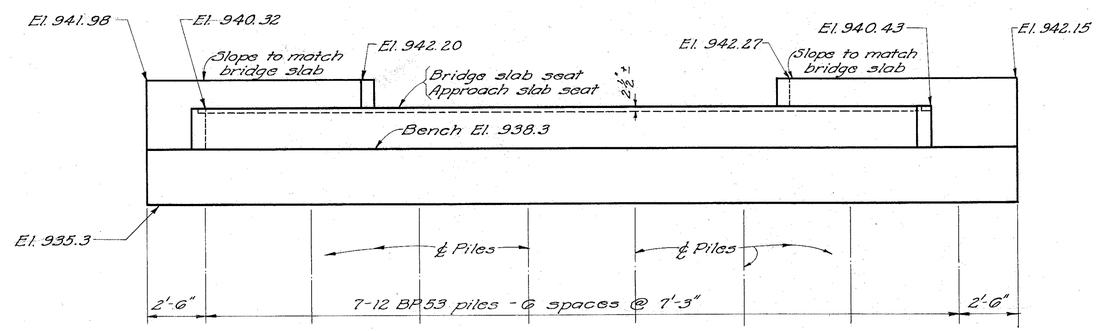


PIER ELEVATION

LOOKING WEST

NOTE: For reinforcing steel and other details not shown see Std. Drwg. P-1-54.

ELEVATIONS	A	B
1st Pier	938.20	938.08
2nd Pier (℄ bridge)	937.91	937.79
3rd Pier	937.63	937.51



Fwd

EAST ABUTMENT ELEVATION

NOTE: For reinforcing steel and all details not shown see Std. Drwg. A-1-54.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

PIER & EAST ABUTMENT DETAILS

BRIDGE NO. UN-37-20 OVER RUSH CREEK

UNION COUNTY
SEC. UNI-37-1.98

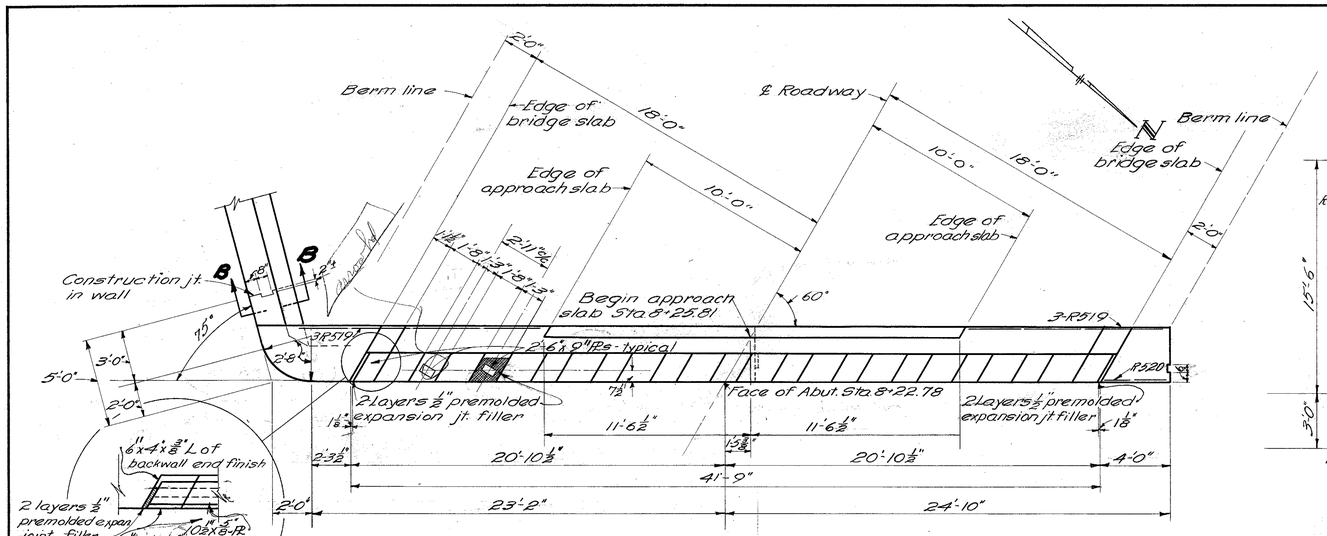
STA. 6+51.63
6+25.81

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JD	JD	JDJ	[illegible]	BFG [illegible]	1-24-55	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	STATE	

