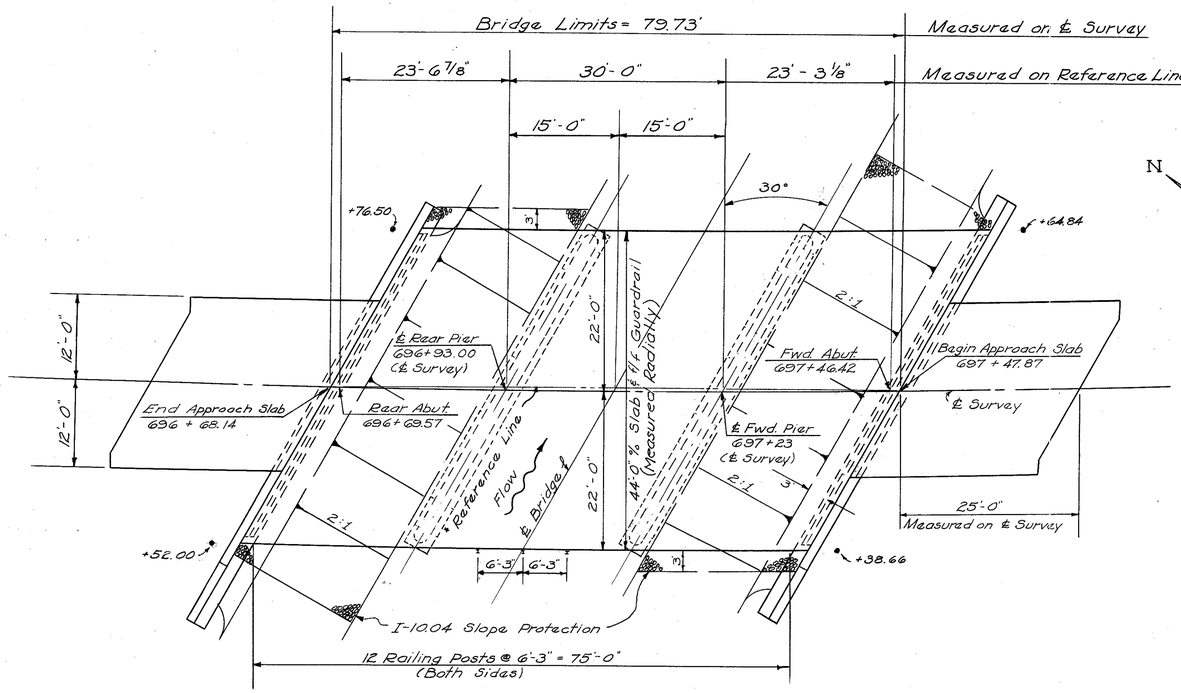

FED. RD. DIVISION 2
STATE OHIO
PROJECT
18/23
OTTAWA COUNTY
OTT-2-13.07
BR Nº OTT-2-1320
5.2 MILES NW PORT CLINTON
N
RUSHA CREEK
Temporary Runaround (For Grade see sheets 5,6,7)
I-10 Dumped Rock Chan. Protection 18" Thick
12' long 6' wide
11' long 6' wide
10' long 6' wide
21" twin Oak
26" Clum Cottonwoods
14" Elm
Sta 697+08
30°
S29°47'E
End Approach Slab Sta 696+68.14
+76.50
+64.84
58°10'
Sta 697+87.01 = Sta 0+00
℄ Construction & Survey
℄ Survey
P.C. Sta 698+49.72
C.S.-Sta 700+19.00
S.C. = Sta 695+73.67
80'
15" Stump
EXISTING CURVE
P.I = Sta 699+74.49
Δ = 17°20' Lt.
D = 7°00'
R = 818.51'
T = 124.77'
L = 247.57'
U.S.G.S. Bench
16" Apple
19" Apple
15" Apple
15" Apple
12" Apple
℄ 10' Stone Dr.
℄ 12' Stone Dr.
℄ Dirt Drive
Twin Elm
18" Conc.
36"
MB
"21" Pipe
+52.00
+38.66
35" Stump
Stump
I-10.04 Slope protection
Begin Approach Slab Sta 697+47.87
S25°59'E
℄ Structure
20" 18" Cottonwoods
23" Cottonwood
Suitable waste Masonry to be used as directed by the Engineer.
21" Willow
16" Elm
21" Elm
19" Oak
20" Oak
24" Stump
1 Story Frame
PROPOSED CURVE DATA
P.I. = Sta 698+01.69
Δ = 21°08' Lt.
D = 2°30'
Ls = 400'
Lc = 445.33
Ts = 628.02
Rate of Super. = 0.081'/'
BENCH MARK ~ U.S.G.S.
Sta 699+20 - 26.1' Rt.
Elevation = 578.787
NORMAL ELEVATION ON PROPOSED CENTERLINE
