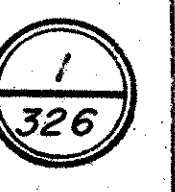


# STATE OF OHIO DEPARTMENT OF TRANSPORTATION

<b>ERI-2 - 18.38</b>  F-73-(5)	OHIO FHWA REGION 5 FEDERAL PROJECT
--------------------------------------	--



## ERI-2-18.38 F-73-(5)

### ERIE COUNTY HURON TOWNSHIP - BERLIN ANNEXATION TWP.

#### GRADE SEPARATION WITH THE NORFOLK & WESTERN RAILWAY

#### LIMITED ACCESS

This improvement is especially designed for through traffic and has been declared a limited access highway or freeway by action of the Director in accordance with the provisions of Section 5511.02 of the Revised Code of Ohio.

#### 1985 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 not require the closing to traffic of the highway, except as noted on sheets 2C-2F and that provisions for the maintenance and safety of traffic will be as set forth on the plans and estimates.

Approved: Wayne W. Pines  
Date: 11/27/85 District Deputy Director of Transportation

Approved: Walter J. Ferguson  
Date: 11/10/85 Engineer, Bureau of Bridges and Structural Design

Approved: Warren H. Kaulle  
Date: 1-30-86 Chief Engineer, Planning and Design

Approved: Warren J. Smith  
Date: 1-30-86 Director, Department of Transportation

DESIGN DESIGNATION	
CURRENT YEAR 1985 A.D.T.	12,480
DESIGN YEAR 2005 A.D.T.	17,830
D.H.V.	1,780
D (DIRECTIONAL DISTRIBUTION)	55%
T (PERCENT B & C TRUCKS)	15%
V (DESIGN SPEED)	70 M.P.H.

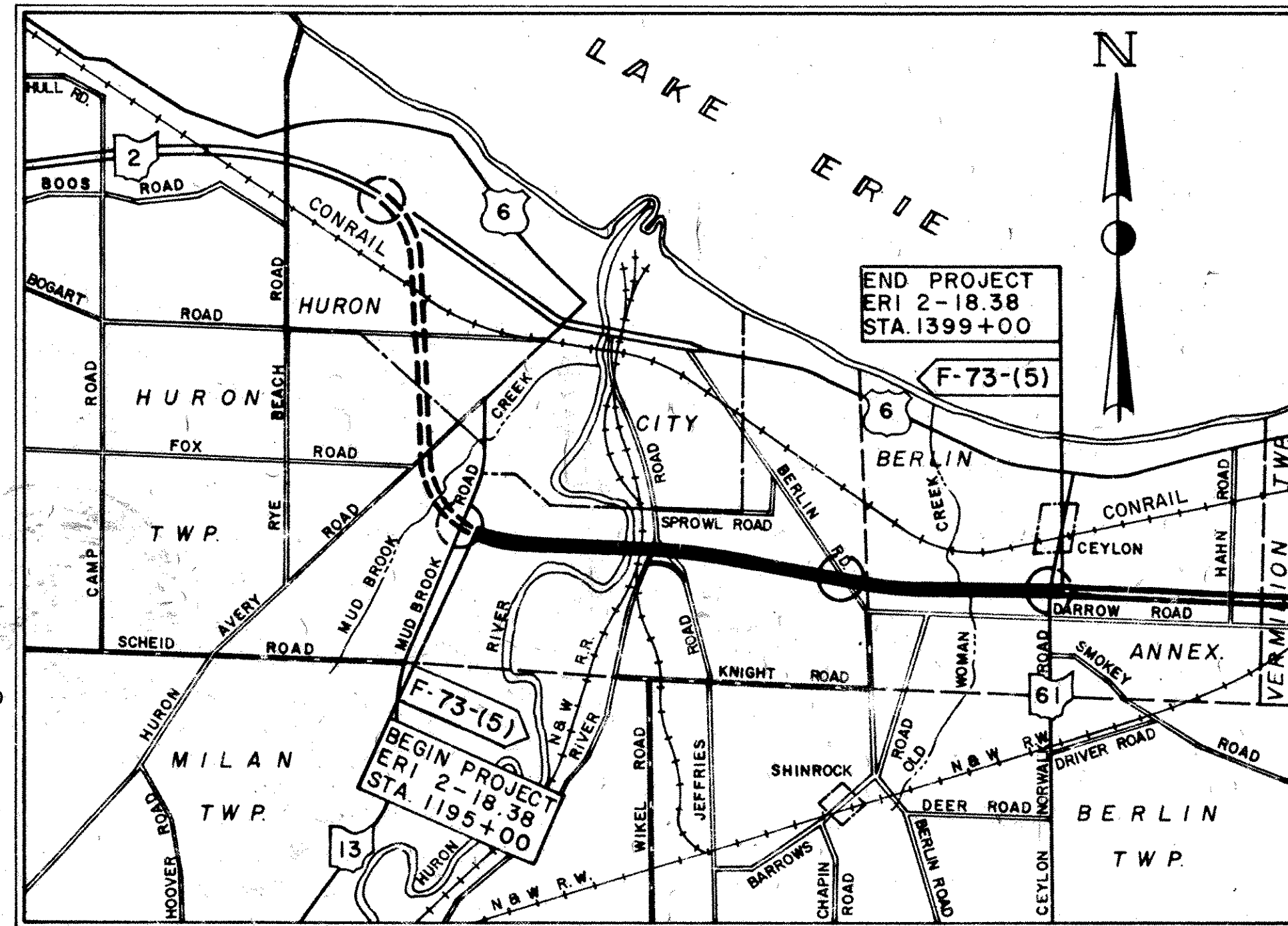
#### CONVENTIONAL SIGNS

COUNTY LINE	
TOWNSHIP LINE	
CORPORATION LINE	
CENTER LINE	
PROPERTY LINE	
EXISTING R/W LINE	
EXISTING LA LINE	
RIGHT OF WAY LINE	
LIMITED ACCESS LINE	
TEMPORARY CHANNEL EASEMENT	
CONSTRUCTION LIMITS	
FENCE LINE (EXISTING, PROPOSED)	
RAILROAD	
POLE LINE (POWER, TELEPHONE)	
UNDERGROUND UTILITIES (GAS, WATER)	
EXISTING STREET LIGHT	
TILE, DRAIN PIPE	
EXISTING TREES & STUMPS	
EXISTING TREES & STUMPS TO BE REMOVED	

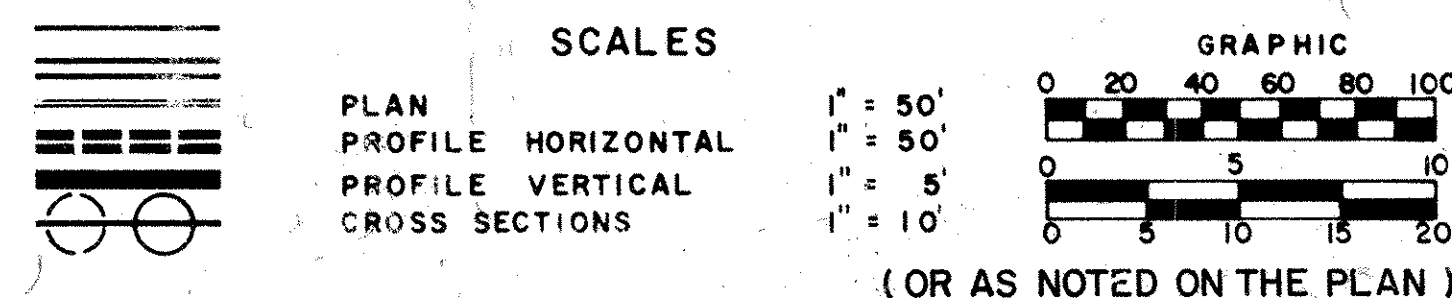
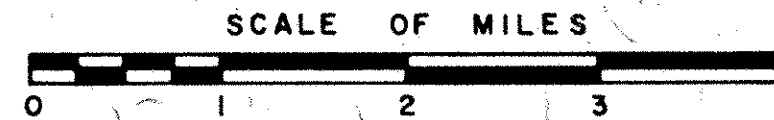
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**UNDERGROUND UTILITIES**  
2 WORKING DAYS  
**BEFORE YOU DIG**  
CALL 800-362-2764 (TOLL FREE)  
OHIO UTILITIES PROTECTION SERVICE  
NON-MEMBERS  
MUST BE CALLED DIRECTLY



#### LOCATION MAP



#### SUPPLEMENTAL SPECIFICATIONS

846	10-3-85
848	10-2-85
814	1-1-69
824	10-8-82
836	11-12-85
847	10-17-83
853	6-26-78
932	3-25-85
947	10-17-83
956	6-26-78

#### SPECIAL PROVISIONS

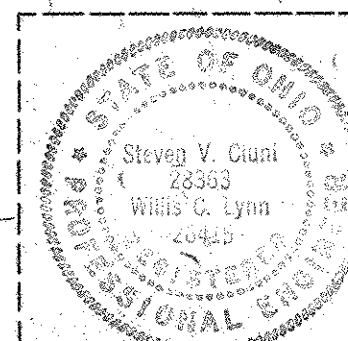
REINFORCED EARTH WALLS	1-7-86
RETAINED EARTH WALLS	1-7-86

#### LINE DATA

BEGIN PROJECT	STA. 1195+00.00
END PROJECT	STA. 1399+00.00
LENGTH OF PROJECT	20,400.00 L.F. OR 3.864 MI.
ADD FOR WORK	
S.R. 2	
STA. 1170+00.00 TO STA. 1195+00.00	2,500.00 L.F.
STA. 1399+00.00 TO STA. 1424+25.00	2,525.00 L.F.
RIVER ROAD	
STA. 10+00.00 TO STA. 25+04.00	1,504.00 L.F.
JEFFRIES ROAD	
STA. 12+50.00 TO STA. 22+13.52	963.52 L.F.
BERLIN ROAD	
STA. 6+00.00 TO STA. 33+00.00	2,700.00 L.F.
S.R. 61	
STA. 32+00.00 TO STA. 64+00.00	3,200.00 L.F.
HOFFMAN ACCESS ROAD	
STA. 0+12.77 TO STA. 7+25.00	712.23 L.F.
O'RORK ACCESS ROAD	
STA. 17+43.77 TO STA. 21+83.65	439.88 L.F.
LENGTH OF WORK	34,944.63 L.F. OR 6.618 MI.

PREPARED BY:  
**adache - ciuni-lynn associates**  
CONSULTING ENGINEERS CLEVELAND, OHIO

*Steven V. Ciuni*  
STEVEN V. CIUNI  
*Willis C. Lynn*  
WILLIS C. LYNN



STATE HIGHWAYS  
OTHER HIGHWAYS (FREEWAYS)  
OTHER ROADS  
FUTURE IMPROVEMENTS  
PORTION TO BE IMPROVED  
PROPOSED INTERCHANGE

#### SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS

DRAWING	DATE	DRAWING	DATE	DRAWING	DATE	DRAWING	DATE	DRAWING	DATE	DRAWING	DATE	DRAWING	DATE	DRAWING	DATE
AS-1-81	11-27-81	CB-2-2A1B	5-1-79	GR-1	1-11-85	HW-4B	4-1-80	MH-1	12-18-84	HL-9	3-22-77	TC-12.30	1-10-84	TC-41.50	3-26-79
BP-1	6-1-65	CB-2-3B2-4	5-1-79	GR-2B	2-5-82	MC-1	6-13-69	MH-3	12-18-84	HL-10	12-28-84	TC-21.20	1-10-84	TC-42.10	8-19-77
BP-2	1-11-85	CB-4	11-10-83	GR-3	1-21-85	MC-4	7-26-76	MH-5	6-12-75	HL-11	6-1-79	TC-22.10	3-1-79	TC-42.20	3-26-79
BP-3	12-6-76	CB-5	11-10-83	GR-3B	1-21-85	LA-1	6-1-79	MH-2	6-12-75	HL-12	12-28-84	TC-22.10	3-1-79	TC-51.10	1-10-84
BP-4	1-11-85	CB-6	5-1-79	GR-4	2-5-82	MC-6	1-30-84	HL-1	12-28-84	HL-15	12-28-84	TC-22.20	3-1-79	TC-51.11	1-20-84
BP-5	1-11-85	CB-8	11-10-83	GR-4A	1-30-84	MC-7	10-15-76	HL-2	7-27-73	HL-16	12-28-84	TC-22.20	3-1-79	TC-52.10	4-3-79
BP-6	6-1-65	CB-458A	5-1-79	GR-4B	2-5-82	MC-8	6-12-75	HL-3	12-28-84	BR-1	5-29-79	TC-31.21	3-6-79	TC-52.20	4-3-79
BP-7	12-6-76	F-2	5-1-76	GR-5	2-5-82	MC-9	1-30-84	HL-4	1-21-76	RB-1-55	2-2-59	TC-32.10	3-8-79	TC-61.10	4-5-82
BP-9	12-6-76	F-3	5-1-76	GR-6	2-5-82	MC-10	5-1-76	HL-5	9-6-73	SD-1-69	6-12-69	TC-35.10	8-29-84	TC-71.10	4-9-79
BP-10	1-30-84	F-5	5-1-76	GR-6A	2-5-82	MC-11	8-1-78	HL-7	1-21-76	EXJ-2-81	4-2-84	TC-41.10	8-29-84	TC-72.20	2-26-82
CPP-2-73	4-10-73	F-6	5-1-76	HW-4A	4-1-80			HL-8	1-21-76	PSBD-1-81	9-18-81	TC-41.20	3-26-79		

DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION

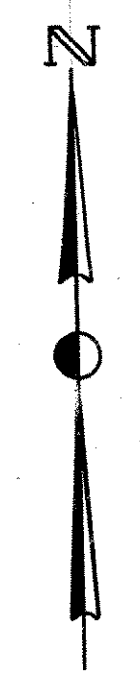
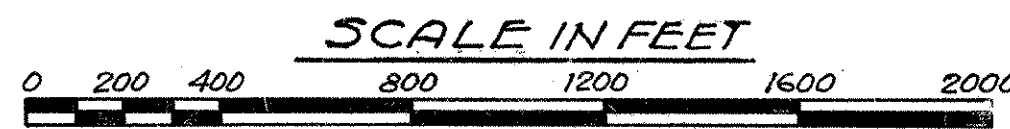
APPROVED:

DIVISION ADMINISTRATOR \_\_\_\_\_ DATE \_\_\_\_\_

PROJECT: **ERI-2-18.38**  
DATE OF LETTING: 19\_\_\_\_ CONTRACT NO. \_\_\_\_\_

TITLE SHEET

# SCHEMATIC PLAN



± S.R. 2  
CURVE #2 DATA  
P.I. STA. 1194+95  
Δ = 87° 18' 50"  
Dc = 2° 00'  
Ls = 300.00'  
θs = 3° 00'  
P = 1.30'  
h = 149.99'  
yc = 5.24'  
xc = 299.92'  
R = 2864.79  
θc = 1° 00'  
Ts = 2884.77'  
Es = 1096.71'  
Δc = 81° 18' 50"  
Lc = 4065.69'  
C = .0001111 (SPIRAL)  
C = 6 (SIMPLE)

± S.R. 2  
CURVE #3 DATA  
Δ = 6° 21' 20"  
D = 0° 28' 00"  
R = 12,277.67'  
T = 681.65'  
L = 1,361.90'  
E = 18.91'  
P.I. STA. 1278+48.93

± S.R. 2  
CURVE #4 DATA  
Δ = 11° 56' 30"  
D = 0° 28'  
R = 12,277.67'  
T = 1284.12'  
L = 2558.93'  
E = 66.97'  
P.I. STA. 1351+96.60

± S.R. 2  
CURVE #5 DATA  
Δ = 4° 37' 30"  
D = 0° 15'  
R = 22,918.31'  
T = 925.50'  
L = 1850.00'  
E = 18.68'  
P.I. STA. 1401+75.24

**NOTE:** The Contractor shall cooperate with adjacent Contractor as per 105.07.

**RAMP LINE DATA**  
RAMP #4 STA. 1194+28.48 - 1200+39.04 = 910.56  
RAMP #5 STA. 1191+91.78 - 1205+00 = 1308.22  
PAVEMENT TOTAL 2218.78

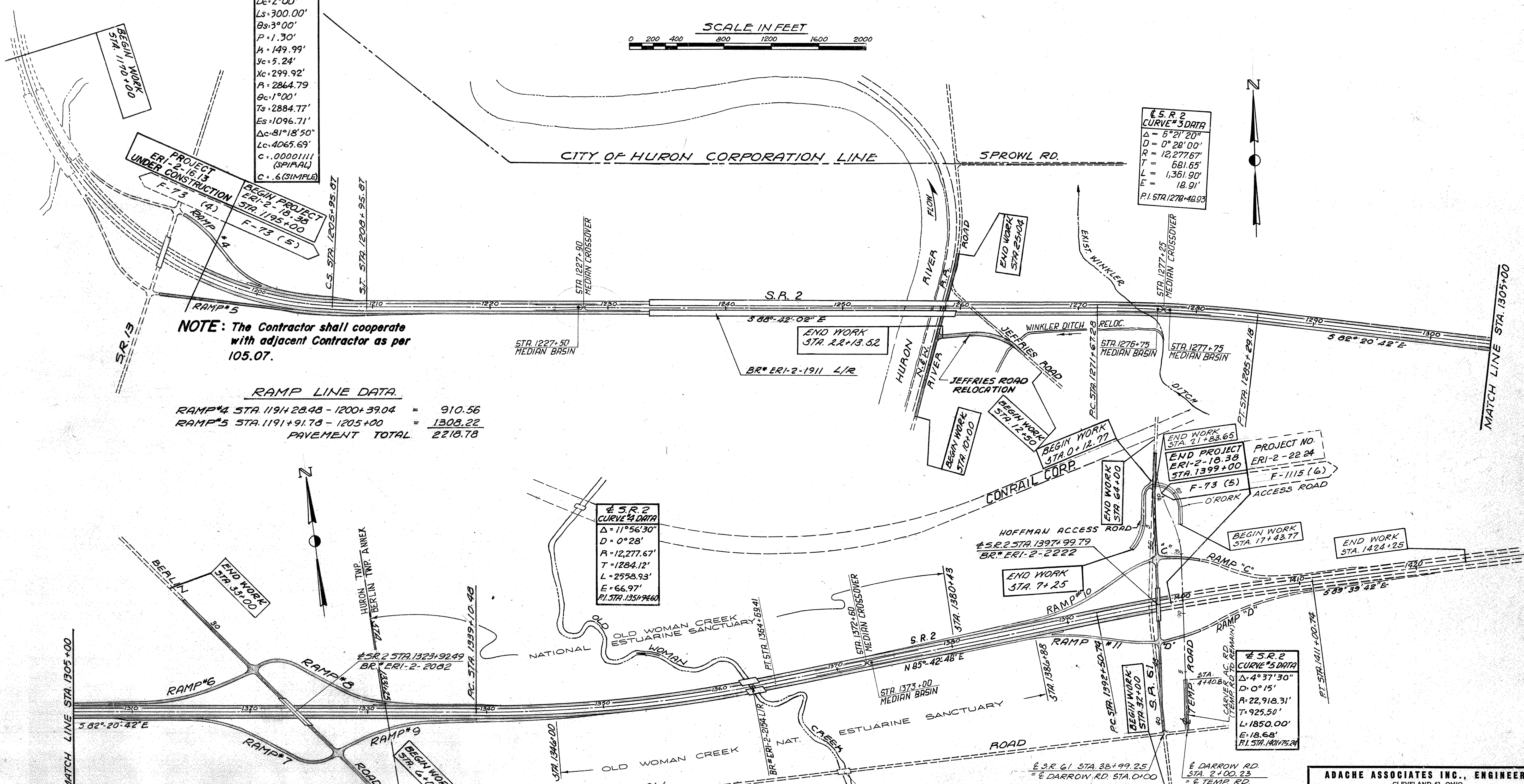
**RAMP LINE DATA**  
RAMP #6 STA. 1308+65 - 1320+80.16 = 1215.16  
RAMP #7 STA. 1316+53.48 - 1328+48.66 = 1195.18  
RAMP #8 STA. 1319+38.41 - 1331+46.52 = 1208.11  
RAMP #9 STA. 1327+05 - 1339+10.48 = 1205.48  
PAVEMENT TOTAL 4823.93

**RAMP LINE DATA**  
RAMP #10 STA. 1384+75 - 1398+91.62 = 1416.62  
RAMP #11 STA. 1387+63.48 - 1397+58.90 = 995.42  
RAMP "C" STA. 1398+01.28 - 1400+25 = 223.72  
RAMP "D" STA. 1397+43.32 - 1400+00 = 256.68  
PAVEMENT TOTAL 2,892.44

ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND 42, OHIO

## SCHEMATIC PLAN

DESIGNED	DRAWN	CHECKED	REVISED	DATE
M.J.R.	M.J.R.	R.J.Z.		
6-7-68	6-7-68	4-9-70		



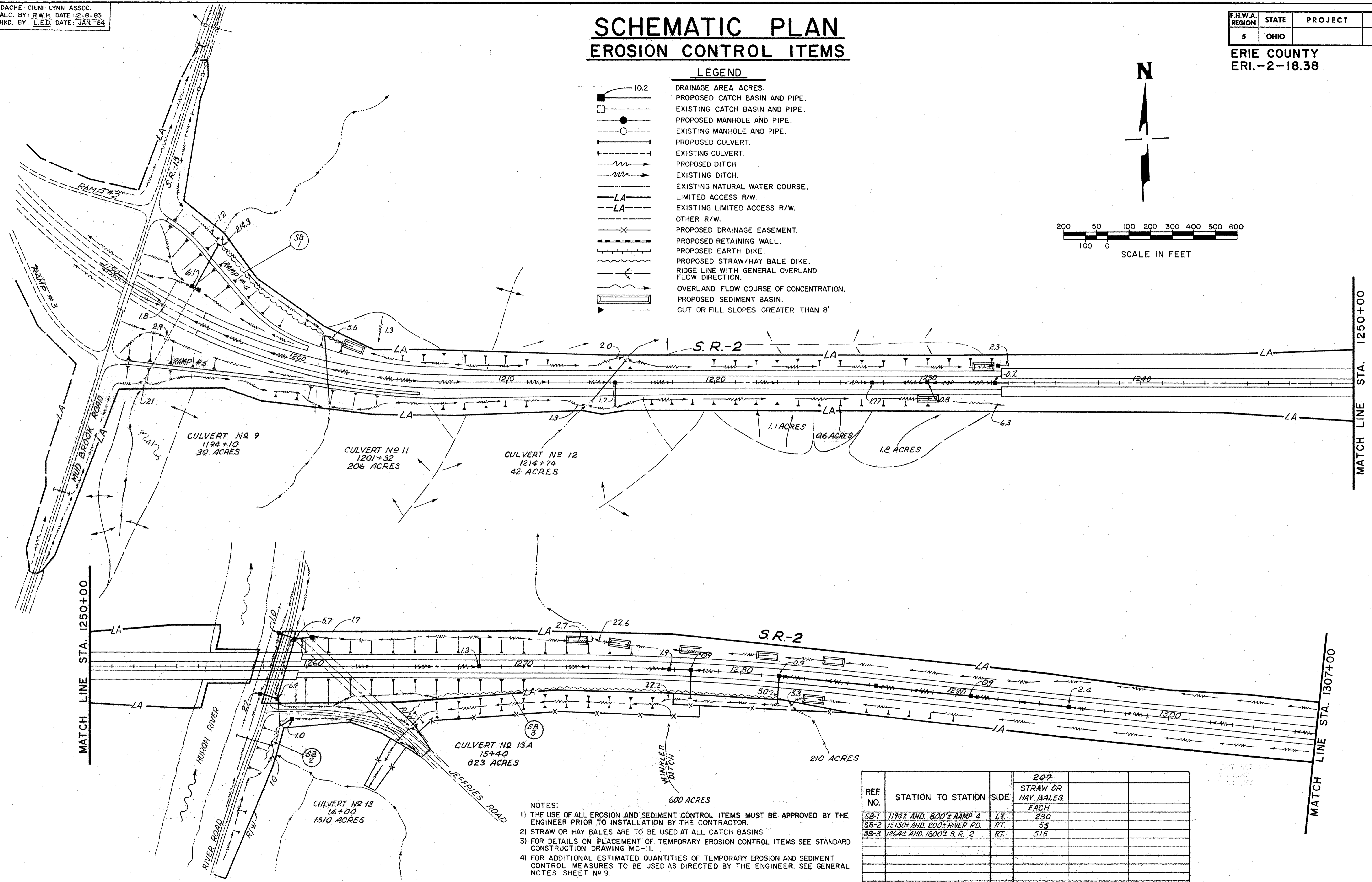
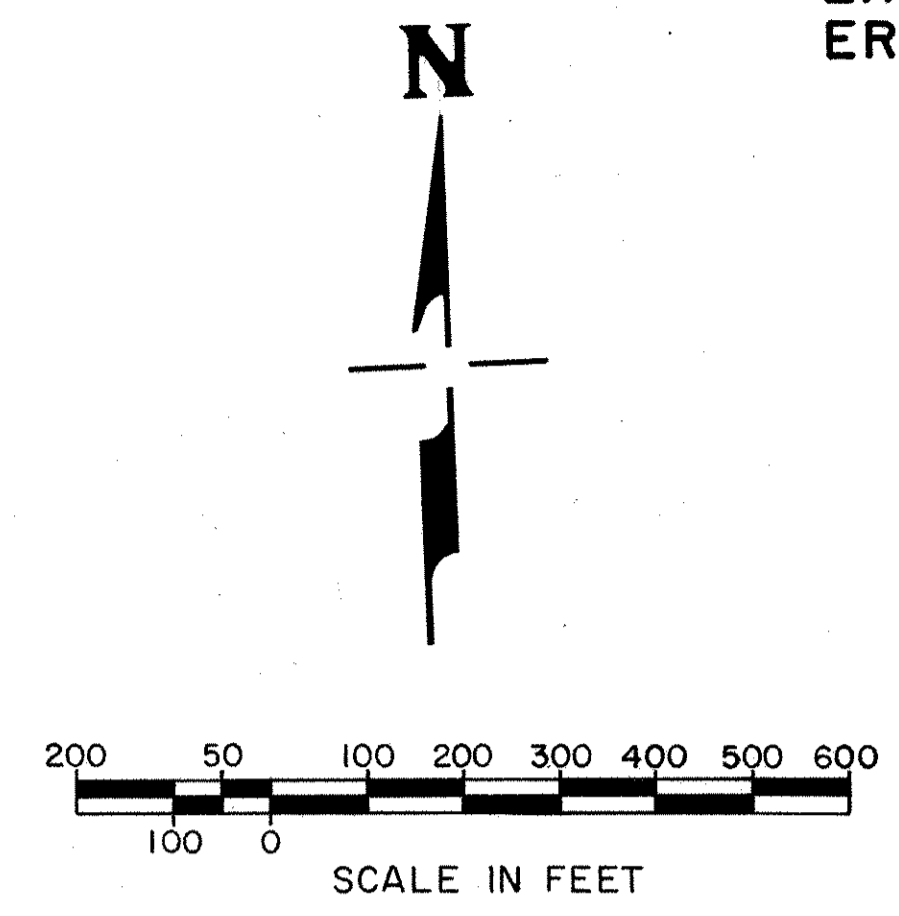
# SCHEMATIC PLAN EROSION CONTROL ITEMS

F.H.W.A. REGION	STATE	PROJECT
5	OHIO	

2A  
326

ERIE COUNTY  
 ERI.-2-18.38

- ### LEGEND
- 10.2 DRAINAGE AREA ACRES.
  - PROPOSED CATCH BASIN AND PIPE.
  - EXISTING CATCH BASIN AND PIPE.
  - PROPOSED MANHOLE AND PIPE.
  - EXISTING MANHOLE AND PIPE.
  - PROPOSED CULVERT.
  - EXISTING CULVERT.
  - PROPOSED DITCH.
  - EXISTING DITCH.
  - EXISTING NATURAL WATER COURSE.
  - LIMITED ACCESS R/W.
  - EXISTING LIMITED ACCESS R/W.
  - OTHER R/W.
  - PROPOSED DRAINAGE EASEMENT.
  - PROPOSED RETAINING WALL.
  - PROPOSED EARTH DIKE.
  - PROPOSED STRAW/HAY BALE DIKE.
  - RIDGE LINE WITH GENERAL OVERLAND FLOW DIRECTION.
  - OVERLAND FLOW COURSE OF CONCENTRATION.
  - PROPOSED SEDIMENT BASIN.
  - CUT OR FILL SLOPES GREATER THAN 8'



- NOTES:
- 1) THE USE OF ALL EROSION AND SEDIMENT CONTROL ITEMS MUST BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION BY THE CONTRACTOR.
  - 2) STRAW OR HAY BALES ARE TO BE USED AT ALL CATCH BASINS.
  - 3) FOR DETAILS ON PLACEMENT OF TEMPORARY EROSION CONTROL ITEMS SEE STANDARD CONSTRUCTION DRAWING MC-11.
  - 4) FOR ADDITIONAL ESTIMATED QUANTITIES OF TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES TO BE USED AS DIRECTED BY THE ENGINEER. SEE GENERAL NOTES SHEET NO 9.

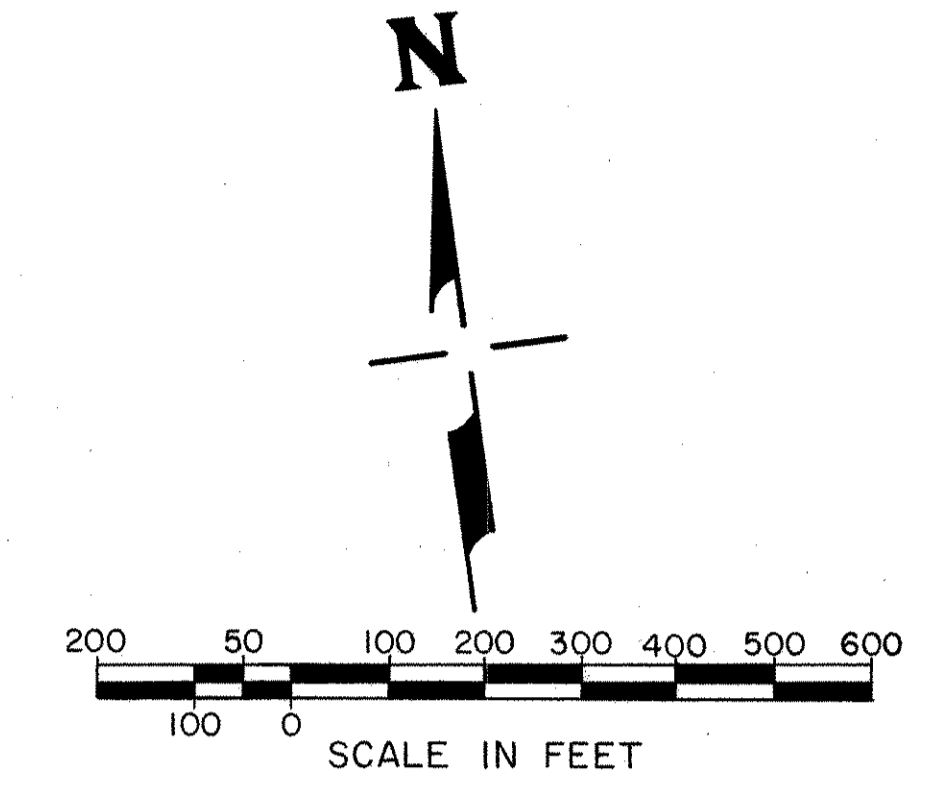
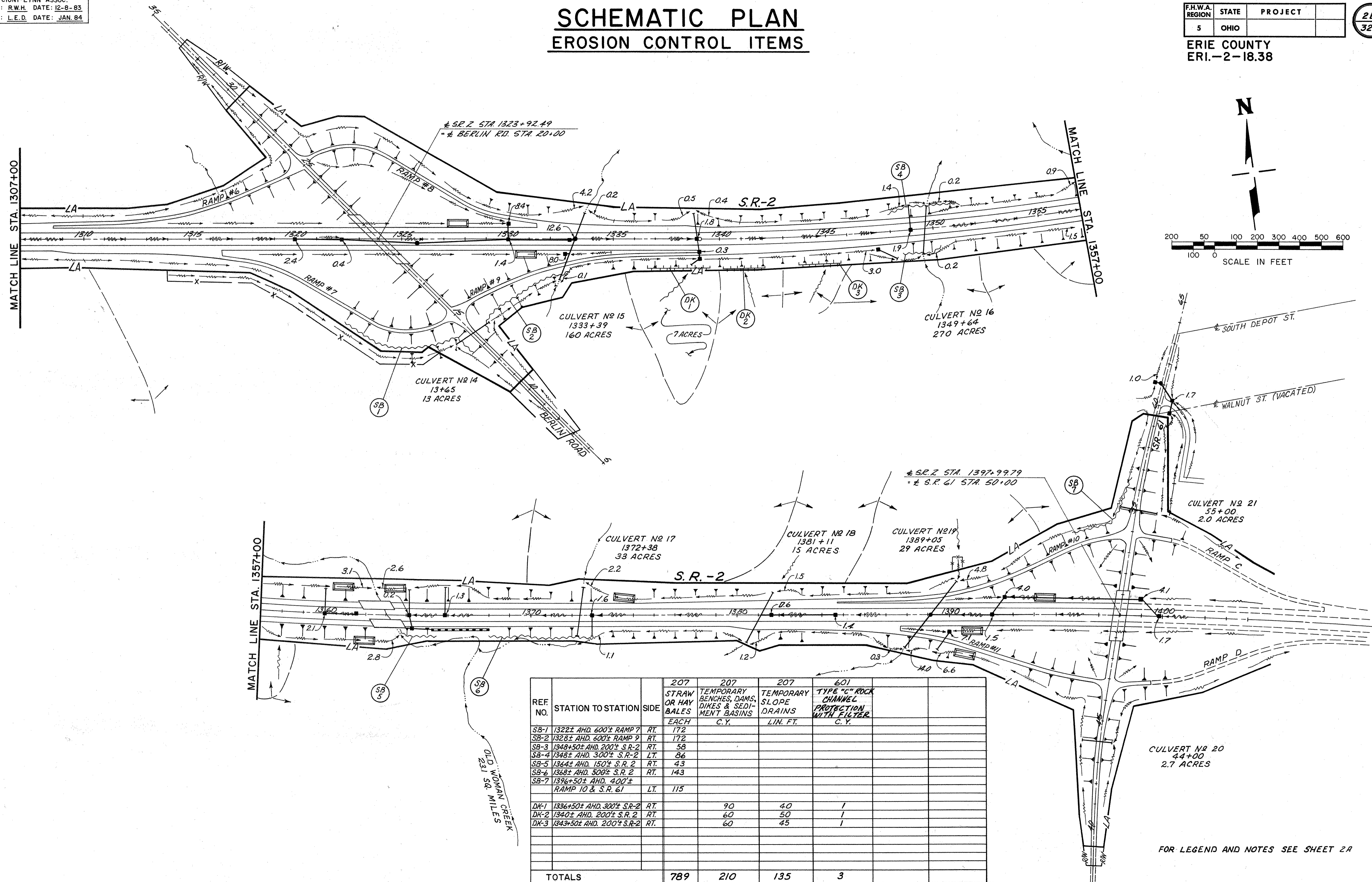
REF NO.	STATION TO STATION	SIDE	207 STRAW OR HAY BALES EACH
SB-1	1194± AHD. 800± RAMP 4	LT.	230
SB-2	15+30± AHD. 200± RIVER RD.	RT.	55
SB-3	1264± AHD. 1800± S. R. 2	RT.	515
TOTALS			800

# SCHEMATIC PLAN EROSION CONTROL ITEMS

F.H.W.A. REGION	STATE	PROJECT
5	OHIO	

28  
326

ERIE COUNTY  
 ERI.-2-18.38

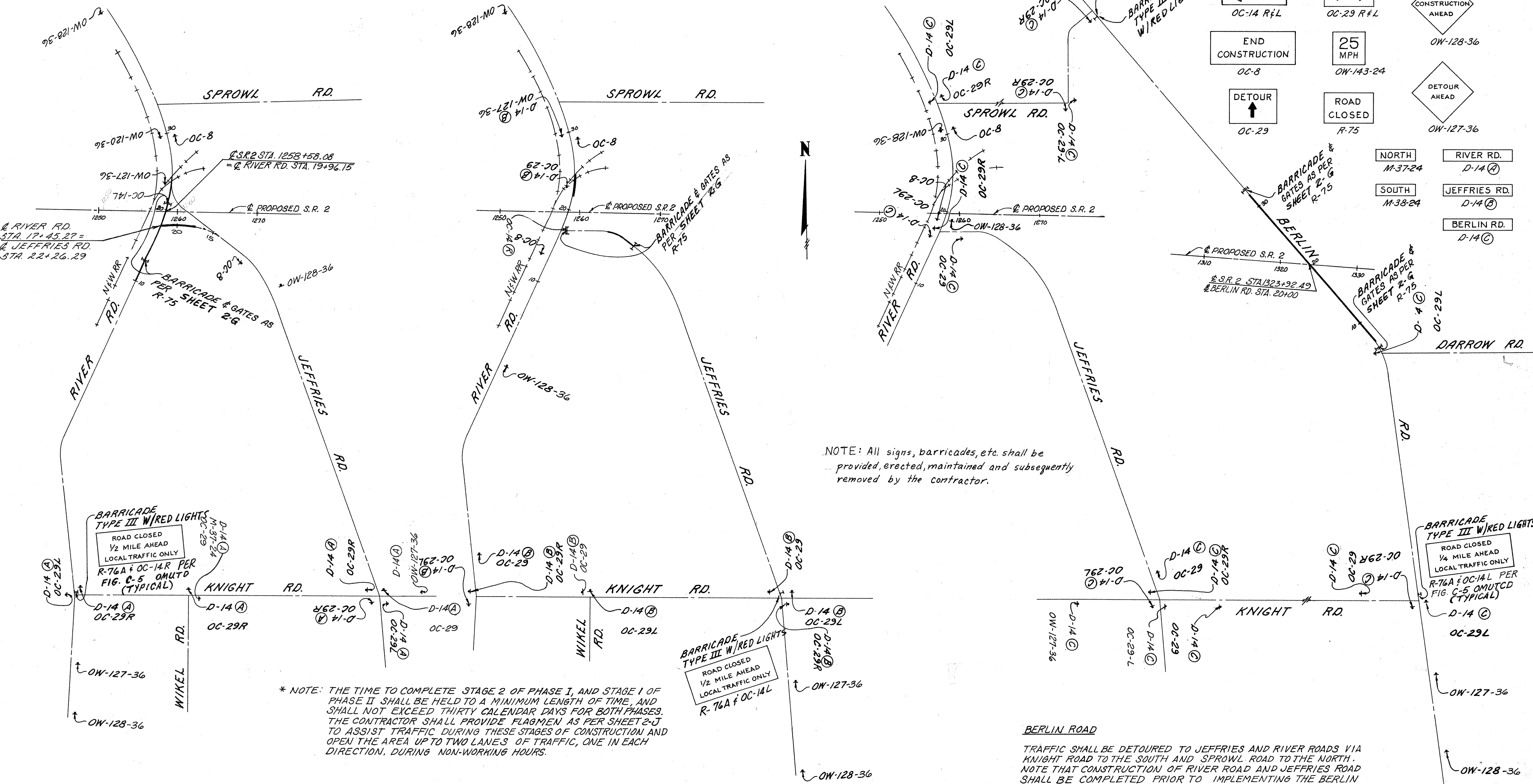


REF. NO.	STATION TO STATION	SIDE	207 STRAW OR HAY BALES EACH	207 TEMPORARY BENCHES, DAMS, DIKES & SEDI- MENT BASINS C.Y.	207 TEMPORARY SLOPE DRAINS LIN. FT.	601 TYPE "C" ROCK CHANNEL PROTECTION WITH FILTER C.Y.
SB-1	1322± AHD. 600± RAMP 7	RT.	172			
SB-2	1328± AHD. 600± RAMP 9	RT.	172			
SB-3	1348±50± AHD. 200± S.R.-2	RT.	58			
SB-4	1348± AHD. 300± S.R.-2	LT.	86			
SB-5	1344± AHD. 150± S.R. 2	RT.	43			
SB-6	1348± AHD. 500± S.R. 2	RT.	143			
SB-7	1396±50± AHD. 400± RAMP 10 & S.R. 61	LT.	115			
DK-1	1336±50± AHD. 300± S.R.-2	RT.		90	40	1
DK-2	1340± AHD. 200± S.R. 2	RT.		60	50	1
DK-3	1343±50± AHD. 200± S.R.-2	RT.		60	45	1
TOTALS			789	210	135	3

FOR LEGEND AND NOTES SEE SHEET 2A

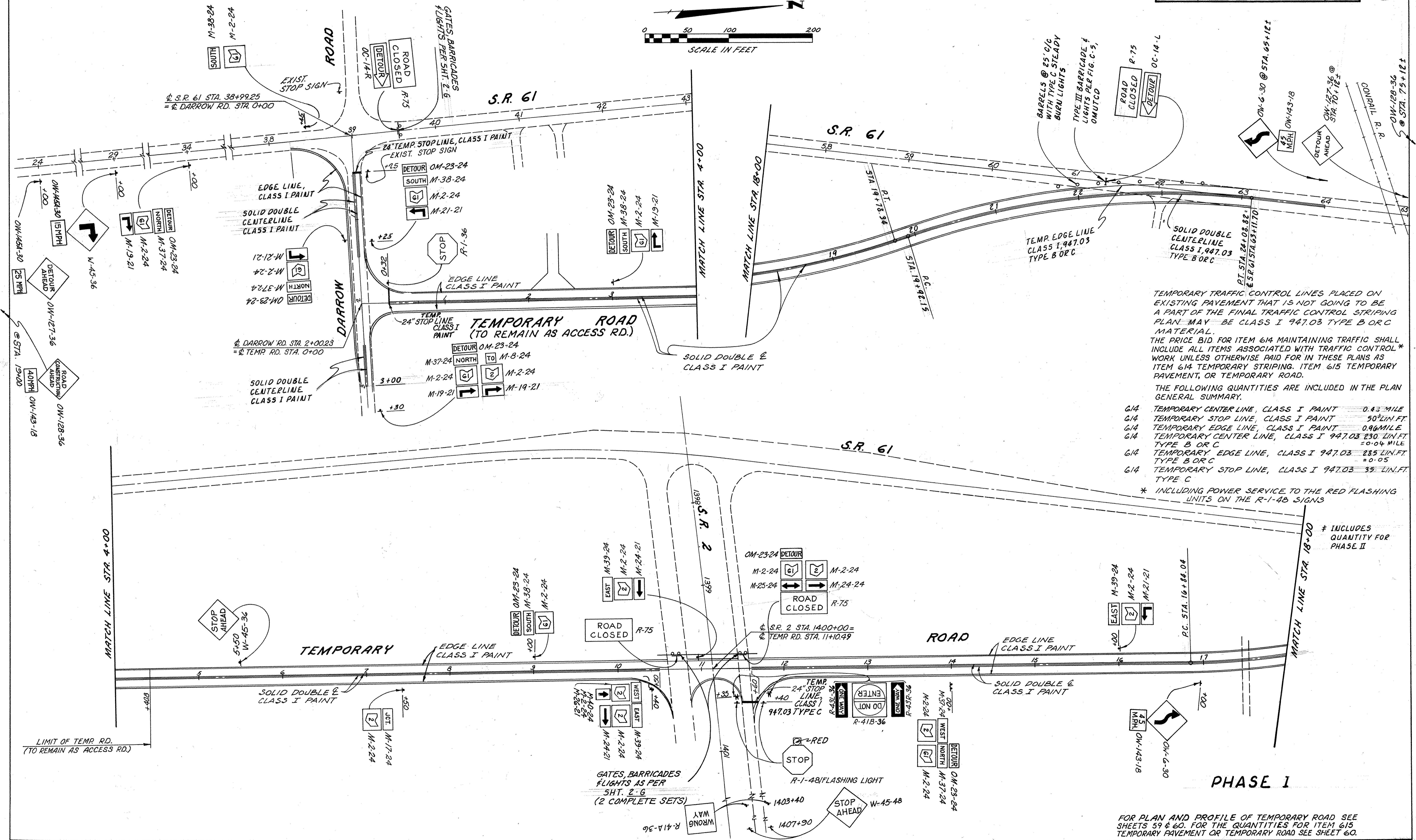
**PHASE I.** MAINTAIN TWO LANES OF TRAFFIC, ONE IN EACH DIRECTION, ON EXISTING JEFFRIES ROAD AND ON RIVER ROAD NORTH OF THE EXISTING JEFFRIES ROAD INTERSECTION. DETOUR RIVER ROAD TRAFFIC ON KNIGHT ROAD AND ON JEFFRIES ROAD AS PER THE PLANS.  
**STAGE 1.** CONSTRUCT RIVER ROAD SOUTH OF STA. 22+00± AND JEFFRIES ROAD WEST OF STA. 17+50  
**STAGE 2.** MAINTAIN TWO-WAY TRAFFIC ON ONE 10' MINIMUM WIDTH LANE ON THE EASTERLY ONE-HALF OF RIVER ROAD NORTH OF JEFFRIES ROAD WHILE CONSTRUCTING THE WESTERLY ONE-HALF OF RIVER ROAD FROM STA. 22+50± NORTH TO THE RAILROAD. \*

**PHASE II.** **STAGE I** DETOUR JEFFRIES ROAD TRAFFIC AT KNIGHT ROAD TO RIVER ROAD AND ON RIVER ROAD AS PER THE PLANS. MAINTAIN TWO-WAY TRAFFIC ON 10' MINIMUM WIDTH LANE ON THE WESTERLY ONE-HALF (1/2) OF RIVER ROAD DURING PHASE I, STAGE 2. CONSTRUCTION. COMPLETE EASTERLY SIDE OF RIVER ROAD BETWEEN STA. 22+50± TO THE RAILROAD. \*  
**STAGE II** OPEN RIVER ROAD TO TWO LANES OF TRAFFIC, ONE IN EACH DIRECTION AS PER THE PLANS. COMPLETE THE JEFFRIES ROAD CONSTRUCTION AS PER THE PLANS.



\* NOTE: THE TIME TO COMPLETE STAGE 2 OF PHASE I, AND STAGE I OF PHASE II SHALL BE HELD TO A MINIMUM LENGTH OF TIME, AND SHALL NOT EXCEED THIRTY CALENDAR DAYS FOR BOTH PHASES. THE CONTRACTOR SHALL PROVIDE FLAGMEN AS PER SHEET 2-J TO ASSIST TRAFFIC DURING THESE STAGES OF CONSTRUCTION AND OPEN THE AREA UP TO TWO LANES OF TRAFFIC, ONE IN EACH DIRECTION, DURING NON-WORKING HOURS.

NOTE: All signs, barricades, etc. shall be provided, erected, maintained and subsequently removed by the contractor.



TEMPORARY TRAFFIC CONTROL LINES PLACED ON EXISTING PAVEMENT THAT IS NOT GOING TO BE A PART OF THE FINAL TRAFFIC CONTROL STRIPING PLAN MAY BE CLASS I 947.03 TYPE B OR C MATERIAL.

THE PRICE BID FOR ITEM 614 MAINTAINING TRAFFIC SHALL INCLUDE ALL ITEMS ASSOCIATED WITH TRAFFIC CONTROL\* WORK UNLESS OTHERWISE PAID FOR IN THESE PLANS AS ITEM 614 TEMPORARY STRIPING, ITEM 615 TEMPORARY PAVEMENT, OR TEMPORARY ROAD.

THE FOLLOWING QUANTITIES ARE INCLUDED IN THE PLAN GENERAL SUMMARY.

614	TEMPORARY CENTER LINE, CLASS I PAINT	= 0.43 MILE
614	TEMPORARY STOP LINE, CLASS I PAINT	= 50 LIN. FT.
614	TEMPORARY EDGE LINE, CLASS I PAINT	= 0.96 MILE
614	TEMPORARY CENTER LINE, CLASS I 947.03 230 LIN. FT. TYPE B OR C	= 20.04 MILE
614	TEMPORARY EDGE LINE, CLASS I 947.03 235 LIN. FT. TYPE B OR C	= 20.05
614	TEMPORARY STOP LINE, CLASS I 947.03 35 LIN. FT. TYPE C	

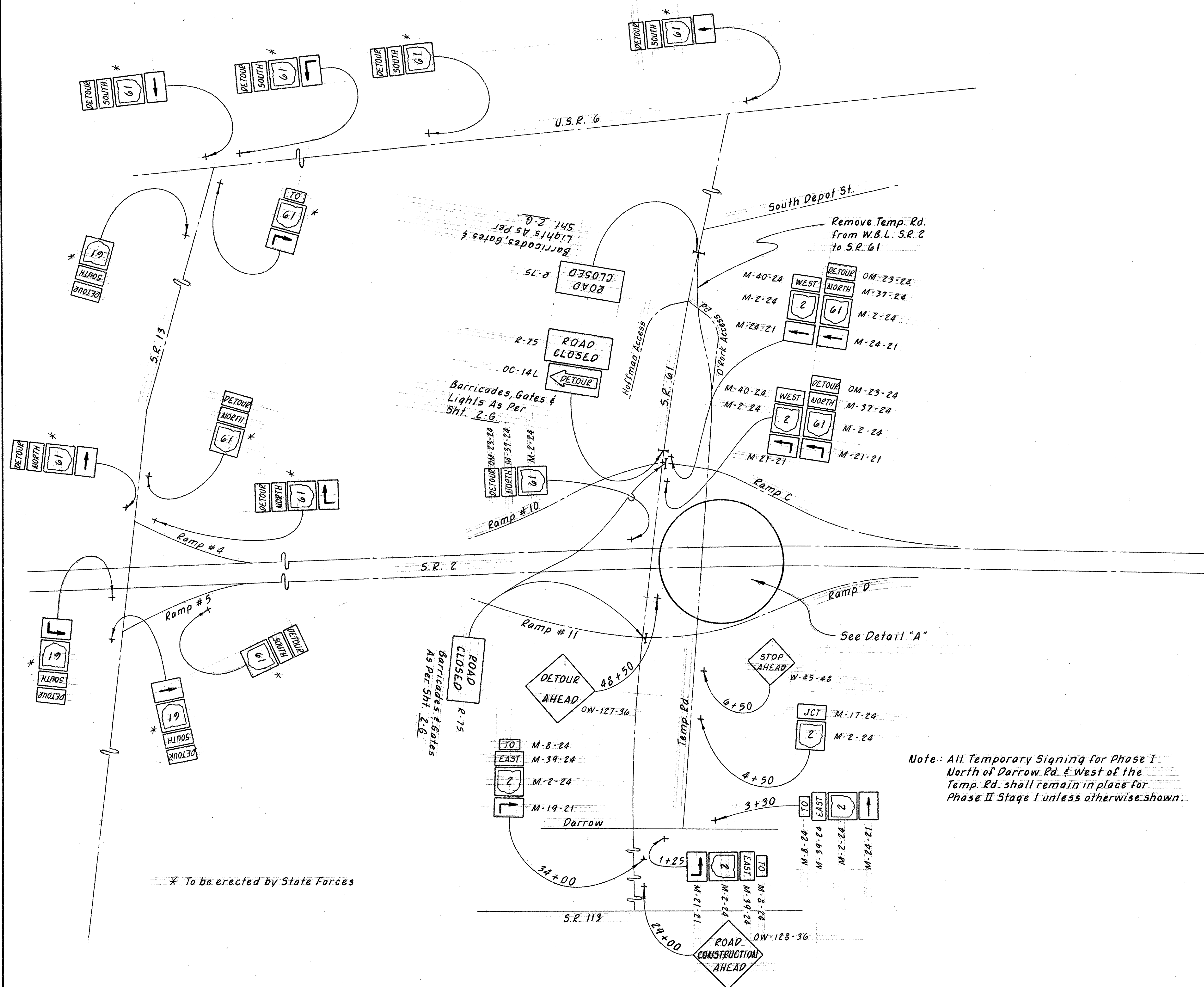
\* INCLUDING POWER SERVICE TO THE RED FLASHING UNITS ON THE R-1-48 SIGNS

# INCLUDES QUANTITY FOR PHASE II

**PHASE I**

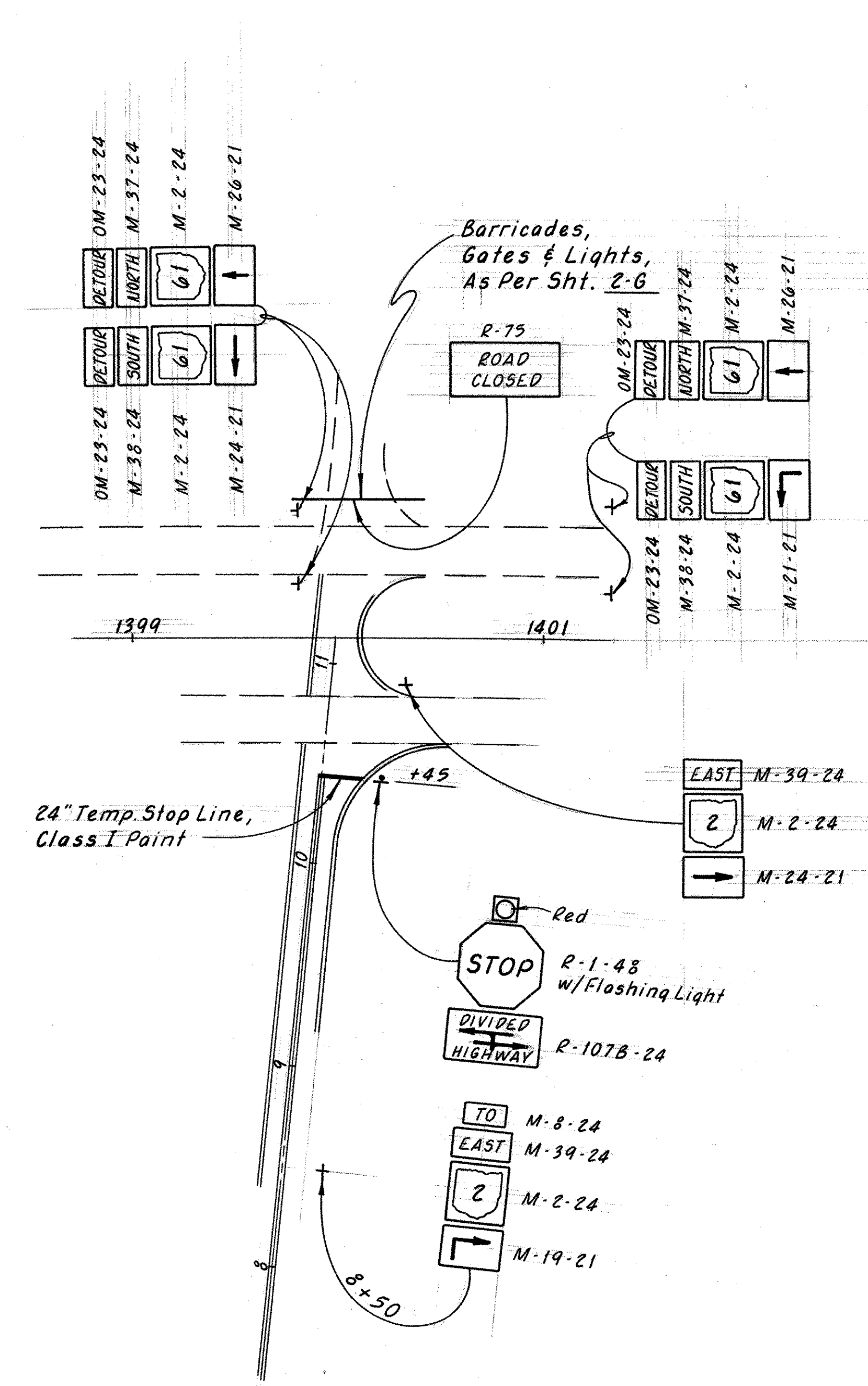
FOR PLAN AND PROFILE OF TEMPORARY ROAD SEE SHEETS 59 & 60. FOR THE QUANTITIES FOR ITEM 615 TEMPORARY PAVEMENT OR TEMPORARY ROAD SEE SHEET 60.

ERIE COUNTY  
ERI. 2-18.38



\* To be erected by State Forces

Note: All Temporary Signage for Phase I North of Darrow Rd. & West of the Temp. Rd. shall remain in place for Phase II Stage I unless otherwise shown.

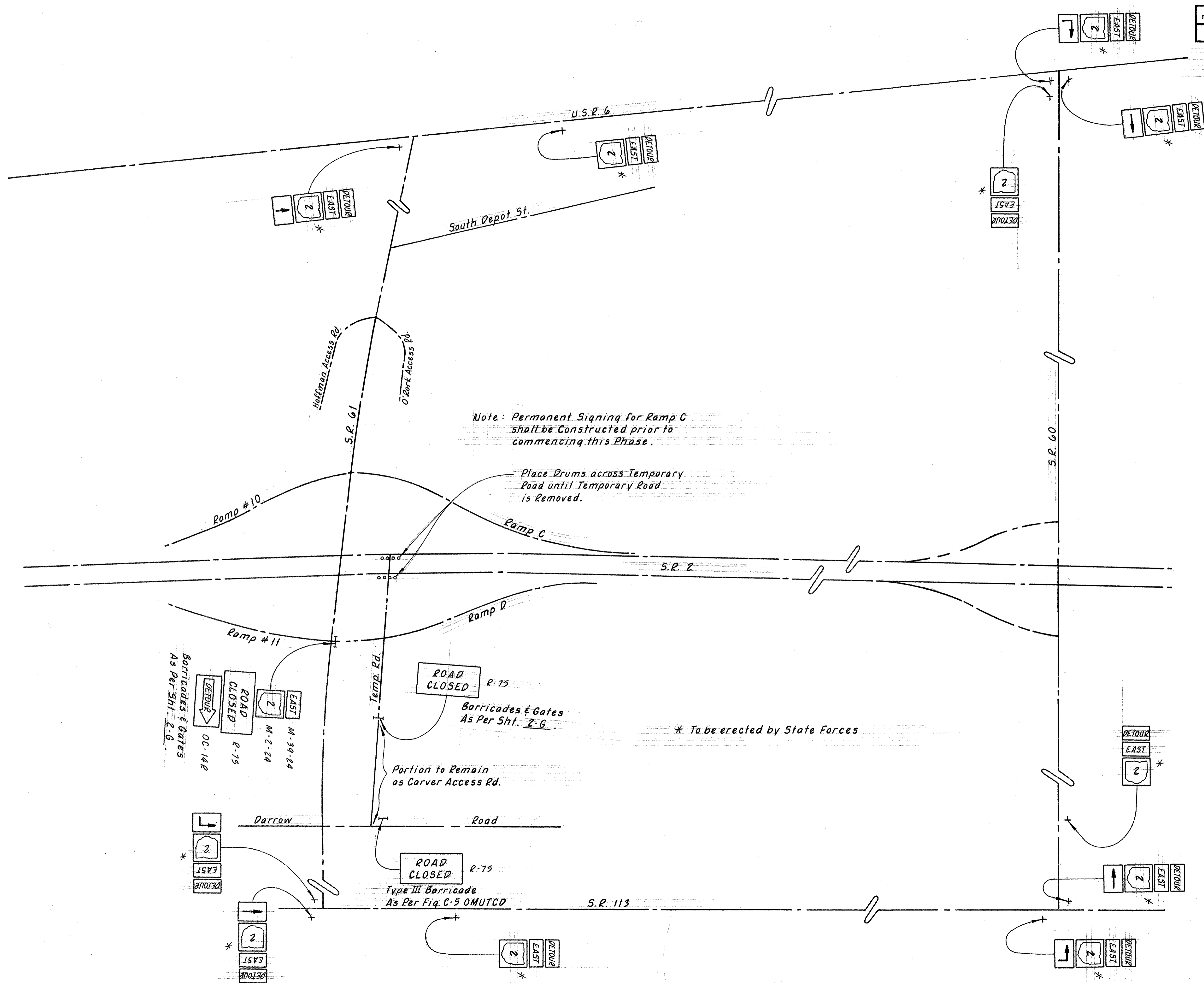


DETAIL "A"  
PHASE II  
STAGE I

FHWA REGION	STATE	PROJECT
5	OHIO	

2-F  
326

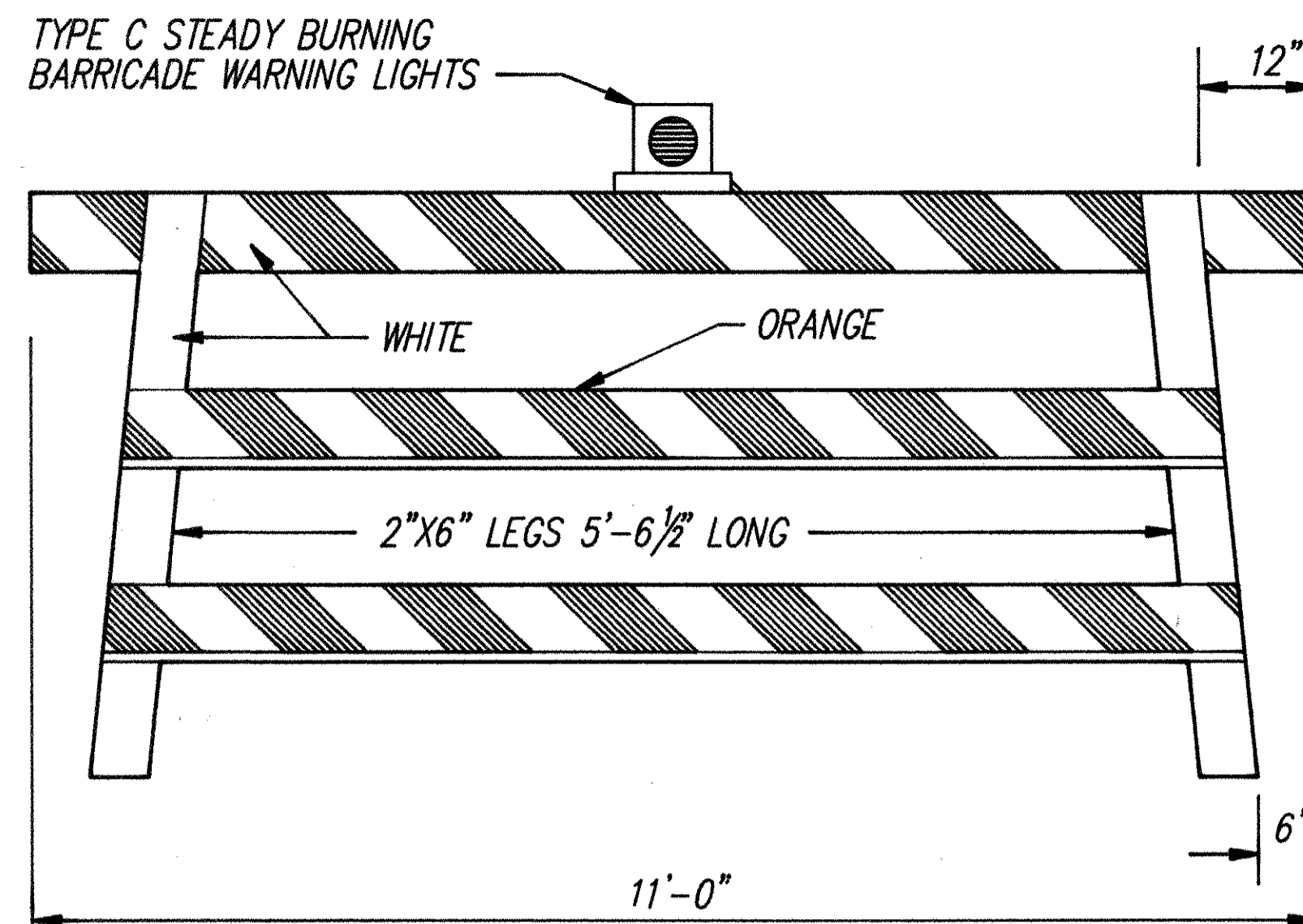
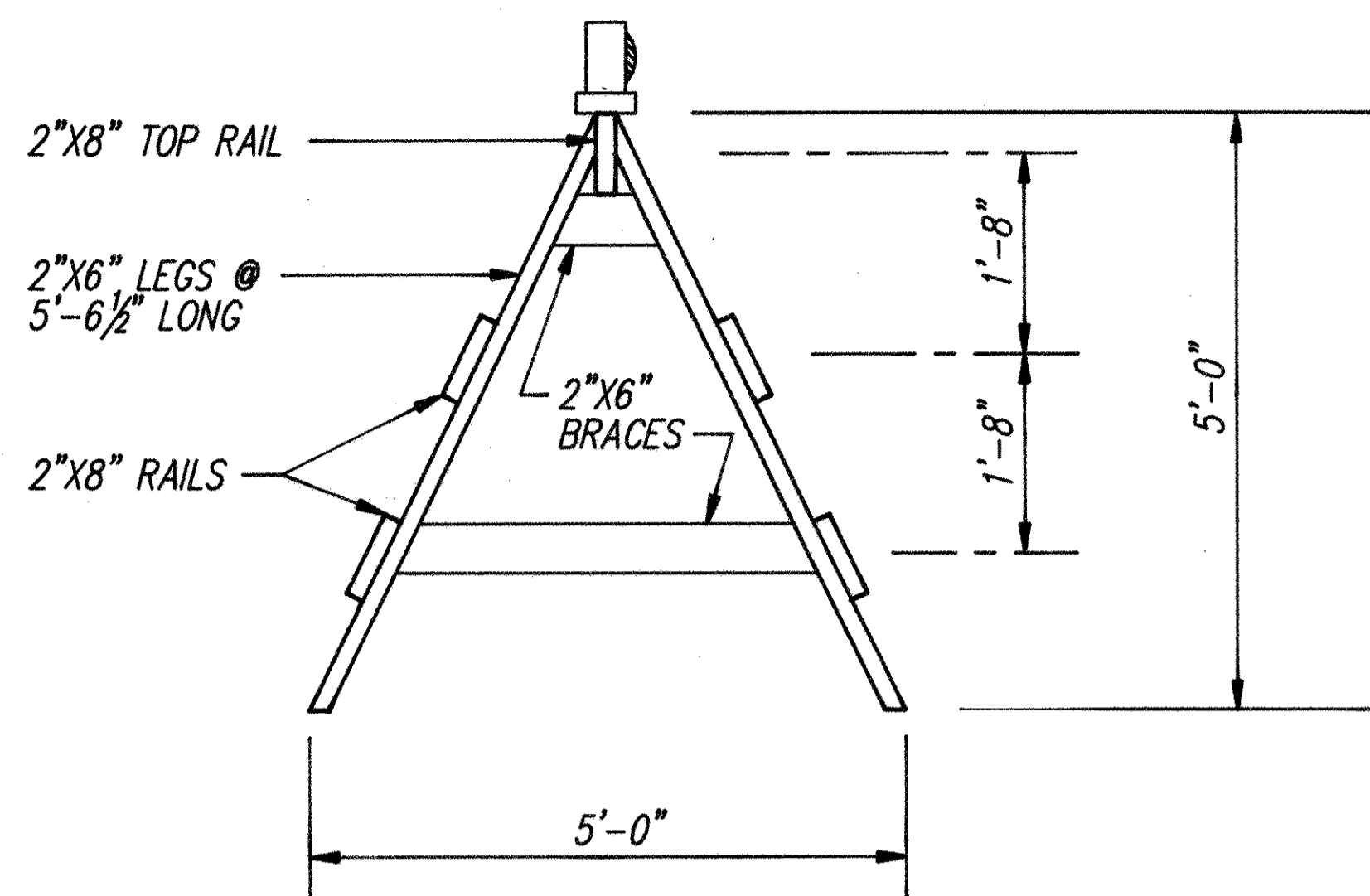
ERIE COUNTY  
ERI. 2 - 18.38



PHASE II  
STAGE 2



**MOVABLE GATE**

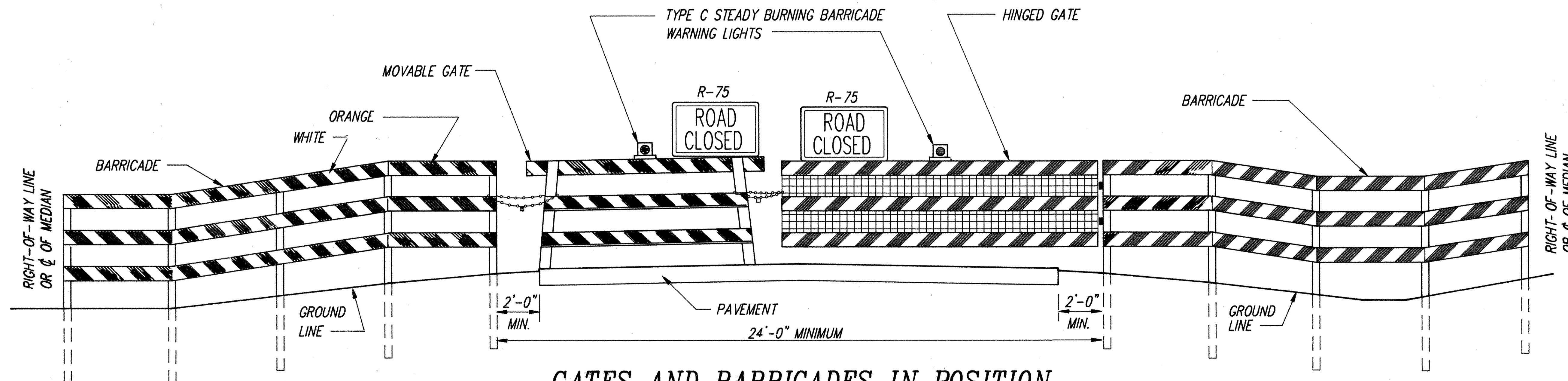


GATES SHALL BE WELL SPIKED USING SPIKES LONG ENOUGH TO CLINCH.

**-NOTES-**

- ① **BARRICADES:** BARRICADES SHALL BE CONSTRUCTED ACCORDING TO DETAILS SHOWN. WHEN THE ROAD IS CLOSED TO TRAFFIC, BARRICADES AND GATES SHALL BE USED TO EFFECTIVELY CLOSE THE ENTIRE ROADWAY INCLUDING THE MEDIAN OF DIVIDED HIGHWAYS. IN URBAN AREAS AND AT LOCATIONS WHERE IT IS IMPRACTICAL TO EXTEND THE BARRICADE TO THE RIGHT-OF-WAY LINE BECAUSE OF A SIDEWALK OR OTHER OBSTRUCTION, THE ENDS OF THE BARRICADE SHALL BE LOCATED AS DIRECTED BY THE ENGINEER TO EFFECT THE DESIRED CLOSING OF THE HIGHWAY.
- ② **PAINTING AND REFLECTORIZATION:** ALL RAILS OF THE BARRICADES AND GATES SHALL BE REFLECTORIZED WITH ORANGE AND WHITE REFLECTORIZED SHEETING IN 6\" WIDE ALTERNATE STRIPES WHICH SLOPE DOWNWARD TOWARD THE CENTER LINE OF THE ROAD AT AN ANGLE OF 45°. ALL THREE RAILS OF THE ROAD CLOSED BARRICADE SHALL BE STRIPED ON THE SIDE FACING TRAFFIC. ALL GATE RAILS SHALL BE STRIPED ON BOTH SIDES. ALL POSTS, BRACES, GATE LEGS, AND ANY UNSTRIPED RAILS SHALL BE PAINTED WHITE.
- ③ **GATES:** ONE GATE SHALL BE ERECTED FOR EACH TRAFFIC LANE. GATES SHALL BE CHAINED AND PADLOCKED TO ONE ANOTHER AND TO ADJACENT POSTS OF THE BARRICADES. CHAINS SHALL BE 1/4\" STOCK OR LARGER WITH WELDED LINKS.  
  
A HINGED GATE MAY BE USED AND SHALL BE AN APPROVED 12'x4' STEEL FRAME FARM TYPE, OR A TYPE APPROVED BY THE ENGINEER. THE GATE SHALL BE HUNG ON HINGE SCREW HOOKS, OR AS OTHERWISE APPROVED. STRIPING SIMILAR TO THAT USED ON THE MOVABLE GATE SHALL BE ACCOMPLISHED WITH 1\"x8\" LUMBER OR WITH METAL STRIPS FASTENED TO THE GATE. THE GATE SHALL BE SUPPORTED AT THE CENTER IN AN APPROVED MANNER.
- ④ **TYPE C STEADY BURNING BARRICADE WARNING LIGHTS:** EACH GATE SHALL BE EQUIPPED WITH A TYPE C STEADY BURNING BARRICADE WARNING LIGHT, CONSPICUOUSLY VISABLE AT ALL DISTANCES UP TO 1000' UNDER NORMAL ATMOSPHERIC CONDITIONS. THE LIGHT SHALL BE IN OPERATION AT ALL TIMES BETWEEN SUNSET AND SUNRISE DURING THE PERIOD THE HIGHWAY IS CLOSED.
- ⑤ **SIGNS:** WHERE THE ROAD IS CLOSED TO TRAFFIC BY THE ERECTION OF GATES AND BARRICADES, ROAD CLOSED SIGNS (R-75) SHALL BE MOUNTED ON THE GATES AS SHOWN.
- ⑥ **LUMBER:** LUMBER USED IN THE CONSTRUCTION OF THE GATES AND BARRICADES SHALL BE NO. 1 COMMON YELLOW PINE OR NO. 1 COMMON DOUGLAS FIR, SURFACED ON FOUR SIDES STANDARD, OR OTHER MATERIALS APPROVED BY THE ENGINEER. ALL SIZES ARE NOMINAL.
- ⑦ **POSTS:** POSTS SHALL BE SOUND 4\"x4\" SAWED OR 4 1/2\" ROUND. RAILS OF THE BARRICADE SHALL BE BOLTED TO THE POSTS WITH 5/8\" BOLTS.

AN END CONSTRUCTION SIGN (OC-8) SHALL BE ERECTED FACING TRAFFIC LEAVING THE CONSTRUCTION SECTION. THE SIGNS SHALL BE ERECTED AS DETAILED HEREON.



**GATES AND BARRICADES IN POSITION**

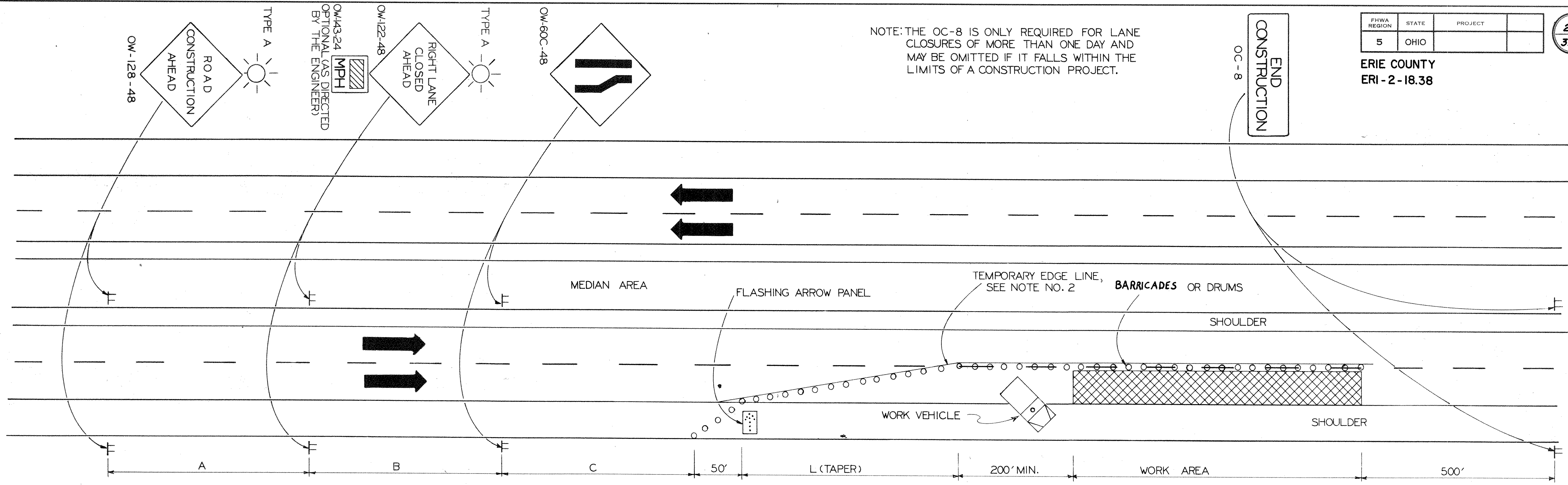
FHWA REGION	STATE	PROJECT
5	OHIO	

2H  
326

ERIE COUNTY  
ERI-2-18.38

NOTE: THE OC-8 IS ONLY REQUIRED FOR LANE CLOSURES OF MORE THAN ONE DAY AND MAY BE OMITTED IF IT FALLS WITHIN THE LIMITS OF A CONSTRUCTION PROJECT.

END CONSTRUCTION  
OC-8



- 1) THE TAPER LENGTH (L) SHALL BE IN ACCORDANCE WITH SECTION 7F-17 OF THE OMTCD. THE LOCATION OF THE ADVANCE WARNING SIGNS SHOULD BE ADJUSTED TO PROVIDE FOR ADEQUATE SIGHT DISTANCE FOR THE EXISTING VERTICAL AND HORIZONTAL ROADWAY ALIGNMENT. IN ORDER TO DETERMINE THE MINIMUM NUMBER OF CHANNELIZING DEVICES FOR THE TRANSITION TAPER SEE TABLE 7-5 OMTCD. FOR A 55 MPH PREVAILING SPEED AND A 12 FT. LANE, NOT LESS THAN THIRTEEN (13) DRUMS SHALL BE USED TO FORM THE LANE TRANSITION TAPER IN ADVANCE OF THE WORK AREA. NOT LESS THAN FIVE (5) DRUMS SHALL BE USED TO FORM THE TAPER ON THE SHOULDER. DRUMS SHALL BE SPACED 50' CENTER TO CENTER IN THE WORK AREA. CONES HAVING A MINIMUM HEIGHT OF 28 INCHES MAY BE SUBSTITUTED FOR DRUMS FOR DAY TIME LANE CLOSURES. PROVISIONS SHALL BE MADE TO STABILIZE THE CONES TO PREVENT THEM FROM BLOWING OVER.
- 2) IF THE CONSTRUCTION OPERATION REQUIRES THE LANE CLOSURE FOR MORE THAN ONE DAY THEN THE EXISTING CONFLICTING PAVEMENT MARKINGS AND REFLECTORS FROM THE RAISED PAVEMENT MARKERS SHALL BE REMOVED AND THE APPROPRIATE COLOR TEMPORARY EDGE LINES SHALL BE APPLIED. PAVEMENT MARKING TAPE MAY BE USED. AFTER COMPLETION OF THE WORK, TEMPORARY MARKINGS SHALL BE REMOVED IN ACCORDANCE WITH 621.134 AND THE ORIGINAL MARKINGS AND RAISED PAVEMENT MARKER REFLECTORS SHALL BE RESTORED.
- 3) THE MAJOR STANDARD LEVEL (36") WARNING SIGNS MAY BE USED ON DIVIDED STREETS OR HIGHWAYS THAT ARE NOT CLASSIFIED AS FREEWAYS OR EXPRESSWAYS.

- 4) WHEN WORK IS BEING PERFORMED IN THE LANE ADJACENT TO THE MEDIAN ON A DIVIDED HIGHWAY AN OW-123-48 SIGN(S) SHALL BE SUBSTITUTED FOR THE OW-122-48 SIGN(S) AND AN OW-60D-48 SIGN(S) SHALL BE SUBSTITUTED FOR THE OW-60C-48 SIGN(S). NOTE NO. 2 IS APPLICABLE FOR THIS CLOSURE ALSO.
- 5) THE WORK VEHICLE SHOWN AT THE BEGINNING OF THE WORK AREA SHALL BE IN PLACE AND UNOCCUPIED WHENEVER WORKERS ARE IN THE WORK AREA. THIS WORK VEHICLE SHALL BE REMOVED FROM THE PAVEMENT WHENEVER WORKERS ARE NOT IN THE WORK AREA. OTHER PROTECTIVE DEVICES MAY BE USED IN LIEU OF THE WORK VEHICLE SHOWN WHEN APPROVED BY THE ENGINEER. THE VEHICLE SHALL BE EQUIPPED WITH A 360° ROTATING OR FLASHING AMBER BEACON CLEARLY VISIBLE FOR A MINIMUM OF ONE-QUARTER (1/4) MILE.
- 6) THE FLASHING ARROW PANEL SHALL MEET THE REQUIREMENTS OF STANDARD DRAWING TC-35.10.
- 7) TYPE C STEADY BURN BARRICADE WARNING LIGHTS SHALL BE ERECTED ON DRUMS FOR NIGHT LANE CLOSURES. THE MAXIMUM SPACING SHALL BE IDENTICAL TO THE CHANNELIZING DEVICE SPACING REQUIREMENTS DESCRIBED IN NOTE NO. 1.
- 8) TYPE A FLASHING BARRICADE WARNING LIGHTS SHOWN ON THE "ROAD CONSTRUCTION AHEAD" AND THE "RIGHT LANE CLOSED AHEAD" SIGNS ARE REQUIRED WHENEVER A NIGHT LANE CLOSURE IS NECESSARY.

- 9) SOME WORK AREA LOCATIONS MAY REQUIRE MORE THAN JUST STATIC OR CONVENTIONAL SIGNS TO ENHANCE COMMUNICATION WITH THE DRIVER. AT THESE LOCATIONS PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS) UNITS ARE RECOMMENDED. THESE DEVICES SHOULD BE LOCATED APPROXIMATELY 2,000 FEET IN ADVANCE OF A LANE CLOSURE OR OTHER POINT OF REQUIRED ACTION. SEE SECTION 7G-8.1, OMTCD FOR FURTHER GUIDANCE ON USE OF PCMS UNITS. THESE UNITS, IF REQUIRED, WILL BE SPECIFICALLY CALLED FOR IN THE PLANS AND PAID FOR SEPARATELY.
- 10) PAYMENT FOR ALL OF THE ABOVE, UNLESS ITEMIZED SEPARATELY, SHALL BE INCLUDED IN ITEM 614, MAINTAINING TRAFFIC.

MINIMUM DISTANCE	A	B	C
	FEET	FEET	FEET
MAJOR STANDARD	500	500	500
URBAN FREEWAY & EXPRESSWAY	500 TO 1000	500 TO 1000	500 TO 1000
RURAL FREEWAY & EXPRESSWAY	2600	1600	1000

OHIO DEPARTMENT OF TRANSPORTATION	
CLOSING ONE LANE OF A FOUR LANE DIVIDED HIGHWAY	DATE: 12/82
REVISED: CN 10-83	

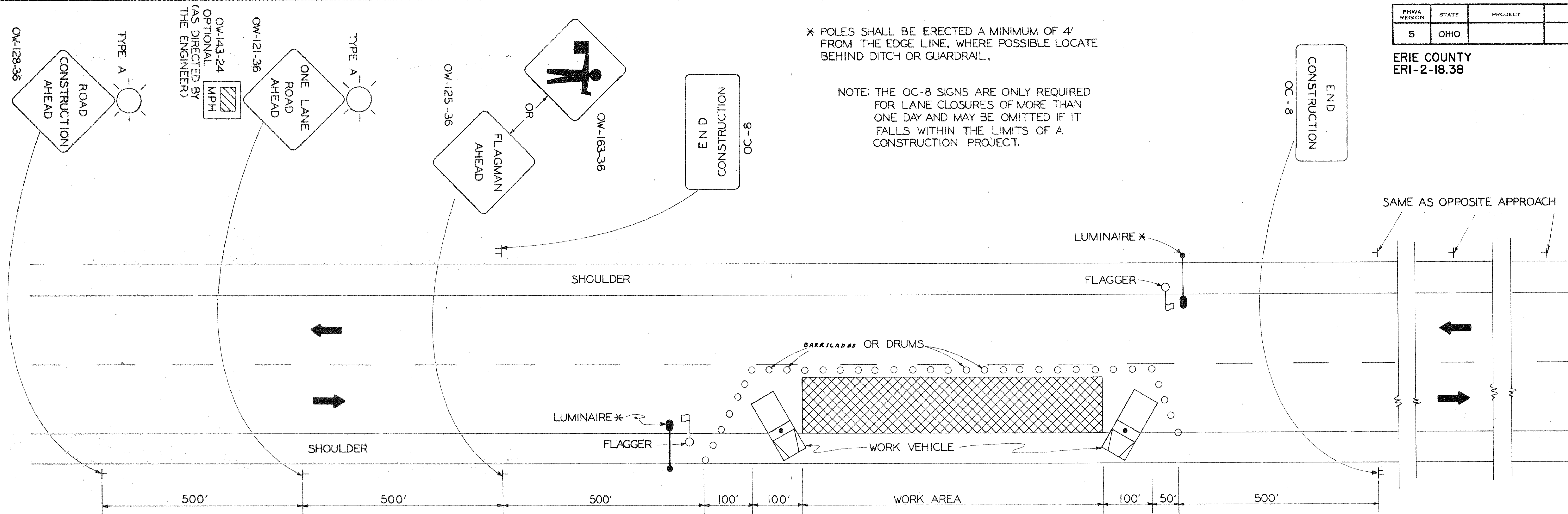
FHWA REGION	STATE	PROJECT
5	OHIO	

2J  
326

ERIE COUNTY  
ERI-2-18.38

\* POLES SHALL BE ERECTED A MINIMUM OF 4' FROM THE EDGE LINE. WHERE POSSIBLE LOCATE BEHIND DITCH OR GUARDRAIL.

NOTE: THE OC-8 SIGNS ARE ONLY REQUIRED FOR LANE CLOSURES OF MORE THAN ONE DAY AND MAY BE OMITTED IF IT FALLS WITHIN THE LIMITS OF A CONSTRUCTION PROJECT.



- 1) FLAGGERS, ONE FOR EACH DIRECTION, SHALL BE USED TO CONTROL TRAFFIC CONTINUOUSLY FOR AS LONG AS A ONE-LANE OPERATION IS IN EFFECT. THE FLAGGERS SHALL BE ABLE TO COMMUNICATE WITH EACH OTHER AT ALL TIMES AND CONFORM TO OTHER REQUIREMENTS AS DESCRIBED IN THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (OMUTCD) IN SECTION 7H: CONTROL OF TRAFFIC THROUGH WORK AREAS.
- 2) BARRICADES OR DRUMS SHALL BE SPACED AT 50' CENTER TO CENTER IN THE WORK AREA. BARRICADES OR DRUMS ON THE ADVANCE AND RETURN TAPERS SHALL BE SPACED AT 10' CENTER TO CENTER. CONES HAVING A MINIMUM HEIGHT OF 28" MAY BE SUBSTITUTED FOR DRUMS FOR DAY-TIME LANE CLOSURES. PROVISIONS SHALL BE MADE TO STABILIZE THE CONES TO PREVENT THEM FROM BLOWING OVER.
- 3) ADEQUATE AREA ILLUMINATION TO CLEARLY IDENTIFY THE FLAGGER STATION AT NIGHT SHALL BE PROVIDED BY USING 150 WATT MINIMUM HIGH PRESSURE SODIUM LUMINAIRES OR 250 WATT MINIMUM MERCURY VAPOR LUMINAIRES. THE LUMINAIRES SHALL BE LOCATED ADJACENT TO THE FLAGGER STATION FOR EACH DIRECTION OF TRAFFIC AS SHOWN ABOVE. THE MOUNTING HEIGHT FOR THE LUMINAIRES SHALL BE A MINIMUM OF 27 FEET ABOVE THE PAVEMENT AND MOUNTED ON A SUPPORT OF ADEQUATE STRENGTH TO PROVIDE A SATISFACTORY INSTALLATION. THE OVERHEAD CONDUCTOR CLEARANCE SHALL BE A MINIMUM OF 20 FEET ABOVE THE PAVEMENT. THE LUMINAIRE ARMS SHALL BE OF SUFFICIENT LENGTH TO EXTEND TO THE EDGE OF THE PAVEMENT.
- 4) THE LOCATION OF THE ADVANCE WARNING SIGNS SHOULD BE ADJUSTED TO PROVIDE FOR ADEQUATE SIGHT DISTANCE FOR THE EXISTING VERTICAL AND HORIZONTAL ROADWAY ALIGNMENT. THE DISTANCES SHOWN ARE MINIMUMS.

- 5) THE TYPE A FLASHING BARRICADE WARNING LIGHTS SHOWN ON THE "ROAD CONSTRUCTION AHEAD" AND THE "ONE LANE ROAD AHEAD" SIGNS ARE REQUIRED WHENEVER A NIGHT LANE CLOSURE IS NECESSARY.
- 6) TYPE C STEADY BURNING BARRICADE WARNING LIGHTS SHALL BE ERECTED ON DRUMS FOR NIGHT LANE CLOSURES. THE MAXIMUM SPACING SHALL BE IDENTICAL TO THE CHANNELIZING DEVICE SPACING REQUIREMENTS DESCRIBED IN NOTE 2.
- 7) THE WORK VEHICLES SHOWN AT THE BEGINNING AND END OF THE WORK AREA SHALL BE IN PLACE AND UNOCCUPIED WHENEVER WORKERS ARE IN THE WORK AREA. THESE WORK VEHICLES SHALL BE REMOVED FROM THE PAVEMENT WHENEVER WORKERS ARE NOT IN THE WORK AREA. OTHER PROTECTIVE DEVICES MAY BE USED IN LIEU OF THE WORK VEHICLES SHOWN WHEN APPROVED BY THE ENGINEER. THE VEHICLES SHALL BE EQUIPPED WITH A 360° ROTATING OR FLASHING AMBER BEACON CLEARLY VISIBLE FOR A MINIMUM OF ONE-QUARTER (1/4) MILE.
- 8) SEVERAL SMALL WORK SITES CLOSE TOGETHER SHALL BE COMBINED INTO ONE WORK AREA TO MAKE A CLOSURE NOT MORE THAN 2000 FEET LONG INCLUDING TAPERS. CLOSURES OF MORE THAN 2000 FEET MAY BE APPROVED BY THE ENGINEER. THE MINIMUM LENGTH BETWEEN CLOSURES SHALL BE 2000 FEET. ONLY ONE SIDE OF THE ROAD SHALL BE CLOSED IN ANY ONE WORK AREA.
- 9) PAYMENT FOR ALL OF THE ABOVE, UNLESS ITEMIZED SEPARATELY, SHALL BE INCLUDED IN ITEM 614 MAINTAINING TRAFFIC.

OHIO DEPARTMENT OF TRANSPORTATION	
FLAGGER CLOSING 1 LANE OF A 2 LANE HIGHWAY	DATE 12-82
REVISED CN 3/84	

# 614 WORK ZONE PAVEMENT MARKINGS

## GENERAL

THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN AND WHEN NECESSARY, REMOVE WORK ZONE 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 TO PROVIDE DAY AND NIGHT VISIBILITY. THE MARKINGS SHALL BE REPAIRED OR REPLACED AS DIRECTED BY THE ENGINEER TO MAINTAIN REQUIRED VISUAL EFFECTIVENESS AND NIGHT VISIBILITY AT NO ADDITIONAL COST TO THE STATE.

THE CONTRACTOR SHALL, IN ADVANCE OF ANY SECTION OF ROADWAY LACKING OMUTCD FULL PATTERN STANDARD DIMENSION EDGE LINE OR CENTER LINE MARKINGS, ERECT A "NO EDGE LINES" (OW-167) SIGN OR "UNMARKED NO PASSING ZONES" (OW-168) SIGN OR BOTH AS MAY BE APPROPRIATE. THESE SIGNS SHALL BE IN PLACE PRIOR TO EXPOSING THE ROADWAY TO TRAFFIC. THESE SIGNS SHALL BE REPEATED EVERY 1 TO 2 MILES AND AT OTHER LOCATIONS AS NECESSARY. THESE SIGNS SHALL BE REMOVED WHEN THEY NO LONGER APPLY. THE COST FOR FURNISHING AND ERECTING AND SUBSEQUENTLY REMOVING THESE SIGNS SHALL BE INCLUDED IN 614 MAINTAINING TRAFFIC, UNLESS SPECIFICALLY ITEMIZED.

### TEMPORARY PAVEMENT MARKING MATERIALS

UNLESS OTHERWISE INDICATED ON THE PLANS, TEMPORARY PAVEMENT MARKINGS MAY BE EITHER 621.02 PAINT OR 947.03 TYPE B OR C PREFORMED MATERIAL. *WHERE PAVEMENT MARKING ARE NOT LIABLE TO BE TRACKED, EITHER CONVENTIONAL OR FAST-DRYING PAINT MAY BE USED FOR PAINT.*

PAINTED MARKINGS SHALL BE IN ACCORDANCE WITH 621 EXCEPT THAT THE INCREASE OF 25 PERCENT IN THE APPLICATION RATE FOR NEW BITUMINOUS PAVEMENT AND PARAGRAPH 621.14 SHALL NOT APPLY.

### TYPE B AND TYPE C PREFORMED MATERIAL

PREFORMED MATERIAL SHALL COMPLY WITH 947.03 EXCEPT THAT NO PREFORMED MATERIAL CONTAINING METAL SHALL BE PLACED ON ANY SURFACE UNLESS IT WILL BE REMOVED LATER BY THE CONTRACTOR. TEMPORARY PAVEMENT MARKINGS OF 947.03 PREFORMED MATERIAL SHALL BE REMOVED PRIOR TO PLACEMENT OF 621 OR 847 SURFACE COURSE MARKINGS AT THAT LOCATION. PREFORMED MATERIAL SHALL BE APPLIED IN ACCORDANCE WITH 847 EXCEPT AS MODIFIED HEREIN.

## PLACEMENT

TEMPORARY MARKINGS SHALL BE COMPLETE AND IN PLACE ON ALL PAVEMENT PRIOR TO EXPOSING IT TO TRAFFIC. WHEN TEMPORARY MARKINGS CONFLICT WITH THE TRAFFIC PATTERN, THEY SHALL BE REMOVED BY THE CONTRACTOR IN ACCORDANCE WITH 621.134.

### TEMPORARY MARKING CLASSES

#### CLASS I MARKINGS

CLASS I MARKINGS SHALL BE APPLIED TO THE FULL DIMENSIONS AS DEFINED IN 621 WITH THE FOLLOWING ADDITIONS OR EXCEPTIONS:

- 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.

## CLASS II MARKINGS

CLASS II MARKINGS (ABBREVIATED) SHALL BE DEFINED AS FOLLOWS:

CENTER LINES SHALL CONSIST OF SINGLE, YELLOW 4-INCH WIDE BY A MINIMUM OF 48-INCH LONG DASHES SPACED AT A MAXIMUM OF 40-FOOT INTERVALS.

LANE LINES SHALL CONSIST OF WHITE 4-INCH WIDE BY A MINIMUM OF 48-INCH LONG DASHES SPACED AT A MAXIMUM OF 40-FOOT INTERVALS.

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

THE PAINT APPLICATION RATE SHALL BE NOT LESS THAN 1.6 GALLONS PER MILE FOR LANE LINE AND CENTER LINE AND 16 GALLONS PER MILE FOR GORE MARKINGS.

### CONFLICTING EXISTING MARKINGS

THE CONTRACTOR SHALL, PRIOR TO PLACING TEMPORARY MARKINGS, REMOVE ALL CONFLICTING EXISTING 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 INCLUDED IN 614 MAINTAINING TRAFFIC UNLESS SPECIFICALLY ITEMIZED.

THE CONTRACTOR SHALL ALSO REMOVE THE PRISMATIC RETRO-REFLECTOR WITHIN ANY RAISED PAVEMENT MARKER (RPM) WHICH IS IN CONFLICT WITH THE TEMPORARY PAVEMENT MARKINGS. WHEN THE TEMPORARY PAVEMENT MARKINGS ARE REMOVED AND THE RPM IS NO LONGER IN CONFLICT, THE CONTRACTOR SHALL THOROUGHLY CLEAN THE RECESSED REFLECTOR ATTACHMENT AREA OF THE CASTING AND INSTALL A NEW PRISMATIC RETRO-REFLECTOR OF THE SAME KIND AND COLOR. THE COST FOR THIS WORK SHALL BE INCIDENTAL TO THE VARIOUS PAY ITEMS.

### INTERIM MARKINGS

WITHIN 21 CALENDAR DAYS AFTER OPENING ANY LENGTH OF PAVEMENT TO TRAFFIC, THE 621 OR 847 PAVEMENT MARKINGS CALLED FOR IN THE PLANS OR EQUIVALENT 614 CLASS I, PAINT MARKINGS SHALL BE APPLIED. THE CONTRACTOR SHALL FURNISH ALL LABOR, EQUIPMENT, AND MATERIAL NECESSARY TO PLACE AND MAINTAIN 614 CLASS I PAINT MARKINGS AS PART OF THE LUMP SUM BID FOR 614 MAINTAINING TRAFFIC.

FOR EACH CALENDAR DAY BEYOND 21 DAYS THAT THIS WORK SHALL REMAIN UNCOMPLETED, THE PROVISIONS OF 108.07 WILL BE INVOKED, EXCEPT THAT BETWEEN NOVEMBER 15 AND APRIL 15 WEATHER CONDITIONS SHALL NOT BE AN ACCEPTABLE REASON FOR EXTENSION.

### METHOD OF MEASUREMENT

TEMPORARY PAVEMENT MARKINGS WILL BE MEASURED COMPLETE IN PLACE, BY CLASS AND MATERIAL, IN THE UNITS DESIGNATED. 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 _____, *
614	MILES	TEMPORARY CENTER LINES, CLASS _____, *
614	LIN. FT.	TEMPORARY CHANNELIZING LINES, CLASS I, *
614	MILES	TEMPORARY EDGE LINES, CLASS I, *
614	LIN. FT.	TEMPORARY GORE MARKINGS, CLASS II, *
614	LIN. FT.	TEMPORARY STOP LINES, CLASS I, *
614	LIN. FT.	TEMPORARY CROSSWALK LINES, CLASS I, *
614	EACH	TEMPORARY LANE ARROWS, CLASS I, *
614	EACH	TEMPORARY RAILROAD SYMBOL MARKINGS, CLASS I, *
614	EACH	TEMPORARY WORD "ONLY" ON PAVEMENT, 72-INCH, CLASS I, *
614	LIN. FT.	TEMPORARY TRANSVERSE LINES, CLASS I, *
614	LIN. FT.	TEMPORARY DOTTED LINES, CLASS I, *
		*621 PAINT, 947.03 TYPE B OR 947.03 TYPE C
fh4		

# TYPICAL SECTION

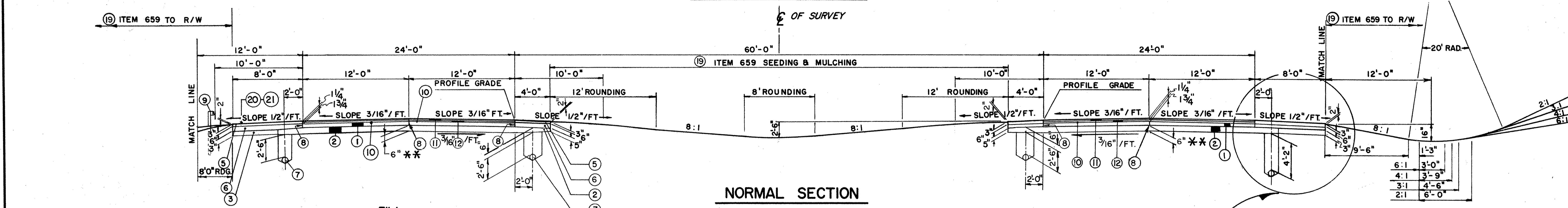
## TYPE 846 ON 305

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

3  
326

ERIE COUNTY  
ERI 2-18.38

SCALE IN FEET  
0 5 10 20



### NORMAL SECTION

STA. 1209 + 70.87 TO STA. 1399 + 00 = 18,929.13 L.F.

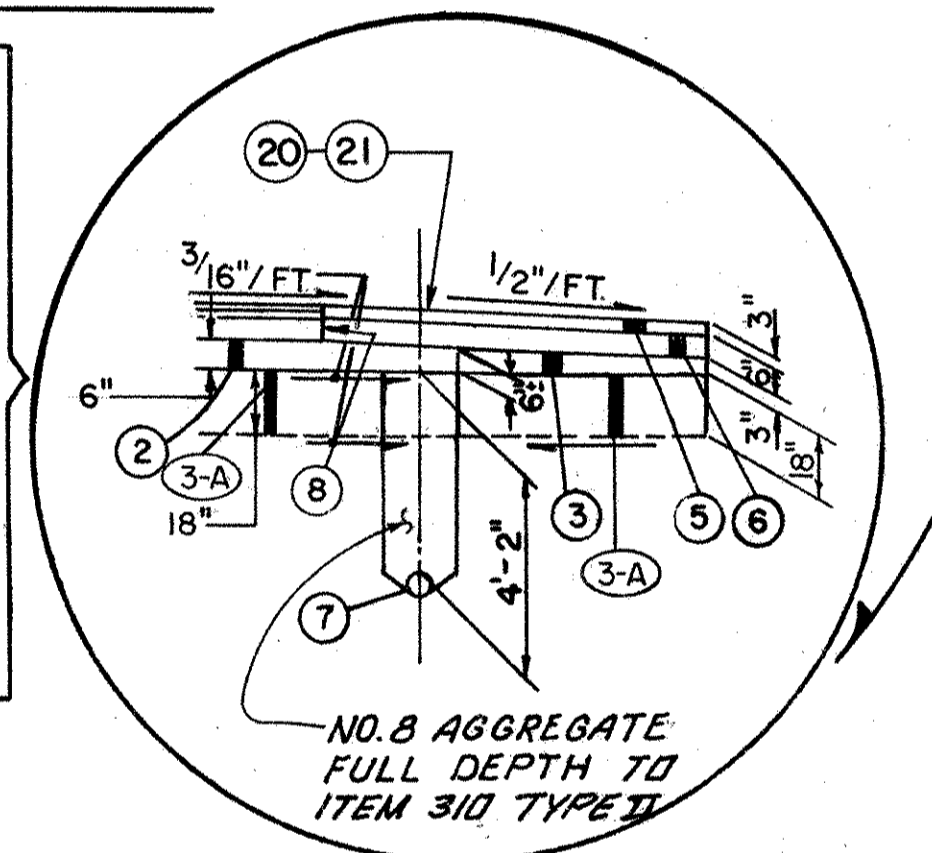
#### BRIDGE LIMITS

ERI-2-1911 L/R - STA. 1233 + 43.75 TO STA. 1259 + 37.37 (25 L.F. APPROACH SLABS)  
ERI-2-2156 L/R - STA. 1362 + 26.18 TO STA. 1363 + 71.22 (25 L.F. APPROACH SLABS)

### CUT

#### 3-A 18" EXTRA DEPTH SUBBASE LIMITS (SEE GENERAL NOTE, SHEET 9)

STA. 1196 + 25.00 TO STA. 1198 + 75.00 = 250 L.F.  
STA. 1203 + 50.00 TO STA. 1213 + 75.00 RT. = 1025 L.F.  
STA. 1203 + 00.00 TO STA. 1214 + 25.00 LT. = 1125 L.F.  
STA. 1215 + 50.00 TO STA. 1231 + 75.00 RT. = 1625 L.F.  
STA. 1216 + 50.00 TO STA. 1233 + 25.00 LT. = 1675 L.F.  
STA. 1292 + 00.00 TO STA. 1294 + 00.00 = 200 L.F.  
STA. 1311 + 00.00 TO STA. 1347 + 50.00 = 3,650 L.F.  
STA. 1350 + 40.00 TO STA. 1357 + 50.00 = 710 L.F.  
STA. 1370 + 00.00 TO STA. 1371 + 50.00 LT. = 150 L.F.  
STA. 1373 + 50.00 TO STA. 1387 + 75.00 RT. = 1425 L.F.  
STA. 1373 + 50.00 TO STA. 1388 + 75.00 LT. = 1525 L.F.  
STA. 1390 + 00.00 TO STA. 1399 + 00.00 = 900 L.F.

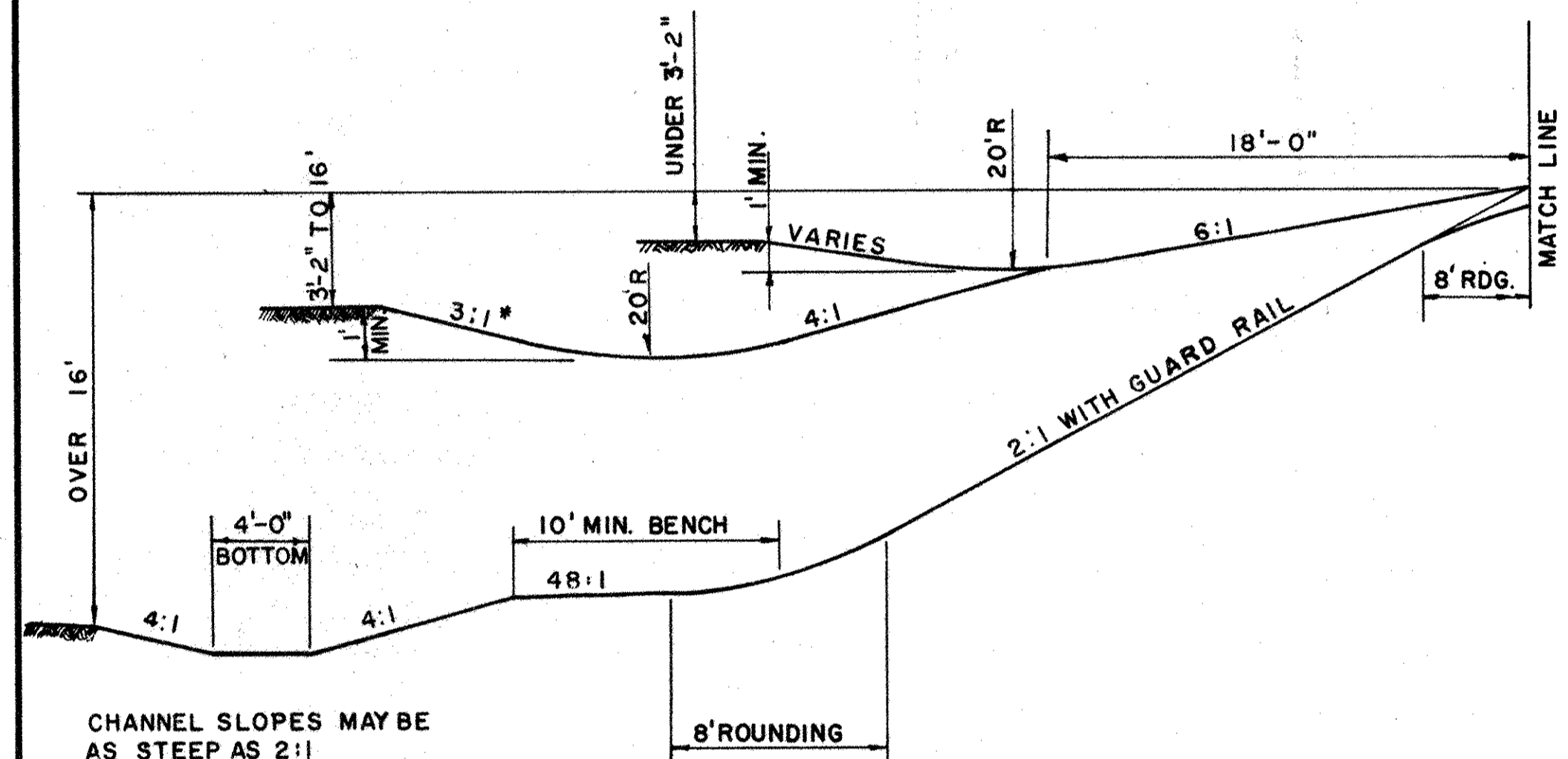


### LEGEND

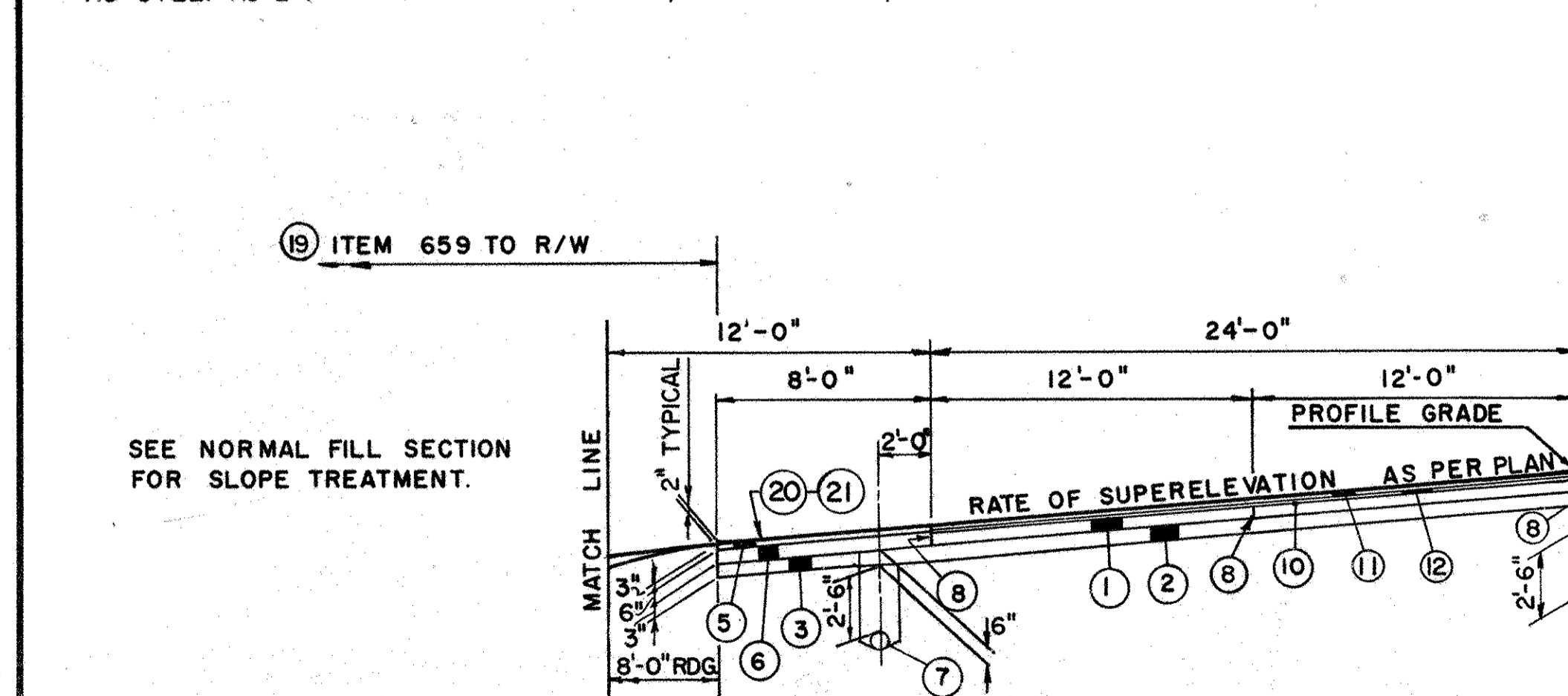
- ① 305 8" CONCRETE BASE
- ② 310 SUBBASE TYPE II
- ③ 310 SUBBASE TYPE I, GRADING A
- 3-A 310 SUBBASE TYPE I, GRADING A OR B
- ⑤ 301 BITUMINOUS AGGREGATE BASE: AC-20; RT-11 OR RT-12
- ⑥ 305 8"-6" CONCRETE BASE
- ⑦ 605 6" PIPE UNDERDRAINS, AS PER PLAN (SEE DETAIL)
- ⑧ LONGITUDINAL JOINT (SEE NOTE NO. 7)
- ⑨ 606 GUARD RAIL - TYPE 5
- ⑩ 407 TACK COAT (SEE GENERAL NOTES)
- ⑪ 846 ASPHALT CONCRETE SURFACE COURSE, TYPE 1, AC-20
- ⑫ 846 ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, AC-20
- ⑬ 659 SEEDING AND MULCHING (SEE GENERAL NOTES)
- ⑭ 409 SEAL COAT BITUMINOUS MATERIAL
- ⑮ 409 SEAL COAT COVER AGGREGATE NO. 8

### SEQUENCE OF OPERATIONS

1. INSTALL PIPE UNDERDRAIN ON SHOULDERS.
2. PLACE SUBBASE TYPE II AS PER PLAN TO OUTSIDE EDGE OF UNDERDRAIN. PAYMENT SHALL BE MADE FOR ALL SUBBASE PLACED IN THIS OPERATION.
3. CONSTRUCT ITEM 305.
4. REMOVE SUBBASE AND ANY CONTAMINATED BACKFILL OVER DRAIN AND REPLACE WITH NO. 8 AGGREGATE AS SHOWN BY ⑥.
5. COMPLETE CONSTRUCTION.



CHANNEL SLOPES MAY BE AS STEEP AS 2:1



### SUPERELEVATED SECTION

FOR PAVEMENT ELEVATIONS SEE SHEET NO. 82  
STA. 1195 + 00 TO STA. 1209 + 70.87 = 1470.87 L.F.  
NOTE: FOR PAVED BERM SLOPES SEE SH. NO. 82

### CUT

7. WHERE MAINLINE 305 BASE AND 305 SHOULDERS ARE PLACED IN ONE OPERATION, TIE BAR SPACING ACROSS LONGITUDINAL SHOULDER JOINT MAY BE 60". LONGITUDINAL JOINTS SHALL BE SAW CUT. WHERE MAINLINE AND SHOULDERS ARE PLACED AS SEPARATE OPERATIONS, TIE BAR OR HOOK BOLT SPACING SHALL BE 30".

1. \*\* SUBBASE DEPTH VARIES AS SHOWN ON CROSS SECTIONS, WHERE 18" UNDERCUTTING IS REQUIRED.
2. \* UNLESS OTHERWISE SHOWN ON CROSS SECTIONS
3. CROSS SECTIONS SHALL GOVERN OVER TYPICAL SECTIONS IF VARIABLE CONDITIONS ARE ENCOUNTERED.
4. CUT AND FILL SECTIONS SHOWN ARE INTERCHANGEABLE WITH EITHER SIDE OF ROADWAY.

5. SUBBASE FOR ALL NORMAL SECTIONS SHALL BE CONSTRUCTED CROWNED AS PER THE TYPICAL SECTION AND NOT AS SHOWN ON THE CROSS SECTIONS. AN ADJUSTMENT FACTOR OF 0.66 CU.FT. PER FT. HAS BEEN ADDED BY CALCULATION TO ALL NORMAL FILL SECTIONS AND DEDUCTED FROM ALL NORMAL CUT SECTIONS.

ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND 42, OHIO

### TYPICAL SECTIONS MAIN LINE NORMAL AND SUPERELEVATED

DESIGNED	DRAWN	CHECKED	REVISED	DATE
R.W.H.	J.D.A.	J.J.D.		
8-10-69	8-20-69	2-19-70		

# TYPICAL SECTION

TYPE 846 ON 305

FIG. NO. DIVISION	STATE	PROJECT	
2	OHIO		4 326

ERIE COUNTY  
ERIE-2-18.38

## NORMAL SECTION

STA. 1191+91.78 TO STA. 1198+00	RAMP NO.5
STA. 1321+50 TO STA. 1322+50	RAMP NO.7
STA. 1325+00 TO STA. 1326+75	RAMP NO.8
STA. 1328+14.54 TO STA. 1328+50	RAMP NO.9
STA. 1392+00 TO STA. 1393+00	RAMP NO.11

## SUPERELEVATED RAMP

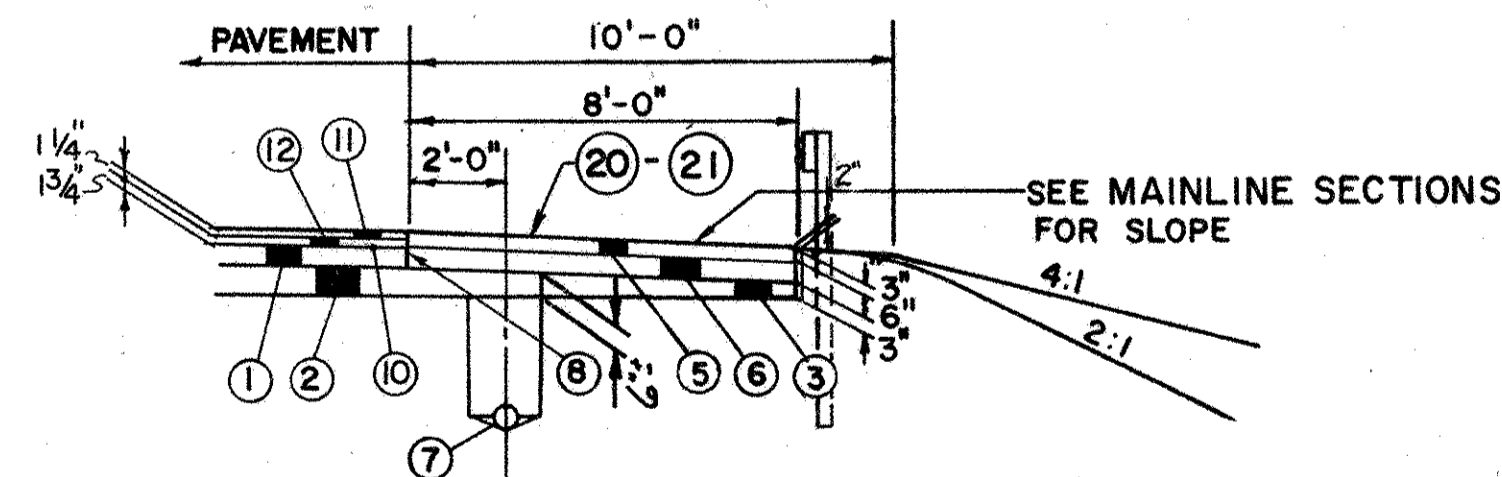
STA. 1194+57.70 TO STA. 1199+39.44	RAMP NO.4
STA. 1198+00 TO STA. 1199+06	RAMP NO.5
STA. 1314+15 TO STA. 1319+71.79	RAMP NO.6
STA. 1317+53.07 TO STA. 1321+50	RAMP NO.7
STA. 1322+50 TO STA. 1322+93.33	RAMP NO.7
STA. 1324+55.90 TO STA. 1325+00	RAMP NO.8
STA. 1326+75 TO STA. 1330+46.93	RAMP NO.8
STA. 1328+50 TO STA. 1332+75	RAMP NO.9
STA. 1390+00 TO STA. 1394+93.38	RAMP NO.10
STA. 1388+63.07 TO STA. 1392+00	RAMP NO.11
STA. 1393+00 TO STA. 1393+73.91	RAMP NO.11
STA. 1396+70 TO STA. 1396+98.15	RAMP NO.11

## REVERSE SUPER

STA. 1191+28.48 TO STA. 1194+57.70	RAMP NO.4
STA. 1322+93.33 TO STA. 1327+75.69	RAMP NO.7
STA. 1320+11.38 TO STA. 1324+55.90	RAMP NO.8
STA. 1394+93.38 TO STA. 1397+95.95	RAMP NO.10
STA. 1393+73.91 TO STA. 1396+70	RAMP NO.11

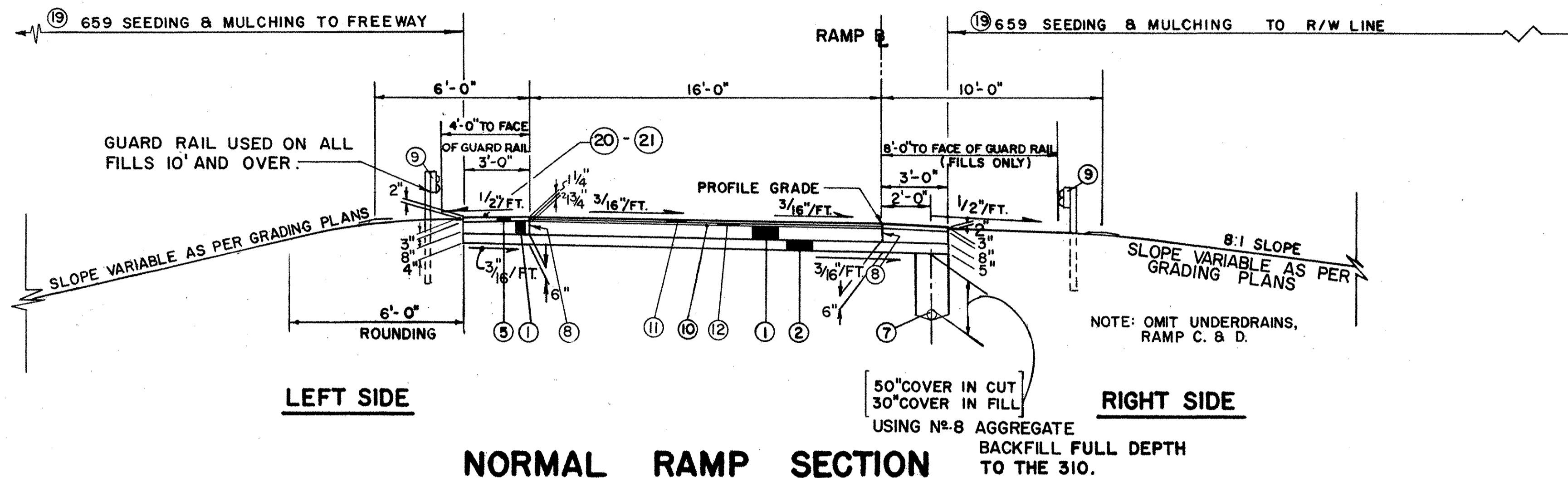
## NOTES

- FOR CUT AND FILL SLOPE TREATMENT SEE MAIN LINE TYPICAL SECTIONS.
- CROSS SECTION SHALL GOVERN OVER TYPICAL SECTIONS WHERE VARIABLE CONDITIONS ARE ENCOUNTERED IN SLOPES.
- CUT AND FILL SECTIONS SHOWN ARE INTERCHANGEABLE WITH EITHER SIDE OF RAMP PAVEMENT.
- LEFT SIDE AND RIGHT SIDE CONFIGURATIONS ARE REFERENCED TO THE DIRECTION OF TRAVEL INSTEAD OF THE DIRECTION OF STATIONING.
- DUE TO AN INCREASE DEPTH OF SECTION BUILD-UP AN ADJUSTMENT OF 3.67 CU. FT./FT. HAS BEEN APPLIED BY CALCULATION TO THE EARTHWORK QUANTITIES, PLUS FOR CUTS AND DEDUCTIONS IN FILLS.
- WHERE RAMP 305 BASE AND 305 SHOULDERS ARE PLACED IN ONE OPERATION, TIE BAR SPACING ACROSS LONGITUDINAL JOINT MAY BE 60". LONGITUDINAL JOINTS SHALL BE SAW CUT. WHERE RAMP AND SHOULDER ARE PLACED AS SEPERATE OPERATIONS, TIE BAR OR HOOK BOLT SPACING SHALL BE 30".



**SHOULDER DETAIL FOR SPEED CHANGE LANES**

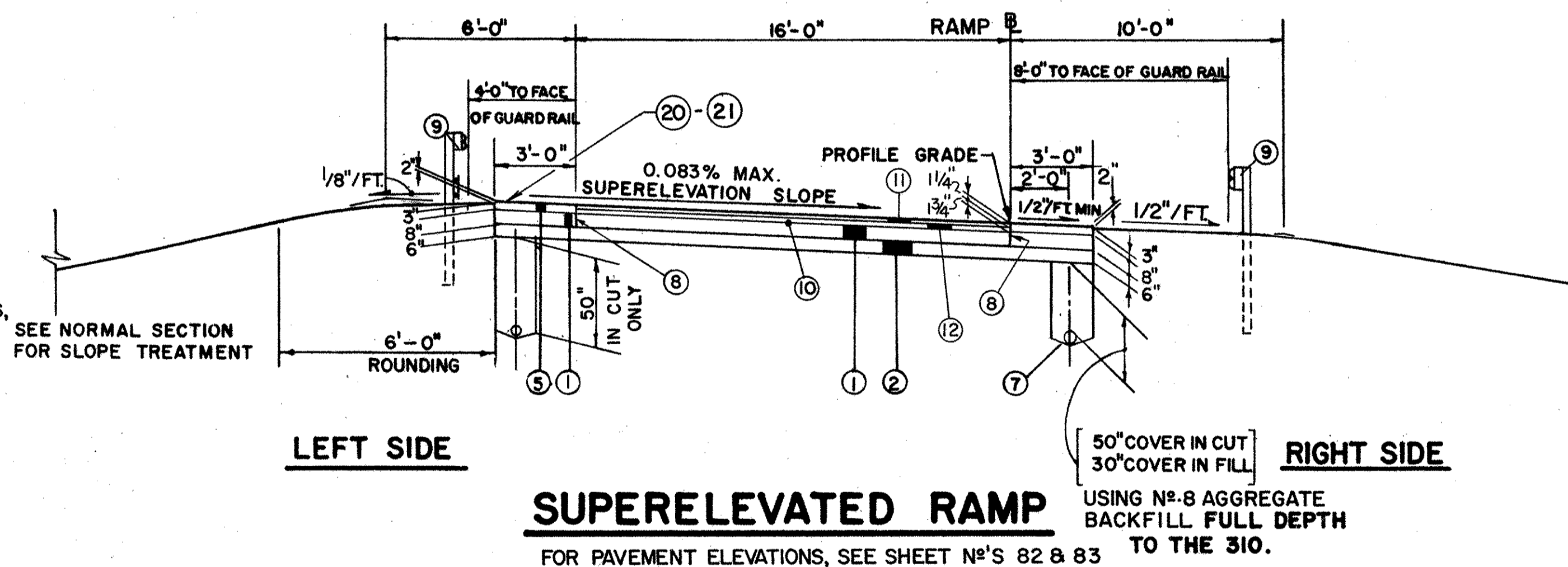
SCALE IN FEET



LEFT SIDE

RIGHT SIDE

**NORMAL RAMP SECTION**

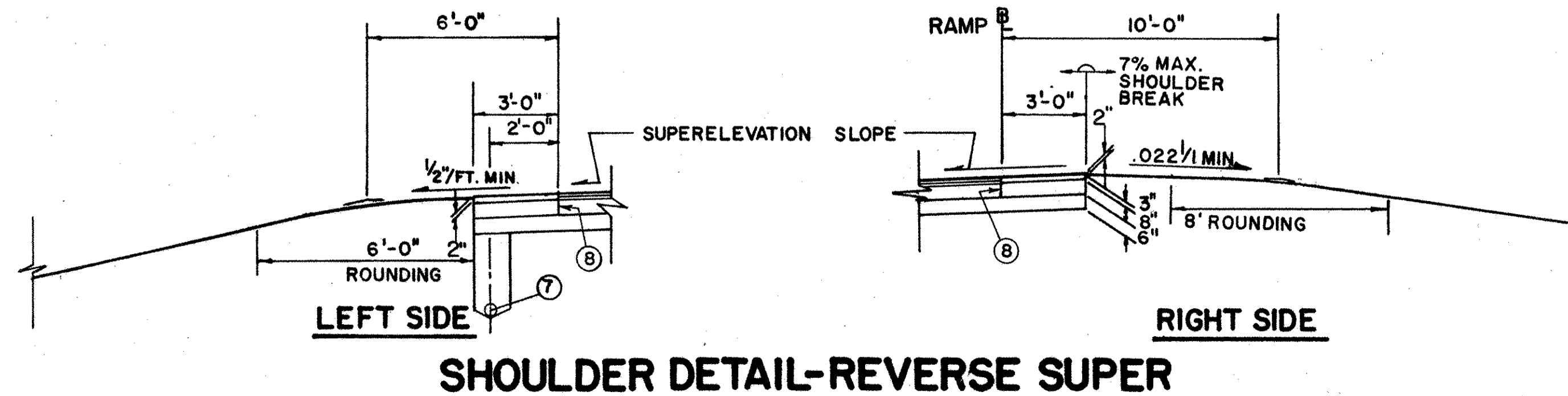


LEFT SIDE

RIGHT SIDE

**SUPERELEVATED RAMP**

FOR PAVEMENT ELEVATIONS, SEE SHEET N°S 82 & 83



LEFT SIDE

RIGHT SIDE

**SHOULDER DETAIL-REVERSE SUPER**

## LEGEND

- |   |     |   |
|---|-----|---|
| ① | 305 | 8" CONCRETE BASE                                    |
| ② | 310 | SUBBASE TYPE II                                     |
| ③ | 310 | SUBBASE TYPE I, GRADING A                           |
| ⑤ | 301 | BITUMINOUS AGGREGATE BASE: AC-20; RT-11 OR RT-12    |
| ⑥ | 305 | 8"-6" CONCRETE BASE                                 |
| ⑦ | 605 | 6" PIPE UNDERDRAIN, AS PER PLAN                     |
| ⑧ |     | LONGITUDINAL JOINT (SEE NOTE N°6)                   |
| ⑨ | 606 | GUARD RAIL - TYPE 5                                 |
| ⑩ | 407 | TACK COAT (SEE GENERAL NOTE)                        |
| ⑪ | 848 | ASPHALT CONCRETE SURFACE COURSE, TYPE 1, AC-20      |
| ⑫ | 846 | ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, AC-20 |
| ⑬ | 659 | SEEDING AND MULCHING (SEE GENERAL NOTES)            |
| ⑭ | 409 | SEAL COAT BITUMINOUS MATERIAL                       |
| ⑮ | 409 | SEAL COAT COVER AGGREGATE N° 8                      |

- ~~SEQUENCE OF OPERATION'S~~
- ~~INSTALL PIPE UNDERDRAIN ON SHOULDERS~~
  - ~~PLACE SUBBASE TYPE II AS PER PLAN TO OUTSIDE EDGE OF UNDERDRAIN. PAYMENT SHALL BE MADE FOR ALL SUBBASE PLACED IN THIS OPERATION~~
  - ~~CONSTRUCT ITEM 305~~
  - ~~REMOVE SUBBASE AND ANY CONTAMINATED BACKFILL OVER DRAIN AND REPLACE WITH NO. 8 AGGREGATE AS SHOWN BY ⑨.~~
  - ~~COMPLETE CONSTRUCTION.~~

ADACHE ASSOCIATES INC. ENGINEERS  
CLEVELAND, OHIO 44142

**TYPICAL SECTIONS**  
**RAMPS**  
**NORMAL AND SUPERELEVATED**

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
R.W.H.	J.D.A.	J.J.D.		
8-10-69	8-20-69	2-19-70		

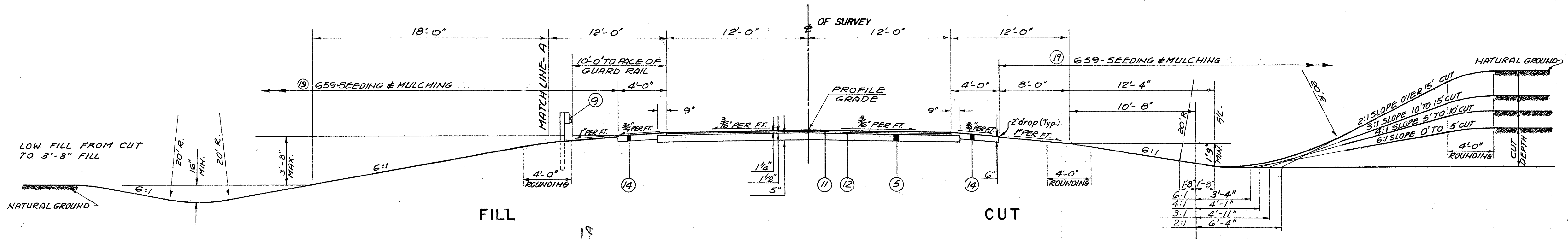
# TYPICAL SECTIONS

TYPE 846 ON 301  
SCALE IN FEET



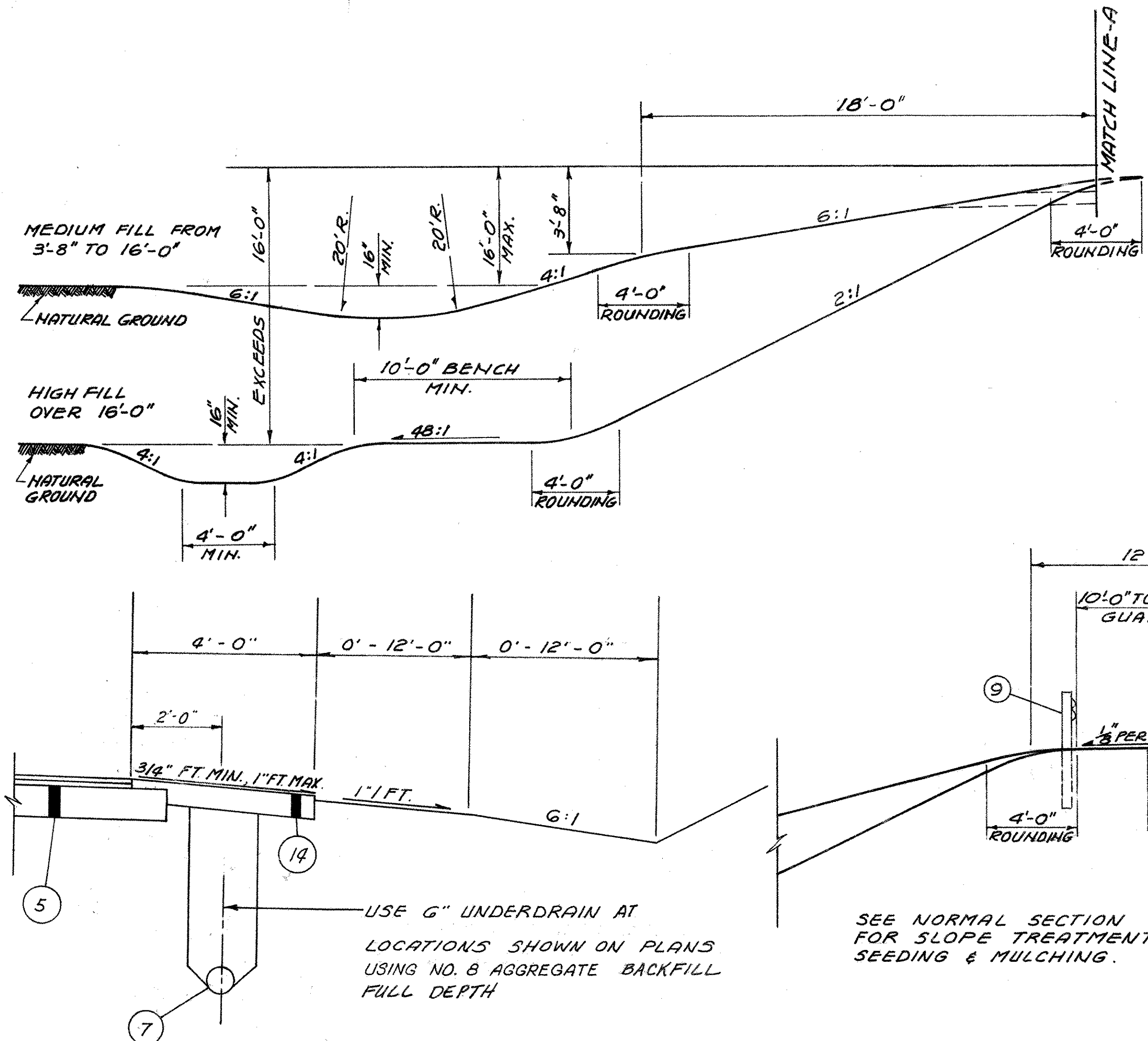
FED. RD. DIVISION	STATE	PROJECT	5
2	OHIO		326

ERIE COUNTY  
ERI 2-18.38

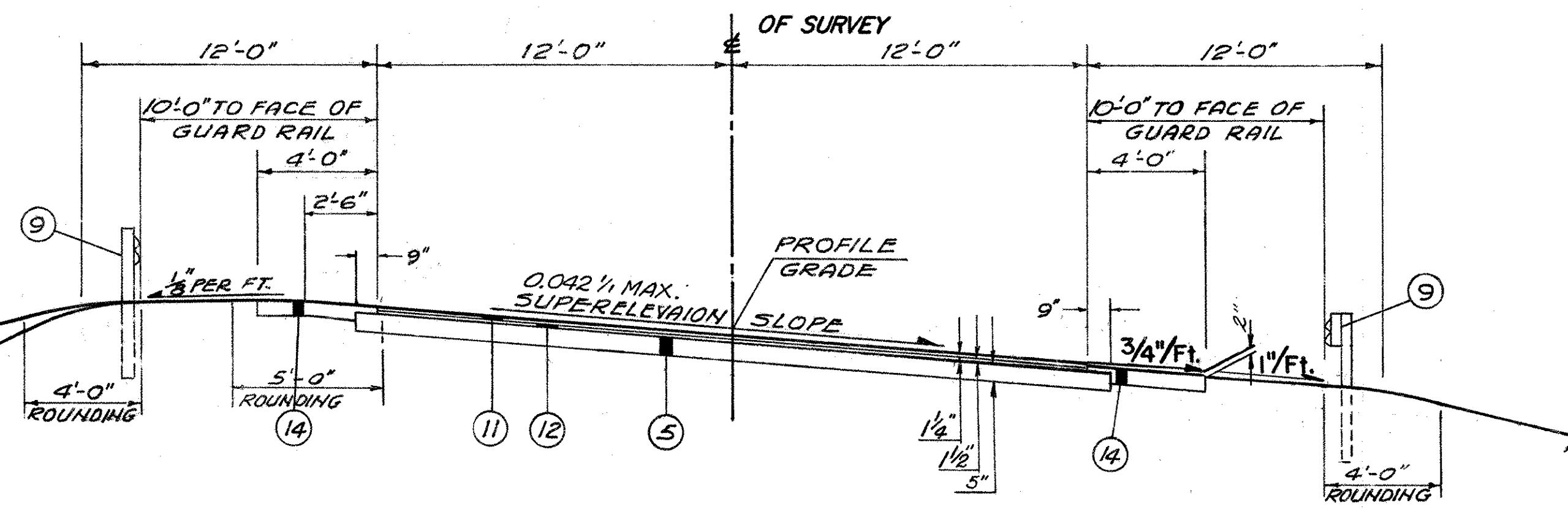


## NORMAL SECTION

STA. 16+75 TO STA. 21+61.70 = 486.70 L.F.



**UNDERDRAIN DETAIL**  
NO SCALE



## SUPERELEVATED SECTION

STA. 13+30 TO STA. 14+50 = 120 L.F.  
 STA. 14+50 TO STA. 16+75 (REVERSE SLOPE) = 225 L.F.  
 STA. 21+61.70 TO STA. 23+54 (REVERSE SLOPE) = 192.30 L.F.  
 FOR PAVEMENT ELEVATIONS, SEE SHEETS 64, 65 & 66

## LEGEND

- ⑤ 301 BITUMINOUS AGGREGATE BASE: AC-20; RT-11 OR RT-12
- ⑦ 605 6" PIPE UNDERDRAIN, AS PER PLAN
- ⑨ 606 GUARD RAIL TYPE 5
- ⑪ 846 ASPHALT CONCRETE SURFACE COURSE, TYPE 1, AC-20
- ⑫ 846 ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, AC-20
- ⑭ 411 STABILIZED CRUSHED AGGREGATE
- ⑰ 659 SEEDING & MULCHING (SEE GENERAL NOTES)

## NOTES

1. CROSS SECTIONS SHALL GOVERN OVER TYPICAL SECTIONS WHERE VARIABLE CONDITIONS ARE ENCOUNTERED IN SLOPES.
2. CUT AND FILL SECTIONS SHOWN, ARE INTERCHANGEABLE WITH EITHER SIDE OF ROADWAY.

ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

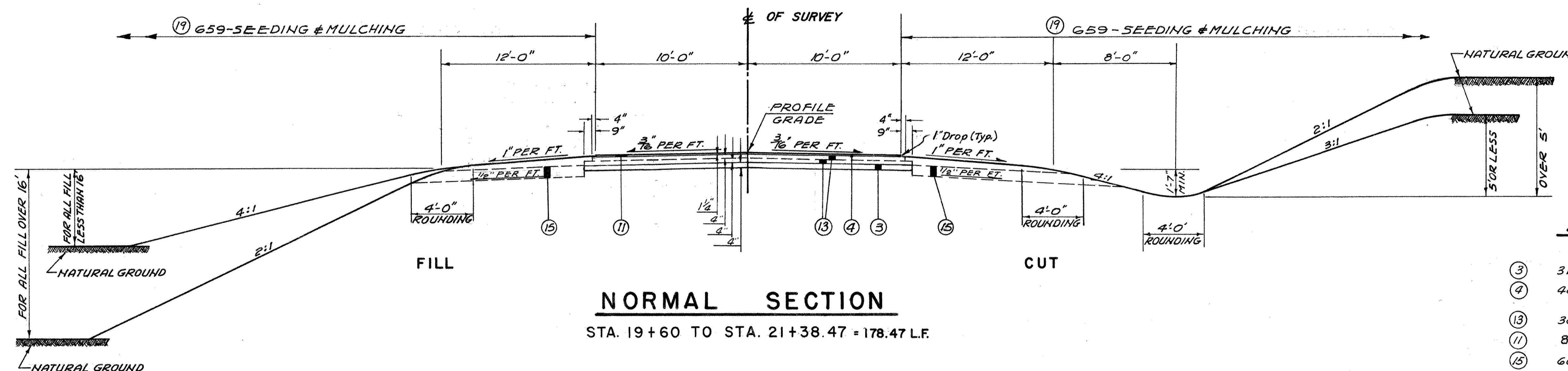
## TYPICAL SECTIONS RIVER ROAD

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
R.W.H.	J.D.R.	J.I.D.		
6-26-69	7-5-69	2-25-70		

# TYPICAL SECTIONS

TYPE 846 ON 304

SCALE IN FEET

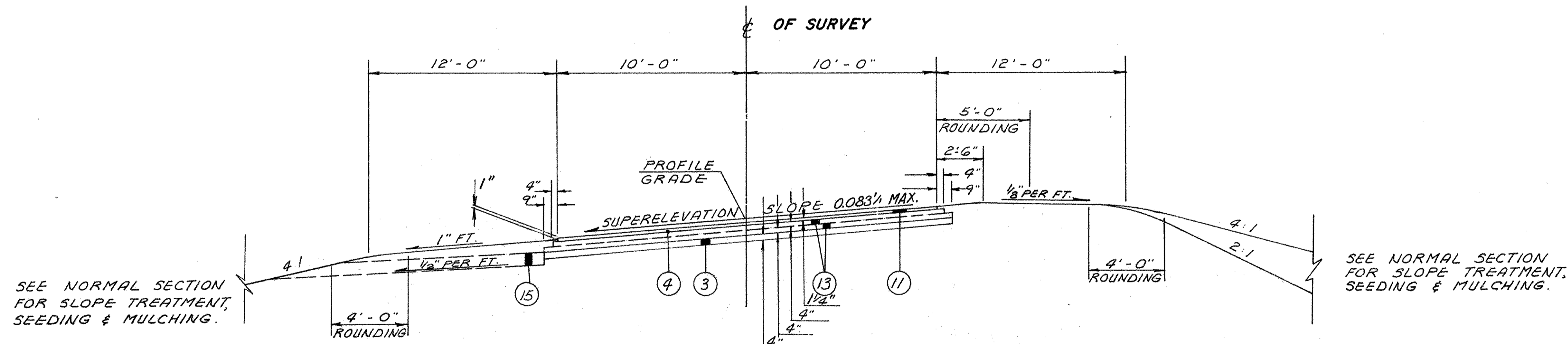


## LEGEND

- ③ 310 SUBBASE, TYPE I GRADING A
- ④ 408 BITUMINOUS PRIME COAT AT 0.40 GAL. PER SQ. YD.
- ⑬ 304 AGGREGATE BASE (2-4" COURSES)
- ⑪ 846 ASPHALT CONCRETE SURFACE COURSE, TYPE 1, AC-20
- ⑮ 605 8" AGGREGATE DRAINS (SEE GENERAL NOTES)
- ⑲ 659 SEEDING & MULCHING (SEE GENERAL NOTES)

## NOTES

1. CROSS SECTIONS SHALL GOVERN OVER TYPICAL SECTIONS WHERE VARIABLE CONDITIONS ARE ENCOUNTERED IN SLOPES.
2. CUT AND FILL SECTIONS SHOWN, ARE INTERCHANGEABLE WITH EITHER SIDE OF ROADWAY.



SEE NORMAL SECTION FOR SLOPE TREATMENT, SEEDING & MULCHING.

ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

## TYPICAL SECTIONS JEFFRIES ROAD

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
N.F.	J.D.A.	J.J.D.		
8-10-67	8-20-67	2-24-70		



# TYPICAL SECTION

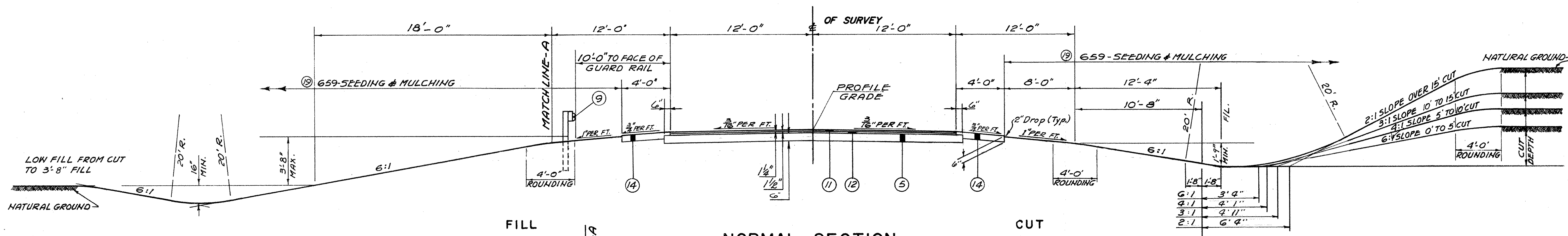
TYPE 846 ON 301  
SCALE IN FEET



FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

7  
326

ERIE COUNTY  
ERI 2-18.38

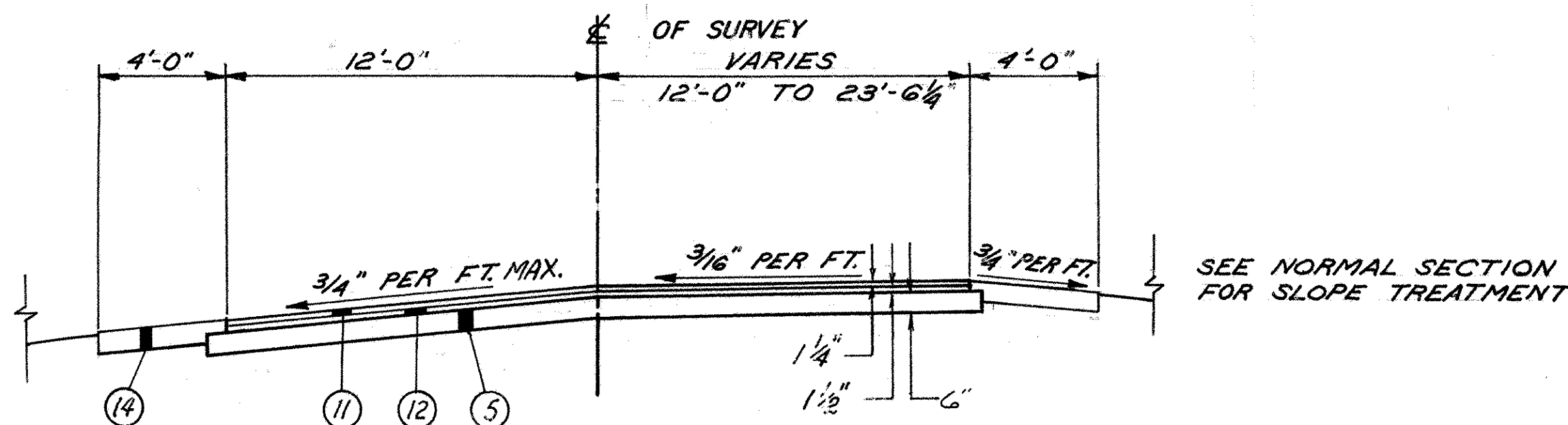
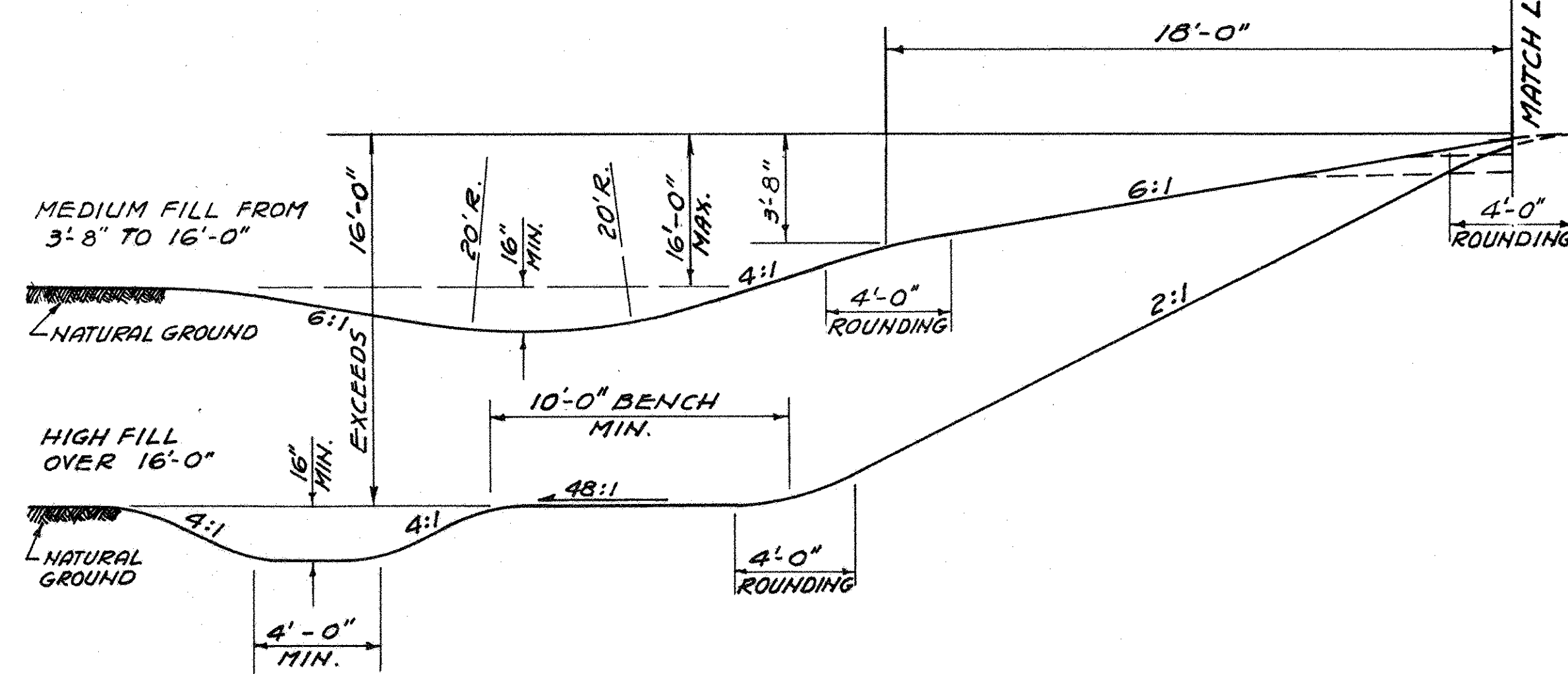


## NORMAL SECTION

STA. 11+05.10 TO STA. 32+10 = 2104.90 L.F.  
BRIDGE LIMITS STR. ERI-2-2082  
STA. 18+38.82 TO STA. 21+61.18 = 322.36 L.F.

## LEGEND

- (5) 301 BITUMINOUS AGGREGATE BASE:  
AC-20; RT 11 OR RT 12
- (9) 606 GUARD RAIL TYPE - 5
- (11) 846 ASPHALT CONCRETE SURFACE COURSE, TYPE 1, AC-20
- (12) 846 ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, AC-20
- (14) 411 STABILIZED CRUSHED AGGREGATE
- (19) 659 SEEDING & MULCHING (SEE GENERAL NOTES)



## SUPERELEVATED SECTION

STA. 8+00 TO STA. 11+05.10 = 305.10 L.F.  
FOR PAVEMENT ELEVATIONS SEE SHT. N° 68

## NOTES

1. CROSS SECTIONS SHALL GOVERN OVER TYPICAL SECTIONS WHERE VARIABLE CONDITIONS ARE ENCOUNTERED IN SLOPES.
2. CUT AND FILL SECTIONS SHOWN, ARE INTERCHANGEABLE WITH EITHER SIDE OF ROADWAY.

ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

## TYPICAL SECTION BERLIN ROAD

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
R. W. H. 6-26-69	J. D. A. 8-20-69	J. J. D. 2-26-70		



**MAINTENANCE OF TRAFFIC**

**ITEM 614 MAINTAINING TRAFFIC**

THE CONTRACTOR SHALL MAINTAIN TRAFFIC AT ALL TIMES IN ACCORDANCE WITH THE REQUIREMENTS OF SPEC. 614. TWO-WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES EXCEPT AS NOTED BELOW BY USE OF THE EXISTING PAVEMENT, THE COMPLETED PAVEMENT, ITEM 615 TEMPORARY ROADS AND PAVEMENTS. THE LIMITS AND DURATION OF USE OF TEMPORARY ROADWAYS SHALL BE HELD TO AN ABSOLUTE MINIMUM, AND IN ALL CASES SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY TO BE USED AS DIRECTED BY THE ENGINEER FOR THE MAINTENANCE OF TRAFFIC.

ITEM 404 BITUMINOUS CONCRETE FOR MAINTAINING TRAFFIC	500 CU. YD.
ITEM 410 TRAFFIC COMPACTED SURFACE TYPE A & B	275 CU. YD.
ITEM 616 CALCIUM CHLORIDE	5 TONS
ITEM 616 WATER	50 M-GALS.

SEPARATE PAYMENT SHALL BE MADE FOR ITEMS 404, 410, AND 616 NOTED ABOVE. ALL OTHER WORK REQUIRED FOR TRAFFIC MAINTENANCE SHALL BE INCLUDED WITH PAYMENT FOR ITEM 614 MAINTAINING TRAFFIC.

**ITEM 615 TEMPORARY ROADS AND PAVEMENTS**

ON THIS PROJECT THE TEMPORARY CLASS B PAVEMENT SHALL BE 20 FEET WIDE AND THE ROADWAY WIDTH SHALL BE NOT LESS THAN 32 FEET OUT TO OUT OF SHOULDERS. THE ALIGNMENT AND PAVEMENT TYPICAL SECTION SHALL BE AS DETAILED ON SHEET NO. 59.

AN ESTIMATED QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY TO BE USED IN CONSTRUCTING THE TEMPORARY PAVEMENT, CLASS B.

ALTHOUGH ESTIMATES FOR TEMPORARY EXCAVATION AND EMBANKMENT AND TEMPORARY DRAINAGE FACILITIES HAVE BEEN SHOWN ON THE PLAN DETAILS, THESE ITEMS SHALL BE CONSIDERED INCIDENTAL TO, AND INCLUDED WITH, PAYMENT FOR ITEM 615 TEMPORARY ROADS.

**RIVER ROAD AND JEFFRIES ROAD**

TRAFFIC ON RIVER ROAD AND JEFFRIES ROAD SHALL BE DETOURED ALTERNATELY ON EACH OTHER AS PER PLAN SHEET 2-C. THE CONTRACTOR SHALL NOTIFY THE COUNTY ENGINEER AT LEAST THREE (3) DAYS PRIOR TO DETOURING TRAFFIC ON EITHER ROAD.

**BERLIN ROAD**

TRAFFIC SHALL BE DETOURED TO JEFFRIES AND RIVER ROAD VIA KNIGHT ROAD TO THE SOUTH AND SPROWL ROAD TO THE NORTH. SEE SHEET 2-C. CONSTRUCTION OF RIVER ROAD AND JEFFRIES ROAD SHALL BE COMPLETED PRIOR TO IMPLEMENTING THE BERLIN ROAD DETOUR. THE CONTRACTOR SHALL NOTIFY THE COUNTY ENGINEER AT LEAST THREE (3) DAYS PRIOR TO DETOURING BERLIN ROAD TRAFFIC.

**STATE ROUTE 61:**

**PHASE I**

**STAGE 1.** MAINTAIN S.R. 2 AND S.R. 61 TRAFFIC AS EXISTS WHILE CONSTRUCTING THE TEMPORARY ACCESS ROAD AS PER SHEETS 59 AND 60. PROVIDE STRIPING AND SIGNING AS SHOWN ON SHEET 2-D.

**STAGE 2.** DETOUR TRAFFIC ON THE TEMPORARY ROAD PROVIDED IN STAGE 1. CONSTRUCT STATE ROUTE 61 STA. 39+23 TO STA. 60+50<sup>±</sup> AND THE S.R. 61 INTERCHANGE RAMPS 10 & 11 TO THE WEST AS PER PLAN. CONSTRUCT HOFFMAN ACCESS ROAD TO THE PROPOSED FLARE. ALSO COMPLETE THE CONSTRUCTION OF STATE ROUTE 2 TO CONNECT WITH S.R. 13.

**PHASE II** OPEN STATE ROUTE 2 AND RAMPS 10 & 11 THRU TRAFFIC AND DETOUR S.R. 61 TRAFFIC AS SHOWN ON SHEET 2-E. PROVIDE TEMPORARY BARRICADES ACROSS S.R. 61 NORTH OF THE RAMP 10 INTERCHANGE AND ACROSS S.R. 61 AT THE NORTH END CONSTRUCTION, ALONG STATE ROUTE 61 AT THE INTERSECTIONS OF RAMPS "C" AND "D" TO THE EAST AND AT THE NOSES OF RAMP "C" AND "D" ALONG STATE ROUTE 2 DECELERATION AND ACCELERATION LANES RESPECTFULLY, AND ACROSS THE TEMPORARY ROAD NORTH OF THE S.R. 2 WESTBOUND LANES. PROVIDE STOP LINE AND SIGNING AS SHOWN ON SHEET 2-E.

**STAGE 1.** REMOVE THE TEMPORARY ROAD NORTH OF THE S.R. 2 WESTBOUND LANES TO STATE ROUTE 61. PROVIDE A SINGLE LANE CLOSURE AS PER SHEET 2H TO REMOVE THE ASPHALT CURB AND EARTH FILL OVER THE EXISTING PAVEMENT ALONG S.R. 2 WESTBOUND PAVEMENT AND RESTORE THE PAVED SHOULDER (SEE NOTE, SHEET 12). COMPLETE CONSTRUCTION OF RAMP "C". ALSO COMPLETE S.R. 61 CONSTRUCTION BETWEEN STA 60+50<sup>±</sup> AND STA 62+60<sup>±</sup> AND COMPLETE THE HOFFMAN ACCESS ROAD FLARE AT S.R. 61. COMPLETE THE O'ROCK ACCESS ROAD WITHIN ONE (1) WEEK AFTER REMOVAL OF TEMPORARY ROAD.

**GENERAL NOTES**

**STAGE 2.** OPEN RAMP "C" AND S.R. 61 TO THROUGH TRAFFIC AND DETOUR EASTBOUND S.R. 2 TRAFFIC AS SHOWN ON SHEET 2-F. PROVIDE TEMPORARY BARRICADES ACROSS THE TEMPORARY ROAD NORTH OF THE DRIVE AT STA. 2+30LT. PROVIDE SIGNING AS SHOWN ON SHEET 2-F. REMOVE THE TEMPORARY ROAD FROM STA. 4+40.80 TO WESTBOUND LANES OF S.R. 2. COMPLETE CONSTRUCTION OF RAMP "C" AND OPEN TO TRAFFIC.

**CONTRACTOR'S MAINTENANCE RESPONSIBILITY**

ON THIS PROJECT, THE CONTRACTOR'S RESPONSIBILITY FOR MAINTENANCE OF THE EXISTING PAVEMENT, PER ITEM 614, SHALL BE LIMITED TO THOSE PORTIONS OF THE EXISTING HIGHWAY LYING WITHIN THE PROPOSED WORK LIMITS. NECESSARY UPKEEP OF THE ADJOINING PAVEMENTS WHICH ARE USED FOR TRAFFIC MAINTENANCE BUT ARE OUTSIDE OF THE RIGHT-OF-WAY FOR THE PROPOSED HIGHWAY RELOCATION WILL BE PROVIDED BY OTHERS.

**GENERAL**

**FIELD OFFICE**

THE CONTRACTOR SHALL PROVIDE A SUITABLE FIELD OFFICE HAVING A MINIMUM OF 800 SQ. FT. OF FLOOR SPACE. PAYMENT FOR THE ABOVE SHALL BE AT 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 ARE AS OBTAINED FROM THE OWNERS OF THE UTILITY AS REQUIRED BY SECTION 153.64 ORC.

**UTILITY OWNERSHIP**

THE FOLLOWING UTILITIES AND OWNERS ARE LOCATED WITHIN THE WORK LIMITS OF THIS PROJECT.

OHIO EDISON COMPANY  
76 SOUTH MAIN STREET  
AKRON, OHIO 44308  
PHONE: 216-384-4631

GENERAL TELEPHONE COMPANY  
117 N. SANDUSKY STREET  
BELLEVUE, OHIO 44811  
PHONE: 419-483-8158

COLUMBIA GAS OF OHIO  
160 MILAN AVENUE  
NORWALK, OHIO 44857  
PHONE: 419-668-8291

COLUMBIA GAS TRANSMISSION CORP.  
P.O. BOX 1273  
CHARLESTON, WEST VIRGINIA 25325  
PHONE: 304-357-3445

CITY OF HURON, DEPARTMENT OF PUBLIC UTILITIES  
CITY HALL, P.O. BOX 468  
HURON, OHIO 44839  
PHONE: 419-433-5000

ERIE COUNTY WATER AND SANITARY DEPT.  
554 RIVER ROAD, P.O. BOX 370  
HURON, OHIO 44839  
PHONE: 419-627-7646

**ITEM 607 FENCE**

RIGHT OF WAY ABUTTING THE "OLD WOMAN CREEK NATIONAL ESTUARINE SANCTUARY" (OHIO DEPARTMENT OF NATURAL RESOURCES PROPERTY) SHALL BE FENCED IN BEFORE THE CLEARING AND GRUBBING OPERATION. SEE SCHEMATIC PLAN FOR LOCATION.

**CONTINGENCY QUANTITIES**

THE CONTRACTOR SHALL NOT ORDER MATERIALS OR PERFORM WORK LISTED IN THE GENERAL SUMMARY FOR ITEMS DESIGNATED BY PLAN NOTE 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.)

**ELEVATION DATUM**

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

CALC. B.H. DATE 2-85	OHIO 9
CHKD. C.B. DATE 10-85	F.H.W.A. 5 REGION 326

ERIE COUNTY  
ERI-2-18.38

**TEMPORARY SOIL EROSION AND SEDIMENT CONTROL**

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

207 TEMPORARY SEEDING AND MULCHING	130,000 SQ. YD.
207 STRAW OR HAY BALES	1,925 EACH
207 TEMPORARY SLOPE DRAINS	3,235 LIN. FT.
207 TEMPORARY BENCHES, DIKES, DAMS AND SEDIMENT BASINS	16,250 CU. YD.
601 TYPE C ROCK CHANNEL PROTECTION WITH FILTER	130 CU. YD.
* SPEC. SILT FENCE	4,600 LIN. FT.
659 MOWING	1,500 M. SQ. FT.
659 COMMERCIAL FERTILIZER	28 TON
659 REPAIR SEEDING AND MULCHING	32,350 SQ. YD.
659 WATER	280 M. GAL.

THE ABOVE QUANTITIES INCLUDE ALL THE ITEMS AS DELINEATED ON SHEETS 2A AND 2B. \* FOR ITEM SPECIAL(SILT FENCE) SEE SHT. 205A FOR NOTES. ALL TEMPORARY SOIL EROSION AND SEDIMENT CONTROL ITEMS MUST BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION BY THE CONTRACTOR.

**ROADWAY**

**SUBGRADE UNDERCUTTING AND REPLACEMENT WITH 310 SUBBASE**

THE STATION LIMITS GIVEN ON THE TYPICAL SECTIONS FOR REPLACING UNSUITABLE SUBGRADE WITH 310 SUBBASE ARE APPROXIMATE AND THE ENGINEER MAY ORDER ADDITIONAL AREAS TO BE UNDERCUT WHERE UNSUITABLE SUBGRADE IS ENCOUNTERED. THE FOLLOWING ESTIMATED QUANTITIES ARE PROVIDED, TO BE USED AS DIRECTED BY THE ENGINEER, FOR ADDITIONAL UNDERCUTTING:

203 EXCAVATION	4000 CU. YD.
310 SUBBASE, TYPE I, GRADING A OR B	4000 CU. YD.

PROOF ROLLING SHALL NOT BE PROVIDED ON THE AREAS WHERE UNSUITABLE SUBGRADE IS REPLACED WITH THE 310 SUBBASE MATERIAL.

SAND BLANKET SEE EMBANKMENT USING GRANULAR MATERIAL AS PER PLAN PROPOSAL NOTE

**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"	3535	321
30"	608	149
48"	198	31
60"	22	3

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.

**LOCATIONS OF GUARD RAIL**

THE LOCATIONS OF GUARD RAIL 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.

# GENERAL NOTES

CALC. B.H. DATE 2-85	OHIO FHWA REGION 5
CHKD. C.B. DATE 10-85	10 324

ERIE COUNTY  
ERI-2-18.38

## ROADWAY CONTINUED

### WATERING AND MOWING 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 790 M GAL.

659 MOWING 1,450 H SQ. FT.

### SEEDING

QUANTITIES FOR SEEDING ARE CALCULATED FOR THE SOIL AREAS BETWEEN THE RIGHT-OF-WAY FENCE LINES, BETWEEN THE RIGHT-OF-WAY LINES IN UNFENCED AREAS, AND WITHIN THE WORK LIMITS FOR AREAS OUTSIDE THE RIGHT-OF-WAY LINES COVERED BY WORK AGREEMENT OR SLOPE EASEMENT.

### PART-WIDTH CONSTRUCTION

BECAUSE OF THE NECESSITY OF BUILDING PORTIONS OF THIS PROJECT UNDER TRAFFIC AND CONSTRUCTING THE PAVEMENT PART AT A TIME, EXTREME CARE SHALL BE TAKEN TO PREVENT THE CONSTRUCTION OF A BUTT JOINT ON CENTERLINE IN THE 304 AND 310 COURSES.

THIS SHALL BE ACCOMPLISHED BY BUILDING THE 304 AND 310 COURSES PLACED WITH THE FIRST PORTION OF THE PAVEMENT BUILT AT LEAST EIGHTEEN (18) INCHES BEYOND THE CENTERLINE AND BY SURFACING NO CLOSER THAN EIGHTEEN (18) INCHES TO THIS EDGE OF THE ABOVE COURSES. WHEN THE SECOND PORTION OF THE PAVEMENT IS BUILT, AT LEAST TWELVE (12) INCHES OF THESE PROJECTING COURSES SHALL BE BROKEN DOWN AND THOROUGHLY KEYED IN WITH THE NEWLY PLACED CORRESPONDING COURSES IN THE SECOND PORTION OF THE PAVEMENT BUILT. PAYMENT FOR THIS OPERATION SHALL BE INCLUDED IN THE UNIT PRICES BID FOR THE PERTINENT PAVEMENT ITEMS.

### DRIVES

DRIVeways SHALL BE LOCATED AND CONSTRUCTED AS SHOWN ON THE PLANS AND IN ACCORDANCE WITH STANDARD CONSTRUCTION DRAWING BP-6.

### ITEM 203 BORROW, USING GRANULAR MATERIAL, AS PER PLAN

WET COMPRESSIBLE LOW STRENGTH EMBANKMENT FOUNDATION MATERIALS ARE LOCATED BETWEEN THE FOLLOWING STATIONS:

S.R. 2	STATION 1200 + 75 TO STATION 1202 + 25
	STATION 1213 + 75 TO STATION 1215 + 75
	STATION 1348 + 75 TO STATION 1350 + 25
RAMP #4	STATION 1193 + 75 TO STATION 1195 + 75
RIVER ROAD	STATION 14 + 75 TO STATION 19 + 25
JEFFRIES ROAD	STATION 21 + 50 TO STATION 22 + 00

GRANULAR MATERIAL REQUIRED FOR SWAMP TREATMENT SHALL BE SPECIFIED AS "203 BORROW USING GRANULAR MATERIAL AS PER PLAN". THE GRANULAR MATERIAL SHALL MEET THE REQUIREMENTS OF 203.02 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS MODIFIED TO REQUIRE AT LEAST 75 PERCENT BY WEIGHT OF THE GRAINS OR PARTICLES SHALL BE RETAINED ON THE NO. 200 SIEVE.

TRENCHING AND BACKFILLING SHALL BE CARRIED PROGRESSIVELY ACROSS THE SWAMP AND SO COORDINATED AS TO LEAVE AN OPEN TRENCH NOT TO EXCEED IN LENGTH AT ANY TIME THE WORKING REACH OF THE EQUIPMENT USED FOR THE SWAMP EXCAVATION.

FILL SHALL BE CONSTRUCTED BY THE METHOD OF END DUMPING, USING GRANULAR MATERIAL, UP TO 2 FEET ABOVE WATER LEVEL. FILL ABOVE THIS LEVEL SHALL BE CONSTRUCTED IN ACCORDANCE WITH 203.09 OF THE SPECIFICATIONS USING APPROVED EMBANKMENT MATERIAL. A 15-FOOT HIGH ROLLING SURCHARGE OF GRANULAR MATERIAL SHALL BE USED WHERE DEPTH OF THE UNSUITABLE MATERIAL REMOVED EXCEEDS 20 FEET AS SHOWN IN THE LONGITUDINAL SECTION ON THIS PAGE.

EXCAVATION OF UNSUITABLE MATERIAL AHEAD OF THE FILL AND END DUMPING OF GRANULAR MATERIAL ACROSS THE BOG AREA SHALL BE ADVANCED IN A STRAIGHT LINE FOR THE FULL EMBANKMENT WIDTH TO AVOID ENTRAPMENT OF UNSUITABLE MATERIAL BENEATH ANY PORTION OF THE FILL.

EXCAVATED UNSUITABLE MATERIAL WHICH IS TO BE USED ADJACENT TO FILLS FOR SLOPE FLATTENING OR WHICH IS PILED ADJACENT TO THE FILL TO BE DISPOSED OF LATER IN ACCORDANCE WITH 203.03, SHALL BE SHAPED TO ITS FINAL POSITION OR REMOVED FROM THE AREA AT LEAST TWO WEEKS PRIOR TO PAVING OPERATIONS ON THE FILL.

UNSUITABLE MATERIAL WHICH IS FOUND TO BE LESS THAN 20 FEET DEEP SHALL BE EXCAVATED TO ITS ENTIRE DEPTH. THE TEMPORARY SURCHARGE MAY BE OMITTED IN THESE AREAS. CROSSHATCHED SECTIONS ARE INCLUDED IN QUANTITIES TO ALLOW FOR POSSIBLE SLOUGHING AND UNDERCUTTING.

PAYMENT FOR EXCAVATION OF UNSUITABLE MATERIAL BETWEEN THE LIMITING STATIONS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 203 GRANULAR BORROW AS PER PLAN, INCLUDING THE COST OF EXCAVATION OF UNSUITABLE MATERIAL. THE GRANULAR MATERIAL USED BETWEEN THE LIMITING STATIONS AS EMBANKMENT ABOVE THE ORIGINAL GROUND LINE SHALL BE PAID FOR AS 203 GRANULAR BORROW, AS PER PLAN.

THE TOTAL QUANTITY OF 203 BORROW USING GRANULAR MATERIAL SHALL BE DETERMINED IN ACCORDANCE WITH 203.15(\*) OF THE SPECIFICATIONS. THE QUANTITY OF 203 BORROW USING GRANULAR MATERIAL WHICH DOES NOT INCLUDE THE COST OF EXCAVATION SHALL BE THE VOLUME MEASURED IN FINAL POSITION BY THE END AREA METHOD PLUS FIVE PERCENT FOR COMPACTION, USING PROJECT CROSS SECTIONS. THE QUANTITY OF 203 BORROW USING GRANULAR MATERIAL, INCLUDING THE COST OF EXCAVATION OF UNSUITABLE MATERIAL, SHALL BE THE TOTAL QUANTITY OF GRANULAR MATERIAL AS MEASURED BY 203.15(\*) MINUS THE QUANTITY WHICH DOES NOT INCLUDE THE COST OF EXCAVATION, AS DETERMINED ABOVE.

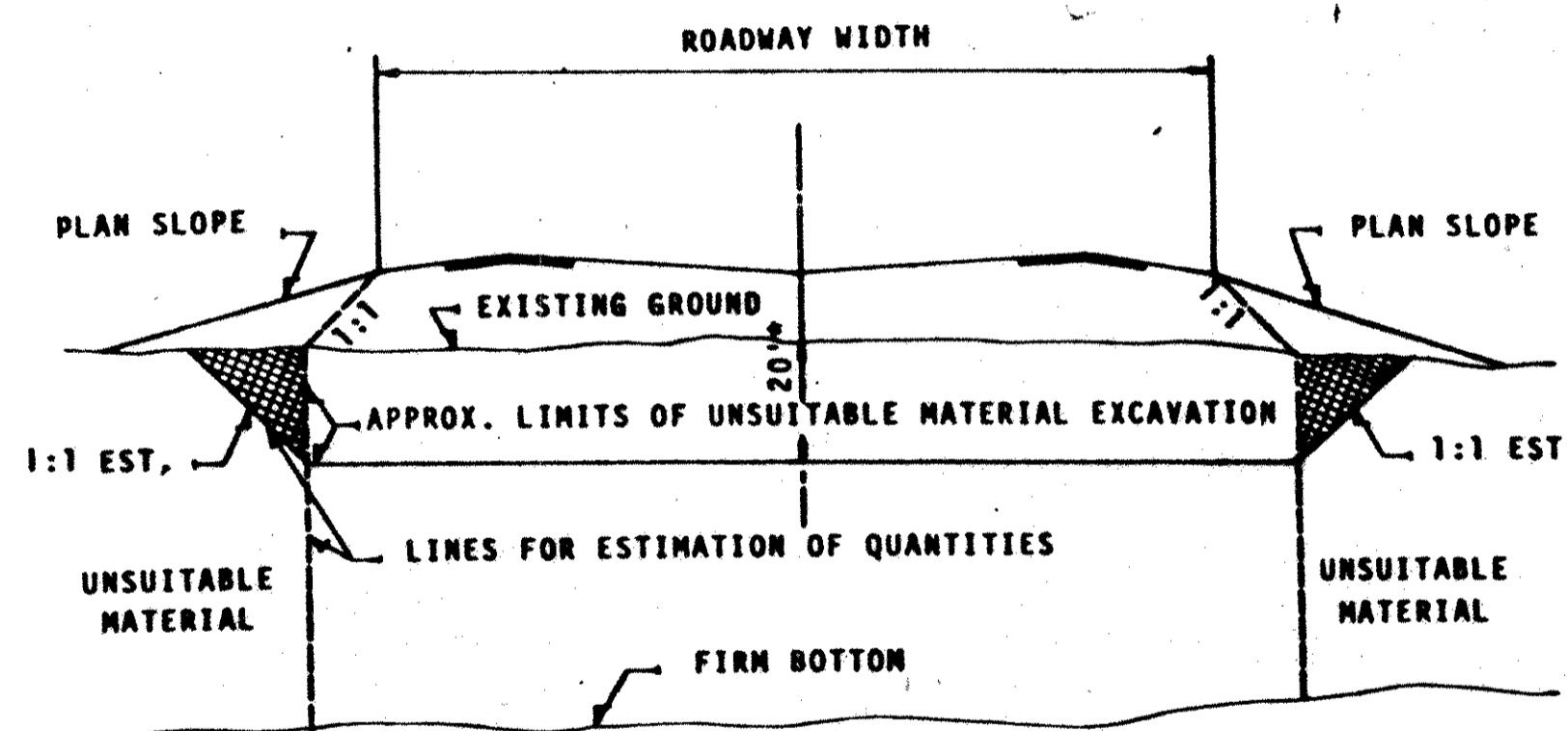
WHEN A CULVERT IS TO BE CONSTRUCTED IN AN AREA WHERE GRANULAR BORROW IS BEING USED TO REPLACE UNSUITABLE SOIL, THE GRANULAR BORROW MATERIAL SHALL BE EXTENDED AS SHOWN ON THE CULVERT DETAIL PLANS. HOWEVER THE GRANULAR MATERIAL PLACED WITHIN 10 LINEAL FEET AT THE ENDS OF THE CULVERT SHALL HAVE A PLASTICITY INDEX OF 6.0 OR MORE.

(FOR GRANULAR BORROW TYPE I & TYPE II SEE SHT. NO. 20)  
SWAMP TREATMENT DETAIL

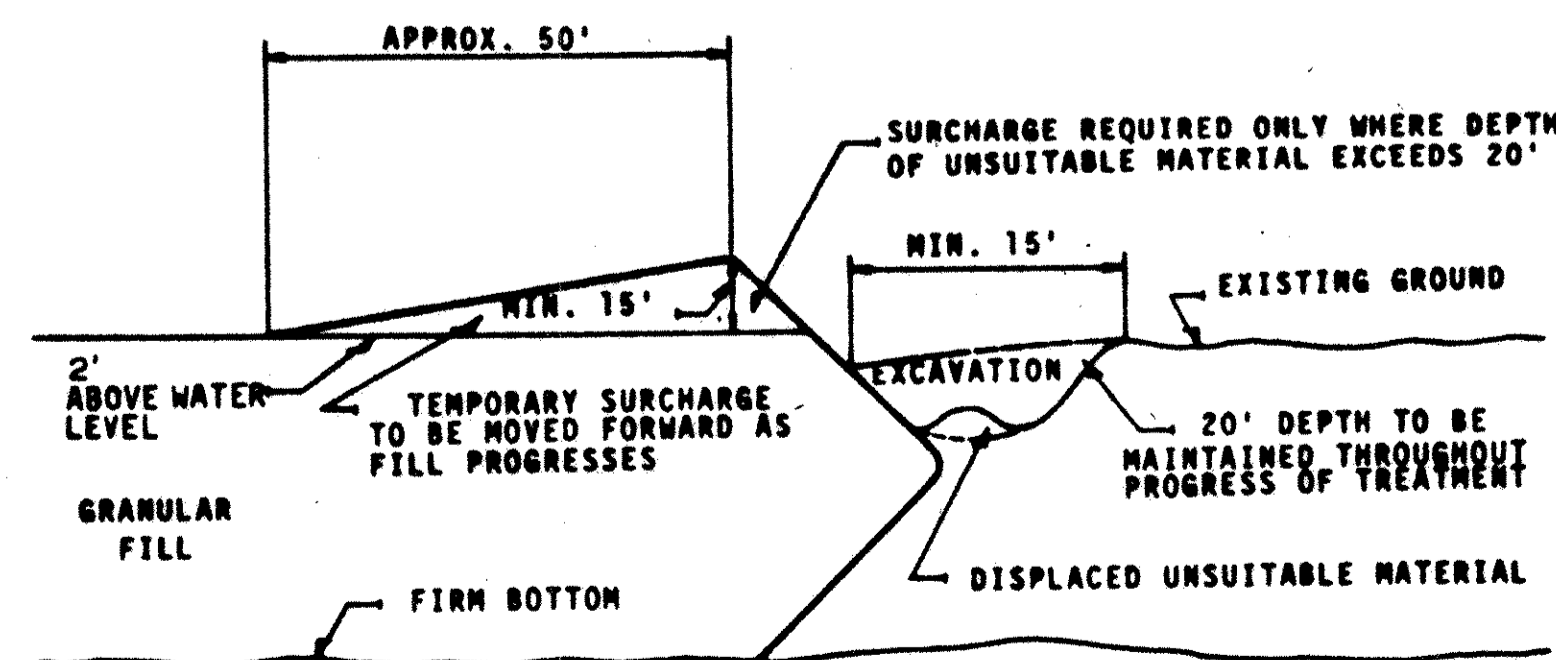
TOTAL EXCAVATION METHOD (DEPTH, UP TO 20')

PARTIAL EXCAVATION AND DISPLACEMENT METHOD (DEPTH, OVER 20')

\*20' OR TO BOTTOM OF UNSUITABLE MATERIAL, WHICHEVER IS LESS



CROSS SECTION



LONGITUDINAL SECTION

### EMBANKMENT CONSTRUCTION

EMBANKMENT CONSTRUCTION WITHIN THE AREAS OF WORK SHOWN ON SHEETS 60A, 60B AND 60C SHALL BEGIN ONLY AFTER THE WICK DRAINS AND SAND BLANKET ARE COMPLETED AND ACCEPTED.

EMBANKMENT CONSTRUCTION FOR FILLS OVER FIVE FEET (5') IN DEPTH, INCLUDING THE SAND BLANKET, SHALL BE LIMITED TO A MAXIMUM RATE OF THREE FEET (3') PER WEEK.

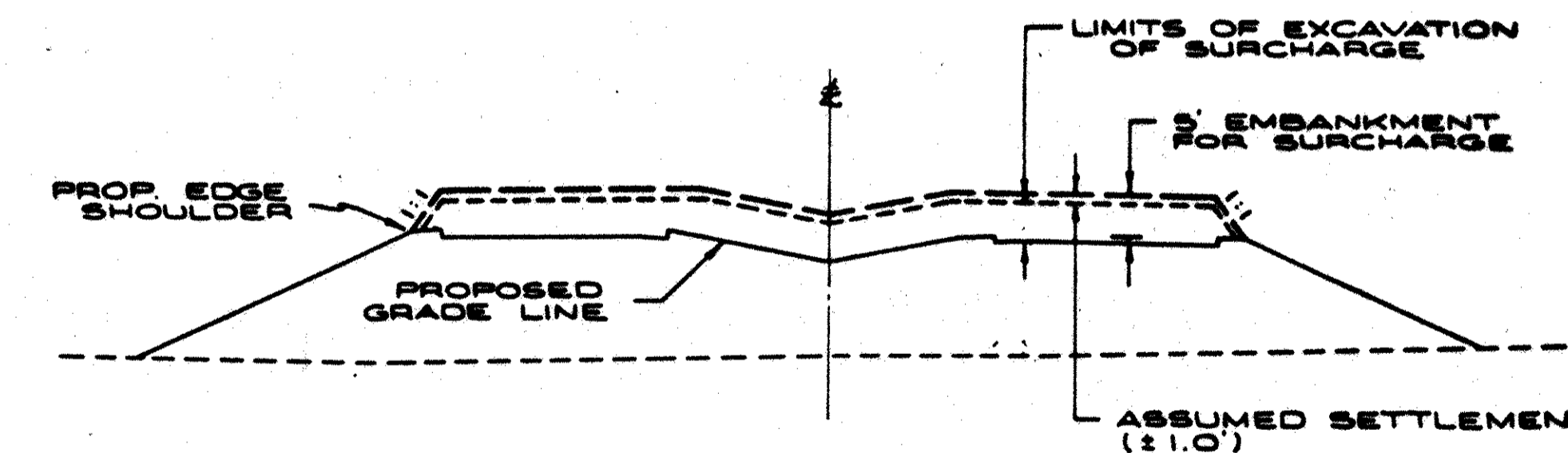
UPON COMPLETION OF THE NORMAL EMBANKMENT A SURCHARGE OF FIVE FEET (5'), CONSTRUCTED IN ACCORDANCE WITH ITEM 203 EMBANKMENT, SHALL BE APPLIED AS PER THE SKETCH AND AT THE FOLLOWING LOCATIONS:

S.R. 2	STA. 1357+50 TO STA. 1362+20±	S.R. 61	STA. 42+75 TO STA. 48+70±
	STA. 1363+80± TO STA. 1366+50		STA. 51+30± TO STA. 58+00
RAMP #4	STA. 1192+00 TO STA. 1196+75	RAMP #10	STA. 1392+75 TO S. R. 61
BERLIN RD.	STA. 13+75 TO STA. 18+20±	#11	STA. 1393+25 TO S. R. 61
	STA. 21+80± TO STA. 26+50	# C	S. R. 61 TO STA. 1399+50
RAMP #6	STA. 1318+50 TO BERLIN ROAD	# D	S. R. 61 TO STA. 1399+75
#7	STA. 1324+50 TO BERLIN ROAD		
#8	BERLIN ROAD TO STA. 1323+25		
#9	BERLIN ROAD TO STA. 1329+00		

UPON COMPLETION OF THE SURCHARGE, THERE SHALL BE A THREE (3) MONTH WAITING PERIOD BEFORE REMOVING THE SURCHARGE SOIL ABOVE THE PLAN CROSS SECTIONS AND PROCEEDING WITH THE ROADWAY CONSTRUCTION AND THE INSTALLATION OF THE BRIDGE FOUNDATION PILING.

PAYMENT FOR CONSTRUCTING THE SURCHARGE SHALL BE ITEM 203, EMBANKMENT. PAYMENT FOR REMOVING THE SURCHARGE SHALL BE ITEM 203, EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION.

THERE SHALL BE A FOUR (4) MONTH WAITING PERIOD AFTER COMPLETION OF THE EMBANKMENT ON THE APPROACHES OF THE S.R. 2 BRIDGE OVER HURON RIVER, N & W RAILWAY COMPANY AND RIVER ROAD, (STA. 1232+00 TO STA. 1233+75± AND STA. 1258+80± TO STA. 1279+00) BEFORE INSTALLING THE BRIDGE ABUTMENT NO. 1 AND NO. 2 PILING AND PROCEEDING WITH THE ROADWAY CONSTRUCTION ON THE WEST APPROACH (STA. 1232+00 TO STA. 1233+75±). THERE SHALL BE AN EIGHTEEN (18) MONTH WAITING PERIOD AFTER COMPLETION OF THE EMBANKMENT BEFORE PROCEEDING WITH THE ROADWAY CONSTRUCTION ON THE EAST APPROACH (STA. 1258+80± TO STA. 1279+00).



TYPICAL FOR EMBANKMENT AND EXCAVATION OF SURCHARGE

### WASTE AREAS AND WETLANDS

FOR NOTES ON WASTE AREA RESTRICTIONS, WETLAND ACCESS ROAD AND DRAINAGE SEE NOTES ON SHEET 205A.

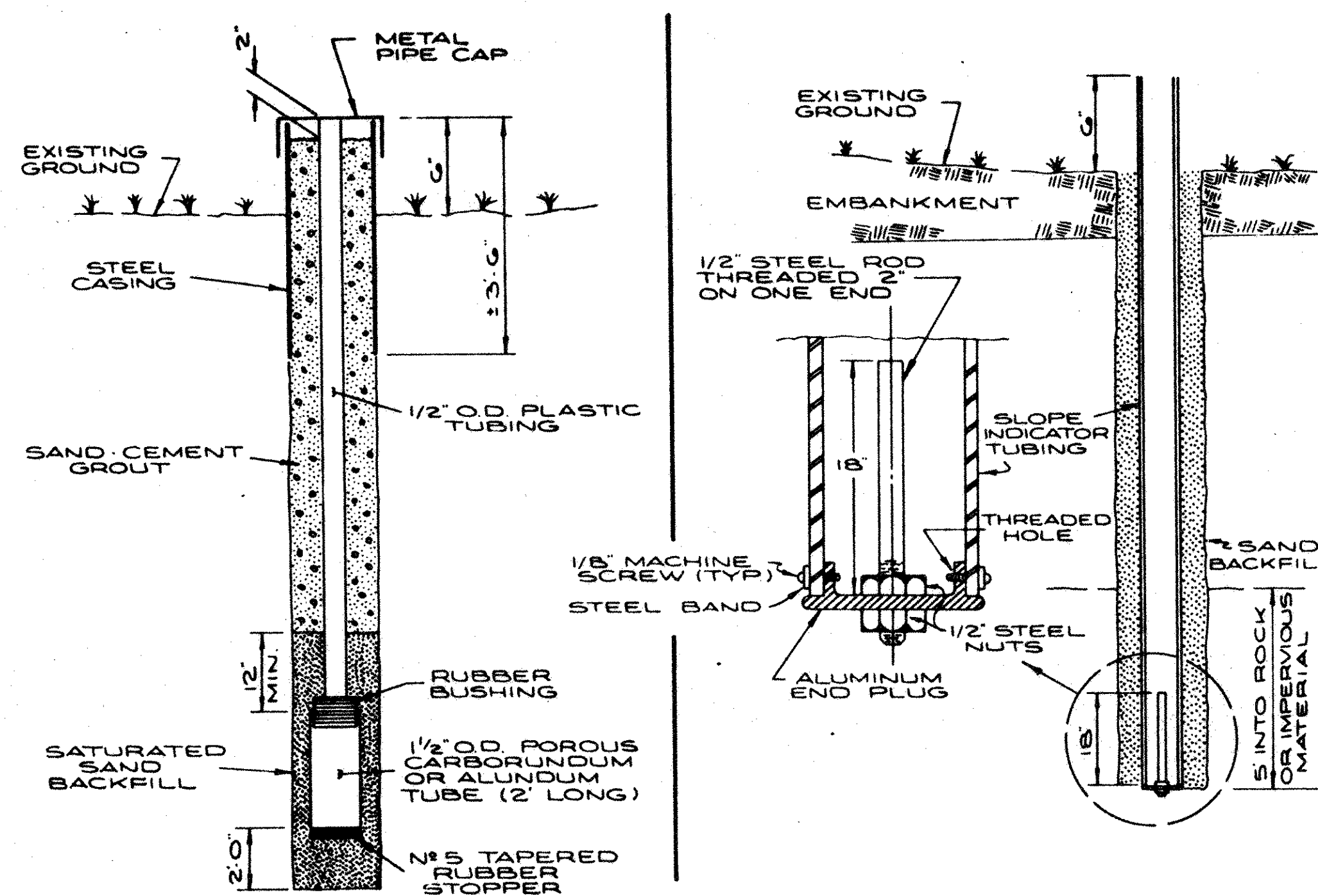
### ITEM 202 DELINEATOR AND POST REMOVED, AS PER PLAN

IN ADDITION TO THE REMOVAL AND DISPOSAL OF THE DELINEATORS AND POSTS, THIS ITEM OF WORK SHALL INCLUDE THE CLEANING AND REPAIR OF THE SURROUNDING CONCRETE AND/OR ASPHALT SURFACES FROM WHICH THE DELINEATORS HAVE BEEN REMOVED. THE REPAIRS SHALL BE FULL DEPTH AND THE SAME AS THE ADJOINING EXISTING MATERIAL. THIS WORK SHALL BE DONE IN A MANNER APPROVED BY THE ENGINEER.

# GENERAL NOTES

## POROUS-TUBE PIEZOMETER AND SLOPE INDICATOR

FOR FURTHER DESCRIPTION, SEE PROPOSAL NOTES.  
LOCATIONS TO BE AS PER PLAN SHEETS 60A-60C.



**POROUS - TUBE PIEZOMETER**

**SLOPE INDICATOR**

### ITEM SPECIAL: WICK DRAINS (PREFABRICATED VERTICAL DRAINS)

A. **DESCRIPTION** UNDER THIS ITEM, THE CONTRACTOR SHALL FURNISH ALL NECESSARY LABOR, EQUIPMENT AND MATERIALS, AND PERFORM ALL OPERATIONS NECESSARY FOR THE INSTALLATION OF WICK DRAINS IN ACCORDANCE WITH THE DETAILS SHOWN ON THE PLANS AND WITH THE REQUIREMENTS OF THESE SPECIFICATIONS. THE DRAINS SHALL BE SPACED AND ARRANGED AS SHOWN ON THE PLANS OR AS OTHERWISE DIRECTED BY THE ENGINEER.

B. **MATERIALS** THE PREFABRICATED DRAIN SHALL CONSIST OF A CONTINUOUS PLASTIC DRAINAGE CORE WRAPPED IN A NONWOVEN GEOTEXTILE MATERIAL. THE PREFABRICATED DRAINS USED SHALL BE ONE OF THE FOLLOWING PRODUCTS:

- 1.) ALI-DRAIN
- 2.) AMERDRAIN (TYPE 407)
- 3.) HITEK FLODRAIN (GRAY, DUPONT PEEMAY FILTER JACKET AND ORIGINAL)
- 4.) MEBRA-DRAIN (MD 7007)

THE CONTRACTOR SHALL SUBMIT A 5-FOOT SAMPLE OF THE WICK DRAIN MATERIAL TO THE ENGINEER AND SHALL ALLOW THREE (3) WEEKS FOR THE ENGINEER TO EVALUATE THE MATERIAL. THE SAMPLE SHALL BE STAMPED OR LABELED BY THE MANUFACTURER AS BEING REPRESENTATIVE OF THE DRAIN HAVING THE SPECIFIED TRADE NAME. APPROVAL OF THE SAMPLE MATERIAL BY THE ENGINEER SHALL BE REQUIRED PRIOR TO SITE DELIVERY OF THE PRODUCTION DRAIN MATERIAL. THE CONTRACTOR SHALL STATE WHICH WICK DRAIN PRODUCT HE INTENDS TO INSTALL AT THE PRE-CONSTRUCTION CONFERENCE. THE DRAINS SHALL BE FREE OF DEFECTS, RIPS, HOLES, OR FLAWS. DURING SHIPMENT AND STORAGE, THE DRAIN SHALL BE WRAPPED IN A HEAVY DUTY PROTECTIVE COVERING. THE STORAGE AREA SHALL BE SUCH THAT THE DRAIN IS PROTECTED FROM SUNLIGHT, MUD, DIRT, DUST, DEBRIS, AND DETRIMENTAL SUBSTANCES. MANUFACTURER CERTIFICATION SHALL BE PROVIDED FOR ALL DRAIN MATERIAL DELIVERED TO THE PROJECT.

C. **EQUIPMENT** THE WICK DRAINS SHALL BE INSTALLED WITH EQUIPMENT WHICH WILL CAUSE A MINIMUM OF DISTURBANCE OF THE SUBSOIL DURING THE INSTALLATION. THE PREFABRICATED DRAINS SHALL BE INSTALLED USING A MANDREL OR SLEEVE THAT WILL BE ADVANCED THROUGH THE COMPRESSIBLE SOILS TO THE REQUIRED DEPTH USING VIBRATORY, CONSTANT LOAD, OR CONSTANT RATE OF ADVANCEMENT METHODS. USE OF FALLING WEIGHT IMPACT HAMMERS WILL NOT BE ALLOWED. JETTING SHALL NOT BE PERMITTED FOR INSTALLATION OF THE DRAIN. THE MANDREL SHALL PROTECT THE PREFABRICATED DRAIN MATERIAL FROM TEARS, CUTS, AND ABRASIONS DURING INSTALLATION AND SHALL BE WITHDRAWN AFTER THE INSTALLATION OF THE DRAIN. THE DRAIN SHALL BE PROVIDED WITH AN "ANCHOR" PLATE OR ROD AT THE BOTTOM TO ANCHOR THE BOTTOM OF THE DRAIN AT THE REQUIRED DEPTH AT THE TIME OF MANDREL REMOVAL. THE PROJECTED CROSS-SECTIONAL AREA OF THE MANDREL AND ANCHOR COMBINATION SHALL NOT BE GREATER THAN THAT SUGGESTED BY THE MANUFACTURER AND APPROVED BY THE ENGINEER.

AT LEAST THREE (3) WEEKS PRIOR TO THE INSTALLATION OF THE WICK DRAINS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER, FOR REVIEW AND APPROVAL, DETAILS OF THE SEQUENCE AND METHOD OF INSTALLATION. THE SUBMITTAL SHALL, AT A MINIMUM, CONTAIN THE FOLLOWING SPECIFIC INFORMATION:

- 1.) SIZE, TYPE, WEIGHT, MAXIMUM PUSHING FORCE, VIBRATORY HAMMER RATED ENERGY, AND CONFIGURATION OF THE INSTALLATION RIG;
- 2.) DIMENSIONS AND LENGTH OF MANDREL;
- 3.) DETAILS OF DRAIN ANCHORAGE;
- 4.) DETAILED DESCRIPTION OF PROPOSED INSTALLATION PROCEDURES;
- 5.) PROPOSED METHOD(S) FOR OVERCOMING OBSTRUCTIONS; AND
- 6.) PROPOSED METHOD(S) FOR SPLICING DRAINS.

APPROVAL BY THE ENGINEER WILL NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY TO INSTALL WICK DRAINS IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. IF, AT ANY TIME, THE ENGINEER CONSIDERS THAT THE METHOD OF INSTALLATION DOES NOT PRODUCE A SATISFACTORY DRAIN, THE CONTRACTOR SHALL ALTER HIS METHOD AND/OR EQUIPMENT AS NECESSARY TO COMPLY WITH THE PLANS AND SPECIFICATIONS.

D. **CONSTRUCTION REQUIREMENTS** WHERE SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER, WICK DRAINS SHALL BE INSTALLED PRIOR TO EMBANKMENT CONSTRUCTION. PRIOR TO THE INSTALLATION OF PREFABRICATED DRAINS, THE CONTRACTOR SHALL STAKE OUT THE PROPOSED LOCATIONS OF THE DRAINS AND THEN TAKE ALL REASONABLE PRECAUTIONS TO PRESERVE THE STAKES. THE LOCATIONS OF THE STAKES SHALL NOT VARY BY MORE THAN SIX (6) INCHES FROM THE LOCATIONS INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

THE CONTRACTOR SHALL DEMONSTRATE THAT HIS EQUIPMENT, METHOD, AND MATERIALS PRODUCE A SATISFACTORY INSTALLATION IN ACCORDANCE WITH THIS SPECIFICATION. FOR THIS PURPOSE, THE CONTRACTOR WILL BE REQUIRED TO INSTALL SEVERAL TRIAL DRAINS AT LOCATIONS WITHIN THE WORK AREA DESIGNATED BY THE ENGINEER. TRIAL DRAINS CONFORMING TO THIS SPECIFICATION WILL BE PAID FOR AT THE SAME UNIT PRICE AS THE PRODUCTION DRAINS.

THE WICK DRAINS SHALL BE INSTALLED TO DEPTHS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. DRAINS THAT DEVIATE FROM THE PLAN LOCATION BY MORE THAN SIX (6) INCHES, OR THAT ARE DAMAGED, OR IMPROPERLY INSTALLED WILL BE REJECTED. REJECTED DRAINS MAY BE REMOVED OR ABANDONED IN PLACE, AT THE CONTRACTOR'S OPTION, REPLACEMENT DRAINS SHALL BE OFFSET APPROXIMATELY EIGHTEEN (18) INCHES FROM THE LOCATION OF THE REJECTED DRAIN. ALL REJECTED DRAINS WILL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

THE DRAINS SHALL BE INSTALLED VERTICAL AND TO THE ELEVATIONS SHOWN ON THE PLANS OR AS ORDERED BY THE ENGINEER. THE CONTRACTOR SHALL PROVIDE THE ENGINEER WITH A SUITABLE MEANS OF VERIFYING THE PLUMBNESS OF THE MANDREL AND DETERMINING THE DEPTH OF THE DRAIN AT ANY TIME. THE EQUIPMENT SHALL BE CAREFULLY CHECKED FOR PLUMBNESS AND SHALL NOT DEVIATE MORE THAN .25 INCH PER FOOT FROM VERTICAL.

SPLICES OR CONNECTIONS IN THE WICK DRAIN MATERIAL SHALL BE DONE IN A PROFESSIONAL MANNER SO AS TO INSURE CONTINUITY OF THE WICK MATERIAL. THE PREFABRICATED DRAIN SHALL BE CUT SUCH THAT AT LEAST A SIX (6) INCH LENGTH PROTRUDES ABOVE THE WORKING SURFACE AT EACH PREFABRICATED DRAIN LOCATION.

IT MAY BE NECESSARY TO PREAUGER OR USE SOME OTHER METHOD TO CLEAR OBSTRUCTIONS AND FACILITATE THE INSTALLATION OF THE DRAINS THROUGH THE WORKING PLATFORM OR A NATURAL DEPOSIT ABOVE THE COMPRESSIBLE SOIL STRATA. THE DEPTH TO WHICH PREAUGERING IS USED SHALL BE SUBJECT TO APPROVAL BY THE ENGINEER BUT SHOULD NOT EXTEND MORE THAN TWO (2) FEET INTO THE UNDERLYING COMPRESSIBLE SOILS.

WHERE OBSTRUCTIONS ARE ENCOUNTERED WITHIN THE COMPRESSIBLE STRATA, WHICH CANNOT BE PENETRATED BY AUGERING OR SPUDGING, THE CONTRACTOR SHALL ABANDON THE HOLE. AT THE DIRECTION OF THE ENGINEER, THE CONTRACTOR SHALL THEN INSTALL A NEW DRAIN WITHIN EIGHTEEN (18) INCHES OF THE OBSTRUCTED DRAIN. A MAXIMUM OF TWO ATTEMPTS SHALL BE MADE AS DIRECTED BY THE ENGINEER FOR EACH OBSTRUCTED DRAIN. IF THE DRAIN STILL CANNOT BE INSTALLED TO THE DESIGN TIP ELEVATION, THE DRAIN LOCATION SHOULD BE ABANDONED AND THE INSTALLATION EQUIPMENT SHOULD BE MOVED TO THE NEXT DRAIN LOCATION.

INSTALLATION OF THE DRAINS SHOULD CONSIDER AND BE COORDINATED WITH THE GEOTECHNICAL INSTRUMENTATION SHOWN ON THE PLANS. SPECIAL CARE SHOULD BE TAKEN TO INSTALL DRAINS IN SUCH A MANNER SO AS NOT TO DISTURB THE INSTRUMENTATION ALREADY IN PLACE. THE REPLACEMENT OF INSTRUMENTATION DAMAGED AS A RESULT OF THE CONTRACTOR'S ACTIVITIES WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.

E. **METHOD OF MEASUREMENT** THE QUANTITY OF PREFABRICATED DRAIN SHALL BE THE NUMBER OF LINEAR FEET SATISFACTORILY INSTALLED FROM THE TOP OF THE WORKING PLATFORM DESIGN ELEVATION TO THE DESIGN ELEVATION OF THE DRAIN TIP.

IN CASE OF OBSTRUCTIONS, THE CONTRACTOR SHALL BE PAID AT THE CONTRACT UNIT PRICE FOR THE NUMBER OF LINEAR FEET OF DRAIN MEASURED FROM THE TOP OF THE WORKING PLATFORM TO THE ELEVATION AT WHICH THE OBSTRUCTION WAS ENCOUNTERED.

F. **BASIS OF PAYMENT** PAYMENT FOR WICK DRAINS WILL BE MADE AT THE CONTRACT UNIT PRICE PER LINEAR FOOT, WHICH PRICE SHALL BE FULL COMPENSATION FOR THE COST OF FURNISHING THE FULL LENGTH OF WICK DRAIN MATERIAL, INSTALLING THE DRAIN, ALTERING OF THE EQUIPMENT AND METHODS OF INSTALLATION IN ORDER TO PRODUCE THE REQUIRED END RESULT IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS, AND SHALL ALSO INCLUDE THE COST OF FURNISHING ALL TOOLS, MATERIALS, LABOR, EQUIPMENT, AND ALL OTHER COSTS NECESSARY TO COMPLETE THE REQUIRED WORK. NO DIRECT PAYMENT WILL BE MADE FOR UNACCEPTABLE DRAINS OR FOR ANY DELAYS OR EXPENSES THROUGH CHANGES NECESSITATED BY IMPROPER OR UNACCEPTABLE MATERIAL OR EQUIPMENT. NO DIRECT PAYMENT WILL BE MADE FOR PREAUGERING OR OTHER METHODS USED TO FACILITATE INSTALLATION OF THE DRAIN.

### WICK DRAINS (PREFABRICATED VERTICAL DRAINS) PRODUCT INFORMATION

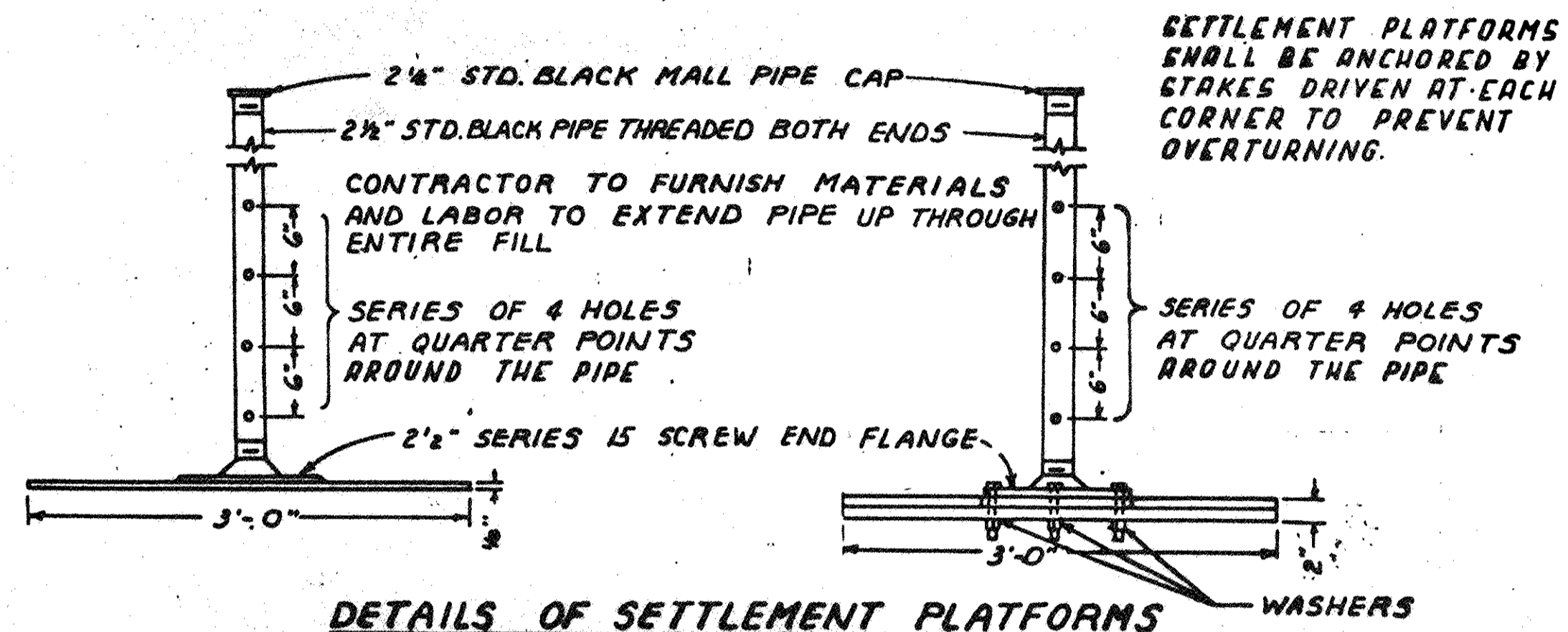
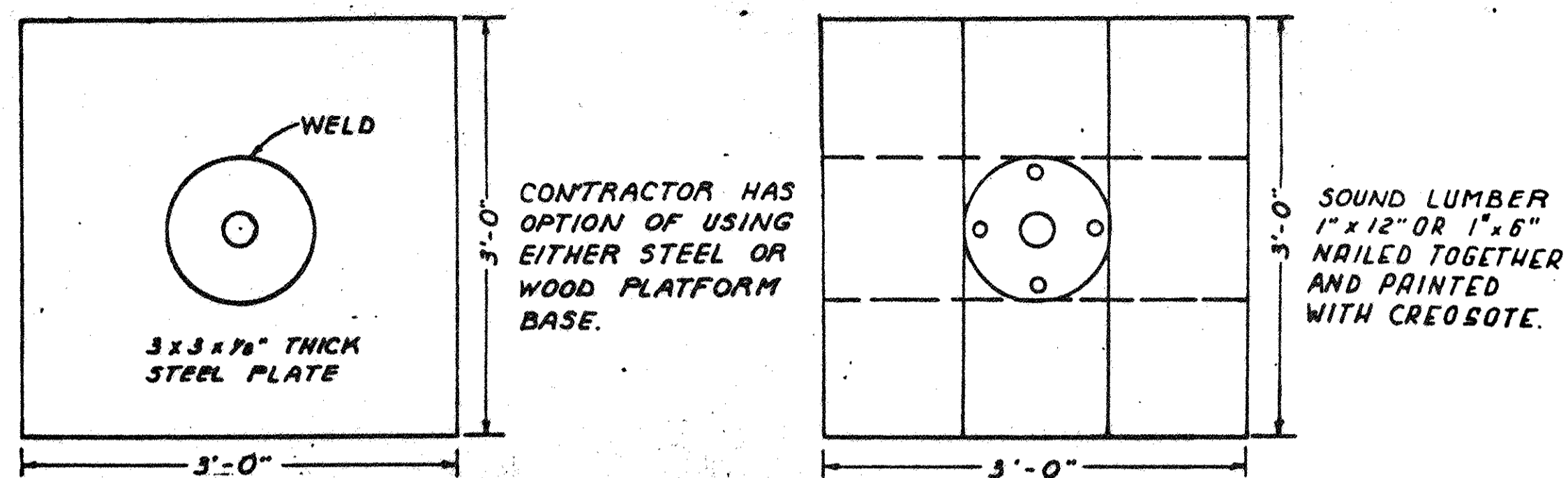
#### PRODUCTS

ALI DRAIN	MANUFACTURER:	BURCAN INDUSTRIES LIMITED SUITE 17-111 INDUSTRIAL DRIVE WHITBY, ONTARIO, CANADA L1N5Z9 416-668-6752
	U.S. SUPPLIER:	DRAINAGE AND GROUND IMPROVEMENT, INCORPORATED POST OFFICE BOX 13222 PITTSBURGH, PENNSYLVANIA 15243 412-257-2750
HITEK FLODRAIN	MANUFACTURER:	BURCAN MANUFACTURING, INCORPORATED SUITE 18-111 INDUSTRIAL DRIVE WHITBY, ONTARIO, CANADA L1N5Z9 416-668-6752
	U.S. SUPPLIER:	SAME AS ALI DRAIN
MEBRA-DRAIN	MANUFACTURER:	GEOTECHNICS HOLLAND BV POST OFFICE BOX 270 6950 AF DIEREN HOLLAND
	U.S. SUPPLIER:	(1) L. B. FOSTER COMPANY 415 HOLIDAY DRIVE PITTSBURGH, PENNSYLVANIA 15220 412-928-3475 (2) INTERNATIONAL CONSTRUCTION EQUIPMENT, INCORPORATED CORPORATE OFFICES 301 WAREHOUSE DRIVE MATTHEWS, NORTH CAROLINA 28105 800-438-9281
AMERIDRAIN	MANUFACTURER:	AMERICAN WICK DRAIN COMPANY 301 WAREHOUSE DRIVE MATTHEWS, NORTH CAROLINA 28105
	U.S. SUPPLIER:	INTERNATIONAL CONSTRUCTION EQUIPMENT COMPANY 301 WAREHOUSE DRIVE MATTHEWS, NORTH CAROLINA, 28105 800-438-9281

**ROADWAY CONTINUED**

**ITEM SPECIAL SETTLEMENT PLATFORM**

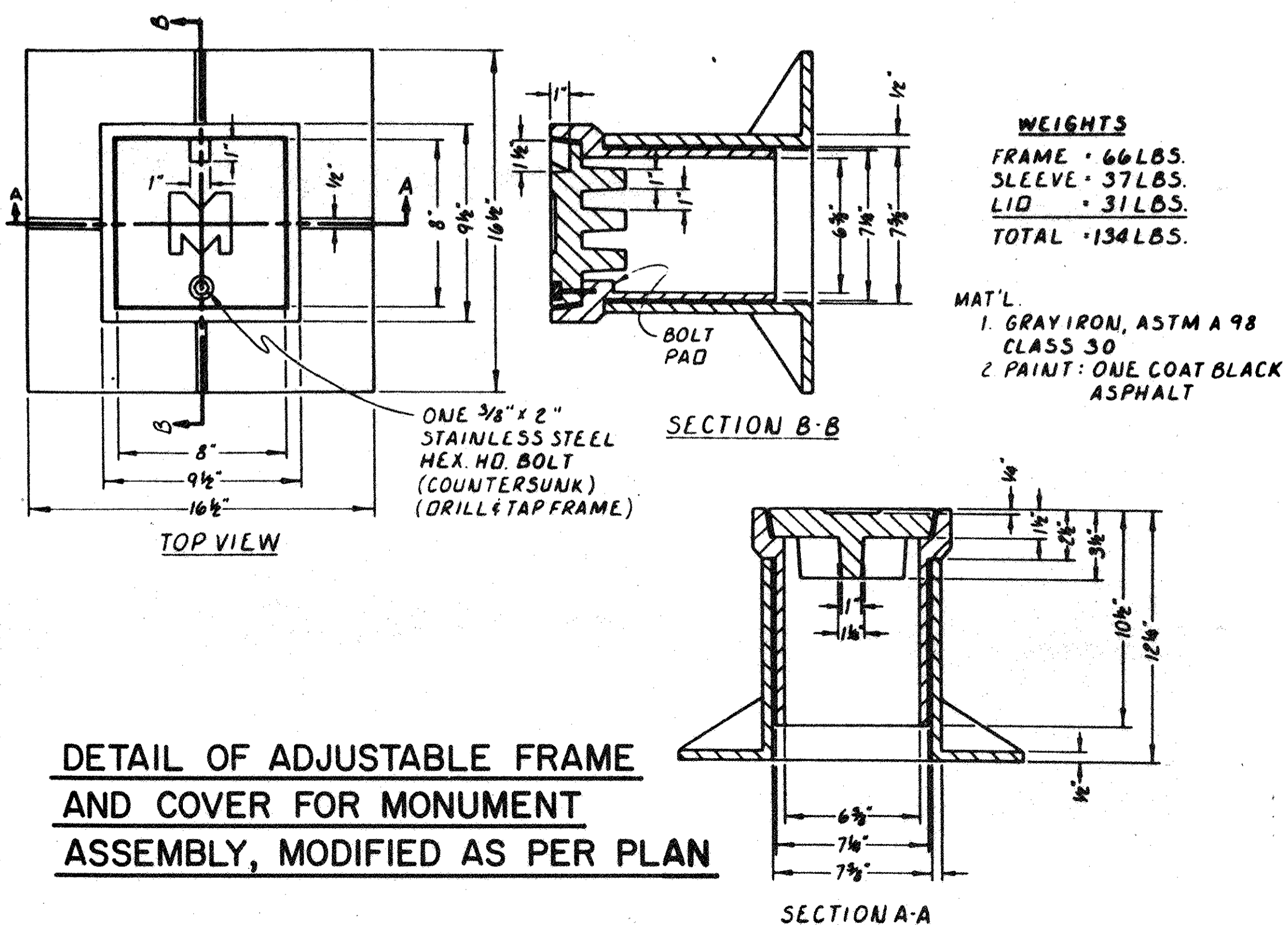
SETTLEMENT PLATFORMS SHALL BE PROVIDED TO MEASURE RATE OF FOUNDATION CONSOLIDATION. (SEE NOTE IN PROPOSAL FOR DESCRIPTION OF PAY ITEM.)



**DETAILS OF SETTLEMENT PLATFORMS**

**ITEM 604 MONUMENT ASSEMBLY, MODIFIED AS PER PLAN**

ALL MONUMENT ASSEMBLIES WHERE CALLED FOR IN THIS PLAN SHALL BE CONSTRUCTED WITH AN ADJUSTABLE FRAME AS PER THE DETAILS ON THIS SHEET. ALL OTHER REQUIREMENTS FOR THE COMPLETE ASSEMBLY SHALL BE AS PER STANDARD CONSTRUCTION DRAWING MC-1 AND AS PER THE SPECIFICATION REQUIREMENTS OF ITEM 604.



**DETAIL OF ADJUSTABLE FRAME AND COVER FOR MONUMENT ASSEMBLY, MODIFIED AS PER PLAN**

**GENERAL NOTES**

**DRAINAGE**

**ITEM SPECIAL, FILL AND PLUG EXISTING CAST IRON CULVERT**

THIS ITEM SHALL CONSIST OF THE CONSTRUCTION OF BULKHEADS IN THE EXISTING CULVERT AND FILLING THE AREA THUS SEALED OFF WITH SAND OR OTHER GRANULAR MATERIAL APPROVED BY THE ENGINEER.

BULKHEADS SHALL BE LOCATED AT THE LIMITS OF THE AREA TO BE FILLED AS INDICATED ON THE PLANS. THE BULKHEADS SHALL CONSIST OF BRICK OR CONCRETE MASONRY WITH A MINIMUM THICKNESS OF 12 INCHES.

THE FILL MATERIAL SHALL BE PUMPED INTO PLACE OR PLACED BY SOME OTHER MEANS APPROVED BY THE ENGINEER, SO THAT, AFTER SETTLEMENT, AT LEAST 90 PERCENT OF THE CROSS-SECTIONAL AREA OF THE CULVERT FOR ITS ENTIRE LENGTH SHALL BE FILLED. IN ORDER TO MEET THIS REQUIREMENT, THE CONTRACTOR WILL DIG PIT HOLES AS APPROVED BY THE ENGINEER TO IMPLEMENT THE FILLING OF THE PIPE AND/OR TO CHECK THE CROSS-SECTIONAL AREA OF THE CONDUIT WHEN FILLED. THE FOOTAGE OF FILLED AND PLUGGED CULVERT TO BE PAID FOR SHALL BE THE ACTUAL NUMBER OF LINEAR FEET (MEASURED ALONG THE CENTERLINE OF THE CULVERT FROM OUTER FACE TO OUTER FACE OF BULKHEADS) FILLED AND PLUGGED AS DESCRIBED ABOVE.

THE FOOTAGE, MEASURED AS PROVIDED ABOVE, SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER LINEAR FOOT FOR "ITEM SPECIAL, FILL AND PLUG EXISTING CAST IRON CULVERT", WHICH PRICE AND PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR FURNISHING HAULING, AND PLACING ALL THE NECESSARY MATERIALS, AND FOR ALL LABOR, EQUIPMENT, TOOLS, AND INCIDENTALS NECESSARY TO COMPLETE THIS ITEM.

THE 4' x 8' STONE BOX EXTENSION OF THE CULVERT SHALL BE COMPLETELY REMOVED. THIS WORK SHALL NOT BE PERFORMED UNTIL THE PROPOSED CULVERT AT STATION 16 + 00 CENTERLINE RIVER ROAD IS COMPLETED AND ACCEPTABLE FOR USE.

**ITEM 603 CONDUIT, TYPE A, UNDER RAILROAD**

SEE NOTE IN PROPOSAL.

**SPECIAL DITCHES**

FOR SPECIAL DITCHES, SEE CROSS SECTIONS.

**ITEM 604 CATCH BASINS AND MANHOLES**

THE TOP OF GRATE (T/G) ELEVATION FOR ALL SLANTING GRATES INDICATED ON THESE PLANS SHALL BE THE TOP OF THE FRAME AT ITS LOWEST POINT.

CATCH BASINS DEEPER THAN SIX FEET SHALL HAVE STEPS MEETING THE REQUIREMENT OF 604

**FARM DRAINS**

ALL FARM DRAINS WHICH ARE ENCOUNTERED DURING CONSTRUCTION SHALL BE PROVIDED WITH UNOBSTRUCTED OUTLETS UNDER THE DIRECTION OF THE ENGINEER. EXISTING COLLECTORS WHICH ARE LOCATED BELOW THE ROADWAY DITCH ELEVATIONS AND WHICH CROSS THE ROADWAY SHALL BE REPLACED WITHIN THE RIGHT-OF-WAY LIMITS BY ITEM 603 CONDUIT, TYPE B WITH CLASS B BEDDING, ONE COMMERCIAL SIZE LARGER THAN THE EXISTING CONDUIT.

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 TILE FIELDS WHICH CROSS THE ROADWAY SHALL BE INTERCEPTED BY 603 TYPE E CONDUIT AND CARRIED IN A LONGITUDINAL DIRECTION TO AN ADEQUATE OUTLET OR ROADWAY CROSSING.

THE LOCATION, TYPE, SIZE AND GRADE OF REQUIRED REPLACEMENTS SHALL BE DETERMINED BY THE ENGINEER DURING CONSTRUCTION AND PAYMENT SHALL BE MADE ON FINAL MEASUREMENT. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR THE WORK NOTED ABOVE:

ITEM 601	ROCK CHANNEL PROTECTION, TYPE C WITH FILTER	50 CU. YDS.
ITEM 603	6" CONDUIT, TYPE B	200 LIN. FT.
	8" CONDUIT, TYPE B	200 LIN. FT.
	10" CONDUIT, TYPE B	200 LIN. FT.
	12" CONDUIT, TYPE B	200 LIN. FT.
	6" CONDUIT, TYPE E	100 LIN. FT.
	8" CONDUIT, TYPE E	100 LIN. FT.
	10" CONDUIT, TYPE E	100 LIN. FT.
	12" CONDUIT, TYPE E	100 LIN. FT.
	6" CONDUIT, TYPE F	100 LIN. FT.
	8" CONDUIT, TYPE F	100 LIN. FT.
	10" CONDUIT, TYPE F	100 LIN. FT.
	12" CONDUIT, TYPE F	100 LIN. FT.

NECESSARY BENDS OR BRANCHES SHALL BE INCLUDED FOR PAYMENT IN THE PERTINENT CONDUIT ITEM.

NONE OF THE ABOVE MATERIALS SHALL BE ORDERED BY THE CONTRACTOR UNTIL AUTHORIZED BY THE ENGINEER.

CALC. R.H.	DATE 2-85	OHIO	11 326
CHKD. C.B.	DATE 10-85	F.H.W.A. REGION 5	
ERIE COUNTY			
ERI-2-18.38			

**TREATED SANITARY FLOW INTO HIGHWAY DRAINAGE SYSTEMS**

TREATED SANITARY FLOW MAY BE DISCHARGED INTO THE HIGHWAY DRAINAGE SYSTEM PROVIDED THE OWNER HAS SECURED THE APPROVAL OF THE LOCAL HEALTH AUTHORITIES AND HAS ACQUIRED FROM THE OHIO DEPARTMENT OF TRANSPORTATION, THE OFFICIAL PERMIT TO HAVE THE CONNECTION MADE.

IN EACH CASE WHERE A PERMIT HAS BEEN ISSUED FOR A SANITARY CONNECTION TO BE MADE INTO A HIGHWAY DRAINAGE CONDUIT, IT SHALL BE PROVIDED WITH AN INSPECTION WELL, IN ACCORDANCE WITH THE DETAIL SHOWN ON STANDARD DRAWING MC-8.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY, FOR USE AS DIRECTED BY THE ENGINEER, IN MAKING THE ABOVE DESCRIBED CONNECTIONS:

- ITEM 603, 6" CONDUIT, TYPE C 100 LIN. FT.
- \* ITEM 604, INSPECTION WELLS 2 EACH

NECESSARY BENDS OR BRANCHES SHALL BE INCLUDED FOR PAYMENT IN THE PERTINENT CONDUIT ITEM.

NONE OF THE ABOVE MATERIALS SHALL BE ORDERED BY THE CONTRACTOR UNTIL AUTHORIZED BY THE ENGINEER.

\*NO INSPECTION WELL IS REQUIRED IF EFFLUENT IS DISCHARGED INTO AN OPEN DITCH, CHANNEL, CATCH BASIN OR MANHOLE.

**CONDUIT END TREATMENT**

IMMEDIATELY AFTER PLACEMENT OF ANY CONDUITS, THE CONTRACTOR SHALL CONSTRUCT THE END TREATMENTS REQUIRED BY THE PLANS AT BOTH THE OUTLET AND INLET ENDS. THIS SHALL INCLUDE HEADWALLS, CONCRETE RIPRAP, ROCK CHANNEL PROTECTION, SODDING, ETC.

**MANHOLES, CATCH BASINS AND INLETS REMOVED OR ABANDONED**

THE CASTINGS SHALL BE CAREFULLY REMOVED AND STORED WITHIN THE RIGHT-OF-WAY FOR SALVAGE BY ERIE COUNTY FORCES.

PAYMENT FOR ALL OF THE ABOVE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE PERTINENT 202 ITEM.

**EROSION CONTROL**

ITEMS 601, 660 AND 670 ARE PROVIDED IN THE PLANS FOR EROSION CONTROL. ROCK OF A STABLE NATURE WILL NOT BE REMOVED IN ORDER TO PLACE ANY OF THESE ITEMS, AND TURF OF A STABLE NATURE WILL NOT BE REMOVED IN ORDER TO PLACE 660 OR 670. THE ENGINEER SHALL CHECK AND NON-PERFORM QUANTITIES OR ADJUST LOCATIONS AND QUANTITIES FOR THESE ITEMS WHERE INDICATED BY FIELD CONDITIONS DURING CONSTRUCTION.

# GENERAL NOTES

CALC. P.H. DATE 2-85	OHIO
CHKD. C.B. DATE 10-85	F.H.W.A. 5 REGION

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ERIE COUNTY  
ERI-2-18.38

## DRAINAGE CONTINUED

### 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.

### ITEM 605 AGGREGATE DRAINS

AGGREGATE DRAINS SHALL BE PLACED AT FIFTY (50) FOOT INTERVALS ON EACH SIDE OF NORMAL CROWNED SECTIONS AND AT TWENTY-FIVE (25) FOOT INTERVALS ON THE LOW SIDE ONLY OF SUPERELEVATED SECTIONS, EXCEPT WHERE ITEM 605 PIPE UNDERDRAINS HAVE BEEN PROVIDED.

AN AGGREGATE DRAIN SHALL BE PLACED AT THE LOW POINT OF EACH SAG VERTICAL CURVE.

### CUT-OFF WALLS

CUT-OFF WALLS SHALL BE CONSTRUCTED AT THE BEGINNING AND END OF ALL PAVED GUTTER, EXCEPT AT ENDS ADJACENT TO CATCH BASINS OR HEADWALLS.

### PIPE CONNECTIONS TO CORRUGATED METAL STRUCTURES

CONNECTIONS OF PROPOSED LONGITUDINAL DRAINAGE TO CORRUGATED METAL STRUCTURES SHALL BE BY MEANS OF A SHOP FABRICATED TEE OR SADDLE TEE ON THE STRUCTURE. THE STUB SHALL MEET THE REQUIREMENTS OF 707 AND HAVE A MINIMUM LENGTH OF TWO FEET AND A MINIMUM THICKNESS NO. LESS THAN THAT OF THE LONGITUDINAL DRAINAGE PIPE OR THE STRUCTURE WHICHEVER IS LESS.

LOCATION AND ELEVATION OF THE STUB ARE TO BE CONSIDERED APPROXIMATE AND MAY BE ADJUSTED BY THE ENGINEER TO AVOID CUTTING THROUGH JOINTS IN THE STRUCTURE.

A CONCRETE COLLAR, AS PER STANDARD CONSTRUCTION DRAWING MC-4, WILL BE REQUIRED TO CONNECT THE LONGITUDINAL DRAINAGE TO THE STUB, WHEN PIPE OTHER THAN CORRUGATED METAL IS PROVIDED FOR THE LONGITUDINAL DRAINAGE.

PAYMENT FOR PROVIDING THE CONNECTION DESCRIBED, SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 603 OR 522.

### BACKFILL FOR METAL PIPES

THE BACKFILL FOR ALL METAL PIPES SHALL BE MECHANICALLY TAMPED AS PER SPECIFICATION 603.08.

### REVIEW OF DRAINAGE FACILITIES

BEFORE ANY WORK IS STARTED ON THE PROJECT, AND AGAIN BEFORE FINAL ACCEPTANCE BY THE STATE, REPRESENTATIVES OF THE STATE AND THE CONTRACTOR ALONG WITH LOCAL REPRESENTATIVES SHALL MAKE AN INSPECTION OF THE EXISTING SEWERS WITHIN THE WORK LIMITS WHICH ARE TO REMAIN IN SERVICE AND WHICH MAY BE AFFECTED BY THE WORK. THE CONDITION OF THE EXISTING CONDUITS AND THEIR APPURTENANCES SHALL BE DETERMINED FROM FIELD OBSERVATIONS. RECORDS OF THE INSPECTIONS SHALL BE KEPT IN WRITING BY THE STATE.

ALL NEW CONDUITS, INLETS, CATCH BASINS AND MANHOLES CONSTRUCTED AS PART OF THE PROJECT SHALL BE FREE OF ALL FOREIGN MATTER AND IN A CLEAN CONDITION BEFORE THE PROJECT WILL BE ACCEPTED BY THE STATE.

ALL EXISTING SEWERS INSPECTED INITIALLY BY THE ABOVE-MENTIONED PARTIES SHALL BE MAINTAINED AND LEFT IN A CONDITION REASONABLY COMPARABLE TO THAT DETERMINED BY THE ORIGINAL INSPECTION. ANY CHANGE IN THE CONDITION RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL BE CORRECTED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER.

PAYMENT FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE UNIT PRICES BID FOR THE PERTINENT 603 ITEMS OF THE CONTRACT.

### 846 ASPHALT CONCRETE

SUBSEQUENT TO THE COMPLETION OF PLANS, THE ASPHALT CONCRETE USED ON THIS PROJECT HAS BEEN REVISED FOR ITEMS 402 AND 404 TO SUPPLEMENTAL SPECIFICATION 846. ALL REFERENCE TO 402 AND 404 APPEARING ON THE PLANS SHALL BE CONSIDERED TO READ AS FOLLOWS:

402 BECOMES 846 ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, AC-20  
404 BECOMES 846 ASPHALT CONCRETE SURFACE COURSE, TYPE 1, AC-20

### SPRING DRAINS

REFERENCE IS MADE TO THE DETAILED DRAWING ON STANDARD CONSTRUCTION DRAWING MC-1, SHOWING THE METHOD OF DRAINING ANY SPRING THAT MAY BE SHOWN ON THE PLAN, OR ENCOUNTERED DURING CONSTRUCTION, AS DETERMINED BY THE ENGINEER, THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR THIS PURPOSE:

ITEM 605	6" UNCLASSIFIED PIPE UNDERDRAIN, 707.01 TYPE III OR 707.21 TYPE III, AS PER PLAN	100 LIN. FT.
ITEM 605	AGGREGATE DRAINS FOR SPRINGS	20 LIN. FT.

THE CONTRACTOR SHALL NOT ORDER MATERIAL FOR "SPRING DRAINS" UNTIL AUTHORIZED BY THE ENGINEER, AND IN THE EVENT NO SPRINGS ARE ENCOUNTERED, THE ITEM SHALL BE NON-PERFORMED.

## PAVEMENT

### CONTRACTION AND EXPANSION JOINTS

ALTHOUGH SPECIFIC LOCATIONS OF CERTAIN EXPANSION AND CONTRACTION JOINTS HAVE BEEN DETAILED ON THIS PLAN, NO WAIVER OF THE SPECIFICATIONS IS INTENDED. PROVISION OF EXPANSION JOINTS AT ALL MAJOR STRUCTURES AND THE MAXIMUM SPACING BETWEEN CONTRACTION JOINTS SHALL IN ALL CASES BE IN ACCORDANCE WITH STANDARD CONSTRUCTION DRAWINGS AND SPECIFICATIONS.

### CONTRACTION JOINTS IN CONCRETE BASE

THE CONTRACTION JOINTS IN THE 305 BASE SHALL BE CONSTRUCTED IN ACCORDANCE WITH STANDARD DRAWING BP-4 EXCEPT THAT JOINT SPACING IN THE 305 BASE FOR THE TRAVELLED LANES SHOULD BE RANDOMLY SPACED IN THE FOLLOWING SEQUENCE: 12', 15', 13', 14'. JOINTS SHALL BE SKEWED RIGHT EDGE FORWARD AT THE RATE OF 1 FT. IN 6 FT., EXCEPT FOR THE FIRST 25 JOINTS AWAY FROM THE PRESSURE RELIEF JOINT. THESE 25 JOINTS SHALL NOT BE SKEWED AND SHALL BE DOWELED IN THE TRAVELLED LANES AS PER STANDARD DRAWING BP-4.

### SEALING JOINTS IN CONCRETE BASE

THE JOINTS SHALL BE SEALED WITH MATERIAL MEETING THE REQUIREMENTS OF 705.01, 705.02, OR 705.11, IN ACCORDANCE WITH THE APPLICABLE PROVISIONS OF 451.13. PAYMENT FOR CONSTRUCTION AND SEALING OF THESE JOINTS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONCRETE BASE.

### RESTORATION OF PAVED SHOULDERS STA. 1399+00 TO STA. 1424+25

THIS ITEM SHALL BE USED FOR RESTORATION OF THE EXISTING PAVED SHOULDERS PREVIOUSLY COVERED WITH EARTH AND AS DIRECTED BY THE ENGINEER.

RESTORATION OF THE PAVED SHOULDER SHALL BE DONE AFTER THE EXISTING ROADWAY PAVEMENT AND PAVED SHOULDER HAVE BEEN THOROUGHLY CLEANED IN AN APPROVED MANNER. ALL REPAIRS NECESSITATED BY REMOVAL OF THE DELINEATOR POSTS SHALL BE PERFORMED UNDER THAT ITEM OF WORK. ALL DETERIORATED PAVED SHOULDER AREAS SHALL BE REPAIRED FULL DEPTH USING 301 BITUMINOUS AGGREGATE AND AS DIRECTED BY THE ENGINEER.

SEAL COAT AND COVER AGGREGATE, ITEM 409, SHALL BE APPLIED TO ALL PAVED SHOULDER SURFACES PREVIOUSLY COVERED BY EARTH. THE QUANTITIES INCLUDED IN THE GENERAL SUMMARY ARE BASED ON THE SEAL COAT BEING APPLIED AT A RATE OF 0.40 GALLON PER SQUARE YARD AND THE COVER AGGREGATE AT .008 CUBIC YARD/SQ. YARD.

RESTORATION OF PAVED SHOULDERS SHALL BE PAID FOR UNDER THE VARIOUS WORK ITEMS REQUIRED FOR RESTORING THE PAVED SHOULDERS.

301	BITUMINOUS AGGREGATE BASE; AC-20; RT-11 OR RT-12	100 CU. YD.
409	SEAL COAT, BITUMINOUS MATERIAL	40 GAL.
409	SEAL COAT, COVER AGGREGATE NO. 8	10 CU. YD.

### 407 TACK COAT

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

### REINFORCED EARTH WALL - RETAINED EARTH WALL ALTERNATE BIDS

THE REINFORCED EARTH WALL DETAILS ARE SHOWN ON SHEETS 201A THRU 201D. THE QUANTITIES FOR THE REINFORCED WALL ARE SHOWN IN THE GENERAL SUMMARY. AN ALTERNATE RETAINED EARTH WALL SHOWN ON SHEETS 201E THRU 201G MAY BE CONSTRUCTED IN LIEU OF THE REINFORCED EARTH WALL. THE QUANTITIES FOR THE REINFORCED EARTH WALL ARE GROUPED IN THE GENERAL SUMMARY AND NOTED AS ALTERNATE.

### TRENCH FOR WIDENING

TRENCH EXCAVATION FOR BASE WIDENING SHALL BE ONLY ON ONE SIDE OF THE PAVEMENT AT A TIME. THE OPEN TRENCH SHALL BE ADEQUATELY MAINTAINED AND PROTECTED AT ALL TIMES WITH DRUMS OR BARRICADES WITH STEADY BURN LIGHTS ATTACHED. PLACEMENT OF PROPOSED SUBBASE AND/OR BASE MATERIAL SHALL FOLLOW AS CLOSELY AS POSSIBLE BEHIND THE EXCAVATION OPERATIONS. THE LENGTH OF WIDENING TRENCH WHICH IS OPEN AT ANY ONE TIME SHALL BE HELD TO A MINIMUM AND SHALL AT ALL TIMES BE SUBJECT TO APPROVAL OF THE ENGINEER.

### DRIVES

DRIVEWAYS SHALL BE LOCATED AND CONSTRUCTED AS SHOWN ON THE PLANS AND STANDARD CONSTRUCTION DRAWING BP-6.

FOR GENERAL NOTES PERTAINING TO WATERWORK, SEE SHEET NO. 202

FOR GENERAL NOTES PERTAINING TO BRIDGE STRUCTURES, SEE SHEET NOS. 205, 205A, 205B, 206 & 207, 206A

FOR GENERAL NOTES PERTAINING TO TRAFFIC CONTROL, SEE SHEET NO. 244

FOR GENERAL NOTES PERTAINING TO LIGHTING, SEE SHEET NO. 278

FOR GENERAL NOTES PERTAINING TO REINFORCED EARTHWORK, SEE SHEET NO. 201A

# GENERAL

# SUMMARY

REV. BY R.W.H. 1-84  
REV. BY C.B. 10-85

CALC. <i>R. J. Z.</i> DATE <i>3-26-70</i>	FED. RD. DIVISION	STATE	PROJECT
CHKD. <i>H. G.</i> DATE <i>3-27-70</i>	2	OHIO	

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ERIE COUNTY  
ERI-2-18.38

### SUB-TOTALS

ITEM	NORMAL	WINKLER CUTTER	TOTAL	UNIT	DESCRIPTION	SHT.
<b>ROADWAY</b>						
201	LUMP		LUMP		CLEARING & GRUBBING	
202	40		40	EA.	RAISED PAVEMENT MARKERS REMOVED FOR STORAGE	18
202	30		30	EA.	DELINEATOR AND POST REMOVED AS PER PLAN	18
202	100		100	LIN. FT.	GUARD RAIL REMOVED	18
202	310		310	LIN. FT.	PIPE REMOVED, 24" AND UNDER	18
202	3		3	EA.	CATCH BASINS REMOVED	18
202	7		7	EA.	CATCH BASIN ABANDONED	18
202	1		1	EA.	BOX CULVERT REMOVED	18
SPECIAL	93		93	LIN. FT.	FILL AND PLUG EXISTING CAST IRON CULVERT	18
203	156,028		156,028	CU. YD.	EMBANKMENT USING GRANULAR MATERIAL, AS PER PLAN	18
203	779,019	20,947	799,966	CU. YD.	EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION	18
203	634,914	198	635,112	CU. YD.	EMBANKMENT	18
203	30,001		30,001	CU. YD.	GRANULAR BORROW, TYPE 1, AS PER PLAN	18
203	5,811		5,811	CU. YD.	GRANULAR BORROW, TYPE 2, AS PER PLAN	18
203	202,732		202,732	SQ. YD.	SUBGRADE COMPACTION	15
203	33		33	HOUR	PROOF ROLLING	15
410	275		275	CU. YD.	TRAFFIC COMPACTED SURFACE, TYPE A OR B	9
604	23		23	EA.	REFERENCE MONUMENT, STANDARD	17
604	18		18	EA.	MONUMENT ASSEMBLY, STANDARD, MODIFIED AS PER PLAN	17
404	500		500	CU. YD.	BITUMINOUS CONCRETE FOR MAINTAINING TRAFFIC	9
606	8,387.5		8,387.5	LIN. FT.	GUARD RAIL TYPE 5	18
606	200		200	LIN. FT.	GUARD RAIL, BARRIER DESIGN, TYPE 5	18
606	13		13	EA.	ANCHOR ASSEMBLY STANDARD TYPE A	18
606	4		4	EA.	ANCHOR ASSEMBLY, BARRIER DESIGN STANDARD TYPE A	18
606	11		11	EA.	ANCHOR ASSEMBLY STANDARD TYPE B	18
606	16		16	EA.	BRIDGE TERMINAL ASSEMBLY, STANDARD, TYPE A	18
606	2		2	EA.	BRIDGE TERMINAL ASSEMBLY, STANDARD, TYPE J	18
606	19		19	EA.	ANCHOR ASSEMBLY STANDARD TYPE-T	18
607	41,270		41,270	LIN. FT.	FENCE TYPE 47	19
615	LUMP		LUMP		TEMPORARY ROAD	60
615	5285		5285	SQ. YD.	TEMPORARY PAVEMENT, CLASS B	18
616	50		50	M-GAL.	WATER	9
616	5		5	TON	CALCIUM CHLORIDE	9
SPECIAL	344,155		344,155	LIN. FT.	WICK DRAINS	18
SPECIAL	11		11	EA.	SETTLEMENT PLATFORM (SEE PROPOSAL NOTE)	18
SPECIAL	11		11	EA.	SLOPE INDICATOR	18
SPECIAL	12		12	EA.	PIEZOMETER	18
<b>EROSION CONTROL</b>						
601		21	21	CU. YD.	ROCK CHANNEL PROTECTION, TYPE A WITH FILTER	18
601	1,022		1,022	CU. YD.	ROCK CHANNEL PROTECTION, TYPE B WITH FILTER	18
601	461	147	608	CU. YD.	ROCK CHANNEL PROTECTION, TYPE L WITH FILTER	18
601	159	275	434	SQ. YD.	RIPRAP, USING 6" REINFORCED CONCRETE SLAB	18
601		294	294	SQ. YD.	RIPRAP, USING 6" REINFORCED CONCRETE SLAB, AS PER PLAN	18
659	625,131	12,296	637,427	SQ. YD.	SEEDING AND MULCHING	15
659	89.2		89.2	TON	COMMERCIAL FERTILIZER	15
659	32,350		32,350	SQ. YD.	REPAIR SEEDING AND MULCHING	9
660	129	68	217	SQ. YD.	SODDING	18
660	751	3,541	4,292	SQ. YD.	REINFORCED SODDING STANDARD	18
207	1,925		1,925	EACH	STRAW OR HAY BALES	9
207	130,000		130,000	SQ. YD.	TEMPORARY SEEDING AND MULCHING	9
659	980		980	M-GAL.	WATER	9#10
207	3,235		3,235	LIN. FT.	TEMPORARY SLOPE DRAINS	9
207	16,250		16,250	CU. YD.	TEMPORARY BENCHES, DIKES, DAMS AND SEDIMENT BASINS	9
659	2,950		2,950	M-SQ.FT.	MOWING	9#10
670	10,551		10,551	SQ. YD.	DITCH EROSION PROTECTION	18
670	4,410		4,410	SQ. YD.	SLOPE EROSION PROTECTION	18
SPECIAL	4,600		4,600	LIN. FT.	SILT FENCE	9

### SUB-TOTALS

ITEM	NORMAL	WINKLER CUTTER	TOTAL	UNIT	DESCRIPTION	SHT.
<b>DRAINAGE</b>						
602	56.4	10.1	66.5	CU. YD.	CONCRETE MASONRY	18
603	174		174	LIN. FT.	CONDUIT, TYPE A, 18" 706.02, 1750 D-LOAD OR 21" 707.05, TYPE-C	17
603	156		156	LIN. FT.	CONDUIT, TYPE A, 21" 706.02 OR 24" 707.05, TYPE-C	17
603	272		272	LIN. FT.	CONDUIT, TYPE A, 30" 706.02 OR 33" 707.05 TYPE C	17
603	234		234	LIN. FT.	CONDUIT, TYPE A, 36" 706.02, 1350 D-LOAD OR 42" 707.05, TYPE-C	17
603	234		234	LIN. FT.	CONDUIT, TYPE A, 36" 706.02, 2000 D-LOAD OR 42" 707.05 TYPE C	17
603	638		638	LIN. FT.	CONDUIT, TYPE A, 42" 706.02 OR 48" 707.05 TYPE C	17
603	332		332	LIN. FT.	CONDUIT, TYPE A, 60" 706.02 OR 72" 707.07 TYPE C	17
603	184		184	LIN. FT.	CONDUIT, TYPE A, 60" 706.02, 1250 D-LOAD OR 78" 707.07, TYPE-C	17
603	322		322	LIN. FT.	CONDUIT, TYPE A, 78" 706.02 OR 90" 707.07 (0.064), TYPE-C	17
603	226		226	LIN. FT.	CONDUIT, TYPE A, 66" 706.02, 1350 D-LOAD OR 72" 707.07	17
603	86		86	LIN. FT.	96" CONDUIT, TYPE A, 706.02, 3000 D-LOAD, UNDER RAILROAD (See Proposal Note)	17
603	95	95	95	LIN. FT.	CONDUIT, TYPE A, 84" 706.02 OR 96" 707.07 TYPE C	17
603	86		86	LIN. FT.	96" CONDUIT, TYPE A, 706.02, 1500 D-LOAD	17
603	906		906	LIN. FT.	6" CONDUIT, TYPE B	17
603	200		200	LIN. FT.	8" CONDUIT, TYPE B	17
603	200		200	LIN. FT.	10" CONDUIT, TYPE B	17
603	1,122		1,122	LIN. FT.	12" CONDUIT, TYPE B	17
603	258		258	LIN. FT.	15" CONDUIT, TYPE B	17
603	227		227	LIN. FT.	18" CONDUIT, TYPE B	17
603	120		120	LIN. FT.	21" CONDUIT, TYPE B	17
603	397		397	LIN. FT.	24" CONDUIT, TYPE B	17
603	150		150	LIN. FT.	24" CONDUIT, TYPE B, 706.02, 1750 D-LOAD, 707.13	17
603	100		100	LIN. FT.	6" CONDUIT, TYPE C	11
603	247		247	LIN. FT.	12" CONDUIT, TYPE C	17
603	279		279	LIN. FT.	15" CONDUIT, TYPE C	17
603	1,479		1,479	LIN. FT.	18" CONDUIT, TYPE C	17
603	1,775		1,775	LIN. FT.	21" CONDUIT, TYPE C	17
603	325		325	LIN. FT.	21" CONDUIT, TYPE C, 706.02, 2250 D-LOAD, 707.13	17
603	295		295	LIN. FT.	24" CONDUIT, TYPE C	17
603	11		11	LIN. FT.	30" CONDUIT, TYPE C	17
603	319		319	LIN. FT.	36" CONDUIT, TYPE C	17
603	64		64	LIN. FT.	12" CONDUIT, TYPE D	17
603	100		100	LIN. FT.	6" CONDUIT, TYPE E	17
603	140		140	LIN. FT.	8" CONDUIT, TYPE E	17
603	100		100	LIN. FT.	10" CONDUIT, TYPE E	17
603	100		100	LIN. FT.	12" CONDUIT, TYPE E	17
603	1,260		1,260	LIN. FT.	6" CONDUIT, TYPE F	17
603	140		140	LIN. FT.	8" CONDUIT, TYPE F	17
603	110		110	LIN. FT.	10" CONDUIT, TYPE F	17
603	305		305	LIN. FT.	12" CONDUIT, TYPE F	17
603	140		140	LIN. FT.	15" CONDUIT, TYPE F	17
603	70		70	LIN. FT.	18" CONDUIT, TYPE F	17

CONTINUED ON SHEET NUMBER 14



# GENERAL SUMMARY

REV. BY R.W.H. 1-84  
 REV. BY C.B. 10-85  
 CALC. R.J.Z.  
 DATE 3-28-70  
 CHKD. H.G.  
 DATE 3-27-70  
 FED. RD. DIVISION  
 2 OHIO  
 STATE PROJECT

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ERIE COUNTY  
 ERI-2-18.38

SUB-TOTALS

ITEM	NORMAL	TOTAL	UNIT	DESCRIPTION	SHT.
<b>DRAINAGE</b>					
604	2	2	EA.	MANHOLE, STANDARD NO. 1	17
604	1	1	EA.	MANHOLE, STANDARD NO. 5	17
604	1	1	EA.	CATCH BASIN, STANDARD NO. 2-2A	17
604	5	5	EA.	CATCH BASIN, STANDARD NO. 2-2B	17
604	18	18	EA.	CATCH BASIN, STANDARD NO. 4	17
604	1	1	EA.	CATCH BASIN, STANDARD NO. 4A	17
604	11	11	EA.	CATCH BASIN, STANDARD NO. 5	17
604	3	3	EA.	CATCH BASIN, STANDARD NO. 6	17
604	6	6	EA.	CATCH BASIN, STANDARD NO. 8	17
604	1	1	EA.	CATCH BASIN, STANDARD NO. 2-3	17
604	2	2	EA.	INSPECTION WELL, STANDARD	11
605	54,369	54,369	LIN. FT.	6" SHALLOW PIPE UNDERDRAINS, AS PER PLAN	17
605	25,441	25,441	LIN. FT.	6" DEEP PIPE UNDERDRAINS, AS PER PLAN	17
605	925	925	LIN. FT.	6" UNCLASSIFIED PIPE UNDERDRAINS, AS PER PLAN	17
605	410	410	LIN. FT.	AGGREGATE DRAINS	16
605	100	100	LIN. FT.	6" UNCLASSIFIED PIPE UNDERDRAINS, 707.01 TYPE III OR 707.21 TYPE III, AS PER PLAN	18
605	208	208	LIN. FT.	6" SHALLOW PIPE UNDERDRAINS, 707.01 TYPE III OR 707.21 TYPE III, AS PER PLAN	18
605	20	20	LIN. FT.	AGGREGATE DRAINS FOR SPRINGS	12
<b>WATER WORK—TYPE CODE Y-060</b>					
202	1	1	EA.	MANHOLE, ABANDONED	202
604	2	2	EA.	WATER MANHOLE, AS PER PLAN	202
604	1	1	EA.	MANHOLE ADJUSTED TO GRADE	202
814	945	945	LIN. FT.	14" WATER MAIN, CLASS 52 DUCTILE IRON PIPE INCLUDING FITTINGS, CEMENT LINED, AS PER PLAN	202 204A
814	2	2	EA.	14" GATE VALVE (NRS OPEN RIGHT)	202
814	2	2	EA.	"Y" BRANCH CONNECTION, AS PER PLAN	202
814	848	848	LIN. FT.	8" TEMPORARY WATER MAIN, POLYVINYL CHLORIDE (PVC) C-900, CLASS 150, SDR 18, INCLUDING FITTINGS & ENGAGEMENT	202

SUB-TOTALS

ITEM	NORMAL	TOTAL	UNIT	DESCRIPTION	SHT.
<b>PAVEMENT</b>					
301	7,519	7,519	CU. YD.	BITUMINOUS AGGREGATE BASE, AC-20 OR RT-11 OR RT-12	15
304	950	950	CU. YD.	AGGREGATE BASE	16
305	131,002	131,002	SQ. YD.	8" CONCRETE BASE	15
305	50,792	50,792	SQ. YD.	8" to 6" CONCRETE BASE	15
310	2,843	2,843	CU. YD.	SUBBASE, TYPE I GRADING A	15
310	51,431	51,431	CU. YD.	SUBBASE, TYPE I	15
310	26,604	26,604	CU. YD.	SUBBASE, TYPE II	15
846	6,796	6,796	CU. YD.	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, AC-20	15
846	5,019	5,019	CU. YD.	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, AC-20	15
846	67	67	CU. YD.	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, AC-20 (DRIVEWAYS)	16
408	608	608	GAL.	BITUMINOUS PRIME COAT	16
411	674	674	CU. YD.	STABILIZED CRUSHED AGGREGATE	16
SPECIAL	290	290	LIN. FT.	PRESSURE RELIEF JOINT, STANDARD TYPE A	18
409	22,660	22,660	GAL.	SEAL COAT BITUMINOUS MATERIAL	16
409	469	469	CU. YD.	SEAL COAT COVER AGGREGATE NO. 8	16
609	1,084	1,084	LIN. FT.	CURB, STANDARD TYPE G	16
611	1,515	1,515	SQ. YD.	REINFORCED CONCRETE APPROACH SLAB (T=15")	15
612	322	322	SQ. YD.	CONCRETE MEDIAN STANDARD TYPE	16
612	321	321	SQ. YD.	4" CONCRETE TRAFFIC ISLAND	16
407	12,724	12,724	GAL.	TACK COAT	15
407	3	3	TON	COVER AGGREGATE	16
622	85	85	LIN. FT.	CONCRETE BARRIER, STANDARD, TYPE D	18
622	25	25	LIN. FT.	CONCRETE BARRIER, STANDARD, TYPE D, MODIFIED AS PER PLAN	18
<b>TRAFFIC CONTROL</b>					
614	0.48	0.48	MILE	TEMPORARY CENTER LINE, CLASS I PAINT	20
614	0.96	0.96	MILE	TEMPORARY EDGE LINE, CLASS I PAINT	20
614	50	50	LIN. FT.	TEMPORARY STOP LINE, CLASS I PAINT	20
614	0.04	0.04	MILE	TEMPORARY CENTER LINE, CLASS I 947.03 TYPE B OR C	20
614	0.05	0.05	MILE	TEMPORARY EDGE LINE, CLASS I 947.03 TYPE B OR C	20
614	35	35	LIN. FT.	TEMPORARY STOP LINE, CLASS I 947.03 TYPE C	20
FOR ADDITIONAL TRAFFIC CONTROL QUANTITIES SEE SHEET 243					
STRUCTURE NO. ERI-2-1911 1/2 QUANTITIES, SEE SHEET 210 OR 215					
STRUCTURE NO. ERI-2-2082 QUANTITIES, SEE SHEET 219					
STRUCTURE NO. ERI-2-2156 1/2 QUANTITIES, SEE SHEET 228					
STRUCTURE NO. ERI-2-2222 QUANTITIES, SEE SHEET 235					
<b>STRUCTURES OVER 20' SPAN</b>					
<b>LIGHTING QUANTITIES, SEE SHEET 279</b>					
<b>(SEE REINFORCED EARTH WALLS OR RETAINED EARTH WALLS—SPECIAL PROVISIONS)</b>					
<b>RETAINING WALL</b>					
<b>REINFORCED EARTH WALL—DESIGN 1</b>					
SPECIAL	4654	4654	SQ. FT.	REINFORCED EARTH WALL	
203	2,406	2,406	CU. YD.	SELECT GRANULAR EMBANKMENT, EXCLUDING SLAG	
503	758	758	CU. YD.	UNCLASSIFIED EXCAVATION, AS PER PLAN	
503	LUMP	LUMP		COFFERDAMS, CRIBS AND SHEETING	
SPECIAL	285	285	LIN. FT.	PRECAST TRAFFIC BARRIER, INCLUDING CAST IN PLACE REINFORCED CONCRETE JUNCTION SL	
<b>RETAINED EARTH WALL—DESIGN 2</b>					
SPECIAL	4618	4618	SQ. FT.	RETAINED EARTH WALL	
203	2,406	2,406	CU. YD.	SELECT GRANULAR EMBANKMENT, EXCLUDING SLAG	
503	758	758	CU. YD.	UNCLASSIFIED EXCAVATION, AS PER PLAN	
503	LUMP	LUMP		COFFERDAMS, CRIBS AND SHEETING	
SPECIAL	285	285	LIN. FT.	TRAFFIC BARRIER WITH COPING	
614	LUMP	LUMP		MAINTAINING TRAFFIC	
619	LUMP	LUMP		FIELD OFFICE	
623	LUMP	LUMP		CONSTRUCTION LAYOUT STAKES	
624	LUMP	LUMP		MOBILIZATION	

# CALCULATIONS

CALC. R.W.H. DATE 12-8-83	FHWA REGION 5	STATE OHIO	PROJECT
CHKD. L.F.D. DATE JAN. 84			

15  
326

REV. BY ERIE COUNTY  
C.B. 10-85 ERI. 2-18.38

LINE NO.	DESCRIPTION	QUANTITY	UNIT
1			
2	ITEM 305 8" CONCRETE BASE		
3			
4	S.R. 2 STA. 1195+00 TO STA. 1399+00 = 20,400.00 L.F.		
5	LESS BRIDGE & APPROACH SLABS 2643.62 + 194.44 = -2,838.06 L.F.		
6	17,561.94 L.F. x 48 ÷ 9 = 93,663.68 SQ. YDS.		
7	RAMP 4 STA. 1191+28.48 TO STA. 1199+39.44 = 810.96 L.F.		
8	RAMP 5 STA. 1191+91.78 TO STA. 1199+06.00 = 714.22 L.F.		
9	RAMP 6 STA. 1314+15.00 TO STA. 1319+71.79 = 556.79 L.F.		
10	RAMP 7 STA. 1317+53.07 TO STA. 1327+75.69 = 1,022.62 L.F.		
11	RAMP 8 STA. 1320+11.38 TO STA. 1330+46.93 = 1,035.55 L.F.		
12	RAMP 9 STA. 1328+14.54 TO STA. 1332+75.00 = 460.46 L.F.		
13	RAMP 10 STA. 1390+00.00 TO STA. 1397+96.09 = 796.09 L.F.		
14	RAMP 11 STA. 1388+63.07 TO STA. 1397+01.53 = 838.46 L.F.		
15	SUBTOTAL RAMPS = 6,235.15 L.F. x 22 ÷ 9 = 15,241.48 SQ. YDS.		
16	SUBTOTAL FROM SHEET 16 = 22,097.00 SQ. YDS.		
17	TOTAL = 131,002.16 SQ. YDS.	131,002	SQ. YDS.
18			
19	ITEM 404 ASPHALT CONCRETE, AC-20		
20	S.R. 2 AREA LINE 6 (93,663.68 SQ. YDS.) x 1.25 ÷ 36 + 50 x 88 ÷ 9 x 1.25 ÷ 36 = 3,269.19 CU. YDS.		
21	RAMPS LENGTH LINE 15 (6,235.15 L.F.) x 16 ÷ 9 x 1.25 ÷ 36 = 384.88 CU. YDS.		
22	SUBTOTAL FROM SHEET 16 = 1,365.00 CU. YDS.		
23	TOTAL = 5,019.07 CU. YDS.	5,019	CU. YDS.
24			
25			
26	ITEM 402 ASPHALT CONCRETE, AC-20		
27	S.R. 2 AREA LINE 6 (93,663.68 SQ. YDS.) x 1.75 ÷ 36 + 50 x 88 ÷ 9 x 1.75 ÷ 36 = 4,576.87 CU. YDS.		
28	RAMPS LENGTH LINE 15 (6,235.15 L.F.) x 16 ÷ 9 x 1.75 ÷ 36 = 538.84 CU. YDS.		
29	SUBTOTAL FROM SHEET 16 = 1,680.00 CU. YDS.		
30	TOTAL = 6,795.71 CU. YDS.	6,796	CU. YDS.
31			
32			
33	ITEM 407 TACK COAT		
34	S.R. 2 AREA LINE 6 (93,663.68 SQ. YDS.) x .10 / SQ. YDS. + 50 x 88 ÷ 9 x 0.10 = 9,415.3 GAL.		
35	RAMPS LENGTH LINE 15 (6,235.15 L.F.) x 16 ÷ 9 x .10 = 1,108.5 GAL.		
36	SUBTOTAL FROM SHEET 16 = 2,201.0 GAL.		
37	TOTAL = 12,724.8 GAL.	12,724	GAL.
38			
39			
40	ITEM 305 8"-6" CONCRETE BASE		
41	S.R. 2 LENGTH LINE 6 (17,561.94 L.F.) x 2 x 12 ÷ 9 = 46,831.84 SQ. YDS.		
42	RAMP 4 800 L.F.		
43	RAMP 5 1,657 L.F.		
44	RAMP 6 1,629 L.F.		
45	RAMP 7 800 L.F.		
46	RAMP 8 800 L.F.		
47	RAMP 9 1,627 L.F.		
48	RAMP 10 1,623 L.F.		
49	RAMP 11 800 L.F.		
50	9,736 L.F. x 8 ÷ 9 = -8,654.22 SQ. YDS.		
51	SUBTOTAL FROM SHEET 16 = 12,615.00 SQ. YDS.		
52	TOTAL = 50,792.62 SQ. YDS.	50,792	SQ. YDS.
53			
54			
55			
56	ITEM 310 SUBBASE TYPE II		
57	S.R. 2 AREA LINE 6 (93,663.68 SQ. YDS.) x 6 ÷ 36 = 15,610.61 CU. YDS.		
58	MEDIAN SHOULDER LENGTH LINE 6 (17,561.94 L.F.) x 2 x 4 x 0.4583 ÷ 27 = 2,384.78 CU. YDS.		
59	OUTSIDE SHOULDER LENGTH LINE 6 [(17,561.94 L.F.) x 2 - LENGTH LINE 50 (9,736 L.F.)] x 3 x .500 ÷ 27 = 1,410.44 CU. YDS.		
60	RAMPS AREA LINE 15 (15,241.48 SQ. YDS.) x 6 ÷ 36 = 2,540.25 CU. YDS.		
61	RAMP 5 STA. 1191+91.78 TO STA. 1198+00.00 = 608.22 L.F.		
62	RAMP 7 STA. 1321+50.00 TO STA. 1322+50.00 = 100.00 L.F.		
63	RAMP 8 STA. 1325+00.00 TO STA. 1326+75.00 = 175.00 L.F.		
64	RAMP 9 STA. 1328+14.54 TO STA. 1328+50.00 = 35.46 L.F.		
65	RAMP 11 STA. 1392+00.00 TO STA. 1393+00.00 = 100.00 L.F.		
66	1,018.68 L.F. x 3 x .25 ÷ 2 x 1 + 27 = -14.15 CU. YDS.		
67	SUBTOTAL FROM SHEET 16 = 4,672.00 CU. YDS.		
68	TOTAL = 26,603.93 CU. YDS.	26,604	CU. YDS.
69			
70			
71	ITEM 310 SUBBASE TYPE I GRADING A		
72	S.R. 2 OUTSIDE SHOULDER LENGTH LINE 6 [(17,561.94 L.F.) x 2 - LENGTH LINE 50 (9,736 L.F.)] x 5 x .375 ÷ 27 = 1,763.05 CU. YDS.		
73	SUBTOTAL FROM SHEET 16 = 1,080.00 CU. YDS.		
74	TOTAL = 2,843.05 CU. YDS.	2,843	CU. YDS.
75			
76			

LINE NO.	DESCRIPTION	QUANTITY	UNIT
77			
78	ITEM 310 SUBBASE, TYPE I, GRADING A OR B		
79	S.R. 2 18" SUBGRADE UNDERCUTTING & REPLACEMENT WITH 310 :		
80	STA. 1196+25.00 TO STA. 1198+75.00 = 250.00 L.F. x 72 x 1.5 ÷ 27 = 1,000.00 CU. YDS.		
81	STA. 1203+50.00 TO STA. 1213+75.00 RT. = 1,025.00 L.F. x 28 x 1.5 ÷ 27 = 1,594.44 CU. YDS.		
82	STA. 1203+00.00 TO STA. 1208+25.81 LT. = 525.81 L.F. x 28 x 1.5 ÷ 27 = 817.93 CU. YDS.		
83	STA. 1208+25.81 TO STA. 1214+25.00 LT. = 599.19 L.F. x 36 x 1.5 ÷ 27 = 1,198.38 CU. YDS.		
84	STA. 1215+50.00 TO STA. 1217+00.00 RT. = 150.00 L.F. x 28 x 1.5 ÷ 27 = 233.33 CU. YDS.		
85	STA. 1217+00.00 TO STA. 1231+75.00 RT. = 1,475.00 L.F. x 36 x 1.5 ÷ 27 = 2,950.00 CU. YDS.		
86	STA. 1216+50.00 TO STA. 1233+25.00 LT. = 1,675.00 L.F. x 36 x 1.5 ÷ 27 = 3,350.00 CU. YDS.		
87	STA. 1292+00.00 TO STA. 1294+00.00 = 200.00 L.F. x 72 x 1.5 ÷ 27 = 800.00 CU. YDS.		
88	STA. 1311+00.00 TO STA. 1312+94.44 LT. = 194.44 L.F. x 28 x 1.5 ÷ 27 = 302.46 CU. YDS.		
89	STA. 1312+94.44 TO STA. 1331+45.69 LT. = 1,851.25 L.F. x 36 x 1.5 ÷ 27 = 3,702.50 CU. YDS.		
90	STA. 1331+45.69 TO STA. 1339+45.69 LT. = 800.00 L.F. x 28 x 1.5 ÷ 27 = 1,244.44 CU. YDS.		
91	STA. 1339+45.69 TO STA. 1347+50.00 LT. = 804.31 L.F. x 36 x 1.5 ÷ 27 = 1,608.62 CU. YDS.		
92	STA. 1311+00.00 TO STA. 1316+54.31 RT. = 554.31 L.F. x 28 x 1.5 ÷ 27 = 862.26 CU. YDS.		
93	STA. 1316+54.31 TO STA. 1334+83.43 RT. = 1,829.12 L.F. x 36 x 1.5 ÷ 27 = 3,658.24 CU. YDS.		
94	STA. 1334+83.43 TO STA. 1347+50.00 RT. = 1,266.57 L.F. x 28 x 1.5 ÷ 27 = 1,970.22 CU. YDS.		
95	STA. 1350+40.00 TO STA. 1357+50.00 = 710.00 L.F. x 72 x 1.5 ÷ 27 = 2,840.00 CU. YDS.		
96	STA. 1370+00.00 TO STA. 1371+50.00 LT. = 150.00 L.F. x 36 x 1.5 ÷ 27 = 300.00 CU. YDS.		
97	STA. 1373+50.00 TO STA. 1388+75.00 LT. = 1,525.00 L.F. x 28 x 1.5 ÷ 27 = 2,372.22 CU. YDS.		
98	STA. 1373+50.00 TO STA. 1379+64.72 RT. = 614.72 L.F. x 36 x 1.5 ÷ 27 = 1,229.44 CU. YDS.		
99	STA. 1379+64.72 TO STA. 1387+64.72 RT. = 800.00 L.F. x 28 x 1.5 ÷ 27 = 1,244.44 CU. YDS.		
100	STA. 1387+64.72 TO STA. 1387+75.00 RT. = 10.28 L.F. x 36 x 1.5 ÷ 27 = 20.56 CU. YDS.		
101	STA. 1390+00.00 TO STA. 1399+00.00 = 900.00 L.F. x 72 x 1.5 ÷ 27 = 3,600.00 CU. YDS.		
102	SUBTOTAL = 36,899.48 CU. YDS.		
103	SUBTOTAL FROM SHEET 16 = 10,531.00 CU. YDS.		
104	QUANTITY FROM NOTE, SHEET 9 = 4,000.00 CU. YDS.		
105	TOTAL = 51,430.48 CU. YDS.	51,431	CU. YDS.
106			
107	ITEM 203 SUBGRADE COMPACTION		
108	S.R. 2 LENGTH LINE 6 (17,561.94 L.F.) x 72 ÷ 9 = 140,495.52 SQ. YDS.		
109	DEDUCT OUTSIDE SHOULDERS ALONG RAMPS LENGTH LINE 50 (9,736 L.F.) x 8 ÷ 9 = -8,654.22 SQ. YDS.		
110	RAMPS LENGTH LINE 15 (6,235.15 L.F.) x 22 ÷ 9 = 15,241.48 SQ. YDS.		
111	SUBTOTAL FROM SHEET 16 = 54,134.00 SQ. YDS.		
112	ADD APPROACH SLAB AREA LINE 128 = 1,514.89 SQ. YDS.		
113	TOTAL = 202,731.67 SQ. YDS.	202,732	SQ. YDS.
114			
115	ITEM 203 PROOF ROLLING		
116	TOTAL AREA FROM LINE 113 = 202,731.67 SQ. YDS.		
117	DEDUCT LINE 105: 51,430.48 C.Y. ÷ 18 3/8" DEPTH = -102,860.96 SQ. YDS.		
118	LINES 116 & 117 TOTAL = 99,870.71 SQ. YDS.		
119	AREA LINE 118 (99,870.71 SQ. YDS.) x 1 ÷ 3,000 S.Y./HR. = 33.29 HRS.	33	HRS.
120			
121			
122	ITEM 611 APPROACH SLABS, T=15"		
123	STRUCTURE ERI-2-1911 L/R (40x25 - [(0.25 x 5 x 2) - (4.75 x .583 x 2)] x 1 + 9 x 2 = 220.70 SQ. YDS.		
124	(40x25 + [6.86 + 7.64] x 5 - [17.36 + 18.14] x .583) x 1 + 9 x 2 = 219.23 SQ. YDS.		
125	STRUCTURE ERI-2-2082 (44x25 + [3.27 + 7.70] x 5 - [20.24 + 17.24] x .583) x 1 + 9 x 2 = 240.81 SQ. YDS.		
126	STRUCTURE ERI-2-2156 L/R (45x25 x 3 + [4.5 x 2.5]) x 1 + 9 = 501.39 SQ. YDS.		
127	STRUCTURE ERI-2-2222 (60x25 + [2.26 x 2 x 5 - 12.74 x 2 x .583]) x 1 + 9 x 2 = 332.76 SQ. YDS.		
128	TOTAL = 1,514.89 SQ. YDS.	1,515	SQ. YDS.
129			
130	ITEM 659 SEEDING & MULCHING		
131	TOTAL FROM SHEET 18, AREA OF SEEDING & MULCHING = 660,186.0 SQ. YDS.		
132	DEDUCT AREA OF DITCH AND SLOPE EROSION PROTECTION = -14,961.0 SQ. YDS.		
133	DEDUCT AREA OF SODDING & REINFORCED SODDING = -4,509.0 SQ. YDS.		
134	DEDUCT AREA OF RIPRAP 436.8 + 294 = -730.8 SQ. YDS.		
135	DEDUCT AREA OF ROCK CHANNEL PROTECTION TYPE A 21 C.Y. x 36 / 48 = -15.8 SQ. YDS.		
136	DEDUCT AREA OF ROCK CHANNEL PROTECTION TYPE B 1022 C.Y. x 36 / 30 = -1,226.4 SQ. YDS.		
137	DEDUCT AREA OF ROCK CHANNEL PROTECTION TYPE C 608.0 C.Y. x 36 / 18 = -1,216.0 SQ. YDS.		
138	TOTAL = 637,526.5 SQ. YDS.		
139	LESS WINKLER DITCH - 12,596.0 SQ. YDS.	12,596	SQ. YDS.
140	TOTAL = 625,130.5 SQ. YDS.	625,130.5	SQ. YDS.
141			
142	ITEM 659 FERTILIZER		
143	AREA FROM LINES 131, 132 & 133 (660,186 + 14,961 + 4,509) x 20 ÷ 2000 = 612 TONS		
144	FROM SHEET 9 = 28.0 TONS		
145	TOTAL = 89.2 TONS	89.2	TONS
146			
147	ITEM 301 BITUMINOUS AGGREGATE BASE AC-20; RT-11 OR RT-12		
148	S.R. 2 AREA LINE 41 (46,831.84 SQ. YDS.) LESS AREA LINE 50 (8,654.22 SQ. YDS.) = 38,177.62 SQ. YDS.		
149	RAMP LENGTH LINE 15 (6,235.15 L.F.) x 6 / 9 = 4,156.77 SQ. YDS.		
150	AREA LINES 147 & 148 (42,334.39 SQ. YDS.) x 3 / 36 = 3,527.87 CU. YDS.		
151	SUBTOTAL FROM SHEET 16 = 3,891.00 CU. YDS.		
152	FROM GENERAL NOTE SHEET 12 = 100.00 CU. YDS.		
	TOTAL = 7,518.87 CU. YDS.	7,519	CU. YDS.

# SUMMARY OF TABLES

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

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326

ERIE COUNTY  
ERI 2-18.38

## SUMMARY OF PAVEMENT DETAIL QUANTITIES

SHEET NO.	ITEM	203	310	301	304	310		402	404	408	411	305	305	609	409		612		605		407		404	
						SUBBASE GRADING TYPE I	SUBBASE TYPE II								8" CONCRETE BASE	8"-6" CONCRETE BASE	CONCRETE CURB TYPE 6	SEAL COAT BITUMINOUS MATERIAL	SEAL COAT COVER AGGREGATE NO. 8	CONC. MEDIAN STD. TYPE	4" CONC. ISLAND	AGGREGATE DRAINS		TACK COAT
UNIT	LOCATION	SQ. YD.	CU. YD.	CU. YD.	CU. YD.	CU. YD.	CU. YD.	CU. YD.	CU. YD.	GAL.	CU. YD.	SQ. YD.	SQ. YD.	LIN. FT.	GAL.	CU. YD.	SQ. YD.	SQ. YD.	LIN. FT.	GAL.			CU. YD.	
61	MEDIAN CROSSOVER	1,107	210	93			153						1,107		444	9								
62	RAMP #4	2,165	365	66		284	58	67	48			1,410	754		315	7					138			
63	RAMP #5	5,545	1,650	189		706	164	159	114			3,367	2,178		613	12					327			
64	RIVER ROAD	3,592		529				150	125		177													
67	JEFFRIES RD.	1,520			356	187			53	608										416				
68	BERLIN ROAD	7,590		981	67	300		302	243		230	1,800			133	3					147		14	
69	RAMP #6	4,811	576	181		561	180	129	92			2,719	2,092		867	18					264			
70	RAMP #7	2,436	978	67		327	59	79	57			1,664	771		322	6					163			
71	RAMP #8	2,436	1,218	67		327	59	79	57			1,664	771		322	7					163			
72	RAMP #9	5,034	2,280	185		606	175	137	98			2,941	2,093		625	13					281			
75	SR. 61 Access Rds.	10,722		1,288	527	478		372	331		267	2,206		496	202	4	322	321			295	3	53	
76	RAMP #10	4,740	2,155	178		569	173	127	90			2,662	2,078		623	17					260			
77	RAMP #11	2,436	1,099	67		327	59	79	57			1,664	771		322	7					163			
18	SUB SUMMARY													588										
	TOTAL	54,134	10,531	3,891	950	4,672	1,080	1,680	1,365	608	674	22,097	12,615	1,084	4,788	103	322	321	416	2201	3	67		

\* 18" Extra Depth For Undercut Areas

⊕ - DENOTES QUANTITIES CARRIED DIRECT TO GENERAL SUMMARY.

\* - DENOTES QUANTITIES CARRIED TO CALCULATIONS ON THIS SHEET (ALL OTHER QUANTITIES CARRIED TO CALCULATION SHEET NO. 15.)

### SURCHARGE CALCULATIONS

#### ITEM 203 EMBANKMENT FOR SURCHARGE

S.R. 2 STA. 1357+50 TO STA. 1362+20 = 470 L.F. x 735/27 = 12,794 C.Y.  
 S.R. 2 STA. 1363+80 TO STA. 1366+50 = 270 L.F. x 735/27 = 7,350 C.Y.  
 RAMP #4 STA. 1192+00 TO STA. 1196+75 = 475 L.F. x 160/27 = 2,815 C.Y.  
 BERLIN RD. STA. 13+75 TO STA. 18+20 = 445 L.F. x 235/27 = 3,873 C.Y.  
 BERLIN RD. STA. 21+80 TO STA. 26+50 = 470 L.F. x 235/27 = 4,091 C.Y.  
 RAMP #6 STA. 1318+50 TO STA. 1320+67 = 217 L.F. x 160/27 = 1,286 C.Y.  
 RAMP #7 STA. 1324+50 TO STA. 1328+35 = 385 L.F. x 160/27 = 2,281 C.Y.  
 RAMP #8 STA. 1319+52 TO STA. 1323+25 = 373 L.F. x 160/27 = 2,210 C.Y.  
 RAMP #9 STA. 1327+18 TO STA. 1329+00 = 182 L.F. x 160/27 = 1,079 C.Y.

S.R. 61 STA. 42+75 TO STA. 48+70 = 595 L.F. x 325/27 = 7,162 C.Y.  
 S.R. 61 STA. 51+30 TO STA. 58+00 = 670 L.F. x 325/27 = 8,065 C.Y.  
 RAMP #10 STA. 1392+75 TO STA. 1398+78 = 603 L.F. x 160/27 = 3,573 C.Y.  
 RAMP #11 STA. 1393+25 TO STA. 1397+47 = 422 L.F. x 160/27 = 2,501 C.Y.  
 RAMP #C STA. 1398+14 TO STA. 1399+50 = 136 L.F. x 160/27 = 806 C.Y.  
 RAMP #D STA. 1398+32 TO STA. 1399+75 = 143 L.F. x 160/27 = 847 C.Y.

TOTAL ITEM 203 EMBANKMENT (FOR SURCHARGE) = 60,733 C.Y.

ITEM 203 EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION OF SURCHARGE  
 FROM ITEM 203 EMBANKMENT FOR SURCHARGE 60,733 x .80 = 48,586 C.Y. QUANTITY CARRIED TO SUMMARY OF TABLES, SHT. NO. 18.

ITEM 409, SEAL COAT BITUMINOUS MATERIAL  
 AREA FROM LINE 149, SHEET 15 = 42,335 S.Y.  
 42,335 S.Y. x 0.40 GAL./S.Y. = 16,934 GAL.  
 FROM SHEET 38 = 898 GAL.  
 TOTAL FROM PAV'T DETAIL QUANTITIES (THIS SHT.) = 4,788 GAL.  
 FROM GENERAL NOTES SHT. 12 = 40 GAL.  
 22,160 GAL.

ITEM 409, SEAL COAT COVER AGGREGATE  
 AREA FROM LINE 149, SHEET 15 = 338.68 C.Y.  
 42,335 S.Y. x 0.008 = 338.68 C.Y.  
 FROM SHEET 38 = 18.00 C.Y.  
 TOTAL FROM PAV'T DETAIL QUANTITIES (THIS SHT.) = 103.00 C.Y.  
 FROM GENERAL NOTES SHT. 12 = 10.00 C.Y.  
 469.68 C.Y.

ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

### SUMMARY OF TABLES

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.J.Z.	D.S.	D.S.			
3-25-70	3-26-70	3-26-70			

REV. BY R.W.H. 12-83  
REV. BY C.B. 10-85



# SUMMARY OF TABLES

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	18 324

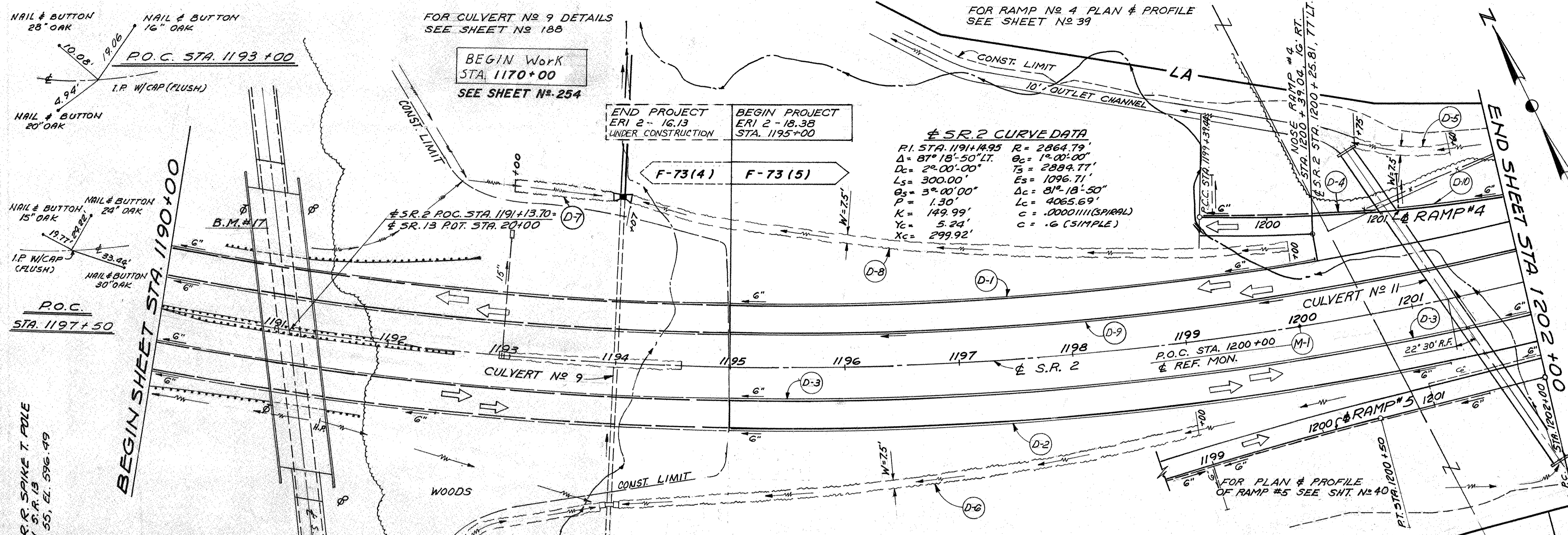
ERIE COUNTY  
ERI-2-18.38

SHEET NO.	STATION TO STATION	PIPE REMOVED 24" & UNDER	DELINEATOR AND POST REM. AS PER PLAN.	RAISED PAVT MARKERS REM. FOR STORAGE	202			503	SPECIAL	203				601			602	606				SPEC.	605	615	659	660		670		609	622		SHEET NO.	
					GUARD-RAIL REMOVED	CATCH BASIN REMOVED	BOX CULVERT REMOVED	UNCLASSIFIED EXCAVATION	FILL # PLUG EXIST. CAST IRON CULVERT	GRANULAR BORROW		EXCAV.	EMBANK.	EMBRANKMENT USING GRANULAR MATERIAL	Rock Channel Protection with Filter			CONC. MASONRY	GUARDRAIL		ANCHOR ASSEMBLY			BRIDGE TERM. ASSEM.	Pressure Relief Joint Type A	CLASS B TEMP. PAV'T.	SEEDING AND MULCHING	SODDING	REINFORCED SODDING STANDARD	DITCH EROS. PROT.	SLOPE EROS. PROT.	CONCRETE CURB STD TYPE, G		CONCRETE BARRIER TYPE
										*TYPE 1	*TYPE 2				Type A	Type B	Type C		Type 5	Type 5 BARRIER	Type	STD.	BARRIER											
					L.F.	EA.	EA.	L.F.	EA.	EA.	C.Y.	C.Y.	C.Y.	C.Y.	C.Y.	C.Y.	C.Y.	C.Y.	C.Y.	L.F.	L.F.	EA.	EA.	EA.	EA.	EA.	EA.	L.F.	L.F.	S.Y.	S.Y.	S.Y.		S.Y.
19	FENCE QUANTITIES																															19		
20	1190+00-1202+00										4,731	1,342	13,025	22,473																		20		
21	1202+00-1214+00										522	159	90,550	8,813																		21		
22	1214+00-1226+00										2,394	815	71,901	5,777																		22		
23	1226+00-1238+00												56,048	2,952	1522																	23		
24	1238+00-1250+00																															24		
25	1250+00-1262+00												697	74,726	10,102																	25		
26	1262+00-1274+00												2499	78,111	27,506																	26		
27	1274+00-1286+00												15,768	15,204	2,172																	27		
28	1286+00-1298+00												30,712	136																		28		
29	1298+00-1310+00												4,527	12,200																		29		
30	1310+00-1322+00												11,649	2,120																		30		
31	1322+00-1334+00												46,509	36																		31		
32	1334+00-1346+00												94,036	249																		32		
33	1346+00-1358+00												97,844	26,753	1,167																	33		
34	1358+00-1370+00						758				7,407	1,134	14,037	29,777	16,057																	34		
35	1370+00-1382+00												60,731	24,484																		35		
36	1382+00-1394+00												42,692	9,814																		36		
37	1394+00-1406+00	162	12	18									11,858	274																		37		
38	1406+00-1416+00		18	22									709																			38		
39	RAMP #4												5,227	1,874	3,381	21,450	8,186															39		
40	RAMP #5												6,898	4,814																		40		
41	10+00 - 20+00																															41		
42	20+00 - 25+04																															42		
43	JEFFRIES ROAD	44			100	1	1	1	93				9,720	487	5,730	28,111	2,879															43		
44	BERLIN ROAD																															44		
45	8+00 - 15+00																															45		
46	15+00 - 25+00																															46		
47	25+00 - 32+10																															47		
48	RAMP #6																															48		
49	RAMP #7																															49		
50	RAMP #8																															50		
51	RAMP #9																															51		
52	S.R. 61 39+25-50+00																															52		
53	S.R. 61 50+00-60+25	104																														53		
54	RAMP #10																															54		
55	RAMP #11																															55		
57	RAMP "C"																															57		
57	RAMP "D"																															57		
58	HOFFMAN ACC. RD.																															58		
60	TEMPORARY RD.																															59#60		
188	CULVERT #9																															188		
189	CULVERT #11																															189		
190	CULVERT #12																															190		
191	CULVERT #13																															191		
191A	CULVERT #13A																															191A		
192	CULVERT #14																															192		
193	CULVERT #15																															193		
194	CULVERT #16																															194		
195	CULVERT #17																															195		
196	CULVERT #18																															196		
197	CULVERT #19																															197		
198	CULVERT #20**21																															198		
911,12,16	NOTES/** SHT. 16																															911,12,16		
TOTAL		310	30	40	100	3	7	1	758	93	30,001	5,811	174,019	20,947	60,733**	130																		

NOTES: \* GRANULAR BORROW HAS BEEN DIVIDED INTO TWO QUANTITIES ON THIS PROJECT AND SHALL BE DESIGNATED AS FOLLOWS:  
 TYPE 1: GRANULAR BORROW AS PER PLAN INCLUDING THE COST OF REMOVING UNSUITABLE MATERIAL. THIS QUANTITY WILL BE THE AMOUNT NEEDED TO BACKFILL THE SPACE OCCUPIED BY UNSUITABLE MATERIAL AND SHALL BE MEASURED TO THE ORIGINAL GROUND LINE.  
 TYPE 2: GRANULAR BORROW AS PER PLAN. THIS QUANTITY SHALL BE THE AMOUNT OF GRANULAR BORROW ABOVE THE ORIGINAL GROUND LINE PLUS 5% FOR COMPACTION.

\* ALL QUANTITIES FOR WINKLER DITCH ARE SHOWN ON SHEET # 191-A.  
 \*\* SEE SHEET 16 FOR CALCULATIONS  
 • Shallow  
 Δ Unclassified





**SR. 2 CURVE DATA**

P.I. STA. 1191+4.95	R = 2864.79'
$\Delta = 87^\circ 18' 50''$ LT.	$\theta_c = 1^\circ 00' 00''$
$D_c = 2^\circ 00' 00''$	$T_s = 2884.77'$
$L_s = 300.00'$	$E_s = 1096.71'$
$\theta_s = 3^\circ 00' 00''$	$\Delta_c = 81^\circ 18' 50''$
$P = 1.30$	$L_c = 4065.69'$
$K = 149.99'$	$C = .00001111$ (SPIRAL)
$Y_c = 5.24'$	$C = .6$ (SIMPLE)
$X_c = 299.92'$	

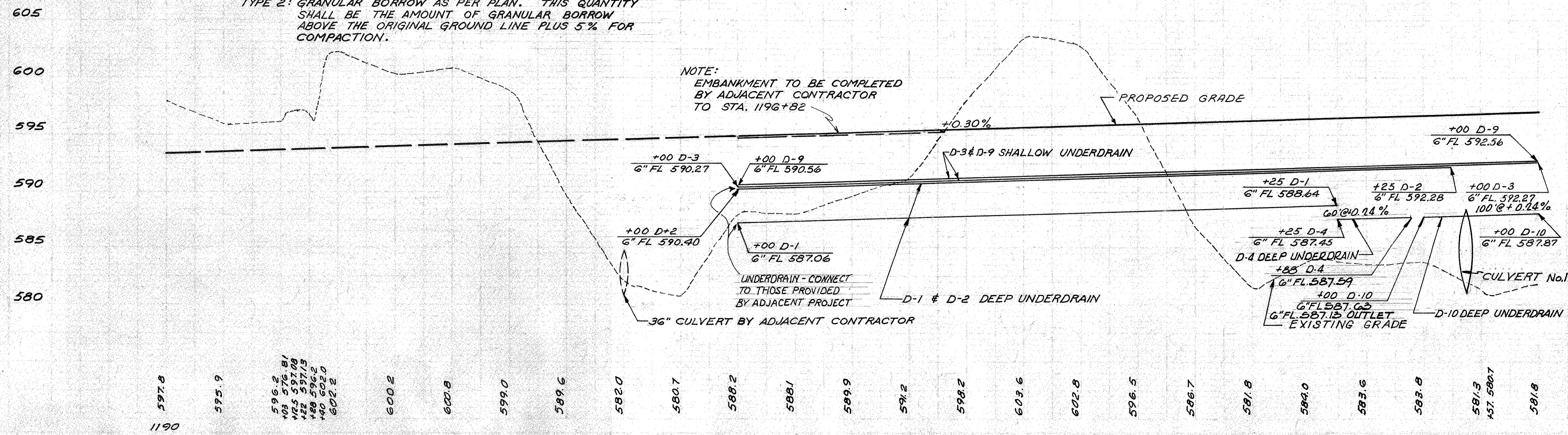
8M "17" R.R. SAKI T. POLE  
58' LT. ON S.R. 13  
STA. 1190+55, EL. 596.49

ADACHE ASSOCIATES, INC.  
CALC. BY RWH DATE 3/7/69  
CHKD. BY RLB DATE 9/17/69

NOTE: GRANULAR BORROW HAS BEEN DIVIDED INTO TWO QUANTITIES ON THIS PROJECT AND SHALL BE DESIGNATED AS FOLLOWS:  
TYPE 1: GRANULAR BORROW AS PER PLAN INCLUDING THE COST OF REMOVING UNSUITABLE MATERIAL. THIS QUANTITY WILL BE THE AMOUNT NEEDED TO BACKFILL THE SPACE OCCUPIED BY UNSUITABLE MATERIAL AND SHALL BE MEASURED TO THE ORIGINAL GROUND LINE.  
TYPE 2: GRANULAR BORROW AS PER PLAN. THIS QUANTITY SHALL BE THE AMOUNT OF GRANULAR BORROW ABOVE THE ORIGINAL GROUND LINE PLUS 5% FOR COMPACTION.

STA. 1195+00 TO STA. 1202+00

EXCAVATION	12,957 C.Y.	SECT. DEPTH ADJ. CALC.
EMBANKMENT	22,706 C.Y.	$+ (78 C.Y.) = 175 \times 12 \div 27$
GRAN. BOR. TYPE 1	4731 C.Y.	$- (233 C.Y.) = 525 \times 12 \div 27$
GRAN. BOR. TYPE 2	1342 C.Y.	
SEEDING	10,937 S.Y.	



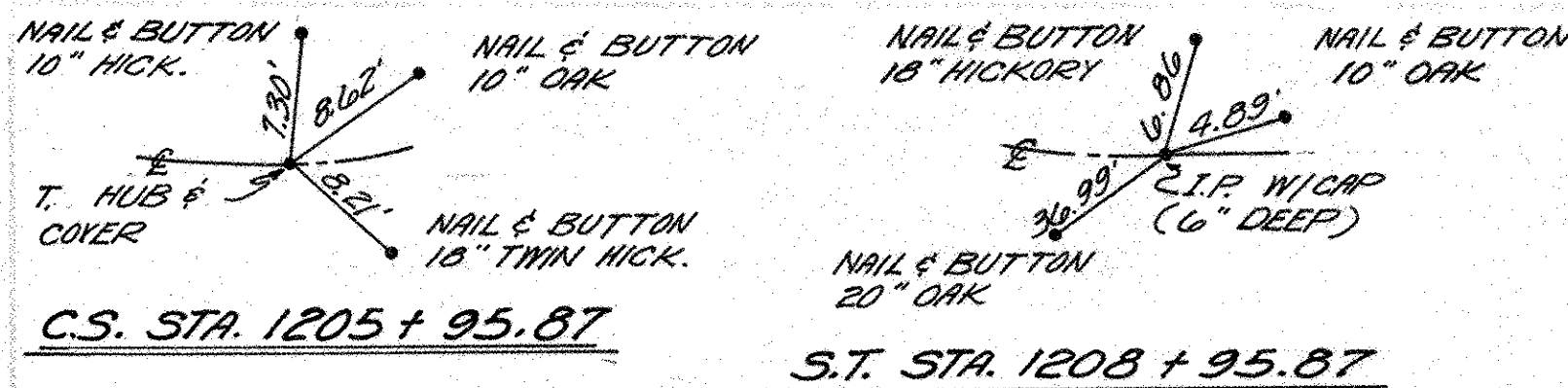
NOTE: EMBANKMENT TO BE COMPLETED BY ADJACENT CONTRACTOR TO STA. 1196+82

UNDERDRAIN - CONNECT TO THOSE PROVIDED BY ADJACENT PROJECT

36" CULVERT BY ADJACENT CONTRACTOR

REF. NO.	STATION TO STATION	SIDE	ESTIMATED QUANTITIES		SEE SHEET NO.
			GO3 TYPE F	GO4 REF. MON. EA.	
D-1	1195+00 - 1200+25	LT.	6"		
D-2	1195+00 - 1201+25	RT.	6"		
D-3	1195+00 - 1202+00	RT.	6"		
D-4	1200+25 - 1201+60	LT.	6"		
D-5	1200+25 - 1201+60	RT.	6"		
D-6	1195+00 - 1199+00	LT.	6"		
D-7	1195+00 - 1193+00	LT.	6"		
D-8	1194+00 - 1200+00	LT.	6"		
D-9	1194+00 - 1202+00	LT.	6"		
D-10	1201+00 - 1202+00	LT.	6"		
M-1	1200+00	EA.			
			<b>TOTAL</b>		

PLAN & PROFILE STA. 1190+00 TO STA. 1202+00



**S.R. 2 CURVE DATA**

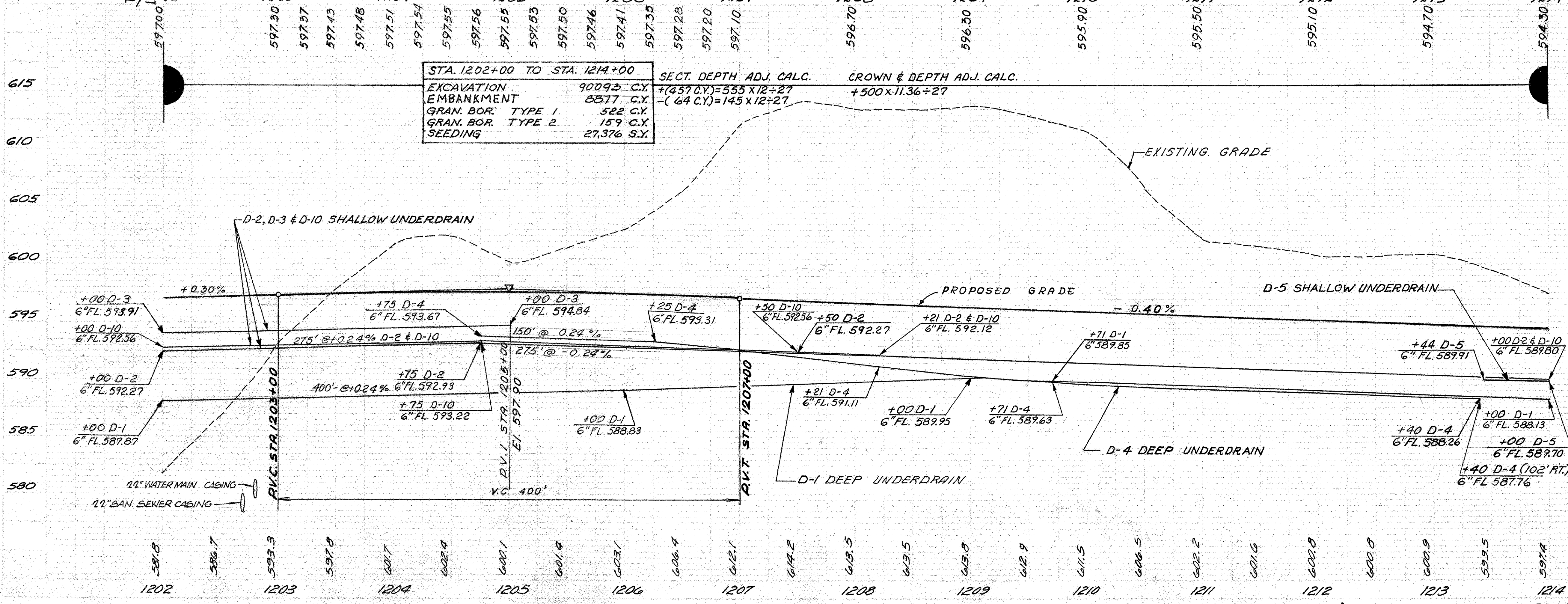
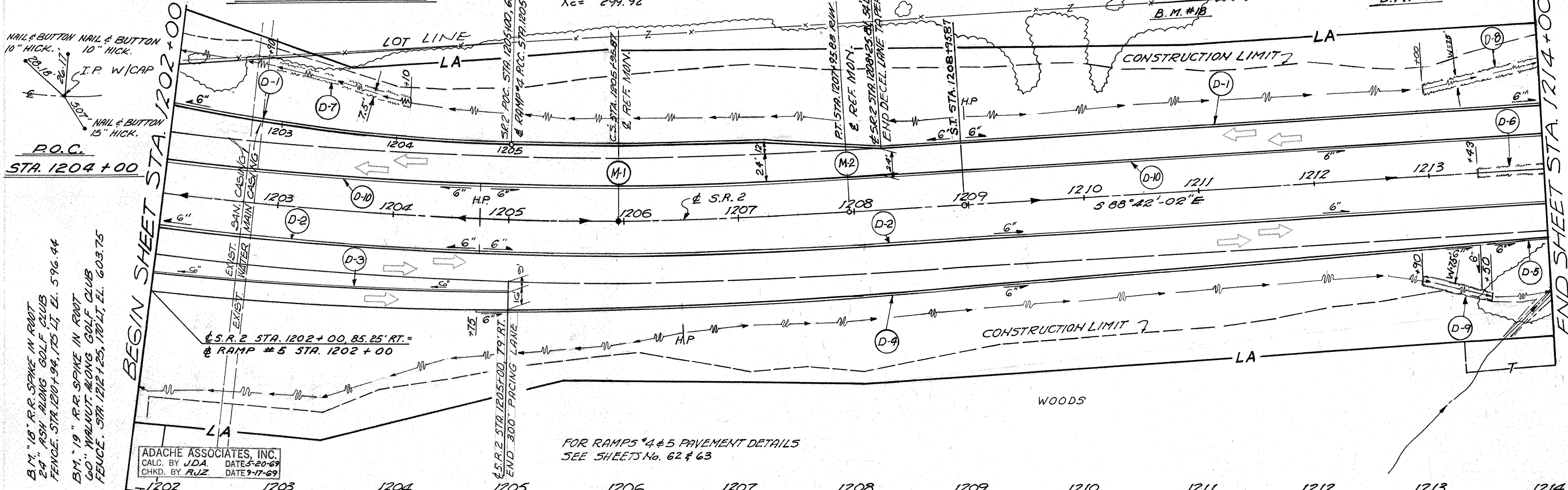
R1 STA. 1194+49.5	R = 2864.79'
$\Delta = 87^{\circ}18'50''$ LT.	$\theta_c = 1^{\circ}00'00''$
$D_c = 2^{\circ}00'00''$	$T_s = 2884.77'$
$L_s = 300.00'$	$E_s = 1096.71'$
$\theta_s = 3^{\circ}00'00''$	$\Delta_c = 81^{\circ}18'50''$
$P = 1.30'$	$L_c = 4065.69'$
$K = 149.99'$	$C = .0001111$ (SPIRAL)
$Y_c = 5.24'$	$C = .6$ (SIMPLE)
$X_c = 299.92'$	

GREEN  
No. 5  
THUNDERBIRD HILLS GOLF COURSE

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

ERI COUNTY  
ERI-2-18.38

21  
326

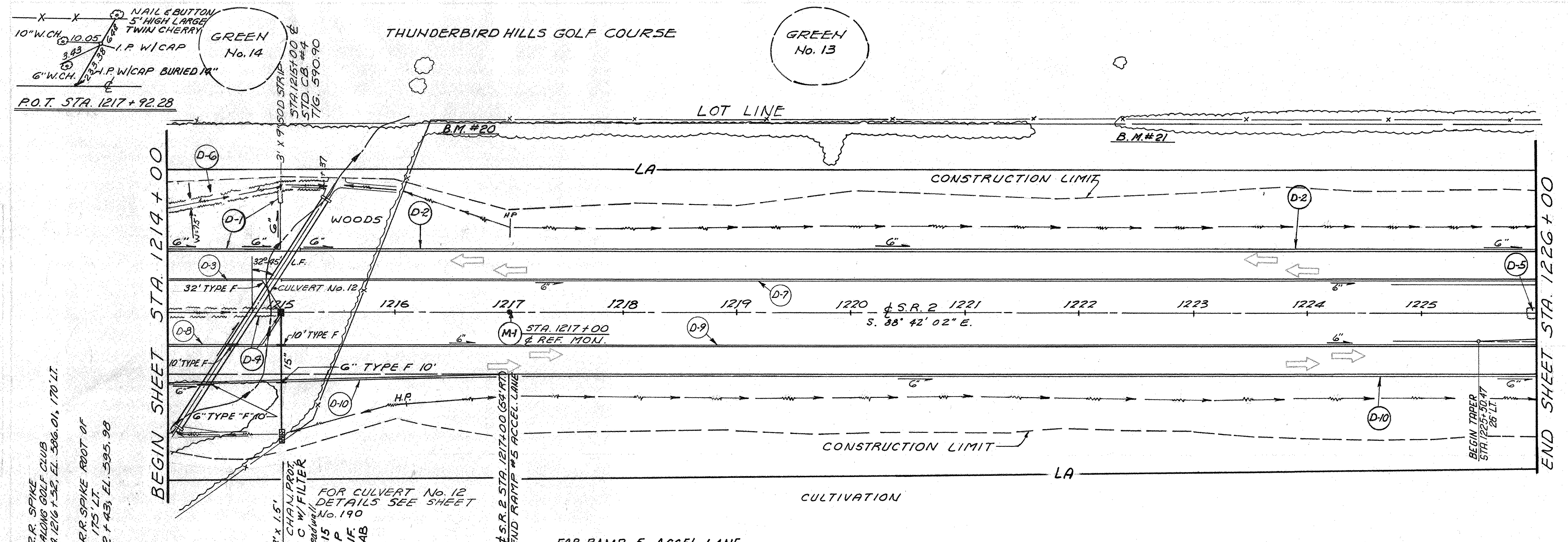


EXCAVATION	9009.3 C.Y.	SECT. DEPTH ADJ. CALC.	$+(457 \text{ C.Y.}) = 555 \times 12 \div 27$	CROWN & DEPTH ADJ. CALC.	$+500 \times 11.36 \div 27$
EMBANKMENT	8877 C.Y.		$-(64 \text{ C.Y.}) = 145 \times 12 \div 27$		
GRAN. BOR. TYPE 1	522 C.Y.				
GRAN. BOR. TYPE 2	159 C.Y.				
SEEDING	27,376 S.Y.				

REF. NO.	STATION TO STATION SIDE	ESTIMATED QUANTITIES		TYPE F CONDUIT	G03	G04	G05	SEE SHEET NO.
		REF. MON. EA.	TYPE F CONDUIT					
D-1	1202+00 - 1214+00							
D-2	1202+00 - 1214+00							
D-3	1202+00 - 1205+00							
D-4	1204+75 - 1213+40							
D-5	1213+44 - 1214+00							
D-6	1213+43 - 1214+00							
D-7	1202+00 - 1204+10							
D-8	1213+00 - 1214+00							
D-9	1212+50 - 1213+50							
D-10	1202+00 - 1214+00							
M-1	1205+95.87							
M-2	1207+95.88 RW							
TOTAL								281

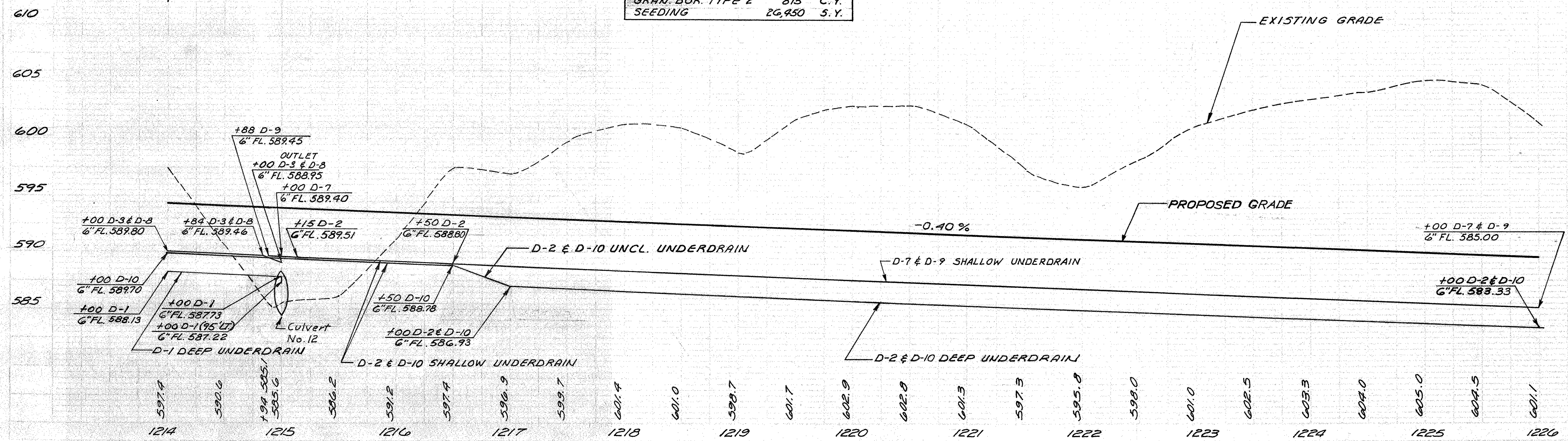
PLAN & PROFILE STA. 1202+00 TO STA. 1214+00





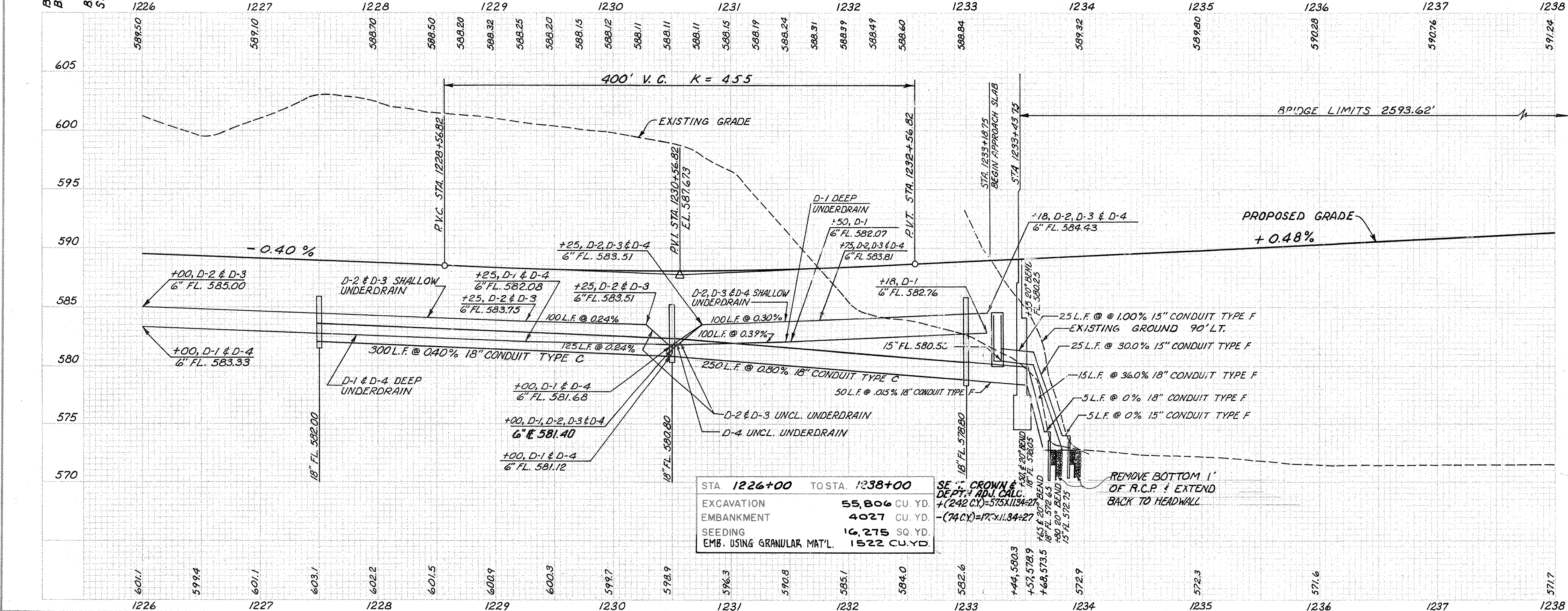
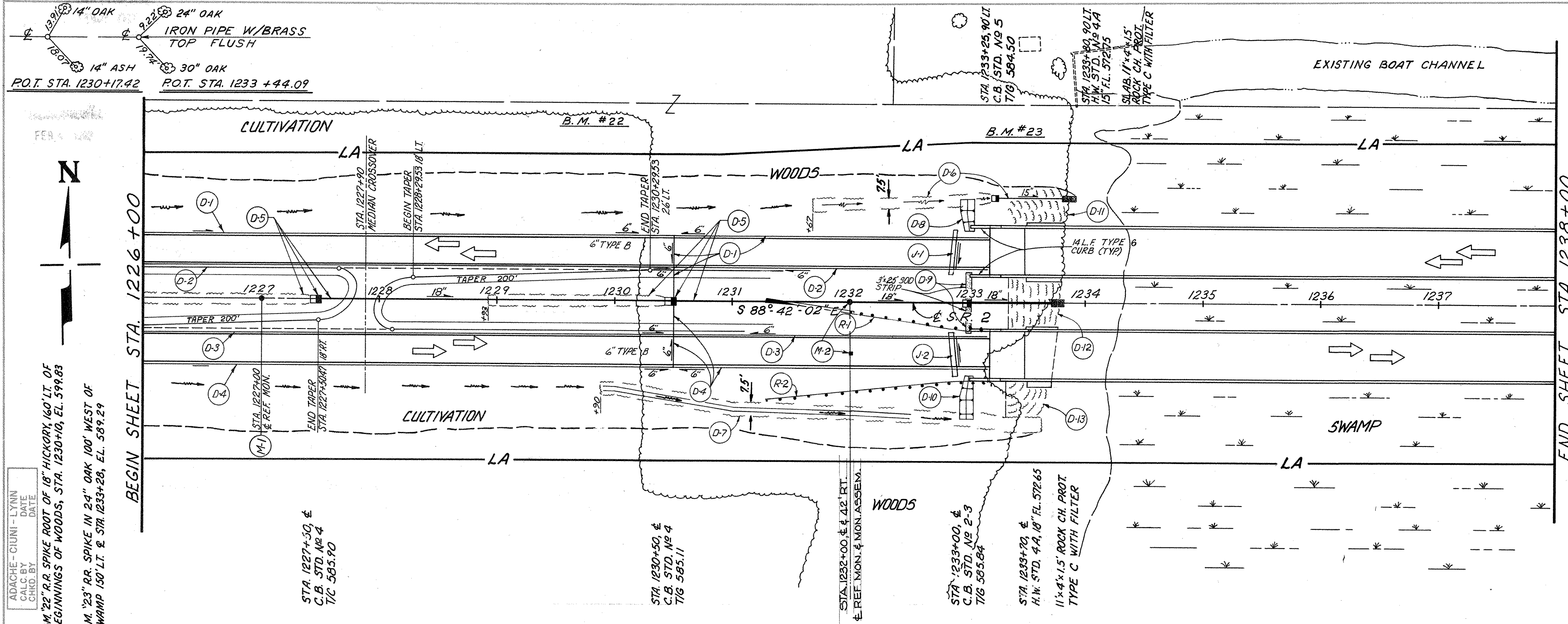
STATION	1214	1215	1216	1217	1218	1219	1220	1221	1222	1223	1224	1225	1226
ELEVATION	593.30	593.90	593.50	593.10	592.70	592.30	591.90	591.50	591.10	590.70	590.30	589.90	589.50

STA. 1214+00 TO STA. 1226+00		SECT. CROWN & DEPTH ADJ. CALC.	
EXCAVATION	71,481 C.Y.	+ (420 C.Y.)	= 1,000 x 11.34 ÷ 27
EMBANKMENT	5,861 C.Y.	- (84 C.Y.)	= 200 x 11.34 ÷ 27
GRAN. BOR. TYPE 1	2,421 C.Y.		
GRAN. BOR. TYPE 2	815 C.Y.		
SEEDING	26,950 S.Y.		



REF. NO.	STATION TO STATION	SIDE	ESTIMATED QUANTITIES				SEE SHEET NO.				
			G01	G02	G03	G04					
D-1	1214+00 - 1215+00	LT.									
D-2	1215+00 - 1226+00	LT.									
D-3	1214+00 - 1215+00	RT.									
D-4	1214+00 - 1215+00	RT.									
D-5	1225+00 - 1226+00	RT.									
D-6	1214+00 - 1215+00	LT.									
M-1	1217+00	C.									
D-7	1215+00 - 1226+00	LT.									
D-8	1214+00 - 1215+00	RT.									
D-9	1214+00 - 1226+00	RT.									
D-10	1214+00 - 1226+00	RT.									
TOTAL			2.7	0.27	100	1	2747	100	1929	3	203

PLAN & PROFILE STA. 1214+00 TO STA. 1226+00



ADACHE-GIUNTI - LYNN  
CALC BY DATE  
CHKD BY DATE

B.M. #22 RR SPIKE ROOT OF 18" HICKORY, 160' LT. OF BEGINNINGS OF WOODS, STA. 1230+00, EL. 599.83  
B.M. #23 RR SPIKE IN 24" OAK 100' WEST OF SWAMP 150' LT. & STA 1233+28, EL. 589.29

STA 1226+00 TO STA 1238+00

SE - CROWN & DEPT. - ADJ. CALC. + (242 CY) = 575 X 1134 + 27  
- (74 CY) = 172 X 1134 + 27

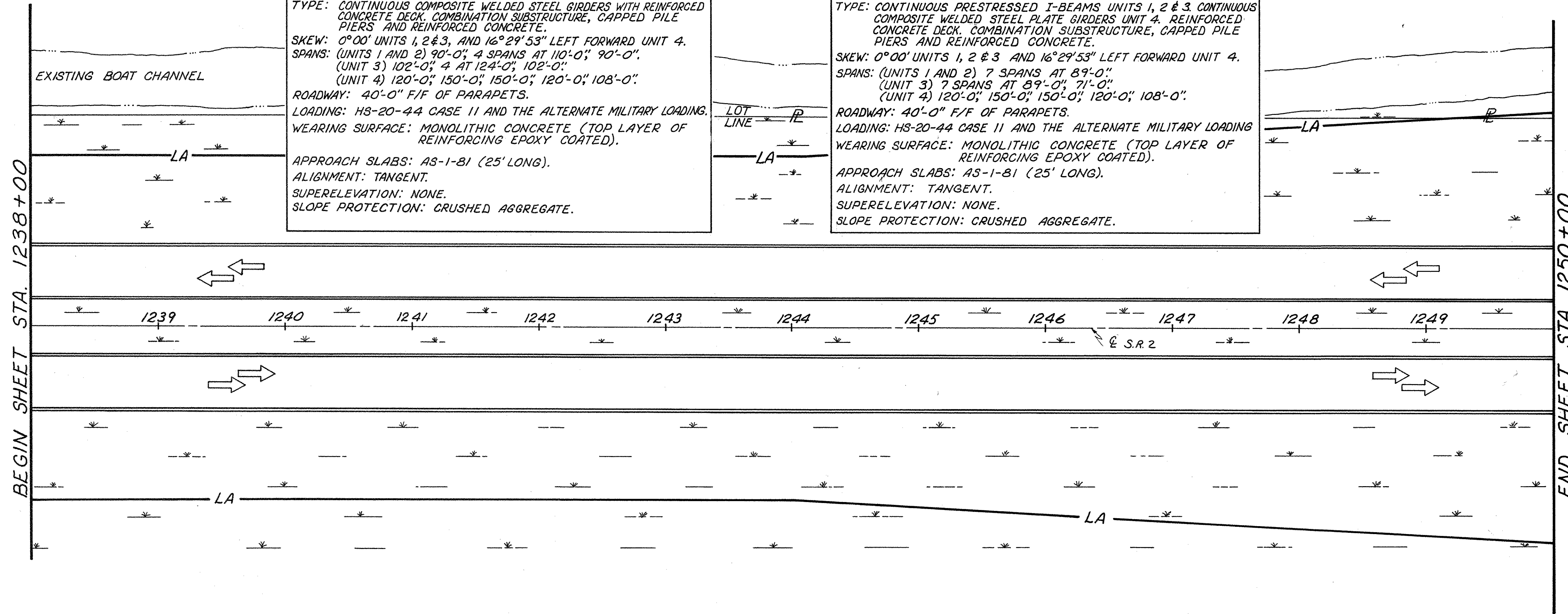
EXCAVATION	55,806	CU. YD.
EMBANKMENT	4027	CU. YD.
SEEDING	16,275	SQ. YD.
EMB. USING GRANULAR MAT'L.	1522	CU. YD.

REF. NO.	STATION TO STATION	SIDE	ROCK CH. FILTER	CONCRETE	MASONRY	CONDUIT	CATCH BASIN STANDARDS	ESTIMATED QUANTITIES			TOTALS
								MOV. REPAIR	UNDER DRAIN	GUARD RAIL	
D-1	1226+00 - 1233+18	L.T.									
D-2	1226+00 - 1233+18	R.T.									
D-3	1226+00 - 1233+18	R.T.									
D-4	1226+00 - 1233+18	R.T.									
D-5	1226+00 - 1233+18	R.T.									
D-6	1231+67 - 1233+75	R.T.									
D-7	1229+90 - 1233+75	R.T.									
D-8	1232+89 - 1233+03	L.T.									
D-9	1232+86 - 1233+03	L.T.									
D-10	1232+69 - 1233+03	R.T.									
D-11	1233+25 - 1233+90	L.T.									
D-12	1233+25 - 1233+90	L.T.									
D-13	1233+25 - 1233+25	R.T.									
M-1	1227+00	CH.									
M-2	1232+00	CH.									
J-1	1232+90	L.T.									
J-2	1232+90	R.T.									
A-1	1231+29 - 1233+29	R.T.									
R-2	1231+29 - 1233+29	R.T.									
TOTALS											

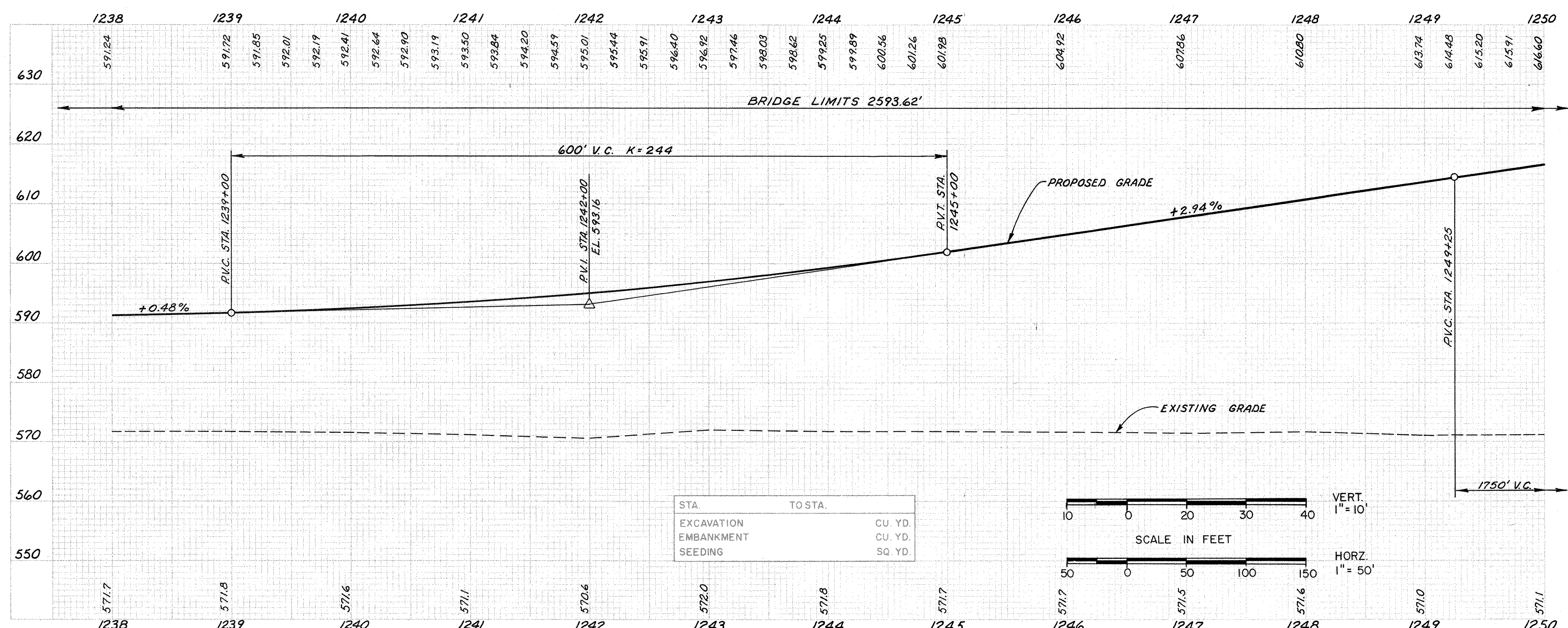
PLAN & PROFILE STA. 1226+00 TO STA. 1238+00

**PROPOSED STRUCTURE ALTERNATE 1**  
 TYPE: CONTINUOUS COMPOSITE WELDED STEEL GIRDERS WITH REINFORCED CONCRETE DECK. COMBINATION SUBSTRUCTURE, CAPPED PILE PIERS AND REINFORCED CONCRETE.  
 SKEW: 0° 00' UNITS 1, 2 & 3, AND 16° 29' 53" LEFT FORWARD UNIT 4.  
 SPANS: (UNITS 1 AND 2) 90'-0"; 4 SPANS AT 110'-0"; 90'-0"; (UNIT 3) 102'-0"; 4 AT 124'-0"; 102'-0"; (UNIT 4) 120'-0"; 150'-0"; 150'-0"; 120'-0"; 108'-0".  
 ROADWAY: 40'-0" F/F OF PARAPETS.  
 LOADING: HS-20-44 CASE 11 AND THE ALTERNATE MILITARY LOADING.  
 WEARING SURFACE: MONOLITHIC CONCRETE (TOP LAYER OF REINFORCING EPOXY COATED).  
 APPROACH SLABS: AS-1-B1 (25' LONG).  
 ALIGNMENT: TANGENT.  
 SUPERELEVATION: NONE.  
 SLOPE PROTECTION: CRUSHED AGGREGATE.

**PROPOSED STRUCTURE ALTERNATE 2**  
 TYPE: CONTINUOUS PRESTRESSED I-BEAMS UNITS 1, 2 & 3. CONTINUOUS COMPOSITE WELDED STEEL PLATE GIRDERS UNIT 4. REINFORCED CONCRETE DECK. COMBINATION SUBSTRUCTURE, CAPPED PILE PIERS AND REINFORCED CONCRETE.  
 SKEW: 0° 00' UNITS 1, 2 & 3 AND 16° 29' 53" LEFT FORWARD UNIT 4.  
 SPANS: (UNITS 1 AND 2) 7 SPANS AT 89'-0"; (UNIT 3) 7 SPANS AT 89'-0"; 71'-0"; (UNIT 4) 120'-0"; 150'-0"; 150'-0"; 120'-0"; 108'-0".  
 ROADWAY: 40'-0" F/F OF PARAPETS.  
 LOADING: HS-20-44 CASE 11 AND THE ALTERNATE MILITARY LOADING.  
 WEARING SURFACE: MONOLITHIC CONCRETE (TOP LAYER OF REINFORCING EPOXY COATED).  
 APPROACH SLABS: AS-1-B1 (25' LONG).  
 ALIGNMENT: TANGENT.  
 SUPERELEVATION: NONE.  
 SLOPE PROTECTION: CRUSHED AGGREGATE.



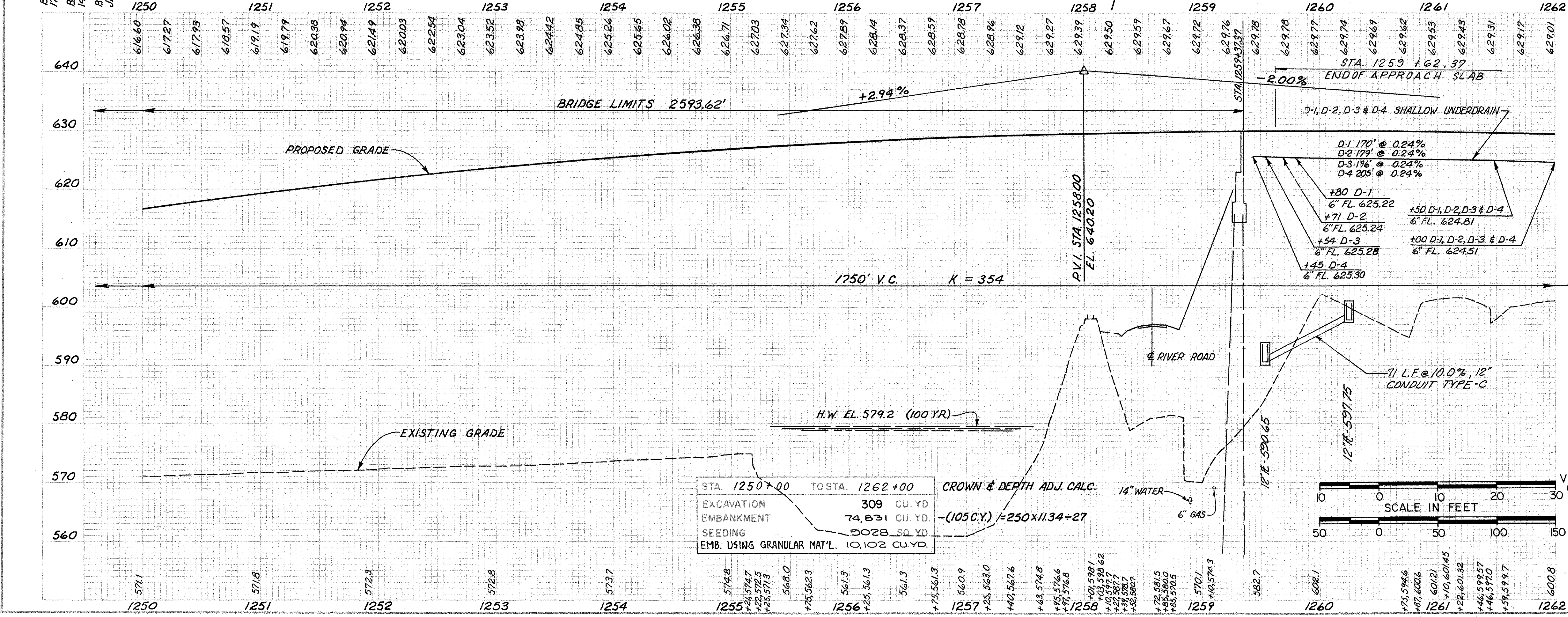
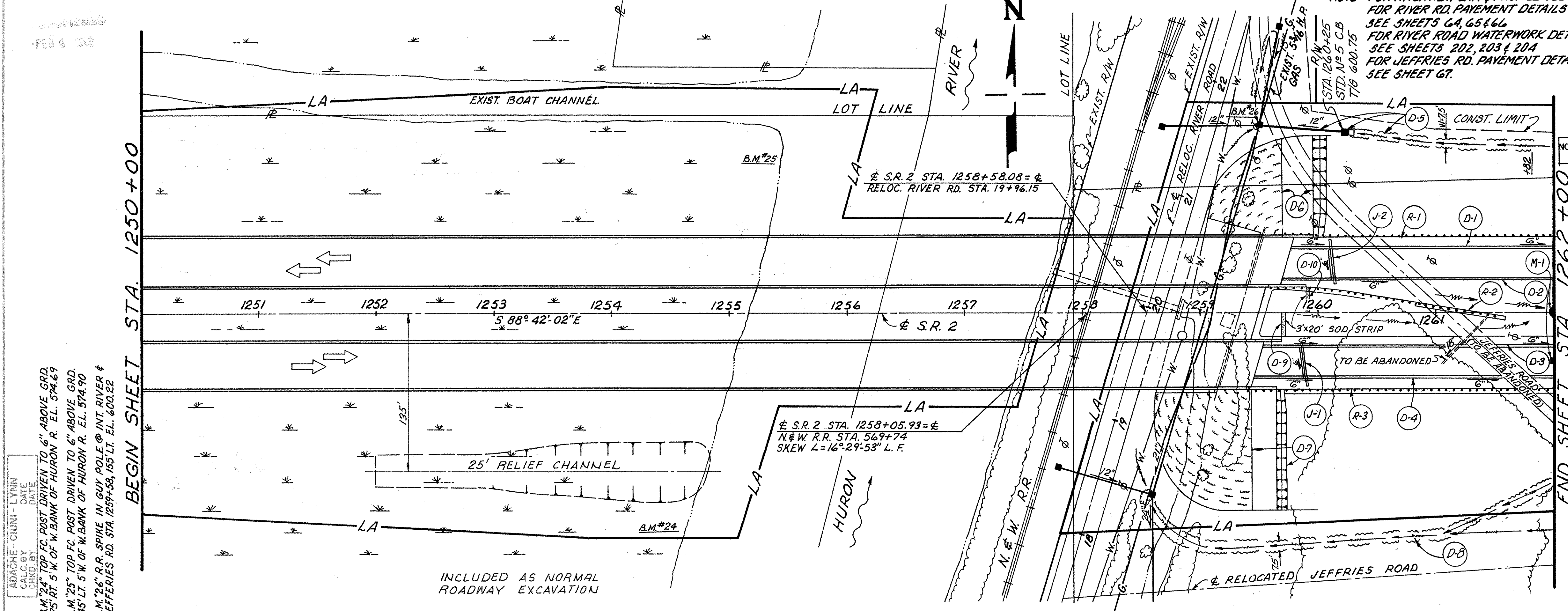
ADACHE - CIUNI - LYNN  
 CALC BY  
 CHKD. BY  
 DATE  
 DATE



ESTIMATED QUANTITIES

SEE SHT. NO.	
STATION TO STATION	
SIDE	
REF. NO.	
TOTALS	

PLAN & PROFILE STA. 1238+00 TO STA. 1250+00



ADACHE - GIUNTI - LYNN  
CALC. BY DATE

B.M. #24 TOP FC. POST DRIVEN TO 6" ABOVE GRD.  
175' RT. 5' W. OF N. BANK OF HURON R. E.L. 574.67

B.M. #25 TOP FC. POST DRIVEN TO 6" ABOVE GRD.  
145' LT. 5' W. OF W. BANK OF HURON R. E.L. 574.90

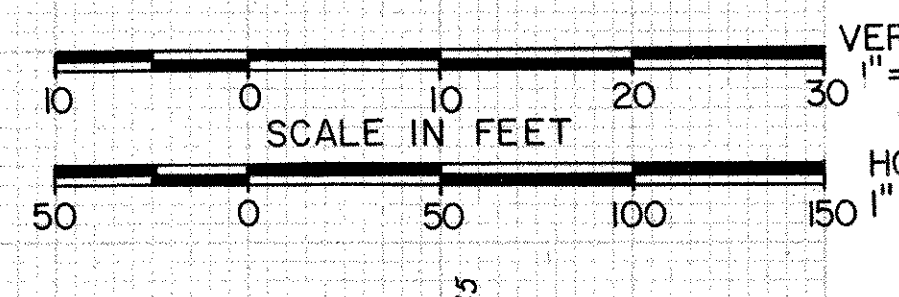
B.M. #26 R.R. SPIKE IN GUY POLE @ INT. RIVER & JEFFRIES RD. STA. 1259+58.155 LT. E.L. 600.22

NOTE: FOR RIVER RD. PLAN & PROFILE SEE SHEETS 41 & 42  
FOR RIVER RD. PAVEMENT DETAILS  
SEE SHEETS 64, 65 & 66  
FOR RIVER ROAD WATERWORK DETAILS  
SEE SHEETS 202, 203 & 204  
FOR JEFFRIES RD. PAVEMENT DETAILS  
SEE SHEET 67.

REF. NO.	STATION TO STATION	SIDE	ESTIMATED QUANTITIES
D-1	1259+80 - 1262+00	L.T.	605 SPECIAL PRESSURE RELIEF MONUMENT ASSEMBLY EACH
D-2	1259+71 - 1262+00	L.T.	605 SPECIAL PRESSURE RELIEF MONUMENT ASSEMBLY EACH
D-3	1259+54 - 1262+00	R.T.	605 SPECIAL PRESSURE RELIEF MONUMENT ASSEMBLY EACH
D-4	1259+45 - 1262+00	R.T.	605 SPECIAL PRESSURE RELIEF MONUMENT ASSEMBLY EACH
D-5	1259+54 - 1261+82	L.T.	605 SPECIAL PRESSURE RELIEF MONUMENT ASSEMBLY EACH
D-6	1259+03 - 1259+45	R.T.	605 SPECIAL PRESSURE RELIEF MONUMENT ASSEMBLY EACH
D-7	1259+64 - 1259+85	R.T.	605 SPECIAL PRESSURE RELIEF MONUMENT ASSEMBLY EACH
D-8	1259+65 - 1259+71.5	R.T.	605 SPECIAL PRESSURE RELIEF MONUMENT ASSEMBLY EACH
D-9	1259+65 - 1259+71.5	R.T.	605 SPECIAL PRESSURE RELIEF MONUMENT ASSEMBLY EACH
D-10	1259+62 - 1259+72.5	L.T.	605 SPECIAL PRESSURE RELIEF MONUMENT ASSEMBLY EACH
J-1	1259+88±	R.T.	605 BRIDGE TERMINAL ASSEMBLY EACH
J-2	1260+11±	L.T.	605 BRIDGE TERMINAL ASSEMBLY EACH
M-1	1262+00	Q&RT.	606 ANCHOR ASSEMBLY EACH
R-1	1259+74 - 1262+00	L.T.	604 MONUMENT ASSEMBLY EACH
R-2	1259+62 - 1261+62	L.T.	604 MONUMENT ASSEMBLY EACH
R-3	1259+36 - 1262+00	R.T.	604 MONUMENT ASSEMBLY EACH
TOTALS			71

STA. 1250+00	TOSTA. 1262+00
EXCAVATION	309 CU. YD.
EMBANKMENT	74,831 CU. YD.
SEEDING	9028.50 YD.
EMB. USING GRANULAR MAT'L.	10,102 CU. YD.

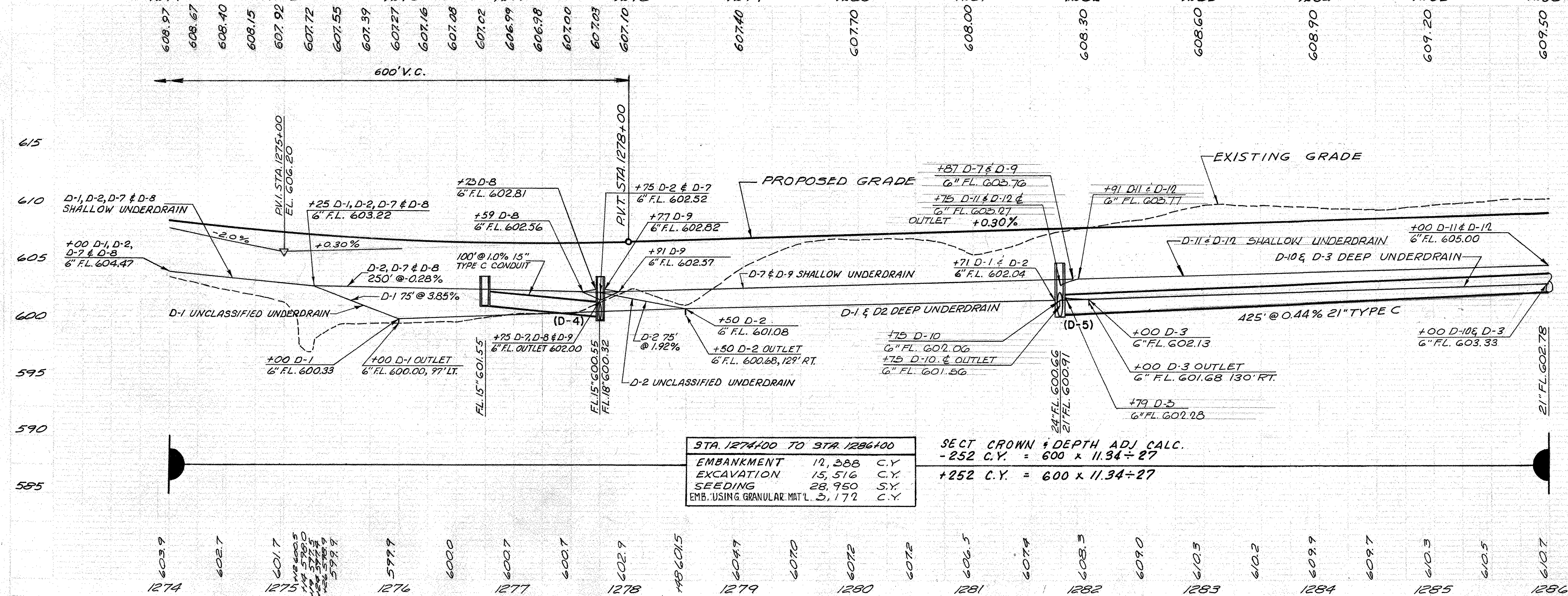
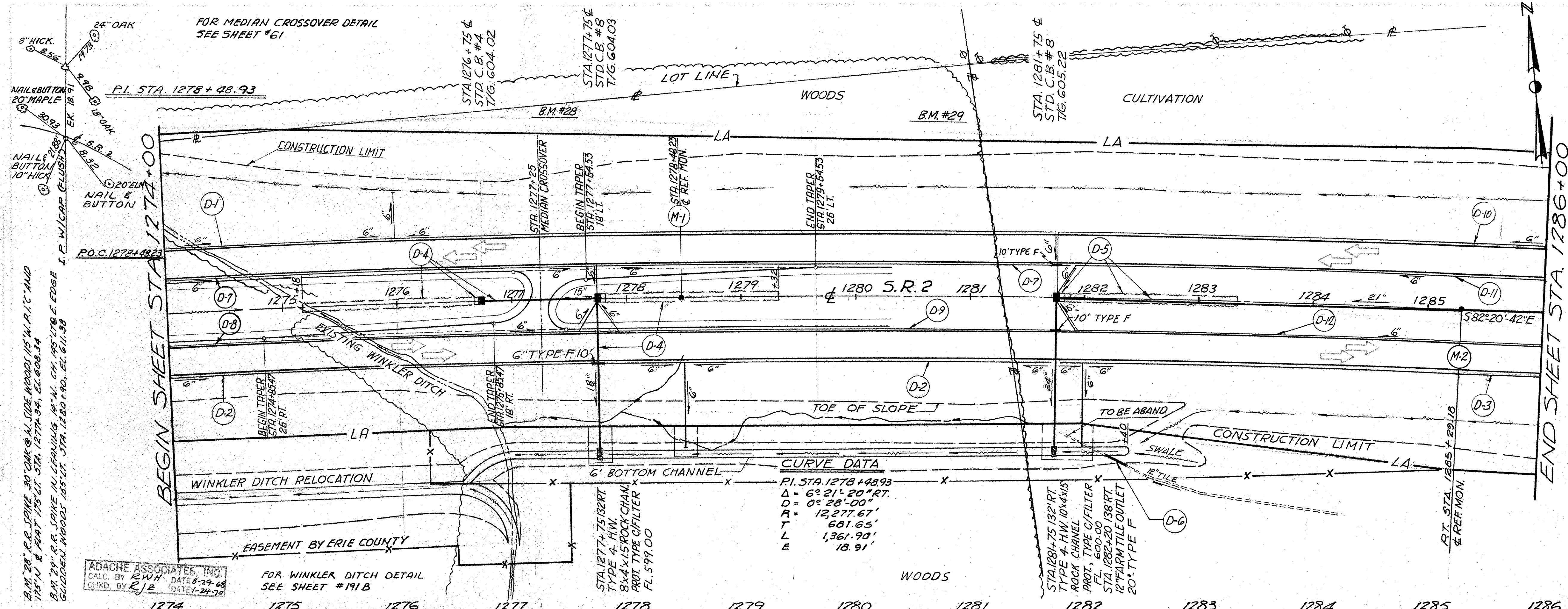
CROWN & DEPTH ADJ. CALC.  
-(105 C.Y.) ÷ 250 × 11.34 ÷ 27



PLAN & PROFILE STA. 1250+00 TO STA. 1262+00



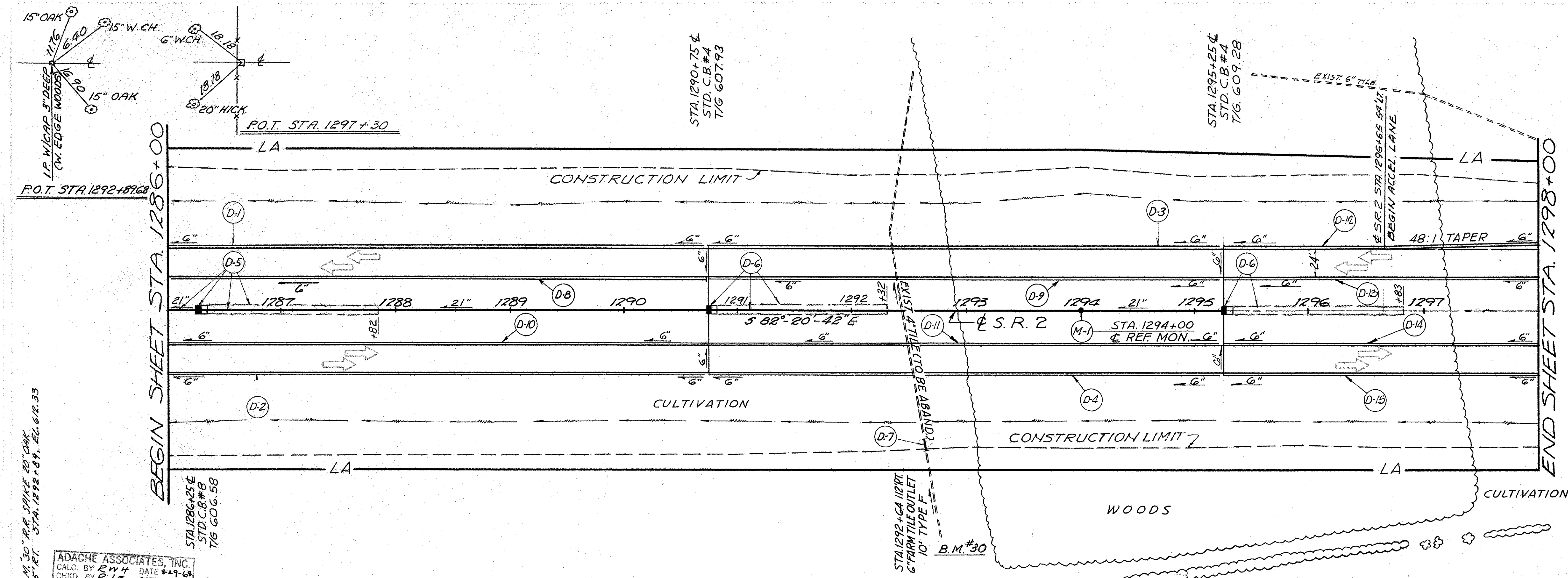
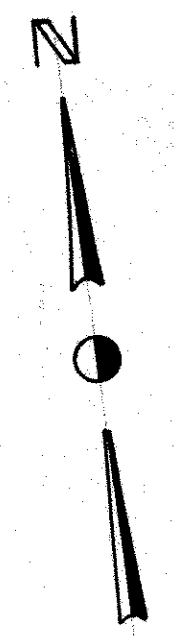
ERIE COUNTY  
ERI-2-1838



REF. NO.	STATION TO STATION	SIDE	ROCK QUANTITY TYPE C	CONC. MASONRY C.Y.	TYPE B CONDUIT	TYPE C CONDUIT	TYPE F	CATCH BASINS & REF. STANDARDS	PIPE UNDERDRAIN UNCL. DEEP SHALLOW	DITCH EROSION PROTECTION	BEND & BRANCH	SEE SHEET NO.			
D-1	1274+00 - 1281+75	LT.			10	10	10	1	75	250	1	109			
D-2	1274+00 - 1281+71	RT.			20	20	20	1	75	250	1	110			
D-3	1281+79 - 1286+00	RT.		33	10	10	10	1	75	125	1	111			
D-4	1275+18 - 1279+32	RT.		46	20	20	20	1	75		1				
D-5	1281+75 - 1286+00	RT.			20	20	20	1	75		1				
D-6	1282+20 - 1282+40	RT.			20	20	20	1	75		1				
D-7	1274+00 - 1281+87	LT.			20	20	20	1	75		1				
D-8	1274+00 - 1277+75	RT.			10	10	10	1	75		1				
D-9	1277+75 - 1281+87	RT.			10	10	10	1	75		1				
D-10	1281+75 - 1286+00	LT.			10	10	10	1	75		1				
D-11	1281+75 - 1286+00	LT.			10	10	10	1	75		1				
D-12	1281+75 - 1286+00	RT.			10	10	10	1	75		1				
M-1	1275+18.25	LT.													
M-2	1285+19.18	LT.													
TOTAL			40	79	127	100	425	110	20	2	2	150	1898	2810	375

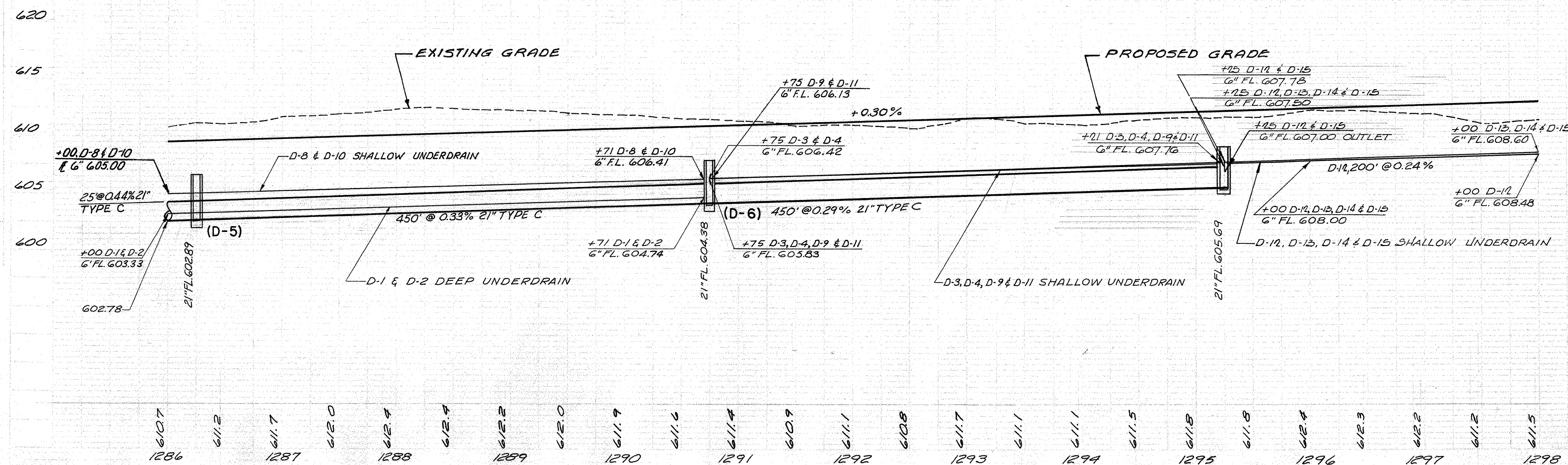
PLAN & PROFILE STA. 1274+00 TO STA. 1286+00

ERIE COUNTY  
ERI-2-18.38



STA.	609.50	609.80	610.10	610.40	610.70	611.00	611.30	611.60	611.90	612.20	612.50	612.80	613.10
1286													
1287													
1288													
1289													
1290													
1291													
1292													
1293													
1294													
1295													
1296													
1297													
1298													

STA. 1286+00 TO STA. 1298+00		SECT. CROWN & DEPTH ADJ. CALC.	
EXCAVATION	30,592 C.Y.	+ 420 C.Y.	= 1000 x 11.34 ÷ 27
EMBANKMENT	220 C.Y.	- 84 C.Y.	= 200 x 11.34 ÷ 27
SEEDING	28,003 S.Y.		



REF. NO.	STATION TO STATION	SIDE	ESTIMATED QUANTITIES				SEE SHEET NO.				
			TYPE B CONDUIT	TYPE C COND.	TYPE F COND.	TYPE G COND.					
D-1	1286+00 - 1290+71	LT									
D-2	1286+00 - 1290+71	RT									
D-3	1290+75 - 1295+21	LT									
D-4	1290+75 - 1295+21	RT									
D-5	1286+00 - 1290+75	CL									
D-6	1290+75 - 1296+83	CL									
D-7	1292+64	RT									
D-8	1286+00 - 1290+71	LT									
D-9	1290+75 - 1295+21	LT									
D-10	1286+00 - 1290+71	RT									
D-11	1290+75 - 1295+21	RT									
D-12	1295+25 - 1298+00	LT									
D-13	1295+25 - 1298+00	LT									
D-14	1295+25 - 1298+00	RT									
D-15	1295+25 - 1298+00	RT									
M-1	1294+00	CL									
TOTAL			204	925	10	1	2	1	3,826	942	375

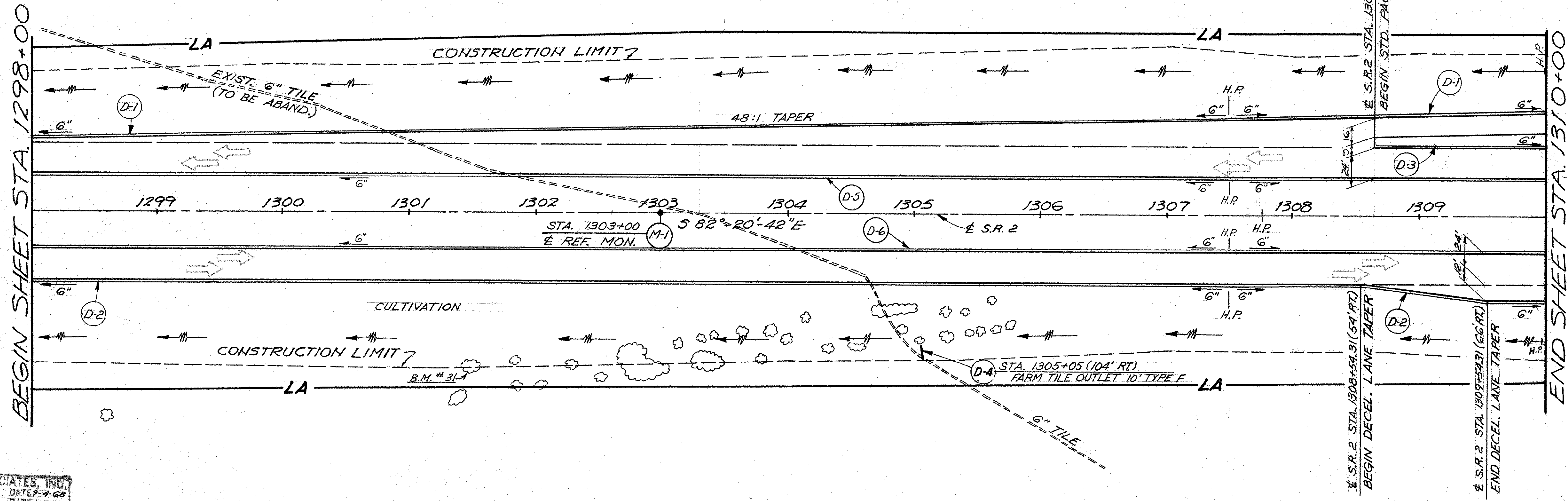
PLAN & PROFILE STA. 1286+00 TO STA. 1298+00

FOR PAVEMENT DETAILS OF RAMP NO 6 ACCELERATION  
LANE & RAMP NO 7 DECELERATION LANE SEE  
SHEET Nos 69 & 70

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

29  
326

ERIE COUNTY  
ERI-2-18.38



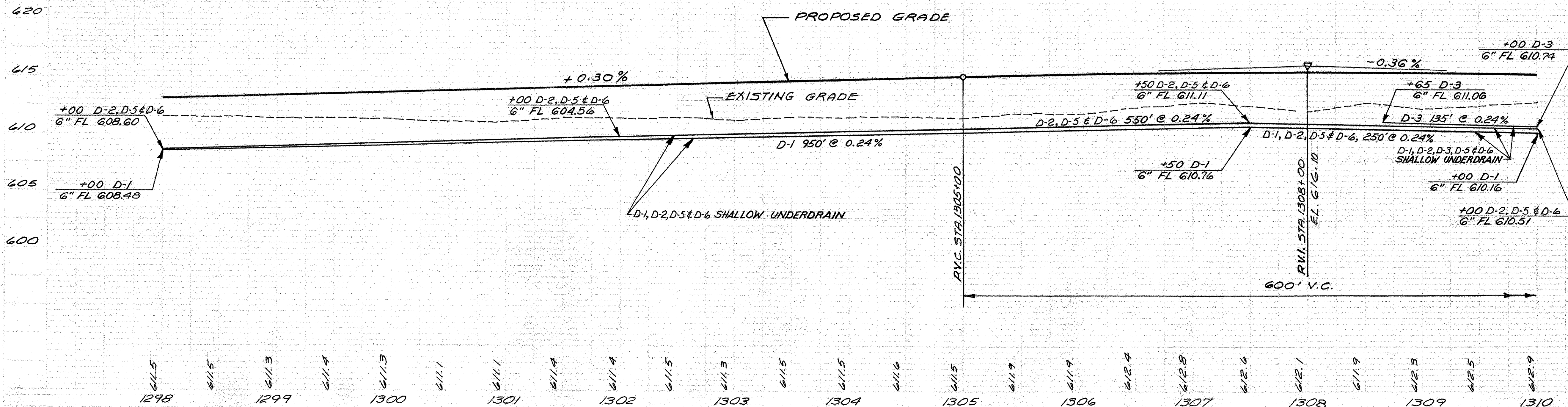
B.M. 31" R.P. SPIKE 30" Hx170' RT.  
STA. 1301.15 ± EL. 612.82

ADACHE ASSOCIATES, INC.  
CALC. BY R.W.H. DATE 5-1-68  
CHKD. BY R.V.Z. DATE 1-24-70

1298	1299	1300	1301	1302	1303	1304	1305	1306	1307	1308	1309	1310
613.10	613.40	613.70	614.00	614.30	614.60	614.90	615.20	615.49	615.58	615.60	615.55	615.33

STA. 1298+00 TO STA. 1310+00	
EXCAVATION	4,527 C.Y.
EMBANKMENT	12,704 C.Y.
SEEDING	25,362 S.Y.

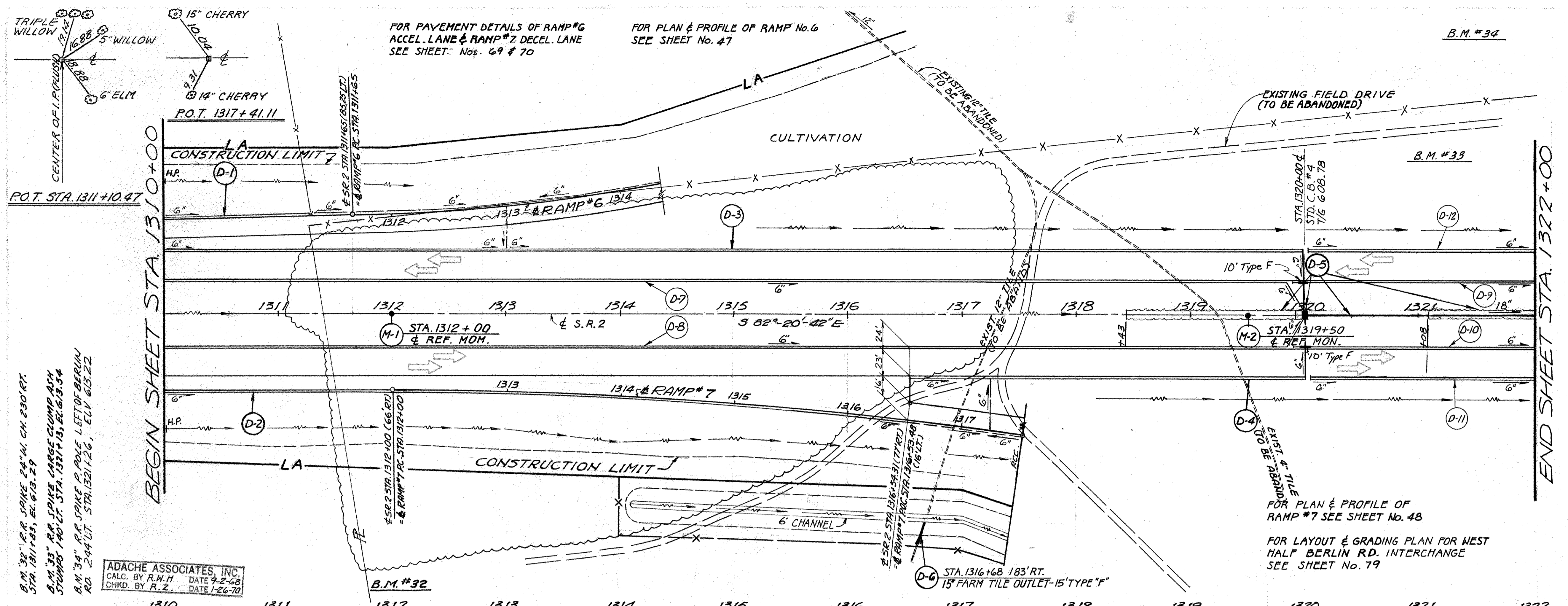
SECT. CROWN & DEPTH ADJ. CALC  
-504 = 1200 x 11.34 ÷ 27



REF. NO.	STATION TO STATION	SIDE	ESTIMATED QUANTITIES		TOTAL
			COND. L.F.	EA.	
D-1	1298+00 - 1310+00	LT	10	1	10
D-2	1298+00 - 1310+00	RT	1200	1	1200
D-3	1308+65 - 1310+00	LT	135	1	135
D-4	1305+00	RT	1200	1	1200
D-5	1298+00 - 1310+00	LT	1200	1	1200
D-6	1298+00 - 1310+00	RT	1200	1	1200
M-1	1303+00	±		1	1
			4935		4935

PLAN & PROFILE STA. 1298+00 TO STA. 1310+00





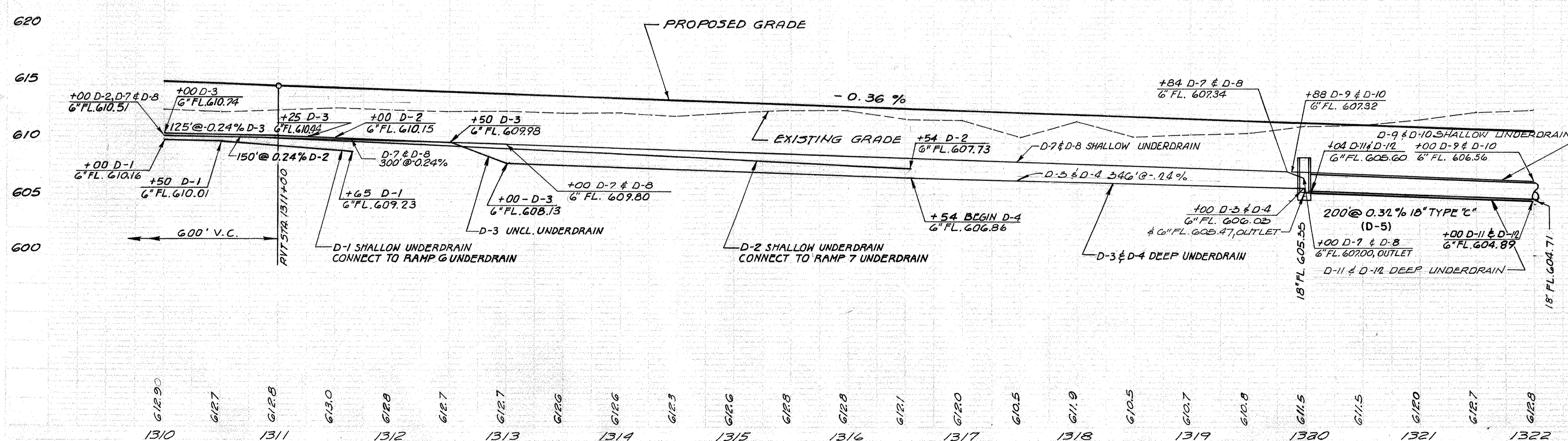
ADACHE ASSOCIATES, INC.  
 CALC. BY R.W.H. DATE 9-2-68  
 CHKD. BY R.Z. DATE 1-26-70

B.M. #32 1/4" R.R. SPIKE 24" AL. CH. 290' RT.  
 STA. 1311+85, EL. 615.27  
 B.M. #33 1/4" R.R. SPIKE CARBON CLUMP ASH  
 STUMPS 140' LT. STA. 1321+18, EL. 613.54  
 B.M. #34 1/4" R.R. SPIKE P. POLE LEFT OF BERLIN  
 RD. 244' LT. STA. 1321+26, ELV. 613.22

STA. 1310+00 TO STA. 1322+00 SECTION CROWN & DEPTH ADJ. CALC.

EXCAVATION	11,523	C.Y.
EMBANKMENT	2,498	C.Y.
SEEDING	22,188	S.Y.

126 = 300 x 11.34 ÷ 27  
 -378 = 900 x 0.42



FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

30  
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ERIE COUNTY  
 ERI-2-18.38

REF. NO.	STATION TO STATION	SIDE	ESTIMATED QUANTITIES		G03	G04	G05	G70	BEND & BRANCHES	SEE SHEET NO.	
			CONDUIT	CONDUIT							TYPE
D-1	1310+00 - 1311+65	LT.	10	15	15	1					
D-2	1310+00 - 1316+54	RT.	50	15	15	1					
D-3	1310+00 - 1320+00	LT.	10	15	15	1					
D-4	1316+54 - 1320+00	RT.	10	15	15	1					
D-5	1318+43 - 1322+00	RT.	10	15	15	1					
D-6	1316+62 - 1316+68	RT.	10	15	15	1					
D-7	1310+00 - 1320+00	LT.	10	15	15	1					
D-8	1310+00 - 1320+00	LT.	10	15	15	1					
D-9	1319+88 - 1322+00	RT.	10	15	15	1					
D-10	1319+88 - 1322+00	RT.	10	15	15	1					
D-11	1320+04 - 1322+00	RT.	10	15	15	1					
D-12	1320+04 - 1322+00	RT.	10	15	15	1					
M-1	1312+00	LT.									
M-2	1319+50	RT.									
TOTAL			112	40	200	15	2	1	3485	50	1438

PLAN & PROFILE STA. 1310+00 TO STA. 1322+00

FEB 4 1992

FOR LAYOUT & GRADING PLAN FOR EAST HALF OF BERLIN RD. INTERCHANGE SEE SH. NO. 80

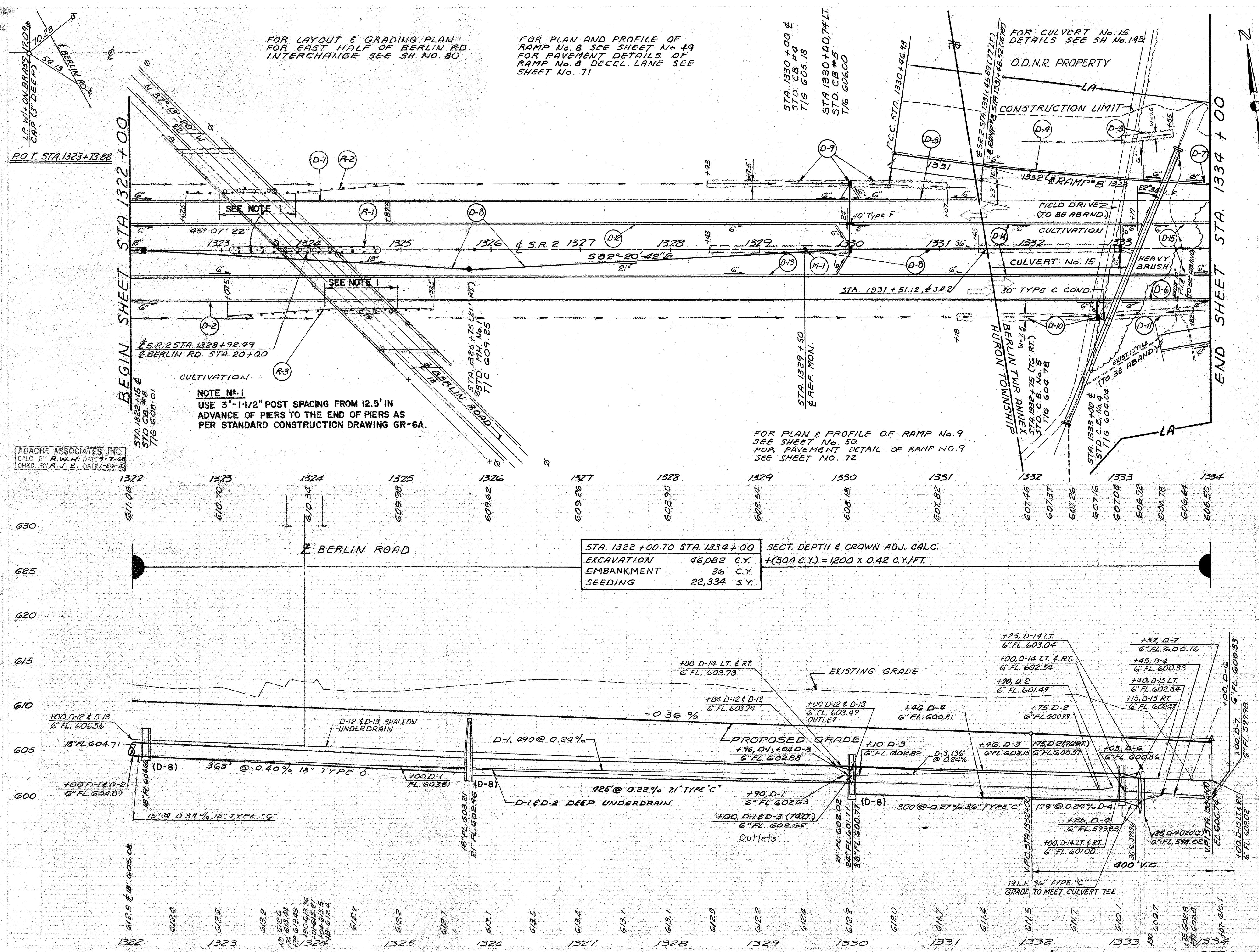
FOR PLAN AND PROFILE OF RAMP No. 8 SEE SHEET No. 49 FOR PAVEMENT DETAILS OF RAMP No. 8 DECEL. LANE SEE SHEET No. 71

FOR CULVERT No. 15 DETAILS SEE SH. No. 193

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

31  
326

ERIE COUNTY  
ERI-2-1838



**NOTE No. 1**  
USE 3'-1-1/2" POST SPACING FROM 12.5' IN ADVANCE OF PIERS TO THE END OF PIERS AS PER STANDARD CONSTRUCTION DRAWING GR-6A.

STA. 1322+00 TO STA. 1334+00	
EXCAVATION	46,082 C.Y.
EMBANKMENT	36 C.Y.
SEEDING	22,334 S.Y.

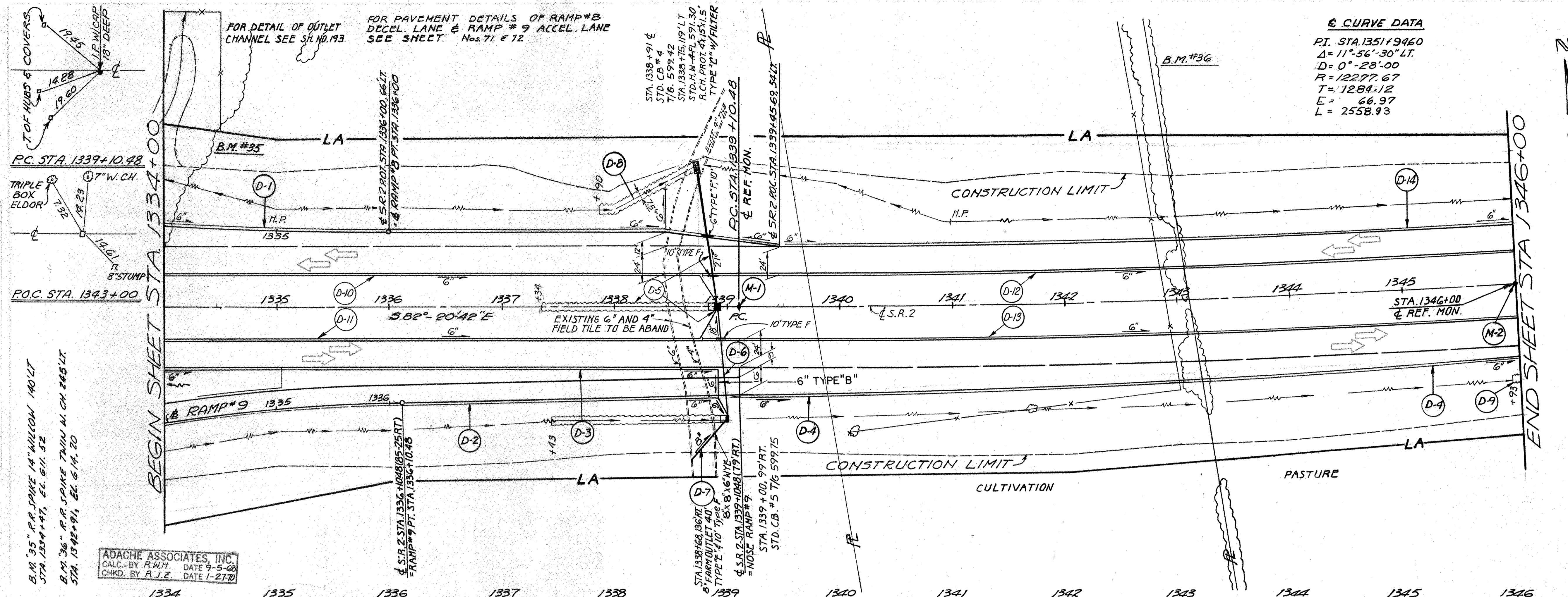
SECT. DEPTH & CROWN ADJ. CALC.  
+(304 C.Y.) = 1200 x 0.42 C.Y./FT.

ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION	SIDE	TYPE A		TYPE B		TYPE C		TYPE D		TOTAL
			CONDUIT	TYPE	CONDUIT	TYPE	CONDUIT	TYPE	CONDUIT	TYPE	
D-1	1322+00 - 1330+00	LT	10	10	10	10	10	10	10	10	100
D-2	1322+00 - 1332+75	RT	10	10	10	10	10	10	10	10	100
D-3	1330+00 - 1331+96	LT	10	10	10	10	10	10	10	10	100
D-4	1331+46 - 1333+45	LT	10	10	10	10	10	10	10	10	100
D-5	1333+00 - 885+65	RAMP	10	10	10	10	10	10	10	10	100
D-6	1333+00 - 1334+00	LT	10	10	10	10	10	10	10	10	100
D-7	1333+57 - 1334+00	LT	10	10	10	10	10	10	10	10	100
D-8	1322+00 - 1333+19	LT	10	10	10	10	10	10	10	10	100
D-9	1328+93 - 1331+07	LT	10	10	10	10	10	10	10	10	100
D-10	1331+18 - 1332+82	RT	10	10	10	10	10	10	10	10	100
D-11	1332+82 - 1333+82	RT	10	10	10	10	10	10	10	10	100
D-12	1322+00 - 1330+00	LT	10	10	10	10	10	10	10	10	100
D-13	1322+00 - 1333+25	RT	10	10	10	10	10	10	10	10	100
D-14	1329+88 - 1333+25	RT	10	10	10	10	10	10	10	10	100
D-15	1333+15 - 1334+00	LT	10	10	10	10	10	10	10	10	100
M-1	1329+50	6"									
R-1	1323+08 - 1324+75	6"									
R-2	1322+225 - 1324+875	6"									
R-3	1323+075 - 1325+225	6"									
<b>TOTAL</b>											

PLAN & PROFILE STA. 1322+00 TO STA. 1334+00

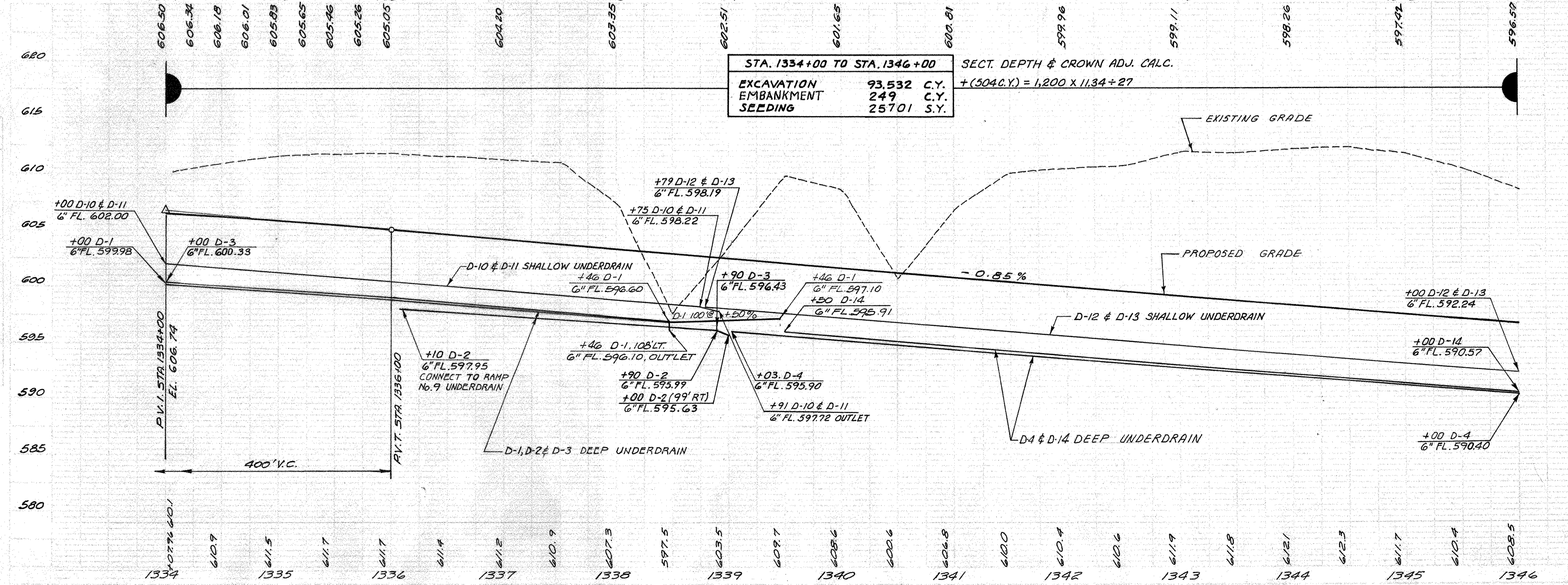
ERIE COUNTY  
ERI-2-18.38



**ε CURVE DATA**  
 P.I. STA. 1351+94.60  
 $\Delta = 11^\circ 56' 30''$  LT.  
 $D = 0^\circ 28' 00''$   
 $R = 12277.67$   
 $T = 1284.12$   
 $E = 66.97$   
 $L = 2558.93$

ADACHE ASSOCIATES, INC.  
 CALC. BY R.M.H. DATE 9-5-68  
 CHKD. BY A.J.Z. DATE 1-27-70

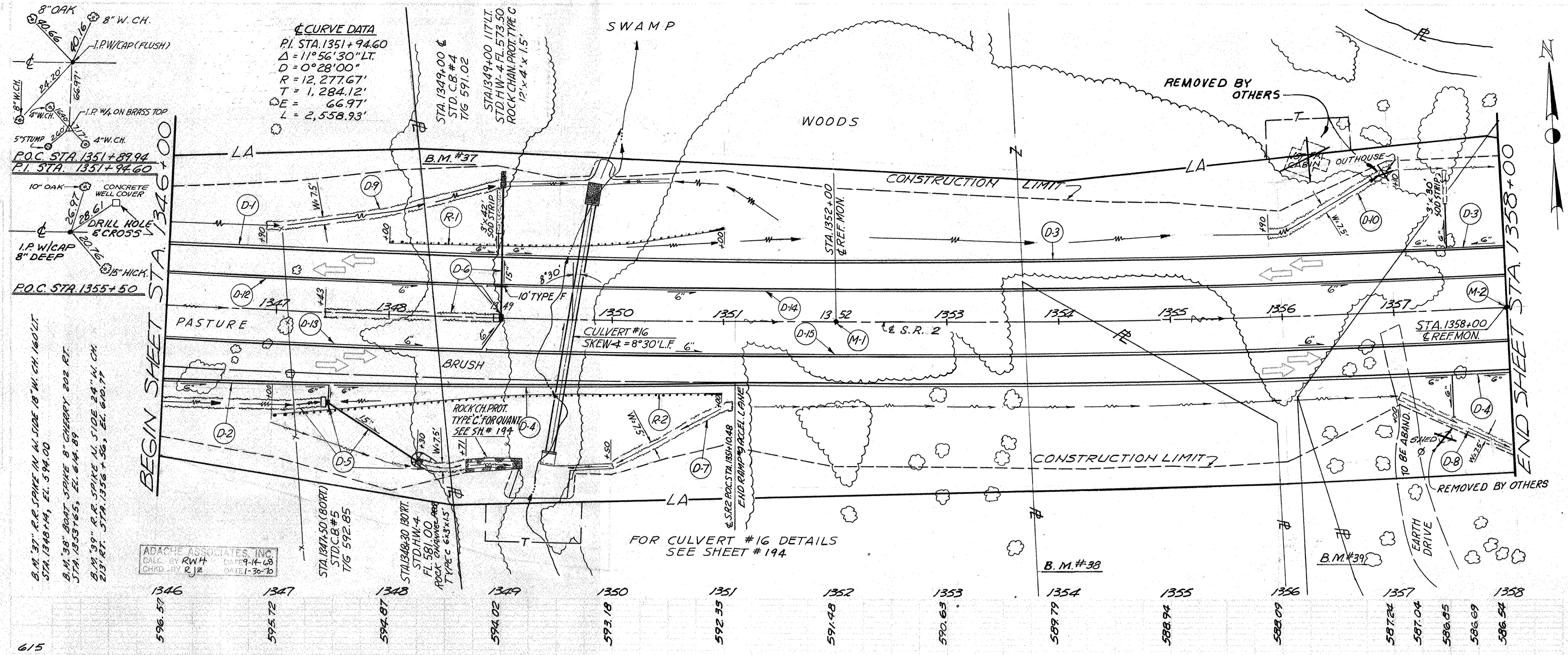
STA. 1334+00 TO STA. 1346+00		SECT. DEPTH & CROWN ADJ. CALC.
EXCAVATION	93.532 C.Y.	+ (504 C.Y.) = 1,200 X 11.34 + 27
EMBANKMENT	249 C.Y.	
SEEDING	25701 S.Y.	



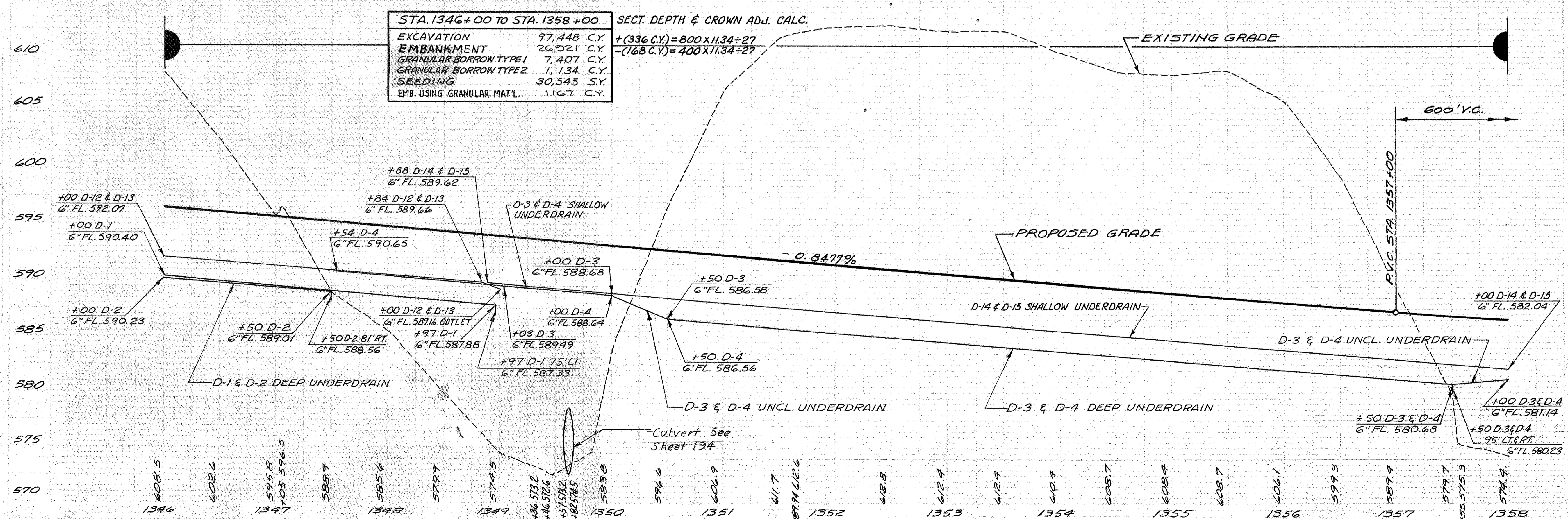
REF. STATION TO STATION NO.	SIDE	PROF. CH. NO.	WATER	G01 CONC. RESOUR.	G02 CONC. RESOUR.	G03 TYPE E CONDUIT	G04 TYPE F		G05 PIPE UNDERDRAIN	DITCH EROSION PROTECTION	TEE BEND	BEND & BRANCHES	SEE SHEET NO.
							8" L.F.	10" L.F.					
D-1	LT.	1334+00 - 1339+00										199	
D-2	RT.	1336+00 - 1339+00										199	
D-3	RT.	1334+00 - 1336+00										199	
D-4	RT.	1339+00 - 1346+00										199	
D-5	RT.	1337+34 - 1338+91										199	
D-6	RT.	1338+91 - 1339+00										199	
D-7	RT.	1338+68 - 1338+75										199	
D-8	RT.	1345+93 - 1346+00										199	
D-9	RT.	1334+00 - 1338+91										199	
D-10	RT.	1334+00 - 1338+91										199	
D-11	RT.	1334+00 - 1338+91										199	
D-12	RT.	1338+79 - 1346+00										199	
D-13	RT.	1338+79 - 1346+00										199	
D-14	LT.	1339+50 - 1346+00										199	
M-1	RT.	1339+1048										199	
M-2	RT.	1346+00										199	
TOTAL													

PLAN & PROFILE STA. 1334+00 TO STA. 1346+00

ERIE COUNTY  
ERI-2-1838



ADACHE ASSOCIATES, INC.  
CALC. BY RWH DATE 9-14-88  
CHKD BY RJE DATE 1-30-70

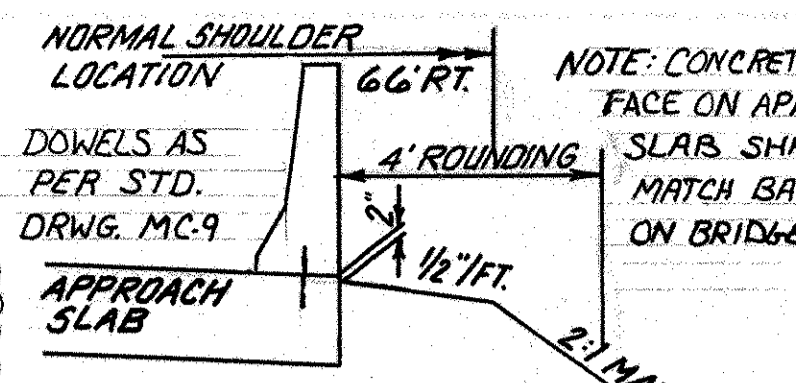
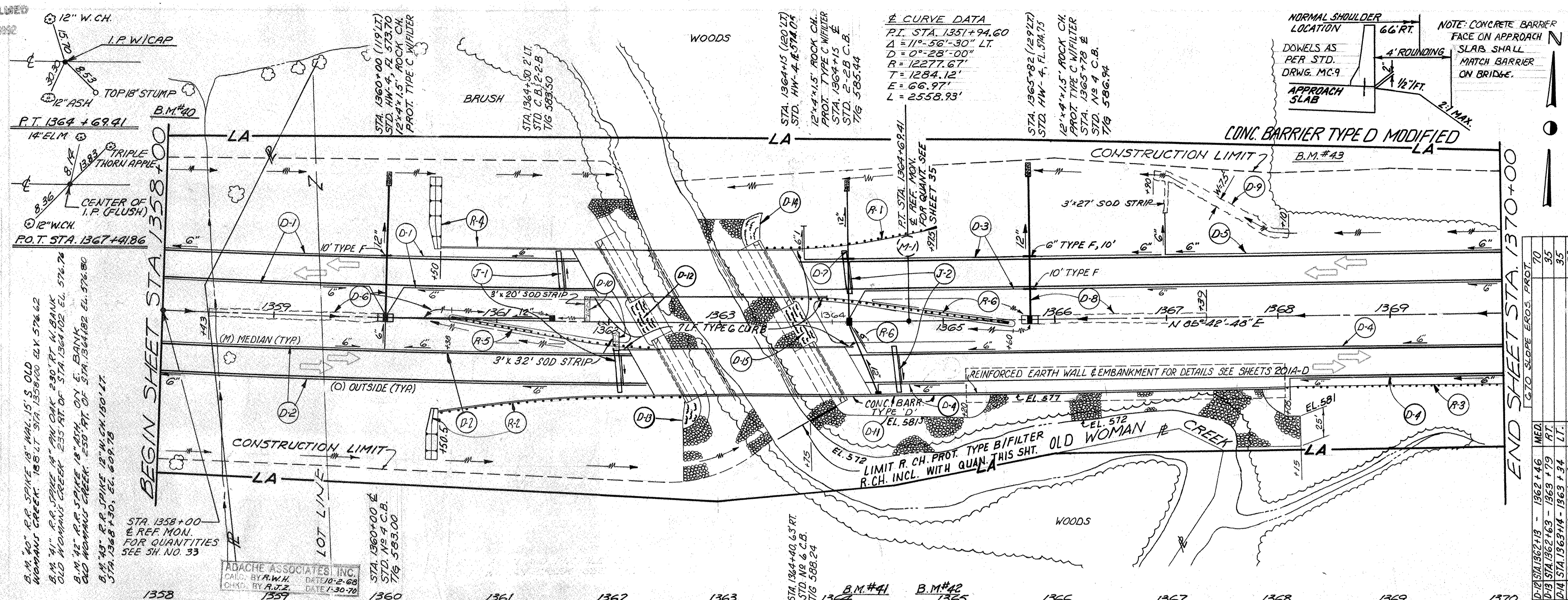


ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION	SIDE	ROCK CHAIN PROT. TYPE C		CONC. MASONRY		TYPE B		TYPE C		TYPE F		PIPE UNDERDRAIN		GUARD RAIL		GODDING EROSION PROTECTION		DITCH		BENDS & BRANCHES	SEE SHEET NO.
			C.Y.	C.Y.	C.Y.	C.Y.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.		
D-1	1346+00 - 1348+97	LT.																				
D-2	1346+00 - 1347+50	RT.																				
D-3	1349+03 - 1358+00	LT.																				
D-4	1347+54 - 1358+00	RT.																				
D-5	1346+00 - 1348+71	RT.																				
D-6	1347+43 - 1349+00	LT.																				
D-7	1350+00 - 1351+10	RT.																				
D-8	1357+00 - 1358+00	RT.																				
D-9	1346+90 - 1349+00	LT.																				
D-10	1355+90 - 1357+10	LT.																				
D-12	1346+00 - 1349+00	LT.																				
D-13	1346+00 - 1349+00	RT.																				
D-14	1348+88 - 1358+00	LT.																				
D-15	1348+88 - 1358+00	RT.																				
M-1	1352+00	C.																				
M-2	1358+00	C.																				
R-1	1348+00 - 1351+00	LT.																				
R-2	1347+00 - 1351+00	RT.																				
TOTAL			3.7	0.54	61	94	60	70					2769	200	1919	2	650	24	760			

PLAN & PROFILE STA. 1346+00 TO STA. 1358+00

ERIE COUNTY  
ERI-2-1838



**CURVE DATA**  
 P.I. STA. 1351+94.60  
 Δ = 11°-56'-30" LT.  
 D = 0°-28'-00"  
 R = 12277.67'  
 T = 1284.12'  
 E = 66.97'  
 L = 2558.93'

B.M.#0  
 R.R. SPIKE 18" W.C.H. 15' S. OLD WOMAN CREEK - 1981 LT. STA. 1358.00 G.Y. 576.62  
 R.R. SPIKE 14" W.C.H. 15' S. OLD WOMAN CREEK - 1981 LT. STA. 1358.00 G.Y. 576.62  
 B.M.#1  
 R.R. SPIKE 18" W.C.H. 15' S. OLD WOMAN CREEK - 1981 LT. STA. 1358.00 G.Y. 576.62  
 B.M.#2  
 R.R. SPIKE 18" W.C.H. 15' S. OLD WOMAN CREEK - 1981 LT. STA. 1358.00 G.Y. 576.62  
 B.M.#3  
 R.R. SPIKE 18" W.C.H. 15' S. OLD WOMAN CREEK - 1981 LT. STA. 1358.00 G.Y. 576.62

ADACHE ASSOCIATES INC.  
 CALC. BY R.W.H. DATE 1-30-78  
 CHKD. BY R.J.Z.

STA. 1358+00 TO STA. 1370+00		SECT. CROWN & DEPTH ADJ. CALC.	
EXCAVATION	13,963 C.Y.	+	(74 C.Y.) = 175 x 11.34 ÷ 27
EMBANKMENT	40,145 C.Y.	-	(368 C.Y.) = 875 x 11.34 ÷ 27
SEEDING	28,329 S.Y.		
UNCLASSIFIED EXCAVATION	758 C.Y.		
EMB. USING GRANULAR MAT'L.	16,637 C.Y.		

**ERI-2-2156 1/2 PROPOSED STRUCTURE**

**TYPE:** PRESTRESSED CONCRETE BOX BEAM SUPERSTRUCTURE ON CAPPED PILE SUBSTRUCTURE

**SPANS:** 44'-0", 55'-0", 44'-0" (ALONG CHORD BETWEEN ABUTMENT BEARINGS)

**ROADWAY:** 40'-0" F/F PARAPETS

**LOADING:** HS 20-44 AND THE ALTERNATE MILITARY LOADING

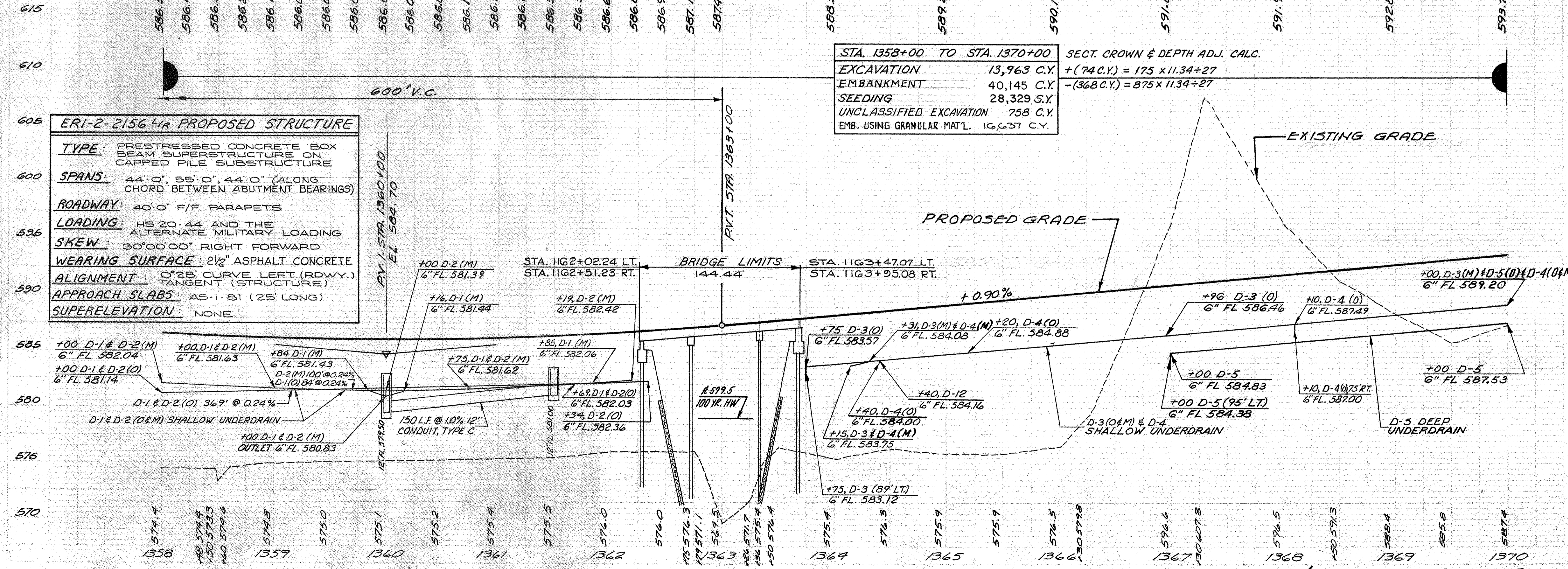
**SKIEW:** 30°00'00" RIGHT FORWARD

**WEARING SURFACE:** 2 1/2" ASPHALT CONCRETE

**ALIGNMENT:** 0°28' CURVE LEFT (RDWY.) TANGENT (STRUCTURE)

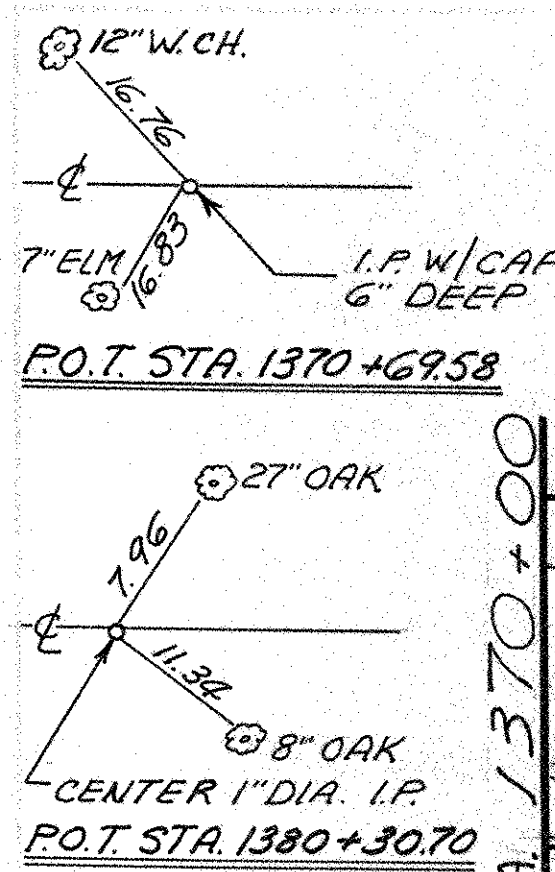
**APPROACH SLABS:** AS-1-81 (25' LONG)

**SUPERELEVATION:** NONE



REF. NO.	STATION TO STATION	SIDE	ESTIMATED QUANTITIES	SEE SHEET NO.
D-1	1358+00 - 1361+85	LT.	13	2-60
D-2	1358+00 - 1362+34	RT.	9	2-60
D-3	1363+75 - 1370+00	LT.	18	2-60
D-4	1364+15 - 1370+00	LT.	18	2-60
D-5	1367+00 - 1370+00	LT.	18	2-60
D-6	1368+49 - 1369+00	LT.	18	2-60
D-7	1368+85 - 1369+00	LT.	18	2-60
D-8	1368+85 - 1369+00	LT.	18	2-60
D-9	1368+85 - 1369+00	LT.	18	2-60
D-10	1368+85 - 1369+00	LT.	18	2-60
D-11	1368+85 - 1369+00	LT.	18	2-60
R-1	1368+85 - 1369+00	LT.	18	2-60
R-2	1368+85 - 1369+00	LT.	18	2-60
R-3	1368+85 - 1369+00	LT.	18	2-60
R-4	1368+85 - 1369+00	LT.	18	2-60
R-5	1368+85 - 1369+00	LT.	18	2-60
R-6	1368+85 - 1369+00	LT.	18	2-60
J-1	1364+57.5 - 1364+59	LT.	14	2-60
J-2	1364+57.5 - 1364+59	LT.	14	2-60
<b>TOTAL</b>			<b>320</b>	

PLAN & PROFILE STA. 1358+00 TO STA. 1370+00



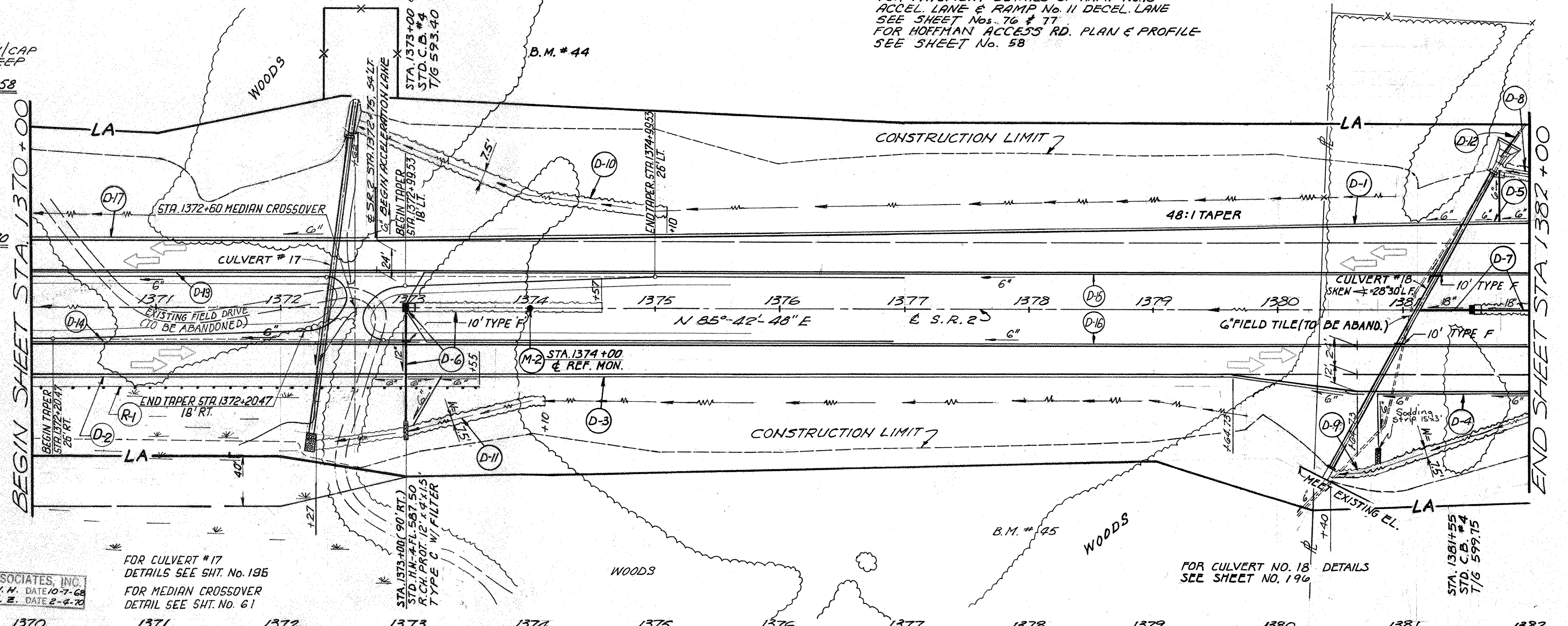
FOR PAVEMENT DETAILS OF RAMP No. 10  
ACCEL. LANE & RAMP No. 11 DECEL. LANE  
SEE SHEET Nos. 76 & 77  
FOR HOFFMAN ACCESS RD. PLAN & PROFILE  
SEE SHEET No. 58

B.M. #44 R.P. SPIKE 8" W. CH. IN CLUMP  
200' LT. STA. 1373+91, EL. 605.96  
B.M. #45 R.P. DRIVE LARGE W. CH. CLUMP  
180' RT. STA. 1377+70, EL. 606.76

ADACHE ASSOCIATES, INC.  
CALC. BY R.W.H. DATE 10-7-68  
CHKD. BY R.J.E. DATE 2-4-70

BEGIN SHEET STA 1370+00

END SHEET STA 1382+00

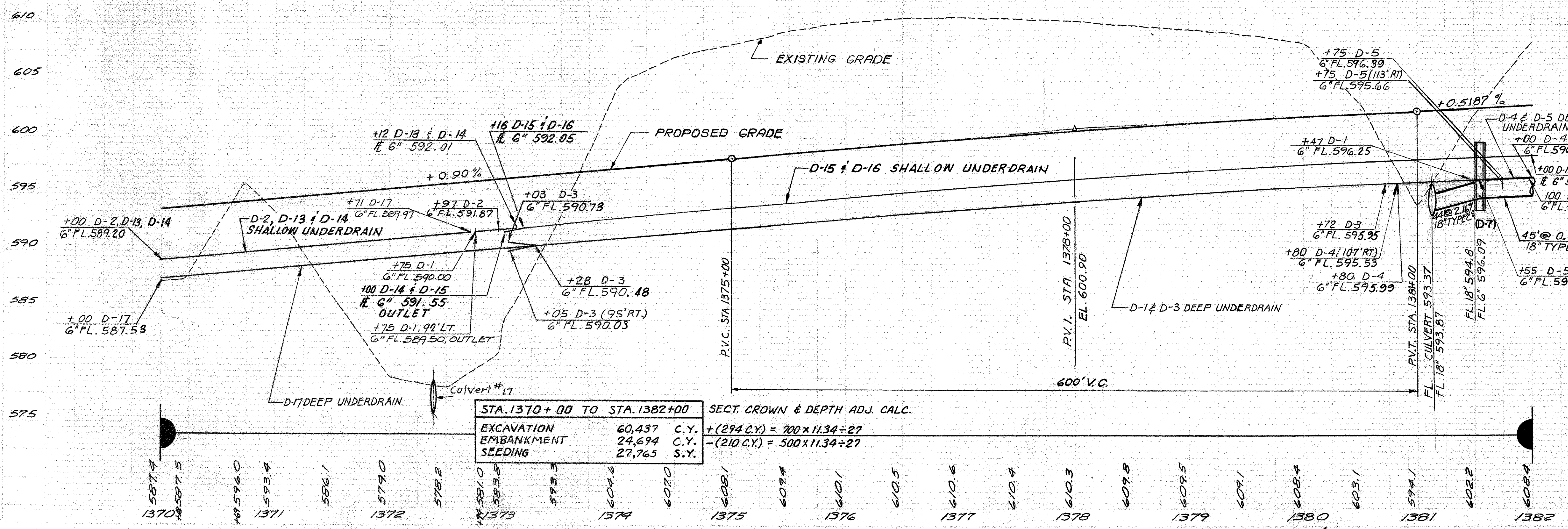


FOR CULVERT #17  
DETAILS SEE SHT. No. 195

FOR MEDIAN CROSSOVER  
DETAIL SEE SHT. No. 61

FOR CULVERT NO. 18  
SEE SHEET NO. 196

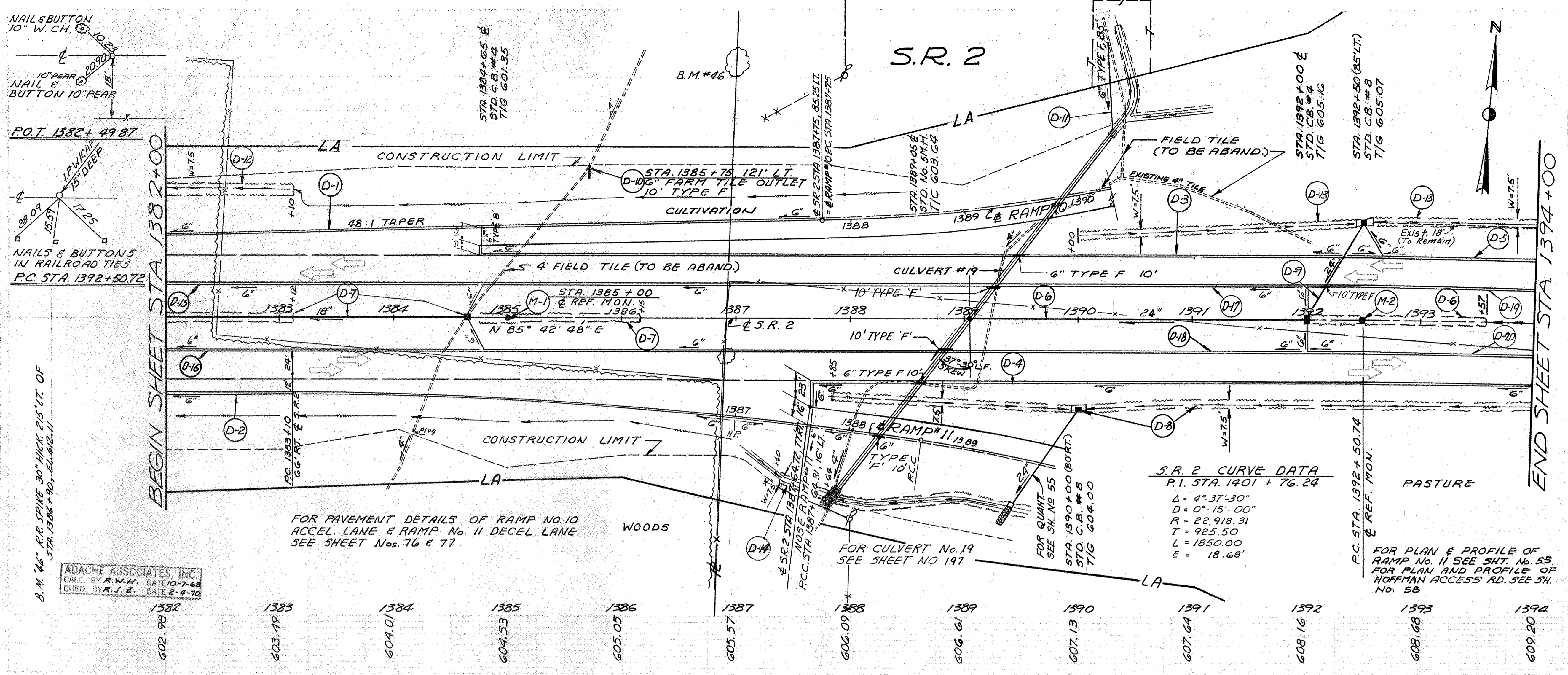
STA. 1381+55  
STD. C.B. #4  
T/G 599.75



STA. 1370+00 TO STA. 1382+00		SECT. CROWN & DEPTH ADJ. CALC.	
EXCAVATION	60,437 C.Y.	+ (294 C.Y.)	= 700 x 11.34 ÷ 27
EMBANKMENT	24,694 C.Y.	- (210 C.Y.)	= 500 x 11.34 ÷ 27
SEEDING	27,765 S.Y.		

REF. NO.	STATION TO STATION	SIDE	P.C.H. TYPE	ESTIMATED QUANTITIES		601 C.Y.	602 C.Y.	603 C.Y.	604 C.B. NO. 4	605 PIPE UNDERDRAIN DEEP L.F.	606 GUARD RAIL STD. TYPE-5 L.F.	607 BENCH MARKS	SHEET NO.
				CONC. MASONRY	CONDUIT								
D-1	1372+75 - 1381+47	LT.											
D-2	1370+00 - 1372+97	RT.											
D-3	1375+03 - 1380+72	RT.											
D-4	1380+80 - 1382+00	RT.											
D-5	1381+55 - 1382+00	LT.											
D-6	1373+00 - 1374+51	LT.											
D-7	1381+11 - 1382+00	LT.											
D-8	1381+11 - 1382+00	LT.											
D-9	1380+40 - 1382+00	RT.											
D-10	1372+62 - 1375+10	LT.											
D-11	1372+27 - 1374+10	RT.											
D-12	1381+78	LT.											
D-13	1370+00 - 1373+12	LT.											
D-14	1370+00 - 1373+12	RT.											
M-1	1370+00 - 1373+64	RT.											
M-2	1374+00 - 1374+00	LT.											
D-15	1373+00 - 1382+00	LT.											
D-16	1373+00 - 1382+00	RT.											
D-17	1370+00 - 1374+71	LT.											
TOTAL						2.7	0.21	89	2	271	342.5	1	34

PLAN & PROFILE STA. 1370+00 TO STA. 1382+00



**S.R. 2 CURVE DATA**  
 P.I. STA. 1401 + 76.24  
 $\Delta = 4^\circ 37' 30''$   
 $D = 0^\circ 15' 00''$   
 $R = 22,918.31$   
 $T = 925.50$   
 $L = 1850.00$   
 $E = 18.68'$

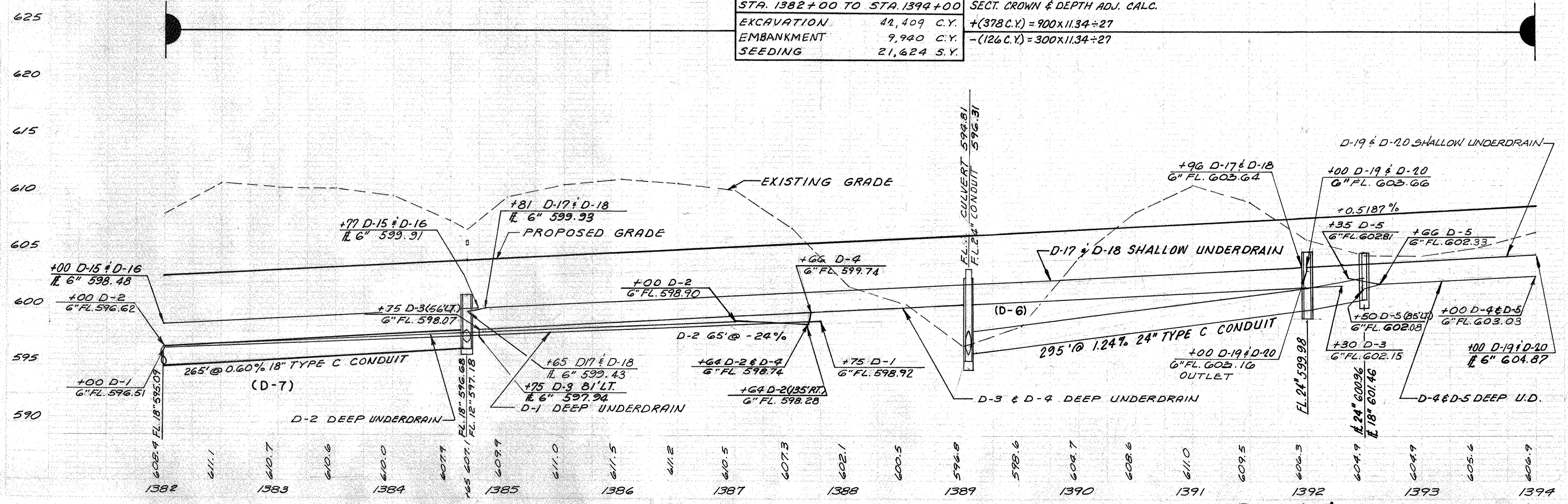
FOR PAVEMENT DETAILS OF RAMP NO. 10  
 ACCEL. LANE & RAMP NO. 11 DECEL. LANE  
 SEE SHEET Nos. 76 & 77

FOR CULVERT No. 19  
 SEE SHEET NO. 197

FOR PLAN & PROFILE OF  
 RAMP NO. 11 SEE SHEET NO. 55  
 FOR PLAN AND PROFILE OF  
 HOFFMAN ACCESS RD. SEE SH.  
 NO. 58

ADACHE ASSOCIATES, INC.  
 CALC. BY R.W.H., DATE 10-7-68  
 CHKO. BY R.J.E., DATE 2-4-70

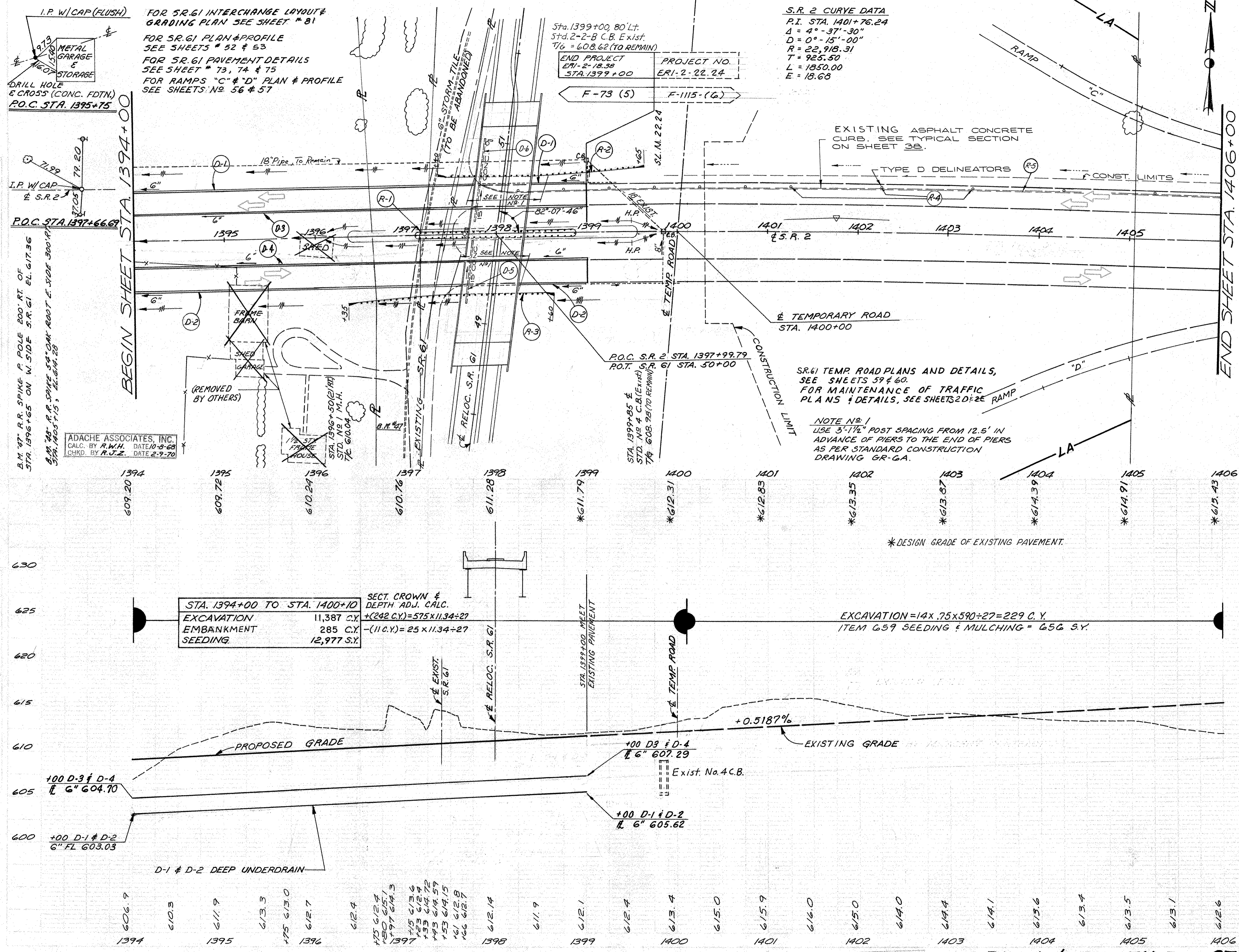
STA. 1382+00 TO STA. 1394+00		SECT. CROWN & DEPTH ADJ. CALC.	
EXCAVATION	42,409 C.Y.	+	(378 C.Y.) = 900x11.34 ÷ 27
EMBANKMENT	9,940 C.Y.	-	(126 C.Y.) = 300x11.34 ÷ 27
SEEDING	21,624 S.Y.		