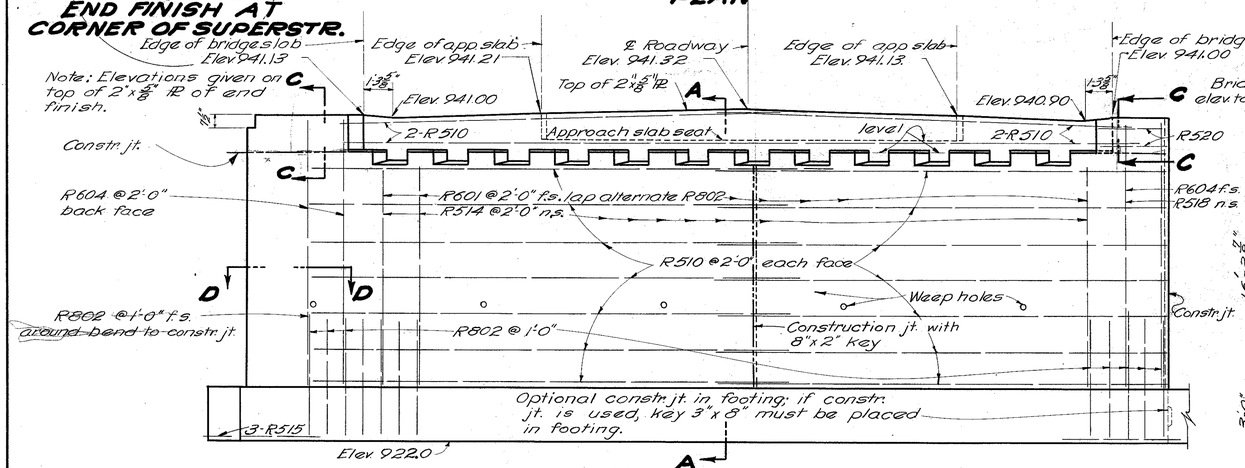
21/24

UN1-37-1.98

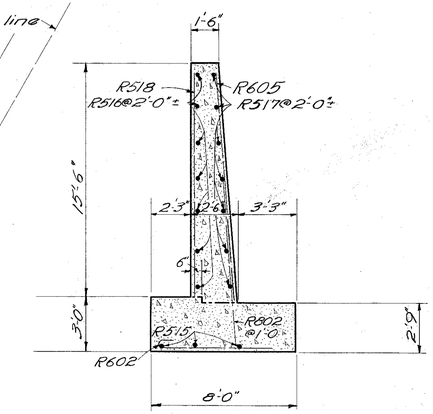


PLAN

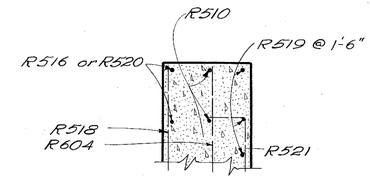
END FINISH AT CORNER OF SUPERSTR.