Bridge Limits = 79.73
Sta 696+68.14
Sta 697+47.87
Mean Hi Water Elev 572.00
Mean Low Water Elev. 570.5
Extreme High Water El = 578.00 (Lake Erie)
Bench Elev. 576.08
Bench Elev. 576.45
2:1 (Normal)
+0.52%
250' V.C.
P.I. Sta 699+00 Elev 581.39
All piles are 10BP42
Estimated Average pay length = 15'
Exc. thru Struct. to Elev. 568.5
ON CENTERLINE SURVEY
EXISTING STRUCTURE
TYPE: Concrete Beam Bridge
CLEAR SPAN: 44'-4½"
SKEW: 30° L.F.
ROADWAY: 29' f/f Curbs
SUFFICIENCY: 75
CONDITION: Poor
DRAINAGE AREA = 9.5 SQ. MI.
PROPOSED STRUCTURE
TYPE: Continuous Reinf. Concrete Slab with Reinforced Concrete Substructure
SPAN: 24-30-24 c/c bearings
ROADWAY: 44'-0" f/f guard rails
LOAD FREQUENCY: CF-2000 (57)
SKEW: 30° L.F
WEARING SURFACE: 1" Monolithic Conc.
APPROACH SLABS: AS-1-54 (25' Long)
ALIGNMENT: 2°30' Curve left
SUPERELEVATION: 0.081 ft/ft
KOHLI & KALIHER
ENGINEERS ~ LIMA, OHIO
SITE PLAN
BRIDGE NO. OTT-2-1320
Over RUSHA CREEK
OTTAWA CO. SR-2
STA. 696+68.14
697+47.87
PRESENT TOPOGRAPHY
PROPOSED WORK
SURVEYED Aerial Survey
DRAWN
DESIGNED R.R.K
DRAWN R.R.K
CHECKED SEK
REVIEWED

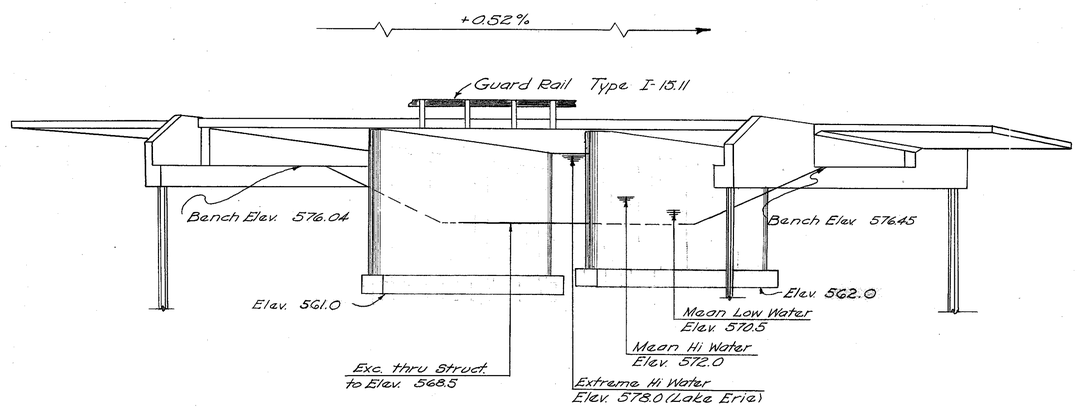
FED. RD. DIVISION	STATE	PROJECT		19 / 23
2	OHIO			

OTTAWA COUNTY
OTT-2-13.07



* Reference Line (Chord between faces of abutments)

GENERAL PLAN



Note: All piles are 10BP42.
All piles are not shown.