PLAN & PROFILE STA. 1382+00 TO STA. 1394+00

REF. NO.	STATION TO STATION	SIDE	TYPE A CONDUIT		TYPE B CONDUIT		TYPE C CONDUIT		TYPE F CONDUIT		TYPE G CONDUIT		ESTIMATED QUANTITIES
			18" L.F.	24" L.F.	18" L.F.	24" L.F.	18" L.F.	24" L.F.	18" L.F.	24" L.F.	18" L.F.	24" L.F.	
D-1	1382+00 - 1387+75	LT.											
D-2	1382+00 - 1387+64	RT.											
D-3	1384+25 - 1372+50	LT.											
D-4	1387+64 - 1392+00	RT.											
D-5	1392+35 - 1393+57	LT.											
D-6	1382+00 - 1393+57	LT.											
D-7	1382+00 - 1384+15	LT.											
D-8	1387+85 - 1392+00	RT.											
D-9	1392+00 - 1392+65	LT.											
D-10	1385+75	LT.											
D-11	1390+00 - 1383+10	LT.											
D-12	1390+00 - 1384+00	LT.											
D-13	1387+40 - 1387+64	RT.											
D-14	1390+00 - 1394+00	RT.											
D-15	1385+00	LT.											
D-16	1392+50.74	LT.											
D-17	1384+65 - 1391+96	LT.											
D-18	1384+65 - 1391+96	RT.											
D-19	1392+00 - 1394+00	LT.											
TOTAL													64

ERIE COUNTY  
ERI-2-18.38



FOR SR. 61 INTERCHANGE LAYOUT & GRADING PLAN SEE SHEET # 81  
FOR SR. 61 PLAN & PROFILE SEE SHEETS # 52 & 53  
FOR SR. 61 PAVEMENT DETAILS SEE SHEET # 73, 74 & 75  
FOR RAMPS "C" & "D" PLAN & PROFILE SEE SHEETS NO. 56 & 57

S.R. 2 CURVE DATA  
P.I. STA. 1401+76.24  
Δ = 4°-37'-30"  
D = 0°-15'-00"  
R = 22,918.31  
T = 925.50  
L = 1850.00  
E = 18.68

Sta. 1399+00, 80' LT.  
Std. 2-2-B C.B. Exist.  
T/G = 608.62 (TO REMAIN)

END PROJECT  
STA. 1399+00

PROJECT NO.  
ERI-2-22.24

EXISTING ASPHALT CONCRETE CURB, SEE TYPICAL SECTION ON SHEET 38.

TYPE D DELINEATORS

TEMPORARY ROAD  
STA. 1400+00

SR. 61 TEMP. ROAD PLANS AND DETAILS, SEE SHEETS 59 & 60.  
FOR MAINTENANCE OF TRAFFIC PLANS & DETAILS, SEE SHEETS 2D & 2E RAMP

NOTE NO. 1  
USE 3'-1 1/2" POST SPACING FROM 12.5' IN ADVANCE OF PIERS TO THE END OF PIERS AS PER STANDARD CONSTRUCTION DRAWING GR-6A.

STA. 1394+00 TO STA. 1400+10  
SECT. CROWN & DEPTH ADJ. CALC.

EXCAVATION	11,387 C.Y.	+(242 C.Y.) = 575 x 11.34 ÷ 27
EMBANKMENT	285 C.Y.	-(11 C.Y.) = 25 x 11.34 ÷ 27
SEEDING	12,977 S.Y.	

EXCAVATION = 14 x .75 x 590 ÷ 27 = 229 C.Y.  
ITEM 659 SEEDING & MULCHING = 656 S.Y.

REF. NO.	STATION TO STATION	SIDE	DELINATOR POSITION (GENERAL NUMBER AS PER PLAN) EACH	RAISED PAVT. (GENERAL NUMBER FOR STORAGE) EACH	ESTIMATED QUANTITIES	SEE SHEET NO.
D-1	1394+00 - 1399+00	LT.				
D-2	1394+00 - 1399+00	RT.				
D-3	1394+00 - 1399+00	LT.				
D-4	1394+00 - 1399+00	RT.				
D-5	1397+70	RT.	70			
D-6	1397+80	LT.	92			
R-1	1397+15 - 1398+77.5	EA.				
R-2	1397+40 - 1399+65	LT.				
R-3	1396+35 - 1398+60	RT.				
R-4	1398+25 - 1406+00	LT.	12			
R-5	1399+00 - 1406+00	LT.				
TOTAL						

PLAN & PROFILE STA. 1394+00 TO STA. 1406+00





**ERIE COUNTY  
ERIE-2-1838**

**CURVE DATA #2**  
 P.I. STA. 1197 + 75.44  
 Δ = 26° 44' 09"  
 D = 8° 00' 00"  
 R = 716.20'  
 T = 170.20'  
 L = 334.20'

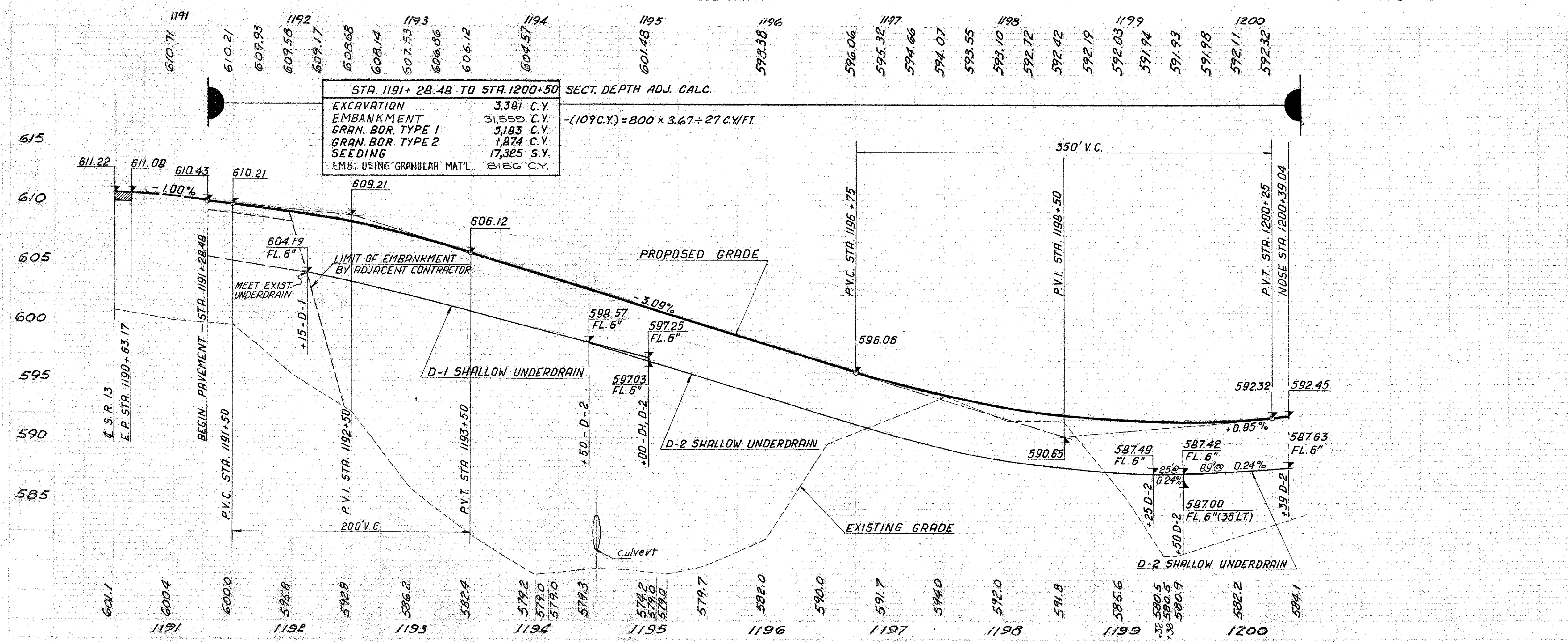
**CURVE DATA #3**  
 P.I. STA. 1202 + 22.60  
 Δ = 19° 37' 11"  
 D = 3° 30' 00"  
 R = 1,637.02'  
 T = 283.16'  
 L = 560.56'

**CURVE DATA #1**  
 P.I. STA. 1192 + 44.42  
 Δ = 18° 23' 26"  
 D = 8° 00' 00"  
 R = 716.20'  
 T = 115.94'  
 L = 229.88'

ADACHE ASSOCIATES, INC.  
 CALC. BY RWH DATE 9-11-68  
 CHDR. BY R/JZ DATE 1-30-70

FOR PLAN & PROFILE OF S.R. 2  
 SEE SHT. No. 20  
 FOR LAYOUT & GRADING PLAN  
 FOR EAST HALF OF S.R. 13 INTER.  
 CHANGE SEE SHT. No. 78  
 FOR CULVERT #9 DETAILS  
 SEE SHT. No. 188

FOR PAVEMENT DETAILS  
 SEE SHT. No. 62  
 FOR CULVERT #11 DETAIL  
 SEE SHT. No. 189



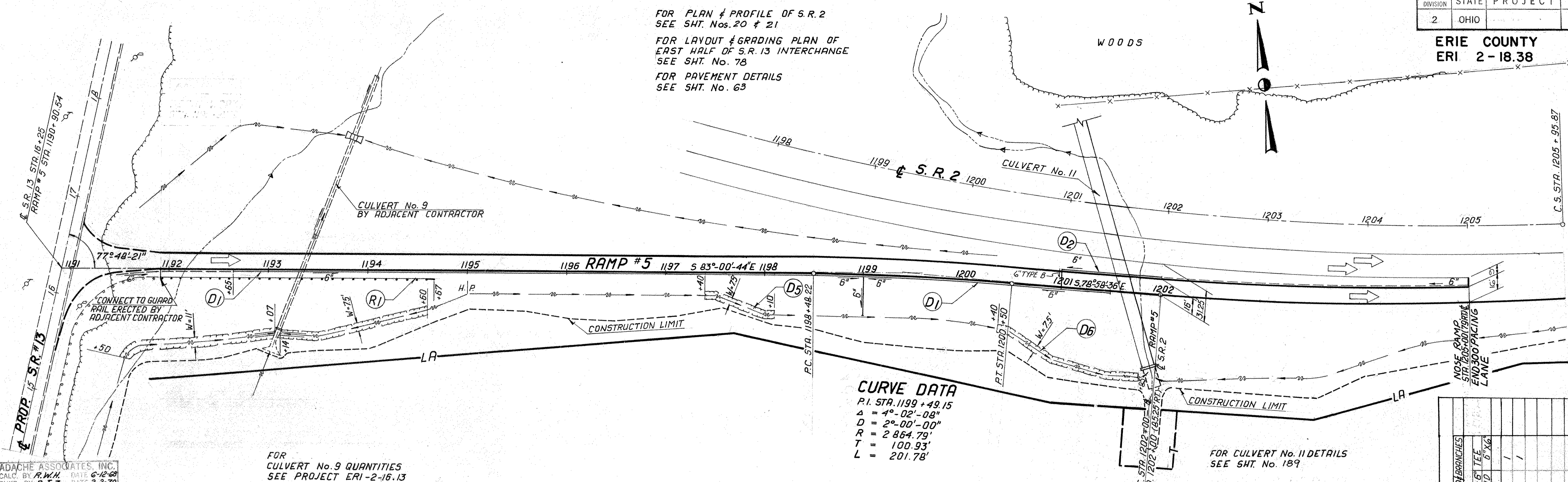
REF. NO.	STATION TO STATION SIDE	ESTIMATED QUANTITIES	603		605		606		670		BEND & BRANCHES SEE SHEET NO.
			TYPE	COND.	PIPE UNDERDRAIN	SHALLON UNCL. DEEP	GUIDE RAIL STD. ANCHOR ASSEMBLY TYPE	TYPE	C70	BAND TELE	
			LF	LF	LF	LF	LF	EA.	EA.	EA.	EA.
D-1	1192 + 15 - 1195 + 00 RT.	20			285						1
D-2	1194 + 50 - 1200 + 39 LT.		10		612			375	1	158	2
D-3	1191 + 90 - 1193 + 65 LT.										
R-1	1192 + 50 - 1196 + 50 LT.										
<b>TOTAL</b>					<b>897</b>			<b>375</b>	<b>1</b>	<b>158</b>	

RAMP #4 PLAN & PROFILE STA. 1191 + 28.48 TO STA. 1200 + 39.04

FOR PLAN & PROFILE OF S.R. 2  
SEE SHT. Nos. 20 & 21

FOR LAYOUT & GRADING PLAN OF  
EAST HALF OF S.R. 13 INTERCHANGE  
SEE SHT. No. 78

FOR PAVEMENT DETAILS  
SEE SHT. No. 63

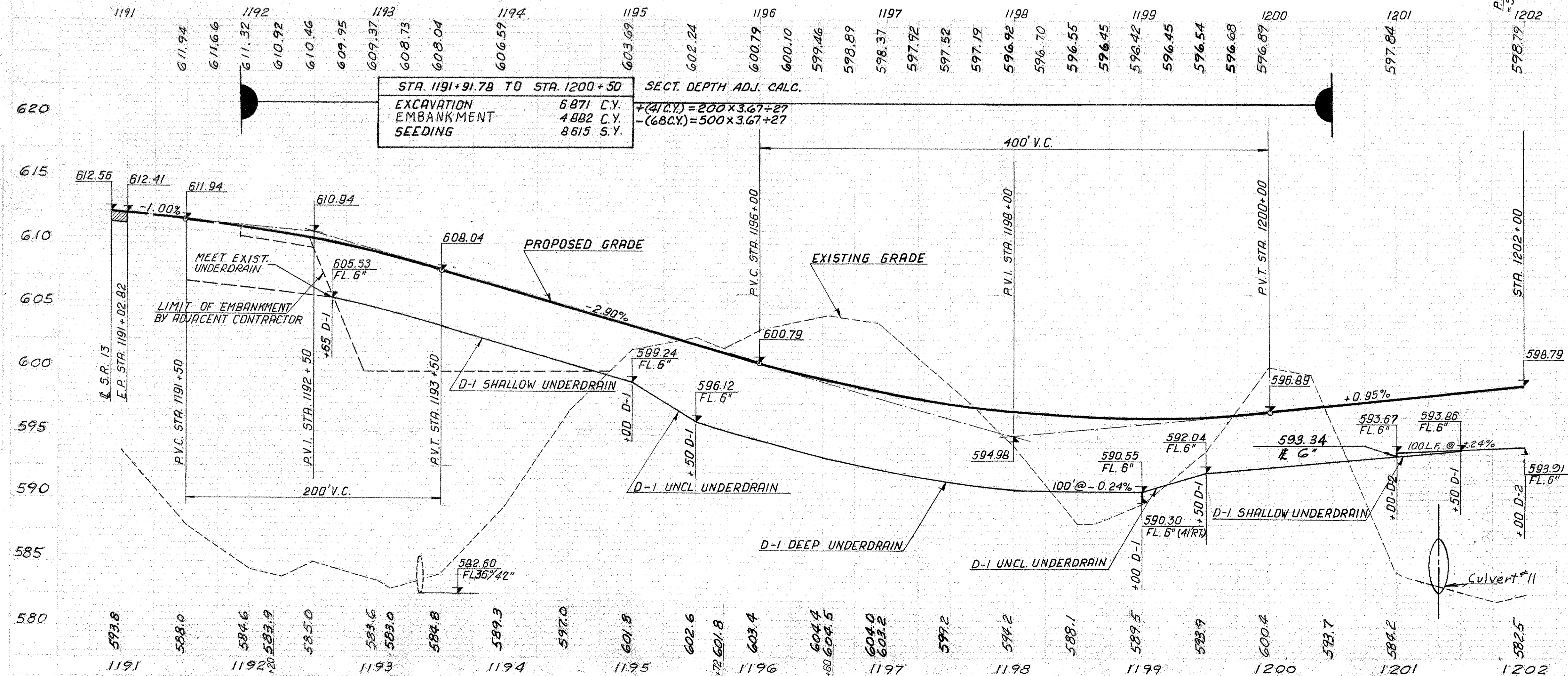


**CURVE DATA**  
 P.I. STA. 1199 + 49.15  
 $\Delta = 4^{\circ}02'08''$   
 $D = 2^{\circ}00'00''$   
 $R = 2864.79'$   
 $T = 100.93'$   
 $L = 201.78'$

FOR  
CULVERT No. 9 QUANTITIES  
SEE PROJECT ERI-2-16.13

FOR CULVERT No. 11 DETAILS  
SEE SHT. No. 189

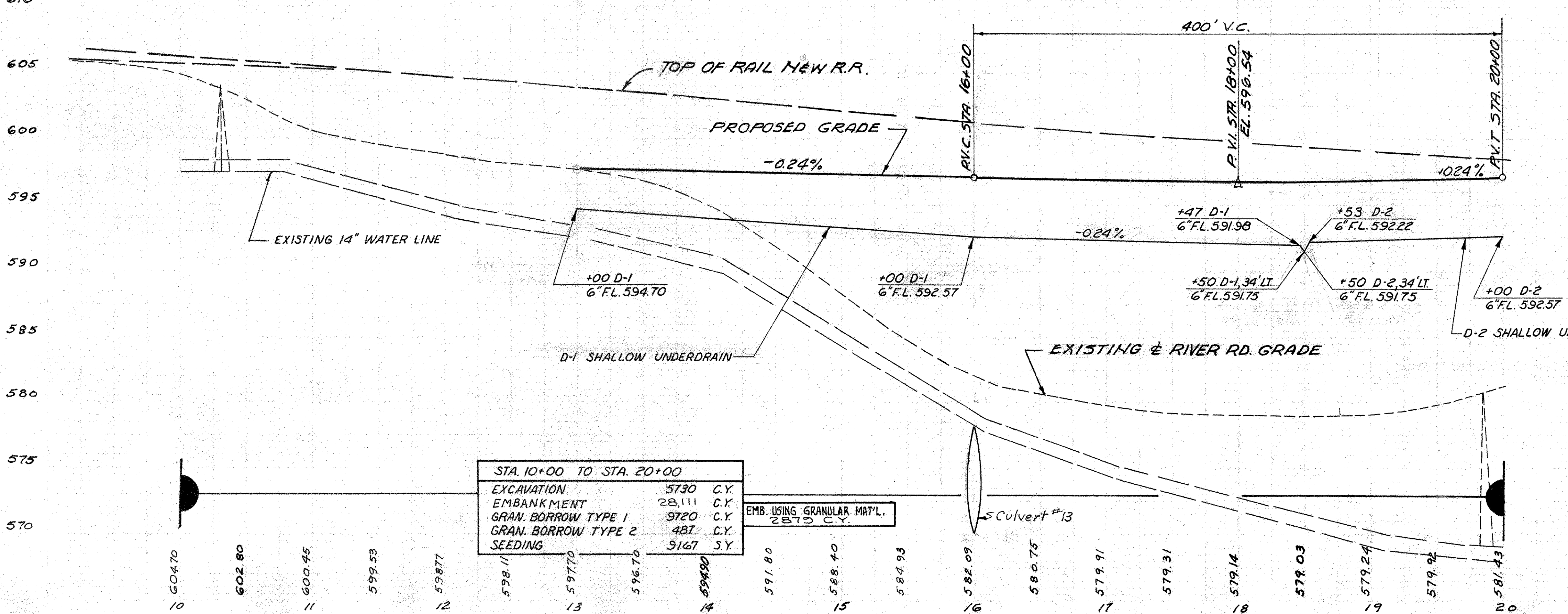
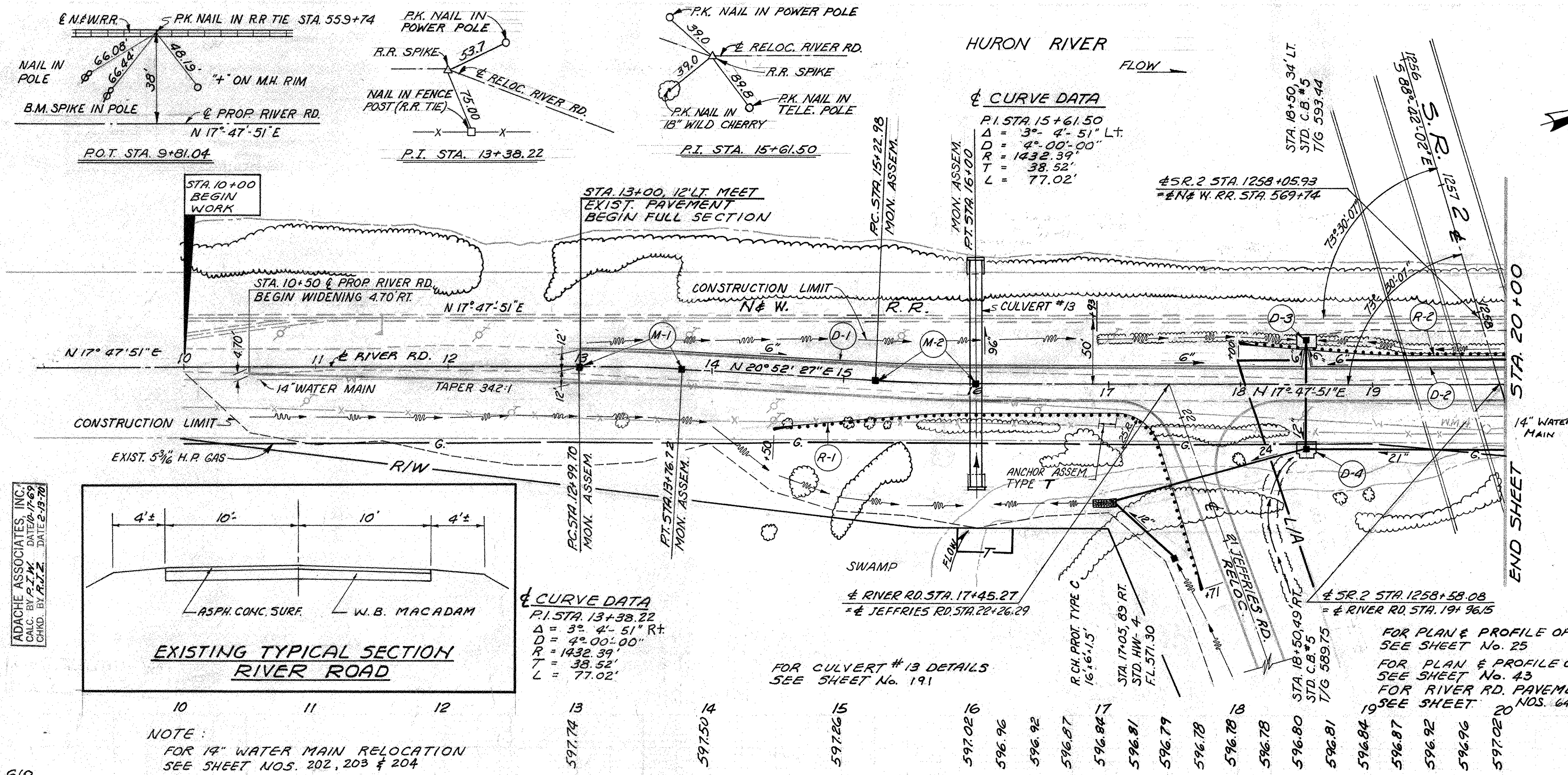
ADACHE ASSOCIATES, INC.  
CALC. BY R.W.H. DATE 6-12-69  
CHKD. BY R.T.Z. DATE 2-2-70



REF. STATION TO STATION NO.	SIDE	ESTIMATED QUANTITIES		TOTAL
		TYPE "B" TYPE "F"	TYPE "G" TYPE "H"	
D-1 1192+65 - 1201+50 RT.		603	606	1199
D-2 1201+00 - 1202+00 LT.		603	606	1201
D-5 1197+40 - 1198+10 RT.				
D-6 1200+40 - 1201+85 RT.				
R-1 1191+91.78 - 1194+67 RT.				
<b>TOTAL</b>		<b>595</b>	<b>379</b>	<b>2625</b>

RAMP #5 PLAN & PROFILE STA. 1191 + 91.78 TO STA. 1205 + 00

ERIE COUNTY  
ERI 2-18.38



ADACHE ASSOCIATES, INC.  
 CALC. BY P.J.M. DATE 10-17-69  
 CHD. BY R.J.Z. DATE 2-13-70

**CURVE DATA**

P.I. STA. 15+61.50  
 $\Delta = 3^{\circ} 4' 51''$  LT.  
 $D = 4^{\circ} 00' 00''$   
 $R = 1432.39'$   
 $T = 38.52'$   
 $L = 77.02'$

**CURVE DATA**

P.I. STA. 13+38.22  
 $\Delta = 3^{\circ} 4' 51''$  RT.  
 $D = 4^{\circ} 00' 00''$   
 $R = 1432.39'$   
 $T = 38.52'$   
 $L = 77.02'$

FOR CULVERT #13 DETAILS  
 SEE SHEET No. 191

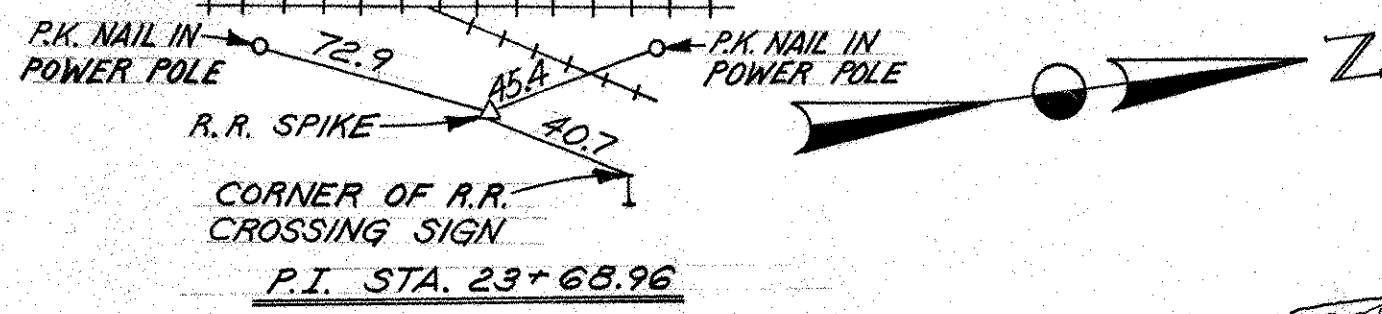
FOR PLAN & PROFILE OF SR. 2  
 SEE SHEET No. 25  
 FOR PLAN & PROFILE OF JEFFRIES RD.  
 SEE SHEET No. 43  
 FOR RIVER RD. PAVEMENT DETAILS  
 SEE SHEET No. 20 NOS. 64, 65 & 66

STA. 10+00 TO STA. 20+00	
EXCAVATION	5730 C.Y.
EMBANKMENT	28,111 C.Y.
GRAN. BORROW TYPE 1	9720 C.Y.
GRAN. BORROW TYPE 2	487 C.Y.
SEEDING	3167 S.Y.
EMB. USING GRANULAR MAT'L. 2879 C.Y.	

REF. NO.	STATION TO STATION	SIDE	ESTIMATED QUANTITIES		SEE SHEET NO.
			601	602	
D-1	13+00 - 18+50	LT			151
D-2	18+50 - 20+00	LT			200
D-3	16+93 - 20+00	LT/RT	83	0.43	
D-4	16+89 - 20+00	RT	150		
R-1	14+50 - 20+71	RT			
R-2	18+00 - 20+00	LT			
M-1	12+99.70 & 13+76.72	E			
M-2	15+22.98 & 16+00.00	E			
TOTAL			5.3	0.43	

RIVER ROAD PLAN & PROFILE STA. 10+00 TO STA. 20+00

# HURON RIVER



ERIE COUNTY  
ERI-2-18.38

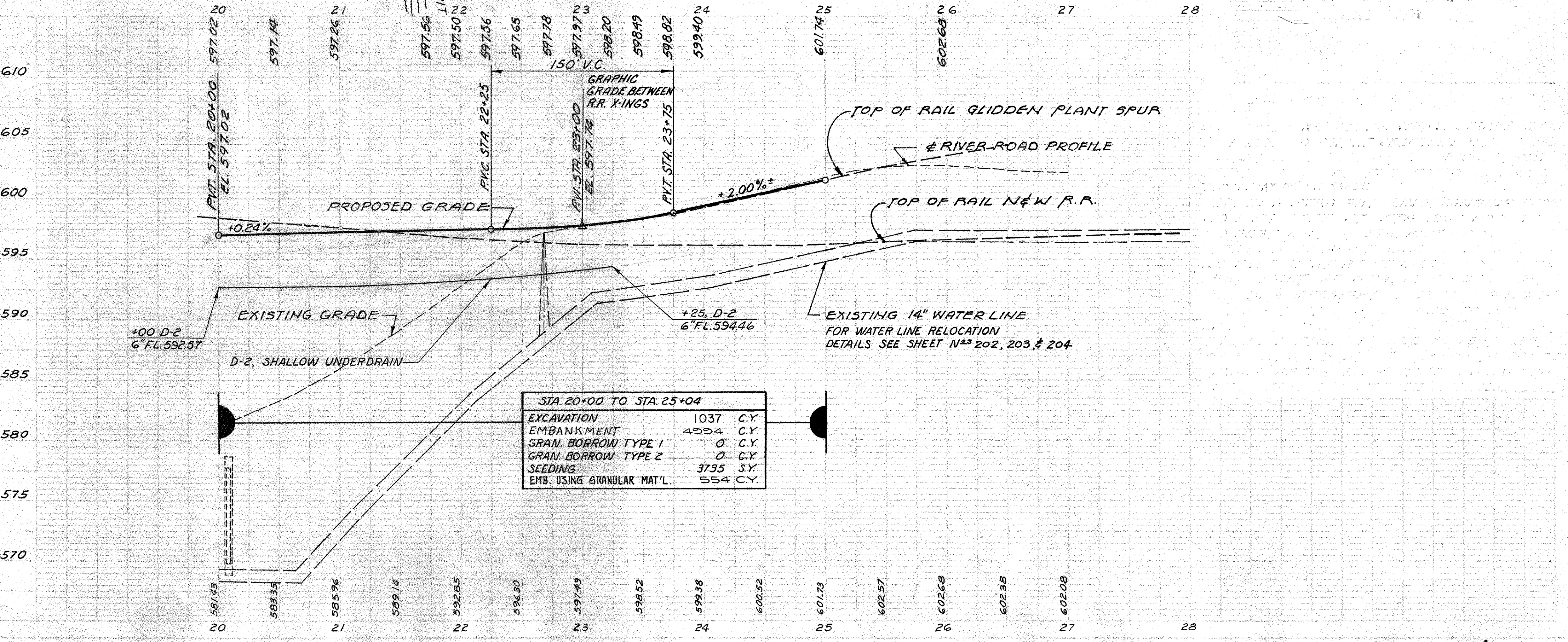
NOTE:  
THE GUARD RAIL FROM STA. 20+37.50 TO STA. 21+12.50 SHALL BE PLACED USING THE SPACING FOR THE FIRST 75' OF THE STANDARD ROADSIDE FLARE.

± CURVE DATA  
P.I. STA. 23+68.96  
Δ = 8°-30'-00"  
Dc = 4'-00"  
R = 1432.39'  
T = 106.46'  
L = 212.50'

60" CAST IRON PIPE TO BE FILLED AND BULKHEADED AS PER GENERAL NOTES. SEE SH. NO. 11  
BULKHEADS TO BE PLACED AT OUTLET END AND AT JUNCTION OF 4'x8' STONE BOX CULVERT.

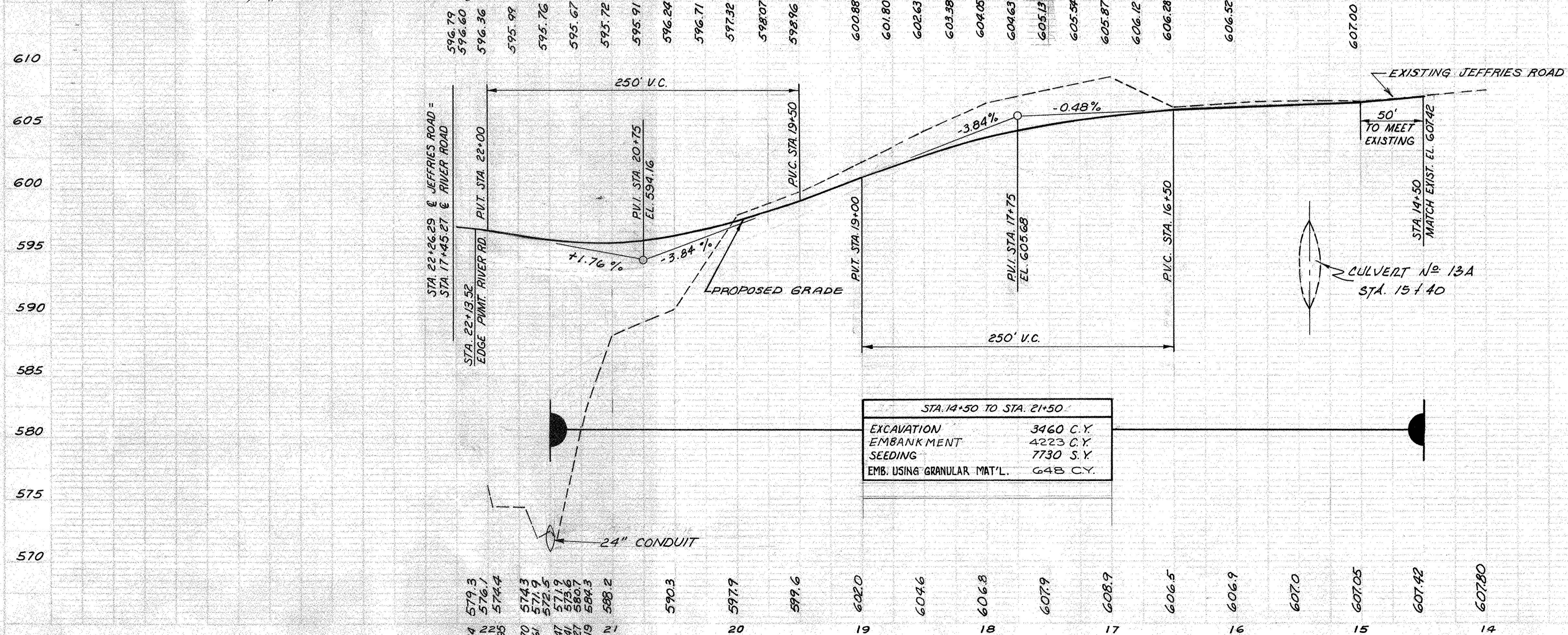
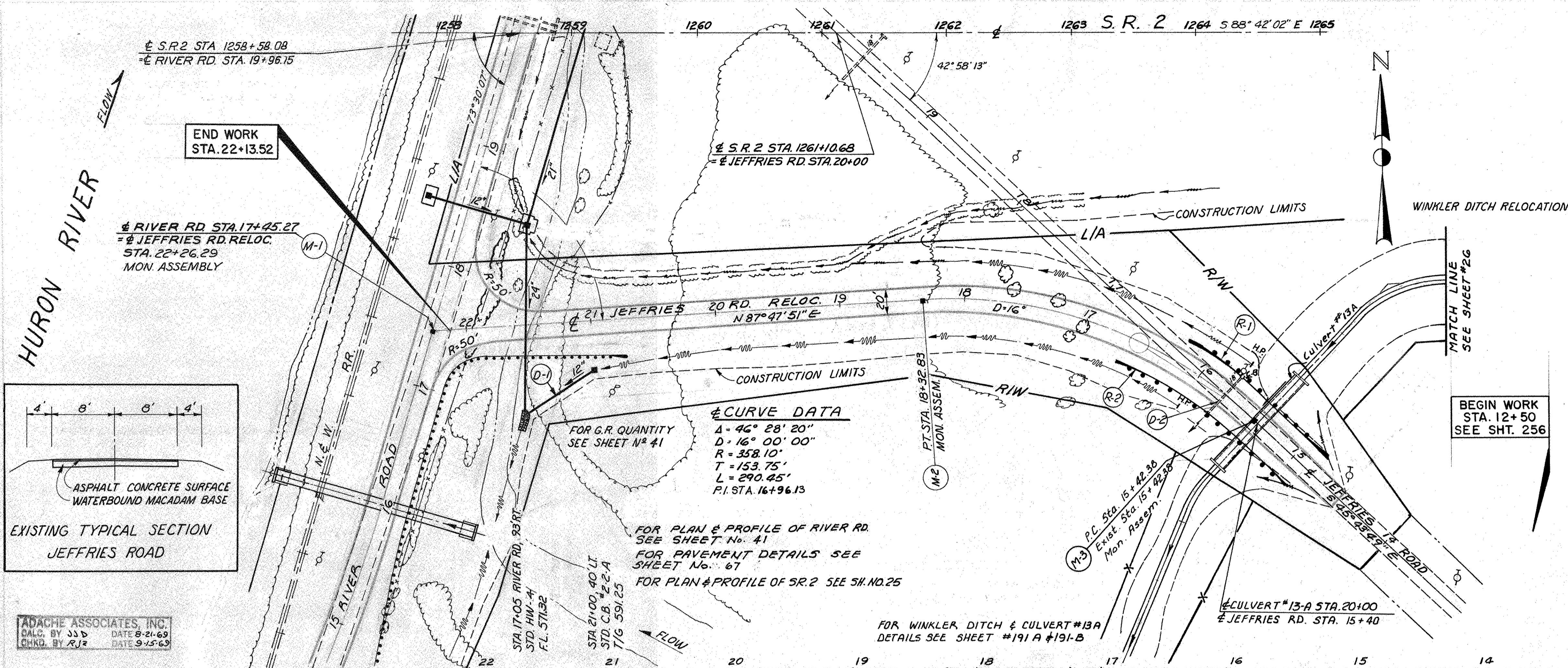
4'x8' STONE BOX CULVERT TO BE REMOVED

ADACHE ASSOCIATES, INC.  
CALC. BY M.F. DATE 8/21/67  
CHKD. BY R.J.R. DATE 10/14/67



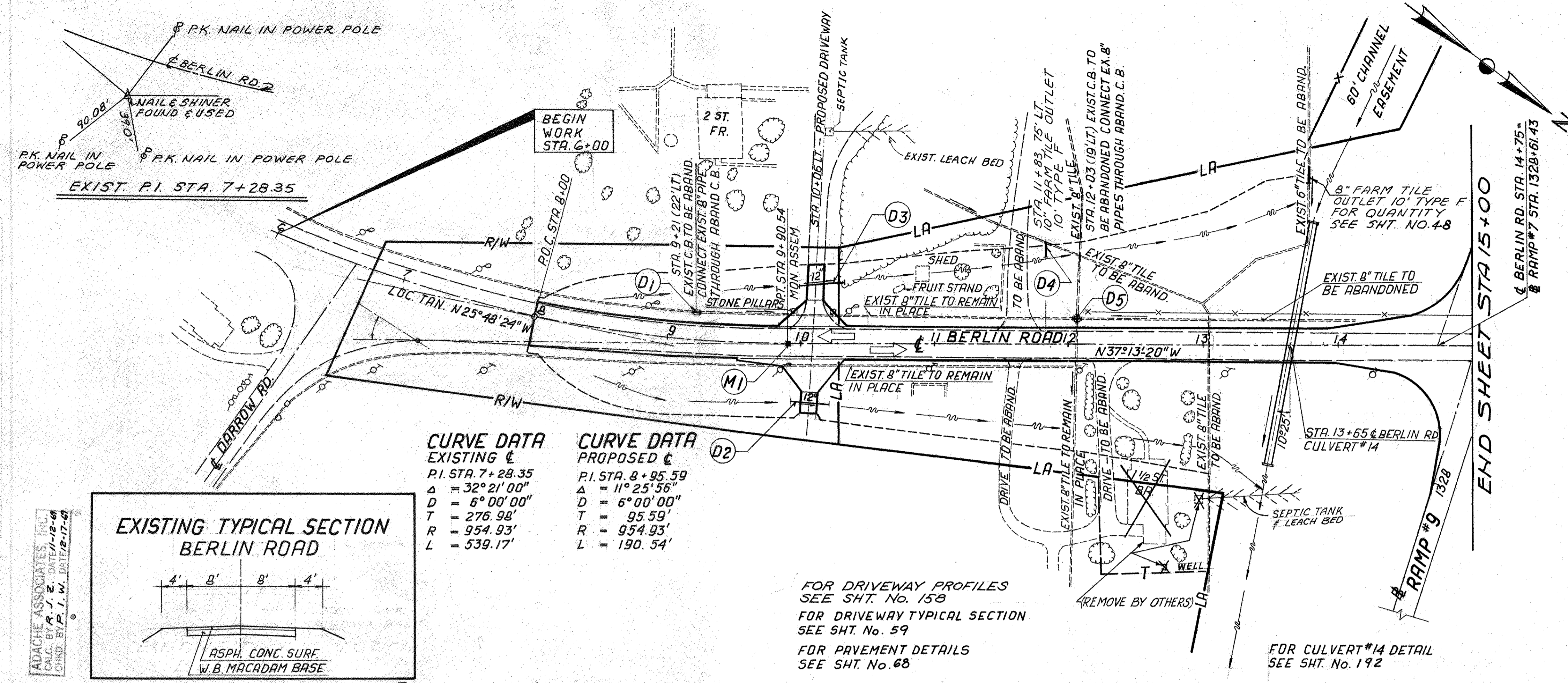
REF. NO.	STATION TO STATION	SIDE	202 GUARD RAIL REMOVED		TYPE C CONDUIT		TYPE B CONDUIT		TYPE F CONDUIT		604 CATCH BASIN STANDARD		605 PIPE UNDERDR.		SPECIAL FILLING BOX		202 CATCH BASIN		606 GUARD ANCHOR		SEE SHEET NO.
			L.F.	S.Y.	2"	15"	12"	6"	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.		
D-1	20+00 - 21+75	RT.	175						10				315							200	
D-2	20+00 - 23+25	LT.																		200	
D-3	22+35	LT.																		753	
D-4	20+00 - 20+07	LT/RT																			
D-5	20+00	LT.																			
D-6	20+00	LT/RT																			
D-7	21+75 - 24+17	RT.																			
D-8	21+50 - 23+07	LT/RT																			
R-1	20+00 - 21+12.50	LT.																			
R-2	21+45 - 22+40	RT.																			
M-1	22+62.50	±																			
TOTAL			100	175	85	82	10	3	315	93	1	1	1	1	1	1	1	1	1	310	200

RIVER ROAD PLAN & PROFILE STA. 20+00 TO STA. 25+04

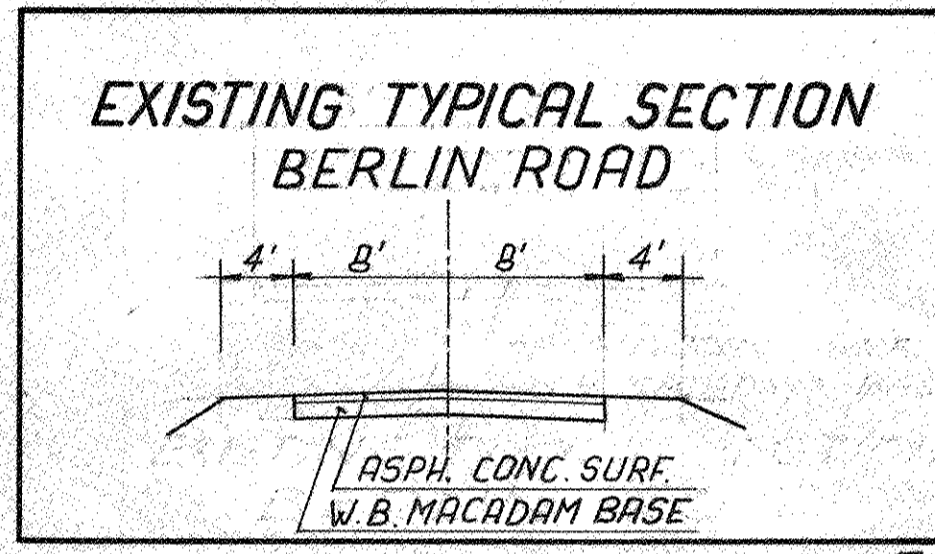


REF. NO.	STATION TO STATION	SIDE	PIPE REM. UNDER REMOVED C.B. L.F.	CONC. MASONRY C.Y.	CONDUIT TYPE L.F.	STD. C.B. #2-A EA.	MON. ASSEM. EA.	ESTIMATED QUANTITIES	GUARDRAIL STD. ANCHOR TYPE 5 L.F.	BENDS & BRANCHES BEND 12" x 22" x 3/4" L.F.	SEE SHEET NO.
D-1	21+00 - 21+57	LT.		0.21	67						200
D-2	15+72	LIT/RT	44							2	
R-1	14+80 - 16+30	AT.							100		
R-2	14+90 - 16+65	LT.							125		
M-1	22+26.29	E					1				
M-2	18+32.83	E					1				
M-3	15+42.38	E					1				
<b>TOTAL</b>									225	4	

JEFFRIES RD. RELOCATION PLAN & PROFILE STA. 14+50 TO STA. 22+13.52

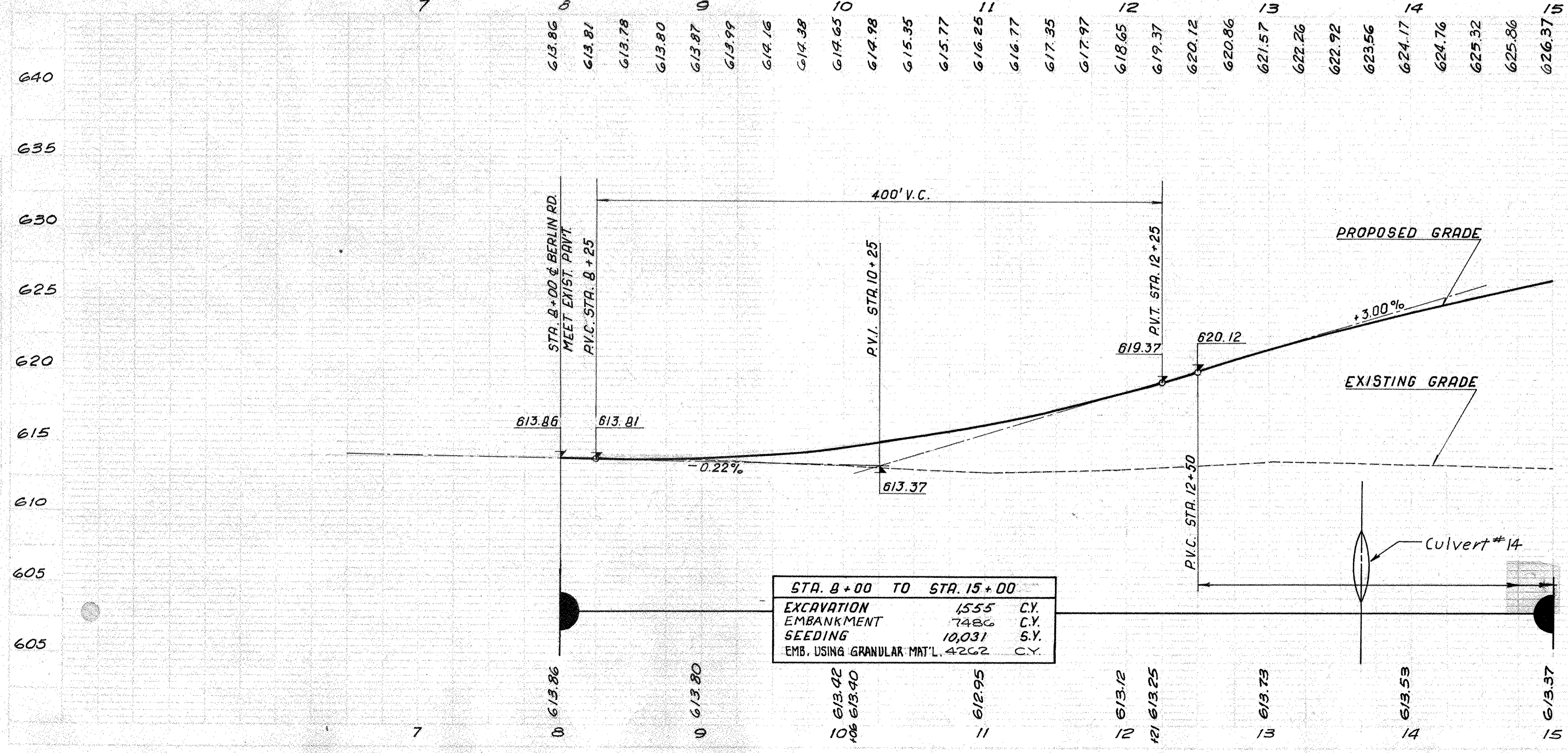


CURVE DATA EXISTING		CURVE DATA PROPOSED	
P.I. STA.	7+28.35	P.I. STA.	8+95.59
Δ	32° 21' 00"	Δ	11° 25' 56"
D	6° 00' 00"	D	6° 00' 00"
T	276.98'	T	95.59'
R	954.93'	R	954.93'
L	539.17'	L	190.54'



FOR DRIVEWAY PROFILES SEE SHT. No. 158  
 FOR DRIVEWAY TYPICAL SECTION SEE SHT. No. 59  
 FOR PAVEMENT DETAILS SEE SHT. No. 68

FOR CULVERT #14 DETAIL SEE SHT. No. 192



REF. NO.	STATION TO STATION	ESTIMATED QUANTITIES				TOTAL
		TYPE D CONDUIT 12" L.F.	TYPE F CONDUIT 10" L.F.	MON. BASIN ABAND. EA.	MON. ASSEM. E.R.	
D-1	9+21					
D-2	9+91 - 10+21	30				
D-3	9+93 - 10+27	34	10			
D-4	11+83					
D-5	12+03					
D-6	12+75 - 13+00					
M-1	9+90.54				1	
TOTAL		64	10	2	1	

BERLIN ROAD PLAN & PROFILE STA. 8+00 TO STA. 15+00

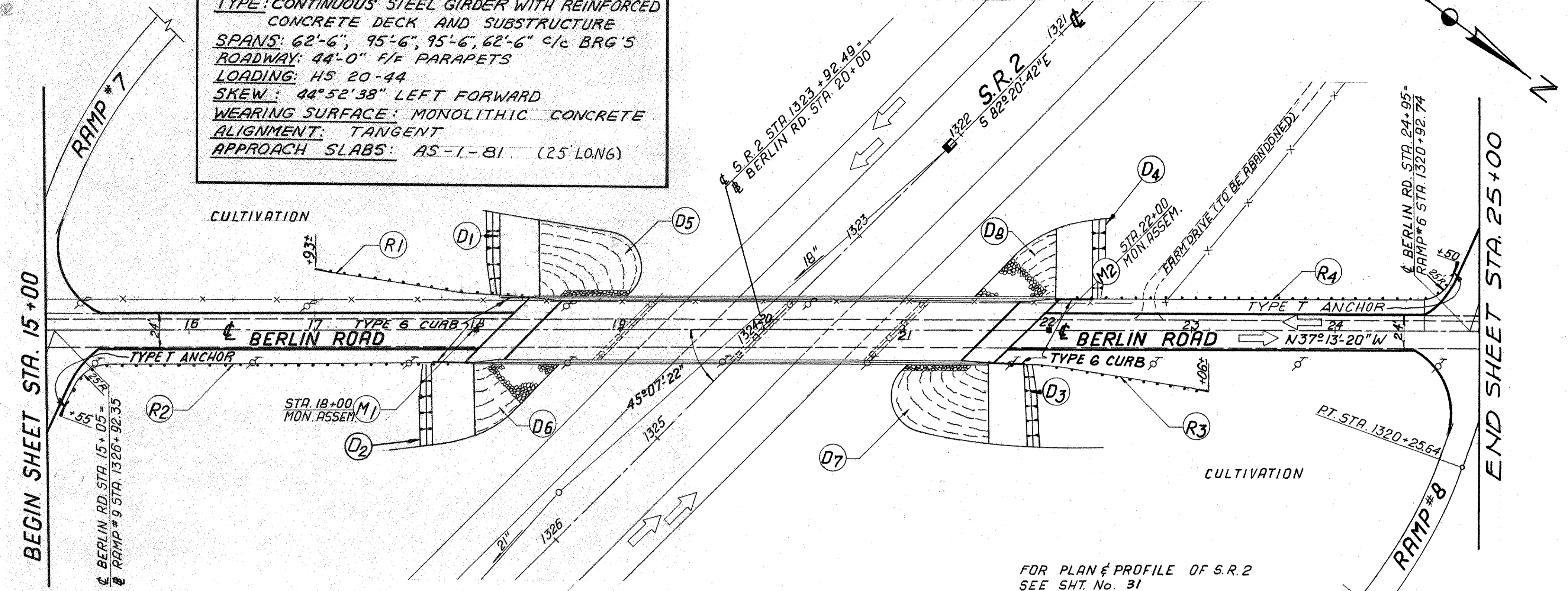
MICROFILMED  
FEB 4 1982

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

45  
326

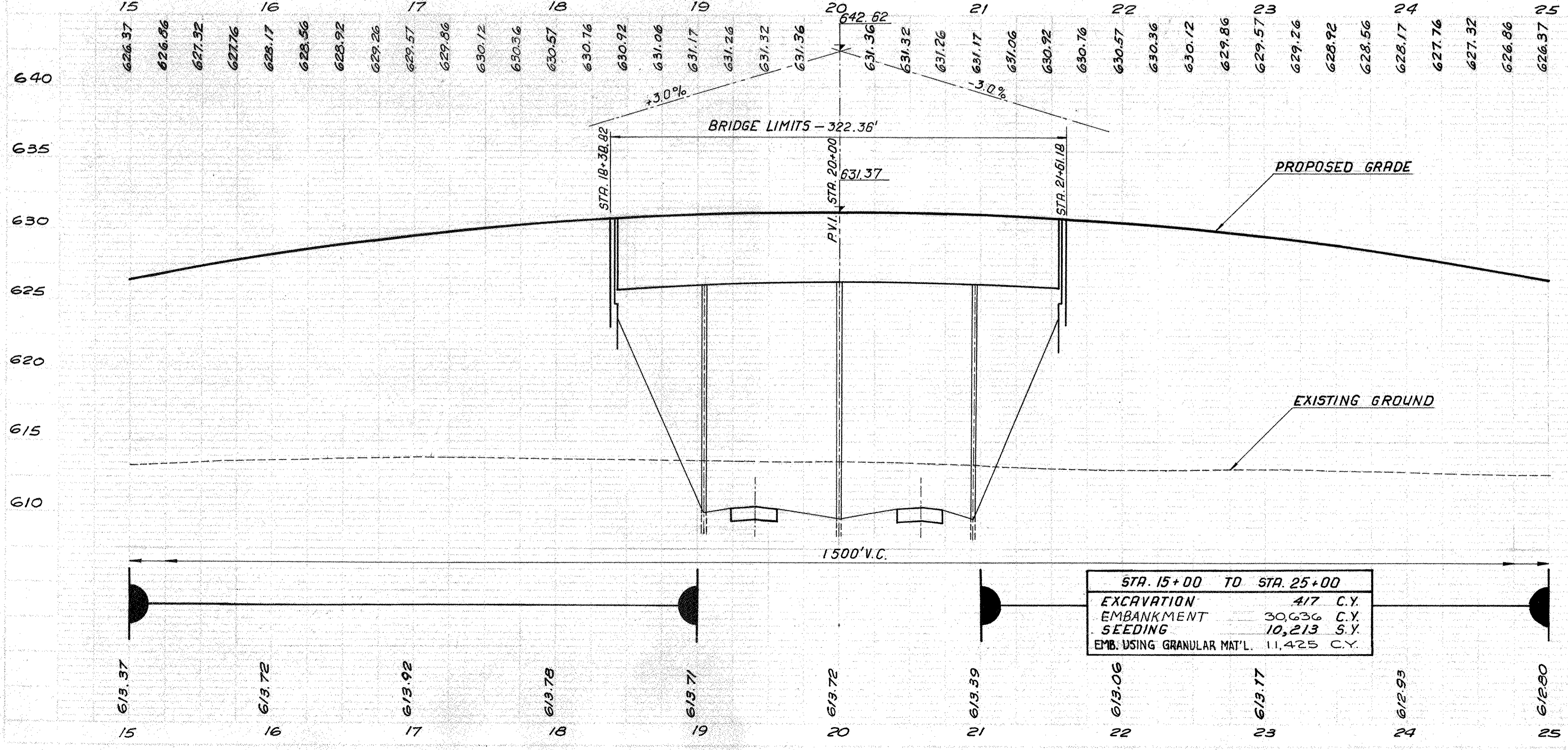
ERIE COUNTY  
ERI 2-18.38

**ERI-2-2082 PROPOSED STRUCTURE DATA**  
 TYPE: CONTINUOUS STEEL GIRDER WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE  
 SPANS: 62'-6", 95'-6", 95'-6", 62'-6" c/c BRG'S  
 ROADWAY: 44'-0" F/F PARAPETS  
 LOADING: HS 20-44  
 SKEW: 44° 52' 38" LEFT FORWARD  
 WEARING SURFACE: MONOLITHIC CONCRETE  
 ALIGNMENT: TANGENT  
 APPROACH SLABS: AS-1-81 (25' LONG)



ADACHE ASSOCIATES, INC.  
CALC. BY R.J.Z. DATE 1/12/69  
CHKD. BY P.I.W. DATE 1/27/69

FOR PLAN & PROFILE OF S.R.2  
SEE SHT. No. 31  
 FOR LAYOUT & GRADING PLAN OF  
BERLIN RD. INTERCHANGE  
SEE SHT. Nos 79 & 80  
 FOR PLAN & PROFILE OF RAMPS 6,7,8 & 9  
SEE SHT. Nos. 47, 48, 49 & 50



REF. NO.	STATION TO STATION	ESTIMATED QUANTITIES				ANCHOR ASSEM. TYPE	CURB MON. ASSEM. TYPE	BRIDGE TERM. ASSEM. E.A.	BRIDGE REINF. SCHED. STD. S.Y.	SEE SHEET NO.
		609	606	606	670					
D-1	18 + 17									
D-2	17 + 69									
D-3	21 + 82									
D-4	22 + 31									
D-5										
D-6										
D-7										
D-8										
M-1	18 + 00									
M-2	22 + 00									
R-1	16 + 93 - 18 + 43									
R-2	RAMP #9 1327-50-17+95									
R-3	21 + 56 - 23 + 06									
R-4	RAMP #6 1320-50-22-05									
	TOTAL	82	2	2	4	825	4*	184	1145	

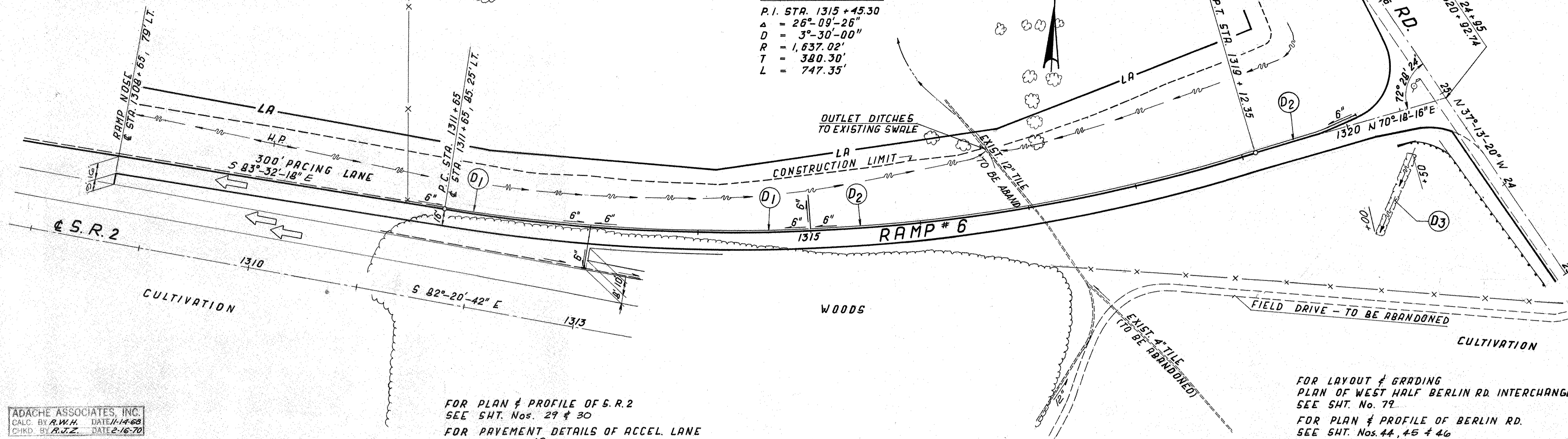
BERLIN ROAD PLAN & PROFILE STA. 15+00 TO STA. 25+00





**CURVE DATA:**

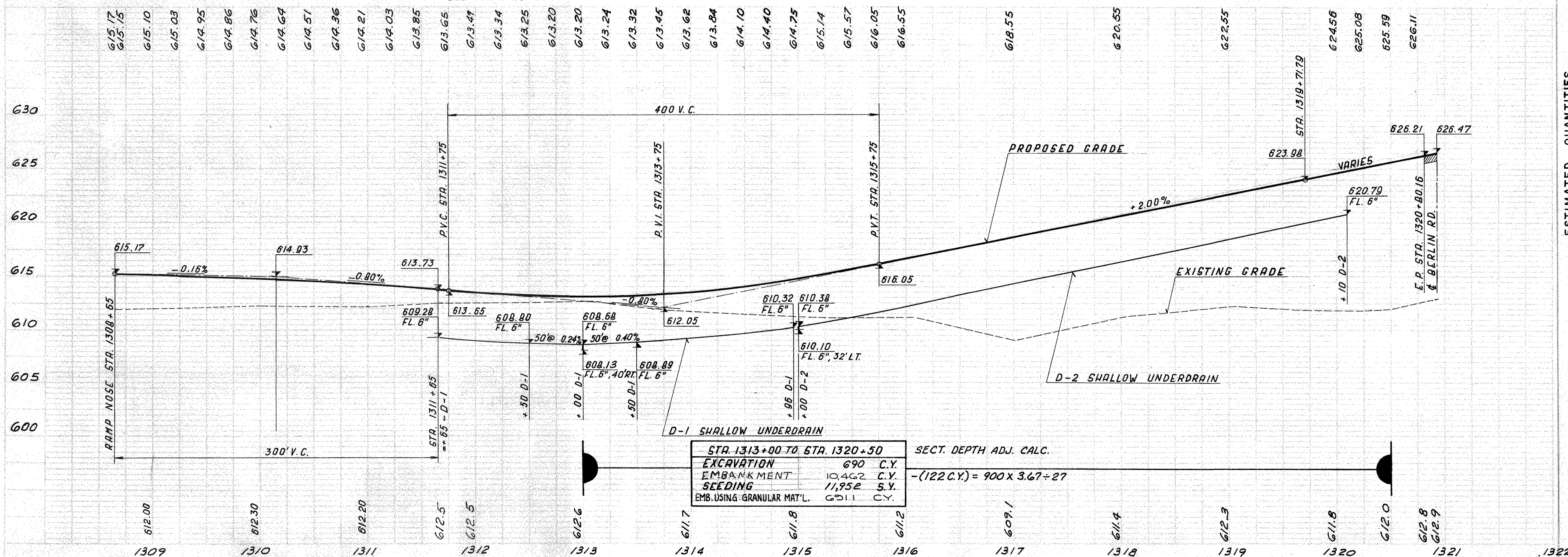
P.I. STA. 1315 + 45.30  
 $\Delta = 26^{\circ} 09' - 26''$   
 $D = 3^{\circ} - 30' - 00''$   
 $R = 1,637.02'$   
 $T = 380.30'$   
 $L = 747.35'$



ADACHE ASSOCIATES, INC.  
 CALC. BY R.W.H. DATE 11-14-68  
 CHKD. BY R.J.Z. DATE 2-16-70

FOR PLAN & PROFILE OF S.R.2  
 SEE SHT. Nos. 29 & 30  
 FOR PAVEMENT DETAILS OF ACCEL. LANE  
 SEE SHT. No. 69

FOR LAYOUT & GRADING  
 PLAN OF WEST HALF BERLIN RD. INTERCHANGE  
 SEE SHT. No. 79  
 FOR PLAN & PROFILE OF BERLIN RD.  
 SEE SHT. Nos. 44, 45 & 46



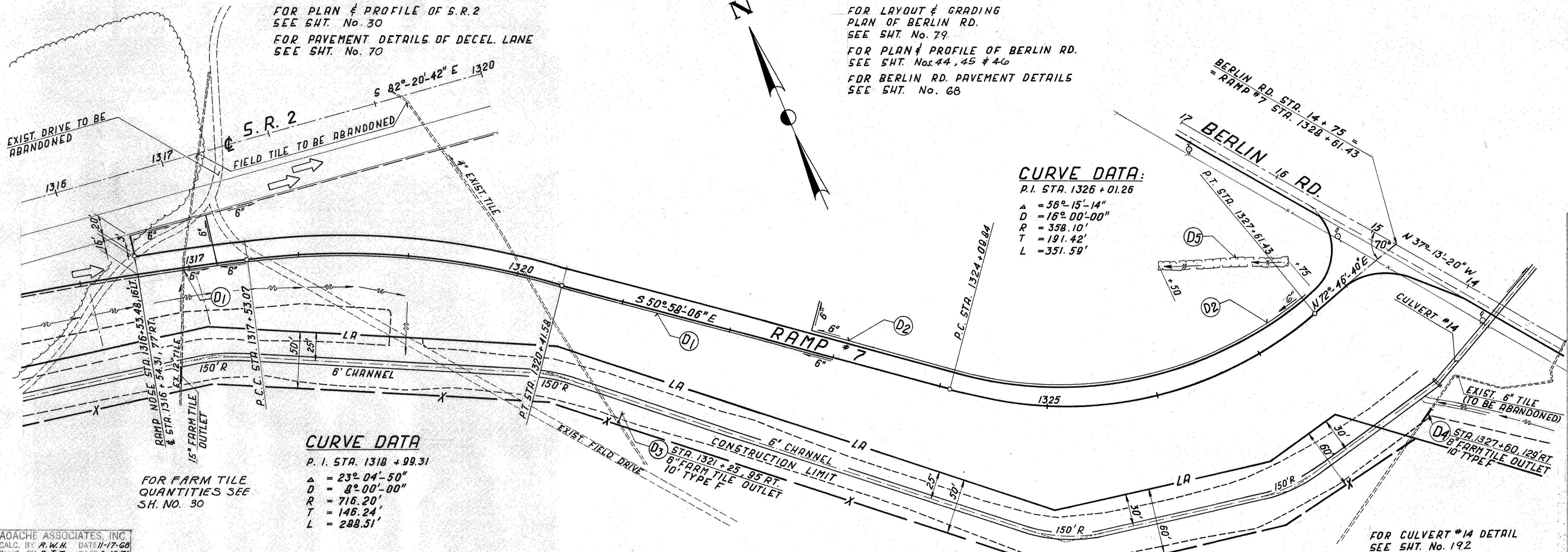
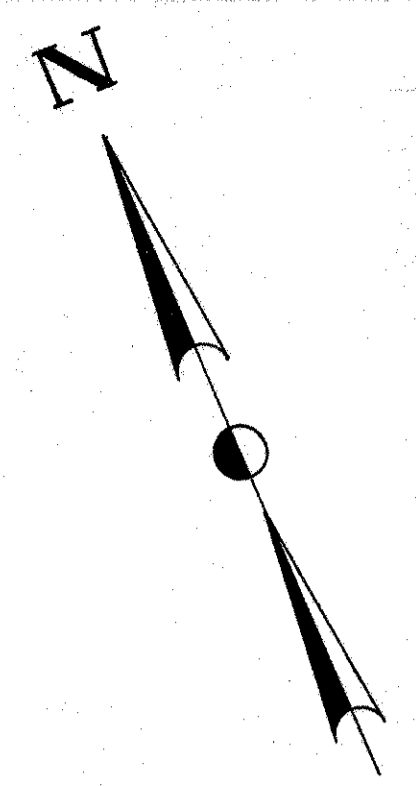
STA. 1313+00 TO STA. 1320+50		SECT. DEPTH ADJ. CALC.
EXCAVATION	690 C.Y.	-(122 C.Y.) = 900 x 3.67 - 27
EMBANKMENT	10,462 C.Y.	
SEEDING	11,952 S.Y.	
EMB. USING GRANULAR MAT'L.	6911 C.Y.	

ESTIMATED QUANTITIES			
603	TYPE B 6" L.F.	40	40
605	PIPE UNDERDRAIN SHALLOW 6" L.F.	331 530	861
607	BENDS & BRANCHES SEE SHEET NO.		
608	DITCH PROT. 30"x6" 6"x6"	67	67
609	TYPE F 6" L.F.	10	10
REF. NO.	STATION TO STATION	SIDE	TOTAL
D-1	1311+65 - 1314 + 96	LT.	
D-2	1315+00 - 1320 + 10	LT.	
D-3	1320+00 - 1320 + 50	RT.	
			<b>TOTAL</b>

RAMP #6 PLAN & PROFILE STA. 1308 + 65 TO STA. 1320 + 80.16

FOR PLAN & PROFILE OF S.R. 2  
SEE SHT. No. 30  
FOR PAVEMENT DETAILS OF DECEL. LANE  
SEE SHT. No. 70

FOR LAYOUT & GRADING  
PLAN OF BERLIN RD.  
SEE SHT. No. 79  
FOR PLAN & PROFILE OF BERLIN RD.  
SEE SHT. Nos. 44, 45 & 46  
FOR BERLIN RD. PAVEMENT DETAILS  
SEE SHT. No. 68

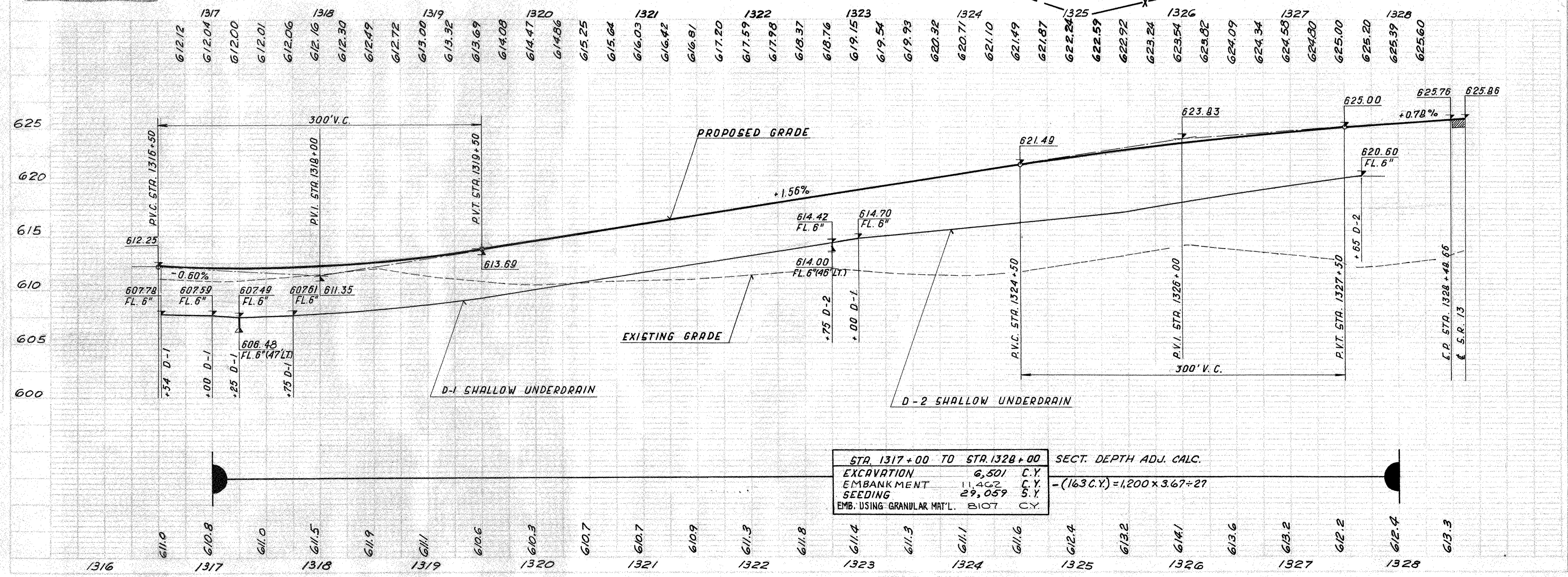


**CURVE DATA:**  
P.I. STA. 1326 + 01.26  
Δ = 56°-15'-14"  
D = 16°-00'-00"  
R = 358.10'  
T = 191.42'  
L = 351.59'

**CURVE DATA**  
P. I. STA. 1318 + 99.31  
Δ = 23°-04'-50"  
D = 8°-00'-00"  
R = 716.20'  
T = 146.24'  
L = 288.51'

FOR FARM TILE  
QUANTITIES SEE  
SH. NO. 30

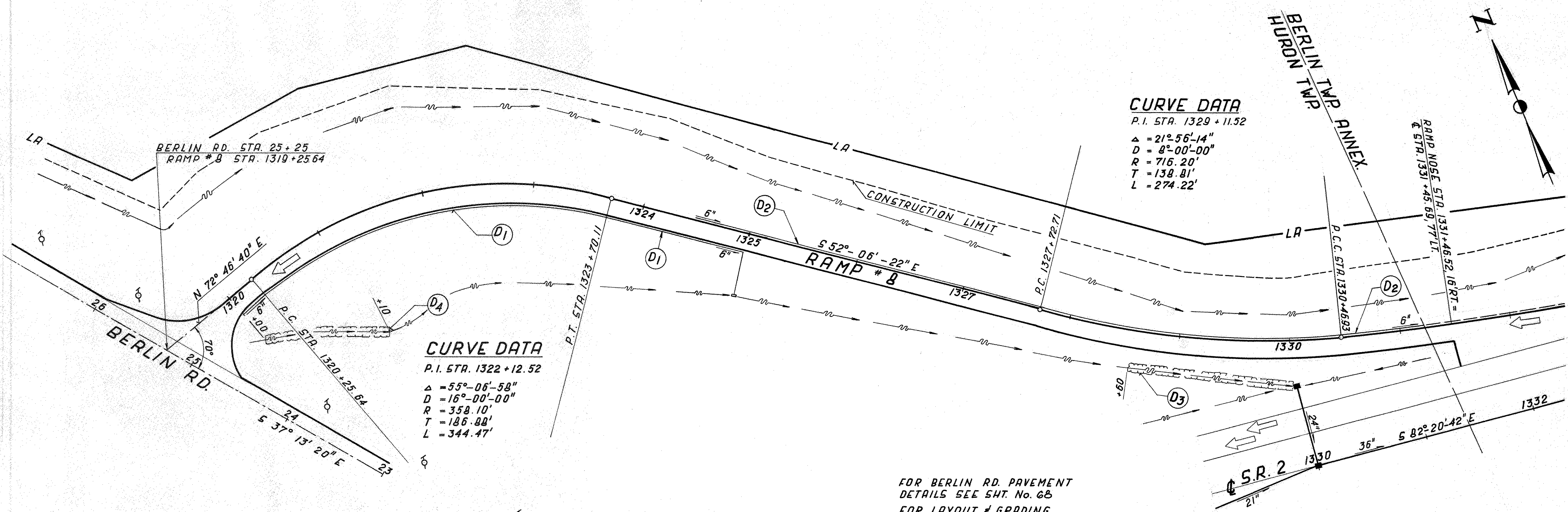
ADACHE ASSOCIATES, INC.  
CALC. BY R.W.H. DATE 11-17-68  
CHKD. BY R.J.Z. DATE 3-16-70



STA. 1317+00 TO STA. 1328+00	SECT. DEPTH ADJ. CALC.
EXCAVATION 6,501 C.Y.	
EMBANKMENT 11,462 C.Y.	-(163 C.Y.) = 1,200 x 3.67 = 27
SEEDING 29,059 S.Y.	
EMB. USING GRANULAR MAT'L. BIOT C.Y.	

ESTIMATED QUANTITIES	603	605	607	609	611	613	615	617	619	621	623	625	627	629	631	633	TOTAL
TYPE "B" CONDUIT	49																49
TYPE "F" CONDUIT																	20
PIPE UNDERDRAIN SHALLOW																	1154
DITCH EXPOS. PROT. 45' x 6" 90° x 6" C x 6"																	100
BEND & BRANCHES																	163
BEND TEE																	166
BEND 45° x 6" 90° x 6" C x 6"																	100
EXIST. 6" TILE (TO BE ABANDONED)																	100

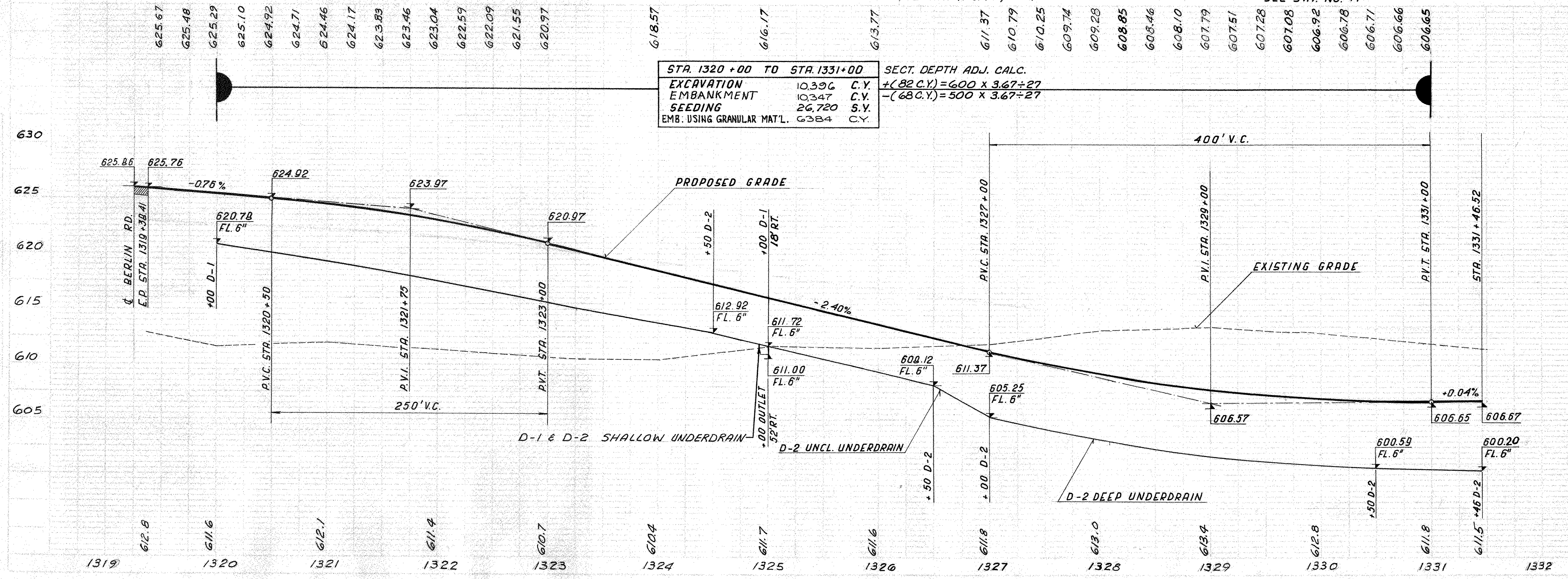
RAMP #7 PLAN & PROFILE STA. 1316 + 53.48 TO STA. 1328 + 48.66



ADACHE ASSOCIATES, INC.  
CALC. BY R. W. H. DATE 11-21-68  
CHKD. BY R. J. E. DATE 3-16-70

FOR BERLIN RD. PAVEMENT  
DETAILS SEE SHT. No. 68  
FOR LAYOUT & GRADING  
PLAN OF BERLIN RD.  
SEE SHT. No. 80  
FOR PLAN & PROFILE OF BERLIN RD.  
SEE SHT. Nos. 44, 45 & 46

FOR PLAN & PROFILE OF S.R. 2  
SEE SHT. No. 31  
FOR PAVEMENT DETAILS OF DECEL. LANE  
SEE SHT. No. 71



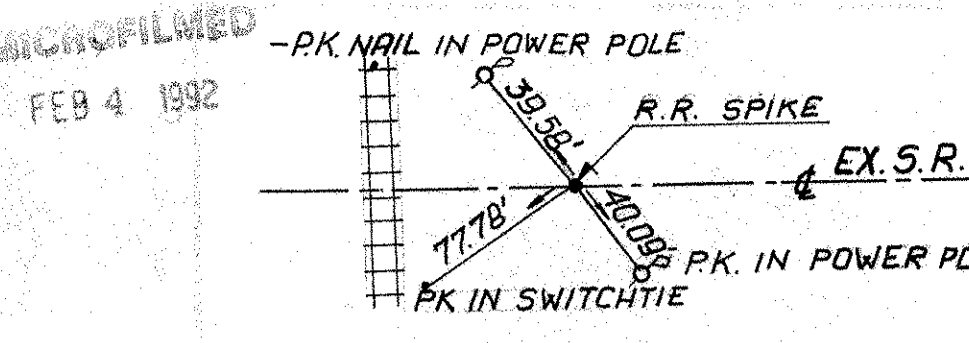
STA. 1320+00 TO STA. 1331+00		SECT. DEPTH ADJ. CALC.
EXCAVATION	10,396 C.Y.	+(82 C.Y.) = 600 x 3.67 = 27
EMBANKMENT	10,347 C.Y.	-(68 C.Y.) = 500 x 3.67 = 27
SEEDING	26,720 S.Y.	
EMB. USING GRANULAR MAT'L.	6384 C.Y.	

REF. STATION TO STATION NO.	SIDE	TYPE F. COND. L.F.	ESTIMATED QUANTITIES	
			603	605
D-1 1320+00 - 1325+00	RT.	10	324	446
D-2 1324+50 - 1331+46	LT.	10	200	446
D-3 1328+60 - 1330+00	RT.	10	50	50
D-4 1320+00 - 1321+10	RT.	10	724	50
TOTAL				

RAMP #8 PLAN & PROFILE STA. 1319 + 38.41 TO STA. 1331 + 46.52







FOR PLAN & PROFILE OF S.R. 2 & RAMP #10  
SEE SHT. Nos. 37 & 64  
FOR LAYOUT & GRADING PLAN OF S.R. 61  
INTERCHANGE SEE SHT. No. 81  
FOR RAMP "C" PLAN & PROFILE  
SEE SHT. Nos. 56 & 57

FOR CULVERT #21  
SEE DETAIL SHT. No. 198

Note: Quantities for Hoffman & O'Rork  
Access Rds. & Drive Sta. 62+04 Pt.  
are included as part of quantities  
shown on Sheet No. 75

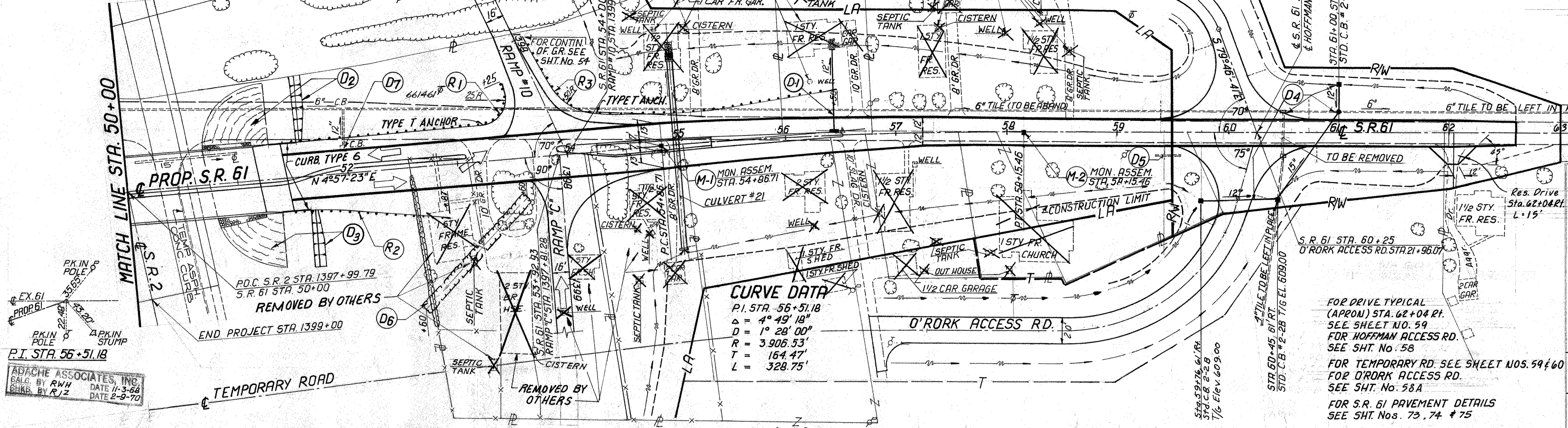
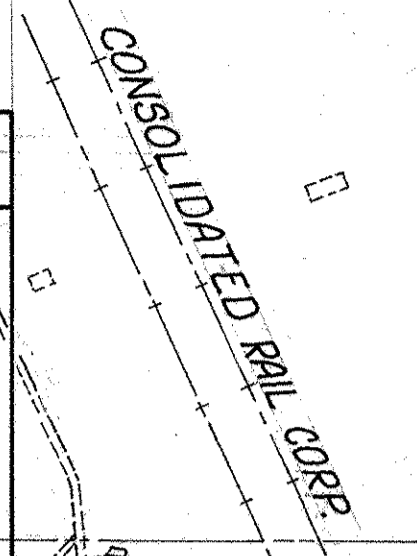
FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

ERIE COUNTY  
ERI-2-18.38

53  
326

P.O.T. STA. 65+66.83

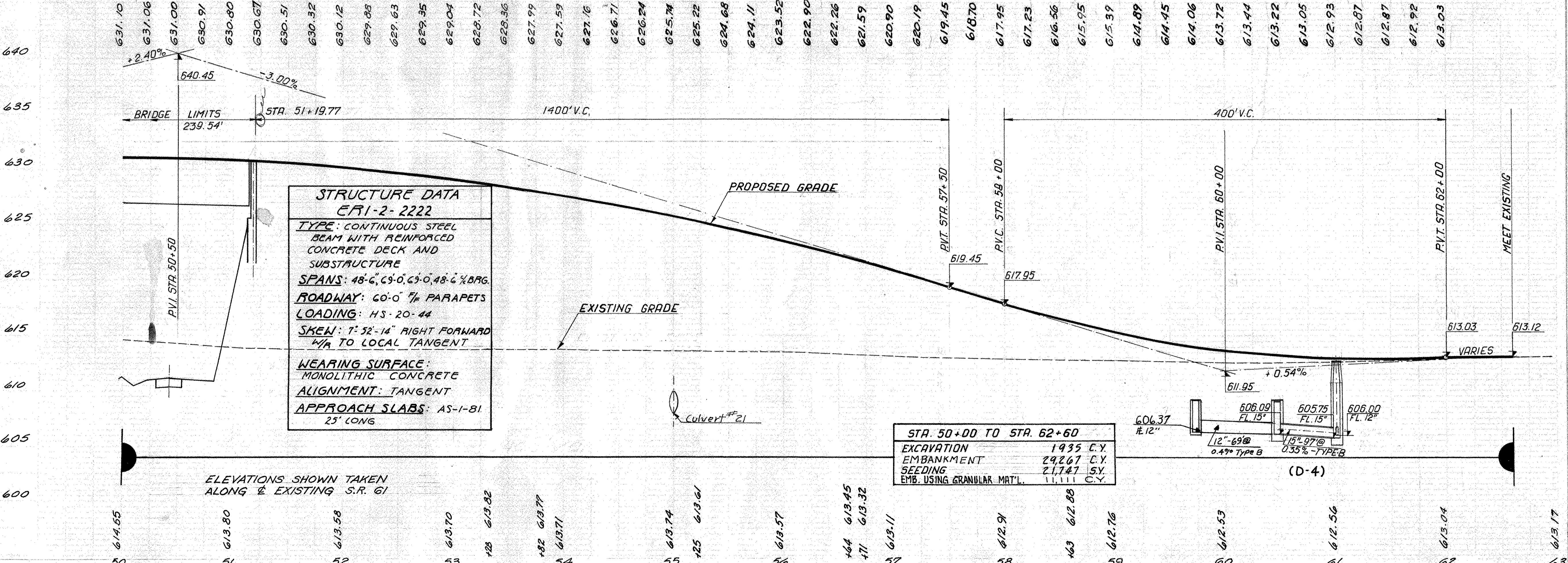
END WORK  
STA. 64+00  
(See Sht. 255)



**CURVE DATA**  
P.I. STA. 56+51.18  
Δ = 4° 49' 18"  
D = 1° 28' 00"  
R = 3,906.33'  
T = 164.47'  
L = 328.75'

FOR DRIVE TYPICAL  
(APRON) STA. 62+04 Pt.  
SEE SHEET NO. 59  
FOR HOFFMAN ACCESS RD.  
SEE SHT. No. 58  
FOR TEMPORARY RD. SEE SHEET NOS. 59 & 60  
FOR O'RORK ACCESS RD.  
SEE SHT. No. 58A  
FOR S.R. 61 PAVEMENT DETAILS  
SEE SHT. Nos. 73, 74 & 75

ABACHE ASSOCIATES, INC.  
CALC. BY RWH DATE 11-3-68  
CHKD. BY R/JZ DATE 2-9-70



**STRUCTURE DATA**  
ERI-2-2222  
TYPE: CONTINUOUS STEEL BEAM WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE  
SPANS: 48'-6", 69'-0", 69'-0", 48'-6" BRG.  
ROADWAY: 60'-0" w/ PARAPETS  
LOADING: HS-20-44  
SKEW: 1° 52'-14" RIGHT FORWARD w/a TO LOCAL TANGENT  
WEARING SURFACE: MONOLITHIC CONCRETE  
ALIGNMENT: TANGENT  
APPROACH SLABS: AS-1-81  
25' LONG

STA. 50+00 TO STA. 62+60  
EXCAVATION 1935 C.Y.  
EMBANKMENT 29261 C.Y.  
SEEDING 21,747 S.Y.  
EMB. USING GRANULAR MAT'L. 11,111 C.Y.

REF. NO.	STATION TO STATION	SIDE	ESTIMATED QUANTITIES
D-1	56+45 - 51+62	LT	
D-2	50+81 - 51+71	RT	
D-3	59+76 - 61+00	RT/ET	
D-4	59+76 - 59+60	RT	
D-5	59+76 - 53+60	RT	
D-6	52+60 - 53+60	RT	
D-7	52+00	LT	
R-1	51+28 RAMP #10-596+25	LT	
R-2	51+37 - 52+97	RT	
R-3	1398+00 RAMP #10-56+50	LT	
M-1	54+86.71	C	
M-2	58+15.46	C	
<b>TOTAL</b>			

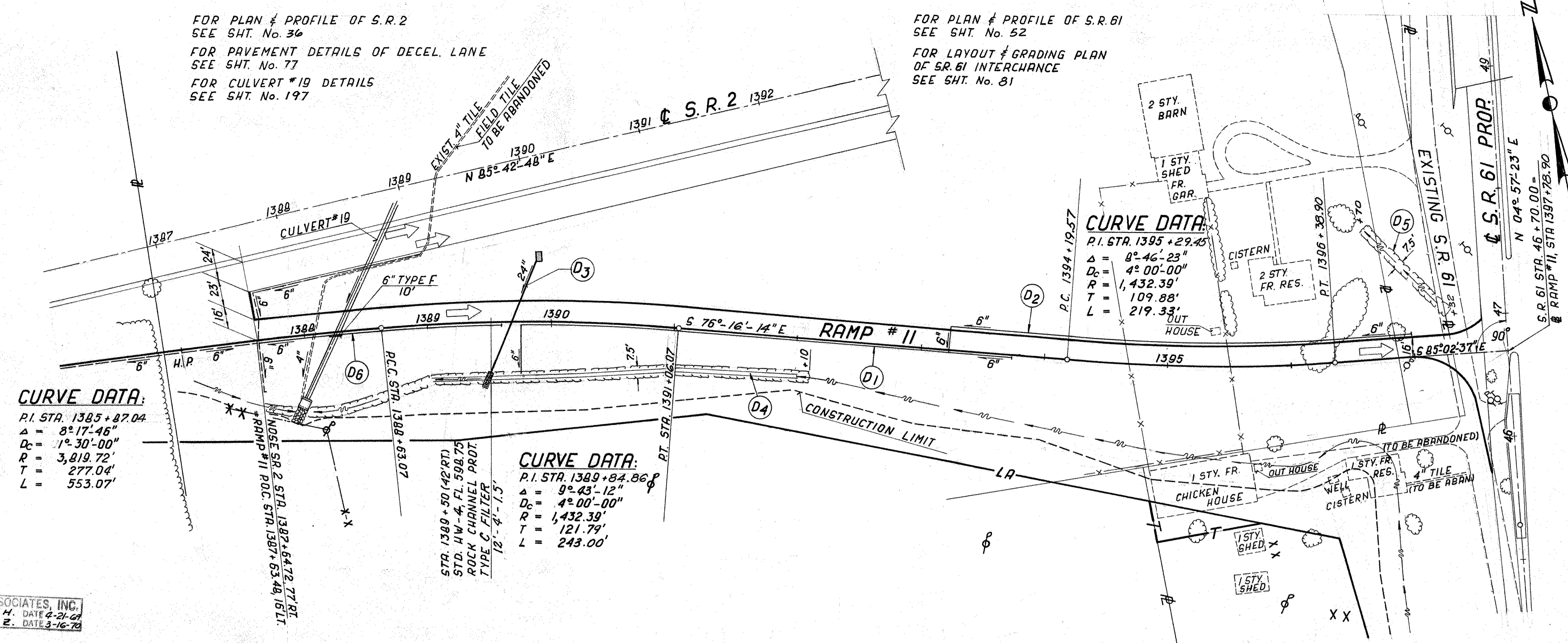
S.R. 61 PLAN & PROFILE STA. 50+00 TO STA. 62+60



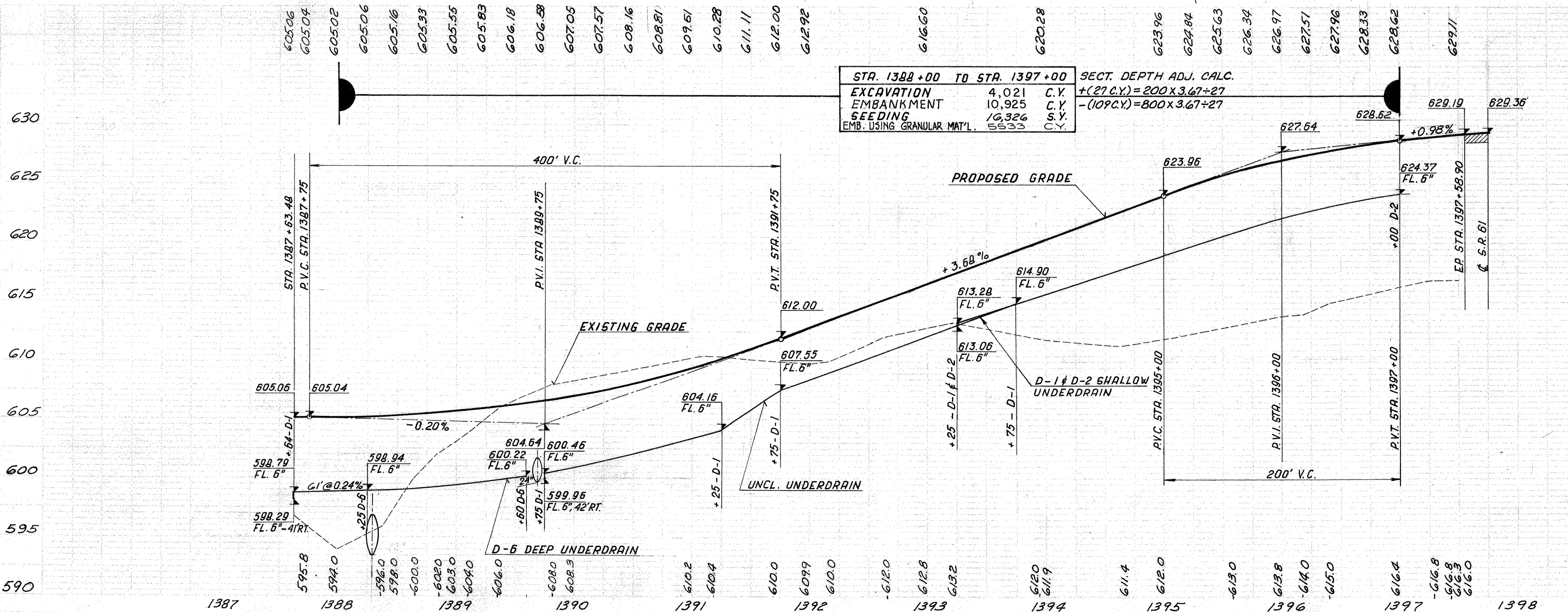


FOR PLAN & PROFILE OF S.R. 2  
SEE SHT. No. 36  
FOR PAVEMENT DETAILS OF DECEL. LANE  
SEE SHT. No. 77  
FOR CULVERT #19 DETAILS  
SEE SHT. No. 197

FOR PLAN & PROFILE OF S.R. 61  
SEE SHT. No. 52  
FOR LAYOUT & GRADING PLAN  
OF S.R. 61 INTERCHANGE  
SEE SHT. No. 81



ADACHE ASSOCIATES, INC.  
CALC. BY R.W.H. DATE 2-21-69  
CHKD. BY R.J.Z. DATE 3-16-70



REF. NO.	STATION TO STATION	601 ROCK CHAN. PROT. TYPE & QTY	602 TYPE "B" CONDUIT 6" x 24" L.F.	603 TYPE "B" CONDUIT 6" x 24" L.F.	604 COAC MASONRY C.Y.	605 PIPE UNDERDRAIN SHALLOW UNCL. 6" L.F.	606 PIPE UNDERDRAIN DEEP 6" L.F.	607 DITCH EROS. PROT. 5 Y.	SEE BRANCHES SHT. NO.
D-1	1389 + 75 - 1393 + 75 RT.					200	50		1
D-2	1393 + 25 - 1397 + 00 LT.		20			375	180		1
D-3	1389 + 50 - 1390 + 00 RT.	2.7	98						181
D-4	1387 + 64 - 1392 + 10 RT.			0.46				361	
D-5	1396 + 60 - 1397 + 35 LT.							80	
D-6	1387 + 64 - 1389 + 60 RT.								
<b>TOTAL</b>		<b>2.7</b>	<b>20</b>	<b>0.46</b>	<b>575</b>	<b>366</b>	<b>441</b>		

RAMP #11 PLAN & PROFILE STA. 1387+63.48 TO STA. 1397+58.90

WALTER S & KATHARINE A. O'ROCK

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

56  
326

ERIE COUNTY  
ERI-2-18.38

12/28  
RAS

DATA for CURVE 1 RAMP C

PI: 1400+67.15	L: 140.23'
Δ: 22° 49' 37"	T: 96.39'
D: 12°	E: 9.63'
R: 477.46'	

DATA for CURVE 2 RAMP C

PI: 1405+24.65	L: 243.75'
Δ: 19° 30'	T: 123.07'
D: 8°	E: 10.50'
R: 716.20'	

DATA for CURVE 3 RAMP C

PI: 1409+10.59	L: 529.67'
Δ: 7° 56' 42"	T: 266.26'
D: 1° 30'	E: 9.20'
R: 3819.72'	

DATA for CURVE 1 RAMP D

PI: 1400+34.76	L: 264.31'
Δ: 21° 08' 42"	T: 133.68'
D: 8°	E: 12.37'
R: 716.20'	

DATA for CURVE 2 RAMP D

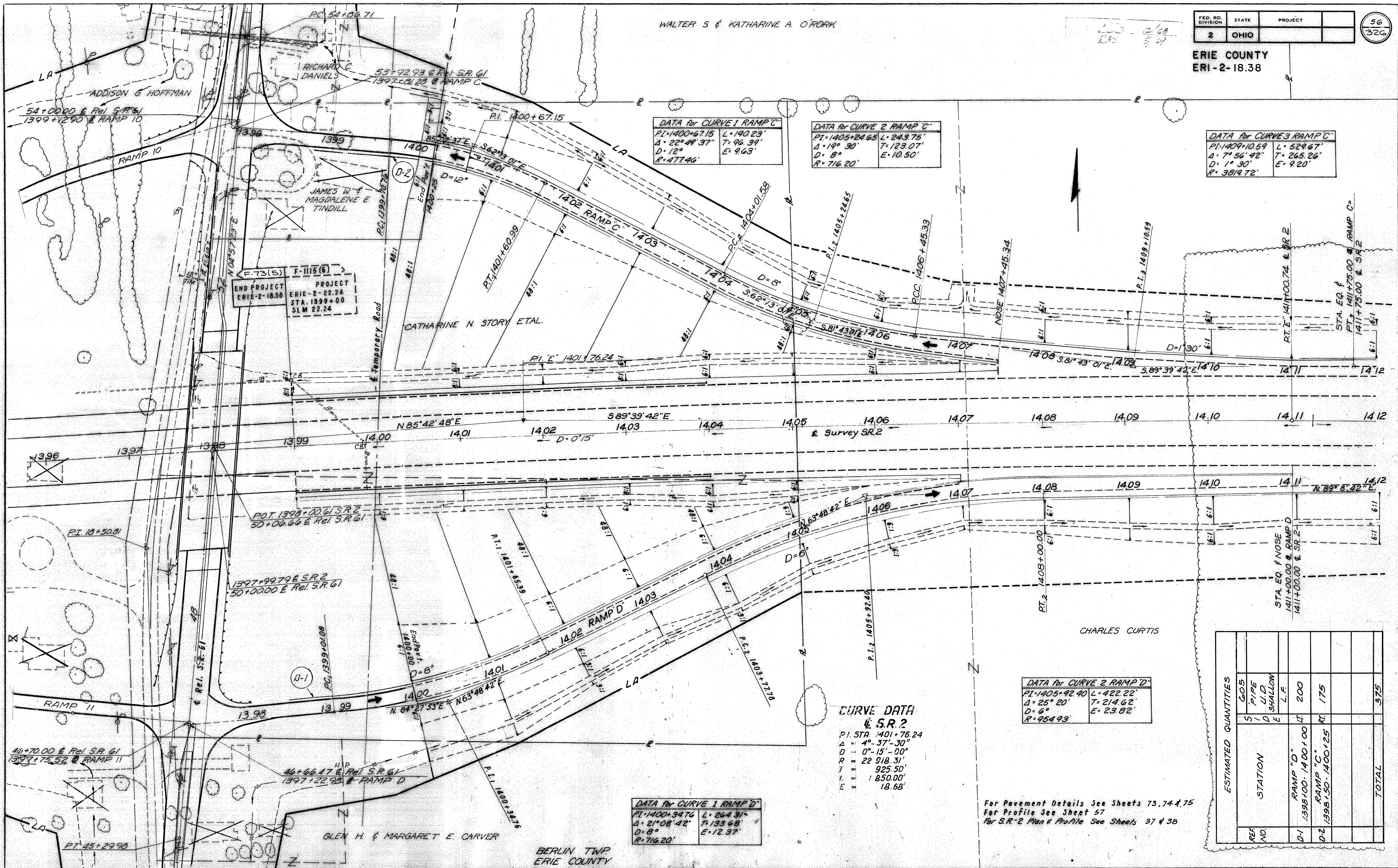
PI: 1405+92.40	L: 422.22'
Δ: 25° 20'	T: 214.62'
D: 6°	E: 23.82'
R: 954.93'	

CURVE DATA  
for S.R. 2

PI STA	1401+76.24
Δ	4° 37' 30"
D	0° 15' 00"
R	22 918.31'
T	925.50'
L	1 850.00'
E	18.68'

For Pavement Details See Sheets 73, 74 & 75  
For Profile See Sheet 57  
For S.R. 2 Plan & Profile See Sheets 37 & 38

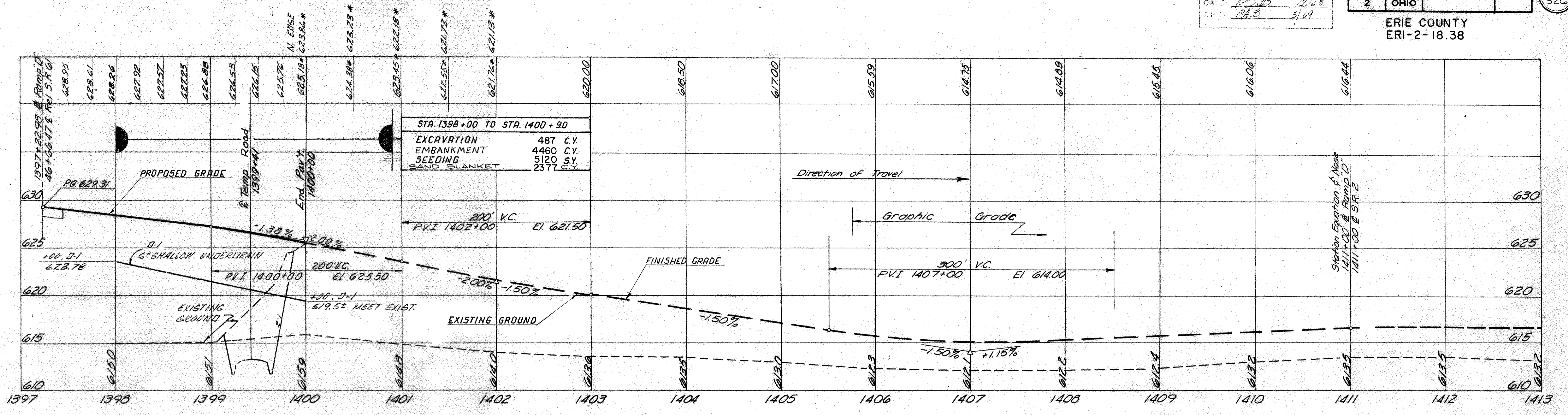
ESTIMATED QUANTITIES	
REF. NO.	STATION
G.O.S	
PIPE	
U/D	
D SHALLOW	
L.F.	
200	
175	
375	
TOTAL	



BERLIN TWP  
ERIE COUNTY

CA: D: P.C.B. 12/68  
S.P.S. 3/69

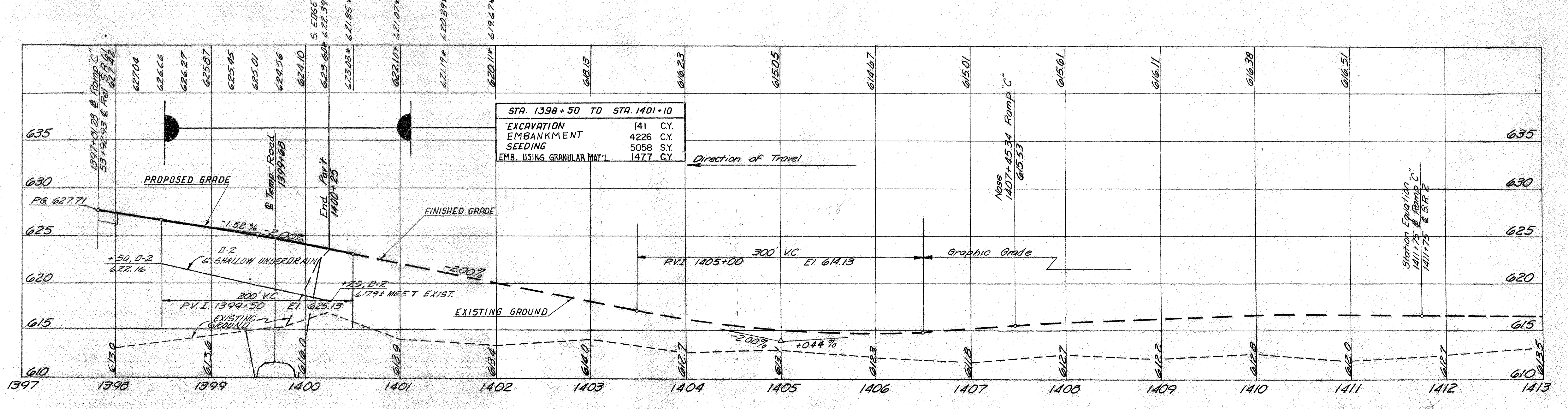
\* EXISTING ELEVATIONS  
AS PER FIELD SURVEY



STA. 1398+00 TO STA. 1400+90	
EXCAVATION	487 C.Y.
EMBANKMENT	4460 C.Y.
SEEDING	5120 S.Y.
SAND BLANKET	2377 C.Y.

PROFILE - RAMP "D"

\* EXISTING ELEVATIONS  
AS PER FIELD SURVEY

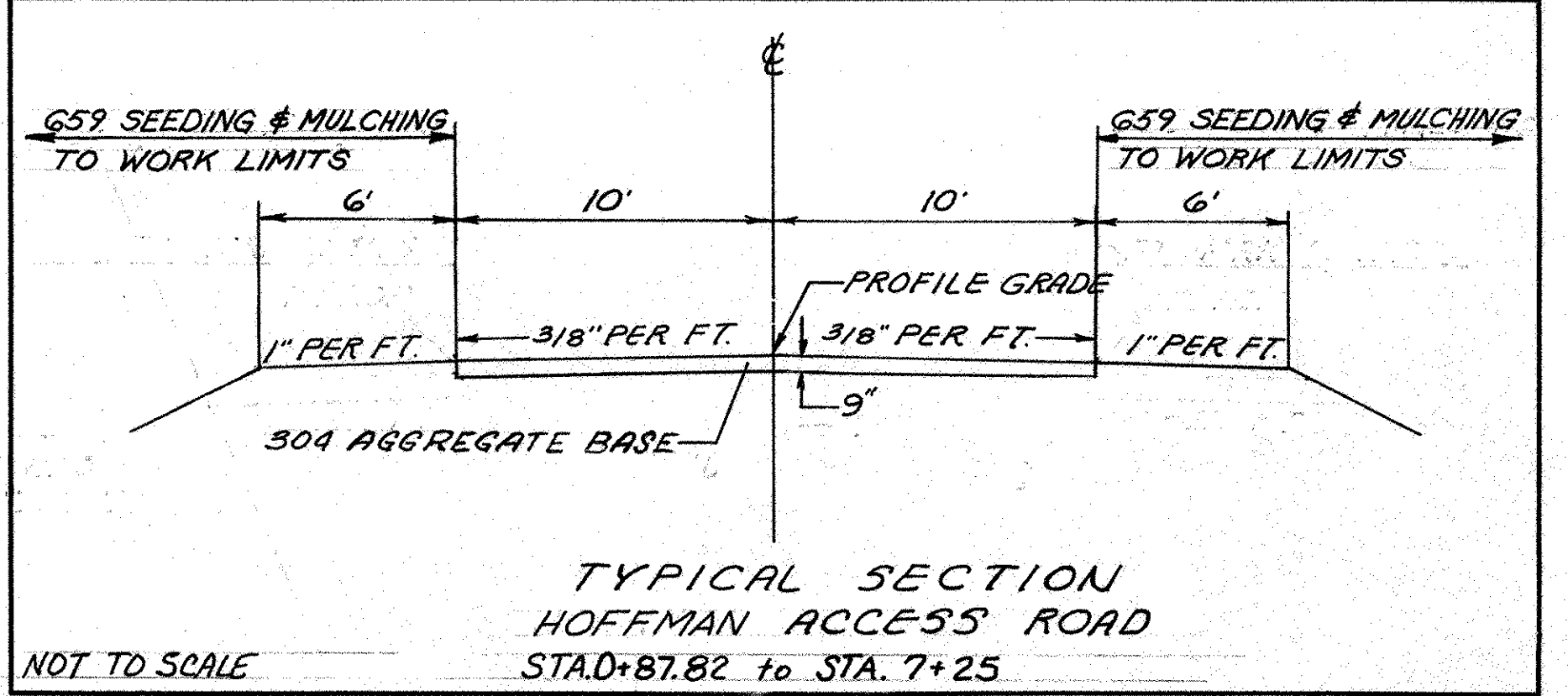
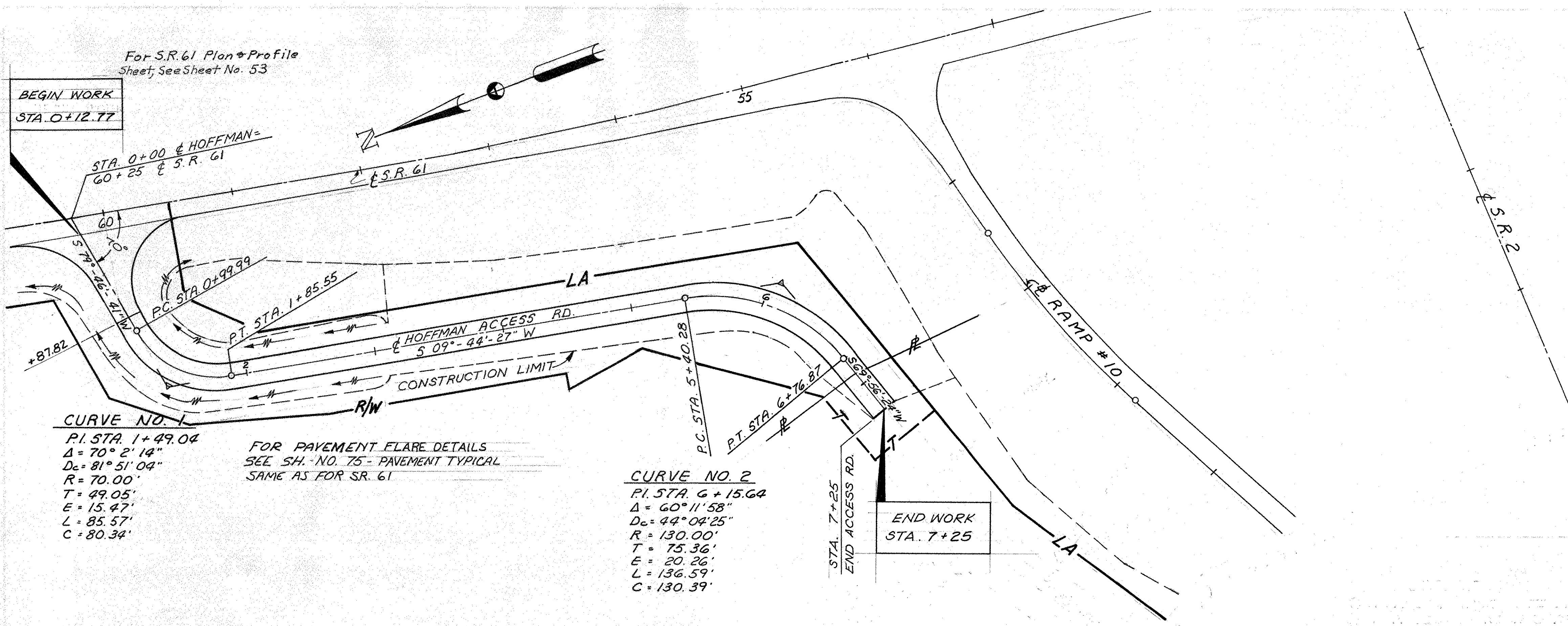


STA. 1398+50 TO STA. 1401+10	
EXCAVATION	141 C.Y.
EMBANKMENT	4226 C.Y.
SEEDING	5058 S.Y.
EMB. USING GRANULAR MAT'L.	1477 C.Y.

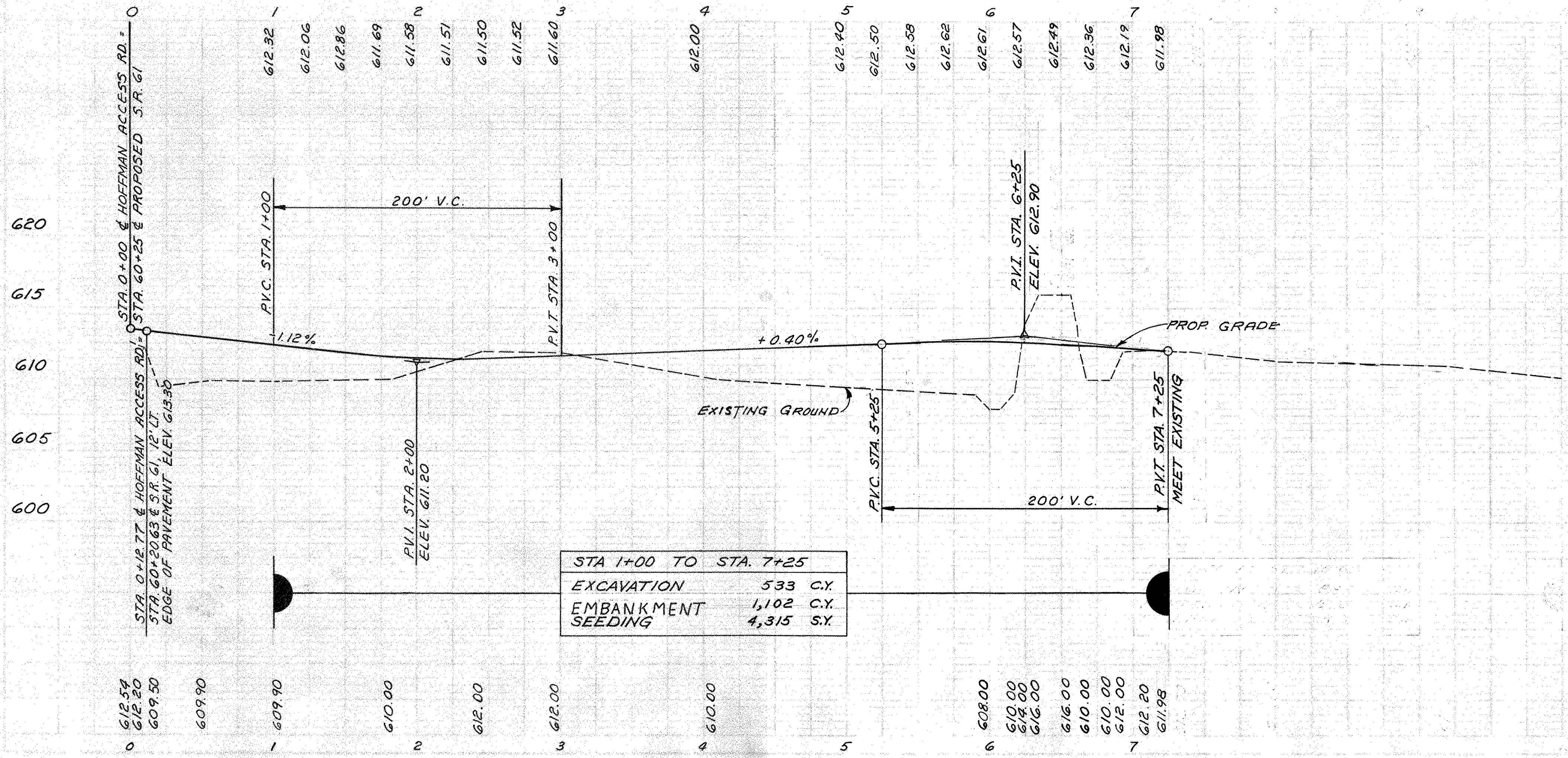
PROFILE - RAMP "C"

For Plan See Sheet 56  
For Pavement Details See Sheets 73, 74 & 75

For S.R. 61 Plan & Profile  
Sheet See Sheet No. 53



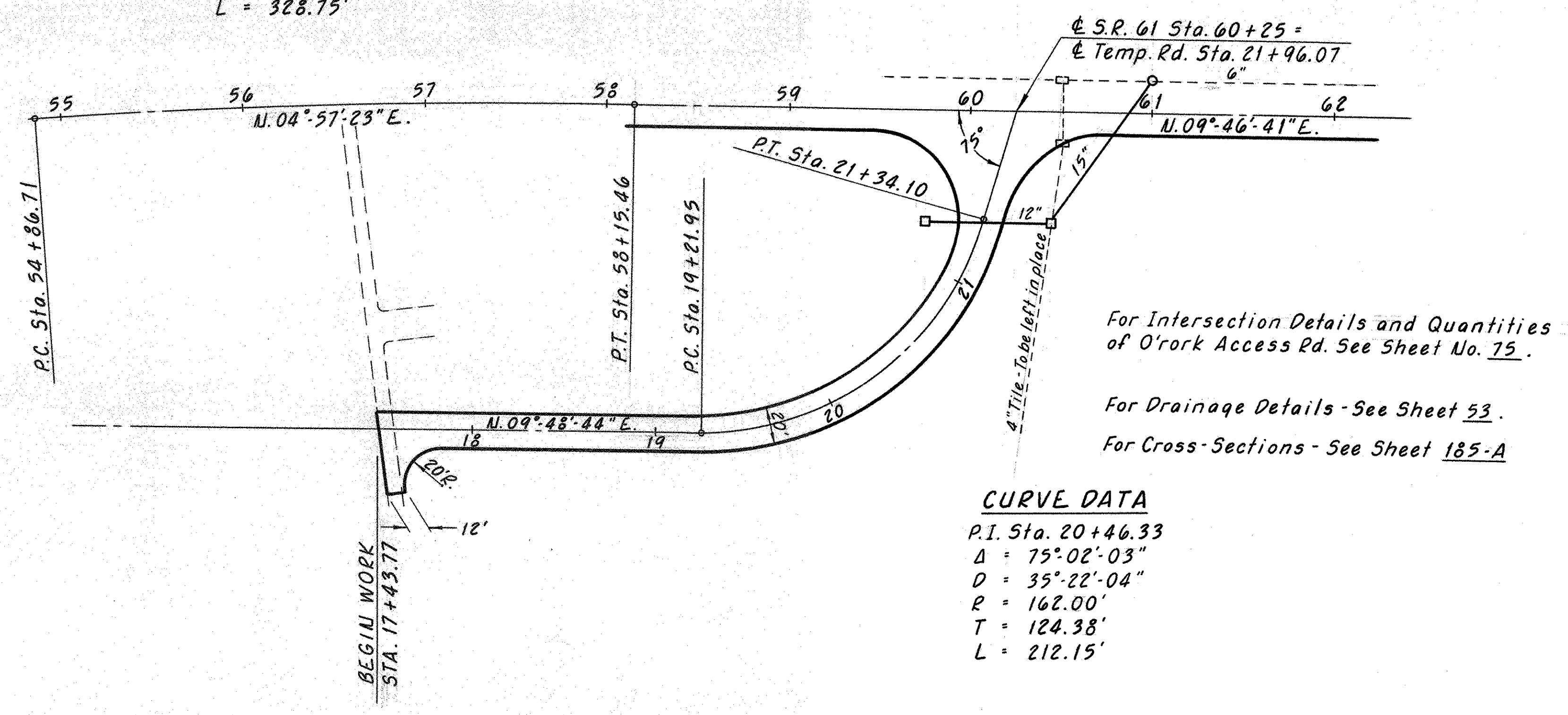
ADACHE ASSOCIATES, INC.  
 CALC. BY R.J.Z. DATE 11-7-69  
 CHKD. BY R.H. DATE 12-4-69



HOFFMAN ACCESS RD. PLAN & PROFILE STA. 0+00 TO STA. 7+25

**§ S.R. 61 CURVE DATA**

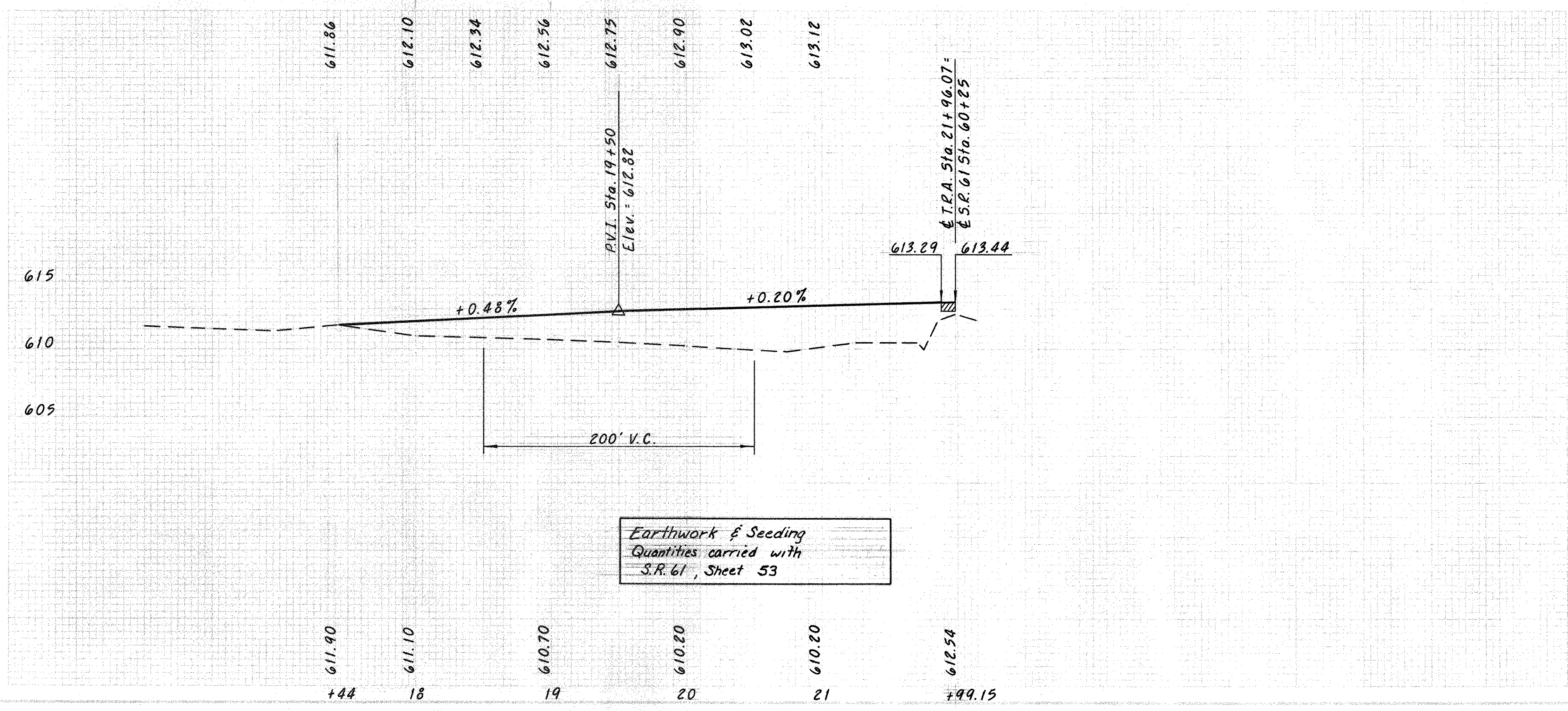
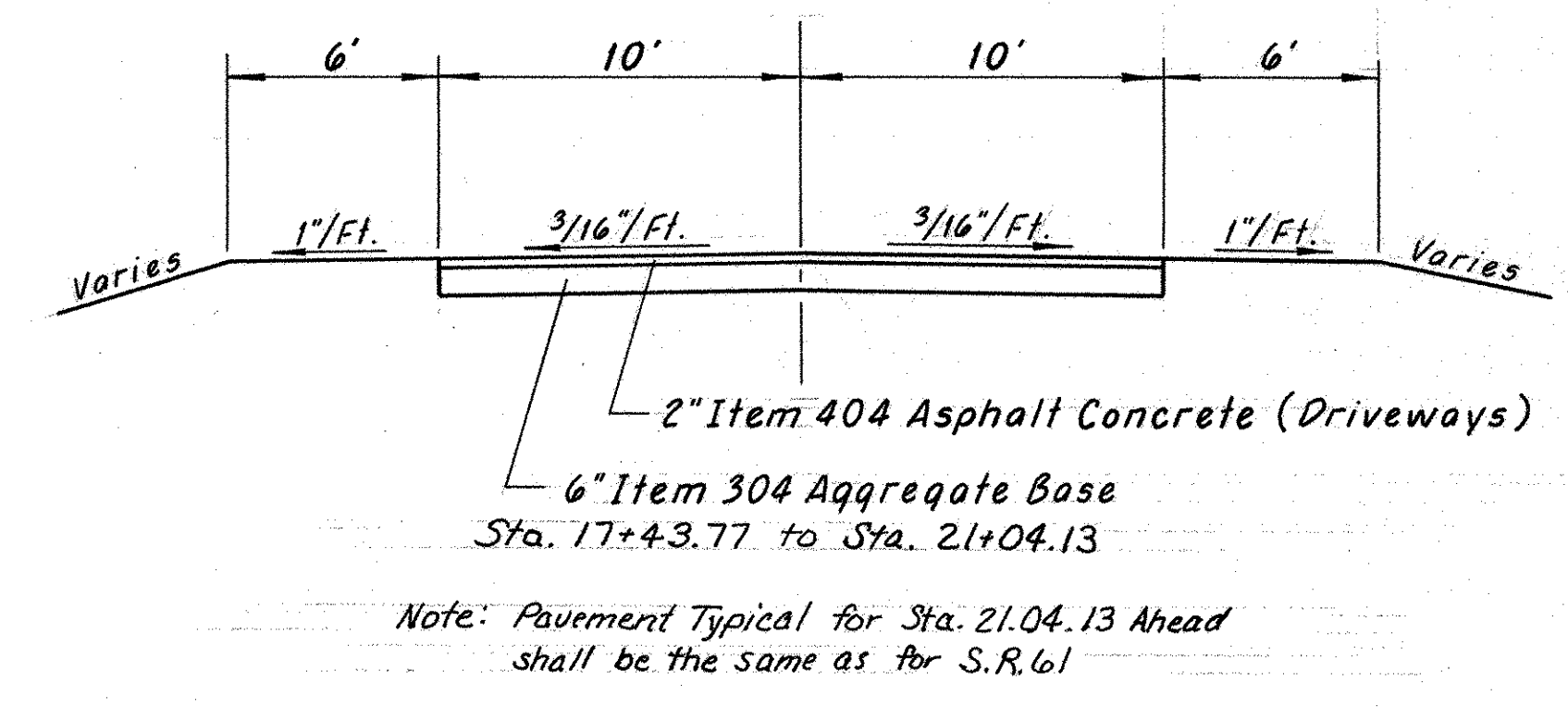
P.I. Sta. 56+51.18  
 $\Delta = 04^{\circ}49'18''$   
 $D = 01^{\circ}28'00''$   
 $R = 3906.53'$   
 $T = 164.47'$   
 $L = 328.75'$



**CURVE DATA**

P.I. Sta. 20+46.33  
 $\Delta = 75^{\circ}02'03''$   
 $D = 35^{\circ}22'04''$   
 $R = 162.00'$   
 $T = 124.38'$   
 $L = 212.15'$

**TYPICAL SECTION  
O'RORK ACCESS ROAD**



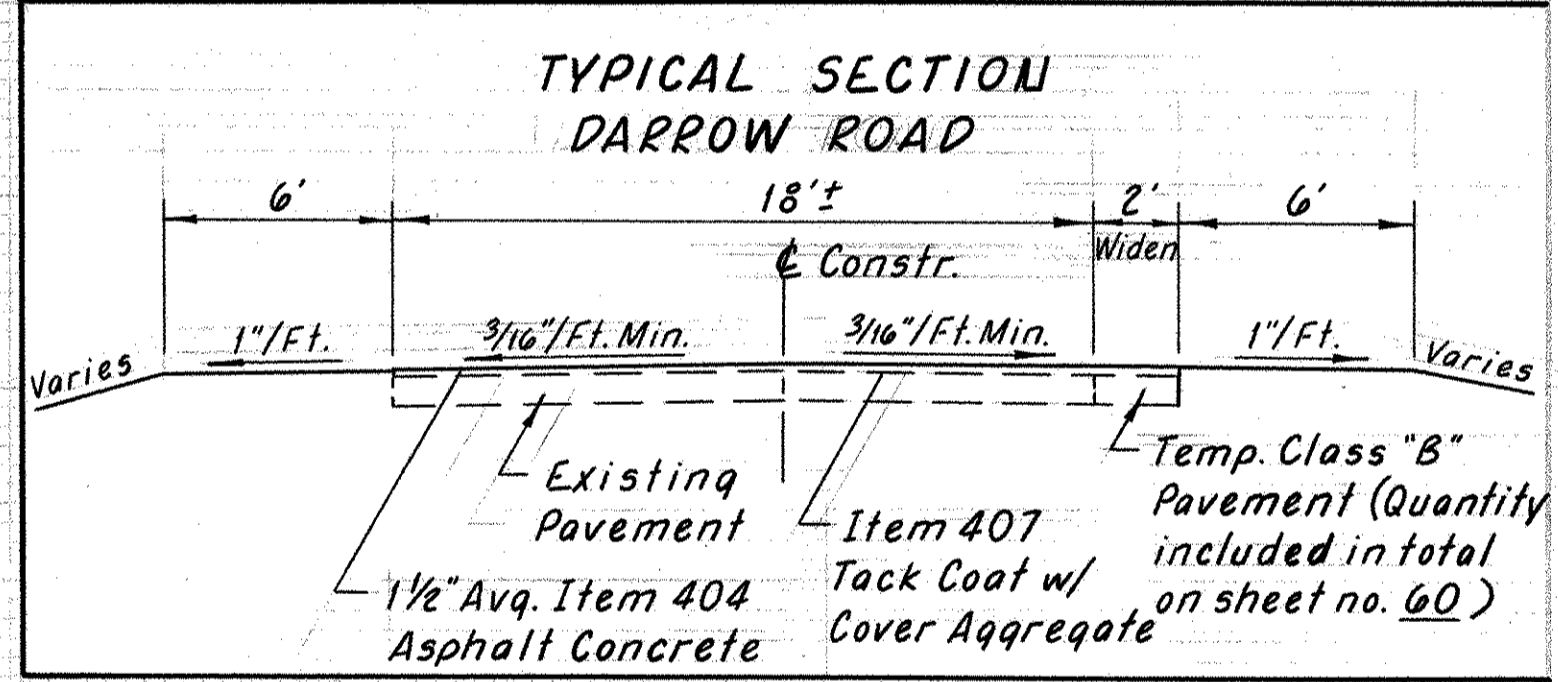
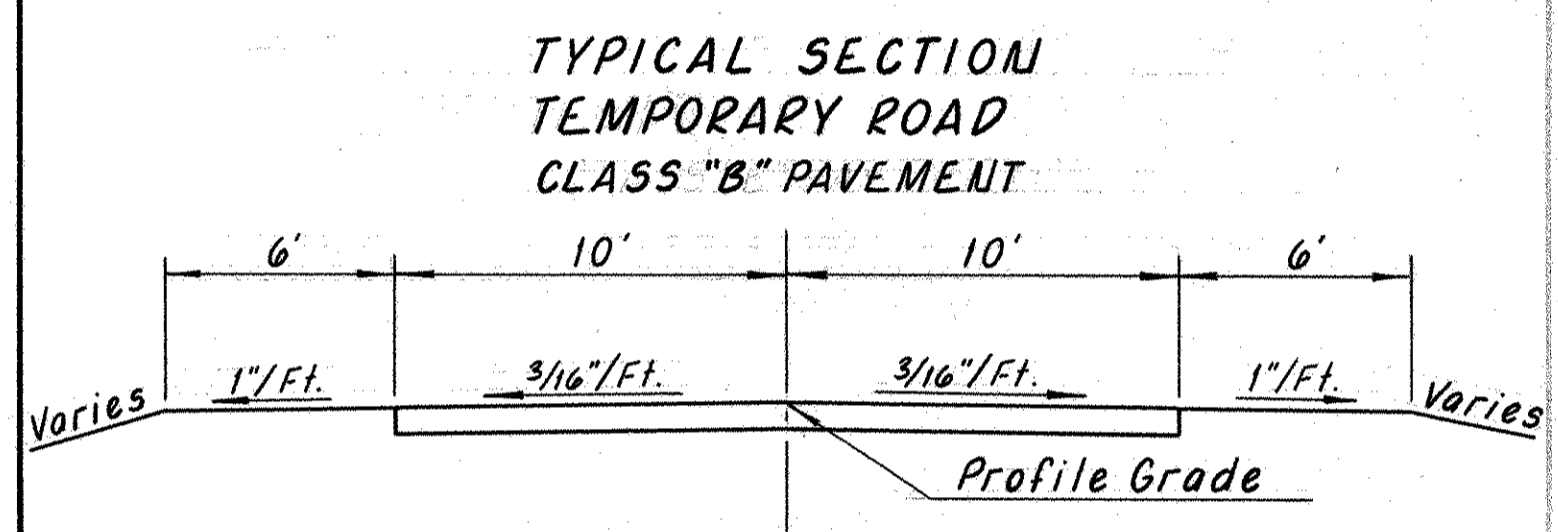
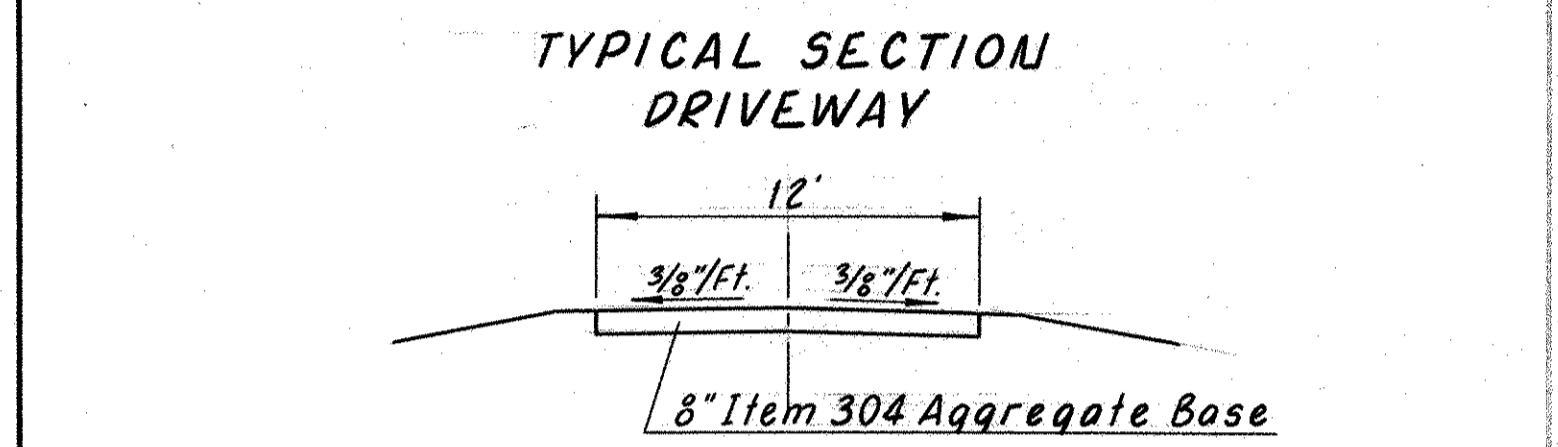
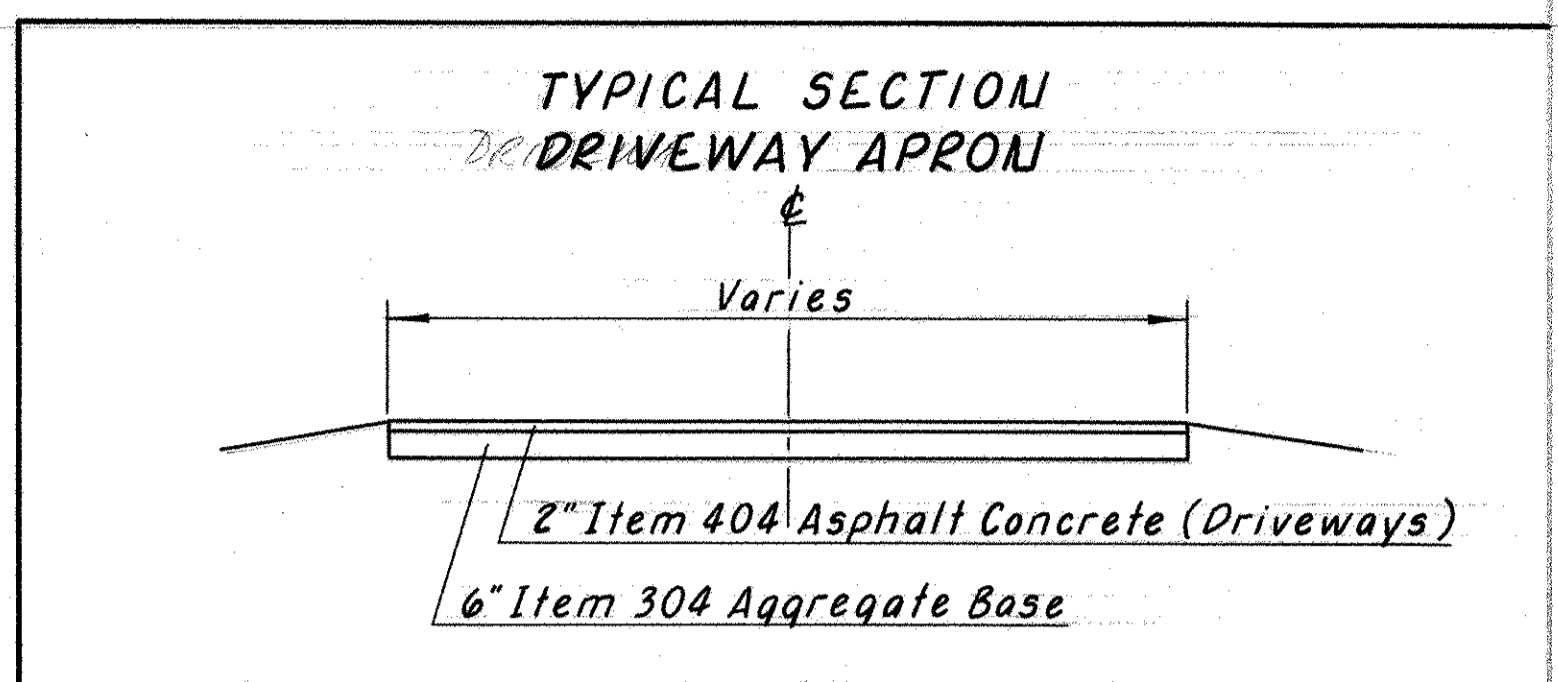
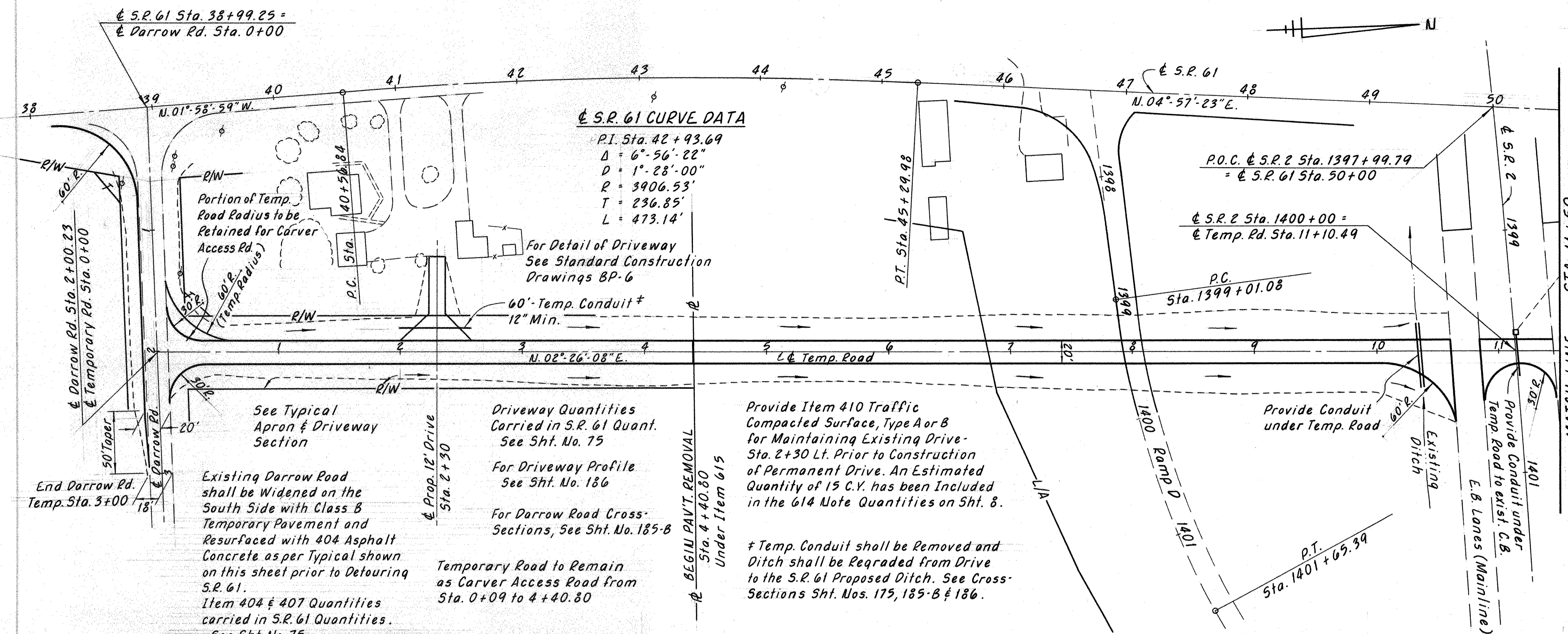
O'RORK ACCESS ROAD PLAN & PROFILE STA. 17+43.77 TO STA. 21+96.07

Calc. By: JKG 11-85  
 Chkd. By: PJA 11-85

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

59  
326

ERIE COUNTY  
 ERI-2-18.38



See Typical Apron & Driveway Section

Existing Darrow Road shall be Widened on the South Side with Class B Temporary Pavement and Resurfaced with 404 Asphalt Concrete as per Typical shown on this sheet prior to Detouring S.R. 61. Item 404 & 407 Quantities carried in S.R. 61 Quantities. See Sht. No. 75.

Prop. 12' Drive Sta. 2+30

Driveway Quantities Carried in S.R. 61 Quant. See Sht. No. 75

For Driveway Profile See Sht. No. 186

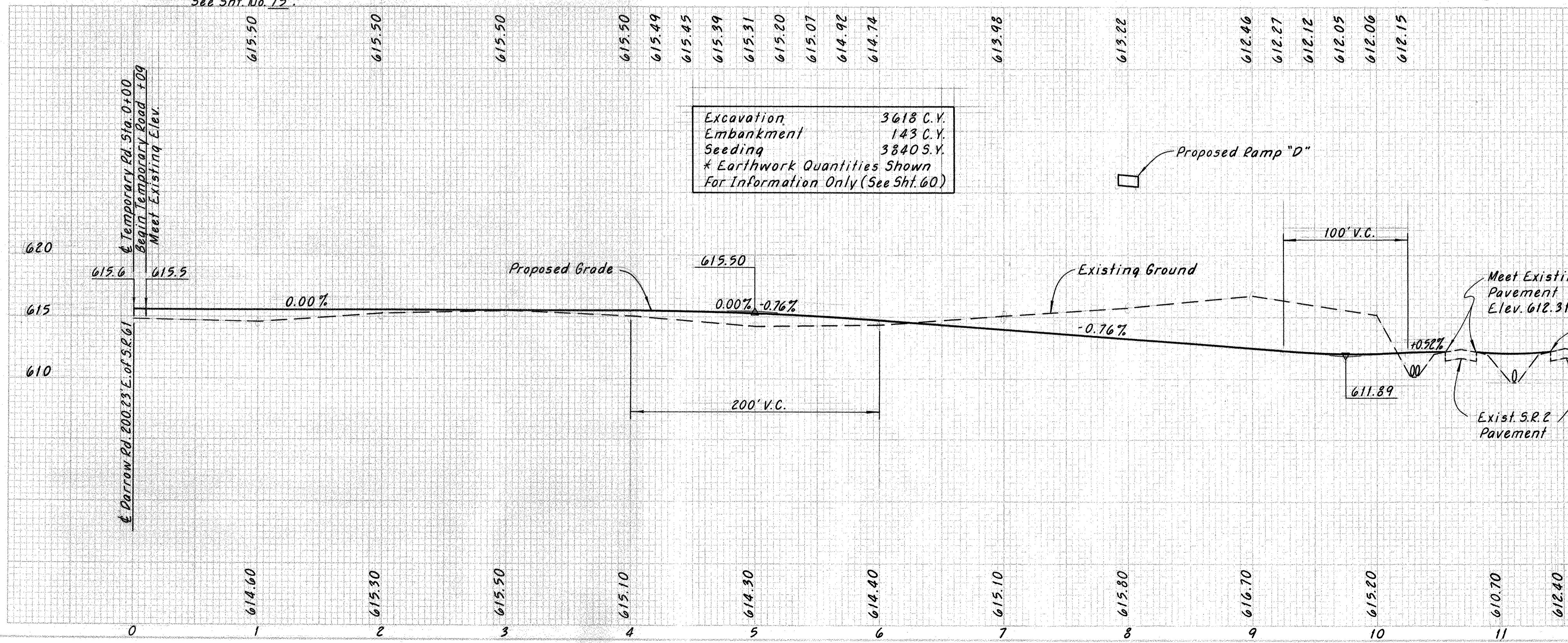
For Darrow Road Cross-Sections, See Sht. No. 185-B

Temporary Road to Remain as Carver Access Road from Sta. 0+09 to 4+40.80

BEGIN PAV'T REMOVAL Sta. 4+40.80 Under Item 615

Provide Item 410 Traffic Compacted Surface, Type A or B for Maintaining Existing Drive-Sta. 2+30 Lt. Prior to Construction of Permanent Drive. An Estimated Quantity of 15 C.Y. has been Included in the 614 Note Quantities on Sht. 8.

\* Temp. Conduit shall be Removed and Ditch shall be Regraded from Drive to the S.R. 61 Proposed Ditch. See Cross-Sections Sht. Nos. 175, 185-B & 186.



TEMPORARY ROAD PLAN & PROFILE STA. 0+00 TO STA. 11+50

**± S.R. 61 CURVE DATA**

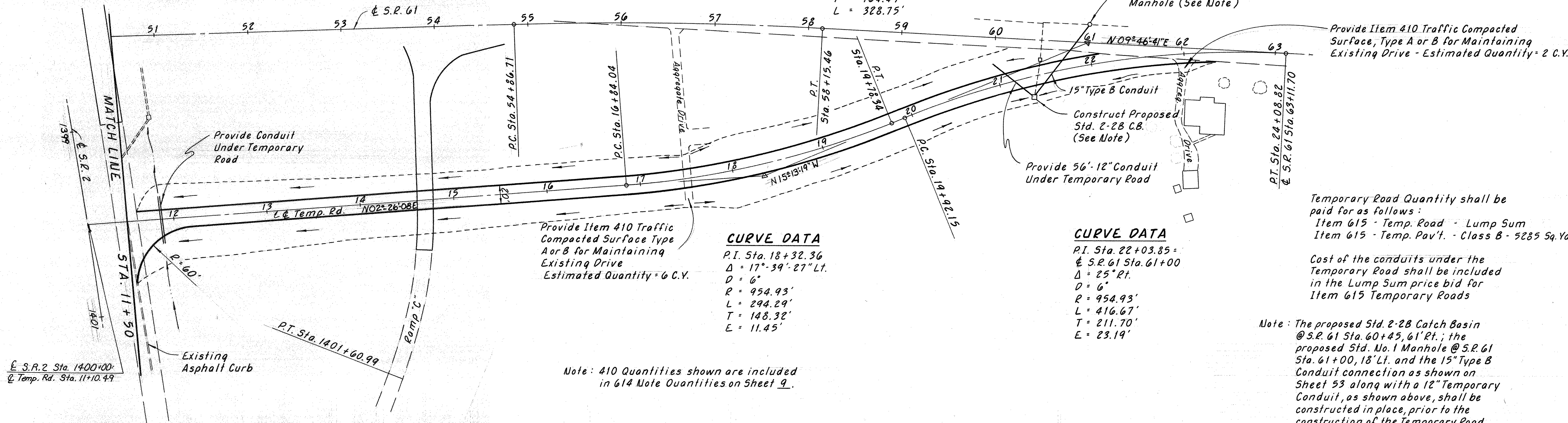
P.I. Sta. 56+51.18  
 $\Delta = 04^{\circ}49'18''$   
 $D = 01^{\circ}28'00''$   
 $R = 3906.53'$   
 $T = 164.47'$   
 $L = 328.75'$

Calc. By: JKG 11-85  
 Chkd. By: P.O. 11/85

FED. RD. DISTRICT	STATE	PROJECT
2	OHIO	

60  
326

ERIE COUNTY  
 ER1-2-18.38



Provide Item 410 Traffic Compacted Surface Type A or B for Maintaining Existing Drive  
 Estimated Quantity = 6 C.Y.

**CURVE DATA**  
 P.I. Sta. 18+32.36  
 $\Delta = 17^{\circ}39'27''$  Lt.  
 $D = 6^{\circ}$   
 $R = 954.93'$   
 $L = 294.29'$   
 $T = 148.32'$   
 $E = 11.45'$

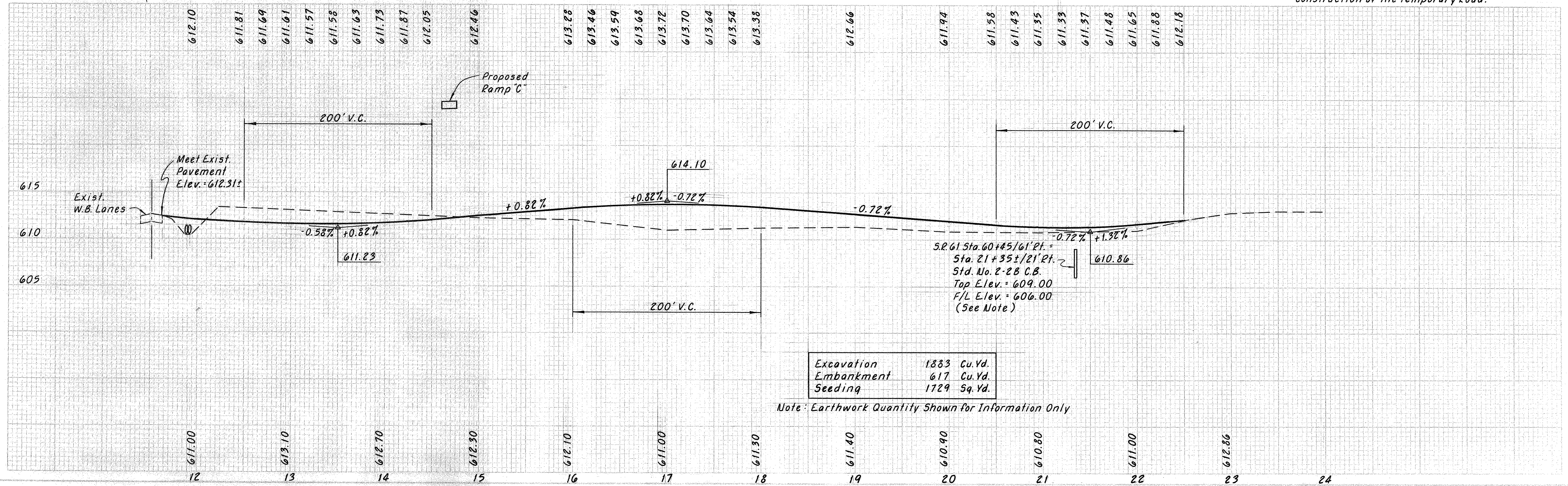
**CURVE DATA**  
 P.I. Sta. 22+03.85 =  
 ± S.R. 61 Sta. 61+00  
 $\Delta = 25^{\circ}$  Rt.  
 $D = 6^{\circ}$   
 $R = 954.93'$   
 $L = 416.67'$   
 $T = 211.70'$   
 $E = 23.19'$

Temporary Road Quantity shall be paid for as follows:  
 Item 615 - Temp. Road - Lump Sum  
 Item 615 - Temp. Pav't. - Class B - 5285 Sq. Yd.

Cost of the conduits under the Temporary Road shall be included in the Lump Sum price bid for Item 615 Temporary Roads

Note: The proposed Std. 2-28 Catch Basin @ S.R. 61 Sta. 60+45, 61' Rt.; the proposed Std. No. 1 Manhole @ S.R. 61 Sta. 61+00, 18' Lt. and the 15" Type B Conduit connection as shown on Sheet 53 along with a 12" Temporary Conduit, as shown above, shall be constructed in place, prior to the construction of the Temporary Road.

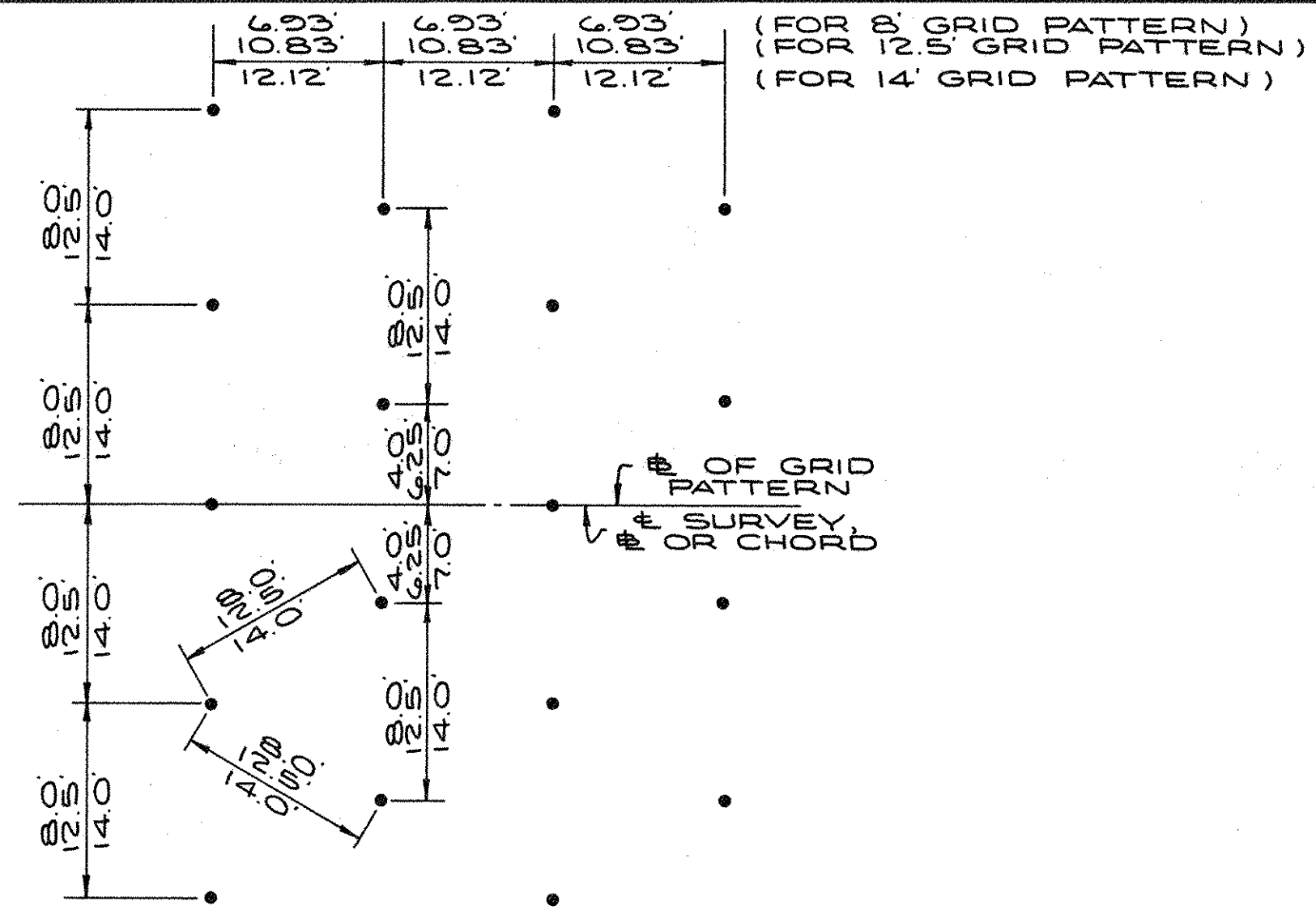
Note: 410 Quantities shown are included in 614 Note Quantities on Sheet 9.



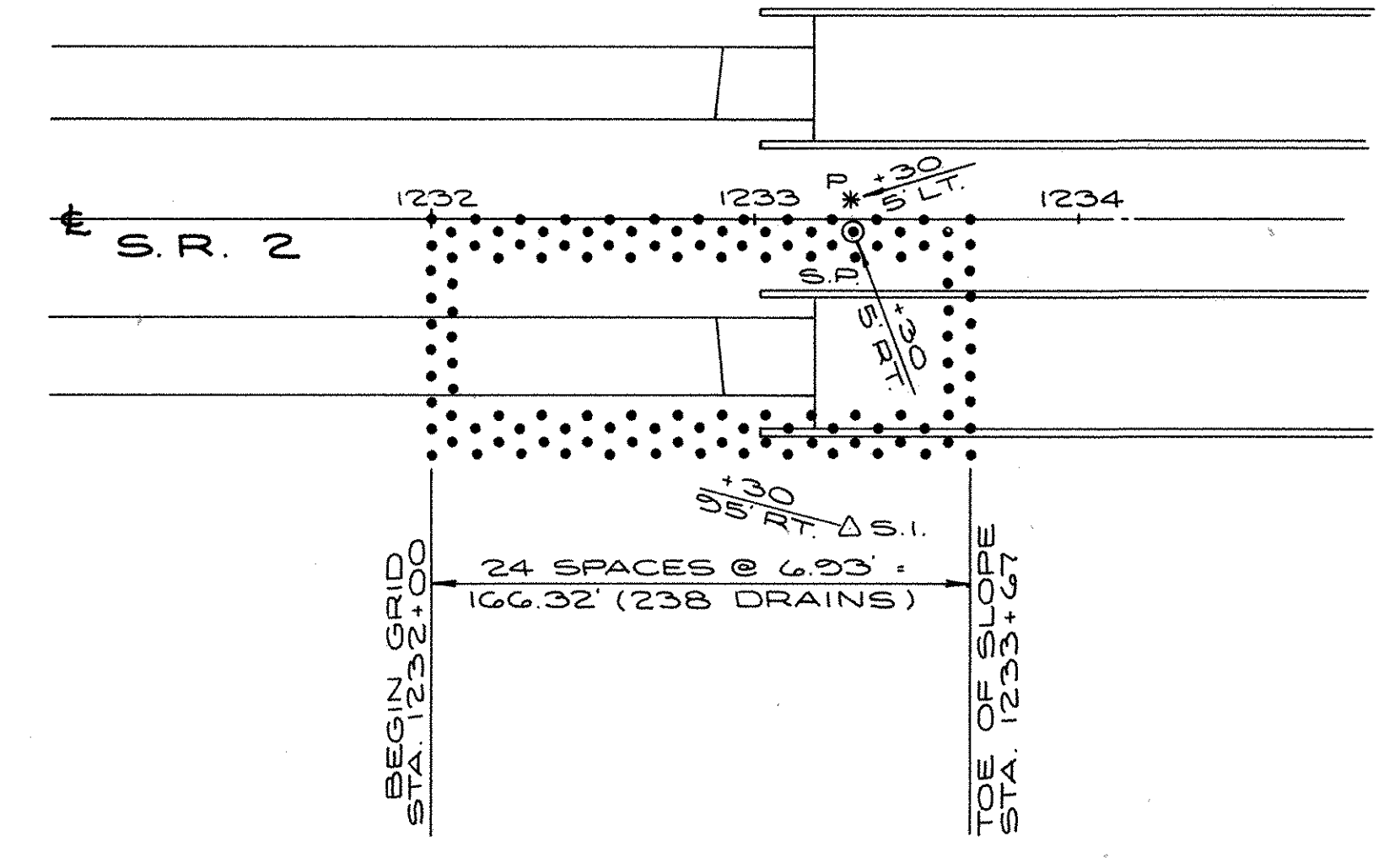
Excavation	1883 Cu. Yd.
Embarkment	617 Cu. Yd.
Seeding	1729 Sq. Yd.

Note: Earthwork Quantity Shown for Information Only

TEMPORARY ROAD PLAN & PROFILE STA. 11+50 TO STA. 24+08.82



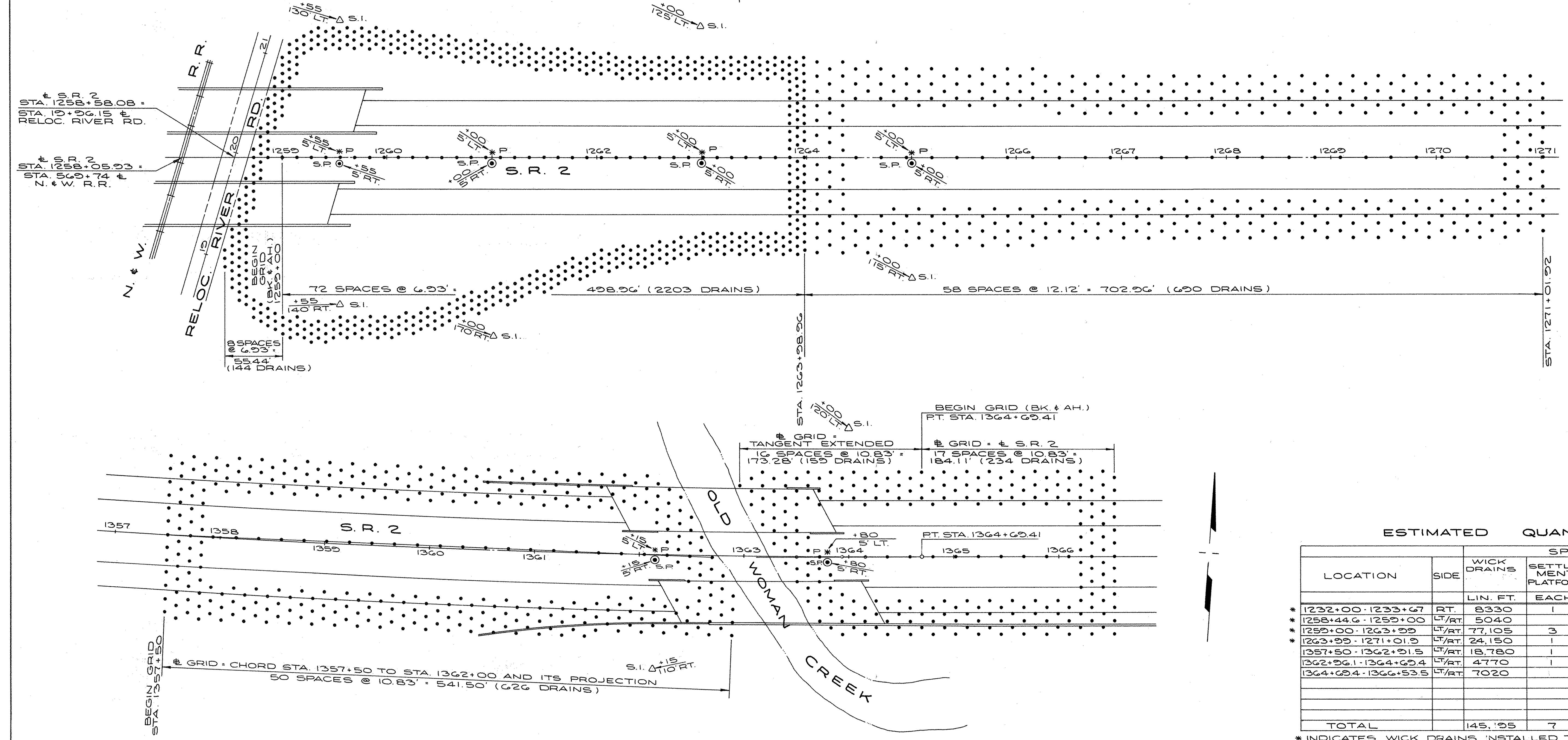
TYPICAL WICK DRAIN PATTERN



LEGEND

- WICK DRAIN
- ⊙<sub>SP</sub> SETTLEMENT PLATFORM
- \*<sub>P</sub> PIEZOMETER
- Δ<sub>SI</sub> SLOPE INDICATOR

FOR DETAILS AND OTHER NOTES, SEE SHEETS 10A AND 11.

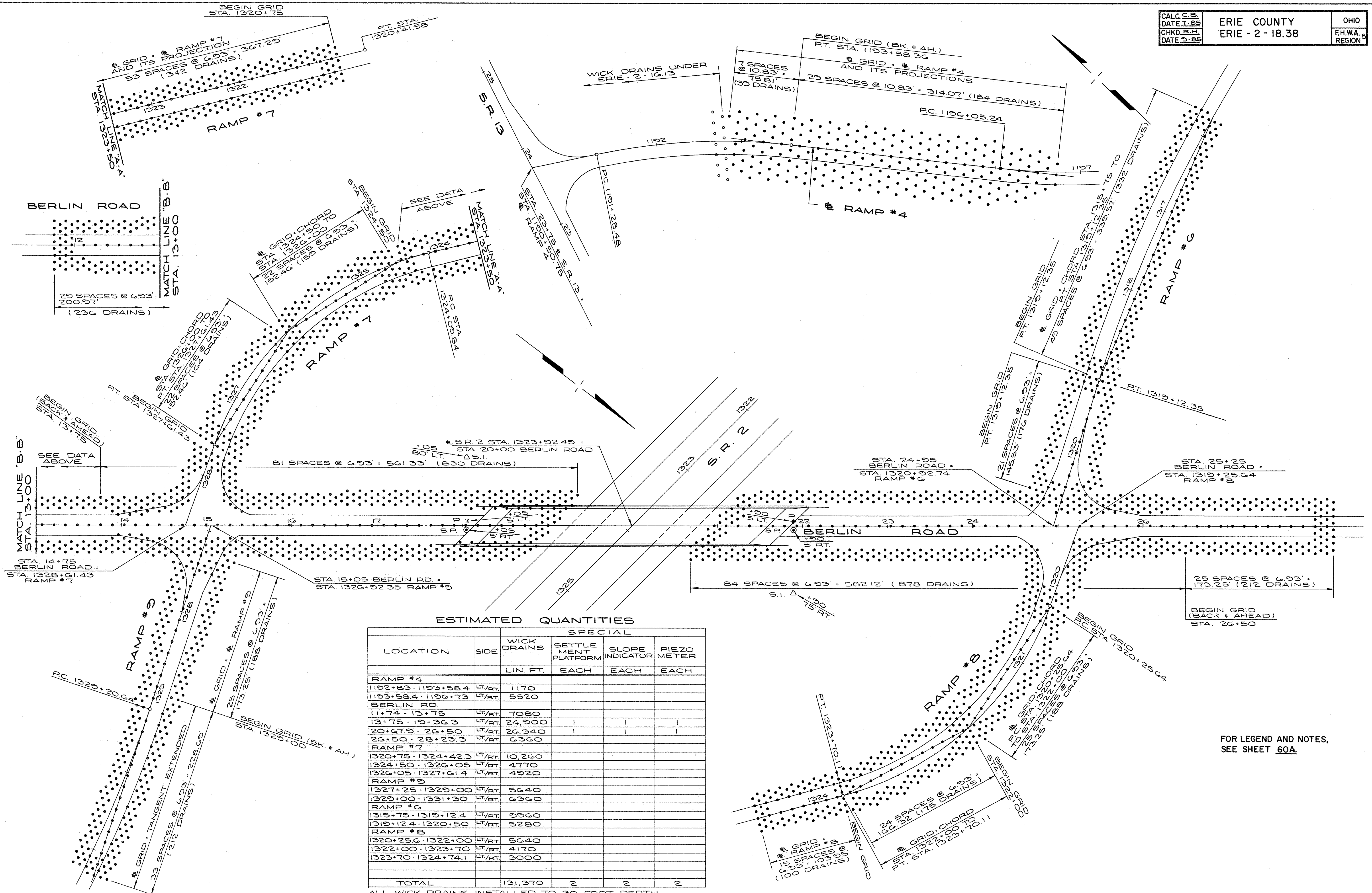


ESTIMATED QUANTITIES

LOCATION	SIDE	WICK DRAINS	SPECIAL		
			SETTLEMENT PLATFORM	SLOPE INDICATOR	PIEZOMETER
		LIN. FT.	EACH	EACH	EACH
* 1232+00 - 1233+67	RT.	8330	1	1	1
* 1258+44.6 - 1259+00	LT/RT	5040	1	1	1
* 1259+00 - 1263+99	LT/RT	77,105	3	3	4
* 1263+99 - 1271+01.9	LT/RT	24,150	1	1	1
1357+50 - 1362+91.5	LT/RT	18,780	1	1	1
1362+96.1 - 1364+69.4	LT/RT	4770	1	1	1
1364+69.4 - 1366+53.5	LT/RT	7020			
TOTAL		145,195	7	7	8

\* INDICATES WICK DRAINS INSTALLED TO 35-FT. DEPTH. ALL OTHERS INSTALLED TO 30-FOOT DEPTH.





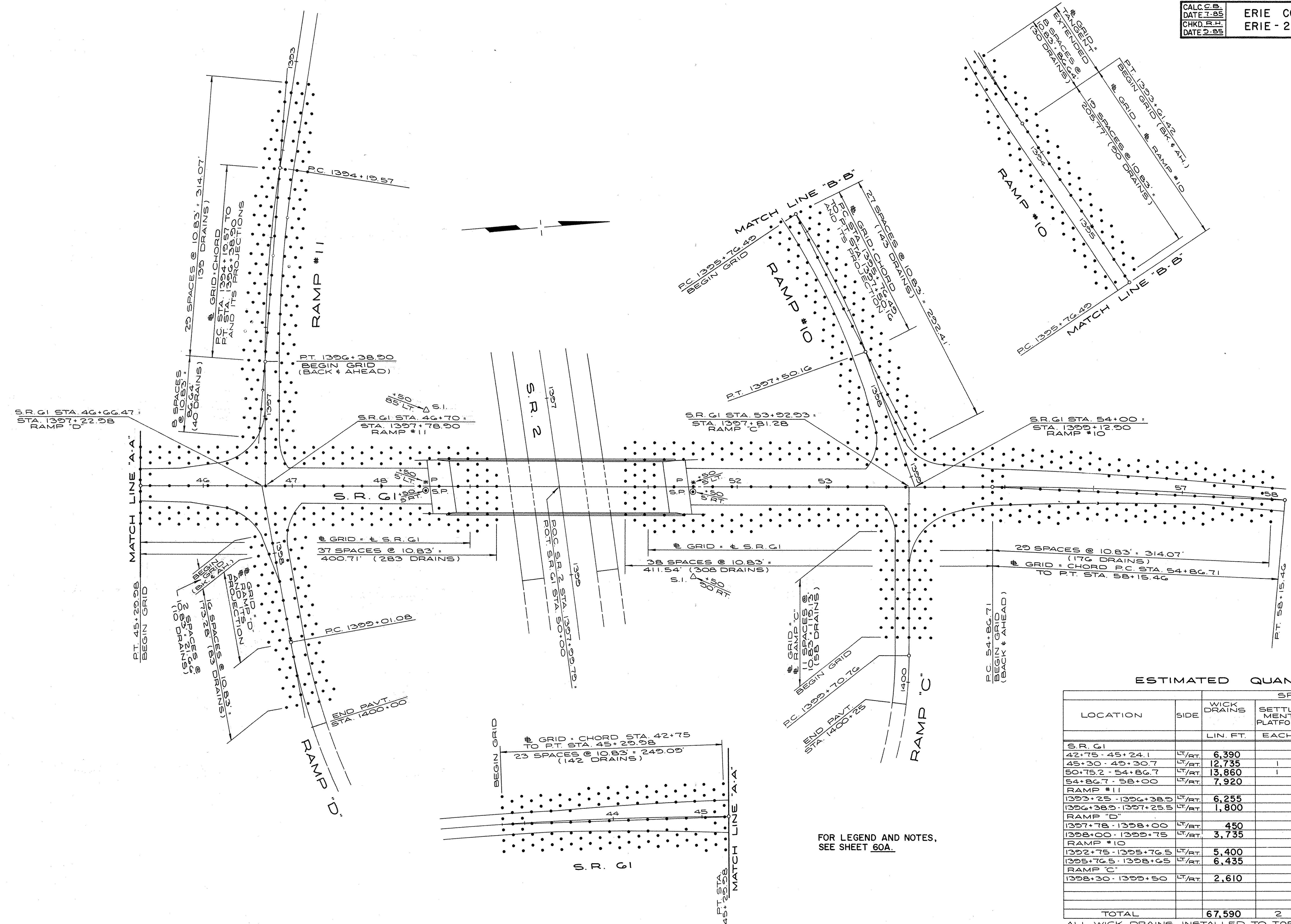
ESTIMATED QUANTITIES

LOCATION	SIDE	SPECIAL			
		WICK DRAINS	SETTLEMENT PLATFORM	SLOPE INDICATOR	PIEZO METER
		LIN. FT.	EACH	EACH	EACH
RAMP #4					
1192+83 - 1193+58.4	LT/RT	1170			
1193+58.4 - 1196+73	LT/RT	5520			
BERLIN RD.					
11+74 - 13+75	LT/RT	7080			
13+75 - 19+36.3	LT/RT	24,900			
20+67.9 - 26+50	LT/RT	26,340			
26+50 - 28+23.3	LT/RT	6360			
RAMP #7					
1320+75 - 1324+42.3	LT/RT	10,260			
1324+50 - 1326+05	LT/RT	4770			
1326+05 - 1327+61.4	LT/RT	4920			
RAMP #9					
1327+25 - 1329+00	LT/RT	5640			
1329+00 - 1331+30	LT/RT	6360			
RAMP #6					
1315+75 - 1319+12.4	LT/RT	9960			
1319+12.4 - 1320+50	LT/RT	5280			
RAMP #8					
1320+25.6 - 1322+00	LT/RT	5640			
1322+00 - 1323+70	LT/RT	4170			
1323+70 - 1324+74.1	LT/RT	3000			
TOTAL		131,370	2	2	2

ALL WICK DRAINS INSTALLED TO 30-FOOT DEPTH.

FOR LEGEND AND NOTES, SEE SHEET 60A.

BERLIN ROAD & RAMP NO 4 (S.R. 13) WICK DRAIN PLAN



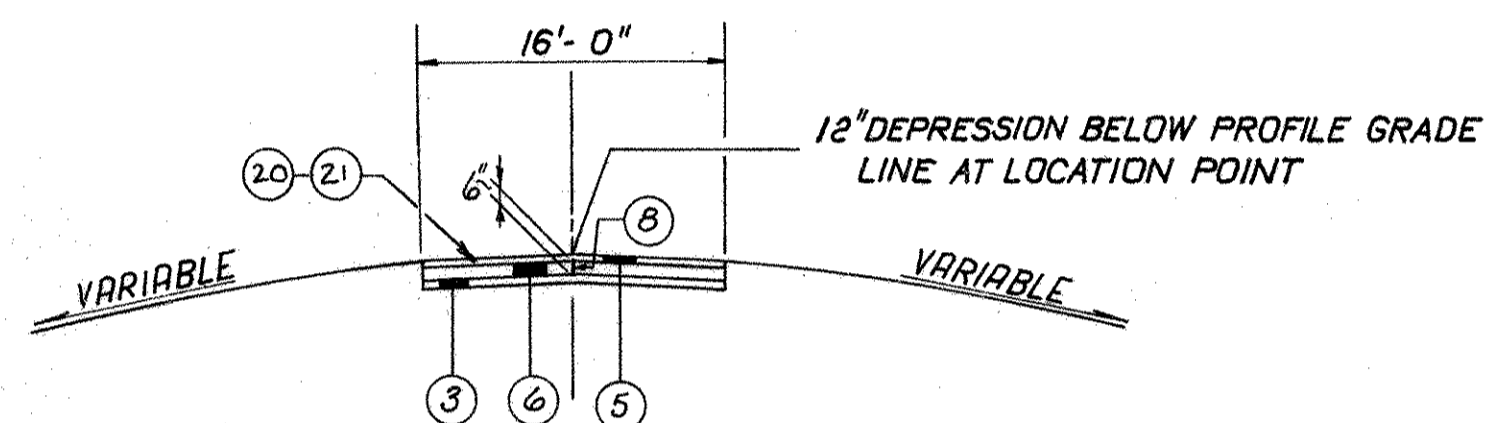
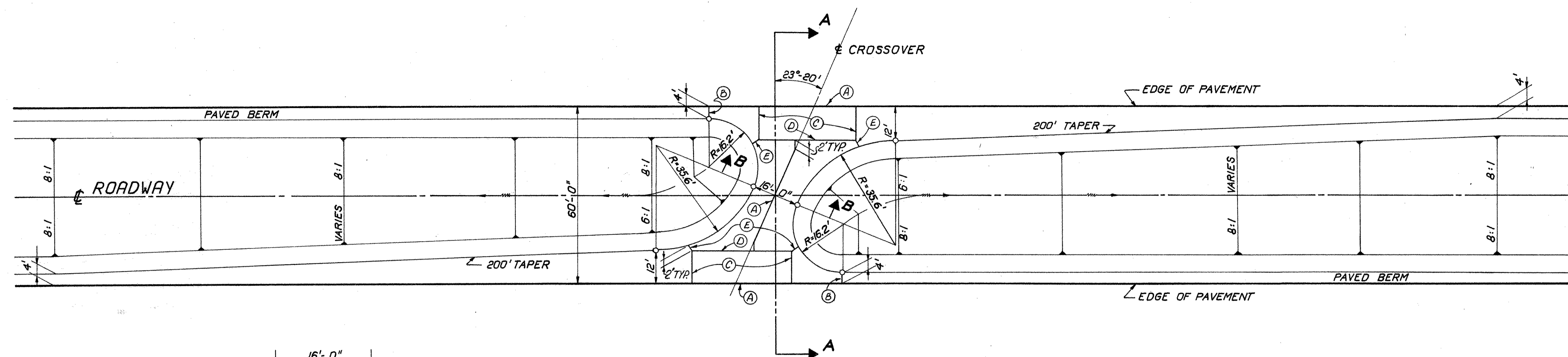
ESTIMATED QUANTITIES

LOCATION	SIDE	SPECIAL			
		WICK DRAINS LIN. FT.	SETTLEMENT PLATFORM EACH	SLOPE INDICATOR EACH	PIEZO METER EACH
S.R. G1					
42+75 - 45+24.1	LT/RT	6,390			
45+30 - 49+30.7	LT/RT	12,735			
50+75.2 - 54+86.7	LT/RT	13,860			
54+86.7 - 58+00	LT/RT	7,920			
RAMP #11					
1393+25 - 1396+38.9	LT/RT	6,255			
1396+38.9 - 1397+25.5	LT/RT	1,800			
RAMP "D"					
1397+78 - 1398+00	LT/RT	450			
1398+00 - 1399+75	LT/RT	3,735			
RAMP #10					
1392+75 - 1395+76.5	LT/RT	5,400			
1395+76.5 - 1398+65	LT/RT	6,435			
RAMP "C"					
1398+30 - 1399+50	LT/RT	2,610			
<b>TOTAL</b>		<b>67,590</b>	<b>2</b>	<b>2</b>	<b>2</b>

ALL WICK DRAINS INSTALLED TO TOP OF ROCK (45 FOOT EST. DEPTH)

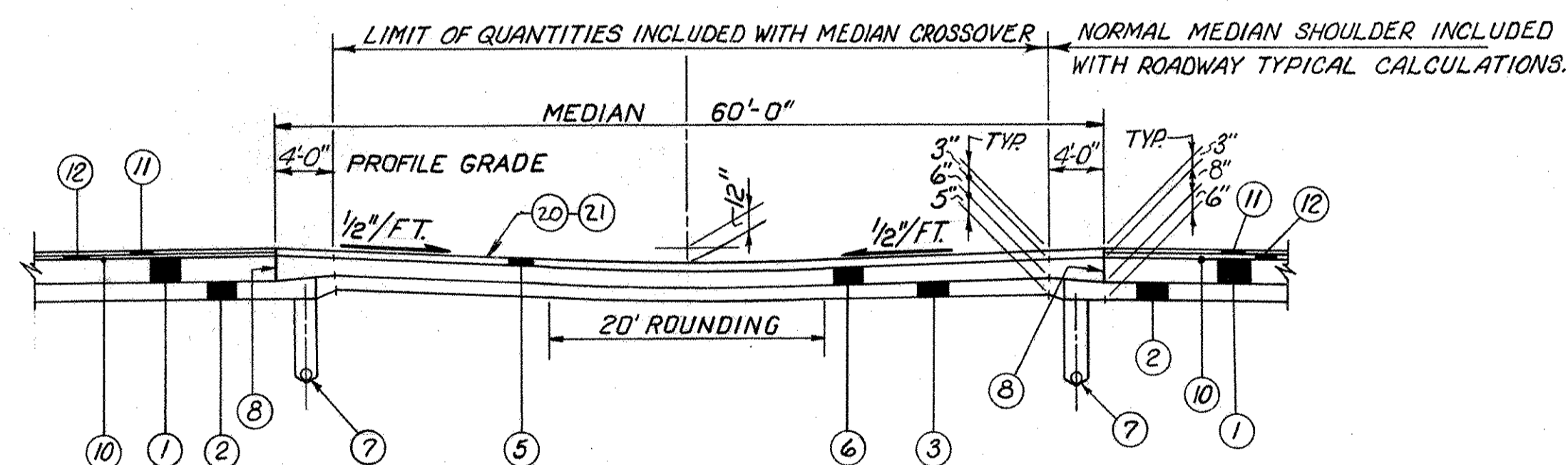
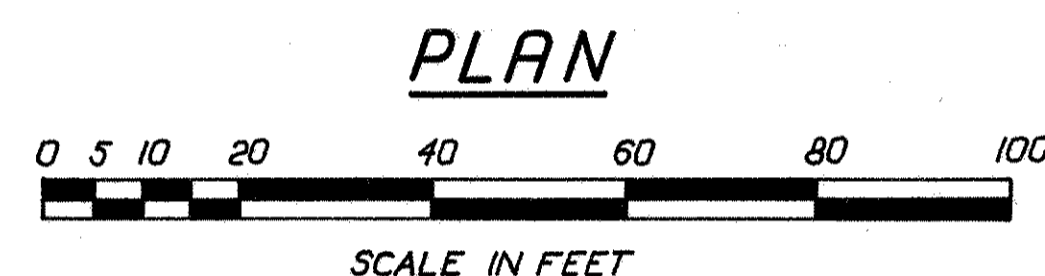
FOR LEGEND AND NOTES, SEE SHEET 60A.

S.R. 61 WICK DRAIN PLAN

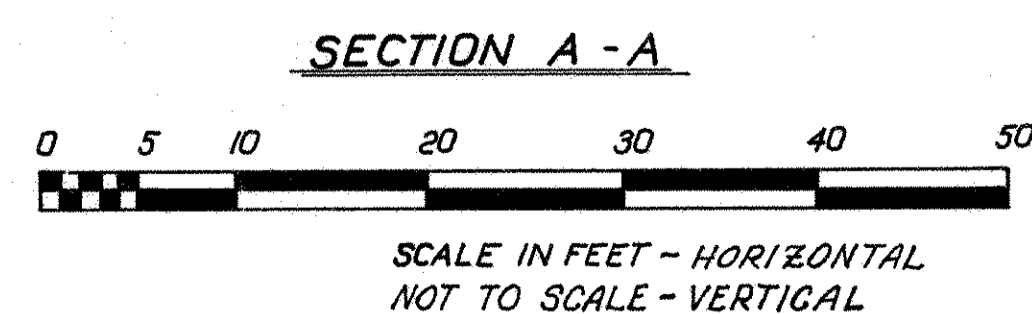


SEE SHEET 3 FOR LEGEND.

SECTION B - B



SEE SHEET 3 FOR LEGEND.



SEE SHEET NUMBER	STATION	AREA	SUMMARY OF QUANTITIES						
			203	310	301	305	310	409	409
			SUBGRADE COMPACTION	SUBBASE TYPE I GRADING A OR B	BITUMINOUS AGGREGATE BASE	8" - 6" CONCRETE BASE	SUBBASE TYPE I GRADING A	BITUMINOUS MATERIAL	COVER AGGREGATE NO. 8
		S.F.	S.Y.	C.Y.	C.Y.	S.Y.	C.Y.	GAL.	CU. YD.
23	1227 + 90	3318	369	185	31	369	51	148	3
27	1277 + 25	3318	369		31	369	51	148	3
35	1372 + 60	3318	369	25	31	369	51	148	3
	TOTALS		1,107	210	93	1,107	153	444	9

- LEGEND
- (A) STANDARD LONGITUDINAL JOINT.
  - (B) STANDARD EXPANSION JOINT.
  - (C) STANDARD CONTRACTION JOINT.
  - (D) LONGITUDINAL JOINT WITHOUT TIE BARS.
  - (E) EXPANSION JOINT WITHOUT DOWELS.

TYPICAL MEDIAN CROSSOVER DETAILS

ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

MEDIAN CROSSOVER DETAILS

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
H. G.	J. T.	R. J. Z.			
3-3-70	3-9-70	3-20-70			

**RAMP #4 CURVE DATA**  
 P.I. STA. 1202 + 22.60  
 $\Delta = 19^{\circ} 37' 11''$   
 $D = 3^{\circ} 30' 00''$   
 $T = 283.16'$   
 $L = 560.56'$   
 $R = 1637.02'$

END TYPICAL SECT.  
& BEGIN QUANTITIES  
OF THIS SHEET

STA. 1203+00  
BEGIN EXTRA  
DEPTH SUBBASE

**LEGEND**

- (A) STANDARD LONGITUDINAL JOINT
- (B) STANDARD EXPANSION JOINT
- (C) STANDARD CONTRACTION JOINT

SEE STD. CONSTRUCTION DRAWING  
BP-9 FOR NOTES AND DETAILS NOT SHOWN.

**S.R. 2 CURVE DATA**

P.I. STA. 1191 + 14.95  
 $\Delta = 87^{\circ} 18' 50''$  LT.  $\theta_c = 1^{\circ} 00' 00''$   
 $D_c = 2^{\circ} 00' 00''$   $T_s = 2884.77'$   
 $R = 2864.79'$   $E_s = 1096.71'$   
 $L_s = 300.00'$   $\Delta_c = 81^{\circ} 18' 50''$   
 $\theta_s = 3^{\circ} 00' 00''$   $L_c = 4065.69'$

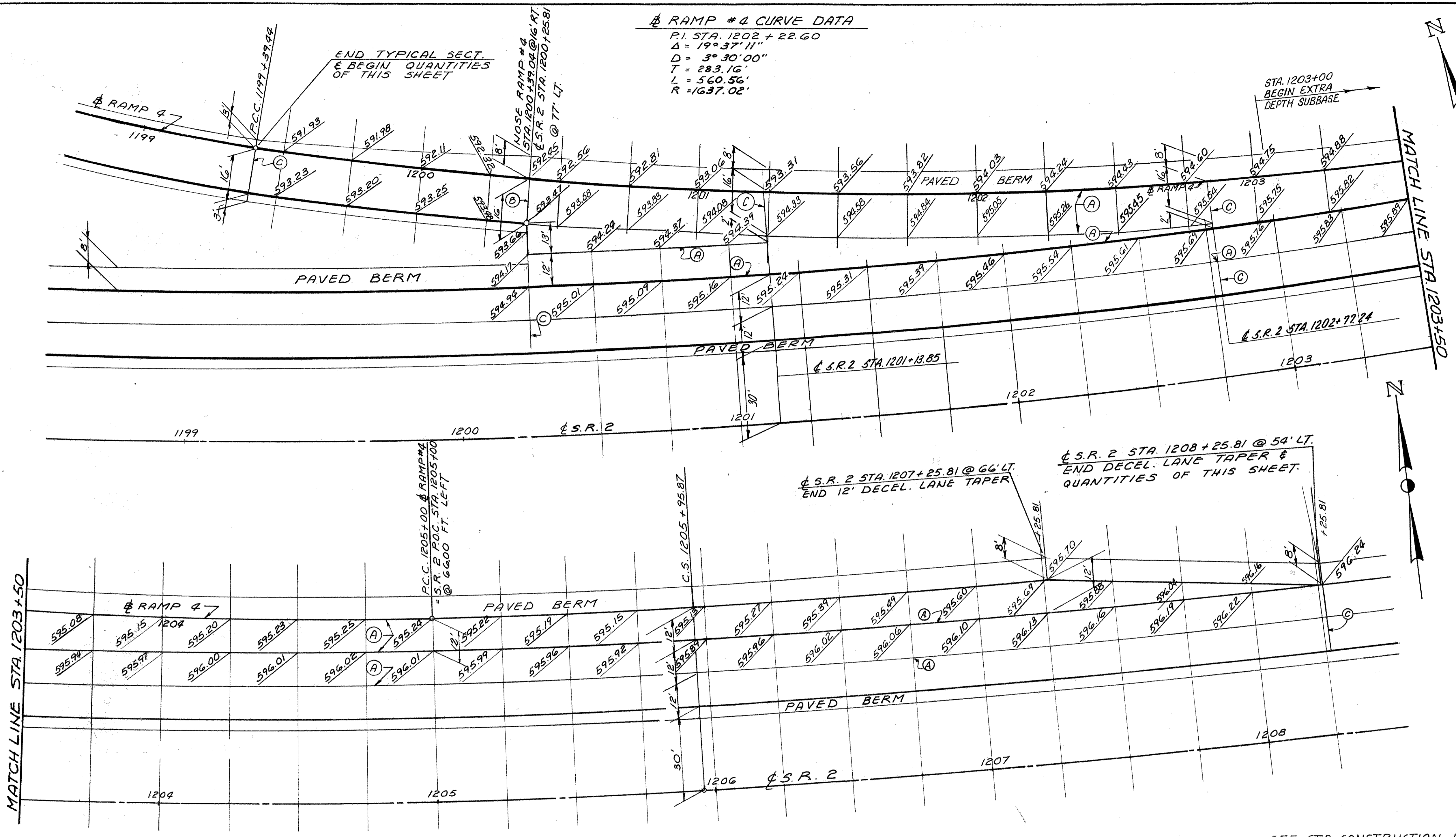
**SUMMARY OF QUANTITIES**

310		203		301		305		310		305		402		404		407		409 SEAL COAT	
SUBBASE TYPE I GRADING A OR B	SUBGRADE COMPACTION	BITUMINOUS AGGREGATE BASE	CONCRETE BASE	SUBBASE TYPE II	SUBBASE TYPE I GRADING A	8" CONCRETE BASE	ASPHALT CONCRETE AC-20	ASPHALT CONCRETE AC-20	TACK COAT	BITUMINOUS AGGREGATE	COVER AGGREGATE NO. 8								
CU. YD.	SQ. YD.	CU. YD.	SQ. YD.	CU. YD.	CU. YD.	SQ. YD.	CU. YD.	CU. YD.	GAL.	GAL.	CU. YD.								
365	2,165	66	754	284	58	1,410	67	48	138	315	7								

ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

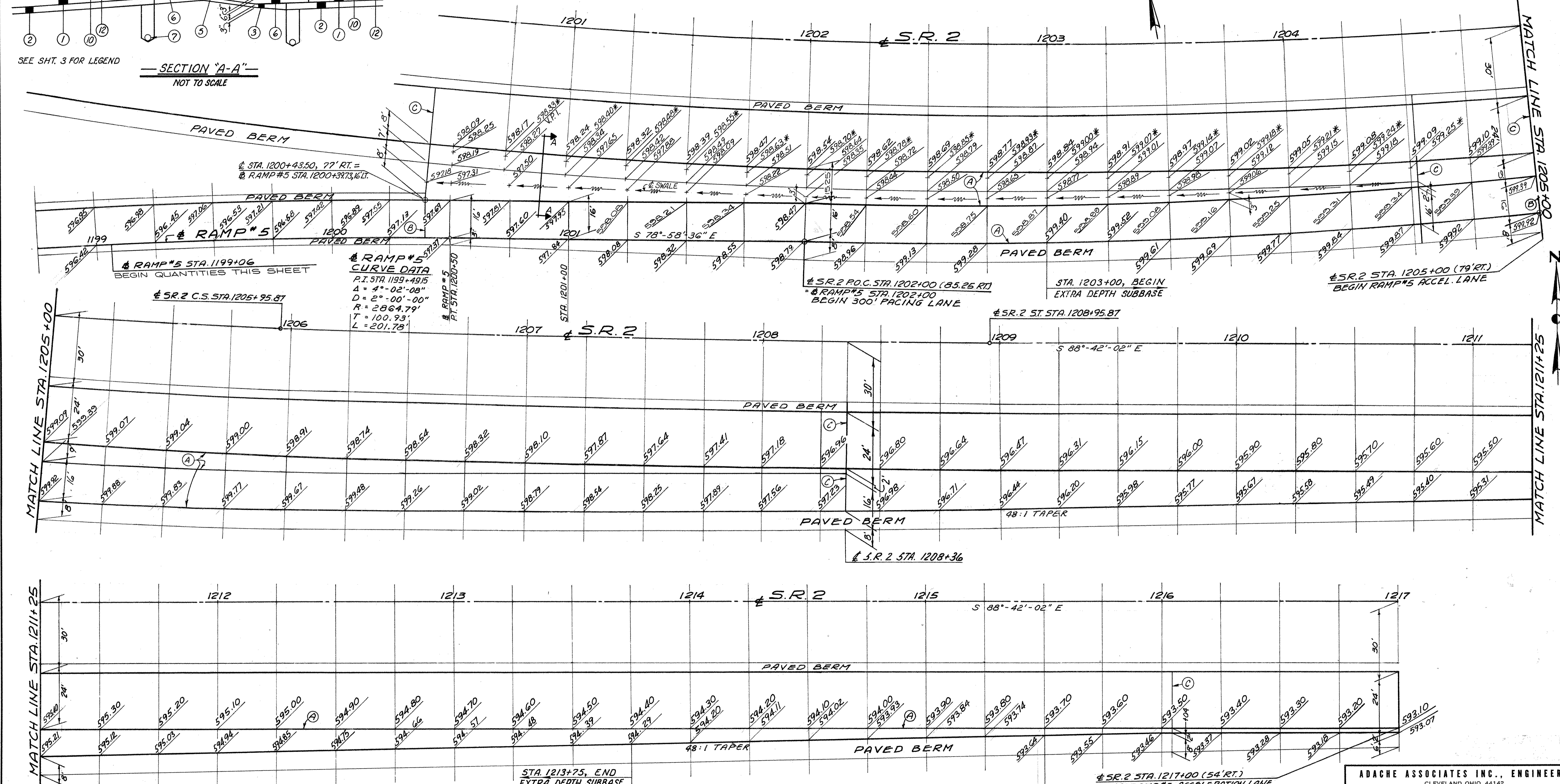
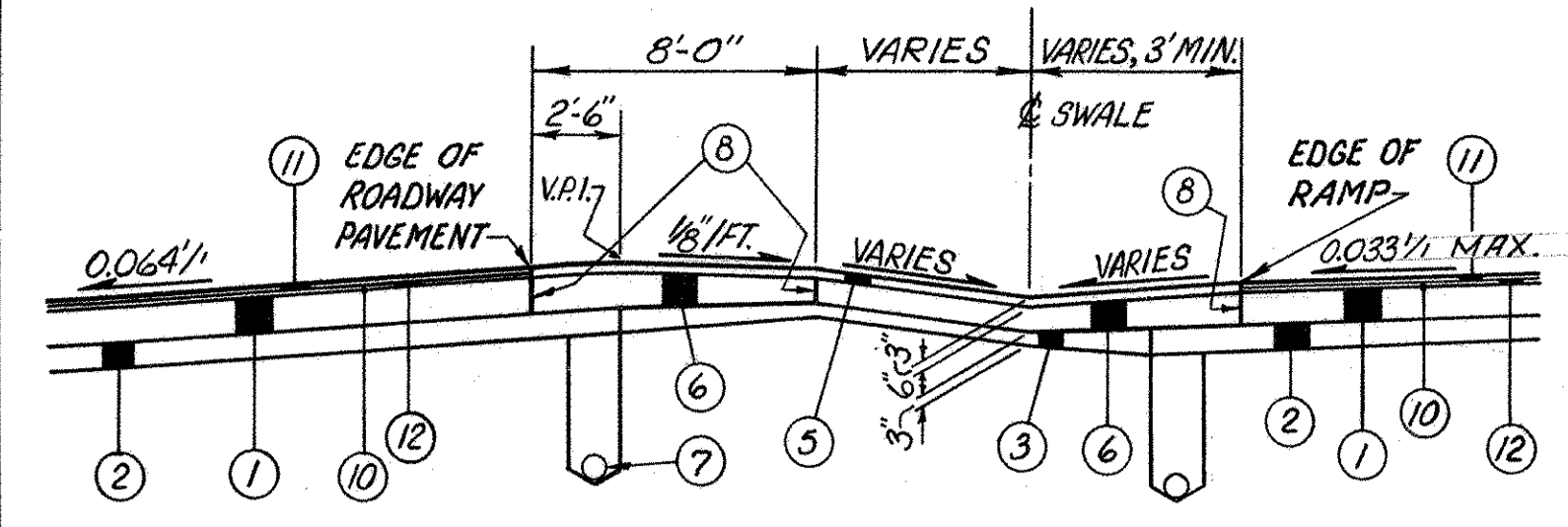
**PAVEMENT DETAILS  
RAMP #4  
RT. 13 INTERCHANGE**

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
R. W. H.	S. S. M.	R. J. Z.		
11-19-67	5-10-68	9-17-69		



§ S.R. 2 CURVE DATA  
 P.I. STA. 1191+14.95  
 $\Delta = 87^{\circ}18'50''$  LT.  $\Delta_c = 1^{\circ}00'00''$   
 $D_c = 2^{\circ}00'00''$  TS = 2884.77'  
 R = 2864.79' Es = 1096.71'  
 Ls = 300.00'  $\Delta_c = 81^{\circ}18'50''$   
 $\theta_s = 3^{\circ}00'00''$  Lcf = 4065.69'

SEE STD. CONSTRUCTION DRAWING  
 BP-9 FOR DETAILS AND NOTES NOT SHOWN.



§ RAMP #5 CURVE DATA  
 P.I. STA. 1199+49.15  
 $\Delta = 4^{\circ}02'08''$   
 $D = 2^{\circ}00'00''$   
 R = 2864.79'  
 T = 100.93'  
 L = 201.78'

SUMMARY OF QUANTITIES

310	203	301	305	310	305	402	404	407	409 SEAL COAT		
SUBBASE TYPE I GRADING A OR B	SUBGRADE COMPACTION	BITUMINOUS AGGREGATE BASE	8" - 6" CONCRETE BASE	SUBBASE TYPE II GRADING A	SUBBASE TYPE I GRADING A	8" CONCRETE BASE	ASPHALT CONCRETE AC-20	ASPHALT CONCRETE AC-20	TACK COAT	BITUMINOUS MATERIAL	COVER AGGREGATE NO. 8
CU. YD.	SQ. YD.	CU. YD.	CU. YD.	CU. YD.	CU. YD.	SQ. YD.	CU. YD.	CU. YD.	GAL.	GAL.	CU. YD.
1,650	5,545	189	2,178	706	164	3,367	159	114	327	673	12

LEGEND

- (A) STANDARD LONGITUDINAL JOINT
- (B) STANDARD EXPANSION JOINT
- (C) STANDARD CONTRACTION JOINT
- \* POINT OF VERTICAL INTERSECTION OF OUTSIDE SHOULDER ON HIGH SIDE OF S. E. CURVE.

ADACHE ASSOCIATES INC., ENGINEERS  
 CLEVELAND, OHIO 44142

PAVEMENT DETAILS  
 RAMP # 5  
 RT 13 INTERCHANGE

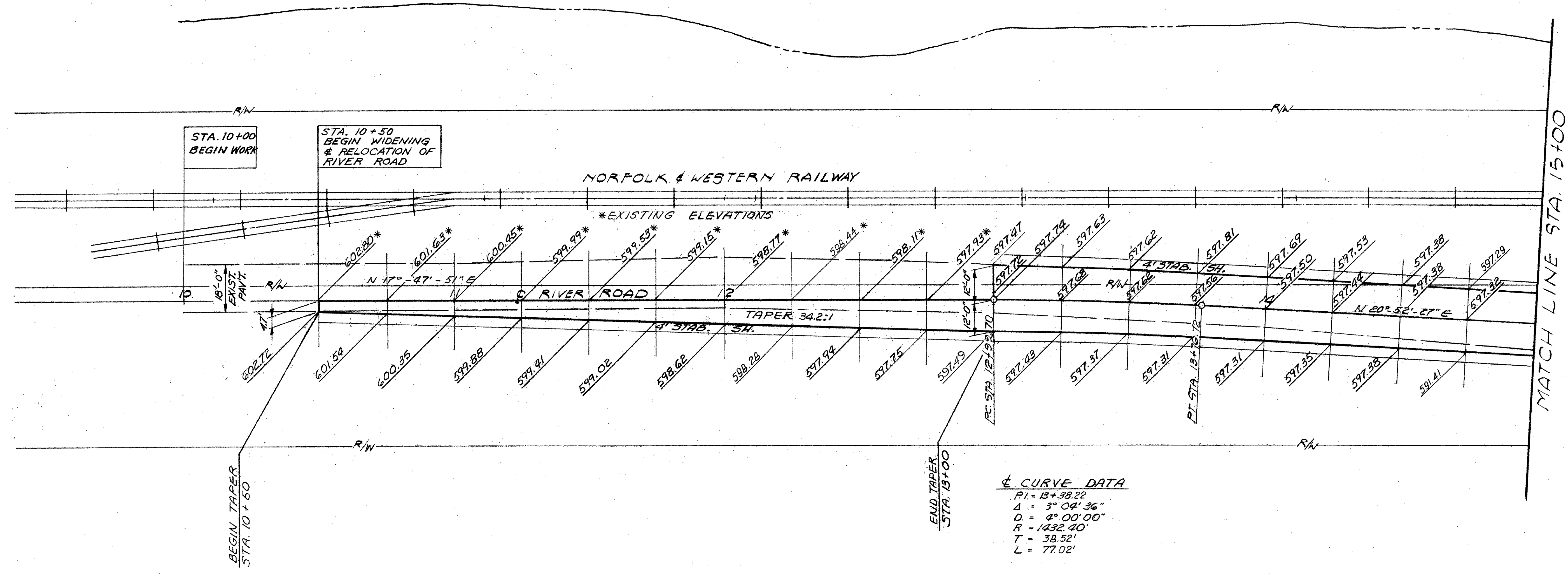
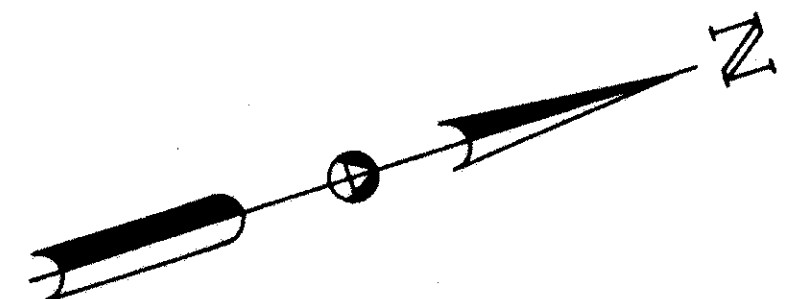
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
J.D.A.	J.D.A.	R.T.Z.		
6-26-69	7-5-69	8-22-69		

PRO. NO. DIVISION	STATE	PROJECT
2	OHIO	

64  
326

ERIE COUNTY  
ERI 2-18.38

HURON RIVER



**∠ CURVE DATA**  
 PI = 13+38.22  
 Δ = 3° 09' 36"  
 D = 4° 00' 00"  
 R = 1432.40'  
 T = 38.52'  
 L = 77.02'

SUMMARY OF QUANTITIES				
203	301	402	404	411
SUBGRADE	BITUMINOUS	ASPHALT	ASPHALT	STABILIZED
COMPACTION	AGGREGATE	CONCRETE	CONCRETE	CRUSHED
	BASE	AC-20	AC-20	AGGREGATE
SQ. YD.	CU. YD.	CU. YD.	CU. YD.	CU. YD.
3,592	529	150	125	177

ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

PAVEMENT DETAILS  
RIVER ROAD  
STA. 10+50 TO STA. 15+00

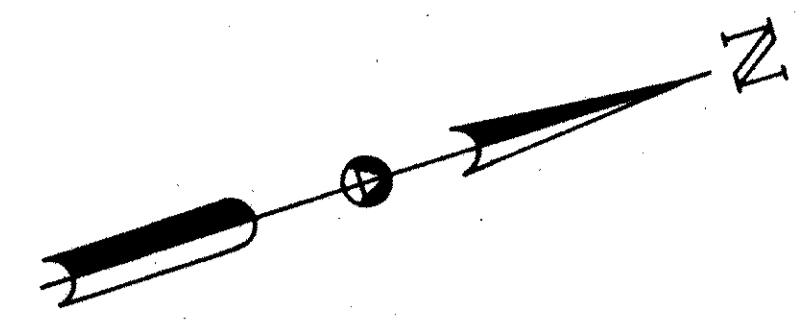
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.J.Z.	M.F.	J.J.D.		3-18-69	5-20-69
				6-27-69	

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

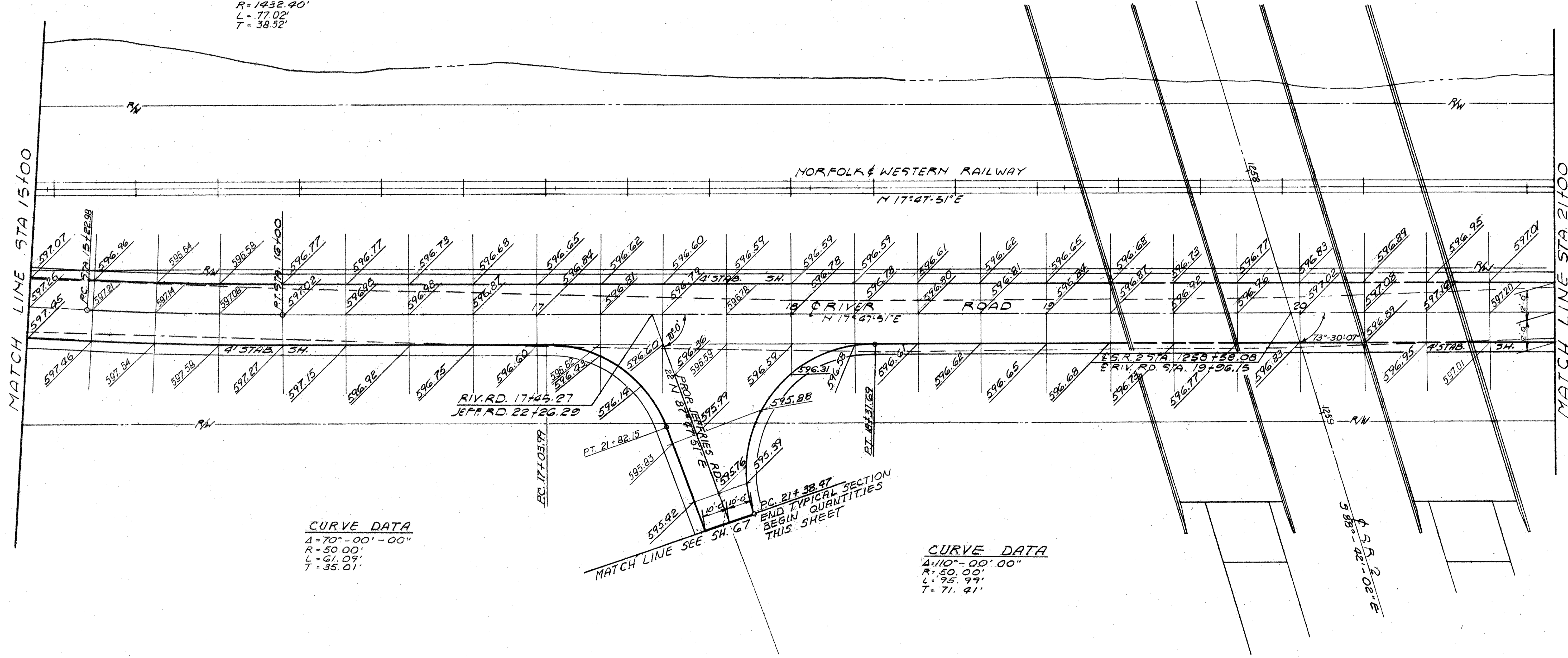
65  
326

ERIE COUNTY  
ERI 2-18.38

HURON RIVER



CURVE DATA  
 P.I. STA. 15+61.50  
 $\Delta = 3^{\circ}04'51''$   
 $D = 4^{\circ}00'00''$   
 $R = 1432.40'$   
 $L = 77.02'$   
 $T = 38.32'$



CURVE DATA  
 $\Delta = 70^{\circ}00'00''$   
 $R = 50.00'$   
 $L = 61.09'$   
 $T = 35.01'$

CURVE DATA  
 $\Delta = 110^{\circ}00'00''$   
 $R = 50.00'$   
 $L = 95.99'$   
 $T = 71.41'$

MATCH LINE SEE SH. 67  
 END TYPICAL SECTION  
 BEGIN QUANTITIES  
 THIS SHEET

NOTE:  
 FOR SUMMARY OF QUANTITIES  
 RIVER RD. SEE SH. NO. 64

ADACH ASSOCIATES INC., ENGINEERS  
 CLEVELAND, OHIO 44142

PAVEMENT DETAILS  
 RIVER ROAD  
 STA. 15+00 TO STA. 21+00

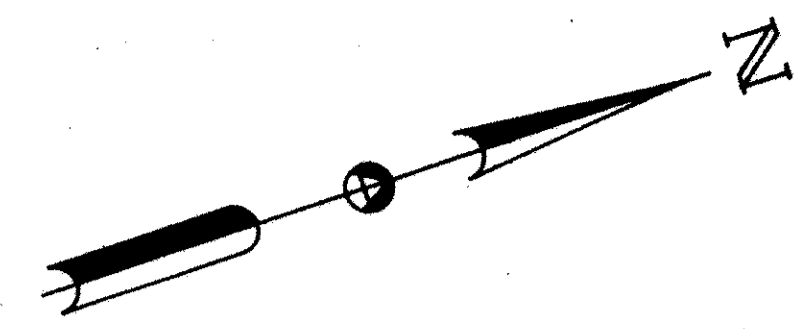
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R. J. E.	N. P.	J. J. D.			
3-18-69	5-20-69	6-27-69			

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

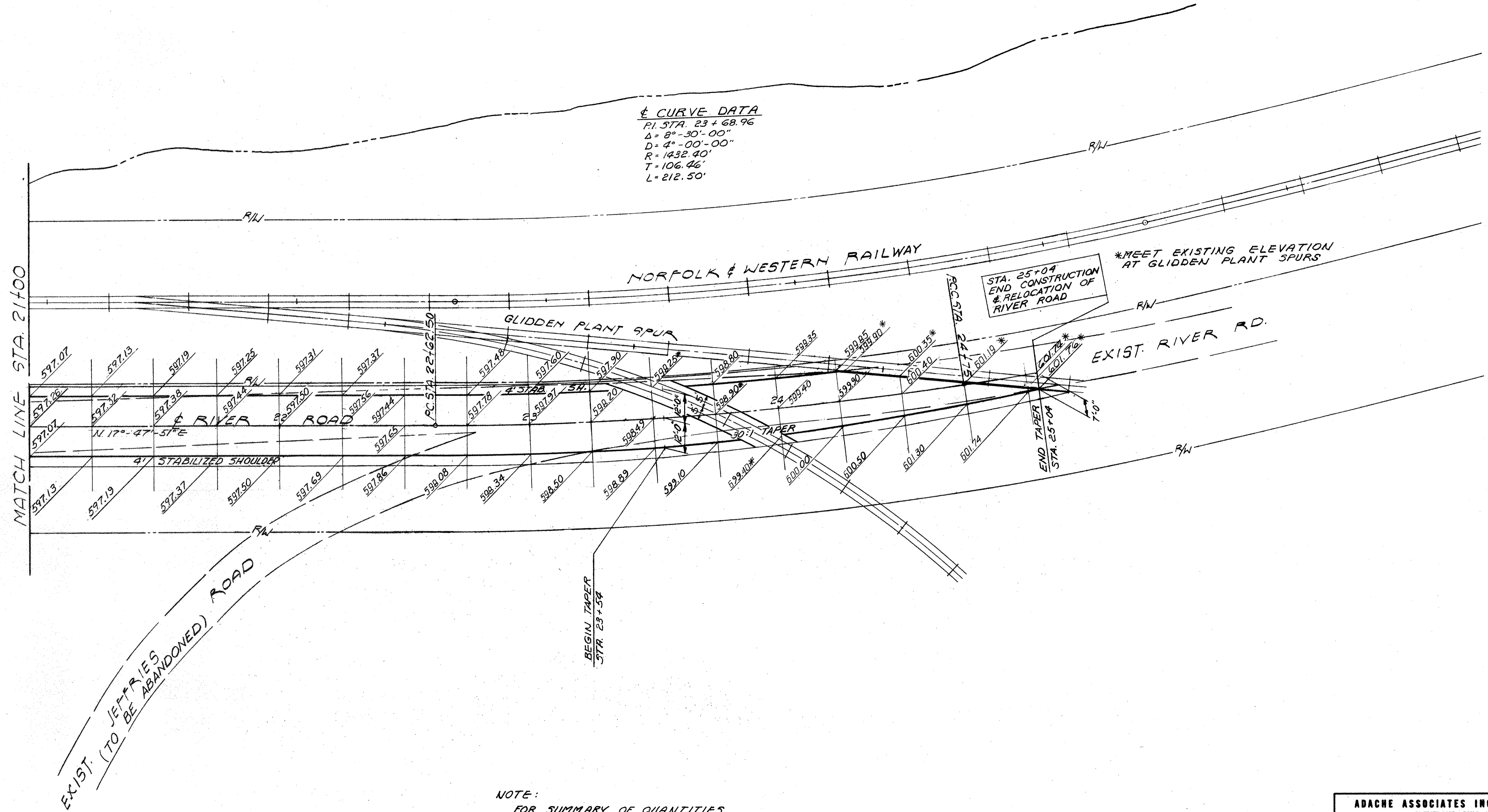
66  
326

ERIE COUNTY  
ERI 2-18.38

HURON RIVER



± CURVE DATA  
 P.I. STA. 23 + 68.96  
 Δ = 8° - 30' - 00"  
 D = 4° - 00' - 00"  
 R = 1432.40'  
 T = 106.46'  
 L = 212.50'



NOTE:  
 FOR SUMMARY OF QUANTITIES  
 RIVER RD. SEE SH. NO. 64

3/3

ADACHE ASSOCIATES INC., ENGINEERS  
 CLEVELAND, OHIO 44142

PAVEMENT DETAILS  
 RIVER ROAD  
 STA. 21+00 TO STA. 25+04

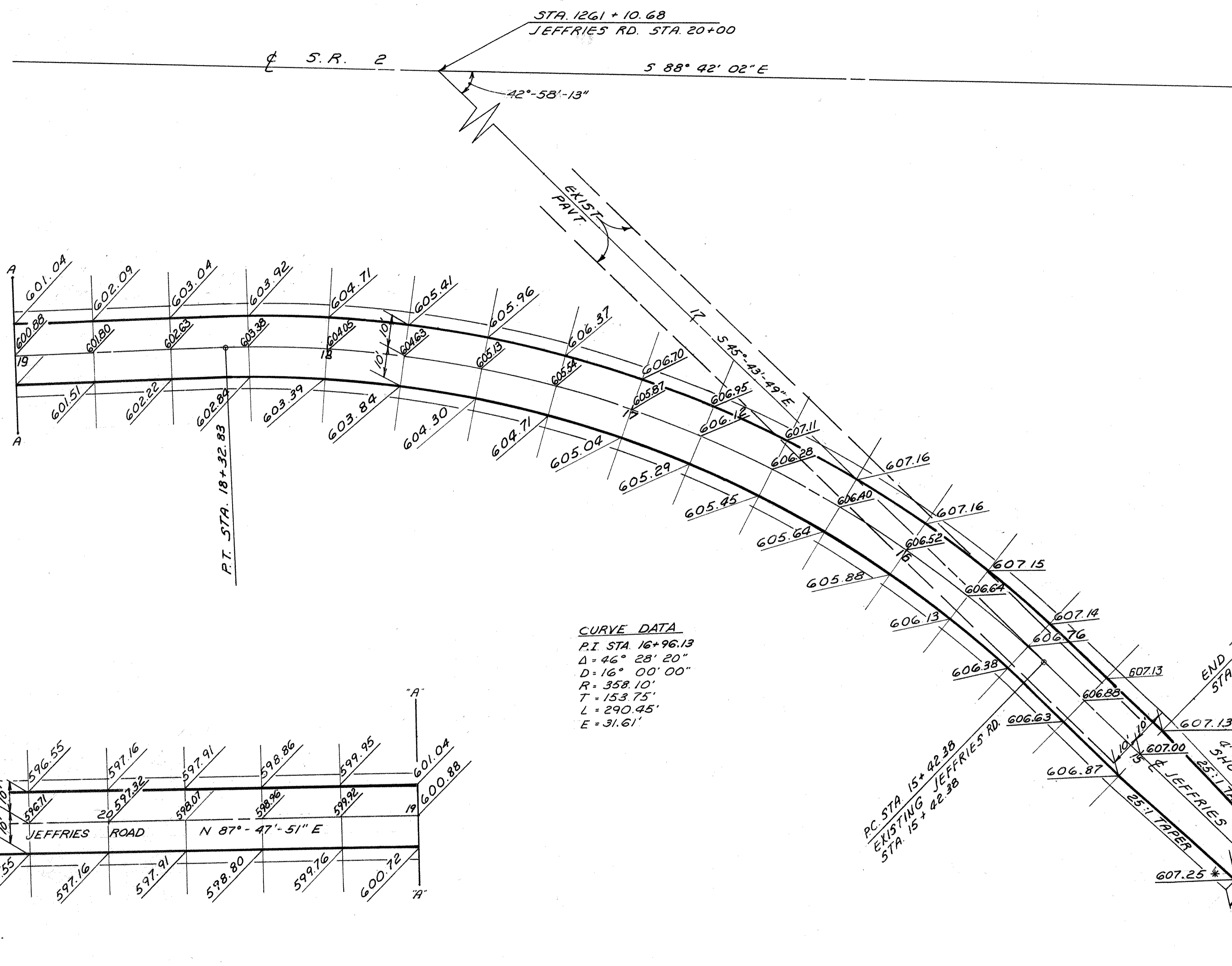
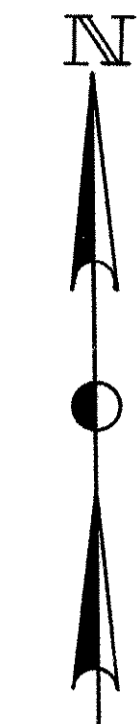
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.J.Z.	N.K.	J.I.D.			
3-18-69	5-20-69	6-27-69			



FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

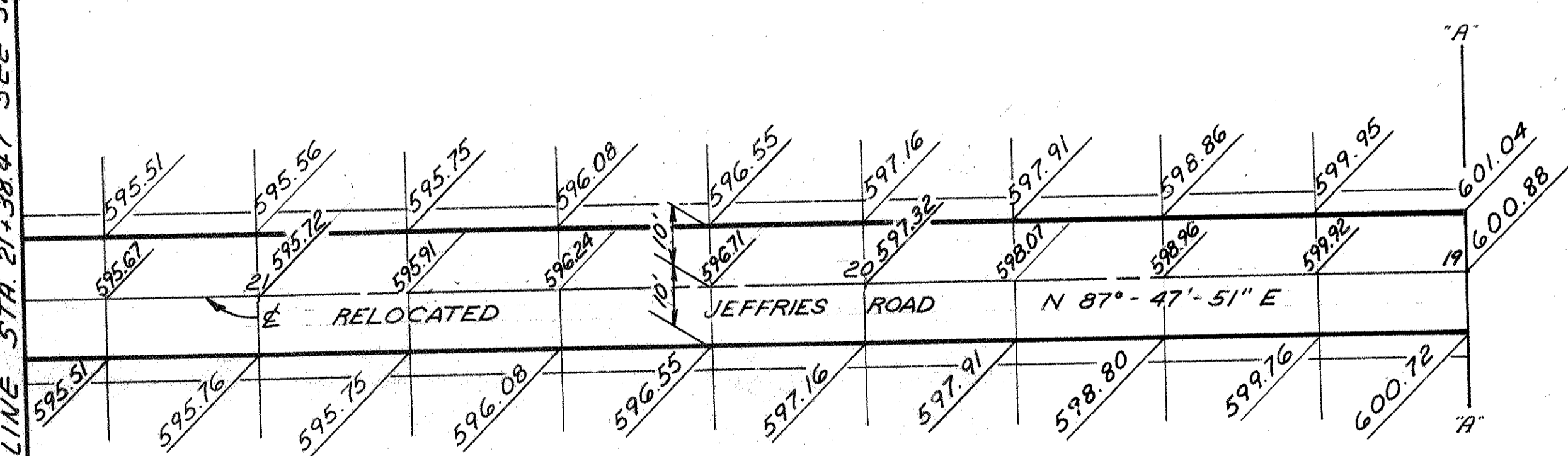
67  
326

ERIE COUNTY  
ERI. 2-1838



**CURVE DATA**  
 P.I. STA. 16+96.13  
 $\Delta = 46^\circ 28' 20''$   
 $D = 16^\circ 00' 00''$   
 $R = 358.10'$   
 $T = 153.75'$   
 $L = 290.45'$   
 $E = 31.61'$

MATCH LINE STA. 21+38.47 SEE 5H.65



\*EXISTING ELEVATIONS

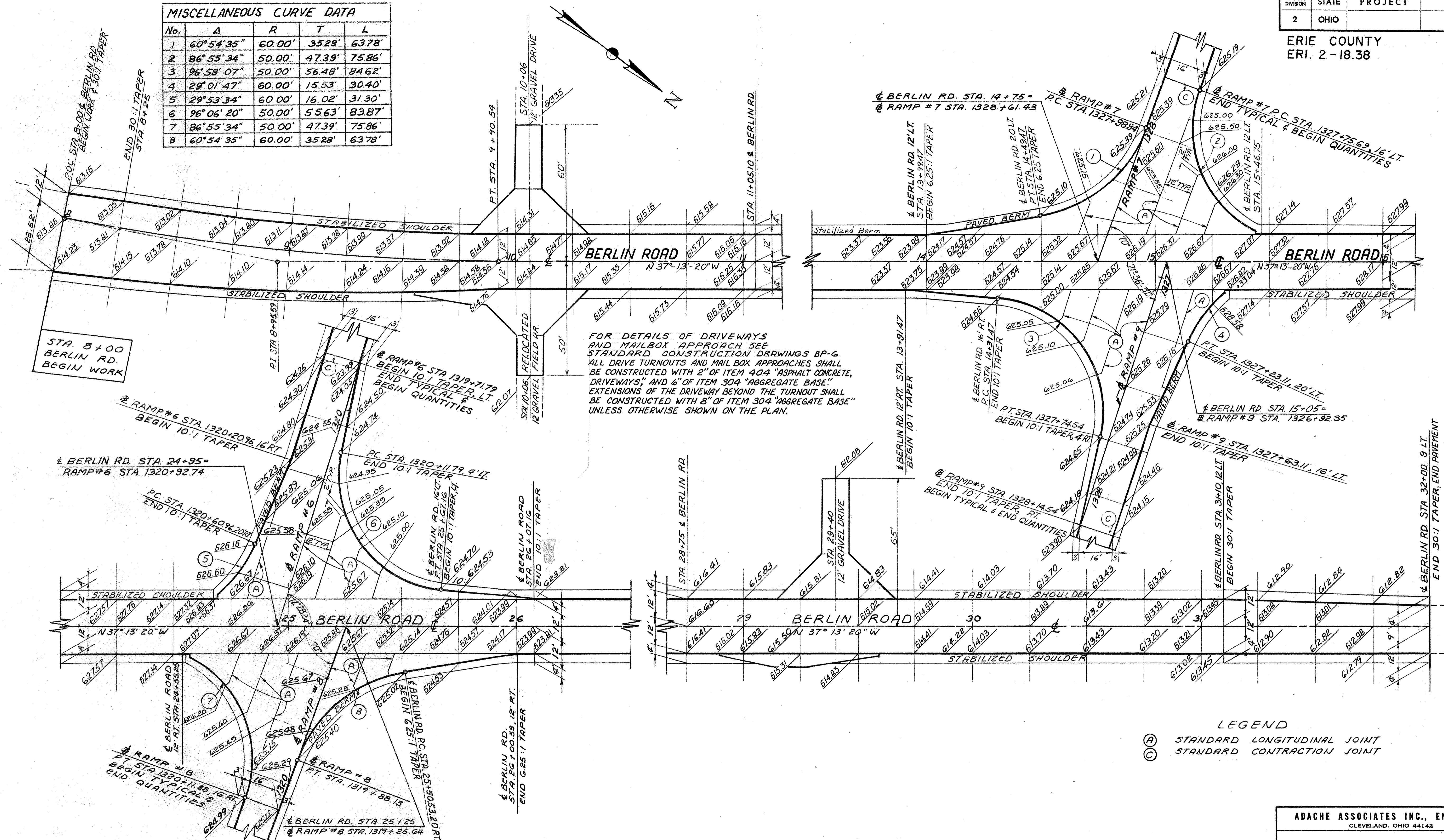
SUMMARY OF QUANTITIES					
203	304	310	404	408	605
SUBGRADE	AGGREGATE	SUBBASE	ASPHALT	BITUMINOUS	AGGREGATE
COMPACTION	BASE	TYPE II	CONCRETE	PRIME	DRAIN
			AC-20	COAT	
SQ. YDS.	CU. YDS.	CU. YDS.	CU. YDS.	GAL.	LIN. FT.
1,520	356	187	53	608	416

ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

PAVEMENT DETAILS  
JEFFRIES ROAD

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
J.J.D.	L.M.W.	R.J.Z.			
7-10-69	7-15-69	8-25-69			

MISCELLANEOUS CURVE DATA				
No.	Δ	R	T	L
1	60°54'35"	60.00'	35.28'	63.78'
2	86°55'34"	50.00'	47.39'	75.86'
3	96°58'07"	50.00'	56.48'	84.62'
4	29°01'47"	60.00'	15.53'	30.40'
5	29°53'34"	60.00'	16.02'	31.30'
6	96°06'20"	50.00'	55.63'	83.87'
7	86°55'34"	50.00'	47.39'	75.86'
8	60°54'35"	60.00'	35.28'	63.78'



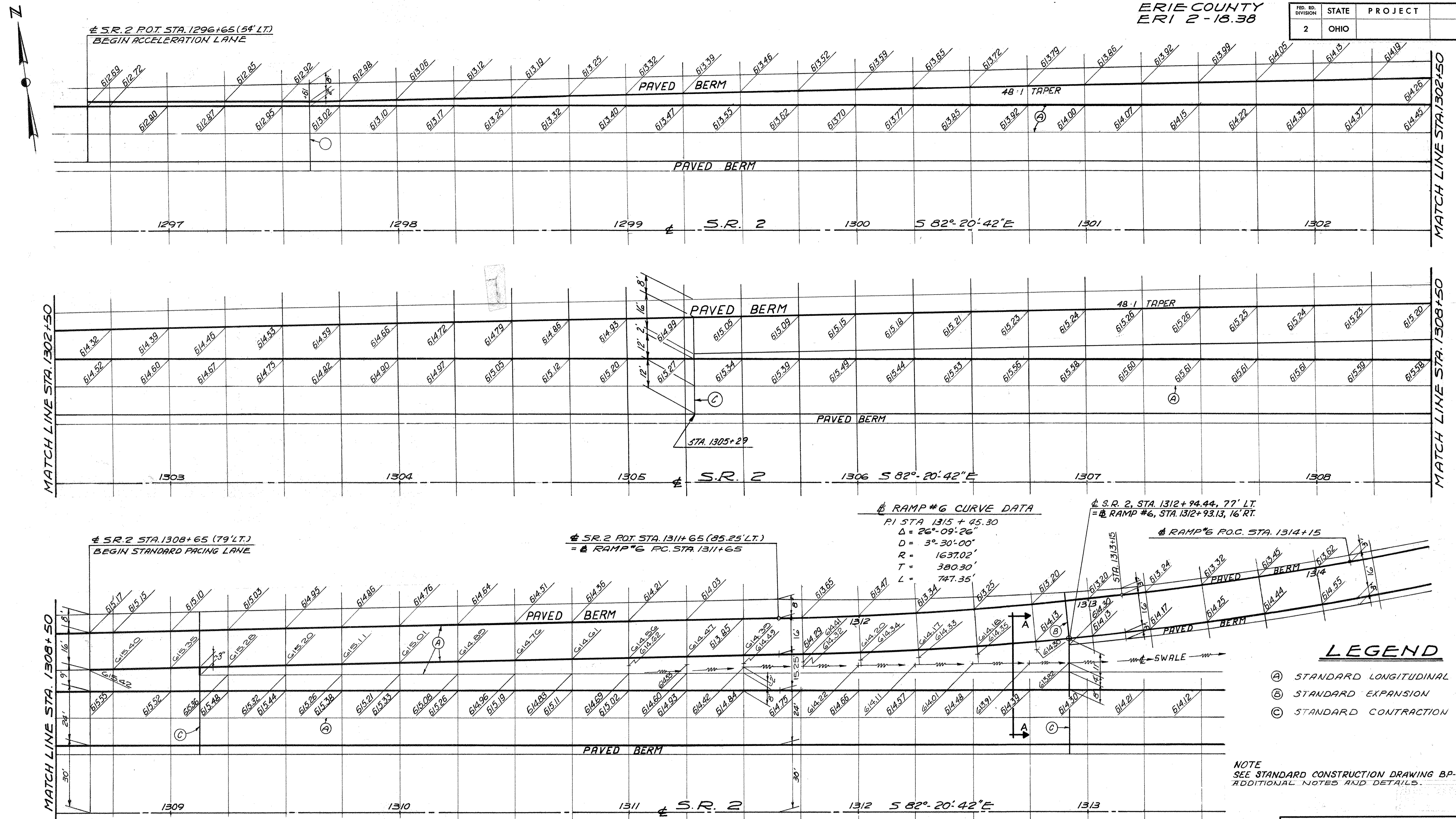
LEGEND  
 (A) STANDARD LONGITUDINAL JOINT  
 (C) STANDARD CONTRACTION JOINT

ITEM DESCRIPTION	SUMMARY OF QUANTITIES											
	203	301	409	305	310	402	404	411	407	304	404	
	SUBGRADE COMPACTION	BITUMINOUS AGGREGATE BASE	SEAL COAT	COVER	CONCRETE	ASPHALT CONCRETE	ASPHALT CONCRETE	STABILIZED CRUSHED AGGREGATE	TACK COAT	AGGREGATE BASE	ASPHALT CONCRETE (DRIVEWAYS)	
	SQ. YD.	CU. YD.	GAL	NO. B.	SQ. YD.	CU. YD.	CU. YD.	CU. YD.	GAL.	CU. YD.	CU. YDS.	
BERLIN RD.	7,590	981	133	3	1800	300	302	243	230	147	40	
DRIVEWAY	—	—	—	—	—	—	—	—	—	—	14	
TOTAL	7,590	981	133	3	1800	300	302	243	230	147	14	

ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

PAVEMENT DETAILS  
BERLIN ROAD

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R. W. H.	N. C. G.	J. J. D.		12-20-61	6-4-68 2-18-70

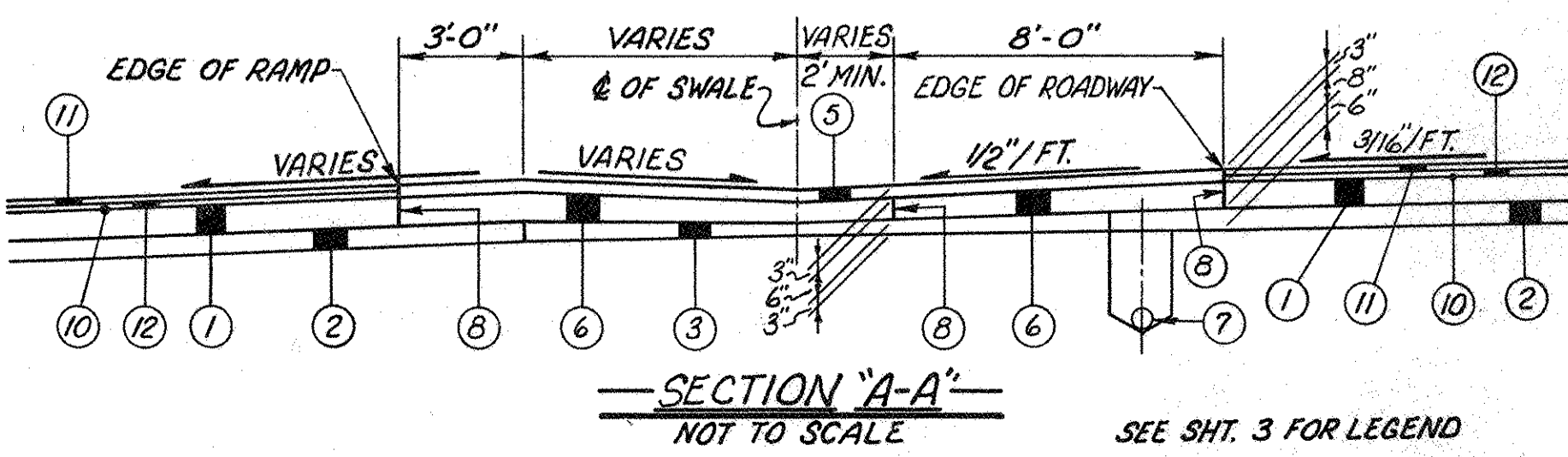


**RAMP #6 CURVE DATA**  
 P.I. STA 1315 + 45.30  
 $\Delta = 26^{\circ} 09' 26''$   
 $D = 3^{\circ} 30' 00''$   
 $R = 1637.02'$   
 $T = 380.30'$   
 $L = 747.35'$

**LEGEND**

- (A) STANDARD LONGITUDINAL JOINT
- (B) STANDARD EXPANSION JOINT
- (C) STANDARD CONTRACTION JOINT

NOTE  
 SEE STANDARD CONSTRUCTION DRAWING BP-9 FOR  
 ADDITIONAL NOTES AND DETAILS.



SUMMARY OF QUANTITIES											
310	203	301	305	310		305	402	404	407	409 SEAL COAT	
SUBBASE TYPE I GRADING A OR B	SUBGRADE COMPACTION	BITUMINOUS AGGREGATE	8" - 6" CONCRETE BASE	SUBBASE TYPE II	SUBBASE TYPE I GRADING A	8" CONCRETE BASE	ASPHALT CONCRETE AC-20	ASPHALT CONCRETE AC-20	TACK COAT	BITUMINOUS MATERIAL	COVER AGGREGATE
CU. YD.	SQ. YD.	CU. YD.	SQ. YD.	CU. YD.	CU. YD.	SQ. YD.	CU. YD.	CU. YD.	GAL.	GAL.	CU. YD.
576	4.811	181	2,092	561	180	2,719	129	92	264	867	18

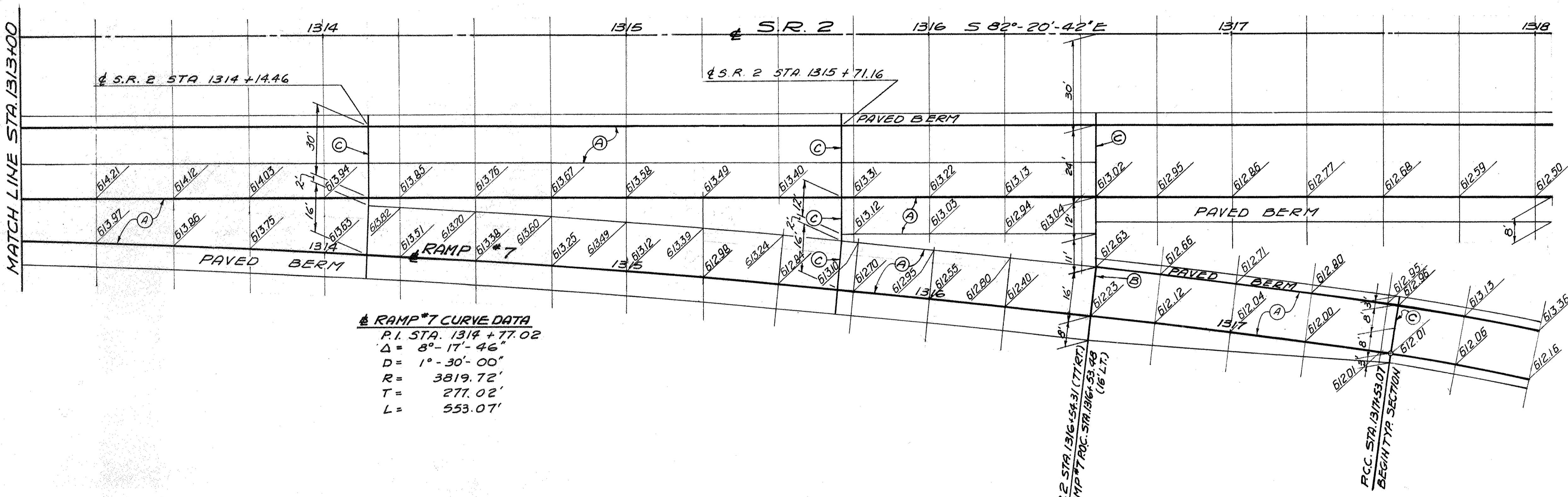
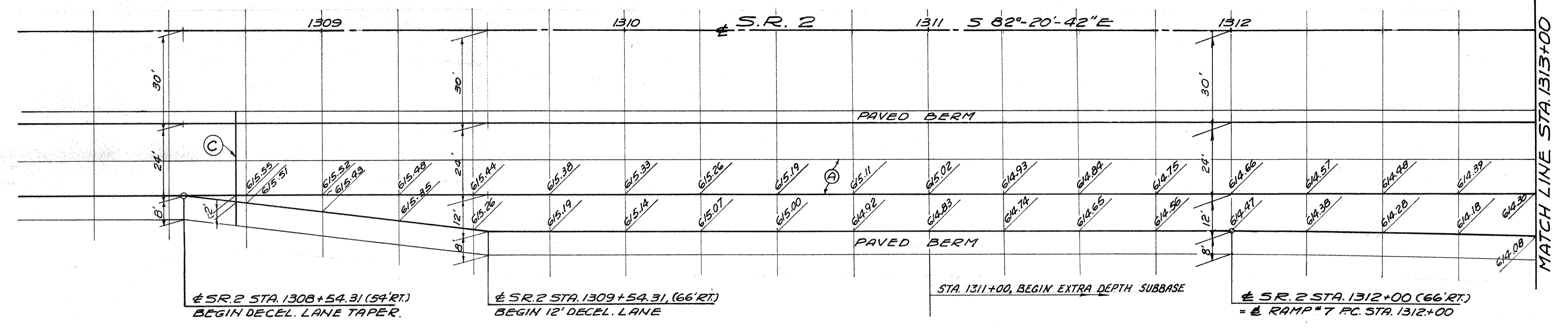
ADACHE ASSOCIATES INC., ENGINEERS  
 CLEVELAND, OHIO 44142

**PAVEMENT DETAILS**  
**RAMP #6**  
**BERLIN RD. INTERCHANGE**

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
J.D.A.	J.D.A.	R.J.E.		
6-26-69	7-5-69	8-22-69		

**LEGEND**

- (A) STANDARD LONGITUDINAL JOINT
- (B) STANDARD EXPANSION JOINT
- (C) STANDARD CONTRACTION JOINT



**RAMP #7 CURVE DATA**  
P.I. STA. 1314 + 77.02  
 $\Delta = 8^{\circ}-17'-46''$   
 $D = 1^{\circ}-30'-00''$   
 $R = 3819.72'$   
 $T = 277.02'$   
 $L = 553.07'$

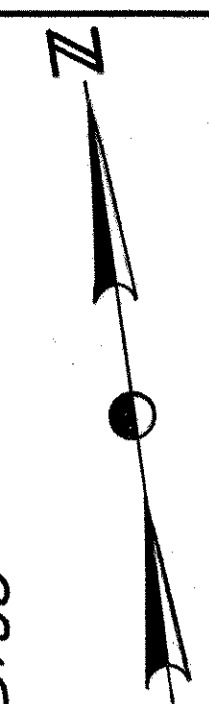
SEE STANDARD CONSTRUCTION DRAWING BP-9  
FOR ADDITIONAL NOTES AND DETAILS.

SUMMARY OF QUANTITIES											
310	203	301	305	310	305	402	404	407	409 SEAL COAT		
SUBBASE TYPE I GRADING A OR B	SUBGRADE COMPACTION	BITUMINOUS AGGREGATE	8" - 6" CONCRETE BASE	SUBBASE TYPE II	SUBBASE TYPE I GRADING A	8" CONCRETE BASE	ASPHALT CONCRETE AC-20	ASPHALT CONCRETE AC-20	TACK COAT	BITUMINOUS MATERIAL	COVER AGGREGATE No. 8
CU. YD.	SQ. YD.	CU. YD.	CU. YD.	CU. YD.	CU. YD.	SQ. YD.	CU. YD.	CU. YD.	GAL.	GAL.	CU. YD.
978	2,436	67	771	327	59	1664	79	57	163	322	6

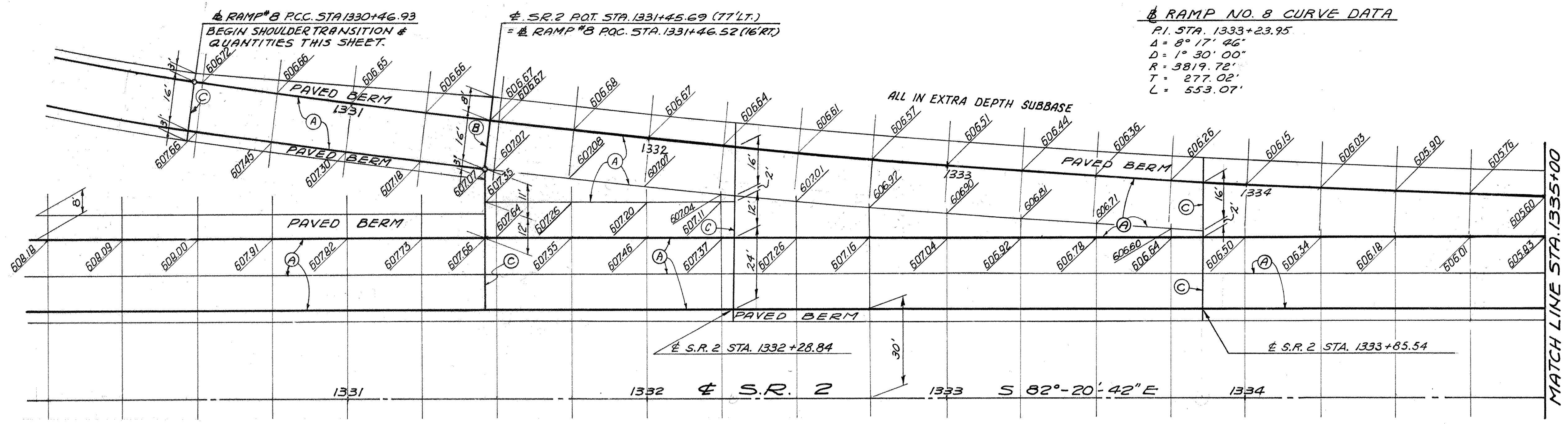
ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

**PAVEMENT DETAILS**  
**RAMP #7**  
**BERLIN RD. INTERCHANGE**

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
R. W. H.	J. D. A.	R. J. E.		11-19-67
				5-10-68
				9-17-69

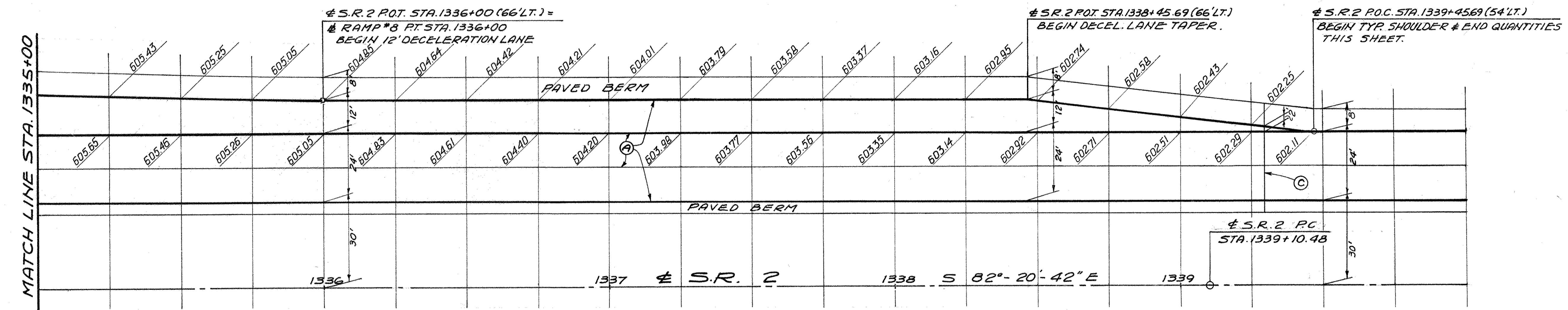


**RAMP NO. 8 CURVE DATA**  
 P.I. STA. 1333+23.95  
 $\Delta = 8^{\circ} 17' 46''$   
 $D = 1^{\circ} 30' 00''$   
 $R = 3819.72'$   
 $T = 277.02'$   
 $L = 553.07'$



**LEGEND**

- (A) STANDARD LONGITUDINAL JOINT
- (B) STANDARD EXPANSION JOINT
- (C) STANDARD CONTRACTION JOINT



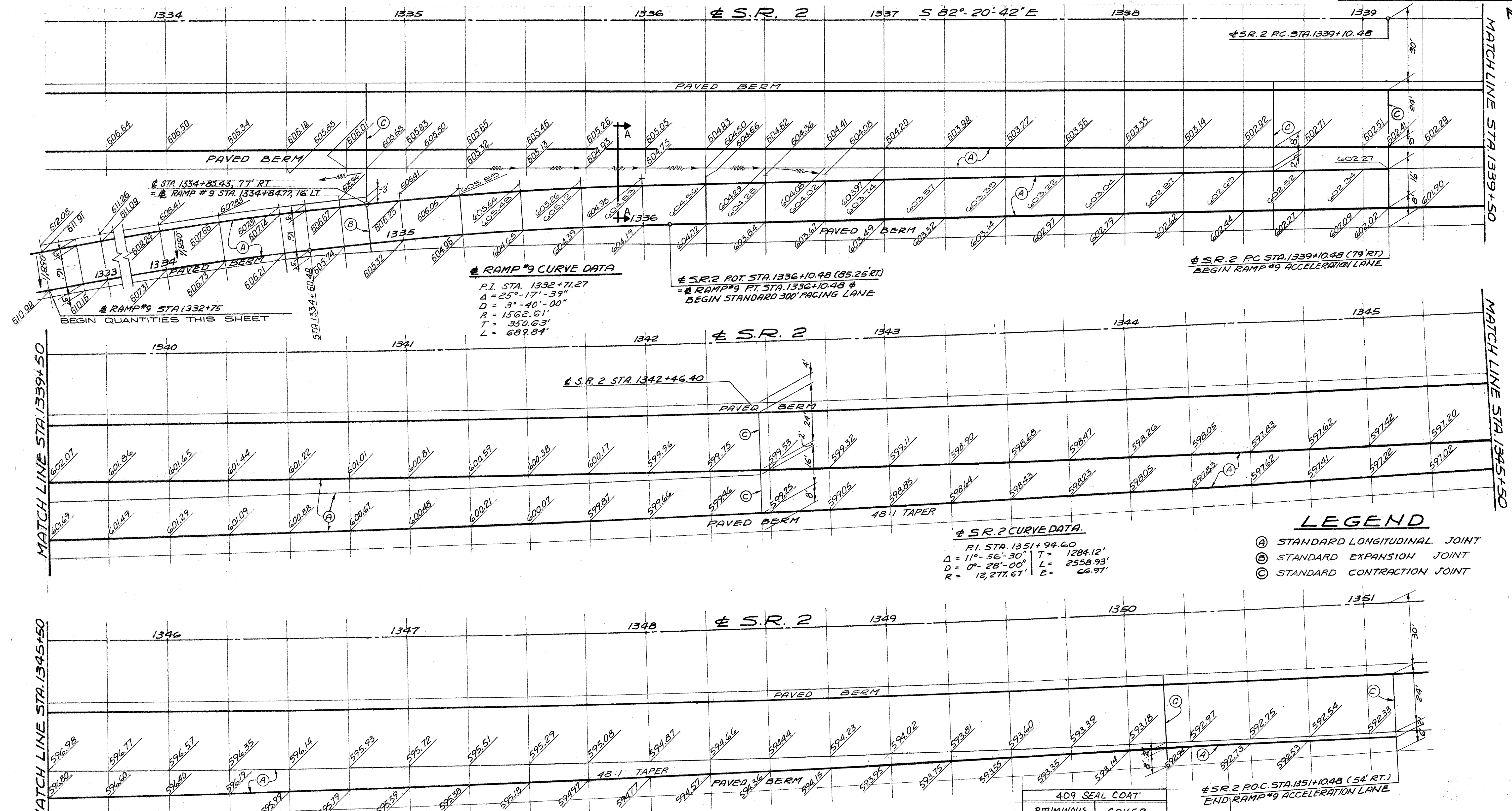
SEE STANDARD CONSTRUCTION DRAWING, BP-9  
FOR ADDITIONAL NOTES AND DETAILS.

SUMMARY OF QUANTITIES											
310	203	301	305	310	305	402	404	407	409 SEAL COAT		
SUBBASE TYPE I GRADING A OR B	SUBGRADE COMPACTION	BITUMINOUS AGGREGATE	8" - C+ CONCRETE BASE	SUBBASE TYPE II	SUBBASE TYPE I GRADING A	8" CONCRETE BASE	ASPHALT CONCRETE AC-20	ASPHALT CONCRETE AC-20	TACK COAT	BITUMINOUS MATERIALS	COVER AGGREGATE No. 8
CU. YD.	SQ. YD.	CU. YD.	SQ. YD.	CU. YD.	CU. YD.	SQ. YD.	CU. YD.	CU. YD.	GAL.	GAL.	CU. YD.
1,218	2,436	67	771	327	59	1,664	79	57	163	322	7

ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

**PAVEMENT DETAILS**  
**RAMP #8**  
**BERLIN RD. INTERCHANGE**

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
R.W.H.	J.D.A.	J.J.D.		
11-19-67	5-10-68	10-18-69		

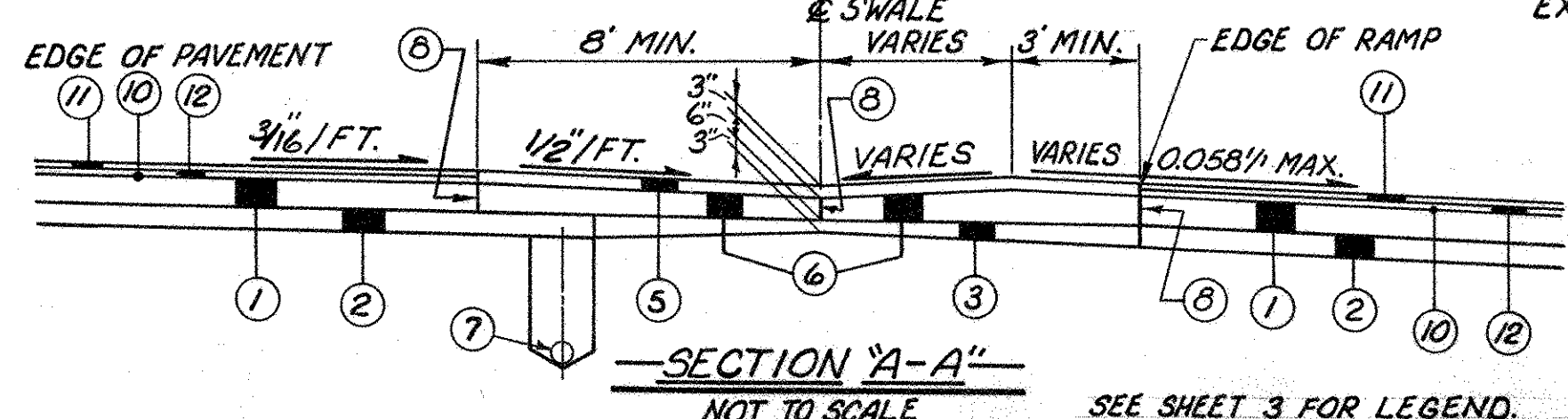


**RAMP #9 CURVE DATA**  
 P.I. STA. 1332+71.27  
 $\Delta = 25^\circ-17'-39''$   
 $D = 3^\circ-40'-00''$   
 $R = 1562.61'$   
 $T = 350.83'$   
 $L = 689.84'$

**S.R. 2 CURVE DATA**  
 P.I. STA. 1336+10.48 (85.25' RT)  
 = RAMP #9 P.I. STA. 1336+10.48  
 BEGIN STANDARD 300' PACING LANE

**S.R. 2 CURVE DATA**  
 P.I. STA. 1351+94.60  
 $\Delta = 11^\circ-56'-30''$  |  $T = 1284.12'$   
 $D = 0^\circ-28'-00''$  |  $L = 2558.93'$   
 $R = 12,277.67'$  |  $E = 66.97'$

**LEGEND**  
 (A) STANDARD LONGITUDINAL JOINT  
 (B) STANDARD EXPANSION JOINT  
 (C) STANDARD CONTRACTION JOINT



SUMMARY OF QUANTITIES									
310	203	301	305	310	305	402	404	407	
SUBBASE TYPE I GRADING A OR B	SUBGRADE COMPACTION	BITUMINOUS AGGREGATE	8" - 6" CONCRETE BASE	SUBBASE TYPE I GRADING A	SUBBASE TYPE II	8" CONCRETE BASE	ASPHALT CONCRETE AC-20	ASPHALT CONCRETE AC-20	TACK COAT
CU. YD.	SQ. YD.	CU. YD.	SQ. YD.	CU. YD.	CU. YD.	SQ. YD.	CU. YD.	CU. YD.	GAL.
2,280	5,034	185	2,093	175	606	2,941	137	98	281

409 SEAL COAT	
BITUMINOUS MATERIAL	COVER
GAL.	CU. YD.
625	13

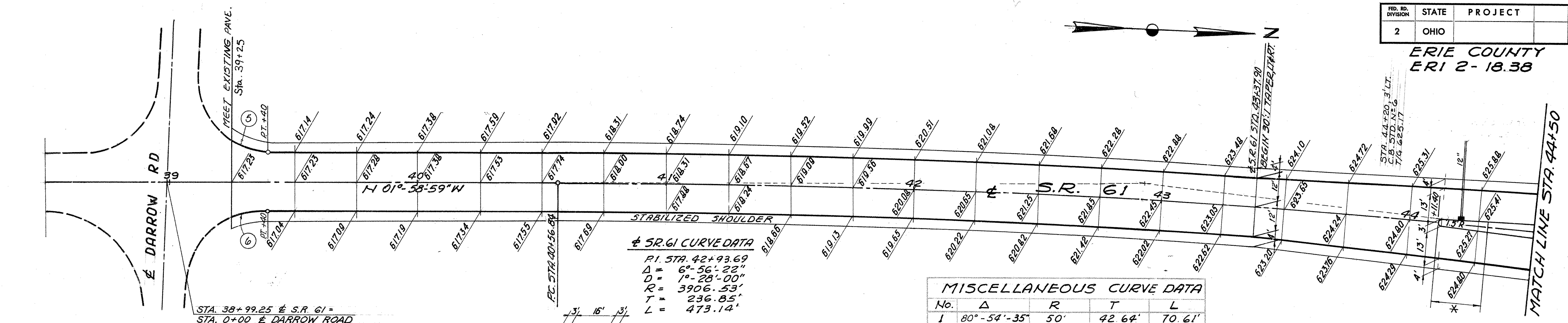
NOTE  
 SEE STANDARD CONSTRUCTION DRAWING BP-9 FOR NOTES AND DETAILS NOT SHOWN.

ADACHE ASSOCIATES INC., ENGINEERS  
 CLEVELAND, OHIO 44142

**PAVEMENT DETAILS**  
**RAMP #9**  
**BERLIN RD. INTERCHANGE**

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
R.W.H.	J.D.A.	R.J.Z.		
11-27-67	12-17-67	2-10-70		

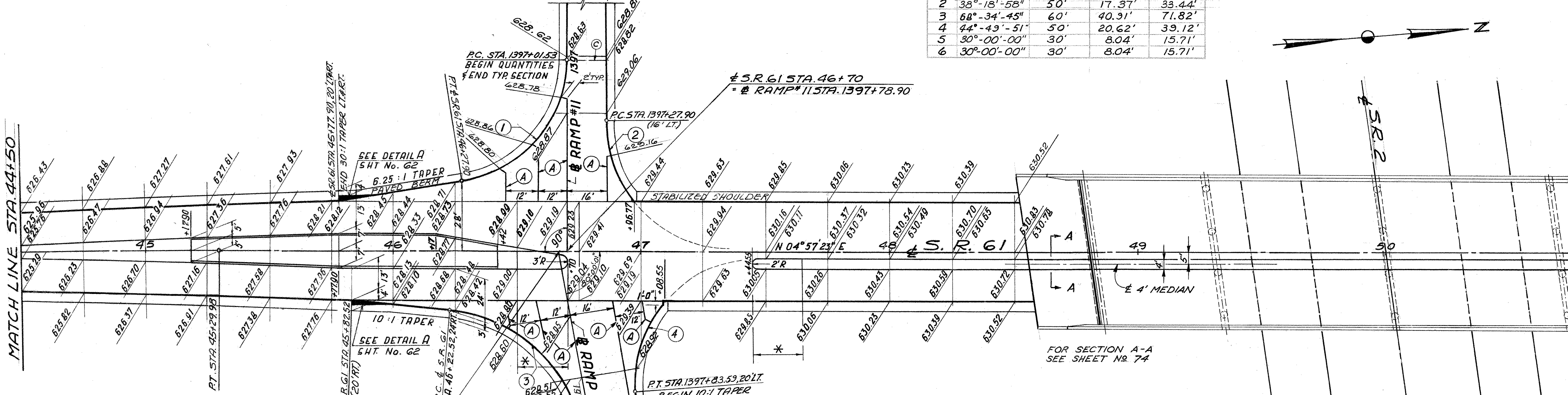
ERIE COUNTY  
ERI 2-18.38



**S.R. 61 CURVE DATA**  
 P1 STA. 42+93.69  
 $\Delta = 6^{\circ} 56' 22''$   
 $D = 1^{\circ} 28' 00''$   
 $R = 3906.53'$   
 $T = 236.85'$   
 $L = 473.14'$

**MISCELLANEOUS CURVE DATA**

No.	$\Delta$	R	T	L
1	$80^{\circ} 54' 35''$	50'	42.64'	70.61'
2	$38^{\circ} 18' 58''$	50'	17.37'	33.44'
3	$68^{\circ} 34' 45''$	60'	40.91'	71.82'
4	$44^{\circ} 43' 51''$	50'	20.62'	39.12'
5	$30^{\circ} 00' 00''$	30'	8.04'	15.71'
6	$30^{\circ} 00' 00''$	30'	8.04'	15.71'



**DATA FOR CURVE #1 RAMP D**  
 P1=1400+34.76 L=264.31'  
 $\Delta = 2^{\circ} 08' 42''$  T=133.68'  
 $D = 8^{\circ} 00' 00''$  E=12.37'  
 $R = 716.20'$

**LEGEND**

- (A) STANDARD LONGITUDINAL JOINT
- (C) STANDARD CONTRACTION JOINT
- (D) STANDARD CONSTRUCTION JOINT

**NOTES:**  
 FOR SUMMARY OF QUANTITIES  
 S.R. 61 SEE SHEET NO. 75  
 \* MEDIAN HEIGHT VARIES FROM  
 2" TO 6" IN 20' TYP.

1/3

ADACHE ASSOCIATES INC., ENGINEERS  
 CLEVELAND, OHIO 44142

**PAVEMENT DETAILS**  
 S.R. 61  
 STA. 39+25 TO STA. 50+75

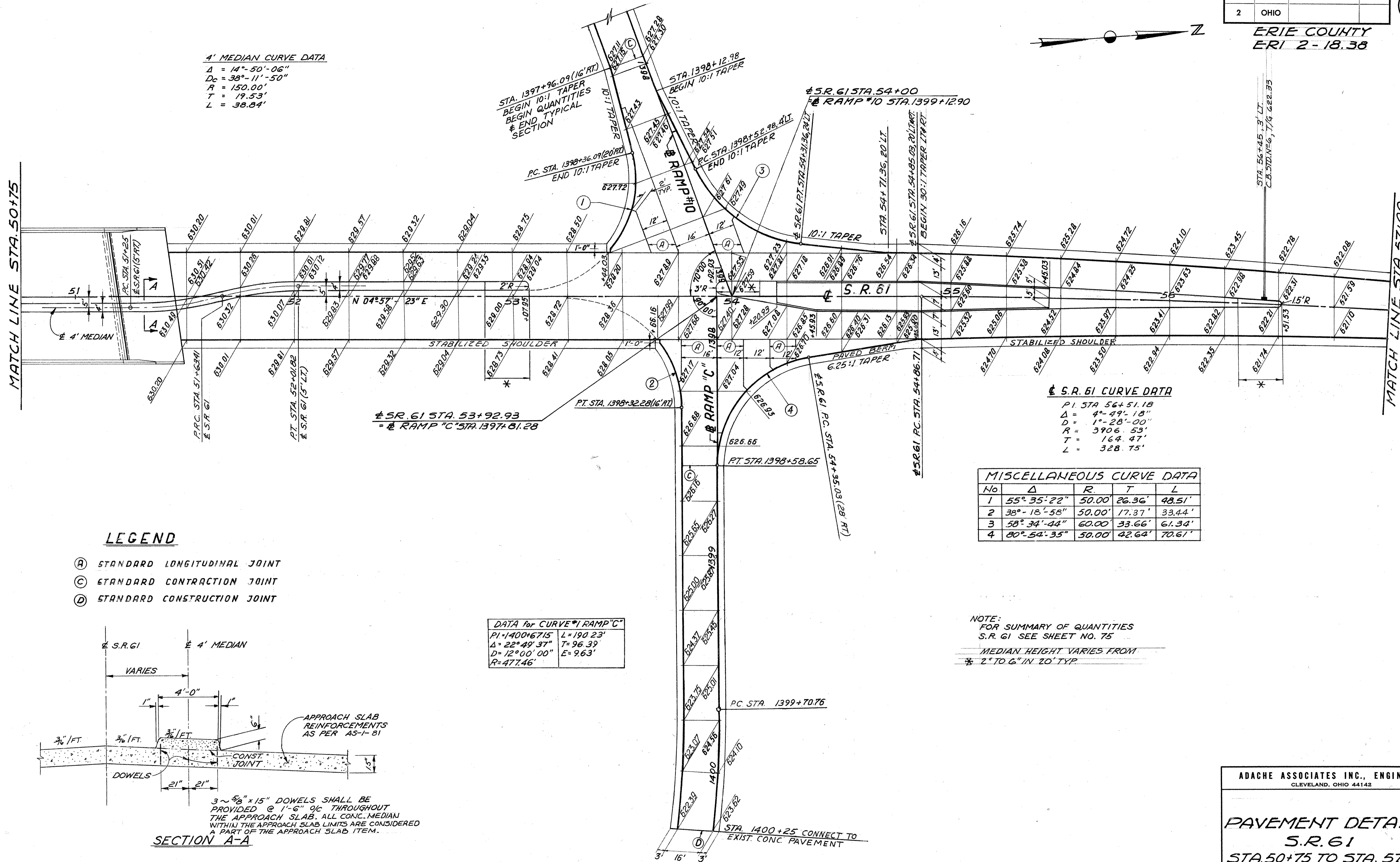
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
RJZ	J.D.R.	P.I.W.			
10-28-68	11-4-68	12-5-68			



**4' MEDIAN CURVE DATA**  
 $\Delta = 14^\circ - 50' - 06''$   
 $D_c = 38^\circ - 11' - 50''$   
 $R = 150.00'$   
 $T = 19.53'$   
 $L = 38.84'$

MATCH LINE STA. 50+75

MATCH LINE STA. 57+00



**S.R. 61 CURVE DATA**  
 $P.I. STA. 56+51.18$   
 $\Delta = 4^\circ - 49' - 18''$   
 $D = 1^\circ - 28' - 00''$   
 $R = 3906.53'$   
 $T = 164.47'$   
 $L = 328.75'$

**MISCELLANEOUS CURVE DATA**

No	$\Delta$	R	T	L
1	$55^\circ - 35' - 22''$	50.00	26.36'	48.51'
2	$38^\circ - 18' - 58''$	50.00	17.37'	33.44'
3	$58^\circ - 34' - 44''$	60.00	33.66'	61.34'
4	$80^\circ - 54' - 35''$	50.00	42.64'	70.61'

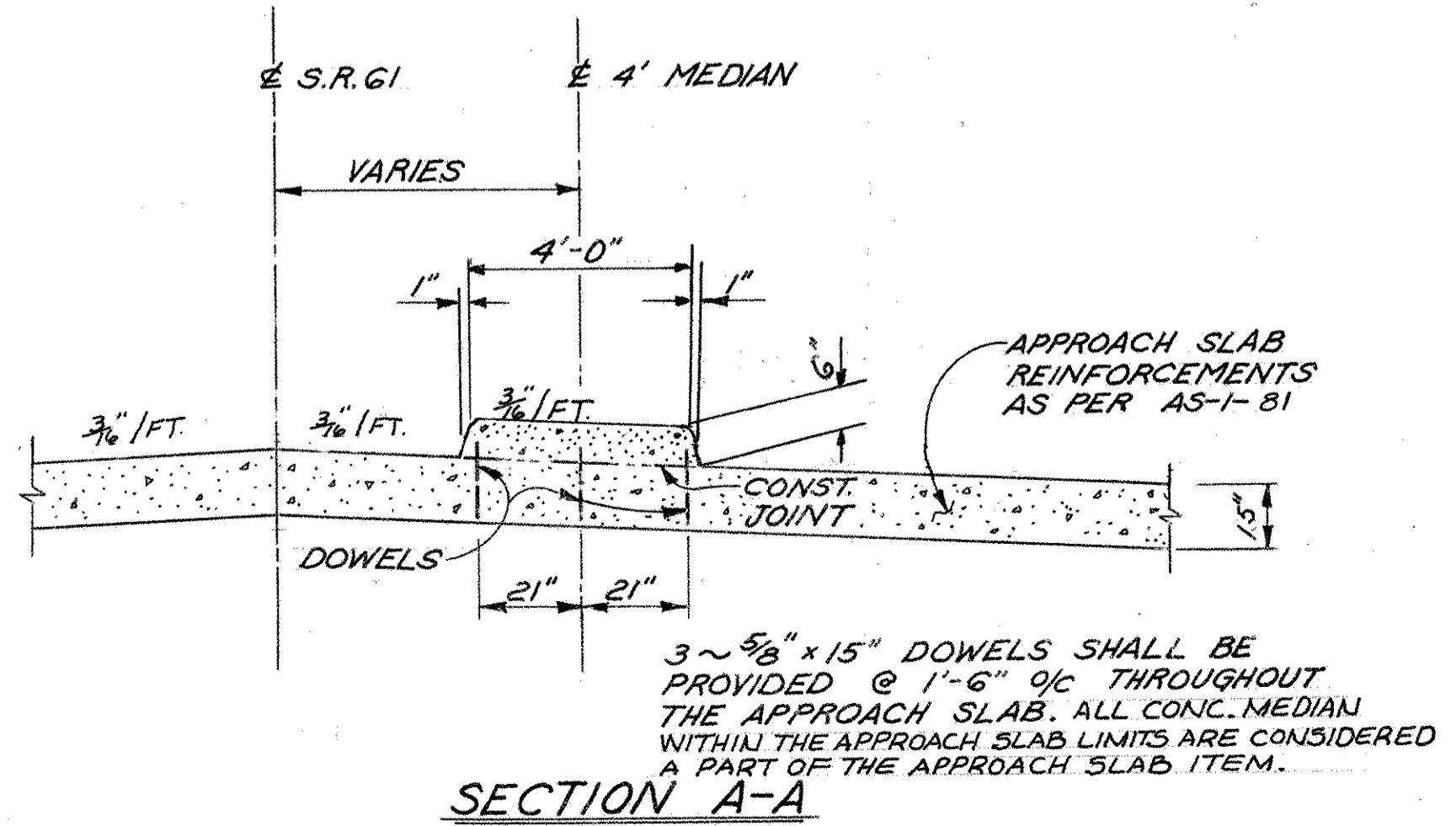
**LEGEND**

- (A) STANDARD LONGITUDINAL JOINT
- (C) STANDARD CONTRACTION JOINT
- (D) STANDARD CONSTRUCTION JOINT

**DATA for CURVE #1 RAMP "C"**

$P.I. 1400+67.15$	$L = 190.23'$
$\Delta = 22^\circ - 49' - 37''$	$T = 96.39'$
$D = 12^\circ - 00' - 00''$	$E = 9.63'$
$R = 477.46'$	

NOTE:  
 FOR SUMMARY OF QUANTITIES  
 S.R. 61 SEE SHEET NO. 75  
 MEDIAN HEIGHT VARIES FROM  
 \* 2" TO 6" IN 20' TYP.

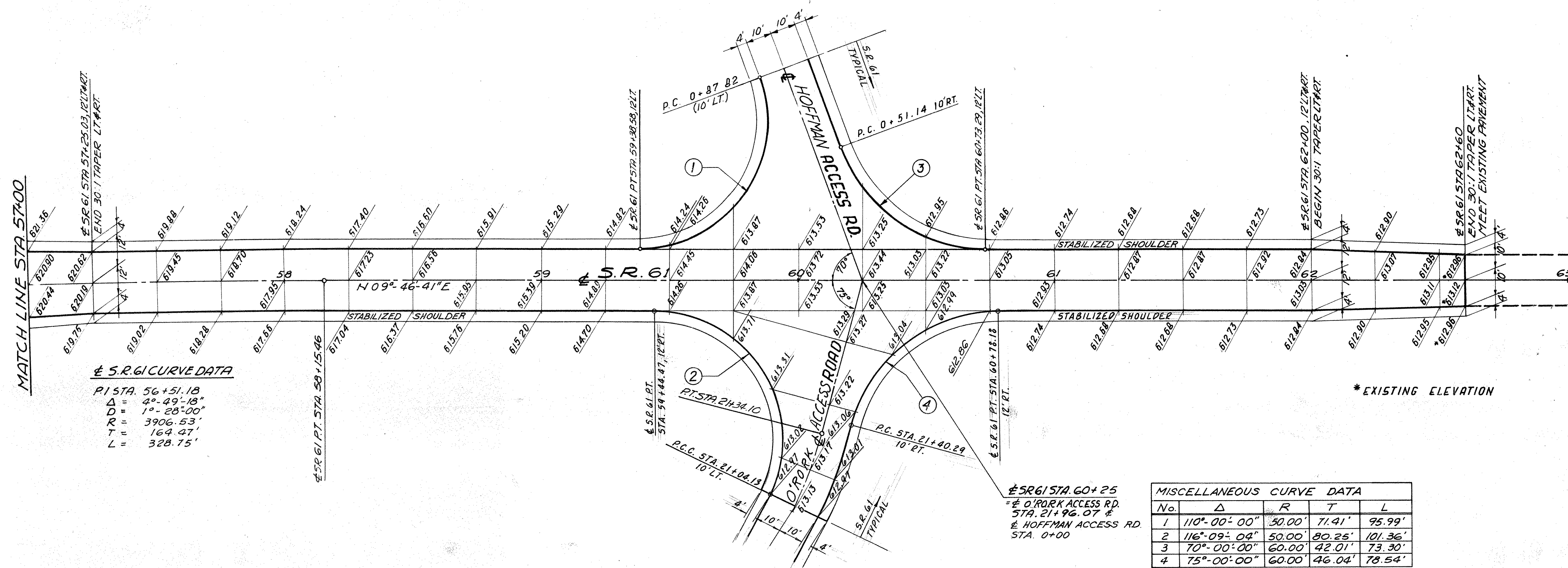
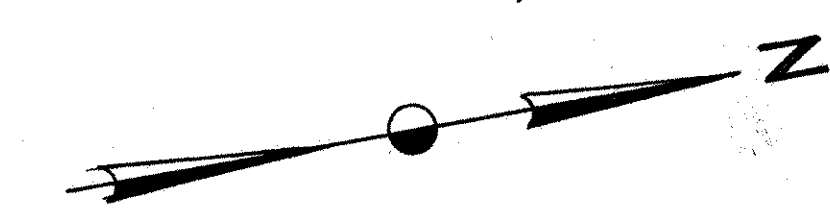


ADACHE ASSOCIATES INC., ENGINEERS  
 CLEVELAND, OHIO 44142

**PAVEMENT DETAILS**  
 S.R. 61  
 STA. 50+75 TO STA. 57+00

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
RJZ	JDR	NF			
5-1-68	11-4-68	12-7-68			





**§ S.R. 61 CURVE DATA**

P.I. STA. 56+51.18  
 $\Delta = 40^{\circ} 49' 18''$   
 $D = 1^{\circ} 28' 00''$   
 $R = 3906.53'$   
 $T = 164.47'$   
 $L = 328.75'$

**MISCELLANEOUS CURVE DATA**

No.	$\Delta$	R	T	L
1	$110^{\circ} 00' 00''$	50.00'	71.41'	95.99'
2	$116^{\circ} 09' 04''$	50.00'	80.25'	101.36'
3	$70^{\circ} 00' 00''$	60.00'	42.01'	73.30'
4	$75^{\circ} 00' 00''$	60.00'	46.04'	78.54'

\* EXISTING ELEVATION

**SUMMARY OF QUANTITIES - STA. 39+25 TO STA. 62+60 S.R. 61 § SERVICE ROADS**

409		203	301	304	310	404	402	404	411	305	609	612	407	612	
SEAL COAT	COVER AGGREGATE NO. 8	SUBGRADE COMPACTION	BITUMINOUS AGGREGATE BASE	AGGREGATE BASE	SUBBASE TYPE-II	ASPHALT CONCRETE AC-20 (DRIVEWAYS)	ASPHALT CONCRETE AC-20	ASPHALT CONCRETE AC-20	STABILIZED CRUSHED AGGREGATE	8" CONCRETE BASE	CURB TYPE G	CONCRETE MEDIAN	COVER AGGREGATE	TACK COAT	CONCRETE TRAFFIC ISLAND T=4"
GAL.	CU. YD.	SQ. YD.	CU. YD.	CU. YD.	CU. YD.	CU. YD.	CU. YD.	CU. YD.	CU. YD.	SQ. YD.	LIN. FT.	SQ. YD.	TON	GAL.	SQ. YD.
202	4	10,722	1288	527	478	53	372	331	267	2206	496	322	3	295	321

REVISED: JKQ 11-85

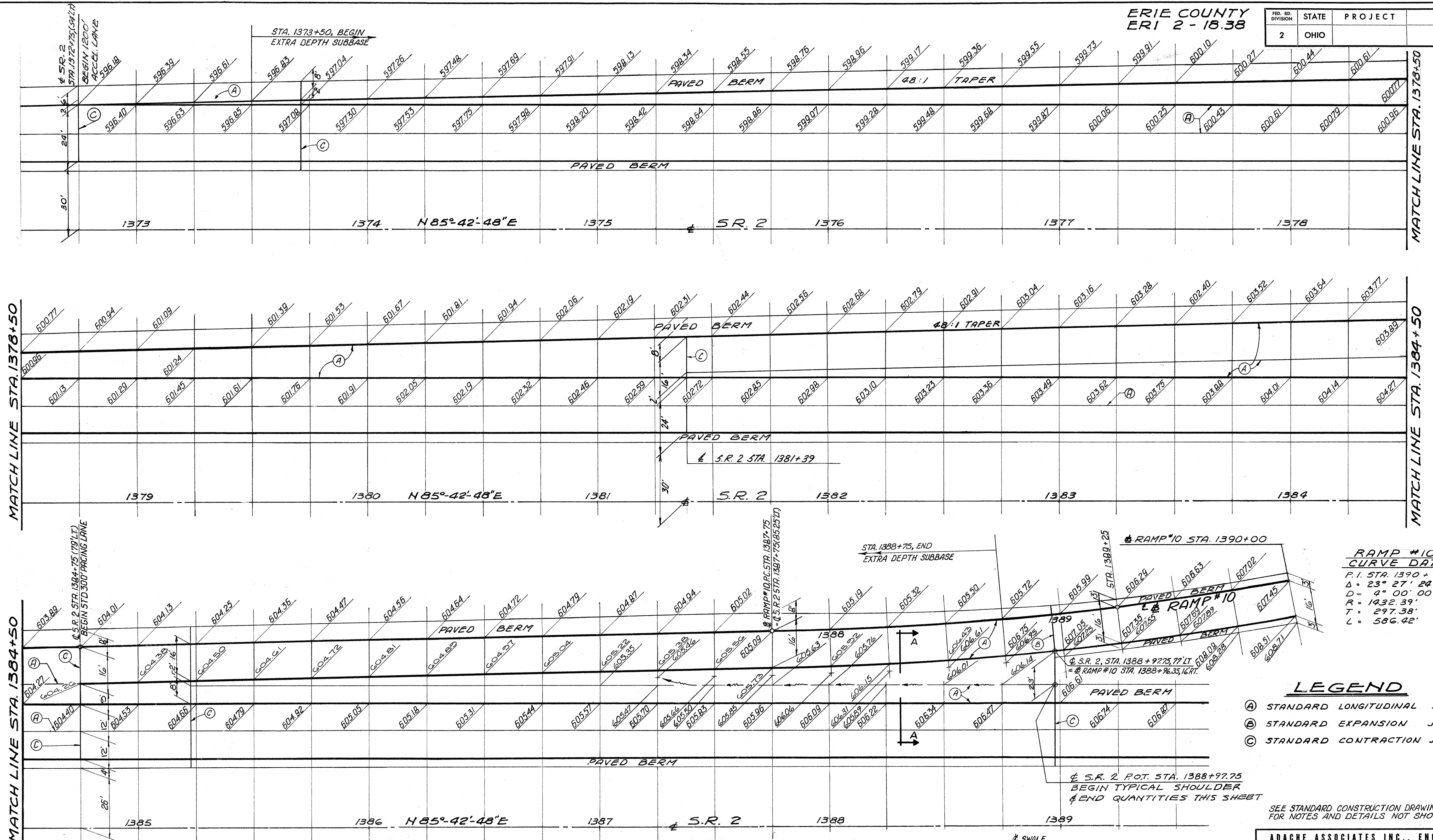
3 / 3

**ADACHE ASSOCIATES INC., ENGINEERS**  
CLEVELAND, OHIO 44142

**PAVEMENT DETAILS**  
**S.R. 61**  
**STA. 57+00 TO STA. 62+60**

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
RJZ	JDA	NF		
5-1-68	11-4-68	12-7-68		

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	



**RAMP #10 CURVE DATA**

P.I. STA.	1390 + 72.38
Δ	23° 27' 24"
D	4° 00' 00"
R	1432.39'
T	297.38'
L	586.42'

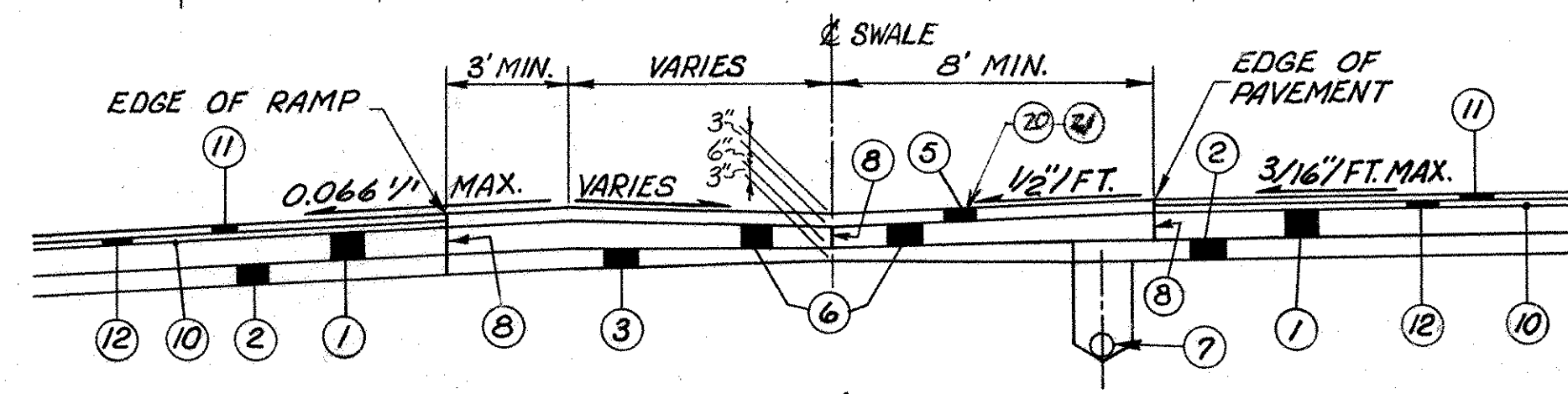
- LEGEND**
- (A) STANDARD LONGITUDINAL JOINT
  - (B) STANDARD EXPANSION JOINT
  - (C) STANDARD CONTRACTION JOINT

SEE STANDARD CONSTRUCTION DRAWING BP-9 FOR NOTES AND DETAILS NOT SHOWN.

**SUMMARY OF QUANTITIES**

310	203	301	305	310	305	402	404	407	
SUBBASE TYPE I GRADING	SUBGRADE COMPACTION	BITUMINOUS AGGREGATE	8" G" CONCRETE BASE	SUBBASE TYPE I GRADING A	SUBBASE TYPE II	8" CONCRETE BASE	ASPHALT CONCRETE AC-20	ASPHALT CONCRETE AC-20	TACK COAT
CU. YD.	SQ. YD.	CU. YD.	SQ. YD.	CU. YD.	CU. YD.	SQ. YD.	CU. YD.	CU. YD.	GAL.
2,155	4,740	178	2,078	173	569	2,662	127	90	260

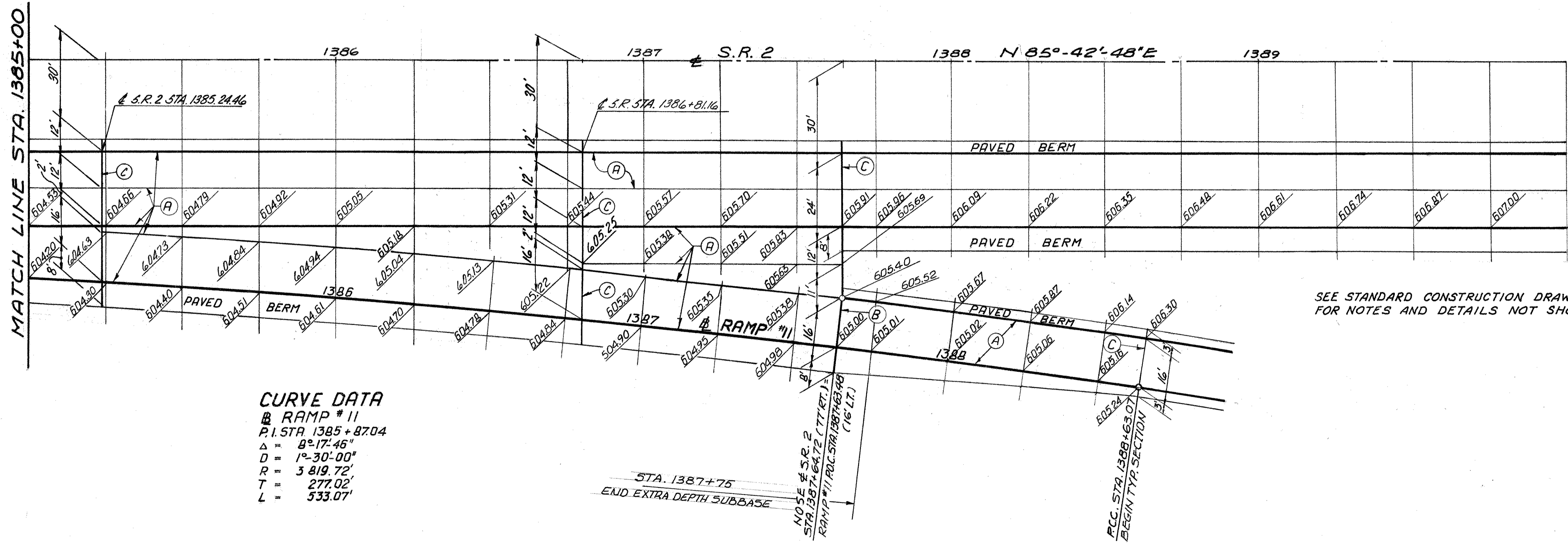
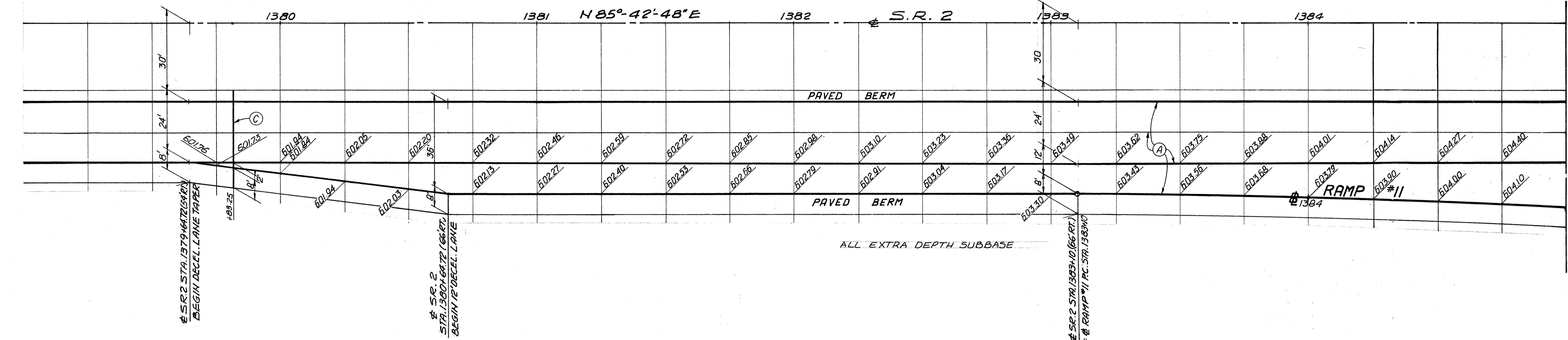
ITEM 409 SEAL COAT BITUMINOUS MATERIAL 623 GAL.  
ITEM 409 COVER AGGREGATE No. 8 17 CU. YD.



ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

**PAVEMENT DETAILS**  
**RAMP #10**  
**RT. 61 INTERCHANGE**

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
J. D. A.	J. D. A.	J. J. D.		
1-10-68	2-7-68	10-10-68		



**CURVE DATA**  
 RAMP #11  
 P.I. STA 1385+87.04  
 Δ = 8°-17'-45"  
 D = 1°-30'-00"  
 R = 5 819.72'  
 T = 277.02'  
 L = 533.07'

- LEGEND**
- (A) STANDARD LONGITUDINAL JOINT
  - (B) STANDARD EXPANSION JOINT
  - (C) STANDARD CONTRACTION JOINT

SEE STANDARD CONSTRUCTION DRAWING BP-9 FOR NOTES AND DETAILS NOT SHOWN.

SUMMARY OF QUANTITIES											
310	203	301	305		310	305	402	404	407	409 SEAL COAT	
SUBBASE TYPE I GRADING A OR B	SUBGRADE COMPACTION	BITUMINOUS AGGREGATE	8"-6" CONCRETE BASE	SUBBASE TYPE II	SUBBASE TYPE I GRADING A	8" CONCRETE BASE	ASPHALT CONCRETE AC-20	ASPHALT CONCRETE AC-20	TACK COAT	BITUMINOUS MATERIAL	COVER AGGREGATE No. 8
CU. YD.	SQ. YD.	CU. YD.	SQ. YD.	CU. YD.	CU. YD.	SQ. YD.	CU. YD.	CU. YD.	GAL.	GAL.	CU. YD.
1.099	2.436	67	771	327	59	1664	79	57	163	322	7

ADACHE ASSOCIATES INC., ENGINEERS  
 CLEVELAND, OHIO 44142

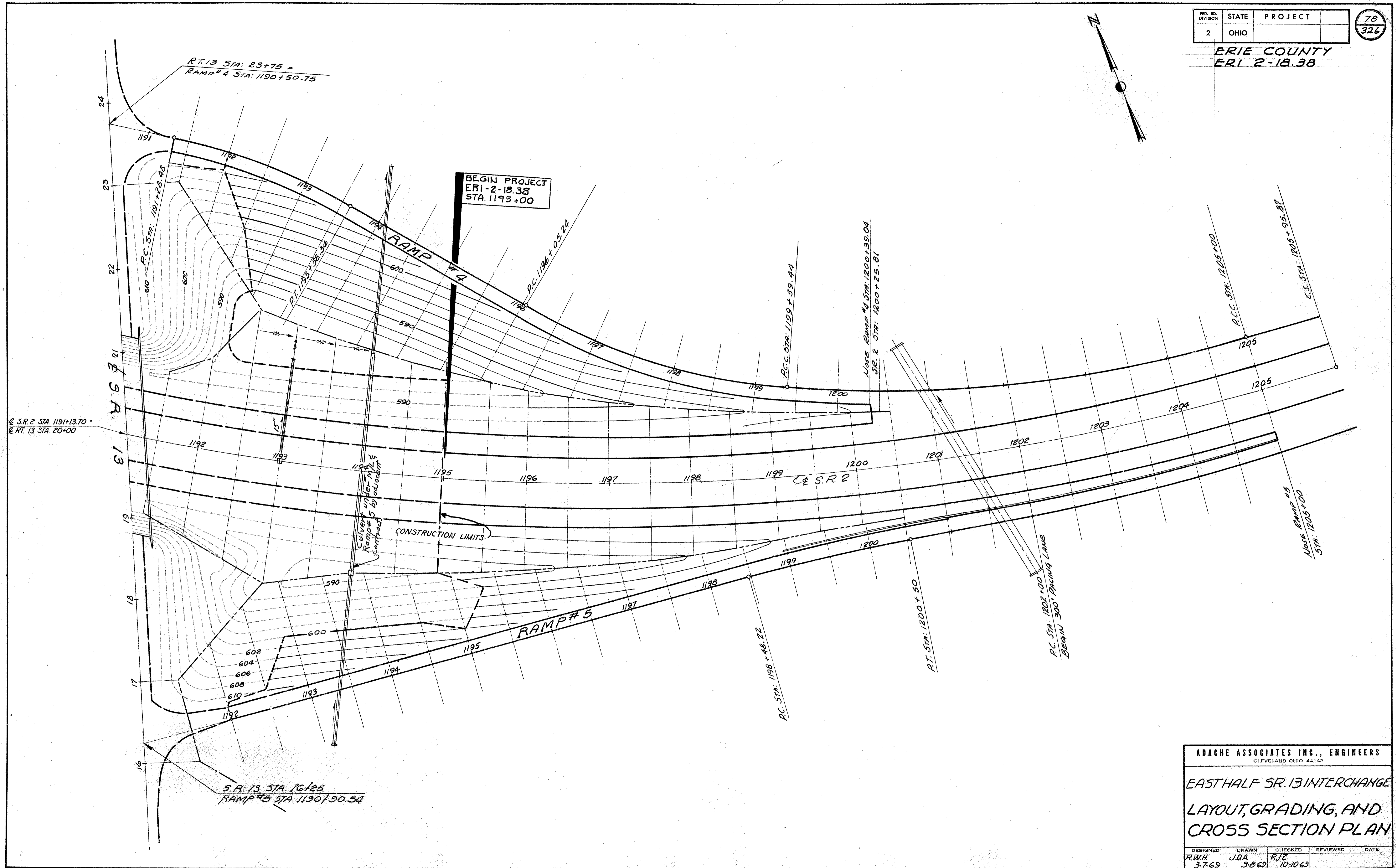
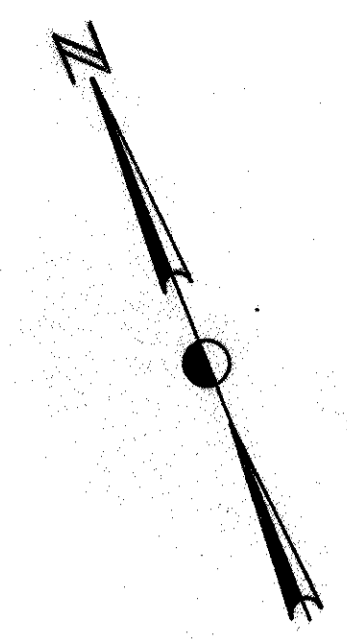
**PAVEMENT DETAILS**  
**RAMP #11**  
**S.R. 61 INTERCHANGE**

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
J.D.A.	J.D.A.	J.J.D.		
1-10-68	2-7-68	2-19-70		

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

78  
326

ERIE COUNTY  
ERI 2-18.38



ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

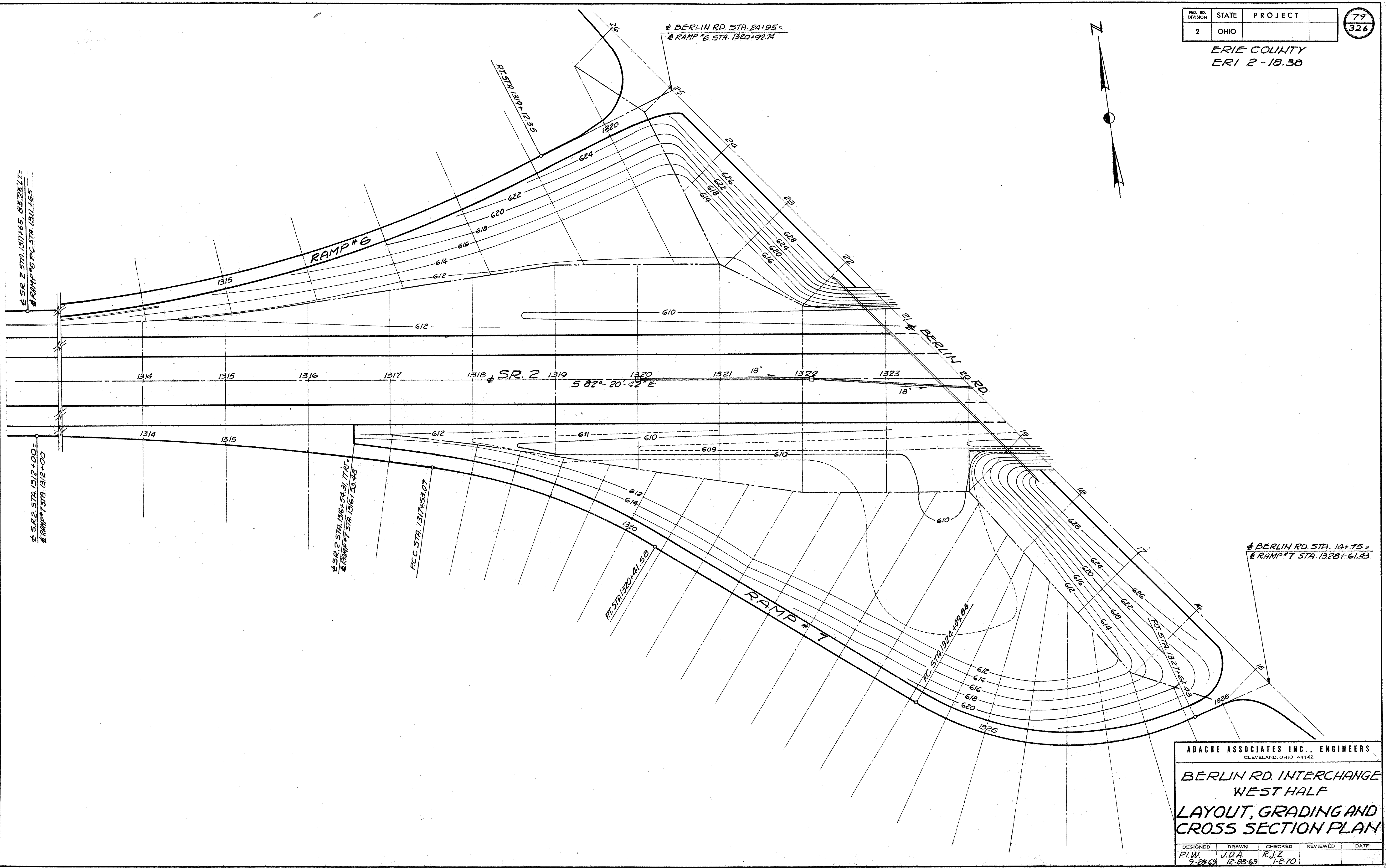
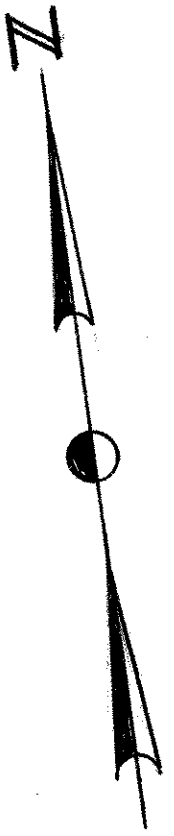
EAST HALF SR 13 INTERCHANGE  
LAYOUT, GRADING, AND  
CROSS SECTION PLAN

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
R.W.H.	J.D.A.	R.J.Z.		
3-7-69	3-8-69	10-10-69		

FED. NO. DIVISION	STATE	PROJECT
2	OHIO	

79  
326

ERIE COUNTY  
ERI 2-18.38



ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

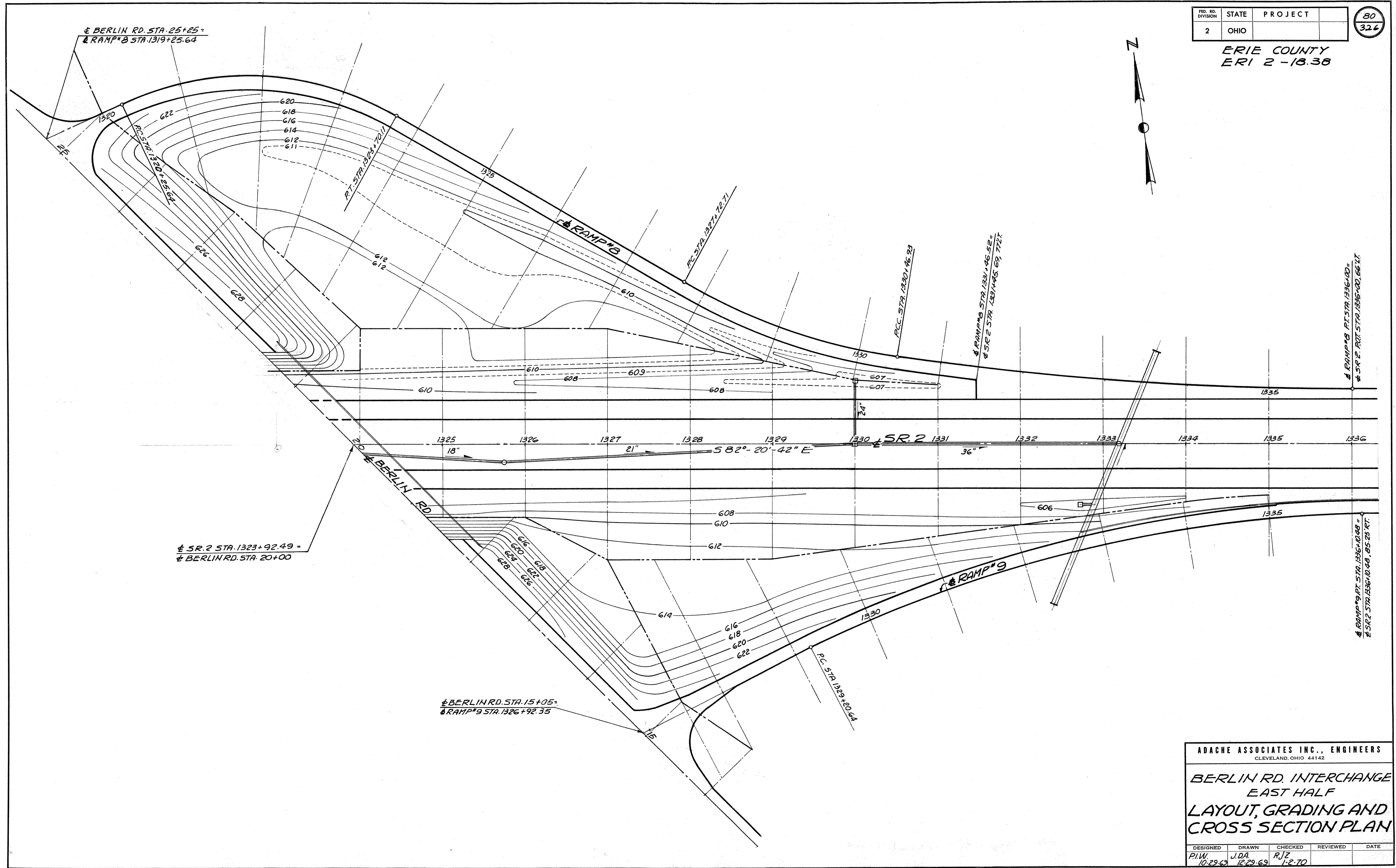
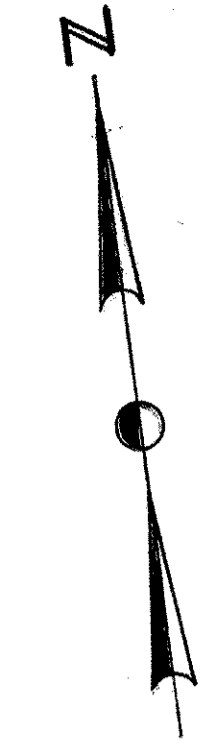
**BERLIN RD. INTERCHANGE  
WEST HALF  
LAYOUT, GRADING AND  
CROSS SECTION PLAN**

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
P.I.W.	J.D.A.	R.J.Z.		
9-28-69	12-28-69	1-2-70		

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

80  
326

ERIE COUNTY  
ERI 2-13.38



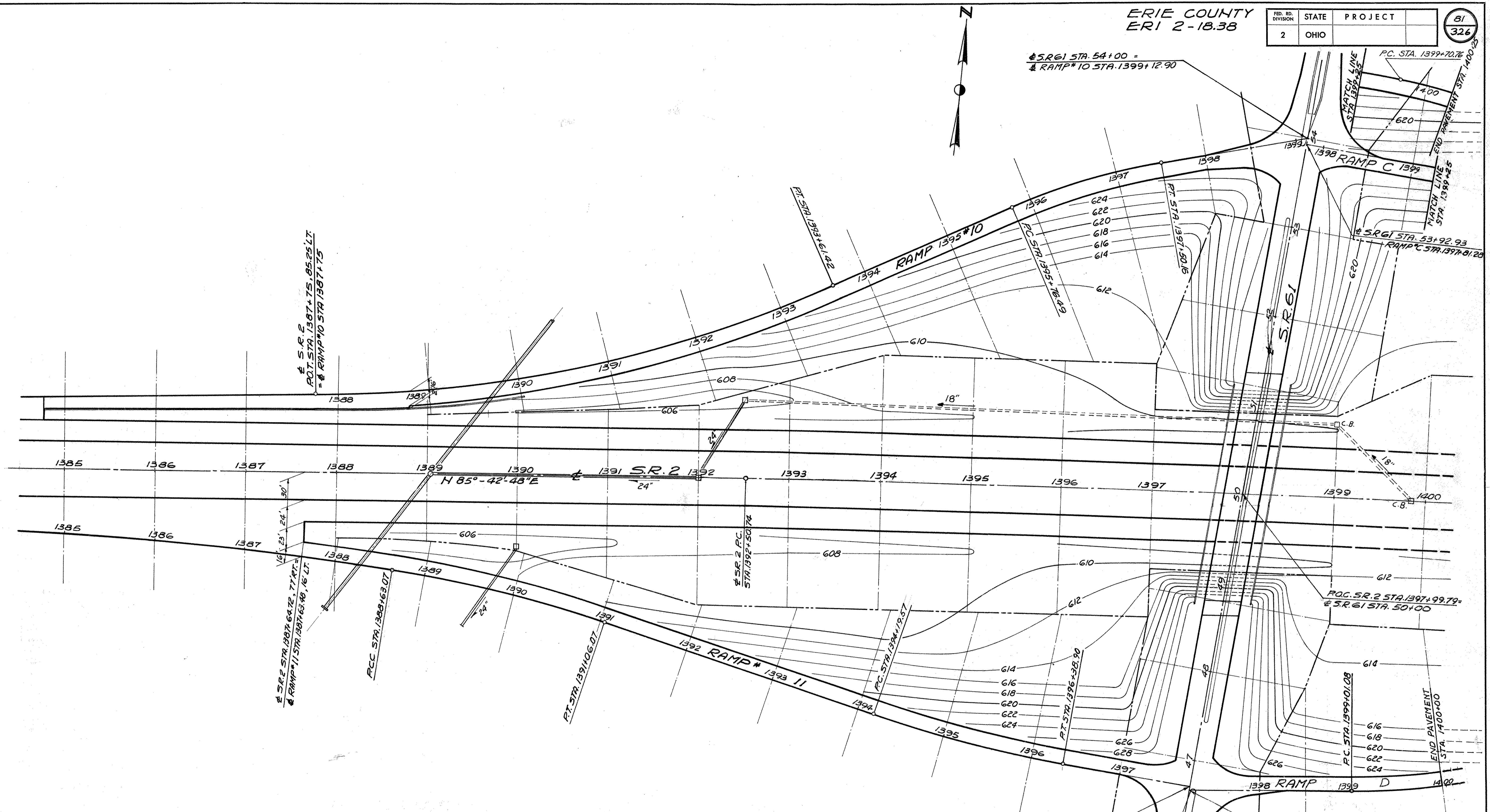
ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

**BERLIN RD. INTERCHANGE  
EAST HALF  
LAYOUT, GRADING AND  
CROSS SECTION PLAN**

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
PI.W.	J.D.A.	R.J.Z.		
10-29-69	12-29-69	1-2-70		

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

± S.R. 61 STA. 54+00 =  
± RAMP #10 STA. 1399+12.90



± S.R. 2  
P.O.T. STA. 1387+75.85 25' LT.  
± RAMP #10 STA. 1387+75

± S.R. 2 STA. 1387+64.72 77' RT.  
± RAMP #11 STA. 1387+63.46 76' LT.

F.C.C. STA. 1388+63.07

P.T. STA. 1391+06.07

± S.R. 2 P.C.  
STA. 1392+50.74

P.C. STA. 1394+19.57

P.T. STA. 1396+38.90

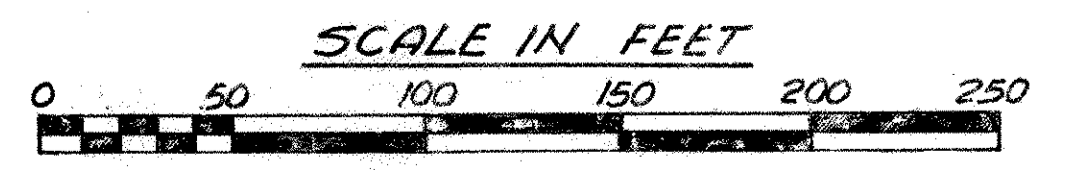
± S.R. 61 STA. 46+66.47  
± RAMP #11 STA. 1397+78.90

P.O.C. S.R. 2 STA. 1397+99.79 =  
± S.R. 61 STA. 50+00

P.C. STA. 1399+01.08

END PAVEMENT  
STA. 1400+00

± S.R. 61 STA. 46+70.00 =  
± RAMP #11 STA. 1397+78.90



ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

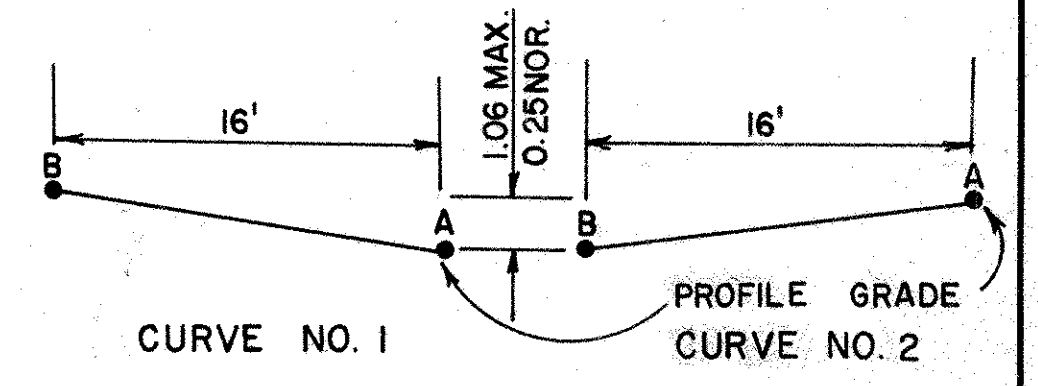
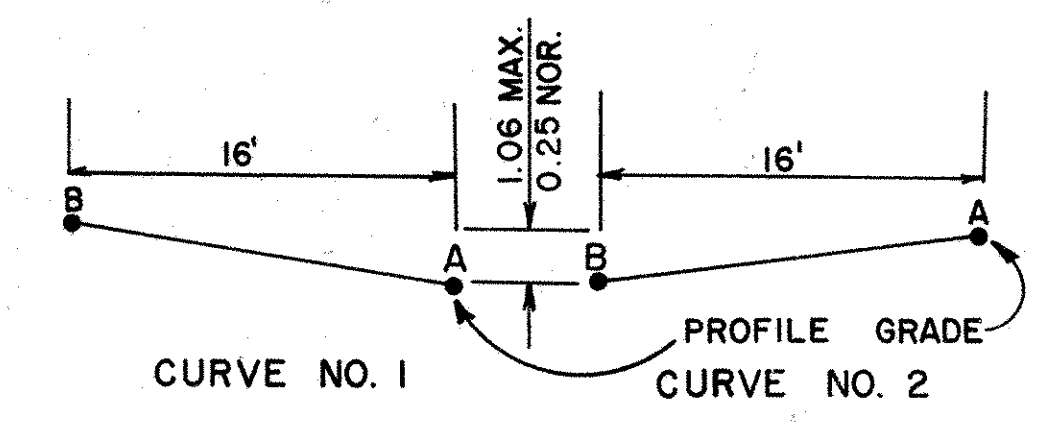
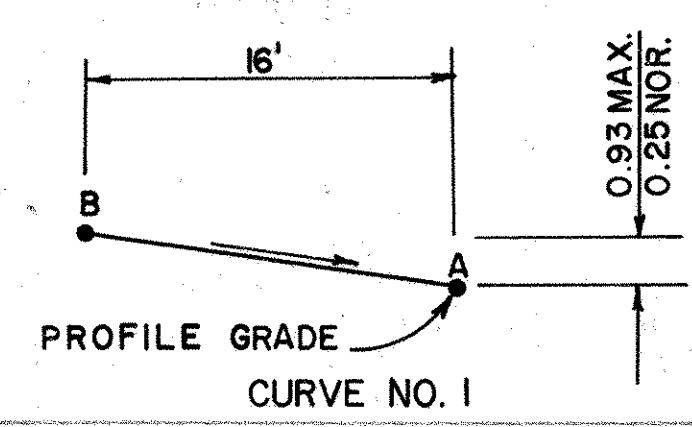
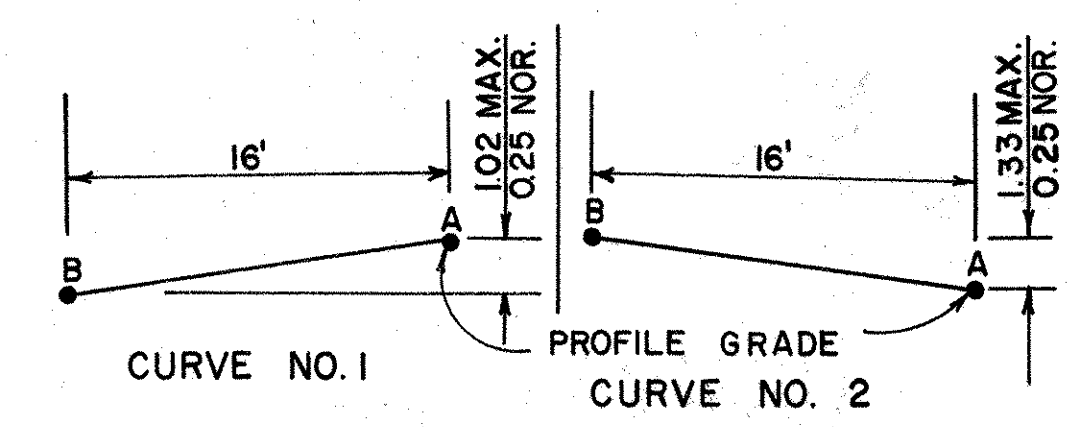
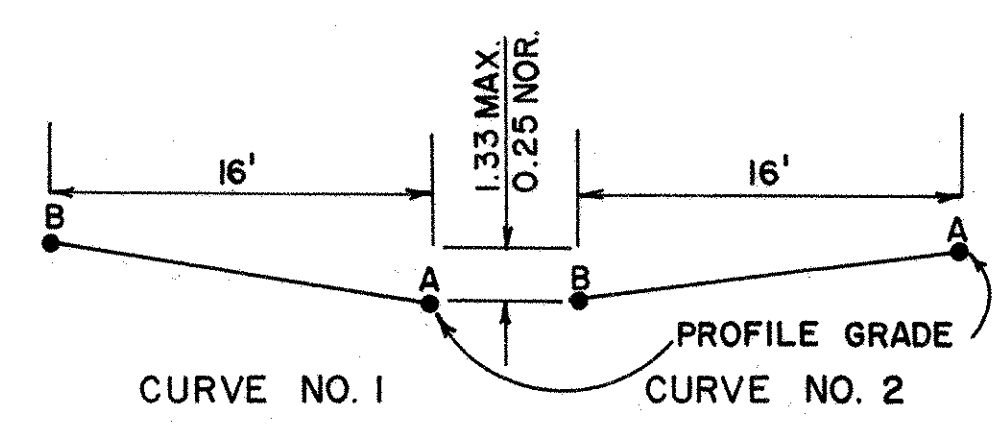
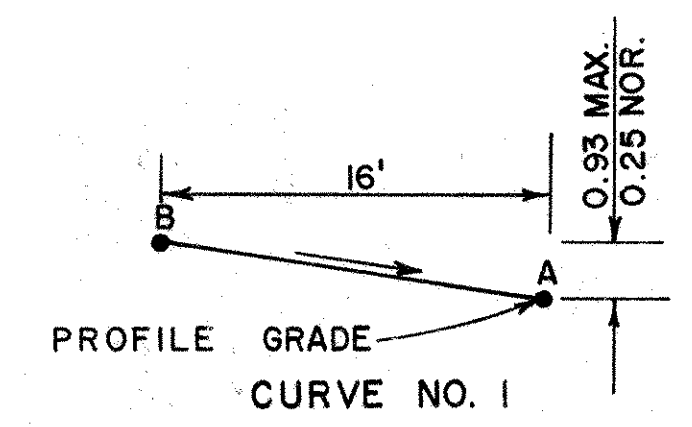
**S.R. 61 INTERCHANGE  
LAYOUT, GRADING AND  
CROSS SECTION PLAN**

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
P.I.W.	J.D.A.	R.J.Z.		
11-29-69	12-29-69	1-2-70		





# SUPERELEVATION TABLES



RAMP NO. 6		
STATION	B	A
1314 + 15	614.68	613.75
+ 25	614.77	613.84
+ 50	615.03	614.10
+ 75	615.33	614.40
1315 + 00	615.68	614.75
+ 25	616.07	615.14
+ 50	616.50	615.57
+ 75	616.98	616.05
1316 + 00	617.48	616.55
+ 25	617.98	617.05
+ 50	618.48	617.55
+ 75	618.98	618.05
1317 + 00	619.48	618.55
+ 25	619.98	619.05
+ 50	620.48	619.55
+ 75	620.98	620.05
1318 + 00	621.48	620.55
+ 25	621.98	621.05
+ 50	622.48	621.55
+ 75	622.84	622.05
1319 + 00	623.21	622.55
+ 25	623.57	623.05
+ 50	623.94	623.55
+ 75	624.26	623.99

ELEVATIONS CONTINUED ON RAMP TERMINAL DETAIL, SHEET 68

RAMP NO. 7		
STATION	B	A
1317 + 53.07	612.96	612.01
+ 75	613.13	612.06
1318 + 00	613.36	612.16
+ 25	613.63	612.30
+ 50	613.82	612.49
+ 75	614.05	612.72
1319 + 00	614.33	613.00
+ 25	614.65	613.32
+ 50	615.02	613.69
+ 75	615.28	614.08
1320 + 00	615.53	614.47
+ 25	615.79	614.86
+ 50	616.04	615.25
+ 75	616.30	615.64
1321 + 00	616.55	616.03
+ 25	616.81	616.42
+ 50	617.06	616.81
+ 75	617.45	617.20
1322 + 00	617.84	617.59
+ 25	618.23	617.98
+ 50	618.62	618.37
+ 75	618.87	618.76
1323 + 00	619.11	619.15
+ 25	619.36	619.54
+ 50	619.60	619.93
+ 75	619.85	620.32
1324 + 00	620.10	620.71
+ 25	620.34	621.10
+ 50	620.59	621.49
+ 75	620.83	621.87
1325 + 00	621.05	622.24
+ 25	621.26	622.59
+ 50	621.59	622.92
+ 75	622.05	623.24
1326 + 00	622.50	623.54
+ 25	622.92	623.82
+ 50	623.33	624.09
+ 75	623.73	624.34
1327 + 00	624.09	624.58
+ 25	624.47	624.80
+ 50	624.82	625.00
+ 75	625.16	625.20
+ 75.69	625.19	625.21

ELEVATIONS CONTINUED ON RAMP TERMINAL DETAIL SHEET 68

RAMP NO. 8		
STATION	B	A
1320 + 11.38	624.99	625.22
+ 25	624.82	625.10
+ 50	624.49	624.92
+ 75	624.13	624.71
1321 + 00	623.73	624.46
+ 25	623.29	624.17
+ 50	622.81	623.83
+ 75	622.44	623.46
1322 + 00	622.02	623.04
+ 25	621.57	622.59
+ 50	621.07	622.09
+ 75	620.53	621.55
1323 + 00	620.09	620.97
+ 25	619.63	620.37
+ 50	619.17	619.77
+ 75	618.71	619.17
1324 + 00	618.35	618.57
+ 25	617.80	617.97
+ 50	617.34	617.37
+ 75	616.88	616.77
1325 + 00	616.42	616.17
+ 25	615.82	615.57
+ 50	615.22	614.97
+ 75	614.62	614.37
1326 + 00	614.02	613.77
+ 25	613.42	613.17
+ 50	612.82	612.57
+ 75	612.22	611.97
1327 + 00	611.75	611.37
+ 25	611.31	610.79
+ 50	610.90	610.25
+ 75	610.53	609.74
1328 + 00	610.20	609.28
+ 25	609.91	608.85
+ 50	609.65	608.46
+ 75	609.43	608.10
1329 + 00	609.12	607.79
+ 25	608.84	607.51
+ 50	608.61	607.28
+ 75	608.41	607.08
1330 + 00	608.13	606.94
+ 25	607.84	606.78
+ 46.93	607.66	606.72

CONTINUED ON SHEET 71

RAMP NO. 9		
STATION	B	A
1328 + 14.54	624.15	623.90
+ 25	623.93	623.68
+ 50	623.41	623.16
+ 75	623.01	622.62
1329 + 00	622.58	622.06
+ 25	622.13	621.47
+ 50	621.65	620.86
+ 75	621.15	620.22
1330 + 00	620.49	619.56
+ 25	619.81	618.88
+ 50	619.10	618.17
+ 75	618.36	617.43
1331 + 00	617.60	616.67
+ 25	616.82	615.89
+ 50	616.01	615.08
+ 75	615.19	614.26
1332 + 00	614.37	613.44
+ 25	613.55	612.62
+ 50	612.73	611.80
+ 75	611.91	610.98

CONTINUED ON SHEET 72

RAMP NO. 10		
STATION	B	A
1390 + 00	608.51	607.45
+ 25	608.98	607.92
+ 50	609.44	608.43
+ 75	610.04	608.98
1391 + 00	610.64	609.58
+ 25	611.27	610.21
+ 50	611.95	610.89
+ 75	612.67	611.61
1392 + 00	613.41	612.35
+ 25	614.15	613.09
+ 50	614.89	613.83
+ 75	615.51	614.57
1393 + 00	616.15	615.31
+ 25	616.78	616.05
+ 50	617.41	616.79
+ 75	618.04	617.53
1394 + 00	618.67	618.27
+ 25	619.31	619.01
+ 50	619.94	619.75
+ 75	620.57	620.49
1395 + 00	621.20	621.23
+ 25	621.83	621.97
+ 50	622.47	622.71
+ 75	623.07	623.42
1396 + 00	623.62	624.08
+ 25	624.11	624.68
+ 50	624.55	625.22
+ 75	625.04	625.71
1397 + 00	625.53	626.14
+ 25	625.97	626.51
+ 50	626.42	626.83
+ 75	626.81	627.09
+ 95.95	627.11	627.28

CONTINUED ON SHEET 74

RAMP NO. 11		
STATION	B	A
1388 + 63.07	606.30	605.24
+ 75	606.39	605.33
1389 + 00	606.61	605.55
+ 25	606.89	605.83
+ 50	607.24	606.18
+ 75	607.64	606.58
1390 + 00	608.11	607.05
+ 25	608.63	607.57
+ 50	609.11	608.15
+ 75	609.55	608.81
1391 + 00	610.13	609.51
+ 25	610.78	610.28
+ 50	611.49	611.11
+ 75	612.26	612.00
1392 + 00	613.17	612.92
+ 25	614.09	613.84
+ 50	615.01	614.76
+ 75	615.93	615.68
1393 + 00	616.85	616.60
+ 25	617.74	617.52
+ 50	618.55	618.44
+ 75	619.35	619.36
1394 + 00	620.16	620.28
+ 25	620.96	621.20
+ 50	621.77	622.12
+ 75	622.57	623.04
1395 + 00	623.38	623.96
+ 25	624.17	624.84
+ 50	624.96	625.63
+ 75	625.76	626.34
1396 + 00	626.55	626.97
+ 25	627.34	627.51
+ 50	628.14	628.33
+ 75	628.91	628.62
+ 01.53	628.82	628.63

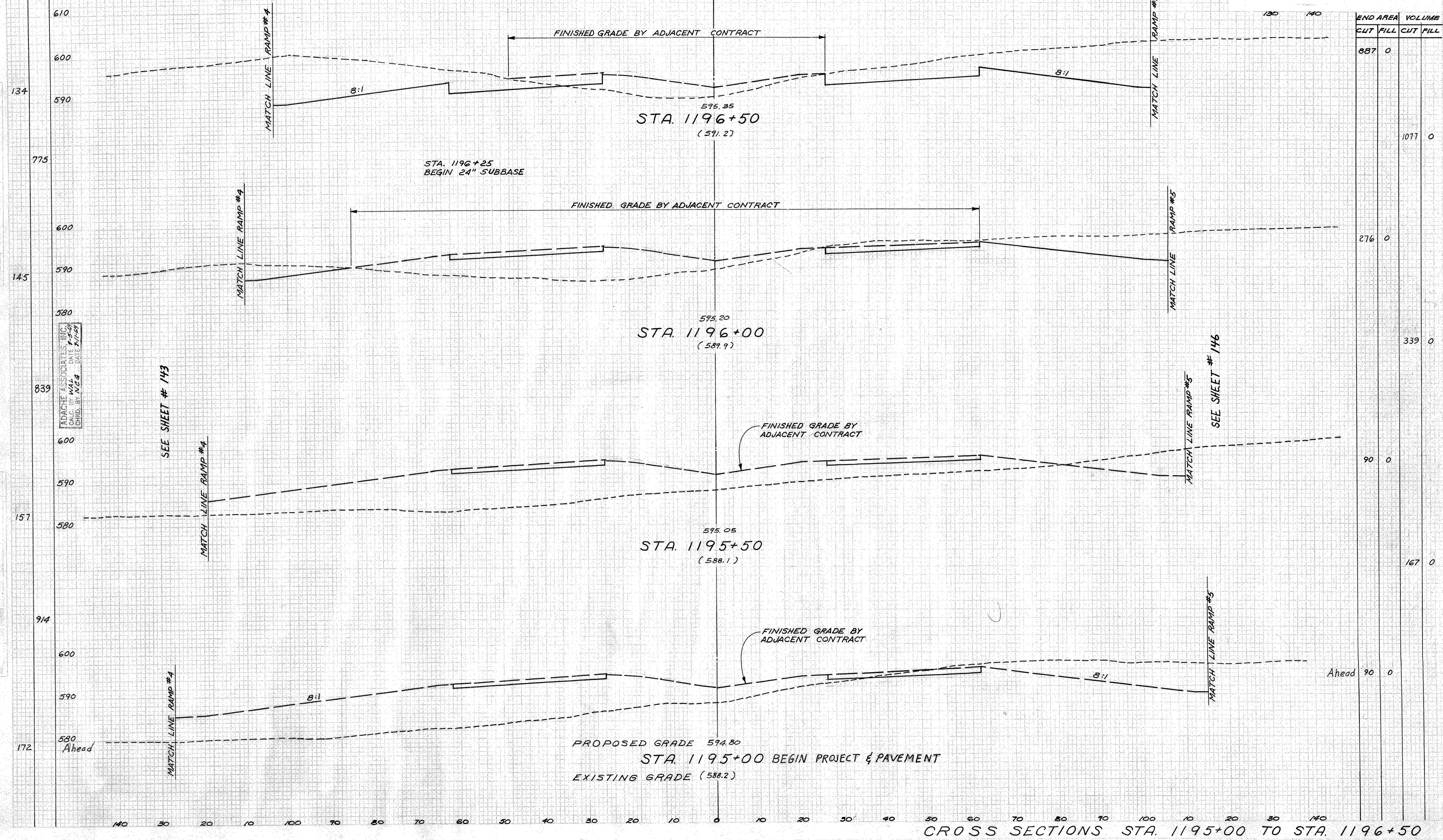
CONTINUED ON SHEET 73

SEEDING  
END SQ.  
WIDTH YDS.

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

84  
326

ERIE COUNTY  
ERI. 2-18.38

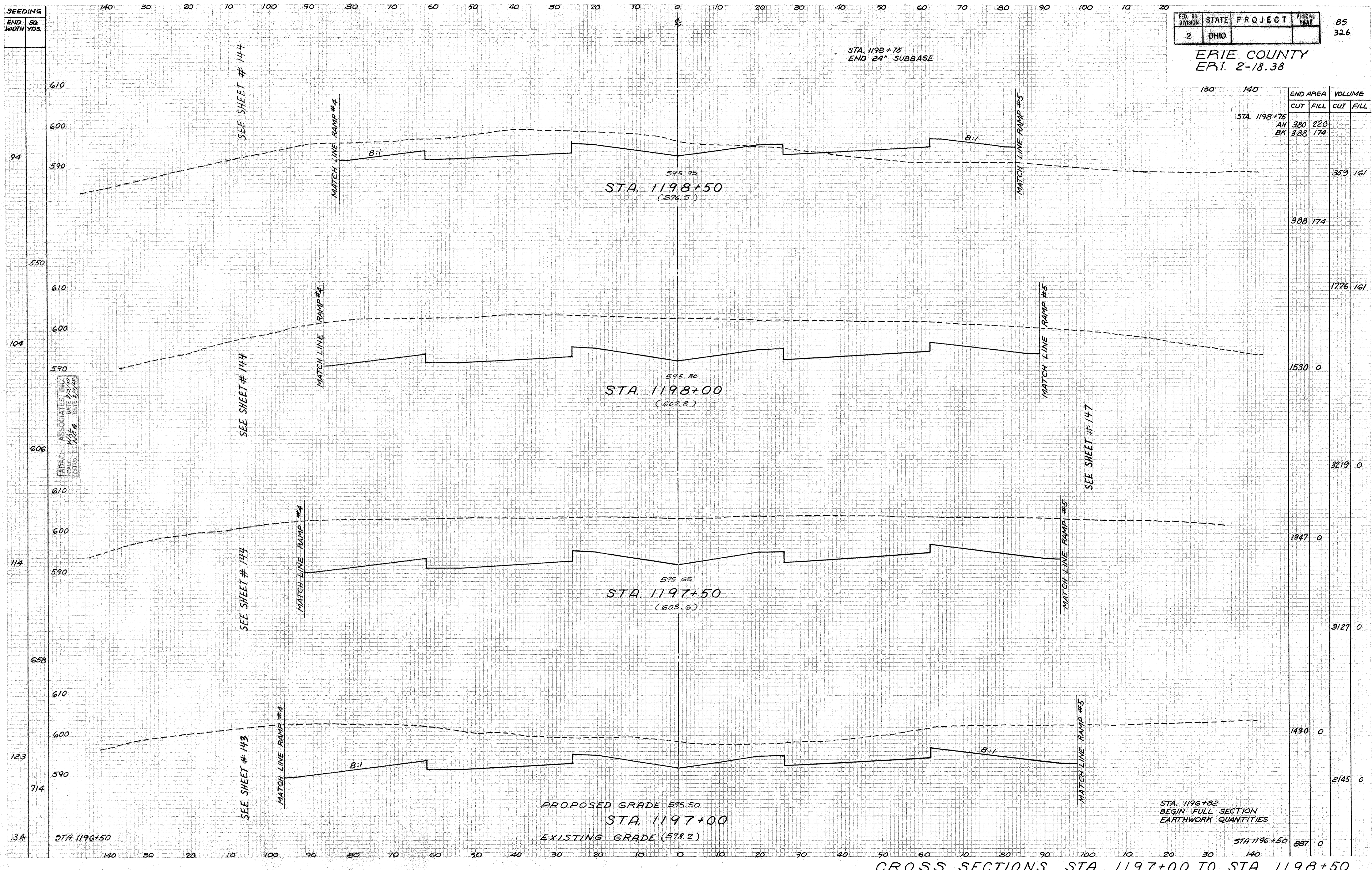


ADACHE ASSOCIATES, INC.  
CALC. BY WAL. DATE 9-5-59  
CHKD. BY N.C.G. DATE 9-11-59

SEE SHEET # 143

SEE SHEET # 146

CROSS SECTIONS STA. 1195+00 TO STA. 1196+50



FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR	85
2	OHIO			32.6

ERIE COUNTY  
EPI. 2-18.38

STA.	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
130				
140				
STA. 1198+75				
AH	380	220		
BK	388	174		
			359	161
			388	174
			1776	161
			1530	0
			3219	0
			1947	0
			3127	0
			1430	0
			2145	0
STA. 1196+50			887	0

ADACHI ASSOCIATES, INC.  
 CHRG. DATE 1/15/60  
 CHD. DATE 1/26/60

PROPOSED GRADE 595.50  
 STA. 1197+00  
 EXISTING GRADE (598.2)

STA. 1196+82  
 BEGIN FULL SECTION  
 EARTHWORK QUANTITIES

CROSS SECTIONS STA. 1197+00 TO STA. 1198+50





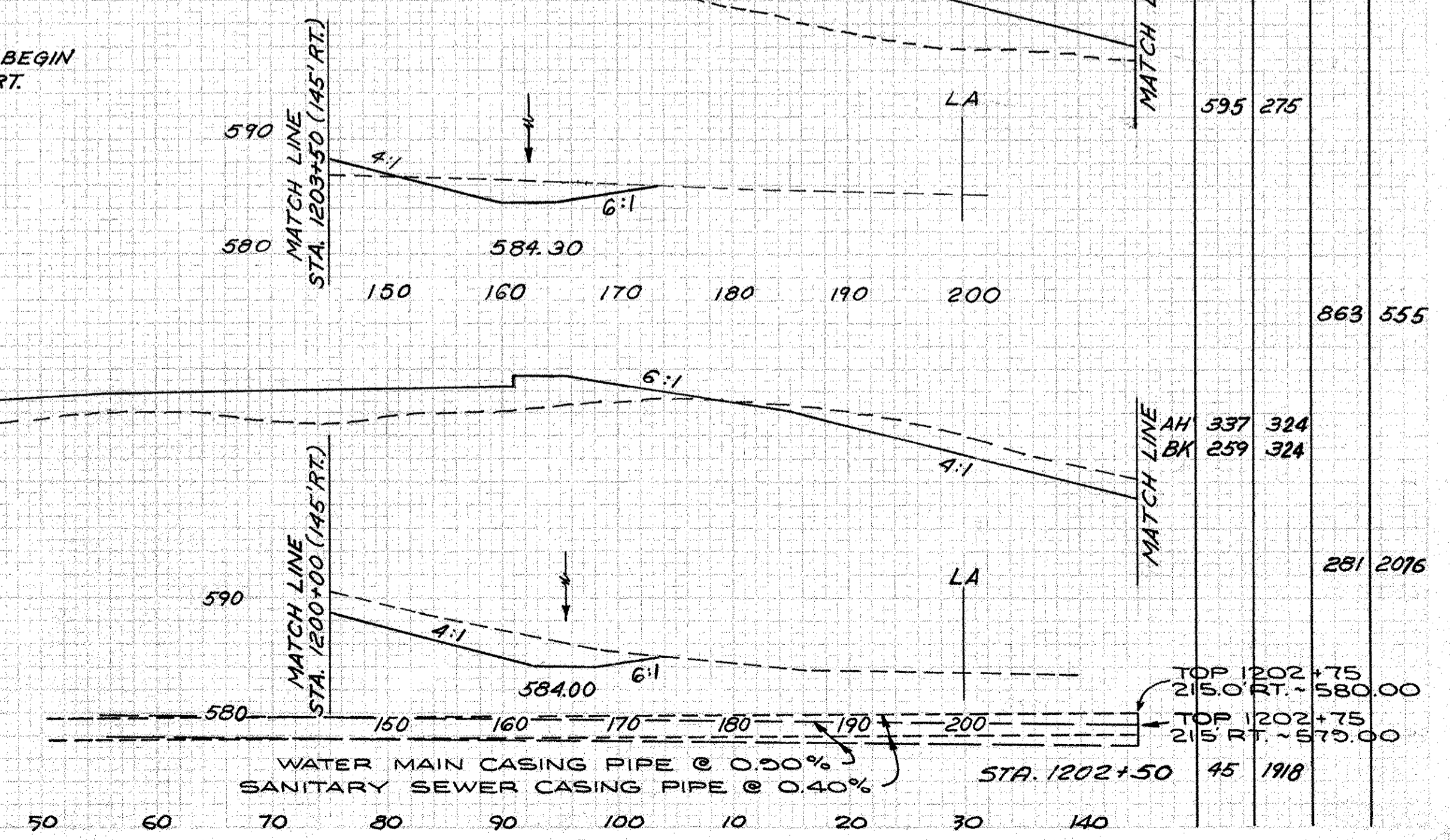
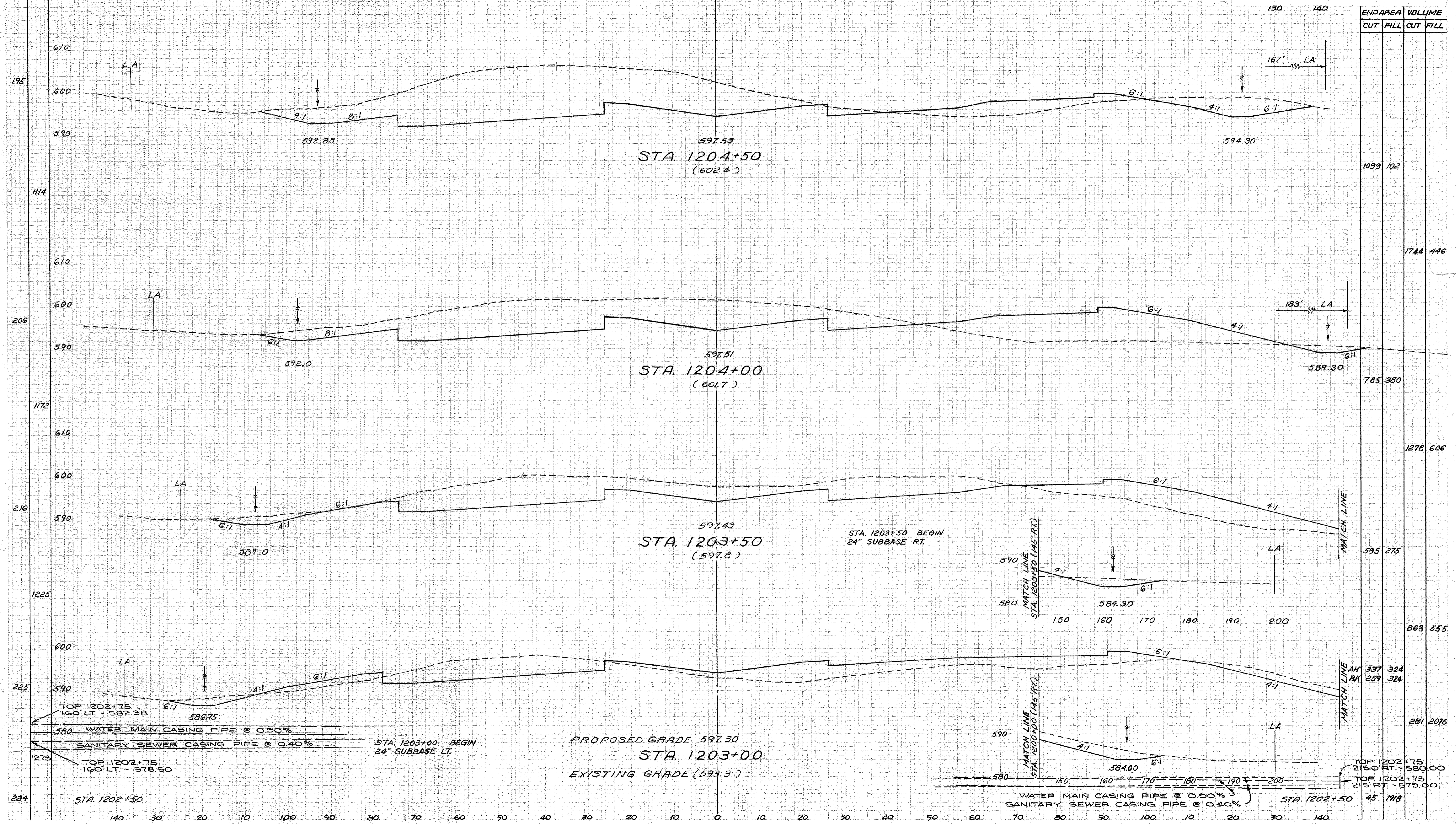
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ADACHE ASSOCIATES, INC.  
 CALC. BY WML DATE 8-28-59  
 CHKD. BY KSG DATE 8-28-59

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

38  
326

ERIE COUNTY  
 ERI. 2-18.38



END AREA		VOL. LIME	
CUT	FILL	CUT	FILL
1099	102		
1744	446		
785	380		
1278	606		
595	275		
863	555		
337	324		
259	324		
281	2076		

CROSS SECTIONS STA. 1203+00 TO STA. 1204+50

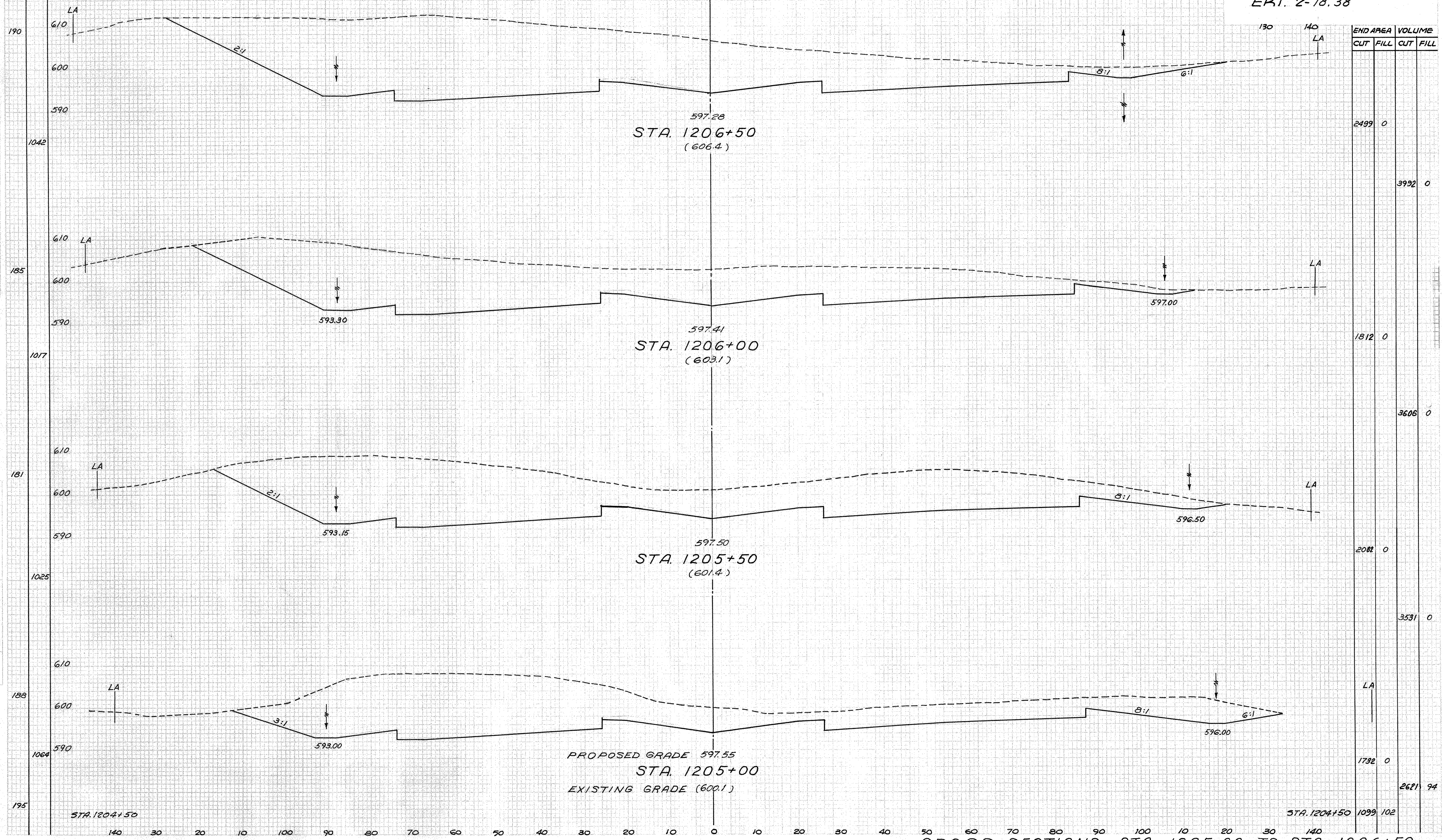
SEEDING 140 30 20 10 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 10 20

ADACHE ASSOCIATES, INC.  
 CALC. BY WFL DATE 5-5-49  
 CHKD. BY NSG DATE 8-1-49

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

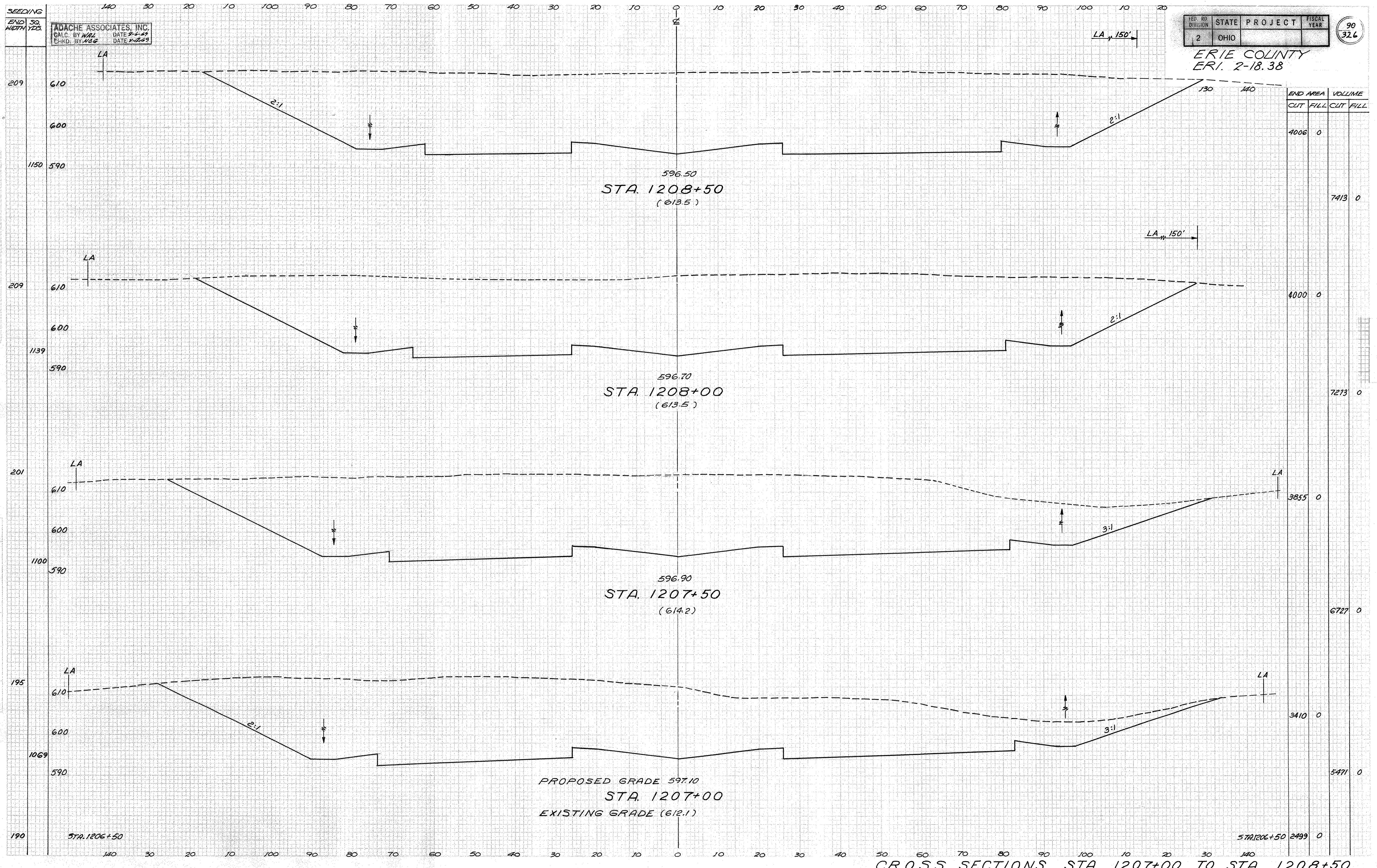
89  
326

ERIE COUNTY  
 ERI. 2-18.38



END AREA	VOLUME	
	CUT	FILL
2499	0	
3992	0	
1812	0	
3608	0	
2082	0	
3531	0	
1732	0	
2621	94	
1099	102	

CROSS SECTIONS STA. 1205+00 TO STA. 1206+50



CROSS SECTIONS STA. 1207+00 TO STA. 1208+50



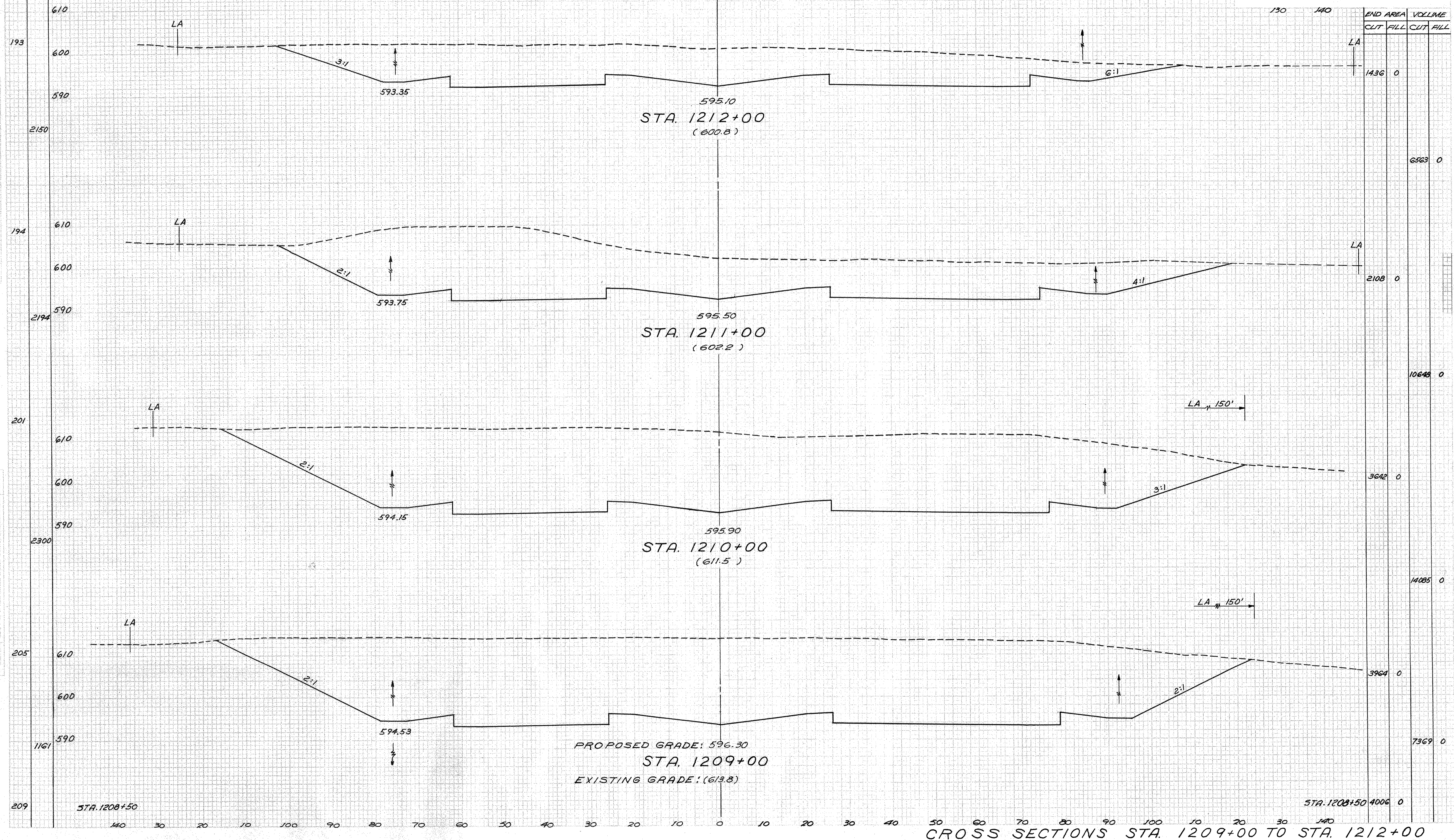
SEEDING  
END WIDTH  
30 YDS.

ADACHE ASSOCIATES, INC.  
CALC. BY WML DATE 2-1-88  
CHKD. BY NGS DATE 2-2-88

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		91

326

ERIE COUNTY  
ERI. 2-18.38



CROSS SECTIONS STA. 1209+00 TO STA. 1212+00

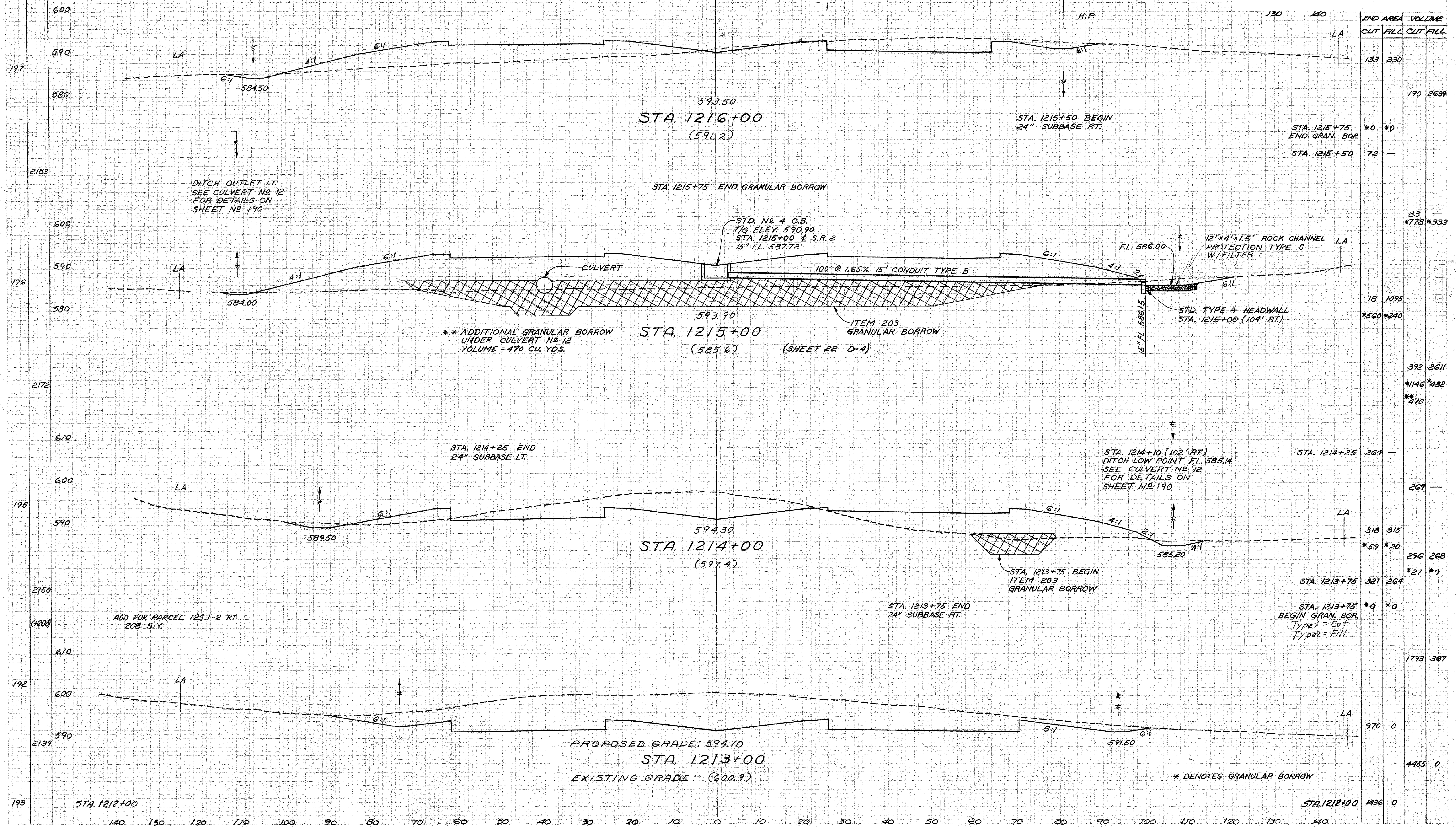
SEEDING 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

92  
32.6

ERIE COUNTY  
ERI. 2-18.38

ADACHE ASSOCIATES, INC.  
CALC. BY W.R.L. DATE 9-6-69  
CHKD. BY N.C.G. DATE 9-12-69



END STA.	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
130	133	330		
140			190	2639
145	*0	*0		
150	72	-		
155			83	*778
160	18	1095	*560	*240
165			392	2611
170	*59	*20	*1146	*482
175	318	315	*470	
180			264	-
185			269	-
190			296	268
195			*27	*9
200			321	264
205	*0	*0		
210			1793	367
215	970	0		
220			4455	0
225			1436	0

CROSS SECTIONS STA. 1213+00 TO STA. 1216+00

SEEDING  
END SQ.  
WIDTH YDS

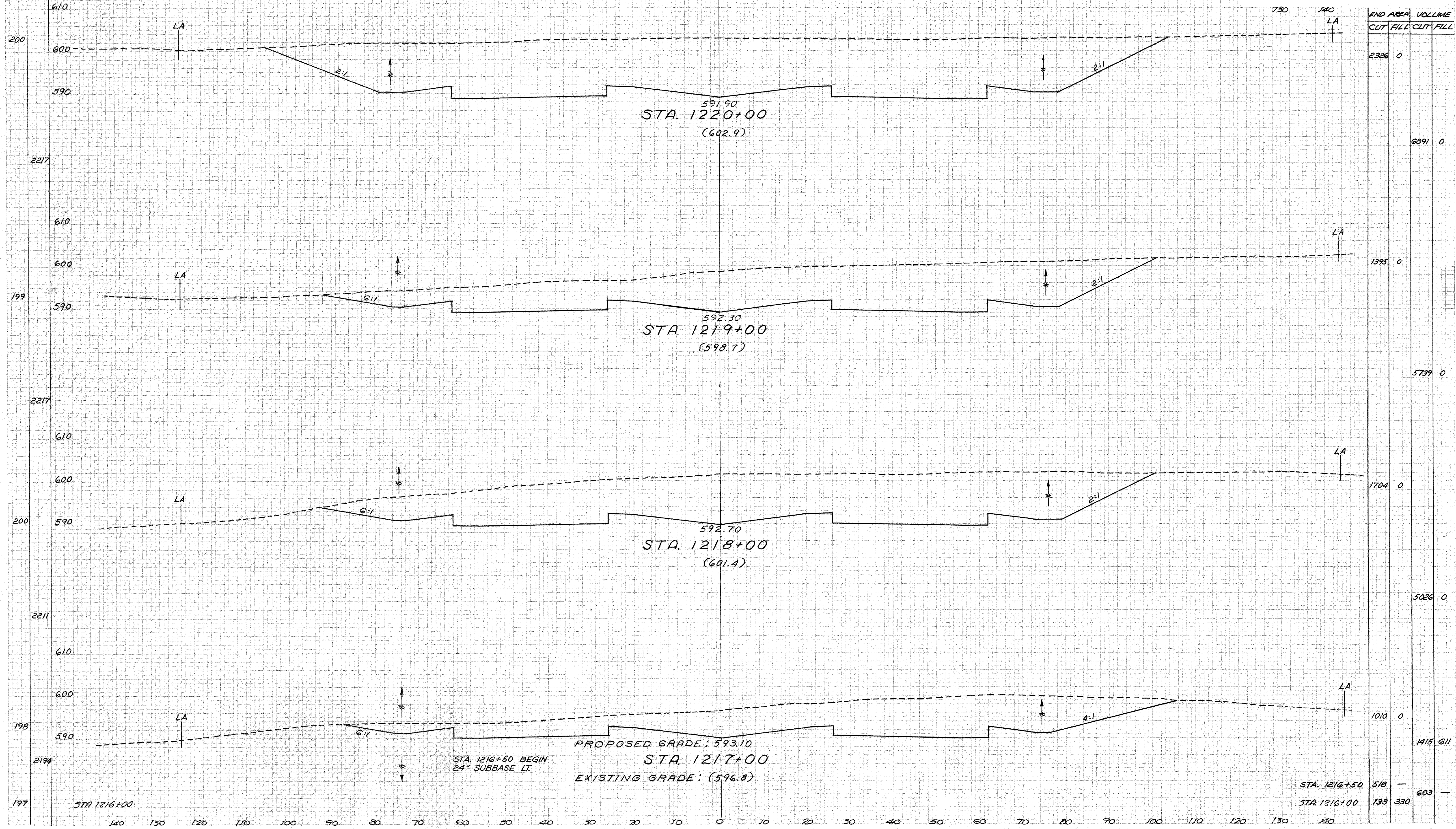
140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120

ADACHE ASSOCIATES, INC.  
CALC. BY W.A.L. DATE 9-7-65  
CHKD. BY N.C.G. DATE 2-18-67

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

93  
326

ERIE COUNTY  
ERI. 2-18.38



END AREA	VOLUME	
	CUT	FILL
2326	0	
6891	0	
1395	0	
5739	0	
1704	0	
5026	0	
1010	0	
1415	611	
518	-	603
133	330	

CROSS SECTIONS STA. 1217+00 TO STA. 1220+00

SEEDING 140 30 20 10 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 10 20

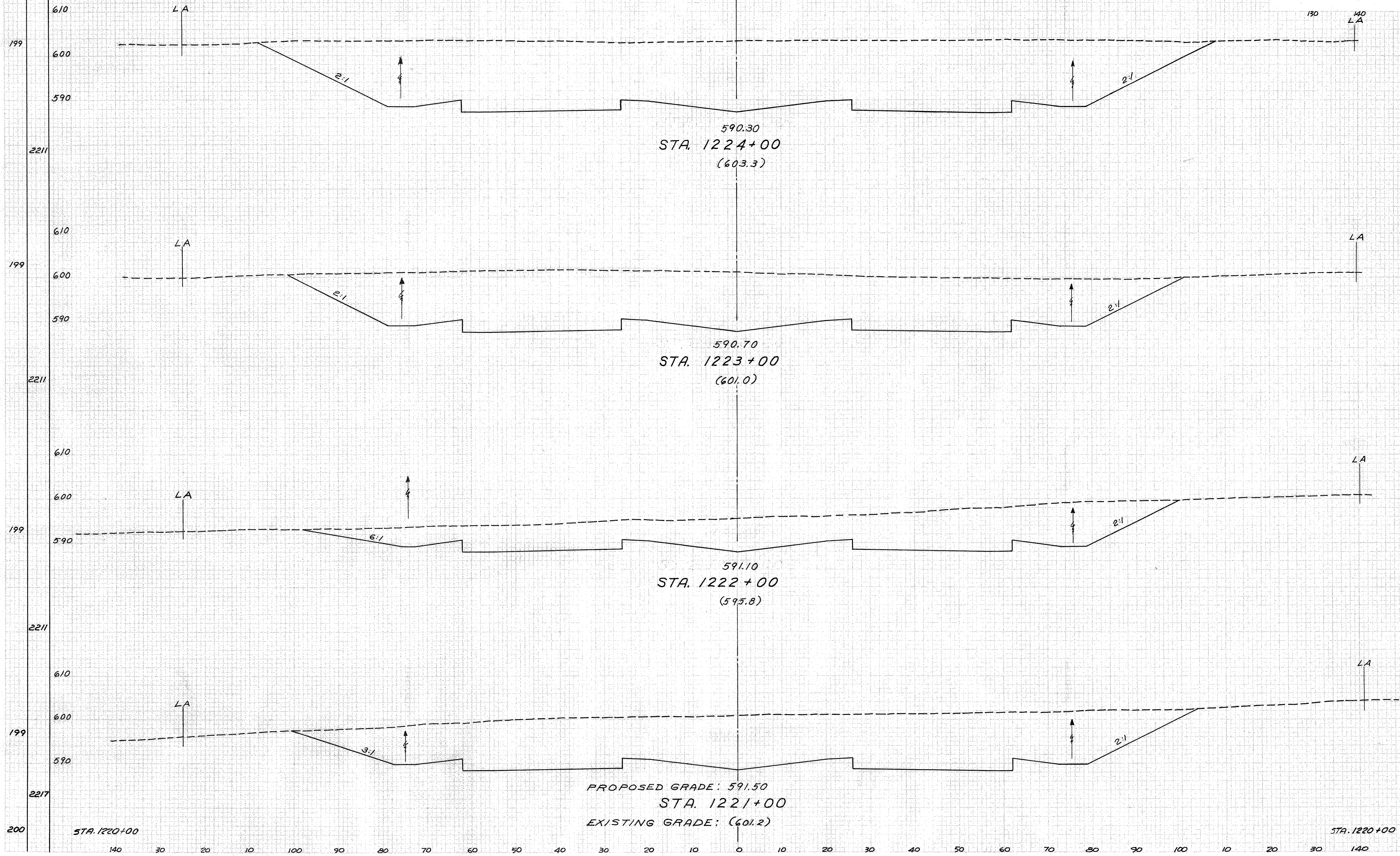
END WIDTH SQ. YDS.

ADACHE ASSOCIATES, INC.  
CALC. BY WAL DATE 8-7-43  
CHKD. BY VEG DATE 8-12-47

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

94  
32.6

ERIE COUNTY  
ERI. 2-18.38



END AREA	VOLUME	
	CUT	FILL
2840	0	
		9285
2174	0	
		6322
1240	0	
		6009
2005	0	
		8020
2326	0	

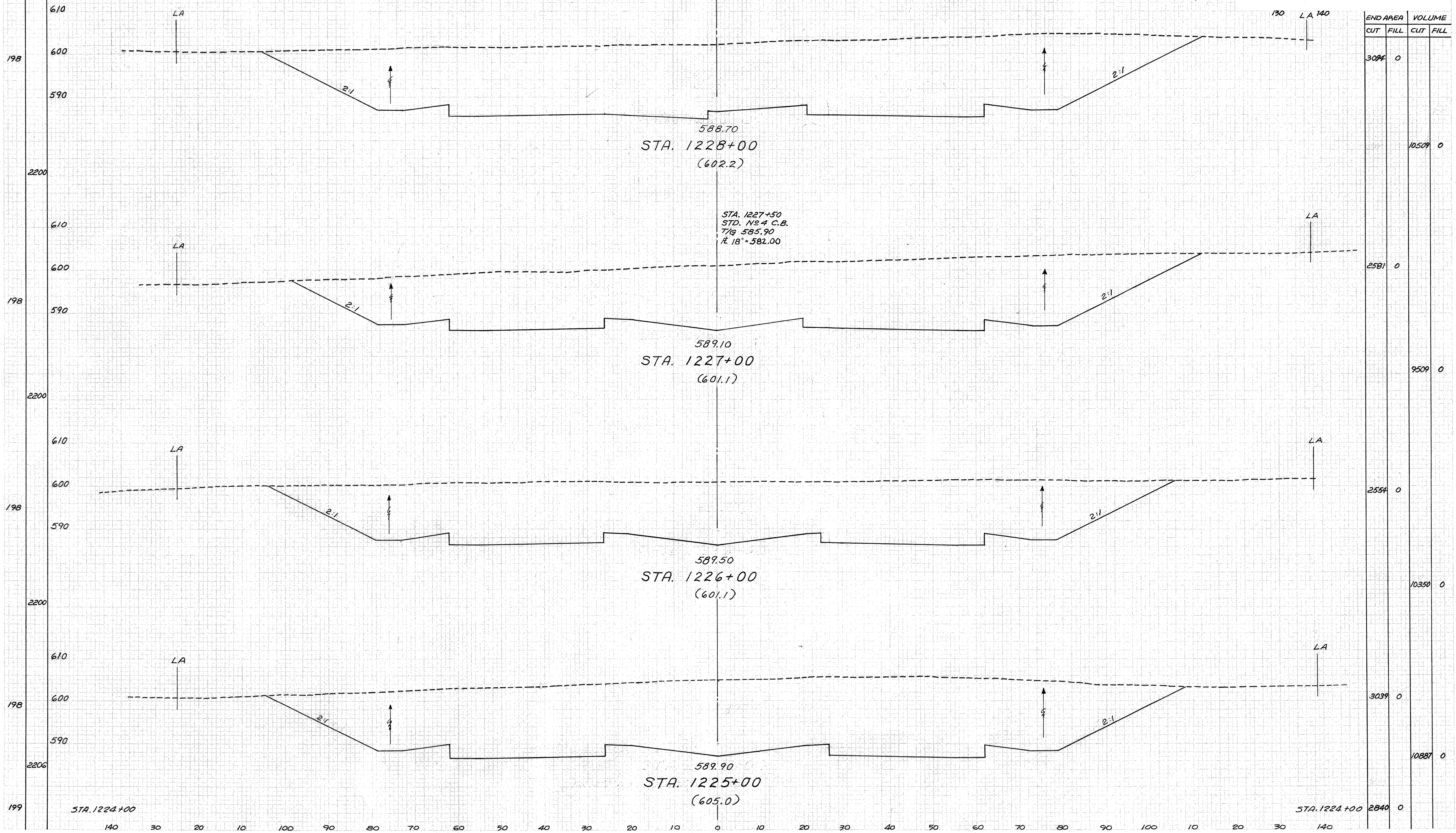
CROSS SECTIONS STA. 1221+00 TO STA. 1224+00

ADACHE ASSOCIATES, INC.  
 CALC. BY WAL DATE 2-6-38  
 CHKD. BY VCG DATE 2-12-38

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

95  
326

ERIE COUNTY  
 ERI. 2-18.38



588.70  
 STA. 1228+00  
 (602.2)

STA. 1227+50  
 STD. NO. 4 C.B.  
 T/G 585.90  
 # 18" = 582.00

589.10  
 STA. 1227+00  
 (601.1)

589.50  
 STA. 1226+00  
 (601.1)

589.90  
 STA. 1225+00  
 (605.0)

CROSS SECTIONS STA. 1225+00 TO STA. 1228+00

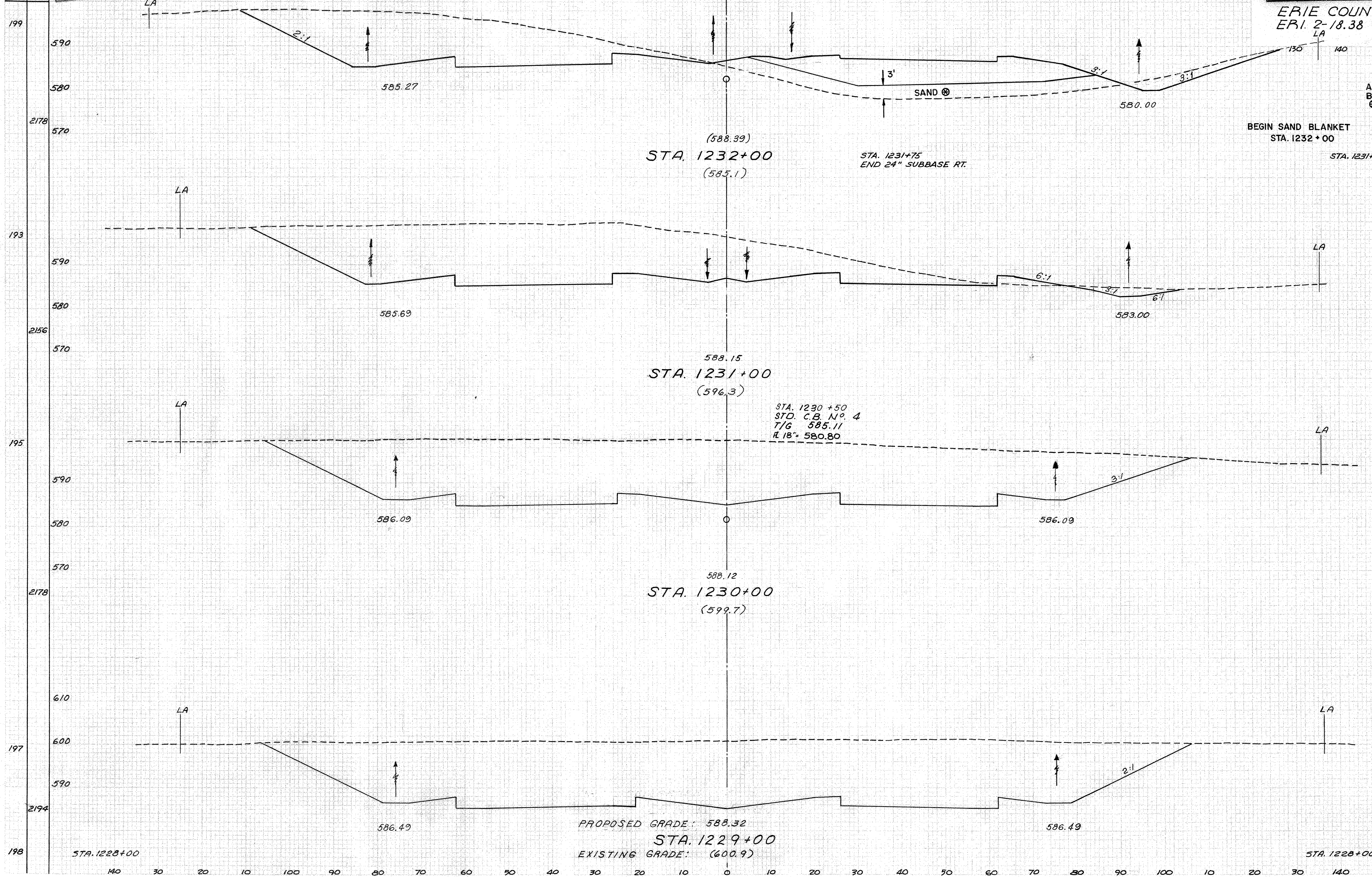
SEEDING END SQ. WIDTH YDS. 140 30 20 10 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 10 20

ADACHE ASSOCIATES, INC.  
 CALC. BY W.H.G. DATE 2/2/59  
 CHKD. BY V.C.G. DATE 2/10/59

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

96  
326

ERIE COUNTY  
 ERI. 2-18.38



END AREA	VOLUME	
	CUT	FILL
821	374	632
	258	
		505
	458	AH. BK.
	404	
		4437
		592
1575	22	
		7404
		41
2423	0	
		9559
		0
2739	0	
		10802
		0
3094	0	

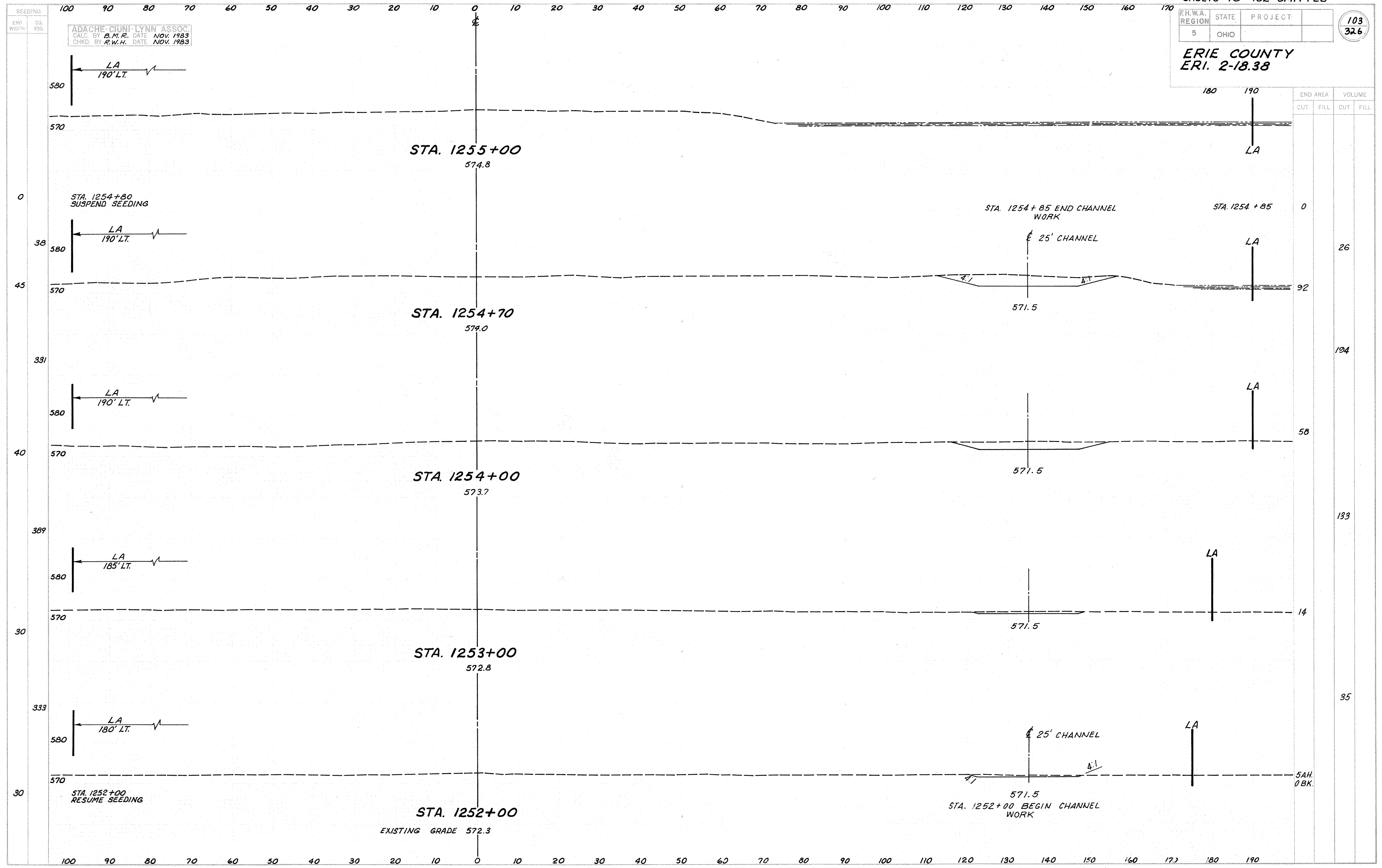
140 30 20 10 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 10 20 30 140  
 PROPOSED GRADE: 588.32  
 STA. 1229+00  
 EXISTING GRADE: (600.9)  
 CROSS SECTIONS STA. 1229+00 TO STA. 1232+00



F.H.W.A. REGION	STATE	PROJECT
5	OHIO	

103  
326

ERIE COUNTY  
ERI. 2-18.38



CROSS SECTIONS STA. 1252+00 TO STA. 1255+00



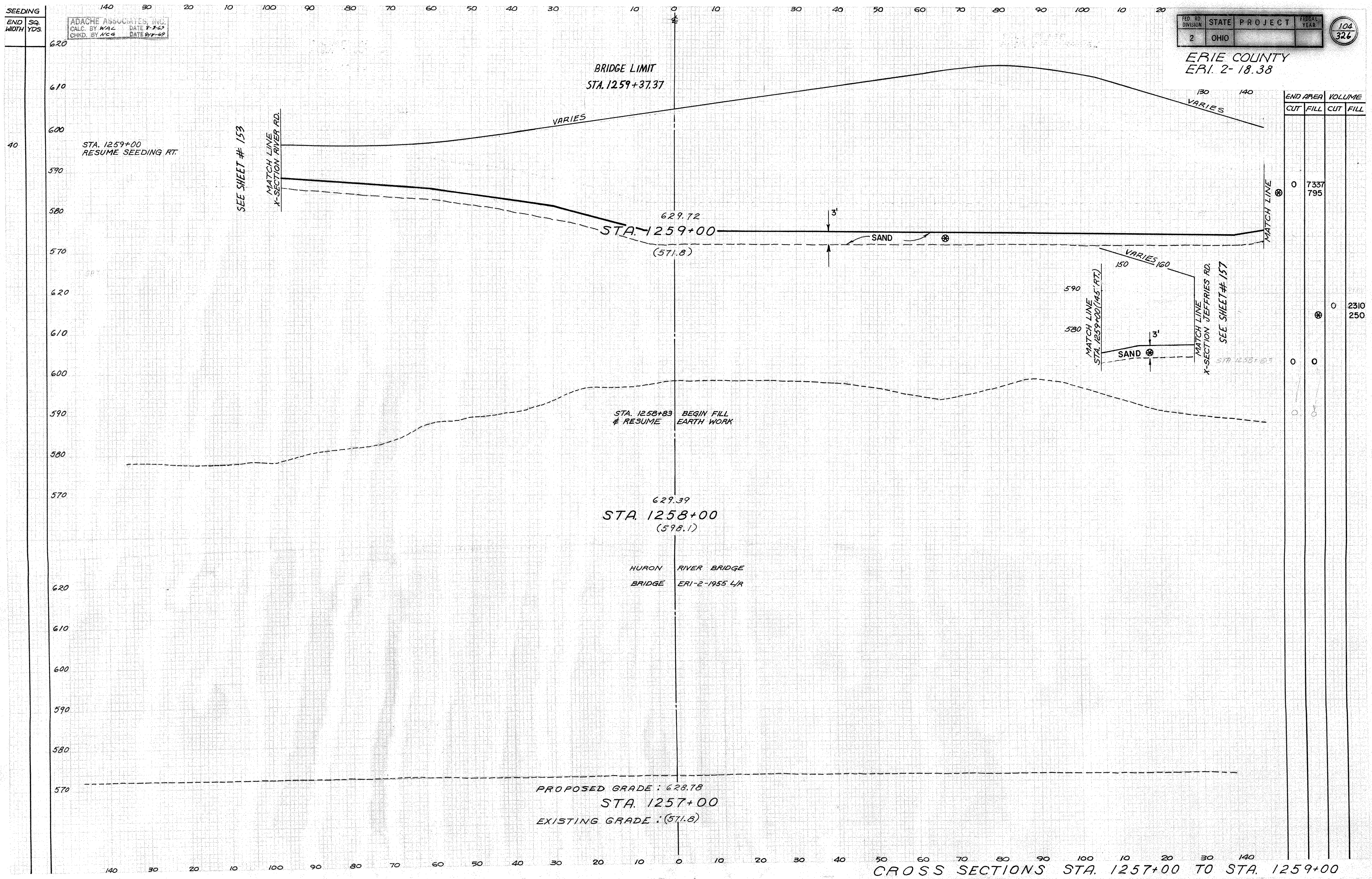
SEEDING  
END  
WIDTH  
YDS.

ADACHE ASSOCIATES, INC.  
CALC. BY NAL DATE 8-2-63  
CHKD. BY KCG DATE 8-7-63

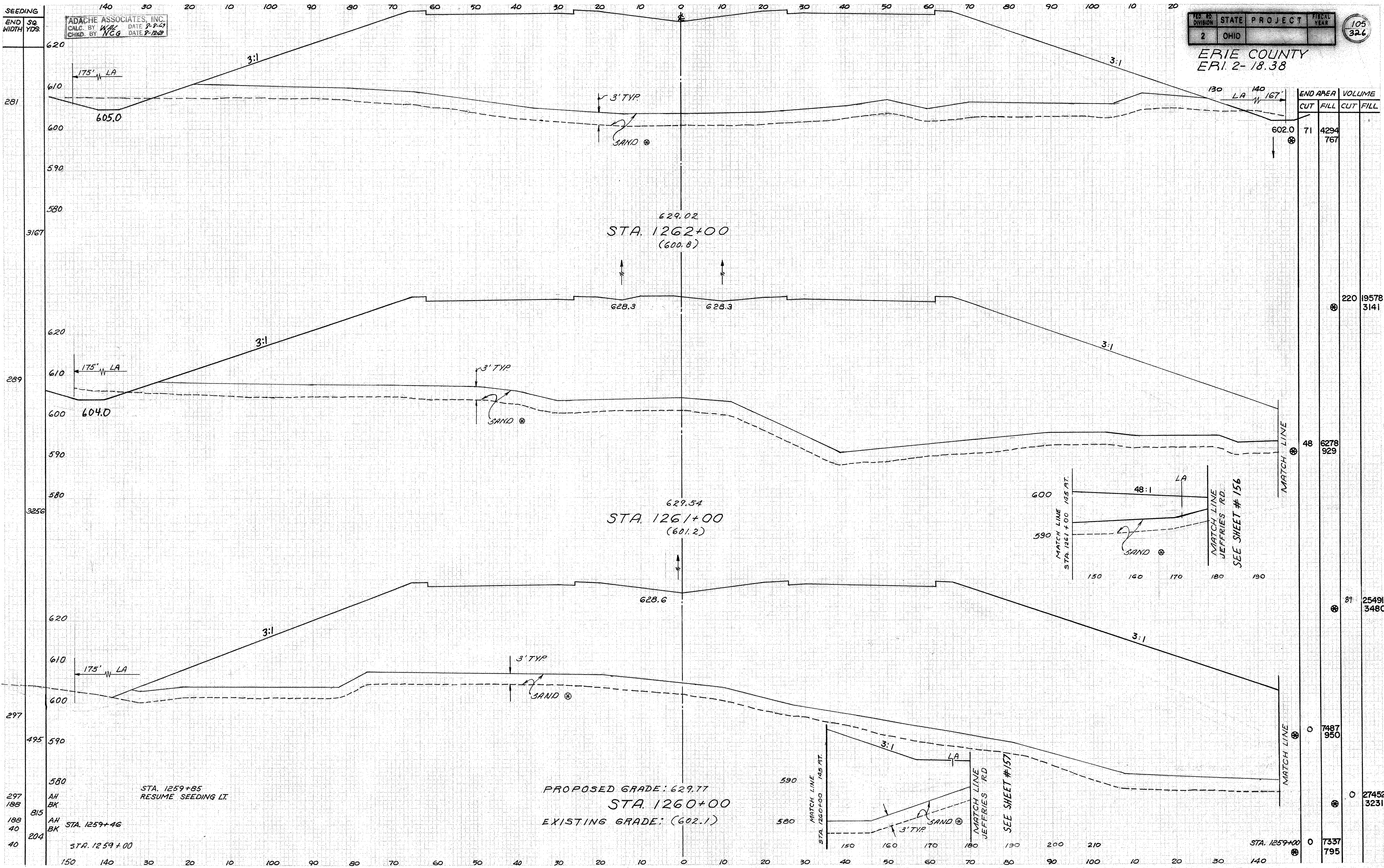
FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

104  
326

ERIE COUNTY  
ERI-2-18.38



END AREA	VOLUME	
	CUT	FILL
0	7337	795
0	2310	250
0	0	0



TADACHE ASSOCIATES, INC.  
 CALC. BY W.H. DATE 8-2-29  
 CHKD. BY N.C.G. DATE 8-12-29

DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

105  
326

ERIE COUNTY  
 ERI. 2-18.38

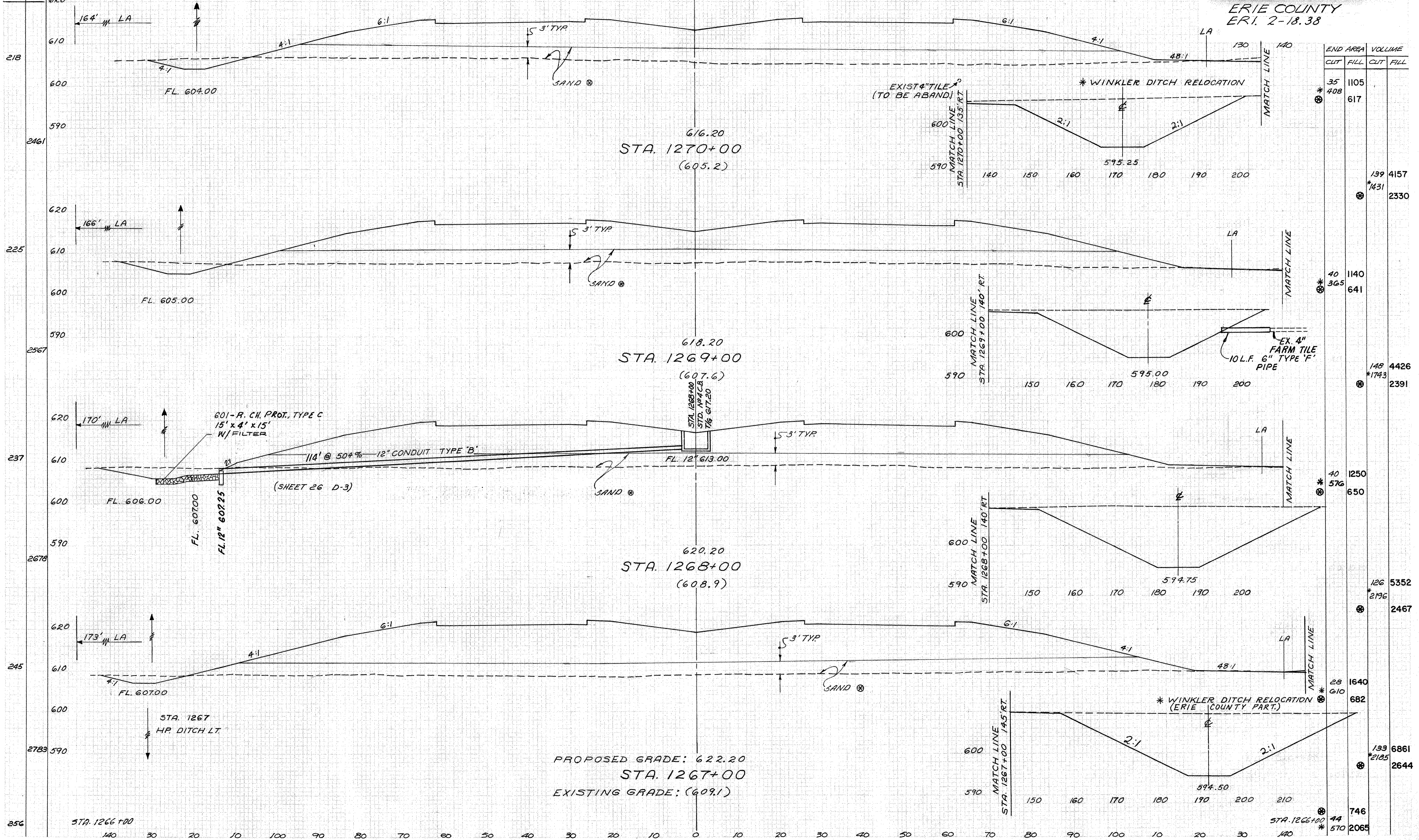
297 188 815 188 40 204  
 580 AH STA. 1259+85  
 BK RESUME SEEDING LT.  
 590 AH STA. 1259+46  
 BK  
 600 STA. 1259+00

PROPOSED GRADE: 629.77  
 STA. 1260+00  
 EXISTING GRADE: (602.1)

CROSS SECTIONS STA. 1260+00 TO STA. 1262+00



ERIE COUNTY  
ERI. 2-18.38



CROSS SECTIONS STA. 1267+00 TO STA. 1270+00

SEEDING  
END WIDTH  
SO. YDS

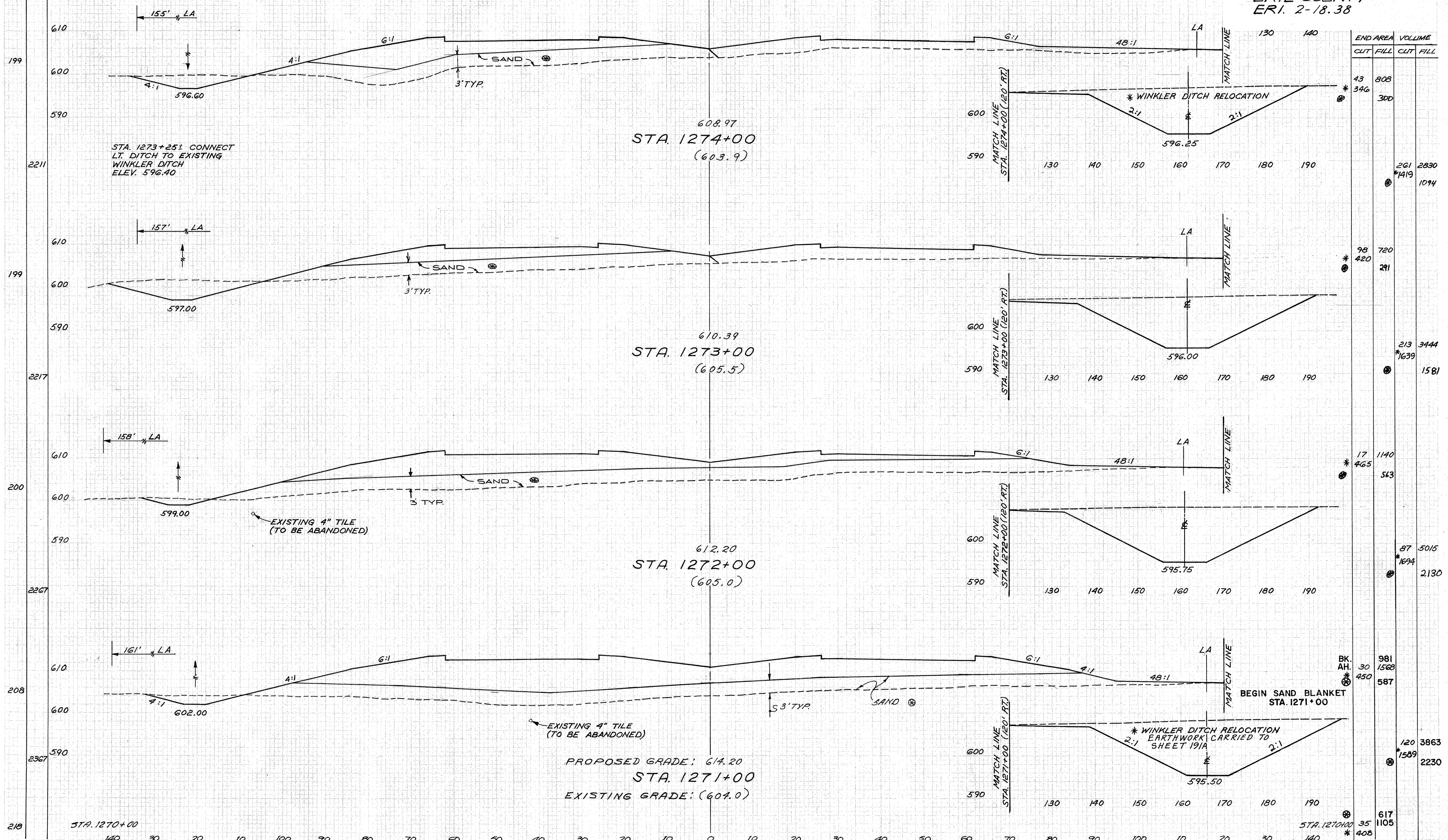
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ADACHE ASSOCIATES, INC.  
CALC. BY WAL DATE 8-8-67  
CHKD. BY NCG DATE 8-2-67

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

108  
32L

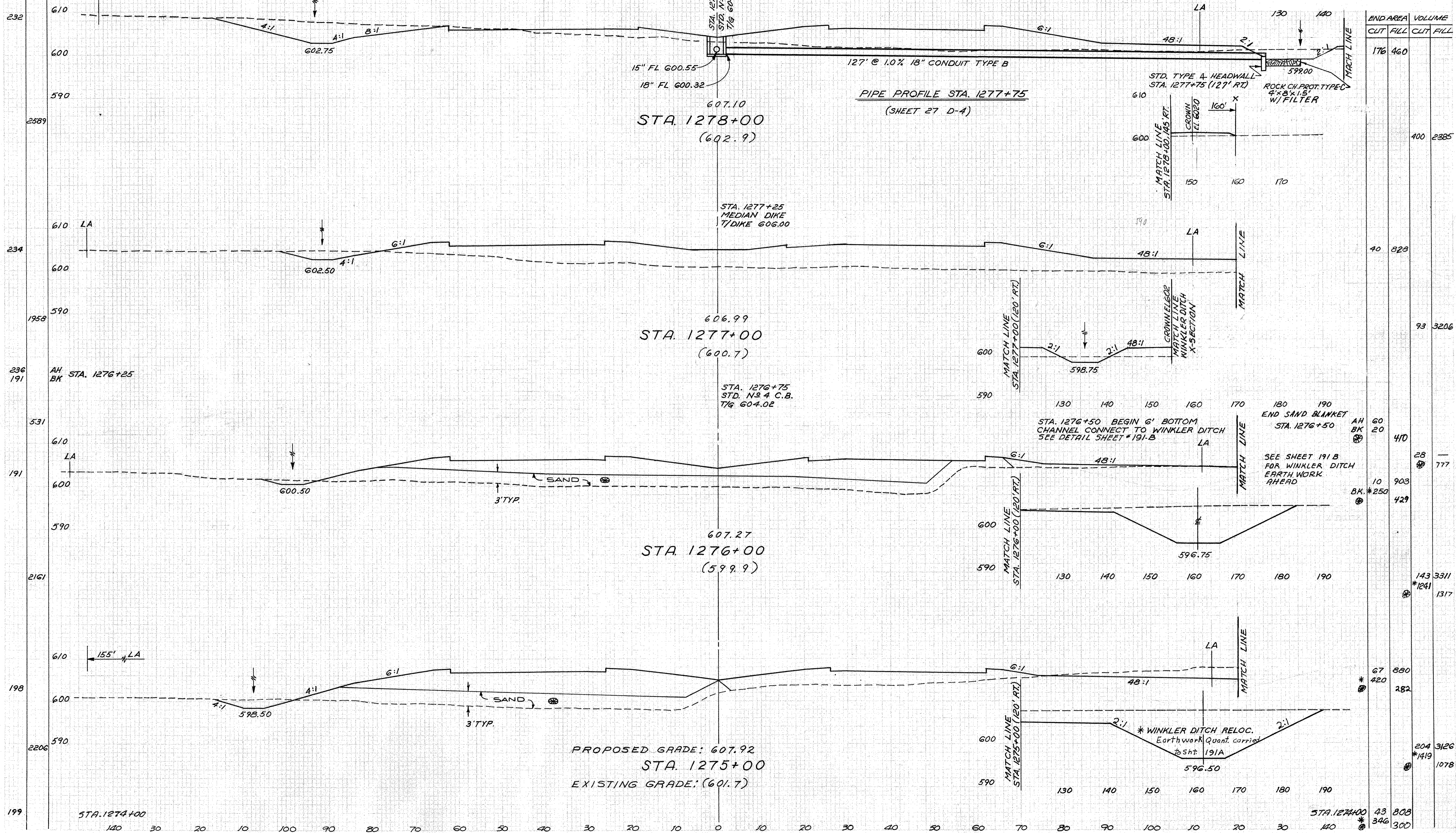
ERIE COLINTY  
ERI. 2-18.38



END AREA	VOLUME	
	CUT	FILL
43	808	
346	300	
261	2830	
1419	1094	
98	720	
420	291	
213	3444	
1639	1581	
17	1140	
465	543	
87	5015	
1694	2130	
BK. AH.	981	
30	1568	
450	587	
120	3863	
1589	2230	
617	1105	
35		
408		

CROSS SECTIONS STA. 1271+00 TO STA. 1274+00

ERIE COUNTY  
 ERI. 2-18.38



END AREA	VOLUME	
	CUT	FILL
176	460	
400	2385	
40	828	
93	3206	
60	470	
28	777	
10	903	
429		
143	3311	
*1241	1317	
67	880	
*420	282	
204	3126	
*1419	1078	
43	808	
*346	300	

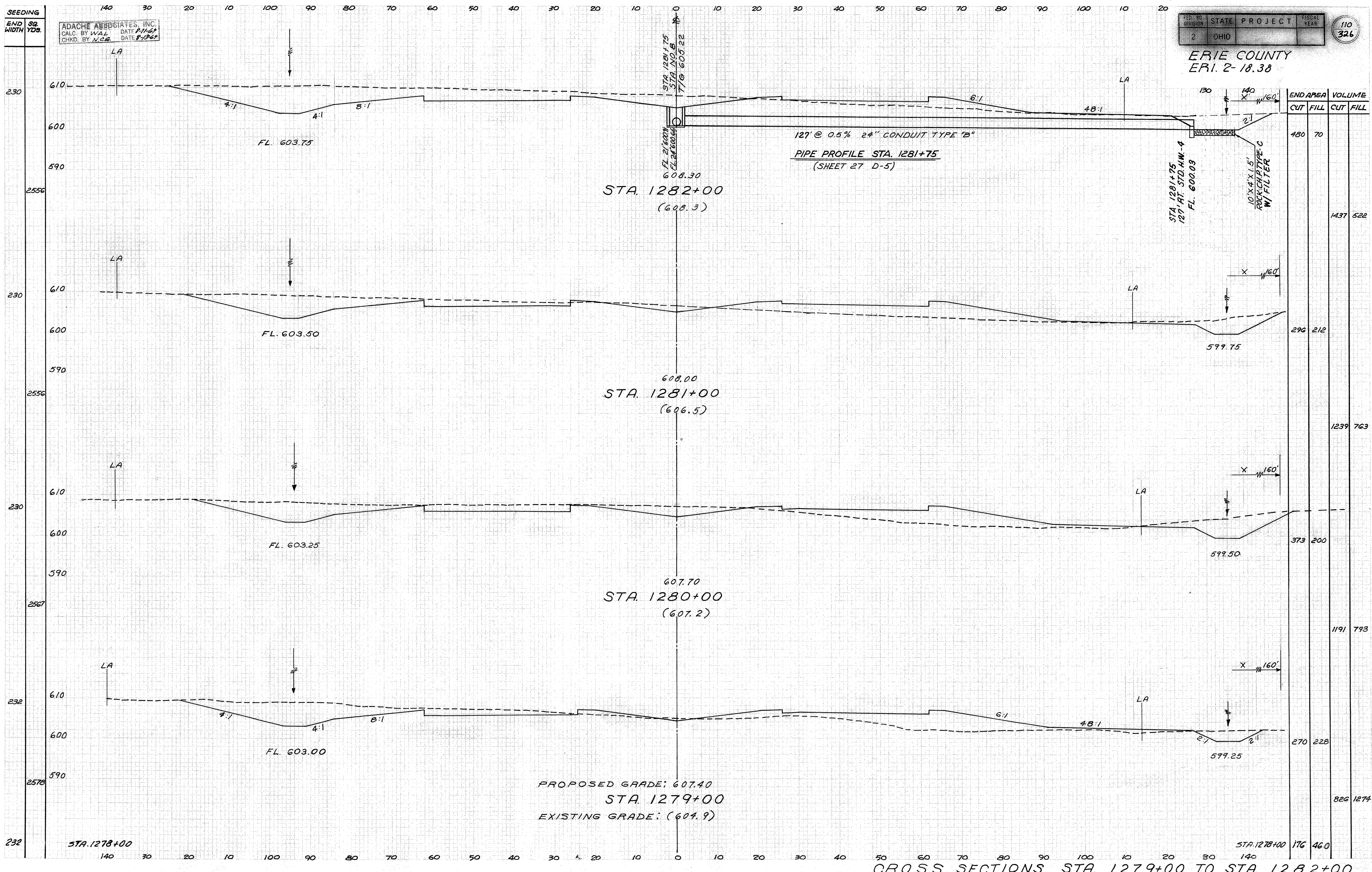
SEEDING  
END WIDTH  
SQ. YDS.

ADACHE ASSOCIATES, INC.  
CALC. BY WAL DATE: 8/11/69  
CHKD. BY N.C.G. DATE: 8/12/69

FED. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

110  
326

ERIE COUNTY  
ERI. 2-18.38



PROPOSED GRADE: 607.40  
STA. 1279+00  
EXISTING GRADE: (607.9)

CROSS SECTIONS STA. 1279+00 TO STA. 1282+00

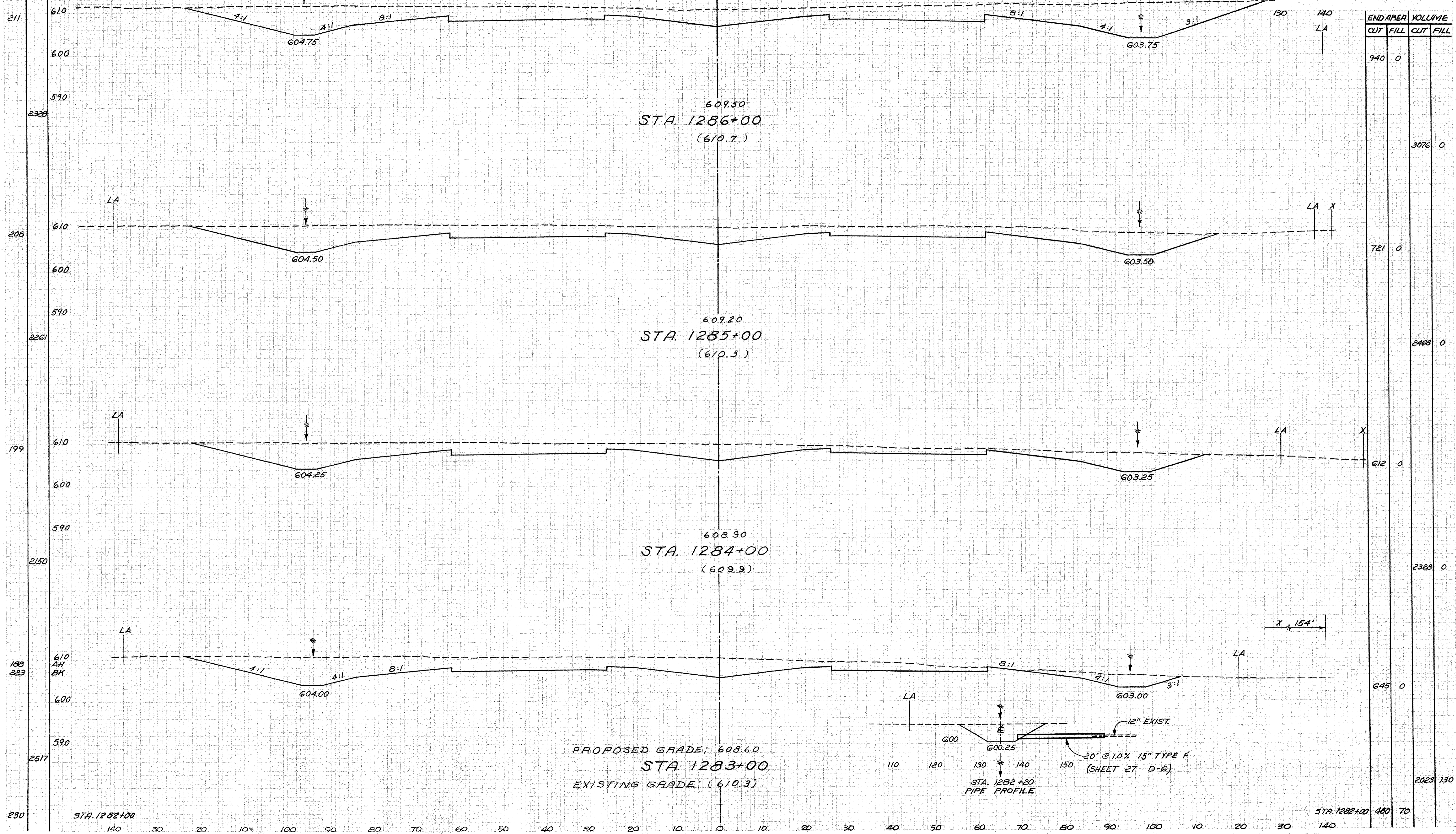
SEEDING  
END WIDTH  
Sq. YDS.

ADACHE ASSOCIATES, INC.  
CALC. BY WAL DATE 3-11-69  
CHKD. BY NCG DATE 8-19-69

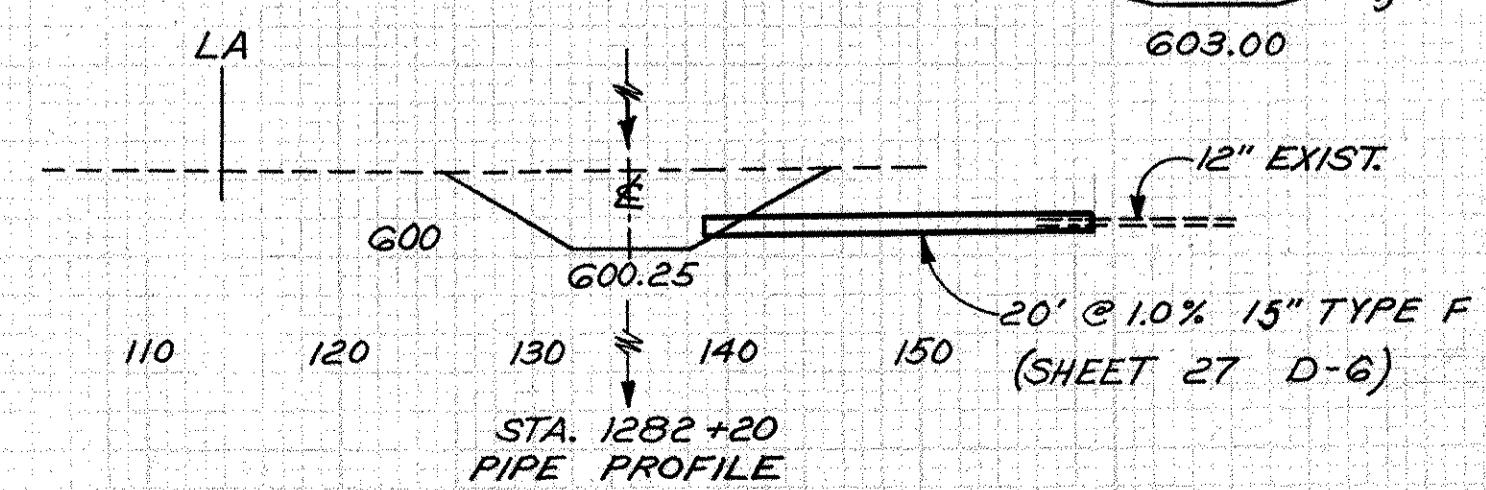
FED. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

111  
326

ERIE COUNTY  
ERI. 2-18.38



PROPOSED GRADE: 608.60  
STA. 1283+00  
EXISTING GRADE: (610.3)



CROSS SECTIONS STA. 1283+00 TO STA. 1286+00



SEEDING  
END WIDTH  
SQ. YDS.