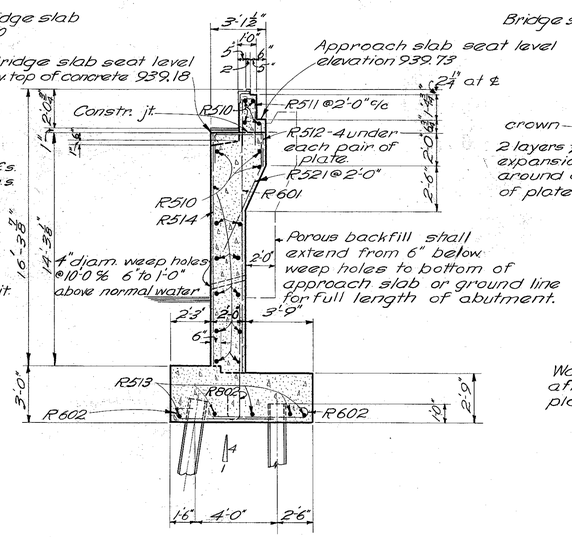
ELEVATION



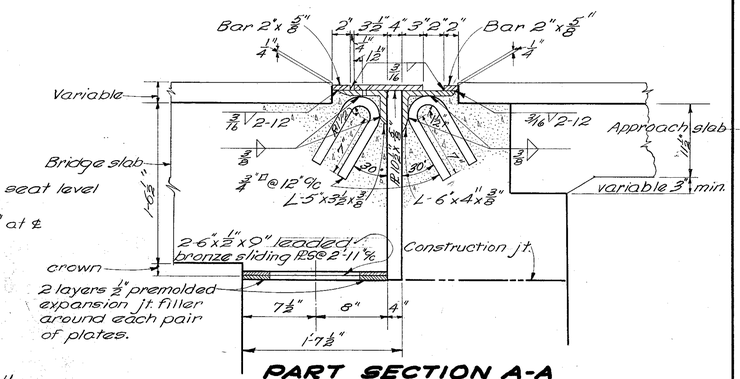
SECTION B-B



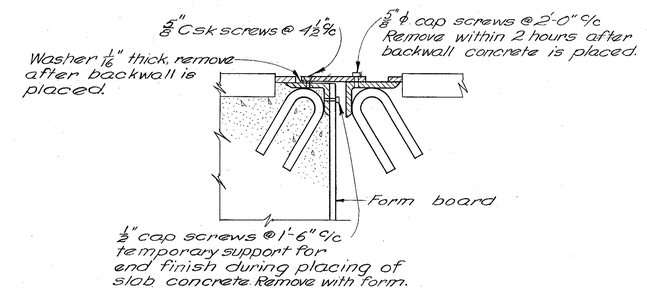
SECTION C-C



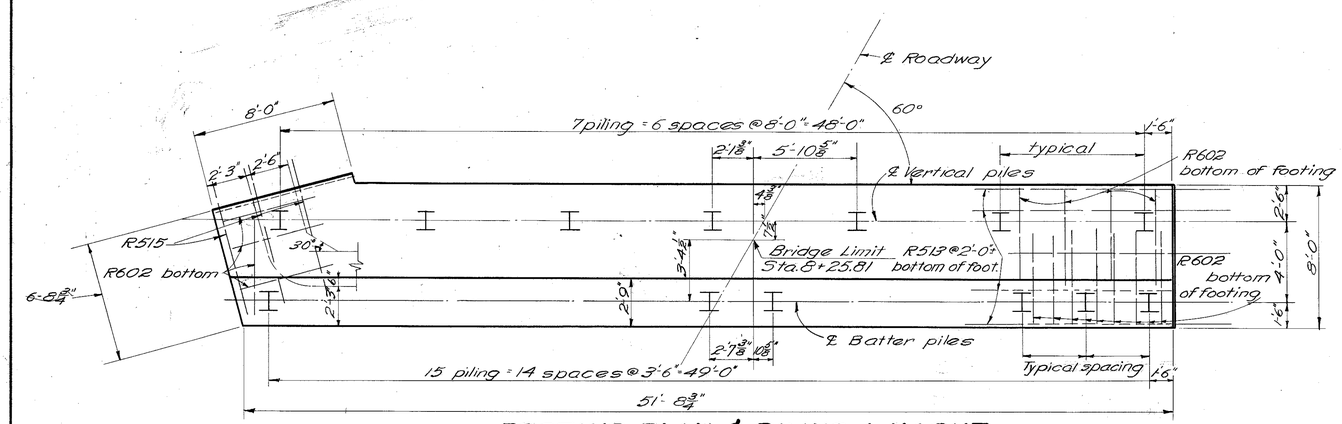
SECTION A-A @ ℄



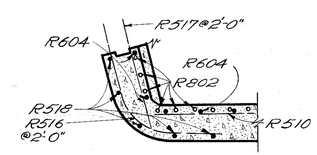
PART SECTION A-A
END FINISH DETAILS



END FINISH DETAILS



FOOTING PLAN & PILING LAYOUT



SECTION D-D

NOTE. f.s. indicates far side; n.s. indicates near side. Clearance of reinforcing steel from face of concrete shall be 3" in footing & 2" elsewhere.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

WEST ABUTMENT DETAILS

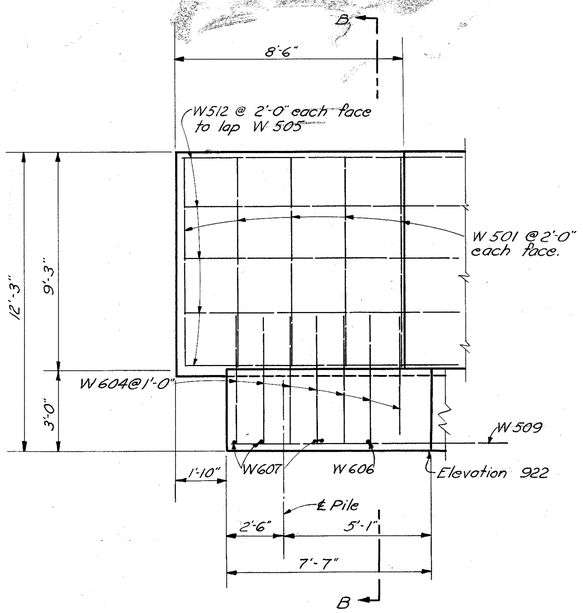
BRIDGE No. UN-37-20
OVER RUSH CREEK
UNION COUNTY — Sta. 6+51.63
SEC. UN1-37-1.98 — Sta. 8+25.81

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JD	JD	R.H.D.	EBB	BFG	1-24-55	

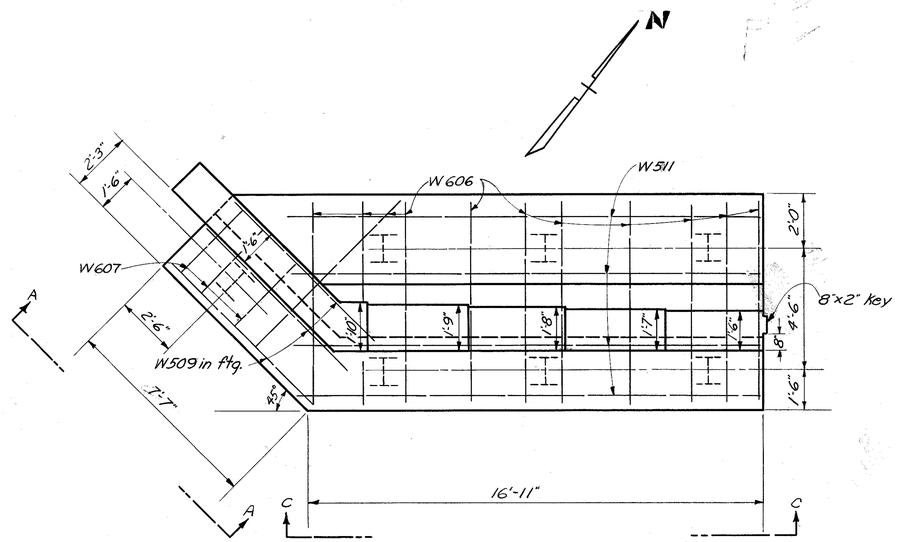
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	STATE	