ELEVATION

N

ESTIMATED QUANTITIES

Item	Total	Unit	Description	Super	Abut's	Piers	Gen'l	As Built Quantities	
E-2	192	Cu.Yds.	Unclassified Excavation		77	115			
E-2	Lump	Sum	Cofferdams, Cribs, & Sheeting				Lump		
E-3	616	Cu.Yds.	Channel Excavation				616		
S-1	161	Cu.Yds.	Class "C" Concrete, superstructure	161					
S-1	117	Cu.Yds.	Class "E" Concrete, pier walls			117			
S-1	84	Cu.Yds.	Class "E" Concrete, abutments		84				
S-1	38	Cu.Yds.	Class "E" Concrete, pier footings			38			
S-4	54079	Lbs.	Reinforcing steel	41337	7531	5211			
S-14	159.16	Lin.Ft.	Railing (Type I-15.11 with galvanized steel rail, posts, & bolts)				159.16		
S-15	Lump	Sum	Temporary run around bridge				Lump		
S-16	Lump	Sum	First test pile				Lump		
S-18	270	Lin.Ft.	Bearing Pile (10BP42)		270				
S-24	Lump	Sum	Removal of existing structure				Lump		
S-29	31	Cu.Yds.	Porous backfill		31				
S-101	161	Ea.	Water-reducing, set-retarding admixture	161					
I-10	271	Sq.Yds.	Crushed aggregate slope protection				271		

GENERAL NOTES

REFERENCE shall be made to Standard Drawings A-1-54 and CS-1-54 revised 12-1-54 and 7-16-56 respectively, also Supplemental Specification No. S-101, dated 7-12-62.

EXCAVATION QUANTITIES for abutments, in addition to that outlined in Sec. E-209, includes the removal of material bounded by the proposed bench, by the front vertical plane described in Sec E-2.09, and by the finished slope of the cut.

MACHINE FINISH At the option of the Contractor, the top of the bridge deck slab may be machine finished.

BAR SIZE is indicated in the bar mark. The first digit where three digits are used and the first two digits where four digits are used, indicate the bar size number. For example, A-700 is a No.7 size bar and A-1014 is a No.10 size bar.

PILES shall be driven to firm contact with rock. If the length of penetration is approximately equal to the depth to rock according to the bridge foundation investigation report, the firm contact shall be considered as attained when the capacity according to the formula in Sec. S-18.05 is not less than the following value for a pile hammer of the indicated energy rating:

For the abutment piles

42 tons per pile using a 7000 ft. lb. hammer
35 tons per pile using a 11000 ft. lb. hammer
33 tons per pile using a 15000 ft. lb. hammer

If the energy rating of the hammer is between the ratings as shown above, the required formula capacity shall be determined by interpolation. The design load is 24 tons per pile for the abutment piles

REMOVAL OF EXISTING STRUCTURE When no longer needed to maintain traffic, the existing structure shall be removed. The substructure shall be removed to at least 6 in. below the proposed ground surface and to whatever extent is necessary to avoid interference with the new construction, including pile driving. Suitable waste masonary shall be used as bank protection, as directed by the Engineer.

DESIGN SPECIFICATIONS This structure conforms to the requirements of "Design Specifications for Highway Structures" of the State of Ohio, Department of Highways, dated 9-1-57, together with current revisions thereof.

FOR ADDITIONAL STRUCTURE NOTES see pier details.