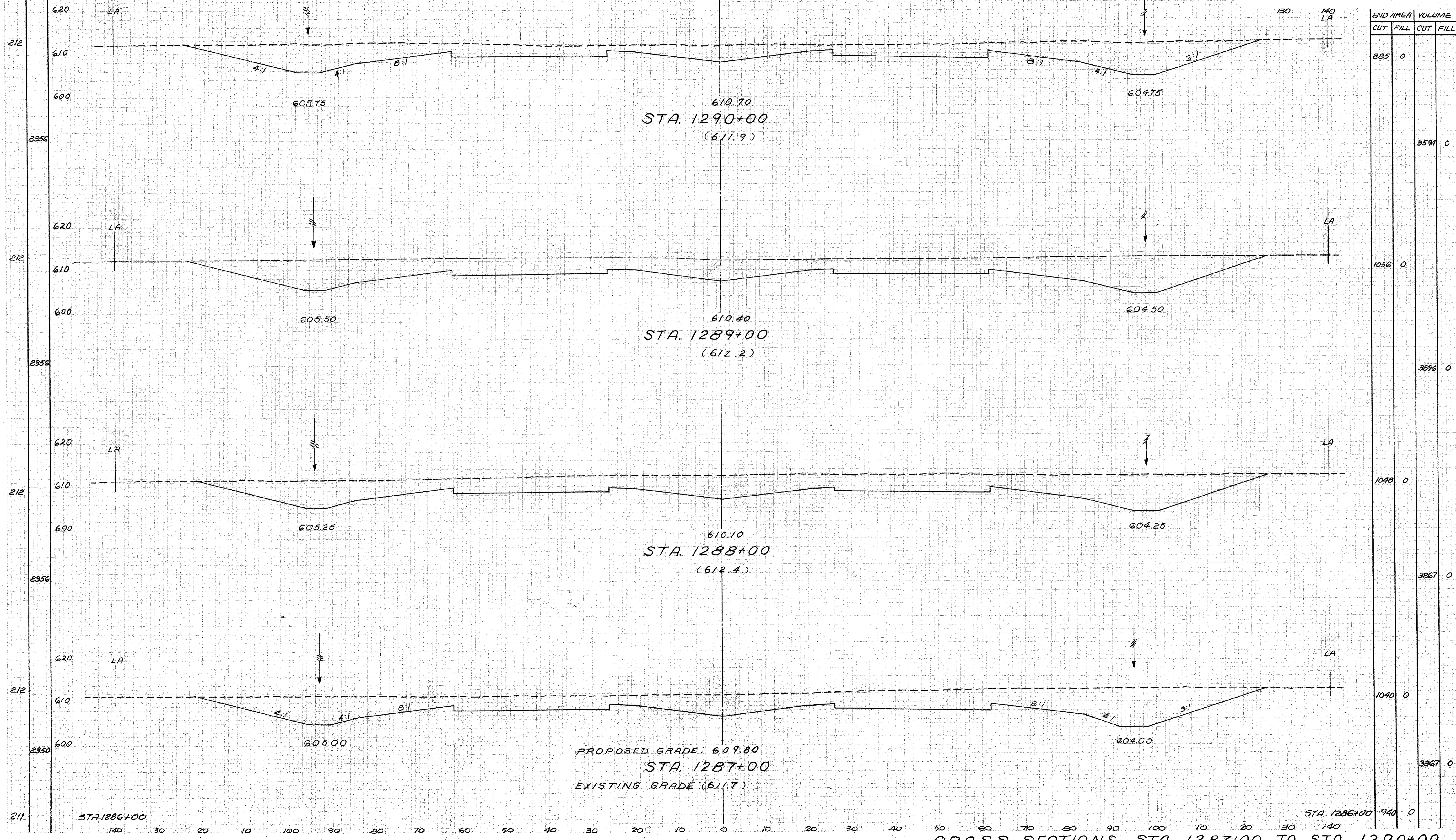
ADACHE ASSOCIATES, INC.  
CALC. BY WAC DATE 8-11-69  
CHKD BY KEG DATE 8-13-69

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

112  
326

ERIE COUNTY  
ERI. 2-18.38

STA. 1290+75  
STD. NO. 4 C.B.  
T/G 607.93



610.70  
STA. 1290+00  
(611.9)

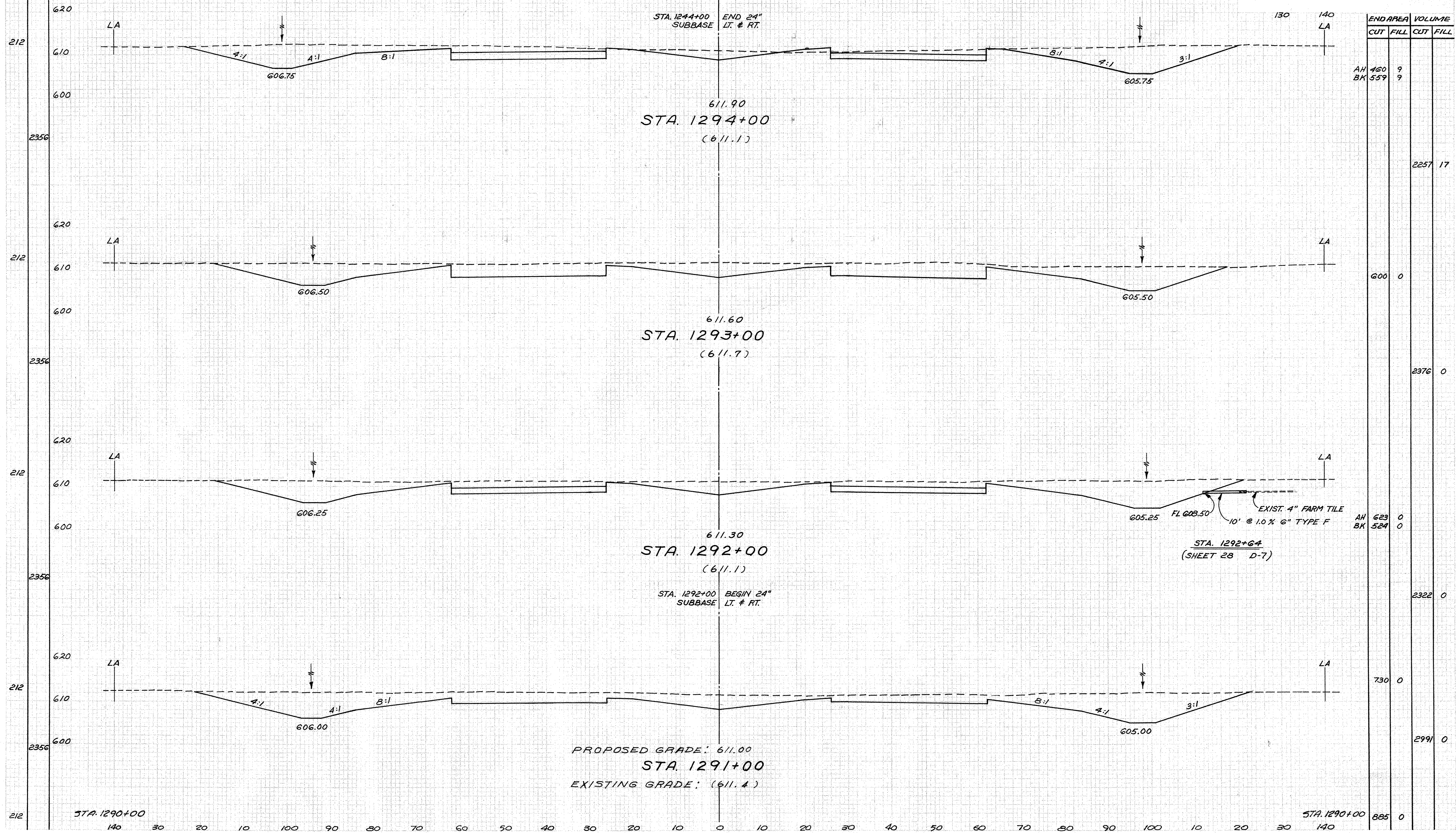
610.40  
STA. 1289+00  
(612.2)

610.10  
STA. 1288+00  
(612.4)

PROPOSED GRADE: 609.80  
STA. 1287+00  
EXISTING GRADE: (611.7)

CROSS SECTIONS STA. 1287+00 TO STA. 1290+00

ERIE COUNTY  
ERI. 2-18.38



END AREA	VOLUME	
	CUT	FILL
AH 160 BK 559	9	9
	2257	17
	600	0
	2376	0
AH 623 BK 524	0	0
	2322	0
	730	0
	2991	0
	885	0

CROSS SECTIONS STA. 1291+00 TO STA. 1294+00

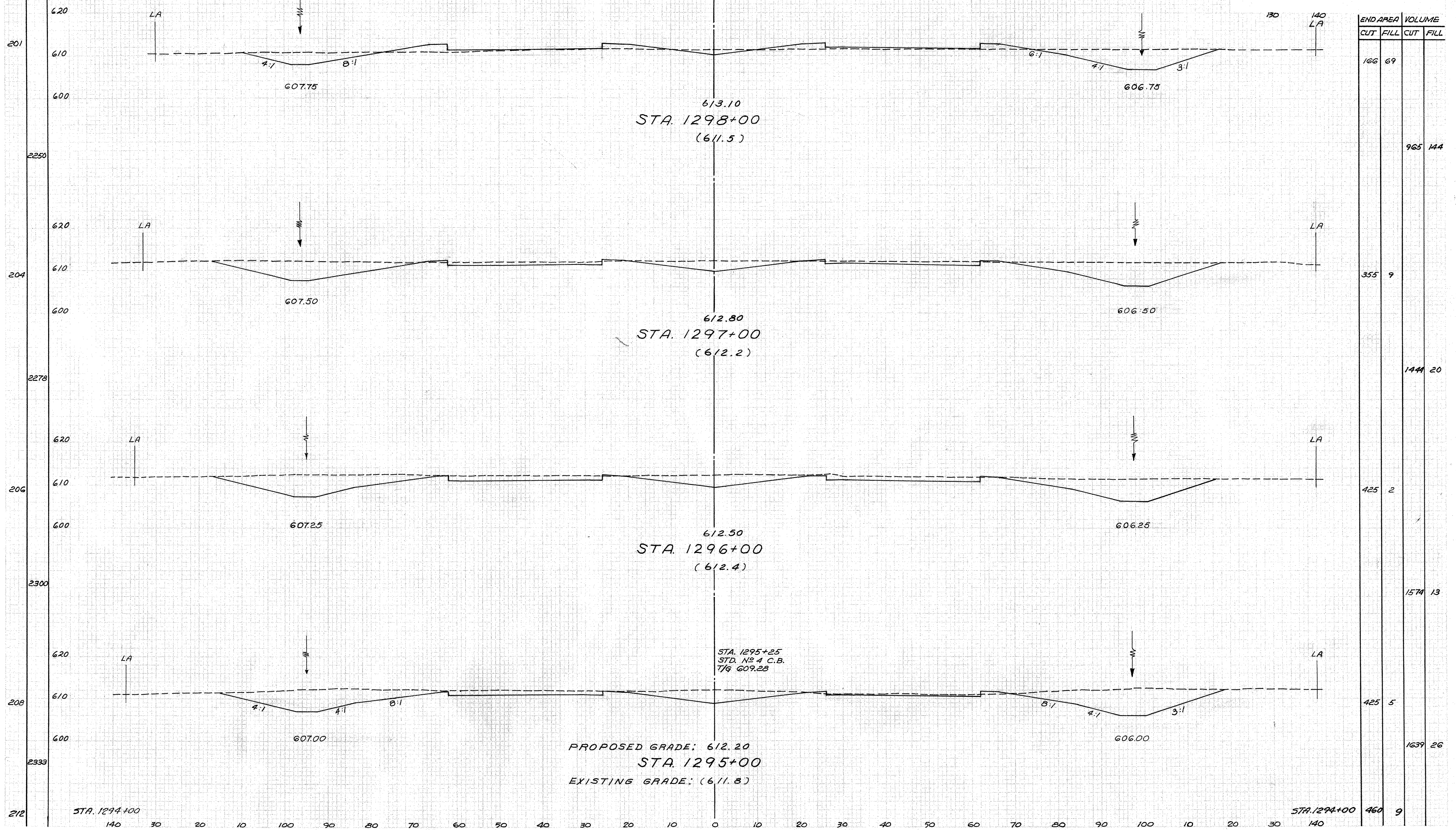
SEEDING  
END WIDTH  
30 YDS.

ADACHE ASSOCIATES, INC.  
CALC. BY WAC DATE 7-11-69  
CHKD. BY NCG DATE 8-13-69

FED. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

114  
326

ERIE COUNTY  
ERI. 2-18.38



END AREA	VOLUME	
	CUT	FILL
166	69	
965	144	
355	9	
1444	20	
425	2	
1574	13	
425	5	
1639	26	
460	9	

PROPOSED GRADE: 612.20  
STA. 1295+00  
EXISTING GRADE: (611.8)

STA. 1295+25  
STD. N24 C.B.  
17/8 609.25

CROSS SECTIONS STA. 1295+00 TO STA. 1298+00

SEEDING 140 30 20 10 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 10 20

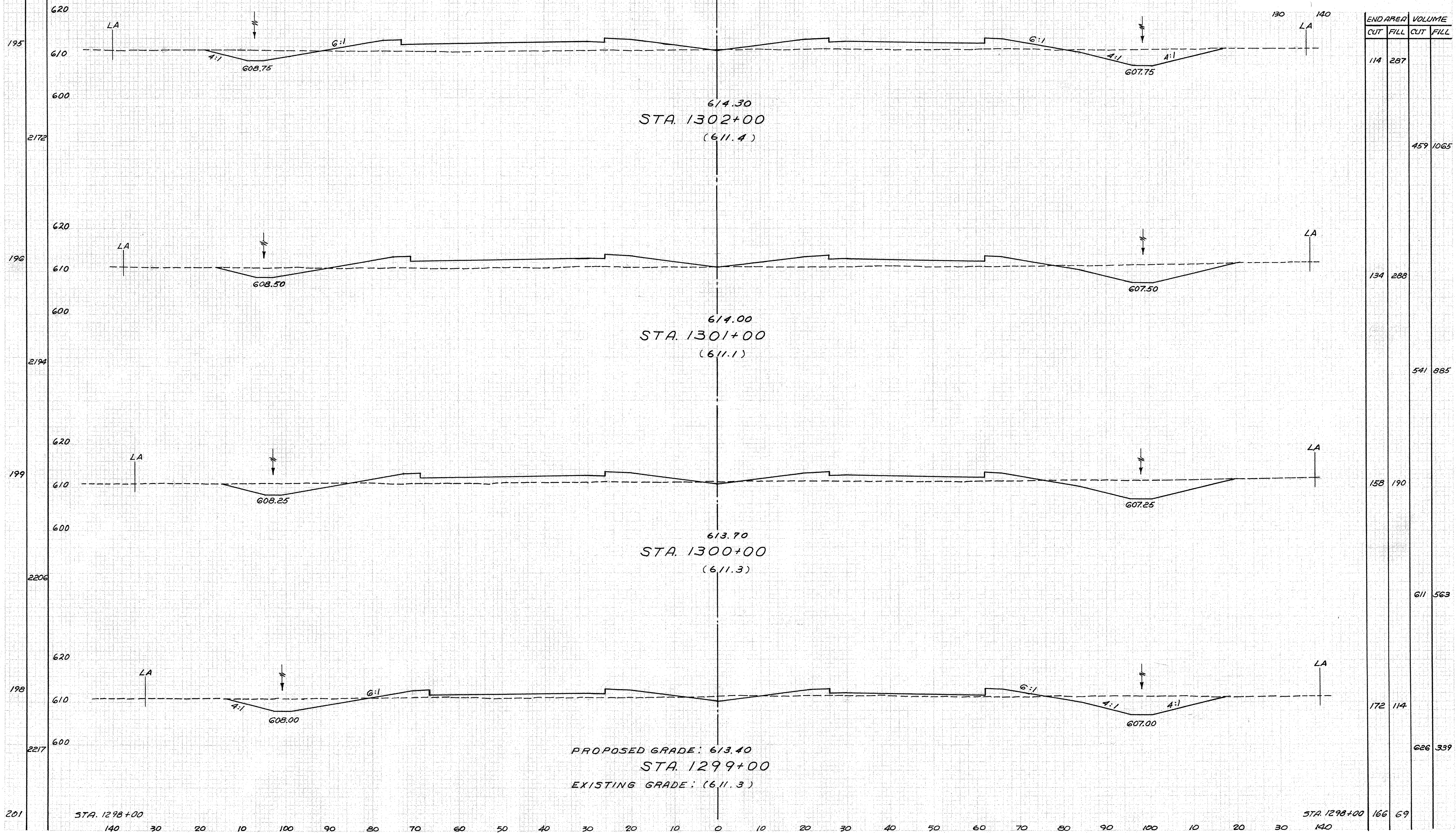
END WIDTH SQ. YDS.

ADACHE ASSOCIATES, INC.  
CALC. BY WAL DATE 8-11-69  
CHKD. BY NCG DATE 8-13-69

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

115  
326

ERIE COUNTY  
ERI. 2-18.38



END AREA	VOLUME	
	CUT	FILL
114	287	
134	288	459 1065
158	190	541 885
172	114	611 563
166	69	626 339

PROPOSED GRADE: 613.40  
STA. 1299+00  
EXISTING GRADE: (611.3)

CROSS SECTIONS STA. 1299+00 TO STA. 1302+00

SEEDING  
END WIDTH  
SQ. YDS

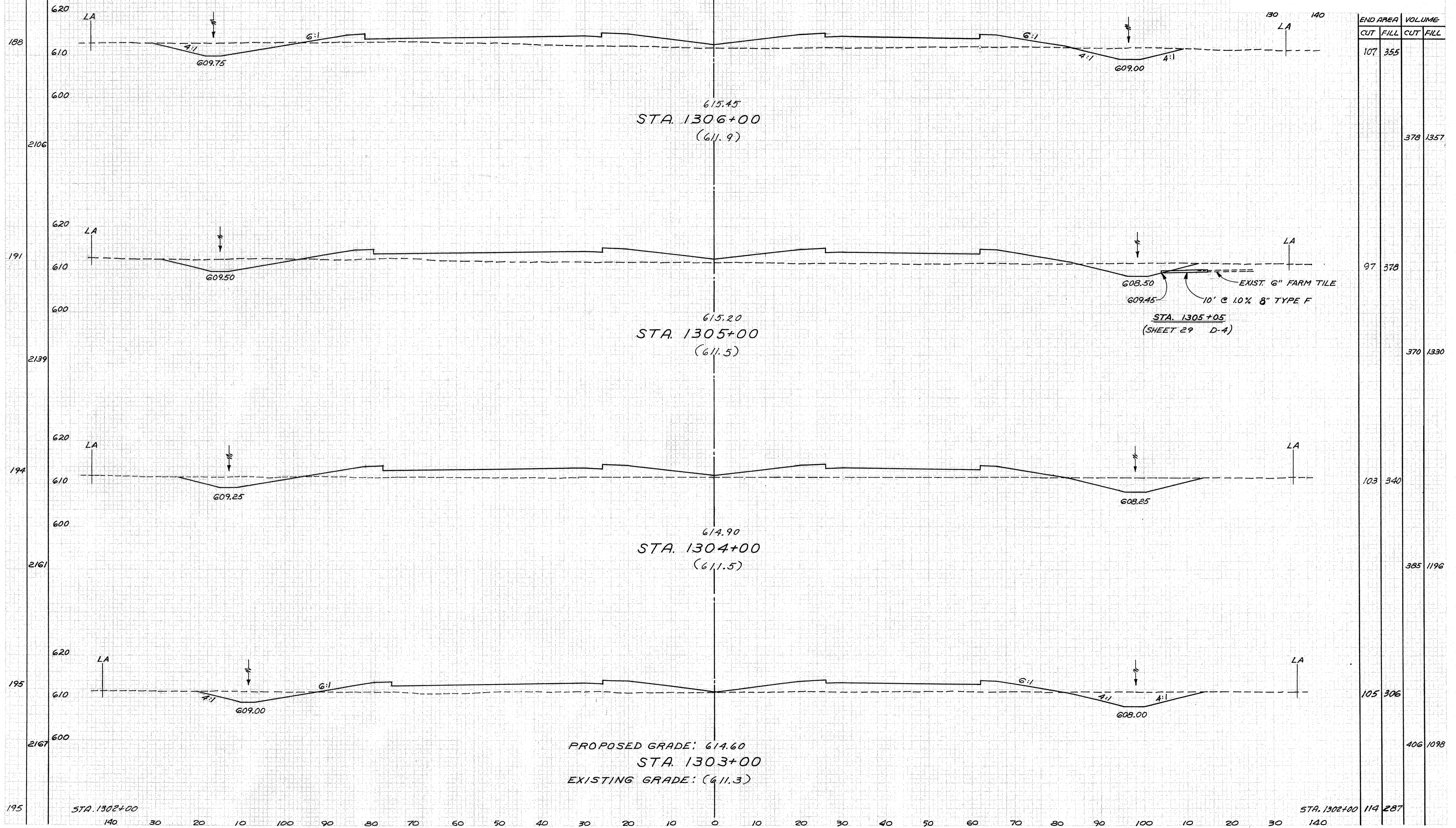
140 30 20 10 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 10 20

ADACHE ASSOCIATES, INC.  
CALC. BY WAL DATE 8-11-61  
CHKD. BY NCB DATE 7-18-62

FED. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

116  
326

ERIE COUNTY  
ERI. 2-18.38



END AREA	VOLUME	
	CUT	FILL
107	355	
97	378	
103	340	
105	306	
114	287	
378	1357	
370	1330	
385	1196	
406	1098	

CROSS SECTIONS STA. 1303+00 TO STA. 1306+00

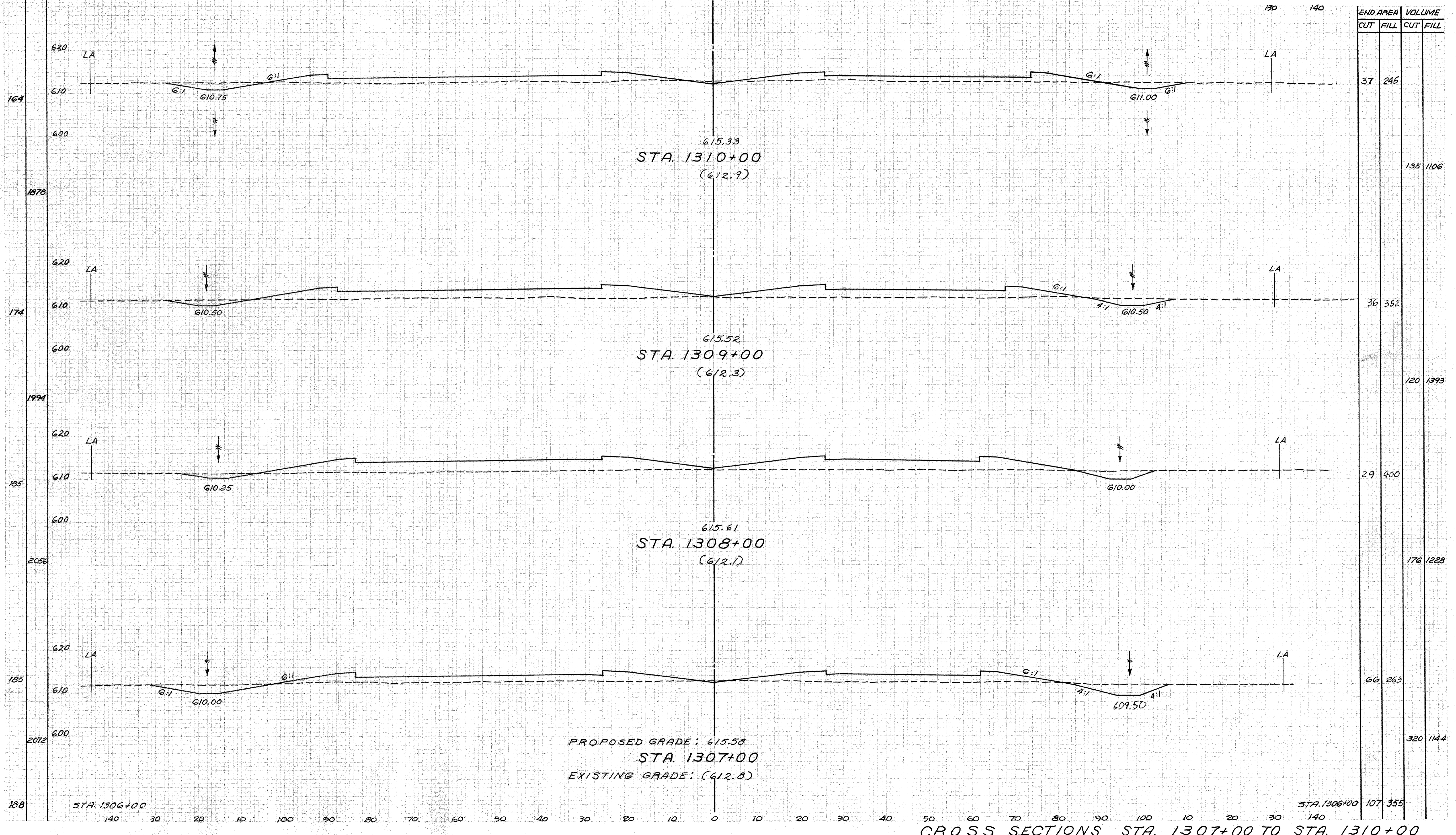
SEEDING  
END WIDTH  
SQ. YDS.

ADACHE ASSOCIATES, INC.  
CALC. BY WAL DATE 8-1-69  
CHKD. BY NGG DATE 8-13-69

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

117  
326

ERIE COUNTY  
ERI. 2-18.38



CROSS SECTIONS STA. 1307+00 TO STA. 1310+00

SEEDING  
END WIDTH  
SQ YDS.

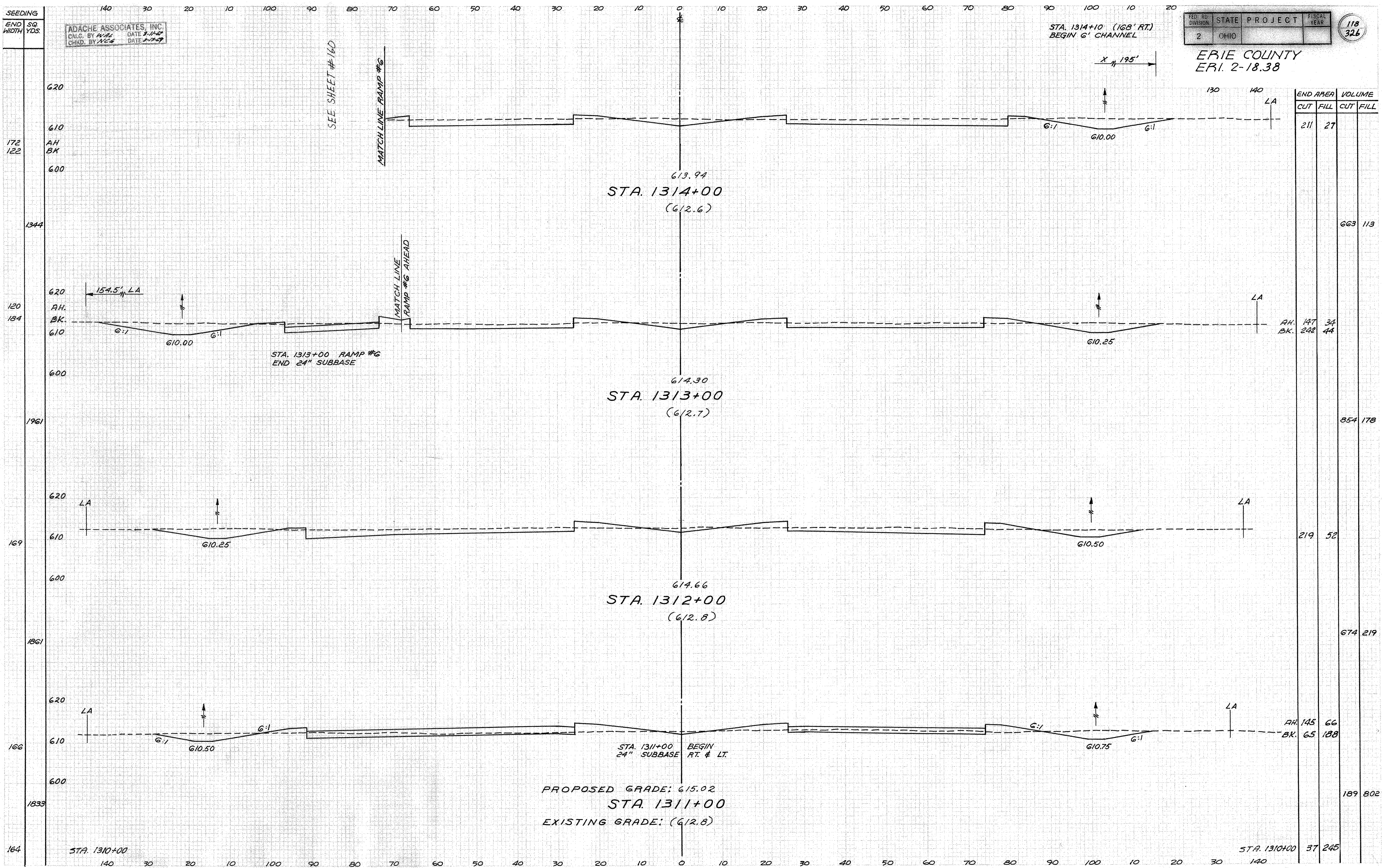
ADACHE ASSOCIATES, INC.  
CALC. BY W.R. DATE 8-11-62  
CHKD. BY N.C.G. DATE 2-15-63

STA. 1314+10 (168' RT.)  
BEGIN 6' CHANNEL

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

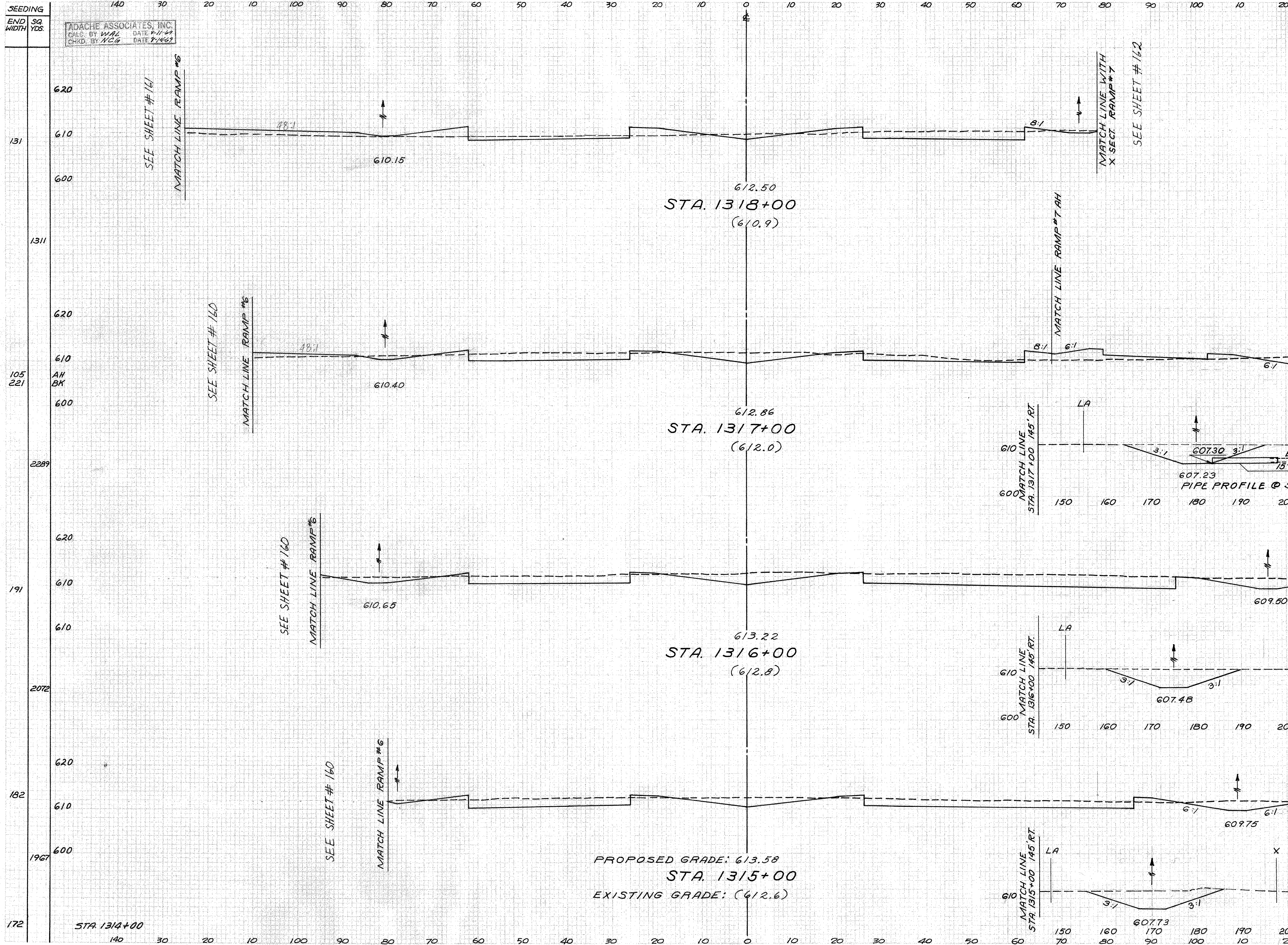
118  
326

ERIE COUNTY  
ERI. 2-18.38



END AREA	VOLUME	
	CUT	FILL
211	27	
663	113	
147	34	
232	44	
219	52	
854	178	
674	219	
145	66	
65	188	
189	802	
37	245	

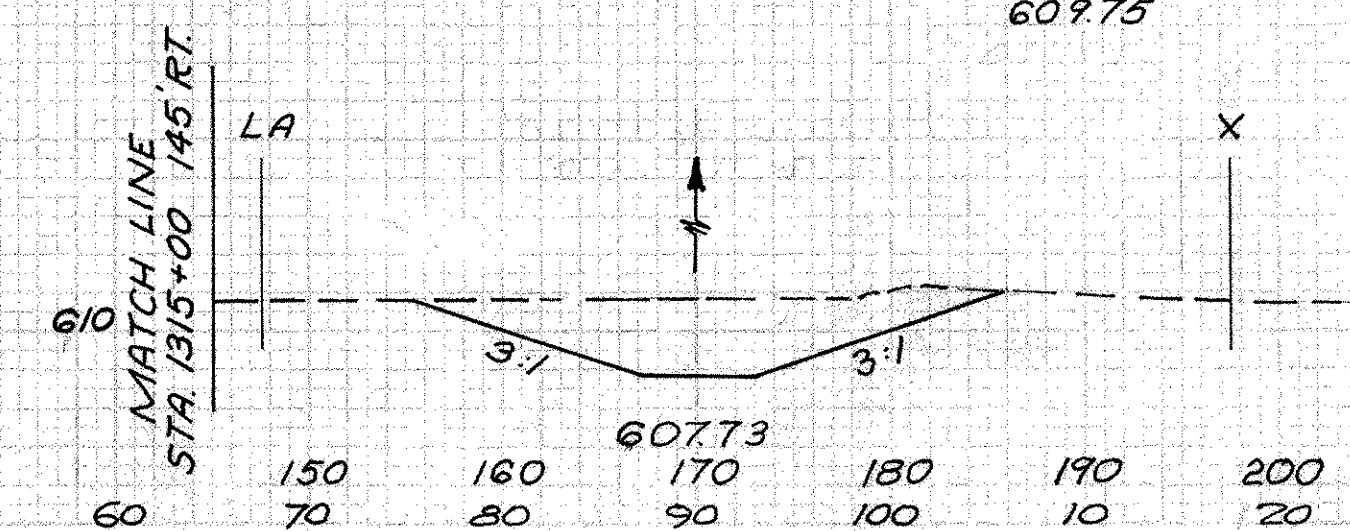
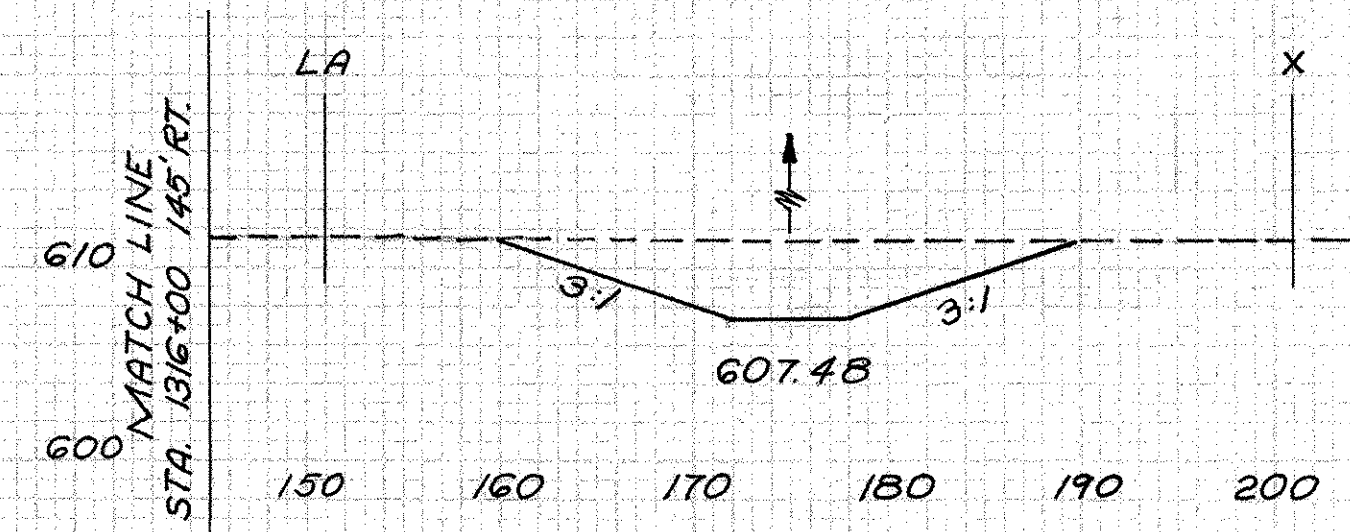
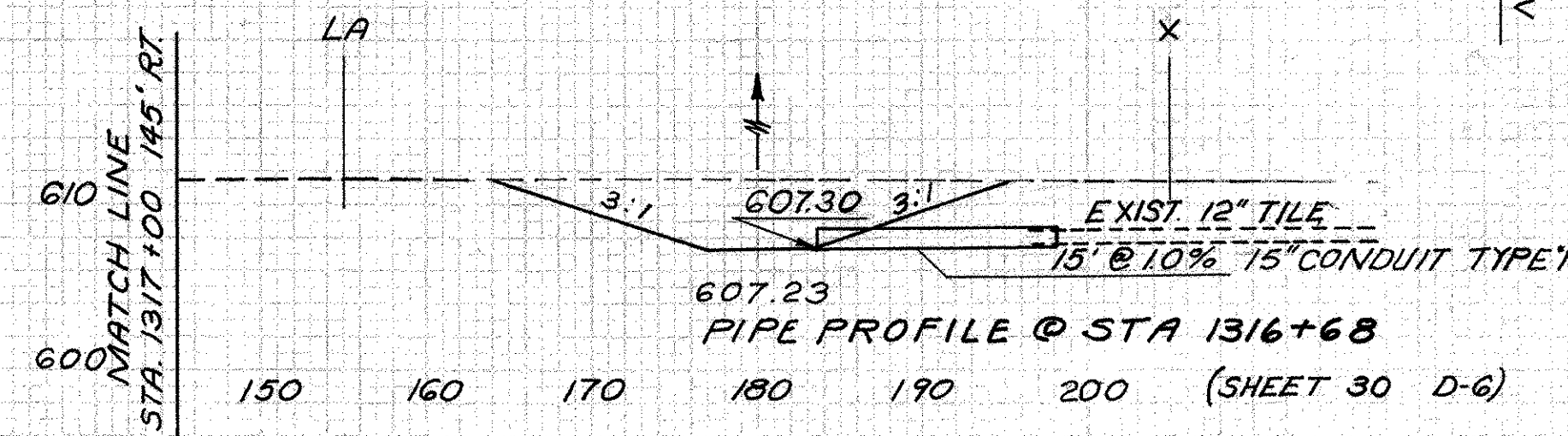
CROSS SECTIONS STA. 1311+00 TO STA. 1314+00



TADACHE ASSOCIATES, INC.  
 CALC. BY WAL DATE 8-11-69  
 CHKD. BY YCG DATE 8-14-69

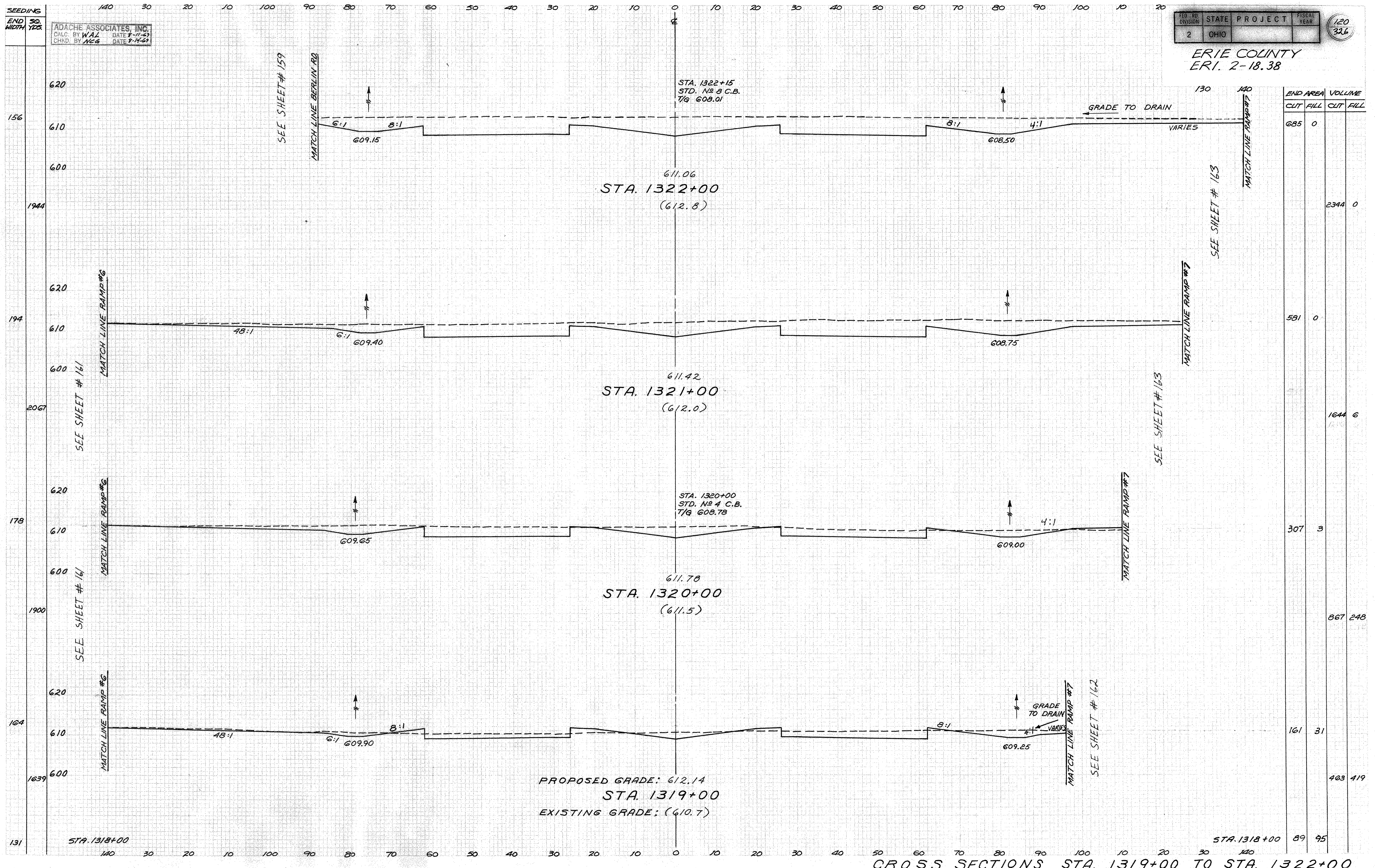
STATE PROJECT FISCAL YEAR  
 OHIO 119  
 326  
 ERIE COUNTY  
 ERI. 2-18.38

END AREA	VOLUME	
	CUT	FILL
89	95	
409	235	
132	32	
297	77	
1120	150	
358	4	
1231	43	
307	19	
987	85	
285		
211		
211	27	



CROSS SECTIONS STA. 1315+00 TO STA. 1318+00





SEEDING  
END WIDTH YDS  
140 30 20 10 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 10 20

ADACHE ASSOCIATES, INC.  
CALC. BY WAL DATE 8-11-69  
CHKD. BY NEG DATE 8-14-69

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

120  
326

ERIE COUNTY  
ERI. 2-18.38

END AREA	VOLUME	
	CUT	FILL
685	0	
1944	0	2344
2067	0	1644
178	3	867
164	31	463
131	89	95

PROPOSED GRADE: 612.14  
STA. 1319+00  
EXISTING GRADE: (610.7)

CROSS SECTIONS STA. 1319+00 TO STA. 1322+00

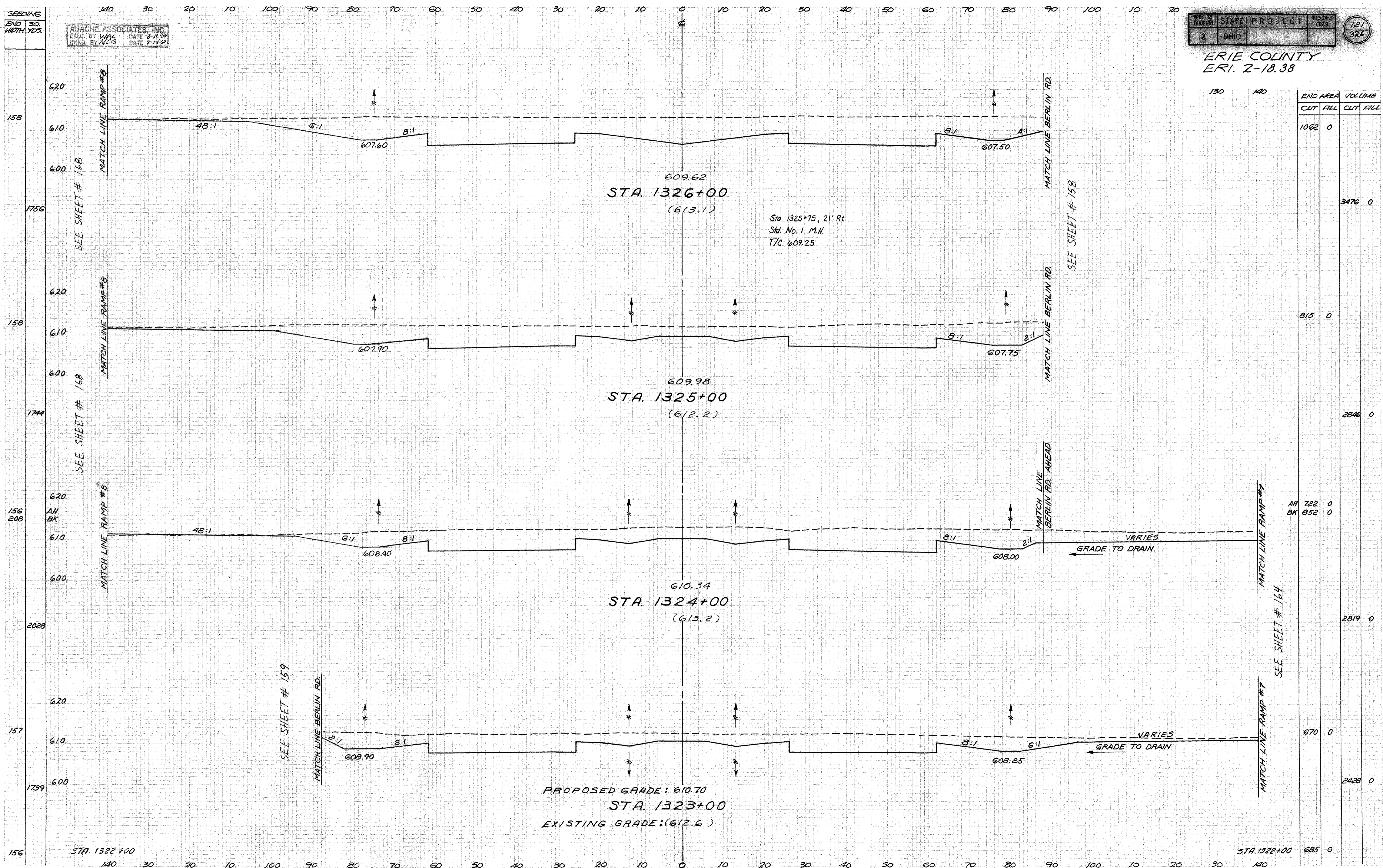
SEEDING  
END 30.  
WIDTH YDS.

ADACHE ASSOCIATES, INC.  
CALC. BY WAL DATE 2-12-68  
CHKD. BY NCS DATE 2-14-68

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

121  
323

ERIE COUNTY  
ERI. 2-18.38



END AREA	VOLUME	
	CUT	FILL
1062	0	
		3476 0
815	0	
		2846 0
AH 722	0	
BK 852	0	
		2819 0
670	0	
		2428 0
685	0	

CROSS SECTIONS STA. 1323+00 TO STA. 1326+00

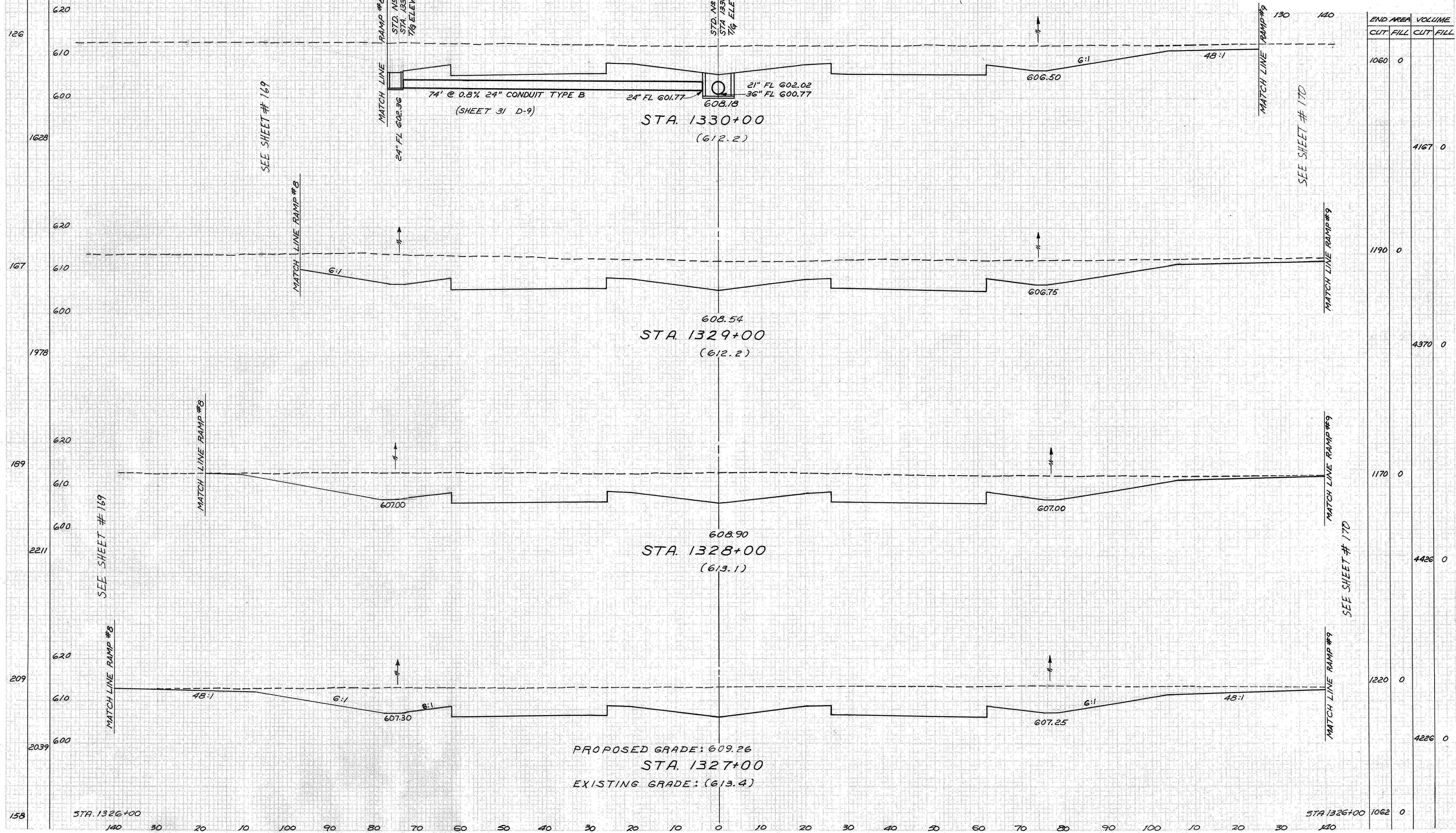
END 50. MICRO YDS.

ADACHE ASSOCIATES, INC.  
CALC. BY WAZ DATE 2-12-57  
CHKD. BY NCG DATE 2-14-57

PRO. NO.	STATE	PROJECT	FISCAL YEAR
2	OHIO		

122  
326

ERIE COUNTY  
ERI. 2-18.38



END AREA	VOLUME	
	CUT	FILL
1060	0	
1190	0	
1170	0	
1220	0	
1062	0	

CROSS SECTIONS STA. 1327+00 TO STA. 1330+00

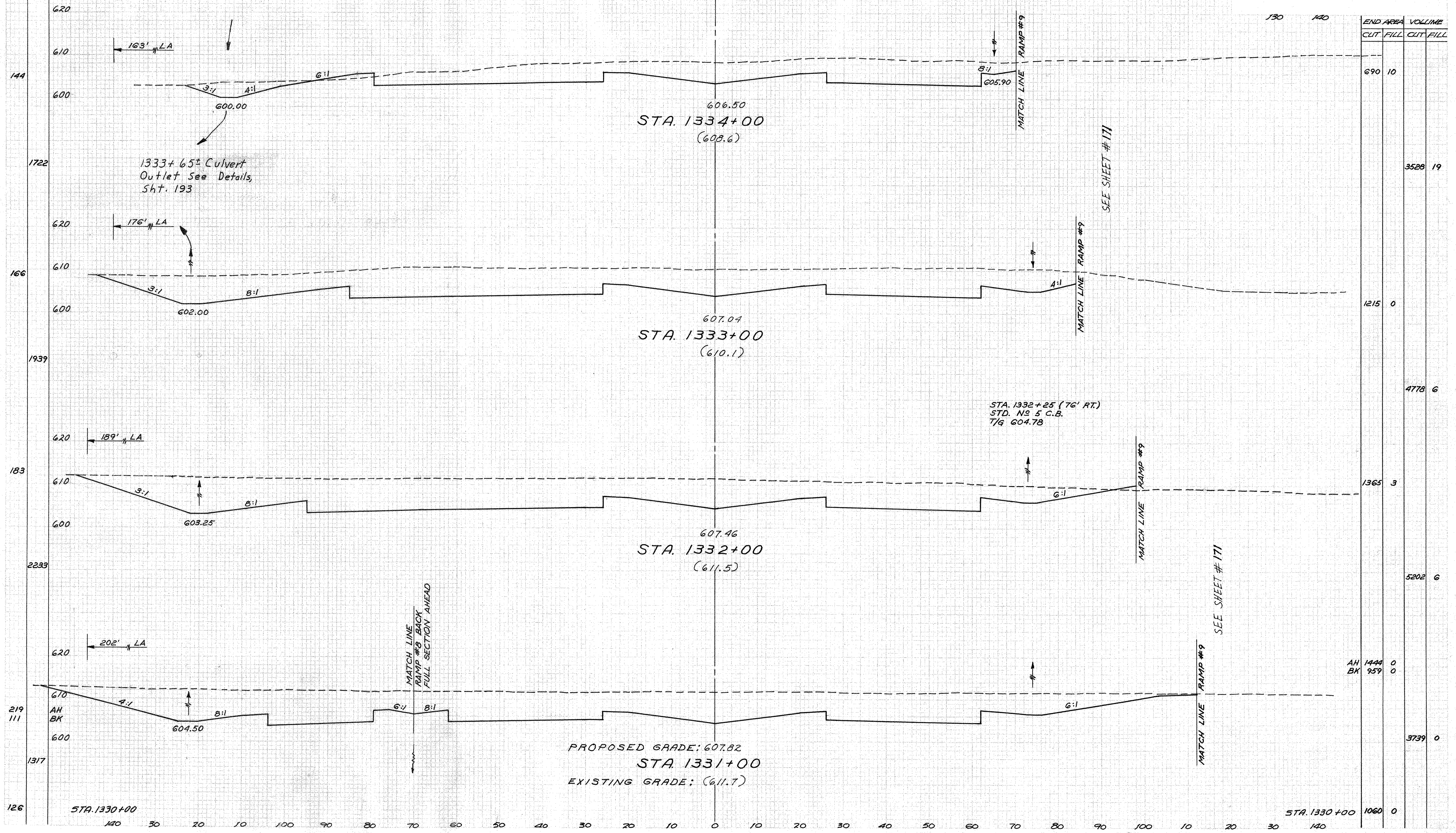
SEEDING 140 30 20 10 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 10 20

FED. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

ADACHE ASSOCIATES, INC.  
 CALC. BY WAL DATE 2-12-67  
 CHKD. BY VES DATE 2-14-67

123  
326

ERIE COUNTY  
 ERI. 2-18.38



END AREA	VOLUME	
	CUT	FILL
690	10	
3528	19	
1215	0	
4778	6	
1365	3	
5202	6	
AH 1444	0	
BK 959	0	
3739	0	
1060	0	

CROSS SECTIONS STA. 1331+00 TO STA. 1334+00

SEEDING 140 30 20 10 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 10 20

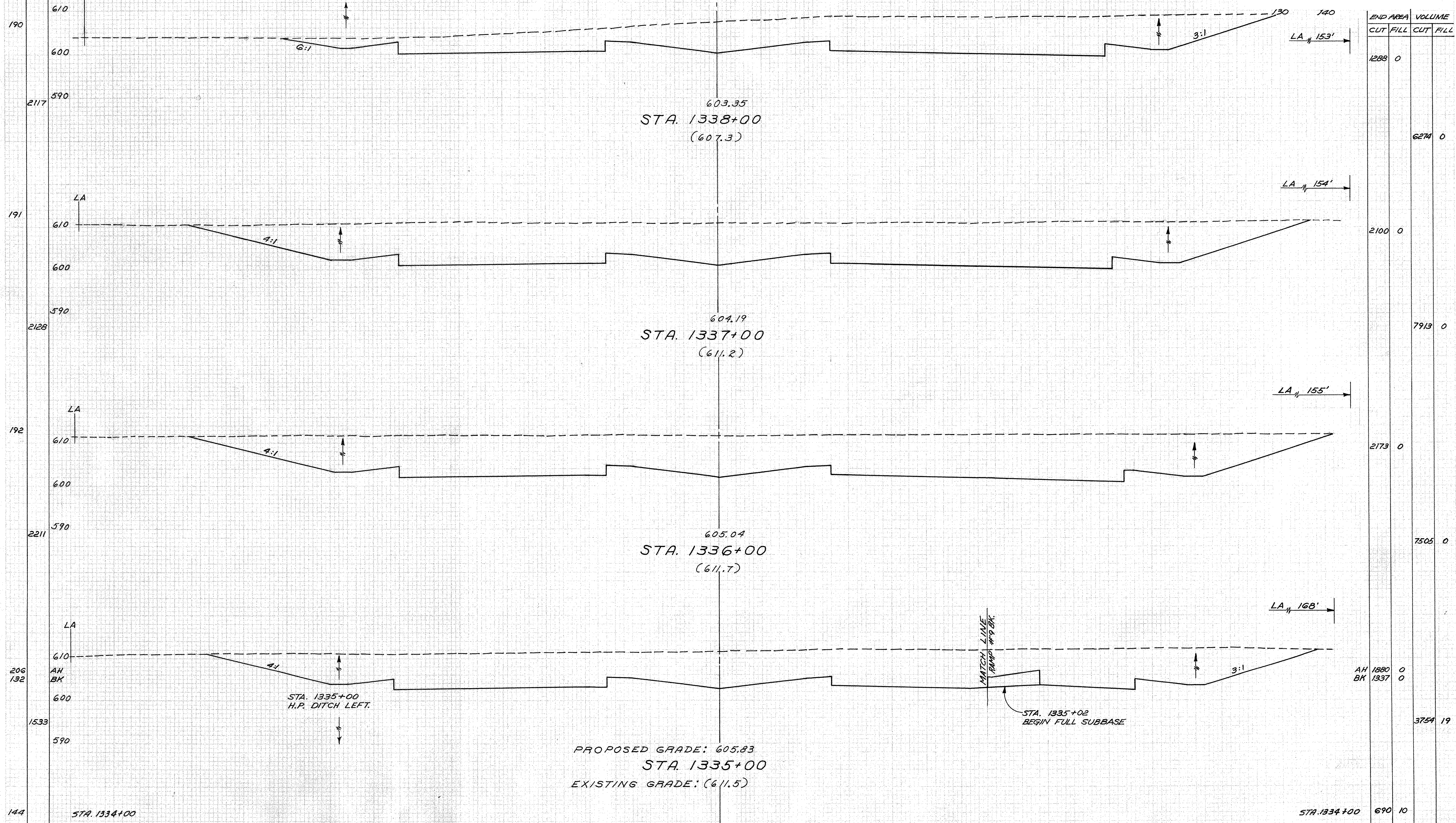
FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

124  
326

ERIE COUNTY  
ERI. 2-18.38

STA. 1338+91  
STD. N<sup>o</sup> 4 C.B.  
T/G 599.42

ADACHE ASSOCIATES, INC.  
CALC. BY WAL DATE 8/12/69  
CHKD. BY NCG DATE 8/14/69



PROPOSED GRADE: 605.83  
STA. 1335+00  
EXISTING GRADE: (611.5)

CROSS SECTIONS STA. 1335+00 TO STA. 1338+00

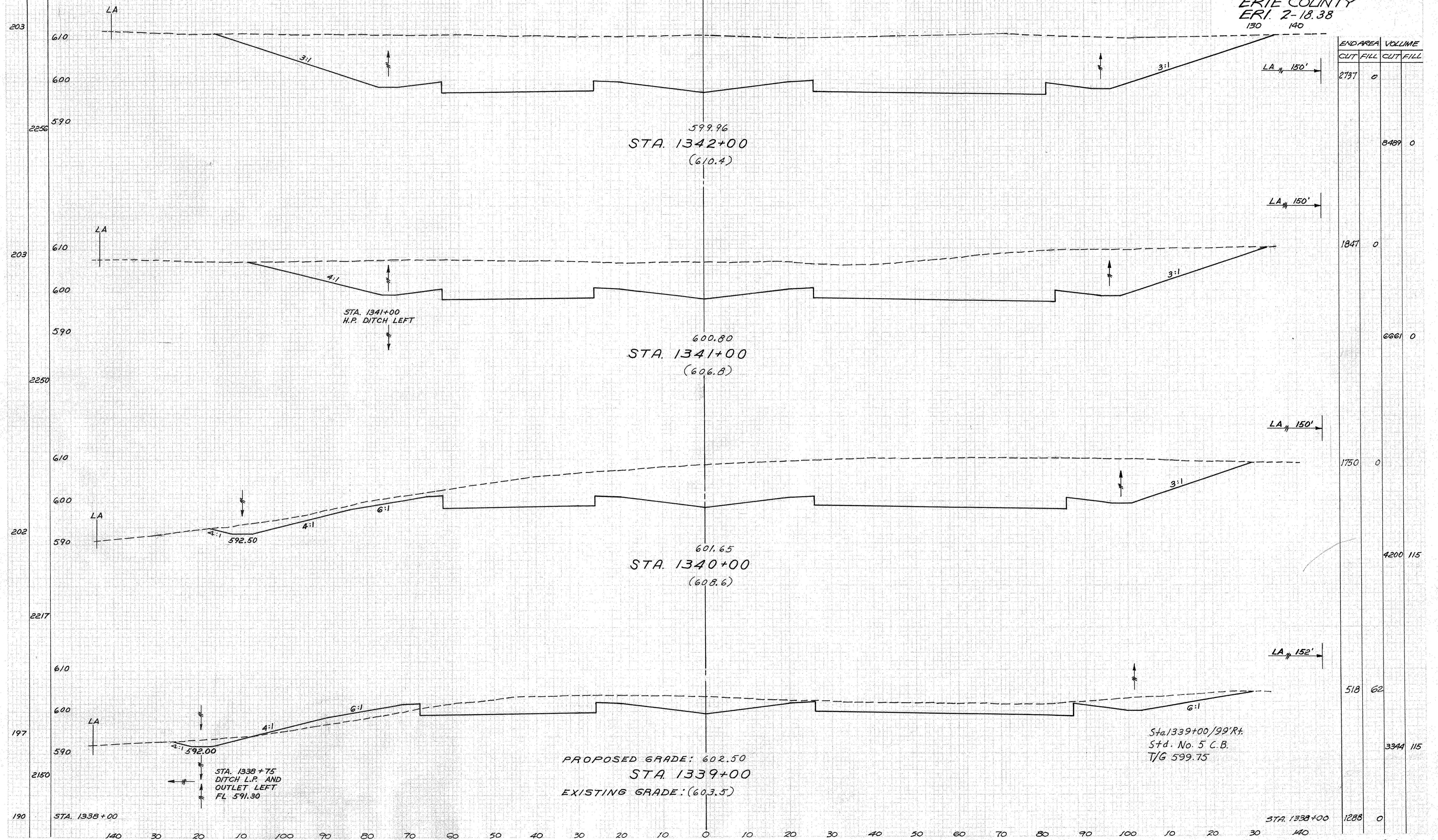
SEEDINGS END 50. WIDTH YDS. 140 30 20 10 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 10 20

ADACHE ASSOCIATES, INC.  
CALC. BY WAL DATE 8-12-69  
CHKD. BY NCG DATE 8-14-69

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

125  
326

ERIE COLINTY  
ERI. 2-18.38  
130 140



PROPOSED GRADE: 602.50  
STA. 1339+00  
EXISTING GRADE: (603.5)

Sta. 1339+00/99'Rt.  
S+d. No. 5 C.B.  
T/G 599.75

CROSS SECTIONS STA. 1339+00 TO STA. 1342+00

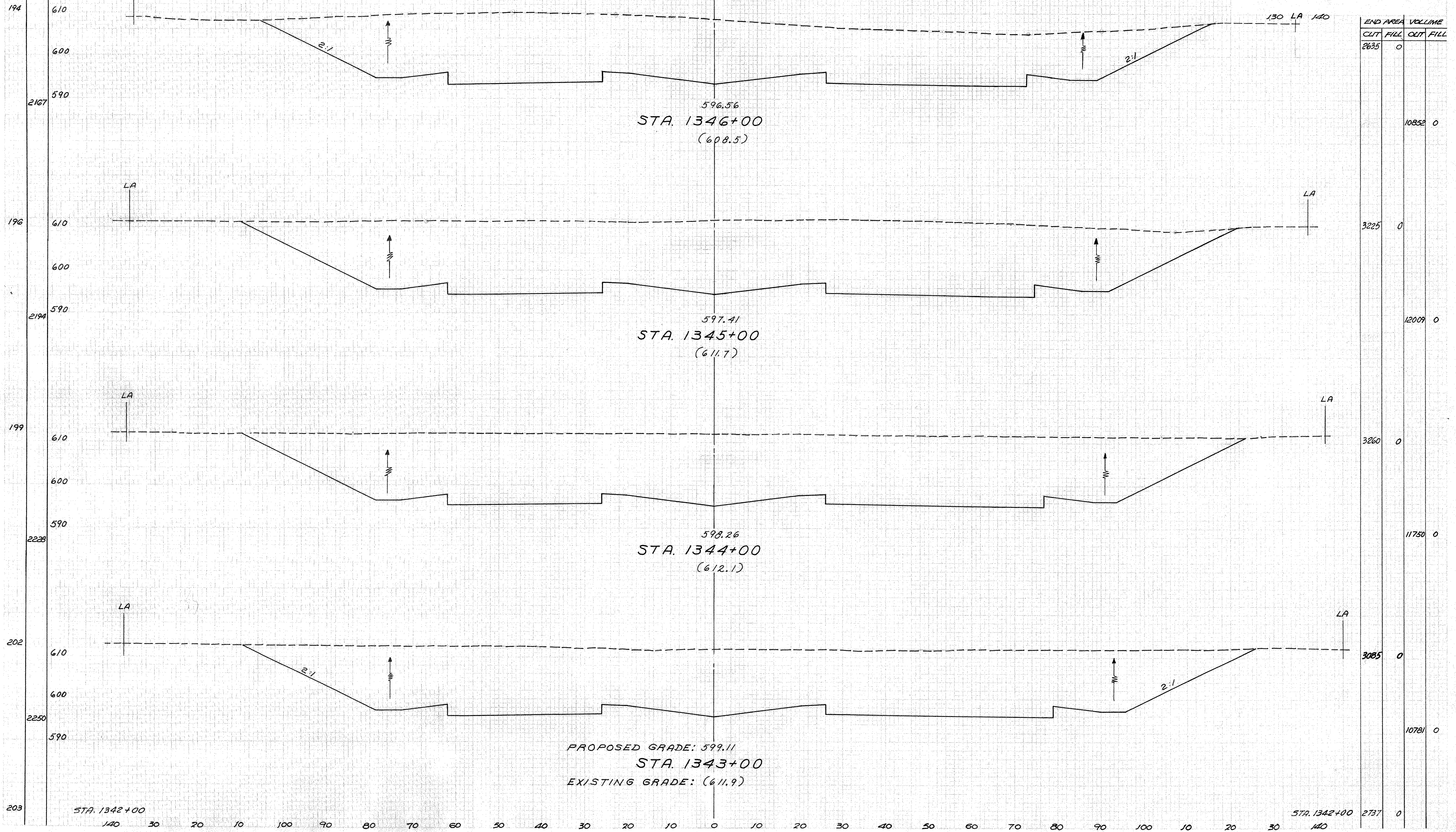
SEEDING  
END SO.  
WIDTH YDS

ADACHE ASSOCIATES, INC.  
CALC. BY W.P.L. DATE 2/12/69  
CHKD. BY W.E.G. DATE 2/15/69

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

126  
326

ERIE COUNTY  
ERI. 2-18.38



END AREA	VOLUME	
	CUT	FILL
2635	0	
		10852 0
3225	0	
		12009 0
3260	0	
		11750 0
3085	0	
		10781 0
2737	0	

PROPOSED GRADE: 599.11  
STA. 1343+00  
EXISTING GRADE: (611.9)

CROSS SECTIONS STA. 1343+00 TO STA. 1346+00

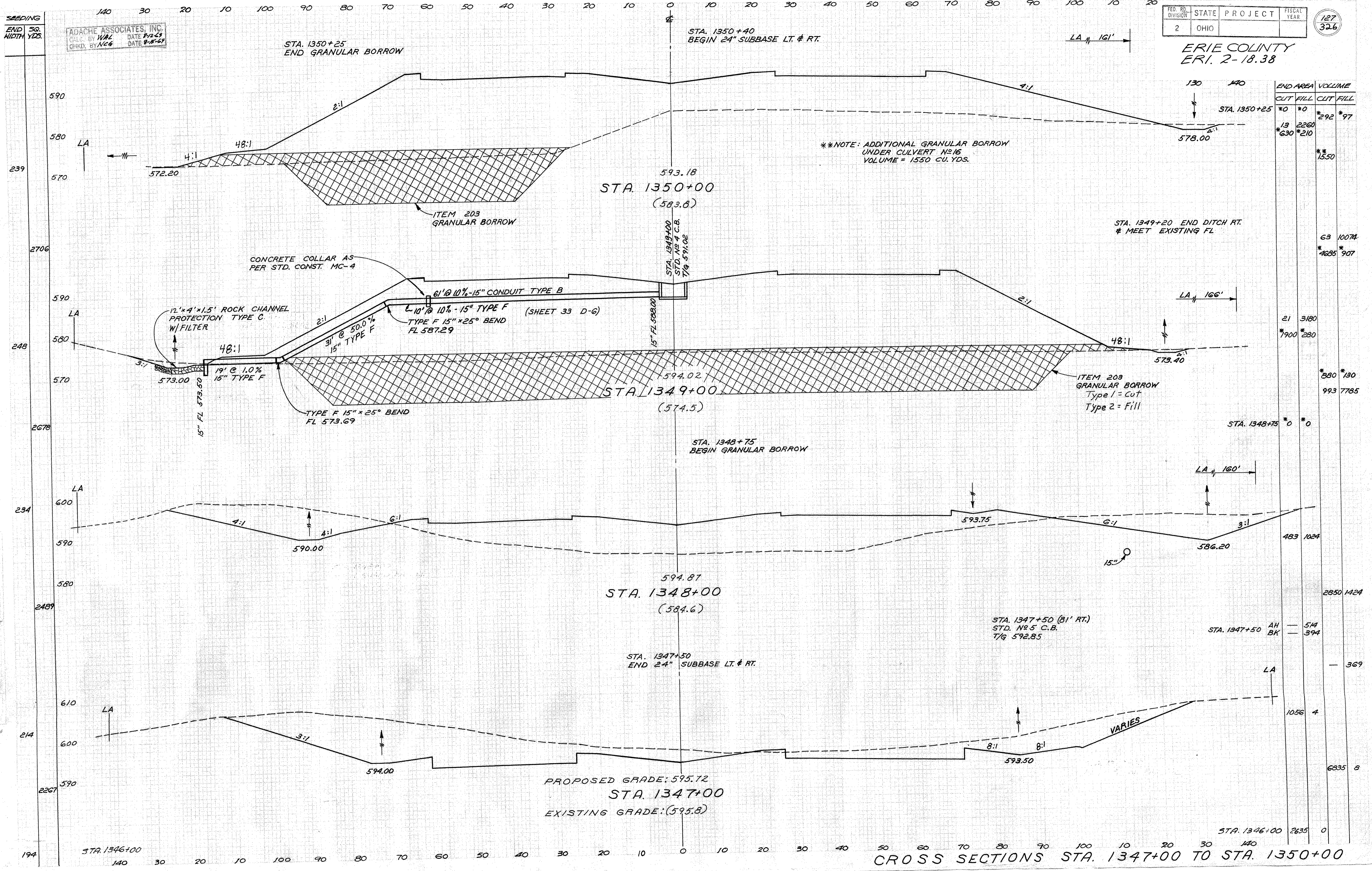
SEEDING  
END WIDTH  
SR. YDS.

ADACHE ASSOCIATES, INC.  
CALC. BY: WJL DATE: 8-12-69  
CHKD. BY: NCG DATE: 8-18-69

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

127  
326

ERIE COLINTY  
ERI. 2-18.38



END AREA	VOLUME
CUT	FILL
13	2260
*630	*210
	*1550
63	10074
*4685	*907
21	3180
*1900	*280
	*380
	*190
	993
	7785
	*0
	*0
	483
	1024
	2850
	1424
	514
	394
	369
	1056
	4
	6835
	8
	2835
	0

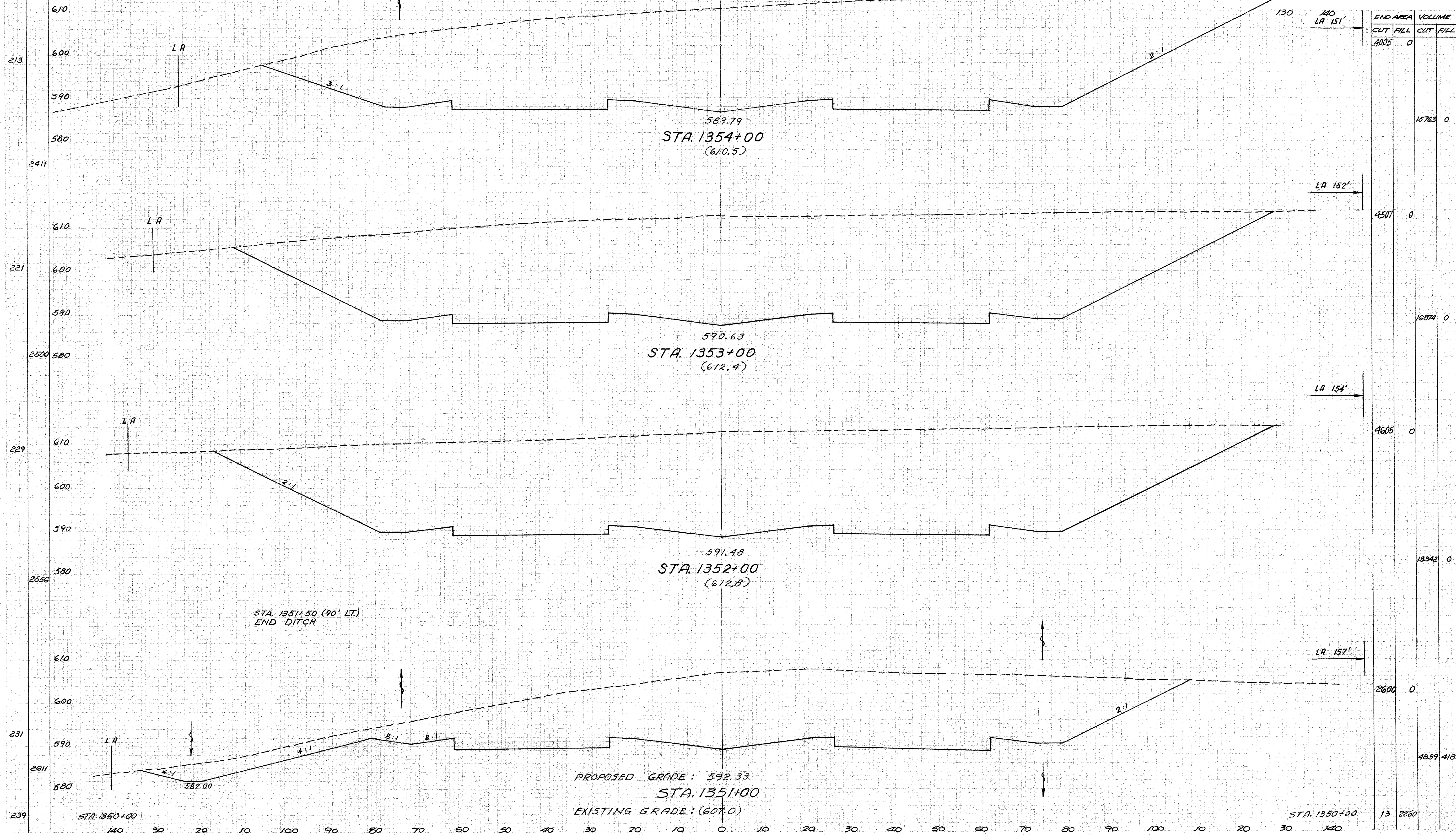


ADACHE ASSOCIATES, INC.  
 CALC. BY NAL DATE 8-18-67  
 CHKD. BY N.E.G. DATE 8-15-68

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

128  
326

ERIE COLINTY  
ERI. 2-18.38



589.79  
STA. 1354+00  
(610.5)

590.63  
STA. 1353+00  
(612.4)

591.48  
STA. 1352+00  
(612.8)

PROPOSED GRADE: 592.33  
STA. 1351+00  
EXISTING GRADE: (607.0)

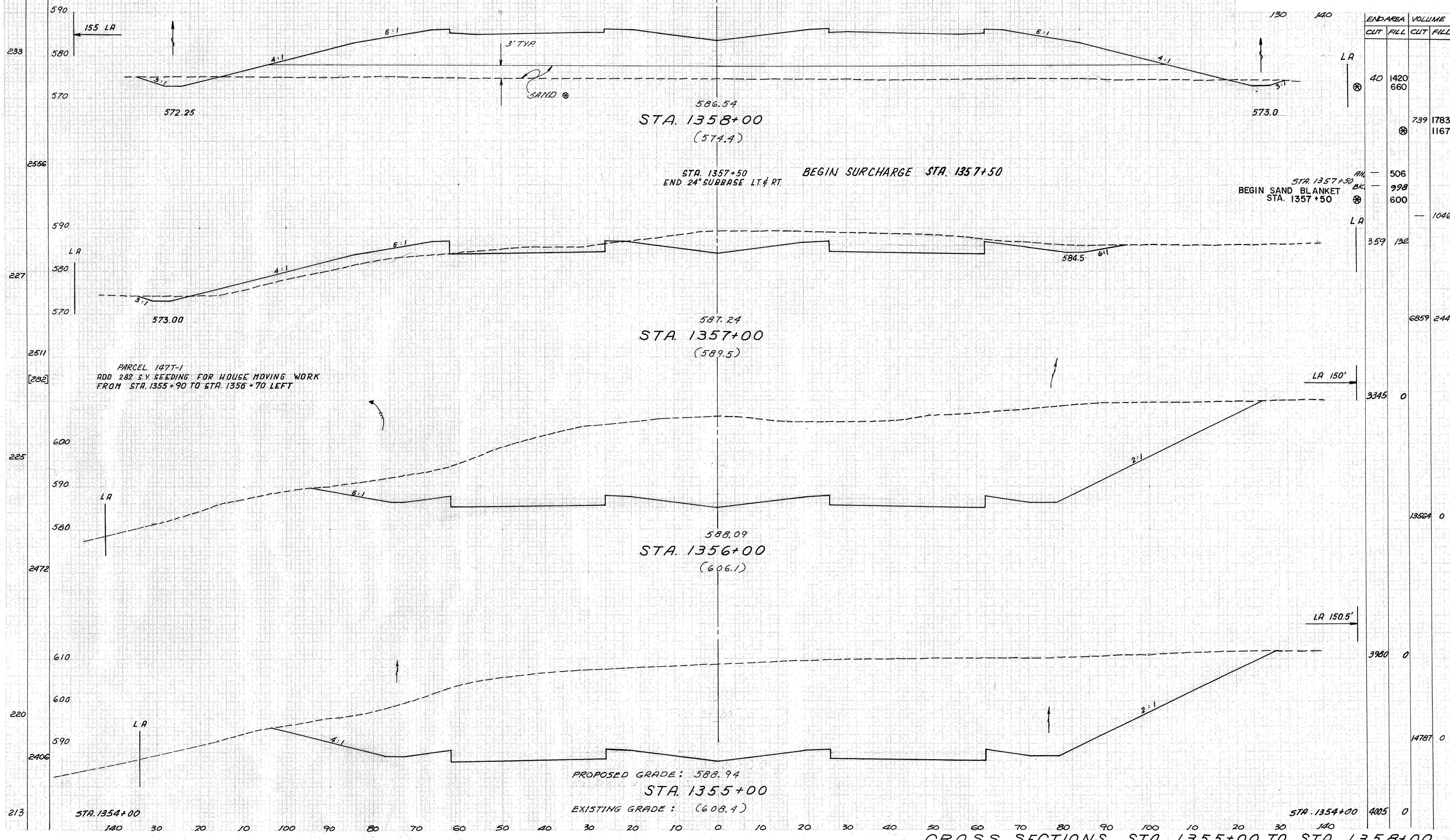
CROSS SECTIONS STA. 1351+00 TO STA. 1354+00

ADACHE ASSOCIATES, INC.  
 CALC. BY WAB DATE 9/15/61  
 CHKD. BY NCG DATE 9/15/61

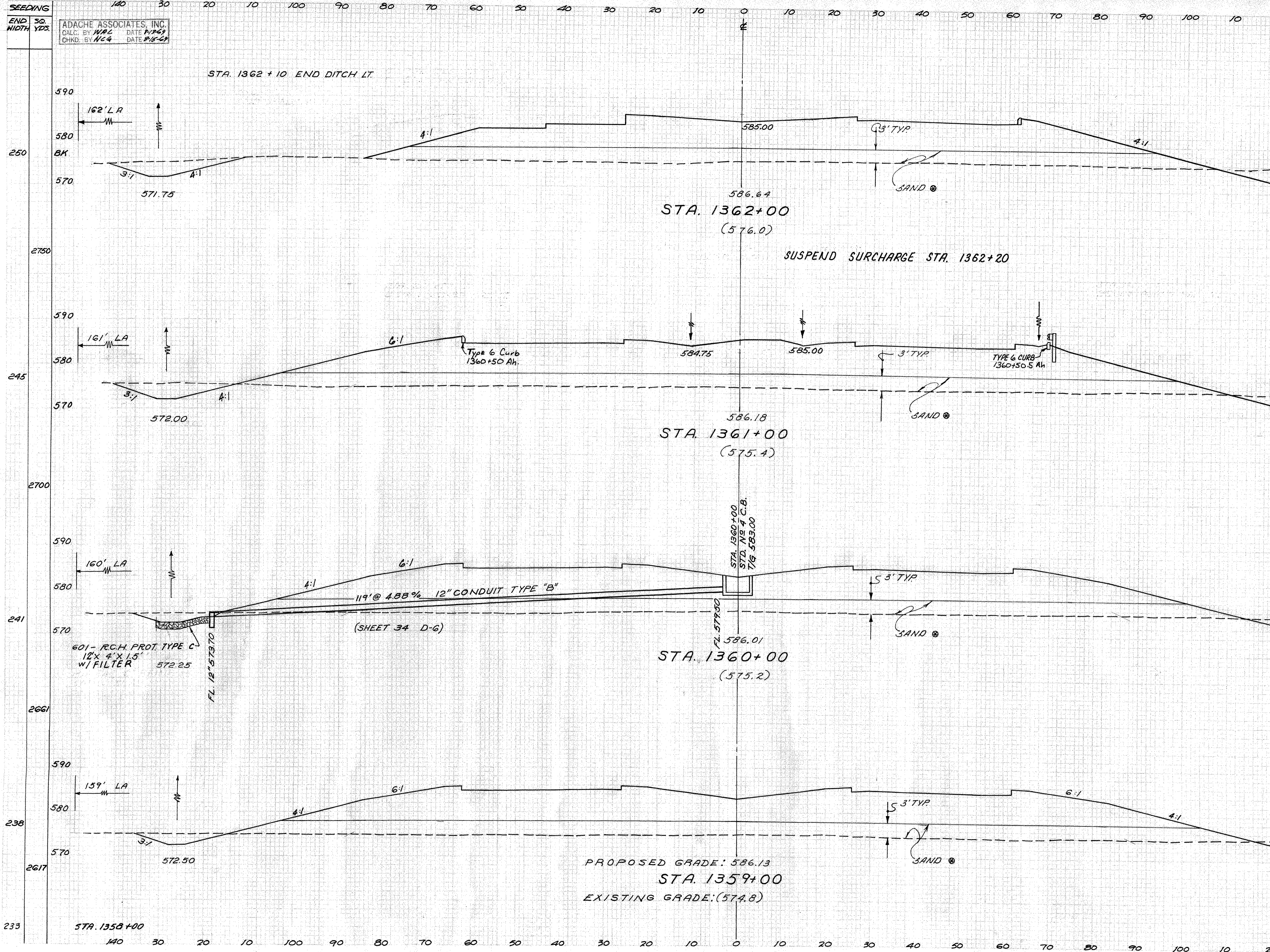
FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

129  
326

ERIE COLINTY  
 ERI. 2-18.38



CROSS SECTIONS STA. 1355+00 TO STA. 1358+00



SEEDING  
END WIDTH YDS.

ADACHE ASSOCIATES, INC.  
CALC. BY WPL DATE 1/18/69  
CHKD. BY NCG DATE 1/18/69

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

130  
326

ERIE COUNTY  
ERI. 2-18.38

END AREA	VOLUME	
	CUT	FILL
123	940	538
1133	637	576
98	1173	637
54	1237	653
58	1264	656
40	1420	660
281	4463	2389
207	4631	2424
181	4970	2437
409	3630	2005

CROSS SECTIONS STA. 1359+00 TO STA. 1362+00

SEEDING  
END SQ.  
WIDTH YDS

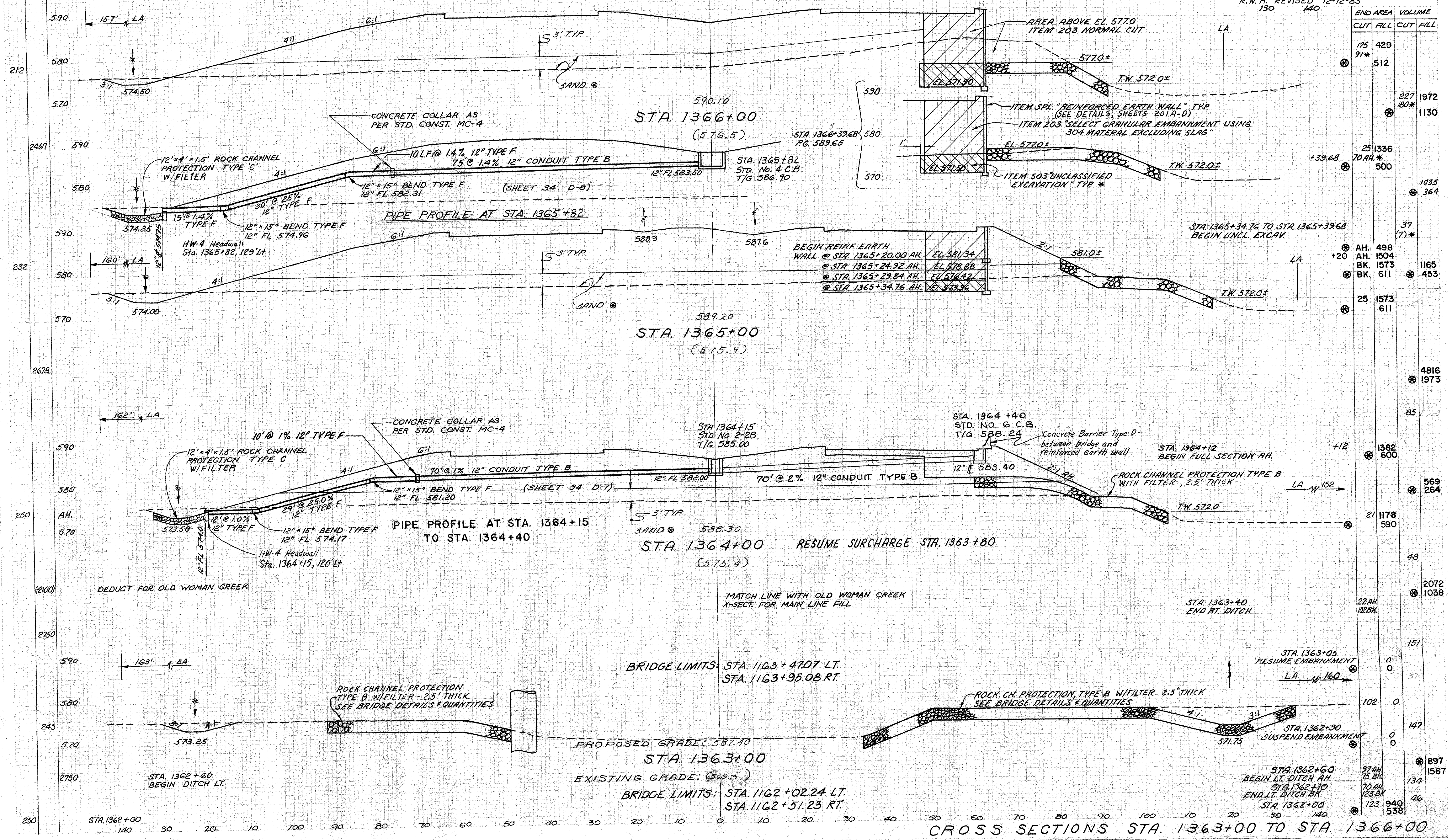
ADACHE ASSOCIATES, INC.  
CALC. BY WAL DATE 8/1/88  
CHKD. BY VCG DATE 8/18/88

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

131  
326

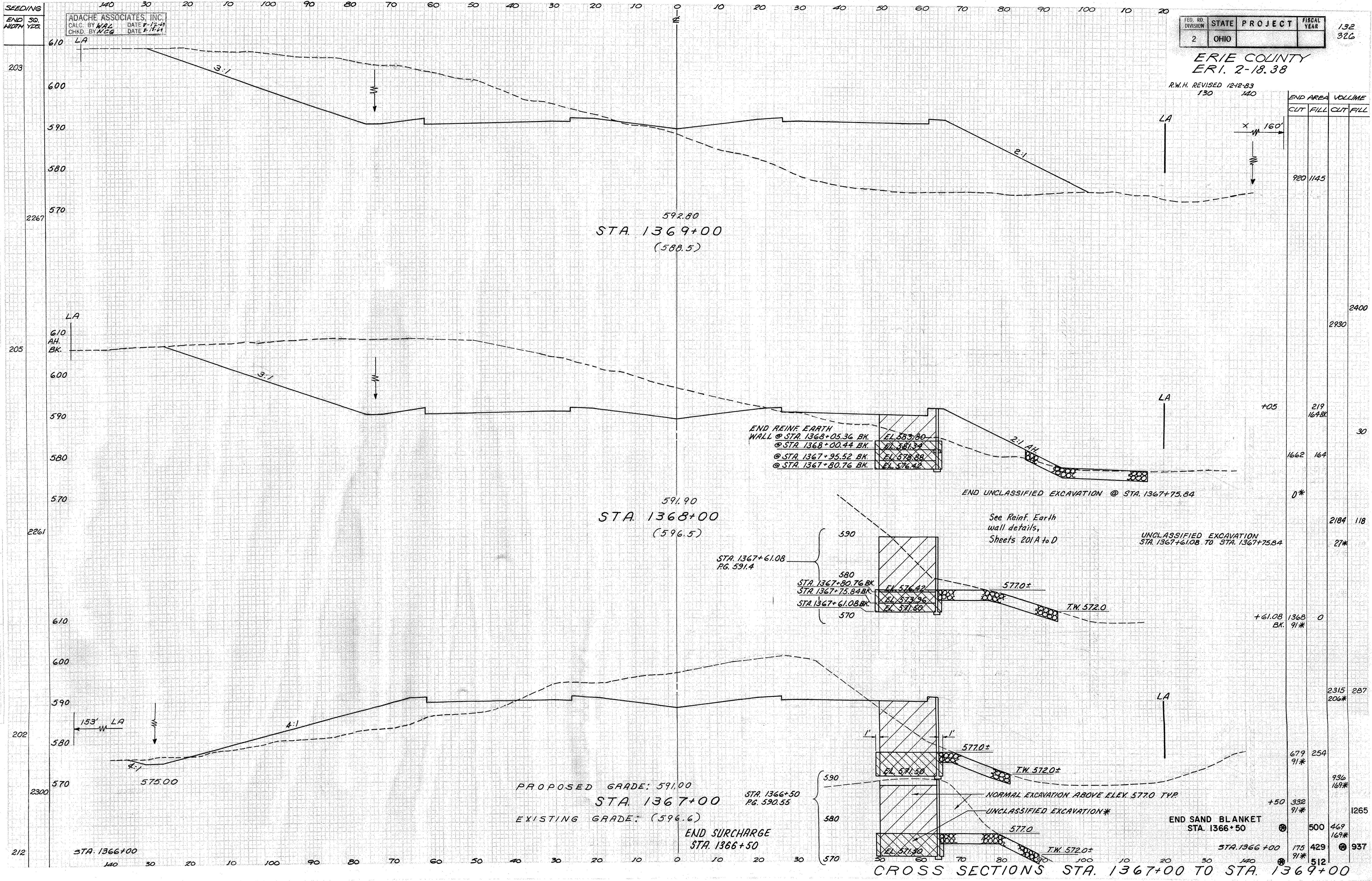
### ERIE COUNTY ERI. 2-18.38

R.W.H. REVISED 12-12-83  
130 140



END AREA	VOLUME
CUT	FILL
175	429
91*	512
227	1972
180*	1130
25	1336
70 AH*	500
	1035
	364
37	(7)*
AH. 498	
AH. 1504	
BK. 1573	1165
BK. 611	453
25	1573
	611
	4816
	1973
	85
+12	1382
	600
	569
	264
21	1178
	590
	48
	2072
	1038
22 AH	
102 BK.	
	151
0	0
0	37
102	0
	147
0	0
0	0
97 AH	
75 BK.	
	134
70 AH	
123 BK.	
	46
123	940
	538

CROSS SECTIONS STA. 1363+00 TO STA. 1366+00



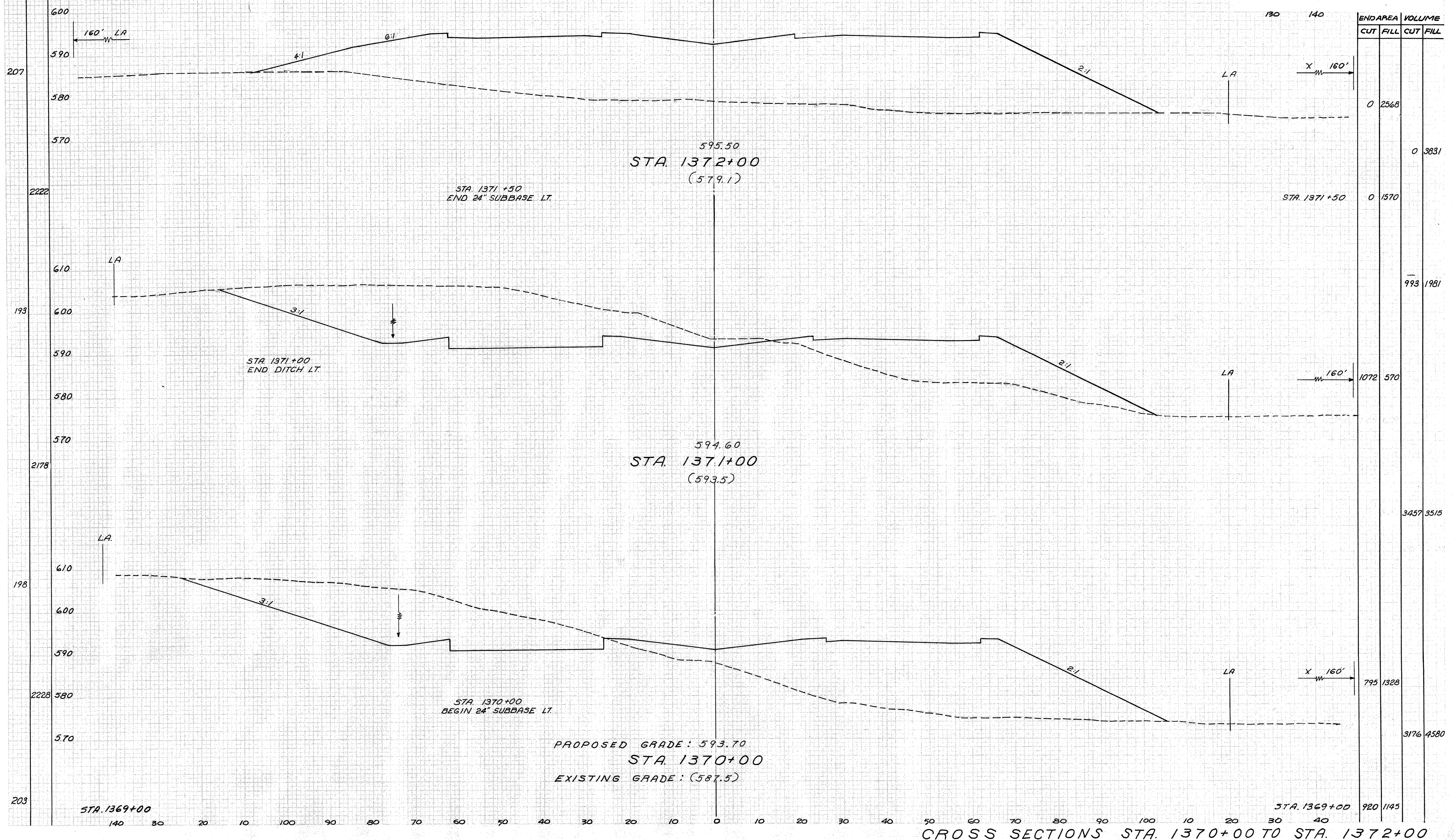
SEEDING  
END WIDTH  
Sq. YDS.

ADACHE ASSOCIATES, INC.  
CALC. BY: NAL DATE: 8/1/67  
CHKD. BY: NCB DATE: 8/1/67

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

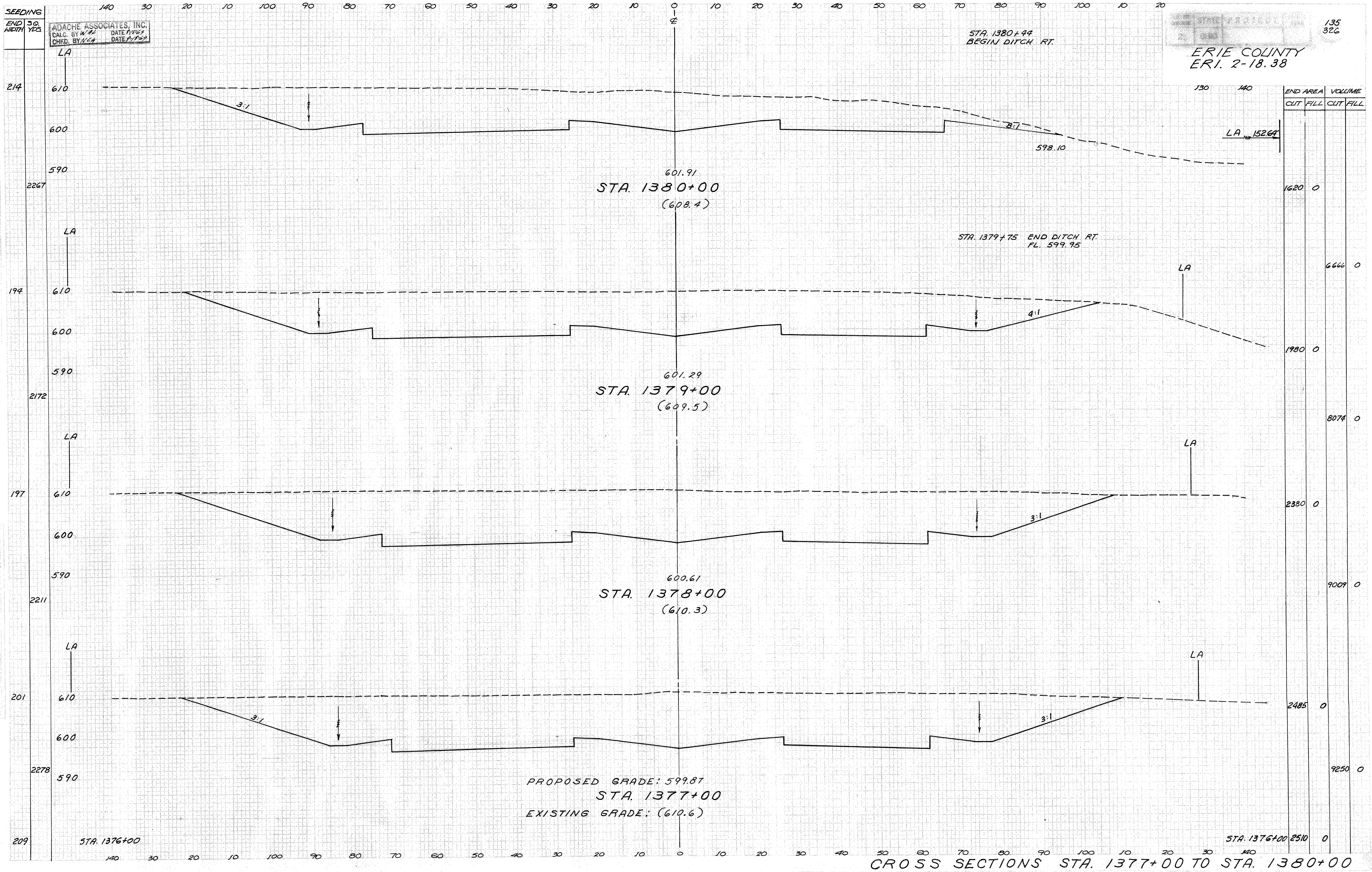
133  
326

ERIE COUNTY  
ERI. 2-18.38



CROSS SECTIONS STA. 1370+00 TO STA. 1372+00







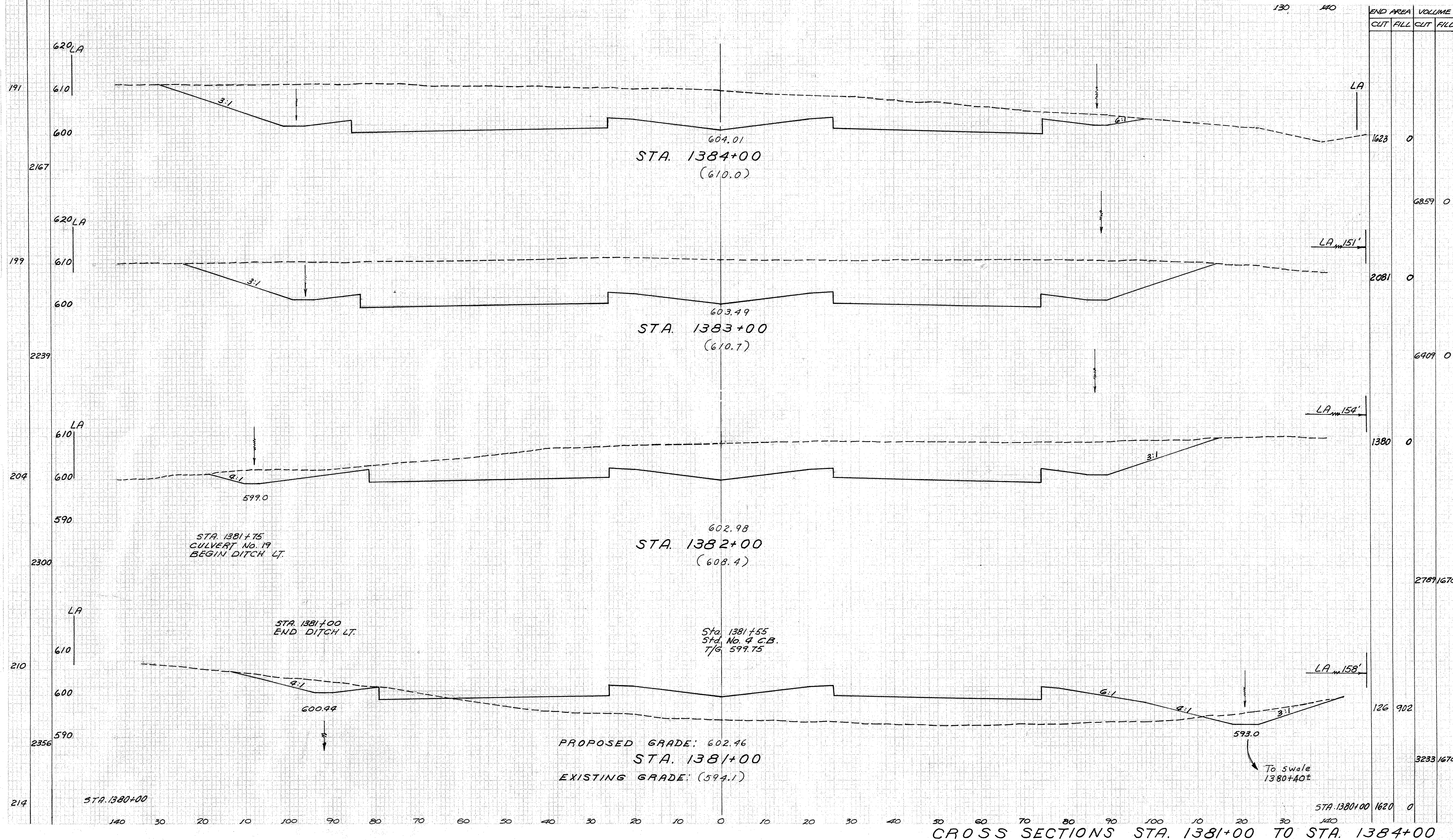
SEEDING  
END SQ.  
WIDTH YDS

ADACHE ASSOCIATES, INC.  
CALC. BY *MM* DATE *8-15-69*  
CHKD. BY *NE* DATE *8-18-69*

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

136  
326

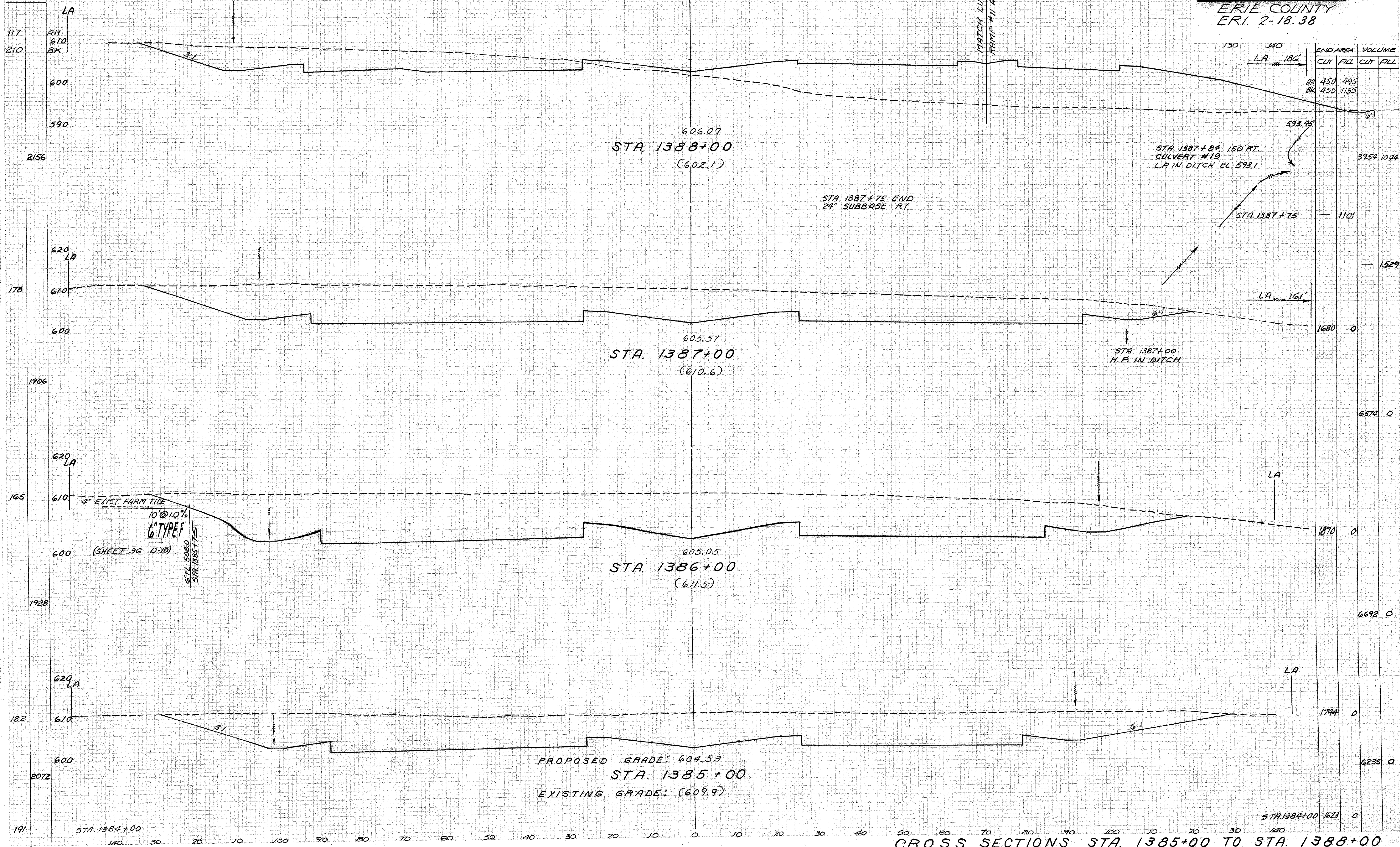
ERIE COUNTY  
ERI. 2-18.38



ADACHE ASSOCIATES, INC.  
 CALC. BY W.M.C. DATE 9-17-63  
 CHKD. BY N.C.G. DATE 9-17-63

FED. RD. DIVISION STATE PROJECT FISCAL YEAR  
 2 OHIO 137 326

ERIE COUNTY  
 ERI. 2-18.38



ELEVATION	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
600	450	495		
605	455	1155		

3954 10.44

1101

1529

1680 0

6574 0

1870 0

6692 0

1744 0

6235 0

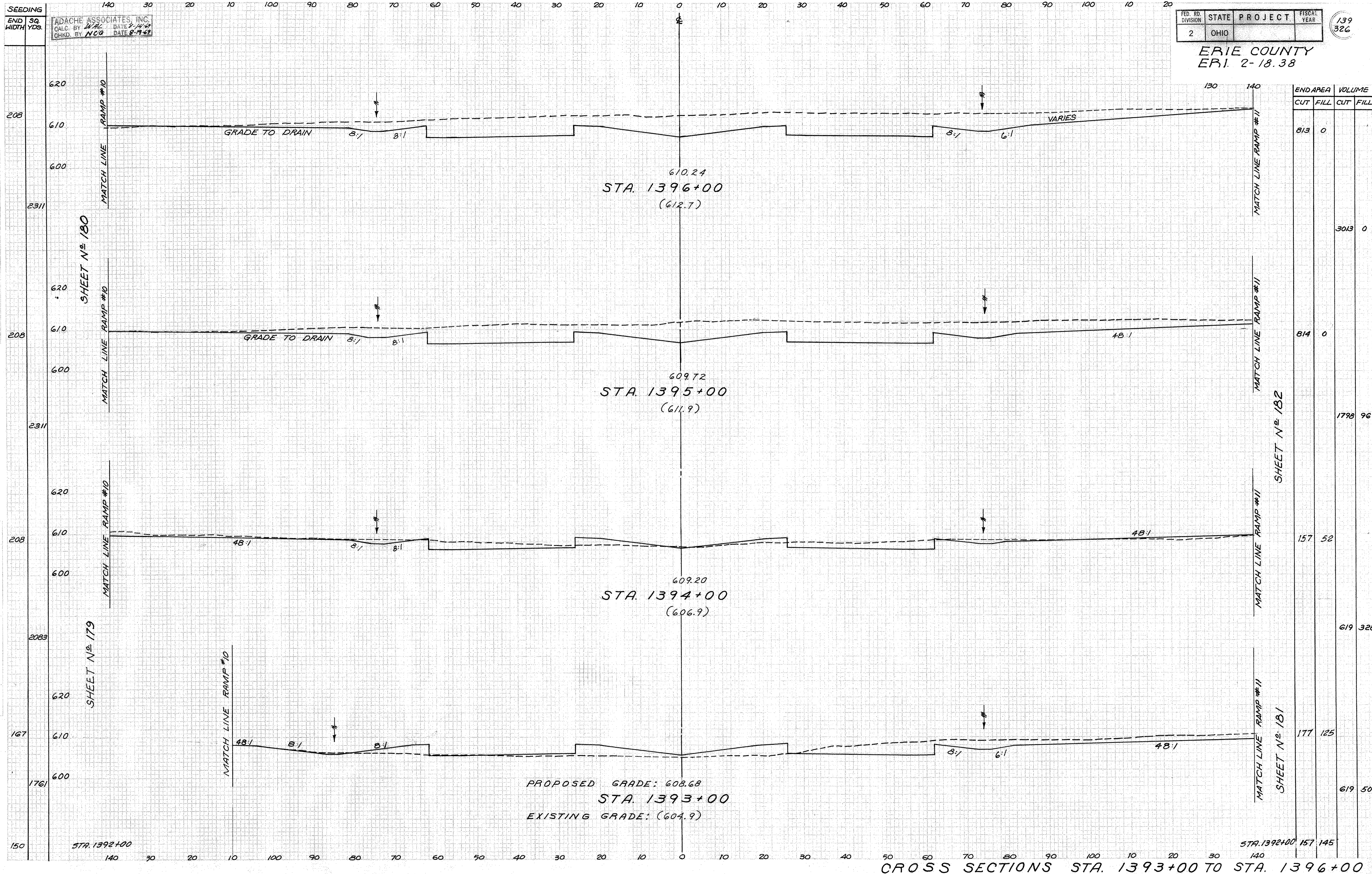
STA. 1384+00 1623 0

CROSS SECTIONS STA. 1385+00 TO STA. 1388+00

ORIGINAL SURVEY  
 DATE: 9-17-63  
 BY: W.M.C.  
 CHECKED: N.C.G.  
 DATE: 9-17-63

ORIGINAL SURVEY  
 DATE: 9-17-63  
 BY: W.M.C.  
 CHECKED: N.C.G.  
 DATE: 9-17-63





SEEDING  
END SQ.  
WIDTH YDS.

ADACHE ASSOCIATES, INC.  
CALC. BY W.A.L. DATE 8-14-69  
CHKD. BY N.C.G. DATE 8-19-69

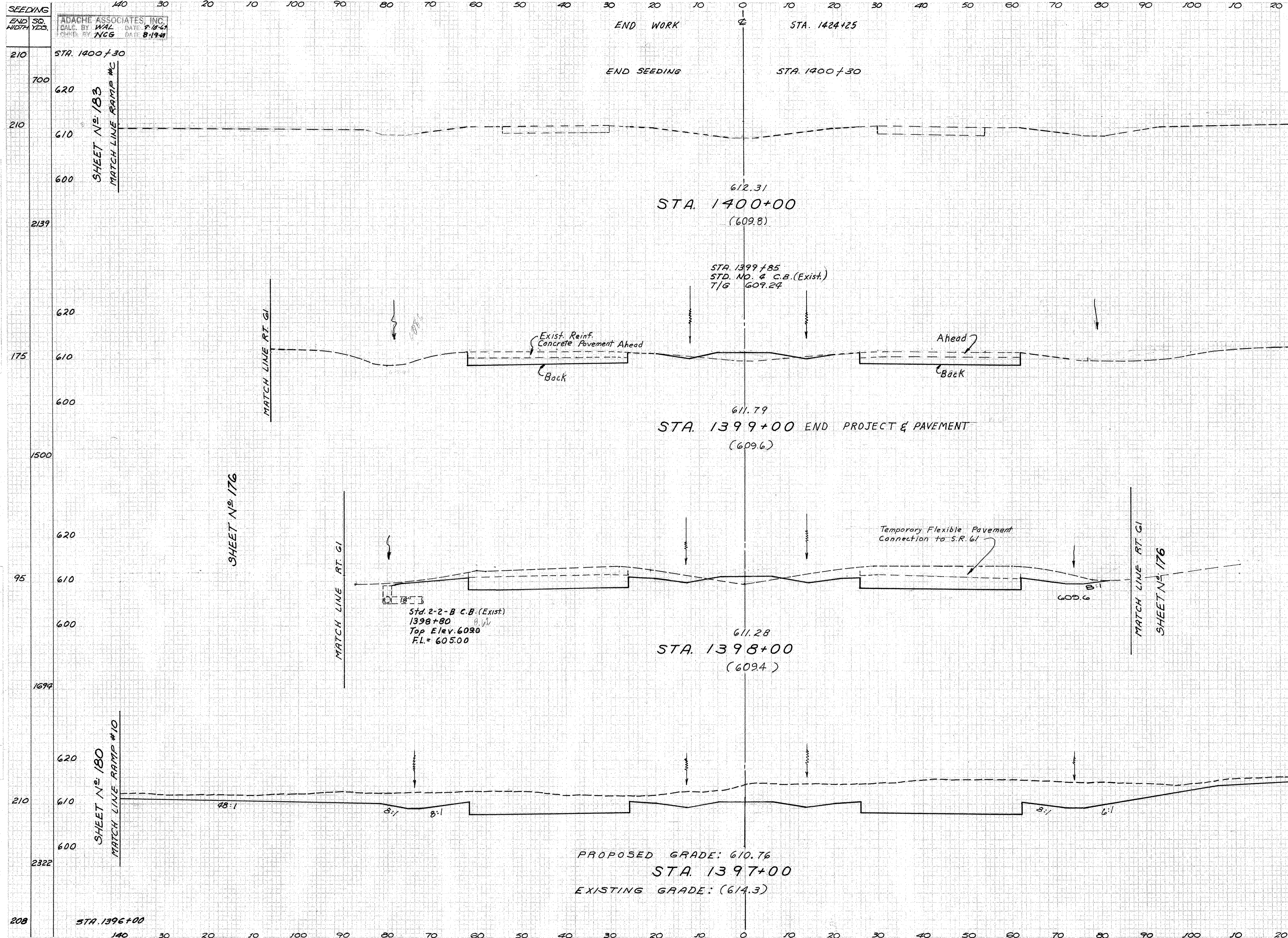
FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

139  
326

ERIE COUNTY  
ER. 2-18.38

END AREA	VOLUME	
	CUT	FILL
813	0	
814	0	
157	52	
177	125	
619	328	
619	500	
3013	0	
1798	96	

CROSS SECTIONS STA. 1393+00 TO STA. 1396+00



FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

140  
32C

ERIE COLINTY  
ERI. 2-18.38

END AREA		VOLUME	
CUT	FILL	CUT	FILL
0	0		
		7	54
Ahead	4		
Back	198	29	29
		743	94
		203	22
		2348	41
		1065	0
		3477	0
		813	0

CROSS SECTIONS STA. 1397+00 TO STA. 1400+00

SEEDING  
END 30.  
WIDTH YDS.

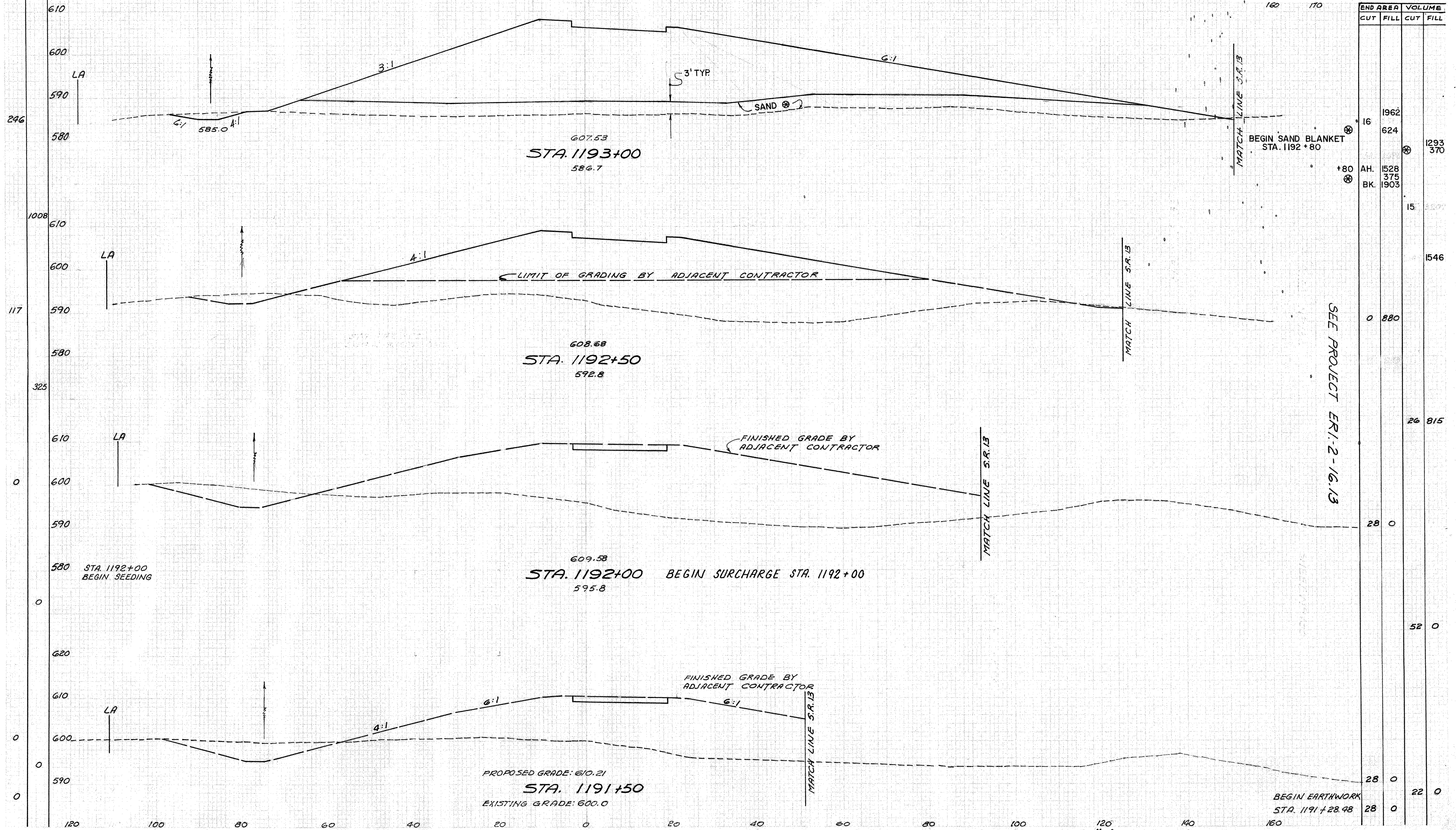
110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

141  
326

ADACHE ASSOCIATES, INC.  
CALC. BY W.A.L. DATE 5-15-89  
CHKD. BY N.C.G. DATE 8-19-89

ERIE COUNTY  
ERI 2-18.38



END AREA		VOLUME	
CUT	FILL	CUT	FILL
16	1962	1293	370
15	624	1546	
0	880	26	815
28	0	52	0
28	0	22	0
28	0		

CROSS SECTIONS RAMP #4 STA. 1191+50 TO STA. 1193+00

120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

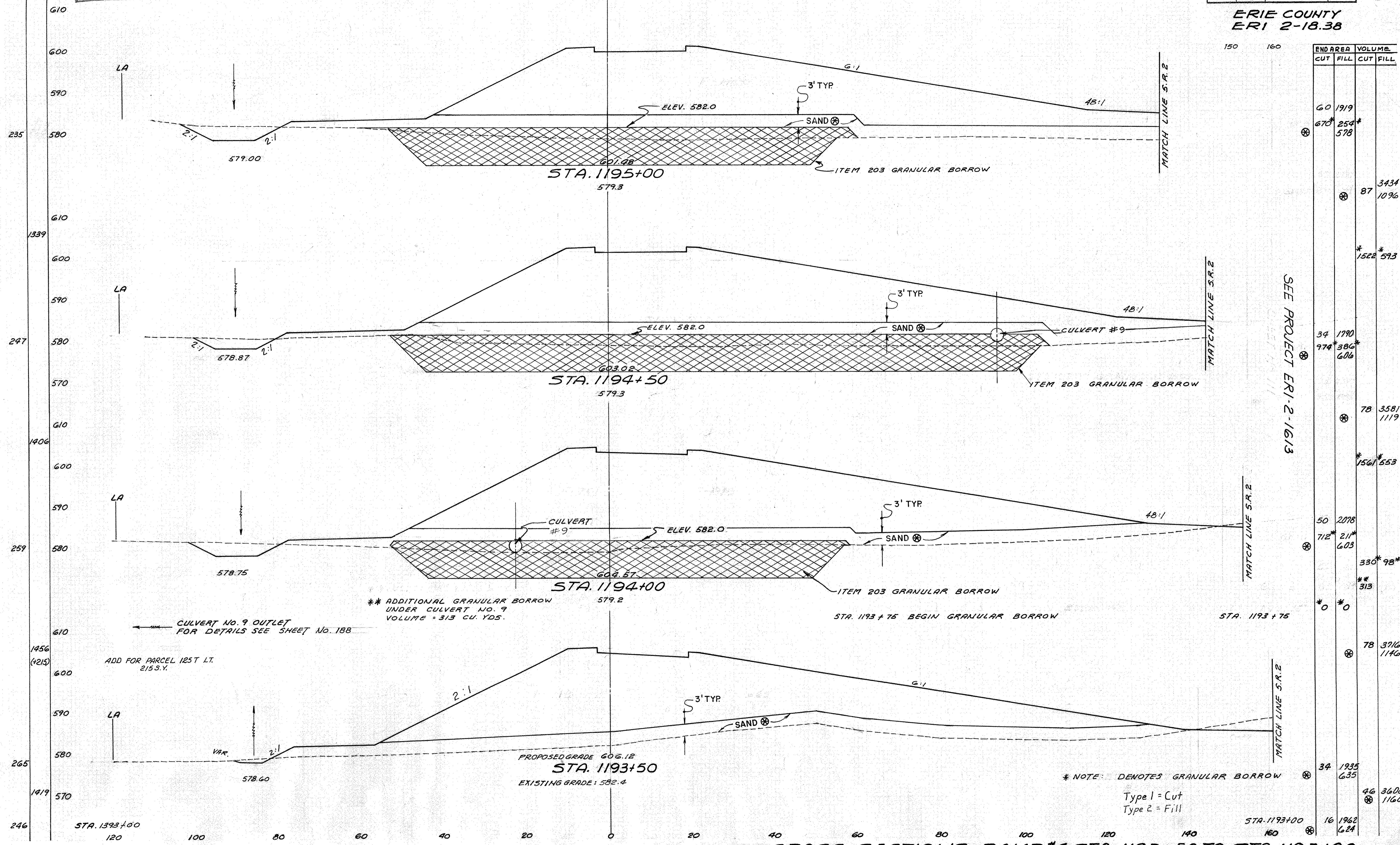
SEDING  
END SQ.  
WIDTH YDS.

ADACHE ASSOCIATES, INC.  
CALC. BY WAC DATE 8-18-67  
CHKD. BY NCG DATE 8-19-67

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

142  
326

ERIE COUNTY  
ERI 2-18.38



END AREA	VOLUME	
	CUT	FILL
60	1919	
670*	254*	578*
	87	3434
		1096
		1522*
		593*
34	1790	
974*	386*	606*
		78
		3581
		1119
		1561*
		553*
50	2078	
712*	21*	603*
		330*
		98*
		**
		313
		*0
		*0
		78
		3716
		1146
		34
		1935
		635
		46
		3608
		1166
		16
		1962
		624

SEE PROJECT ERI-2-1613

\*\* ADDITIONAL GRANULAR BORROW UNDER CULVERT NO. 9 VOLUME = 313 CU. YDS.

STA. 1193+75 BEGIN GRANULAR BORROW

CULVERT NO. 9 OUTLET FOR DETAILS SEE SHEET No. 188

ADD FOR PARCEL 125T LT. 215 S.Y.

PROPOSED GRADE 606.12  
STA. 1193+50  
EXISTING GRADE: 582.4

\* NOTE: DENOTES GRANULAR BORROW

Type 1 = Cut  
Type 2 = Fill

CROSS SECTIONS RAMP #4 STA. 1193+50 TO STA. 1195+00





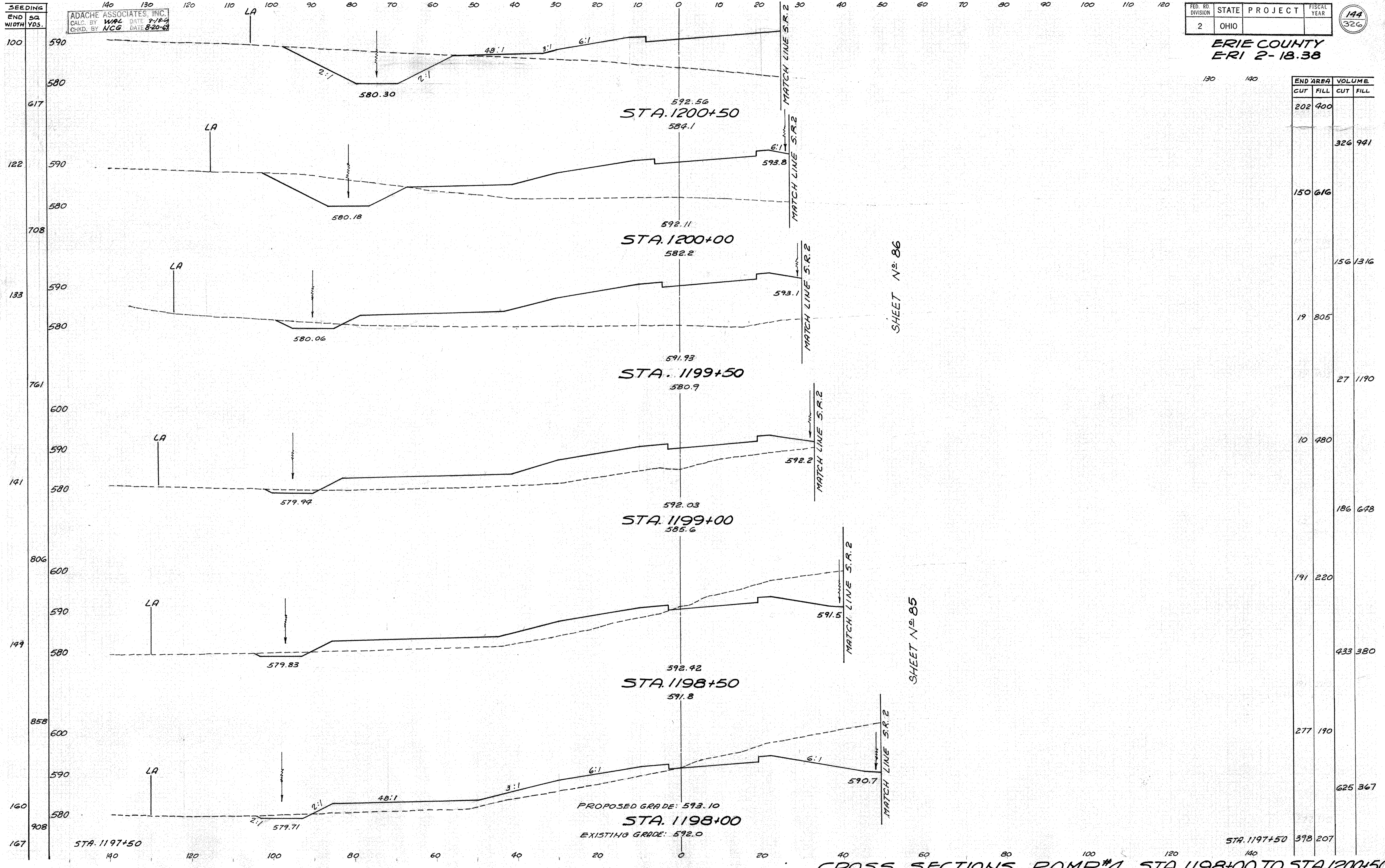
SEEDING  
END SA  
WIDTH YDS.

ADACHE ASSOCIATES, INC.  
CALC. BY WPL DATE 9-18-63  
CHKD. BY NCG DATE 8-20-63

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

144  
326

ERIE COUNTY  
ERI 2-18.38



END AREA	VOLUME	
	CUT	FILL
202	400	
		326 941
150	616	
		156 1316
19	805	
		27 1190
10	480	
		186 678
191	220	
		433 380
277	190	
		625 367
378	207	

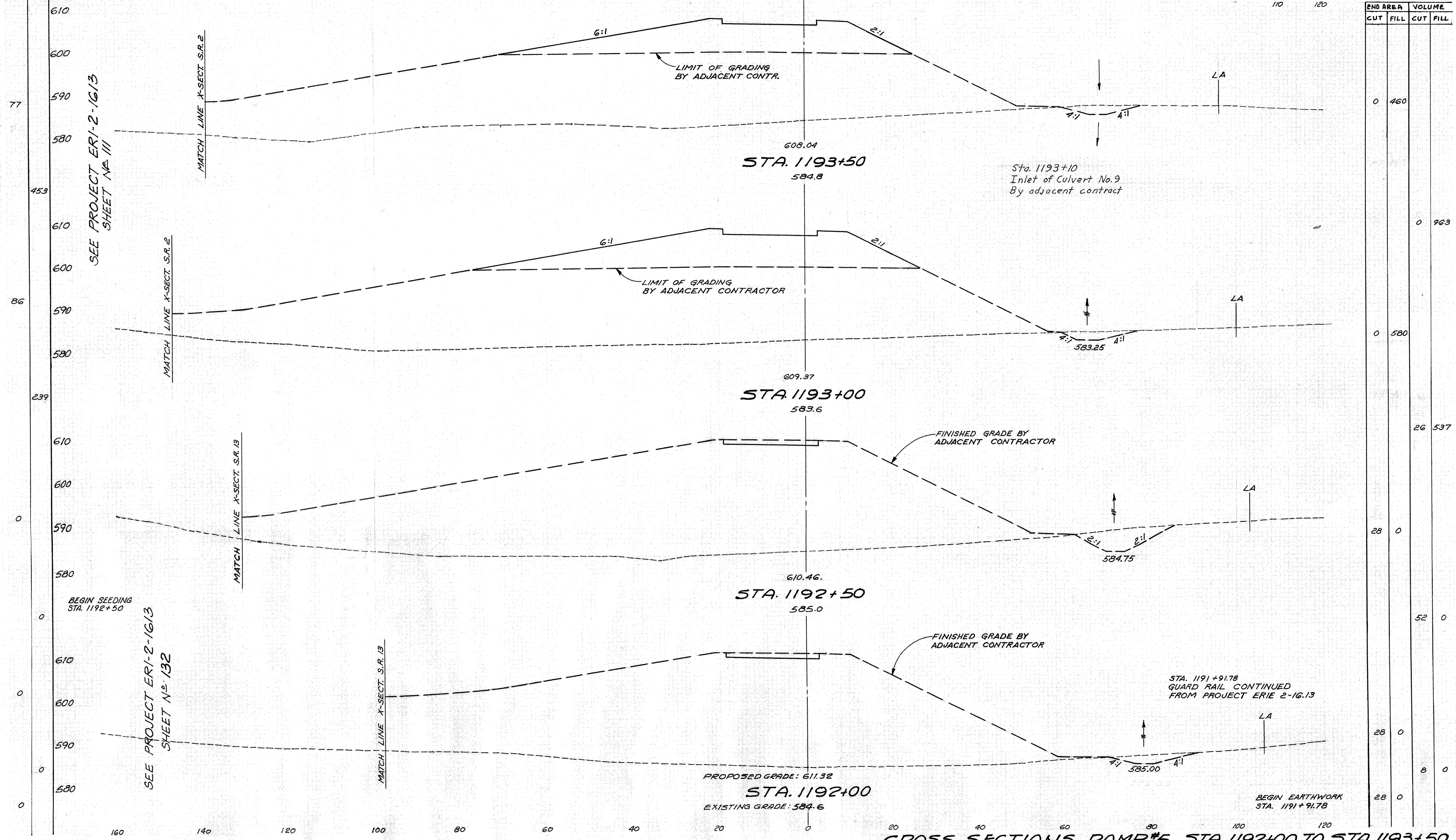
CROSS SECTIONS RAMP #4 STA. 1198+00 TO STA. 1200+50

SEEDING  
END WIDTH SQ. YDS.  
ADACHE ASSOCIATES, INC.  
CALC. BY W.H. DATE 8-1-63  
CHKD. BY V.C.G. DATE 8-20-63

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

145  
326

ERIE COUNTY  
ERI 2-18.38



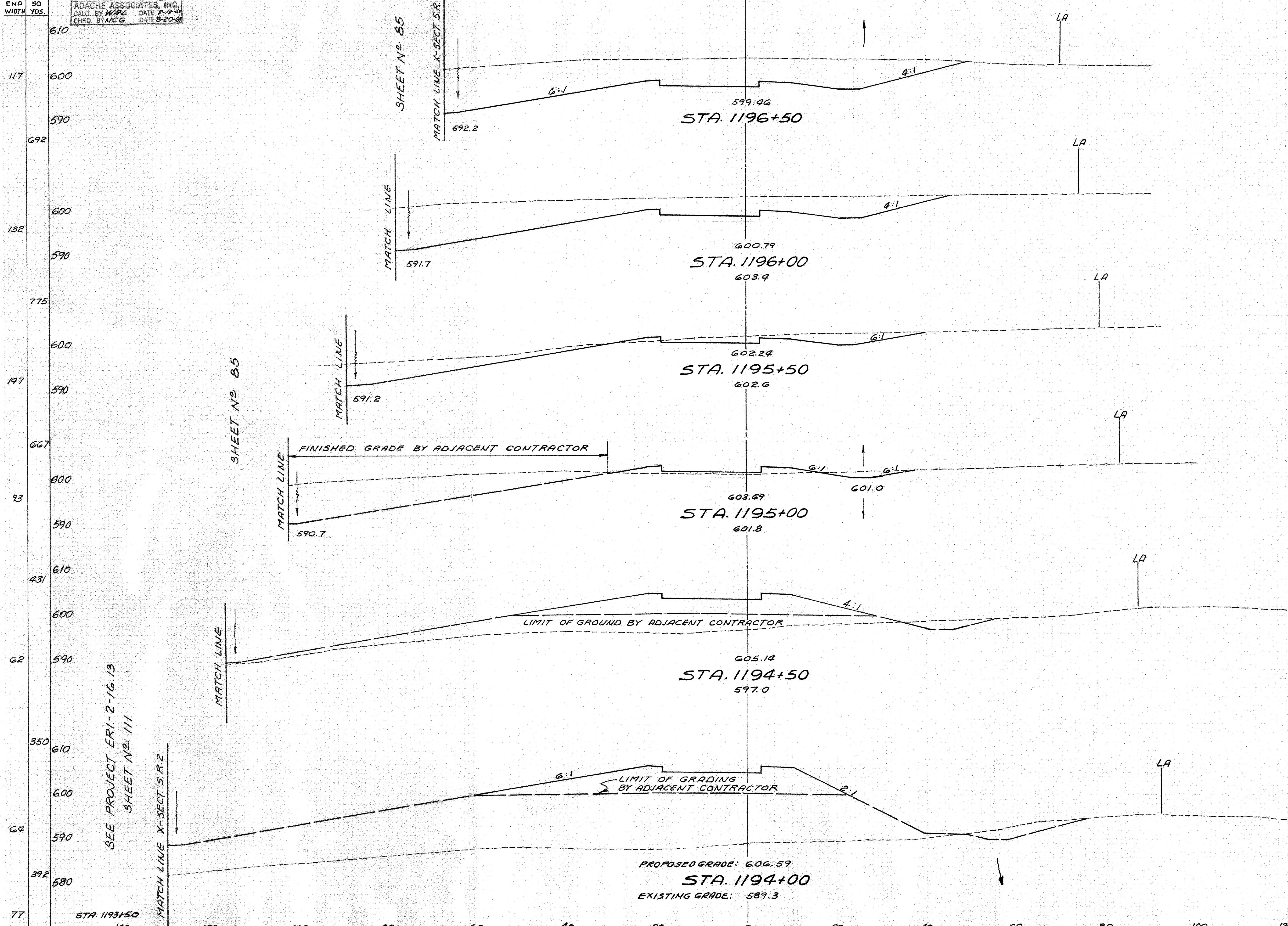
CROSS SECTIONS RAMP #5 STA. 1192+00 TO STA. 1193+50

SEEDING 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

146  
32C

ERIE COUNTY  
ERI 2-18.38



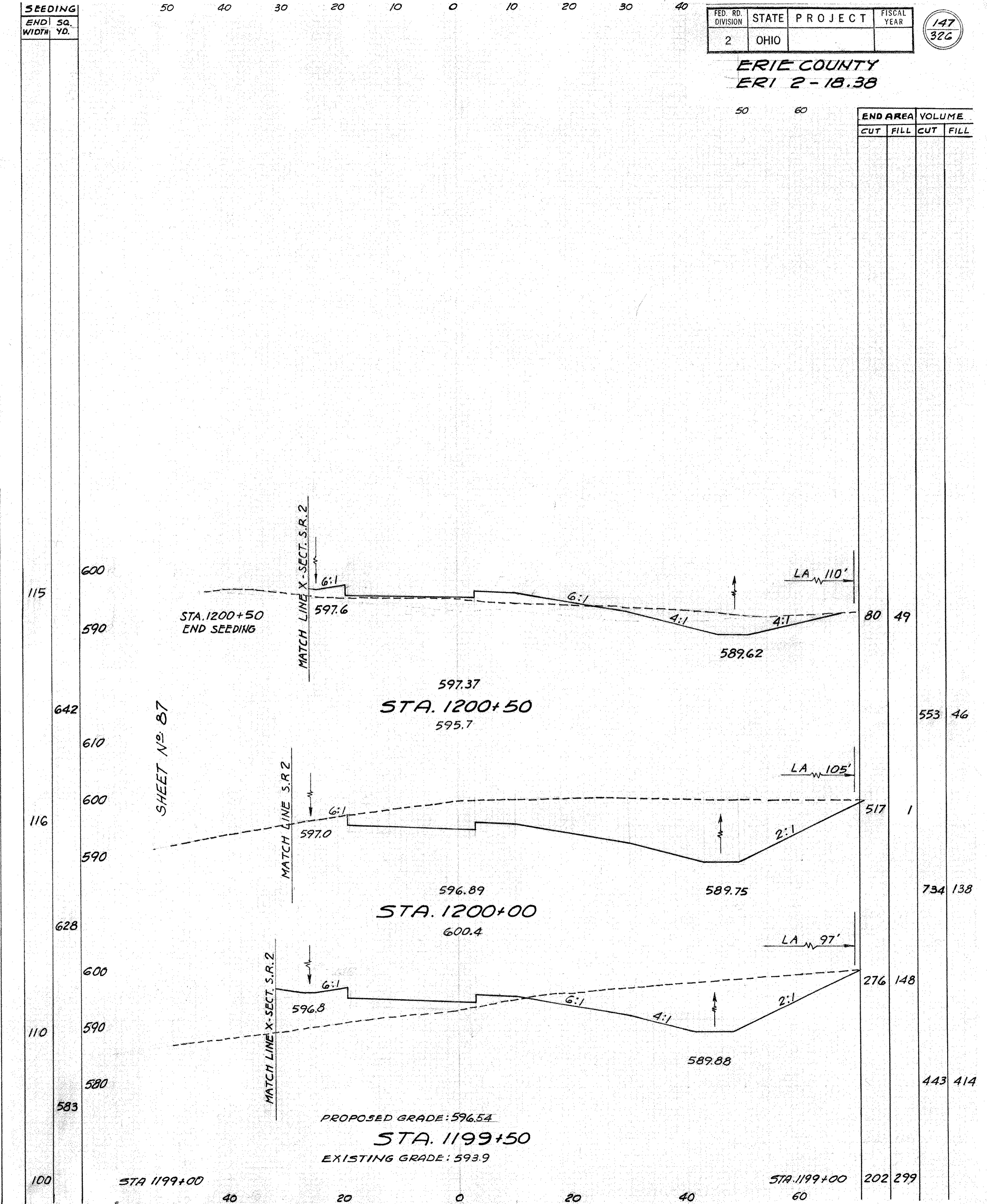
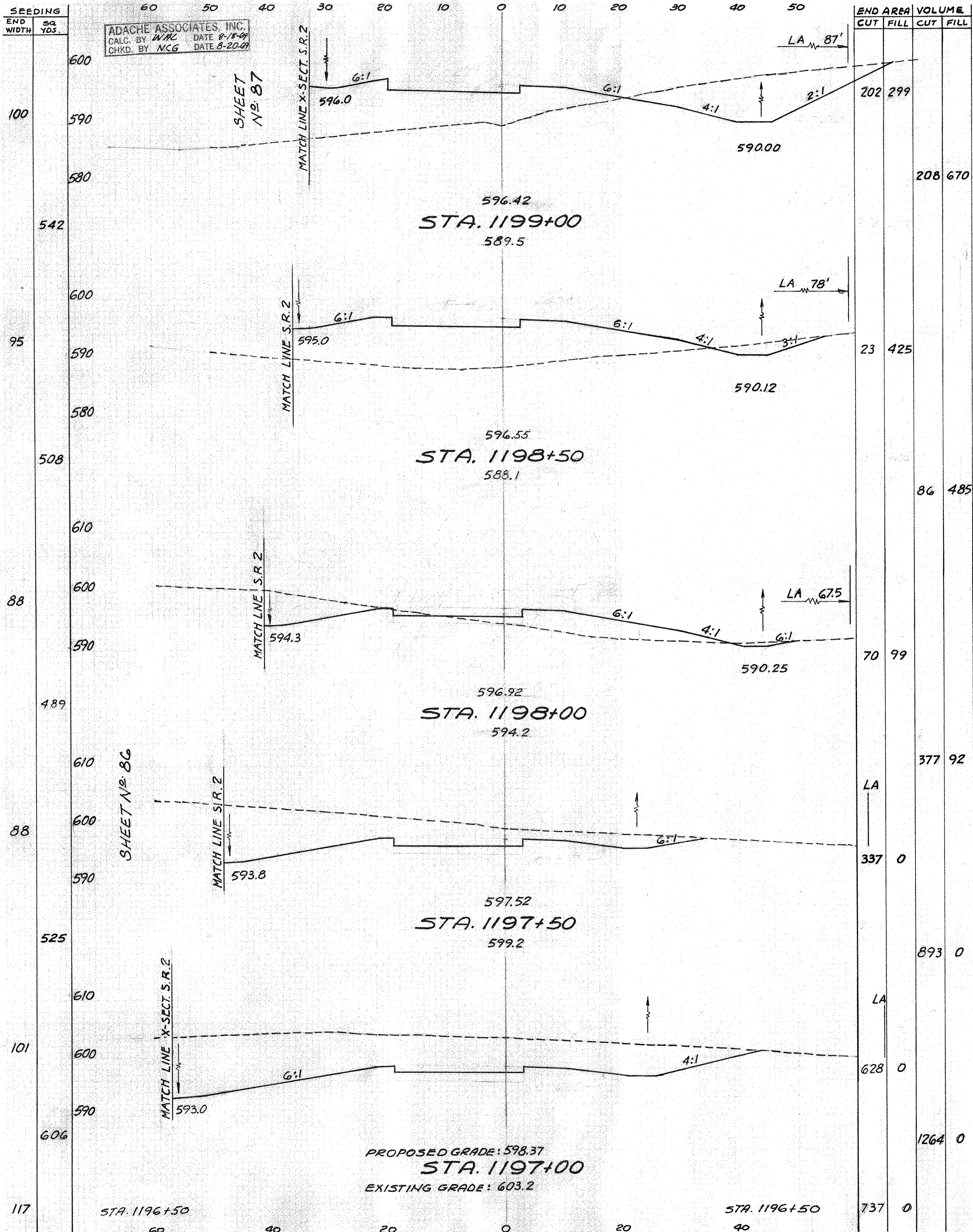
END STA.	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
117	737	0		
692			1290	0
132	602	0		
775			756	7
147	215	8		
667			215	43
93	17	38		
431			16	298
62	0	230		
350			0	513
64	0	329		
392			0	726
77	0	460		

ADACHE ASSOCIATES, INC.  
CALC. BY W.P.L. DATE 8-18-68  
CHKD. BY V.C.G. DATE 8-20-68

SEE PROJECT ERI-2-16.13  
SHEET NO. 111

PROPOSED GRADE: 606.59  
STA. 1194+00  
EXISTING GRADE: 589.3

CROSS SECTIONS RAMP #5 STA. 1194+00 TO STA. 1196+50



SEEDING	PARADISE ASSOCIATES, INC.
END SQ.	PIW
WIDTH YDS.	R/JZ
	DATE 1/15/70
	DATE 1/21/70

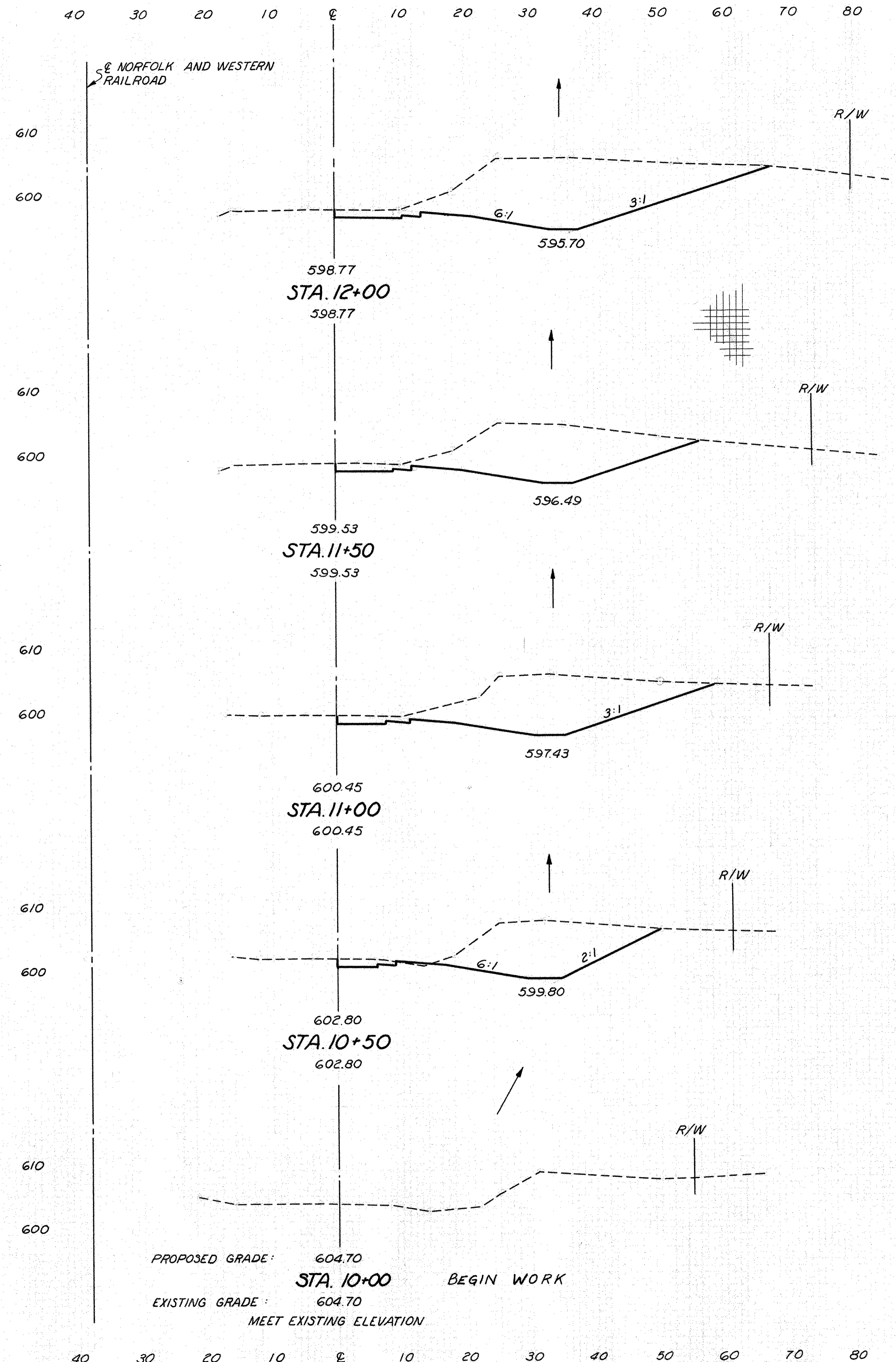
FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

148  
326

ERIE COUNTY  
ERI. 2-18.38

67
356
61
331
58
308
53
147
0

STA. 10+00  
BEGIN SEEDING



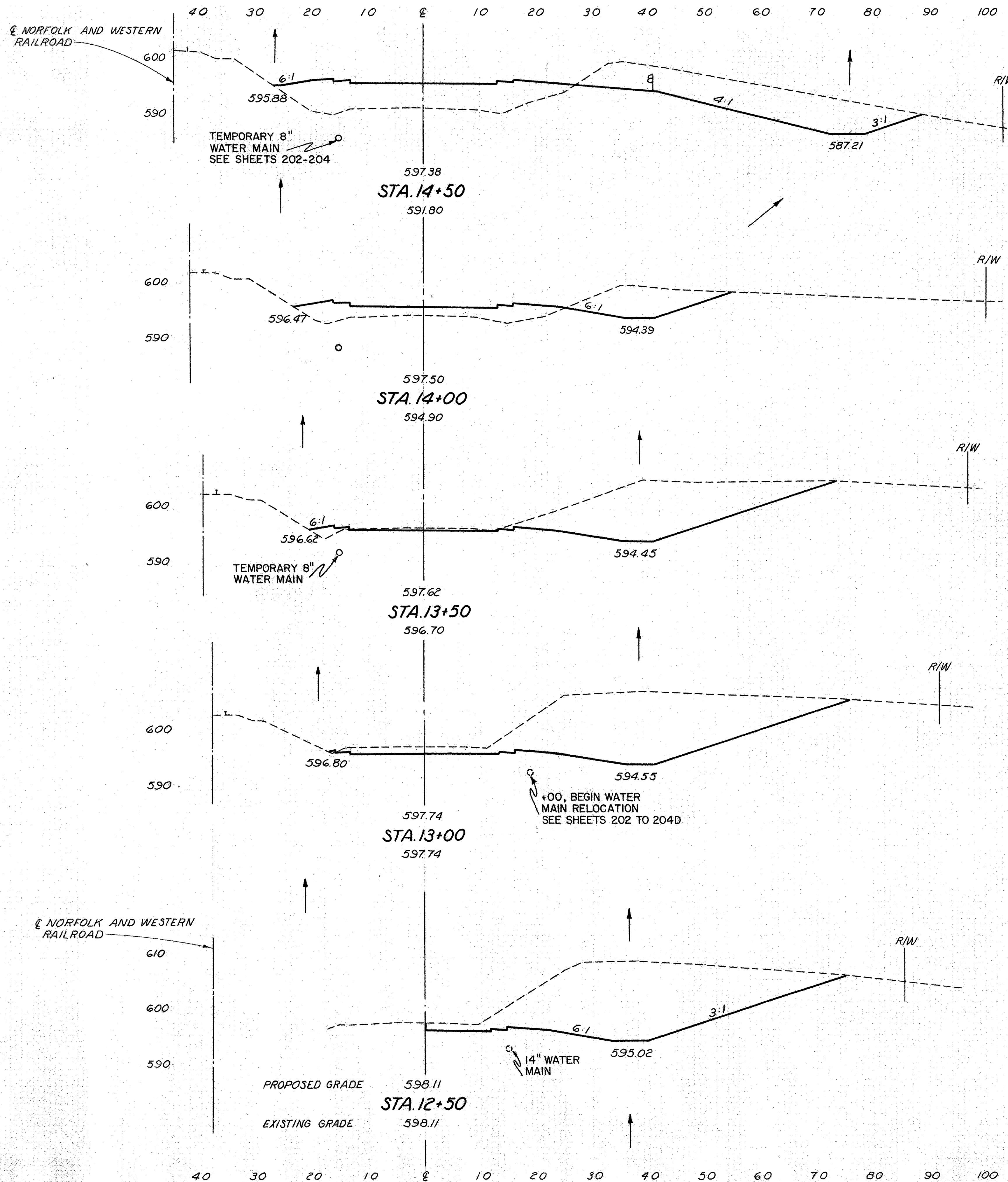
END AREA	VOLUME	
	CUT	FILL
380	0	
		597 0
265	0	
		496 0
271	0	
		436 1
200	1	
		185 1
0	0	

CROSS SECTIONS RIVER ROAD STA. 10+00 TO STA. 12+00

SEEDING  
 END SQ  
 WIDTH YDS.

100  
 536  
 93  
 500  
 87  
 464  
 80  
 422  
 72  
 386  
 67

STA. 12+00



PROJ. NO.	STATE	PROJECT	FISCAL YEAR
2	OHIO		

ERIE COUNTY  
 ERI. 2-18.38

149  
 326

END AREA	VOLUME	
	CUT	FILL
294	229	
		369 310
104	106	
		406 106
335	8	
		797 8
526	1	
		1006 1
561	0	
		871 0
380	0	

CROSS SECTIONS RIVER ROAD STA. 12+50 TO STA. 14+50



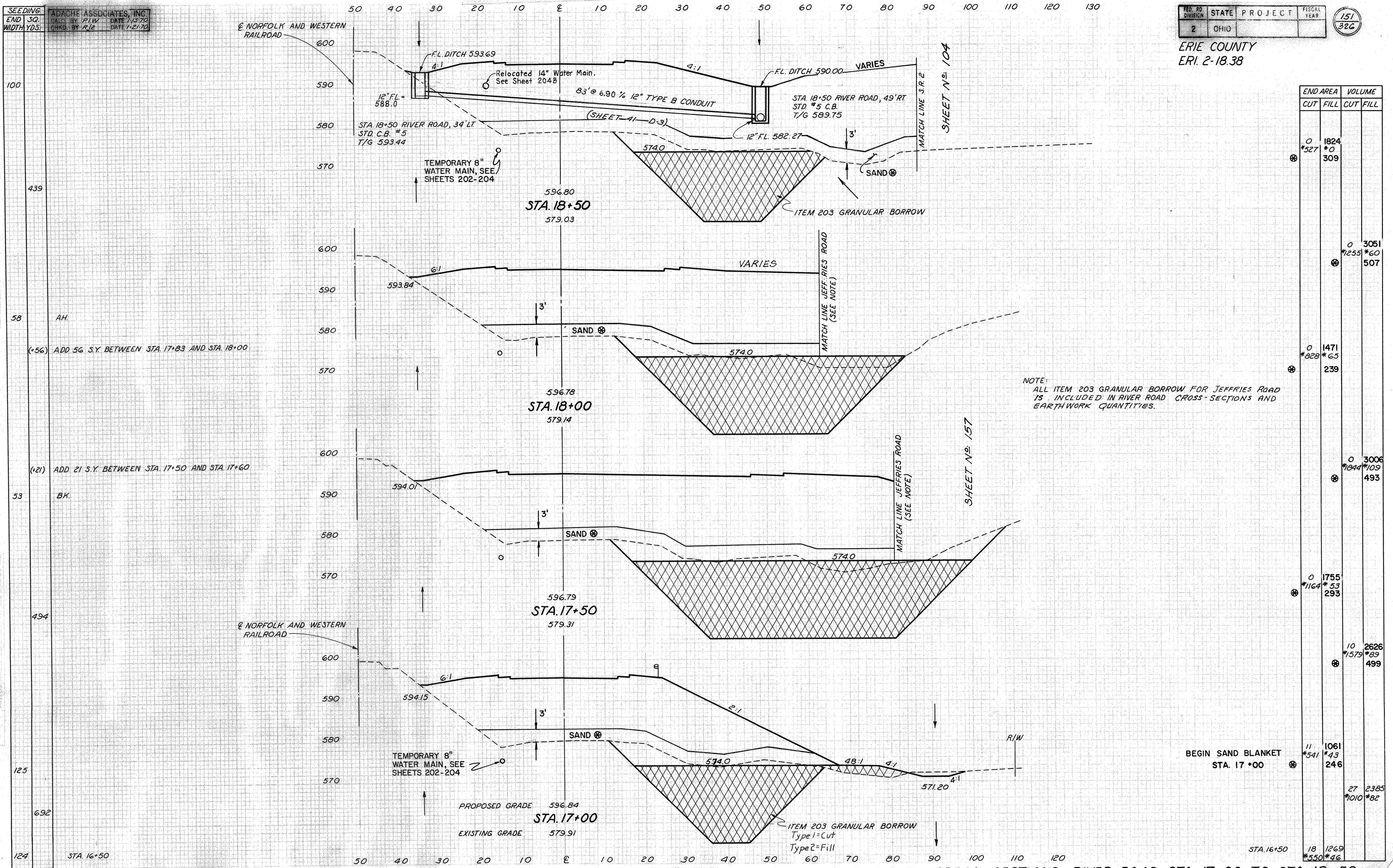
SEEDING  
END SQ.  
WIDTH YDS.

ADACHE ASSOCIATES, INC.  
CALC. BY P/LW DATE 1/15/70  
CHKD. BY R/E DATE 1-21-70

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

151  
326

ERIE COUNTY  
ERI. 2-18.38



END AREA	VOLUME	
	CUT	FILL
0 *527	1824 *0	309 *0
0 *255	3051 *60	507 *0
0 *828	1471 *65	239 *0
0 *944	3006 *109	493 *0
0 *1164	1755 *53	293 *0
10 *579	2626 *89	499 *0
11 *541	1061 *43	246 *0
18 *550	2385 *1010	82 *0

NOTE:  
ALL ITEM 203 GRANULAR BORROW FOR JEFFRIES ROAD  
IS INCLUDED IN RIVER ROAD CROSS-SECTIONS AND  
EARTHWORK QUANTITIES.

CROSS SECTIONS RIVER ROAD STA. 17+00 TO STA. 18+50



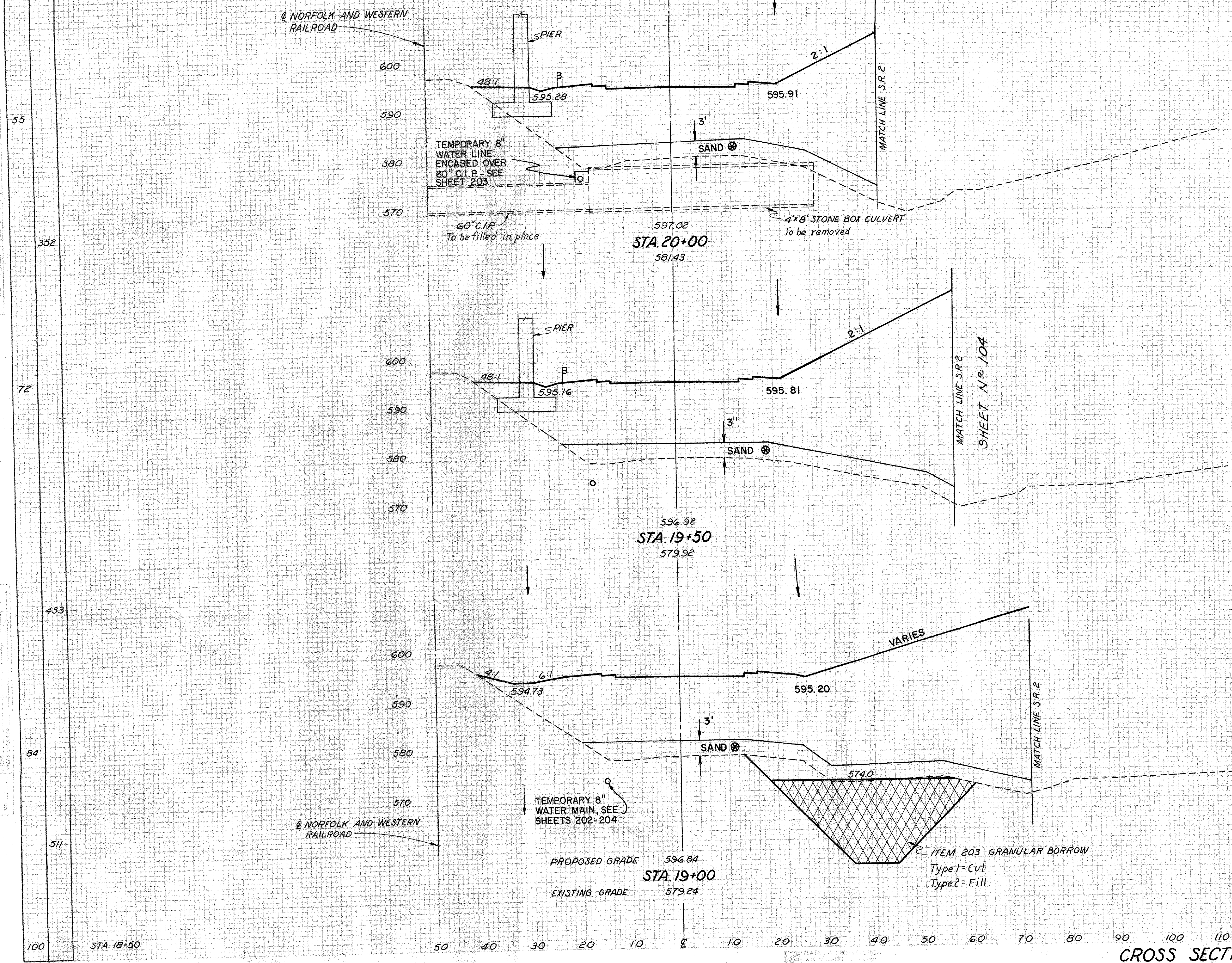
SEEDING  
END SQ.  
WIDTH YDS.

ADACHE ASSOCIATES, INC.  
CALC. BY: P.W. DATE: 1/15/70  
CHKD. BY: R.J.Z. DATE: 1/21/70

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

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326

ERIE COUNTY  
ERI. 2-18.38



END AREA	VOLUME	
	CUT	FILL
0	1103	186
0	2531	386
0	1630	231
0	3359	461
*0	*0	*0
*204	*0	*0
0	1998	267
*440	*0	267
0	3539	533
*895	*0	533
0	309	1824
*527	*0	1824

CROSS SECTIONS RIVER ROAD STA. 19+00 TO STA. 20+00

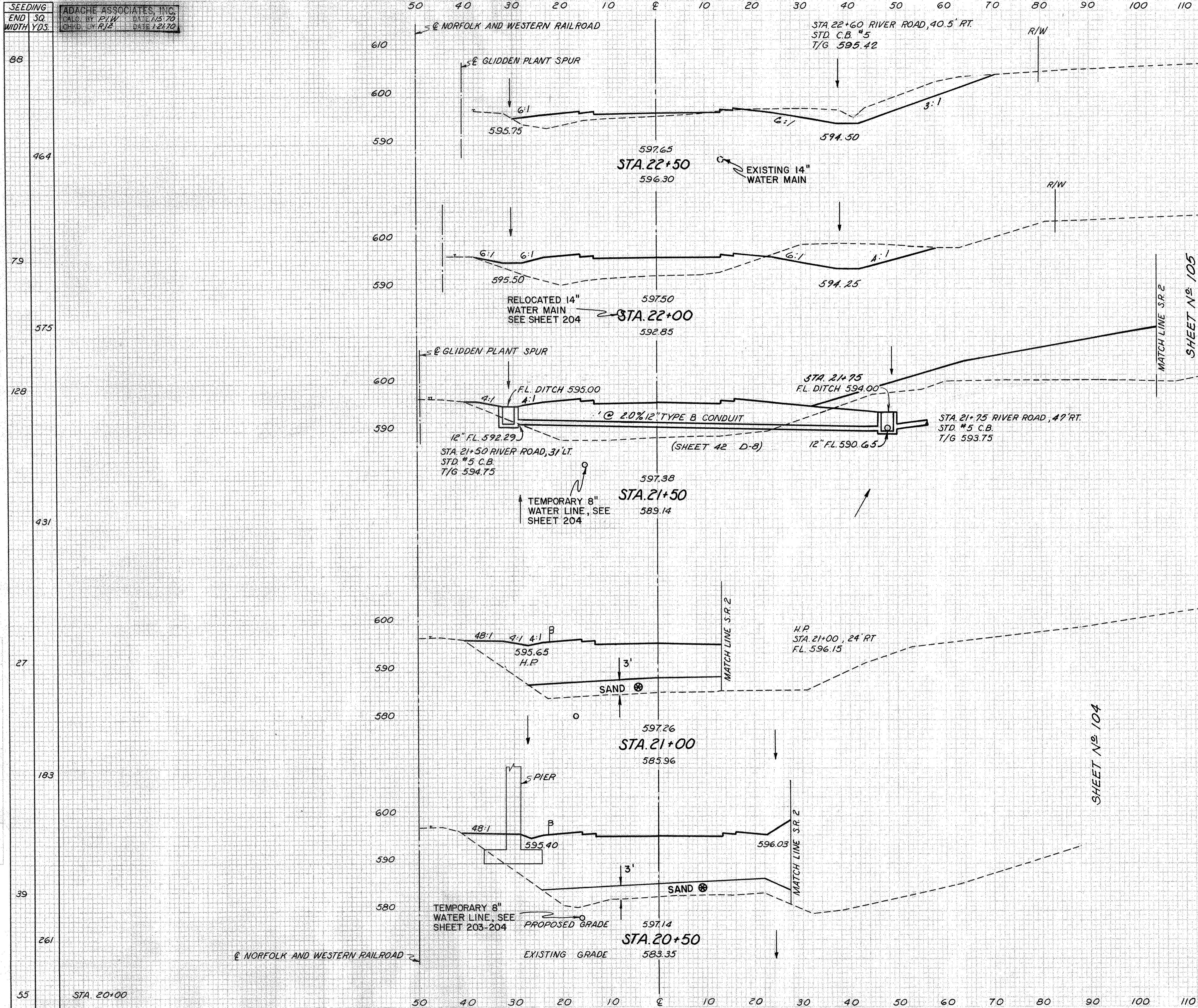
SEEDING  
END SQ.  
WIDTH YDS.

ADACHE ASSOCIATES, INC.  
CALC. BY P.W. DATE 1/15/70  
CHKD. BY R.J.B. DATE 1/21/70

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

153  
326

ERIE COUNTY  
ERI. 2-18.38



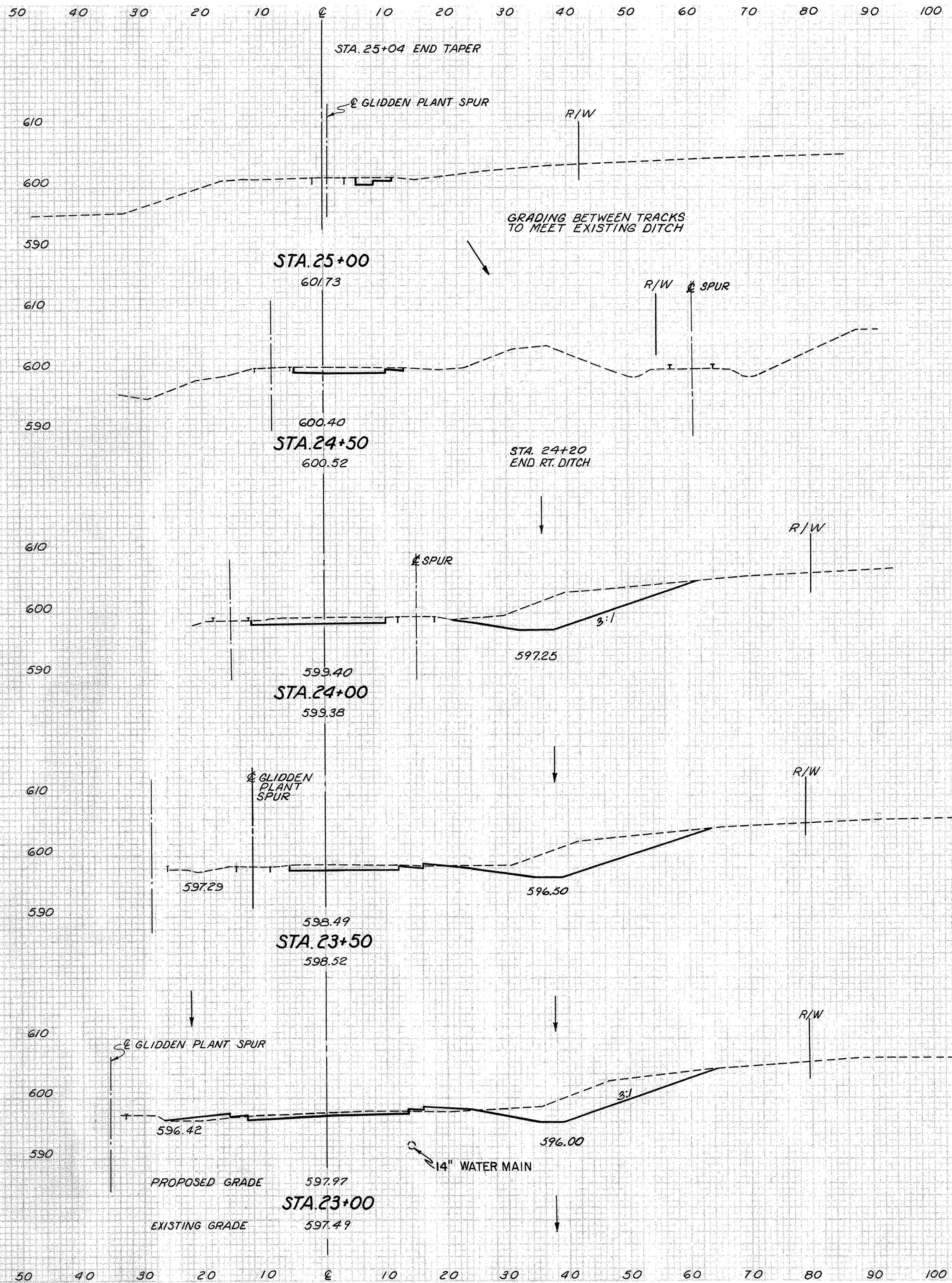
END STA.	AREA		VOLUME	
	CUT	FILL	CUT	FILL
107	50			
			206	233
115	202			
			106	931
128				
			0	803
431				
			0	1195
27				
			AH. BK. 0	488
			⊗ 114	374
				114
183				
			⊗ 0	947
				244
39				
			⊗ 0	649
				149
261				
			⊗ 0	1622
				310
55				
			⊗ 0	186
				1103

CROSS SECTIONS RIVER ROAD STA. 20+50 TO STA. 22+50

SEEDING  
END SQ.  
WIDTH YDS.

ADACHE ASSOCIATES, INC.  
CARD BY: FJW DATE: 1/14/72  
CHKD. BY: R/JZ DATE: 1/21/72

0	STA 25+04 END SEEDING
7	
31	
206	
43	
306	
67	
397	
76	
436	
81	
469	
88	STA 22+50



FED. RD. DIVISION	STATE PROJECT	FISCAL YEAR
2	OHIO	

154  
326

ERIE COUNTY  
ERI. 2-18.38

END AREA	VOLUME	
	CUT	FILL
0	0	0
6	0	0
12	0	17
12	0	13
12	0	0
126	0	50
126	0	226
118	0	214
113	11	204
107	50	56

CROSS SECTIONS RIVER ROAD STA. 23+00 TO STA. 25+00

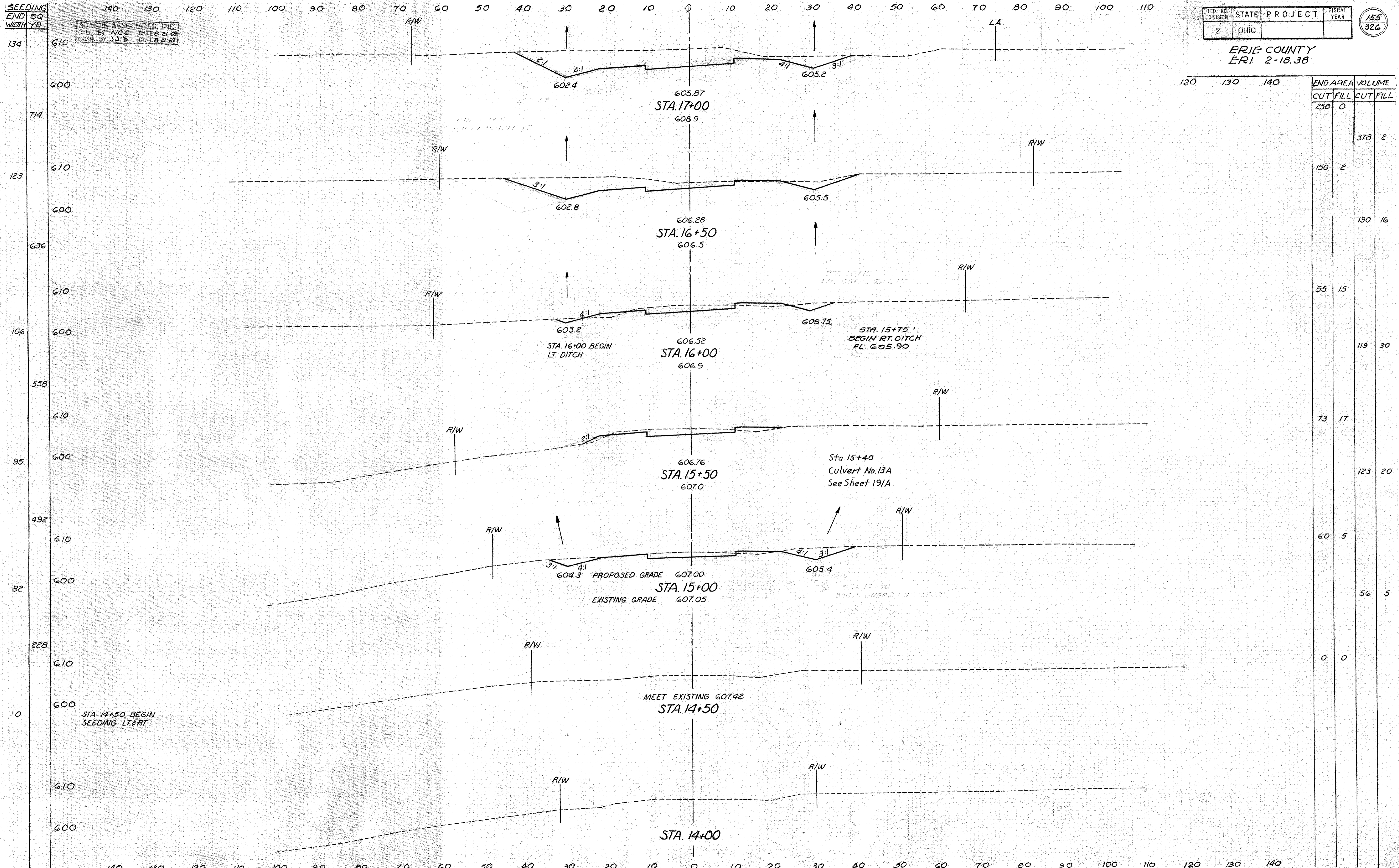
SEEDING  
END SQ  
WIDTH YD

ADACHE ASSOCIATES, INC.  
CALC. BY NCG DATE 8-21-69  
CHKD. BY JJD DATE 8-21-69

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

155  
326

ERIE COUNTY  
ERI 2-18.36



END AREA	VOLUME
CUT	FILL
258	0
150	2
55	15
73	17
60	5
0	0
123	20
119	30
190	16
378	2

CROSS-SECTIONS JEFFRIES RD. STA. 14+00 to 17+00

SEEDING  
 END SQ WIDTH YD  
 93 600  
 590  
 508 580  
 90 610  
 600  
 590  
 522 590  
 98 610  
 600  
 590  
 542 590  
 97 610  
 600  
 590  
 564 590  
 106 600  
 590  
 667 590  
 134

ADACHE ASSOCIATES, INC.  
 CALL BY NCG DATE 8-21-69  
 CHKD. BY JJD DATE 8-21-69

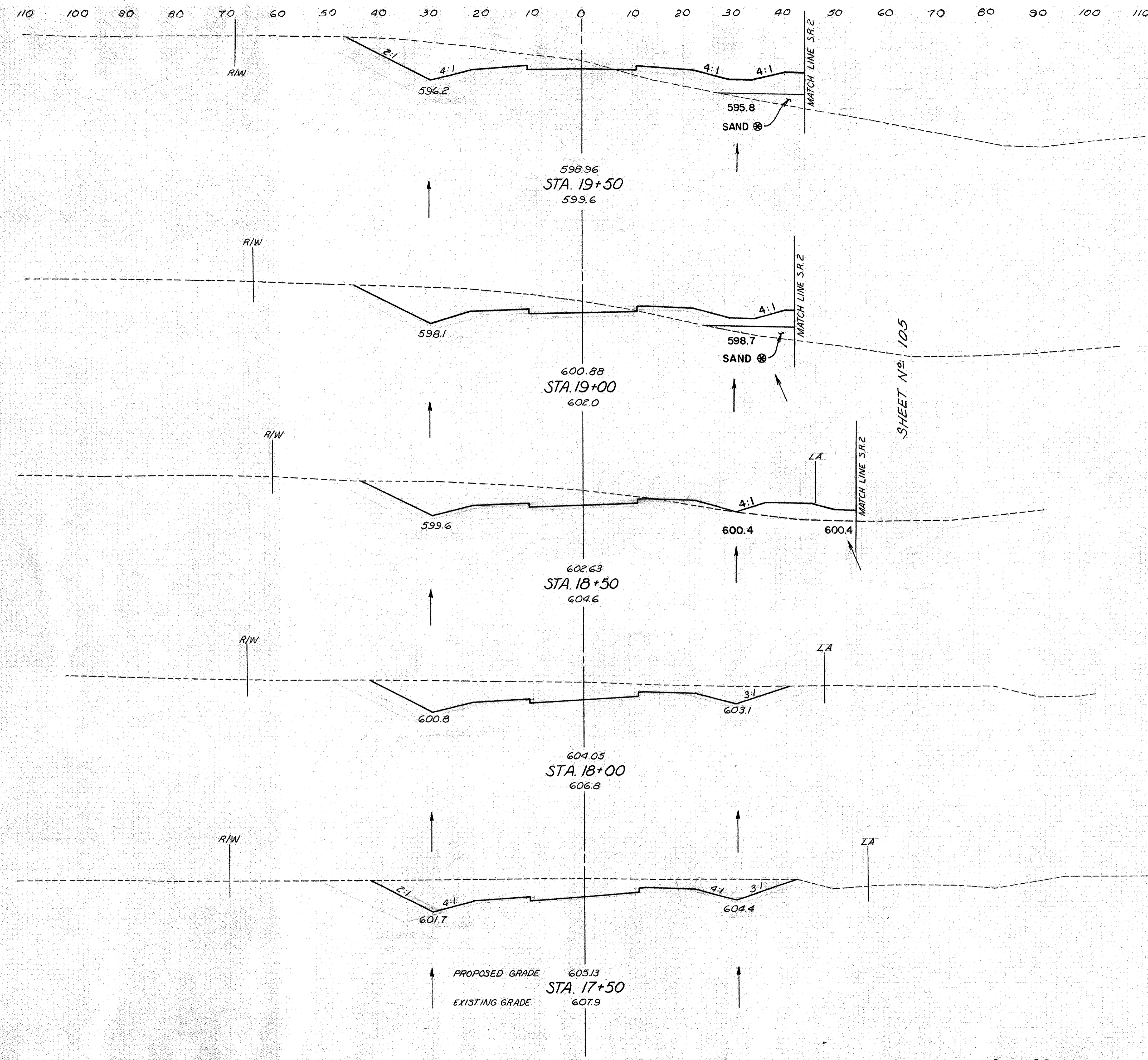
FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

156  
322

ERIE COUNTY  
 ERI 2-18.38

120 130 140

END AREA VOLUME  
 CUT FILL CUT FILL



BEGIN SAND BLANKET STA. 19+00

AH. BK. 174

SHEET No. 105

177	120	24
325	183	48
78	106	28
344	170	
198	78	
417	72	
252	0	
486	0	
273	0	
492	0	
258	0	

CROSS-SECTIONS JEFFRIES RD. STA. 17+50 to 19+50

SEEDING 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

END WIDTH SQ YD

ADACHE ASSOCIATES, INC.  
 CALC. BY: N.C.G. DATE: 8-21-69  
 CHKD. BY: J.J.B. DATE: 8-21-69

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

157  
326

ERIE COUNTY  
 ERI 2-18.38

120 130 140

85 STA. 21+50 END SEEDING

590

580

569

570

120 590

580

625

105 600

590

569 580

100 600

590

536

93

STA. 19+50

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

STA. 19+50

140

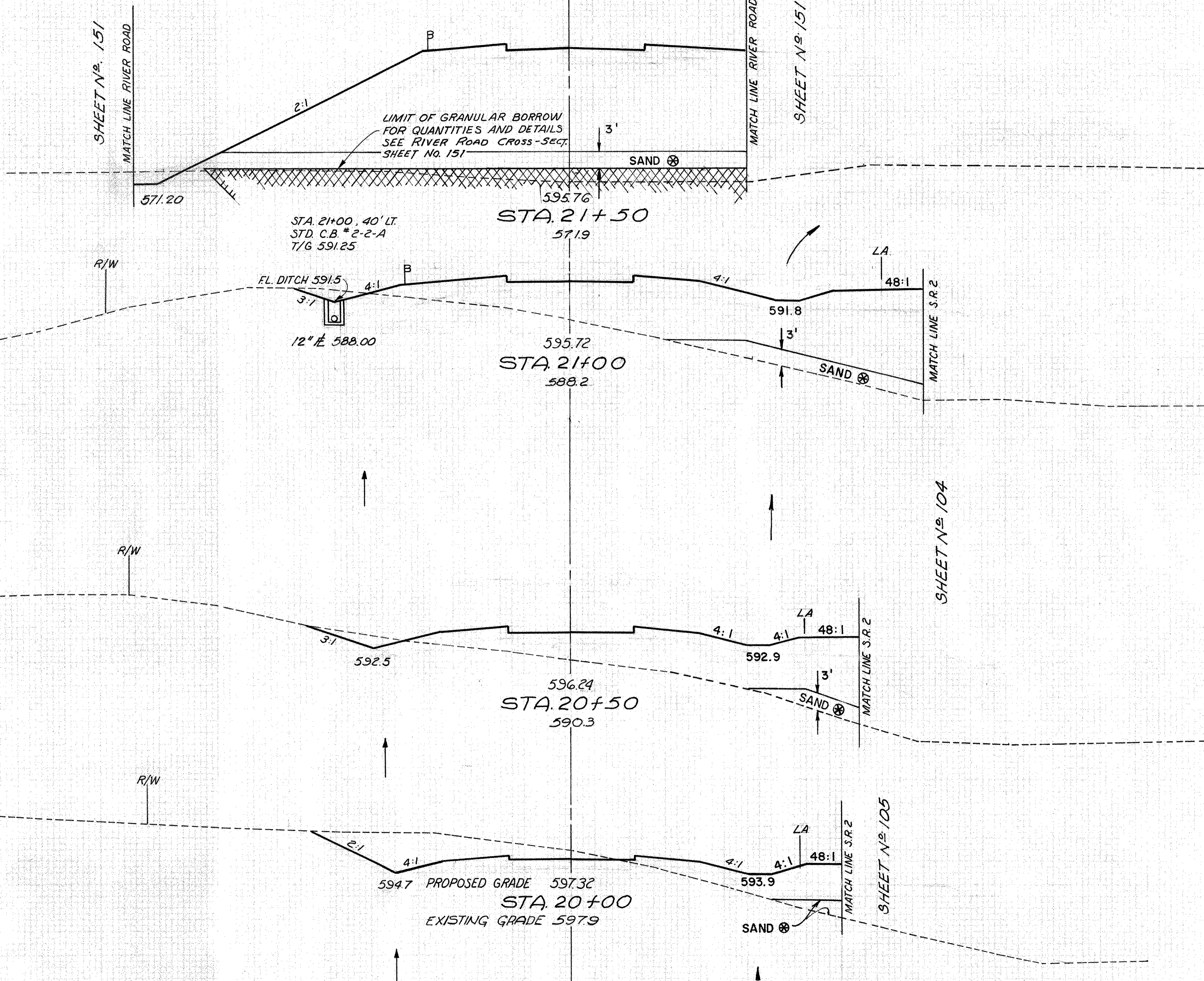
CROSS-SECTIONS JEFFRIES RD. STA. 20+00 to 21+50

SHEET No. 151  
 MATCH LINE RIVER ROAD

MATCH LINE RIVER ROAD  
 SHEET No. 151

SHEET No. 104

SHEET No. 105



END AREA VOLUME  
 CUT FILL CUT FILL

12 1255  
278

22 1838  
362

12 730  
113

26 1103  
144

16 461  
43

167 550  
56

163 133  
17

315 234  
38

177 120  
24







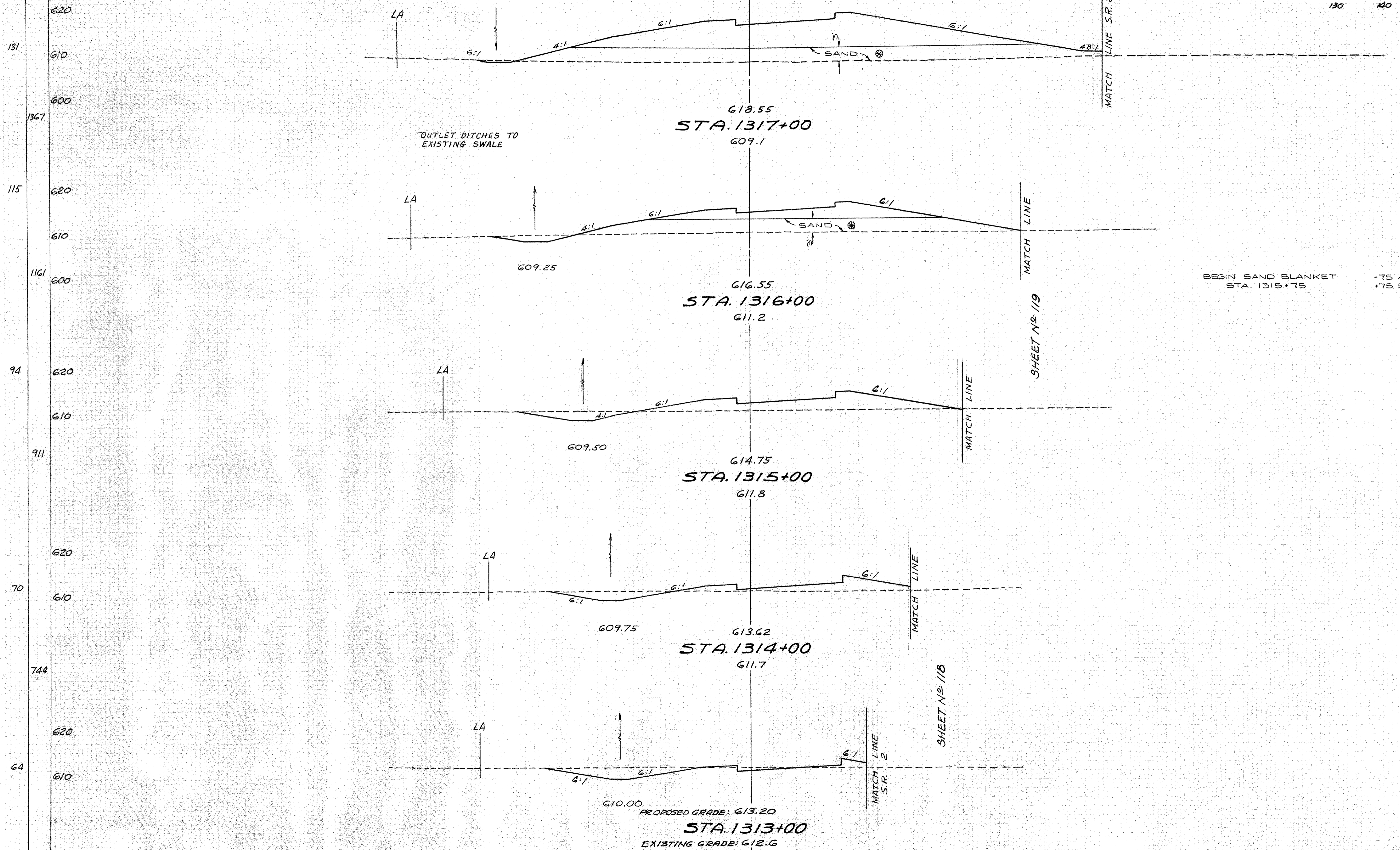
END SQ  
WIDTH YDS.

ADACHE ASSOCIATES, INC.  
CALC. BY W.A.L. DATE 8-18-69  
CHKD. BY N.C.G. DATE 8-20-69

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

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ERIE COUNTY  
ERI 2-18.38



END AREA	VOLUME	
	CUT	FILL
3	473	352
37	1107	1106
17	125	245
69	314	245
91	636	
32	144	
115	398	
30	71	
156	157	
54	14	

CROSS SECTIONS RAMP #6 STA. 1313+00 TO STA. 1317+00

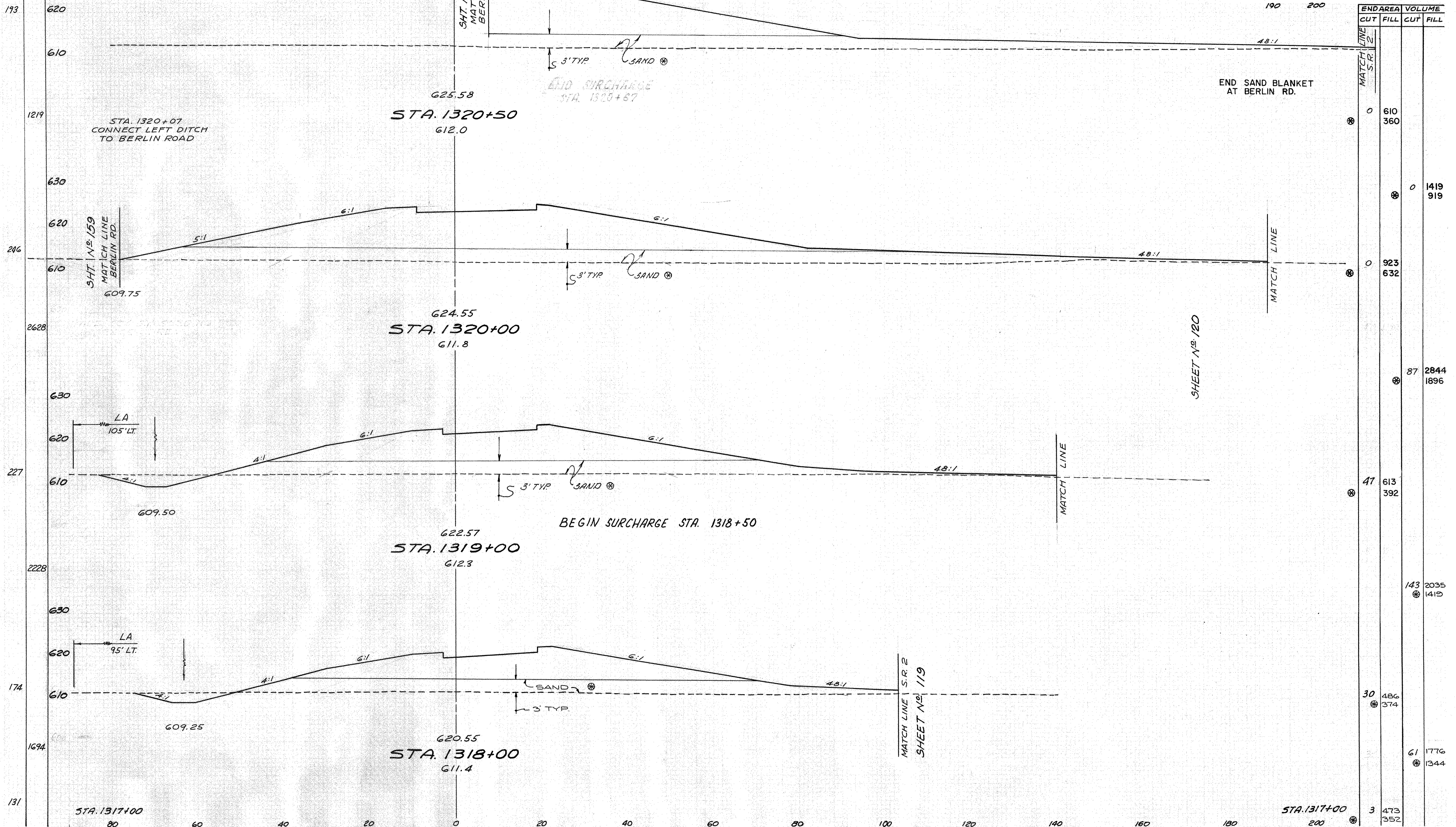
SEEDING  
END SQ  
WIDTH YDS.

80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

161  
326

ERIE COUNTY  
ERI 2-18.88



ADACHE ASSOCIATES, INC.  
CALC. BY NTC DATE 7-19-64  
CHKD. BY NCG DATE 8-20-69

STA. 1320+07  
CONNECT LEFT DITCH  
TO BERLIN ROAD

SHT. NO. 159  
MATCH LINE  
BERLIN RD.

END SURCHARGE  
STA. 1320+87

END SAND BLANKET  
AT BERLIN RD.

SHT. NO. 159  
MATCH LINE  
BERLIN RD.

624.55

BEGIN SURCHARGE STA. 1318+50

SHEET NO. 120

LA  
105' LT.

LA  
95' LT.

MATCH LINE S.R. 2  
SHEET NO. 119

END AREA	VOLUME	
	CUT	FILL
610	360	0
923	632	0
613	392	47
2035	1410	143
486	374	30
1776	1344	61
473	352	3

CROSS SECTIONS RAMP #6 STA. 1318+00 TO STA. 1320+50

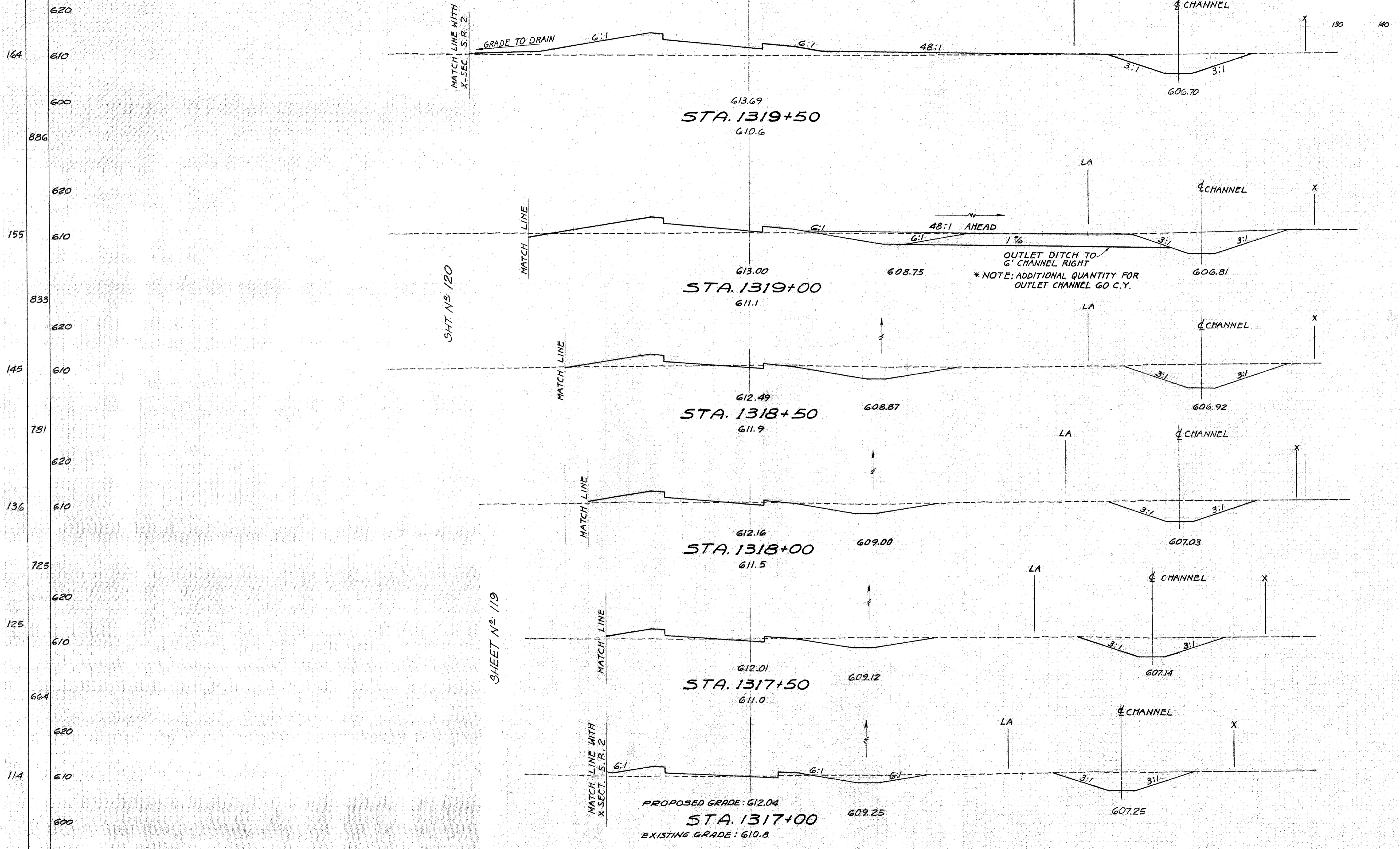
SEEDING  
END SQ  
WIDTH YDS.

ADACHE ASSOCIATES, INC.  
CALC. BY W.P.L. DATE 8/18/68  
CHKD. BY J.S.D. DATE 8-22-68

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

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326

ERIE COUNTY  
ERI 2-18.38



	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
	80	211		
			161	282
AH 94	94	94		
BK 132	84			*60
			281	110
	171	35		
			284	69
	136	40		
			241	66
	124	31		
			216	61
	109	35		

CROSS SECTIONS RAMP #7 STA. 1317+00 TO STA. 1319+50

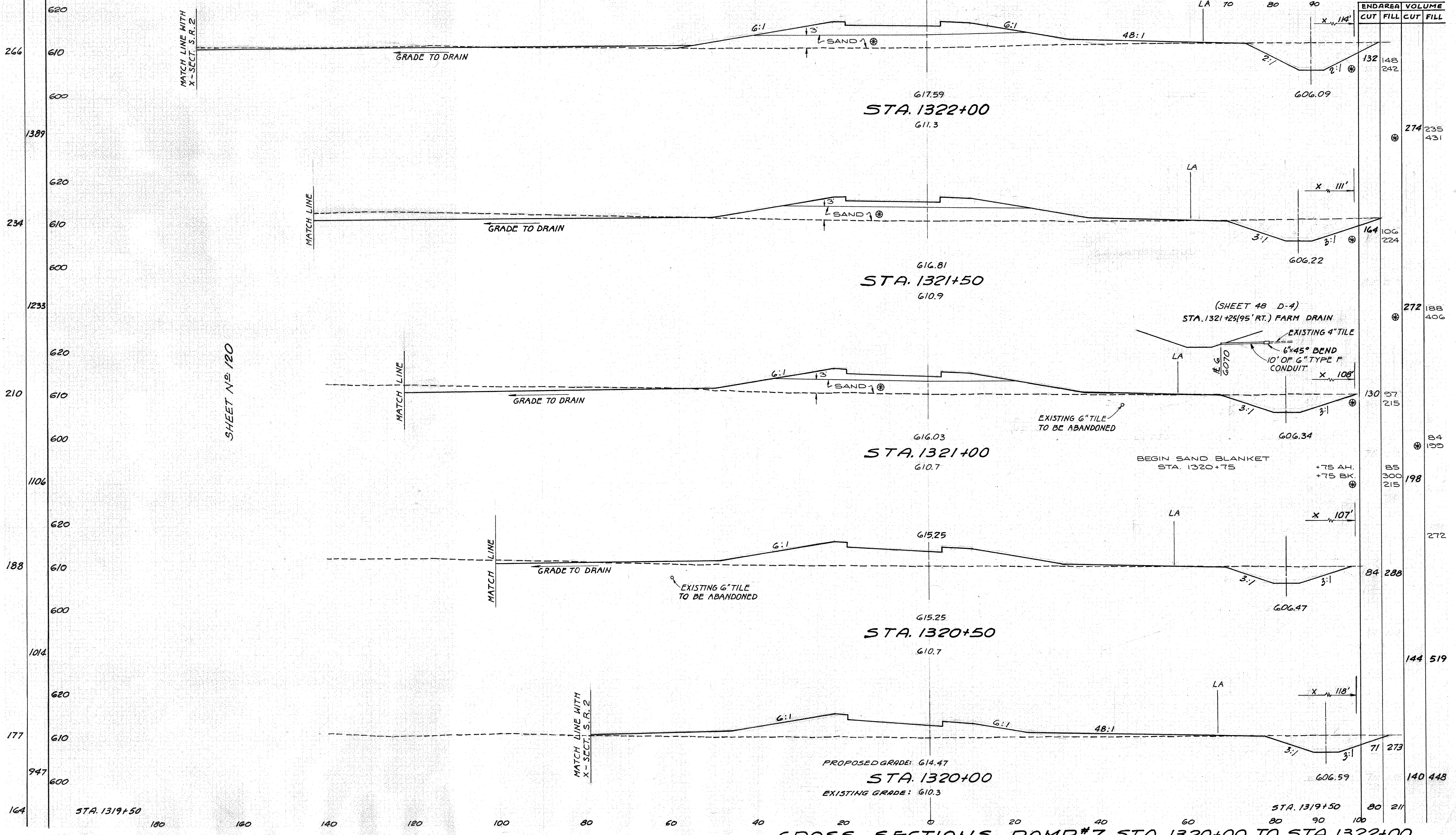
SEEDING  
END SQ  
WIDTH YDS.

ADACHE ASSOCIATES, INC.  
CALC. BY J.J.D. DATE 8-21-69  
CHKD. BY M.C.G. DATE 8-22-69

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

163  
326

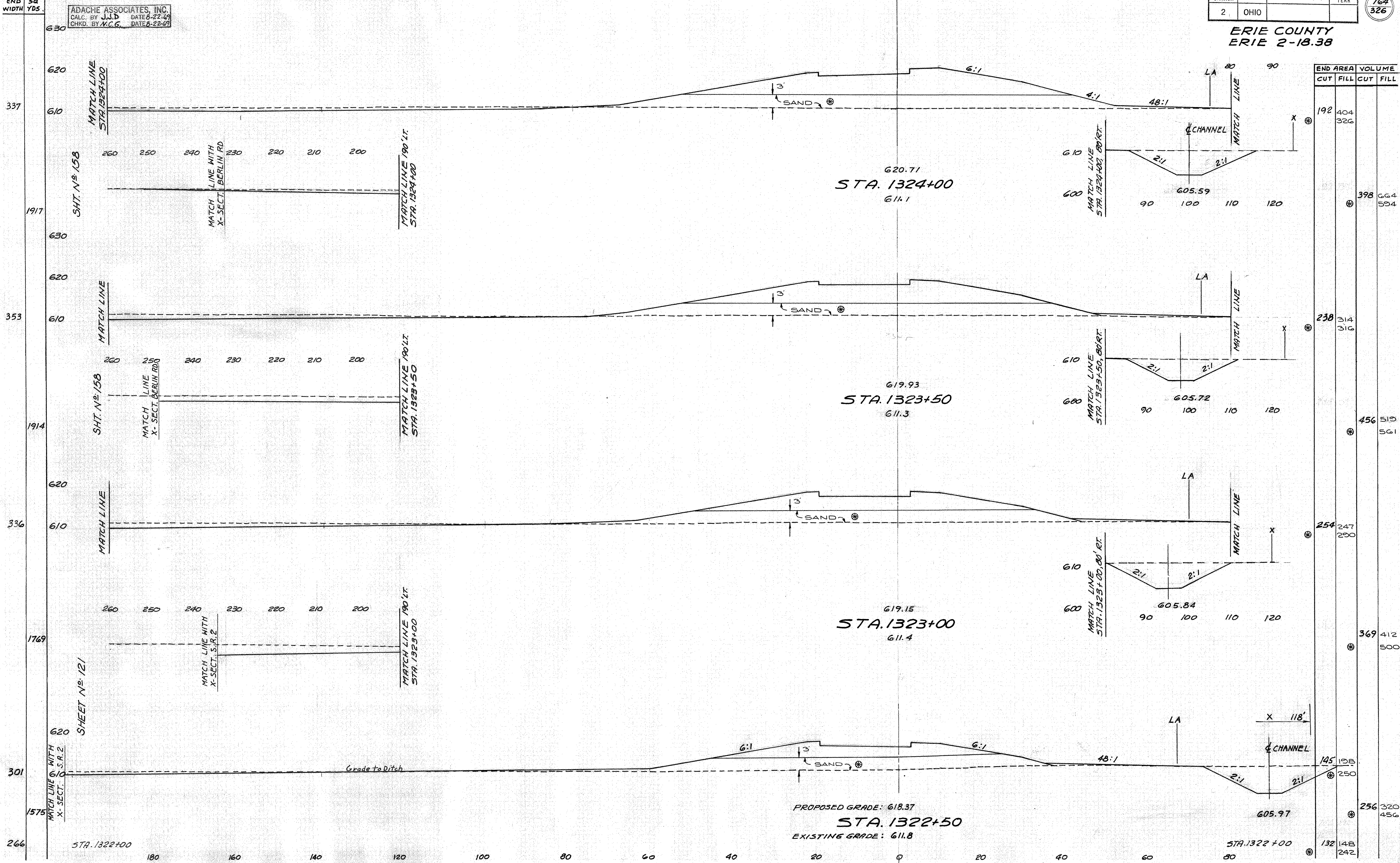
ERIE COUNTY  
ERI 2-18.38



END AREA	VOLUME	
	CUT	FILL
132	148	242
164	106	224
130	87	215
84	288	198
71	273	140
80	211	

CROSS SECTIONS RAMP #7 STA. 1320+00 TO STA. 1322+00

ERIE COUNTY  
ERIE 2-18.38



CROSS SECTIONS RAMP #7 STA. 1322+50 TO STA. 1324+00



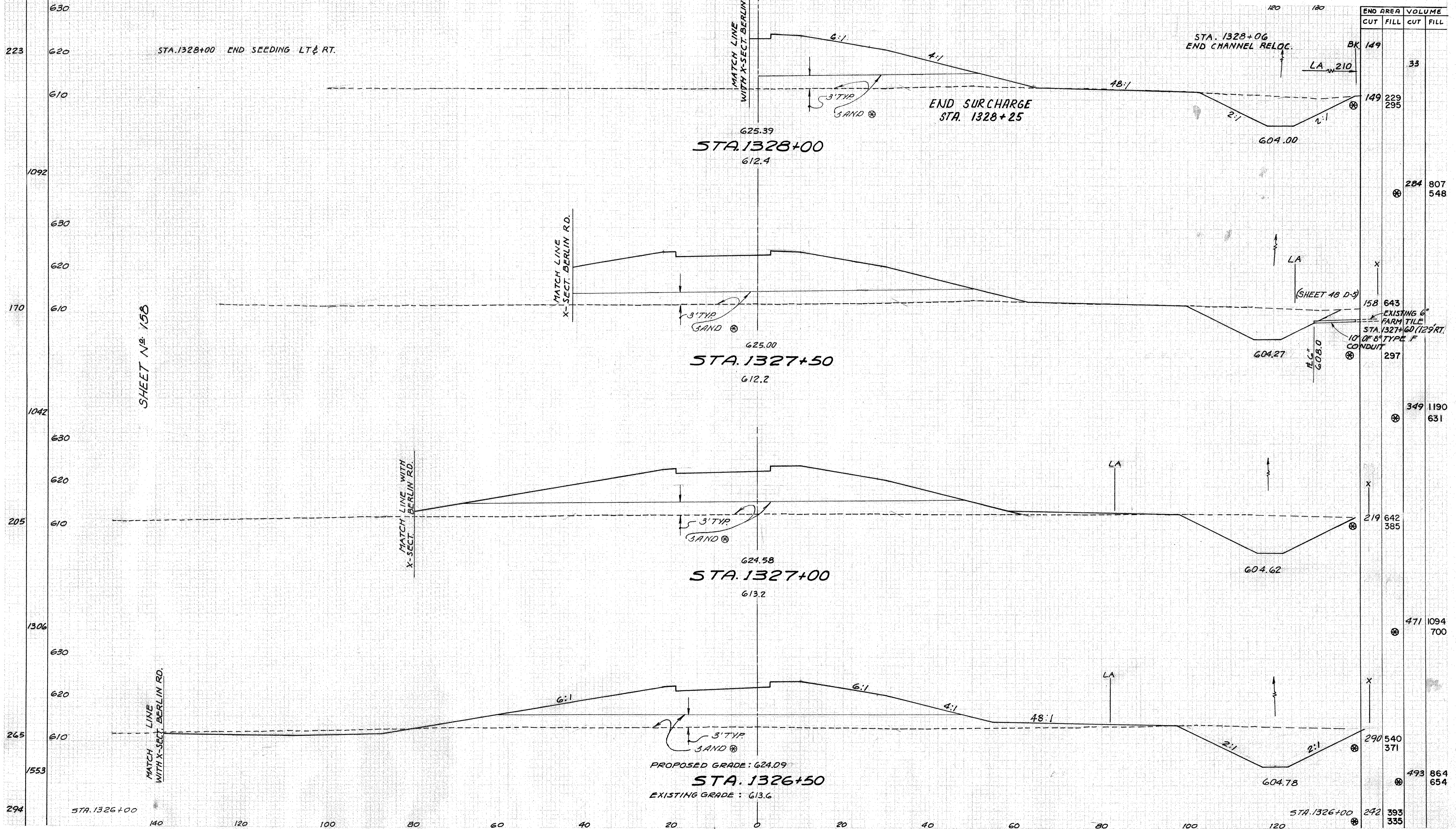
SEEDING  
END STA.  
WIDTH YDS.

ADACHE ASSOCIATES, INC.  
CALC. BY J.J.D. DATE 8-22-97  
CHKD. BY M.C.G. DATE 8-22-97

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

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326

**ERIE COUNTY  
ERI 2-18.38**



**CROSS SECTIONS RAMP #7 STA. 1326+50 TO STA. 1328+00**

SEEDING 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170

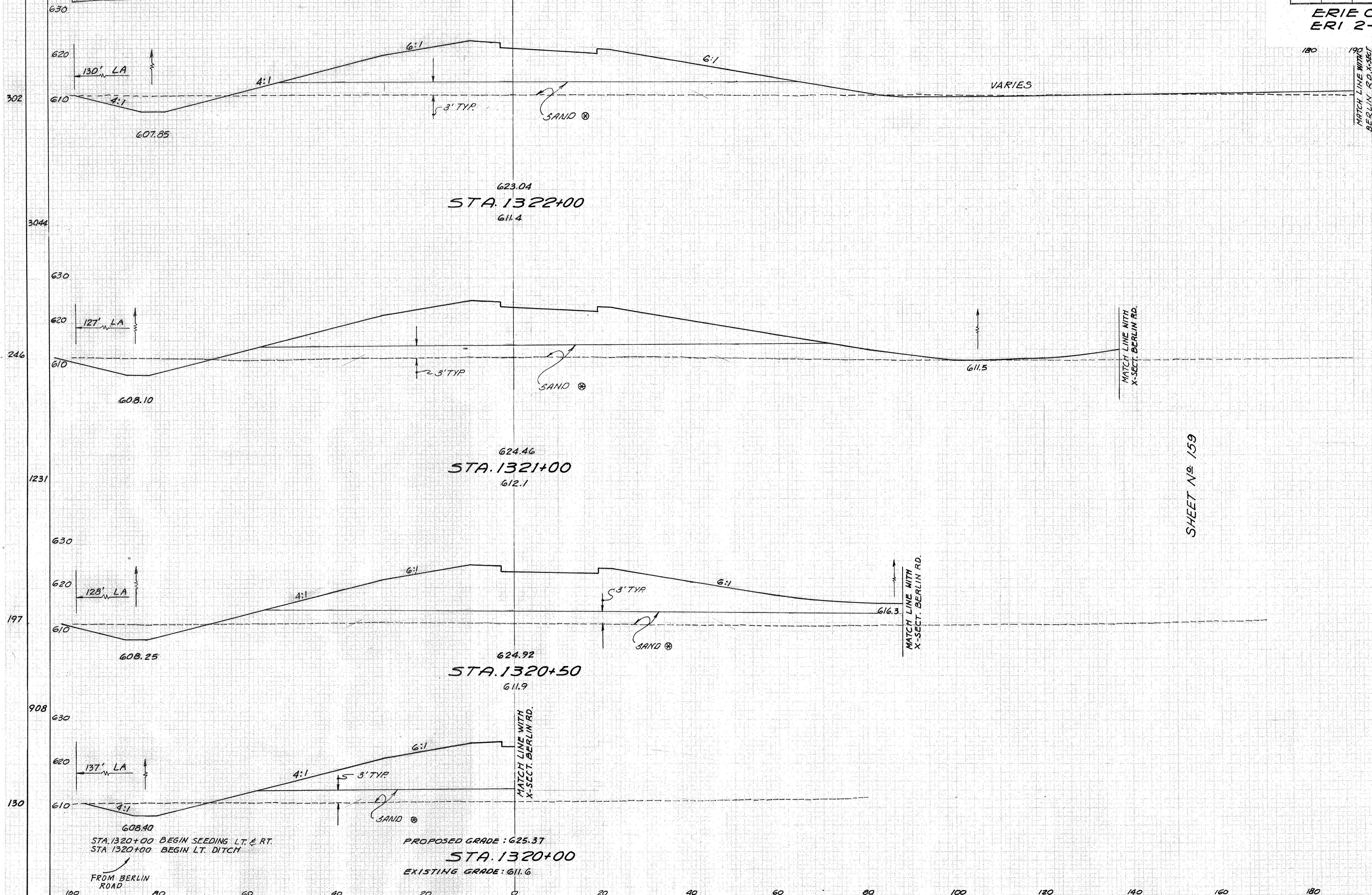
END STA.  
WIDTH YDS.

ADACHE ASSOCIATES, INC.  
CALC. BY J.J.D. DATE 8-22-69  
CHKD. BY M.C.G. DATE 8-22-69

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

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326

ERIE COUNTY  
ERI 2-18.38



END STA.	AREA		VOLUME	
	CUT	FILL	CUT	FILL
77	627	395		
289	2652	1537		
79	805	435		
137	1540	831		
69	858	462		
110	1105	631		
AH. 50	335	220		

SHEET No. 159

STA. 1320+00 BEGIN SEEDING LT. & RT.  
STA. 1320+00 BEGIN LT. DITCH

PROPOSED GRADE : 625.37  
STA. 1320+00  
EXISTING GRADE : 611.6

FROM BERLIN ROAD

CROSS SECTIONS RAMP #8 STA. 1320+00 TO STA. 1322+00



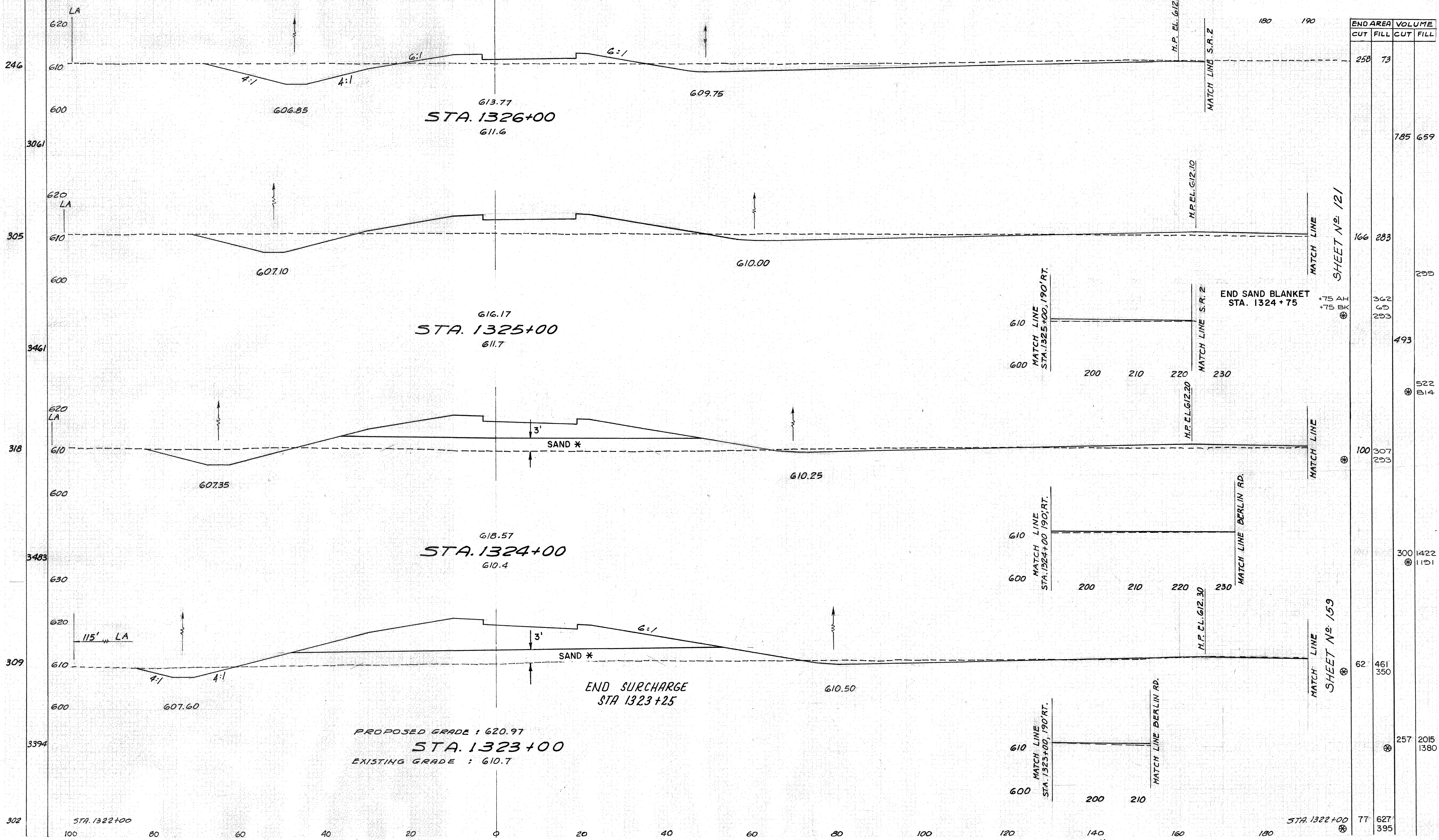
SEEDING  
END SQ.  
WIDTH YDS.

100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

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326

ERIE COUNTY  
ERI 2-18.38



END AREA		VOLUME	
CUT	FILL	CUT	FILL
258	73		
		785	659
166	283		
		293	
362	63		
293		493	
		522	814
100	307		
	293		
		300	1422
		1151	
62	461		
	350		
		257	2015
		1380	
77	627		
	395		

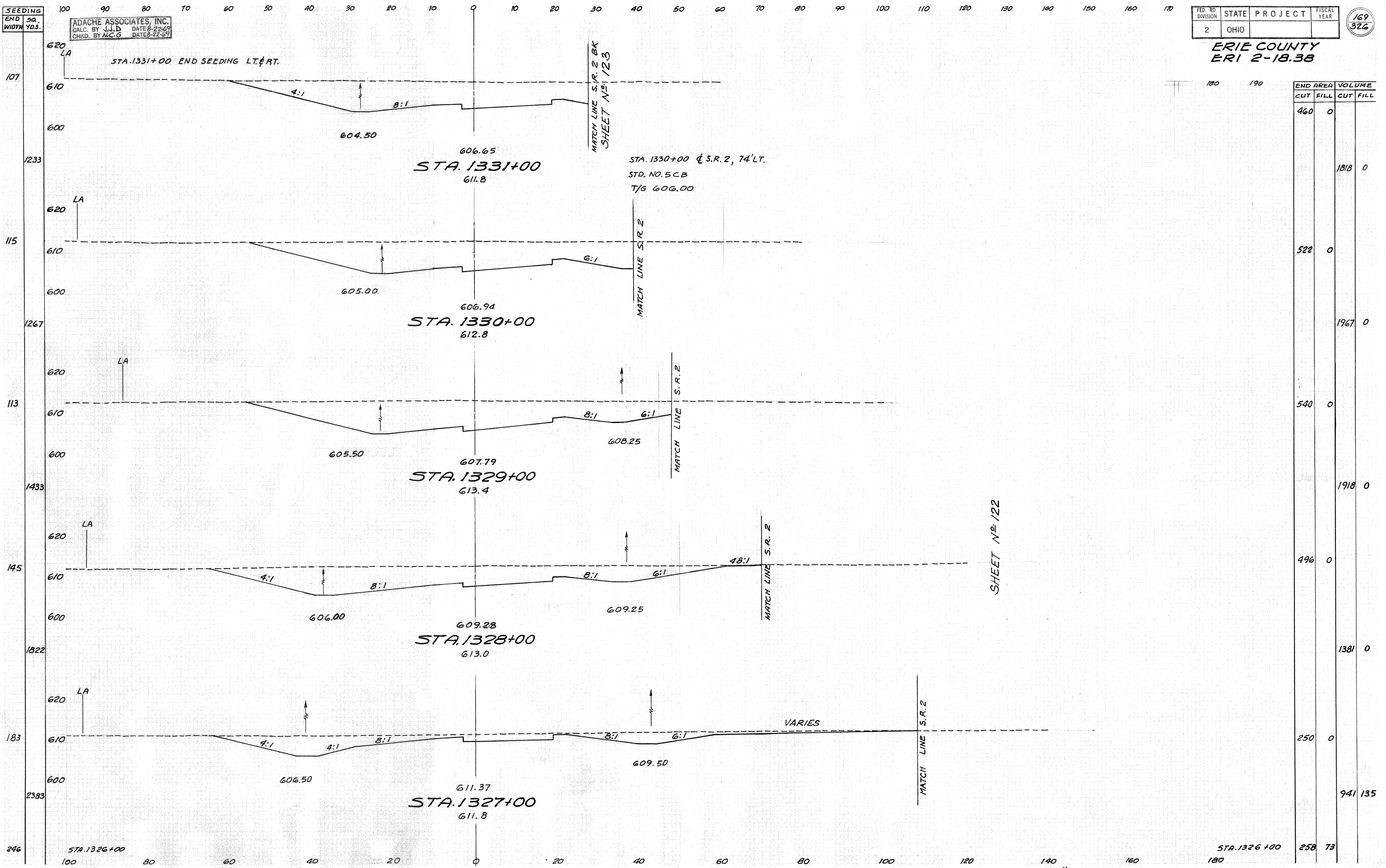
CROSS SECTIONS RAMP # 8 STA. 1323+00 TO STA. 1326+00

SEEDING END 50. WIDTH YDS. ADACHE ASSOCIATES, INC. CALC. BY J.J.D. DATE 8-22-69. CHKD. BY M.C.G. DATE 8-22-69.

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

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326

ERIE COUNTY  
ERI 2-18.38



END AREA		VOLUME	
CUT	FILL	CUT	FILL
460	0		
		1818	0
522	0		
		1767	0
540	0		
		1918	0
496	0		
		1381	0
250	0		
		941	135
258	73		

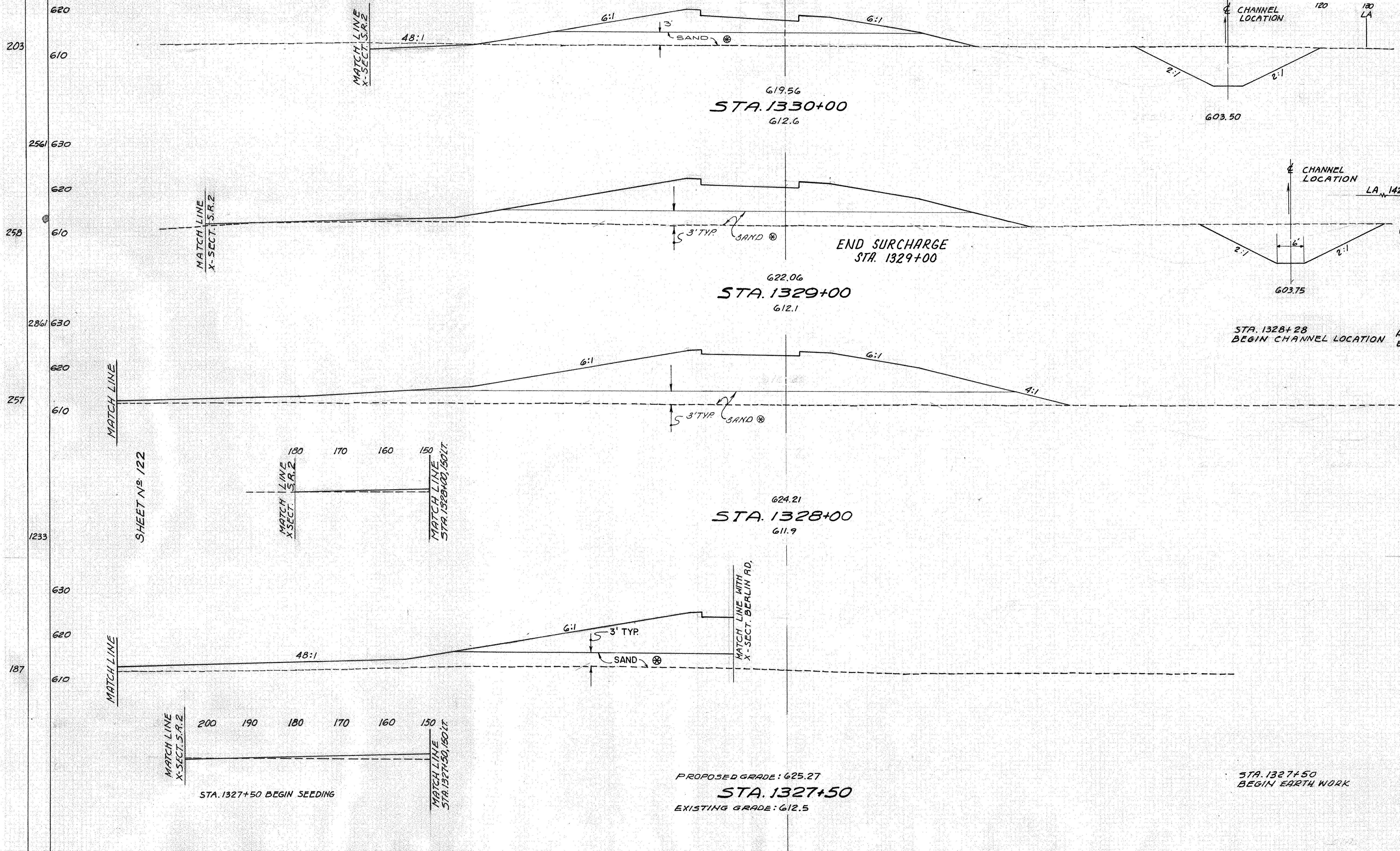
CROSS SECTIONS RAMP # 8 STA. 1327+00 TO STA. 1331+00

SEEDING END 50 WIDTH YDS. 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

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ERIE COUNTY  
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END AREA	VOLUME	
	CUT	FILL
241	228	252
841	1328	1124
213	489	353
568	2519	1437
213	0	0
0	871	423
2	1248	586
2	477	210

SHEET NO 122

PROPOSED GRADE: 625.27  
**STA. 1327+50**  
EXISTING GRADE: 612.5

STA. 1327+50  
BEGIN EARTH WORK

CROSS SECTIONS RAMP #9 STA. 1327+50 TO STA. 1330+00

SEEDING	END STA.	WIDTH YDS.
	140	130
	120	110
	100	90
	80	70
	60	50
	40	30
	20	10
	0	10
	20	30
	40	50
	60	70
	80	90
	100	110
	120	130
	140	150

ADACHE ASSOCIATES, INC.  
 CALC. BY N.C.G. DATE 8-22-69  
 CHKD. BY J.J.D. DATE 8-22-69

SHEETS 172, 173 & 174 OMITTED			
FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

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89  
610 STA. 1335 + END SEEDING LT. & RT.  
600  
1033  
97  
610  
600  
1100  
101  
610  
600  
1478  
165  
610  
600  
1928  
182  
610  
2139  
600  
203  
STA. 1330+00

SHEET NO. 123

SHT. NO. 124  
 MATCH LINE  
 X-SECT. S.R. 2

MATCH LINE  
 X-SECT. S.R. 2

MATCH LINE  
 X-SECT. S.R. 2

MATCH LINE  
 X-SECT. S.R. 2

MATCH LINE  
 X-SECT. S.R. 2

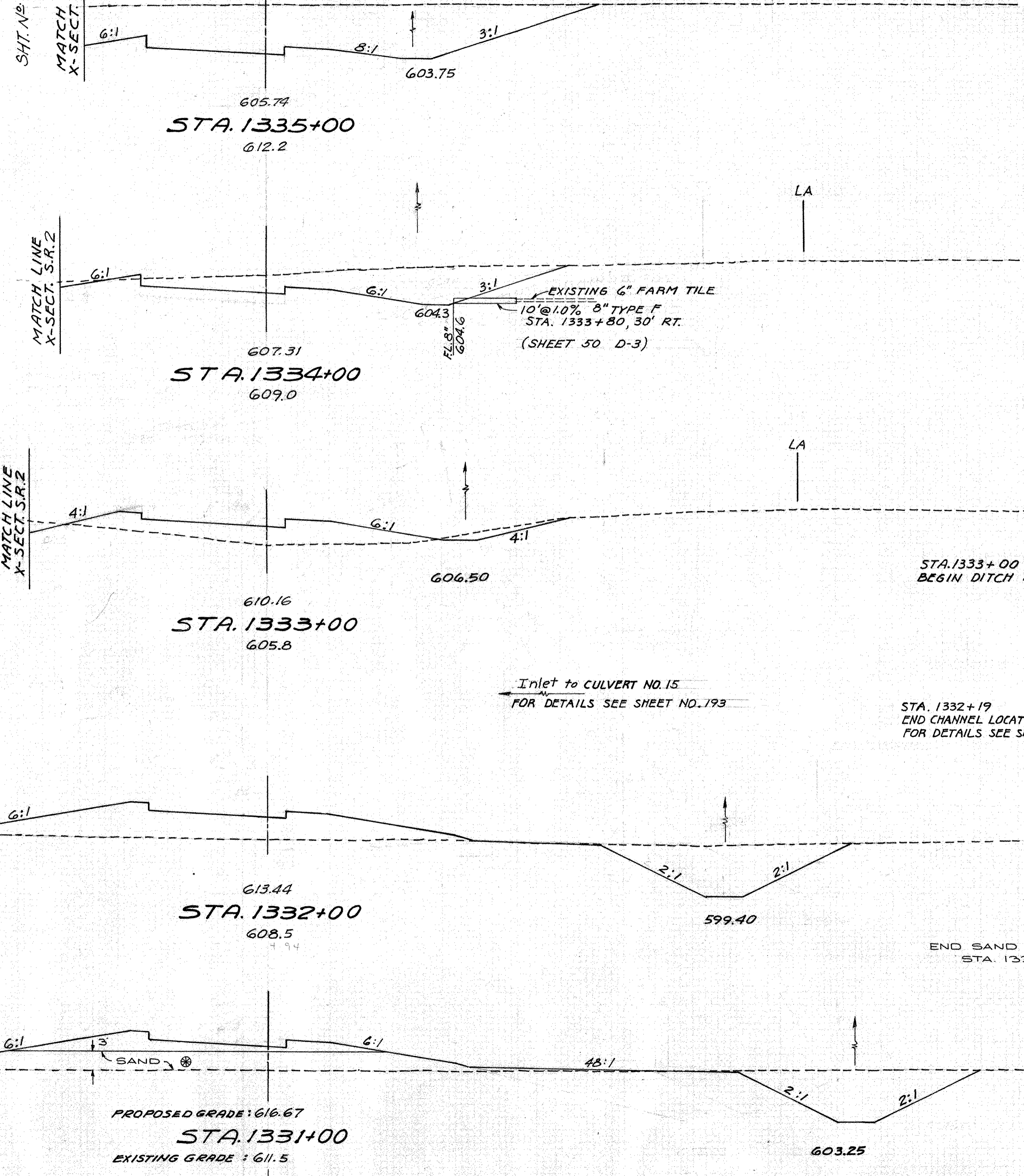
605.74  
 STA. 1335+00  
 612.2

607.31  
 STA. 1334+00  
 609.0

610.16  
 STA. 1333+00  
 605.8

613.44  
 STA. 1332+00  
 608.5

PROPOSED GRADE: 616.67  
 STA. 1331+00  
 EXISTING GRADE: 611.5



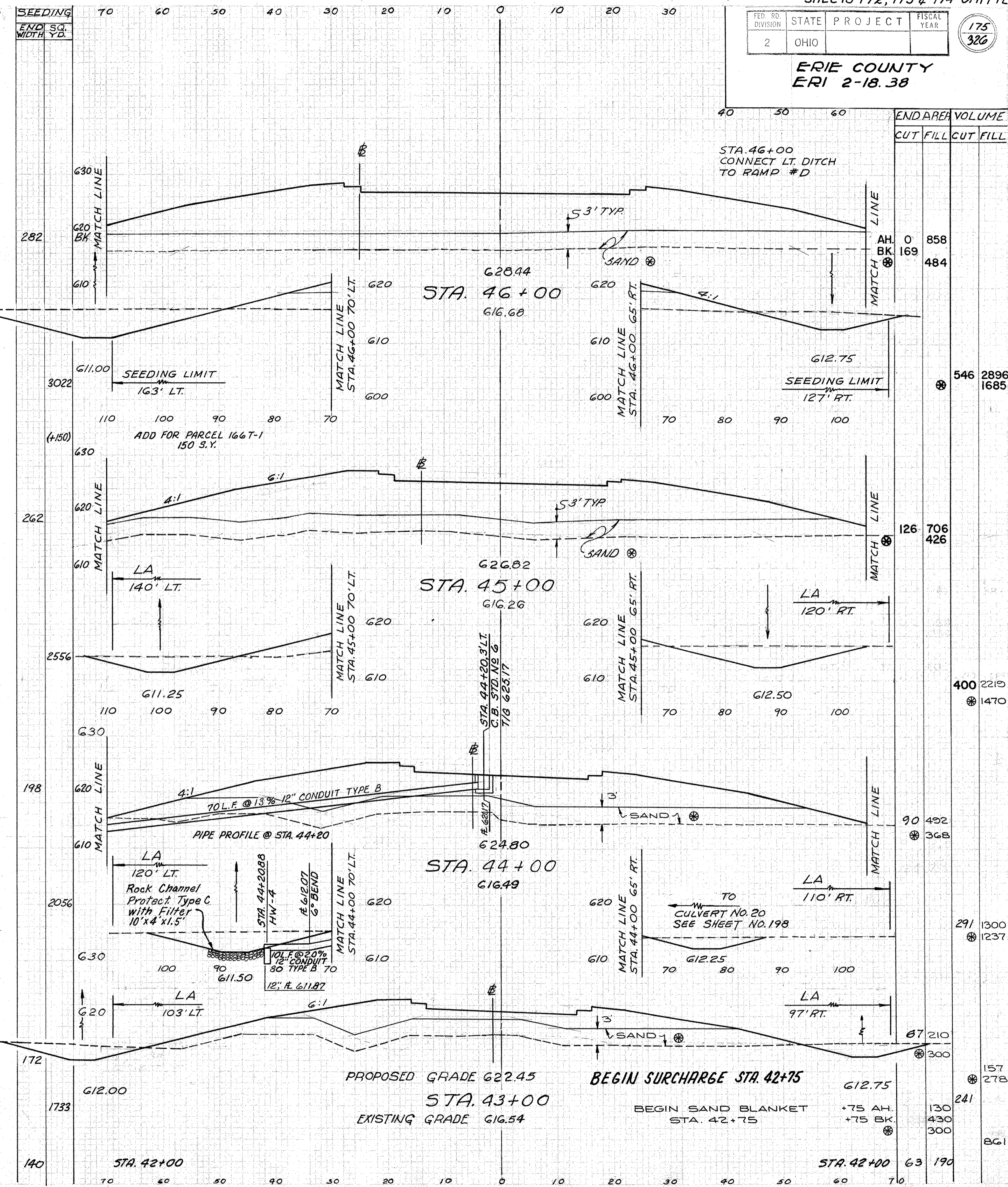
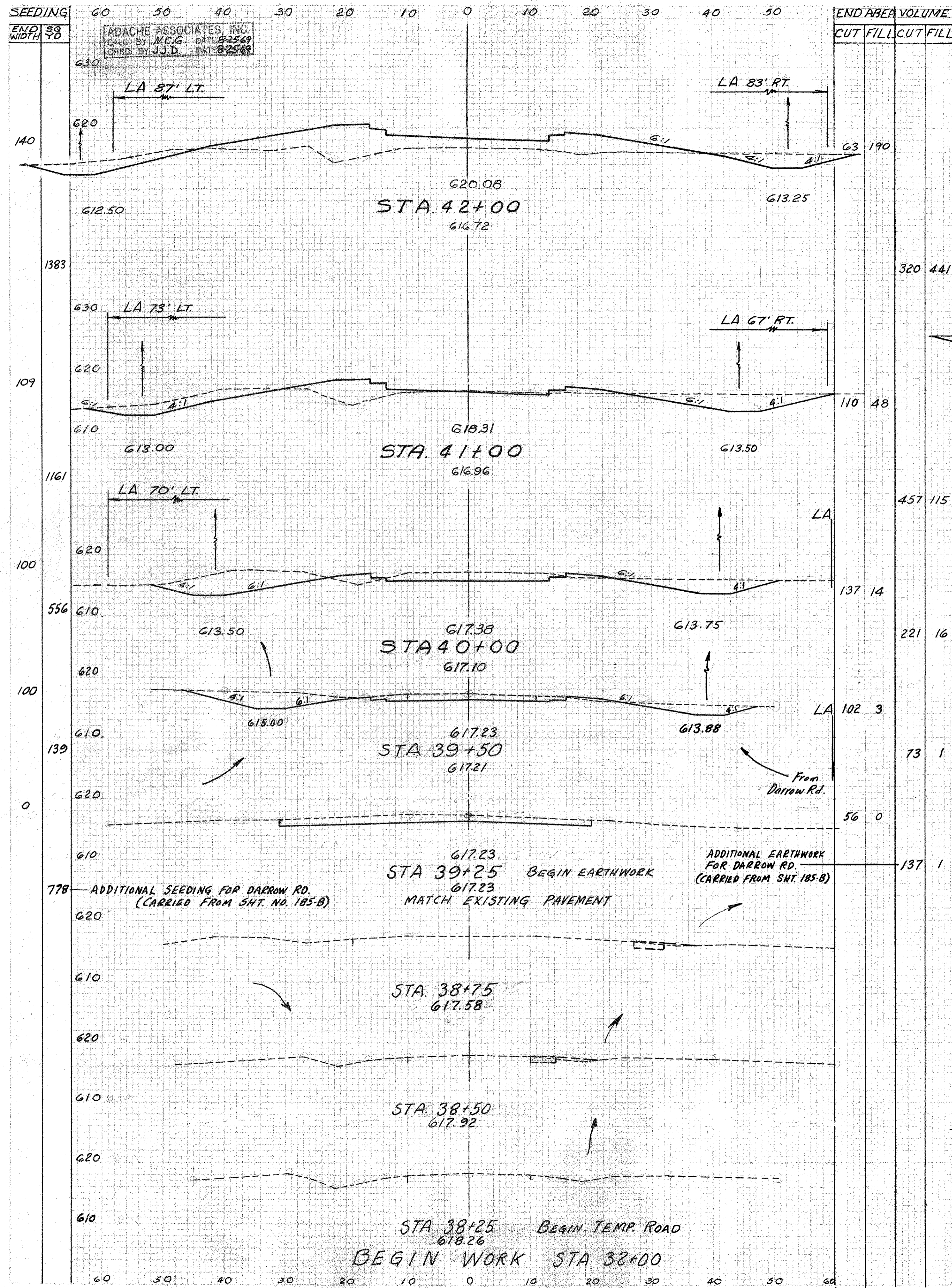
END STA.	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
130	538	0		
140			1459	6
	250	3		
			502	259
	AH. BK. 21	9	137	
			14	733
	AH. BK. 0	200		
			141	
	200	259		
			456	
	+50 AH. 277	+50 BK. 42		
			709	
			94	435
	183	60		
			785	533
			276	
			241	228
			252	

CROSS SECTIONS RAMP #9 STA. 1331+00 TO STA. 1335+00

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

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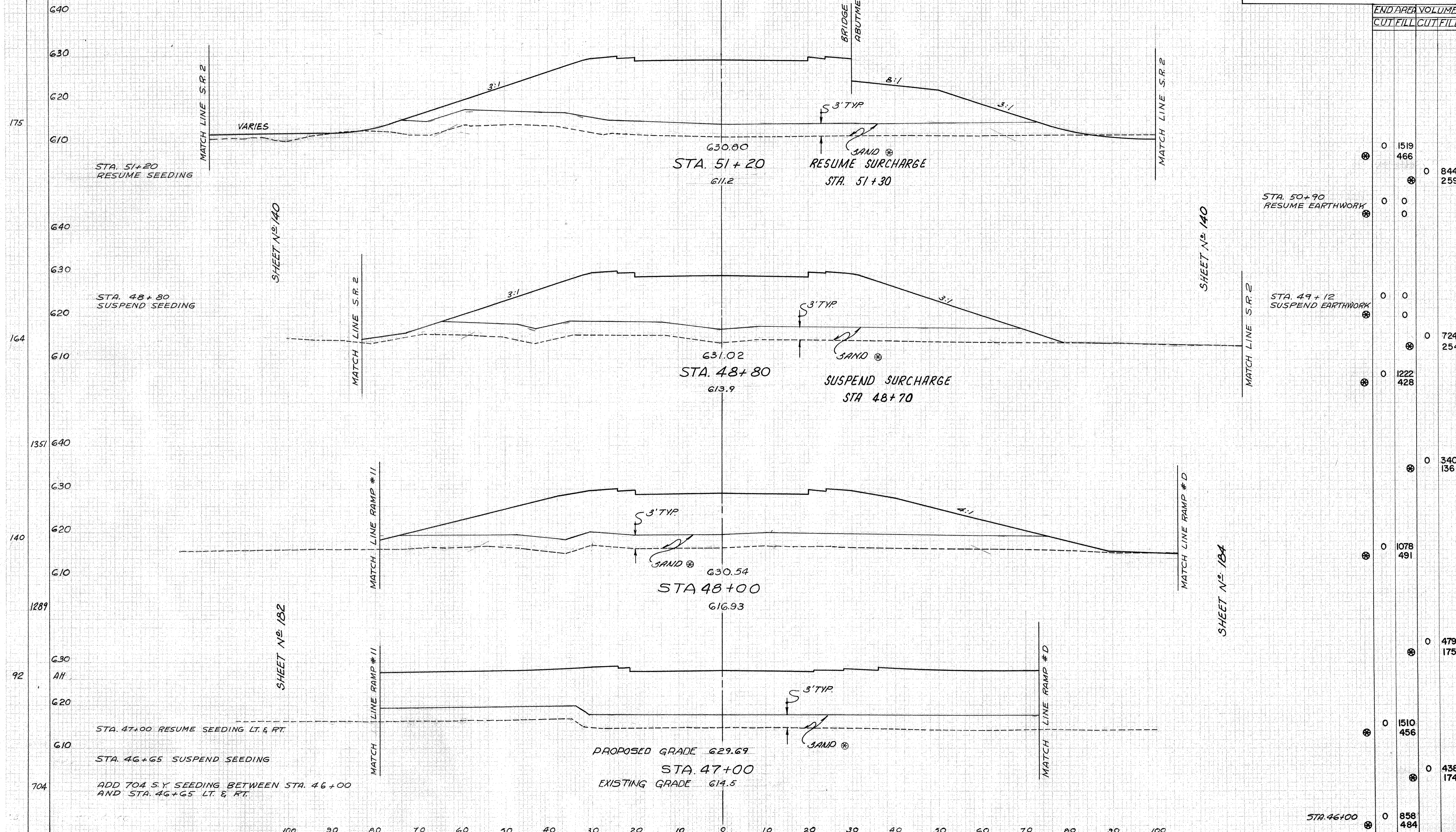
S.R. 61 CROSS SECTIONS STA. 39+25 TO STA. 46+00

SEEDING  
 END 50  
 WIDTH 70  
 ADACHE ASSOCIATES, INC.  
 CALC. BY N.C.G. DATE 8-25-69  
 CHKD. BY J.J.B. DATE 8-25-69

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
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END AREA		VOLUME	
CUT	FILL	CUT	FILL
0	1519	466	0
0	844	259	0
0	0	0	0
0	0	0	0
0	724	254	0
0	1222	428	0
0	3407	1361	0
0	1078	491	0
0	4793	1754	0
0	1510	456	0
0	4385	1741	0
0	858	484	0

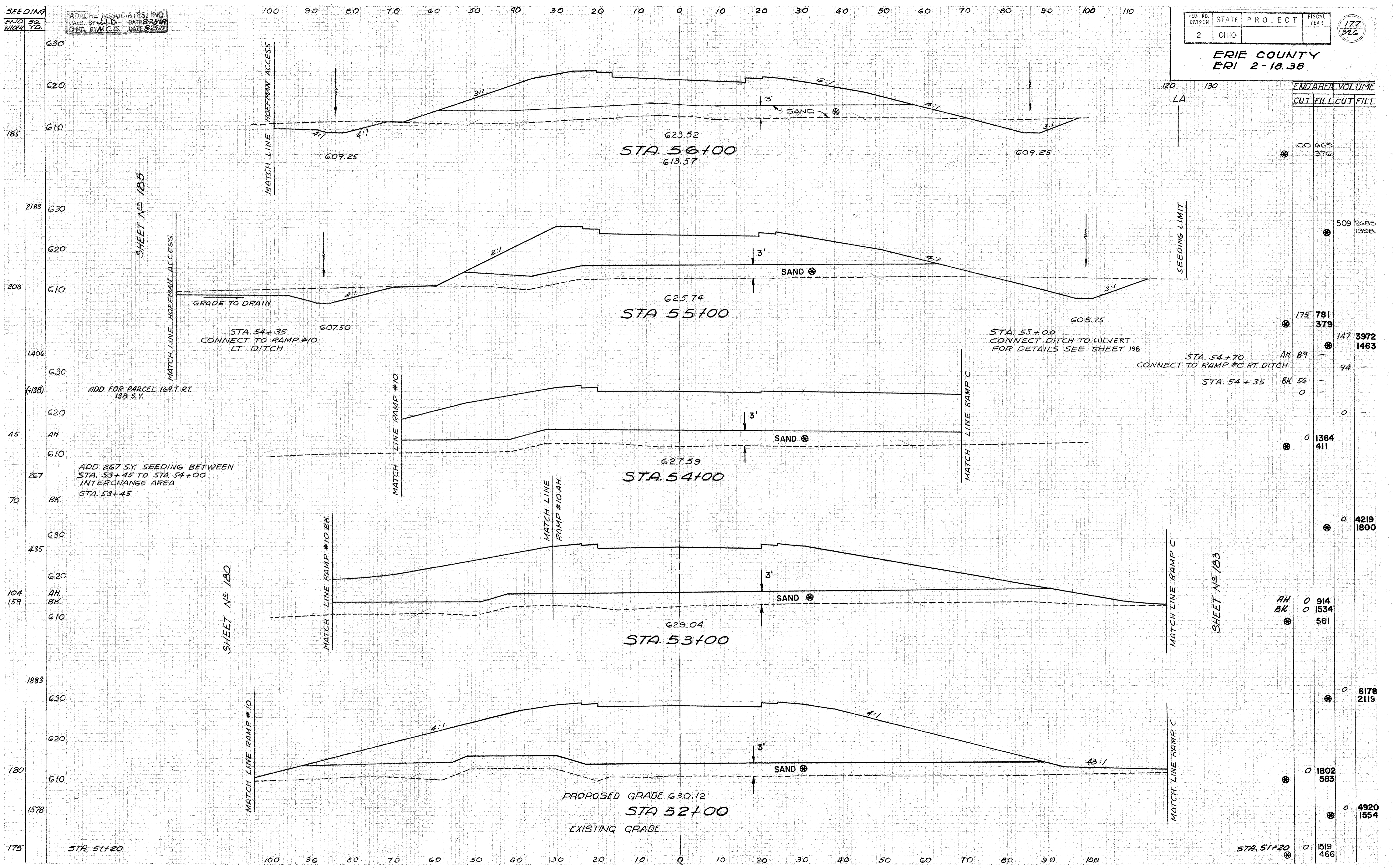
S.R. 61 CROSS SECTIONS STA. 47+00 TO STA. 51+20

SEEDING  
 FND 92  
 WIRTH TD  
 ADACHE ASSOCIATES, INC.  
 CALC. BY W.J.D. DATE 8/25/69  
 CHD. BY M.C.G. DATE 8/25/69

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

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 ERI 2-18.38



END AREA	VOLUME	
	CUT	FILL
100	663	376
509	2685	1358
175	781	379
147	3972	1463
89	-	94
56	-	-
0	-	-
0	1364	411
0	-	4219
0	-	1800
0	914	561
0	1534	-
0	-	6178
0	-	2119
0	1802	583
0	-	4920
0	-	1554
0	1519	466

S.R. 61 CROSS SECTIONS STA. 52+00 TO STA. 56+00





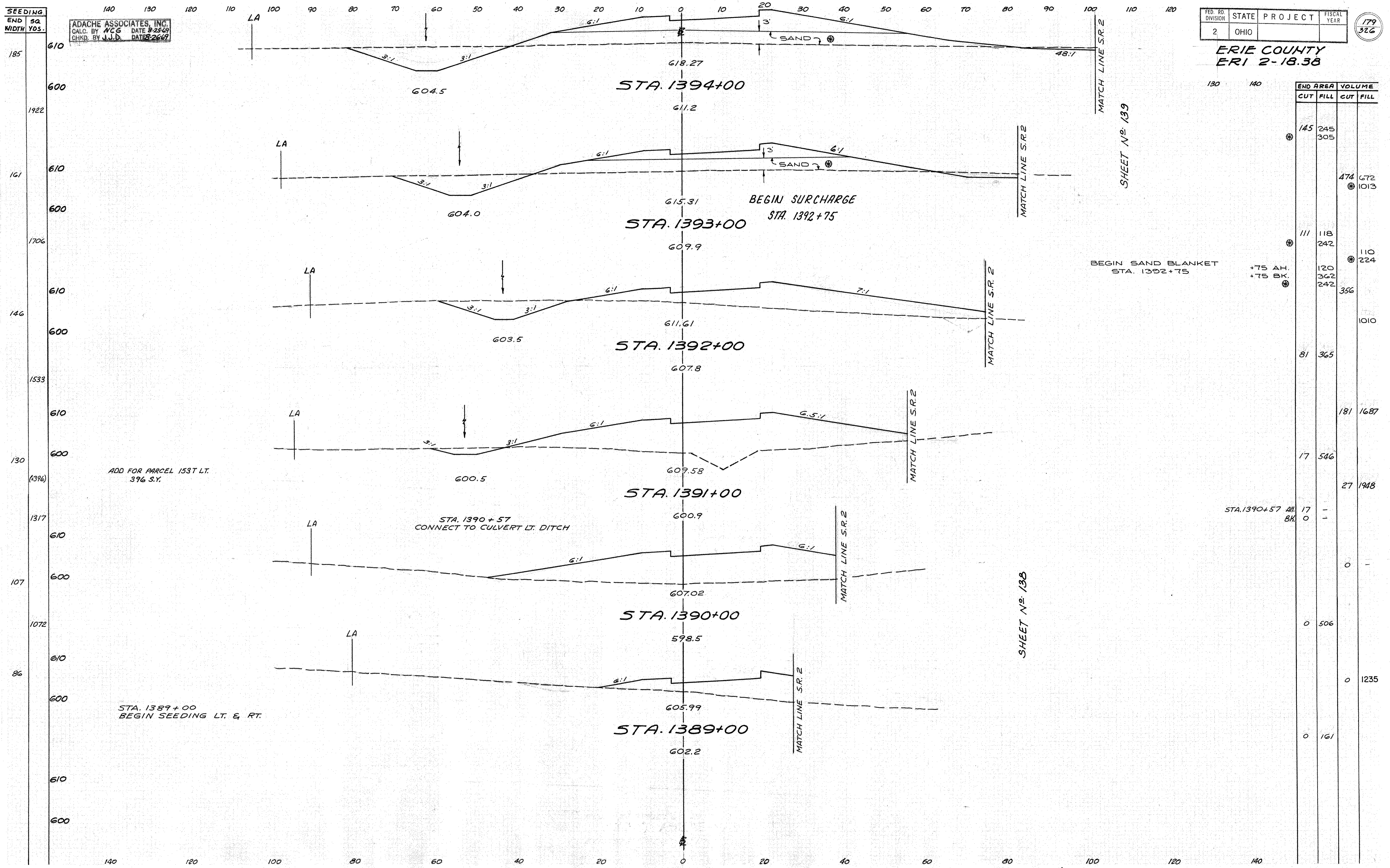
SEEDING	
END	50
WIDTH	YDS.

ADACHE ASSOCIATES, INC.  
 CALC. BY W.C.G. DATE 8-25-69  
 CHKD. BY J.J.D. DATE 8-26-69

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
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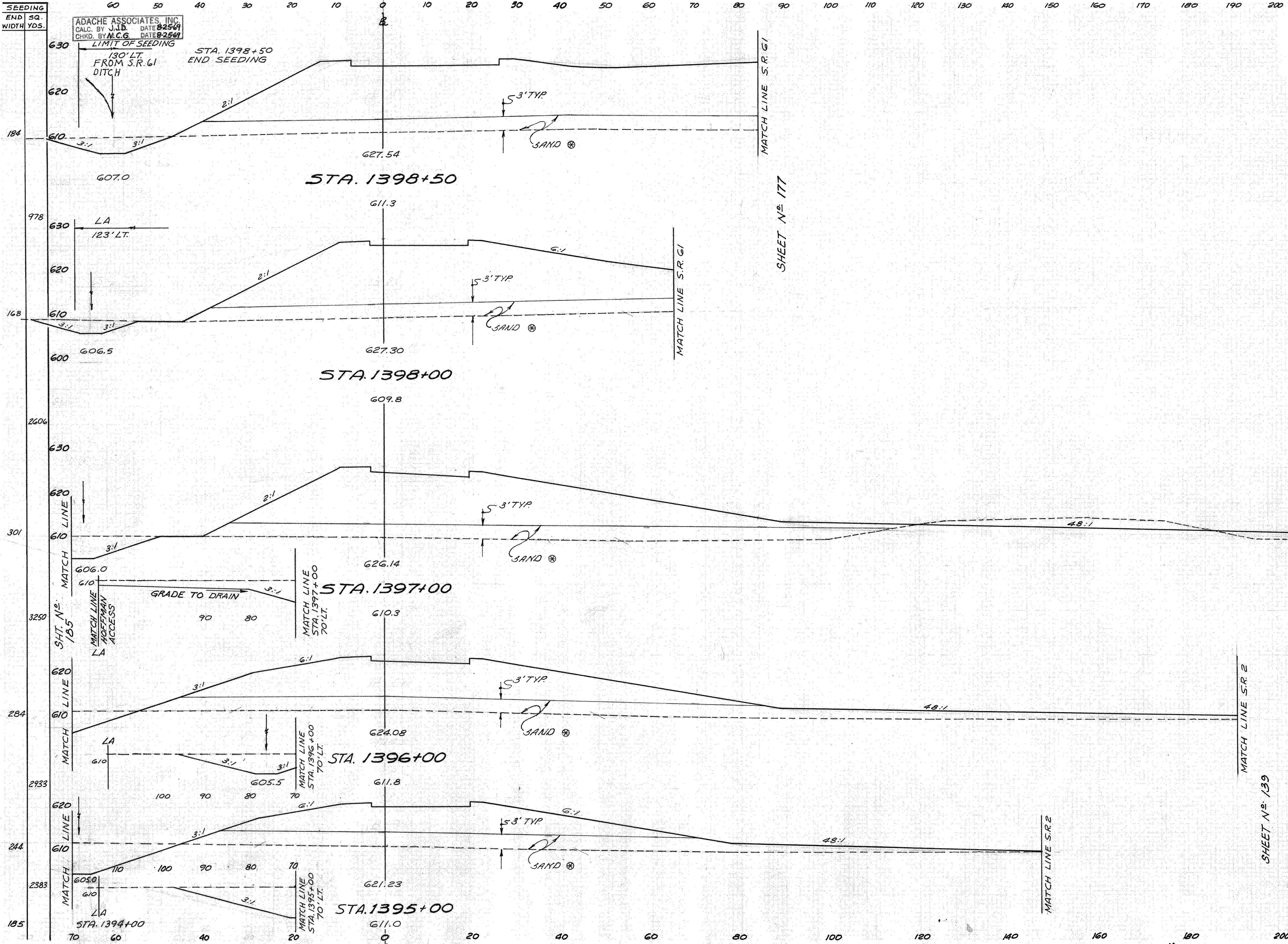


SHEET NO. 139

SHEET NO. 138

END	AREA		VOLUME		
	CUT	FILL	CUT	FILL	
185	145	245			
1922		305			
161			474	672	
1706			1013		
146	111	118			
1533		242			
130			110	224	
(1396)		120			
1317		362			
107		242	356		
1072				1010	
86	81	365			
				181	1687
	17	546			
				27	1948
				17	
				0	
				0	
				0	1235
				0	161

CROSS SECTIONS RAMP #10 STA. 1389+00 TO STA. 1394+00



FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
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END STA.	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
56	1329	383		
94			2173	651
45	1020	320		
648			3759	1365
305	1010	417		
770			3374	1572
111	812	432		
580			2480	1472
202	527	363		
643			1430	1237
145	245	305		

CROSS SECTIONS RAMP #10 STA. 1395+00 TO STA. 1398+50

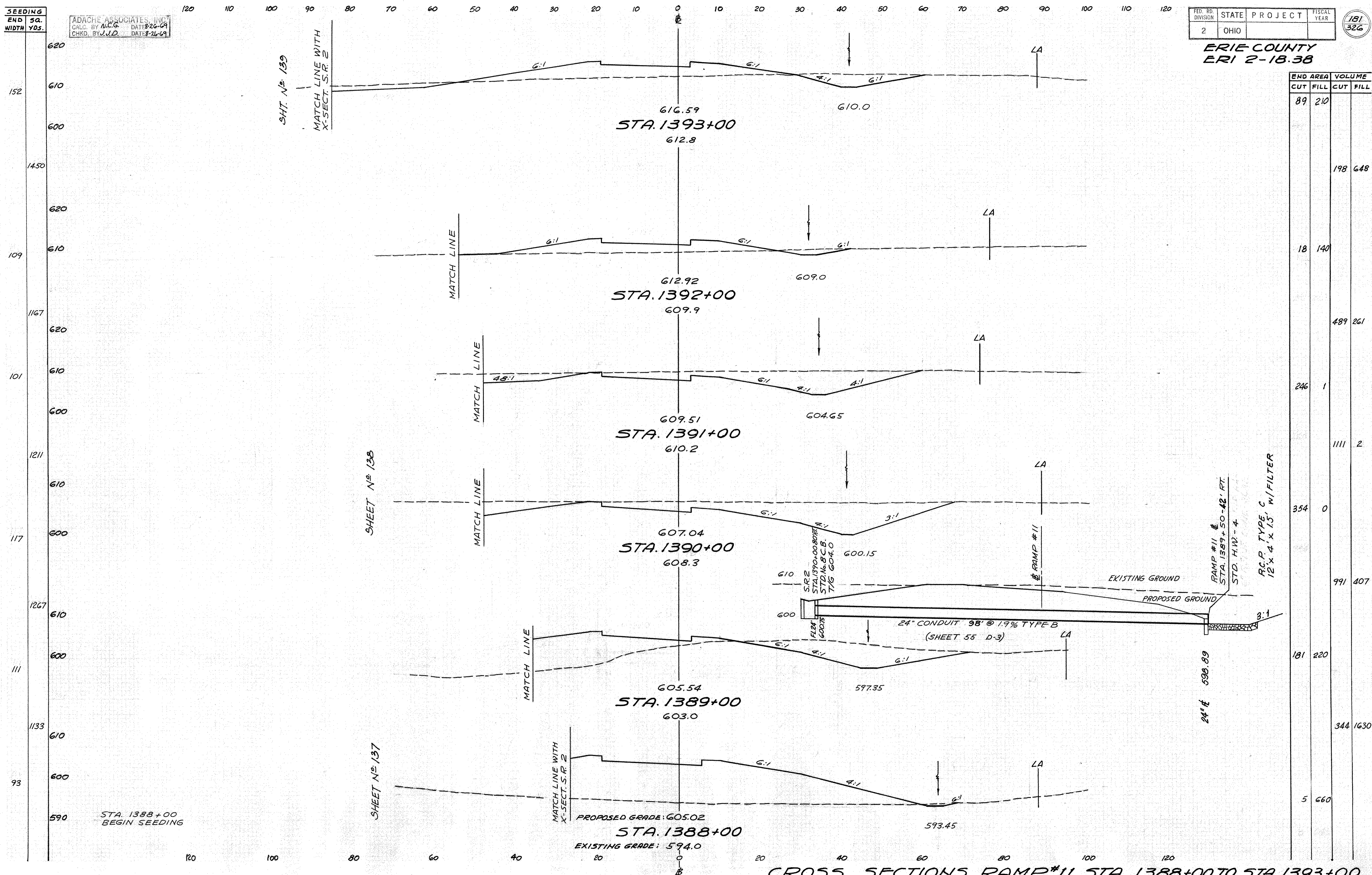
SEEDING  
END 50.  
WIDTH YDS.

ADACHE ASSOCIATES, INC.  
CALC. BY N.C.G. DATE: 8-26-69  
CHKD. BY J.J.D. DATE: 8-26-69

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
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STA. 1388+00  
BEGIN SEEDING

CROSS SECTIONS RAMP #11 STA. 1388+00 TO STA. 1393+00

SEEDING  
END 5A  
WIDTH YDS.

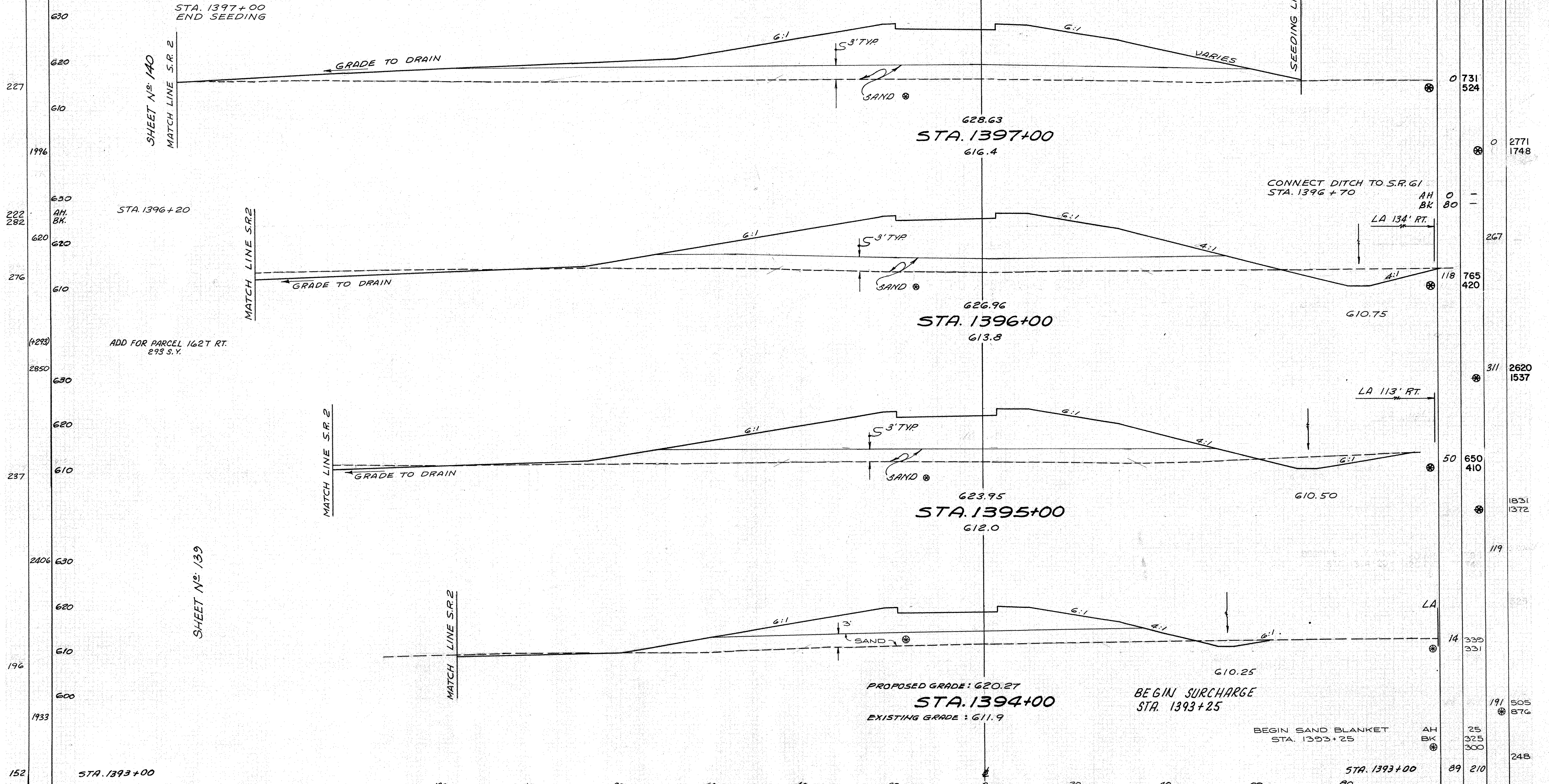
180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

182  
32C

**ERIE COUNTY  
ERI 2-18.38**

ADACHE ASSOCIATES, INC.  
CALC. BY: N.C.G. DATE: 8-29-69  
CHKD. BY: J.J.D. DATE: 8-26-69



END AREA	VOLUME	
	CUT	FILL
731	0	524
2771	0	1748
80	0	80
118	267	765
118	420	420
311	2620	1537
50	650	410
50	1831	1372
119		
14	339	331
191	505	876
25	325	300
89	210	248

**CROSS SECTIONS RAMP #11 STA. 1394+00 TO STA. 1397+00**

SHEET N° 140  
MATCH LINE S.R. 2

MATCH LINE S.R. 2

MATCH LINE S.R. 2

MATCH LINE S.R. 2

SHEET N° 139

STA. 1397+00  
END SEEDING

STA. 1396+20

ADD FOR PARCEL 162 T RT.  
293 S. Y.

CONNECT DITCH TO S.R. 61  
STA. 1396+70

LA 134' RT.

LA 113' RT.

PROPOSED GRADE: 620.27

STA. 1394+00

EXISTING GRADE: 611.9

BEGIN SURCHARGE  
STA. 1393+25

BEGIN SAND BLANKET  
STA. 1393+25

STA. 1393+00

SEEDING  
END SQ.  
WIDTH YDS.

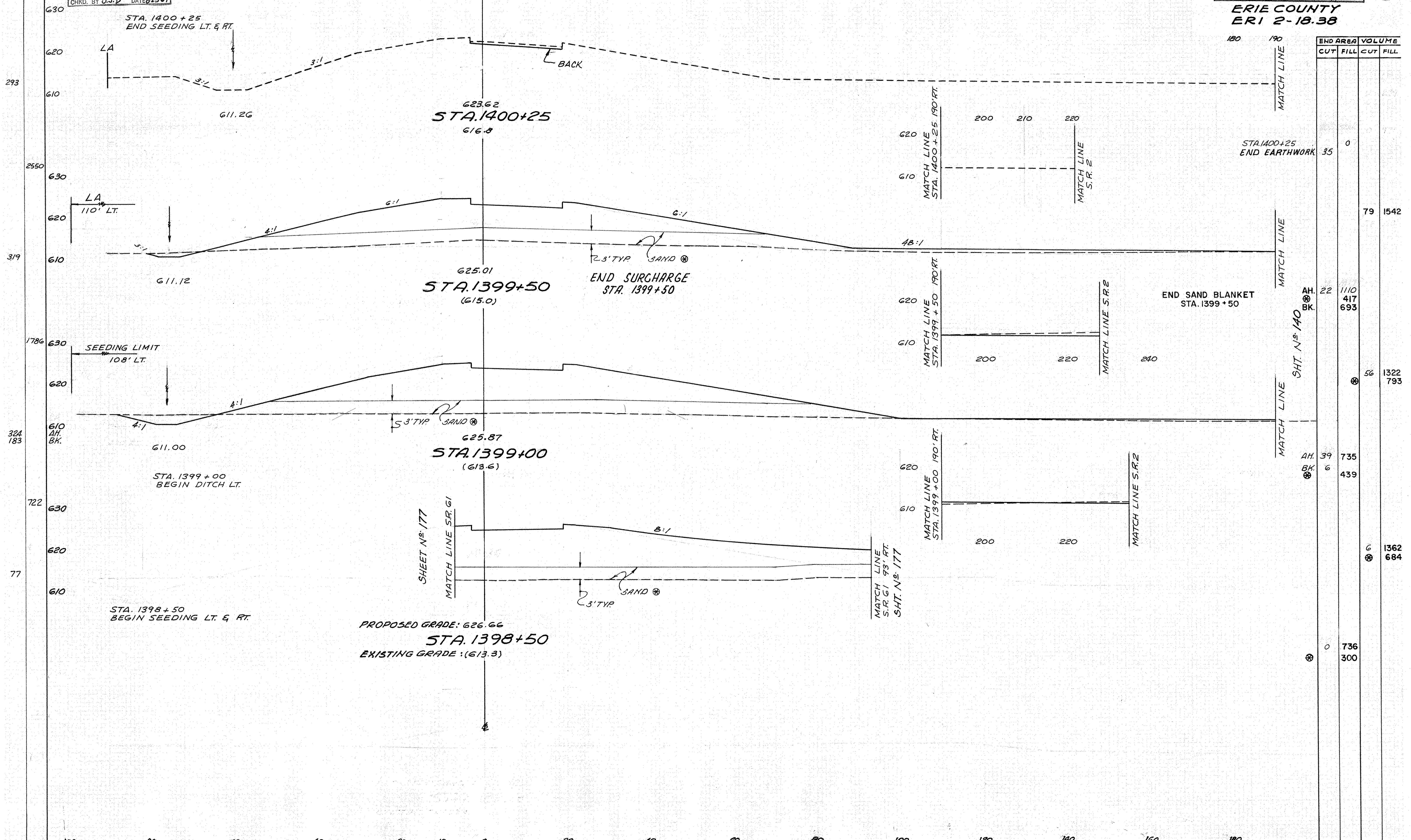
90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

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ADACHE ASSOCIATES, INC.  
CALC. BY N.C.G. DATE 8-25-69  
CHKD. BY J.J.D. DATE 8-25-69

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END AREA	VOLUME	
	CUT	FILL
35	0	
79	1542	
22	1110	417
22	693	
56	1322	793
39	735	
6	439	
6	1362	684
0	736	
0	300	

CROSS SECTIONS RAMP C STA. 1398+50 TO STA. 1400+25

SEEDING  
END SQ  
WIDTH YDS.

190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

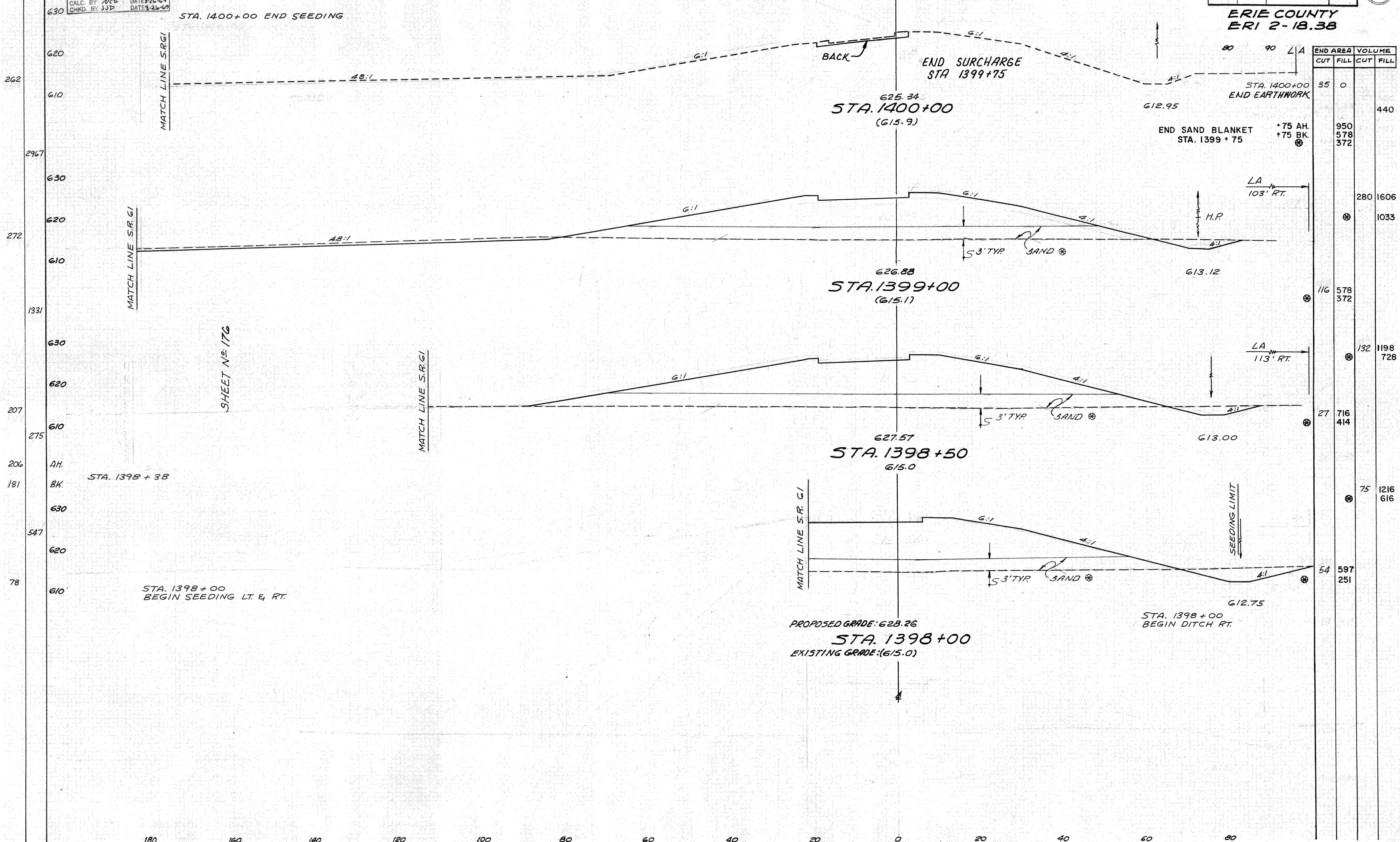
ADACHE ASSOCIATES, INC.  
CALC. BY: NCG DATE: 8-26-69  
CHKD. BY: JJP DATE: 8-26-69

STA. 1400+90  
END EARTHWORK

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
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END AREA	VOLUME	
	CUT	FILL
35	0	440
950	578	372
280	1606	1033
116	578	372
132	1198	728
27	716	414
75	1216	616
54	597	251

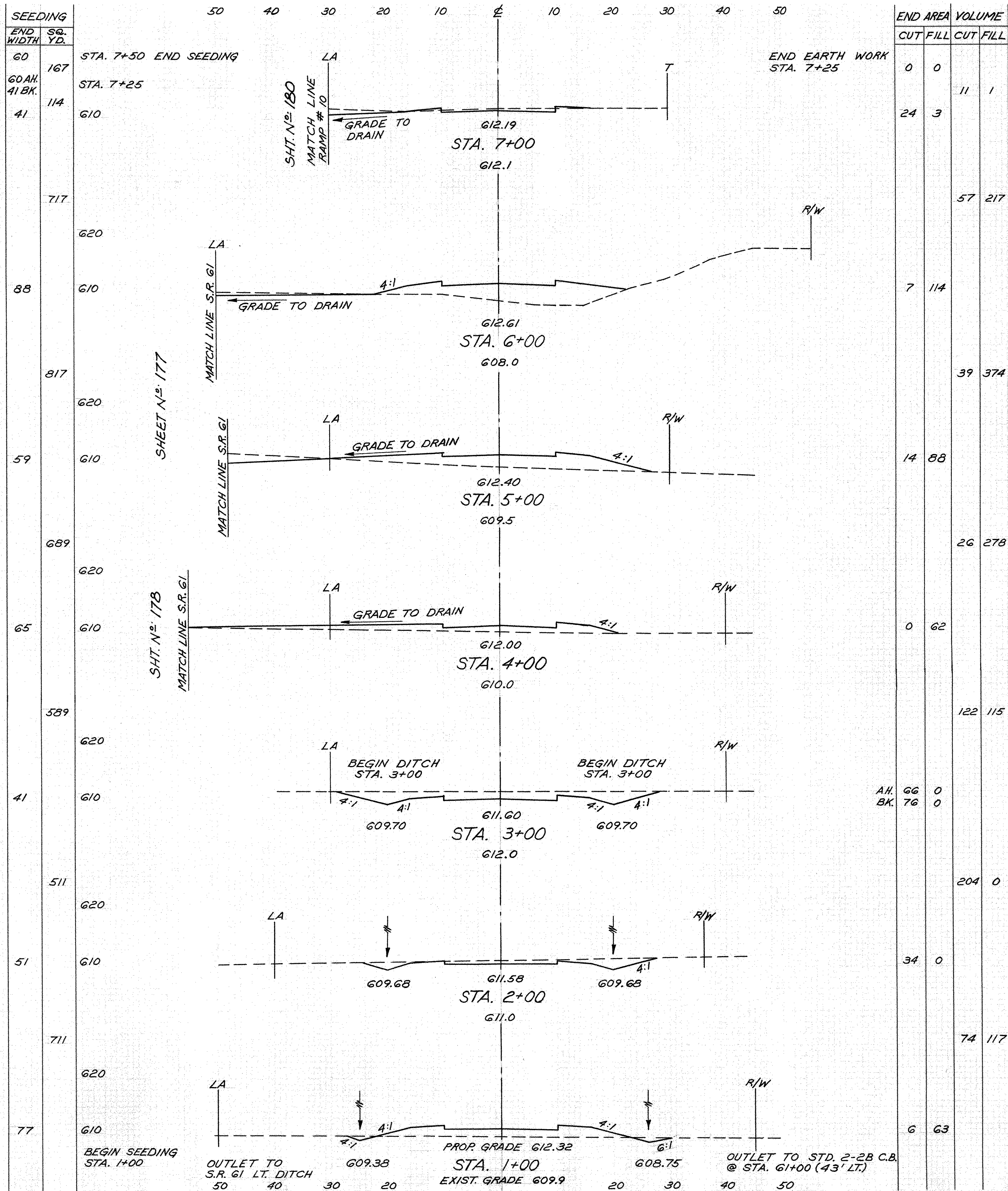
CROSS SECTIONS RAMP # D STA. 1398+00 TO STA. 1400+00

ADACHE ASSOCIATES, INC.  
 CALC. BY R.J.Z. DATE 3-3-70  
 CHKD. BY H.G. DATE 3-6-70

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

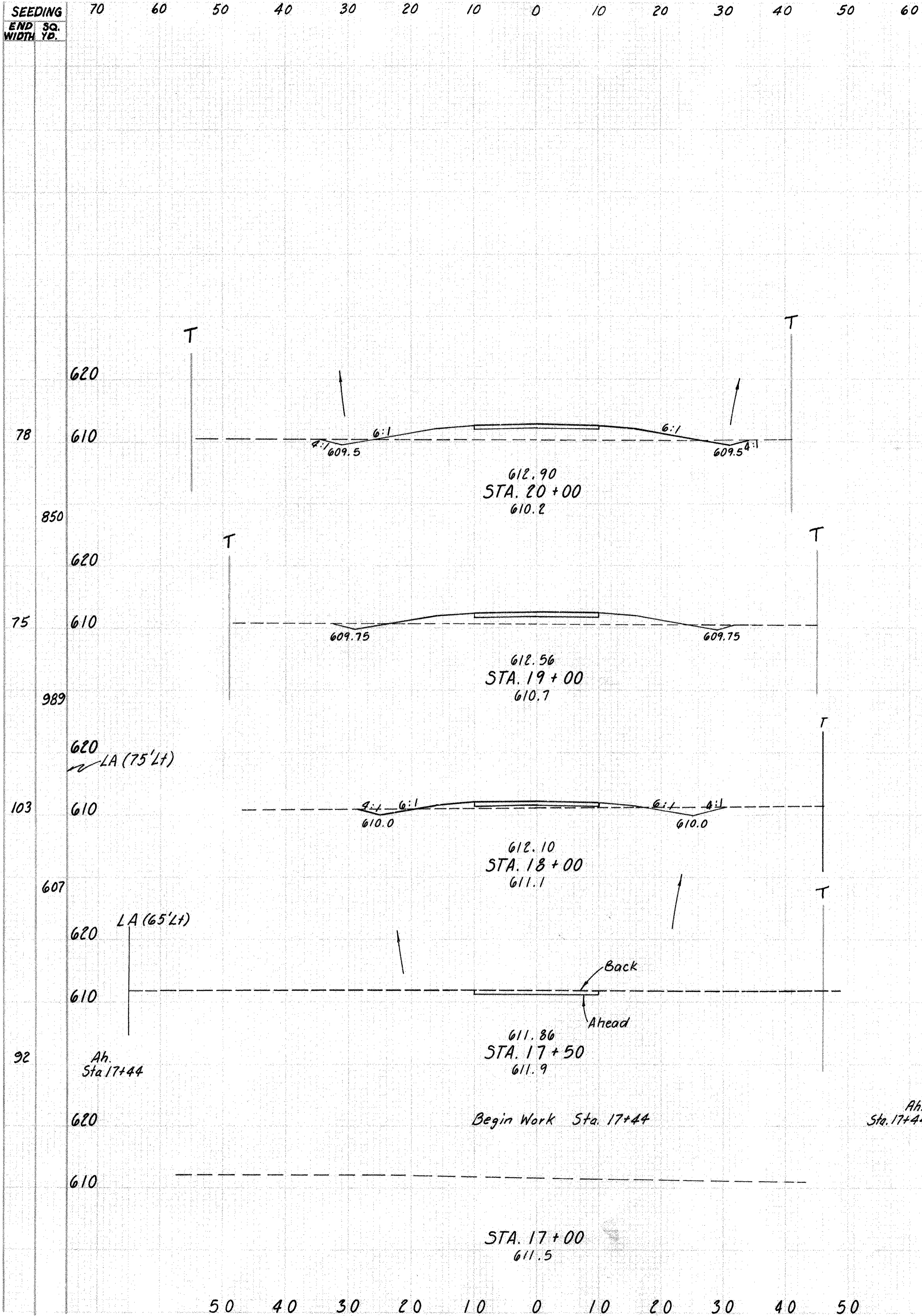
185  
326

ERIE COUNTY  
 ERI-2-18.38

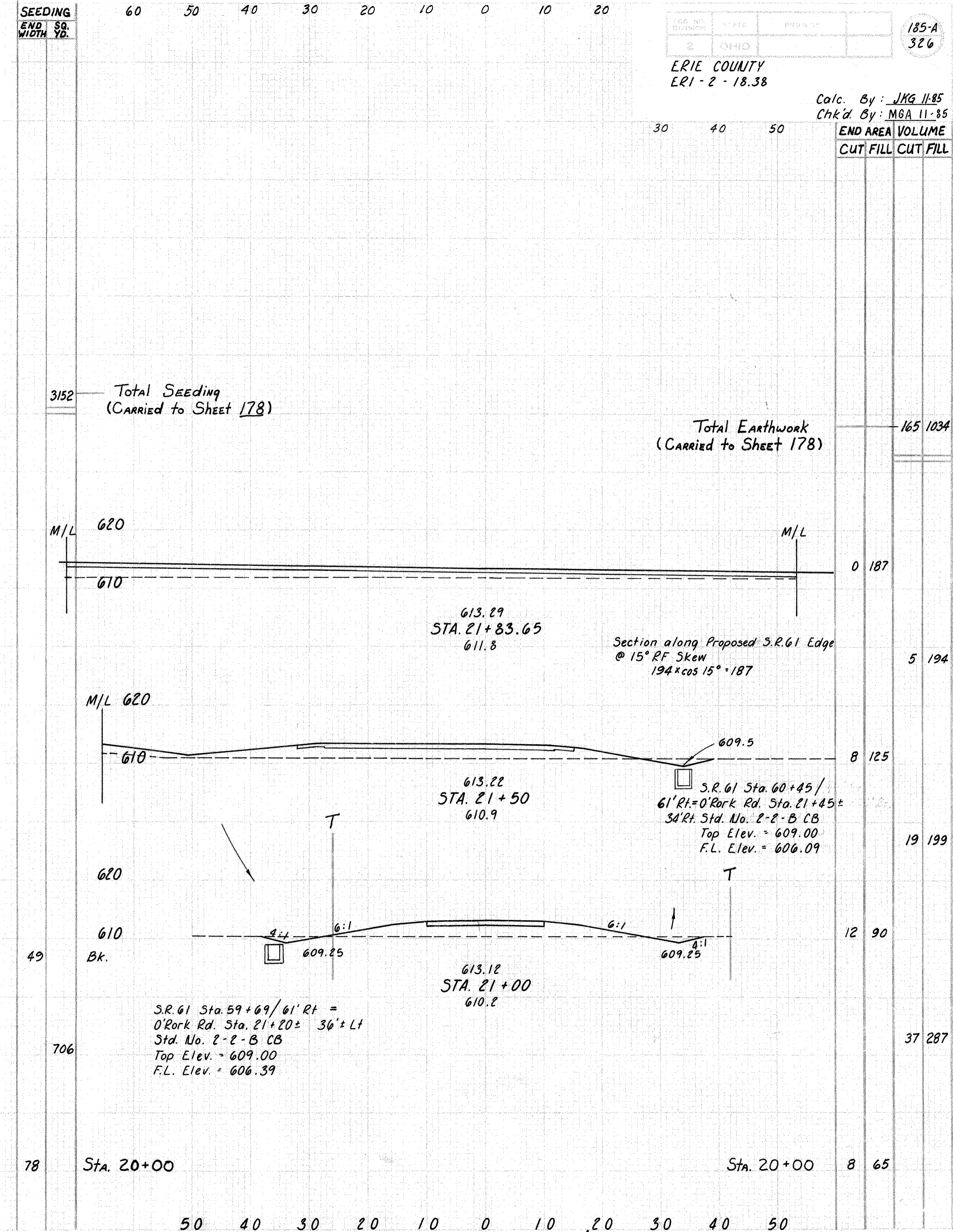


END AREA	VOLUME	
	CUT	FILL
0	0	11
24	3	1
		57
7	114	
		39
14	88	
		26
0	62	
		122
AH. 66	0	
BK. 76	0	
		204
34	0	
		74
6	63	

HOFFMAN ACCESS RD. CROSS SECTIONS STA. 1+00 TO STA. 7+00



END AREA CUT FILL	VOLUME CUT FILL
8 65	28 217
7 52	43 122
16 14	33 15
16 0	16 0
8 65	37 287



END AREA CUT FILL	VOLUME CUT FILL
8 65	28 217
7 52	43 122
16 14	33 15
16 0	16 0
8 65	37 287
8 65	37 287
0 187	5 194
8 125	12 90
8 65	37 287

185-A  
 326  
 ERIE COUNTY  
 ERI - 2 - 18.38  
 Calc. By: JKG 11-85  
 Chk'd By: MGA 11-85  
 30 40 50  
 END AREA VOLUME  
 CUT FILL CUT FILL

CROSS SECTIONS O'RORK ACCESS ROAD

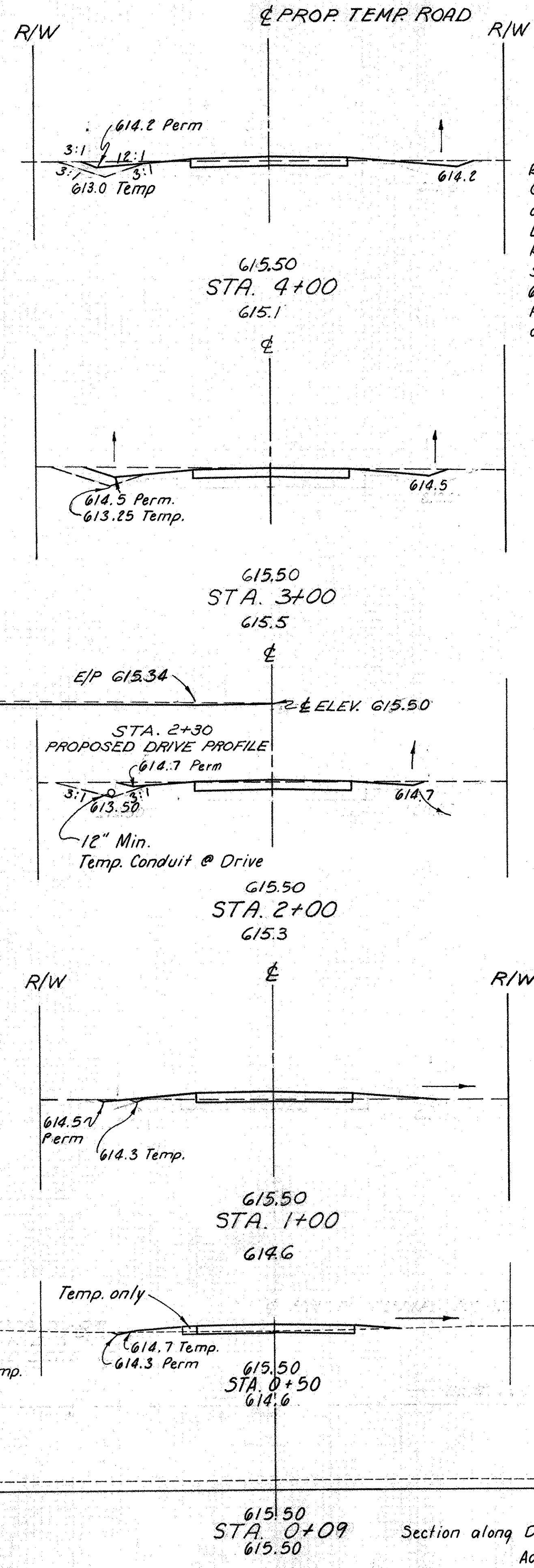




SEEDING  
END 50.  
WIDTH YDS.

50 40 30 20 10 0 10 20 30 40 50

ADACHE ASSOCIATES, INC.  
CALC. BY J.J.D. 8-29-69  
CHKD. BY R.J.Z. 8-29-69



NOTE:  
TEMPORARY ROAD TO REMAIN AS CARVER ACCESS ROAD FROM STA. 0+09 TO 4+40.80  
Remove Temporary Conduit @ Drive Lt. Sta. 2+30 and Regrade Ditch on Left Side of Temporary Road as shown. All work shall be included under Item 615 Temporary Roads except Permanent Drive Materials at Sta. 2+30 Lt. and Seeding

203 EARTHWORK

STATION	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
Sta. 4+41 Bk	0	0	3	0
Sta. 4+00	4	0	172	0
Sta. 3+00	14	0	53	0
Add. for Drive			33	0
Sta. 2+00	4	0	46	0
Sta. 1+00	1	0	9	0
Sta. 0+50	1	0	74	15
Sta. 0+09	0	0	7	8
Total 203 Earthwork (Carried to Sht. 185-B)			127	0

MEET EXIST. ELEV. 616.18, 80' LT.

ADD FOR PARCEL 165T LT. 250 S.Y.

Additional Darrow Rd. Intersection Seeding  
Remove this Portion of Temp. Rd., Retain Remainder for Carver Access Rd. (See Sheet 59)

Section along Darrow Rd. Edge of Pav't.  
Additional Temporary Earthwork for Darrow Rd. (Carried to Sht. 185-B)

STATION	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
Sta. 4+00	27	2	161	4
Sta. 3+00	60	0	60	0
Sta. 2+00	60	0	172	0
Sta. 1+00	60	0	53	0
Sta. 0+50	60	0	74	15
Sta. 0+09	60	0	7	8
Total	27	2	13	11
Additional	52	4	52	4

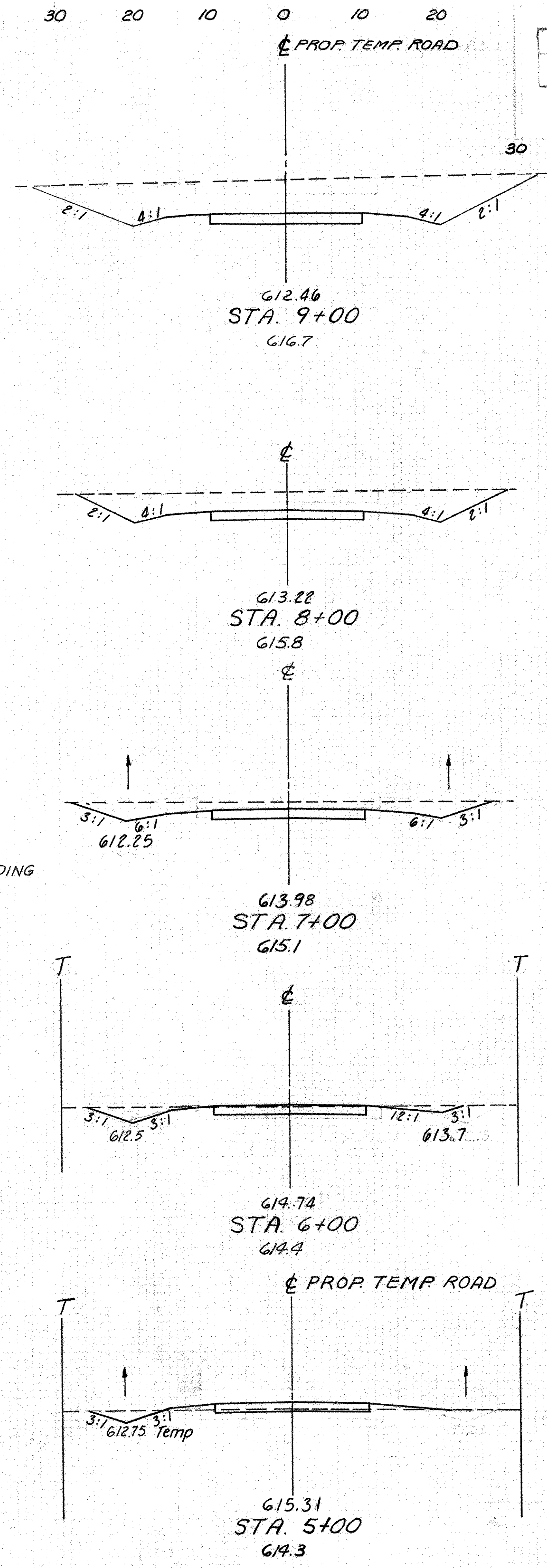
STATION	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
Sta. 9+00	295	0	295	0
Sta. 8+00	170	0	170	0
Sta. 7+00	95	0	95	0
Sta. 6+00	41	0	41	0
Sta. 5+00	15	8	15	8
Sta. 4+41	78	19	78	19
Sta. 4+00	27	2	27	2

CROSS SECTIONS TEMPORARY ROAD STA. 0+09 TO STA. 9+00

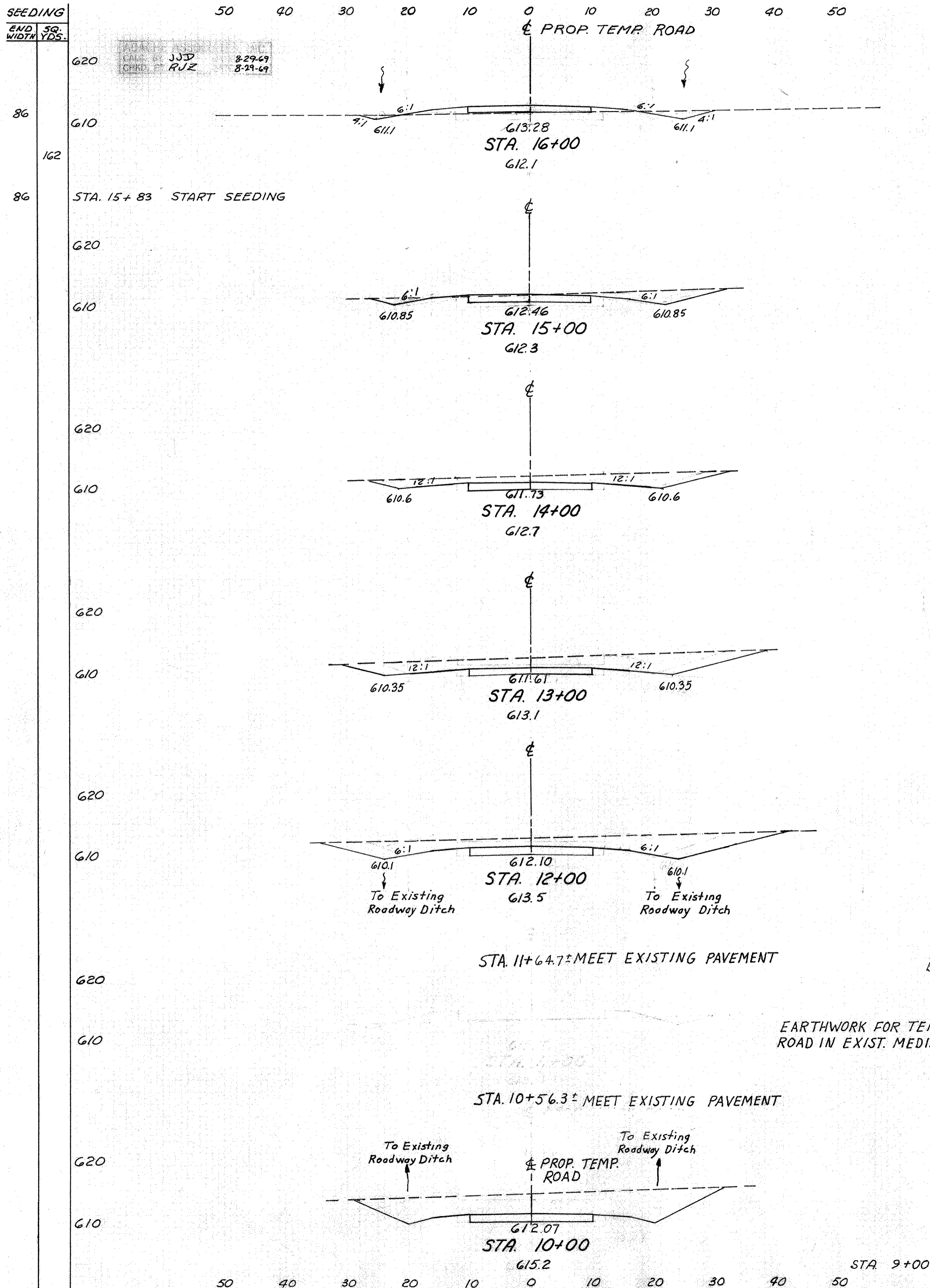
FED. RD. DIVISION STATE PROJECT FISCAL YEAR  
? OHIO 136 326

ERIE COUNTY  
ERI 2-18.38

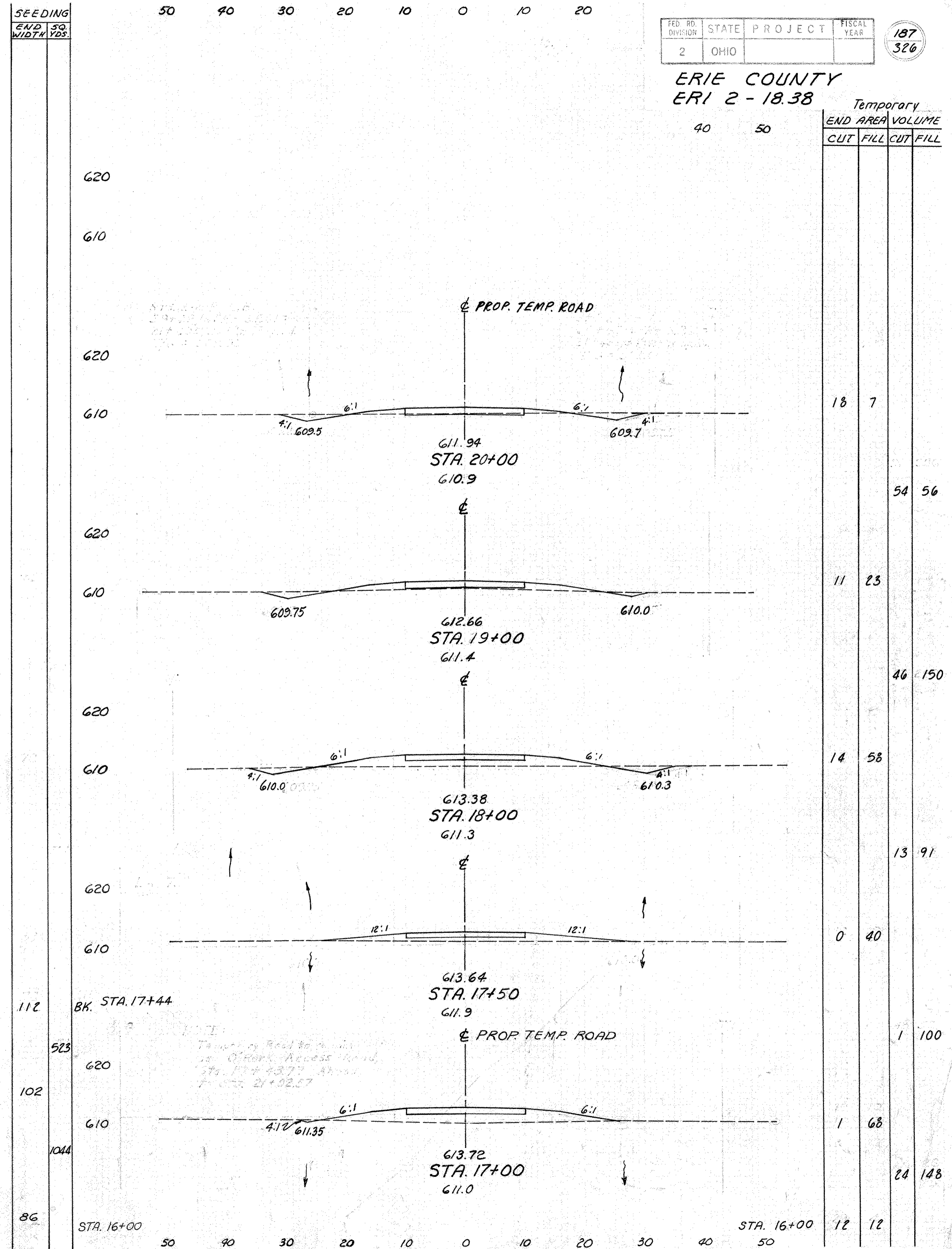
Temporary



STATION	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
Sta. 9+00	295	0	295	0
Sta. 8+00	170	0	170	0
Sta. 7+00	95	0	95	0
Sta. 6+00	41	0	41	0
Sta. 5+00	15	8	15	8
Sta. 4+41	78	19	78	19
Sta. 4+00	27	2	27	2



Temporary		Temporary	
END	AREA	CUT	FILL
WIDTH	VOLUME		
YDS.			
12	12		
126	24		
56	1		
261	2		
85	0		
426	0		
145	0		
563	0		
159	0		
137	0		
51	0		
0	0		
0	0		
0	0		
68	0		
300	0		
220	0		
954	0		
295	0		



CROSS SECTIONS TEMPORARY ROAD STA. 10+00 TO STA. 20+00

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

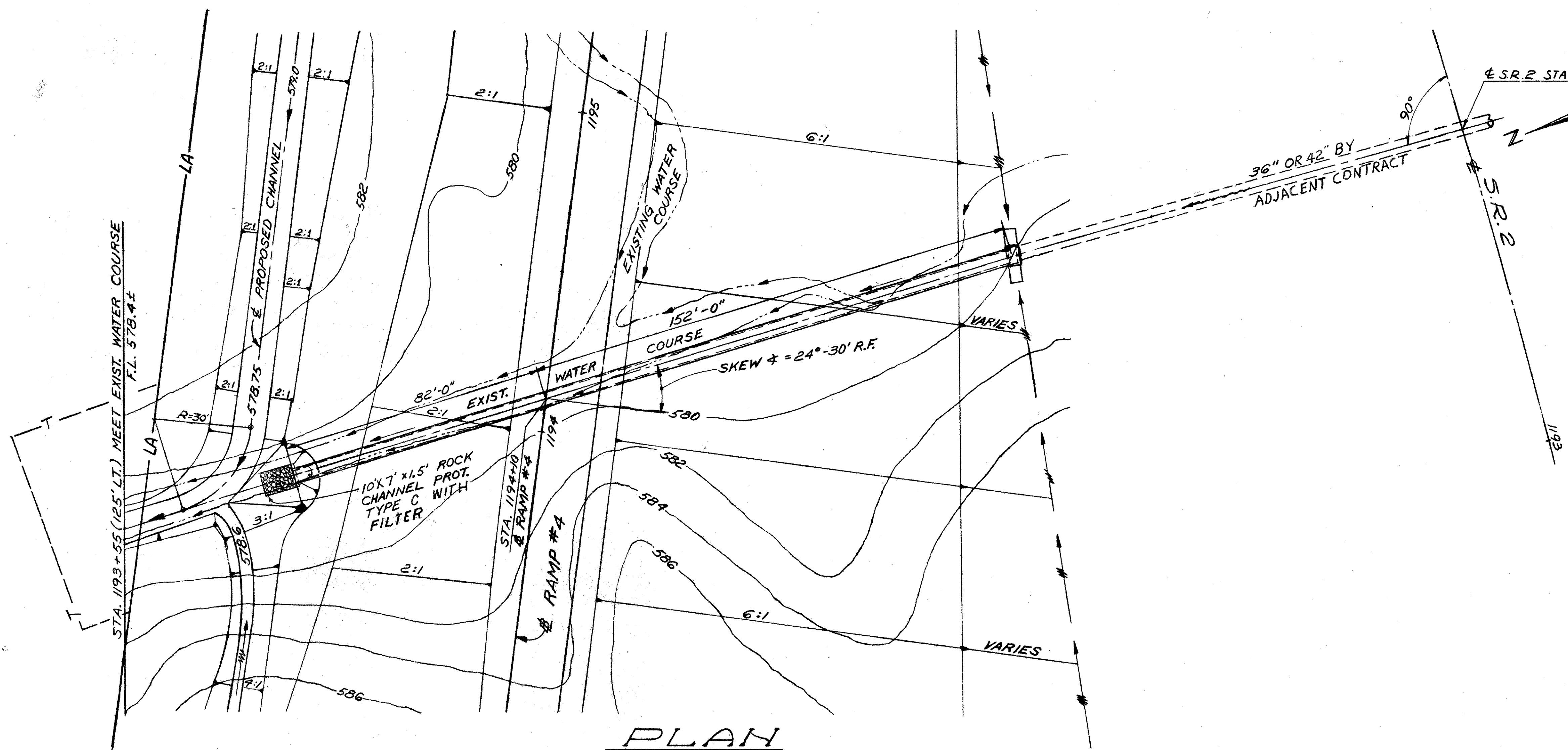
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Temporary		Temporary	
END	AREA	CUT	FILL
WIDTH	VOLUME		
YDS.			
18	7		
54	56		
11	23		
46	150		
14	58		
13	91		
0	40		
1	100		
1	68		
24	148		
12	12		



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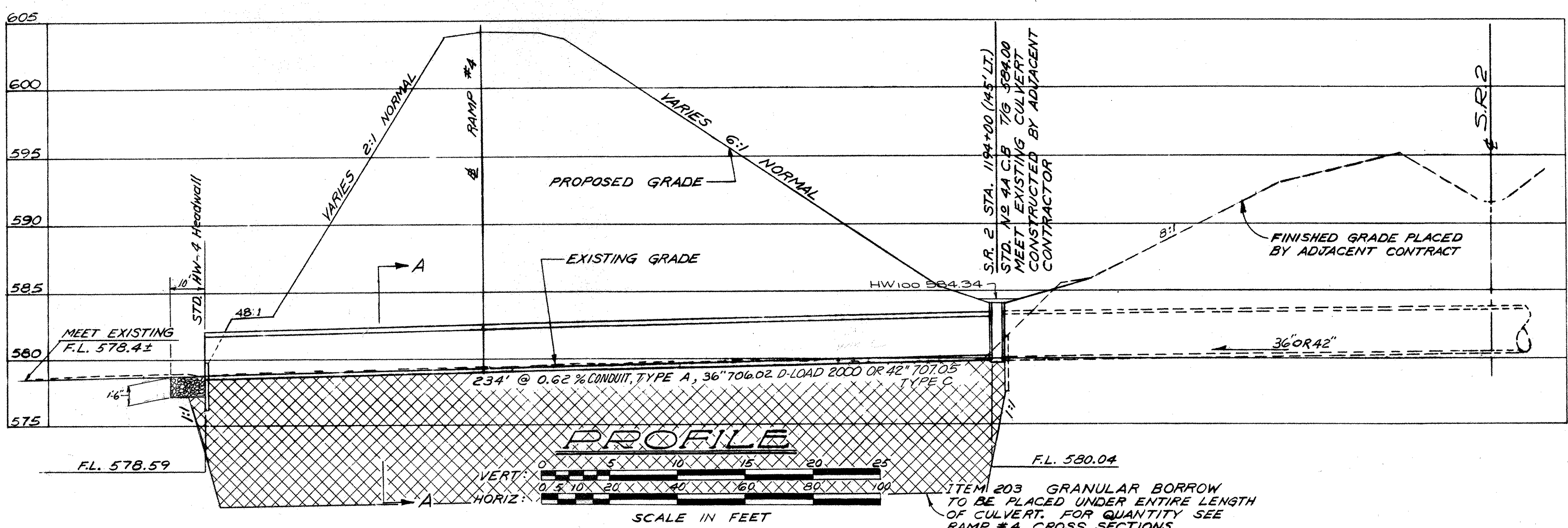
**PLAN**  
SCALE IN FEET

**ESTIMATED QUANTITIES**

601	ROCK CHANNEL PROTECTION, TYPE C WITH FILTER	3.9 C.Y.
602	CONCRETE MASONRY	0.76 C.Y.
603	CONDUIT TYPE A, 36" 706.02 D-LOAD 2000 OR 42" 707.05 TYPE C.	234 L.F.
604	STD. NO. 4A CATCH BASIN	1 EA.

**NOTES:**

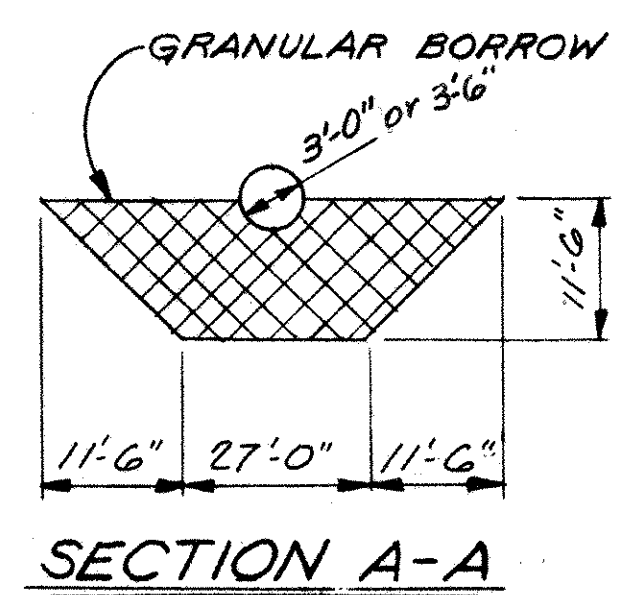
- PROPOSED CHANNEL EXCAVATION QUANTITIES HAVE BEEN INCLUDED WITH RAMP #4 EARTHWORK
- FOR MAINLINE CULVERT DETAILS SEE ADJACENT PROJECT ERI-2-16.13



**PROFILE**  
SCALE IN FEET

DRAINAGE AREA A = 30 ACRES  
DISCHARGE (DESIGN) Q = 56 C.F.S.

BULLETIN 45  
Q50 = 51 C.F.S.  
Q100 = 58 C.F.S.  
HW100 = 584.34



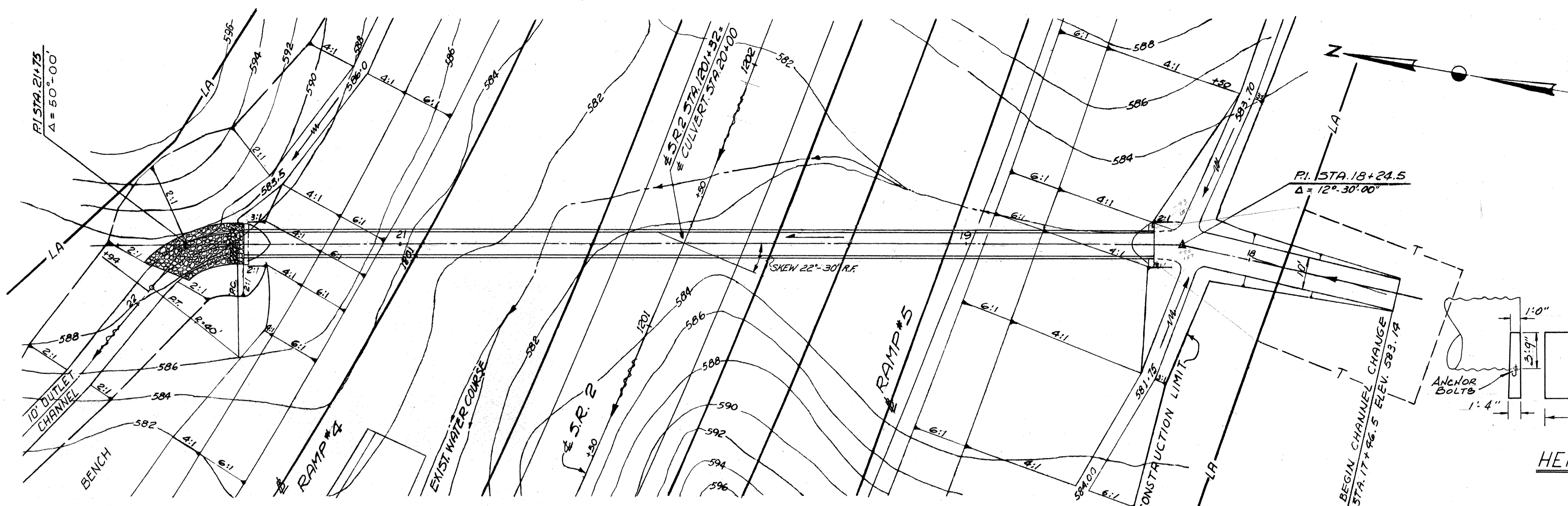
ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

**S.R. 2  
CONTINUATION OF  
CULVERT #9 DETAILS  
STA. 1194+10**

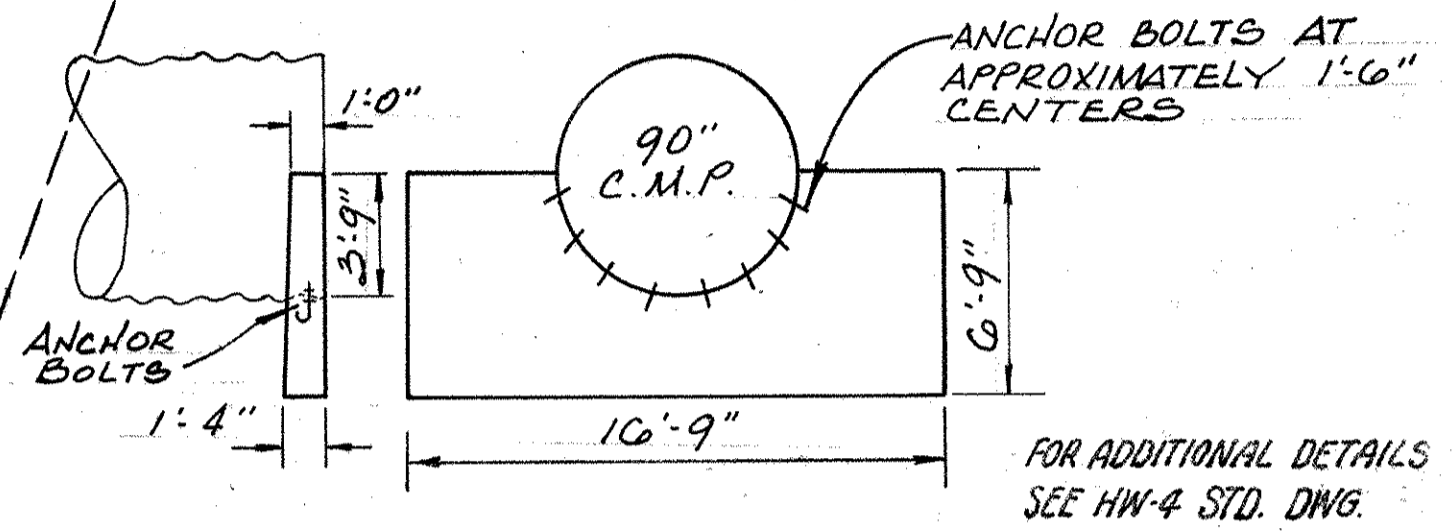
DESIGNED	DRAWN	CHECKED	REVISED	DATE
L.N.	J.D.A.	R.J.Z.	R.E.L.	
6-25-69	7-14-69	2-23-70	8-19-74	

ITEM 203 GRANULAR BORROW TO BE PLACED UNDER ENTIRE LENGTH OF CULVERT. FOR QUANTITY SEE RAMP #4 CROSS SECTIONS

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**PLAN**  
SCALE IN FEET



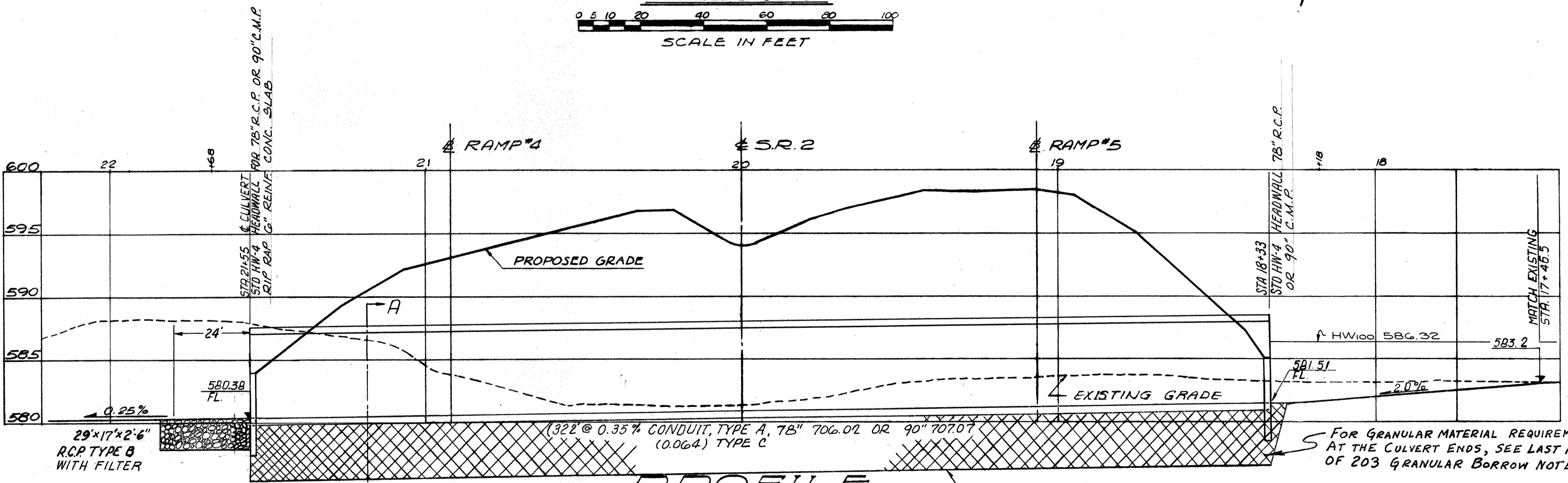
**HEADWALL DETAIL**

DRAINAGE AREA A = 206 ACRE  
DISCHARGE (DESIGN) Q = 260 C.F.S.

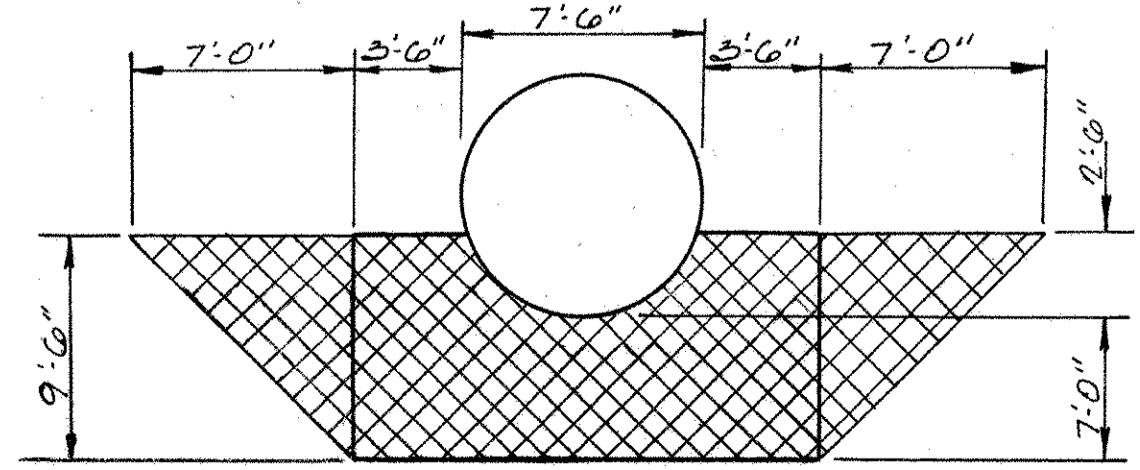
BULLETIN 45  
Q100 = 182 C.F.S.  
Q100 = 206 C.F.S.  
TW100 = 586.32

**ESTIMATED QUANTITIES**

- 203 - EXCAVATION, INCLUDING EMBANKMENT CONSTRUCTION 42.00 C.Y.
- 601 - ROCK CHANNEL PROTECTION TYPE B WITH FILTER 46 C.Y.
- 602 - CONCRETE MASONRY 8.00 C.Y.
- 603 - CONDUIT, TYPE A, 78" 706.02 OR 90" 707.07 OR 90" 707.07 (0.064) TYPE C 322 L.F.



**PROFILE**  
VERT: SCALE IN FEET  
HORIZ: SCALE IN FEET



**SECTION A-A**

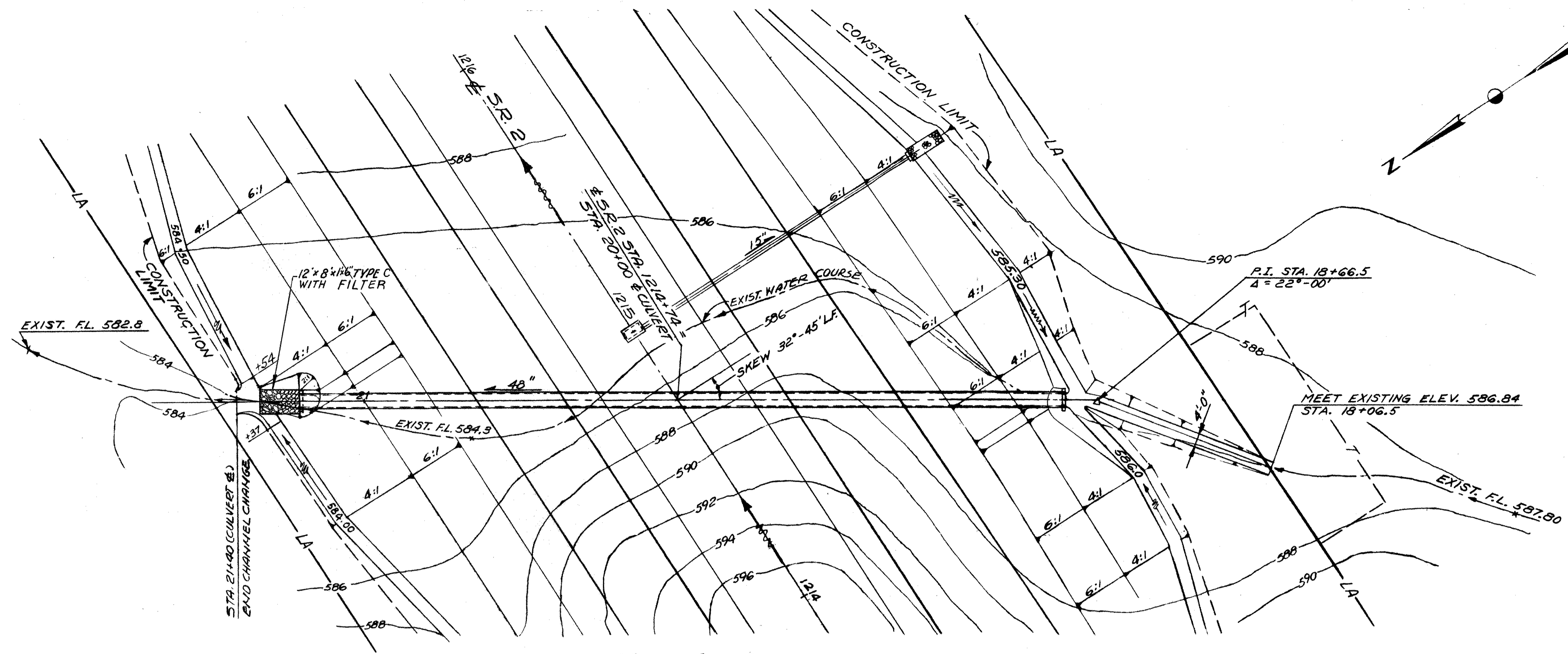
ITEM 203 GRANULAR BORROW TO BE PLACED UNDER ENTIRE LENGTH OF CULVERT FOR QUANTITY SEE S.R.2 CROSS SECTIONS

FOR GRANULAR MATERIAL REQUIREMENTS AT THE CULVERT ENDS, SEE LAST PARAGRAPH OF 203 GRANULAR BORROW NOTE, SHEET 10.

ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

**S.R. 2  
CULVERT #11 DETAILS  
STA. 1201+32**

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
L.N.	J.D.A.	R.J.Z.		
4-11-68	4-27-68	2-24-70		



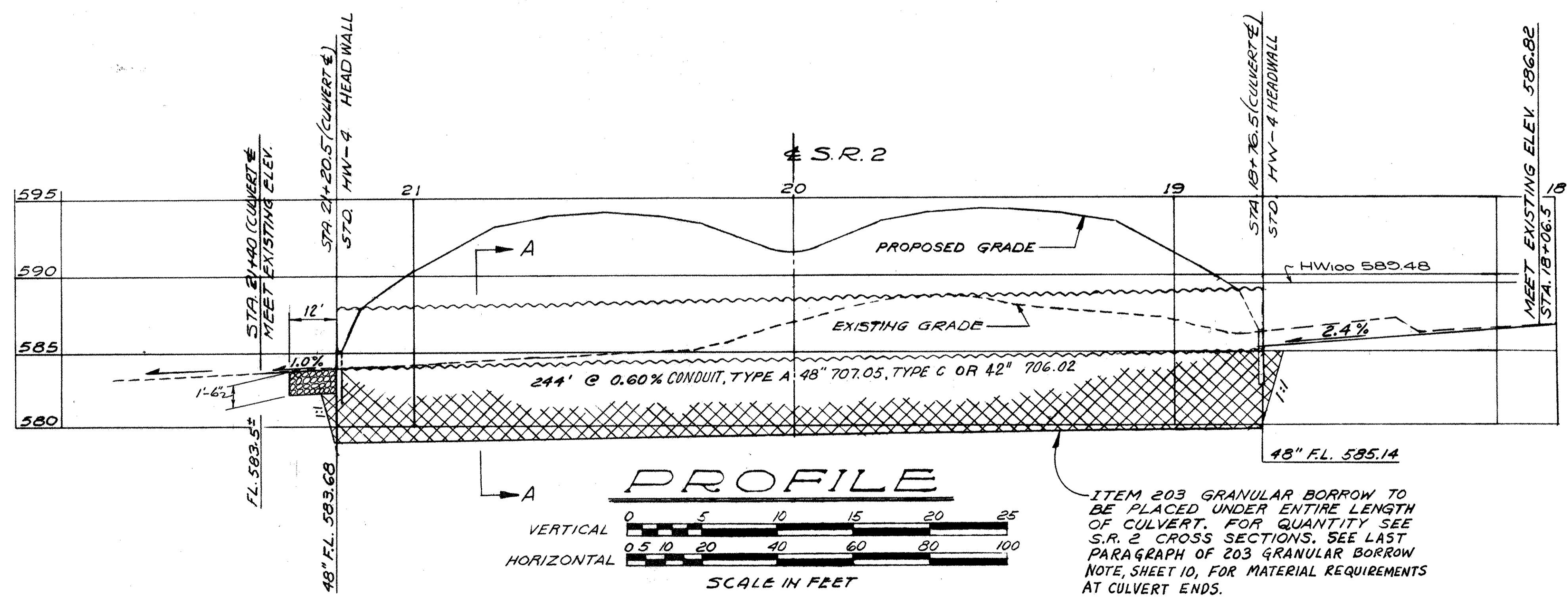
**PLAN**  
SCALE IN FEET  
0 5 10 20 40 60 80 100

DRAINAGE AREA A = 42 ACRES  
DISCHARGE (DESIGN) Q<sub>25</sub> = 85 C.F.S.

BULLETIN 45  
Q<sub>50</sub> = 63 C.F.S.  
Q<sub>100</sub> = 72 C.F.S.  
HW<sub>100</sub> = 589.48

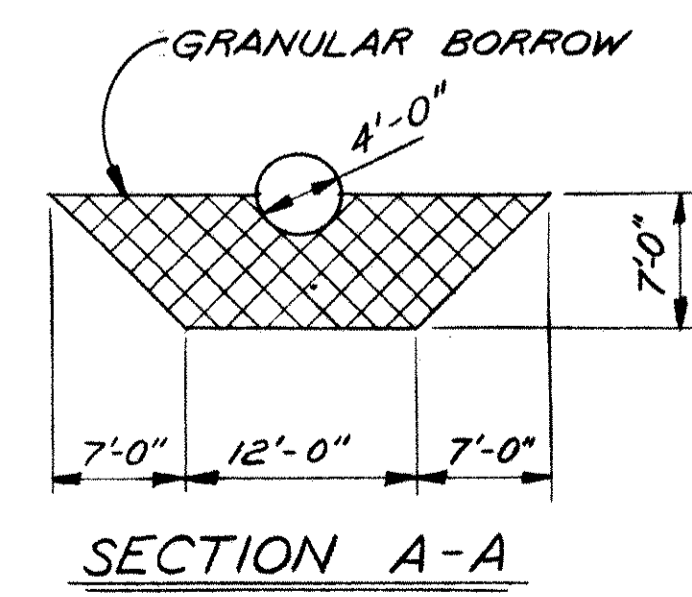
**ESTIMATED QUANTITIES**

- 203 EXCAVATION, INCLUDING EMBANKMENT CONST. 11 C.Y.
- 601 ROCK CHANNEL PROTECTION, TYPE C WITH FILTER 2.3 C.Y.
- 602 CONCRETE MASONRY 2.2 C.Y.
- 603 CONDUIT TYPE A, 48" 707.05, TYPE C OR 42" 706.02 244 L.F.



**PROFILE**  
VERTICAL 0 5 10 15 20 25  
HORIZONTAL 0 5 10 20 40 60 80 100  
SCALE IN FEET

ITEM 203 GRANULAR BORROW TO BE PLACED UNDER ENTIRE LENGTH OF CULVERT. FOR QUANTITY SEE S.R. 2 CROSS SECTIONS. SEE LAST PARAGRAPH OF 203 GRANULAR BORROW NOTE, SHEET 10, FOR MATERIAL REQUIREMENTS AT CULVERT ENDS.



ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

**S.R. 2  
CULVERT #12 DETAILS  
STA. 1214+74**

DESIGNED	DRAWN	CHECKED	REVISED	DATE
L.N.	J.D.A.	R.J.Z.	R.E.L.	
4-16-68	5-12-68	3-2-70	8-19-74	

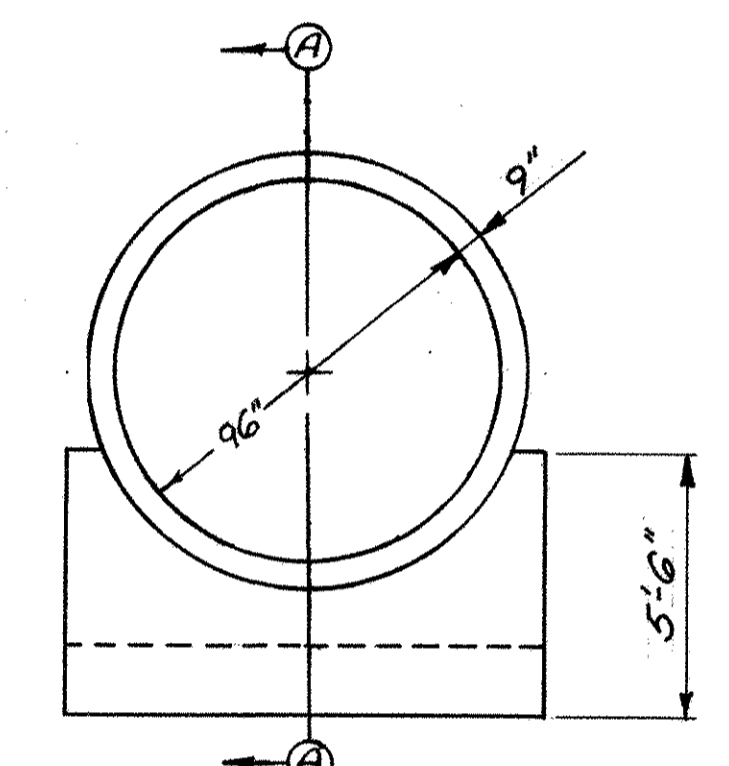
ERIE COUNTY  
ERI 2-18.38

ESTIMATED QUANTITIES

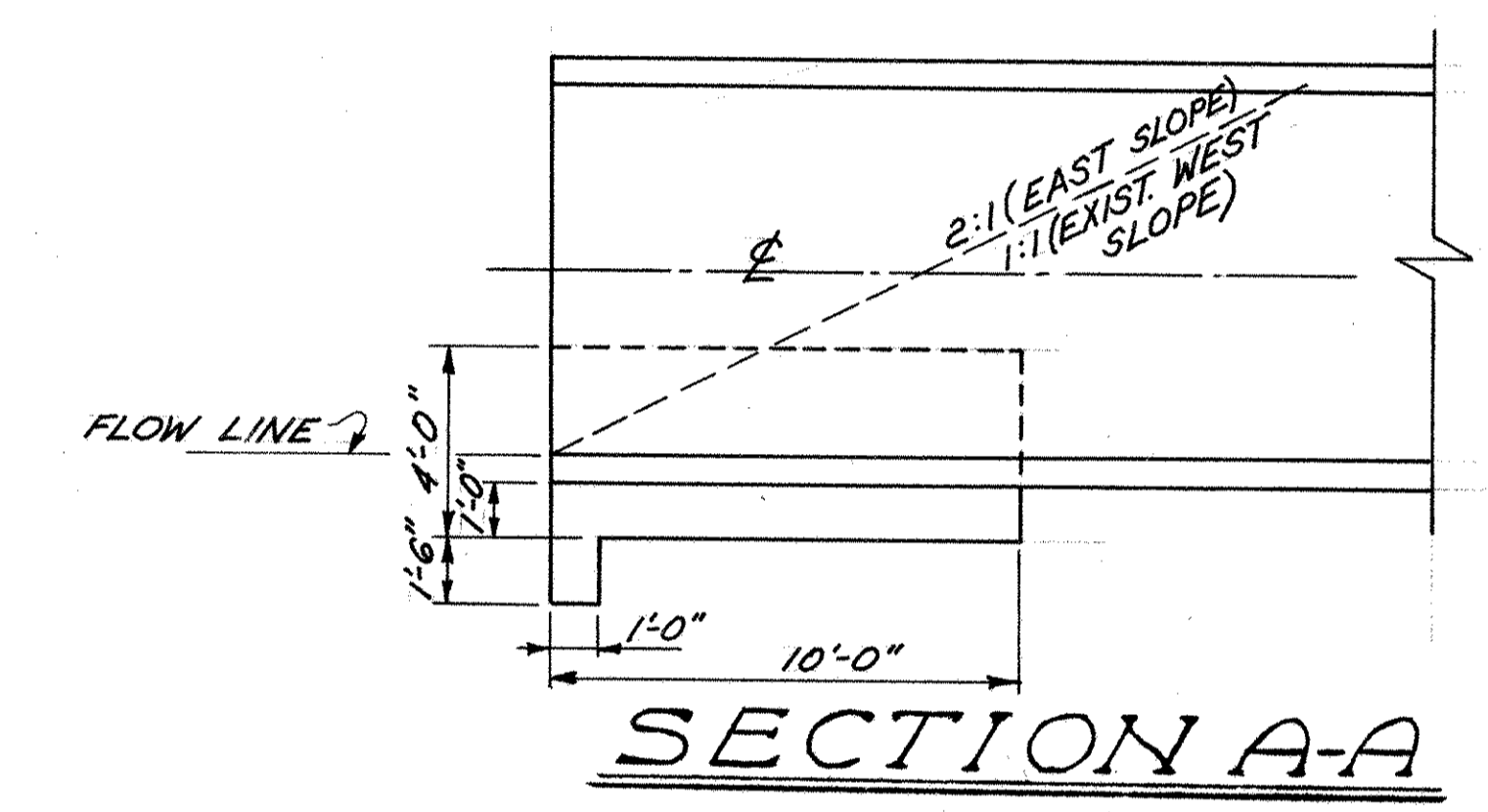
203 - EXCAVATION, INCLUDING EMBANKMENT CONSTRUCTION	5 C.Y.
602 - CONCRETE MASONRY	17.02 C.Y.
603 - 96" CONDUIT TYPE "A" 706.02, 3000 D-LOAD UNDER RAILROAD	86 L.F.
96" CONDUIT TYPE "A" 706.02, 1500 D-LOAD	86 L.F.

NOTE: FOR INFORMATION PERTINENT TO THE INSTALLATION OF THIS CULVERT SEE NOTES IN PROPOSAL

CONCRETE CRADLE DETAILS



ELEVATION

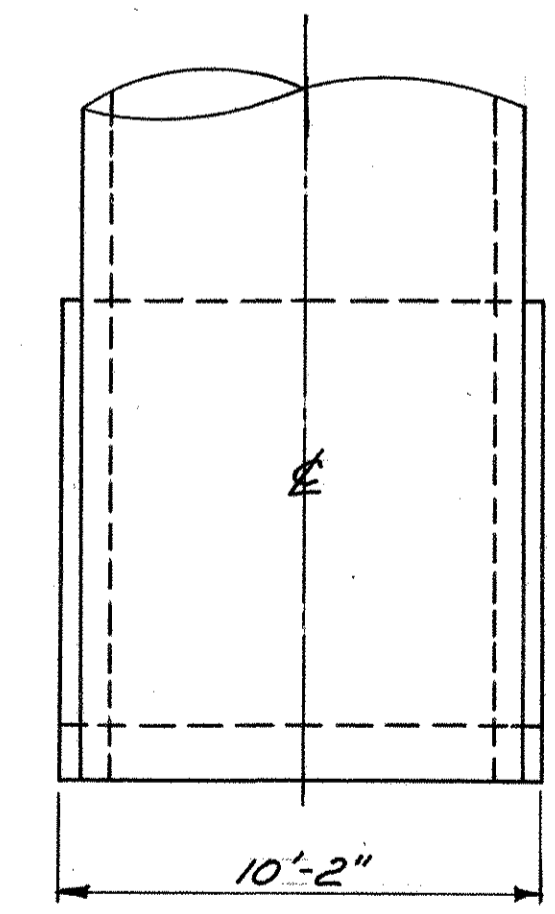


SECTION A-A

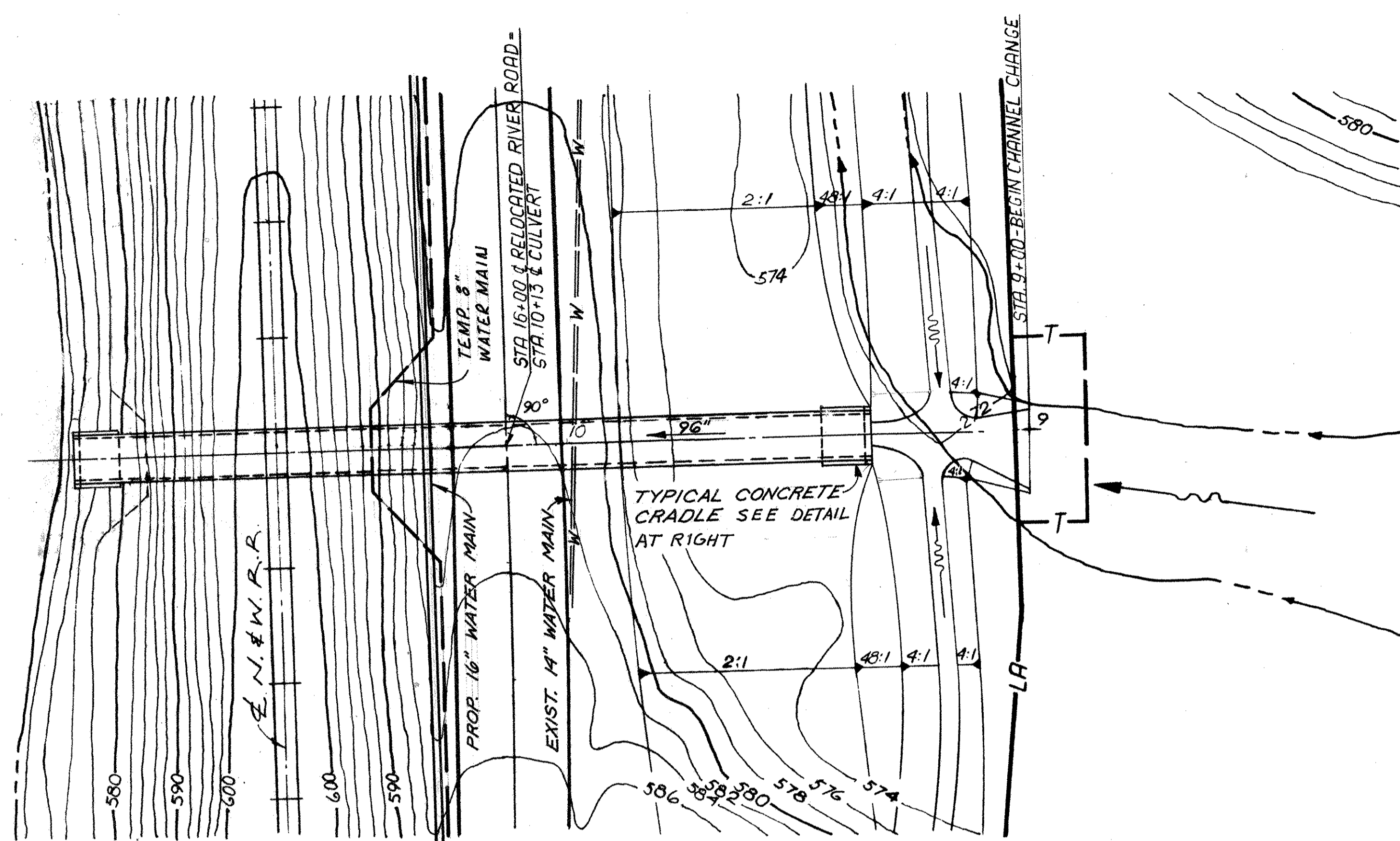
NOTE:  
ALL CONCRETE FOR CRADLE SHALL BE CLASS "C"  
CHAMFER ALL EXPOSED CORNERS 3/4"  
CRADLE IS SYMMETRICAL ABOUT CULVERT CENTERLINE

DRAINAGE AREA	A = 2.03 SQ. MI.
DISCHARGE (DESIGN)	Q = 715 C.F.S.
HW ELEVATION	HW = 582.6

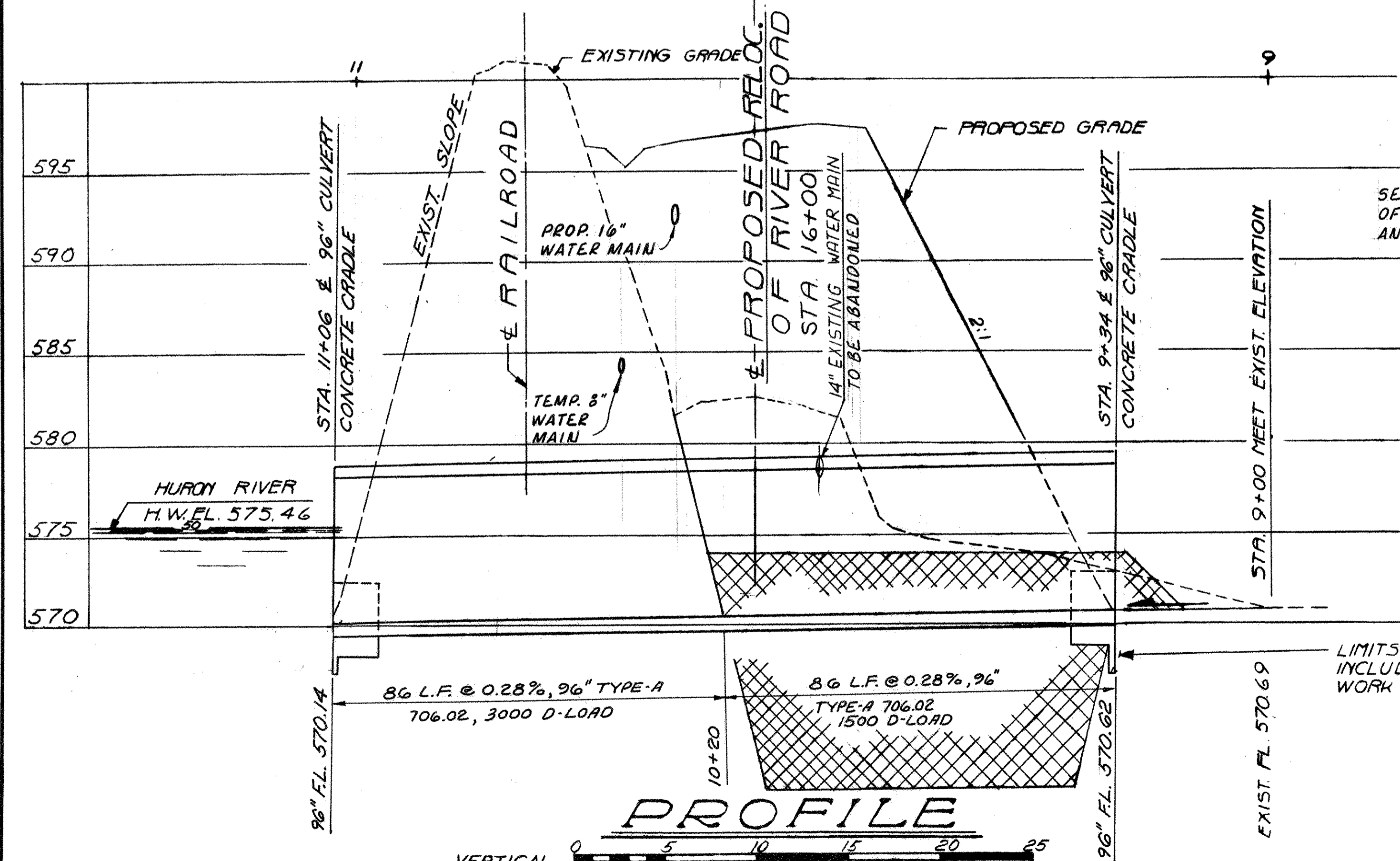
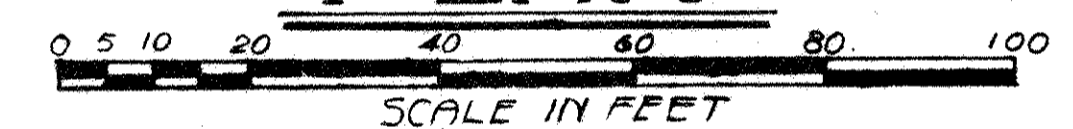
BULLETIN 45  
Q50 = 705 C.F.S.  
Q100 = 796 C.F.S.  
HW100 = 584.7



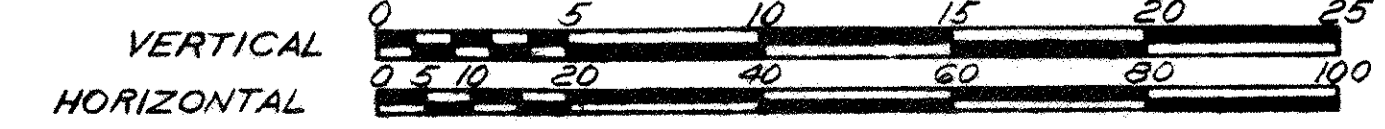
PLAN



PLAN



PROFILE



SEE SHEET 203 FOR DETAILS OF THE TEMPORARY WATER LINE AND PROPOSED 14" WATER MAIN.

LIMITS OF 203 GRANULAR BORROW INCLUDED WITH RIVER ROAD EARTH WORK QUANTITIES

ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

S. R. 2  
RIVER ROAD  
CULVERT #13 DETAILS  
STA. 16+00

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
L.N. 6-18-68	N.K. 7-19-68	R.J. 2-27-70		



FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

191-A  
326

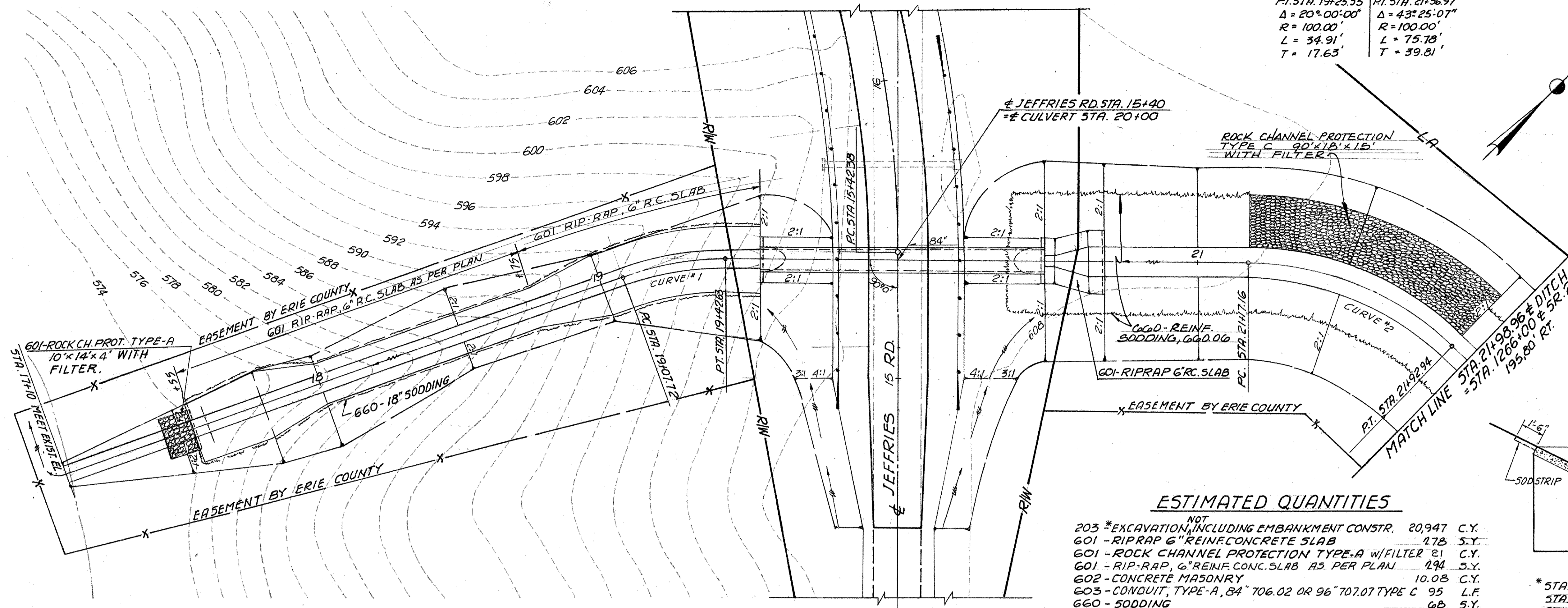
ERIE COUNTY  
ERI-2-18.38

DRAINAGE AREA 823 ACRES  
DISCHARGE Q (DESIGN) 533 C.F.S.

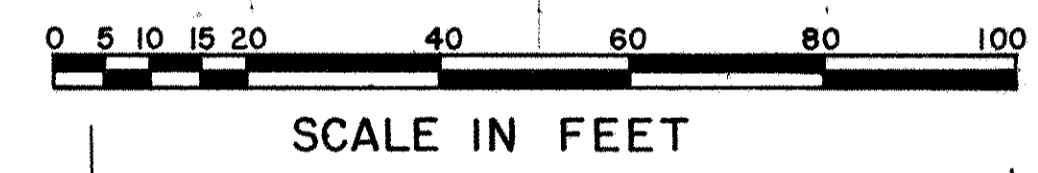
BULLETIN 45  
Q<sub>50</sub> = 470 C.F.S.  
Q<sub>100</sub> = 525 C.F.S.  
HW<sub>100</sub> = 601.85

± DITCH CURVE DATA

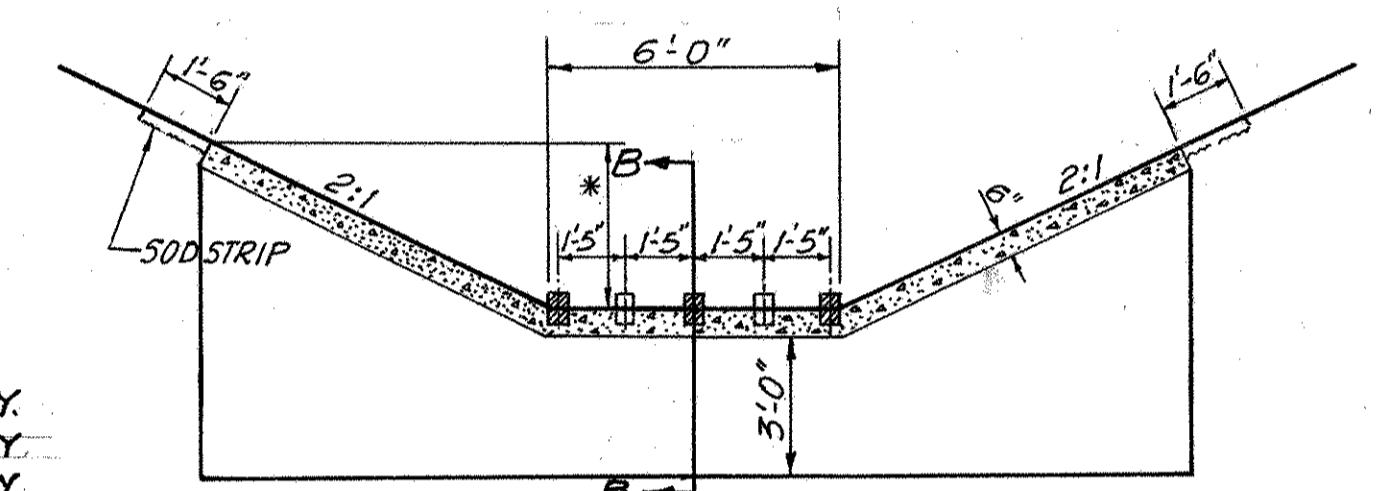
CURVE #1	CURVE #2
PI STA. 19+25.35	PI STA. 21+36.97
Δ = 20° 00' 00"	Δ = 43° 25' 07"
R = 100.00'	R = 100.00'
L = 34.91'	L = 75.78'
T = 17.63'	T = 39.81'



PLAN

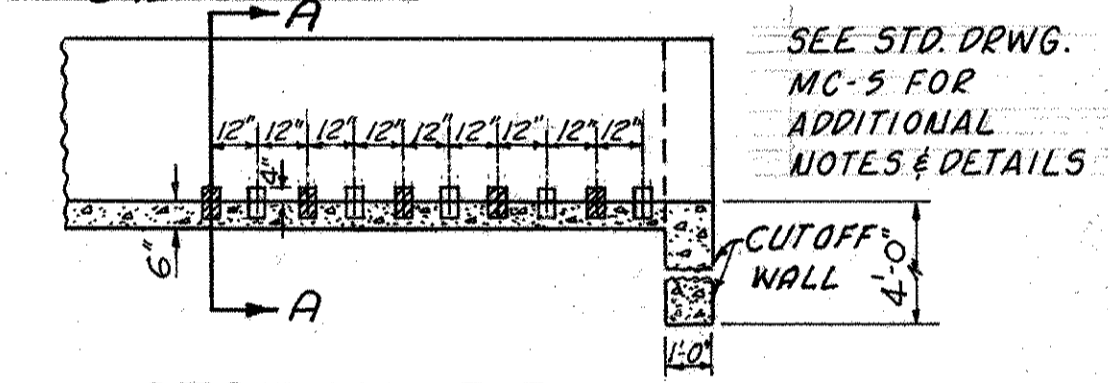


- ESTIMATED QUANTITIES**
- 203 - EXCAVATION, INCLUDING EMBANKMENT CONSTR. 20,947 C.Y.
  - 601 - RIPRAP 6" REINF. CONCRETE SLAB 178 S.Y.
  - 601 - ROCK CHANNEL PROTECTION TYPE-A w/FILTER 21 C.Y.
  - 601 - RIP-RAP, 6" REINF. CONC. SLAB AS PER PLAN 194 S.Y.
  - 602 - CONCRETE MASONRY 10.08 C.Y.
  - 603 - CONDUIT, TYPE-A, 84" 706.02 OR 96" 707.07 TYPE C 95 L.F.
  - 660 - SODDING 68 S.Y.
  - 601 - ROCK CHANNEL PROTECTION TYPE-C w/FILTER 147 C.Y.
  - 203 - EMBANKMENT 198 C.Y.
  - 659 - SEEDING & MULCHING 14,290 S.Y.
  - 660 - REINFORCED SODDING, STANDARD 3,541 S.Y.
- \* INCLUDES QUANTITY FROM SHEETS 191-B & 106-109



SECTION A-A

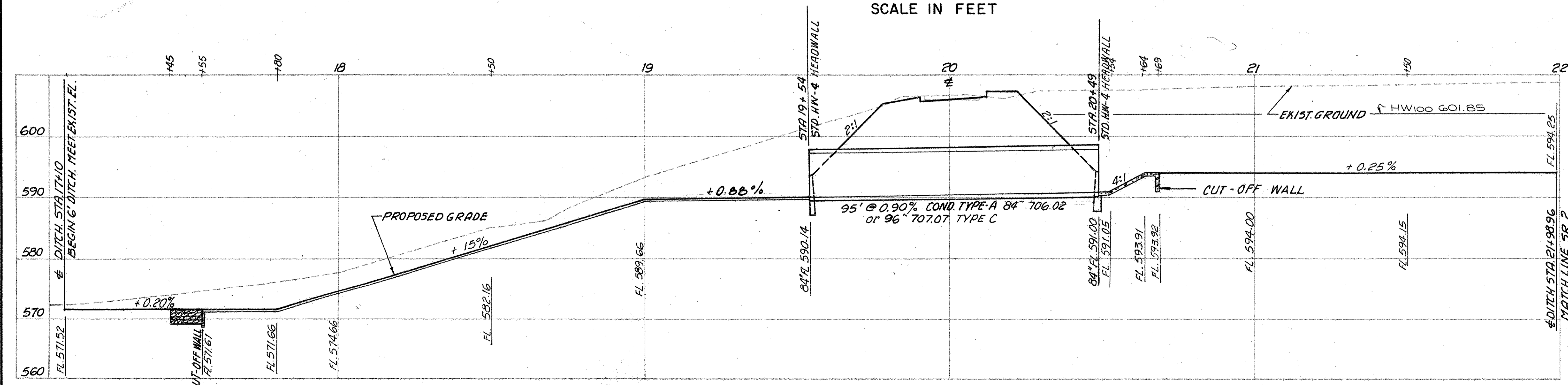
\* STA. 17+55 - STA. 17+80 = 4'-6" STA. 19+00 - 19+54 = 4'-0"  
 STA. 17+80 - STA. 18+00 = VARIES STA. 18+75 - 19+00 = VARIES  
 STA. 18+00 - STA. 18+75 = 2'-0"



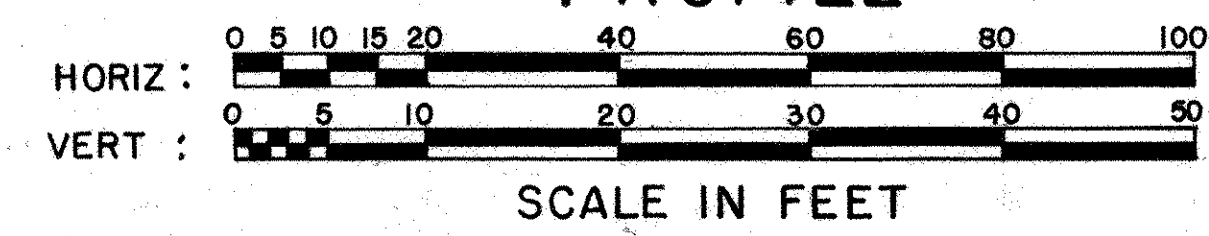
SECTION B-B

RIP-RAP USING 6" REINFORCED CONC. SLAB, AS PER PLAN

NO SCALE



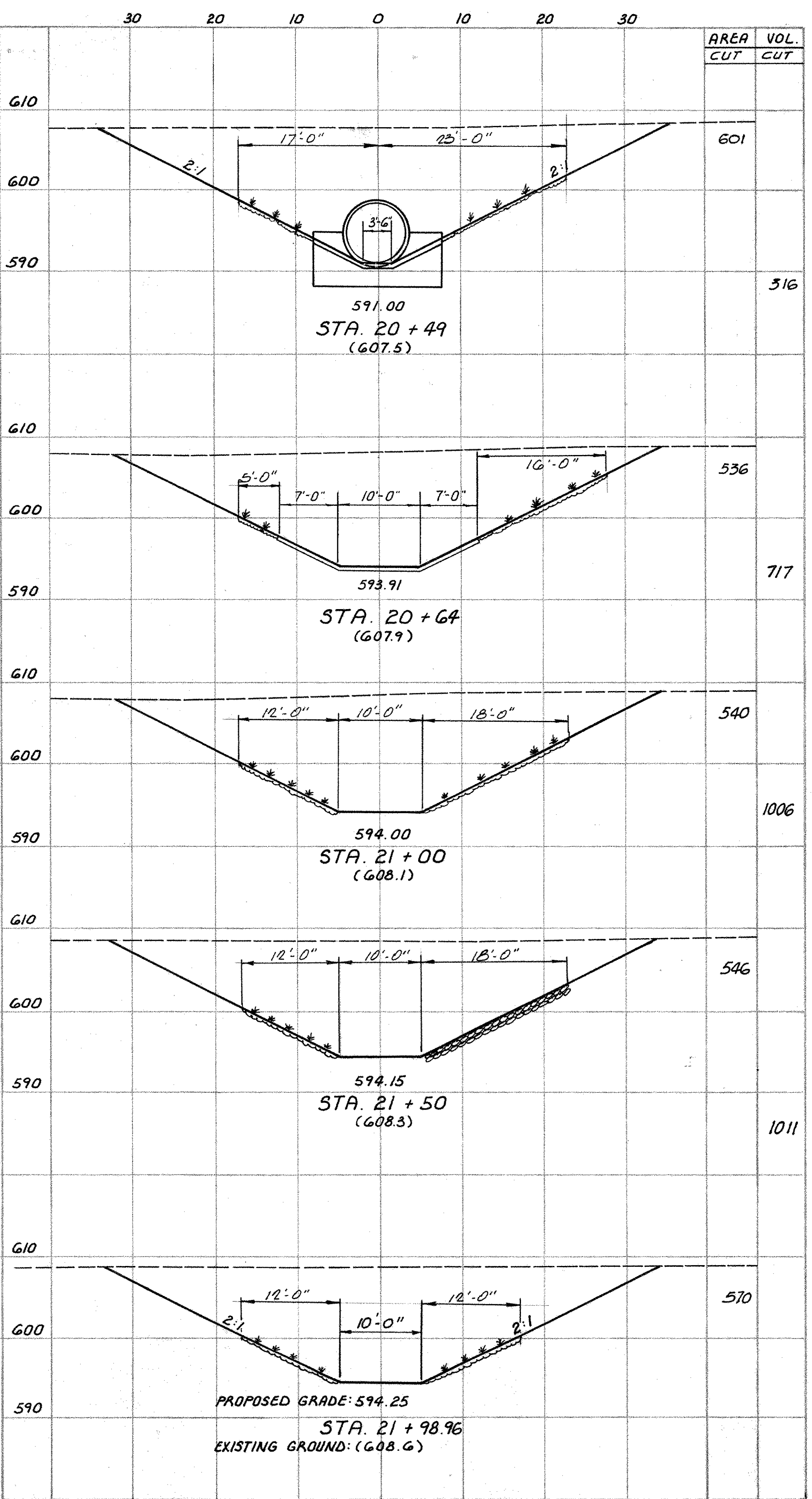
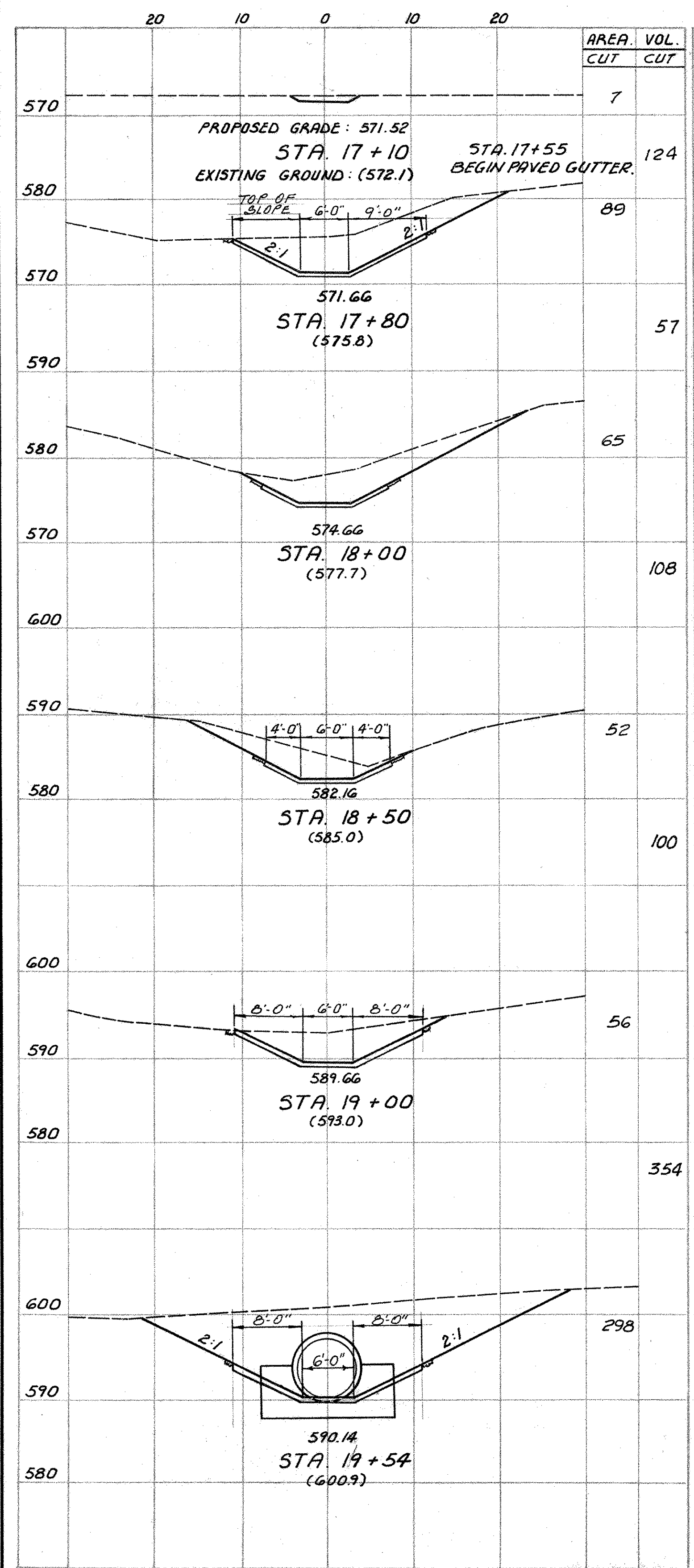
PROFILE



ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

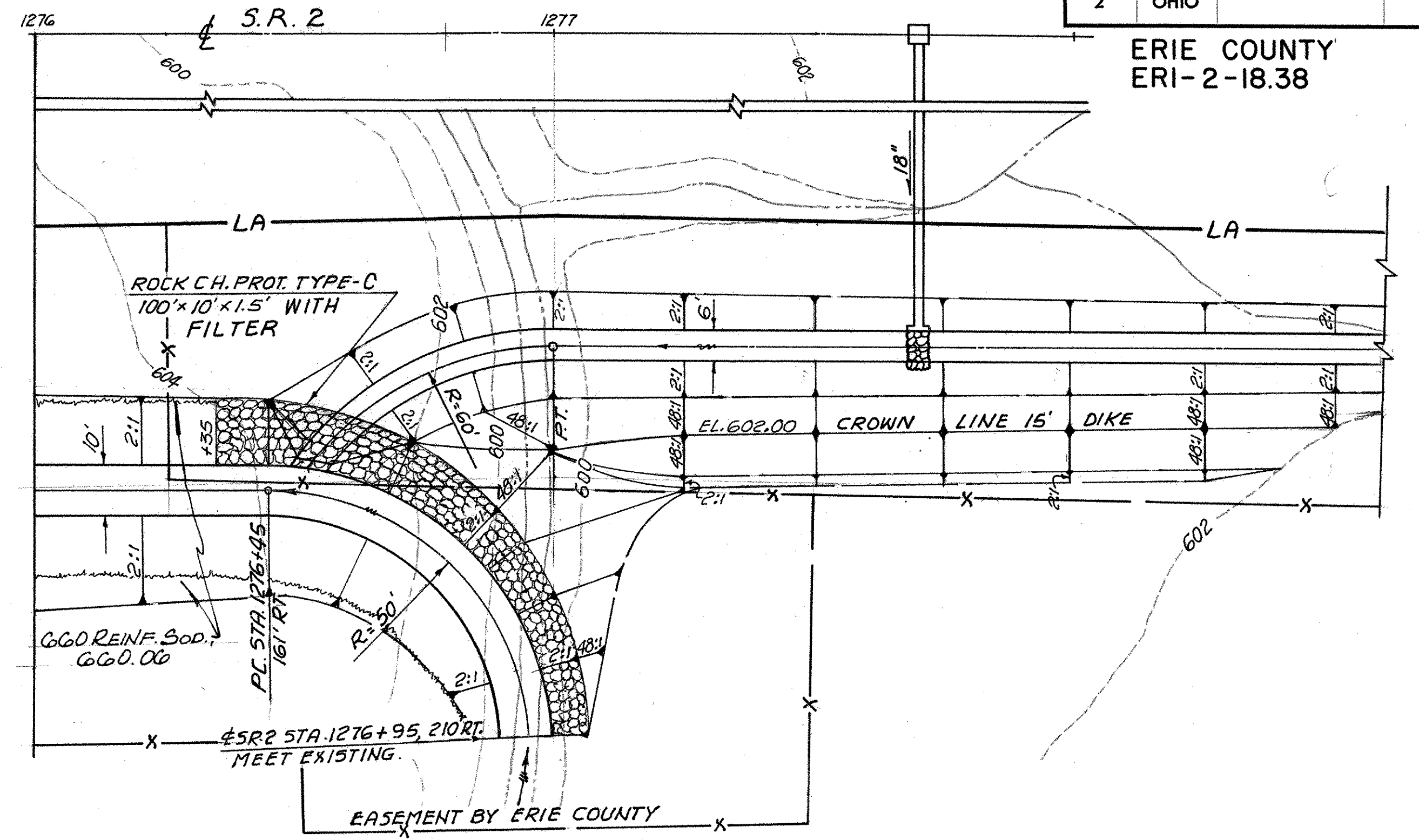
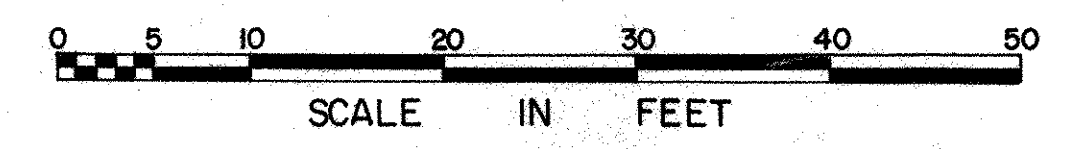
S.R. 2  
WINKLER DITCH  
CULVERT No. 13-A DETAILS  
JEFFRIES RD.  
STA. 15+40

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISION
R.W.H.	J.O.A.	H.L.		2-1-1972	R.E.L. 8-19-74



TOTAL 3793

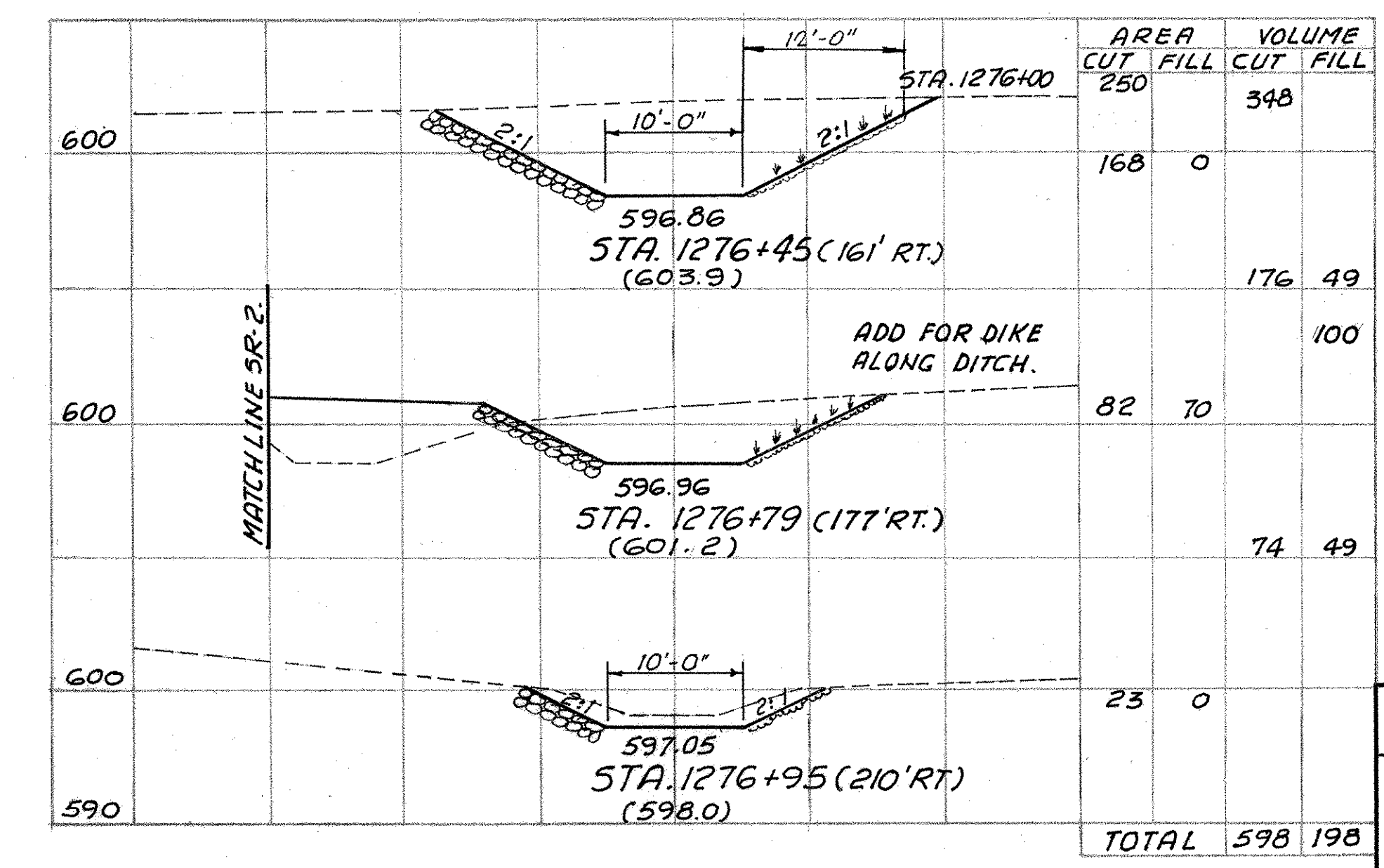
WINKLER DITCH CROSS SECTIONS



INLET DITCH DETAIL



NOTE:  
QUANTITIES INCLUDED ON SHEET # 191-A



ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

ERI-2  
WINKLER DITCH  
CROSS SECTIONS &  
INLET DITCH DETAIL

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.W.H.	J.D.A.	N.F.		2-1-1972	

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

192  
326

ERIE COUNTY  
ERI 2-18.38

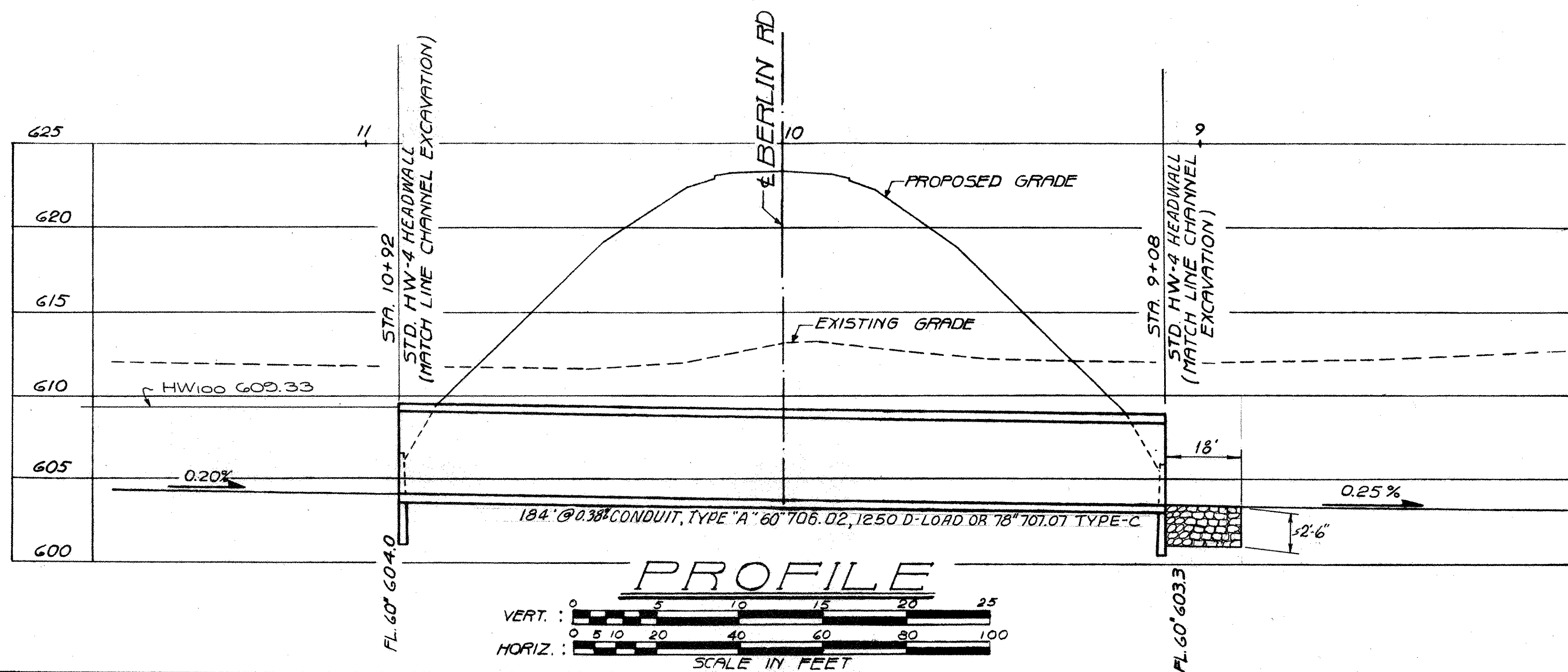
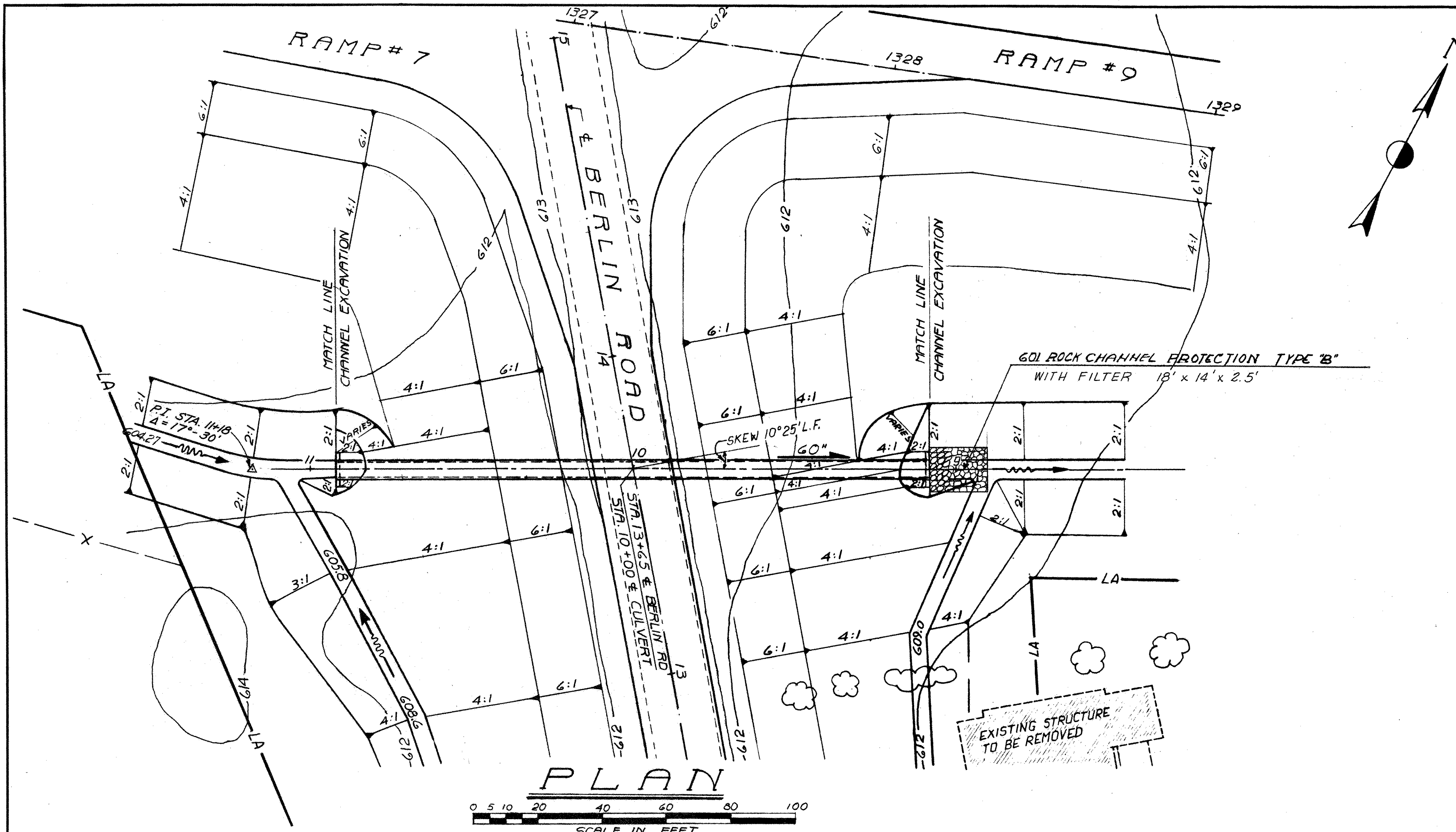
**ESTIMATED QUANTITIES:**

- 601 - \*ROCK CHANNEL PROTECTION TYPE "B" — 23.3 C.Y
- 602 - CONCRETE MASONRY — 5.88 C.Y
- 603 - CONDUIT, TYPE "A", 60", 706.02, 1250 D-LOAD - 184.00 L.F  
OR 78" 707.07 TYPE "C"  
\*WITH FILTER

DRAINAGE AREA A = 130 ACRES  
DISCHARGE (DESIGN) Q = 180 C.F.S.

BULLETIN 45  
Q<sub>50</sub> = 118 C.F.S.  
Q<sub>100</sub> = 132 C.F.S.  
HW<sub>100</sub> = 609.33

NOTE: CHANNEL EXCAVATION HAS BEEN INCLUDED WITH EARTH WORK OF BERLIN RD. & RAMP Nos. 7 & 9

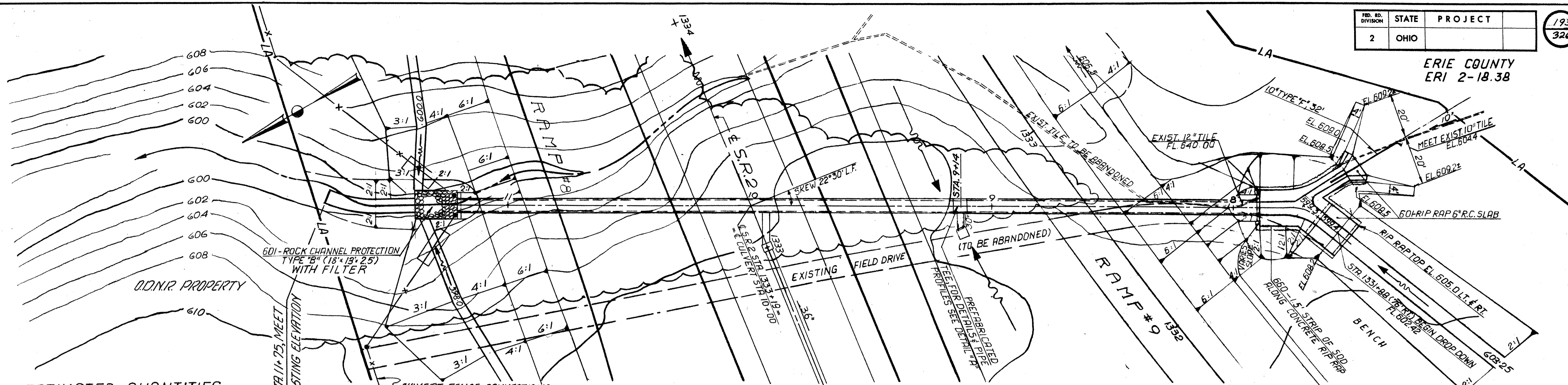


ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

S. R. 2  
CULVERT #14 DETAILS  
BERLIN ROAD  
STA. 13+65

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
L.N. 5-8-68	N.K. 7-12-68	R.J.Z. 3-1-70	R.E.L. 8-19-74	

ERIE COUNTY  
ERI 2-18.38



**ESTIMATED QUANTITIES**

- 203 - EXCAVATION, INCLUDING EMBANKMENT CONSTRUCTION - 214 C.Y.
  - 601 - RIP RAP, USING 6" REINF. CONC. SLAB - 100.6 S.Y.
  - 601 - ROCK CHANNEL PROTECTION, TYPE "B" WITH FILTER - 21.7 C.Y.
  - 602 - CONCRETE MASONRY - 5.57 C.Y.
  - 603 - CONDUIT, TYPE "A" 60", 706.02, OR 72" 707.07 TYPE C - 332 L.F.
  - 660 - SODDING - 19.3 Y.
- TEE BRANCHES 60" x 30" & 60" x 36" 706.02  
OR 72" x 30" & 72" x 36" 707.07 TYPE C 12

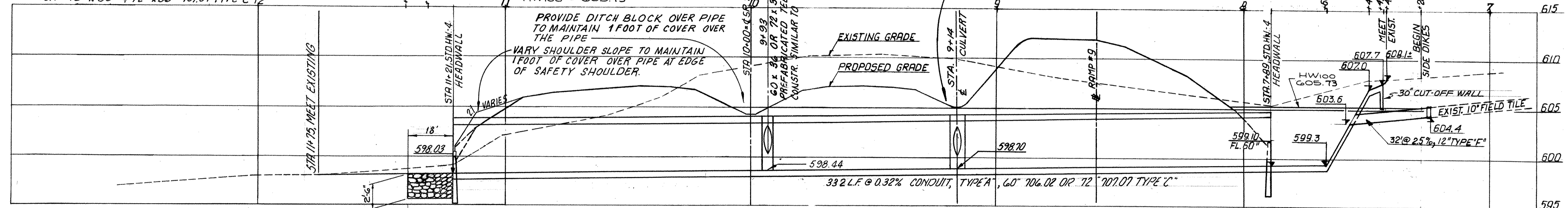
CULVERT FENCE CONNECTIONS  
TO BE COMPLETED WITHIN 20 DAYS  
AFTER COMPLETION OF CULVERT DETAILS.

DRAINAGE AREA

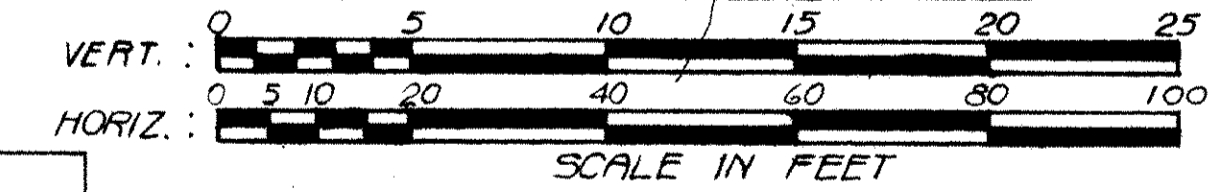
(INLET) A	160 ACRES
(OUTLET) A	181 ACRES
DISCHARGE (DESIGN) Q	208 CFS

BULLETIN 45  
Q50 = 15.59 C.F.T. 0.0  
Q100 = 17.30 C.F.T. 0.0  
HW100 = 605.73

**PLAN**



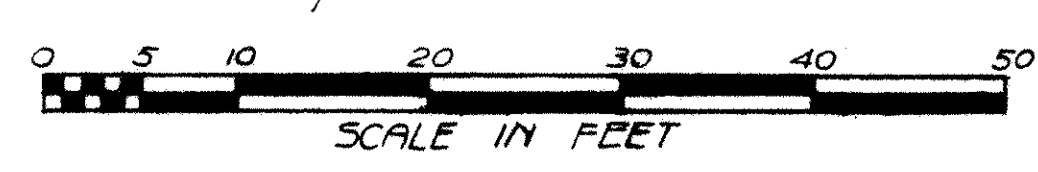
**PROFILE**



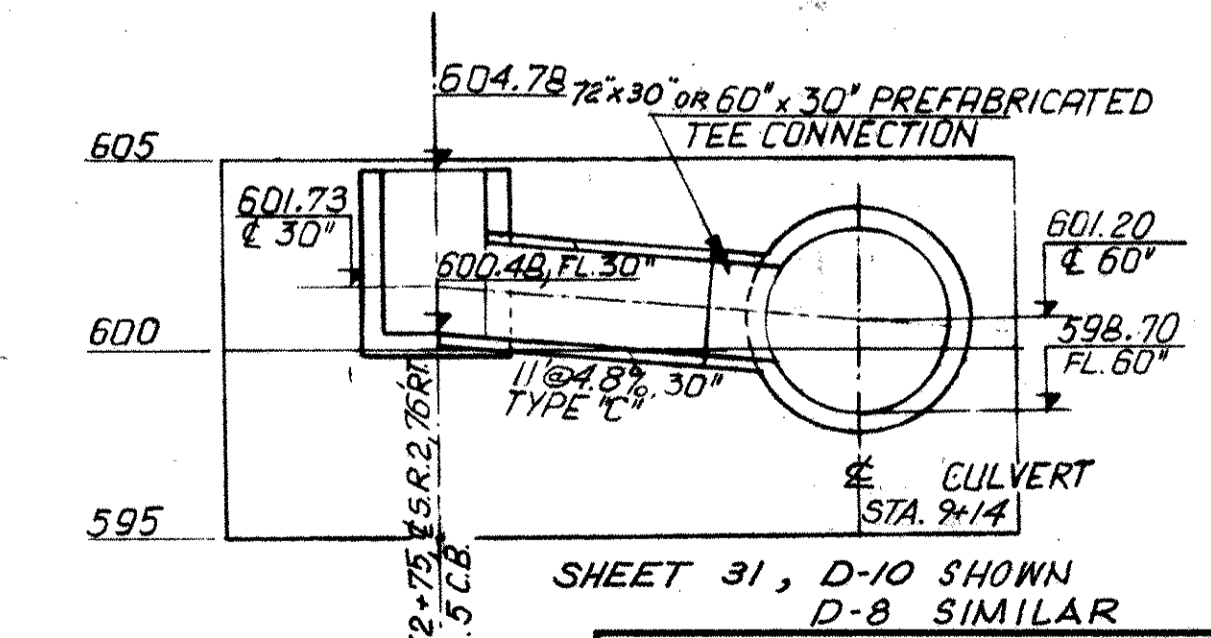
STA	ELEVATION	AREA	VOLUME
STA 7+43	FL. 607.7	5	
STA 7+42	FL. 608.1±	0	
STA 7+28	FL. 608.45	0	

STA	ELEVATION	AREA	VOLUME
STA 7+89	FL. 599.1	180	
STA 7+66	FL. 599.3	164	
STA 7+49	FL. 607.00	6	

**CHANNEL CROSS SECTIONS**



STA	ELEVATION	AREA	VOLUME
STA 11+75	FL. 597.75	0	
STA 11+31	FL. 598.80	10	
STA 11+21	FL. 598.03	15	



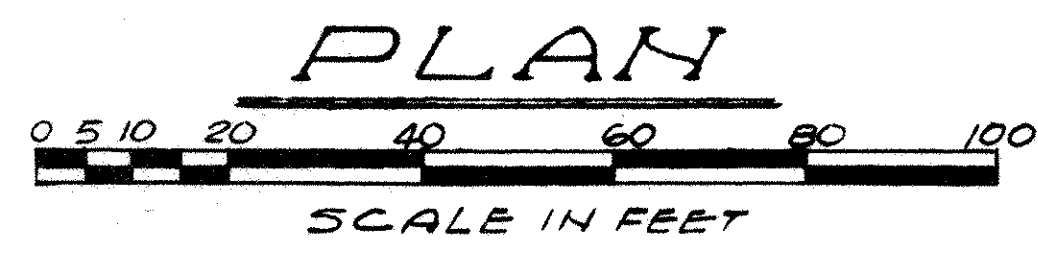
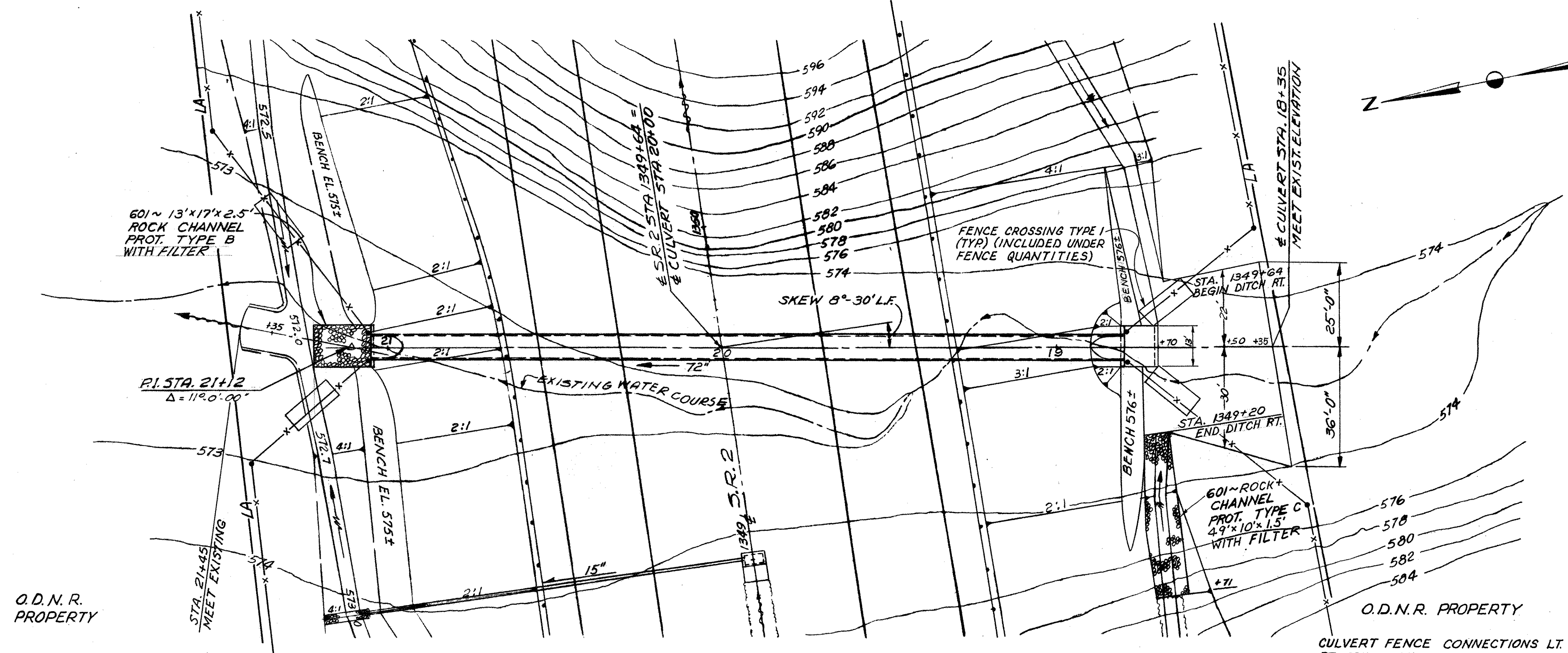
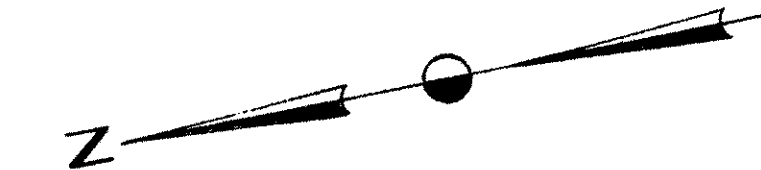
**DETAIL "A"**

SHEET 31, D-10 SHOWN  
D-8 SIMILAR

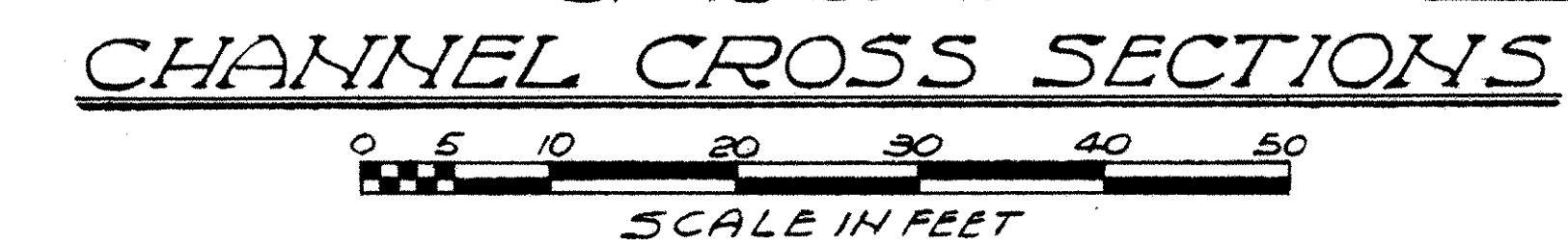
ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

**S.R. 2  
CULVERT #15 DETAILS  
STA. 1333+19**

DESIGNED	DRAWN	CHECKED	REVISED	DATE
L.N. 6-5-68	N.F. 8-1-68	R/J 3-3-70	R.E.L. 8-19-74	



ELEVATION	STATION	DESCRIPTION	END AREA VOLUME	
			CUT	CUT
570	FL. 572.1± STA. 21+45 MEET EXIST. ELEV.		0	1
570	FL. 572.11 STA. 21+35		8	6
570	FL. 572.17 STA. 21+05.5		3AH	
570	FL. 573.03 STA. 18+70		20BK	16
570	FL. 573.25 STA. 18+50		22	6
570	FL. 573.47± STA. 18+35 MEET EXIST. ELEV.		0	29 C.Y.

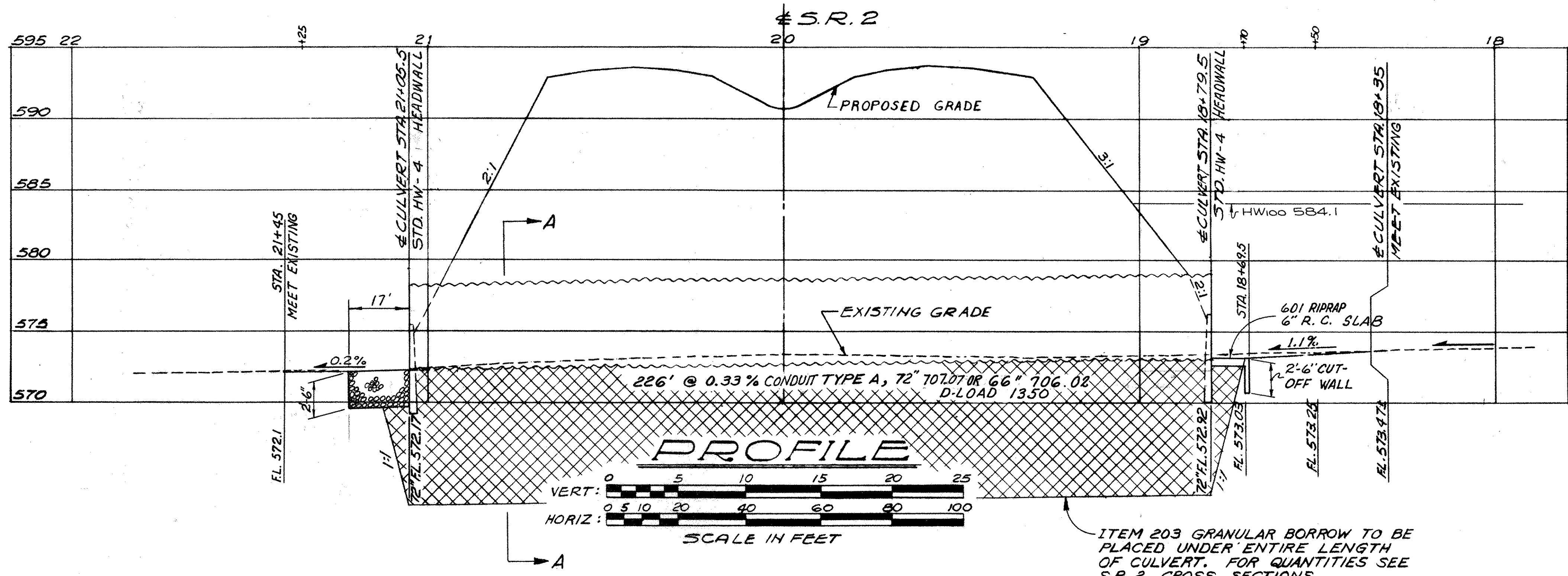


BULLETIN 45  
 DRAINAGE AREA A = 270 ACRES  
 DISCHARGE (DESIGN) Q = 232 C.F.S.  
 Q50 = 252 C.F.S.  
 Q100 = 287 C.F.S.  
 HW100 = 584.1

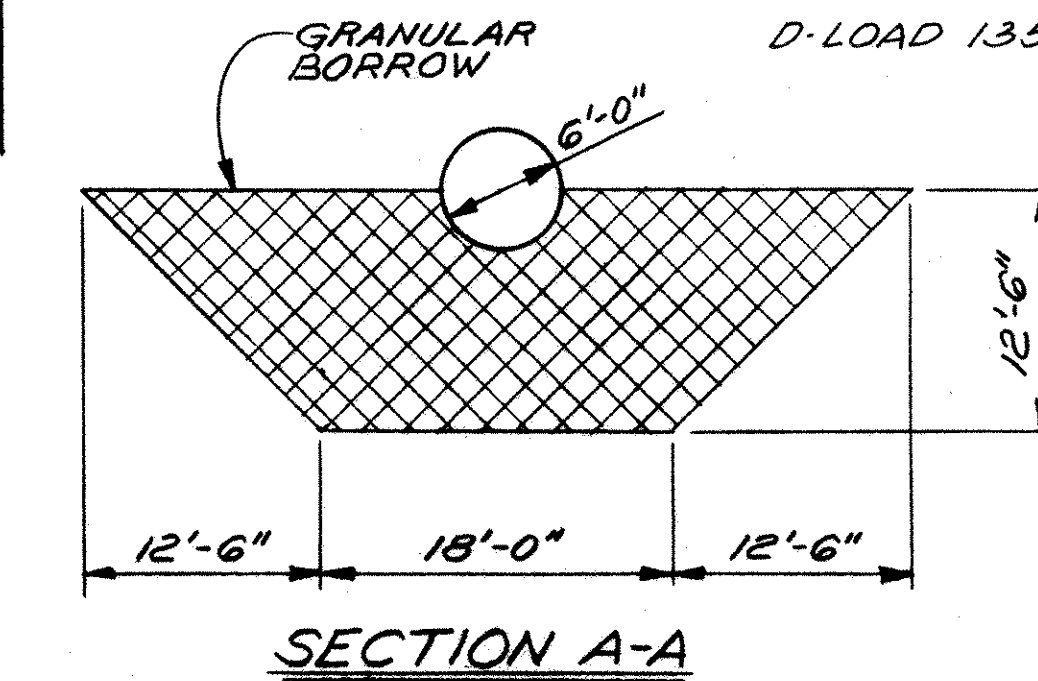
**ESTIMATED QUANTITIES**

203	EXCAVATION NOT INCLUDING EMBANKMENT CONST.	29 C.Y.
601	ROCK CHANNEL PROTECTION TYPE B W/FILTER	20.5 C.Y.
601	ROCK CHANNEL PROTECTION TYPE C W/FILTER	14.5 C.Y.
601	RIPRAP 6" REINFORCED CONCRETE	21.7 S.Y.
602	CONCRETE MASONRY	474 C.Y.
603	CONDUIT TYPE A, 72" 707.07, OR 66" 706.02	226 L.F.