22/24

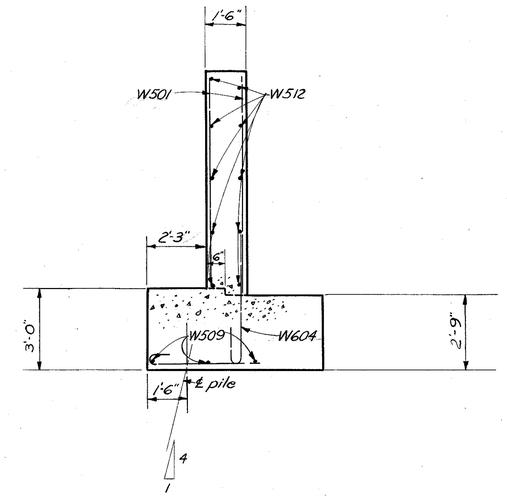
UN1-37-1.98



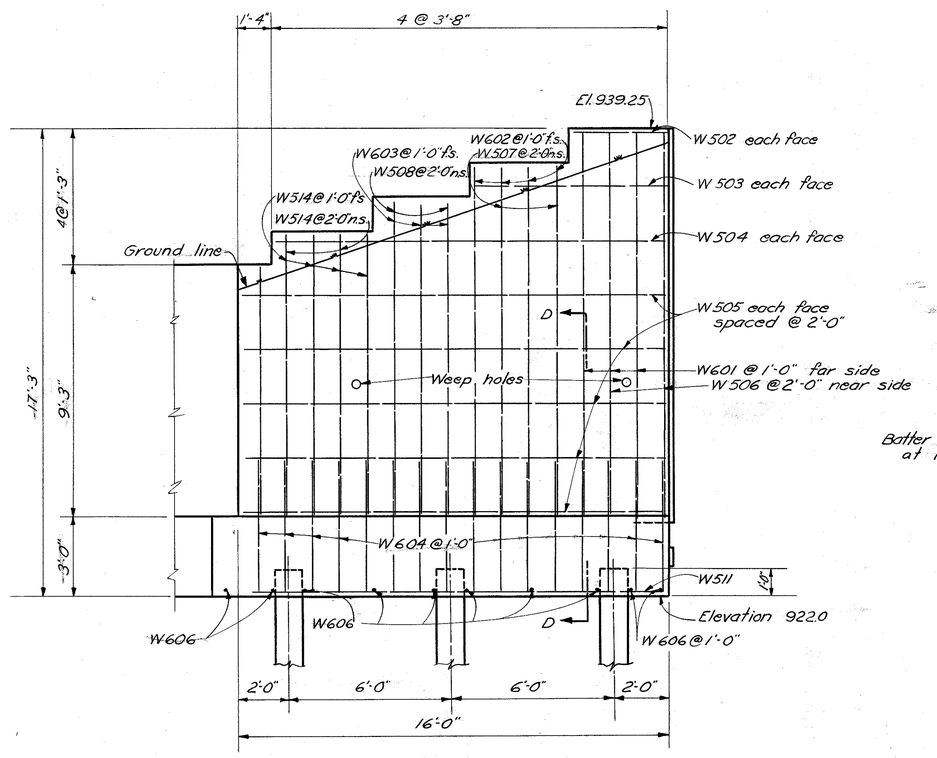
VIEW A-A



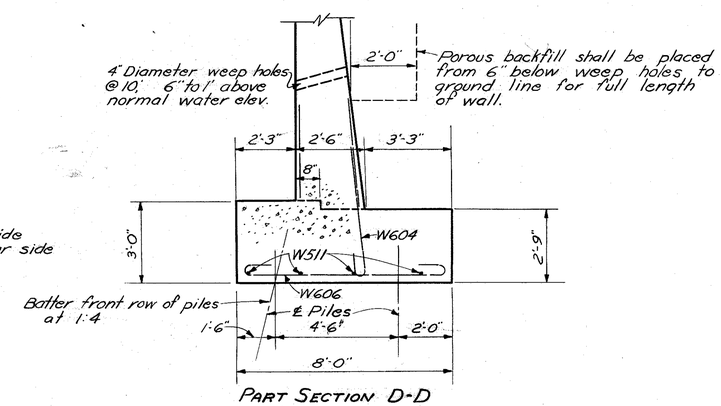
PLAN



SECTION B-B



VIEW C-C



PART SECTION D-D

CLEARANCE of reinforcing steel from face of concrete shall be 3" in footings & 2" elsewhere.
In the bar designation
n.s. indicates near side
f.s. indicates far side