DESIGN LOADING - CF=2000

CONCRETE CLASS C - basic unit stress 1,333 p.s.i
CONCRETE CLASS E - basic unit stress 1,133 p.s.i.

REINFORCING STEEL - ASTM A15, A16, A160, Deformed, Intermediate or Hard Grade. Basic unit stress 20,000 p.s.i. Except, spiral reinforcement may be plain, Structural Grade with basic unit stress of 18,000 p.s.i

TEMPORARY RUN-AROUND BRIDGE: Load frequency for Bridge, CF=130, with unit stresses increased 25% as per the provisions for temporary bridges in the "Design Specifications for Highway Structures." Clear roadway width for bridge shall be 24'. Approach embankment and pavement is included in Roadway Summary (Item 3-15) for payment

KOHLI & KALIHER
ENGINEERS - LIMA, OHIO

GENERAL PLAN & ELEVATION, NOTES, & ESTIMATED QUANTITIES

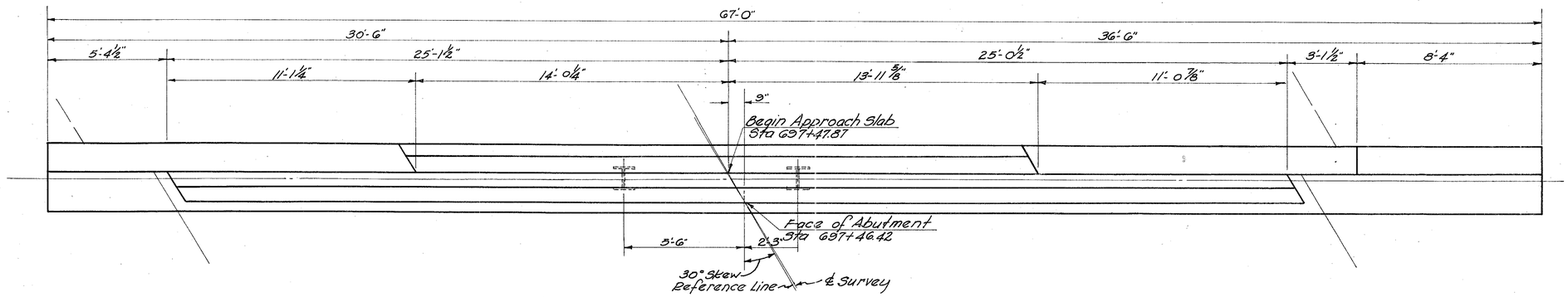
BR. No. OTT-2-1320
OVER RUSHA CREEK
OTTAWA COUNTY
Sta. 696+68.14
697+47.87

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED BY	DATE
RRK	T.E.K.	T.E.K.	T.E.K.		