D-LOAD 1350



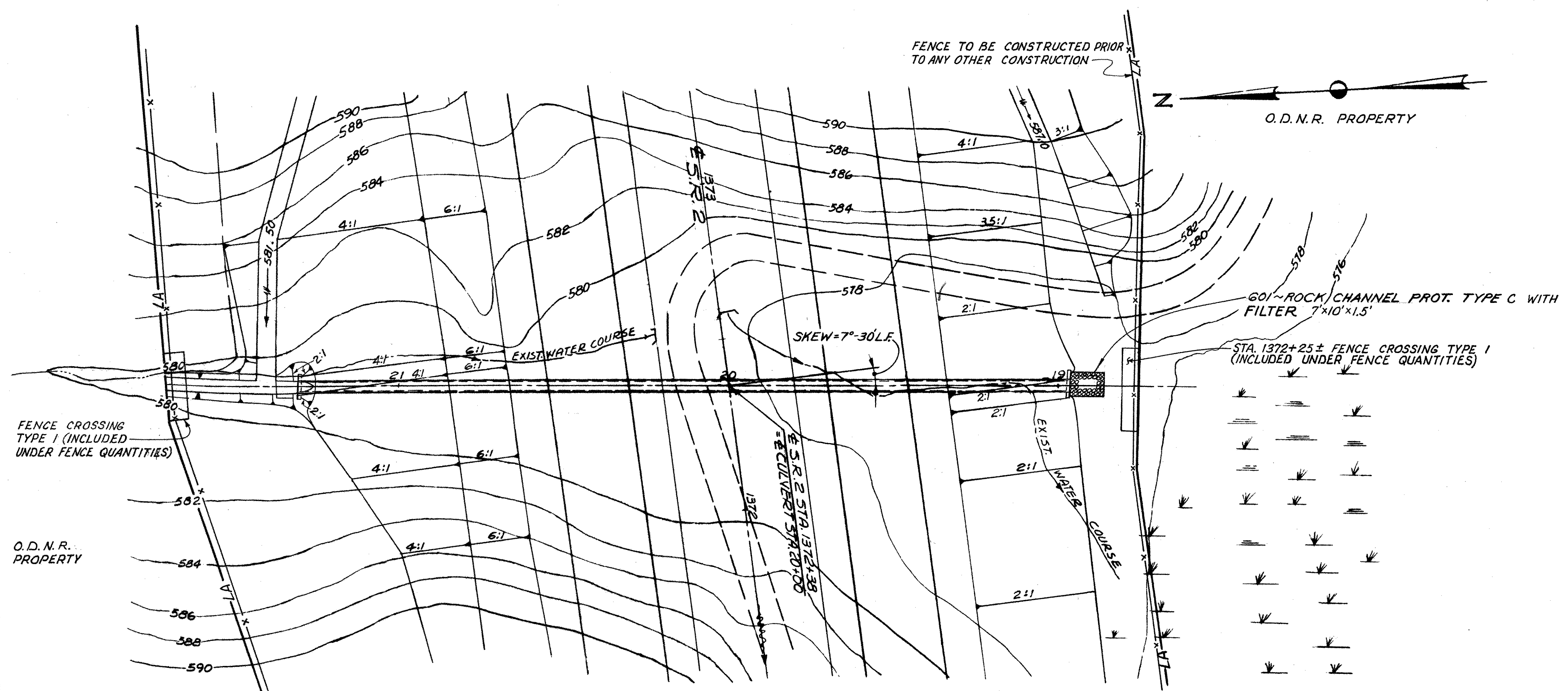
ITEM 203 GRANULAR BORROW TO BE PLACED UNDER ENTIRE LENGTH OF CULVERT. FOR QUANTITIES SEE S.R. 2 CROSS SECTIONS.



ADACHE ASSOCIATES INC., ENGINEERS  
 CLEVELAND, OHIO 44142

**S.R. 2  
 CULVERT #16 DETAILS  
 STA. 1349+64**

DESIGNED	DRAWN	CHECKED	REVISED	DATE
L.N.	J.D.A.	R.J.Z.	R.E.L.	
4-24-68	7-14-68	3-4-70	8-17-74	



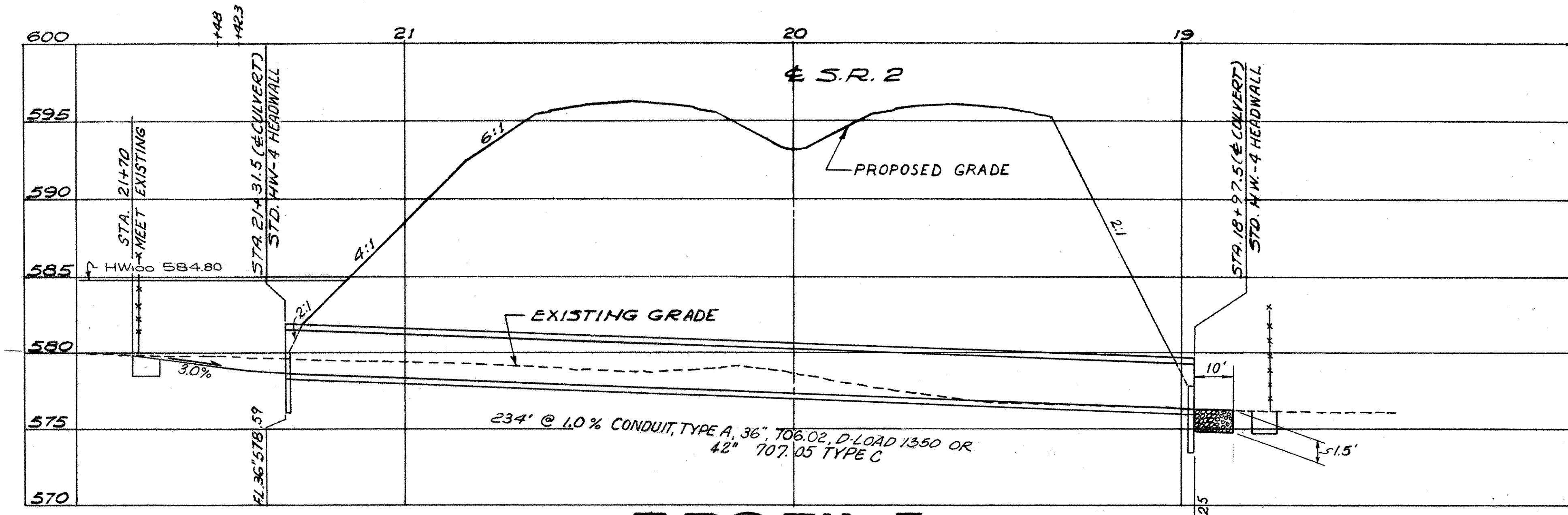
DRAINAGE AREA A = 33 ACRES  
DISCHARGE (DESIGN) Q = 79 C.F.S.

BULLETIN 45  
Q<sub>50</sub> : 65 C.F.S.  
Q<sub>100</sub> : 75 C.F.S.  
HW<sub>100</sub> : 584.80

**ESTIMATED QUANTITIES**

- NOT
- 203 EXCAVATION, INCLUDING EMBANKMENT CONST. 5 C.Y.
- 601 ROCK CHANNEL PROTECTION TYPE C W/FILTER 3.9 C.Y.
- 602 CONCRETE MASONRY 1.84 C.Y.
- 603 CONDUIT, TYPE A, 36" 106.02 D-LOAD 1350 OR 42" 707.05 TYPE C 234 L.F.

**PLAN**  
SCALE 1/4" = 10' FEET



**PROFILE**  
VERT: SCALE IN FEET  
HORIZ: SCALE IN FEET

EXCAVATION END VOLUME AREA	EXISTING GR.		
	EXISTING GR.		580
	STA. 22+18 MEET EXISTING GROUND		590
0	EXISTING GR.		580
	F.L. 579.6 STA. 21+70 MEET EXISTING GROUND		590
3	EXISTING GR.		580
	F.L. 578.65 STA. 21+40		570
6	STA. 21+31		
6	2	5	TOTAL VOLUME

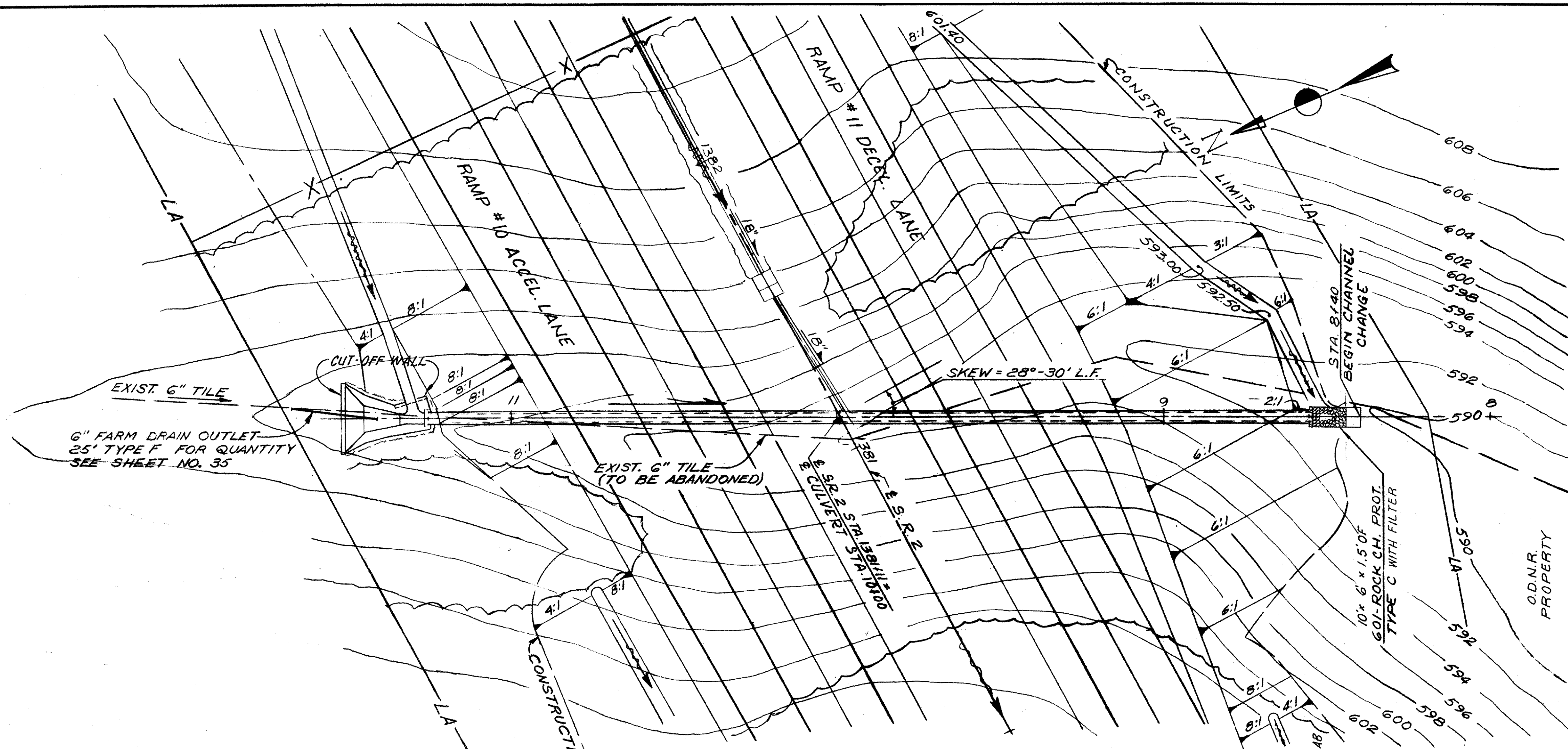
CHANNEL CROSS SECTION

ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

**S.R. 2  
CULVERT #17 DETAILS  
STA. 1372+38**

DESIGNED	DRAWN	CHECKED	REVISED	DATE
L.N.	J.D.A.	R.J.Z.	R.E.L.	
5-2-68	6-4-68	2-13-70	8-19-74	

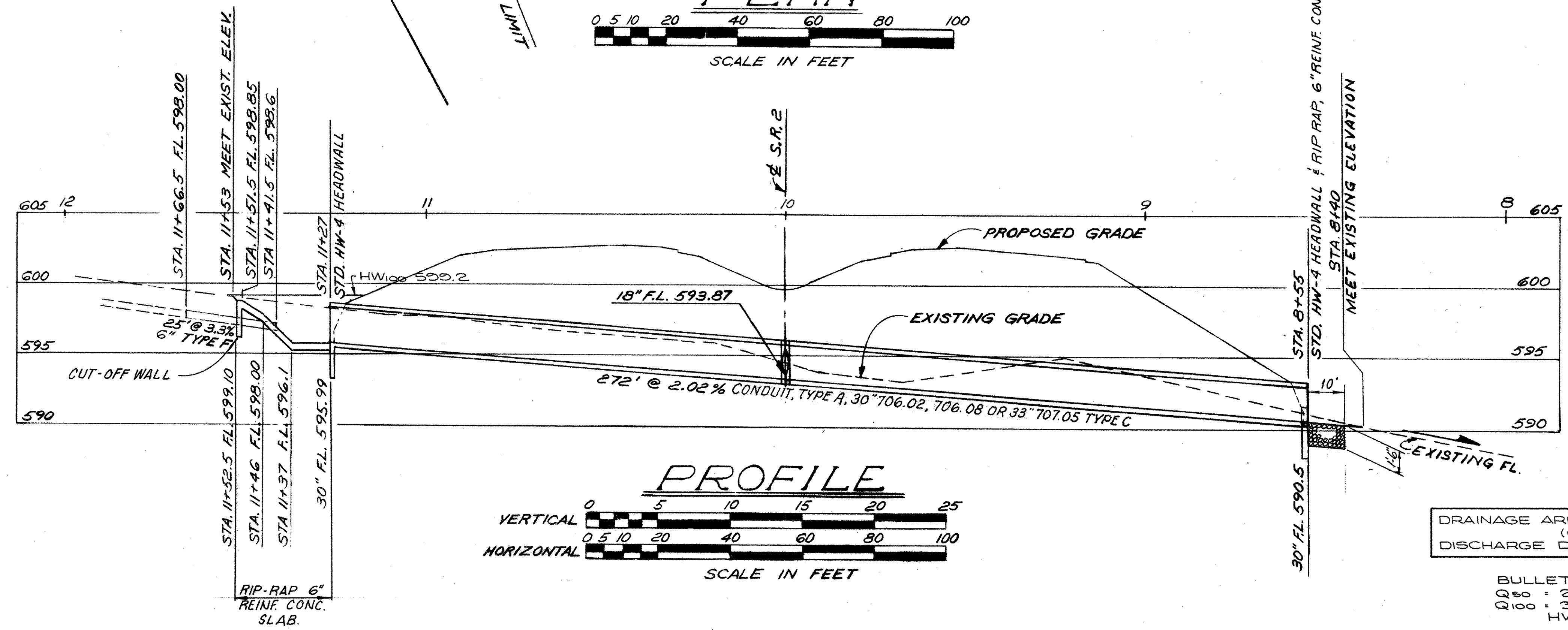
ERIE COUNTY  
ERI. 2-1838



**PLAN**  
SCALE IN FEET  
0 5 10 20 40 60 80 100

ELEVATION	DISTANCE FROM STA. 11+53	CROSS SECTION	END AREA	VOLUME
			CUT	CUT
600	0	FL. 599.10 STA. 11+53 MEET EXIST. ELEVATION	0	0.2
600	20'-0"	FL. 598.85 STA. 11+51.5	6	1.7
600	38'-0"	FL. 598.10 STA. 11+46	12	6.9
600	58'-0"	FL. 596.10 STA. 11+37	30	9.5
600	78'-0"	FL. 595.99 STA. 11+27		

**CHANNEL CROSS SECTIONS**  
SCALE IN FEET  
0 5 10 20 30 40 50



**PROFILE**  
SCALE IN FEET  
VERTICAL: 0 5 10 15 20 25  
HORIZONTAL: 0 5 10 20 40 60 80 100

**ESTIMATED QUANTITIES**

- 203 EXCAVATION INCLUDING EMBANKMENT CONST. 18 C.Y.
- 601 ROCK CHANNEL PROTECTION, TYPE C W/FILTER 10.0 C.Y.
- 601 RIPRAP 6" REINFORCED CONCRETE 36.5 S.Y.
- 602 CONCRETE MASONRY 1.36 C.Y.
- 603 CONDUIT TYPE A, 30", 706.02, 706.08 OR 33" 707.05 TYPE C 272 L.F.
- 660 SODDING 9 S.Y.
- BENDS & BRANCHES 30" x 18" x 60° WYE OR 33" x 18" x 60° WYE

DRAINAGE AREA (INLET) A = 15 ACRES  
(OUTLET) A = 17 ACRES  
DISCHARGE DESIGN Q = 43 C.F.S.

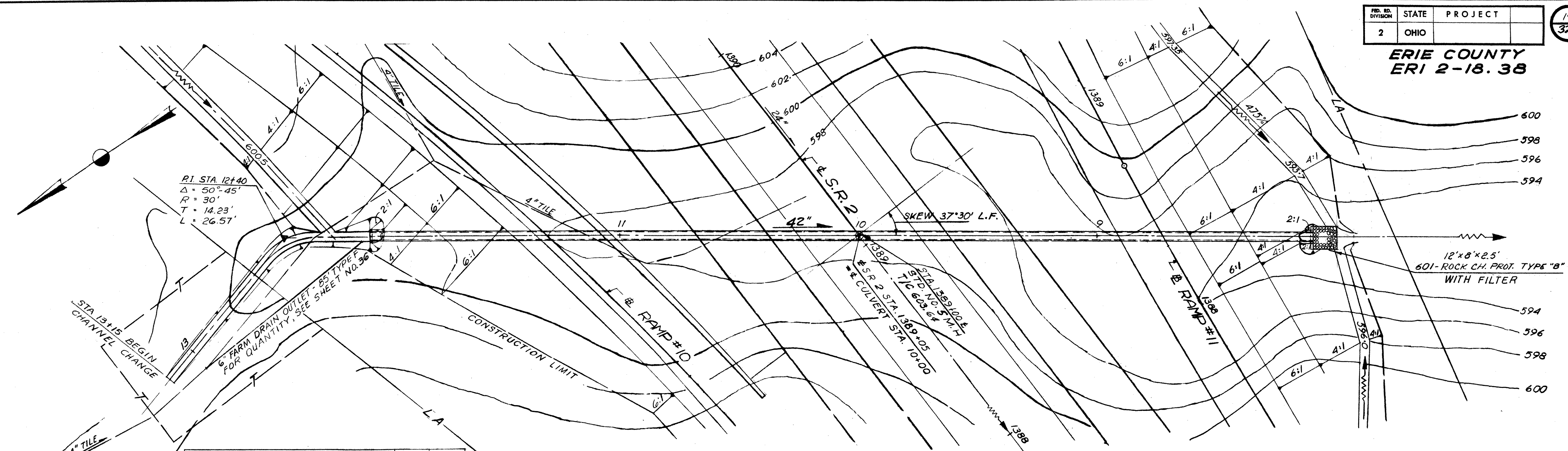
BULLETIN 45  
Q<sub>50</sub> = 29 C.F.S. Q<sub>50</sub> = 33 C.F.S.  
Q<sub>100</sub> = 33 C.F.S. Q<sub>100</sub> = 37 C.F.S.  
HW<sub>100</sub> = 599.2

ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

S.R. 2  
CULVERT #18  
DETAILS  
STA. 1381+11

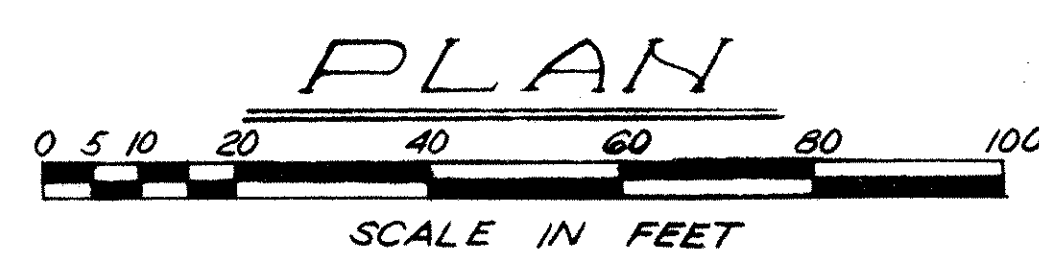
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
L.N.	N.K.	R.U.Z.		7-26-68	8-19-74

**ERIE COUNTY  
ERI 2-18.38**



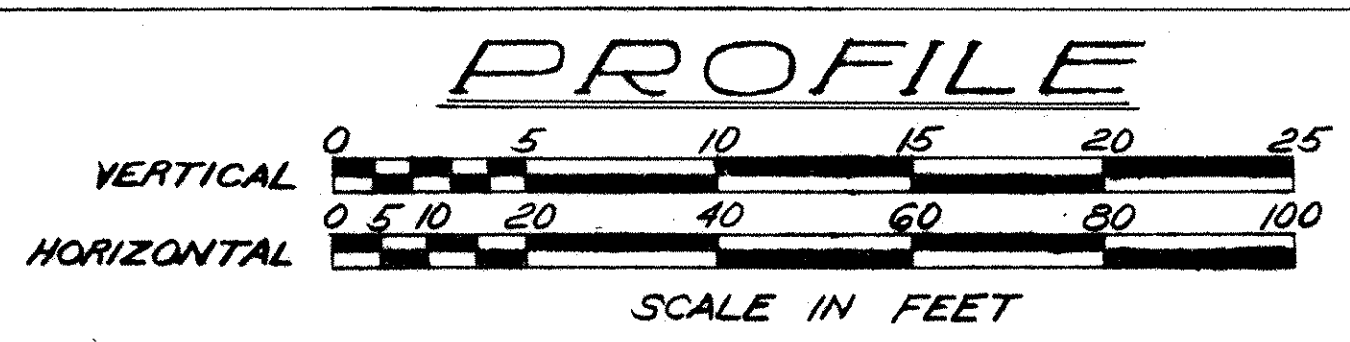
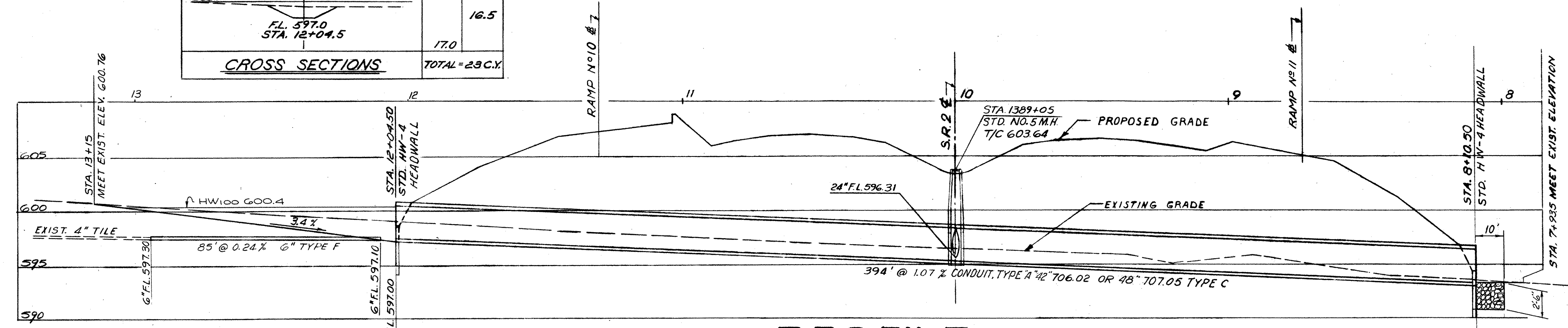
PI STA 12+40  
 $\Delta = 50^\circ 45'$   
 $R = 30'$   
 $T = 14.23'$   
 $L = 26.57'$

ELEVATION	END AREA VOLUME	
	CUT	CUT
600	0	
600		6.3
600	2.6	
600		16.5
<b>CROSS SECTIONS</b>		<b>TOTAL = 29 C.Y.</b>



**ESTIMATED QUANTITIES**

- 203 EXCAVATION, INCLUDING EMBANKMENT CONSTRUCTION 23 C.Y.
  - 601 ROCK CHANNEL PROTECTION, TYPE B\* 8.9 C.Y.
  - 602 CONCRETE MASONRY 2.20 C.Y.
  - 603 CONDUIT, TYPE A, 42", 706.02 OR 48" 707.05 TYPE C 394 L.F.
- \* WITH FILTER



DRAINAGE AREA (INLET) A = 29 ACRES  
 (OUTLET) A = 42 ACRES  
 DISCHARGE DESIGN Q = 74 C.F.S.

BULLETIN 45  
 $Q_{50} = 46$  C.F.S.  $Q_{50} = 60$  C.F.S.  
 $Q_{100} = 52$  C.F.S.  $Q_{100} = 69$  C.F.S.  
 HW100 = 600.4

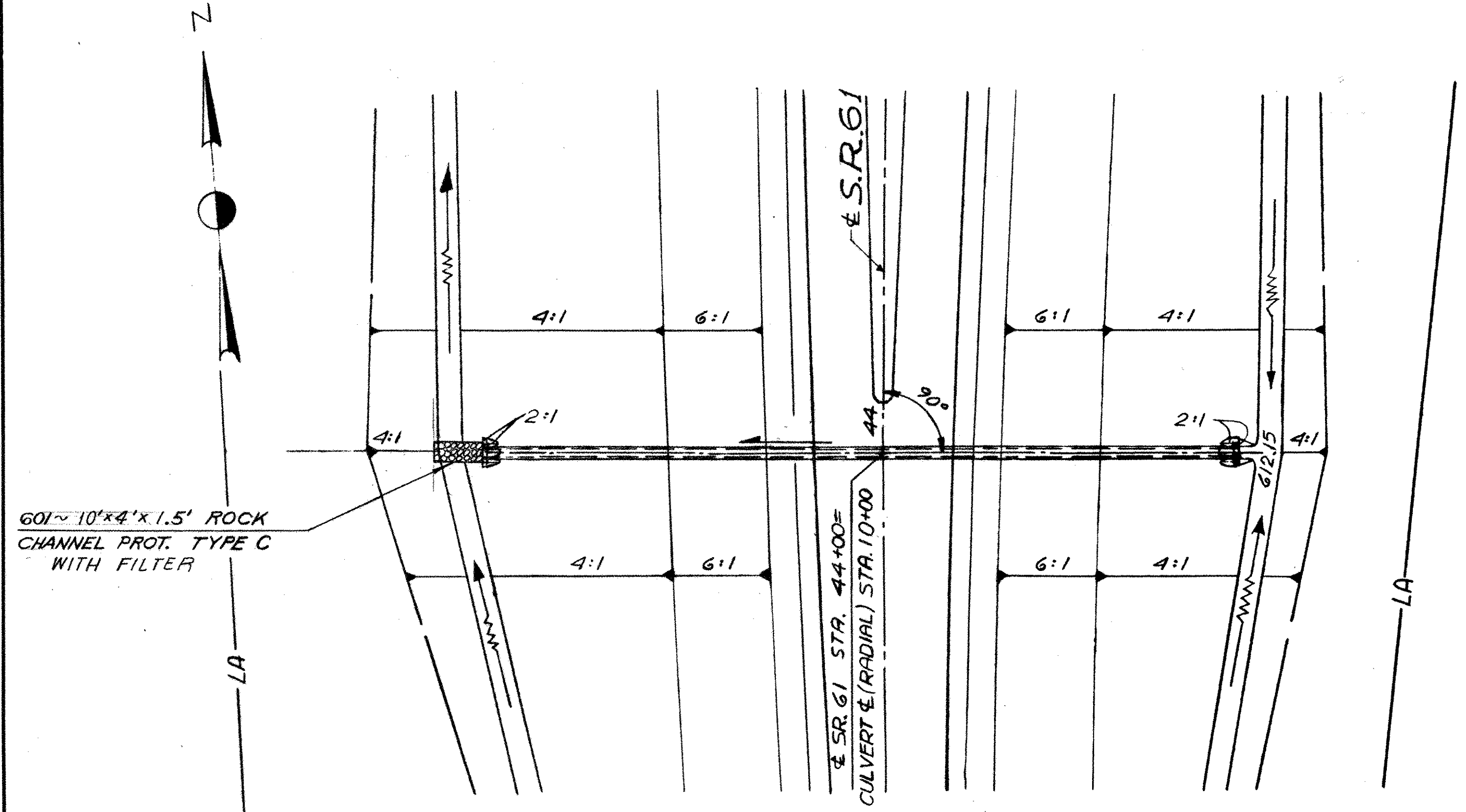
**ADACHE ASSOCIATES INC., ENGINEERS**  
 CLEVELAND, OHIO 44142

**S.R. 2  
 CULVERT #19  
 DETAILS  
 STA. 1389+05**

DESIGNED	DRAWN	CHECKED	REVISED	DATE
L.N.	D.S.	R.J.Z.	R.E.L.	
7-1-68	4-6-68	4-8-70	8-19-74	



**ERIE COUNTY**  
**ERI 2-18.38**

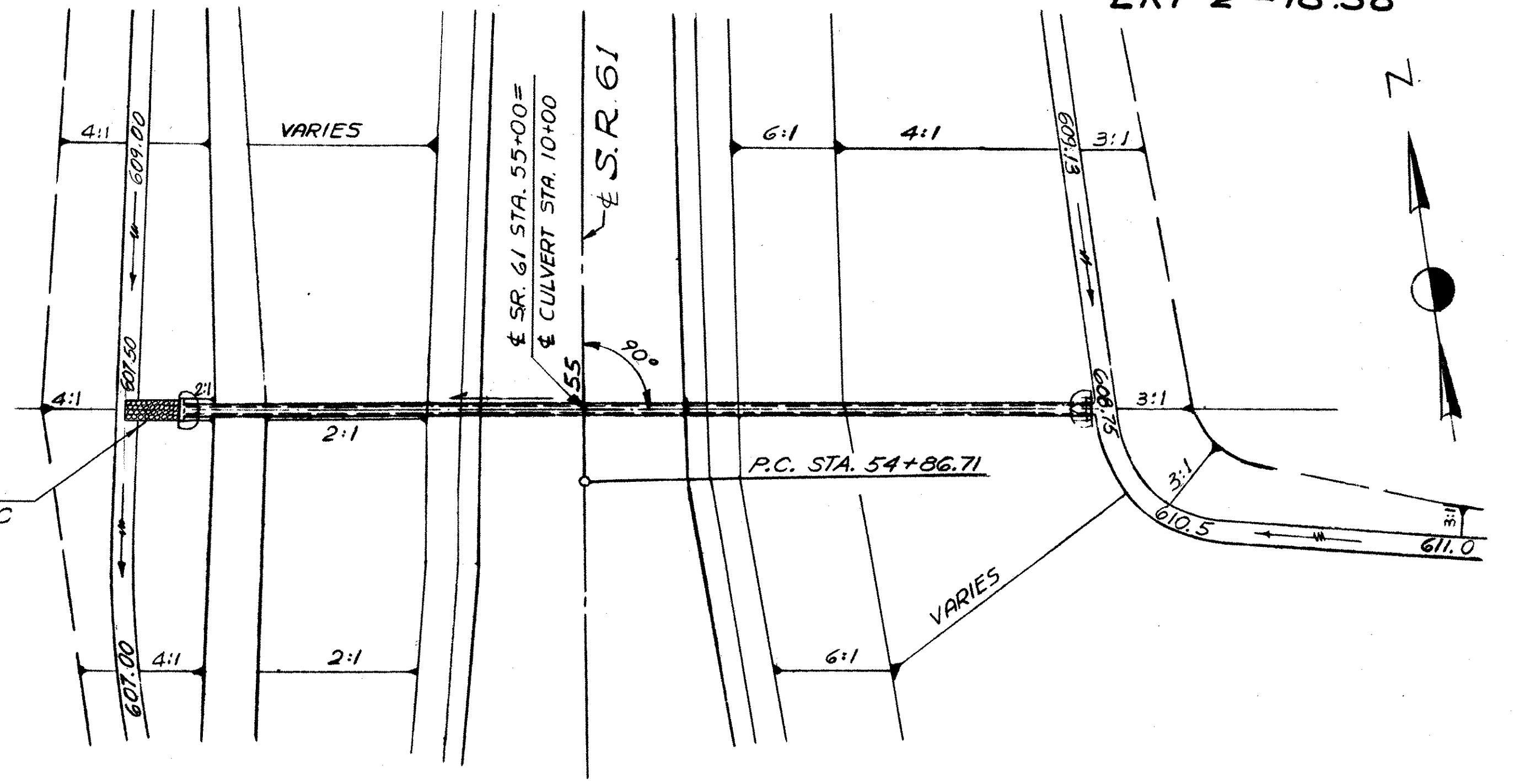


**PLAN**

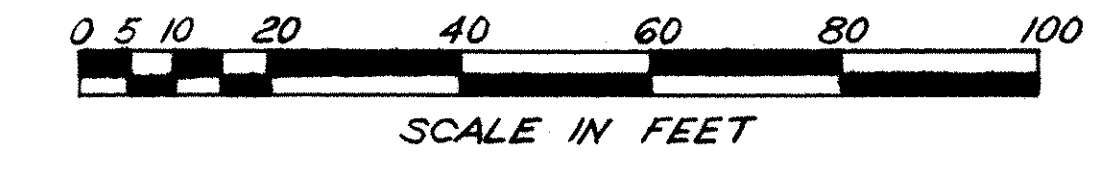


601-10'x4'x1.5' ROCK CHANNEL PROT. TYPE C WITH FILTER

601-10'x4'x1.5' ROCK CHANNEL PROT. TYPE C WITH FILTER

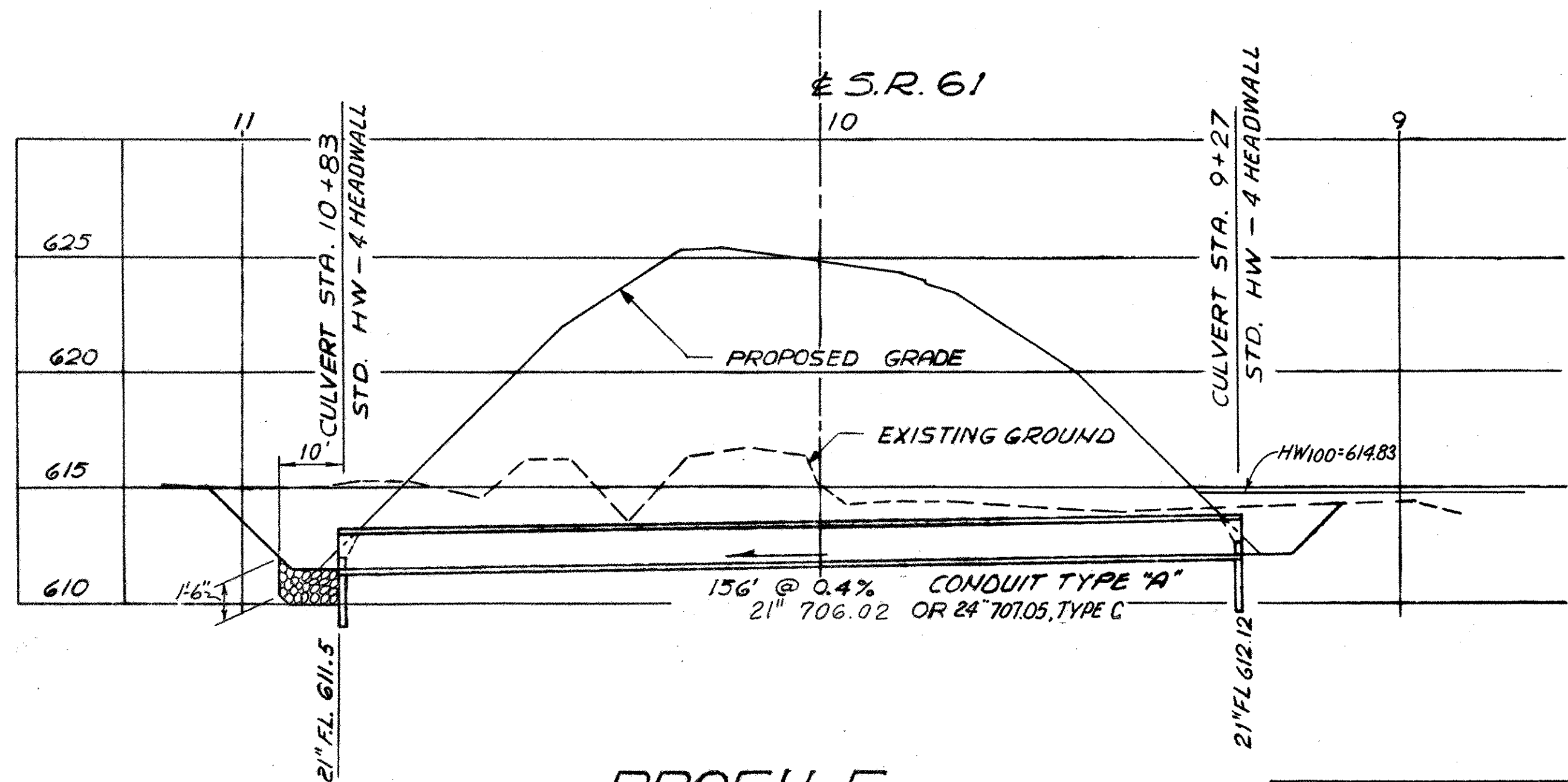


**PLAN**

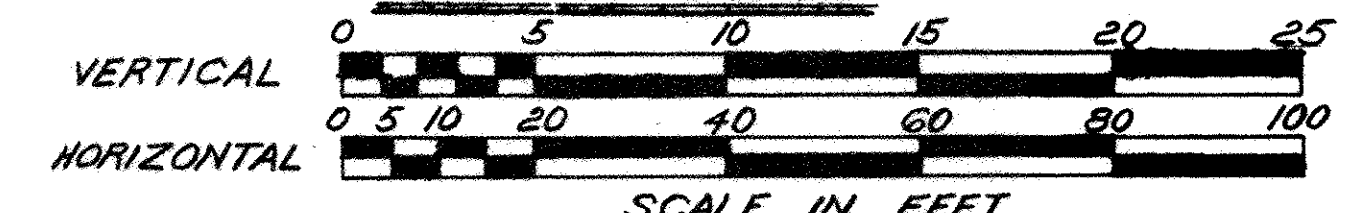


DRAINAGE AREA A = 2 ACRES  
DISCHARGE (DESIGN) Q = 8 C.F.S.

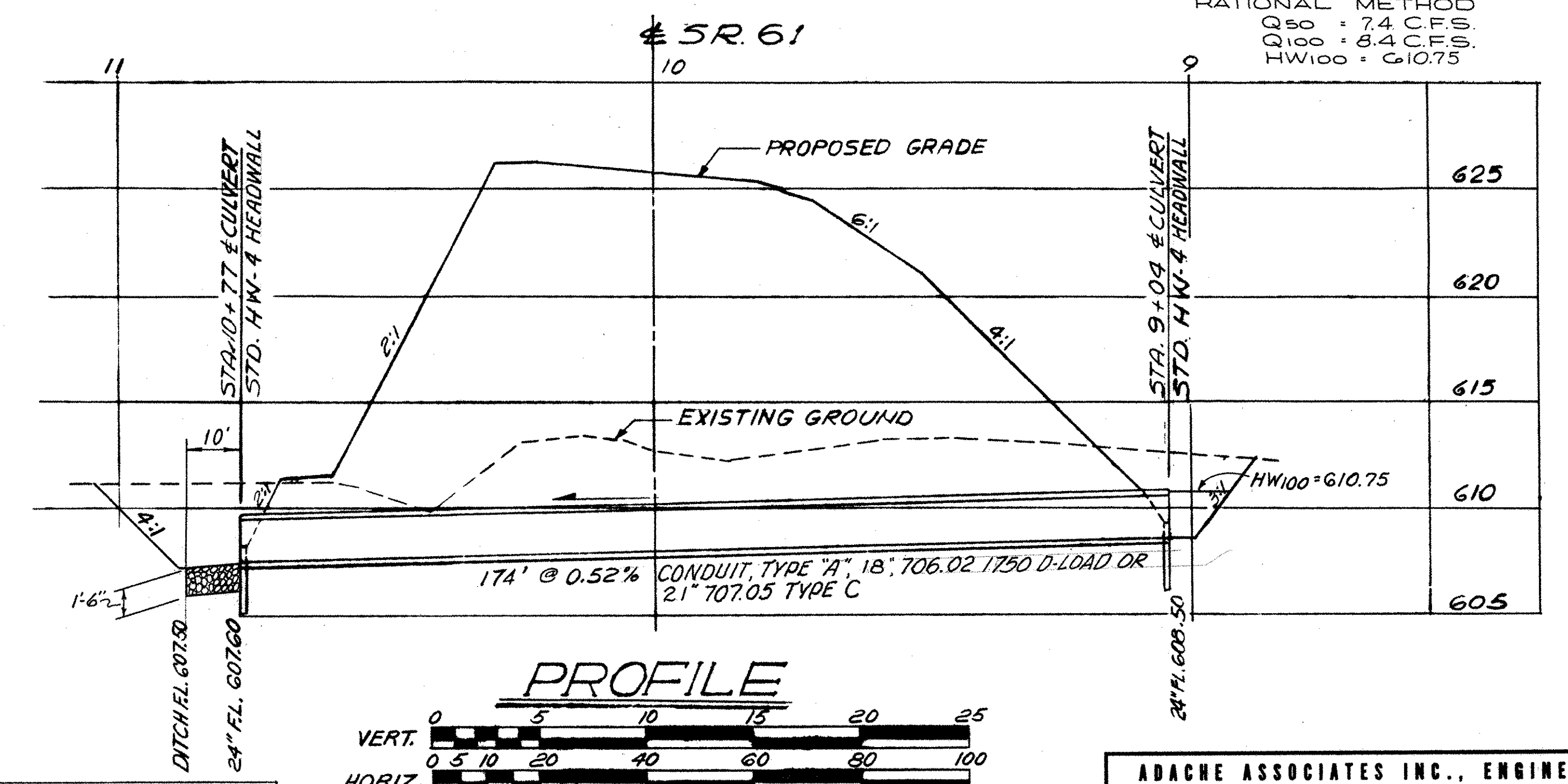
RATIONAL METHOD  
Q<sub>50</sub> = 7.4 C.F.S.  
Q<sub>100</sub> = 6.4 C.F.S.  
HW<sub>100</sub> = 610.75



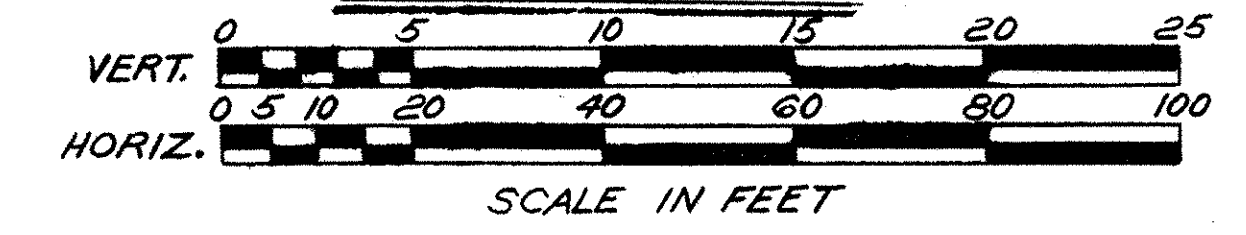
**PROFILE**



**S.R. 61 STA. 44+00**  
**CULVERT # 20**



**PROFILE**



**S.R. 61 STA. 55+00**  
**CULVERT # 21**

ESTIMATED QUANTITIES			
ITEM	CULVERT 20	CULVERT 21	TOTALS
601 ROCK CHANNEL PROTECTION TYPE C WITH FILTER	2.2 C.Y.	2.2 C.Y.	4.4 C.Y.
602 CONCRETE MASONRY	0.92 C.Y.	0.78 C.Y.	1.70 C.Y.
603 CONDUIT TYPE A, 21" 706.02 OR 24" 707.05, TYPE C	156 L.F.	—	156 L.F.
603 CONDUIT TYPE A, 18" 706.02 1750 D-LOAD OR 21" 707.05 TYPE C	—	174 L.F.	174 L.F.

DRAINAGE AREA A = 3 ACRES  
DISCHARGE (DESIGN) Q<sub>25</sub> = 11 C.F.S.

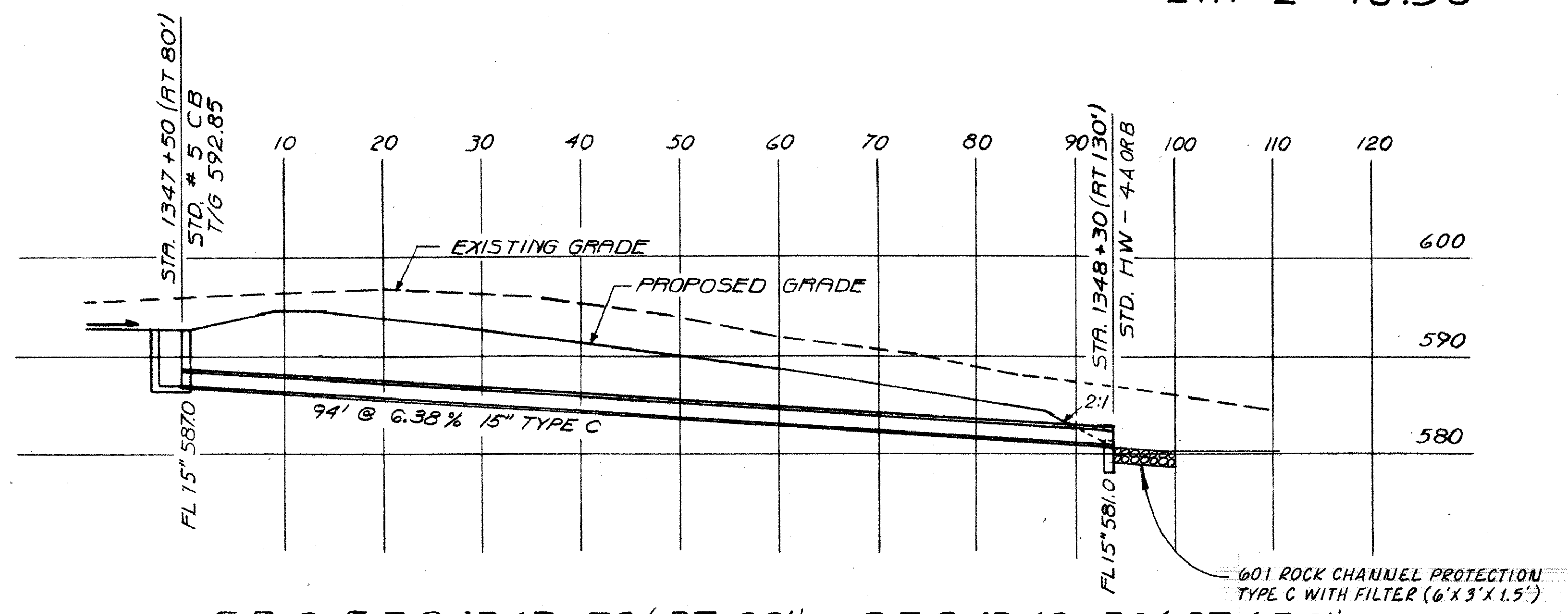
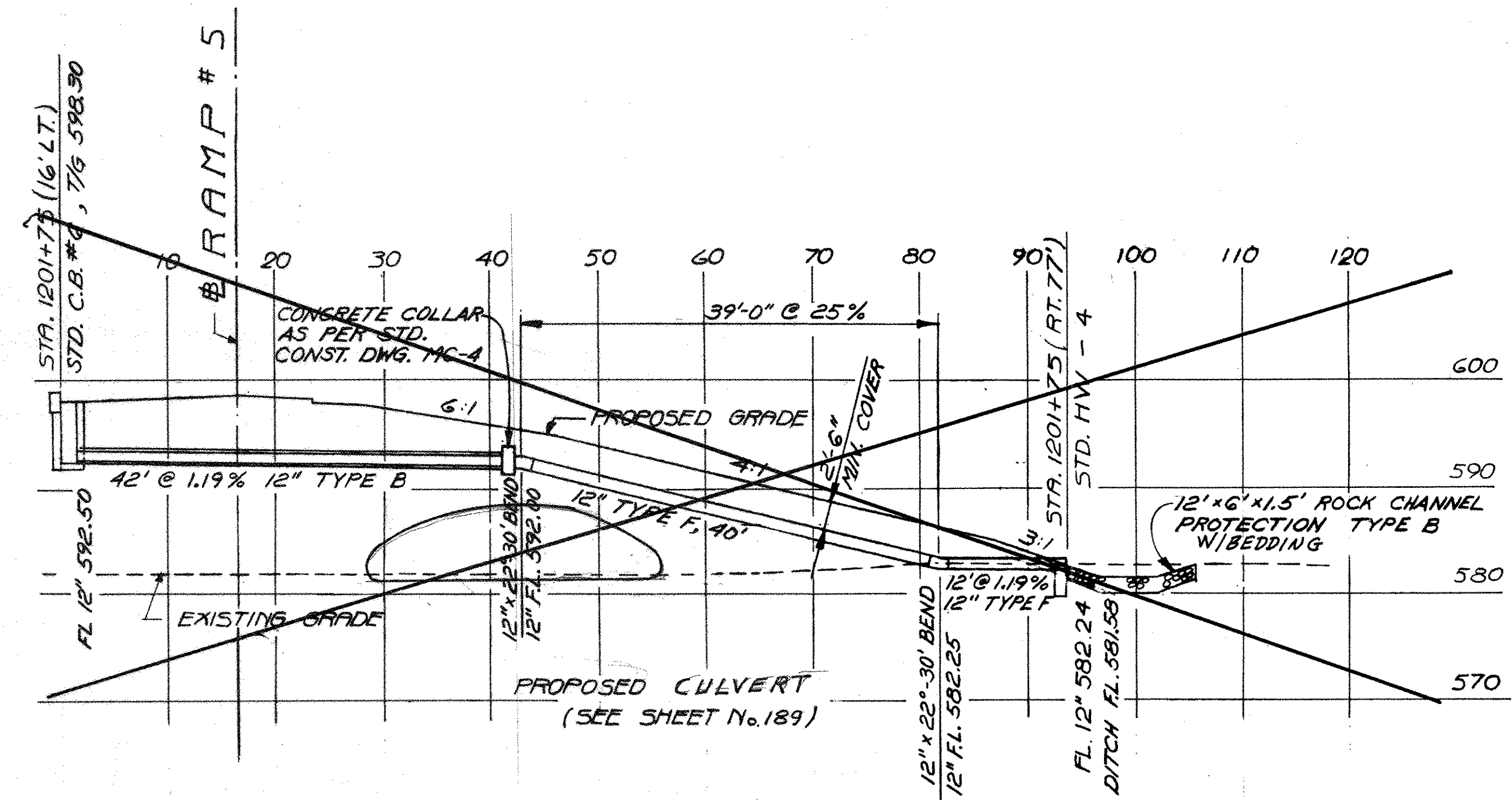
RATIONAL METHOD  
Q<sub>50</sub> = 10.4 C.F.S.  
Q<sub>100</sub> = 11.8 C.F.S.  
HW<sub>100</sub> = 614.83

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CLEVELAND, OHIO 44142

**S.R. 2**  
**CULVERT #20#21 DETAILS**  
**S.R. 61 STA. 44+00#55+00**

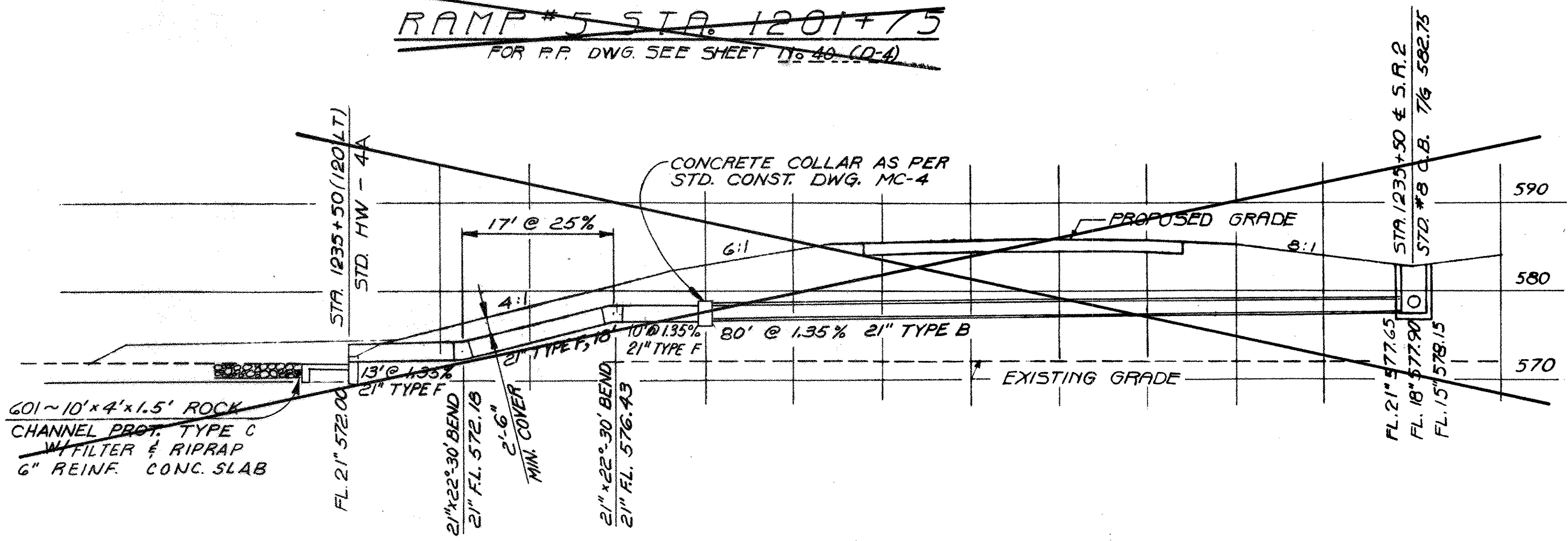
DESIGNED	DRAWN	CHECKED	REVISED	DATE
L.N.	N.K.	R.J.E.	R.E.L.	
5-23-68	6-1-68	3-5-70	8-19-74	

ERIE COUNTY  
ERI 2-18.38

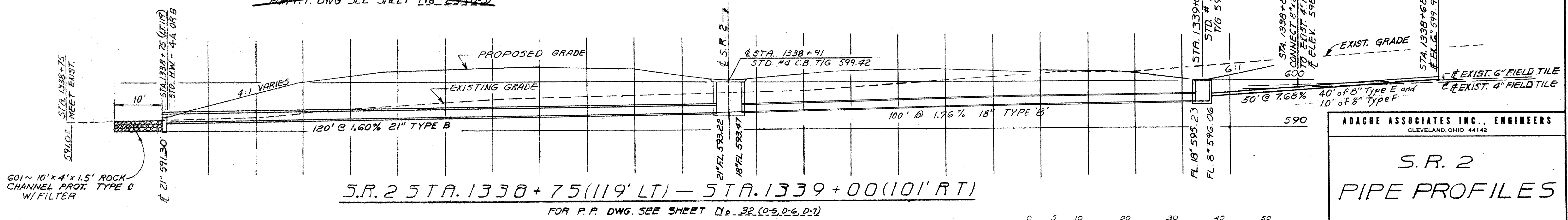


S.R. 2 STA. 1347+50 (RT. 80') - STA. 1348+30 (RT. 130')  
FOR P.P. DWG. SEE SHEET No. 33 (0-3)

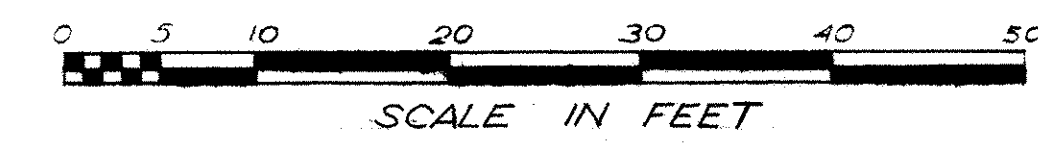
~~RAMP # 5 STA. 1201+75~~  
FOR P.P. DWG. SEE SHEET No. 40 (0-4)



~~S.R. 2 STA. 1235+50~~  
FOR P.P. DWG. SEE SHEET No. 23 (0-3)



S.R. 2 STA. 1338+75 (119' LT.) - STA. 1339+00 (101' RT.)  
FOR P.P. DWG. SEE SHEET No. 32 (0-3, 0-6, D-7)

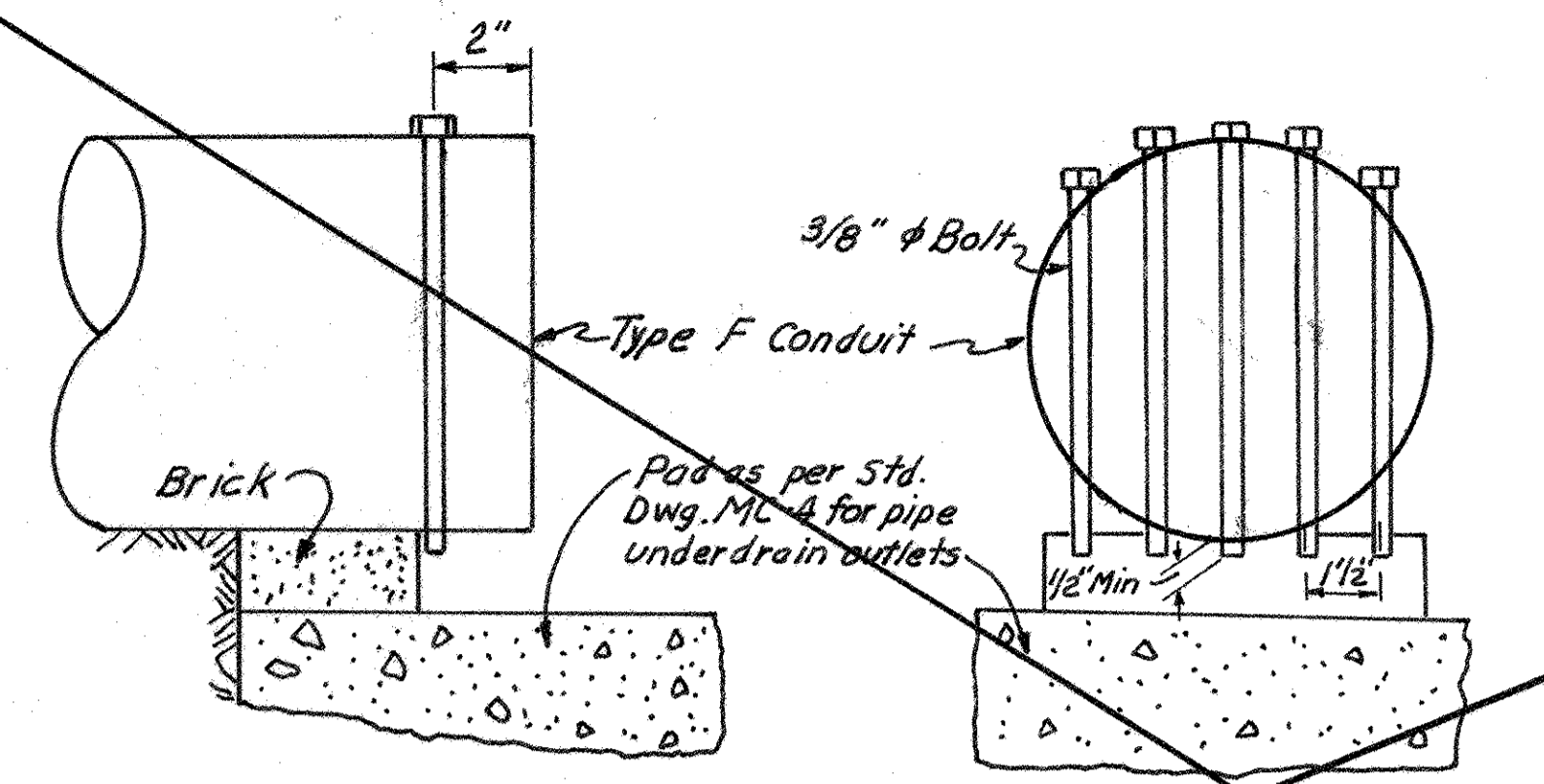


ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

S.R. 2  
PIPE PROFILES

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
L.N.	N.K.	R.J.Z.		
2-17-68	3-21-68	3-10-70		

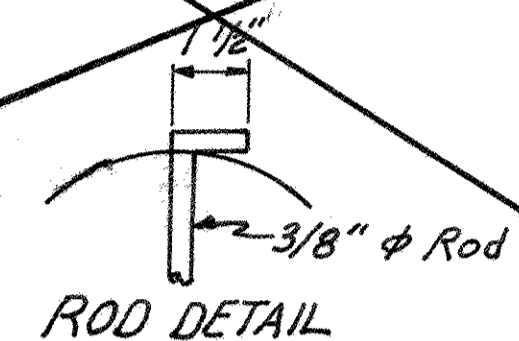
ERIE COUNTY  
ERI 2-18.38



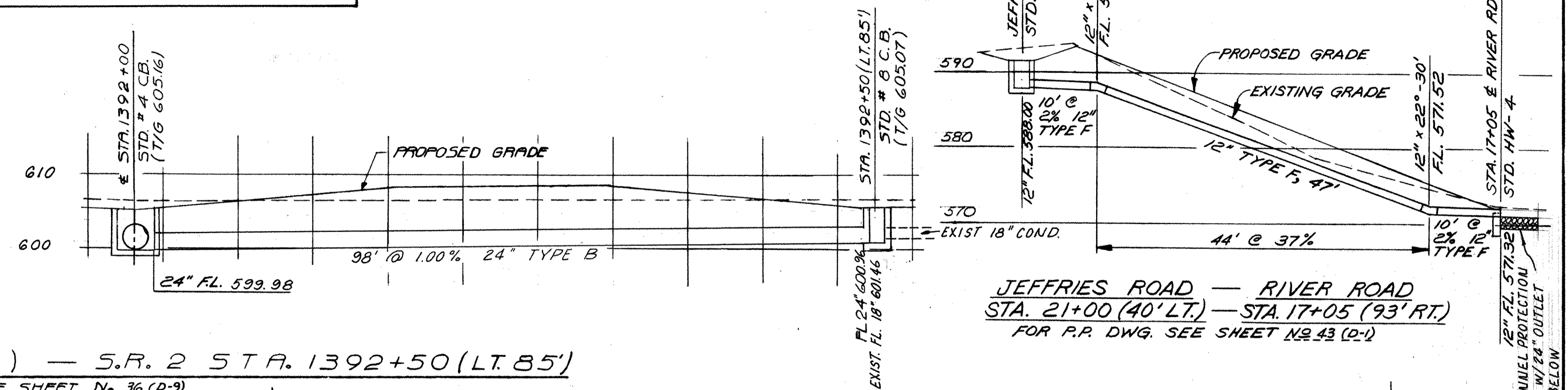
The steel bolts or rods shall be galvanized in accordance with ASTM A 153. The holes in the pipe shall be 1/2" diameter. In lieu of drilling or punching holes into the pipe, a metal collar meeting all the above requirements may be clamped on the end of the pipe if, in the opinion of the Engineer, it will provide the same results. When a pad as shown on Std. Dwg. MC-4 is required at the outlet end of the pipe, a brick may be placed between the pad and the pipe to provide clearance for the bolts or rods.

**BOLT OR ROD TABLE**

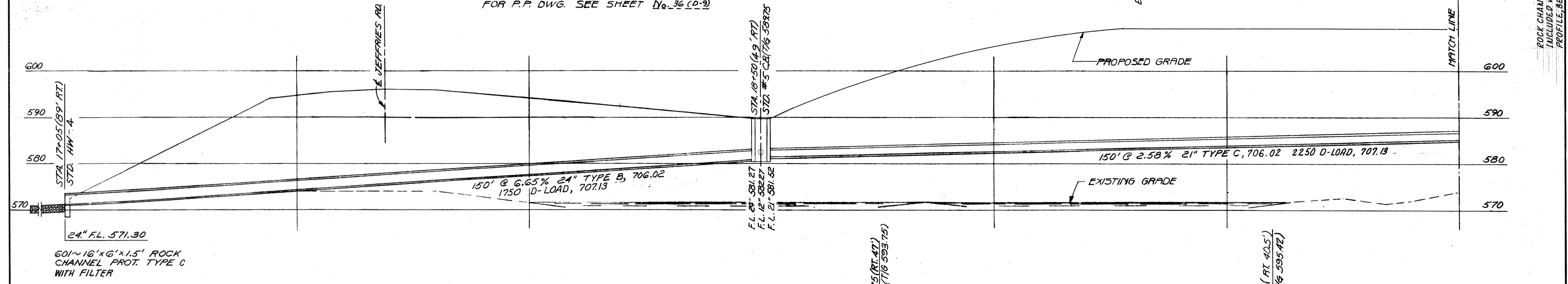
Conduit Size	4"	6"	8"	10"	12"	15"	18"
No. of Bolts or Rods	2	3	5	6	7	9	11



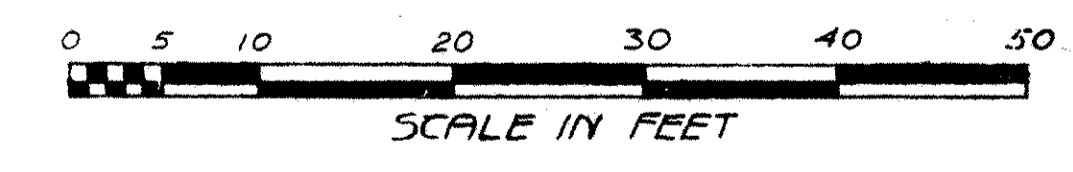
ANIMAL GUARD FOR PIPE OUTLET



S.R. 2 STA. 1392+00 (L) — S.R. 2 STA. 1392+50 (LT. 85')  
FOR P.P. DWG. SEE SHEET No. 36 (D-2)



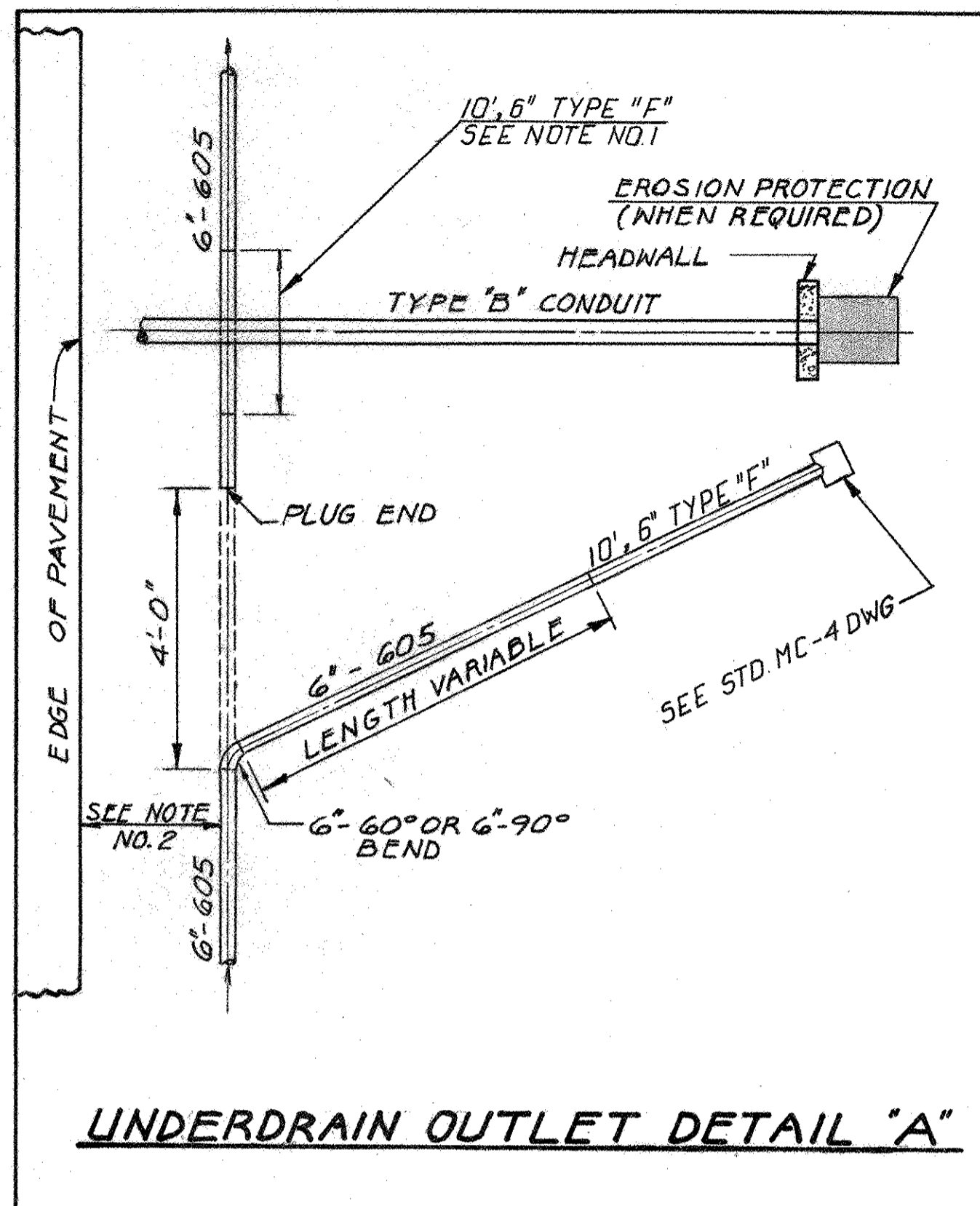
RIVER ROAD STA. 17+05 (RT. 89') — STA. 22+60 (RT. 40.5')  
FOR P.P. DWG. SEE SHEET Nos. 41 (D-2) & 42 (D-1, D-2)



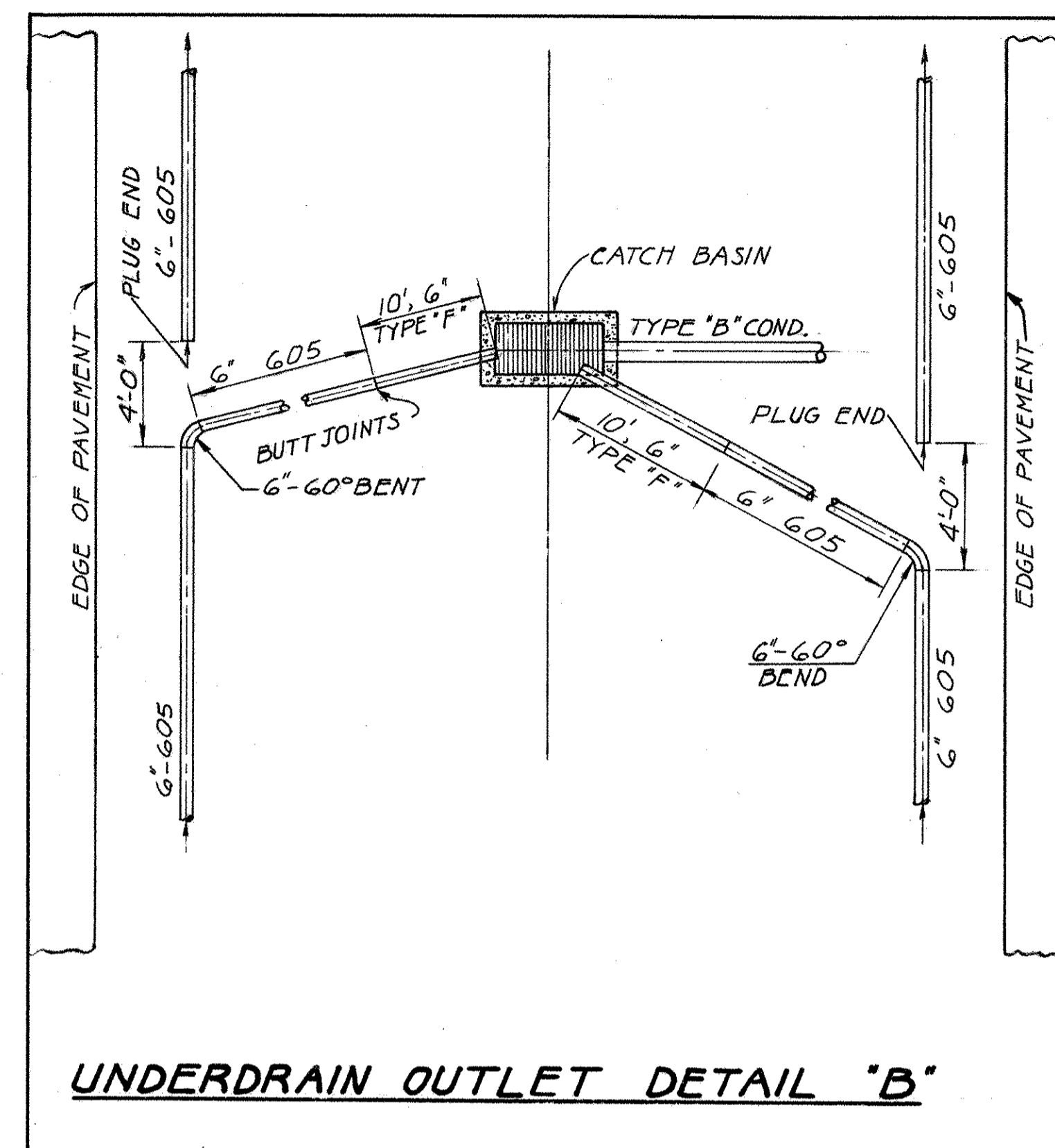
ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

S.R. 2  
PIPE PROFILES

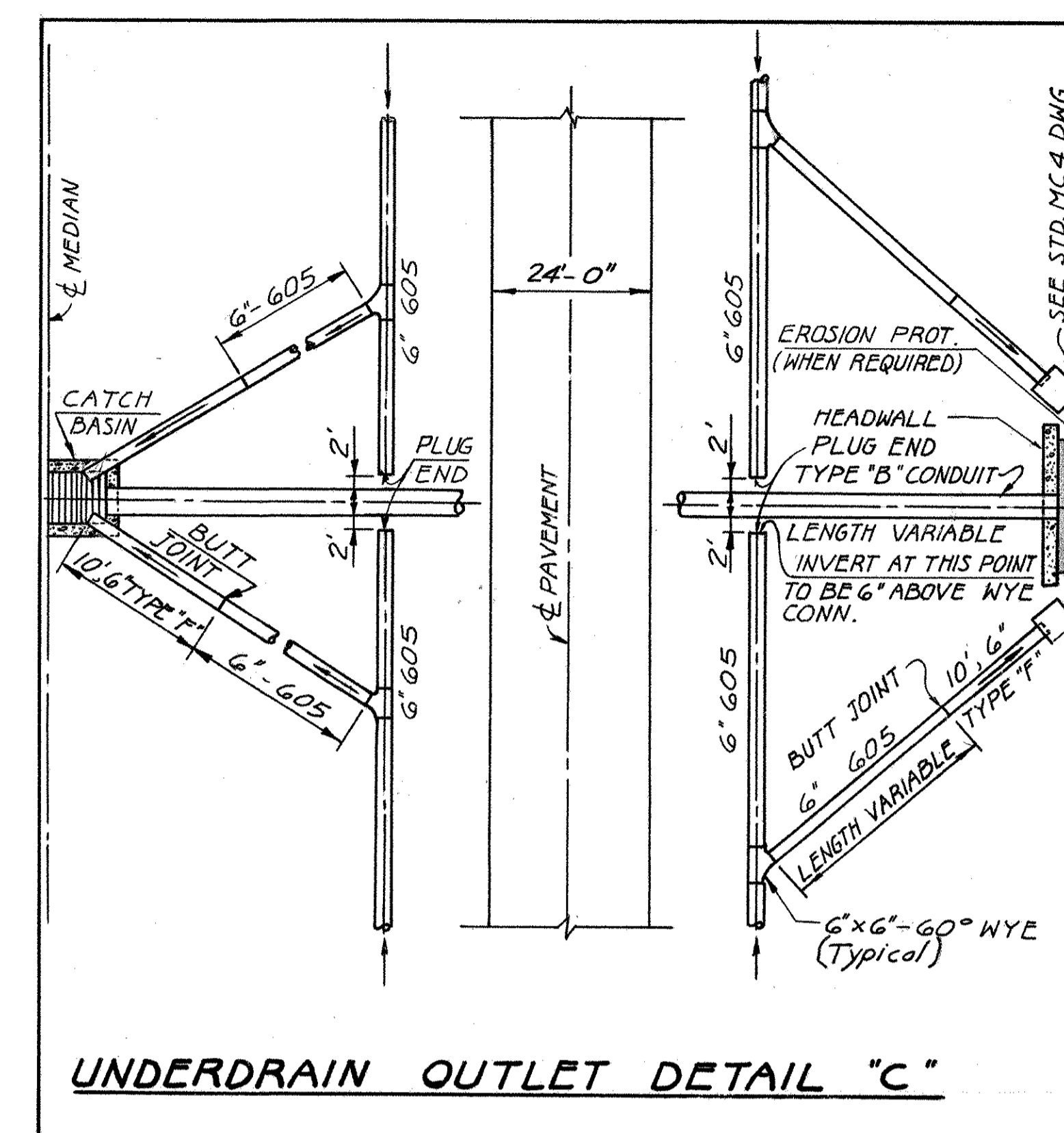
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
L.N.	N.K.	R.J.Z.		
2-17-68	3-21-68	3-10-70		



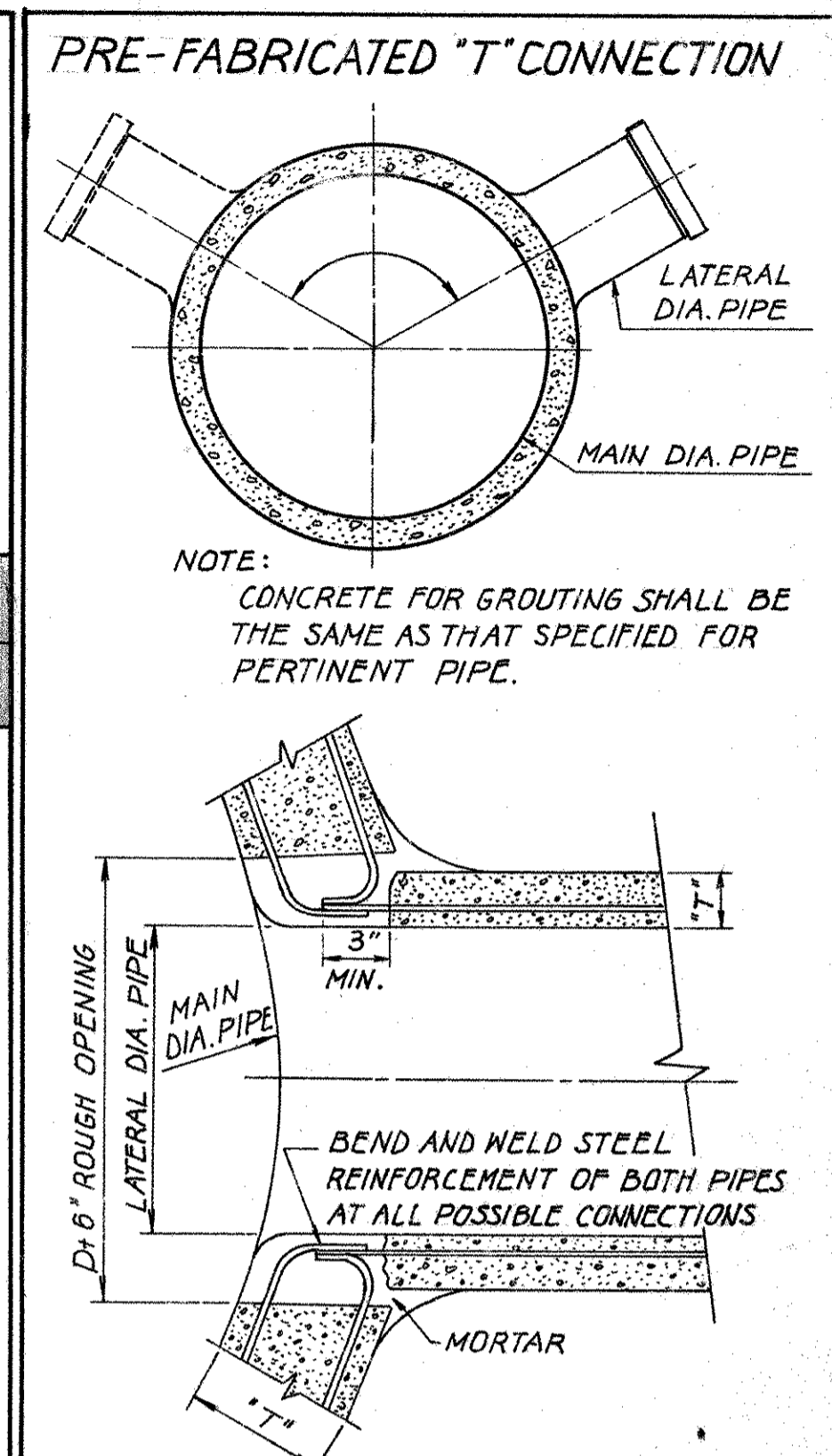
UNDERDRAIN OUTLET DETAIL "A"



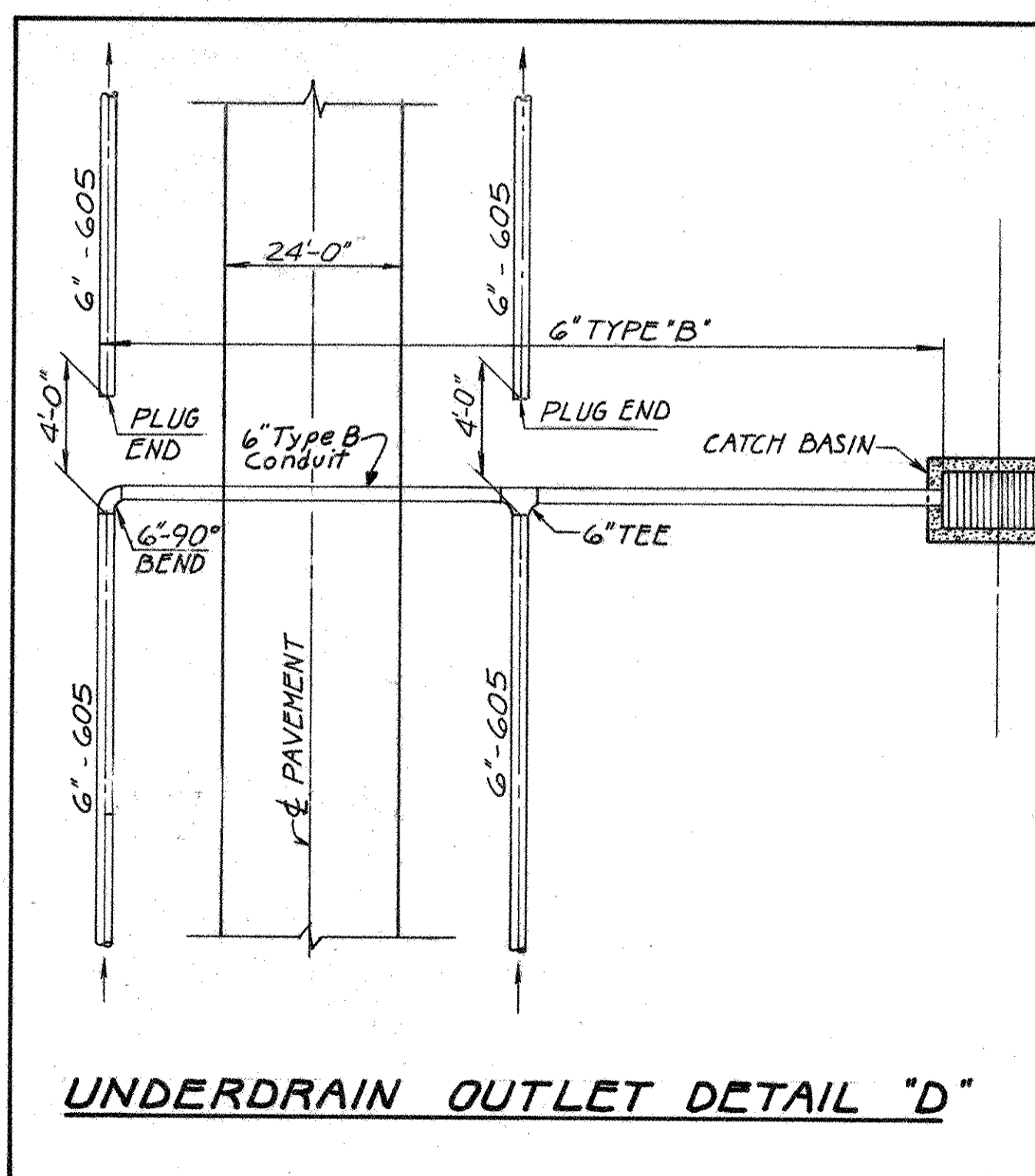
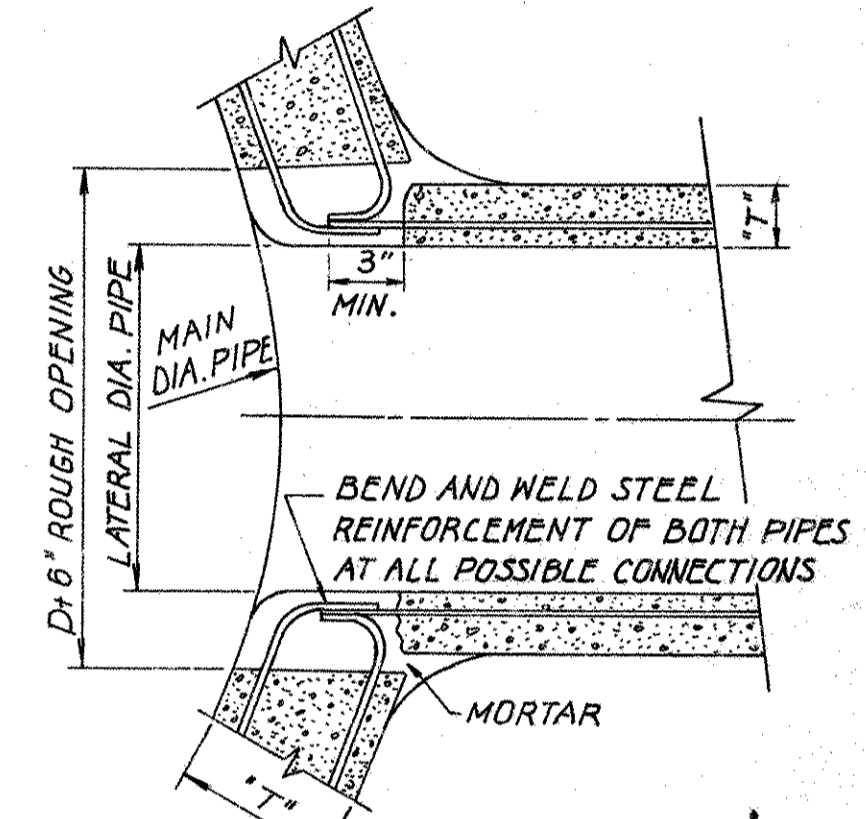
UNDERDRAIN OUTLET DETAIL "B"



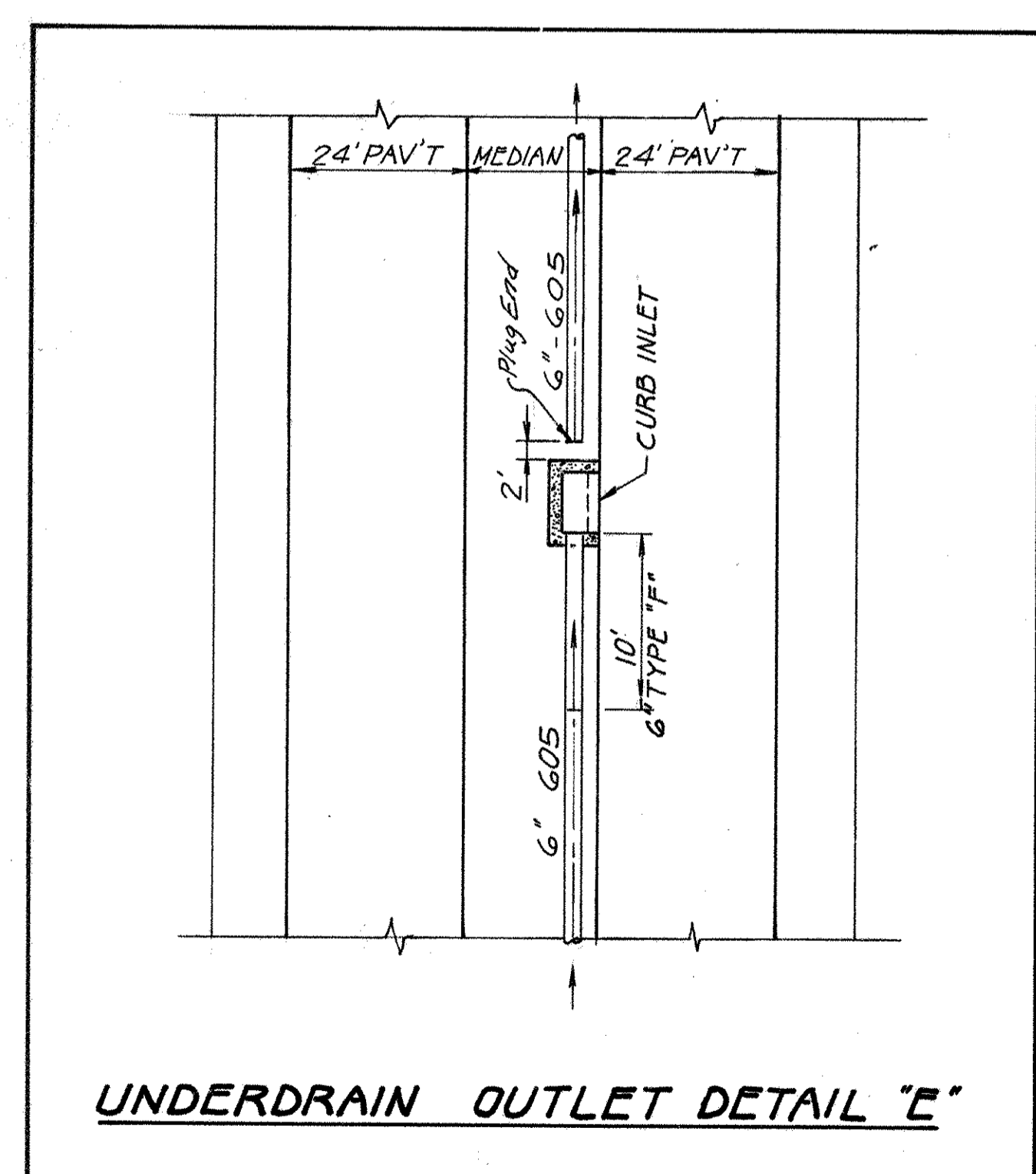
UNDERDRAIN OUTLET DETAIL "C"



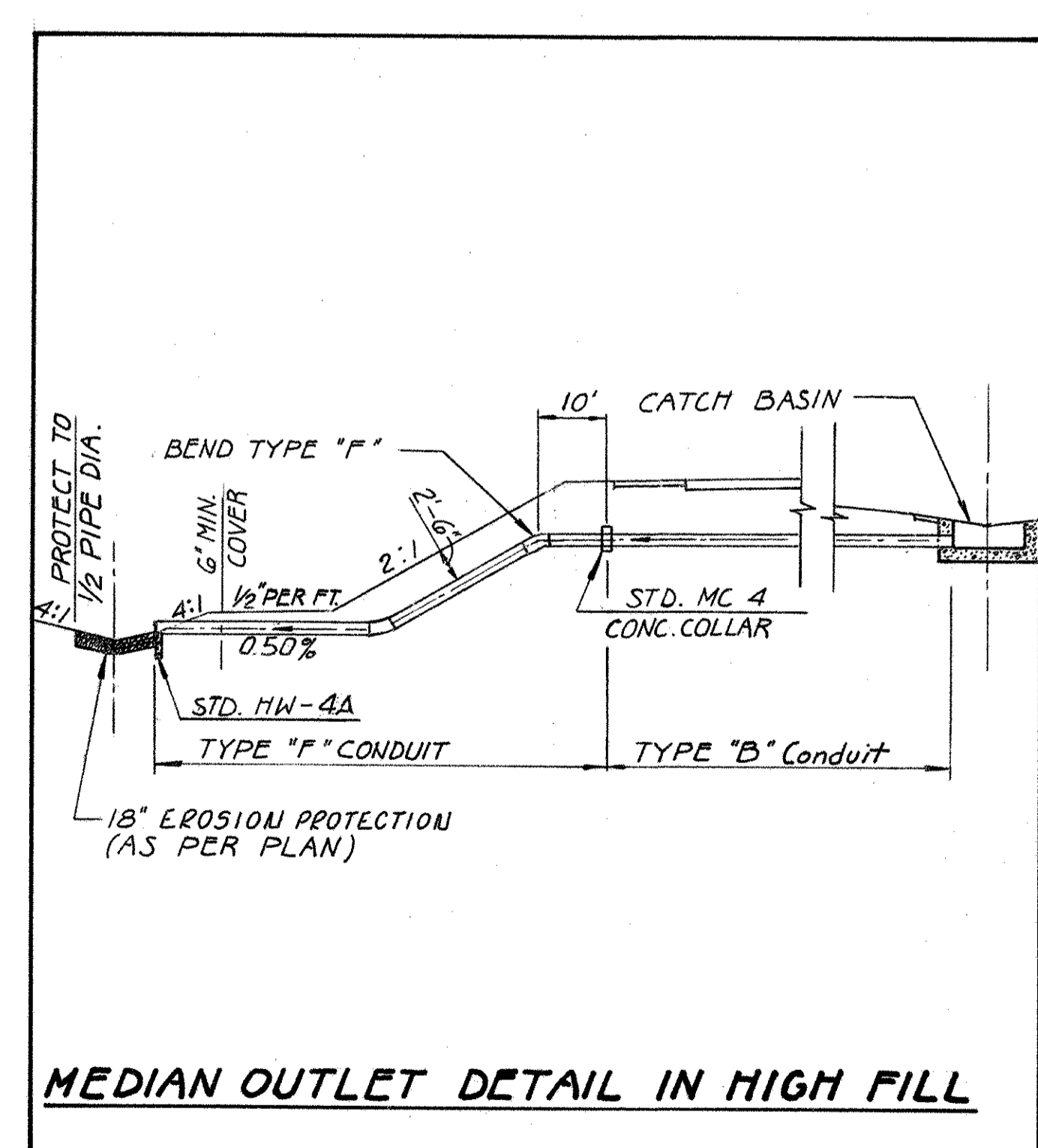
NOTE: CONCRETE FOR GROUTING SHALL BE THE SAME AS THAT SPECIFIED FOR PERTINENT PIPE.



UNDERDRAIN OUTLET DETAIL "D"

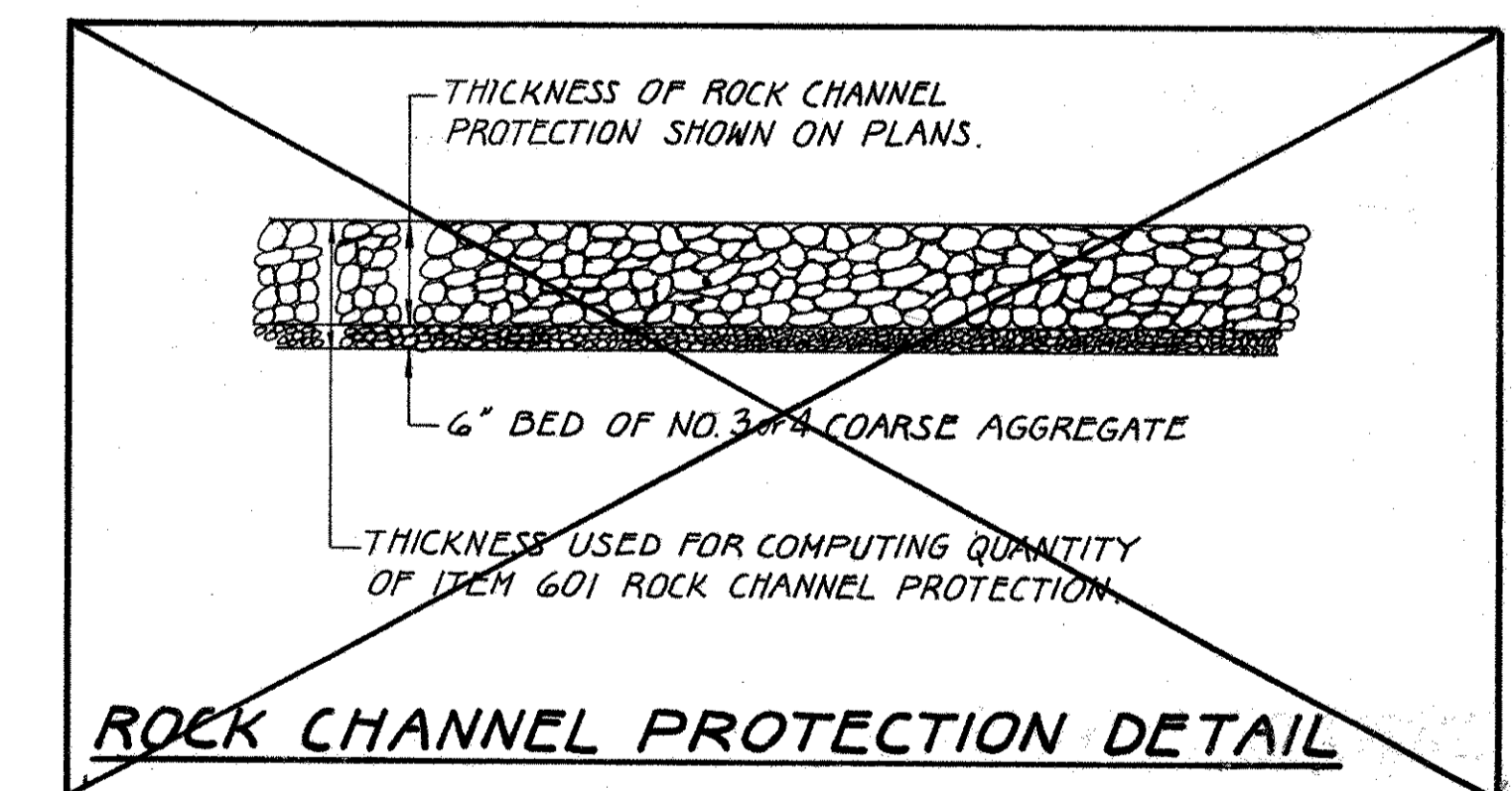


UNDERDRAIN OUTLET DETAIL "E"



MEDIAN OUTLET DETAIL IN HIGH FILL

- NOTES
1. WHEN IT IS DESIRABLE TO CONTINUE THE UNDERDRAIN ACROSS A TRANSVERSE LINE SUCH AS IN DETAIL "A" A 10' MIN. LENGTH OF 6" TYPE "F" CONDUIT SHOULD BE USED TO SPAN THE TRENCH UNLESS SUCH CROSSING IS ABOVE THE AREA OF GRANULAR BACK FILL.
  2. MEDIAN OUTLET PIPES IN HIGH FILL MAY OUTLET ONE FOOT, ABOVE DITCH BOTTOM.



ROCK CHANNEL PROTECTION DETAIL

ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

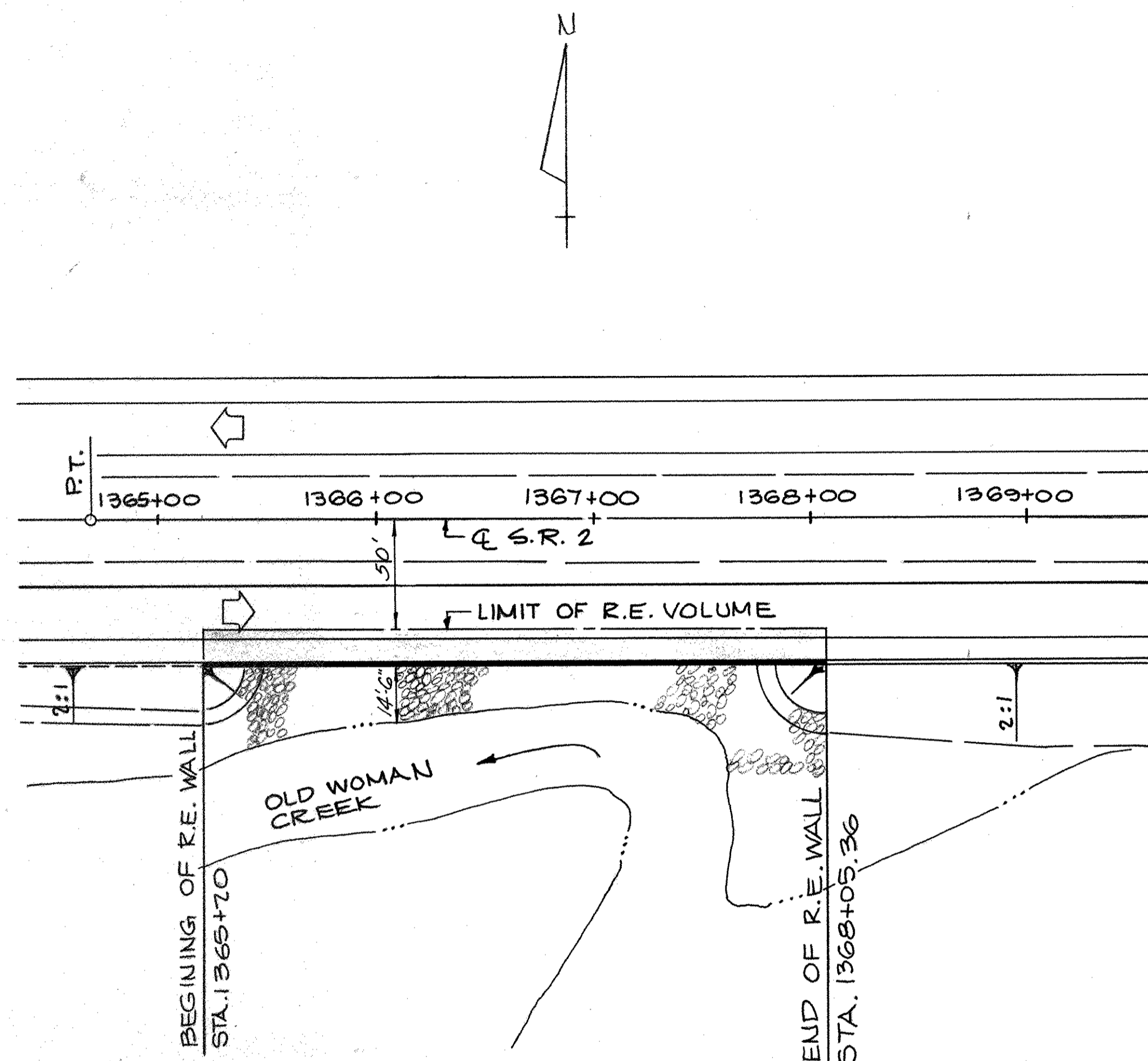
S.R. 2  
TYPICAL UNDERDRAIN  
MEDIAN OUTLET DETAILS

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
L.N.	V.I.P.	R.J.Z.		
5-5-69	6-24-69	8-4-69		

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

201A  
326

ERIE COUNTY  
ERI - 2 - 18.38



GENERAL NOTES

1. ALL PANELS ARE TYPE "A" UNLESS OTHERWISE NOTED.
2. FOR TYPICAL SECTION THRU WALL SEE SHEET NO. 2 OF 3.
3. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE REINFORCED EARTH VOLUME, METHODS OF CONSTRUCTION AND QUALITY OF PREFABRICATED MATERIALS SHALL CONFORM TO THE MANUFACTURER'S SPECIFICATIONS.
4. SYMBOLS  

	H		NO. OF TIE STRIPS
--	---	--	-------------------
5. REINFORCING STRIPS FOR THE REINFORCED EARTH WALL SHALL CONFORM TO THE PHYSICAL & MECHANICAL PROPERTIES OF ASTM - A-572, GRADE 65.
6. PRECAST TRAFFIC BARRIER, QUANTITY SHALL INCLUDE ALL OF THE CAST IN PLACE CONCRETE JUNCTION SLAB INCLUDING REINFORCING STEEL AS DETAILED IN THE PLAN.

R.E. PANELS  
SURFACE AREA = 4,653.5

ESTIMATED QUANTITIES DIRECT TO GENERAL SUMMARY SHEET			
ITEM	QUANTITY	UNIT	DESCRIPTION
SPECIAL	4,654	SQ. FT.	REINFORCED EARTH WALLS
203	2,406	CU. YDS.	SELECT GRANULAR EMBANKMENT, EXCLUDING SLAG
503	LUMP	LUMP	COFFERDAMS, CRIBS AND SHEETING.
SPECIAL	285	LIN. FT.	PRECAST TRAFFIC BARRIER, INCLUDING CAST IN PLACE REINFORCED CONCRETE JUNCTION SLAB

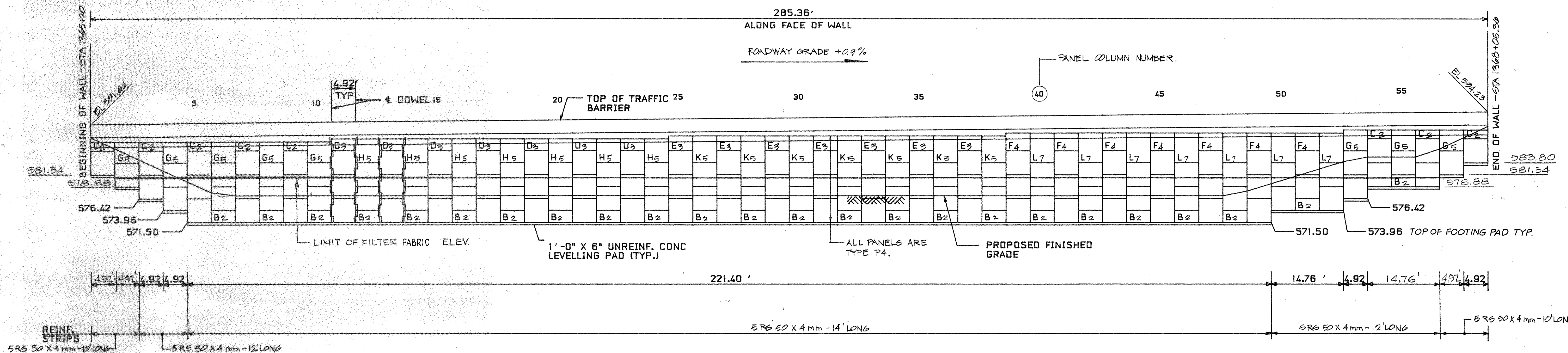
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<b>The Reinforced Earth Company</b> Roslyn Center, 1700 North Moore Street, Arlington, Virginia 22209 (703) 527-3434	
Structure	REINFORCED EARTH WALL
Location	ERI - 2 - 18.38 ERIE COUNTY, OHIO OLD WOMAN CREEK
Owner	
Drawn By	AV
Date	9/9/83
Checked By	
DRAWING COVERS	CONTRACT NO. 1366
PLAN	DRAWING NO. 1 OF 4
	SCALE AS NOTED
REV. NO.	DATE DESCRIPTION

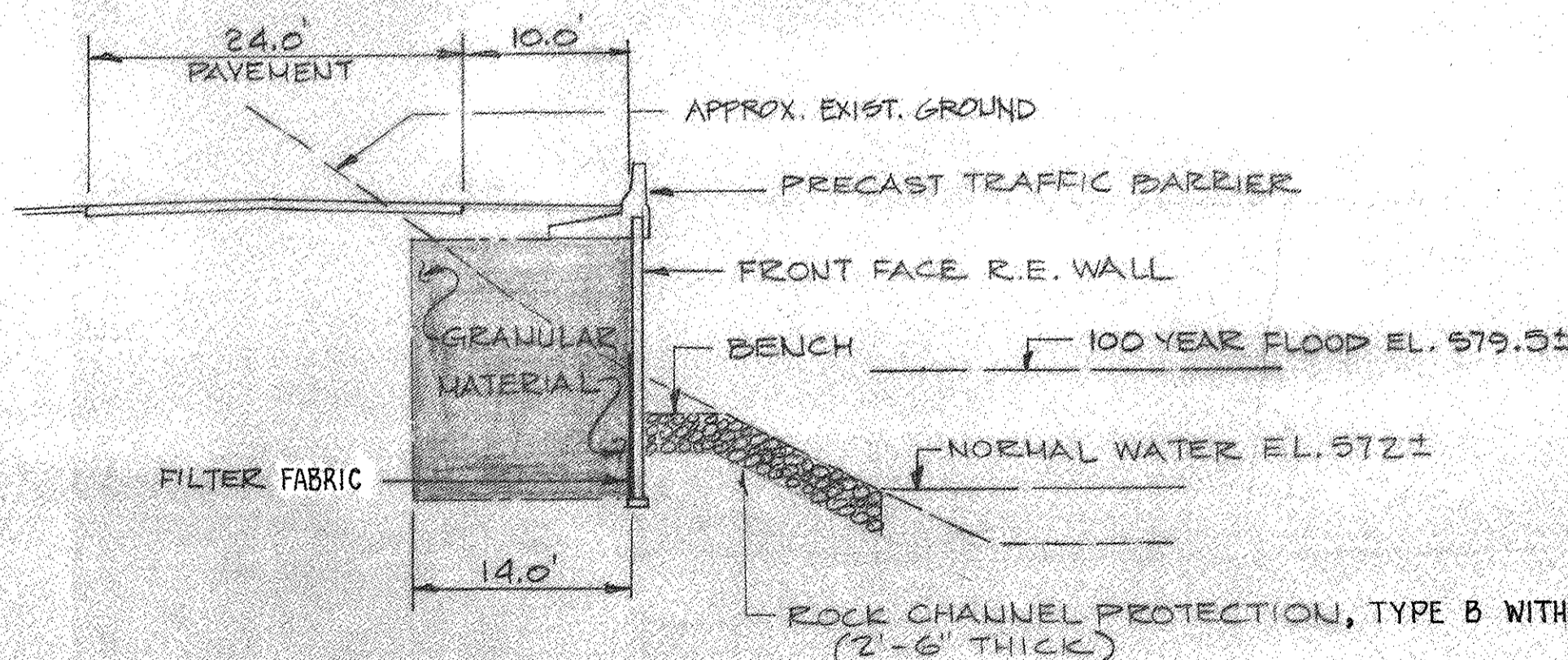
F.H.W.A. REGION	STATE	PROJECT
5	OHIO	

201-B  
326

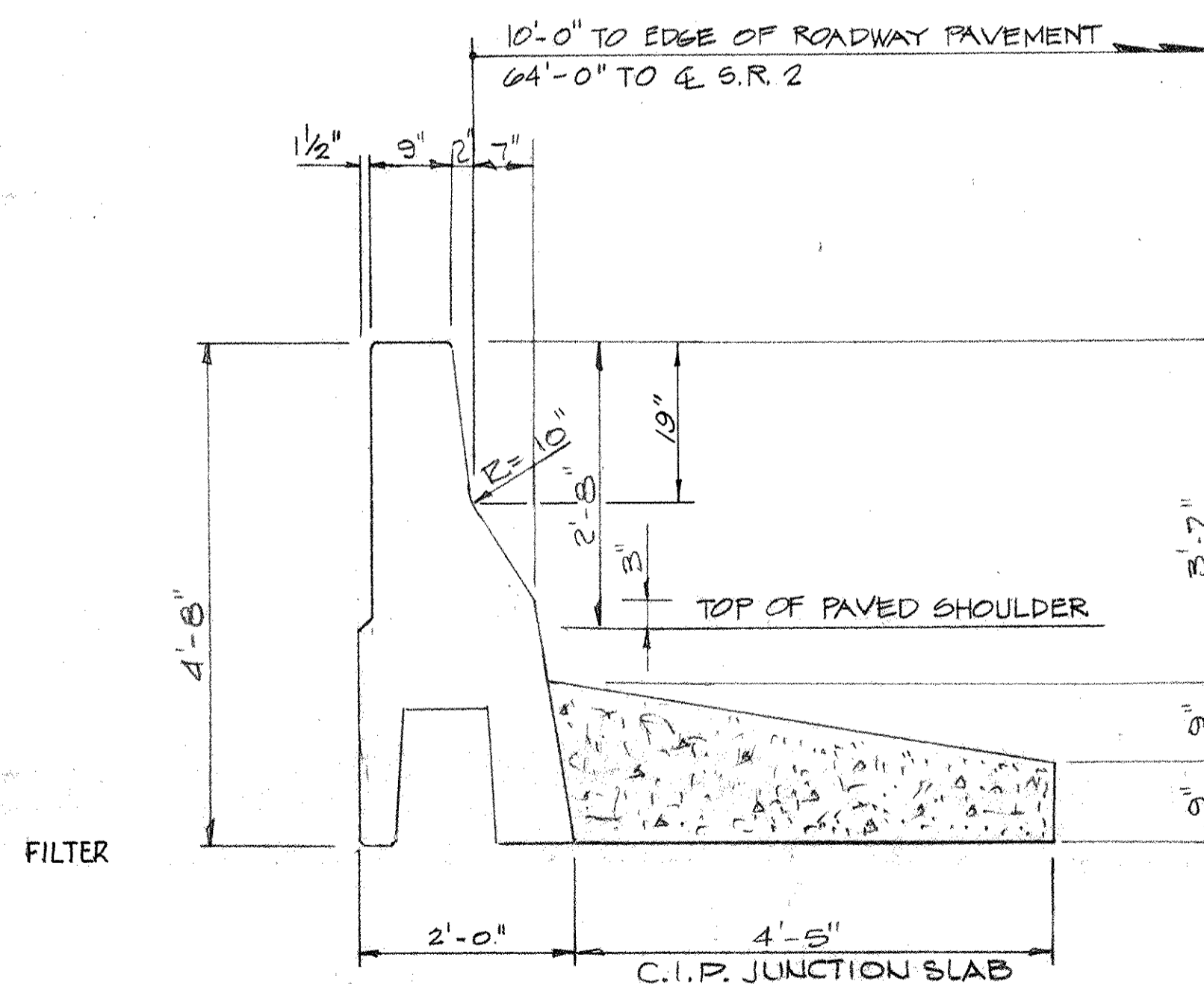
ERIE COUNTY  
ERI - 2 - 18.38



ELEVATION - FRONT FACE

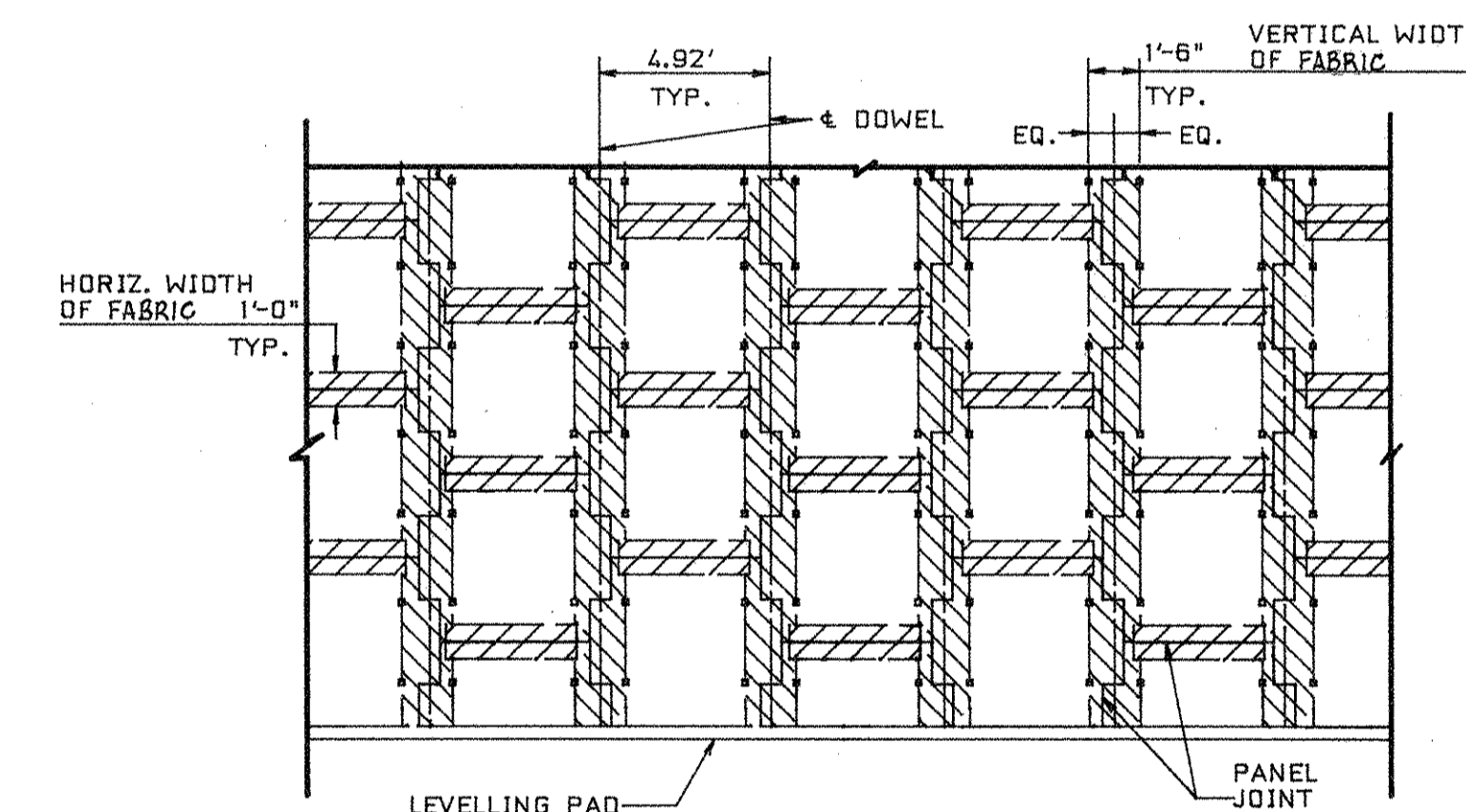


TYPICAL SECTION



PRECAST TRAFFIC BARRIER

(FOR DETAILS SEE SHEET 3.)



NOTE: FIELD CUT STRIPS OF FILTER FABRIC SHALL BE PLACED ON THE BACK FACE OF WALL (OVER JOINTS), PREVIOUSLY COATED WITH ADHESIVE COMPOUND (PLILOBOND 5001) OR EQUAL. VERTICAL STRIPS SHALL BE FIELD SLIT AT THE TIE STRIP LOCATION TO CLEAR REINFORCING STRIP CONNECTION.

FILTER FABRIC DETAIL  
PARTIAL ELEVATION - BACK FACE

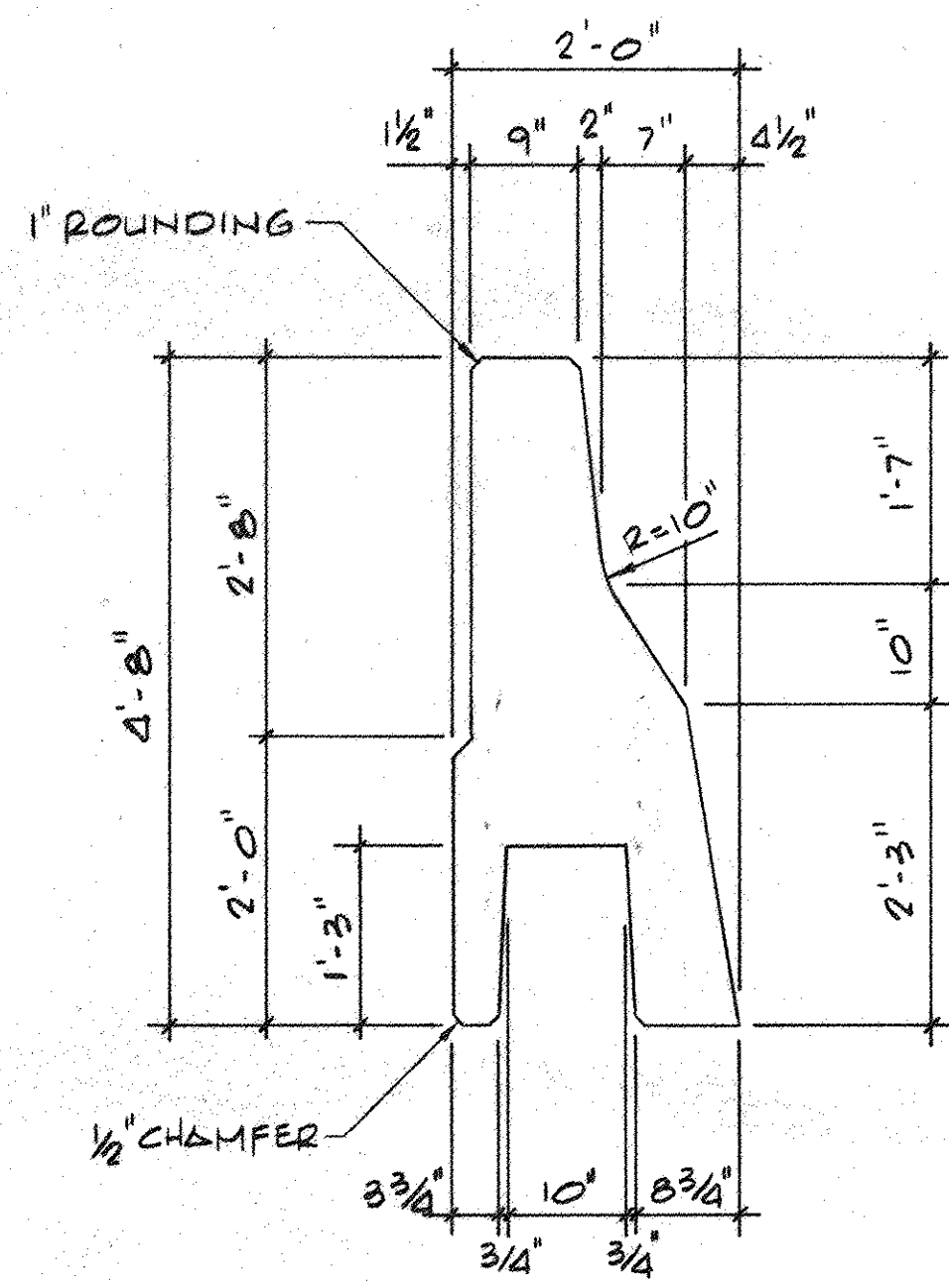
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<p><b>The Reinforced Earth Company</b> Roslyn Center, 1700 North Moore Street, Arlington, Virginia 22209 (703) 527-3434</p>		
Structure	REINFORCED EARTH WALL	
Location	ERI-2-18.38 ERIE COUNTY, OHIO	
Owner	OLD WOMAN CREEK	
Drawn By	AV 9/9/83	
Checked By	DATE	
CONTRACT NO.	1366	
DRAWING NO.	2 OF 4	
SCALE	AS NOTED	
REV. NO.	DATE	DESCRIPTION

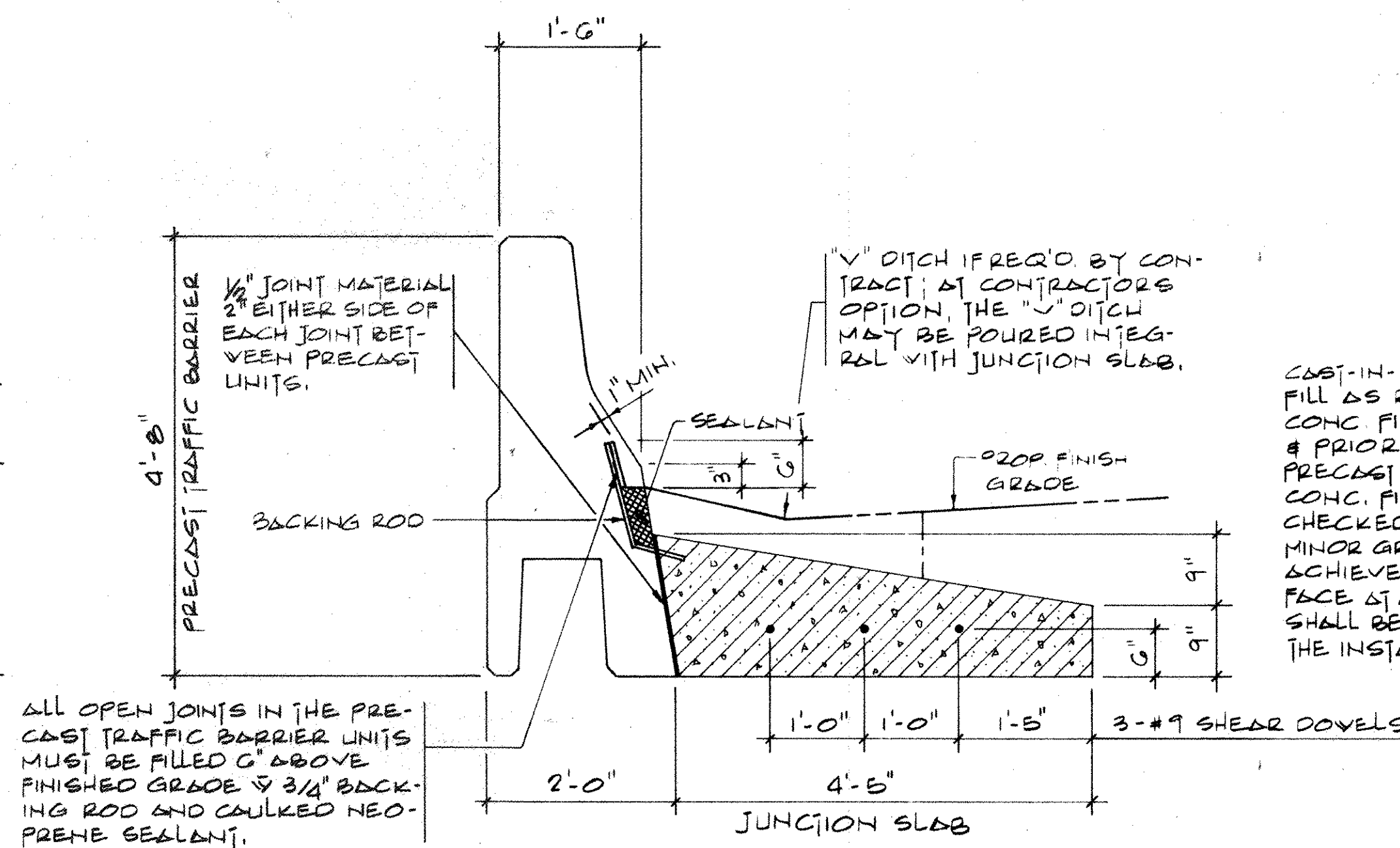
FHWA REGION	STATE	PROJECT	
5	OHIO		

201C  
326

ERIE COUNTY  
ERI-2-18.38

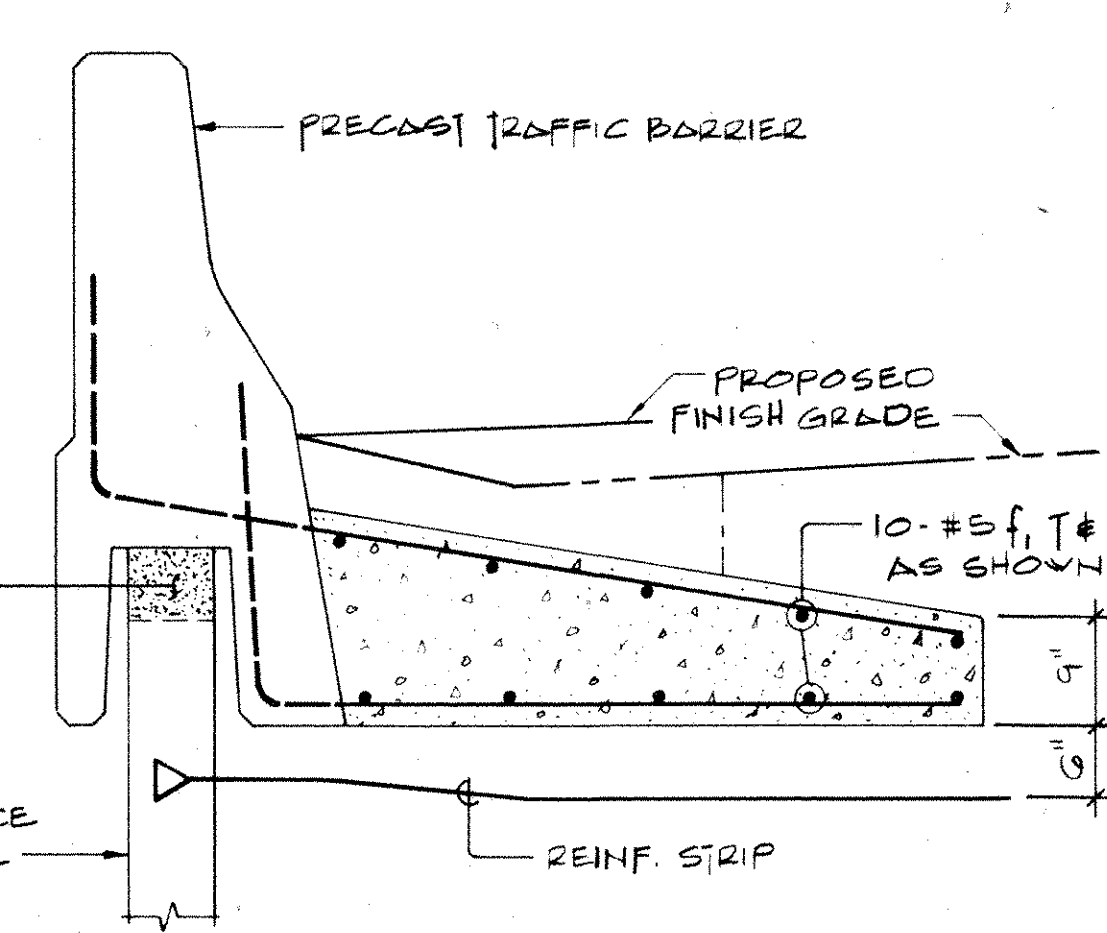


SECTION \* PRECAST TRAFFIC BARRIER.

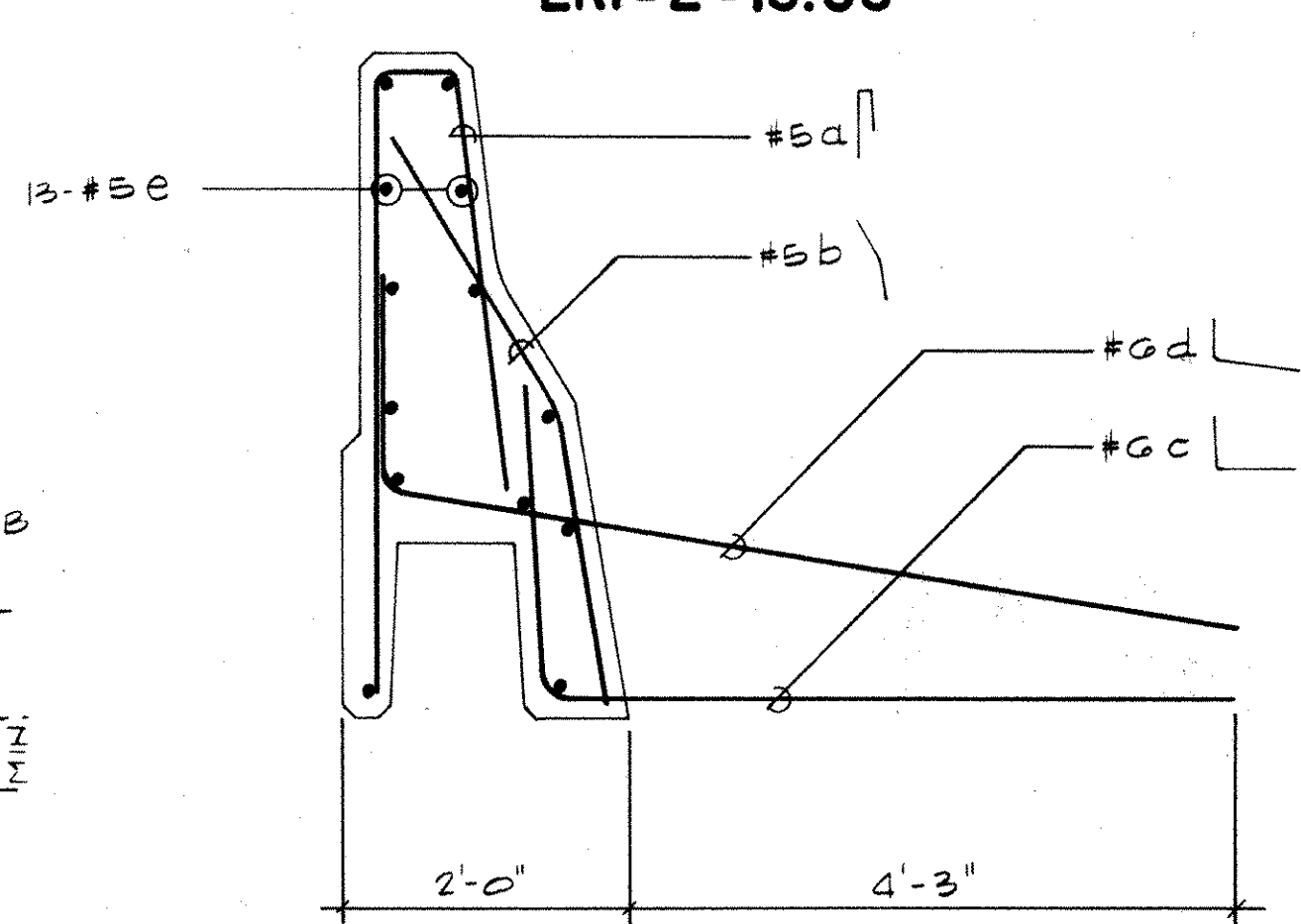


SECTION "A"- "A"

CASI-IN-PLACE CONC. FILL AS REQ'D. AFTER CONC. FILL IS PLACED & PRIOR OF GETTING PRECAST UNITS THE CONC. FILL SHALL BE CHECKED FOR LEVEL MINOR GROUTING TO ACHIEVE A LEVEL SURFACE AT ALL POINTS SHALL BE INCIDENTAL TO THE INSTALLATION.

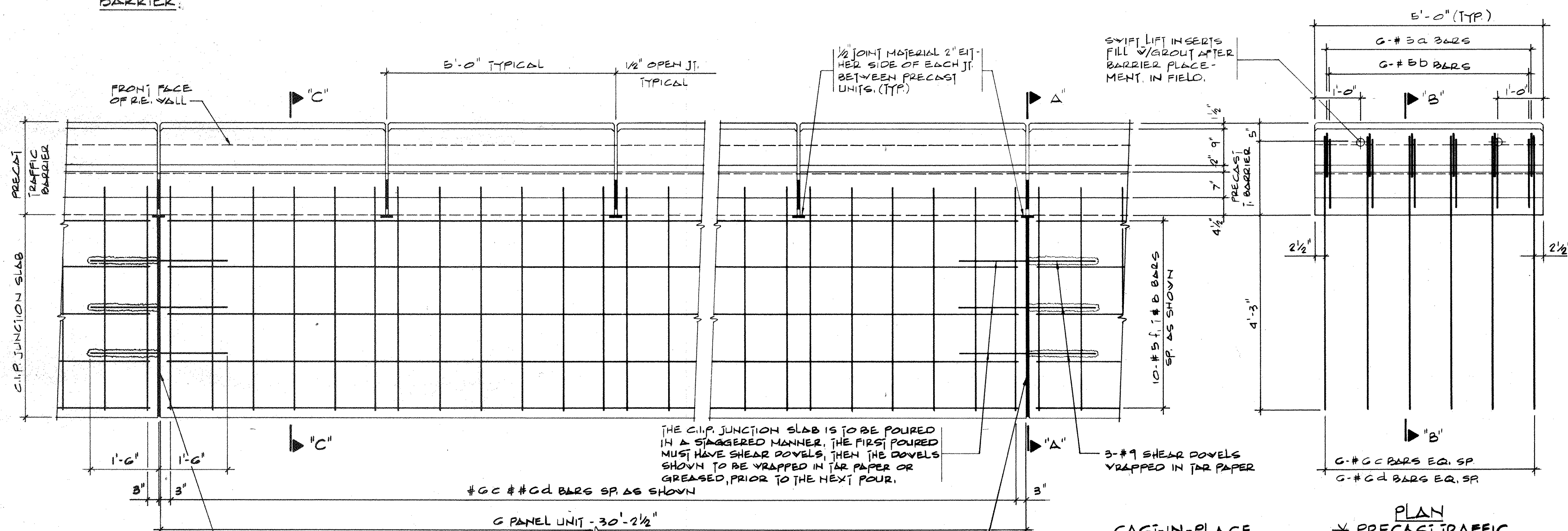


SECTION "C"- "C"



SECTION "B"- "B"

Note:  
Bars #5A, #5B, #5C, #5D, and #5E will be shown on shop drawings.



PLAN \* PRECAST TRAFFIC BARRIER  
C.I.P. JUNCTION SLAB

CASI-IN-PLACE JUNCTION SLAB  
CONCRETE: = 19 C.Y./L.F.  
STEEL: = 11.76 LBS./L.F.

BAR LIST FOR CASI-IN-PLACE CONCRETE						
BAR DESIGNATION	SIZE	QUANTITY	LBS./FT.	LENGTH EACH	TOTAL LENGTH	TOTAL WEIGHT
BAR f	#5	10	1.043	29'-0 1/2"	297'-1"	310 LBS.
SHEAR DOVELS	#9	3	3.40	3'-0"	9'-0"	30.6 LBS.

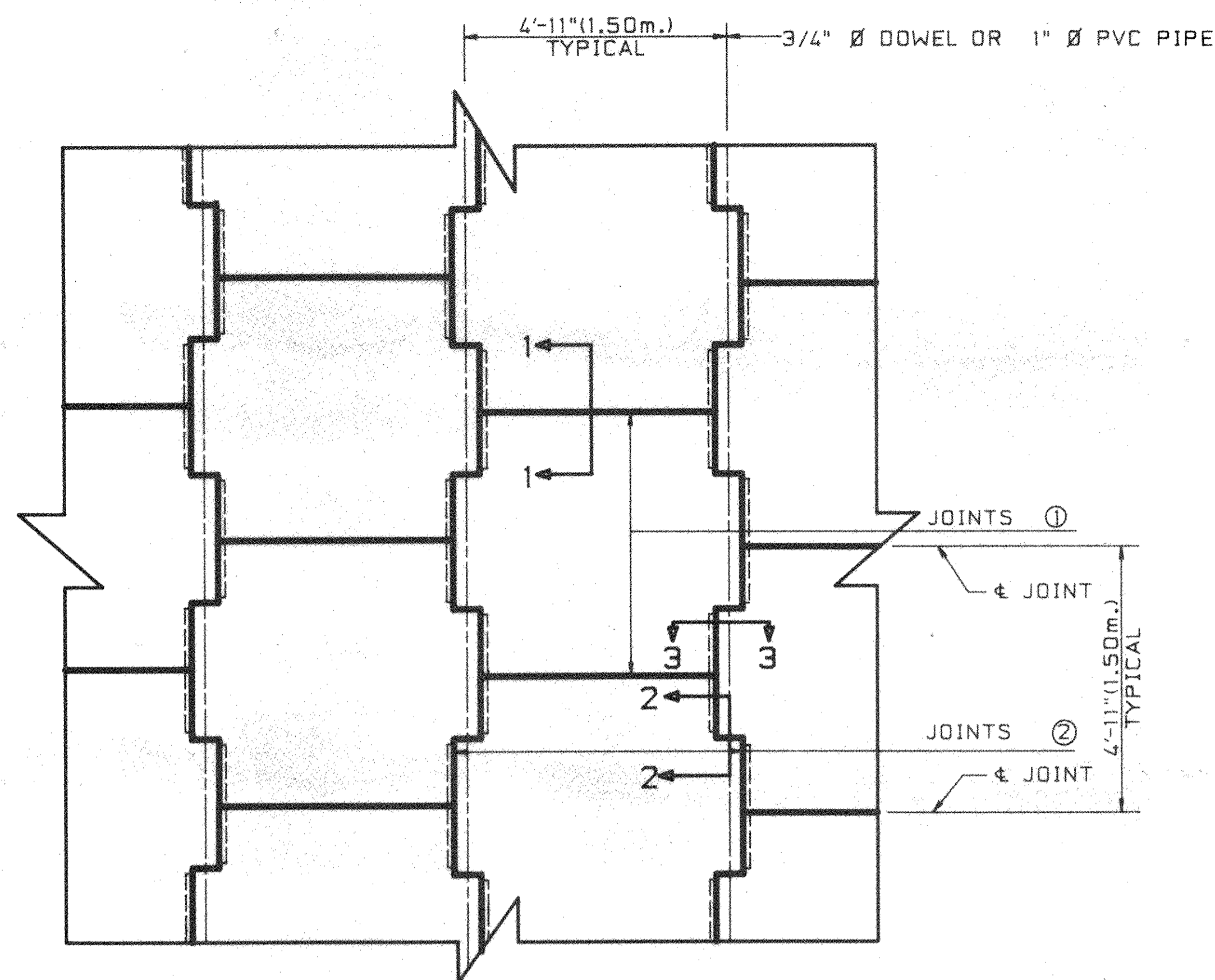
\* PATENT PENDING

"REINFORCED EARTH" IS THE REGISTERED TRADEMARK OF THE REINFORCED EARTH COMPANY.

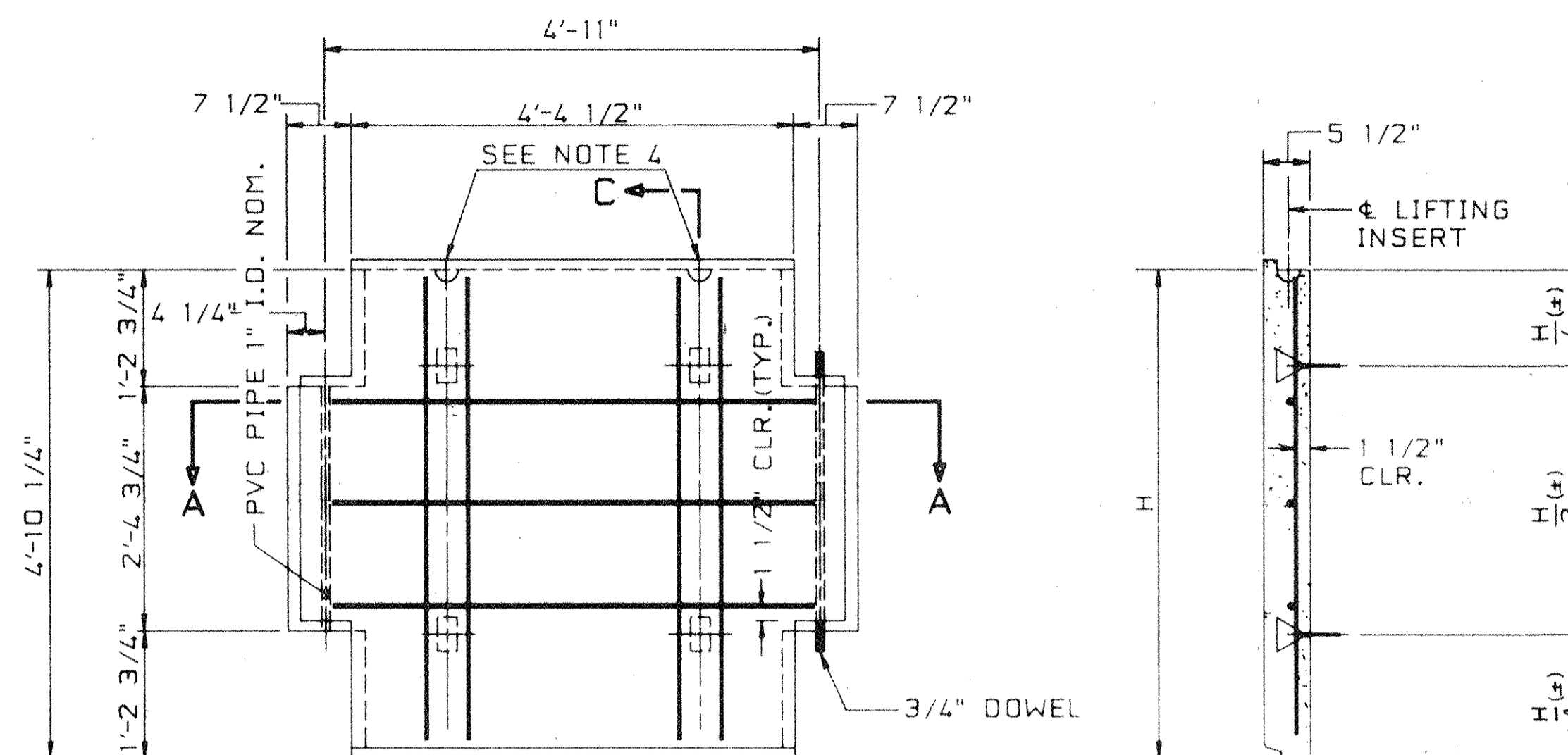
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**The Reinforced Earth Company**  
 1966 reinforced earth  
 1966 reinforced earth  
 Rosslyn Center, 1700 North Moore Street, Arlington, Virginia 22209  
 (703) 527-3434

Structure	REINFORCED EARTH WALL		
Location	ERI-2-18.38 ERIE COUNTY, OHIO OLD WOMAN CREEK		
Owner			
DESIGNED BY:	G.H.	DATE	
PROJECT ENGR:	A.J.P.	9/9/83	CONTRACT NO. 1300
CHECKED BY:			DRAWING NO. 3 OF 4
REV. NO.	DATE	DESCRIPTION	SCALE 1/8" = 1'-0"

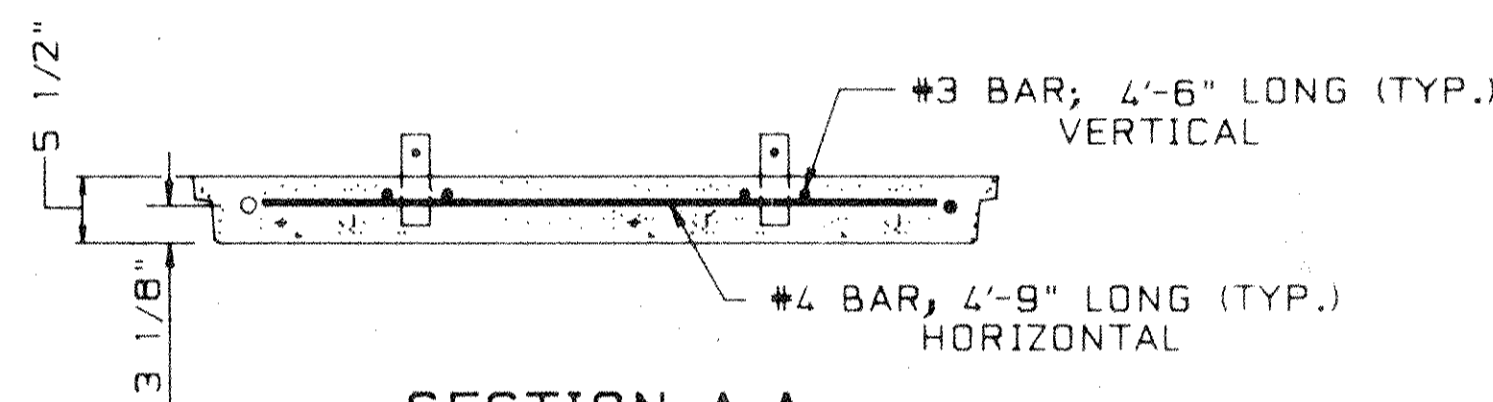


TYPICAL PANEL LAYOUT

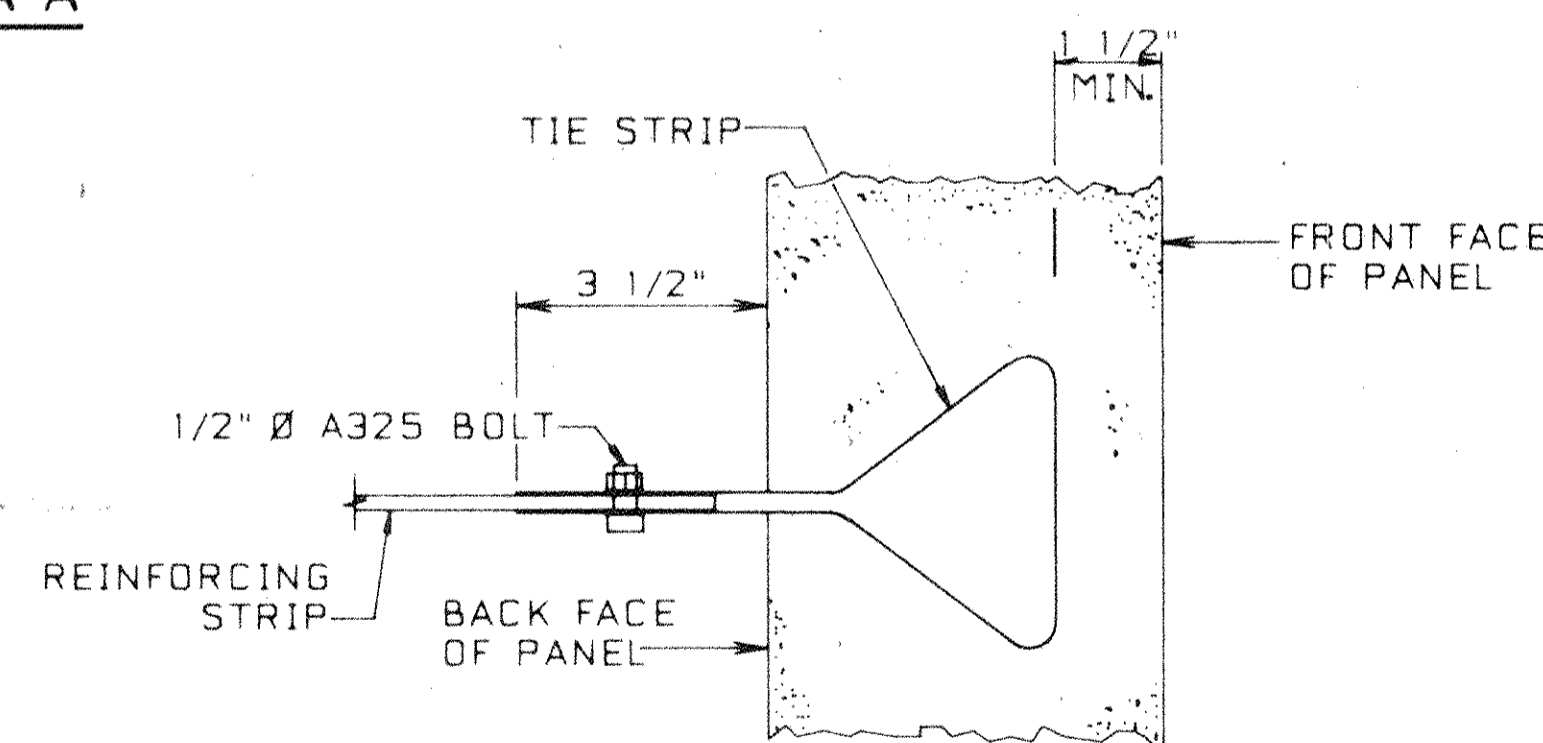


PANEL TYPE "A"  
WITH P4 REINFORCEMENT  
FRONT VIEW

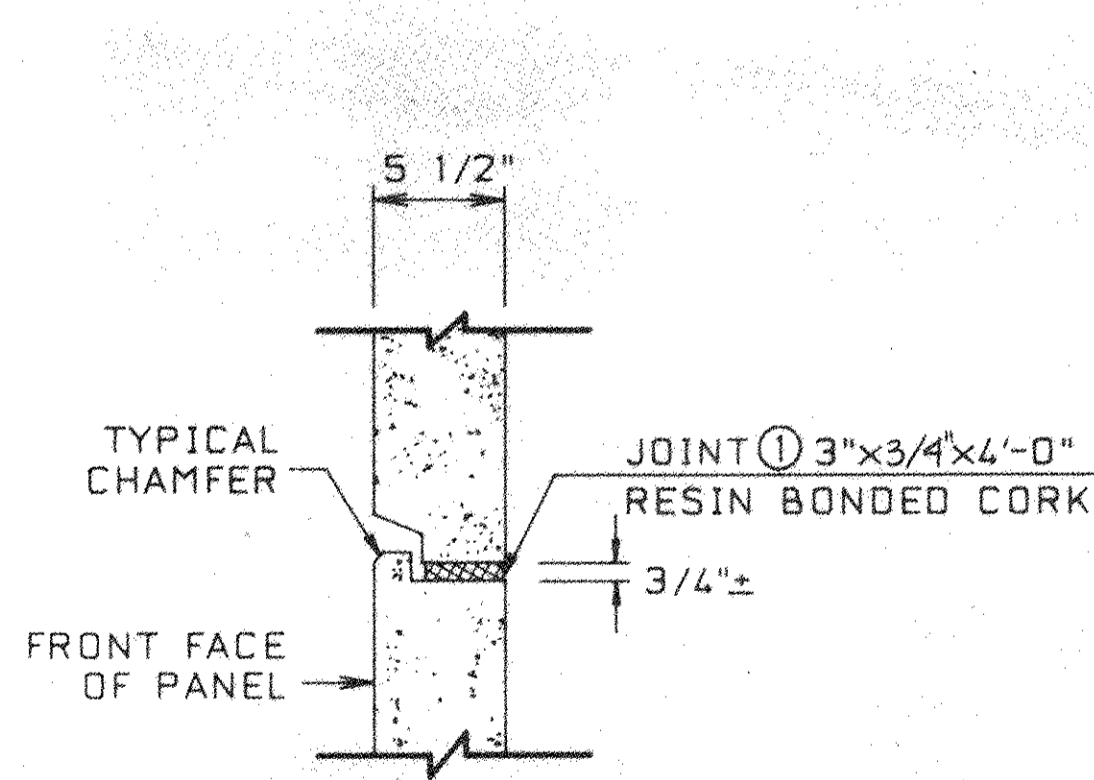
SECTION C-C



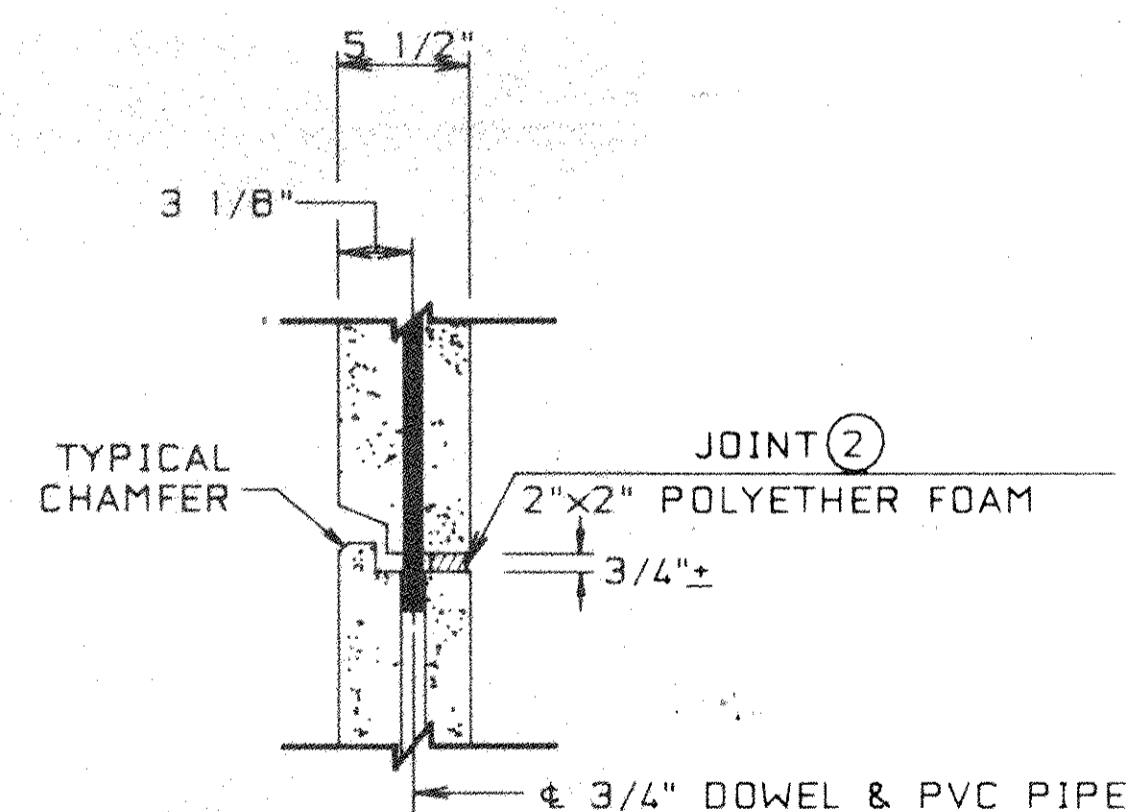
SECTION A-A



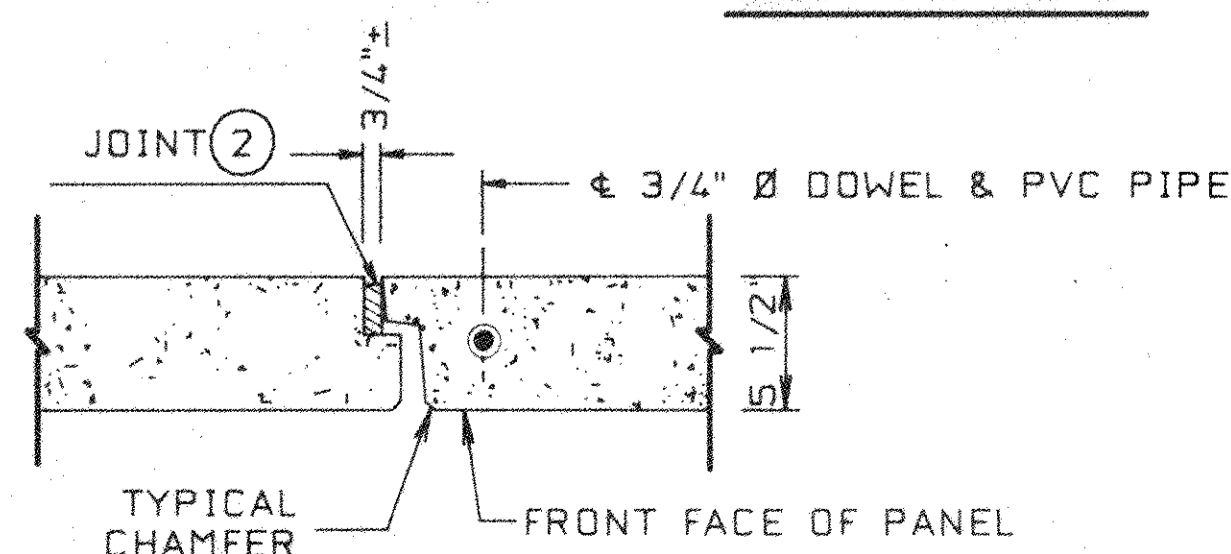
CONNECTION DETAIL  
NO SCALE



SECTION 1-1



SECTION 2-2



SECTION 3-3  
JOINT DETAILS

PANEL THICKNESS	REINFORCEMENT DESIGNATION	PANEL REINFORCEMENT	MAXIMUM ALLOWABLE HORIZONTAL STRESS AT FACING (KSF)
5 1/2"	P0	UNREINFORCED	0.54
	P4	4 #3 VERTICAL 3 #4 HORIZONTAL	1.01
	P6	6 #3 VERTICAL 4 #4 HORIZONTAL	1.33
7 1/8"	P6	6 #3 VERTICAL 3 #4 HORIZONTAL	2.14
	P8	8 #3 VERTICAL 3 #4 HORIZONTAL	2.83

NOTES:

1. REINFORCING STEEL TO BE A615 GRADE 60.
2. 3/8" x 3/8" CHAMFER SHALL BE PROVIDED ON ALL EXPOSED EDGES (FRONT FACE ONLY).
3. ALL PANEL TYPES AND OTHER RELATED ELEMENTS WILL BE DETAILED ON SHOP DRAWINGS.
4. ALL PANELS SHALL HAVE TWO LIFTING INSERTS OF ONE TON CAPACITY EACH.
5. PANEL DESIGN THICKNESS IS 5 1/2". QUANTITY OF CONCRETE WILL INCREASE TO ACCOMMODATE ANY ARCHITECTURAL SURFACE FINISH THAT MAY BE SPECIFIED.
6. ACTUAL PANEL REINFORCEMENT FOR ALL PANEL TYPES IS DESIGNATED ON THE WALL ELEVATION DRAWINGS. P4 ILLUSTRATED FOR INFORMATION ONLY.
7. HORIZONTAL STRESS AT THE FACING IS CALCULATED BASED ON STANDARD REINFORCED EARTH® CALCULATION PROCEDURE.
8. PANELS SUBJECT TO HORIZONTAL STRESS AT THE FACING IN EXCESS OF 2.83 KSF WILL BE DESIGNED ON AN INDIVIDUAL PROJECT BASIS.

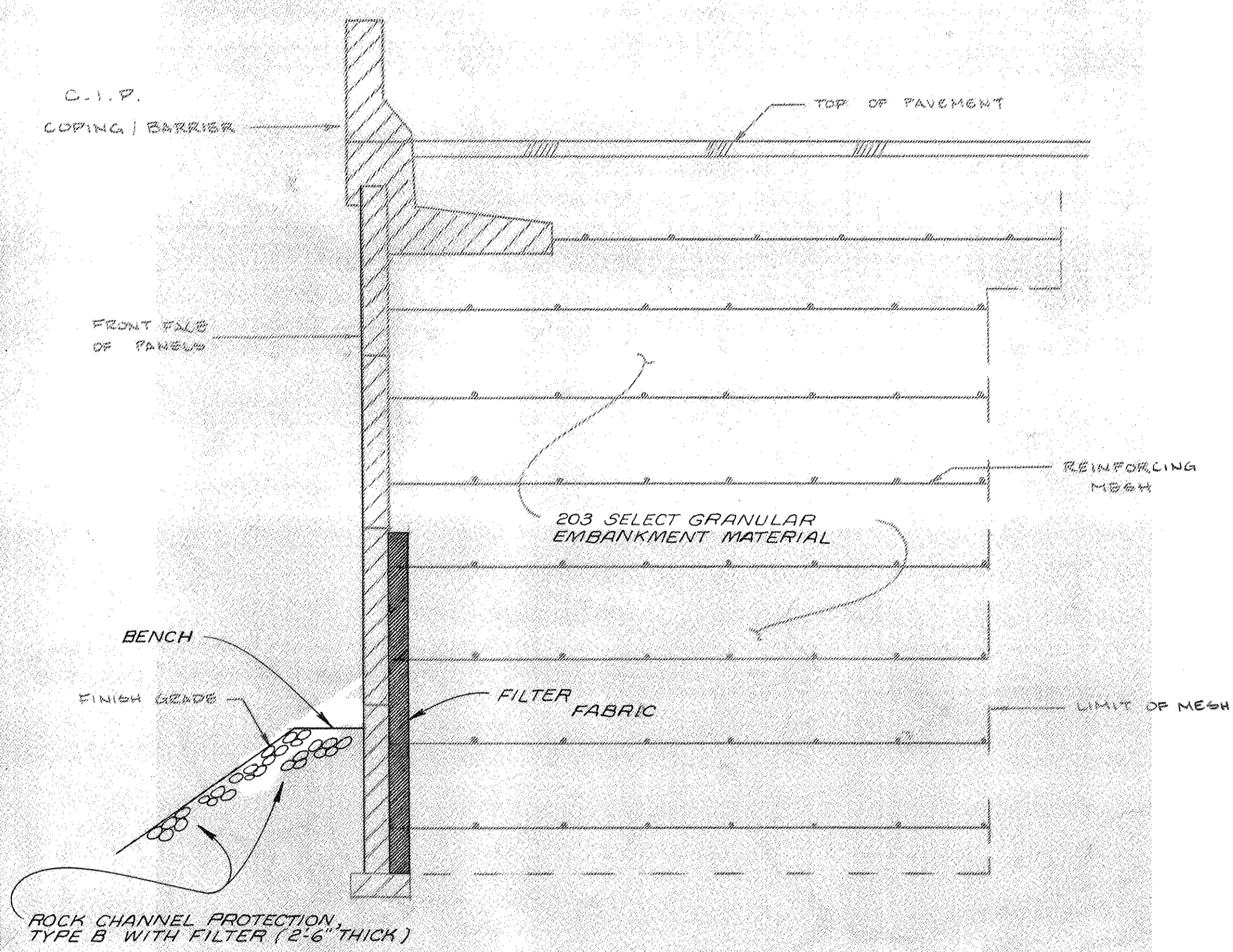
"REINFORCED EARTH" IS THE REGISTERED TRADEMARK OF THE REINFORCED EARTH COMPANY

This drawing contains information proprietary to The Reinforced Earth Company, and is being furnished for the use of STATE OF OHIO D.O.T. only in connection with this project and the information contained herein is not to be transmitted to any other organization unless specifically authorized in writing by The Reinforced Earth Company. The Reinforced Earth Company is exclusive licensee in the United States under patents issued to Henri Vidal, and the furnishing of this drawing does not constitute an express or implied license under the Vidal patents.

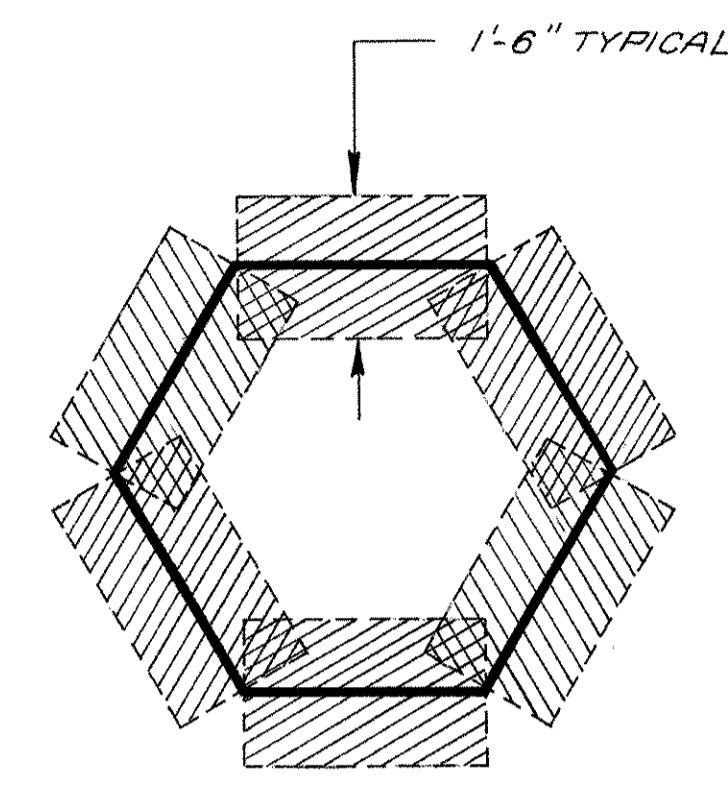
<p><b>The Reinforced Earth Company</b> Rosslyn Center, 1700 North Moore Street, Arlington, Virginia 22209 (703) 527-3434</p>			
Structure	REINFORCED EARTH WALL		
Location	ERI-2-1838 ERIE COUNTY, OHIO OLD WOMAN CREEK		
Owner			
DESIGNED BY	GH	DATE	9/9/83
PROJECT ENGR	AJP		1366
CHECKED BY			4 OF 4
DESCRIPTION	STANDARD PANEL DETAILS		SCALE AS NOTED





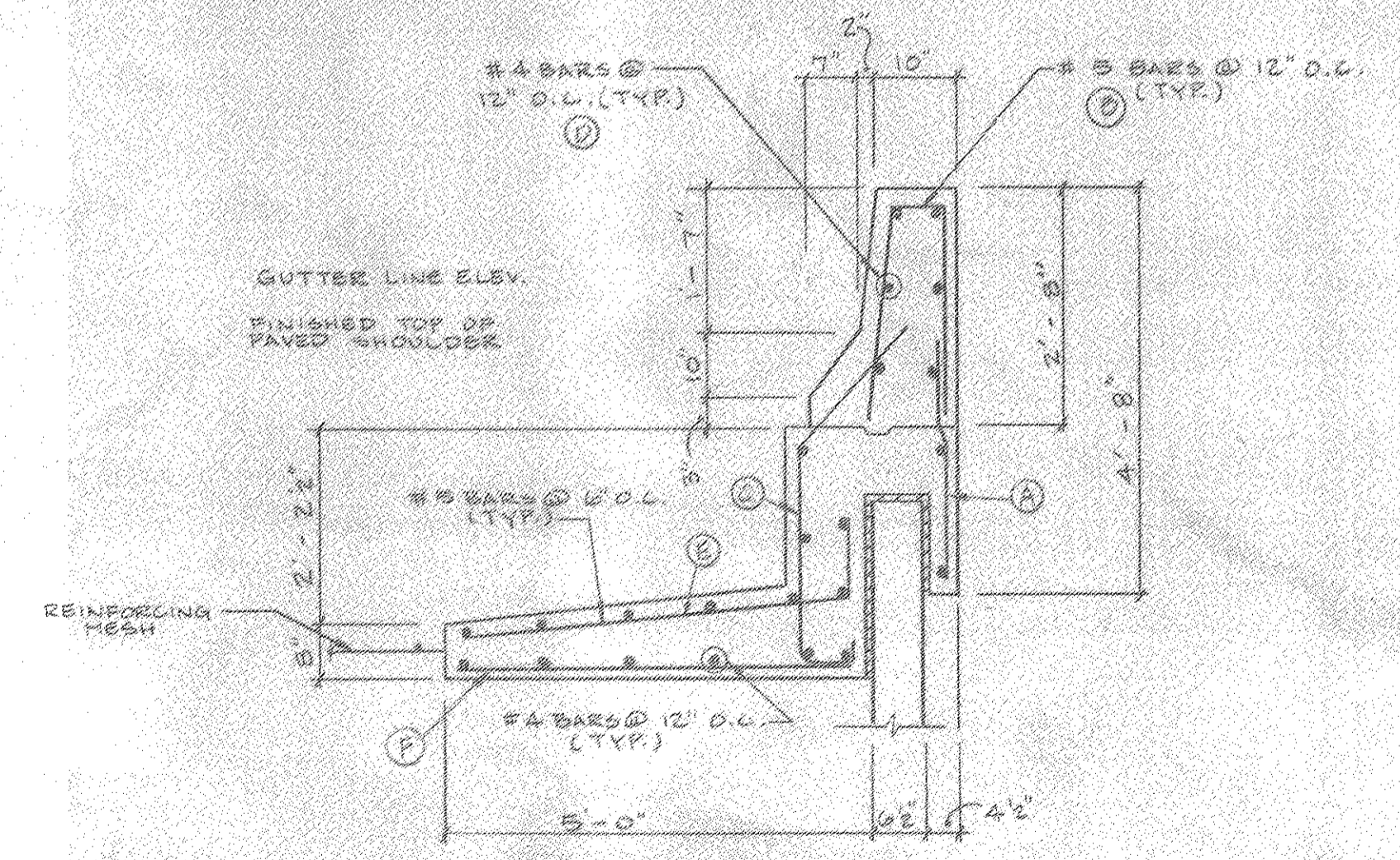


TYPICAL SECTION DETAIL  
NOT TO SCALE

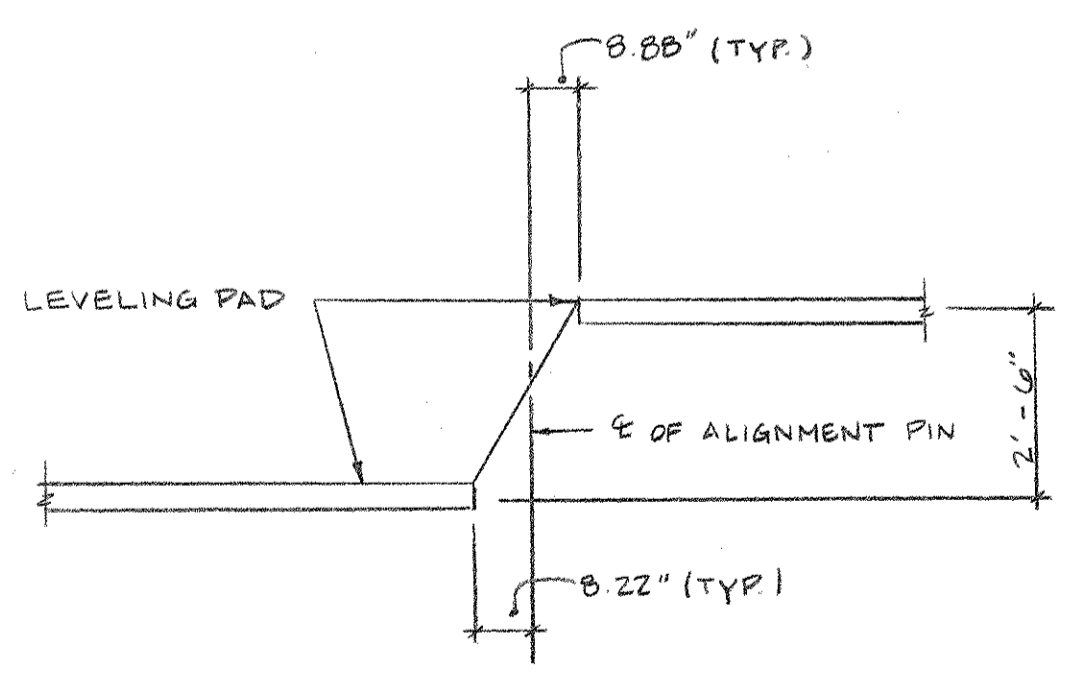


FILTER FABRIC DETAIL

FILTER FABRIC SHALL BE PLACED OVER ALL JOINTS ON THE BACK SIDE OF ALL PANELS LOCATED BELOW ELEVATION 581.5. THE FILTER FABRIC SHALL BE ATTACHED WITH ADHESIVE COMPOUND (PLIO BOND 5001) OR EQUAL.



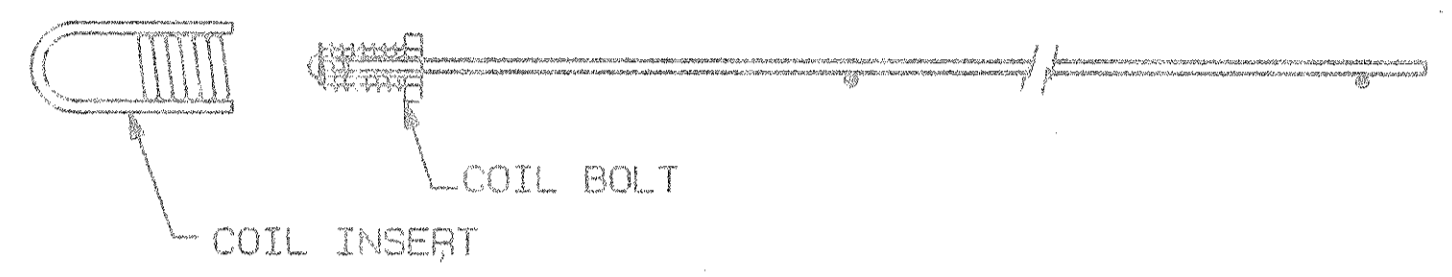
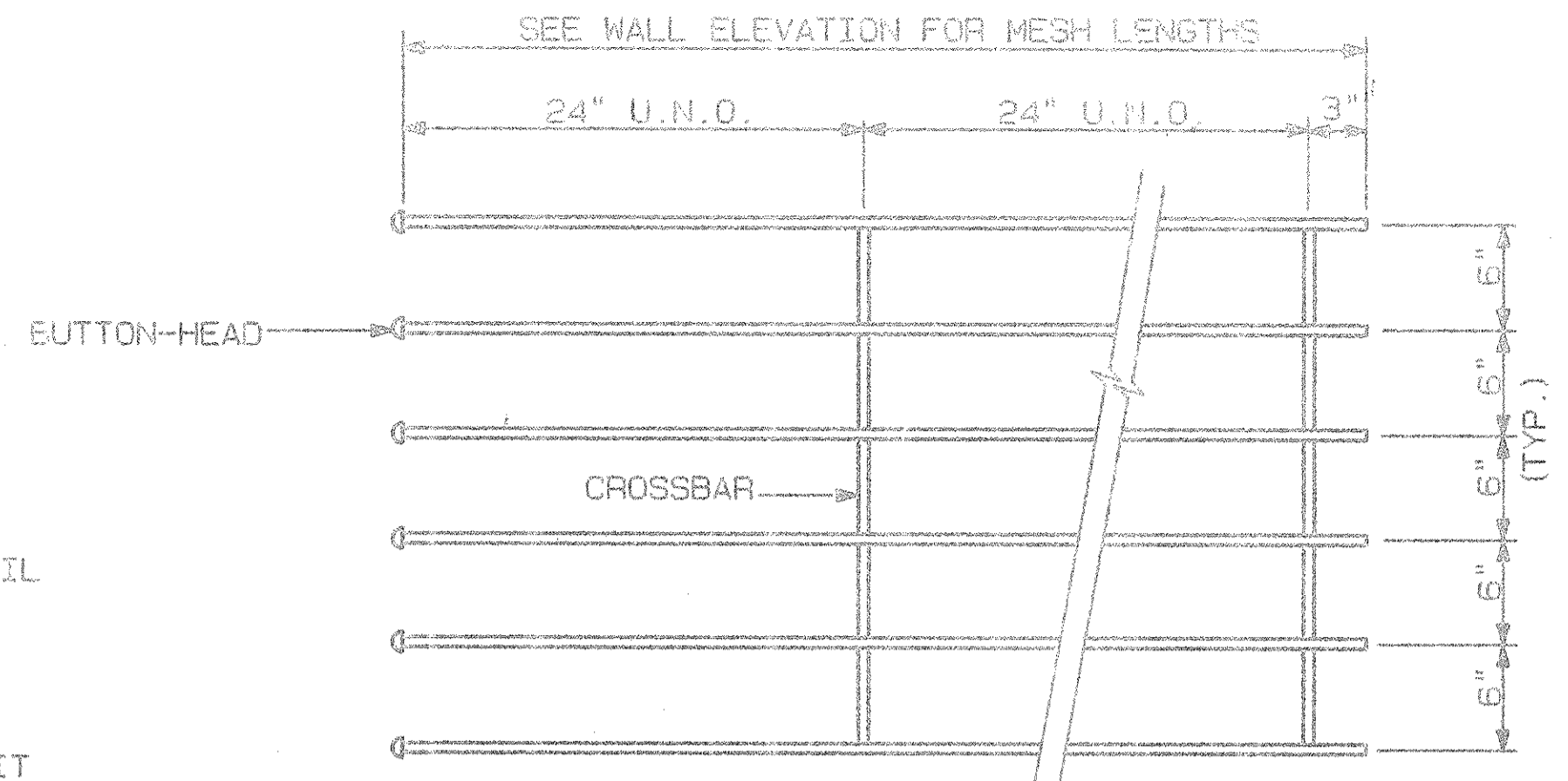
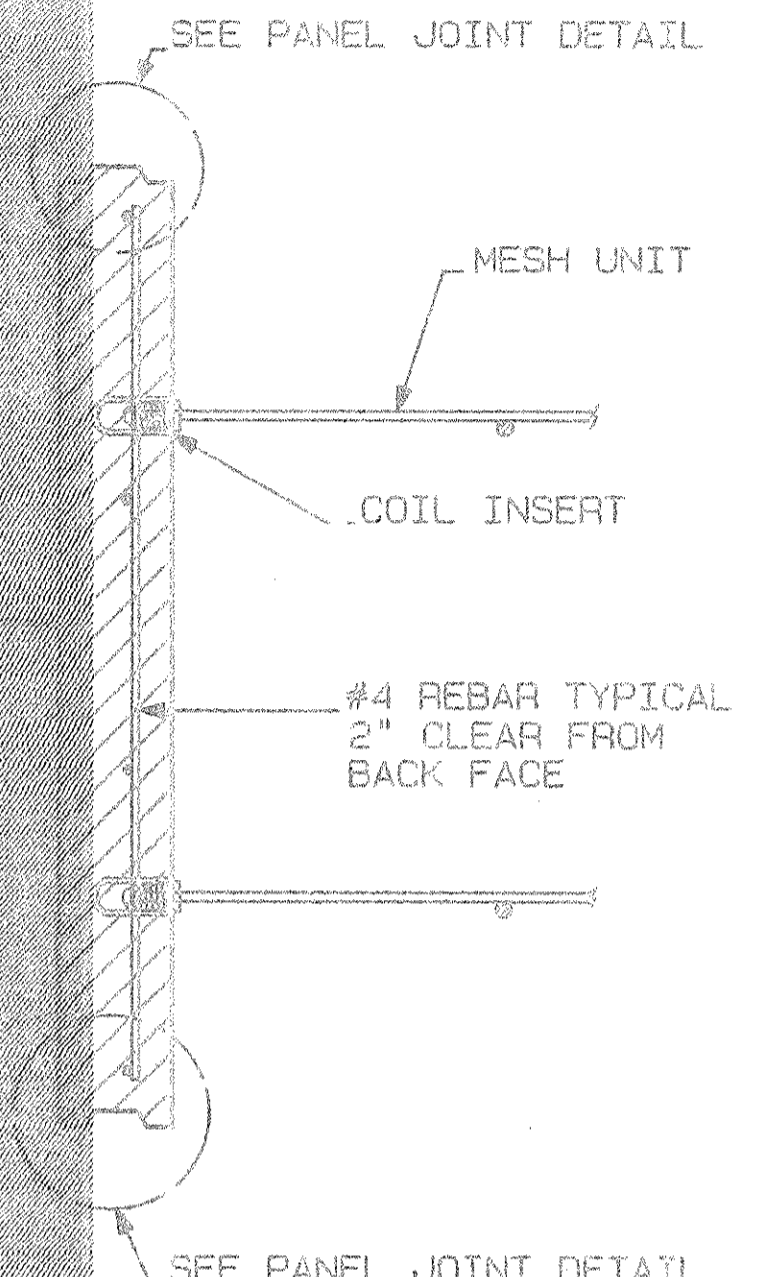
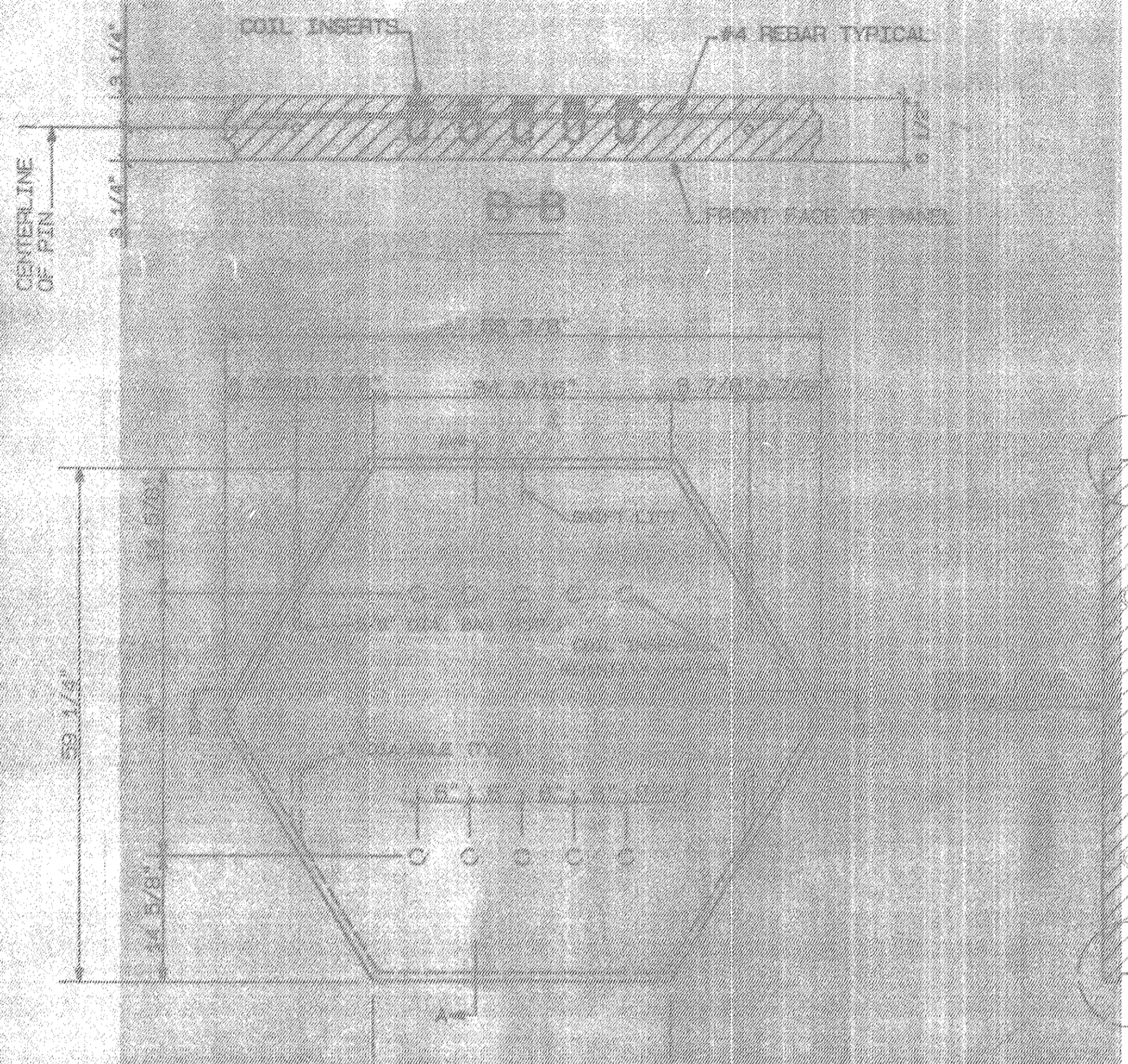
RETAINED EARTH WALL C.I.P. COPING / BARRIER  
NOT TO SCALE



LEVELING PAD DETAIL  
NOT TO SCALE

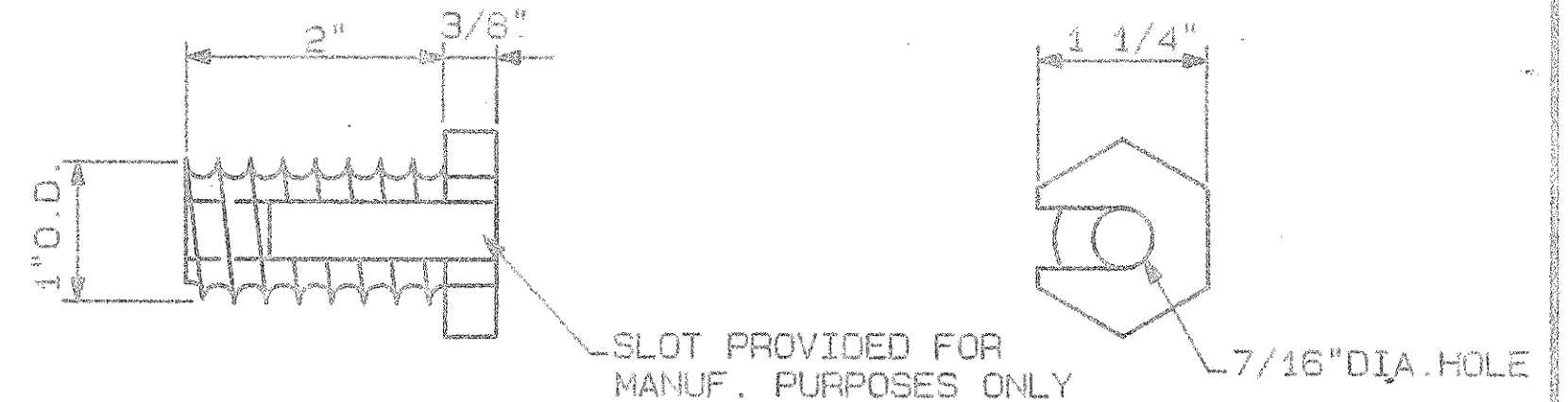
C.I.P. COPING / BARRIER STEEL LIST			
BAR TYPE	NO	LENGTH	WEIGHT
A	5	5'-0"	892
B	5	5'-6"	1696
C	5	5'-0"	1488
D	4	CONT	4978
E	5	6'-0"	3508
F	5	5'-0"	2978

DES. 1-95 J-D		POST-TENSIONING INSTITUTE	NO. DATE	BY
DRN. 1-95 J-D				
CHK. 4-95 J-N				
<p>TYPICAL SECTIONS AND DETAILS</p> <p style="text-align: center;">OLD WOMEN CREEK</p>				
PRINT STATUS:				
JOB NO: OH-007-5				
SHEET: 2 OF 3				

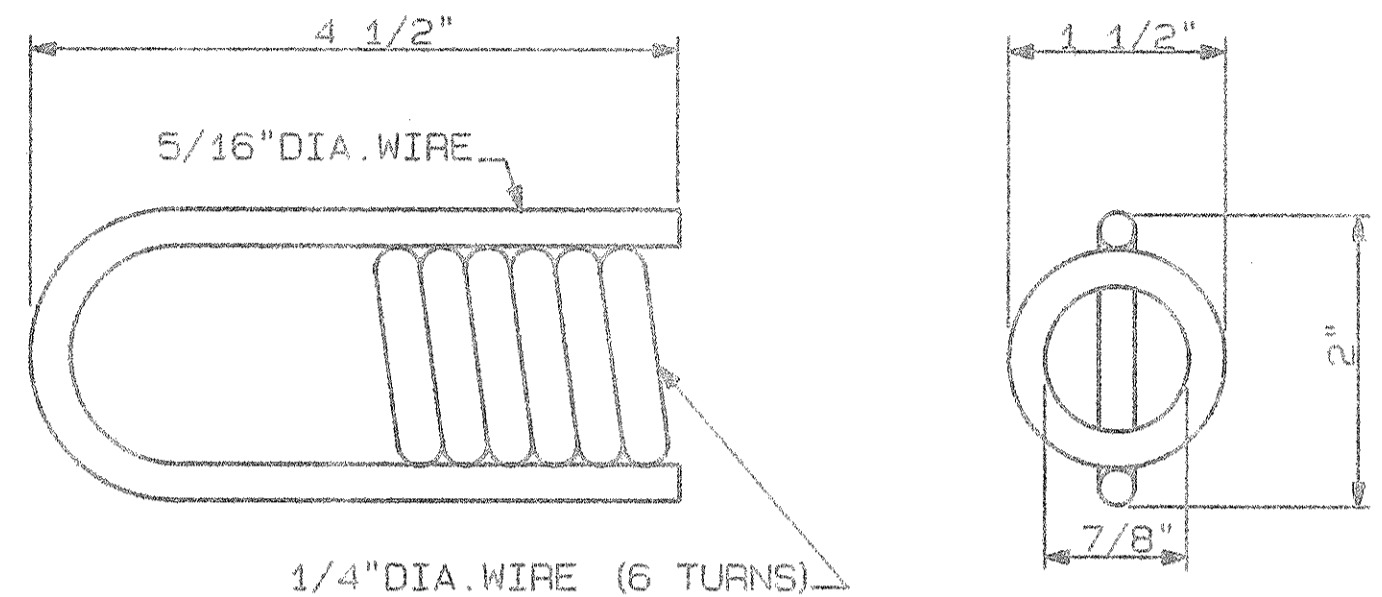


**SOIL REINFORCING MESH UNIT DETAIL**  
(6W11 MESH)

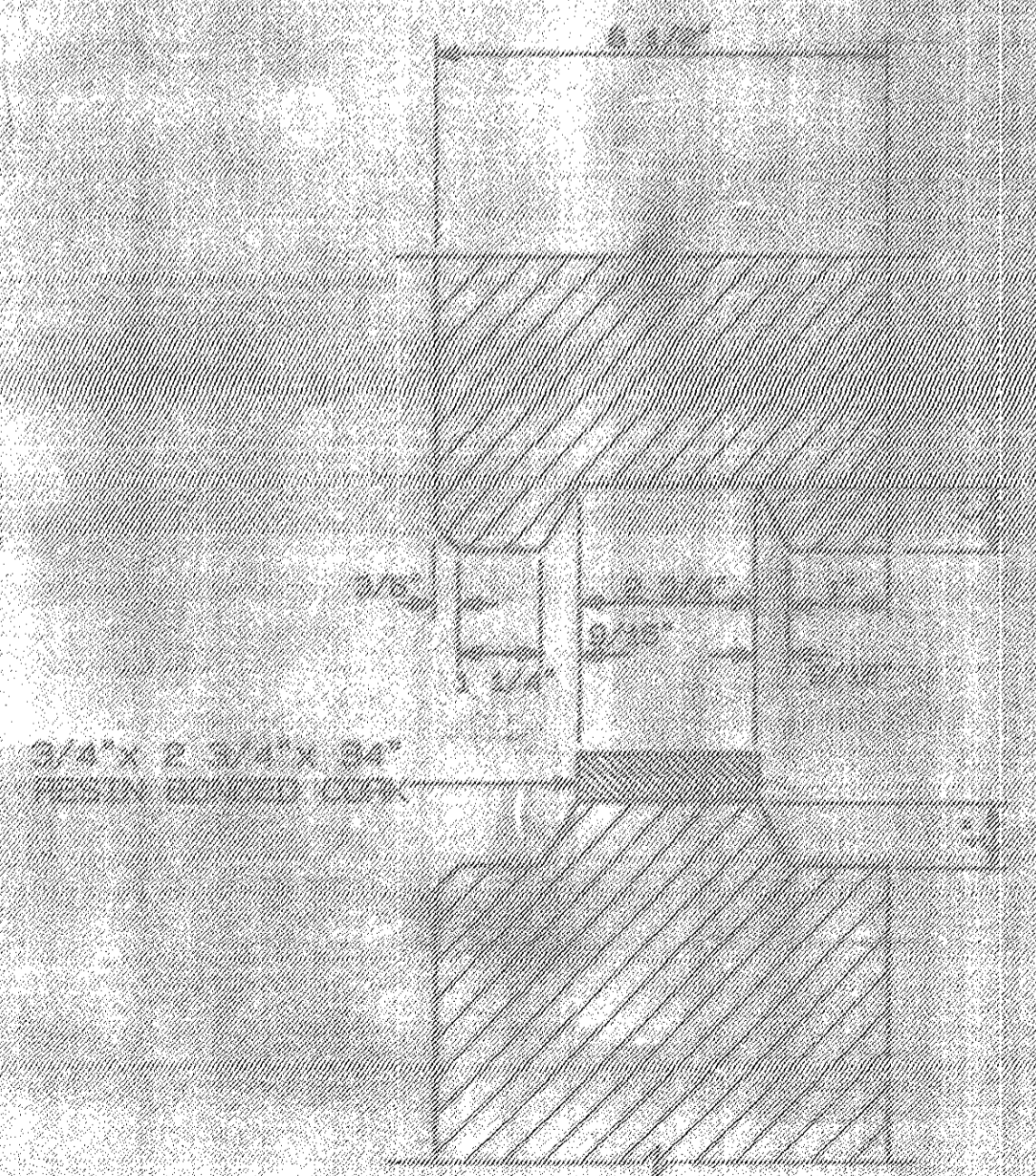
NOTES:  
 A. 6W11 MESH SHOWN, MESH CONFIGURATION VARIES, SEE WALL ELEVATIONS.  
 B. NUMBER OF COIL INSERTS VARIES ACCORDING TO MESH CONFIGURATION.  
 C. VERTICAL JOINTS IN PANELS TO USE 2" \* 2" POLYETHYLENE FOAM.



**COIL BOLT DETAIL**



**COIL INSERT DETAIL**



**PANEL JOINT DETAIL**

STANDARD DETAIL SHEET		OLD WOMAN CREEK	
DES. 1-20	REV. 5-6	DATE 1-30	BY 3-4
CHKD. 1-30	APP. 5-6	DATE 1-30	BY 3-4
M&T Corporation 10000 W. 10th St., Suite 100, Overland Park, KS 66211 Tel: 913-241-1000 Fax: 913-241-1001 Email: info@mtcorp.com			
PROJECT NO: 04-107-5-101 DATE: 2-13-86			

**NOTE:**  
 ALL WORK PERFORMED IN REGARDS TO MAKING THE NECESSARY CONNECTIONS, TESTING AND CHLORINATING SHALL BE DONE UNDER THE REQUIREMENTS AND SUPERVISION OF:  
 ERIE COUNTY WATER DEPARTMENT  
 554 RIVER ROAD, P.O. BOX 370  
 HURON OHIO 44839  
 PHONE NO. 621-7646

**"Y" BRANCH CONNECTIONS (2-REQUIRED)**  
 STA. 0+00 AND STA. 9+45.36

1. CUT EXISTING MAIN AND INSTALL "Y" BRANCH, NIPPLES, SLEEVE AND VALVE. VALVE TO BE ANCHORED TO "Y" BRANCH BY USE OF TIE-RODS. ALL TIE-RODS SHALL BE COATED WITH A BITUMINOUS PAINT AFTER INSTALLATION.

2. AFTER RELOCATED PORTIONS OF WATER MAIN ARE READY FOR SERVICE, REMOVE SLEEVE AND NIPPLE, INSTALL PLUG IN "Y" BRANCH, CAP END OF 14" TO BE ABANDONED AND PLACE CONCRETE BLOCKING BETWEEN PLUG AND CAP.

MANHOLE AT STA. 19+90± TO BE ABANDONED IN ACCORDANCE WITH STATE SPECIFICATIONS. COUNTY WATER DEPARTMENT TO SALVAGE MANHOLE CASTING.

OTHER THAN SHUTDOWNS FOR MAKING CONNECTIONS, THE EXISTING 14" WATER MAIN SHALL BE KEPT IN SERVICE AT ALL TIMES UNTIL RELOCATED PORTIONS OF WATER MAIN IS READY FOR SERVICE.

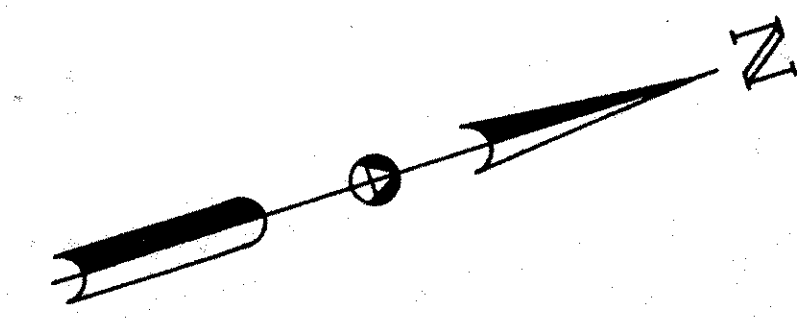
MAXIMUM TIME ALLOWED FOR SHUTDOWN, TEN (10) HOURS.

MINIMUM TIME BETWEEN SHUTDOWNS, FORTY-EIGHT (48) HOURS.

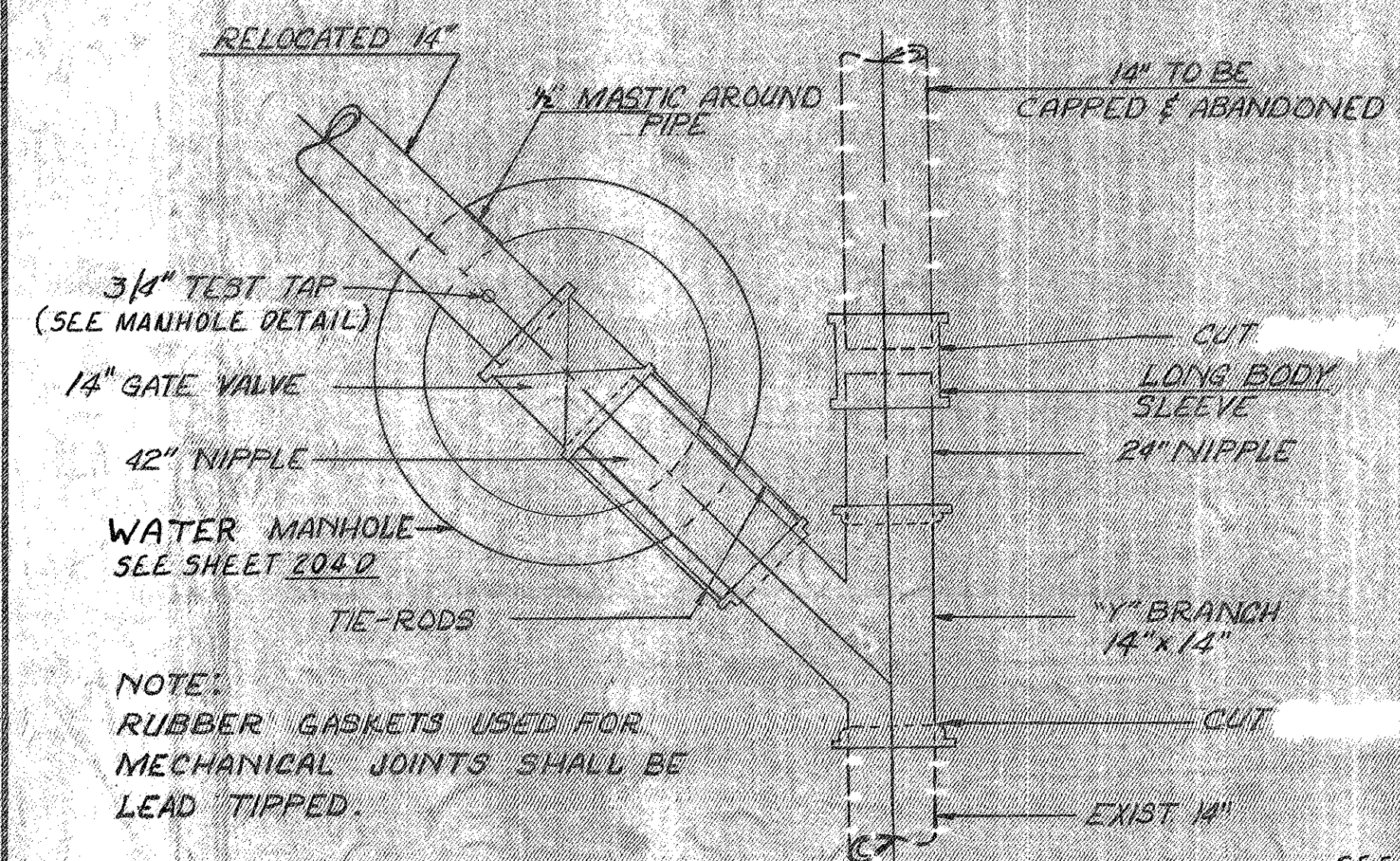
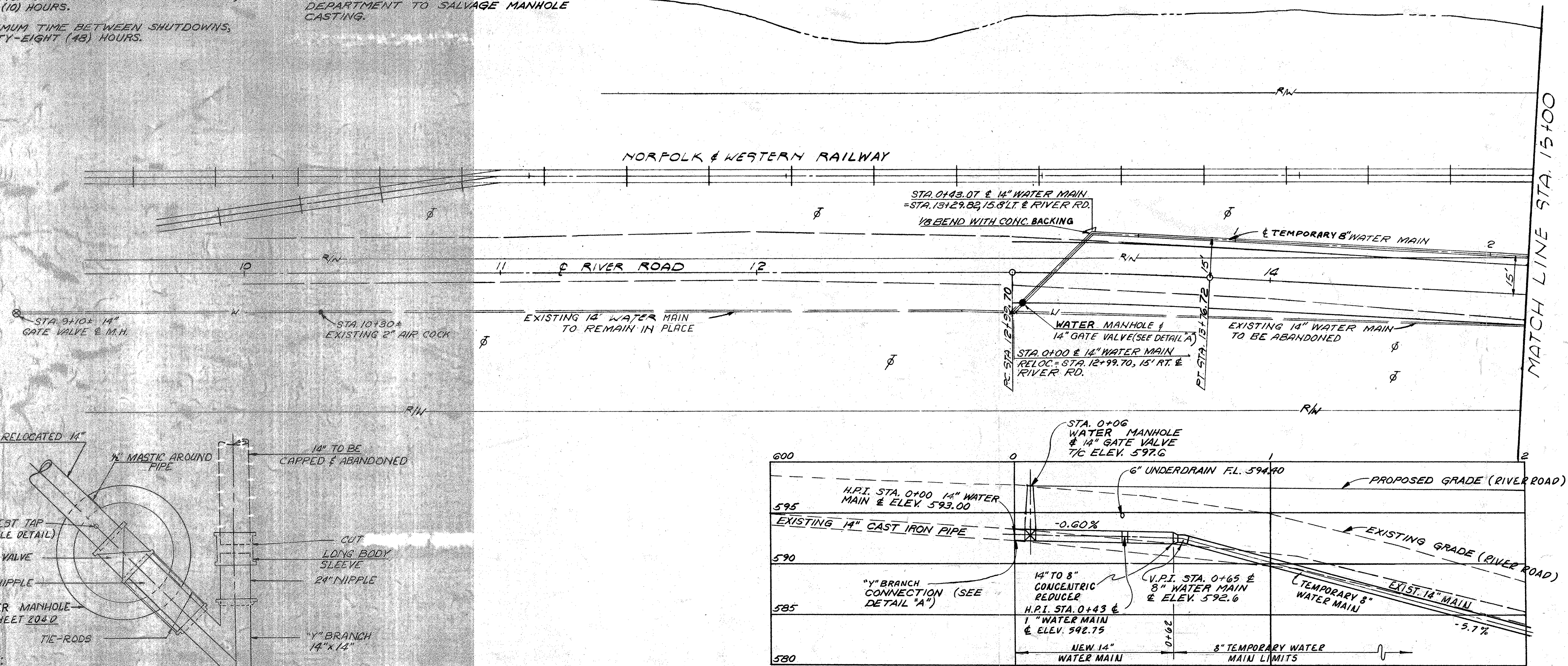
PRJ. NO. DIVISION	STATE	PROJECT
2	OHIO	

202  
326

ERIE COUNTY  
 ERI 2-18.38



HURON RIVER



SEE NOTE ABOVE & ON SHEET 204D

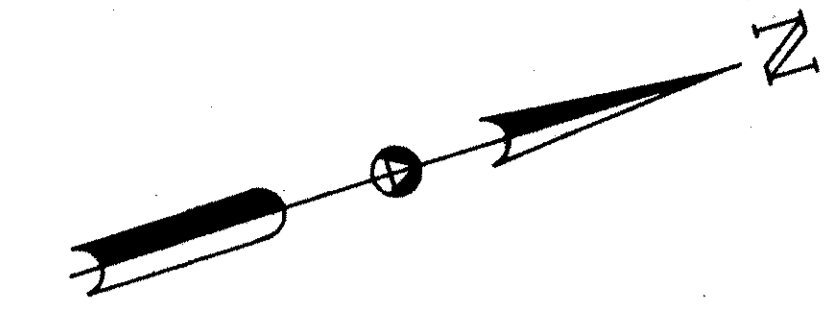
**DETAIL "A"**  
 ("Y" BRANCH CONNECTION, AS PER PLAN)

ESTIMATED WATERWORK QUANTITIES			
ITEM NO.	DESCRIPTION	QUANTITY	UNITS
202	MANHOLE ABANDONED	1	EA.
604	WATER MANHOLE, AS PER PLAN	2	EA.
604	MANHOLE, ADJUSTED TO GRADE	1	EA.
814	14" WATER MAIN, CLASS 52 DUCTILE IRON PIPE WITH FITTINGS, CEMENT LINED, AS PER PLAN	105	LIN. FT.
814	14" GATE VALVE (NRS OPEN RIGHT)	2	EA.
814	"Y" BRANCH CONNECTION, AS PER PLAN	2	EA.
814	8" TEMPORARY WATER MAIN, POLYVINYL CHLORIDE (PVC) C-900, CLASS 150, SDR 18, INCLUDING FITTINGS & ENCASMENT	848	LIN. FT.

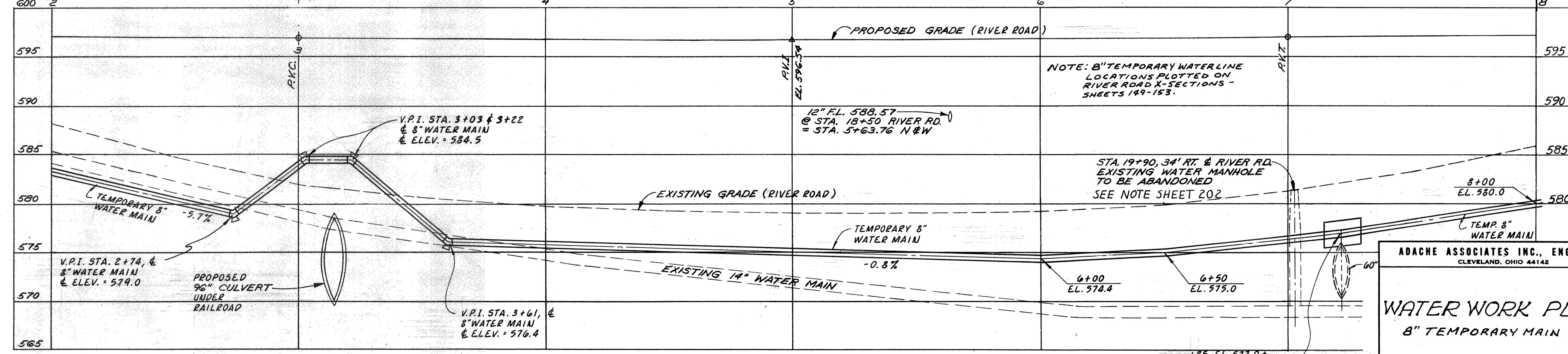
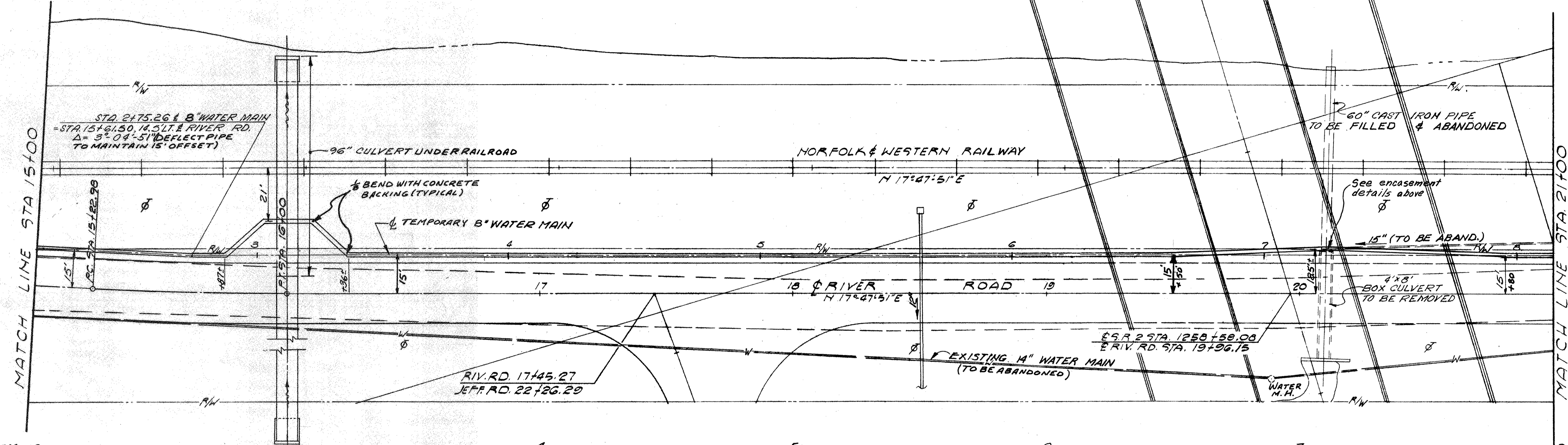
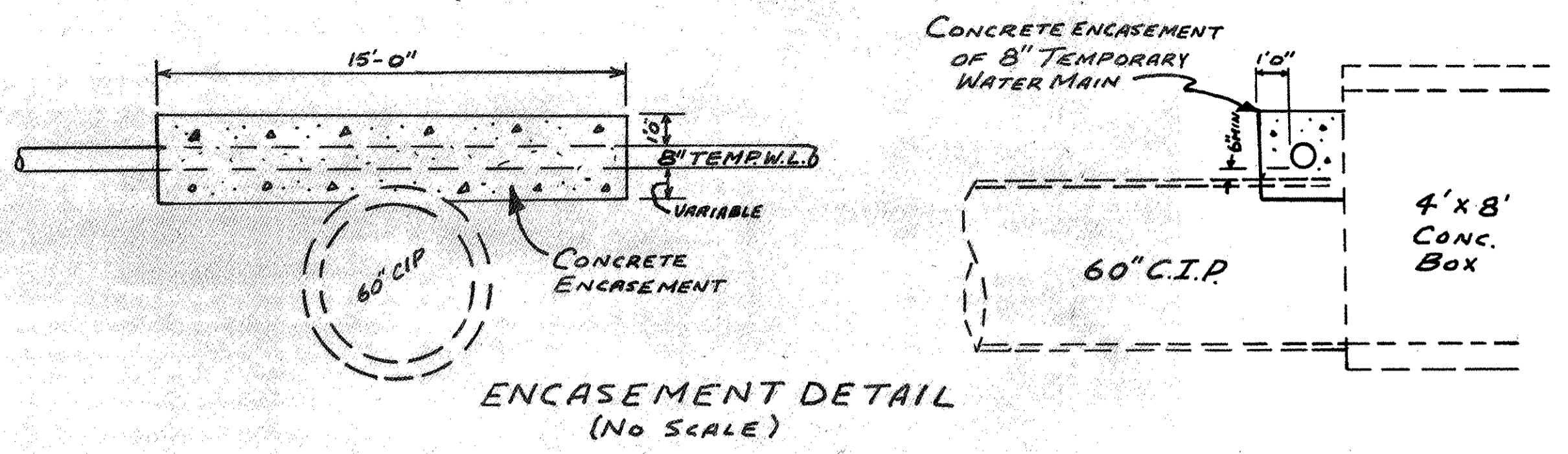
ADACHE ASSOCIATES INC., ENGINEERS  
 CLEVELAND, OHIO 44142

**WATER WORK PLAN**  
 14" "Y" CONNECTION & 8" TEMPORARY MAIN

DESIGNED R.J.Z. 11-28-69	DRAWN W.A.L. 12-4-69	CHECKED H.G. 3-13-70	REVIEWED	DATE	REVISED CN 12/85
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HURON RIVER



ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

**WATER WORK PLAN**  
8" TEMPORARY MAIN

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.J.Z.	W.A.L.	H.G.			CH
11-28-69	12-4-69	3-19-70			12/95

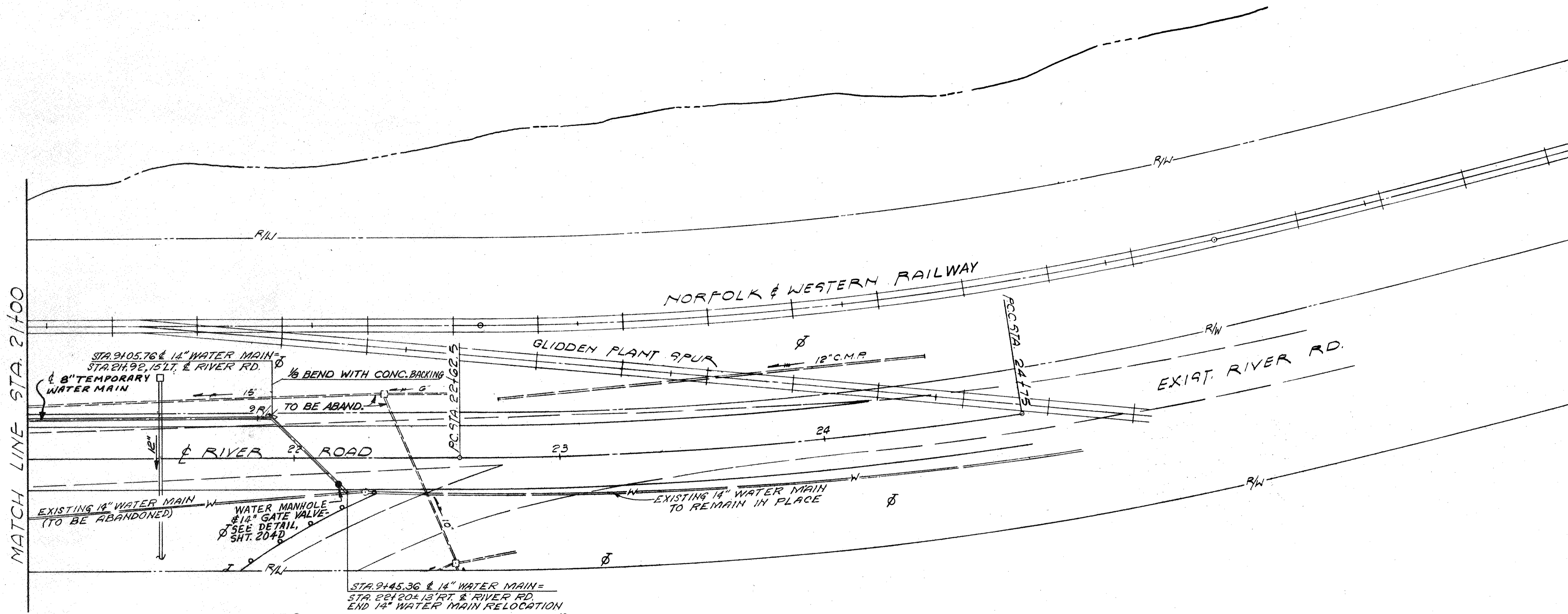
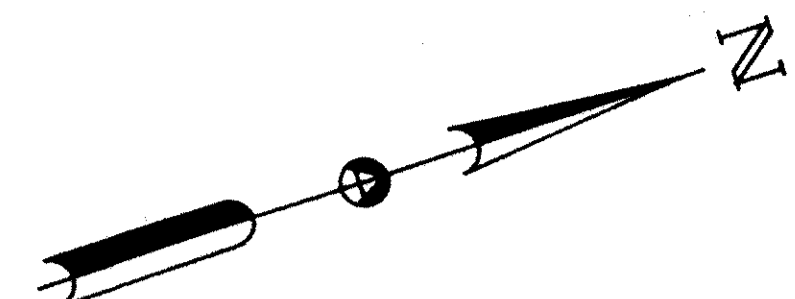
+25' EL. 571.0 ±  
ENCASE 8" TEMP.  
MAIN OVER CULVERT  
SEE DETAIL ABOVE

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

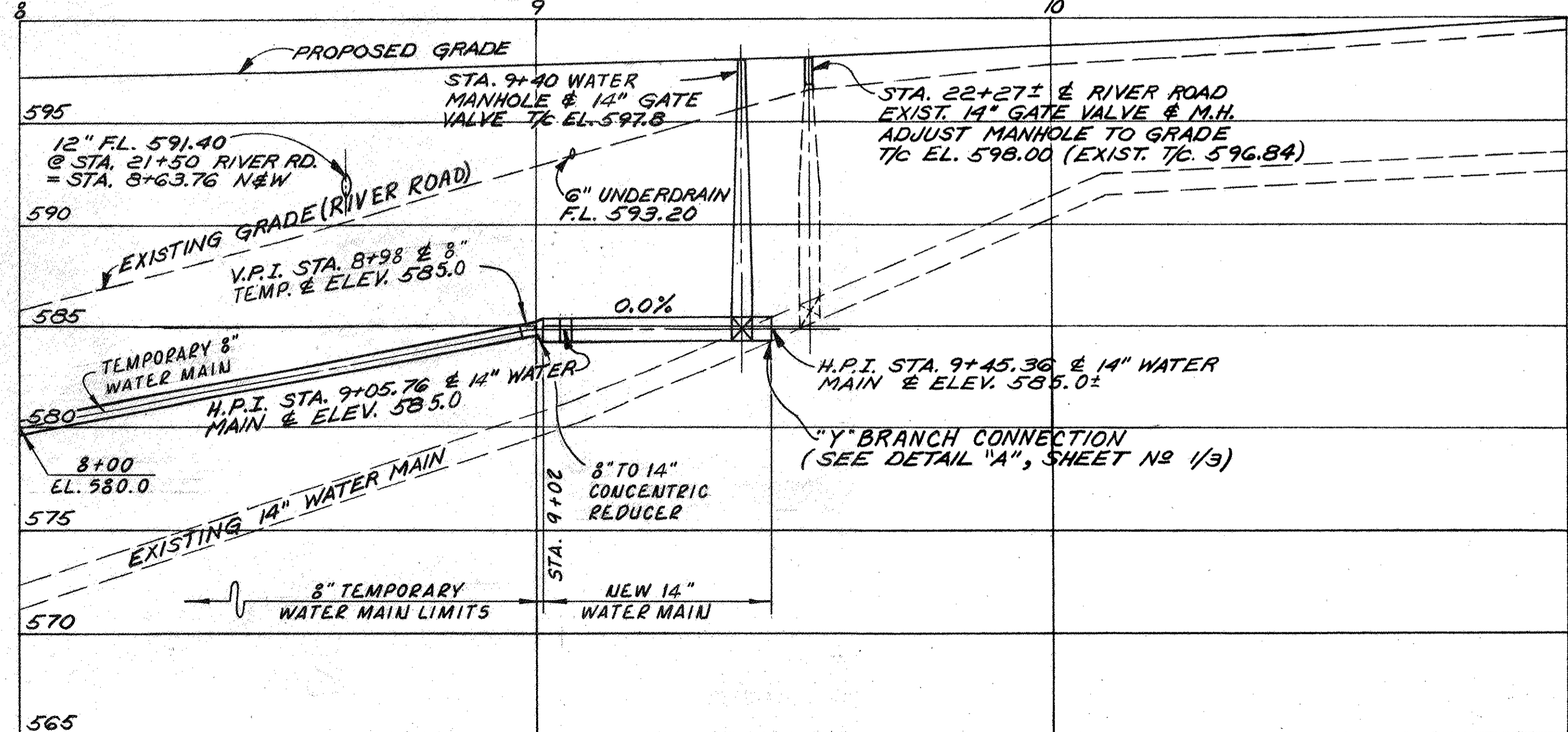
204  
324

ERIE COUNTY  
ERI 2-18.38

HURON RIVER



MATCH LINE STA. 21+00



ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

**WATERWORK PLAN**  
8" TEMPORARY LINE &  
14" "Y" CONNECTION

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.J.Z.	J.A.S.	H.G.			
11-28-69	12-4-69	3-13-70			CN 12/85

**NOTE:**  
 ALL WORK PERFORMED IN REGARDS TO MAKING THE NECESSARY CONNECTIONS, TESTING AND CHLORINATING SHALL BE DONE UNDER THE REQUIREMENTS AND SUPERVISION OF:  
 ERIE COUNTY WATER DEPARTMENT  
 554 RIVER ROAD, P.O. BOX 370  
 HURON, OHIO 44839  
 PHONE NO 621-1646

OTHER THAN SHUTDOWNS FOR MAKING CONNECTIONS, THE EXIST. 14" TEMP 8" WATER MAIN SHALL BE KEPT IN SERVICE AT ALL TIMES UNTIL RELOCATED PORTIONS OF WATER MAIN IS READY FOR SERVICE.

MAXIMUM TIME ALLOWED FOR SHUTDOWN, TEN (10) HOURS.

MINIMUM TIME BETWEEN SHUTDOWNS, FORTY-EIGHT (48) HOURS.

**"Y" BRANCH CONNECTIONS (2-REQUIRED)**  
 STA. 0+00 AND STA. 9+45.36

1. CUT EXISTING MAIN AND INSTALL "Y" BRANCH, NIPPLES, SLEEVE AND VALVE. VALVE TO BE ANCHORED TO "Y" BRANCH BY USE OF TIE-RODS. ALL TIE-RODS SHALL BE COATED WITH A BITUMINOUS PAINT AFTER INSTALLATION.

2. AFTER RELOCATED PORTIONS OF WATER MAIN ARE READY FOR SERVICE, REMOVE SLEEVE AND NIPPLE, INSTALL PLUG IN "Y" BRANCH, CAP END OF 14" TO BE ABANDONED AND PLACE CONCRETE BLOCKING BETWEEN PLUG AND CAP.

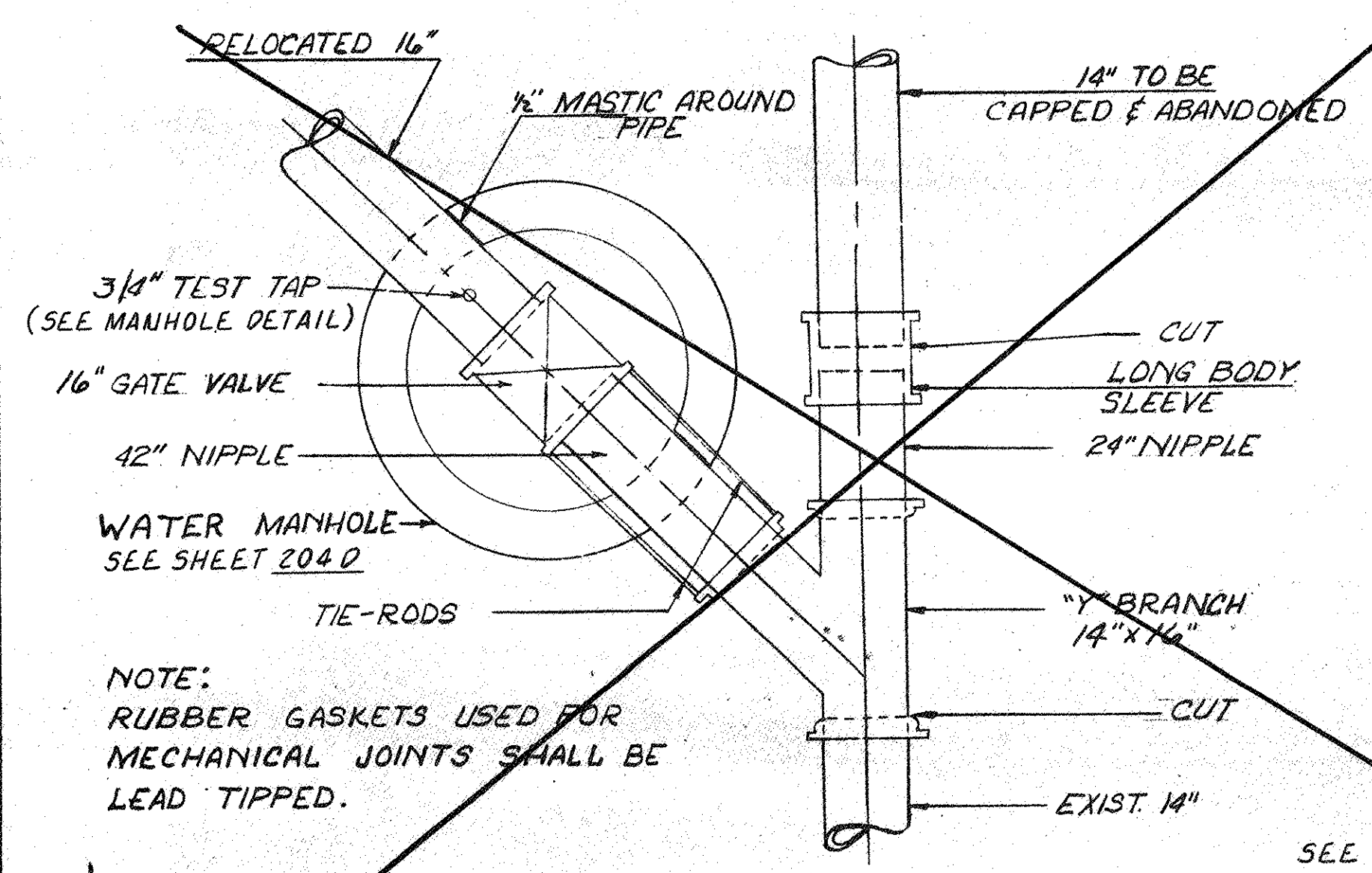
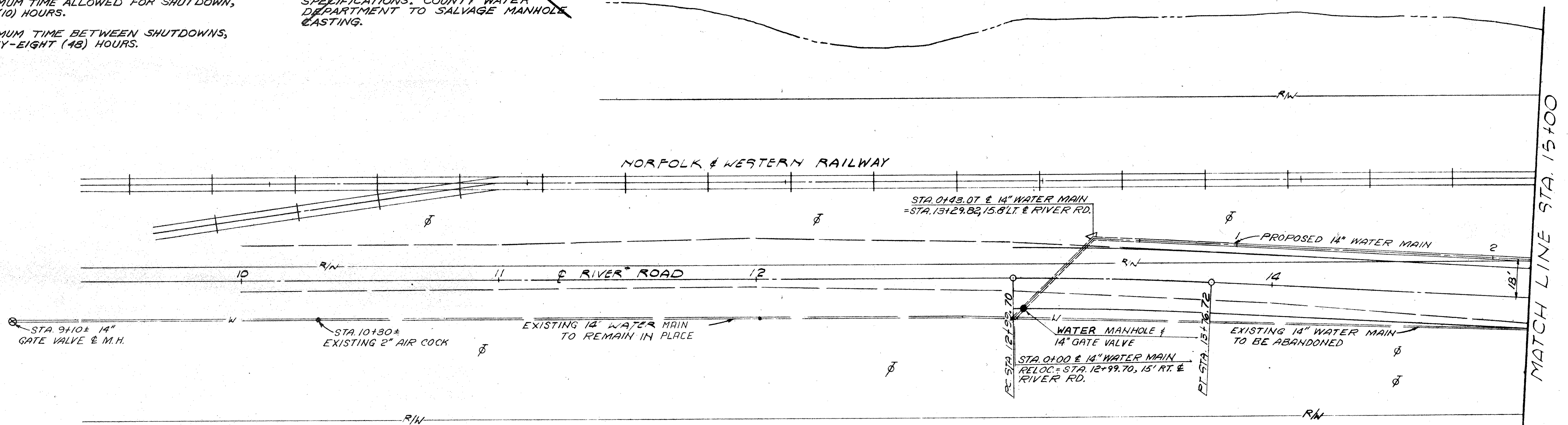
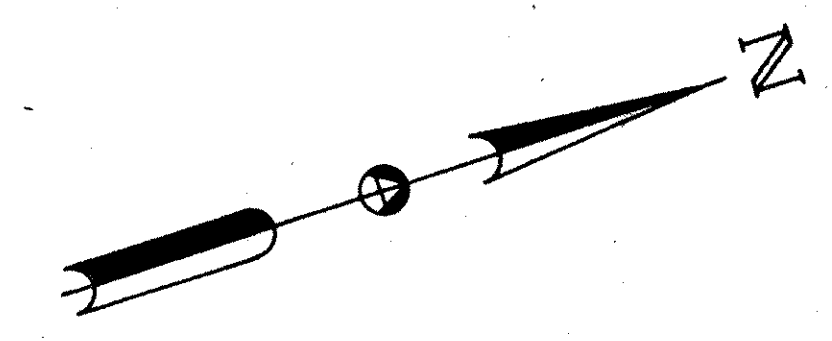
MANHOLE AT STA. 19+90± TO BE ABANDONED IN ACCORDANCE WITH STATE SPECIFICATIONS. COUNTY WATER DEPARTMENT TO SALVAGE MANHOLE CASTING.

HURON RIVER

FD. NO. DIVISION	STATE	PROJECT
2	OHIO	

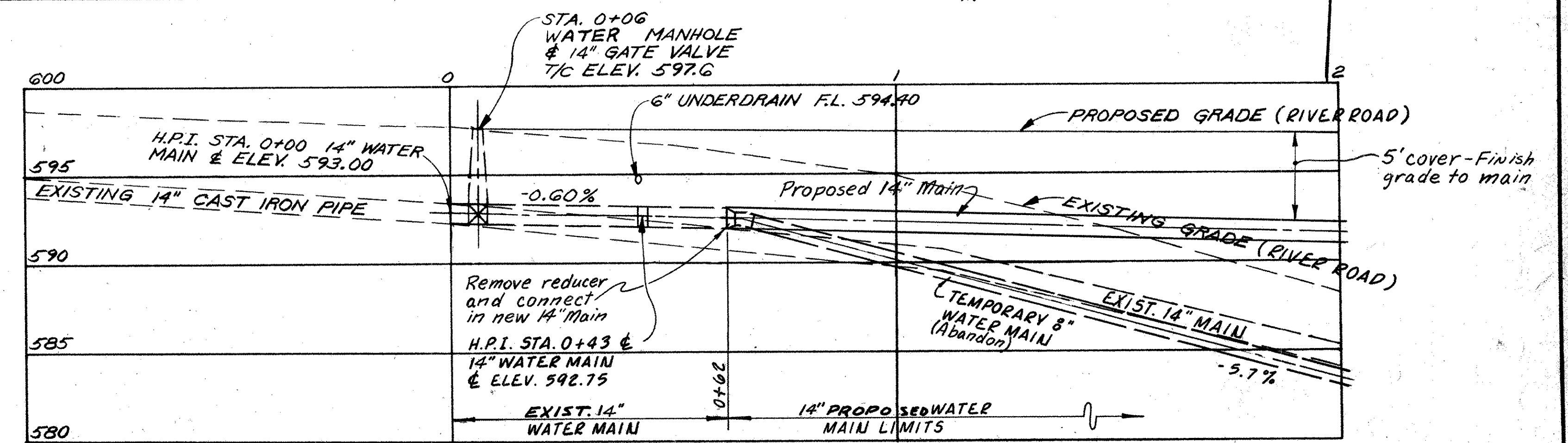
2044  
326

ERIE COUNTY  
 ERI 2-18.38



**NOTE:**  
 RUBBER GASKETS USED FOR MECHANICAL JOINTS SHALL BE LEAD TIPPED.

SEE NOTE ABOVE



ESTIMATED WATERWORK QUANTITIES			
ITEM NO.	DESCRIPTION	QUANTITY	UNITS
814	14" WATER MAIN, CLASS 52 DUCTILE IRON PIPE WITH FITTINGS, CEMENT LINED	840	LIN. FT.

ADACHE ASSOCIATES INC., ENGINEERS  
 CLEVELAND, OHIO 44142

**WATER WORK PLAN**  
 RELOCATED 14" MAIN

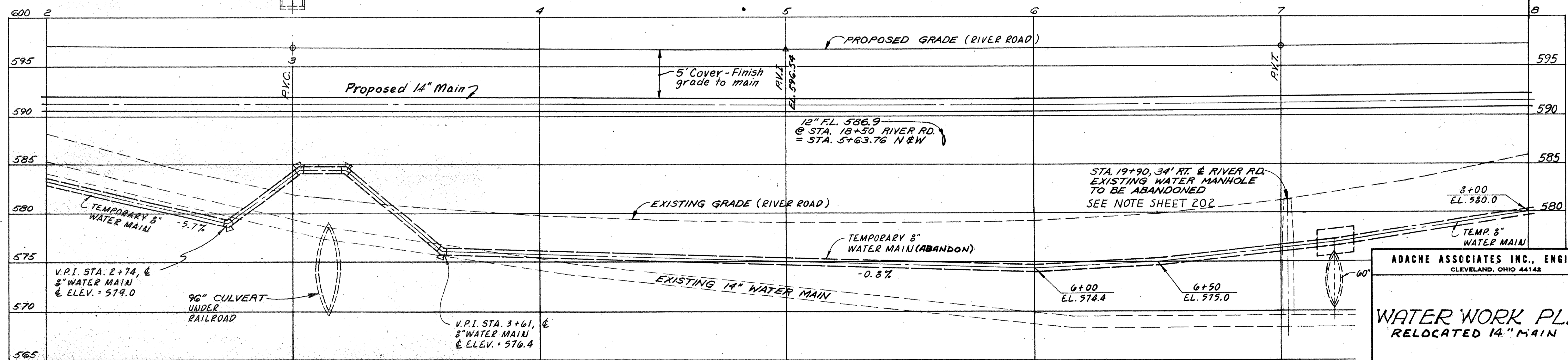
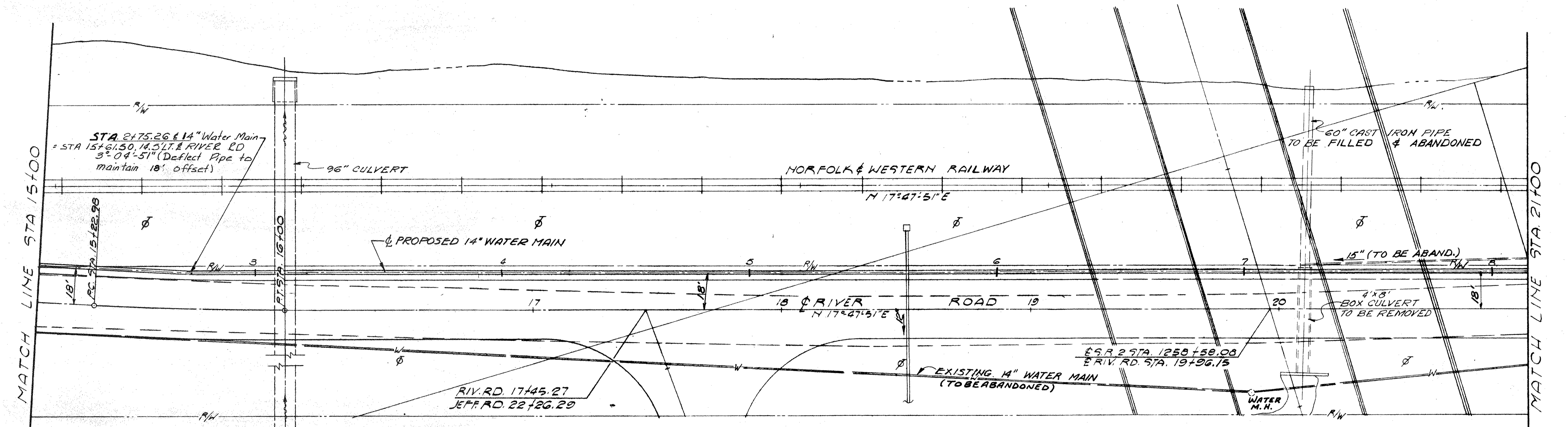
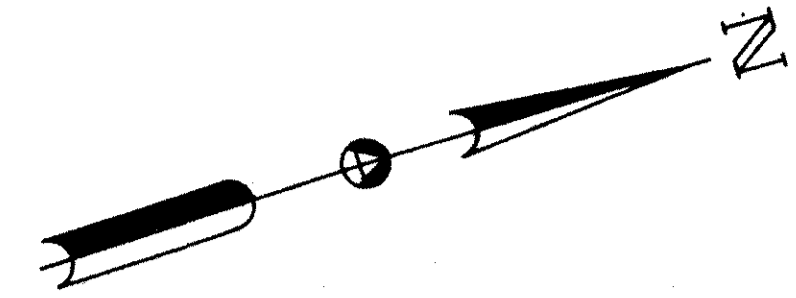
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R. J. Z.	W. A. L.	H. G.		11-28-69	12-4-69
				3-13-70	

PRJ. NO. DIVISION	STATE	PROJECT
2	OHIO	

2048  
326

ERIE COUNTY  
ERI 2-18.38

# HURON RIVER



ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

## WATER WORK PLAN RELOCATED 14" MAIN

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.J.Z.	W.A.L.	H.G.		11-28-69	12-4-69
				3-13-70	

2/3

CN 12/85

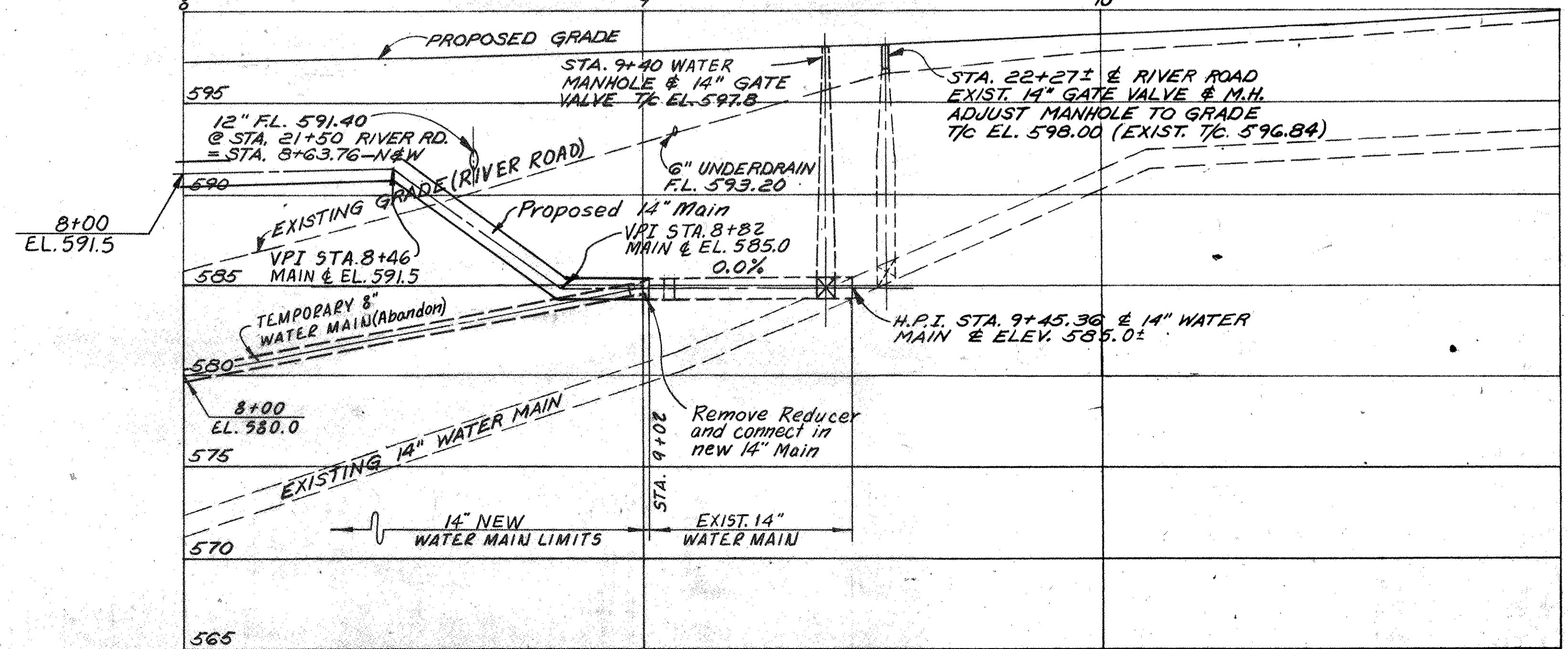
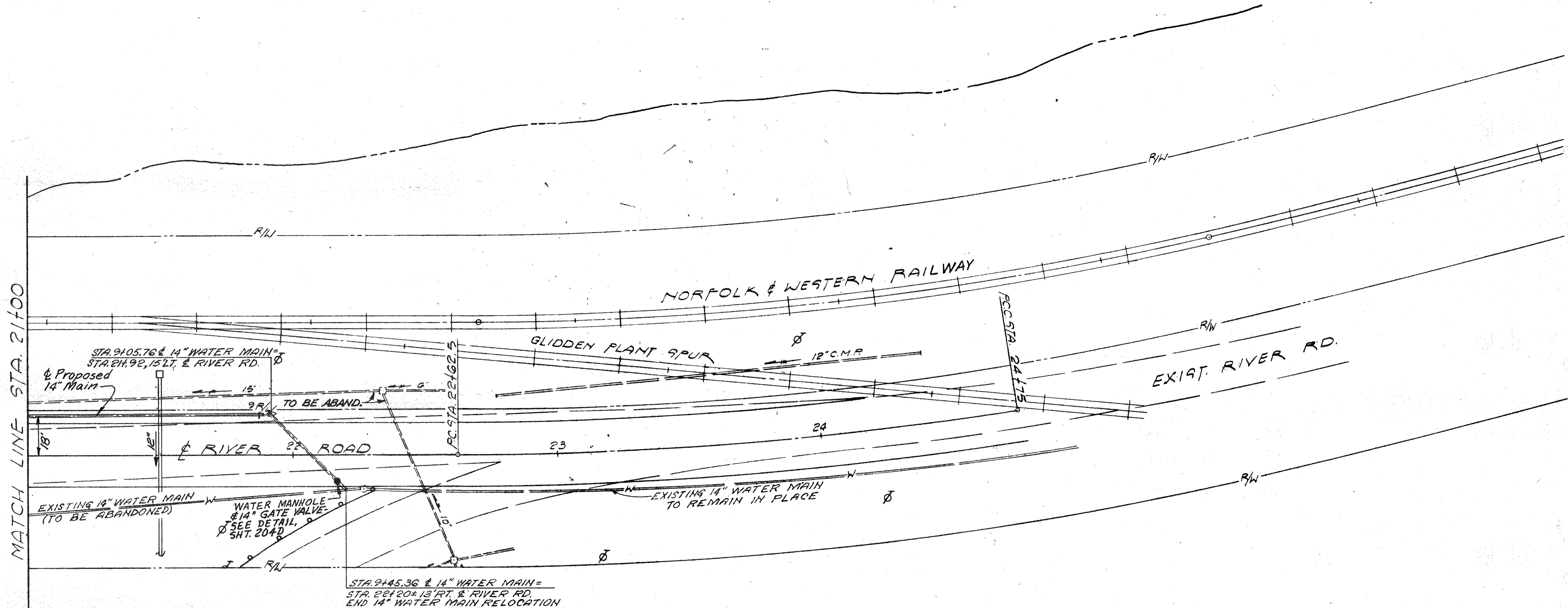
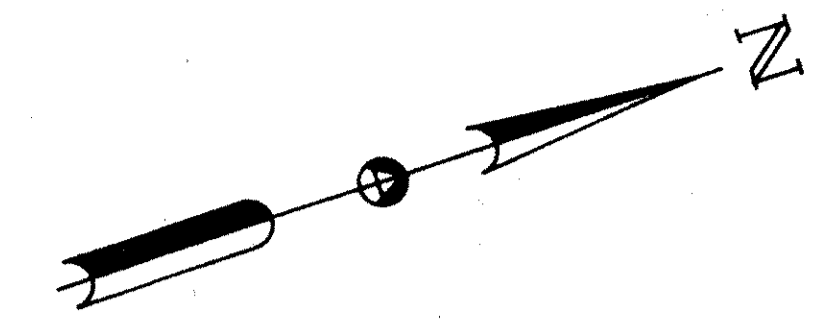


FED. ID. DIVISION	STATE	PROJECT
2	OHIO	

204C  
324

ERIE COUNTY  
ERI 2-18.38

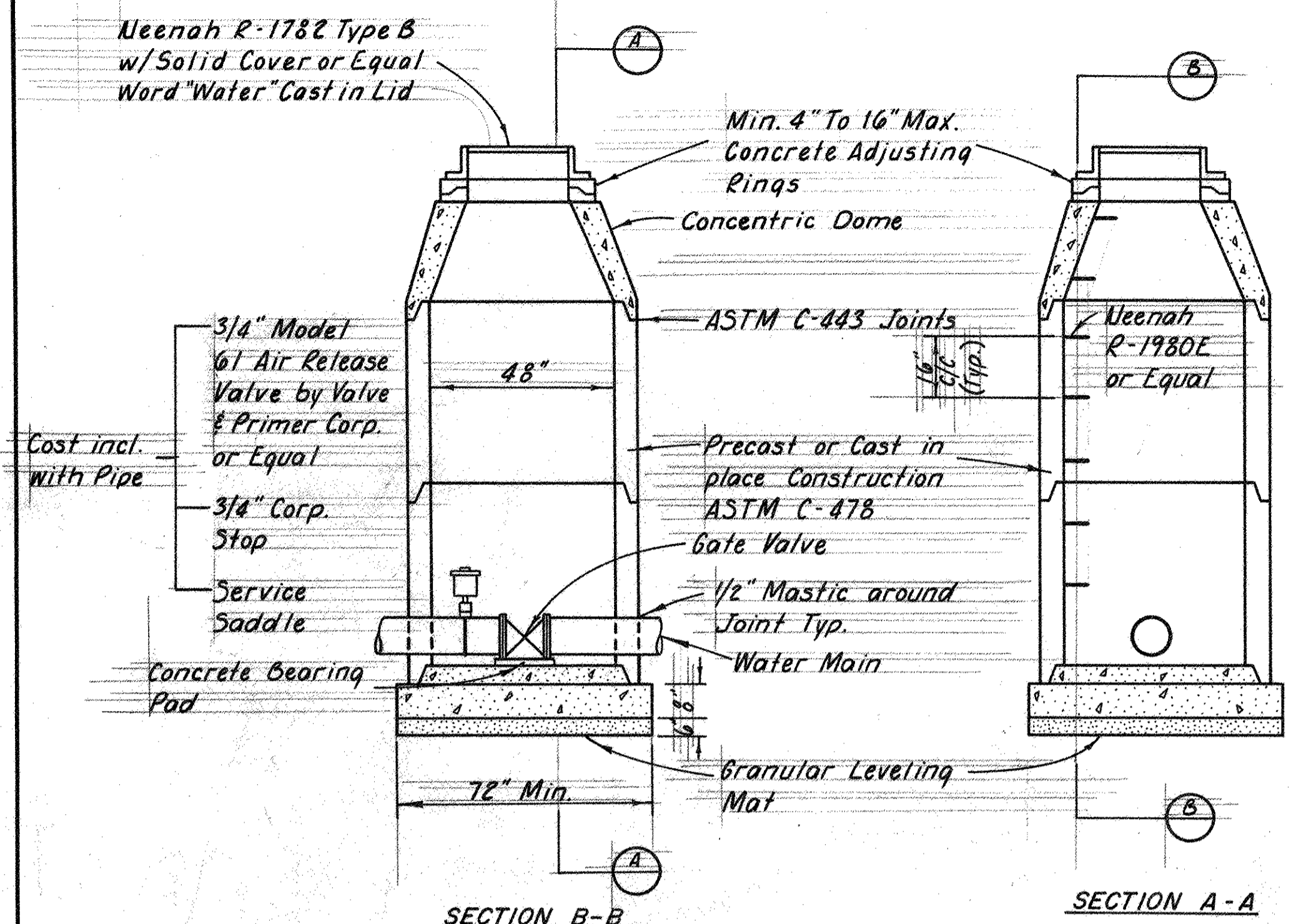
HURON RIVER



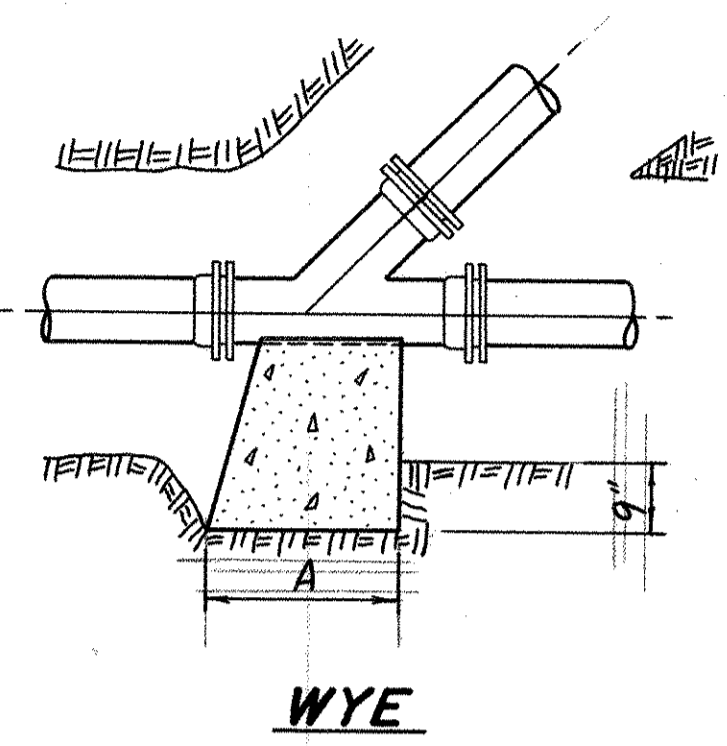
ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

**WATERWORK PLAN**  
RELOCATED 14" MAIN

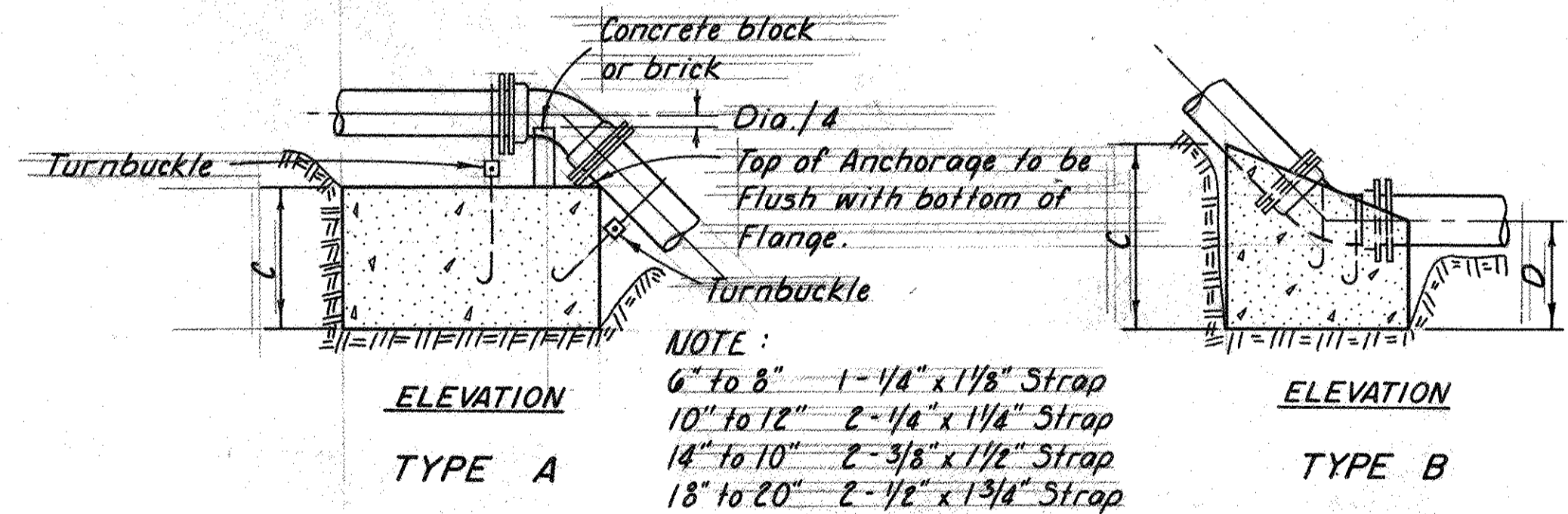
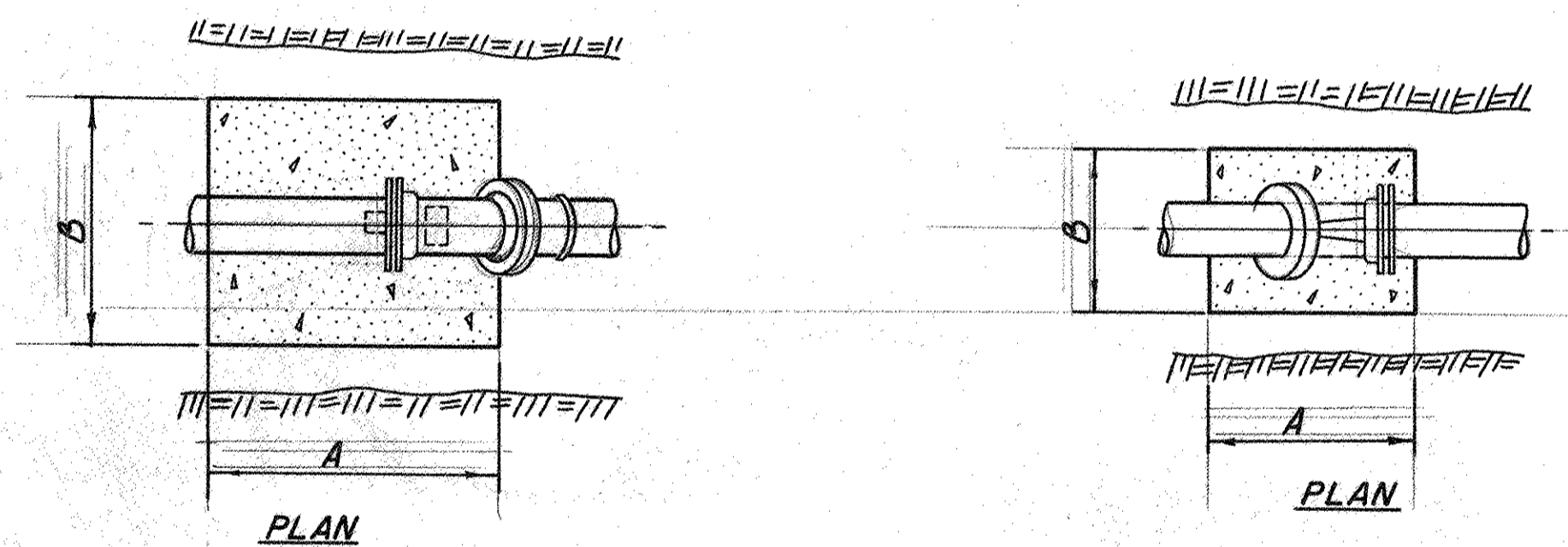
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
R.J.Z.	J.A.S.	H.G.		1-28-69	12-4-69
				3-13-70	



**GATE VALVE & WATER MANHOLE, AS PER PLAN**



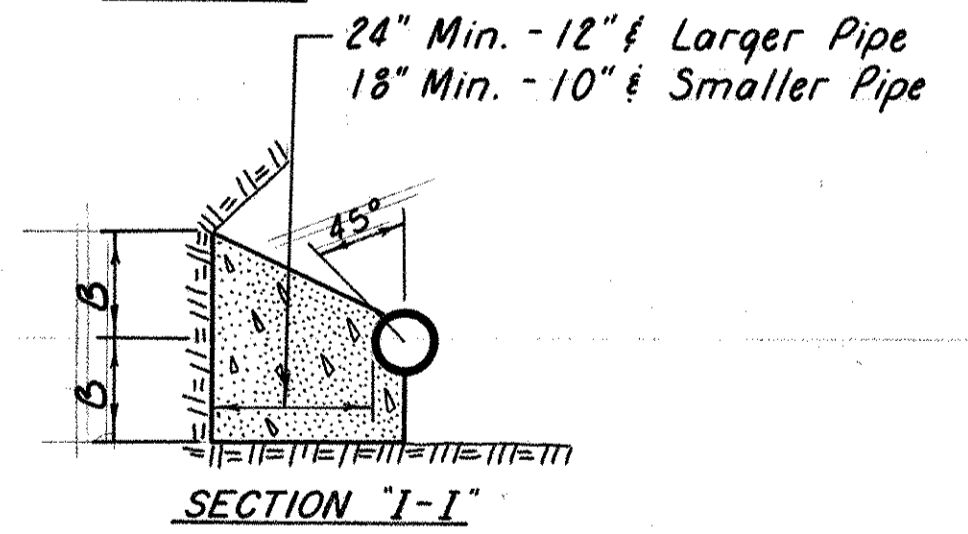
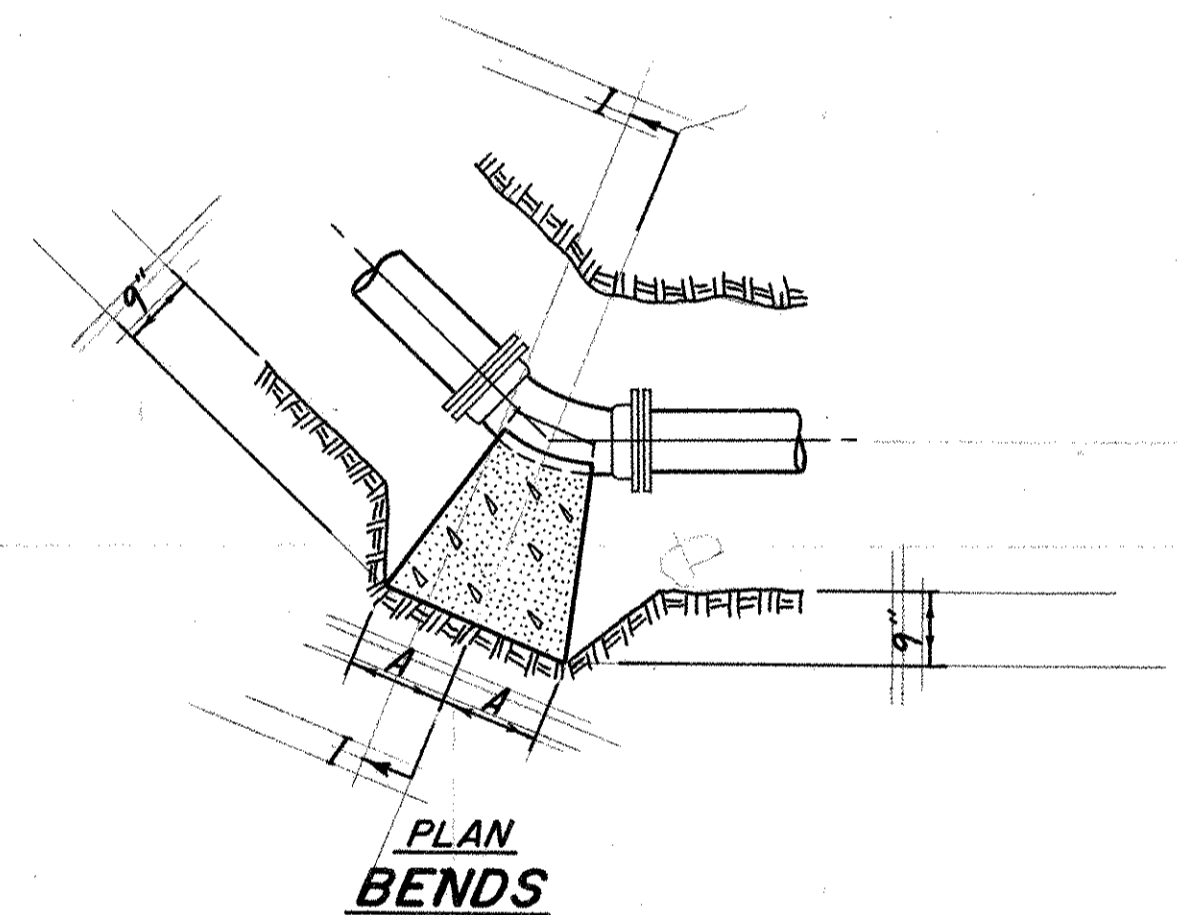
SIZE	WYE	
	A	B
8"	12"	13"
14"	19"	24"
16"	21"	27"



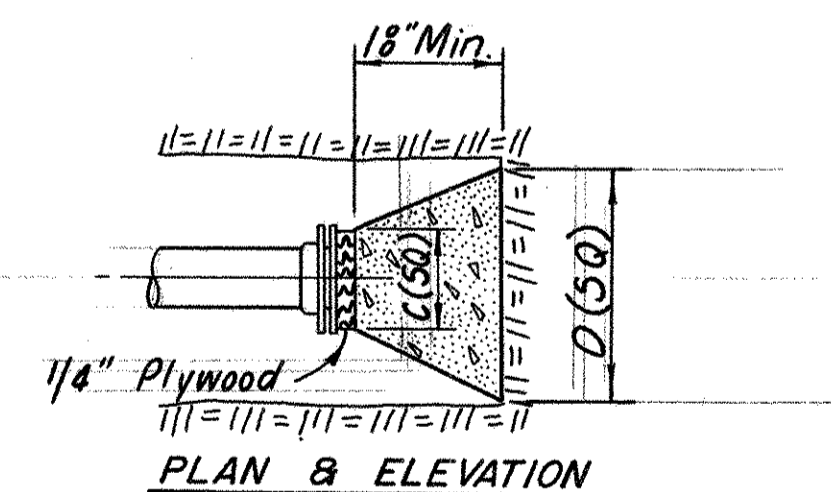
NOTE:  
6" to 8" 1-1/4" x 1/8" Strap  
10" to 12" 2-1/4" x 1/4" Strap  
14" to 16" 2-3/8" x 1/2" Strap  
18" to 20" 2-1/2" x 1 3/4" Strap

**VERTICAL BENDS**

SIZE	TYPE A			TYPE B			
	A	B	C	A	B	C	D
8"	42"	36"	24"	30"	24"	30"	18"
14"	54"	48"	60"	42"	42"	42"	24"
16"	60"	54"	60"	48"	48"	44"	24"



**BENDS & TEES**



**PLUGS**

SIZE	1/4 BENDS		1/8 BENDS		1/16 BENDS		PLUGS	
	A	B	A	B	A	B	C	D
8"	22"	13"	12"	13"	8"	10"	12"	39"
14"	35"	24"	19"	24"	12"	20"	18"	48"
16"	38"	27"	21"	27"	12"	24"	20"	54"

**WATER WORK PLAN**  
MANHOLE & BACKING DETAILS

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED

FHWA REGION	STATE	PROJECT	
5	OHIO		

204E  
326

ERIE COUNTY  
ERI-2-18.38

NO IMPROVEMENTS  
25 4 188

### ITEM 814 - WATER MAINS

IN ADDITION TO SUPPLEMENTAL SPECIFICATION 814, THE FOLLOWING REQUIREMENTS SHALL GOVERN.

ALL WORK SHALL BE PERFORMED BY THE CONTRACTOR AND THE WORK PERFORMED IN REGARDS TO MAKING THE NECESSARY CONNECTIONS, TESTING, AND CHLORINATION SHALL BE DONE UNDER THE REQUIREMENTS AND SUPERVISION OF THE ERIE COUNTY WATER DEPARTMENT. THE COUNTY WILL SAMPLE THE WATER AND DO THE CHEMICAL TESTING. THERE WILL BE NO CHARGE TO THE CONTRACTOR FOR THE COUNTY SUPERVISION AND CHEMICAL TESTING AS DESCRIBED ABOVE. THE COUNTY WILL PROVIDE THE WATER FOR THE INITIAL FILL OF THE PIPE AT NO COST TO THE CONTRACTOR BUT ADDITIONAL FILLINGS IF REQUIRED MAY BE BILLED TO THE CONTRACTOR.

THE EXISTING 14" WATER MAIN SHALL BE KEPT IN SERVICE AT ALL TIMES, EXCEPT FOR A SHUT DOWN PERIOD FOR MAKING THE CONNECTIONS AT STATIONS 0+00 AND 9+45, UNTIL THE 8" RELOCATED TEMPORARY WATER LINE IS READY FOR SERVICE. AT THIS TIME THE 8" TEMPORARY LINE SHALL REMAIN IN SERVICE AT ALL TIMES UNTIL THE RELOCATED 14" LINE IS IN SERVICE, EXCEPT FOR A SHUT DOWN PERIOD FOR MAKING THE NEW CONNECTIONS.

ADDITIONAL REQUIREMENTS ARE AS FOLLOWS:

1. THE TEMPORARY WATER LINE SHALL BE 8" PVC PLASTIC PRESSURE PIPE CLASS 150, SDR 18, C-900.
2. THE PERMANENT WATER LINE SHALL BE 14" CLASS 52 DUCTILE IRON PIPE CONFORMING TO AWWA 150 FOR THICKNESS, CONFORMING TO AWWA CEMENT MORTAR LINED, CONFORMING TO AWWA 104 JOINTS - MECHANICAL OR PUSH-ON CONFORMING TO AWWA C111.
3. FITTINGS SHALL BE DUCTILE IRON CONFORMING TO AWWA C110.
4. GATE VALVES SHALL BE DARLING 50, MUELLER A-2380 OR APPROVED EQUAL, "OPEN RIGHT" CONFORMING TO AWWA C500.
5. TESTING SHALL BE IN ACCORDANCE WITH AWWA C600.
6. DISINFECTION SHALL BE IN ACCORDANCE WITH AWWA C601.

### ITEM 814 - "Y" BRANCH CONNECTION, AS PER PLAN:

THE WORK SHALL CONSIST OF CUTTING THE EXISTING 14" WATER MAIN IN TWO LOCATIONS AND INSTALLING A 14" X 14" WYE AS SHOWN IN THE PLANS, DETAIL "A" ON SHEET 202.

THE CONTRACTOR SHALL FURNISH ALL THE MATERIAL INCLUDING THE 14" X 14" WYE, 24" AND 42" NIPPLES, TIE RODS, LONG BODY SLEEVE, AND CAP; AND PROVIDE ALL LABOR AND MATERIALS NECESSARY TO MAKE A COMPLETE WORKABLE SYSTEM.

THE UNIT PRICE BID PER EACH FOR ITEM 814 - "Y" BRANCH CONNECTION, AS PER PLAN SHALL INCLUDE ALL LABOR, MATERIAL AND EQUIPMENT NECESSARY TO MAKE A COMPLETE WORKABLE SYSTEM AS DESCRIBED ABOVE AND AS SHOWN ON DETAIL "A".

### SEQUENCE OF CONSTRUCTION FOR RIVER ROAD AND WATER MAINS:

1. THE 14" Y-BRANCH CONNECTIONS AND THE 8" TEMPORARY WATER MAIN, AS DETAILED, SHALL BE IN SERVICE BEFORE CONSTRUCTION CAN BEGIN ON RIVER ROAD.

NOTE: NO WORK SHALL BE STARTED ON THE EAST PIERS OF STRUCTURE ERI-2-1911 BEFORE THE PERMANENT 14" WATER MAIN IS IN SERVICE, ITEM 3.

2. THE UNSUITABLE MATERIALS ALONG RIVER ROAD CAN BE REMOVED AND THE RIVER ROAD AND MAINLINE S.R. 2 EMBANKMENTS CONSTRUCTED. THE EMBANKMENTS MUST BE COMPLETED TO BE IN CLOSE CONFORMANCE TO THE FINAL PLAN CROSS SECTIONS.
3. THE NEW PERMANENT 14" WATER LINE CAN BE CONSTRUCTED AND PUT INTO SERVICE.
4. RIVER ROAD CONSTRUCTION CAN BE COMPLETED AND THE EAST PIERS OF STRUCTURE ERI-2-1911 CAN BE STARTED.

THE ABOVE SEQUENCE MUST BE FOLLOWED TO PROVIDE PROTECTION FOR THE EXISTING, TEMPORARY AND PERMANENT WATER MAINS.

OHIO DEPARTMENT OF TRANSPORTATION

## WATER WORK PLAN WATER LINE NOTES

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
	AUTOCAD				

# STRUCTURAL GENERAL NOTES

ERI-2-1911 S.R. 2 OVER HURON RIVER

CALC. _____	OHIO	205 326
DATE _____	F.H.W.A. 5	
CHKD. _____	REGION	
DATE _____		

ERIE COUNTY  
ERI-2-18.38

**THE FOLLOWING GENERAL NOTES APPLY TO THESE STRUCTURES:**

BRIDGE NO. ERI-2-1911 L/R S.R. 2 OVER HURON RIVER: ALTERNATE-1  
BRIDGE NO. ERI-2-1911 L/R S.R. 2 OVER HURON RIVER: ALTERNATE-2

**REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:**

APPROACH SLAB DETAILS	AS-1-81	SHEETS 1, 2 AND 3 OF 3	DATED 11-27-81
BRIDGE RAILING DETAILS	BR-1		DATED 5-29-79
ROCKER AND BOLSTER DETAILS	RB-1-55		REVISED 2-02-59
SUPERSTRUCTURE DETAILS	SD-1-69	SHEETS 1, 2, 3 AND 4 OF 4	DATED 6-12-69
COMPRESSION SEAL EXPANSION JOINTS AT	EXJ-2-81	SHEETS 1 AND 2 OF 2	REVISED 4-2-84
ABUTMENTS FOR STEEL STRINGER STRUCTURES CAPPED PILE PIER AND TO SUPPLEMENTAL SPECIFICATIONS:	CPP-2-73	SHEET 1 OF 1	DATED 4-10-73

824	EPOXY COATED REINFORCING STEEL	DATED 10-8-82
836	CONCRETE CURING AND PROTECTIVE MEMBRANE	DATED 11-12-85

**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, 1982 AND 1983 INTERIM SPECIFICATIONS AND THE OHIO "SUPPLEMENT" TO THESE SPECIFICATIONS.

**DESIGN DATA:**

DESIGN LOADING - HS20-44 CASE II AND THE ALTERNATE MILITARY LOADING  
CONCRETE CLASS S - COMPRESSIVE STRENGTH 4500 PSI (SUPERSTRUCTURE)  
CONCRETE CLASS C - UNIT STRESS 1333 PSI (SUBSTRUCTURE)  
REINFORCING STEEL - ASTM A615, A616 OR A 617 GRADE 60; MINIMUM YIELD STRENGTH 60,000 PSI;  
UNIT STRESS 24,000 PSI  
STRUCTURAL STEEL - ASTM A588 - UNIT STRESS 27,000 PSI  
CONCRETE FOR PRESTRESSED BEAMS - UNIT STRESS 2200 PSI COMPRESSION, 444 PSI TENSION  
PRESTRESSING STRAND - ASTM A416 F'S = 270,000 PSI, INITIAL STRESS = 0.70 F'S

**DECK PROTECTION METHOD:**

EPOXY COATED REINFORCING STEEL, TOP AND BOTTOM MATS.

**MONOLITHIC WEARING SURFACE:**

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

**EMBANKMENT CONSTRUCTION:**

EMBANKMENT AT THE BRIDGES SHALL BE CONSTRUCTED AS PER THE SPECIAL EMBANKMENT REQUIREMENTS SPECIFIED IN THE ROADWAY PLAN GENERAL NOTES, SHEET 10.

THE EMBANKMENT SHALL BE CONSTRUCTED TO THE LEVEL OF THE SUBGRADE FROM STA. 1232+00 TO STA. 1233+75± AT ABUTMENT NO. 1 L/R AND FROM STA. 1258+80± TO STA. 1279+00 AT ABUTMENT NO. 2 L/R. THERE SHALL BE A MINIMUM WAITING PERIOD OF FOUR MONTHS AFTER COMPLETION OF THE EMBANKMENT TO SUBGRADE PRIOR TO EXCAVATING AND DRIVING PILES FOR THE FOLLOWING ABUTMENTS AND PIERS:

- ALTERNATE-1; ABUTMENTS 1 L/R AND 2 L/R, PIER 22 L/R
- ALTERNATE-2; ABUTMENTS 1 L/R AND 2 L/R, PIER 26 L/R

**ITEM 507, 16" AND 18" DIAMETER CAST IN PLACE CONCRETE PILES, AS PER PLAN:**

STEEL CASINGS SHALL BE PLAIN AND CYLINDRICAL AND SHALL MEET THE REQUIREMENTS OF ASTM A252 GRADE 2, MINIMUM YIELD STRESS 35,000 PSI. MINIMUM CASING WALL THICKNESS SHALL BE 0.500" (1/2"). THE CASINGS SHALL EXTEND THE FULL PILE LENGTH AND SHALL BE FILLED WITH CLASS C CONCRETE. SPLICES OF THE STEEL CASINGS, IF NECESSARY, SHALL BE MADE BY FULL BUTT WELDS, MADE IN ACCORDANCE WITH 513.17.

**PILE DRIVING:**

PILES SHALL BE DRIVEN TO REFUSAL ON BEDROCK, REFUSAL SHALL BE CONSIDERED AS ATTAINED BY PENETRATING SOFT BEDROCK WITH A MINIMUM RESISTANCE OF 20 BLOWS PER INCH, OR REFUSAL SHALL BE CONSIDERED AS ATTAINED AFTER THE PILE HAS CONTACTED HARD BEDROCK AND THE PILE HAS THEN RECEIVED AT LEAST 20 BLOWS.

THE PILE HAMMER USED TO INSTALL THE PILES MAY NEED TO HAVE A STATE ENERGY RATING OF APPROXIMATELY 30,000 FOOT-POUNDS. THE HAMMER SIZE MENTIONED IN THIS NOTE IS TO BE CONSIDERED ONLY AS A SUGGESTION AND DOES NOT RELIEVE THE CONTRACTOR FROM 108.05 WHICH STATES THAT THE CONTRACTOR IS TO PROVIDE SUFFICIENT EQUIPMENT FOR PROSECUTING THE REQUIRED WORK. REFER TO ODOT'S MANUAL OF PROCEDURES FOR STRUCTURES TO OBTAIN THE STATE'S ENERGY RATING.

**PILE DESIGN LOADS:**

THE DESIGN LOAD FOR THE ABUTMENT 1 L/R PILES (STEEL PILE HP 12 X 53) IS 50 TONS PER PILE. THE DESIGN LOAD FOR THE PIER PILES ARE AS FOLLOWS:

16" DIAMETER CAST IN PLACE CONCRETE PILES	250 TONS PER PILE
18" DIAMETER CAST IN PLACE CONCRETE PILES	300 TONS PER PILE
STEEL PILES HP 14 X 89	150 TONS PER PILE

THE DESIGN LOAD FOR THE ABUTMENT 2 L/R PILES (STEEL PILES HP 12 X 53) IS 55 TONS PER PILE.

**ITEM 507, STEEL POINTS, AS PER PLAN:**

THE STEEL "H" BEARING PIER PILES MAY BECOME DAMAGED WHEN DRIVEN TO REFUSAL IN THE HARD CLAY SHALE BEDROCK. AFTER REVIEWING THE RESULTS OF THE STATIC LOAD TESTS AND RETRIEVING AND EXAMINING THE TEST PILE, THE DIRECTOR WILL DETERMINE IF THE TIPS OF THE PIER PILES SHALL BE PROTECTED BY STEEL POINTS. IF THE USE OF STEEL POINTS IS DETERMINED TO BE UNNECESSARY, ITEM 507 STEEL POINTS WILL BE NONPERFORMED. THE STEEL PILE POINTS SHALL BE FURNISHED BY ASSOCIATED PILE AND FITTING CORPORATION, 262 RUTHERFORD BOULEVARD, CLIFTON, NEW JERSEY 07014; INTERNATIONAL CONSTRUCTION EQUIPMENT, INC., 301 WAREHOUSE DRIVE, MATTHEWS, NORTH CAROLINA 28015; DOUGHERTY FOUNDATION PRODUCTS, INC., P.O. BOX 688, FRANKLIN LAKES, NEW JERSEY 07417; VERSA STEEL INC., 3601 N. W. YEON AVENUE, P.O. BOX 10559, PORTLAND, OREGON 97210 OR BY A MANUFACTURER THAT CAN FURNISH A STEEL POINT THAT IS ACCEPTABLE TO THE DIRECTOR.

**ITEM SPECIAL, TEST PILE PROGRAM:**

THIS ITEM SHALL CONSIST OF THREE STATIC LOAD TESTS CONDUCTED AS PER 506. THE STATIC LOAD TESTS SHALL BE CONDUCTED ON AN 18 INCH CAST-IN-PLACE REINFORCED CONCRETE PILE, A STEEL "H" BEARING PILE (HP 14 X 89) AND A STEEL "H" BEARING PILE (HP 14 X 89) WITH A STEEL POINT. THE PILES TO BE TESTED SHALL HAVE BEEN DRIVEN TO REFUSAL ON THE CLAY SHALE BEDROCK. THE PILES TO BE STATICALLY LOAD TESTED SHALL EACH EXPERIENCE A 7 DAY WAITING PERIOD PRIOR TO STARTING THE LOAD TEST.

THIS ITEM SHALL ALSO INCLUDE THE DRIVING AND EXTRACTING OF A STEEL "H" BEARING PILE (HP 14 X 89). THE PILE SHALL BE DRIVEN AT A 4 VERTICAL TO 1 HORIZONTAL BATTER TO REFUSAL ON BEDROCK.

**PAYMENT WILL BE MADE AT CONTRACT PRICE FOR:**

ITEM	UNIT	DESCRIPTION
SPECIAL	LUMP SUM	TEST PILE PROGRAM

**WETLAND AND CHANNEL PIER FOOTINGS:**

PIER FOOTINGS LOCATED WITHIN THE WETLANDS AND RIVER CHANNEL SHALL BE CONSTRUCTED WITHIN TEMPORARY STEEL SHEET PILE COFFERDAMS. ALL SOIL EXCAVATED FOR CONSTRUCTION OF THE PIER FOOTINGS SHALL BE IMMEDIATELY REMOVED FROM THE SITE AND SHALL BE DISPOSED OF IN AN APPROVED WASTE AREA. TEMPORARY DEPOSITING OF THE EXCAVATED SOIL AT THE WORK SITE WILL NOT BE ALLOWED. THE PIER FOOTINGS SHALL BE BACKFILLED USING GRANULAR MATERIAL CONFORMING TO ITEM 310, SUBBASE EXCEPT THAT SLAGS AND SLAKER AGGREGATES WILL NOT BE PERMITTED. BACKFILLING OF THE PIER FOOTINGS USING GRANULAR MATERIAL SHALL BE INCLUDED WITH ITEM 503, UNCLASSIFIED EXCAVATION FOR PAYMENT. ALL ADDITIONAL APPLICABLE REQUIREMENTS OF THE CONSTRUCTION AND MATERIALS SPECIFICATIONS ITEM 503 "EXCAVATION FOR STRUCTURES" SHALL APPLY AND SHALL BE CONFORMED WITH.

**CONSTRUCTION CLEARANCE:**

CONSTRUCTION CLEARANCE OF 8.00' HORIZONTALLY FROM THE CENTER OF TRACKS AND 21.00' VERTICALLY FROM A POINT LEVEL WITH THE TOP OF THE HIGHER RAIL, AND 4 FEET FROM THE CENTER OF TRACKS, SHALL BE MAINTAINED AT ALL TIMES.

**RAILROAD AERIAL LINES:**

RAILROAD AERIAL LINES WILL BE RELOCATED BY THE RAILROAD. THE CONTRACTOR SHALL USE ALL PRECAUTIONS NECESSARY TO SEE THAT THE LINES ARE NOT DISTURBED DURING THE CONSTRUCTION STAGE AND SHALL COOPERATE WITH THE RAILROAD IN THE RELOCATION OF THESE LINES. THE COST OF THE RELOCATION SHALL BE INCLUDED IN THE RAILROAD FORCE ACCOUNT WORK.

**UTILITY LINES**

ALL EXPENSE INVOLVED IN RELOCATING (INSTALLING) THE AFFECTED UTILITY LINES SHALL BE BORNE BY THE OWNER(S). THE CONTRACTOR AND OWNER(S) ARE REQUESTED TO COOPERATE BY ARRANGING THEIR WORK IN SUCH A MANNER THAT INCONVENIENCE TO EITHER WILL BE HELD TO A MINIMUM.

**MAINTENANCE AND PROTECTION OF TRAFFIC**

TRAFFIC SHALL BE MAINTAINED ON RIVER ROAD AND JEFFRIES ROAD AS INDICATED ON THE ROADWAY PLANS (GENERAL NOTES).

**REINFORCING BAR LAPPED SPLICES:**

REINFORCING BARS SHALL BE LAPPED AS FOLLOWS, UNLESS OTHERWISE NOTED IN THESE PLANS.

- NO. 4 BAR - 1'-10" MIN.
- NO. 5 BAR - 2'-5" MIN.
- NO. 6 BAR - 2'-10" MIN.
- NO. 8 BAR - 4'-9" MIN.
- NO. 10 BAR - 7'-8" MIN.

**ITEM 518 POROUS BACKFILL, AS PER PLAN:**

POROUS BACKFILL SHALL BE CONSTRUCTED WITH FILTER FABRIC AS PER DETAILS IN THE PLAN.

THE FILTER FABRIC SHALL BE TYPE B AS PER 712.09. DURING ALL PERIODS OF SHIPMENT AND STORAGE THE CLOTH SHALL BE WRAPPED IN A HEAVY DUTY PROTECTIVE COVERING TO PROTECT IT FROM DIRECT SUNLIGHT, MUD, DIRT, DUST, AND OTHER DEBRIS.

ALL JOINTS SHALL BE LAPPED AT A MINIMUM OF TWO (2) FEET. THE AGGREGATE SHALL BE NO. 57 CRUSHED GRAVEL.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE UNIT PRICE BID PER CUBIC YARD FOR ITEM 518. POROUS BACKFILL, AS PER PLAN WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

**CONSTRUCTION SEQUENCE - ALTERNATE-2**

THE SLAB FOR SPAN 22 OF UNIT 3 SHALL BE PLACED BEFORE THE SLAB FOR SPAN 23 OF UNIT 4 SO THAT FINAL ADJUSTMENTS OF THE END DAM ELEVATIONS FOR UNANTICIPATED CAMBER OF THE PRESTRESS I BEAMS CAN BE MADE.

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CONSULTING ENGINEERS CLEVELAND, OHIO 44131					
<b>STRUCTURAL GENERAL NOTES</b>					
<b>BRIDGE N° ERI-2-1911 L/R</b>					
<b>S.R. 2 OVER HURON RIVER</b>					
<b>N. &amp; W. R.R. &amp; RIVER ROAD</b>					
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
E.A.F.	D.R.J.	L.E.D.	L.E.D.	11/4/85	

HIGH RANGE WATER REDUCER SHALL CONFORM TO 705.12, ASTM-C494 TYPE F AND SHALL NOT CONTAIN CALCIUM CHLORIDE.

THE CEMENT CONTENT SHALL BE MAINTAINED AND A MAXIMUM WATER-CEMENT RATIO OF 0.40 SHALL NOT BE EXCEEDED. THE SLUMP OF THE UNPLASTICIZED CONCRETE DELIVERED TO THE JOB SITE SHALL BE 1 1/2", ±1/2 INCH. THE SUPERPLASTICIZING ADMIXTURE SHALL BE ADDED AT THE JOB SITE AND MIXED A MINIMUM OF FIVE (5) MINUTES. AFTER THE SUPERPLASTICIZER HAS BEEN ADDED, THE SLUMP SHALL BE 6 1/2", ±1/2 INCH. THE CONTRACTOR SHALL FURNISH A VOLUMETRIC DISPENSER FOR THE SUPERPLASTICIZER.

CONCRETE MIXTURES CONTAINING A HIGH RANGE WATER REDUCER SHALL MEET THE SAME REQUIREMENTS FOR ENTRAINED AIR CONTENT, MINIMUM STRENGTH, AND MAXIMUM WATER-CEMENT RATIO AS REQUIRED FOR THE RESPECTIVE GRADE OF CONCRETE WITHOUT A HIGH RANGE WATER REDUCER.

SAMPLING AND TESTING FOR ENTRAINED AIR CONTENT AND MINIMUM STRENGTH SHOULD BE TAKEN FROM THE CONCRETE THAT HAS BEEN TREATED WITH A HIGH RANGE WATER REDUCER.

CURING SHALL BE IN ACCORDANCE WITH 511.14 TYPE "A" WATER CURING.

**PLACEMENT**

PLACEMENT OF CONCRETE SHALL BE COMPLETED UNDER FAVORABLE ATMOSPHERIC CONDITIONS. FAVORABLE ATMOSPHERIC CONDITIONS EXIST WHEN THE SURFACE EVAPORATION RATE AS AFFECTED BY AMBIENT AIR TEMPERATURE, CONCRETE TEMPERATURE, RELATIVE HUMIDITY AND WIND VELOCITY IS 0.1 POUNDS PER SQUARE FOOT PER HOUR OR LESS. FIGURE (1) SHALL BE USED TO DETERMINE GRAPHICALLY THE SURFACE EVAPORATION RATE. FAVORABLE ATMOSPHERIC CONDITIONS MAY REQUIRE PLACEMENT DURING LATE EVENING, NIGHT OR EARLY MORNING HOURS. (SEE FIGURE 1 THIS SHEET)

IF PLACEMENT OF THE CONCRETE IS TO BE MADE AT NIGHT, THE CONTRACTOR SHALL SUBMIT A PLAN WHICH PROVIDES ADEQUATE LIGHTING FOR THE WORK AREA AT LEAST 15 CALENDAR DAYS IN ADVANCE AND RECEIVE WRITTEN APPROVAL FROM THE ENGINEER BEFORE PLACING THE CONCRETE. THE LIGHTS SHALL BE SO DIRECTED THAT THEY DO NOT AFFECT OR DISTRACT APPROACHING TRAFFIC.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE UNIT PRICE BID PER CUBIC YARD FOR ITEM 511 CLASS S CONCRETE, AS PER PLAN WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE.

**PAINTING OF STRUCTURAL STEEL:**

STRUCTURAL STEEL SHALL NOT BE PAINTED EXCEPT FOR THE PARAPET SLIDING PLATES. THE PARAPET SLIDING PLATES SHALL BE PAINTED IN ACCORDANCE WITH ITEM 514 FIELD PAINTING OF NEW STRUCTURAL STEEL, SYSTEM B. TOP COATS SHALL CONFORM WITH ITEM 708.00, CORROSION RESISTANT GRAY FINISH PAINT. FIELD PAINTING OF THE PARAPET SLIDING PLATES SHALL BE INCLUDED WITH ITEM 513, STRUCTURAL STEEL FOR PAYMENT.

**WASTE AREAS**

WASTE AREA SITE LOCATIONS OUTSIDE OF THE PROJECT RIGHT-OF-WAY SHALL BE SELECTED BY THE CONTRACTOR. PRIOR TO THE USE OF THE WASTE AREAS, THE CONTRACTOR SHALL INFORM THE DIRECTOR OF THE OHIO DEPARTMENT OF TRANSPORTATION AND THE UNITED STATES ARMY CORPS OF ENGINEERS, BUFFALO DISTRICT, IN WRITING OF THE LOCATION OF THE PROPOSED WASTE AREAS AND PROVIDE A WRITTEN DESCRIPTION OF THE WASTE AREAS. THE CONTRACTOR SHALL OBTAIN WRITTEN APPROVAL OF THE SELECTED WASTE AREAS FROM BOTH AGENCIES PRIOR TO THE USE OF THE AREAS.

DISPOSAL OF WASTE MATERIALS IN ANY WETLAND AREA AS DEFINED IN THE UNITED STATES DEPARTMENT OF INTERIOR, FISH AND WILDLIFE SERVICES "CIRCULAR 39, WETLANDS OF THE UNITED STATES" WILL NOT BE PERMITTED.

ALL ADDITIONAL REQUIREMENTS OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS SECTION 105.151 "BORROW AND WASTE AREAS" SHALL APPLY AND SHALL BE CONFORMED WITH.

**CIRCULATION CANAL**

PRIOR TO INSTALLING THE SILT FENCE ACROSS THE HURON RIVER WETLANDS AND CONSTRUCTING THE TEMPORARY WETLANDS ACCESS ROAD, THE CONTRACTOR SHALL EXCAVATE A CANAL SOUTH OF THE BRIDGE CROSSING THROUGH THE LOW WEST BANK AREA BETWEEN THE RIVER CHANNEL AND ADJACENT WETLAND AREA. PURPOSE OF THE CANAL IS TO FACILITATE CIRCULATION OF WATER AND MOVEMENT OF AQUATIC LIFE BETWEEN THE WETLANDS AND RIVER CHANNEL UPSTREAM OF THE TEMPORARY ACCESS ROAD. SEE THE ROADWAY PLANS FOR CONSTRUCTION DETAILS AND PAYMENT QUANTITIES FOR THE CIRCULATION CANAL. ALL SOIL EXCAVATED FOR CONSTRUCTION OF THE CIRCULATION CANAL

SHALL BE IMMEDIATELY REMOVED FROM THE SITE AND SHALL BE DISPOSED OF IN AN APPROVED WASTE AREA. TEMPORARY DEPOSITING OF THE EXCAVATED SOIL AT THE WORK SITE WILL NOT BE PERMITTED. CANAL EXCAVATION IN AREAS BELOW THE WATER LEVEL SHALL BE ENCLOSED IN A SILT FENCE TO CONFINE SILTATION.

**SILT FENCE**

PRIOR TO EXCAVATING THE CIRCULATION CANAL IN THE WEST BANK AREA BETWEEN THE RIVER CHANNEL AND WETLANDS, THE CONTRACTOR SHALL INSTALL A SILT FENCE AROUND THE AREAS TO BE EXCAVATED THAT ARE BELOW WATER LEVEL. THE SILT FENCE SHALL BE INSTALLED AS DIRECTED BY THE ENGINEER AND SHALL REMAIN IN PLACE THROUGHOUT THE CANAL EXCAVATION PERIOD AND FOR A MINIMUM OF TWO DAYS AFTER COMPLETION OF THE CANAL EXCAVATION. THE CONTRACTOR SHALL REMOVE THE SILT FENCE AROUND THE CANAL EXCAVATION AREA AFTER RECEIVING AUTHORIZATION FROM THE ENGINEER.

UPON COMPLETION OF THE CIRCULATION CANAL, THE CONTRACTOR SHALL INSTALL SILT FENCES ACROSS THE HURON RIVER WETLANDS (STATION 1233 + 50± TO STATION 1254 + 50±) PRIOR TO COMMENCING ANY ADDITIONAL WORK IN THE WETLANDS. TWO CONTINUOUS LINES OF SILT FENCE SHALL BE INSTALLED ACROSS THE WETLANDS TO ENCLOSE THE BRIDGE CROSSING AREA. ONE LINE SHALL BE LOCATED UPSTREAM AND THE SECOND LINE SHALL BE LOCATED DOWNSTREAM OF THE PROPOSED HURON RIVER BRIDGES. THE SILT FENCES SHALL BE LOCATED APPROXIMATELY 25 FEET OUTSIDE THE EXTERIOR FASCIAS OF THE DUAL BRIDGES AND SHALL ROUGHLY PARALLEL THE EXTERIOR BRIDGE FASCIAS.

SILT FENCE FABRIC SHALL MEET THE REQUIREMENTS OF 712.09, TYPE C. THE SILT FENCE FABRIC SHALL BE SUPPORTED, SECURED AND ANCHORED AS NECESSARY TO PREVENT REMOVAL BY STREAM FLOW AND TO CONFINE SILTATION TO WITHIN THE ENCLOSED AREA.

THE CONTRACTOR SHALL INSTALL THE SILT FENCE ACROSS HURON RIVER WETLANDS, MAINTAIN THE FENCE DURING THE CONSTRUCTION PERIOD, AND SUBSEQUENTLY REMOVE THE SILT FENCE AFTER ALL OTHER WORK IN THE WETLANDS HAS BEEN COMPLETED.

PAYMENT FOR THE INSTALLATION, MAINTENANCE, AND SUBSEQUENT REMOVAL OF THE SILT FENCE SHALL BE FOR THE ACTUAL LINEAL FEET OF SILT FENCE INSTALLED AND SHALL BE FULL COMPENSATION FOR ALL MATERIAL, LABOR AND EQUIPMENT REQUIRED FOR THIS ITEM OF WORK.

**PAYMENT WILL BE MADE AT CONTRACT PRICES FOR:**

ITEM	UNIT	DESCRIPTION
SPECIAL	LIN. FEET	SILT FENCE

AN ESTIMATED QUANTITY OF 4600 LIN. FEET OF ITEM SPECIAL, SILT FENCE IS INCLUDED IN THE ROADWAY PLAN GENERAL SUMMARY FOR PAYMENT OF THE INSTALLATION OF SILT FENCES ACROSS THE HURON RIVER WETLANDS AND AROUND THE CIRCULATION CANAL EXCAVATION AREA.

**BRIDGE CONSTRUCTION ACCESS ROAD ACROSS WETLANDS**

IT IS INTENDED TO CONSTRUCT THE HURON RIVER BRIDGES CAUSING MINIMAL DISTURBANCE AND MINIMAL LONG TERM DAMAGE TO THE WETLANDS. FOR ACCESS IN THE WETLANDS TO CONSTRUCT THE BRIDGES A TEMPORARY HAUL ROAD SHALL BE CONSTRUCTED FROM STATION 1233 + 50± TO STATION 1254 + 50± IN THE CENTER OF THE MEDIAN AREA BETWEEN THE DUAL BRIDGES. ACCESS TO EACH OF BRIDGE PIERS SHALL BE FROM TEMPORARY ROAD PROJECTIONS CONSTRUCTED FROM THE MAIN HAUL ROAD.

WIDTH OF THE TEMPORARY ROAD SHALL BE AS REQUIRED BY THE CONTRACTOR'S CONSTRUCTION AND ERECTION EQUIPMENT AND FOR EFFICIENT PROSECUTION OF THE BRIDGE CONSTRUCTION WORK. MINIMUM USABLE WIDTH SHALL BE 20 FEET. THE CONTRACTOR SHALL CONSTRUCT THE TEMPORARY ROAD TO A LEVEL ABOVE THE MARSH SOIL LEVEL THAT WILL PERMIT USE OF THE ROAD DURING A TWO YEAR FREQUENCY FLOOD. THE TEMPORARY ROAD SHALL HAVE RELATIVELY FLAT (4:1 OR FLATTER) SIDE SLOPES TO MINIMIZE HEAVING OF THE MARSH SOIL ADJACENT TO THE ROAD.

THE TEMPORARY ROAD SHALL BE CONSTRUCTED BY INSTALLING A SOIL STABILIZATION ENGINEERING FABRIC ON THE MARSH SOIL AND PLACING AND COMPACTING CRUSHED AGGREGATE FILL ON THE FABRIC TO THE REQUIRED GRADE LEVEL. PRIOR TO PLACING THE FABRIC, THE MARSH SURFACE SHALL BE CLEARED AND PREPARED IN ACCORDANCE WITH THE FABRIC MANUFACTURER'S RECOMMENDATIONS.

**SOIL STABILIZATION ENGINEERING FABRIC**

THE ENGINEERING FABRIC SHALL PROVIDE A PERMEABLE LAYER OR MEDIA, PLANAR FLOW, AND TENSILE REINFORCEMENT, WHILE RETAINING THE SOIL MATRIX.

CALC. DATE	OHIO REGION
CHKD. DATE	F.H.W.A. 5
DATE	REGION



ERIE COUNTY  
ERI-2-18.38

**MATERIAL REQUIREMENTS:**

THE ENGINEERING FABRIC SHALL BE A NONWOVEN FABRIC CONSISTING ONLY OF CONTINUOUS CHAIN POLYMERIC FILAMENTS OR YARNS OF POLYESTER, FORMED INTO A STABLE NETWORK BY NEEDLE PUNCHING. THE FABRIC SHALL BE INERT TO COMMONLY ENCOUNTERED CHEMICALS, HYDROCARBONS, MILDEW AND ROT RESISTANT, RESISTANT TO ULTRAVIOLET LIGHT EXPOSURE, INSECT AND RODENT RESISTANT, AND CONFORM TO THE PROPERTIES IN THE FOLLOWING TABLE. THE AVERAGE ROLL MINIMUM VALUE (WEAKEST PRINCIPLE DIRECTION) FOR STRENGTH PROPERTIES OF ANY INDIVIDUAL ROLL TESTED FROM THE MANUFACTURING LOT OR LOTS OF A PARTICULAR SHIPMENT SHALL BE IN EXCESS OF THE AVERAGE ROLL MINIMUM VALUE (WEAKEST PRINCIPLE DIRECTION) STIPULATED HEREIN.

**TEST REQUIREMENTS:**

PHYSICAL PROPERTIES	AVERAGE ROLL MINIMUM VALUE (WEAKEST PRINCIPLE DIRECTION)*
GRAB TENSILE STRENGTH* ASTM D1682 (LBS.)	270
ELONGATION AT FAILURE* ASTM D1682 (%)	60
MULLEN BURST STRENGTH ASTM D3786 (PSI)	430
PLANAR WATER FLOW (GTS./HR./2" FABRIC)	.3
COEFFICIENT OF NORMAL PERMEABILITY - K (CM/SEC.) (5 IN. CONSTANT HEAD)	.1
VERTICAL WATER FLOW (GAL/MIN/FT <sup>2</sup> ) (5 IN. CONSTANT HEAD)	100
EQUIVALENT OPENING SIZE (U.S. STANDARD SIEVE NO.) CW-02215 U.S. STD. SIEVE NUMBER LARGER THAN	50
TRAPEZOID TEAR STRENGTH* ASTM 1117 (LBS.)	80
PUNCTURE STRENGTH ASTM D751 (MODIFIED) (LBS.)	125

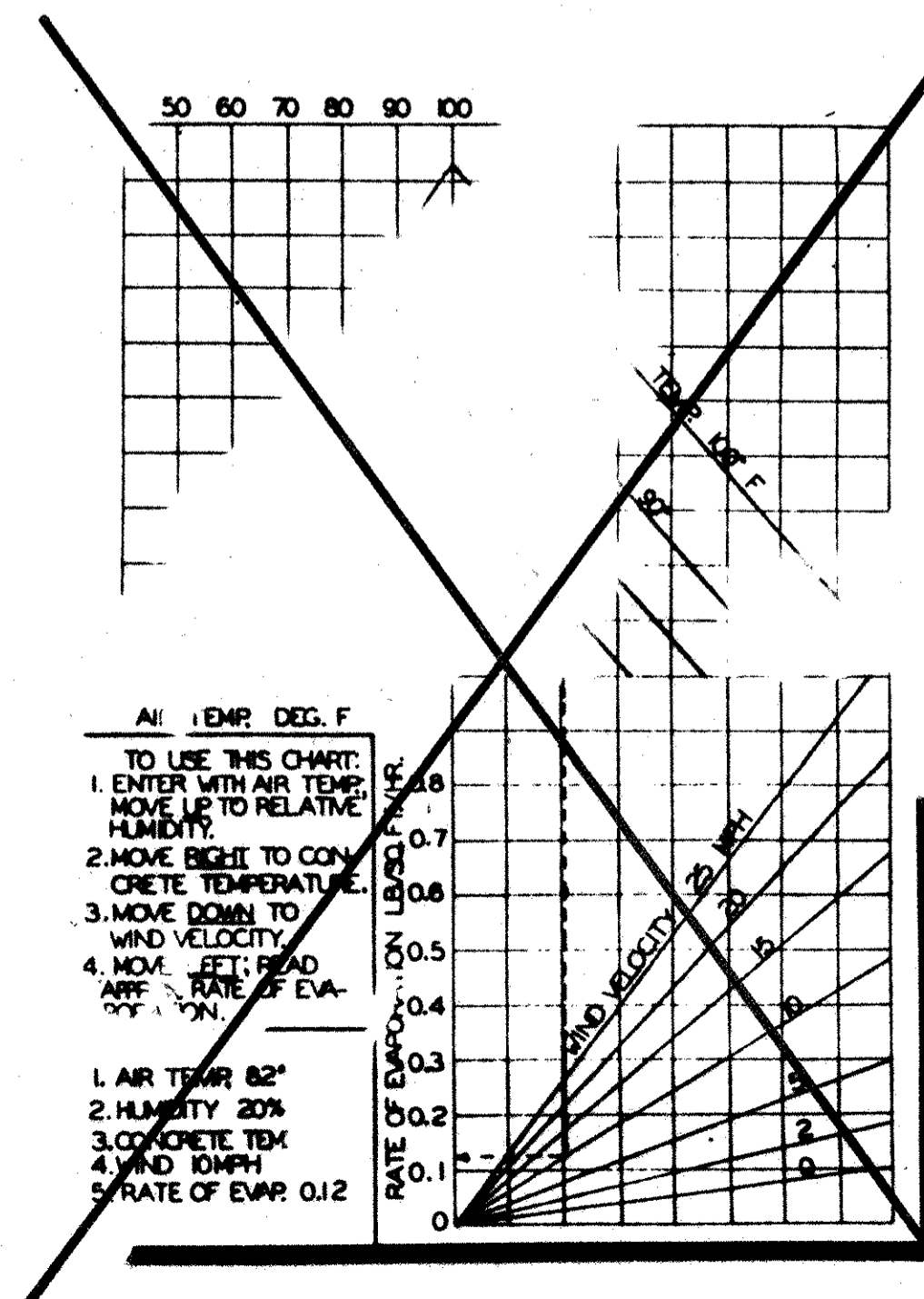


FIGURE 1

2 / 3

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CONSULTING ENGINEERS CLEVELAND, OHIO 44131

**STRUCTURAL GENERAL NOTES**  
BRIDGE N<sup>o</sup> ERI-2-1911 L/R  
S.R. 2 OVER HURON RIVER  
N. & W. R.R. & RIVER ROAD

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
E.A.F.	D.R.J.	L.E.D.	L.E.D.	11/4/85	

**PACKAGING AND IDENTIFICATION REQUIREMENTS:**

THE ENGINEERING FABRIC SHALL BE PROVIDED IN ROLLS WRAPPED WITH PROTECTIVE COVERING TO PROTECT THE FABRIC FROM MUD, DIRT, DUST, AND DEBRIS. THE FABRIC SHALL BE FREE OF DEFECTS OR FLAWS WHICH SIGNIFICANTLY AFFECT ITS PHYSICAL PROPERTIES. EACH ROLL OF FABRIC IN THE SHIPMENT SHALL BE LABELED WITH A NUMBER OR SYMBOL TO IDENTIFY THAT PRODUCTION RUN.

**SAMPLING AND COMPLIANCE REQUIREMENTS:**

THE MANUFACTURER SHALL SUBMIT CERTIFIED TEST DATA TO COVER EACH SHIPMENT OF MATERIAL.

**INSTALLATION DETAILS:**

THE ENGINEERING FABRIC SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. SEPARATE ROLLS SHALL BE JOINED BY OVERLAPPING. UNSEWN OVERLAPS SHALL BE 48 INCHES WIDE MINIMUM. SEWN OVERLAPS SHALL BE 9 INCHES MINIMUM AND SHALL BE SEWN TWICE. FABRIC WITH UNSEWN OVERLAPS SHOULD NOT BE UNROLLED MORE THAN 25 FEET AHEAD OF AGGREGATE PLACEMENT IN ORDER TO AVOID OVERLAP SEPARATION.

**AGGREGATE**

AGGREGATE FOR THE TEMPORARY ROAD SHALL MEET THE REQUIREMENTS OF ITEM 304 AGGREGATE BASE AND SHALL BE CRUSHED CARBONATE STONE OR CRUSHED GRAVEL. NO SLAGS WILL BE PERMITTED.

**PLACING AND COMPACTING AGGREGATE FILL:**

THE AGGREGATE SHOULD BE BACK DUMPED AND SPREAD IN A UNIFORM LIFT MAINTAINING THE DESIGN AGGREGATE THICKNESS AT ALL TIMES. CONSTRUCTION VEHICLES WILL ONLY BE ALLOWED TO TRAFFIC DIRECTLY ON THE FABRIC IF NO RUTS DEVELOP.

OVERSTRESSING THE SOIL SHOULD BE AVOIDED BY UTILIZING EQUIPMENT IN SPREADING AND DUMPING THAT EXERTS ONLY MODERATE PRESSURES ON THE SOIL. SEVERE RUTTING AT THE TIME OF PLACEMENT IS AN INDICATION OF OVERSTRESSING THE SOIL. SUCH SOIL OVERSTRESSING MUST BE AVOIDED. INCREASING AGGREGATE DEPTHS AND REDUCING LOADS ARE TWO METHODS OF REDUCING THE PRESSURES ON THE SOIL.

ANY RUTS WHICH DEVELOP DURING SPREADING OR COMPACTING SHOULD BE FILLED WITH ADDITIONAL AGGREGATE RATHER THAN BLADED FROM SURROUNDING AREAS. PLACING ADDITIONAL AGGREGATE INTO THE RUTTED AREAS INSURES THAT THE DESIGN AGGREGATE THICKNESS IS MAINTAINED.

THE AGGREGATE SHOULD BE COMPACTED THOROUGHLY WITH VIBRATORY ROLLERS PRIOR TO USE BY THE HAUL EQUIPMENT. VIBRATORY FREQUENCY AND AMPLITUDE ADJUSTMENTS ARE OCCASIONALLY REQUIRED. INITIAL ROLLING MIGHT BE A SEAL ROLL WITH FINAL ROLLING AT INCREASED AMPLITUDES AND FREQUENCIES.

**MAINTENANCE**

THE CONTRACTOR SHALL MAINTAIN THE TEMPORARY ACCESS ROAD DURING THE CONSTRUCTION PERIOD IN A SUITABLE CONDITION FOR EFFICIENT PROSECUTION OF THE BRIDGE CONSTRUCTION WORK.

**AGGREGATE REMOVAL**

WHEN NO LONGER NEEDED FOR ACCESS, THE TEMPORARY ROAD AGGREGATE SHALL BE REMOVED TO A LEVEL OF APPROXIMATELY 6 INCHES BELOW THE LEVEL OF THE ORIGINAL MARSH SOIL SURFACE. IF PERMITTED BY THE

ENGINEER THE RETRIEVED AGGREGATE MAY BE INCORPORATED AS EMBANKMENT IN OTHER PROJECT AREAS. OTHERWISE THE RETRIEVED AGGREGATE SHALL BE DISPOSED OF.

**PAYMENT:**

ACCESS ROAD CONSTRUCTION, MAINTENANCE AND AGGREGATE REMOVAL WHEN THE ACCESS ROAD IS NO LONGER NEEDED ARE CONSIDERED INCIDENTAL TO THE BRIDGE CONSTRUCTION. NO SEPARATE PAYMENT WILL BE MADE FOR ACCESS ROAD. THE ACCESS ROAD MATERIALS, CONSTRUCTION, MAINTENANCE AND SUBSEQUENT AGGREGATE REMOVAL SHALL BE INCLUDED WITH THE OTHER ITEMS OF BRIDGE CONSTRUCTION FOR PAYMENT.

**ALTERNATE CONSTRUCTION ACCESS METHODS**

IF THE CONTRACTOR ELECTS TO CONSTRUCT THE HURON RIVER BRIDGES USING AN ALTERNATE WETLAND ACCESS METHOD RATHER THAN THE TEMPORARY ACCESS ROAD, A COMPLETE DESCRIPTION OF THE ALTERNATE ACCESS METHOD SHALL BE SUBMITTED IN WRITING TO THE DIRECTOR FOR APPROVAL. ALTERNATE METHODS WILL REQUIRE COORDINATION WITH THE APPROPRIATE STATE AND FEDERAL AGENCIES. WRITTEN APPROVAL OF THE ALTERNATE ACCESS METHOD MUST BE OBTAINED PRIOR TO IMPLEMENTING THE ALTERNATE. MINIMIZATION OF WETLAND DISTURBANCE AND LONG TERM WETLAND DAMAGE WILL BE CONSIDERATIONS FOR APPROVAL OF CONTRACTOR PROPOSED ALTERNATE WETLAND ACCESS METHOD.

**BRIDGE CONSTRUCTION ACCESS ACROSS THE HURON RIVER CHANNEL**

IT IS ALSO INTENDED TO CONSTRUCT THE HURON RIVER BRIDGES CAUSING MINIMAL DISTURBANCE AND MINIMAL LONG TERM DAMAGE TO THE MAIN RIVER CHANNEL, (STATION 1255 + 20± TO STATION 1257 + 60±). BARGES SHALL BE USED FOR CONSTRUCTION ACCESS WITHIN THE MAIN RIVER CHANNEL, AND BARGE MOUNTED EQUIPMENT SHALL BE USED FOR CONSTRUCTING THE PORTION OF BRIDGES ACROSS THE CHANNEL. CONSTRUCTION OF A TEMPORARY ACCESS ROAD OR FORD WITHIN OR ACROSS THE MAIN RIVER CHANNEL WILL NOT BE PERMITTED.

**PAYMENT:**

ACCESS WITHIN AND ACROSS THE RIVER CHANNEL IS CONSIDERED INCIDENTAL TO THE BRIDGE CONSTRUCTION. NO SEPARATE PAYMENT WILL BE MADE FOR CHANNEL ACCESS. CHANNEL ACCESS SHALL BE INCLUDED WITH THE OTHER ITEMS OF BRIDGE CONSTRUCTION FOR PAYMENT.

**ALTERNATE CONSTRUCTION ACCESS METHODS**

IF THE CONTRACTOR ELECTS TO CONSTRUCT THE HURON RIVER BRIDGES USING AN ALTERNATE CHANNEL ACCESS METHOD RATHER THAN BARGES, A COMPLETE DESCRIPTION OF THE ALTERNATE ACCESS METHOD SHALL BE SUBMITTED IN WRITING TO THE DIRECTOR FOR APPROVAL. ALTERNATE METHODS WILL REQUIRE COORDINATION WITH THE APPROPRIATE STATE AND FEDERAL AGENCIES. WRITTEN APPROVAL OF THE ALTERNATE ACCESS METHOD MUST BE OBTAINED PRIOR TO IMPLEMENTING THE ALTERNATE. MINIMIZATION OF CHANNEL DISTURBANCE AND LONG TERM CHANNEL DAMAGE WILL BE CONSIDERATIONS FOR APPROVAL OF CONTRACTOR PROPOSED ALTERNATE CHANNEL ACCESS METHOD.

**ITEM 516. STRUCTURAL EXPANSION JOINTS INCLUDING ELASTOMERIC COMPRESSION SEALS:**

THIS ITEM CONSISTS OF FURNISHING AND INSTALLING ALL NECESSARY MATERIALS TO COMPLETE THE EXPANSION JOINTS AS DETAILED ON THE PLANS. THE PLANS ARE DETAILED FOR WATSON-BOWMAN & ACME D-600 & D-900 MODULAR JOINT SYSTEMS MANUFACTURED BY THE WATSON-BOWMAN & ACME CORPORATION. AS AN ALTERNATE A STEELFLEX SYSTEM, SERIES SSS, MANUFACTURED BY THE D.S. BROWN COMPANY OR OTHER APPROVED ALTERNATES MAY BE USED.

*ALL STEEL FOR THE EXPANSION JOINTS EXCEPT FOR THE EXTRUSIONS SHALL BE A36 GALVANIZED AS PER T11.02. THE EXTRUSIONS SHALL BE A36 PAINTED AS PER EXU-2-81.*

IN ORDER FOR OTHER ALTERNATE EXPANSION JOINTS TO BE CONSIDERED FOR APPROVAL, THEY MUST BE SEALED, MODULAR JOINTS, CAPABLE OF ACCOMMODATING THE ANTICIPATED MOVEMENTS AT THE JOINTS. IN ADDITION, THE JOINTS MUST HAVE SEALS WITH A POSITIVE LOCKING MECHANISM TO RESIST SEPARATION FROM THE SUPPORTING ELEMENTS (EXTRUSIONS).

THE JOINT SYSTEMS SHALL NOT EXERT A FORCE ON THE ABUTMENT BACKWALLS OR ON THE DECK SLABS IN EXCESS OF 300 POUNDS PER LINEAL OF JOINT FOR THE FULL RANGE OF EXPANSION AND CONTRACTION TO BE EXPECTED AT THE JOINTS.

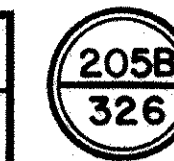
IF THE CONTRACTOR PROPOSES TO USE THE ABOVE LISTED ALTERNATE JOINTS OR OTHER ALTERNATE JOINTS, THE CONTRACTOR SHALL SUBMIT TO THE DIRECTOR FOR APPROVAL COMPLETE JOINT DETAILS ALONG WITH DETAILS OF ANY CHANGES IN THE REMAINDER OF THE STRUCTURE REQUIRED TO ACCOMMODATE THE ALTERNATE JOINTS. THESE JOINT DETAILS AND PLAN REVISIONS SHALL BE MADE AT THE EXPENSE OF THE CONTRACTOR.

**ITEM 516, LAMINATED ELASTOMERIC BEARINGS WITH SLIDING SURFACES (TYPE A & TYPE B) FOR BRIDGE ALTERNATE 2**

THIS ITEM CONSISTS OF FURNISHING ALL NECESSARY MATERIALS, INSTALLATION AND LABOR FOR THE COMPLETE BEARINGS AS DETAILED ON THE PLANS. THE BEARINGS ARE LAMINATED ELASTOMERIC BEARINGS WITH STEEL BEARING AND LOAD PLATES AND COMBINE A TEFLON/STAINLESS STEEL SLIDING SURFACE WITH A CONVENTIONAL 50 DUROMETER HARDNESS LAMINATED ELASTOMERIC BEARING PAD. TYPE A INCORPORATES A SHEAR RESTRICTOR PIN TO AVOID OVER-STRESSING THE NEOPRENE IN SHEAR.

ALTERNATE BEARINGS APPROVED BY THE DIRECTOR MAY BE USED IN LIEU OF THE BEARINGS DETAILED IN THE PLANS. FOR AN ALTERNATE BEARING TO BE CONSIDERED FOR APPROVAL, IT MUST BE CAPABLE OF SUPPORTING A MAXIMUM REACTION OF 165,000 POUNDS AND HAVE SIMILAR SLIDING, VERTICAL DEFLECTION, AND VERTICAL ROTATION CAPABILITIES AS THE DETAILED BEARINGS. THE ALTERNATE BEARINGS SHALL BE CAPABLE OF ACCOMMODATING THE FULL DESIGN RANGE OF SUPERSTRUCTURE EXPANSION AND CONTRACTION WITHOUT IMPOSING A HORIZONTAL FORCE ON THE SUBSTRUCTURE ELEMENTS EXCEEDING 6.0 PERCENT OF THE SUPERSTRUCTURE DEAD LOAD VERTICAL REACTION FORCE ON THE BEARING.

CALC. _____	OHIO _____
DATE _____	F.H.W.A. _____
CHKD. _____	REGION _____
DATE _____	



ERIE COUNTY  
ERI-2-18.38

IF THE CONTRACTOR PROPOSES TO USE AN ALTERNATE BEARING, THE CONTRACTOR SHALL SUBMIT TO THE DIRECTOR FOR APPROVAL COMPLETE BEARING DETAILS ALONG WITH DETAILS OF ANY CHANGES IN THE REMAINDER OF THE STRUCTURES REQUIRED TO ACCOMMODATE THE ALTERNATE DESIGN. THESE DETAILS AND PLAN REVISIONS SHALL BE MADE AT THE EXPENSE OF THE CONTRACTOR.

THE QUANTITY SHALL BE THE ACTUAL NUMBER OF SLIDING BEARINGS. PAYMENT FOR FURNISHING AND INSTALLING SLIDING BEARINGS WILL BE MADE AT THE CONTRACT PRICE AS PER ITEM 516, LAMINATED ELASTOMERIC BEARINGS WITH SLIDING SURFACES, (TYPE A) OR TYPE B.

**GENERAL**

BEARING AND MASONRY PLATES SHALL CONFORM TO DIVISION I, SECTIONS 10, 14 AND 15 AND DIVISIONS II, SECTIONS 25 AND 27 OF THE "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES", DATED 1983 AND AS SPECIFIED ON THESE PLANS.

**TFE SLIDING SURFACE**

- A. UNFILL TFE SHEET SHALL BE A MINIMUM OF 3/32" THICK AND A MAXIMUM OF 1/8" THICK.
- B. 100 PERCENT VIRGIN UNFILLED POLYTETRAFLUOROETHYLENE FABRIC SHALL BE A MINIMUM OF 1/32" THICK AND A MAXIMUM OF 1/8" THICK AFTER COMPRESSION.
- C. THE TFE MATERIAL SHALL BE FACTORY-BONDED OR MECHANICALLY CONNECTED TO THE BACKUP MATERIAL AS SHOWN ON THE PLANS.

**TESTING AND ACCEPTANCE OF BEARINGS**

**SLIDING FRICTION TEST**

THE TEST METHOD AND EQUIPMENT SHALL BE APPROVED BY THE DIRECTOR AND INCLUDE THE FOLLOWING:

- A. THE TEST MUST BE ARRANGED SO THAT THE COEFFICIENT OF FRICTION OF THE FIRST MOVEMENT OF THE MANUFACTURED BEARING CAN BE DETERMINED.
- B. THE BEARING SURFACE SHALL BE CLEANED PRIOR TO TESTING, UPON INSTRUCTIONS OF THE BEARING MANUFACTURER.
- C. THE TEST SHALL BE CONDUCTED AT MAXIMUM WORKING STRESS FOR THE TFE SURFACE WITH THE TEST LOAD APPLIED CONTINUOUSLY FOR 12 HOURS PRIOR TO MEASURING FRICTION.
- D. THE FIRST MOVEMENT STATIC AND DYNAMIC COEFFICIENT OF THE TEST BEARING SHALL BE DETERMINED AT A SLIDING SPEED OF LESS THAN ONE (1) INCH PER MINUTE AND SHALL NOT EXCEED THE COEFFICIENT OF FRICTION FOR DESIGN.
- E. THE BEARING SPECIMEN SHALL THEN BE SUBJECTED TO 100 MOVEMENTS OF AT LEAST ONE (1) INCH OF A RELATIVE MOVEMENT AT A SPEED LESS THAN ONE (1) FOOT PER MINUTE. FOLLOWING THIS TEST, THE STATIC AND KINETIC COEFFICIENT OF FRICTION SHALL BE DETERMINED AGAIN AND SHALL NOT EXCEED THE VALUES MEASURED IN "D" ABOVE. THE BEARING OR SPECIMEN SHALL SHOW NO SIGN OF BOND FAILURE OR OTHER DEFECTS.

TESTS SHALL BE MADE TO SHOW THE STRENGTH OF THE BOND OR MECHANICAL CONNECTION OF THE TFE MATERIAL TO A MATERIAL SIMILAR TO THE TOP SURFACE OF THE CHAMFERED PLATE. THE TEST METHOD AND EQUIPMENT SHALL BE APPROVED BY THE DIRECTOR AND INCLUDE THE FOLLOWING REQUIREMENTS:

- A. THE TEST SHALL BE MADE USING THE DESIGN LOADS FOR ONE BEARING CATEGORY.
- B. TFE MATERIAL-SUBSTRATE ATTACHMENT SHALL BE CAPABLE OF WITHSTANDING A SHEAR FORCE EQUAL TO 10 PERCENT OF THE PERPENDICULAR OR NORMAL APPLICATION LOADING WITHOUT DELAMINATION IN ADDITION TO THE SHEAR FORCE DEVELOPED AS A RESULT OF THE NATURAL BEARING SHEAR FORCE.
- C. APPROPRIATE PEEL TESTS MAY BE PROPOSED FOR THE BOND TEST.

BEARINGS REPRESENTED BY THE TEST SPECIMENS PASSING THE ABOVE REQUIREMENTS WILL BE APPROVED FOR USE IN THE STRUCTURE SUBJECT TO ON-SITE INSPECTION FOR VISIBLE DEFECTS.

PAYMENT FOR ALL WORK LISTED UNDER TESTING AND ACCEPTANCE OF BEARINGS WILL BE MADE AT THE LUMP SUM PRICE FOR ITEM SPECIAL, TESTING OF LAMINATED ELASTOMERIC BEARINGS WITH SLIDING SURFACES, TYPE A AND B.

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CONSULTING ENGINEERS CLEVELAND, OHIO 44131

**STRUCTURAL GENERAL NOTES**  
BRIDGE N<sup>o</sup> ERI-2-1911 L/R  
S.R. 2 OVER HURON RIVER  
N. & W. R.R. & RIVER ROAD

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
E.A.F.	D.R.J.	L.E.D.	L.E.D.	11/4/85	2-21-86

REVISIONS  
FEB 4 1982

# STRUCTURAL GENERAL NOTES

ERI-2-2082 BERLIN ROAD OVER S.R. 2  
ERI-2-2222 S.R. 61 OVER S.R. 2

CALC. DATE		OHIO
CHKD. DATE		F.H.W.A. REGION
		206 326

ERIE COUNTY  
ERI-2-18.38

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:

SUPERSTRUCTURE DETAILS	SD-1-69 SHEETS 1, 2, 3 AND 4 OF 4	DATED 6-12-69
ROCKER AND BOLSTER DETAILS	RB-1-55	REVISED 2-2-59
APPROACH SLAB DETAILS	AS-1-81 SHEETS 1, 2 AND 3 OF 3	DATED 11-27-81
BRIDGE RAILING DETAILS	BR-1	DATED 5-29-79

AND TO SUPPLEMENTAL SPECIFICATIONS:

836 CONCRETE CURING AND PROTECTIVE MEMBRANE	DATED 11-12-85
824 EPOXY COATED REINFORCING STEEL	DATED 10-8-82

DESIGN SPECIFICATIONS:

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1969, AND THE OHIO "SUPPLEMENT" TO THESE SPECIFICATIONS.

DESIGN DATA:

DESIGN LOADING	HS20-44 AND THE ALTERNATE MILITARY LOADING
CONCRETE CLASS S	UNIT STRESS 1500 P.S.I. (SUPERSTRUCTURE)
CONCRETE CLASS C	UNIT STRESS 1333 P.S.I. (SUBSTRUCTURE)
REINFORCING STEEL	ASTM A615, A616 OR A617
	GRADE 60 - UNIT STRESS 24,000 P.S.I.
	SPIRAL REINFORCEMENT MAY BE PLAIN BARS, ASTM A82 OR A615
STRUCTURAL STEEL	ASTM A36 - UNIT STRESS 20,000 P.S.I.
DECK PROTECTION METHOD	EPOXY COATED REINFORCING STEEL, TOP & BOTTOM MAT.

MONOLITHIC WEARING SURFACE:

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

EMBANKMENT CONSTRUCTION

EMBANKMENT AT THE BRIDGES SHALL BE CONSTRUCTED AS PER THE SPECIAL EMBANKMENT REQUIREMENTS SPECIFIED IN THE ROADWAY PLAN GENERAL NOTES, SHEET 10. UPON COMPLETION OF THE EMBANKMENT AND SURCHARGE, THERE SHALL BE A MINIMUM WAITING PERIOD OF THREE MONTHS BEFORE REMOVING THE SURCHARGE SOIL ABOVE THE PLAN CROSS-SECTIONS, MAKING THE EXCAVATION FOR THE ABUTMENTS AND DRIVING THE ABUTMENT PILES.

PILES

BRIDGE NO. ERI-2-2082 PILE DESIGN LOADS: THE DESIGN LOAD FOR THE ABUTMENT PILES IS 36 TONS PER PILE AND THE DESIGN LOAD FOR THE PIER PILES IS 40 TONS PER PILE.

12 INCH PRECAST PRESTRESSED CONCRETE PILES MAY BE SUBSTITUTED FOR THE 12 INCH CAST-IN-PLACE REINFORCED CONCRETE PILES SHOWN ON THESE PLANS. DRAWINGS SHOWING DETAILS OF AND SPECIFICATION FOR PRESTRESSED CONCRETE PILES ARE AVAILABLE FROM THE DIRECTOR (BUREAU OF BRIDGES). IF THE PRESTRESSED PILE ALTERNATE IS CHOSEN, THE METHOD OF MEASUREMENT AND BASIS OF PAYMENT SHALL BE THE SAME AS FOR CAST-IN-PLACE REINFORCED CONCRETE PILES PER 507.

BRIDGE NO. ERI-2-2222 PILES SHALL BE DRIVEN TO REFUSAL ON BEDROCK. REFUSAL SHALL BE CONSIDERED AS ATTAINED BY PENETRATING SOFT BEDROCK WITH A MINIMUM RESISTANCE OF 20 BLOWS PER INCH, OR REFUSAL SHALL BE CONSIDERED AS ATTAINED AFTER THE PILE HAS CONTACTED HARD BEDROCK AND THE PILE HAS THEN RECEIVED AT LEAST 20 BLOWS.

THE DESIGN LOAD IS 35 TONS PER PILE FOR THE ABUTMENT PILES AND 35 TONS PER PILE FOR THE PIER PILES.

UTILITY LINES:

ALL EXPENSE INVOLVED IN RELOCATING (INSTALLING) THE AFFECTED UTILITY LINES SHALL BE BORNE BY THE OWNER(S). THE CONTRACTOR AND OWNER(S) ARE REQUESTED TO COOPERATE BY ARRANGING THEIR WORK IN SUCH A MANNER THAT INCONVENIENCE TO EITHER WILL BE HELD TO A MINIMUM.

REINFORCING BAR LAPPED SPLICES:

REINFORCING BARS SHALL BE LAPPED AS FOLLOWS, UNLESS OTHERWISE NOTED IN THESE PLANS.

NO. 4 BAR	- 1'-10" MIN.
NO. 5 BAR	- 2'-5" MIN.
NO. 6 BAR	- 2'-10" MIN.
NO. 8 BAR	- 4'-9" MIN.
NO. 10 BAR	- 7'-8" MIN.

ITEM 511, CLASS S CONCRETE, AS PER PLAN

IN LIEU OF THE PROPORTIONING SPECIFIED IN 499.03 AND 511.02, THE FOLLOWING TABLE SHALL BE USED TO ESTABLISH THE QUANTITIES PER CUBIC YARD FOR CONCRETE, THE COARSE AGGREGATE SHALL BE LIMESTONE.

CONCRETE IN THE PARAPETS NEED NOT BE PLACED AT NIGHT.

QUANTITIES PER CUBIC YARD (USING NO. 8 LIMESTONE)

FINE AGGREGATE (LB)	COARSE AGGREGATE (LB)	TOTAL (LB)	CEMENT CONTENT (LB)	WATER-CEMENT RATIO
1535	1100	2635	715	0.40

AIR CONTENT - 8±2%

HIGH RANGE WATER REDUCER MAY BE USED AT THE OPTION OF THE CONTRACTOR. THE DOSAGE RATE WILL BE DETERMINED BY THE CONTRACTOR BASED ON MANUFACTURER'S RECOMMENDATION TO ACHIEVE THE DESIRED WORKABILITY LEVEL.

HIGH RANGE WATER REDUCER SHALL CONFORM TO 705.12, ASTM-C494 TYPE F AND SHALL NOT CONTAIN CALCIUM CHLORIDE.

THE CEMENT CONTENT SHALL BE MAINTAINED AND A MAXIMUM WATER-CEMENT RATIO OF 0.40 SHALL NOT BE EXCEEDED. THE SLUMP OF THE UNPLASTICIZED CONCRETE DELIVERED TO THE JOB SITE SHALL BE 1 1/2", ±1/2 INCH. THE SUPERPLASTICIZING ADMIXTURE SHALL BE ADDED AT THE JOB SITE AND MIXED A MINIMUM OF FIVE (5) MINUTES. AFTER THE SUPERPLASTICIZER HAS BEEN ADDED, THE SLUMP SHALL BE 6 1/2", ±1/2 INCH. THE CONTRACTOR SHALL FURNISH A VOLUMETRIC DISPENSER FOR THE SUPERPLASTICIZER.

CONCRETE MIXTURES CONTAINING A HIGH RANGE WATER REDUCER SHALL MEET THE SAME REQUIREMENTS FOR ENTRAINED AIR CONTENT, MINIMUM STRENGTH, AND MAXIMUM WATER-CEMENT RATIO AS REQUIRED FOR THE RESPECTIVE GRADE OF CONCRETE WITHOUT A HIGH RANGE WATER REDUCER.

SAMPLING AND TESTING FOR ENTRAINED AIR CONTENT AND MINIMUM STRENGTH SHOULD BE TAKEN FROM THE CONCRETE THAT HAS BEEN TREATED WITH A HIGH RANGE WATER REDUCER.

CURING SHALL BE IN ACCORDANCE WITH 511.14 TYPE "A" WATER CURING.

PLACEMENT

PLACEMENT OF CONCRETE SHALL BE COMPLETED UNDER FAVORABLE ATMOSPHERIC CONDITIONS. FAVORABLE ATMOSPHERIC CONDITIONS EXIST WHEN THE SURFACE EVAPORATION RATE AS AFFECTED BY AMBIENT AIR TEMPERATURE, CONCRETE TEMPERATURE, RELATIVE HUMIDITY AND WIND VELOCITY IS 0.1 POUNDS PER SQUARE FOOT PER HOUR OR LESS. FIGURE (1) SHALL BE USED TO DETERMINE GRAPHICALLY THE SURFACE EVAPORATION RATE. FAVORABLE ATMOSPHERIC CONDITIONS MAY REQUIRE PLACEMENT DURING LATE EVENING, NIGHT OR EARLY MORNING HOURS.

IF PLACEMENT OF THE CONCRETE IS TO BE MADE AT NIGHT, THE CONTRACTOR SHALL SUBMIT A PLAN WHICH PROVIDES ADEQUATE LIGHTING FOR THE WORK AREA AT LEAST 15 CALENDAR DAYS IN ADVANCE AND RECEIVE WRITTEN APPROVAL FROM THE ENGINEER BEFORE PLACING THE CONCRETE. THE LIGHTS SHALL BE SO DIRECTED THAT THEY DO NOT AFFECT OR DISTRACT APPROACHING TRAFFIC.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE UNIT PRICE BID PER CUBIC YARD FOR ITEM 511 CLASS S CONCRETE, AS PER PLAN WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE.

ITEM 518 POROUS BACKFILL, AS PER PLAN:

POROUS BACKFILL SHALL BE CONSTRUCTED WITH FILTER AS PER DETAILS IN THE PLAN.

THE FILTER FABRIC SHALL BE TYPE B AS PER 712.09. DURING ALL PERIODS OF SHIPMENT AND STORAGE THE CLOTH SHALL BE WRAPPED IN A HEAVY DUTY PROTECTIVE COVERING TO PROTECT IT FROM DIRECT SUNLIGHT, MUD, DIRT, DUST, AND OTHER DEBRIS.

ALL JOINTS SHALL BE LAPPED AT A MINIMUM OF TWO (2) FEET. THE AGGREGATE SHALL BE NO. 57 CRUSHED GRAVEL.

PAYMENT FOR ALL OF ABOVE SHALL BE AT THE UNIT PRICE BID PER CUBIC YARD FOR ITEM 518, POROUS BACKFILL, AS PER PLAN WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

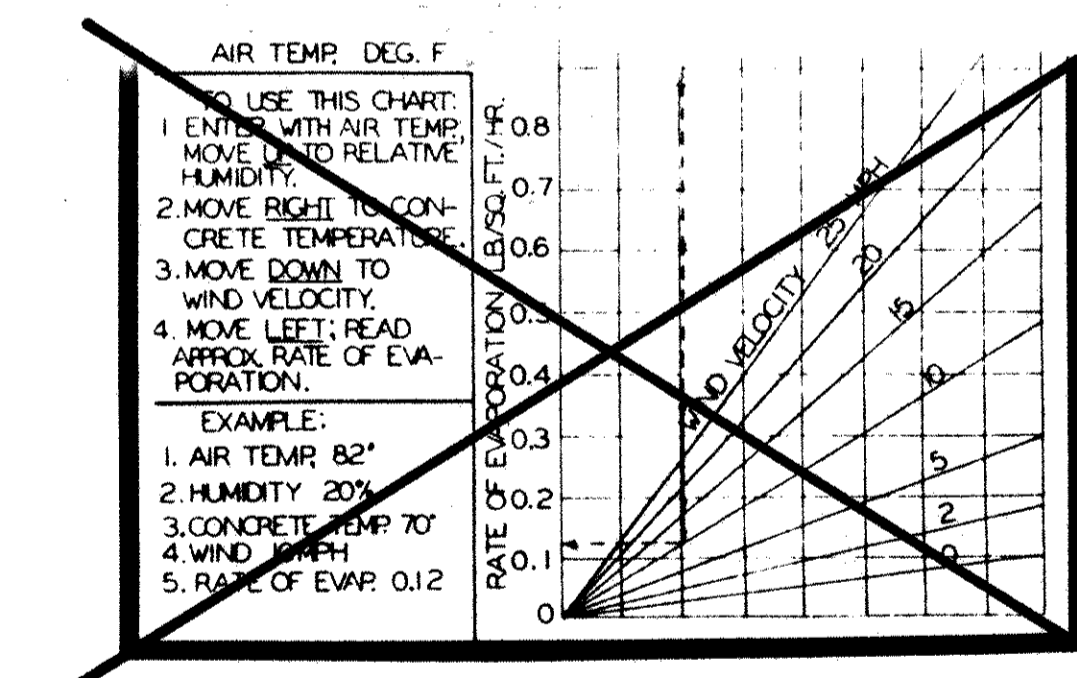


FIGURE 1

adache - ciuni - lynn associates					
CONSULTING ENGINEERS CLEVELAND, OHIO 44131					
STRUCTURAL GENERAL NOTES					
BRIDGE NO. ERI - 2 - 2082					
BERLIN ROAD OVER S.R. 2					
BRIDGE NO. ERI - 2 - 2222					
S.R. 61 OVER S.R. 2					
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
E.A.F.	D.R.J.	L.E.D.	L.E.D.	11/4/85	

# GENERAL NOTES

ERI-2-18.38

FHWA REGION	STATE	PROJECT	206A 326
5	OHIO		

## ITEM 511 - CLASS S CONCRETE, AS PER PLAN

IN LIEU OF THE PROPORTIONING SPECIFIED IN 499.03 AND 511.02, THE FOLLOWING TABLE SHALL BE USED TO ESTABLISH THE QUANTITIES PER CUBIC YARD FOR CONCRETE. THE COARSE AGGREGATE SHALL BE LIMESTONE.

QUANTITIES PER CUBIC YARD (USING NO. 8 LIMESTONE)

AGGREGATE		TOTAL (LB)	CEMENT CONTENT (LB)	WATER/ CEMENT RATIO
FINE (LB)	COARSE (LB)			
1591	1127	2718	715	0.40

AIR CONTENT - 8% PLUS OR MINUS 2%

HIGH RANGE WATER REDUCER (SUPERPLASTICIZER) MAY BE USED AT THE OPTION OF THE CONTRACTOR IF REQUIRED FOR PLACEMENT. THE DOSAGE RATE WILL BE DETERMINED BY THE CONTRACTOR BASED ON THE MANUFACTURER'S RECOMMENDATION TO ACHIEVE THE DESIRED WORKABILITY LEVEL.

HIGH RANGE WATER REDUCER SHALL CONFORM TO 705.12, ASTM-C494 TYPE F AND SHALL NOT CONTAIN CALCIUM CHLORIDE.

TYPE A OR D CHEMICAL ADMIXTURE CONFORMING TO 705.12 ASTM TYPE F AND NOT CONTAINING CALCIUM CHLORIDE SHALL BE ADDED TO THE CONCRETE AT THE PLANT.

ALL ADDITIVES, INCLUDING AIR ENTRAINMENT, SHALL BE MANUFACTURED BY THE SAME COMPANY AND CERTIFIED AS COMPATIBLE BY THE MANUFACTURING COMPANY.

THE CEMENT CONTENT SHALL BE MAINTAINED AND A MAXIMUM WATER-CEMENT RATIO OF 0.40 SHALL NOT BE EXCEEDED. THE SLUMP OF THE UNPLASTICIZED CONCRETE DELIVERED TO THE JOB SITE SHALL BE 1-1/2" PLUS OR MINUS 1/2". THE SUPERPLASTICIZING ADMIXTURE SHALL BE ADDED AT THE JOB SITE AND MIXED A MINIMUM OF FIVE (5) MINUTES. AFTER THE SUPERPLASTICIZER HAS BEEN ADDED, THE SLUMP SHALL BE 6" PLUS OR MINUS 1". THE CONTRACTOR SHALL FURNISH A VOLUMERIC DISPENSER FOR THE SUPERPLASTICIZER.

CONCRETE MIXTURES CONTAINING A HIGH RANGE WATER REDUCER SHALL MEET THE SAME REQUIREMENTS FOR ENTRAINMENT AIR CONTENT, MINIMUM STRENGTH, AND MAXIMUM WATER-CEMENT RATIO AS REQUIRED FOR THE RESPECTIVE GRADE OF CONCRETE WITHOUT A HIGH RANGE WATER REDUCER.

SAMPLING AND TESTING FOR ENTRAINMENT AIR CONTENT AND MINIMUM STRENGTH SHOULD BE TAKEN FROM THE CONCRETE THAT HAS BEEN TREATED WITH A HIGH RANGE WATER REDUCER.

ALL INITIAL TESTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THESE TESTS SHALL BE PERFORMED BY A COMPETENT CONCRETE TECHNICIAN. THIS INFORMATION SHALL BE PROVIDED TO THE PROJECT ENGINEER. THE PROJECT ENGINEER SHALL MAKE ONLY THE FINAL TESTS AS THE CONCRETE IS PLACED ON THE DECK.

THE CONTRACTOR SHALL MAKE ONE OR MORE TRIAL BATCHES OF THE SUPERPLASTICIZED DENSE CONCRETE OF THE SIZE TO BE HAULED AT LEAST FOUR DAYS BEFORE THE DECK IS TO BE PLACED. HE SHALL CAST ONE OR MORE TEST SLABS, E.G. 8 FT. LONG X A WIDTH WHICH IS WIDE ENOUGH TO ACCOMMODATE HIS FINISHING EQUIPMENT X 4 INCHES THICK, FOR TEXTURING ACCORDING TO 511.16 AND SHALL PREPARE OTHER SAMPLES AND SPECIMENS AS DIRECTED BY THE PROJECT ENGINEER. THE CONTRACTOR SHALL FURNISH THE REQUIRED MATERIALS AND SAMPLES WITHOUT CHARGE TO THE STATE AS PER 106.03. THE PROJECT ENGINEER SHALL BE NOTIFIED SEVEN (7) DAYS IN ADVANCE OF THE TEST BATCH PREPARATION AND HE WILL CONDUCT ALL OF THE REQUIRED TESTS.

### CURING:

CURING SHALL BE IN ACCORDANCE WITH 511.14 TYPE A WATER CURING.

### PLACEMENT:

PLACEMENT OF CONCRETE SHALL BE COMPLETED UNDER FAVORABLE ATMOSPHERIC CONDITIONS. FAVORABLE ATMOSPHERIC CONDITIONS EXIST WHEN THE SURFACE EVAPORATION RATE AS AFFECTED BY THE AMBIENT AIR TEMPERATURE, CONCRETE TEMPERATURE, RELATIVE HUMIDITY, AND WIND VELOCITY IS 0.1 POUNDS PER SQUARE FOOT PER HOUR OR LESS. FIGURE (1) SHALL BE USED TO DETERMINE GRAPHICALLY THE SURFACE EVAPORATION RATE. FAVORABLE ATMOSPHERIC CONDITIONS MAY REQUIRE PLACEMENT DURING LATE EVENINGS (6:00 P.M. TO OFFICIAL SUNSET), NIGHT (OFFICIAL SUNSET TO OFFICIAL SUNRISE), OR EARLY MORNING (SUNRISE TO 8:00 A.M.). PLACEMENT DURING THESE TIMES WILL BE CONSIDERED TO MEET THE REQUIREMENTS FOR FAVORABLE ATMOSPHERIC CONDITIONS.

IF PLACEMENT OF THE CLASS S CONCRETE IS TO BE MADE AT NIGHT, THE CONTRACTOR SHALL SUBMIT A PLAN WHICH PROVIDES ADEQUATE LIGHTING FOR THE WORK AREA AT LEAST FIFTEEN (15) CALENDAR DAYS IN ADVANCE AND RECEIVE WRITTEN APPROVAL FROM THE ENGINEER BEFORE PLACING THE CONCRETE. THE LIGHTS SHALL BE SO DIRECTED THAT THEY DO NOT AFFECT OR DISTRACT APPROACHING TRAFFIC.

ALL OTHER PROVISIONS OF 511 SHALL REMAIN IN EFFECT.

PAYMENT FOR THE ABOVE COMPLETED AND ACCEPTED QUANTITIES WILL BE MADE AT THE CONTRACT BID PRICE FOR:

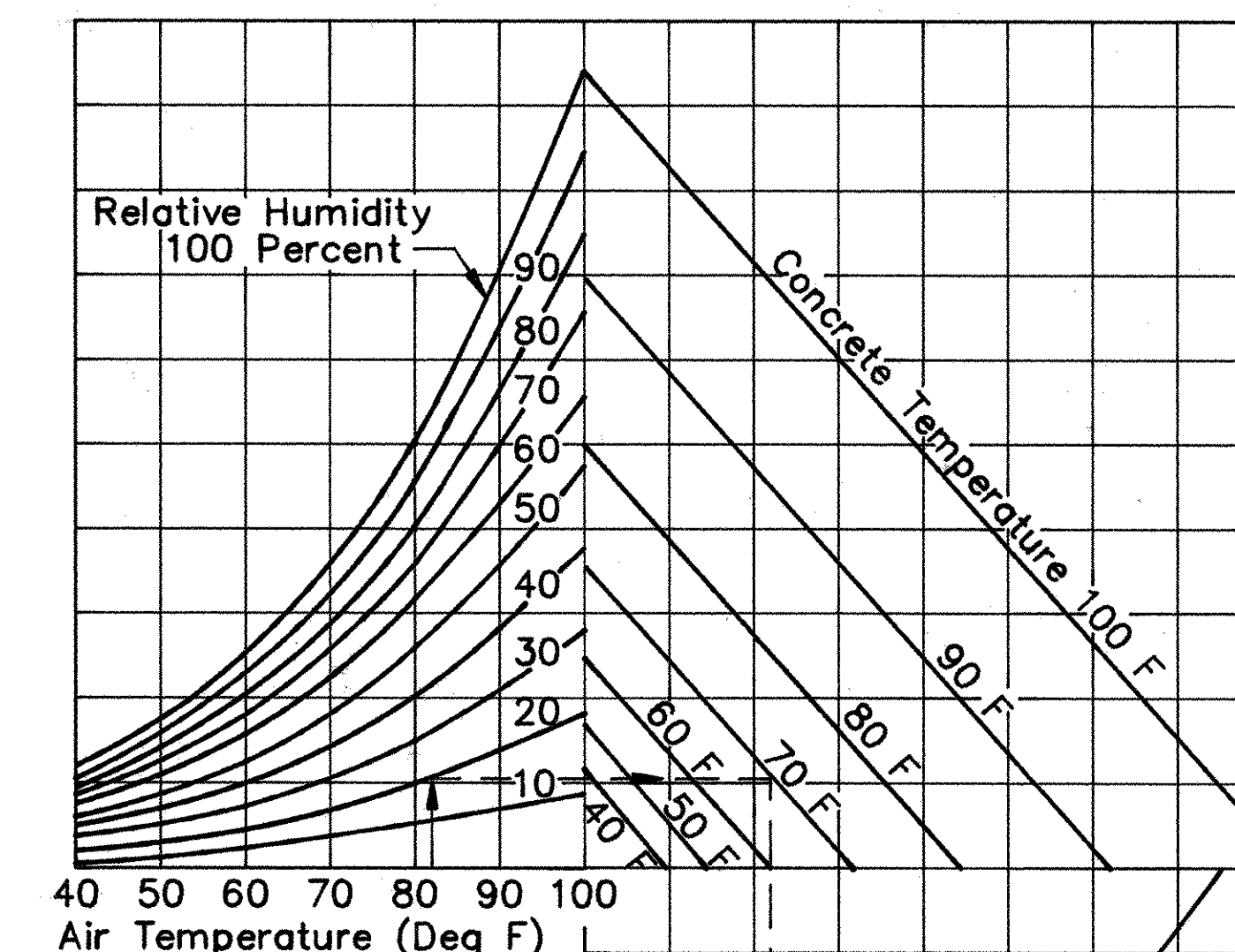
ITEM	UNIT	DESCRIPTION
511	CU.YD.	CLASS S CONCRETE, SUPERSTRUCTURE, AS PER PLAN

### STRUCTURAL GENERAL NOTES

ERI-2-1911 L/R  
ERI-2-2082  
ERI-2-2222

FIGURE NO. 1

- TO USE THIS CHART:
1. ENTER WITH AIR TEMPERATURE, MOVE UP TO RELATIVE HUMIDITY.
  2. MOVE RIGHT TO CONCRETE TEMPERATURE.
  3. MOVE DOWN TO WIND VELOCITY.
  4. MOVE LEFT, READ APPROX. RATE OF EVAPORATION.



### EXAMPLE

1. AIR TEMPERATURE 82°F
2. HUMIDITY 20%
3. CONCRETE TEMPERATURE 70°F
4. WIND 10 MPH
5. RATE OF EVAPORATION 0.13



# STRUCTURAL GENERAL NOTES

ERI-2-2156 S.R.2 OVER OLD WOMAN CREEK

CALC. DATE		OHIO
CHKD. DATE		F.H.W.A. REGION

207  
326

ERIE COUNTY  
ERI-2-18.38

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:

PRESTRESSED CONCRETE BOX BEAM BRIDGE DETAILS	PSBD-1-81 SHEETS 1, 2, 3 & 4 OF 4	DATED 9-18-81
BRIDGE RAILING	BR-1	DATED 5-29-79
APPROACH SLAB DETAILS	AS-1-81 SHEETS 1, 2 & 3 OF 3	DATED 11-27-81
CAPPED PILE PIER	CPP-2-73 SHEET 1 OF 1	DATED 4-10-73

AND TO SUPPLEMENTAL SPECIFICATIONS:

824 EPOXY COATED REINFORCING STEEL	DATED 10-8-82
836 CONCRETE CURING AND PROTECTIVE MEMBRANE	DATED 11-12-85

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, 1982 AND 1983 INTERIM SPECIFICATIONS AND THE OHIO "SUPPLEMENT" TO THESE SPECIFICATIONS.

DESIGN DATA:

DESIGN LOADING	HS20-44 AND THE ALTERNATE MILITARY LOADING
CONCRETE CLASS S	UNIT STRESS 1500 P.S.I. (SUPERSTRUCTURE)
CONCRETE CLASS C	UNIT STRESS 1333 P.S.I. (SUBSTRUCTURE)
REINFORCING STEEL	ASTM A615, A616 OR A617 GRADE 60 - UNIT STRESS 24,000 P.S.I.
CONCRETE FOR PRESTRESSED 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

DECK PROTECTION METHOD:

TYPE D WATERPROOFING AND ASPHALT CONCRETE OVERLAY.

EMBANKMENT CONSTRUCTION

EMBANKMENT AT THE BRIDGES SHALL BE CONSTRUCTED AS PER THE SPECIAL EMBANKMENT REQUIREMENTS SPECIFIED IN THE ROADWAY GENERAL NOTES, SHEET 10.

UPON COMPLETION OF THE EMBANKMENT AND SURCHARGE, THERE SHALL BE A MINIMUM WAITING PERIOD OF THREE MONTHS BEFORE REMOVING THE SURCHARGE SOIL ABOVE THE PLAN CROSS-SECTIONS, MAKING THE EXCAVATION FOR THE ABUTMENTS AND BENCHES AND DRIVING THE ABUTMENT PILES.

PILE DESIGN LOADS:

THE DESIGN LOAD FOR THE ABUTMENT PILES IS 38 TONS PER PILE AND THE DESIGN LOAD FOR THE PIER PILES IS 66 TONS PER PILE.

PILE DRIVING:

THE PILE HAMMER USED TO INSTALL THE STEEL "H" BEARING PILES SHALL HAVE A STATE'S ENERGY RATING OF NOT LESS THAN 17,000 FOOT-POUNDS. THIS REQUIREMENT DOES NOT RELIEVE THE CONTRACTOR FROM 108.05 WHICH STATES THAT THE CONTRACTOR IS TO PROVIDE SUFFICIENT EQUIPMENT FOR PROSECUTING THE REQUIRED WORK. REFER TO ODOT'S MANUAL OF PROCEDURES FOR STRUCTURES TO OBTAIN THE STATE'S ENERGY RATING.

ODNR PROPERTY

SEE ROADWAY PLAN GENERAL NOTES FOR FENCE INSTALLATION REQUIREMENTS PRIOR TO COMMENCING WORK IN AREAS ABUTTING OHIO DEPARTMENT OF NATURAL RESOURCES (ODNR) PROPERTY. WORK ON, USE OF OR TRESPASS ON ODNR PROPERTY IS PROHIBITED.

OLD WOMAN CREEK CHANNEL

IT IS INTENDED TO CONSTRUCT THE OLD WOMAN CREEK STRUCTURES AND ROADWAY APPROACHES WITH MINIMAL DISTURBANCE TO THE CREEK AND CREEK CHANNEL.

THE CONTRACTOR SHALL CONSTRUCT THE OLD WOMAN CREEK BRIDGES AND THE RETAINING WALL (STATION 1368+05.36) WORKING FROM THE STREAM BANKS.

CONSTRUCTION OF A TEMPORARY FORD CROSSING THE STREAM CHANNEL OR OPERATION OF EQUIPMENT WITHIN THE STREAM CHANNEL WILL NOT BE PERMITTED.

## ITEM 403 - ASPHALT CONCRETE, AS PER PLAN

THE BITUMEN CONTENT OF THE JOB MIX FORMULA SHALL BE INCREASED BY 0.2 PERCENT FOR ITEM 403 PLACED AFTER OCTOBER 15 AND BEFORE APRIL 15.

## ITEM 518 - POROUS BACKFILL, AS PER PLAN:

POROUS BACKFILL SHALL BE CONSTRUCTED WITH FILTER FABRIC AS PER DETAILS IN THE PLANS.

THE FILTER FABRIC SHALL BE TYPE B AS PER 712.09. DURING ALL PERIODS OF SHIPMENT AND STORAGE THE CLOTH SHALL BE WRAPPED IN A HEAVY DUTY PROTECTIVE COVERING TO PROTECT IT FROM DIRECT SUNLIGHT, MUD DIRT, DUST, AND OTHER DEBRIS.

ALL JOINTS SHALL BE LAPPED AT A MINIMUM OF TWO (2) FEET. THE AGGREGATE SHALL BE NO. 57 CRUSHED GRAVEL.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE UNIT PRICE BID PER CUBIC YARD FOR ITEM 518 - POROUS BACKFILL, AS PER PLAN, WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

## PRESTRESSED CONCRETE BRIDGE MEMBERS, AS PER PLAN

GROUT FOR JOINTS (KEYWAYS) BETWEEN PRECAST BEAMS SHALL BE NON-SHRINKING MORTAR. IT SHALL BE NON-METALLIC AND HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF 5500 POUNDS PER SQUARE INCH ACCORDING TO THE CORPS OF ENGINEERS SPECIFICATION CRD-C621-82B, WHEN PREPARED TO A MODERATE FLUIDITY (124-145% FLOW TABLE FLOW).

IT SHALL BE:

UPCON MULTI-PURPOSE CONSTRUCTION GROUT, SIKAGROUT 212 GROUT, MASTERFLOW 713 GROUT, SET NONSHRINK GROUT, OR AN APPROVED EQUAL.

THE GROUTED JOINT SHALL BE PREPARED, PLACED, AND CURED ACCORDING TO THE MANUFACTURERS RECOMMENDATIONS.

## ITEM 512 - TYPE "D" WATERPROOFING, AS PER PLAN:

ITEM 512.07 SHALL BE MODIFIED BY ADDING GRANULATED CRUMB RUBBER TO THE FOLLOWING MATERIALS:

- 1) THE ASPHALT CEMENT FOR FILLING JOINTS AND IRREGULARITIES
- 2) THE THREE COATS OF BITUMINOUS MATERIAL

THE GRANULATED CRUMB RUBBER SHALL BE 100 PERCENT VULCANIZED AND MEET THE FOLLOWING GRANULATION REQUIREMENTS:

SIEVE SIZE	PERCENT PASSING
NO. 8	100
NO. 10	98 - 100
NO. 30	0 - 10
NO. 40	0 - 4

THE SIEVES SHALL COMPLY WITH THE REQUIREMENTS OF AASHTO M92 (ASTM E11).

THE GRANULATED RUBBER, IRRESPECTIVE OF DIAMETER, SHALL NOT BE GREATER THAN 1/2 INCH IN LENGTH AND CONTAIN NO MORE THAN TWO PERCENT MOISTURE.

THE SPECIFIC GRAVITY OF THE RUBBER MATERIAL SHALL BE  $1.15 \pm 0.02$  AND SHALL BE FREE OF EXCESS FABRIC (0.5 PERCENT BY WEIGHT), WIRE OR OTHER CONTAMINATING MATERIALS, EXCEPT THAT UP TO FOUR (4) PERCENT CALCIUM CARBONATE MAY BE INCLUDED TO PREVENT THE RUBBER PARTICLES FROM STICKING TOGETHER.

GRANULATED CRUMB RUBBER SHALL BE ACCEPTED BY CERTIFICATION FROM THE RUBBER SUPPLIER IN ACCORDANCE WITH THE REQUIREMENTS OF 101.061.

THE PERCENTAGE OF CRUMB VULCANIZED RUBBER SHALL BE  $25 \pm 4$  PERCENT BY WEIGHT OF THE ASPHALT CEMENT.

THE TEMPERATURE OF THE ASPHALT SHALL BE BETWEEN 350°F AND 425°F BEFORE ADDITION OF THE CRUMB VULCANIZED RUBBER. THE MATERIALS SHALL BE CAREFULLY COMBINED, MIXED, AND REACTED FOR A PERIOD OF TIME. THE TEMPERATURE OF THE ASPHALT-RUBBER MIXTURE SHALL BE ABOVE 325°F DURING THE REACTION PERIOD.

IF A JOB DELAY RESULTS AFTER THE FULL REACTION HAS OCCURED, THE ASPHALT-RUBBER MATERIAL MAY BE ALLOWED TO COOL AND BE SLOWLY REHEATED TO AN ACCEPTABLE SPRAYING TEMPERATURE JUST PRIOR TO APPLICATION. HOWEVER, BECAUSE OF THE POLYMER REVERSION THAT CAN OCCUR WHEN CRUMB RUBBER IS HELD AT PROLONGED HIGH TEMPERATURES, THE ASPHALT-RUBBER MATERIALS SHALL NOT BE REHEATED TO TEMPERATURES ABOVE 325 F.

THE ASPHALT-RUBBER MIXING EQUIPMENT SHALL BE A HOT OIL, DOUBLE BOILER TAR KETTLE TYPE WITH MECHANICAL AGITATION CAPABLE OF COMBINING THE ASPHALT AND RUBBER INTO A HOMOGENIZED MIX.

AN APPROVED PREMIXED CRUMB RUBBER MATERIAL MAY BE USED AS AN ALTERNATE

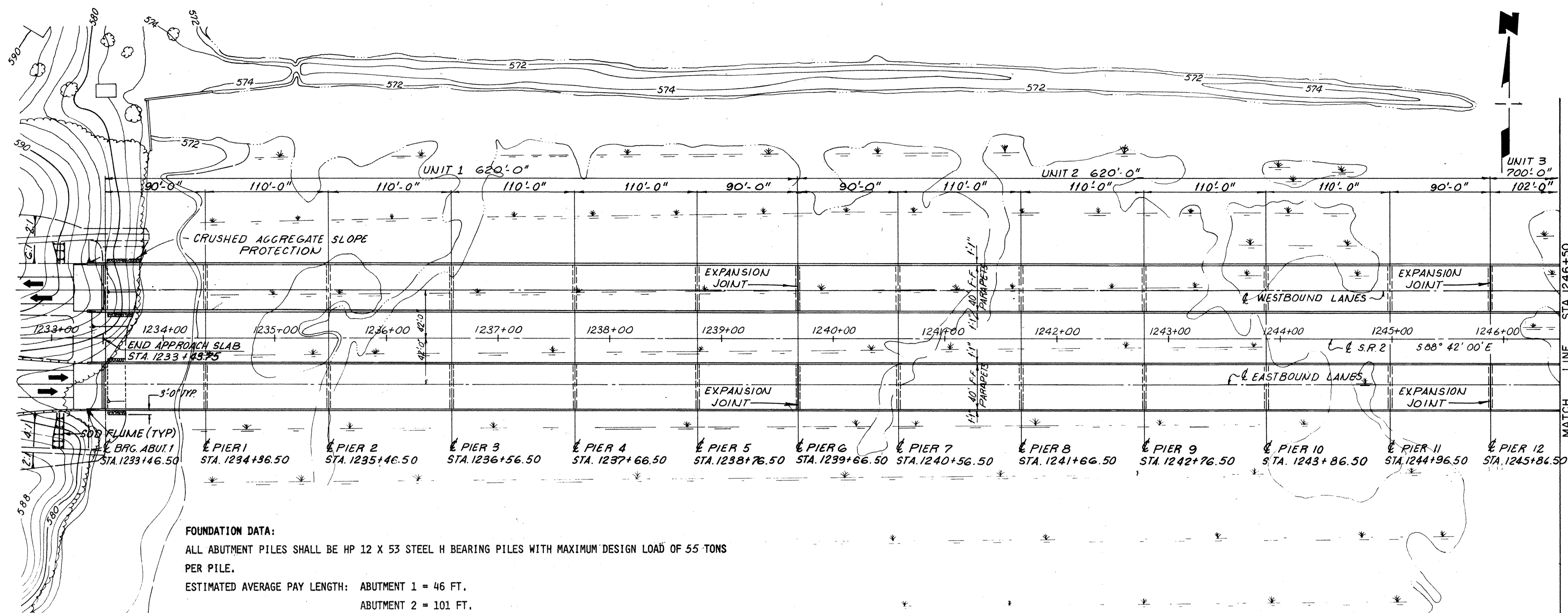
INSTEAD OF 1/3 GALLON OF ASPHALT PER SQ.YD., THE FINAL LAYER OF WATER-PROOFING FABRIC SHALL BE COVERED WITH NOT LESS THAN 0.75 GAL./SQ.YD. OF BITUMINOUS MATERIAL.

AFTER THE BITUMINOUS MATERIAL HAS BEEN SPRAYED ON THE BRIDGE, SAND OR CEMENT SHALL BE APPLIED IN THE WHEEL TRACKS OF THE PAVING MACHINE AND TRUCKS. SUFFICIENT AMOUNT SHALL BE PLACED TO PREVENT THE PAVER FROM DAMAGING THE WATERPROOFING MATERIALS. IF DAMAGED, THE WATERPROOFING MATERIAL SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE DISTRICT CONSTRUCTION ENGINEER.

PAYMENT FOR ALL OF THE ABOVE SHALL BE INCLUDED IN THE UNIT PRICE BID PER SQUARE YARD FOR "ITEM 512 - TYPE D WATERPROOFING, AS PER PLAN", WHICH SHALL INCLUDE ALL LABOR, MATERIAL, EQUIPMENT, AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

adache - ciuni - lynn associates CONSULTING ENGINEERS CLEVELAND, OHIO 44131					
<b>STRUCTURAL GENERAL NOTES</b>					
<b>BRIDGE NO. ERI-2-2156 L/R S.R.2 OVER OLD WOMAN CREEK</b>					
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
E.A.F.	D.R.J.	L.E.D.	L.E.D.	11/4/85	

**ERIE COUNTY  
ERI-2-18.38**



**PLAN**

**FOUNDATION DATA:**

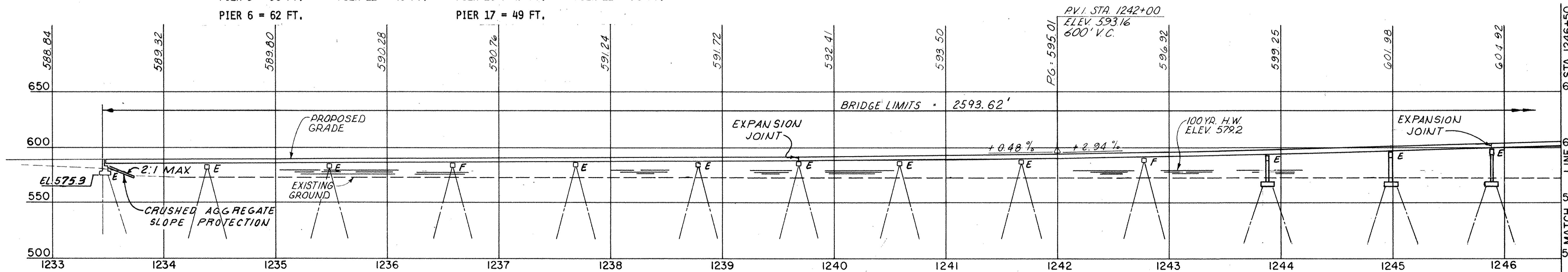
ALL ABUTMENT PILES SHALL BE HP 12 X 53 STEEL H BEARING PILES WITH MAXIMUM DESIGN LOAD OF 55 TONS PER PILE.  
 ESTIMATED AVERAGE PAY LENGTH: ABUTMENT 1 = 46 FT.  
 ABUTMENT 2 = 101 FT.

PIERS 1-5 PILES SHALL BE 16" Ø CAST IN PLACE REINFORCED CONCRETE PILES.  
 PIERS 6-9 PILES SHALL BE 18" Ø CAST IN PLACE REINFORCED CONCRETE PILES.  
 PIERS 10-22 PILES SHALL BE 14 X 89 STEEL H BEARING PILES WITH MAXIMUM DESIGN LOAD OF 150 TONS PER PILE.

**ESTIMATED AVERAGE PAY LENGTH SHALL BE AS FOLLOWS:**

PIER 1 = 51 FT.	PIER 7 = 63 FT.	PIER 12 = 46 FT.	PIER 18 = 52 FT.
PIER 2 = 53 FT.	PIER 8 = 65 FT.	PIER 13 = 46 FT.	PIER 19 = 54 FT.
PIER 3 = 55 FT.	PIER 9 = 67 FT.	PIER 14 = 46 FT.	PIER 20 = 39 FT.
PIER 4 = 57 FT.	PIER 10 = 46 FT.	PIER 15 = 46 FT.	PIER 21 = 39 FT.
PIER 5 = 59 FT.	PIER 11 = 46 FT.	PIER 16 = 47 FT.	PIER 22 = 76 FT.
PIER 6 = 62 FT.	PIER 17 = 49 FT.		

**NOTE:**  
 EARTHWORK LIMITS SHOWN ARE APPROXIMATE,  
 ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS-SECTIONS.  
 CONSTRUCTION ACCESS ROAD NOT SHOWN.



**PROFILE**

**HYDRAULIC DATA:**  
 DRAINAGE AREA = 387 SQ. MI.  
 DISCHARGE Q50 = 26,000 C.F.S.  
 Q100 = 32,400 C.F.S.  
 VELOCITY V50 = 3.02 FT/SEC.  
 V100 = 3.20 FT/SEC.  
 HIGH WATER 578.2 CALC. 50 YR.  
 579.2 CALC. 100 YR.  
 NO RECORD FOR HIGH WATER ELEV.  
 LAKE ERIE HIGH WATER ELEV. = 577.5

**PROPOSED STRUCTURE ALTERNATE 1**  
 TYPE: CONTINUOUS COMPOSITE WELDED STEEL GIRDERS WITH REINFORCED CONCRETE DECK. COMBINATION SUBSTRUCTURE, CAPPED PILE PIERS AND REINFORCED CONCRETE PIERS & ABUTMENTS  
 SKEW: 0° 00' UNITS 1, 2 & 3, AND 16° 29' 53" LEFT FORWARD UNIT 4  
 SPANS: (UNITS 1 AND 2) 90'-0", 4 SPANS AT 110'-0" 90'-0"  
 (UNIT 3) 102'-0", 4 AT 124'-0", 102'-0"  
 (UNIT 4) 120'-0", 150'-0", 150'-0", 120'-0", 108'-0"  
 ROADWAY: 40'-0" F/F PARAPETS  
 LOADING: HS-20-44 CASE II AND THE ALTERNATE MILITARY LOADING  
 WEARING SURFACE: MONOLITHIC CONCRETE (TOP LAYER OF REINFORCING EPOXY COATE)  
 APPROACH SLABS: AS-1-81 (25' LONG)  
 ALIGNMENT: TANGENT  
 SUPERELEVATION: NONE  
 SLOPE PROTECTION: CRUSHED AGGREGATE  
 TRAFFIC: ADT (2000) 8240  
 ABTT (2000) 1970

**ALTERNATE-1** 1/43

adache-ciuni-lynn associates  
 CONSULTING ENGINEERS CLEVELAND, OHIO 44130

**SITE PLAN**  
 BRIDGE No ERI-2-1911 L/R  
 S.R. 2 OVER HURON RIVER  
 N. & W.R.R. & RIVER ROAD

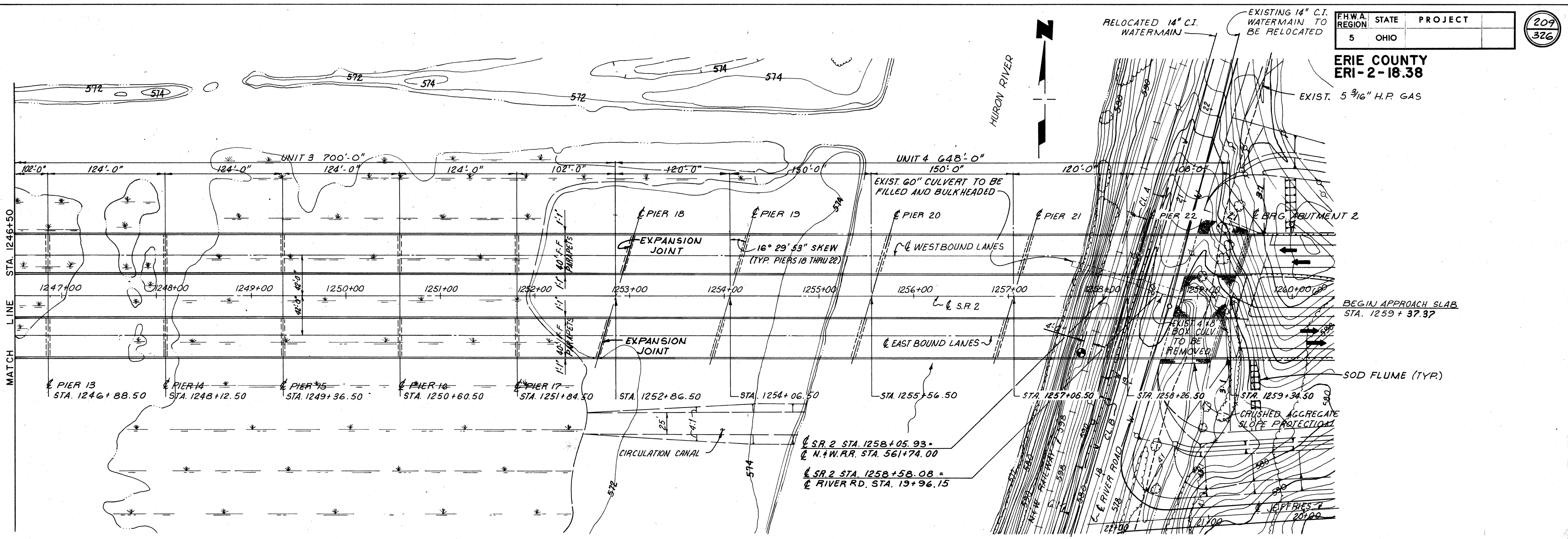
ERIE COUNTY STA. 1233 + 43 75 TO  
 ERI-2-18.38 STA. 1259 + 37 37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	DR.J.	L.E.D.	L.E.D.	11/4/85	

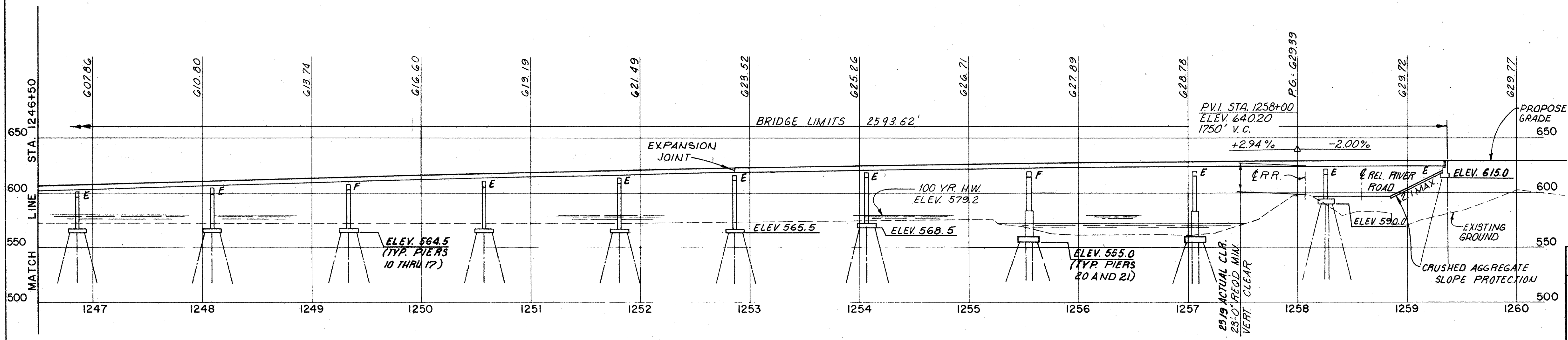
FHWA REGION	STATE	PROJECT
5	OHIO	

209  
326

ERIE COUNTY  
ERI-2-18.38



**PLAN**



**PROFILE**

HORIZ. CLEAR. A - 18.22' CLEAR  
18.00' REQUIRED  
HORIZ. CLEAR B - 16.78 CLEAR  
● POINT OF MINIMUM VERTICAL CLEARANCE

**ALTERNATE 1** 2/43

adache-ciuni-lynn associates  
CONSULTING ENGINEERS CLEVELAND, OHIO 44130

**SITE PLAN**  
BRIDGE No ERI-2-1911 L/R  
S.R. 2 OVER HURON RIVER  
N. & W. R.R. & RIVER ROAD

ERIE COUNTY STA. 1233+43.75 TO  
ERI-2-18.38 STA. 1259+37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	D.R.J.	L.E.D.	L.E.D.	11/4/85	

# ESTIMATED QUANTITIES SUMMARY


ITEM	UNIT	WESTBOUND	EASTBOUND	TOTAL	DESCRIPTION	ABUTMENTS		PIER		SUPERSTR.		GENERAL						
						WESTBOUND	EASTBOUND	WESTBOUND	EASTBOUND	WESTBOUND	EASTBOUND	WESTBOUND	EASTBOUND					
503	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	COFFERDAMS, CRIBS AND SHEETING			LUMP SUM	LUMP SUM									
503	CU. YD.	1,577	1,577	3,154	UNCLASSIFIED EXCAVATION	279	279	1,298	1,298									
505	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	PILE DRIVING EQUIPMENT MOBILIZATION			LUMP SUM	LUMP SUM									
507	LIN. FT.	2,113	2,113	4,226	STEEL PILES, HP 12 X 53, AS PER PLAN	2,113	2,113											
507	LIN. FT.	7,822	7,822	15,644	STEEL PILES, HP 14 X 89, AS PER PLAN			7,822	7,822									
507	LIN. FT.	3,300	3,300	6,600	16" Ø CAST-IN-PLACE CONCRETE PILES, AS PER PLAN			3,300	3,300									
507	LIN. FT.	3,084	3,084	6,168	18" Ø CAST-IN-PLACE CONCRETE PILES, AS PER PLAN			3,084	3,084									
507	EACH	191	191	382	STEEL POINTS, AS PER PLAN	28	28	163	163									
509	LB.	385,521	385,521	771,042	REINFORCING STEEL, GRADE 60	13,470	13,469	372,051	372,052									
511	CU. YD.	3,805	3,756	7,561	CLASS "S" CONCRETE, SUPERSTRUCTURE, AS PER PLAN					3,805	3,756							
511	CU. YD.	1,651	1,653	3,304	CLASS "C" CONCRETE, PIER CAPS AND PIERS ABOVE FOOTINGS			1,651	1,653									
511	CU. YD.	136	136	272	CLASS "C" CONCRETE, ABUTMENTS ABOVE FOOTINGS	136	136											
511	CU. YD.	813	813	1,626	CLASS "C" CONCRETE, FOOTINGS	83	83	730	730									
513	LB.	3,088,200	3,071,700	6,159,900	STRUCTURAL STEEL (AISC CATEGORY III) (SEE PROPOSAL NOTE)					3,088,200	3,071,700							
513	EACH	19,035	18,918	37,953	WELDED STUD SHEAR CONNECTORS					19,035	18,918							
516	LIN. FT.	86	86	172	STRUCT. EXP. JOINTS INCL. ELAST. COMP. SEALS (TYPE I)					86	86							
516	LIN. FT.	128	128	256	STRUCT. EXP. JOINTS INCL. ELAST. COMP. SEALS (TYPE II)					128	128							
518	CU. YD.	69	69	138	POROUS BACKFILL, AS PER PLAN	69	69											
518	LIN. FT.	74	74	148	6" PERFORATED, HELICAL CORRUGATED STEEL PIPE, 707.01	74	74											
518	LIN. FT.	56	56	112	6" NON-PERFORATED HELICAL CORRUGATED STEEL PIPE, 707.01	56	56											
518	EACH	50	50	100	SCUPPER, INCLUDING SUPPORTS					50	50							
523	hour	3	3	6	DYNAMIC LOAD TEST	3	3											
601	sq. yd.	651	545	1,196	CRUSHED AGGREGATE SLOPE PROTECTION	651	545											
824	LB.	993,885	985,482	1,979,367	EPOXY COATED REINFORCING STEEL, GRADE 60	2,880	2,879			991,005	982,603							
SPECIAL	SQ. FT.	10,049	10,049	20,098	PROTECTION OF CONCRETE SURFACES (SEE PROPOSAL NOTE)			10,049	10,049									
* SPECIAL	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	TEST PILE PROGRAM							LUMP SUM	LUMP SUM					
SPECIAL	SQ. YD.	5461	5515	10,976	SEALING OF CONCRETE SURFACES, SEE PROPOSAL NOTE	85	85			5376	5430							

\* INDICATES TEST PILE PROGRAM MAY BE PERFORMED ON EITHER WESTBOUND OR EASTBOUND STRUCTURE.

FOR GENERAL NOTES, SEE SHEETS 205, 205A, 205B.

ALTERNATE - I

3/43


**adache-ciuni-lynn associates**  
 CONSULTING ENGINEERS CLEVELAND, OHIO 44130

**EST. QUANTITIES SUMMARY**  
 BRIDGE N<sup>o</sup> ERI-2-19.11 L/R  
 S.R. 2 OVER HURON RIVER  
 N. & W. R.R. & RIVER ROAD  
 ERIE COUNTY STA. 1233 + 43.75 TO  
 ERI-2-18.38 STA. 1259 + 37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
D.R.J.	J.D.P.	K.L.M.	L.E.D.	11/4/85	

# ESTIMATED QUANTITIES UNIT I

ITEM	UNIT	WESTBOUND	EASTBOUND	TOTAL	DESCRIPTION	ABUTMENTS		PIER		SUPERSTR.		GENERAL					
						WESTBOUND	EASTBOUND	WESTBOUND	EASTBOUND	WESTBOUND	EASTBOUND	WESTBOUND	EASTBOUND				
503	CU. YD.	130	130	260	UNCLASSIFIED EXCAVATION	130	130										
505	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	PILE DRIVING EQUIPMENT MOBILIZATION	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM								
507	LIN. FT.	598	598	1196	STEEL PILES, HP 12 X 53, AS PER PLAN	598	598										
507	LIN. FT.	3300	3300	6600	16" Ø CAST-IN-PLACE CONCRETE PILES, AS PER PLAN			3300	3300								
507	LIN. FT.	744	744	1488	18" Ø CAST-IN-PLACE CONCRETE PILES, AS PER PLAN			744	744								
507	EACH	13	13	26	STEEL POINTS, AS PER PLAN	13	13										
509	LB.	44,001	44,000	88,001	REINFORCING STEEL, GRADE 60	6,306	6,305	37,695	37,695								
511	CU. YD.	898	898	1,796	CLASS "S" CONCRETE, SUPERSTRUCTURE, AS PER PLAN					898	898						
511	CU. YD.	220	220	440	CLASS "C" CONCRETE, PIER CAPS AND PIERS ABOVE FOOTINGS			220	220								
511	CU. YD.	63	63	126	CLASS "C" CONCRETE, ABUTMENTS ABOVE FOOTINGS	63	63										
511	CU. YD.	39	39	78	CLASS "C" CONCRETE, FOOTINGS	39	39										
513	LB.	681,400	681,400	1,362,800	STRUCTURAL STEEL (AISC CATEGORY III) (SEE PROPOSAL NOTE)					681,400	681,400						
513	EACH	4,755	4,755	9,510	WELDED STUD SHEAR CONNECTORS					4,755	4,755						
516	LIN. FT.	42	42	84	STRUCT. EXP. JOINTS INCL. ELAST. COMP. SEALS (TYPE I)					42	42						
516	LIN. FT.	42	42	84	STRUCT. EXP. JOINTS INCL. ELAST. COMP. SEALS (TYPE II)					42	42						
518	CU. YD.	30	30	60	POROUS BACKFILL, AS PER PLAN	30	30										
518	LIN. FT.	35	35	70	6" PERFORATED, HELICAL CORRUGATED STEEL PIPE, 707.01	35	35										
518	LIN. FT.	27	27	54	6" NON-PERFORATED HELICAL CORRUGATED STEEL PIPE, 707.01	27	27										
518	EACH	12	12	24	SCUPPER, INCLUDING SUPPORTS					12	12						
601	SQ. YD.	160	104	264	CRUSHED AGGREGATE SLOPE PROTECTION	160	104										
824	LB.	212,092	212,092	424,184	EPOXY COATED REINFORCING STEEL, GRADE 60	1,382	1,382			210,710	210,710						
SPECIAL	SQ. YD.	1,334	1,334	2,668	SEALING OF CONCRETE SURFACES (SEE PROPOSAL NOTE)	38	38			1,296	1,296						

ALTERNATE - I 4/43

<b>EST. QUANTITIES UNIT I</b> BRIDGE N° ERI-2-19.11 L/R S.R. 2 OVER HURON RIVER N. & W. R.R. & RIVER ROAD ERIE COUNTY STA. 1233 + 43.75 TO ERI-2-18.38 STA. 1259 + 37.37					
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
D.R.J.	J.D.P.	K.L.M.	L.E.D.	11/4/85	

# ESTIMATED QUANTITIES UNIT 2

ITEM	UNIT	WESTBOUND	EASTBOUND	TOTAL	DESCRIPTION	ABUTMENTS		PIER		SUPERSTR.		GENERAL							
						WESTBOUND	EASTBOUND	WESTBOUND	EASTBOUND	WESTBOUND	EASTBOUND	WESTBOUND	EASTBOUND						
503	CU. YD.	258	258	516	UNCLASSIFIED EXCAVATION			258	258										
505	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	PILE DRIVING EQUIPMENT MOBILIZATION			LUMP SUM	LUMP SUM										
507	LIN. FT.	1,380	1,380	2,760	STEEL PILES, HP 14 X 89, AS PER PLAN			1,380	1,380										
507	LIN. FT.	2,340	2,340	4,680	18" Ø CAST-IN-PLACE CONCRETE PILES, AS PER PLAN			2,340	2,340										
507	EACH	30	30	60	STEEL POINTS, AS PER PLAN			30	30										
509	LB.	65,340	65,340	130,680	REINFORCING STEEL, GRADE 60			65,340	65,340										
511	CU. YD.	896	896	1,792	CLASS "S" CONCRETE, SUPERSTRUCTURE, AS PER PLAN					896	896								
511	CU. YD.	292	292	584	CLASS "C" CONCRETE, PIER CAPS AND PIERS ABOVE FOOTINGS			292	292										
511	CU. YD.	121	121	242	CLASS "C" CONCRETE, FOOTINGS			121	121										
513	LB.	680,500	680,500	1,361,000	STRUCTURAL STEEL (AISC CATEGORY III) (SEE PROPOSAL NOTE)					680,500	680,500								
513	EACH	4,740	4,740	9,480	WELDED STUD SHEAR CONNECTORS					4,740	4,740								
516	LIN. FT.	42	42	84	STRUCT. EXP. JOINTS INCL. ELAST. COMP. SEALS (TYPE II)					42	42								
518	EACH	12	12	24	SCUPPER, INCLUDING SUPPORTS					12	12								
824	LB.	210,441	210,440	420,881	EPOXY COATED REINFORCING STEEL, GRADE 60					210,441	210,440								
SPECIAL	SQ YD.	1,293	1,293	2,586	SEALING OF CONCRETE SURFACES (SEE PROPOSAL NOTE)					1,293	1,293								

ALTERNATE - I

5/43

<b>adache - ciuni - lynn associates</b> CONSULTING ENGINEERS				
<b>EST. QUANTITIES UNIT 2</b> BRIDGE N° ERI-2-19.11 L/R S.R. 2 OVER HURON RIVER N. & W. R.R. & RIVER ROAD ERIE COUNTY STA. 1233 + 43.75 TO ERI-2-18.38 STA. 1259 + 37.37				
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
D.R.J.	J.D.P.	K.L.M.	L.E.D.	11/4/85

# ESTIMATED QUANTITIES UNIT 3

ITEM	UNIT	WESTBOUND	EASTBOUND	TOTAL	DESCRIPTION	ABUTMENTS		PIER		SUPERSTR.		GENERAL					
						WESTBOUND	EASTBOUND	WESTBOUND	EASTBOUND	WESTBOUND	EASTBOUND	WESTBOUND	EASTBOUND				
503	CU. YD.	553	553	1106	UNCLASSIFIED EXCAVATION			553	553								
505	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	PILE DRIVING EQUIPMENT MOBILIZATION			LUMP SUM	LUMP SUM								
507	LIN. FT.	3,478	3,478	6,956	STEEL PILES, HP 14 X 89, AS PER PLAN			3,478	3,478								
507	EACH	73	73	146	STEEL POINTS, AS PER PLAN			73	73								
509	LB.	141,186	141,186	282,372	REINFORCING STEEL, GRADE 60			141,186	141,186								
511	CU. YD.	1,054	1,005	2,059	CLASS "S" CONCRETE, SUPERSTRUCTURE, AS PER PLAN					1,054	1,005						
511	CU. YD.	549	551	1,100	CLASS "C" CONCRETE, PIER CAPS AND PIERS ABOVE FOOTINGS			549	551								
511	CU. YD.	268	268	536	CLASS "C" CONCRETE, FOOTINGS			268	268								
513	LB.	907,200	850,700	1,757,900	STRUCTURAL STEEL (AISC CATEGORY III) (SEE PROPOSAL NOTE)					907,200	850,700						
513	EACH	4,950	4,833	9,783	WELDED STUD SHEAR CONNECTORS					4,950	4,833						
516	LIN. FT.	44	44	88	STRUCT. EXP. JOINTS INCL. ELAST. COMP. SEALS (TYPE II)					44	44						
518	EACH	13	13	26	SCUPPER, INCLUDING SUPPORTS					13	13						
824	LB.	244,066	235,665	479,731	EPOXY COATED REINFORCING STEEL, GRADE 60					244,066	235,665						
SPECIAL	SQ YDS.	1,433	1,487	2,920	SEALING OF CONCRETE SURFACES (SEE PROPOSAL NOTE)					1,433	1,487						

ALTERNATE - I 6/43

<b>adache - ciuni - lynn associates</b> <small>CONSULTING ENGINEERS CLEVELAND OHIO 44130</small>					
<b>EST. QUANTITIES UNIT 3</b>					
BRIDGE N <sup>o</sup> ERI-2-19.11 L/R S.R. 2 OVER HURON RIVER N. & W. R.R. & RIVER ROAD ERIE COUNTY STA. 1233 + 43.75 TO ERI-2-18.38 STA. 1259 + 37.37					
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
D.R.J.	J.D.P.	K.L.M.	L.E.D.	11/4/85	

ERIE COUNTY  
ERI-2-18.38

# ESTIMATED QUANTITIES UNIT 4

ITEM	UNIT	WESTBOUND	EASTBOUND	TOTAL	DESCRIPTION	ABUTMENTS		PIER		SUPERSTR.		GENERAL					
						WESTBOUND	EASTBOUND	WESTBOUND	EASTBOUND	WESTBOUND	EASTBOUND	WESTBOUND	EASTBOUND				
503	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	COFFERDAMS, CRIBS AND SHEETING			LUMP SUM	LUMP SUM								
503	CU. YD.	636	636	1,272	UNCLASSIFIED EXCAVATION	149	149	487	487								
505	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	PILE DRIVING EQUIPMENT MOBILIZATION	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM								
507	LIN. FT.	1,515	1,515	3,030	STEEL PILES, HP 12 X 53, AS PER PLAN	1,515	1,515										
507	LIN. FT.	2,964	2,964	5,928	STEEL PILES, HP 14 X 89, AS PER PLAN			2,964	2,964								
507	EACH	75	75	150	STEEL POINTS, AS PER PLAN	15	15	60	60								
509	LB.	134,933	134,933	269,866	REINFORCING STEEL, GRADE 60	7,164	7,164	127,769	127,769								
511	CU. YD.	957	957	1,914	CLASS "S" CONCRETE, SUPERSTRUCTURE, AS PER PLAN					957	957						
511	CU. YD.	590	590	1,180	CLASS "C" CONCRETE, PIER CAPS AND PIERS ABOVE FOOTINGS			590	590								
511	CU. YD.	73	73	146	CLASS "C" CONCRETE, ABUTMENTS ABOVE FOOTINGS	73	73										
511	CU. YD.	385	385	770	CLASS "C" CONCRETE, FOOTINGS	44	44	341	341								
513	LB.	819,100	819,100	1,638,200	STRUCTURAL STEEL (AISC CATEGORY III) (SEE PROPOSAL NOTE)					819,100	819,100						
513	EACH	4,590	4,590	9,180	WELDED STUD SHEAR CONNECTORS					4,590	4,590						
516	LIN. FT.	44	44	88	STRUCT. EXP. JOINTS INCL. ELAST. COMP. SEALS (TYPE II)					44	44						
518	CU. YD.	39	39	78	POROUS BACKFILL, AS PER PLAN	39	39										
518	LIN. FT.	39	39	78	6" PERFORATED, HELICAL CORRUGATED STEEL PIPE, 707.01	39	39										
518	LIN. FT.	29	29	58	6" NON-PERFORATED HELICAL CORRUGATED STEEL PIPE, 707.01	29	29										
518	EACH	13	13	26	SCUPPER, INCLUDING SUPPORTS					13	13						
523	HR	3	3	6	DYNAMIC LOAD TEST	3	3										
601	SQ. YD.	491	441	932	CRUSHED AGGREGATE SLOPE PROTECTION	491	441										
824	LB.	225,983	225,983	451,966	EPOXY COATED REINFORCING STEEL, GRADE 60	1,498	1,497			224,485	224,486						
SPECIAL	SQ. FT.	10,049	10,049	20,098	PROTECTION OF CONCRETE SURFACES (SEE PROPOSAL NOTE)			10,049	10,049								
SPECIAL	SQ. YDS.	1,545	1,545	3,090	SEALING OF CONCRETE SURFACES (SEE PROPOSAL NOTE)	47	47			1,498	1,498						

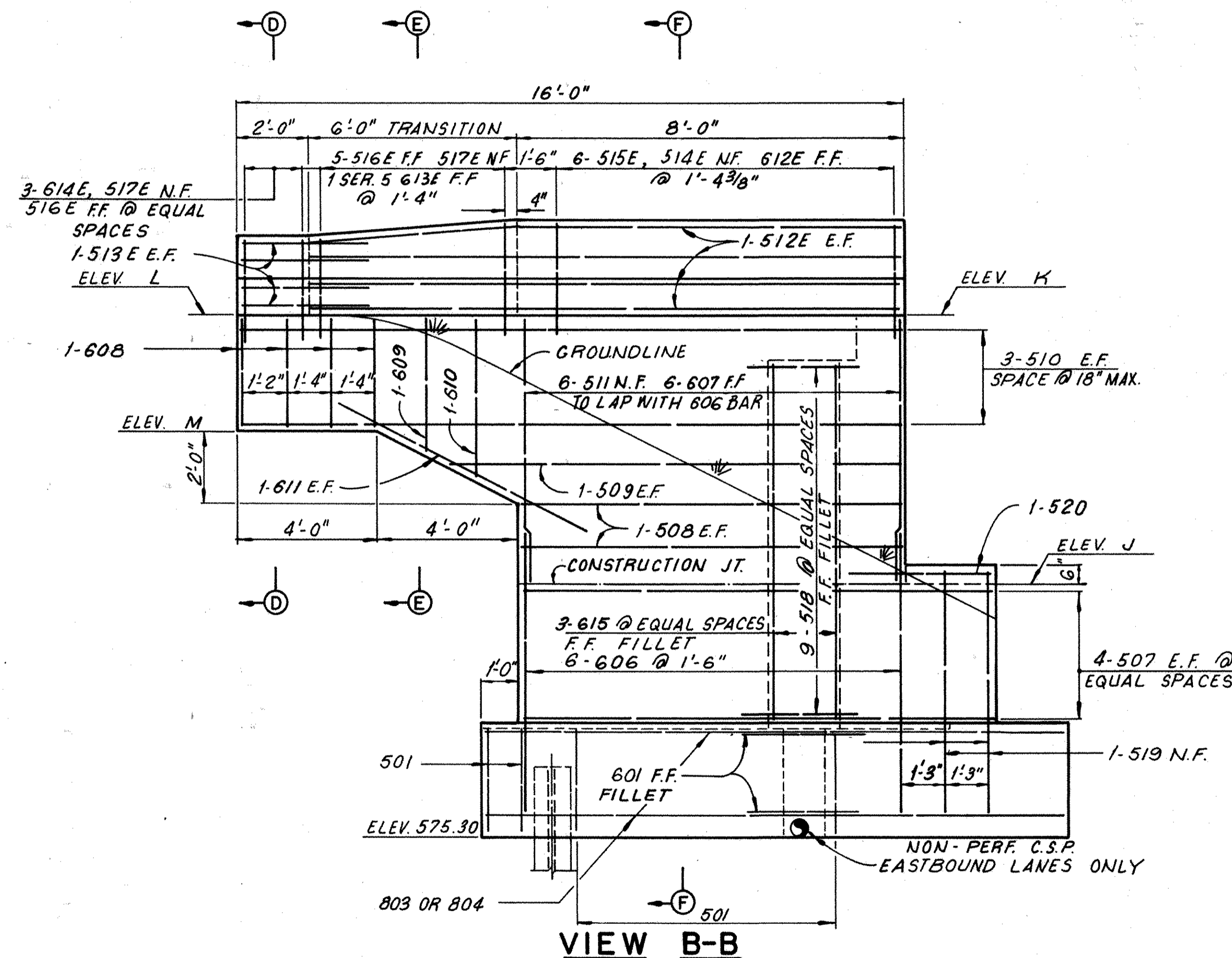
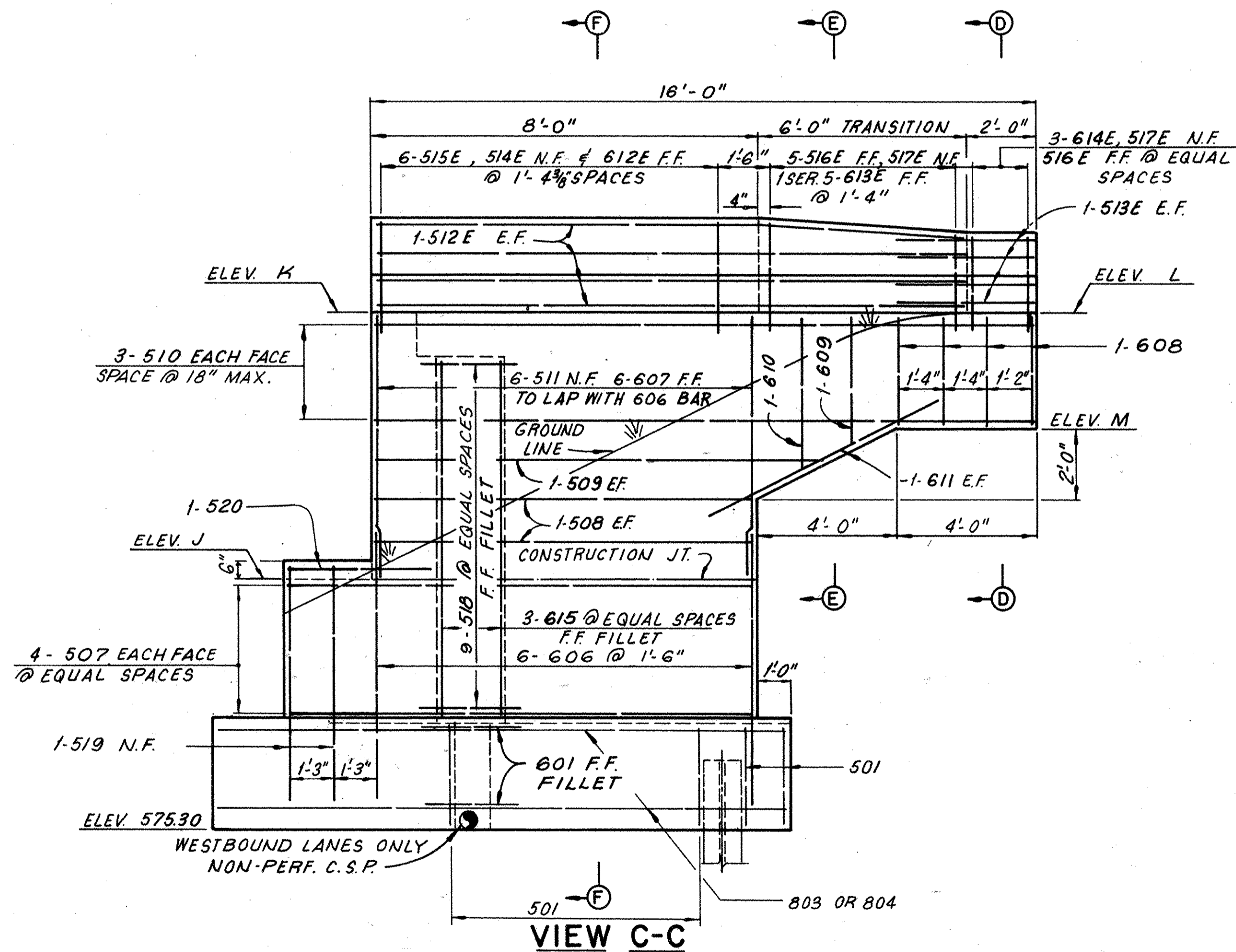
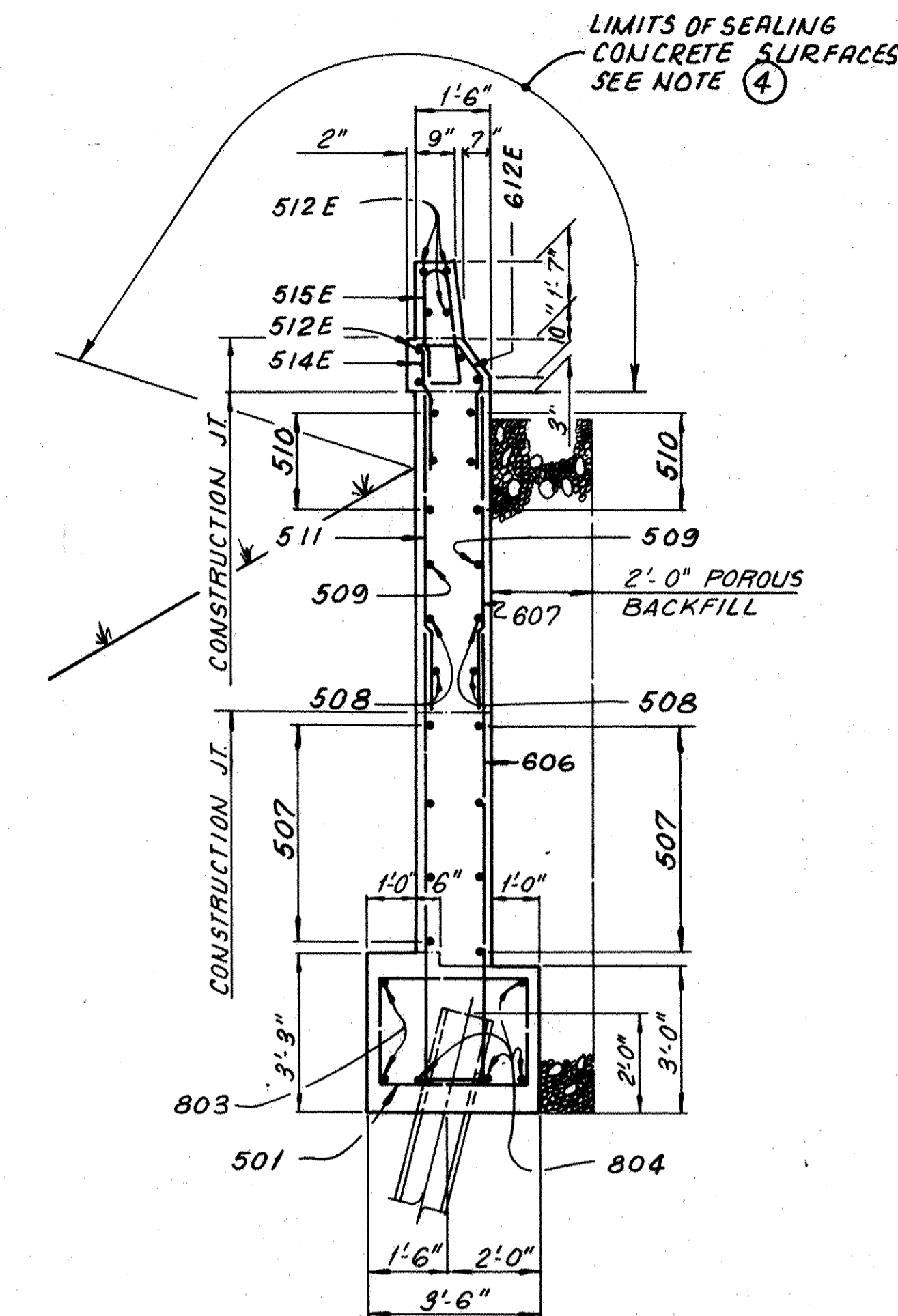
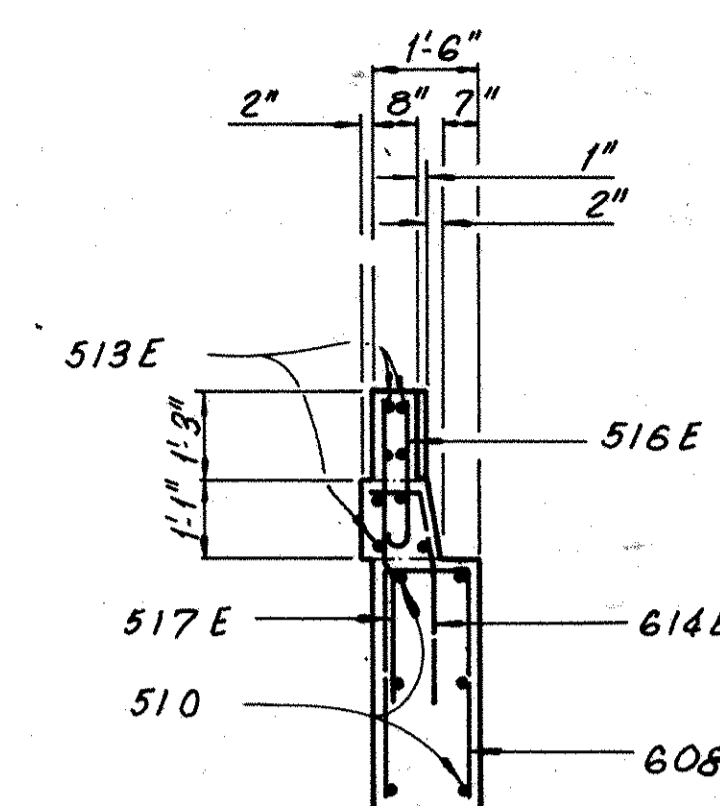
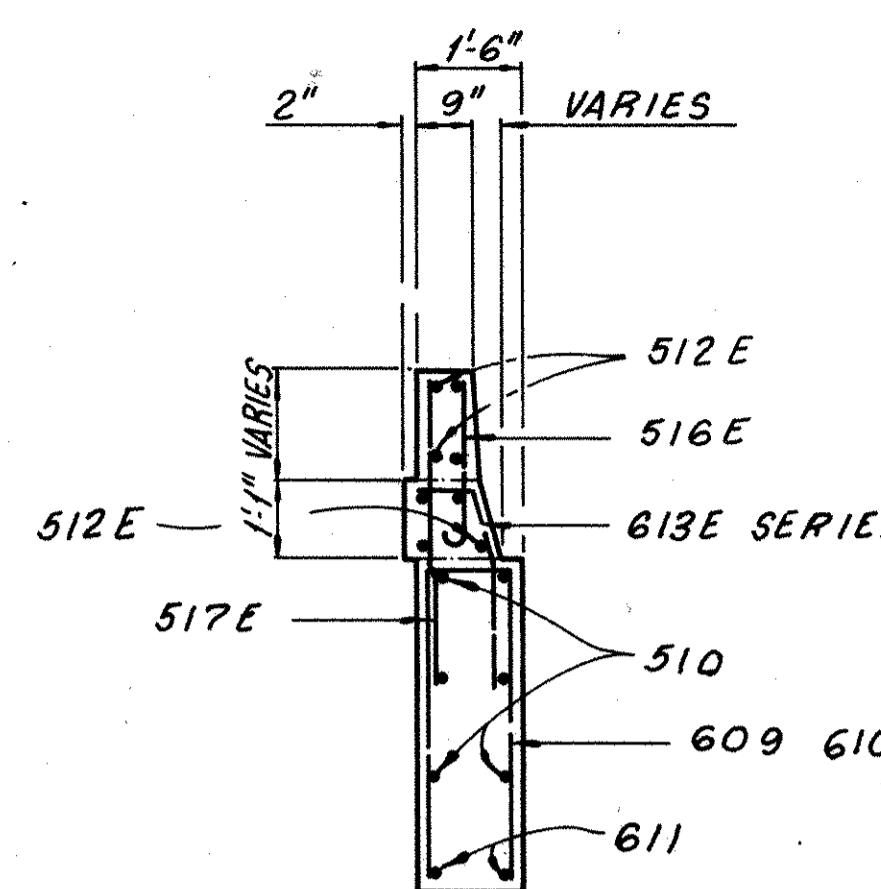
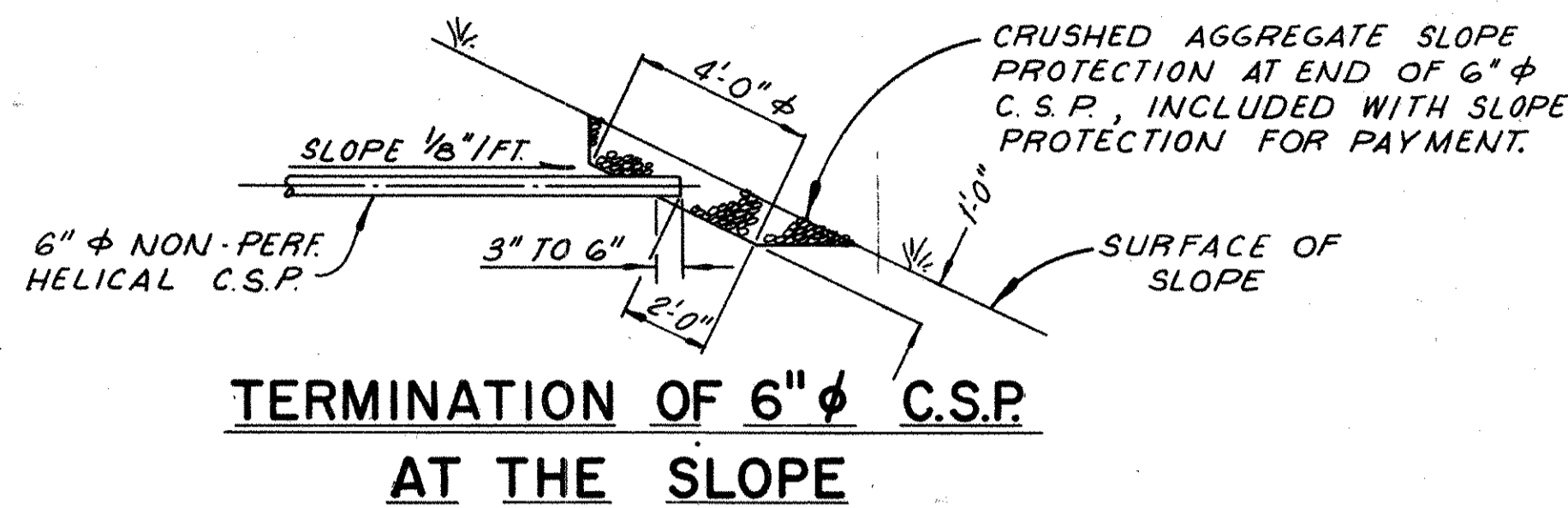
ALTERNATE - I

**adache ciuni lynn associates**  
 CONSULTING ENGINEERS

**EST. QUANTITIES UNIT 4**  
 BRIDGE N° ERI-2-19.11 L/R  
 S.R. 2 OVER HURON RIVER  
 N. & W. R.R. & RIVER ROAD  
 ERIE COUNTY STA. 1233 + 43.75 TO  
 ERI-2-18.38 STA. 1259 + 37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	J.D.P.	K.L.M.	L.E.D.	11/4/85	





- NOTES:**
- FOR LOCATION OF VIEWS B-B AND C-C, SEE SHEET 8/43.
  - FOR ADDITIONAL NOTES, SEE SHEET 8/43.
  - FOR RAILING DETAILS NOT SHOWN, SEE STANDARD DRAWING BR-1, SHEET NO. 1 OF 1.
  - ITEM SPECIAL, SEALING OF CONCRETE SURFACES: A CONCRETE SEALER, EITHER SILANE OR AN EPOXY SEALER, SHALL BE APPLIED TO THE CONCRETE SURFACES SHOWN ON SECTION F-F. SEE THE PROPOSAL FOR SURFACE PREPARATION REQUIREMENTS, APPLICATION RATES, MATERIAL REQUIREMENTS AND APPLICATION PROCEDURE.