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

SOUTHWEST WINGWALL DETAILS
BRIDGE No. UN-37-20
over RUSH CREEK

UNION COUNTY
SEC. UN1-37-1.98 STA. 6+51.63 8+25.81

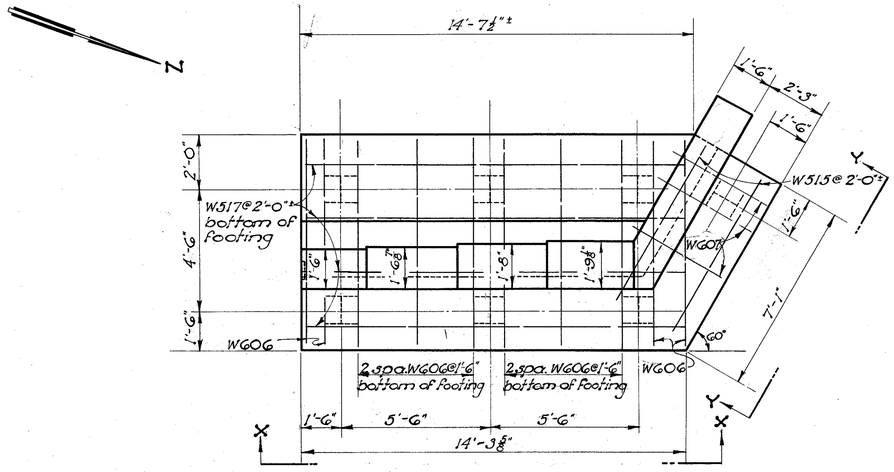
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JD	JD	JGM	[illegible]	BFG A.J.T.	1-24-55	

DRAWN ON IMPERIAL TRACING CLOTH. FORM NO. BR-23-3-1-54

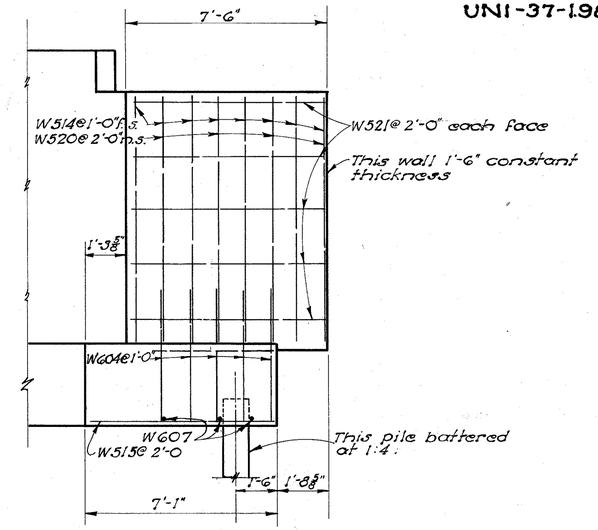
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	STATE	