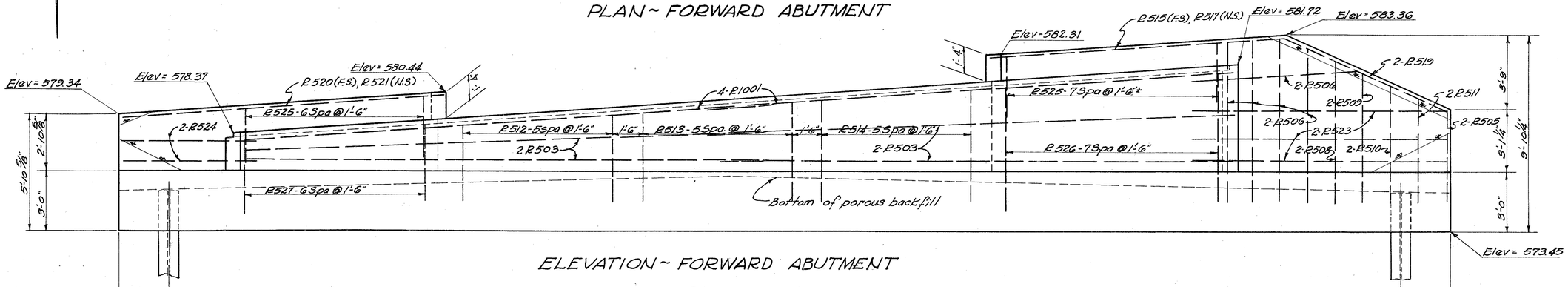
FED RD DIVISION	STATE	PROJECT	
2	OHIO		

20
23

OTTAWA COUNTY
OTT - 2 - 13.07



PLAN ~ FORWARD ABUTMENT

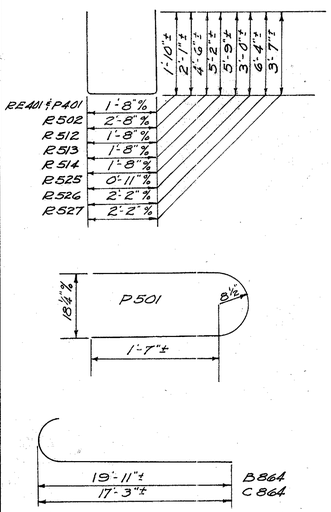


ELEVATION ~ FORWARD ABUTMENT

REINFORCING STEEL LIST

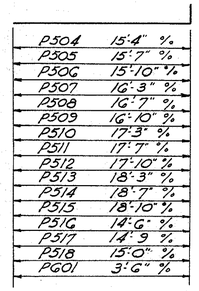
MARK	NO	LENGTH	WEIGHT	SHP
ABUTMENTS				
R1001	8	26'-6"	912	S
R1002	8	26'-0"	895	S
R 801	16	34'-7"	1477	S
R 501	16	34'-1"	569	S
R 502	176	6'-7"	1208	B
R 503	8	25'-9"	215	S
R 504	8	25'-3"	211	S
R 505	18	4'-9"	89	S
R 506	18	8'-5"	158	S
R 507	2	7'-10"	16	S
R 508	4	7'-2"	30	S
R 509	4	6'-7"	27	S
R 510	8	5'-11"	49	S
R 511	4	5'-3"	22	S
R 512	12	10'-5"	130	B
R 513	12	11'-9"	147	B
R 514	12	12'-1"	151	B
R 515	3	14'-7"	46	S
R 516	2	15'-2"	32	S
R 517	1	13'-10"	14	S
R 518	2	10'-6"	22	S
R 519	4	9'-0"	38	S
R 520	1	15'-5"	16	S
R 521	1	16'-0"	17	S
R 522	6	14'-10"	93	S
R 523	6	12'-10"	80	S
R 524	4	6'-9"	28	S
R 525	30	6'-8"	209	B
R 526	15	14'-7"	228	B
R 527	15	9'-1"	142	B
R 401	72	5'-5"	260	B
PIERS				
P 501	35	5'-6"	201	B
P 502	34	46'-0"	1631	S
P 504	5	15'-10"	83	B
P 505	6	16'-1"	101	B
P 506	8	16'-4"	136	B

BENDING DIAGRAM



MARK	NO	LENGTH	WEIGHT	SHP
PIERS (Cont)				
P 507	6	16'-9"	105	B
P 508	6	17'-1"	107	B
P 509	8	17'-4"	145	B
P 510	6	17'-9"	111	B
P 511	6	18'-1"	113	B
P 512	5	18'-4"	96	B
P 513	4	18'-9"	78	B
P 514	2	19'-1"	40	B
P 515	1	19'-4"	20	B
P 516	3	15'-0"	47	B
P 517	2	15'-3"	32	B
P 518	4	15'-6"	65	B
PG01	200	4'-0"	1202	B
PG02	52	3'-8"	286	S
PG03	4	50'-10"	305	S
PG04	4	51'-2	307	S
SUPERSTRUCTURE				
A B64	135	28'-1"	10123	B
B B64	44	21'-0"	2467	B
C B64	44	18'-4"	2154	B
D B64	22	19'-6"	1145	S
E B64	22	15'-10"	935	S
F S64	86	28'-5"	8309	S
G S64	42	15'-6"	2213	S
H S64	42	13'-3"	1892	S
J 601	44	14'-1"	931	S
K 601	22	6'-11"	229	S
M 701	67	50'-2"	6870	S
N 601	54	50'-2"	4069	S