**ELEVATION TABLE**

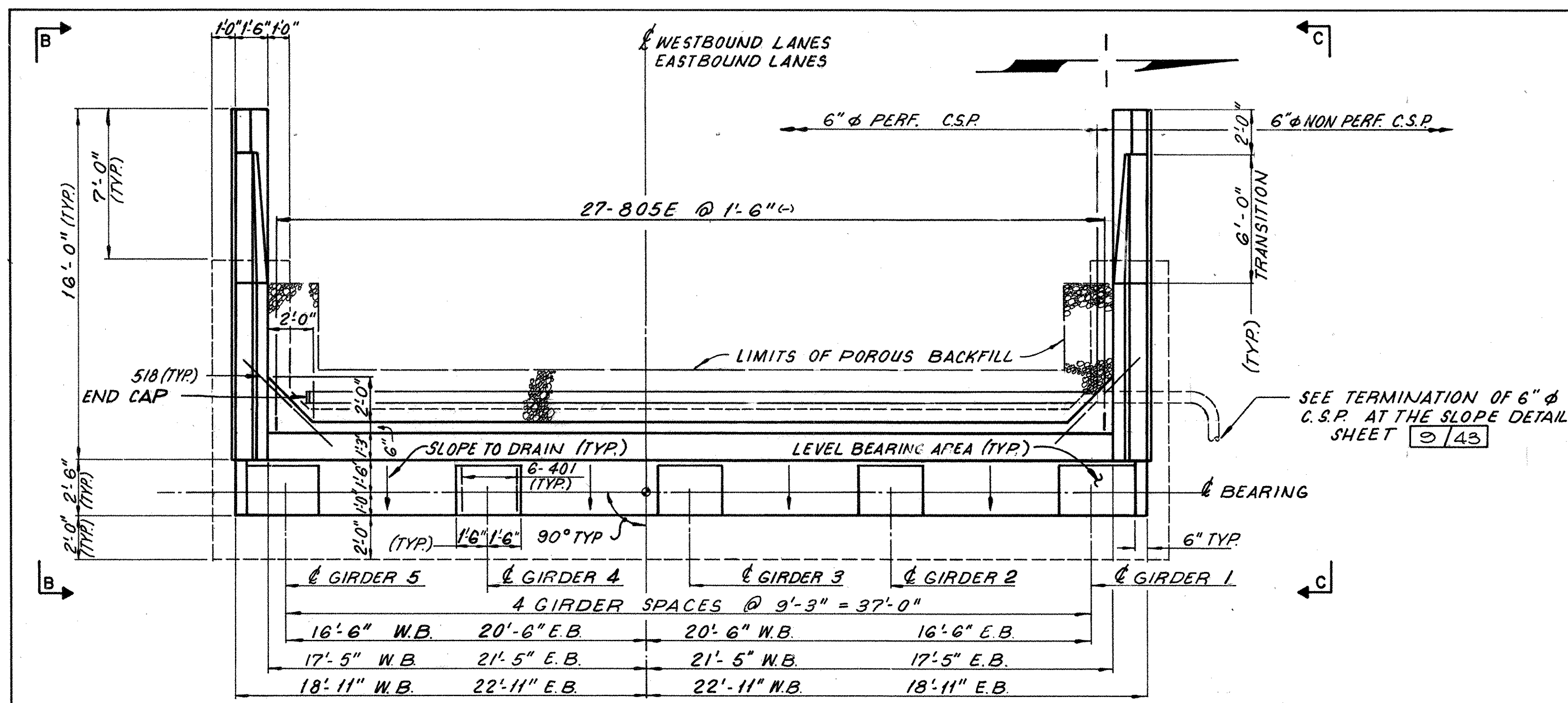
LOCATION	ELEV. J	ELEV. K	ELEV. L	ELEV.	
WESTBOUND LANES	NORTH WINGWALL	582.36	588.91	588.83	585.25
	SOUTH WINGWALL	582.42	588.97	588.89	585.25
EASTBOUND LANES	NORTH WINGWALL	582.42	588.97	588.89	585.25
	SOUTH WINGWALL	582.36	588.91	588.83	585.25

ALTERNATE - 1

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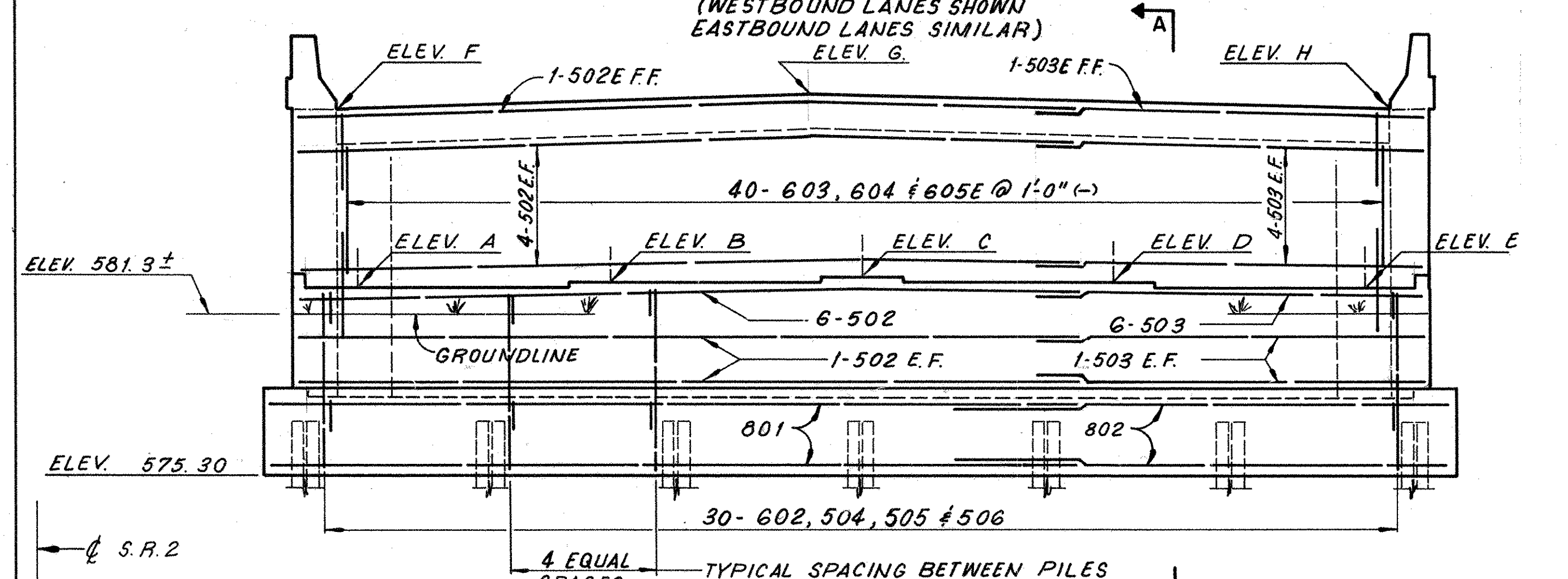
**ABUTMENT NO. 1  
WINGWALL DETAILS**  
BRIDGE No ERI - 2 - 19.11 L / R  
S. R. 2 OVER HURON RIVER  
N. & W. R.R. & RIVER ROAD  
ERIE COUNTY STA. 1233 + 43.75 TO  
ERI - 2 - 18.38 STA. 1259 + 37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
D.R.J.	D.R.J.	K.L.M.	L.E.D.	11/4/85	

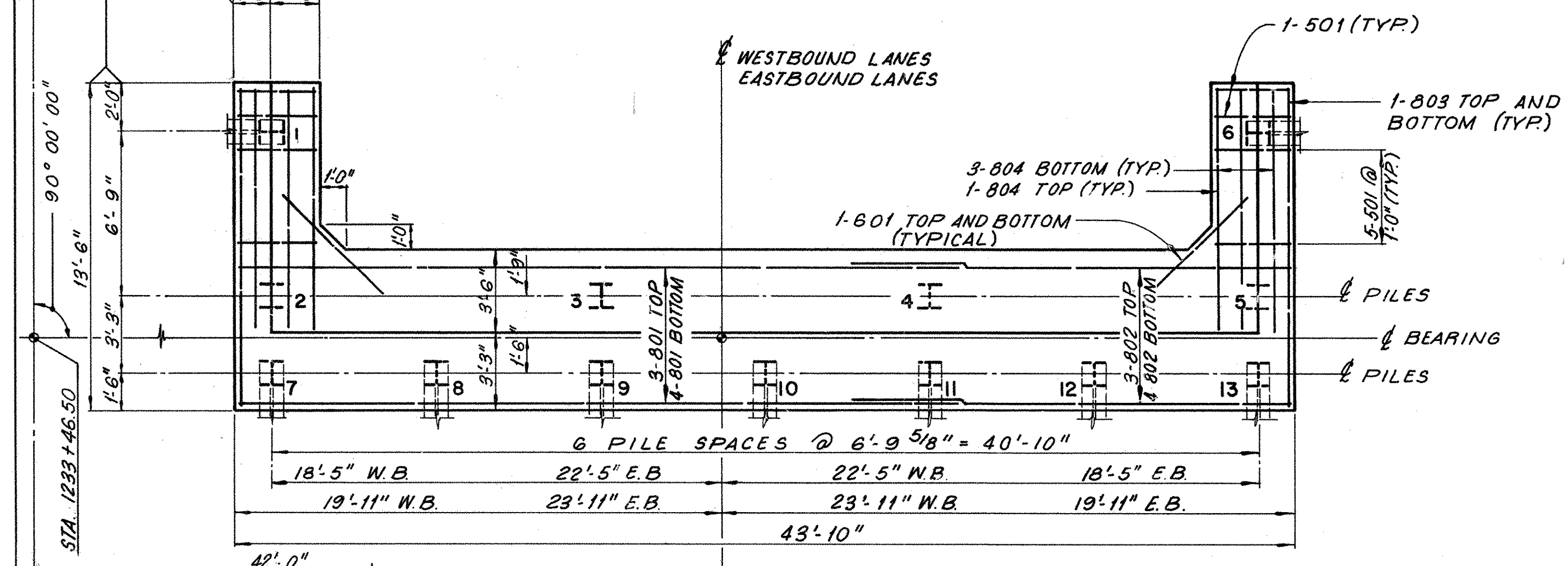


**PLAN**

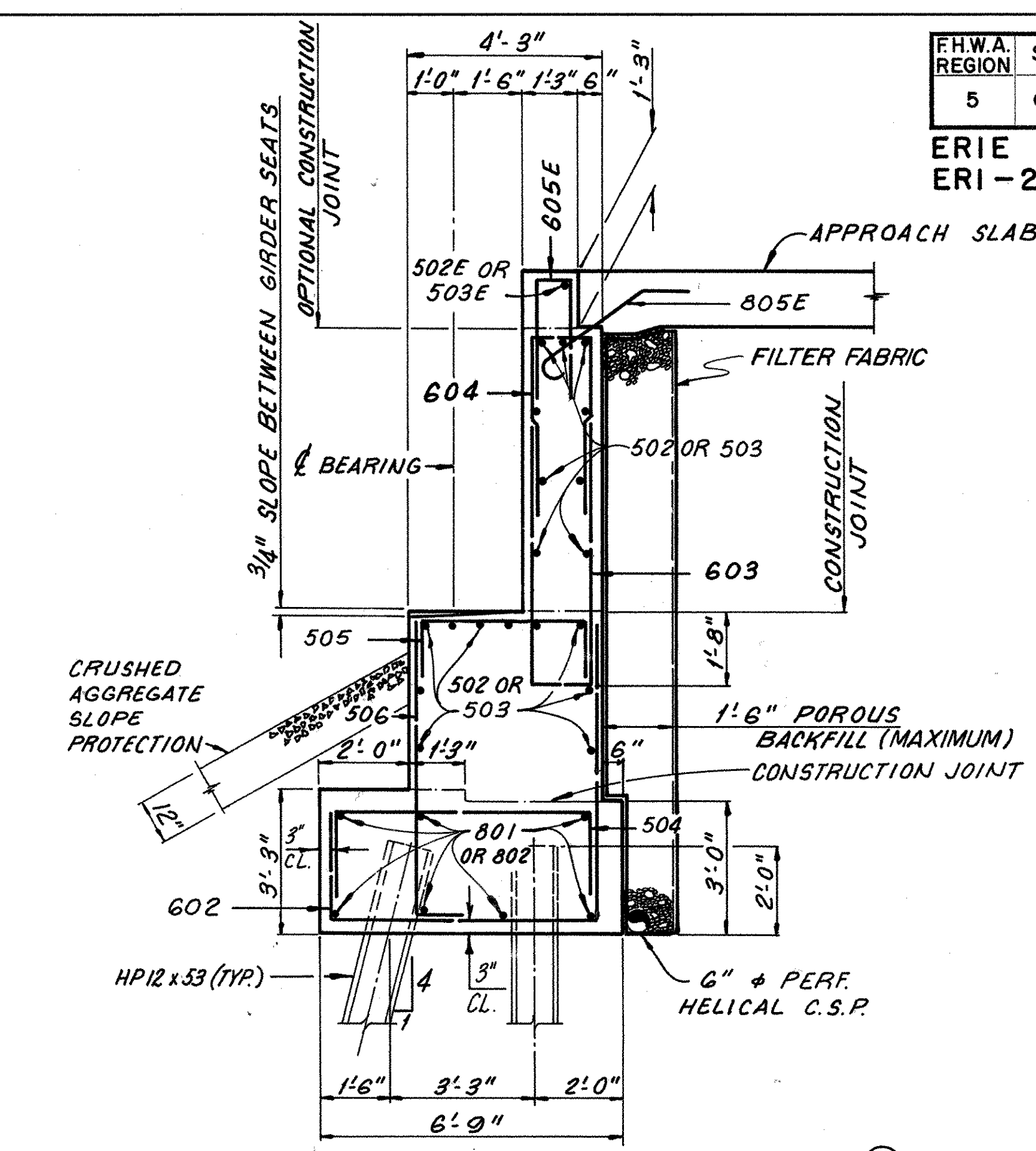
(WESTBOUND LANES SHOWN  
EASTBOUND LANES SIMILAR)



**ELEVATION**



**FOOTING PLAN**



**SECTION A-A**

**NOTES:**

- ALL REINFORCING STEEL IN ABUTMENT NO. 1 SHALL BE PREFIXED 1A.
- REINFORCING STEEL WITH SUFFIX 'E' SHALL BE EPOXY COATED.
- IN ADDITION TO THE PROVISIONS OF 511.08, BACKWALL CONCRETE ABOVE THE OPTIONAL CONSTRUCTION JOINT AT THE APPROACH SLAB SEAT SHALL NOT BE PLACED UNTIL AFTER THE DECK CONCRETE IN THE SPAN ADJACENT TO THE ABUTMENT HAS BEEN PLACED.
- POROUS BACKFILL 1.5 FT. THICK (2.0 FT. AT WINGWALLS) SHALL EXTEND UP TO THE PLANE OF THE SUBGRADE AND TO THE LIMITS SHOWN ON THESE PLANS.
- ALL PILES SHOWN BATTERED SHALL BE BATTERED 1 IN 4 IN THE DIRECTION SHOWN.
- FOR VIEWS B-B AND C-C, SEE SHEET 34/43.
- FOR EXPANSION JOINT DETAILS, SEE SHEETS 34/43 & 35/43.
- THE FOLLOWING ABBREVIATIONS ARE USED  
E.B. = EASTBOUND      E.F. = EACH FACE  
W.B. = WESTBOUND      N.F. = NEAR FACE  
TYP. = TYPICAL      F.F. = FAR FACE  
C.S.P. = CORRUGATED STEEL PIPE
- FOR REINFORCING STEEL LIST AND BAR BENDING DIAGRAMS, SEE SHEET 36/43.

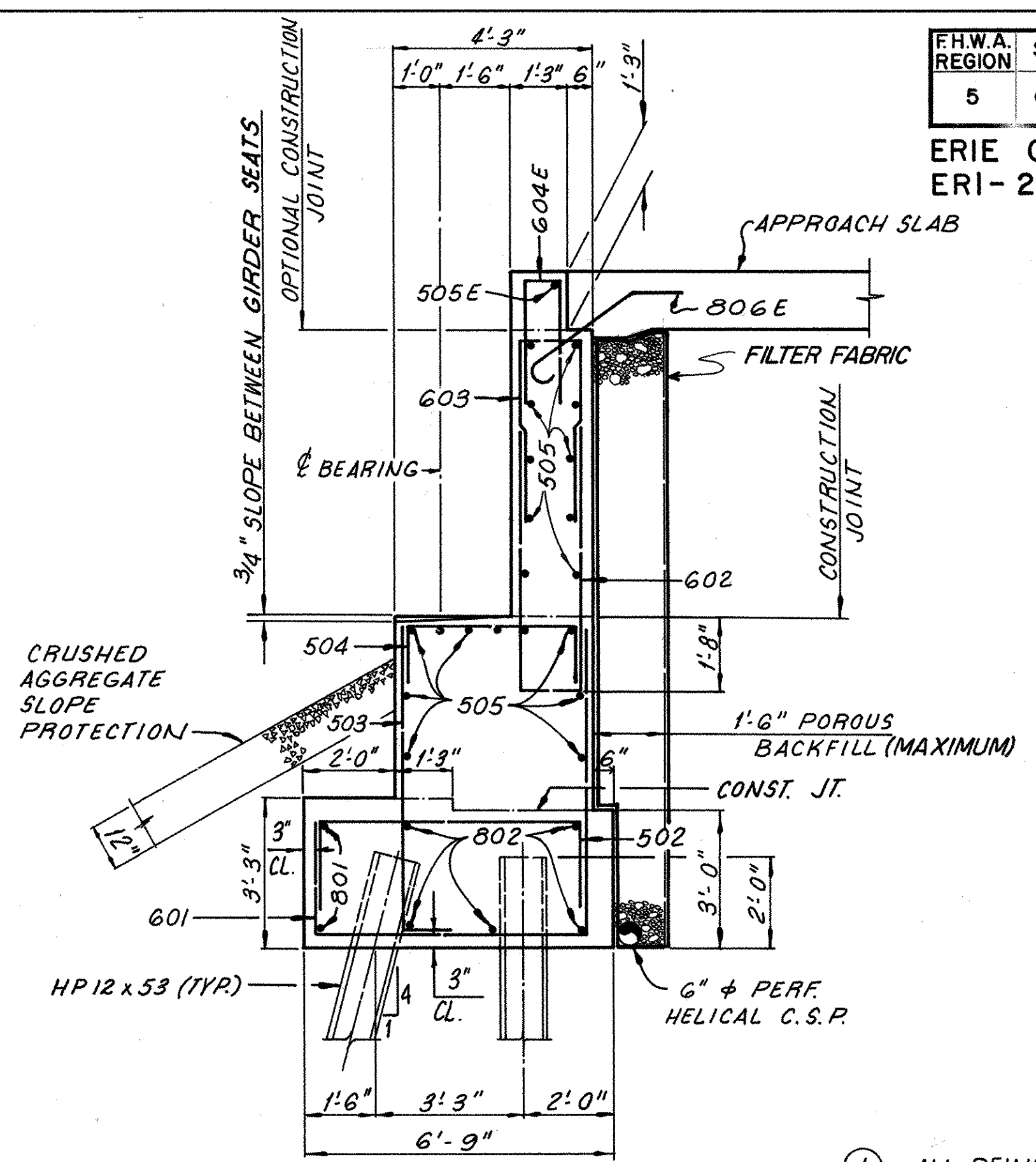
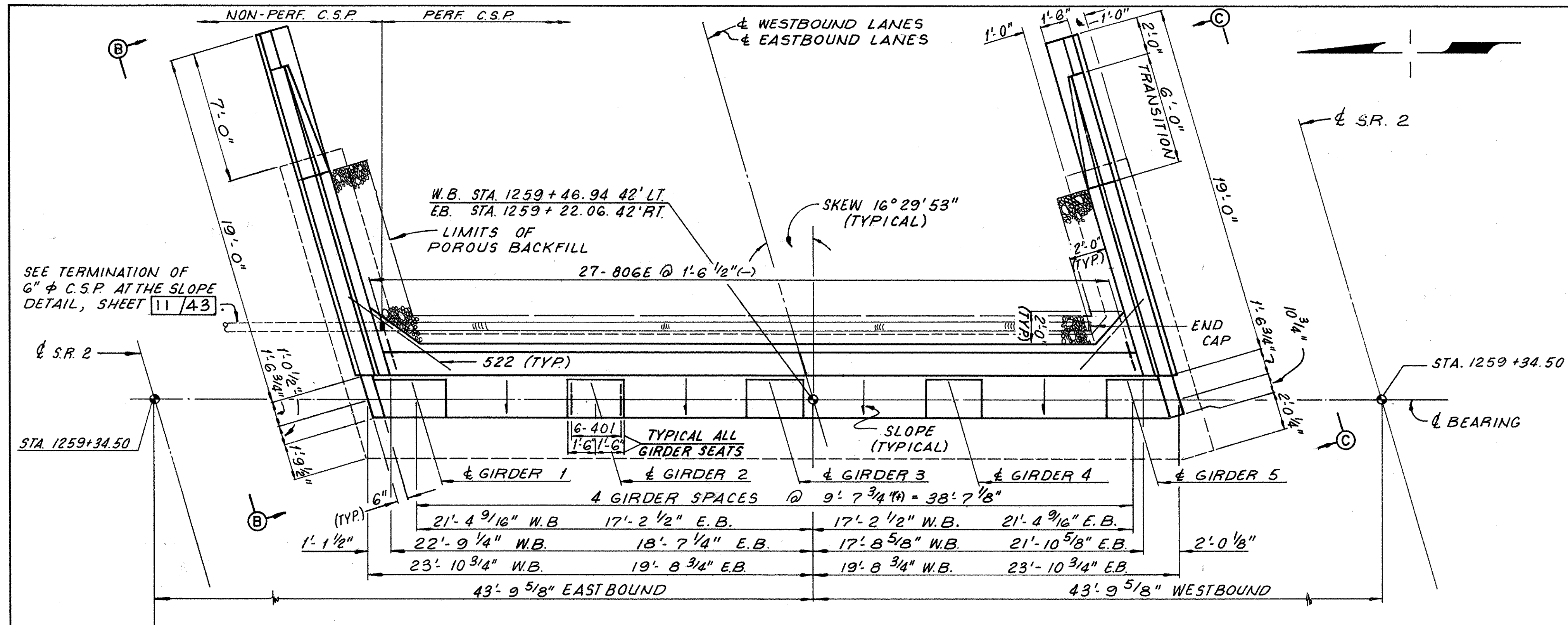
ALTERNATE - I      8/43

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CONSULTING ENGINEERS      CLEVELAND, OHIO 44130

**ABUTMENT NO. 1 L/R**  
BRIDGE NO. ERI-2-19.11 L/R  
S.R. 2 OVER HURON RIVER  
N. & W. R.R. & RIVER ROAD  
ERIE COUNTY      STA. 1259 + 37.5 TO  
ERI-2-18.38      STA. 1259 + 37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
D.R.J.	D.R.J.	K.L.M.	L.E.D.	11/4/85	

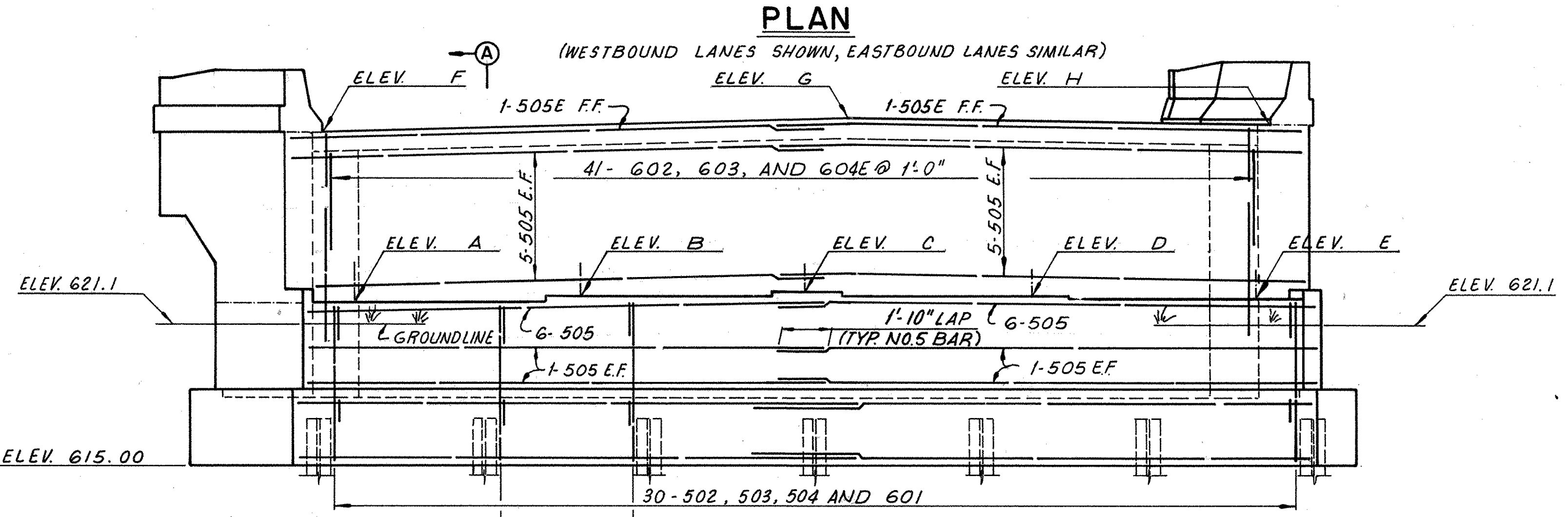
LOCATION	ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. F	ELEV. G	ELEV. H
EASTBOUND	582.36	582.50	582.65	582.56	582.42	588.91	589.24	588.97
WESTBOUND	582.42	582.56	582.65	582.50	582.36	588.97	589.24	588.91



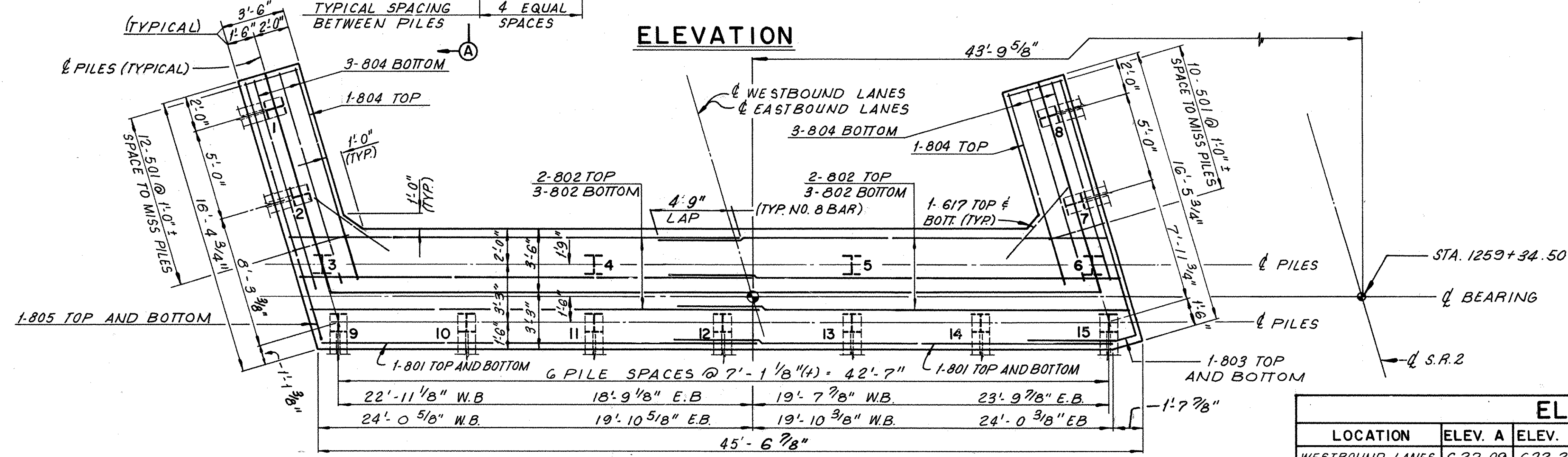
SECTION A-A

NOTES:

- ALL REINFORCING STEEL IN ABUTMENT NO. 2 SHALL BE PREFIXED 2A.
- REINFORCING STEEL WITH SUFFIX 'E' SHALL BE EPOXY COATED.
- IN ADDITION TO THE PROVISIONS OF 511.08, BACKWALL CONCRETE ABOVE THE OPTIONAL CONSTRUCTION JOINT AT THE APPROACH SLAB SEAT SHALL NOT BE PLACED UNTIL AFTER THE DECK CONCRETE IN THE SPAN ADJACENT TO THE ABUTMENT HAS BEEN PLACED.
- POROUS BACKFILL 1.5' FT. THICK (2.0 FT. AT WINGWALLS) SHALL EXTEND UP TO THE PLANE OF THE SUBGRADE AND BACK TO THE ENDS OF THE WINGWALLS.
- ALL PILES SHOWN BATTERED SHALL BE BATTERED 1 IN 4 IN THE DIRECTION SHOWN.
- FOR VIEWS B-B AND C-C, SEE SHEET 11/43.
- FOR EXPANSION JOINT DETAILS, SEE SHEETS 34/43 & 35/43.
- THE FOLLOWING ABBREVIATIONS ARE USED:  
E.B. - EASTBOUND      E.F. - EACHFACE  
W.B. - WESTBOUND    N.F. - NEAR FACE  
TYP. - TYPICAL        FF. - FAR FACE  
C.S.P. - CORRUGATED STEEL PIPE  
LT. - LEFT              RT. - RIGHT
- FOR REINFORCING STEEL LIST AND BAR BENDING DIAGRAMS, SEE SHEET 36/43.



ELEVATION



FOOTING PLAN

LOCATION	ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. F	ELEV. G	ELEV. H
WESTBOUND LANES	622.09	622.23	622.37	622.29	622.14	629.64	629.78	629.69
EASTBOUND LANES	622.13	622.27	622.35	622.20	622.05	629.68	629.76	629.60

ALTERNATE - 1

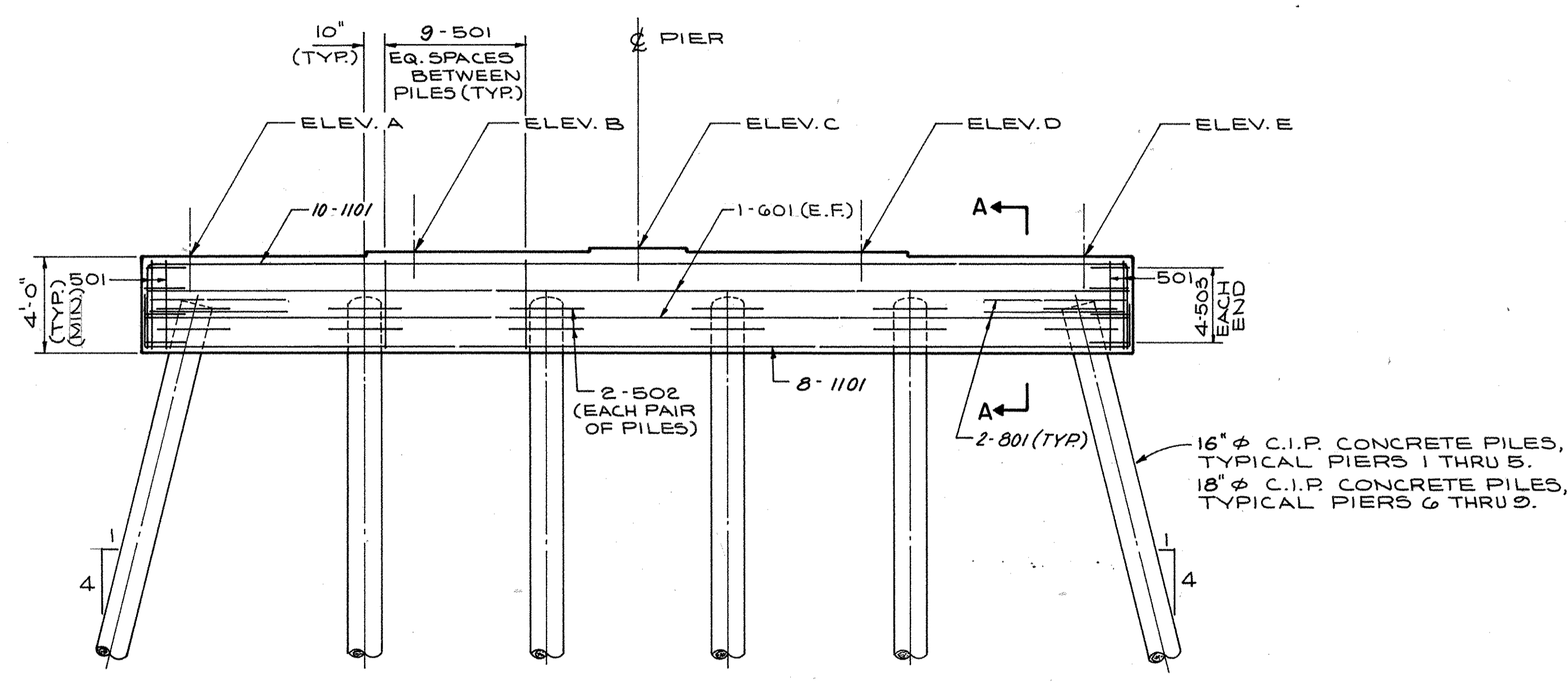
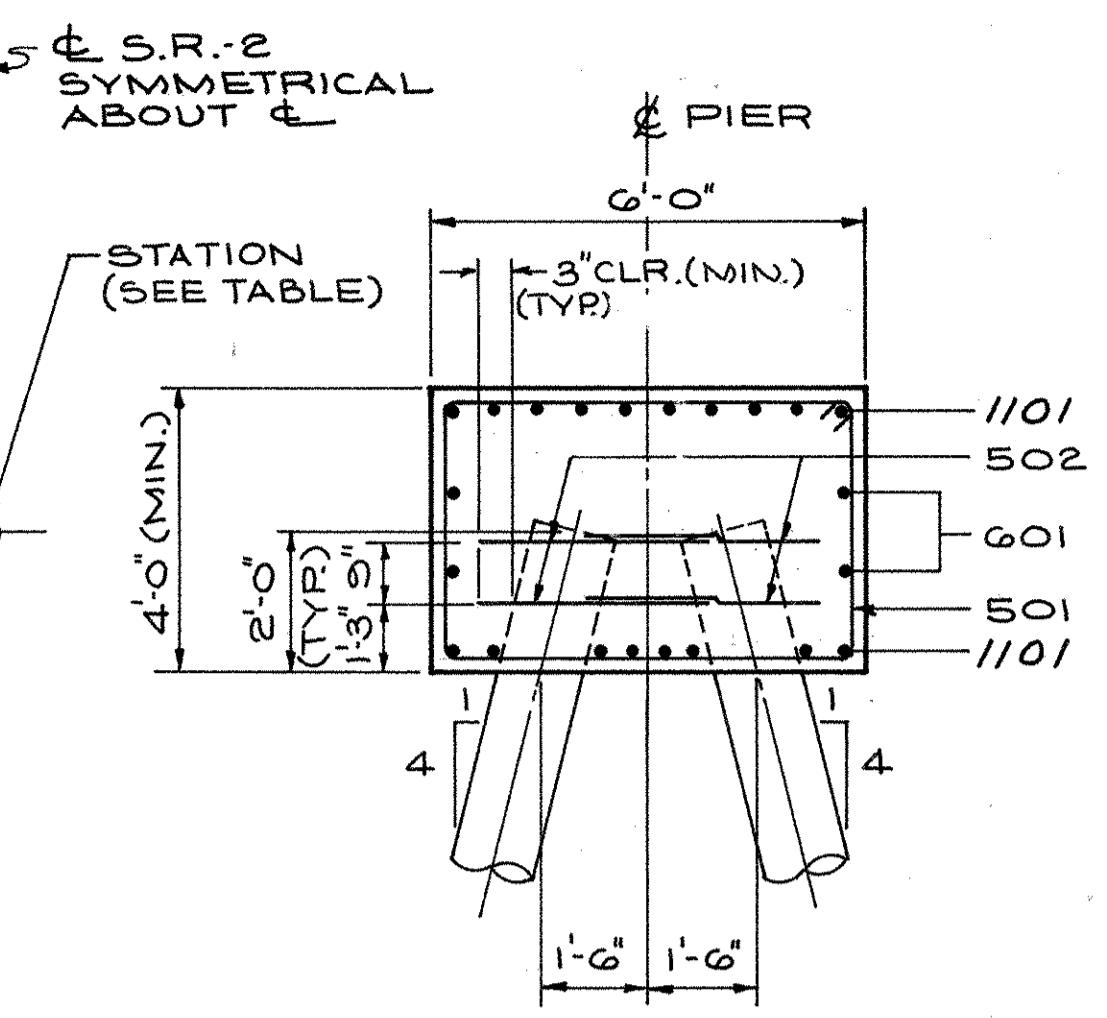
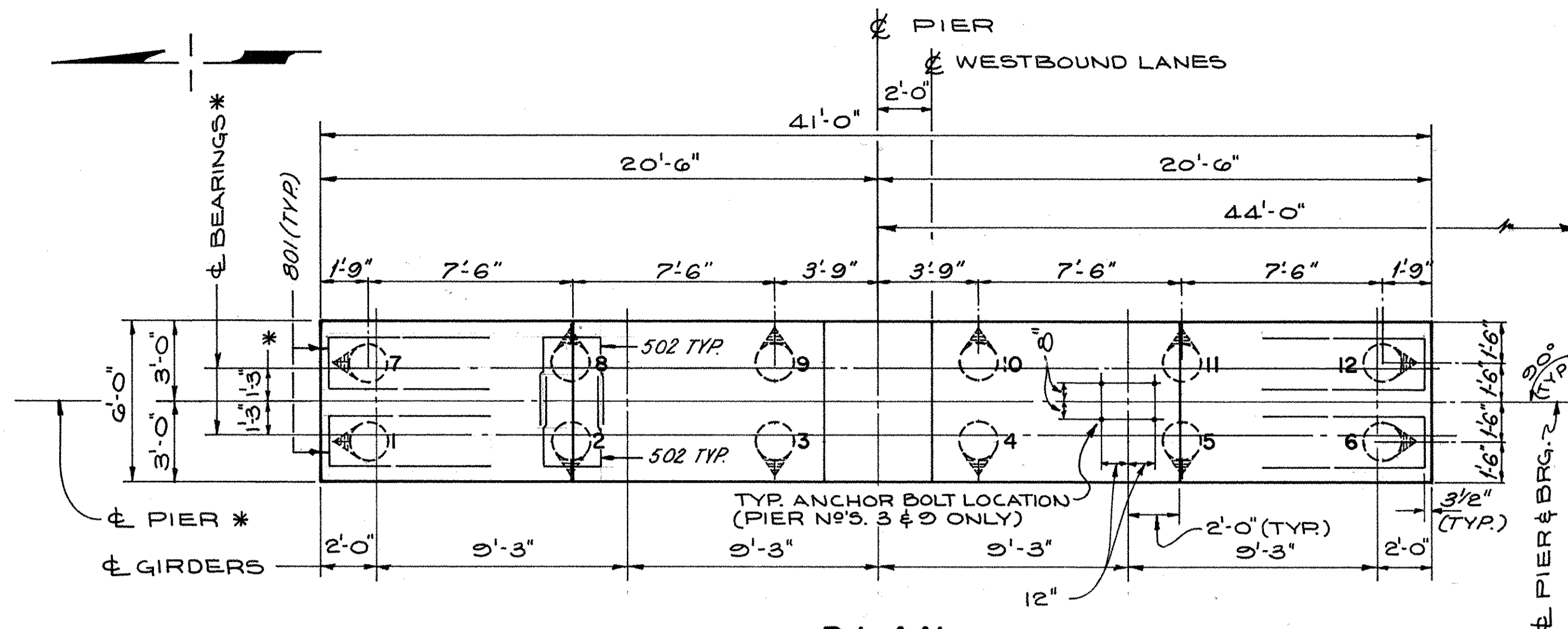
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**ABUTMENT NO. 2 L/R**  
BRIDGE NO. ERI - 2-19.11 L/R  
S.R. 2 OVER HURON RIVER  
N. & W. R.R. & RIVER ROAD

ERIE COUNTY STA. 1233 + 43.75 TO  
ERI-2-18.38 STA. 1259 + 37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
K.L.M.	D.R.J.	K.L.M.	L.E.D.	11/4/85	





WESTBOUND STRUCTURE SHOWN,  
EASTBOUND SIMILAR EXCEPT OPPOSITE HAND

TABLE OF ELEVATIONS							
PIER N <sup>o</sup>	STATION	A	B	C	D	E	PILE DIA.
1	1234+36.50	582.16	582.31	582.45	582.37	582.23	16"
2	1235+46.50	582.80	582.94	583.09	583.00	582.86	16"
3	1236+56.50	583.33	583.47	583.61	583.53	583.39	16"
4	1237+66.50	583.85	584.00	584.14	584.06	583.92	16"
5	1238+76.50	584.28	584.42	584.57	584.48	584.34	16"
6 - BACK	1239+66.50 (PIER)	585.52	585.66	585.81	585.73	585.58	18"
6 - AHEAD		585.54	585.68	585.83	585.74	585.60	
7	1240+56.50	585.64	585.79	585.93	585.85	585.71	18"
8	1241+66.50	587.23	587.37	587.52	587.44	587.29	18"
9	1242+76.50	589.21	589.35	589.50	589.41	589.27	18"

PROTECTION OF PILES

In lieu of painting the piles as per 507.11 an epoxy coating shall be applied. The coating shall be a moist insensitive 100% solids epoxy resin with a special blend of fillers made expressly for piling and pier protection. It shall be applied approximately 3/16" thick to surfaces prepared according to the epoxy manufacturer's instructions. The epoxy coating shall extend from the bottom of the pier caps down to 4' below the flowline or ground line. The portion of the piles encased in the pier caps need not be coated. The portion of the pile to be coated below the flowline or ground line shall be coated before that portion of the pile is driven.  
Cost of the epoxy coating shall be included with the piles for payment.

NOTES:

- REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT SHALL BE ACCURATELY PLACED TO AVOID INTERFERENCE WITH THE DRILLING OF BEARING ANCHOR HOLES OR THE PRESETTING OF BEARING ANCHORS.
- AT THE OPTION OF THE CONTRACTOR, BEARING ANCHORS (OR FORMED HOLES), LOCATED AND SUPPORTED BY TEMPLATES, MAY BE CAST IN PLACE.
- \* INDICATES PIER N<sup>o</sup> 6 ONLY.
- INDICATES DIRECTION OF 4 IN 1 BATTER.
- THE PREFIX "1P", "2P" THRU "9P" SHALL BE ADDED TO ALL REINFORCING BAR MARKS AND PILES IN PIER N<sup>o</sup>s. 1, 2 THRU 9 RESPECTIVELY.
- ABBREVIATIONS USED:  
E.F. = EACH FACE  
EQ. SP. = EQUAL SPACES  
TYP. = TYPICAL  
ELEV. = ELEVATION  
EA. = EACH  
RAD. = RADIUS  
BRG. = BEARING
- FOR REINFORCING STEEL LIST AND BAR BENDING DIAGRAMS SEE SHEETS 36/43, 37/43 & 38/43.
- PILE SPACING MEASURED AT BOTTOM OF CONCRETE CAPBEAM.

ALTERNATE - 1 12/43

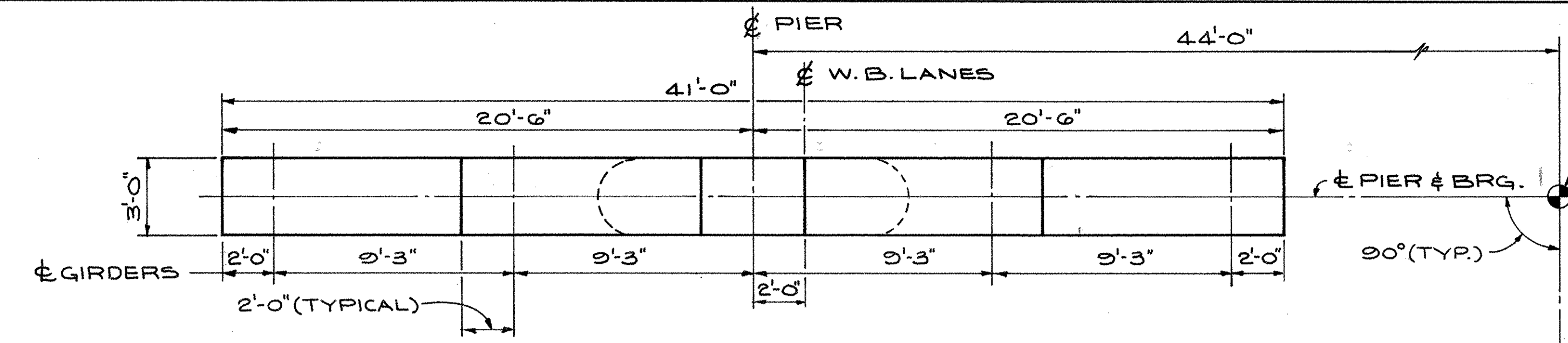
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**PIER N<sup>o</sup>s. 1 THRU 9**  
BRIDGE N<sup>o</sup> ERI-2-1911 L/R  
S.R. 2 OVER HURON RIVER  
N. & W. R.R. & RIVER ROAD

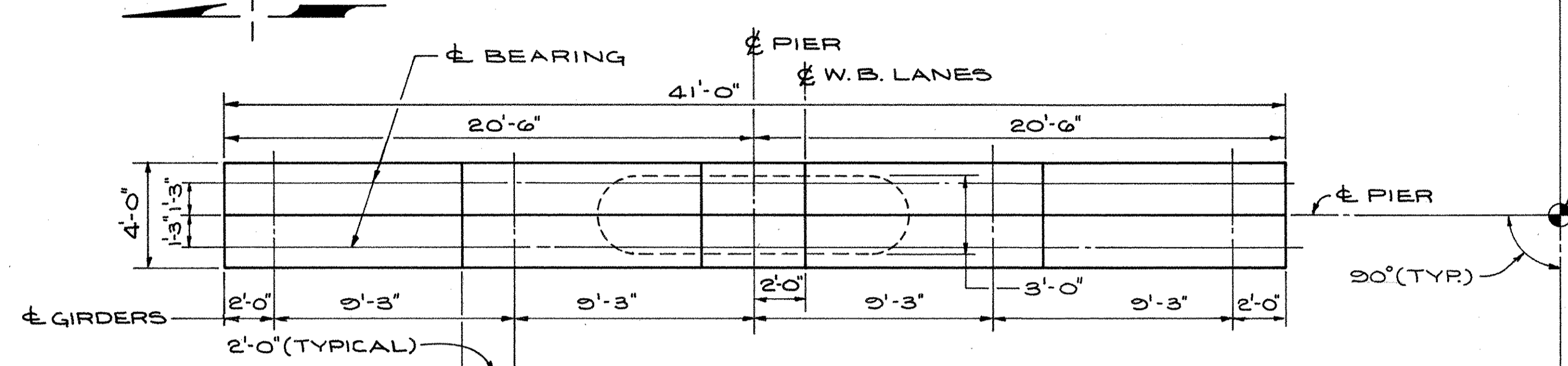
ERIE COUNTY  
ERI-2-18.38

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	J.D.P.	K.L.M.	I.M.B.	L.E.D. 11/4/85	

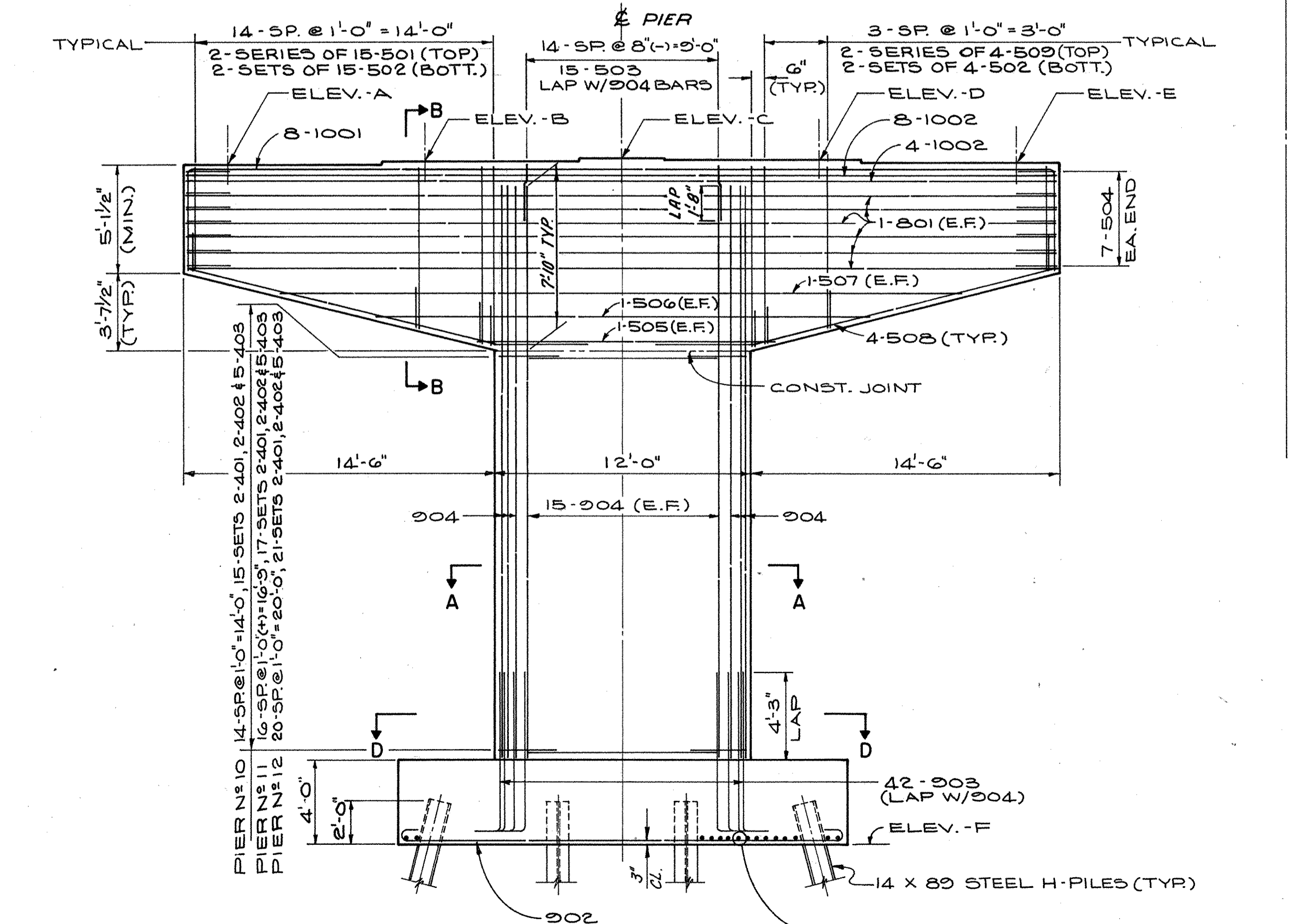
ERIE COUNTY  
 ERI-2-18.38



PLAN  
 PIERS NO 10 & 11



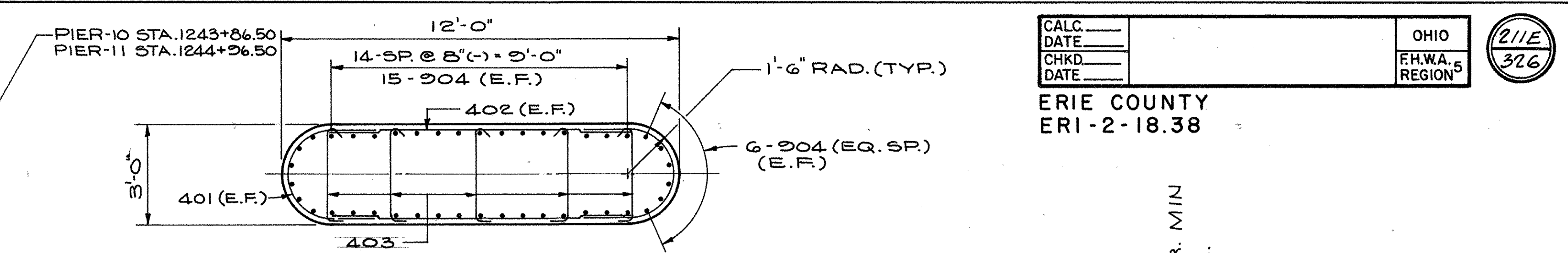
PLAN  
 PIER NO 12



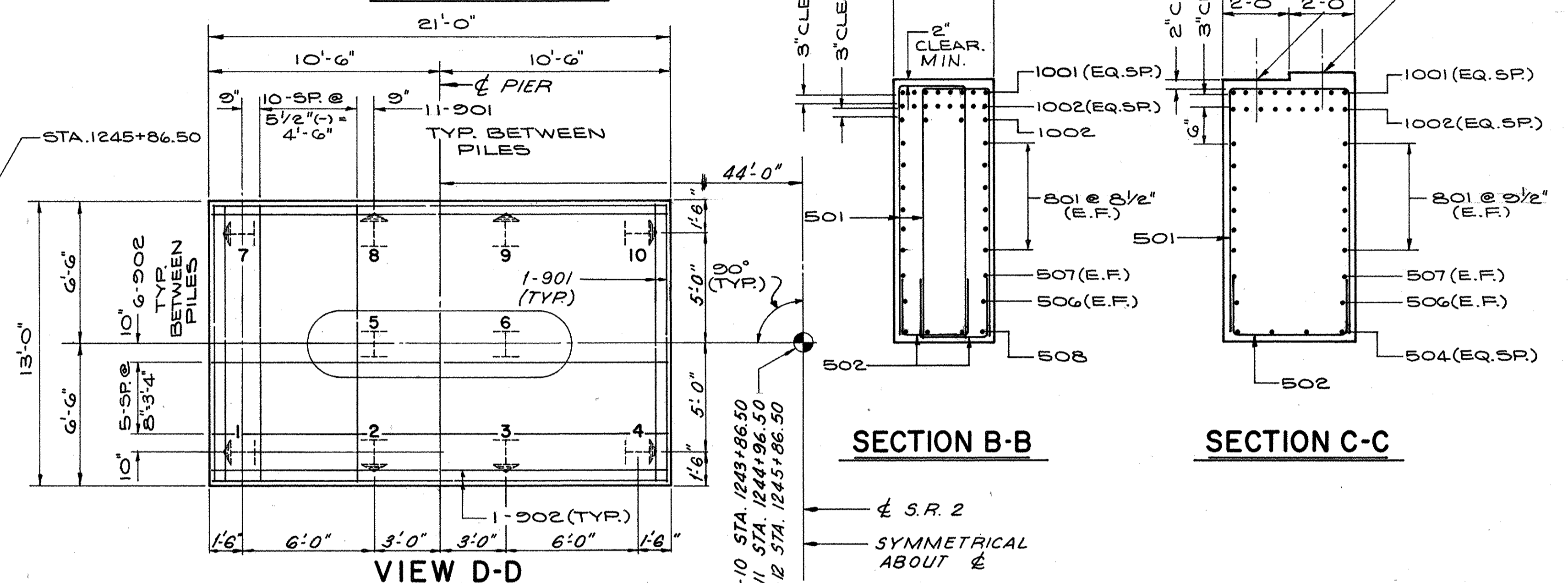
ELEVATION  
 PIER NO 10 & 11

NOTE:  
 WESTBOUND STRUCTURE SHOWN, EASTBOUND STRUCTURE SIMILAR EXCEPT OPPOSITE HAND.

PIER NO 12 SIMILAR EXCEPT CAP DETAIL. SEE ELEV. E

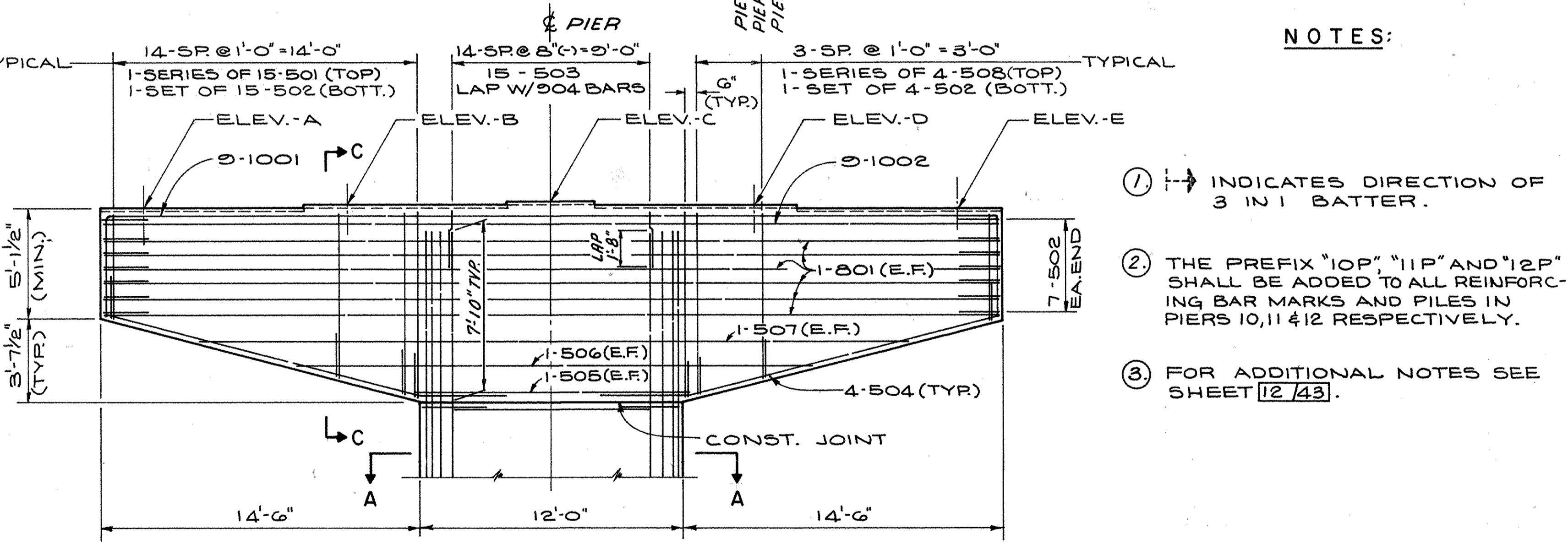


SECTION A-A



SECTION B-B

SECTION C-C



ELEVATION-E  
 PIER NO 12 ONLY

TABLE OF ELEVATIONS

PIER NO	A		B		C		D		E		F
	W.B.	E.B.	W.B.	E.B.	W.B.	E.B.	W.B.	E.B.	W.B.	E.B.	
10	521.68	521.74	521.83	521.89	521.97	521.97	521.89	521.83	521.74	521.68	564.50
11	524.55	524.61	524.69	524.75	524.84	524.84	524.75	524.69	524.61	524.55	564.50
12 - BACK	527.82	527.95	528.03	528.09	528.17	528.17	528.09	528.03	527.95	527.82	564.50
12 - AHEAD	527.74	527.77	527.88	527.92	528.03	528.06	527.95	527.98	527.80	527.84	564.50

NOTES:

- ① → INDICATES DIRECTION OF 3 IN 1 BATTER.
- ② THE PREFIX "10P", "11P" AND "12P" SHALL BE ADDED TO ALL REINFORCING BAR MARKS AND PILES IN PIERS 10, 11 & 12 RESPECTIVELY.
- ③ FOR ADDITIONAL NOTES SEE SHEET 12/43.

ALTERNATE - 1

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PIER NO'S. 10, 11 & 12  
 BRIDGE NO ERI-2-1911 L/R  
 S.R. 2 OVER HURON RIVER  
 N. & W. R.R. & RIVER ROAD

ERIE COUNTY STA. 1233+43.75 TO  
 ERI-2-18.38 STA. 1259+37.37

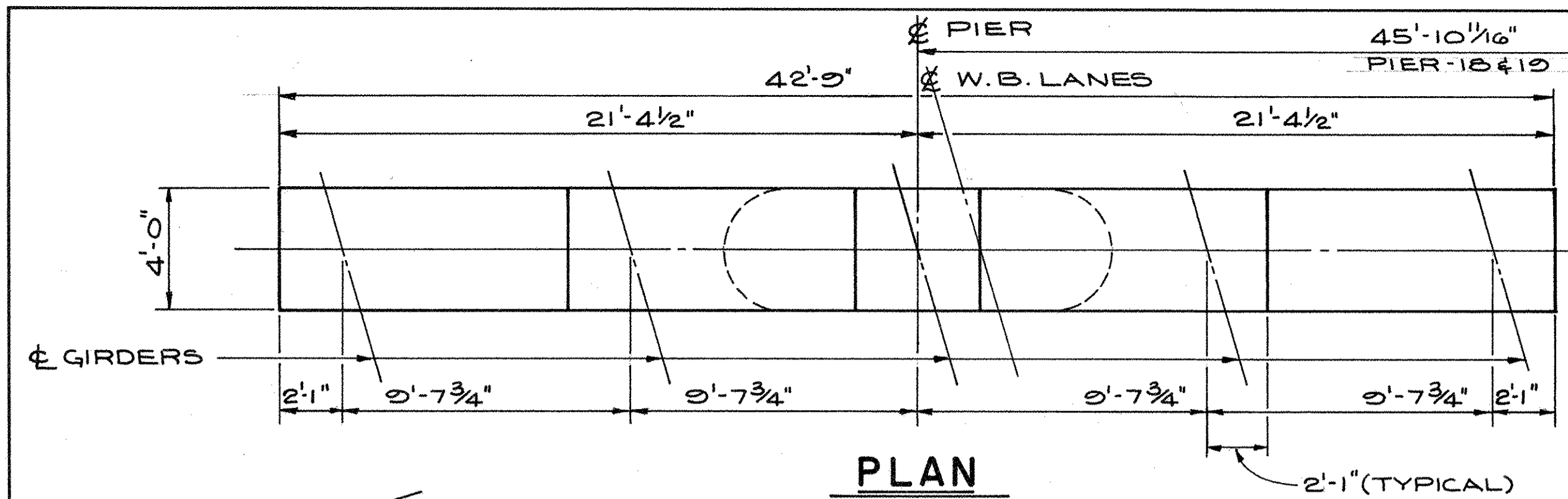
DESIGNED: I.M.B. DRAWN: J.D.P. CHECKED: I.M.B. REVIEWED: L.E.D. DATE: 11/4/85



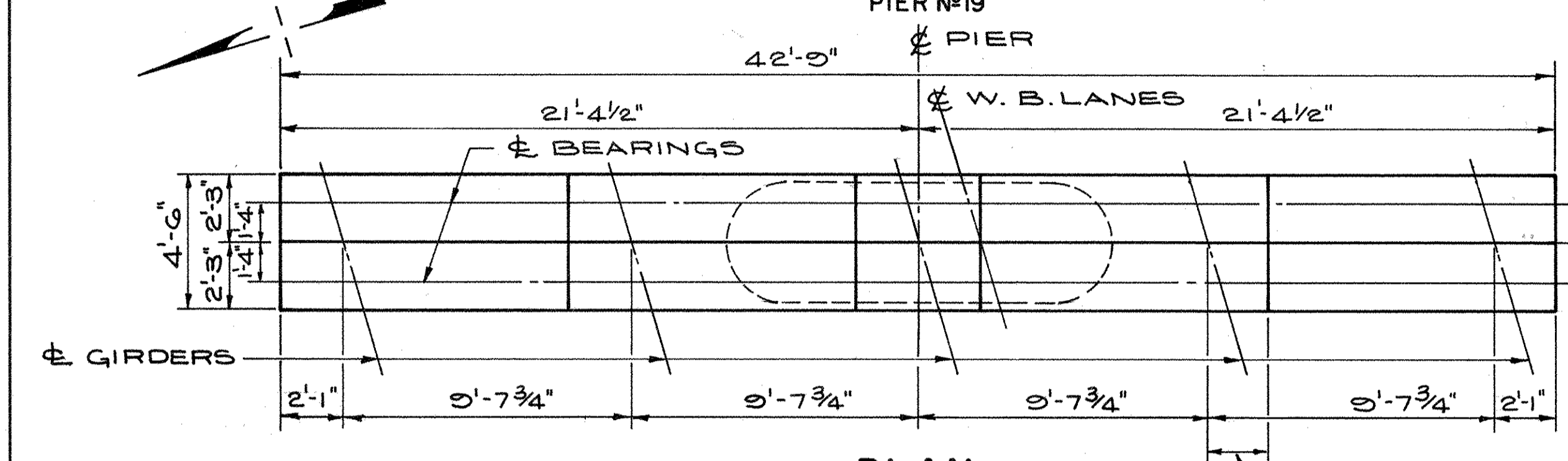




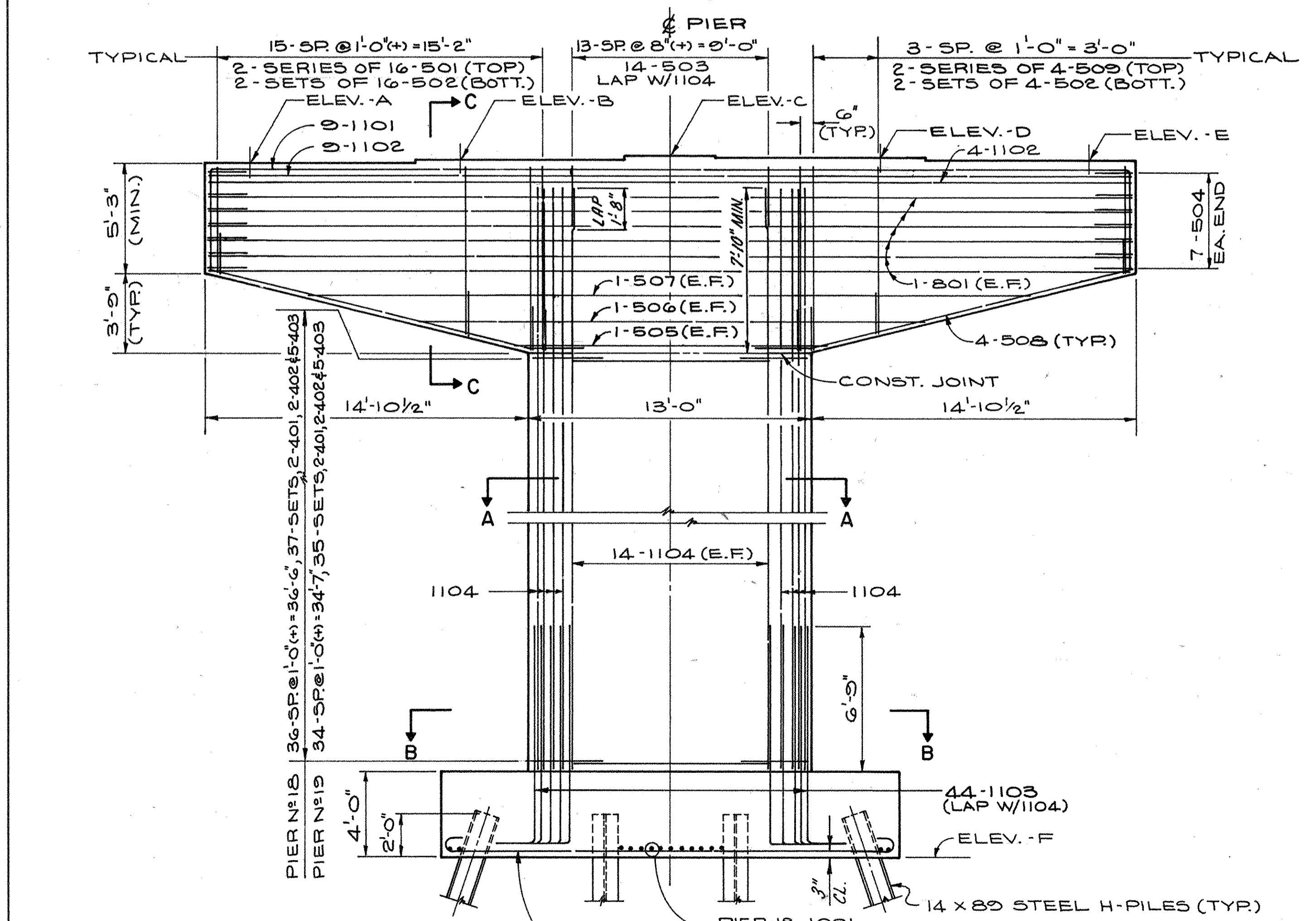
ERIE COUNTY  
ERI-2-18.38



PLAN  
PIER #19



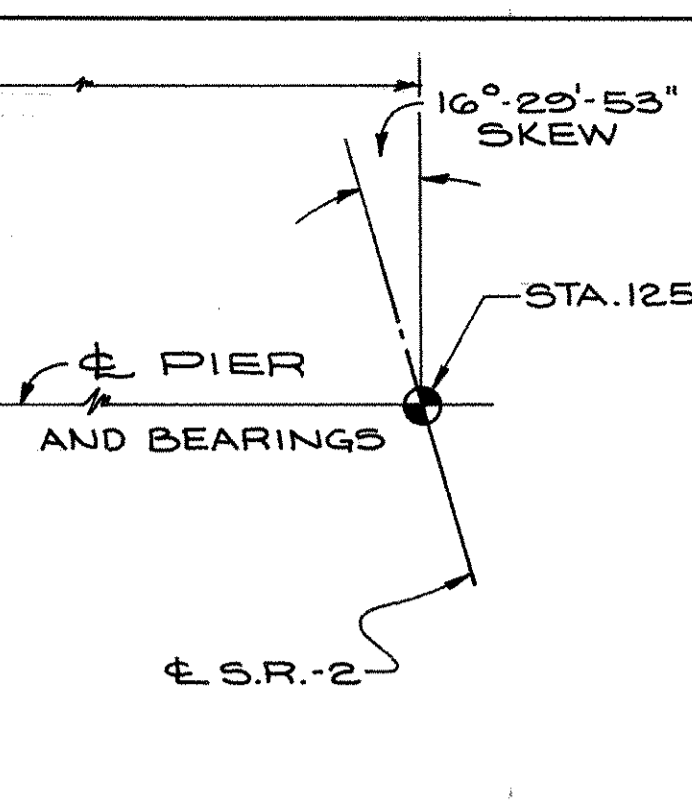
PLAN  
PIER #18



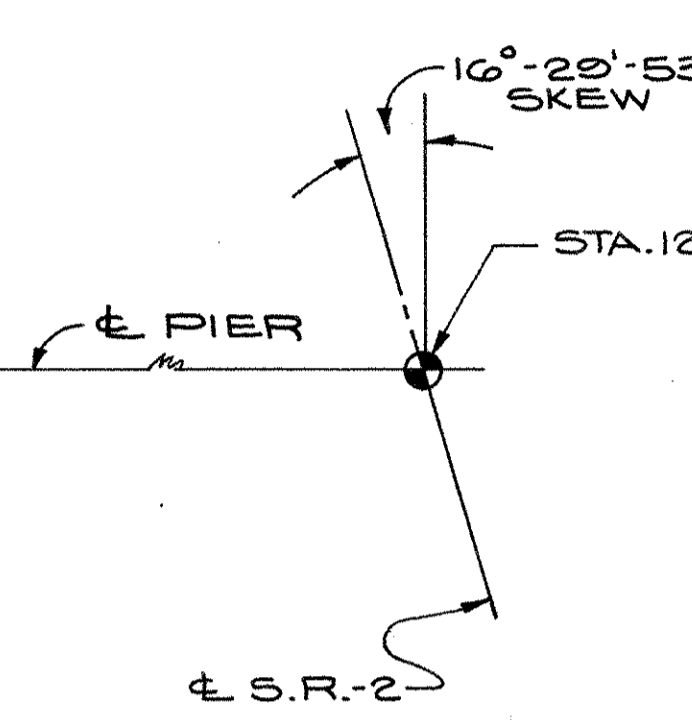
ELEVATION-E  
PIER #18

NOTE: WESTBOUND STRUCTURE SHOWN, EASTBOUND STRUCTURE SIMILAR.

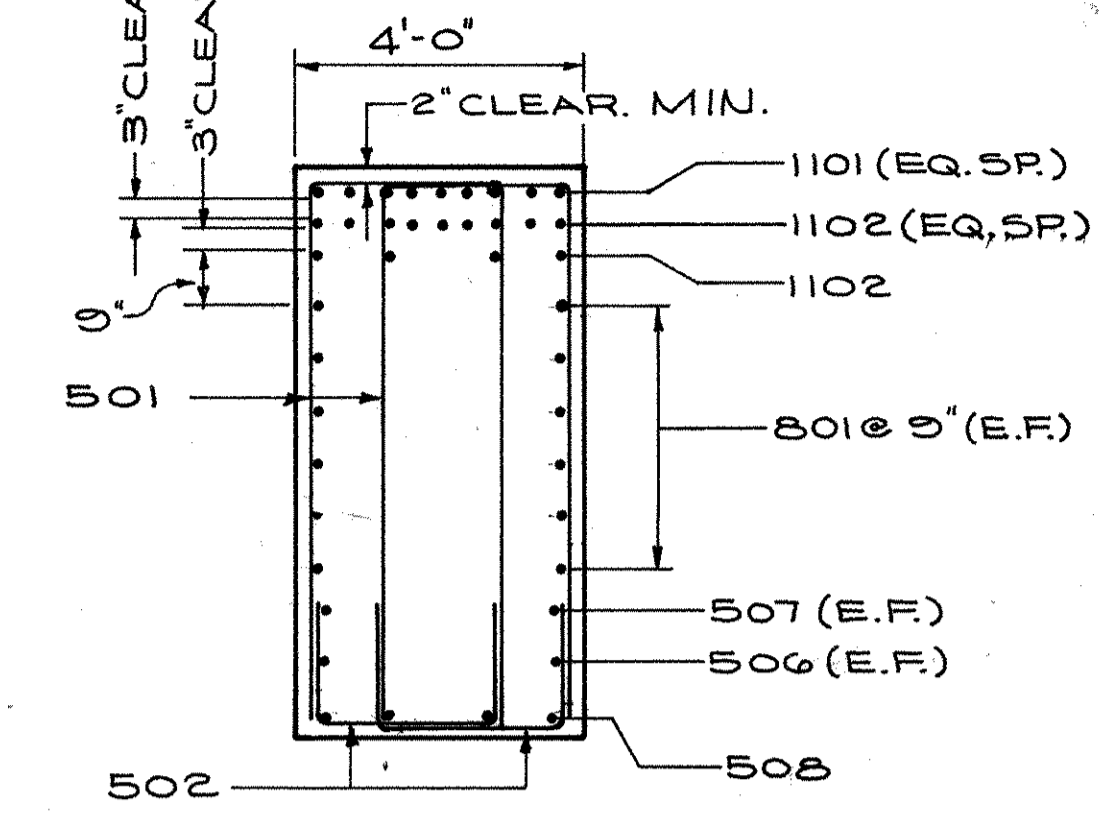
PIER #18, 1002  
PIER #19, 1106  
PIER #18, 1001  
PIER #19, 1105  
PIER #18 SIMILAR EXCEPT CAP DETAIL, SEE ELEV. "E"



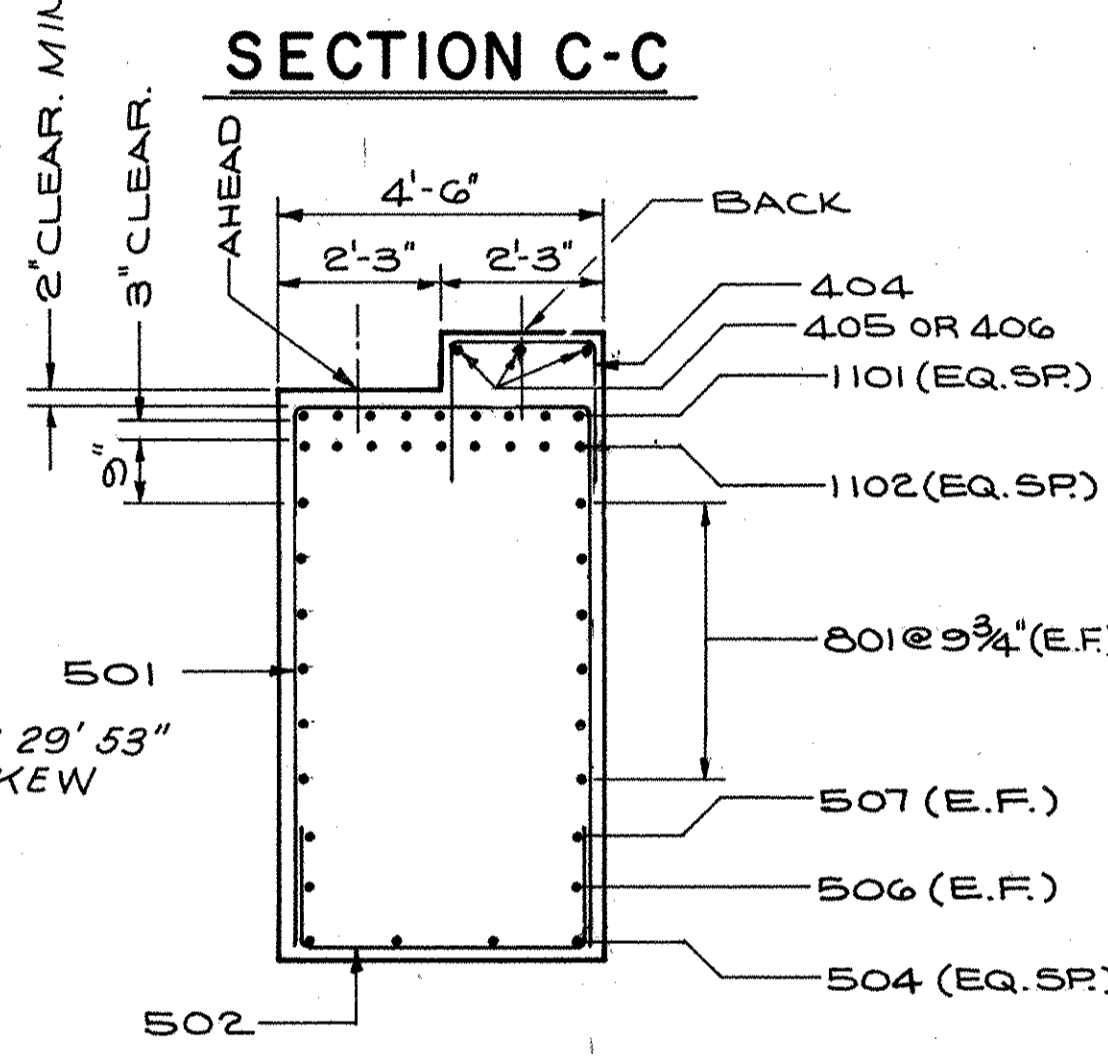
SECTION A-A



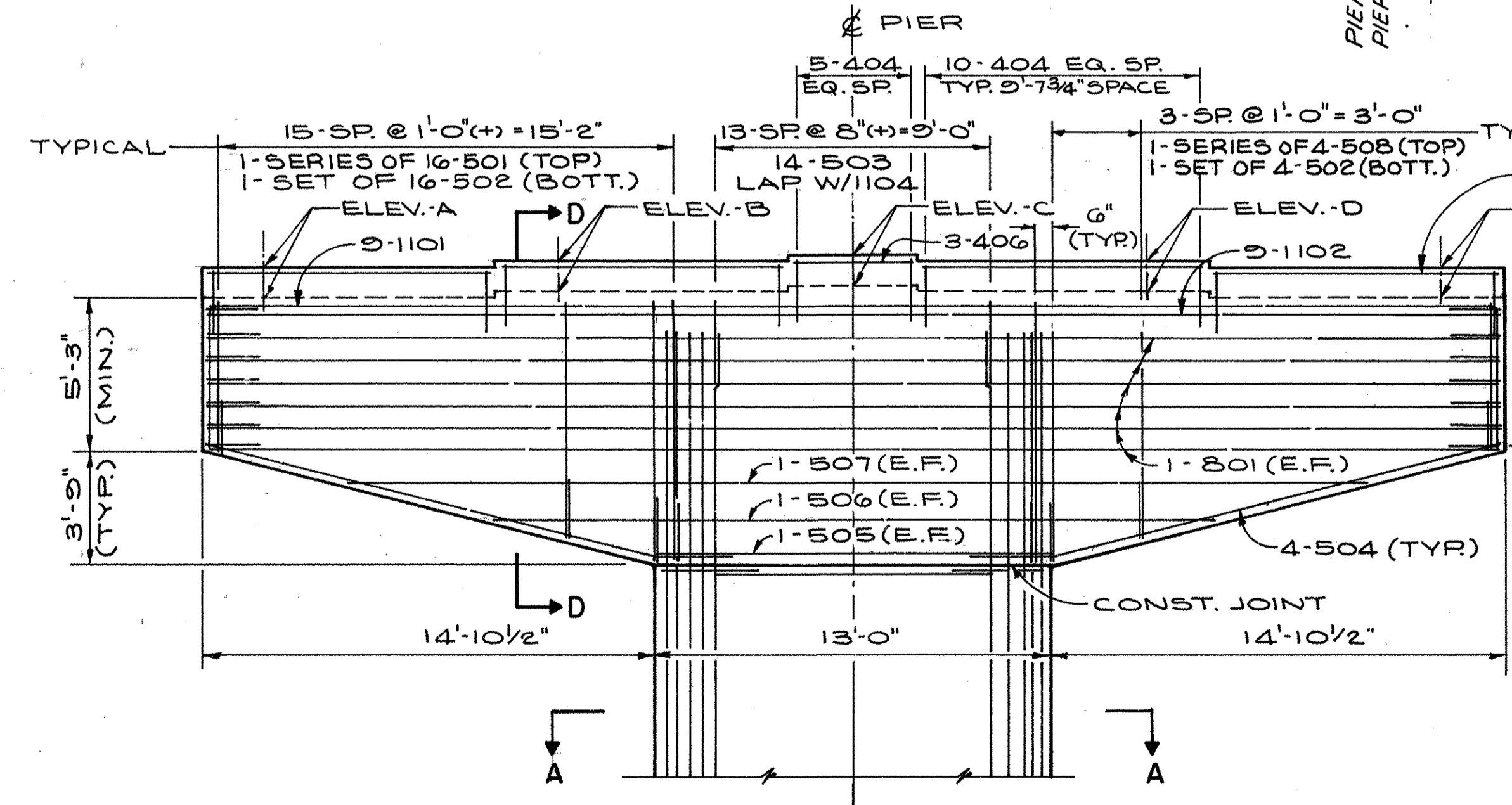
SECTION B-B



SECTION C-C



SECTION D-D



ELEVATION-E  
PIER #19 ONLY

- NOTES:
- THE PREFIX "18P" & "19P" SHALL BE ADDED TO ALL REINFORCING BAR MARKS AND PILES IN PIERS 18 AND 19 RESPECTIVELY.
  - INDICATES DIRECTION OF 3 IN 1 BATTER.
  - FOR ADDITIONAL NOTES SEE SHEET 12/43.

PIER #	A		B		C		D		E		F
	W.B.	E.B.	W.B.	E.B.	W.B.	E.B.	W.B.	E.B.	W.B.	E.B.	
18 - BACK	616.71	616.22	616.80	616.42	616.90	616.61	616.78	616.59	616.59	616.49	
18 - AHEAD	615.93	615.22	616.02	615.42	616.12	615.62	615.98	615.59	615.79	615.50	565.5
19	617.07	616.48	617.17	616.67	617.27	616.86	617.15	616.82	616.96	616.72	568.5

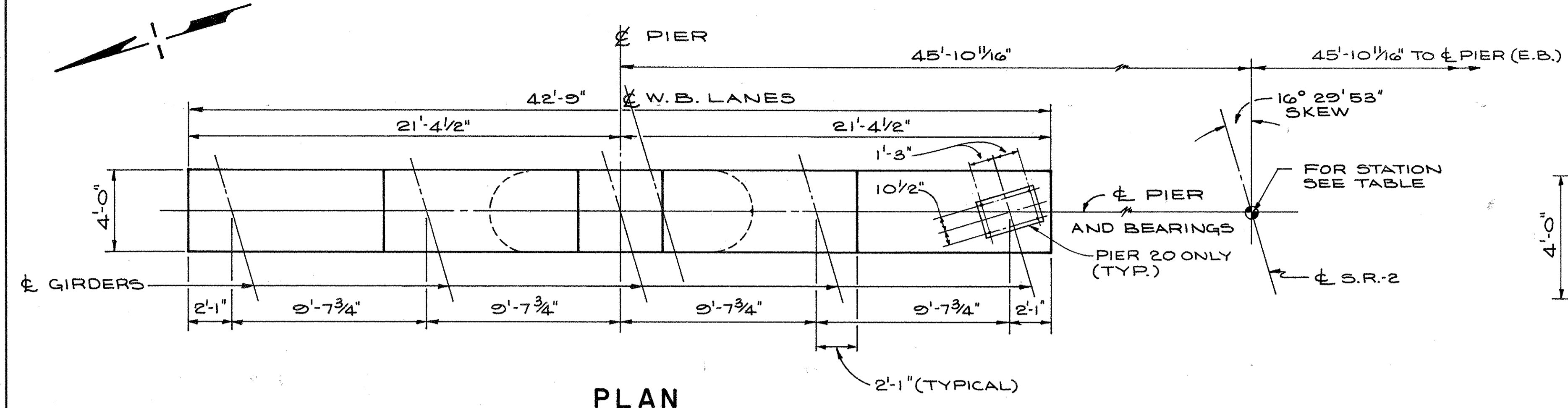
ALTERNATE - I 16/43

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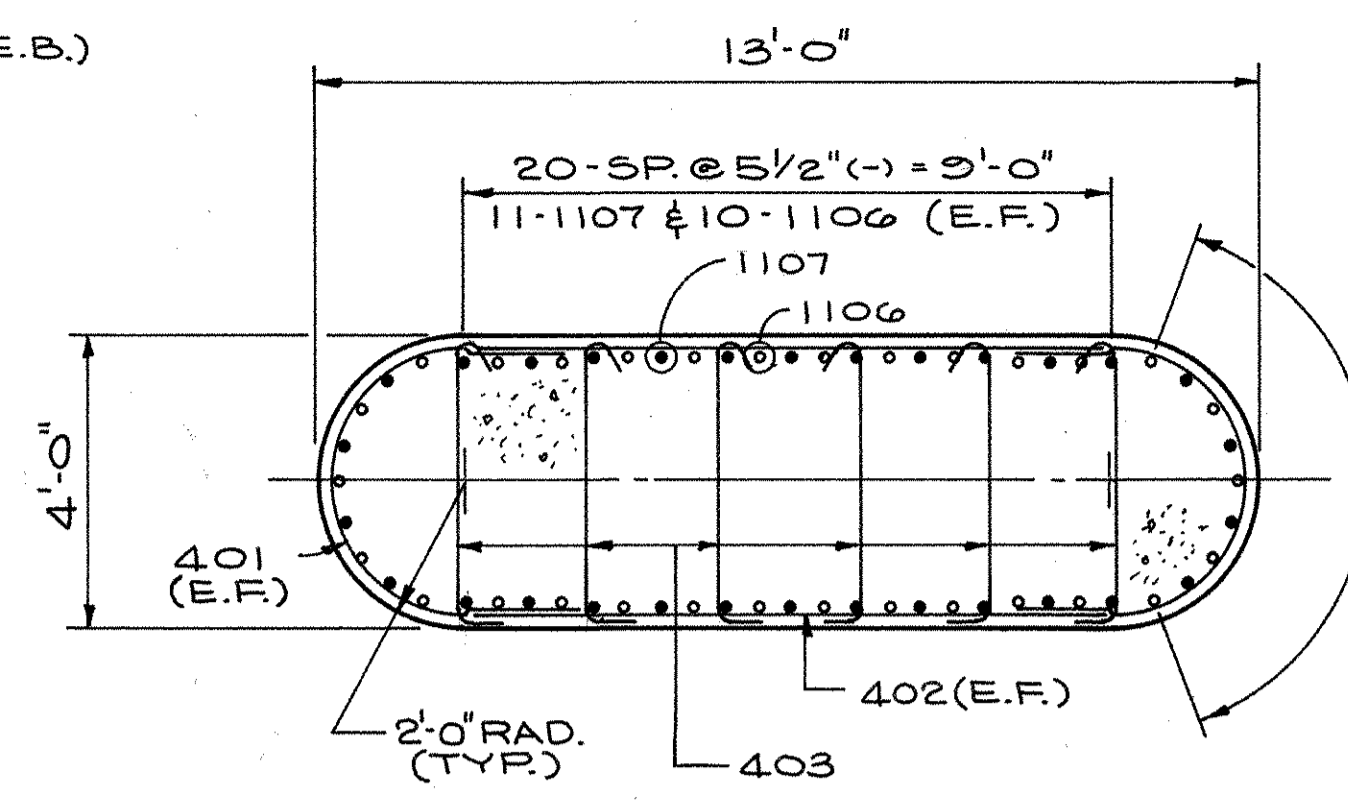
**PIER #S. 18 & 19**  
BRIDGE # ERI-2-1911 L/R  
S.R. 2 OVER HURON RIVER  
N. & W. R. R. & RIVER ROAD

ERIE COUNTY STA. 1233+43.75 TO  
ERI-2-18.38 STA. 1259+37.37

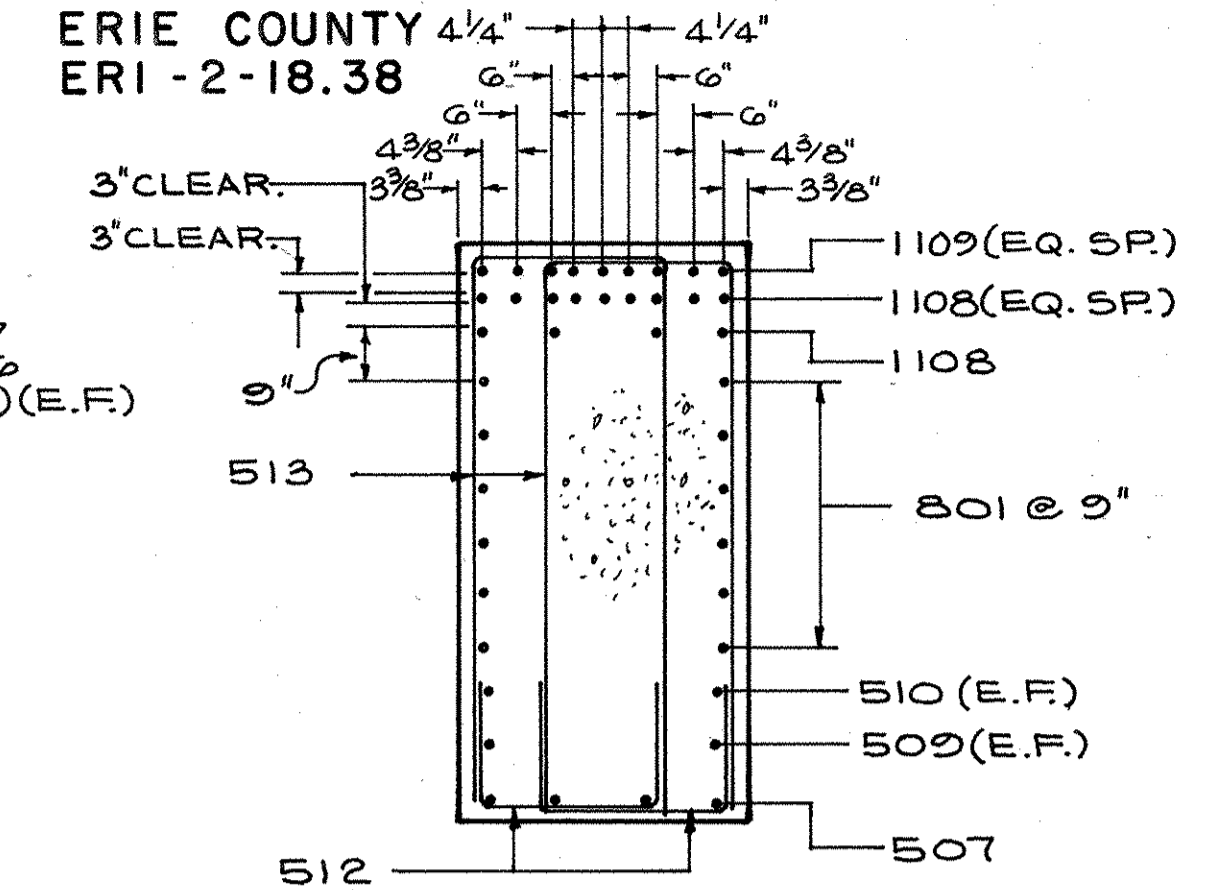
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	J.D.P.	K.L.M.	I.M.B.	L.E.D.	11/4/85



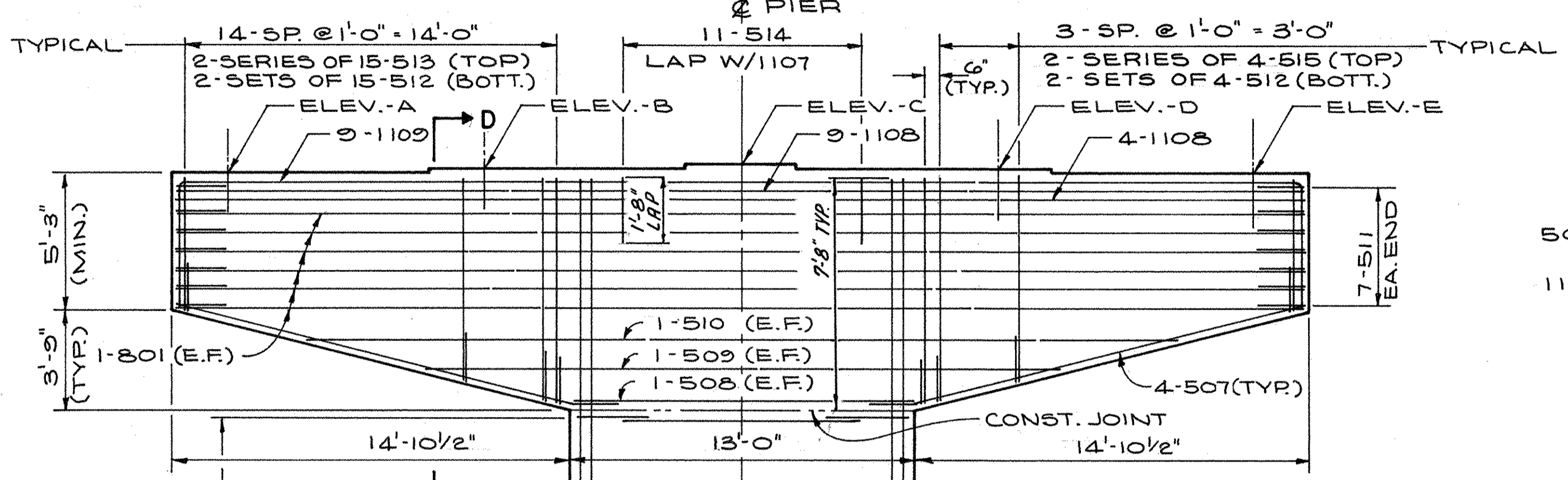
PLAN



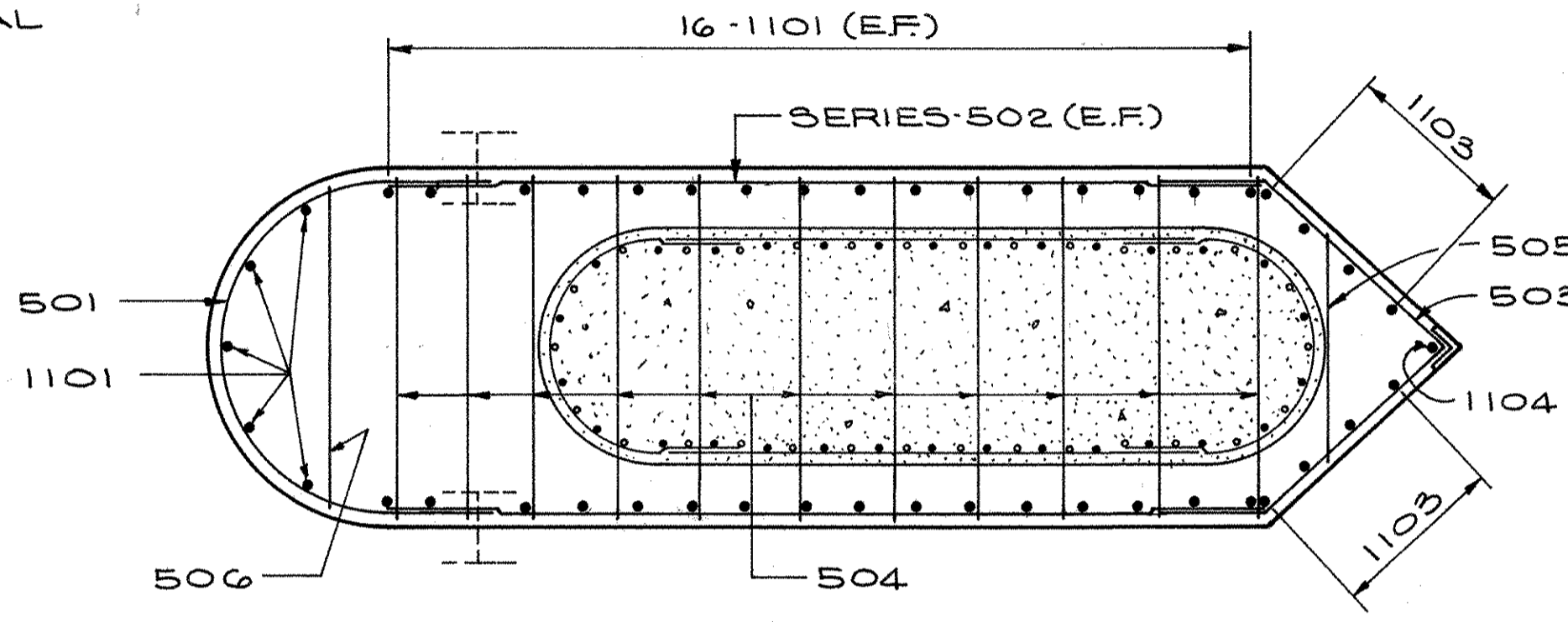
SECTION A-A



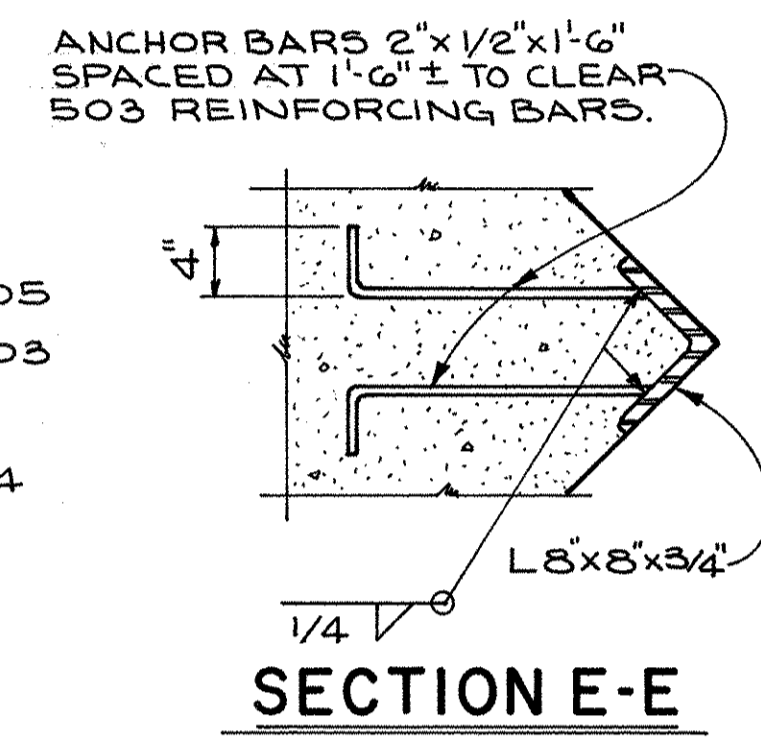
SECTION D-D



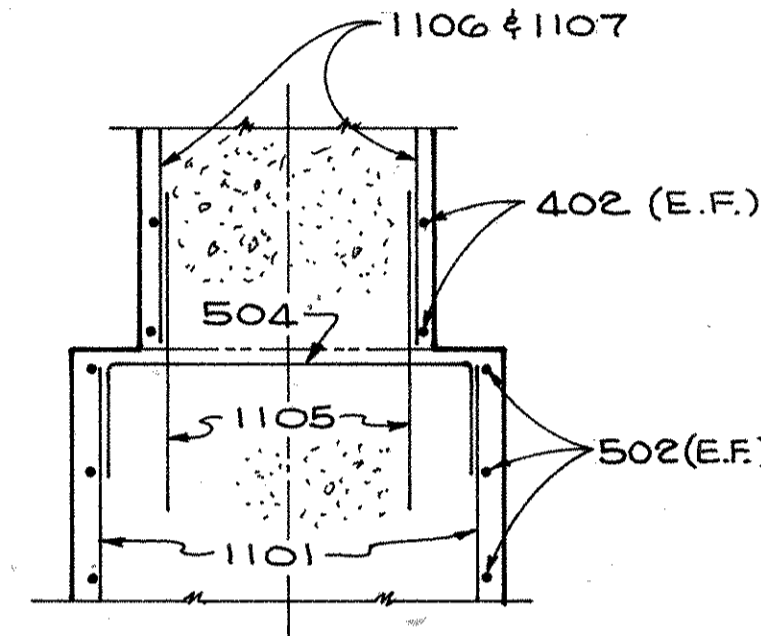
ELEVATION



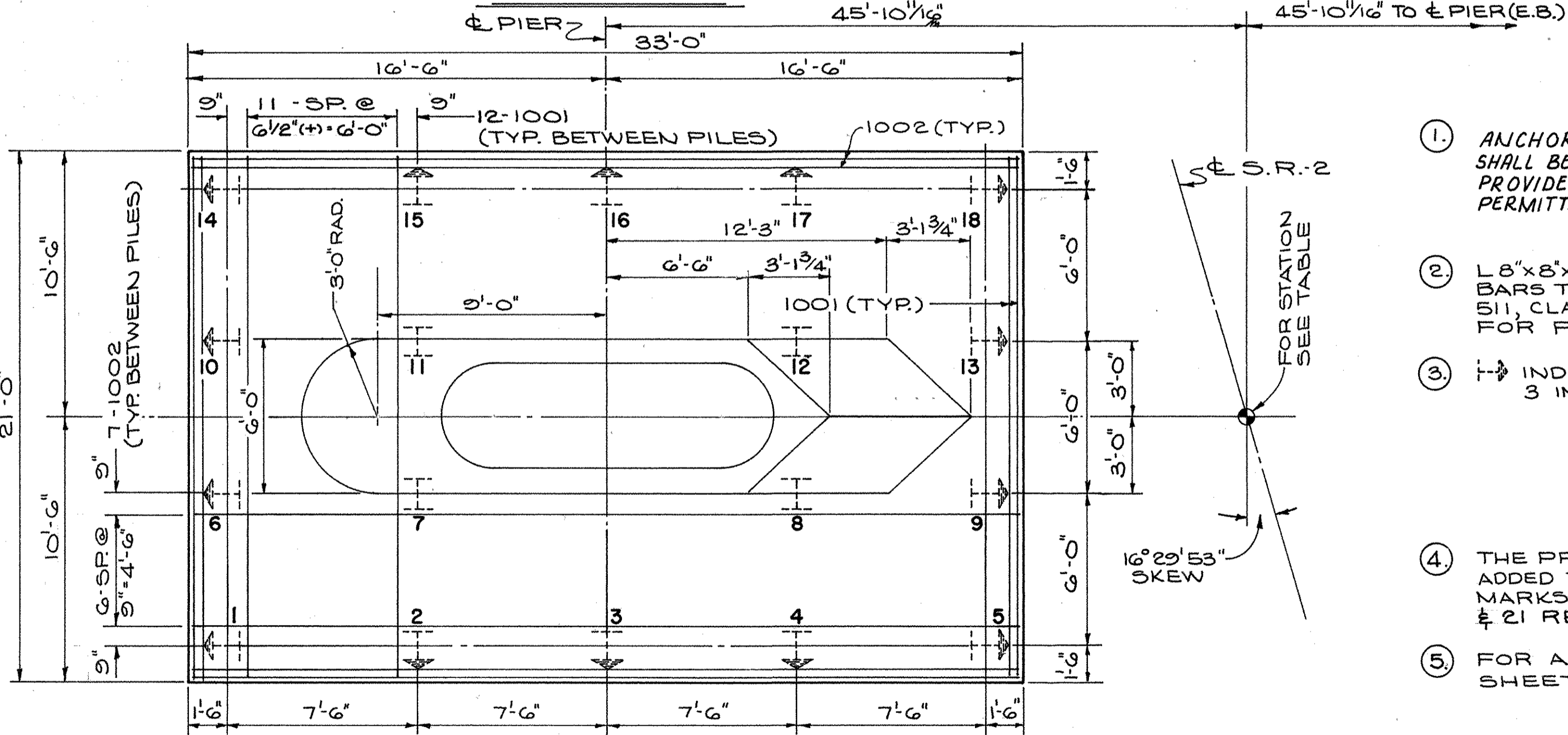
SECTION B-B



SECTION E-E



SECTION F-F



SECTION C-C

- NOTES:
- ANCHOR BOLTS: THE ANCHOR BOLTS SHALL BE PRE SET OR FORMED HOLES PROVIDED. DRILLING SHALL NOT BE PERMITTED
  - L8 x 8 x 3/4" AND 2" x 1/2" ANCHOR BARS TO BE INCLUDED WITH ITEM 511, CLASS-C CONCRETE PIER WALLS, FOR PAYMENT.
  - ↗ INDICATES DIRECTION OF 3 IN 1 BATTER.
  - THE PREFIX "20P" & "21 P" SHALL BE ADDED TO ALL REINFORCING BAR MARKS AND PILES IN PIERS 20 & 21 RESPECTIVELY.
  - FOR ADDITIONAL NOTES SEE SHEET 12/43.

TABLE OF ELEVATIONS

PIER No	STATION	A		B		C		D		E		F
		GIR-1	GIR-6	GIR-2	GIR-7	GIR-3	GIR-8	GIR-4	GIR-9	GIR-5	GIR-10	
20	1255+56.50	618.98	618.75	619.09	618.86	619.21	618.90	619.09	618.73	618.92	618.55	555.00
21	1257+06.50	620.43	620.31	620.56	620.43	620.68	620.49	620.58	620.33	620.42	620.16	555.00

FOR GIRDER NUMBERS SEE SHEET 22/43.

PIER N#20, 28-SP @ 1'-0" = 28'-0", 29-SETS, 2-401, 2-402 & 6-403  
 PIER N#21, 30-SP @ 1'-0" = 30'-0", 31-SETS, 2-401, 2-402 & 6-403

NOTE: WESTBOUND STRUCTURE SHOWN, EASTBOUND STRUCTURE SIMILAR.

ALTERNATE-1 17/43

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 CONSULTING ENGINEERS CLEVELAND, OHIO 44131

PIER No'S. 20 & 21  
 BRIDGE No ERI - 2 - 1911 L/R  
 S.R. 2 OVER HURON RIVER  
 N. & W. R. R. & RIVER ROAD

ERIE COUNTY STA. 1233+43.75 TO  
 ERI - 2 - 18.38 STA. 1259+37.37

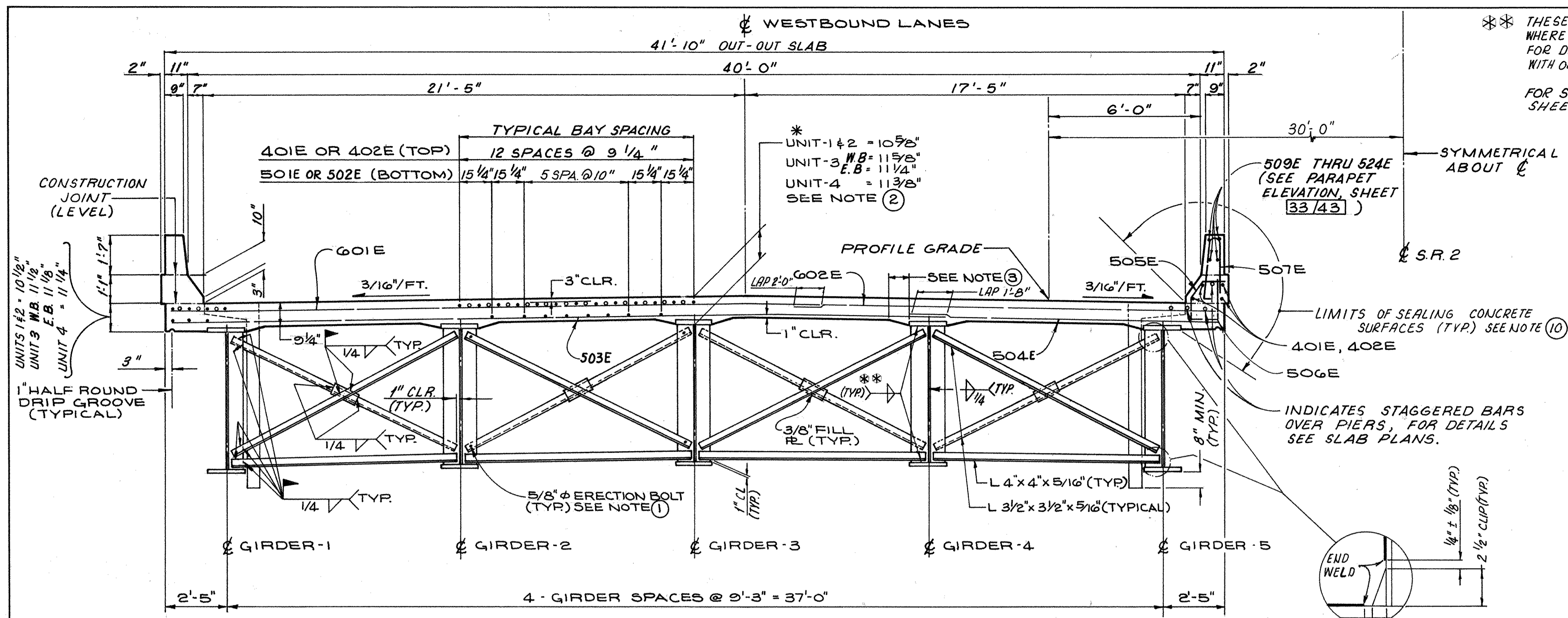
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	J.D.P.	K.L.M.	I.M.B.	L.E.D. 11/4/85	

FHWA REGION	STATE	PROJECT
5	OHIO	

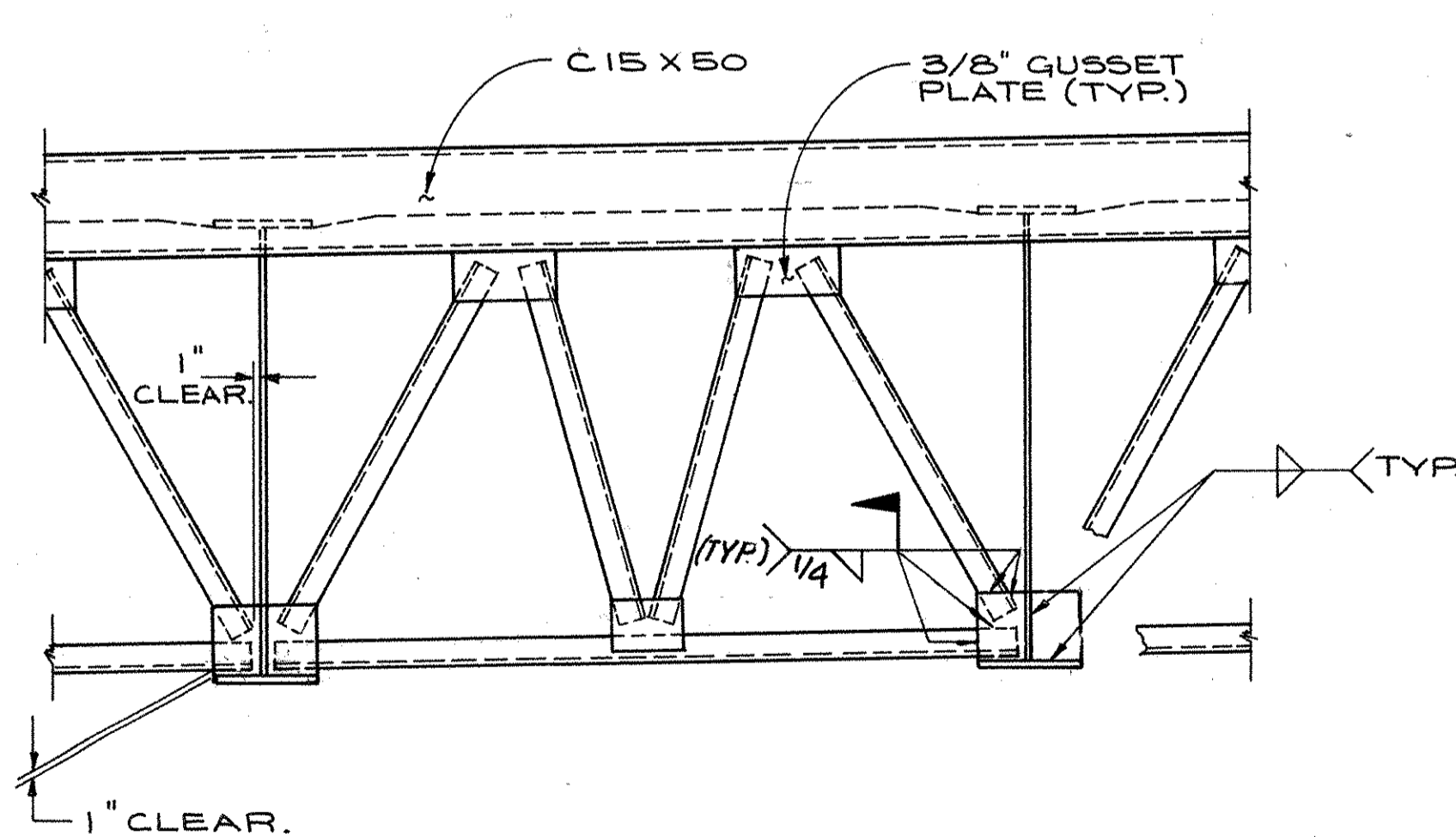
211K  
326

ERIE COUNTY  
ERI-2-18.38

\*\* THESE WELDS APPLY ONLY AT STIFFENERS WHERE CROSSFRAMES ARE ATTACHED. FOR DETAILS OF WELDMENT OF STIFFENERS WITH OUT CROSSFRAMES, SEE DETAIL 'A' BELOW.  
FOR SIZE OF WELD SEE FILLET WELD SIZE TABLE SHEET 19/43

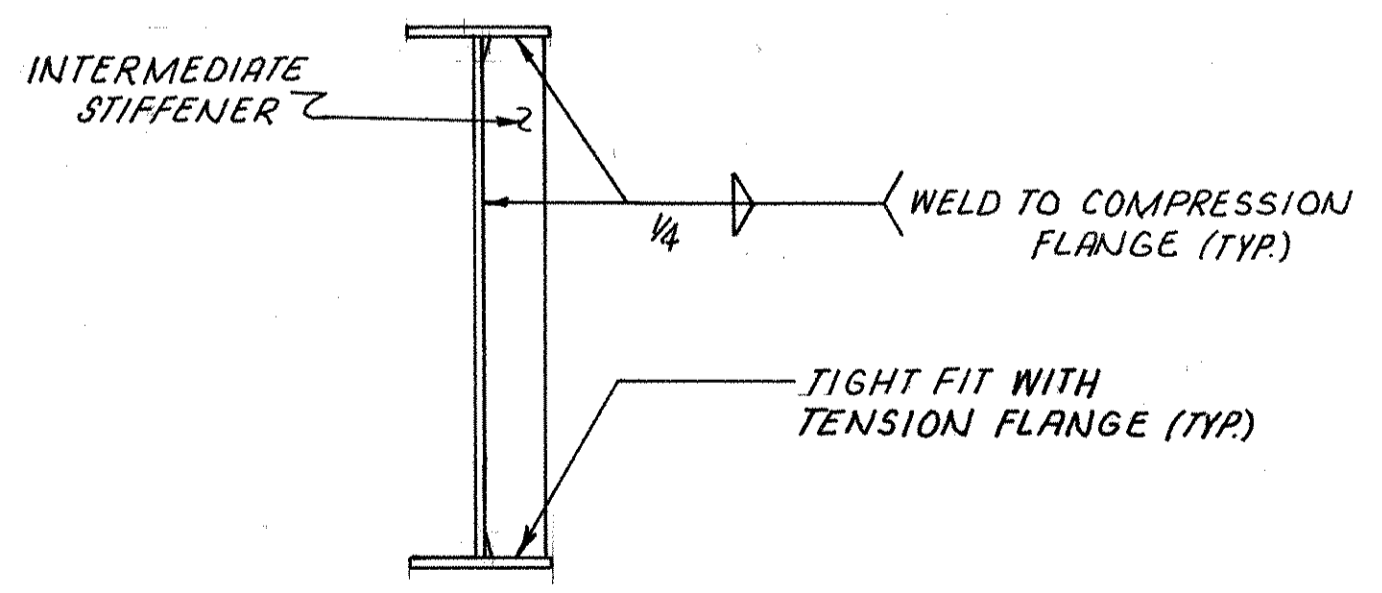


**TRANSVERSE SECTION**



**TYPICAL END CROSSFRAME**

FOR ADDITIONAL DETAILS, SEE STANDARD DRAWING SD-1-69, SHEET 1 OF 4 AND EXPANSION JOINT DETAILS, SHEETS 34/43 35/43



**DETAIL 'A'**

(APPLIES TO INTERMEDIATE STIFFENERS TO WHICH CROSSFRAMES ARE NOT ATTACHED)

10. ITEM SPECIAL, SEALING OF CONCRETE SURFACES: A CONCRETE SEALER, EITHER SILANE OR AN EPOXY SEALER, SHALL BE APPLIED TO THE CONCRETE SURFACES SHOWN ON THE TRANSVERSE SECTION. SEE THE PROPOSAL FOR SURFACE PREPARATION REQUIREMENTS, APPLICATION RATES, MATERIAL REQUIREMENTS AND APPLICATION PROCEDURE.

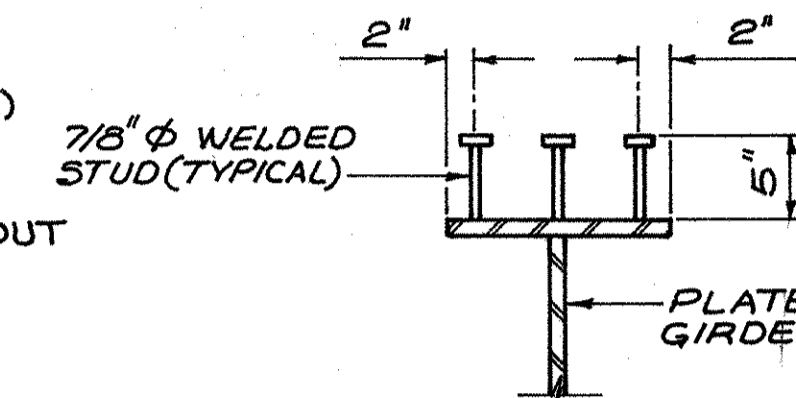
1. HOLES FOR 5/8"  $\phi$  ERECTION BOLTS SHALL BE PROVIDED IN THE CONNECTIONS OF CROSS FRAMES TO GIRDER STIFFENERS. PROVIDE 1/16"  $\phi$  HOLES IN CROSS FRAME ANGLES AND 13/16"  $\phi$  HOLES IN STIFFENERS. UNLESS REPLACED BY PERMANENT HIGH STRENGTH BOLTS, ERECTION BOLTS SHALL REMAIN IN PLACE. LOCK WASHERS SHALL BE FURNISHED FOR OTHER THAN FULLY TORQUED HIGH STRENGTH ERECTION BOLTS. BOLTS SHALL BE FURNISHED AS PART OF 513.
- IN LIEU OF ERECTION BOLTS AND AT THE OPTION OF THE CONTRACTOR, ALTERNATIVE MEANS OF TEMPORARY BRACING MAY BE USED SUBJECT TO THE APPROVAL OF THE DIRECTOR.
2. \* THIS IS THE DESIGN DIMENSION: THE QUANTITY OF DECK CONCRETE TO BE PAID FOR SHALL BE BASED UPON THIS DIMENSION, EVEN THOUGH DEVIATION FROM IT MAY BE NECESSARY BECAUSE THE TOP FLANGE OF THE GIRDER MAY NOT HAVE THE EXACT CAMBER OR CONFORMATION REQUIRED TO PLACE IT PARALLEL TO THE FINISHED GRADE. DEDUCTION SHALL BE MADE FOR VOLUME OF ENCASED STEEL PLATES AS PER S11.18.
3. A HAUNCH WIDTH OF 9" SHALL BE USED FOR COMPUTING QUANTITY OF CONCRETE HOWEVER, THE HAUNCH WIDTH MAY VARY BETWEEN 6" AND 12", PROVIDED THAT THE SLOPE SHALL BE NOT MORE THAN 1:4 FOR A HAUNCH LESS THAN 9" WIDTH.
4. BAR MARKS FOR REINFORCING BARS WHICH ARE TO BE EPOXY-COATED INCLUDE A LETTER SUFFIX 'E'.
5. FOR SCUPPER LOCATIONS, SEE SLAB PLANS.
6. FOR FRAMING PLANS, SEE SHEETS 19/43, 20/43 AND 22/43
7. FOR SLAB PLANS, SEE SHEETS 29/43, 30/43 AND 31/43.
8. SCUPPERS SHALL BE IN ACCORDANCE WITH STANDARD DRAWING SD-1-69 EXCEPT THAT SCUPPER PIPES SHALL EXTEND 8" BELOW THE BOTTOM OF THE BEAMS INSTEAD OF 2". SCUPPERS SHALL BE LENGTHENED IN ACCORDANCE WITH DETAIL 'A', STANDARD DWG. SD-1-69.
9. WHERE NOT SPECIFIED, FILLET WELD SIZES SHALL BE AS LISTED ON SHEET 19/43.

ALTERNATE - 1

18/43

adache - ciuni - lynn associates CONSULTING ENGINEERS CLEVELAND, OHIO 44130			
<b>TRANSVERSE SECTION</b>			
BRIDGE N <sup>o</sup> ERI-2-1911 L/R			
S.R. 2 OVER HURON RIVER			
N. & W. R.R. & RIVER ROAD			
ERIE COUNTY		STA. 1233 +43.75 TO	
ERI-2-18.38		STA. 1259 +37.37	
DESIGNED	DRAWN	CHECKED	REVIEWED
K.L.M.	D.R.J.	K.L.M.	E.A.F.
		DATE	REVISD
		11/4/85	

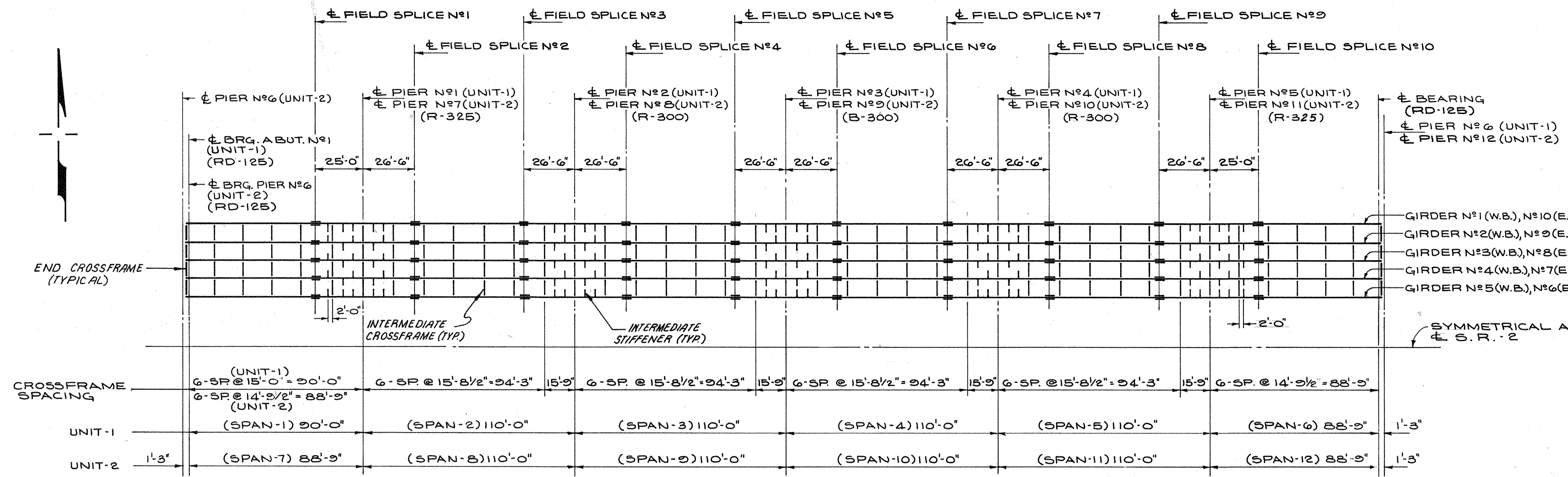
FILLET WELD SIZE	
THICKNESS OF THICKER PART JOINED	MINIMUM SIZE OF FILLET WELD
TO 3/4" INCLUSIVE	1/4"
OVER 3/4" TO 1 1/2"	5/16"
OVER 1 1/2" TO 2 1/4"	3/8"



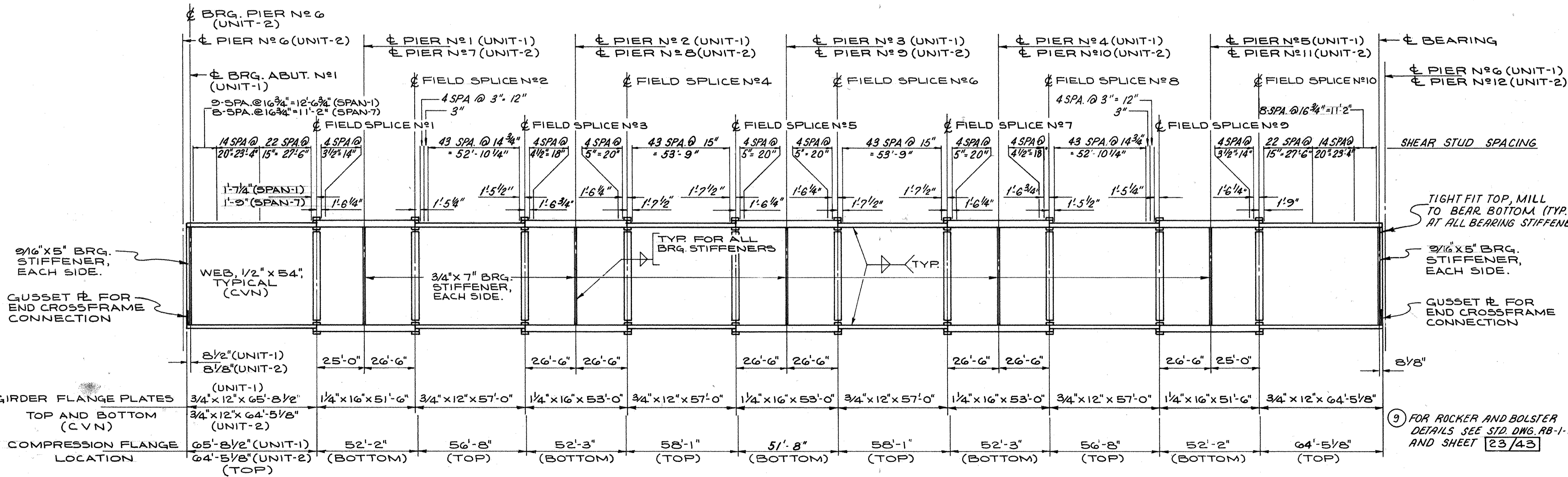
**SHEAR STUD DETAIL**

**NOTES:**

- FOR INTERMEDIATE CROSSFRAME DETAILS AND END CROSSFRAME DETAILS, SEE SHEET [18/43].
- ALL ROCKERS DESIGNATED "RD" SHALL CONFORM TO STD. DWG. RB-1-55 EXCEPT AS MODIFIED BY THE SPECIAL DOWEL DETAIL SHOWN ON SHEET [23/43].
- WHERE A SHAPE OR PLATE IS DESIGNATED (CVN) THE MATERIAL SHALL MEET SPECIFIED MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01 OF CMS.
- WELDED ATTACHMENTS OF SUPPORTS FOR CONCRETE DECK FINISHING MACHINE MAY BE MADE ONLY TO AREAS OF THE FASCIA GIRDER TOP FLANGES DESIGNATED "COMPRESSION". FILLET WELDS TO COMPRESSION FLANGES SHALL BE NOT CLOSER THAN 1" FROM EDGE OF FLANGE, BE NOT MORE THAN 2" LONG, AND BE NOT SMALLER THAN THE MINIMUM SIZE REQUIRED BY AASHTO AS SHOWN IN THE TABLE ABOVE.
- TRANSVERSE INTERMEDIATE STIFFENERS SHALL BE 3/8" X 5" PLATES. THEY SHALL BE PLACED AT ALL CROSSFRAME LOCATIONS AND AT ADDITIONAL LOCATIONS AS SHOWN ON THE FRAMING PLAN. WHERE DIMENSIONS ARE NOT GIVEN, STIFFENERS SHALL BE SPACED EQUALLY BETWEEN CROSSFRAMES.
- FOR EXPANSION JOINT DETAILS SEE SHEETS [34/43] & [35/43].
- FOR DEFLECTION AND CAMBER DIAGRAM, SEE SHEETS [24/43] & [25/43].
- FOR GIRDER SPLICE DETAILS, SEE SHEET [23/43].



**FRAMING PLAN**



**GIRDER ELEVATION**

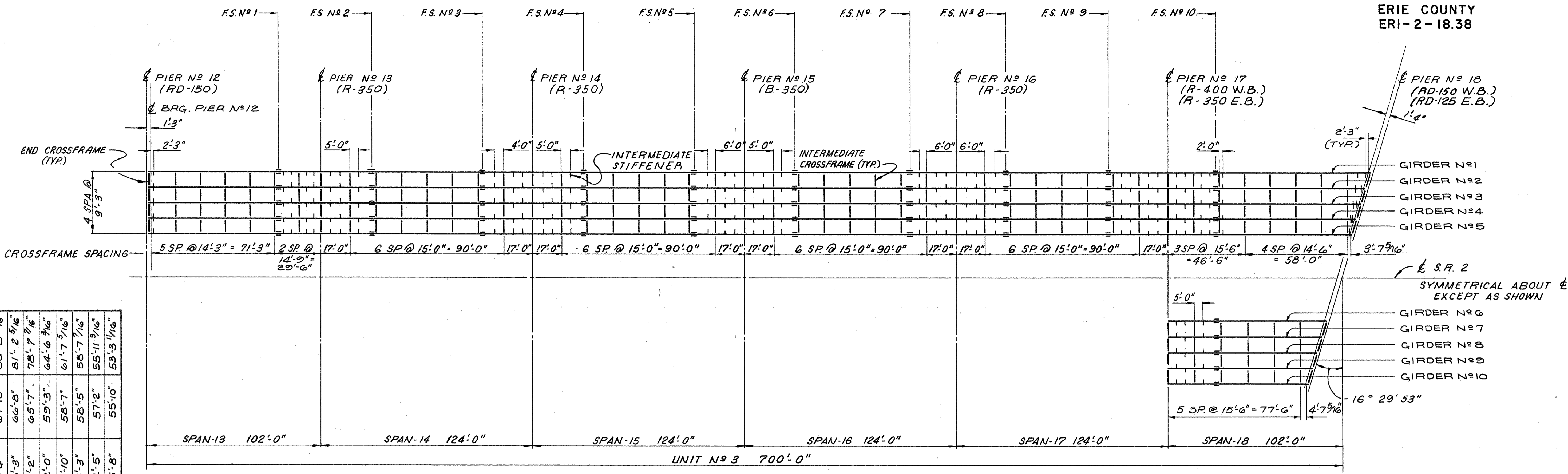
**ALTERNATE - 1** [19/43]

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CONSULTING ENGINEERS CLEVELAND, OHIO 44130

**FRAMING PLAN, UNITS-1 & 2**  
BRIDGE N° ERI - 2 - 1911 L/R  
S.R. 2 OVER HURON RIVER  
N. & W. R. R. & RIVER ROAD  
ERIE COUNTY STA. 1233+43.75 TO  
ERI - 2 - 18.38 STA. 1259+37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
K.L.M.	J.D.P.	K.L.M.	L.E.D.	11/4/85	

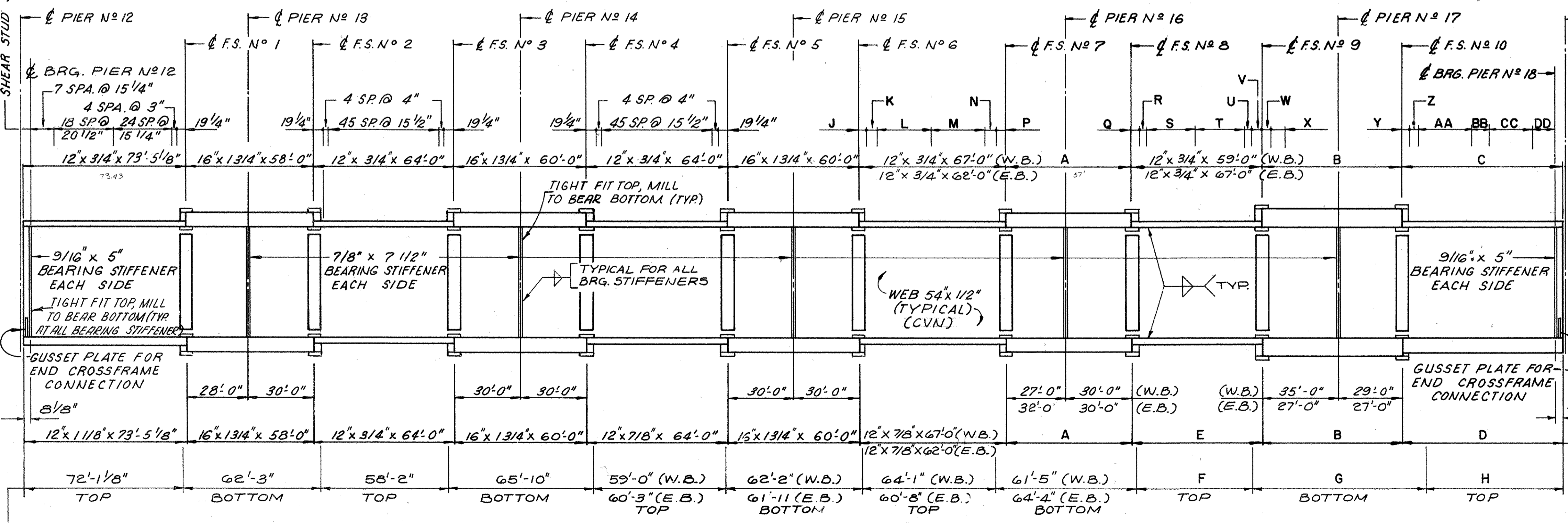
SEE SHEET 21/43 FOR CONTINUATION OF TABLE FOR SHEAR STUD SPACING.



**TABLE OF DIMENSIONS**

GIRDER	A	B	C	D	E	F	G	H
1	16" x 15/8" x 57'-0"	16" x 2 1/4" x 64'-0"	12" x 3/4" x 90'-10 1/16"	12" x 3/4" x 90'-10 1/16"	12" x 3/4" x 59'-0"	52'-8"	70'-9"	83'-10 1/16"
2	16" x 15/8" x 57'-0"	16" x 2 1/4" x 64'-0"	12" x 3/4" x 88'-2 1/16"	12" x 3/4" x 88'-2 1/16"	12" x 3/4" x 59'-0"	54'-1"	69'-2"	86'-4 1/16"
3	16" x 15/8" x 57'-0"	16" x 2 1/4" x 64'-0"	12" x 3/4" x 85'-5 3/16"	12" x 3/4" x 85'-5 3/16"	12" x 3/4" x 59'-0"	55'-4"	67'-10"	83'-8 3/16"
4	16" x 13/4" x 57'-0"	16" x 2" x 64'-0"	12" x 3/4" x 82'-8 9/16"	12" x 3/4" x 82'-8 9/16"	12" x 3/4" x 59'-0"	56'-3"	66'-8"	81'-2 9/16"
5	16" x 13/4" x 57'-0"	16" x 2" x 64'-0"	12" x 3/4" x 79'-11 1/16"	12" x 3/4" x 79'-11 1/16"	12" x 3/4" x 59'-0"	57'-2"	65'-7"	78'-7 7/16"
6	16" x 17/8" x 62'-0"	16" x 1 5/8" x 54'-0"	12" x 3/4" x 66'-10 3/16"	12" x 3/4" x 66'-10 3/16"	12" x 7/8" x 67'-0"	62'-0"	59'-3"	64'-6 3/16"
7	16" x 17/8" x 62'-0"	16" x 1 5/8" x 54'-0"	12" x 3/4" x 64'-1 3/16"	12" x 3/4" x 64'-1 3/16"	12" x 7/8" x 67'-0"	62'-10"	58'-7"	61'-7 5/16"
8	16" x 17/8" x 62'-0"	16" x 1 5/8" x 54'-0"	12" x 3/4" x 61'-4 1/16"	12" x 3/4" x 61'-4 1/16"	12" x 7/8" x 67'-0"	63'-3"	58'-5"	58'-7 1/16"
9	16" x 17/8" x 62'-0"	16" x 1 1/2" x 54'-0"	12" x 3/4" x 58'-7 9/16"	12" x 3/4" x 58'-7 9/16"	12" x 7/8" x 67'-0"	64'-5"	57'-2"	55'-11 9/16"
10	16" x 17/8" x 62'-0"	16" x 1 1/2" x 54'-0"	12" x 3/4" x 55'-10 1/16"	12" x 3/4" x 55'-10 1/16"	12" x 7/8" x 67'-0"	65'-8"	55'-10"	53'-3 1/16"

**FRAMING PLAN**



**GIRDER ELEVATION**

- NOTES**
- TRANSVERSE INTERMEDIATE STIFFENERS SHALL BE 3/8" x 5" PLATES. THEY SHALL BE PLACED AT ALL CROSSFRAME LOCATIONS AND AT ADDITIONAL LOCATIONS AS SHOWN ON THE FRAMING PLAN. WHERE DIMENSIONS ARE NOT GIVEN, STIFFENERS SHALL BE SPACED EQUALLY BETWEEN CROSSFRAMES.
  - FOR DEFLECTION AND CAMBER DIAGRAM, SEE SHEETS 26/43 & 27/43.
  - FOR FILLET WELD SIZES AND SHEAR STUD DETAIL, SEE SHEET 19/43.
  - FOR SHEAR STUD SPACING, SEE SHEET 21/43.
  - FOR ADDITIONAL NOTES, SEE SHEET 19/43.
  - FOR ADDITIONAL DETAILS OF ROCKERS DENOTED "RO" SEE SHEET 23/43.

ALTERNATE - 1 [20/43]

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**FRAMING PLAN, UNIT #3**  
BRIDGE #2 ERI-2-1911 L/R  
S.R. 2 OVER HURON RIVER  
N. & W. R. R. & RIVER ROAD

ERIE COUNTY STA. 1233+43.75 TO  
ERI-2-18.38 STA. 1259+37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
E.A.F.	D.R.J.	K.L.M.	L.E.D.	11/4/85	

(7) FOR ROCKER AND BOLSTER DETAILS SEE STD. DWG. RB-1-55 AND SHEET 23/43

ERIE COUNTY  
ERI-2-18.38

**SHEAR STUD SPACING (UNIT 3)**

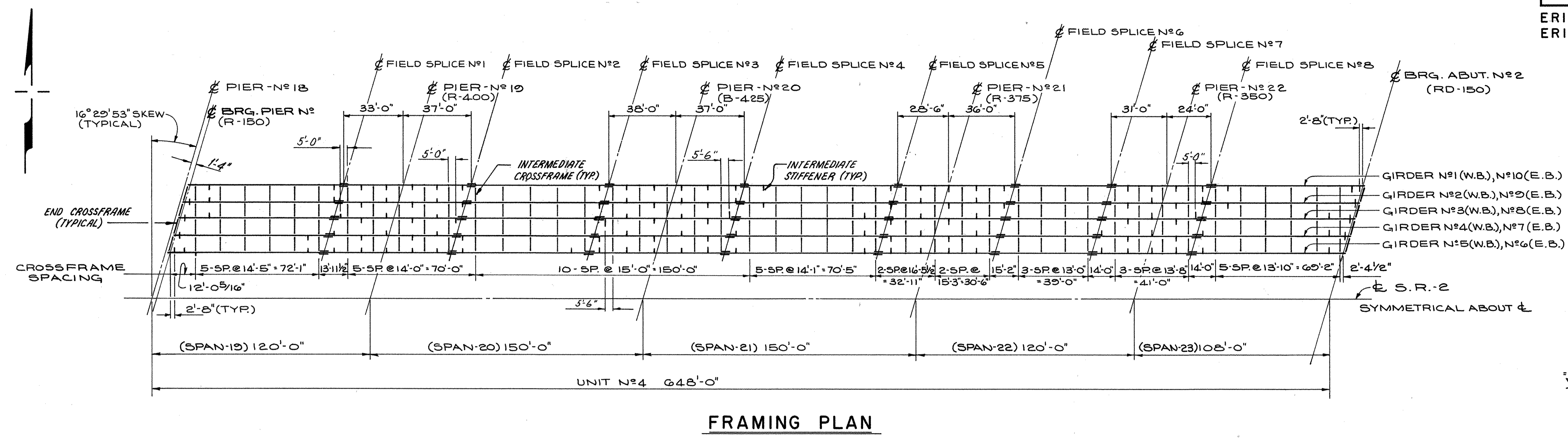
GIRDER	J	K	L	M	N	P	Q	R	S	T	U	V	W	X	Y	Z	AA	BB	CC	DD
1	17 1/2"	4 SP. @ 3 1/2"	22 SP. @ 16"	23 SP. @ 17"	4 SP. @ 3"	17 1/2"	18"	4 SP. @ 3"	23 SP. @ 15 1/2"	22 SP. @ 13"	4 SP. @ 3"	23 1/2"	-----	-----	217/16"	4 SP. @ 4"	27 SP. @ 16"	3 SP. @ 22"	20 SP. @ 21"	7 SP. @ 18"
2	17 1/2"	4 SP. @ 3 1/2"	22 SP. @ 16"	23 SP. @ 17"	4 SP. @ 3"	17 1/2"	18"	4 SP. @ 3"	23 SP. @ 15 1/2"	22 SP. @ 13"	4 SP. @ 3"	23 1/2"	-----	-----	219/16"	4 SP. @ 4"	27 SP. @ 16"	2 SP. @ 16 1/2"	20 SP. @ 21"	7 SP. @ 18"
3	17 1/2"	4 SP. @ 3 1/2"	22 SP. @ 16"	23 SP. @ 17"	4 SP. @ 3"	17 1/2"	18"	4 SP. @ 3"	23 SP. @ 15 1/2"	22 SP. @ 13"	4 SP. @ 3"	23 1/2"	-----	-----	2111/16"	4 SP. @ 4"	27 SP. @ 16"	0"	20 SP. @ 21"	7 SP. @ 18"
4	17 1/2"	4 SP. @ 3 1/2"	22 SP. @ 16"	23 SP. @ 17"	4 SP. @ 3"	17 1/2"	18"	4 SP. @ 3"	23 SP. @ 15 1/2"	22 SP. @ 13"	4 SP. @ 3"	23 1/2"	-----	-----	19 5/16"	4 SP. @ 4"	27 SP. @ 15"	2 SP. @ 16 1/2"	17 SP. @ 21 1/2"	9 SP. @ 16"
5	17 1/2"	4 SP. @ 3 1/2"	22 SP. @ 16"	23 SP. @ 17"	4 SP. @ 3"	17 1/2"	18"	4 SP. @ 3"	23 SP. @ 15 1/2"	22 SP. @ 13"	4 SP. @ 3"	23 1/2"	-----	-----	19 7/16"	4 SP. @ 4"	27 SP. @ 15"	0"	17 SP. @ 21 1/2"	9 SP. @ 16"
6	19 1/2"	4 SP. @ 5"	23 SP. @ 15"	22 SP. @ 15"	4 SP. @ 3"	17 1/2"	17 1/2"	4 SP. @ 3 1/2"	22 SP. @ 16"	23 SP. @ 17"	4 SP. @ 3"	17 1/2"	-----	-----	17 11/16"	4 SP. @ 3"	22 SP. @ 10 3/4"	6 SP. @ 21 3/4"	22 SP. @ 18"	-----
7	19 1/2"	4 SP. @ 5"	23 SP. @ 15"	22 SP. @ 15"	4 SP. @ 3"	17 1/2"	17 1/2"	4 SP. @ 3 1/2"	22 SP. @ 16"	23 SP. @ 17"	4 SP. @ 3"	17 1/2"	-----	-----	17 13/16"	4 SP. @ 3"	22 SP. @ 10 3/4"	5 SP. @ 19 1/2"	22 SP. @ 18"	-----
8	19 1/2"	4 SP. @ 5"	23 SP. @ 15"	22 SP. @ 15"	4 SP. @ 3"	17 1/2"	17 1/2"	4 SP. @ 3 1/2"	22 SP. @ 16"	23 SP. @ 17"	4 SP. @ 3"	17 1/2"	-----	-----	17 3/16"	4 SP. @ 3"	22 SP. @ 10 3/4"	3 SP. @ 21 3/4"	22 SP. @ 18"	-----
9	19 1/2"	4 SP. @ 5"	23 SP. @ 15"	22 SP. @ 15"	4 SP. @ 3"	17 1/2"	19"	4 SP. @ 3"	23 SP. @ 15 1/2"	21 SP. @ 19"	-----	17 1/2"	17 1/2"	4 SP. @ 4"	17 9/16"	4 SP. @ 3"	22 SP. @ 10 3/4"	2 SP. @ 16"	22 SP. @ 18"	-----
10	19 1/2"	4 SP. @ 5"	23 SP. @ 15"	22 SP. @ 15"	4 SP. @ 3"	17 1/2"	19"	4 SP. @ 3"	23 SP. @ 15 1/2"	21 SP. @ 19"	-----	17 1/2"	17 1/2"	4 SP. @ 4"	16 11/16"	4 SP. @ 3"	22 SP. @ 10 3/4"	0"	22 SP. @ 18"	-----

FOR UNIT-3 FRAMING PLAN, SEE SHEET 20/43.

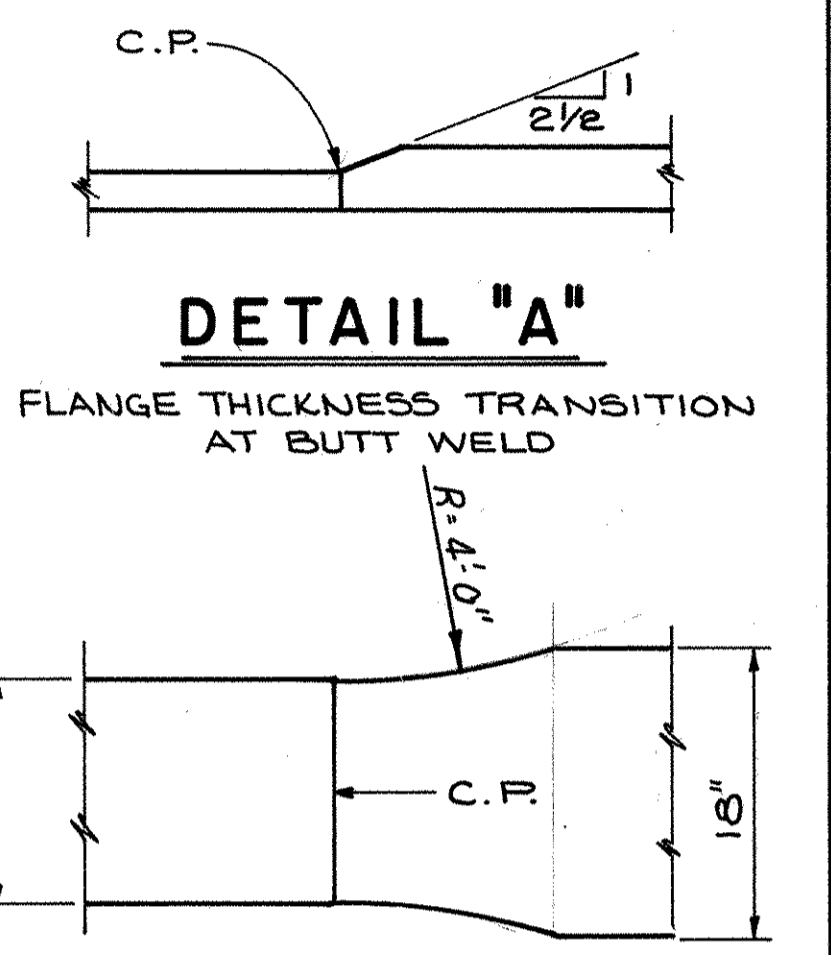
ALTERNATE - I 21/43

adache - ciuni - lynn associates			
CONSULTING ENGINEERS CLEVELAND, OHIO 44131			
<b>SHEAR STUD SPACING</b>			
BRIDGE No ERI-2-1911 L/R			
S.R. 2 OVER HURON RIVER			
N. & W. R. R. & RIVER ROAD			
ERIE COUNTY		STA. 1233+43.75 TO	
ERI-2-18.38		STA. 1259+37.37	
DESIGNED	DRAWN	CHECKED	REVIEWED
K.L.M.	D.R.J.	K.L.M.	L.E.D.
		I.M.B.	11/4/85

ERIE COUNTY  
ERIE-2-18.38



**FRAMING PLAN**

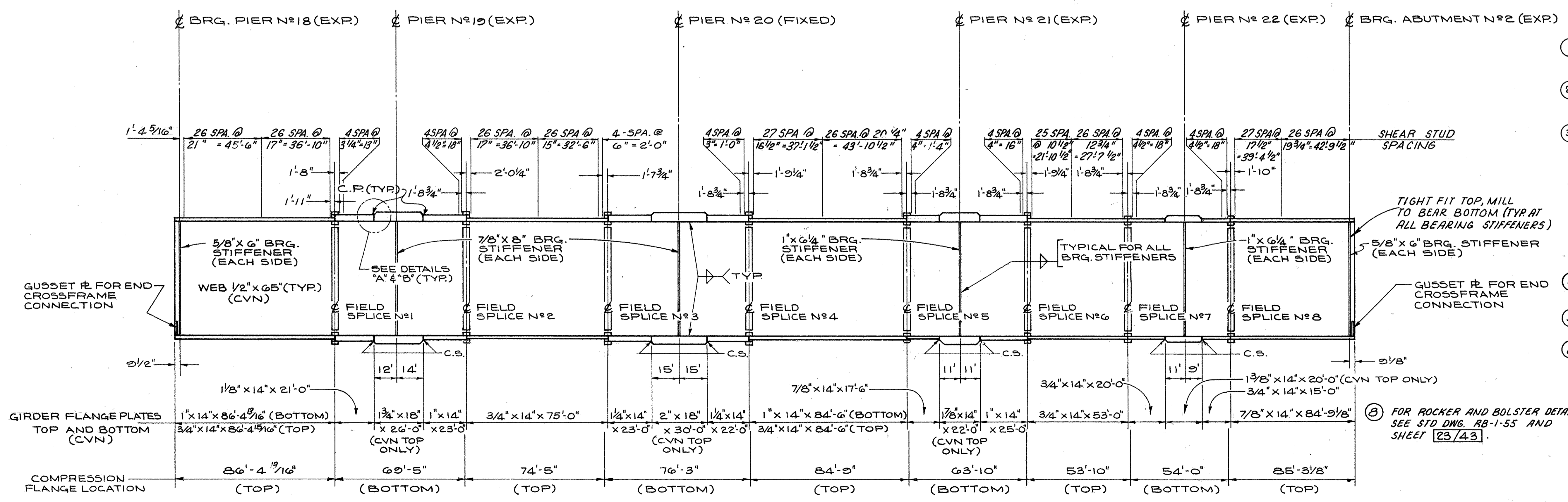


**DETAIL "A"**  
FLANGE THICKNESS TRANSITION AT BUTT WELD

**DETAIL "B"**  
FLANGE WIDTH TRANSITION AT BUTT WELD, EITHER SIDE OF PIERS 19 & 20

**NOTES:**

- FOR CAMBER AND DEFLECTION DIAGRAM, SEE SHEET 28/43.
- FOR ADDITIONAL NOTES, SEE SHEET 19/43.
- TRANSVERSE INTERMEDIATE STIFFENERS SHALL BE 3/8" X 5" PLATES. THEY SHALL BE PLACED AT ALL CROSSFRAME LOCATIONS AND AT ADDITIONAL LOCATIONS AS SHOWN ON THE FRAMING PLAN. WHERE DIMENSIONS ARE NOT GIVEN, STIFFENERS SHALL BE SPACED MIDWAY BETWEEN CROSSFRAMES.
- FOR FILLET WELD SIZES AND SHEAR STUD DETAILS, SEE SHEET 19/43.
- C.P. - INDICATES COMPLETE PENETRATION WELD.
- C.S. - INDICATES BUTT WELD SUBJECT TO COMPRESSIVE STRESSES ONLY.



**GIRDER ELEVATION**

**ALTERNATE - I** 22/43

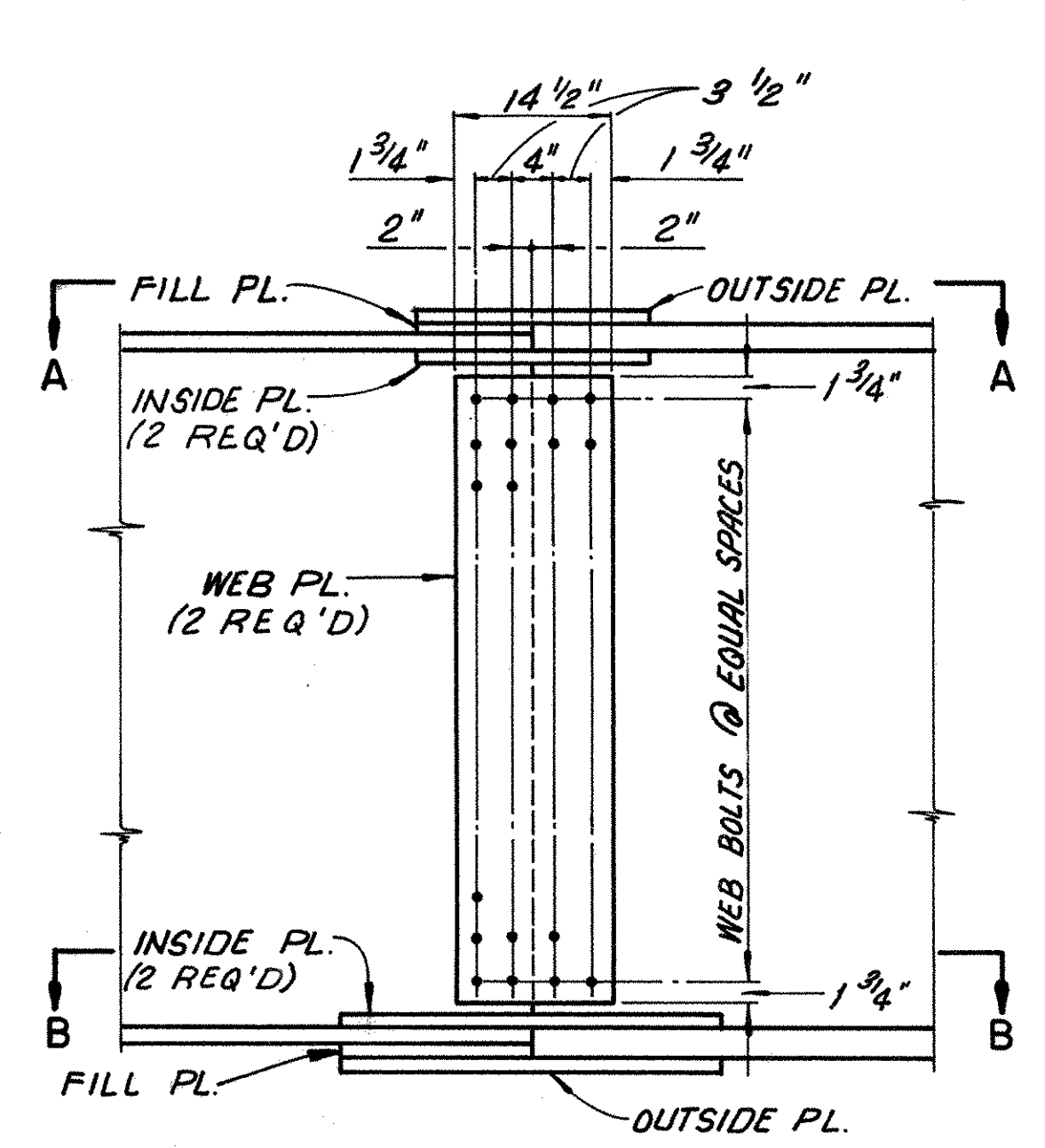
adache - ciuni - lynn associates  
CONSULTING ENGINEERS CLEVELAND, OHIO 44130

**FRAMING PLAN, UNIT N° 4**  
BRIDGE N° 2 ERI-2-1911 L/R  
S.R. 2 OVER HURON RIVER  
N. & W. R. R. & RIVER ROAD

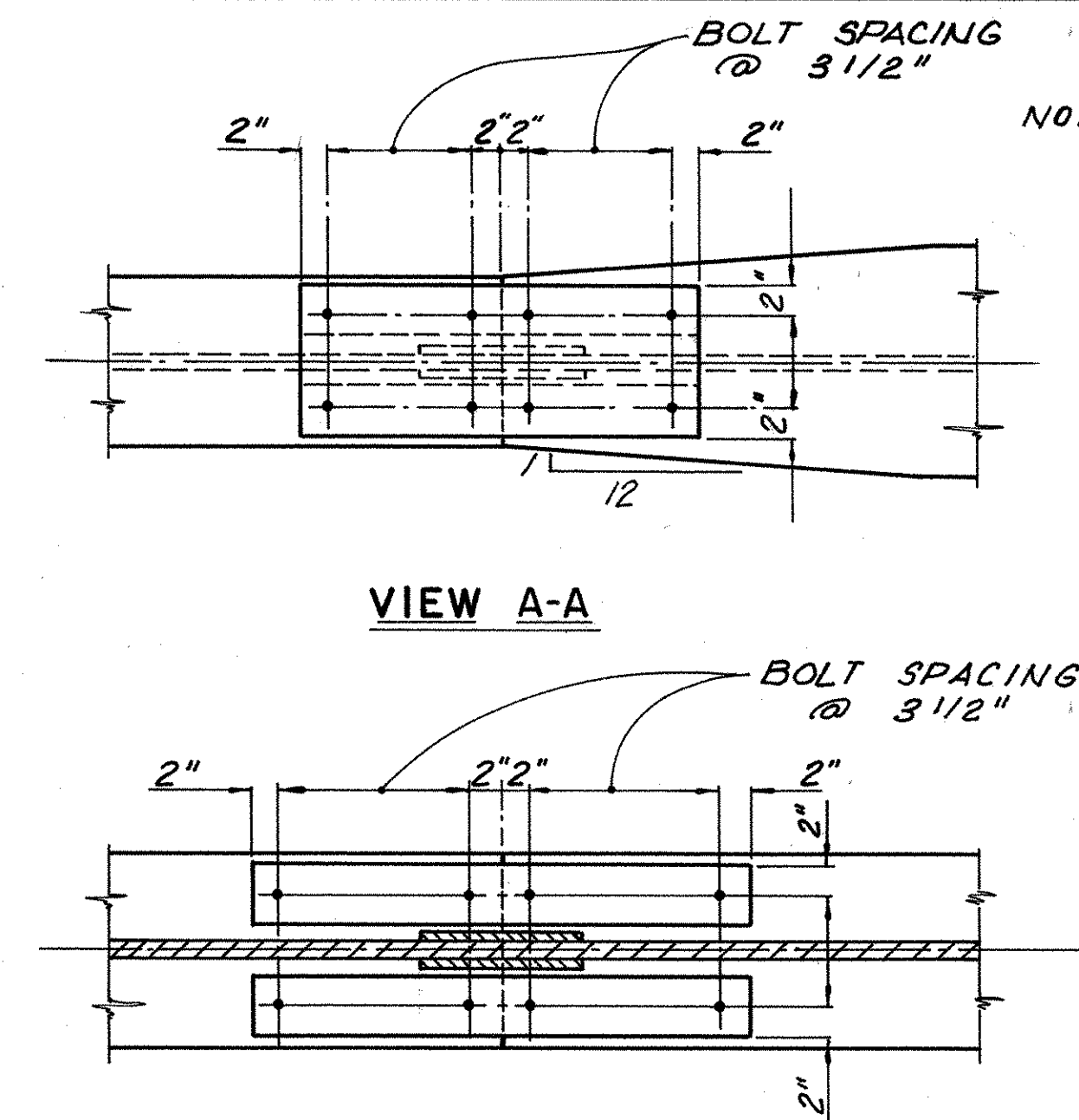
ERIE COUNTY STA. 1233 + 43.75 TO  
ERIE-2-18.38 STA. 1259 + 37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
E.A.F.	J.D.P.	K.L.M.	L.E.D.	11/4/65	

FOR ROCKER AND BOLSTER DETAILS SEE STD. DWG. RB-1-55 AND SHEET 23/43.



ELEVATION



SECTION B-B

GIRDER SPLICE DETAILS

GIRDER SPLICE DATA

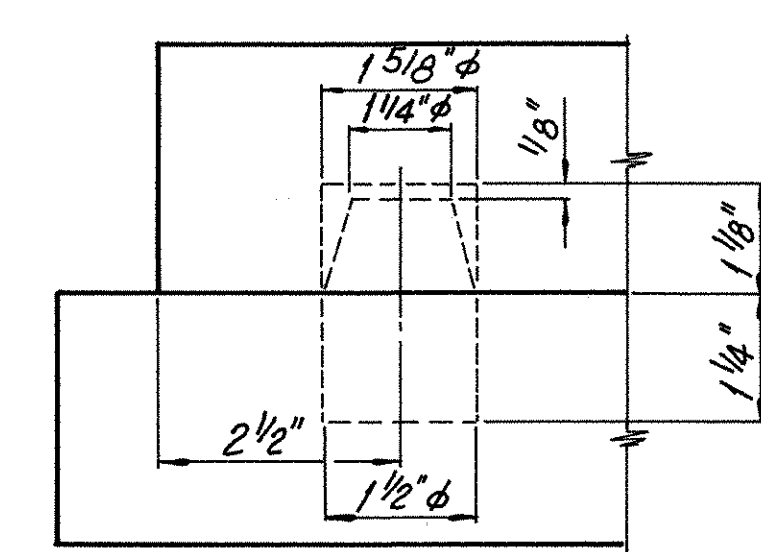
UNIT	LOCATION	WEB SPLICE		TOP FLANGE				BOTTOM FLANGE			
		WEB PLATE	BOLTS	OUTSIDE PLATE	INSIDE PLATE	FILL PLATE	BOLTS	OUTSIDE PLATE	INSIDE PLATE	FILL PLATE	BOLTS
1, 2	ALL GIRDERS ALL SPLICES	3/8 x 14 1/2 x 4 1/2	68	3/8 x 11 x 2 1/2	7/16 x 5 x 2 1/2	1/2 x 11 x 1 1/2	16	3/8 x 11 x 2 1/2	7/16 x 5 x 2 1/2	1/2 x 11 x 1 1/2	16
3	GIRDERS 1 THRU 5 SPL. 1 GIRDERS 6 THRU 10 SPL. 1	5/16 x 14 1/2 x 4 1/4	64	7/16 x 11 x 2 1/2	7/16 x 5 x 2 1/2	1 x 11 x 1 1/2	16	5/8 x 11 x 3 1/2	11/16 x 5 x 3 1/2	5/8 x 11 x 1 1/2	20
	GIRDERS 1 THRU 5 SPL. 2 & 3 GIRDERS 4 & 5 SPL. 8 GIRDERS 6 THRU 10 SPL. 2 & 3	"	64	"	1/2 x 5 x 2 1/2	"	16	7/16 x 11 x 2 1/2	1/2 x 5 x 2 1/2	1 x 11 x 1 1/2	16
	GIRDERS 1 THRU 5 SPL. 4, 5 & 6 GIRDERS 4 & 5 SPL. 7 GIRDERS 6 THRU 10 SPL. 4, 5 & 6	"	64	"	"	"	16	"	"	3/8 x 11 x 1 1/2	16
	GIRDERS 1, 2 & 3 SPL. 7 GIRDERS 6, 7 & 8 SPL. 9	"	64	"	"	7/8 x 11 x 1 1/2	16	"	"	3/4 x 11 x 1 1/2	16
	GIRDERS 1, 2 & 3 SPL. 8 GIRDERS 6, 7 & 8 SPL. 10	"	64	"	"	"	16	"	"	3/8 x 11 x 1 1/2	16
	GIRDERS 1, 2 & 3 SPL. 9	"	64	"	"	1 1/2 x 11 x 1 1/2	16	"	"	1 1/2 x 11 x 1 1/2	16
	GIRDERS 1, 2 & 3 SPL. 10	"	64	"	"	"	16	5/8 x 11 x 3 1/2	3/4 x 5 x 3 1/2	1/2 x 11 x 1 1/2	24
	GIRDERS 4 & 5 SPL. 9	"	64	"	"	1 1/4 x 11 x 1 1/2	16	7/16 x 11 x 2 1/2	1/2 x 5 x 2 1/2	1 1/4 x 11 x 1 1/2	16
	GIRDERS 4 & 5 SPL. 10	"	64	"	7/16 x 5 x 2 1/2	"	16	5/8 x 11 x 3 1/2	11/16 x 5 x 3 1/2	1/2 x 11 x 1 1/2	20
	GIRDERS 6 THRU 10 SPL. 7 & 8	"	64	"	1/2 x 5 x 2 1/2	1 1/8 x 11 x 1 1/2	16	7/16 x 11 x 2 1/2	1/2 x 5 x 2 1/2	1 x 11 x 1 1/2	16
	GIRDERS 9 & 10 SPL. 9	"	64	"	"	3/4 x 11 x 1 1/2	16	"	"	5/8 x 11 x 1 1/2	16
	GIRDERS 9 & 10 SPL. 10	"	64	"	"	"	16	"	"	3/4 x 11 x 1 1/2	16
4	GIRDERS 1 THRU 10 SPL. 1	5/16 x 14 1/2 x 5 1/3	72	1/2 x 13 x 3 1/2	1/2 x 6 x 3 1/2	3/8 x 13 x 1 1/2	20	1/2 x 13 x 3 1/2	1/2 x 6 x 3 1/2	5/8 x 13 x 1 1/2	20
	GIRDERS 1 THRU 10 SPL. 2 & 6	"	72	"	"	1/4 x 13 x 1 1/2	20	"	"	1/4 x 13 x 1 1/2	20
	GIRDERS 1 THRU 10 SPL. 3	"	72	"	"	1/2 x 13 x 1 1/2	20	"	"	1/2 x 13 x 1 1/2	20
	GIRDERS 1 THRU 10 SPL. 7	"	72	"	"	"	20	"	"	"	20
	GIRDERS 1 THRU 10 SPL. 4	"	72	"	"	1/2 x 13 x 1 1/2	20	"	"	1/4 x 13 x 1 1/2	20
	GIRDERS 1 THRU 10 SPL. 5	"	72	"	"	1/8 x 13 x 1 1/2	20	"	"	1/8 x 13 x 1 1/2	20
	GIRDERS 1 THRU 10 SPL. 8	"	72	"	"	"	20	"	"	1/8 x 13 x 1 1/2	20
	GIRDERS 1 THRU 10 SPL. 8	"	72	"	"	"	20	"	"	1/8 x 13 x 1 1/2	20

BOLSTER NO.	ROCKER NO.	DIMENSIONS (inches)														WEIGHT EACH (lbs.)		MAX. LOAD
		A	B	C	D	F	G	H	K	L	M	R	T	Y	BOLSTER	ROCKER		
	R-325	4	21	4	3 1/2	3/4	13	20 3/8	15	29	26	13	3 1/4	1 15/16		1240	325,000	
B-350	R-350	4	22	4	3 1/2	3/4	14	21 1/8	15	30	27	13 1/2	3 1/2	1 15/16	1170	1385	350,000	
	R-375	4	23	4 1/2	3 3/4	7/8	14	22 3/8	16	31	28	14	3 3/4	1 15/16		1585	375,000	
	R-400	4 1/2	24	4 1/2	4	7/8	14 1/2	23 1/8	17	33	30	14 1/2	4	2 3/16		1865	400,000	
B-425		4 1/2	25	4 1/2	4	7/8	15	23 3/8	17	34	31	15	4	2 3/16	1660		425,000	

FOR DETAILS, SEE STANDARD DRAWING RB-1-55.

NOTES:

- ALL SPLICE PLATES EXCEPT FILL PLATES, SHALL MEET SPECIFIED MINIMUM NOTCH TOUGHNESS REQUIREMENTS.
- FOR LOCATIONS OF ROCKERS AND BOLSTERS SEE FRAMING PLANS.
- SEE FRAMING PLANS FOR DETERMINATION OF THOSE SPLICES WHICH REQUIRE A FLANGE WIDTH TRANSITION.
- HIGH STRENGTH BOLTS SHALL BE 1" DIAMETER ASTM A-325, TYPE 3, UNLESS OTHERWISE NOTED.
- BEARINGS: A36 STEEL GALVANIZED, SHALL BE FURNISHED FOR BEARINGS EXCEPT FOR UPPER PLATE ELEMENT OF BEARINGS. THIS A36 STEEL SHALL BE INCLUDED WITH THE A588 STEEL QUANTITY FOR PAYMENT.
- A588 STEEL IS TO BE LEFT UNPAINTED. SEE CMS 513.221 FOR CLEANING REQUIREMENTS.



SPECIAL DOWEL DETAIL  
(FOR 'RD' ROCKERS ONLY)

FOR ROADWAY GRADES EXCEEDING 2% THE UPPER LOAD PLATE OF THE ROCKER OR BOLSTER SHALL BE BEVELED TO MATCH THE ROADWAY GRADE. DIMENSION 'C' FROM THE ROCKER AND BOLSTER DETAILS SHALL APPLY AT THE CENTER OF THE PLATE. SEE STD. DWG RB-1-55 AND THIS SHEET FOR DIMENSION 'C'.

ALTERNATE-1

23/43

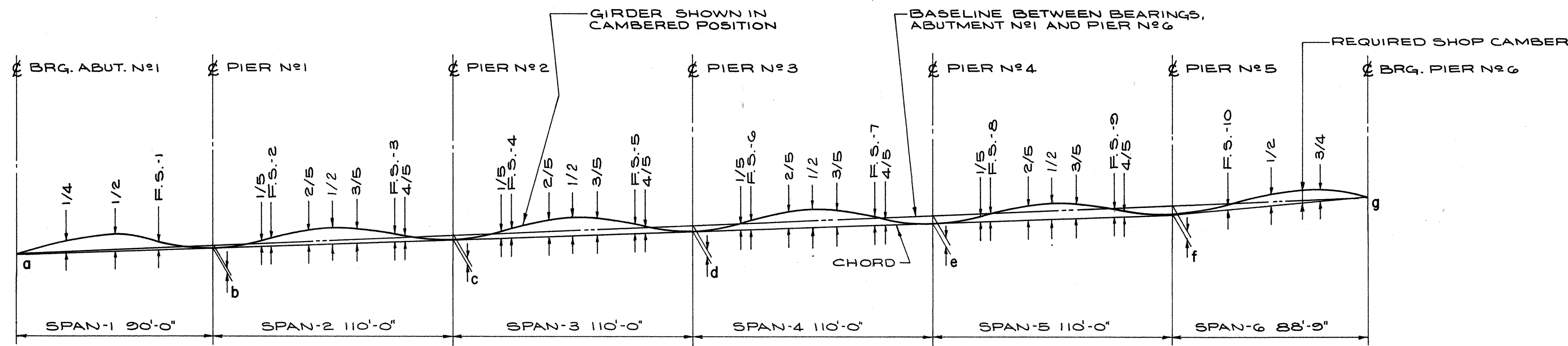
adache - ciuni - lynn associates  
CONSULTING ENGINEERS CLEVELAND, OHIO 44130

**GIRDER DETAILS**  
BRIDGE N° ERI-2-1911 L/R  
S.R. 2 OVER HURON RIVER  
N. & W. R. R. & RIVER ROAD

ERIE COUNTY STA. 1233 + 43.75 TO  
ERI-2-18.38 STA. 1259 + 37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
K.L.M.	D.R.J.	K.L.M.	EAF	L.E.D. 11/4/85	





LAYOUT DIAGRAM

DEFLECTION AND CAMBER (UNIT-1) (INCHES)

	SPANS	SPAN - 1										SPAN - 2										SPAN - 3										SPAN - 4										SPAN - 5										SPAN - 6				
		a	1/4	1/2	F.S.	b	1/5	F.S.	2/5	1/2	3/5	F.S.	4/5	c	1/5	F.S.	2/5	1/2	3/5	F.S.	4/5	d	1/5	F.S.	2/5	1/2	3/5	F.S.	4/5	e	1/5	F.S.	2/5	1/2	3/5	F.S.	4/5	f	F.S.	1/2	3/4	g														
GIRDERS 2 THRU 4 & 7 THRU 9	DEFLECTION DUE TO WEIGHT OF STEEL		1/8	1/8	1/8		1/16	1/16	1/8	1/8	1/8	1/16	1/16		1/16	1/8	1/8	1/8	1/8	1/8	1/16		1/16	1/8	1/8	1/8	1/8	1/16		1/16	1/16	1/8	1/8	1/16	1/16		1/8	1/8	1/8																	
	DEFLECTION DUE TO REMAINING DEAD LOAD		7/8	1 1/16	1/2		5/16	7/16	13/16	7/8	13/16	7/16	5/16		3/8	7/16	15/16	1	15/16	7/16	3/8		3/8	7/16	15/16	1	15/16	7/16	3/8		5/16	7/16	13/16	7/8	13/16	7/16	5/16		1/2	1 1/16	7/8															
	ADJUSTMENT FOR VERTICAL CURVE																																																							
	REQUIRED SHOP CAMBER		1	13/16	5/8		3/8	1/2	15/16	1"	15/16	1/2	3/8		7/16	9/16	1 1/16	1 1/8	1 1/16	9/16	7/16		7/16	9/16	1 1/16	1 1/8	1 1/16	9/16	7/16		3/8	1/2	15/16	1	15/16	1/2	3/8		5/16	3/4	1 1/16															
	ORDINATE BETWEEN CHORD AND BASELINE	0				1/8							5/16								1/2									11/16							7/8				0															
GIRDERS 1, 5, 6 & 10	DEFLECTION DUE TO WEIGHT OF STEEL		1/8	1/8	1/8		1/16	1/16	1/8	1/8	1/8	1/16	1/16		1/16	1/8	1/8	1/8	1/8	1/8	1/16		1/16	1/8	1/8	1/8	1/8	1/16		1/16	1/16	1/8	1/8	1/16	1/16		1/8	1/8	1/8																	
	DEFLECTION DUE TO REMAINING DEAD LOAD		1 1/16	7/8	3/8		1/4	5/16	5/8	11/16	5/8	3/8	1/4		5/16	3/8	3/4	13/16	3/4	3/8	5/16		5/16	3/8	3/4	13/16	3/4	3/8	5/16		1/4	3/8	5/8	11/16	5/8	5/16	1/4		7/16	7/8	1 1/16															
	ADJUSTMENT FOR VERTICAL CURVE																																																							
	REQUIRED SHOP CAMBER		13/16	1	1/2		5/16	3/8	3/4	13/16	3/4	7/16	5/16		3/8	1/2	7/8	15/16	7/8	1/2	3/8		3/8	1/2	7/8	15/16	7/8	1/2	3/8		5/16	7/16	3/4	13/16	3/4	3/8	5/16		1/4	9/16	1/2															
	ORDINATE BETWEEN CHORD AND BASELINE	0				1/8							5/16								1/2								11/16								7/8				0															

NOTES:

NEGATIVE VALUES OF CAMBER INDICATE THE DIMENSION IS BELOW THE CHORD BETWEEN ADJACENT BEARINGS.

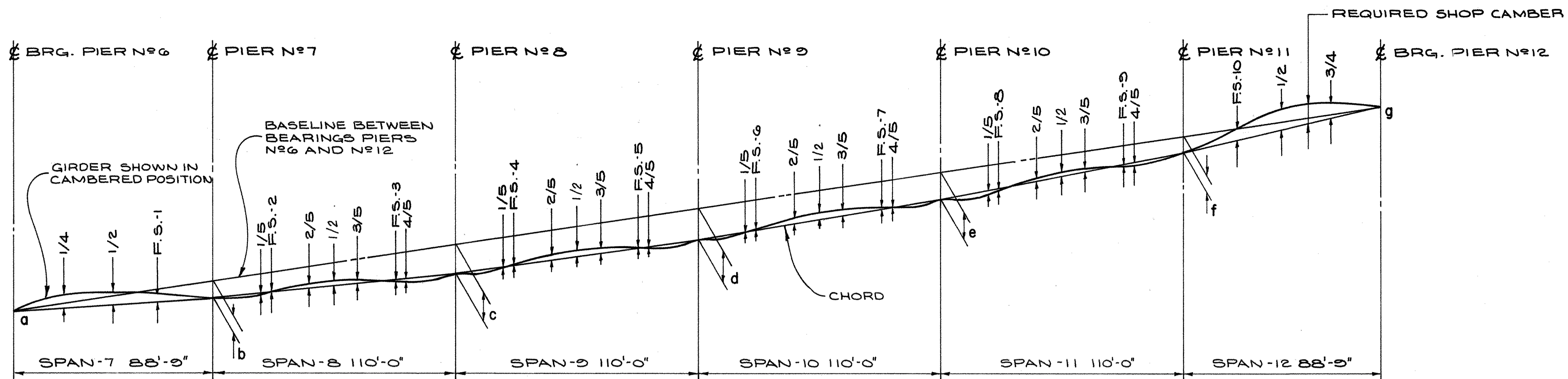
ALTERNATE - I

24/43

adache - ciuni - lynn associates  
CONSULTING ENGINEERS CLEVELAND, OHIO 44130

**DEFL. AND CAMBER (UNIT-1)**  
BRIDGE N° ERI - 2 - 19.11 L/R  
S.R. 2 OVER HURON RIVER  
N. & W. R.R. & RIVER ROAD  
ERIE COUNTY STA. 1233+47.75 TO  
ERI - 2 - 18.38 STA. 1259+37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
K.L.M.	J.D.P.	K.L.M.	EAF	L.E.D. 11/4/85	



LAYOUT DIAGRAM

DEFLECTION AND CAMBER (UNIT-2) (INCHES)

	SPANS	SPAN - 7										SPAN - 8										SPAN - 9										SPAN - 10										SPAN - 11										SPAN - 12				
		a	1/4	1/2	F.S.	b	1/5	F.S.	2/5	1/2	3/5	F.S.	4/5	c	1/5	F.S.	2/5	1/2	3/5	F.S.	4/5	d	1/5	F.S.	2/5	1/2	3/5	F.S.	4/5	e	1/5	F.S.	2/5	1/2	3/5	F.S.	4/5	f	F.S.	1/2	3/4	g														
GIRDERS 2 THRU 4 & 7 THRU 9	DEFLECTION DUE TO WEIGHT OF STEEL		1/8	1/8	1/8		1/16	1/16	1/8	1/8	1/8	1/16	1/16		1/16	1/8	1/8	1/8	1/8	1/8	1/16		1/16	1/8	1/8	1/8	1/8	1/16		1/16	1/16	1/8	1/8	1/8	1/16	1/16		1/8	1/8	1/8																
	DEFLECTION DUE TO REMAINING DEAD LOAD		7/8	1 1/16	1/2		5/16	7/16	13/16	7/8	13/16	7/16	5/16		3/8	1/2	15/16	1	15/16	1/2	7/16		7/16	1/2	15/16	1	15/16	1/2	3/8		5/16	7/16	13/16	7/8	13/16	7/16	5/16		1/2	1 1/16	7/8															
	ADJUSTMENT FOR VERTICAL CURVE		-3/8	-1/2	-3/8		-1/2	-9/16	-3/4	-3/4	-3/4	-9/16	-1/2		-1/2	-9/16	-3/4	-3/4	-3/4	-9/16	-1/2		-1/2	-9/16	-3/4	-3/4	-3/4	-9/16	-1/2		-1/2	-9/16	-3/4	-3/4	-3/4	-9/16	-1/2		0	0	0															
	REQUIRED SHOP CAMBER		5/8	11/16	1/4		-1/8	-1/16	3/16	1/4	3/16	-1/16	-1/8		-1/16	1/16	5/16	3/8	5/16	1/16	0		0	1/16	5/16	3/8	5/16	1/16	-1/16		-1/8	-1/16	3/16	1/4	3/16	-1/16	-1/8		5/8	1 3/16	1															
	ORDINATE BETWEEN CHORD AND BASELINE	0					11 3/16							1-7 7/8								1-10 3/16								1-7 1/4								10"			0															
GIRDERS 1, 5, 6 & 10	DEFLECTION DUE TO WEIGHT OF STEEL		1/8	1/8	1/8		1/16	1/16	1/8	1/8	1/8	1/16	1/16		1/16	1/8	1/8	1/8	1/8	1/8	1/16		1/16	1/8	1/8	1/8	1/8	1/16		1/16	1/16	1/8	1/8	1/8	1/16	1/16		1/8	1/8	1/8																
	DEFLECTION DUE TO REMAINING DEAD LOAD		11/16	7/8	3/8		1/4	3/8	5/8	11/16	5/8	3/8	1/4		5/16	3/8	3/4	13/16	3/4	3/8	5/16		5/16	3/8	3/4	13/16	3/4	3/8	5/16		1/4	3/8	5/8	11/16	5/8	3/8	1/4		3/8	7/8	11/16															
	ADJUSTMENT FOR VERTICAL CURVE		-3/8	-1/2	-3/8		-1/2	-9/16	-1/16	-3/4	-11/16	-9/16	-1/2		-1/2	-9/16	-3/4	-3/4	-3/4	-9/16	-1/2		-1/2	-9/16	-3/4	-3/4	-3/4	-9/16	-1/2		-1/2	-9/16	-1/16	-3/4	-11/16	-9/16	-1/2		0	0	0															
	REQUIRED SHOP CAMBER		7/16	1/2	1/8		-3/16	-1/8	1/16	1/16	1/16	-1/8	-3/16		-1/8	-1/16	1/8	3/16	1/8	-1/16	-1/8		-1/8	-1/16	1/8	3/16	1/8	-1/16	-1/8		-3/16	-1/8	1/16	1/16	1/16	-1/8	-3/16		1/2	1	13/16															
	ORDINATE BETWEEN CHORD AND BASELINE	0					11 3/16							1-7 7/8								1-10 3/16								1-7 1/4								10"			0															

NOTES:

NEGATIVE VALUES OF CAMBER INDICATE THE DIMENSION IS BELOW THE CHORD BETWEEN ADJACENT BEARINGS.

ALTERNATE - I

25/43

adache - ciuni - lynn associates  
CONSULTING ENGINEERS CLEVELAND, OHIO 44130

DEFL. AND CAMBER(UNIT-2)

BRIDGE N° ERI - 2 - 19.11 L/R

S.R. 2 OVER HURON RIVER

N. & W. R.R. & RIVER ROAD

ERIE COUNTY STA. 1233+43.75 TO

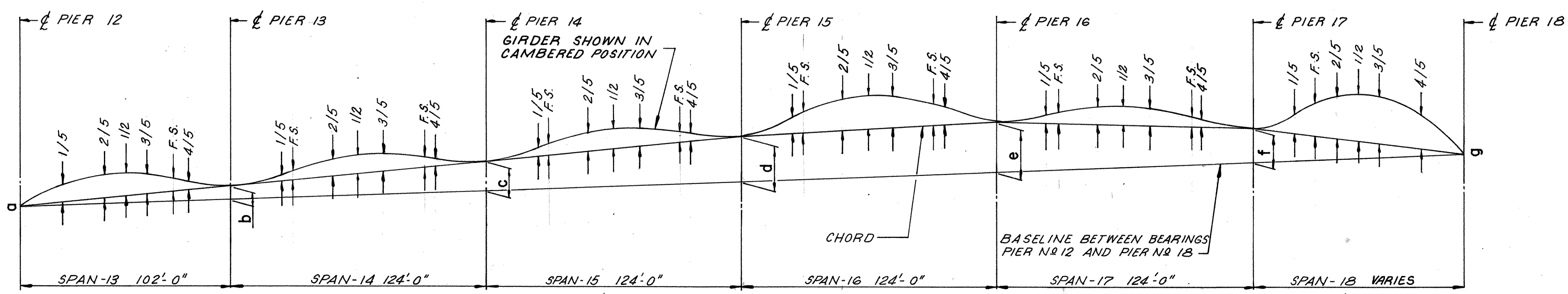
ERI - 2 - 18.38 STA. 1259+37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
K.L.M.	J.D.P.	K.L.M.	E.A.F.	L.E.D.	11/4/85

		DEFLECTION AND CAMBER (UNIT-3) (INCHES)																							
SPANS		SPAN NO. 13						SPAN NO. 14						SPAN NO. 15											
POINTS		a	1/5	2/5	1/2	3/5	F.S.	4/5	b	1/5	F.S.	2/5	1/2	3/5	F.S.	4/5	c	1/5	F.S.	2/5	1/2	3/5	F.S.	4/5	d
GIRDERS 2 THRU 4, 6 THRU 9	DEFLECTION DUE TO WEIGHT OF STEEL		3/16	1/4	1/4	3/16	1/8	1/8		1/16	1/16	1/8	3/16	1/8	1/16	1/16		1/16	1/8	3/16	1/4	3/16	1/8	1/16	
	DEFLECTION DUE TO REMAINING DEAD LOAD		1/16	1/12	1/12	1/16	3/4	7/16		3/8	9/16	1/16	1/16	1/8	5/8	7/16		1/2	1/16	1/8	1/4	1/8	9/16	7/16	
	REQUIRED SHOP CAMBER		1/14	1/34	1/34	1/38	7/8	9/16		7/16	5/8	1/16	1/16	1/4	1/16	1/2		9/16	13/16	1/16	1/2	1/16	1/16	1/2	
GIRDERS 1, 5, 6 & 10	DEFLECTION DUE TO WEIGHT OF STEEL		3/16	1/4	1/4	3/16	1/8	1/16		1/16	1/16	1/8	3/16	3/16	1/16	1/16		1/16	1/8	3/16	1/4	3/16	1/8	1/16	
	DEFLECTION DUE TO REMAINING DEAD LOAD		13/16	13/16	1/8	15/16	9/16	3/8		5/16	7/16	7/8	1	7/8	1/2	3/8		3/8	9/16	15/16	1	15/16	7/16	3/8	
	REQUIRED SHOP CAMBER		1	1/16	1/8	1/8	1/16	7/16		3/8	1/2	1	1/16	1/16	9/16	7/16		7/16	1/16	1/8	1/4	1/8	9/16	7/16	

		DEFLECTION AND CAMBER (UNIT-3) (INCHES)																							
SPANS		SPAN NO. 16						SPAN NO. 17						SPAN NO. 18											
POINTS		d	1/5	F.S.	2/5	1/2	3/5	F.S.	4/5	e	1/5	F.S.	2/5	1/2	3/5	F.S.	4/5	f	1/5	F.S.	2/5	1/2	3/5	4/5	g
GIRDER 1	DEFLECTION DUE TO WEIGHT OF STEEL		1/16	1/8	1/4	1/4	1/4	1/8	1/8		0	0	1/16	1/16	1/16	1/16	0		3/16	1/4	3/8	1/2	1/2	5/16	
	DEFLECTION DUE TO REMAINING DEAD LOAD		1/2	5/8	1/4	1/4	1/8	5/8	1/2		1/8	1/4	1/2	1/2	3/8	1/8	0		3/4	15/16	1/16	2	2/16	7/16	
	ADJUSTMENT FOR VERTICAL CURVE		7/16	1/2	5/8	5/8	5/8	7/16	7/16		7/16	1/2	5/8	5/8	5/8	1/2	7/16		3/8	7/16	5/8	5/8	9/16	3/8	
	REQUIRED SHOP CAMBER		1	1/4	2	2 1/8	2	1 3/16	1 1/16		9/16	3/4	1 3/16	1 3/16	1 1/16	1/16	7/16		15/16	1 5/8	2 1/16	3 1/8	3 1/8	2 1/8	
GIRDER 2	DEFLECTION DUE TO WEIGHT OF STEEL		1/16	1/8	3/16	1/4	1/4	1/8	1/8		0	1/16	1/8	1/8	1/16	1/16	0		3/16	3/16	3/8	7/16	7/16	5/16	
	DEFLECTION DUE TO REMAINING DEAD LOAD		9/16	3/4	1 7/16	1 1/2	1 7/16	3/4	5/8		1/4	5/16	1/16	3/4	9/16	5/16	1/16		13/16	1/8	1 7/8	2 1/4	2 5/16	1 5/8	
	ADJUSTMENT FOR VERTICAL CURVE		7/16	1/2	5/8	5/8	5/8	7/16	7/16		7/16	1/2	5/8	5/8	5/8	1/2	7/16		3/8	7/16	9/16	9/16	9/16	3/8	
	REQUIRED SHOP CAMBER		1 1/16	1 3/8	2 1/4	2 3/8	2 5/16	1 5/16	1 3/16		11/16	7/8	1 7/16	1 1/2	1 1/4	7/8	1/2		1 3/8	1 3/4	2 1/16	3 1/4	3 5/16	2 5/16	
GIRDER 3	DEFLECTION DUE TO WEIGHT OF STEEL		1/16	1/8	3/16	1/4	1/4	1/8	1/8		0	1/16	1/8	1/8	1/16	1/16	0		1/8	3/16	5/16	3/8	3/8	1/4	
	DEFLECTION DUE TO REMAINING DEAD LOAD		9/16	3/4	1 3/8	1 1/2	1 3/8	1/16	5/8		1/4	1/4	3/4	1 3/16	5/8	3/8	1/8		11/16	15/16	1 1/16	2	2 1/16	1 1/16	
	ADJUSTMENT FOR VERTICAL CURVE		7/16	1/2	5/8	5/8	5/8	7/16	7/16		7/16	1/2	5/8	5/8	5/8	1/2	7/16		3/8	7/16	1/2	9/16	9/16	3/8	
	REQUIRED SHOP CAMBER		1 1/16	1 3/8	2 3/16	2 3/8	2 1/4	1 1/4	1 3/16		11/16	13/16	1 1/2	1 9/16	1 3/8	15/16	9/16		1 3/16	1 9/16	2 1/2	2 15/16	3	2 1/16	
GIRDER 4	DEFLECTION DUE TO WEIGHT OF STEEL		1/16	1/8	3/16	1/4	1/4	1/8	1/8		1/16	1/16	1/8	1/8	1/16	1/16	0		1/8	3/16	1/4	3/8	5/16	1/4	
	DEFLECTION DUE TO REMAINING DEAD LOAD		9/16	1/16	15/16	1 7/16	1 5/16	5/8	9/16		1/4	3/8	13/16	7/8	11/16	7/16	3/16		3/4	1	1 3/4	2 1/16	2 3/16	1 1/2	
	ADJUSTMENT FOR VERTICAL CURVE		7/16	1/2	5/8	5/8	5/8	7/16	7/16		7/16	1/2	5/8	5/8	5/8	1/2	7/16		5/16	7/16	1/2	1/2	1/2	5/16	
	REQUIRED SHOP CAMBER		1 1/16	1 5/16	2 1/8	2 5/16	2 3/16	1 3/16	1 1/8		3/4	15/16	1 9/16	1 5/8	1 7/16	1	5/8		13/16	1 5/8	2 1/2	2 15/16	3	2 1/16	
GIRDER 5	DEFLECTION DUE TO WEIGHT OF STEEL		1/16	1/8	3/16	1/4	3/16	1/8	1/16		1/16	1/16	1/8	3/16	1/8	1/8	0		1/8	3/16	1/4	5/16	5/16	1/4	
	DEFLECTION DUE TO REMAINING DEAD LOAD		7/16	9/16	1 1/16	1 1/8	1 1/16	1/2	7/16		1/4	3/8	11/16	3/4	5/8	3/8	3/16		1/2	3/4	1 3/16	1 7/16	1 1/2	1 1/16	
	ADJUSTMENT FOR VERTICAL CURVE		7/16	1/2	5/8	5/8	5/8	7/16	7/16		7/16	1/2	5/8	5/8	5/8	1/2	7/16		5/16	3/8	1/2	1/2	1/2	5/16	
	REQUIRED SHOP CAMBER		15/16	1 3/16	1 7/8	2	1 7/8	1 1/16	15/16		3/4	15/16	1 7/16	1 3/8	1	5/8		15/16	1 5/16	1 5/16	2 1/4	2 5/16	1 5/8		

ORDINATES							
	a	b	c	d	e	f	g
GIRDER 1	0"	3 7/16"	7 5/8"	11 13/16"	12 15/16"	8 13/16"	0"
GIRDER 2	0"	3 3/8"	7 9/16"	11 11/16"	12 3/4"	8 5/8"	0"
GIRDER 3	0"	3 3/8"	7 7/16"	11 9/16"	12 9/16"	8 3/8"	0"
GIRDER 4	0"	3 5/16"	7 3/8"	11 7/16"	12 7/16"	8 3/16"	0"
GIRDER 5	0"	3 1/4"	7 5/16"	11 5/16"	12 1/4"	8"	0"
GIRDER 6	0"	3 1/16"	6 7/8"	10 5/8"	11 5/16"	6 13/16"	0"
GIRDER 7	0"	3 1/16"	6 3/4"	10 1/2"	11 1/8"	6 5/8"	0"
GIRDER 8	0"	3"	6 11/16"	10 3/8"	11"	6 3/8"	0"
GIRDER 9	0"	2 15/16"	6 5/8"	10 1/4"	10 13/16"	6 3/16"	0"
GIRDER 10	0"	2 15/16"	6 9/16"	10 1/8"	10 5/8"	5 15/16"	0"



NOTE: SEE SHEET 27/43 FOR GIRDERS 6 THRU 10 IN UNIT 3 SPANS 16, 17 AND 18.

ALTERNATE - 1 26/43

adache - ciuni - lynn associates  
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

**DEFL. AND CAMBER (UNIT-3)**  
BRIDGE No ERI - 2-19.11 L/R  
S.R. 2 OVER HURON RIVER  
N. & W. R.R. & RIVER ROAD

ERIE COUNTY STA. 1233 + 43.75  
ERI-2-18.38 STA. 1259 + 37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
K.L.M.	D.R.J.	K.L.M.	I.M.B.	L.E.D.	11/4/85

DEFLECTION AND CAMBER (UNIT-3) (INCHES)

GIRDER	POINTS	SPAN NO. 16								SPAN NO. 17								SPAN NO. 18					
		d	1/5	F.S.	2/5	1/2	3/5	F.S.	4/5	e	1/5	F.S.	2/5	1/2	3/5	F.S.	4/5	f	1/4	F.S.	1/2	3/4	g
GIRDER 6	DEFLECTION DUE TO WEIGHT OF STEEL		1/16	1/16	3/16	1/4	3/16	1/8	1/16		1/16	1/16	3/16	1/4	3/16	1/8	1/16		1/16	1/16	1/8	1/8	
	DEFLECTION DUE TO REMAINING DEAD LOAD		3/8	1/2	15/16	1	7/8	1/2	3/8		3/8	1/2	15/16	1	15/16	7/16	3/8		3/8	7/16	7/8	3/4	
	ADJUSTMENT FOR VERTICAL CURVE		7/16	1/2	5/8	5/8	5/8	1/2	7/16		7/16	1/2	5/8	5/8	5/8	7/16	7/16		1/4	5/16	3/8	5/16	
	REQUIRED SHOP CAMBER		7/8	1 1/16	1 3/4	1 7/8	1 11/16	1 1/8	7/8		7/8	1 1/16	1 3/4	1 13/16	1 3/4	1	7/8		11/16	13/16	1 3/8	1 3/16	
GIRDER 7	DEFLECTION DUE TO WEIGHT OF STEEL		1/16	1/16	3/16	1/4	3/16	1/8	1/16		1/16	1/8	3/16	1/4	3/16	1/8	1/8		1/16	1/16	1/8	1/8	
	DEFLECTION DUE TO REMAINING DEAD LOAD		7/16	5/8	1 1/8	1 1/4	1 1/8	5/8	7/16		1/2	5/8	1 3/16	1 3/8	1 1/4	5/8	9/16		5/16	7/16	7/8	13/16	
	ADJUSTMENT FOR VERTICAL CURVE		7/16	1/2	5/8	5/8	5/8	1/2	7/16		7/16	1/2	5/8	5/8	5/8	7/16	7/16		1/4	5/16	3/8	1/4	
	REQUIRED SHOP CAMBER		15/16	1 3/16	1 15/16	2 1/8	1 15/16	1 1/4	15/16		1	1 1/4	2	2 1/4	2 1/16	1 3/16	1 1/8		5/8	13/16	1 3/8	1 3/16	
GIRDER 8	DEFLECTION DUE TO WEIGHT OF STEEL		1/16	1/8	3/16	1/4	3/16	1/8	1/16		1/16	1/16	3/16	1/4	3/16	1/8	1/8		0	1/16	1/8	1/16	
	DEFLECTION DUE TO REMAINING DEAD LOAD		7/16	9/16	1 1/8	1 3/16	1 1/8	5/8	7/16		1/2	11/16	1 1/4	1 7/16	1 5/16	13/16	9/16		1/4	5/16	11/16	11/16	
	ADJUSTMENT FOR VERTICAL CURVE		7/16	1/2	5/8	5/8	5/8	1/2	7/16		7/16	1/2	5/8	5/8	5/8	7/16	7/16		1/4	5/16	5/16	1/4	
	REQUIRED SHOP CAMBER		15/16	1 3/16	1 15/16	2 1/8	1 7/8	1 1/4	15/16		1	1 1/4	1 1/16	2 5/16	1 1/8	1 3/8	1 1/8		1/2	11/16	1 1/8	1	
GIRDER 9	DEFLECTION DUE TO WEIGHT OF STEEL		1/16	1/16	3/16	1/4	3/16	1/8	1/16		1/16	1/16	3/16	1/4	3/16	1/8	1/8		0	1/16	1/16	1/16	
	DEFLECTION DUE TO REMAINING DEAD LOAD		7/16	9/16	1 1/16	1 1/8	1	9/16	3/8		1/2	11/16	1 5/16	1 1/2	1 3/8	11/16	5/8		3/16	5/16	5/8	9/16	
	ADJUSTMENT FOR VERTICAL CURVE		7/16	1/2	5/8	5/8	5/8	1/2	7/16		7/16	1/2	5/8	5/8	5/8	7/16	7/16		1/4	1/4	5/16	1/4	
	REQUIRED SHOP CAMBER		15/16	1 1/8	1 7/8	2	1 13/16	1 9/16	7/8		1	1 1/4	2 1/8	2 3/8	2 3/16	1 1/4	1 3/16		7/16	5/8	1	7/8	
GIRDER 10	DEFLECTION DUE TO WEIGHT OF STEEL		1/16	1/8	3/16	1/4	3/16	1/8	1/16		1/16	1/8	3/16	1/4	1/4	1/8	1/8		0	0	1/16	1/16	
	DEFLECTION DUE TO REMAINING DEAD LOAD		5/16	7/16	13/16	7/8	13/16	7/16	5/16		7/16	9/16	1 1/8	1 1/4	1 3/16	5/8	9/16		1/16	3/16	3/8	3/8	
	ADJUSTMENT FOR VERTICAL CURVE		7/16	1/2	5/8	5/8	5/8	1/2	7/16		7/16	1/2	5/8	5/8	5/8	7/16	7/16		1/4	1/4	5/16	1/4	
	REQUIRED SHOP CAMBER		13/16	1 1/16	1 5/8	1 3/4	1 5/8	1 1/16	13/16		15/16	1 3/16	1 15/16	2 1/8	2 1/16	1 3/16	1 1/8		5/16	7/16	3/4	11/16	

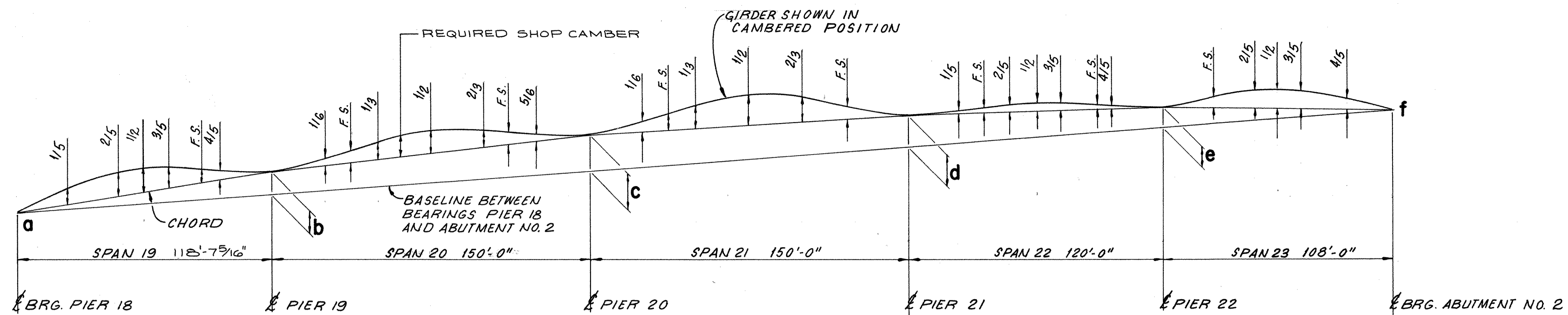
ALTERNATE - I

27/43

adache - ciuni - lynn associates  
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

**DEFL. AND CAMBER (UNIT-3)**  
BRIDGE N<sup>o</sup> ERI - 2-19.11 L/R  
S.R. 2 OVER HURON RIVER  
N. & W. R.R. & RIVER ROAD  
ERIE COUNTY STA. 1233+ 43.75  
ERI - 2-18.38 STA. 1259+ 37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
K.L.M.	DR.J.	K.L.M.	I.M.B.	L.E.D. 11/4/85	



LAYOUT DIAGRAM

DEFLECTION AND CAMBER (UNIT 4) (INCHES)

	SPANS	SPAN 19										SPAN 20						SPAN 21						SPAN 22						SPAN 23							
		a	1/5	2/5	1/2	3/5	F.S.	4/5	b	1/6	F.S.	1/3	1/2	2/3	F.S.	5/6	c	1/6	F.S.	1/3	1/2	2/3	F.S.	d	1/5	F.S.	2/5	1/2	3/5	F.S.	4/5	e	F.S.	2/5	1/2	3/5	4/5
GIRDERS 2 THRU 4 & 7 THRU 9	DEFLECTION DUE TO WEIGHT OF STEEL		1/4	3/8	5/16	5/16	3/16	1/8		1/6	1/8	3/16	1/4	3/16	1/8	1/6		1/8	3/16	5/16	7/16	3/8	3/16		0	0	0	0	0	0		1/8	1/4	1/4	1/4	3/16	
	DEFLECTION DUE TO REMAINING DEAD LOAD		15/16	17/8	17/4	17/6	7/8	1/2		3/8	3/4	17/8	17/6	17/6	11/6	5/6		11/6	17/6	11/6	27/8	2	17/8		-1/8	0	3/16	1/4	1/4	1/16	0		3/4	17/16	17/16	17/16	17/8
	ADJUSTMENT FOR VERTICAL CURVE		3/8	9/16	5/8	9/16	1/2	3/8		1/2	11/16	7/8	15/16	7/8	3/4	1/2		1/2	11/16	7/8	15/16	13/16	9/16		3/8	1/2	9/16	5/8	9/16	7/16	3/8		3/8	1/2	1/2	1/2	5/16
	REQUIRED SHOP CAMBER		15/16	27/16	27/16	27/16	19/16	1		15/16	17/16	27/16	27/16	27/16	27/16	17/16		15/16	27/16	27/16	27/16	27/16	17/16		15/16	27/16	27/16	13/16	1/2	3/8		17/16	27/16	27/16	27/16	17/16	
	ORDINATE BETWEEN CHORD AND BASELINE	0							10 5/8"								15 3/16"							14 3/16"							9 7/8"						0
GIRDERS 1, 5, 6 & 10	DEFLECTION DUE TO WEIGHT OF STEEL		1/4	3/8	5/16	5/16	3/16	1/8		1/6	1/8	3/16	1/4	3/16	1/8	1/6		1/8	3/16	5/16	7/16	3/8	3/16		0	0	0	0	0	0		1/8	1/4	1/4	1/4	3/16	
	DEFLECTION DUE TO REMAINING DEAD LOAD		17/16	17/8	17/6	17/6	11/16	7/16		5/16	5/8	15/16	15/16	7/8	9/16	1/4		9/16	1	17/8	15/16	15/8	7/8		-1/8	0	3/16	3/16	3/16	1/16	0		5/8	17/16	17/16	17/16	15/16
	ADJUSTMENT FOR VERTICAL CURVE		3/8	9/16	5/8	9/16	1/2	3/8		1/2	11/16	7/8	15/16	7/8	3/4	1/2		1/2	11/16	7/8	15/16	13/16	5/8		3/8	1/2	9/16	5/8	5/8	7/16	3/8		5/16	7/16	1/2	1/2	5/16
	REQUIRED SHOP CAMBER		17/16	27/16	27/16	27/16	17/16	15/16		7/8	17/16	2	27/16	15/16	17/16	13/16		17/16	17/16	27/16	27/16	27/16	17/16		17/16	17/16	13/16	13/16	1/2	3/8		17/16	17/16	27/16	27/16	17/16	
	ORDINATE BETWEEN CHORD AND BASELINE	0							10 5/8"								15 3/16"							14 3/16"							9 7/8"						0

NOTES

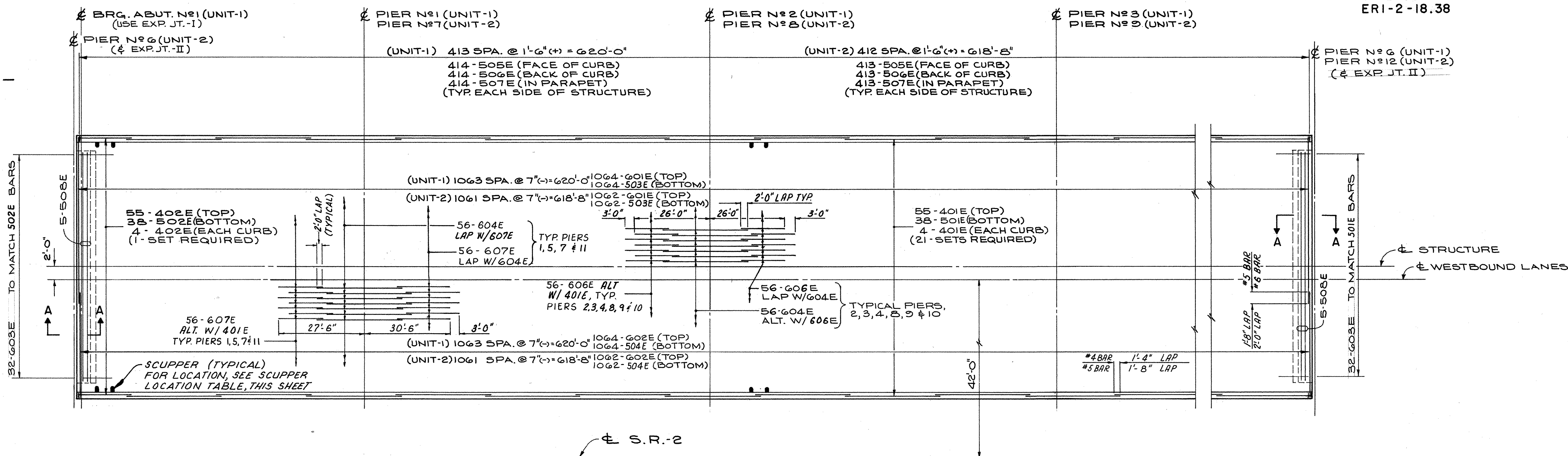
NEGATIVE VALUES OF CAMBER INDICATE THE DIMENSION IS BELOW THE CHORD BETWEEN ADJACENT BEARINGS.

ALTERNATE - I 28/43

adache - ciuni - lynn associates  
CONSULTING ENGINEERS CLEVELAND, OHIO 44130

**DEFL. AND CAMBER (UNIT-4)**  
BRIDGE NO. ERI-2-19.11 L/R  
S.R. 2 OVER HURON RIVER  
N. & W. R.R. & RIVER ROAD  
ERIE COUNTY STA. 1233 + 43.75 TO  
ERI-2-18.38 STA. 1259 + 37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
K.L.M.	D.R.J.	K.L.M.	E.A.F.	L.E.D.	11/4/85



SCUPPER LOCATION TABLE	
STA. 1233+50.25	STA. 1239+76.75
STA. 1233+55.25	STA. 1239+81.25
STA. 1235+59.50	STA. 1241+79.50
STA. 1235+64.50	STA. 1241+84.50
STA. 1237+48.25	STA. 1243+68.25
STA. 1237+53.25	STA. 1243+73.25

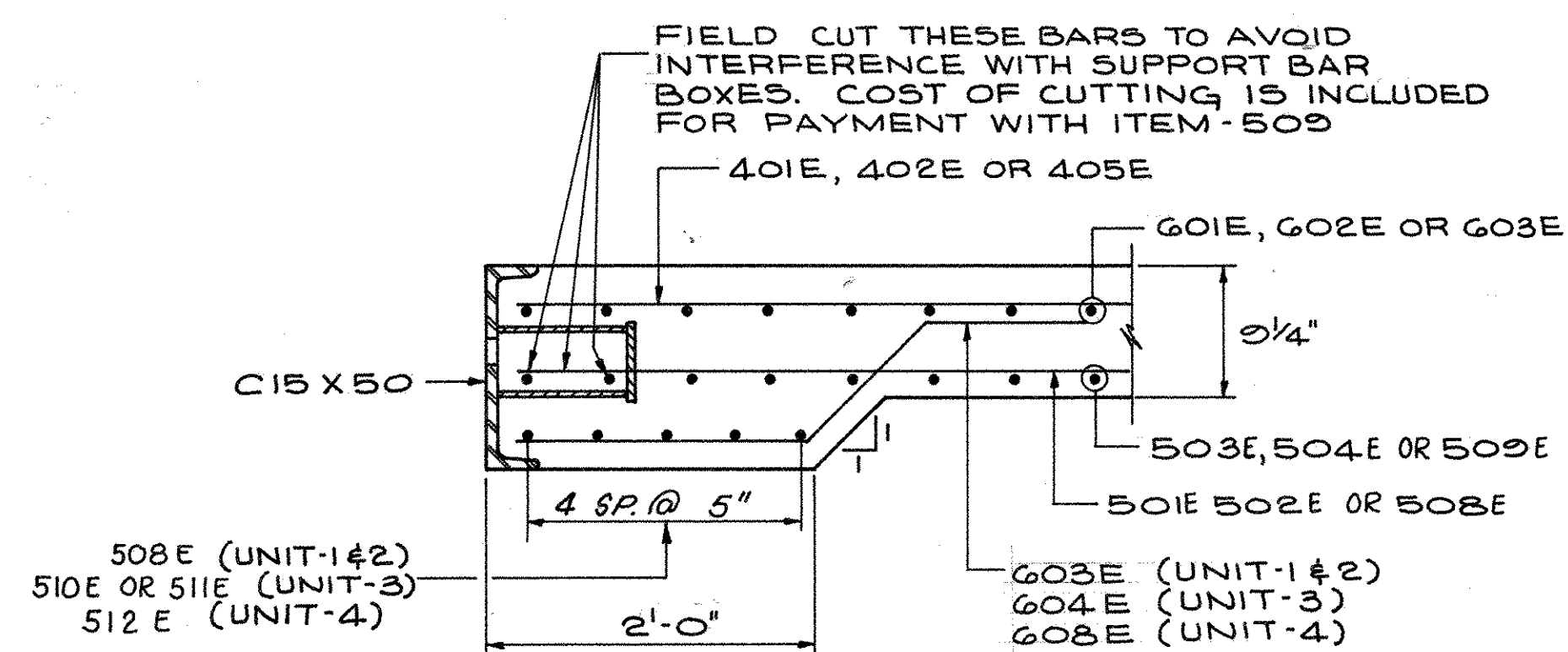
NOTE: A SCUPPER SHALL BE PLACED IN EACH GUTTER FOR EASTBOUND AND WESTBOUND STRUCTURES AT EACH OF THE ABOVE STATIONS.

### DECK SLAB PLAN, UNITS 1 & 2

WESTBOUND STRUCTURE SHOWN  
EASTBOUND STRUCTURE SIMILAR

### NOTES:

- THE PREFIXES "15" & "25" SHALL BE ADDED TO ALL REINFORCING BAR MARKS IN THE SUPERSTRUCTURE OF UNITS 1 & 2 RESPECTIVELY.
- FOR ADDITIONAL NOTES SEE SHEET. 31/43.



### SECTION A-A

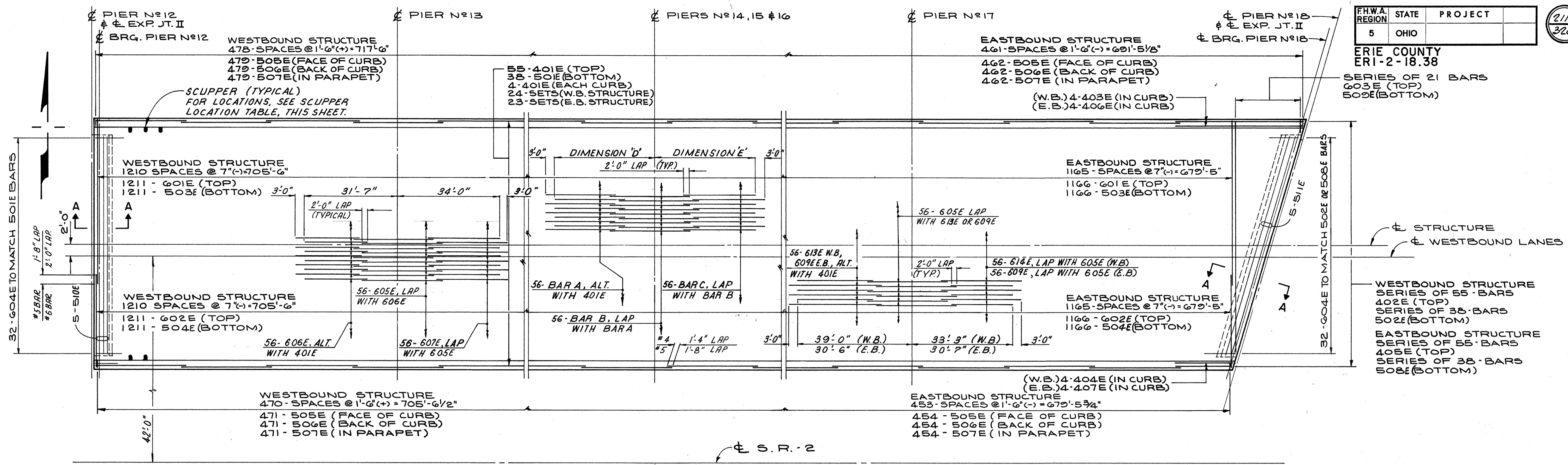
ALTERNATE - 1 29/43

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### DECK SLAB PLAN, UNITS-1 & 2

BRIDGE N° ERI-2-1911 L/R  
S.R. 2 OVER HURON RIVER  
N. & W. R.R. & RIVER ROAD  
ERIE COUNTY STA. 1233+43.75 TO  
ERI-2-18.38 STA. 1259+37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
K.L.M.	J.D.P.	K.L.M.	L.E.D.	11/4/85	



**DECK SLAB PLAN**

WESTBOUND STRUCTURE SHOWN  
EASTBOUND STRUCTURE SAME  
EXCEPT AS SHOWN

STA. 1245+99.50
STA. 1246+04.50
STA. 1246+09.50 *
STA. 1248+27.00
STA. 1248+32.00
STA. 1250+41.00
STA. 1250+46.00

NOTE: A SCUPPER SHALL BE PLACED IN EACH GUTTER FOR EASTBOUND AND WESTBOUND STRUCTURES AT EACH OF THE ABOVE STATIONS, EXCEPT AS DENOTED BY ASTERISK \*

\* DENOTES SCUPPER PLACED ON NORTH GUTTER OF W.B. STRUCTURE AND SOUTH GUTTER OF E.B. STRUCTURE.

PIER N <sup>o</sup>	BAR A	BAR B	BAR C	DIM. D	DIM. E
14	607E	605E	607E	34'-0"	34'-0"
15	607E	605E	608E	34'-0"	34'-4"
16 (W.B.)	609E	605E	610E	30'-6"	33'-6"
16 (E.B.)	611E	605E	612E	35'-6"	32'-10"

**NOTES:**

1. THE PREFIX "35" SHALL BE ADDED TO ALL REINFORCING BAR MARKS IN THE UNIT-3 SUPERSTRUCTURE.
2. FOR SECTION A-A, SEE SHT. 29/43.
3. FOR ADDITIONAL NOTES SEE SHEET 31/43.

ALTERNATE-1

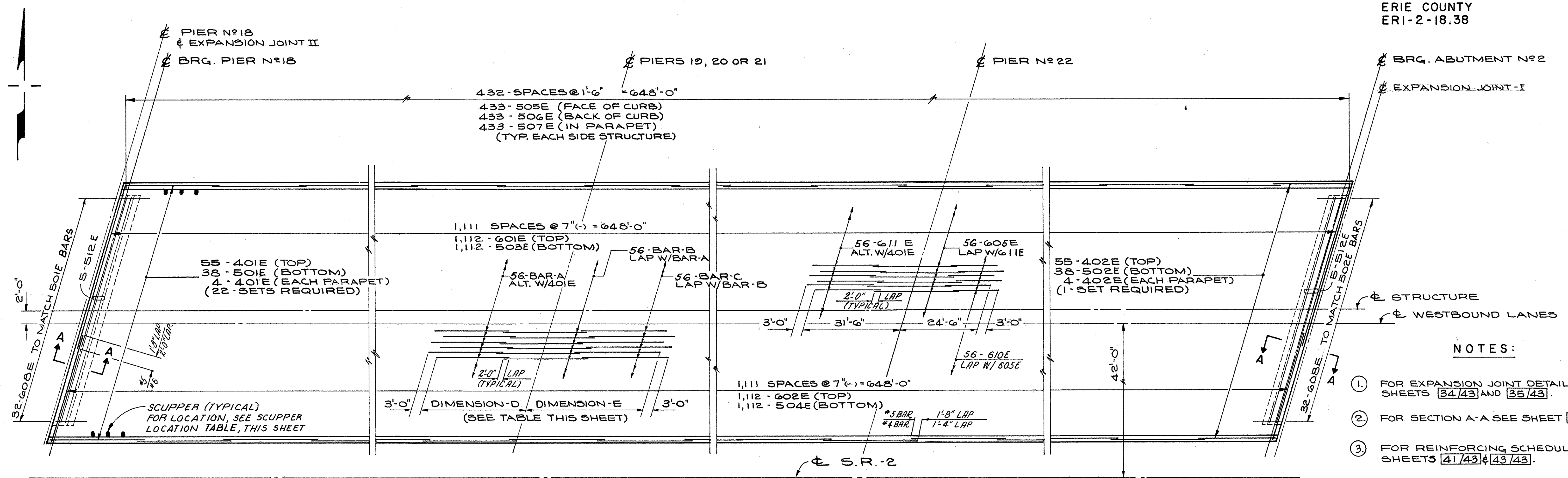
30/43

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**DECK SLAB PLAN, UNIT-3**  
BRIDGE N<sup>o</sup> ERI-2-1911 L/R  
S.R. 2 OVER HURON RIVER  
N. & W. R.R. & RIVER ROAD  
ERIE COUNTY STA. 1233+43.75 TO  
ERI-2-18.38 STA. 1259+37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
K.L.M.	J.D.P.	K.L.M.	L.E.D.	11/4/85	

ERIE COUNTY  
ERI-2-18.38



**DECK SLAB PLAN**  
WESTBOUND STRUCTURE SHOWN,  
EASTBOUND STRUCTURE SIMILAR

SCUPPER LOCATION TABLE			
EASTBOUND LANES		WESTBOUND LANES	
NORTH GUTTER	SOUTH GUTTER	NORTH GUTTER	SOUTH GUTTER
STA. 1252+97.50	STA. 1252+93.00	STA. 1253+23.50	STA. 1253+09.00
STA. 1253+02.50	STA. 1252+98.00	STA. 1253+28.50	STA. 1253+14.00
	STA. 1253+03.50	STA. 1253+33.50	
STA. 1254+95.00	STA. 1254+80.00	STA. 1255+21.00	STA. 1255+06.00
STA. 1255+00.00	STA. 1254+85.00	STA. 1255+26.00	STA. 1255+11.00
STA. 1257+11.00	STA. 1256+96.00	STA. 1257+37.00	STA. 1257+22.00
STA. 1257+16.00	STA. 1257+01.00	STA. 1257+42.00	STA. 1257+27.00

- NOTES:**
- FOR EXPANSION JOINT DETAILS SEE SHEETS [34/43] AND [35/43].
  - FOR SECTION A-A SEE SHEET [29/43].
  - FOR REINFORCING SCHEDULE, SEE SHEETS [41/43] & [43/43].
  - FOR TRANSVERSE SECTION, SEE SHEET [18/43].
  - FOR PAVEMENT ELEVATIONS, SEE SHEET [32/43].
  - ALL STAGGERED BARS OVER PIERS TO RUN FULL WIDTH OF BRIDGE DECK.
  - BAR MARKS FOR REINFORCING BARS WHICH ARE TO BE EPOXY-COATED INCLUDE A LETTER SUFFIX - "E".
  - THE PREFIX "45" SHALL BE ADDED TO ALL REINFORCING BAR MARKS IN THE SUPERSTRUCTURE OF UNIT 4.
  - FOR PARAPET DETAILS, SEE SHEET [33/43].
  - ADJUST SPACING OF 507E BARS TO CLEAR PARAPET JOINTS.
  - TYPICAL LAPS:  
# 4 BAR = 1'-4"  
# 5 BAR = 1'-8"  
# 6 BAR = 2'-0"

STAGGERED BARS OVER PIERS					
PIER#	BAR-A	BAR-B	BAR-C	DIM.-D	DIM.-E
19	603E	605E	604E	34'-0"	37'-6"
20	605E	605E	606E	42'-8"	38'-0"
21	607E	605E	609E	29'-2"	36'-8"

ALTERNATE-1 [31/43]

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**DECK SLAB PLAN, UNIT-4**  
BRIDGE #2 ERI-2-1911 L/R  
S.R. 2 OVER HURON RIVER  
N. & W. R. R. & RIVER ROAD  
ERIE COUNTY STA. 1233+43.75 TO  
ERI-2-18.38 STA. 1259+37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
K.L.M.	J.D.P.	K.L.M.	I.M.B.	L.E.D. 11/4/85	



# PAVEMENT ELEVATIONS

FHWA REGION	STATE	PROJECT			
5	OHIO				212 326

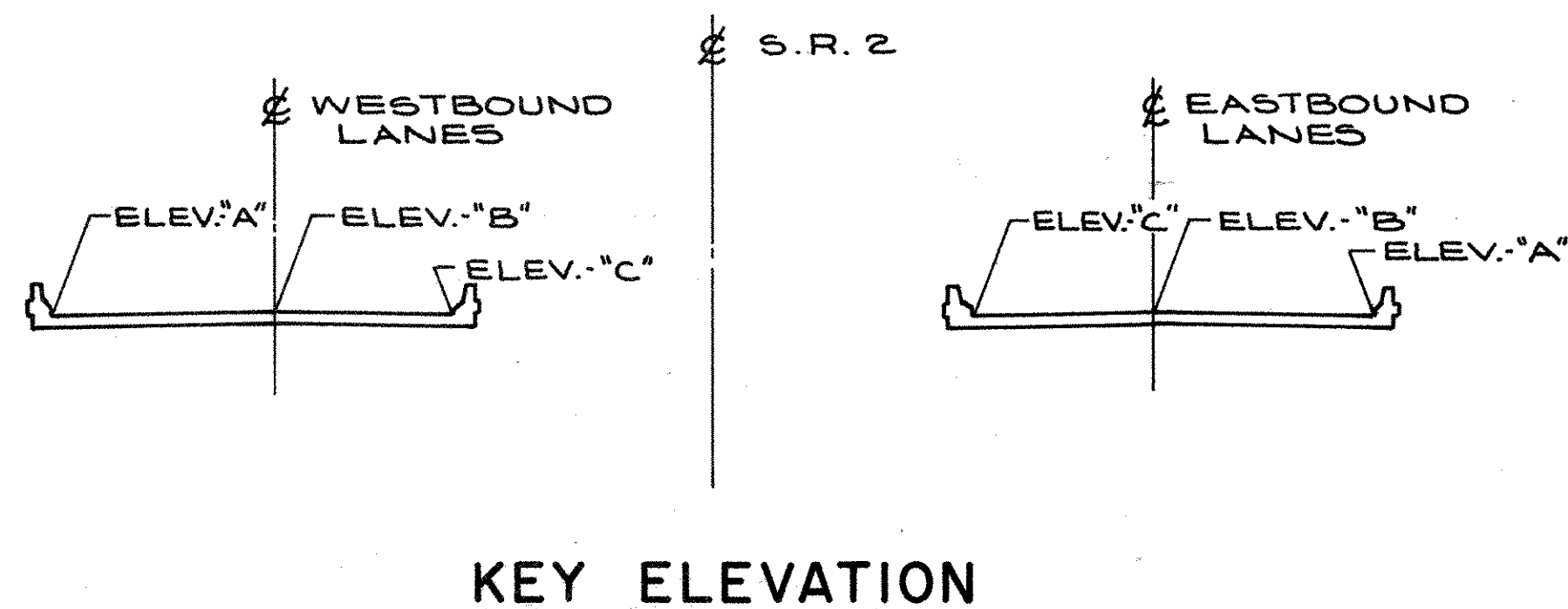
ERIE COUNTY  
ERI-2-18.38

UNIT N <sup>o</sup> 1			
LOCATION	W.B. & E.B. STRUCTURES		
	ELEV.-"A"	ELEV.-"B"	ELEV.-"C"
± BRG. ABUT. N <sup>o</sup> 1	588.92	589.25	588.98
1233+50	588.94	589.28	589.01
1233+75	589.12	589.47	589.18
1234+00	589.23	589.58	589.29
1234+25	589.30	589.64	589.37
± PIER N <sup>o</sup> 1	589.35	589.68	589.41
1234+50	588.42	589.76	589.48
1234+75	589.58	589.92	589.64
1235+00	589.71	590.06	589.77
1235+25	589.79	590.13	589.86
± PIER N <sup>o</sup> 2	589.88	590.21	589.94
1235+50	589.90	590.23	589.96
1235+75	590.05	590.39	590.11
1236+00	590.20	590.55	590.26
1236+25	590.30	590.64	590.36
1236+50	590.38	590.71	590.44
± PIER N <sup>o</sup> 3	590.40	590.74	590.47
1236+75	590.51	590.85	590.57
1237+00	590.67	591.02	590.74
1237+25	590.79	591.14	590.85
1237+50	590.87	591.21	590.93
± PIER N <sup>o</sup> 4	590.93	591.27	590.99
1237+75	590.98	591.31	591.04
1238+00	591.13	591.48	591.20
1238+25	591.27	591.62	591.33
1238+50	591.36	591.70	591.42
1238+75	591.45	591.79	591.52
± PIER N <sup>o</sup> 5	591.46	591.79	591.52
1239+00	591.60	591.95	591.67
1239+25	591.78	592.13	591.84
1239+50	591.91	592.26	591.97
± PIER N <sup>o</sup> 6	591.97	592.31	592.04

UNIT N <sup>o</sup> 2			
LOCATION	W.B. & E.B. STRUCTURES		
	ELEV.-"A"	ELEV.-"B"	ELEV.-"C"
± PIER N <sup>o</sup> 6	591.99	592.33	592.05
1239+75	592.07	592.42	592.14
1240+00	592.33	592.68	592.39
1240+25	592.54	592.89	592.60
1240+50	592.76	593.10	592.82
± PIER N <sup>o</sup> 7	592.83	593.16	592.89
1240+75	593.06	593.39	593.12
1241+00	593.41	593.75	593.47
1241+25	593.74	594.09	593.80
1241+50	594.07	594.41	594.13
± PIER N <sup>o</sup> 8	594.31	594.64	594.37
1241+75	594.45	594.79	594.51
1242+00	594.90	595.25	594.97
1242+25	595.36	595.71	595.43
1242+50	595.80	596.14	595.86
1242+75	596.26	596.59	596.32
± PIER N <sup>o</sup> 9	596.29	596.62	596.35
1243+00	596.80	597.14	596.86
1243+25	597.38	597.73	597.44
1243+50	597.94	598.28	598.00
1243+75	598.49	598.82	598.55
± PIER N <sup>o</sup> 10	598.76	599.09	598.82
1244+00	599.11	599.44	599.17
1244+25	599.79	600.14	599.85
1244+50	600.47	600.82	600.53
1244+75	601.13	601.47	601.19
± PIER N <sup>o</sup> 11	601.73	602.06	601.79
1245+00	601.84	602.17	601.90
1245+25	602.61	602.96	602.67
1245+50	603.37	603.73	603.44
1245+75	604.07	604.42	604.13
± PIER N <sup>o</sup> 12	604.34	604.67	604.40

UNIT N <sup>o</sup> 3						
LOCATION	W. B. STRUCTURE			E. B. STRUCTURE		
	ELEV.-"A"	ELEV.-"B"	ELEV.-"C"	ELEV.-"C"	ELEV.-"B"	ELEV.-"A"
± PIER N <sup>o</sup> 12	604.41	604.75	604.48	604.48	604.75	604.41
1246+00	604.82	605.17	604.89	604.89	605.17	604.82
1246+25	605.61	605.96	605.67	605.67	605.96	605.61
1246+50	606.32	606.67	606.38	606.38	606.67	606.32
1246+75	606.99	607.33	607.06	607.06	607.33	606.99
± PIER N <sup>o</sup> 13	607.37	607.71	607.44	607.44	607.71	607.37
1247+00	607.72	608.05	607.78	607.78	608.05	607.72
1247+25	608.50	608.84	608.56	608.56	608.84	608.50
1247+50	609.27	609.62	609.33	609.33	609.62	609.27
1247+75	609.97	610.32	610.04	610.04	610.32	609.97
1248+00	610.66	611.00	610.72	610.72	611.00	610.66
± PIER N <sup>o</sup> 14	611.02	611.35	611.08	611.08	611.35	611.02
1248+25	611.40	611.73	611.46	611.46	611.73	611.40
1248+50	612.18	612.53	612.24	612.24	612.53	612.18
1248+75	612.94	613.30	613.01	613.01	613.30	612.94
1249+00	613.65	613.99	613.71	613.71	613.99	613.65
1249+25	614.34	614.67	614.40	614.40	614.67	614.34
± PIER N <sup>o</sup> 15	614.66	615.00	614.73	614.73	615.00	614.66
1249+50	615.07	615.41	615.13	615.13	615.40	615.06
1249+75	615.84	616.18	615.89	615.89	616.17	615.82
1250+00	616.56	616.91	616.61	616.60	616.89	616.53
1250+25	617.20	617.55	617.25	617.24	617.52	617.17
1250+50	617.80	618.13	617.86	617.85	618.12	617.79
± PIER N <sup>o</sup> 16	618.05	618.39	618.12	618.12	618.39	618.05
1250+75	618.42	618.76	618.49	618.50	618.77	618.44
1251+00	619.07	619.42	619.15	619.17	619.46	619.12
1251+25	619.68	620.04	619.77	619.79	620.09	619.75
1251+50	620.24	620.59	620.32	620.34	620.64	620.30
1251+75	620.79	621.13	620.86	620.87	621.14	620.81
± PIER N <sup>o</sup> 17	621.01	621.34	621.07	621.07	621.35	621.01
1252+00	621.38	621.72	621.44	621.42	621.69	621.35
1252+25	622.00	622.33	622.04	622.00	622.26	621.91
1252+50	622.57	622.90	622.59	622.53	622.78	622.42
± PIER N <sup>o</sup> 18	—	—	—	—	623.18	622.71
1252+75	623.03	623.35	623.03	622.97	—	—
± PIER N <sup>o</sup> 18	—	623.66	623.28	623.01	—	—
1253+00	623.40	—	—	—	—	—
± PIER N <sup>o</sup> 18	623.45	—	—	—	—	—

UNIT N <sup>o</sup> 4						
LOCATION	W. B. STRUCTURE			E. B. STRUCTURE		
	ELEV.-"A"	ELEV.-"B"	ELEV.-"C"	ELEV.-"C"	ELEV.-"B"	ELEV.-"A"
± PIER N <sup>o</sup> 18	—	—	—	623.07	623.23	622.77
1252+75	—	—	—	—	623.23	622.92
± PIER N <sup>o</sup> 18	623.50	623.71	623.33	—	—	—
1253+00	—	623.71	623.46	623.51	623.82	623.48
1253+25	623.90	624.28	624.00	624.02	624.32	623.95
1253+50	624.40	624.76	624.46	624.44	624.72	624.35
1253+75	624.80	625.14	624.84	624.80	625.07	624.71
± PIER N <sup>o</sup> 19	—	—	—	625.16	625.35	624.91
1254+00	625.15	625.47	625.19	625.17	625.45	625.11
± PIER N <sup>o</sup> 19	625.50	625.74	625.39	—	—	—
1254+25	625.50	625.84	625.57	625.59	625.88	625.55
1254+50	625.90	626.25	625.99	626.02	626.32	625.97
1254+75	626.31	626.67	626.39	626.40	626.69	626.32
1255+00	626.67	627.03	626.73	626.70	626.98	626.61
1255+25	626.96	627.30	627.00	626.97	627.24	626.89
± PIER N <sup>o</sup> 20	—	—	—	627.24	627.45	627.04
1255+50	627.21	627.54	627.26	627.25	627.53	627.21
± PIER N <sup>o</sup> 20	627.48	627.74	627.41	—	—	—
1255+75	627.47	627.82	627.55	627.58	627.88	627.55
1256+00	627.79	628.15	627.88	627.92	628.24	627.89
1256+25	628.11	628.49	628.20	628.21	628.52	628.15
1256+50	628.38	628.75	628.44	628.42	628.71	628.33
1256+75	628.57	628.92	628.61	628.56	628.83	628.47
± PIER N <sup>o</sup> 21	—	—	—	628.69	628.92	628.54
1257+00	628.70	629.02	628.73	628.70	628.96	628.63
± PIER N <sup>o</sup> 21	628.82	629.11	628.80	—	—	—
1257+25	628.82	629.14	628.87	628.87	629.15	628.82
1257+50	628.97	629.31	629.04	629.05	629.33	628.99
1257+75	629.13	629.47	629.20	629.20	629.47	629.13
1258+00	629.26	629.59	629.32	629.30	629.57	629.24
± PIER N <sup>o</sup> 22	—	—	—	629.39	629.64	629.28
1258+25	629.35	629.68	629.41	629.43	629.71	629.39
± PIER N <sup>o</sup> 22	629.43	629.74	629.45	—	—	—
1258+50	629.45	629.80	629.54	629.58	629.88	629.54
1258+75	629.59	629.96	629.68	629.70	629.99	629.63
1259+00	629.69	630.05	629.75	629.73	630.01	629.63
1259+25	629.71	630.04	629.74	629.68	—	—
± BRG. ABUT. N <sup>o</sup> 2	—	—	—	629.68	629.94	629.60
1259+50	629.65	—	—	—	—	—
± BRG. ABUT. N <sup>o</sup> 2	629.64	629.97	629.69	—	—	—



**NOTE:**  
THESE ELEVATIONS ARE TO THE TOP OF THE PORTLAND CEMENT CONCRETE, AND ARE THOSE WHICH ARE REQUIRED BEFORE THE CONCRETE IS PLACED. PROPER ALLOWANCE HAS BEEN MADE FOR DEAD LOAD DEFLECTIONS CAUSED BY THE WEIGHT OF THE CONCRETE DECK. SEE KEY ELEVATION, (THIS SHEET) FOR LOCATION OF ELEVATION POINTS.

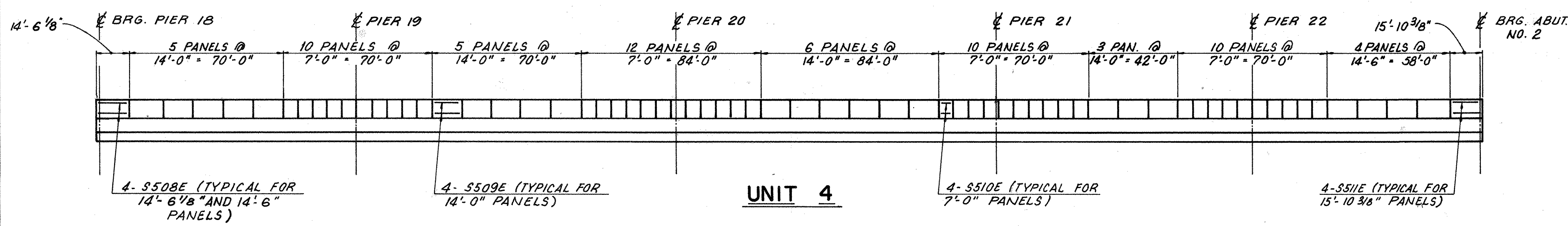
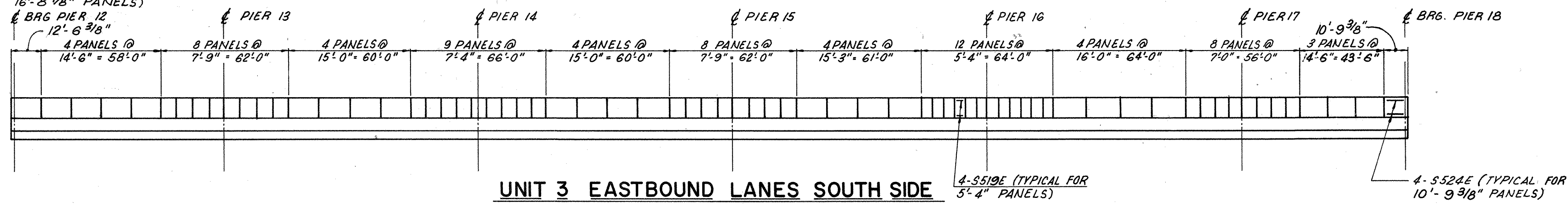
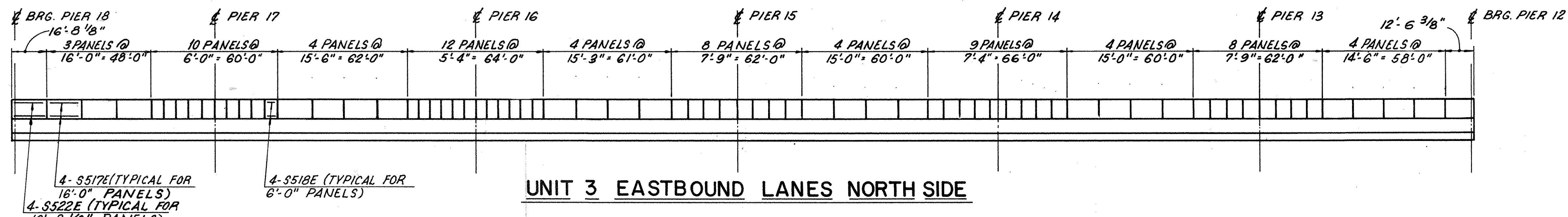
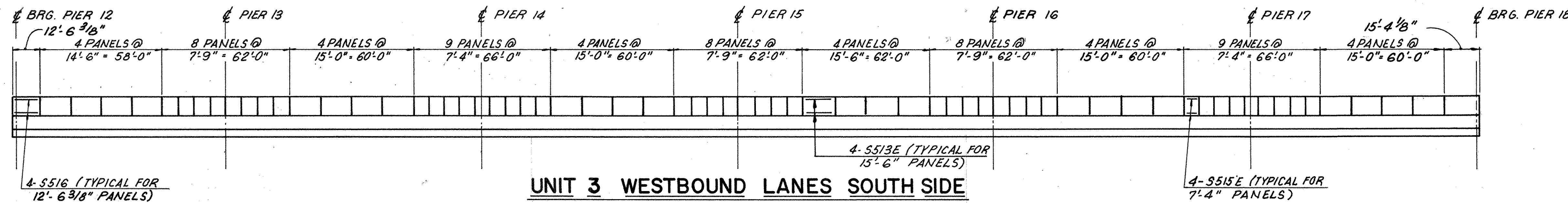
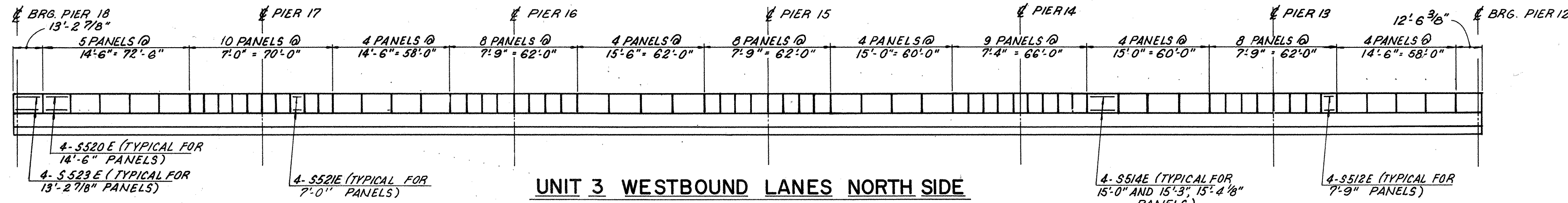
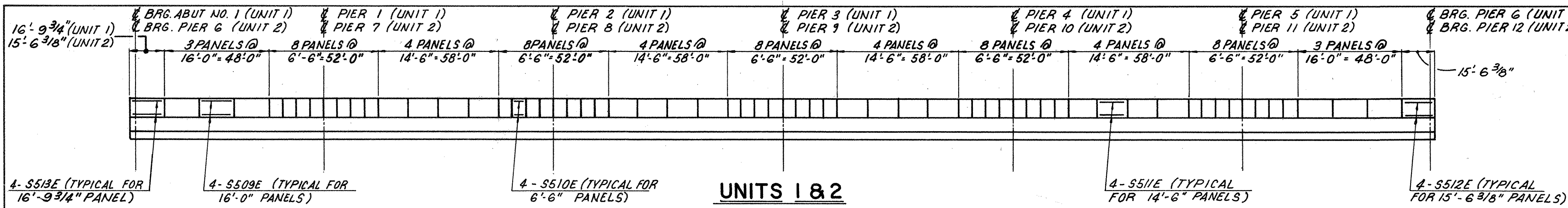
ALTERNATE - I 32/43

adache - ciuni - lynn associates  
CONSULTING ENGINEERS CLEVELAND, OHIO 44130

**PAVEMENT ELEVATIONS**  
BRIDGE N<sup>o</sup> ERI - 2 - 1911 L/R  
S.R. 2 OVER HURON RIVER  
N. & W. R. R. & RIVER ROAD

ERIE COUNTY STA. 1233+43.75 TO  
ERI - 2 - 18.38 STA. 1259 + 37.31

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
K.L.M.	J.D.P.	K.L.M.	L.E.D.	11/4/85	



NOTES

- FOR TRANSVERSE SECTION, SEE SHEET 18/43
- FOR DECK SLAB PLANS, SEE SHEETS 29/43, 30/43 & 31/43.
- FOR ADDITIONAL RAILING DETAILS, SEE STD. DWG. BR-1.
- FOR REINFORCING SCHEDULE, SEE SHEETS 41/43, 42/43 & 43/43.
- BAR MARKS FOR REINFORCING BARS WHICH ARE TO BE EPOXY COATED INCLUDE A LETTER SUFFIX -E

ALTERNATE - I 33/43

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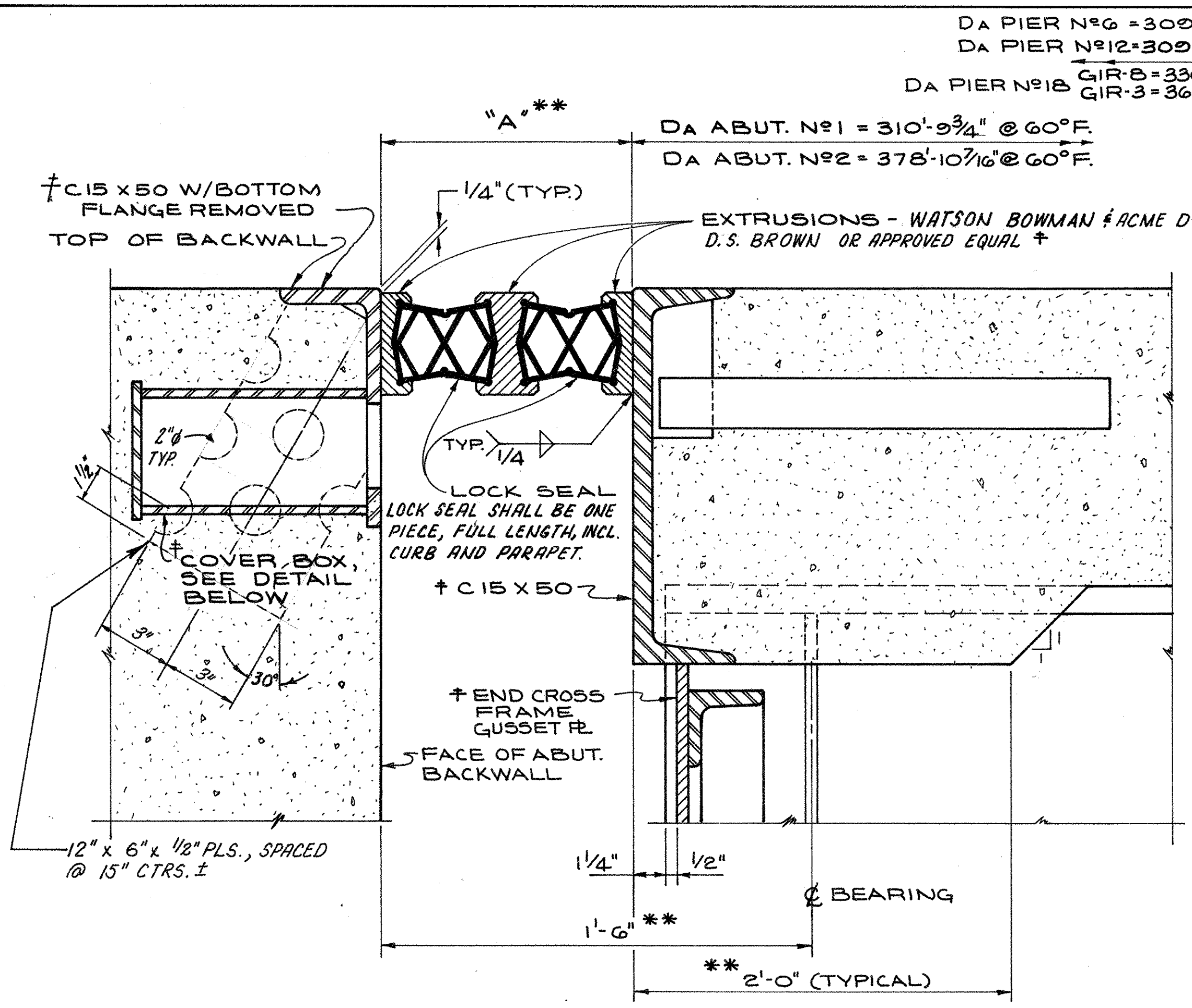
**PARAPET ELEVATION**  
BRIDGE NO. ERI-2-19.11 L / R  
S.R. 2 OVER HURON RIVER  
N. & W. R.R. & RIVER ROAD

ERIE COUNTY STA. 1233 + 43.75 TO  
ERI-2-18.38 STA. 1259 + 37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
D.R.J.	D.R.J.	K.L.M.	L.E.D.	11/4/85	

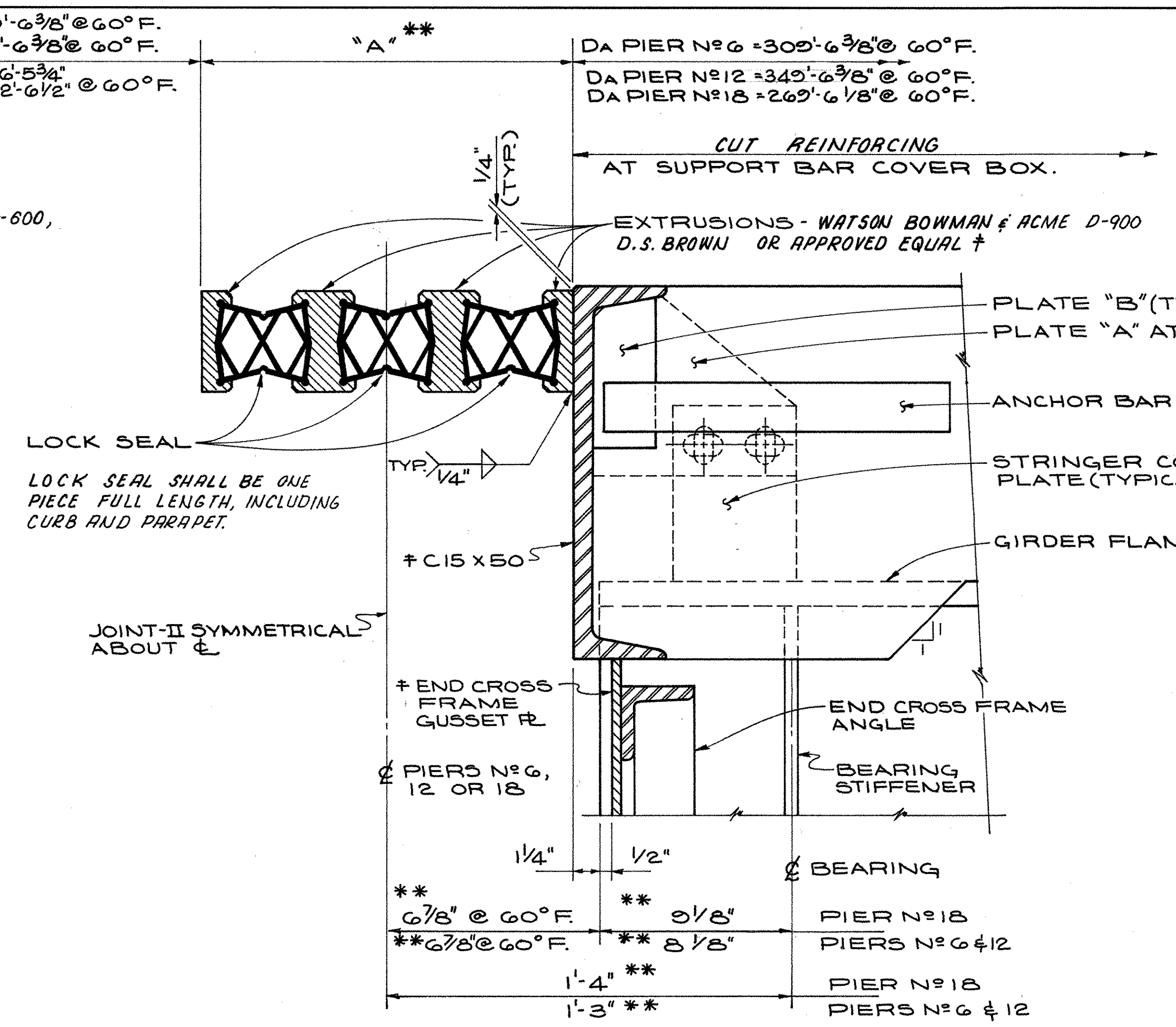
F.H.W.A. REGION	STATE	PROJECT
5	OHIO	

ERIE COUNTY  
ERIE-2-18.38



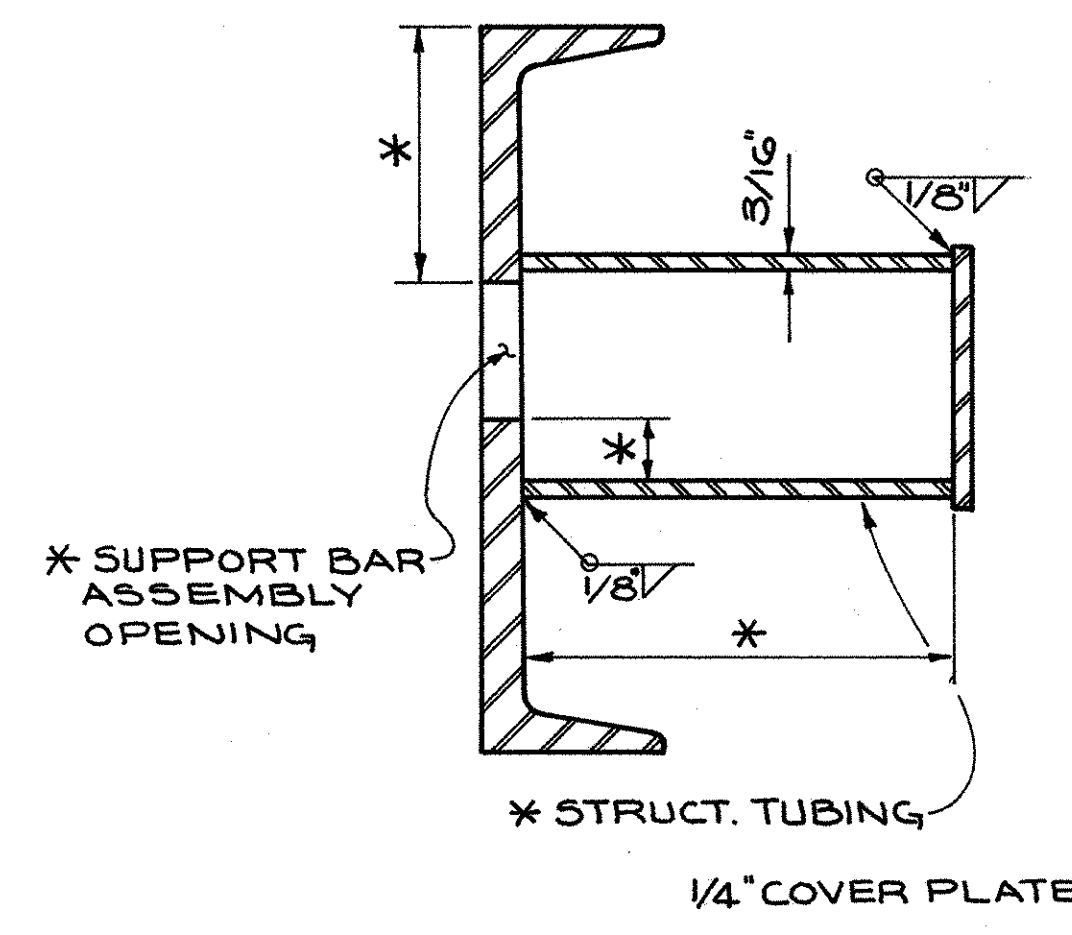
**EXPANSION JOINT - I**

ABUT. N° 1 SHOWN, ABUT. N° 2 SIMILAR, BUT OPPOSITE HAND



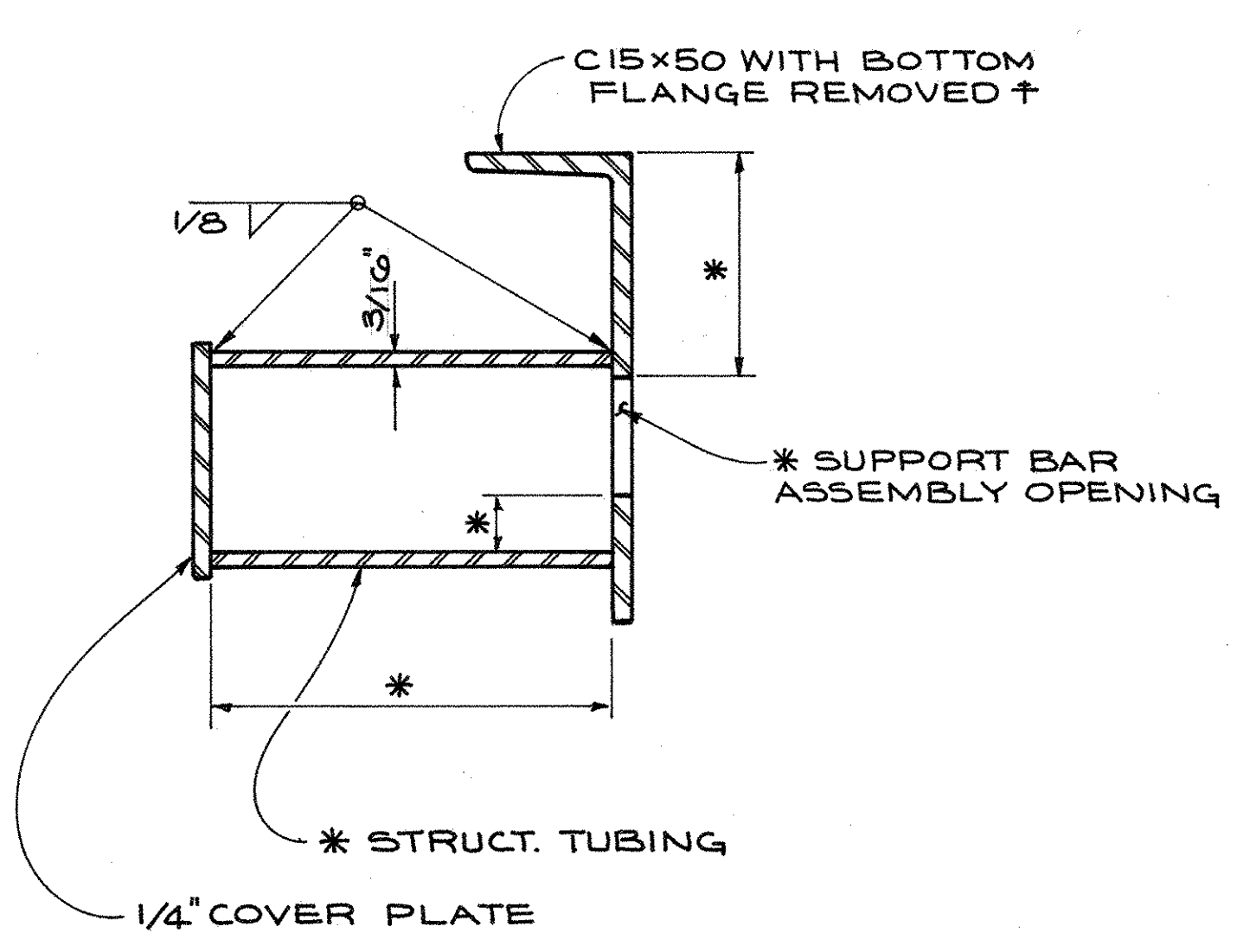
**EXPANSION JOINT II**

PIERS N°6, 12 AND 18  
SUPPORT BAR AND COVER BOX,  
NOT SHOWN

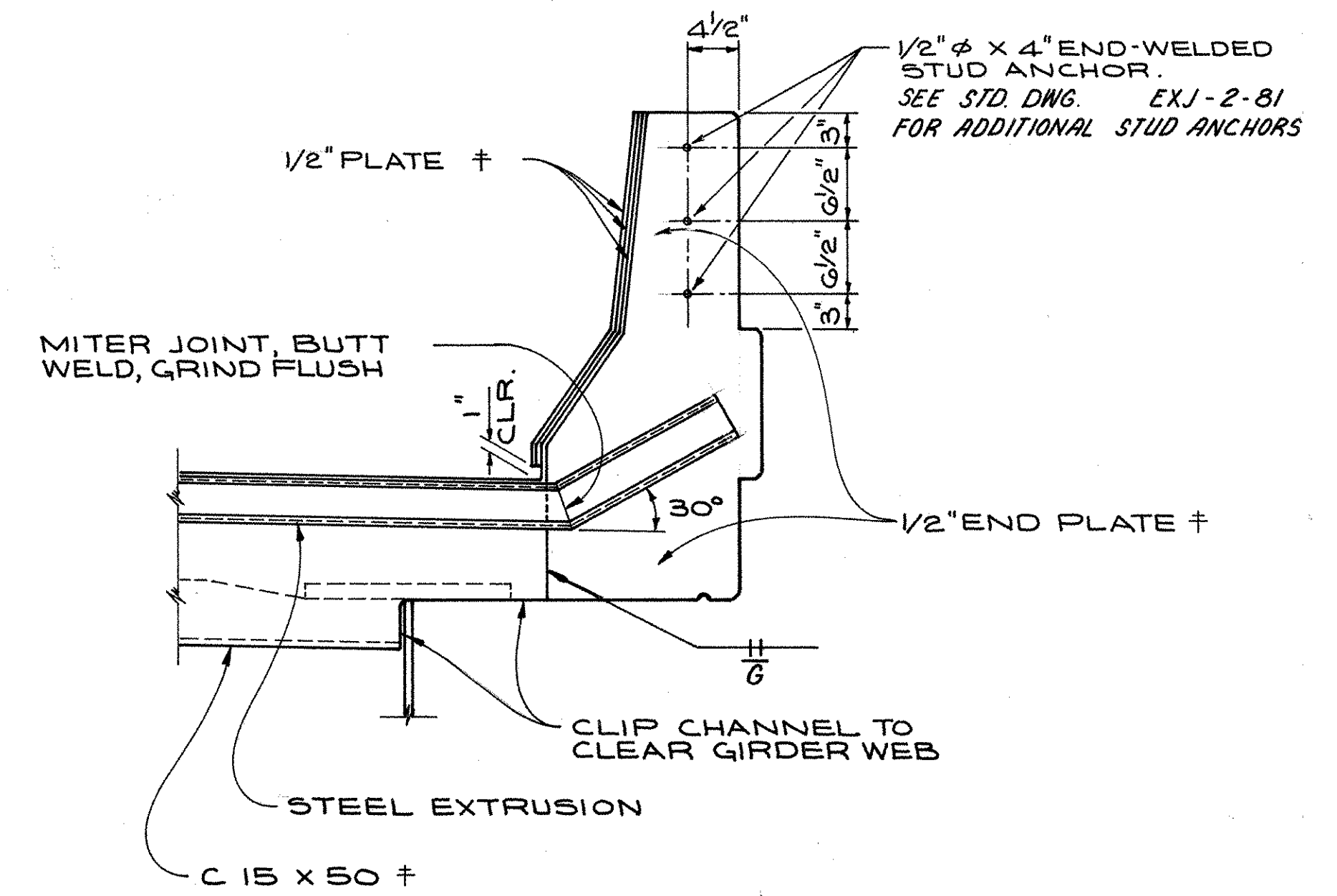


\* ITEMS DENOTED BY AN ASTERISK  
SHALL BE VERIFIED BY THE  
JOINT MANUFACTURER, PRIOR  
TO FABRICATION.

**COVER BOX DETAIL †**



**COVER BOX DETAIL †**  
ABUTMENT SIDE OF JOINT



**JOINT TREATMENT AT PARAPETS**

JOINT	TEMPERATURE ADJUSTMENT FOR "A"								JOINT LOCATION	
	30°F	40°F	50°F	60°F	70°F	80°F	90°F	MIN. MAX.		
I	0"	8 3/4"	8 1/2"	8 1/4"	8"	7 3/4"	7 1/2"	6 13/16"	10 7/16"	ABUTMENT N°1
II	12 1/16"	12 3/16"	11 3/4"	11 1/4"	10 3/4"	10 5/16"	9 13/16"	8 3/8"	15 3/8"	PIER N°6
II	12 13/16"	12 1/4"	11 3/4"	11 1/4"	10 3/4"	10 1/4"	9 11/16"	8 1/8"	15 7/8"	PIER N°12
II	12 11/16"	12 3/16"	11 3/4"	11 1/4"	10 3/4"	10 3/16"	9 3/8"	8 3/8"	15 1/2"	PIER N°18 (W.B.)
II	12 11/16"	12 3/16"	11 11/16"	11 1/4"	10 13/16"	10 5/16"	9 7/8"	8 1/2"	15 3/8"	PIER N°18 (E.B.)
I	8 7/8"	8 9/16"	8 5/16"	8"	7 11/16"	7 7/16"	7 1/8"	6 5/16"	10 9/16"	ABUTMENT N°2

**NOTES:**

- \*\* INDICATES DIMENSIONS NORMAL TO EXPANSION JOINT.
- DETAILS SHOWN ARE FOR THE WATSON BOWMAN # ACME WABO MAURER EXPANSION JOINT SYSTEMS. WHERE ANOTHER SYSTEM IS APPROVED, THE BIDDER SHALL FURNISH A MARKED SET OF PROJECT DRAWINGS SHOWING THE CHANGES IN PLAN DETAILS THAT WILL BE NECESSARY TO ACCOMMODATE THE PROPOSED ALTERNATE DEVICES. THESE PLANS MUST BE SUBMITTED AND APPROVED BEFORE THE SHOP DRAWINGS FOR STRUCTURAL STEEL WILL BE APPROVED.
- EXPANSION JOINT SYSTEMS SHALL BE DESIGNED FOR AN IMPACT FRACTION OF 100%.
- FOR DETAILS NOT SHOWN SEE STD. DWGS. EXJ-2-81 AND SD-1-69 AND SHEET [35/43].
- † INDICATES STEEL TO BE INCLUDED FOR PAYMENT IN THE UNIT PRICE BID FOR ITEM 516, EXPANSION JOINTS. ALL JOINT STEEL, EXCEPT FOR THE STEEL EXTRUSIONS, SHALL BE GALVANIZED AS PER 711.02.

**ALTERNATE - I**

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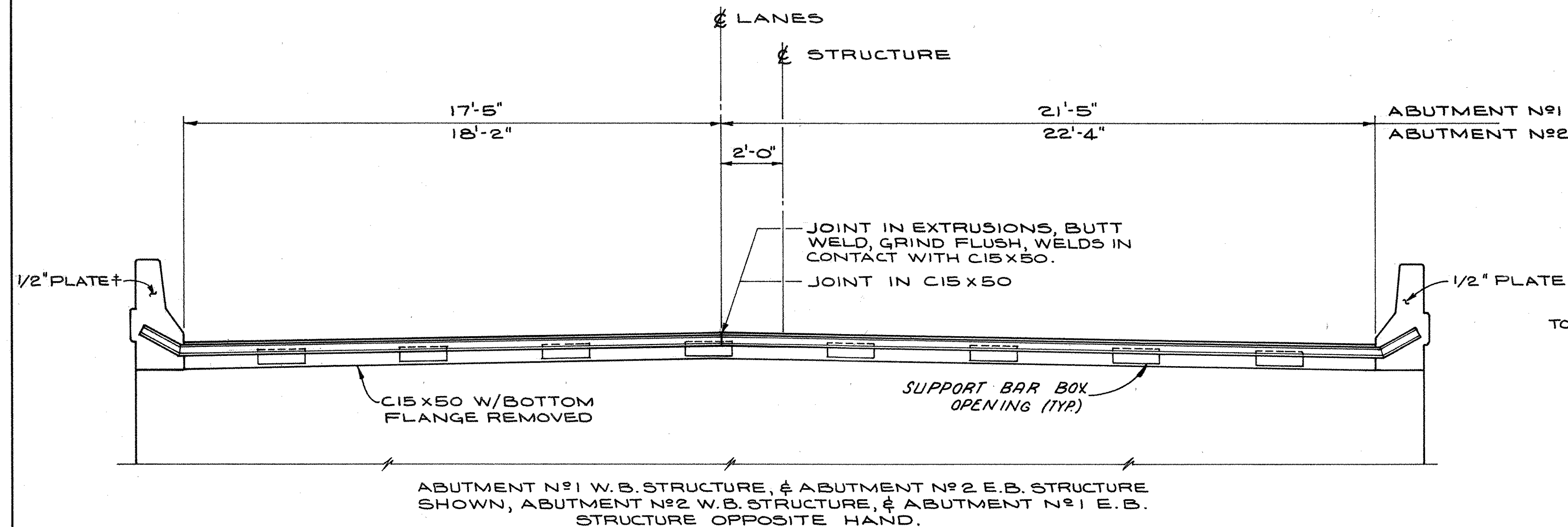
**EXPANSION JOINT DETAILS**  
BRIDGE N° ERI-2-1911 L/R  
S.R. 2 OVER HURON RIVER  
N. & W. R.R. & RIVER ROAD  
ERIE COUNTY STA. 1233 + 43.75 TO  
ERIE-2-18.38 STA. 1259 + 37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
L.E.D.	J.D.P.	K.L.M.	L.E.D.	11/4/85	

FHWA REGION	STATE	PROJECT
5	OHIO	

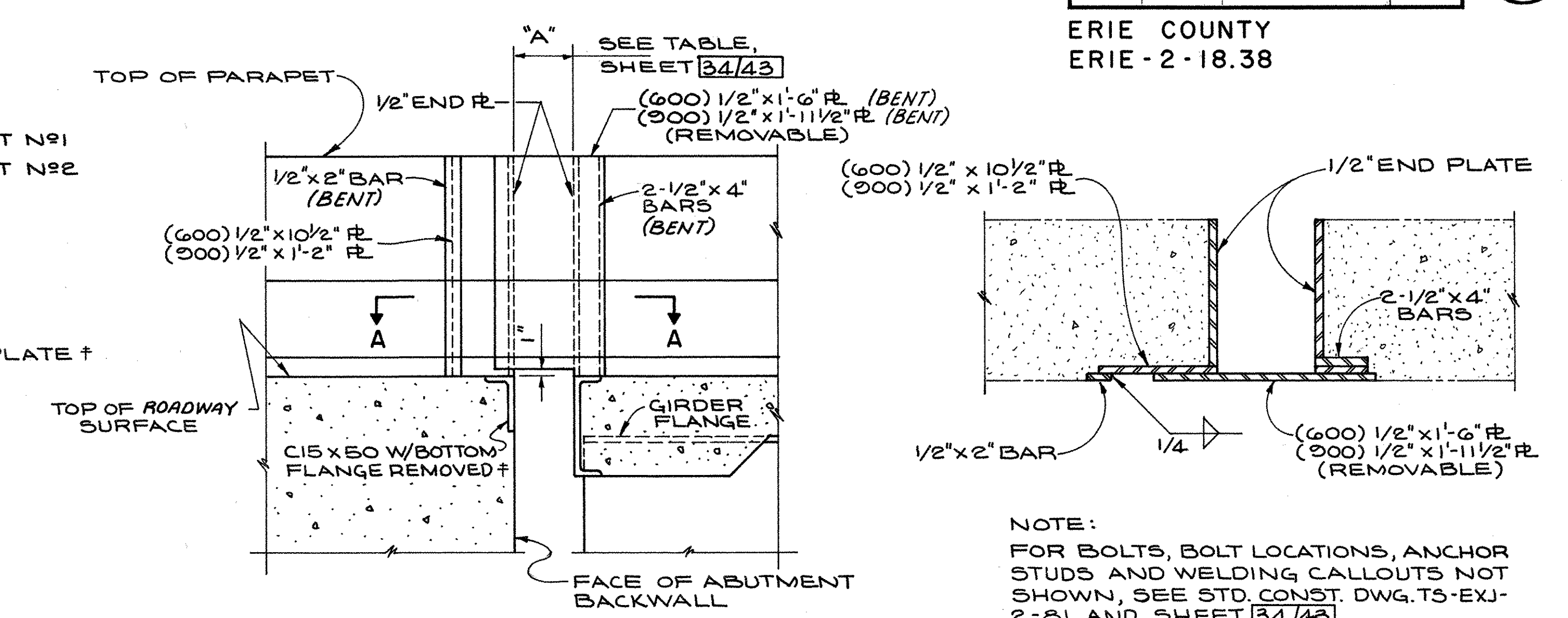
2120  
326

ERIE COUNTY  
ERIE - 2 - 18.38



**ELEVATION**

EXPANSION JOINT ALONG FACE OF ABUTMENT BACKWALL  
(ANCHOR BARS NOT SHOWN)

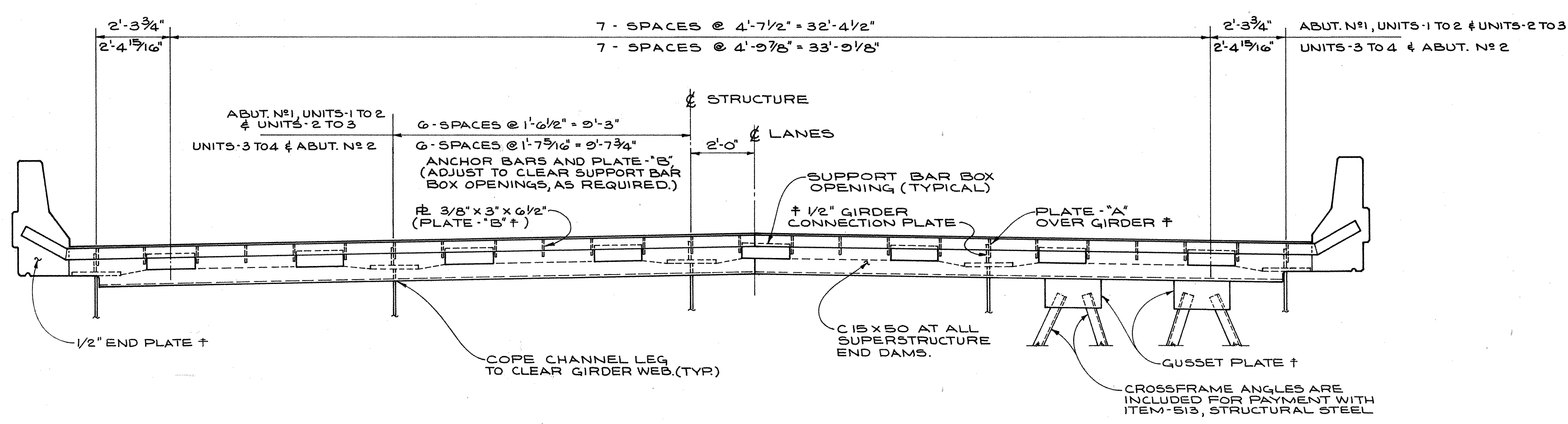


**PARAPET ELEVATION AT EXPANSION JOINTS**

TYPE-I JOINT SHOWN, TYPE-II JOINT SIMILAR

**SECTION A-A**

NOTE:  
FOR BOLTS, BOLT LOCATIONS, ANCHOR STUDS AND WELDING CALLOUTS NOT SHOWN, SEE STD. CONST. DWG. TS-EXJ-2-81 AND SHEET 34/43.



**VIEW OF END DAM**

(LOOKING INTO SUPERSTRUCTURE)

**NOTES:**

- THE COST OF PARAPET SLIDING PLATES, END PLATES, ANCHOR STUDS AND ALL MISC. STEEL SHOWN IN SECTION A-A SHALL BE INCLUDED FOR PAYMENT IN THE UNIT PRICE BID FOR ITEM-S16, (EXP. JOINTS.) GALVANIZED AS PER 711.02.
- FOR EXPANSION JOINT DETAILS NOT SHOWN, SEE SHEET 34/43.
- FOR ADDITIONAL NOTES SEE SHEET 34/43.
- STEEL MEMBERS SHALL BE FURNISHED IN LENGTHS AS LONG AS PRACTICABLE. IF A FIELD SPLICE IS REQUIRED, THE TOTAL EXPANSION JOINT SHALL HAVE COMPLETE PENETRATION WELDS AT THE SPLICE.

ALTERNATE - 1

35/43

adache - ciuni - lynn associates				
CONSULTING ENGINEERS CLEVELAND, OHIO 44130				
<b>EXPANSION JOINT DETAILS</b>				
BRIDGE N <sup>o</sup> ERI - 2 - 1911 L/R				
S.R. 2 OVER HURON RIVER				
N. & W. R. R. & RIVER ROAD				
ERIE COUNTY		STA. 1233 + 4375 TO		
ER1-2-18.38		STA. 1259 + 37.37		
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
L.E.D.	J.D.P.	K.L.M.	L.E.D.	11/4/85



ERIE COUNTY  
ERI-2-18.38

PIERS											
MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	W.B.	E.B.	TOTAL			A	B	C	D		
<b>PIER NO. 1</b>											
1P501	49	49	98	19'-2"	3	3'-8"	5'-8"				1,959
1P502	24	24	48	7'-9"	1	3'-1"	1'-10"	3'-1"			388
1P503	8	8	16	9'-1"	1	1'-10"	5'-8"	1'-10"			152
1P601	4	4	8	40'-8"	ST.						489
1P801	8	8	16	13'-9"	1	6'-0"	2'-2"	6'-0"			587
1P1101	18	18	36	47'-0"	1	3'-6"	40'-8"	3'-6"			8,990
										TOTAL WEIGHT	12,565
<b>PIER NO. 2</b>											
2P501	49	49	98	19'-2"	3	3'-8"	5'-8"				1,959
2P502	24	24	48	7'-9"	1	3'-1"	1'-10"	3'-1"			388
2P503	8	8	16	9'-1"	1	1'-10"	5'-8"	1'-10"			152
2P601	4	4	8	40'-8"	ST.						489
2P801	8	8	16	13'-9"	1	6'-0"	2'-2"	6'-0"			587
2P1101	18	18	36	47'-0"	1	3'-6"	40'-8"	3'-6"			8,990
										TOTAL WEIGHT	12,565
<b>PIER NO. 3</b>											
3P501	49	49	98	19'-2"	3	3'-8"	5'-8"				1,959
3P502	24	24	48	7'-9"	1	3'-1"	1'-10"	3'-1"			388
3P503	8	8	16	9'-1"	1	1'-10"	5'-8"	1'-10"			152
3P601	4	4	8	40'-8"	ST.						489
3P801	8	8	16	13'-9"	1	6'-0"	2'-2"	6'-0"			587
3P1101	18	18	36	47'-0"	1	3'-6"	40'-8"	3'-6"			8,990
										TOTAL WEIGHT	12,565

PIERS											
MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	W.B.	E.B.	TOTAL			A	B	C	D		
<b>PIER NO. 4</b>											
4P501	49	49	98	19'-2"	3	3'-8"	5'-8"				1,959
4P502	24	24	48	7'-9"	1	3'-1"	1'-10"	3'-1"			388
4P503	8	8	16	9'-1"	1	1'-10"	5'-8"	1'-10"			152
4P601	4	4	8	40'-8"	ST.						489
4P801	8	8	16	13'-9"	1	6'-0"	2'-2"	6'-0"			587
4P1101	18	18	36	47'-0"	1	3'-6"	40'-8"	3'-6"			8,990
										TOTAL WEIGHT	12,565
<b>PIER NO. 5</b>											
5P501	49	49	98	19'-2"	3	3'-8"	5'-8"				1,959
5P502	24	24	48	7'-9"	1	3'-1"	1'-10"	3'-1"			388
5P503	8	8	16	9'-1"	1	1'-10"	5'-8"	1'-10"			152
5P601	4	4	8	40'-8"	ST.						489
5P801	8	8	16	13'-9"	1	6'-0"	2'-2"	6'-0"			587
5P1101	18	18	36	47'-0"	1	3'-6"	40'-8"	3'-6"			8,990
										TOTAL WEIGHT	12,565
<b>PIER NO. 6</b>											
6P501	49	49	98	19'-2"	3	3'-8"	5'-8"				1,959
6P502	24	24	48	7'-9"	1	3'-1"	1'-10"	3'-1"			388
6P503	8	8	16	9'-1"	1	1'-10"	5'-8"	1'-10"			152
6P601	4	4	8	40'-8"	ST.						489
6P801	8	8	16	13'-9"	1	6'-0"	2'-2"	6'-0"			587
6P1101	18	18	36	47'-0"	1	3'-6"	40'-8"	3'-6"			8,990
										TOTAL WEIGHT	12,565

PIERS											
MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	W.B.	E.B.	TOTAL			A	B	C	D		
<b>PIER NO. 7</b>											
7P501	49	49	98	19'-2"	3	3'-8"	5'-8"				1,959
7P502	24	24	48	7'-9"	1	3'-1"	1'-10"	3'-1"			388
7P503	8	8	16	9'-1"	1	1'-10"	5'-8"	1'-10"			152
7P601	4	4	8	40'-8"	ST.						489
7P801	8	8	16	13'-9"	1	6'-0"	2'-2"	6'-0"			587
7P1101	18	18	36	47'-0"	1	3'-6"	40'-8"	3'-6"			8,990
										TOTAL WEIGHT	12,565
<b>PIER NO. 8</b>											
8P501	49	49	98	19'-2"	3	3'-8"	5'-8"				1,959
8P502	24	24	48	7'-9"	1	3'-1"	1'-10"	3'-1"			388
8P503	8	8	16	9'-1"	1	1'-10"	5'-8"	1'-10"			152
8P601	4	4	8	40'-8"	ST.						489
8P801	8	8	16	13'-9"	1	6'-0"	2'-2"	6'-0"			587
8P1101	18	18	36	47'-0"	1	3'-6"	40'-8"	3'-6"			8,990
										TOTAL WEIGHT	12,565

FOR BENDING DIAGRAMS AND NOTE,  
SEE SHEET 36/43

ALTERNATE - I 37/43

adache - ciuni - lynn associates  
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

**REINFORCING STEEL LIST**  
BRIDGE NO ERI-2-19.11 L/R  
S.R. 2 OVER HURON RIVER  
N. & W. R.R. & RIVER ROAD  
ERIE COUNTY STA. 1233 + 43.75 TO  
ERI-2-18.38 STA. 1259 + 37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
J.D.P.	D.R.J.	K.L.M.	L.E.D.	11/4/85	

ERIE COUNTY  
ERI-2-18.38

PIERS												
MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.	
	W.B.	E.B.	TOTAL			A	B	C	D			
<b>PIER NO. 9</b>												
9P501	49	49	98	19'-2"	3	3'-8"	5'-8"					1,959
9P502	24	24	48	7'-9"	1	3'-1"	1'-10"	3'-1"				388
9P503	8	8	16	9'-1"	1	1'-10"	5'-8"	1'-10"				152
9P601	4	4	8	40'-8"	ST.							489
9P801	8	8	16	13'-9"	1	6'-0"	2'-2"	6'-0"				587
9P1101	18	18	36	47'-0"	1	3'-6"	40'-8"	3'-6"				8,990
											TOTAL WEIGHT	12,565
<b>PIER NO. 10</b>												
10P401	30	30	60	6'-10"	9	2'-8"	2'-8"					274
10P402	30	30	60	9'-0"	ST.							361
10P403	75	75	150	3'-7"	14	2'-8"	8"					359
10P501	4 SETS OF 15 BARS	4 SETS OF 15 BARS	8 SETS OF 15 BARS	11'-2" TO 18'-4"	1	4'-9" TO 8'-4"	1'-11" TO 8'-4"	4'-9" TO 8'-4"		6-1/8"		1,846
10P502	75	76	152	5'-0"	1	1'-8"	1'-11"	1'-8"				793
10P503	15	15	30	7'-2"	1	2'-5"	2'-7"	2'-5"				224
10P504	14	14	28	5'-9"	1	1'-8"	2'-8"	1'-8"				168
10P505	2	2	4	12'-0"	ST.							50
10P506	2	2	4	22'-3"	ST.							93
10P507	2	2	4	31'-6"	ST.							131
10P508	8	8	16	16'-11"	8	2'-0"	14'-11"	14'-2"	3'-7"			282
10P509	4 SETS OF 4 BARS	4 SETS OF 4 BARS	8 SETS OF 4 BARS	16'-6" TO 18'-0"	1	7'-5" TO 8'-2"	1'-11" TO 8'-2"	7'-5" TO 8'-2"		6"		576
10P801	12	12	24	40'-8"	ST.							2,606
10P901	37	37	74	15'-0"	11	12'-6"						3,774
10P902	16	16	32	23'-0"	11	20'-6"						2,502
10P903	42	42	84	9'-1"	13	7'-10"	1'-7"					2,594
10P904	42	42	84	22'-4"	ST.							6,378
10P1001	8	8	16	49'-6"	1	4'-9"	40'-8"	4'-9"				3,408
10P1002	12	12	24	40'-8"	ST.							4,200
											TOTAL WEIGHT	30,619

PIERS												
MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.	
	W.B.	E.B.	TOTAL			A	B	C	D			
<b>PIER NO. 11</b>												
11P401	34	34	68	6'-10"	9	2'-8"	2'-8"					310
11P402	34	34	68	9'-0"	ST.							409
11P403	85	85	170	3'-7"	14	2'-8"	8"					407
11P501	4 SETS OF 15 BARS	4 SETS OF 15 BARS	8 SETS OF 15 BARS	11'-2" TO 18'-4"	1	4'-9" TO 8'-4"	1'-11" TO 8'-4"	4'-9" TO 8'-4"		6-1/8"		1,846
11P502	76	76	152	5'-0"	1	1'-8"	1'-11"	1'-8"				793
11P503	15	15	30	7'-2"	1	2'-5"	2'-7"	2'-5"				224
11P504	14	14	28	5'-9"	1	1'-8"	2'-8"	1'-8"				168
11P505	2	2	4	12'-0"	ST.							50
11P506	2	2	4	22'-3"	ST.							93
11P507	2	2	4	31'-6"	ST.							131
11P508	8	8	16	16'-11"	8	2'-0"	14'-11"	14'-2"	3'-7"			282
11P509	4 SETS OF 4 BARS	4 SETS OF 4 BARS	8 SETS OF 4 BARS	16'-6" TO 18'-0"	1	7'-5" TO 8'-2"	1'-11" TO 8'-2"	7'-5" TO 8'-2"		6"		576
11P801	12	12	24	40'-8"	ST.							2,606
11P901	37	37	74	15'-0"	11	12'-6"						3,774
11P902	16	16	32	23'-0"	11	20'-6"						2,502
11P903	42	42	84	9'-1"	13	7'-10"	1'-7"					2,594
11P904	42	42	84	25'-2"	ST.							7,188
11P1001	8	8	16	49'-6"	1	4'-9"	40'-8"	4'-9"				3,408
11P1002	12	12	24	40'-8"	ST.							4,200
											TOTAL WEIGHT	31,561
<b>PIER NO. 12</b>												
12P401	42	42	84	6'-10"	9	2'-8"	2'-8"					383
12P402	42	42	84	9'-0"	ST.							505
12P403	105	105	210	3'-7"	14	2'-8"	8"					503
12P501	2 SETS OF 15 BARS	2 SETS OF 15 BARS	4 SETS OF 15 BARS	12'-11" TO 20'-1"	1	4'-9" TO 8'-4"	3'-8" TO 8'-4"	4'-9" TO 8'-4"		3-1/8"		1,033
12P502	52	52	104	6'-8"	1	1'-8"	3'-7"	1'-8"				723
12P503	15	15	30	8'-3"	1	2'-5"	3'-8"	2'-5"				258
12P504	8	8	16	16'-11"	8	2'-0"	14'-11"	14'-2"	3'-7"			282
12P505	2	2	4	12'-0"	ST.							50
12P506	2	2	4	22'-3"	ST.							93
12P507	2	2	4	31'-6"	ST.							131
12P508	2 SETS OF 4 BARS	2 SETS OF 4 BARS	4 SETS OF 4 BARS	18'-3" TO 19'-9"	1	7'-5" TO 8'-2"	3'-8" TO 8'-2"	7'-5" TO 8'-2"		6"		317
12P801	12	12	24	40'-8"	ST.							2,606

PIERS												
MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.	
	W.B.	E.B.	TOTAL			A	B	C	D			
<b>PIER NO. 12 CONT.</b>												
12P901	37	37	74	15'-0"	11	12'-6"						3,774
12P902	16	16	32	23'-0"	11	20'-6"						2,502
12P903	42	42	84	9'-0"	13	7'-10"	1'-6"					2,570
12P904	42	42	84	28'-4"	ST.							8,092
12P1001	9	9	18	49'-6"	1	4'-9"	40'-8"	4'-9"				3,834
12P1002	9	9	18	40'-8"	ST.							3,150
											TOTAL WEIGHT	30,806
<b>PIER NO. 13</b>												
13P401	46	46	92	7'-8"	9	2'-11"	3'-2"					471
13P402	46	46	92	8'-6"	ST.							522
13P403	115	115	230	4'-1"	14	3'-2"	8"					627
13P501	8	8	16	16'-5"	8	1'-8"	14'-9"	14'-4"	3'-5"			274
13P502	2	2	4	12'-0"	ST.							50
13P503	2	2	4	20'-7"	ST.							86
13P504	2	2	4	29'-7"	ST.							123
13P505	14	14	28	6'-2"	1	1'-8"	3'-1"	1'-8"				180
13P506	80	80	160	5'-5"	1	1'-8"	2'-4"	1'-8"				904
13P507	4 SETS OF 16 BARS	4 SETS OF 16 BARS	8 SETS OF 16 BARS	12'-5" TO 19'-5"	1	5'-2" TO 8'-8"	2'-4" TO 8'-8"	5'-2" TO 8'-8"		5-5/8"		2,125
13P508	15	15	30	7'-9"	1	2'-5"	3'-2"	2'-5"				242
13P509	4 SETS OF 4 BARS	4 SETS OF 4 BARS	8 SETS OF 4 BARS	17'-11" TO 19'-5"	1	7'-11" TO 8'-8"	2'-4" TO 8'-8"	7'-11" TO 8'-8"		6"		623
13P801	12	12	24	40'-8"	ST.							2,606
13P802	46	46	92	30'-6"	ST.							7,492
13P803	46	46	92	8'-3"	13	7'-0"	1'-6"					2,027

FOR BENDING DIAGRAMS AND NOTE,  
SEE SHEET 36/43

ALTERNATE - I 38/43

adache - ciuni - lynn associates  
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

**REINFORCING STEEL LIST**  
BRIDGE NO ERI-2-19.11 L/R  
S.R. 2 OVER HURON RIVER  
N. & W. R.R. & RIVER ROAD  
ERIE COUNTY STA. 1233 + 43.75 TO  
ERI-2-18.38 STA. 1259 + 37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
J.D.P.	D.R.J.	K.L.M.	L.E.D.	11/4/85	

PIERS											
MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	W.B.	E.B.	TOTAL			A	B	C	D		
<b>PIER NO. 13 CONT.</b>											
13P1001	31	31	62	15'-4"	11	12'-6"					4,091
13P1002	22	22	44	23'-4"	11	20'-6"					4,418
13P1101	12	12	24	40'-8"	ST.						5,186
13P1102	8	8	16	50'-4"	1	5'-2"	40'-8"	5'-2"			4,279
TOTAL WEIGHT										36,326	
<b>PIER NO. 14</b>											
14P401	52	52	104	7'-8"	9	2'-11"	3'-2"				533
14P402	52	52	104	8'-6"	ST.						591
14P403	130	130	260	4'-1"	14	3'-2"	8"				709
14P501	8	8	16	16'-5"	8	1'-8"	14'-9"	14'-4"	3'-5"		274
14P502	2	2	4	12'-0"	ST.						50
14P503	2	2	4	20'-7"	ST.						86
14P504	2	2	4	29'-7"	ST.						123
14P505	14	14	28	6'-2"	1	1'-8"	3'-1"	1'-8"			180
14P506	80	80	160	5'-5"	1	1'-8"	2'-4"	1'-8"			904
14P507	4 SETS OF	4 SETS OF	8 SETS OF	12'-5" TO	1	5'-2" TO	2'-4"	5'-2" TO		5 -5/8"	2,125
	16 BARS	16 BARS	16 BARS	19'-5"		8'-8"		8'-8"			
14P508	15	15	30	7'-9"	1	2'-5"	3'-2"	2'-5"			242
14P509	4 SETS OF	4 SETS OF	8 SETS OF	17'-11" TO	1	7'-11" TO	2'-4"	7'-11" TO		6"	623
	4 BARS	4 BARS	4 BARS	19'-5"		8'-8"		8'-8"			
14P801	12	12	24	40'-8"	ST.						2,606
14P802	46	46	92	34'-2"	ST.						8,393
14P803	46	46	92	8'-3"	13	7'-0"	1'-6"				2,027
14P1001	31	31	62	15'-4"	11	12'-6"					4,091
14P1002	22	22	44	23'-4"	11	20'-6"					4,418
14P1101	12	12	24	40'-8"	ST.						5,186
14P1102	8	8	16	50'-4"	1	5'-2"	40'-8"	5'-2"			4,279
TOTAL WEIGHT										37,440	
<b>PIER NO. 15</b>											
15P401	60	60	120	7'-8"	9	2'-11"	3'-2"				615
15P402	60	60	120	8'-6"	ST.						681
15P403	180	180	360	4'-2"	14	3'-2"	8"				1,002

PIERS											
MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	W.B.	E.B.	TOTAL			A	B	C	D		
<b>PIER NO. 15 CONT.</b>											
15P501	8	8	16	16'-5"	8	1'-8"	14'-9"	14'-4"	3'-5"		274
15P502	2	2	4	12'-0"	ST.						50
15P503	2	2	4	20'-7"	ST.						86
15P504	2	2	4	29'-7"	ST.						123
15P505	14	14	28	6'-2"	1	1'-8"	3'-1"	1'-8"			180
15P506	80	80	160	5'-5"	1	1'-8"	2'-4"	1'-8"			904
15P507	4 SETS OF	4 SETS OF	8 SETS OF	12'-5" TO	1	5'-2" TO	2'-4"	5'-2" TO		5 -5/8"	2,125
	16 BARS	16 BARS	16 BARS	19'-5"		8'-8"		8'-8"			
15P508	10	10	20	7'-9"	1	2'-5"	3'-2"	2'-5"			162
15P509	4 SETS OF	4 SETS OF	8 SETS OF	17'-11" TO	1	7'-11" TO	2'-4"	7'-11" TO		6"	623
	4 BARS	4 BARS	4 BARS	19'-5"		8'-8"		8'-8"			
15P801	12	12	24	40'-8"	ST.						2,606
15P901	64	64	128	17'-0"	11	14'-6"					7,398
15P1101	12	12	24	40'-8"	ST.						5,186
15P1102	8	8	16	50'-4"	1	5'-2"	40'-8"	5'-2"			4,279
15P1103	52	52	104	22'-9"	13	21'-1"	2'-0"				12,571
15P1104	26	26	52	26'-4"	ST.						7,275
15P1105	36	36	72	29'-8"	11	26'-6"					11,349
TOTAL WEIGHT										57,489	
<b>PIER NO. 16</b>											
16P401	66	66	132	7'-8"	9	2'-11"	3'-2"				676
16P402	66	66	132	8'-6"	ST.						749
16P403	165	165	330	4'-1"	14	3'-2"	8"				900
16P501	8	8	16	16'-5"	8	1'-8"	14'-9"	14'-4"	3'-5"		274
16P502	2	2	4	12'-0"	ST.						50
16P503	2	2	4	20'-7"	ST.						86
16P504	2	2	4	29'-7"	ST.						123
16P505	14	14	28	6'-2"	1	1'-8"	3'-1"	1'-8"			180
16P506	80	80	160	5'-5"	1	1'-8"	2'-4"	1'-8"			904
16P507	4 SETS OF	4 SETS OF	8 SETS OF	12'-5" TO	1	5'-2" TO	2'-4"	5'-2" TO		5 -5/8"	2,125
	16 BARS	16 BARS	16 BARS	19'-5"		8'-8"		8'-8"			
16P508	15	15	30	7'-9"	1	2'-5"	3'-2"	2'-5"			242
16P509	4 SETS OF	4 SETS OF	8 SETS OF	17'-11" TO	1	7'-11" TO	2'-4"	7'-11" TO		6"	623
	4 BARS	4 BARS	4 BARS	19'-5"		8'-8"		8'-8"			
16P801	12	12	24	40'-8"	ST.						2,606

PIERS											
MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	W.B.	E.B.	TOTAL			A	B	C	D		
<b>PIER NO. 16 CONT.</b>											
16P1001	31	31	62	15'-4"	11	12'-6"					4,091
16P1002	22	22	44	23'-4"	11	20'-6"					4,418
16P1003	46	46	92	10'-6"	13	9'-0"	1'-10"				4,157
16P1004	46	46	92	41'-2"	ST.						16,297
16P1101	12	12	24	40'-8"	ST.						5,186
16P1102	8	8	16	50'-4"	1	5'-2"	40'-8"	5'-2"			4,279
TOTAL WEIGHT										47,966	
<b>PIER NO. 17</b>											
17P401	72	72	144	7'-8"	9	2'-11"	3'-2"				738
17P402	72	72	144	8'-6"	ST.						818
17P403	180	180	360	4'-1"	14	3'-2"	8"				982
17P501	8	8	16	16'-5"	8	1'-8"	14'-9"	14'-4"	3'-5"		274
17P502	2	2	4	12'-0"	ST.						50
17P503	2	2	4	20'-7"	ST.						86
17P504	2	2	4	29'-7"	ST.						123
17P505	14	14	28	6'-2"	1	1'-8"	3'-1"	1'-8"			180
17P506	80	80	160	5'-5"	1	1'-8"	2'-4"	1'-8"			904
17P507	4 SETS OF	4 SETS OF	8 SETS OF	12'-5" TO	1	5'-2" TO	2'-4"	5'-2" TO		5 -5/8"	2,125
	16 BARS	16 BARS	16 BARS	19'-5"		8'-8"		8'-8"			
17P508	15	15	30	7'-9"	1	2'-5"	3'-2"	2'-5"			242
17P509	4 SETS OF	4 SETS OF	8 SETS OF	17'-11" TO	1	7'-11" TO	2'-4"	7'-11" TO		6"	623
	4 BARS	4 BARS	4 BARS	19'-5"		8'-8"		8'-8"			
17P801	12	12	24	40'-8"	ST.						2,606
17P1001	31	31	62	15'-4"	11	12'-6"					4,091
17P1002	22	22	44	23'-4"	11	20'-6"					4,418
17P1003	46	46	92	10'-6"	13	9'-0"	1'-10"				4,157
17P1004	46	46	92	44'-0"	ST.						17,419
17P1101	12	12	24	40'-8"	ST.						5,186
17P1102	8	8	16	50'-4"	1	5'-2"	40'-8"	5'-2"			4,279
TOTAL WEIGHT										49,301	

ALTERNATE - I 39/43

FOR BENDING DIAGRAMS AND NOTE,  
SEE SHEET 36/43.

adache - ciuni - lynn associates  
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

**REINFORCING STEEL LIST**  
BRIDGE No ERI - 2-19.11 L / R  
S.R. 2 OVER HURON RIVER  
N. & W. R.R. & RIVER ROAD  
ERIE COUNTY STA. 1233 + 43.75 TO  
ERI - 2 - 18.38 STA. 1259 + 37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
J.D.P.	D.R.J.	K.L.M.	L.E.D.	11/4/85	



PIERS											
MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	W.B.	E.B.	TOTAL			A	B	C	D		
<b>PIER NO. 18</b>											
18P401	74	74	148	8'-5"	9	3'-2"	3'-8"				832
18P402	74	74	148	9'-0"	ST.						890
18P403	185	185	370	4'-7"	14	3'-8"	8"				1,133
18P404	45	45	90	5'-9"	1	2'-0"	1'-11"	2'-0"			346
18P405	12	12	24	9'-3"	ST.						148
18P406	3	3	6	3'-10"	ST.						15
18P501	2 SETS OF 16 BARS	2 SETS OF 16 BARS	4 SETS OF 16 BARS	13'-9" TO 21'-3"	1	4'-11" TO 8'-8"	4'-2" 8'-8"	4'-11" TO 8'-8"		6"	1,168
18P502	54	54	108	7'-2"	1	1'-8"	4'-1"	1'-8"			807
18P503	14	14	28	8'-9"	1	2'-5"	4'-2"	2'-5"			256
18P504	8	8	16	17'-8"	8	2'-6"	15'-2"	14'-10"	3'-7"		295
18P505	2	2	4	13'-0"	ST.						54
18P506	2	2	4	22'-6"	ST.						94
18P507	2	2	4	32'-6"	ST.						136
18P508	2 SETS OF 4 BARS	2 SETS OF 4 BARS	4 SETS OF 4 BARS	19'-9" TO 21'-3"	1	7'-11" TO 8'-8"	4'-2" 8'-8"	7'-11" TO 8'-8"		6"	342
18P801	12	12	24	42'-5"	ST.						2,718
18P1001	37	37	74	17'-4"	11	14'-6"					5,519
18P1002	18	18	36	23'-4"	11	20'-6"					3,614
18P1101	9	9	18	51'-7"	1	4'-11"	42'-5"	4'-11"			4,933
18P1102	9	9	18	42'-5"	ST.						4,057
18P1103	44	44	88	11'-10"	13	10'-2"	2'-0"				5,532
18P1104	44	44	88	44'-10"	ST.						20,961
TOTAL WEIGHT											53,850
<b>PIER NO. 19</b>											
19P401	70	70	140	8'-5"	9	3'-2"	3'-8"				787
19P402	70	70	140	9'-0"	ST.						842
19P403	175	175	350	4'-7"	14	3'-8"	8"				1,072
19P501	4 SETS OF 16 BARS	4 SETS OF 16 BARS	8 SETS OF 16 BARS	12'-4" TO 19'-10"	1	4'-11" TO 8'-8"	2'-9" 8'-8"	4'-11" TO 8'-8"		6"	2,147
19P502	80	80	160	5'-9"	1	1'-8"	2'-9"	1'-8"			960
19P503	14	14	28	8'-3"	1	2'-5"	3'-8"	2'-5"			241
19P504	14	14	28	6'-8"	1	1'-8"	3'-7"	1'-8"			195
19P505	2	2	4	13'-0"	ST.						54
19P506	2	2	4	22'-6"	ST.						94
19P507	2	2	4	32'-6"	ST.						136
19P508	8	8	16	17'-8"	8	2'-6"	15'-2"	14'-10"	3'-7"		295
19P509	4 SETS OF 4 BARS	4 SETS OF 4 BARS	8 SETS OF 4 BARS	19'-9" TO 21'-3"	1	7'-11" TO 8'-8"	2'-9" 8'-8"	7'-11" TO 8'-8"		6"	684
19P801	12	12	24	42'-5"	ST.						2,718

PIERS											
MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	W.B.	E.B.	TOTAL			A	B	C	D		
<b>PIER NO. 19 CONT.</b>											
19P1101	9	9	18	51'-7"	1	4'-11"	42'-5"	4'-11"			4,933
19P1102	13	13	26	42'-5"	ST.						5,859
19P1103	44	44	88	12'-0"	13	10'-2"	2'-0"				5,611
19P1104	44	44	88	43'-1"	ST.						20,143
19P1105	37	37	74	17'-8"	11	14'-6"					6,946
19P1106	18	18	36	23'-8"	11	20'-6"					4,527
TOTAL WEIGHT											58,244
<b>PIER NO. 20</b>											
20P401	58	58	116	8'-5"	9	3'-2"	3'-8"				652
20P402	58	58	116	9'-0"	ST.						697
20P403	174	174	348	4'-7"	14	3'-8"	8"				1,065
20P501	15	15	30	12'-7"	9	4'-10"	5'-8"				394
20P502	2 SETS OF 15 BARS	2 SETS OF 15 BARS	4 SETS OF 15 BARS	15'-4" TO 21'-1"	ST.					5"	1,139
20P503	15	15	30	11'-10"	10	1'-10"	3'-0"	2'-10"	5'-8"		370
20P504	11	11	22	9'-1"	1	1'-10"	5'-8"	1'-10"			208
20P505	1	1	2	7'-2"	1	1'-10"	3'-9"	1'-10"			15
20P506	1	1	2	8'-8"	1	1'-10"	5'-3"	1'-10"			18
20P507	8	8	16	17'-8"	8	2'-6"	15'-2"	14'-10"	3'-7"		295
20P508	2	2	4	13'-0"	ST.						54
20P509	2	2	4	22'-6"	ST.						94
20P510	2	2	4	32'-6"	ST.						136
20P511	14	14	28	7'-0"	1	1'-10"	3'-7"	1'-10"			204
20P512	76	76	152	6'-3"	1	1'-10"	2'-10"	1'-10"			991
20P513	4 SETS OF 15 BARS	4 SETS OF 15 BARS	8 SETS OF 15 BARS	12'-5" TO 19'-7"	1	4'-11" TO 8'-6"	2'-10" 8'-6"	4'-11" TO 8'-6"		6-1/8"	2,003
20P514	11	11	22	8'-3"	1	2'-5"	3'-8"	2'-5"			189
20P515	4 SETS OF 4 BARS	4 SETS OF 4 BARS	8 SETS OF 4 BARS	17'-9" TO 19'-3"	1	7'-7" TO 8'-4"	2'-10" 8'-4"	7'-7" TO 8'-4"		6"	617
20P801	12	12	24	42'-5"	ST.						2,718
20P1001	52	52	104	23'-4"	11	20'-6"					10,442
20P1002	25	25	50	35'-4"	11	32'-6"					7,602
20P1101	37	37	74	27'-0"	13	25'-4"	2'-0"				10,615
20P1102	2 SETS OF 3 BARS	2 SETS OF 3 BARS	4 SETS OF 3 BARS	12'-4" TO 15'-8"	13	10'-6" TO 14'-6"	2'-0"				893
20P1103	8	8	16	27'-5"	13	25'-9"	2'-0"				2,331
20P1104	1	1	2	27'-0"	18	1'-6"	1'-8"	23'-8"	6'-6"		287
20P1105	60	60	120	13'-3"	ST.						8,448
20P1106	30	30	60	21'-0"	ST.						6,694
20P1107	30	30	60	36'-4"	ST.						11,582
20P1108	13	13	26	42'-5"	ST.						5,859
20P1109	9	9	18	51'-7"	1	4'-11"	42'-5"	4'-11"			4,933
TOTAL WEIGHT											81,545

PIERS											
MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	W.B.	E.B.	TOTAL			A	B	C	D		
<b>PIER NO. 21</b>											
21P401	62	62	124	8'-5"	9	3'-2"	3'-8"				697
21P402	62	62	124	9'-0"	ST.						745
21P403	186	186	372	4'-7"	14	3'-8"	8"				1,139
21P501	15	15	30	12'-7"	9	4'-10"	5'-8"				394
21P502	2 SETS OF 15 BARS	2 SETS OF 15 BARS	4 SETS OF 15 BARS	15'-4" TO 21'-1"	ST.					5"	1,139
21P503	15	15	30	11'-10"	10	1'-10"	3'-0"	2'-10"	5'-8"		370
21P504	11	11	22	9'-1"	1	1'-10"	5'-8"	1'-10"			208
21P505	1	1	2	7'-2"	1	1'-10"	3'-9"	1'-10"			15
21P506	1	1	2	8'-8"	1	1'-10"	5'-3"	1'-10"			18
21P507	8	8	16	17'-8"	8	2'-6"	15'-2"	14'-10"	3'-7"		295
21P508	2	2	4	13'-0"	ST.						54
21P509	2	2	4	22'-6"	ST.						94
21P510	2	2	4	32'-6"	ST.						136
21P511	14	14	28	7'-0"	1	1'-10"	3'-7"	1'-10"			204
21P512	76	76	152	6'-3"	1	1'-10"	2'-10"	1'-10"			991
21P513	4 SETS OF 15 BARS	4 SETS OF 15 BARS	8 SETS OF 15 BARS	12'-5" TO 19'-7"	1	4'-11" TO 8'-6"	2'-10" 8'-6"	4'-11" TO 8'-6"		6-1/8"	2,003
21P514	11	11	22	8'-3"	1	2'-5"	3'-8"	2'-5"			189
21P515	4 SETS OF 4 BARS	4 SETS OF 4 BARS	8 SETS OF 4 BARS	17'-9" TO 19'-3"	1	7'-7" TO 8'-4"	2'-10" 8'-4"	7'-7" TO 8'-4"		6"	617
21P801	12	12	24	42'-5"	ST.						2,718
21P1001	52	52	104	23'-4"	11	20'-6"					10,442
21P1002	25	25	50	35'-4"	11	32'-6"					7,602

FOR BAR BENDING DIAGRAMS AND NOTE,  
SEE SHEET 36/43

ALTERNATE - I 40/43

adache - ciuni - lynn associates  
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

**REINFORCING STEEL LIST**  
BRIDGE NO. ERI - 2-19.11 L/R  
S.R. 2 OVER HURON RIVER  
N. & W. R.R. & RIVER ROAD  
ERIE COUNTY STA. 1233 + 43.75 TO  
ERI - 2-18.38 STA. 1259 + 37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
J.D.P.	D.R.J.	K.L.M.	L.E.D.	11/4/85	

CALC. _____	OHIO
DATE _____	FHWA 5
CHKD. _____	REGION
DATE _____	

212J  
326

ERIE COUNTY  
ERI - 2 - 18.38

PIERS											
MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	W.B.	E.B.	TOTAL			A	B	C	D		
<b>PIER NO. 21 CONT.</b>											
21P1101	37	37	74	27'-0"	13	25'-4"	2'-0"				10,615
21P1102	2 SETS OF	2 SETS OF	4 SETS OF	12'-4" TO	13	10'-6" TO	2'-0"				893
	3 BARS	3 BARS	3 BARS	5'-9"		14'-6"					
21P1103	8	8	16	27'-5"	13	25'-9"	2'-0"				2,331
21P1104	1	1	2	27'-0"	18	1'-6"	1'-8"	23'-8"	6'-6"		287
21P1105	60	60	120	13'-3"	ST.						8,448
21P1106	30	30	60	21'-0"	ST.						6,694
21P1107	30	30	60	38'-1"	ST.						12,140
21P1108	13	13	26	42'-5"	ST.						5,859
21P1109	9	9	18	51'-7"	1	4'-11"	42'-5"	4'-11"			4,933
										TOTAL WEIGHT	82,270
<b>PIER NO. 22</b>											
22P401	36	36	72	7'-0"	9	2'-9"	2'-8"				337
22P402	36	36	72	9'-6"	ST.						457
22P403	90	90	180	3'-7"	14	2'-8"	8"				431
22P501	8	8	16	16'-10"	8	1'-8"	15'-2"	14'-8"	3'-9"		281
22P502	2	2	4	13'-0"	ST.						54
22P503	2	2	4	22'-1"	ST.						92
22P504	2	2	4	31'-7"	ST.						132
22P505	14	14	28	5'-8"	1	1'-8"	2'-7"	1'-8"			165
22P506	80	80	160	5'-0"	1	1'-8"	1'-11"	1'-8"			834
22P507	4 SETS OF	4 SETS OF	8 SETS OF	11'-6" TO	1	4'-11" TO	1'-11"	4'-11" TO		6"	2,036
	16 BARS	16 BARS	16 BARS	19'-0"		8'-8"		8'-8"			
22P508	15	15	30	7'-3"	1	2'-5"	2'-3"	2'-5"			227
22P509	4 SETS OF	4 SETS OF	8 SETS OF	17'-0" TO	1	7'-8" TO	1'-11"	7'-8" TO		6"	592
	4 BARS	4 BARS	4 BARS	18'-6"		8'-5"		8'-5"			
22P801	12	12	24	42'-5"	ST.						2,718
22P802	46	46	92	26'-0"	ST.						6,387
22P803	46	46	92	8'-3"	13	7'-0"	1'-6"				2,027
22P1001	31	31	62	14'-4"	11	11'-6"					3,824
22P1002	16	16	32	23'-4"	11	20'-6"					3,213
22P1101	12	12	24	42'-5"	ST.						5,409
22P1102	8	8	16	51'-7"	1	4'-11"	42'-5"	4'-11"			4,385
										TOTAL WEIGHT	33,601

FOR BENDING DIAGRAMS AND NOTE,  
SEE SHEET 36/43

ALTERNATE - I

41/43

adache - ciuni - lynn associates			
CONSULTING ENGINEERS CLEVELAND, OHIO 44131			
<b>REINFORCING STEEL LIST</b>			
BRIDGE NO ERI - 2 - 19.11 L / R			
S. R. 2 OVER HURON RIVER			
N. & W. R.R. & RIVER ROAD			
ERIE COUNTY		STA. 1233 + 43.75 TO	
ERI - 2 - 18.38		STA. 1259 + 37.87	
DESIGNED	DRAWN	CHECKED	REVIEWED
J.D.P.	D.R.J.	K.L.M.	L.E.D.
			11/4/85



# EPOXY COATED REINFORCING STEEL

CALC. DATE \_\_\_\_\_  
 CHKD. DATE \_\_\_\_\_  
 OHIO REGION 5  
 212L  
 326

ERIE COUNTY  
 ERI-2-18.38

MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
			TOTAL			A	B	C	D		
<b>UNIT NO. 2</b>											
2S401E	1,323	1,323	2,646	30'-0"	ST.						53,026
2S402E	63	63	126	16'-8"	ST.						1,403
2S501E	798	798	1,596	30'-0"	ST.						49,939
2S502E	38	38	76	23'-9"	ST.						1,883
2S503E	1,062	1,062	2,124	30'-10"	ST.						68,435
2S504E	1,062	1,062	2,124	12'-4"	ST.						27,374
2S505E	826	826	1,652	3'-1"	5	9"	6"	8-1/2"	9-1/2"		5,312
2S506E	826	826	1,652	2'-3"	13	1'-6"	10-1/2"				3,877
2S507E	826	826	1,652	5'-3"	15	2'-2"	2'-5"	7-1/2"			9,046
2S508E	10	10	20	36'-6"	ST.						765
2S509E	48	48	96	15'-8"	ST.						1,569
2S510E	320	320	640	6'-2"	ST.						4,116
2S511E	128	128	256	14'-2"	ST.						3,783
2S512E	16	16	32	15'-2"	ST.						506
TOTAL WEIGHT											420,881
<b>UNIT NO. 3</b>											
3S401E	1,512	1,449	2,961	30'-0"	ST.						59,338
3S402E	1 SET OF	1 SET OF	17'-6" TO	ST.					2-3/4"		870
	55 BARS	55 BARS	29'-10"								
3S403E	4	4	4	29'-10"	ST.						80
3S404E	4	4	4	17'-6"	ST.						47
3S405E	1 SET OF	1 SET OF	20'-2" TO	ST.					2-3/4"		967
	55 BARS	55 BARS	32'-6"								
3S406E	4	4	4	32'-6"	ST.						87
3S407E	4	4	4	20'-2"	ST.						54
3S501E	912	874	1,786	30'-0"	ST.						55,884
3S502E	1 SET OF	1 SET OF	25'-8" TO	ST.					4"		1,262
	38 BARS	38 BARS	38'-0"								
3S503E	1,211	1,166	2,377	30'-10"	ST.						76,442
3S504E	1,211	1,166	2,377	12'-4"	ST.						30,577

SUPERSTRUCTURE											
MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	W.B.	E.B.	TOTAL			A	B	C	D		
3S505E	950	916	1,866	3'-1"	5	9"	6"	8-1/2"	9-1/2"		6,000
3S506E	950	916	1,866	2'-3"	13	1'-6"	10-1/2"				4,379
3S507E	950	916	1,866	5'-3"	15	2'-2"	2'-5"	7-1/2"			10,217
3S508E		1 SET OF	1 SET OF	27'-9" TO	ST.					4"	1,344
		38 BARS	38 BARS	40'-1"							
3S509E	1 SET OF	1 SET OF	2 SETS OF	1'-6" TO	ST.					1'-11"	909
	21 BARS	21 BARS	21 BARS	40'-0"							
3S510E	5	5	10	36'-8"	ST.						382
3S511E	5	5	10	38'-3"	ST.						399
3S512E	192	128	320	7'-5"	ST.						2,475
3S513E	32	16	48	15'-2"	ST.						759
3S514E	100	96	196	14'-8"	ST.						2,998
3S515E	108	72	180	7'-0"	ST.						1,314
3S516E	8	8	16	12'-2"	ST.						203
3S517E		28	28	15'-8"	ST.						458
3S518E		40	40	5'-8"	ST.						236
3S519E		96	96	5'-0"	ST.						501
3S520E	68	44	112	14'-2"	ST.						1,655
3S521E	40	32	72	6'-8"	ST.						501
3S522E		4	4	15'-11"	ST.						66
3S523E	4		4	12'-6"	ST.						52
3S524E		4	4	10'-0"	ST.						42
<b>UNIT NO. 4</b>											
4S401E	1,386	1,386	2,772	30'-0"	ST.						55,551
4S402E	63	63	126	17'-4"	ST.						1,459
4S501E	836	836	1,672	30'-0"	ST.						52,317
4S502E	38	38	76	24'-8"	ST.						1,955
4S503E	1,112	1,112	2,224	32'-2"	ST.						74,615
4S504E	1,112	1,112	2,224	12'-10"	ST.						29,769
4S505E	866	866	1,732	3'-1"	5	9"	6"	8-1/2"	9-1/2"		5,569
4S506E	866	866	1,732	2'-3"	13	1'-6"	10-1/2"				4,065
4S507E	866	866	1,732	5'-3"	15	2'-2"	2'-5"	7-1/2"			9,484
4S508E	40	40	80	14'-2"	ST.						1,182
4S509E	152	152	304	13'-8"	ST.						4,333
4S510E	336	336	672	6'-8"	ST.						4,673
4S511E	8	8	16	15'-6"	ST.						259
4S512E	10	10	20	38'-3"	ST.						798
4S601E	1,112	1,112	2,224	27'-6"	ST.						91,862
4S602E	1,112	1,112	2,224	17'-10"	ST.						59,571
4S603E	392	392	784	30'-0"	ST.						35,327
4S604E	56	56	112	18'-6"	ST.						3,112
4S605E	56	56	112	27'-8"	ST.						4,654
4S606E	56	56	112	12'-10"	ST.						2,159
4S607E	56	56	112	31'-0"	ST.						5,215
4S608E	64	64	128	3'-8"	23	1'-0"	1'-1"	1'-9"	9"		705
4S601E	1112	1112	2224	27'-6"	STR.						91,862
4S602E	1112	1112	2224	17'-10"	STR.						59,571
4S603E	56	56	112	22'-6"	STR.						3,785
4S604E	56	56	112	26'-0"	STR.						4,374
4S605E	280	280	560	30'-0"	STR.						25,234
4S606E	56	56	112	27'-8"	STR.						4,654
4S607E	56	56	112	17'-8"	STR.						2,972
4S608E	64	64	128	3'-8"	23	1'-0"	1'-1"	1'-9"	9"		705
4S609E	56	56	112	25'-2"	STR.						4,234
4S610E	56	56	112	13'-0"	STR.						2,187
4S611E	56	56	112	20'-0"	STR.						3,364
TOTAL WEIGHT											651,576

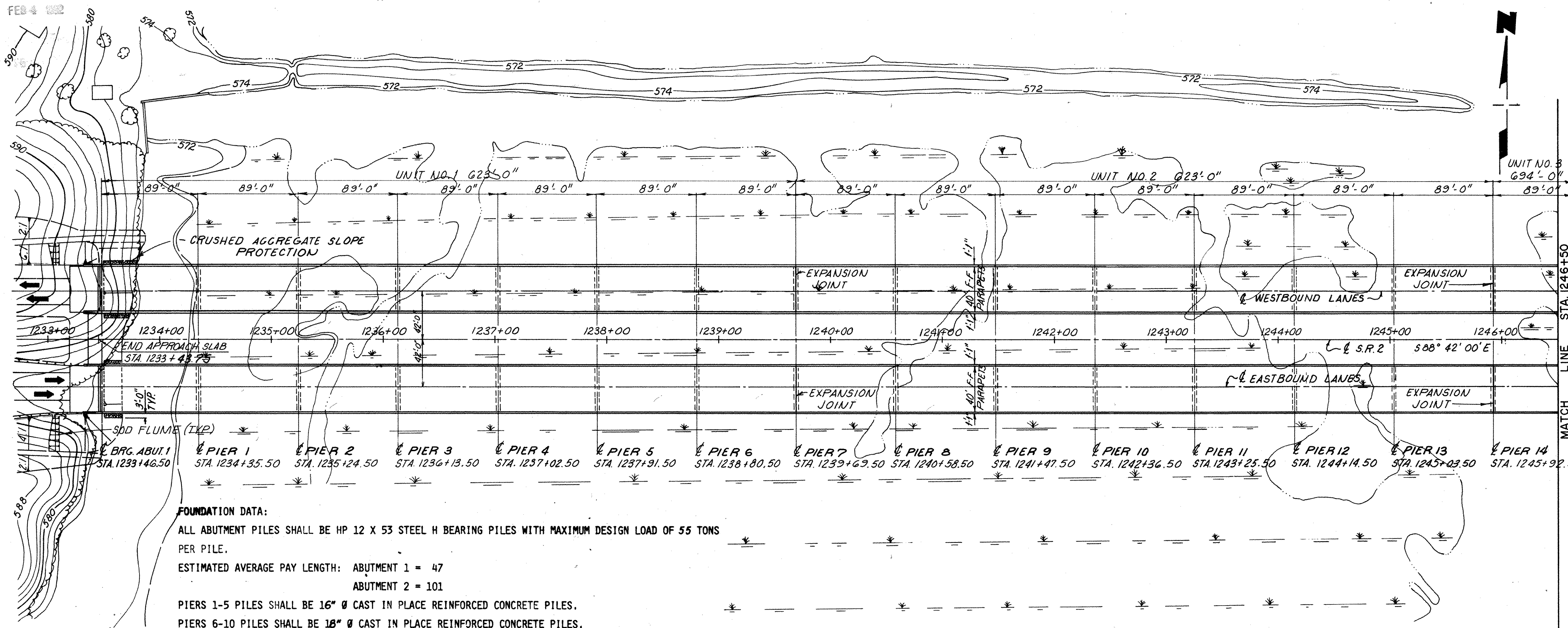
SUPERSTRUCTURE											
MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	W.B.	E.B.	TOTAL			A	B	C	D		
<b>UNIT NO. 4</b>											
4S401E	1,386	1,386	2,772	30'-0"	ST.						55,551
4S402E	63	63	126	17'-4"	ST.						1,459
4S501E	836	836	1,672	30'-0"	ST.						52,317
4S502E	38	38	76	24'-8"	ST.						1,955
4S503E	1,112	1,112	2,224	32'-2"	ST.						74,615
4S504E	1,112	1,112	2,224	12'-10"	ST.						29,769
4S505E	866	866	1,732	3'-1"	5	9"	6"	8-1/2"	9-1/2"		5,569
4S506E	866	866	1,732	2'-3"	13	1'-6"	10-1/2"				4,065
4S507E	866	866	1,732	5'-3"	15	2'-2"	2'-5"	7-1/2"			9,484
4S508E	40	40	80	14'-2"	ST.						1,182
4S509E	152	152	304	13'-8"	ST.						4,333
4S510E	336	336	672	6'-8"	ST.						4,673
4S511E	8	8	16	15'-6"	ST.						259
4S512E	10	10	20	38'-3"	ST.						798
4S601E	1,112	1,112	2,224	27'-6"	ST.						91,862
4S602E	1,112	1,112	2,224	17'-10"	ST.						59,571
4S603E	392	392	784	30'-0"	ST.						35,327
4S604E	56	56	112	18'-6"	ST.						3,112
4S605E	56	56	112	27'-8"	ST.						4,654
4S606E	56	56	112	12'-10"	ST.						2,159
4S607E	56	56	112	31'-0"	ST.						5,215
4S608E	64	64	128	3'-8"	23	1'-0"	1'-1"	1'-9"	9"		705
4S601E	1112	1112	2224	27'-6"	STR.						91,862
4S602E	1112	1112	2224	17'-10"	STR.						59,571
4S603E	56	56	112	22'-6"	STR.						3,785
4S604E	56	56	112	26'-0"	STR.						4,374
4S605E	280	280	560	30'-0"	STR.						25,234
4S606E	56	56	112	27'-8"	STR.						4,654
4S607E	56	56	112	17'-8"	STR.						2,972
4S608E	64	64	128	3'-8"	23	1'-0"	1'-1"	1'-9"	9"		705
4S609E	56	56	112	25'-2"	STR.						4,234
4S610E	56	56									

FEB 4 1982

FHWA REGION	STATE	PROJECT
5	OHIO	

213  
326

ERIE COUNTY  
ERI-2-18.38



**FOUNDATION DATA:**

ALL ABUTMENT PILES SHALL BE HP 12 X 53 STEEL H BEARING PILES WITH MAXIMUM DESIGN LOAD OF 55 TONS PER PILE.

ESTIMATED AVERAGE PILE LENGTH: ABUTMENT 1 = 47

ABUTMENT 2 = 101

PIERS 1-5 PILES SHALL BE 16" Ø CAST IN PLACE REINFORCED CONCRETE PILES.

PIERS 6-10 PILES SHALL BE 18" Ø CAST IN PLACE REINFORCED CONCRETE PILES.

PIERS 11-26 PILES SHALL BE 14 X 89 STEEL H BEARING PILES WITH MAXIMUM DESIGN LOAD OF 150 TONS PER PILE.

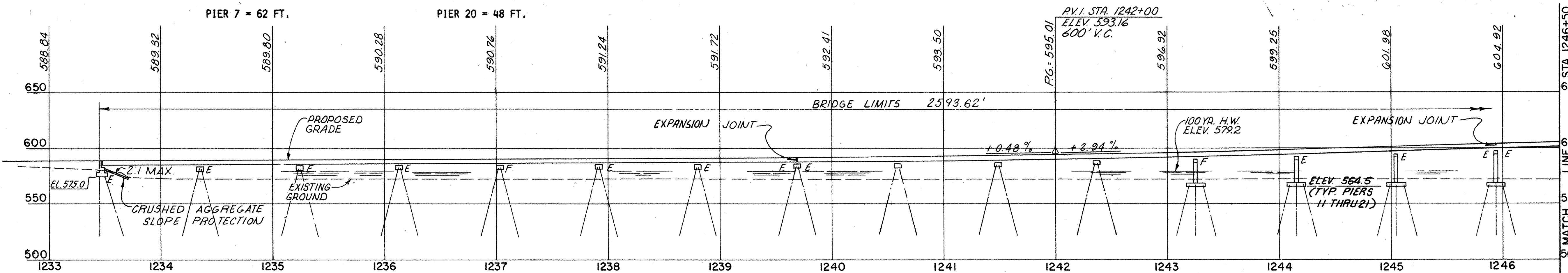
ESTIMATED AVERAGE PILE LENGTH SHALL BE AS FOLLOWS:

PIER 1 = 52 FT.	PIER 8 = 64 FT.	PIER 14 = 46 FT.	PIER 21 = 49 FT.
PIER 2 = 54 FT.	PIER 9 = 65 FT.	PIER 15 = 46 FT.	PIER 22 = 52 FT.
PIER 3 = 56 FT.	PIER 10 = 67 FT.	PIER 16 = 46 FT.	PIER 23 = 54 FT.
PIER 4 = 58 FT.	PIER 11 = 46 FT.	PIER 17 = 46 FT.	PIER 24 = 39 FT.
PIER 5 = 59 FT.	PIER 12 = 46 FT.	PIER 18 = 47 FT.	PIER 25 = 39 FT.
PIER 6 = 61 FT.	PIER 13 = 46 FT.	PIER 19 = 47 FT.	PIER 26 = 76 FT.
PIER 7 = 62 FT.	PIER 20 = 48 FT.		

**PLAN**

**NOTE:**

EARTHWORK LIMITS SHOWN ARE APPROXIMATE, ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS-SECTIONS.  
CONSTRUCTION ACCESS ROAD NOT SHOWN.



**PROFILE**

**PROPOSED STRUCTURE ALTERNATE 2**

TYPE: CONTINUOUS PRESTRESSED I-BEAMS UNITS 1, 2 & 3. CONTINUOUS COMPOSITE WELDED STEEL PLATE GIRDERS UNIT 4. REINFORCED CONCRETE DECK. COMBINATION SUBSTRUCTURE, CAPPED PILE PIERS AND REINFORCED CONCRETE PIERS AND ABUTMENTS

SKEW: 0° 00' UNITS 1, 2 & 3 AND 16° 29' 53" LEFT FORWARD UNIT 4

SPANS: (UNITS 1 AND 2) 7 SPANS @ 89'-0" (UNIT 3) 7 SPANS @ 89'-0", 71'-0" (UNIT 4) 120'-0", 150'-0", 150'-0" 120'-0", 108'-0"

ROADWAY: 40'-0" F/F PARAPETS

LOADING: HS-20-44 CASE II AND THE ALTERNATE MILITARY LOADING

WEARING SURFACE: MONOLITHIC CONCRETE (TOP LAYER OF REINFORCING EPOXY COATED)

APPROACH SLABS: AS-1-81 (25' LONG)

ALIGNMENT: TANGENT

SUPERELEVATION: NONE

SLOPE PROTECTION: CRUSHED AGGREGATE

TRAFFIC: ADT (2000) 8420  
ADTT (2000) 1970

**ALTERNATE-2**

adache - ciuni - lynn associates  
CONSULTING ENGINEERS CLEVELAND, OHIO 44130

**SITE PLAN**

BRIDGE NO. ERI-2-1911 L/R  
S.R. 2 OVER HURON RIVER  
N. & W. R.R. & RIVER ROAD

ERIE COUNTY STA. 1233+43.75 TO  
ERI-2-18.38 STA. 1259+37.37

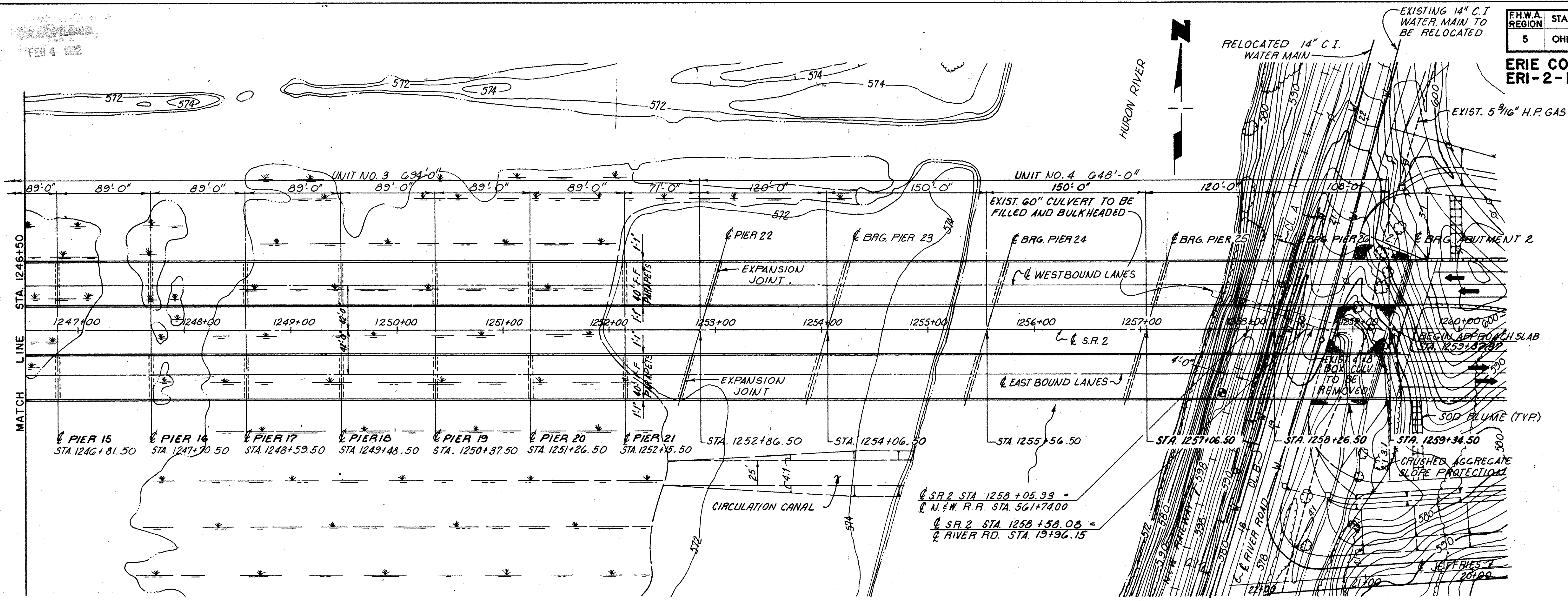
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	DR.J.	L.E.D.	L.E.D.	11/4/85	

FEB 4 1982

F.H.W.A. REGION	STATE	PROJECT
5	OHIO	

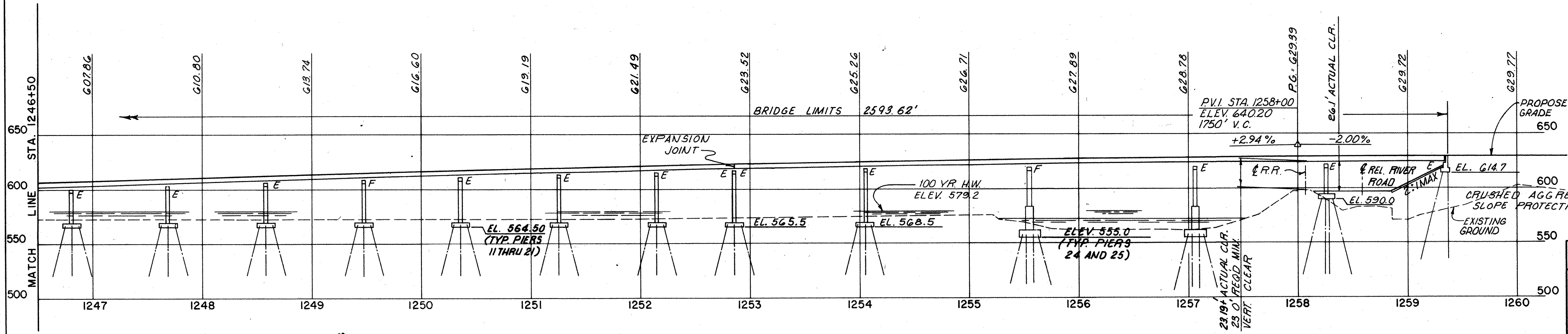
214  
326

ERIE COUNTY  
ERI-2-18.38



**PLAN**

HORIZ. CLEAR A - 18.22' CLEAR  
 18.00' REQUIRED  
 HORIZ. CLEAR B - 16.78' CLEAR  
 ● POINT OF MINIMUM VERTICAL CLEARANCE



**PROFILE**

ALTERNATE 2

adache - ciuni - lynn associates  
 CONSULTING ENGINEERS CLEVELAND, OHIO 44130

**SITE PLAN**  
 BRIDGE NO. ERI-2-1911 L/R  
 S.R. 2 OVER HURON RIVER  
 N. & W. R.R. & RIVER ROAD

ERIE COUNTY STA. 1233 + 43.75 TO  
 ERI-2-18.38 STA. 1259 + 37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	D.R.J.	L.E.D.	L.E.D.	11/4/85	

# ESTIMATED QUANTITIES SUMMARY

ITEM	UNIT	WESTBOUND	EASTBOUND	TOTAL	DESCRIPTION	ABUTMENTS		PIER		SUPERSTR.		GENERAL							
						WESTBOUND	EASTBOUND	WESTBOUND	EASTBOUND	WESTBOUND	EASTBOUND	WESTBOUND	EASTBOUND						
503	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	COFFERDAMS, CRIBS AND SHEETING			LUMP SUM	LUMP SUM										
503	CU. YD.	1,573	1,573	3,146	UNCLASSIFIED EXCAVATION	279	279	1,294	1,294										
505	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	PILE DRIVING EQUIPMENT MOBILIZATION	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM										
507	LIN. FT.	2,126	2,126	4,252	STEEL PILES, HP 12 X 53, AS PER PLAN	2,126	2,126												
507	LIN. FT.	9,423	9,423	18,846	STEEL PILES, HP 14 X 89, AS PER PLAN			9,423	9,423										
507	LIN. FT.	3,348	3,348	6,696	16" Ø CAST-IN-PLACE CONCRETE PILES, AS PER PLAN			3,348	3,348										
507	LIN. FT.	3,828	3,828	7,656	18" Ø CAST-IN-PLACE CONCRETE PILES, AS PER PLAN			3,828	3,828										
507	EACH	225	225	450	STEEL POINTS, AS PER PLAN	15	15	210	210										
509	LB.	468,434	468,434	936,868	REINFORCING STEEL, GRADE 60	13,429	13,429	455,005	455,005										
511	CU. YD.	3,738	3,701	7,439	CLASS "S" CONCRETE, SUPERSTRUCTURE, AS PER PLAN					3,738	3,701								
511	CU. YD.	1,909	1,909	3,818	CLASS "C" CONCRETE, PIER CAPS AND PIERS ABOVE FOOTINGS			1,909	1,909										
511	CU. YD.	133	133	266	CLASS "C" CONCRETE, ABUTMENTS ABOVE FOOTINGS	133	133												
511	CU. YD.	912	912	1,824	CLASS "C" CONCRETE, FOOTINGS	83	83	829	829										
511	CU. YD.	289	289	578	CLASS "C" CONCRETE, DIAPHRAGMS FOR PRESTRESSED BEAMS					289	289								
513	LB.	819,100	819,100	1,638,200	STRUCTURAL STEEL, (AISC CATEGORY III) (SEE PROPOSAL NOTE)					819,100	819,100								
513	EACH	4,590	4,590	9,180	WELDED STUD SHEAR CONNECTORS					4,590	4,590								
515					PRESTRESSED CONCRETE BRIDGE MEMBERS (SEE PROPOSAL NOTE)														
	EACH	80	80	160	TYPE I, AS PER PLAN					80	80								
	EACH	10	10	20	TYPE II, AS PER PLAN					10	10								
	EACH	15	15	30	TYPE III, AS PER PLAN					15	15								
	EACH	3	-	3	TYPE IV, AS PER PLAN					3	-								
	EACH	2	-	2	TYPE V, AS PER PLAN					2	-								
	EACH	-	3	3	TYPE VI, AS PER PLAN					-	3								
	EACH	-	2	2	TYPE VII, AS PER PLAN					-	2								
516	EACH	20	20	40	LAMINATED ELASTOMERIC BEARINGS WITH SLIDING SURFACES (TYPE A)					20	20								
516	EACH	170	170	340	LAMINATED ELASTOMERIC BEARINGS WITH SLIDING SURFACES (TYPE B)					170	170								
516	EACH	30	30	60	10 1/2" X 22" X 1" LAMINATED ELASTOMERIC BEARINGS (TYPE C)					30	30								
516	LIN. FT.	42	42	84	STRUCT. EXP. JOINTS INCL. ELAST. COMP. SEALS (TYPE I)					42	42								
516	LIN. FT.	84	84	168	STRUCT. EXP. JOINTS INCL. ELAST. COMP. SEALS (TYPE II)					84	84								
516	LIN. FT.	44	44	88	STRUCT. EXP. JOINTS INCL. ELAST. COMP. SEALS (TYPE III)					44	44								
516	LIN. FT.	44	44	88	STRUCT. EXP. JOINTS INCL. ELAST. COMP. SEALS (TYPE IV)					44	44								
518	LIN. FT.	74	74	148	6" PERFORATED, HELICAL CORRUGATED STEEL PIPE, 707.01	74	74												
518	LIN. FT.	56	56	112	6" NON-PERFORATED HELICAL CORRUGATED STEEL PIPE	56	56												
518	EACH	50	50	100	SCUPPERS, INCLUDING SUPPORTS					50	50								
518	CU. YD.	69	69	138	POROUS BACKFILL, AS PER PLAN	69	69												
523	HOUR	3	3	6	DYNAMIC LOAD TEST	3	3												
601	SQ. YD.	651	545	1,196	CRUSHED AGGREGATE SLOPE PROTECTION	651	545												
SPECIAL	LUMP	LUMP	LUMP	LUMP	TESTING OF LAMINATED ELASTOMERIC BRGS. W/SLIDING SURFACES, TYPE A+B							LUMP	LUMP						
824	LB.	992,181	984,154	1,976,335	EPOXY COATED REINFORCING STEEL, GRADE 60	2,881	2,879			989,300	981,275								
SPECIAL	SQ. YD.	6,143	6,082	12,225	SEALING OF CONCRETE SURFACES (SEE PROPOSAL NOTE)	85	85			6,058	5,997								
SPECIAL	S.F.	10,049	10,049	20,098	PROTECTION OF CONCRETE SURFACES (SEE PROPOSAL NOTE)			10,049	10,049										
* SPECIAL	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	TEST PILE PROGRAM							LUMP SUM	LUMP SUM						

\* INDICATES TEST PILE PROGRAM MAY BE PERFORMED ON EITHER WESTBOUND OR EASTBOUND STRUCTURE.

ALTERNATE - 2

adache ciuni lynnn associates  
CONSULTING ENGINEERS C.E. BELAND, INC. 2413

### EST. QUANTITIES SUMMARY

BRIDGE N<sup>o</sup> ERI-2-19.11 L/R  
S.R. 2 OVER HURON RIVER  
N. & W. R.R. & RIVER ROAD  
ERIE COUNTY STA. 1233 + 43.75 TO  
ERI-2-18.38 STA. 1259 + 37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	J.D.P.	K.L.M.	L.E.D.	1/4/85	

RECEIVED  
FEB 4 1985

FHWA REGION	STATE	PROJECT
5	OHIO	



ERIE COUNTY  
ERI-2-18.38

# ESTIMATED QUANTITIES UNIT I

ITEM	UNIT	WESTBOUND	EASTBOUND	TOTAL	DESCRIPTION	ABUTMENTS		PIER		SUPERSTR.		GENERAL						
						WESTBOUND	EASTBOUND	WESTBOUND	EASTBOUND	WESTBOUND	EASTBOUND	WESTBOUND	EASTBOUND					
503	CU. YD.	130	130	260	UNCLASSIFIED EXCAVATION	130	130											
505	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	PILE DRIVING EQUIPMENT MOBILIZATION	LUMP SUM	LUMP SUM	LUMP SUM										
507	LIN. FT.	611	611	1,222	STEEL PILES, HP 12 X 53, AS PER PLAN	611	611											
507	LIN. FT.	3,348	3,348	6,696	16" Ø CAST-IN-PLACE CONCRETE PILES, AS PER PLAN			3,348	3,348									
507	LIN. FT.	1,476	1,476	2,952	18" Ø CAST-IN-PLACE CONCRETE PILES, AS PER PLAN			1,476	1,476									
507	EACH	13	13	26	STEEL POINTS, AS PER PLAN	13	13											
509	LB.	48,646	48,647	97,293	REINFORCING STEEL, GRADE 60	6,265	6,265	42,381	42,382									
511	CU. YD.	888	888	1,776	CLASS "S" CONCRETE, SUPERSTRUCTURE, AS PER PLAN					888	888							
511	CU. YD.	239	239	478	CLASS "C" CONCRETE, PIER CAPS AND PIERS ABOVE FOOTINGS			239	239									
511	CU. YD.	60	60	120	CLASS "C" CONCRETE, ABUTMENTS ABOVE FOOTINGS	60	60											
511	CU. YD.	39	39	78	CLASS "C" CONCRETE, FOOTINGS	39	39											
511	CU. YD.	91	91	182	CLASS "C" CONCRETE, DIAPHRAGMS FOR PRESTRESSED BEAMS					91	91							
515					PRESTRESSED CONCRETE BRIDGE MEMBERS													
	EACH	25	25	50	TYPE I, AS PER PLAN					25	25							
	EACH	5	5	10	TYPE II, AS PER PLAN					5	5							
	EACH	5	5	10	TYPE III, AS PER PLAN					5	5							
516	EACH	5	5	10	LAMINATED ELASTOMERIC BEARINGS WITH SLIDING SURFACES (TYPE A)					5	5							
516	EACH	55	55	110	LAMINATED ELASTOMERIC BEARINGS WITH SLIDING SURFACES (TYPE B)					55	55							
516	EACH	10	10	20	10 1/2" X 22" X 1" LAMINATED ELASTOMERIC BEARINGS (TYPE C)					10	10							
516	LIN. FT.	42	42	84	STRUCT. EXP. JOINTS INCL. ELAST. COMP. SEALS (TYPE I)					42	42							
516	LIN. FT.	42	42	84	STRUCT. EXP. JOINTS INCL. ELAST. COMP. SEALS (TYPE II)					42	42							
518	LIN. FT.	35	35	70	6" PERFORATED, HELICAL CORRUGATED STEEL PIPE, 707.01	35	35											
518	LIN. FT.	27	27	54	6" NON-PERFORATED HELICAL CORRUGATED STEEL PIPE	27	27											
518	EACH	12	12	24	SCUPPERS, INCLUDING SUPPORTS					12	12							
518	CU. YD.	30	30	60	POROUS BACKFILL, AS PER PLAN	30	30											
601	SQ. YD.	160	104	264	CRUSHED AGGREGATE SLOPE PROTECTION	160	104											
824	LB.	245,201	245,200	490,401	EPOXY COATED REINFORCING STEEL, GRADE 60	1,389	1,382			243,818	243,818							
SPECIAL	LUMP	LUMP	LUMP	LUMP	TESTING OF LAMINATED ELASTOMERIC BEGS, W/ SLIDING SURFACES, TYPE A & B							LUMP	LUMP					
SPECIAL	SQ. YD.	1,495	1,495	2,990	SEALING OF CONCRETE SURFACES, SEE PROPOSAL NOTE	38	38			1,457	1,457							

ALTERNATE - 2 4/43

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**EST. QUANTITIES UNIT I**  
BRIDGE N° ERI - 2-19.11 L/R  
S.R. 2 OVER HURON RIVER  
N. & W. R.R. & RIVER ROAD  
ERIE COUNTY STA. 1233 + 43.75 TO  
ERI-2-18.38 STA. 1259 + 37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	J.D.P.	K.L.M.	L.E.D.	11/4/85	



FEB 4 1982

FHWA REGION	STATE	PROJECT
5	OHIO	



ERIE COUNTY  
ERI-2-18.38

# ESTIMATED QUANTITIES UNIT 2

ITEM	UNIT	WESTBOUND	EASTBOUND	TOTAL	DESCRIPTION	ABUTMENTS		PIER		SUPERSTR.		GENERAL						
						WESTBOUND	EASTBOUND	WESTBOUND	EASTBOUND	WESTBOUND	EASTBOUND	WESTBOUND	EASTBOUND					
503	CU. YD.	233	233	466	UNCLASSIFIED EXCAVATION			233	233									
505	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	PILE DRIVING EQUIPMENT MOBILIZATION			LUMP SUM	LUMP SUM									
507	LIN. FT.	1,840	1,840	3,680	STEEL PILES, HP 14 X 89, AS PER PLAN			1,840	1,840									
507	LIN. FT.	2,352	2,352	4,704	18" Ø CAST-IN-PLACE CONCRETE PILES, AS PER PLAN			2,352	2,352									
507	EACH	40	40	80	STEEL POINTS, AS PER PLAN			40	40									
509	LB.	85,760	85,759	171,519	REINFORCING STEEL, GRADE 60			85,760	85,759									
511	CU. YD.	891	891	1,782	CLASS "S" CONCRETE, SUPERSTRUCTURE, AS PER PLAN					891	891							
511	CU. YD.	363	363	726	CLASS "C" CONCRETE, PIER CAPS AND PIERS ABOVE FOOTINGS			363	363									
511	CU. YD.	139	139	278	CLASS "C" CONCRETE, FOOTINGS			139	139									
511	CU. YD.	92	92	184	CLASS "C" CONCRETE, DIAPHRAGMS FOR PRESTRESSED BEAMS					92	92							
515					PRESTRESSED CONCRETE BRIDGE MEMBERS (SEE PROPOSAL NOTE)													
	EACH	25	25	50	TYPE I, AS PER PLAN					25	25							
	EACH	5	5	10	TYPE II, AS PER PLAN					5	5							
	EACH	5	5	10	TYPE III, AS PER PLAN					5	5							
516	EACH	5	5	10	LAMINATED ELASTOMERIC BEARINGS WITH SLIDING SURFACES (TYPE A)					5	5							
516	EACH	55	55	110	LAMINATED ELASTOMERIC BEARINGS WITH SLIDING SURFACES (TYPE B)					55	55							
516	EACH	10	10	20	10 1/2" X 22" X 1" LAMINATED ELASTOMERIC BEARINGS (TYPE C)					10	10							
516	LIN. FT.	42	42	84	STRUCT. EXP. JOINTS INCL. ELAST. COMP. SEALS (TYPE II)					42	42							
518	EACH	12	12	24	SCUPPERS, INCLUDING SUPPORTS					12	12							
824	LB.	243,472	243,473	486,945	EPOXY COATED REINFORCING STEEL, GRADE 60					243,472	243,473							
SPECIAL	LUMP	LUMP	LUMP	LUMP	TESTING OF LAMINATED ELASTOMERIC BEGS. W/SLIDING SURFACES, TYPE A & B							LUMP	LUMP					
SPECIAL	SQ YDS.	1,454	1,454	2,908	SEALING OF CONCRETE SURFACES, SEE PROPOSAL NOTE					1,454	1,454							

ALTERNATE-2

5/43

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CONSULTING ENGINEERS CLEVELAND, OHIO 44130

**EST. QUANTITIES UNIT 2**  
BRIDGE N<sup>o</sup> ERI - 2-19.11 L/R  
S.R. 2 OVER HURON RIVER  
N. & W. R.R. & RIVER ROAD  
ERIE COUNTY STA. 1233 + 43.75 TO  
ERI-2-18.38 STA. 1259 + 37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	J.D.P.	K.L.M.	L.E.D.	1/14/85	

# ESTIMATED QUANTITIES UNIT 3

ITEM	UNIT	WESTBOUND	EASTBOUND	TOTAL	DESCRIPTION	ABUTMENTS		PIER		SUPERSTR.		GENERAL					
						WESTBOUND	EASTBOUND	WESTBOUND	EASTBOUND	WESTBOUND	EASTBOUND	WESTBOUND	EASTBOUND				
503	CU. YD.	574	574	1,148	UNCLASSIFIED EXCAVATION			574	574								
505	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	PILE DRIVING EQUIPMENT MOBILIZATION			LUMP SUM	LUMP SUM								
507	LIN. FT.	4,619	4,619	9,238	STEEL PILES, HP 14 X 89, AS PER PLAN			4,619	4,619								
507	EACH	97	97	194	STEEL POINTS, AS PER PLAN			97	97								
509	LB.	199,095	199,095	398,190	REINFORCING STEEL, GRADE 60			199,095	199,095								
511	CU. YD.	1,002	965	1,967	CLASS "S" CONCRETE, SUPERSTRUCTURE, AS PER PLAN					1,002	965						
511	CU. YD.	717	717	1,434	CLASS "C" CONCRETE, PIER CAPS AND PIERS ABOVE FOOTINGS			717	717								
511	CU. YD.	349	349	698	CLASS "C" CONCRETE, FOOTINGS			349	349								
511	CU. YD.	106	106	212	CLASS "C" CONCRETE, DIAPHRAGMS FOR PRESTRESSED BEAMS					106	106						
515					PRESTRESSED CONCRETE BRIDGE MEMBERS (SEE PROPOSAL NOTE)												
	EACH	30	30	60	TYPE I, AS PER PLAN					30	30						
	EACH	5	5	10	TYPE III, AS PER PLAN					5	5						
	EACH	3	-	3	TYPE IV, AS PER PLAN					3	-						
	EACH	2	-	2	TYPE V, AS PER PLAN					2	-						
	EACH	-	3	3	TYPE VI, AS PER PLAN					-	3						
	EACH	-	2	2	TYPE VII, AS PER PLAN					-	2						
516	EACH	10	10	20	LAMINATED ELASTOMERIC BEARINGS WITH SLIDING SURFACES (TYPE A)					10	10						
516	EACH	60	60	120	LAMINATED ELASTOMERIC BEARINGS WITH SLIDING SURFACES (TYPE B)					60	60						
516	EACH	10	10	20	10 1/2" X 22" X 1" LAMINATED ELASTOMERIC BEARINGS (TYPE C)					10	10						
516	LIN. FT.	44	44	88	STRUCT. EXP. JOINTS INCL. ELAST. COMP. SEALS (TYPE III)					44	44						
518	EACH	13	13	26	SCUPPERS, INCLUDING SUPPORTS					13	13						
824	LB.	277,525	269,498	547,023	EPOXY COATED REINFORCING STEEL, GRADE 60					277,525	269,498						
SPECIAL	LUMP	LUMP	LUMP	LUMP	TESTING OF LAMINATED ELASTOMERIC BRGS. W/SLIDING SURFACES, TYPE A+B							LUMP	LUMP				
SPECIAL	SQ. YDS.	1,649	1,588	3,237	SEALING OF CONCRETE SURFACES, SEE PROPOSAL NOTE					1,649	1,588						

ALTERNATE - 2

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<b>EST. QUANTITIES UNIT 3</b> BRIDGE N° ERI-2-19.11 L/R S.R. 2 OVER HURON RIVER N. & W. R.R. & RIVER ROAD ERIE COUNTY STA. 1233 + 43.75 TO ERI-2-18.38 STA. 1259 + 37.37	
DESIGNED I.M.B. DRAWN J.D.P. CHECKED K.L.M. REVIEWED L.E.D.	DATE 11/4/85 REVISIONS

FEB 4 - 1982

ERIE COUNTY  
ERI-2-18.38

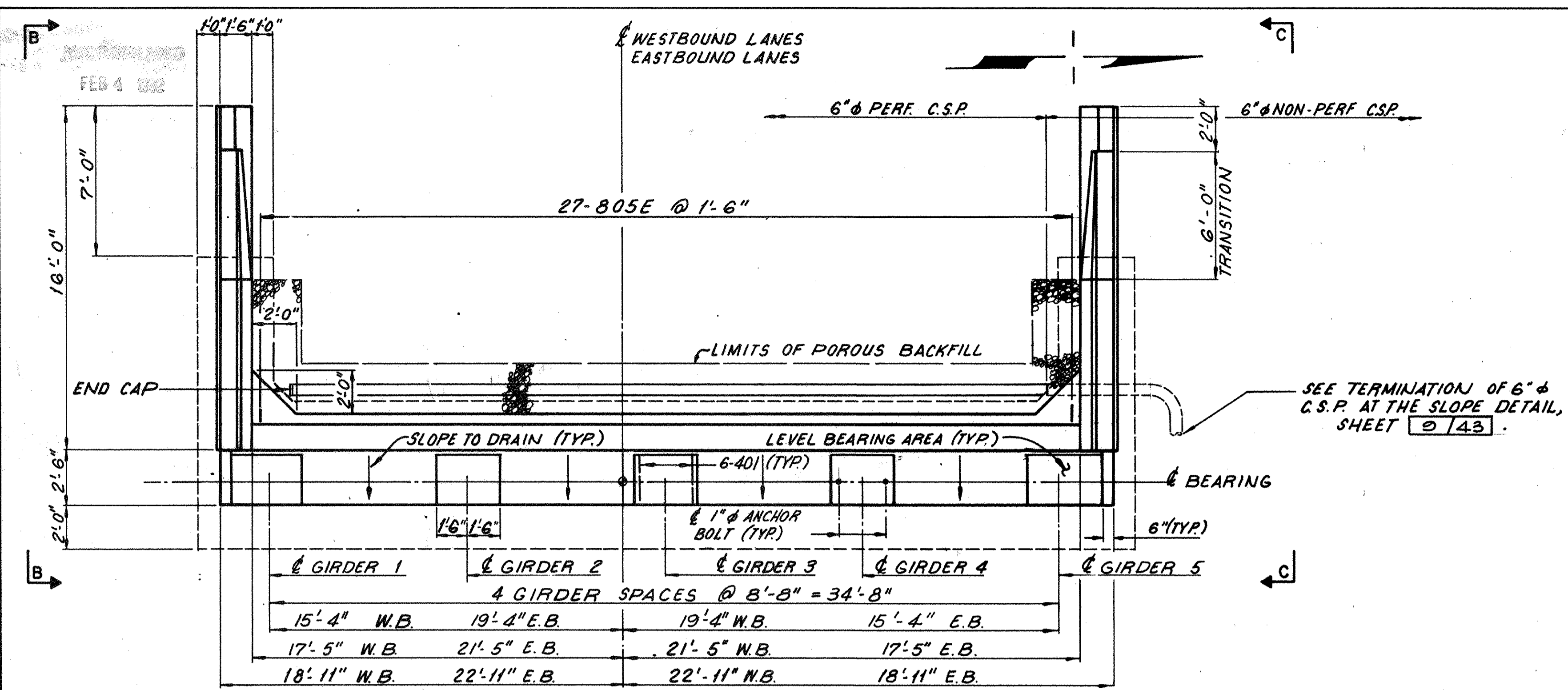
# ESTIMATED QUANTITIES UNIT 4

ITEM	UNIT	WESTBOUND	EASTBOUND	TOTAL	DESCRIPTION	ABUTMENTS		PIER		SUPERSTR.		GENERAL							
						WESTBOUND	EASTBOUND	WESTBOUND	EASTBOUND	WESTBOUND	EASTBOUND	WESTBOUND	EASTBOUND						
505	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	COFFERDAMS, CRIBS AND SHEETING			LUMP SUM	LUMP SUM										
503	CU. YD.	636	636	1,272	UNCLASSIFIED EXCAVATION	149	149	487	487										
505	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	PILE DRIVING EQUIPMENT MOBILIZATION	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM										
507	LIN. FT.	1,515	1,515	3,030	STEEL PILES, HP 12 X 53, AS PER PLAN	1,515	1,515												
507	LIN. FT.	2,964	2,964	5,928	STEEL PILES, HP 14 X 89, AS PER PLAN			2,964	2,964										
507	EACH	75	75	150	STEEL POINTS, AS PER PLAN	15	15	60	60										
509	LB.	134,933	134,933	269,866	REINFORCING STEEL, GRADE 60	7,164	7,164	127,769	127,769										
511	CU. YD.	957	957	1,914	CLASS "S" CONCRETE, SUPERSTRUCTURE, AS PER PLAN					957	957								
511	CU. YD.	590	590	1,180	CLASS "C" CONCRETE, PIER CAPS AND PIERS ABOVE FOOTINGS			590	590										
511	CU. YD.	73	73	146	CLASS "C" CONCRETE, ABUTMENTS ABOVE FOOTINGS	73	73												
511	CU. YD.	385	385	770	CLASS "C" CONCRETE, FOOTINGS	44	44	341	341										
513	LB.	819,100	819,100	1,638,200	STRUCTURAL STEEL (AISC CATEGORY III) (SEE PROPOSAL NOTE)					819,100	819,100								
513	EACH	4,590	4,590	9,180	WELDED STUD SHEAR CONNECTORS					4,590	4,590								
516	LIN. FT.	44	44	88	STRUCT. EXP. JOINTS INCL. ELAST. COMP. SEALS (TYPE IV)					44	44								
518	CU. YD.	39	39	78	POROUS BACKFILL, AS PER PLAN	39	39												
518	LIN. FT.	39	39	78	6" PERFORATED, HELICAL CORRUGATED STEEL PIPE, 707.01	39	39												
518	LIN. FT.	29	29	58	6" NON-PERFORATED HELICAL CORRUGATED STEEL PIPE, 707.01	29	29												
518	EACH	13	13	26	SCUPPER, INCLUDING SUPPORTS					13	13								
523	HOOR	3	3	6	DYNAMIC LOAD TEST	3	3												
601	SQ. YD.	491	441	932	CRUSHED AGGREGATE SLOPE PROTECTION	491	441												
824	LB.	225,983	225,983	451,966	EPOXY COATED REINFORCING STEEL, GRADE 60	1,498	1,497			224,485	224,486								
SPECIAL	SQ. FT.	10,049	10,049	20,098	PROTECTION OF CONCRETE SURFACES (SEE PROPOSAL NOTE)			10,049	10,049										
SPECIAL	SQ. YDS.	1,545	1,545	3,090	SEALING OF CONCRETE SURFACES (SEE PROPOSAL NOTE)	47	47			1,498	1,498								

ALTERNATE - 2

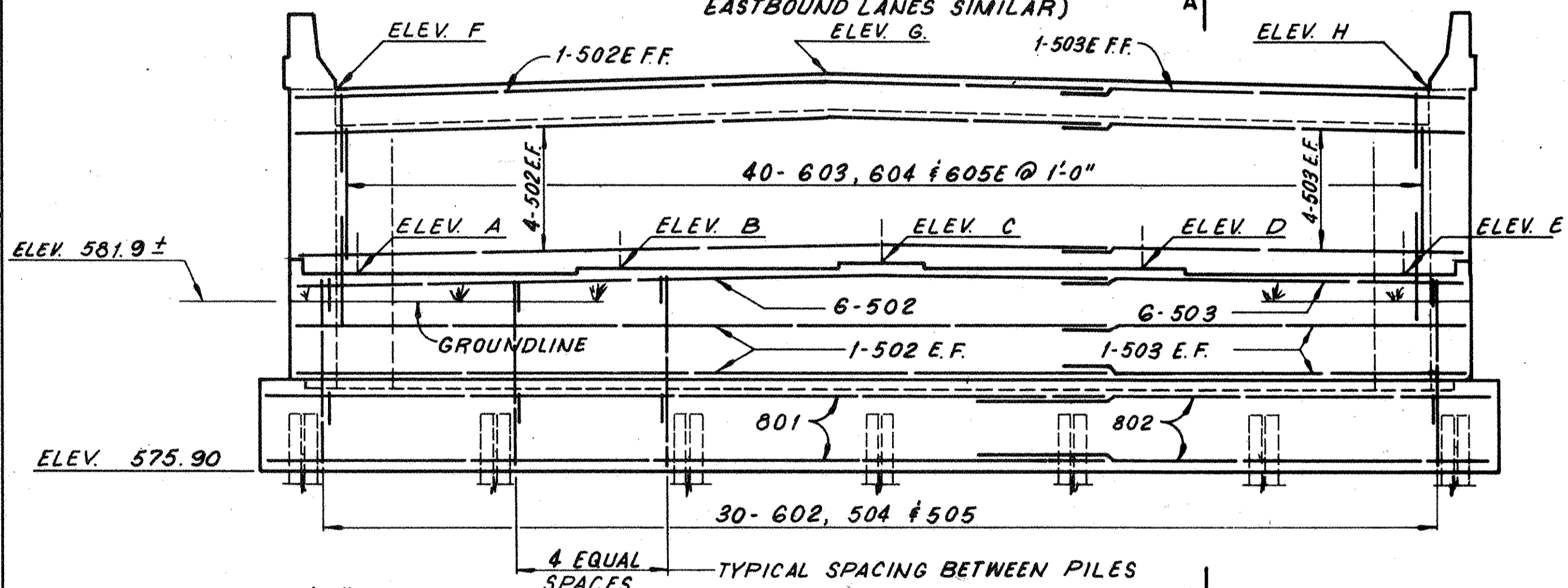
7/43

gcl adache ciuni lynn associates CONSULTING ENGINEERS					
<b>EST. QUANTITIES UNIT 4</b> BRIDGE N <sup>o</sup> ERI-2-19.11 L/R S.R. 2 OVER HURON RIVER N. & W. R.R. & RIVER ROAD ERIE COUNTY STA. 1233 + 43.75 TO ERI-2-18.38 STA. 1259 + 37.37					
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	J.D.P.	K.L.M.	L.E.D.	11/4/85	

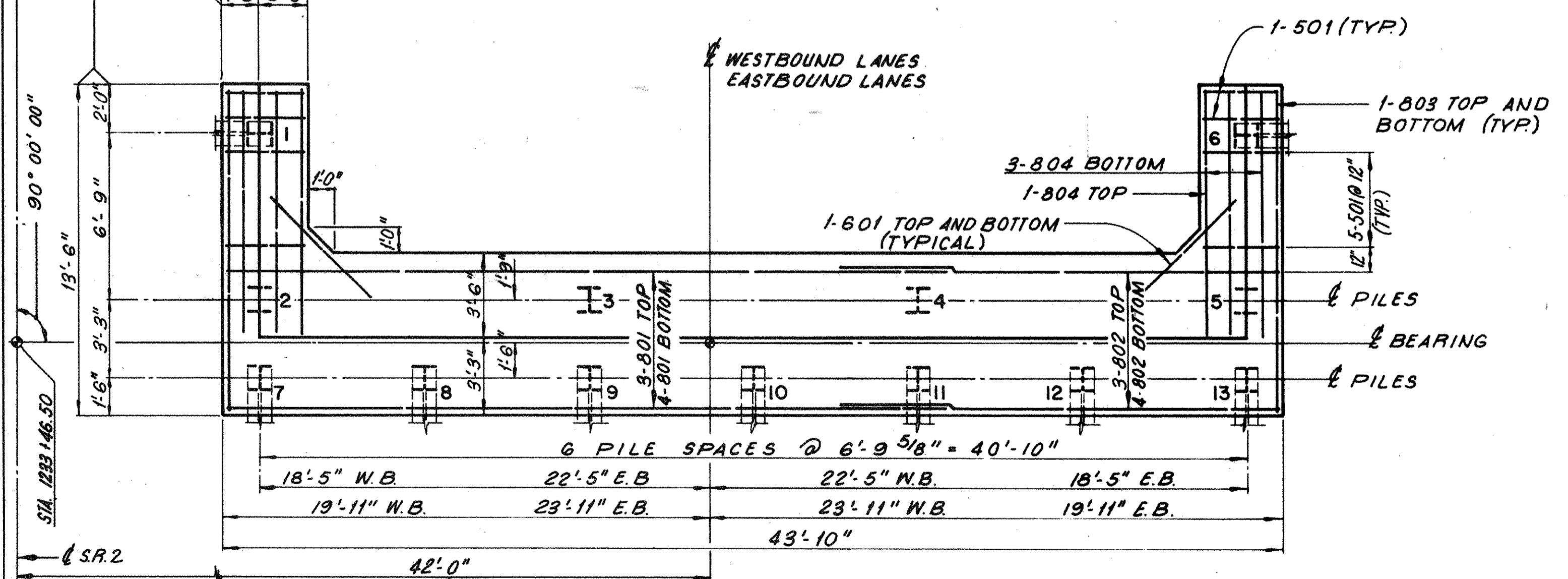


**PLAN**

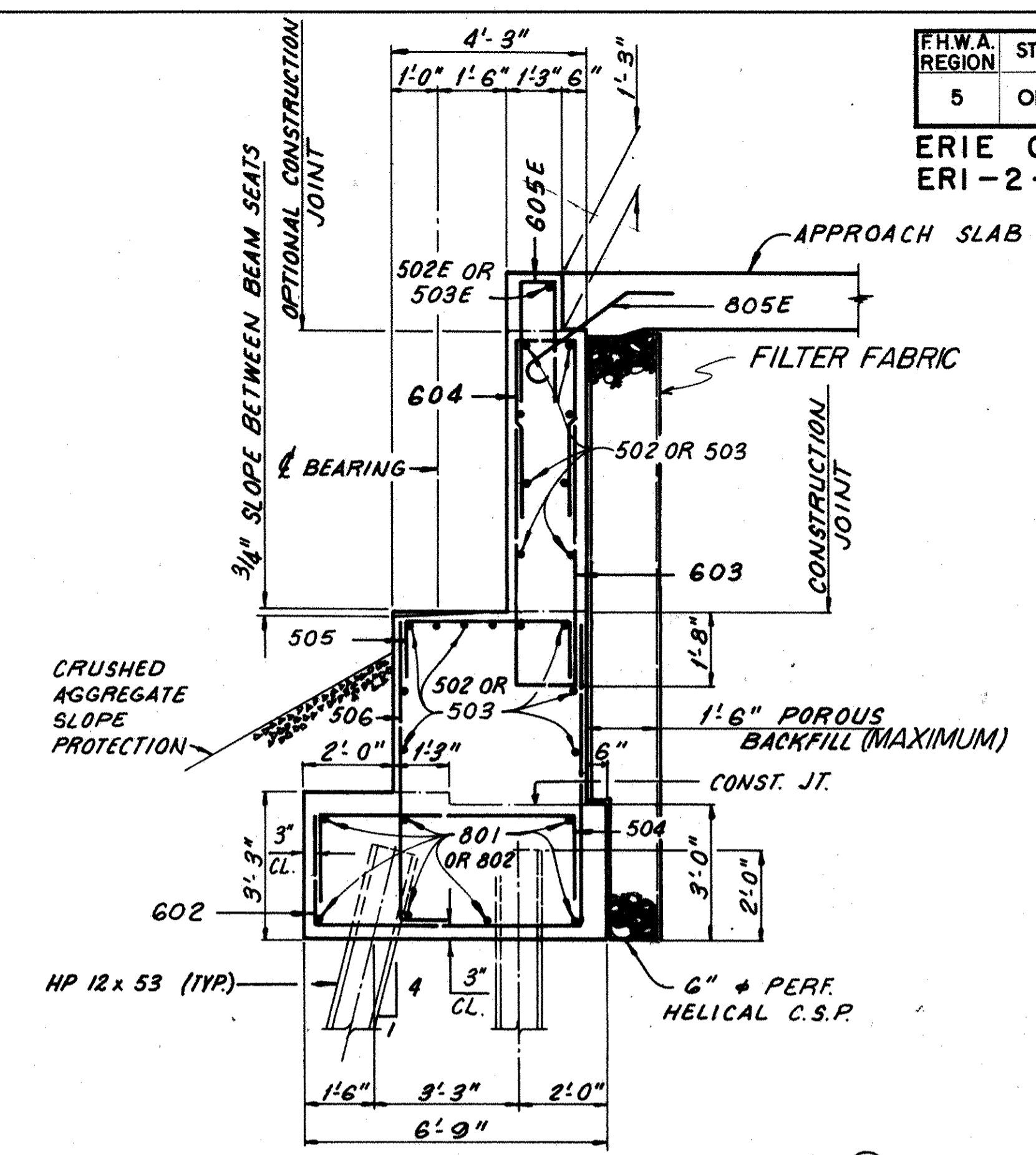
(WESTBOUND LANES SHOWN  
EASTBOUND LANES SIMILAR)



**ELEVATION**



**FOOTING PLAN**



**SECTION A-A**

**NOTES:**

- ① ALL REINFORCING STEEL IN ABUTMENT NO. 1 SHALL BE PREFIXED 1A.
- ② REINFORCING STEEL WITH SUFFIX 'E' SHALL BE EPOXY COATED.
- ③ IN ADDITION TO THE PROVISIONS OF 511.08, BACKWALL CONCRETE ABOVE THE OPTIONAL CONSTRUCTION JOINT AT THE APPROACH SLAB SEAT SHALL NOT BE PLACED UNTIL AFTER THE DECK CONCRETE IN THE SPAN ADJACENT TO THE ABUTMENT HAS BEEN PLACED.
- ④ POROUS BACKFILL 1.5 FT. THICK (2.0 FT. AT WINGWALLS) SHALL EXTEND UP TO THE PLANE OF THE SUBGRADE AND BACK TO THE ENDS OF THE WINGWALLS.
- ⑤ ALL PILES SHOWN BATTERED SHALL BE BATTERED 1 IN 4 IN THE DIRECTION SHOWN.
- ⑥ FOR VIEWS B-B AND C-C, SEE SHEET 32/43.
- ⑦ FOR EXPANSION JOINT DETAILS, SEE SHEET 32/43 & 34/43.
- ⑧ THE FOLLOWING ABBREVIATIONS ARE USED  
E.B. = EASTBOUND      E.F. = EACH FACE  
W.B. = WESTBOUND    N.F. = NEAR FACE  
TYP. = TYPICAL        FF. = FAR FACE  
C.S.P. = CORRUGATED STEEL PIPE  
L.T. = LEFT            RT. = RIGHT
- ⑨ FOR REINFORCING STEEL LIST AND BAR BENDING DIAGRAMS, SEE SHEETS 35/43 & 42/43.

- ⑩ REINFORCING STEEL IN THE VICINITY OF THE BEAM SEAT SHALL BE ACCURATELY PLACED TO AVOID INTERFERENCE WITH THE DRILLING OF ANCHOR HOLES OR THE PRE-SETTING OF BEARING ANCHORS.
- ⑪ AT THE OPTION OF THE CONTRACTOR BEARING ANCHORS (OR FORMED HOLES) LOCATED AND SUPPORTED BY TEMPLATES, MAY BE CAST-IN-PLACE.

ALTERNATE - 2 B/43

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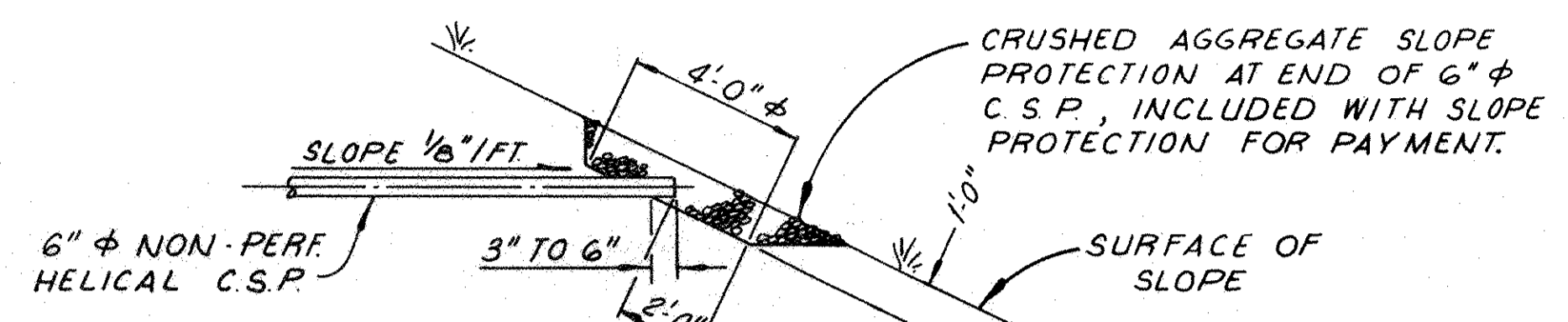
**ABUTMENT NO. 1 L/R**  
**BRIDGE N° ERI - 2-1911 L/R**  
**S.R. 2 OVER HURON RIVER**  
**N. & W.R.R. & RIVER ROAD**  
ERIE COUNTY STA. 1233 + 43.75 TO  
ERI-2-18.38 STA. 1259 + 37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
K.L.M.	D.R.J.	K.L.M.	M.B.	L.E.D. 11/4/85	

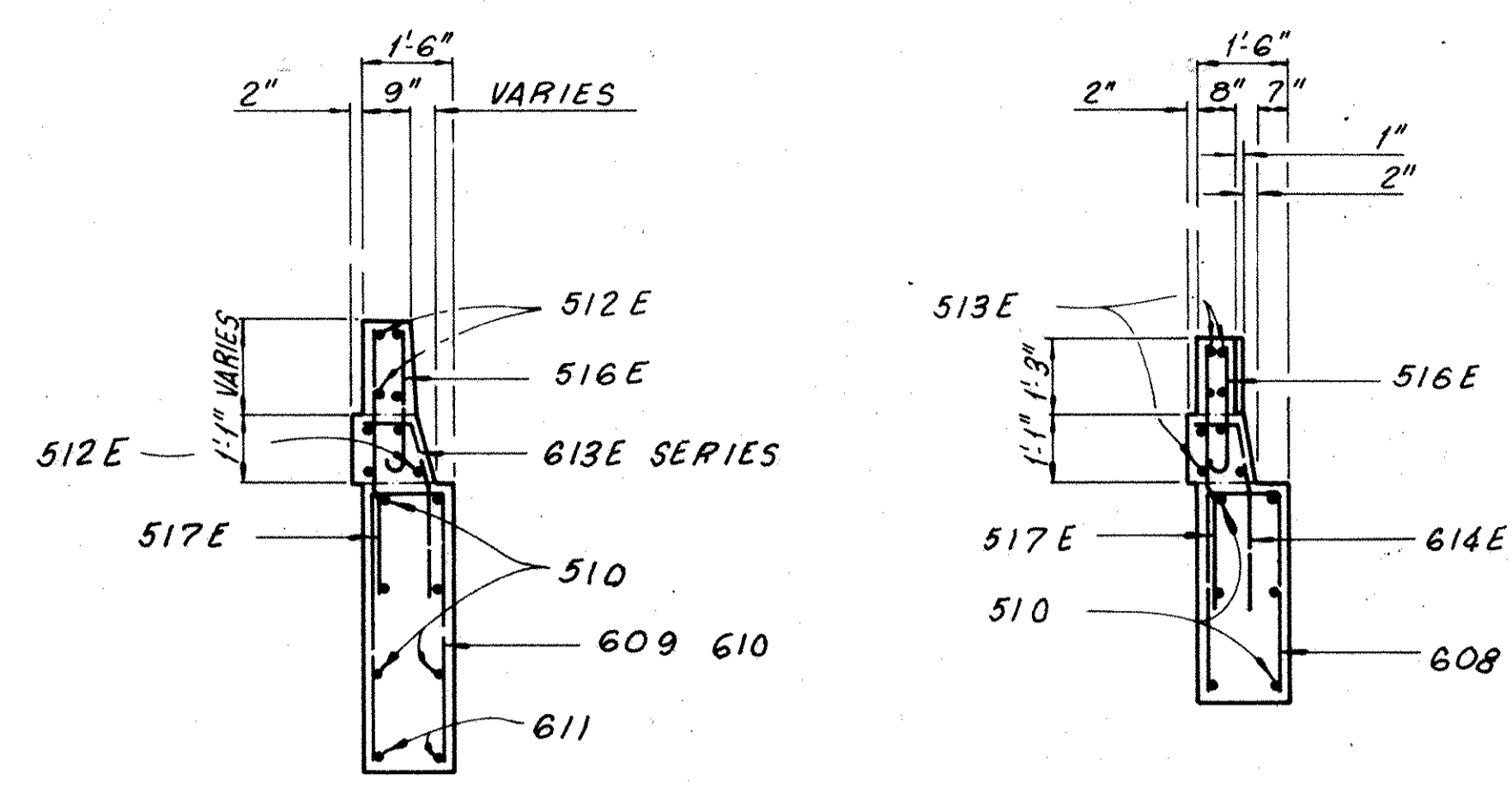
LOCATION	ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. F	ELEV. G	ELEV. H
EASTBOUND	583.04	583.17	583.25	583.11	582.98	588.92	589.25	588.98
WESTBOUND	582.98	583.11	583.25	583.17	583.04	588.98	589.25	588.92

FEB 4 1982

ERIE COUNTY  
ERI - 2 - 18.38

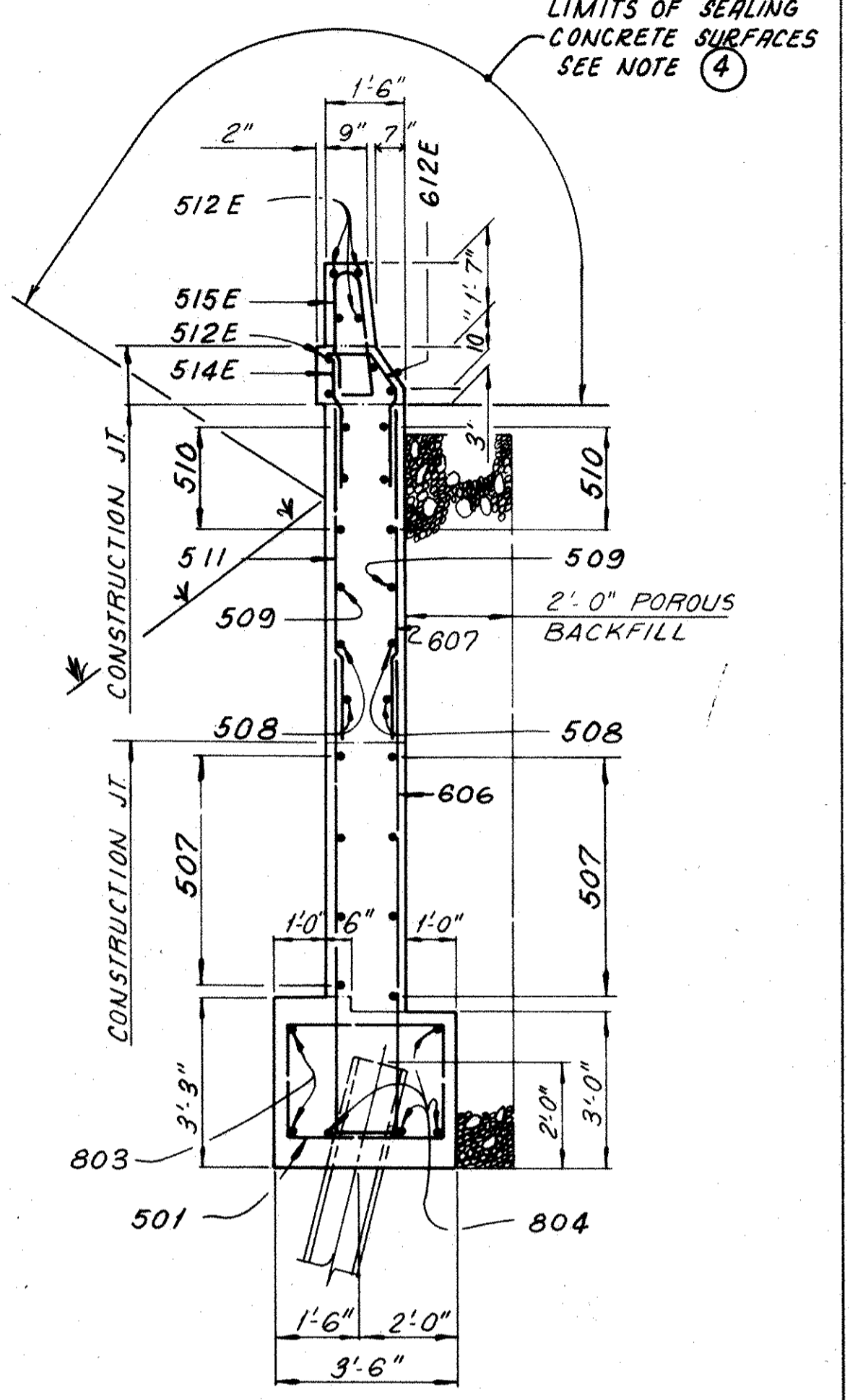


**TERMINATION OF 6" φ C.S.P.  
AT THE SLOPE**

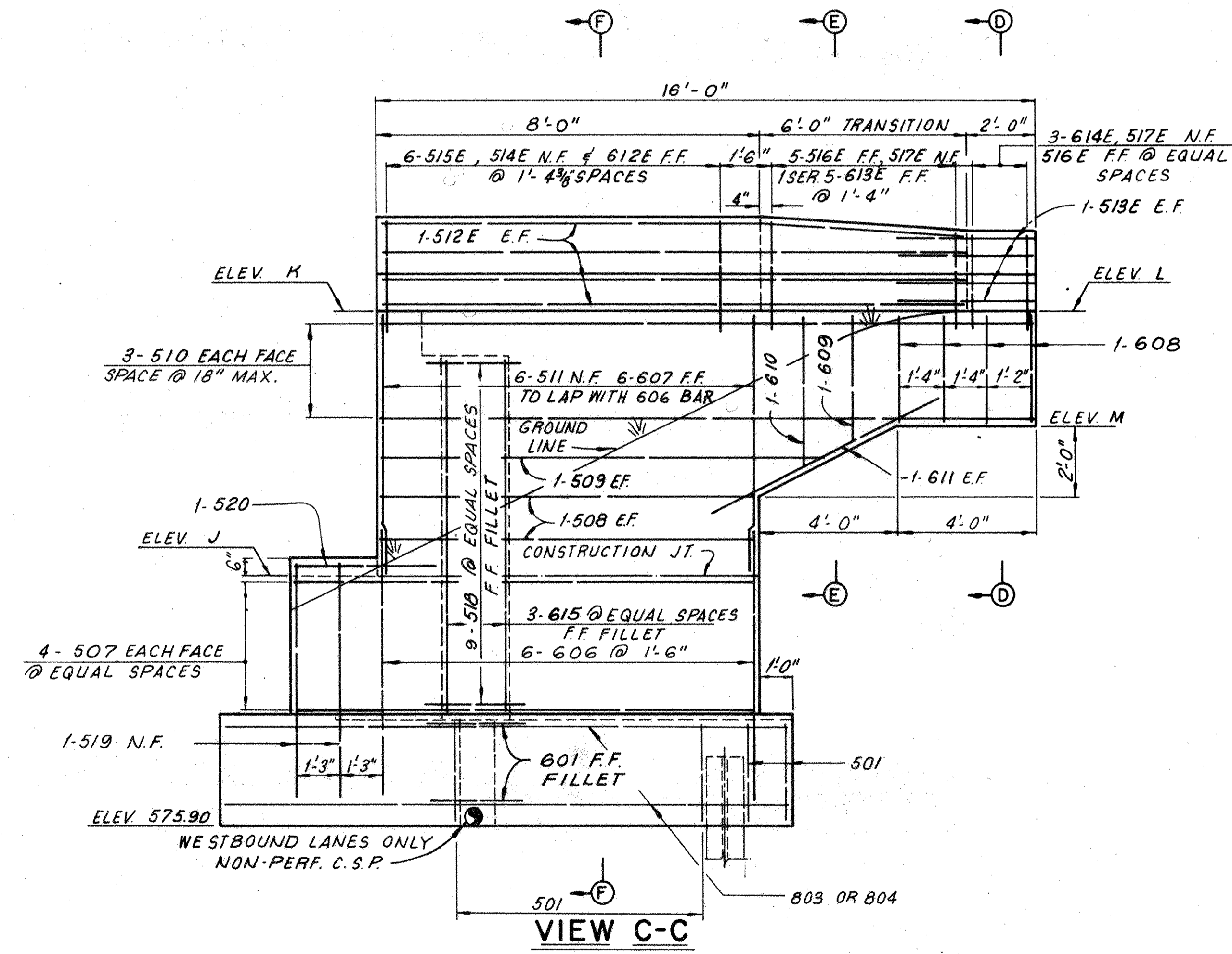


**SECTION E-E**

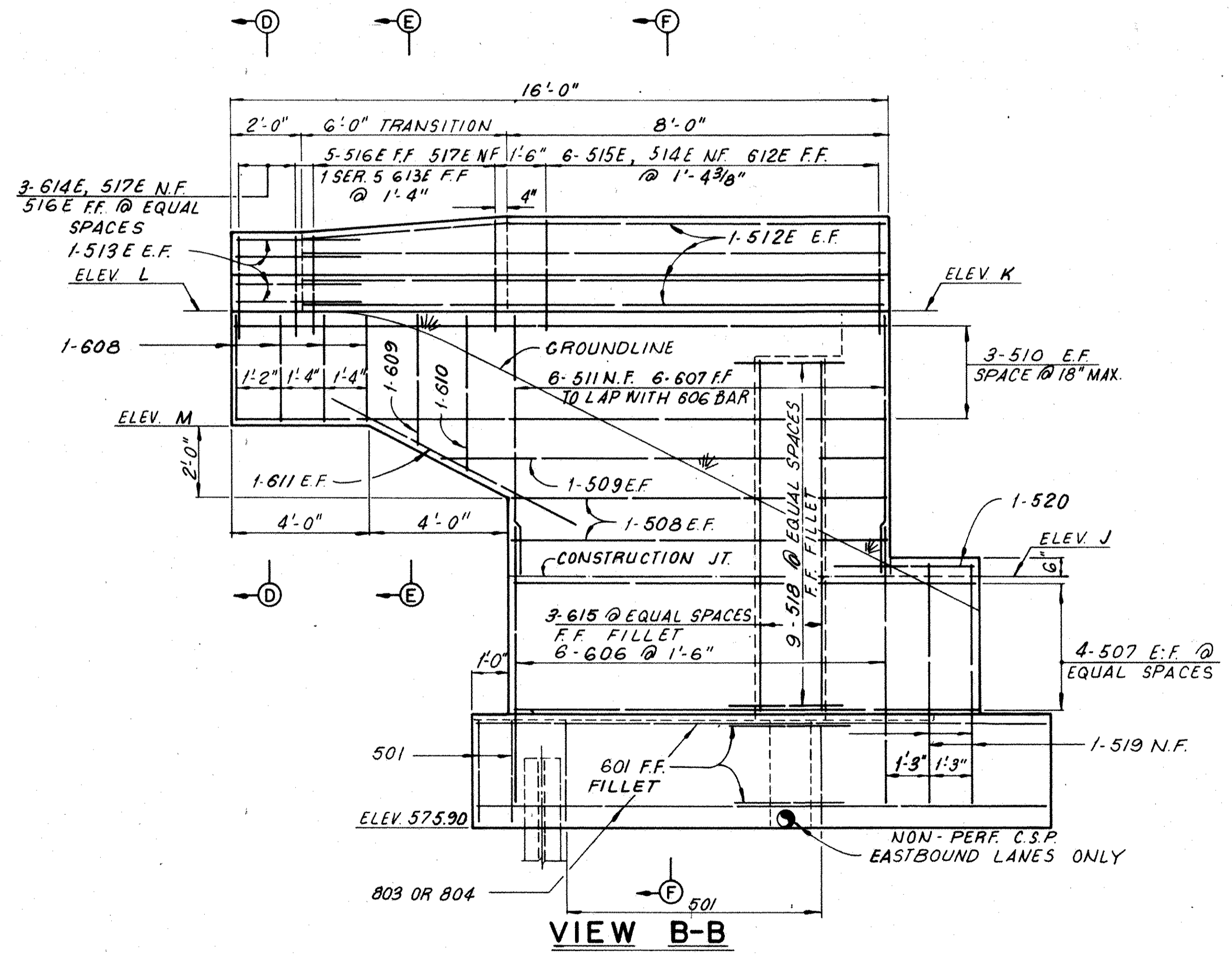
**SECTION D-D**



**SECTION F-F**



**VIEW C-C**



**VIEW B-B**

- NOTES:**
- FOR LOCATION OF VIEWS B-B AND C-C, SEE SHEET 8/43.
  - FOR ADDITIONAL NOTES, SEE SHEET 8/43.
  - FOR RAILING DETAILS NOT SHOWN, SEE STANDARD DRAWING BR-1, SHEET NO. 1 OF 1.
  - ITEM SPECIAL, SEALING OF CONCRETE SURFACES: A CONCRETE SEALER, EITHER SILANE OR AN EPOXY SEALER, SHALL BE APPLIED TO THE CONCRETE SURFACES SHOWN IN SECTION F-F. SEE THE PROPOSAL FOR SURFACE PREPARATION REQUIREMENTS, APPLICATION RATES, MATERIAL REQUIREMENTS AND APPLICATION PROCEDURE.

**ELEVATION TABLE**

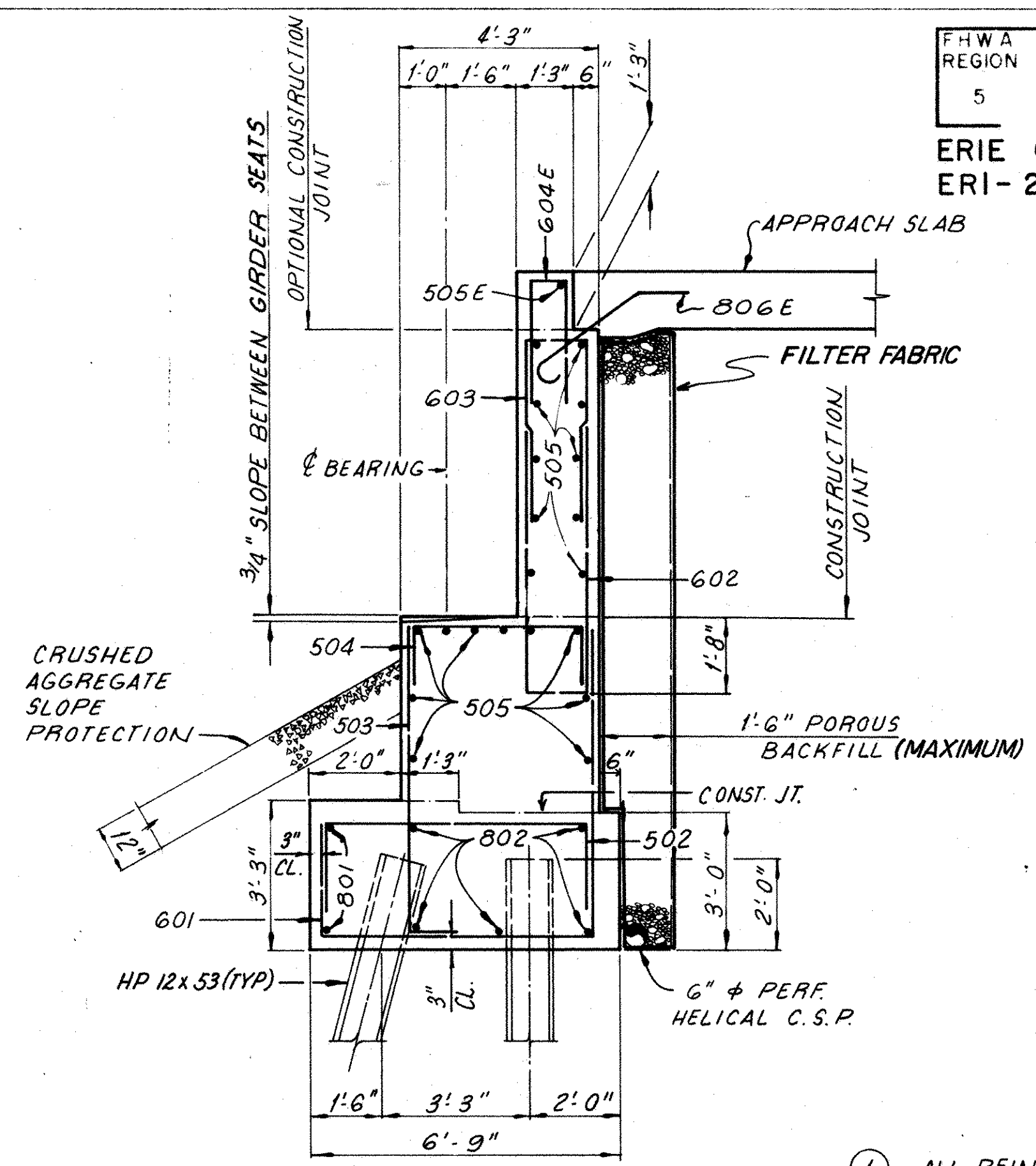
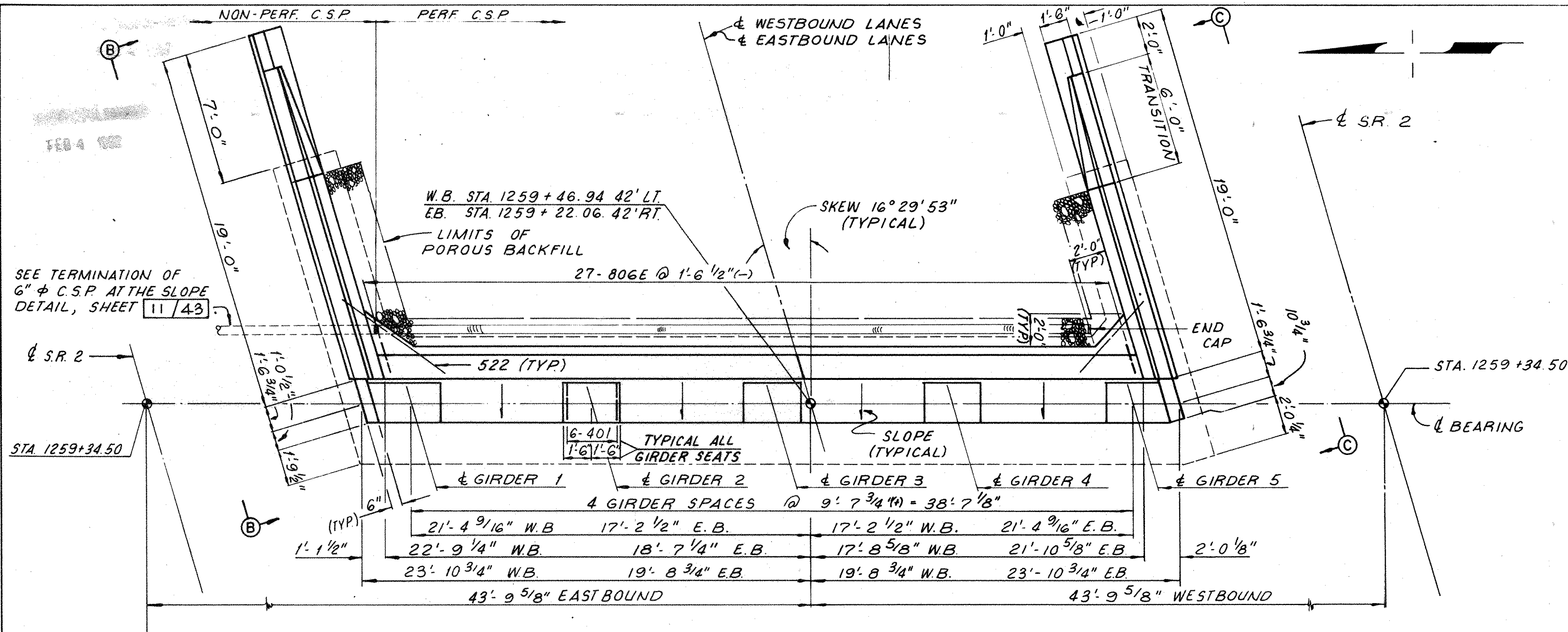
LOCATION		ELEV. J	ELEV. K	ELEV. L	ELEV. M
WESTBOUND LANES	NORTH WINGWALL	583.04	588.91	588.83	585.25
	SOUTH WINGWALL	582.98	588.97	588.89	585.25
EASTBOUND LANES	NORTH WINGWALL	582.98	588.97	588.89	585.25
	SOUTH WINGWALL	583.04	588.91	588.83	585.25

ALTERNATE - 2

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**ABUTMENT NO. 1  
WINGWALL DETAILS**  
BRIDGE NO. ERI - 2 - 19.11 L / R  
S.R. 2 OVER HURON RIVER  
N. & W. R.R. & RIVER ROAD  
ERIE COUNTY STA. 1233 + 43.75 TO  
ERI - 2 - 18.38 STA. 1259 + 37.37

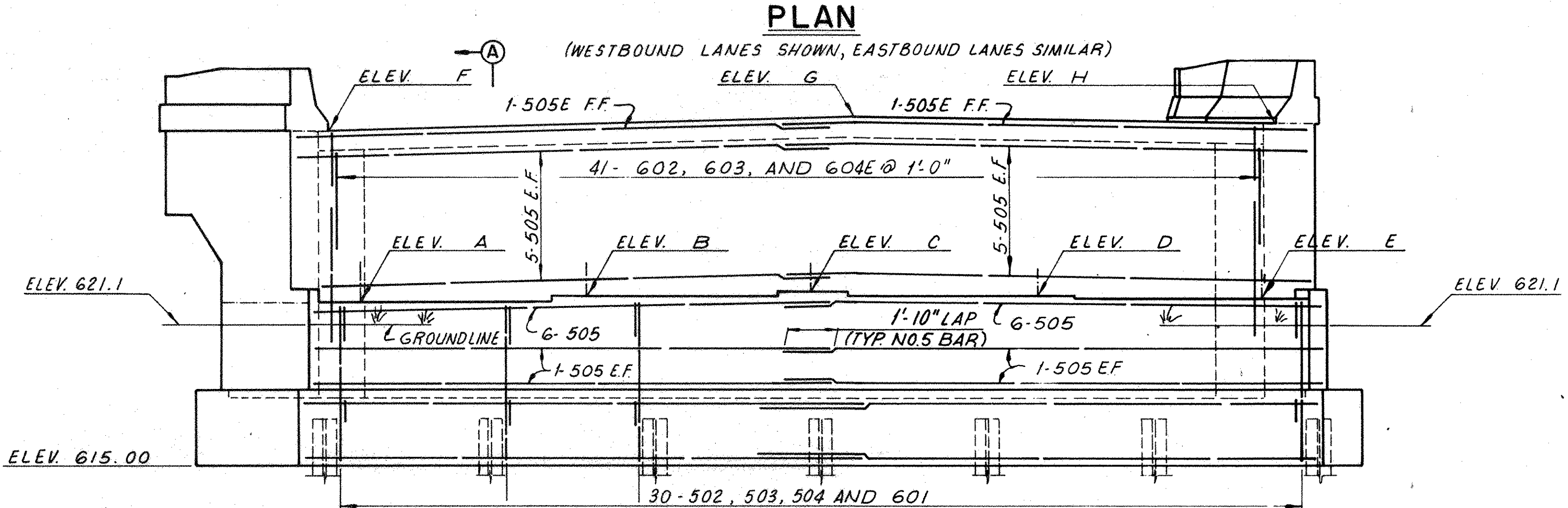
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
D.R.J.	D.R.J.	K.L.M.	L.E.D.	11/4/85	



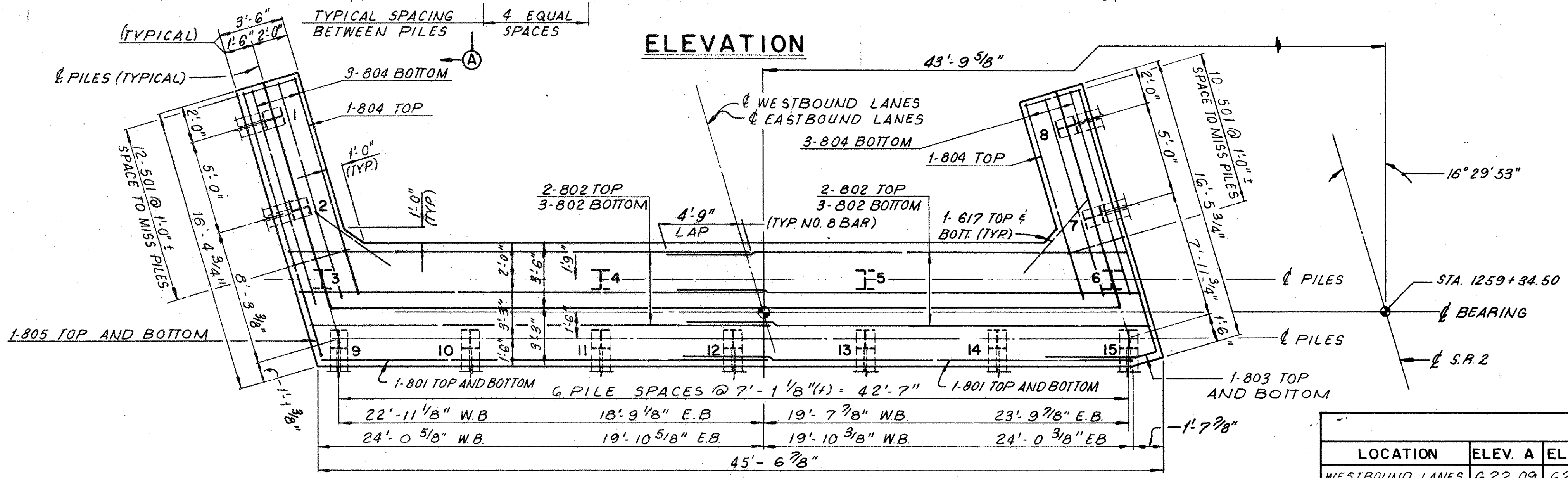
SECTION A-A

NOTES:

- 1 ALL REINFORCING STEEL IN ABUTMENT NO. 2 SHALL BE PREFIXED 2A.
- 2 REINFORCING STEEL WITH SUFFIX 'E' SHALL BE EPOXY COATED.
- 3 IN ADDITION TO THE PROVISIONS OF 511.08, BACKWALL CONCRETE ABOVE THE OPTIONAL CONSTRUCTION JOINT AT THE APPROACH SLAB SEAT SHALL NOT BE PLACED UNTIL AFTER THE DECK CONCRETE IN THE SPAN ADJACENT TO THE ABUTMENT HAS BEEN PLACED.
- 4 POROUS BACKFILL 1.5 FT. THICK (2.0 FT. AT WINGWALLS) SHALL EXTEND UP TO THE PLANE OF THE SUBGRADE AND BACK TO THE ENDS OF THE WINGWALLS.
- 5 ALL PILES SHOWN BATTERED SHALL BE BATTERED 1 IN 4 IN THE DIRECTION SHOWN.
- 6 FOR VIEWS B-B AND C-C, SEE SHEET 11/43.
- 7 FOR EXPANSION JOINT DETAILS, SEE SHEET 32/43 & 34/43.
- 8 THE FOLLOWING ABBREVIATIONS ARE USED:  
 E.B. - EASTBOUND      E.F. = EACH FACE  
 W.B. - WESTBOUND    N.F. = NEAR FACE  
 TYP. = TYPICAL       FF = FAR FACE  
 C.S.P. = CORRUGATED STEEL PIPE  
 LT. = LEFT            RT. = RIGHT
- 9 FOR REINFORCING STEEL AND BENDING DIAGRAMS SEE SHEET 35/43 & 42/43.



ELEVATION



FOOTING PLAN

ELEVATION TABLE								
LOCATION	ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. F	ELEV. G	ELEV. H
WESTBOUND LANES	622.09	622.23	622.37	622.29	622.14	629.64	629.78	629.69
EASTBOUND LANES	622.13	622.27	622.35	622.20	622.05	629.68	629.76	629.60

ALTERNATE - 2 10/43

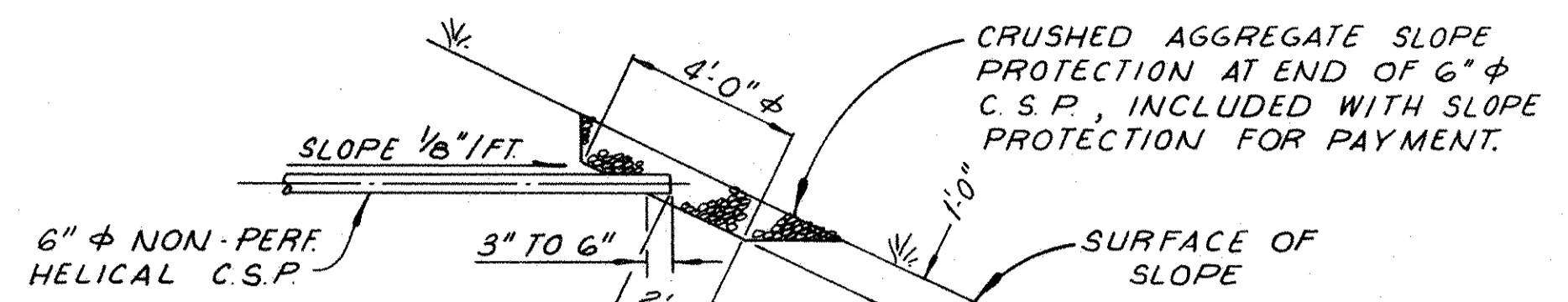
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 CONSULTING ENGINEERS CLEVELAND, OHIO 44115

**ABUTMENT NO. 2 L/R**  
 BRIDGE NO. ERI-2-19.11 L/R  
 S.R. 2 OVER HURON RIVER  
 N. & W. R.R. & RIVER ROAD  
 ERIE COUNTY STA. 1233 + 43.75 TO  
 ERI-2-18.38 STA. 1259 + 37.37

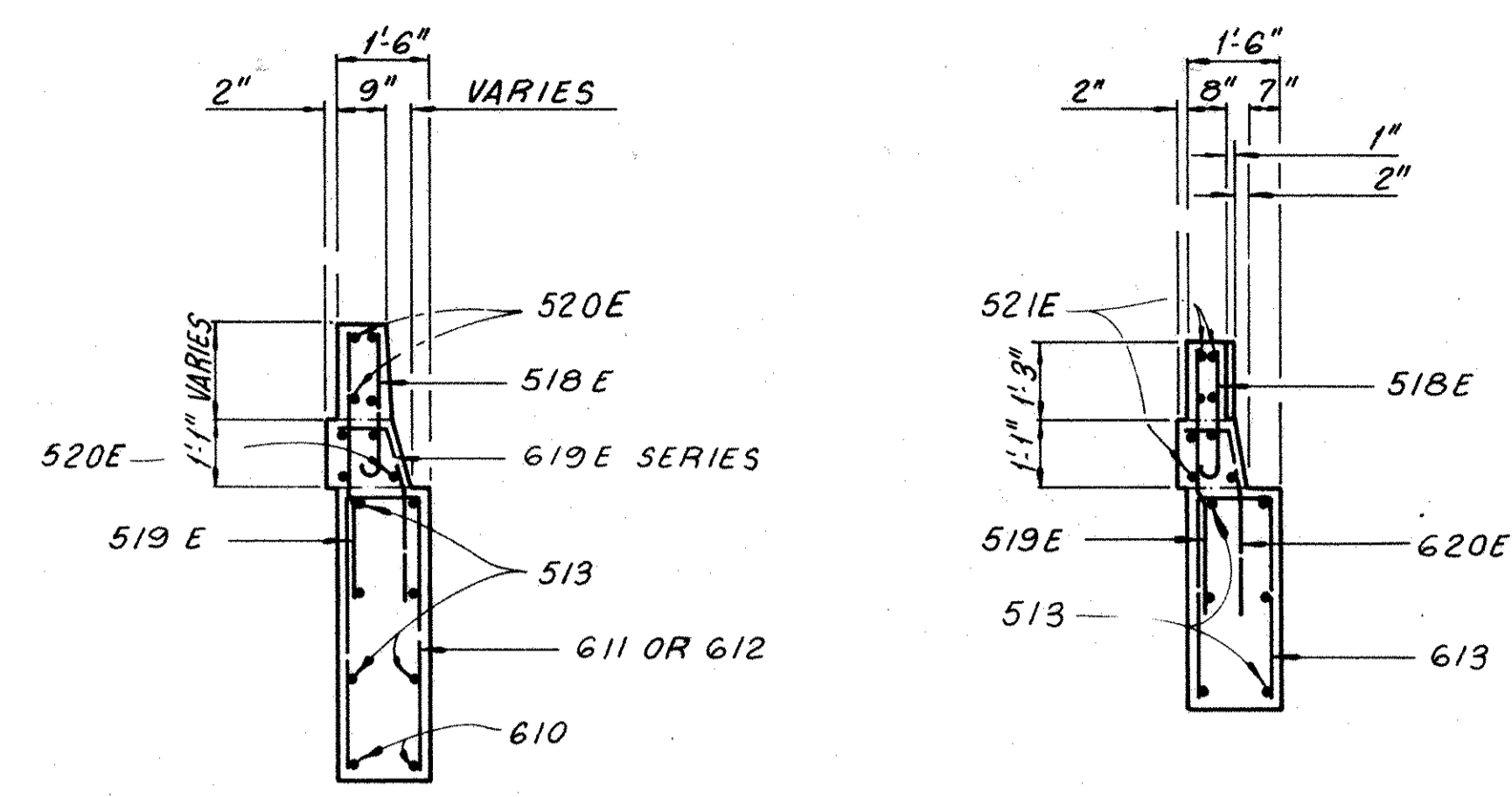
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
K.L.M.	D.R.J.	K.L.M.	L.E.D.	11/4/85	

FEB 4 1982

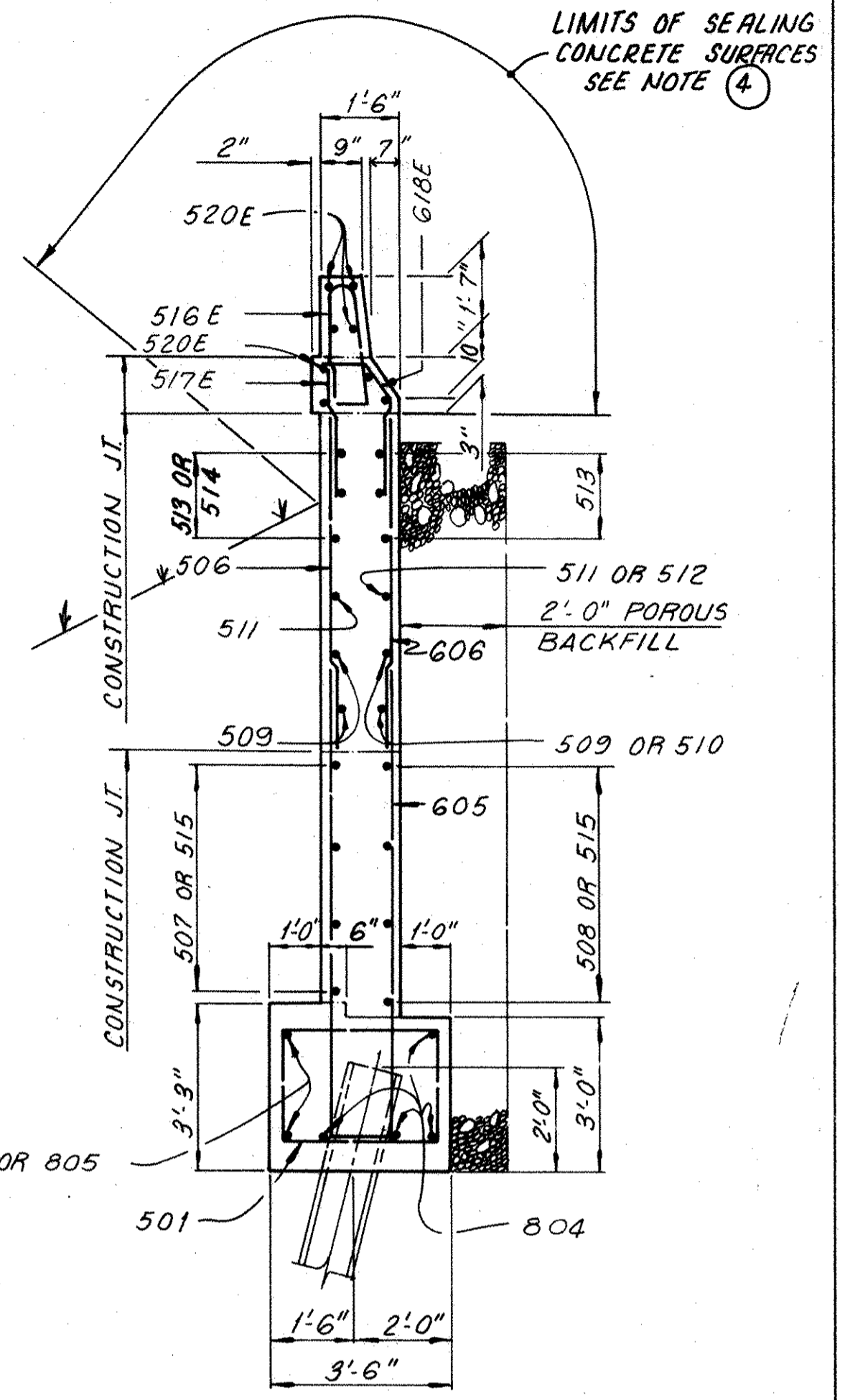
ERIE COUNTY  
ERI - 2 - 18.38



**TERMINATION OF 6"  $\phi$  C.S.P. AT THE SLOPE**

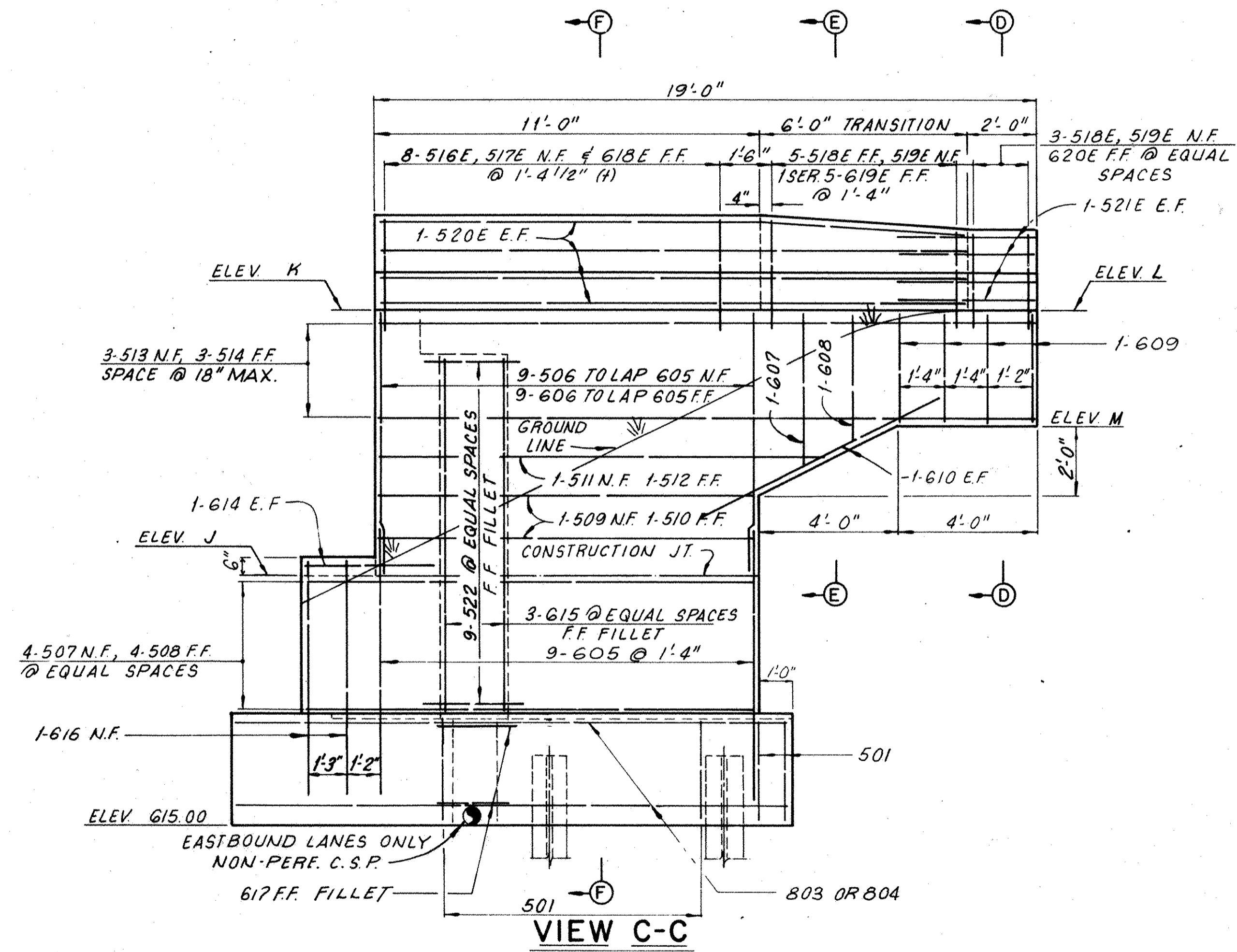


**SECTION E-E SECTION D-D**

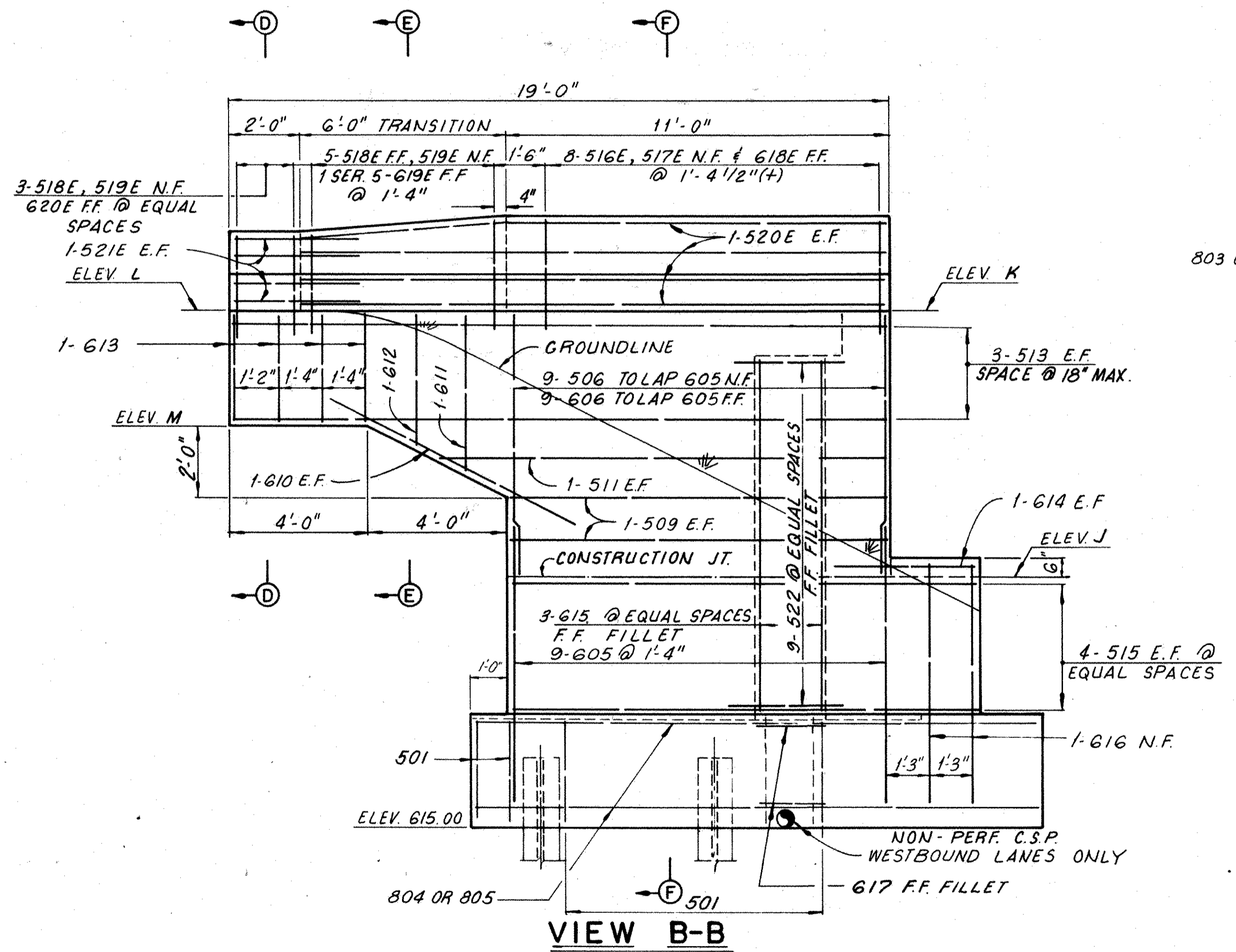


**SECTION F-F**

- NOTES:**
- FOR LOCATION OF VIEWS B-B AND C-C, SEE SHEET 10/43.
  - FOR ADDITIONAL NOTES, SEE SHEET 10/43.
  - FOR RAILING DETAILS NOT SHOWN, SEE STANDARD DRAWING BR-1, SHEET NO. 1 OF 1.
  - ITEM SPECIAL, SEALING OF CONCRETE SURFACES: A CONCRETE SEALER, EITHER SILANE OR EPOXY SEALER, SHALL BE APPLIED TO THE CONCRETE SURFACES SHOWN IN SECTION F-F. SEE THE PROPOSAL FOR SURFACE PREPARATION REQUIREMENTS, APPLICATION RATES, MATERIAL REQUIREMENTS AND APPLICATION PROCEDURE.