23
24

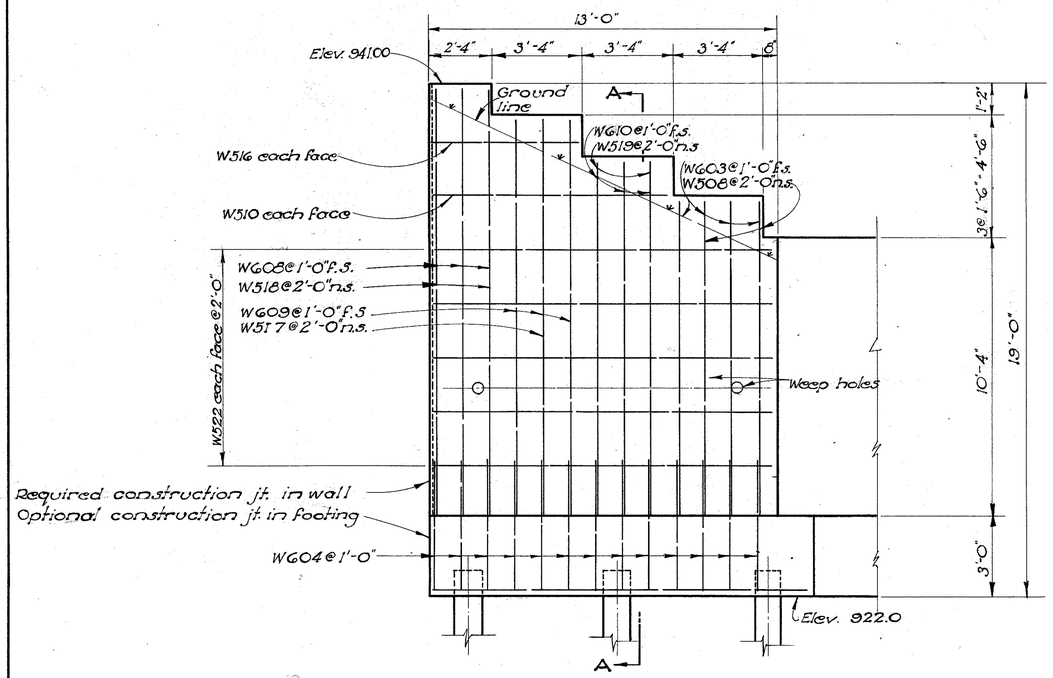
UNI-37-1.98



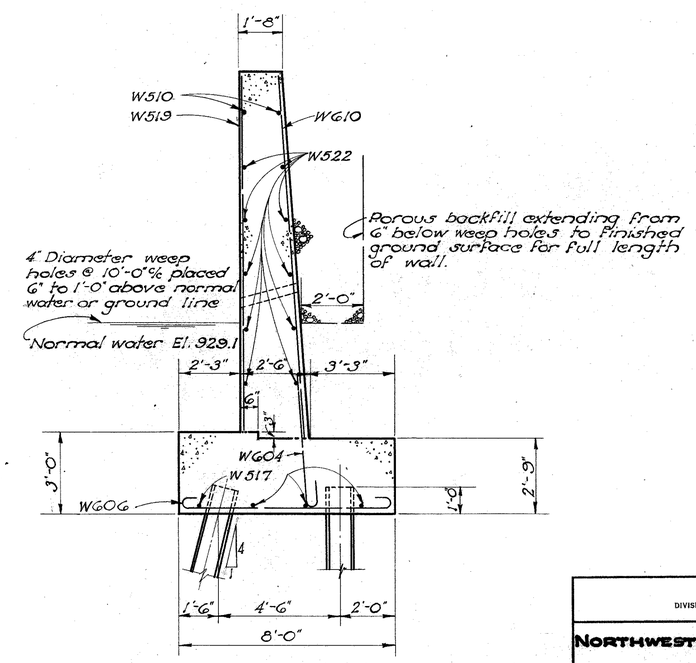
PLAN



VIEW Y-Y



VIEW X-X



SECTION A-A

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

NORTHWEST WINGWALL DETAILS

BRIDGE NO. UN-37-20
OVER RUSH CREEK

UNION COUNTY
SEC. UNI-37-1.98

STA. 6+51.63
8+25.81

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JD	JD	PGS	[illegible]	BPG G.J.T.	1-24-55	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	STATE	

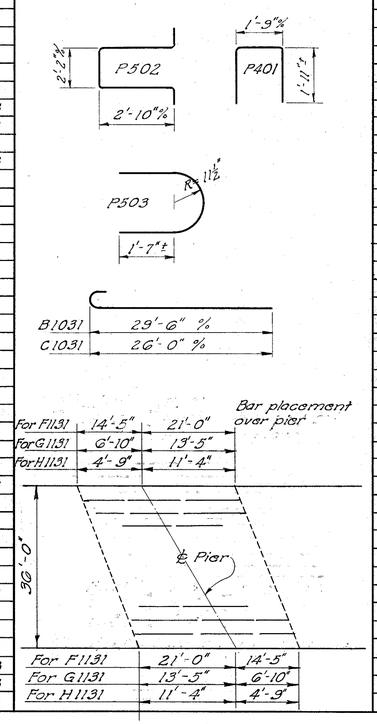
24/24

UNI-37-1.98

REINFORCING STEEL LIST

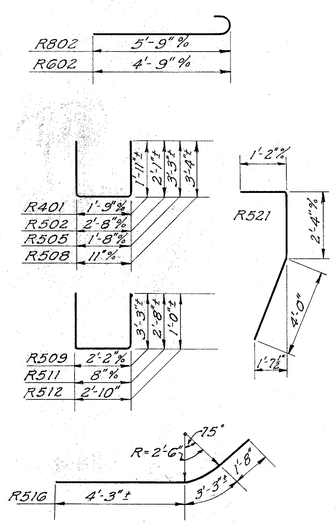
MARK	NO.	LENGTH	WEIGHT	SHP.
Piers				
P1001	12	41'-0"	2117	S
P901	12	38'-0"	1550	S
P501	6	38'-0"	238	S
P502	78	9'-0"	732	B
P503	12	6'-4"	79	B
P401	108	5'-5"	391	B
Superstructure				
A1031	120	46'-0"	23753	S
B1031	30	30'-9"	3970	B
C1031	32	27'-3"	3752	B
D1031	30	27'-6"	3550	S
E1031	32	20'-10"	2868	S
F1131	108	35'-5"	20,322	S
G1131	51	20'-3"	5487	S
H1131	54	16'-1"	4614	S
J601	36	25'-10"	1397	S
K601	36	16'-8"	901	S
M701	148	41'-0"	12403	S
N601	105	41'-0"	6466	S
West Abutment				
R802	53	6'-10"	967	B
R601	21	13'-6"	426	S
R602	66	5'-5"	537	B
R604	6	15'-7"	140	S
R510	36	26'-8"	1001	S
R511	21	5'-8"	124	B
R512	52	4'-9"	258	B
R513	10	26'-6"	276	S

BENDING DIAGRAMS



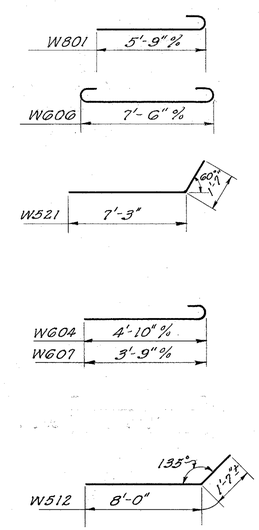
MARK	No.	LENGTH	WEIGHT	SHP.
West Abutment (cont'd.)				
R514	21	13'-6"	296	S
R515	3	8'-3"	26	S
R516	8	9'-2"	76	B
R517	8	6'-0"	50	S
R518	7	15'-4"	112	S
R519	6	11'-0"	69	S
R520	2	5'-9"	12	S
R521	26	7'-4"	199	B
East Abutment				
R1001	8	21'-10"	752	S
R801	8	25'-6"	545	S
R501	8	24'-11"	208	S
R502	68	6'-7"	467	B
R503	4	20'-11"	87	S
R504	12	5'-4"	66	S
R505	16	7'-11"	132	B
R506	4	11'-8"	49	S
R507	8	5'-8"	47	S
R508	22	7'-4"	168	B
R509	12	8'-5"	105	B
R401	28	5'-5"	158	B
Northwest Wingwall				
W603	4	11'-8"	70	S
W604	17	5'-6"	140	B
W606	10	8'-10"	133	B
W607	3	4'-5"	20	B
W608	3	16'-0"	72	S
W609	3	14'-10"	67	S
W610	3	13'-4"	60	S
W508	2	11'-6"	24	S
W510	2	8'-9"	18	S
W514	7	10'-3"	76	S
W515	2	6'-0"	13	S