BENDING DIAGRAM (Cont)



MARK	NO	LENGTH	WEIGHT	SHP
REPLACEMENT BARS				
RE 401	1	5'-1"	—	B
RE 501	1	5'-7"	—	S
RE 601	1	5'-11"	—	S
RE 701	1	6'-2"	—	S
RE 801	1	6'-6"	—	S
RE 901	1	6'-10"	—	S
RE 1001	1	7'-2"	—	S
RE 1101	1	7'-6"	—	S

KOHLI & KALIHER
ENGINEERS ~ LIMA, OHIO

ABUTMENT DETAILS (FORWARD)

BR Nº OTT-2-1320
OVER RUSHA CREEK
OTTAWA COUNTY
Sta 696+68.14
697+47.87

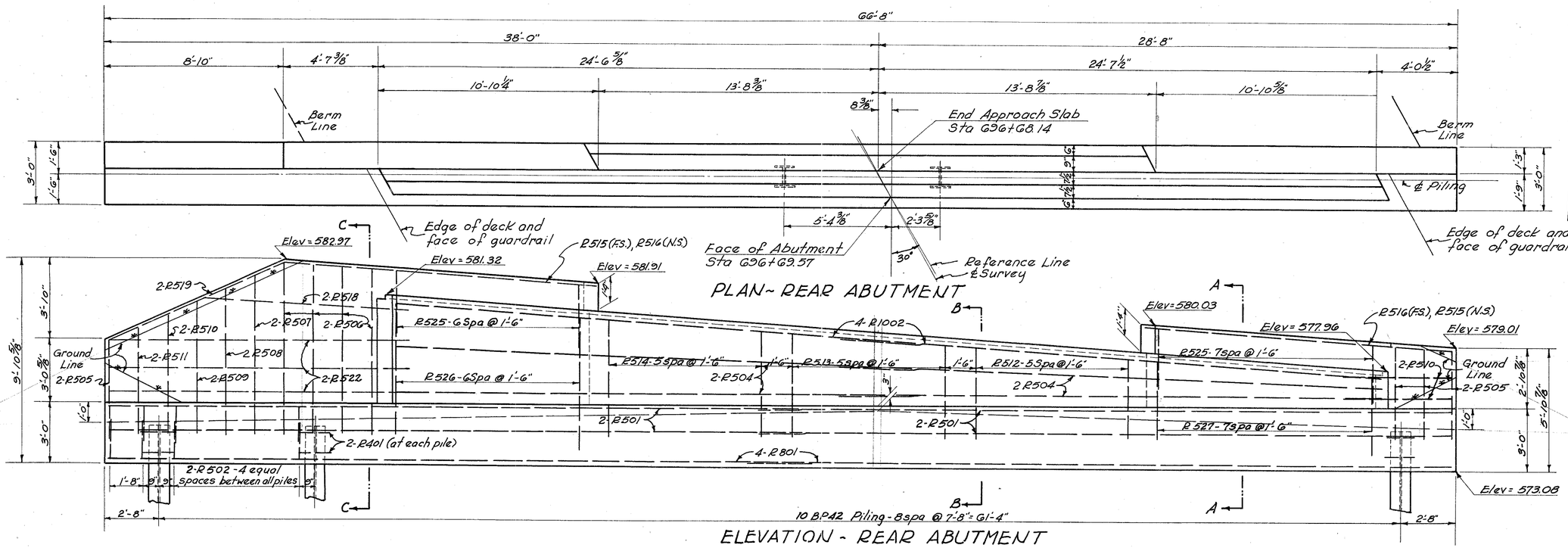
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED BY	DATE
P.P.K.	P.P.K.	P.P.K.	S.E.K.		