**VIEW C-C**



**VIEW B-B**

LOCATION		ELEV. J	ELEV. K	ELEV. L	ELEV. M
WESTBOUND LANES	NORTH WINGWALL	622.09	629.64	629.64	626.20
	SOUTH WINGWALL	622.14	629.69	629.70	625.95
EASTBOUND LANES	NORTH WINGWALL	622.13	629.68	629.70	626.20
	SOUTH WINGWALL	622.05	629.60	629.63	625.95

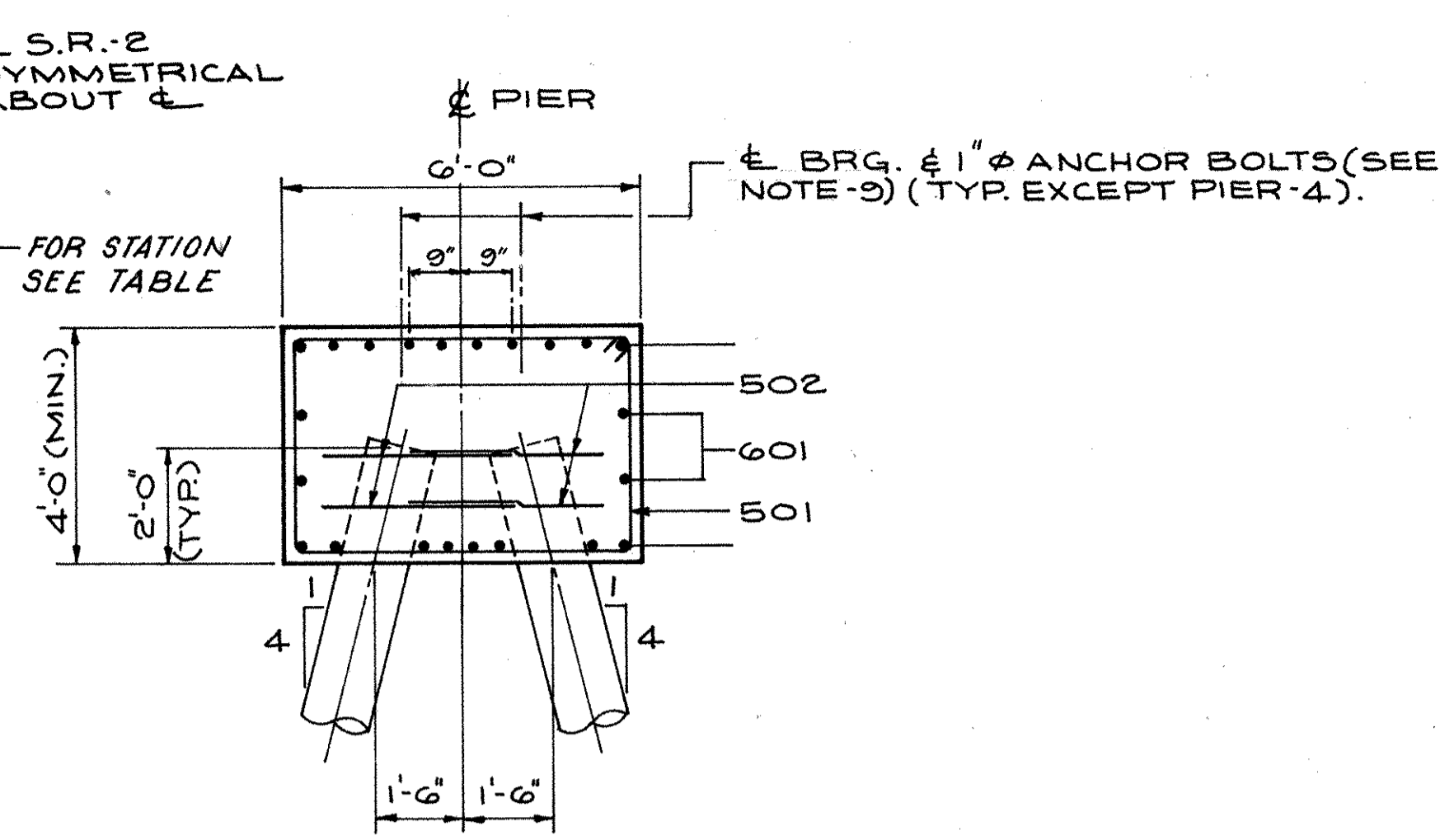
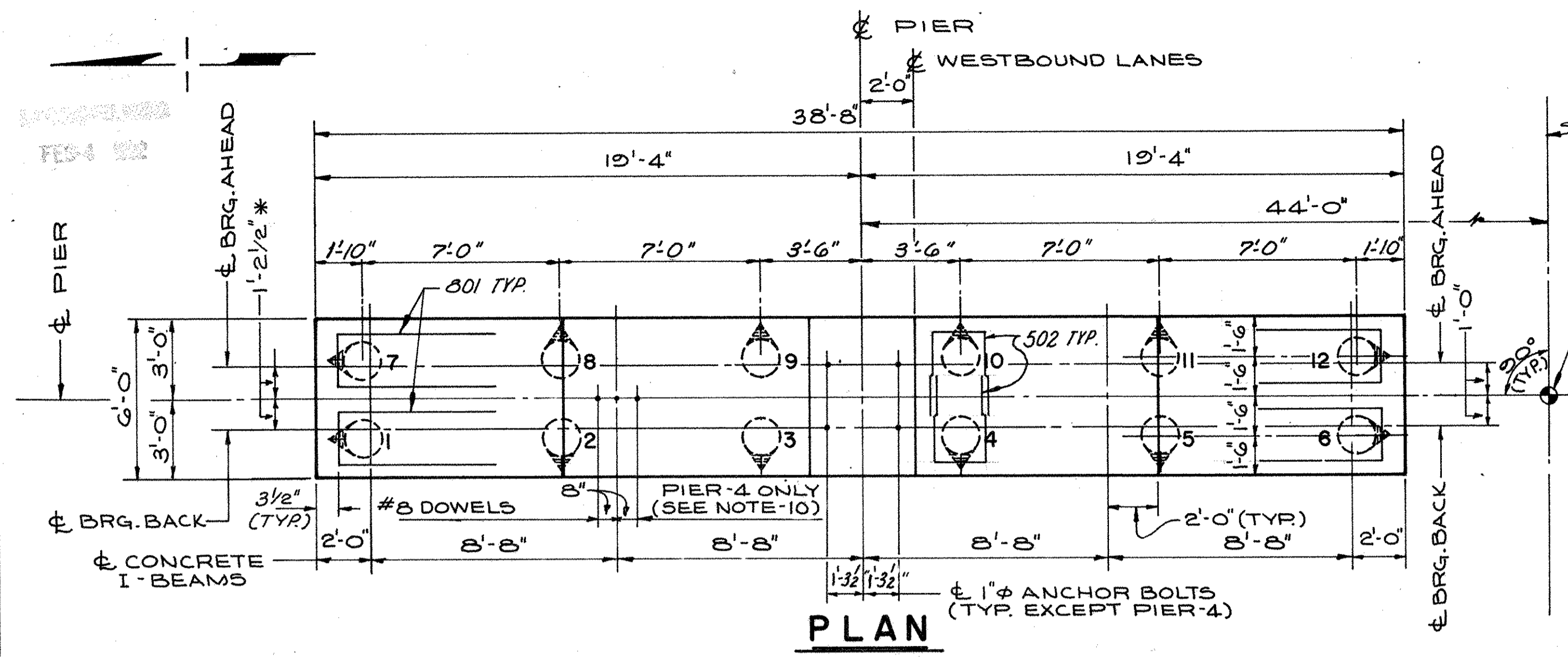
ALTERNATE - 2 11/43

adache - ciuni - lynn associates  
CONSULTING ENGINEERS CLEVELAND, OHIO 44130

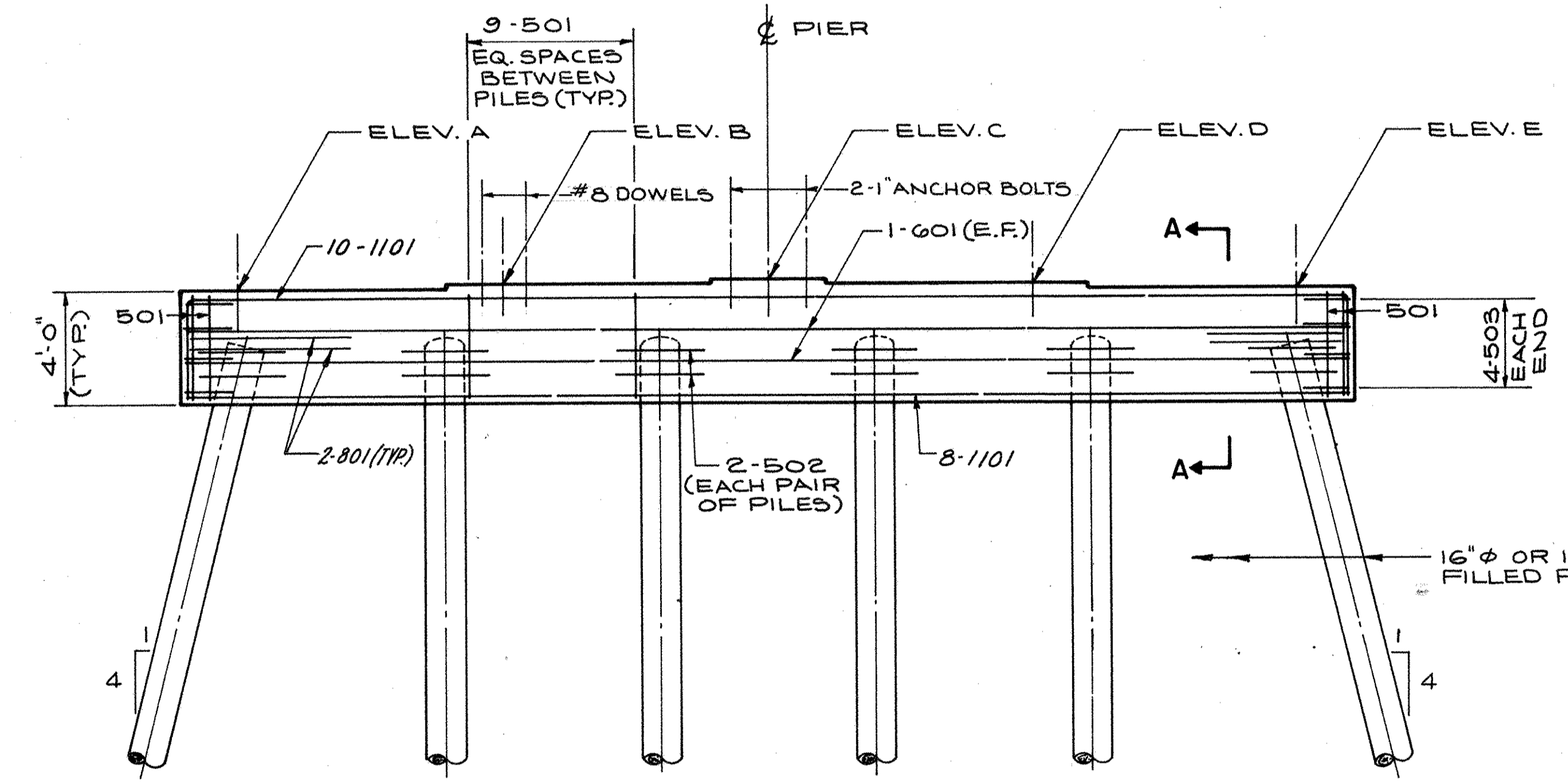
**ABUTMENT NO. 2  
WINGWALL DETAILS**  
BRIDGE NO. ERI - 2 - 19.11 L/R  
S.R. 2 OVER HURON RIVER  
N. & W. R.R. & RIVER ROAD  
ERIE COUNTY STA. 1233 + 43.75 TO  
ERI - 2 - 18.38 STA. 1259 + 37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
K.L.M.	D.R.J.	K.L.M.	L.E.D.	11/4/85	

ERIE COUNTY  
ERI - 2 - 18.38



**SECTION A-A**



**ELEVATION**

WESTBOUND STRUCTURE SHOWN,  
EASTBOUND SIMILAR EXCEPT OPPOSITE HAND

**PROTECTION OF PILES**

In lieu of painting the piles as per 507.11 an epoxy coating shall be applied. The coating shall be a moist insensitive 100% solids epoxy resin with a special blend of fillers made expressly for piling and pier protection. It shall be applied approximately 3/16" thick to surfaces prepared according to the epoxy manufacturer's instructions. The epoxy coating shall extend from the bottom of the pier caps down to 4' below the flowline or ground line. The portion of the piles encased in the pier caps need not be coated. The portion of the pile to be coated below the flowline or ground line shall be coated before that portion of the pile is driven. Cost of the epoxy coating shall be included with the piles for payment.

**NOTES:**

1. BRIDGE SEAT ELEVATIONS HAVE BEEN ADJUSTED UPWARD 0.14" AT PIERS N<sup>o</sup> 1 THRU 3, 5 THRU 10, 12 THRU 17 AND 19 THRU 22 BACK.
2. ABBREVIATIONS USED:  
E.F. = EACH FACE  
EQ. SP. = EQUAL SPACES  
TYP. = TYPICAL  
ELEV. = ELEVATION  
EA. = EACH  
RAD. = RADIUS  
BRG. = BEARING
3. AT THE OPTION OF THE CONTRACTOR, BEARING ANCHORS (OR FORMED HOLES), LOCATED AND SUPPORTED BY TEM-PLATES, MAY BE CAST IN PLACE.
4. THE PREFIX "1P", "2P" THRU "10P" SHALL BE ADDED TO ALL REINFORCING BAR MARKS AND PILES IN PIER N<sup>o</sup> 5, 1, 2 THRU 10 RESPECTIVELY.
5. INDICATES DIRECTION OF 4 IN 1 BATTER.
6. PILE SPACING MEASURED AT BOTTOM OF CONCRETE CAP/BEAM.
7. THE DIFFERENCE BETWEEN BACK AND AHEAD ELEVATIONS SHALL BE MADE UP BY EITHER SHIMMING OR FORMING AT THE CONTRACTORS OPTION.
8. FOR REINFORCING STEEL LIST AND BAR BENDING DIAGRAMS SEE SHEETS 36/43 & 37/43.
9. \* - INDICATES PIER N<sup>o</sup> 7 ONLY.
10. 1" x 1'-8" SWEDGE ANCHOR BOLTS MAY BE SET 1'-3" INTO 1/2"  $\phi$  FORMED HOLES OR MAY BE CAST-IN-PLACE AT THE OPTION OF THE CONTRACTOR.
11. #8 DOWEL BARS MAY BE CAST OR SET INTO DRILLED HOLES. SEE DIAPHRAGMS ON TRANSVERSE SECTION SHEET 18/43.
12. REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT SHALL BE ACCURATELY PLACED TO AVOID INTERFERENCE WITH THE DRILLING OF BEARING ANCHOR HOLES OR THE PRESETTING OF BEARING ANCHORS.

PIER N <sup>o</sup>	STATION	ELEVATION - A		ELEVATION - B		ELEVATION - C		ELEVATION - D		ELEVATION - E		PILE DIA.
		BACK	AHEAD	BACK	AHEAD	BACK	AHEAD	BACK	AHEAD	BACK	AHEAD	
1	1234+35.50	583.40	583.41	583.53	583.54	583.67	583.68	583.60	583.61	583.46	583.47	16"
2	1235+24.50	583.83	583.84	583.96	583.97	584.10	584.11	584.02	584.03	583.89	583.90	16"
3	1236+13.50	584.25	584.26	584.39	584.40	584.52	584.53	584.45	584.46	584.32	584.33	16"
4	1237+02.50	585.12	585.13	585.26	585.27	585.39	585.40	585.32	585.33	585.18	585.19	16"
5	1237+21.50	585.11	585.12	585.24	585.25	585.38	585.39	585.31	585.32	585.17	585.18	16"
6	1238+80.50	585.53	585.54	585.67	585.68	585.81	585.82	585.73	585.74	585.60	585.61	18"
7	1239+69.50	586.02	586.04	586.16	586.17	586.29	586.31	586.22	586.24	586.08	586.10	18"
8	1240+58.50	586.86	586.88	587.00	587.02	587.13	587.15	587.06	587.08	586.92	586.95	18"
9	1241+47.50	588.03	588.06	588.16	588.19	588.30	588.33	588.22	588.25	588.09	588.12	18"
10	1242+36.50	589.51	589.55	589.65	589.69	589.79	589.82	589.71	589.75	589.58	589.61	18"

ALTERNATE - 2

12/43

adache - ciuni - lynn associates  
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

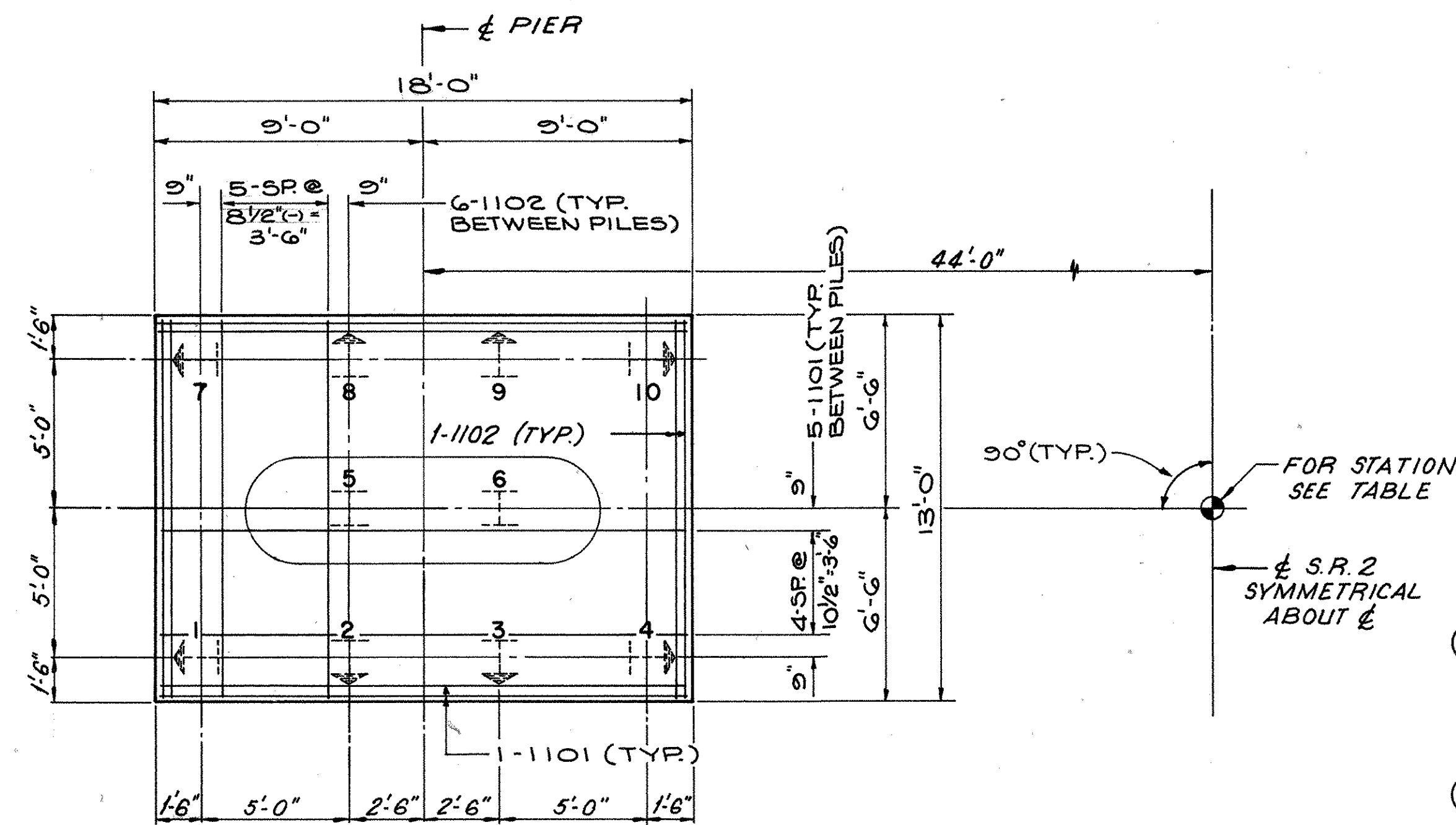
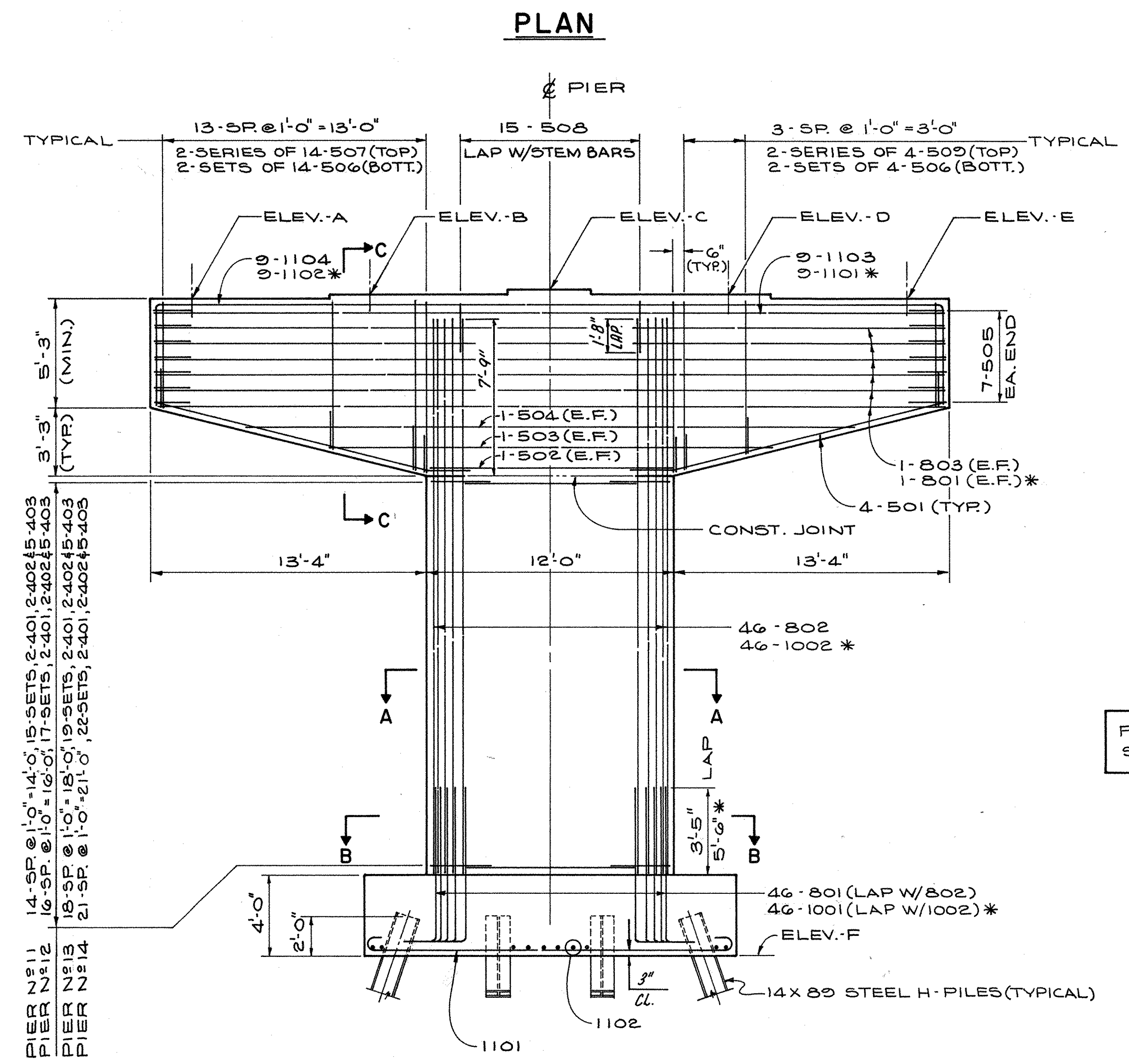
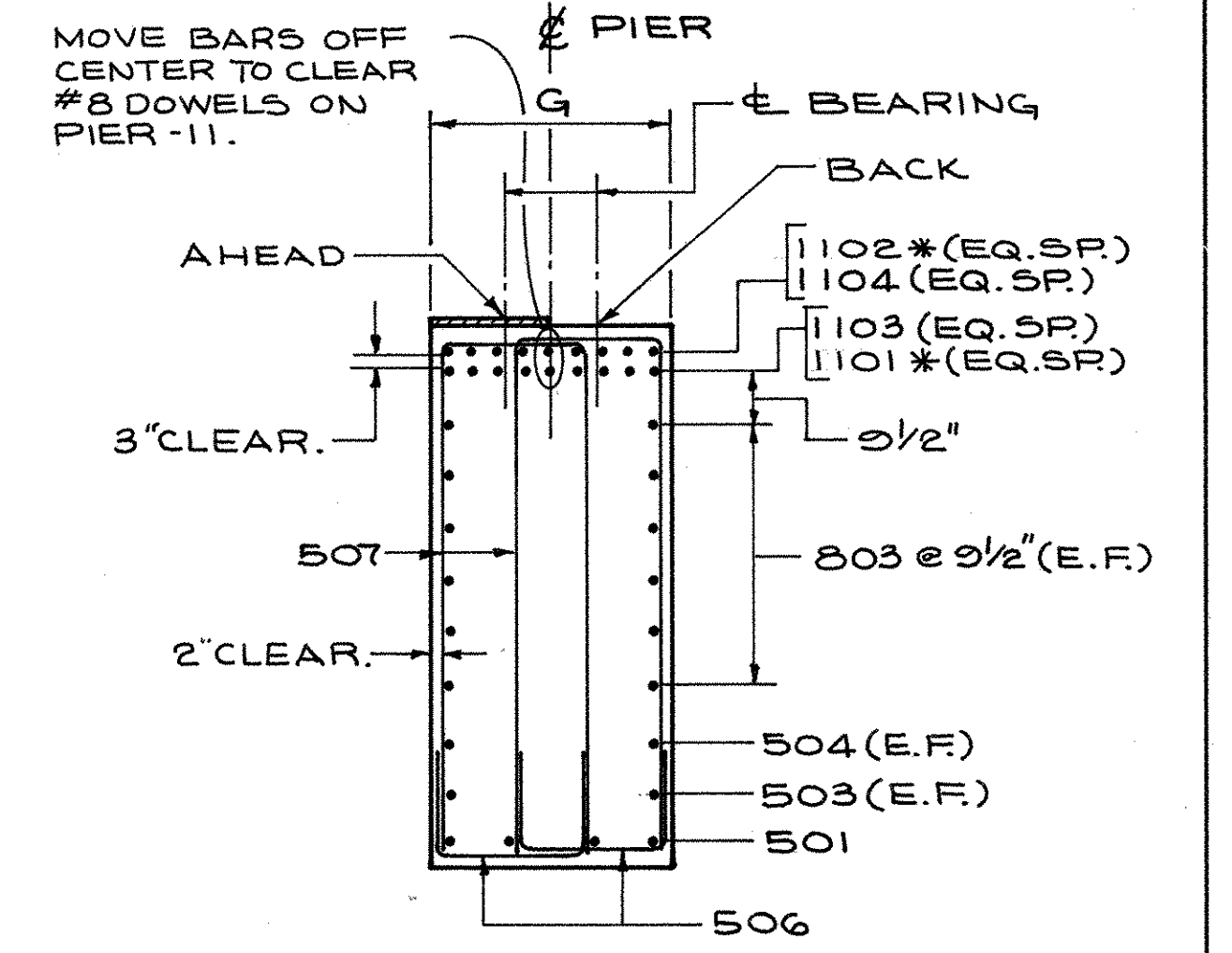
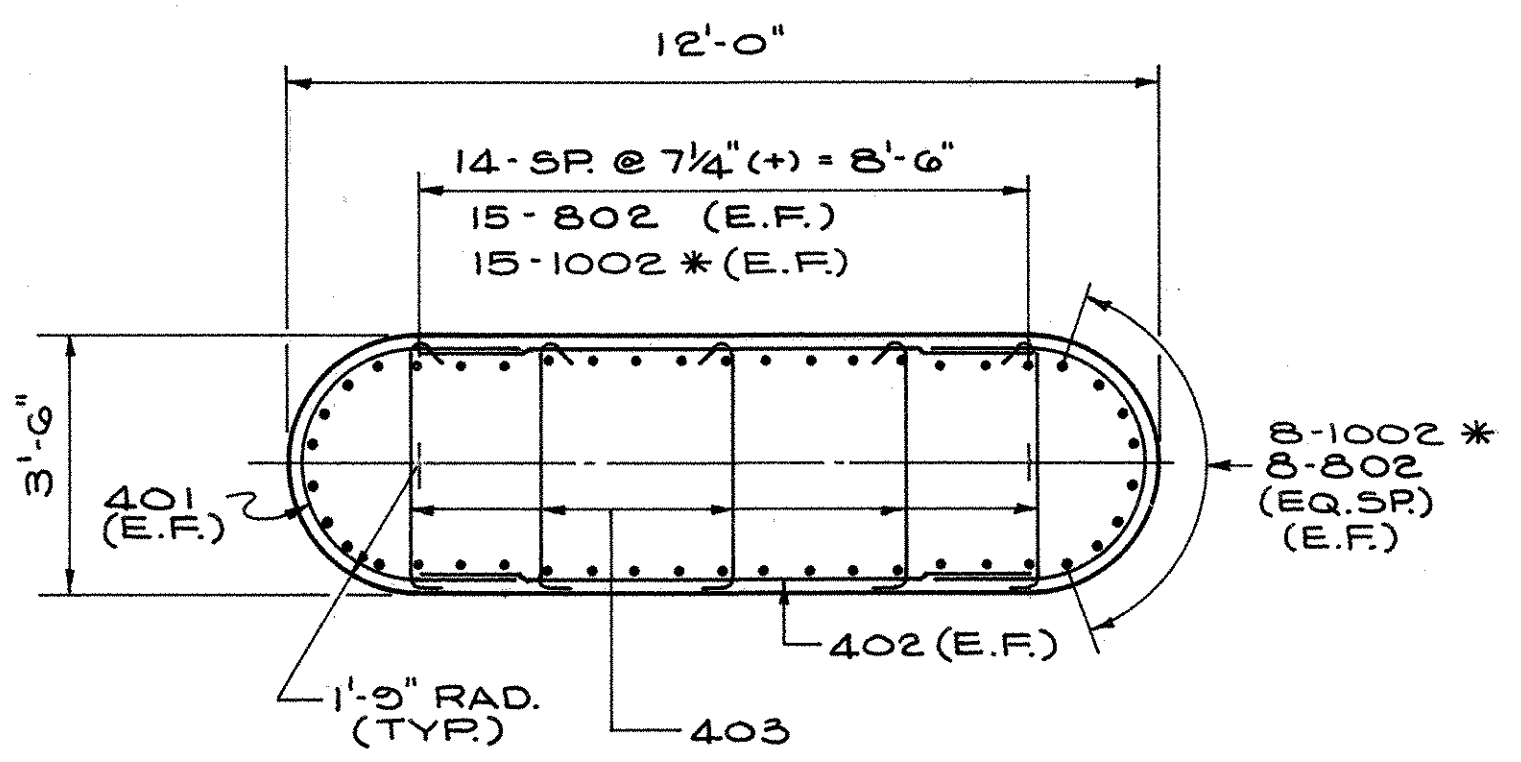
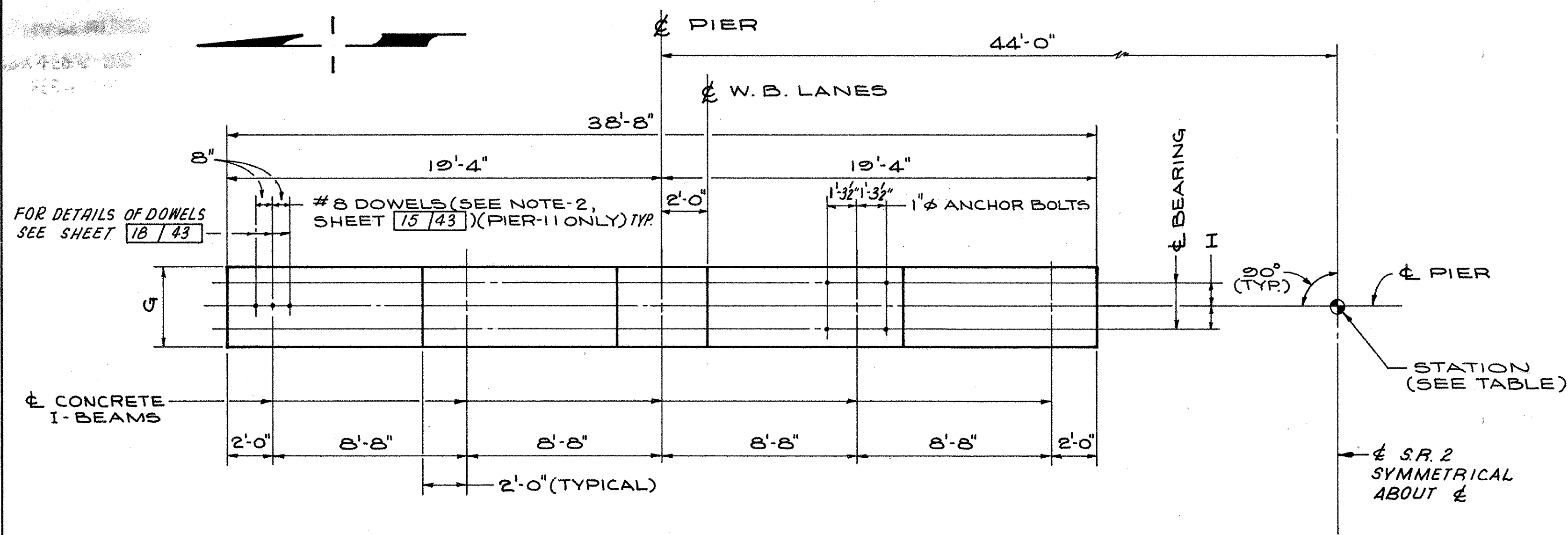
**PIER N<sup>o</sup>S. 1 THRU 10**  
BRIDGE N<sup>o</sup> ERI-2-1911 L/R  
S.R. 2 OVER HURON RIVER  
N. & W. R.R. & RIVER ROAD

ERIE COUNTY STA. 1233+43.75 TO  
ERI-2-18.38 STA. 1259+37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	J.D.P.	K.L.M.	I.M.B.	LED. 11/4/85	



ERIE COUNTY  
ERI-2-18.38



NOTES:

1. THE PREFIX "11P", "12P", "13P" & "14P" SHALL BE ADDED TO ALL REINFORCING BAR MARKS AND PILES IN PIERS 11, 12, 13 & 14 RESPECTIVELY.
2. → INDICATES DIRECTION OF 3 IN 1 BATTER.
3. FOR ADDITIONAL NOTES SEE SHEET 12/43.
4. \* INDICATES PIER NO 11
5. ANCHOR BOLTS: THE ANCHOR BOLTS SHALL BE PRESET OR FORMED HOLES PROVIDED. DRILLING SHALL NOT BE ALLOWED.

FOR PIER-11 FOOTING DETAILS, SEE SHEET 15/43.

PIER N <sup>o</sup>	STATION	A		B		C		D		E		F	G	H
		BACK	AHEAD	BACK	AHEAD	BACK	AHEAD	BACK	AHEAD	BACK	AHEAD			
11	1243+25.50	591.77	591.81	591.90	591.95	592.04	592.08	591.97	592.01	591.83	591.88	564.50	3'-6"	1'-0"
12	1244+14.50	593.47	593.52	593.60	593.65	593.74	593.79	593.66	593.72	593.53	593.58	564.50	3'-6"	1'-0"
13	1245+03.50	595.93	595.99	596.07	596.12	596.20	596.26	596.13	596.19	595.99	596.05	564.50	3'-6"	1'-0"
14	1245+92.50	598.56	598.64	598.70	598.77	598.84	598.91	598.76	598.83	598.63	598.70	564.50	4'-0"	1'-2 1/2"

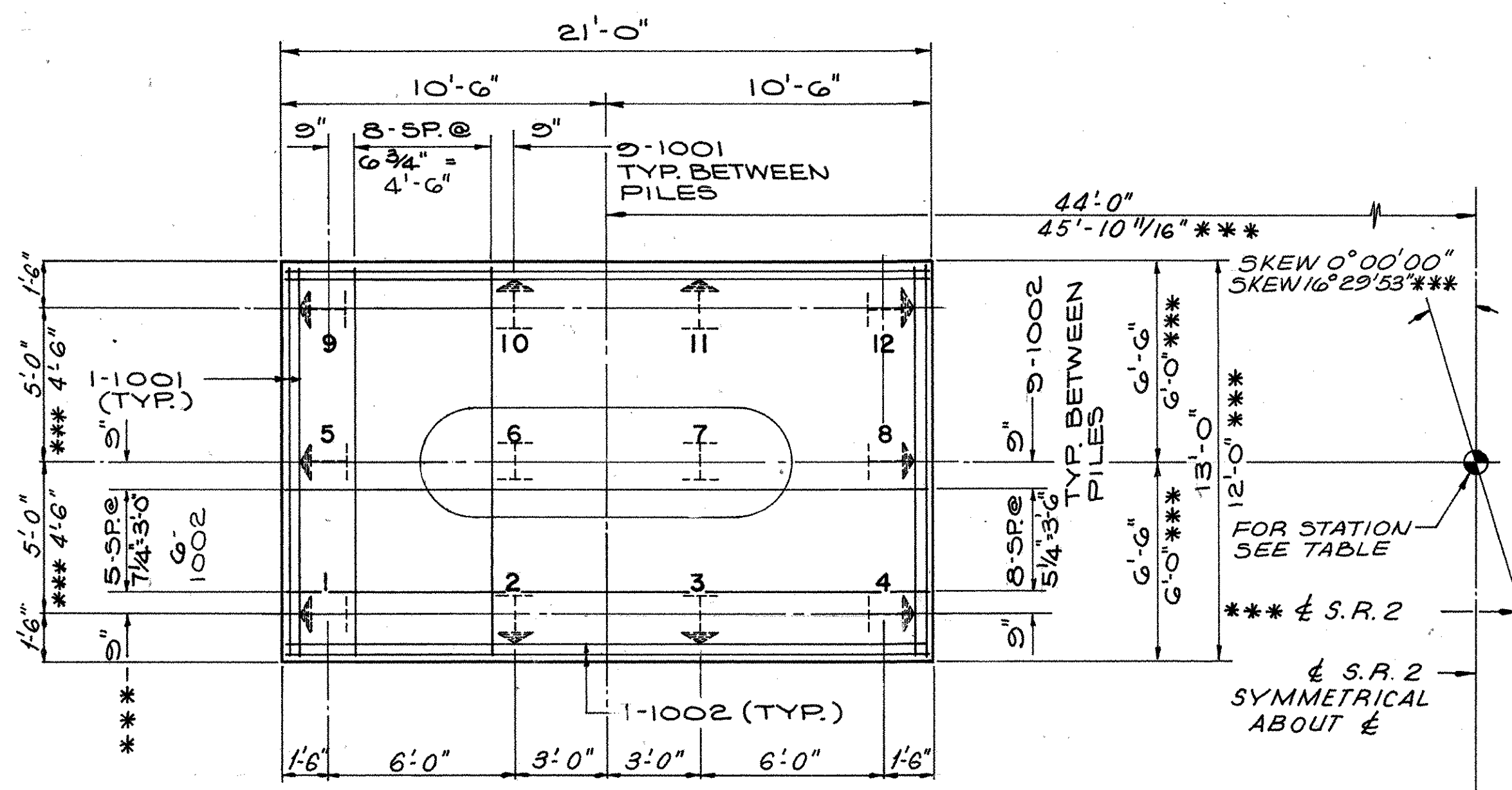
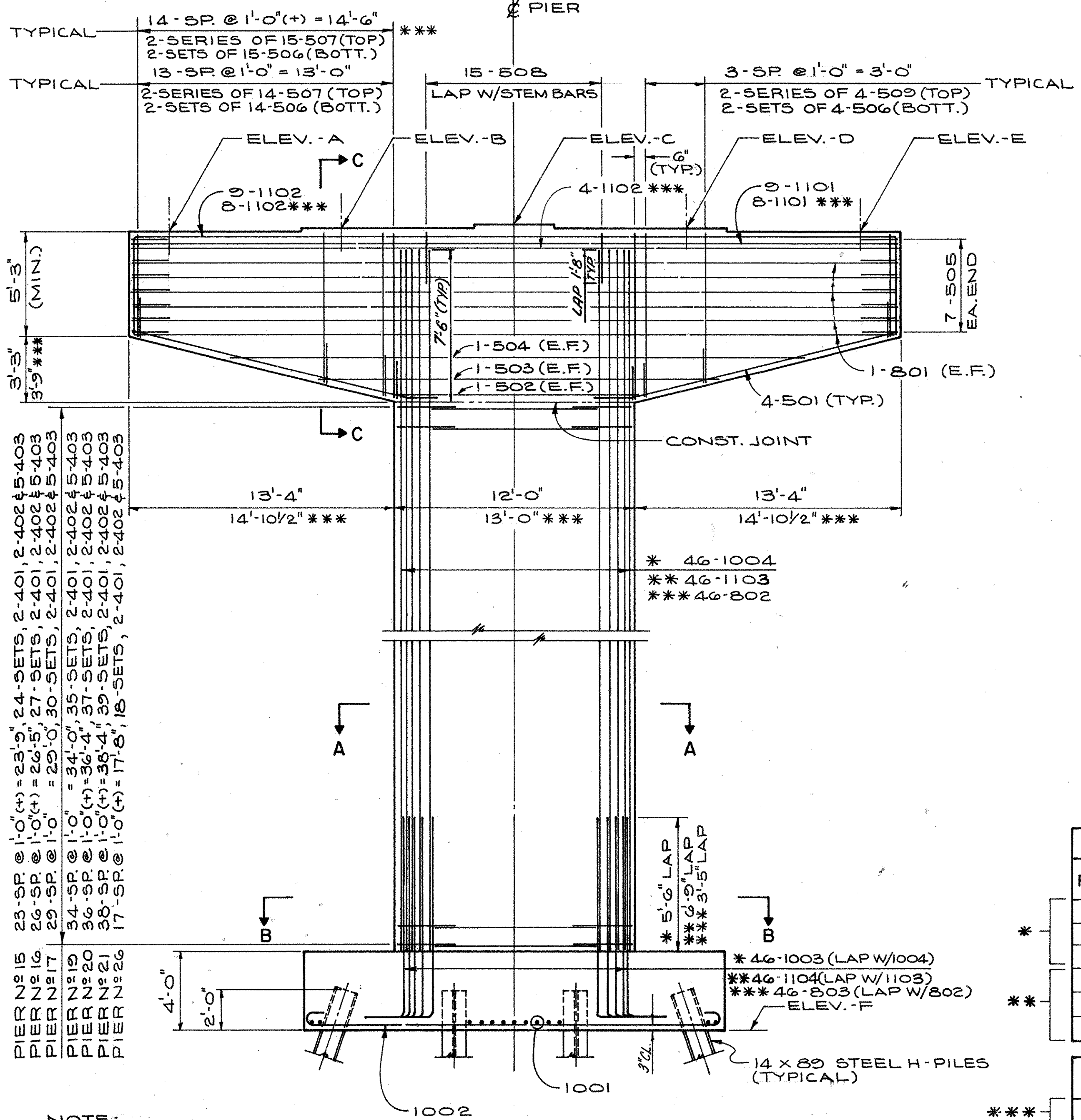
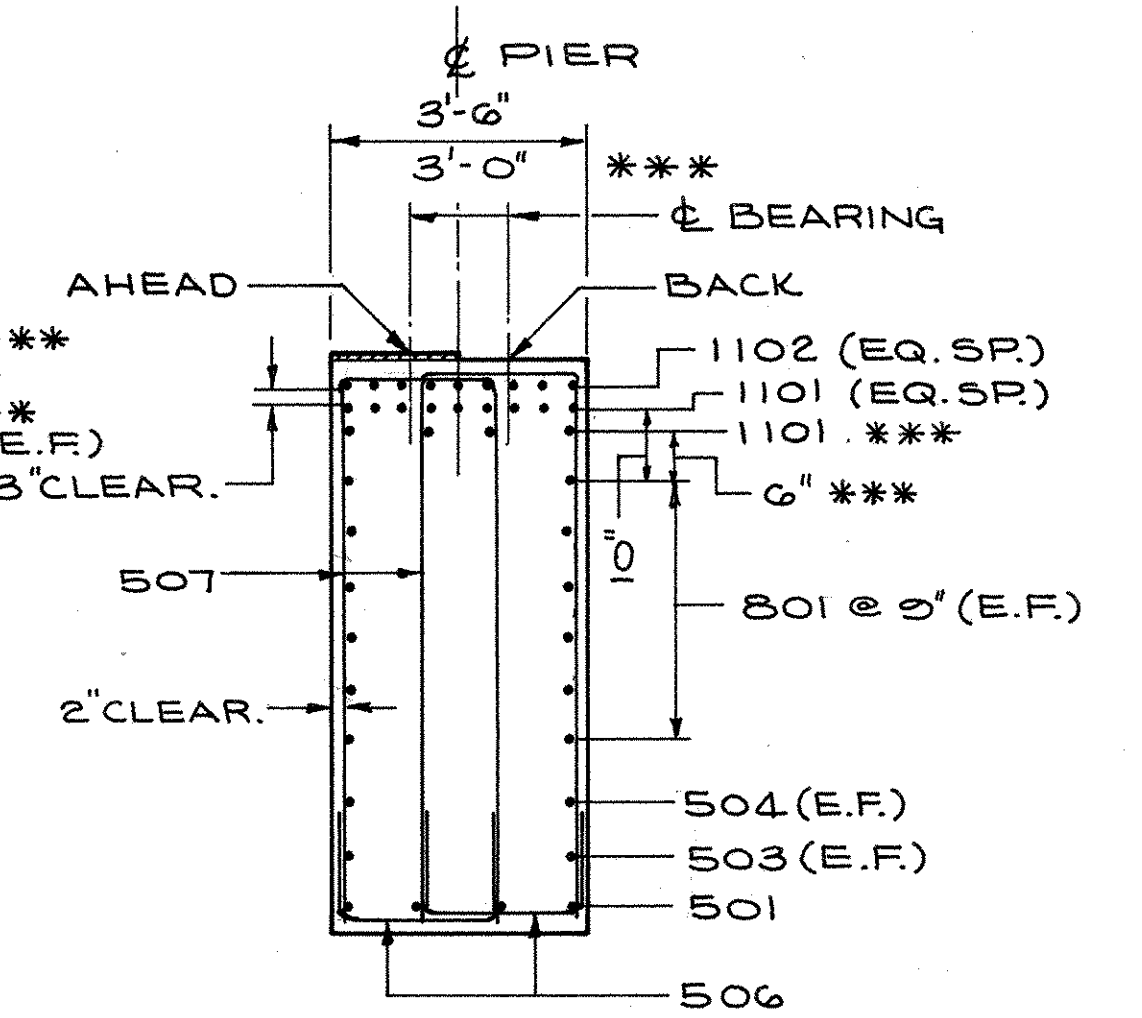
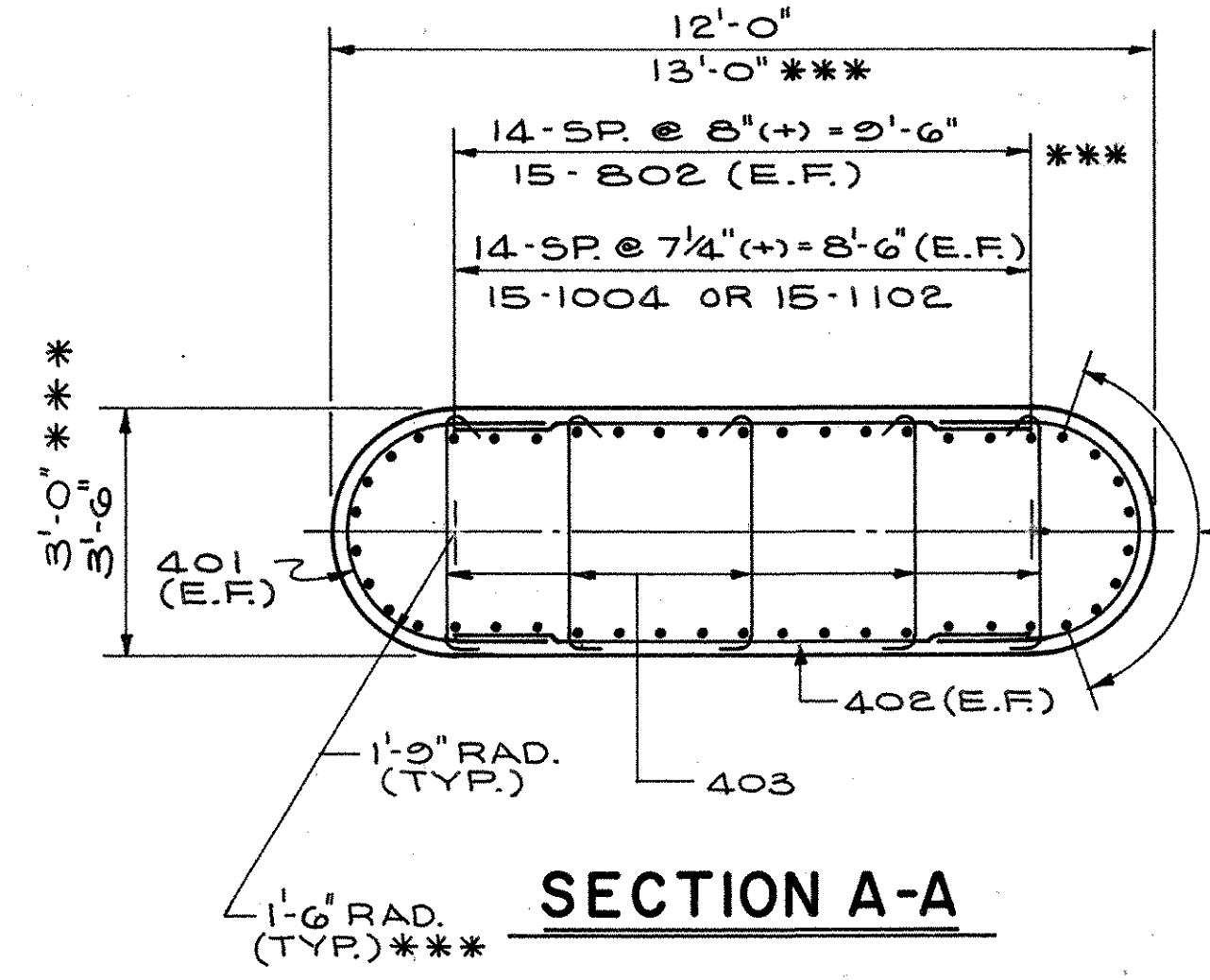
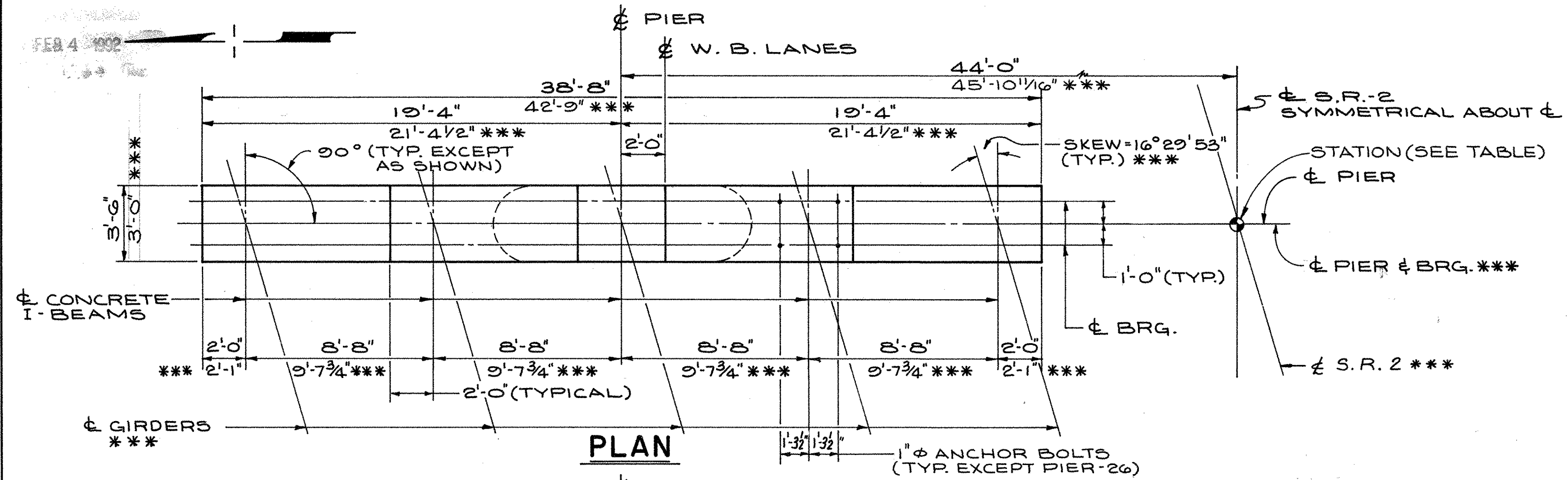
ALTERNATE - 2 13/43

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**PIER NO'S. 11, 12, 13 & 14**  
BRIDGE N<sup>o</sup> 2-1911 L/R  
S.R. 2 OVER HURON RIVER  
N. & W. R. R. & RIVER ROAD

ERIE COUNTY STA. 1233+ 43 75 TO  
ERI-2-18.38 STA. 1259+ 37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	J.D.P.	K.L.M.	I.M.B.	11/4/85	



SECTION C-C

VIEW B-B

NOTES:

- INDICATES DIRECTION OF 3 IN 1 BATTER.
- THE PREFIX "15P", "16P", "17P", "19P", "20P", "21P" & "26P" SHALL BE ADDED TO ALL REINFORCING BAR MARKS AND PILES IN PIERS 15, 16, 17, 19, 20, 21 AND 26.
- \* - INDICATES PIERS 15, 16 & 17  
\*\* - INDICATES PIERS 19, 20 & 21  
\*\*\* - INDICATES PIER 26 ONLY
- FOR ADDITIONAL NOTES SEE SHEET 12/43.
- ANCHOR BOLTS: THE ANCHOR BOLTS SHALL BE PRESET OR FORMED HOLES PROVIDED. DRILLING SHALL NOT BE ALLOWED.

TABLE OF ELEVATIONS

PIER N <sup>o</sup>	STATION	A		B		C		D		E		F	
		BACK	AHEAD	BACK	AHEAD	BACK	AHEAD	BACK	AHEAD	BACK	AHEAD		
*	15	1246+81.50	601.20	601.26	601.33	601.39	601.47	601.53	601.40	601.46	601.26	601.32	564.5
*	16	1247+70.50	603.82	603.87	603.95	604.01	604.09	604.15	604.01	604.07	603.88	603.94	564.5
*	17	1248+59.50	606.43	606.49	606.57	606.63	606.70	606.76	606.63	606.69	606.50	606.55	564.5
**	19	1250+37.50	611.52	611.57	611.65	611.70	611.79	611.84	611.71	611.77	611.58	611.63	564.5
**	20	1251+26.50	613.74	613.79	613.88	613.92	614.01	614.06	613.94	613.99	613.80	613.85	564.5
**	21	1252+15.50	615.74	615.78	615.88	615.92	616.01	616.06	615.94	615.98	615.80	615.85	564.5
***	26	1258+26.50	621.19	621.05	621.33	621.20	621.46	621.36	621.37	621.29	621.22	621.16	590.0

ELEVATION

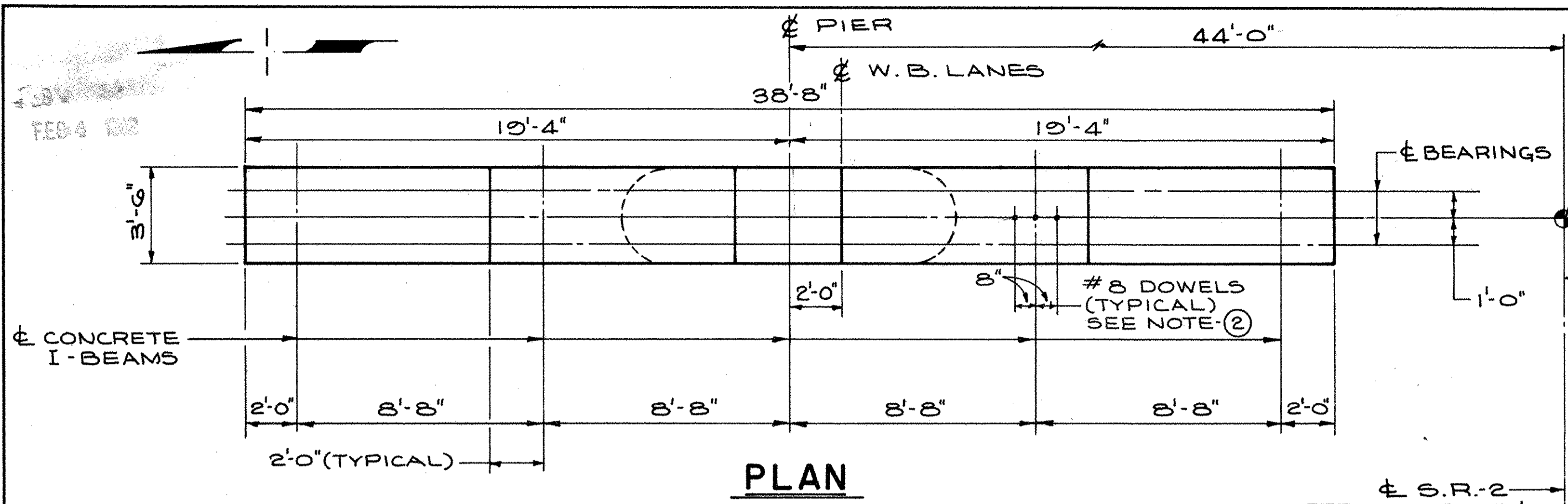
ALTERNATE - 2

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CONSULTING ENGINEERS CLEVELAND, OHIO 44131

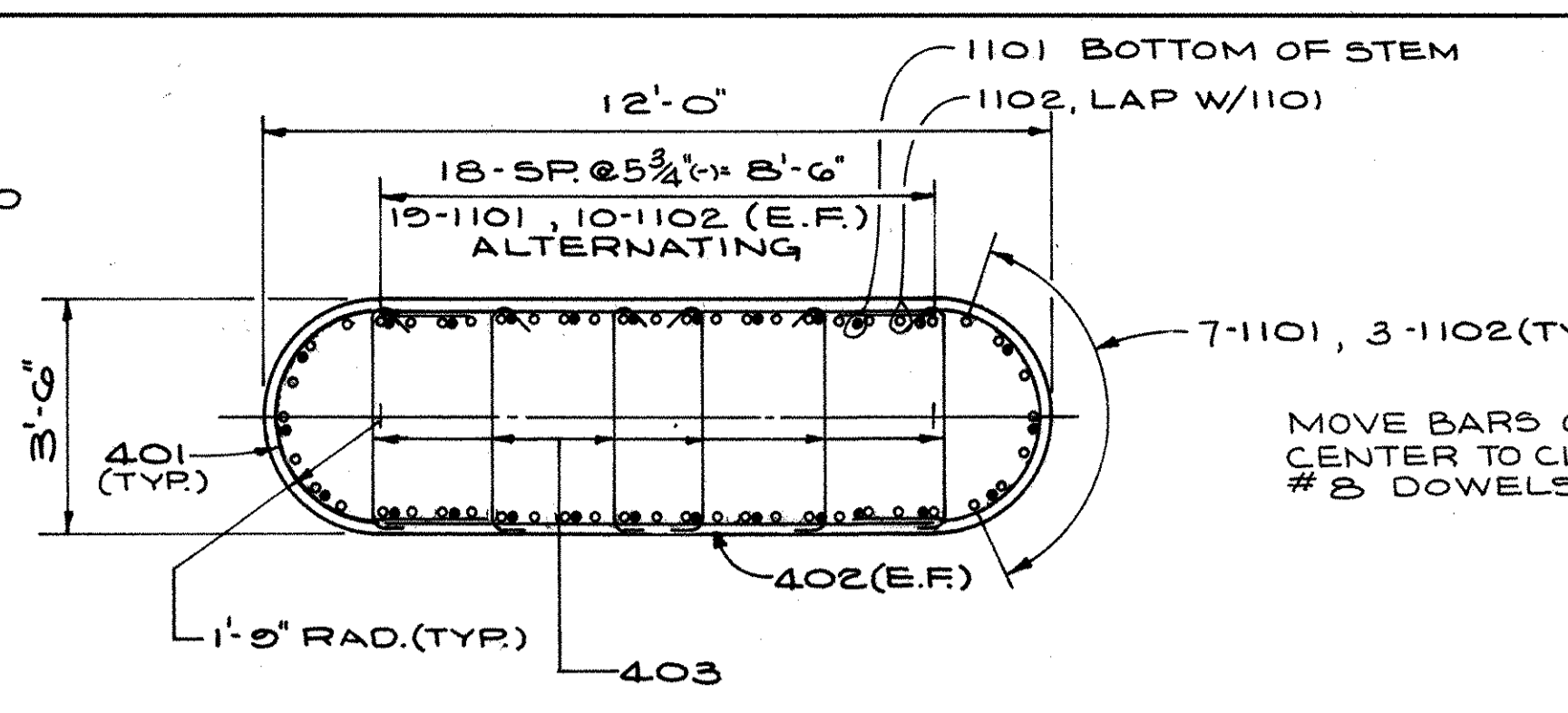
PIER N<sup>o</sup>S. 15, 16, 17, 19, 20, 21 & 26  
BRIDGE N<sup>o</sup> ERI-2-1911 L/R  
S.R. 2 OVER HURON RIVER  
N. & W. R.R. & RIVER ROAD

ERIE COUNTY STA. 1233+43.75 TO  
ERI-2-18.38 STA. 1259+37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	J.D.P.	K.L.M.	I.M.B.	L.E.D. 11/4/85	



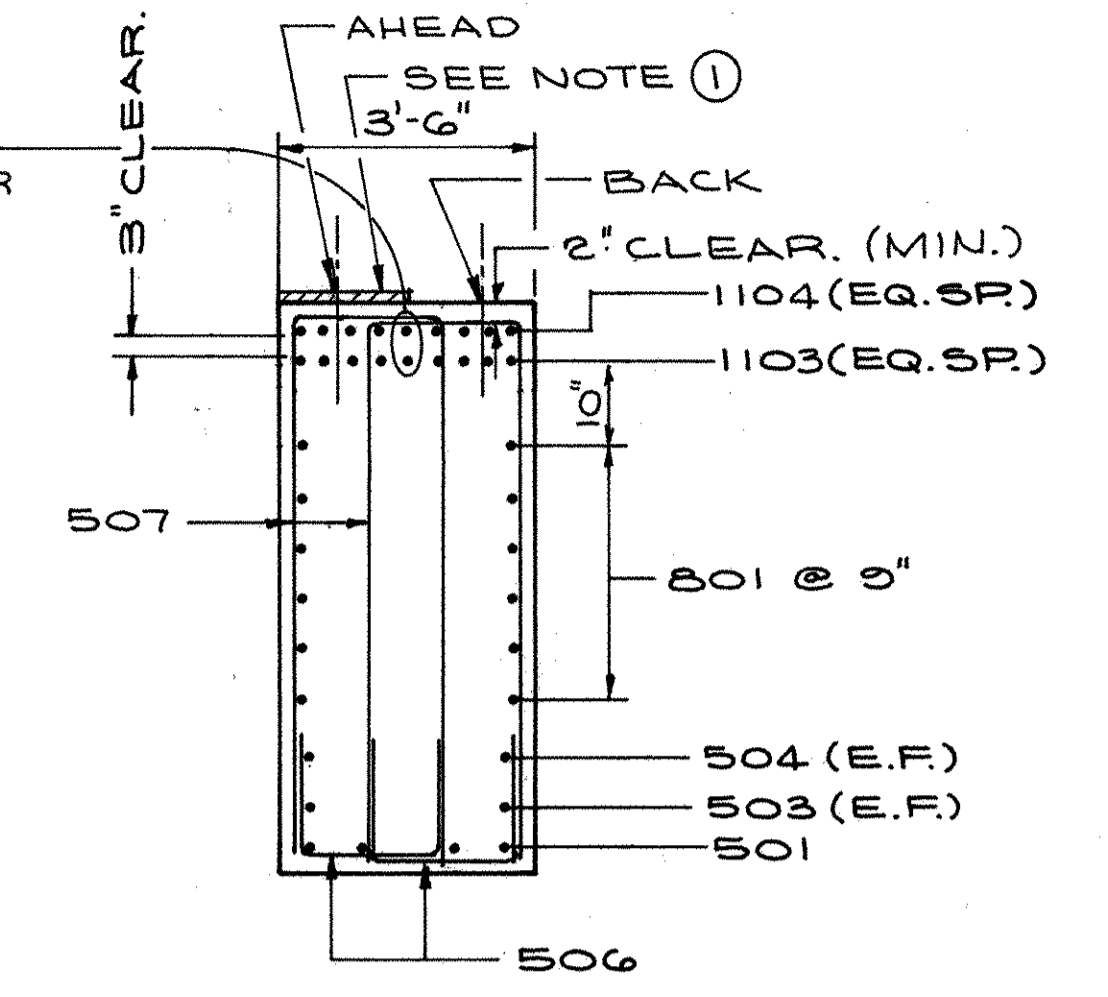
**PLAN**



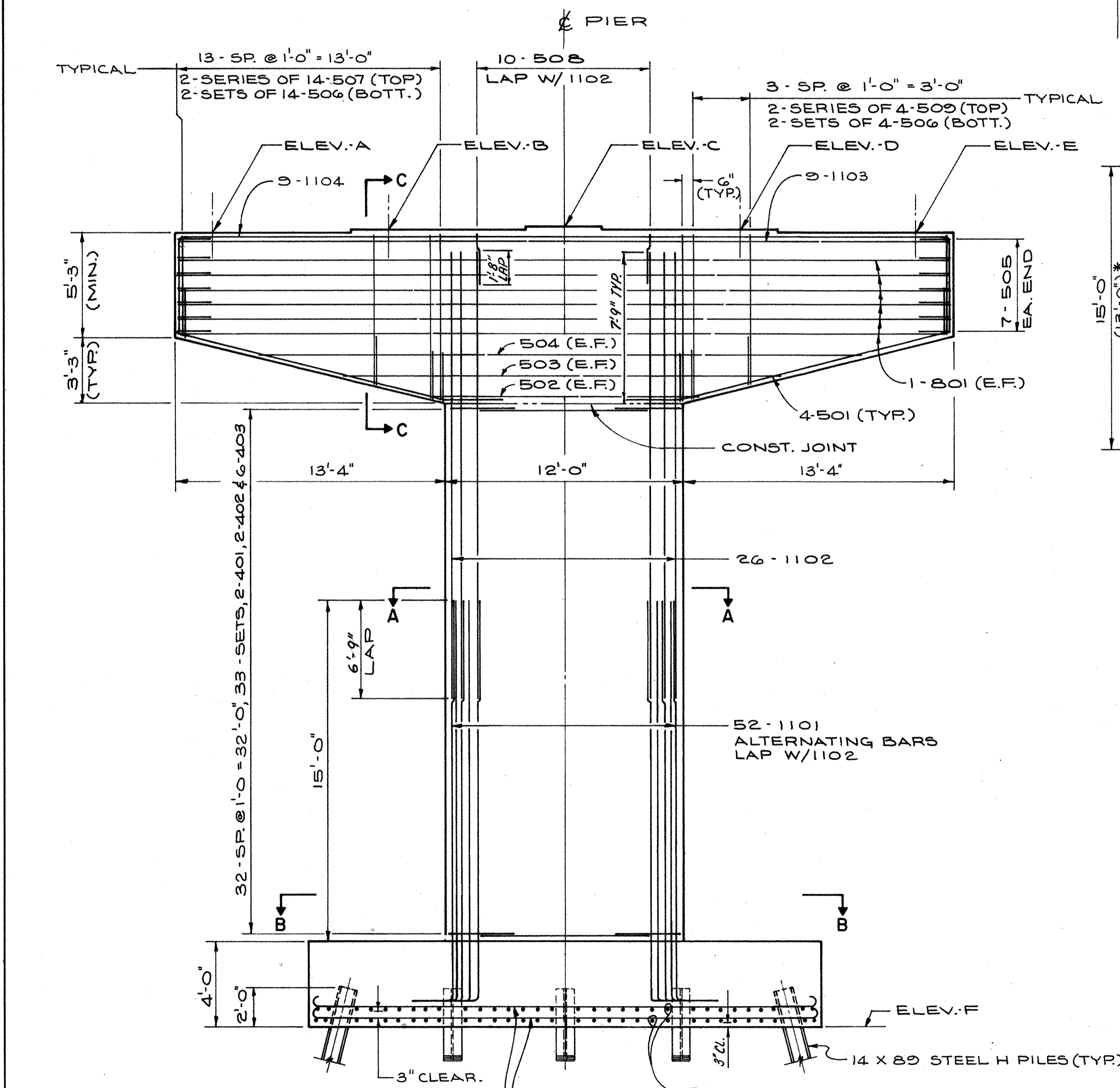
**SECTION A-A**

CALC.	DATE	OHIO
CHKD.	DATE	FHWA REGION 5
DATE		2160 326

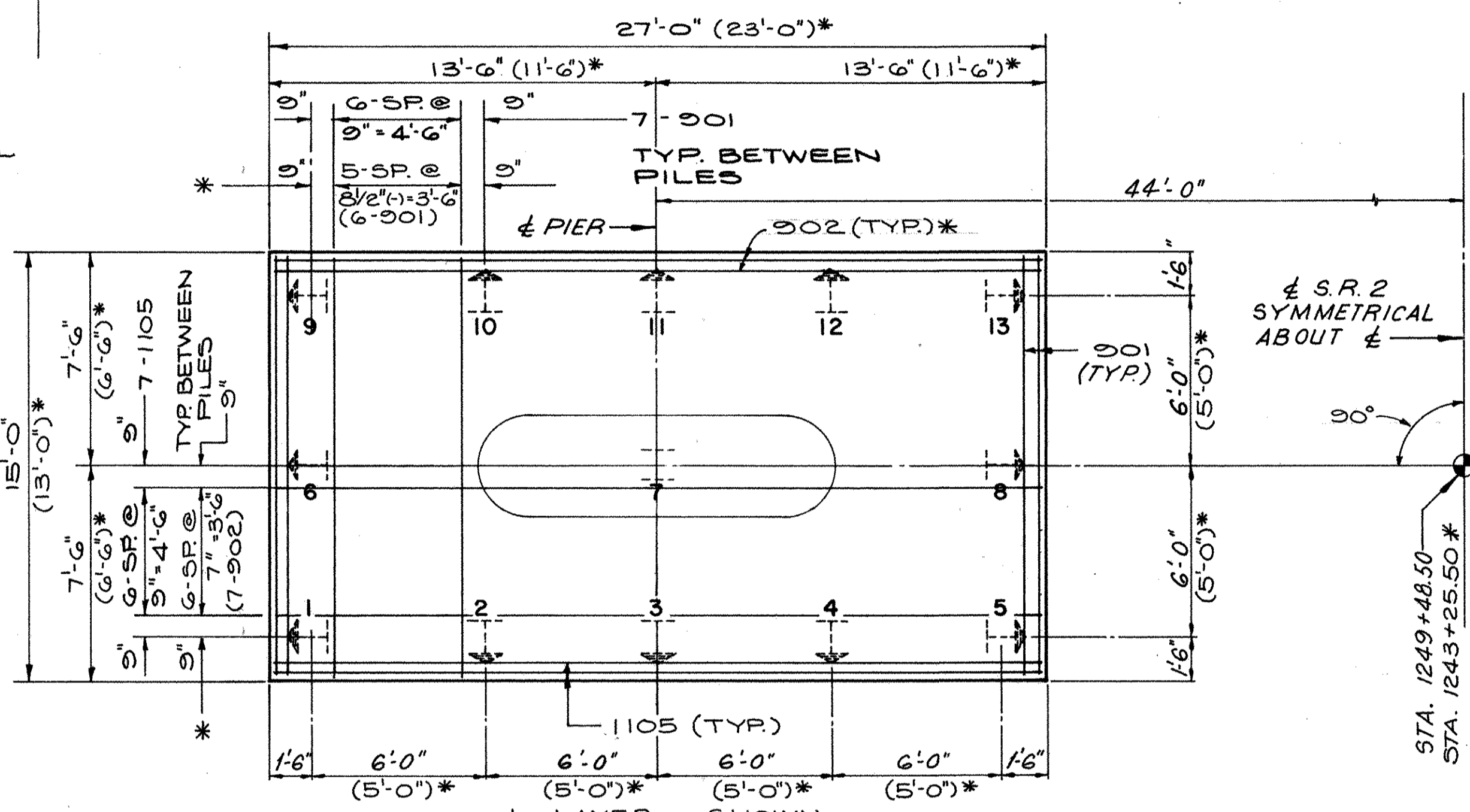
ERIE COUNTY  
ERI-2-18.38



**SECTION C-C**



**ELEVATION**



**VIEW B-B**

\* INDICATES PIER NO. 11, SHEET 13/43

**NOTES:**

1. THE DIFFERENCE BETWEEN BACK AND AHEAD ELEVATIONS SHALL BE MADE UP BY EITHER SHIMMING OR FORMING AT THE CONTRACTOR'S OPTION.
2. #8 DOWEL BARS MAY BE CAST IN PLACE OR SET INTO FORMED HOLES. DRILLING SHALL NOT BE ALLOWED.
3. THE PREFIX "18P" SHALL BE ADDED TO ALL REINFORCING BAR MARKS IN PIER 18.
4. ↗ INDICATES DIRECTION OF 3 IN 1 BATTER.
5. FOR ADDITIONAL NOTES SEE SHEET 12/43.

PIER N°	A		B		C		D		E		F
	BACK	AHEAD	BACK	AHEAD	BACK	AHEAD	BACK	AHEAD	BACK	AHEAD	
18	609.49	609.55	609.62	609.68	609.76	609.82	609.69	609.74	609.55	609.61	564.50

NOTE:  
WESTBOUND STRUCTURE SHOWN, EASTBOUND STRUCTURE SIMILAR EXCEPT OPPOSITE HAND.

ALTERNATE-2 15/43

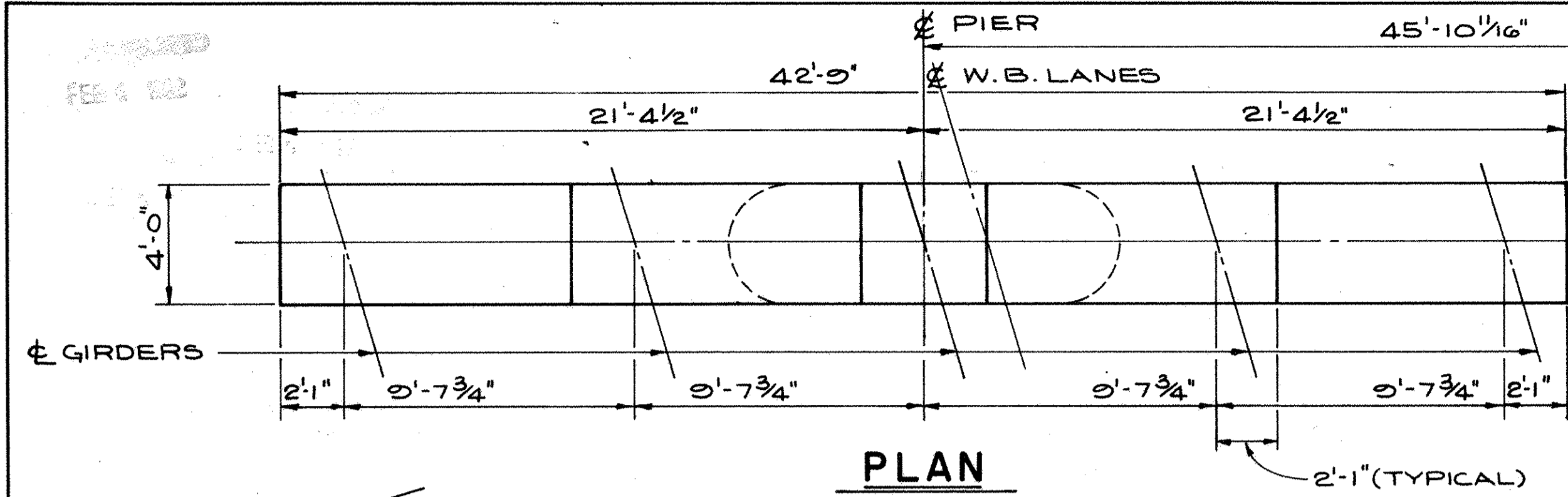
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CONSULTING ENGINEERS CLEVELAND, OHIO 44131

**PIER N°18**  
BRIDGE N° 2 - ERI - 2 - 1911 L/R  
S.R. 2 OVER HURON RIVER  
N. & W. R. R. & RIVER ROAD

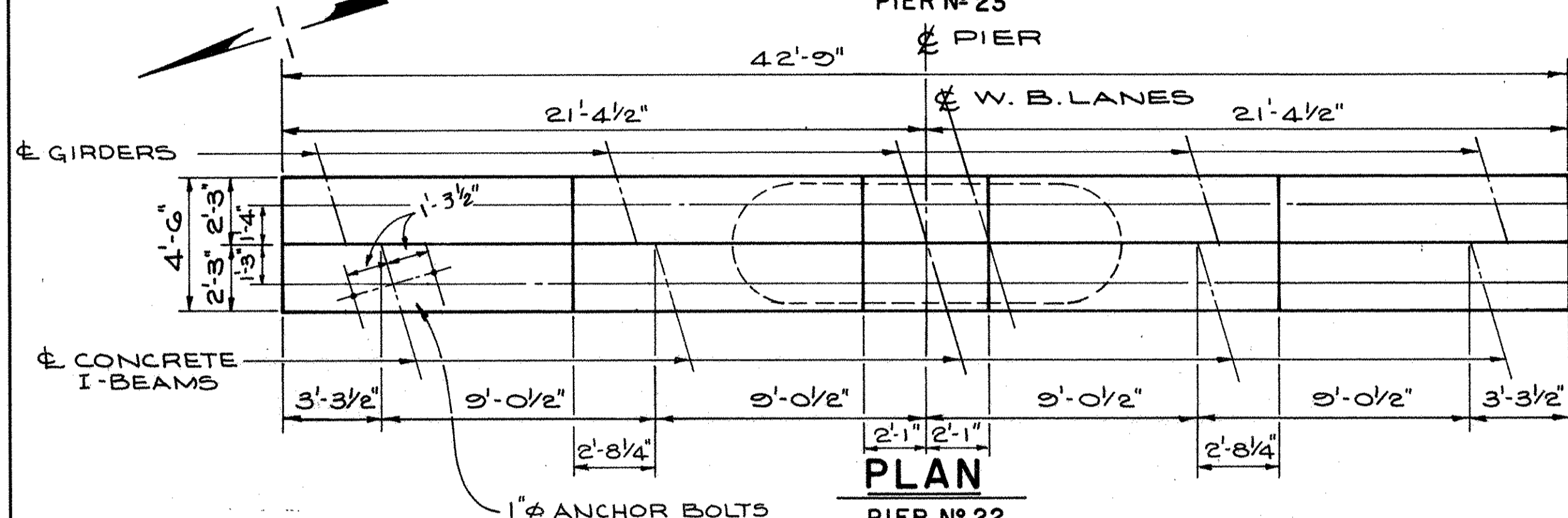
ERIE COUNTY STA. 1233 + 43.75 TO  
ERI-2-18.38 STA. 1259 + 37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	J.D.P.	K.L.M.	I.M.B.	L.E.D. 11/4/85	

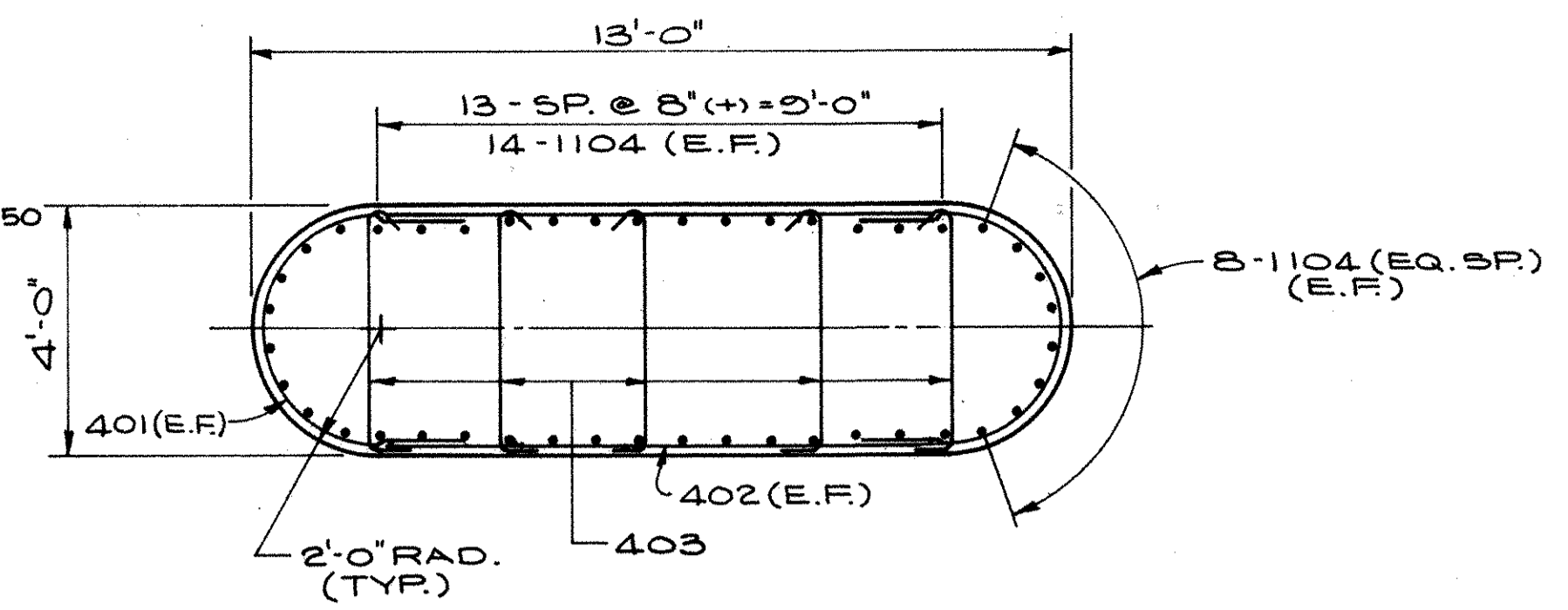
ERIE COUNTY  
 ERI - 2 - 18.38



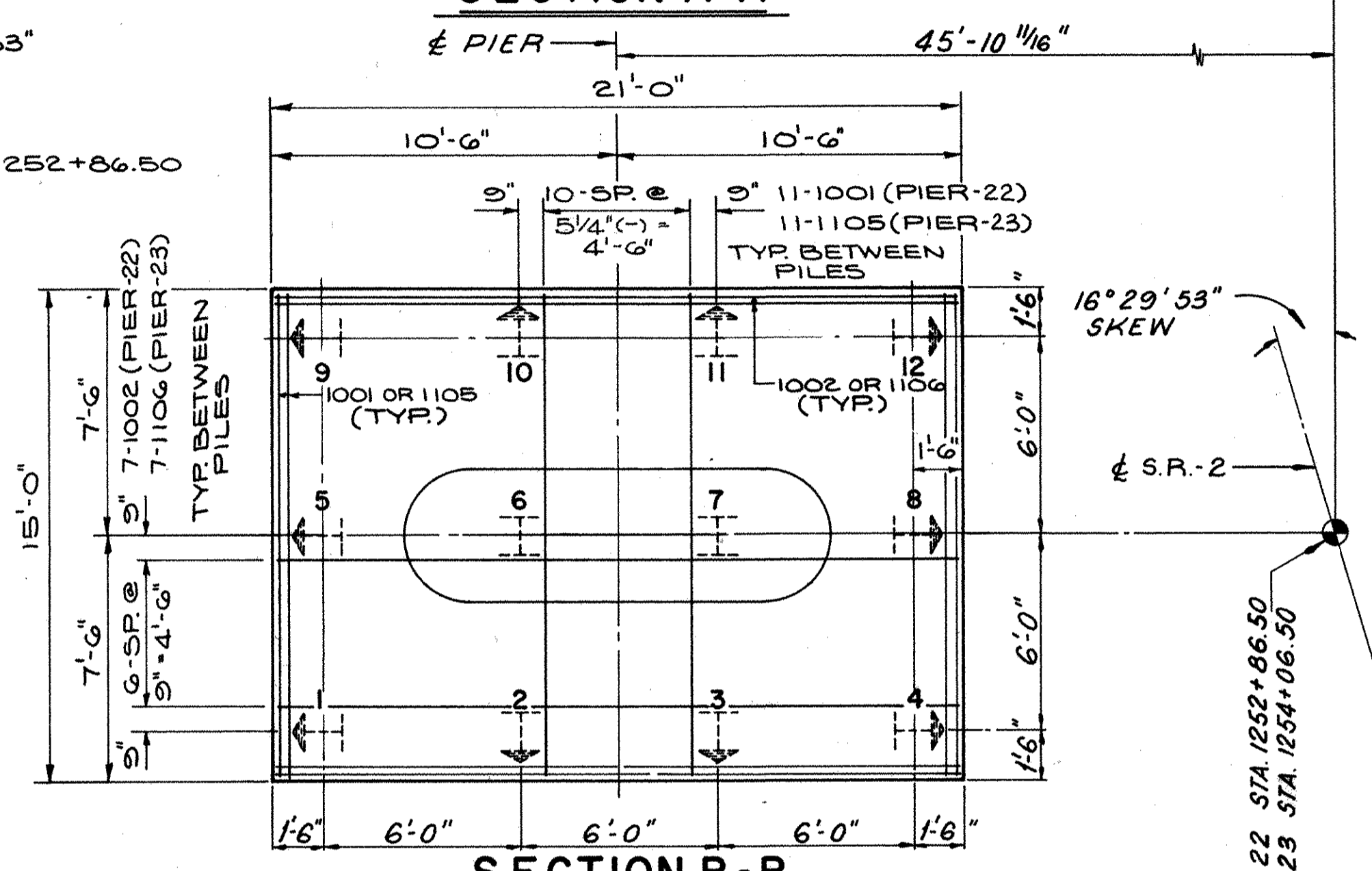
PLAN  
 PIER No. 23



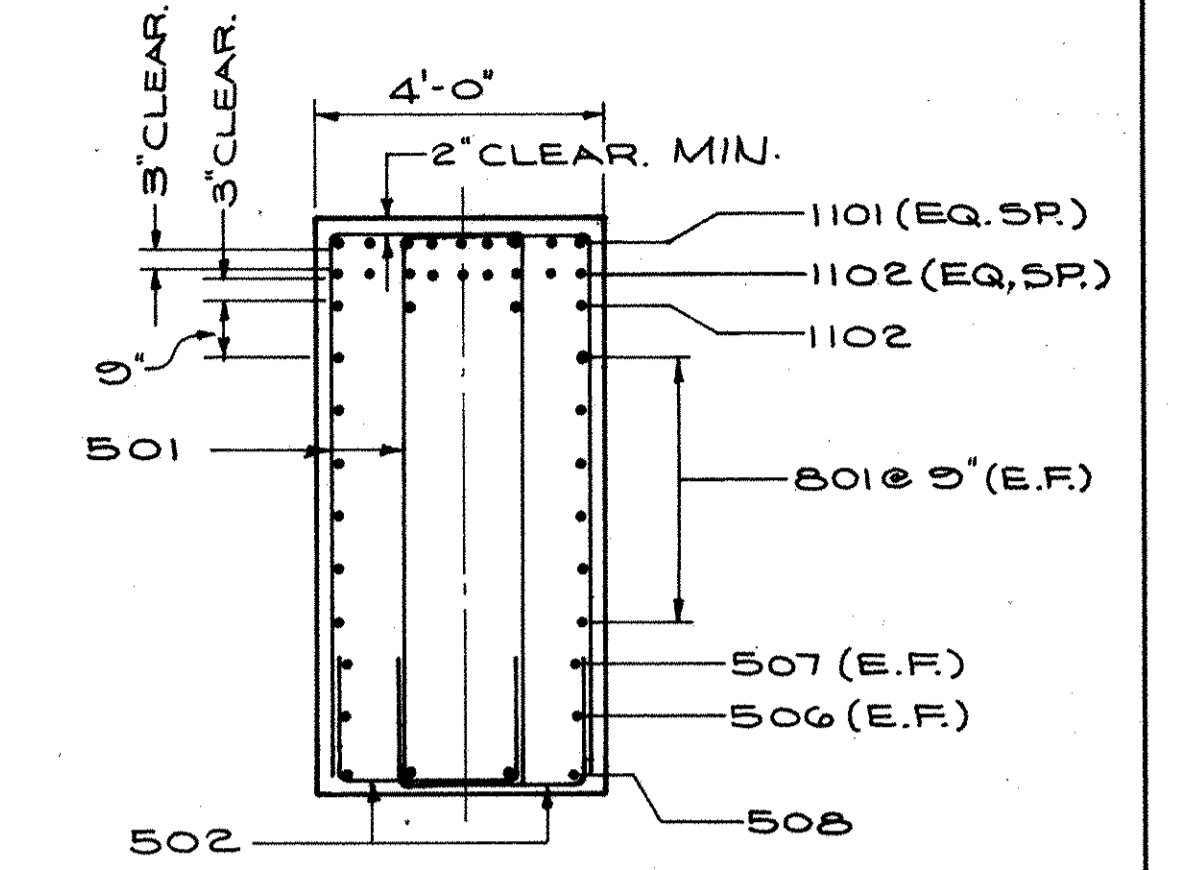
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 PIER No. 22



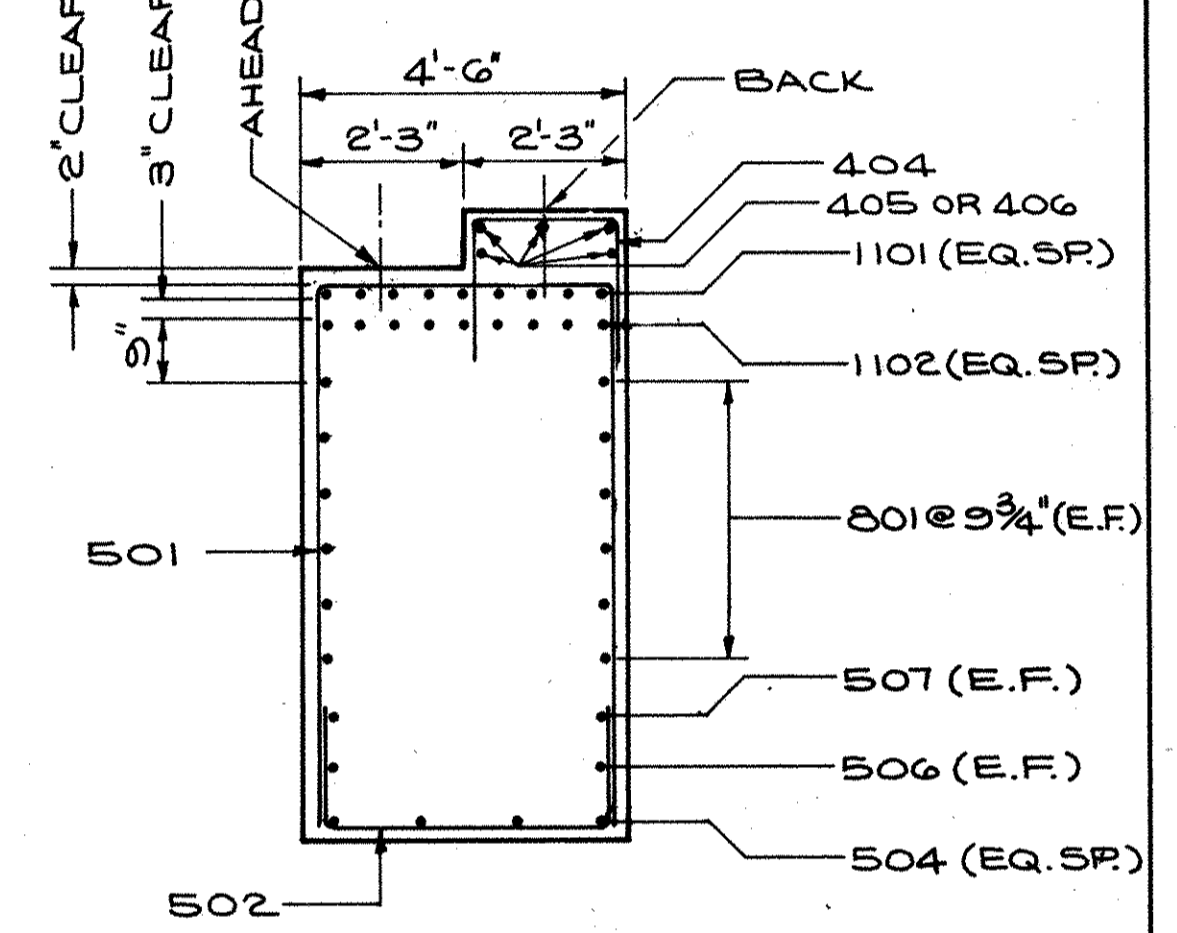
SECTION A-A



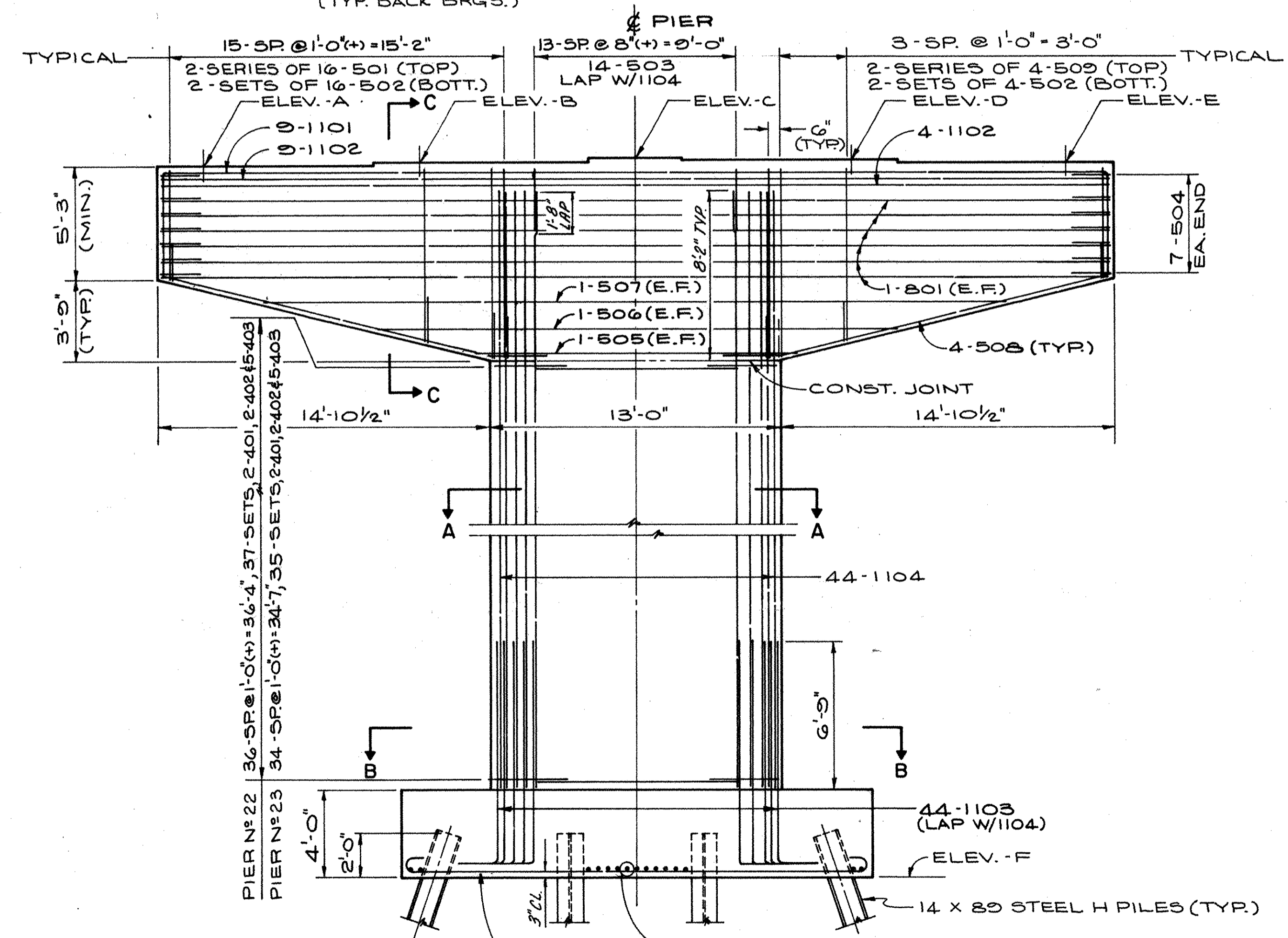
SECTION B-B



SECTION C-C

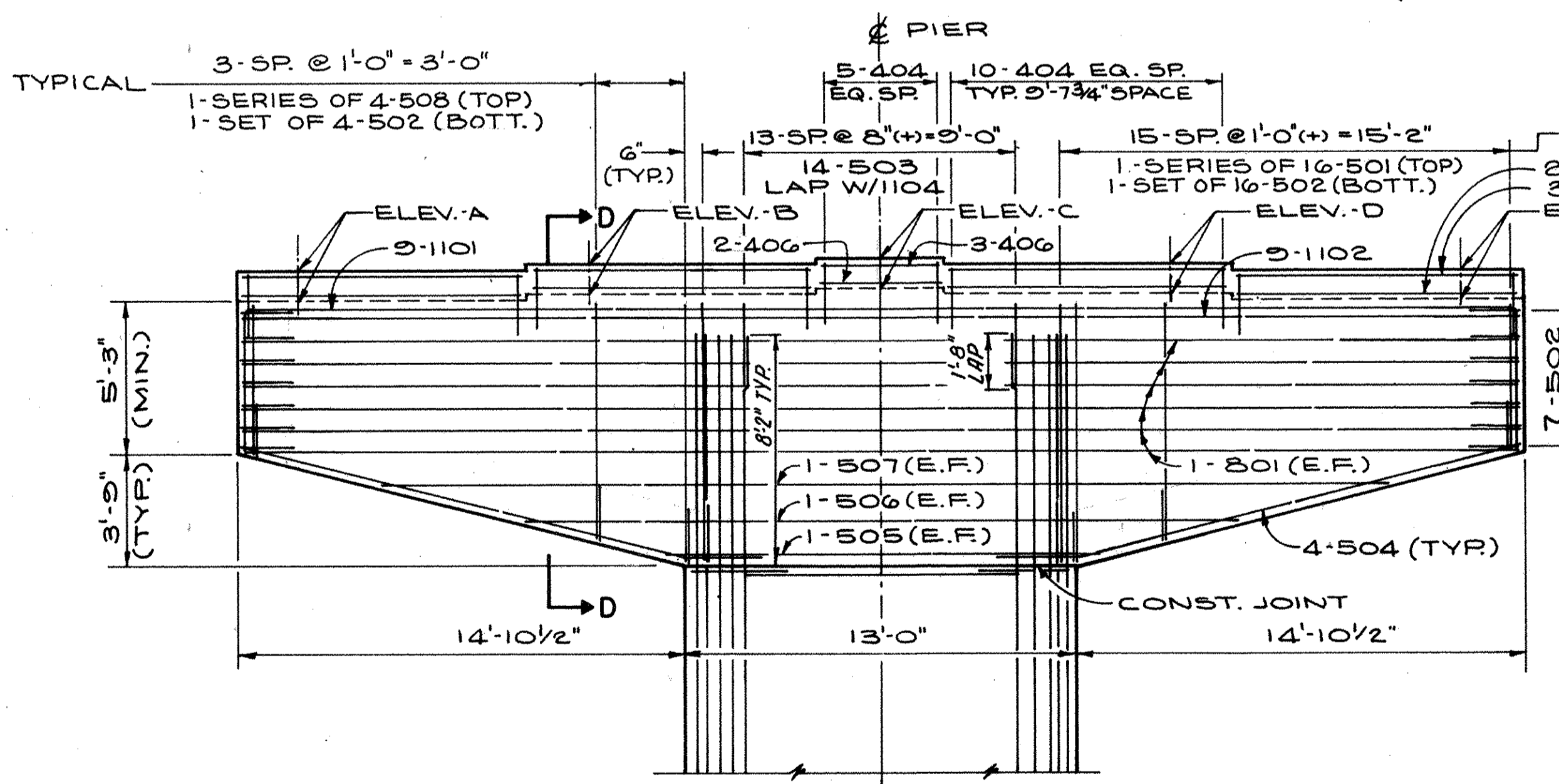


SECTION D-D



ELEVATION  
 PIER No. 23

PIER No. 22 SIMILAR EXCEPT CAP DETAIL, SEE ELEV. "E"



ELEVATION-E  
 PIER No. 22 ONLY

TABLE OF ELEVATIONS

PIER No.	A		B		C		D		E		F
	W.B.	E.B.	W.B.	E.B.	W.B.	E.B.	W.B.	E.B.	W.B.	E.B.	
22-BACK	617.50	616.88	617.59	617.07	617.67	617.24	617.60	617.21	617.40	617.13	565.5
22-AHEAD	615.93	615.22	616.02	615.42	616.12	615.62	615.98	615.59	615.79	615.50	565.5
23	617.07	616.48	617.17	616.67	617.27	616.86	617.15	616.82	616.96	616.72	568.5

- NOTES:
- THE PREFIX "22P" & "23P" SHALL BE ADDED TO ALL REINFORCING BAR MARKS AND PILES IN PIERS 22 AND 23 RESPECTIVELY.
  - ↗ INDICATES DIRECTION OF 3 IN 1 BATTER
  - FOR ADDITIONAL NOTES SEE SHEETS 12/43 & 15/43
- ANCHOR BOLTS: THE ANCHOR BOLTS SHALL BE PRESET OR FORMED HOLES PROVIDED. DRILLING SHALL NOT BE ALLOWED.

ALTERNATE - 2 16/43

adache - ciuni - lynn associates  
 CONSULTING ENGINEERS CLEVELAND, OHIO 44131

**PIER No. 22 & 23**  
 BRIDGE No. ERI - 2 - 1911 L/R  
 S.R. 2 OVER HURON RIVER  
 N. & W. R.R. & RIVER ROAD

ERIE COUNTY STA. 1233 + 43.75 TO  
 ERI - 2 - 18.38 STA. 1259 + 37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	J.D.P.	K.L.M.	I.M.B.	L.E.D. 11/4/85	

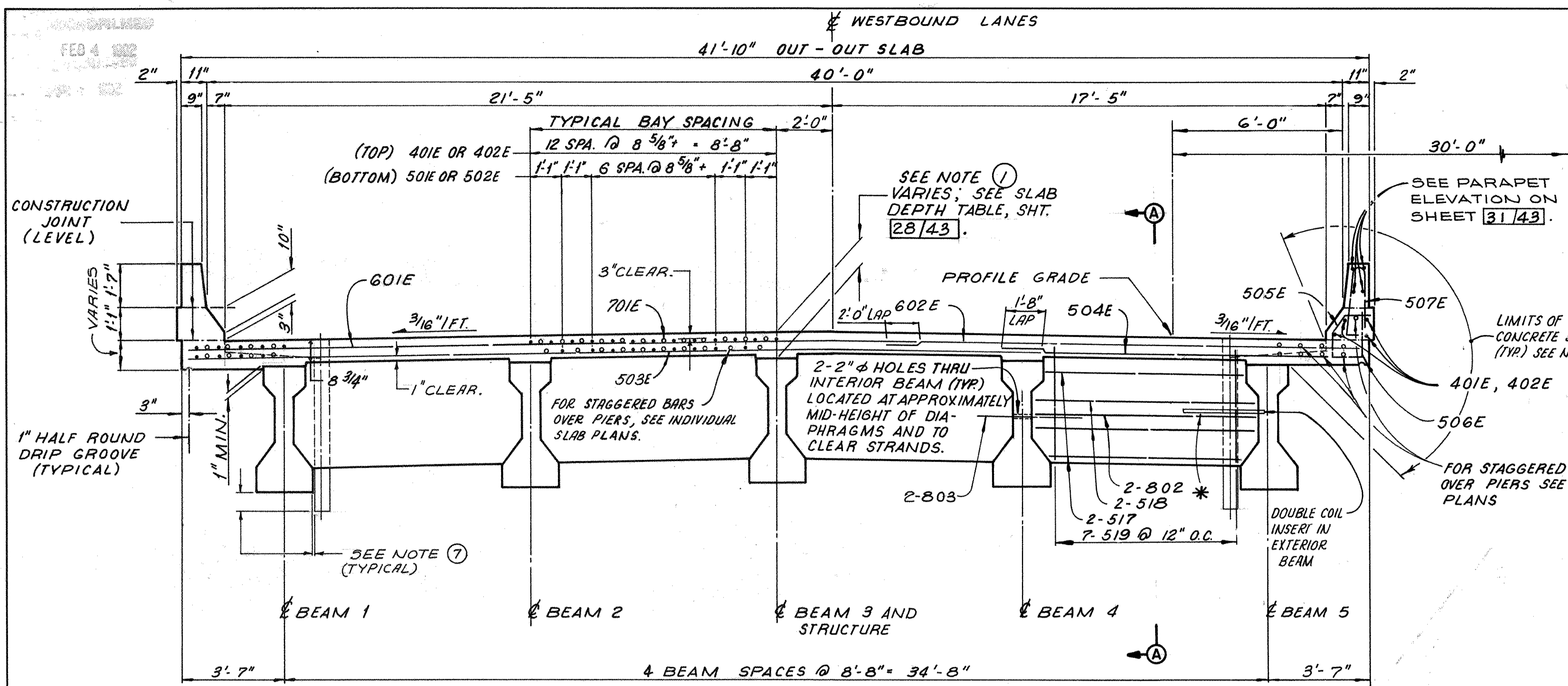


FEB 4 1982

FHWA REGION	STATE	PROJECT
5	OHIO	

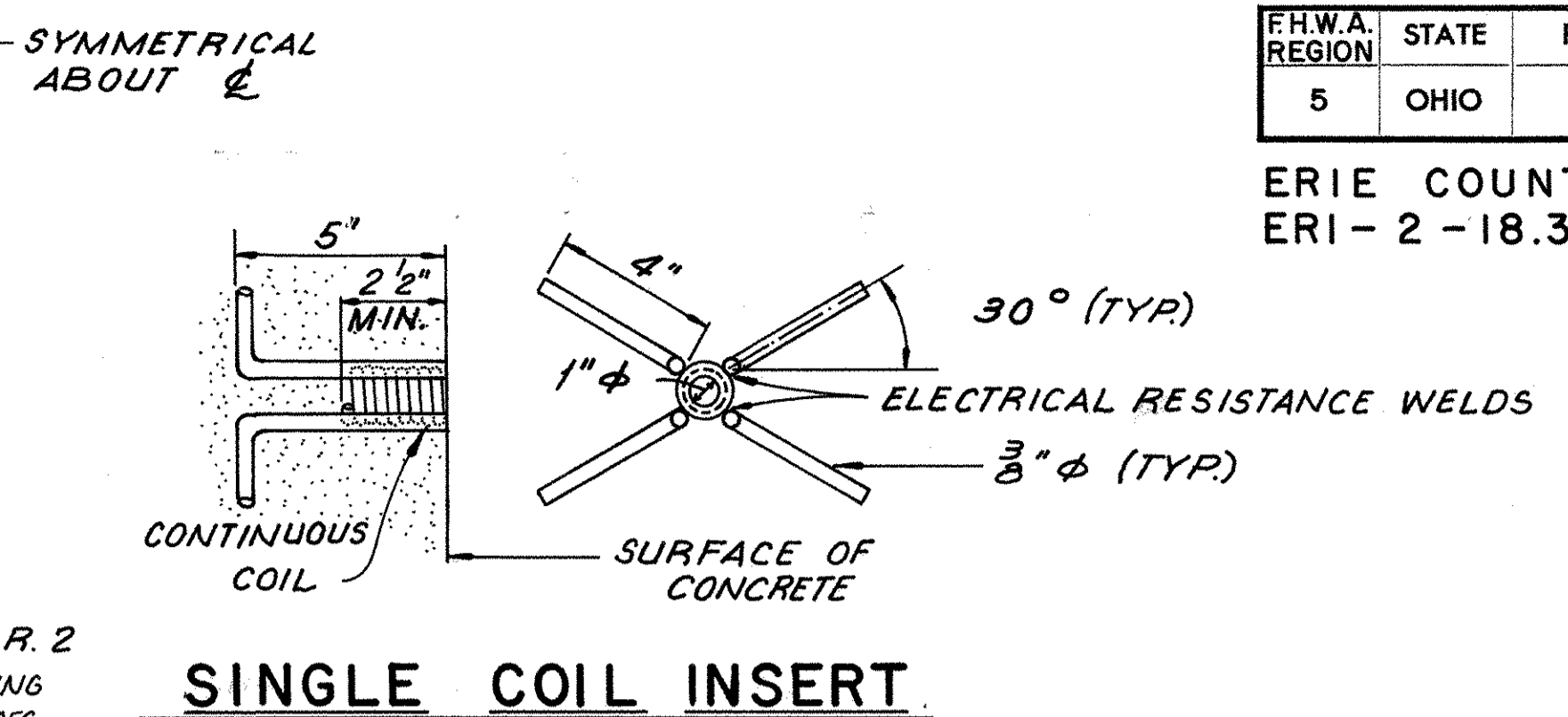
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326

ERIE COUNTY  
ERI-2-18.38

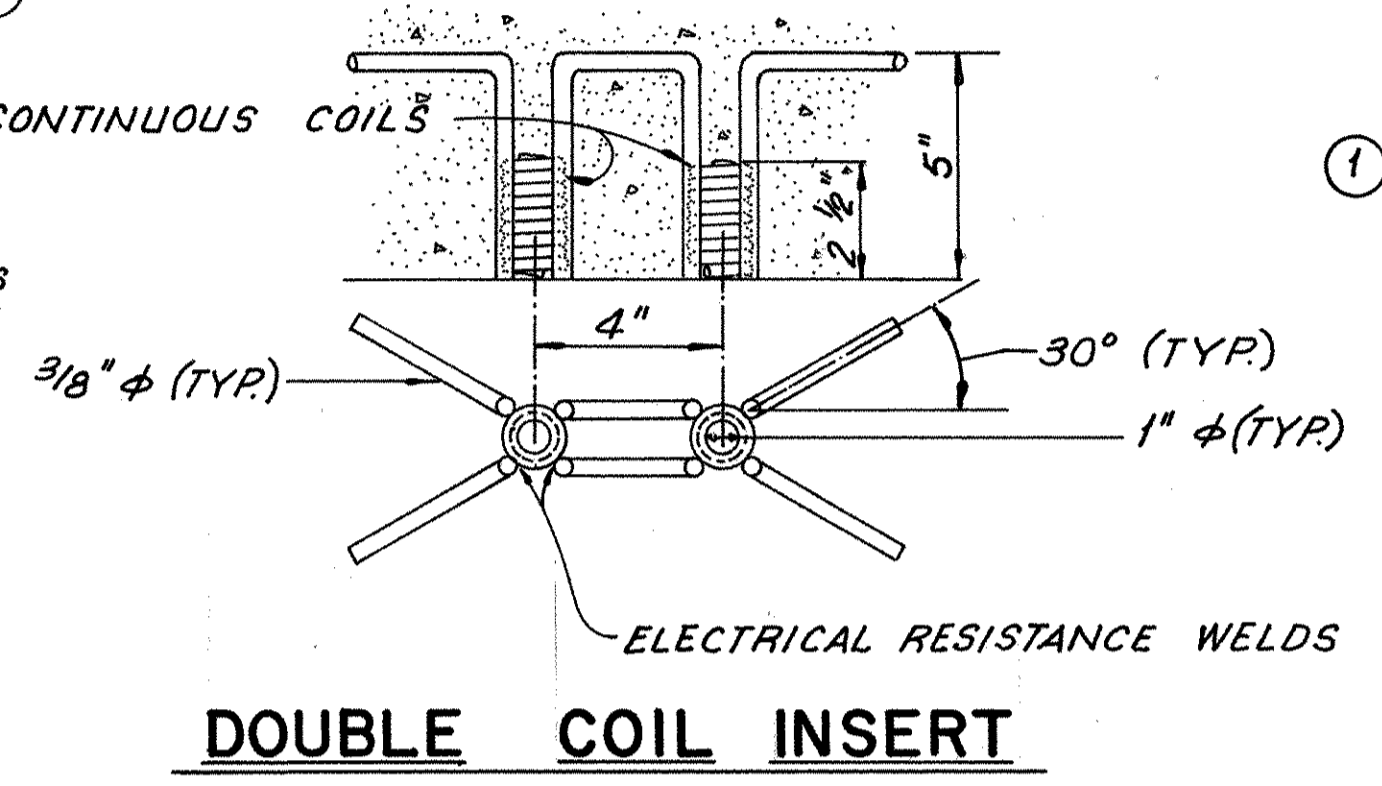


**TRANSVERSE SECTION**

WESTBOUND LANES SHOWN,  
EASTBOUND LANES SIMILAR  
BUT OPPOSITE HAND



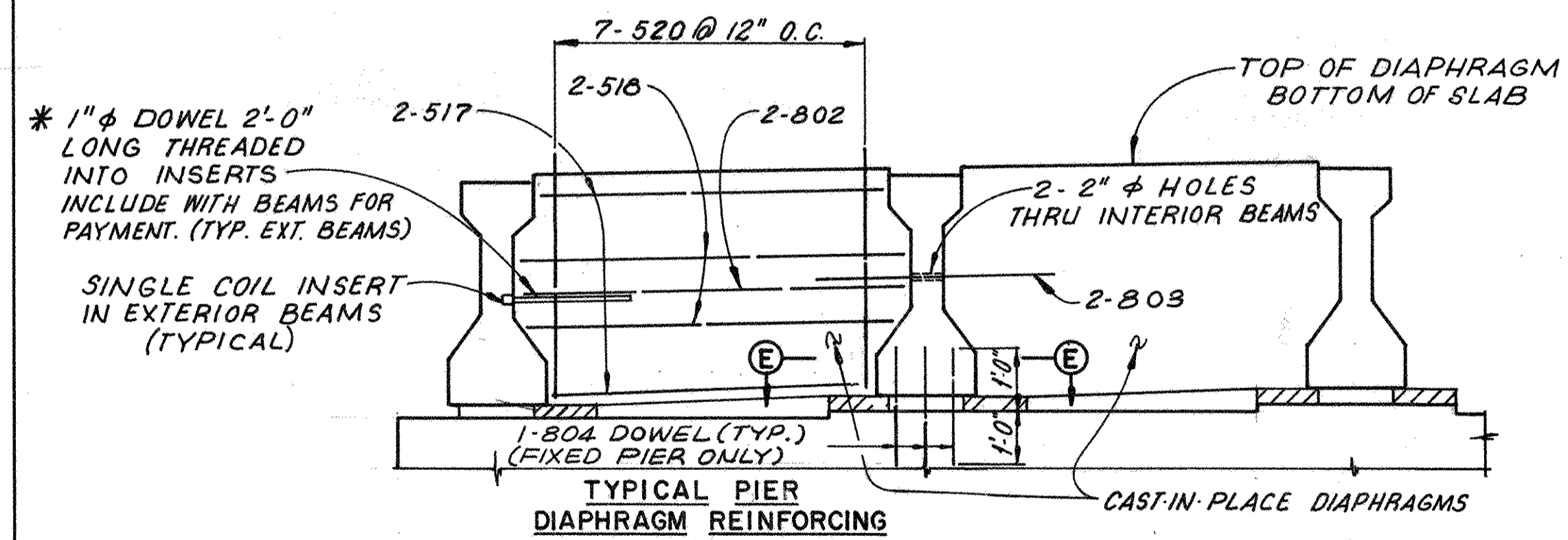
**SINGLE COIL INSERT**



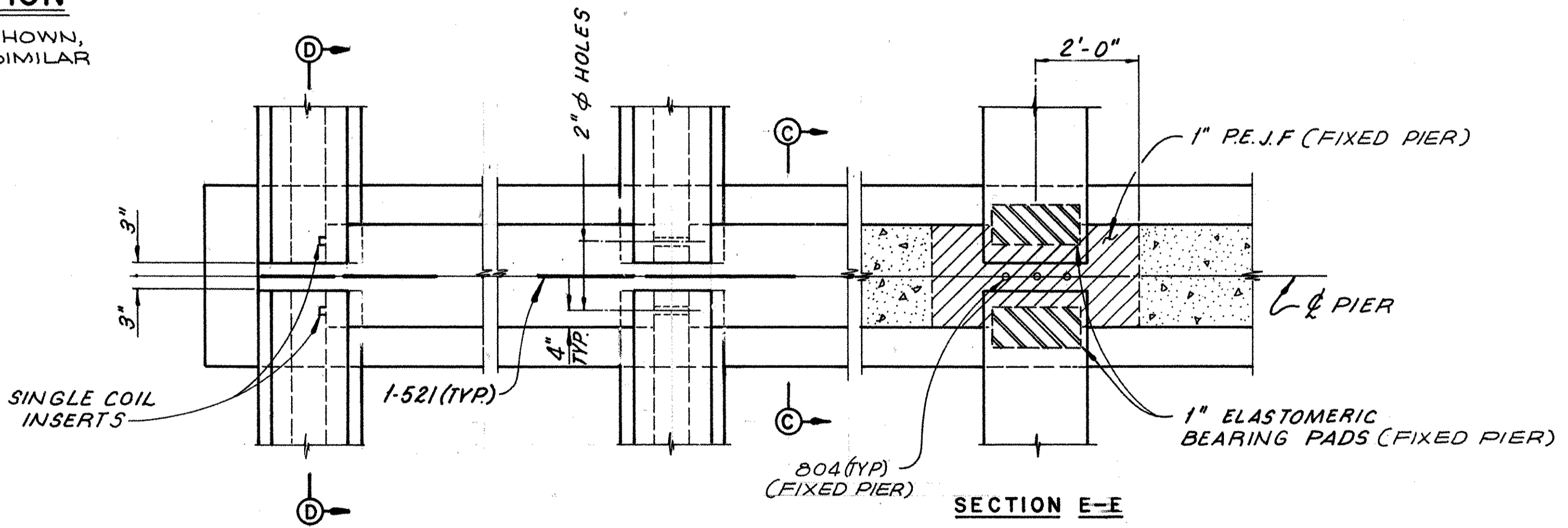
**DOUBLE COIL INSERT**

**NOTES:**

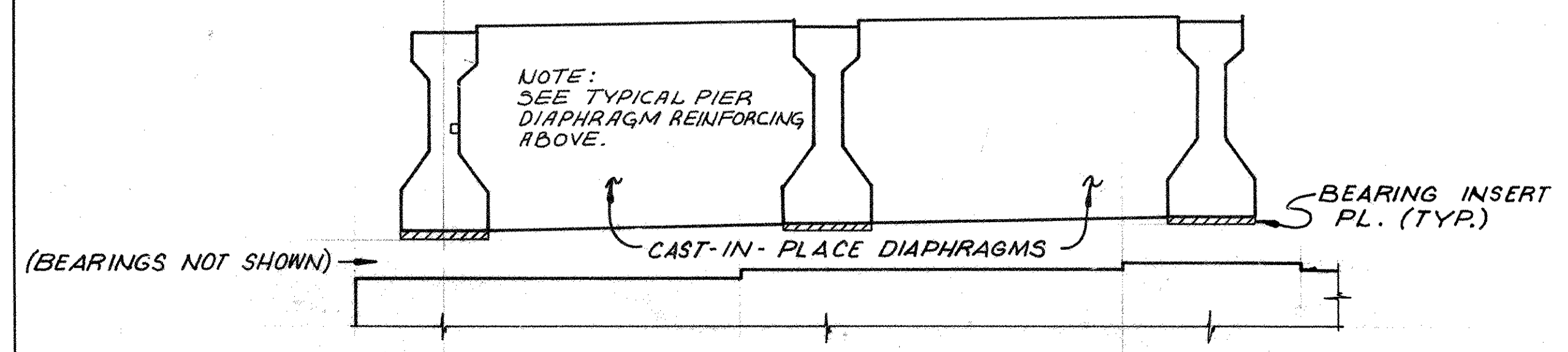
- ① THIS IS THE NOMINAL DIMENSION. THE PAY QUANTITY OF THAT PORTION OF THE DECK CONCRETE OVER THE BEAMS SHALL BE BASED ON THE AVERAGE OF THIS DIMENSION AND THE DEPTH AT BEAM BEARINGS EVEN THOUGH DEVIATION FROM THIS AVERAGE MAY OCCUR BECAUSE THE TOP OF THE BEAM MAY NOT HAVE THE CAMBER ANTICIPATED IN THE DESIGN, I.E., "B", SHT. [28/43]. THE CAMBER OF BEAMS SHALL BE MEASURED IN THE FIELD BEFORE THE DECK IS PLACED. THE ACTUAL DEPTH AT MID-SPAN SHALL BE THE NOMINAL DIMENSION PLUS OR MINUS THE DIFFERENCE BETWEEN ACTUAL AND ANTICIPATED CAMBER.
- ② BAR MARKS FOR REINFORCING WHICH ARE TO BE EPOXY-COATED INCLUDE A LETTER SUFFIX 'E'.
- ③ FOR SCUPPER LOCATIONS SEE SHEETS [27/43], [28/43] & [29/43].
- ④ FOR FRAMING PLAN, SEE SHEET [20/43].
- ⑤ FOR SLAB PLAN, SEE SHEETS [27/43] & [28/43].
- ⑥ A PREFIX 'S' SHALL BE ADDED TO ALL REINFORCING BAR MARKS IN THE SUPERSTRUCTURE.
- ⑦ SCUPPERS SHALL BE IN ACCORDANCE WITH STANDARD DRAWING SD-1-69 EXCEPT THAT SCUPPER PIPES SHALL EXTEND 8" BELOW BOTTOM OF THE BEAMS INSTEAD OF 2". PIPES SHALL CLEAR BEAM BOTTOM FLANGE BY 1". SCUPPERS SHALL BE SUPPORTED OFF DECK FORMS AS SHOWN IN DETAIL C STANDARD DRAWING SD-1-69, SHT. 3 OF 4.
- ⑧ ITEM SPECIAL, SEALING OF CONCRETE SURFACES: A CONCRETE SEALER, EITHER SILANE OR AN EPOXY SEALER, SHALL BE APPLIED TO THE CONCRETE SURFACES SHOWN ON THE TRANSVERSE SECTION. SEE THE PROPOSAL FOR SURFACE PREPARATION REQUIREMENTS, APPLICATION RATES, MATERIAL REQUIREMENTS AND APPLICATION PROCEDURE.



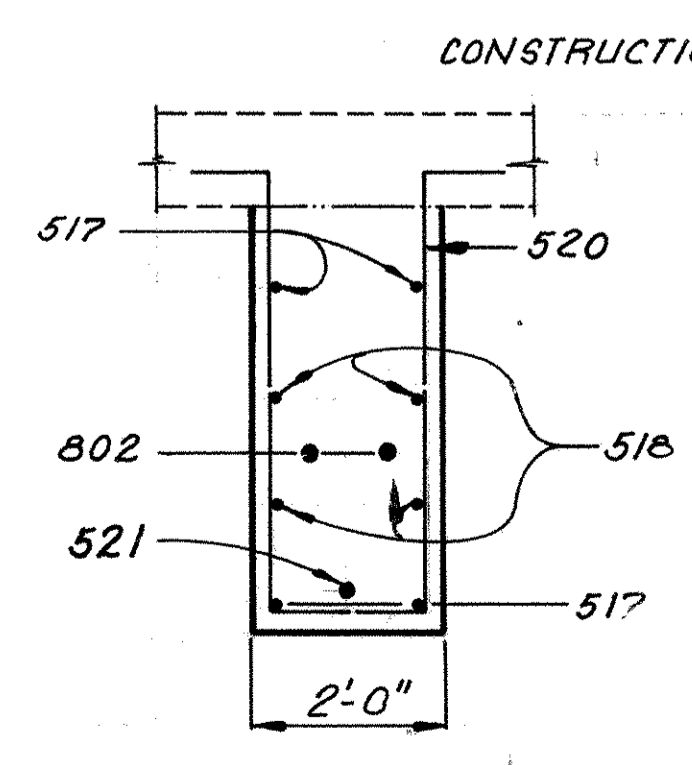
**PARTIAL ELEVATION OF DIAPHRAGMS AT FIXED PIERS**



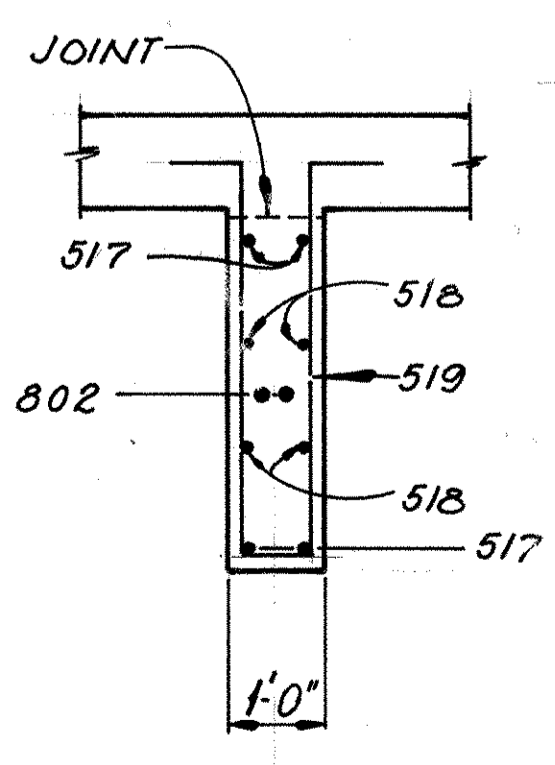
**PART PLAN OF DIAPHRAGMS AT PIERS**



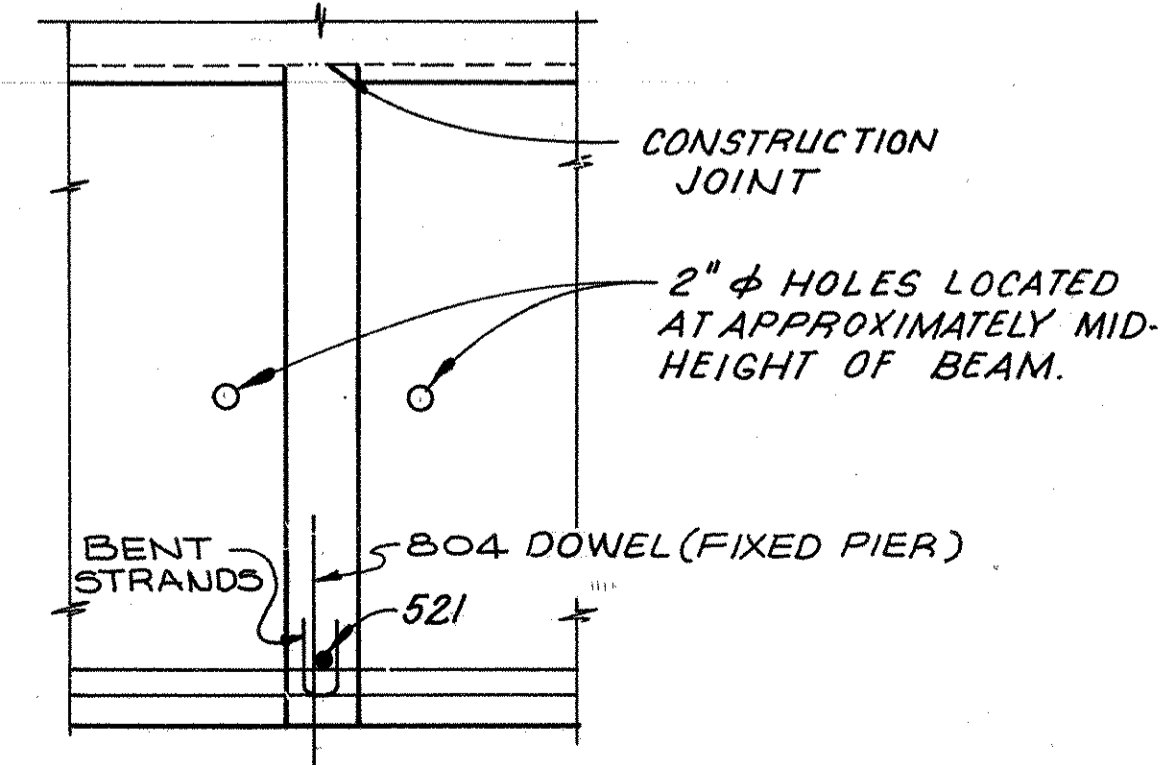
**PARTIAL ELEVATION OF DIAPHRAGMS AT EXPANSION PIERS**



**SECTION C-C**



**SECTION A-A**

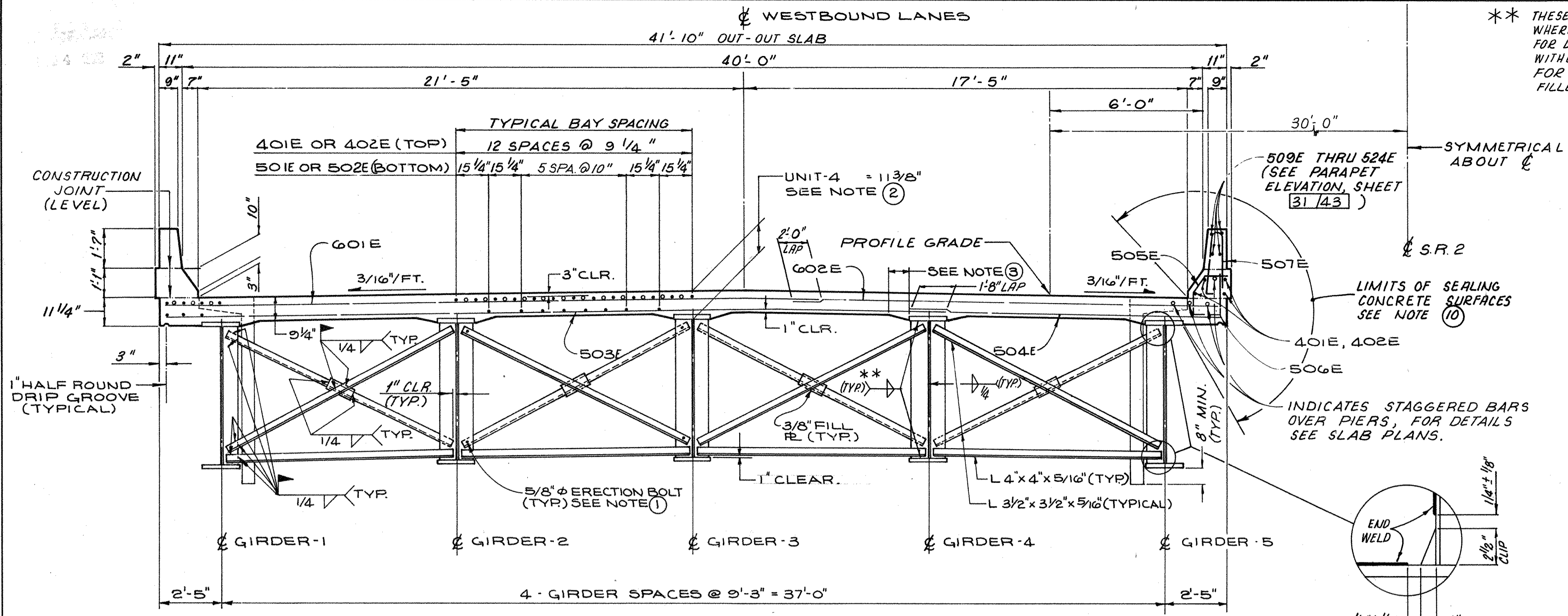


**SECTION D-D**

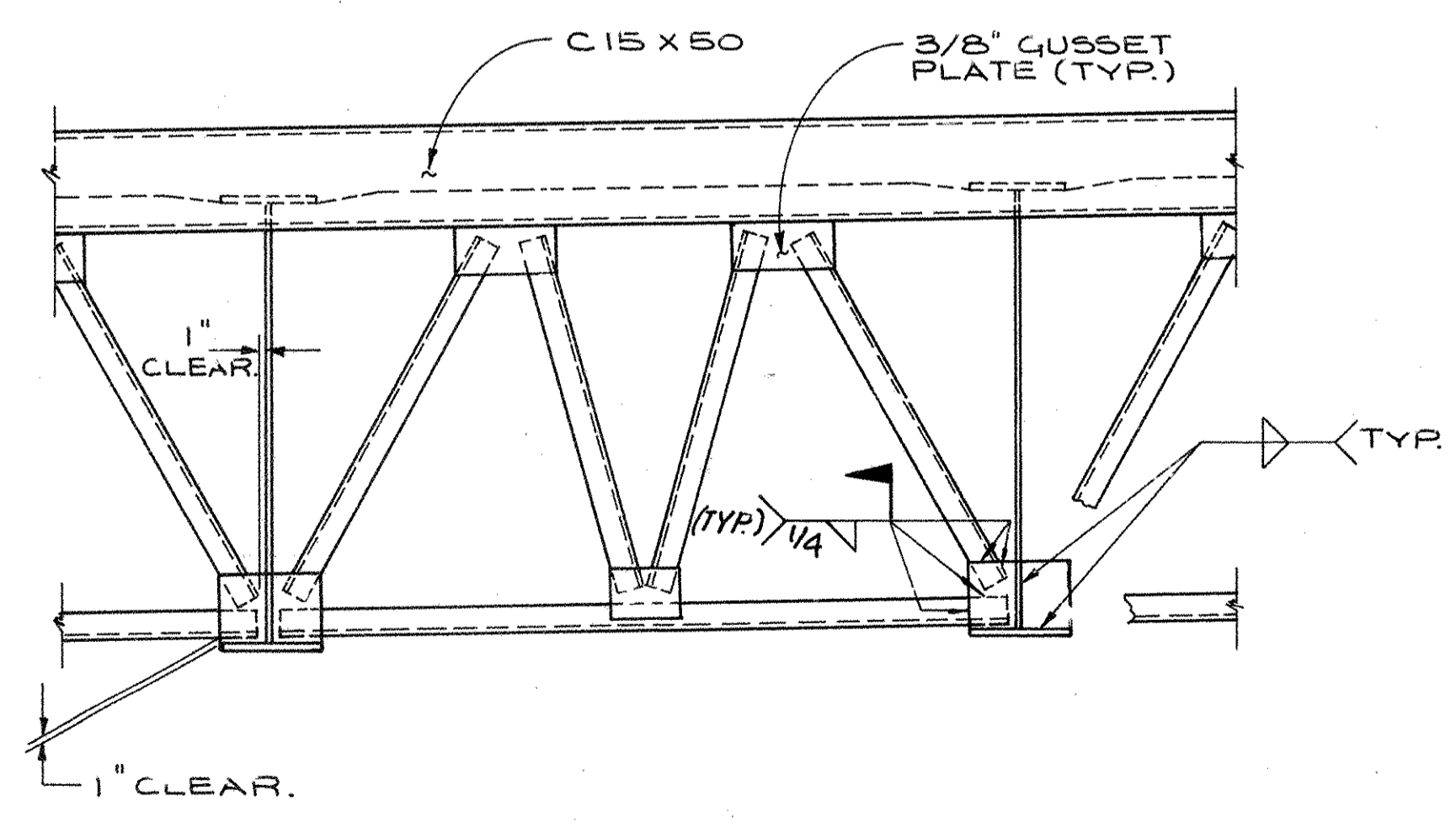
ALTERNATE - 2 [18/43]

adache - ciuni - lynn associates			
CONSULTING ENGINEERS		CLEVELAND, OHIO 44130	
<b>TRANSVERSE SECTION UNIT 1,2,3</b>			
BRIDGE N° ERI-2-1911 L/R			
S.R. 2 OVER HURON RIVER			
N. & W. R. R. & RIVER ROAD			
ERIE COUNTY		STA. 1233 + 43.75 TO	
ERI-2-18.38		STA. 1259 + 37.37	
DESIGNED	DRAWN	CHECKED	REVIEWED
K.L.M.	D.R.J.	I.M.B.	L.E.D.
			11/4/85

\*\* THESE WELDS APPLY ONLY AT STIFFENERS WHERE CROSSFRAMES ARE ATTACHED. FOR DETAILS OF WELDMENT OF STIFFENERS WITHOUT CROSSFRAMES, SEE DETAIL 'A' BELOW. FOR WELD SIZES NOT SHOWN, SEE FILLET WELD SIZE TABLE, SHEET 21/43.

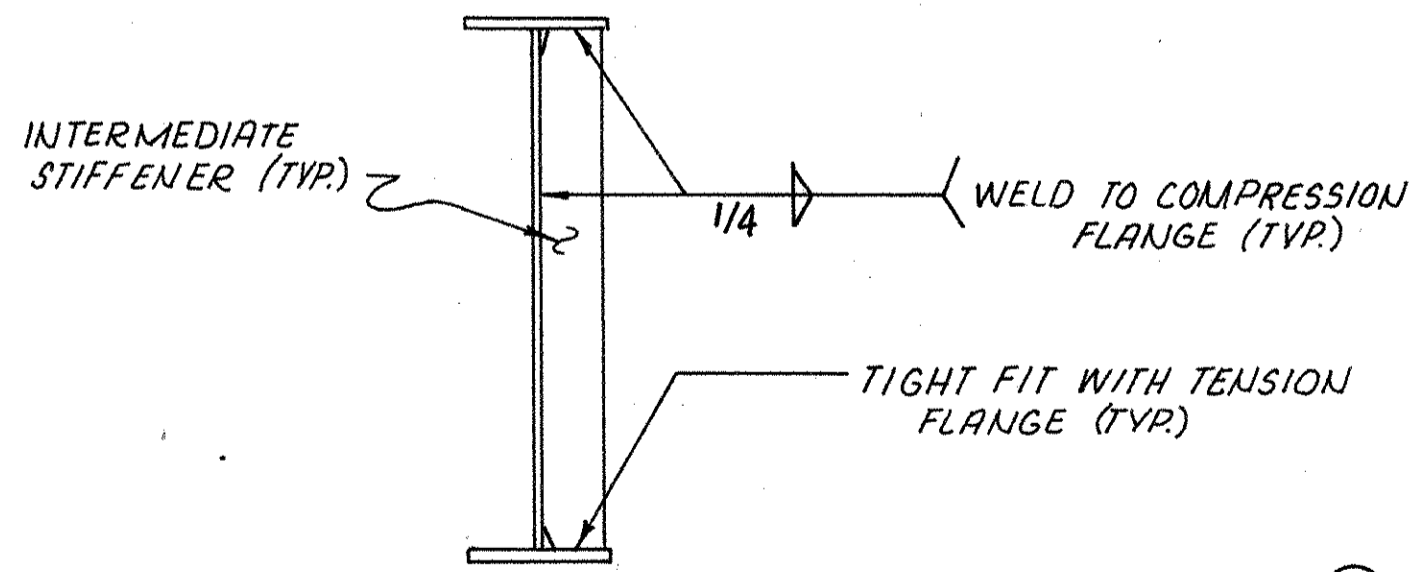


**TRANSVERSE SECTION**



**TYPICAL END CROSSFRAME**

FOR ADDITIONAL DETAILS, SEE STANDARD DRAWING SD-1-69, SHEET 1 OF 4. AND EXPANSION JOINT DETAILS, SHEETS 32/43 & 34/43.



**DETAIL A**

10. ITEM SPECIAL, SEALING OF CONCRETE SURFACES: A CONCRETE SEALER, EITHER SILANE OR AN EPOXY SEALER, SHALL BE APPLIED TO THE CONCRETE SURFACES SHOWN ON THE TRANSVERSE SECTION. SEE THE PROPOSAL FOR SURFACE PREPARATION REQUIREMENTS, APPLICATION RATES, MATERIAL REQUIREMENTS AND APPLICATION PROCEDURES.

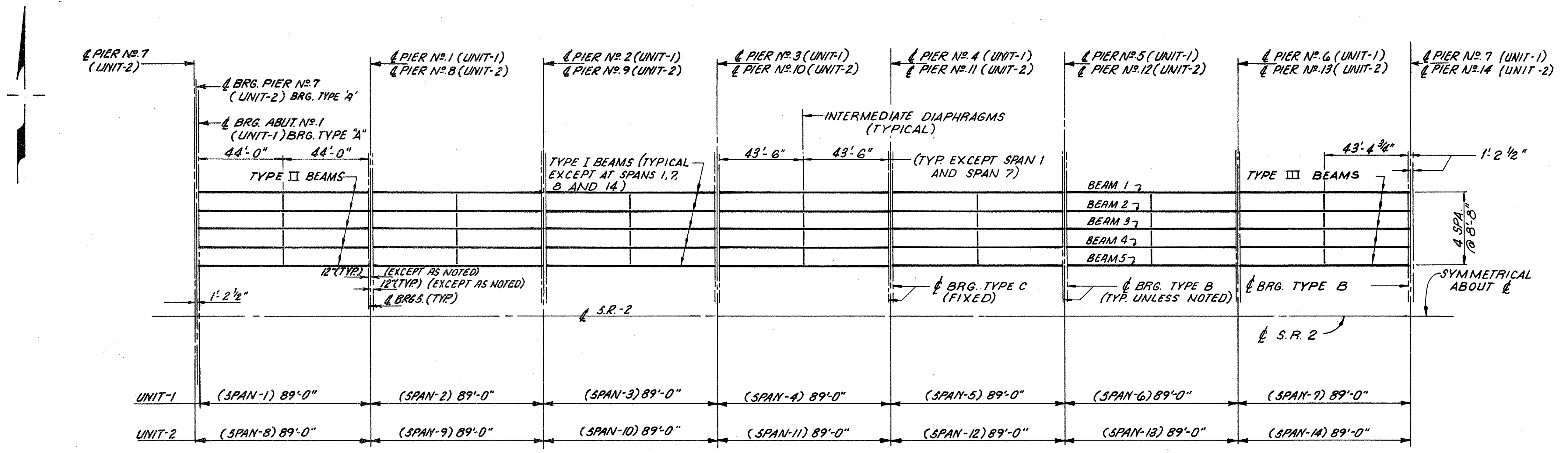
- NOTES:**
- HOLES FOR 5/8"  $\phi$  ERECTION BOLTS SHALL BE PROVIDED IN THE CONNECTIONS OF CROSS FRAMES TO GIRDER STIFFENERS. PROVIDE 1 1/16"  $\phi$  HOLES IN CROSS FRAME ANGLES AND 1 3/16"  $\phi$  HOLES IN STIFFENERS. UNLESS REPLACED BY PERMANENT HIGH STRENGTH BOLTS, ERECTION BOLTS SHALL REMAIN IN PLACE. LOCK WASHERS SHALL BE FURNISHED FOR OTHER THAN FULLY TORQUED HIGH STRENGTH ERECTION BOLTS. BOLTS SHALL BE FURNISHED AS PART OF 5/3.
  - IN LIEU OF ERECTION BOLTS AND AT THE OPTION OF THE CONTRACTOR, ALTERNATIVE MEANS OF TEMPORARY BRACING MAY BE USED SUBJECT TO THE APPROVAL OF THE DIRECTOR.
  - \* THIS IS THE DESIGN DIMENSION: THE QUANTITY OF DECK CONCRETE TO BE PAID FOR SHALL BE BASED UPON THIS DIMENSION, EVEN THOUGH DEVIATION FROM IT MAY BE NECESSARY BECAUSE THE TOP FLANGE OF THE GIRDER MAY NOT HAVE THE EXACT CAMBER OR CONFORMATION REQUIRED TO PLACE IT PARALLEL TO THE FINISHED GRADE. DEDUCTION SHALL BE MADE FOR VOLUME OF ENCASED STEEL PLATES AS PER 511.18.
  - A HAUNCH WIDTH OF 9" SHALL BE USED FOR COMPUTING QUANTITY OF CONCRETE HOWEVER, THE HAUNCH WIDTH MAY VARY BETWEEN 6" AND 12", PROVIDED THAT THE SLOPE SHALL BE NOT MORE THAN 1:4 FOR A HAUNCH LESS THAN 9" WIDTH.
  - BAR MARKS FOR REINFORCING BARS WHICH ARE TO BE EPOXY-COATED INCLUDE A LETTER SUFFIX 'E'.
  - FOR SCUPPER LOCATIONS, SEE SLAB PLANS.
  - FOR FRAMING PLAN, SEE SHEET 21/43.
  - FOR SLAB PLAN, SEE SHEET 29/43.
  - SCUPPERS SHALL BE IN ACCORDANCE WITH STANDARD DRAWING SD-1-69 EXCEPT THAT SCUPPER PIPES SHALL EXTEND 3" BELOW THE BOTTOM OF THE BEAMS INSTEAD OF 2". SCUPPERS SHALL BE LENGTHENED IN ACCORDANCE WITH DETAIL 'A', STANDARD DWG. SD-1-69.
  - WHERE NOT SPECIFIED, FILLET WELD SIZES SHALL BE AS LISTED ON SHEET 21/43.

**ALTERNATE - 2** 19/43

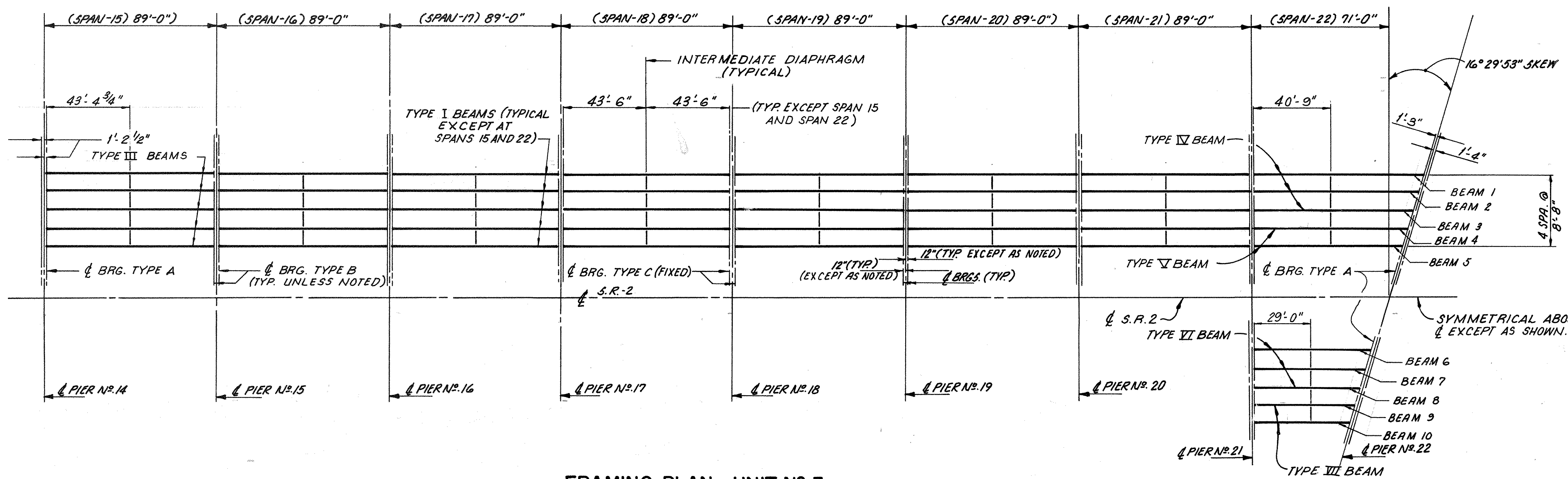
adache - ciuni - lynn associates  
CONSULTING ENGINEERS CLEVELAND, OHIO 44139

**TRANSVERSE SECTION UNIT-4**  
BRIDGE N<sup>o</sup> ERI-2-1911 L/R  
S.R. 2 OVER HURON RIVER  
N. & W. R.R. & RIVER ROAD  
ERIE COUNTY STA. 1233 + 43.75 TO  
ERI-2-18.38 STA. 1259 + 37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
K.L.M.	D.R.J.	I.M.B.	L.E.D.	11/4/85	



**FRAMING PLAN - UNITS NO. 1 & 2**



**FRAMING PLAN - UNIT NO. 3**

**NOTES:**

- FOR DETAILS OF PRESTRESSED CONCRETE BEAMS, SEE SHEETS 24/43 AND 25/43
- FOR BEARING DETAILS, SEE SHEET 26/43
- FOR TRANSVERSE SECTION AND DIAPHRAGM DETAILS, SEE SHEET 18/43

**ALTERNATE - 2** 20/43

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**FRAMING PLAN UNITS 1, 2 & 3**  
 BRIDGE NO. ERI-2-1911 L/R  
 S.R. 2 OVER HURON RIVER  
 N. & W. R.R. & RIVER ROAD

ERIE COUNTY STA. 1233+43.75 TO  
 ERI-2-18.38 STA. 1259+37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	C.A.G.	K.L.M.	L.E.D.	11/4/85	

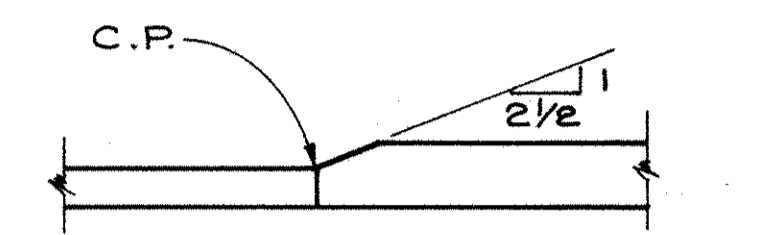
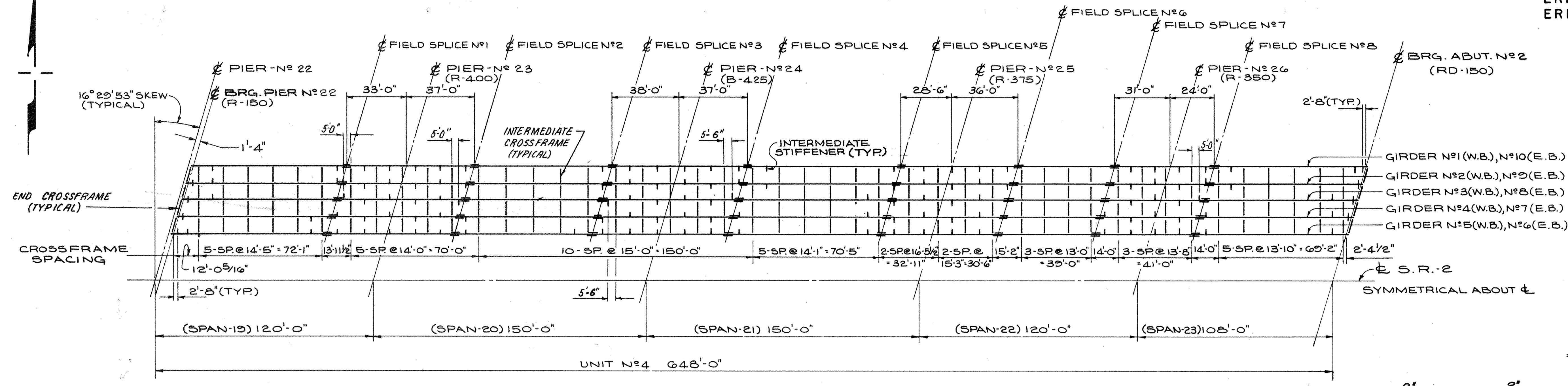


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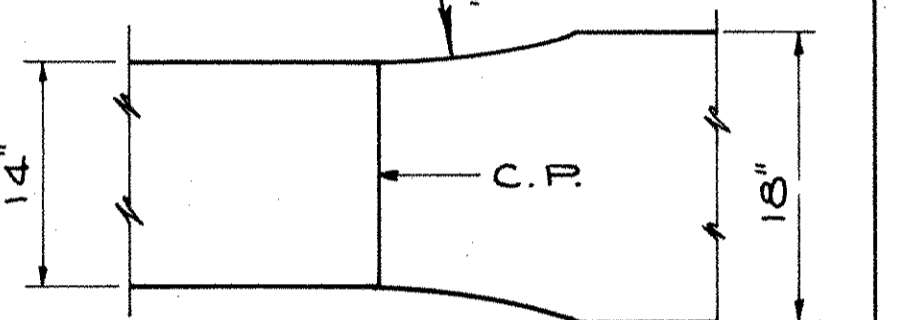
FHWA REGION	STATE	PROJECT
5	OHIO	

216A  
326

ERIE COUNTY  
ERIE-2-18.38



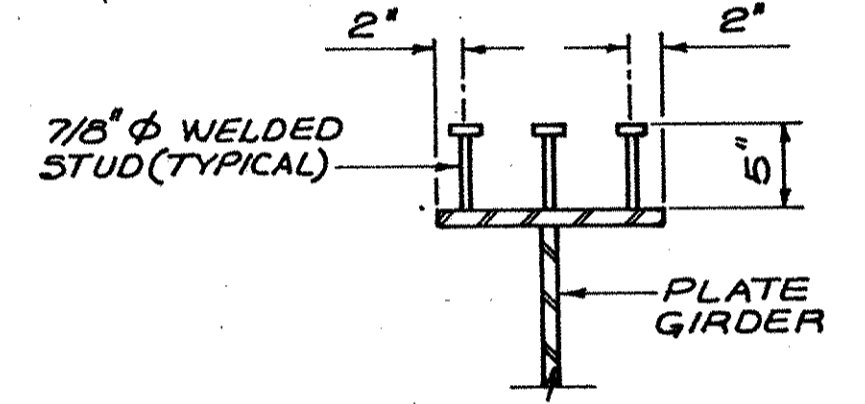
**DETAIL "A"**  
FLANGE THICKNESS TRANSITION AT BUTT WELD



**DETAIL "B"**  
FLANGE WIDTH TRANSITION AT BUTT WELD, EITHER SIDE OF PIERS 23 & 24.

THICKNESS-OF THICKER PART JOINED	MINIMUM SIZE OF FILLET WELD
TO 3/4" INCLUSIVE	1/4"
OVER 3/4" TO 1 1/2"	5/16"
OVER 1 1/2" TO 2 1/4"	3/8"

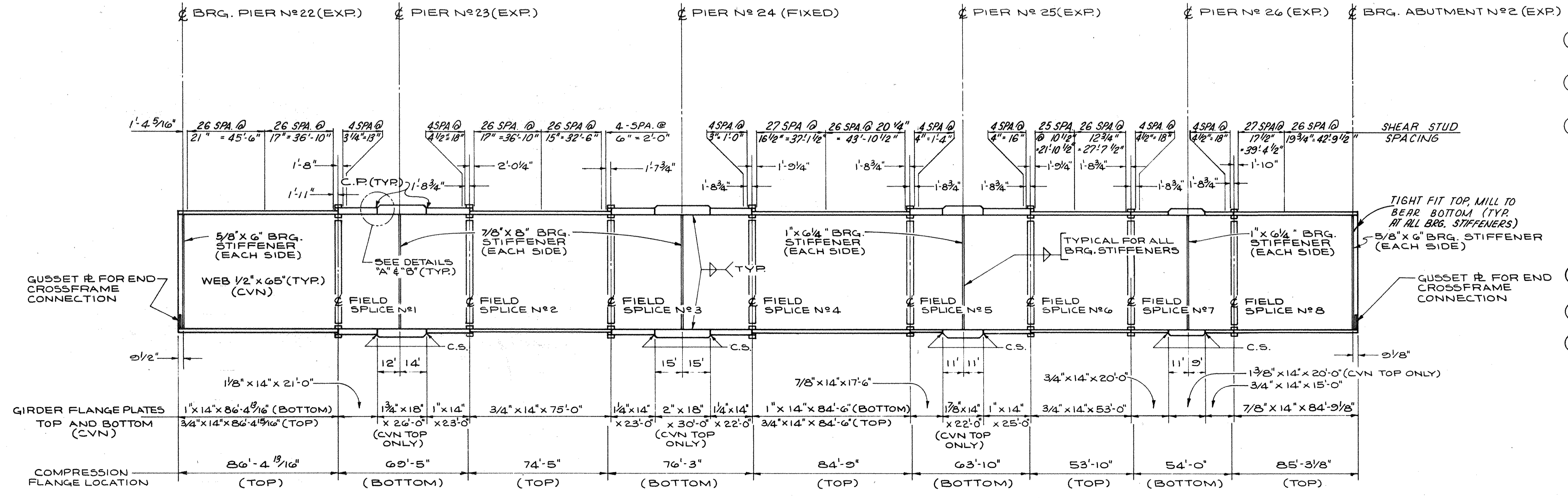
**FRAMING PLAN**



**SHEAR STUD DETAIL**

**NOTES:**

- FOR CAMBER AND DEFLECTION DIAGRAM, SEE SHEET [23/43].
- FOR ADDITIONAL NOTES, SEE SHEET [10/43].
- TRANSVERSE INTERMEDIATE STIFFENERS SHALL BE 3/8" X 5" PLATES. THEY SHALL BE PLACED AT ALL CROSSFRAME LOCATIONS AND AT ADDITIONAL LOCATIONS AS SHOWN ON THE FRAMING PLAN. WHERE DIMENSIONS ARE NOT GIVEN, STIFFENERS SHALL BE SPACED MIDWAY BETWEEN CROSSFRAMES.
- FOR FILLET WELD SIZES AND SHEAR STUD DETAIL, SEE THIS SHEET.
- C.P. INDICATES COMPLETE PENETRATION WELD.
- C.S. INDICATES BUTT WELD SUBJECT TO COMPRESSIVE STRESSES ONLY.



**GIRDER ELEVATION**

ALTERNATE - 2 [21/43]

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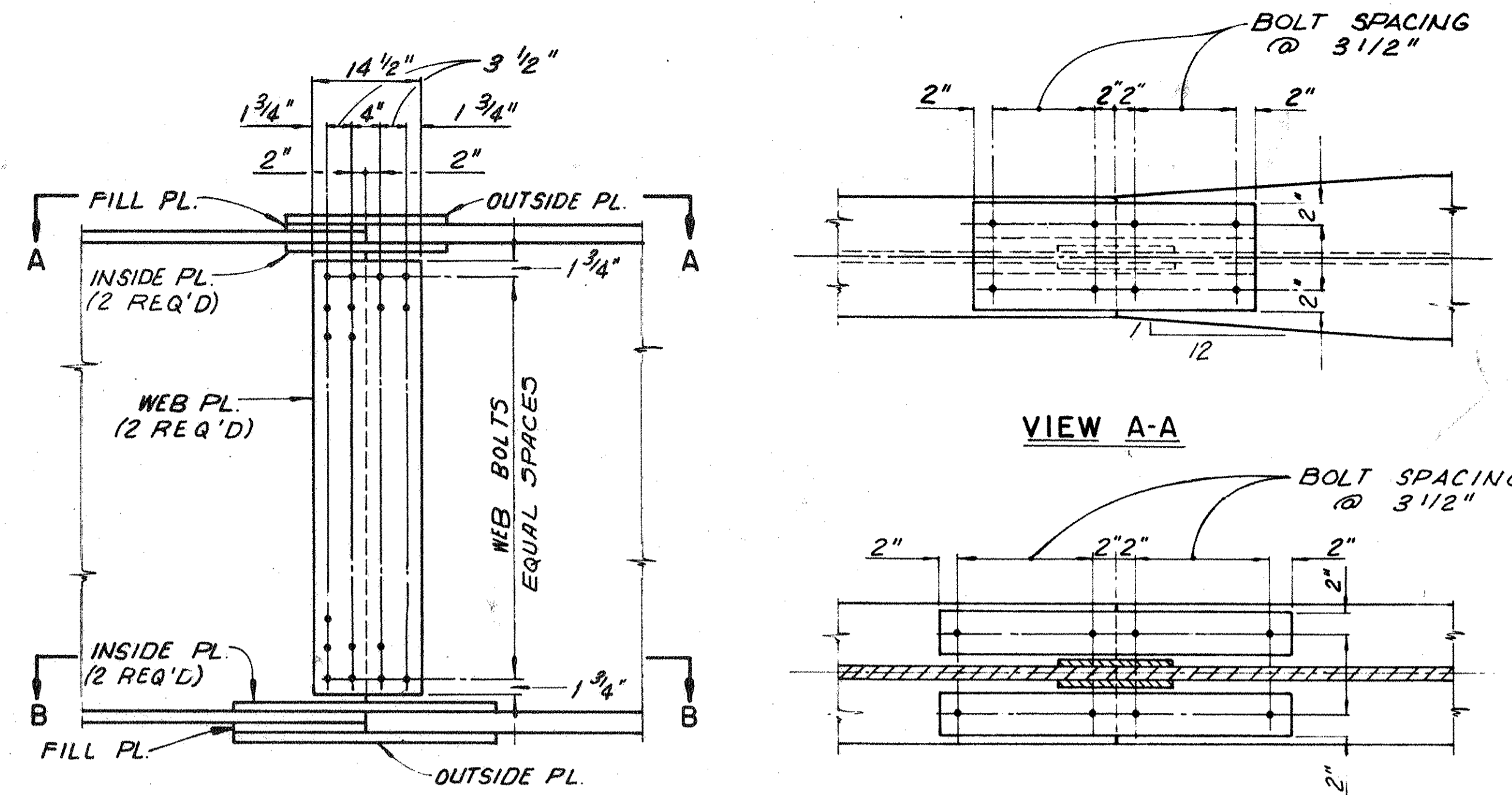
**FRAMING PLAN, UNIT N#4**  
BRIDGE N# 2 - 1911 L/R  
S.R. 2 OVER HURON RIVER  
N. & W. R.R. & RIVER ROAD

ERIE COUNTY STA. 1233 + 43.75 TO  
ERI-2-18.38 STA. 1259 + 37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
E.A.F.	J.D.P.	K.L.M.	L.E.D.	11/4/85	

FEB 4 1985

ERIE COUNTY  
ERI-2-18.38



NOTE:  
FLANGE WIDTH TRANSITION  
TYPICAL TOP AND BOTTOM  
FLANGES.

ELEVATION

SECTION B-B

GIRDER SPLICE DETAILS

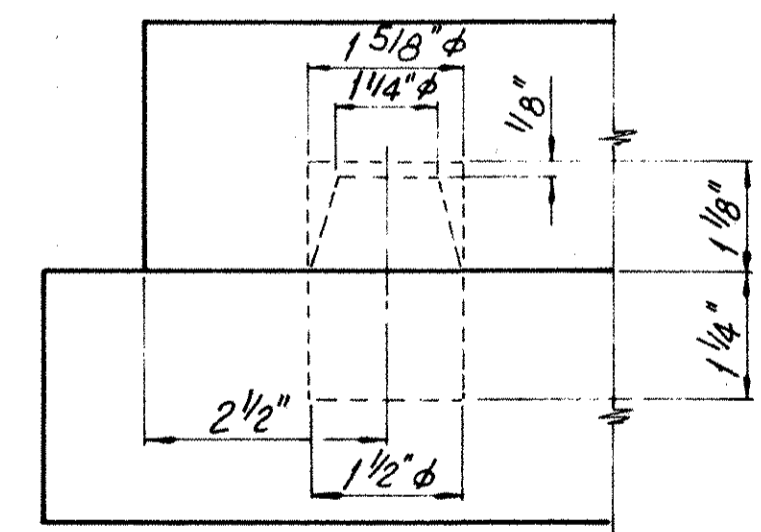
GIRDER SPLICE DATA											
UNIT	LOCATION	WEB SPLICE		TOP FLANGE			BOTTOM FLANGE				
		WEB PLATE	BOLTS	OUTSIDE PLATE	INSIDE PLATE	FILL PLATE	BOLTS	OUTSIDE PLATE	INSIDE PLATE	FILL PLATE	BOLTS
A	GIRDERS 1 THRU 10 SPL. 1	5/16 x 14 1/2 x 5'-3"	72	1/2 x 13 x 3'-0"	1/2 x 6 x 3'-0"	3/8 x 13 x 1'-6"	20	1/2 x 13 x 3'-0"	1/2 x 6 x 3'-0"	3/8 x 13 x 1'-6"	20
	GIRDERS 1 THRU 10 SPL. 2 & 6	"	72	"	"	1/4 x 13 x 1'-6"	20	"	"	1/4 x 13 x 1'-6"	20
	GIRDERS 1 THRU 10 SPL. 3	"	72	"	"	1/2 x 13 x 1'-6"	20	"	"	1/2 x 13 x 1'-6"	20
	GIRDERS 1 THRU 10 SPL. 7	"	72	"	"	"	20	"	"	"	20
	GIRDERS 1 THRU 10 SPL. 4	"	72	"	"	1/2 x 13 x 1'-6"	20	"	"	1/4 x 13 x 1'-6"	20
	GIRDERS 1 THRU 10 SPL. 5	"	72	"	"	3/8 x 13 x 1'-6"	20	"	"	3/8 x 13 x 1'-6"	20
	GIRDERS 1 THRU 10 SPL. 8	"	72	"	"	"	20	"	"	3/8 x 13 x 1'-6"	20

TABLE OF SPECIAL ROCKERS AND BOLSTERS																	
BOLSTER NO.	ROCKER NO.	DIMENSIONS (inches)											WEIGHT EACH (lbs.)		MAX. LOAD		
		A	B	C	D	F	G	H	K	L	M	R	T	Y		BOLSTER	ROCKER
	R-325	4	21	4	3 1/2	3/4	13	20 3/8	15	29	26	13	3 1/4	1 15/16		1240	325,000
B-350	R-350	4	22	4	3 1/2	3/4	14	21 1/8	15	30	27	13 1/2	3 1/2	1 15/16	1170	1385	350,000
	R-375	4	23	4 1/2	3 3/4	7/8	14	22 3/8	16	31	28	14	3 3/4	1 15/16		1585	375,000
B-425	R-400	4 1/2	24	4 1/2	4	7/8	14 1/2	23 1/8	17	33	30	14 1/2	4	2 3/16		1865	400,000
		4 1/2	25	4 1/2	4	7/8	15	23 5/8	17	34	31	15	4	2 3/16	1660		425,000

FOR DETAILS, SEE STANDARD DRAWING RB-1-55.

NOTES:

- ALL SPLICE PLATES EXCEPT FILL PLATES, SHALL MEET SPECIFIED MINIMUM NOTCH TOUGHNESS REQUIREMENTS.
- FOR LOCATIONS OF ROCKERS AND BOLSTERS SEE FRAMING PLANS.
- SEE FRAMING PLANS FOR DETERMINATION OF THOSE SPLICES WHICH REQUIRE A FLANGE WIDTH TRANSITION.
- HIGH STRENGTH BOLTS SHALL BE 1" DIAMETER ASTM A-325, TYPE 3, UNLESS OTHERWISE NOTED.
- BEARINGS: A36 STEEL, GALVANIZED, SHALL BE FURNISHED FOR BEARINGS, EXCEPT FOR UPPER PLATE ELEMENT OF BEARINGS. THIS A36 STEEL SHALL BE INCLUDED WITH THE A588 STEEL QUANTITY FOR PAYMENT.
- A588 STEEL IS TO BE LEFT UNPAINTED. SEE CMS 513.221 FOR CLEANING REQUIREMENTS.



SPECIAL DOWEL DETAIL  
(FOR 'RD' ROCKERS ONLY)

FOR ROADWAY GRADES EXCEEDING 2%, THE UPPER LOAD PLATE OF THE ROCKER OR BOLSTER SHALL BE BEVELED TO MATCH THE ROADWAY GRADE. DIMENSION "C" FROM THE ROCKER AND BOLSTER DETAILS SHALL APPLY AT THE CENTER OF THE PLATE. SEE STD. DWG. RB-1-55 AND THIS SHEET FOR DIMENSION "C".

ALTERNATE-2 22/43

adache ciuni lynn associates  
CONSULTING ENGINEERS CLEVELAND OHIO 44115

**GIRDER DETAILS**  
BRIDGE N° ERI-2-1911 L/R  
S.R. 2 OVER HURON RIVER  
N. & W. R. R. & RIVER ROAD  
ERIE COUNTY STA. 1233 + 43.75 TO  
ERI-2-18.38 STA. 1259 + 37.37

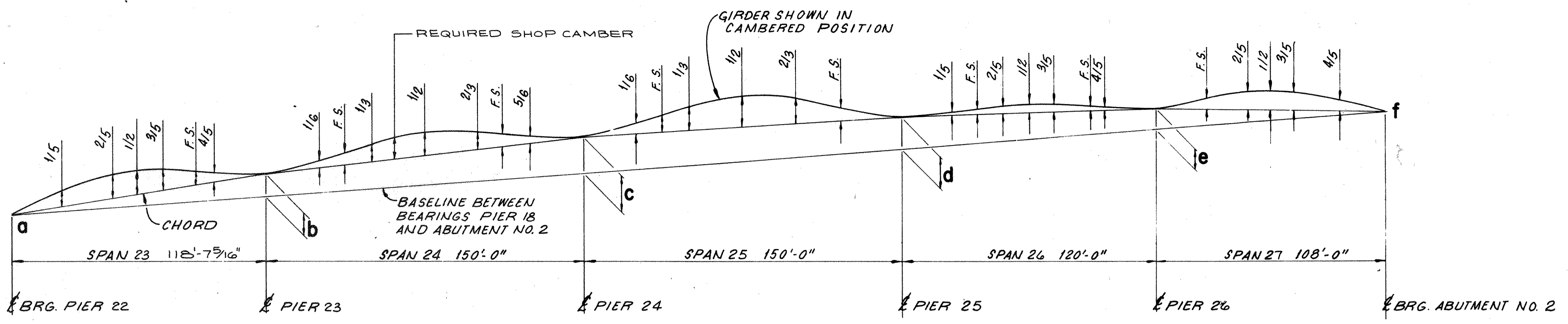
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
K.L.M.	D.R.J.	K.L.M.	E.A.F.	L.E.D. 11/4/85	

FEB 4 1938

FHWA REGION	STATE	PROJECT
5	OHIO	



ERIE COUNTY  
ERI-2-18.38



LAYOUT DIAGRAM

DEFLECTION AND CAMBER (UNIT 4) (INCHES)

	POINTS	SPAN 23							SPAN 24							SPAN 25							SPAN 26							SPAN 27								
		a	1/5	2/5	1/2	3/5	F.S.	4/5	b	1/6	F.S.	1/3	1/2	2/3	F.S.	5/6	c	1/6	F.S.	1/3	1/2	2/3	F.S.	d	1/5	F.S.	2/5	1/2	3/5	F.S.	4/5	e	F.S.	2/5	1/2	3/5	4/5	f
GIRDERS 2 THRU 4 & 7 THRU 9	DEFLECTION DUE TO WEIGHT OF STEEL		1/4	3/8	5/16	5/16	3/16	1/8		1/6	1/8	3/16	1/4	3/16	1/8	1/8		1/8	3/16	5/16	7/16	3/8	3/16		0	0	0	0	0	0	0		1/8	1/4	1/4	1/4	3/16	
	DEFLECTION DUE TO REMAINING DEAD LOAD		1 5/16	1 7/8	1 3/4	1 7/16	7/8	1/2		3/8	3/4	1 1/8	1 9/16	1 1/16	1 1/16	5/16		1 1/16	1 3/16	1 11/16	2 3/8	2	1 1/8		-1/8	0	3/16	1/4	1/4	1/16	0		3/4	1 7/16	1 1/16	1 1/16	1 1/8	
	ADJUSTMENT FOR VERTICAL CURVE		3/8	9/16	5/8	9/16	1/2	3/8		1/2	1 1/16	7/8	1 5/16	7/8	3/4	1/2		1/2	1 1/16	7/8	1 5/16	1 3/16	9/16		3/8	1/2	9/16	5/8	9/16	7/16	3/8		3/8	1/2	1/2	1/2	5/16	
	REQUIRED SHOP CAMBER		1 15/16	2 13/16	2 11/16	2 5/16	1 9/16	1		1 5/16	1 9/16	2 3/16	2 3/4	2 1/8	1 9/16	7/8		1 5/16	2 1/16	2 3/8	3 3/4	3 3/16	1 7/8		1/4	1/2	3/4	7/8	1 3/16	1/2	3/8		1/4	2 3/16	2 7/16	2 7/16	1 5/8	
	ORDINATE BETWEEN CHORD AND BASELINE	0							10 5/8"								1 5 3/16"																					
GIRDERS 1, 5, 6 & 10	DEFLECTION DUE TO WEIGHT OF STEEL		1/4	3/8	5/16	5/16	3/16	1/8		1/6	1/8	3/16	1/4	3/16	1/8	1/16		1/8	3/16	5/16	7/16	3/8	3/16		0	0	0	0	0	0	0		1/8	1/4	1/4	1/4	3/16	
	DEFLECTION DUE TO REMAINING DEAD LOAD		1 1/16	1 1/2	1 7/16	1 3/16	1 1/16	7/16		5/16	5/8	1 5/16	1 5/16	7/8	9/16	1/4		9/16	1	1 3/8	1 15/16	1 5/8	7/8		-1/8	0	3/16	3/16	3/16	1/16	0		5/8	1 3/16	1 3/8	1 3/8	1 5/16	
	ADJUSTMENT FOR VERTICAL CURVE		3/8	9/16	5/8	9/16	1/2	3/8		1/2	1 1/16	7/8	1 5/16	7/8	3/4	1/2		1/2	1 1/16	7/8	1 5/16	1 3/16	5/8		3/8	1/2	9/16	5/8	5/8	7/16	3/8		5/16	7/16	1/2	1/2	5/16	
	REQUIRED SHOP CAMBER		1 11/16	2 7/16	2 3/8	2 1/16	1 3/8	1 5/16		7/8	1 7/16	2	2 1/2	1 15/16	1 7/16	1 9/16		1 7/16	1 7/8	2 9/16	3 5/16	2 13/16	1 11/16		1/4	1/2	3/4	1 3/16	1 3/16	1/2	3/8		1 1/16	1 7/8	2 3/8	2 3/8	1 7/16	
	ORDINATE BETWEEN CHORD AND BASELINE	0							10 5/8"								1 5 3/16"																					

NOTES

NEGATIVE VALUES OF CAMBER INDICATE THE DIMENSION IS BELOW THE CHORD BETWEEN ADJACENT BEARINGS.

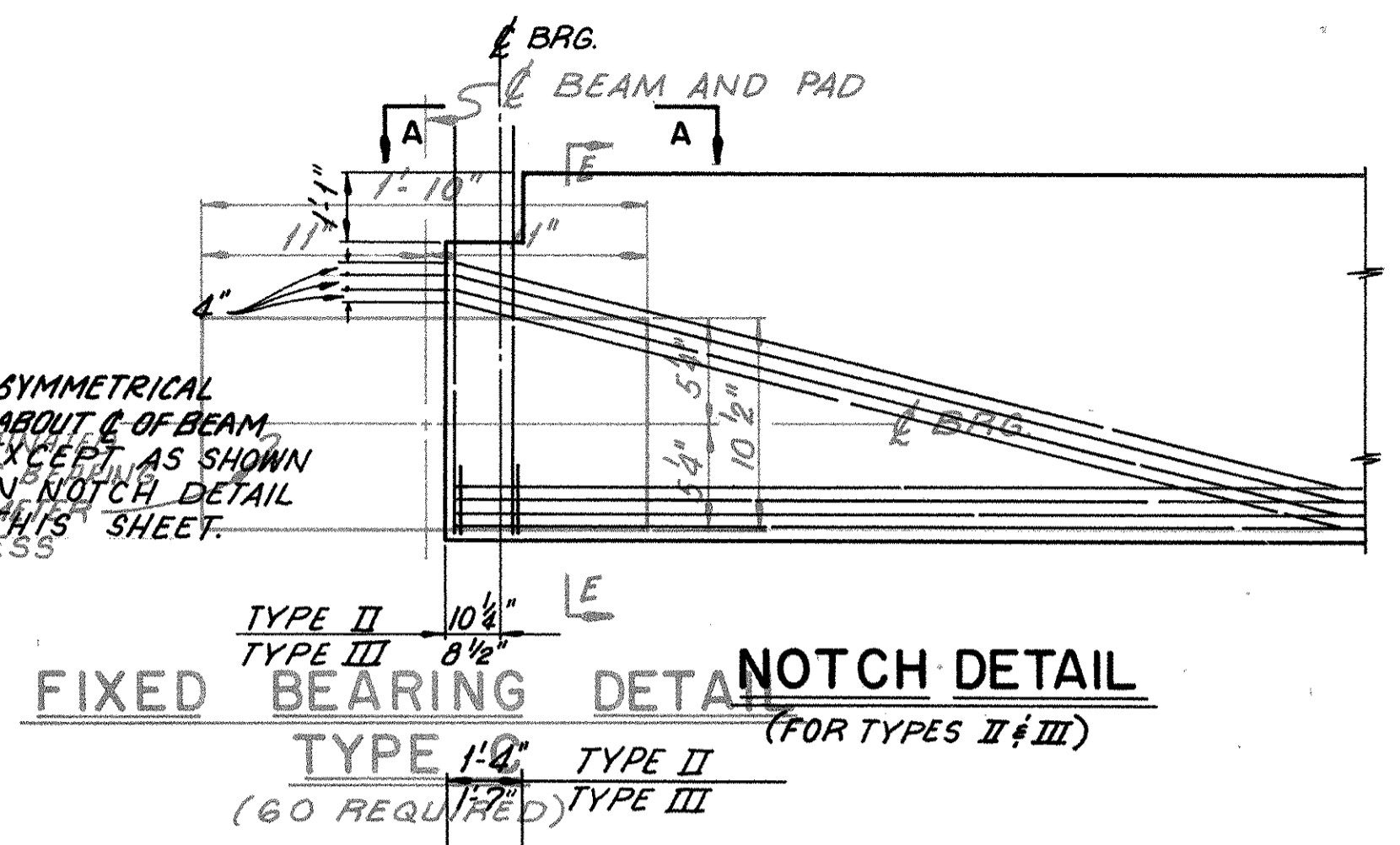
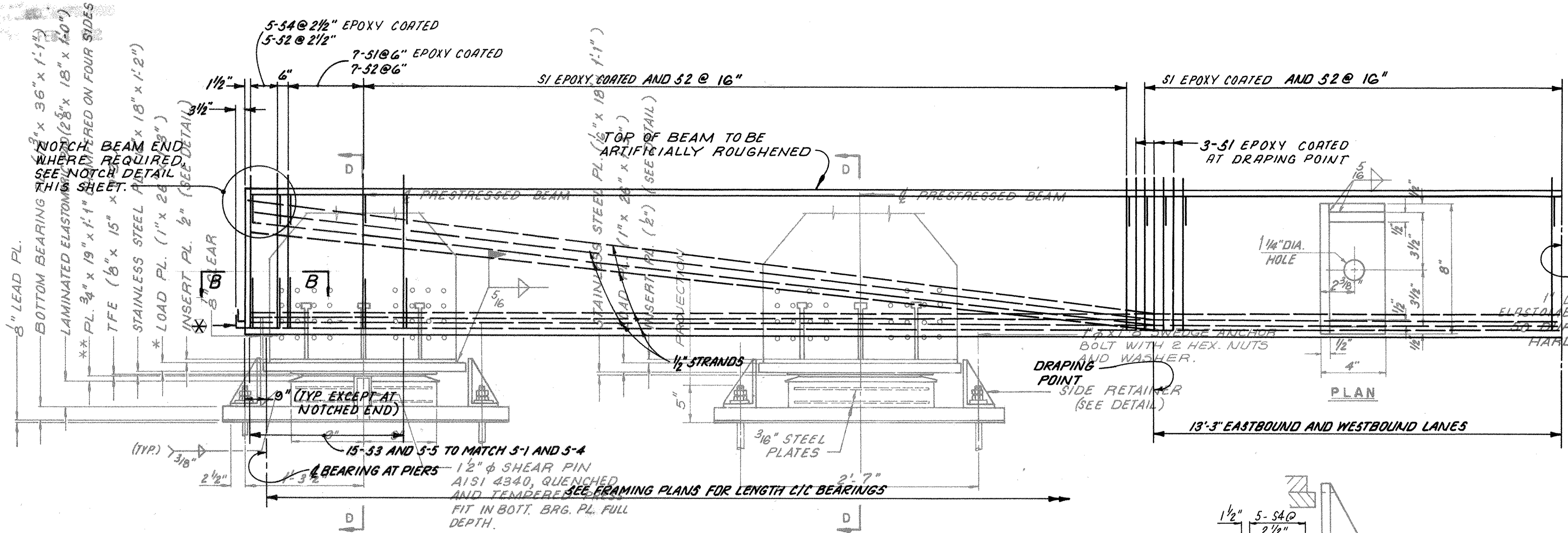
ALTERNATE - 2 23/43

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CONSULTING ENGINEERS CLEVELAND, OHIO 44130

**DEFL. AND CAMBER (UNIT-4)**  
BRIDGE NO. ERI-2-19.11 L/R  
S.R. 2 OVER HURON RIVER  
N. & W. R.R. & RIVER ROAD  
ERIE COUNTY STA 1233 + 43.75 TO  
ERI-2-18.38 STA. 1259 + 37.37

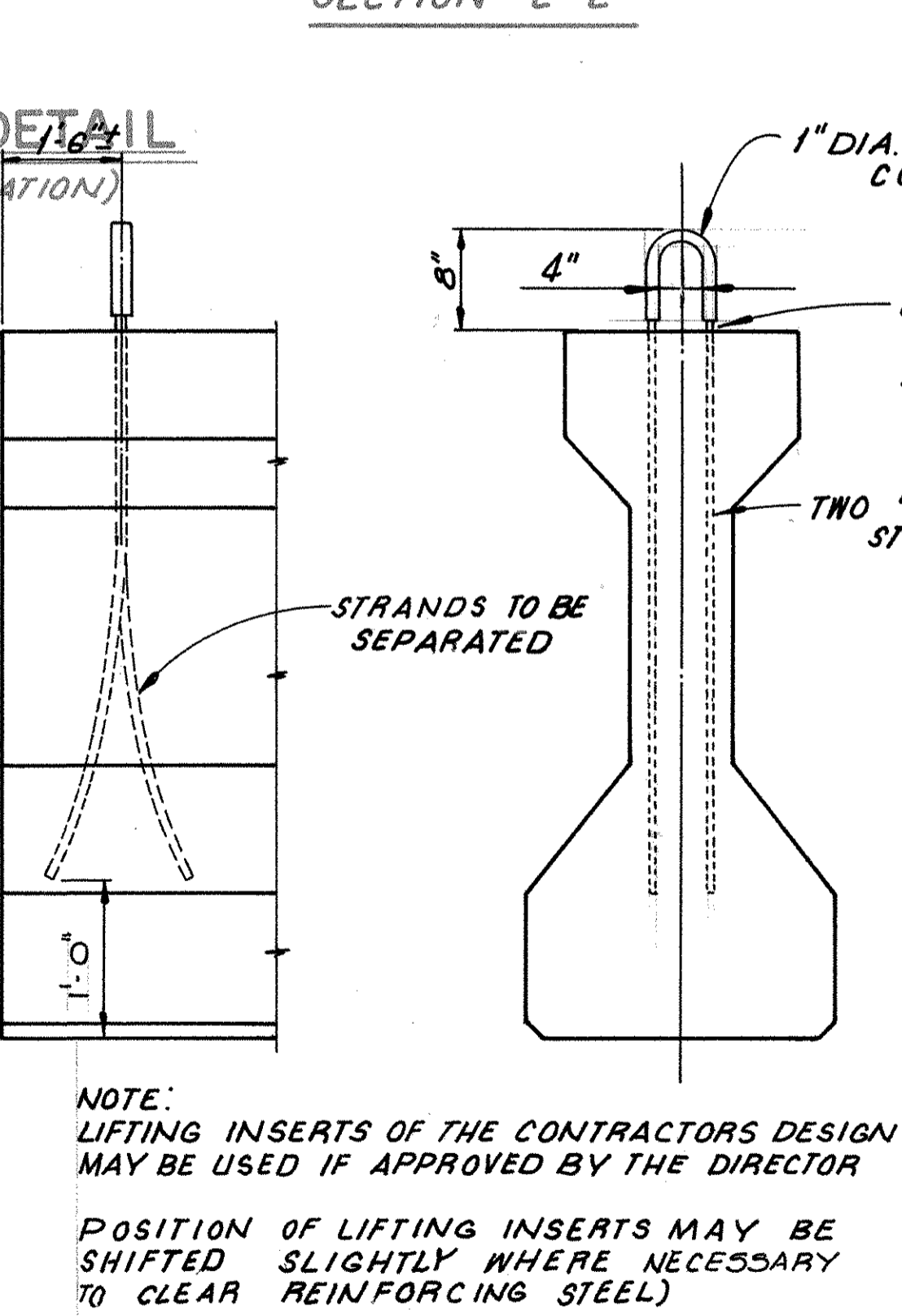
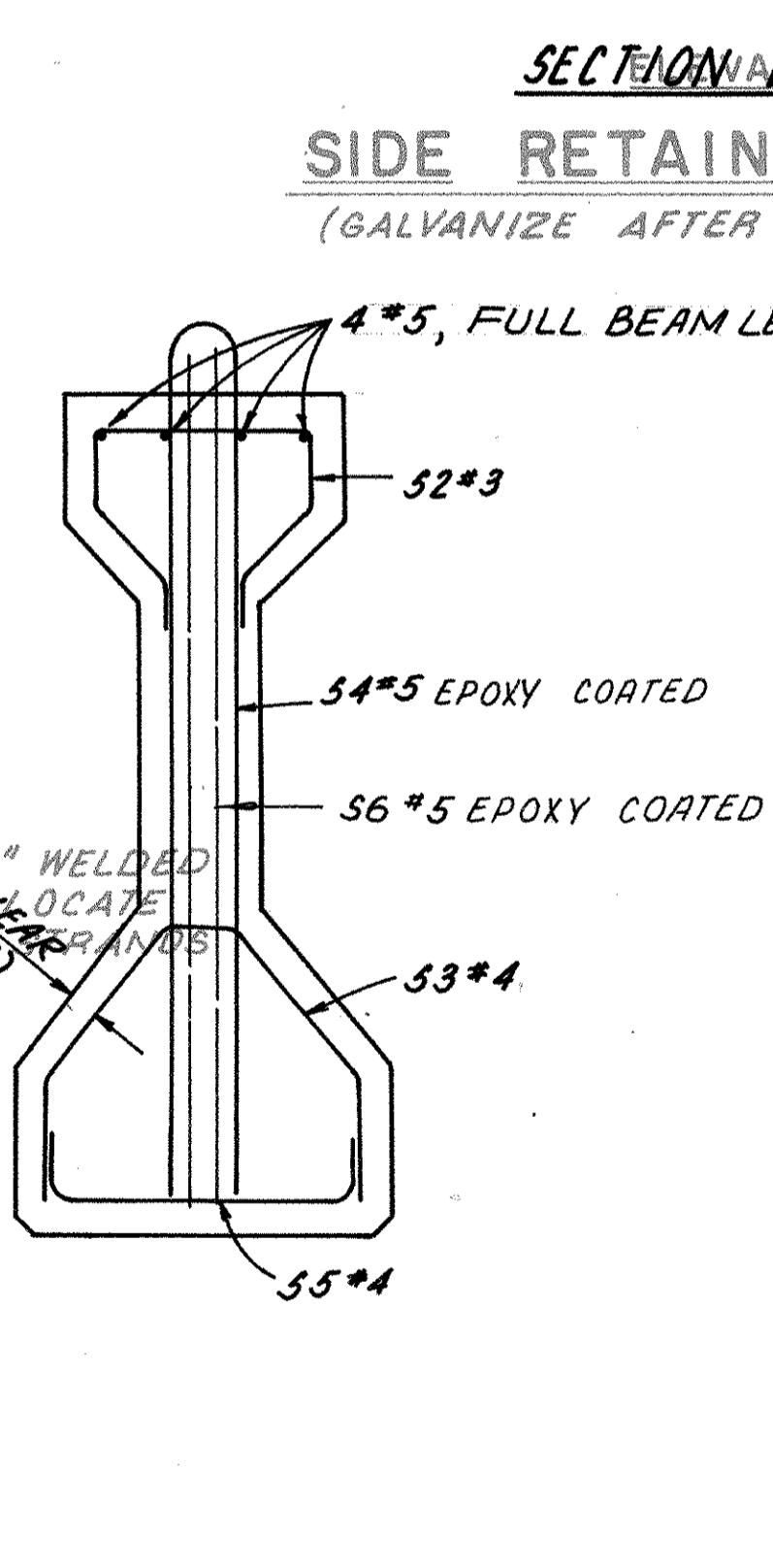
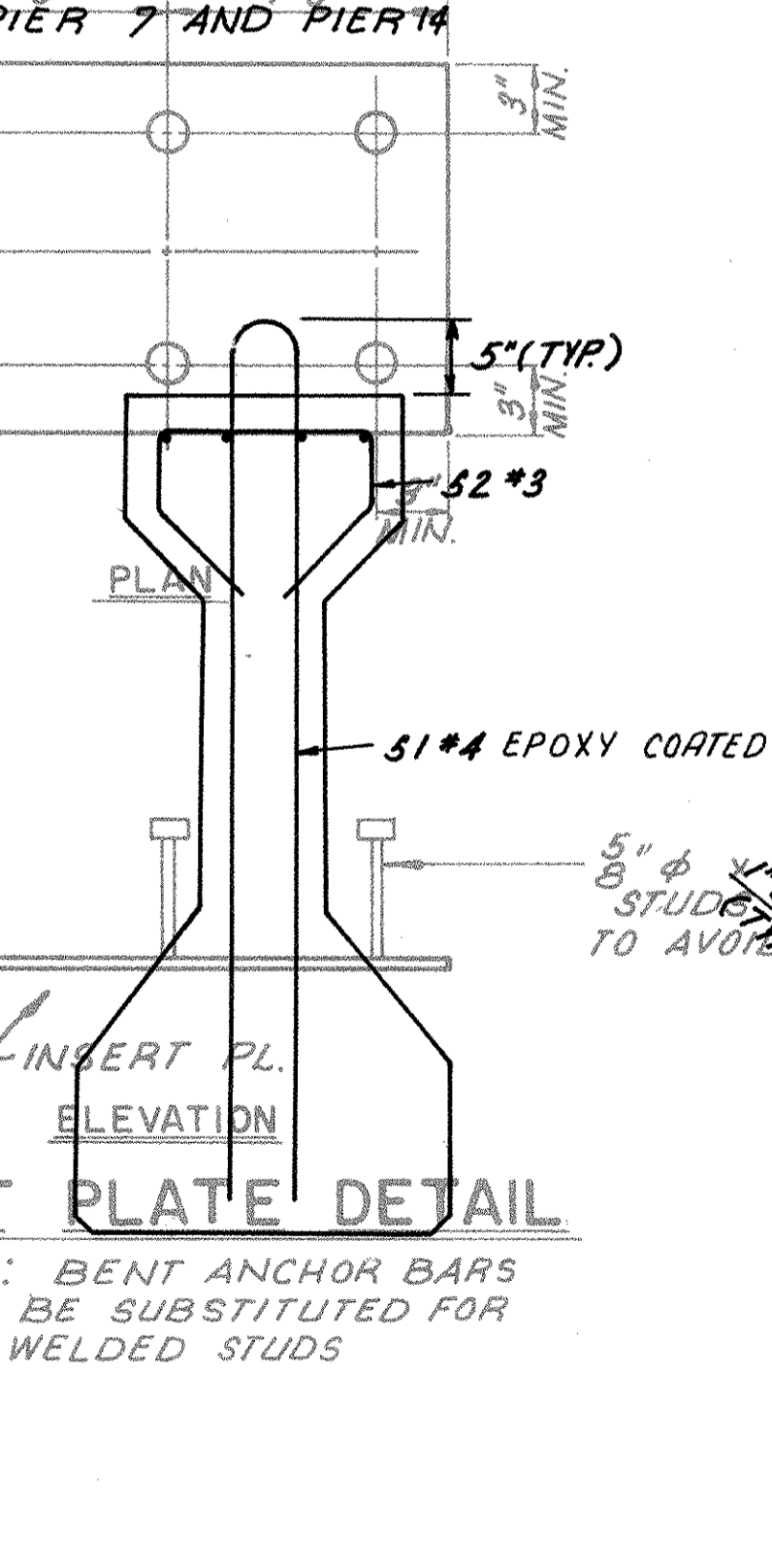
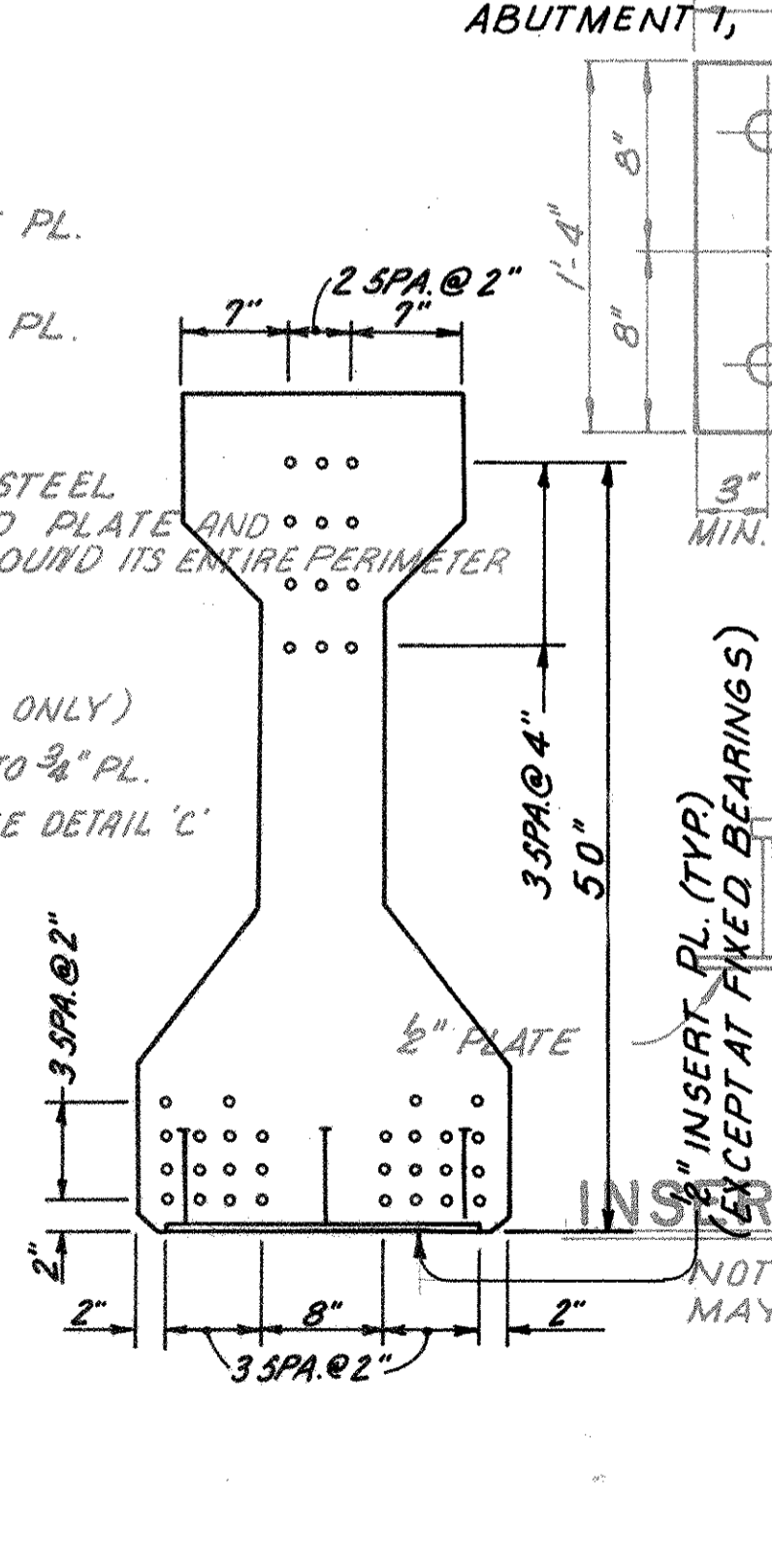
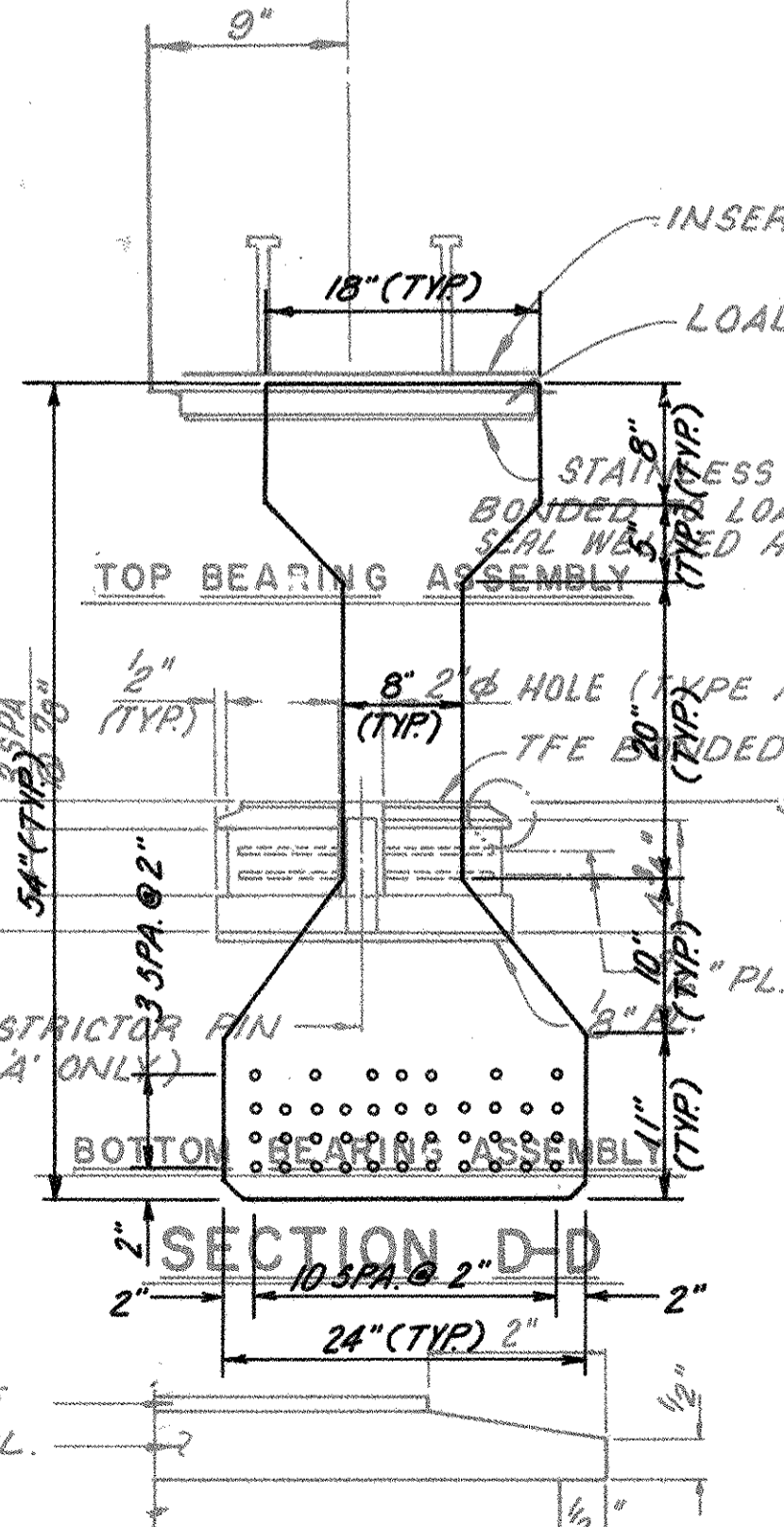
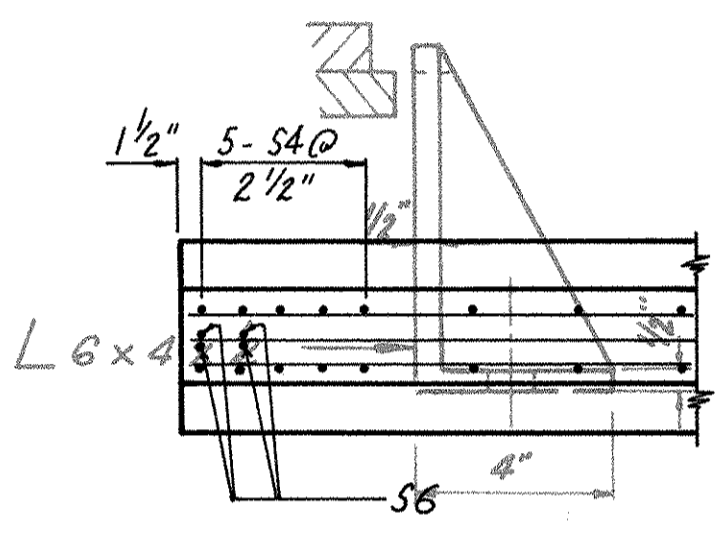
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
K.L.M.	D.R.J.	K.L.M.	E.A.F.	L.E.D. 11/4/85	





NOTE: ALL SHEAR CONNECTORS ARE EPOXY COATED AS SHOWN BELOW

BEARING DETAIL TYPE B  
 (FORM, SEE TYPE A)  
 BEAM ELEVATION  
 TYPE I SHOWN  
 TYPES II AND III SIMILAR EXCEPT AS SHOWN IN NOTCH DETAIL FOR ABUTMENT, PIER 7 AND PIER 14



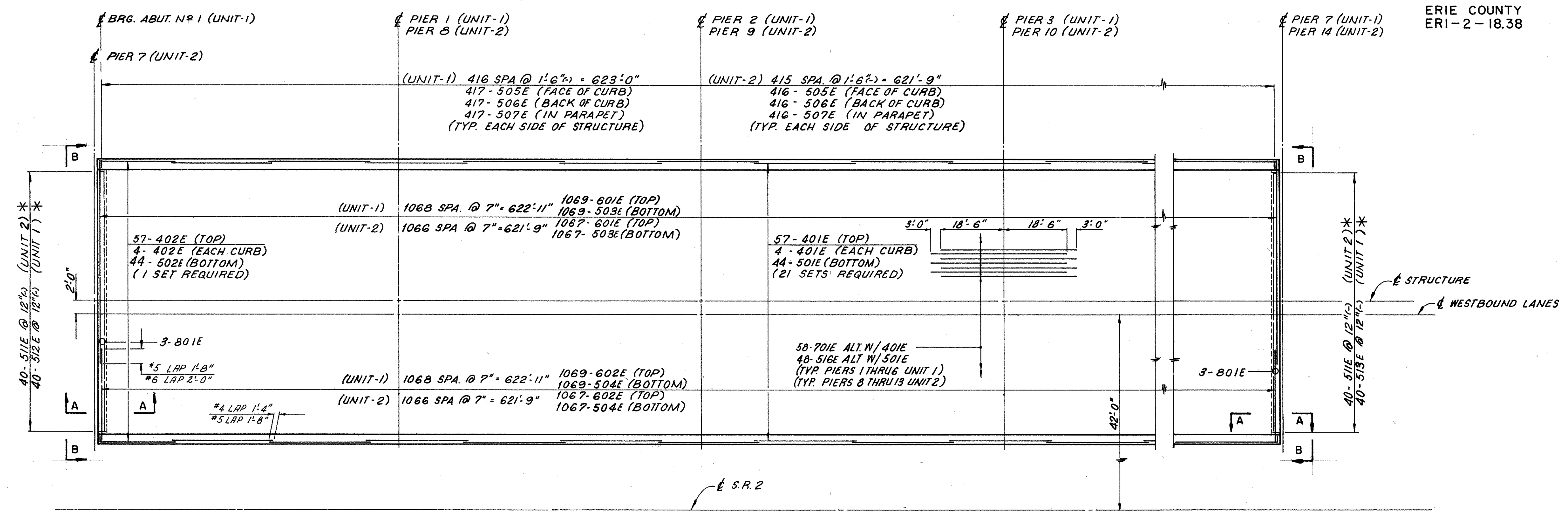
ALTERNATE - 22 25/43  
 edache - ciuni - lynn associates  
 CONSULTING ENGINEERS CLEVELAND, OHIO 44131  
 SUPERSTRUCTURE DETAILS  
 PRESTRESSED BEAMS  
 BRIDGE NO. ERI-2-19 HOLLAND RIVER  
 S.R. 2 OVER HURON RIVER  
 N. & W. R.R. & RIVER ROAD  
 ERIE COUNTY STA. 1233+43.75 TO STA. 1259+27.37  
 DESIGNED DRAWN CHECKED REVIEWED DATE REVISION  
 I.M.B. C.A.G. I.M.B. K.L.M. L.E.D. 11/4/66

RECEIVED  
FEB 4 1982

CALC.	DATE	OHIO
CHKD.	DATE	F.H.W.A. REGION
DATE		

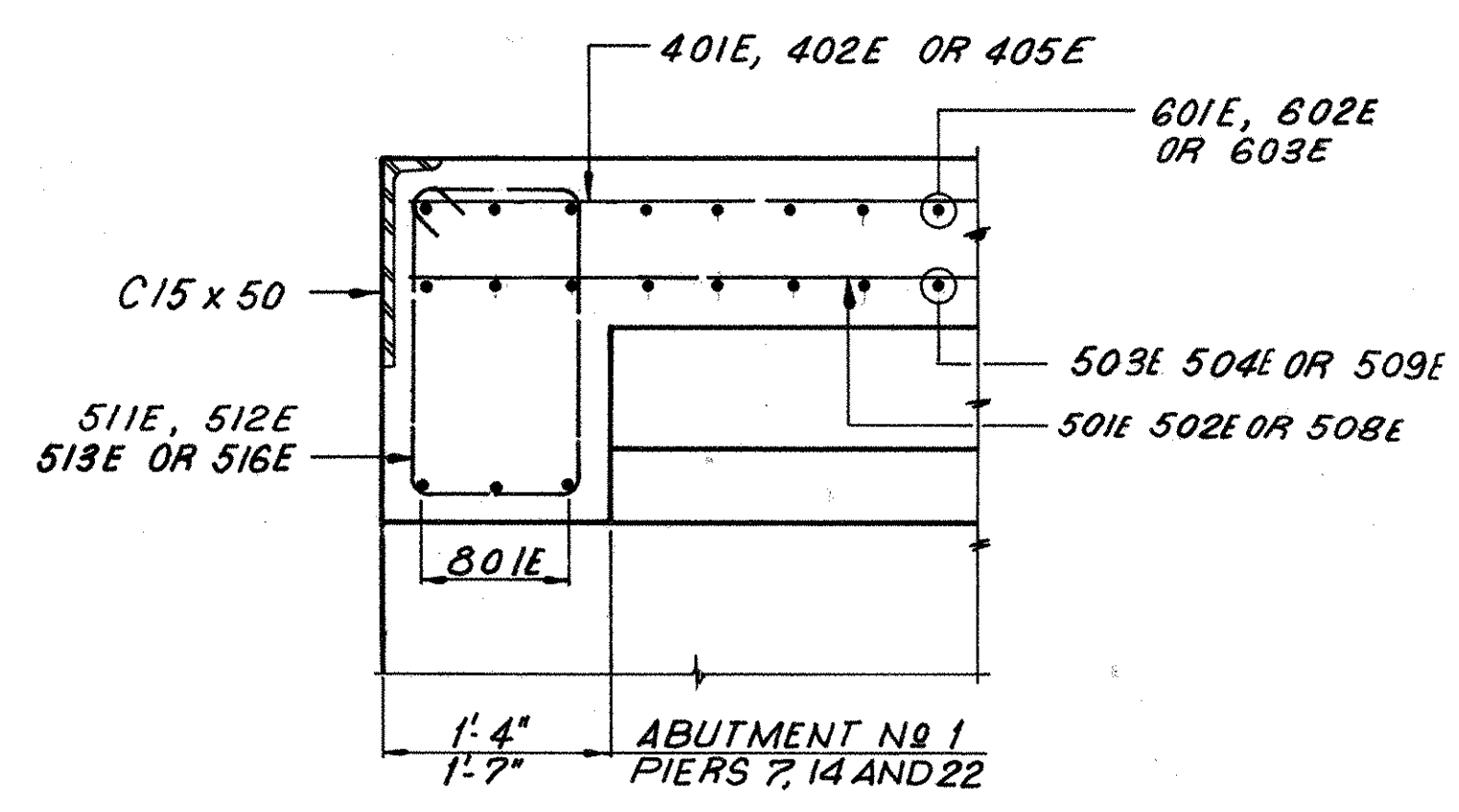
(216)  
326

ERIE COUNTY  
ERI-2-18.38



SCUPPER LOCATION TABLE	
STA. 1233+51.00	STA. 1239+80.00
STA. 1233+56.00	STA. 1239+85.00
STA. 1235+51.00	STA. 1241+74.00
STA. 1235+56.00	STA. 1241+79.00
STA. 1237+58.00	STA. 1243+81.00
STA. 1237+63.00	STA. 1243+86.00

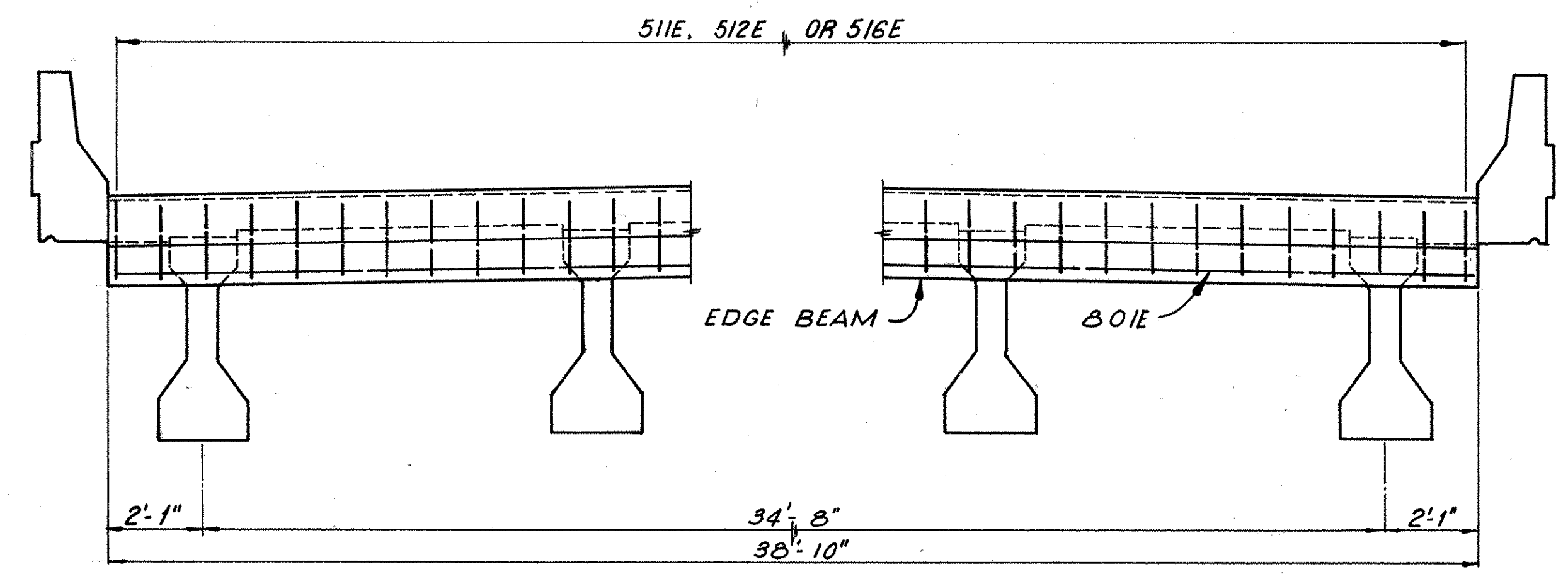
A SCUPPER SHALL BE PLACED IN EACH GUTTER AT EACH OF THE ABOVE STATIONS IN EASTBOUND AND WESTBOUND STRUCTURES



SECTION A-A

**DECK SLAB PLAN, UNITS 1&2**

WESTBOUND STRUCTURE SHOWN  
EASTBOUND STRUCTURE SIMILAR



PARTIAL VIEW B-B

**NOTES:**

- FOR EXPANSION JOINT DETAILS, SEE SHEETS 32/43 THRU 33/43.
- FOR REINFORCING SCHEDULE, SEE SHEET 41/43 & 42/43.
- FOR TRANSVERSE SECTION, SEE SHEET 18/43.
- FOR SLAB DEPTH AND CAMBER TABLE, SEE SHEET 28/43.
- FOR PARAPET ELEVATION, SEE SHEET 31/43.
- BAR MARKS FOR REINFORCING STEEL WHICH ARE TO BE EPOXY COATED INCLUDE A LETTER SUFFIX -E.
- FOR ADDITIONAL NOTES, SEE SHEET 29/43.

\* SPACE THESE BARS TO MISS ALL PLATES AND SUPPORT BAR BOXES.

ALTERNATE - 2 27/43

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CONSULTING ENGINEERS CLEVELAND, OHIO 44131

**DECK SLAB PLAN, UNITS-1&2**  
BRIDGE N° ERI-2-1911 L/R  
S.R. 2 OVER HURON RIVER  
N. & W. R. R. & RIVER ROAD

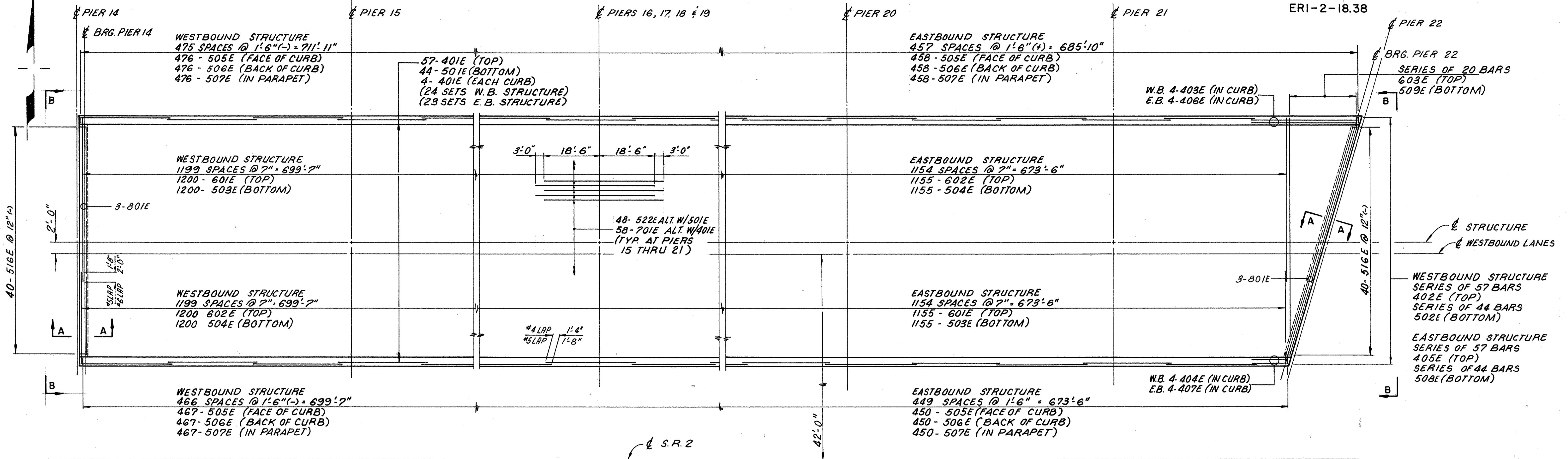
ERIE COUNTY STA. 1233+43.75 TO  
ERI-2-18.38 STA. 1259+37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
K.L.M.	D.R.J.	I.M.B.	L.E.D.	11/4/85	

FEB 4 1985

CALC.	DATE	OHIO	216W 376
CHKD.	DATE	F.H.W.A.	
DATE	DATE	REGION 5	

ERIE COUNTY  
ERI-2-18.38



**DECK SLAB PLAN**

WESTBOUND STRUCTURE SHOWN  
EASTBOUND STRUCTURE SIMILAR  
EXCEPT AS SHOWN

STA. 1246+03
STA. 1246+08
STA. 1246+13 *
STA. 1248+21
STA. 1248+26
STA. 1250+52
STA. 1250+57

NOTE: A SCUPPER SHALL BE PLACED IN EACH GUTTER FOR EASTBOUND AND WESTBOUND STRUCTURES AT EACH OF THE ABOVE STATIONS, EXCEPT AS DENOTED BY ASTERISK \*

\* DENOTES SCUPPER PLACED ON NORTH GUTTER OF W.B. STRUCTURE AND SOUTH GUTTER OF E.B. STRUCTURE.

SPAN	BEAM	A	B	C
1-6	1-10	3 5/8"	11 3/8"	9 1/4"
7	1-10		11 13/16"	
8-12	1-10		11 13/16"	
13	1-10		11 13/16"	
14-17	1-10		11 3/8"	
18	1-10		11 5/16"	
19-21	1-10	3 5/8"	11 1/16"	
22	1	3 5/8"	11 3/16"	
	2	3 7/16"	11 3/16"	
	3	3 3/8"	11 1/4"	
	4	2 11/16"	10 11/16"	
	5	2 11/16"	10 7/8"	
	6	1 3/4"	10 1/2"	
	7	1 11/16"	10 1/2"	
	8	1 5/8"	10 1/2"	
	9	1 3/8"	10 5/16"	
	10	1 5/16"	10 5/16"	9 1/4"

A = ANTICIPATED TOTAL CAMBER IN BEAM  
B = SLAB DEPTH AT BEAM BEARINGS (TOP OF SLAB TO TOP OF BEAM)  
C = SLAB DEPTH AT MIDSPAN.

**NOTES:**

FOR SECTION A-A, SEE SHEET 27/43.  
FOR ADDITIONAL NOTES, SEE SHEET 27/43.  
FOR VIEW B-B, SEE SHEET 27/43.

ALTERNATE - 2 28/43

adache - ciuni - lynn associates  
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

**DECK SLAB PLAN, UNIT-3**  
BRIDGE N<sup>o</sup> ERI-2-1911 L/R  
S.R. 2 OVER HURON RIVER  
N. & W. R. R. & RIVER ROAD

ERIE COUNTY STA. 1233+43.75 TO  
ERI-2-18.38 STA. 1259+37.37

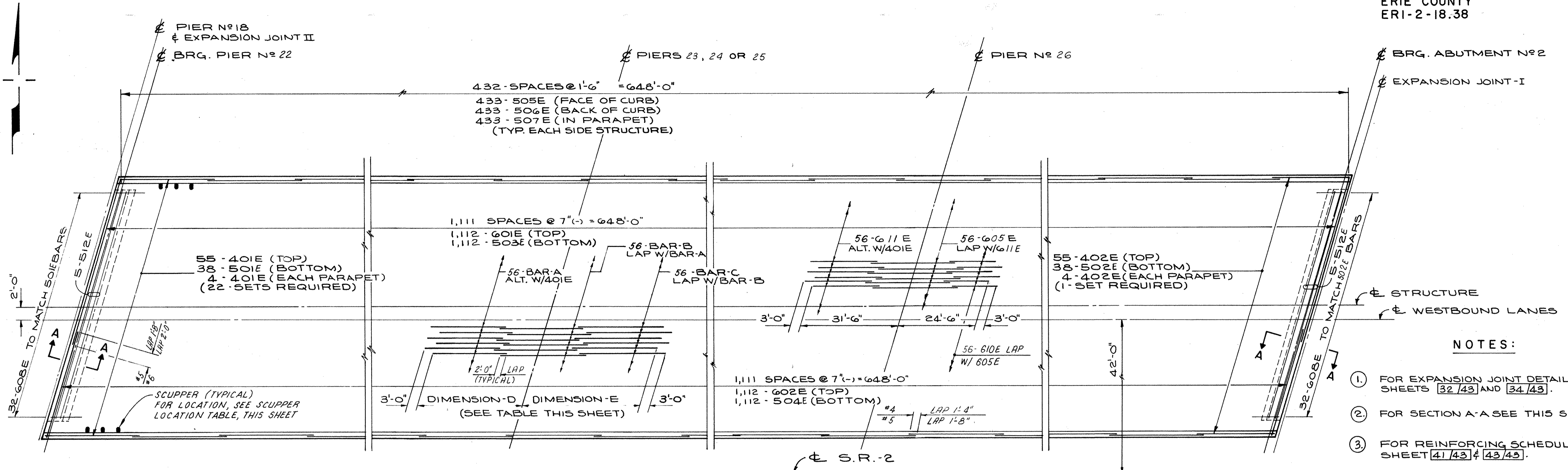
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
K.L.M.	D.R.J.	I.M.B.	L.E.D.	11/4/85	

FEB 4 '85

FHWA REGION	STATE	PROJECT
5	OHIO	

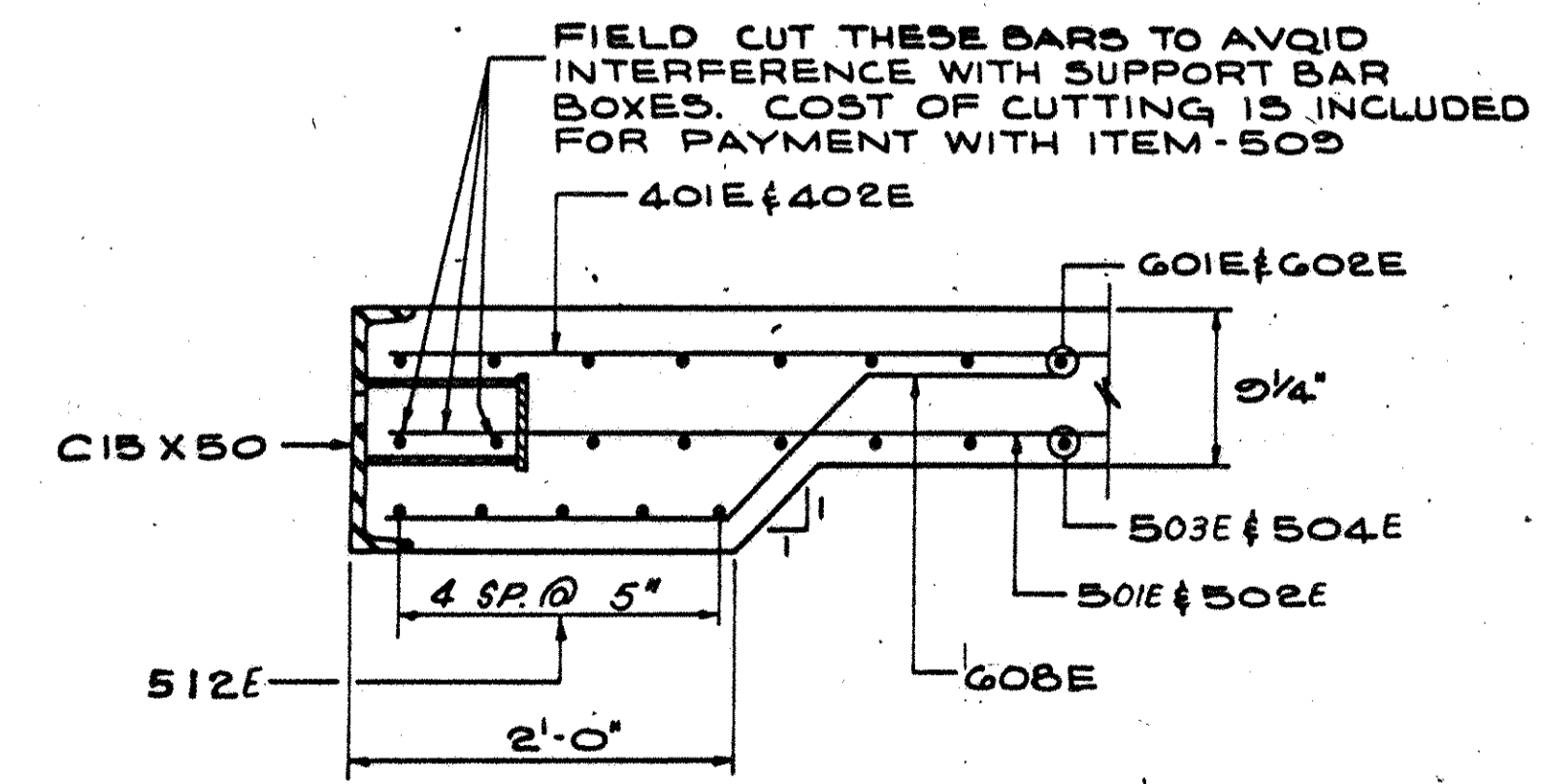
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ERIE COUNTY  
ERI-2-18.38



**DECK SLAB PLAN**  
WESTBOUND STRUCTURE SHOWN,  
EASTBOUND STRUCTURE SIMILAR

- NOTES:**
- FOR EXPANSION JOINT DETAILS SEE SHEETS [32/43] AND [34/43].
  - FOR SECTION A-A SEE THIS SHEET.
  - FOR REINFORCING SCHEDULE, SEE SHEET [41/43] & [43/43].
  - FOR TRANSVERSE SECTION, SEE SHEET [19/43].
  - FOR PAVEMENT ELEVATIONS, SEE SHEET [30/43].
  - ALL STAGGERED BARS OVER PIERS TO RUN FULL WIDTH OF BRIDGE DECK.
  - BAR MARKS FOR REINFORCING BARS WHICH ARE TO BE EPOXY-COATED INCLUDE A LETTER SUFFIX - "E".
  - THE PREFIX "-45" SHALL BE ADDED TO ALL REINFORCING BAR MARKS IN THE SUPERSTRUCTURE OF UNIT 4.
  - FOR PARAPET DETAILS, SEE SHEET [31/43].
  - ADJUST SPACING OF 507E BARS TO CLEAR PARAPET JOINTS.
  - TYPICAL LAPS:  
# 4 BAR = 1'-4"  
# 5 BAR = 1'-8"  
# 6 BAR = 2'-0"



**SECTION A-A**

SCUPPER LOCATION TABLE			
EASTBOUND LANES		WESTBOUND LANES	
NORTH GUTTER	SOUTH GUTTER	NORTH GUTTER	SOUTH GUTTER
STA. 1252+97.50	STA. 1252+93.00	STA. 1253+23.50	STA. 1253+09.00
STA. 1253+02.50	STA. 1252+98.00	STA. 1253+28.50	STA. 1253+14.00
	STA. 1253+03.50	STA. 1253+33.50	
STA. 1254+95.00	STA. 1254+80.00	STA. 1255+21.00	STA. 1255+06.00
STA. 1255+00.00	STA. 1254+85.00	STA. 1255+26.00	STA. 1255+11.00
STA. 1257+11.00	STA. 1256+96.00	STA. 1257+37.00	STA. 1257+22.00
STA. 1257+16.00	STA. 1257+01.00	STA. 1257+42.00	STA. 1257+27.00

STAGGERED BARS OVER PIERS					
PIER NO	BAR-A	BAR-B	BAR-C	DIM.-D	DIM.-E
23	603E	605E	604E	34'-0"	37'-6"
24	605E	605E	606E	42'-8"	38'-0"
25	607E	605E	609E	29'-2"	36'-8"

ALTERNATE - 2 [29/43]

adache - ciuni - lynn associates  
CONSULTING ENGINEERS CLEVELAND, OHIO 44130

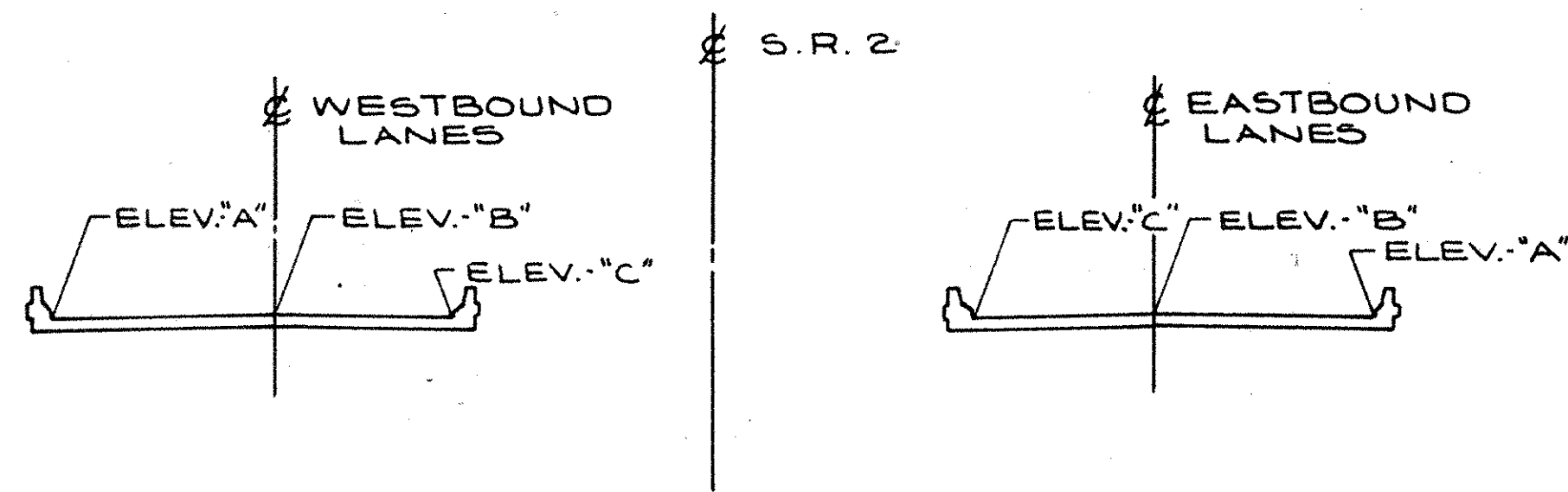
**DECK SLAB PLAN, UNIT - 4**  
BRIDGE NO ERI-2-1911 L/R  
S.R. 2 OVER HURON RIVER  
N. & W. R.R. & RIVER ROAD  
ERIE COUNTY STA. 1233+43.75 TO  
ERI-2-18.38 STA. 1259+37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
K.L.M.	J.D.P.	K.L.M.	I.M.B.	L.E.D. 11/4/85	



UNIT N<sup>o</sup> 4

LOCATION	W. B. STRUCTURE			E. B. STRUCTURE		
	ELEV. "A"	ELEV. "B"	ELEV. "C"	ELEV. "C"	ELEV. "B"	ELEV. "A"
⊕ PIER N <sup>o</sup> 18	—	—	—	623.07	623.23	622.77
1252+75	—	—	—	—	623.23	622.92
⊕ PIER N <sup>o</sup> 18	623.50	623.71	623.33	—	—	—
1253+00	—	623.71	623.46	623.51	623.82	623.48
1253+25	623.90	624.28	624.00	624.02	624.32	623.95
1253+50	624.40	624.76	624.46	624.44	624.72	624.35
1253+75	624.80	625.14	624.84	624.80	625.07	624.71
⊕ PIER N <sup>o</sup> 19	—	—	—	625.16	625.35	624.91
1254+00	625.15	625.47	625.19	625.17	625.45	625.11
⊕ PIER N <sup>o</sup> 19	625.50	625.74	625.39	—	—	—
1254+25	625.50	625.84	625.57	625.59	625.88	625.55
1254+50	625.90	626.25	625.99	626.02	626.32	625.97
1254+75	626.31	626.67	626.39	626.40	626.69	626.32
1255+00	626.67	627.03	626.73	626.70	626.98	626.61
1255+25	626.96	627.30	627.00	626.97	627.24	626.89
⊕ PIER N <sup>o</sup> 20	—	—	—	627.24	627.45	627.04
1255+50	627.21	627.54	627.26	627.25	627.53	627.21
⊕ PIER N <sup>o</sup> 20	627.48	627.74	627.41	—	—	—
1255+75	627.47	627.82	627.55	627.58	627.88	627.55
1256+00	627.79	628.15	627.88	627.92	628.24	627.89
1256+25	628.11	628.49	628.20	628.21	628.52	628.15
1256+50	628.38	628.75	628.44	628.42	628.71	628.33
1256+75	628.57	628.92	628.61	628.56	628.83	628.47
⊕ PIER N <sup>o</sup> 21	—	—	—	628.69	628.92	628.54
1257+00	628.70	629.02	628.73	628.70	628.96	628.63
⊕ PIER N <sup>o</sup> 21	628.82	629.11	628.80	—	—	—
1257+25	628.82	629.14	628.87	628.87	629.15	628.82
1257+50	628.97	629.31	629.04	629.05	629.33	628.99
1257+75	629.13	629.47	629.20	629.20	629.47	629.13
1258+00	629.26	629.59	629.32	629.30	629.57	629.24
⊕ PIER N <sup>o</sup> 22	—	—	—	629.39	629.64	629.28
1258+25	629.35	629.68	629.41	629.43	629.71	629.39
⊕ PIER N <sup>o</sup> 22	629.43	629.74	629.45	—	—	—
1258+50	629.45	629.80	629.54	629.58	629.88	629.54
1258+75	629.59	629.96	629.68	629.70	629.99	629.63
1259+00	629.69	630.05	629.75	629.73	630.01	629.63
1259+25	629.71	630.04	629.74	629.68	—	—
⊕ BRG. ABUT. N <sup>o</sup> 2	—	—	—	629.68	629.94	629.60
1259+50	629.65	—	—	—	—	—
⊕ BRG. ABUT. N <sup>o</sup> 2	629.64	629.97	629.69	—	—	—



KEY ELEVATION

NOTE:

THESE ELEVATIONS ARE TO THE TOP OF THE PORTLAND CEMENT CONCRETE, AND ARE THOSE WHICH ARE REQUIRED BEFORE THE CONCRETE IS PLACED. PROPER ALLOWANCE HAS BEEN MADE FOR DEAD LOAD DEFLECTIONS CAUSED BY THE WEIGHT OF THE CONCRETE DECK. SEE KEY ELEVATION, (THIS SHEET) FOR LOCATION OF ELEVATION POINTS.

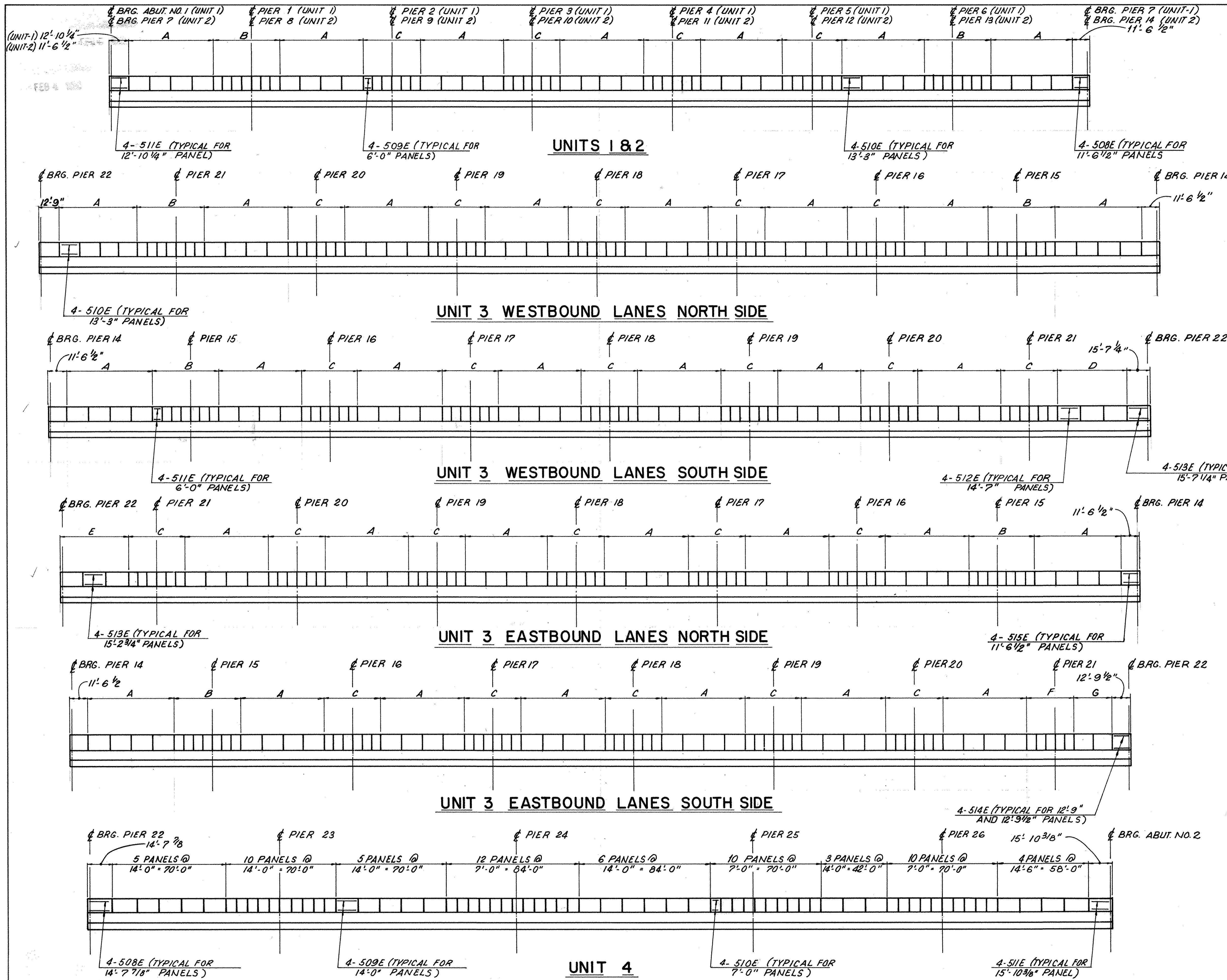
ALTERNATE - 2 30/43

adache - ciuni - lynn associates  
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

**PAVEMENT ELEVATIONS**  
BRIDGE N<sup>o</sup> ERI-2-1911 L/R  
S.R. 2 OVER HURON RIVER  
N. & W. R. R. & RIVER ROAD

ERIE COUNTY STA. 1233+43.75 TO  
ERI-2-18.38 STA. 1259+37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
J.D.P.	J.D.P.	K.L.M.	L.E.D.	11/4/85	



- A = 4 PANELS @ 13'-3"
- B = 7 PANELS @ 6'-0"
- C = 6 PANELS @ 6'-0"
- D = 3 PANELS @ 14'-7"
- E = 3 PANELS @ 15'-2 3/4"
- F = 5 PANELS @ 6'-0"
- G = 2 PANELS @ 13'-3"

**NOTES:**

1. FOR TRANSVERSE SECTION, SEE SHEETS [18 43] & [19 43].
2. FOR DECK SLAB PLANS SEE SHEETS [27 43], [28 43] & [29 43].
3. FOR ADDITIONAL RAILING DETAILS SEE STD. DWG. BR-1.
4. FOR REINFORCING SCHEDULE SEE SHEET [41 43], [42 43] & [43 43].
5. BAR MARKS FOR REINFORCING BARS WHICH ARE TO BE EPOXY COATED INCLUDE A LETTER SUFFIX -E.

ALTERNATE - 2 31/43

adache - ciuni - lynn associates  
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

**PARAPET ELEVATION**  
BRIDGE NO. ERI-2-19.11 L/R  
S.R. 2 OVER HURON RIVER  
N. & W. R.R. & RIVER ROAD

ERIE COUNTY STA. 1233+43.75 TO  
ERI-2-18.38 STA. 1259+37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
K.L.M.	D.R.J.	I.M.B.	L.E.D.	11/4/85	

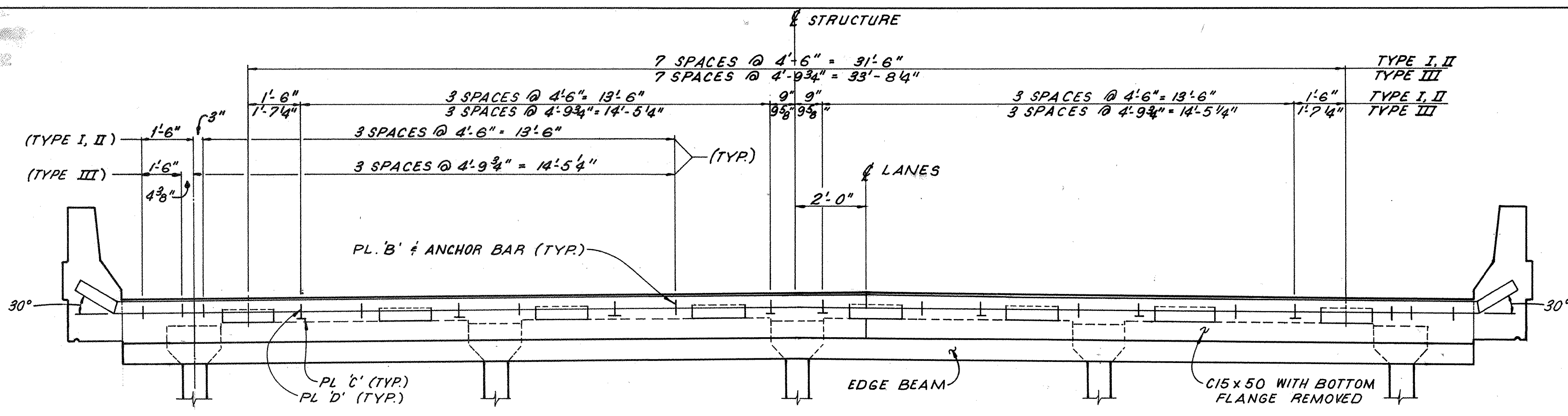


FEB 4 1982

CALC.		OHIO
DATE		F.H.W.A. 5
CHKD.		REGION
DATE		

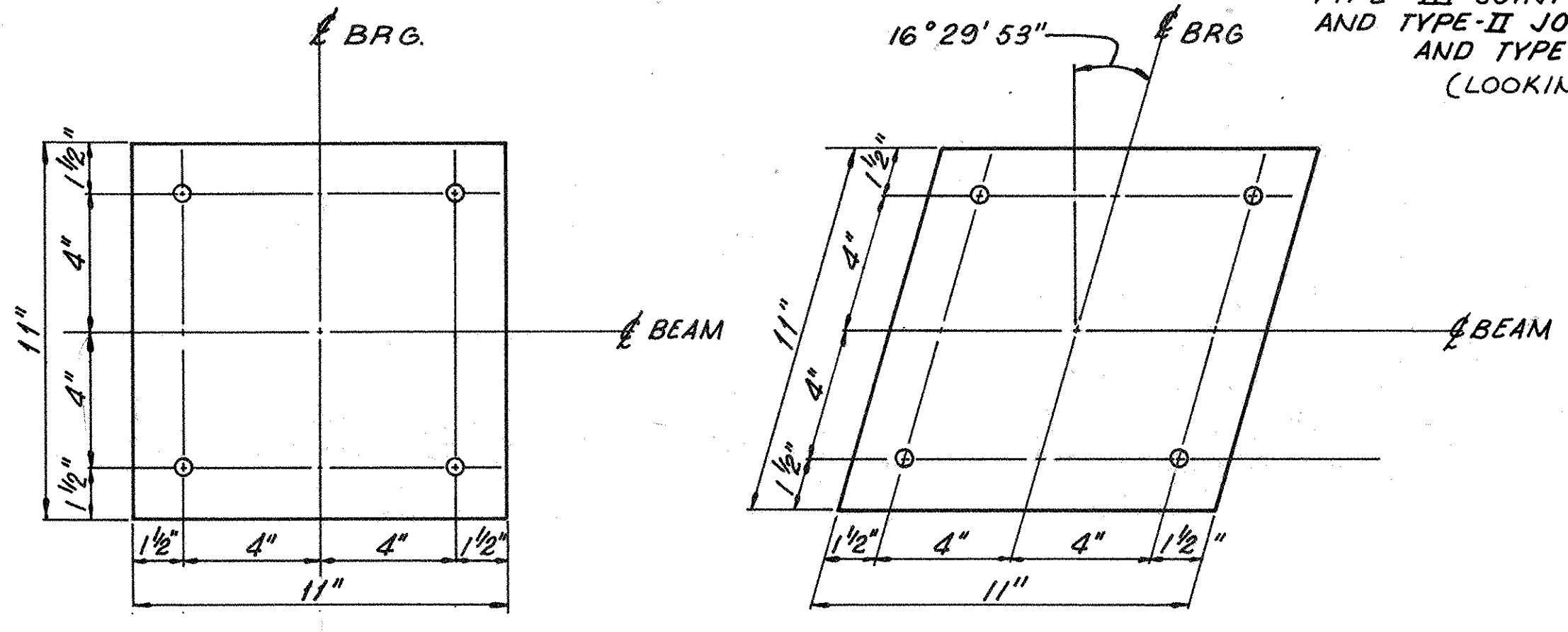
217A  
326

ERIE COUNTY  
ERI-2-18.38



**VIEW C-C**

TYPE-III JOINT E.B. STRUCTURE, TYPE-I JOINT W.B. STRUCTURE  
AND TYPE-II JOINT SHOWN, TYPE-III JOINT W.B. STRUCTURE  
AND TYPE-I JOINT E.B. STRUCTURE OPPOSITE HAND.  
(LOOKING INTO SUPERSTRUCTURE)



TEMPERATURE ADJUSTMENT FOR 'A'										
JOINT	30°	40°	50°	60°	70°	80°	90°	MIN.	MAX.	LOCATION
I	8 1/2"	8 1/4"	8"	7 3/4"	7 1/2"	7 1/4"	7"	6 3/16"	10 1/16"	A-1
II	12 3/8"	11 7/8"	11 7/16"	11"	10 9/16"	10 1/8"	9 5/8"	8 5/16"	15 1/16"	P7, P.14
III	12 1/8"	11 3/4"	11 3/8"	11"	10 5/8"	10 1/4"	9 7/8"	8 3/4"	14 3/8"	P-22
IV	8 7/8"	8 9/16"	8 5/16"	8"	7 11/16"	7 7/16"	7 1/8"	6 5/16"	10 9/16"	A-2

**PLATE C**  
**ABUTMENT NO. 1**  
**PIERS 7 AND 14**

**PLATE C**  
**PIER 22**

**NOTES:**

FOR ADDITIONAL NOTES, SEE SHEET 32/43.  
FOR EXPANSION JOINT DETAILS NOT SHOWN, SEE SHEETS 32/43.

ALTERNATE - 2 33/43

adache - ciuni - lynn associates  
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

**EXPANSION JOINT DETAILS**  
BRIDGE N° ERI - 2 - 1911 L/R  
S.R. 2 OVER HURON RIVER  
N. & W. R. R. & RIVER ROAD

ERIE COUNTY STA. 1233+43.75 TO  
ERI-2-18.38 STA. 1259+37.37

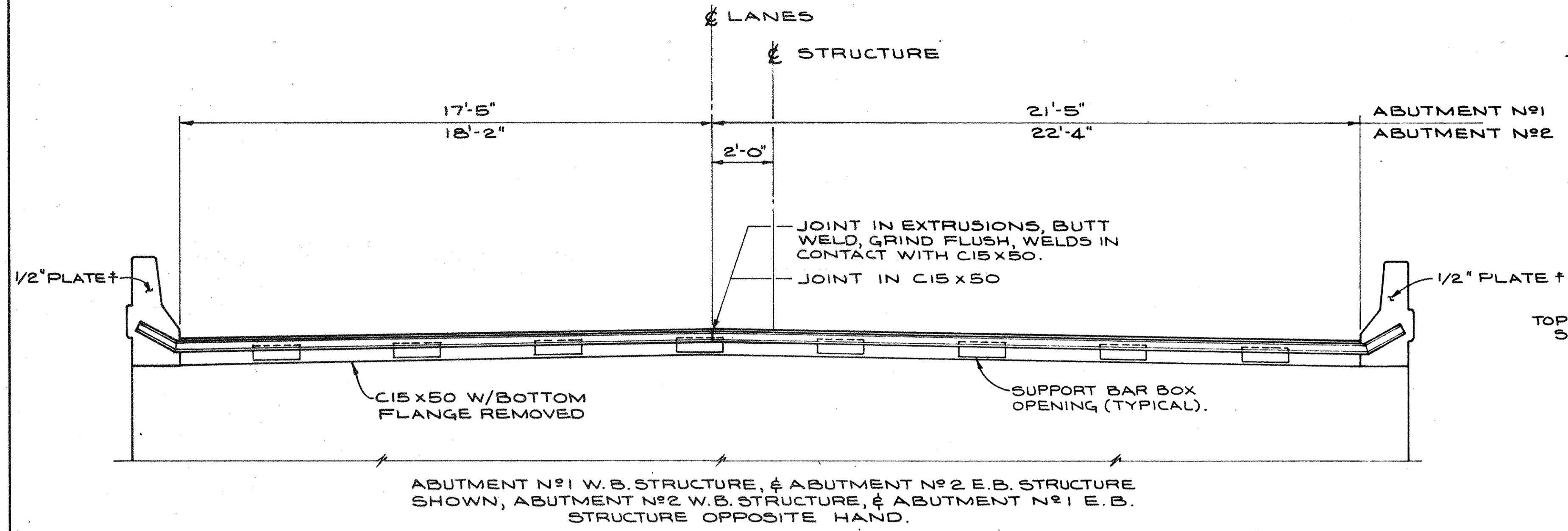
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
K.L.M.	D.R.J.	K.L.M.	L.E.D.	11/4/85	

FEB 4 1982

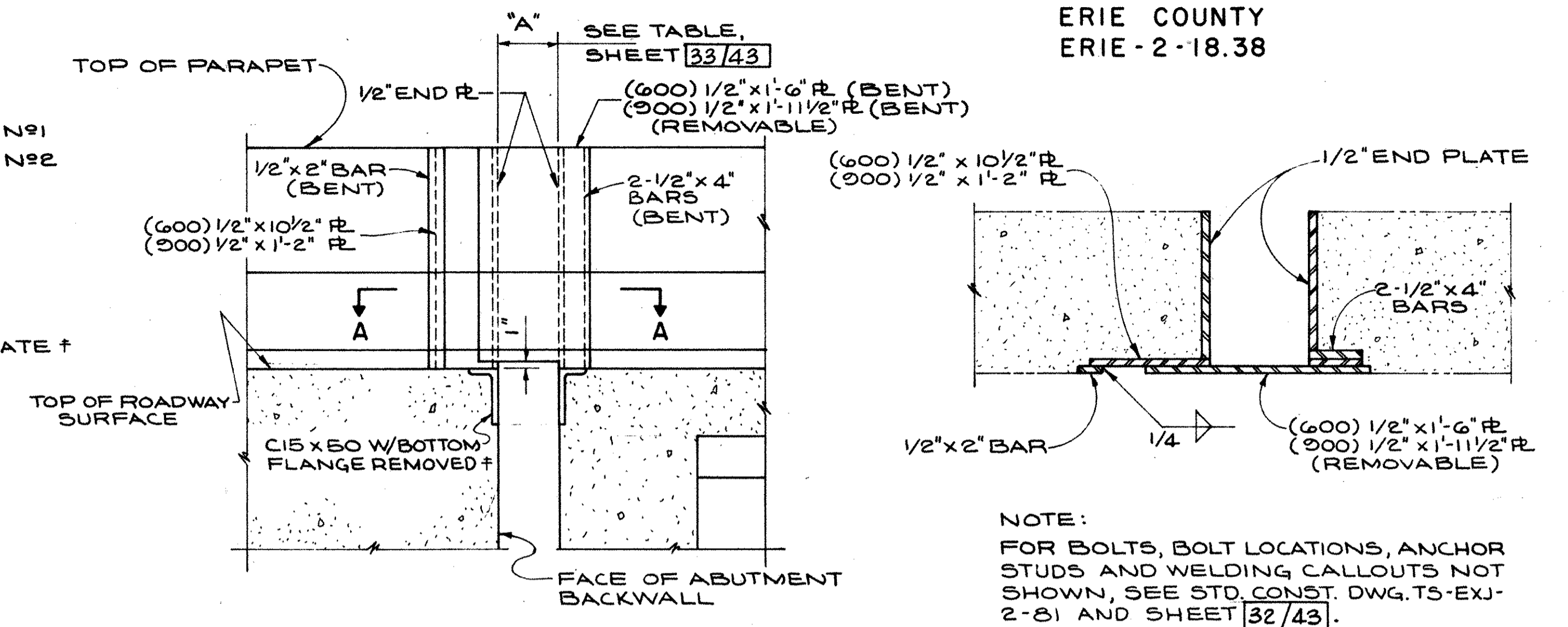
FHWA REGION	STATE	PROJECT
5	OHIO	

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326

ERIE COUNTY  
ERIE - 2 - 18.38



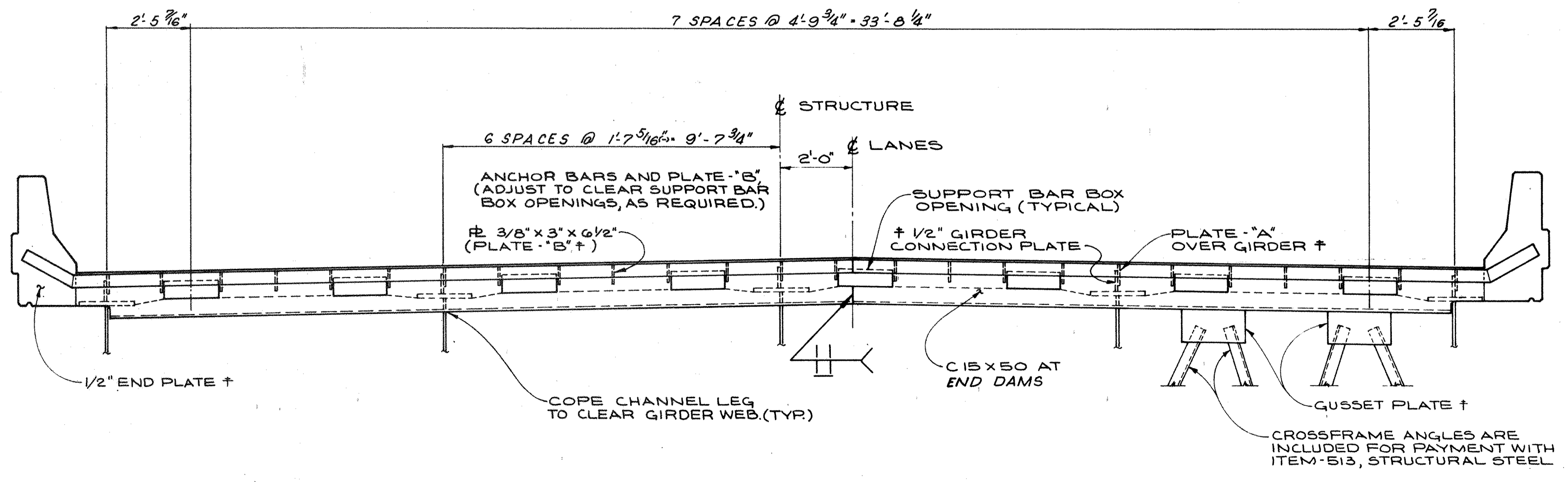
**ELEVATION**  
EXPANSION JOINT ALONG FACE OF ABUTMENT BACKWALL  
(ANCHOR BARS NOT SHOWN)



**PARAPET ELEVATION AT EXPANSION JOINTS**  
TYPE-I JOINT SHOWN, TYPES II III IV SIMILAR.

**NOTE:**  
FOR BOLTS, BOLT LOCATIONS, ANCHOR STUDS AND WELDING CALLOUTS NOT SHOWN, SEE STD. CONST. DWG. TS-EXJ-2-81 AND SHEET 32/43.

**SECTION A-A**



**VIEW B-B**  
TYPE-III JOINT W.B. STRUCTURE & TYPE-IV JOINT E.B. STRUCTURE SHOWN  
TYPE-III JOINT E.B. STRUCTURE & TYPE-IV JOINT W.B. STRUCTURE OPPOSITE HAND  
(LOOKING INTO SUPERSTRUCTURE)

- NOTES:**
- FOR EXPANSION JOINT DETAILS NOT SHOWN, SEE SHEET 32/43.
  - FOR ADDITIONAL NOTES, SEE SHEET 32/43.
  - STEEL MEMBERS SHALL BE FURNISHED IN LENGTHS AS LONG AS PRACTICABLE. AT ALL FIELD BUTT JOINTS THEY SHALL BE RIGIDLY FASTENED TOGETHER AS REQUIRED PRIOR TO PLACING CONCRETE.
  - THE PARAPET SLIDING PLATES, END PLATES, ANCHOR STUDS AND ALL MISC. STEEL SHOWN IN SECTION A-A SHALL BE GALVANIZED AS PER 711.02.

ALTERNATE - 2 34/43

adache - ciuni - lynn associates CONSULTING ENGINEERS CLEVELAND, OHIO 44130			
<b>EXPANSION JOINT DETAILS</b>			
BRIDGE N° ERI - 2 - 1911 L/R			
S.R. 2 OVER HURON RIVER			
N. & W. R.R. & RIVER ROAD			
ERIE COUNTY		STA. 1233 + 43.75 TO	
ERIE - 2 - 18.38		STA. 1259 + 37.37	
DESIGNED	DRAWN	CHECKED	REVIEWED
L.E.D.	J.D.P.	K.L.M.	L.E.D.
			11/4/85

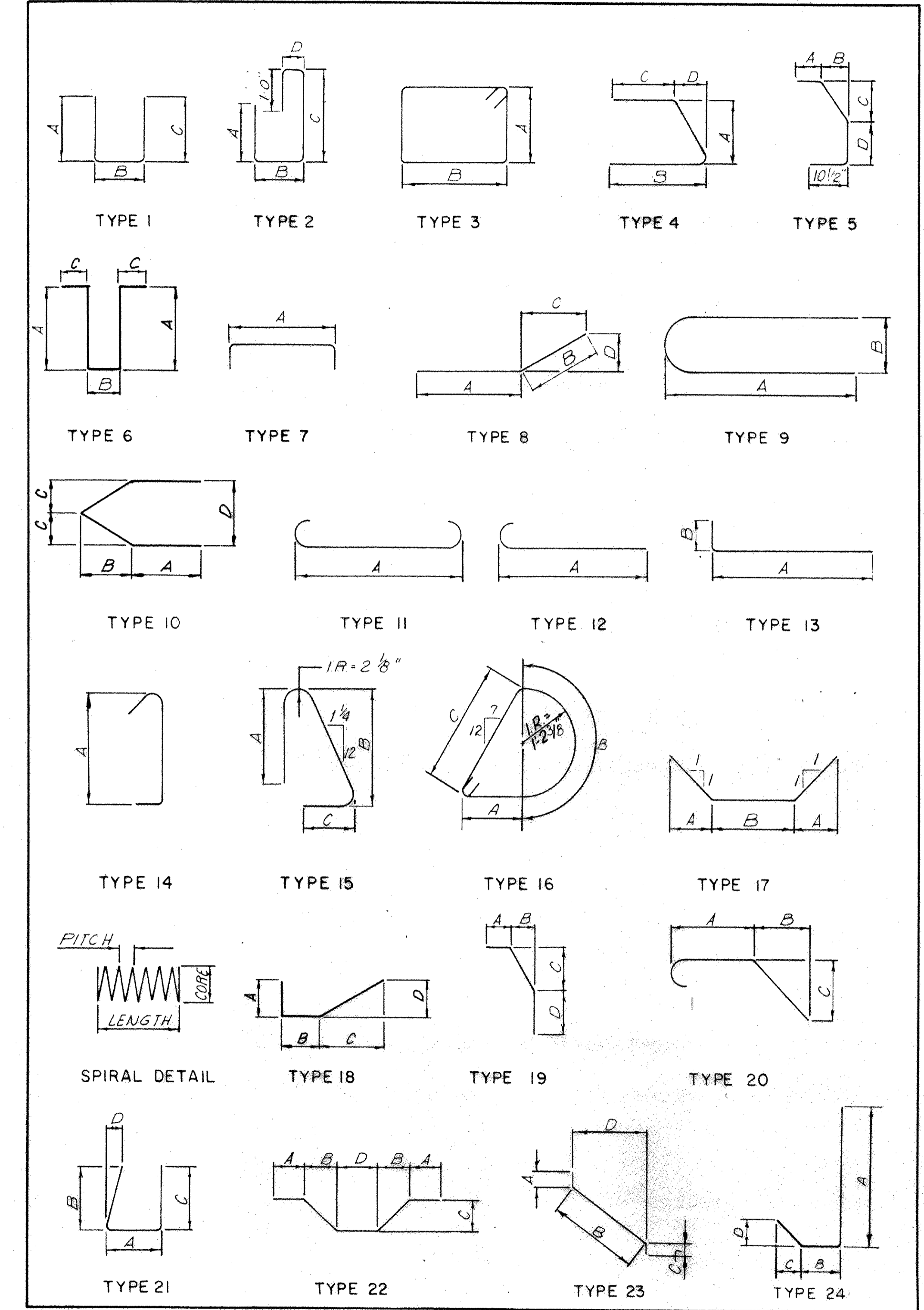
ABUTMENTS											
MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	W.B.	E.B.	TOTAL			A	B	C	D		
<b>ABUTMENT NO. 1</b>											
1A401	30	30	60	3'-4"	1	8"	2'-2"	8"			134
1A501	14	14	28	11'-0"	3	2'-3"	3'-0"				321
1A502	18	18	36	30'-0"	ST.						1,126
1A503	18	18	36	13'-4"	ST.						501
1A504	30	30	60	8'-3"	1	1'-4"	5'-10"	1'-4"			516
1A505	30	30	60	7'-8"	1	2'-0"	3'-11"	2'-0"			480
1A506	30	30	60	7'-4"	13	6'-7"	10"				459
1A507	16	16	32	10'-2"	ST.						339
1A508	8	8	16	7'-8"	ST.						128
1A509	4	4	8	9'-7"	ST.						80
1A510	12	12	24	15'-8"	ST.						392
1A511	12	12	24	5'-8"	ST.						142
1A518	18	18	36	6'-2"	ST.						232
1A519	4	4	8	5'-2"	ST.						43
1A520	2	2	4	3'-9"	ST.						16
1A601	4	4	8	4'-11"	ST.						59
1A602	30	30	60	14'-9"	1	2'-6"	5'-10"	6'-9"			1,329
1A603	40	40	80	7'-9"	1	3'-4"	1'-5"	3'-4"			931
1A604	40	40	80	11'-1"	1	5'-0"	1'-5"	5'-0"			1,432
1A606	12	12	24	18'-6"	1	8'-10"	1'-2"	8'-10"			667
1A607	12	12	24	5'-8"	ST.						204
1A608	8	8	16	7'-4"	1	3'-3"	1'-2"	3'-3"			176
1A609	2	2	4	8'-8"	1	3'-11"	1'-2"	3'-11"			52
1A610	2	2	4	10'-0"	1	4'-7"	1'-2"	4'-7"			60
1A611	4	4	8	6'-10"	ST.						82
1A615	6	6	12	8'-7"	ST.						155
1A801	7	7	14	30'-0"	ST.						1,121
1A802	7	7	14	18'-1"	ST.						676
1A803	4	4	8	13'-0"	ST.						278
1A804	8	8	16	9'-4"	ST.						399
TOTAL WEIGHT										12,530	

ABUTMENTS											
MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	W.B.	E.B.	TOTAL			A	B	C	D		
<b>ABUTMENT NO. 2</b>											
2A401	30	30	60	3'-4"	1	8"	2'-2"	8"			134
2A501	22	22	44	11'-0"	3	2'-3"	3'-0"				505
2A502	30	30	60	8'-3"	1	1'-4"	5'-10"	1'-4"			516
2A503	30	30	60	7'-4"	13	6'-7"	10"				458
2A504	30	30	60	7'-8"	1	2'-0"	3'-11"	2'-0"			480
2A505	40	40	80	22'-7"	ST.						1,884
2A506	18	18	36	7'-4"	ST.						276
2A507	4	4	8	13'-1"	ST.						109
2A508	4	4	8	12'-10"	ST.						107
2A509	6	6	12	10'-8"	ST.						134
2A510	2	2	4	10'-4"	ST.						43
2A511	3	3	6	12'-7"	ST.						79
2A512	1	1	2	12'-3"	ST.						26
2A513	9	9	18	18'-8"	ST.						350
2A514	3	3	6	18'-4"	ST.						115
2A515	8	8	16	13'-3"	ST.						222
2A601	30	30	60	14'-7"	1	2'-6"	5'-10"	6'-7"			1,314
2A602	41	41	82	12'-7"	1	5'-9"	1'-5"	5'-9"			1,550
2A603	41	41	82	9'-1"	1	4'-0"	1'-5"	4'-0"			1,118
2A605	18	18	36	18'-2"	1	8'-8"	1'-2"	8'-8"			982
2A606	18	18	36	7'-4"	ST.						396
2A607	1	1	2	10'-2"	1	4'-8"	1'-2"	4'-8"			31
2A608	1	1	2	8'-10"	1	4'-0"	1'-2"	4'-0"			27
2A609	4	4	8	7'-6"	1	3'-4"	1'-2"	3'-4"			90
2A610	4	4	8	6'-10"	ST.						82
2A611	1	1	2	9'-8"	1	4'-5"	1'-2"	4'-5"			29
2A612	1	1	2	8'-4"	1	3'-9"	1'-2"	3'-9"			25
2A613	4	4	8	7'-0"	1	3'-1"	1'-2"	3'-1"			84
2A614	2	2	4	4'-3"	ST.						26
2A615	6	6	12	10'-2"	ST.						184
2A616	4	4	8	7'-2"	ST.						86
2A617	4	4	8	4'-11"	ST.						59
2A801	4	4	8	24'-3"	ST.						518
2A802	10	10	20	25'-1"	ST.						1,339
2A803	2	2	4	22'-0"	24	16'-1"	1'-5"	4'-6"	1'-4"		235
2A804	8	8	16	12'-9"	ST.						544
2A805	2	2	4	16'-0"							171
TOTAL										19,328	

CALC. DATE \_\_\_\_\_  
 CHKD. DATE \_\_\_\_\_  
 OHIO FHWA REGION 5  
 217C  
 316

ERIE COUNTY  
 ERI - 2-18.38

BENDING DIAGRAMS



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.

ALTERNATE - 2 35/43  
 adache ciuni lynn associates  
 CONSULTING ENGINEERS  
**REINFORCING STEEL LIST**  
 BRIDGE NO ERI - 2-19.11 L/R  
 S.R. 2 OVER HURON RIVER  
 N. & W. R.R. & RIVER ROAD  
 ERIE COUNTY STA. 1233 + 43.75 TO  
 ERI - 2-18.38 STA. 1259 + 37.37  
 DESIGNED DRAWN CHECKED REVIEWED DATE REVISED  
 I.M.B. D.R.J. K.L.M. L.E.D. 11/4/85

PIERS											
MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	W.B.	E.B.	TOTAL			A	B	C	D		
<b>PIER NO 1</b>											
1P501	49	49	98	19'-1"	3	3'-8"					1,959
1P502	24	24	48	8'-3"	1	3'-3"	2'-0"	3'-3"			413
1P503	8	8	16	8'-9"	1	1'-8"	5'-8"	1'-8"			146
1P601	4	4	8	38'-4"	ST.						461
1P801	8	8	16	13'-9"	1	6'-0"	2'-2"	6'-0"			587
1P1101	18	18	36	44'-8"	1	3'-6"	38'-4"	3'-6"			8,543
										TOTAL WEIGHT	12,109
<b>PIER NO. 2</b>											
2P501	49	49	98	19'-1"	3	3'-8"					1,959
2P502	24	24	48	8'-3"	1	3'-3"	2'-0"	3'-3"			413
2P503	8	8	16	8'-9"	1	1'-8"	5'-8"	1'-8"			146
2P601	4	4	8	38'-4"	ST.						461
2P801	8	8	16	13'-9"	1	6'-0"	2'-2"	6'-0"			587
2P1101	18	18	36	44'-8"	1	3'-6"	38'-4"	3'-6"			8,543
										TOTAL WEIGHT	12,109
<b>PIER NO. 3</b>											
3P501	49	49	98	19'-1"	3	3'-8"					1,959
3P502	24	24	48	8'-3"	1	3'-3"	2'-0"	3'-3"			413
3P503	8	8	16	8'-9"	1	1'-8"	5'-8"	1'-8"			146
3P601	4	4	8	38'-4"	ST.						461
3P801	8	8	16	13'-9"	1	6'-0"	2'-2"	6'-0"			587
3P1101	18	18	36	44'-8"	1	3'-6"	38'-4"	3'-6"			8,543
										TOTAL WEIGHT	12,109

PIERS											
MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	W.B.	E.B.	TOTAL			A	B	C	D		
<b>PIER NO. 4</b>											
4P501	49	49	98	19'-1"	3	3'-8"					1,959
4P502	24	24	48	8'-3"	1	3'-3"	2'-0"	3'-3"			413
4P503	8	8	16	8'-9"	1	1'-8"	5'-8"	1'-8"			146
4P601	4	4	8	38'-4"	ST.						461
4P801	8	8	16	13'-9"	1	6'-0"	2'-2"	6'-0"			587
4P1101	18	18	36	44'-8"	1	3'-6"	38'-4"	3'-6"			8,543
										TOTAL WEIGHT	12,109
<b>PIER NO. 5</b>											
5P501	49	49	98	19'-1"	3	3'-8"					1,959
5P502	24	24	48	8'-3"	1	3'-3"	2'-0"	3'-3"			413
5P503	8	8	16	8'-9"	1	1'-8"	5'-8"	1'-8"			146
5P601	4	4	8	38'-4"	ST.						461
5P801	8	8	16	13'-9"	1	6'-0"	2'-2"	6'-0"			587
5P1101	18	18	36	44'-8"	1	3'-6"	38'-4"	3'-6"			8,543
										TOTAL WEIGHT	12,109
<b>PIER NO. 6</b>											
6P501	49	49	98	19'-1"	3	3'-8"					1,959
6P502	24	24	48	8'-3"	1	3'-3"	2'-0"	3'-3"			413
6P503	8	8	16	8'-9"	1	1'-8"	5'-8"	1'-8"			146
6P601	4	4	8	38'-4"	ST.						461
6P801	8	8	16	13'-9"	1	6'-0"	2'-2"	6'-0"			587
6P1101	18	18	36	44'-8"	1	3'-6"	38'-4"	3'-6"			8,543
										TOTAL WEIGHT	12,109

PIERS											
MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	W.B.	E.B.	TOTAL			A	B	C	D		
<b>PIER NO. 7</b>											
7P501	49	49	98	19'-1"	3	3'-8"					1,959
7P502	24	24	48	8'-3"	1	3'-3"	2'-0"	3'-3"			413
7P503	8	8	16	8'-9"	1	1'-8"	5'-8"	1'-8"			146
7P601	4	4	8	38'-4"	ST.						461
7P801	8	8	16	13'-9"	1	6'-0"	2'-2"	6'-0"			587
7P1101	18	18	36	44'-8"	1	3'-6"	38'-4"	3'-6"			8,543
										TOTAL WEIGHT	12,109
<b>PIER NO. 8</b>											
8P501	49	49	98	19'-1"	3	3'-8"					1,959
8P502	24	24	48	8'-3"	1	3'-3"	2'-0"	3'-3"			413
8P503	8	8	16	8'-9"	1	1'-8"	5'-8"	1'-8"			146
8P601	4	4	8	38'-4"	ST.						461
8P801	8	8	16	13'-9"	1	6'-0"	2'-2"	6'-0"			587
8P1101	18	18	36	44'-8"	1	3'-6"	38'-4"	3'-6"			8,543
										TOTAL WEIGHT	12,109

FOR BENDING DIAGRAMS AND NOTE,  
SEE SHEET 35/43

ALTERNATE - 2 36/43

adache - ciuni - lynn associates  
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

**REINFORCING STEEL LIST**  
BRIDGE NO ERI-2-19.11 L/R  
S.R. 2 OVER HURON RIVER  
N. & W. R.R. & RIVER ROAD  
ERIE COUNTY STA. 1233 + 43.75 TO  
ERI-2-18.38 STA. 1259 + 37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	D.R.J.	K.L.M.	L.E.D.	11/4/85	



PIERS											
MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	W.B.	E.B.	TOTAL			A	B	C	D		
<b>PIER NO. 9</b>											
9P501	49	49	98	19'-1"	3	3'-8"					1,959
9P502	24	24	48	8'-3"	1	3'-3"	2'-0"	3'-3"			413
9P503	8	8	16	8'-9"	1	1'-8"	5'-8"	1'-8"			146
9P601	4	4	8	38'-4"	ST.						461
9P801	8	8	16	13'-9"	1	6'-0"	2'-2"	6'-0"			587
9P1101	18	18	36	44'-8"	1	3'-6"	38'-4"	3'-6"			8,543
										TOTAL WEIGHT	12,109
<b>PIER NO. 10</b>											
10P501	49	49	98	19'-1"	3	3'-8"					1,959
10P502	24	24	48	8'-3"	1	3'-3"	2'-0"	3'-3"			413
10P503	8	8	16	8'-9"	1	1'-8"	5'-8"	1'-8"			146
10P601	4	4	8	38'-4"	ST.						461
10P801	8	8	16	13'-9"	1	6'-0"	2'-2"	6'-0"			587
10P802											
10P1101	18	18	36	44'-8"	1	3'-6"	38'-4"	3'-6"			8,543
										TOTAL WEIGHT	12,109
<b>PIER NO. 11</b>											
11P401	30	30	60	7'-8"	9	2'-11"	3'-2"				307
11P402	30	30	60	8'-6"	ST.						341
11P403	75	75	150	4'-1"	14	3'-2"	8"				409
11P501	8	8	16	15'-9"	8	2'-6"	13'-5"	13'-0"	3'-2"		263
11P502	2	2	4	12'-0"	ST.						50
11P503	2	2	4	19'-10"	ST.						83
11P504	2	2	4	28'-0"	ST.						117
11P505	14	14	28	6'-2"	1	1'-8"	3'-1"	1'-8"			180
11P506	72	72	144	5'-4"	1	1'-8"	2'-3"	1'-8"			801
11P507	4 SETS OF 14 BARS	4 SETS OF 14 BARS	8 SETS OF 14 BARS	11'-10" TO 18'-4"	1	4'-11" TO 8'-2"	2'-3" TO 8'-2"	4'-11" TO 8'-2"		6"	1,762
11P508	15	15	30	7'-9"	1	2'-5"	3'-2"	2'-5"			242
11P509	4 SETS OF 4 BARS	4 SETS OF 4 BARS	8 SETS OF 4 BARS	16'-6" TO 18'-0"	1	7'-3" TO 8'-0"	2'-3" TO 8'-0"	7'-3" TO 8'-0"		6"	576
11P801	12	12	24	38'-4"	ST.						2,456
11P1101	14	14	28	20'-10"	11	17'-8"					3,099
11P1102	22	22	44	15'-10"	11	12'-8"					3,701
11P1103	9	9	18	38'-4"	ST.						3,666
11P1104	9	9	18	47'-6"	1	4'-11"	38'-4"	4'-11"			4,543
										TOTAL WEIGHT	30,679

PIERS											
MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	W.B.	E.B.	TOTAL			A	B	C	D		
<b>PIER NO. 11 CONT.</b>											
11P901	56	56	112	15'-0"	11	12'-6"					5,712
11P902	36	36	72	25'-0"	11	22'-6"					6,120
11P1001	46	46	92	10'-6"	13	9'-0"	1'-10"				4,157
11P1002	46	46	92	22'-6"	ST.						8,907
11P1101	9	9	18	38'-4"	ST.						3,666
11P1102	9	9	18	47'-6"	1	4'-11"	38'-4"	4'-11"			4,543
										TOTAL WEIGHT	40,692
<b>PIER NO. 12</b>											
12P401	34	34	68	7'-8"	9	2'-11"	3'-2"				348
12P402	34	34	68	8'-6"	ST.						386
12P403	85	85	170	4'-1"	14	3'-2"	8"				464
12P501	8	8	16	15'-9"	8	2'-6"	13'-5"	13'-0"	3'-2"		263
12P502	2	2	4	12'-0"	ST.						50
12P503	2	2	4	19'-10"	ST.						83
12P504	2	2	4	28'-0"	ST.						117
12P505	14	14	28	6'-2"	1	1'-8"	3'-1"	1'-8"			180
12P506	72	72	144	5'-4"	1	1'-8"	2'-3"	1'-8"			801
12P507	4 SETS OF 14 BARS	4 SETS OF 14 BARS	8 SETS OF 14 BARS	11'-10" TO 18'-4"	1	4'-11" TO 8'-2"	2'-3" TO 8'-2"	4'-11" TO 8'-2"		6"	1,762
12P508	15	15	30	7'-9"	1	2'-5"	3'-2"	2'-5"			242
12P509	4 SETS OF 4 BARS	4 SETS OF 4 BARS	8 SETS OF 4 BARS	16'-6" TO 18'-0"	1	7'-3" TO 8'-0"	2'-3" TO 8'-0"	7'-3" TO 8'-0"		6"	576
12P801	46	46	92	8'-2"	13	7'-0"	1'-4"				2,006
12P802	46	46	92	24'-2"	ST.						5,936
12P803	12	12	24	38'-4"	ST.						2,456
12P1101	14	14	28	20'-10"	11	17'-8"					3,099
12P1102	22	22	44	15'-10"	11	12'-8"					3,701
12P1103	9	9	18	38'-4"	ST.						3,666
12P1104	9	9	18	47'-6"	1	4'-11"	38'-4"	4'-11"			4,543
										TOTAL WEIGHT	30,679

PIERS											
MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	W.B.	E.B.	TOTAL			A	B	C	D		
<b>PIER NO. 13</b>											
13P401	38	38	76	7'-8"	9	2'-11"	3'-2"				389
13P402	38	38	76	8'-6"	ST.						432
13P403	95	95	190	4'-1"	14	3'-2"	8"				518
13P501	8	8	16	15'-9"	8	2'-6"	13'-5"	13'-0"	3'-2"		263
13P502	2	2	4	12'-0"	ST.						50
13P503	2	2	4	19'-10"	ST.						83
13P504	2	2	4	28'-0"	ST.						117
13P505	14	14	28	6'-2"	1	1'-8"	3'-1"	1'-8"			180
13P506	72	72	144	5'-4"	1	1'-8"	2'-3"	1'-8"			801
13P507	4 SETS OF 14 BARS	4 SETS OF 14 BARS	8 SETS OF 14 BARS	11'-10" TO 18'-4"	1	4'-11" TO 8'-2"	2'-3" TO 8'-2"	4'-11" TO 8'-2"		6"	1,762
13P508	15	15	30	7'-9"	1	2'-5"	3'-2"	2'-5"			242
13P509	4 SETS OF 4 BARS	4 SETS OF 4 BARS	8 SETS OF 4 BARS	16'-6" TO 18'-0"	1	7'-3" TO 8'-0"	2'-3" TO 8'-0"	7'-3" TO 8'-0"		6"	576
13P801	46	46	92	8'-2"	13	7'-0"	1'-4"				2,006
13P802	46	46	92	26'-8"	ST.						6,550
13P803	12	12	24	38'-4"	ST.						2,456
13P1101	14	14	28	20'-10"	11	17'-8"					3,099
13P1102	22	22	44	15'-10"	11	12'-8"					3,701
13P1103	9	9	18	38'-4"	ST.						3,666
13P1104	9	9	18	47'-6"	1	4'-11"	38'-4"	4'-11"			4,543
										TOTAL WEIGHT	31,434
<b>PIER NO. 14</b>											
14P401	44	44	88	7'-8"	9	2'-11"	3'-2"				451
14P402	44	44	88	8'-6"	ST.						500
14P403	110	110	220	4'-1"	14	3'-2"	8"				600
14P501	8	8	16	15'-9"	8	2'-6"	13'-5"	13'-0"	3'-2"		263
14P502	2	2	4	12'-0"	ST.						50
14P503	2	2	4	19'-10"	ST.						83
14P504	2	2	4	28'-0"	ST.						117
14P505	14	14	28	6'-8"	1	1'-8"	3'-7"	1'-8"			195
14P506	72	72	144	5'-7"	1	1'-8"	2'-6"	1'-8"			839

ALTERNATE - 2

37/43

FOR BENDING DIAGRAMS AND NOTE,  
SEE SHEET 35/43

adache - ciuni - lynn associates  
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

**REINFORCING STEEL LIST**  
BRIDGE NO ERI - 2-19.11 L/R  
S.R. 2 OVER HURON RIVER  
N. & W. R.R. & RIVER ROAD  
ERIE COUNTY STA. 1233 + 43.75 TO  
ERI - 2-18.38 STA. 1289 + 37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	D.R.J.	K.L.M.	L.E.D.	11/4/85	



RECORDED  
FEB 5 1982  
FEB 27 1982

ERIE COUNTY  
ERI - 2 - 18.38

CALC. DATE		OHIO REGION
CHKD. DATE		
DATE		

217F  
326

PIERS											
MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	W.B.	E.B.	TOTAL			A	B	C	D		
<b>PIER NO. 14 CONT.</b>											
14P507	4 SETS OF 14 BARS	4 SETS OF 14 BARS	8 SETS OF 14 BARS	12'-1" TO 18'-7"	1	4'-11" TO 8'-2"	2'-6" TO 8'-2"	4'-11" TO 8'-2"		6"	1,791
14P508	15	15	30	8'-3"	1	2'-5" TO 3'-8"	2'-5"				258
14P509	4 SETS OF 4 BARS	4 SETS OF 4 BARS	8 SETS OF 4 BARS	16'-9" TO 18'-3"	1	7'-3" TO 8'-0"	2'-6" TO 8'-0"	7'-3" TO 8'-0"		6"	584
14P801	46	46	92	8'-2"	13	7'-0" TO 1'-4"					2,006
14P802	46	46	92	29'-3"	ST.						7,185
14P803	12	12	24	38'-4"	ST.						2,456
14P1101	14	14	28	20'-10"	11	17'-8"					3,099
14P1102	22	22	44	15'-10"	11	12'-8"					3,701
14P1103	9	9	18	38'-4"	ST.						3,666
14P1104	9	9	18	47'-6"	1	4'-11" TO 38'-4"	4'-11"				4,543
TOTAL WEIGHT											32,387
<b>PIER NO. 15</b>											
15P401	48	48	96	7'-8"	9	2'-11" TO 3'-2"					492
15P402	48	48	96	8'-6"	ST.						545
15P403	120	120	240	4'-1"	14	3'-2" TO 8"					655
15P501	8	8	16	15'-9"	8	2'-6" TO 13'-5"	13'-0"	3'-2"			263
15P502	2	2	4	12'-0"	ST.						50
15P503	2	2	4	19'-10"	ST.						83
15P504	2	2	4	28'-0"	ST.						117
15P505	14	14	28	6'-2"	1	1'-8" TO 3'-1"	1'-8"				180
15P506	72	72	144	5'-4"	1	1'-8" TO 2'-3"	1'-8"				801
15P507	4 SETS OF 14 BARS	4 SETS OF 14 BARS	8 SETS OF 14 BARS	11'-10" TO 18'-4"	1	4'-11" TO 8'-2"	4'-11" TO 8'-2"			6"	1,762
15P508	15	15	30	7'-9"	1	2'-5" TO 3'-2"	2'-5"				242
15P509	4 SETS OF 4 BARS	4 SETS OF 4 BARS	8 SETS OF 4 BARS	16'-6" TO 18'-0"	1	7'-3" TO 8'-0"	2'-3" TO 8'-0"	7'-3" TO 8'-0"		6"	576
15P801	12	12	24	38'-4"	ST.						2,456
15P1001	31	31	62	15'-4"	11	12'-6"					4,091
15P1002	22	22	44	23'-4"	11	20'-6"					4,418
TOTAL WEIGHT											42,866

PIERS											
MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	W.B.	E.B.	TOTAL			A	B	C	D		
<b>PIER NO. 15 CONT.</b>											
15P1003	46	46	92	10'-6"	13	9'-0" TO 1'-10"					4,157
15P1004	46	46	92	31'-9"	ST.						12,569
15P1101	9	9	18	47'-6"	1	4'-11" TO 38'-4"	4'-11"				4,543
15P1102	9	9	18	38'-4"	ST.						3,666
TOTAL WEIGHT											41,666
<b>PIER NO. 16</b>											
16P401	54	54	108	7'-8"	9	2'-11" TO 3'-2"					553
16P402	54	54	108	8'-6"	ST.						613
16P403	135	135	270	4'-1"	14	3'-2" TO 8"					736
16P501	8	8	16	15'-9"	8	2'-6" TO 13'-5"	13'-0"	3'-2"			263
16P502	2	2	4	12'-0"	ST.						50
16P503	2	2	4	19'-10"	ST.						83
16P504	2	2	4	28'-0"	ST.						117
16P505	14	14	28	6'-2"	1	1'-8" TO 3'-1"	1'-8"				180
16P506	72	72	144	5'-4"	1	1'-8" TO 2'-3"	1'-8"				801
16P507	4 SETS OF 14 BARS	4 SETS OF 14 BARS	8 SETS OF 14 BARS	11'-10" TO 18'-4"	1	4'-11" TO 8'-2"	4'-11" TO 8'-2"			6"	1,762
16P508	15	15	30	7'-9"	1	2'-5" TO 3'-2"	2'-5"				242
16P509	4 SETS OF 4 BARS	4 SETS OF 4 BARS	8 SETS OF 4 BARS	16'-6" TO 18'-0"	1	7'-3" TO 8'-0"	2'-3" TO 8'-0"	7'-3" TO 8'-0"		6"	576
16P801	12	12	24	38'-4"	ST.						2,456
16P1001	31	31	62	15'-4"	11	12'-6"					4,091
16P1002	22	22	44	23'-4"	11	20'-6"					4,418
16P1003	46	46	92	10'-6"	13	9'-0" TO 1'-10"					4,157
16P1004	46	46	92	34'-3"	ST.						13,559
16P1101	9	9	18	47'-6"	1	4'-11" TO 38'-4"	4'-11"				4,543
16P1102	9	9	18	38'-4"	ST.						3,666
TOTAL WEIGHT											42,866

PIERS											
MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	W.B.	E.B.	TOTAL			A	B	C	D		
<b>PIER NO. 17</b>											
17P401	60	60	120	7'-8"	9	2'-11" TO 3'-2"					615
17P402	60	60	120	8'-6"	ST.						681
17P403	150	150	300	4'-1"	14	3'-2" TO 8"					818
17P501	8	8	16	15'-9"	8	2'-6" TO 13'-5"	13'-0"	3'-2"			263
17P502	2	2	4	12'-0"	ST.						50
17P503	2	2	4	19'-10"	ST.						83
17P504	2	2	4	28'-0"	ST.						117
17P505	14	14	28	6'-2"	1	1'-8" TO 3'-1"	1'-8"				180
17P506	72	72	144	5'-4"	1	1'-8" TO 2'-3"	1'-8"				801
17P507	4 SETS OF 14 BARS	4 SETS OF 14 BARS	8 SETS OF 14 BARS	11'-10" TO 18'-4"	1	4'-11" TO 8'-2"	4'-11" TO 8'-2"			6"	1,762
17P508	15	15	30	7'-9"	1	2'-5" TO 3'-2"	2'-5"				292
17P509	4 SETS OF 4 BARS	4 SETS OF 4 BARS	8 SETS OF 4 BARS	16'-6" TO 18'-0"	1	7'-3" TO 8'-0"	2'-3" TO 8'-0"	7'-3" TO 8'-0"		6"	576
17P801	12	12	24	38'-4"	ST.						2,456
17P1001	31	31	62	15'-4"	11	12'-6"					4,091
17P1002	22	22	44	23'-4"	11	20'-6"					4,418
17P1003	46	46	92	10'-6"	13	9'-0" TO 1'-10"					4,157
17P1004	46	46	92	37'-0"	ST.						14,647
17P1101	9	9	18	47'-6"	1	4'-11" TO 38'-4"	4'-11"				4,543
17P1102	9	9	18	38'-4"	ST.						3,666
TOTAL WEIGHT											44,166
<b>PIER NO. 18</b>											
18P401	66	66	132	7'-8"	9	2'-11" TO 3'-2"					676
18P402	66	66	132	8'-6"	ST.						799
18P403	198	198	396	4'-1"	14	3'-2" TO 8"					1,080
18P501	8	8	16	15'-1"	8	1'-8" TO 13'-6"	13'-2"	3'-1"			252
18P502	2	2	4	12'-0"	ST.						50
18P503	2	2	4	20'-6"	ST.						86
18P504	2	2	4	29'-6"	ST.						123

ALTERNATE - 2

adache - ciuni - lynn associates  
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

**REINFORCING STEEL LIST**  
BRIDGE N° ERI - 2 - 19.11 L/R  
S.R. 2 OVER HURON RIVER  
N. & W. R.R. & RIVER ROAD  
ERIE COUNTY STA. 1233 + 43.75 TO  
ERI - 2 - 18.38 STA. 1259 + 37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	D.R.J.	K.L.M.	L.E.D.	11/4/85	

FOR BENDING DIAGRAMS AND NOTE,  
SEE SHEET 35/43

38/43

ERIE COUNTY  
ERI - 2 - 18.38

PIERS											
MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	W.B.	E.B.	TOTAL			A	B	C	D		
<b>PIER NO. 18 CONT.</b>											
18P505	14	14	28	6'-2"	1	1'-8"	3'-1"	1'-8"			180
18P506	72	72	144	5'-3"	1	1'-8"	2'-2"	1'-8"			789
18P507	4 SETS OF 14 BARS	4 SETS OF 14 BARS	8 SETS OF 14 BARS	11'-9" TO 18'-3"	1	4'-11" TO 8'-2"	2'-2"	4'-11" TO 8'-2"		6"	1,752
18P508	10	10	20	7'-9"	1	2'-5"	3'-2"	2'-5"			162
18P509	4 SETS OF 4 BARS	4 SETS OF 4 BARS	8 SETS OF 4 BARS	16'-5" TO 17'-11"	1	7'-3" TO 8'-0"	2'-2"	7'-3" TO 8'-0"		6"	573
18P801	12	12	24	38'-4"	ST.						2,456
18P901	64	64	128	17'-0"	11	14'-6"					7,398
18P1101	52	52	104	19'-8"	13	18'-0"	2'-0"				10,867
18P1102	26	26	52	32'-1"	ST.						8,864
18P1103	9	9	18	38'-4"	ST.						3,666
18P1104	9	9	18	47'-6"	1	4'-11"	38'-4"	4'-11"			4,543
18P1105	36	36	72	29'-8"	11	26'-6"					11,349
TOTAL WEIGHT											55,615
<b>PIER NO. 19</b>											
19P401	70	70	140	7'-8"	9	2'-11"	3'-2"				717
19P402	70	70	140	8'-6"	ST.						795
19P403	175	175	350	4'-1"	14	3'-2"	8"				955
19P501	8	8	16	15'-9"	8	2'-6"	13'-5"	13'-0"	3'-2"		263
19P502	2	2	4	12'-0"	ST.						50
19P503	2	2	4	19'-10"	ST.						83
19P504	2	2	4	28'-0"	ST.						117
19P505	14	14	28	6'-2"	1	1'-8"	3'-1"	1'-8"			180
19P506	72	72	144	5'-4"	1	1'-8"	2'-3"	1'-8"			801
19P507	4 SETS OF 14 BARS	4 SETS OF 14 BARS	8 SETS OF 14 BARS	11'-10" TO 18'-4"	1	4'-11" TO 8'-2"	2'-3"	4'-11" TO 8'-2"		6"	1,762
19P508	15	15	30	7'-9"	1	2'-5"	3'-2"	2'-5"			242
19P509	4 SETS OF 4 BARS	4 SETS OF 4 BARS	8 SETS OF 4 BARS	16'-6" TO 18'-0"	1	7'-3" TO 8'-0"	2'-3"	7'-3" TO 8'-0"		6"	576
19P801	12	12	24	38'-4"	ST.						2,456
19P1001	31	31	62	15'-4"	11	12'-6"					4,091
19P1002	22	22	44	23'-4"	11	20'-6"					4,418
19P1101	9	9	18	47'-6"	1	4'-11"	38'-4"	4'-11"			4,543
19P1102	9	9	18	38'-4"	ST.						3,666
19P1103	46	46	92	44'-3"	ST.						21,629
19P1104	46	46	92	11'-11"	13	10'-3"	2'-0"				5,825
TOTAL WEIGHT											53,309

PIERS											
MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	W.B.	E.B.	TOTAL			A	B	C	D		
<b>PIER NO. 19 CONT.</b>											
19P1001	31	31	62	15'-4"	11	12'-6"					4,091
19P1002	22	22	44	23'-4"	11	20'-6"					4,418
19P1101	9	9	18	47'-6"	1	4'-11"	38'-4"	4'-11"			4,543
19P1102	9	9	18	38'-4"	ST.						3,666
19P1103	46	46	92	42'-0"	ST.						20,529
19P1104	46	46	92	11'-11"	13	10'-3"	2'-0"				5,825
TOTAL WEIGHT											52,069
<b>PIER NO. 20</b>											
20P401	74	74	148	7'-8"	9	2'-11"	3'-2"				758
20P402	74	74	148	8'-6"	ST.						840
20P403	185	185	370	4'-1"	14	3'-2"	8"				1,009
20P501	8	8	16	15'-9"	8	2'-6"	13'-5"	13'-0"	3'-2"		263
20P502	2	2	4	12'-0"	ST.						50
20P503	2	2	4	19'-10"	ST.						83
20P504	2	2	4	28'-0"	ST.						117
20P505	14	14	28	6'-2"	1	1'-8"	3'-1"	1'-8"			180
20P506	72	72	144	5'-4"	1	1'-8"	2'-3"	1'-8"			801
20P507	4 SETS OF 14 BARS	4 SETS OF 14 BARS	8 SETS OF 14 BARS	11'-10" TO 18'-4"	1	4'-11" TO 8'-2"	2'-3"	4'-11" TO 8'-2"		6"	1,762
20P508	15	15	30	7'-9"	1	2'-5"	3'-2"	2'-5"			242
20P509	4 SETS OF 4 BARS	4 SETS OF 4 BARS	8 SETS OF 4 BARS	16'-6" TO 18'-0"	1	7'-3" TO 8'-0"	2'-3"	7'-3" TO 8'-0"		6"	576
20P801	12	12	24	38'-4"	ST.						2,456
20P1001	31	31	62	15'-4"	11	12'-6"					4,091
20P1002	22	22	44	23'-4"	11	20'-6"					4,418
20P1101	9	9	18	47'-6"	1	4'-11"	38'-4"	4'-11"			4,543
20P1102	9	9	18	38'-4"	ST.						3,666
20P1103	46	46	92	44'-3"	ST.						21,629
20P1104	46	46	92	11'-11"	13	10'-3"	2'-0"				5,825
TOTAL WEIGHT											53,309

PIERS											
MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	W.B.	E.B.	TOTAL			A	B	C	D		
<b>PIER NO. 21</b>											
21P401	78	78	156	7'-8"	9	2'-11"	3'-2"				799
21P402	78	78	156	8'-6"	ST.						886
21P403	195	195	390	4'-1"	14	3'-2"	8"				1,064
21P501	8	8	16	15'-9"	8	2'-6"	13'-5"	13'-0"	3'-2"		263
21P502	2	2	4	12'-0"	ST.						50
21P503	2	2	4	19'-10"	ST.						83
21P504	2	2	4	28'-0"	ST.						117
21P505	14	14	28	6'-2"	1	1'-8"	3'-1"	1'-8"			180
21P506	72	72	144	5'-4"	1	1'-8"	2'-3"	1'-8"			801
21P507	4 SETS OF 14 BARS	4 SETS OF 14 BARS	8 SETS OF 14 BARS	11'-10" TO 18'-4"	1	4'-11" TO 8'-2"	2'-3"	4'-11" TO 8'-2"		6"	1,762
21P508	15	15	30	7'-9"	1	2'-5"	3'-2"	2'-5"			242
21P509	4 SETS OF 4 BARS	4 SETS OF 4 BARS	8 SETS OF 4 BARS	16'-6" TO 18'-0"	1	7'-3" TO 8'-0"	2'-3"	7'-3" TO 8'-0"		6"	576
21P801	12	12	24	38'-4"	ST.						2,456
21P1001	31	31	62	15'-4"	11	12'-6"					4,091
21P1002	22	22	44	23'-4"	11	20'-6"					4,418
21P1101	9	9	18	47'-6"	1	4'-11"	38'-4"	4'-11"			4,543
21P1102	9	9	18	38'-4"	ST.						3,666
21P1103	46	46	92	46'-3"	ST.						22,607
21P1104	46	46	92	11'-11"	13	10'-3"	2'-0"				5,825
TOTAL WEIGHT											54,429

FOR BENDING DIAGRAMS AND NOTE,  
SEE SHEET 35/43

ALTERNATE - 2 35/43

adache - ciuni - lynn associates  
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

**REINFORCING STEEL LIST**  
BRIDGE N<sup>o</sup> ERI - 2 - 19.11 L / R  
S. R. 2 OVER HURON RIVER  
N. & W. R.R. 8 RIVER ROAD  
ERIE COUNTY STA. 1233 + 43.75 TO  
ERI - 2 - 18.38 STA. 1259 + 37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	D.R.J.	K.L.M.	L.E.D.	11/4/88	

PIERS											
MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	W.B.	E.B.	TOTAL			A	B	C	D		
<b>PIER NO. 22</b>											
22P401	74	74	148	8'-5"	9	3'-2"	3'-8"				832
22P402	74	74	148	9'-0"	ST.						890
22P403	185	185	370	4'-7"	14	3'-8"	8"				1,133
22P404	45	45	90	7'-5"	1	2'-10"	1'-11"	2'-10"			446
22P405	20	20	40	9'-3"	ST.						247
22P406	5	5	10	3'-10"	ST.						26
22P501	2 SETS OF 16 BARS	2 SETS OF 16 BARS	4 SETS OF 16 BARS	13'-9" TO 21'-3"	1	4'-11" TO 8'-8"	4'-2" TO 8'-8"	4'-11" TO 8'-8"		6"	1,168
22P502	54	54	108	7'-3"	1	1'-8"	4'-2"	1'-8"			817
22P503	14	14	28	8'-9"	1	2'-5"	4'-2"	2'-5"			256
22P504	8	8	16	17'-8"	8	2'-6"	15'-2"	14'-10"	3'-7"		295
22P505	2	2	4	13'-0"	ST.						54
22P506	2	2	4	22'-6"	ST.						94
22P507	2	2	4	32'-6"	ST.						136
22P508	2 SETS OF 4 BARS	2 SETS OF 4 BARS	4 SETS OF 4 BARS	19'-9" TO 21'-3"	1	7'-11" TO 8'-8"	4'-2" TO 8'-8"	7'-11" TO 8'-8"		6"	342
22P801	12	12	24	42'-5"	ST.						2,718
22P1001	37	37	74	17'-4"	11	14'-6"					5,519
22P1002	18	18	36	23'-4"	11	20'-6"					3,614
TOTAL WEIGHT											54,070
<b>PIER NO. 23</b>											
23P401	70	70	140	8'-5"	9	3'-2"	3'-8"				787
23P402	70	70	140	9'-0"	ST.						842
23P403	175	175	350	4'-7"	14	3'-8"	8"				1,072
23P501	4 SETS OF 16 BARS	4 SETS OF 16 BARS	8 SETS OF 16 BARS	12'-4" TO 19'-10"	1	4'-11" TO 8'-8"	2'-9" TO 8'-8"	4'-11" TO 8'-8"		6"	2,147
23P502	80	80	160	5'-9"	1	1'-8"	2'-9"	1'-8"			960
23P503	14	14	28	8'-3"	1	2'-5"	3'-8"	2'-5"			241
23P504	14	14	28	6'-8"	1	1'-8"	3'-7"	1'-8"			195
23P505	2	2	4	13'-0"	ST.						54
23P506	2	2	4	22'-6"	ST.						94
23P507	2	2	4	32'-6"	ST.						136
23P508	8	8	16	17'-8"	8	2'-6"	15'-2"	14'-10"	3'-7"		295
23P509	4 SETS OF 4 BARS	4 SETS OF 4 BARS	8 SETS OF 4 BARS	19'-9" TO 21'-3"	1	7'-11" TO 8'-8"	2'-9" TO 8'-8"	7'-11" TO 8'-8"		6"	684

PIERS											
MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	W.B.	E.B.	TOTAL			A	B	C	D		
<b>PIER NO. 23 CONT.</b>											
23P801	12	12	24	42'-5"	ST.						2,718
23P1101	9	9	18	51'-7"	1	4'-11"	42'-5"	4'-11"			4,933
23P1102	13	13	26	42'-5"	ST.						5,859
23P1103	44	44	88	12'-0"	13	10'-2"	2'-0"				5,611
23P1104	44	44	88	43'-1"	ST.						20,143
23P1105	37	37	74	17'-8"	11	14'-6"					6,946
23P1106	18	18	36	23'-8"	11	20'-6"					4,527
TOTAL WEIGHT											58,244
<b>PIER NO. 24</b>											
24P401	58	58	116	8'-5"	9	3'-2"	3'-8"				652
24P402	58	58	116	9'-0"	ST.						697
24P403	174	174	348	4'-7"	14	3'-8"	8"				1,065
24P501	15	15	30	12'-7"	9	4'-10"	5'-8"				394
24P502	2 SETS OF 15 BARS	2 SETS OF 15 BARS	4 SETS OF 15 BARS	15'-4" TO 21'-1"	ST.					5"	1,139
24P503	15	15	30	10'-11"	10	1'-10"	3'-0"	2'-10"	5'-8"		342
24P504	11	11	22	9'-1"	1	5'-8"	1'-10"				208
24P505	1	1	2	7'-2"	1	1'-10"	3'-9"	1'-10"			15
24P506	1	1	2	8'-8"	1	1'-10"	5'-3"	1'-10"			18
24P507	8	8	16	17'-8"	8	2'-6"	15'-2"	14'-10"	3'-7"		295
24P508	2	2	4	13'-0"	ST.						54
24P509	2	2	4	22'-6"	ST.						94
24P510	2	2	4	32'-6"	ST.						136
24P511	14	14	28	7'-0"	1	1'-10"	3'-7"	1'-10"			204
24P512	76	76	152	6'-3"	1	1'-10"	2'-10"	1'-10"			991
24P513	4 SETS OF 15 BARS	4 SETS OF 15 BARS	8 SETS OF 15 BARS	12'-5" TO 19'-7"	1	4'-11" TO 8'-6"	2'-10" TO 8'-6"	4'-11" TO 8'-6"		6-1/8"	2,003
24P514	11	11	22	8'-3"	1	2'-5"	3'-8"	2'-5"			189
24P515	4 SETS OF 4 BARS	4 SETS OF 4 BARS	8 SETS OF 4 BARS	17'-9" TO 19'-3"	1	7'-7" TO 8'-4"	2'-10" TO 8'-4"	7'-7" TO 8'-4"		6"	617
24P801	12	12	24	42'-5"	ST.						2,718
24P1001	52	52	104	23'-4"	11	20'-6"					10,442
24P1002	25	25	50	35'-4"	11	32'-6"					7,602

PIERS											
MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	W.B.	E.B.	TOTAL			A	B	C	D		
<b>PIER NO. 24 CONT.</b>											
24P1101	37	37	74	27'-0"	13	25'-4"	2'-0"				10,615
24P1102	2 SETS OF 3 BARS	2 SETS OF 3 BARS	4 SETS OF 3 BARS	12'-4" TO 15'-8"	13	10'-6" TO 14'-6"	2'-0"				893
24P1103	8	8	16	27'-5"	13	25'-9"	2'-0"				2,331
24P1104	1	1	2	27'-0"	18	1'-6"	1'-8"	23'-8"	6'-6"		287
24P1105	60	60	120	13'-3"	ST.						8,448
24P1106	30	30	60	21'-0"	ST.						6,694
24P1107	30	30	60	36'-4"	ST.						11,582
24P1108	13	13	26	42'-5"	ST.						5,859
24P1109	9	9	18	51'-7"	1	4'-11"	42'-5"	4'-11"			4,933
TOTAL WEIGHT											81,517
<b>PIER NO. 25</b>											
25P401	62	62	124	8'-5"	9	3'-2"	3'-8"				697
25P402	62	62	124	9'-0"	ST.						745
25P403	186	186	372	4'-7"	14	3'-8"	8"				1,139
25P501	15	15	30	12'-7"	9	4'-10"	5'-8"				394
25P502	2 SETS OF 15 BARS	2 SETS OF 15 BARS	4 SETS OF 15 BARS	15'-4" TO 21'-1"	ST.					5"	1,139
25P503	15	15	30	10'-11"	10	1'-10"	3'-0"	2'-10"	5'-8"		342
25P504	11	11	22	9'-1"	1	1'-10"	5'-8"	1'-10"			208
25P505	1	1	2	7'-2"	1	1'-10"	3'-9"	1'-10"			15
25P506	1	1	2	8'-8"	1	1'-10"	5'-3"	1'-10"			18
25P507	8	8	16	17'-8"	8	2'-6"	15'-2"	14'-10"	3'-7"		295
25P508	2	2	4	13'-0"	ST.						54
25P509	2	2	4	22'-6"	ST.						94
25P510	2	2	4	32'-6"	ST.						136
25P511	14	14	28	7'-0"	1	1'-10"	3'-7"	1'-10"			204
25P512	76	76	152	6'-3"	1	1'-10"	2'-10"	1'-10"			991
25P513	4 SETS OF 15 BARS	4 SETS OF 15 BARS	8 SETS OF 15 BARS	12'-5" TO 19'-7"	1	4'-11" TO 8'-6"	2'-10" TO 8'-6"	4'-11" TO 8'-6"		6-1/8"	2,003
25P514	11	11	22	8'-3"	1	2'-5"	3'-8"	2'-5"			189
25P515	4 SETS OF 4 BARS	4 SETS OF 4 BARS	8 SETS OF 4 BARS	17'-9" TO 19'-3"	1	7'-7" TO 8'-4"	2'-10" TO 8'-4"	7'-7" TO 8'-4"		6"	617
25P801	12	12	24	42'-5"	ST.						2,718

ALTERNATE - 2

40/43

adache - ciuni - lynn associates  
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

**REINFORCING STEEL LIST**  
BRIDGE N° ERI-2-19.11 L/R  
S.R. 2 OVER HURON RIVER  
N. & W. R.R. & RIVER ROAD  
ERIE COUNTY STA. 1233 + 43.75 TO  
ERI-2-18.38 STA. 1259 + 37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	D.R.G.	K.L.M.	L.E.D.	11/4/85	

FOR BENDING DIAGRAMS AND NOTE,  
SEE SHEET 35/43

FEB 5 1985

CALC. _____	OHIO _____
DATE _____	FHWA _____
CHKD. _____	REGION _____
DATE _____	



ERIE COUNTY  
ERI - 2-18.38

PIERS											
MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	W.B.	E.B.	TOTAL			A	B	C	D		
<b>PIER NO. 25 CONT.</b>											
25P1001	52	52	104	23'-4"	11	20'-6"					10,442
25P1002	25	25	50	35'-4"	11	32'-6"					7,602
25P1101	37	37	74	27'-0"	13	25'-4"	2'-0"				10,615
25P1102	2 SETS OF	2 SETS OF	4 SETS OF	12'-4" TO	13	10'-6" TO	2'-0"				893
	3 BARS	3 BARS	3 BARS	15'-8"		14'-6"					
25P1103	8	8	16	27'-5"	13	15'-9"	2'-0"				2,331
25P1104	1	1	2	27'-0"	18	1'-6"	1'-8"	23'-8"	6'-6"		287
25P1105	60	60	120	13'-3"	ST.						8,448
25P1106	30	30	60	21'-0"	ST.						6,694
25P1107	30	30	60	38'-1"	ST.						12,140
25P1108	13	13	26	42'-5"	ST.						5,859
25P1109	9	9	18	51'-7"	1	4'-11"	42'-5"	4'-11"			4,933
										TOTAL WEIGHT	82,242
<b>PIER NO. 26</b>											
26P401	36	36	72	7'-0"	9	2'-9"	2'-8"				337
26P402	36	36	72	9'-6"	ST.						457
26P403	90	90	180	3'-7"	14	2'-8"	8"				431
26P501	8	8	16	16'-10"	8	1'-8"	15'-2"	14'-8"	3'-9"		281
26P502	2	2	4	13'-0"	ST.						54
26P503	2	2	4	22'-1"	ST.						92
26P504	2	2	4	31'-7"	ST.						132
26P505	14	14	28	5'-8"	1	1'-8"	2'-7"	1'-8"			165
26P506	80	80	160	5'-2"	1	1'-8"	2'-1"	1'-8"			862
26P507	4 SETS OF	4 SETS OF	8 SETS OF	11'-8" TO	1	4'-11" TO	2'-1"	4'-11" TO		6-3/8"	1,930
	15 BARS	15 BARS	15 BARS	19'-2"		8'-8"		8'-8"			
26P508	15	15	30	7'-3"	1	2'-5"	2'-8"	2'-5"			227
26P509	4 SETS OF	4 SETS OF	8 SETS OF	17'-4" TO	1	7'-9" TO	2'-1"	7'-9" TO		6"	604
	4 BARS	4 BARS	4 BARS	18'-10"		8'-6"		8'-6"			
26P801	12	12	24	42'-5"	ST.						2,718
26P802	46	46	92	26'-0"	ST.						6,387
26P803	46	46	92	8'-3"	13	7'-0"	1'-6"				2,027
26P1001	31	31	62	14'-4"	11	11'-6"					3,824
26P1002	16	16	32	23'-4"	11	20'-6"					3,213
26P1101	12	12	24	42'-5"	ST.						5,409
26P1102	8	8	16	51'-7"	1	4'-11"	42'-5"	4'-11"			4,385
										TOTAL WEIGHT	33,535

FOR BENDING DIAGRAMS AND NOTE,  
SEE SHEET 35/43

ALTERNATE - 2

41/43

adache - ciuni - lynn associates  
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

**REINFORCING STEEL LIST**  
BRIDGE N° ERI - 2-19.11 L / R  
S.R. 2 OVER HURON RIVER  
N. & W. R.R. & RIVER ROAD  
ERIE COUNTY STA. 1233 + 43.75 TO  
ERI - 2-18.38 STA. 1259 + 37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	D.R.J.	K.L.M.	L.E.D.	11/4/85	

# EPOXY COATED REINFORCING STEEL

CALC. DATE \_\_\_\_\_  
 CHKD. DATE \_\_\_\_\_  
 OHIO F.H.W.A. REGION 5

217K  
326

ERIE COUNTY  
 ERI-2-18.38

ABUTMENTS											
MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	W.B.	E.B.	TOTAL			A	B	C	D		
<b>ABUTMENT NO. 1</b>											
1A502E	1	1	2	30'-0"	ST.						63
1A503E	1	1	2	13'-4"	ST.						28
1A512E	16	16	32	13'-10"	ST.						462
1A513E	16	16	32	4'-4"	ST.						145
1A514E	12	12	24	3'-0"	ST.						75
1A515E	12	12	24	5'-3"	15	2'-2"	2'-5"	7-1/2"			131
1A516E	16	16	32	2'-8"	12	2'-1"					89
1A517E	16	16	32	4'-7"	ST.						153
1A605E	40	40	80	5'-1"	1	2'-3"	11"	2'-3"			611
1A612E	12	12	24	3'-9"	19	9"	6"	8-1/2"	2'-5"		135
1A613E	2 SETS OF 5 BARS	2 SETS OF 5 BARS	4 SETS OF 5 BARS	3'-7" TO 3'-9"	19	7" TO 9"	2" TO 6"	8-1/2"	2'-5"		110
1A614E	6	6	12	3'-7"	19	7"	2"	8-1/2"	2'-5"		66
1A805E	27	27	54	4'-10"	20	2'-7"	1'-0"	1'-0"			697
										TOTAL WEIGHT	2,765
<b>ABUTMENT NO. 2</b>											
2A505E	2	2	4	22'-7"	ST.						94
2A516E	16	16	32	5'-3"	15	2'-2"	2'-5"	7 1/2"			176
2A517E	16	16	32	3'-0"	ST.						100
2A518E	16	16	32	2'-8"	12	2'-1"					90
2A519E	16	16	32	4'-7"	ST.						152
2A520E	15	16	32	16'-10"	ST.						562
2A521E	16	16	32	4'-4"	ST.						144
2A604E	41	41	82	5'-1"	1	2'-3"	11"	2'-3"			626
2A618E	16	16	32	3'-9"	19	9"	6"	8 1/2"	2'-5"		180
2A619E	2 SETS OF 5 BARS	2 SETS OF 5 BARS	4 SETS OF 5 BARS	3'-9" TO 3'-7"	19	9" TO 7"	6" TO 2"	8 1/2"	2'-5"		110
2A620E	6	6	12	3'-7"	19	7"	2"	8 1/2"	2'-5"		64
2A806E	27	27	54	4'-10"	20	2'-7"	1'-0"	1'-0"			697
										TOTAL	2,995

SUPERSTRUCTURE											
MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	W.B.	E.B.	TOTAL			A	B	C	D		
<b>UNIT NO. 1</b>											
1S401E	1,365	1,365	2,730	30'-0"	ST.						54,709
1S402E	65	65	130	21'-0"	ST.						1,824
1S501E	924	924	1,848	30'-0"	ST.						57,824
1S502E	44	44	88	28'-0"	ST.						2,570
1S503E	1,069	1,069	2,138	30'-3"	ST.						67,456
1S504E	1,069	1,069	2,138	12'-11"	ST.						28,803
1S505E	834	834	1,668	3'-1"	5	9"	6"	8-1/2"	9-1/2"		5,364
1S506E	834	834	1,668	2'-5"	13	1'-8"	10-1/2"				4,204
1S507E	834	834	1,668	5'-3"	15	2'-2"	2'-5"	7-1/2"			9,134
1S508E	8	8	16	11'-2"	ST.						186
1S509E	304	304	608	5'-8"	ST.						3,594
1S510E	224	224	448	12'-11"	ST.						6,036
1S511E	8	8	16	12'-6"	ST.						209
1S512E	40	40	80	5'-8"	3	1'-0"	1'-7"				473
1S513E	40	40	80	6'-2"	3	1'-3"	1'-7"				515
1S516E	288	288	576	40'-0"	ST.						24,031
1S517E	208	208	416	6'-8"	ST.						2,893
1S518E	208	208	416	7'-8"	ST.						3,326
1S519E	196	196	392	9'-10"	6	4'-0"	8"	10"			4,020
1S520E	168	168	336	12'-10"	6	5'-0"	1'-8"	10"			4,497
1S521E	30	30	60	4'-0"	ST.						250
1S601E	1,069	1,069	2,138	26'-1"	ST.						83,761
1S602E	1,069	1,069	2,138	17'-5"	ST.						55,930
1S701E	348	348	696	40'-0"	ST.						56,905
1S801E	6	6	12	38'-6"	ST.						1,234
1S802E	104	104	208	7'-8"	ST.						4,258
1S803E	78	78	156	8'-4"	ST.						3,470
1S804E	15	15	30	2'-0"	ST.						160
										TOTAL WEIGHT	487,636

MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	W.B.	E.B.	TOTAL			A	B	C	D		
<b>UNIT NO. 2</b>											
2S401E	1,365	1,365	2,730	30'-0"	ST.						54,709
2S402E	65	65	130	19'-9"	ST.						1,715
2S501E	924	924	1,848	30'-0"	ST.						57,824
2S502E	44	44	88	26'-9"	ST.						2,455
2S503E	1,067	1,067	2,134	30'-3"	ST.						67,329
2S504E	1,067	1,067	2,134	12'-11"	ST.						28,750
2S505E	832	832	1,664	3'-1"	5	9"	6"	8-1/2"	9-1/2"		5,351
2S506E	832	832	1,664	2'-5"	13	1'-8"	10-1/2"				4,194
2S507E	832	832	1,664	5'-3"	15	2'-2"	2'-5"	7-1/2"			9,112
2S508E	16	16	32	11'-2"	ST.						373
2S509E	304	304	608	5'-8"	ST.						3,594
2S510E	224	224	448	12'-11"	ST.						6,036
2S511E	80	80	160	6'-2"	3	1'-3"	1'-7"				1,029
2S516E	288	288	576	40'-0"	ST.						24,031
2S517E	208	208	416	6'-8"	ST.						2,893
2S518E	208	208	416	7'-8"	ST.						3,326
2S519E	196	196	392	9'-10"	6	4'-0"	8"	10"			4,020
2S520E	168	168	336	12'-10"	6	5'-0"	1'-8"	10"			4,497
2S521E	30	30	60	4'-0"	ST.						250
2S601E	1,067	1,067	2,134	26'-1"	ST.						83,604
2S602E	1,067	1,067	2,134	17'-5"	ST.						55,825
2S701E	348	348	696	40'-0"	ST.						56,905
2S801E	6	6	12	38'-6"	ST.						1,234
2S802E	104	104	208	7'-8"	ST.						4,258
2S803E	78	78	156	8'-4"	ST.						3,471
2S804E	15	15	30	2'-0"	ST.						160
										TOTAL WEIGHT	486,945

ALTERNATE - 2

42/43

adache-ciuni-lynn associates  
 CONSULTING ENGINEERS CLEVELAND, OHIO 44131

**REINFORCING STEEL LIST**  
 BRIDGE N<sup>o</sup> ERI-2-19.11 L/R  
 S.R. 2 OVER HURON RIVER  
 N. & W. R.R. & RIVER ROAD  
 ERIE COUNTY STA. 1233 + 43.75 TO  
 ERI-2-18.38 STA. 1259 + 37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
K.L.M.	D.R.J.	I.M.B.	L.E.D.	11/4/85	

FOR BENDING DIAGRAMS AND NOTE,  
 SEE SHEET 35/43

# EPOXY COATED REINFORCING STEEL

CALC. _____	OHIO _____
DATE _____	F.H.W.A. 5 _____
CHKD. _____	REGION _____
DATE _____	



ERIE COUNTY  
ERI - 2-18.38

MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	W.B.	E.B.	TOTAL			A	B	C	D		
<b>UNIT NO. 3</b>											
3S401E	1,560	1,495	3,055	30'-0"	ST.						61,222
3S402E	1 SET OF		1 SET OF	11'-7" TO	ST.					2-3/4"	676
	57 BARS		57 BARS	23'-11"							
3S403E	4		4	23'-11"	ST.						64
3S404E	4		4	11'-7"	ST.						31
3S405E	1 SET OF	1 SET OF	1 SET OF	14'-2" TO	ST.					2-11/16"	776
	57 BARS	57 BARS	57 BARS	26'-7"							
3S406E	4		4	26'-7"	ST.						71
3S407E	4		4	14'-2"	ST.						38
3S501E	1,056	1,012	2,068	30'-0"	ST.						64,708
3S502E	1 SET OF		1 SET OF	19'-7" TO	ST.					2-11/16"	1,182
	44 BARS		44 BARS	31'-11"							
3S503E	1,200	1,155	2,355	30'-3"	ST.						74,302
3S504E	1,200	1,155	2,355	12'-11"	ST.						31,727
3S505E	943	908	1,851	3'-1"	5	9"	6"	8-1/2"	9-1/2"		5,953
3S506E	943	908	1,851	2'-5"	13	1'-8"	10-1/2"				4,666
3S507E	943	908	1,851	5'-3"	15	2'-2"	2'-5"	7-1/2"			10,136
3S508E	1 SET OF	1 SET OF	1 SET OF	21'-10" TO	ST.					3-7/16"	1,287
	44 BARS	44 BARS	44 BARS	34'-3"							
3S509E	1 SET OF	1 SET OF	2 SETS OF	1'-6" TO	ST.					2'-0-3/8"	866
	20 BARS	20 BARS	20 BARS	40'-0"							
3S510E	240	232	472	12'-11"	ST.						6,359
3S511E	348	340	688	5'-8"	ST.						4,066
3S512E	12		12	14'-3"	ST.						178
3S513E	4	12	16	14'-8"	ST.						245
3S514E	4	4	8	11'-11"	ST.						99
3S515E	8	8	16	10'-9"	ST.						179
3S516E	80	80	160	6'-2"	3	1'-3"	1'-7"				1,029
3S517E	240	240	480	6'-8"	ST.						3,338
3S518E	240	240	480	7'-8"	ST.						3,838
3S519E	224	224	448	9'-10"	6	4'-0"	8"	10"			4,595
3S520E	196	196	392	12'-10"	6	5'-0"	1'-8"	10"			5,247
3S521E	35	35	70	4'-0"	ST.						292
3S522E	336	336	672	40'-0"	ST.						28,036
3S601E	1,200	1,155	2,355	26'-1"	ST.						92,262
3S602E	1,200	1,155	2,355	17'-5"	ST.						61,607
3S603E	1 SET OF	1 SET OF	2 SETS OF	1'-6" TO	ST.						1,247
	20 BARS	20 BARS	20 BARS	40'-0"							
3S701E	406	406	812	40'-0"	ST.						66,389
3S801E	6	6	12	38'-6"	ST.						1,234
3S802E	120	120	240	7'-8"	ST.						4,913
3S803E	90	90	180	8'-4"	ST.						4,005
3S804E	15	15	30	2'-0"	ST.						160
										TOTAL WEIGHT	547,023

MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	W.B.	E.B.	TOTAL			A	B	C	D		
<b>UNIT NO. 4</b>											
4S401E	1,386	1,386	2,772	30'-0"	ST.						55,551
4S402E	63	63	126	17'-4"	ST.						1,459
4S501E	836	836	1,672	30'-0"	ST.						52,317
4S502E	38	38	76	14'-8"	ST.						1,955
4S503E	1,112	1,112	2,224	32'-2"	ST.						74,615
4S504E	1,112	1,112	2,224	12'-10"	ST.						29,769
4S505E	866	866	1,732	3'-1"	5	9"	6"	8-1/2"	9-1/2"		5,569
4S506E	866	866	1,732	2'-3"	13	1'-6"	10-1/2"				4,065
4S507E	866	866	1,732	5'-3"	15	2'-2"	2'-5"	7-1/2"			9,484
4S508E	40	40	80	14'-2"	ST.						1,182
4S509E	152	152	304	13'-8"	ST.						4,333
4S510E	336	336	672	6'-8"	ST.						4,673
4S511E	8	8	16	15'-6"	ST.						259
4S512E	10	10	20	38'-3"	ST.						798
4S601E	1112	1112	2224	27'-6"	STR.						91,862
4S602E	1112	1112	2224	17'-10"	STR.						59,571
4S603E	56	56	112	22'-6"	STR.						3,785
4S604E	56	56	112	26'-0"	STR.						4,374
4S605E	280	280	560	30'-0"	STR.						25,234
4S606E	56	56	112	27'-8"	STR.						4,654
4S607E	56	56	112	17'-8"	STR.						2,972
4S608E	64	64	128	3'-8"	2.3	1'-0"	1'-1"	1'-9"	9"		705
4S609E	56	56	112	25'-2"	STR.						4,234
4S610E	56	56	112	13'-0"	STR.						2,187
4S611E	56	56	112	20'-0"	STR.						3,364
										TOTAL WEIGHT	448,971

FOR BENDING DIAGRAMS AND NOTE,  
SEE SHEET 35/43

ALTERNATE - 2 43/43

adache - ciuni - lynn associates  
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

**REINFORCING STEEL LIST**  
BRIDGE N° ERI - 2-19.11 L/R  
S.R. 2 OVER HURON RIVER  
N. & W. R.R. & RIVER ROAD  
ERIE COUNTY STA. 1233 + 43.75 TO  
ERI - 2-18.38 STA. 1259 + 37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
K.L.M.	J.D.P.	I.M.B.	L.E.D.	11/4/85	

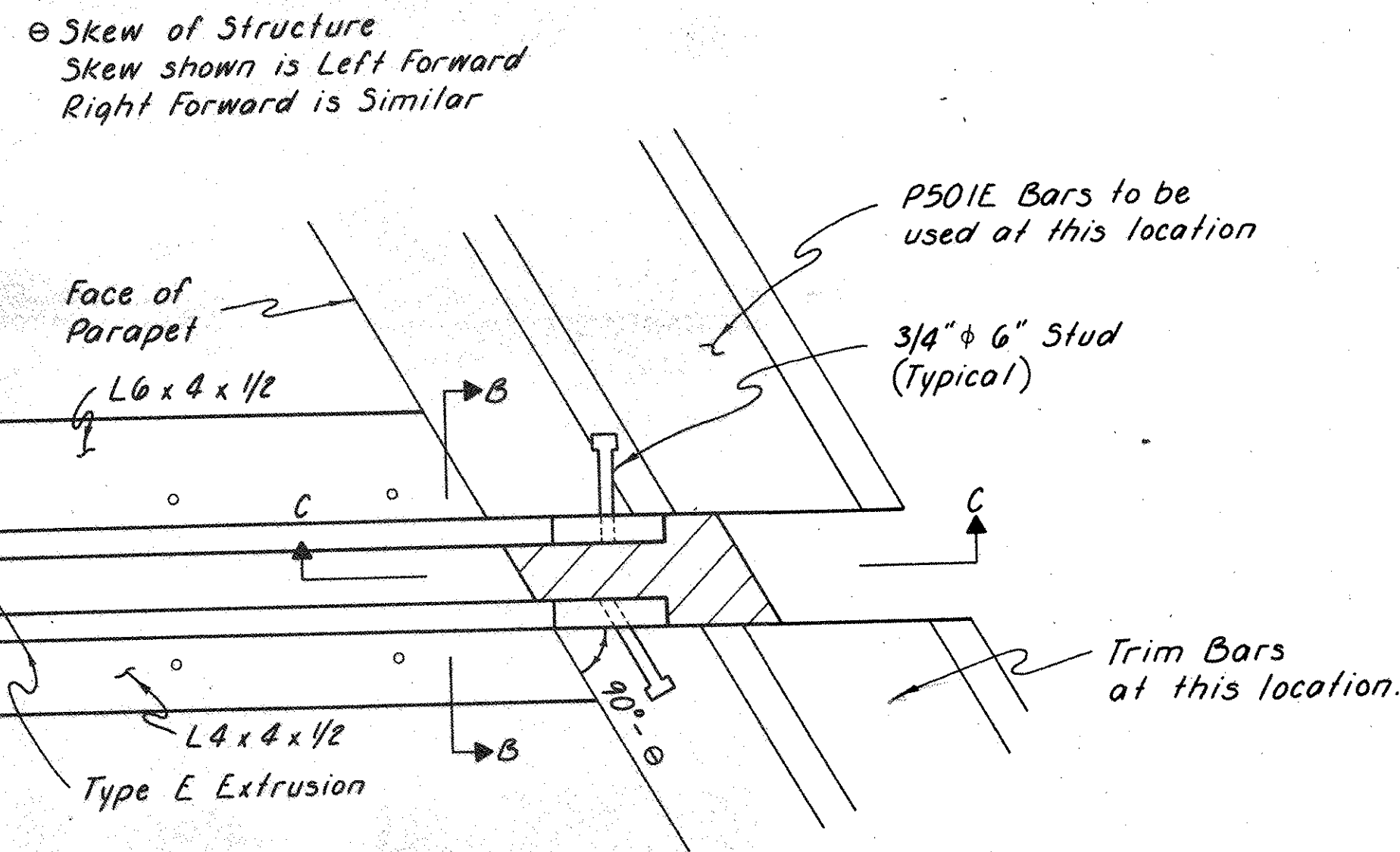
\*\* Included with Item 516 for Payment.  
The angles, plates, studs, and extrusions shall be galvanized as per 711.02. The anchor grooves of the extrusions shall be blast cleaned to grade Sa 3, ASTM D2200.

FHWA REGION	STATE	PROJECT
5	OHIO	

217M  
326

ERIE COUNTY  
ERI-2-(18.38)

For Details not shown  
See Standard Drwg. 5D-1-69



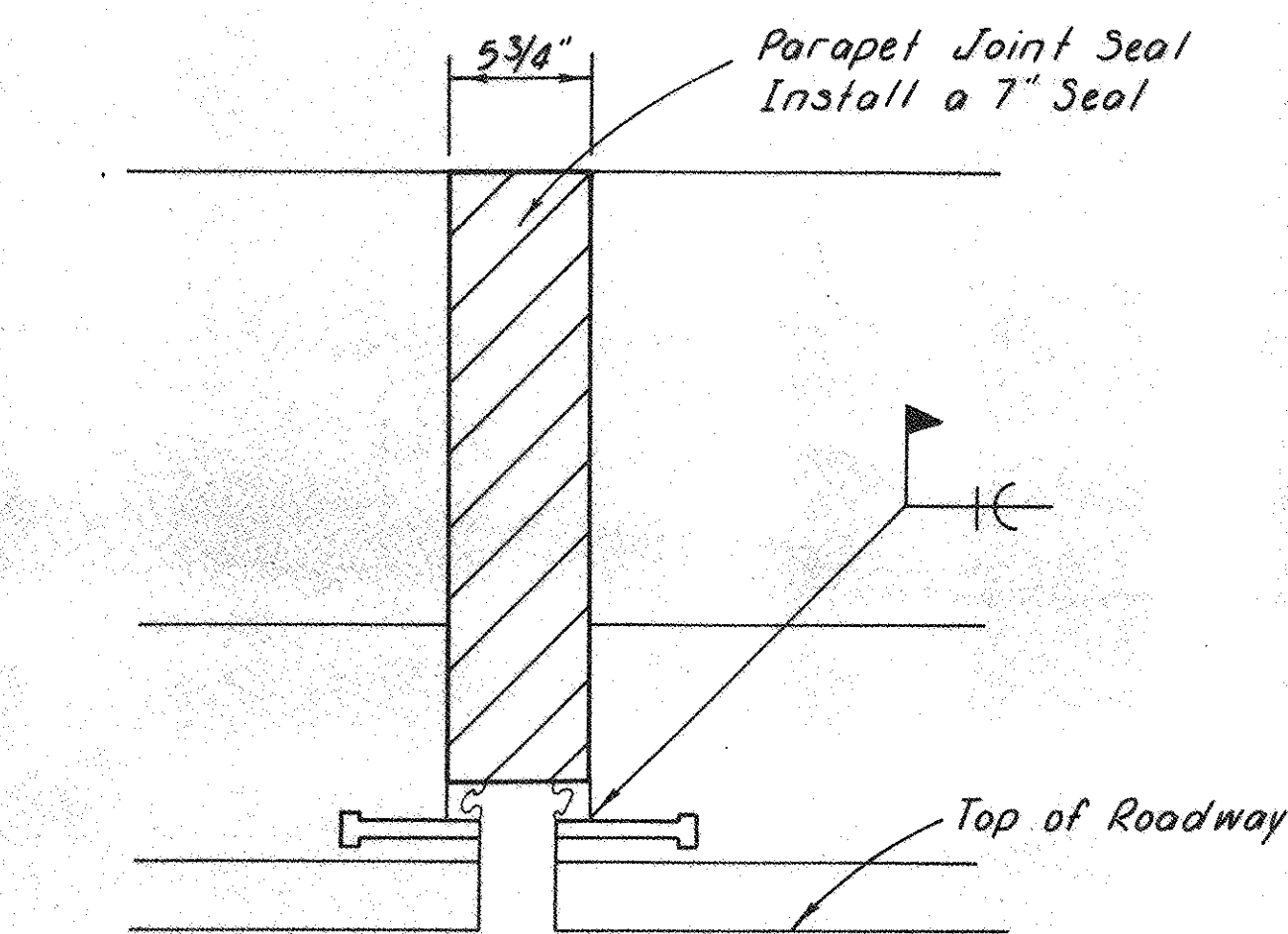
EXPANSION JOINT PLAN VIEW

EPOXY COATED REINFORCING STEEL

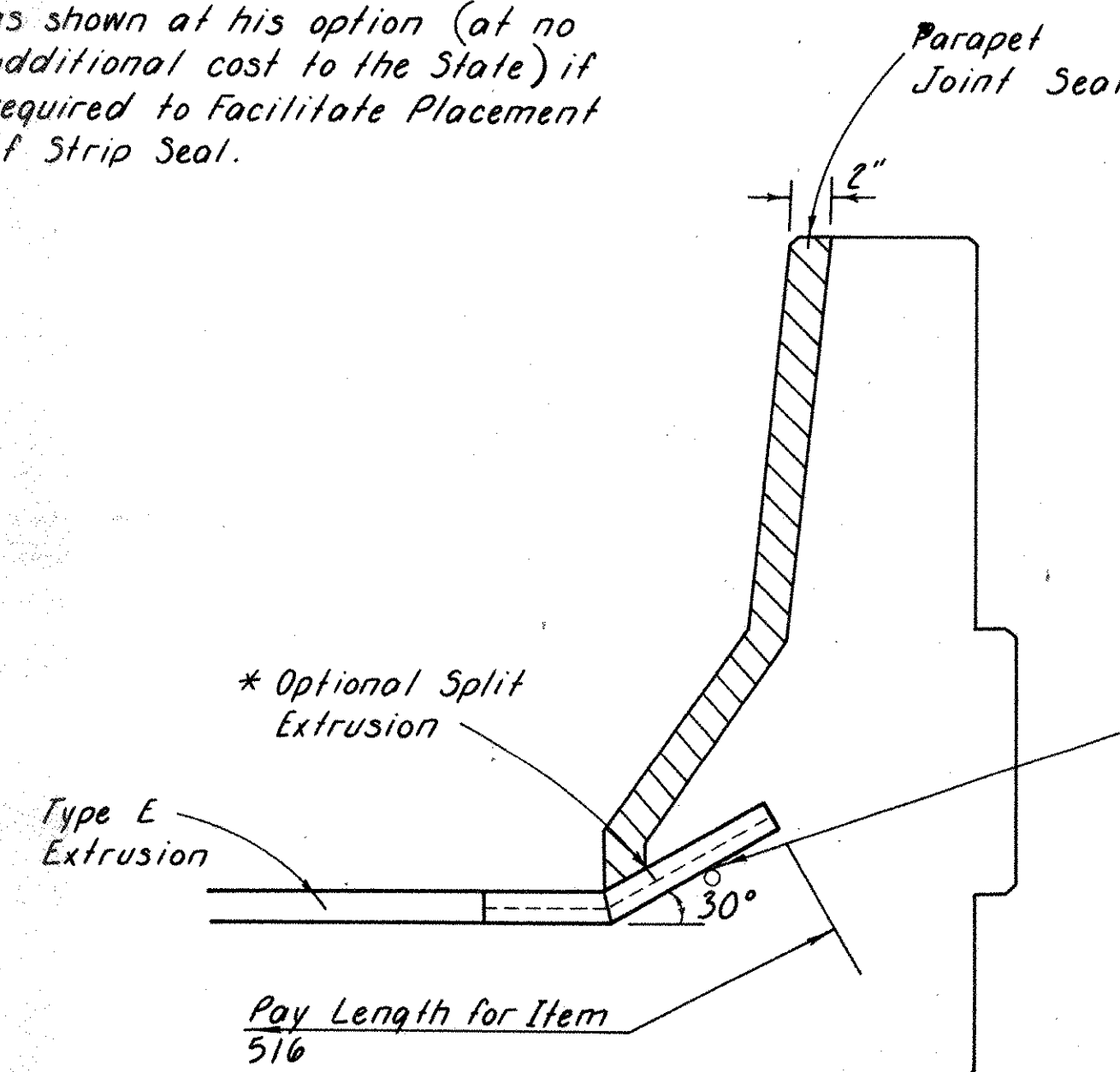
MARK	NO.	LENGTH	SHAPE
P501E†	64	4'-0"	S

\* TO BE USED AS DIRECTED BY THE ENGINEER IN THE PARAPET EXPANSION JOINT AREA. PLAN REINFORCING STEEL DOES NOT ALLOW FOR SKEW OF EXPANSION JOINT. ALSO SOME BARS MAY BE TRIMMED AS DIRECTED BY THE ENGINEER. COST FOR ALL OF THE ABOVE SHALL BE INCLUDED IN ITEM 516 STRUCTURAL STEEL EXPANSION JOINT INCLUDING STRIP SEALS, AS PER PLAN.

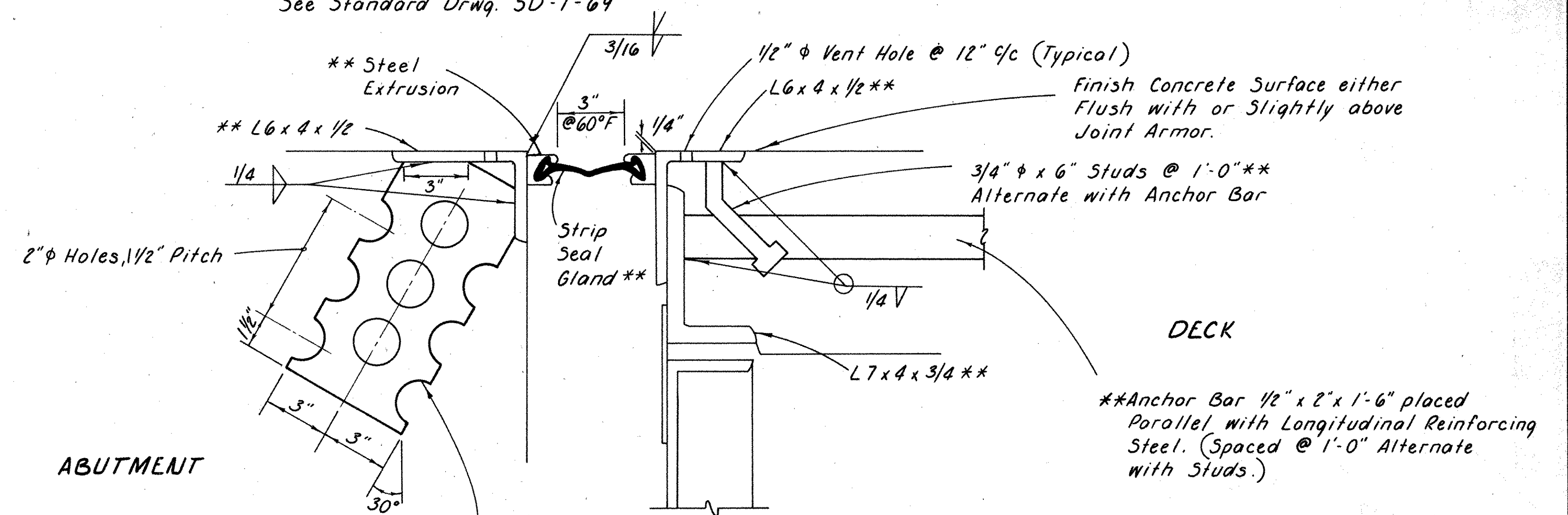
\* Contractor shall Split Extrusions as shown at his option (at no additional cost to the State) if required to facilitate Placement of Strip Seal.



SECTION B-B  
JOINT NORMAL THROUGH PARAPET



SECTION C-C  
JOINT TRANSVERSE THROUGH PARAPET



6 x 1/2 x 12" Plates spaced at approximately 15" c/c except near Joints in the Angle, where the Plates shall be placed within 6" of each side of the Joint. The Holes may be burned in the Plate. \*\*

SECTION A-A  
JOINT NORMAL THROUGH ROADWAY

ITEM 516 STRUCTURAL STEEL EXPANSION JOINTS INCLUDING STRIP SEALS, AS PER PLAN

THIS ITEM SHALL INCLUDE ALL THE WORK REQUIRED TO CONSTRUCT THE STEEL EXPANSION JOINTS AS PER DETAILS IN THE PLAN.

THE STEEL EXTRUSION SHALL BE TYPE E WITH S400E NEOPRENE EXTRUSION AS MANUFACTURED BY WATSON BOWMAN ASSOCIATES, INC., 1280 NIAGARA STREET, BUFFALO, NEW YORK 14213; OR APPROVED EQUAL AS NOTED BELOW.

THE NEOPRENE EXTRUSION SHALL BE ONE CONTINUOUS PIECE. THE NEOPRENE SHALL NOT BE INSTALLED UNTIL ALL OTHER WORK IS COMPLETE UPON THE STRUCTURE. AN ADHESIVE SHALL BE USED TO FACILITATE PLACEMENT OF THE NEOPRENE EXTRUSION. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO FABRICATION.

PHYSICAL PROPERTIES:

- THE STEEL EXTRUSION SHALL CONFORM TO ASTM A242, A36 OR, A588.
  - ADHESIVES SHALL BE ONE-PART MOISTURE CURING POLY-URETHANE AND HYDROCARBON MIXTURES AS DISTRIBUTED UNDER THE TRADE NAME BON-LASTIC BY WATSON BOWMAN ASSOCIATES, INC., OF BUFFALO, NEW YORK; OR AN APPROVED EQUIVALENT.
  - THE NEOPRENE EXTRUSION SHALL CONFORM TO THE PHYSICAL PROPERTIES SPECIFIED FOR AASHTO M220 EXCEPT FOR THE RECOVERY TEST.
  - SET SCREWS FOR FASTENING OF OPTIONAL SPLIT EXTRUSION SHALL BE STAINLESS STEEL.
- THE D.S. BROWN COMPANY, P.O. BOX 158, NORTH BALTIMORE, OHIO 45872, WILL BE ACCEPTED AS ONE ALTERNATE. THE STEEL EXTRUSION SHALL BE TYPE SS-E WITH NO. 500 SEAL. THE CONTRACTOR SHALL FURNISH MATERIAL SPECIFICATION, CERTIFIED MATERIAL TEST RESULTS. CERTIFICATION THAT THE PRODUCT MEETS SPECIFICATIONS, APPROPRIATE INSTALLATION PROCEDURES NECESSARY TO ACCOMMODATE ANY ALTERNATE DESIGN.

THE APPROVAL OF AN ALTERNATE JOINT SEAL DESIGN AND THE ISSUANCE OF REVISED PROJECT PLANS SHALL BE BASED ON THE UNDERSTANDING THAT SUCH PROJECT MODIFICATIONS WILL BE DONE WITHOUT COST TO THE STATE.

THE PARAPET JOINT SHALL BE SEALED AS PART OF THIS ITEM. THE PARAPET JOINT SEAL SHALL BE EVAZOTE 50 AS MANUFACTURED BY E-POXY INDUSTRIES INC., 14 WEST SHORE STREET, RAVENA, NEW YORK 12143, TELEPHONE (518) - 756 - 6193 OR E.V.A. AS MANUFACTURED BY THERMAL - CHEM INC, 1400 LOUIS AVENUE, ELK GROVE VILLAGE, IL. 60007 USA, TELEPHONE (323) - 364 - 0364.

THE SEAL SHALL BE CEMENTED IN WITH AN ADHESIVE AS RECOMMENDED BY THE MANUFACTURER OF THE JOINT SEAL. ALL LAITANCIES OR SURFACES CONTAMINANTS SHALL BE REMOVED TO INSURE MAXIMUM ADHESION.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE UNIT PRICE BID PER LINEAL FOOT FOR ITEM 516, STRUCTURAL STEEL EXPANSION JOINTS INCLUDING STRIP SEALS, AS PER PLAN, WHICH SHALL INCLUDE ALL THE LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION  
DISTRICT THREE

EXPANSION JOINT DETAILS

ERI - 2 - 2082  
ERI - 2 - 2222

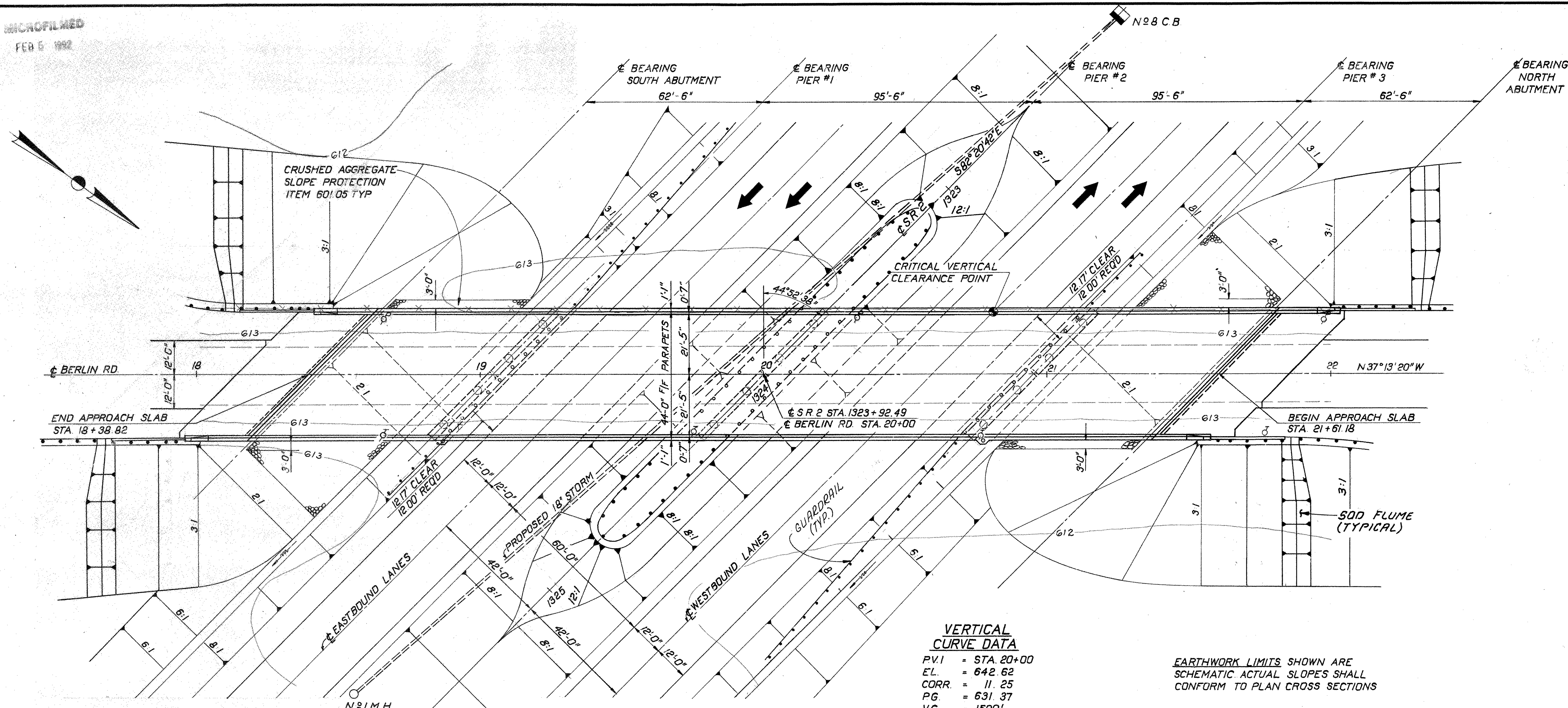
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
KW	MA	MA				
10-85	10-85	10-85				

MICROFILMED  
FEB 6 1992

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

218  
326

ERI COUNTY  
ERI-2-18.38



**VERTICAL CURVE DATA**

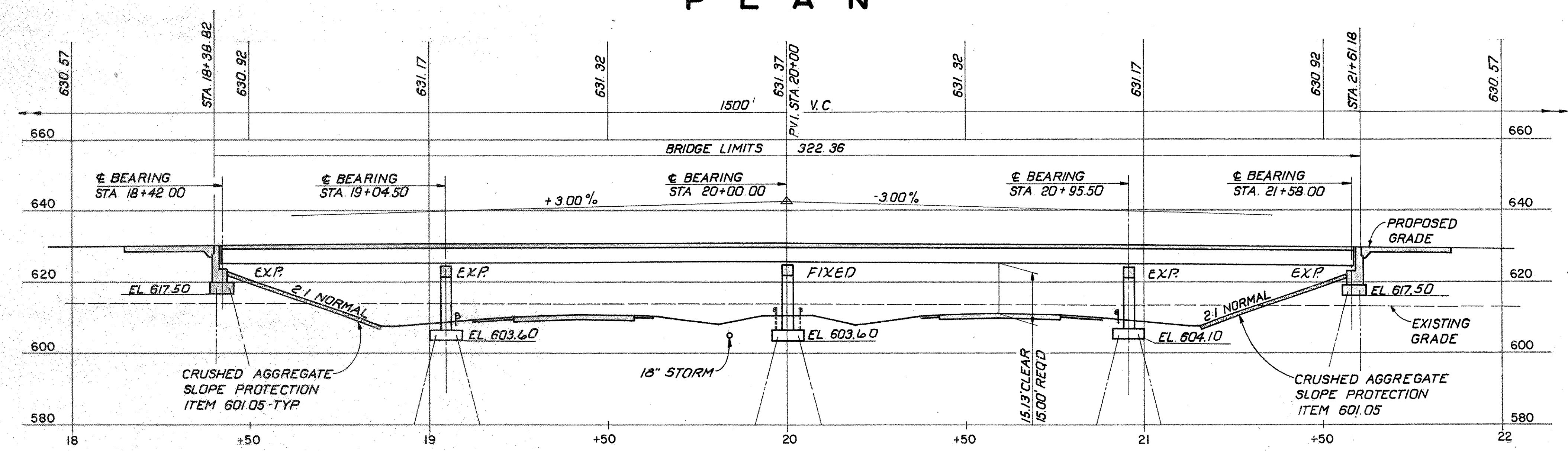
P.V.I.	= STA. 20+00
E.L.	= 642.62
CORR.	= 11.25
P.G.	= 631.37
V.C.	= 1500'
G <sub>1</sub>	= +3.00%
G <sub>2</sub>	= -3.00%

EARTHWORK LIMITS SHOWN ARE SCHEMATIC. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS

**DESIGN TRAFFIC**

R.D.T. (2001)	3290
R.D.T.T. (2001)	100

**P L A N**



**P R O F I L E**

NOTE:  
ALL ABUTMENT PILES AND ALL PIER PILES SHALL BE 12" Ø CAST-IN-PLACE REINFORCED CONCRETE PILES ESTIMATED AVERAGE PILE LENGTH BOTH ABUTMENTS 45 FT. ALL PIERS 35 FEET.

**PROPOSED STRUCTURE**

**TYPE:** CONTINUOUS STEEL GIRDER WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE.  
**SPANS:** 62'-6", 95'-6", 95'-6", 62'-6" C/C BRGS  
**ROADWAY:** 44'-0" F/F PARAPETS  
**LOADING:** HS 20-44, AND THE ALTERNATE MILITARY LOADING  
**SKIEW:** 44°52'38" LEFT FORWARD  
**WEARING SURFACE:** MONOLITHIC CONCRETE  
**ALIGNMENT:** TANGENT  
**APPROACH SLABS:** AS-1-B1 (25' LONG)

ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND 42, OHIO

**SITE PLAN**

BRIDGE NO. ERI - 2-2082  
BERLIN RD. OVER S.R. 2  
ERI COUNTY STA. 18+38.82 TO STA. 21+61.18

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
V.N.	J.T.	H.G.	L.E.D.	11/4/85

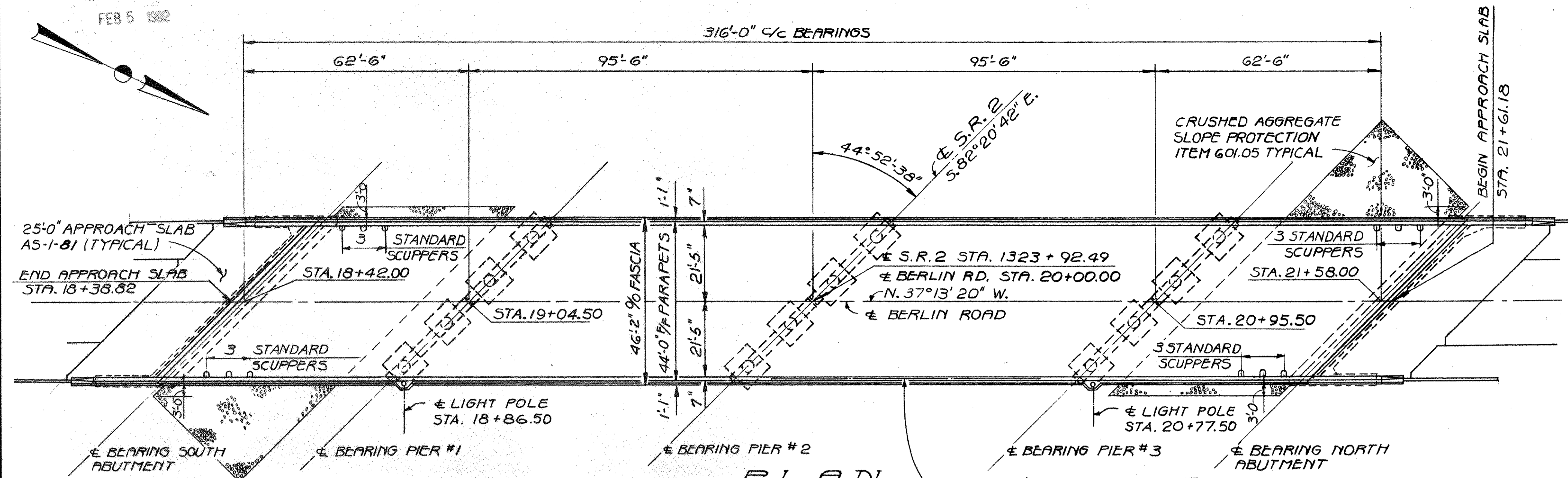


MICROFILMED  
FEB 5 1982

FED. DIVISION	STATE	PROJECT
2	OHIO	

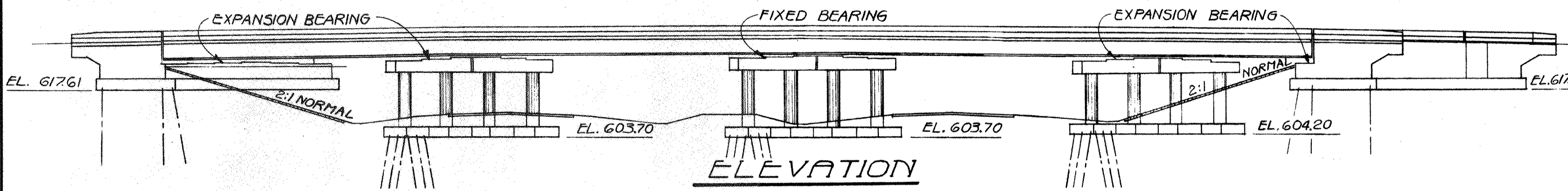
219  
326

ERIE COUNTY  
ERI-2-18.38



**PLAN**

PROVIDE 2" LIGHTING CONDUIT THROUGH BRIDGE RAILING. FOR ADDITIONAL DETAILS, SEE LIGHTING PLANS AND STANDARD DRAWINGS HL-4, 5 & 19



**ELEVATION**

ESTIMATED QUANTITIES									
ITEM	TOTAL	UNIT	DESCRIPTION	SUPER	ABUT.	PIERS	GEN'L		
503	LUMP	SUM	COFFERDAMS, CRIBS AND SHEETING				LUMP		
503	628	CU.YDS	UNCLASSIFIED EXCAVATION		323	305			
505	LUMP	SUM	PILE DRIVING EQUIPMENT MOBILIZATION				LUMP		
507	4140	LIN.FT	12" CAST-IN-PLACE REINFORCED CONCRETE PILES		1620	2520			
509	61,800	LBS	REINFORCING STEEL, GRADE 60		12,750	44,050			
511	490	CU.YDS	CLASS "S" CONCRETE, SUPERSTRUCTURE, AS PER PLAN						
511	122	CU.YDS	CLASS "C" CONCRETE, PIER CAPS & COLUMNS			122			
511	160	CU.YDS	CLASS "C" CONCRETE, ABUTMENTS ABOVE FOOTINGS		160				
511	217	CU.YDS	CLASS "C" CONCRETE, FOOTINGS		111	106			
512	6	SQ.YDS	TYPE B WATERPROOFING		6				
513	404,500	LBS.	STRUCTURAL STEEL, A-36 (ALSO CATEGORY - III) (SEE PROPOSAL NOTE)	404,500					
514	404,500	LBS.	FIELD PAINTING OF NEW STRUCTURAL STEEL, SYSTEM - A	404,500					
516	124	LIN.FT.	Structural Steel Expansion Joints including Strip Seats, As Per Plan	124					
518	101	CU.YDS	POROUS BACKFILL, AS PER PLAN		101				
518	110	LIN.FT.	6" PERFORATED HELICAL C.S.P. INCLUDING SPECIALS, 707.01		110				
518	210	LIN.FT.	6" NON-PERFORATED HELICAL C.S.P. 707.01		210				
518	12	EACH	SCUPPERS INCLUDING SUPPORTS		12				
601	787	SQ.YDS	CRUSHED AGGREGATE SLOPE PROTECTION				787		
625			SEE SHEET 279 FOR LIGHTING SUMMARY						
824	105,285	LBS.	EPOXY COATED REINFORCING STEEL, GRADE 60	101,747	3538				
SPECIAL	823	SQ.YDS	SEALING OF CONCRETE SURFACES, SEE PROPOSAL NOTE	600	223				

NOTES:  
FOR SCUPPER LOCATION AND SPACING SEE SHEET 6/10.  
FOR APPROACH SLAB DETAILS SEE STANDARD DRAWING AS-1-81.

FOR GENERAL NOTES  
SEE SHEET 206

2/10

ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

**GENERAL PLAN  
& ESTIMATED QUANTITIES**

BRIDGE NO. ERI-2-2082  
BERLIN RD. OVER S.R. 2

ERIE COUNTY STA. 18+38.82 TO  
ERI-2-18.38 STA. 21+61.18

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
LED	N.K.	LRA	LRA	7-30-69	
9-29-69			L.E.D.	11/4/85	



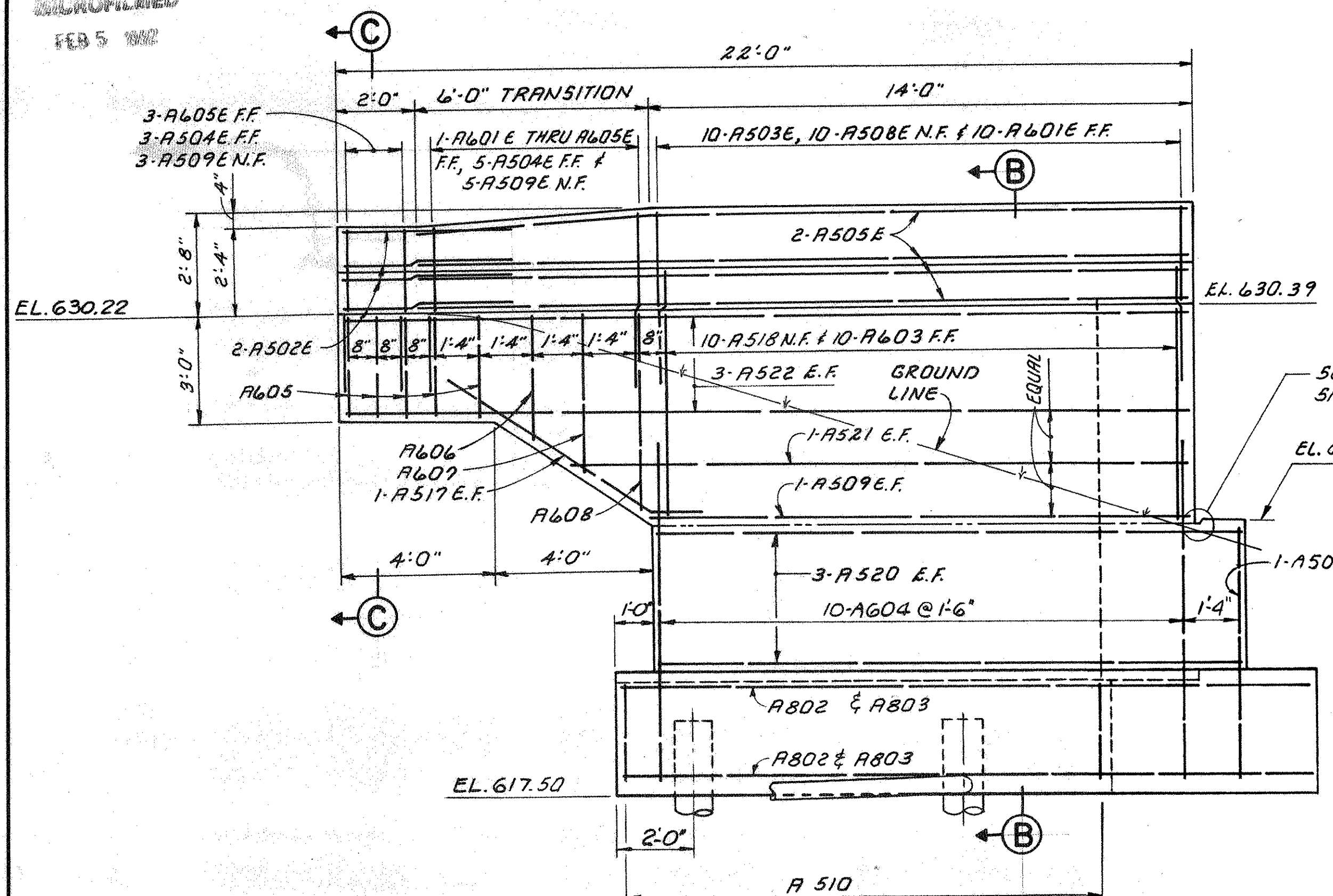
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FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

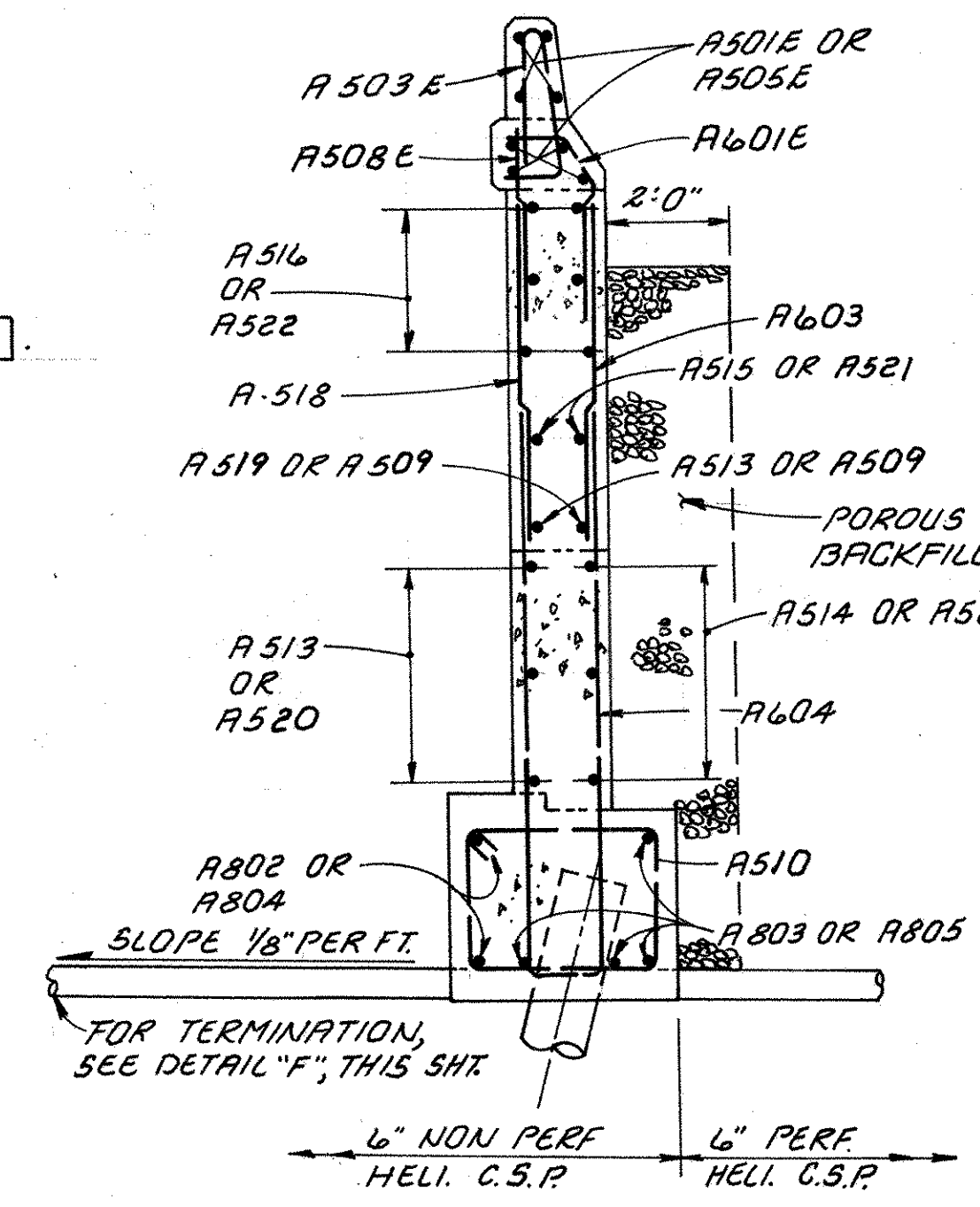
221  
376

ERIE COUNTY  
ERI-2-18.38

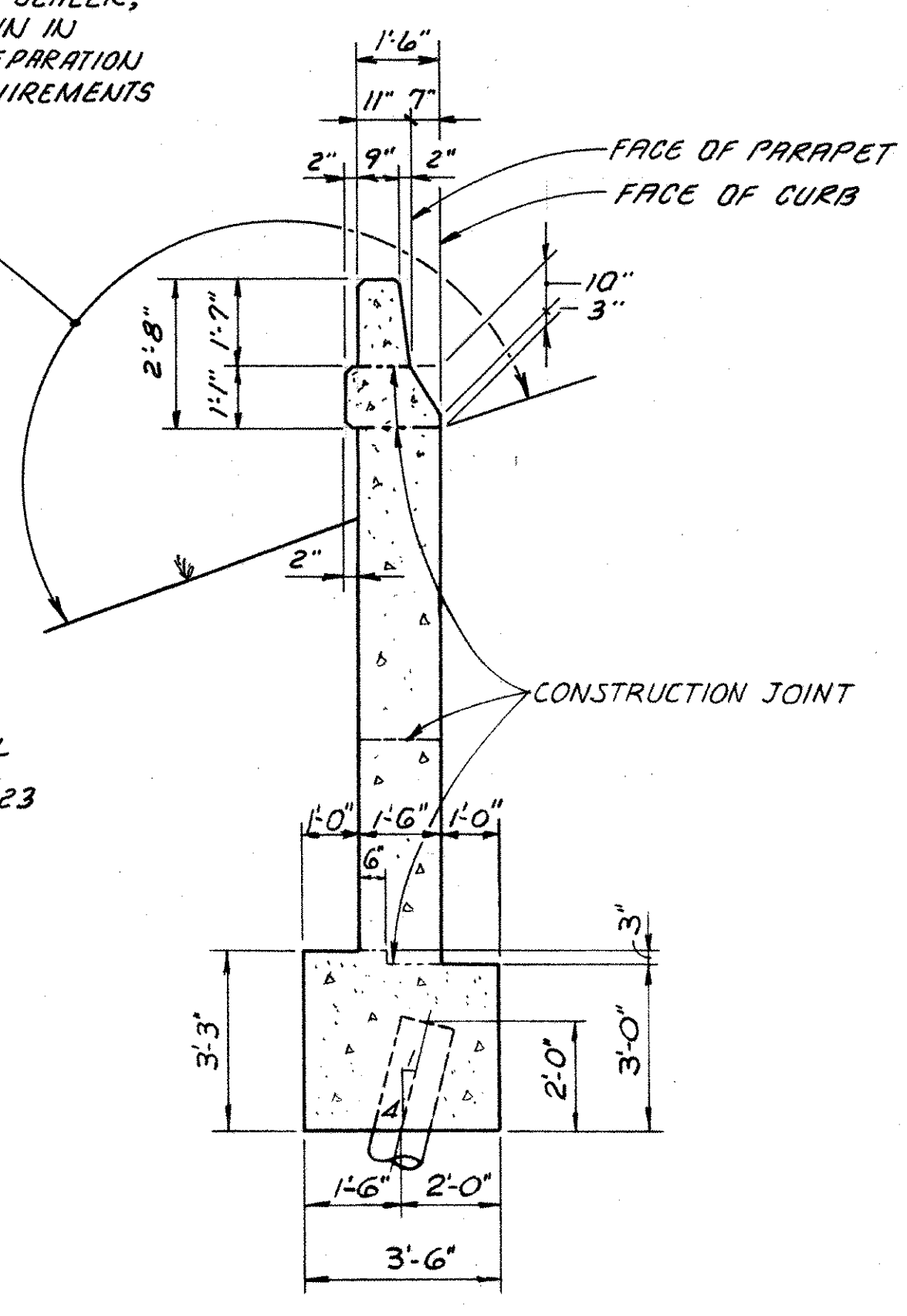
LIMITS OF ITEM SPECIAL, SEALING OF CONCRETE SURFACES:  
A CONCRETE SEALER, EITHER SILANE OR AN EPOXY SEALER,  
SHALL BE APPLIED TO THE CONCRETE SURFACES SHOWN IN  
THIS SECTION. SEE THE PROPOSAL FOR SURFACE PREPARATION  
REQUIREMENTS, APPLICATION RATES, MATERIAL REQUIREMENTS  
AND APPLICATION PROCEDURE.



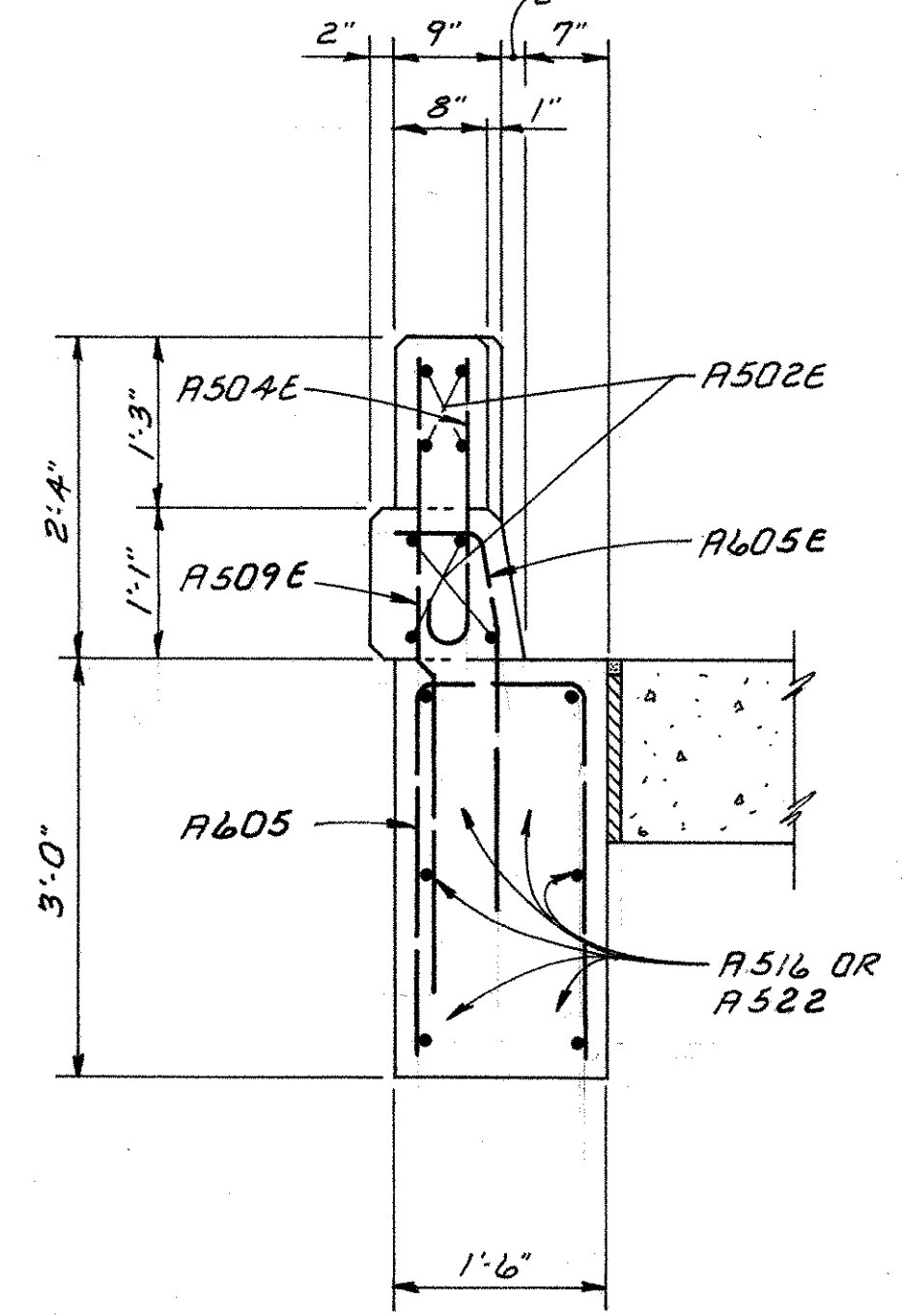
**WINGWALL ELEVATION**  
SOUTH ABUTMENT - EAST WINGWALL  
NORTH ABUTMENT - WEST WINGWALL



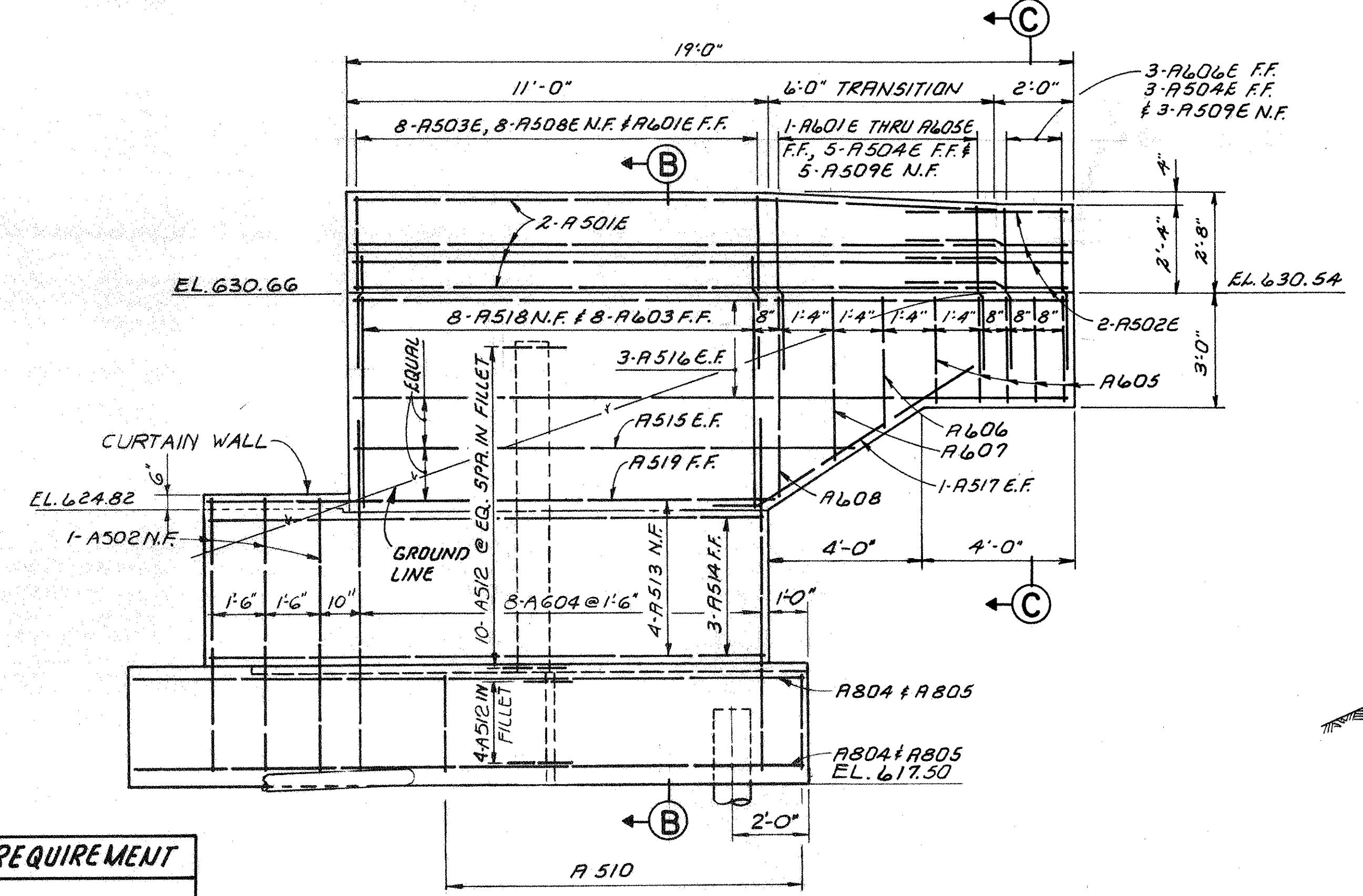
**SECTION B-B**  
SEE DETAIL "E", THIS SHEET.



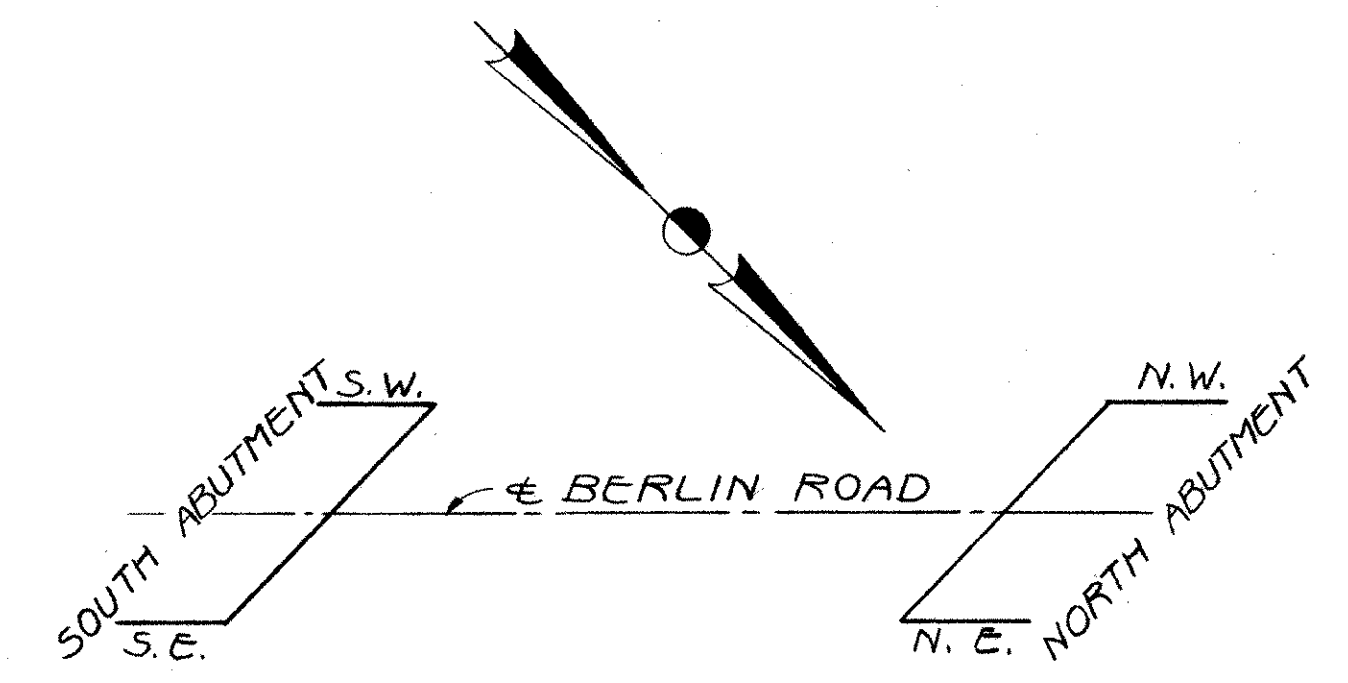
**DETAIL "E"**  
REINFORCEMENT NOT SHOWN



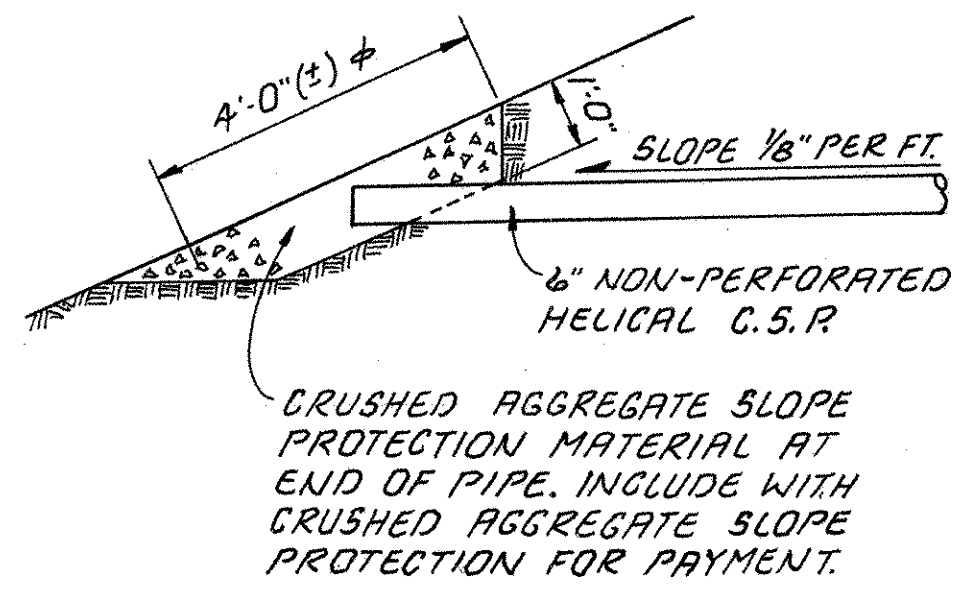
**SECTION C-C**



**WINGWALL ELEVATION**  
SOUTH ABUTMENT - WEST WINGWALL  
NORTH ABUTMENT - EAST WINGWALL



**ABUTMENT LOCATION PLAN**



**DETAIL "F"**

**MINIMUM LAP REQUIREMENT**

#4 BAR	1'-10"
#5 BAR	2'-5"
#6 BAR	2'-10"
#8 BAR	4'-9"

**NOTES**

FOR ABUTMENT PLAN & ELEVATION DETAILS - SEE SHEET No 3/10

FOR ADDITIONAL NOTES - SEE SHEET No 3/10

PROVIDE 2" CONDUIT THROUGH THE EAST WINGWALL OF BOTH THE NORTH AND THE SOUTH ABUTMENTS PER STANDARD DRAWING HL-5 AND THE LIGHTING PLANS.

FOR RAILING DETAILS AND CALL-OUTS NOT SHOWN, SEE STANDARD DRAWING BR-1.

**NOTE "A":**  
CONTRACTION AND EXPANSION JOINTS SHALL BE SEALED USING TYPE "B" WATERPROOFING, 36" MINIMUM WIDTH AND CENTERED ON JOINT. IN LIEU OF TYPE "B" WATERPROOFING EITHER OF THE FOLLOWING TWO MATERIALS MAY BE USED.

1. W.R. MEADOWS SEALTIGHT MELIAR WATERPROOFING MEMBRANE OR OTHER APPROVED ALTERNATE PREFORMED MEMBRANE. INSTALLATION SHALL BE AS RECOMMENDED BY THE MANUFACTURER. PREFORMED MEMBRANES SHALL HAVE A MINIMUM WIDTH OF 16" ± AND BE CENTERED ON THE JOINT.
2. A 6" P.V.C. WATERSTOP CENTERED ON THE JOINT AND LOCATED IN THE WALL 6" TO 9" FROM THE BACKSIDE. THE WATERSTOP SHALL BE W.R. MEADOWS SEALTIGHT DUO-PVC NO. 6180-D OR NO. 6180-JD OR APPROVED ALTERNATE. THE WATERSTOP SHALL BE CAPABLE OF ACCOMMODATING 1/2" OF JOINT MOVEMENT.

WATERPROOFING OR WATERSTOP SHALL EXTEND FROM TOP OF FOOTING TO 1'-0" BELOW TOP OF WALL.

ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

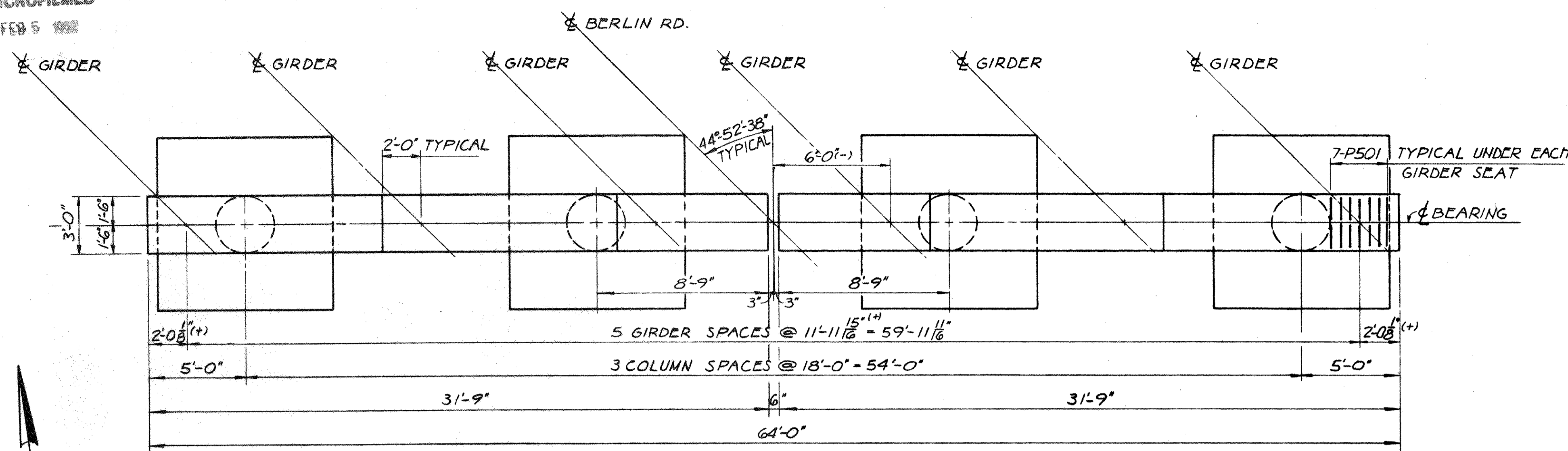
**WINGWALL DETAILS**

BRIDGE NO. ERI-2-2082  
BERLIN RD. OVER S.R.2

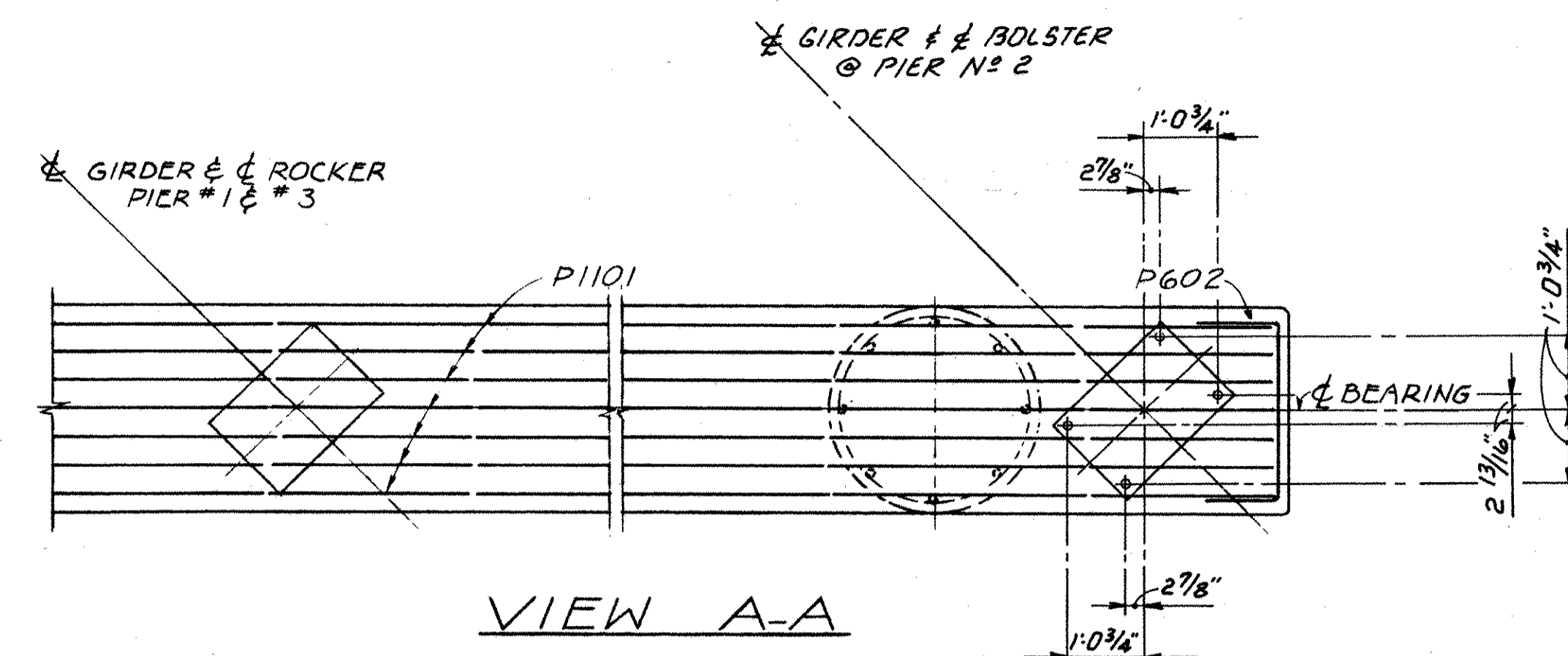
ERIE COUNTY STA. 18+38.82 TO  
ERI-2-18.38 STA. 21+61.18

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
N.K.	N.K.	L.E.D.	L.E.D.	11/4/85	

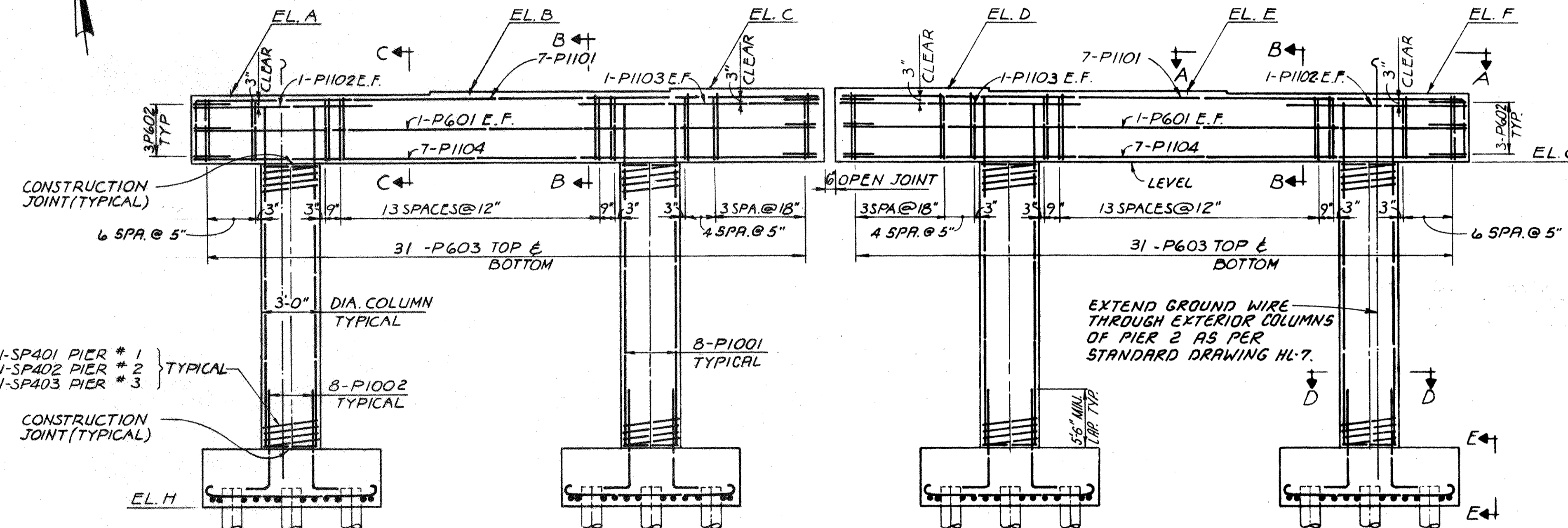
ERIE COUNTY  
ERI-2-18.38



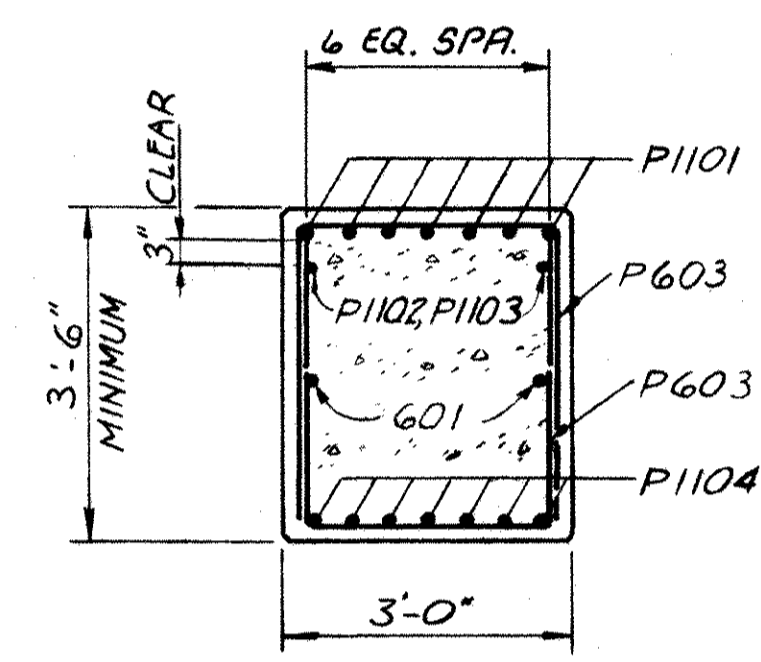
PLAN



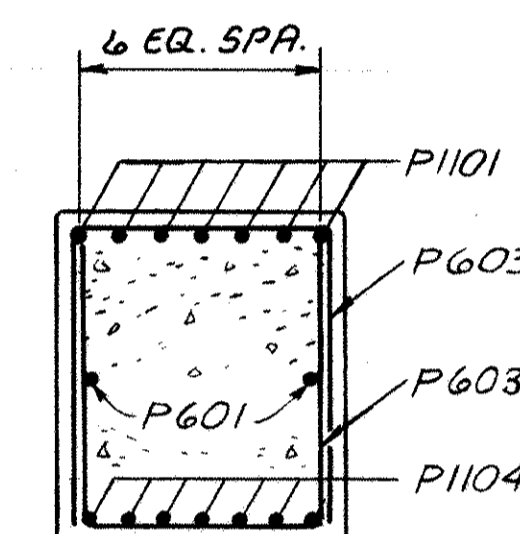
VIEW A-A



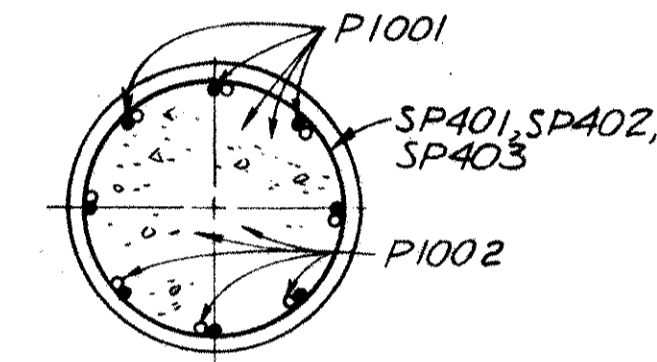
ELEVATION



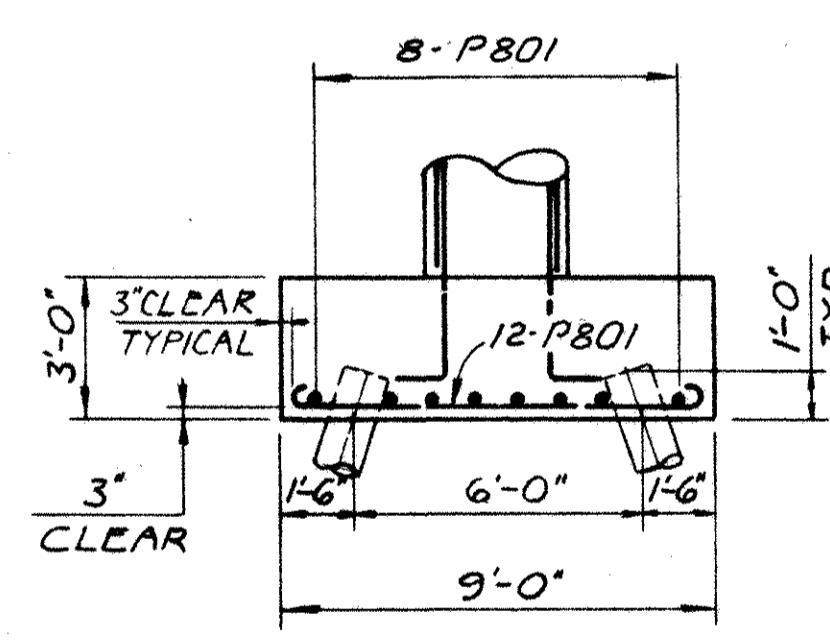
SECTION B-B



SECTION C-C



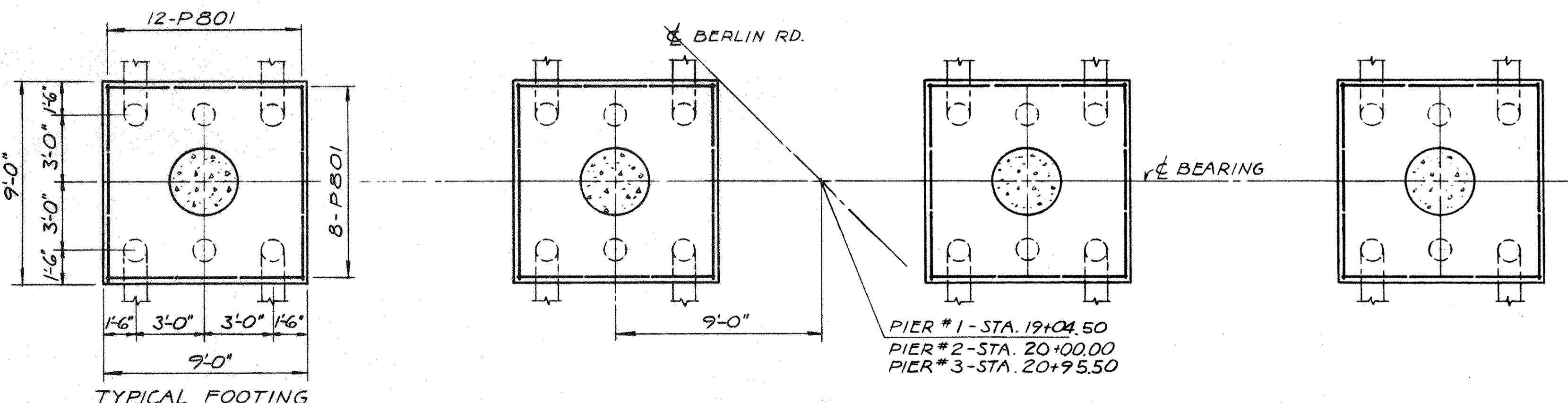
SECTION D-D



VIEW E-E

NOTES:

- 1) PIER PILES ARE 12" x CAST-IN-PLACE REINFORCED CONCRETE PILES.
- 2) BATTERED PILES SHALL BE BATTERED 1 ON 4 IN THE DIRECTION SHOWN.
- 3) ABBREVIATION USED, E.F. = EACH FACE.
- 4) BRIDGE SEAT REINFORCING: REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT AT PIER NO. 2 SHALL BE ACCURATELY PLACED TO AVOID INTERFERENCE WITH THE DRILLING OF BEARING ANCHOR HOLES OR THE PRE-SETTING OF BEARING ANCHORS.
- 5) BEARING ANCHORS: AT THE OPTION OF THE CONTRACTOR, BEARING ANCHORS (OR FORMED HOLES), LOCATED AND SUPPORTED BY TEMPLATES, MAY BE CAST-IN-PLACE.
- 6) FOR REINFORCING STEEL LIST AND BAR BENDING DIAGRAMS, SEE SHEET 9/10.