BENDING DIAGRAMS



MARK	NO.	LENGTH	WEIGHT	SHP.
Northwest Wingwall (cont'd.)				
W516	2	5'-6"	11	S
W517	5	14'-6"	76	S
W518	2	15'-10"	33	S
W519	2	13'-2"	27	S
W520	4	10'-2"	42	S
W521	10	8'-10"	92	B
W522	10	12'-10"	134	S
Southwest Wingwall				
W601	4	14'-2"	85	S
W602	4	12'-11"	78	S
W603	3	11'-8"	53	S
W604	23	5'-6"	190	S
W606	11	8'-10"	146	B
W607	3	4'-5"	20	B
W501	10	9'-0"	94	S
W502	2	3'-6"	7	S
W503	2	7'-0"	15	S
W504	2	14'-6"	30	S
W505	10	15'-10"	165	S
W506	2	14'-0"	29	S
W507	2	12'-9"	27	S
W508	2	11'-6"	24	S
W509	3	7'-6"	24	S
W511	4	17'-0"	71	S
W512	10	8'-4"	87	B
W514	6	10'-3"	64	S
Replacement Steel				
RE1101	2	7'-6"	80	S
RE1001	3	7'-2"	93	S
RE901	1	6'-10"	23	S
RE801	1	6'-6"	17	S
RE701	1	6'-2"	13	S
RE601	1	5'-11"	9	S
RE501	1	5'-7"	6	S
RE401	1	5'-3"	4	S

BENDING DIAGRAMS



STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

REINFORCING STEEL LIST

BRIDGE NO. UN-37-20
OVER RUSH CREEK

UNION COUNTY STA. 6 +51.63
SEC. UNI-37-1.98 8 +25.81

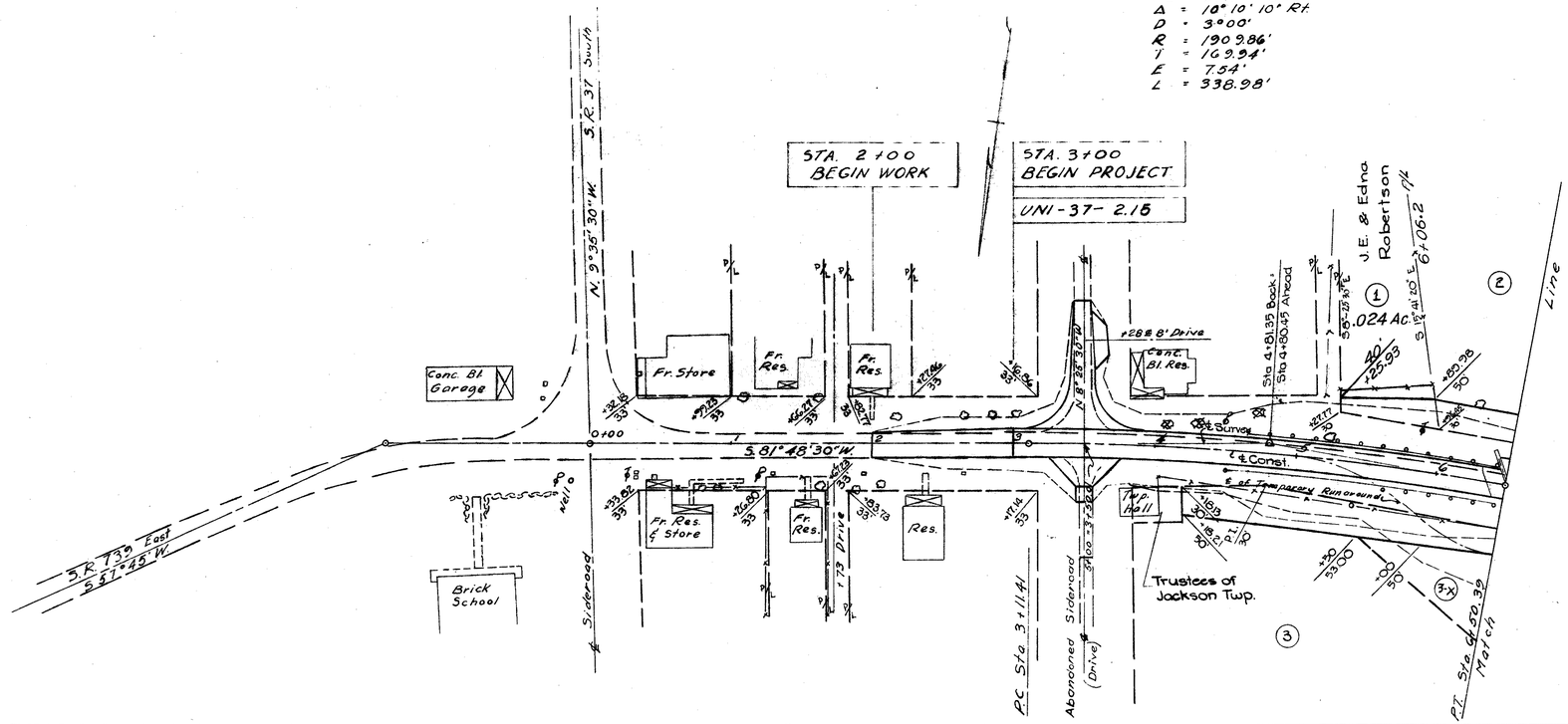
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JD	JD	JDJ	[illegible]	BPG [illegible]	1-24-55	