5

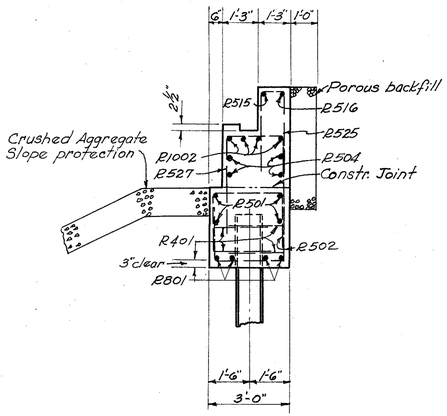
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

21
23

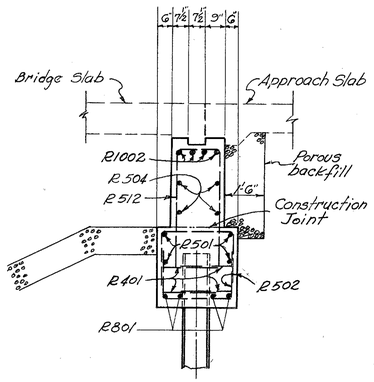
OTTAWA COUNTY
OTT - 2 - 13.07



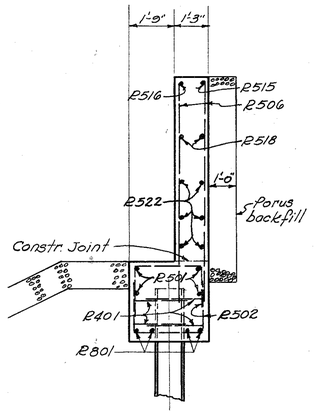
ELEVATION - REAR ABUTMENT



SECTION A-A



SECTION B-B



SECTION C-C

KOHLI & KALIHER
ENGINEERS - LIMA, OHIO

ABUTMENT DETAILS (REAR)

BR Nº OTT-2-1320
OVER RUSHA CREEK
OTTAWA COUNTY
Sta G96+68.14
G97+47.87

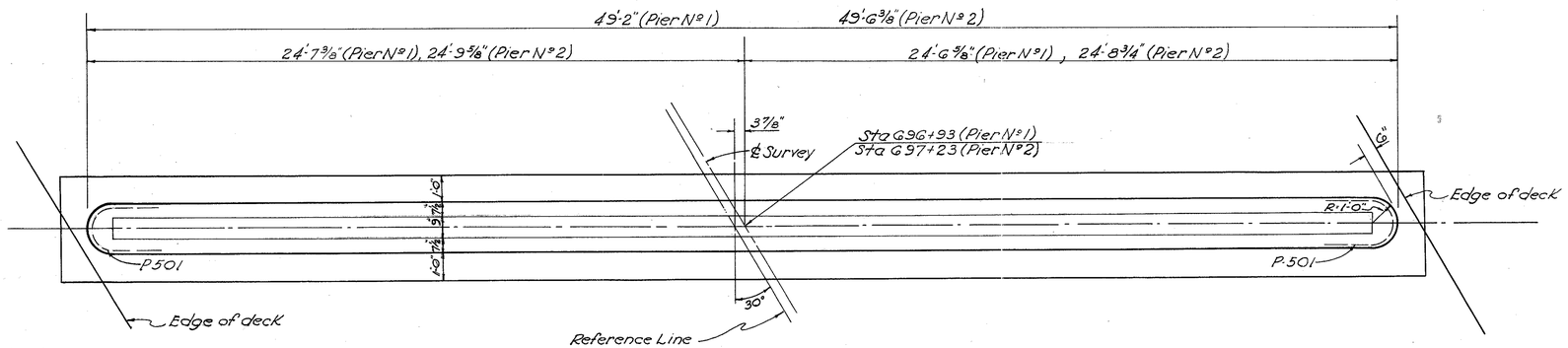
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED BY	DATE
R.P.K	R.P.K	R.P.K	S.E.K		