FOOTING PLAN

LOCATION	A	B	C	D	E	F	G	H
PIER # 1	624.51	624.62	624.72	624.69	624.52	624.35	620.85	603.60
PIER # 2	624.52	624.66	624.79	624.79	624.66	624.52	621.02	603.60
PIER # 3	624.35	624.52	624.69	624.72	624.62	624.51	620.85	604.10

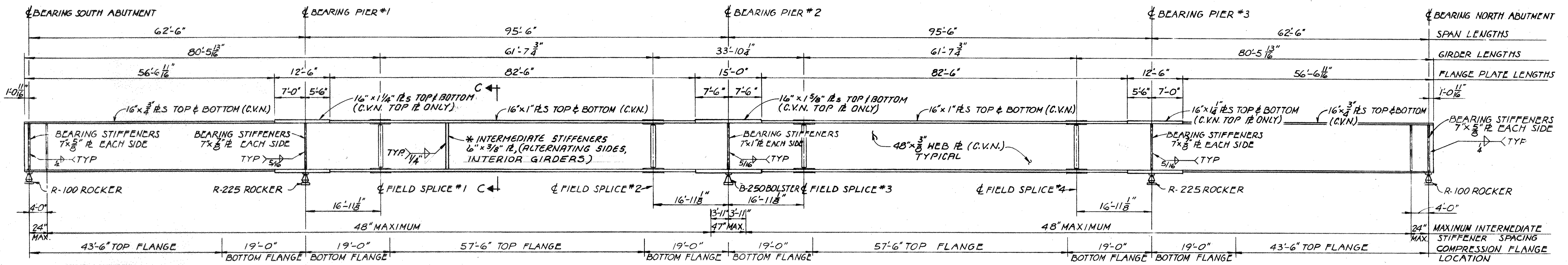
# 4 BAR	1'-10"	# 6 BAR	2'-10"
# 5 BAR	2'-5"		

ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

**PIER DETAILS**  
BRIDGE NO. ERI-2-2082  
BERLIN RD. OVER S.R. 2  
ERIE COUNTY STA. 18+38.82 TO  
ERI-2-18.38 STA. 21+61.18

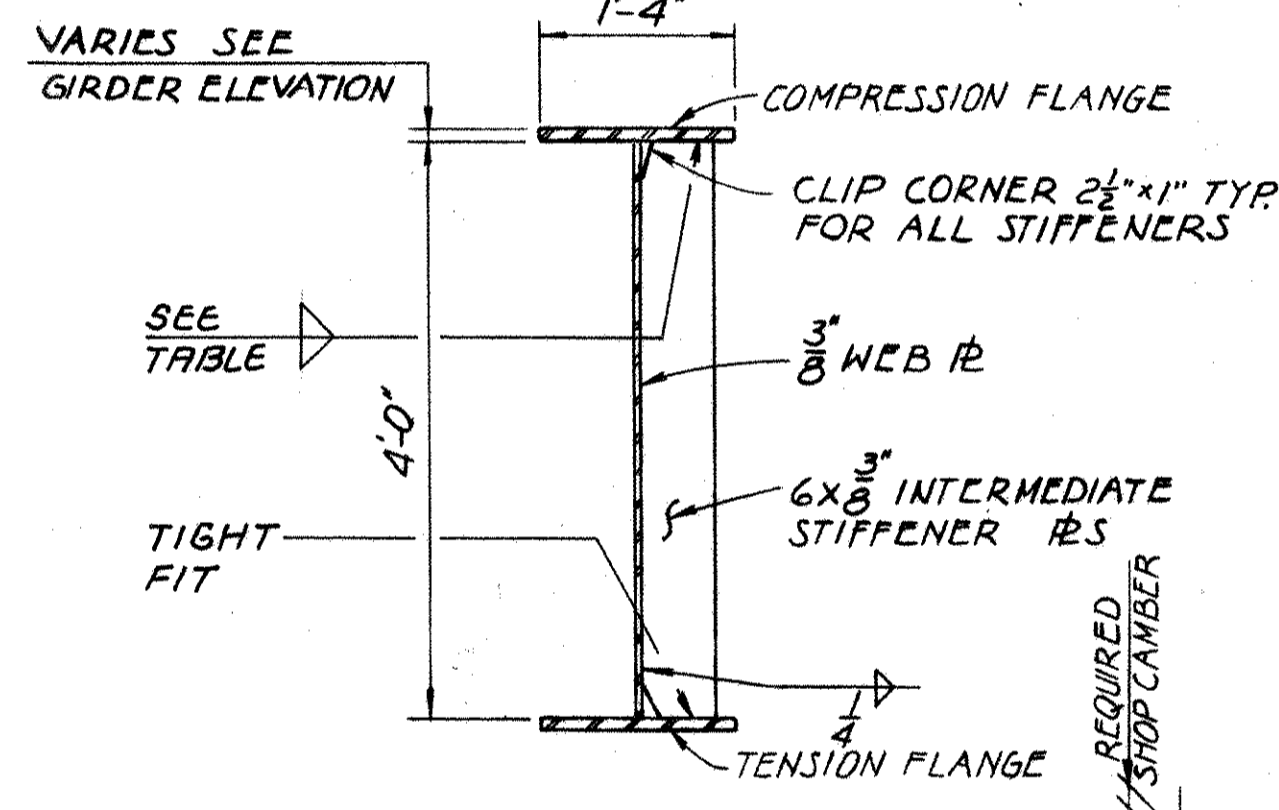
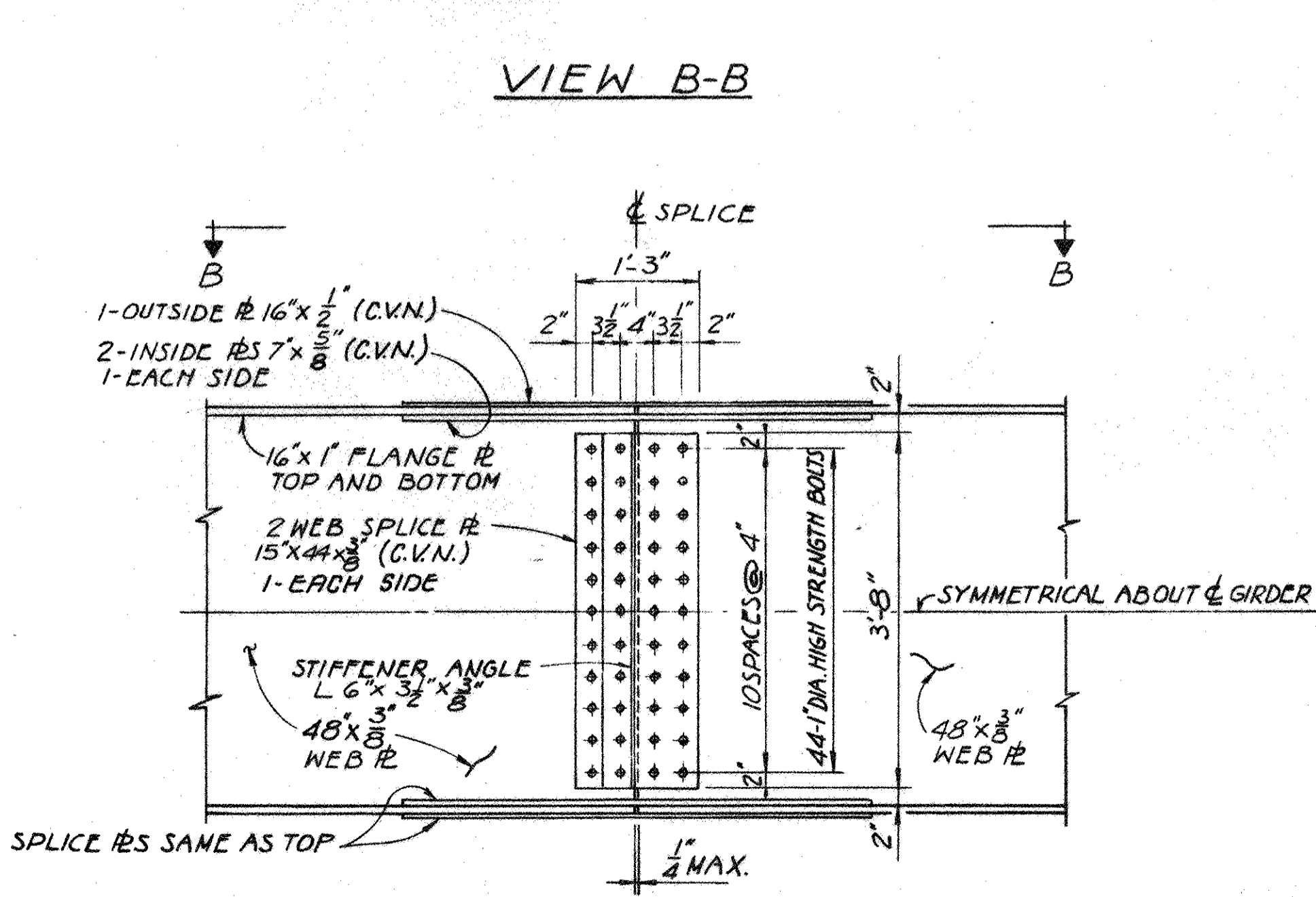
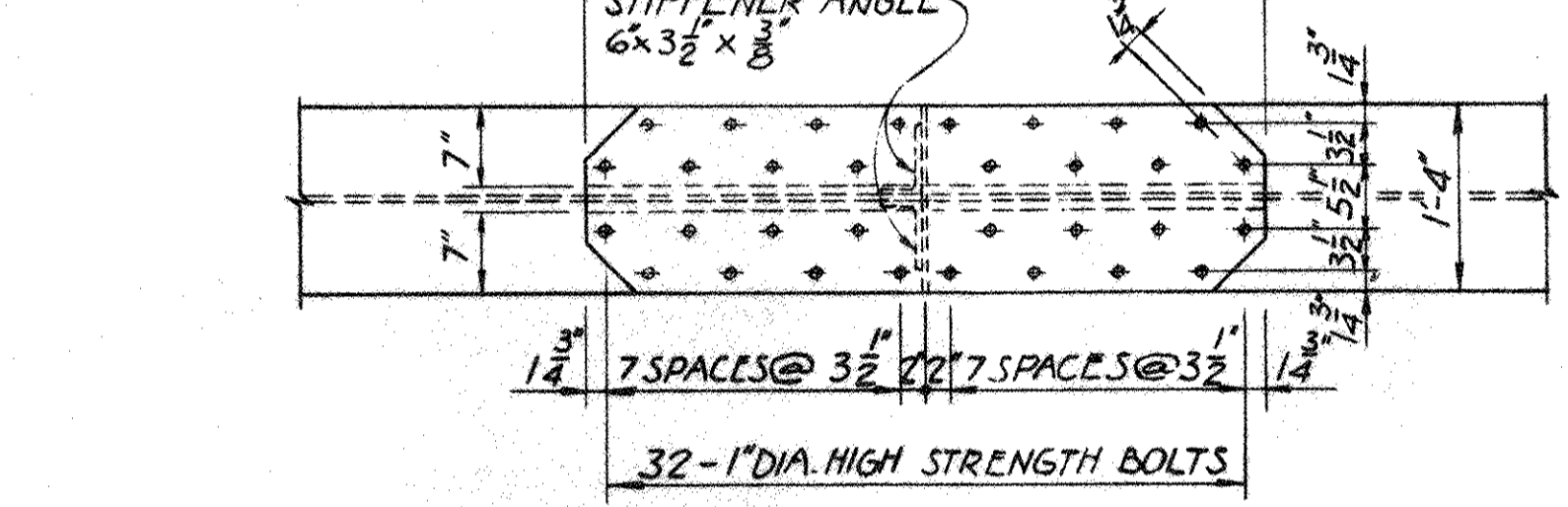
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L.R.A.	V.I.P.	L.E.D.	L.E.D.	11/4/85	





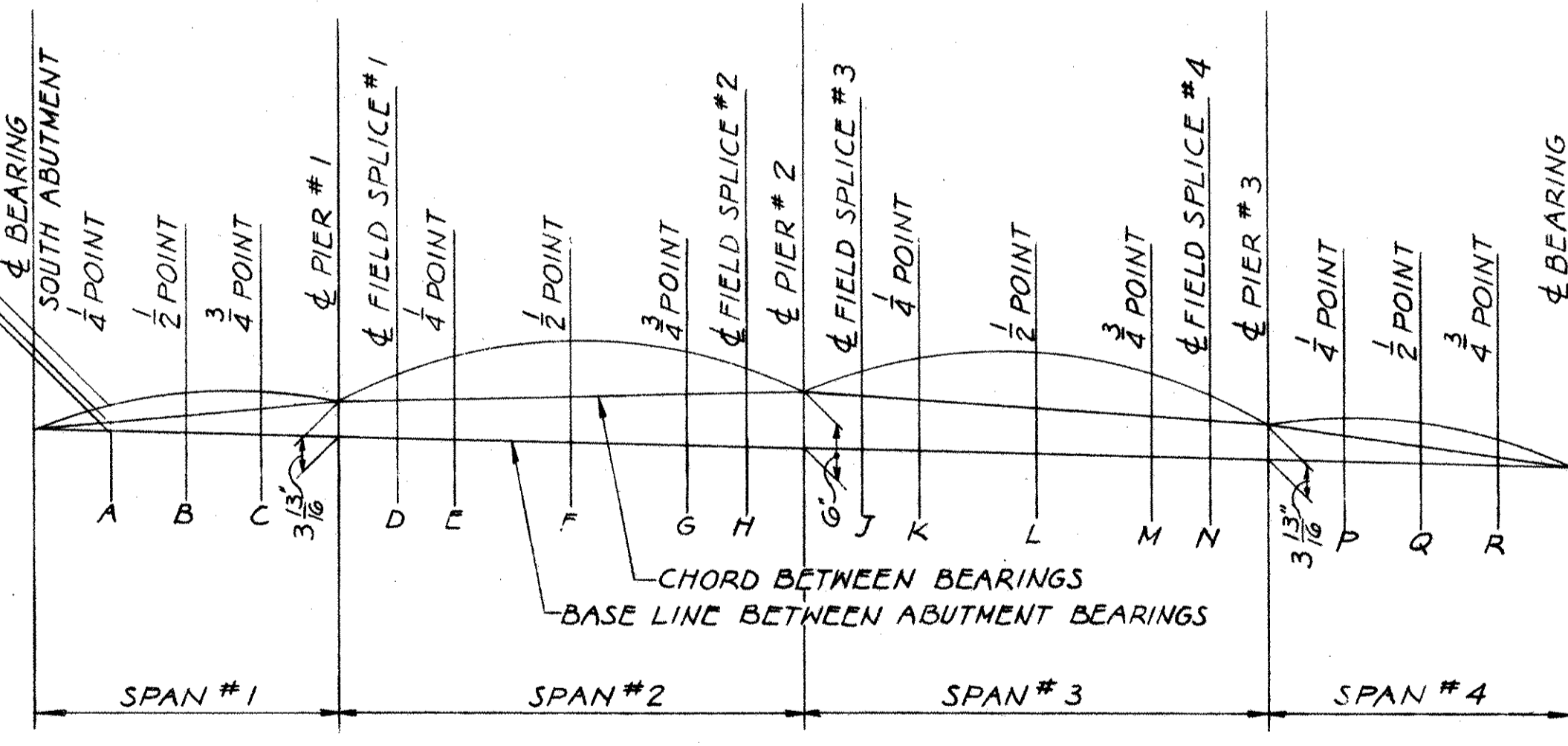
WELD SIZE - FLANGE TO WEB AND INTERMEDIATE STIFFENER TO GIRDER FLANGE

FLANGE PLATE THICKNESS	FILLET WELD SIZE
3/4" TO 1 1/2"	5/16"
1 5/8"	3/8"



**DEFLECTION AND CAMBER TABLE**

GIRDERS	DESCRIPTION	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R
INTERIOR AND EXTERIOR	DEFLECTION DUE TO WEIGHT OF STEEL	0"	0"	0"	1/16"	1/16"	1/8"	1/16"	1/16"	1/16"	1/16"	1/8"	1/16"	1/16"	0"	0"	0"
	DEFLECTION DUE TO REMAINING DEAD LOAD	3/16"	3/16"	0"	1/4"	3/8"	2/16"	1/4"	1/8"	1/8"	1/4"	3/16"	3/16"	1/4"	0"	3/16"	3/16"
	VERTICAL CURVE ADJUSTMENT	3/16"	1/4"	3/16"	5/16"	7/16"	9/16"	7/16"	5/16"	5/16"	7/16"	9/16"	7/16"	5/16"	3/16"	1/4"	3/16"
	REQUIRED SHOP CAMBER	3/8"	7/16"	3/16"	5/8"	7/8"	1 1/4"	3/4"	1 1/2"	1 1/2"	3/4"	1 1/4"	7/8"	5/8"	3/16"	7/16"	3/8"
	ORDINATE BETWEEN CHORD AND BASE LINE.	15/16"	1 7/8"	2 3/8"	4 3/16"	4 3/8"	4 7/8"	5 7/16"	5 5/8"	5 5/16"	5 7/16"	4 7/8"	4 3/8"	4 7/16"	2 3/8"	7/8"	1 5/16"



**NOTES:**  
FOR FRAMING PLAN, SEE SHEET 6/10.

THE WEB PLATES MAY BE SHOP SPLICED AS REQUIRED BY AVAILABLE PLATE LENGTHS. THE LOCATION OF SUCH SHOP WEB SPLICES AND THE LOCATION AND DETAILS OF ANY ADDITIONAL SHOP FLANGE SPLICES SHALL BE SUBMITTED TO THE DIRECTOR OF HIGHWAYS FOR APPROVAL PRIOR TO THE ORDERING OF MATERIALS.

INTERMEDIATE STIFFENERS SHALL BE EQUALLY SPACED BETWEEN CROSSFRAMES, OR CROSSFRAMES AND STIFFENERS LOCATED AS SHOWN ON TYPICAL GIRDER ELEVATION. MAXIMUM STIFFENER SPACING NOT TO EXCEED THE VALUES SHOWN ON TYPICAL GIRDER ELEVATION.

BEARING STIFFENERS SHALL HAVE TIGHT FIT WITH TOP FLANGE AND MILL FIT WITH BOTTOM FLANGE. WHERE A SHAPE OR PLATE IS DESIGNATED (C.V.N.) THE MATERIAL SHALL MEET SPECIFIED MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 7102 OF C.M.S.

\*INTERMEDIATE STIFFENERS SHALL BE PLACED ON ALTERNATING SIDES OF THE INTERIOR GIRDERS EXCEPT WHERE NECESSARY TO SERVE AS ATTACHMENTS FOR CROSSFRAMES.

\*INTERMEDIATE STIFFENERS SHALL NOT BE PLACED ON THE FASCIA SIDE OF THE EXTERIOR GIRDERS.

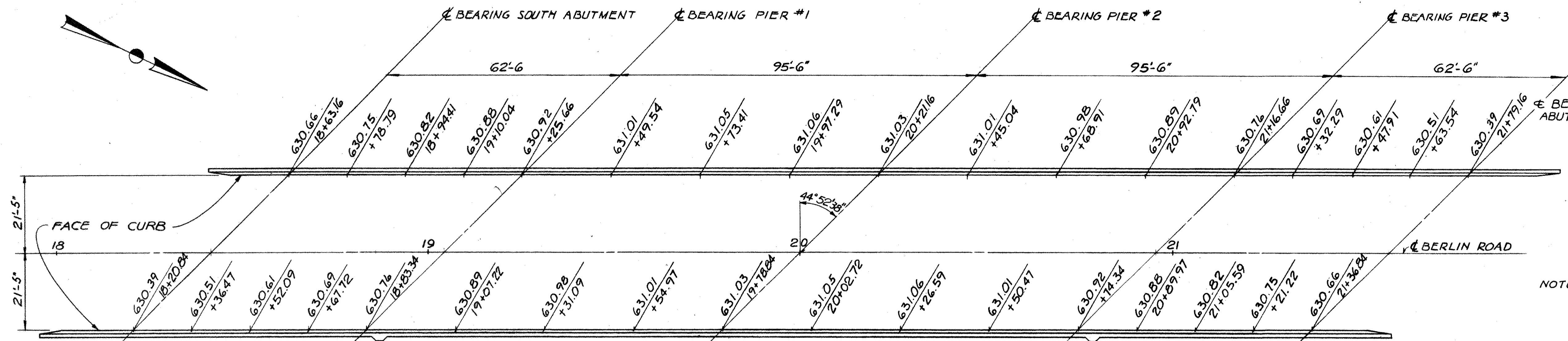
WELDED ATTACHMENT OF SUPPORTS FOR CONCRETE DECK FINISHING MACHINE MAY BE MADE ONLY TO AREAS OF THE FASCIA GIRDER TOP FLANGE DESIGNATED "COMPRESSION". FILLET WELDS TO THE COMPRESSION FLANGES SHALL NOT BE CLOSER THAN 1" FROM THE EDGE OF FLANGE, BE NOT MORE THAN 2" LONG, AND BE NOT SMALLER THAN THE MINIMUM SIZE REQUIRED BY AASHTO.

ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

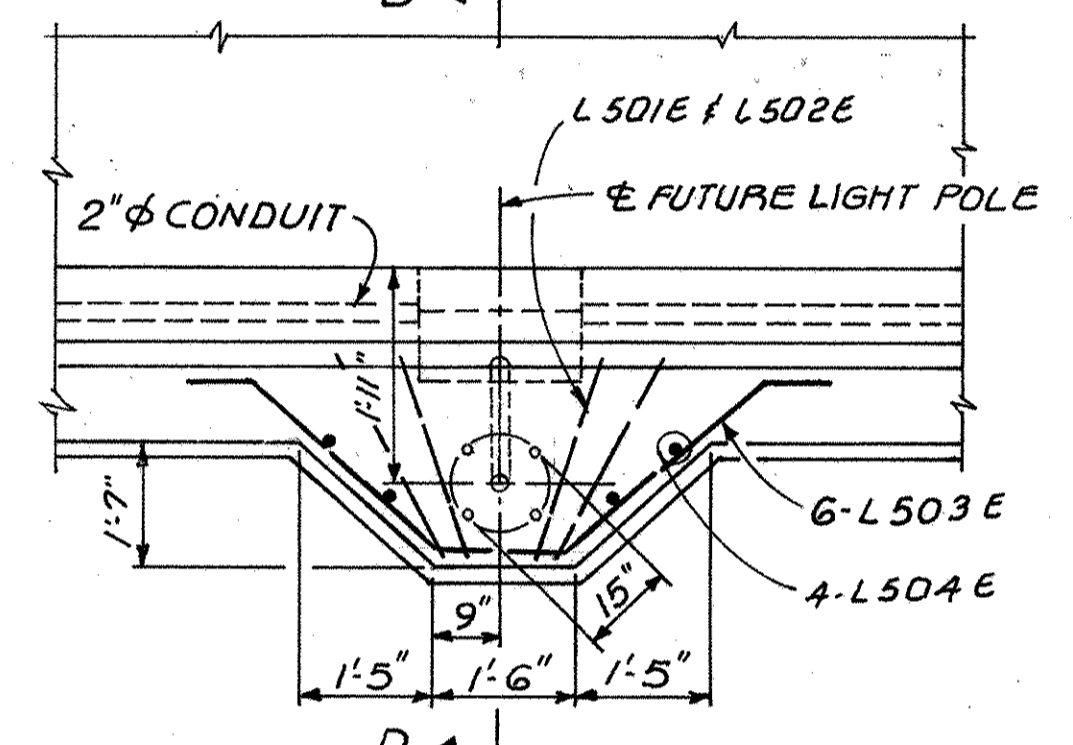
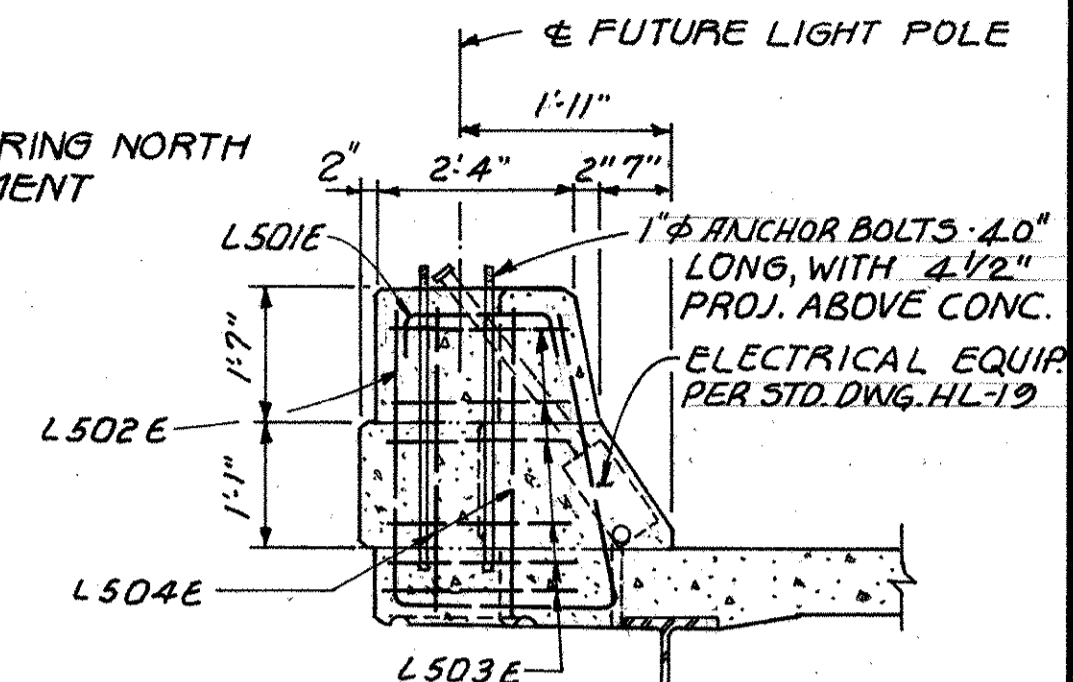
**SUPERSTRUCTURE DETAILS**  
BRIDGE NO. ERI-2-2082  
BERLIN RD. OVER S.R. 2  
ERIE COUNTY STA. 18+38.82 TO ERI-2-18.38 STA. 21+61.18

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
L.E.D.	V.I.P.	L.R.A.	L.E.D.	11/4/85	

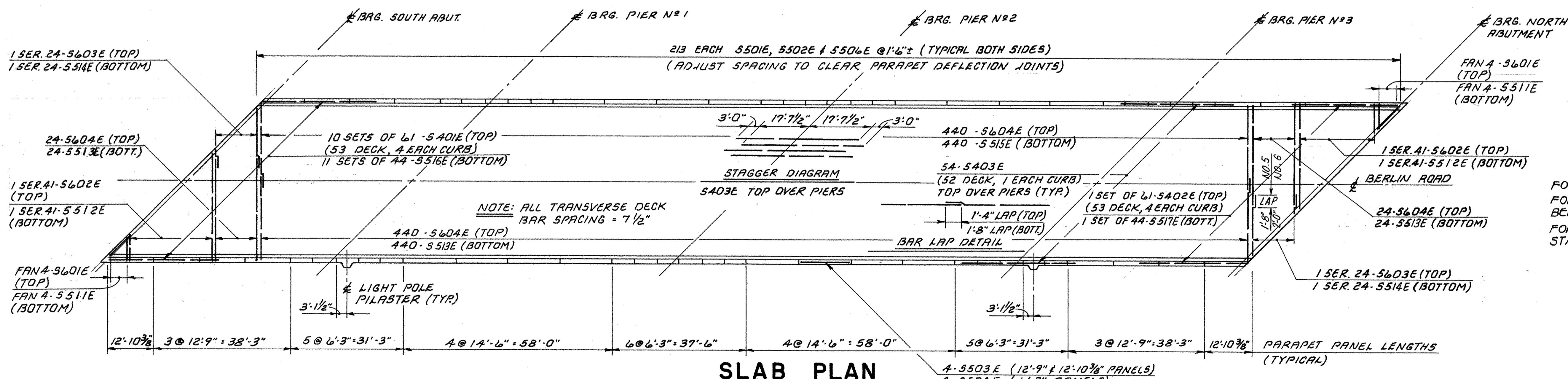
**TYPICAL SPLICE DETAIL**  
NOTE: CROSSFRAME CLEARANCE TO BOTTOM GIRDER FLANGE SHALL BE 3" WHERE STIFFENER ANGLES ARE USED FOR CROSSFRAME CONNECTION.



NOTE: THE ELEVATIONS SHOWN AT THE FACE OF CURB ARE THOSE WHICH ARE REQUIRED BEFORE THE CONCRETE IS PLACED. PROPER ALLOWANCE HAS BEEN MADE FOR THE DEAD LOAD DEFLECTION CAUSED BY THE WEIGHT OF THE CONCRETE.



NOTE: FOR ADDITIONAL DETAILS OF STRUCTURE MOUNTED LIGHT POLE, SEE STANDARD DRAWINGS HL-3, 4, 5, 7 & 19 AND LIGHTING PLANS.



NOTE: FOR SPACING OF LONGITUDINAL REINFORCING STEEL, SEE TRANSVERSE SECTION, SHT. 6/10.

NOTES:  
FOR TRANSVERSE SECTION SEE SHEET 6/10.  
FOR REINFORCING STEEL LIST AND BAR BENDING DIAGRAMS SEE SHEET 9/10.  
FOR RAILING DETAILS NOT SHOWN SEE STANDARD DRAWING BR-1, DATED 5-29-79.

ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

DECK ELEVATION PLAN & DECK SLAB PLAN

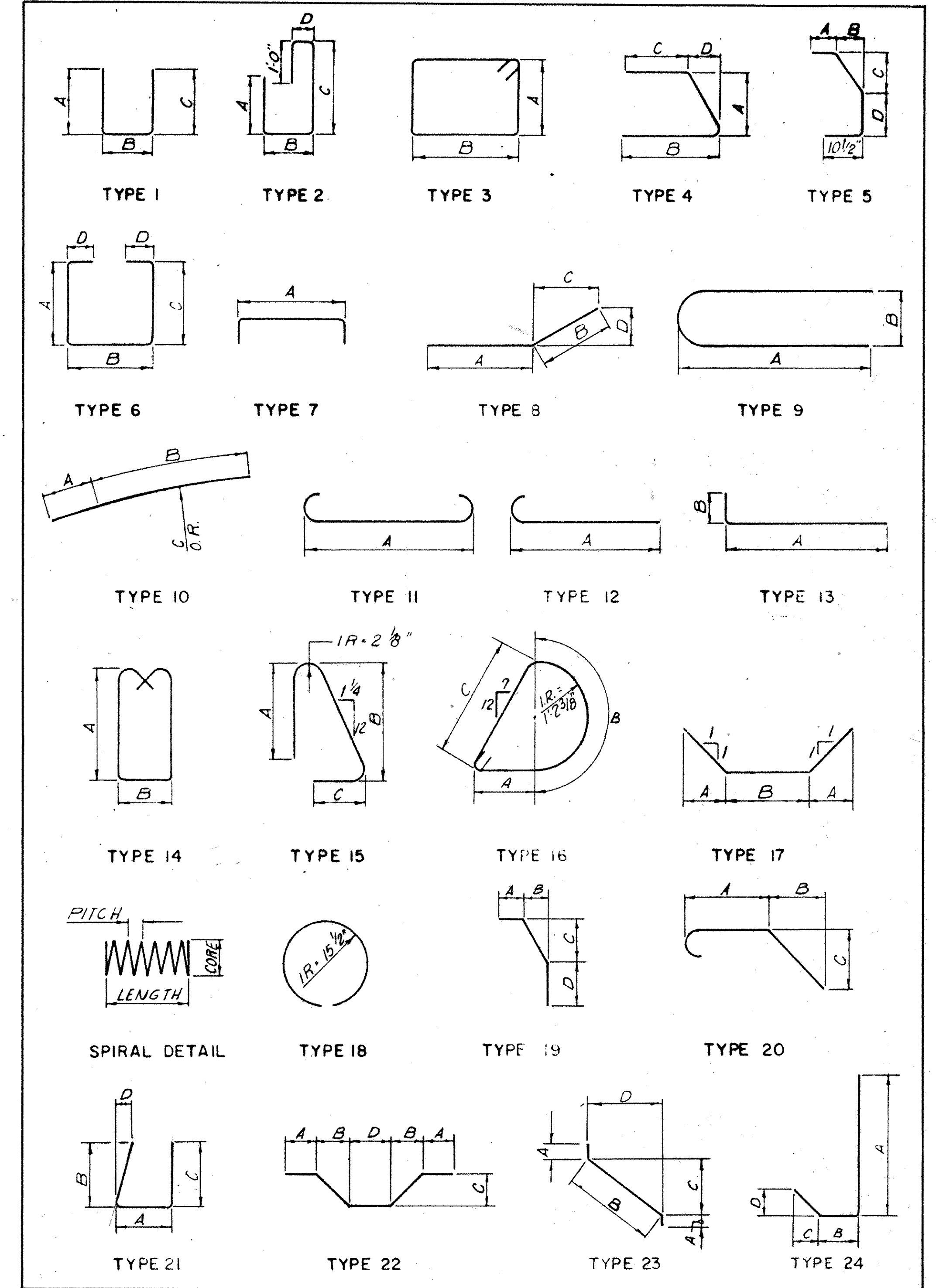
BRIDGE NO. ERI-2-2082  
BERLIN RD. OVER S.R.2

ERIE COUNTY STA. 18+38.82 TO 21+61.18  
ERI-2-18.38

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
N.K.	N.K.	Z	L.E.D.	11/4/85	

ERIE COUNTY  
ERI-2-18.38

BENDING DIAGRAMS



ABUTMENTS											
MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	NORTH ABUTMENT	SOUTH ABUTMENT	TOTAL			A	B	C	D		
A401	36	36	72	2'-6"	7	1'-8"					120
A501	43	43	86	8'-9"	1	1'-10"	5'-4"	1'-10"			784
A502	50	50	100	7'-4"	13	6'-7"	10"				766
A503	44	44	88	8'-0"	1	2'-5"	3'-5"	2'-5"			734
A504	2	2	4	8'-1"	1	2'-2"	4'-0"	2'-2"			34
A505	13	13	26	29'-10"	STR.						810
A506	9	9	18	33'-3"	STR.						624
A507	2 SER OF	2 SER OF	4 SER OF	29'-10" TO	STR.						658
	5 BARS	5 BARS	5 BARS	33'-3"							
A508	4	4	8	32'-1"	STR.						268
A509	2	2	4	13'-11"	STR.						58
A510	23	23	46	10'-11"	3	2'-3"	3'-0"				524
A511	4	4	8	9'-5"	1	2'-2"	5'-4"	2'-2"			80
A512	14	14	28	4'-6"	STR.						132
A513	4	4	8	14'-5"	STR.						120
A514	3	3	6	13'-5"	STR.						84
A515	2	2	4	13'-0"	STR.						54
A516	6	6	12	18'-8"	STR.						234
A517	4	4	8	8'-2"	8	6'-6"	1'-8"	1'-4"	11"		68
A518	18	18	36	5'-8"	STR.						214
A519	1	1	2	11'-2"	STR.						24
A520	6	6	12	15'-0"	STR.						188
A521	2	2	4	16'-0"	STR.						68
A522	6	6	12	21'-8"	STR.						272
A601	43	43	86	14'-2"	1	6'-7"	5'-4"	2'-7"			1,830
A602	124	124	248	9'-7"	1	4'-3"	1'-5"	4'-3"			3,570
A603	18	18	36	5'-8"	STR.						308
A604	18	18	36	18'-10"	1	9'-0"	1'-2"	9'-0"			1,018
A605	10	10	20	6'-2"	1	2'-8"	1'-2"	2'-8"			186
A606	2	2	4	7'-6"	1	3'-4"	1'-2"	3'-4"			46
A607	2	2	4	9'-2"	1	4'-2"	1'-2"	4'-2"			56
A608	2	2	4	11'-2"	1	5'-2"	1'-2"	5'-2"			68
A801	14	14	28	35'-2"	STR.						2,630
A802	2	2	4	21'-1"	8	17'-6"	3'-5"	2'-5"	2'-5"		226
A803	4	4	8	16'-9"	STR.						358
A804	2	2	4	22'-7"	24	17'-6"	2'-0"	2'-5"	2'-5"		242
A805	4	4	8	13'-9"	STR.						294
										TOTAL	17,750

PIERS											
MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
			TOTAL			A	B	C	D		
1P501			42	6'-11"	1	2'-3"	2'-8"	2'-3"			303
1P601			4	31'-5"	STR.						189
1P602			12	6'-4"	1	2'-0"	2'-8"	2'-0"			114
1P603			124	8'-8"	1	3'-2"	2'-8"	3'-2"			1,614
1P801			80	10'-4"	11	8'-6"					2,207
1P1001			32	17'-6"	STR.						2,410
1P1002			32	9'-9"	13	8'-3"	1'-10"				1,343
1P1101			14	34'-3"	13	31'-5"	3'-2"				2,548
1P1102			4	12'-0"	STR.						255
1P1103			4	15'-7"	STR.						331
1P1104			14	31'-5"	STR.						2,337
										TOTAL SPIRALS	1,060
										TOTAL PIER NO. 1	14,711
2P501			42	6'-11"	1	2'-3"	2'-8"	2'-3"			303
2P601			4	31'-5"	STR.						189
2P602			12	6'-4"	1	2'-0"	2'-8"	2'-0"			114
2P603			124	8'-8"	1	3'-2"	2'-8"	3'-2"			1,614
2P801			80	10'-4"	11	8'-6"					2,207
2P1001			32	17'-6"	STR.						2,410
2P1002			32	9'-9"	13	8'-3"	1'-10"				1,343
2P1101			14	34'-3"	13	31'-5"	3'-2"				2,548
2P1102			4	12'-0"	STR.						255
2P1103			4	15'-7"	STR.						331
2P1104			14	31'-5"	STR.						2,337
										TOTAL SPIRALS	1,074
										TOTAL PIER NO. 2	14,725

**REINFORCING STEEL SAMPLES:**  
REFER TO CMS SECTIONS 106.05, 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.

NOTE:  
BAR DIMENSIONS GIVEN ARE OUT TO OUT.

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**REINFORCING STEEL LIST**  
BRIDGE NO. ERI - 2 - 2082  
BERLIN ROAD OVER S. R. 2  
ERIE COUNTY STA. 18+38.82  
ERI-2-18.38 TO STA. 21+61.18

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.M.J.	T.M.J.	K.L.M.	L.E.D.	11/4/85	



ERIE COUNTY  
ERI-2-18.38

PIERS CONT.										
MARK	NO REQUIRED		LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	TOTAL				A	B	C	D		
3P501		42	6'-11"	1	2'-3"	2'-8"	2'-3"			303
3P601		4	31'-5"	STR.						189
3P602		12	6'-4"	1	2'-0"	2'-8"	2'-0"			114
3P603		124	8'-8"	1	3'-2"	2'-8"	3'-2"			1,614
3P801		80	10'-4"	11	8'-6"					2,207
3P1001		32	17'-0"	STR.						2,341
3P1002		32	9'-9"	13	8'-3"	1'-10"				1,343
3P1101		14	34'-3"	13	31'-5"	3'-2"				2,548
3P1102		4	12'-0"	STR.						255
3P1103		4	15'-7"	STR.						331
3P1104		14	31'-5"	STR.						2,337
									TOTAL SPIRALS	1,032
									TOTAL PIER NO. 3	14,614
SPIRAL REINFORCEMENT										
MARK	N#	LENGTH	WEIGHT	CORE	PITCH	SPACERS				
SP401	4	13'-11"	1060	32"	4-1/2"	16-L'S	1X1X1/8			
SP402	4	14'-1"	1074	32"	4-1/2"	16-L'S	1X1X1/8			
SP403	4	13'-3"	1032	32"	4-1/2"	16-L'S	1X1X1/8			

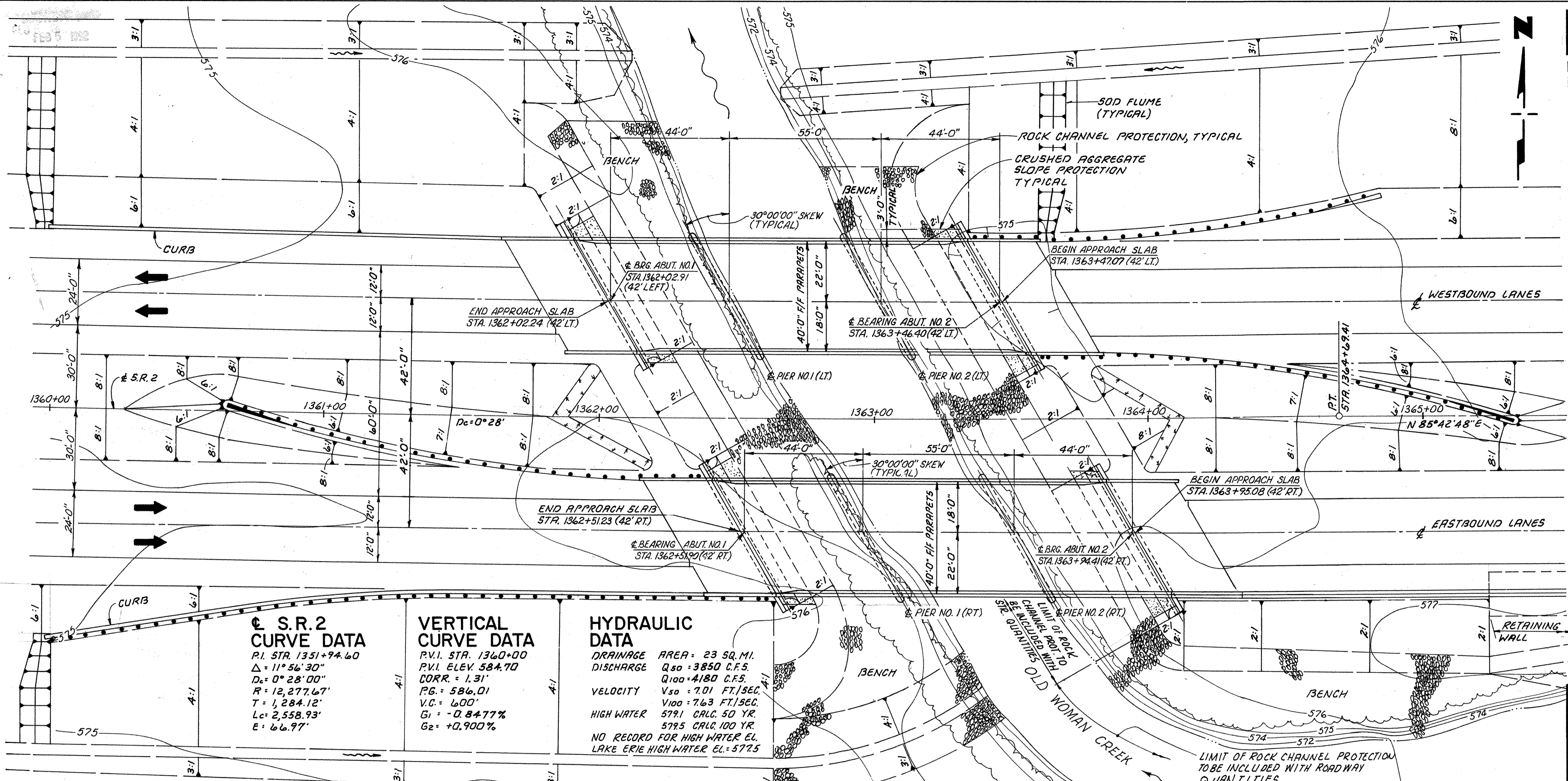
ABUTMENTS - EPOXY										
MARK	NO REQUIRED		LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	NORTH ABUTMENT	SOUTH ABUTMENT			TOTAL	A	B	C		
A501E	8	8	16'-10"	STR.						282
A502E	16	16	4'-4"	STR.						146
A503E	18	18	5'-3"	15	2'-2"	2'-5"	7-1/2"			198
A504E	16	16	2'-8"	12	2'-1"					90
A505E	8	8	19'-10"	STR.						332
A506E	1	1	33'-3"	STR.						70
A507E	1	1	29'-10"	STR.						62
A508E	18	18	2'-11"	STR.						110
A509E	16	16	4'-6"	STR.						150
A601E	20	20	3'-9"	19	9"	6"	8-1/2"	2'-5"		226
A602E	2	2	3'-8"	19	8"	5"	8-1/2"	2'-5"		22
A603E	2	2	3'-8"	19	8"	4"	8-1/2"	2'-5"		22
A604E	2	2	3'-7"	19	7"	3"	8-1/2"	2'-5"		22
A605E	2	2	3'-7"	19	7"	2"	8-1/2"	2'-5"		22
A606E	62	62	5'-5"	1	2'-5"	11"	2'-5"			1,010
A806E	30	30	4'-10"	20	2'-7"	1'-0"	1'-0"			774
									TOTAL ABUTMENT EPOXY BARS	3,538

SUPERSTRUCTURE - EPOXY										
MARK	N#	LENGTH	WEIGHT	CORE	PITCH	SPACERS				
S401E		610	30'-0"	STR.						12,224
S402E		61	30'-8"	STR.						1,250
S403E		162	38'-3"	STR.						4,139
S501E		426	5'-3"	15	2'-2"	2'-5"	7-1/2"			2,333
S502E		426	3'-2"	5	9"	6"	8-1/2"	11-1/2"		1,408
S503E		64	12'-5"	STR.						829
S504E		128	5'-11"	STR.						790
S505E		64	14'-2"	STR.						946
S506E		426	2'-6"	13	1'-9"	10-1/2"				1,111
S511E		8	3'-0"	STR.						25
S512E		2 SER OF	3'-5" TO	STR.						1,365
		41 BARS	28'-6"							
S513E		488	27'-10"	STR.						14,167
S514E		2 SER OF	3'-0" TO	STR.						511
		24 BARS	17'-5"							
S515E		440	19'-4"	STR.						8,871
S516E		484	30'-0"	STR.						15,144
S517E		44	5'-8"	STR.						260
S601E		8	3'-0"	STR.						36
S602E		2 SER OF	3'-5" TO	STR.						1,965
		41 BARS	28'-6"							
S603E		2 SER OF	7'-5" TO	STR.						1,054
		24 BARS	21'-10"							
S604E		928	23'-9"	STR.						33,104
									TOTAL SUPERSTRUCTURE EPOXY BARS	101,532

LIGHTING - EPOXY										
MARK	NO REQUIRED		LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	TOTAL				A	B	C	D		
L501E		8	3'-3"	1	10"	1'-10"	10"			27
L502E		8	8'-5"	21	2'-4"	3'-2"	3'-2"	6-1/2"		77
L503E		12	7'-3"	22	6"	1'-10"	1'-10"	1'-4"		90
L504E		8	3'-2"	STR.						26
									TOTAL LIGHTING EPOXY BARS	215

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<b>REINFORCING STEEL LIST</b>				
BRIDGE NO. ERI - 2 - 2082				
BERLIN ROAD OVER S.R. 2				
ERIE COUNTY			STA. 18+38.82	
ERI-2-18.38			TO STA. 21+61.18	
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
T.M.J.	T.M.J.	K.L.M.	L.E.D.	11/4/85

TRAFFIC: ADT (2000) = 17,830  
ADTT (2000) = 2,675



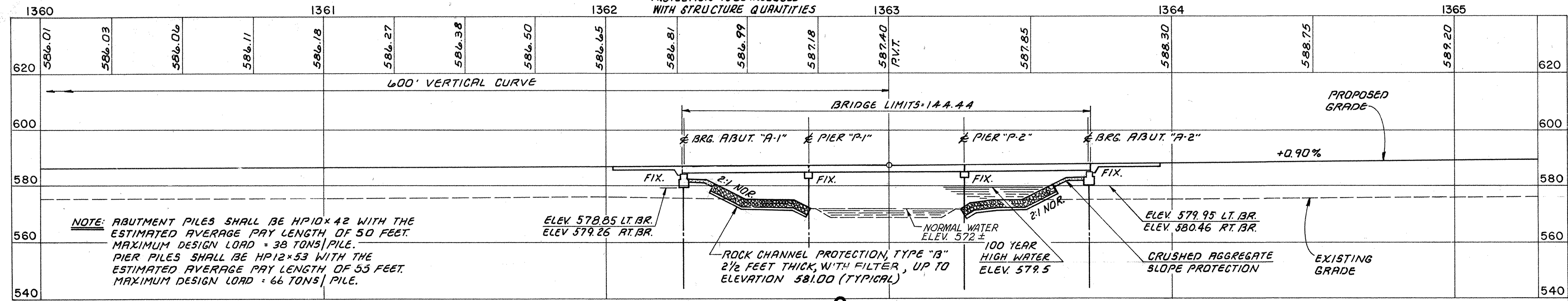
**S.R. 2 CURVE DATA**  
P.I. STA. 1351+94.60  
 $\Delta = 11^\circ 56' 30''$   
 $D_c = 0^\circ 28' 00''$   
 $R = 12,277.67'$   
 $T = 1,284.12'$   
 $L_c = 2,558.93'$   
 $E = 66.97'$

**VERTICAL CURVE DATA**  
P.V.I. STA. 1360+00  
P.V.I. ELEV. 584.70  
CORR. = 1.31'  
P.G. = 586.01  
V.C. = 600'  
 $G_1 = -0.8477\%$   
 $G_2 = +0.900\%$

**HYDRAULIC DATA**  
DRAINAGE AREA = 23 SQ. MI.  
DISCHARGE  $Q_{50} = 3850$  C.F.S.  
 $Q_{100} = 4180$  C.F.S.  
VELOCITY  
 $V_{50} = 7.01$  FT./SEC.  
 $V_{100} = 7.63$  FT./SEC.  
HIGH WATER  
5791 CALC. 50 YR.  
5795 CALC. 100 YR.  
NO RECORD FOR HIGH WATER EL.  
LAKE ERIE HIGH WATER EL. = 577.5

NOTE: EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS.

PLAN



NOTE: ABUTMENT PILES SHALL BE HP10x42 WITH THE ESTIMATED AVERAGE PILE LENGTH OF 50 FEET. MAXIMUM DESIGN LOAD = 38 TONS/PILE. PIER PILES SHALL BE HP12x53 WITH THE ESTIMATED AVERAGE PILE LENGTH OF 55 FEET. MAXIMUM DESIGN LOAD = 66 TONS/PILE.

PROFILE

**PROPOSED STRUCTURE**

TYPE: PRESTRESSED CONCRETE BOX BEAM SUPERSTRUCTURE ON CAPPED PILE SUBSTRUCTURE.  
SPANS: 44'-0"; 55'-0"; 44'-0"  
(ALONG CHORD BETWEEN ABUTMENT BEARINGS)  
ROADWAY: 40'-0" FACE/FACE PARAPETS  
LOADING: HS 20-44 AND THE ALTERNATE MILITARY LOADING  
SKEW: 30°00'00" RIGHT FORWARD  
WEARING SURFACE: 2 1/2" ASPHALT CONCRETE  
ALIGNMENT: 0°28' CURVE LEFT (ROADWAY) TANGENT (STRUCTURE)  
APPROACH SLABS: AS-1-B1 (25' LONG)  
SUPERELEVATION: NONE (NORMAL CROWN) 1/10

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**SITE PLAN**

BRIDGE NO. ERI-2-2156 L/R  
S.R.2 OVER OLD WOMAN CREEK

ERIE COUNTY STA. 1362+26.78 TO  
ERI - 2 - 18.37 STA. 1363+71.22

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
L.E.D.	T.M.J.	L.E.D.	L.E.D.	11/4/85	

FEB 5 1985

ERIE COUNTY  
ERI-2-18.38

# ESTIMATED QUANTITIES

ITEM	UNIT	LEFT BR.	RIGHT BR.	TOTAL	DESCRIPTION	ABUTMENTS		PIER		SUPERSTR.		GENERAL						
						LEFT BR.	RIGHT BR.	LEFT BR.	RIGHT BR.	LEFT BR.	RIGHT BR.	LEFT BR.	RIGHT BR.					
403	CU. YD.	29	29	58	ASPHALT CONCRETE (AC-20), AS PER PLAN					29	29							
404	CU. YD.	22	22	44	ASPHALT CONCRETE (AC-20)					22	22							
503	CU. YD.	108	108	216	UNCLASSIFIED EXCAVATION	108	108											
505	LUMP SUM			LUMP SUM	PILE DRIVING EQUIPMENT MOBILIZATION							LUMP SUM	LUMP SUM					
507	LIN. FT.	850	850	1,700	STEEL PILES, HP 10 X 42, AS PER PLAN, SEE PROPOSAL NOTE	850	850											
507	LIN. FT.	990	990	1,980	STEEL PILES, HP 12 X 53, AS PER PLAN			990	990									
509	LBS.	12,834	12,960	25,794	REINFORCING STEEL, GRADE-60	6,241	6,367	6,593	6,593									
510	LIN. FT.	78	78	156	DOWEL HOLES	26	26	52	52									
511	CU. YD.	40	40	80	CLASS C CONCRETE, PIER CAPS			40	40									
511	CU. YD.	34	34	68	CLASS C CONCRETE, ABUTMENTS	34	34											
511	CU. YD.	42	43	85	CLASS S CONCRETE, SUPERSTRUCTURE					42	43							
512	SQ. YDS.	662	662	1324	TYPE 'D' WATERPROOFING, AS PER PLAN					662	662							
515	EACH	4	4	8	PRESTRESSED CONCRETE BRIDGE MEMBERS (B27-36), 44'-3-1/2" LONG, AS PER PLAN *					4	4							
515	EACH	2	2	4	PRESTRESSED CONCRETE BRIDGE MEMBERS (B27-36), 54'-5" LONG, AS PER PLAN *					2	2							
515	EACH	18	18	36	PRESTRESSED CONCRETE BRIDGE MEMBERS (B27-48), 44'-3-1/2" LONG, AS PER PLAN *					18	18							
515	EACH	9	9	18	PRESTRESSED CONCRETE BRIDGE MEMBERS (B27-48), 54'-5" LONG, AS PER PLAN *					9	9							
516	SQ. FT.	359	359	718	1" PREFORMED EXPANSION JOINT FILLER	225	225	134	134									
516	EACH	96	96	192	8" X 8" X 1" ELASTOMERIC BEARING PADS	44	44	52	52									
516	EACH	36	36	72	8" X 10" X 1" ELASTOMERIC BEARING PADS			36	36									
516	EACH	48	48	96	8" X 8" X 1/8" PREFORMED BEARING PADS, 711.21	22	22	26	26									
516	EACH	18	18	36	8" X 10" X 1/8" PREFORMED BEARING PADS, 711.21			18	18									
518	CU. YD.	23	24	47	POROUS BACKFILL, AS PER PLAN			23	24									
601	SQ. YD.	143	143	286	CRUSHED AGGREGATE SLOPE PROTECTION	143	143											
601	SQ. YD.	857	1,138	1,995	ROCK CHANNEL PROTECTION, TYPE B W/FILTER							857	1,138					
824	LBS.	4,326	4,296	8,622	EPOXY COATED REINFORCING STEEL, GRADE 60					4,326	4,296							
SPECIAL	SQ. YD.	225	850	1,075	SEALING OF CONCRETE SURFACES, SEE PROPOSAL NOTE					225	225		625					

\* SEE PROPOSAL NOTE

FOR GENERAL NOTES,  
SEE SHEET 207

2/10

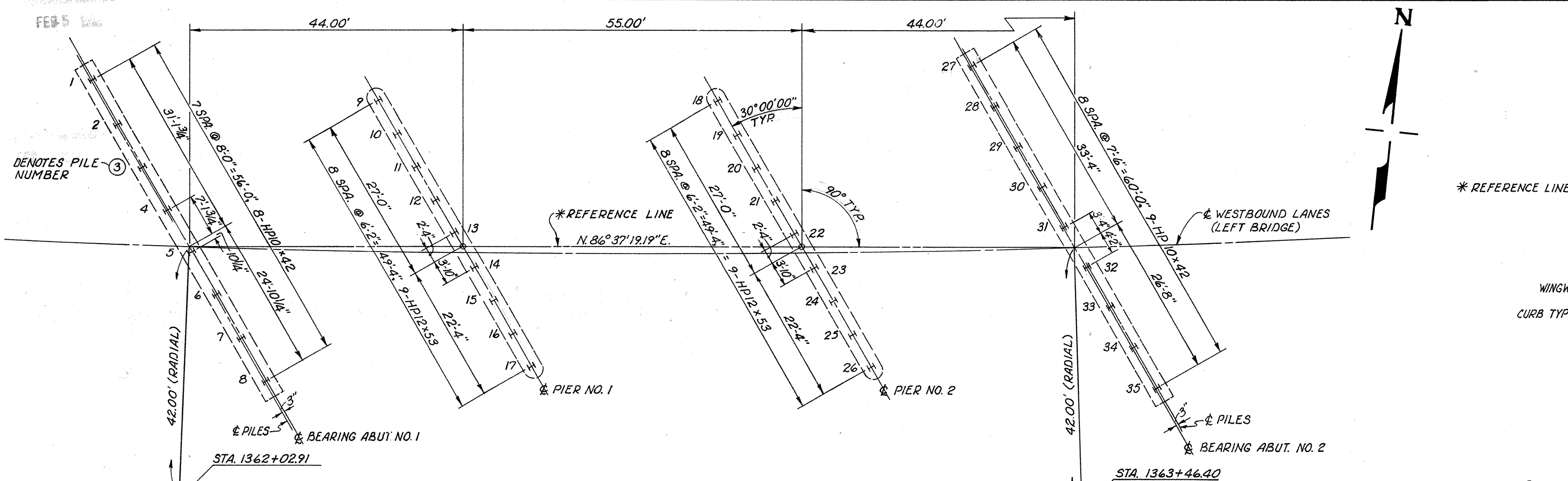
adache ciuni lynn associates  
CONSULTING ENGINEERS CLEVELAND OHIO 44130

### ESTIMATED QUANTITIES

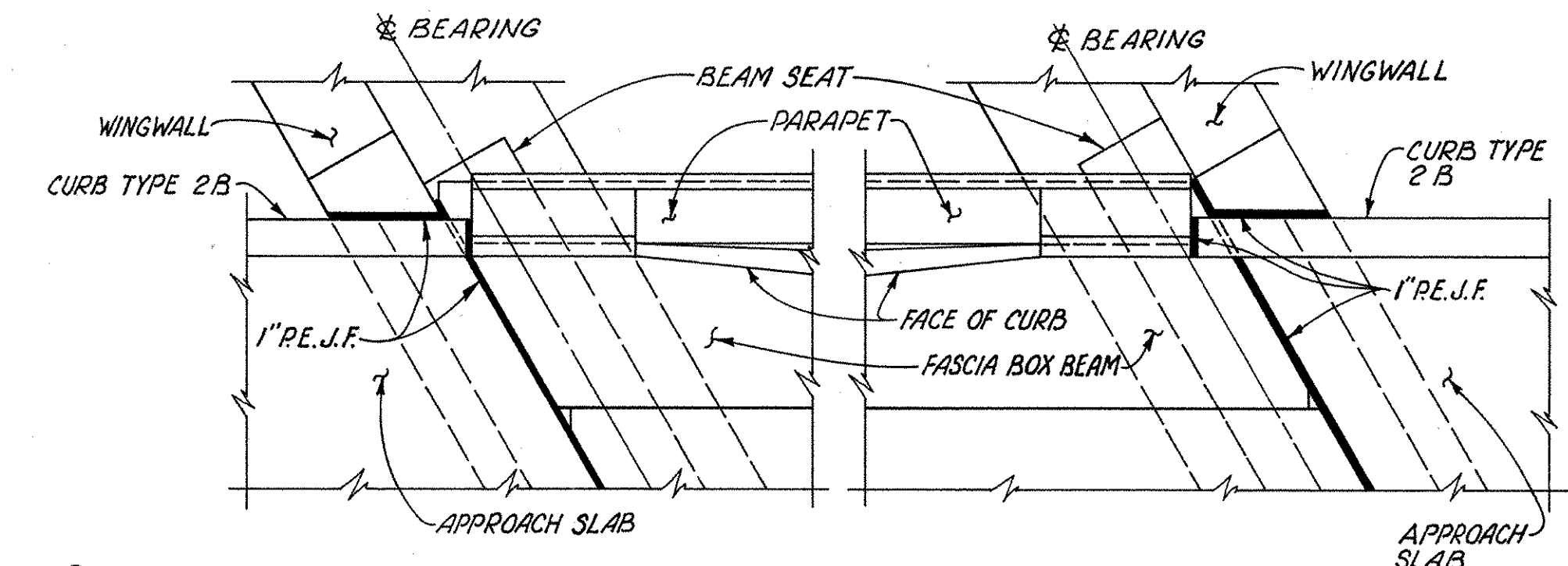
BRIDGE NO. ERI-2-2156 L/R  
S.R.2 OVER OLD WOMAN CREEK

ERIE COUNTY STA. 1362 +26.78 TO  
ERI-2-18.38 STA. 1363+71.22

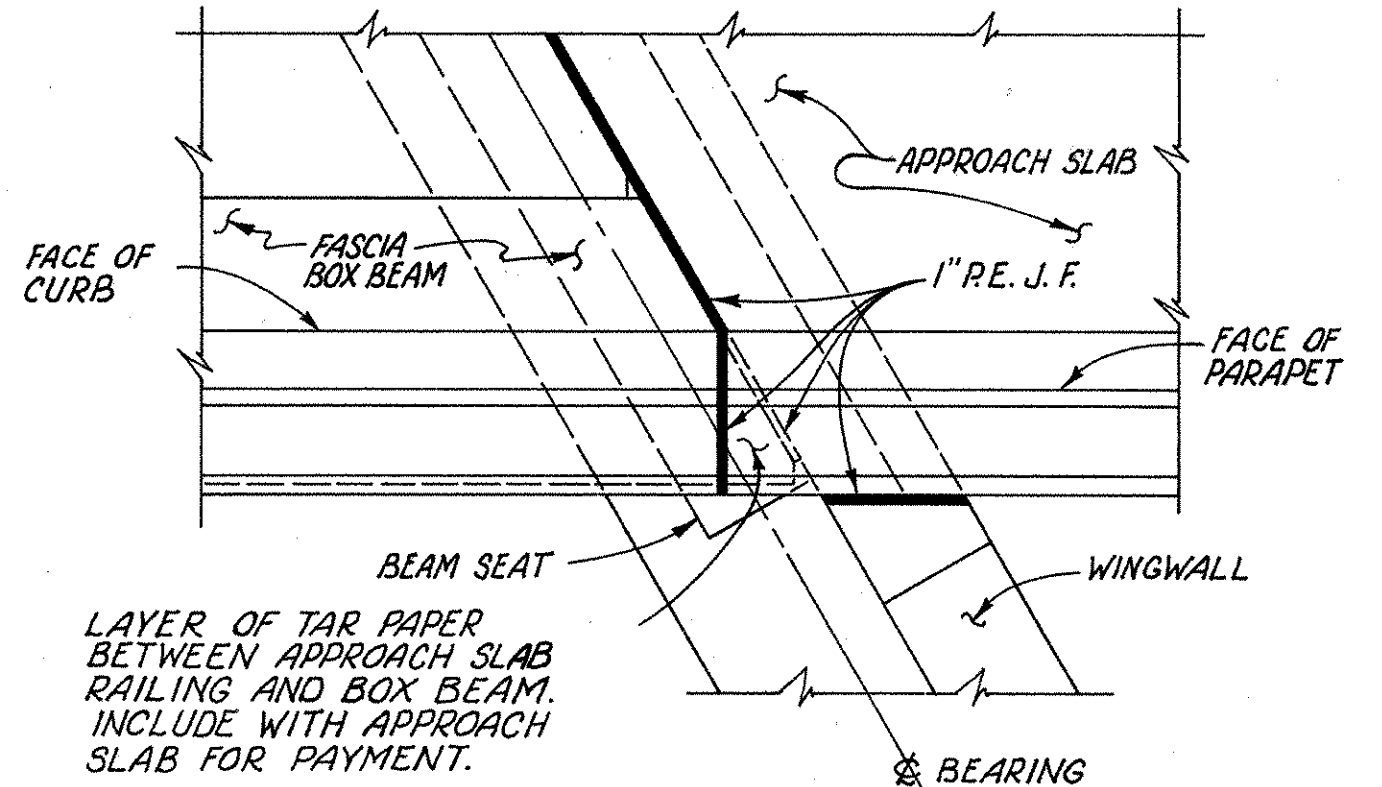
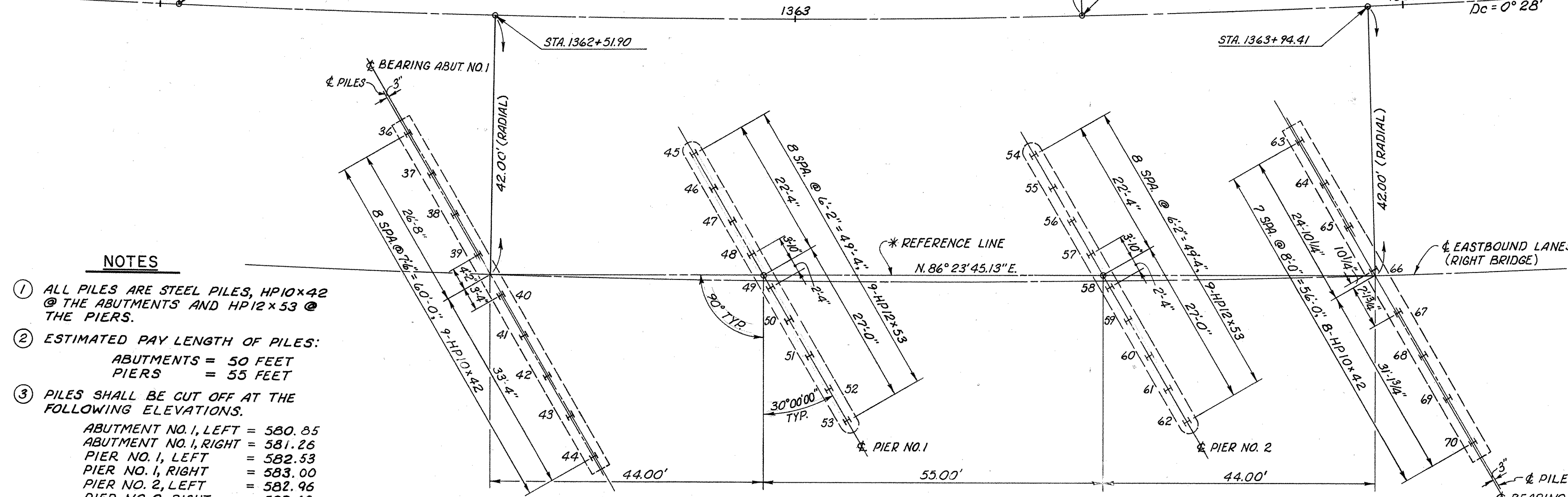
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
J.D.P.	J.D.P.	J.C.	L.E.D.	11/4/85	



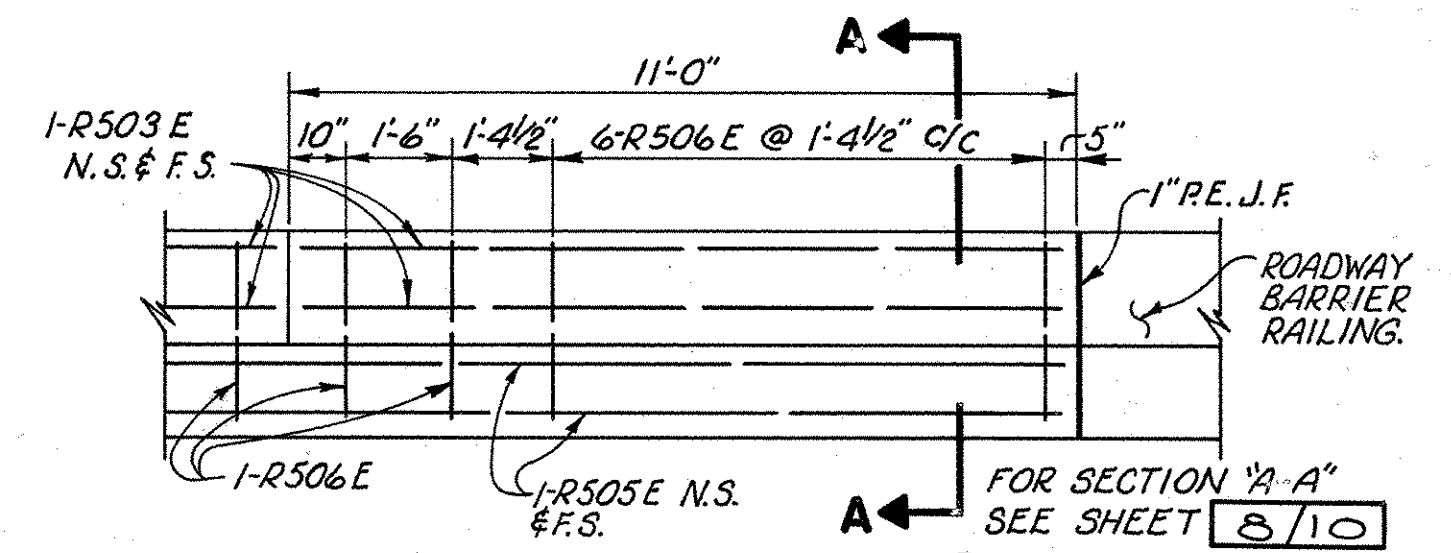
\* REFERENCE LINE = CHORD DRAWN FROM  $\phi$  BRG'S. ABUT. NO. 1 TO  $\phi$  BRG'S. ABUT. NO. 2



**PART PLAN @ ABUTMENTS**



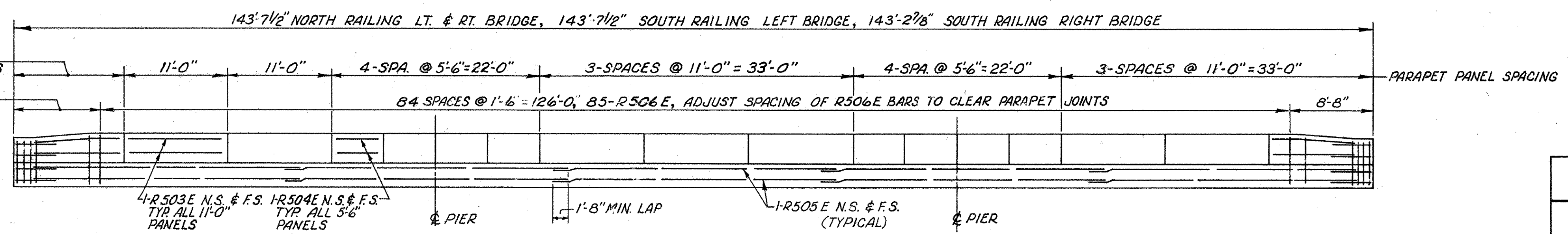
**PART PLAN @ ABUTMENT NO. 2, RIGHT BRIDGE, SOUTH RAILING ONLY**



**PART PARAPET ELEVATION @ ABUT. NO. 2, RIGHT BRIDGE, SOUTH RAILING ONLY**

- NOTES**
- ALL PILES ARE STEEL PILES, HPI0x42 @ THE ABUTMENTS AND HPI2x53 @ THE PIERS.
  - ESTIMATED PILE LENGTH OF PILES:  
ABUTMENTS = 50 FEET  
PIERS = 55 FEET
  - PILES SHALL BE CUT OFF AT THE FOLLOWING ELEVATIONS:  
ABUTMENT NO. 1, LEFT = 580.85  
ABUTMENT NO. 1, RIGHT = 581.26  
PIER NO. 1, LEFT = 582.53  
PIER NO. 1, RIGHT = 583.00  
PIER NO. 2, LEFT = 582.96  
PIER NO. 2, RIGHT = 583.49  
ABUTMENT NO. 2, LEFT = 581.95  
ABUTMENT NO. 2, RIGHT = 582.46

**GEOMETRIC AND PILING LAYOUT**



**PARAPET ELEVATION**

NOTE:  
FOR SUPERSTRUCTURE DETAILS AND ADDITIONAL RAILING DETAILS SEE SHEETS 7/10 AND 8/10.

**PARAPET REINFORCING TABLE**

PANEL LENGTH	LONGITUDINAL BARS	MARK	NO REQ'D.
11'-2 7/8"	R 501E		4
11'-7 1/2"	R 502E		12
11'-0"	R 503E		116
5'-6"	R 504E		128
11'-0"	R 505E		12

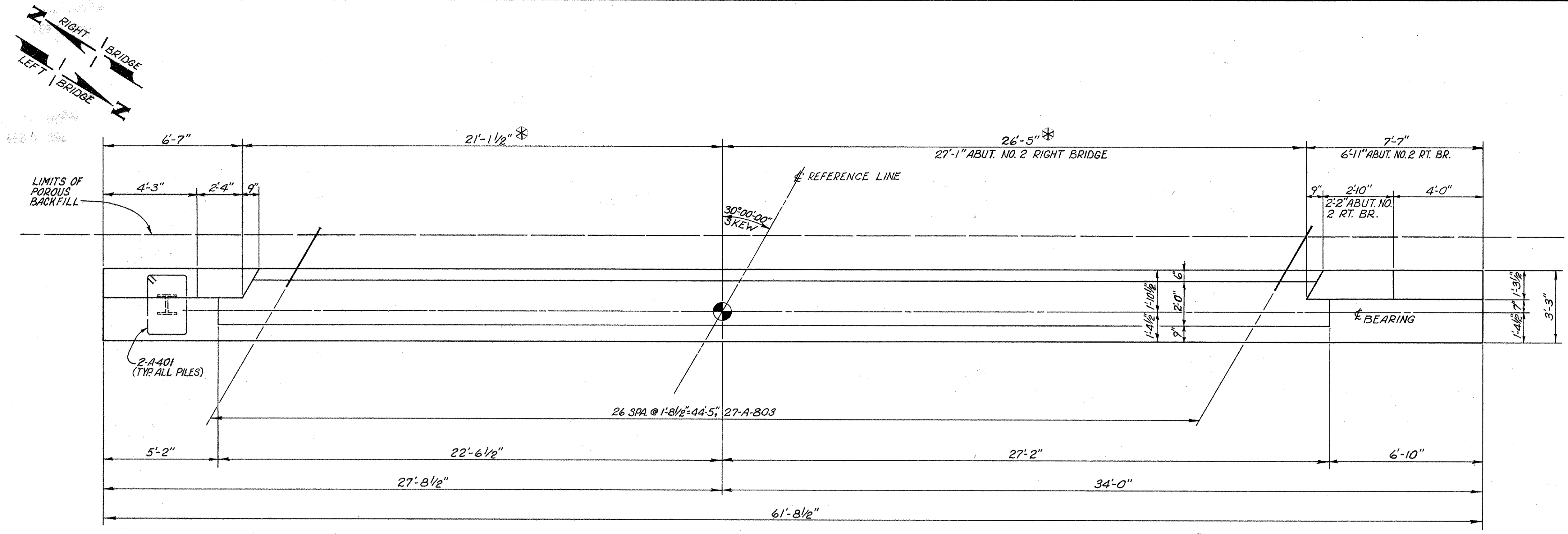
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**RAILING DETAILS AND PILING AND GEOMETRIC LAYOUT**  
BRIDGE NO. ERI.-2-2156 L./R. S. R. 2 OVER OLD WOMAN CREEK

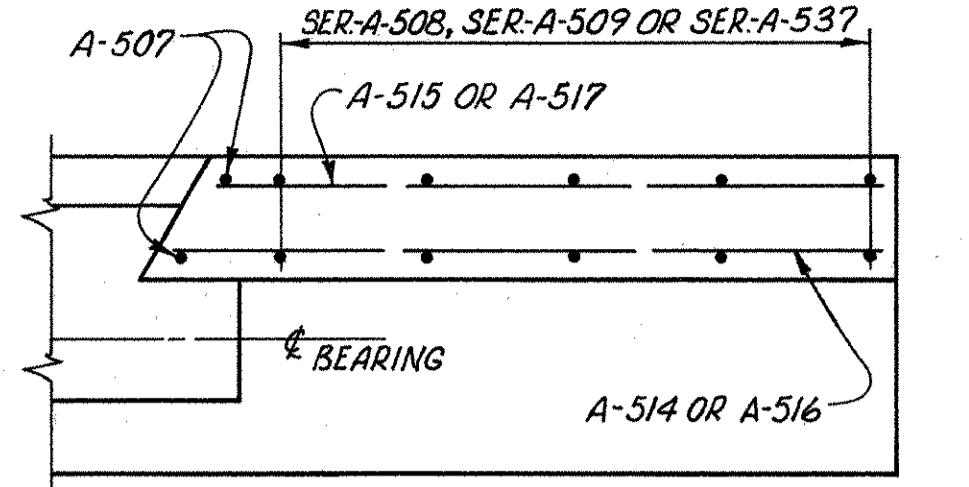
ERIE COUNTY STA. 1362+2678 TO ERI.-2-18.37 STA. 1363+71.22

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	B.M.R.	T.J.	K.M.	L.E.D.	11/4/85

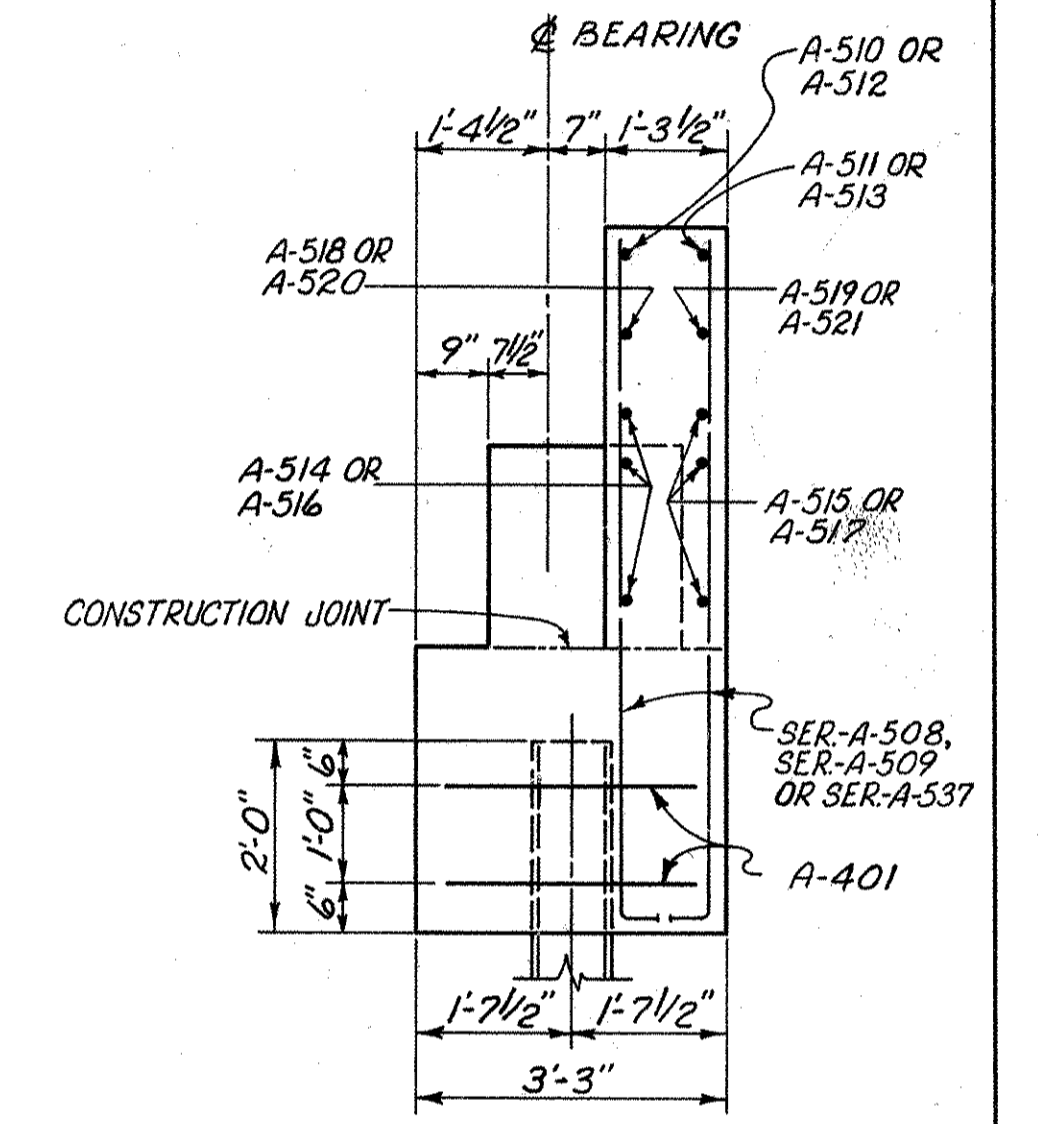
ERIE COUNTY  
ERI.-2-18.38



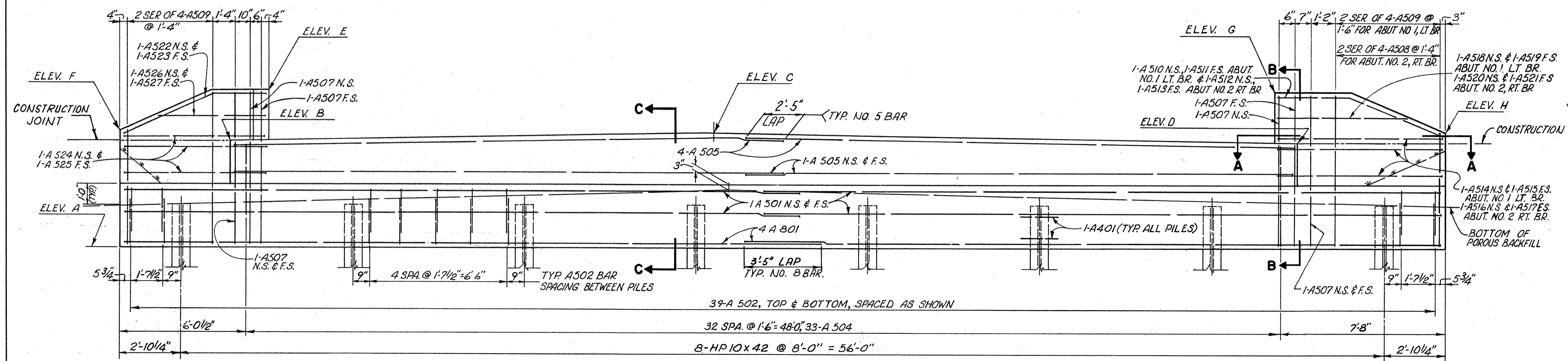
**PLAN**  
**ABUTMENT NO. 1, LEFT BRIDGE SHOWN**  
**ABUTMENT NO. 2, RIGHT BRIDGE SIMILAR EXCEPT AS NOTED**



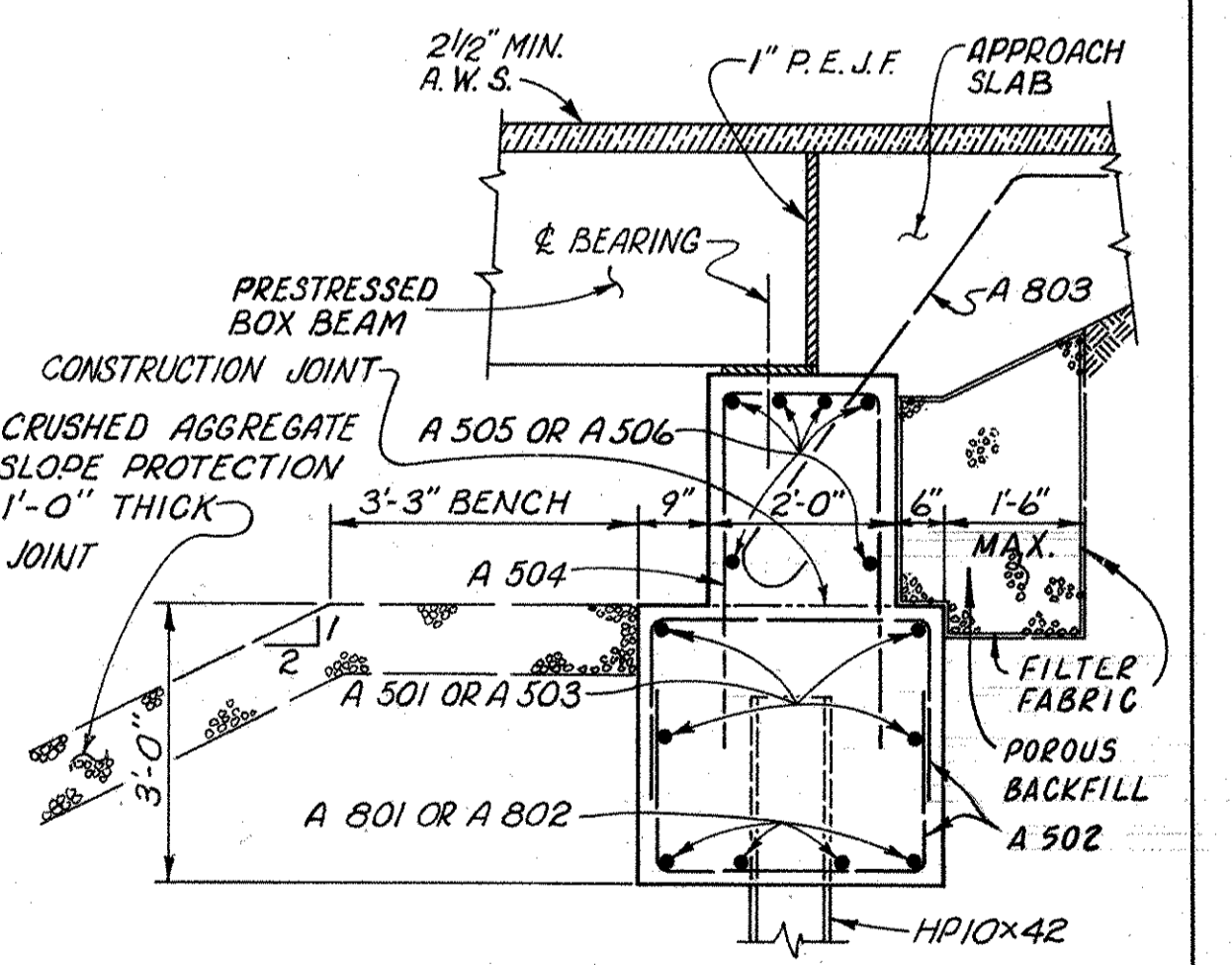
**SECTION A-A**



**SECTION B-B**



**ELEVATION**



**SECTION C-C**

ELEVATION TABLE								
LOCATION	A	B	C	D	E	F	G	H
ABUTMENT NO. 1 LEFT BRIDGE	578.85	584.00	584.23	583.78	586.63	584.65	586.41	584.65
ABUTMENT NO. 2 RIGHT BRIDGE	580.46	585.42	585.82	585.58	588.05	586.25	588.20	586.25

4/10

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**ABUTMENT DETAILS**

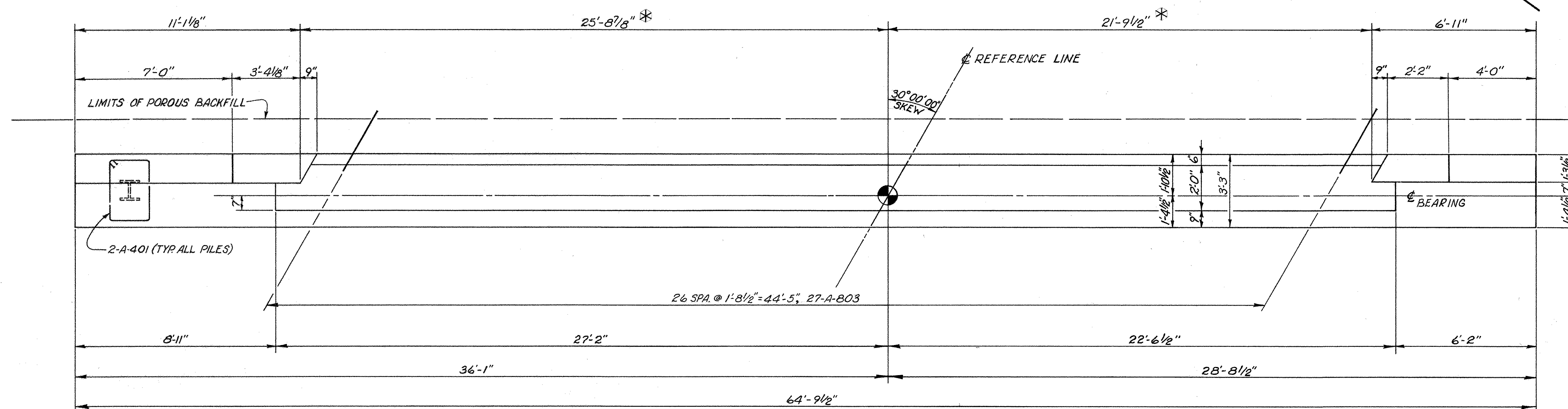
BRIDGE NO. ERI.-2-2156 L/R  
S.R. 2 OVER OLD WOMAN CREEK  
ERIE COUNTY STA. 1362+26.78 TO  
ERI.-2-18.38 STA. 1363+71.22

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	B.M.R.	J.R.C.	L.E.D.	11/4/85	

FOR NOTES SEE SHEET 5/10

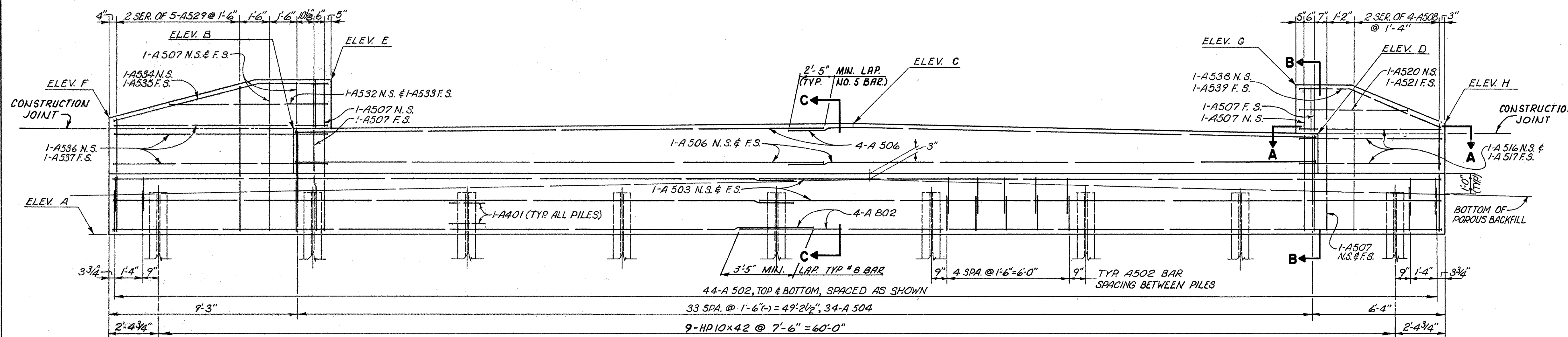
NOTES

- FOR REINFORCING STEEL LIST AND BAR BENDING DIAGRAMS, SEE SHEET 9/10 & 10/10
- THE POROUS BACKFILL AT THE ABUTMENTS SHALL EXTEND UPWARD TO THE PLANE OF SUBGRADE, AND Laterally TO THE SURFACE OF THE EMBANKMENT SLOPES.
- THE PORTION OF THE ABUTMENT AND WINGWALL ABOVE THE CONSTRUCTION JOINT, AT THE BEAM SEAT, SHALL BE CAST AFTER THE PRESTRESSED CONCRETE BOX BEAMS ARE SET, TIED AND GROUTED TO THE SATISFACTION OF THE ENGINEER.
- BEAM SEAT ELEVATIONS ARE GIVEN AT  $\phi$  OF ABUTMENT BEARINGS.
- REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEATS SHALL BE PLACED ACCURATELY TO AVOID INTERFERENCE WITH THE DRILLING OF ANCHOR BAR HOLES.
- ABBREVIATIONS:  
N.S. = NEAR SIDE  
F.S. = FAR SIDE
- FOR SECTIONS NOT SHOWN, SEE SHEET 4/10
- FOR GEOMETRIC LAYOUT AND PILING PLAN, SEE SHEET 3/10
- FOR APPROACH SLAB DETAILS SEE STD. DWG. AS-1-B1 AND ROADWAY PLANS.



\* DIMENSIONS SUBJECT TO BEAM FIT-UP

PLAN  
ABUTMENT NO. 2, (LEFT BRIDGE) SHOWN  
ABUTMENT NO. 1, (RIGHT BRIDGE) SIMILAR EXCEPT AS NOTED



ELEVATION

ELEVATION TABLE							
LOCATION	A	B	C	D	E	G	H
ABUTMENT NO. 1 RIGHT BRIDGE	579.26	584.32	584.58	584.17	586.94	585.05	586.81
ABUTMENT NO. 2 LEFT BRIDGE	579.95	584.89	585.38	585.18	587.53	585.75	587.81

5/10

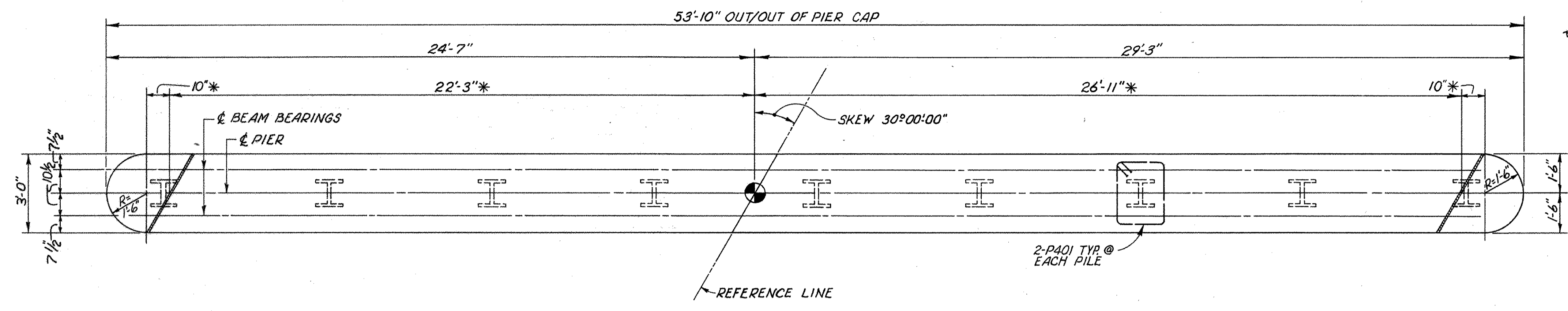
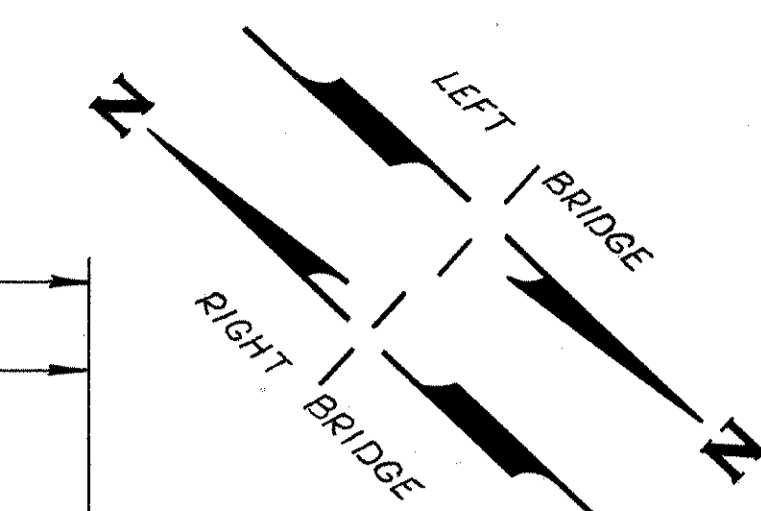
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**ABUTMENT DETAILS**

BRIDGE NO. ERI.-2-2156 L/R  
S. R. 2 OVER OLD WOMAN CREEK

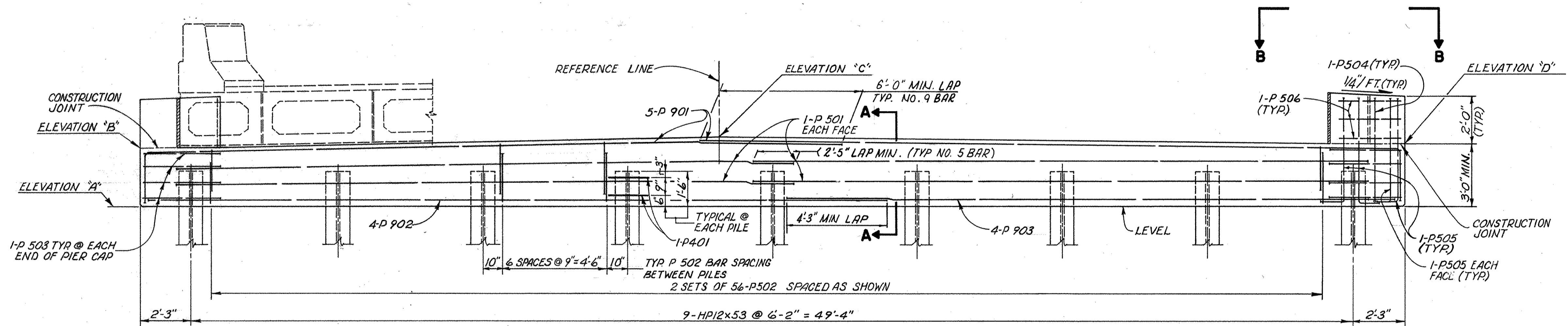
ERIE COUNTY STA. 1362+26.78 TO  
ERI.-2-18.38 STA. 1363+71.22

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	B.M.R.	J.R.C.	L.E.D.	11/4/85	



**PLAN**

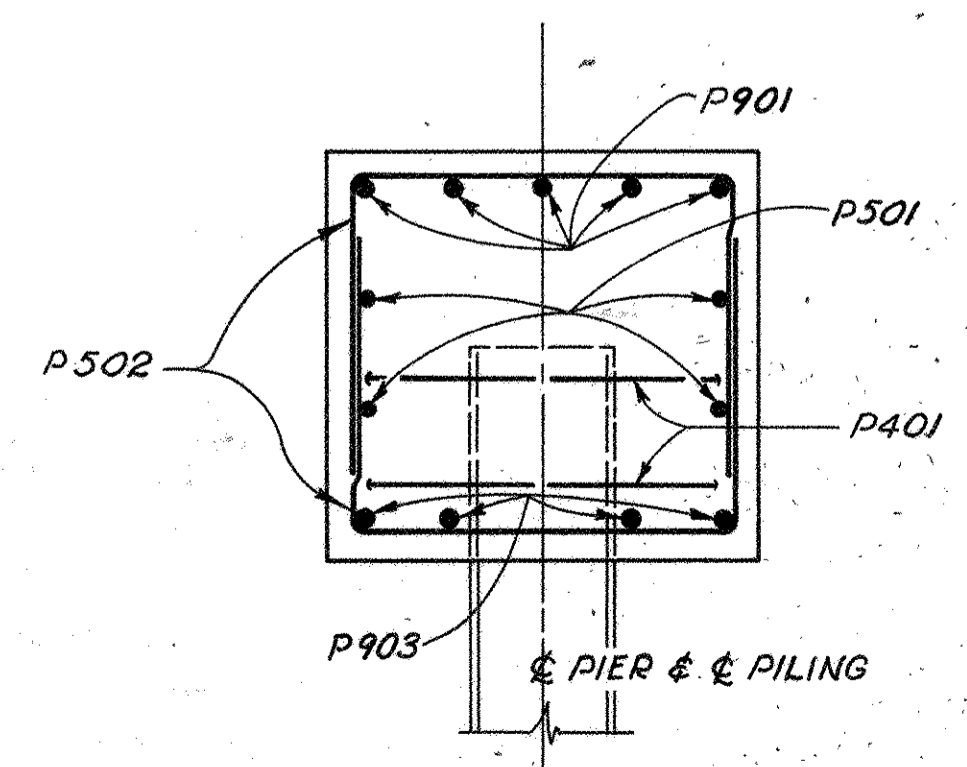
DIMENSIONS WITH THE NOTATION,\* ARE SUBJECT TO BEAM DIMENSIONAL TOLERANCE AND FIT-UP.



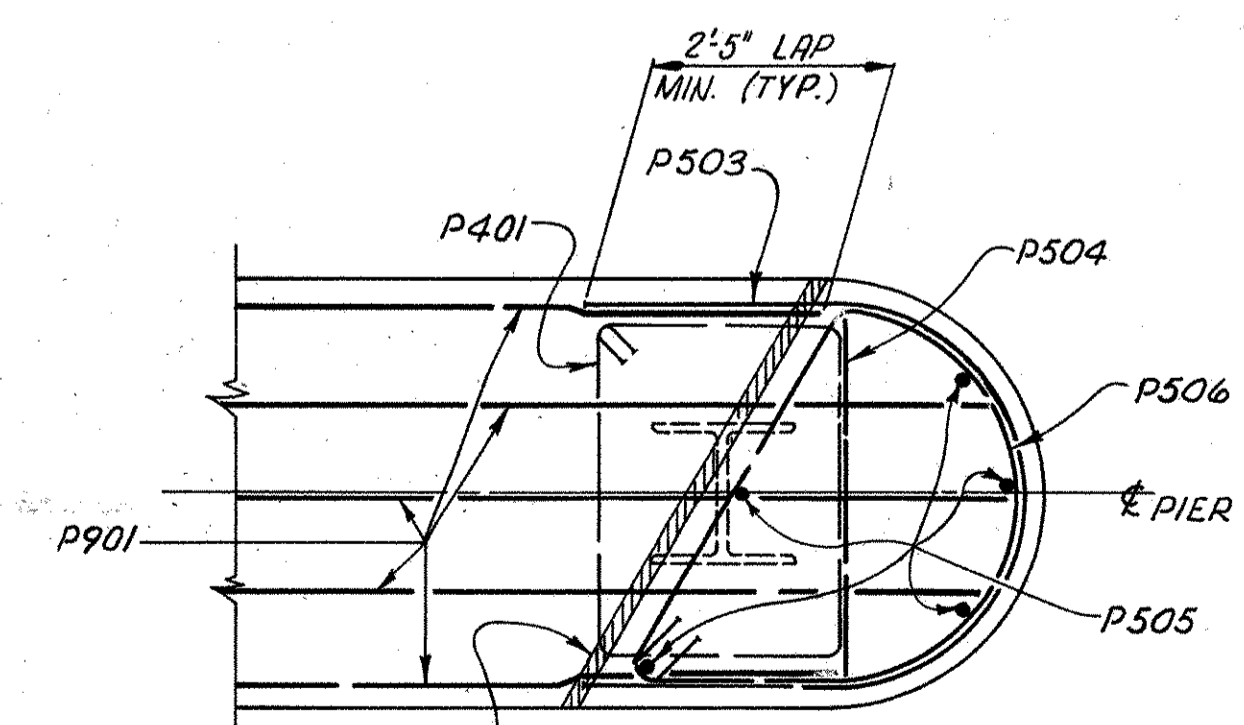
**ELEVATION**

- NOTES**
- 1 THE PORTION OF THE PIER CAPS ABOVE THE CONSTRUCTION JOINTS, AT THE BEAM SEATS SHALL BE CAST AFTER THE PRE-STRESSED CONCRETE BOX BEAMS ARE SET, TIED AND GROUTED TO THE SATISFACTION OF THE ENGINEER.
  - 2 FOR REINFORCING STEEL LIST AND BAR BENDING DIAGRAMS, SEE SHEETS 10/10 AND 10/10.
  - 3 ELEVATIONS ARE GIVEN AT  $\phi$  OF PIERS.
  - 4 REINFORCING STEEL IN THE VICINITY OF THE BEAM SEATS SHALL BE ACCURATELY PLACED TO AVOID INTERFERENCE WITH THE DRILLING OF ANCHOR BAR HOLES.
  - 5 ATTACHMENT OF FALSEWORK SUPPORT MEMBERS TO PIER PILES WILL BE PERMITTED, IF THE ATTACHMENT IS MADE TO THAT PORTION OF PILE ENCASED IN THE PIER CAP.
  - 6 FOR GEOMETRIC LAYOUT AND PILING PLAN, SEE SHEET 3/10.

**PILE ENCASEMENT:**  
PIER PILE SHALL BE PROTECTED BY THE USE OF VITRIFIED CLAY PIPE PLACED OVER THE PILES, AS PER STANDARD DRAWING CPP-2-73 DATED 4-10-73.



**SECTION A-A**



**VIEW B-B**

TABLE OF ELEVATIONS				
	ELEVATION "A"	ELEVATION "B"	ELEVATION "C"	ELEVATION "D"
LEFT BRIDGE PIER NO. 1	581.03	584.29	584.53	584.03
LEFT BRIDGE PIER NO. 2	581.46	584.76	584.98	584.46
RIGHT BRIDGE PIER NO. 1	581.50	584.50	584.94	584.67
RIGHT BRIDGE PIER NO. 2	581.99	584.99	585.43	585.17

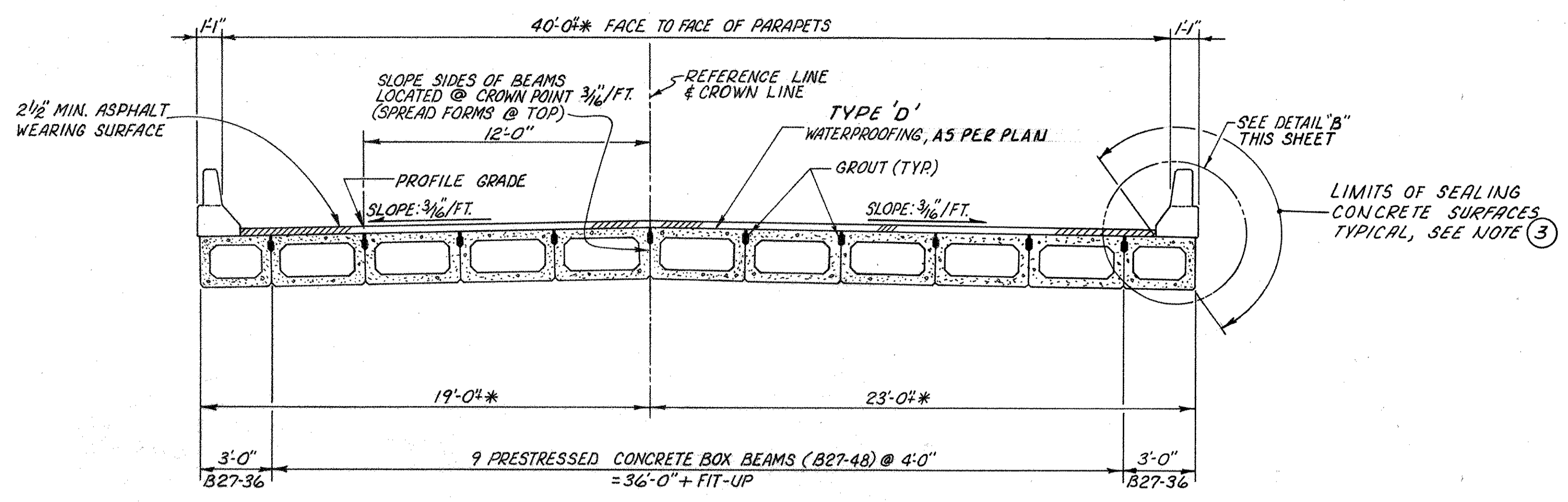
6/10

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**PIER DETAILS**  
BRIDGE NO. ERI-2-2156 L/R  
S.R. 2 OVER OLD WOMAN CREEK

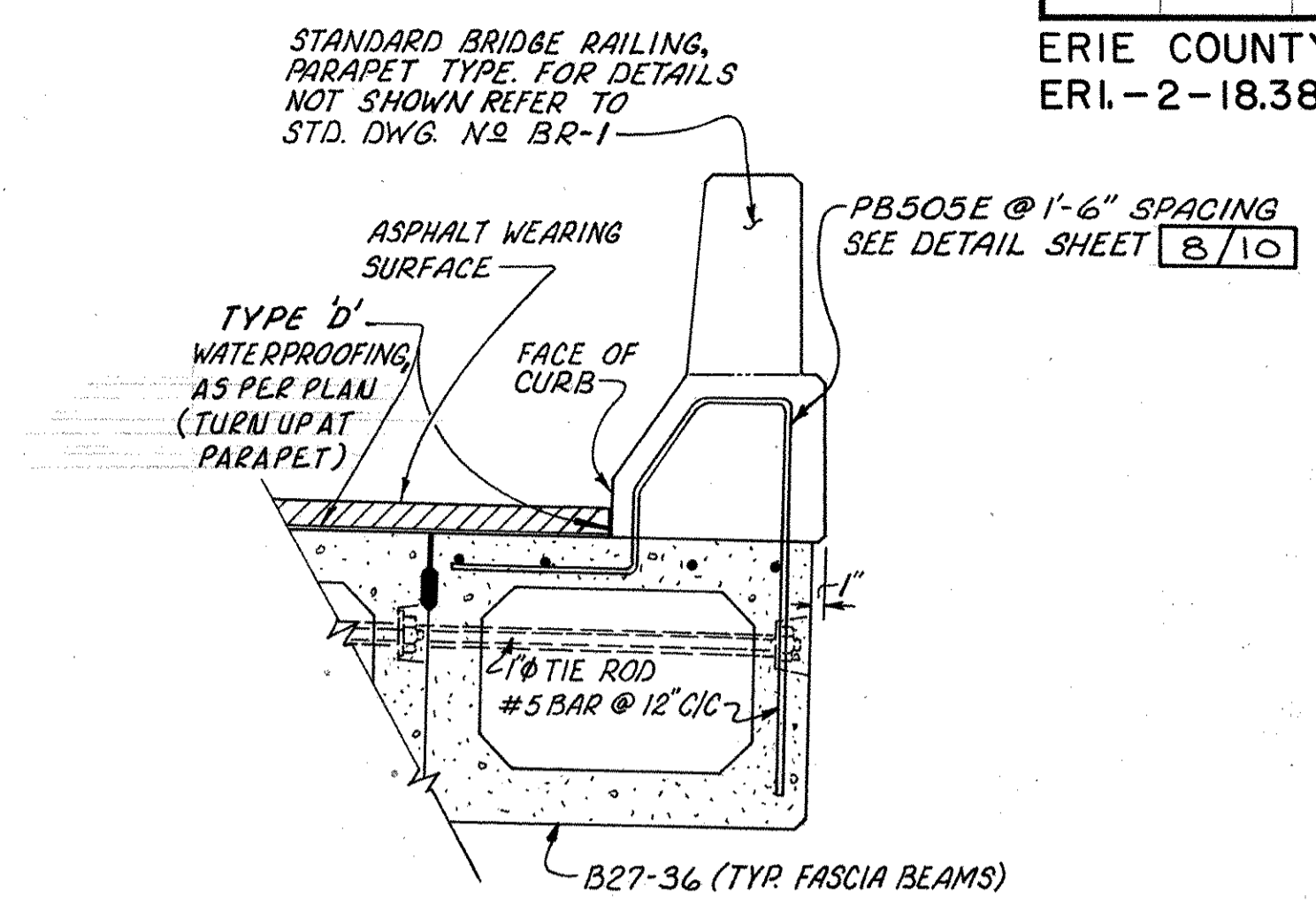
ERIE COUNTY STA. 1362+26.78 TO  
ERI-2-18.37 STA. 1363+71.22

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	B.M.R.	T.M.J.	L.E.D.	11/4/85	

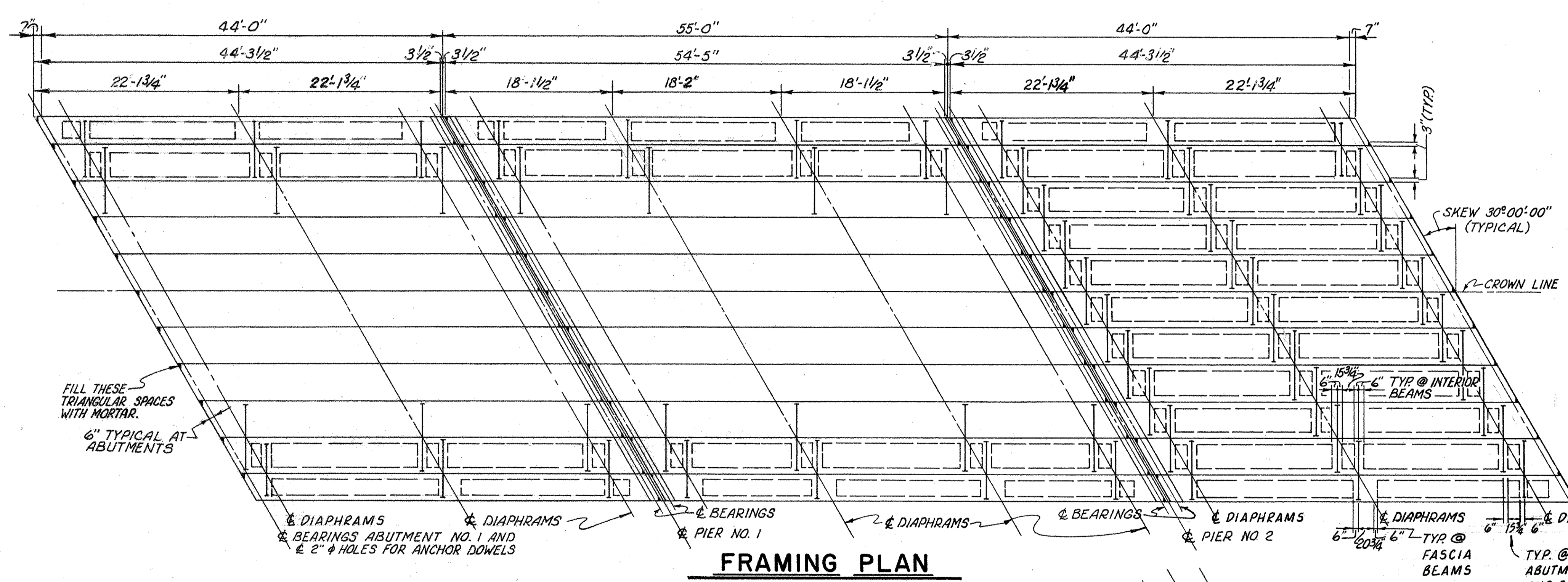


**TRANSVERSE SECTION**  
**EASTBOUND LANES SHOWN**  
**WESTBOUND LANES SIMILAR BUT OPPOSITE HAND**

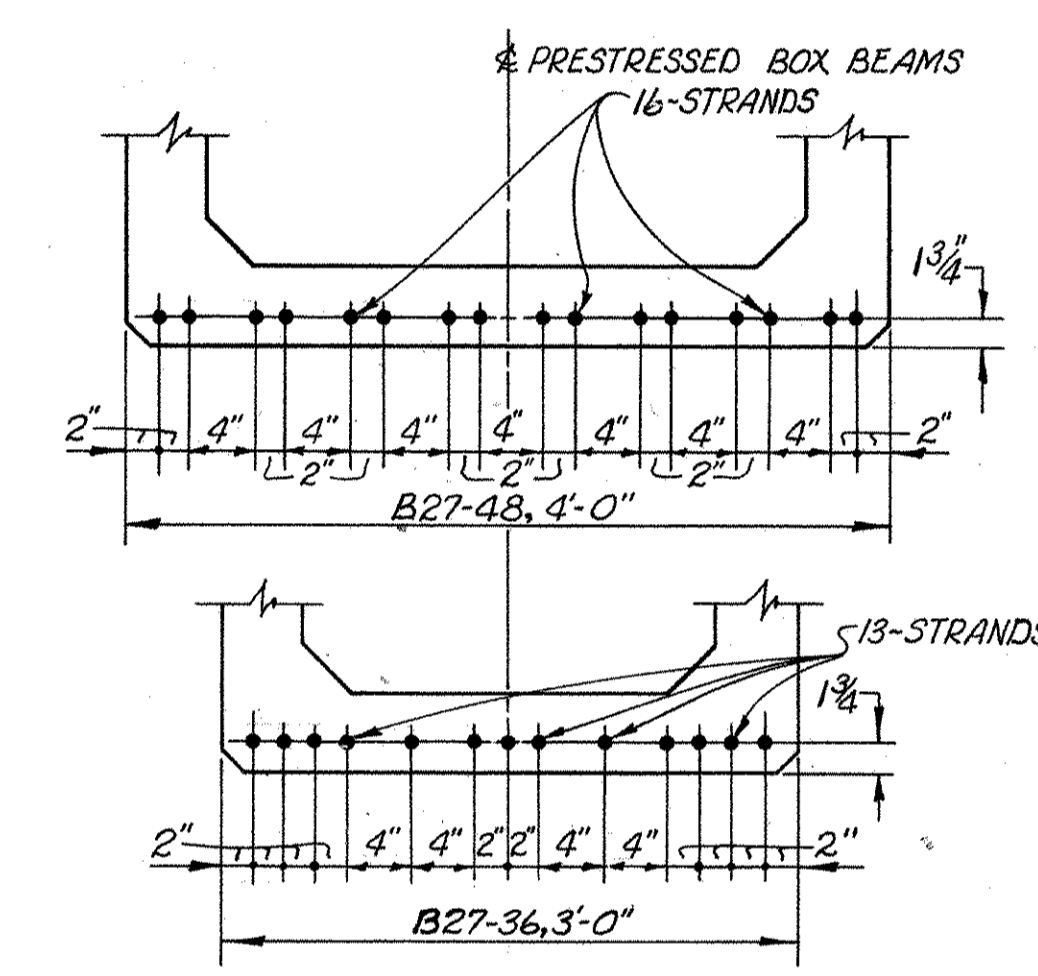
\* DIMENSIONS ARE NOMINAL. FINAL DIMENSIONS WILL VARY DEPENDING ON BEAM FIT-UP TOLERANCES.



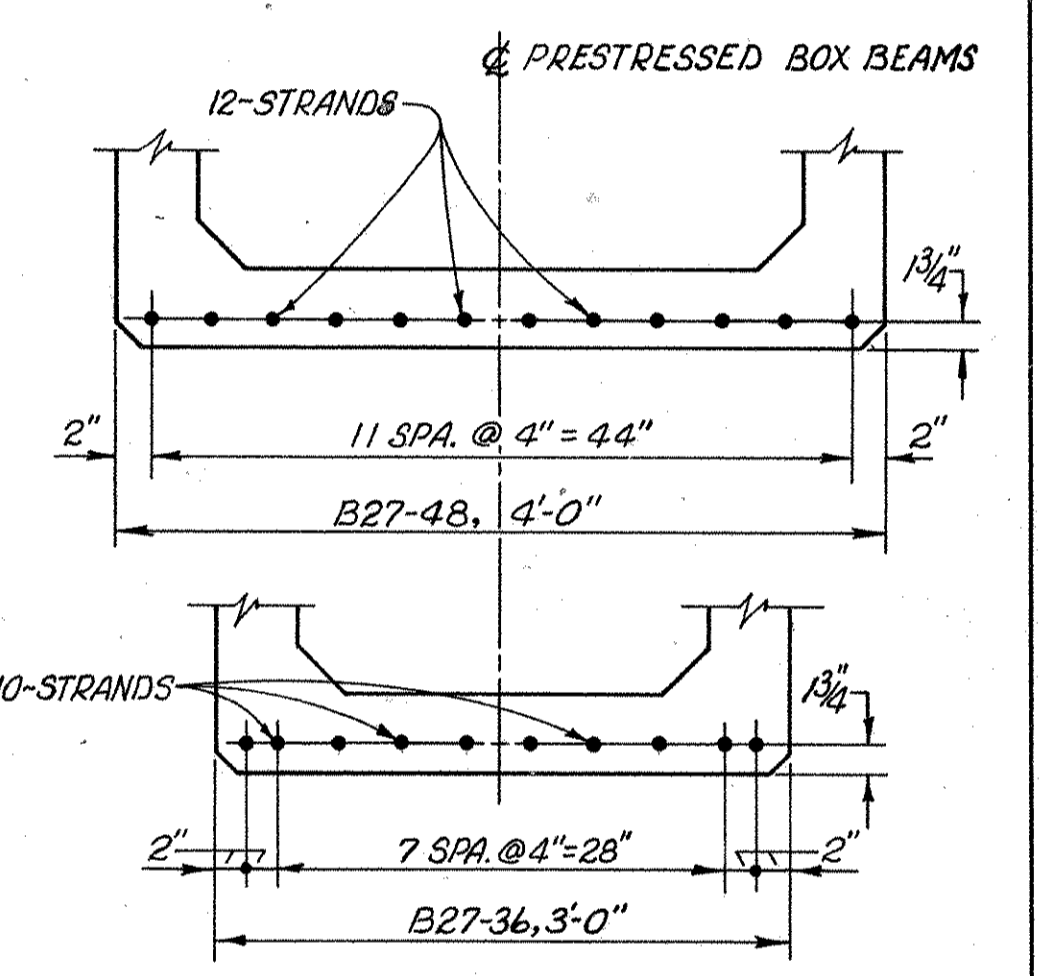
**DETAIL "B"**



**FRAMING PLAN**



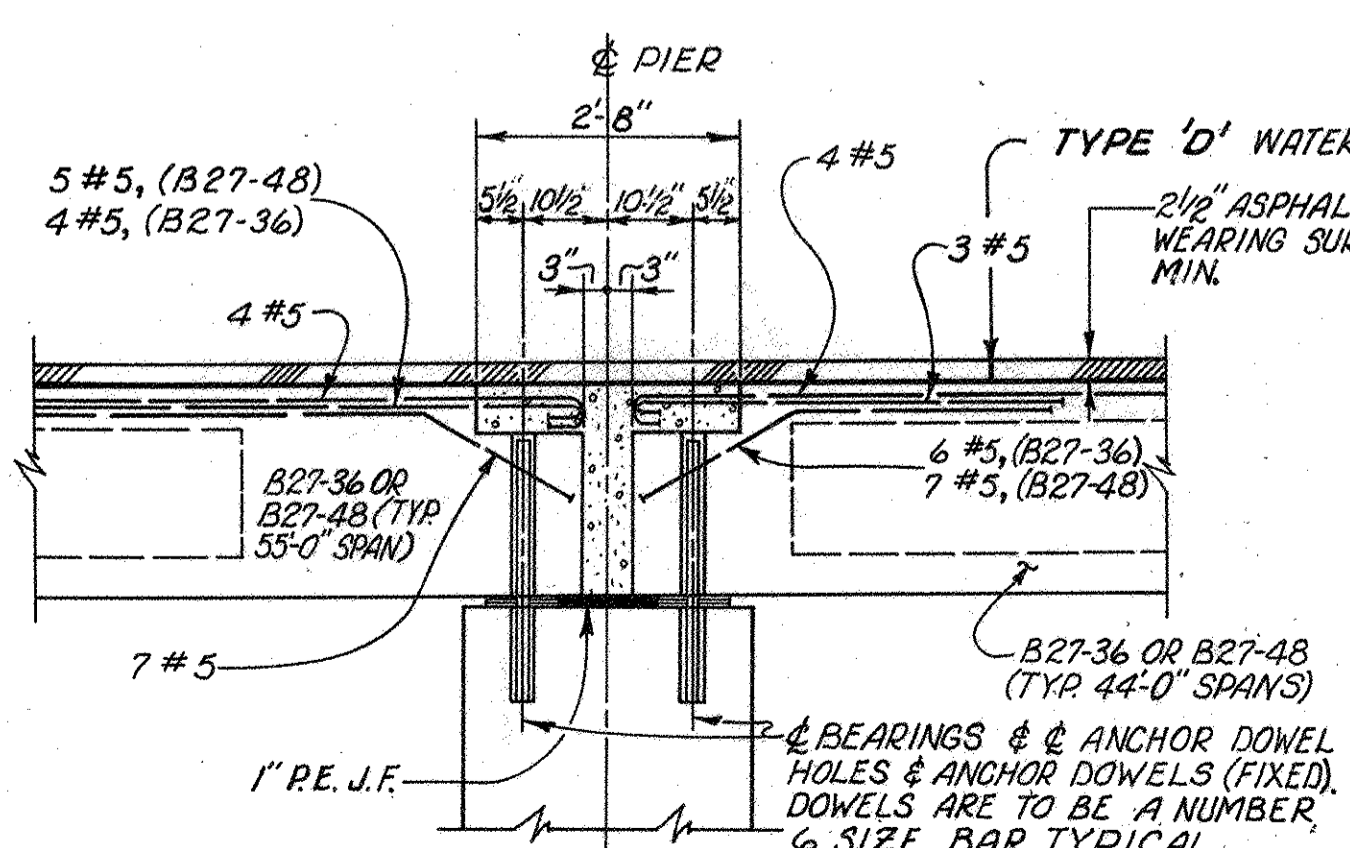
**STRAND PATTERNS FOR 55'-0" SPANS**



**STRAND PATTERNS FOR 44'-0" SPANS**

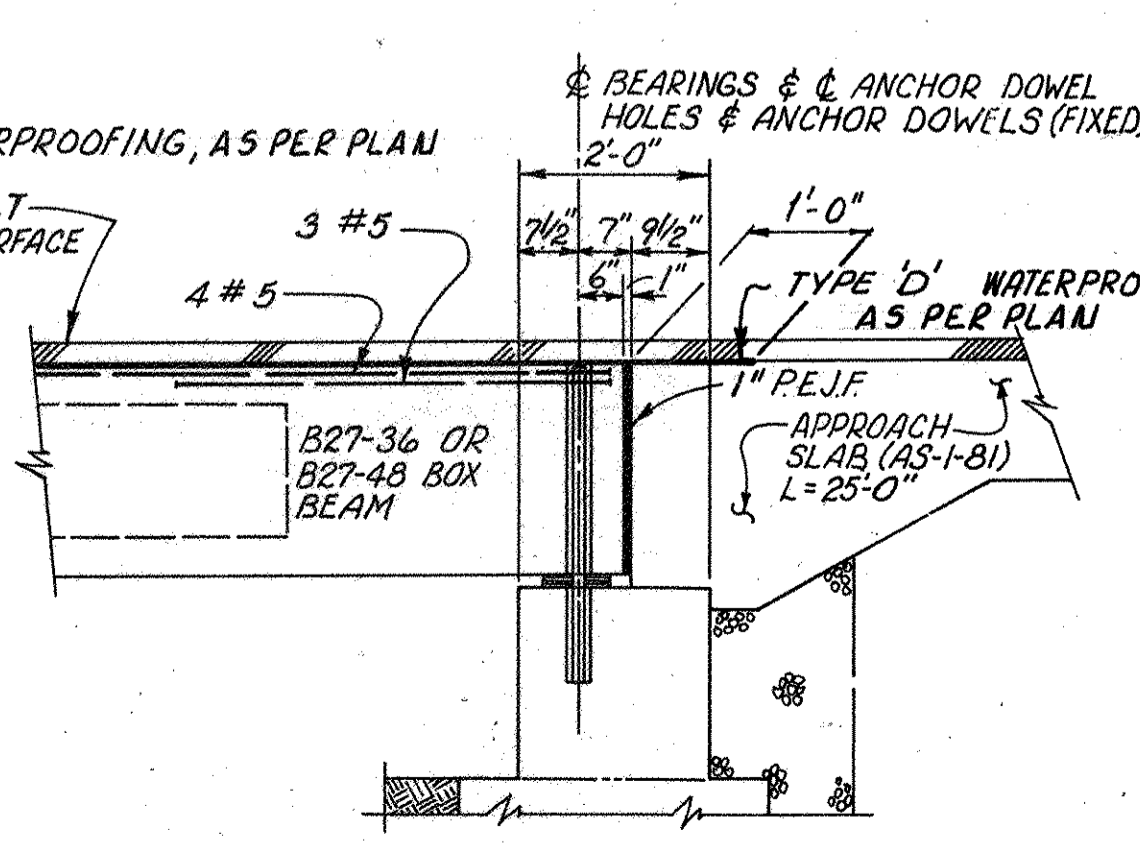
**NOTES:**

- FOR ADDITIONAL SUPERSTRUCTURE DETAILS, SEE SHEET 8/10.
- FOR ADDITIONAL NOTES, SEE SHEET 8/10.
- ITEM SPECIAL, SEALING OF CONCRETE SURFACES: A CONCRETE SEALER, EITHER SILANE OR AN EPOXY SEALER, SHALL BE APPLIED TO THE CONCRETE SURFACES SHOWN ON TRANSVERSE SECTION. SEE THE PROPOSAL FOR SURFACE PREPARATION REQUIREMENTS, APPLICATION RATES, MATERIALS REQUIREMENTS AND APPLICATION PROCEDURES.

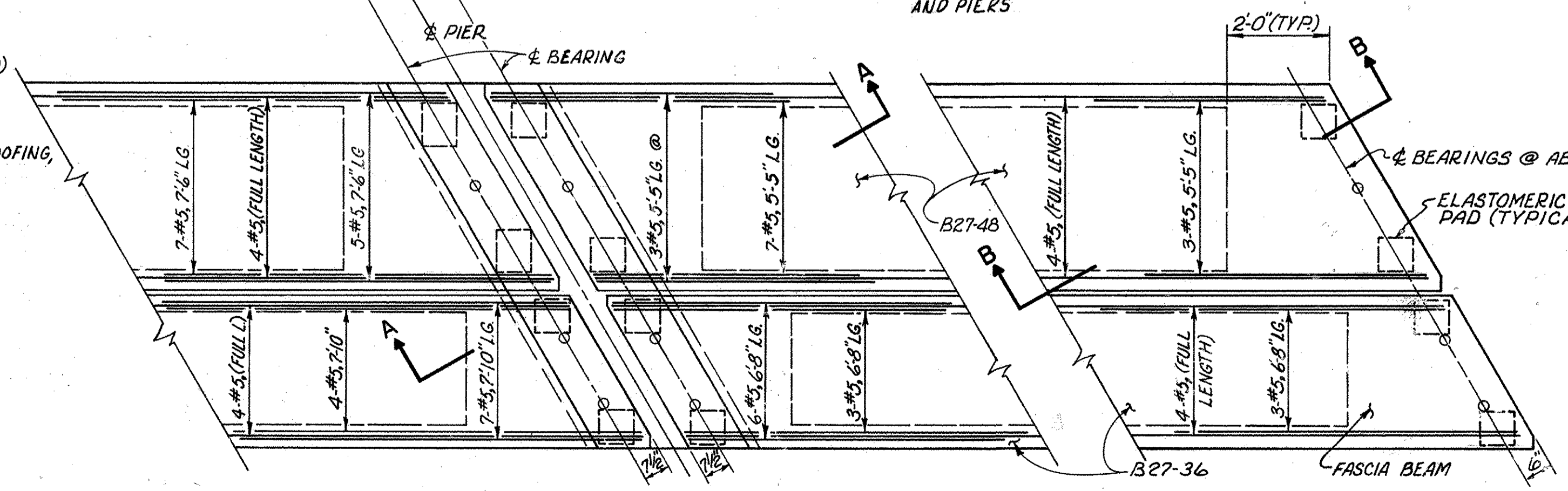


**SECTION A-A**

FOR DETAILS & ADDITIONAL REINF BARS NOT SHOWN, REFER TO (PSBD-1-81)



**SECTION B-B**



**PARTIAL PLAN OF TYPICAL BEAM ENDS**

7/10

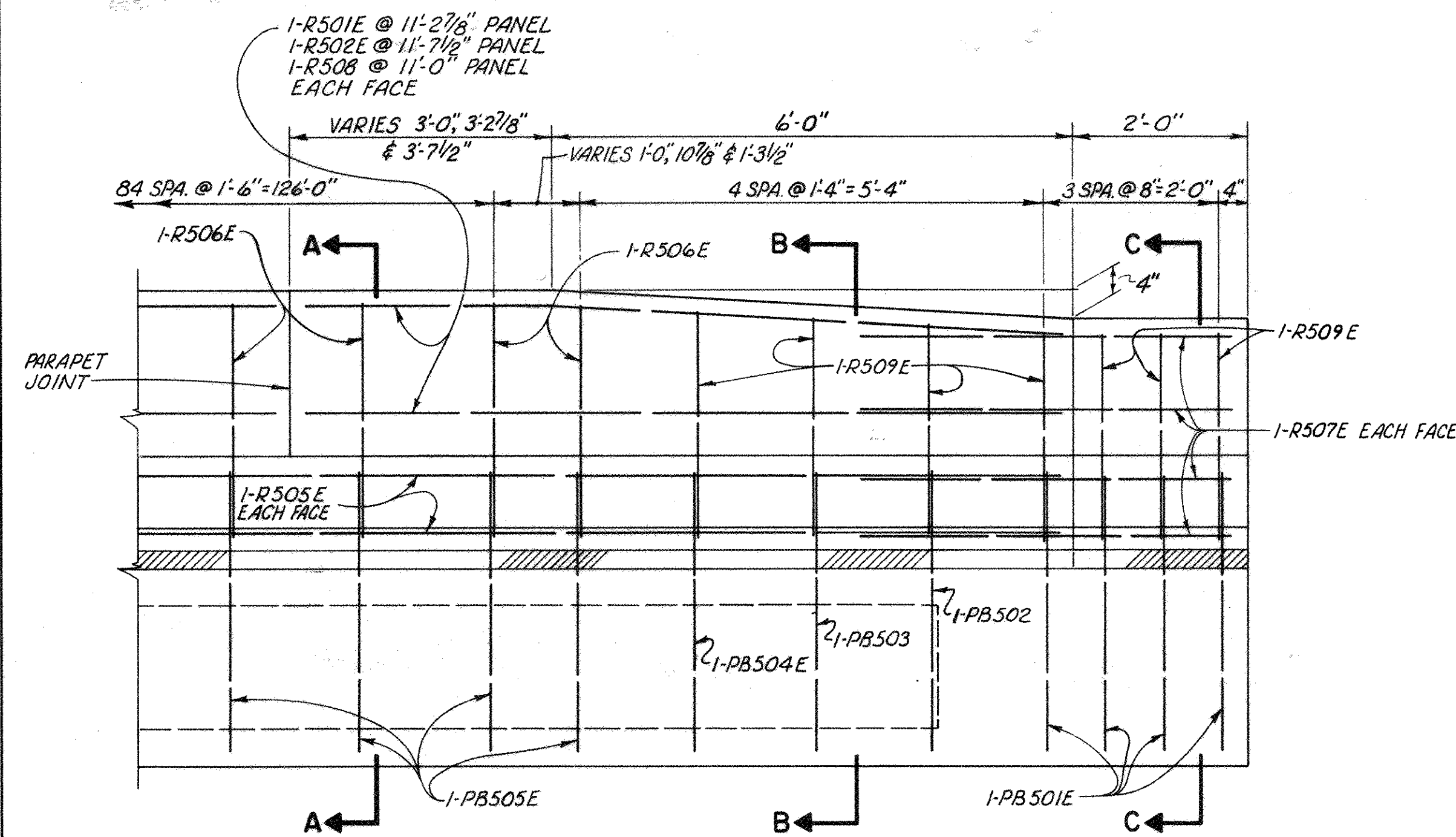
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**SUPERSTRUCTURE DETAILS**  
BRIDGE NO. ERI-2-2156 L/R  
S.R. 2 OVER OLD WOMAN CREEK

ERIE COUNTY STA. 1362+26.78 TO  
ERI-2-18.37 STA. 1363+71.22

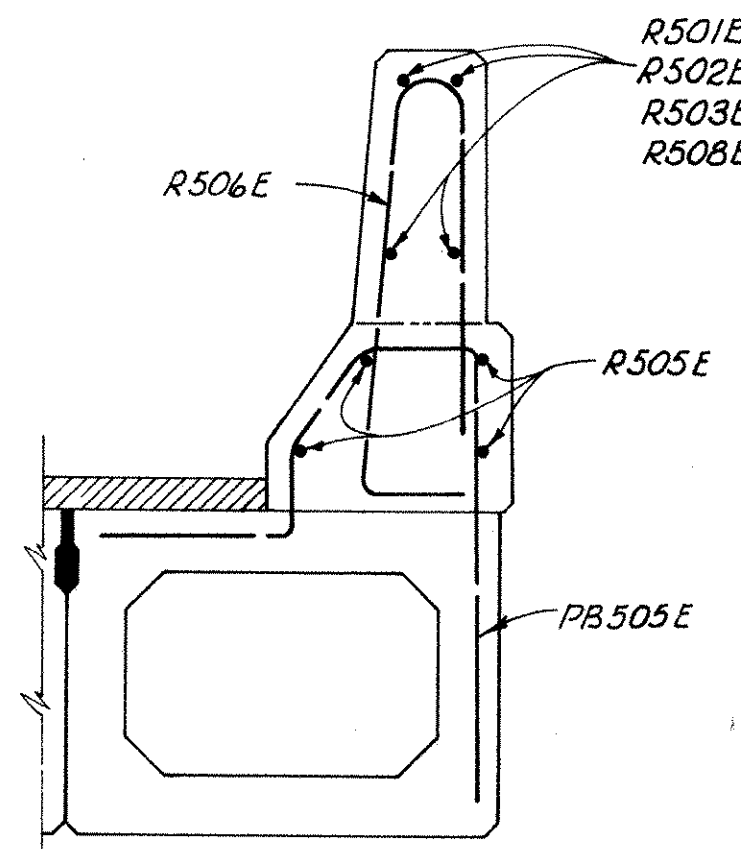
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	B.M.R.	J.R.C.	L.E.D.	11/4/85	



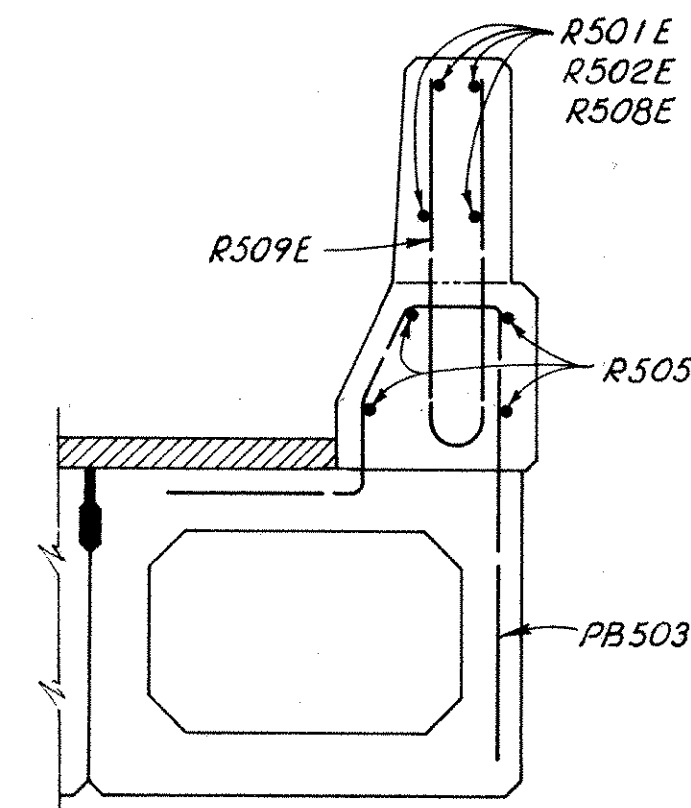


**PARAPET END PANEL ELEVATION**

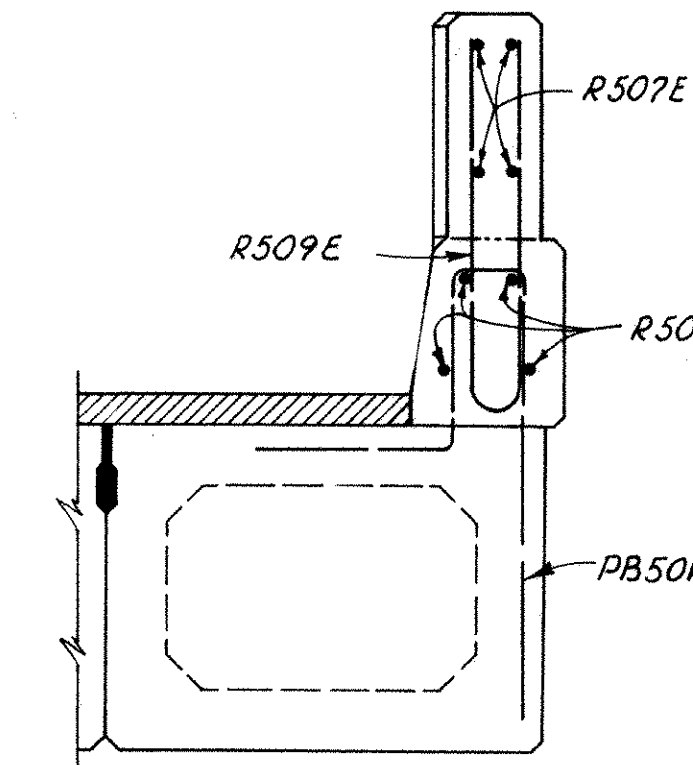
TYPICAL ALL END PANELS EXCEPT RIGHT BRIDGE-SOUTH RAILING @ ABUT. NO. 2 SEE SHEET 3/10



**SECTION A-A**



**SECTION B-B**



**SECTION C-C**

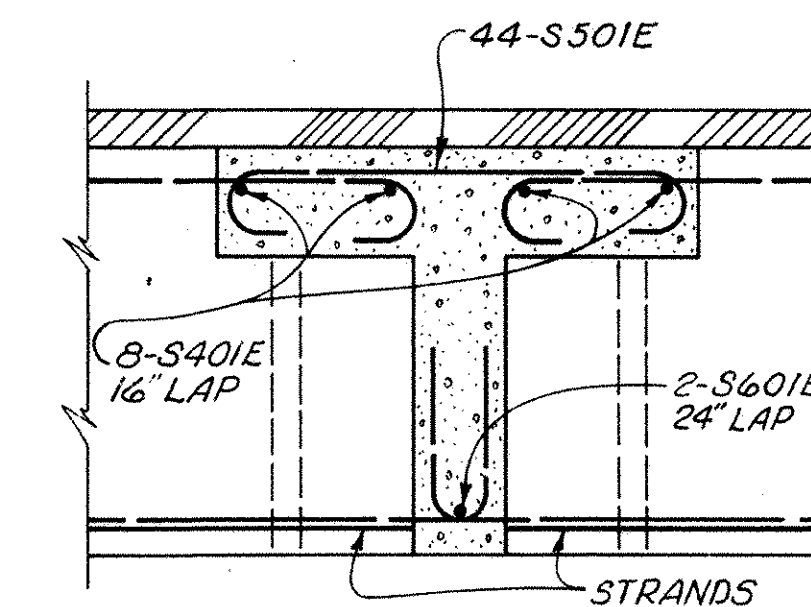
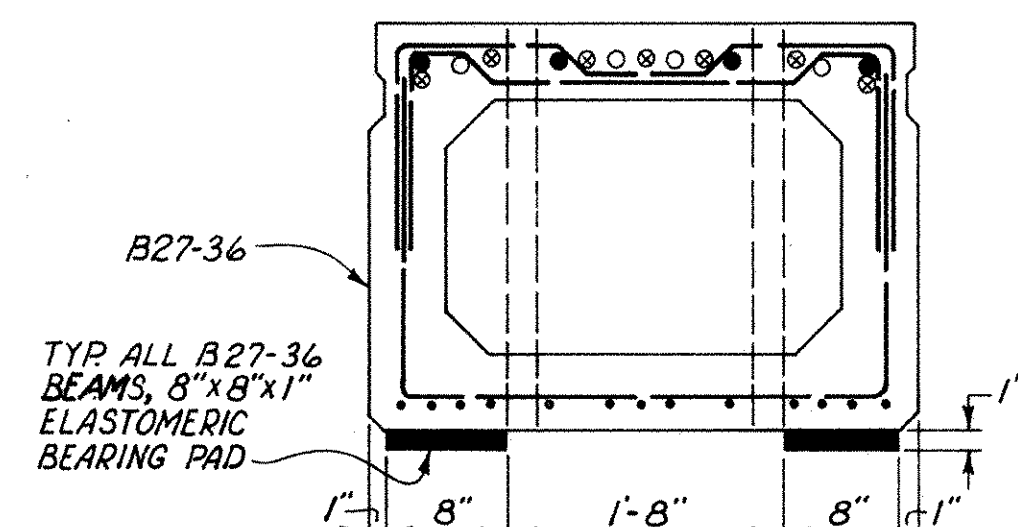
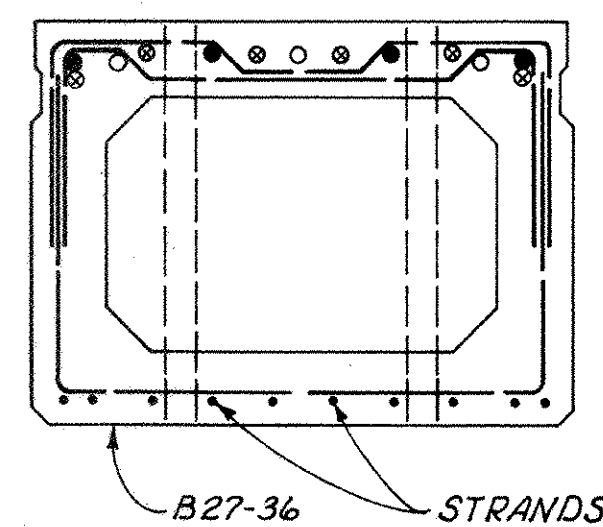
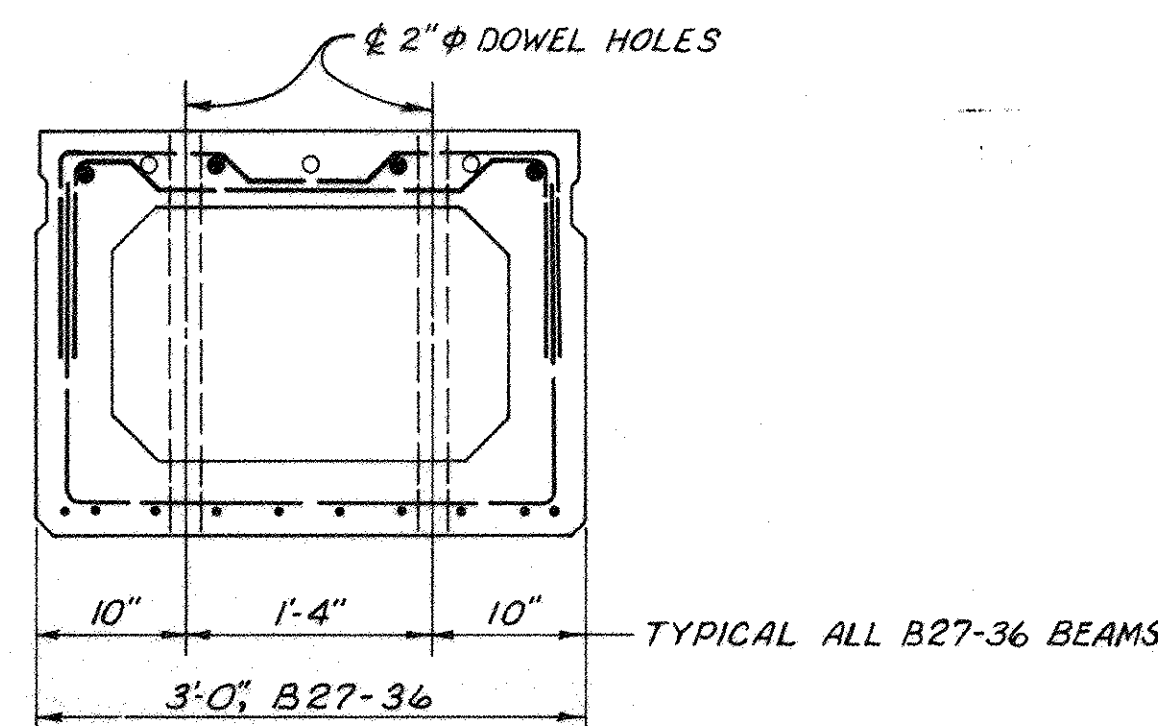
**NOTES:**  
FOR ADDITIONAL PRESTRESSED CONCRETE BOX BEAM DETAILS, SEE STD. DWG. PSBD-1-81, SHEETS 1, 2, 3 & 4 OF 4.  
ALL ANCHOR DOWELS AT ABUTMENTS AND PIERS SHALL BE FIXED TYPE. THE ELASTOMERIC BEARING PADS SHALL BE 70 DUROMETER NEOPRENE. REINFORCING STEEL IN THE TOP OF THE PRESTRESSED BOX BEAMS SHALL BE EPOXY COATED.  
BAR MARKS FOR REINFORCING BARS WHICH ARE TO BE EPOXY COATED INCLUDE A LETTER SUFFIX E.  
FOR ADDITIONAL BRIDGE RAILING DETAILS SEE SHEET 3/10 AND STD. DWG. BR-1.  
HOLES FOR SPLICE BOLTS ATTACHING GUARDRAIL TO THE TERMINAL CONNECTOR AT ENDS OF PARAPETS SHALL BE SLOTTED 29/32"x3" AND ALL BOLTS SHALL BE TIGHTENED AS SPECIFIED FOR EXPANSION JOINTS AS PER CMS 606.05 TO ALLOW FOR BRIDGE MOVEMENT.  
FOR REINFORCING STEEL LIST AND BAR BENDING DIAGRAMS SEE SHEETS 9/10 & 10/10.

**BEAM CAMBER AND DEAD LOAD DEFLECTION:**  
CALCULATED CAMBERS AT TIME OF PAVING, INCLUDING ALLOWANCE FOR CAMBER GROWTH DUE TO CREEP, ARE 3/4" FOR SPANS 1 & 3 AND 1-1/8" FOR SPAN 2.  
CALCULATED DEFLECTIONS DUE TO WEIGHT OF SURFACE COURSE AND RAILING ARE 1/8" FOR SPANS 1 & 3 AND 1/4" FOR SPAN 2.  
CAMBER OF -1/16" AT CENTER OF SPAN 1 OF THE LEFT AND RIGHT BRIDGES AND CAMBER OF -1/8" AT CENTER OF SPAN 2 OF THE LEFT BRIDGE ARE REQUIRED FOR THE SAG VERTICAL CURVE.

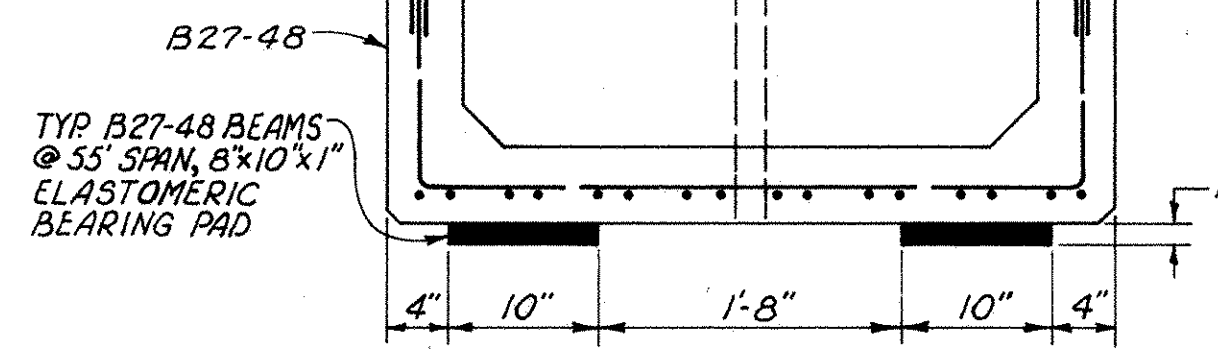
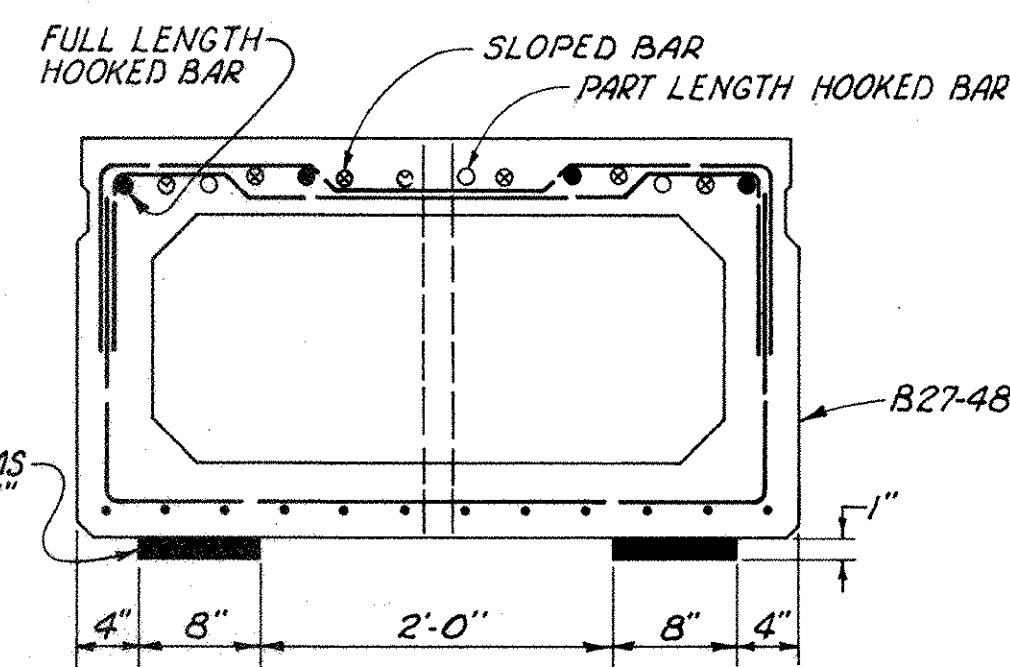
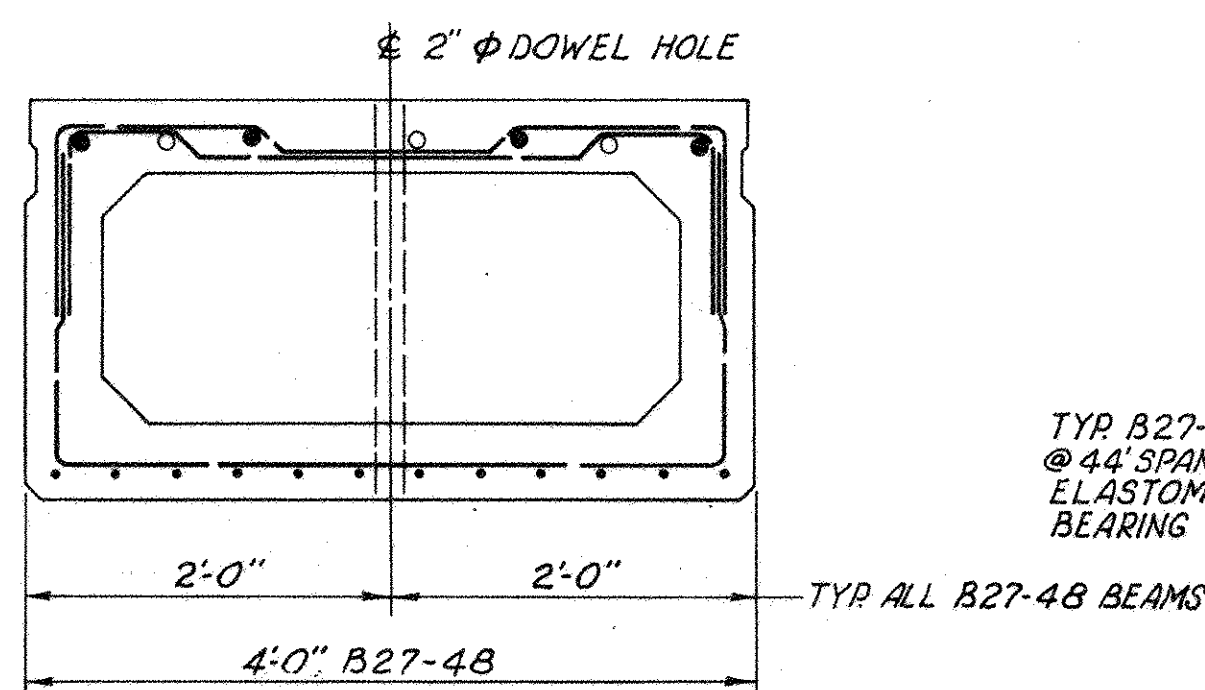
NET FINAL CAMBER OF BEAMS ARE 5/8" FOR SPANS 1 & 3 AND 7/8" FOR SPAN 2. THESE ARE IN EXCESS OF THE AMOUNTS REQUIRED TO PLACE THE TOPS OF THE BEAMS PARALLEL TO PROFILE GRADE BY THE FOLLOWING AMOUNTS: 3/8" SPAN 1 LEFT AND RIGHT BRIDGES; 3/8" SPAN 2 LEFT BRIDGE; 1/4" SPAN 2 RIGHT BRIDGE; 5/16" SPAN 3 LEFT AND RIGHT BRIDGES. THESE EXCESS AMOUNTS SHALL BE COMPENSATED FOR BY THICKENING THE 403 LEVELING COURSE AS FOLLOWS:

SPAN 1 AND SPAN 3 LEFT BRIDGES - FROM 1-5/8" AT CENTER OF SPAN TO 2-1/4" AT ENDS OF SPAN.  
SPAN 2 LEFT BRIDGE - FROM 1-1/4" AT CENTER OF SPAN TO 2-1/4" AT ENDS OF SPAN.  
SPAN 1 AND SPAN 3 RIGHT BRIDGES - FROM 1-1/2" AT CENTER OF SPAN TO 2-1/8" AT ENDS OF SPAN.  
SPAN 2 RIGHT BRIDGE - FROM 1-1/4" AT CENTER OF SPAN TO 2-1/8" AT ENDS OF SPAN.

ASPHALT CONCRETE SURFACE COURSE SHALL CONSIST OF A VARIABLE THICKNESS OF 403 AND 1-1/4" THICKNESS OF 404. THE 403 SHALL BE PLACED IN ONE OPERATION AND SHALL VARY IN THICKNESS TO PLACE THE SURFACE PARALLEL TO AND 1-1/4" BELOW FINAL PAVEMENT SURFACE ELEVATION.

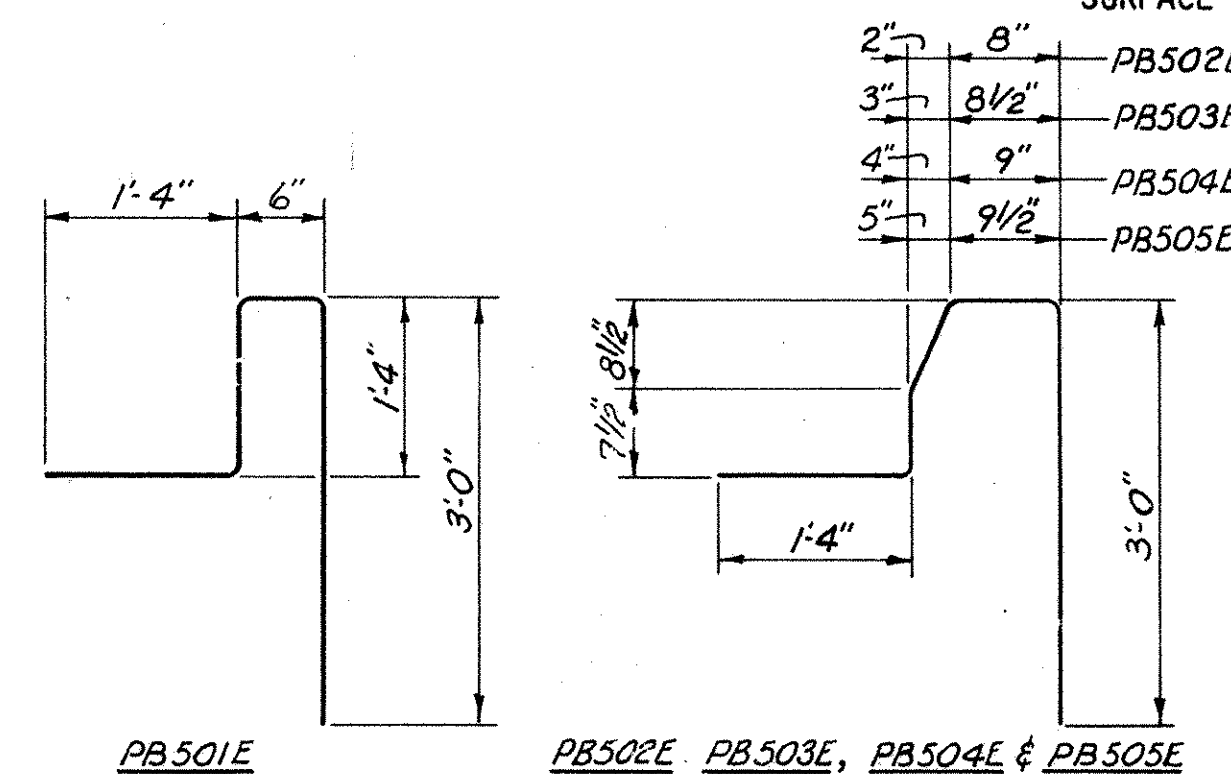


**DETAIL OF BEAM CONNECTION OVER PIERS**



**BEAM CROSS-SECTIONS  
44'-0" SPAN @ PIERS**

**BEAM CROSS-SECTIONS  
55'-0" SPAN @ PIERS**



**FASCIA BEAM BAR BENDING DETAILS**

FASCIA BEAM BARS TO BE INCLUDED WITH ITEM 515, "PRESTRESSED CONCRETE BRIDGE MEMBERS, FOR PAYMENT."

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**SUPERSTRUCTURE DETAILS**

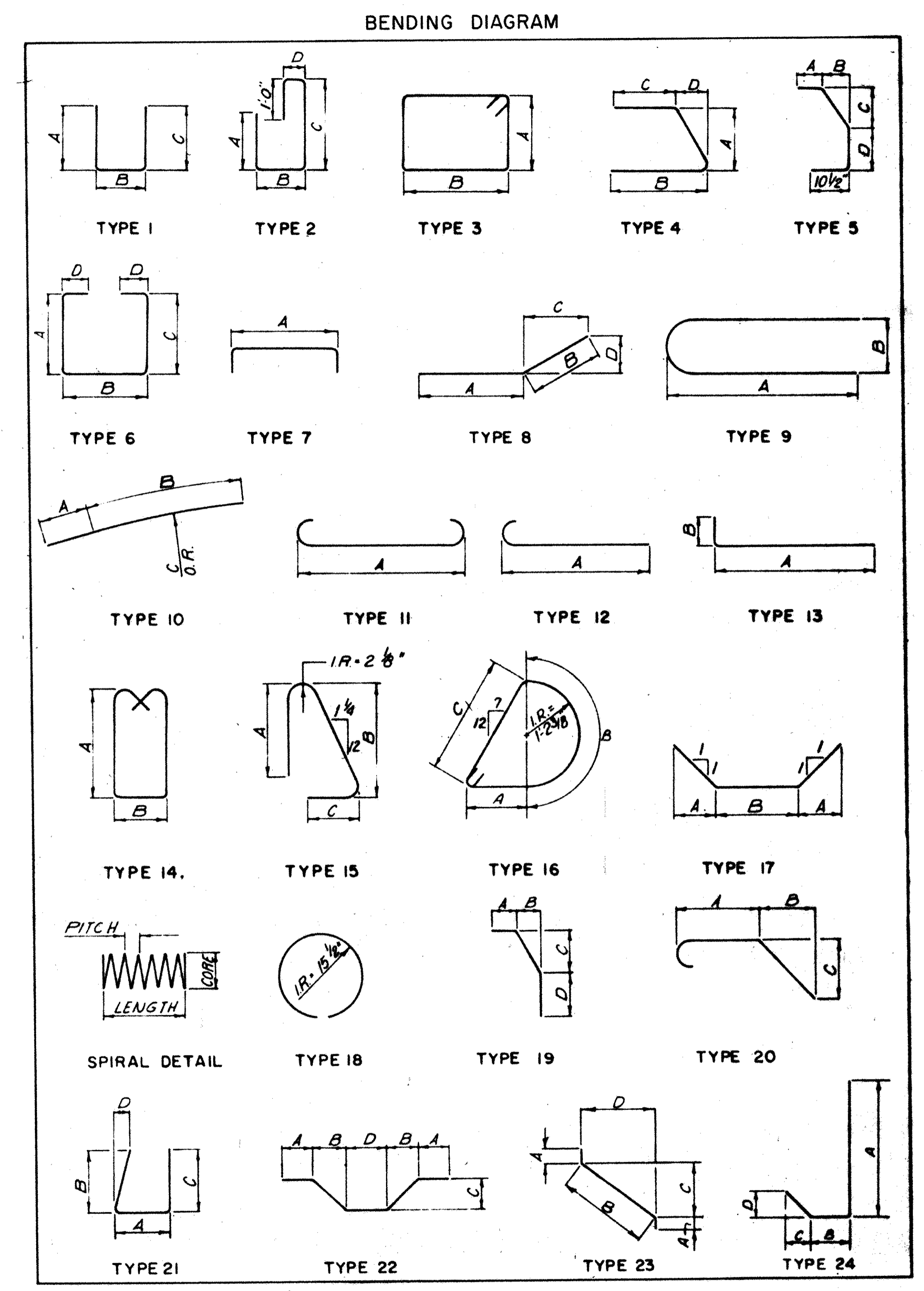
BRIDGE NO. ERI-2-2156 L/R  
S.R. 2 OVER OLD WOMAN CREEK

ERIE COUNTY STA. 1362+26.78 TO 1363+71.22  
ERI-2-18.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	B.M.R.	J.R.C.	L.E.D.	11/4/85	

MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	LEFT	RIGHT	TOTAL			A	B	C	D		
<b>ABUTMENT NO. 1 LEFT BRIDGE AND ABUTMENT NO. 2 RIGHT BRIDGE</b>											
A401	16	16	32	9'-2"	3	1'-9"	2'-8"				196
A501	8	8	16	31'-11"	ST.						533
A502	78	78	156	6'-10"	1	2'-1"	2'-11"				1,112
A504	33	33	66	10'-5"	1	4'-6"	1'-8"				717
A505	12	12	24	25'-10"	ST.						647
A507	8	8	16	7'-11"	13	7'-2"	10"				132
A508	2 SETS OF		2 SETS OF	6'-2" TO	13	5'-5" TO	10"			7"	58
	4 BARS		8 BARS	7'-8"		6'-11"					
A509	4 SETS OF		2 SETS OF	6'-2" TO	13	5'-5" TO	10"			6"	176
	4 BARS		4 BARS	7'-11"		7'-2"					
A510	1		1	7'-4"	8	4'-0"	3'-4"	3'-1"	1'-4"		8
A511	1		1	6'-8"	8	4'-0"	2'-8"	2'-5"	1'-1"		7
A512		1	1	6'-8"	8	4'-0"	2'-8"	2'-5"	1'-2"		7
A513		1	1	6'-0"	8	4'-0"	2'-0"	1'-10"	10-1/2"		6
A514	3		3	7'-4"	ST.						23
A515	3		3	6'-8"	ST.						21
A516		3	3	6'-7"	ST.						21
A517		3	3	6'-0"	ST.						19
A518	1		1	5'-11"	ST.						6
A519	1		1	5'-3"	ST.						5
A520		1	1	5'-1"	ST.						5
A521		1	1	4'-8"	ST.						5
A522	1	1	2	7'-1"	8	4'-3"	2'-10"	2'-7"	1'-2"		15
A523	1	1	2	6'-5"	8	4'-3"	2'-2"	1'-12"	11"		13
A524	3	3	6	6'-3"	ST.						39
A525	3	3	6	7'-0"	ST.						44
A526	1	1	2	5'-6"	ST.						11
A527	1	1	2	4'-10"	ST.						10
A801	8	8	16	32'-8"	ST.						1,396
A803	27	27	54	7'-0"	20	5'-1"	7"	9"			1,009
<b>ABUTMENT NO. 1 LEFT BRIDGE AND ABUTMENT NO. 2 RIGHT BRIDGE TOTAL</b>											6,241

MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	LEFT	RIGHT	TOTAL			A	B	C	D		
<b>ABUTMENT NO. 1 RIGHT BRIDGE AND ABUTMENT NO. 2 LEFT BRIDGE</b>											
A401	18	18	36	9'-2"	3	1'-9"	2'-8"				220
A502	88	88	176	6'-10"	1	2'-1"	2'-11"				1,254
A503	4	4	8	33'-1"	ST.						276
A504	34	34	68	10'-5"	1	4'-6"	1'-8"				739
A506	12	12	24	25'-10"	ST.						647
A507	10	10	20	7'-11"	13	7'-2"	10"				165
A509	2 SETS OF		2 SETS OF	6'-2" TO	13	5'-5" TO	10"			7"	118
	4 BARS		4 BARS	7'-11"		7'-2"					
A516	3	3	6	6'-7"	ST.						41
A517	3	3	6	5'-10"	ST.						37
A520	1	1	2	5'-6"	ST.						11
A521	1	1	2	4'-10"	ST.						10
A529	2 SETS OF		2 SETS OF	6'-2" TO	13	5'-5" TO	10"			5"	146
	5 BARS		5 BARS	7'-10"		7'-1"					
A532	1	1	2	7'-9"	ST.						16
A533	1	1	2	8'-5"	ST.						18
A534	1	1	2	10'-10"	8	7'-0"	3'-10"	6'-9"	1'-9"		23
A535	1	1	2	10'-2"	8	7'-0"	3'-2"	3'-1"	9-1/2"		21
A536	3	3	6	10'-9"	ST.						67
A537	3	3	6	10'-1"	ST.						63
A538	1	1	2	6'-7"	8	4'-3"	2'-4"	2'-1"	1'-0"		14
A539	1	1	2	5'-11"	8	4'-3"	1'-8"	1'-6"	8-1/2"		12
A802	8	8	16	34'-2"	ST.						1,460
A803	27	27	54	7'-0"	20	5'-1"	7"	9"			1,009
<b>ABUTMENT NO. 1 RIGHT BRIDGE AND ABUTMENT NO. 2 LEFT BRIDGE TOTAL</b>											6,367



**NOTE:**  
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.

9/10

adache - ciuni - lynn associates  
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

## REINFORCING STEEL LIST

BRIDGE NO. ERI.-2-2156 L/R  
S. R. 2 OVER OLD WOMAN CREEK

ERIE COUNTY STA. 1362+26.78 TO  
ERI.-2-18.38 STA. 1363+71.22

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
B.M.R.	B.M.R.	J.R.C.	L.E.D.	11/4/85	

FEB 8 1985

# EPOXY COATED REINFORCING STEEL

CALC. _____	OHIO
DATE _____	FHWA
CHKD. _____	REGION 5
DATE _____	

233C  
326

ERIE COUNTY  
ERI.-2-18.38

MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	LEFT	RIGHT	TOTAL			A	B	C	D		
PIER NO. 1											
P401	18	18	36	9'-2"	3	1'-9"	2'-8"				220
P501	8	8	16	26'-9"	ST.						446
P502	112	112	224	7'-5"	1	2'-6"	2'-8"				1,733
P503	8	8	16	8'-9"	9	3'-6"	2'-8"				145
P504	2	2	4	11'-5"	1	4'-7"	2'-6"				48
P505	10	10	20	5'-5"	13	4'-8"	10"				113
P506	6	6	12	9'-3"	16	1'-6"	4'-2"	2'-9"			116
PIER 1 TOTAL											6,593
PIER NO. 2											
P401	18	18	36	9'-2"	3	1'-9"	2'-8"				220
P501	8	8	16	26'-9"	ST.						446
P502	112	112	224	7'-5"	1	2'-6"	2'-8"				1,733
P503	8	8	16	8'-9"	9	3'-6"	2'-8"				145
P504	2	2	4	11'-5"	1	4'-7"	2'-6"				48
P505	10	10	20	5'-5"	13	4'-8"	10"				113
P506	6	6	12	9'-3"	16	1'-6"	4'-2"	2'-9"			116
PIER 2 TOTAL											6,593

MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	LEFT	RIGHT	TOTAL			A	B	C	D		
SUPERSTRUCTURE											
S401E	16	16	32	24'-9"	ST.						530
S501E	88	88	176	3'-6"	11	2'-4"					642
S601E	4	4	8	25'-1"	ST.						302
SUPERSTRUCTURE (RAILING)											
R501E		4	4	8'-11"	ST.						37
R502E	8	4	12	9'-4"	ST.						117
R503E	56	60	116	10'-8"	ST.						1,291
R504E	64	64	128	5'-2"	ST.						690
R505E	40	40	80	29'-3"	ST.						2,440
R506E	174	181	355	5'-3"	15	2'-2"	2'-5"	7-1/2"			1,944
R507E	32	24	56	4'-4"	ST.						253
R508E	8	4	12	8'-8"	ST.						108
R509E	28	21	49	5'-3"	9	2'-4"					268
SUPERSTRUCTURE TOTAL											8,622

adache - ciuni - lynn associates  
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

## REINFORCING STEEL LIST

BRIDGE NO. ERI.-2-2156 L/R  
S.R. 2 OVER OLD WOMAN CREEK

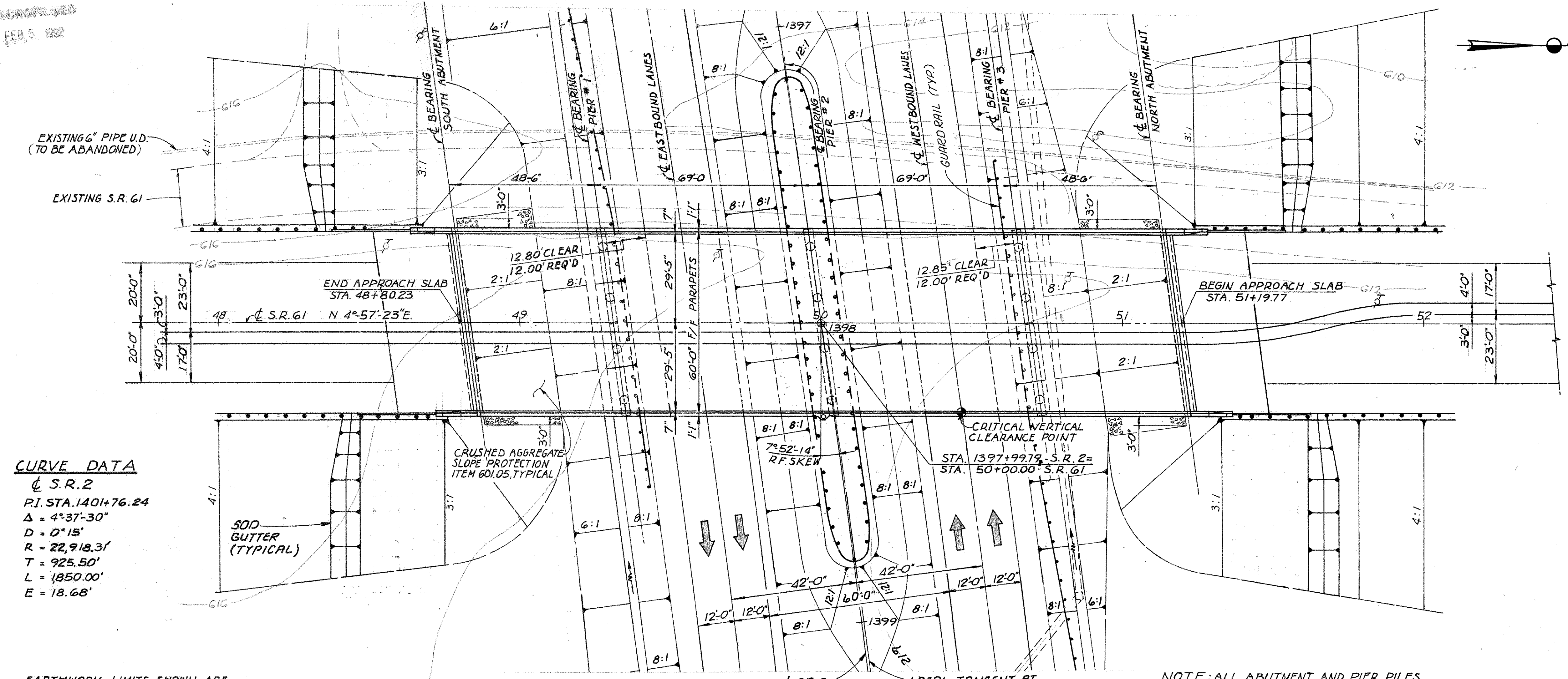
ERIE COUNTY STA. 1362+26.78 TO  
ERI.-2-18.38 STA. 1363+71.22

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
B.M.R.	B.M.R.	J.R.C.	L.E.D.	11/4/85	

FEB 5 1982

FED. RD. DIVISION	STATE	PROJECT	234 326
2	OHIO		

ERIE COUNTY  
ERI-2-18.38

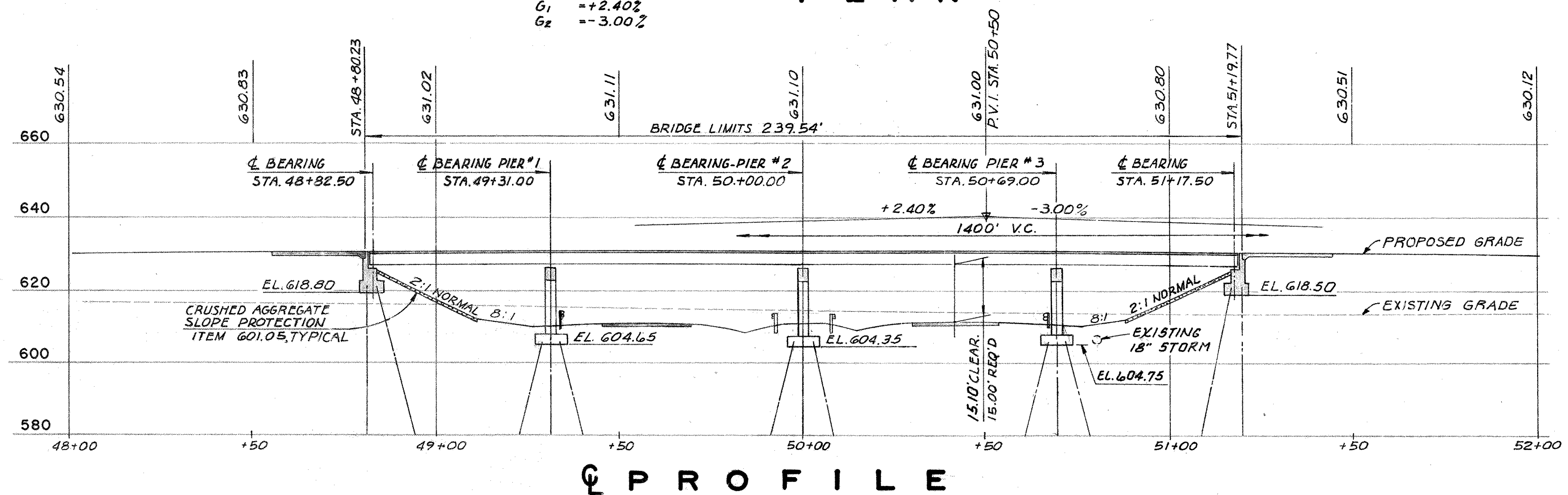


**CURVE DATA**  
 C S.R. 2  
 P.I. STA. 1401+76.24  
 Δ = 4°37'-30"  
 D = 0°15'  
 R = 22,918.31'  
 T = 925.50'  
 L = 1850.00'  
 E = 18.68'

EARTHWORK LIMITS SHOWN ARE SCHEMATIC. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS.

DESIGN TRAFFIC  
 S.R. 61  
 R.D.T. (2001) = 3,800  
 R.D.T. (2001) = 190

**PLAN**



**PROFILE**

**PROPOSED STRUCTURE**

**TYPE:** CONTINUOUS STEEL BEAM WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE

**SPANS:** 48'-6", 69'-0", 69'-0", 48'-6" C/BRGs.

**ROADWAY:** 60'-0" F PARAPETS

**LOADING:** HS20-44 AND THE RETERRATE MILITARY LOADING

**SKIEW:** 7°52'-14" RIGHT FORWARD W/R TO LOCAL TANGENT ON S.R. 2

**WEARING SURFACE:** MONOLITHIC CONCRETE

**ALIGNMENT:** TANGENT

**APPROACH SLABS:** AS-1-B1 (25' LONG)

**SUPERELEVATION:** NONE

ADACHE ASSOCIATES INC., ENGINEERS  
 CLEVELAND, OHIO 44142

**SITE PLAN**  
 BRIDGE NO. ERI-2-2222  
 S.R. 61 OVER S.R. 2

ERIE COUNTY STA. 48+80.23 TO ERI-2-18.38 STA. 51+19.77

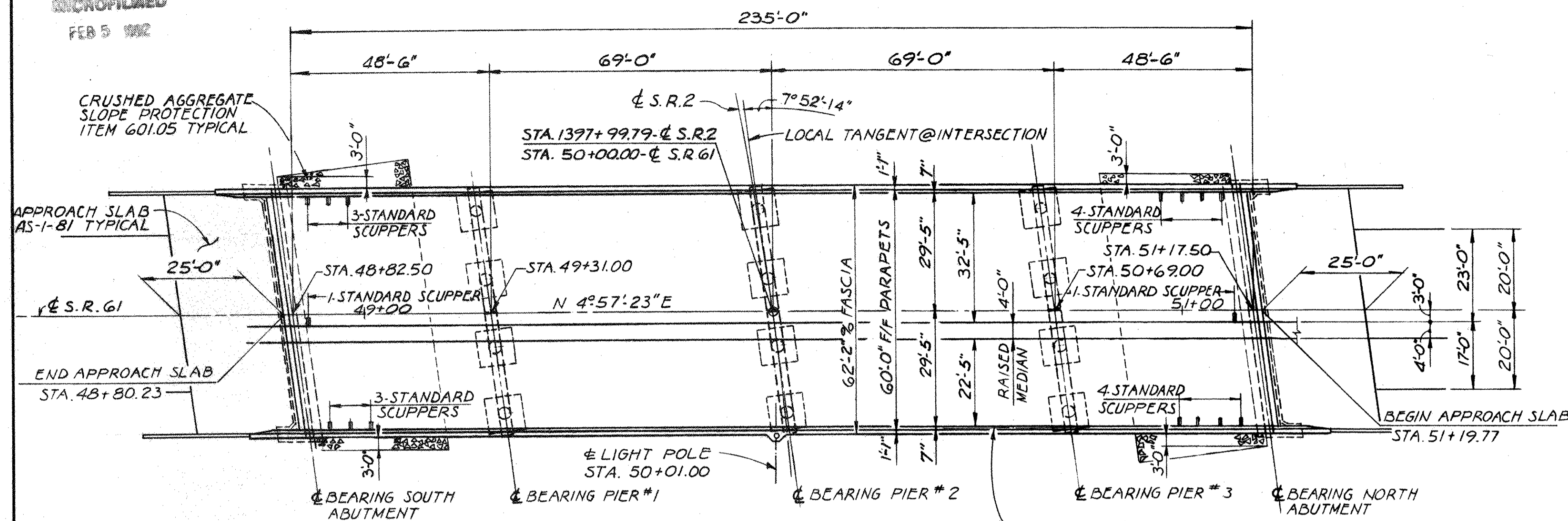
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L. A.	V. I. P.	H. G.	L. E. D.	11/4/85

MICROFILMED  
FEB 5 1982

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

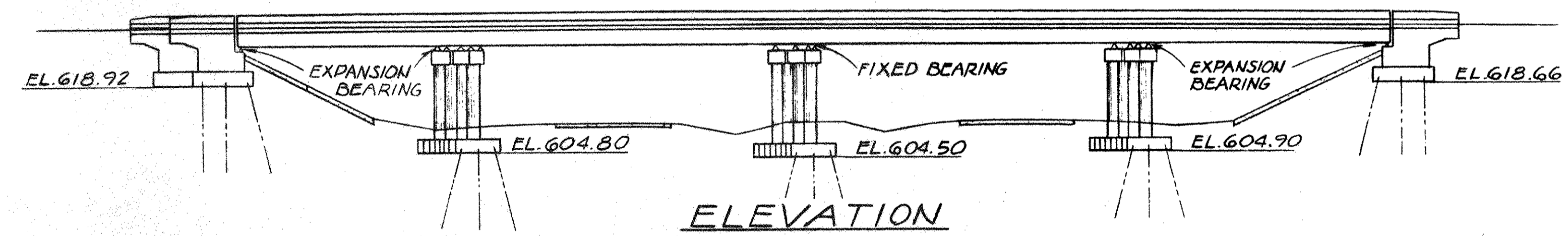
235  
326

ERIE COUNTY  
ERI-2-18.38



PLAN

PROVIDE 2" TYPE II OR III CONDUIT THROUGH BRIDGE RAILING. FOR ADDITIONAL DETAILS, SEE LIGHTING SHEET # 286 AND STANDARD DRAWINGS HL-4, 5 & 19.



ELEVATION

ESTIMATED QUANTITIES									
ITEM	TOTAL	UNIT	DESCRIPTION	SUPER	ABUT.	PIERS	GEN'L		
503	LUMP	SUM	COFFERDAMS, CRIBS AND SHEETING				LUMP		
503	570	CU.YDS.	UNCLASSIFIED EXCAVATION		265	305			
505	LUMP	SUM	PILE DRIVING, EQUIPMENT MOBILIZATION				LUMP		
507	4480	LIN. FT.	STEEL PILES HP 10x42, SEE PROPOSAL NOTE		1670	2810			
509	56,590	LBS.	REINFORCING STEEL, GRADE 60	47.3	18,706	41,885			
511	486	CU.YDS.	CLASS "B" CONCRETE, SUPERSTRUCTURE, AS PER PLAN	486					
511	122	CU.YDS.	CLASS "C" CONCRETE, PIER CAPS & COLUMNS			122			
511	129	CU.YDS.	CLASS "C" CONCRETE, ABUTMENTS ABOVE FOOTINGS		129				
511	209	CU.YDS.	CLASS "C" CONCRETE, FOOTINGS		101	108			
512	5	SQ. YD.	TYPE "B" WATERPROOFING		5				
513	351,090	LBS.	STRUCTURAL STEEL, A-36 (ASIC CATEGORY - I), SEE PROPOSAL NOTE	351,090					
514	351,090	LBS.	FIELD PAINTING OF NEW STRUCTURAL STEEL (SYSTEM - A)	351,090					
516	122	LIN. FT.	STRUCTURAL STEEL EXPANSION JOINTS INCLUDING STRIP SEALS, AS PER PLAN		122				
518	69	CU.YDS.	POROUS BACKFILL, AS PER PLAN		69				
518	110	LIN. FT.	6" PERFORATED HELICAL C.S.P. INCLUDING SPECIALS, 707.01		110				
518	150	LIN. FT.	6" NONPERFORATED HELICAL C.S.P., 707.01		150				
518	16	EACH	SCUPPERS INCLUDING SUPPORTS		16				
601	464	SQ.YDS.	CRUSHED AGGREGATE SLOPE PROTECTION				464		
625			SEE SHEET 279 FOR LIGHTING SUMMARY						
824	105,722	LBS.	EPOXY COATED REINFORCING STEEL, GRADE 60	101,962	3,760				
SPECIAL	630	SQ. YDS.	SEALING OF CONCRETE SURFACES, SEE PROPOSAL NOTE	460	170				

NOTES:

- FOR SCUPPER LOCATIONS AND SPACING SEE SHEET NO. 6110
- FOR APPROACH SLAB DETAILS SEE STANDARD DRAWING A3-1-81.
- FOR LOCATION AND DETAILS OF 4'-0" RAISED MEDIAN ON APPROACH SLABS SEE PLAN SHEETS 8 & 67.

FOR GENERAL NOTES  
SEE SHEET 206

2/10

ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

**GENERAL PLAN  
& ESTIMATED QUANTITIES**

BRIDGE NO. ERI-2-2222  
S.R. 61 OVER S.R. 2

ERIE COUNTY STA. 48+80.23 TO  
ERI-2-18.38 STA. 51+19.77

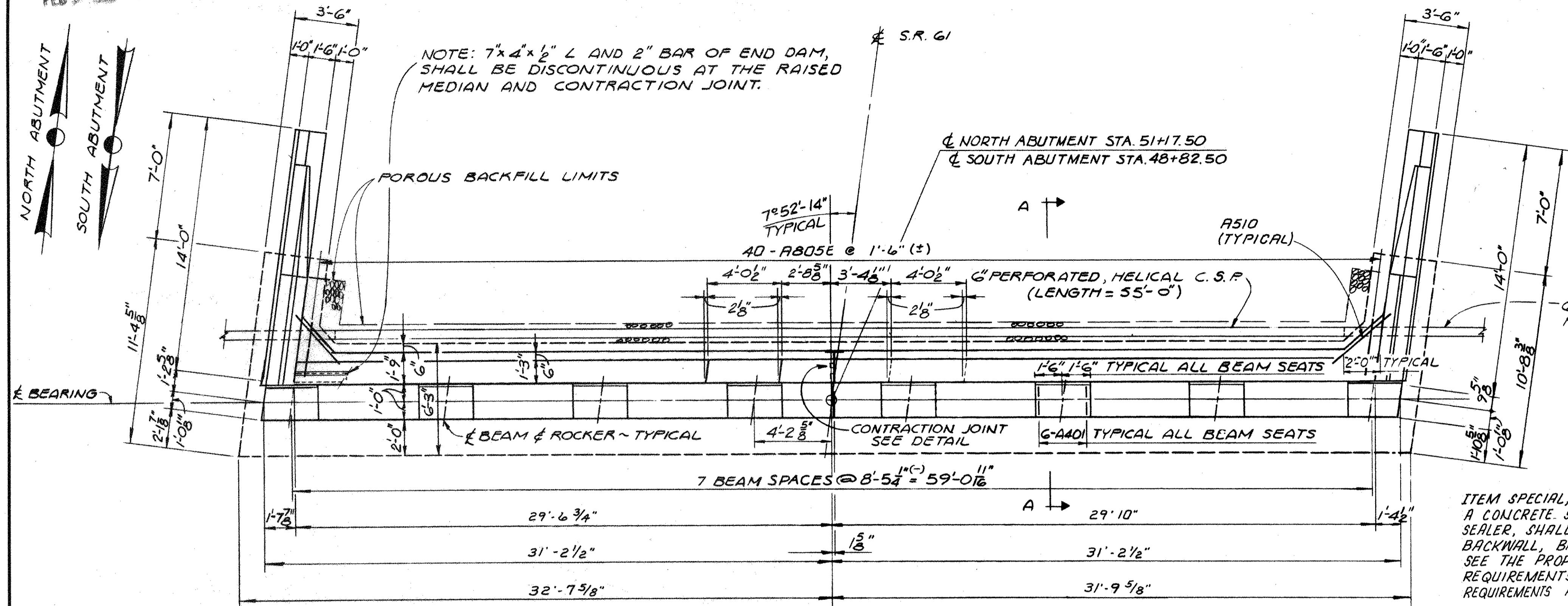
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
L.E.D.	V.I.P.	L.R.A.	L.E.D.	11/4/85	
10-6-69		10-7-69			

MICROFILMED  
FEB 5 1982

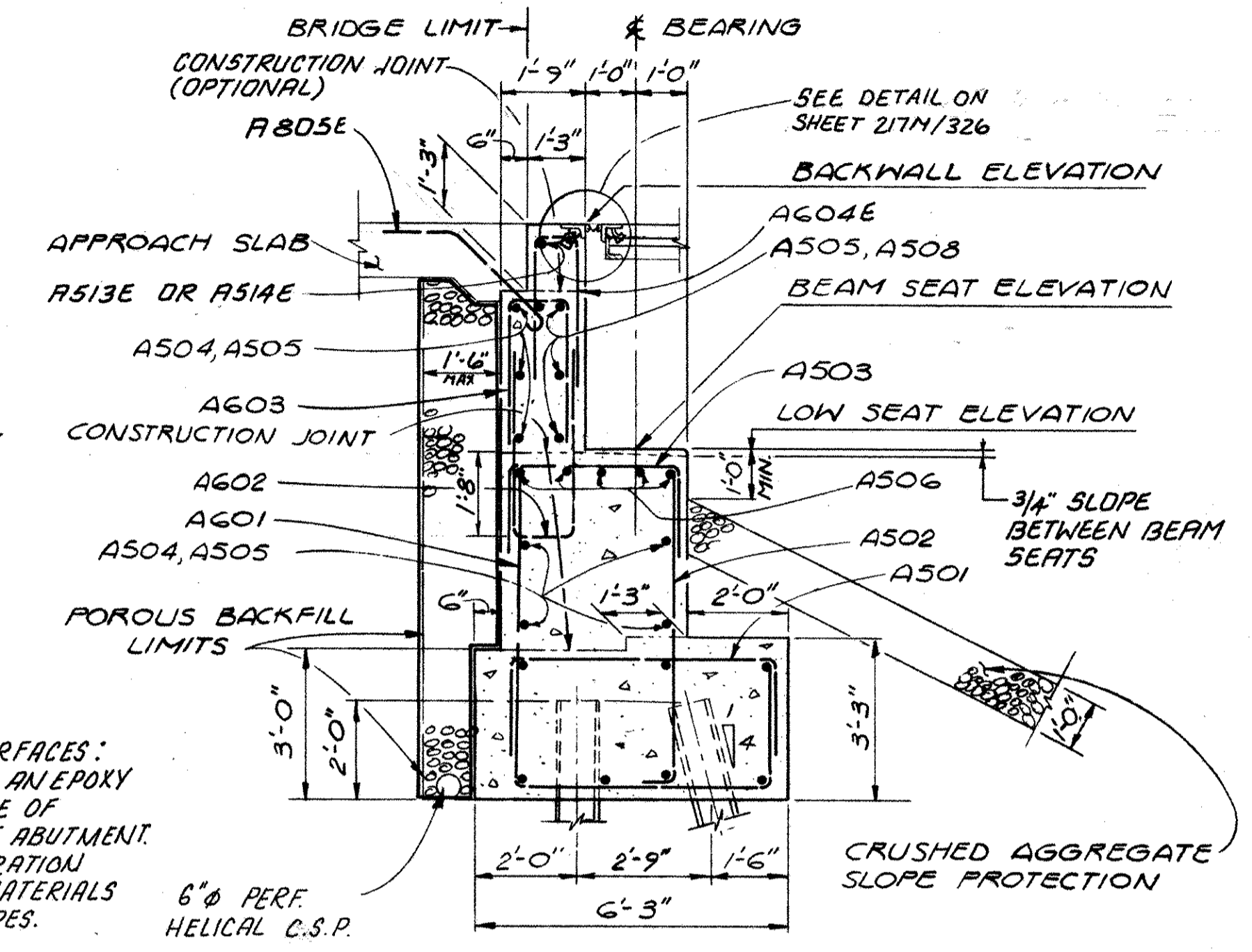
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

236  
326

ERIE COUNTY  
ERI - 2 - 18.38



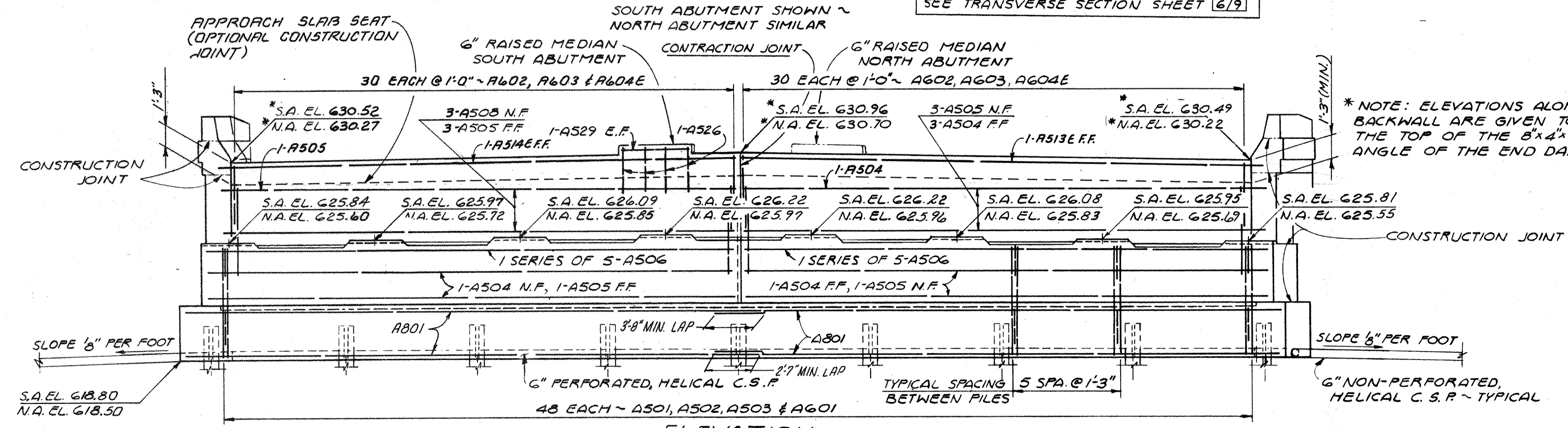
ALL LONGITUDINAL BARS IN FOOTING ARE ABO1.



ITEM SPECIAL, SEALING OF CONCRETE SURFACES: A CONCRETE SEALER, EITHER SILANE OR AN EPOXY SEALER, SHALL BE APPLIED TO THE FACE OF BACKWALL, BRIDGE SEAT AND FACE OF ABUTMENT. SEE THE PROPOSAL FOR SURFACE PREPARATION REQUIREMENTS, APPLICATION RATES, MATERIALS REQUIREMENTS AND APPLICATION PROCEDURES.

PLAN

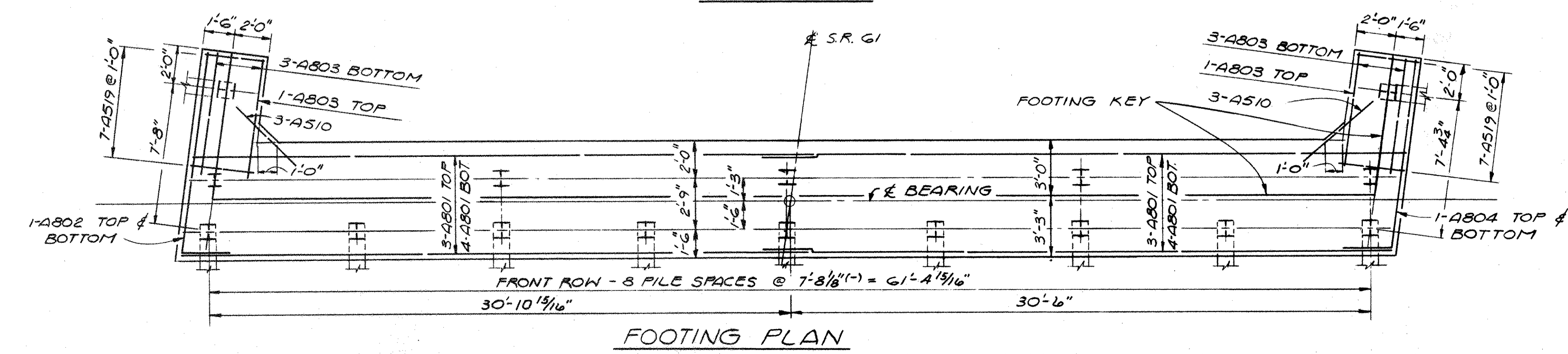
SECTION A-A



NOTES:

- ABUTMENT PILES ARE HP10x42
- BATTERED PILES SHALL BE BATTERED 1 ON 4 IN DIRECTION SHOWN
- POROUS BACKFILL, FULL LENGTH OF ABUTMENT AND WINGS, SHALL EXTEND UP TO THE SUBGRADE
- FOR WINGWALL DETAILS ~ SEE SHEET [4/10]
- FOR REINFORCING STEEL LIST AND BAR BENDING DIAGRAMS ~ SEE SHEET [9/10]
- ABBREVIATIONS USED ARE: E.F. = EACH FACE, N.F. = NEAR FACE, F.F. = FAR FACE, S.A. EL. = SOUTH ABUTMENT ELEVATION, N.A. EL. = NORTH ABUTMENT ELEVATION
- ALL FOOTING REINFORCEMENT SHALL HAVE 3" MINIMUM CONCRETE COVER
- ONLY THAT PORTION OF THE C.S.P. LOCATED IN THE POROUS BACKFILL SHALL BE PERFORATED
- FOR CONTRACTION JOINT DETAIL ~ SEE SHEET [4/10]
- FOR ADDITIONAL NOTES, SEE SHEET [4/10]

ELEVATION



FOOTING PLAN

MINIMUM LAP REQUIREMENT

#4 BAR	1'-10"
#5 BAR	2'-5"
#6 BAR	2'-10"

ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

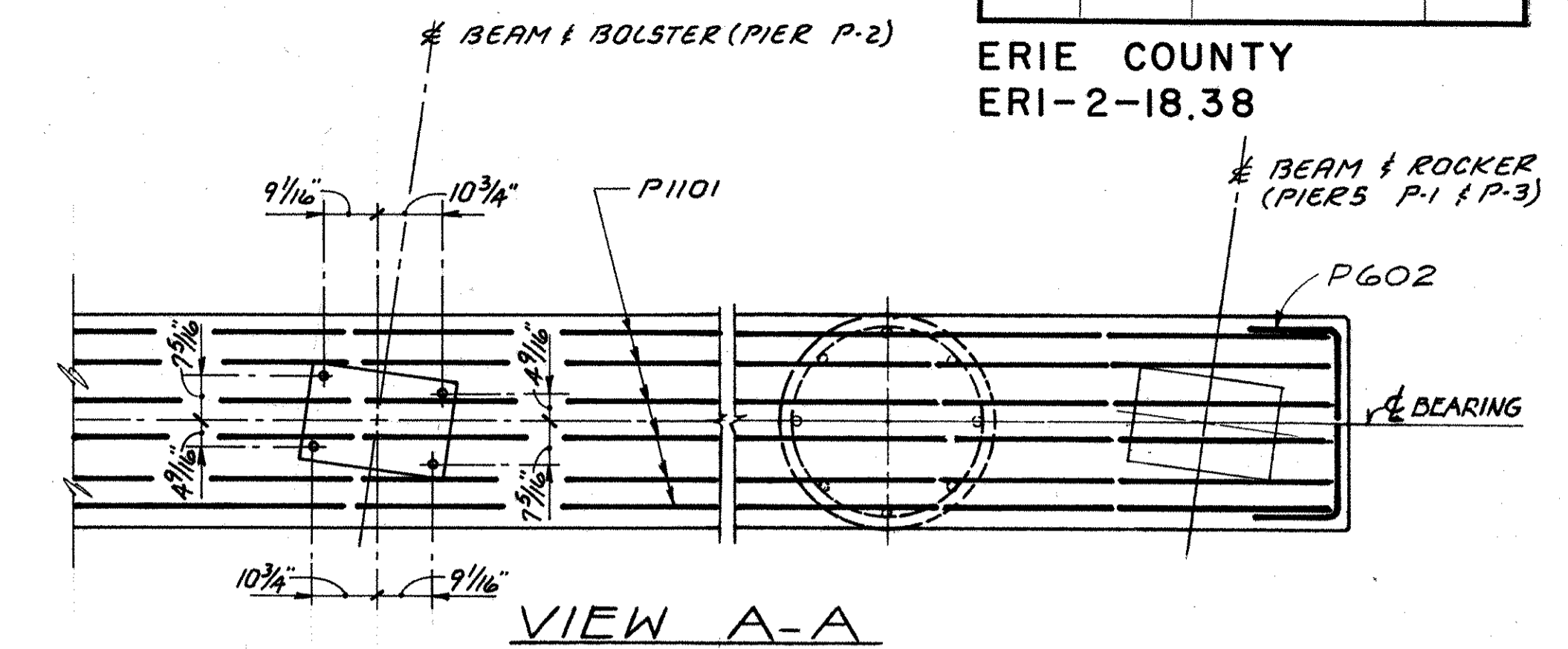
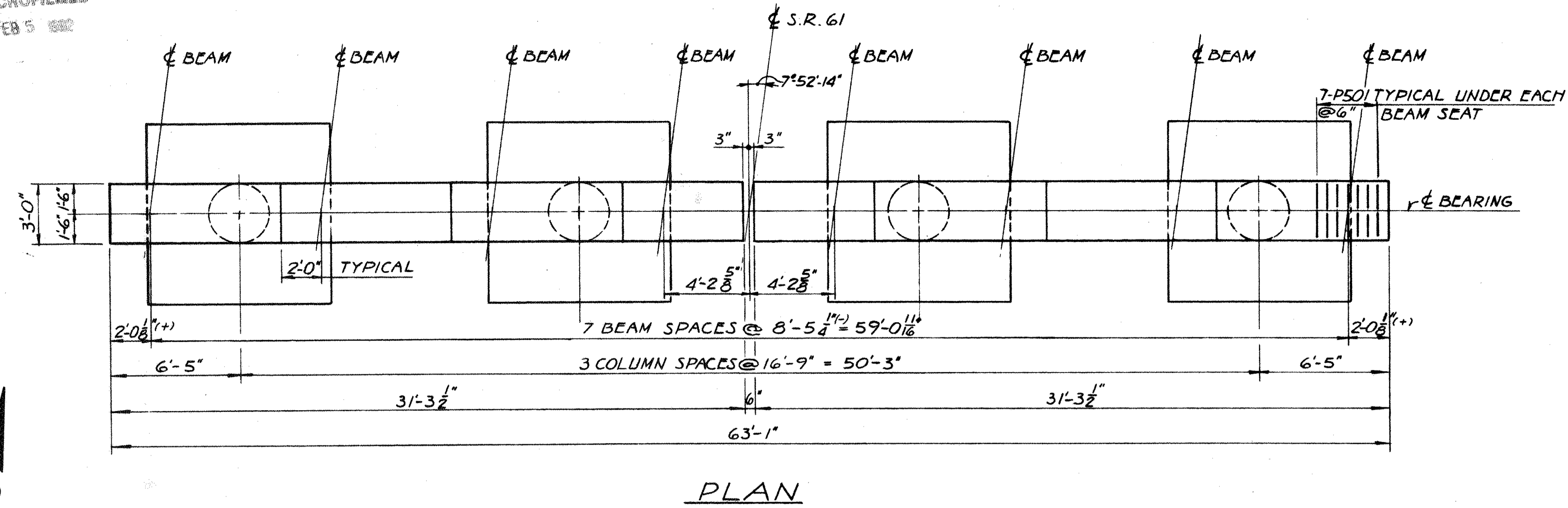
**ABUTMENT DETAILS**

BRIDGE NO. ERI - 2 - 2222  
S.R. 61 OVER S.R. 2  
ERIE COUNTY STA. 48+80.23 TO  
ERI-2-18.38 STA. 51+19.77

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
L.E.D.	H.J.S.	N.K.	L.E.D.	11/4/85	

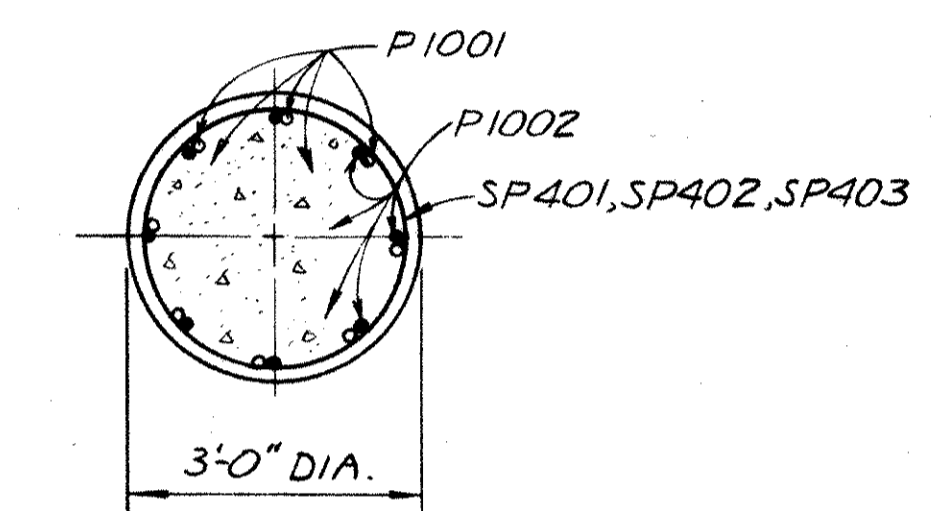
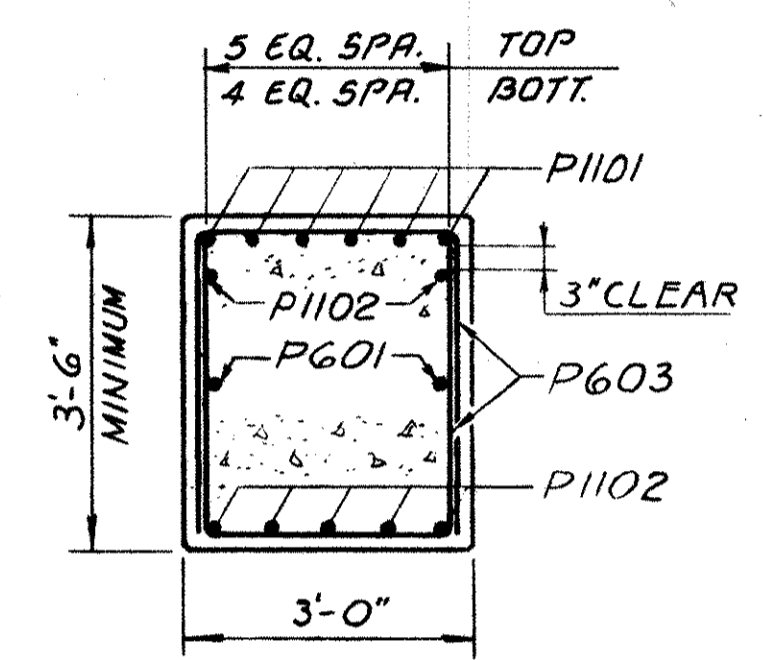
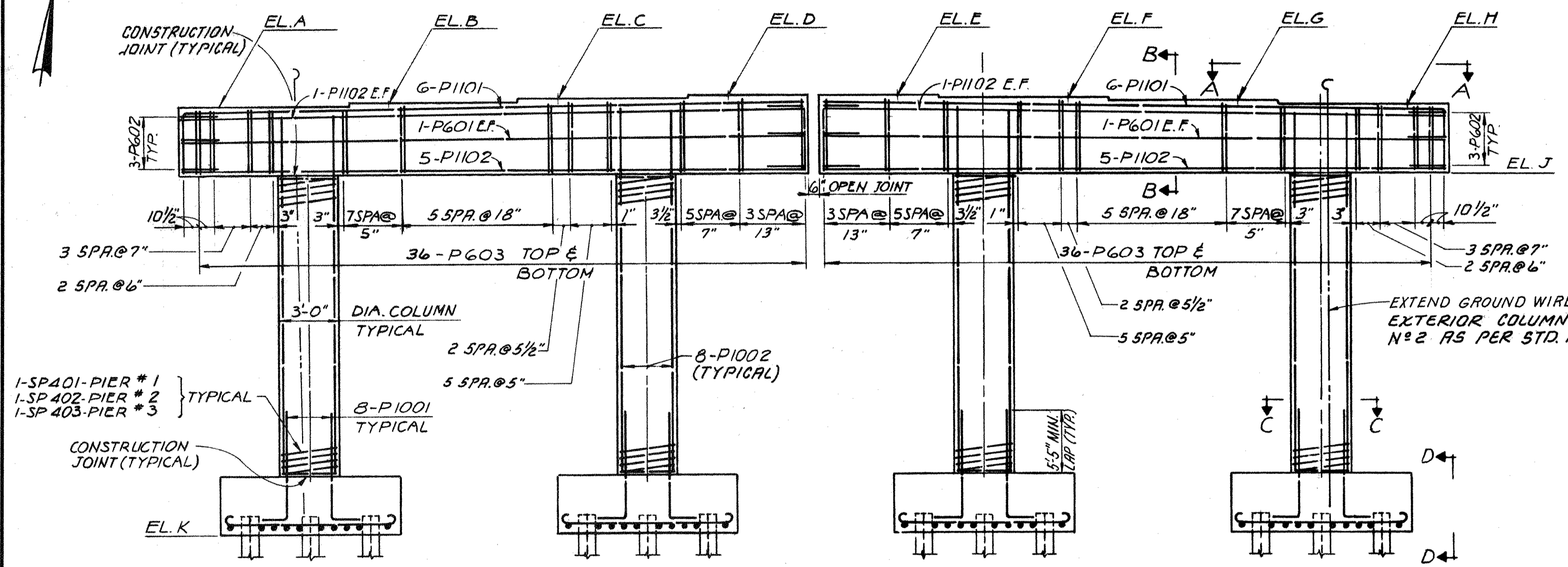


ERIE COUNTY  
ERI-2-18.38



PLAN

VIEW A-A



SECTION B-B

SECTION C-C

**NOTES:**

BRIDGE SEAT REINFORCING: REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT SHALL BE ACCURATELY PLACED TO AVOID INTERFERENCE WITH THE DRILLING OF BEARING ANCHOR HOLES OR THE PRE-SETTING OF THE BEARING ANCHORS.

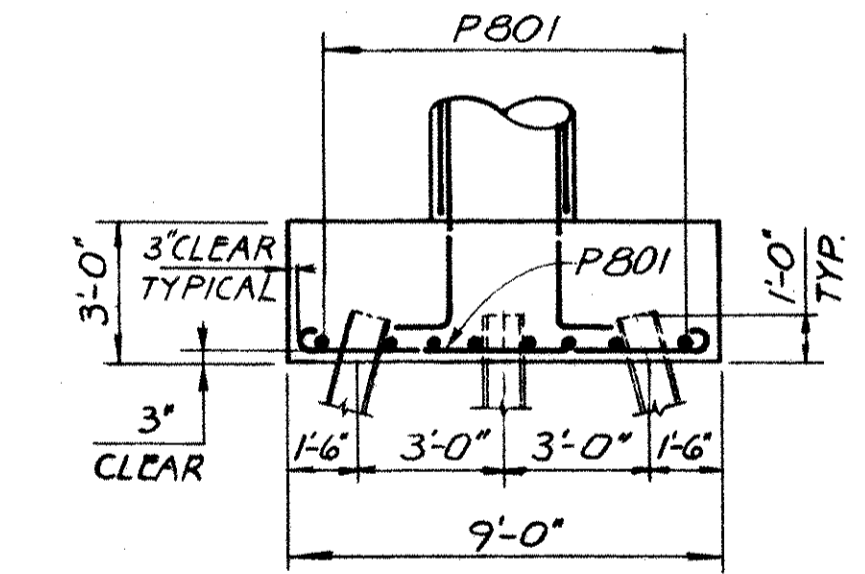
BEARING ANCHORS: AT THE OPTION OF THE CONTRACTOR BEARING ANCHORS (OR FORMED HOLES), LOCATED AND SUPPORTED BY TEMPLATES, MAY BE CAST-IN-PLACE.

PIER PILES ARE HP 10x42.

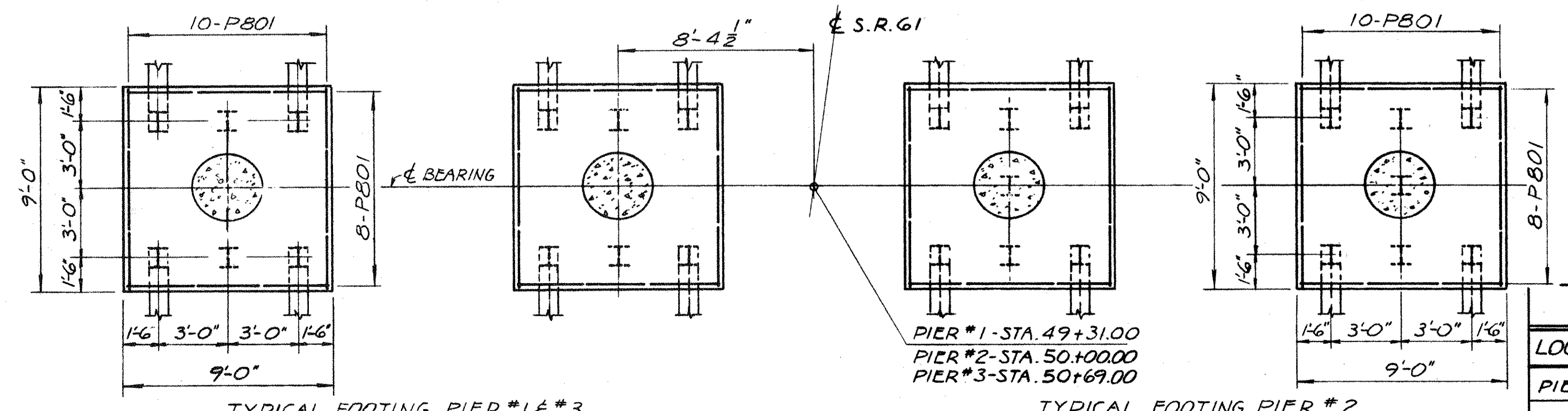
BATTERED PILES SHALL BE BATTERED 1 ON 4 IN THE DIRECTION SHOWN.

ABBREVIATION USED: E.F. - EACH FACE

FOR REINFORCING STEEL LIST AND BAR BENDING DIAGRAM, SEE SHEET 9/10.



VIEW D-D  
FOR PIER #2  
PIERS P-1 & P-3 SIMILAR



TYPICAL FOOTING PIER #1 & #3  
(6 PILES)

FOOTING PLAN

TYPICAL FOOTING PIER #2  
(7 PILES)

LOCATION	A	B	C	D	E	F	G	H	J	K
PIER # 1	625.51	625.64	625.77	625.90	625.90	625.78	625.65	625.52	622.00	604.65
PIER # 2	625.43	625.55	625.68	625.81	625.81	625.68	625.55	625.42	621.90	604.35
PIER # 3	625.38	625.51	625.63	625.76	625.75	625.62	625.49	625.35	621.85	604.75

**MINIMUM LAP REQUIREMENTS**

#4 BAR	= 1'-10"
#5 BAR	= 2'-5"
#6 BAR	= 2'-10"
#8 BAR	= 4'-9"

ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

**PIER DETAILS**

BRIDGE NO. ERI-2-2222  
S.R. 61 OVER S.R. 2  
ERIE COUNTY STA. 48+80.23 TO  
ERI-2-18.38 STA. 51+19.77

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
L.R.A.	V.I.P.	L.E.D.	L.E.D.	11/4/85	

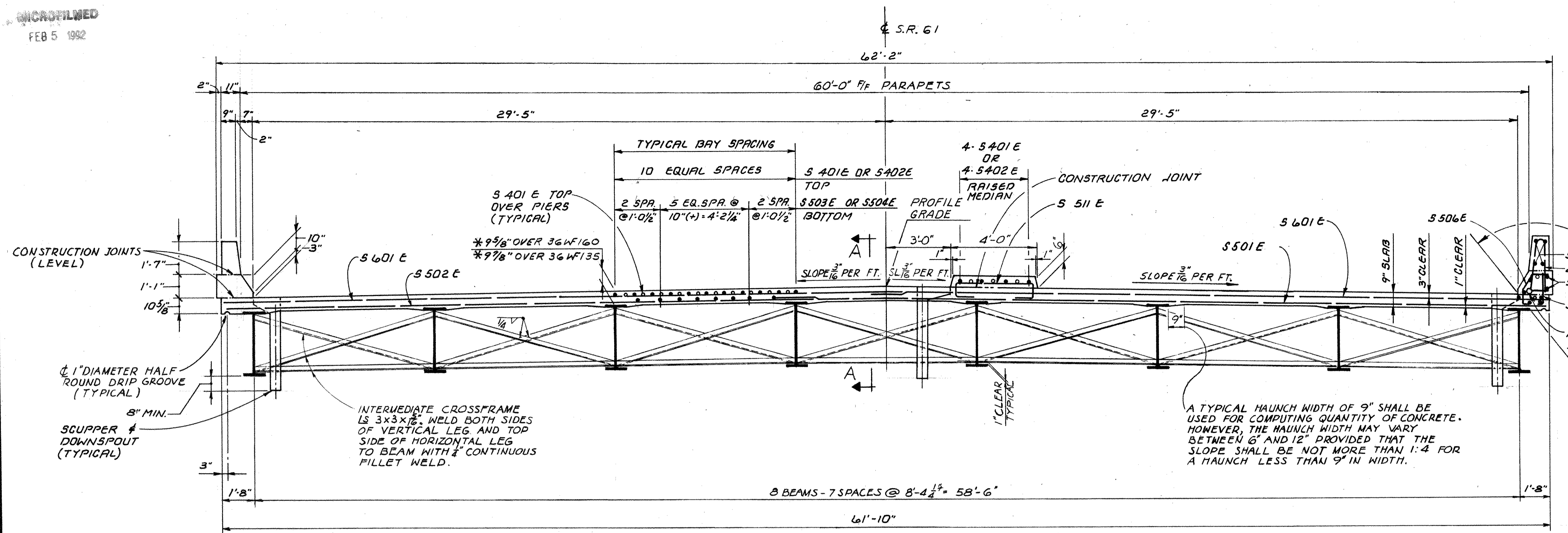


MICROFILMED  
FEB 5 1992

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

239  
826

ERIE COUNTY  
ERI-2-18.38



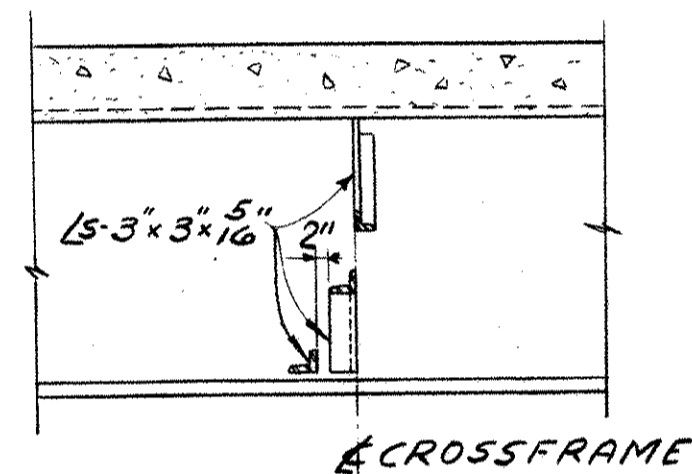
\*NOTE: THIS IS THE DESIGN DIMENSION. THE QUANTITY OF DECK CONCRETE TO BE PAID FOR SHALL BE BASED UPON THIS DIMENSION, EVEN THOUGH DEVIATION FROM IT MAY BE NECESSARY BECAUSE THE TOP FLANGE OF THE BEAM MAY NOT HAVE THE EXACT CAMBER OR CONFORMATION REQUIRED TO PLACE IT PARALLEL TO THE FINISHED GRADE.

LIMITS FOR SEALING CONCRETE SURFACES, SEE NOTE 'A' (TYPICAL)

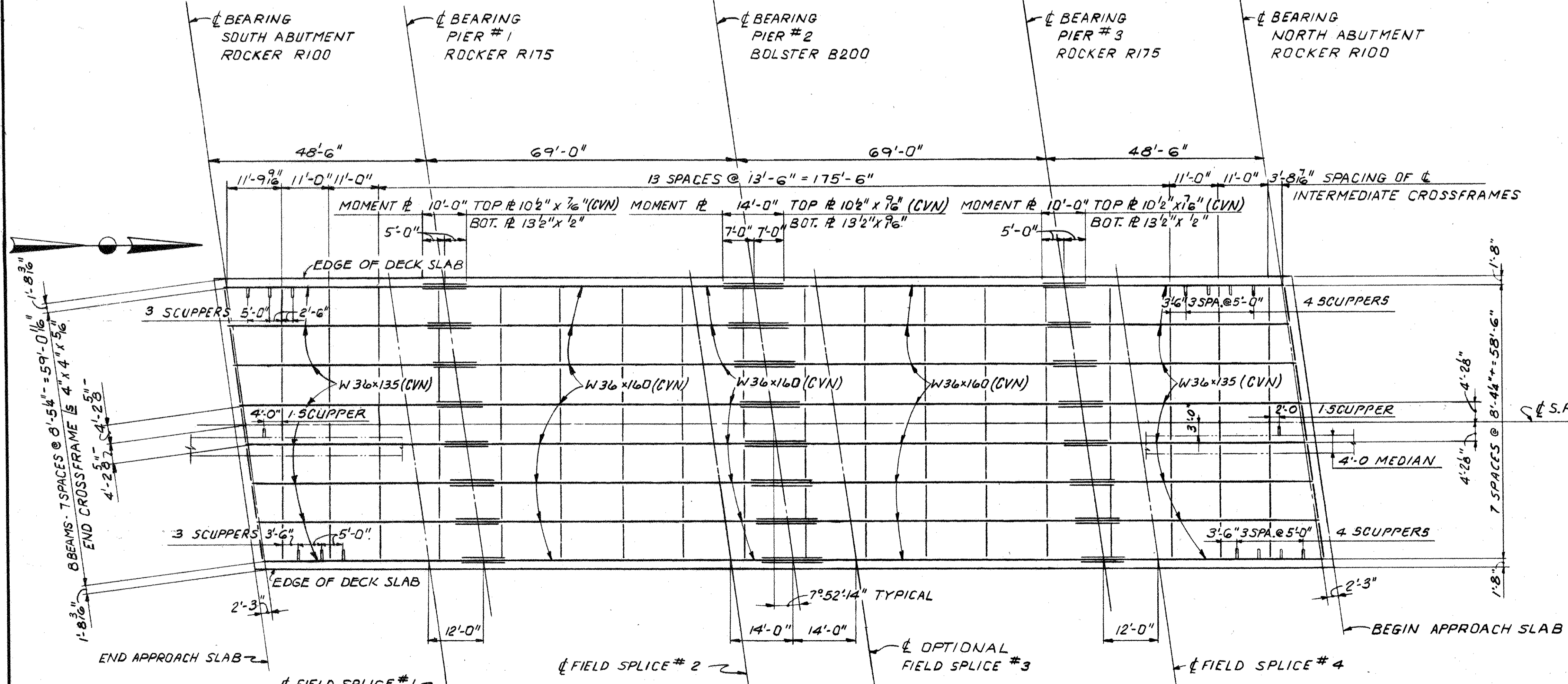
NOTE 'A': ITEM SPECIAL, SEALING OF CONCRETE SURFACES: A CONCRETE SEALER, EITHER SILANE OR AN EPOXY SEALER, SHALL BE APPLIED TO THE CONCRETE SURFACES SHOWN ON THE TRANSVERSE SECTION. SEE THE PROPOSAL FOR SURFACE PREPARATION REQUIREMENTS, APPLICATION RATES, MATERIAL REQUIREMENTS AND APPLICATION PROCEDURE.

A TYPICAL HAUNCH WIDTH OF 9" SHALL BE USED FOR COMPUTING QUANTITY OF CONCRETE. HOWEVER, THE HAUNCH WIDTH MAY VARY BETWEEN 6" AND 12" PROVIDED THAT THE SLOPE SHALL BE NOT MORE THAN 1:4 FOR A HAUNCH LESS THAN 9" IN WIDTH.

TRANSVERSE SECTION



SECTION A-A



NOTES:  
TRANSVERSE DECK REINFORCING BARS (#501) SHALL BE FIELD BENT AS REQUIRED. FIELD BENDING SHALL BE INCLUDED WITH ITEM 509 - REINFORCING STEEL (GRADE 60) FOR PAYMENT.

FOR ADDITIONAL NOTES SEE SHEET 7/10.

SCUPPERS SHALL CONFORM TO STANDARD CONSTR. DRWG. SD-1-69 EXCEPT THAT SCUPPERS SHALL EXTEND 8" BELOW THE BOTTOM OF THE BEAMS INSTEAD OF 2".

FOR ROCKERS AND BOLSTERS, SEE STD. DRWG. RA-1-55. GALVANIZE AS PER 711.02.

FOR SUPERSTRUCTURE DETAILS, SEE SHEET 7/10.

FOR DECK SLAB PLAN AND DECK ELEVATIONS, SEE SHEET 8/10.

REINFORCING BARMARKS WITH THE SUFFIX E DENOTE EPOXY COATED REINFORCING STEEL.

NOTE: WELDED ATTACHMENT OF SUPPORTS FOR CONCRETE DECK FINISHING MACHINE MAY BE MADE TO AREAS OF THE TOP FLANGES OF THE FASCIA STRINGERS THROUGH OUT THE LENGTH OF THE BEAM, EXCEPT WITHIN 14 FEET EITHER SIDE OF CENTERLINE BEARINGS OF THE PIERS. FILLET WELDS TO COMPRESSION FLANGES SHALL NOT BE CLOSER THAN 1" FROM THE EDGE OF FLANGE, BE NOT MORE THAN 2" LONG, AND BE NOT SMALLER THAN THE MINIMUM SIZE REQUIRED BY AASHTO.

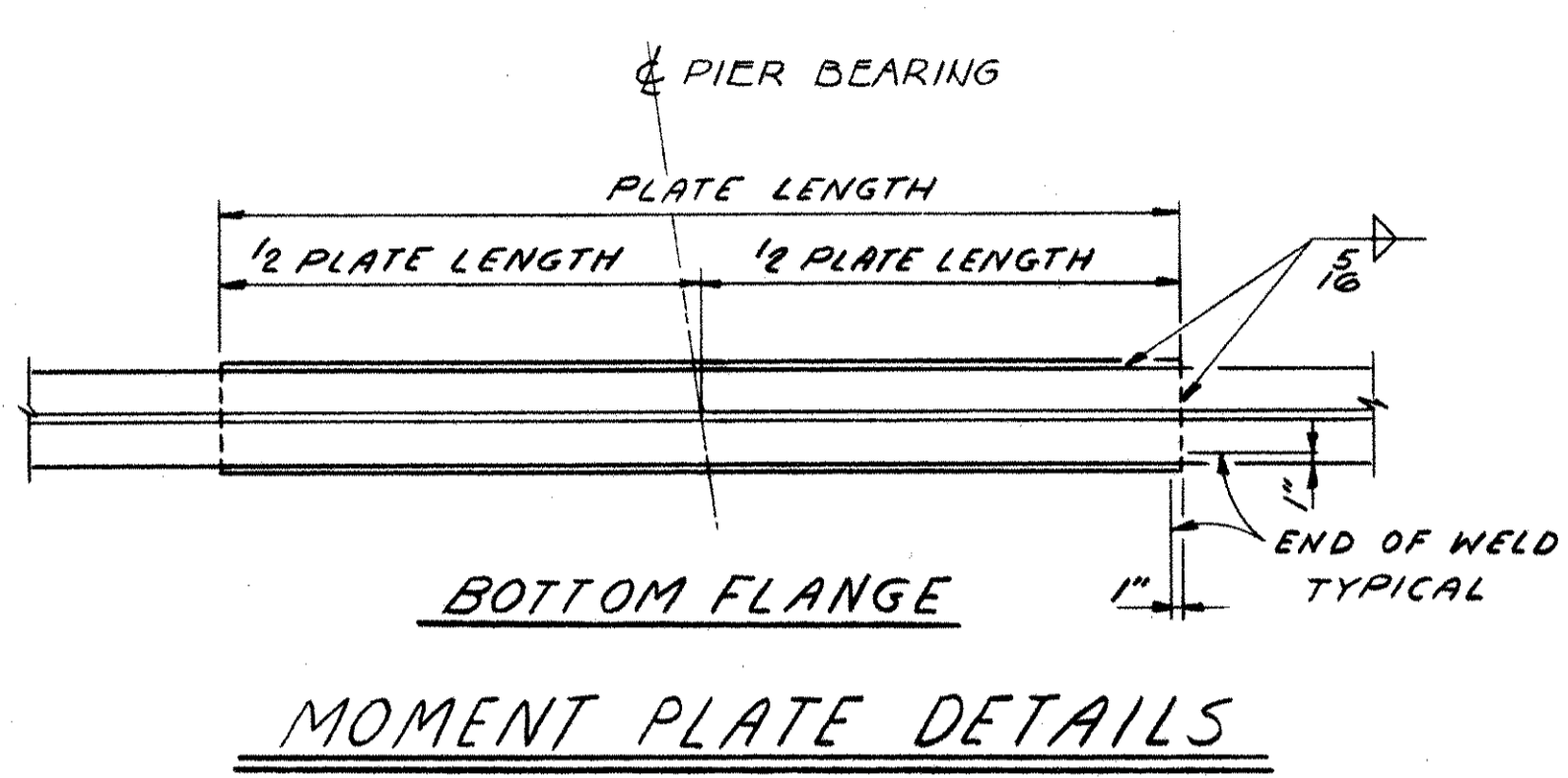
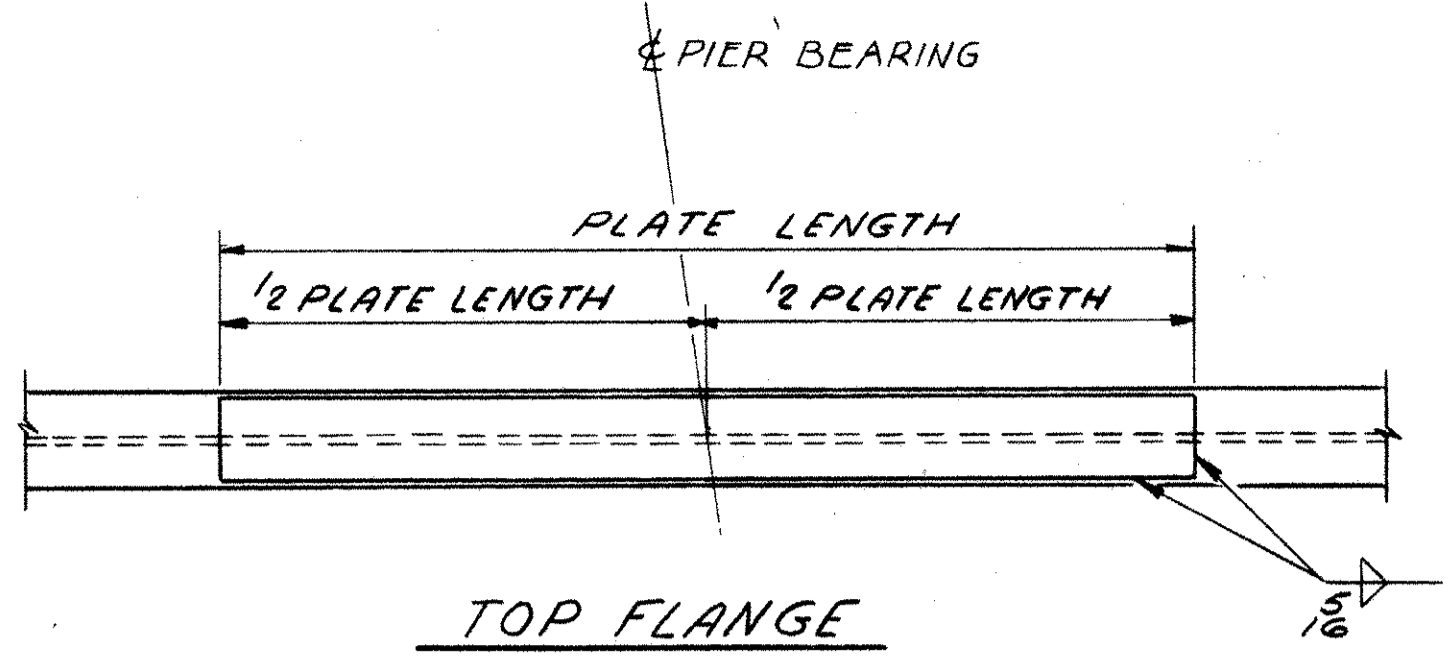
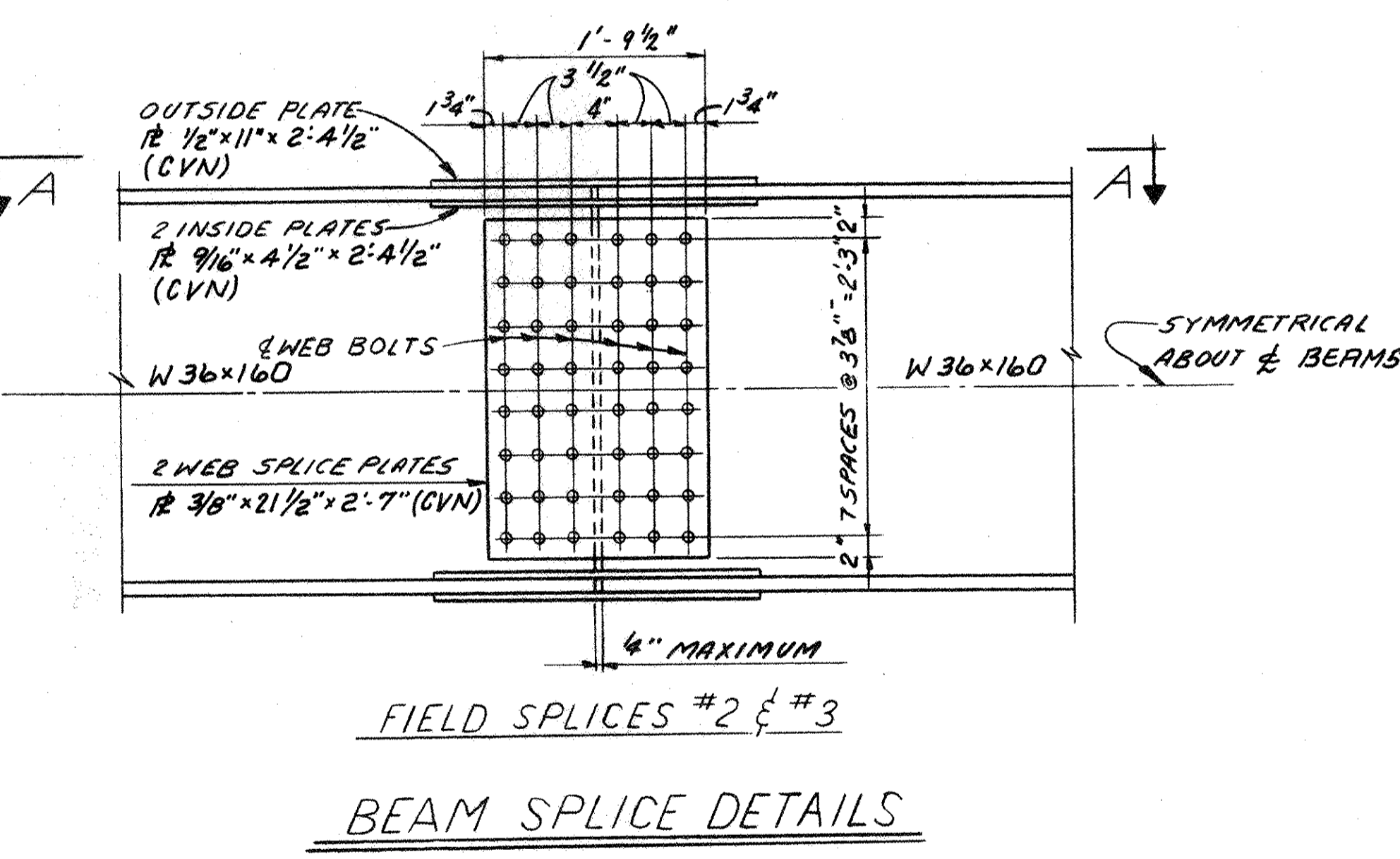
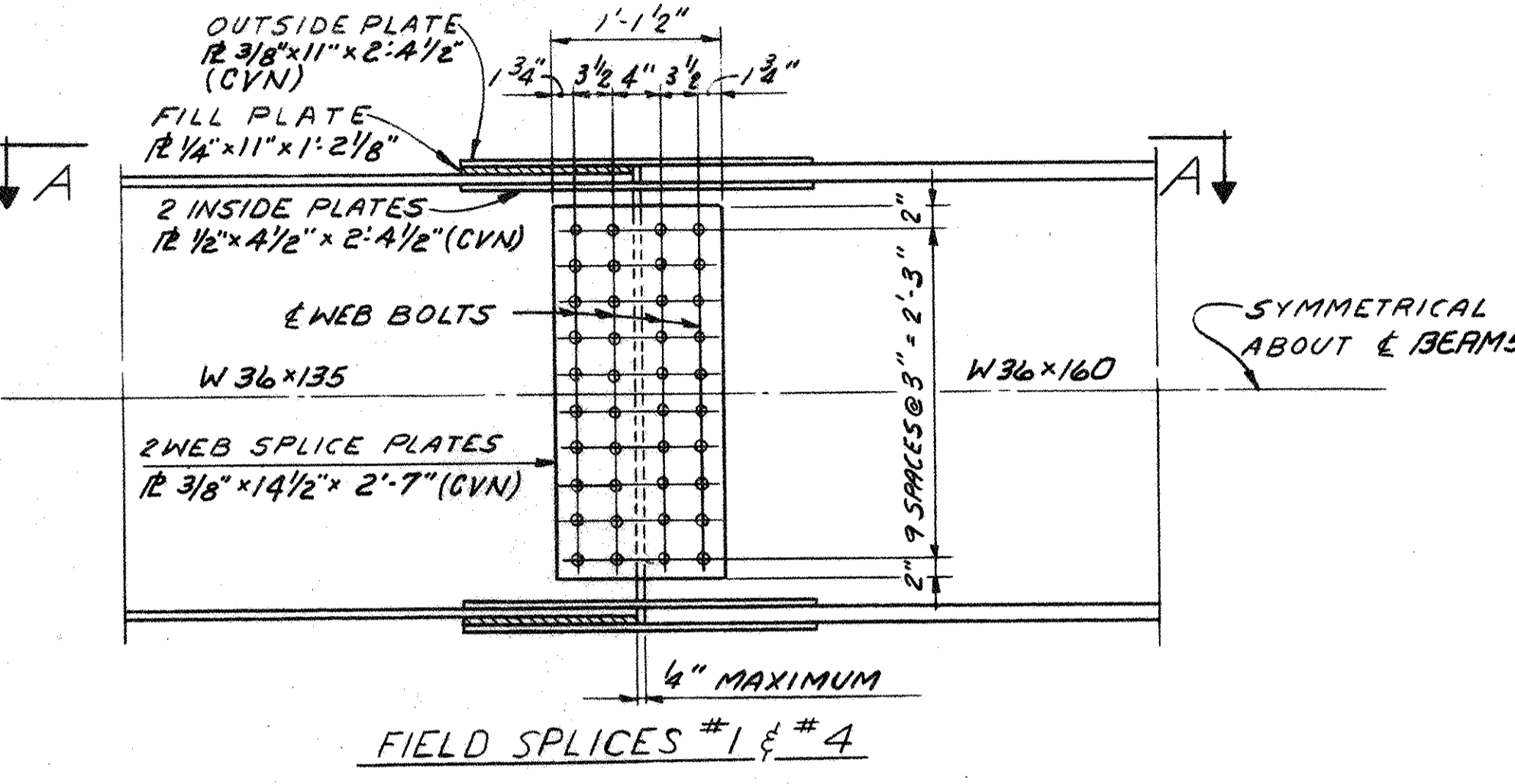
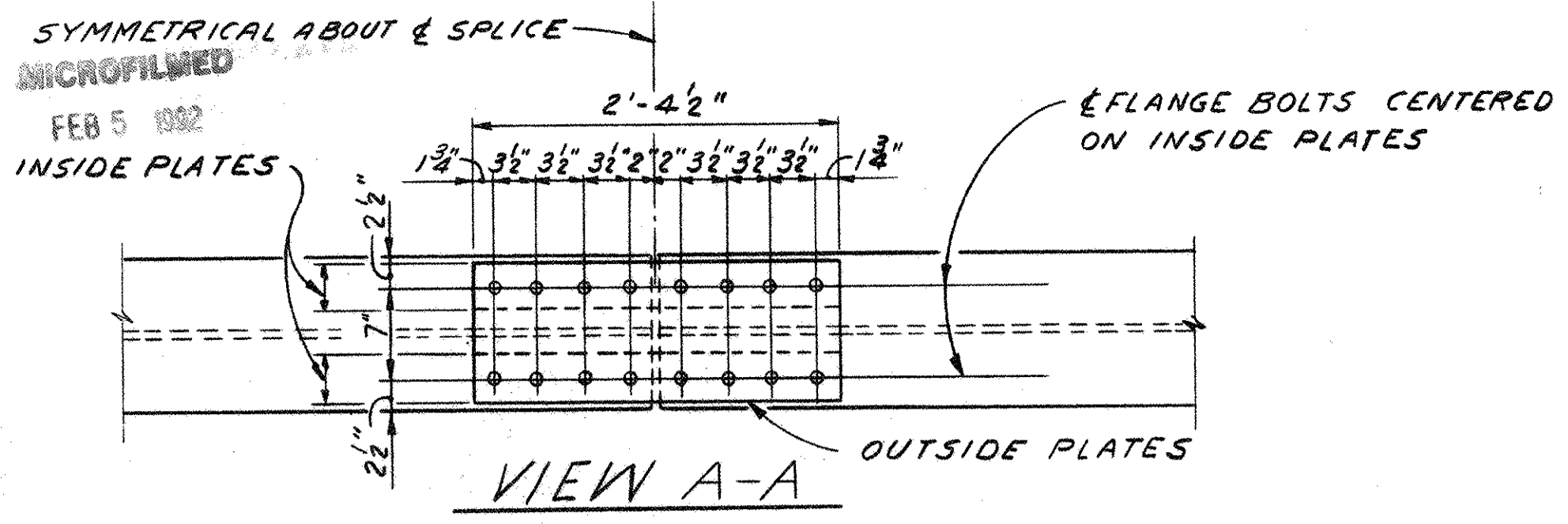
FRAMING PLAN

ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

**TRANSVERSE SECTION & FRAMING PLAN**  
BRIDGE NO. ERI-2-2222  
S.R. 61 OVER S.R. 2  
ERIE COUNTY STA. 48+80.23 TO ERI-2-18.38 STA. 51+19.77

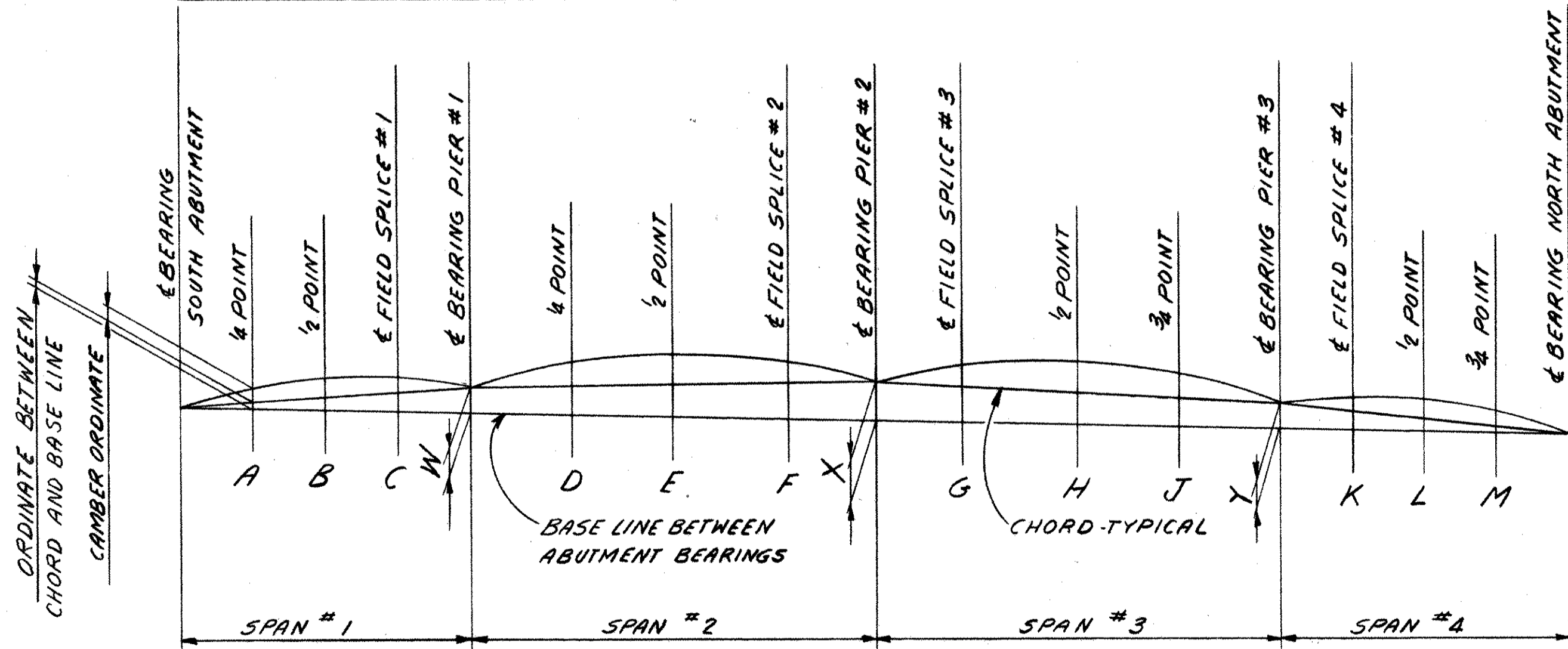
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
L.E.D.	Z	L.R.A.	V.L.P.	L.E.D. 11/4/85	

6/10



**DEFLECTION AND CAMBER TABLE**

BEAMS	DESCRIPTION	A	B	C	D	E	F	G	H	J	K	L	M	W	X	Y
	DEFLECTION DUE TO WEIGHT OF STEEL	0"	0"	0"	1/16"	1/16"	0"	0"	1/16"	1/16"	0"	0"	0"			
	DEFLECTION DUE TO REMAINING DEAD LOAD	1/8"	3/8"	1/2"	3/8"	5/16"	1/2"	1/2"	5/16"	3/16"	1/16"	3/8"	1/2"			
	VERTICAL CURVE ADJUSTMENT	1/8"	1/8"	1/8"	3/8"	1/2"	3/8"	3/8"	1/2"	1/2"	1/2"	1/2"	1/2"	2 1/16"	3 3/16"	2 1/16"
	REQUIRED CAMBER	1/4"	5/16"	3/8"	7/16"	1/2"	5/16"	5/16"	1/2"	1/16"	3/8"	1/2"	1/2"			
	ORDINATE BETWEEN CHORD AND BASE LINE	1/2"	1 1/16"	1 1/8"	2 3/8"	2 5/8"	3"	3"	2 5/8"	2 3/8"	1 3/8"	1 1/16"	1/2"			



**CAMBER DIAGRAM**

**NOTES:**

HIGH STRENGTH BOLTS SHALL BE 1" DIAMETER UNLESS OTHERWISE NOTED.  
 FOR FRAMING PLAN SEE SHEET 6/10  
 FOR ADDITIONAL FIELD SPLICE DETAILS SEE STANDARD DRAWING SD-1-69 SHEET NO. 4 OF 4.

WHERE A SHAPE OR PLATE IS DESIGNATED (CVN) THE MATERIAL SHALL MEET MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.02 OF C.M.S.

7/10

**ABACHE ASSOCIATES INC., ENGINEERS**  
CLEVELAND, OHIO 44142

**SUPERSTRUCTURE DETAILS**

BRIDGE NO. ERI-2-2222  
S.R. 61 OVER S.R. 2

ERIE COUNTY STA. 48+80.23 TO  
ERI-2-18.38 STA. 51+19.77

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
L.E.D.	Z	L.A.A. N.K.	L.E.D.	11/4/85	

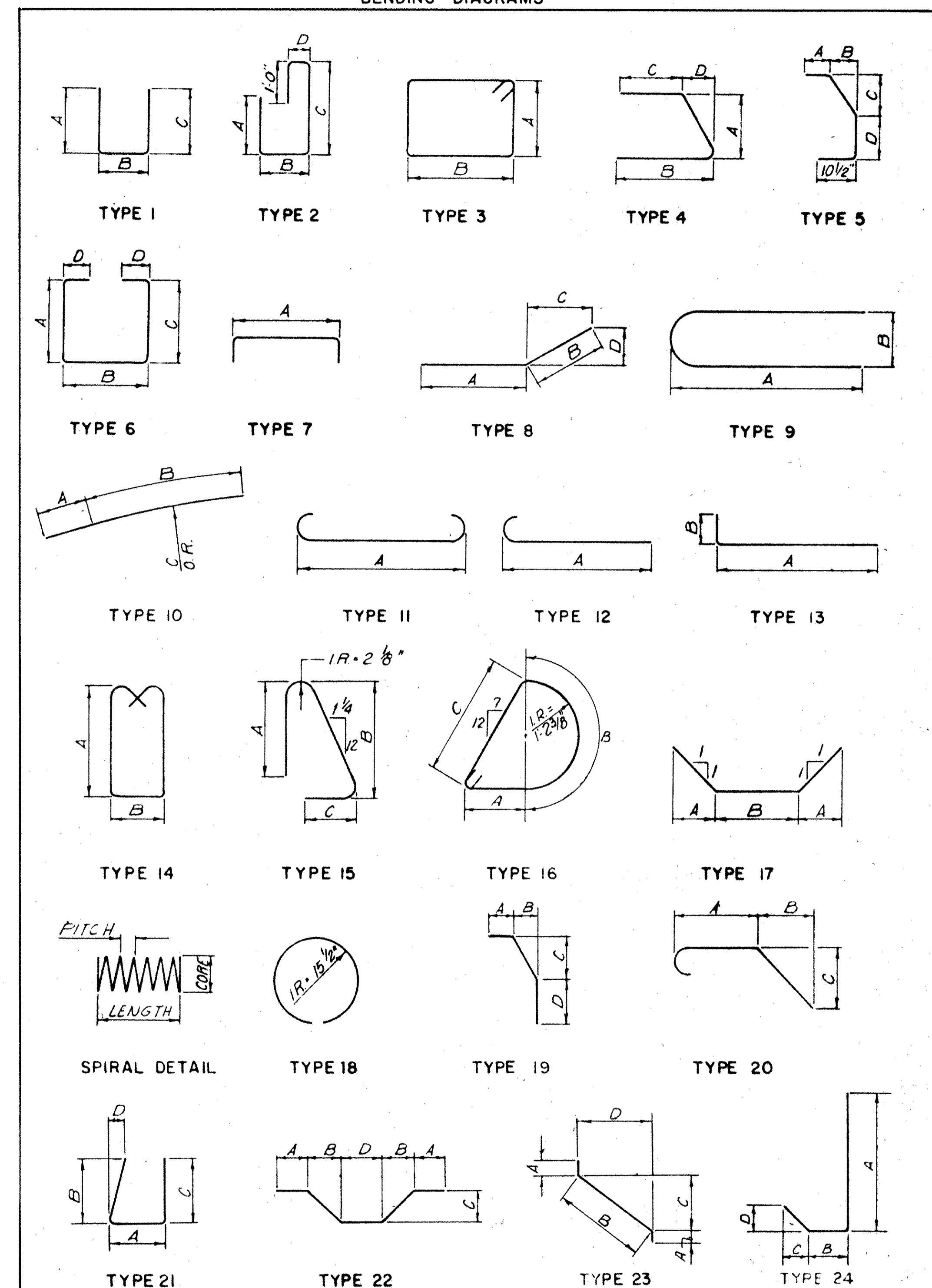


**ERIE COUNTY  
ERI-2-18.38**

BENDING DIAGRAMS

MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	NORTH ABUTMENT	SOUTH ABUTMENT	TOTAL			A	B	C	D		
A401	48	48	96	2'-10"	1	8"	1'-8"	8"			182
A501	48	48	96	8'-3"	1	1'-7"	5'-4"	1'-7"			826
A502	48	48	96	7'-2"	13	6'-5"	10"				718
A503	48	48	96	7'-8"	1	2'-3"	3'-5"	2'-3"			768
A504	8	8	16	30'-11"	ST.						516
A505	11	11	22	30'-5"	ST.						698
A506	2 SER. OF 5	2 SER. OF 5	4 SER. OF 5	30'-11" TO 30'-5"	ST.					1-1/2"	640
A508	3	3	6	29'-6"	ST.						184
A510	20	20	40	5'-0"	ST.						208
A518	10	10	20	4'-7"	ST.						96
A519	14	14	28	11'-0"	3	2'-3"	3'-0"	2'-3"			322
A520	12	12	24	13'-8"	ST.						342
A523	4	4	8	6'-9"	ST.						56
A524	6	6	12	7'-6"	ST.						94
A525	4	4	8	6'-8"	13	6'-2"	7-1/2"				56
A526	4	4	8	4'-9"	1	2'-0"	1'-0"	2'-0"			40
A527	4	4	8	7'-7"	8	6'-0"	1'-7"	1'-6"	8"		64
A528	6	6	12	7'-11"	ST.						100
A529	2	2	4	3'-8"	ST.						16
A601	48	48	96	14'-1"	1	6'-6"	5'-4"	2'-7"			2,030
A602	60	60	120	9'-1"	1	4'-0"	1'-5"	4'-0"			1,636
A603	60	60	120	6'-5"	1	2'-8"	1'-5"	2'-8"			1,158
A605	10	10	20	16'-10"	1	8'-0"	1'-2"	8'-0"			506
A606	10	10	20	4'-7"	ST.						138
A607	2	2	4	8'-10"	1	4'-0"	1'-2"	4'-0"			54
A608	2	2	4	8'-0"	1	3'-7"	1'-2"	3'-7"			48
A609	2	2	4	6'-8"	1	2'-11"	1'-2"	2'-11"			40
A610	6	6	12	6'-2"	1	2'-8"	1'-2"	2'-8"			114
A801	14	14	28	33'-6"	ST.						2,504
A802	2	2	4	13'-2"	4	2'-7"	10'-10"	0"	4"		140
A803	8	8	16	6'-6"	ST.						278
A804	2	2	4	12'-7"	8	10'-2"	2'-7"	2'-7"	4"		134
TOTAL ABUTMENTS											14,706

MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
			TOTAL			A	B	C	D		
1P501			56	5'-5"	1	1'-6"	2'-8"	1'-6"			316
1P601			4	31'-0"	ST.						186
1P602			12	6'-4"	1	2'-0"	2'-8"	2'-0"			114
1P603			144	8'-8"	1	3'-2"	2'-8"	3'-2"			1,875
1P801			72	11'-4"	11	8'-6"					2,178
1P1001			32	9'-9"	13	8'-3"	1'-10"				1,343
1P1002			32	17'-8"							2,433
1P1101			12	33'-9"	13	30'-11"	3'-2"				2,152
1P1102			14	30'-11"	ST.						2,300
TOTAL PIER NO. 1											12,897
2P501			56	5'-5"	1	1'-6"	2'-8"	1'-6"			316
2P601			4	31'-0"	ST.						186
2P602			12	6'-4"	1	2'-0"	2'-8"	2'-0"			114
2P603			144	8'-8"	1	3'-2"	2'-8"	3'-2"			1,875
2P801			72	11'-4"	11	8'-6"					2,178
2P1001			32	9'-9"	13	8'-3"	1'-10"				1,343
2P1002			32	17'-10"	ST.						2,456
2P1101			12	33'-9"	13	30'-11"	3'-2"				2,152
2P1102			14	30'-11"	ST.						2,300
TOTAL PIER NO. 2											12,920
3P501			56	5'-5"	1	1'-6"	2'-8"	1'-6"			316
3P601			4	31'-0"	ST.						186
3P602			12	6'-4"	1	2'-0"	2'-8"	2'-0"			114
3P603			144	8'-8"	1	3'-2"	2'-8"	3'-2"			1,875
3P801			72	11'-4"	11	8'-6"					2,178
3P1001			32	9'-9"	13	8'-3"	1'-10"				1,343
3P1002			32	17'-5"	ST.						2,398
3P1101			12	33'-9"	13	30'-11"	3'-2"				2,152
3P1102			14	30'-11"	ST.						2,300
TOTAL PIER NO. 3											12,862



**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 PLACED IN THE STRUCTURES BY THE ADDITIONAL STEEL, SPLICED IN ACCORDANCE WITH 509.08.

NOTE:  
BAR DIMENSIONS GIVEN ARE OUT TO OUT.

adache - ciuni - lynn associates  
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

**REINFORCING STEEL LIST**

BRIDGE NO. ERI - 2 - 2222  
S.R. 61 OVER S.R. 2  
ERIE COUNTY STA. 48+80.23  
ERI-2-18.38 TO STA. 51+19.77

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.M.J.	T.M.J.	K.L.M.	L.E.D.	11/4/85	



# TRAFFIC CONTROL PLAN

CALC. 2.2.6	OHIO F.H.W.A. 5 REGION	243 326
DATE 11/23		
CHKD. & W. T. DATE 11/23		

ERIE COUNTY  
ERI - 2 - 18.38

## GENERAL SUMMARY

SHEET NUMBERS					ITEM	QUANTITY TOTALS	UNIT	DESCRIPTION	
244	246	247	248	249					
				157	52	620	209	EACH	DELINEATORS TYPE C, FLEXIBLE POST MOUNTED
				14		620	14	EACH	DELINEATORS TYPE C, BRACKET MOUNTED
				20	10	620	30	EACH	DELINEATORS TYPE D, FLEXIBLE POST MOUNTED
6						620	6	EACH	REFLECTORS, TYPE D
				23.41	2.69	621	26.10	MILE	EDGE LINES
				10.00		621	10.00	MILE	LANE LINES
				3842	489	621	4331	LIN.FT.	CHANNELIZING LINES
				1823	32	621	1855	LIN.FT.	TRANSVERSE LINES
					1.01	621	1.01	MILE	CENTER LINES
				319	73	621	392	LIN.FT.	STOP LINE
					3	621	3	EACH	LANE ARROWS
					2	621	2	EACH	WORD "ONLY" ON PAVEMENT, 72-IN
					3	621	3	EACH	RAILROAD SYMBOL MARKINGS
					430	621	430	SQ.FT.	ISLAND MARKING
				4		625	4	EACH	GROUND ROD
84		416				630	500	SQ.FT.	COVERING OF SIGNS
1831		538				630	2369	SQ.FT.	SIGNS EXTRU SHEET, TYPE G
577		196				630	773	SQ.FT.	SIGNS FLAT SHEET, TYPE G
302						630	302	LIN.FT.	GROUND MOUNTED SUPPORT 34x77 BEAM
181						630	181	LIN.FT.	GROUND MOUNTED SUPPORT W8x18 BEAM
307						630	307	LIN.FT.	GROUND MOUNTED SUPPORT W10x12 BEAM
160						630	160	LIN.FT.	GROUND MOUNTED SUPPORT W10x22 BEAM
78						630	78	LIN.FT.	ONE WAY SUPPORTS, NO. 4 POST
139		384				630	523	LIN.FT.	GROUND MOUNTED SUPPORT NO. 3 POST
586		147				630	733	LIN.FT.	GROUND MOUNTED SUPPORT NO. 4 POST
		11.6				630	11.6	CU.YD.	CONCRETE FOR ANCHOR BASE FOUNDATIONS
42.4						630	42.4	CU.YD.	CONCRETE FOR EMBEDDED FOUNDATIONS
36						630	36	EACH	BREAK AWAY BEAM CONNECTION
120						630	120	LIN.FT.	GROUND MOUNTED SUPPORT W12x30 BEAM
						631	8	EACH	SIGNS WIRED
						631	4	EACH	SIGN SERVICE
						631	4	EACH	DISCONNECT SWITCH WITH ENCLOSURE TYPE X
						631	8	EACH	BALLAST TYPE CMRI-175(480)
						631	8	EACH	MERCURY VAPOR LUMINARE TYPE TC-31.21 WITH 175 WATT LAMP
						630	2	EACH	COMBINATION OVERHEAD SIGN SUPPORT TYPE 12.30, DESIGN 3, 16' ARM
						630	2	EACH	COMBINATION OVERHEAD SIGN SUPPORT TYPE 12.30, DESIGN 4, 20' ARM
						631	4	EACH	BALLAST WIRING ENCLOSURE MOUNTING BRACKET ASSEMBLY

ADACHE CIUNI LYNN ASSOC.  
CALC. BY: J.D.P. DATE: NOV. 83  
CHKD. BY: R.W.H. DATE: NOV. 83

Rev. July, 85 RWH

F.H.W.A. REGION	STATE	PROJECT
5	OHIO	

244  
326

ERIE COUNTY  
ERI-2-(18.38)

# TRAFFIC CONTROL NOTES

### TRAFFIC MAINTENANCE

FOR GENERAL TRAFFIC MAINTENANCE NOTES SEE SHEET 9. FOR RIVER ROAD, JEFFRIES ROAD AND BERLIN ROAD STAGE CONSTRUCTION DETAILS SEE SHEET 2C. FOR STATE ROUTE 61 STAGE CONSTRUCTION DETAILS SEE SHEET 2D.

### ITEM 614 MAINTENANCE OF TRAFFIC

ALTHOUGH STAGE CONSTRUCTION TRAFFIC CONTROL ITEMS ARE SHOWN ON SHEETS 2C AND 2D THEY SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614 MAINTENANCE OF TRAFFIC. EXCEPT WHEN SPECIFICALLY ITEMIZED AS A SEPARATE PAY ITEM AS "ITEM 614 TEMPORARY PAVEMENT MARKING".

### UNDERGROUND UTILITIES

EXTREME CAUTION SHALL BE EXERCISED IN AREAS WITH UNDERGROUND ELECTRICAL CONDUIT OR CABLE, SEWERS, DRAINS, WATER LINE, OR OTHER UNDERGROUND UTILITIES. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ALL DAMAGE INFLICTED ON UNDERGROUND UTILITIES IN THE EXCAVATION AND PLACEMENT OF SIGN SUPPORT FOUNDATIONS, PROTECTIVE GUARD RAIL, DELINEATORS AND THE LIKE. FOR LISTING OF EXISTING UTILITIES INVOLVED WITHIN THE PROJECT LIMITS SEE SHEET 9.

### POWER SUPPLY

THE POWER SUPPLY FOR THE LIGHTED SIGNS ARE INCORPORATED INTO THE ROADWAY LIGHTING CIRCUITS, SEE SHEETS 274 - 275 OF THE LIGHTING PLAN.

### ITEM 630 COVERING OF SIGNS

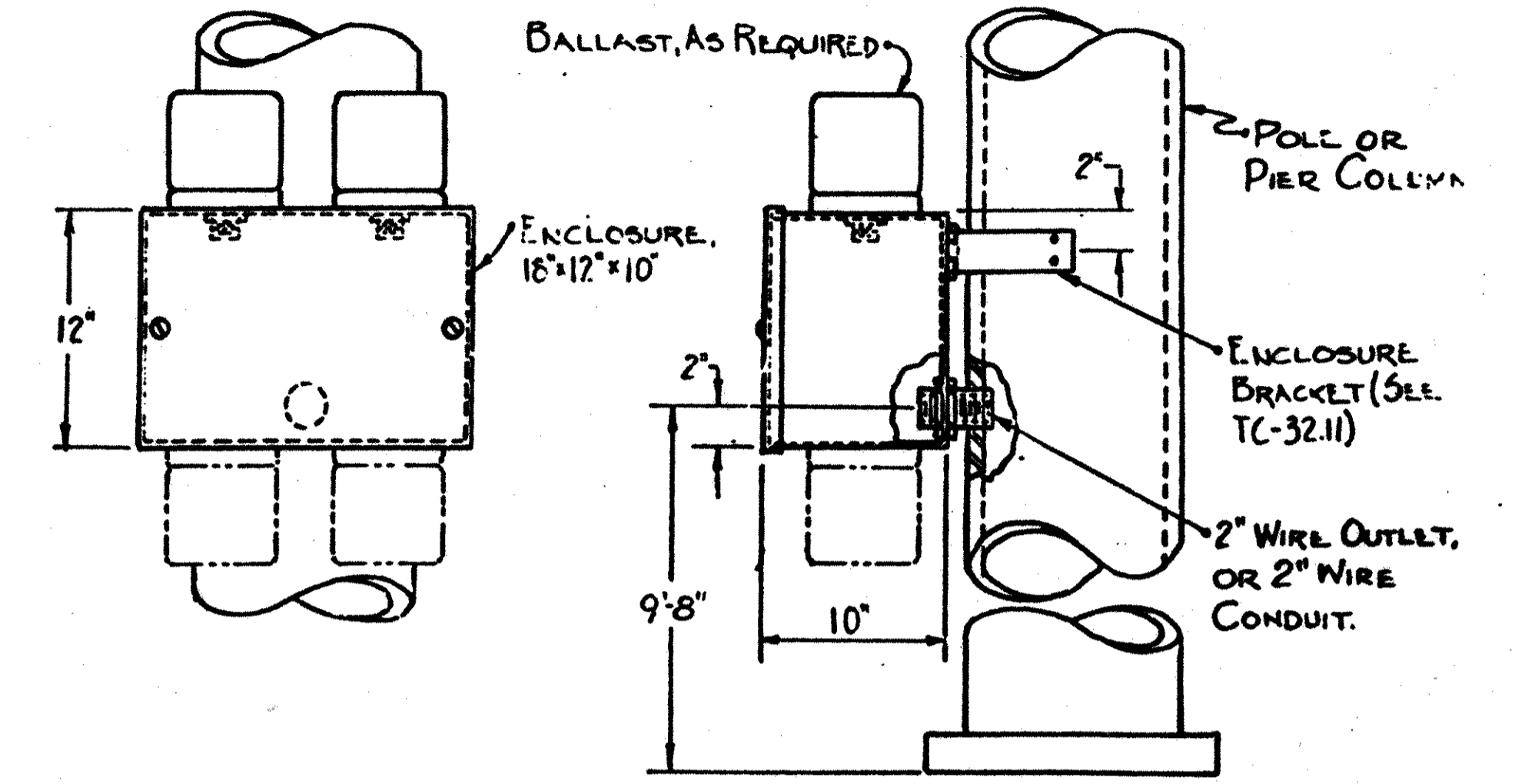
IN ADDITION TO THE 416 SQUARE FEET REFERRED TO IN THE PLANS, AN ADDITIONAL QUANTITY OF 64 SQUARE FEET FOR ITEM 630, "COVERING OF SIGNS", HAVE BEEN INCLUDED TO COVER SIGNS AS DIRECTED BY THE ENGINEER.

### TRAFFIC CONTROL STANDARD CONSTRUCTION DRAWINGS

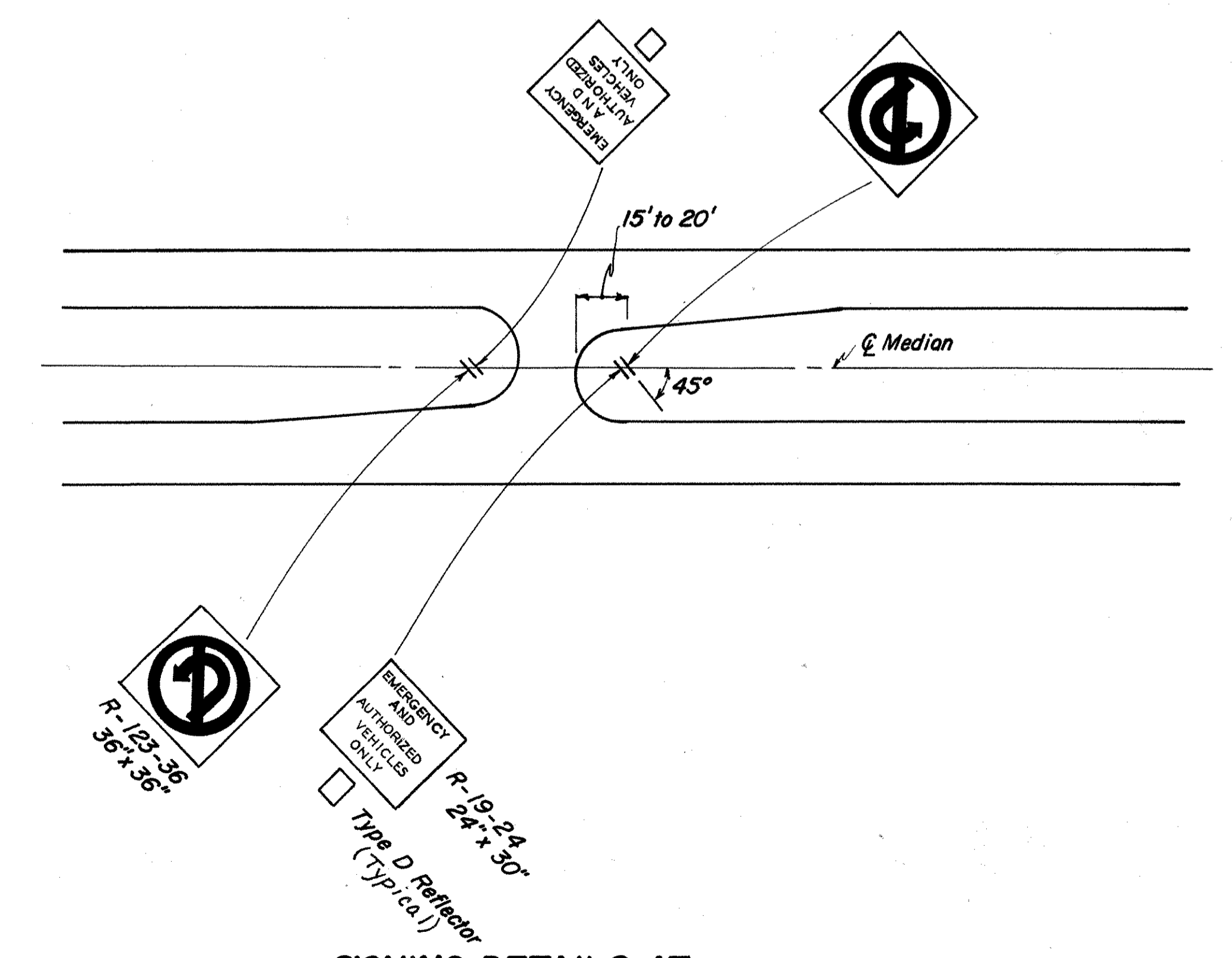
REFERENCES TO SUPPLEMENTAL SPECIFICATIONS 857, 858, 859, 957, 958, AND 959 ON THE TRAFFIC CONTROL STANDARD CONSTRUCTION DRAWINGS IN THESE PLANS SHALL BE CONSIDERED TO READ AS RESPECTIVE REFERENCES TO ITEMS 630, 631, 632, 730, 731 AND 732.

### 620 REFLECTORS, TYPE "D"

THE TYPE "D" REFLECTOR SHALL BE ATTACHED TO THE NO. 4 POST, DRIVEN AT THE MEDIAN CROSS-OVER. PAYMENT SHALL BE AT THE UNIT PRICE BID PER EACH AND SHALL INCLUDE ALL LABOR AND HARDWARE TO MOUNT THE TYPE "D" REFLECTOR TO THE SIGN POST SUPPORT. REFLECTOR QUANTITIES CARRIED IN SIGNING SUMMARY TABLE.



BALLAST ENCLOSURE, TYPE B



SIGNING DETAILS AT MEDIAN CROSS-OVERS





# SUMMARY OF SIGNING

# QUANTITIES

FED. NO. DIVISION	STATE	PROJECT
2	OHIO	

247  
326

CALC. BY CN 6-75  
CHKD. BY ROL C/1/75  
REV. BY R.W.H. 11/83

ERI-2-1838

## ITEM 630

Ground Mounted Support

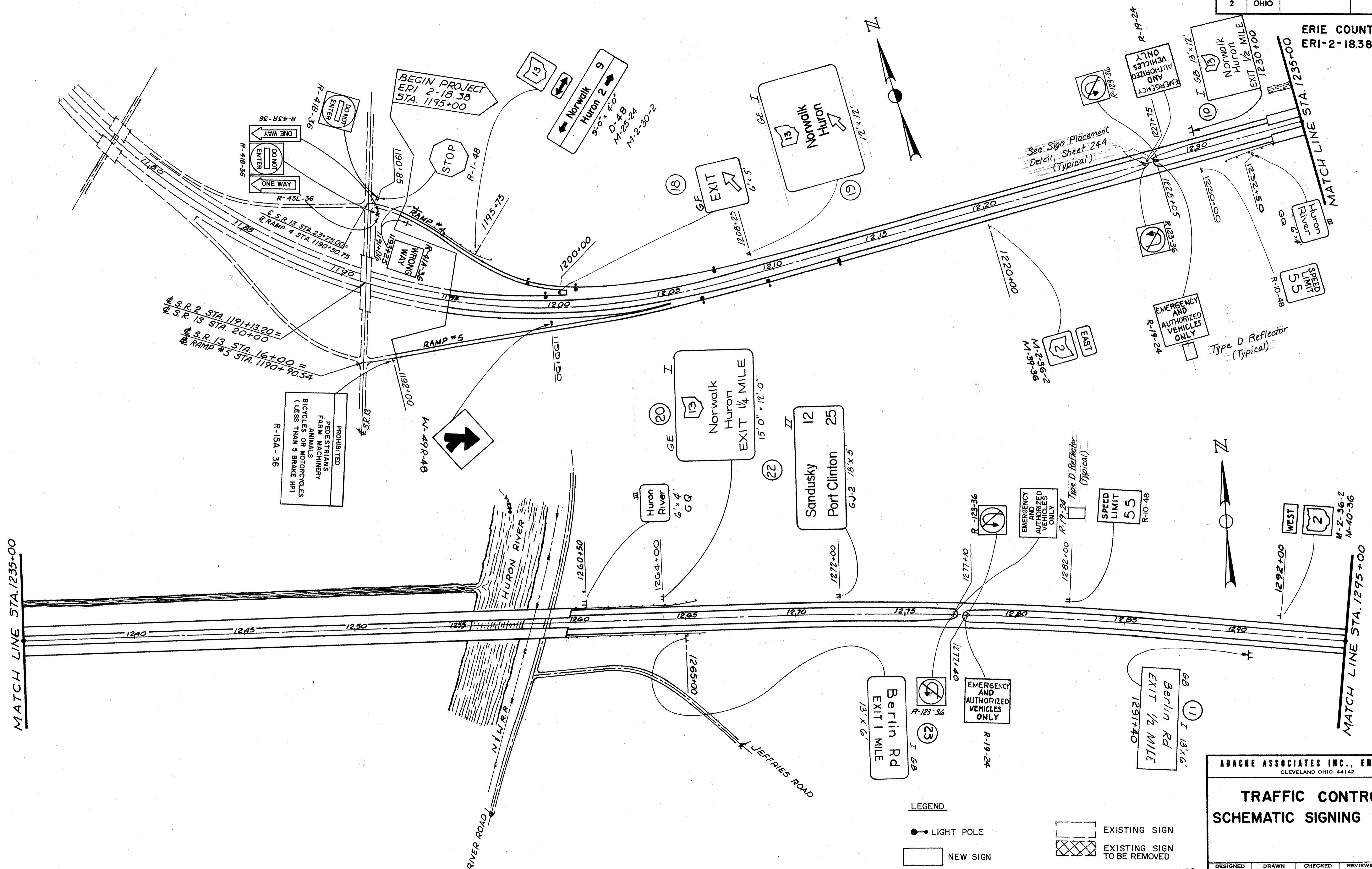
SHEET NO.	STATION	SIDE	CODE NUMBER	Signs		# 3		# 4	
				Flat Sheet	Extru Sheet	POST	POST	Lin.Ft.	Lin.Ft.
				Sq.Ft.	Sq.Ft.	Lin.Ft.	Lin.Ft.		
253	S.R. 61								
	32+00	Lt.	D-6-60	12.5				13.5/14	
	38+00	Lt.	R-10-24	5				12.5	
	38+00	Rt.	M-2-24-2	4				12.5	
			M-17-24	2					
	42+00	Rt.	M-52A-108		22.5			14.5/15.25	
	43+25	Lt.	W-24-30	6.25				13.5	
	44+20	Med.	R-38R-24	5				12	
	45+25	Lt.	M-2-24-2	4				12.5	
			M-38-24	2					
	47+50	Med.	R-37R-24	5				12	
	53+00	Med.	R-37R-24	5				12	
	55+25	Rt.	M-2-24-2	4				12.5	
			M-37-24	2					
	56+40	Med.	R-38R-24	5				12	
58+50	Rt.	R-10-24	5				12.25		
59+00	Lt.	M-52A-108		22.5			14.5/15.25		
59+65	Lt.	R-1-30	6.25				12.5		
60+55	Rt.	R-1-30	6.25				12.5		
64+00	Lt.	M-2-24-2	4				12.5		
		M-17-24	2						
253	61+50	Rt.	W-94-30	7.07				13.5	
RIVER RD									
256	13+50	Rt.	W-26-30	6.25				13.5	
	13+50	Lt.	W-94-36	7.07				13.5	
	21+00	Rt.	W-94-36	7.07				13.5	
256	21+50	Lt.	W-26-30	6.25				13.5	
JEFFRIES RD									
256	16+50	Rt.	W-45-36	9				14.5	
	13+50	Rt.	W-2-30	6.25				13.5	
	20+50	Lt.	W-1-30	6.25				13.5	
256	21+75	Rt.	R-1-30	6.25				12.5	
BERLIN RD									
252	6+00	Rt.	M-2-24-2	4				13	
			M-17-24	2					
	9+75	Lt.	W-26B-30	6.25				13.5	
	9+75	Rt.	M-52A-108		22.5			14.5/15.25	
	12+50	Lt.	W-1-30	6.25				13.5	
	30+00	Lt.	M-52A-108		22.5			14.5/15.25	
	33+00	Lt.	M-2-24-2	4				13	
252			M-17-24	2.0					
S.R. 61									
253	47+10	Lt.	R-31Q-30	6.25				12.0'	
	51+30	Rt.	R-31Q-30	6.25				12.0'	
	51+65	Lt.	R-31Q-30	6.25				12.0'	
253	53+40	Rt.	R-31Q-30	6.25				12.0'	
<b>TOTAL</b>				196.21	90	383.75	146.5		

SHEET NO.	LOCATION	REFERENCE NUMBER	STATION	631		630				631		630	625	630		
				SIGN SERVICE	SIGNS WIRED	DISCONNECT SWITCH WITH ENCLOSURE	COMBINATION OVERHEAD SIGN SUPPORT TYPE 12.30 DESIGN 3' LG ARM	OVERHEAD SIGN SUPPORT TYPE 12.30 DESIGN 4, 20' ARM	BALLAST TYPE (MRT-175 (480))	BALLAST WIRING ENCLOSURE MOUNTING BRACKET ASSEMBLY	MERCURY VAPOR LUMINAIRES TYPE TC-31Z1 WITH 175 WATT LAMP	COVERING OF SIGNS	GROUND ROD	SIGN EXTRU SHEET	CONCRETE FOR ANCHOR BASE FOUNDATION	
				EA.	EA.	EA.	EA.	EACH	EA.	EA.	EA.	8Q.FT.	EA.	S.F.	C.Y.	
252	BERLIN RD.	35 B	15+45 RT.	1	2	1			1	2	1	2	117	1	63/63	2.9
252	BERLIN RD.	34 B	24+60 LT.	1	2	1	1			2	1	2	91	1	49/49	2.9
253	S.R. 61	37 B	47+25 RT.	1	2	1			1	2	1	2	117	1	63/63	2.9
253	S.R. 61	36 B	53+25 LT.	1	2	1	1			2	1	2	91	1	49/49	2.9
<b>TOTAL</b>				4	8	4	2		2	8	4	8	416	4	448	11.6





ERIE COUNTY  
ERI-2-1838



LEGEND  
 ● LIGHT POLE  
 □ NEW SIGN

□ EXISTING SIGN  
 □ EXISTING SIGN TO BE REMOVED

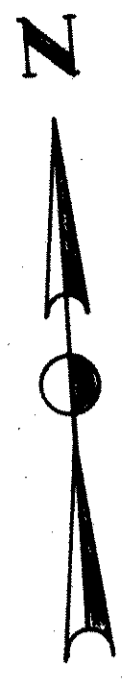
ADACHE ASSOCIATES INC., ENGINEERS  
 CLEVELAND, OHIO 44142

**TRAFFIC CONTROL SCHEMATIC SIGNING PLAN**

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
W.B.	V.P.	W.S.		

REV. R.W.H. 11/83  
 Revised 6/75

ERIE COUNTY  
ERI-2-1838



MATCH LINE STA. 1295+00

MATCH LINE STA. 1355+00



EMERGENCY AND AUTHORIZED VEHICLES ONLY  
R-19-24

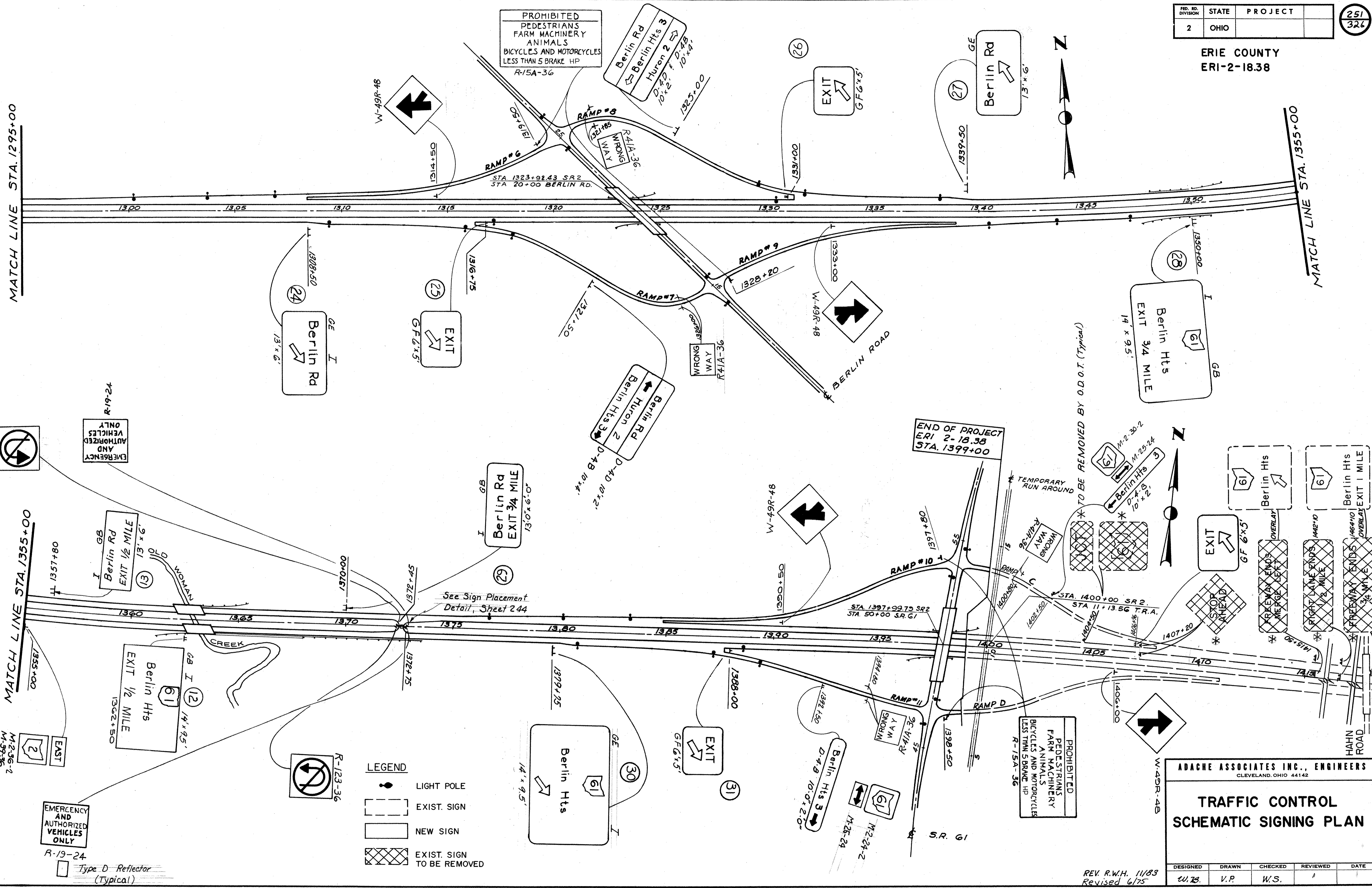
MATCH LINE STA. 1355+00

M-2-36-2  
M-9-36-2

EMERGENCY AND AUTHORIZED VEHICLES ONLY  
R-19-24

Type D Reflector (Typical)

- LEGEND**
- LIGHT POLE
  - EXIST. SIGN
  - NEW SIGN
  - EXIST. SIGN TO BE REMOVED



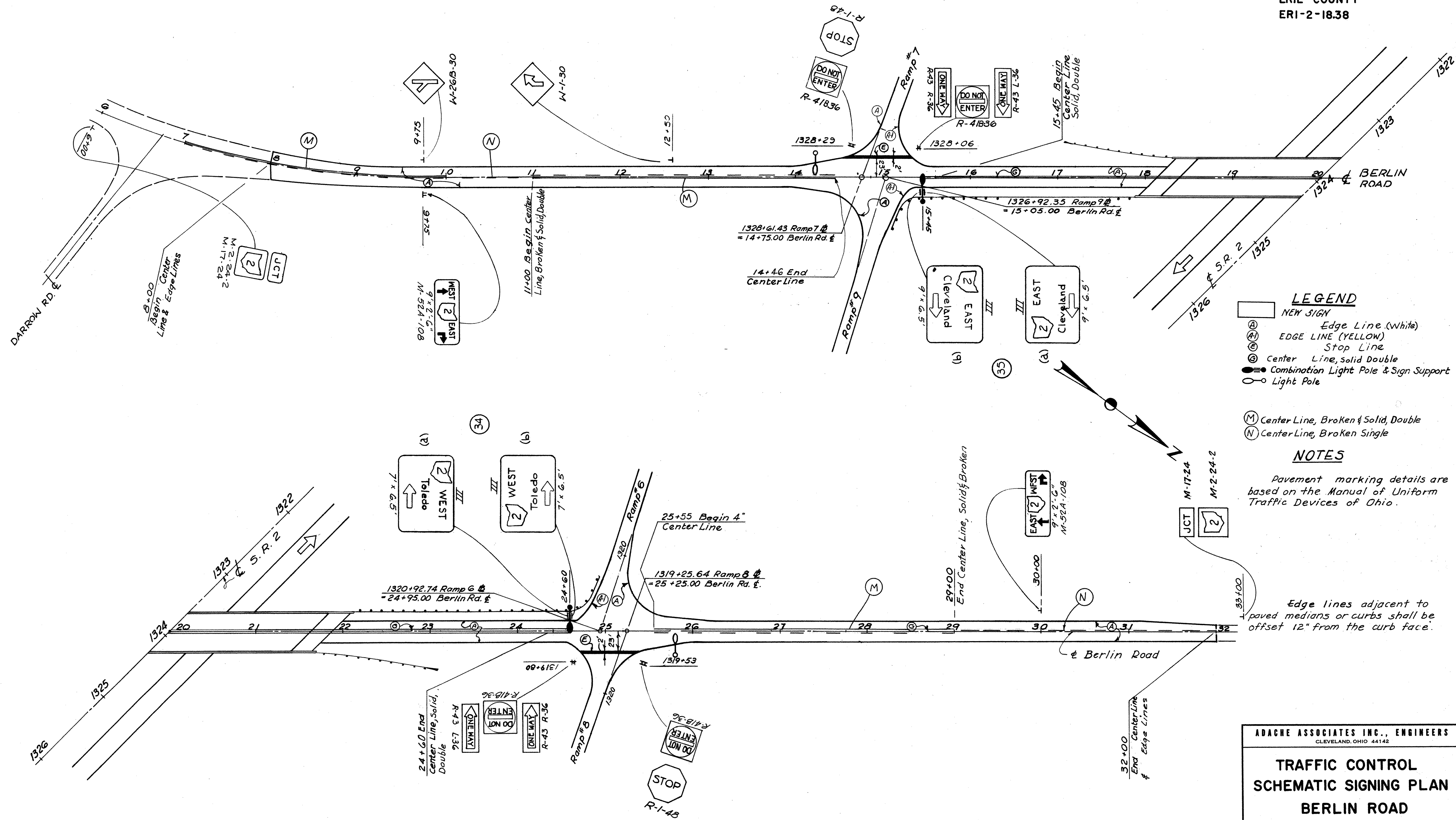
ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

**TRAFFIC CONTROL  
SCHEMATIC SIGNING PLAN**

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
W.R.	V.P.	W.S.		

REV. R.W.H. 11/83  
Revised 6/75

ERIE COUNTY  
ERI-2-18.38



- LEGEND**
- NEW SIGN
  - (A) Edge Line (White)
  - (H) EDGE LINE (YELLOW)
  - (S) Stop Line
  - (D) Center Line, solid Double
  - (●) Combination Light Pole & Sign Support
  - (○) Light Pole
  - (M) Center Line, Broken & Solid, Double
  - (N) Center Line, Broken Single

**NOTES**

Pavement marking details are based on the Manual of Uniform Traffic Devices of Ohio.

Edge lines adjacent to paved medians or curbs shall be offset 12" from the curb face.

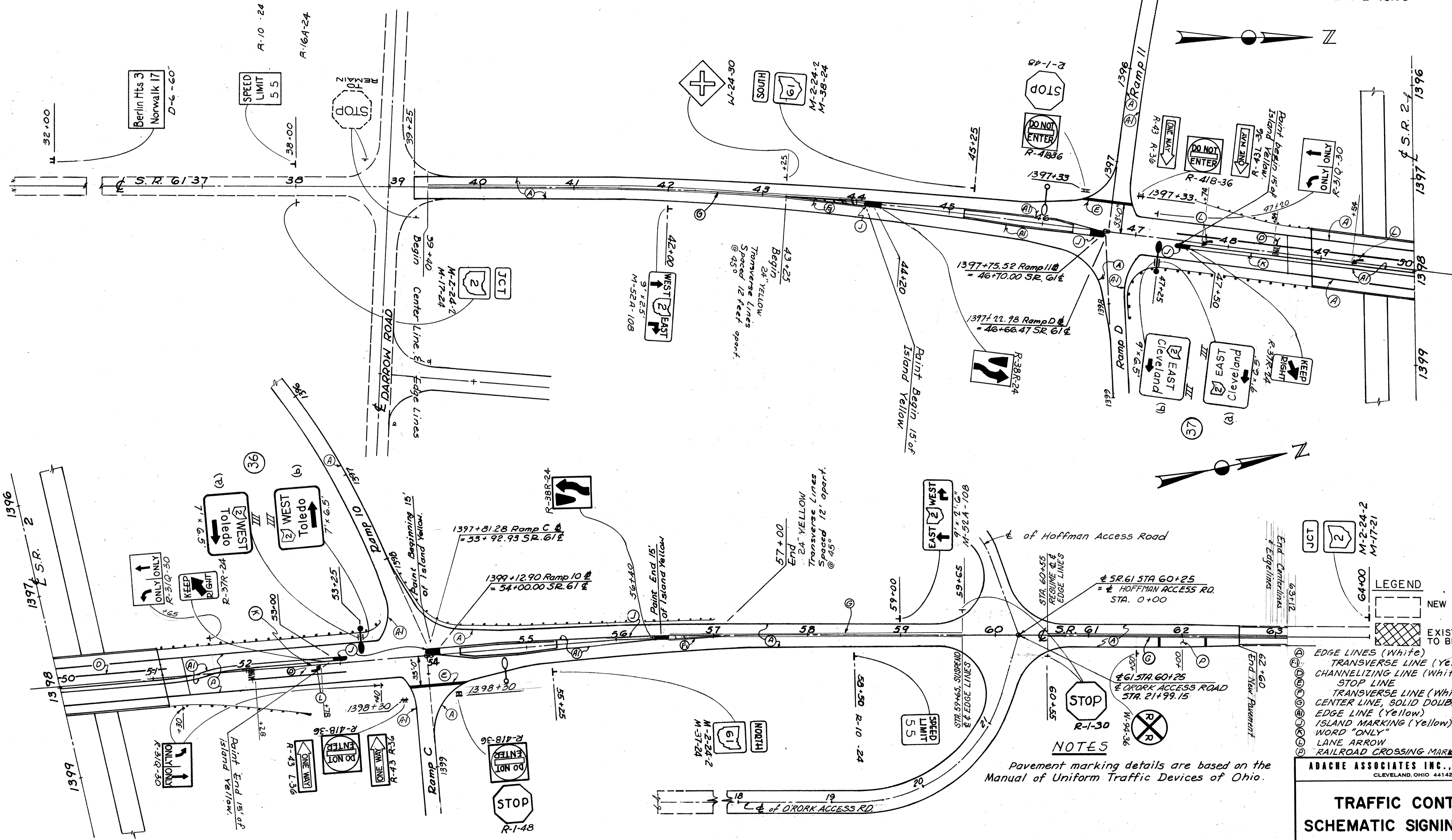
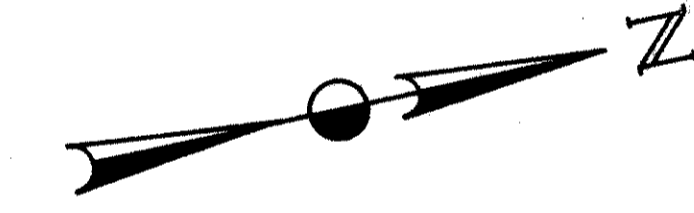
ADACNE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

**TRAFFIC CONTROL  
SCHEMATIC SIGNING PLAN  
BERLIN ROAD**

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
W.B.	V.P.	W.S.		

REV. R.W.H. 11/83  
Revised 6/75

ERIE COUNTY  
ERI-2-18.38



- LEGEND**
- [Solid Box] NEW SIGN
  - [Dashed Box] EXISTING SIGN TO BE REMOVED
  - EDGE LINES (White)
  - TRANSVERSE LINE (Yellow)
  - CHANNELIZING LINE (White)
  - STOP LINE
  - TRANSVERSE LINE (White)
  - CENTER LINE, SOLID DOUBLE
  - EDGE LINE (Yellow)
  - ISLAND MARKING (Yellow)
  - WORD "ONLY"
  - LANE ARROW
  - RAILROAD CROSSING MARKING

**NOTES**  
Pavement marking details are based on the Manual of Uniform Traffic Devices of Ohio.

ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

**TRAFFIC CONTROL  
SCHEMATIC SIGNING PLAN  
S.R. 61**

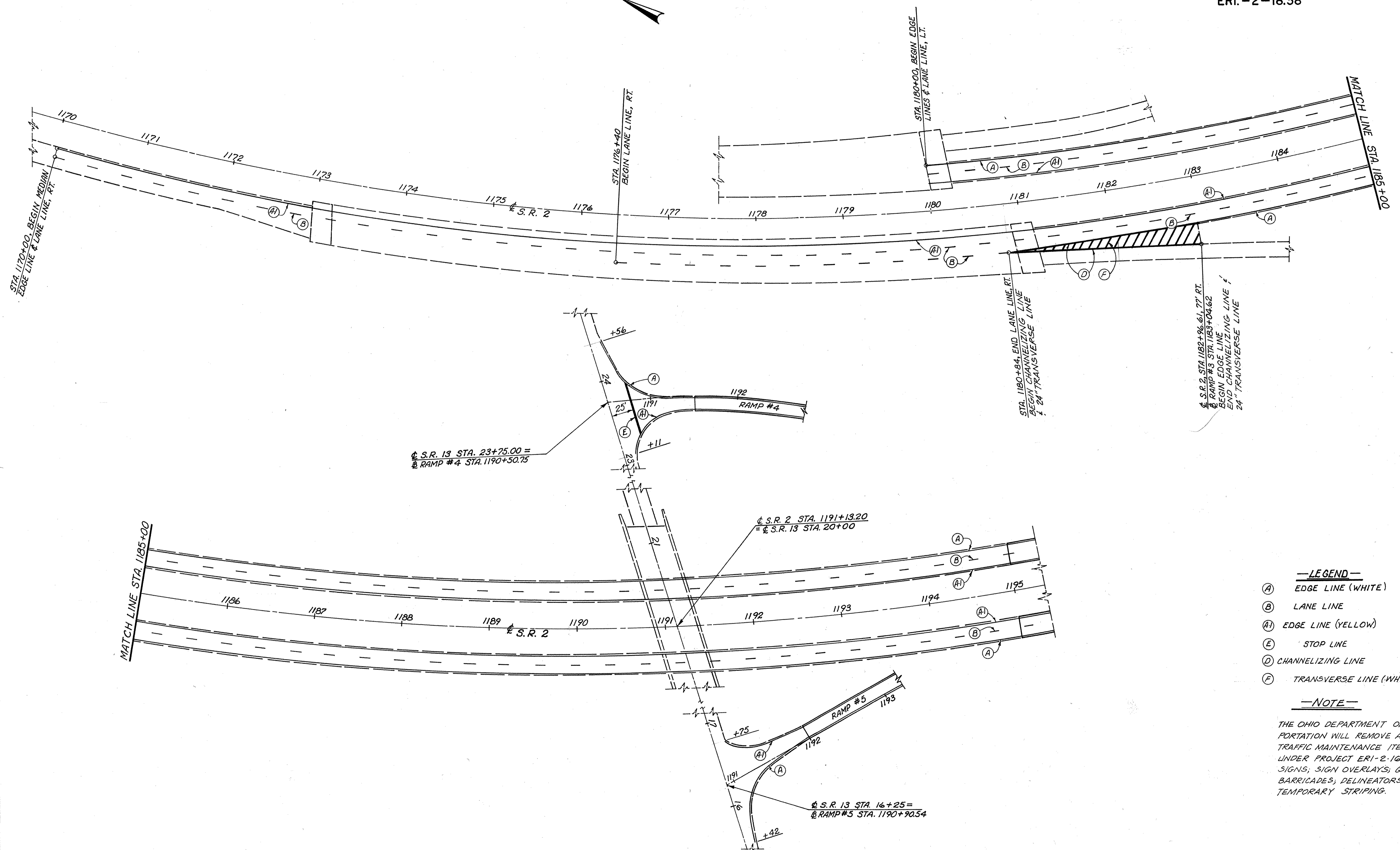
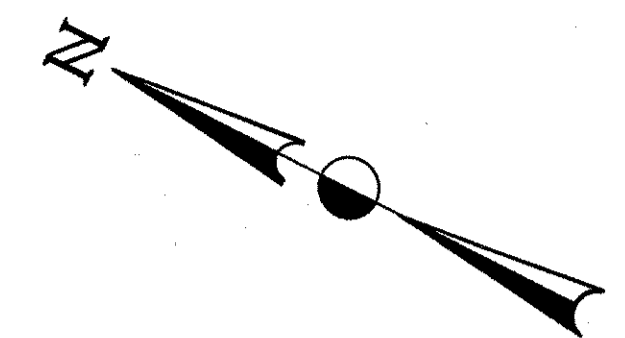
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
W.B.	V.P.	W.S.		

4" Edge lines adjacent to paved medians or curbs shall be offset 12" from the curb face.

- Combination Sign & Light Support
- Light Pole

REV. R.W.H. 11/83  
Revised 6/75

ERIE COUNTY  
ERI.-2-18.38



- LEGEND—**
- (A) EDGE LINE (WHITE)
  - (B) LANE LINE
  - (A1) EDGE LINE (YELLOW)
  - (E) STOP LINE
  - (D) CHANNELIZING LINE
  - (F) TRANSVERSE LINE (WHITE)

**—NOTE—**

THE OHIO DEPARTMENT OF TRANSPORTATION WILL REMOVE ALL INTERIM TRAFFIC MAINTENANCE ITEMS PROVIDED UNDER PROJECT ERI-2-18.38, INCLUDING SIGNS; SIGN OVERLAYS; GUARD RAIL; BARRICADES; DELINEATORS, AND TEMPORARY STRIPING.



ERIE COUNTY  
ERI-2-18.38

BEGIN PROJECT  
ERI-2-18.38  
STA. 1195+00

± S.R. 2 STA 1200+25.01, 77' LT.  
RAMP STA 1200+39.04, 16' RT.  
BEGIN CHANNELIZING LINES  
END EDGE LINES  
BEGIN WHITE TRANSVERSE LINES

STA. 1203+00  
END CHANNELIZING LINES  
END WHITE TRANSVERSE LINES  
BEGIN 4 LANE LINE

STA 1205+00, 66' LT.  
RAMP #4 STA 1205+00  
STA 1205+20  
END 4 LANE LINE

± S.R. 2 STA. 1205+00-79' RT. IS  
BEGIN CHANNELIZING LINE

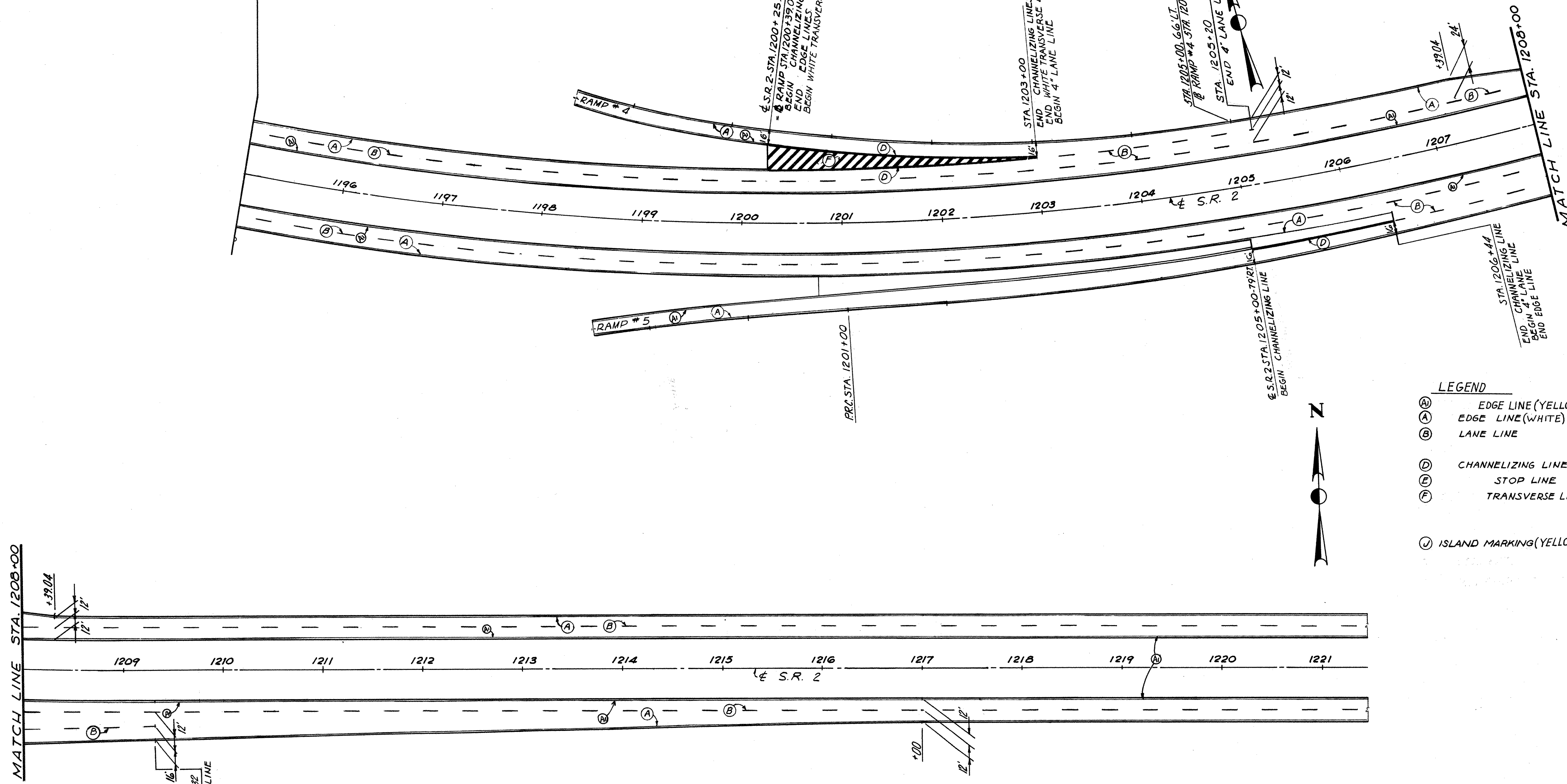
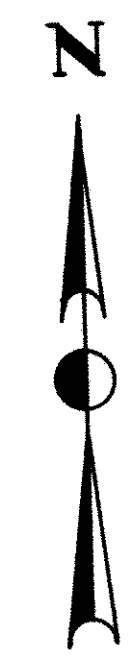
STA. 1206+44  
END CHANNELIZING LINE  
BEGIN 4 LANE LINE  
END EDGE LINE

MATCH LINE STA 1208+00

STA. 1209+32  
END 4 LANE LINE

LEGEND

- (A) EDGE LINE (YELLOW)
- (A) EDGE LINE (WHITE)
- (B) LANE LINE
- (D) CHANNELIZING LINE
- (E) STOP LINE
- (P) TRANSVERSE LINE (WHITE)
- (U) ISLAND MARKING (YELLOW)



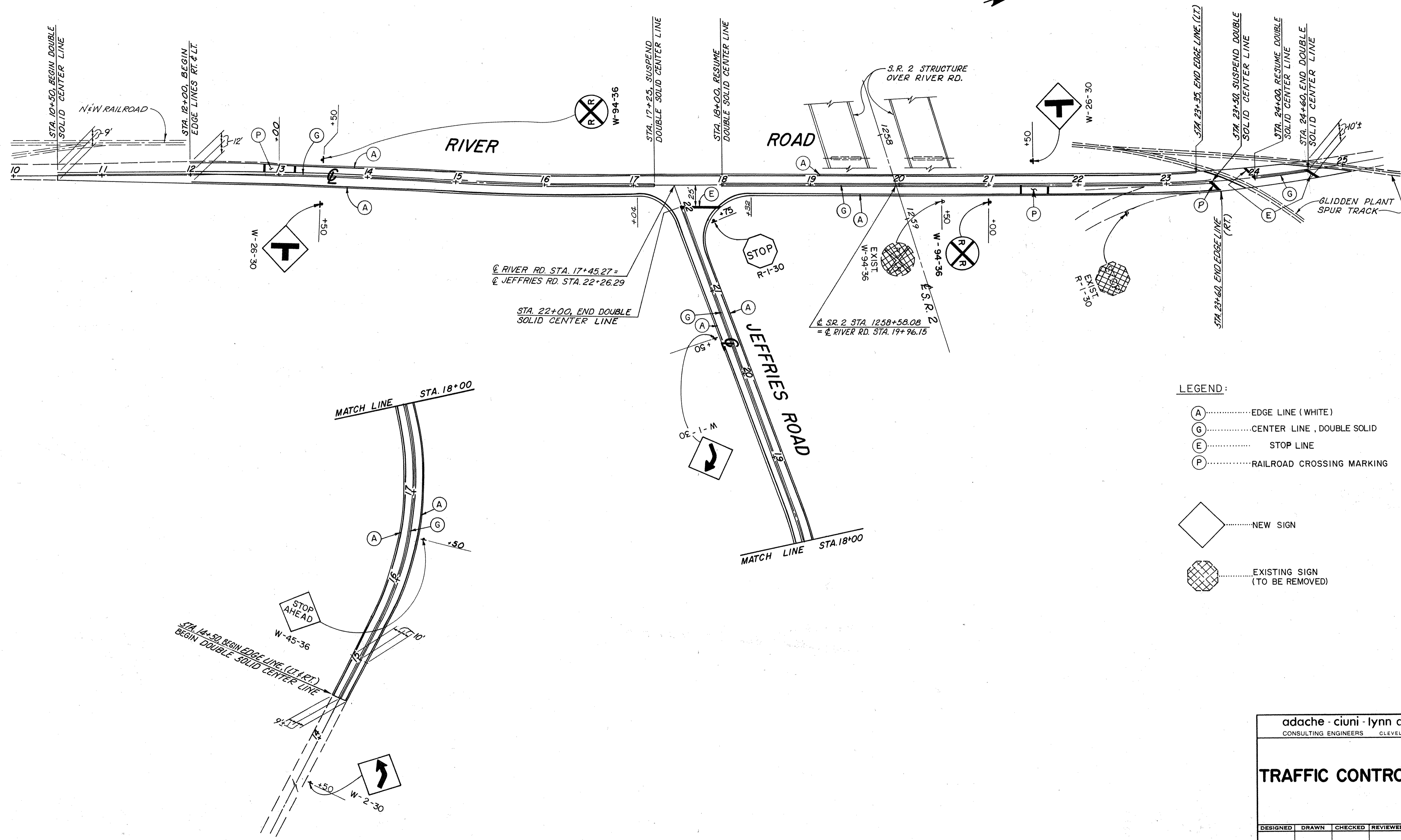
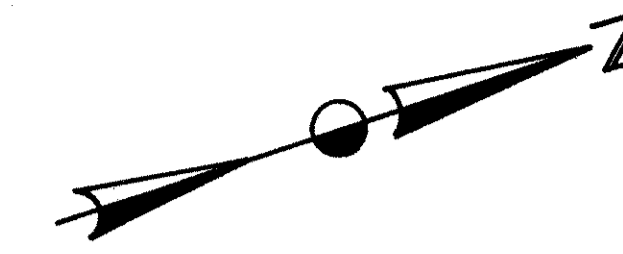
ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

TRAFFIC CONTROL PLAN

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE

REV. R.W.H. 11/88  
Revised 6/75

ERIE COUNTY  
ERI.-2-18.38



- LEGEND:
- (A) ..... EDGE LINE (WHITE)
  - (G) ..... CENTER LINE, DOUBLE SOLID
  - (E) ..... STOP LINE
  - (P) ..... RAILROAD CROSSING MARKING
  - ◇ ..... NEW SIGN
  - ⊗ ..... EXISTING SIGN (TO BE REMOVED)

adache - ciuni - lynn associates  
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

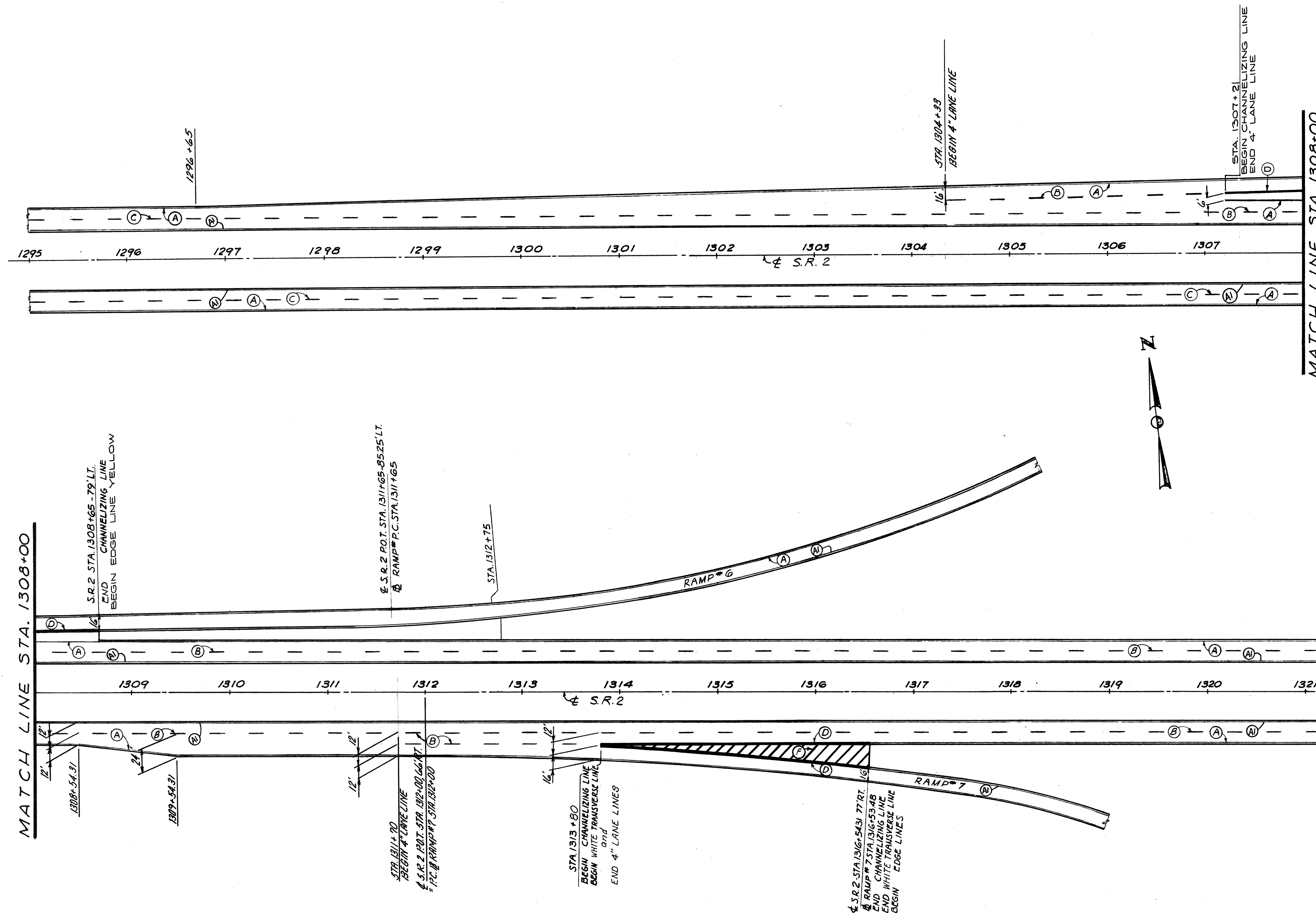
## TRAFFIC CONTROL PLAN

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

257  
324

ERIE COUNTY  
ERI-2-18.38



- LEGEND**
- (A) EDGE LINE (YELLOW)
  - (A) EDGE LINE (WHITE)
  - (B) LANE LINE
  - (D) CHANNELIZING LINE
  - (F) TRANSVERSE LINE (WHITE)

ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

**TRAFFIC CONTROL PLAN**

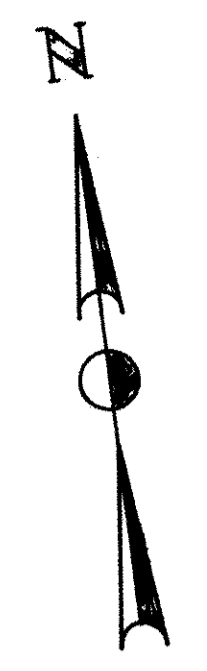
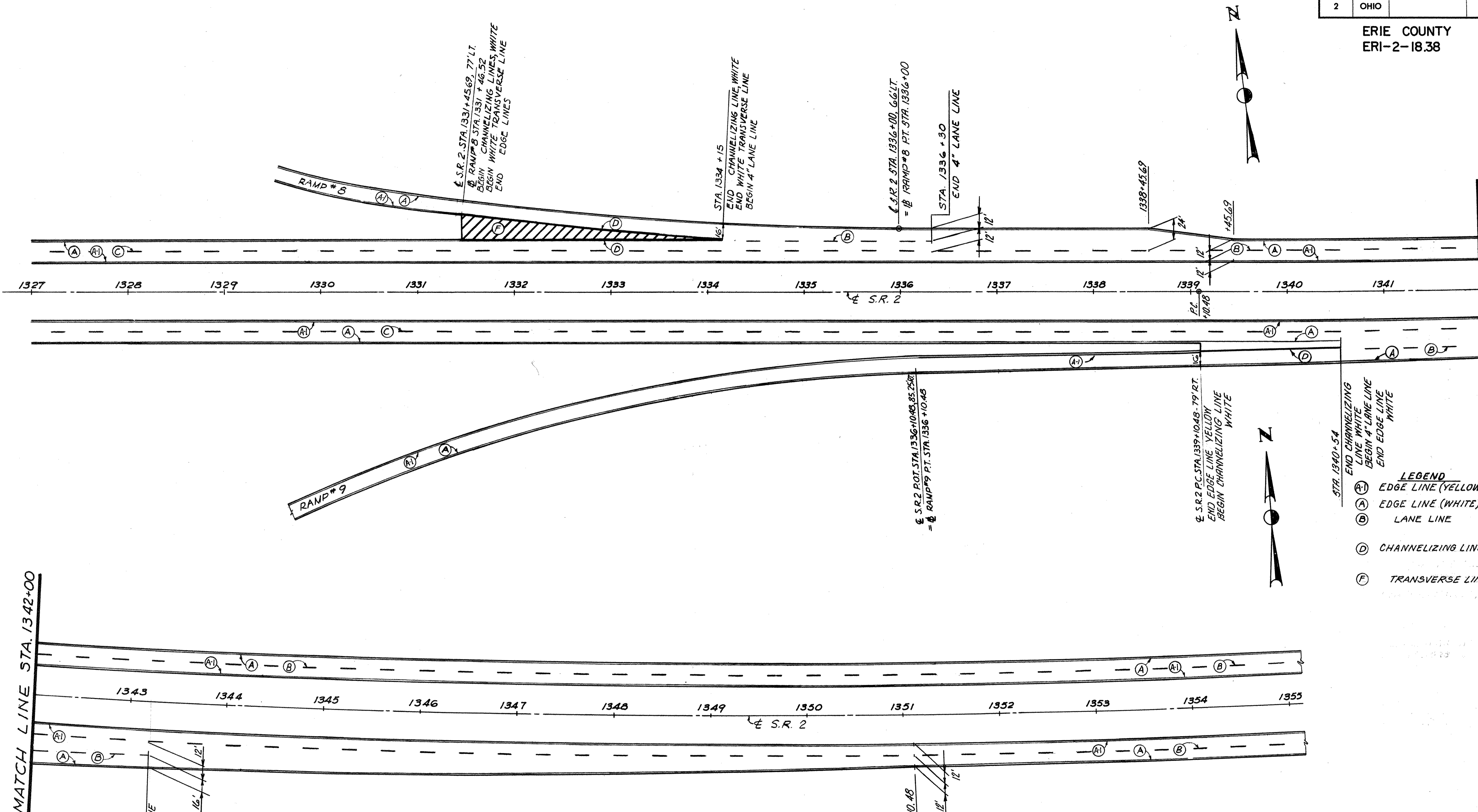
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
N.B.	V.P.	W.S.		

REV. R.W.H. 11/83  
Revised 6/75

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

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326

ERIE COUNTY  
ERI-2-18.38



- LEGEND**
- (A1) EDGE LINE (YELLOW)
  - (A) EDGE LINE (WHITE)
  - (B) LANE LINE
  - (D) CHANNELIZING LINE
  - (F) TRANSVERSE LINE (WHITE)

MATCH LINE STA. 1342+00

MATCH LINE STA. 1342+00

ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

**TRAFFIC CONTROL PLAN**

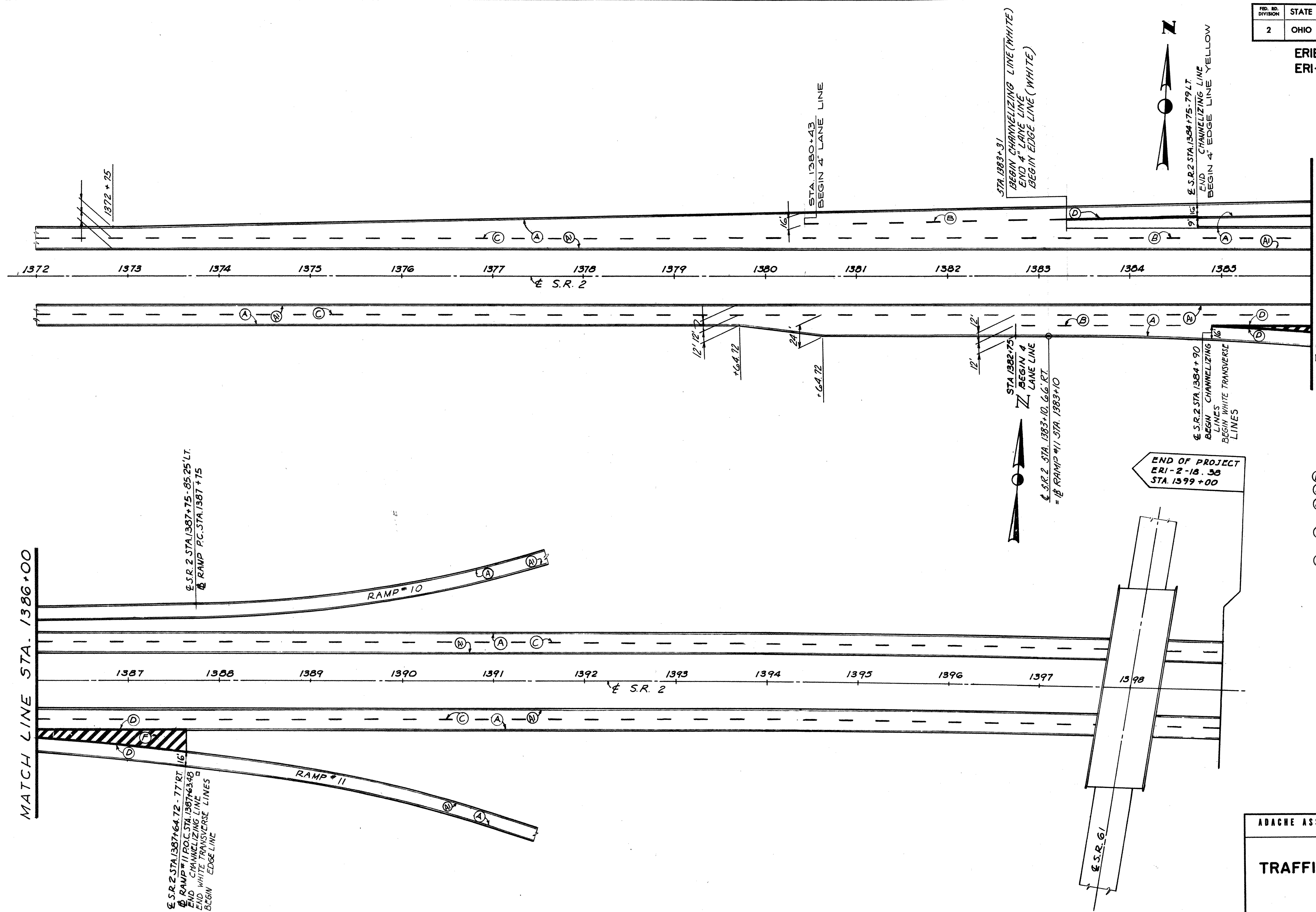
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
W.B.	V.P.	W.S.		

REV. R.W.H. 11/83  
Revised 6/75

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

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326

ERIE COUNTY  
ERI-2-1838



**LEGEND**

- (E) EDGE LINE (YELLOW)
- (A) EDGE LINE (WHITE)
- (B) LANE LINE
- (D) CHANNELIZING LINE
- (F) TRANSVERSE LINES (WHITE)

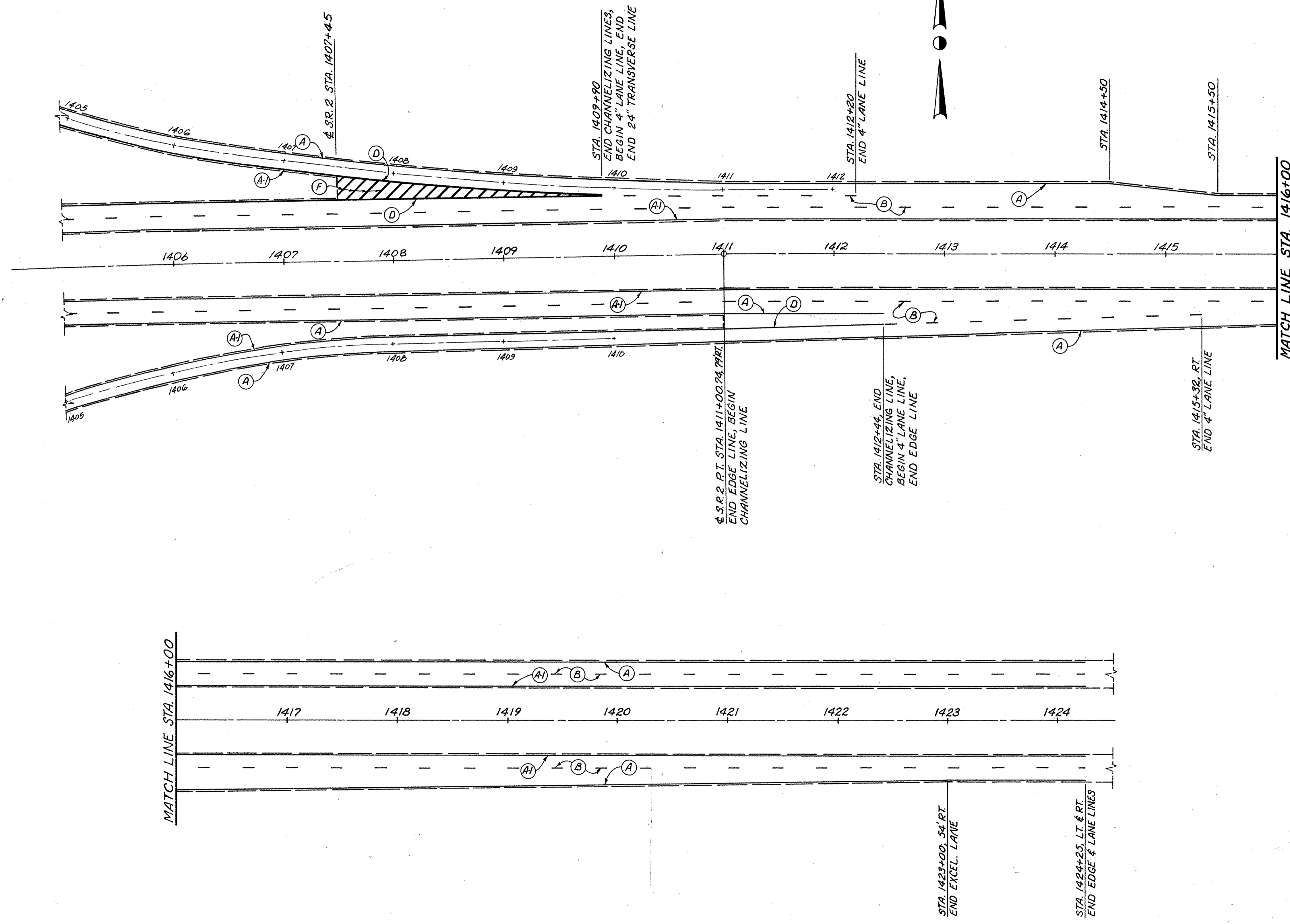
ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

**TRAFFIC CONTROL PLAN**

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
W.B.	V.P.	W.S.		

REV. R.W.H. 11/83  
Revised 6/75

ERIE COUNTY  
ERI.-2-18.38

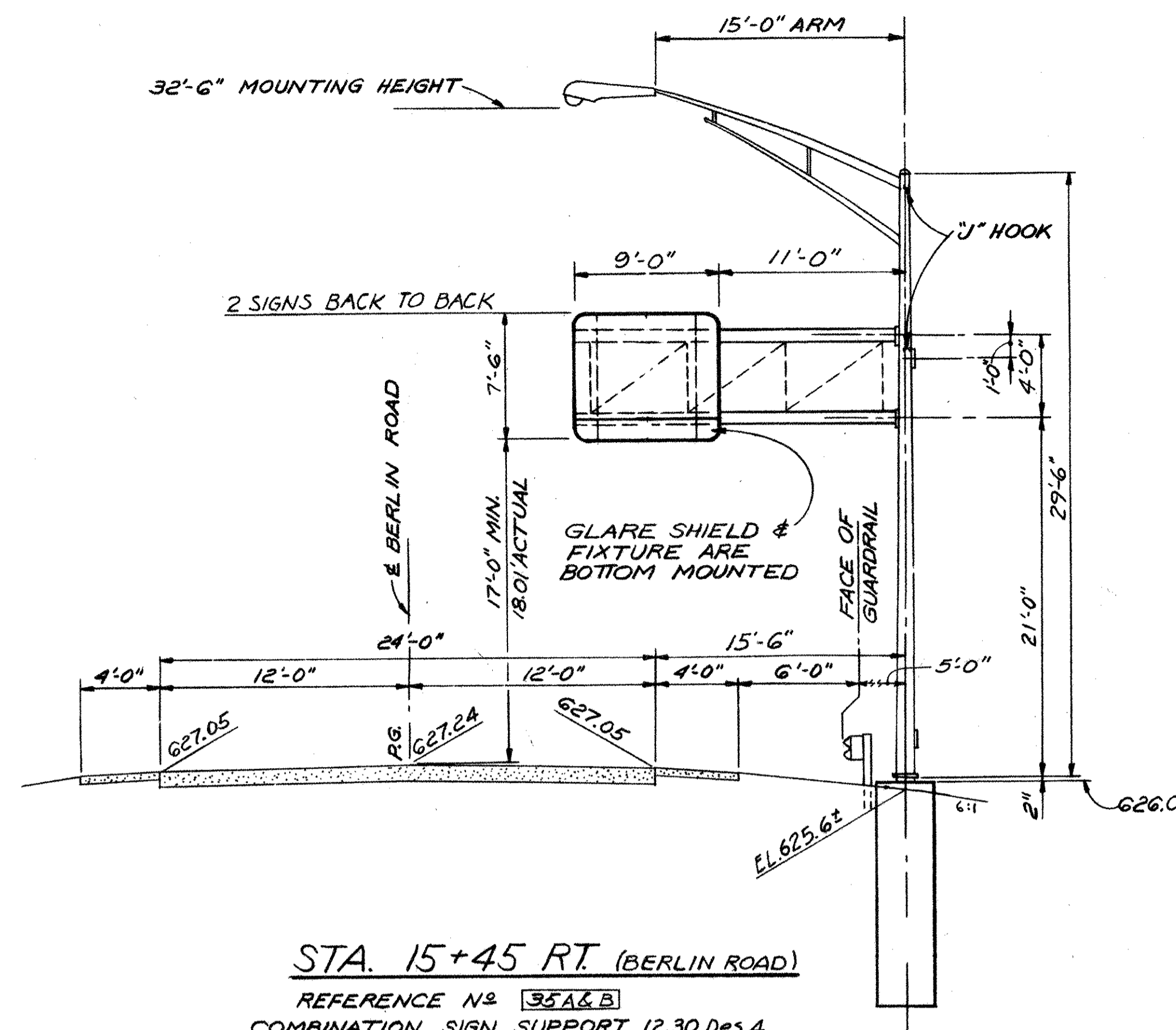


- LEGEND—
- (A-1) EDGE LINE (YELLOW)
  - (A) EDGE LINE (WHITE)
  - (B) LANE LINE
  - (D) CHANNELIZING LINE
  - (F) TRANSVERSE LINE (WHITE)

—NOTE—

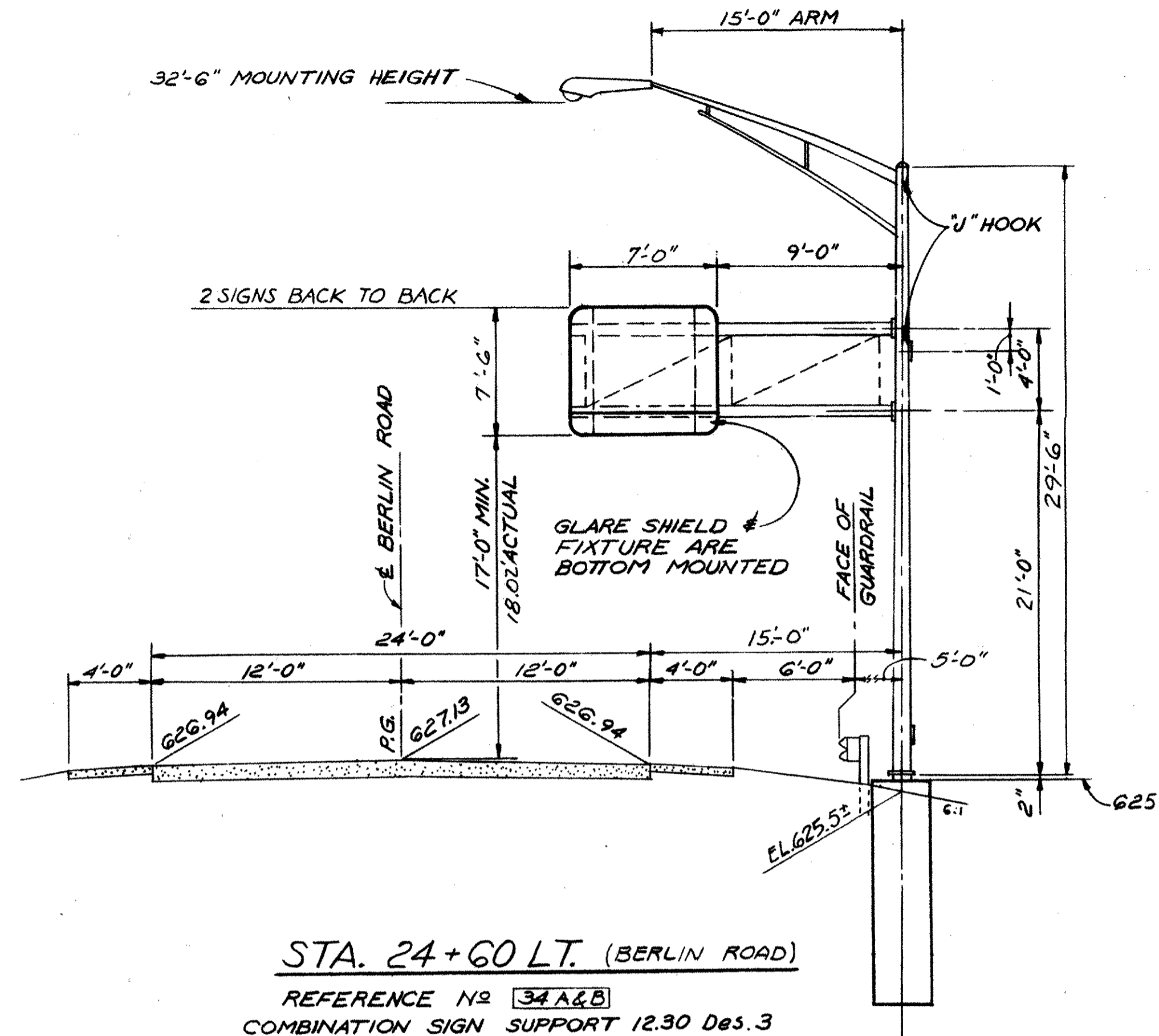
THE OHIO DEPARTMENT OF TRANSPORTATION WILL REMOVE THE ADVANCE INTERIM ROAD END SIGNS, SIGN OVERLAYS AND STRIPING NOT INCLUDED AS A PAY ITEM FOR THIS PROJECT.

ERIE COUNTY  
ERI-2-18.38



STA. 15+45 RT. (BERLIN ROAD)

REFERENCE N<sup>o</sup> 35A&B  
COMBINATION SIGN SUPPORT 12.30 Des.4  
2 BRACKETS EACH SIGN, 20' Arm

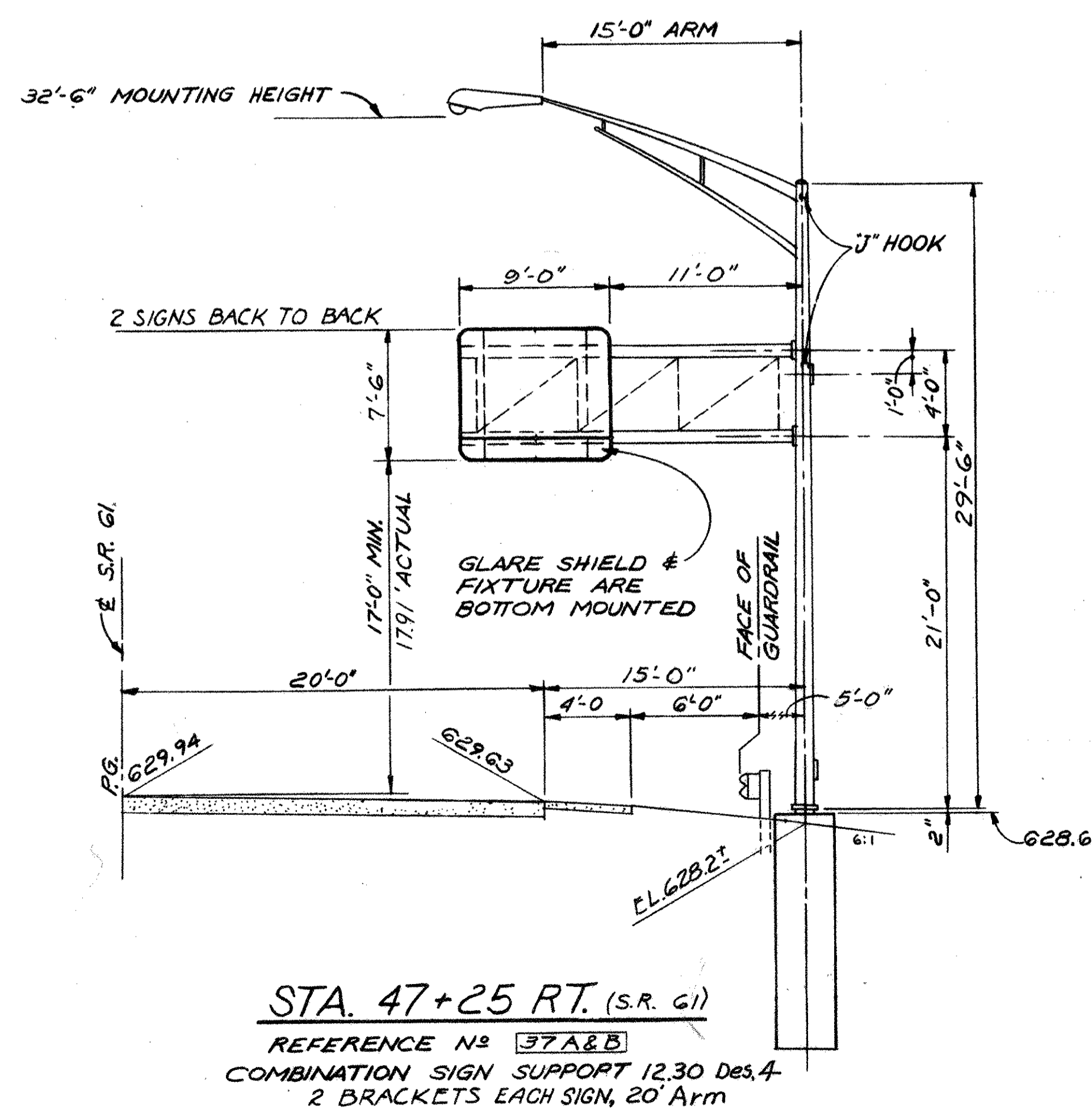


STA. 24+60 LT. (BERLIN ROAD)

REFERENCE N<sup>o</sup> 34A&B  
COMBINATION SIGN SUPPORT 12.30 Des.3  
2 BRACKETS EACH SIGN, 16' Arm

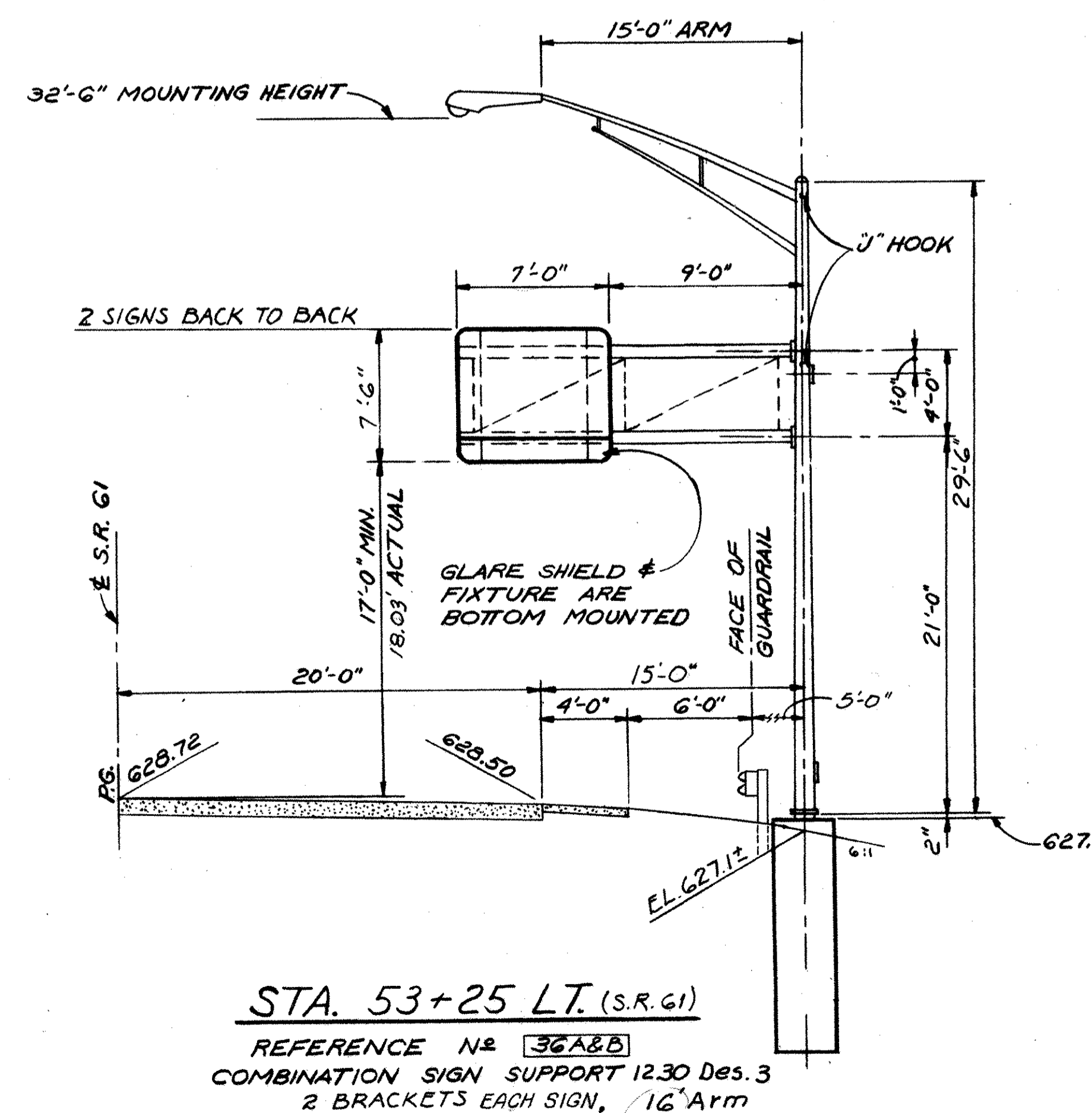
**NOTES**  
LIGHTING BRACKET ARM, LUMINAIRE, LAMP AND POLE & BRACKET CABLE ARE INCLUDED WITH HIGHWAY LIGHTING QUANTITIES. SHEET N<sup>o</sup> 278.

FOR OVERHEAD SIGN SUPPORT DETAILS SEE STANDARD CONSTRUCTION DRAWING TC-12.30. FOR FOUNDATION DETAILS SEE TC-21.20. FOR SIGN BRACKETS DETAILS SEE TC-22.20. FOR MODIFICATION OF POLE TO SUPPORT ROADWAY LIGHTING SEE TC-22.10. FOR MERCURY VAPOR SIGN LIGHTING DETAILS SEE TC-31.20 OR 31.21. FOR SIGN SERVICE DETAILS SEE TC-32.10.



STA. 47+25 RT. (S.R. 61)

REFERENCE N<sup>o</sup> 37A&B  
COMBINATION SIGN SUPPORT 12.30 Des.4  
2 BRACKETS EACH SIGN, 20' Arm



STA. 53+25 LT. (S.R. 61)

REFERENCE N<sup>o</sup> 36A&B  
COMBINATION SIGN SUPPORT 12.30 Des.3  
2 BRACKETS EACH SIGN, 16' Arm

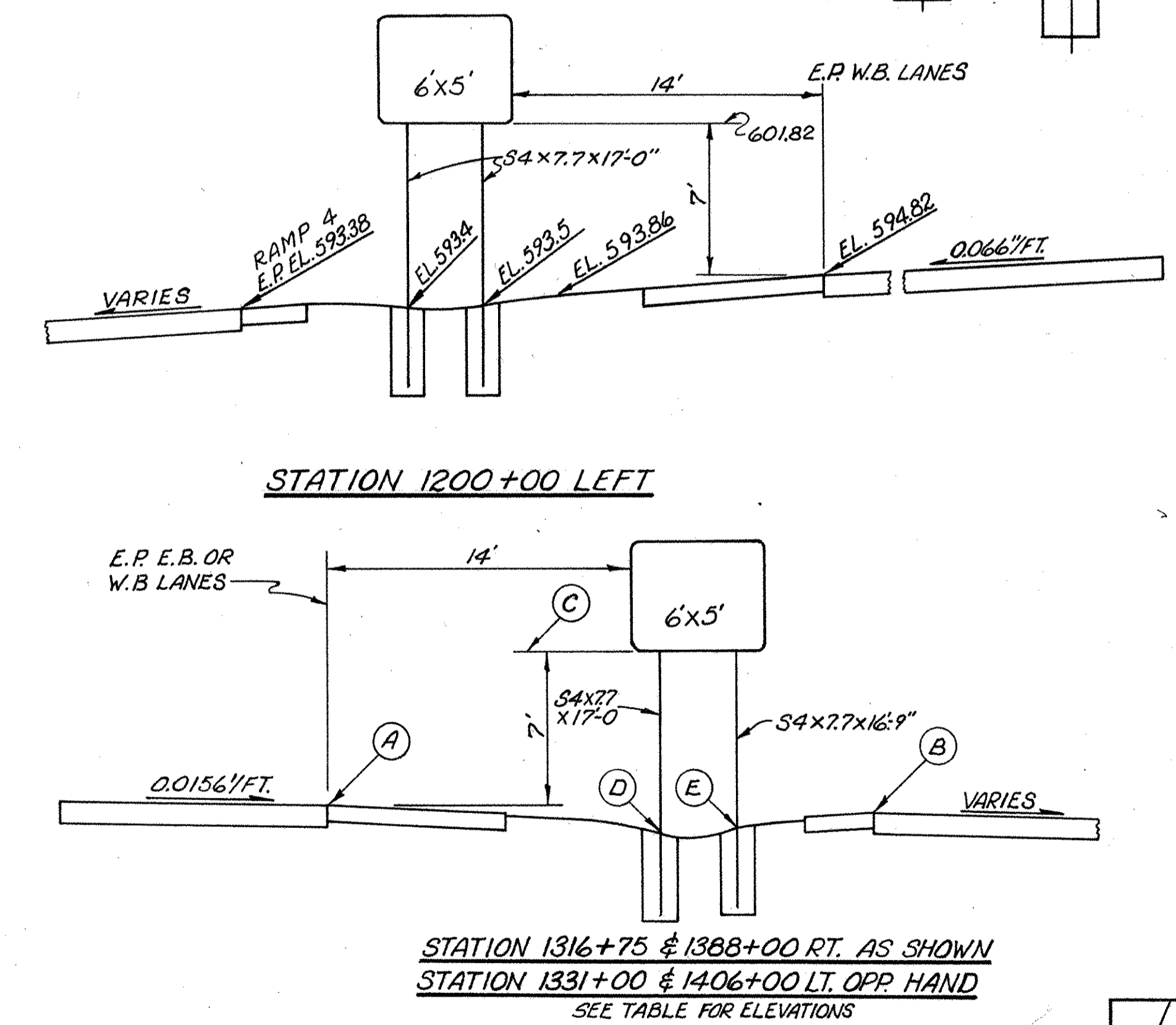
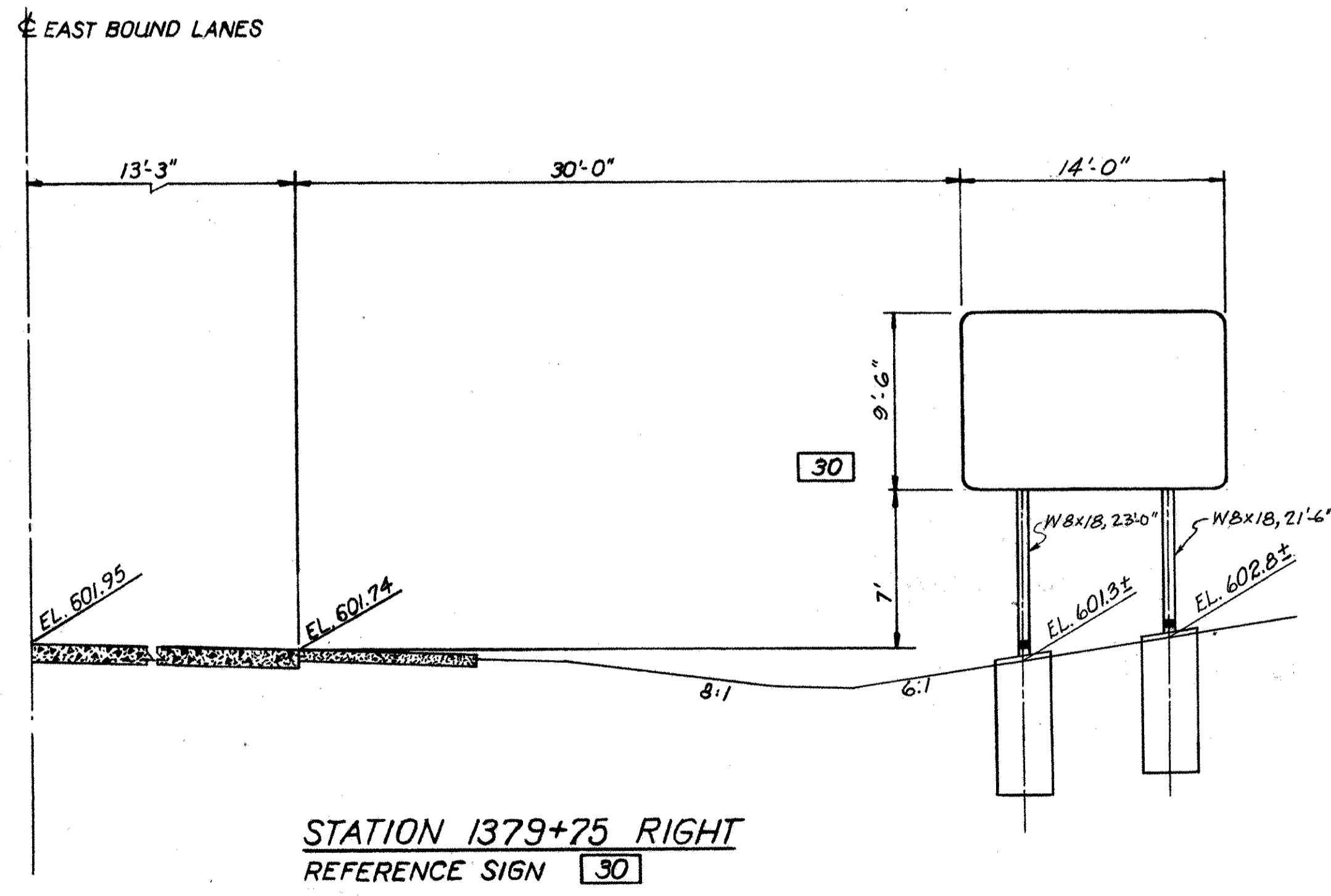
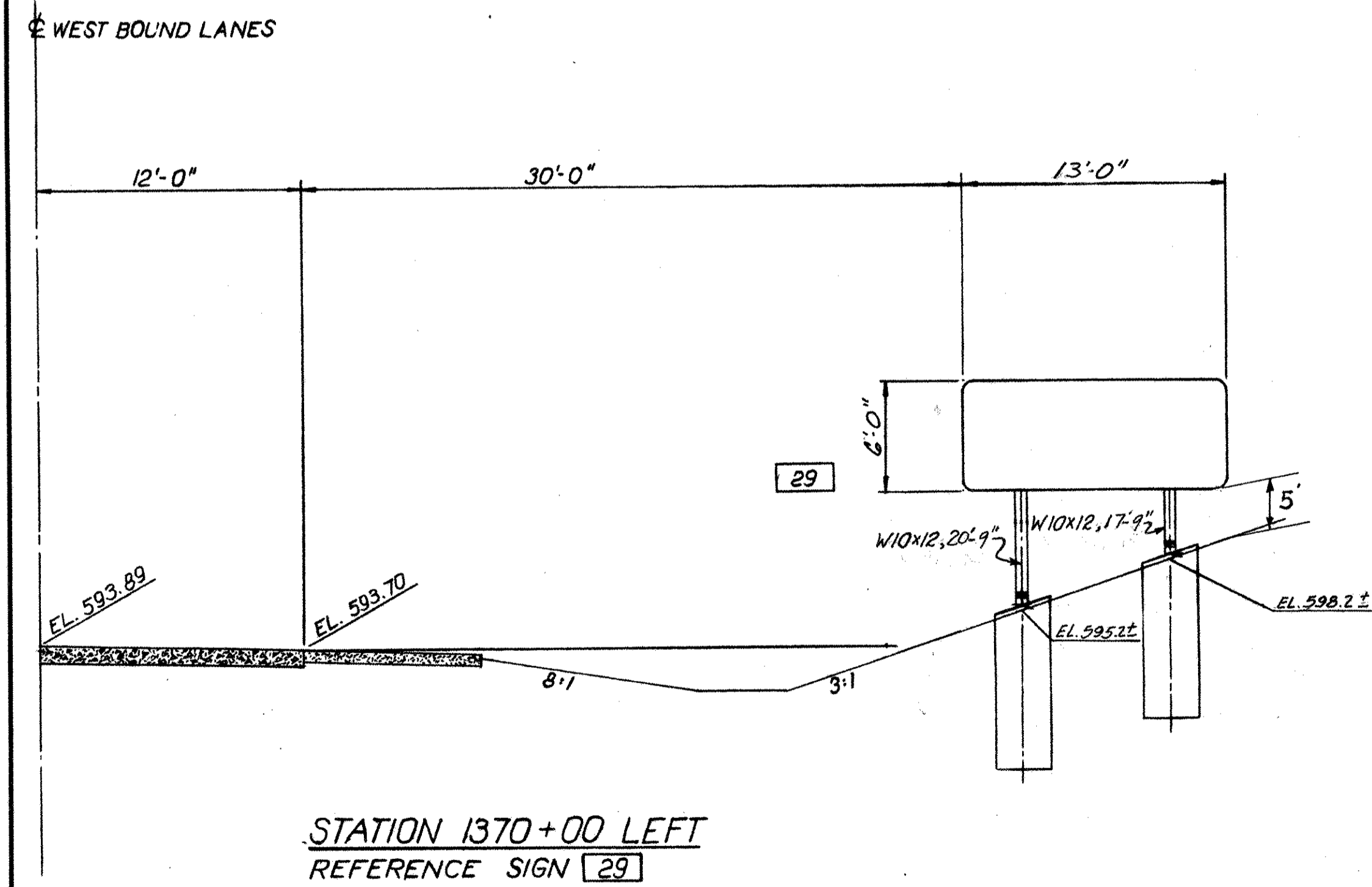
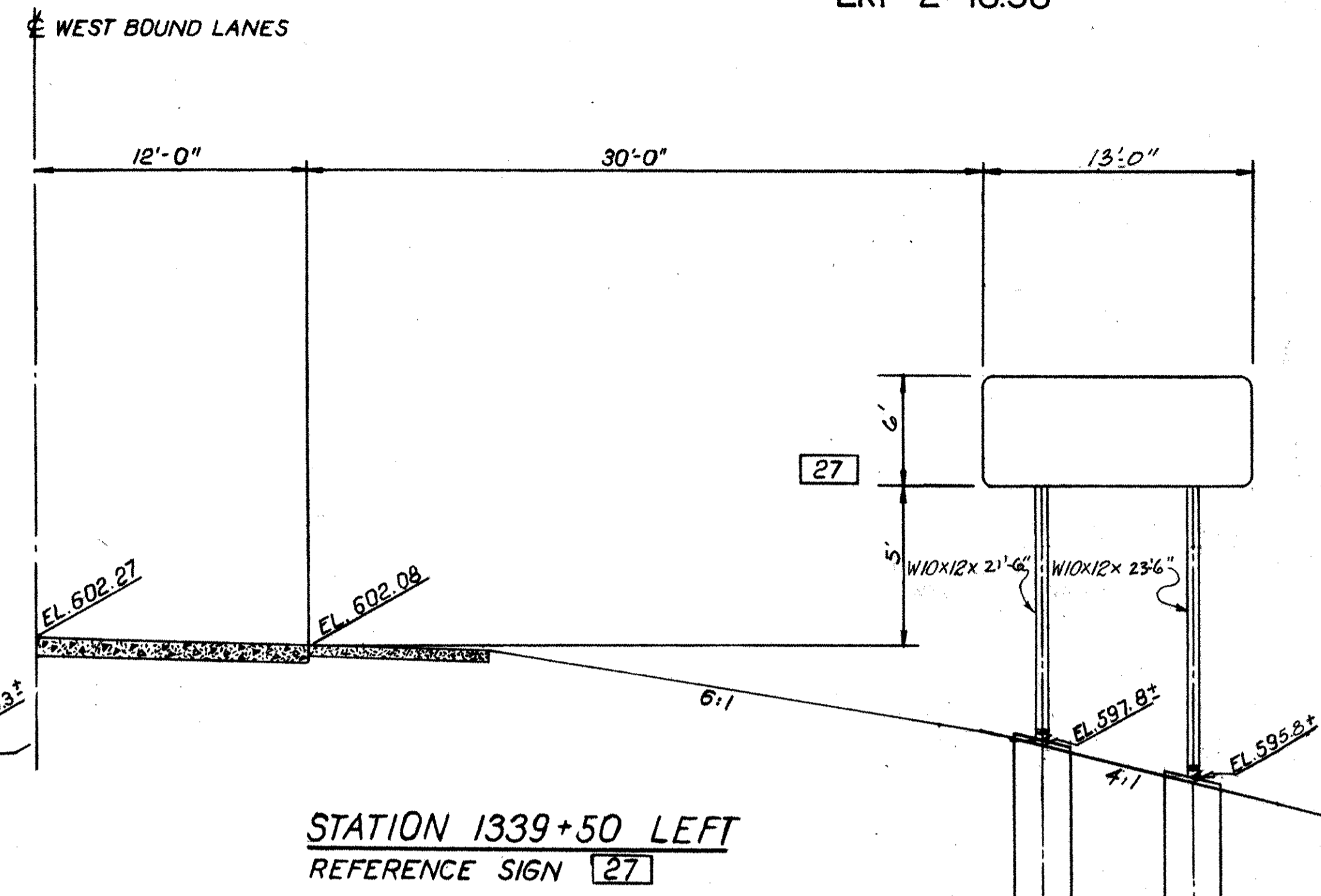
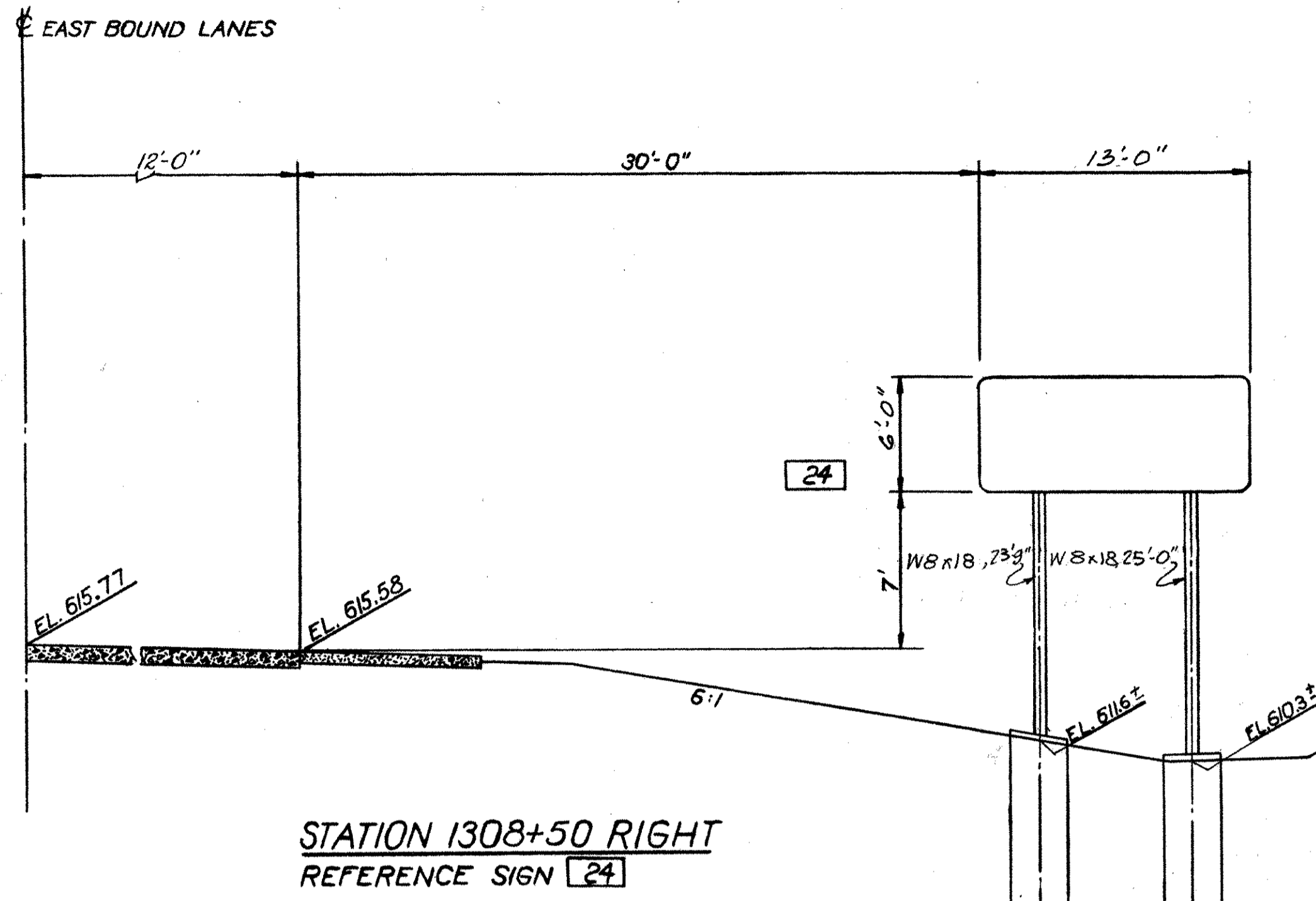
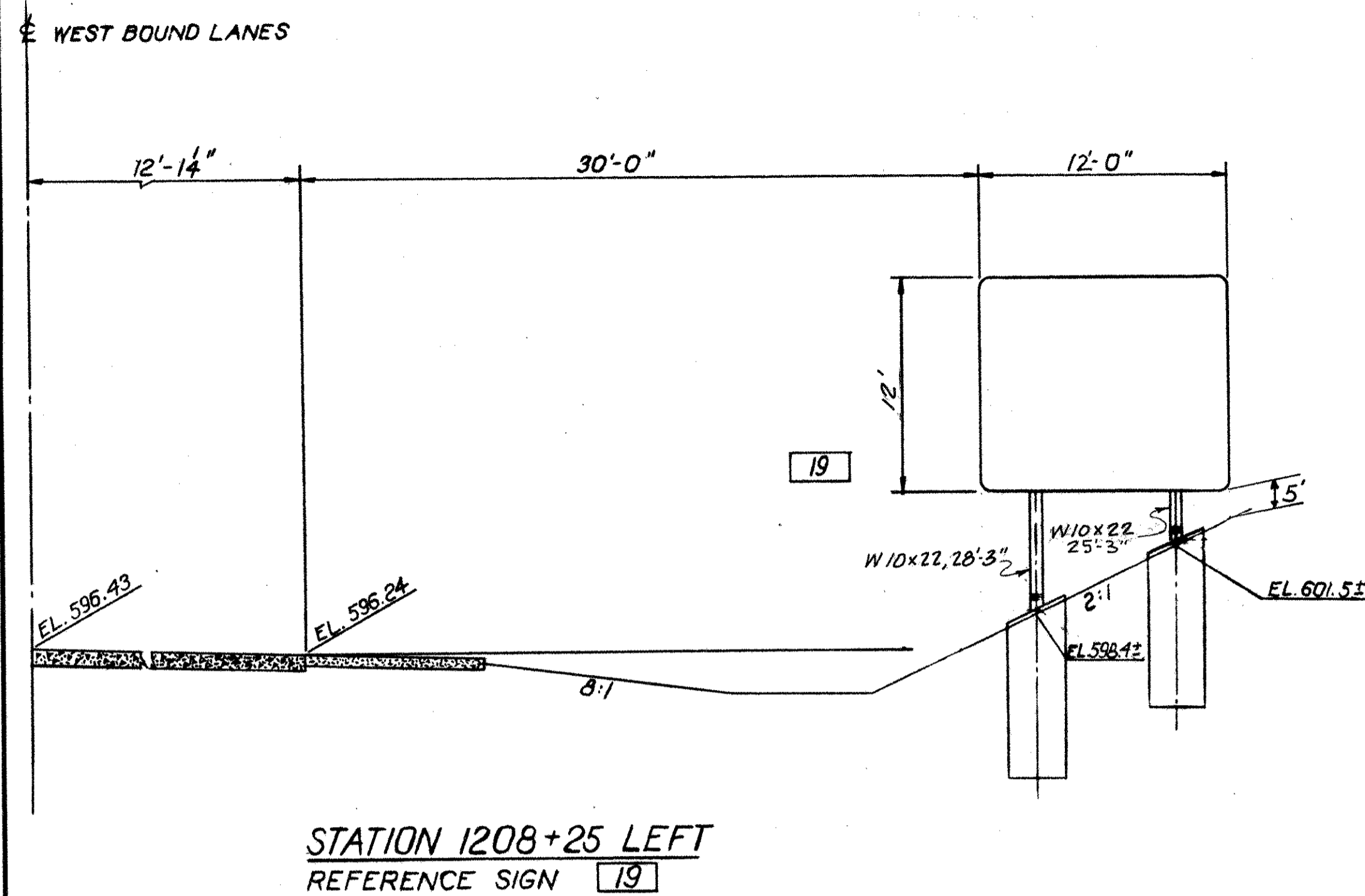
ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

TRAFFIC CONTROL PLAN  
OVERHEAD SIGN DETAILS

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
W.B.	V.P.	W.S.			

REV. R.W.H. 11/83  
Revised 6/75

ERIE COUNTY  
ERI-2-18.38



LOCATION STATION	S.R. 2 E. OF P.	RAMP E. OF P.	BOTTOM OF SIGN	GROUND	
	A	B	C	D	E
1316+75	612.95	612.66	619.95	611.75±	612.0±
1331+00	607.82	607.18	614.82	606.6±	606.9±
1388+00	606.09	605.67	613.09	604.8±	605.0±
1406+96	615.93	615.57	622.73	614.7±	614.9±

ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

### TRAFFIC CONTROL PLAN SIGN DETAILS

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED

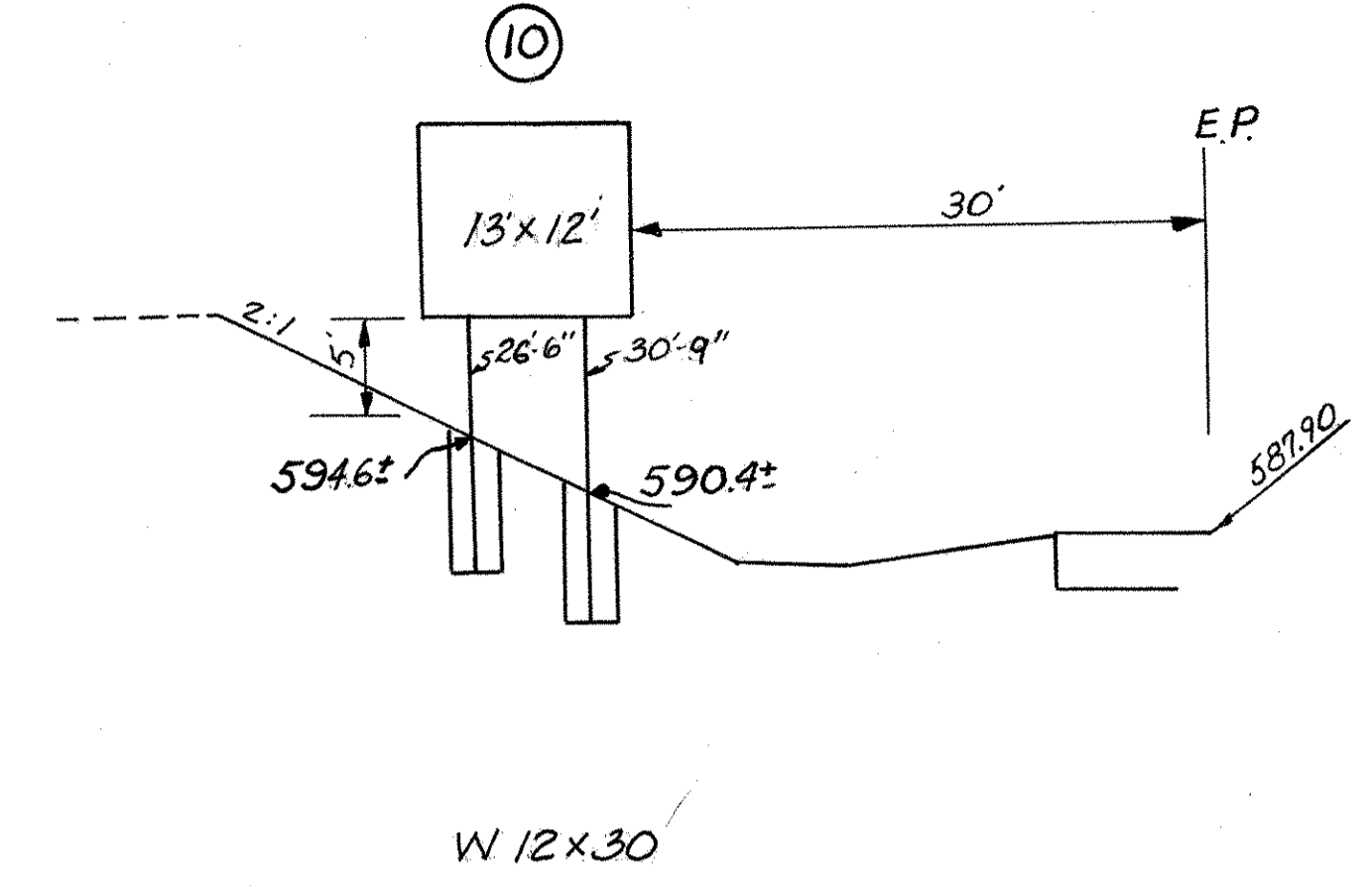
REV. R.W.H. 11/83  
Revised 6/75



FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

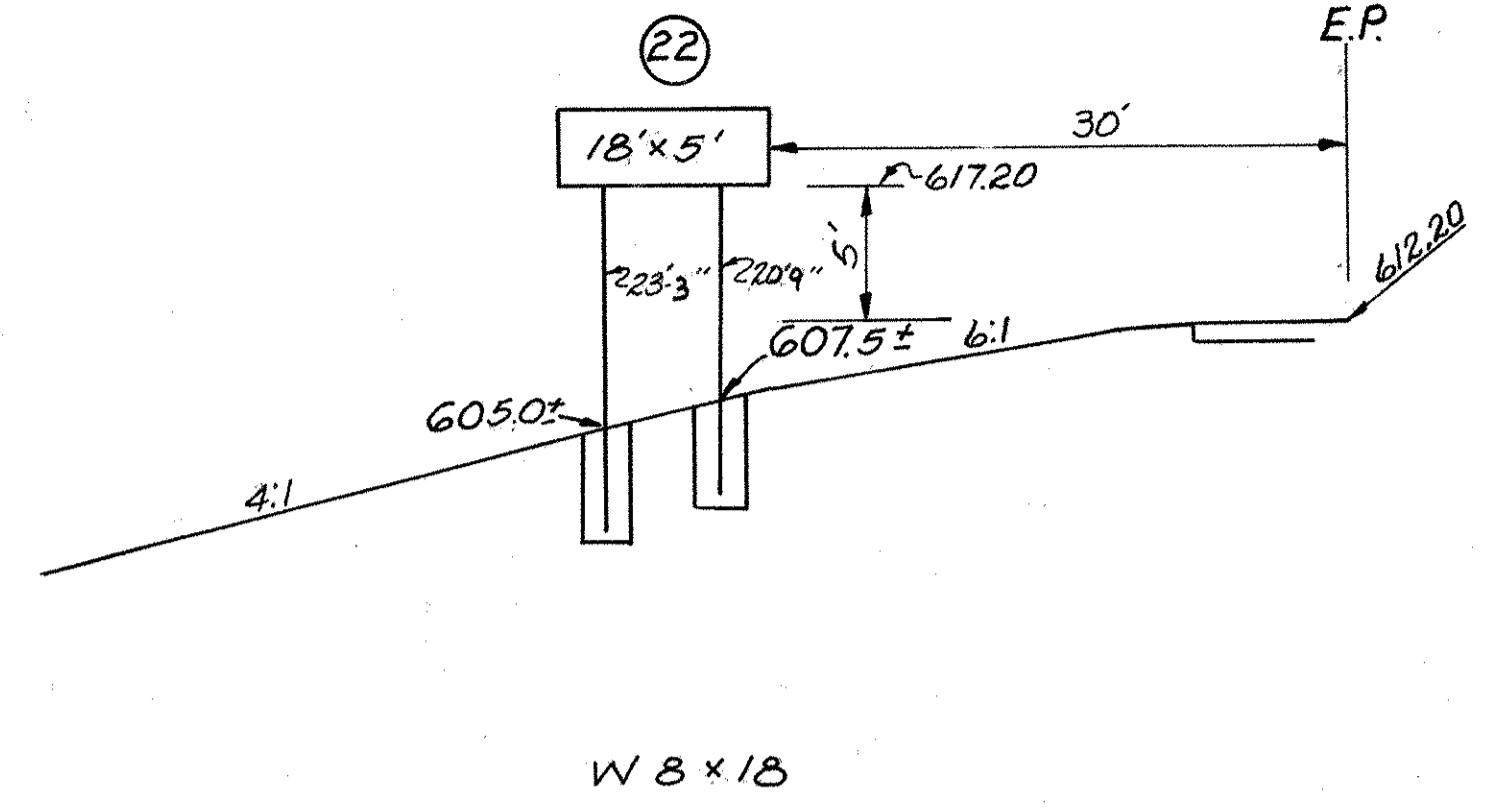
263  
326

ERIE COUNTY  
ERI-2-18.38



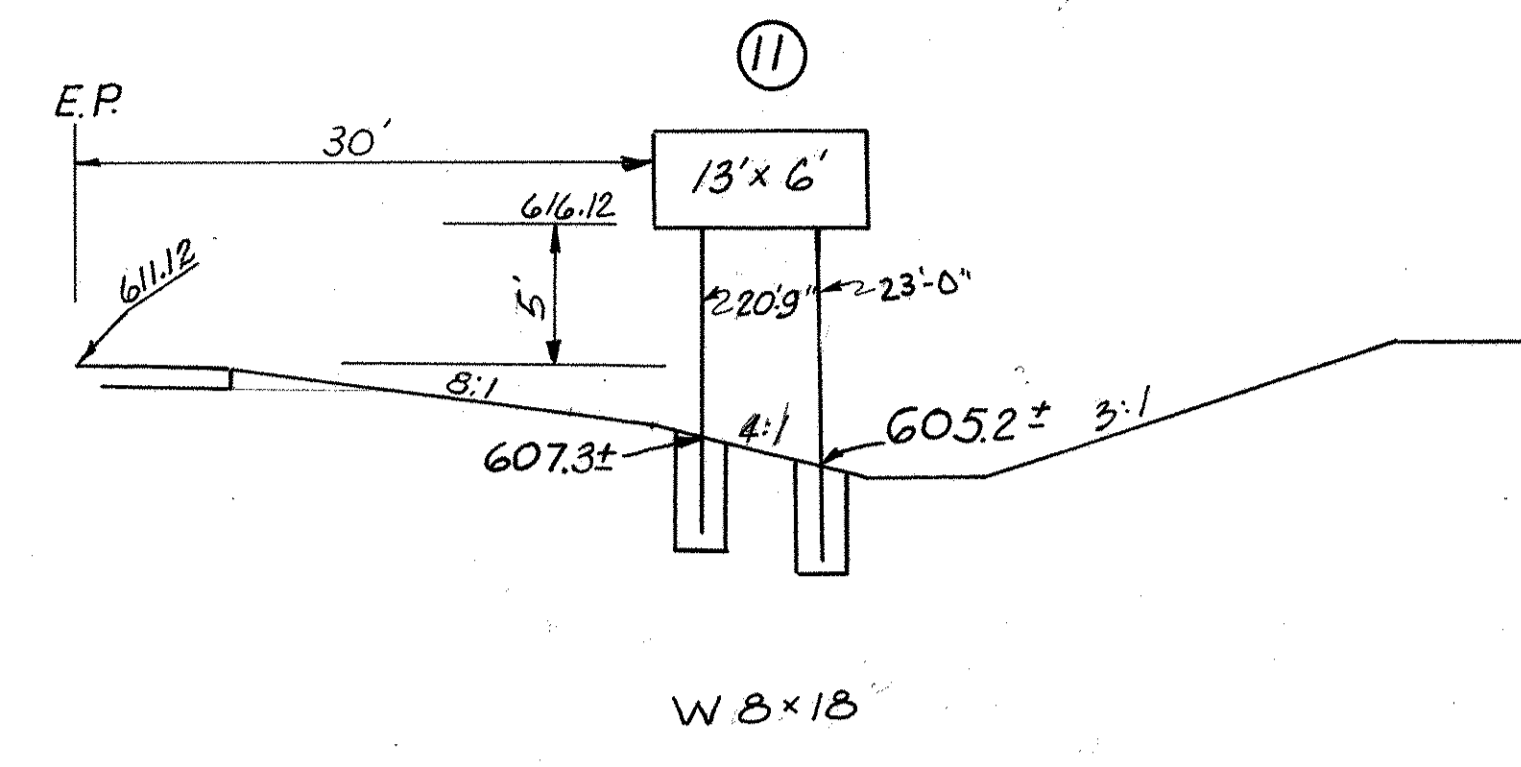
W 12 x 30

1230+00 LT.



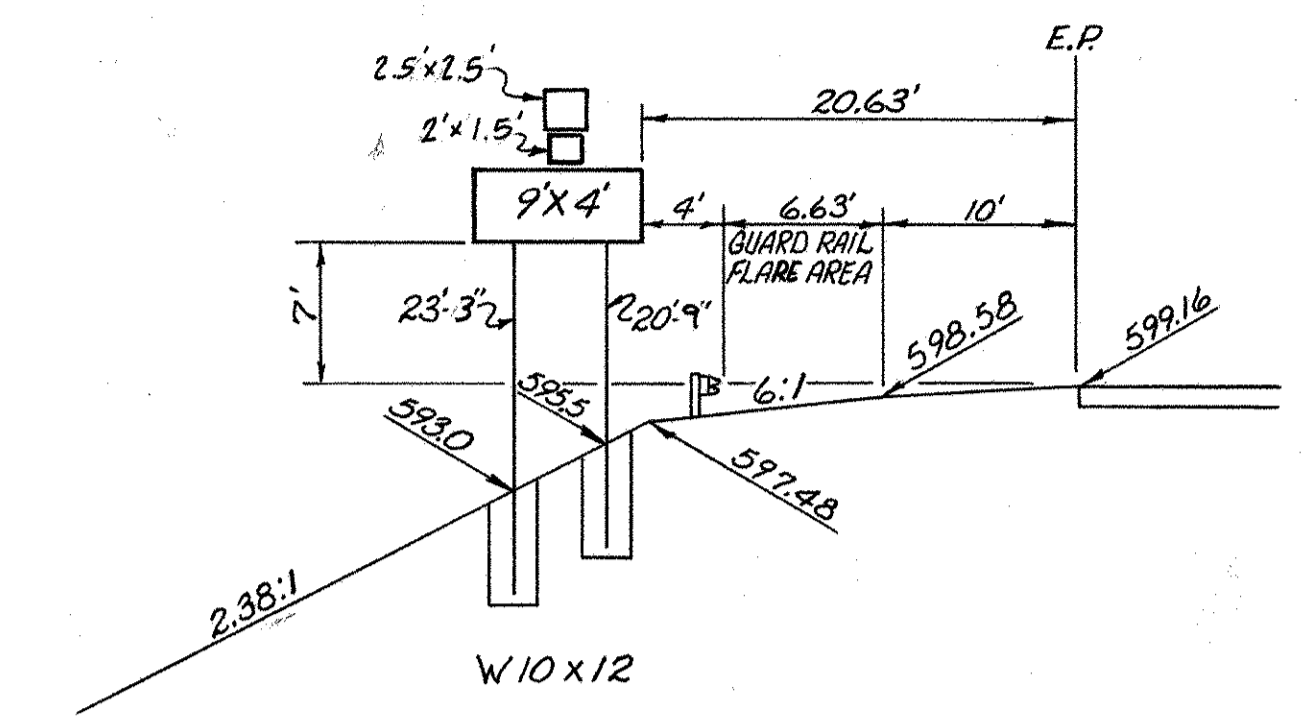
W 8 x 18

1272+00 LT.



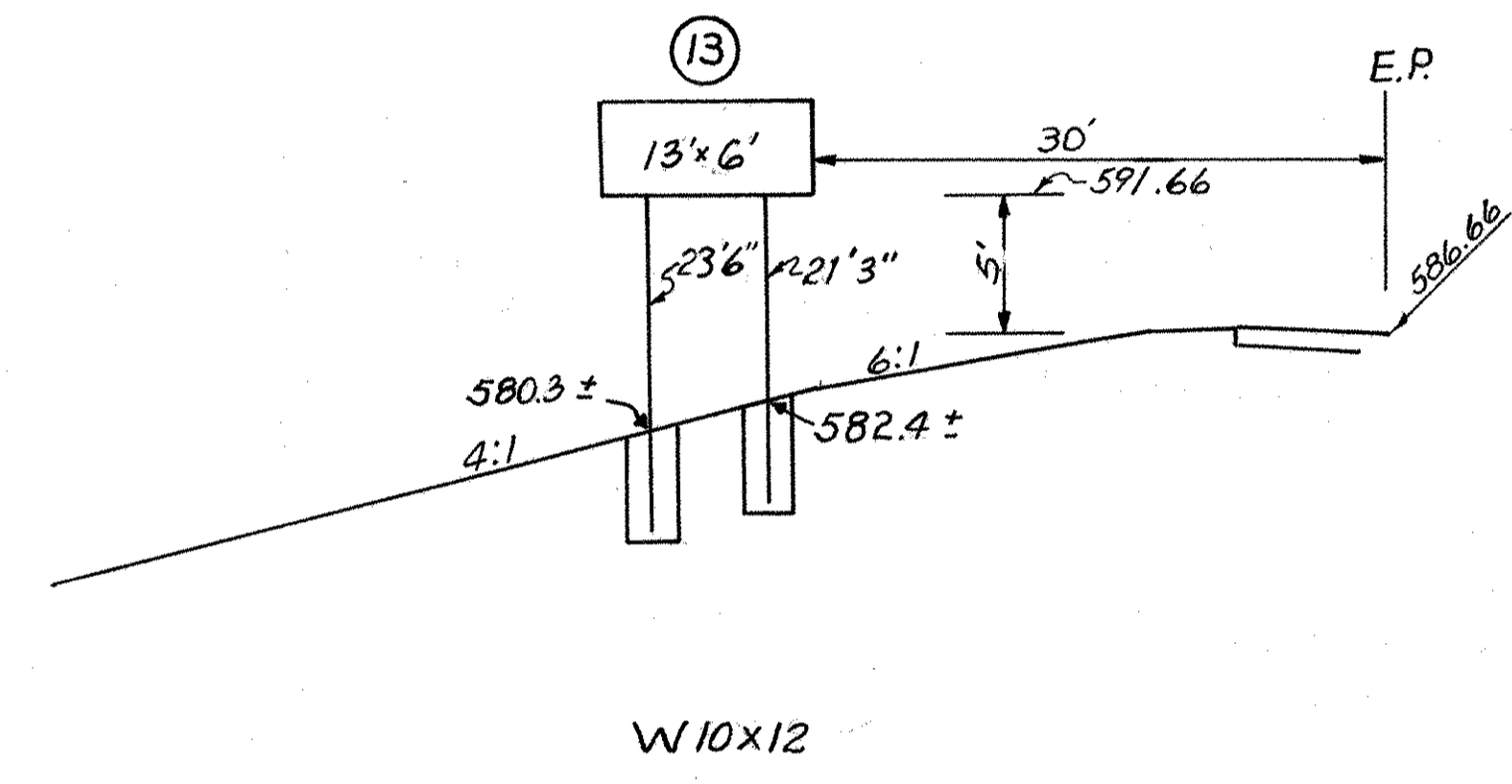
W 8 x 18

1291+40 RT.



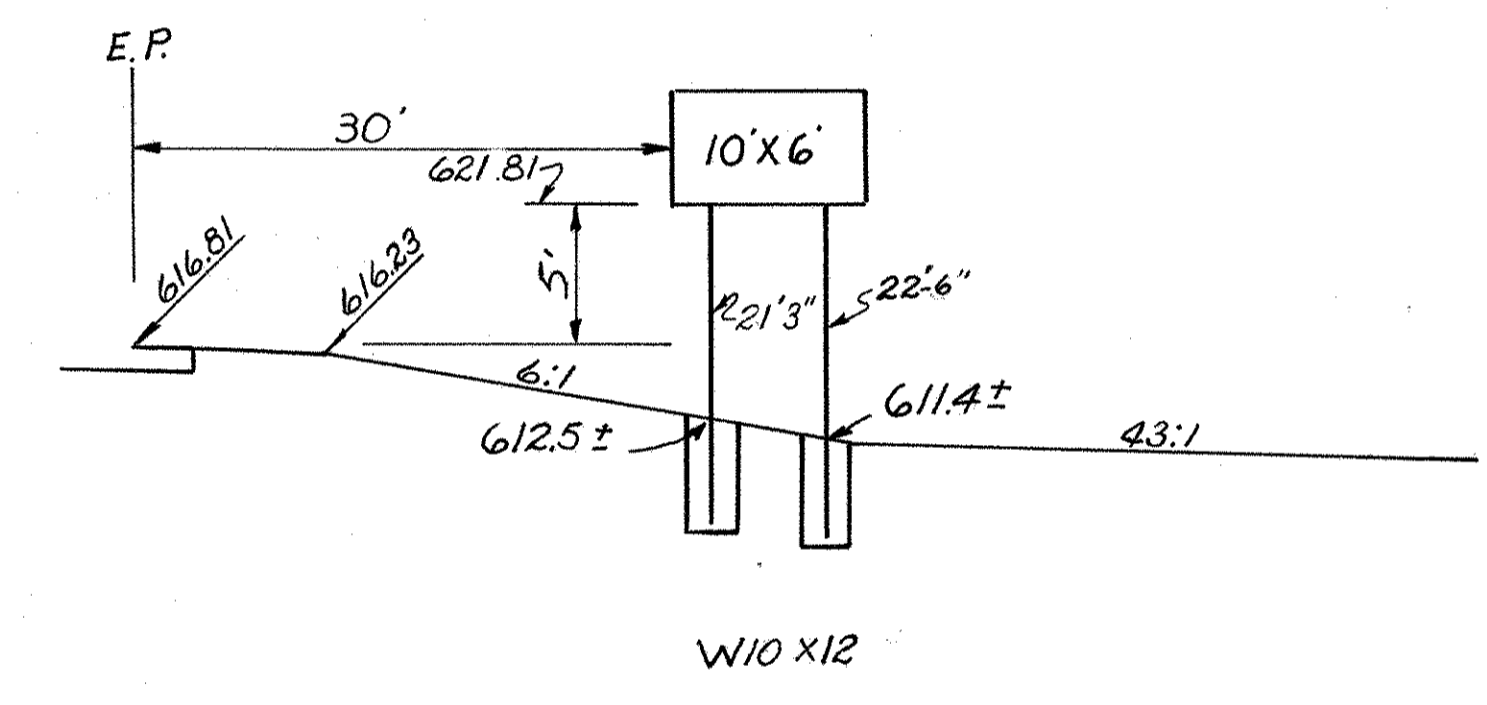
W 10 x 12

1195+75 LT. RAMP NO 4



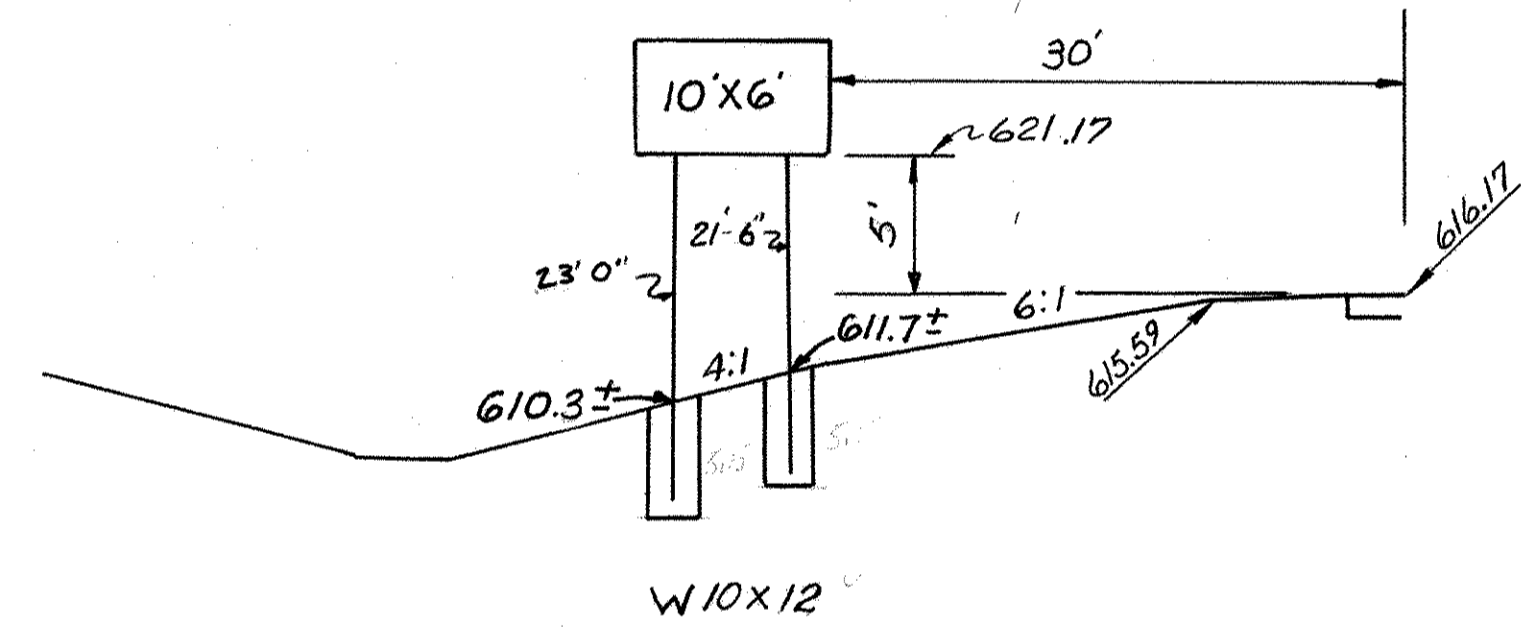
W 10 x 12

1357+80 LT.



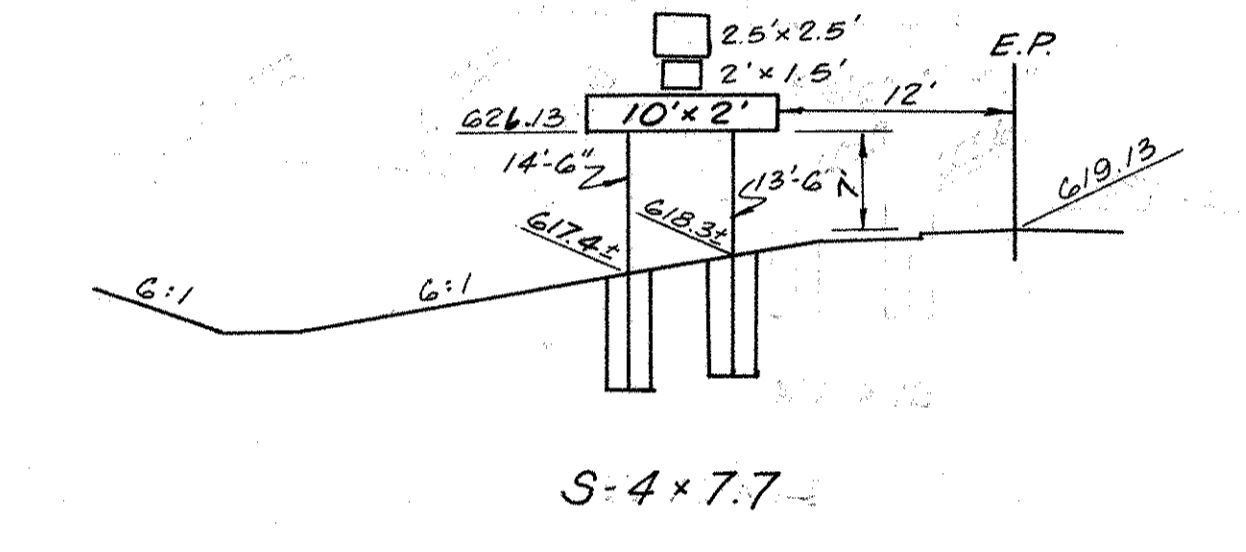
W 10 x 12

1321+50 Ramp 7 RT.



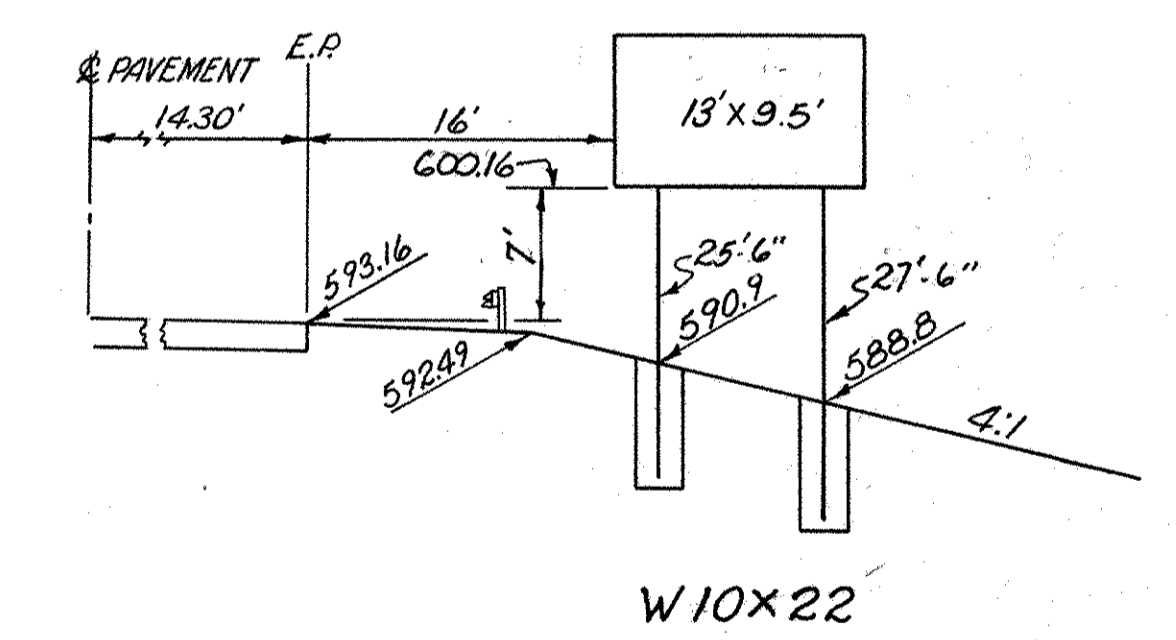
W 10 x 12

1325+00 Ramp 8 LT.



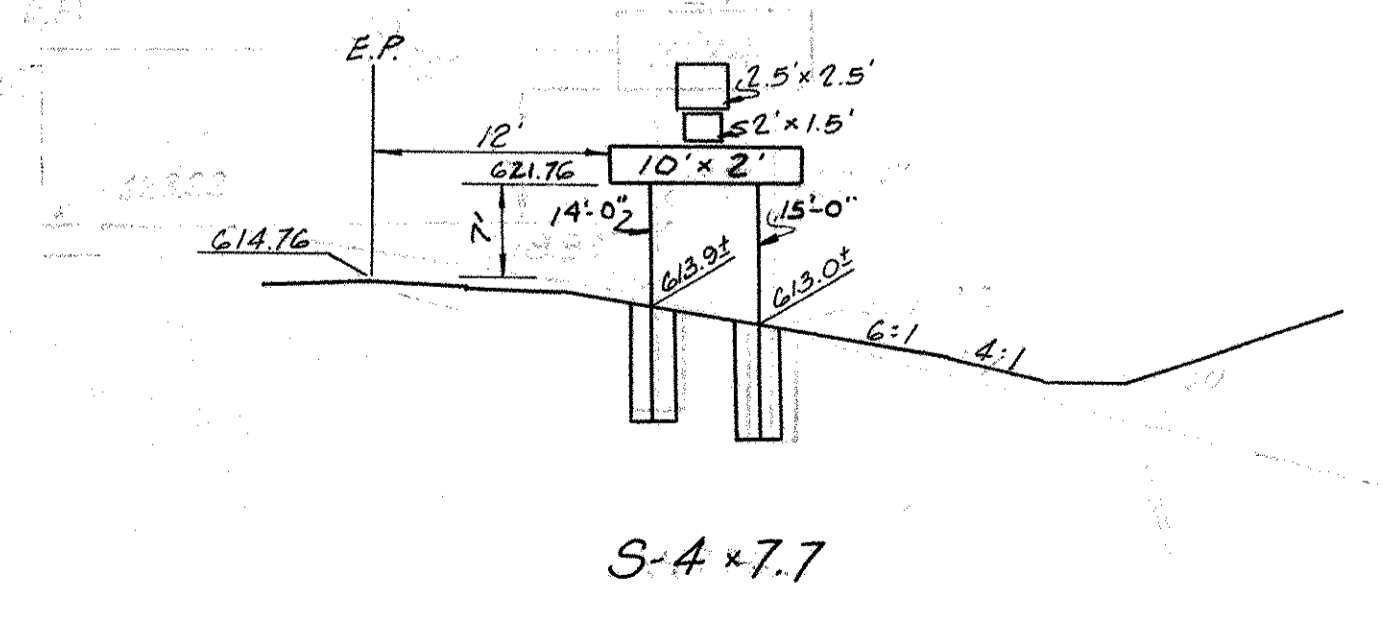
S-4 x 7.7

1402+50 Ramp C LT.



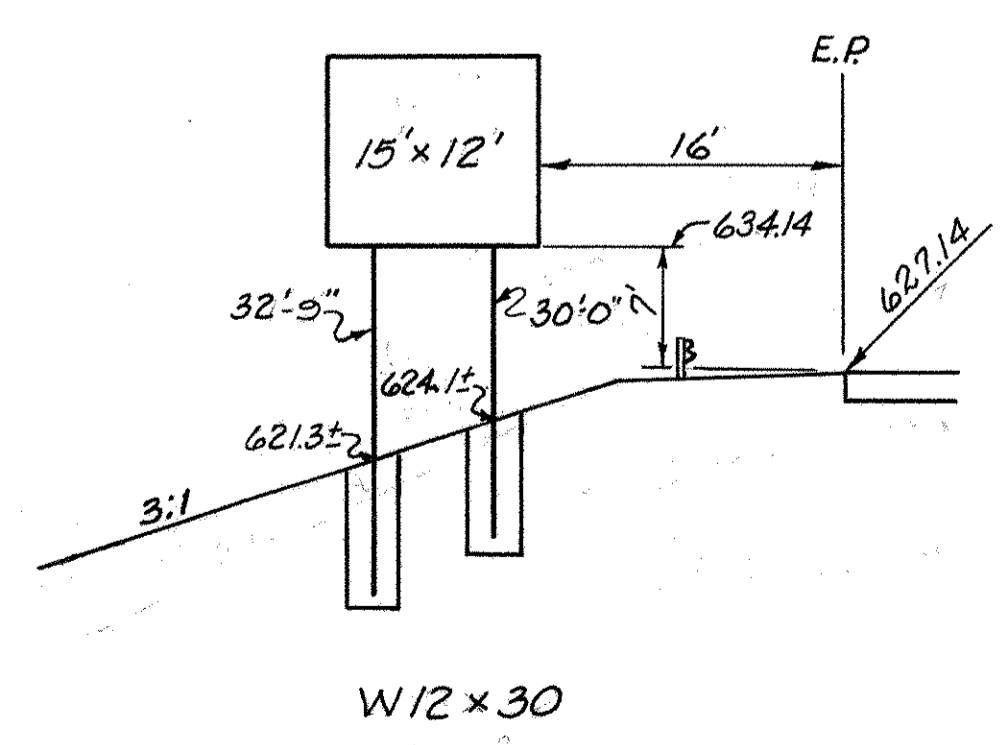
W 10 x 22

1350+00 RT.



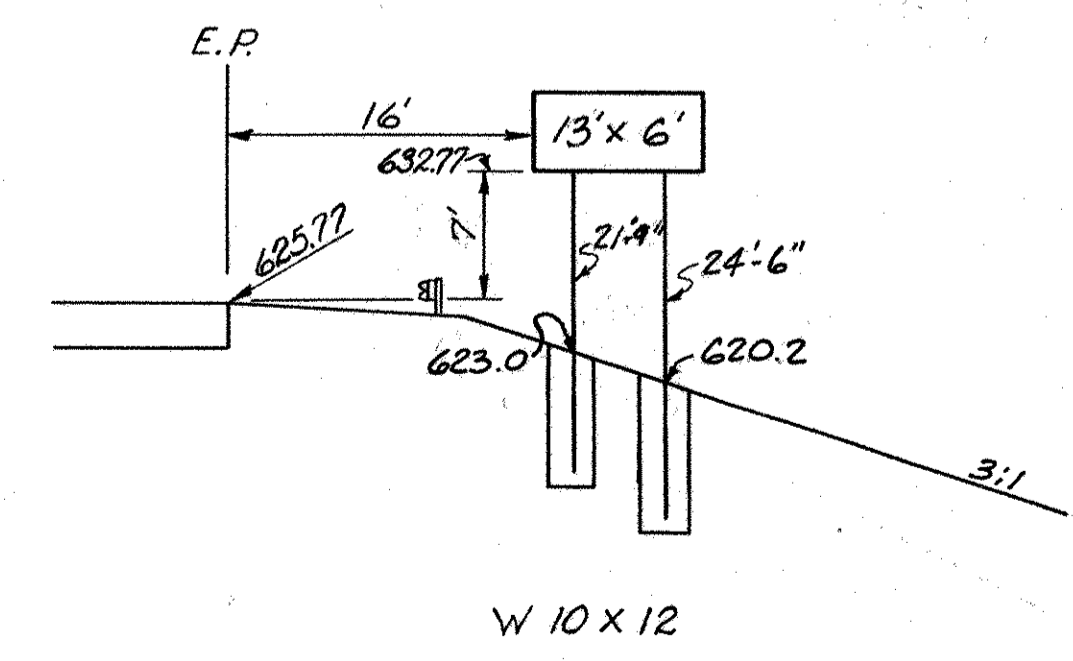
S-4 x 7.7

1392+50 Ramp 11 RT.



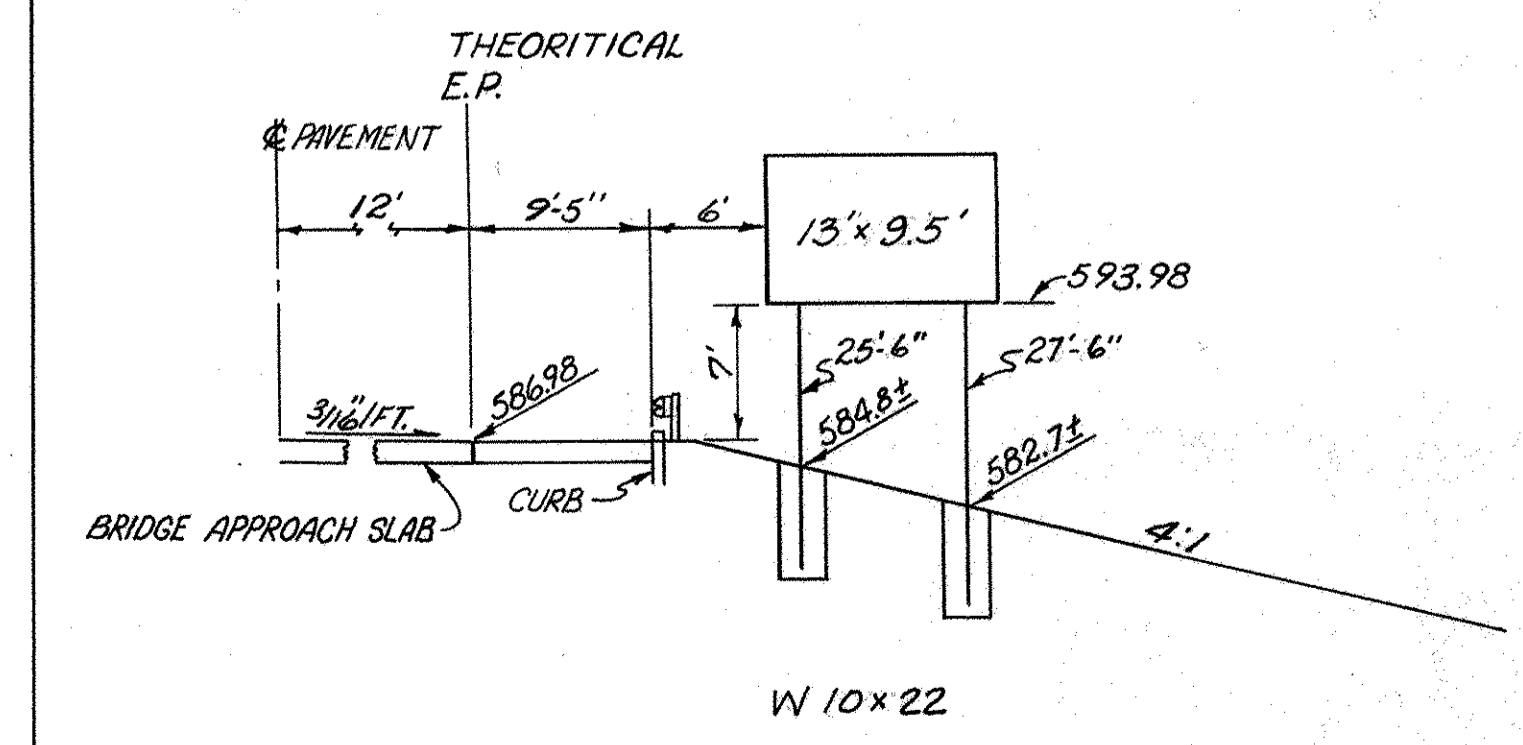
W 12 x 30

1264+00 LT.



W 10 x 12

1265+00 RT.



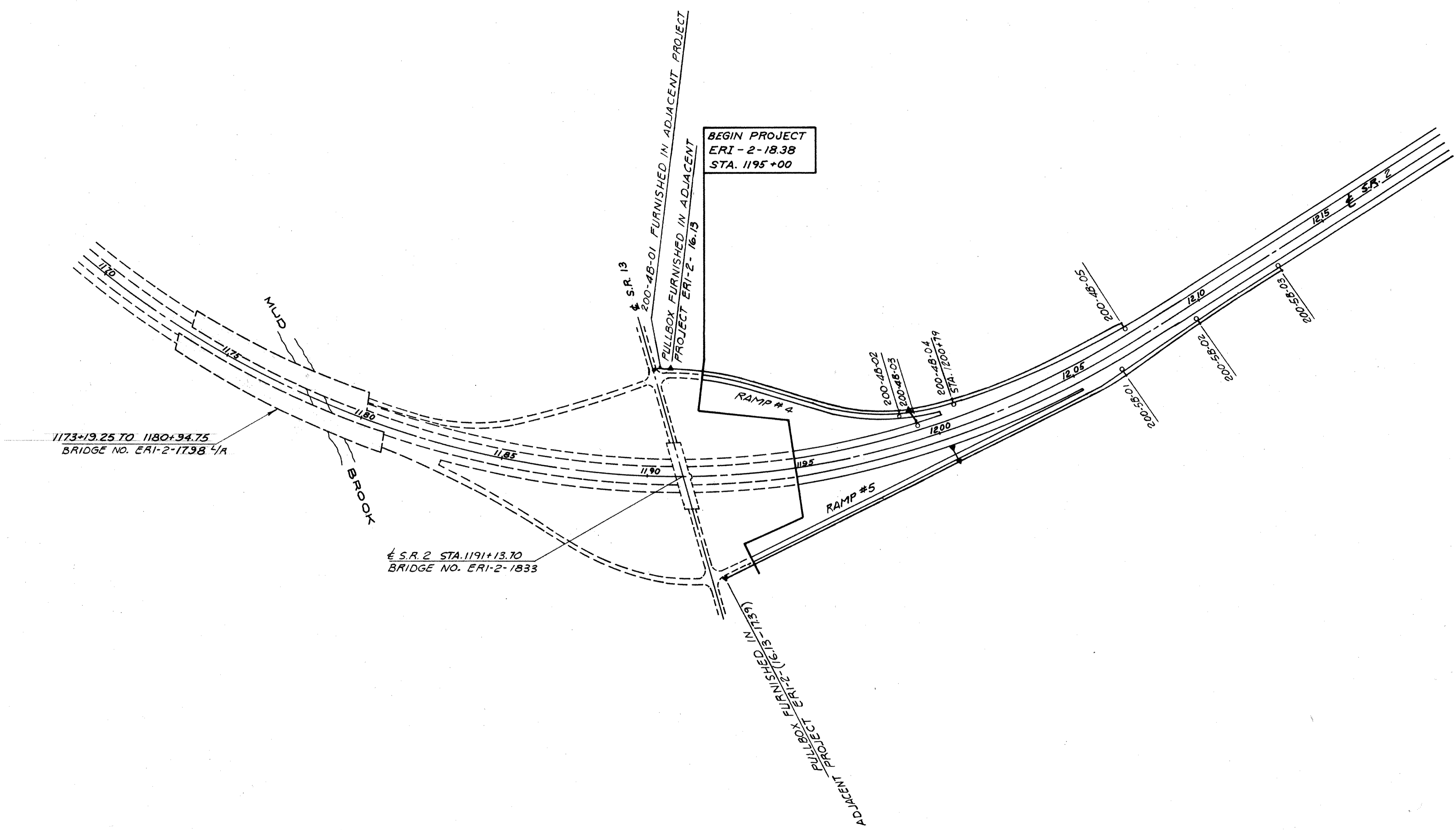
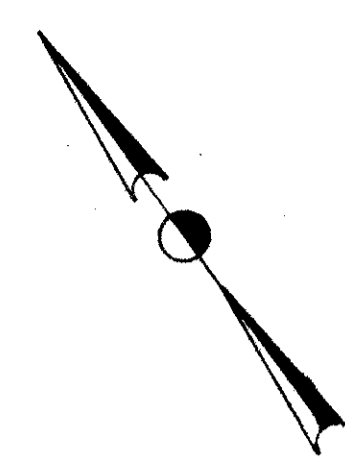
W 10 x 22

1362+50 RT.

FED. NO. DIVISION	STATE	PROJECT
2	OHIO	

273  
326

ERIE COUNTY  
ERI-2-18.38



(ERI-2-16.13)

CIRCUIT LOADING				
CIRCUIT NO.	LAMPS	SIGNS	TOTAL LOAD	FUSE
4B	5 @ 200W		1000W	2.65 10
5B	3 @ 200W		600W	1.50 10

FOR LEGEND AND NOTES, SEE SHEET NO. 274

ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

LIGHTING PLAN  
S.R. 13 INTERCHANGE

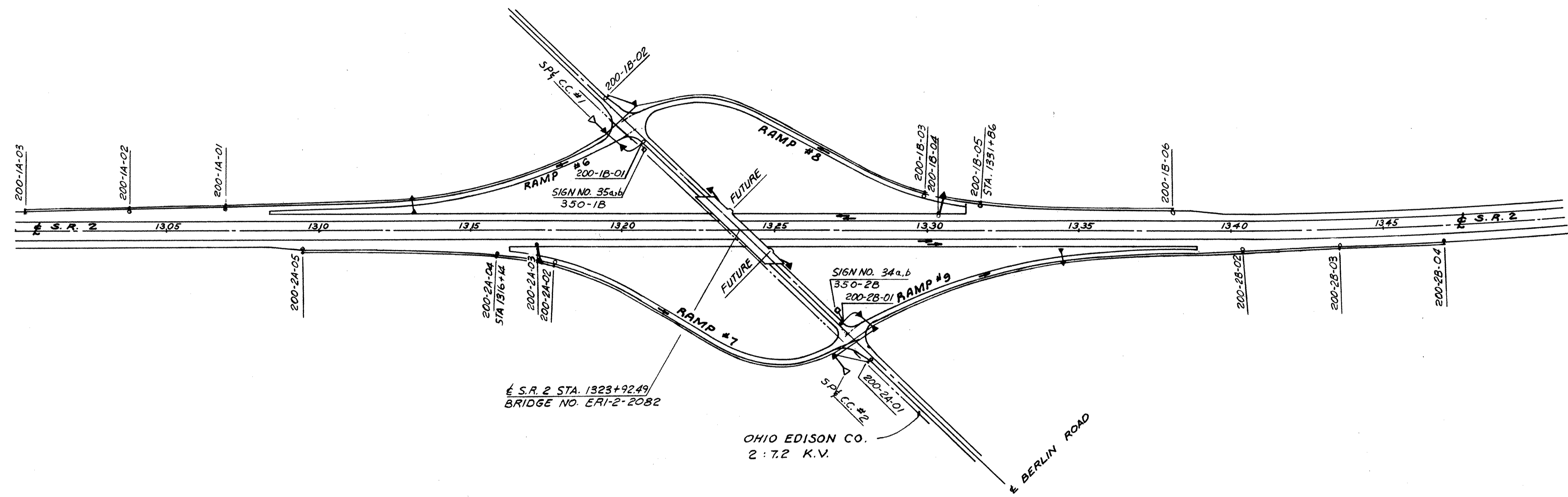
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
WB	WS	WS			

Revised 6-75

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

274  
326

ERIE COUNTY  
ERI-2-18.38



€ S.R. 2 STA. 1323+92.49  
BRIDGE NO. ERI-2-2082

OHIO EDISON CO.  
2:7.2 K.V.

€ BERLIN ROAD

CIRCUIT LOADING					
CIRCUIT NO.	LAMPS	SIGNS	TOTAL	LOAD	FUSE
1A	3 @ 200	-	600W	1.59	10
1B	6 @ 200	350W/1550W	3.91	10	
2A	5 @ 200	-	1000W	2.65	10
2B	4 @ 200	350W/1150W	2.85	10	

**LIGHTING DESIGN DATA**  
 INITIAL INTENSITY 1.0 TO 1.2 FC.  
 UNIFORMITY RATIO 4/1 MAX.  
 SYSTEM VOLTAGE 480 60 HZ.  
 LIGHTS 200 W @ 34.2 FT. MH. (NOM.)

**LEGEND FOR THIS PLAN**  
 ♀ LIGHTING UNITS - POLE MOUNTED (CIRCUIT NO. & WATTAGE GIVEN)  
 △ SERVICE POLE AND CONTROL CENTER  
 ▲ PULLBOX  
 □ ILLUMINATED SIGNS (CIRCUIT NO. & WATTAGE GIVEN)

ADACHE ASSOCIATES INC., ENGINEERS  
 CLEVELAND, OHIO 44142

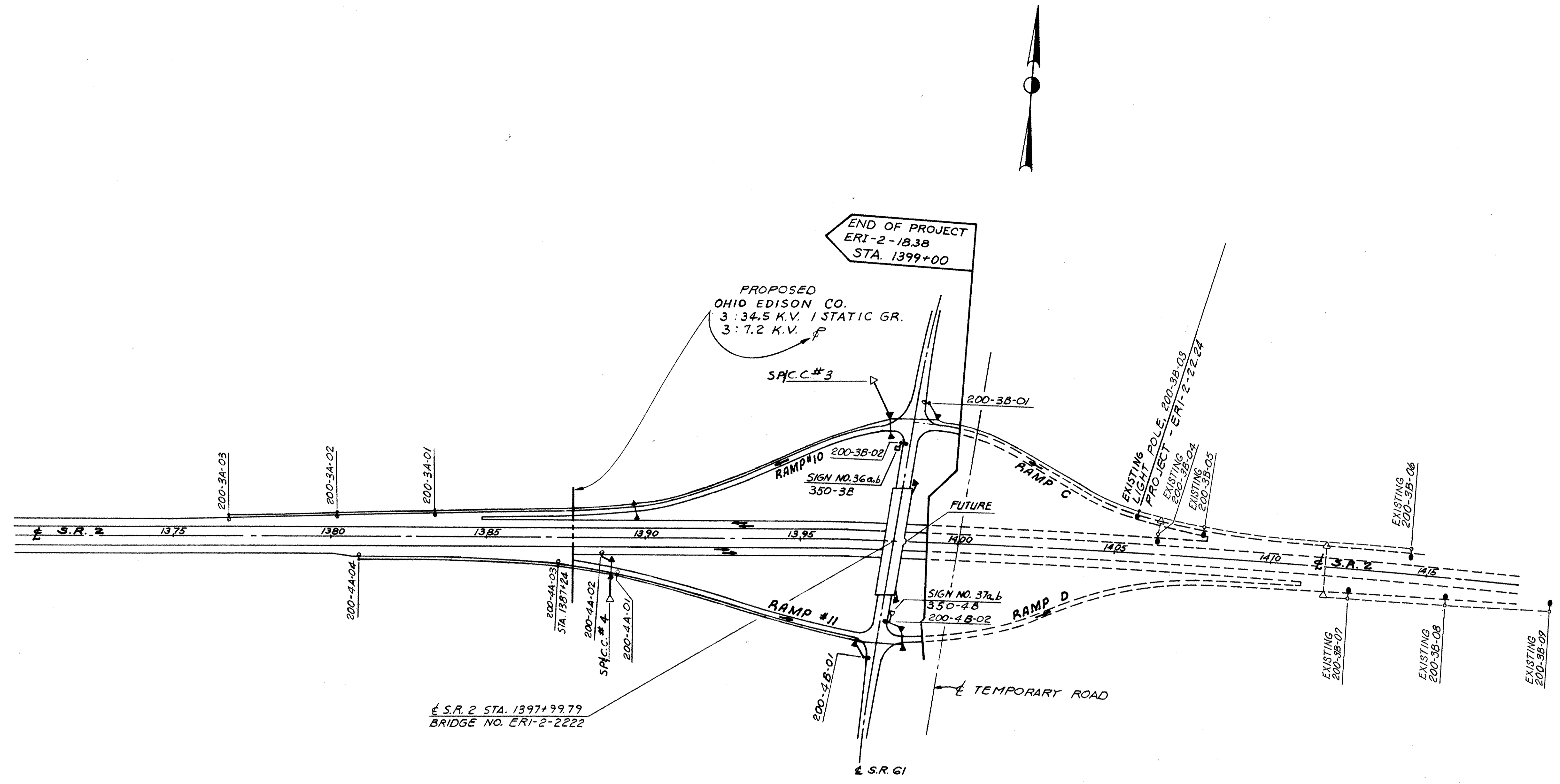
**LIGHTING PLAN  
 BERLIN ROAD INTERCHANGE**

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
W.B.	M.S.	W.S.			