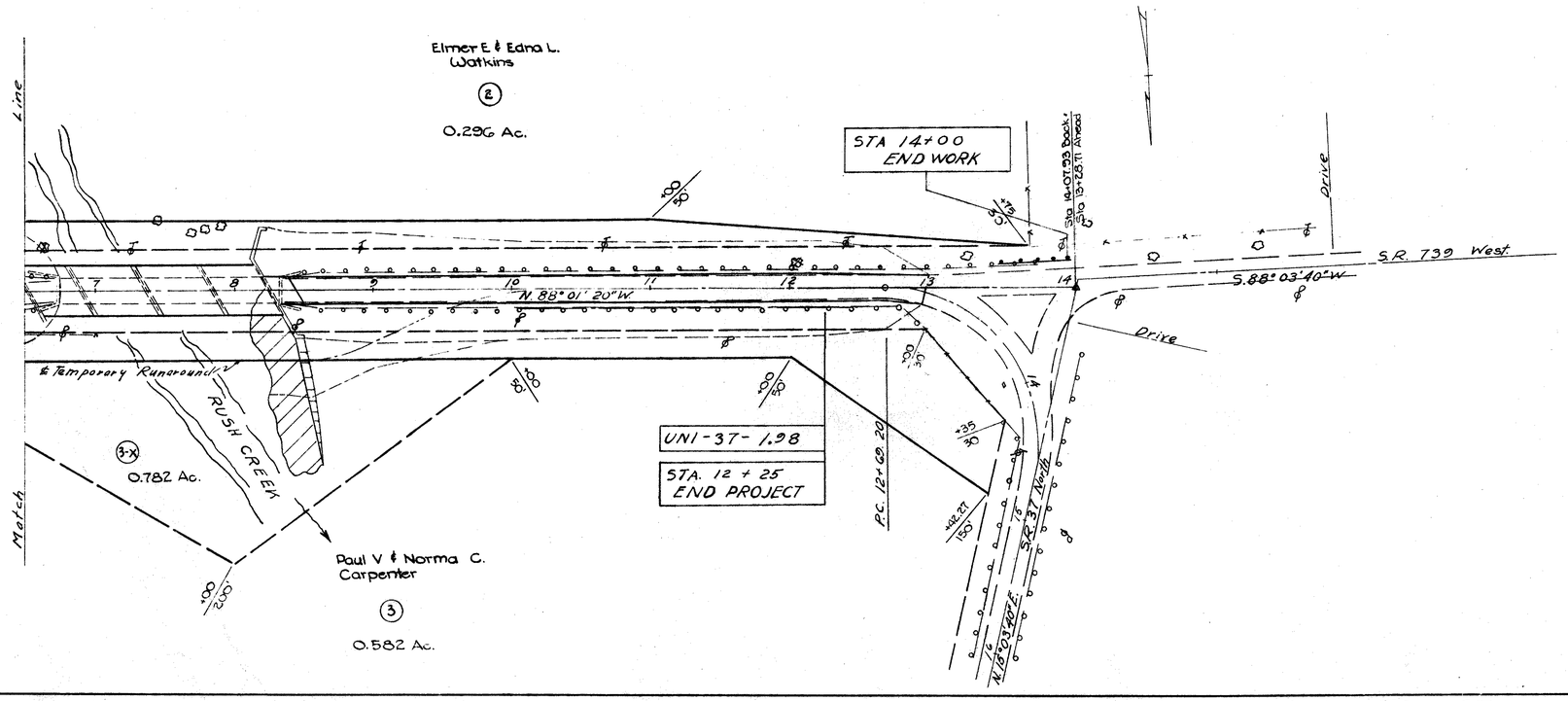
FED. RD DIVISION	STATE	PROJECT	
2	OHIO		

24A
24

UNI-37-1.98
R/W PLANS

℄ Curve Data
PI = Sta. 4+81.35
Δ = 10° 10' 10" Rt.
D = 3°00'
R = 1909.86'
T = 169.94'
E = 7.54'
L = 338.98'





Rev. 1-4-55

STA. 0-4+00 TO STA. 16+00