5

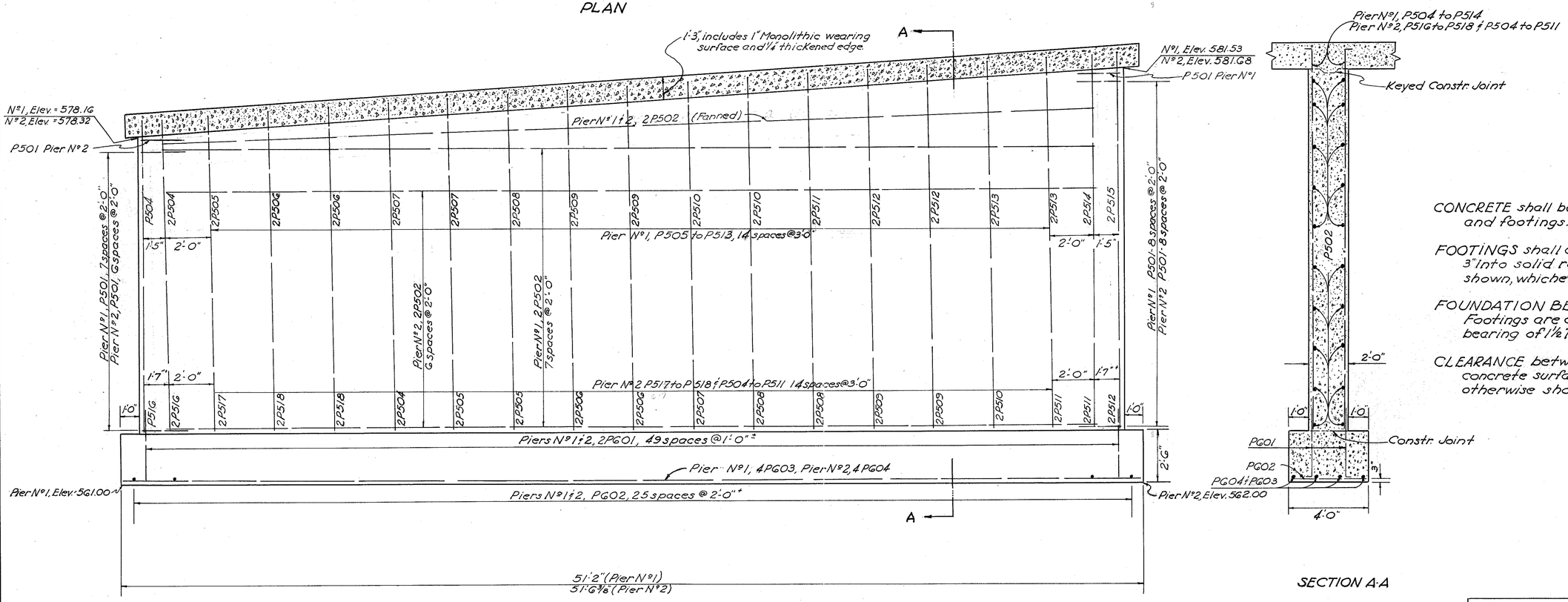
FED RD DIVISION	STATE	PROJECT	
2	OHIO		

22
23

OTTAWA COUNTY
OTT-2-13.07



PLAN



ELEVATION

SECTION A-A

CONCRETE shall be class "E" for pier walls and footings.

FOOTINGS shall extend a minimum of 3" into solid rock or to the elevation shown, whichever is lower.

FOUNDATION BEARING PRESSURE — Footings are designed for a maximum bearing of 1½ Tons per Sq. Ft.

CLEARANCE between steel and face of concrete surface shall be 2" unless otherwise shown.

KOHLI & KALIHER
ENGINEERS
LIMA, OHIO

PIER DETAILS
BRIDGE N° OTT-2-1320
OVER RUSHA CREEK
OTTAWA COUNTY
STA G96+68.14
G97+47.87

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED BY	DATE
RFG	RFG	RFG	TEK		