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

275  
326

ERIE COUNTY  
ERI-2-18.38



FENCE GROUND

STATION	625
	GROUND ROD
	Each
1387+00±	4

SEE STANDARD DRAWING HL-11

CIRCUIT LOADING					
CIRCUIT NO.	LAMPS	SIGNS	TOTAL	LOAD	FUSE
3A	3 @ 200W	-	600W	1.59	10
3B	9 @ 200W	350W	2150W	5.50	10
4A	4 @ 200W	-	800W	2.12	10
4B	2 @ 200W	350W	750W	1.79	10

ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

**LIGHTING PLAN**  
**S.R.61 INTERCHANGE**

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
WB	WS	WS			

Revised 6-75

# LIGHTING NOTES

FHWA REGION	STATE	PROJECT
5	OHIO	

278  
326

ERIE COUNTY  
ERI-2-18.38

## SPECIFICATIONS

THESE NOTES ARE SUPPLEMENTAL TO ITEMS 625 AND 713 OF THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS.

REFERENCE SHALL BE MADE TO STANDARD CONSTRUCTION DRAWINGS LISTED ON THE TITLE SHEET OF THESE PLANS.

### 625.03 GENERAL

THE POWER SUPPLYING AGENCY FOR THIS PROJECT IS:

OHIO EDISON COMPANY  
76 SOUTH MAIN STREET  
AKRON, OHIO 44308  
PHONE: 216-384-5234

THIS PROJECT HAS BEEN DESIGNED FOR 480 VOLT TWO-WIRE SERVICE, ONE SIDE GROUNDED AND ON THE BASIS OF 5% VOLTAGE DROP WITH A MAXIMUM UNIFORMITY RATIO OF 4.0 TO 1 FOR CONVENTIONAL LIGHTING UNITS.

### 625.07 - 713.11 LUMINAIRES

STYLE B LUMINAIRES SHALL HAVE SINGLE RATED 480 VOLT, 200 WATT, INTEGRAL REGULATOR BALLASTS FOR USE WITH HIGH PRESSURE SODIUM LAMPS AND SHALL BE GENERAL ELECTRIC M400, CROUSE-HINDS OV-25 TUDOR, ITT AMERICAN 400, OR EQUAL APPROVED BY THE ENGINEER.

### 713.14 LAMPS

HIGH PRESSURE SODIUM LAMPS SHALL BE GENERAL ELECTRIC "LUCALOX", WESTINGHOUSE "CERAMALUX", SYLVANIA "LUMALUX", OR EQUAL APPROVED BY THE ENGINEER.

### UNDERDRAINS FOR PULL BOXES

REFERENCE IS MADE TO STANDARD DRAWING HL-10 FOR DETAILS OF DRAINING PULL BOXES. UNDERDRAINS FOR PULL BOXES SHALL BE USED AS DIRECTED BY THE ENGINEER AND SHALL BE PROVIDED WHERE THE LENGTH REQUIRED FOR A SATISFACTORY OUTLET DOES NOT EXCEED APPROXIMATELY TWENTY (20) FEET. AN ESTIMATED QUANTITY OF "600 LINEAR FEET OF ITEM 603, 4" CONDUIT, TYPE E" IS INCLUDED IN THE LIGHTING GENERAL SUMMARY FOR THIS PURPOSE.

### CONDUIT ON PROPOSED STRUCTURES

EXPANSION FITTINGS FOR CONDUIT ON STRUCTURES SHALL BE OZ TYPE AX, CROUSE-HINDS TYPE XJ-4, APPLETON TYPE XJ-4, OR EQUAL APPROVED BY THE ENGINEER, FOR BRIDGES NO. ERI-2-1640 AND ERI-2-1833 AND OZ TYPE AX-8, CROUSE-HINDS TYPE XJ-8, APPLETON TYPE XJ-8, OR EQUAL APPROVED BY THE ENGINEER, FOR BRIDGE ERI-2-1798 LEFT AND RIGHT.

EACH EXPANSION FITTING SHALL HAVE A COPPER EXTERNAL BONDING JUMPER.

### ELECTRICAL SERVICE FOR ILLUMINATED SIGNS

THE PAY ITEMS IN THE LIGHTING GENERAL SUMMARY INCLUDE THE PULL BOX ADJACENT TO EACH LIGHTED SIGN AND THE ELECTRICAL SERVICE CONNECTIONS LEADING INTO THE BOX, INCLUDING THE CABLE SPLICING KITS IN THE PULL BOX. QUANTITIES FOR ELECTRICAL SERVICE FROM THE CONNECTION IN THE PULL BOX TO THE SIGN ARE INCLUDED IN THE TRAFFIC CONTROL GENERAL SUMMARY.

### STANDARD CONSTRUCTION DRAWING HL-3

POLE BASE DETAILS SHOWN ON THIS DRAWING ARE ESSENTIALLY FOR GALVANIZED STEEL POLES. FOR ALUMINUM DESIGNS, OR OTHER PERMITTED STEEL MATERIAL DESIGNS, VARIATIONS FROM THESE DETAILS WILL BE ACCEPTABLE, AS APPROVED BY THE ENGINEER.

## UTILITIES

SEE GENERAL NOTES SHEET 9 FOR LISTING OF UTILITY COMPANIES HAVING FACILITIES WITHIN THE PROJECT LIMITS. EXISTING UTILITIES AS REPORTED BY THE UTILITY COMPANIES HAVE BEEN PLOTTED ON THE PLANS AND PROFILE SHEETS.

LIGHT POLE DATA			
DESIGN NUMBER	FOUNDATION ANCHOR BOLTS		TRANSFORMER BASE STYLE
		BOLT CIRCLE DIAMETER INCHES	
AT-12B-34.2		15	AT-A
AT-15B-34.2		15	AT-A
ST-15B-34 *		15	ST-A

\* FUTURE POLE ON STRUCTURE

### ITEM 625 POWER SERVICE

THE CONTRACTOR SHALL FURNISH AND INSTALL ALL EQUIPMENT NECESSARY TO PROVIDE COMPLETE ELECTRICAL SERVICE TO THE ROADWAY FACILITIES. FOUR COMPLETE POWER SERVICE INSTALLATIONS (CONTROL CENTERS 1, 2, 3 AND 4) SHALL BE INSTALLED IN ACCORDANCE WITH 625.18 AND 713.19. EACH INSTALLATION SHALL INCLUDE A SERVICE POLE, AN ENCLOSURE TYPE SC-60, AND A PHOTOELECTRIC CELL TO CONTROL THE CONTACTOR, WITH ALL NECESSARY HARDWARE, MATERIALS AND LABOR NECESSARY TO COMPLETE THE WORK AS SPECIFIED.

#### PADLOCKS AND KEYS

PADLOCKS FURNISHED SHALL BE EITHER BRASS OR BRONZE, EQUAL TO MASTER NO. 4BKA OR WILSON BOHANNAN 660A, AND SHALL BE KEYED IN ACCORDANCE WITH SPECIFICATION 631.08, PARAGRAPH 3. PAYMENT SHALL BE INCLUDED IN THE BID FOR THE ITEM(S) BEING LOCKED.

### GROUND RODS

THE RELOCATION OF OVERHEAD POWER LINES IS TO BE DETERMINED BY OHIO EDISON COMPANY. AN ADDITIONAL QUANTITY OF 10 GROUND RODS FOR FENCE GROUNDING IS PROVIDED IN THE GENERAL SUMMARY TO BE USED AS DIRECTED BY THE ENGINEER AND IN ACCORD WITH STANDARD CONSTRUCTION DRAWING HL-11.

### 625.02 HAZARDOUS MATERIALS

NO MATERIAL FURNISHED UNDER THIS SPECIFICATION SHALL CONTAIN POLYCHLORINATED BIPHENYLS (PCBS), TRANSFORMERS, BALLASTS AND CAPACITORS SHALL BE MARKED "NO PCBS" IN ACCORDANCE WITH FEDERAL ENVIRONMENTAL PROTECTION AGENCY REGULATION 40 CFR 761.

adache - ciuni - lynn associates  
CONSULTING ENGINEERS CLEVELAND, OHIO 44130

## LIGHTING NOTES

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
ELV		R.W.H.		7-85	

# GENERAL SUMMARY LIGHTING

FHWA REGION	STATE	PROJECT
5	OHIO	

279  
326

ERIE COUNTY  
ERI-2-18.38

ITEM	SHEET NUMBER										ITEM	TOTAL QUANTITY	UNIT	DESCRIPTION						
	275	280	281	282	283	284	285	289	278	280					281	282	283	284	285	289
625																	625	28	EA.	LIGHT POLE, DESIGN AT-15B-34.2
625																	625	4	EA.	LIGHT POLE, DESIGN AT-12B-34.2
625																	625	4	EA.	BRACKET ARM, 15'-0"
625																	625	12	EA.	LUMINAIRE, STYLE "B", TYPE II, 200 WATT, HIGH PRESSURE SODIUM 713.11
625																	625	24	EA.	LUMINAIRE, STYLE "B", TYPE III, 200 WATT, HIGH PRESSURE SODIUM 713.11
625																	625	32	EA.	LIGHT POLE FOUNDATION, 24"x6'-0" DEEP
625																	625	51	EA.	GROUND ROD
625																	625	32	EA.	PULL BOX, 713.09, 18" DIA.
625																	625	17,884	LIN. FT.	TRENCH, 24" DEEP
625																	625	666	LIN. FT.	2" CONDUIT, 713.04
625																	625	1,306	LIN. FT.	3" CONDUIT, 713.04
625																	625	3,092	LIN. FT.	N#4 AWG, 5000 VOLT DISTRIBUTION CABLE
625																	625	3412	LIN. FT.	N#10 AWG, POLE AND BRACKET CABLE
625																	625	16,928	LIN. FT.	1/2" DUCT CABLE, 1/2 N#4 AWG 5000 VOLT CABLES
625																	625	36	EA.	CONNECTOR KIT, TYPE II
625																	625	36	EA.	CONNECTOR KIT, TYPE III
625																	625	42	EA.	CABLE SPLICING KIT
625																	625	3	EA.	STRUCTURE JUNCTION BOX, TYPE 2
625																	625	12	EA.	LIGHT POLE ANCHOR L-BOLTS ON STRUCTURE
625																	625	1	EA.	STRUCTURE GROUNDING SYSTEM FOR BRIDGE No. ERI-2-2082
625																	625	1	EA.	STRUCTURE GROUNDING SYSTEM FOR BRIDGE No. ERI-2-2222
603																	603	600	LIN. FT.	4" CONDUIT, TYPE 'E'
625																	625	4	EA.	POWER SERVICE
625																	625	LUMP	LUMP	HIGH VOLTAGE TEST



FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

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**ERIE COUNTY  
ERI-2-18.38**

**BEGIN PROJECT  
ERI-2-18.38  
STA. 1195+00**

4B-01 24+25 S.R.13  
FURNISHED IN ADJACENT PROJECT  
  
S.R.13 STA. 23+75 =  
RAMP #4 STA. 1190+50.75

PULLBOX, S.R.13 STA. 23+97, 33' RT. - FURNISHED  
IN ADJACENT PROJECT ERI-2-16.13  
CONTROL CENTER - FURNISHED  
IN ADJACENT PROJECT ERI-2-16.13

LIGHTING CONTRACTOR TO PROVIDE  
CABLE SPLICING KITS FOR EXTENSION  
OF CIRCUIT 4B.

S.R. 2 STA. 1191+13.70 =  
S.R. 13 STA. 20+00  
BRIDGE NO. ERI-2-1833  
  
S.R. 13 STA. 16+25 =  
RAMP #5 STA. 1190+90.54

LIGHTING CONTRACTOR TO  
PROVIDE CABLE SPLICING KITS FOR  
EXTENSION OF CIRCUIT 5B.

CONTROL CENTER - FURNISHED IN  
ADJACENT PROJECT ERI-2-16.13  
  
PULLBOX, S.R. 13 STA. 16+10, 40' RT. - FURNISHED  
IN ADJACENT PROJECT ERI-2-16.13

4B-02 1198+87 R-4  
AT - 12B-34.2  
STA. 1199+45 (2 C.S.K.)  
10' LT. R-4  
  
4B-03 1199+24  
AT - 15B-34.2

3" CONDUIT - CAP BOTH ENDS AND PROVIDE  
PULLWIRE FOR FUTURE USE

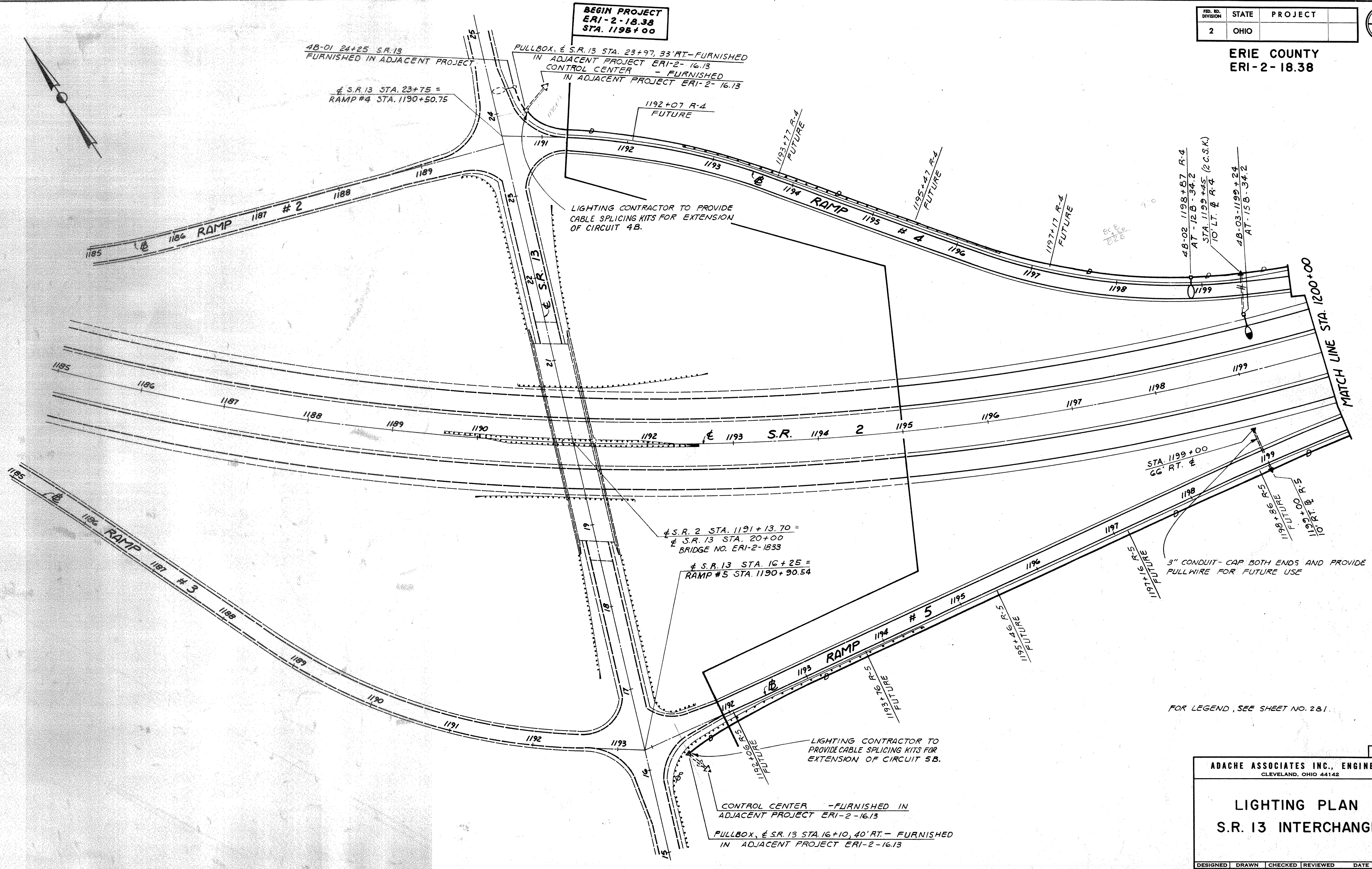
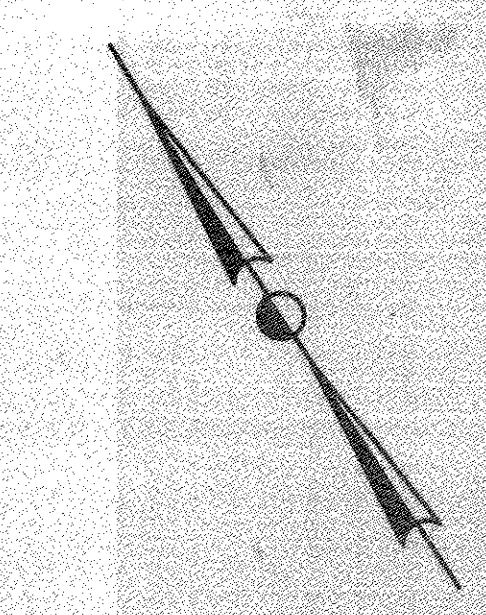
FOR LEGEND, SEE SHEET NO. 281.

ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

**LIGHTING PLAN  
S.R. 13 INTERCHANGE**

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
WS	WB	WS			

Revised 6-75

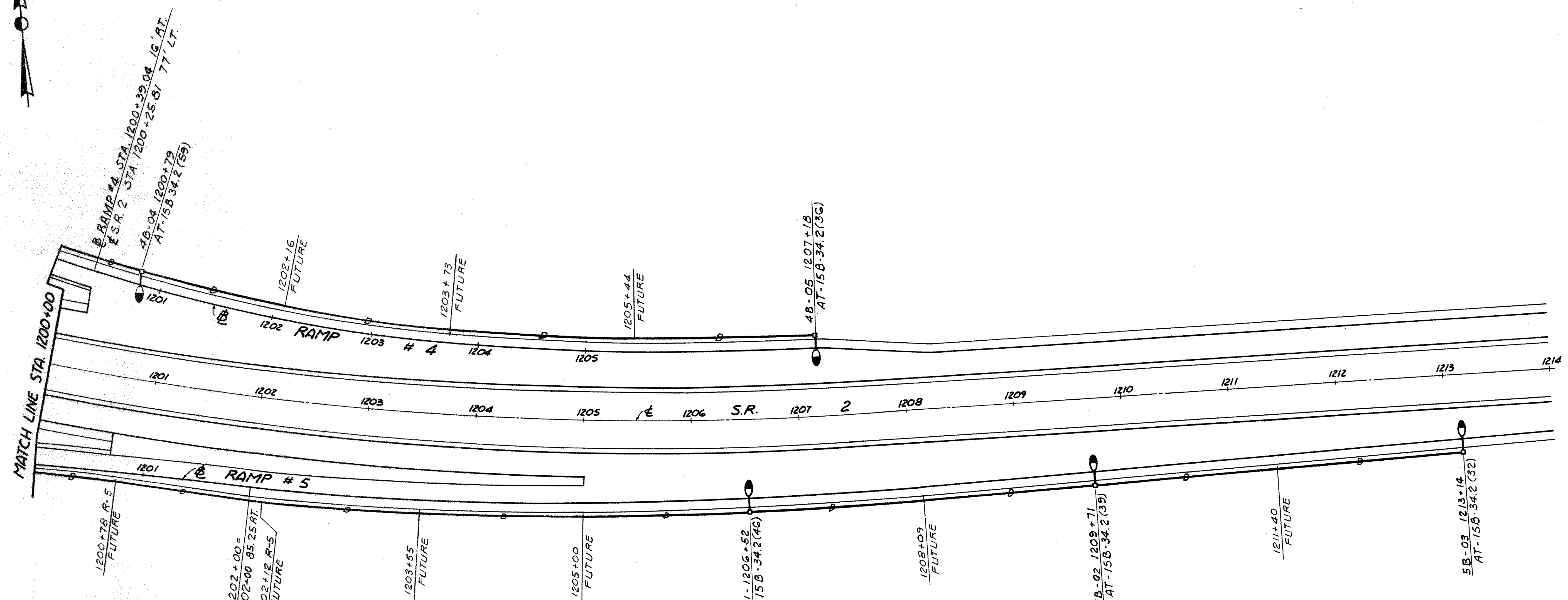




FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

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ERIE COUNTY  
ERI - 2 - 18.38



**LEGEND**

- 200 WATT LUMINAIRE AND LAMP (TYPE III)  
CAST ALUMINUM BASE LIGHT POLE
- 200 WATT LUMINAIRE AND LAMP (TYPE II)
- PULLBOX (STATION & OFFSET FROM E MAINLINE - OR INDICATED OTHERWISE)
- SERVICE POLE & CONTROL CENTER (Power Service)
- 1/2" DUCT CABLE W/ TWO #4 AWG 5000 VOLT CABLES  
IN 24" DEEP TRENCH
- 3" CONDUIT W/ #4 AWG 5000 VOLT CABLES  
(SLASH LINES INDICATE NUMBER OF CABLES)
- (C.S.K.) CABLE SPLICING KIT
- CIRCUIT NO. AND POLE NO.  
STATION (RAMP OR E MAINLINE)  
RAMP NO. (NO SUFFIX FOR MAINLINE)  
PAVEMENT WIDTH IF NOT STANDARD  
NOMINAL LUMINAIRE MOUNTING HEIGHT  
BRACKET ARM LENGTH  
'AT' FOR CAST ALUMINUM BASE

OTHER SYMBOLS IDENTIFIED AS SHOWN

ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

**LIGHTING PLAN**  
**S.R. 13 INTERCHANGE**

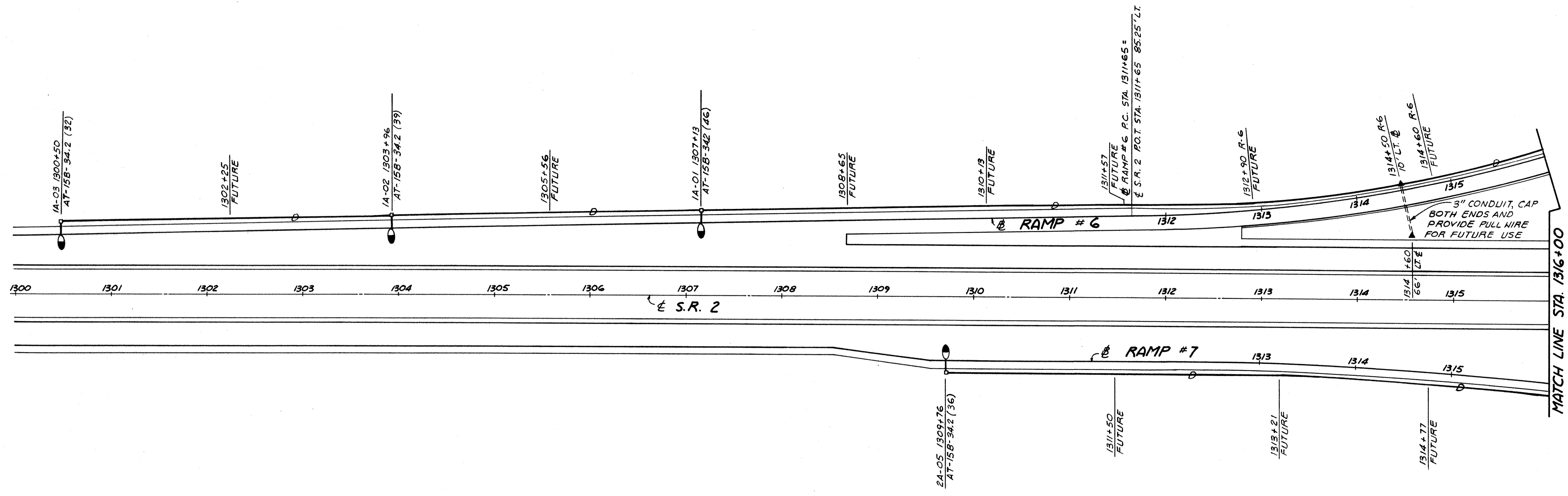
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
WS	WB	WS			

Revised 6-75

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

282  
326

ERIE COUNTY  
ERI-2-18.38



ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

**LIGHTING PLAN  
BERLIN ROAD  
INTERCHANGE**

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
WS	WS	WS			

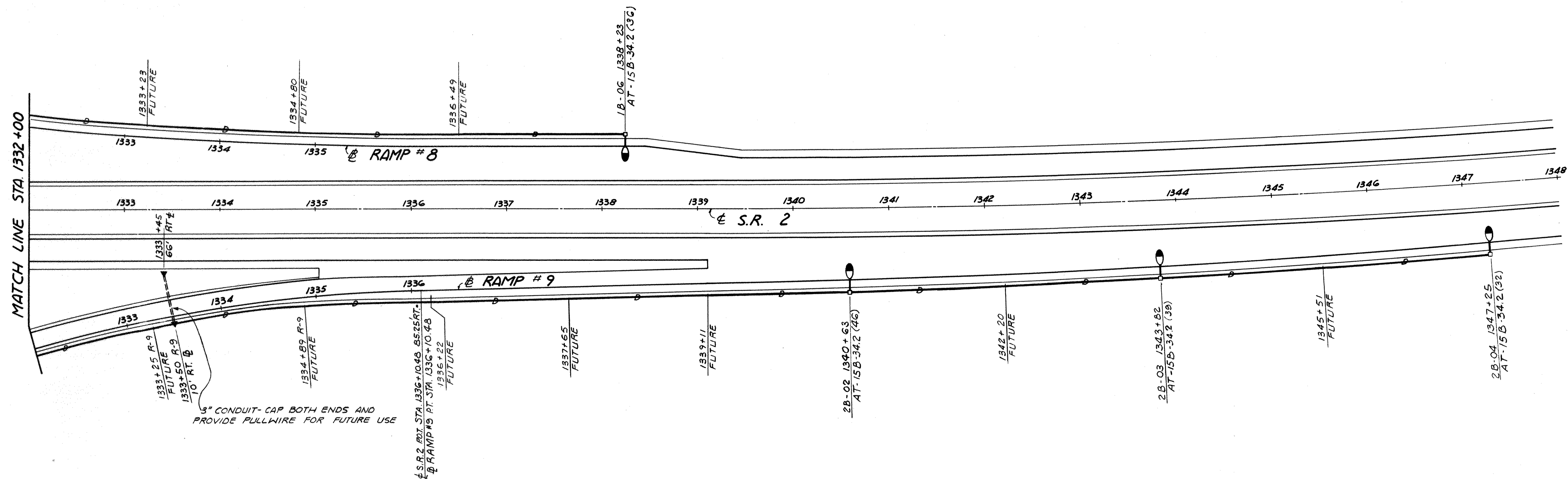
Revised 6-75



FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

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ERIE COUNTY  
ERI-2-18.38



FOR LEGEND, SEE SHEET NO. 281

ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

**LIGHTING PLAN  
BERLIN ROAD  
INTERCHANGE**

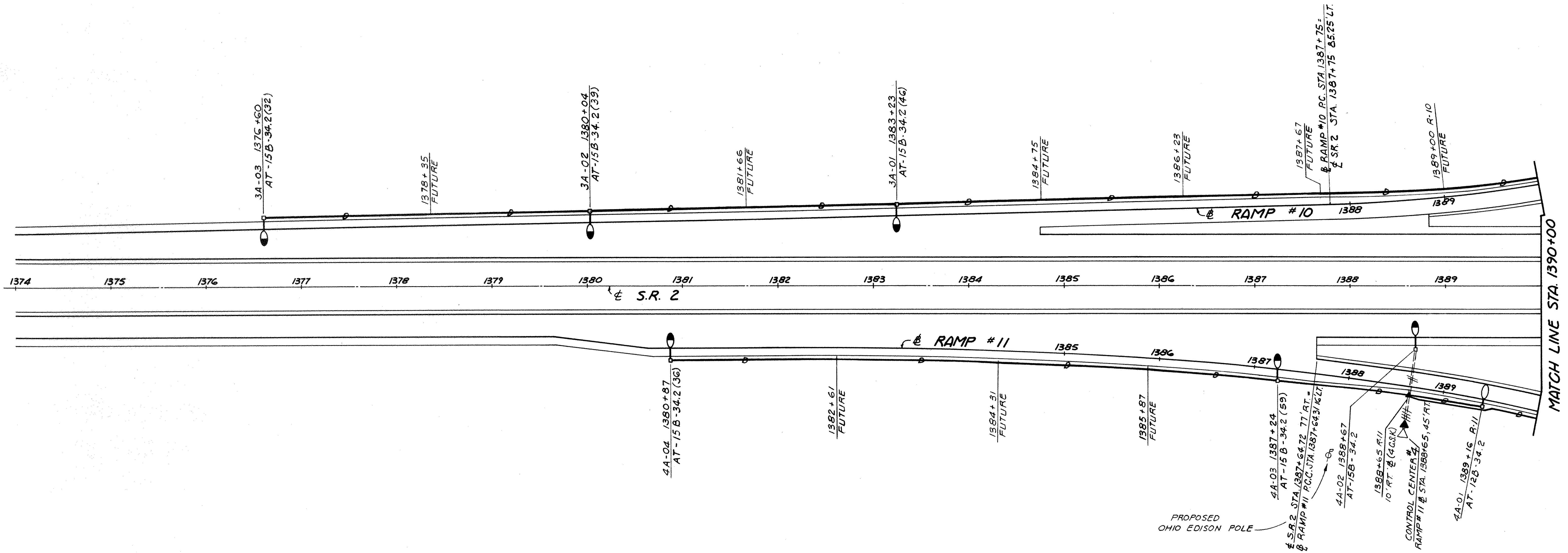
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
ws	wB	ws			

Revised 6-75

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

285  
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ERIE COUNTY  
ERI-2-18.38



FOR LEGEND, SEE SHEET NO. 281

ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

**LIGHTING PLAN**  
**S.R. 61 INTERCHANGE**

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
WS	WB	WS			

Revised 6-75

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

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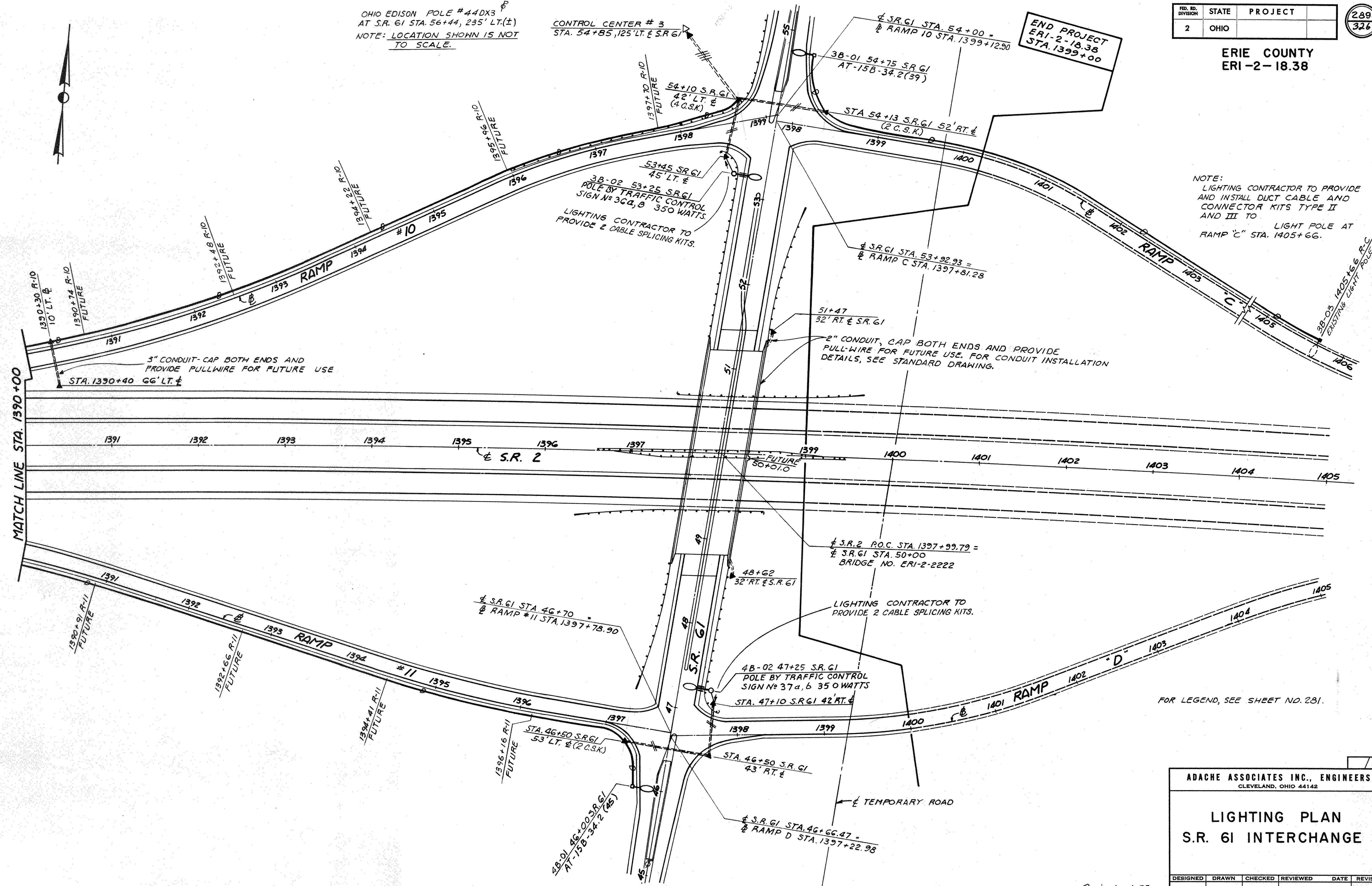
ERIE COUNTY  
ERI-2-18.38

OHIO EDISON POLE #44DX3  
AT S.R. 61 STA. 56+44, 235' LT. (±)  
NOTE: LOCATION SHOWN IS NOT TO SCALE.

CONTROL CENTER # 3  
STA. 54+85, 125' LT. & S.R. 61

END PROJECT  
ERI-2-18.38  
STA. 1399+00

NOTE:  
LIGHTING CONTRACTOR TO PROVIDE AND INSTALL DUCT CABLE AND CONNECTOR KITS TYPE II AND III TO LIGHT POLE AT RAMP "C" STA. 1405+66.



FOR LEGEND, SEE SHEET NO. 281.

ADACHE ASSOCIATES INC., ENGINEERS  
CLEVELAND, OHIO 44142

LIGHTING PLAN  
S.R. 61 INTERCHANGE

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
WS	WS	WS			

Revised 6-75

# CENTER LINE SURVEY PLAT

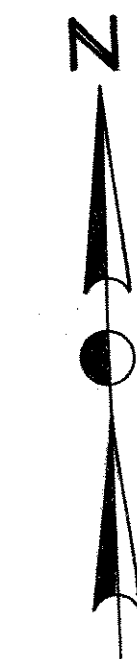
## STATE ROUTE 2 SEC. 18.38

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

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ERIE COUNTY  
SOLD AS ERI 2-18.38  
ERI 2-16.07 R/W

1  
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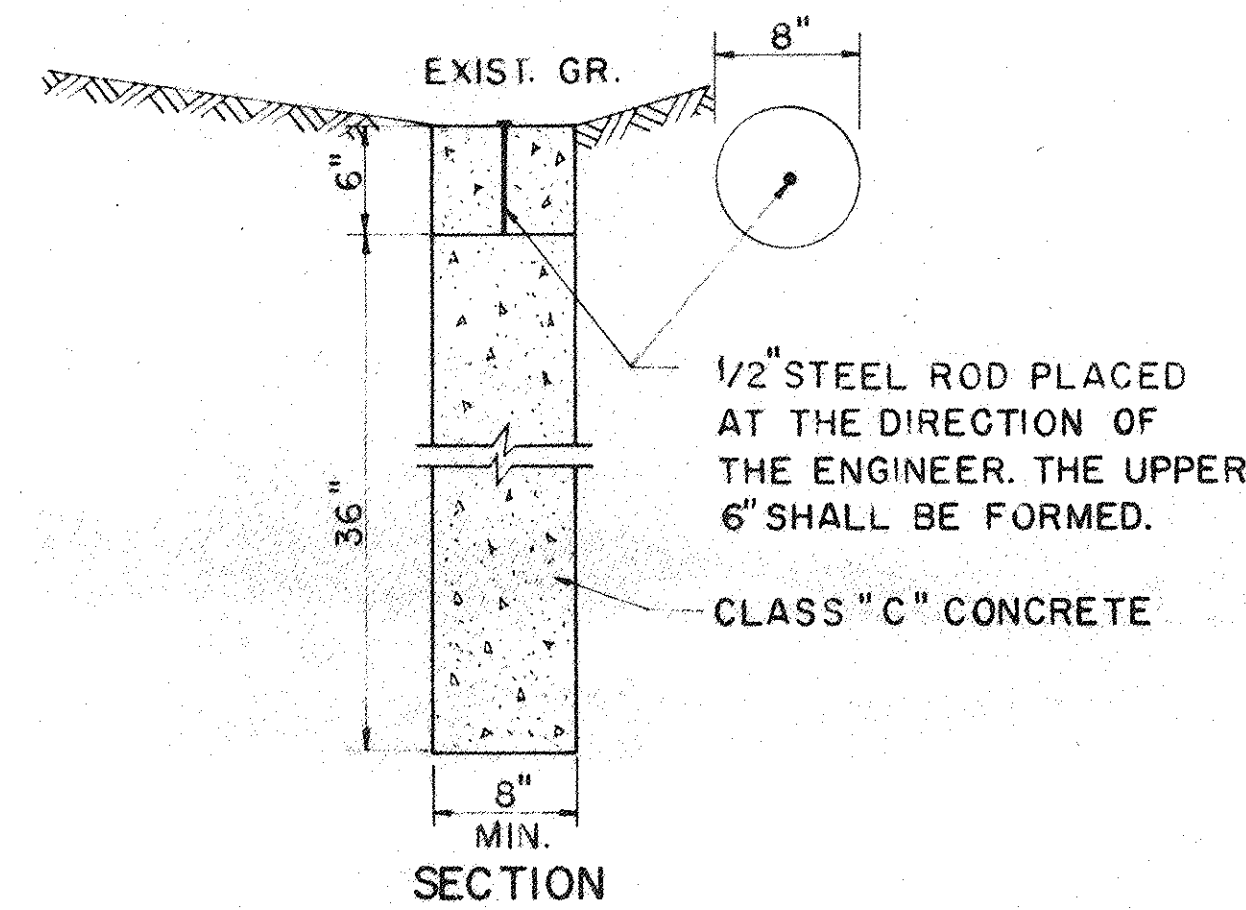


S.R. 2 (RELOCATED)  
ERIE COUNTY, OHIO  
HURON TWP. R-22-W, T-6-N, SECTION 2, LOT 8,9  
HURON TWP. R-22-W, T-6-N, SECTION 1, LOT 16,9,4,15,10,13,12,11  
BERLIN TWP. R-21-W, T-6-N, BERLIN ANNEXATION LOT 15,16,17,27

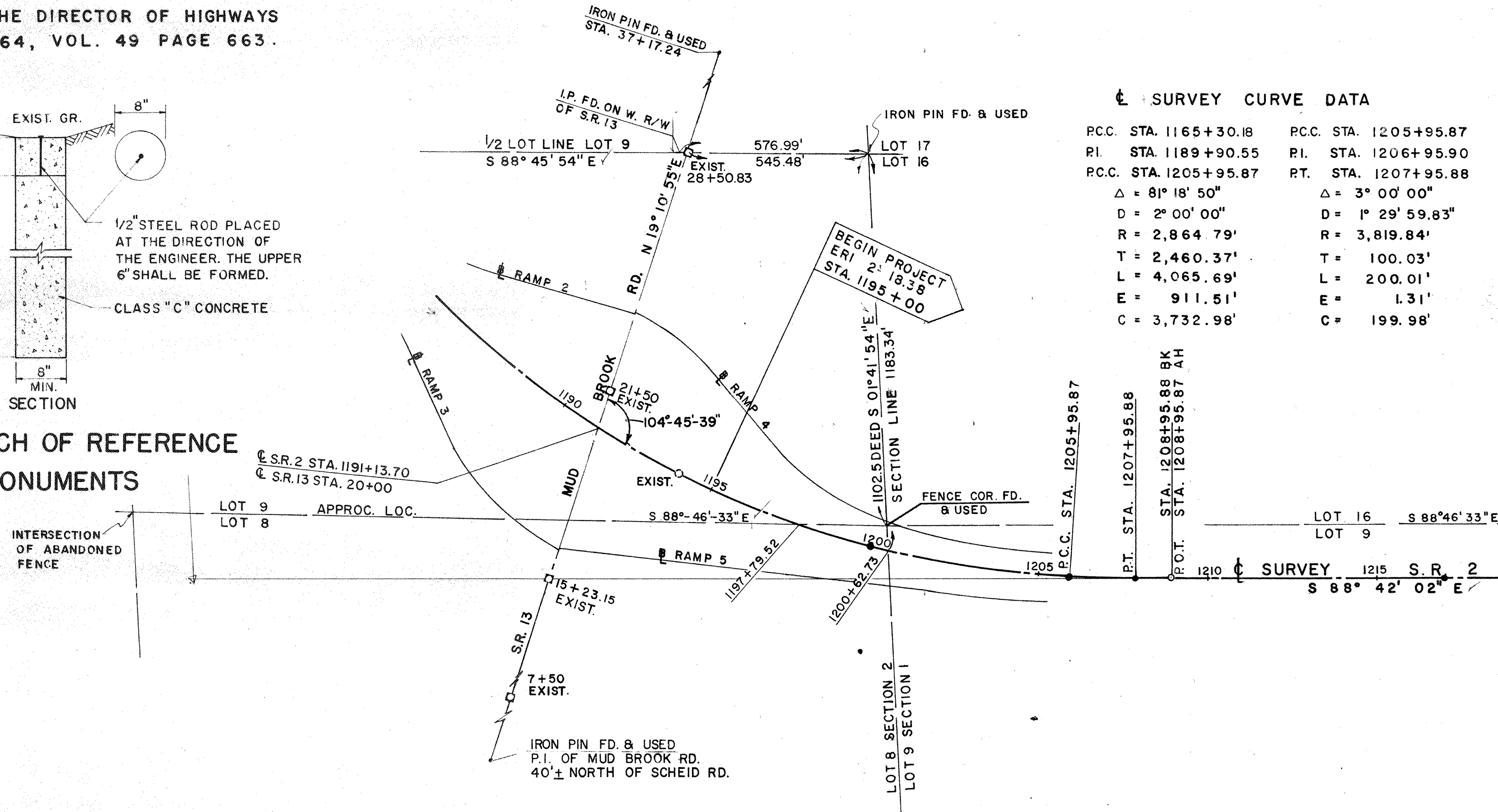


**LIMITED ACCESS**

THIS IMPROVEMENT HAS BEEN DECLARED A LIMITED ACCESS HIGHWAY, FROM STATION 1195+00 TO STATION 1399+00 BY ACTION OF THE DIRECTOR OF HIGHWAYS AND AS RECORDED BY ENTRY MADE ON THE JOURNAL OF THE DIRECTOR OF HIGHWAYS AUGUST 21, 1964, VOL. 49 PAGE 663.



**DETAIL SKETCH OF REFERENCE MONUMENTS**



**☉ SURVEY CURVE DATA**

P.C.C. STA. 1165+30.18	P.C.C. STA. 1205+95.87
P.I. STA. 1189+90.55	P.I. STA. 1206+95.90
P.C.C. STA. 1205+95.87	P.T. STA. 1207+95.88
Δ = 81° 18' 50"	Δ = 3° 00' 00"
D = 2° 00' 00"	D = 1° 29' 59.83"
R = 2,864.79'	R = 3,819.84'
T = 2,460.37'	T = 100.03'
L = 4,065.69'	L = 200.01'
E = 911.51'	E = 1.31'
C = 3,732.98'	C = 199.98'

RECEIVED \_\_\_\_\_ 19  
RECORDED \_\_\_\_\_ 19  
PLAT BOOK \_\_\_\_\_ PAGE \_\_\_\_\_  
FEE \_\_\_\_\_  
SIGNED \_\_\_\_\_ COUNTY RECORDER  
SIGNED \_\_\_\_\_ P.E. NO. \_\_\_\_\_  
DIVISION DEPUTY DIRECTOR, DIV. NO. 3

END SHEET STA. 1220+00

**LEGEND**

- NO. EXISTING REFERENCE MONUMENTS
- 25 REFERENCE MONUMENTS (SEE STD. DWG. MC-1)
- 16 STANDARD MONUMENT ASSEMBLY (SEE STD. DWG. MC-1)
- EXISTING MONUMENT CONSTRUCTED UNDER ERI-2-16.13 ERI-2-16.07 R/W

LOCATION OF R/W MONUMENTS				
REF. MON. REQ'D.	MON. ASSY. REQ'D.	STATION	LOCATION	REMARKS
		1200+00	☉ S.R. 2	P.O.C.
		1205+95.87	"	P.O.C.
		1207+95.88	"	P.T.
		1217+00	"	P.O.T.
		1227+00	"	P.O.T.
		1232+00	"	P.O.T. & 42' RT.
		1262+00	"	P.O.T. & 42' RT.
		1271+67.28	"	P.C.
		1278+48.23	"	P.O.C.
		1285+29.18	"	P.T.
		1294+00	"	P.O.T.
		1303+00	"	P.O.T.
		1312+00	"	P.O.T.
		1319+50	"	P.O.T.
		1329+50	"	P.O.T.

LOCATION OF R/W MONUMENTS				
REF. MON. REQ'D.	MON. ASSY. REQ'D.	STATION	LOCATION	REMARKS
		1339+10.48	☉ S.R. 2	P.C.
		1346+00	"	P.O.C.
		1352+00	"	P.O.C.
		1358+00	"	P.O.C.
		1364+69.41	"	P.T.
		1374+00	"	P.O.T.
		1385+00	"	P.O.T.
		1392+50.74	"	P.C.
		40+56.84	☉ S.R. 61	P.C.
		45+29.98	"	P.T.
		54+86.71	"	P.C.
		58+15.46	"	P.T.

LOCATION OF R/W MONUMENTS				
REF. MON. REQ'D.	MON. ASSY. REQ'D.	STATION	LOCATION	REMARKS
		12+99.70	RIVER RD.	P.C.
		13+76.72	"	P.T.
		15+22.98	"	P.C.
		16+50	"	P.O.T.
		22+62.50	"	P.C.
		9+90.54	BERLIN RD.	P.T.
		18+00	"	P.O.T.
		22+00	"	P.O.T.
		30+00	"	P.O.T.
		22+26.29	JEFFRIES RD. INT. RIVER RD.	P.T.
		18+32.83	"	P.T.
		15+42.38	"	P.C.

NOTE: Quantities for Monuments are carried on the respective plan sheets.

I HEREBY CERTIFY THIS PLAT TO BE A TRUE DELINEATION OF A SURVEY MADE BY ADACHE ASSOCIATES INC. OF CLEVELAND, OHIO FOR THE OHIO DEPARTMENT OF HIGHWAYS. DATE 9-21-1969 BY Raymond W. Hurd

REGISTERED SURVEYOR S-5152

SEAL

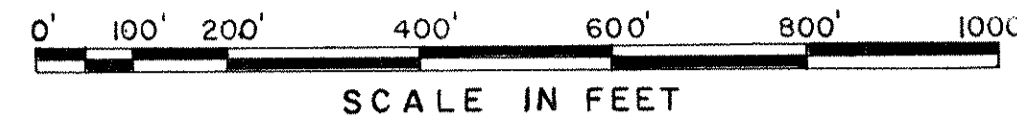
# CENTER LINE SURVEY PLAT

## STATE ROUTE 2 SEC. 18.38

S.R. 2 (RELOCATED)

ERIE COUNTY, OHIO

HURON TWP. R-22-W, T-6-N, SECTION 2, LOT 8,9  
 HURON TWP. R-22-W, T-6-N, SECTION 1, LOT 16,9,4,15,10,13,12,11  
 BERLIN TWP. R-21-W, T-6-N, BERLIN ANNEXATION LOT 15,16,17,27

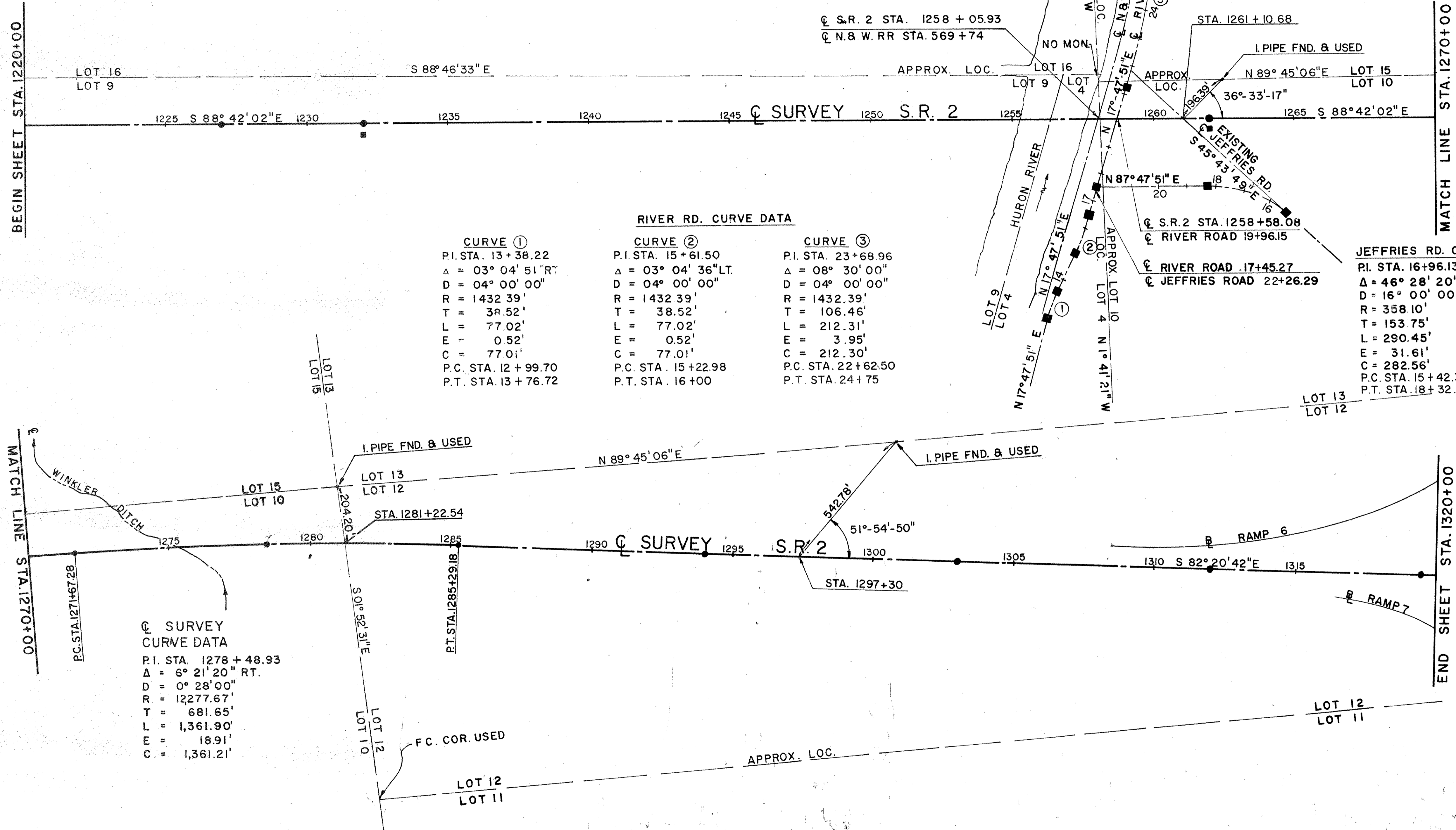


FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

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ERIE COUNTY  
 SOLD AS ERI 2-18.38  
 ERI 2-16.07 R/W

2  
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### RIVER RD. CURVE DATA

**CURVE ①**  
 P.I. STA. 13+38.22  
 Δ = 03° 04' 51" RT.  
 D = 04° 00' 00"  
 R = 1432.39'  
 T = 38.52'  
 L = 77.02'  
 E = 0.52'  
 C = 77.01'  
 P.C. STA. 12+99.70  
 P.T. STA. 13+76.72

**CURVE ②**  
 P.I. STA. 15+61.50  
 Δ = 03° 04' 36" LT.  
 D = 04° 00' 00"  
 R = 1432.39'  
 T = 38.52'  
 L = 77.02'  
 E = 0.52'  
 C = 77.01'  
 P.C. STA. 15+22.98  
 P.T. STA. 16+00

**CURVE ③**  
 P.I. STA. 23+68.96  
 Δ = 08° 30' 00"  
 D = 04° 00' 00"  
 R = 1432.39'  
 T = 106.46'  
 L = 212.31'  
 E = 3.95'  
 C = 212.30'  
 P.C. STA. 22+62.50  
 P.T. STA. 24+75

### JEFFRIES RD. CURVE DATA

P.I. STA. 16+96.13  
 Δ = 46° 28' 20"  
 D = 16° 00' 00"  
 R = 358.10'  
 T = 153.75'  
 L = 290.45'  
 E = 31.61'  
 C = 282.56'  
 P.C. STA. 15+42.38  
 P.T. STA. 18+32.83

### SURVEY CURVE DATA

P.I. STA. 1278+48.93  
 Δ = 6° 21' 20" RT.  
 D = 0° 28' 00"  
 R = 12277.67'  
 T = 681.65'  
 L = 1,361.90'  
 E = 18.91'  
 C = 1,361.21'



# CENTER LINE SURVEY PLAT

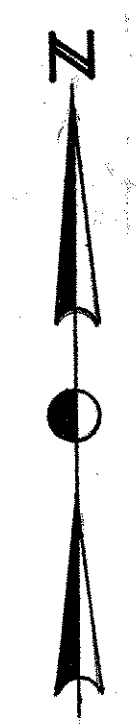
## STATE ROUTE 2 SEC. 18.38

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

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326

SOLD AS  
 ERI COUNTY  
 ERI 2-18.38  
 ERI 2-16.07 R/W

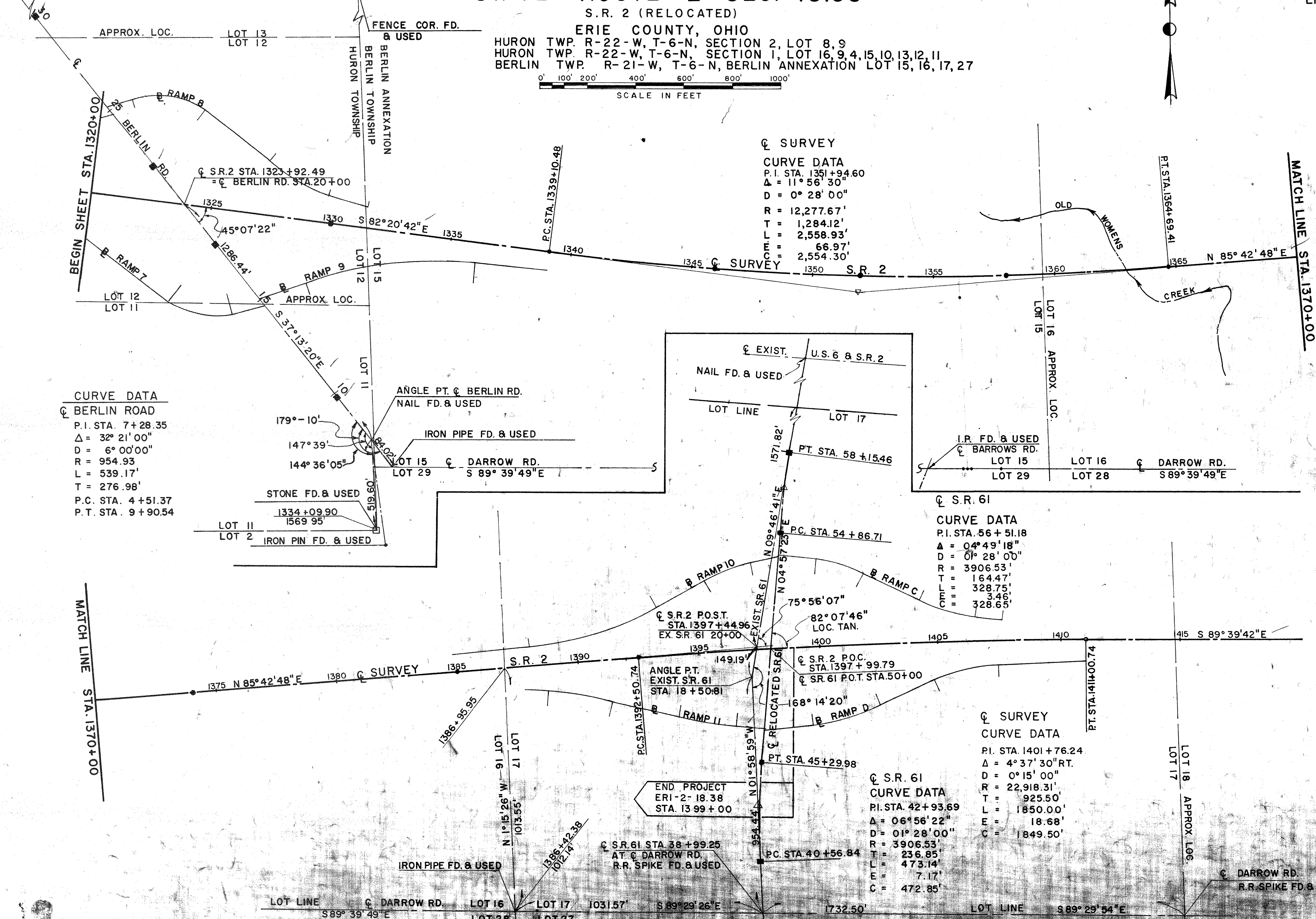
3  
37%



S.R. 2 (RELOCATED)  
 ERI COUNTY, OHIO  
 HURON TWP. R-22-W, T-6-N, SECTION 2, LOT 8, 9  
 HURON TWP. R-22-W, T-6-N, SECTION 1, LOT 16, 9, 4, 15, 10, 13, 12, 11  
 BERLIN TWP. R-21-W, T-6-N, BERLIN ANNEXATION LOT 15, 16, 17, 27



R.R. SPIKE FD. & USED  
 STA. 38+29.20 BERLIN RD.



**CURVE DATA**  
 BERLIN ROAD  
 P.I. STA. 7+28.35  
 $\Delta = 32^\circ 21' 00''$   
 $D = 6^\circ 00' 00''$   
 $R = 954.93'$   
 $L = 539.17'$   
 $T = 276.98'$   
 P.C. STA. 4+51.37  
 P.T. STA. 9+90.54

**☉ SURVEY**  
**CURVE DATA**  
 P.I. STA. 1351+94.60  
 $\Delta = 11^\circ 56' 30''$   
 $D = 0^\circ 28' 00''$   
 $R = 12,277.67'$   
 $T = 1,284.12'$   
 $L = 2,558.93'$   
 $E = 66.97'$   
 $C = 2,554.30'$

**☉ S.R. 61**  
**CURVE DATA**  
 P.I. STA. 56+51.18  
 $\Delta = 04^\circ 49' 18''$   
 $D = 01^\circ 28' 00''$   
 $R = 3906.53'$   
 $T = 164.47'$   
 $L = 328.75'$   
 $E = 3.46'$   
 $C = 328.65'$

**☉ SURVEY**  
**CURVE DATA**  
 P.I. STA. 1401+76.24  
 $\Delta = 4^\circ 37' 30''$  RT.  
 $D = 0^\circ 15' 00''$   
 $R = 22,918.31'$   
 $T = 925.50'$   
 $L = 1850.00'$   
 $E = 18.68'$   
 $C = 1849.50'$

**☉ S.R. 61**  
**CURVE DATA**  
 P.I. STA. 42+93.69  
 $\Delta = 06^\circ 56' 22''$   
 $D = 01^\circ 28' 00''$   
 $R = 3906.53'$   
 $T = 236.85'$   
 $L = 473.14'$   
 $E = 7.17'$   
 $C = 472.85'$

# SUMMARY OF ADDITIONAL RIGHT OF WAY REQUIRED

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

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326

ERIE COUNTY  
SOLD AS ERI-2-18.38  
ERI-2-16.07 R/W

R/W

4  
37

PARCEL NO.	OWNER	AUD. NO.	TOTAL NO. OF FUNDS	TOTAL NO. OF DEED RECORD	TOTAL DEED AREA	TOTAL TAKES		P. R. O. INTAKE	NET LAND	TOTAL NO. OF OWNERS WITH STRUCTURES TO BE REMOVED				SHEET NO.	REMARKS
						DEED	TOTAL			LEFT	RESIDUE	RIGHT	RESIDUE		
123 WD	JUNE M. WARNER			396	775	0.95	0.05	0.06	0.05	0.01				12	
124 WD	JUNE M. WARNER			393	41	0.45	0.09	0.16	0.09	0.07				12	
125 WL	GOLF INC.			324	631-635	440.79	3.03	52.69	1.28	51.41				11-12-13-14	*Including 0.12 Ac In N.E. Corner Of Lot 9
125 WD	"			331	36			0.04	0.02	0.02				12	
125A-WD	"			322	447			0.55	0.26	0.29				12	
125 X	"									0.20				15	TO CONSTRUCT CHANNEL *
125 Y	"									2.03				15-16-17	TO CONSTRUCT CHANNEL *
125 T	"									0.04				13	TO CONSTRUCT CHANNEL
125 T-1	"									0.07				13	TO CONSTRUCT CHANNEL
125 T-2	"									0.04				14	TO CONSTRUCT CHANNEL
125 T-3	"									0.88				15-16	TO CONSTRUCT SLOPE *
126	NOT ASSIGNED														
127 WL	VIRGINIA M. SCHOFIELD			320	443	23.36 <sup>⊕</sup>		0.19		0.19				16-17	⊕Plus Lot 7 Schofield-Sutton Subdivision *
127 X	"									0.01				15	TO CONSTRUCT CHANNEL *
127 Y	"									0.99				16-17	TO CONSTRUCT CHANNEL *
128 X	CHARLES CALENGOR			296	81, 83	41,250 S.F.				8,815 S.F.				17	TO CONSTRUCT CHANNEL *
129	NOT ASSIGNED														
130 AERIAL	NORFOLK & WESTERN RAILWAY									11,013 S.F.				35-36-37	
130	"									413 S.F.					
130 A	"									413 S.F.					
130 S	"									1,320 S.F.					
130 S-1	"									180 S.F.					
130 S-2	"									200 S.F.					
130 SL	"									26,131 S.F.					
130 T	"									8,026 S.F.					
131 WL	E. I. DUPONT DE NEMOURS AND COMPANY			320	61, 61, 62	488.21	16.30	0.59		0.59				17	
131 X	"									0.25				19	CHANNEL
131A-WL	"							14.48	0.86	13.62	YES			17-19-20-21	
131A-WD	"							3.89	1.61	2.28				17-18-19	
131A-X	"									0.58				21	TO CONSTRUCT CHANNEL
131A-T	"									0.01				19	TO CONSTRUCT CHANNEL
131A-Y	"									3.00				17-21	TO CONSTRUCT CHANNEL
131A-Z	"									0.34				17	TO CONSTRUCT CHANNEL
132 WL	THE GLIDDEN COMPANY			351	422	108.60	4.01	1.45	0.15	1.30				17-21	
132 WD	"			348	412			0.62	0.41	0.21				20	
132 T	"			349	468					0.04				19-20	SLOPE PROTECTION + CHANNEL
133 WL	LED S. RIEDY			169	613 & 614	85.45	0.38	22.89	0.37	22.52				21-22-23	
133 WD	"							0.05	0.01	0.04				26	
133 X	"									0.25				21-22	TO CONSTRUCT CHANNEL *
133 S	"									0.03				21	SEWER
134 WD	HARRY E. & LORENA L. BOOS			174	120	44.09	2.22	0.39	0.21	0.18				26	

STATE  
COUNTY  
COUNTY  
STATE

NOTE

ALL AREAS SHOWN ARE IN ACRES AND DECIMAL PARTS THERE OF UNLESS OTHERWISE NOTED.

\* NOT NECESSARY BECAUSE OF CONSTRUCTION PLAN CHANGES.

R.W.H.	PARCELS 125X, 125Y, 125T-3, 127WL, 127X, 127Y, 128X & 132T. ADDED IN REMARKS COLUMN *	1-5-84
J.R.Y.	Rev. Par 125 Residue Rt. & Lt. (Transp.)	9-12-73
H.F.	Add Parcel 131A-Y 131A-Z	2-18-72
J.C.C.	Rev. Par 131WL, 131A-WL Rem. Par. 131S, 131Y, 131A-S, & 131A-S1	2-17-71
	Rev. Par. 131 & 132	11-9-70
	Revised	8-5-70
No.	DESCRIPTION	DATE
	REVISION	DATE OF DWG. 5-19-70

# SUMMARY OF ADDITIONAL RIGHT OF WAY REQUIRED

ERIE COUNTY  
 SOLD AS ERI-2-18.38  
 ERI-2-16.07 R/W

PARCEL NO.	OWNER	AUD. NO.	TOTAL NO. OF OWNERS		TYPE FUNDS	TOTAL NO. OF TOTAL TAKES		TOTAL P.R.O.	TOTAL TAKE	P.R.O. INTAKE	NET LAND	TAKE BLDG.	TOTAL NO. OF OWNERS WITH STRUCTURES TO BE REMOVED				SHEET NO.	REMARKS
			39	5		LEFT NET	RESIDUE P.R.O.						RIGHT RESIDUE P.R.O.	16				
135 WL	FRED W. WILLGRUBE					351	312	240	243.46	1.74	34.30	YES	70.85	0.33	134.33 *	0.81	23-24-25	* 118.11 Ac. W. Of Berlin Rd. & 16.22 Ac. E. Of Berlin Rd.
135 WD	"					238	205	227		0.33	0.24						25	
135A-WD	"					189	188	185		0.22	0.31						26	
135 X	"					189	188	185			1.69						24-25	TO CONSTRUCT CHANNEL
135 T	"										0.11						25	TO REMOVE STRUCTURE
135 T-1	"										0.21						27	TO CONSTRUCT CHANNEL *
136 WL	CLIFFORD & SARI LONG					313	148	2.75	0.33	0.23	0.07	0.16	YES			2.05		25
136 WD	"									0.47	0.26	0.21						25
137 WL	CLIFFORD & SARI LONG					324	373	12.79	0.19	2.32		2.32		4.95 L.L.		5.33	0.19	27-28
138 - 145	NOT ASSIGNED																	
146 WL	ALMA E. LANDBERG					218	383	30.00	0.41	3.51		3.51		17.06 L.L.		9.02	0.41	27-28
147 WL	CLOSMAN P. STOCKER					223	261	34.84	0.36	5.00		5.00	YES	18.17 L.L.		11.31 *	0.36 *	28
147 T	"					165	632				0.12							28
147 T-1	"										0.06							28
147 T-2	"										0.07							28
148 WL	WILLIAM V. & BETTY M. CLEAVENGER					343	521	3.93	0.13	0.61		0.61				3.19	0.13	28
149 WL	ADDISON G. HOFFMAN					291	26	1.11	0.03	0.01		0.01				1.07	0.03	28
150 WL	JOHN H. HOFFMAN					288	616	3.55	0.07	1.18		1.18	YES	0.20 L.L.		2.10	0.07	28-29
151 WL	LESTER W. & FRANK B. HOFFMAN					304	87	16.53	0.67	3.32		3.32		0.73 L.L.		11.78	0.67	29
151A-WL	"										0.03							29
151 X	"										2.11							29
151 Y	"										0.19							29
151 T	"										0.53							29
152 WL	WAYNE E. & GLORIA J. JENKINS					274	412	85.0	0.88	11.23		11.23		50.93 L.L.		21.96	0.88	29-30
152 X	"										0.47							29
152 Y	"										0.34							29
152 Z	"										0.27							29
152 T	"										0.47							29
152 T-1	"										0.10							29
153 WL	ADDISON G. HOFFMAN & ADDISON HOFFMAN					150/128	118/119/214	64.35	0.45	16.71	0	16.71	YES	35.03		12.16	0.45	30,31,33 & 34
153 T	"										0.08							31
153 T-1	"										0.08							34
154 WL	JAMES C. & GERALDINE R. SMITH					283	110	10.65	0.35	0.02		0.02				10.28	0.35	33
155 WL	OHIO EDISON COMPANY					265	184-189	4.73	0.24	1.40	0.24	1.16		3.09				31-34
155 WD	"										0.24							34

STATE

NOTE

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\* NOT NECESSARY BECAUSE OF CONSTRUCTION PLAN CHANGES.

R.W.H.	PARCELS 152T-1, 147T-1, 147T-2, 151X, 151Y, 151T, 152X, 152Y, 152Z, 152T & 152T-1 ADD TO REMARK COLUMN *	1-5-84
LS+EH	Rev. Area Per. 153 (Total area) Revised	1-12-71 8-5-70
NO	DESCRIPTION	DATE
REVISION		DATE OF DWG. 5-19-70

# SUMMARY OF ADDITIONAL RIGHT OF WAY REQUIRED

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

295  
326

SOLD AS ERIE COUNTY  
ERI-2-18.38  
ERI-2-16.07 R/W

R/W  
6  
37

TOTAL NO. OF OWNERS 39

TOTAL NO. OF TOTAL TAKES 5

TOTAL NO. OF OWNERS WITH STRUCTURES TO BE REMOVED 16

PARCEL NO.	OWNER	AUD. NO.	TYPE FUNDS	DEED RECORD		DEED AREA	TOTAL P.R.O.	TOTAL TAKE	P.R.O. INTAKE	NET TAKE		LEFT RESIDUE		RIGHT RESIDUE		SHEET NO.	REMARKS
				BOOK	PAGE					LAND	BLDG.	NET	P.R.O.	NET	P.R.O.		
156 WL 156 WD	JAY W. & THELMA BURDUE REMAINDERMAN & EFFIE BURDUE L.E.			393	840	1.21	0.41	1.09	0.41	0.68	YES	0	---	0	---	31-34 34	TOTAL TAKE
157 WL 157 WD	RONALD & JANET DABROWSKI			360	454	0.29	0.04	0.20	0.04	0.16	YES	0	---	0	---	34 34	TOTAL TAKE
158 WL 158 WD	JAY W. BURDUE & LARRY BURDUE Remainderman & EFFIE BURDUE L.E.			393	844	0.38	0.05	0.23	0.05	0.18	YES	0	---	0	---	34 34	TOTAL TAKE
158A-WL 158A-WD	JAY W. BURDUE & JANET DABROWSKI Remainderman & EFFIE BURDUE L.E.			393	842	0.38	0.05	0.23	0.05	0.18	YES	0	---	0	---	34 34	TOTAL TAKE
159 WL 159WD	ADDISON G. HOFFMAN & ADDISON HOFFMAN			160-128	119-214	3.45	0.33	0.21	0.05	0.16	---	2.37	0.08	0	---	34 34	
160-161	NOT ASSIGNED							0.79	0.20	0.59							
162 WL 162 T	DONALD B. & MARY A. ALDRICH			162-230	162-230	4.35	0.57	1.58	0.44	1.14	YES	---	---	2.64	0.13	33 33	TO REMOVE STRUCTURE
163 WD	ELMER P. BROD			180/223	550/464	93.07	3.48	0.14	0.10	0.04	---	---	---	89.55	3.38	33	
164 WD 164 T	ADDISON G. HOFFMAN ET-AL L'ELLA E. HOFFMAN		STATE	267/125 499/503	105/313 287/100	1.25 31.43	0.28	0.13	0.09	0.04	---	---	---	0.93 31.48	0.19	33	Work Area for Constr. of Temp. Berm.
165 WL 165 WD 165 T	GILBERT & HENRIETTA SCHUH			185	239	3.48	0.40	0.78	0.27	0.51	---	---	---	2.00*	0.10*	33 33 33	*In 2 Parcels TO CONSTRUCT DRIVE
165 T-1	HENRIETTA SCHUH			185/421	239/359	1.08				0.06						33	Work Area for Constr. of Temp. Berm.
166 WL 166 T 166 T-1	GLEN & MARGARET E. CARYER			355 354	640 302	5.67	0.18	1.37	0.18	1.19	YES	---	---	4.30	---	33 33 33	TO CONSTRUCT TEMPORARY ROAD TO REMOVE STRUCTURE
167 WL	VIRGINIA N. PRICE, ET-AL			341/384	572/815	12.24*	0.35	10.92	0.35	10.57	---	0.61 L.L.	---	0.71 L.L.	---	31-32	*Calculated, Deed = 12.68 Ac.
168 WL	TAFT A. & MARIE ANTHONY			402	824	1.0	0.10	1.00	0.10	0.90	YES	0	---	0	---	31-33	TOTAL TAKE
169 WL 169 T	RICHARD G. DANIELS			168	142	0.50	0.05	0.44	0.05	0.39	YES	---	---	0.06 L.L.	---	34 34	TO CONSTRUCT TEMPORARY ROAD
170 WL 170A-WL 170 WD 170 T	KATHERINE A. O'RORK			372 253-259 171 166	641 460-611 282-84 598	20.41	0.29	0.71	0.15	0.56	YES	19.32	---	---	---	34 34 34 34	
171 WL 171 WD 171 T	LAKEVIEW UNITED METHODIST CHURCH			127	355	0.57	0.11	0.34	0.10	0.24	YES	0.17	---	---	---	34 34 34	TO REMOVE STRUCTURE
172 WD	ELDO MEEKER			170/206	187/9	0.41	0.04	0.06	0.04	0.02	---	0.35	---	---	---	34	

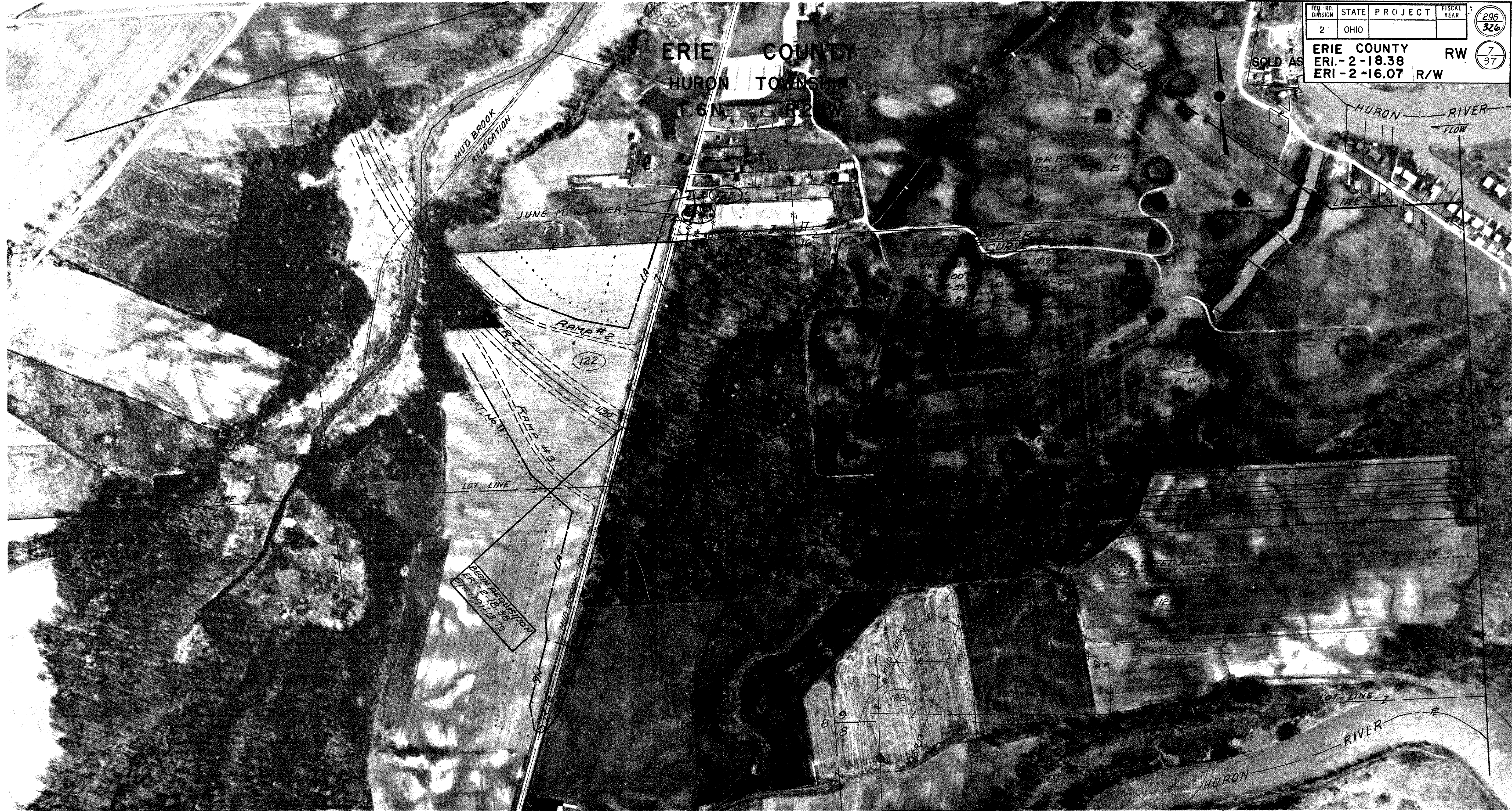
NOTE:  
ALL AREAS SHOWN ARE IN ACRES  
AND DECIMAL PARTS THERE OF  
UNLESS OTHERWISE NOTED.

J.E.C.	Added Par 164T & 165T-1; Name	10-30-85
S+GL	Rev. Name Par. 171	4-13-71
S-EH	Rev. Area Par 159 (Total Area)	1-12-71
BT	Rev Name Par 168	9-14-70
	Revised	8-5-70
NO	DESCRIPTION	DATE
	REVISION	DATE OF DWG 5-19-70

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

296  
326  
7  
37

ERIE COUNTY RW  
ERI-2-18.38  
ERI-2-16.07 R/W



PARCEL NO.	OWNER	PARCEL NO.	OWNER
123	JUNE M. WARNER		
124	JUNE M. WARNER		
125	GOLF INC.		
126	NOT ASSIGNED		

GENERAL TELEPHONE CO.  
BELLEVUE, OHIO 44811

AMERICAN TELEPHONE & TELEGRAPH CO.  
100 ERIEVIEW PLAZA  
CLEVELAND, OHIO 44114

ERIE COUNTY SEWER & WATER SYSTEM  
COUNTY COURT HOUSE  
SANDUSKY, OHIO 44870

COLUMBIA GAS OF OHIO INC.  
173 EAST WASHINGTON ROW  
SANDUSKY, OHIO 44870

OHIO EDISON CO.  
2508 WEST PERKINS AVE.  
SANDUSKY, OHIO 44870

**GRAPHIC SCALE**  
0' 100' 200' 400' 600' 800' 1000'  
SCALE IN FEET

No	DESCRIPTION	DATE
	Revised	8-570

**PROPERTY MAP**  
STATE OF OHIO  
DEPARTMENT OF HIGHWAYS

**AERIAL MOSAIC**  
ERI-2-18.38  
SCALE: GRAPHIC PHOTOGRAPHED APRIL 12, 1966

**ADACHE ASSOCIATES INC., ENGINEERS**  
CLEVELAND 42, OHIO  
SHEET 1 OF 4 SHEETS

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

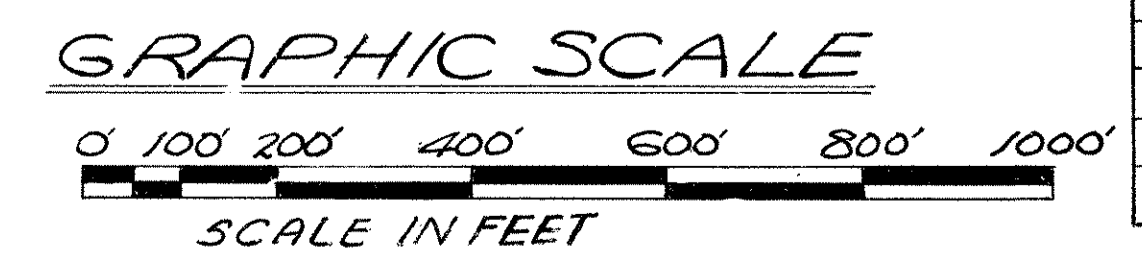
257	326
8	37

ERIE COUNTY  
ERI.-2-18.38  
ERI.-2-16.07 R/W



PARCEL NO.	OWNER	PARCEL NO.	OWNER
125	GOLF INC.		
127	VIRGINIA M. SCHOFIELD		
128	CHARLES CALENGOR		
131	E. I. DU PONT DE NEMOURS & COMPANY		
130	NORFOLK AND WESTERN RAILWAY		
131A	E. I. DU PONT DE NEMOURS & CO.		
132	THE GLIDDEN COMPANY		
133	LEO S. RIEDY		
126 & 129	NOT ASSIGNED		

SKETCH OF E. I. DU PONT DE NEMOURS AND COMPANY

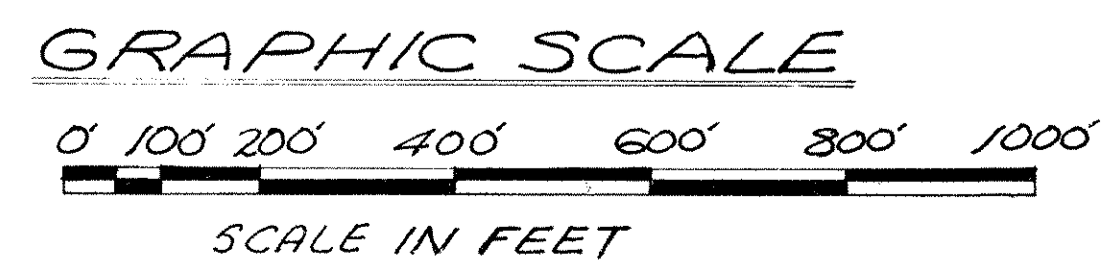


N <sup>o.</sup>	DESCRIPTION	DATE
	R.W.H. EXTENDED HURON RIVER STRUCTURE	1-5-84
Hf	Rev. Parcel 131A	2-18-72
	Rev. Par. 131	2-17-71
	Rev. Par. 131 & 132	11-9-70
	Revised	8-5-70

**PROPERTY MAP**  
STATE OF OHIO  
DEPARTMENT OF HIGHWAYS  
**AERIAL MOSAIC**  
ERI.-2-18.38  
SCALE: GRAPHIC PHOTOGRAPHED APRIL 12, 1966  
**ADACHE ASSOCIATES INC., ENGINEERS**  
CLEVELAND 42, OHIO  
SHEET 2 OF 4 SHEETS



PARCEL NO.	OWNER	PARCEL NO.	OWNER
132	THE GLIDDEN COMPANY	152	WAYNE E & GLORIA J. JENKINS
133	LEO S. RIEDY	138 TO 145	NOT ASSIGNED
134	HARRY E. & LORENA L. BOOS		
135	FRED W. WILLGRUBE		
136 & 137	CLIFFORD & SARI LONG		
146	ALMA E. LANDBERG		
147	CLOSMAN P. STOCKER		
148	WILLIAM V & BETTY M. CLEAVENGER		
149	ADDISON G. HOFFMAN		
150	JOHN H. HOFFMAN		

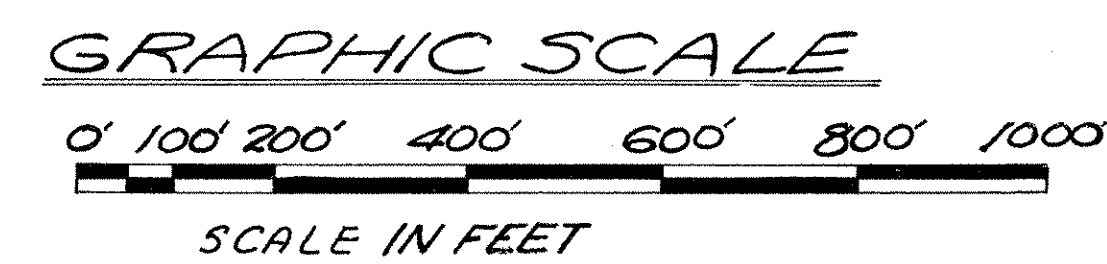


No	DESCRIPTION	DATE
Revised		8-5-70

**PROPERTY MAP**  
 STATE OF OHIO  
 DEPARTMENT OF HIGHWAYS  
**AERIAL MOSAIC**  
 ERI - 2 - 18.38  
 SCALE: GRAPHIC PHOTOGRAPHED APRIL 12, 1966  
**ADACHE ASSOCIATES INC., ENGINEERS**  
 CLEVELAND 42, OHIO  
 SHEET 3 OF 4 SHEETS



PARCEL NO.	OWNER	PARCEL NO.	OWNER	PARCEL NO.	OWNER
149	ADDISON G. HOFFMAN	158	JAY W. & LARRY BURDUE, ET-AL	167	VIRGINIA N. PRICE, ET-AL
150	JOHN H. HOFFMAN	158A	JAY W. BURDUE & JANET DABROWSKI	168	JAMES W. JR & MAGDALENE E. TINDILL
151	LESTER W. HOFFMAN	159	ADDISON (aka ADDISON G.) HOFFMAN	169	RICHARD G. DANIELS
152	WAYNE E. & GLORIA J. JENKINS	160-161	NOT ASSIGNED	170	KATHERINE A. O'RORK
153	ADDISON (aka ADDISON G.) HOFFMAN	162	DONALD B. & MARY A. ALDRICH	171	THE TRUSTEES OF THE CONGREGATION OF THE EVANGELICAL CHURCH OF CEYLON, OHIO
154	JAMES C. & GERALDINE R. SMITH	163	ELMER P. BROD	172	ELDO MEEKER
155	OHIO EDISON COMPANY	164	ADDISON G. HOFFMAN ET-AL.		
156	JAY W. & THELMA BURDUE, ET-AL	165	GILBERT & HENRIETTA SCHUH		
157	RONALD & JANET DABROWSKI	166	GLEN H. & MARGARET E. CARVER		



No.	DESCRIPTION	DATE
89	Name change 168 W/L Revised	9-14-70 8-5-70

**PROPERTY MAP**  
 STATE OF OHIO  
 DEPARTMENT OF HIGHWAYS  
**AERIAL MOSAIC**  
 ERI - 2 - 18.38  
 SCALE GRAPHIC PHOTOGRAPHED APRIL 12, 1966  
**ADACHE ASSOCIATES INC., ENGINEERS**  
 CLEVELAND 42, OHIO  
 SHEET 4 OF 4 SHEETS



SEC 2 HURON TWP T 6N R 22W  
Lot 8 & 9

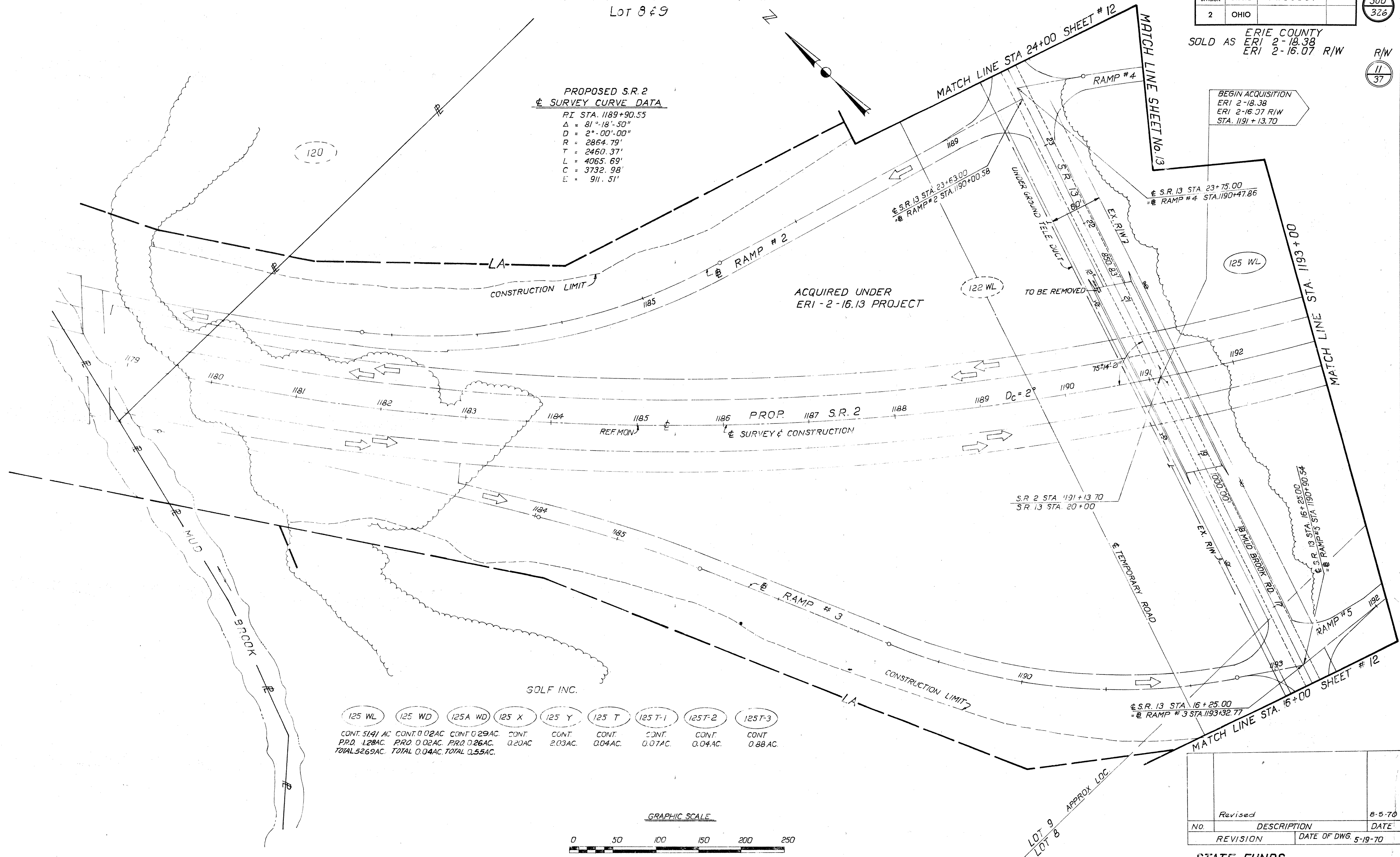
FED. RD. DIVISION	STATE	PROJECT	300 326
2	OHIO		

ERIE COUNTY  
SOLD AS ERI 2-18.38  
ERI 2-16.07 R/W

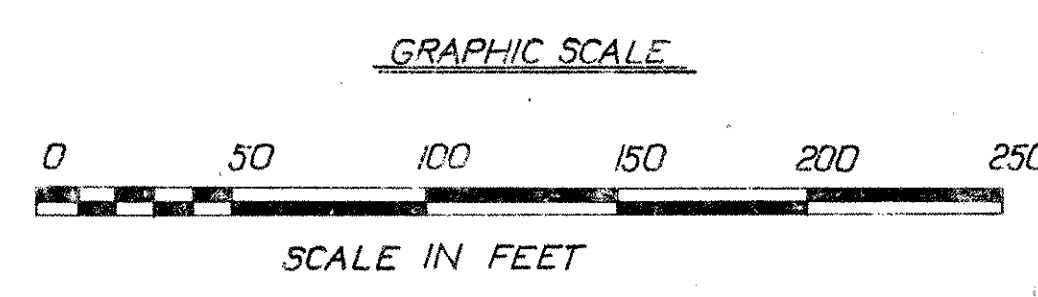
R/W  
11  
37

PROPOSED S.R. 2  
SURVEY CURVE DATA

P.I. STA. 1189+90.55  
 $\Delta = 81^\circ 18' 50''$   
 $D = 2^\circ 00' 00''$   
 $R = 2864.79'$   
 $T = 2460.37'$   
 $L = 4065.69'$   
 $C = 3732.98'$   
 $E = 911.51'$



125 WL	125 WD	125A WD	125 X	125 Y	125 T	125 T-1	125 T-2	125 T-3
CONT. 51.41 AC PRD. 1.28 AC TOTAL 52.69 AC	CONT. 0.02 AC PRD. 0.02 AC TOTAL 0.04 AC	CONT. 0.29 AC PRD. 0.26 AC TOTAL 0.55 AC	CONT. 0.20 AC	CONT. 2.03 AC	CONT. 0.04 AC	CONT. 0.07 AC	CONT. 0.04 AC	CONT. 0.88 AC



Revised	8-5-70	
No.	DESCRIPTION	DATE
REVISION	DATE OF DWG.	5-19-70

STATE FUNDS  
RIGHT OF WAY STA. 1178+00 TO STA. 1193+00



SEC. 1 & 2 HURON TWP. T. 6N. R. 22 W

LOT 8 & 9, SEC. 2

LOT 9 & 16, SEC. 1

THUNDERBIRD HILLS GOLF COURSE

FED. DIV.	STATE	PROJECT	FISCAL YEAR
2	OHIO		

302  
326

SOLD AS  
**ERIE COUNTY**  
ERI. 2-18.38  
ERI. 2-16.07R/W

R/W  
13  
37

**RAMP #4 SURVEY CURVE DATA**

CURVE No. 1	CURVE No. 2	CURVE No. 3
P.I. STA. 1192+44.42	P.I. STA. 1197+76.04	P.I. STA. 1202+22.60
$\Delta = 18^{\circ} 23' 26''$	$\Delta = 26^{\circ} 44' 09''$	$\Delta = 19^{\circ} 37' 11''$
$D = 8^{\circ} 00' 00''$	$D = 8^{\circ} 00' 00''$	$D = 3^{\circ} 30' 00''$
$R = 716.20'$	$R = 716.20'$	$R = 1637.02'$
$T = 115.94'$	$T = 170.20'$	$T = 283.16'$
$L = 229.88'$	$L = 334.20'$	$L = 560.56'$

**S.R. 2 CURVE #2 SURVEY CURVE DATA**

CURVE No. 1	CURVE No. 2
P.I. STA. 1206+95.90	P.I. STA. 1189+90.55
$\Delta = 3^{\circ} 00' 00''$	$\Delta = 81^{\circ} 18' 50''$ LT.
$D = 1^{\circ} 29' 59.83''$ LT.	$D = 2^{\circ} 00' 00''$
$R = 3,819.84'$	$R = 2,864.79'$
$T = 100.03'$	$T = 2460.37'$
$L = 200.01'$	$L = 4065.69'$
$C = 199.98'$	$C = 3732.98'$
$E = 1.31'$	$E = 911.51'$
CH. BR. $S 87^{\circ} 12' 02'' E$	

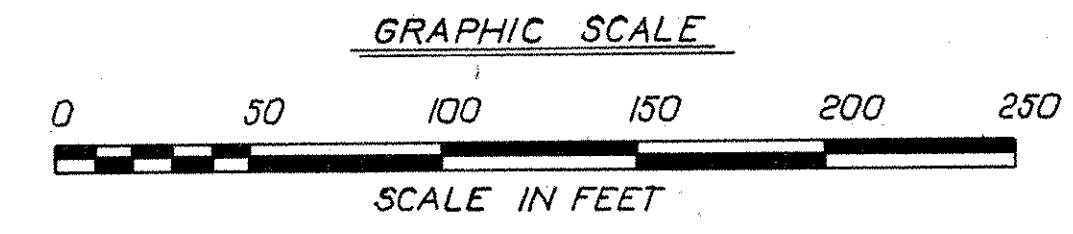
125 WL	125 WD	125 X	125 Y	125 T
CONT. 51.41 AC	CONT. 0.02 AC	CONT. 0.20 AC	CONT. 2.03 AC	CONT. 0.04 AC
P.R.O. 1.28 AC	P.R.O. 0.02 AC			
TOTAL 52.69 AC	TOTAL 0.04 AC			

125 A-WD	125 T-1	125 T-2	125 T-3
CONT. 0.29 AC	CONT. 0.07 AC	CONT. 0.04 AC	CONT. 0.88 AC
P.R.O. 0.26 AC			
TOTAL 0.55 AC			

STA. 1200+62.73 TO  
STA. 1205+95.87  
 $\Delta = 10^{\circ} 39' 46''$   
 $R = 2864.79'$   
 $L = 533.14'$   
 $C = 532.37'$   
CH. BR.  $S 80^{\circ} 22' 09'' E$

**RAMP #5 SURVEY CURVE DATA**

P.I. STA. 1199+49.15
$\Delta = 4^{\circ} 02' 08''$
$D = 2^{\circ} 00' 00''$
$R = 2864.79'$
$T = 100.93'$
$L = 201.78'$



R/W.H.	REVISED CULVERT NO. 11 TO A SINGLE PIPE	1-5-84
Revised		8-5-80
N <sup>o</sup>	DESCRIPTION	DATE
REVISION	DATE OF DWG.	5-19-70

STATE FUNDS  
RIGHT OF WAY STA. 1193+00 TO STA. 1208+00

SEC. 1 HURON TWP. T. 6N R. 22 W  
Lots 9 & 16

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

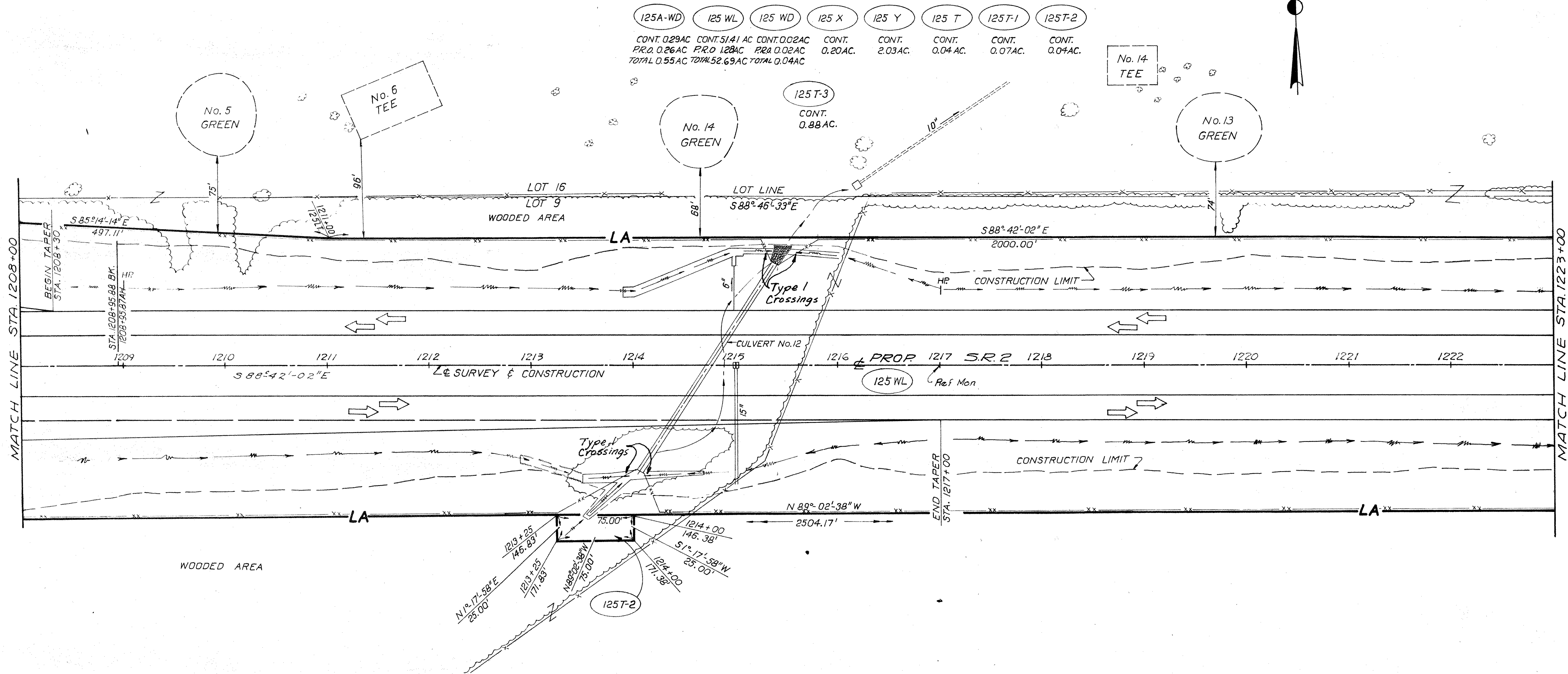
303  
326

SOLD AS  
ERIE COUNTY  
ERI. 2-18.38  
ERI. 2-16.07 R/W

R/W  
14  
37

THUNDERBIRD HILLS GOLF COURSE  
GOLF INC.

- 125A-WD CONT. 0.29 AC
- 125 WL CONT. 51.41 AC
- 125 WD CONT. 0.02 AC
- 125 X CONT. 0.20 AC
- 125 Y CONT. 2.03 AC
- 125 T CONT. 0.04 AC
- 125T-1 CONT. 0.07 AC
- 125T-2 CONT. 0.04 AC
- 125T-3 CONT. 0.88 AC



GRAPHIC SCALE



Revised		8-5-70
NO.	DESCRIPTION	DATE
REVISION	DATE OF DWG.	5-19-70

STATE FUNDS  
RIGHT OF WAY STA. 1208+00 TO STA. 1223+00

SEC. 1, HURON TWP, T.6 N, R.22 W.  
Lots 9 & 16

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

304-326

SOLD AS ERIE COUNTY  
ERI. 2-18.38  
ERI. 2-16.07 R/W

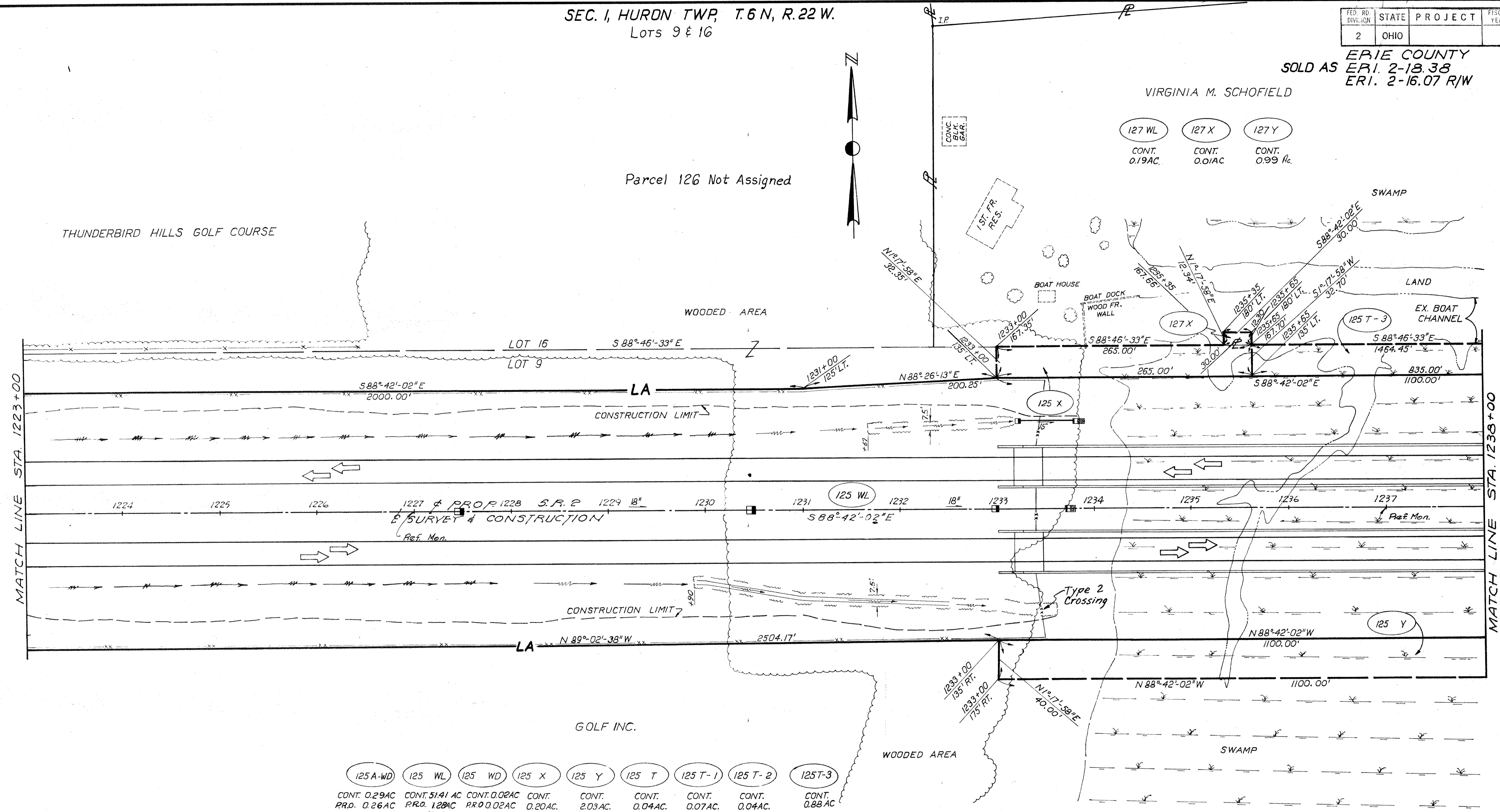
R/W  
15/37

VIRGINIA M. SCHOFIELD

- 127 WL CONT. 0.19AC
- 127 X CONT. 0.01AC
- 127 Y CONT. 0.99 AC

Parcel 126 Not Assigned

THUNDERBIRD HILLS GOLF COURSE



- 125A-WD CONT. 0.29AC PR.O. 0.26AC TOTAL 0.55AC
- 125 WL CONT. 51.41 AC PR.O. 1.28AC TOTAL 52.69AC
- 125 WD CONT. 0.02AC PR.O. 0.02AC TOTAL 0.04AC
- 125 X CONT. 0.20AC
- 125 Y CONT. 2.03AC
- 125 T CONT. 0.04AC
- 125 T-1 CONT. 0.07AC
- 125 T-2 CONT. 0.04AC
- 125T-3 CONT. 0.88AC

GRAPHIC SCALE



N.º	DESCRIPTION	DATE
	P.D.G. Revised Fence - Connected to Bridge	11/85
	R.W.H. REVISED BRIDGE & CONSTR. LIMITS	11/83
	Revised	8-5-70
	REVISION	DATE OF DWG. 5-19-70

STATE FUNDS  
RIGHT OF WAY STA. 1223+00 TO STA. 1238+00

SEC. 1, HURON TWP, T6N, R22W.  
Lots 9 & 16

VIRGINIA M. SCHOFIELD

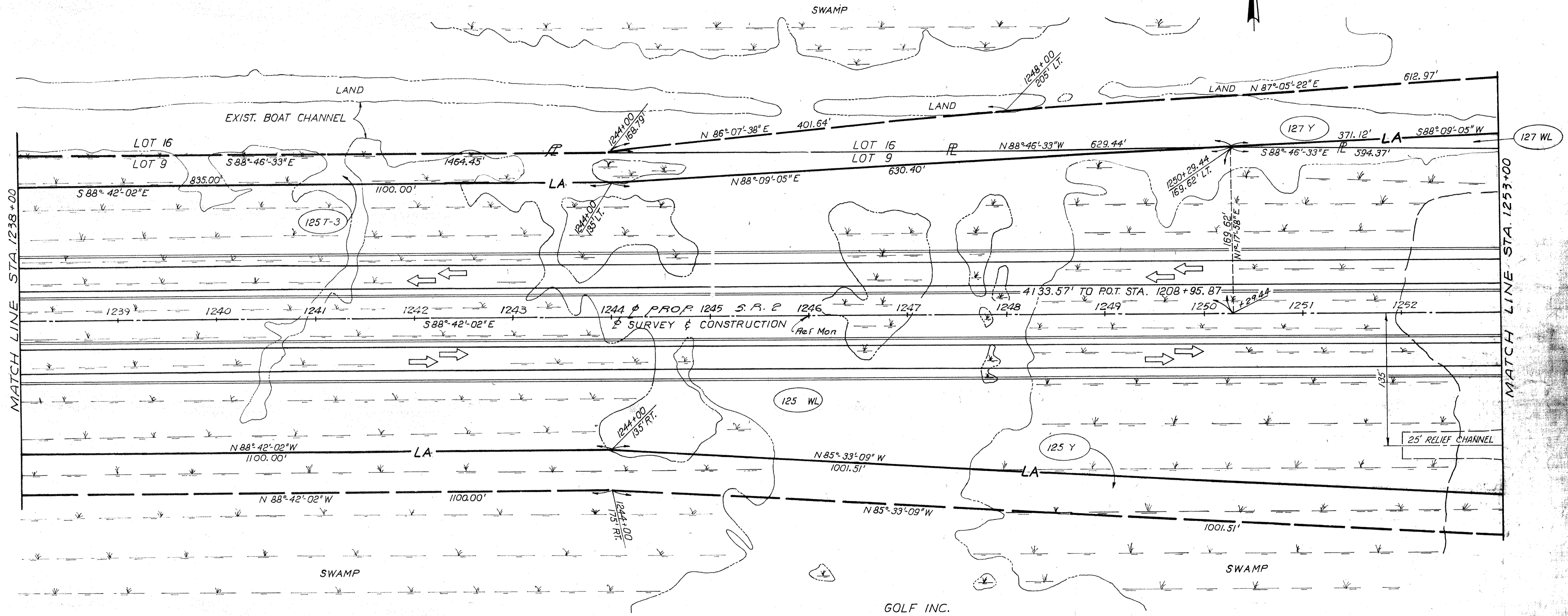
FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

305  
326

ERIE COUNTY  
SOLD AS ERI. 2-18.38  
ERI. 2-16.07 R/W

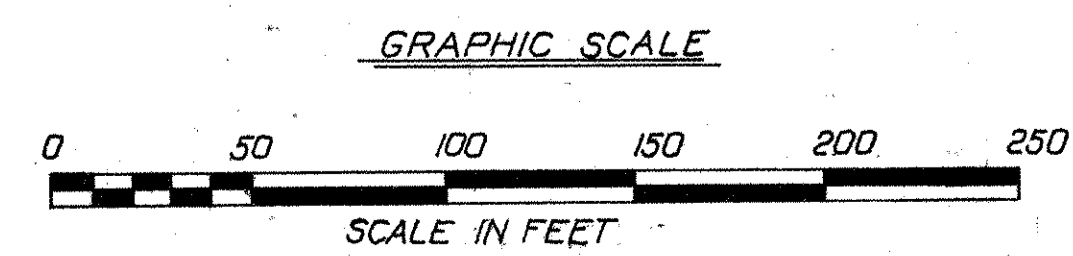
R/W  
16  
37

- 127 WL  
CONT. 0.19 AC
- 127 X  
CONT. 0.01 AC
- 127 Y  
CONT. 0.99 AC



- 125 A-WD  
CONT. 0.29 AC  
PRO. 0.26 AC  
TOTAL 0.55 AC
- 125 WL  
CONT. 51.41 AC  
PRO. 1.28 AC  
TOTAL 52.69 AC
- 125 WD  
CONT. 0.02 AC  
PRO. 0.02 AC  
TOTAL 0.04 AC
- 125 X  
CONT. 0.20 AC
- 125 Y  
CONT. 2.03 AC
- 125 T  
CONT. 0.04 AC
- 125 T-1  
CONT. 0.07 AC
- 125 T-2  
CONT. 0.04 AC
- 125 T-3  
CONT. 0.88 AC

Parcel 126 Not Assigned



NO.	REVISION	DESCRIPTION	DATE
		RDG Deleted Fence	11/85
		R.W.H. REV BRIDGE & CONSTR. LIMITS	11/83
		Revised	8-5-70
		DATE	
		DATE OF DWG.	5-19-70

STATE FUNDS  
RIGHT OF WAY STA. 1238+00 TO STA. 1253+00

SEC. 1, HURON TWP, T.6N, R.22 W.  
Lots 4, 5, 9, 10, & 16

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

306  
326

SOLD AS ERI. 2-18.38  
ERI. 2-16.07 R/W

R/W  
17  
37

THE GLIDDEN COMPANY

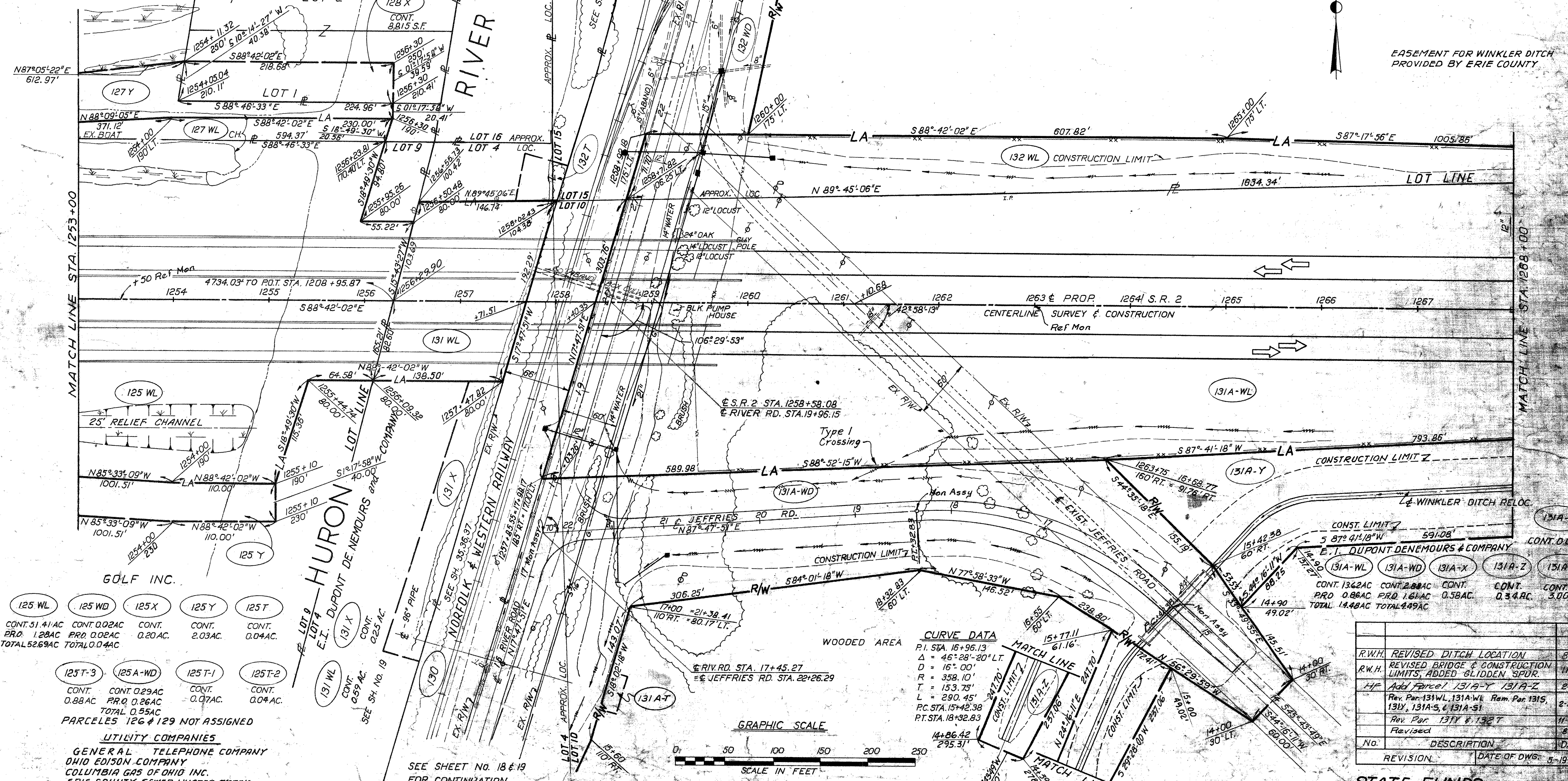
132 WL CONT. 1.30AC PRO 0.15AC TOTAL 1.45AC  
132 WD CONT. 0.21AC PRO 0.41AC TOTAL 0.62AC  
132 T CONT. 0.04AC



EASEMENT FOR WINKLER DITCH PROVIDED BY ERIE COUNTY

VIRGINIA M. SCHOFIELD  
127 WL CONT. 0.19AC  
127 X CONT. 0.01AC  
127 Y CONT. 0.99AC

CHARLES CALENGOR  
128 X CONT. 3.815 S.F.

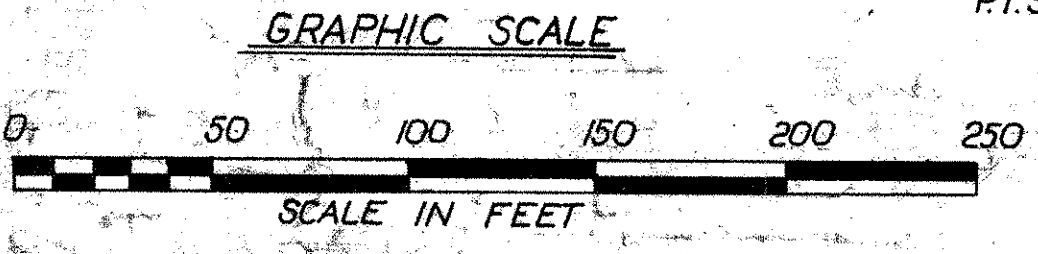


GOLF INC.  
125 WL CONT. 51.41AC PRO 1.28AC TOTAL 52.69AC  
125 WD CONT. 0.02AC PRO 0.02AC TOTAL 0.04AC  
125 X CONT. 0.20AC  
125 Y CONT. 2.03AC  
125 T CONT. 0.04AC

125 T-3 CONT. 0.88AC  
125 A-WD CONT. 0.29AC PRO 0.26AC TOTAL 0.55AC  
125 T-1 CONT. 0.07AC  
125 T-2 CONT. 0.04AC  
PARCELES 126 & 129 NOT ASSIGNED

UTILITY COMPANIES  
GENERAL TELEPHONE COMPANY  
OHIO EDISON COMPANY  
COLUMBIA GAS OF OHIO INC.  
ERIE COUNTY SEWER & WATER SYSTEM

SEE SHEET NO. 18 & 19 FOR CONTINUATION



CURVE DATA

P.I. STA.	16+96.13
Δ	46°28'-20" LT.
D	16° 00'
R	358.10'
T	153.75'
L	290.45'
P.C. STA.	15+42.38
P.T. STA.	18+32.83

CONST. LIMIT 7  
5 87° 41' 18" W 591.08'  
E.I. DUPONT DENEMOURS & COMPANY  
131A-WL CONT. 13.62AC PRO 0.86AC TOTAL 14.48AC  
131A-WD CONT. 2.88AC PRO 1.61AC TOTAL 4.49AC  
131A-X CONT. 0.58AC  
131A-Z CONT. 0.34AC  
131A-Y CONT. 3.00AC

REVISION	DESCRIPTION	DATE
R.W.H.	REVISED DITCH LOCATION	6/85
R.W.H.	REVISED BRIDGE & CONSTRUCTION LIMITS; ADDED GLIDDEN SPUR.	11/83
H.P.	Add Parcel 131A-Y 131A-Z	2-17-72
	Rev. Par. 131WL, 131A-WL Rem. Par. 131S, 131Y, 131A-S, & 131A-S1	2-17-71
	Rev. Par. 131Y & 132T	11-9-70
	Revised	6-5-70

STATE FUNDS  
RIGHT OF WAY STA. 1253+00 TO STA. 1268+00

SEC. 1, HURON TWP, T. 6 N., R. 22 W.

Lot 4

E.I. DuPONT DENEMOURS and COMPANY

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

307  
326

SOLD AS ERIE COUNTY  
ERI 2-18.38  
ERI 2-16.07 R/W

R/W  
18  
37

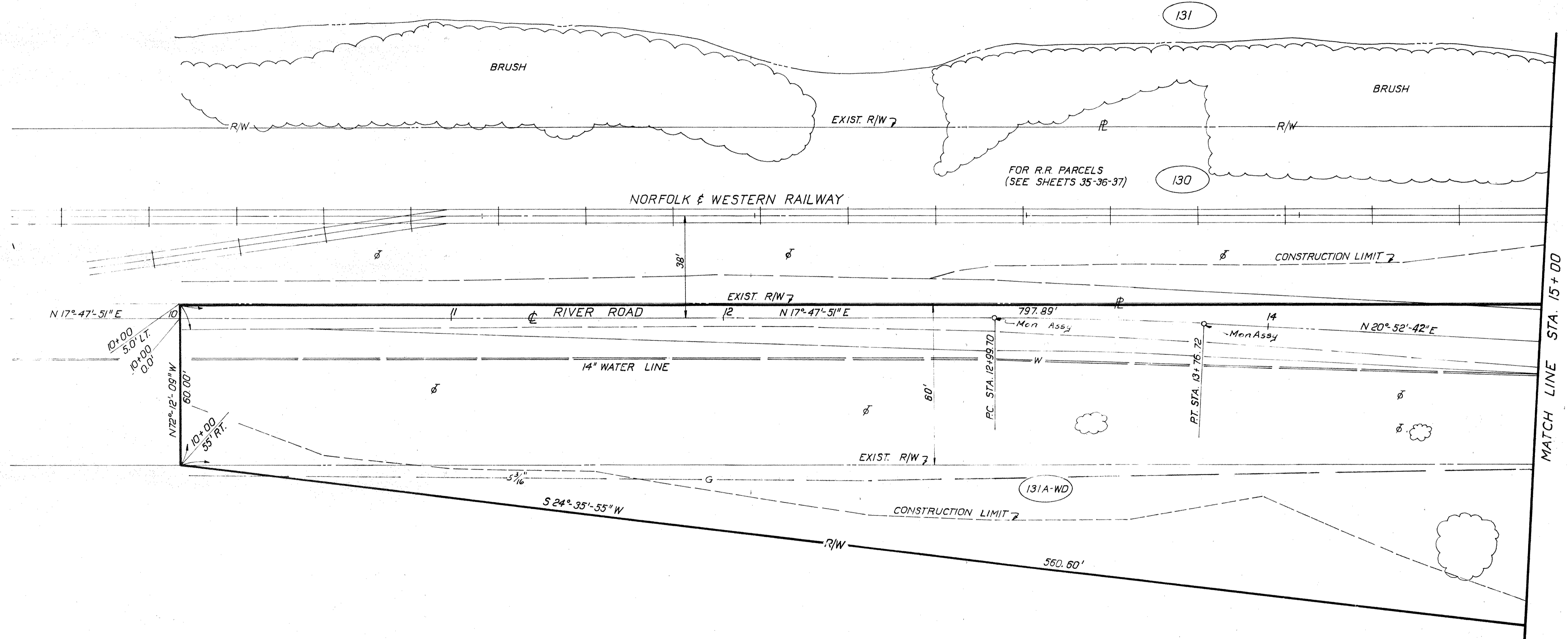
131 WL CONT. 0.59AC  
131 X CONT. 0.25AC

HURON RIVER

FLOW

CURVE DATA

PI. STA. 13+38.22  
Δ = 03°-04'-51"  
D = 04°-00'-00"  
R = 1432.39'  
T = 38.52'  
L = 77.02'

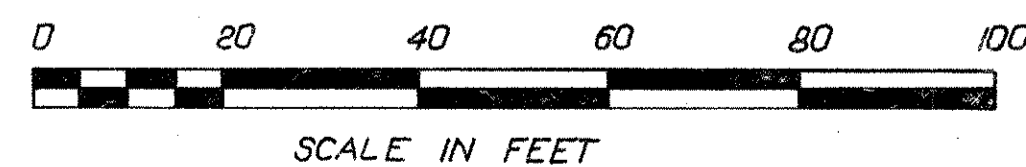


E.I. DuPONT DENEMOURS and COMPANY

131A-WL CONT. 13.62AC PRO. 0.86AC TOTAL 14.48AC  
131A-WD CONT. 2.28AC PRO. 1.61AC TOTAL 3.89AC  
131A-X CONT. 0.58AC

131A-T CONT. 0.01AC

GRAPHIC SCALE



UTILITY COMPANIES  
GENERAL TELEPHONE CO.  
OHIO EDISON CO.  
COLUMBIA GAS OF OHIO INC.  
ERIE COUNTY SEWER & WATER SYSTEM

No.	DESCRIPTION	DATE
	Rev. Par. 131WL, 131A-WL Rem. Par. 131S, 131Y, 131A-S, & 131A-S1	2-17-71
	Rev. Par. 131Y & 132T	11-9-70
	Revised	8-5-70
	REVISION	DATE OF DWG
		5-19-70

STATE FUNDS

RIVER RD. RIGHT OF WAY STA. 10+00 STA. 15+00



SEC. 1, HURON TWP., T. 6 N., R. 22 W.  
Lots 4, 10, & 15

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

308  
325

**CURVE DATA**  
P.I. STA. 15+61.50  
Δ = 03°-04'-36"  
D = 04°-00'-00"  
R = 1432.39'  
T = 38.47'  
L = 77.02'

E.I. DuPONT DENEMOURS and COMPANY

HURON RIVER

THE GLIDDEN COMPANY

SOLD AS ERIE COUNTY  
ERI 2-18.38  
ERI 2-16.07 R/W

R/W  
19  
37

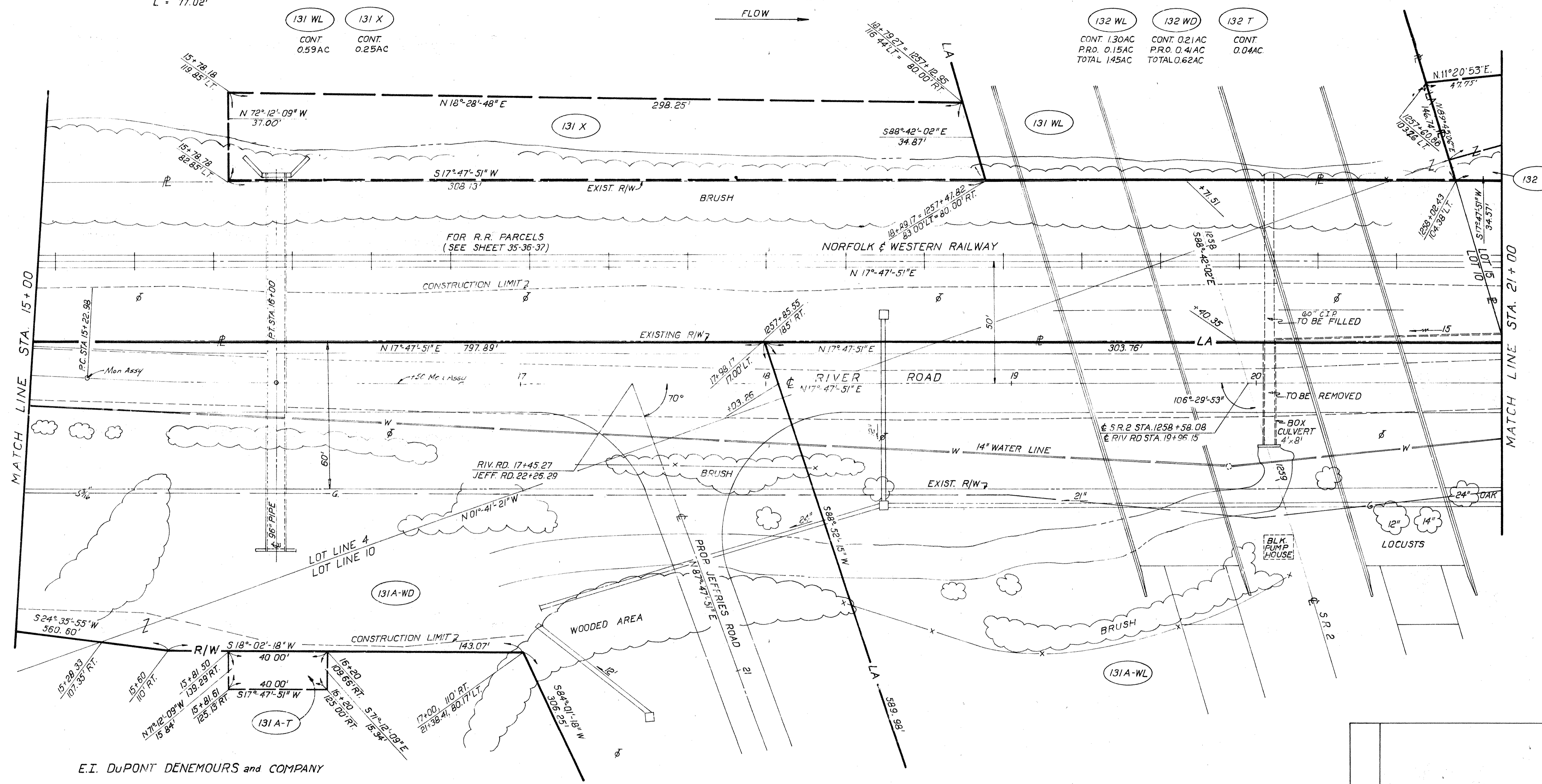
131 WL  
CONT. 0.59AC

131 X  
CONT. 0.25AC

132 WL  
CONT. 1.30AC  
PRO. 0.15AC  
TOTAL 1.45AC

132 WD  
CONT. 0.21AC  
PRO. 0.41AC  
TOTAL 0.62AC

132 T  
CONT. 0.04AC



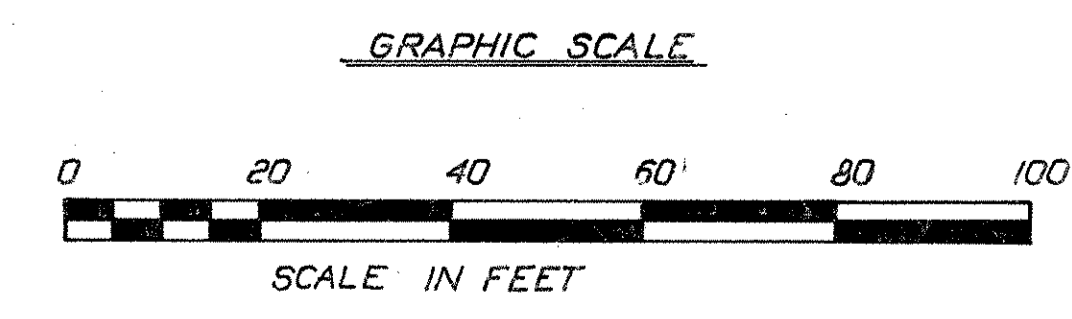
E.I. DuPONT DENEMOURS and COMPANY

131A-WL  
CONT. 13.62AC  
PRO. 0.86AC  
TOTAL 14.48AC

131A-WD  
CONT. 2.28AC  
PRO. 1.61AC  
TOTAL 3.89AC

131A-X  
CONT. 0.58AC

131A-T  
CONT. 0.01AC



UTILITY COMPANIES  
GENERAL TELEPHONE CO.  
OHIO EDISON CO.  
COLUMBIA GAS OF OHIO INC.  
ERIE COUNTY SEWER & WATER SYSTEM

Rev. Par 131WL, 131A-WL, Rem. Par. 131S, 131Y, 131A-S, & 131A-S1	2-17-71	
Rev. Par 132T, 131Y	11-9-70	
Revised	8-5-70	
No.	DESCRIPTION	DATE
REVISION	DATE OF DWG	5-19-70

STATE FUNDS  
RIVER RD RIGHT OF WAY STA. 15+00 STA. 21+00

SEC. 1, HURON TWP., T.6 N., R. 22 W.  
Lots 4, 10, 15, & 16

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

309  
326

ERIE COUNTY  
SOLD AS ERI 2-18.38  
ERI 2-16.07 R/W

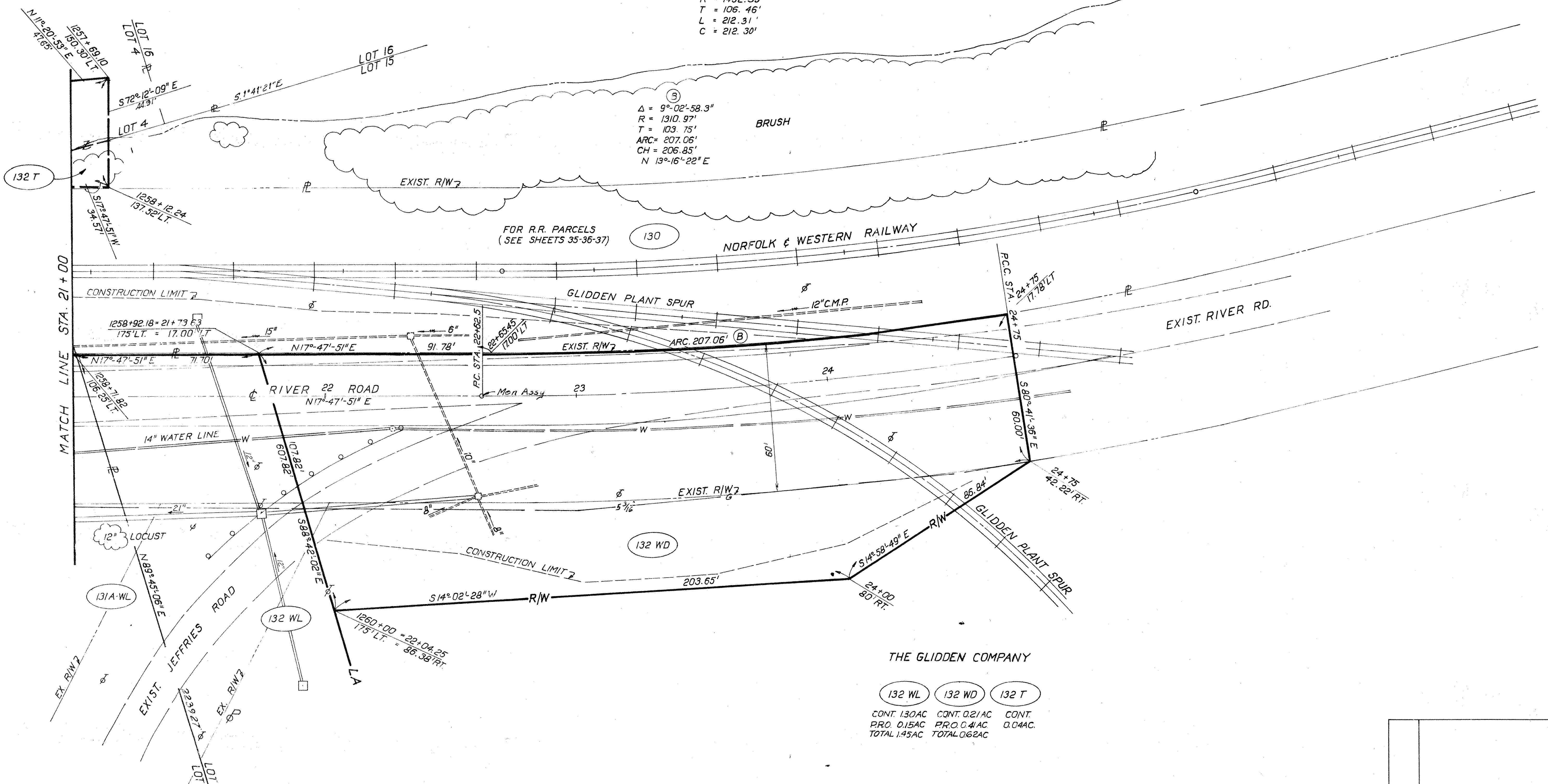
R/W  
20  
37

HURON RIVER



⊘ CURVE DATA  
P.I. STA. 23+68.96  
Δ = 8°30'00"  
D = 4°00'00"  
R = 1432.39'  
T = 106.46'  
L = 212.31'  
C = 212.30'

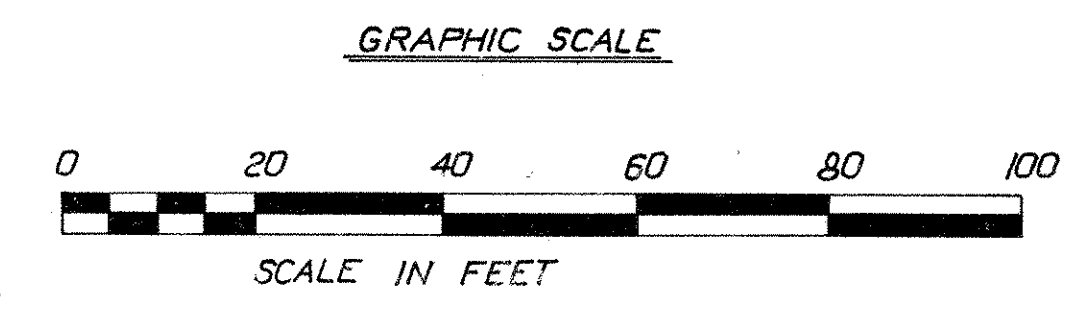
⊘  
Δ = 9°02'58.3"  
R = 1310.97'  
T = 103.75'  
ARC = 207.06'  
CH = 206.85'  
N 13°16'22"E



THE GLIDDEN COMPANY

132 WL	132 WD	132 T
CONT. 1.30AC	CONT. 0.21AC	CONT.
PRO. 0.15AC	PRO. 0.41AC	0.04AC.
TOTAL 1.45AC	TOTAL 0.62AC	

UTILITY COMPANIES  
GENERAL TELEPHONE CO.  
OHIO EDISON CO.  
COLUMBIA GAS OF OHIO INC.  
ERIE COUNTY SEWER & WATER SYSTEM



No.	DESCRIPTION	DATE
	R.W.H. REVISED DRAINAGE	8/85
	R.W.H. ADDED GLIDDEN PLANT SPUR	11/83
	Rev. Per 132T	11-9-70
	Revised	8-5-70
	REVISION	DATE OF DWG 5-19-70

STATE FUNDS  
RIVER RD. RIGHT OF WAY STA. 21+00 STA. 24+75

SEC. 1 HURON TWP. T. 6 N. R. 22 W.  
 LOTS 10, 12, 13, & 15

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

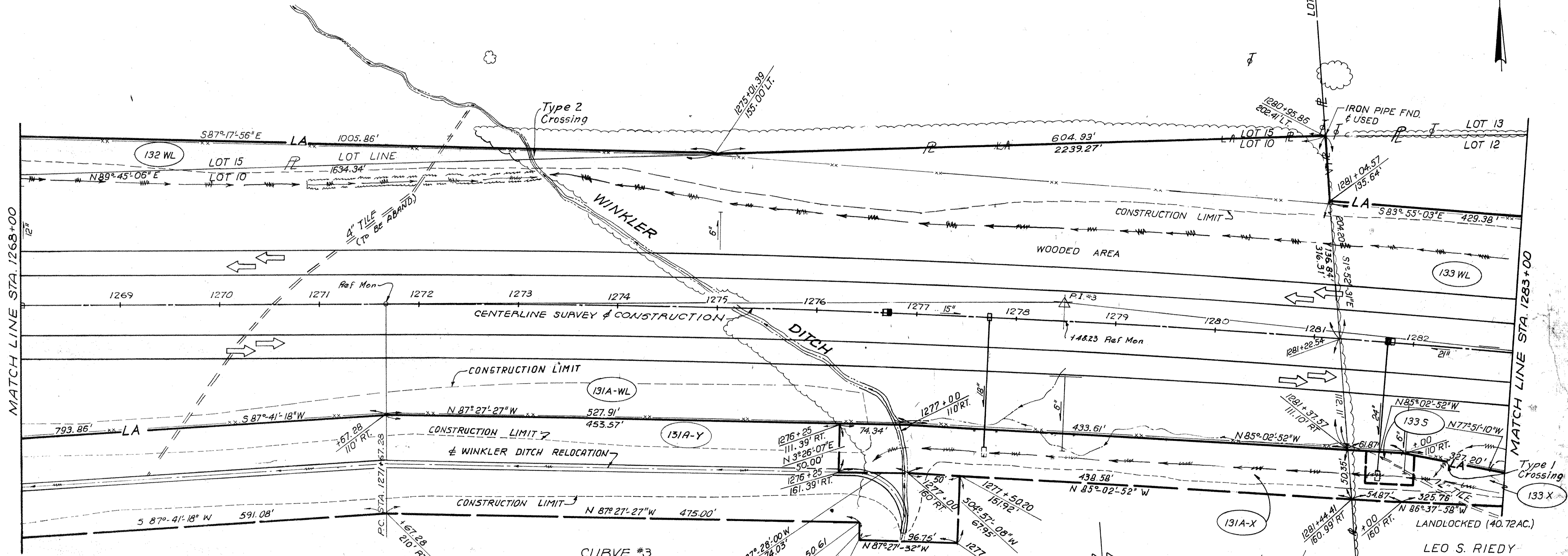
ERIE COUNTY  
 SOLD AS ERI. 2-18.38  
 ERI. 2-16.07 R/W

310  
 326

R/W  
 21  
 37

THE GLIDDEN COMPANY

132 WL	132 WD	132 T
CONT. 1.30 AC	CONT. 0.21 AC	CONT. 0.04 AC
P.R.O. 0.15 AC	P.R.O. 0.41 AC	P.R.O. 0.04 AC
TOTAL 1.45 AC	TOTAL 0.62 AC	



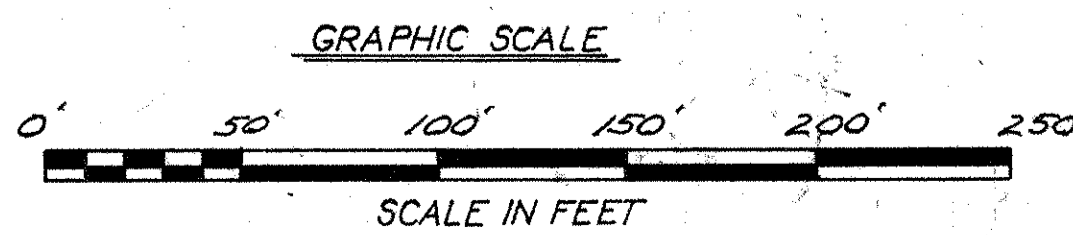
**CURVE #3**  
**CURVE DATA**  
 P.I. STA. 1278+48.93  
 D = 0° 28' 00"  
 Δ = 6° 21' 20" RT.  
 R = 12,277.67'  
 T = 681.65'  
 L = 1361.90'  
 E = 18.91'

E.I. DUPONT DENEMOURS and COMPANY

131A-WL	131A-WD	131A-X	131A-Y	131A-Z	131A-T
CONT. 136.2 AC	CONT. 2.28 AC	CONT. 0.58 AC	CONT. 3.00 AC	CONT. 0.34 AC	CONT. 0.01 AC
P.R.O. 0.96 AC	P.R.O. 1.61 AC	P.R.O. 0.58 AC	P.R.O. 3.00 AC	P.R.O. 0.34 AC	P.R.O. 0.01 AC
TOTAL 14.48 AC	TOTAL 3.89 AC				

133 WL	133 WD	133 X	133 S
CONT. 22.52 AC	CONT. 0.04 AC	CONT. 0.25 AC	CONT. 0.03 AC
P.R.O. 0.37 AC	P.R.O. 0.01 AC	P.R.O. 0.25 AC	P.R.O. 0.03 AC
TOTAL 22.89 AC	TOTAL 0.05 AC		

No.	DESCRIPTION	DATE
1	As Per 131A T, 131A Z	2-17-75
2	Rev. Par. 131A-WL Rem. Par. 131A-S & 131A-S1	2-17-75
3	Rev. Par. 132 T	11-9-70
4	Revised	8-5-70
	REVISION	DATE OF DWG. 5-19-70



STATE FUNDS  
 RIGHT OF WAY STA. 1268+00 TO STA. 1283+00

SEC. 1 HURON TWP. T. 6N R. 22W  
Lots 12 & 13

STATE	PROJECT	FISCAL YEAR
OHIO		

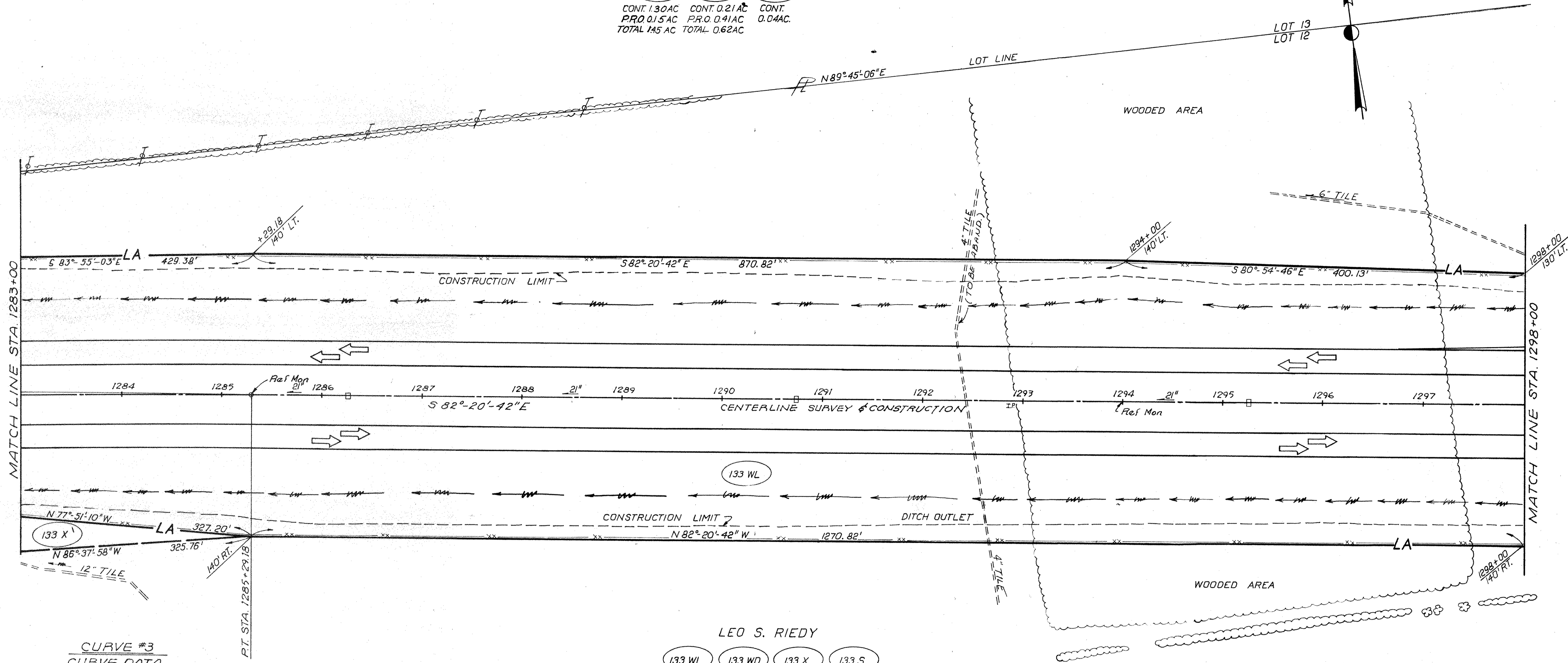
3/1  
326

SOLD AS ERIE COUNTY  
ERI. 2-18.38  
ERI. 2-16.07 R/W R/W

22  
37

THE GLIDDEN COMPANY

132 WL 132 WD 132 T  
CONT. 1.30 AC CONT. 0.21 AC CONT.  
PRO. 0.15 AC PRO. 0.41 AC 0.04 AC  
TOTAL 1.45 AC TOTAL 0.62 AC

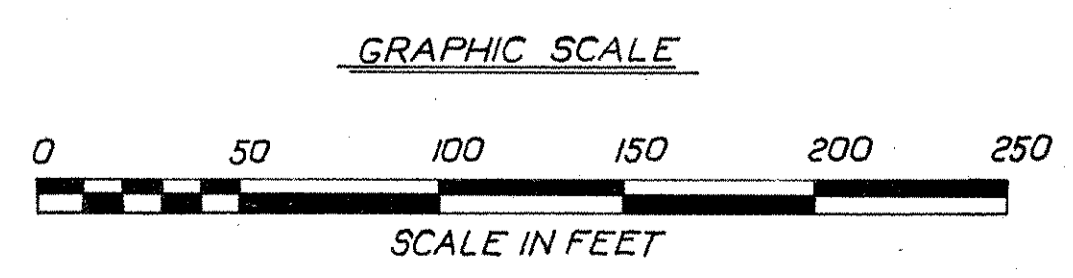


**CURVE #3**  
**CURVE DATA**  
D = 0° 28' 00"  
Δ = 6° 21' 20" RT.  
R = 12,277.67'  
T = 681.65'  
L = 1361.90'  
E = 18.91'  
P.I. STA. 1278+48.93

LEO S. RIEDY

133 WL 133 WD 133 X 133 S  
CONT. 22.52 AC CONT. 0.04 AC CONT. CONT.  
PRO. 0.37 AC PRO. 0.01 AC 0.25 AC 0.03 AC  
TOTAL 22.89 AC TOTAL 0.05 AC

LAND LOCKED  
(40.72 AC.)



Rev. Par. 132T	11-9-70	
Revised	8-5-70	
No	DESCRIPTION	DATE
REVISION	DATE OF DWG.	5-19-70

STATE FUNDS  
RIGHT OF WAY STA. 1283+00 TO STA. 1298+00

THE GLIDDEN COMPANY

(132 WL) (132 WD) (132 T)  
 CONT. 1.30 AC CONT. 0.21 AC CONT.  
 PRO 0.15 AC PRO 0.41 AC 0.04 AC.  
 TOTAL 1.45 AC TOTAL 0.62 AC

HARRY E. & LORENA L. BOOS

(134 WD)  
 CONT. 0.18 AC  
 PRO 0.21 AC  
 TOTAL 0.39 AC

LOT LINE No. 13  
 LOT LINE No. 12

N 89° 45' 06" E

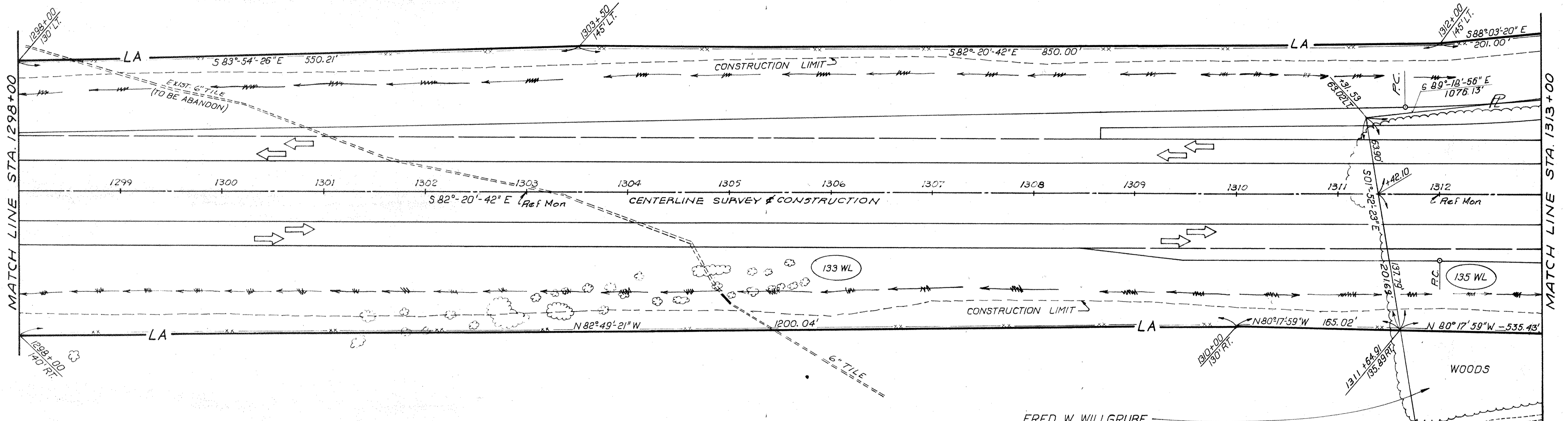
FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

312  
326

ERIE COUNTY  
 SOLD AS ERIE 2-18-38  
 ERIE 2-16-07 R/W

R/W

23  
37



LEO S. RIEDY

(133 WL) (133 WD) (133 X)  
 CONT. 22.52 AC CONT. 0.04 AC CONT.  
 PRO 0.37 AC PRO 0.01 AC 0.25 AC.  
 TOTAL 22.89 AC TOTAL 0.05 AC

FRED W. WILLGRUBE

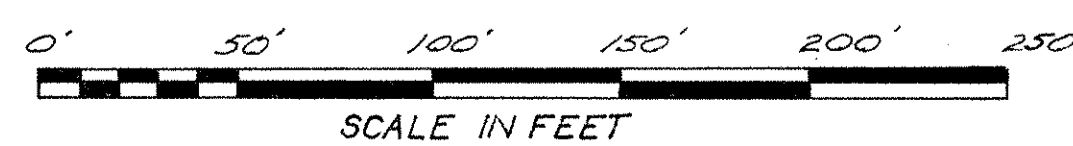
(135 WL) (135 WD) (135A-WD) (135 X) (135 T) (135 T-1)  
 CONT. 34.30 AC CONT. 0.24 AC CONT. 0.31 AC CONT. CONT. CONT.  
 PRO 1.74 AC PRO 0.33 AC PRO 0.22 AC 1.69 AC 0.11 AC 0.21 AC.  
 TOTAL 36.04 AC TOTAL 0.57 AC TOTAL 0.53 AC

(133 S)

CONT. 0.03 AC

LANDLOCKED (40.72 AC)

GRAPHIC SCALE



Rev. Per. 132T	11-9-70
Revised	8-5-70
N? DESCRIPTION	DATE
REVISION	DATE OF DWG. 5-19-70

Lots 12 & 13  
 SEC. 1 HURON TWP. T. 6 N. R. 22 W.

STATE FUNDS  
 RIGHT OF WAY STA. 1298+00 TO STA. 1313+00

SEC. 1 HURON TWP. T. 6N R. 22 W  
 Lots 11 & 12

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

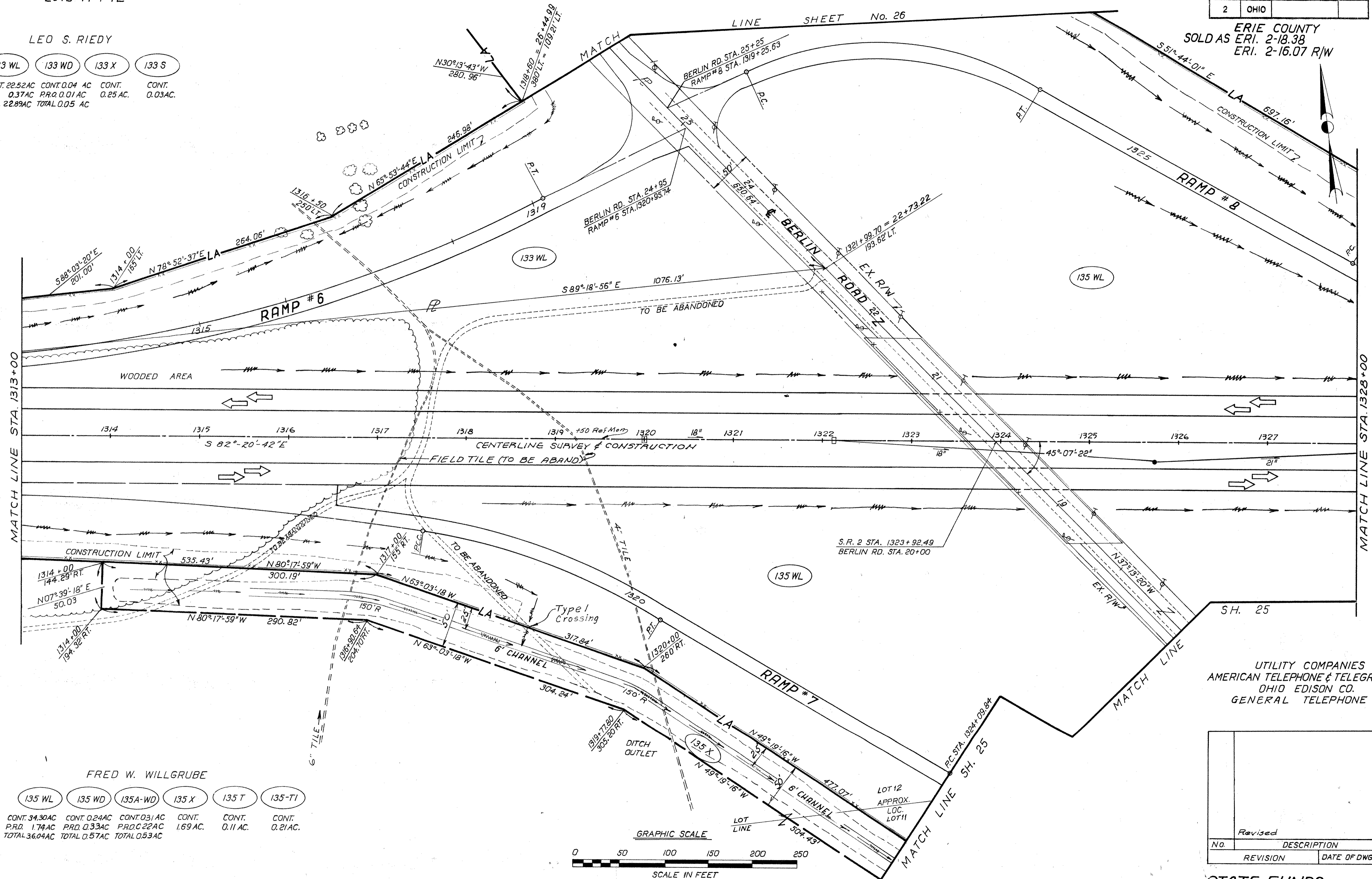
313  
326

ERIE COUNTY  
 SOLD AS ERI. 2-18.38  
 ERI. 2-16.07 R/W

R/W  
 24  
37

LEO S. RIEDY

133 WL	133 WD	133 X	133 S
CONT. 22.52 AC	CONT. 0.04 AC	CONT. 0.25 AC	CONT. 0.03 AC
P.R.D. 0.37 AC	P.R.D. 0.01 AC		
TOTAL 22.89 AC	TOTAL 0.05 AC		



FRED W. WILLGRUBE

135 WL	135 WD	135A-WD	135 X	135 T	135-T1
CONT. 34.30 AC	CONT. 0.24 AC	CONT. 0.31 AC	CONT. 1.69 AC	CONT. 0.11 AC	CONT. 0.21 AC
P.R.D. 1.74 AC	P.R.D. 0.33 AC	P.R.D. 0.22 AC			
TOTAL 36.04 AC	TOTAL 0.57 AC	TOTAL 0.53 AC			

UTILITY COMPANIES  
 AMERICAN TELEPHONE & TELEGRAPH CO.  
 OHIO EDISON CO.  
 GENERAL TELEPHONE CO.

Revised		8-5-70
No.	DESCRIPTION	DATE
	REVISION	DATE OF DWG. 5-19-70

STATE FUNDS  
 RIGHT OF WAY STA. 1313+00 TO STA. 1328+00



FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

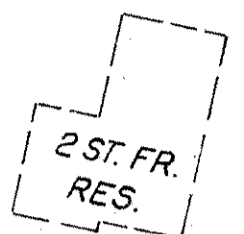
315  
326

SOLD AS  
ERIE COUNTY  
ERI. 2-18.38  
ERI. 2-16.07 R/W

R/W  
26  
37

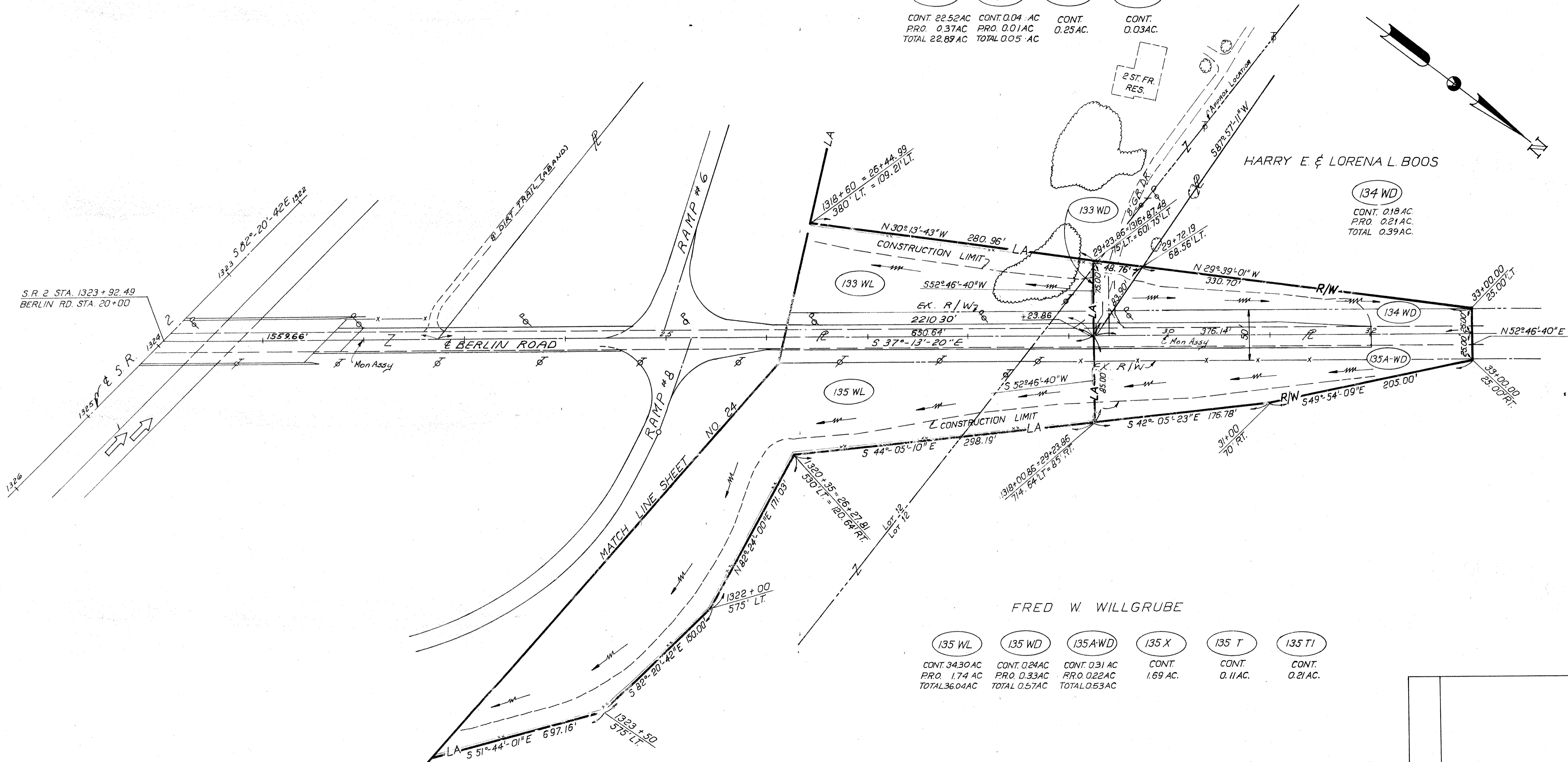
LEO S. RIEDY

(133 WL)	(133 WD)	(133 X)	(133 S)
CONT. 22.52 AC PR. 0.37 AC TOTAL 22.89 AC	CONT. 0.04 AC PR. 0.01 AC TOTAL 0.05 AC	CONT. 0.25 AC	CONT. 0.03 AC



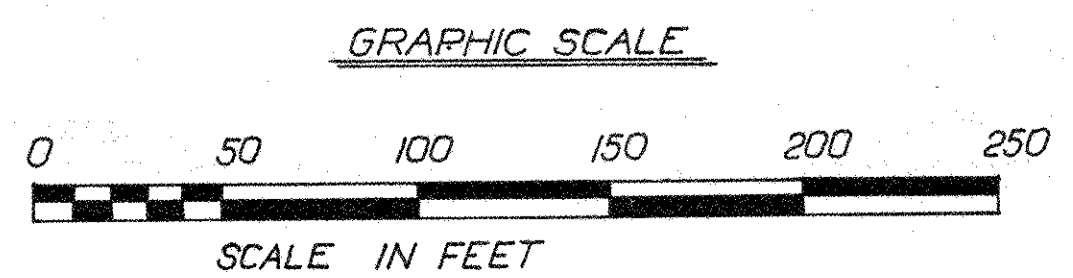
HARRY E. & LORENA L. BOOS

(134 WD)  
CONT. 0.18 AC  
PR. 0.21 AC  
TOTAL 0.39 AC



FRED W. WILLGRUBE

(135 WL)	(135 WD)	(135A-WD)	(135 X)	(135 T)	(135 T1)
CONT. 34.30 AC PR. 1.74 AC TOTAL 36.04 AC	CONT. 0.24 AC PR. 0.33 AC TOTAL 0.57 AC	CONT. 0.31 AC PR. 0.22 AC TOTAL 0.53 AC	CONT. 1.69 AC	CONT. 0.11 AC	CONT. 0.21 AC

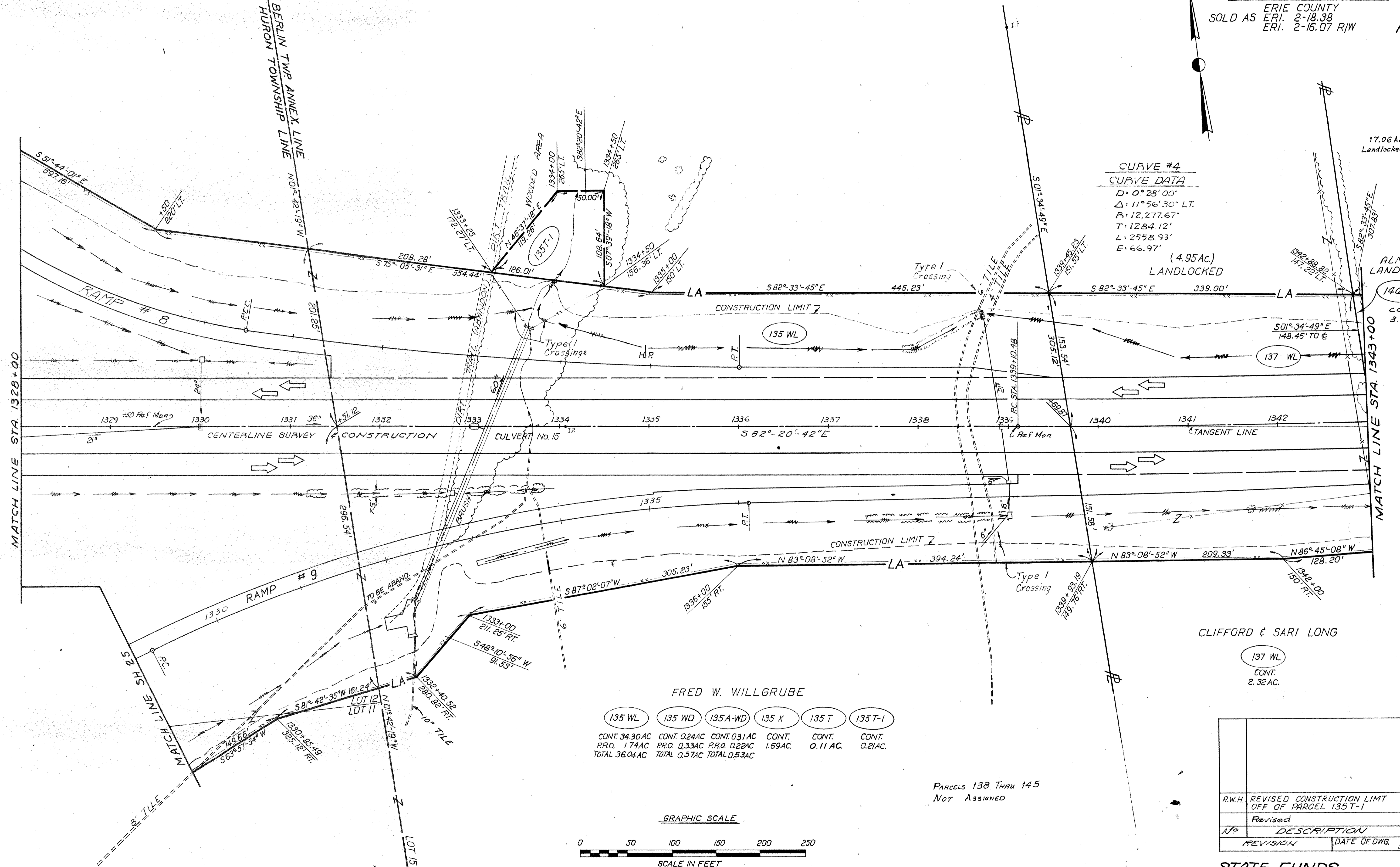


UTILITY COMPANIES  
AMERICAN TELEPHONE & TELEGRAPH CO.  
OHIO EDISON CO  
GENERAL TELEPHONE CO.

Revised		8-5-70
No	DESCRIPTION	DATE
REVISION		DATE OF DWG. 5-19-70

STATE FUNDS  
BERLIN RD. RIGHT OF WAY STA. 26+17.5 TO STA. 33+00



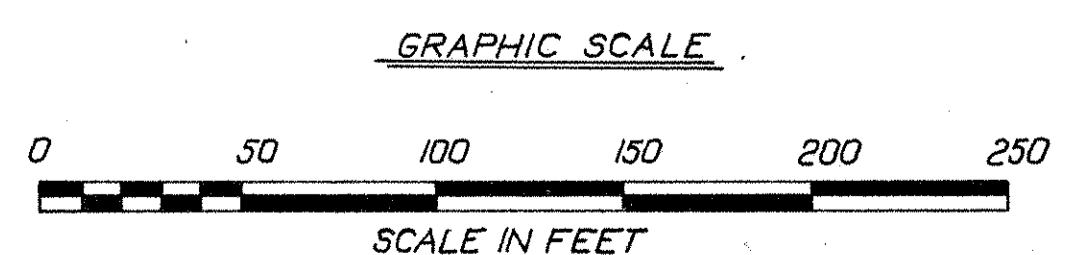


**CURVE #4**  
**CURVE DATA**  
D: 0° 28' 00"  
Δ: 11° 56' 30" LT.  
R: 12,277.67'  
T: 1284.12'  
L: 2558.93'  
E: 66.97'

(4.95 Ac.)  
LANDLOCKED

FRED W. WILLGRUBE

135 WL	135 WD	135A-WD	135 X	135 T	135 T-1
CONT. 34.30 AC	CONT. 0.24 AC	CONT. 0.31 AC	CONT. 1.69 AC	CONT. 0.11 AC	CONT. 0.21 AC
P.R.O. 1.74 AC	P.R.O. 0.33 AC	P.R.O. 0.22 AC	TOTAL 0.57 AC		
TOTAL 36.04 AC		TOTAL 0.53 AC			



PARCELS 138 THRU 145  
NOT ASSIGNED

CLIFFORD & SARI LONG

137 WL  
CONT.  
2.32 AC.

R.W.H.	REVISED CONSTRUCTION LIMIT OFF OF PARCEL 135 T-1	1-5-84
Revised		8-5-70
No	DESCRIPTION	DATE
REVISION	DATE OF DWG.	5-19-70

BERLIN TWP ANNEX. T.6N. R.21 W  
Lot 15

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

317  
326

ERIE COUNTY  
SOLD AS ERI. 2-18.38  
ERI. 2-16.07 R/W

R/W

152

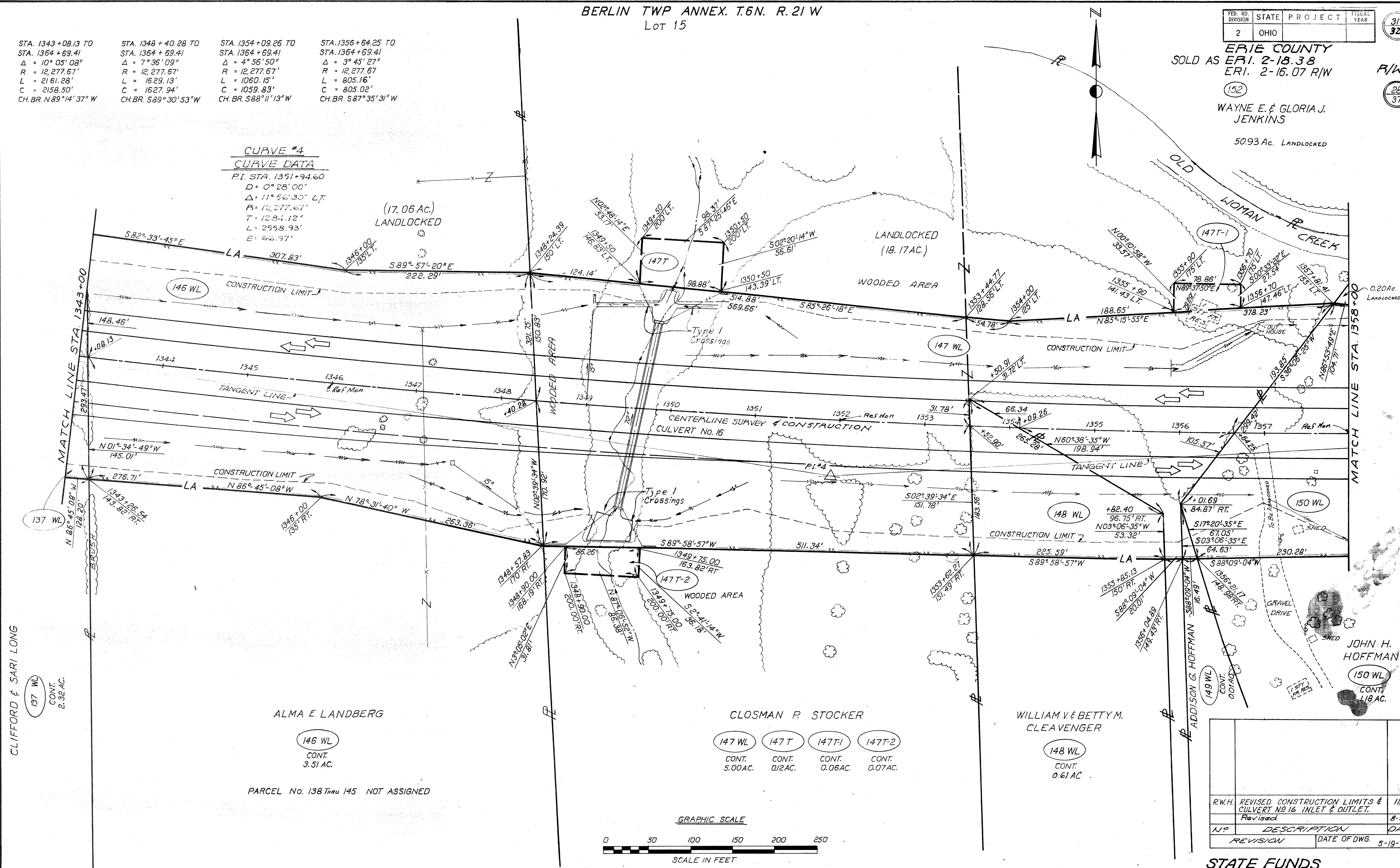
28  
37

WAYNE E. & GLORIA J. JENKINS

50.93 Ac. LANDLOCKED

STA. 1343+08.13 TO STA. 1364+69.41 Δ = 10° 05' 08" R = 12,277.67' L = 2161.28' C = 2158.50' CH.BR. N 89° 14' 37" W	STA. 1348+40.28 TO STA. 1364+69.41 Δ = 7° 36' 09" R = 12,277.67' L = 1629.13' C = 1627.94' CH.BR. S 89° 30' 53" W	STA. 1354+09.26 TO STA. 1364+69.41 Δ = 4° 56' 50" R = 12,277.67' L = 1060.15' C = 1059.83' CH.BR. S 88° 11' 13" W	STA. 1356+64.25 TO STA. 1364+69.41 Δ = 3° 45' 27" R = 12,277.67' L = 805.16' C = 805.02' CH.BR. S 87° 35' 31" W
--	---	---	---

**CURVE #4**  
**CURVE DATA**  
P.I. STA. 1351+94.60  
D = 0° 28' 00"  
Δ = 11° 56' 30" LT.  
P = 12,277.67'  
T = 1284.12'  
L = 2558.93'  
E = 66.97'



CLIFFORD & SARI LONG  
137 WL  
CONT.  
2.32 AC.

ALMA E. LANDBERG  
146 WL  
CONT.  
3.51 AC.

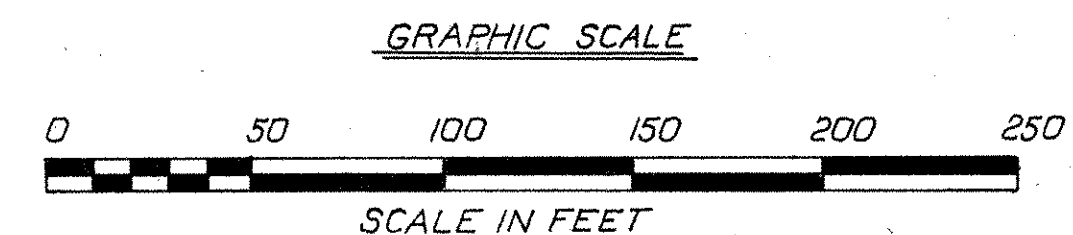
CLOSMAN P. STOCKER  
147 WL CONT. 5.00 AC.  
147 T CONT. 0.12 AC.  
147 T1 CONT. 0.06 AC.  
147 T2 CONT. 0.07 AC.

WILLIAM V. & BETTY M. CLEAVENGER  
148 WL  
CONT.  
0.61 AC.

ADDISON G. HOFFMAN  
149 WL  
CONT.  
0.04 AC.

JOHN H. HOFFMAN  
150 WL  
CONT.  
1.18 AC.

PARCEL No. 138 thru 145 NOT ASSIGNED



R/W	REVISED CONSTRUCTION LIMITS & CULVERT No. 16 INLET & OUTLET.	11/83
	Revised	8-5-70
N <sup>o</sup>	DESCRIPTION	DATE
REVISION	DATE OF DWG.	5-19-70

STATE FUNDS  
RIGHT OF WAY STA. 1343+00 TO STA. 1358+00

BERLIN TWP. ANNEX. T.6N R. 21W  
Lots 15 & 16

STATE PROJECT	FISCAL YEAR
2 OHIO	318 326

SOLD AS ERIE COUNTY  
ERI. 2-18.38  
ERI. 2-16.07 R/W

R/W  
29  
37

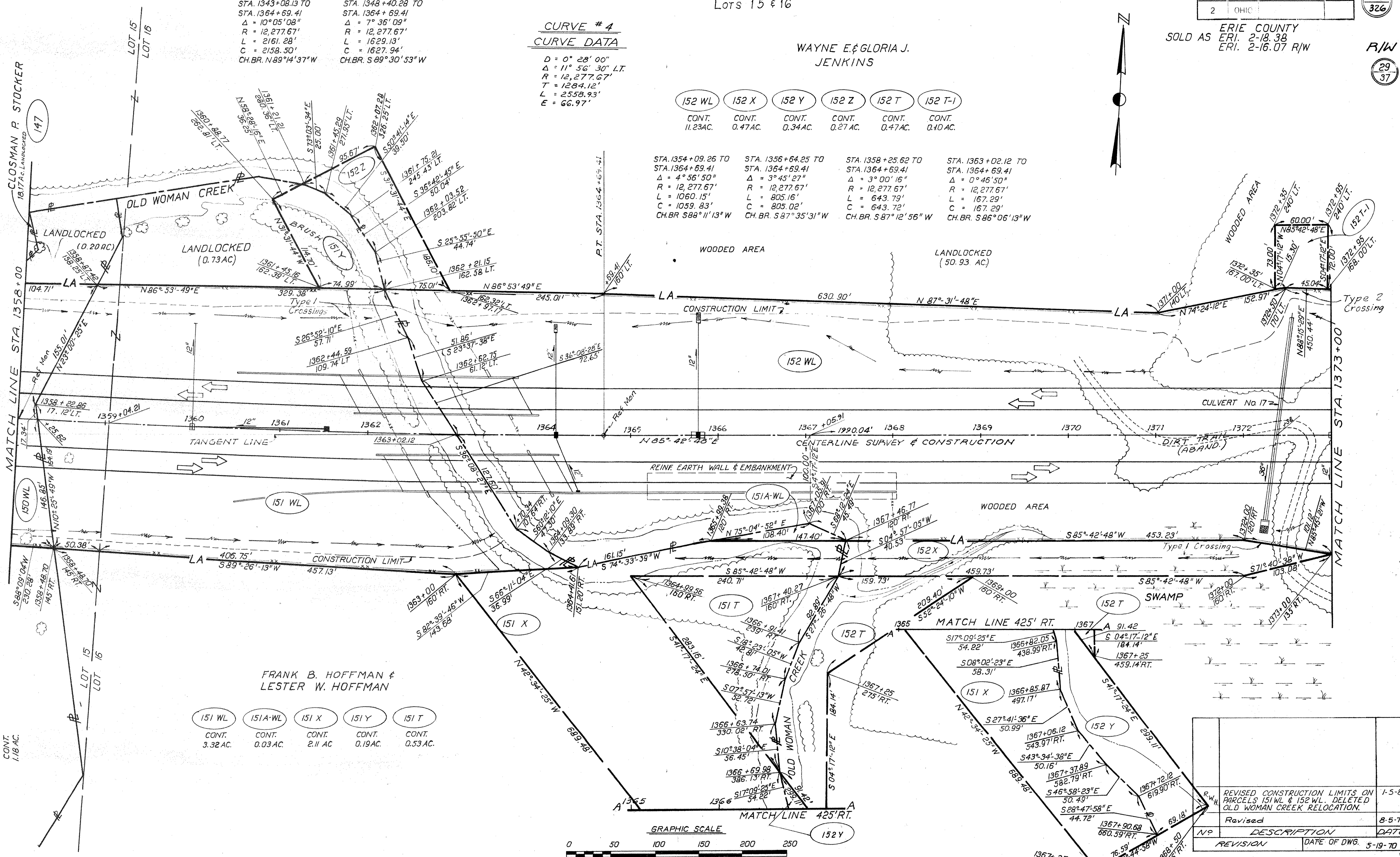
CURVE # 4  
CURVE DATA

D = 0° 28' 00"  
Δ = 11° 56' 30" LT.  
R = 12,277.67'  
T = 1284.12'  
L = 2558.93'  
E = 66.97'

WAYNE E. & GLORIA J.  
JENKINS

152 WL	152 X	152 Y	152 Z	152 T	152 T-1
CONT. 11.23AC.	CONT. 0.47AC.	CONT. 0.34AC.	CONT. 0.27AC.	CONT. 0.47AC.	CONT. 0.10AC.

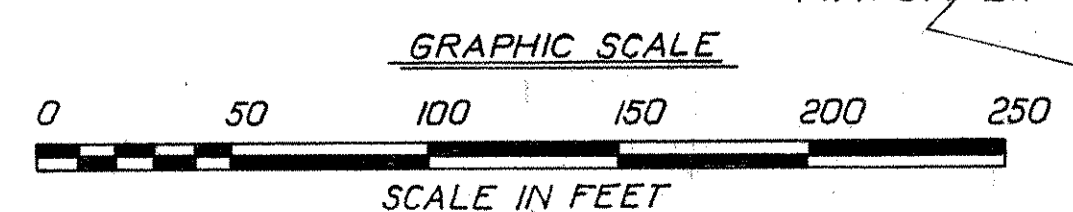
STA. 1354+09.26 TO STA. 1364+69.41 Δ = 4° 56' 50" R = 12,277.67' L = 1060.15' C = 1059.83' CH. BR. S88° 11' 13" W	STA. 1356+64.25 TO STA. 1364+69.41 Δ = 3° 45' 27" R = 805.16' L = 805.02' CH. BR. S87° 35' 31" W	STA. 1358+25.62 TO STA. 1364+69.41 Δ = 3° 00' 16" R = 12,277.67' L = 643.79' C = 643.72' CH. BR. S87° 12' 56" W	STA. 1363+02.12 TO STA. 1364+69.41 Δ = 0° 46' 50" R = 12,277.67' L = 167.29' C = 167.29' CH. BR. S86° 06' 13" W
---	---	---	---



STA. 1343+08.13 TO STA. 1364+69.41 Δ = 10° 05' 08" R = 12,277.67' L = 2161.28' C = 2158.50' CH. BR. N89° 14' 37" W	STA. 1348+40.28 TO STA. 1364+69.41 Δ = 7° 36' 09" R = 12,277.67' L = 1629.13' C = 1627.94' CH. BR. S89° 30' 53" W
--	---

FRANK B. HOFFMAN & LESTER W. HOFFMAN

151 WL	151A-WL	151 X	151 Y	151 T
CONT. 3.32AC.	CONT. 0.03AC.	CONT. 2.11AC.	CONT. 0.19AC.	CONT. 0.53AC.



NO.	DESCRIPTION	DATE
1	REVISED CONSTRUCTION LIMITS ON PARCELS 151 WL & 152 WL. DELETED OLD WOMAN CREEK RELOCATION.	1-5-84
2	Revised	8-5-70
REVISION		DATE OF DWG. 5-19-70

STATE FUNDS  
RIGHT OF WAY STA. 1358+00 TO STA. 1373+00

JOHN H. HOFFMAN  
150 WL  
CONT.  
1.18 AC.



BERLIN TWP. ANNEX. T. 6 N. R. 21 W

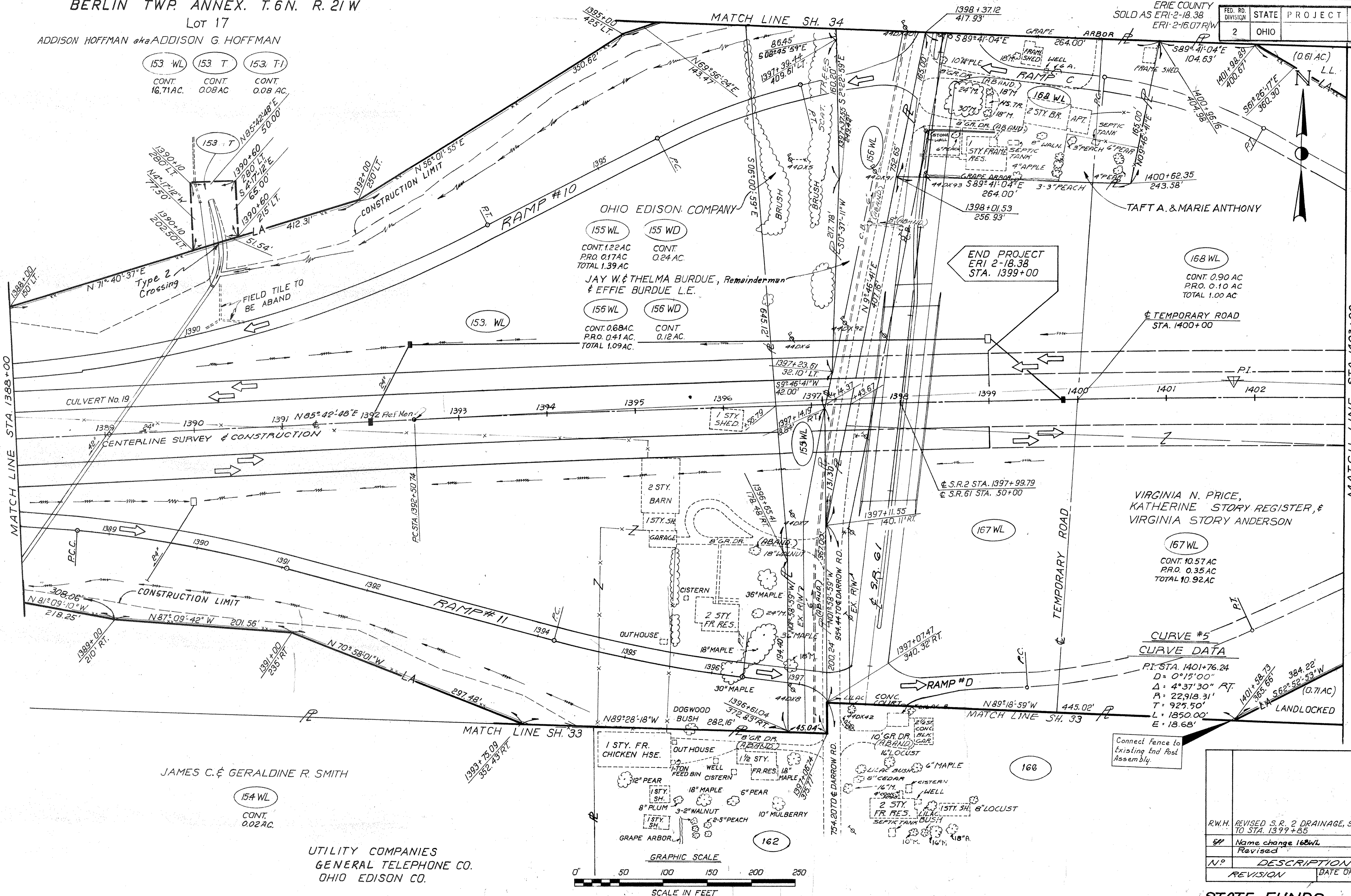
Lot 17

ADDISON HOFFMAN aka ADDISON G. HOFFMAN

153 WL CONT. 16.71 AC  
 153 T CONT. 0.08 AC  
 153 T1 CONT. 0.08 AC

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		320 326

R/W  
31  
37

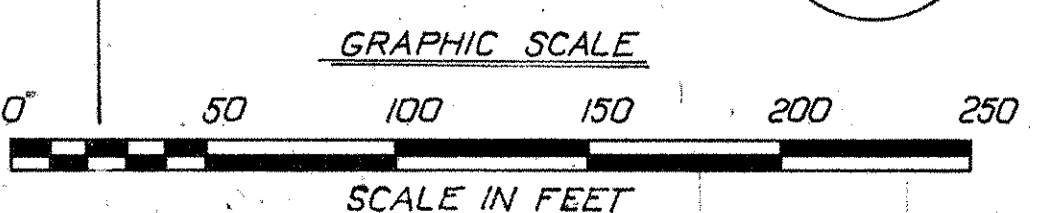


OHIO EDISON COMPANY  
 155 WL CONT. 1.22 AC PRO. 0.17 AC TOTAL 1.39 AC  
 155 WD CONT. 0.24 AC  
 JAY W. & THELMA BURDUE, Remainderman  
 & EFFIE BURDUE L.E.  
 156 WL CONT. 0.68 AC P.R.O. 0.41 AC TOTAL 1.09 AC  
 156 WD CONT. 0.12 AC

VIRGINIA N. PRICE,  
 KATHERINE STORY REGISTER, &  
 VIRGINIA STORY ANDERSON

JAMES C. & GERALDINE R. SMITH

UTILITY COMPANIES  
 GENERAL TELEPHONE CO.  
 OHIO EDISON CO.



CURVE #5  
 CURVE DATA  
 P.I. STA. 1401+76.24  
 D = 0°15'00"  
 Δ = 4°37'30" RT  
 R = 22,918.31'  
 T = 925.50'  
 L = 1850.00'  
 E = 18.68'

N <sup>o</sup>	DESCRIPTION	DATE
R.W.H.	REVISED S.R. 2 DRAINAGE, STA. 1392+00 TO STA. 1399+85	1-5-84
84	Name change 168WL	5-14-70
	Revised	8-5-70
N <sup>o</sup>	DESCRIPTION	DATE
REVISION	DATE OF DWG.	5-19-70

STATE FUNDS  
 RIGHT OF WAY STA. 1388+00 TO STA. 1403+00

BERLIN TWP. ANNEX T.6N. R.21W.  
Lot 17

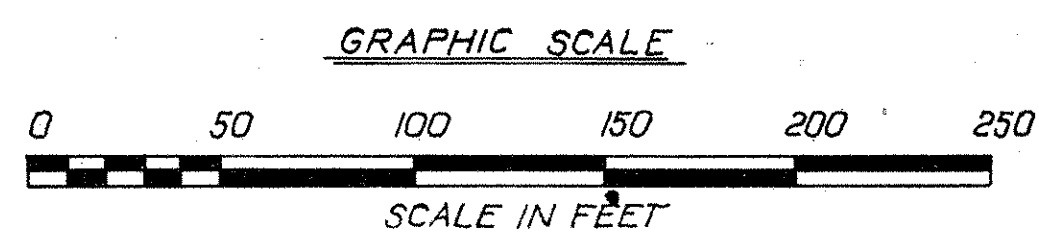
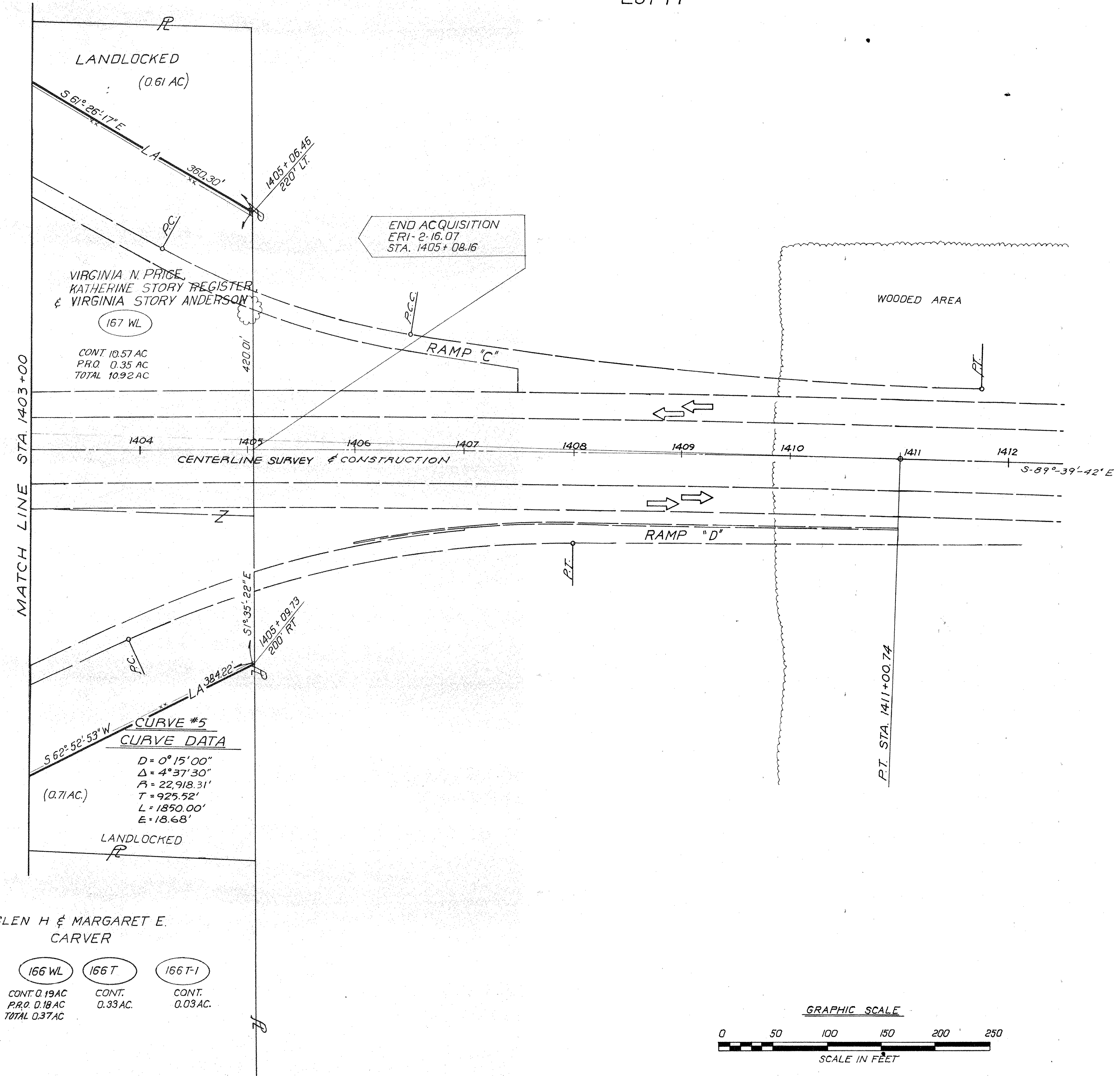
FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

321  
326

ERIE COUNTY  
SOLD AS ERI. 2-18.38  
ERI. 2-16.07 R/W

R/W

32  
37



Revised		8-5-70
N <sup>o</sup>	DESCRIPTION	DATE
REVISION	DATE OF DWG.	5-19-70

STATE FUNDS  
RIGHT OF WAY STA. 1403+00 TO STA. 1405+08.16

BERLIN TWP. ANNEX T. 6N R. 21 W.

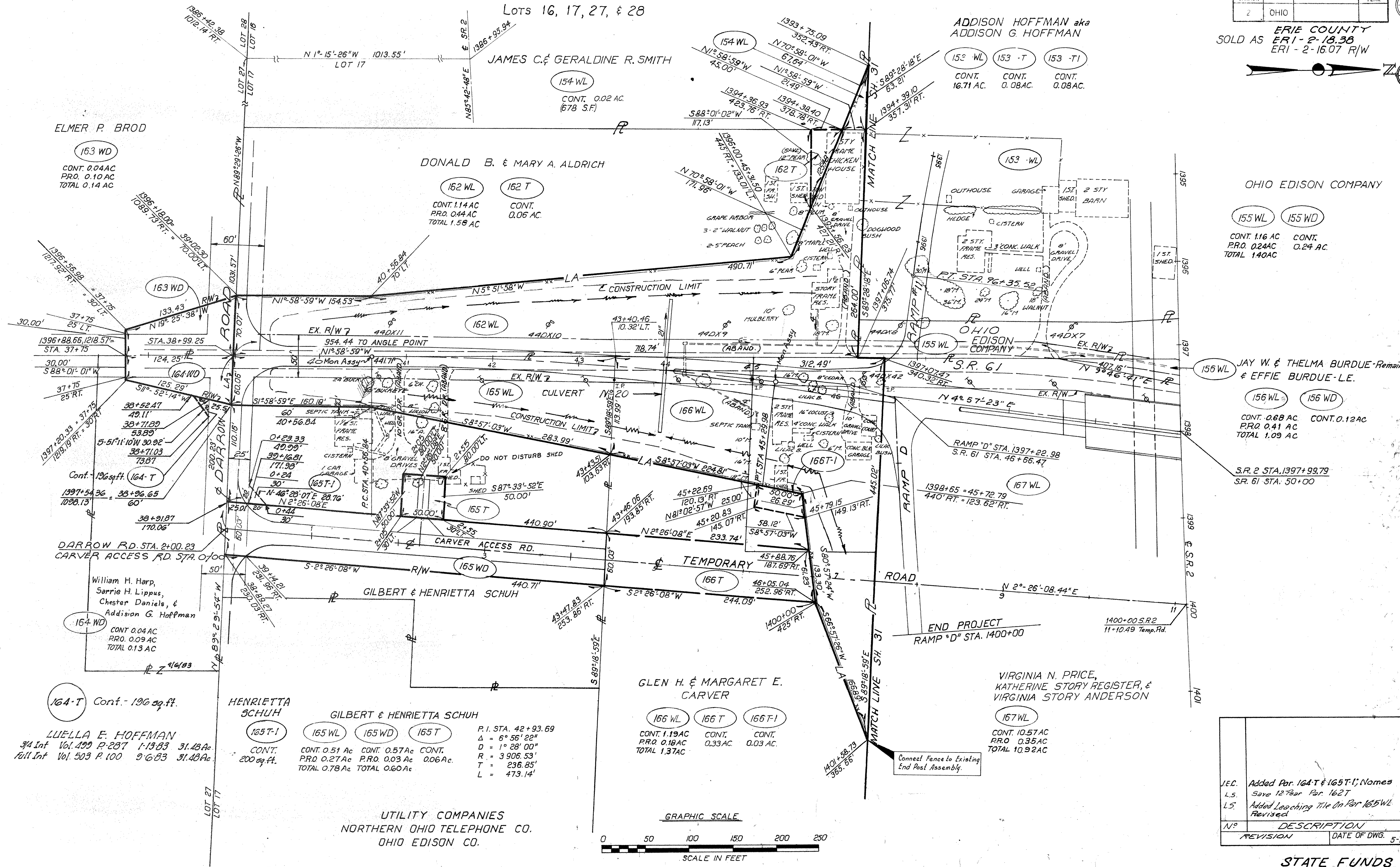
Lots 16, 17, 27, & 28

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

322  
326

SOLD AS  
ERIE COUNTY  
ERI - 2-18.38  
ERI - 2-16.07 R/W

R/W  
33  
37



OHIO EDISON COMPANY

155 WL 155 WD  
CONT. 1.16 AC CONT. 0.24 AC  
P.R.O. 0.24 AC  
TOTAL 1.40 AC

156 WL JAY W & THELMA BURDUE-Remainderman & EFFIE BURDUE-L.E.

156 WL 156 WD  
CONT. 0.88 AC CONT. 0.12 AC  
P.R.O. 0.41 AC  
TOTAL 1.09 AC

S.R. 2 STA. 1397+99.79  
S.R. 61 STA. 50+00

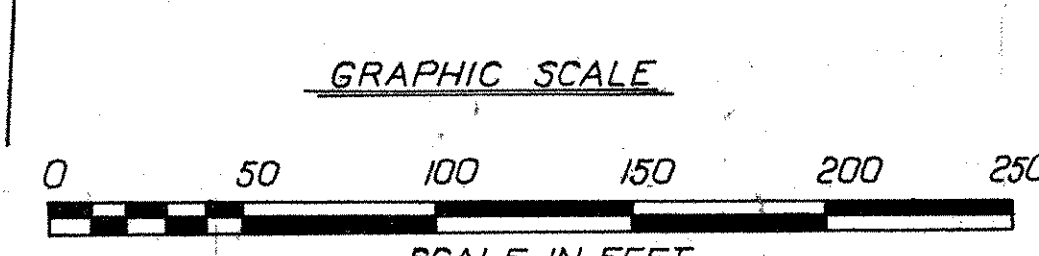
VIRGINIA N. PRICE,  
KATHERINE STORY REGISTER, &  
VIRGINIA STORY ANDERSON

167 WL  
CONT. 10.57 AC  
P.R.O. 0.35 AC  
TOTAL 10.92 AC

GLEN H. & MARGARET E. CARVER

166 WL 166 T 166 T-1  
CONT. 1.19 AC CONT. 0.33 AC CONT. 0.03 AC  
P.R.O. 0.18 AC  
TOTAL 1.37 AC

UTILITY COMPANIES  
NORTHERN OHIO TELEPHONE CO.  
OHIO EDISON CO.



N <sup>o</sup>	DESCRIPTION	DATE
J.E.C.	Added Par. 164 T & 165 T-1; Names	10-30-85
L.S.	Save 12' Pear Par. 162 T	1-4-71
L.S.	Added Leaching Tile On Par 165 WL Revised	12-8-70 8-5-70
REVISION		DATE OF DWG. 5-19-70

STATE FUNDS  
RIGHT OF WAY S.R. 61 STA. 37+75 TO STA. 50+00

BERLIN TWP ANNEX. T.6N. R.21W.

Lot 17

ADDISON HOFFMAN aka  
ADDISON G. HOFFMAN

153 WL 153 T 153 F-1  
CONT. 16.71 AC. CONT. 0.08 AC. CONT. 0.08 AC.

JAY W. BURDUE & LARRY BURDUE - Remainderman  
& EFFIE BURDUE-L.E.

158 WL 158 WD  
CONT. 0.18 AC CONT. 0.15 AC  
P.R.O. 0.05 AC  
TOTAL 0.23 AC

RONALD & JANET DABROWSKI

157 WD 157 WL  
CONT. 0.09 AC CONT. 0.16 AC  
P.R.O. 0.04 AC  
TOTAL 0.29 AC

JAY W. BURDUE & JANET DABROWSKI - Remainderman  
& EFFIE BURDUE-L.E.

158A-WL 158A-WD  
CONT. 0.18 AC CONT. 0.15 AC  
P.R.O. 0.05 AC  
TOTAL 0.23 AC

ADDISON HOFFMAN aka  
ADDISON G. HOFFMAN

159 WL 159 WD  
CONT. 0.16 AC CONT. 0.59 AC  
P.R.O. 0.05 AC P.R.O. 0.20 AC  
TOTAL 0.21 AC TOTAL 0.79 AC

JAY W. & THELMA BURDUE - Remainderman  
& EFFIE BURDUE-L.E.

156 WL 156 WD  
CONT. 0.68 AC CONT. 0.12 AC  
P.R.O. 0.41 AC  
TOTAL 1.09 AC

OHIO EDISON COMPANY  
155 WL 155 WD  
CONT. 1.16 AC CONT. 0.24 AC  
P.R.O. 0.24 AC  
TOTAL 1.64 AC

END PROJECT  
S.R. 2 STA. 1399+00

TEMPORARY ROAD  
N 2°-26'-08" E

S.R. 2 STA. 1400+00  
TEMP. STA. 11+10.49

TAFT A. & MARIE ANTHONY

168 WL  
CONT. 0.90 AC  
P.R.O. 0.10 AC  
TOTAL 1.00 AC

RICHARD G. DANIELS

169 WL 169 T  
CONT. 0.39 AC CONT. 0.03 AC  
P.R.O. 0.05 AC  
TOTAL 0.44 AC

Connect fence to  
Existing End Post  
Assembly.

P.I. STA. 56+51.18  
Δ = 4° 49' 18"  
D = 1° 28' 00"  
R = 3,906.53'  
T = 164.47'  
L = 328.75'

KATHERINE A. O'RORK

170 WL 170AWL 170WD 170T  
CONT. 0.56 AC CONT. 0.15 AC CONT. 0.19 AC CONT. 1.16 AC  
P.R.O. 0.15 AC P.R.O. 0.05 AC P.R.O. 0.14 AC  
TOTAL 0.71 AC TOTAL 0.33 AC

171 WL 171 WD 171 T  
CONT. 0.24 AC CONT. 0.05 AC CONT. 0.17 AC  
P.R.O. 0.10 AC P.R.O. 0.01 AC  
TOTAL 0.34 AC TOTAL 0.06 AC

ELDO MEEKER

172 WD  
CONT. 0.02 AC (9255.6)  
P.R.O. 0.04 AC  
TOTAL 0.06 AC

GRAPHIC SCALE



UTILITY COMPANIES  
GENERAL TELEPHONE CO.  
OHIO EDISON CO.

5+6L	Rev Name Par 171	4-13-71
5+	Name change 168WL	3-14-70
	Revised	5-5-70
N.P.	DESCRIPTION	DATE
	REVISION	DATE OF DWG. 5-19-70

STATE FUNDS  
RIGHT OF WAY S.R. 61 STA. 50-00 TO STA. 65-00

STATE	PROJECT	FISCAL YEAR
OHIO		

323  
326

ERIE COUNTY  
SOLD AS ERI. 2-18.38  
ERI. 2-16.07 R/W

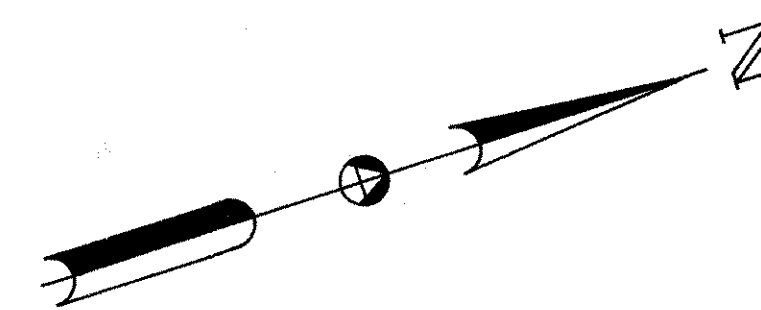
R/W  
34  
37



SEC 1 HURON TWP. T.6N. R.22W.

Lot 4

HURON RIVER

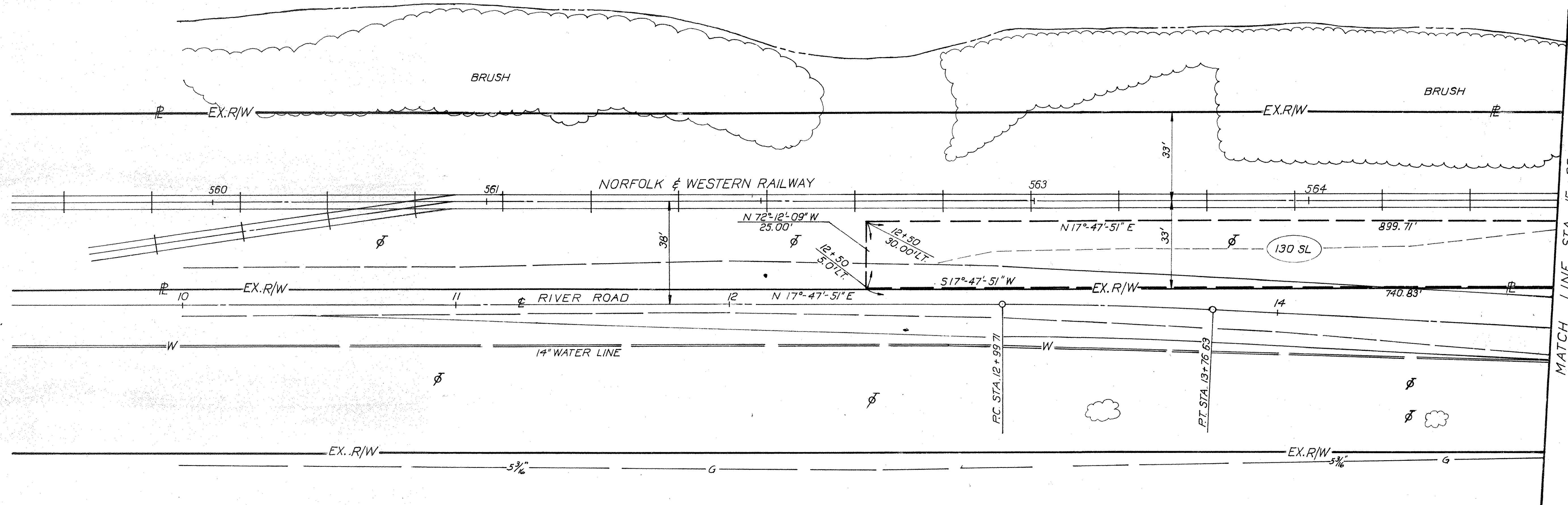


FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

324  
326

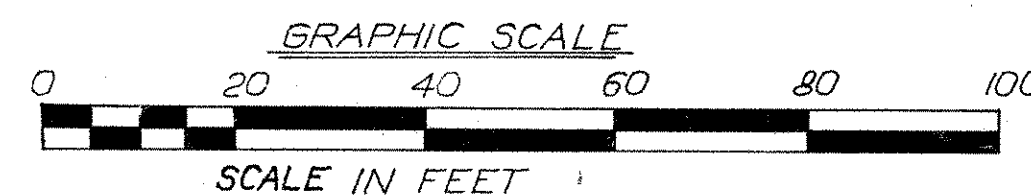
ERIE COUNTY  
SOLD AS ERI 2-18.38  
ERI. 2-16.07 R/W

R/W  
35  
37



NORFOLK & WESTERN RAILWAY

PARCEL NUMBER	EASEMENT REQUIRED	TOTAL AREA	AREA OF OVERLAP			
			HIGHWAY	AERIAL	SLOPE	SEWER
130-AERIAL	AERIAL	11, 013 SQ. FT.	2,503 SQ. FT.		4, 119 SQ. FT.	
130	HIGHWAY	413 SQ. FT.		413 SQ. FT.	413 SQ. FT.	
130-A	HIGHWAY	413 SQ. FT.		413 SQ. FT.	413 SQ. FT.	
130-S	SEWER	1, 320 SQ. FT.	300 SQ. FT.		500 SQ. FT.	
130-S-1	SEWER	180 SQ. FT.			180 SQ. FT.	
130-S-2	SEWER	200 SQ. FT.			200 SQ. FT.	
130-SL	SLOPE	26, 131 SQ. FT.	576 SQ. FT.	4, 172 SQ. FT.		500 SQ. FT.
130-T	HIGHWAY	8, 026 SQ. FT.		2, 503 SQ. FT.		300 SQ. FT.
				54		



g.e. Removed WD Suffix Revised		8-23-77 8-5-70
N <sup>o</sup>	DISCUSSION	DATE
REVISION	DATE OF DWG. 5-19-70	

VALUATION SURVEY STATIONING PLAT VOL-3 PAGE B-16

STATE FUNDS  
RIGHT OF WAY STA. 10 + 00 TO STA. 15 + 00

SEC. 1 HURON TWP. T. 6 N. R. 22 W  
Lot 4 & 10

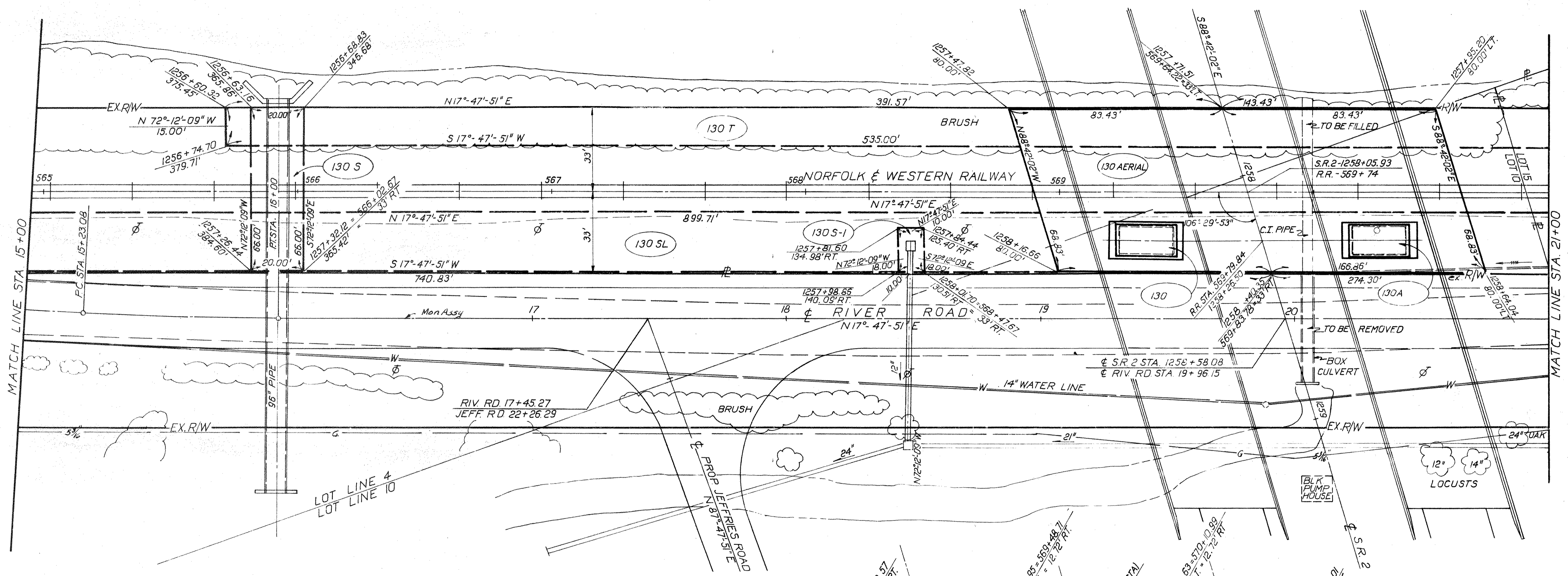
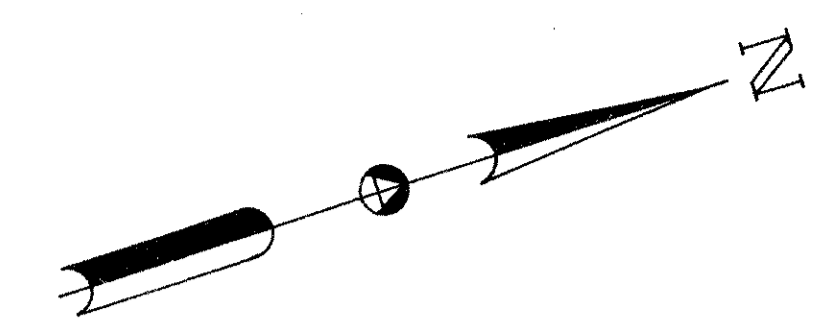
FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

325  
326

SOLD AS ERIE COUNTY  
ERI 2-18.38  
ERI 2-16.07 R/W

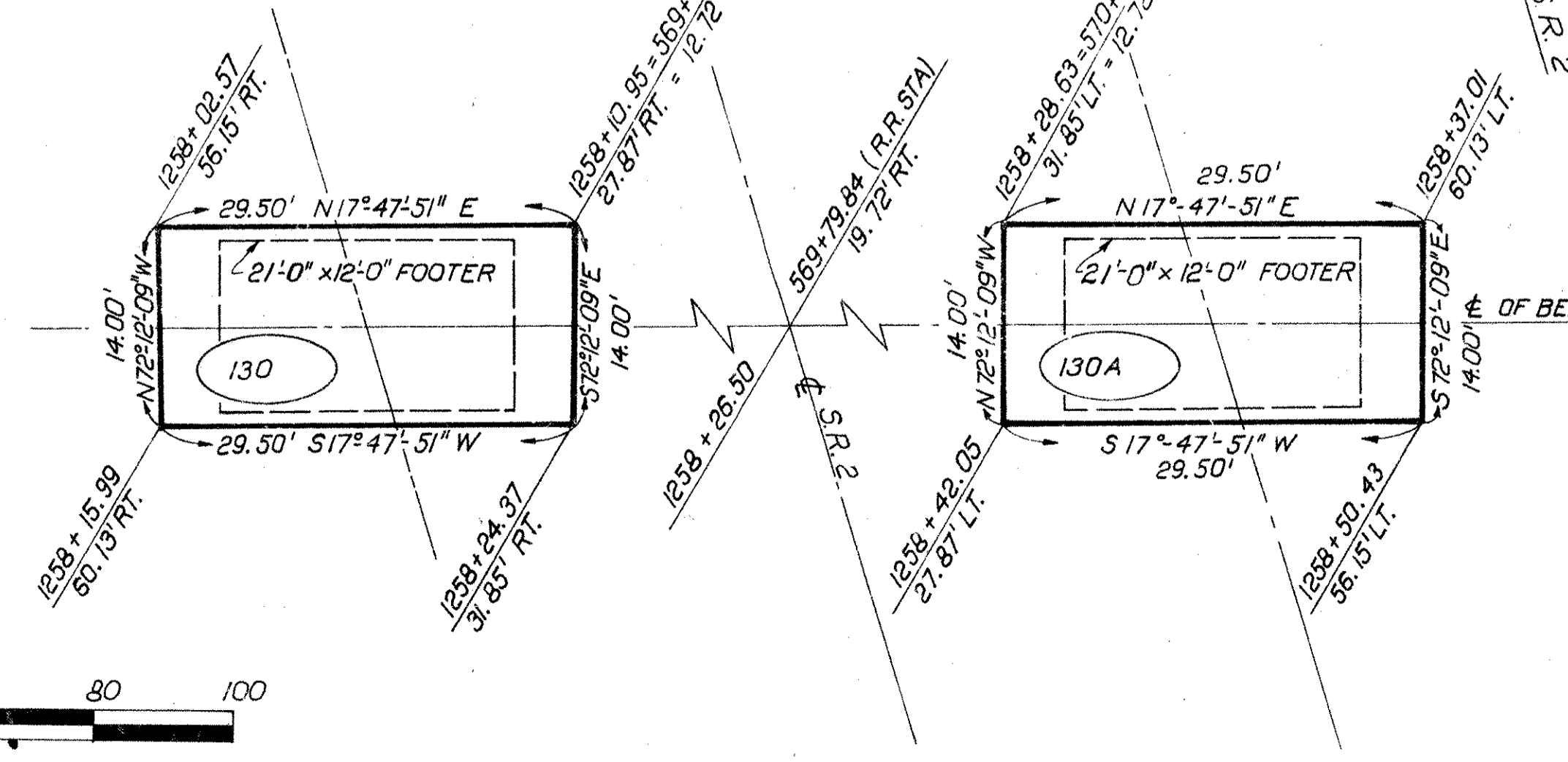
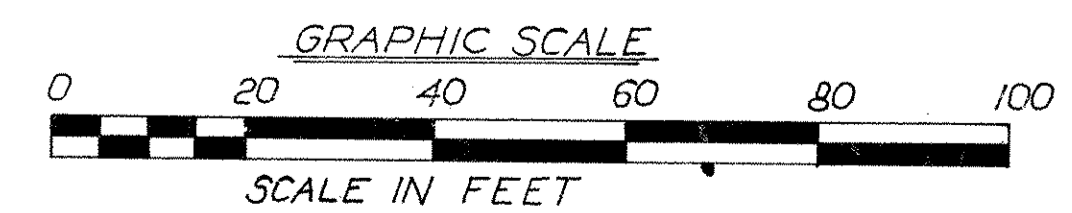
R/W  
36  
37

HURON RIVER



NORFOLK & WESTERN RAILWAY

PARCEL NUMBER	EASEMENT REQUIRED	TOTAL AREA	AREA OF OVERLAP		
			HIGHWAY	AERIAL	SLOPE SEWER
130 AERIAL	AERIAL	11,013 SQ. FT.	2,503 SQ. FT.		4,119 SQ. FT.
130	HIGHWAY	413 SQ. FT.		413 SQ. FT.	413 SQ. FT.
130-A	HIGHWAY	413 SQ. FT.		413 SQ. FT.	413 SQ. FT.
130-S	SEWER	1,320 SQ. FT.	300 SQ. FT.		500 SQ. FT.
130-S-1	SEWER	180 SQ. FT.			180 SQ. FT.
130-S-2	SEWER	200 SQ. FT.			200 SQ. FT.
130-SL	SLOPE	26,131 SQ. FT.		4,172 SQ. FT.	500 SQ. FT.
130-T	HIGHWAY	8,026 SQ. FT.	576 SQ. FT.	2,503 SQ. FT.	300 SQ. FT.



R.W.H.	REV. FOOTER SIZES IN PARCELS 130 & 130A	11/83
JEC	Removed WD suffix.	8-23-71
	Revised	8-5-70
N <sup>o</sup>	DESCRIPTION	DATE
REVISION	DATE OF DWG.	5-19-70

SEC. 1 HURON TWP. T.6N R.22 W.

Lots 10 & 15

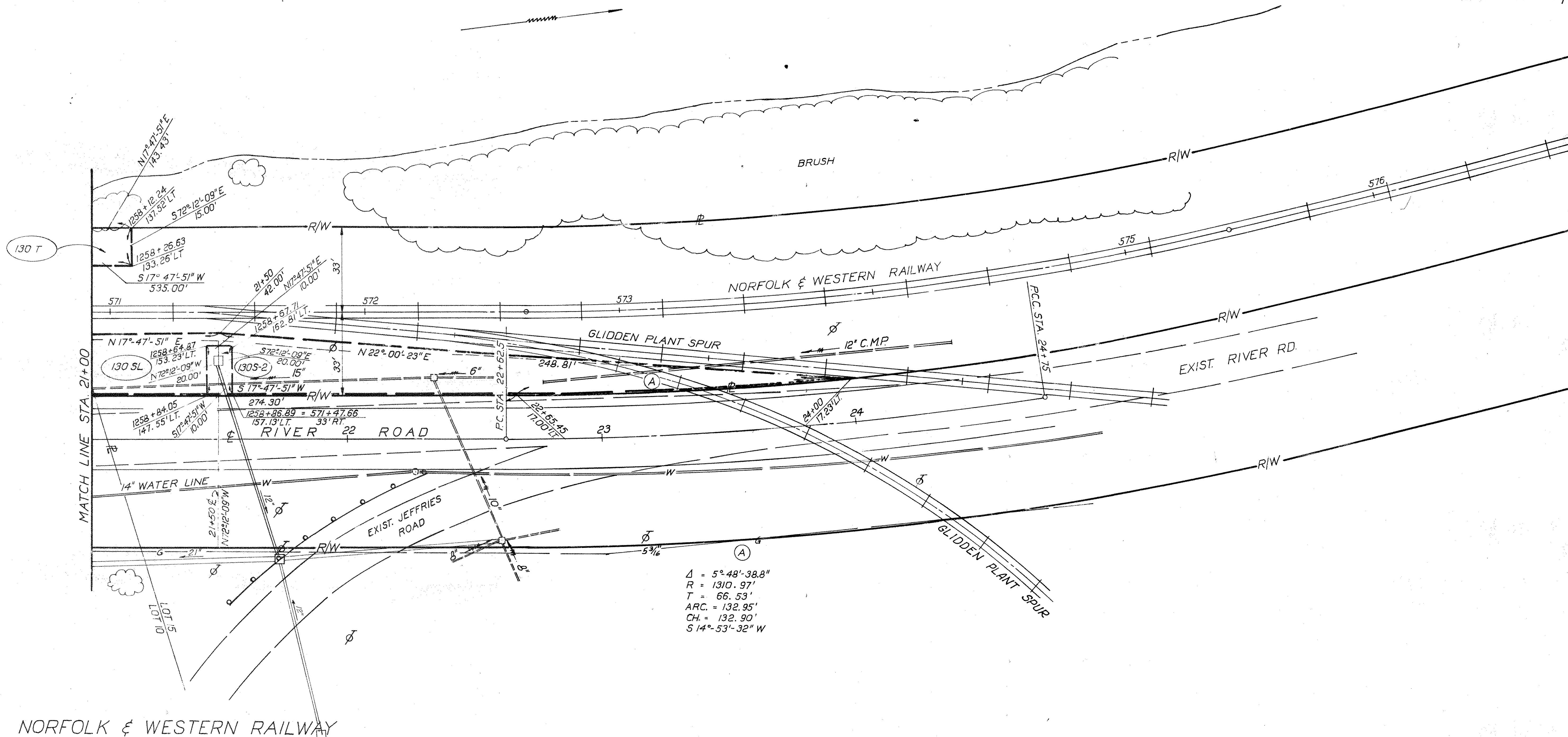
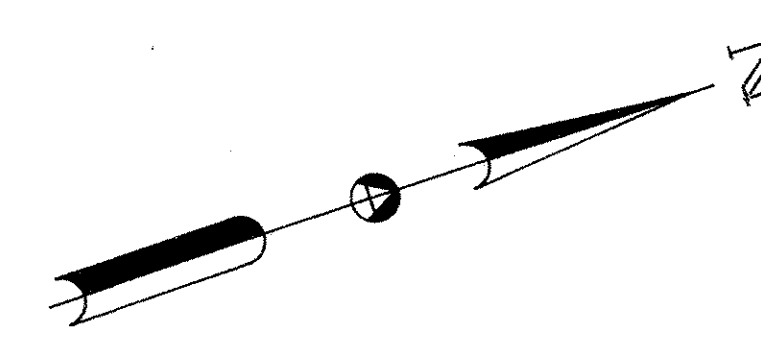
FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

326  
326

ERIE COUNTY  
SOLD AS ERI 2-18.38  
ERI. 2-16.07 R/W

R/W  
37  
37

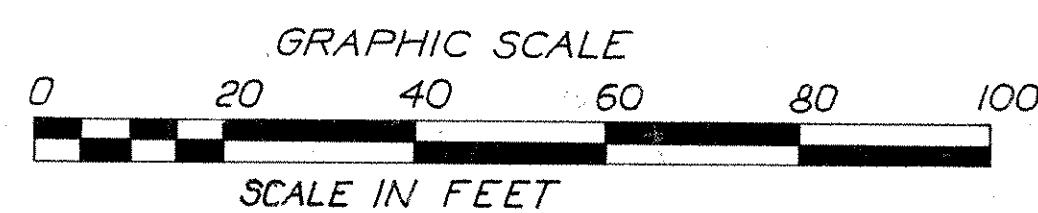
HURON RIVER



Δ = 5° 48' 38.8"  
R = 1310.97'  
T = 66.53'  
ARC. = 132.95'  
CH. = 132.90'  
S 14° 53' 32" W

NORFOLK & WESTERN RAILWAY

PARCEL NUMBER	EASEMENT REQUIRED	TOTAL AREA	AREA OF OVERLAP			
			HIGHWAY	AERIAL	SLOPE	SEWER
130 AERIAL	AERIAL	11,013 SQ. FT.	2,503 SQ. FT.		4,119 SQ. FT.	
130	HIGHWAY	413 SQ. FT.		413 SQ. FT.	413 SQ. FT.	
130-A	HIGHWAY	413 SQ. FT.		413 SQ. FT.	413 SQ. FT.	
130-S	SEWER	1,320 SQ. FT.	300 SQ. FT.		500 SQ. FT.	
130-S-1	SEWER	180 SQ. FT.			180 SQ. FT.	
130-S-2	SEWER	200 SQ. FT.			200 SQ. FT.	
130-SL	SLOPE	26,131 SQ. FT.	576 SQ. FT.	4,172 SQ. FT.		500 SQ. FT.
130-T	HIGHWAY	8,026 SQ. FT.		2,503 SQ. FT.		300 SQ. FT.



REVISION	DESCRIPTION	DATE
	R/W REVISED DRAINAGE	8/85
	R/W.H. ADDED GLIDDEN PLANT SPUR	11/83
	Removed WD Suffix	8-23-71
	Revised	8-5-70
N°	DESCRIPTION	DATE
	REVISION	DATE OF DWG. 5-19-70

VALUATION SURVEY STATIONING PLAT VOL-3 PAGE B-16

STATE FUNDS

RIGHT OF WAY STA. 21+00 TO STA. 24+75

GENERAL INFORMATION

INTRODUCTION

THE PROJECT CONSISTS OF THE RELOCATION OF 3.8 MILES OF SR 2 (HURON BYPASS), BEGINNING 400 FEET EAST OF SR 13, APPROXIMATELY 0.5 MILE SOUTH OF HURON, EXTENDING EASTWARD AND TERMINATING IMMEDIATELY EAST OF SR 61, APPROXIMATELY 0.7 MILE SOUTH OF EXISTING SR 2. INCLUDED IN THIS REPORT ARE SOIL PROFILES OF PROPOSED RIVER ROAD, PROPOSED BERLIN ROAD, AND RELOCATED JEFFRIES ROAD.

PROPOSED GRADES INDICATE THE FOLLOWING MAXIMUM PROPOSED CUTS AND FILL EMBANKMENTS:

	CUTS (MAX.)	FILL EMBANKMENTS (MAX.)
PROPOSED SR 2	22'	52'
PROPOSED RIVER ROAD	--	16'
PROPOSED BERLIN ROAD	--	17'
RELOCATED JEFFRIES ROAD RAMP 4	3'	20' 25'

GEOLOGY AND OBSERVATIONS OF THE PROJECT

THE ALIGNMENT TRAVERSES A PORTION OF THE FLAT, GLACIATED LAKE PLAIN, PRESENTLY BEING INCISED BY THE HURON RIVER AND OLD WOMAN CREEK, IN AN AREA WHERE MODERATELY DEEP GLACIAL DRIFT OVERLIES SHALE AND LIMESTONE BEDROCK, OF DEVONIAN AGE. A MARSH AREA WEST OF THE HURON RIVER WAS FLOODED AT THE TIME OF RECONNAISSANCE, AND AN AREA OF POOR SURFACE DRAINAGE WAS OBSERVED IN THE FLOODPLAIN WEST OF OLD WOMAN CREEK.

EXPLORATION

EXPLORATORY BORINGS WERE MADE BY MEANS OF TRUCK-MOUNTED MECHANICAL SOIL AUGER AND PEAT SAMPLER, BETWEEN JUNE 26 AND 30, AND JULY 31 AND 17, 1967. INCLUDED IN THIS REPORT ARE LOGS OF BORINGS FROM A PRELIMINARY INVESTIGATION, TRANSMITTED SEPTEMBER 20, 1961. ADDITIONAL BORINGS WERE MADE FOR RAMP 4 ON AUGUST 22, 1968.

MATERIALS ENCOUNTERED AT OR IMMEDIATELY BELOW PROPOSED GRADE WERE PREDOMINANTLY COMPRISED OF WET, FROST SUSCEPTIBLE SILTS (A-4b), AND SOME SILT CLAYS (A-6a AND A-6b), WHICH GENERALLY HAD MOISTURE CONTENTS IN THE UPPER PORTIONS OF THE PLASTIC RANGE.

IN THE EMBANKMENT FOUNDATION AREAS, MATERIALS WERE PREDOMINANTLY COMPRISED OF WET SILTS (A-4a AND A-4b) AND WET SILT CLAYS (A-6a AND A-6b). AN EXTENSIVE PEAT AREA, LOCATED IN THE FLOODPLAIN OF THE HURON RIVER, BETWEEN STATIONS 1234+00 AND 1255+00, WAS PREVIOUSLY INVESTIGATED AND A PRELIMINARY REPORT WAS TRANSMITTED SEPTEMBER 20, 1961. PEATS WERE ALSO ENCOUNTERED AT PROPOSED RIVER ROAD STATIONS 15+50, 16+50, 17+50, AND 18+00.

MATERIALS CONTAINING ORGANIC MATTER WERE ENCOUNTERED AT SR 2 STATIONS 1201+50, 1215+25, 1319+50, 1359+00, AND 1365+00, RAMP 4 STATIONS 1194+50 AND 1195+00.

LEGEND FOR PROJECT AVERAGE RESULTS OF TESTS — 362 SAMPLES TESTED

DESCRIPTION	H.R.B. CLASS	OHIO CLASS	% AGG.	% C. SAND	% F. SAND	% SILT	% CLAY	LIQUID LIMIT	PLASTICITY INDEX	WATER CONTENT	SAMPLES TESTED
COARSE AND FINE SAND	-----	A-3a	0	5	69	13	13	NP	NP	12	5
SANDY SILT	A-4(8)	A-4a	5	3	18	39	35	23	8	20	46
SILT	A-4(8)	A-4b	0	0	3	62	35	22	7	25	176
SILT AND CLAY	A-6(9)	A-6a	2	0	5	46	47	34	13	26	58
SILTY CLAY	A-6(11)	A-6b	2	0	5	45	48	37	17	23	23
ELASTIC CLAY	A-7-5(20)	A-7-5	11	2	5	42	40	72	39	53	10
CLAY	A-7-6(13)	A-7-6	2	0	3	38	57	44	21	25	11
FIBROUS PEAT											3
FINE TEXTURED PEAT											10
MARLY SEDIMENTARY PEAT											1
SEDIMENTARY PEAT											15
WOODY PEAT											3
VARIOUS OTHER MATERIALS											
SOD AND/OR TOPSOIL=X'≈APPROXIMATE DEPTH.											
AUGER BORING-PLAN VIEW.											
AUGER BORING PLOTTED TO VERTICAL SCALE ONLY.											
● WATER CONTENT NEARLY EQUAL TO OR GREATER THAN LIQUID LIMIT.											
⊖ INDICATES A NON-PLASTIC MATERIAL WITH A HIGH WATER CONTENT.											
— FREE WATER.											
NOTE: FIGURES BESIDE BORINGS INDICATE WATER CONTENT IN PERCENT. E.G. /5											

REVISED 9/9/68

SOIL PROFILE

ERIE COUNTY  
ERI-2-18.38

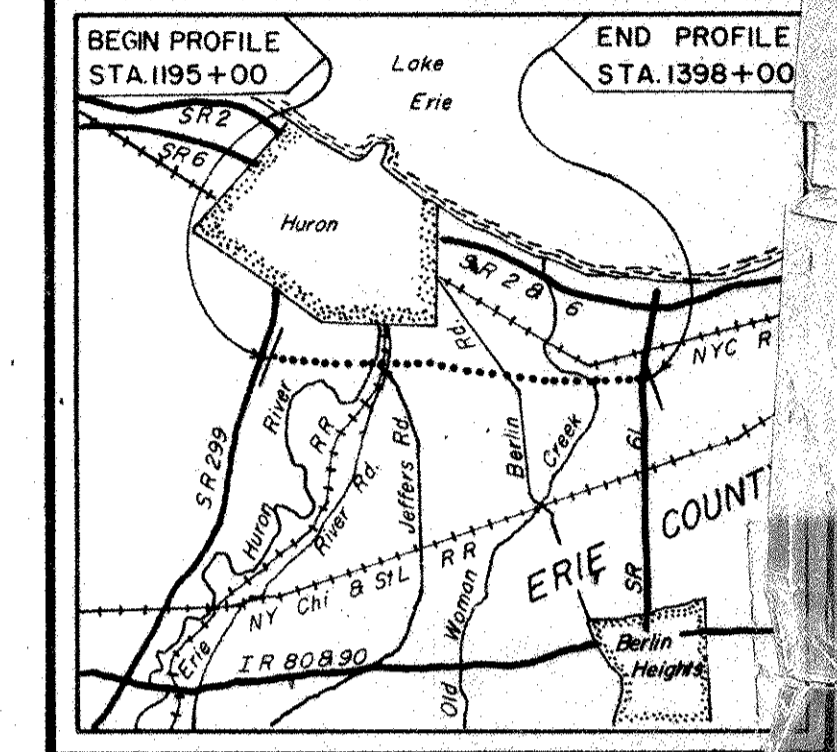
OHIO STATE HIGHWAY TESTING LABORATORY  
1620 W. BROAD ST. COLUMBUS 23, OHIO

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NOTE: INFORMATION SHOWN BY THIS SUBGRADE PROFILE WAS OBTAINED SOLELY FOR 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.

FED. NO. F-U



LOCATION MAP

Recon. - J.F.S. - 5/8/67  
Drilling - Auger - W.S.B., T.R.S. - 6/26/67 to 7/17/67  
Drafting - R.G.M., E.J.S. - 8/30/67  
REVISED  
Drilling - Auger - L.M.D. - 8/22/68  
Drafting - D.E.N. - 9/9/68



SUMMARY OF SOIL TEST DATA

NOTE: NP SHOWN IN LIQUID LIMIT AND PLASTICITY INDEX COLUMNS INDICATES THAT THE MATERIAL IS NON-PLASTIC.  
\* DENOTES SAMPLE TAKEN AT OR NEAR GRADE.

STATION & OFFSET	DEPTH		AGG.	C.S.	F.S.	SILT	CLAY	L.L.	P.I.	W.C.	SHTL CLASS.	STATION & OFFSET	DEPTH		AGG.	C.S.	F.S.	SILT	CLAY	L.L.	P.I.	W.C.	SHTL CLASS.	STATION & OFFSET	DEPTH		AGG.	C.S.	F.S.	SILT	CLAY	L.L.	P.I.	W.C.	SHTL CLASS.															
	FROM	TO											FROM	TO											FROM	TO										FROM	TO	FROM	TO	FROM	TO	FROM	TO	FROM	TO	FROM	TO			
1362+00	75'Lt	0.0-6.0	0	0	7	36	57	41	16	24	A-7-6	13+50	50'Rt	PROPOSED RIVER ROAD		0	2	12	42	45	40	22	13	A-6b	1191+50	BL	0.0-5.0	0	1	7	51	41	25	8	14	A-4b														
		6.0-12.0	0	0	10	48	42	37	15	23	A-4b*			5.0-10.0	0												12	3	52	33	25	7	23	A-4b																
		12.0-18.0	12	0	13	40	30	27	10	20	A-4b			RAMP 4													0	0	6	31	63	51	21	51	VISUAL	1194+50	70'Lt	0.0-1.3	0	0	4	47	49	81	48	75	A-7-5			
		18.0-23.0	0	0	17	49	34	31	12	30	A-6a			1.3-4.0	0																							0	4	47	49	81	48	75	A-7-5					
		23.0-27.0	0	0	15	49	36	30	12	32	A-6a			4.0-8.0	0												0	5	66	29	NP	NP	31	A-4b	1194+50	BL	0.0-2.0	0	0	4	40	56	52	19	44	A-7-5				
27.0-30.0	0	6	16	45	24	19	3	11	A-4a	2.0-5.0	0	1	7	54	38	39	16	36	A-6b	5.0-8.0	0	0	4	56	40	35	15	32	A-6a																					
1362+00	75'Rt	0.0-6.0	0	0	27	8	57	35	10	22	A-4b	15+50	50'Rt	BROWN SILTY CLAY		0	1	7	46	46	33	11	28	A-6a	1194+50	BL	0.0-1.3	0	0	4	47	49	81	48	75	A-7-5														
		6.0-12.0	0	0	44	29	29	NP	9	26	A-4a			BROWN FIBROUS PEAT													0	0	3	48	49	35	12	26	A-6a	1194+50	BL	2.0-5.0	0	1	7	54	38	39	16	36	A-6b			
		12.0-17.0	0	0	41	36	NP	4	4	4	4			A-4a	GRAY SILT AND CLAY																							0	1	3	32	64	40	19	22	A-6b	1194+50	BL	5.0-8.0	0
		17.0-21.0	10	2	26	40	22	26	4	4	4			A-4a	6.0-10.0												0	0	1	7	52	40	NP	NP	21	A-4b														
		21.0-25.0	0	1	6	64	29	29	9	22	A-4b			10.0-14.0	0												0	3	48	49	35	12	26	A-6a	0.0-2.0	0	0	4	40	56	52	19	44	A-7-5						
1365+00	75'Lt	0.0-6.0	0	0	25	53	22	25	7	22	A-4b	16+50	25'Lt	BROWN FIBROUS PEAT		0	1	7	46	46	33	11	28	A-6a	1195+00	80'Rt	0.0-1.5	0	0	2	43	55	50	16	41	VISUAL														
		6.0-12.0	0	0	35	38	27	26	6	6	A-4a			BROWN SEDIMENTARY PEAT													0	0	5	44	51	72	25	61	A-7-5	1195+00	80'Rt	3.0-7.0	0	2	7	46	45	37	18	30	A-6b			
		12.0-18.0	0	0	42	40	35	28	10	10	A-4a			GRAY SILT AND CLAY																								0	1	20	44	35	24	6	16	A-4a	1196+00	BL	4.0-8.0	0
		18.0-24.0	0	0	42	32	22	NP	5	11	A-4a			4.5-12.0	0												0	4	50	36	27	11	25	A-6a	0.4-4.0	0	1												20	44
		24.0-29.5	22	10	18	30	20	21	5	11	A-4a			12.0-13.0	0												0	7	46	32	31	9	20	VISUAL	4.0-8.0	0	0	7	47	46	33	15	20	A-6a						
1365+00	75'Rt	0.0-6.0	0	0	13	46	35	31	10	20	A-4a	17+50	45'Rt	BROWN WOODY PEAT		0	1	20	44	35	24	6	16	A-4b	1198+00	BL	0.4-2.0	0	0	8	64	28	NP	NP	16	A-4b														
		6.0-11.0	0	2	24	41	33	27	9	9	A-4a			GRAY SILTY CLAY													0	0	4	60	36	27	11	25	A-6a	1200+00	BL	1.5-4.0	0	1	4	48	47	49	19	38	A-7-5			
		11.0-16.0	0	2	18	53	27	31	7	31	A-4b			0.0-6.0	0																							0	2	60	30	22	8	24	A-4b	4.0-8.0	0	0	2	50
		16.0-21.0	0	1	13	48	32	30	9	32	A-4a			6.0-10.0	0												0	2	60	30	22	8	24	A-4b	1198+00	BL	2.0-7.0	0	0	4	52	44	28	8	21	A-4b				
		21.0-26.0	0	1	16	52	31	30	6	6	A-4b			16.0-17.0	0												0	4	60	36	27	11	25	A-6a			0.0-1.5	0	0	5	71	24	NP	NP	24	A-4b				
26.0-27.0	11	7	16	36	30	31	4	13	A-4a	18.0-22.0	0	0	2	60	30	22	8	24	A-4b	1.5-4.0	0	1	4	48	47	49	19	38	A-7-5																					
1369+00	80'Rt	0.0-4.0	0	0	5	47	48	56	16	16	A-6b	23+00	20'Lt	BROWN WOODY PEAT		0	0	4	60	36	27	11	25	A-6a	1200+00	BL	4.0-10.0	0	1	6	44	49	56	11	10	A-6a														
		4.0-10.0	0	1	6	44	49	56	11	10	A-6a			GRAY SILTY CLAY													0	0	2	60	30	22	8	24	A-4b	1200+00	BL	1.5-4.0	0	1	4	48	47	49	19	38	A-7-5			
		10.0-15.0	11	5	13	39	24	8	10	A-4a	6.0-10.0			0	0																							2	60	30	22	8	24	A-4b	4.0-8.0	0	0	2	50	48
		1370+50	80'Lt	0.0-6.0	0	0	46	48	41	19	21			A-7-6	15+00												15'Rt	RELOCATED JEFFRIES ROAD		0	1	7	56	36	32	10	19	A-4b*	1191+50	BL	0.0-6.0	0	0	7	56	36	32	10	19	A-4b*
				6.0-12.0	0	0	57	57	27	7	7			7														A-4b	6.0-11.0												0	0	4	56	38	29	9	23	A-4b	
12.0-16.0	0			0	60	55	25	10	10	10	A-4b	11.0-16.0	0	0		1	56	43	26	7	30	A-4b																												
16.0-21.0	0			0	65	54	24	NP	9	19	A-4b*	16.0-21.0	0	0		2	76	22	NP	NP	24	A-4b																												
21.0-26.0	0			0	60	59	26	8	9	19	A-4b	21.0-25.0	0	0		2	62	36	24	5	24	A-4b																												
26.0-32.0	0	0	1	26	73	21	17	30	A-7-6	18+00	CL	PROPOSED BERLIN ROAD		0	1	7	39	53	36	16	23	A-6b*	1191+50	BL	0.0-6.0	0	0	5	52	45	27	8	26	A-4b																
1371+50	CL	0.0-6.0	0	1	21	77	47	23	24			A-7-6	6.0-12.0												0	0	5	52	45	27	8	26	A-4b																	
		6.0-10.0	0	0	34	51	15	NP	NP			20	A-4b												12.0-15.0	0	0	2	60	30	22	8	24	A-4b																
		10.0-16.0	10	4	11	42	31	19	10			10	A-4a												10+00	11'Rt	0.0-6.0	0	1	2	56	41	37	17	19	A-6b*														
		16.0-21.0	12	7	18	38	25	4	10			10	A-4a														6.0-11.0	0	0	3	54	43	36	16	32	A-6b														
		21.0-23.0	14	7	14	35	50	25	7	8	A-4a	11.0-14.0	13	1	6	47	33	31	11	26	A-6a																													
1372+75	80'Rt	0.0-6.0	0	1	8	31	66	54	21	20	A-7-6	14.0-19.0	0	0	1	65	34	27	7	26	A-4b																													
		6.0-9.0	0	1	5	31	36	24	12	24	A-6a	19.0-25.0	14	0	1	49	36	28	8	27	A-4a																													
		9.0-14.0	0	0	11	65	24	NP	9	9	A-4a	15+00	11'Rt	0.0-4.0	0	0	3	50	47	31	10	22	A-4b																											
		14.0-20.0	12	6	11	60	36	NP	7	15	A-4b			4.0-10.0	0	0	2	50	35	27	9	24	A-4b																											
		20.0-26.0	0	0	7	60	32	NP	NP	18	A-4b			10.0-15.0	0	0	1	66	33	27	9	25	A-4b																											
26.0-30.0	0	1	2	73	24	NP	NP	18	A-4b	15.0-20.0	0			0	1	63	36	27	8	25	A-4b																													
1374+00	CL	0.0-6.0	0	0	51	47	41	16	17	A-7-6	20.0-25.0			0	0	1	63	36	27	7	29	A-4b																												
		6.0-9.0	0	0	51	36	24	12	24	A-6a	20+00	11'Rt	0.0-4.0	0	7	58	12	23	NP	NP	14	A-3a																												
		9.0-15.0	0	0	52	47	33	12	29	A-4b*			4.0-8.0	0	1	4	58	37	30	10	29	A-4b																												
		15.0-20.0	16	0	11	49	34	23	12	29			A-4a	8.0-14.0	0	1	1	64	34	27	8	24	A-4b																											
		20.0-25.0	0	0	11	46	51	11	23	28			A-6a	14.0-20.0	0																																			

Note: For complete plan and profile of Ramp 4, see sheet 10.

**SOIL PROFILE**

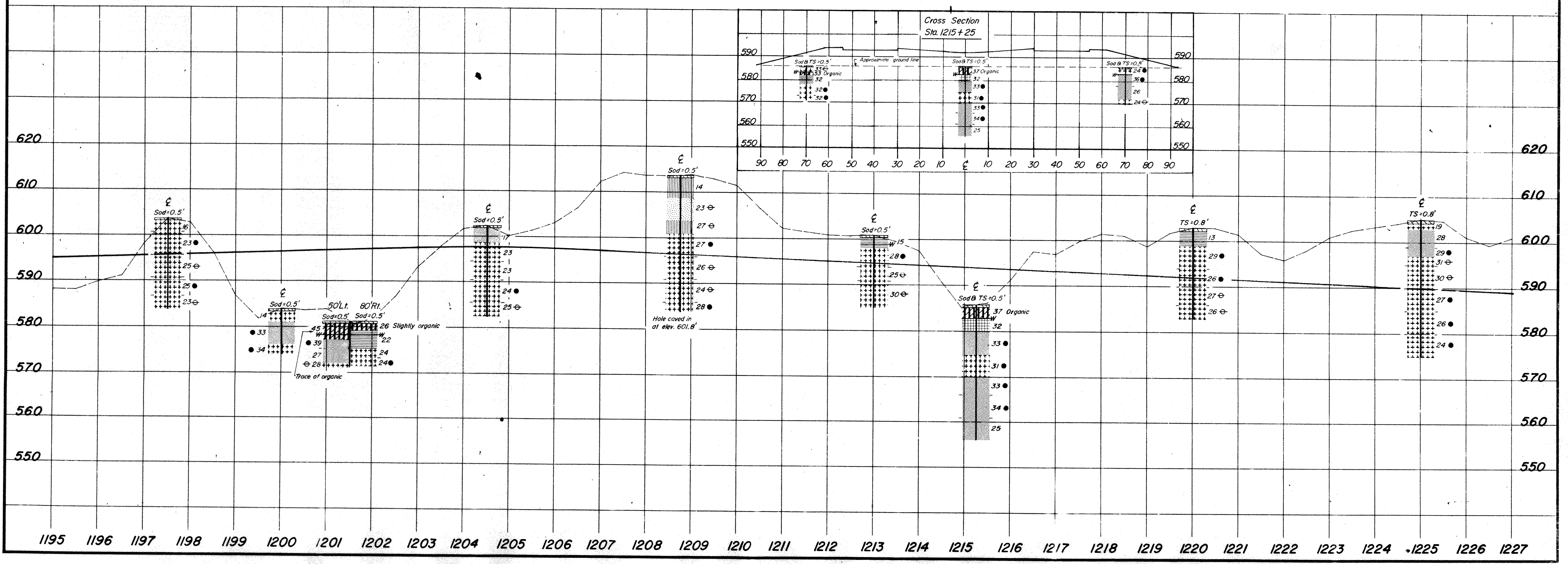
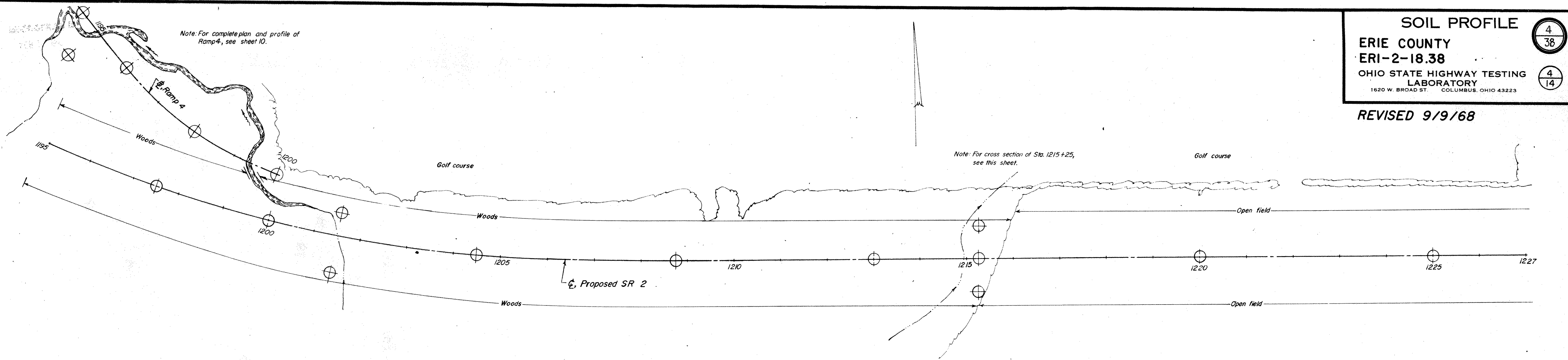
**ERIE COUNTY**  
**ERI-2-18.38**

OHIO STATE HIGHWAY TESTING  
 LABORATORY  
 1620 W. BROAD ST. COLUMBUS, OHIO 43223

**REVISED 9/9/68**

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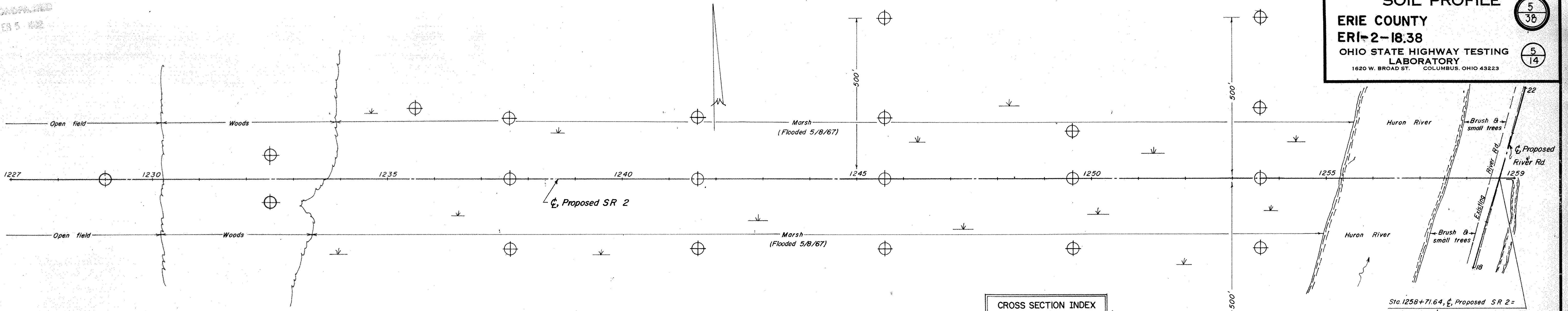
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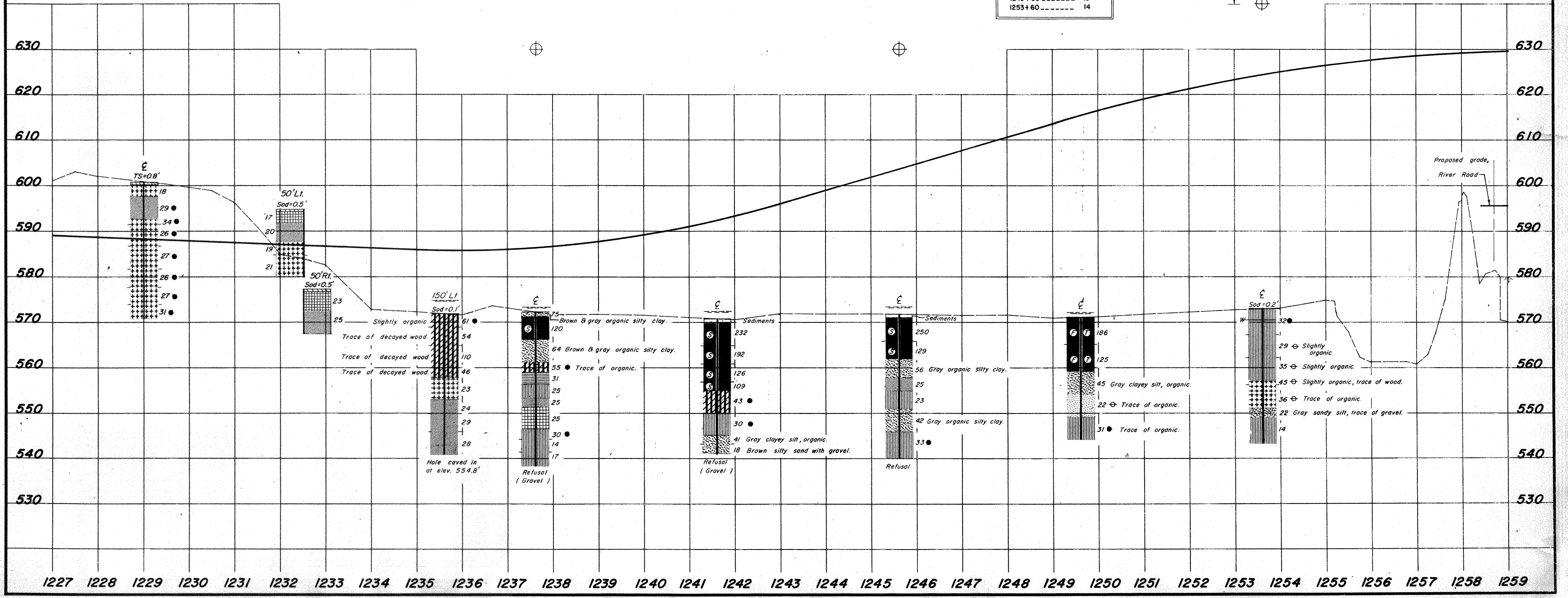
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CROSS SECTION INDEX	
Station	Sheet
1237+60	12
1241+60	12
1245+60	13
1249+60	13
1253+60	14

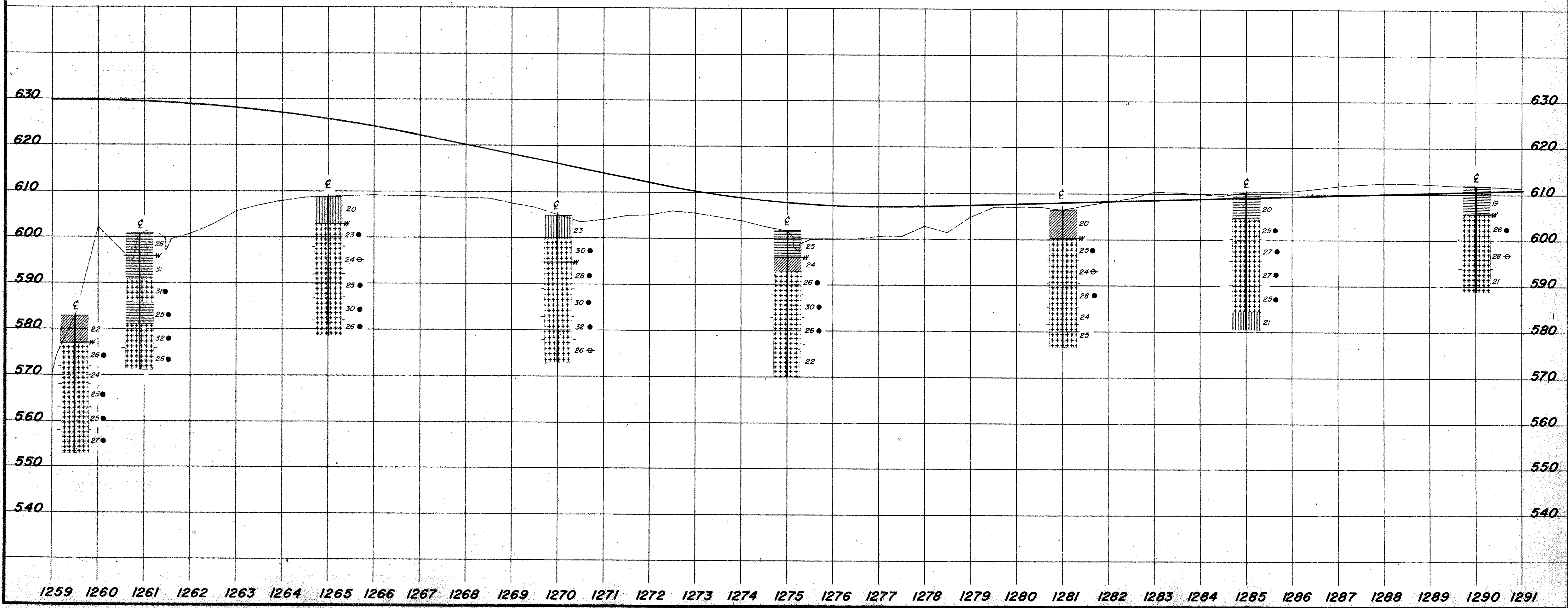
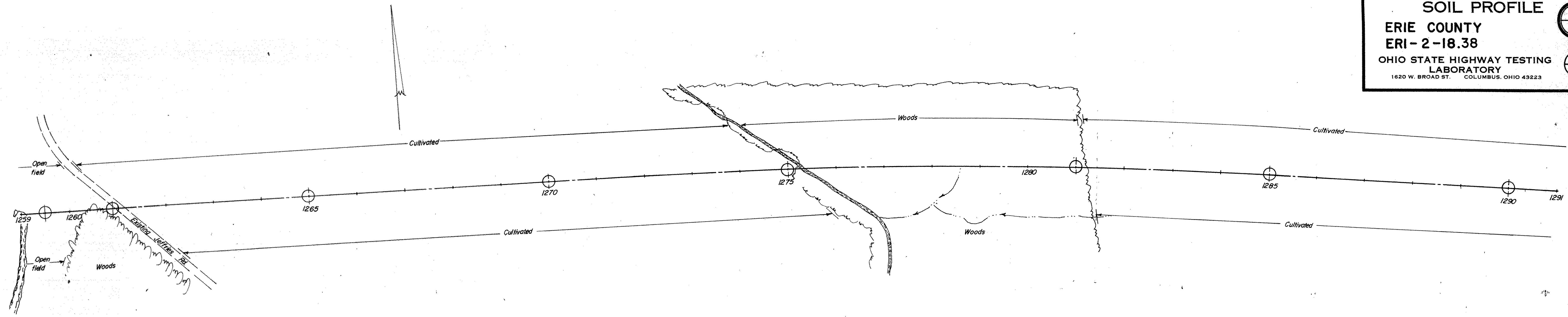
Sta. 1258+71.64, Proposed SR 2 =  
 Sta. 20+00, Proposed River Road.

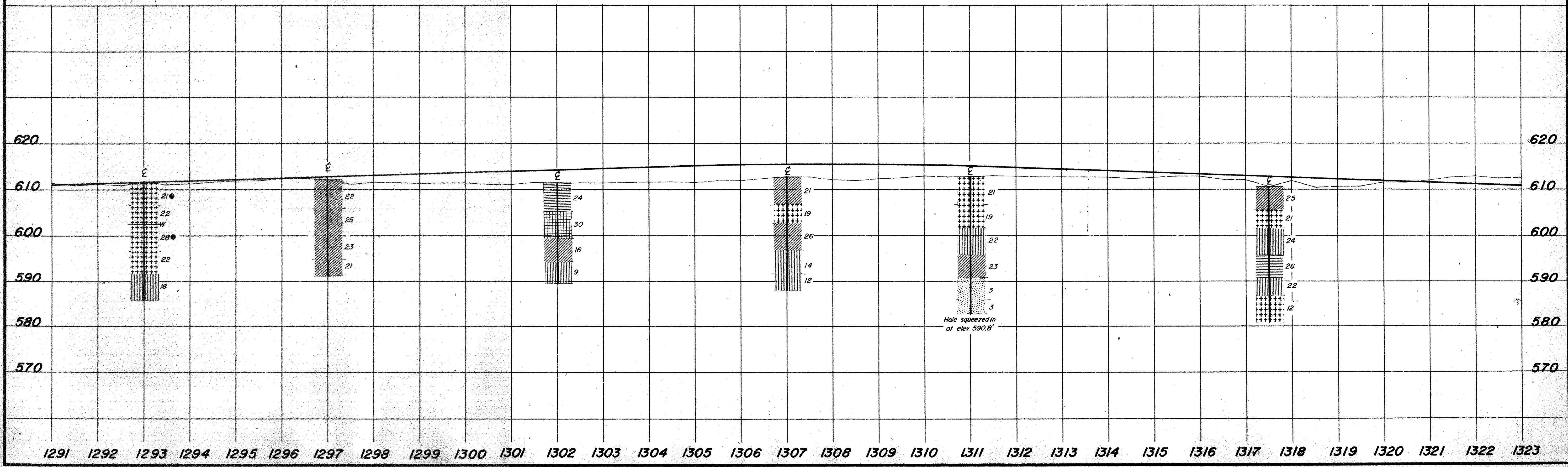
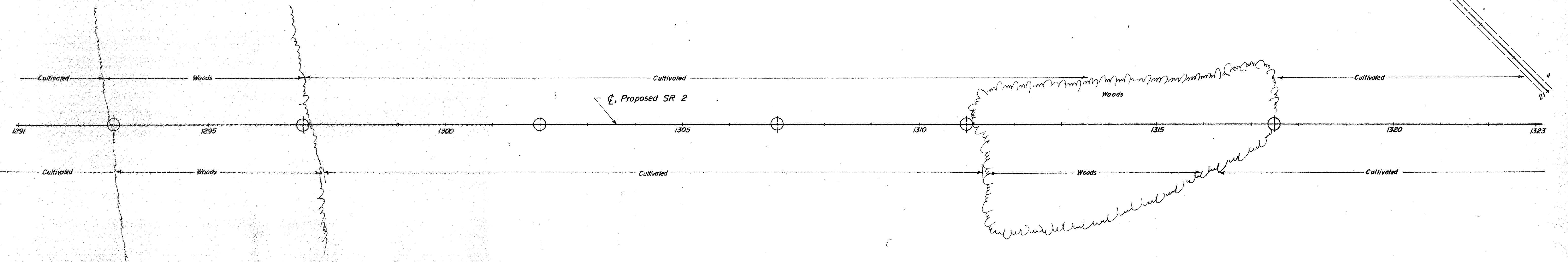
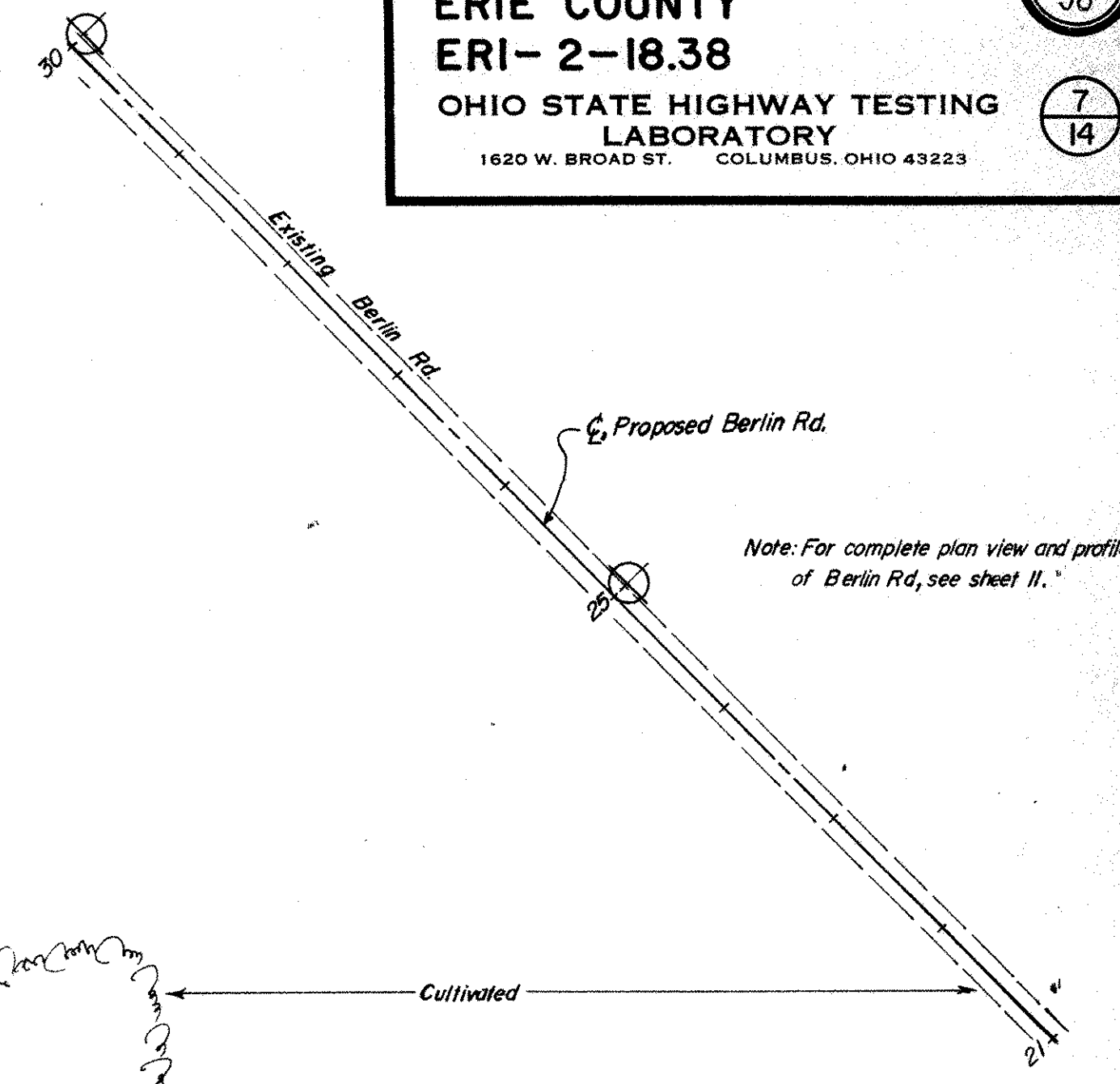
Note: For complete plan view and profile of Proposed River Rd., see sheet 11

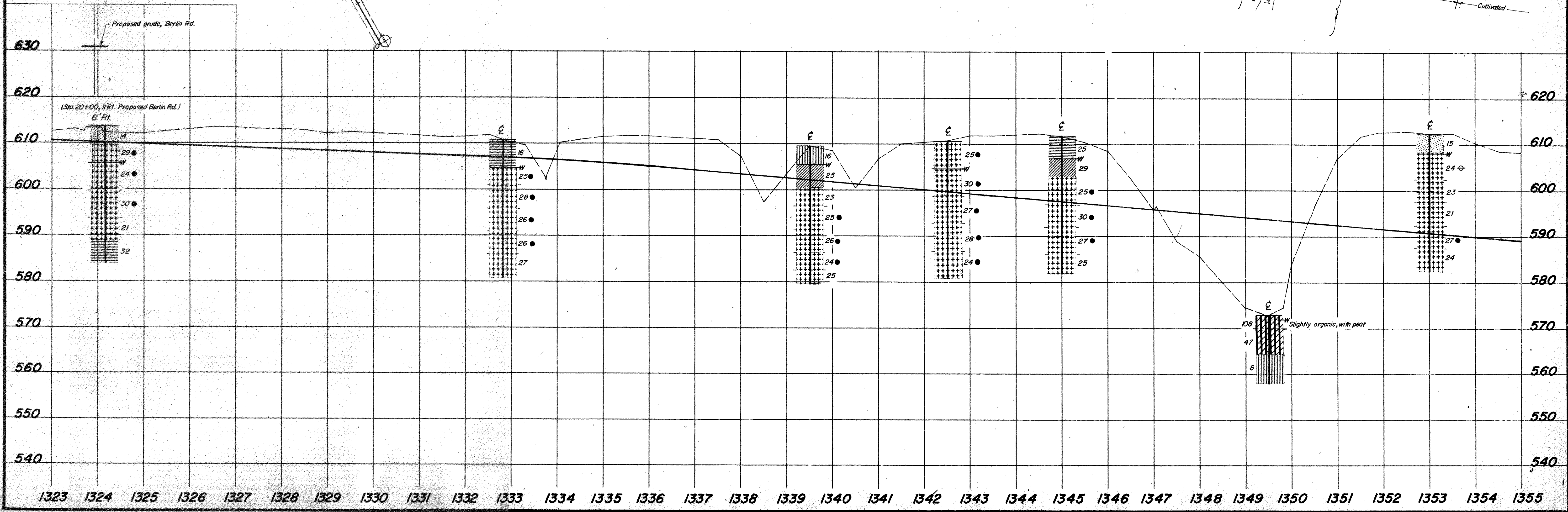
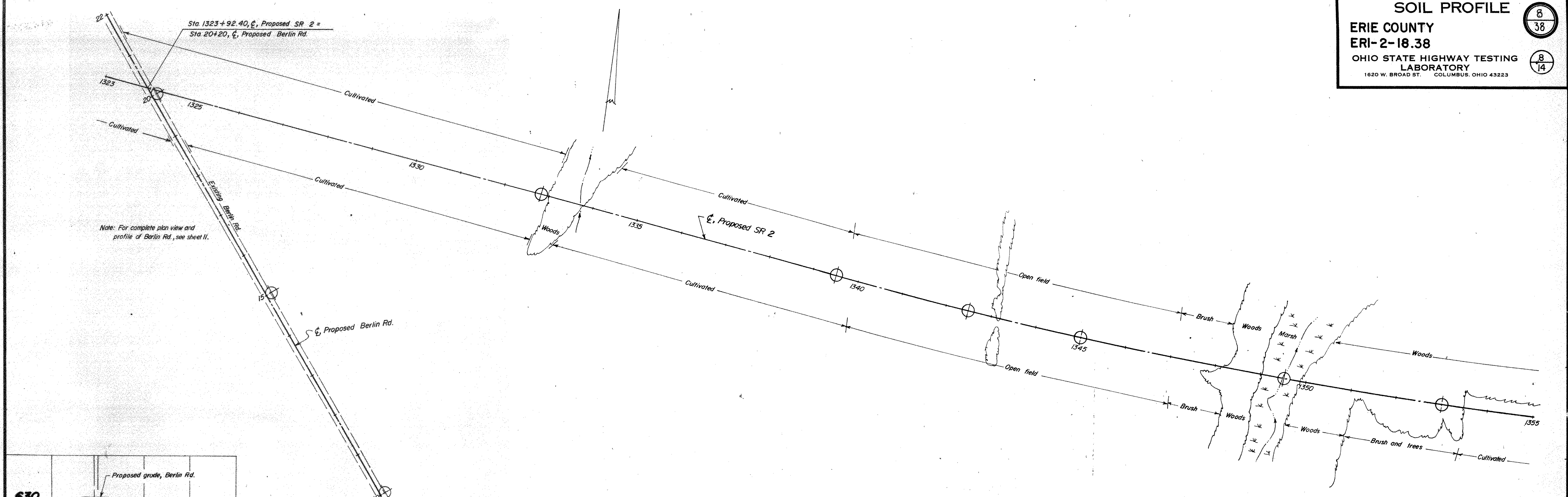


1227 1228 1229 1230 1231 1232 1233 1234 1235 1236 1237 1238 1239 1240 1241 1242 1243 1244 1245 1246 1247 1248 1249 1250 1251 1252 1253 1254 1255 1256 1257 1258 1259





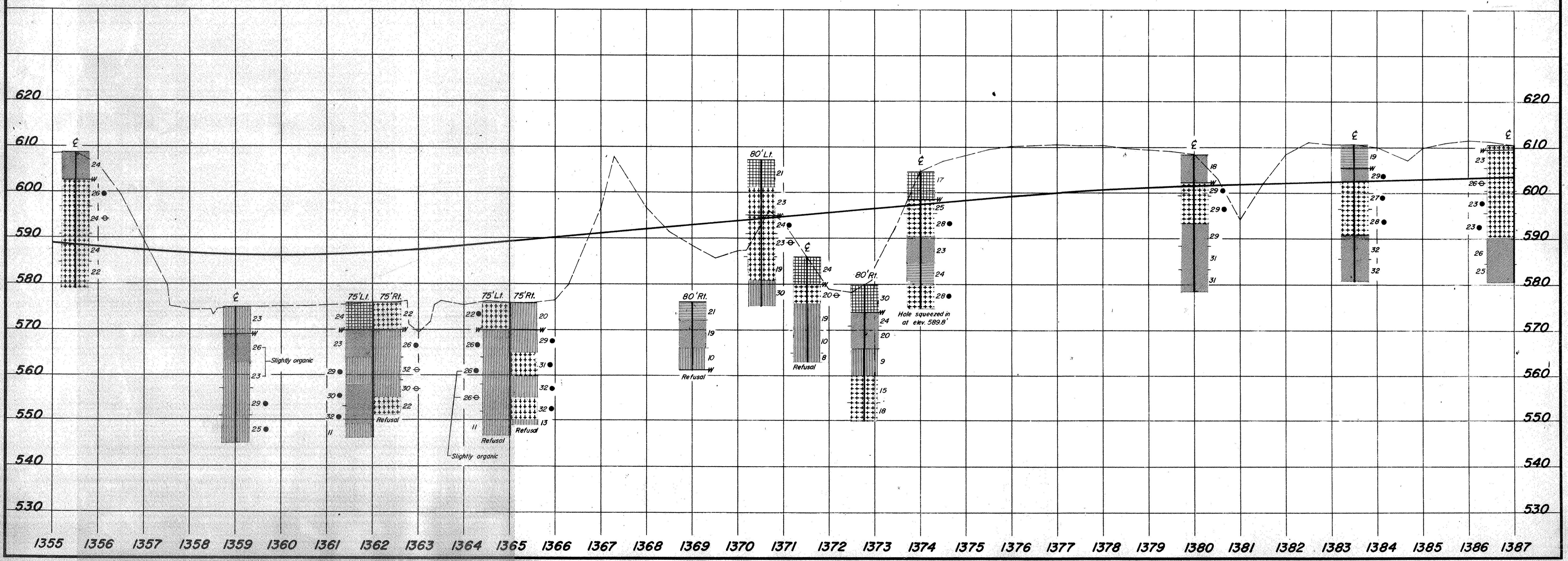
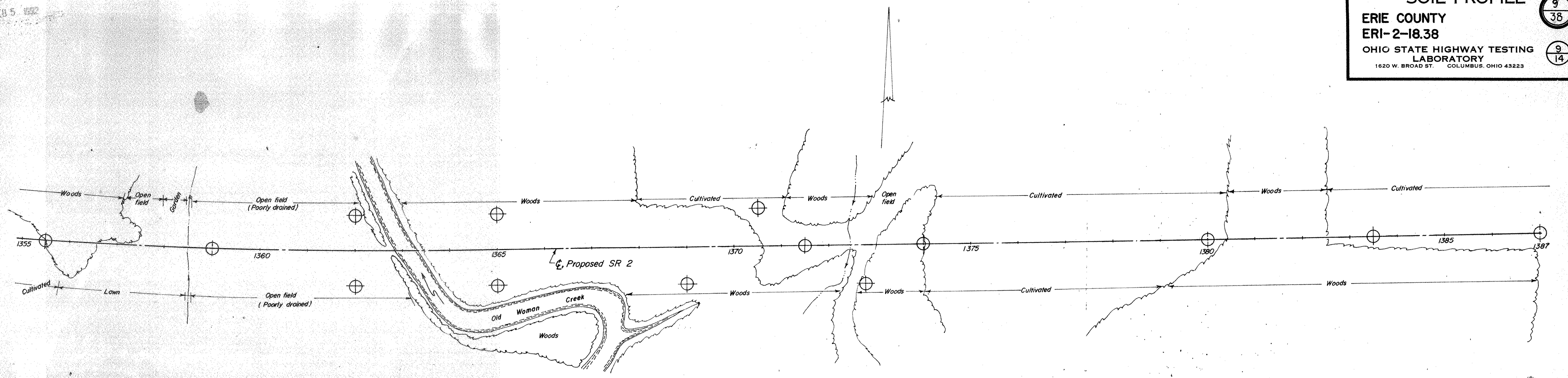




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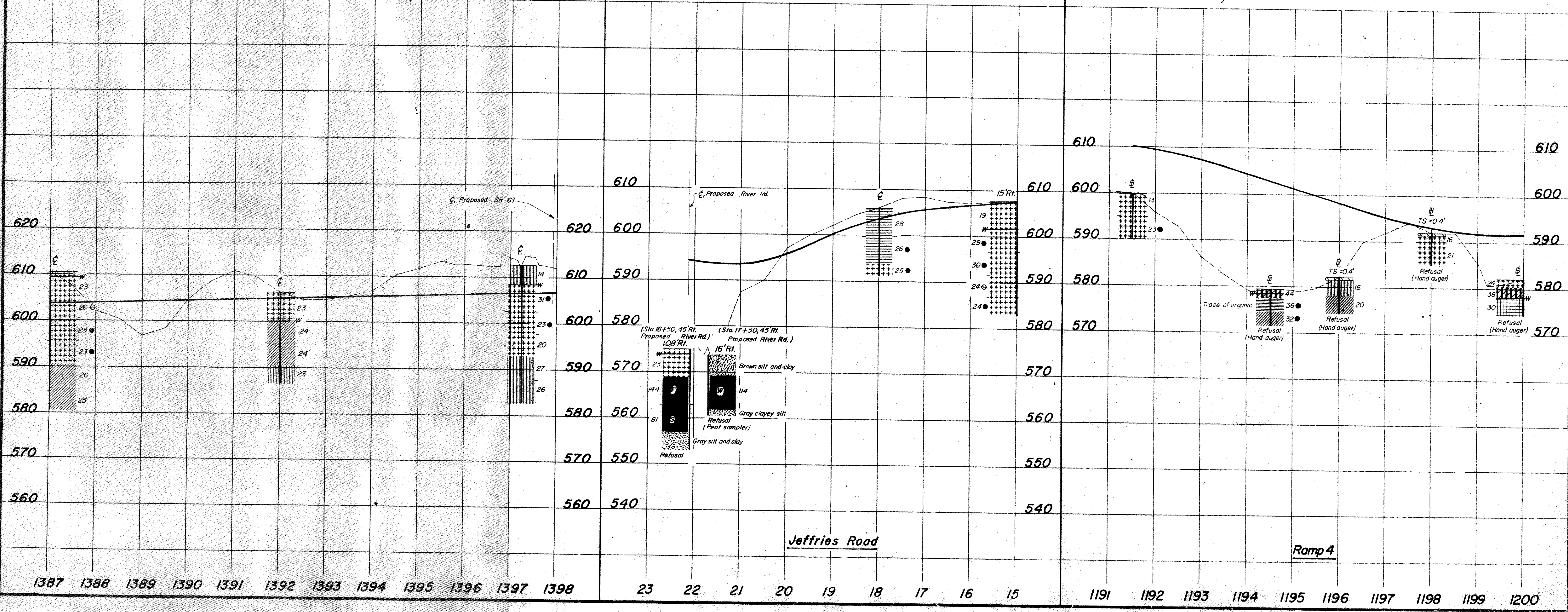
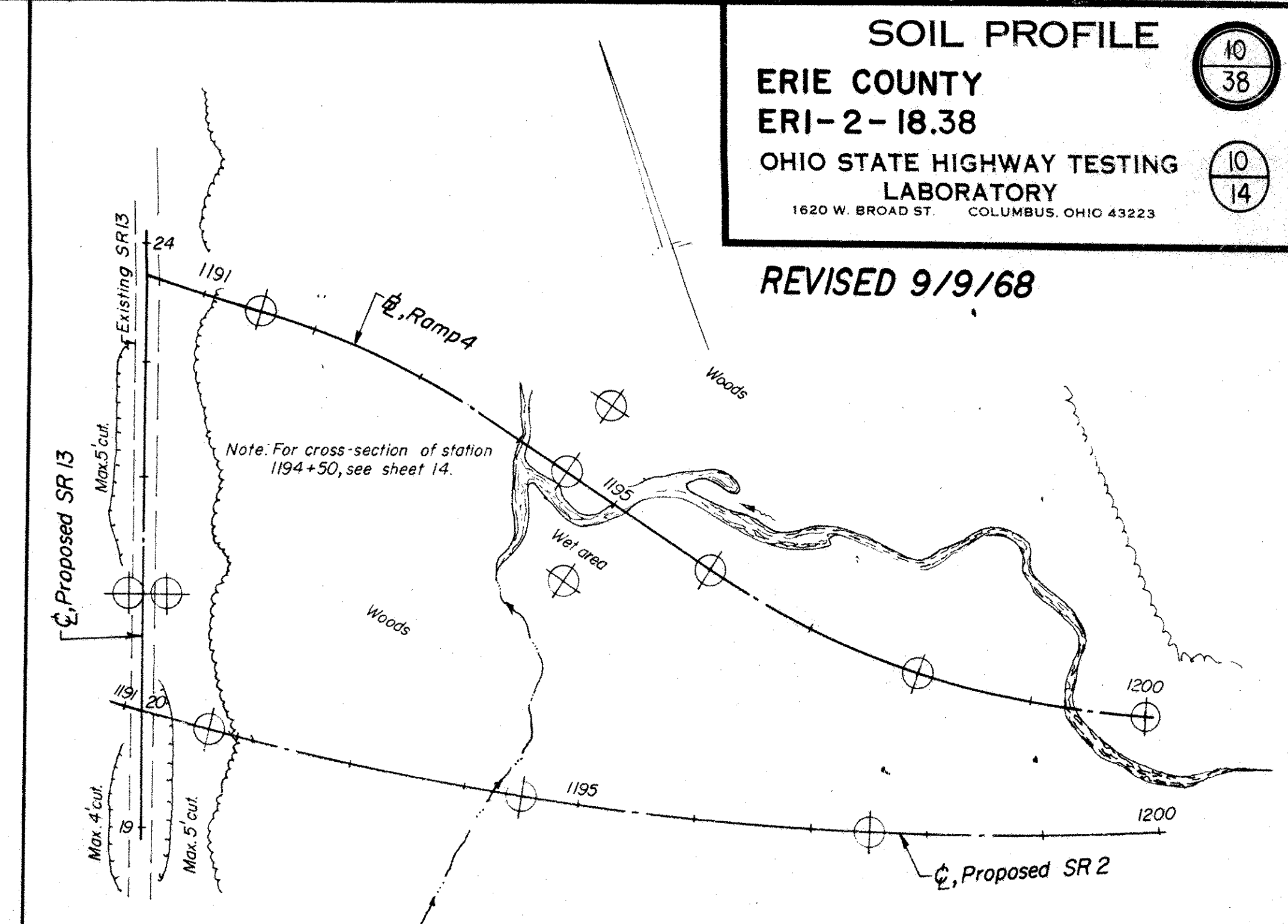
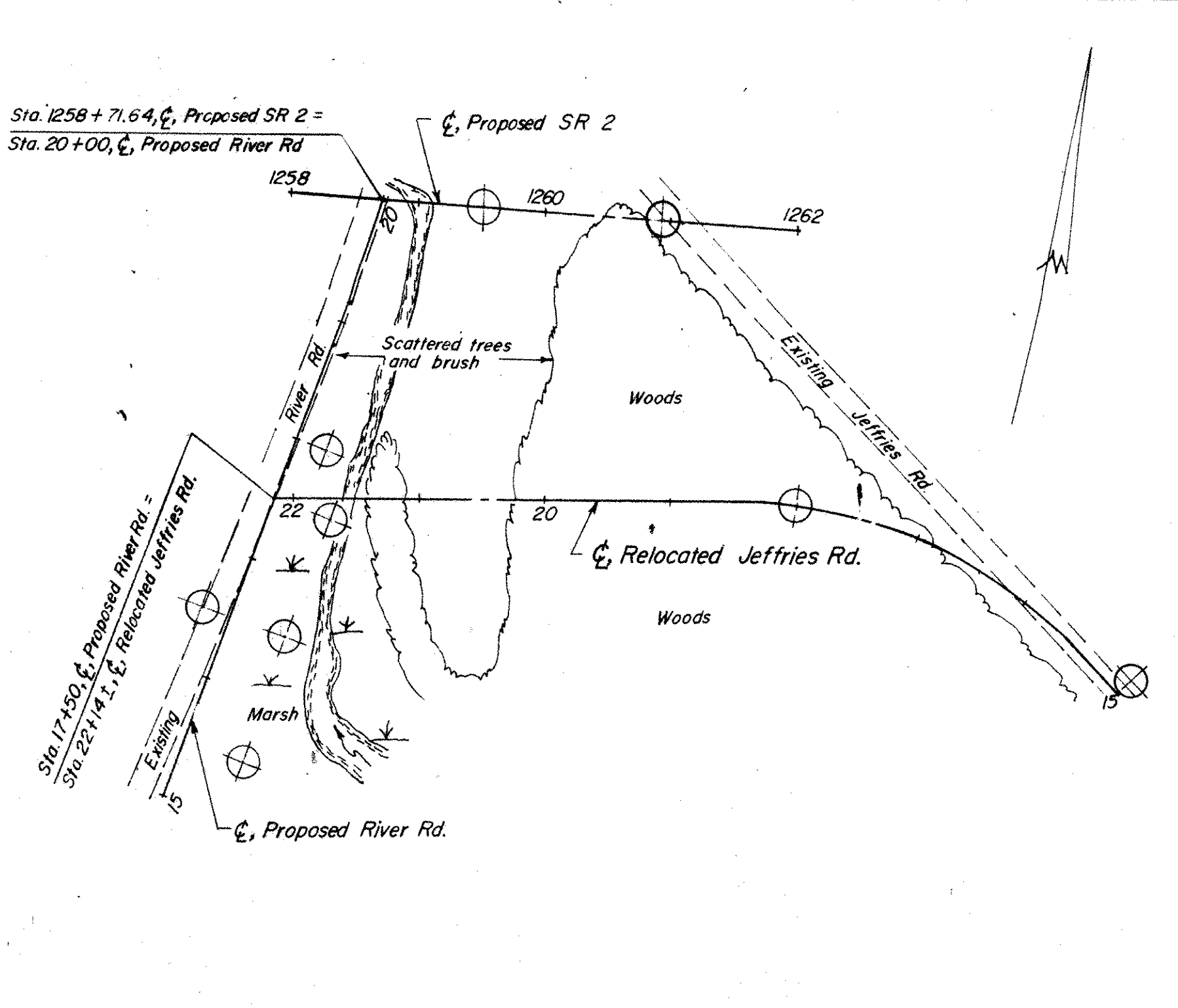
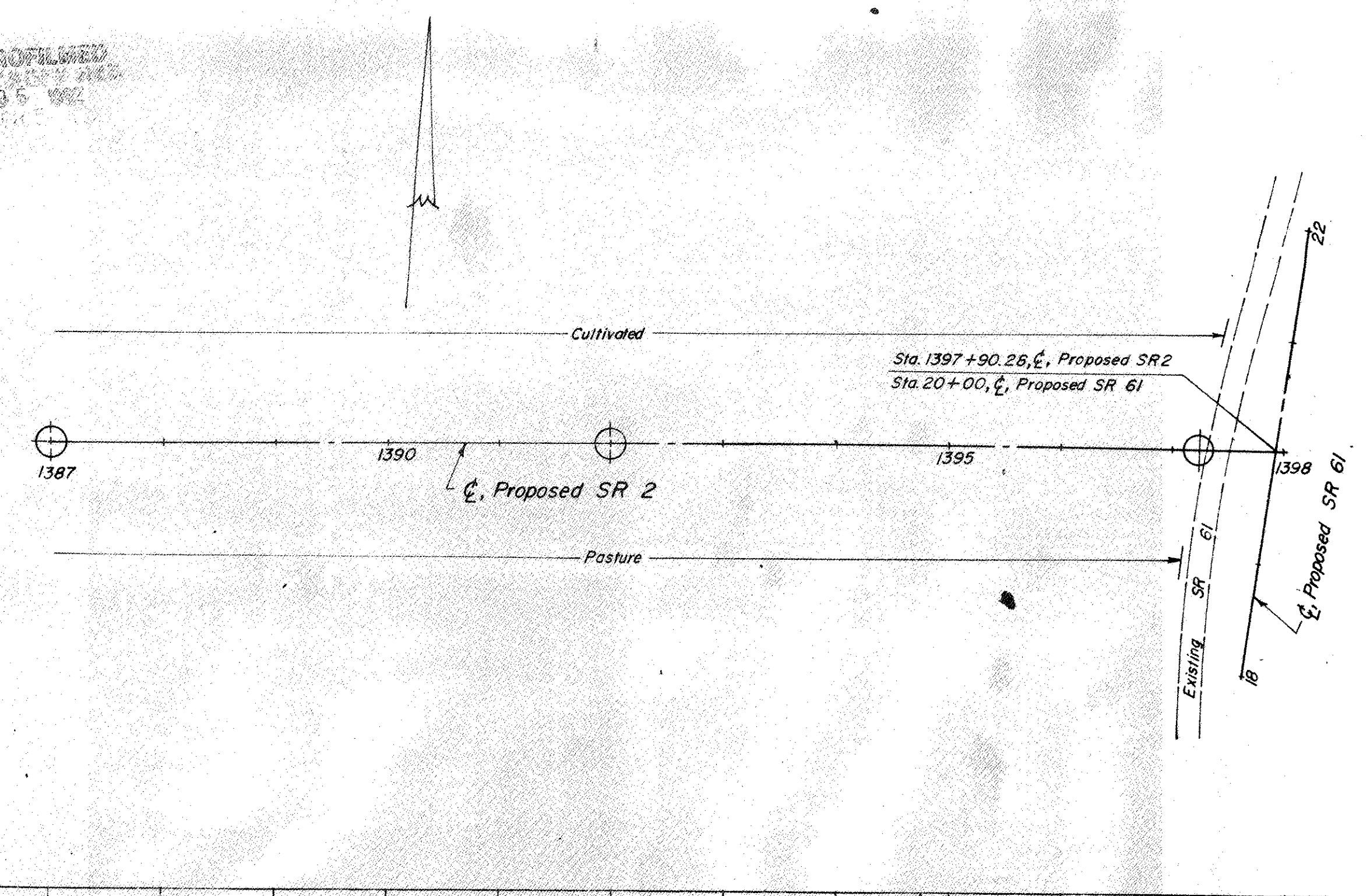
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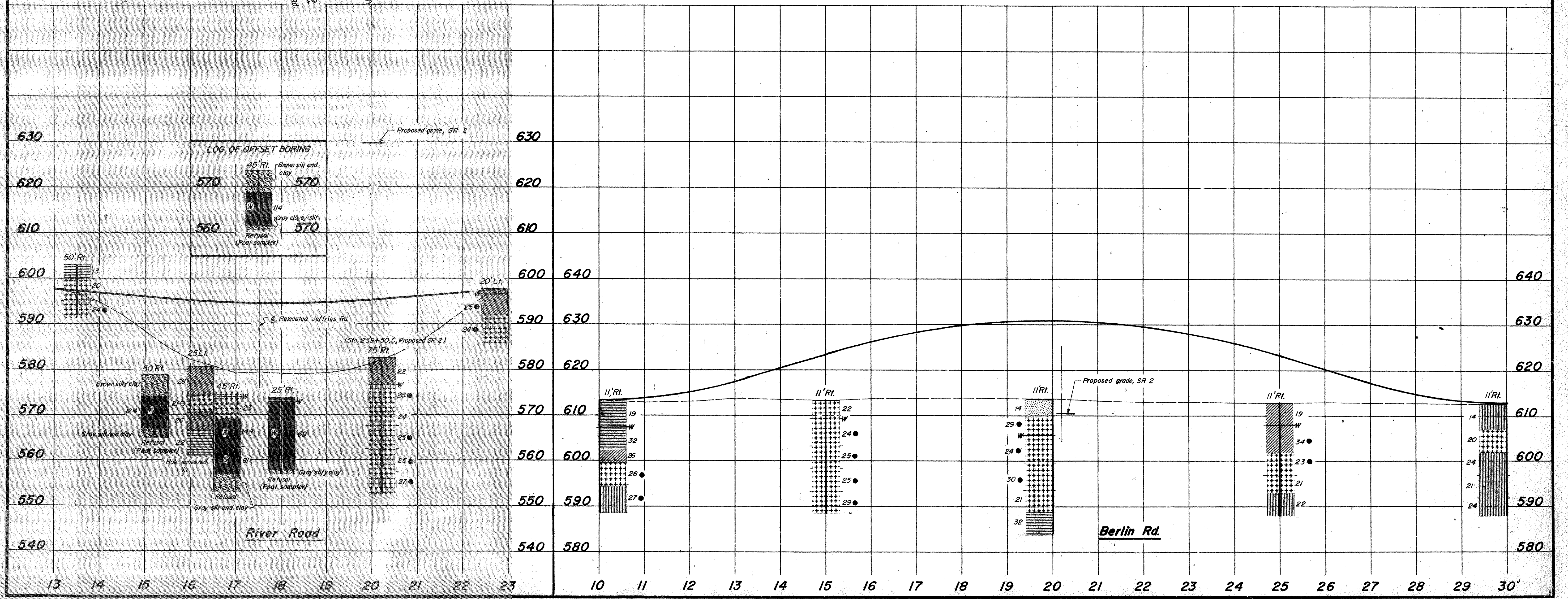
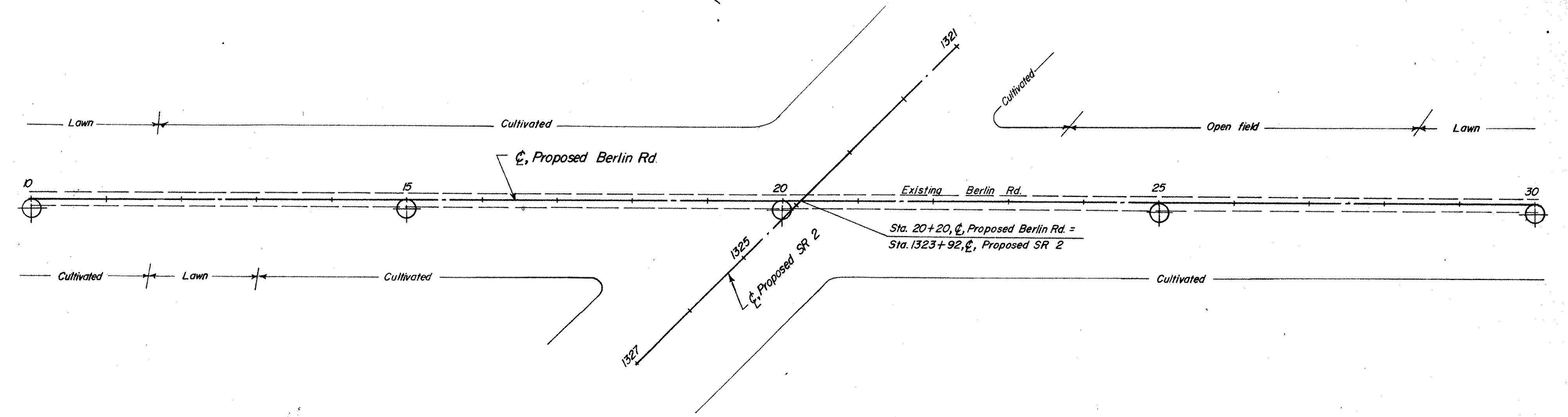
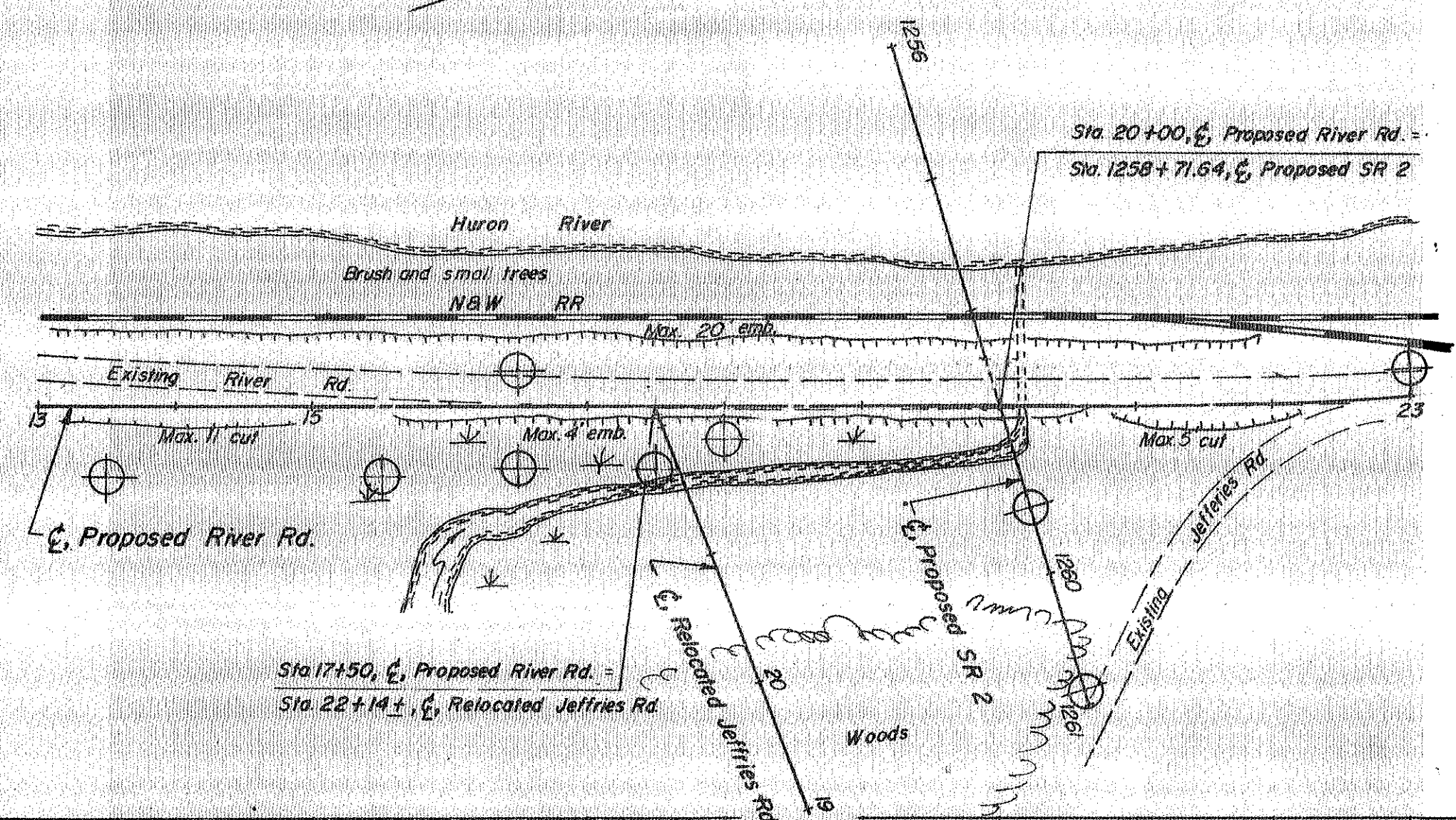
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**ERIE COUNTY**  
**ERI-2-18.38**  
**OHIO STATE HIGHWAY TESTING**  
**LABORATORY**  
 1620 W. BROAD ST. COLUMBUS, OHIO 43223

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REVISED 9/9/68





SOIL PROFILE

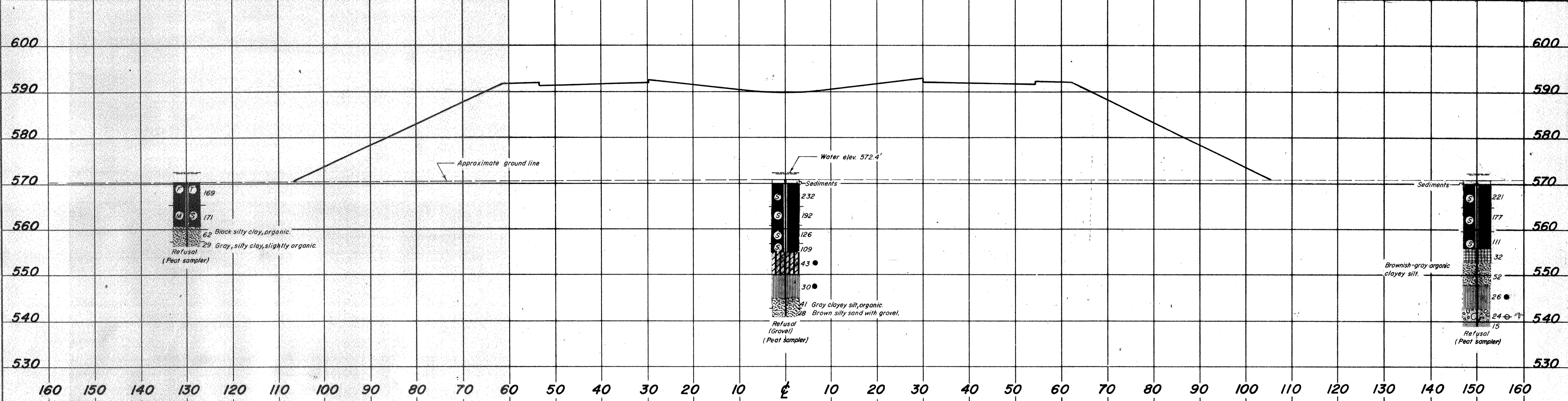
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ERIE COUNTY  
ERI-2-18.38

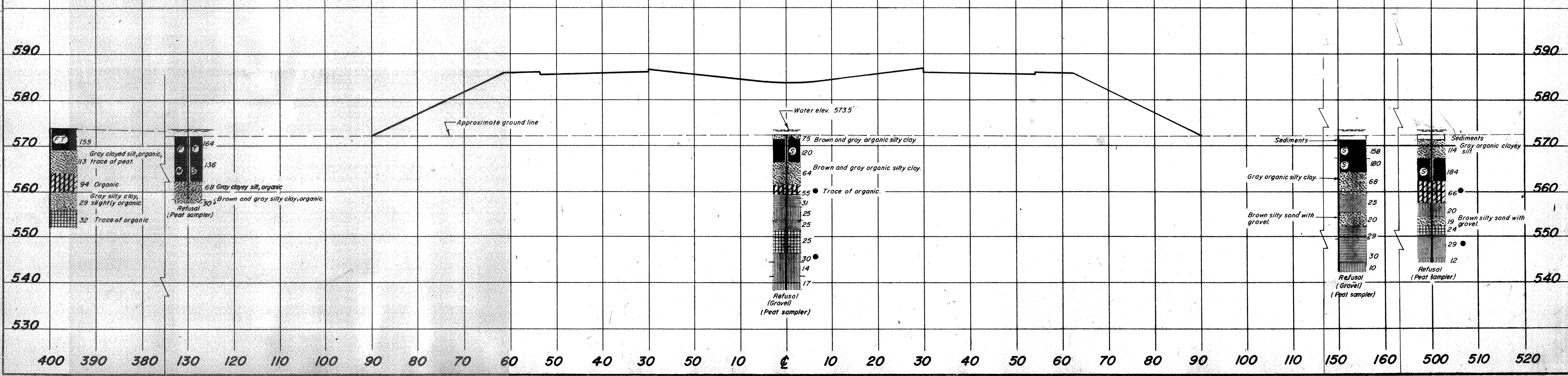
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1620 W. BROAD ST. COLUMBUS 23, OHIO

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Sta. 1241+60



Sta. 1237+60



SOIL PROFILE

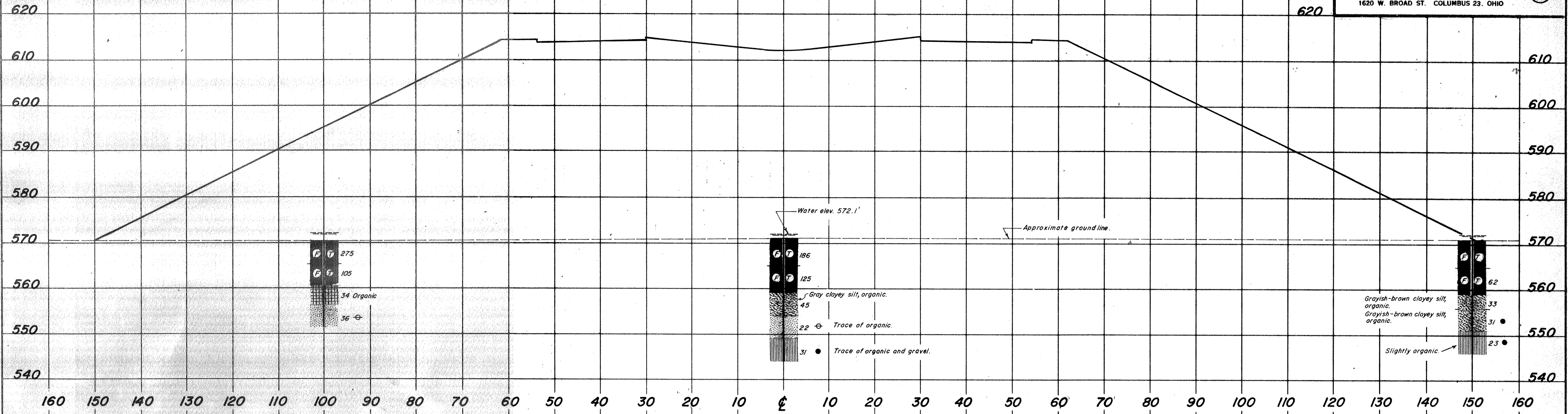
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ERIE COUNTY  
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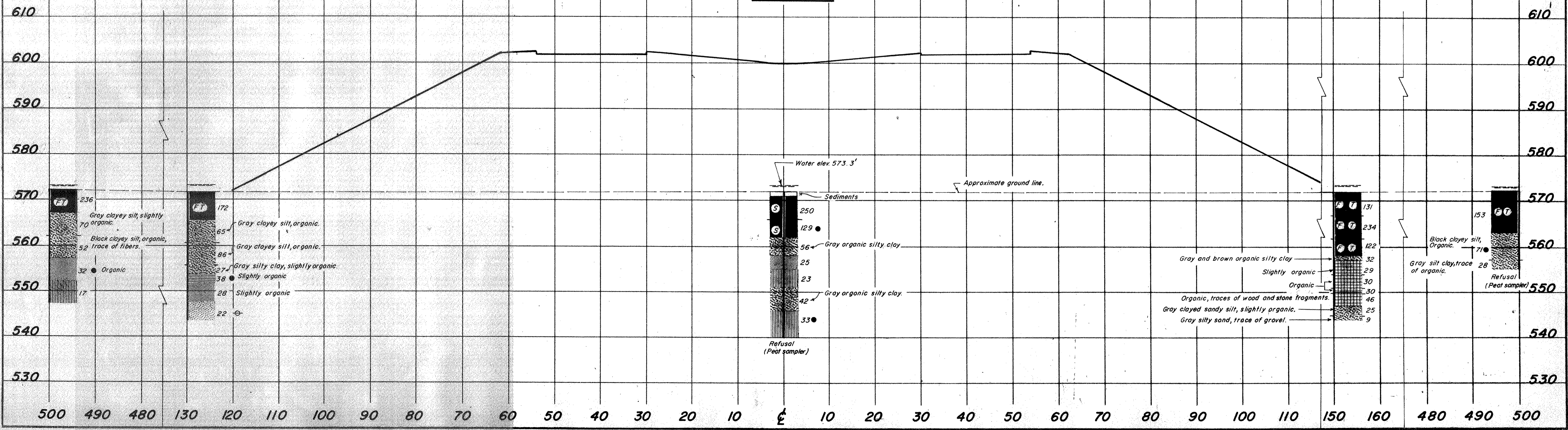
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1620 W. BROAD ST. COLUMBUS 23, OHIO

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Sta. 1249+60



Sta. 1245+60





SOIL PROFILE

ERIE COUNTY  
ERI-2-18.38

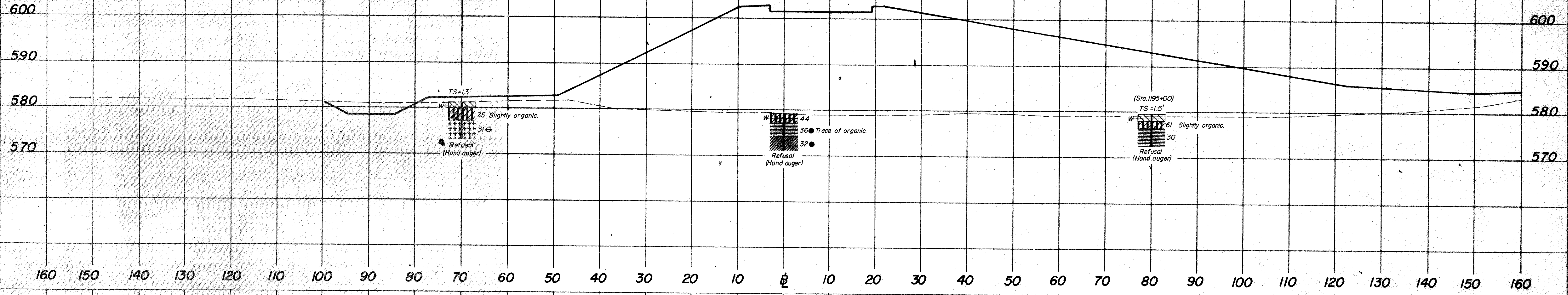
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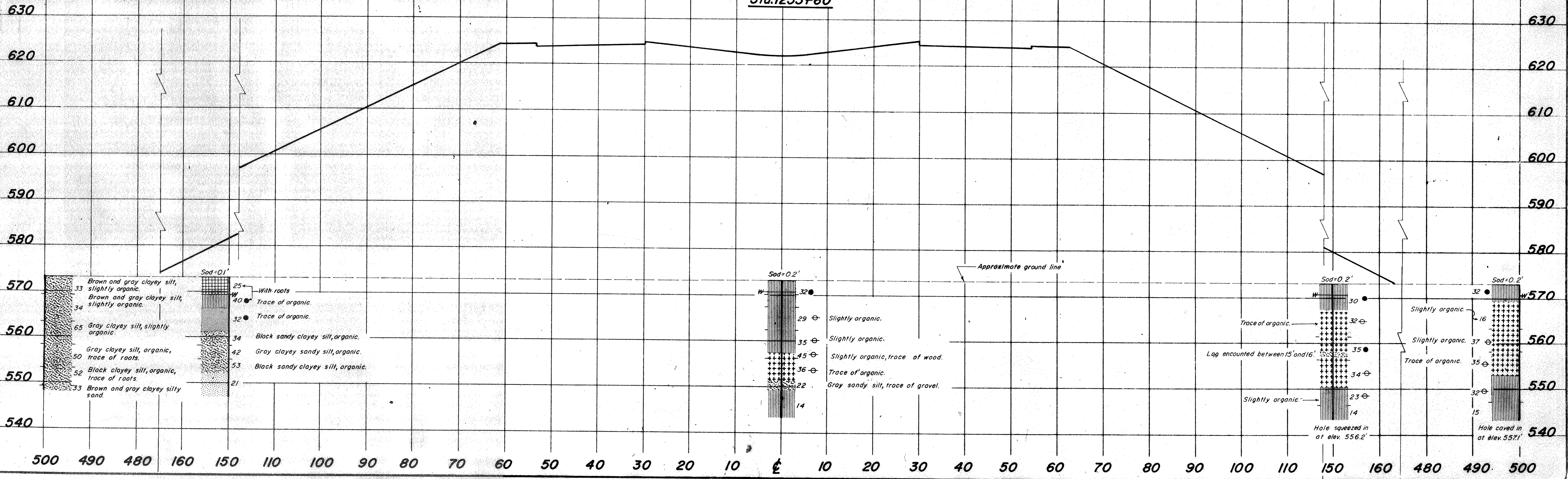
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REVISED 9/9/68

Sta. 1194+50-Ramp 4



Sta. 1253+60



MICROFILMED  
FEB 5 1982

**GEOLOGY OF THE SITE**

THE STRUCTURE SITE IS LOCATED IN THE FLAT GLACIATED LAKE PLAIN REGION, OVER THE HURON RIVER AND ON THE FLOODPLAIN AND EAST VALLEY WALL, IN AN AREA WHERE MODERATE-TO DEEP GLACIAL LAKE DEPOSITS AND ALLUVIUM OVERLIE SHALE BEDROCK, OF DEVONIAN AGE.

**EXPLORATION**

THE EXPLORATION CONSISTED OF TWO DRIVE SAMPLE-CORE BORINGS, ONE DRIVE SAMPLE-PRESS BORING AND FOUR DRIVE ROD PENETRATION TESTS, MADE BETWEEN JULY 26 AND AUGUST 2, 1967, AND MARCH 4 AND 16, 1968.

















**INVESTIGATIONAL FINDINGS**

BORINGS DISCLOSED THAT RELATIVELY FLAT-LYING BEDROCK SURFACE, ENCOUNTERED AT 55 AND 60-FOOT DEPTHS, ELEVATIONS 520 AND 519 FEET, IS OVERLAIN BY WET, LOOSE, SOFT SILTS AND CLAYS CONTAINING VARIOUS AMOUNTS OF ORGANIC MATERIAL TO APPROXIMATELY ELEVATION 549 FEET; BELOW THIS, VERY DENSE SILTS TO BEDROCK SURFACE. THE DRIVE SAMPLE-CORE BORINGS WERE TERMINATED AT 65 AND 70-FOOT DEPTHS, ELEVATIONS 510 AND 509 FEET, AFTER PENETRATING 10 FEET BELOW BEDROCK SURFACE. THE DRIVE SAMPLE-PRESS BORING WAS TERMINATED AT 53-FOOT DEPTH, ELEVATION 521 FEET, AFTER PENETRATING 23 FEET OF MATERIAL REQUIRING IN EXCESS OF 30 BLOWS PER FOOT IN THE STANDARD PENETRATION TEST.

ROD SOUNDINGS ENCOUNTERED RAPID INCREASE IN PENETRATION TEST RESISTANCE WITH INCREASE IN DEPTH AND WERE TERMINATED UPON ENCOUNTER WITH RATHER ABRUPT REFUSAL TO PENETRATION AT 32 TO 47-FOOT DEPTHS, ELEVATIONS 546 TO 542 FEET, CONSIDERED TO BE IN VERY DENSE SILTS, AS REVEALED BY THE BORINGS.

NO FREE WATER WAS OBSERVED IN ANY OF THE ROD SOUNDING HOLES.

**LEGEND**

-  Auger Boring Location - Plan View.
-  Press and / or Drive Sample and / or Core Boring Location - Plan View.
-  Drive Rod Penetration Resistance Sounding Location - Plan View.
-  Capped Pile
-  Footing
-  Footing on Pile
-  Top of Rock
-  Horizontal Bar on Boring Log Indicates the Depth the Sample Was Taken.
-  Figures Beside the Boring Log in Profile Indicate the Number of Blows for Standard Penetration Test.  
X = Number of Blows for First 6 inches.  
Y = Number of Blows for Second 6 inches.
-  Drive Rod Penetration Resistance Sounding Log - Profile
-  Casing
-  Resistance "R" < 10,000 lbs.
-  Resistance "R" > 10,000 lbs.
-  Indicates Final Measurement of Penetration, in Inches.
-  Indicates Free Water Elevation.
-  Indicates Static Water Elevation.

**SYMBOLS OF ROCK TYPES**

-  Coal
-  Weathered Indurated Clay
-  Indurated Clay
-  Weathered Shale
-  Shale
-  Weathered Sandstone
-  Sandstone
-  Leached Dolomite
-  Dolomite
-  Leached Limestone
-  Limestone

**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.

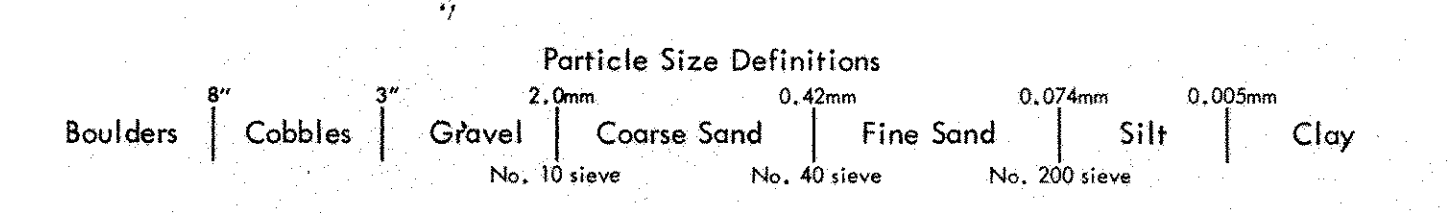
**Drive Sample Borings - Drive-Press Sample Borings**

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 12 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 two 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.

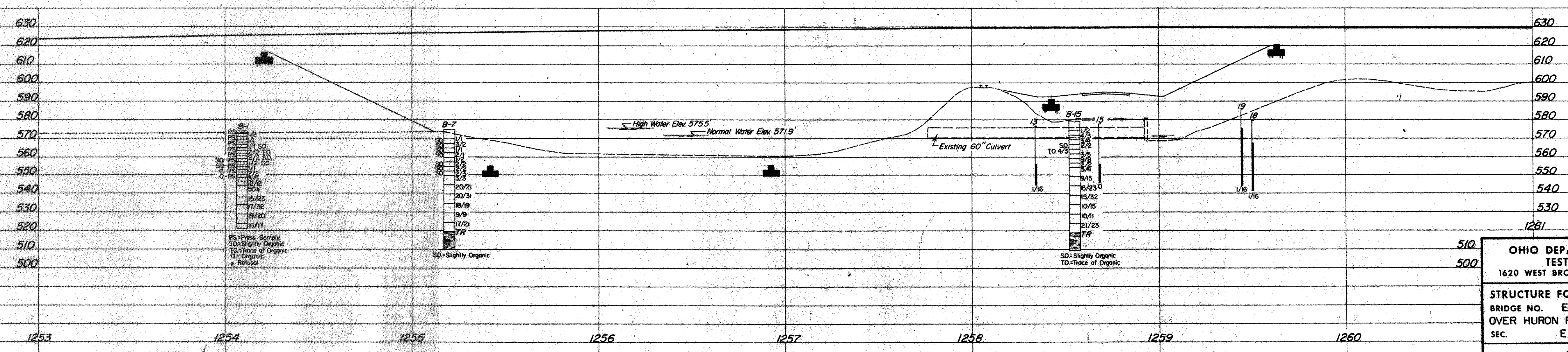
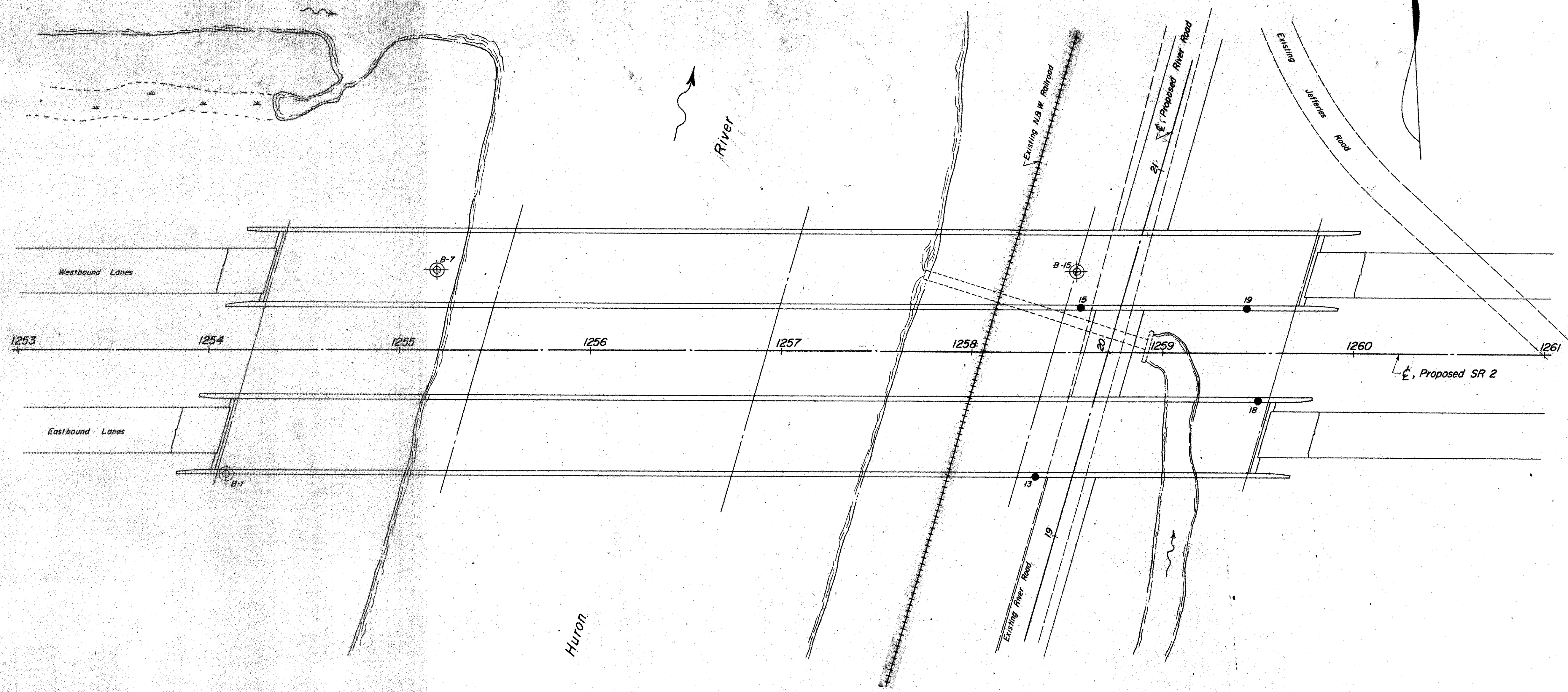


NOTE: Information shown by this subsurface investigation was obtained solely for the use in establishing design controls for the project. The State of Ohio does not guarantee the accuracy of this data and it is not to be construed as a part of the plans governing construction of the project.

OHIO DEPARTMENT OF HIGHWAYS  
TESTING LABORATORY  
1620 WEST BROAD STREET, COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION  
BRIDGE NO. ERI-2-1955 L/R  
OVER HURON RIVER, N.&W. RR. & RIVER RD.  
SEC. ERI-2-18.38

CHECKED BY L.N.L.	REVIEWED BY R.D.R.	DATE 5/7/68
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B-1  
 15/23  
 17/22  
 18/20  
 16/17  
 PS - Press Sample  
 SO - Slightly Organic  
 TO - Trace of Organic  
 O - Organic  
 \* - Refusal

B-7  
 15/23  
 17/22  
 18/20  
 16/17  
 SO - Slightly Organic

B-15  
 15/23  
 17/22  
 18/20  
 16/17  
 SO - Slightly Organic  
 TO - Trace of Organic

OHIO DEPARTMENT OF HIGHWAYS  
 TESTING LABORATORY  
 1620 WEST BROAD STREET, COLUMBUS 23, OHIO

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 SEC. ERI-2-18.38

PLAN AND PROFILE

DRAWN BY	CHECKED BY	REVIEWED BY	DATE
L.N.L.	L.N.L.	R.D.R.	5/7/68

SCALE: 1" = 30'

**LOG OF BORING**

Date Started 2-4-52 Sampler Type SS Dia. 1 3/8" Water Elev. \_\_\_\_\_  
 Date Completed 3-6-52 Casing Length \_\_\_\_\_ Dia. 3 1/2"  
 Boring No. B-1 Station & Offset 1254+09, 65' Ft. (Rear Abutment) Surface Elev. 574.0'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics										SHTL Class.			
							% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.						
574.0	0																			
573.5	0.5	F.S.			Brownish-Gray Silty Clay	1A	0	0	7	47	46	49	20	37	A-7-6					
571.0	3	1/2			Brownish-Gray Sand	2	0	1	24	38	37	-	-	31						
569.5	4.5	F.S.			Brownish-Gray Silt and Clay	3A	0	1	10	46	43	36	12	31	A-6a					
568.0	6	1/1			Brownish-Gray Silty Clay	4	0	1	9	44	46	41	19	42	A-7-6					
566.5	7.5	F.S.			Brownish-Gray Silt and Clay	5A	0	0	12	47	41	36	12	36	A-6a					
564.0	10	1/1			Gray Silty Clay, Slightly Organic	6	0	0	16	45	39	37	16	36	A-6b					
563.5	10.5	F.S.			Brownish-Gray Silt and Clay	7A	0	0	8	46	46	37	13	37	A-6a					
562.0	12	2/2			Gray Silt and Clay, Trace of Organic	8	0	0	10	46	44	34	11	35	A-6a					
560.5	13.5	F.S.			Gray Silt and Clay	9A	0	0	11	49	40	33	12	33	A-6a					
559.0	15	2/2			Gray Silty Clay, Slightly Organic	10	0	0	8	50	42	41	18	44	A-7-6					
557.5	16.5	F.S.			Gray Clayey Silt, Slightly Organic	11A	0	0	10	51	39	53	25	48	A-7-6					
556.0	18	1/2			Gray Silty Clay, Slightly Organic	12	0	0	16	55	29	51	20	51	A-7-5					
554.5	19.5	F.S.			Gray Sandy Silt and Clay, Slightly Organic	13A	0	1	19	45	35	46	19	44	A-7-6					
553.0	21	1/1			Gray Sandy Silt	14	0	10	17	42	31	HP	HP	8	A-6a					
551.5	22.5	F.S.			Gray Clayey Silty Sand, Organic	15A	4	22	30	24	20	36	12	32	A-6a					
550.0	24	2/2			Gray Silty Sand	16	12	45	28	-15	-	HP	HP	24	A-3-a					
548.5	25.5	F.S.			Gray Sandy Silt and Clay, Organic	17A	7	6	9	43	35	44	16	49	A-7-6					
546.5	27.5	3/5			Gray Silty Sand	18	9	36	25	-30	-	HP	HP	25	A-3-a					
544.5	29.5	12/12			Gray Gravelly Sandy Silt	19	21	9	14	29	27	23	6	15	A-4a					
542.5	31.5	50* (0.2')			Gray Silty Clay with Stone Fragments	20	V	I	4	U	A	L	11	-						
538.0	37																			
536.0	39	15/23			Gray Sandy Silt	21	9	7	12	31	41	29	10	16	A-4a					
534.0	41	17/21			Gray Sandy Gravelly Silt	22	21	8	11	25	35	27	8	14	A-4a					
529.0	46	19/20			Gray Silt	23	3	2	4	59	32	HP	HP	27	A-4b					
524.0	50	16/17			Gray Sandy Gravel	24	80	11	5	-	-	HP	HP	9	A-3-a					

Bottom of Boring  
 PS = PRESS. SAMPLE

**LOG OF BORING**

Date Started 7-26-57 Sampler Type SS Dia. 1 3/8" Water Elev. \_\_\_\_\_  
 Date Completed 7-28-57 Casing Length 52' Dia. 3 1/2"  
 Boring No. B-9 Station & Offset 1255+20, 42' Ft. (Rear Pier) Surface Elev. 574.9'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics										SHTL Class.			
							% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.						
574.9	0																			
568.9	6	1/1			Gray Sandy Clay, Slightly Organic	1	0	0	30	46	24	39	12	33	A-6a					
567.4	7.5	3/2			Gray Sandy Clay, Slightly Organic	2	0	0	32	43	25	37	23	30	A-6b					
564.9	10	1/1			Gray Sandy Clay, Slightly Organic	3	0	0	27	55	18	48	28	35	A-7-6					
562.4	12.5	2/1			Gray Sandy Silt, Slightly Organic	4	0	0	38	46	16	24	9	29	A-4a					
559.9	15	1/2			Gray Sandy Silt	5	0	0	48	36	16	HP	HP	24	A-4a					
557.4	17.5	2/2			Gray Sandy Clay, Slightly Organic	6	0	0	22	57	21	67	42	41	A-7-6					
554.9	20	2/2			Gray Sandy Clay, Slightly Organic	7	0	0	27	53	20	40	13	38	A-6a					
552.4	22.5	2/3			Gray Sandy Clay, Slightly Organic	8	0	0	25	48	27	52	21	43	A-7-5					
549.9	25	3/3			Gray Silty Sandy Gravel	9	44	12	17	16	11	HP	HP	22	A-2-4					
544.9	30	20/21			Gray Silty Sandy Gravel	10	46	6	19	16	13	HP	HP	46	A-2-4					
539.9	35	20/31			Gray Silty Sand	11	0	46	28	-26	-	HP	HP	21	A-3a					
534.9	40	18/19			Gray Clay	12	0	0	2	31	67	55	30	22	A-7-6					
529.9	45	9/9			Gray Silt	13	0	0	1	84	15	HP	HP	21	A-4b					
524.9	50	17/21			Gray Gravelly Sandy Silt	14	23	17	7	34	19	22	5	18	A-4a					
519.9	55				TOP OF ROCK															
509.9	64		4.8	0.2	Shale, generally dark-gray, hard, fissile in part, carbonaceous, broken. Core Loss 4%.															

Bottom of Boring

**LOG OF BORING**

Date Started 8-1-57 Sampler Type SS Dia. 1 3/8" Water Elev. \_\_\_\_\_  
 Date Completed 8-2-57 Casing Length 60' Dia. 3 1/2"  
 Boring No. B-35 Station & Offset 1258+55, 42' Ft. (Forward Pier) Surface Elev. 572.4'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics										SHTL Class.			
							% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.						
579.4	0																			
574.4	5	1/2			Brown & Gray Sandy Silt	1	0	1	22	47	30	HP	HP	24	A-6a					
571.9	7.5	4/3			Brown & Gray Silt	2	0	1	15	49	35	24	4	27	A-6a					
569.4	10	3/4			Gray Silt & Clay	3	0	1	3	46	50	44	14	45	A-7-6					
566.9	12.5	2/2			Gray Gravelly Clay, Slightly Organic	4	35	1	3	29	32	70	28	63	A-7-5					
564.4	15	4/3			Gray Silt, Trace of Organic	5	0	1	3	39	57	27	6	22	A-6a					
561.9	17.5	3/5			Gray Silt & Clay	6	0	2	5	36	57	31	11	23	A-6a					
559.4	20	9/8			Brown & Gray Clayey Silt	7	0	0	1	39	60	29	10	25	A-6a					
556.9	22.5	2/2			Gray Silty Clay	8	0	0	1	17	82	40	17	28	A-6a					
554.4	25	5/4			Gray Clayey Silt	9	0	1	4	37	58	28	10	20	A-6a					
549.4	30	9/15			Gray Sandy Gravelly Silt	10	23	7	12	27	31	23	8	14	A-4a					
544.4	35	15/23			Gray Sandy Silt	11	0	7	17	38	38	22	8	13	A-4a					
539.4	40	13/24			Gray Gravelly Silt	12	33	5	3	23	34	28	8	11	A-4a					
534.4	45	10/15			Grayish Silt	13	0	1	2	51	46	24	3	21	A-4b					
529.4	50	10/11			Grayish Silt	14	0	0	0	71	29	HP	HP	22	A-4b					
524.4	55	21/23			Gray Silty Sand & Stone Fragments	15	67	11	6	10	6	HP	HP	10	A-1-a					
519.4	60				TOP OF ROCK															
509.4	70		4.5	0.5	Shale, dark-gray, firm, petroliferous, fissile in part, broken and jointed. Core Loss 10%.															

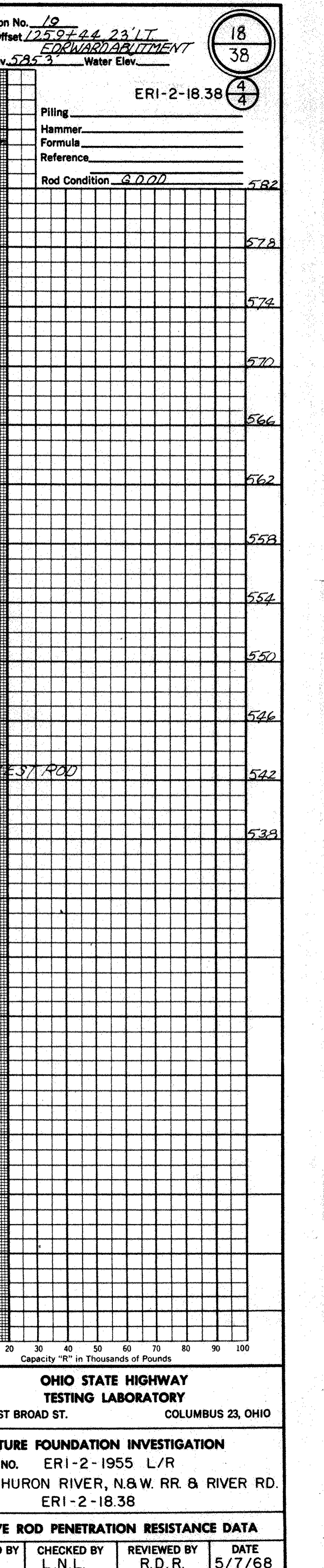
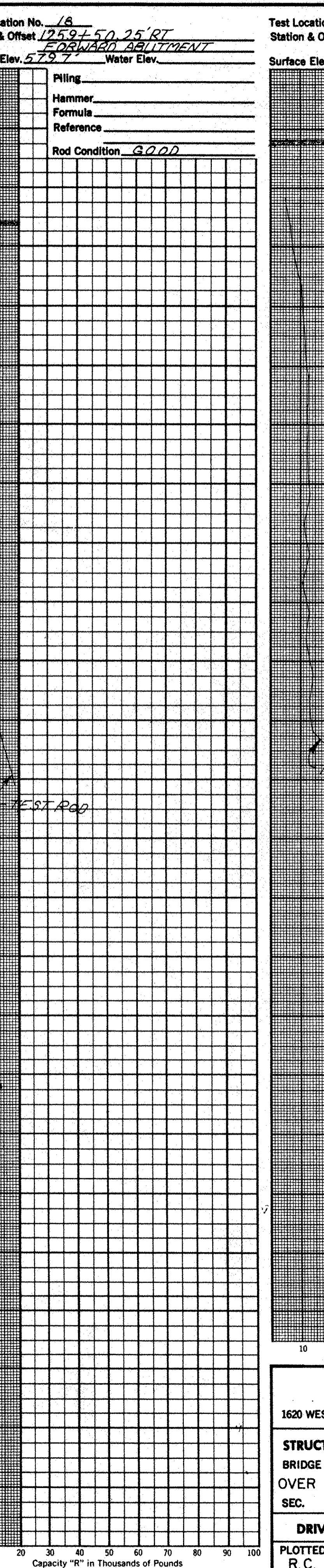
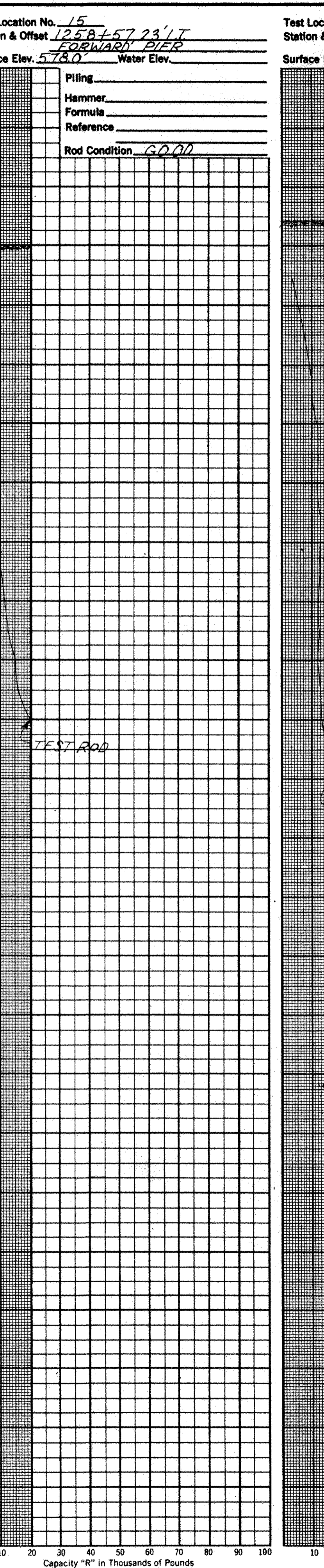
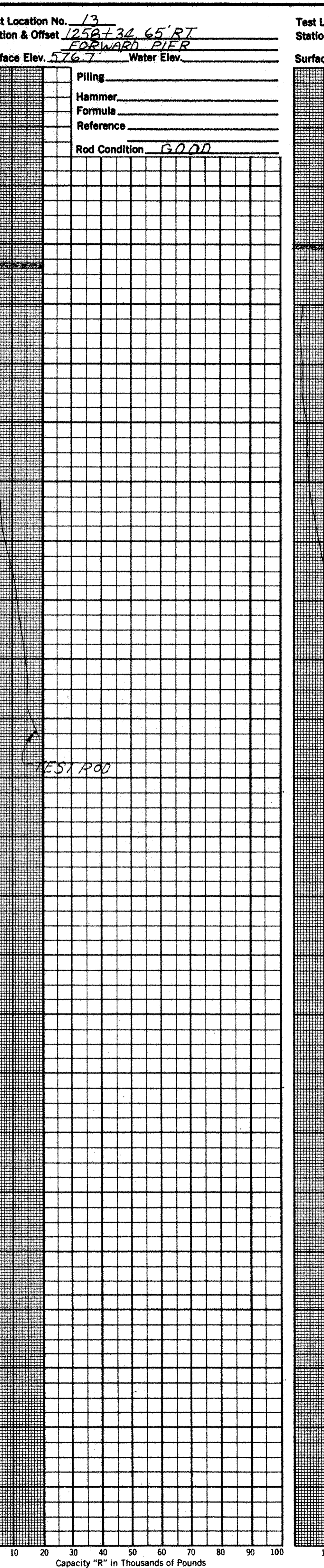
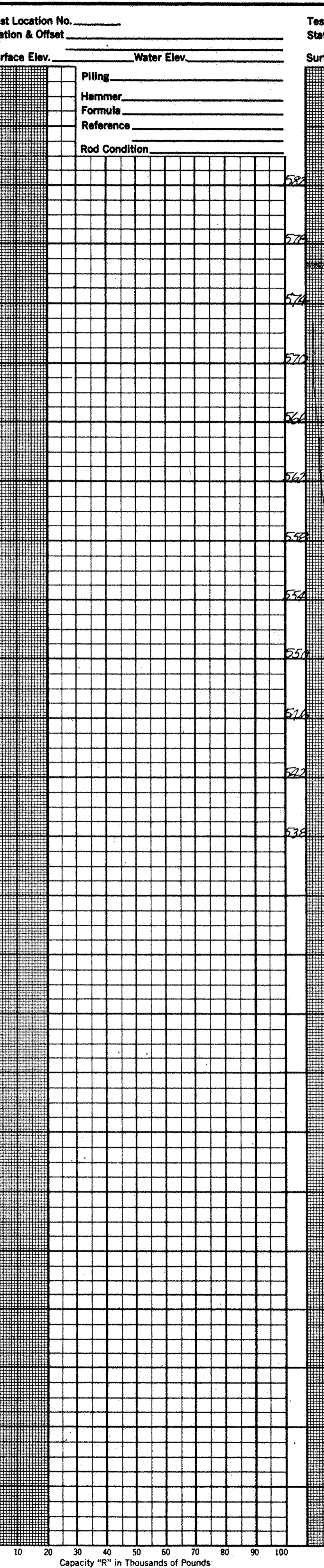
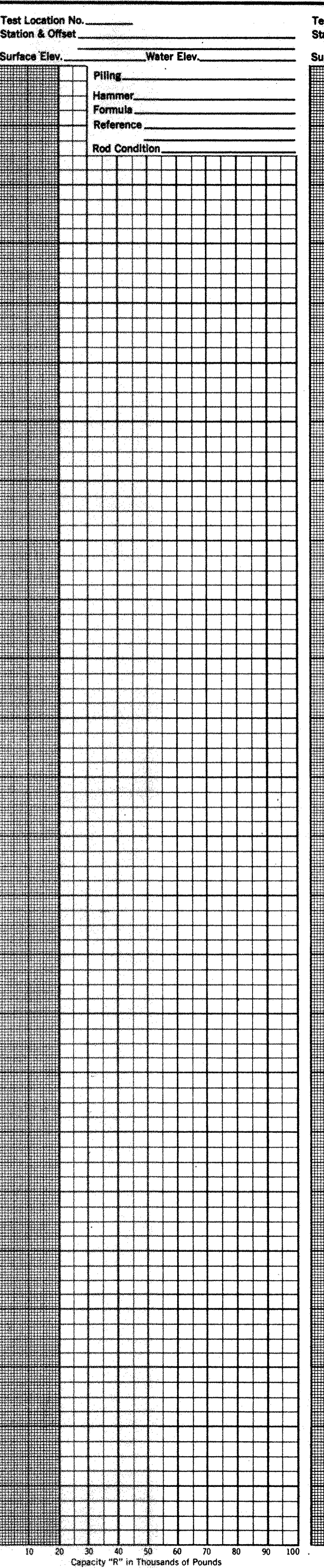
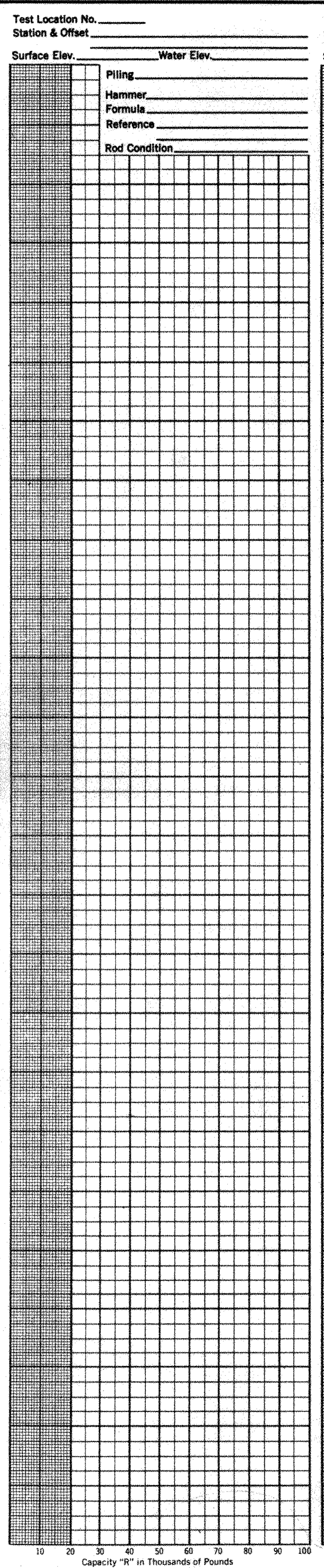
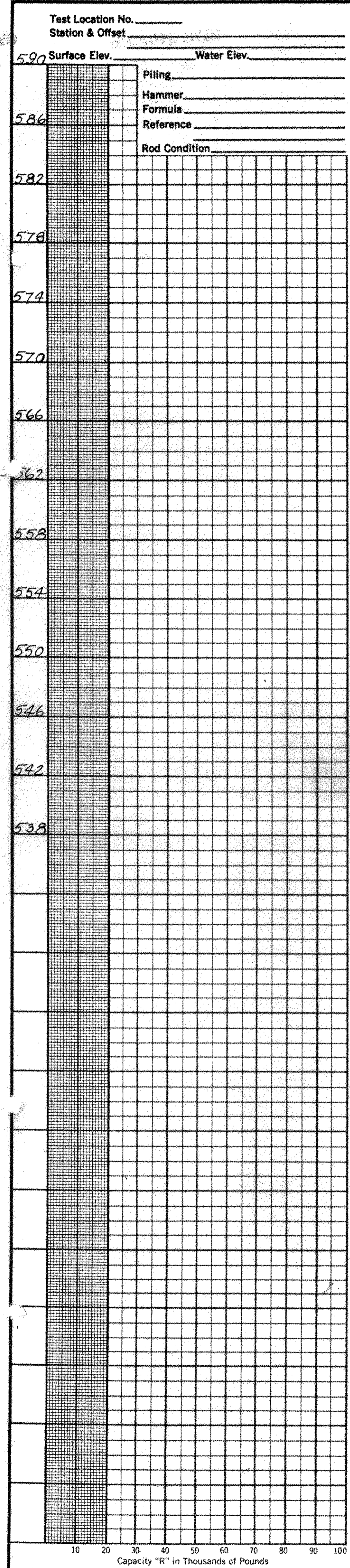
Bottom of Boring

**OHIO DEPARTMENT OF HIGHWAYS  
 TESTING LABORATORY**  
 1620 WEST BROAD STREET, COLUMBUS 23, OHIO

**STRUCTURE FOUNDATION INVESTIGATION**  
 BRIDGE NO. ERI-2-1955 L/R  
 OVER HURON RIVER, N.&W. RR & RIVER RD.  
 SEC. ERI-2-18.38

BORING DATA

TYPED BY S.A.J.	CHECKED BY R.C.	REVIEWED BY R.D.R.	DATE 5/7/68
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18  
38  
4  
4

ERI-2-18.38

**OHIO STATE HIGHWAY TESTING LABORATORY**  
1620 WEST BROAD ST. COLUMBUS 23, OHIO

**STRUCTURE FOUNDATION INVESTIGATION**  
BRIDGE NO. ERI-2-1955 L/R  
OVER HURON RIVER, N&W RR. & RIVER RD.  
SEC. ERI-2-18.38

**DRIVE ROD PENETRATION RESISTANCE DATA**

PLOTTED BY R.C.	CHECKED BY L.N.L.	REVIEWED BY R.D.R.	DATE 5/7/68
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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.

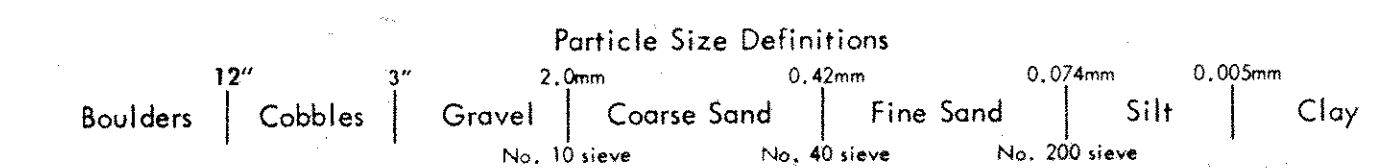
Drive Sample Borings - Drive-Press Sample Borings

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.



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.  
*Revised 11/30/81*

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. ERI-2-1955  
OVER HURON RIVER  
SEC. ERI-2-18.38

CHECKED BY L. N. L.	REVIEWED BY R D R	DATE 5/7/68
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LEGEND

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

Horizontal Bar on Boring Log Indicates the Depth the Sample Was Taken.

Figures Beside the Boring Log in Profile Indicate the Number of Blows for Standard Penetration Test.  
X = Number of Blows for First 6 inches.  
Y = Number of Blows for Second 6 inches.  
Z = Number of Blows for Third 6 inches.

Drive Rod Penetration Resistance Sounding Log - Profile

Casing

Resistance "R" < 10,000 lbs.

Resistance "R" > 10,000 lbs.

Z indicates Final Measurement of Penetration, in Inches.

W indicates Free Water Elevation.

V 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

GEOLOGY OF THE SITE

THE STRUCTURE SITE IS LOCATED IN THE RELATIVELY FLAT GLACIATED PORTION OF THE LAKE PLAIN REGION, ON THE FLOODPLAIN AND EAST VALLEY WALL OF AND OVER THE HURON RIVER, IN AN AREA WHERE MODERATELY DEEP GLACIAL LAKE DEPOSITS AND ALLUVIUM OVERLIE SHALE BEDROCK, OF DEVONIAN AGE.

EXPLORATION

THE EXPLORATION CONSISTED OF NINE DRIVE SAMPLE-CORE BORINGS, ONE DRIVE-PRESS SAMPLE BORING AND ONE AUGER-CORE BORING MADE BY MEANS OF A MECHANICALLY-POWERED DRILL MOUNTED ON A BARGE AND FOUR MECHANICALLY-DRIVEN ROD PENETRATION TESTS, PERFORMED BETWEEN JULY 26 AND AUGUST 2, 1967, BETWEEN MARCH 4 AND 16, 1968, AND BETWEEN SEPTEMBER 9 AND OCTOBER 29, 1981.

INVESTIGATIONAL FINDINGS AND OBSERVATIONS

THE BORINGS DISCLOSED THAT INTERVALS OF EXTREMELY LOOSE TO EXTREMELY DENSE STRATIFIED PEATS, SILTS, CLAYS AND SAND MODIFIED WITH GRAVEL AND STONE FRAGMENTS THAT GRADUALLY INCREASE (ERRATIC AT TIMES) IN DENSITY WITH INCREASE IN DEPTH OVER THE GENTLY SLOPING BEDROCK SURFACE ENCOUNTERED AS SHOWN IN THE FOLLOWING TABLE:

REAR ABUTMENT (W.B.)	575*	532!*	532'
REAR ABUTMENT (E.B.)	575'	533!*	533'
7th PIER (W.B.)	564'	524!*	523!*
10th PIER (E.B.)	564'	523!*	522'
14th PIER (W.B.)	564'	523!*	523!*
19th PIER (W.B.)	564'	522!*	521!*
22nd PIER (E.B.)	564'	520!*	520'
24th PIER (W.B.)	564'	518!*	518!*
26th PIER (W.B.)	590'	519!*	519!*

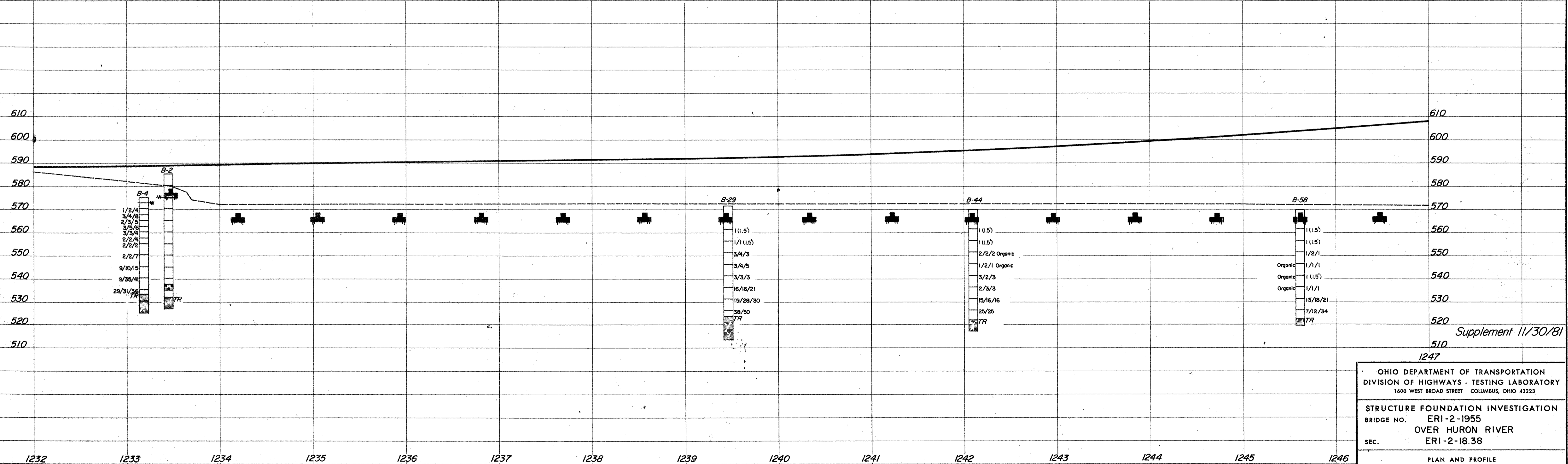
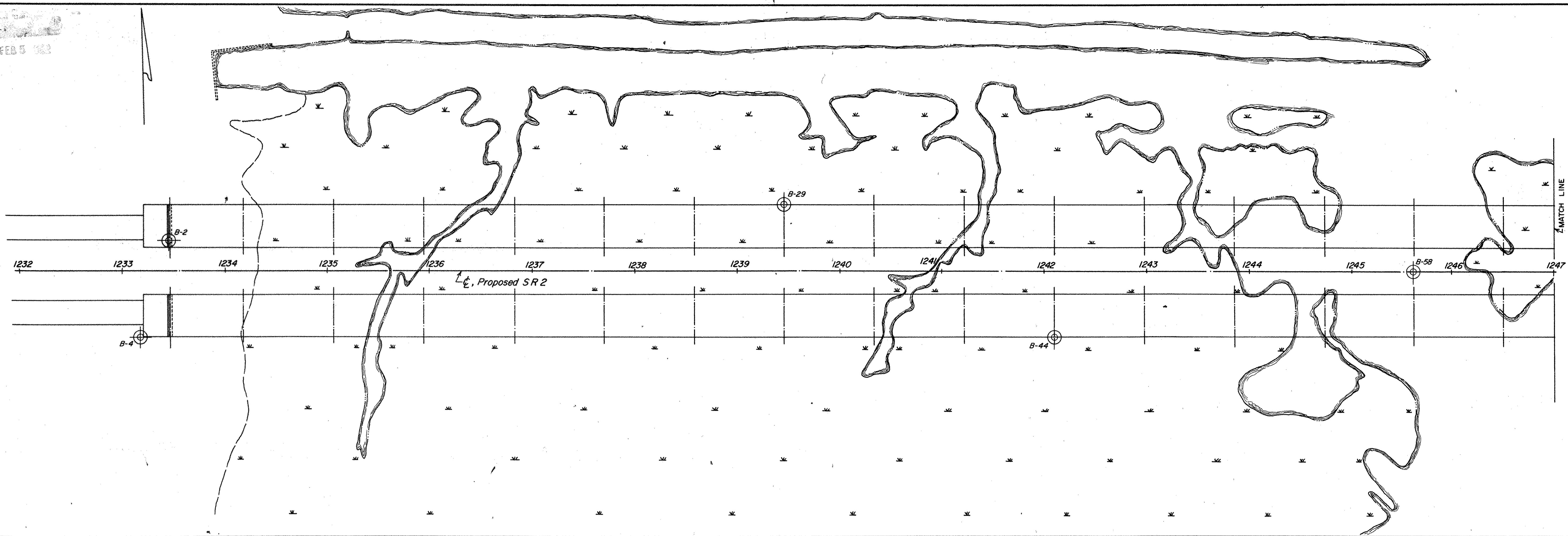
\* INTERPOLATION

THE BORINGS WERE TERMINATED AT 50 TO 70-FOOT DEPTH, ELEVATION 521 TO 509 FEET, AFTER PENETRATING 3 TO 10 FEET BELOW BEDROCK SURFACE. THE DRIVE-PRESS SAMPLE BORING WAS TERMINATED AT 53-FOOT DEPTH, ELEVATION 521 FEET, AFTER PENETRATING IN EXCESS OF 23 FEET OF MATERIAL REQUIRING IN EXCESS OF 30 BLOWS PER FOOT IN THE STANDARD PENETRATION TEST.

THE ROD PENETRATION TESTS ENCOUNTERED RAPID INCREASE IN RESISTANCE TO PENETRATION WITH INCREASE IN DEPTH AND WERE TERMINATED UPON ENCOUNTER WITH REFUSAL AND NEAR-REFUSAL TO PENETRATION AT 32 TO 47-FOOT DEPTHS, ELEVATION 546 TO 542 FEET, CONSIDERED TO BE IN EXTREMELY DENSE SILTS, AS REVEALED BY THE BORINGS.

FREE WATER WAS OBSERVED AND MEASURED IN BORING B-4 AT 2-FOOT DEPTH, ELEVATION 573 FEET AND A WET ZONE WAS OBSERVED IN BORING B-2 AT 10 TO 30-FOOT DEPTH, ELEVATION 575 TO 555 FEET.

FEB 5 1983



Supplement 11/30/81

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

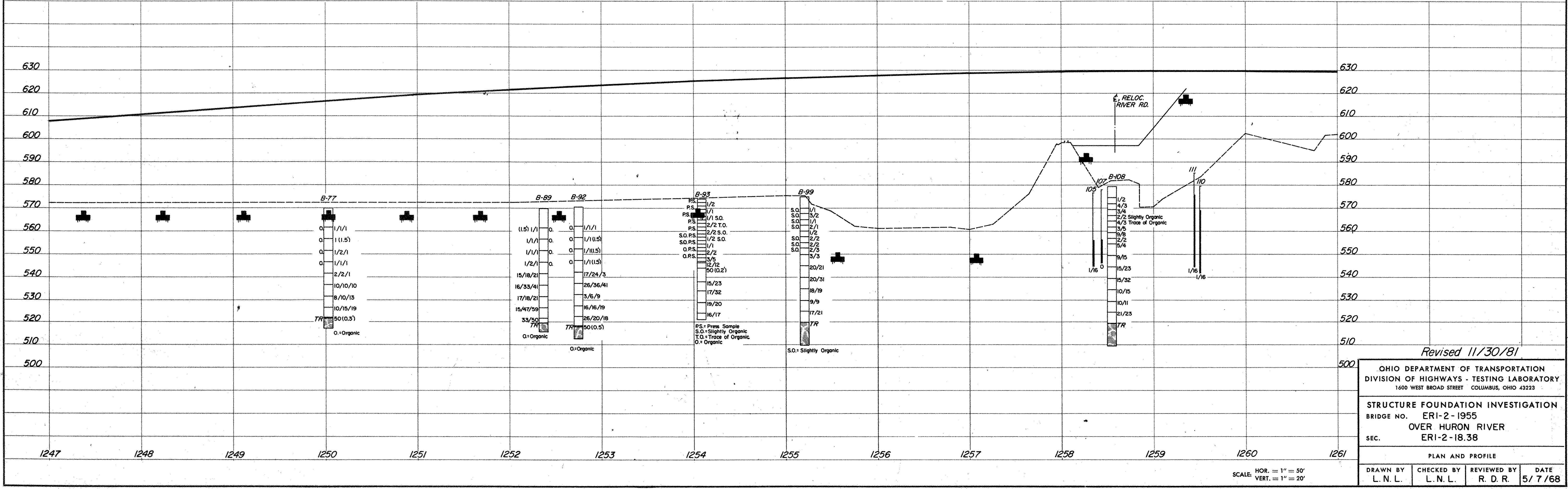
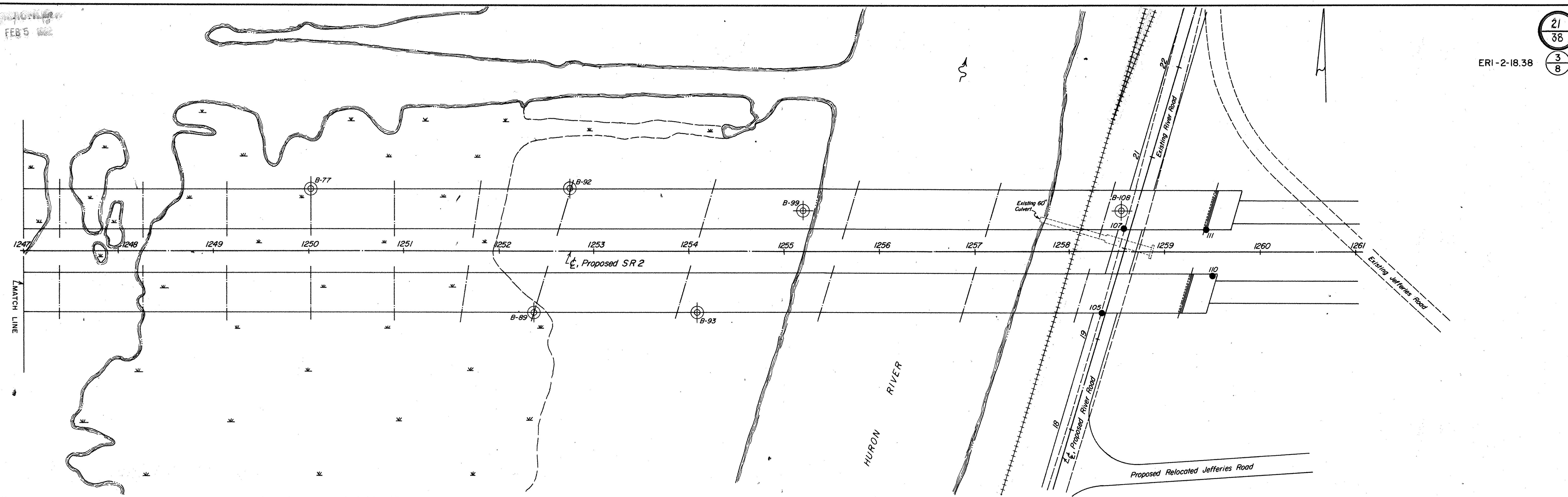
STRUCTURE FOUNDATION INVESTIGATION  
BRIDGE NO. ERI-2-1955  
OVER HURON RIVER  
SEC. ERI-2-18.38

PLAN AND PROFILE

DRAWN BY L. N. L.	CHECKED BY L. N. L.	REVIEWED BY R. D. R.	DATE 11/30/81
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SCALE: HOR. = 1" = 50'  
VERT. = 1" = 20'

FEB 5 1981



Revised 11/30/81

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

STRUCTURE FOUNDATION INVESTIGATION  
BRIDGE NO. ERI-2-1955  
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PLAN AND PROFILE

DRAWN BY L. N. L.	CHECKED BY L. N. L.	REVIEWED BY R. D. R.	DATE 5/7/68
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SCALE: HOR. = 1" = 50'  
VERT. = 1" = 20'



FEB 5 1981

LOG OF BORING

Date Started 10/20/81 Sampler Type SS Dia 1 3/8" Water Elev. WET ZONE ELEV. 575.2' TO 555.2'  
 Date Completed 10/22/81 Casing Length \_\_\_\_\_ Dia \_\_\_\_\_  
 Boring No. B-2 Station & Offset 1233+45 - 30' LT. (REAR ABUTMENT) Surface Elev. 585.2'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics							SHTL Class.				
							% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.		W.C.			
585.2	0																	
	2																	
580.2	4				BROWN CLAYEY SILT	1	0	3	3	59	35	28	9	9				A-4b
	6																	
	8				BROWN SILT AND CLAY	2	4	2	1	56	37	29	11	20				A-6a
575.2	10																	
	12				BROWN CLAYEY SILT	3	0	0	1	56	43	29	10	27				A-4b
570.2	14																	
	16				GRAY-BROWN SILT AND CLAY	4	0	0	1	49	50	30	11	25				A-6a
565.2	18																	
	20				GRAY-BROWN SILT AND CLAY	5	0	1	1	45	53	29	11	25				A-6a
560.2	22																	
	24				GRAY SILT AND CLAY	6	0	0	1	39	60	32	13	28				A-6a
555.2	26																	
	28				GRAY-BROWN SILT AND CLAY	7	0	0	1	35	64	33	14	28				A-6a
550.2	30																	
	32				GRAY SILT AND CLAY	8	0	1	1	36	62	32	13	26				A-6a
545.2	34																	
	36				GRAY-BROWN SILT AND CLAY	9	0	0	1	41	58	33	15	27				A-6a
540.2	38																	
	40				BROWN-GRAY SILT AND CLAY WITH BOULDERS	10	0	1	2	40	57	32	13	22				A-6a
535.2	42																	
532.2	44				TOP OF ROCK													
	46																	
527.2	48				CLAY SHALE, DARK-GRAY, HARD, CARBONACEOUS, FISSILE, BROKEN. NO CORE LOSS.													
	50																	

BOTTOM OF BORING

LOG OF BORING

Date Started 9/9/81 Sampler Type SS Dia 1 3/8" Water Elev. 573.0'  
 Date Completed 10/20/81 Casing Length \_\_\_\_\_ Dia \_\_\_\_\_  
 Boring No. B-4 Station & Offset 1233+18 - 65' RT. (REAR ABUTMENT) Surface Elev. 575.3'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics							SHTL Class.				
							% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.		W.C.			
575.3	0																	
	2																	
570.3	4				BROWN SILT (DRILLER'S DESCRIPTION)													VISUAL
	6																	
567.8	8				BROWN-GRAY SILT AND CLAY	1	0	1	2	39	48	38	15	30				A-6a
565.3	10				BROWN-GRAY SILT AND CLAY	2	0	0	1	41	58	32	11	25				A-6a
562.8	12				BROWN-GRAY SILTY CLAY	3	0	0	0	38	62	38	17	28				A-6b
560.3	14				BROWN-GRAY SILT AND CLAY	4	0	1	2	40	57	30	11	27				A-6a
557.8	16				BROWN-GRAY CLAYEY SILT	5	1	1	1	43	54	30	10	31				A-4a
555.3	18				GRAY-BROWN SILT AND CLAY	6	0	0	0	31	69	34	15	34				A-6a
	20				BROWN-GRAY SILT AND CLAY	7	0	0	0	33	67	35	13	33				A-6a
550.3	22																	
	24				GRAY-BROWN SANDY SILT	8	0	5	10	24	53	27	9	24				A-4a
545.3	26																	
	28				GRAY SANDY SILT	9	11	9	17	31	32	21	6	11				A-4a
540.3	30																	
	32																	
	34																	
	36				GRAY GRAVELLY SANDY SILT	10	18	9	13	29	31	32	15	15				A-6a
535.3	38																	
	40				GRAY GRAVELLY SANDY SILT	11	25	16	18	23	18	21	6	13				A-4a
533.3	42				TOP OF ROCK													
	44				CLAY SHALE													
	46																	
	48				CLAY SHALE, DARK-GRAY, HARD, CARBONACEOUS, FISSILE, BROKEN. NO CORE LOSS.													
525.3	50																	

BOTTOM OF BORING

LOG OF BORING

Date Started 10/21/81 Sampler Type SS Dia 1 3/8" Water Elev. \_\_\_\_\_  
 Date Completed 10/29/81 Casing Length \_\_\_\_\_ Dia \_\_\_\_\_  
 Boring No. B-29 Station & Offset 1239+46 - 65' LT. (7th PIER) Surface Elev. 571.8'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics							SHTL Class.				
							% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.		W.C.			
571.8	0																	
	2																	
	4																	
	6				BROWN PEAT (DRILLER'S DESCRIPTION)													VISUAL
561.8	8																	
	10																	
	12				BLACK FINE-TEXTURED PEAT	1	-	-	-	-	-	-	-	-	-	-	-	163
556.8	14																	
	16				BLACK SEDIMENTARY PEAT	2	-	-	-	-	-	-	-	-	-	-	-	85
551.8	18																	
	20																	
	22				BROWN-GRAY SILT AND CLAY	3	6	0	1	39	54	39	15	33				A-6a
546.8	24																	
	26				BROWN-GRAY SANDY SILT	4	11	9	25	35	20	NP	NP	25				A-4a
541.8	28																	
	30				GRAY GRAVELLY CLAY	5	11	3	7	14	65	35	15	25				A-6a
536.8	32																	
	34																	
	36				GRAY SANDY GRAVELLY SILT	6	21	8	13	23	35	23	8	13				A-4a
531.8	38																	
	40																	
	42				GRAY SAND	7	12	59	21	1	7	NP	NP	16				A-1-b
526.8	44																	
	46				GRAY STONE FRAGMENTS WITH FINES	8	83	6	4	3	4	NP	NP	11				A-1-a
523.8	48				TOP OF ROCK													
	50																	
	52																	
	54																	
	56																	
513.8	58				CLAY SHALE, DARK-GRAY, HARD, CARBONACEOUS, FISSILE, BROKEN. CORE LOSS 33%.													

BOTTOM OF BORING

Supplement 11/30/81

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

STRUCTURE FOUNDATION INVESTIGATION  
 BRIDGE NO. ERI-2-1955  
 OVER HURON RIVER  
 SEC. ERI-2-18.38

BORING DATA

TYPED BY S. M. G.	CHECKED BY L. N. L.	REVIEWED BY R. D. R.	DATE 11/30/81
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FEB 5 1981

**LOG OF BORING**

Date Started 10/14/81 Sampler Type SS Dia 1 3/8" Water Elev 571.8'  
 Date Completed 10/20/81 Casing Length \_\_\_\_\_ Dia \_\_\_\_\_  
 Boring No. B-44 Station & Offset 1242+10 - 65' RT. (10th PIER) Surface Elev 570.0'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics										SHTL Class.		
							% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	Class.				
571.8	0																		
570.0	2																		
	4																		
	6																		
	8																		
561.8	10				1 (1.5')														
	12																		
556.8	14				1 (1.5')														
	16																		
	18																		
551.8	20				2/2/2														
	22																		
546.8	24				1/2/1														
	26																		
541.8	28				3/2/3														
	30																		
	32																		
536.8	34				2/3/3														
	36																		
	38																		
531.8	40				15/16/16														
	42																		
526.8	44				25/25														
	46																		
	48																		
522.3	50				TOP OF ROCK														
	52																		
	54																		
517.3					CLAY SHALE, DARK-GRAY, HARD, CARBONACEOUS, FISSILE, BROKEN. NO CORE LOSS.														

BOTTOM OF BORING

**LOG OF BORING**

Date Started 10/6/81 Sampler Type SS Dia 1 3/8" Water Elev 571.7'  
 Date Completed 10/9/81 Casing Length \_\_\_\_\_ Dia \_\_\_\_\_  
 Boring No. B-58 Station & Offset 1245+62 - CL (14th PIER) Surface Elev 569.6'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics										SHTL Class.			
							% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	Class.					
571.7	0																			
569.6	2				WATER															
	4																			
	6																			
	8																			
561.7	10				1 (1.5')															
	12																			
556.7	14				1 (1.5')															
	16																			
	18																			
551.7	20				1/2/1															
	22																			
546.7	24				1/1/1															
	26																			
541.7	28				1 (1.5')															
	30																			
	32																			
	34																			
536.7	36				1/1/1															
	38																			
531.7	40				13/18/21															
	42																			
526.7	44				7/12/34															
	46																			
	48																			
522.7	50				TOP OF ROCK															
	52																			
519.7	54				2.5 0.5															
					CLAY SHALE, DARK-GRAY, HARD, CARBONACEOUS, FISSILE, BROKEN. CORE LOSS 17%															

BOTTOM OF BORING

**LOG OF BORING**

Date Started 9/29/81 Sampler Type SS Dia 1 3/8" Water Elev 571.8'  
 Date Completed 10/1/81 Casing Length \_\_\_\_\_ Dia \_\_\_\_\_  
 Boring No. B-77 Station & Offset 1250+03 - 65' LT. (19th PIER) Surface Elev 569.9'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics										SHTL Class.				
							% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	Class.						
571.8	0																				
569.9	2				WATER																
	4																				
	6																				
	8																				
561.8	10				1/1/1																
	12																				
556.8	14				1 (1.5')																
	16																				
	18																				
551.8	20				1/2/1																
	22																				
546.8	24				1/1/1																
	26																				
541.8	28				2/2/1																
	30																				
	32																				
	34																				
536.8	36				10/10/10																
	38																				
531.8	40				8/10/13																
	42																				
526.8	44				10/15/19																
	46																				
	48																				
522.3	50				TOP OF ROCK																
	52																				
522.0	54				50(0.3)																
517.3					4.4 0.3																
					CLAY SHALE, DARK-GRAY, HARD, CARBONACEOUS, FISSILE, BROKEN. CORE LOSS 6%																

BOTTOM OF BORING

Supplement 11/30/81

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

**STRUCTURE FOUNDATION INVESTIGATION**  
 BRIDGE NO. ERI-2-1955  
 OVER HURON RIVER  
 SEC. ERI-2-18.38

BORING DATA

TYPED BY S. M. G.	CHECKED BY L. N. L.	REVIEWED BY R. D. R.	DATE 11/30/81
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**LOG OF BORING**

Date Started 9/22/81 Sampler Type SS Dia 1 3/8" Water Elev 571.8'  
 Date Completed 9/24/81 Casing Length 54.0' Dia 1 3/8"  
 Boring No. B-89 Station & Offset 1252+37 - 65' RT. (22nd PIER) Surface Elev 569.7'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics							SHTL Class.			
							% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.		W.C.		
571.8	0				WATER												
569.7	2																
	4																
	6																
	8																
561.8	10	1/1(1.5)			GRAY ORGANIC SILT AND CLAY	1	0	0	2	48	50	39	13	43	A-6a		
	12																
556.8	14	1/1/1			GRAY-BROWN ORGANIC SILT AND CLAY	2	0	0	1	49	50	42	12	54	A-7-5		
	16																
551.8	18	1/1/1			BROWN-GRAY ORGANIC SANDY SILT	3	0	1	29	38	32	23	5	36	A-4a		
	20																
546.8	22	1/1/1			GRAY ORGANIC SANDY SILT	4	6	9	30	27	28	NP	NP	56	A-4a		
	24																
541.8	26	1/3/1			GRAY ORGANIC SANDY SILT	4	6	9	30	27	28	NP	NP	56	A-4a		
	28																
541.8	30	15/18/21			GRAY SILTY SANDY GRAVEL	5	38	17	20	10	15	NP	NP	22	A-1-b		
	32																
536.8	34	16/33/41			GRAY SANDY GRAVEL WITH FINES (TILL)	6	-	-	-	-	-	-	-	26	VISUAL		
	36																
531.8	38	17/18/21			GRAY SILT	7	4	2	2	49	43	NP	NP	11	A-4a		
	40																
526.8	42	15/47/59			GRAY GRAVELLY SILT	8	21	5	6	35	33	NP	NP	13	A-4a		
	44																
521.8	46	33/50			GRAY SANDY GRAVEL WITH FINES (TILL)	9	48	10	7	14	21	NP	NP	19	VISUAL		
	48																
519.8	50				TOP OF ROCK												
	52																
	54		3.5	0.5	CLAY SHALE, DARK-GRAY, HARD, CARBONACEOUS, FISSILE, BROKEN. CORE LOSS 12%.												
515.8	56																

└─ BOTTOM OF BORING ─┘

**LOG OF BORING**

Date Started 9/15/81 Sampler Type SS Dia 1 3/8" Water Elev 572.3'  
 Date Completed 9/17/81 Casing Length 54.0' Dia 1 3/8"  
 Boring No. B-92 Station & Offset 1252+75 - 65' LT. (22nd PIER) Surface Elev 570.4'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics							SHTL Class.			
							% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.		W.C.		
572.3	0				WATER												
570.4	2																
	4																
	6																
	8																
562.3	10	1/1/1			GRAY ORGANIC SILT AND CLAY	1	0	1	5	51	43	51	14	71	A-7-5		
	12																
557.3	14	1/1(1.5)			GRAY ORGANIC CLAY	2	0	0	4	54	42	55	21	69	A-7-5		
	16																
552.3	18	1/1(1.5)			GRAY ORGANIC SANDY SILT	3	0	0	46	28	26	NP	NP	25	A-4a		
	20																
547.3	22	1/1(1.5)			GRAY ORGANIC SANDY SILT	4	0	1	33	40	26	NP	NP	39	A-4a		
	24																
542.3	26	17/24/30			GRAY SANDY SILT	5	10	29	19	21	21	21	6	16	A-4a		
	28																
537.3	30	26/36/41			GRAY SILTY GRAVELLY SAND	6	28	30	12	14	16	24	6	12	A-2-4		
	32																
532.3	34	3/6/9			GRAY SAND AND FINES	7	0	32	21	14	33	NP	NP	28	VISUAL		
	36																
527.3	38	16/16/19			GRAY SILT	8	14	2	1	58	25	NP	NP	20	A-4b		
	40																
522.3	42	26/20/18			GRAY SILTY SANDY GRAVEL	9	45	18	13	13	11	NP	NP	9	A-1-b		
	44																
518.3	46				TOP OF ROCK												
	48																
517.8	50				DARK-GRAY CARBONACEOUS CLAY SHALE	10	38	44	12	1	5	NP	NP	13	VISUAL		
	52																
	54																
	56																
	58																
512.3	60		5.5	0.0	CLAY SHALE, DARK-GRAY, HARD, CARBONACEOUS, FISSILE, BROKEN. NO CORE LOSS.												

└─ BOTTOM OF BORING ─┘

*Supplement 11/30/81*

OHIO DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS - TESTING LABORATORY 1600 WEST BROAD STREET COLUMBUS, OHIO 43223			
<b>STRUCTURE FOUNDATION INVESTIGATION</b>			
BRIDGE NO.		ERI-2-1955	
		OVER HURON RIVER	
SEC.		ERI-2-18.38	
BORING DATA			
TYPED BY	CHECKED BY	REVIEWED BY	DATE
S. M. G.	L. N. L.	R. D. R.	11/30/81

LOG OF BORING

Date Started 3-4-68 Date Completed 3-6-68 Boring No. B-95  
Sampler Type SS Dia. 1 3/8" Casing Length 65' Station & Offset 1254+09, 65' Lt. (23<sup>rd</sup> PIER)  
Water Elev. \_\_\_\_\_ Surface Elev. 574.0'

Table with columns: Elev., Depth, Std. Pen. (N), Rec. ft., Loss ft., Description, Sample No., Physical Characteristics (% Agg., % C.S., % F.S., % Silt, % Clay, L.L., P.I., W.C.), SHTL Class.

\*Refusal  
PS = FRESH SAMPLE

BOTTOM OF BORING

LOG OF BORING

Date Started 7-26-67 Date Completed 7-28-67 Boring No. B-99  
Sampler Type SS Dia. 1 3/8" Casing Length 25' Station & Offset 1255+20, 42' Lt. (24<sup>th</sup> PIER)  
Water Elev. \_\_\_\_\_ Surface Elev. 574.9'

Table with columns: Elev., Depth, Std. Pen. (N), Rec. ft., Loss ft., Description, Sample No., Physical Characteristics (% Agg., % C.S., % F.S., % Silt, % Clay, L.L., P.I., W.C.), SHTL Class.

TOP OF ROCK

Shale, generally dark-gray, hard, fissile in part, carbonaceous, broken. Core Loss 4%.

TOP OF ROCK

TOP OF ROCK

TOP OF ROCK

TOP OF ROCK

TOP OF ROCK

TOP OF ROCK

TOP OF ROCK

TOP OF ROCK

TOP OF ROCK

TOP OF ROCK

TOP OF ROCK

TOP OF ROCK

TOP OF ROCK

LOG OF BORING

Date Started 8-1-67 Date Completed 8-2-67 Boring No. B-108  
Sampler Type SS Dia. 1 3/8" Casing Length 60' Station & Offset 1258+55, 42' Lt. (28<sup>th</sup> PIER)  
Water Elev. \_\_\_\_\_ Surface Elev. 579.4'

Table with columns: Elev., Depth, Std. Pen. (N), Rec. ft., Loss ft., Description, Sample No., Physical Characteristics (% Agg., % C.S., % F.S., % Silt, % Clay, L.L., P.I., W.C.), SHTL Class.

TOP OF ROCK

Shale, dark-gray, firm, petroliferous, fissile in part, broken and jointed. Core Loss 10%.

TOP OF ROCK

TOP OF ROCK

TOP OF ROCK

TOP OF ROCK

TOP OF ROCK

TOP OF ROCK

TOP OF ROCK

TOP OF ROCK

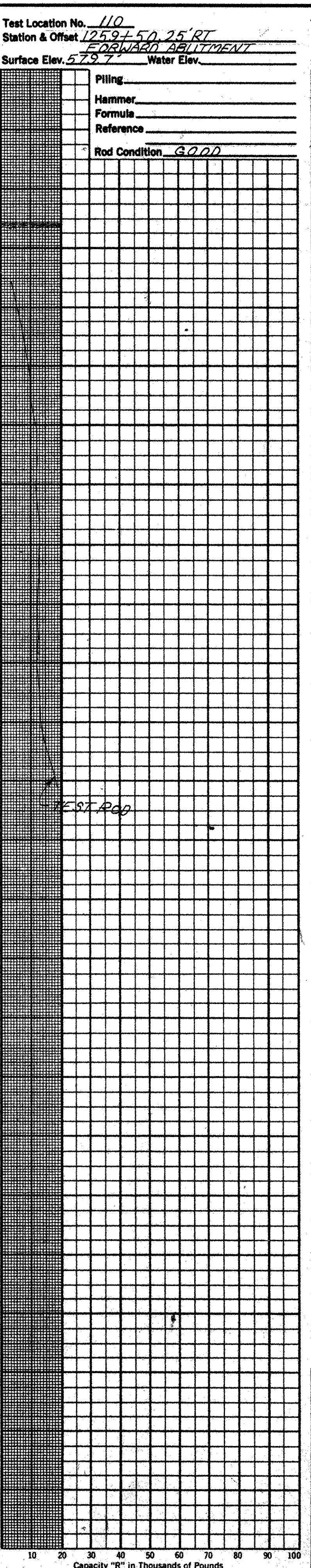
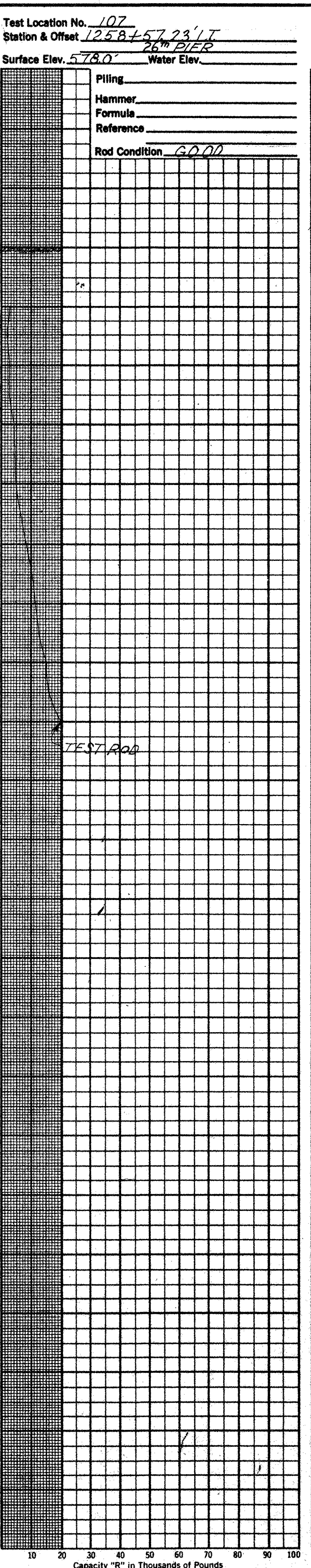
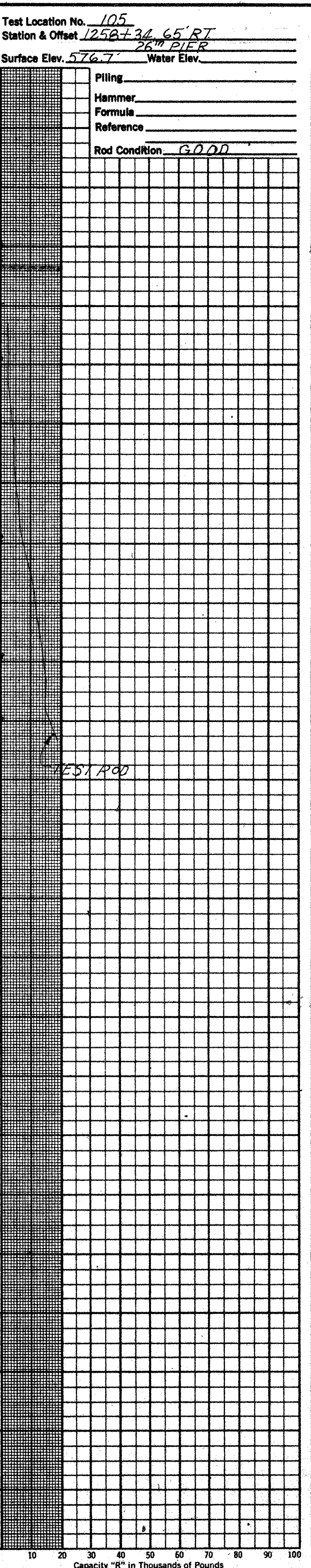
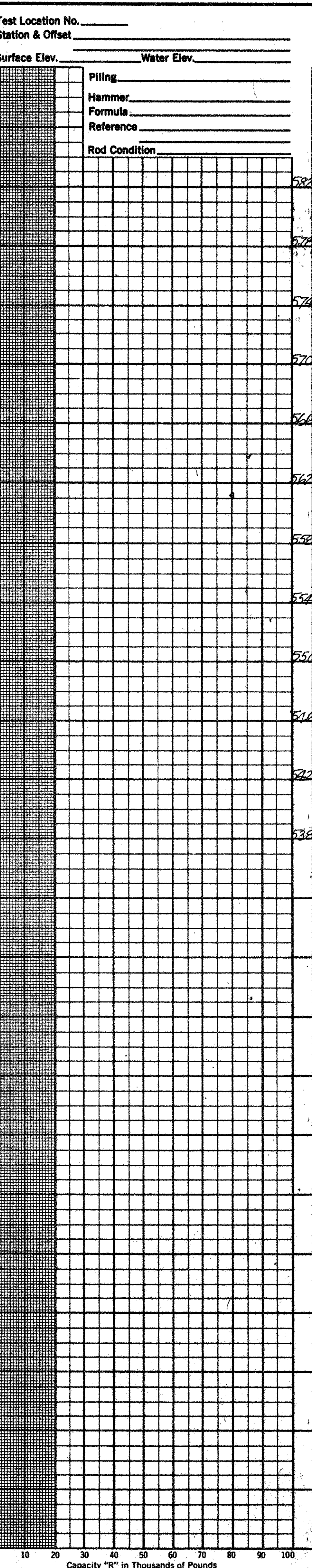
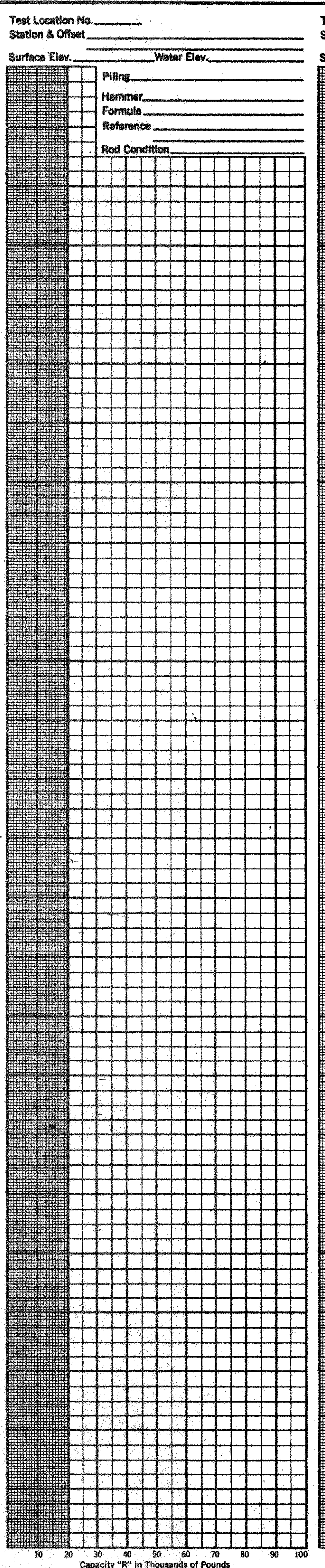
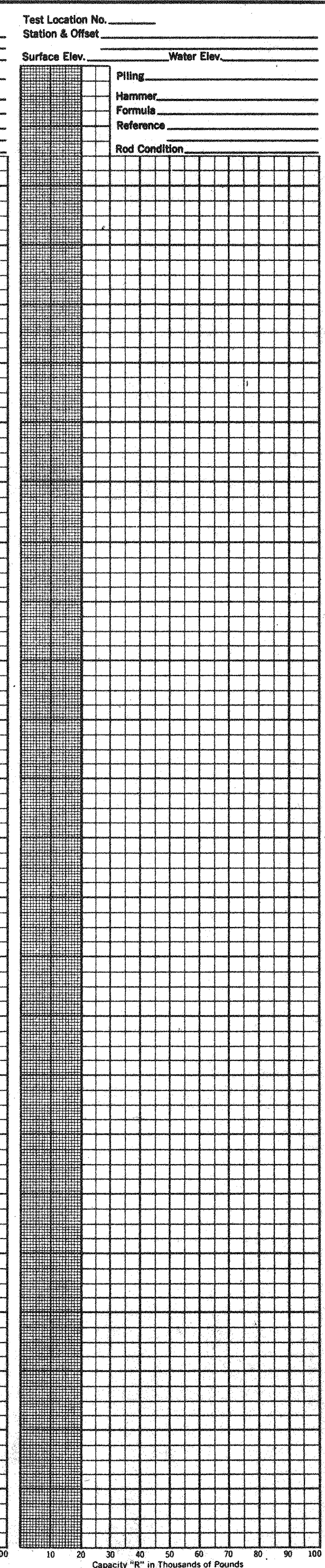
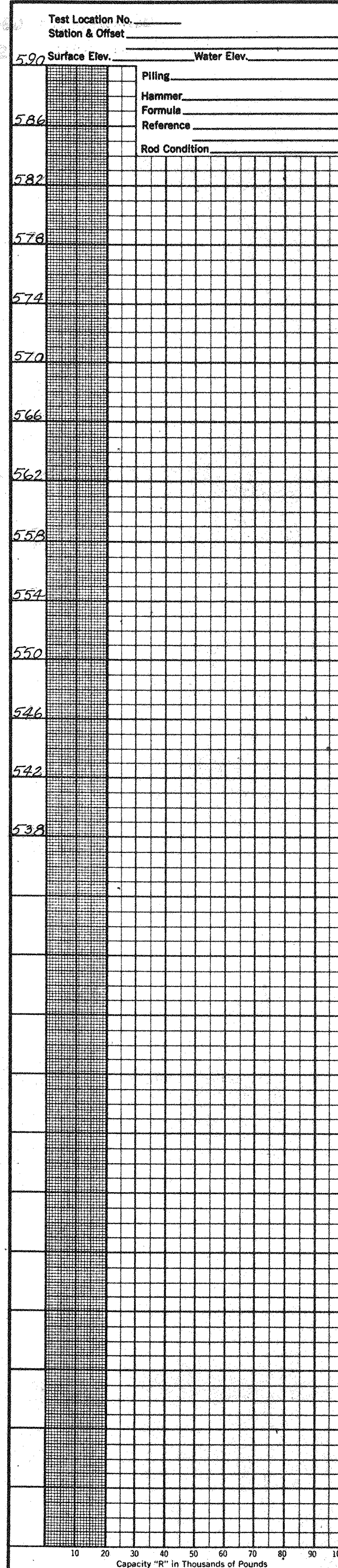
TOP OF ROCK

TOP OF ROCK

TOP OF ROCK

Revised 11/30/81

OHIO DEPARTMENT OF HIGHWAYS TESTING LABORATORY 1620 WEST BROAD STREET, COLUMBUS 23, OHIO  
STRUCTURE FOUNDATION INVESTIGATION BRIDGE NO. ERI-2-1955 OVER HURON RIVER SEC. ERI-2-18.38  
BORING DATA TYPED BY S.A.J. CHECKED BY R.C. REVIEWED BY R.D.R. DATE 5/7/68



Test Location No. 111  
 Station & Offset 1259+24.23 LT  
FORWARD ABUTMENT

Surface Elev. 585.3 Water Elev. \_\_\_\_\_

Piling \_\_\_\_\_  
 Hammer \_\_\_\_\_  
 Formula \_\_\_\_\_  
 Reference \_\_\_\_\_  
 Rod Condition GOOD

ERI-2-18.38

Revised 5/7/68

**OHIO STATE HIGHWAY TESTING LABORATORY**  
 1620 WEST BROAD ST. COLUMBUS 23, OHIO

**STRUCTURE FOUNDATION INVESTIGATION**  
 BRIDGE NO. ERI-2-1955  
 OVER HURON RIVER  
 SEC. ERI-2-18.38

**DRIVE ROD PENETRATION RESISTANCE DATA**

PLOTTED BY R.C.	CHECKED BY L.N.L.	REVIEWED BY R.D.R.	DATE 5/7/68
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25  
38  
8  
8

**GEOLOGY OF THE SITE**  
THE STRUCTURE SITE IS LOCATED ON THE FLAT GLACIATED LAKE PLAIN, IN AN AREA WHERE DEEP GLACIAL LAKE DEPOSITS OVERLIE SHALE BEDROCK, OF DEVONIAN AGE.








**EXPLANATION**  
THE EXPLORATION CONSISTED OF TWO DRIVE SAMPLE BORINGS AND FIVE DRIVE ROD PENETRATION TESTS, MADE BETWEEN MARCH 14 AND 27, 1968.


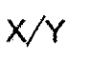



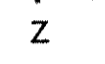
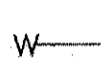
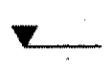
**INVESTIGATIONAL FINDINGS**  
BORINGS ENCOUNTERED UNSTRATIFIED LOOSE, WET CLAYEY SILTS AND SILTS AND SOME SOFT CLAYS TO APPROXIMATELY ELEVATION 575 FEET; BELOW THIS, DENSE AND VERY DENSE GENERALLY WET, SILTS, AND SOME SANDS. THE BORINGS WERE TERMINATED AT 66 AND 86-FOOT DEPTHS, ELEVATIONS 547 AND 527 FEET, AFTER PENETRATING IN EXCESS OF 25 FEET OF MATERIAL REQUIRING IN EXCESS OF 30 BLOWS PER FOOT IN THE STANDARD PENETRATION TEST.

ROD SOUNDINGS ENCOUNTERED LOW AND GRADUALLY INCREASING PENETRATION RESISTANCE WITH INCREASING DEPTH AND WERE TERMINATED UPON ENCOUNTER WITH REFUSAL OR NEAR-REFUSAL TO PENETRATION AT 35 TO 40-FOOT DEPTHS, ELEVATIONS 578 TO 572 FEET, CONSIDERED TO BE IN THE VERY DENSE SILTS REVEALED BY THE BORINGS.




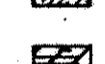

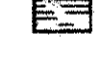


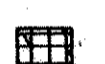


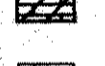
NO FREE WATER WAS ENCOUNTERED IN ANY OF THE ROD SOUNDING HOLES.  
NO TEST PENETRATED TO BEDROCK SURFACE.

**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.
-  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.
-  Drive Rod Penetration Resistance Sounding Log - Profile
-  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 Indurated Clay
-  Indurated Clay
-  Weathered Shale
-  Shale
-  Limestone
-  Weathered Sandstone
-  Sandstone
-  Leached Dolomite
-  Dolomite
-  Leached Limestone
-  Limestone

**GENERAL INFORMATION**

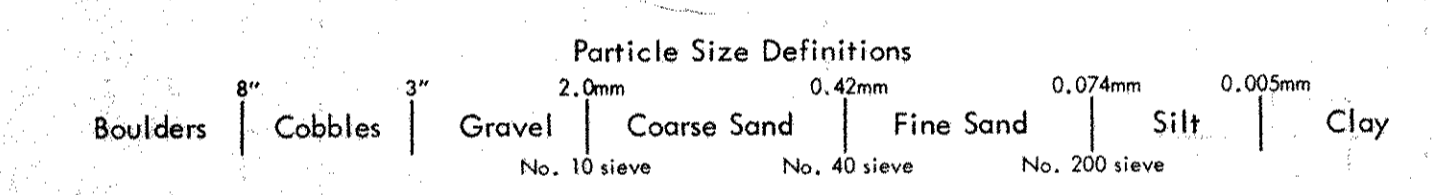
**Drive Rod Penetration Sounding Tests**  
Drive rod penetration resistance tests constitute driving a 1.315-inch diameter steel rod, with a 45° cone point, into the ground, using a 122-pound drop-hammer with a free fall of five feet. At one or two-foot depth intervals, a measurement is taken to determine 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 12 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 two 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.



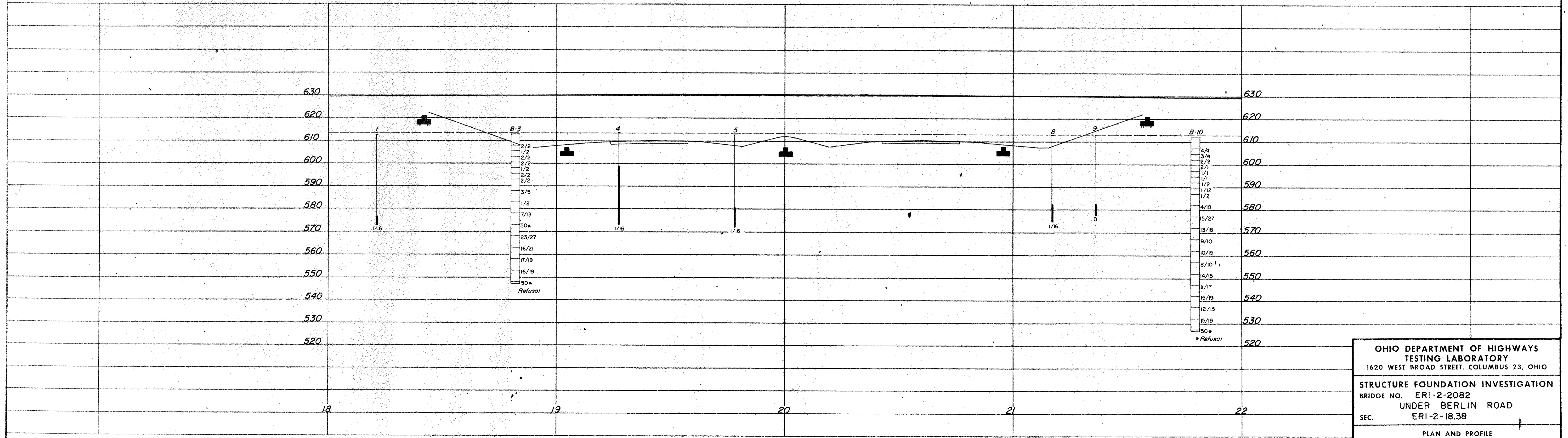
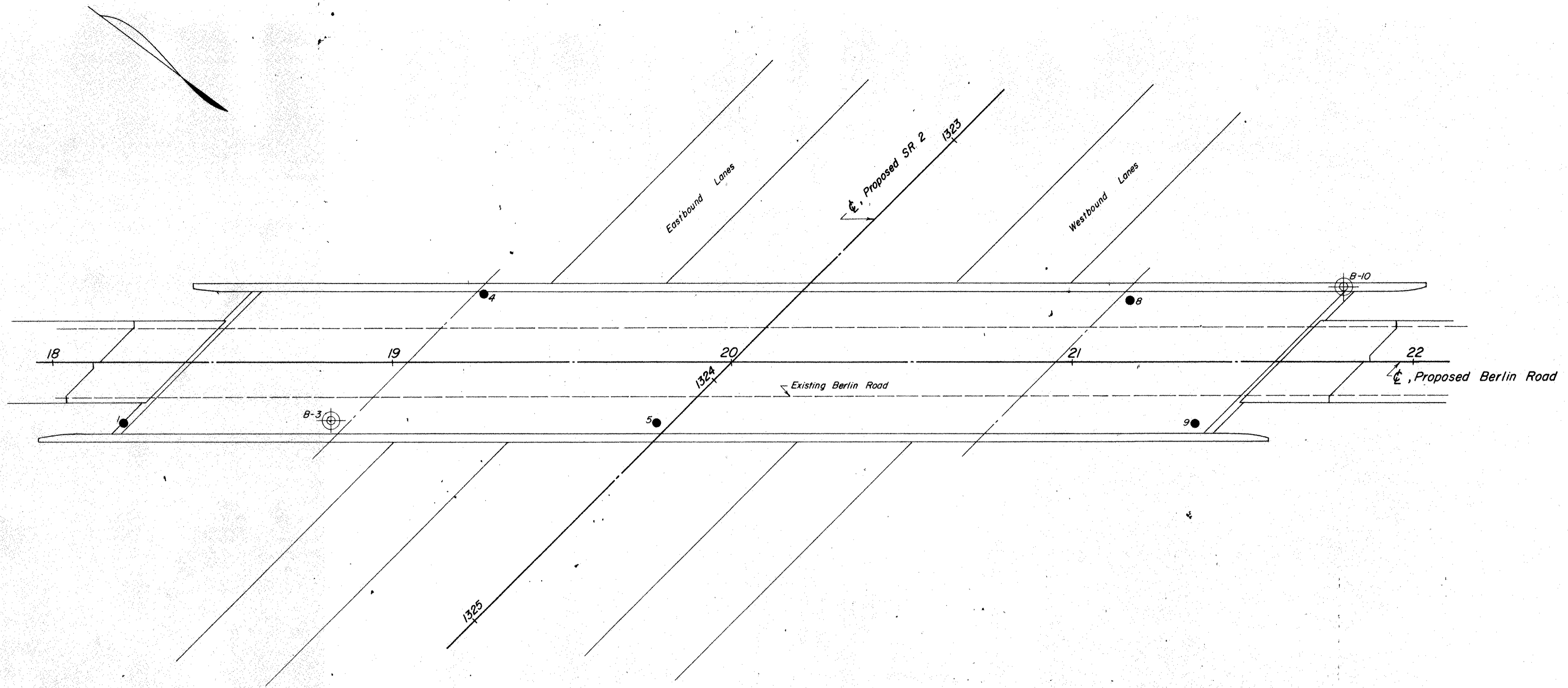
NOTE: Information shown by this subsurface investigation was obtained solely for the use in establishing design controls for the project. The State of Ohio does not guarantee the accuracy of this data and it is not to be construed as a part of the plans governing construction of the project.

**OHIO DEPARTMENT OF HIGHWAYS  
TESTING LABORATORY**  
1620 WEST BROAD STREET, COLUMBUS 23, OHIO

**STRUCTURE FOUNDATION INVESTIGATION**  
BRIDGE NO. ERI-2-2082  
UNDER BERLIN ROAD  
SEC. ERI-2-18.38

CHECKED BY L.N.L.	REVIEWED BY R.D.R.	DATE 4/3/68
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RECORDED  
FEB 7 1962



SCALE: 1" = 20'

OHIO DEPARTMENT OF HIGHWAYS  
TESTING LABORATORY  
1620 WEST BROAD STREET, COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION  
BRIDGE NO. ERI-2-2082  
UNDER BERLIN ROAD  
SEC. ERI-2-18.38

PLAN AND PROFILE

DRAWN BY L.N.L.	CHECKED BY L.N.L.	REVIEWED BY R.D.R.	DATE 4/3/68
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**LOG OF BORING**

Date Started 3-14-68 Sampler Type SS Dia. 1 3/8" Water Elev. \_\_\_\_\_  
 Date Completed 3-15-68 Casing Length \_\_\_\_\_ Dia. \_\_\_\_\_  
 Boring No. B-3 Station & Offset 18+82, 17' Rt. (Rear Pier) Surface Elev. 613.0'

Elev.	Depth	Std. Pen. (N)	Rec. Loss	Description	Sample No.	Physical Characteristics							SHTL Class.					
						% Agg.	% C.S.	% F.S.	% Sil.	% Clay	L.L.	P.I.		W.C.				
613.0	0																	
608.0	5	2/2		Brown Clayey Silt	1	0	0	2	56	42	31	10	29	A-4b				
605.5	8	1/2		Brown Silt and Clay	2	0	1	3	52	44	36	13	27	A-6a				
603.0	10	2/2		Gray Silt	3	0	0	1	65	34	25	4	29	A-4b				
600.5	14	2/2		Gray Silt	4	0	0	1	57	42	23	4	26	A-4b				
598.0	16	1/2		Gray Clayey Silt	5	0	0	1	51	48	27	9	32	A-4b				
595.5	18	2/2		Gray Silt	6	4	0	1	57	38	22	4	29	A-4b				
593.0	20	2/2		Gray Clayey Silt	7	0	0	1	52	47	26	7	31	A-4b				
588.0	26	3/5		Gray Clayey Silt	8	0	0	1	53	46	26	8	23	A-4b				
583.0	32	1/2		Gray Clay	9	0	0	1	15	84	48	23	30	A-7-6				
578.0	36	7/13		Gray Sandy Silt	10	14	8	12	32	34	25	9	13	A-4a				
573.0	40	50* (0.7')		Gray Clayey Silt	11	9	2	2	47	40	25	8	19	A-4a				
568.0	46	23/27		Gray Silt	12	0	1	14	71	14	NP	NP	18	A-4b				
563.0	50	16/21		Gray Silt	13	0	0	3	81	16	NP	NP	20	A-4b				
558.0	56	17/19		Gray Silt	14	0	0	1	78	21	NP	NP	24	A-4b				
553.0	60	16/19		Gray Silt	15	0	0	4	83	13	NP	NP	21	A-4b				
548.0	64	50* (0.7')		Gray Silt	16	0	1	3	80	16	NP	NP	19	A-4b				
547.3	66			*Refusal														

BOTTOM OF BORING

**LOG OF BORING**

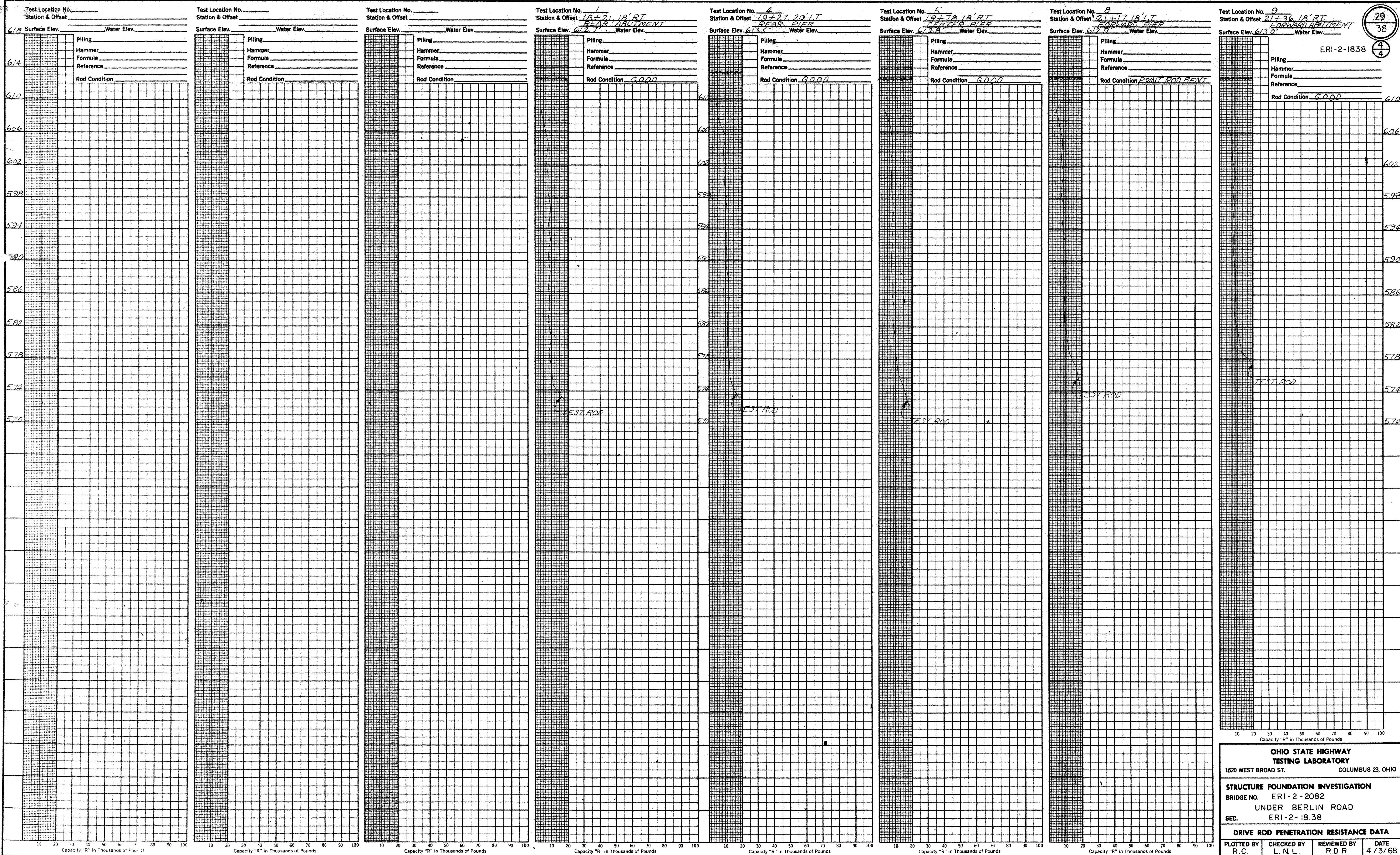
Date Started 3-18-68 Sampler Type SS Dia. 1 3/8" Water Elev. \_\_\_\_\_  
 Date Completed 3-20-68 Casing Length 32' Dia. 3 1/2"  
 Boring No. B-10 Station & Offset 21+80, 22' Lt. (Forward Abutment) Surface Elev. 612.1'

Elev.	Depth	Std. Pen. (N)	Rec. Loss	Description	Sample No.	Physical Characteristics							SHTL Class.					
						% Agg.	% C.S.	% F.S.	% Sil.	% Clay	L.L.	P.I.		W.C.				
612.1	0																	
607.1	5	4/4		Brown Silt	1	0	1	2	65	32	NP	NP	28	A-4b				
604.6	8	3/4		Brown Silt	2	0	0	2	68	30	NP	NP	27	A-4b				
602.1	10	2/2		Brownish-Gray Clayey Silt	3	0	0	1	62	37	30	10	34	A-4b				
599.6	14	2/1		Gray Clayey Silt	4	0	0	1	62	37	27	7	35	A-4b				
597.1	16	1/1		Gray Clayey Silt	5	0	0	1	61	38	27	7	33	A-4b				
594.6	18	1/1		Gray Clayey Silt	6	0	0	1	54	45	28	10	27	A-4b				
592.1	20	1/2		Gray Clayey Silt	7	0	0	1	55	44	27	9	28	A-4b				
589.6	24	1/12		Gray Clayey Silt	8	0	0	1	51	48	29	9	28	A-4b				
587.1	26	1/2		Gray Silt and Clay	9	0	1	2	33	64	33	12	22	A-6a				
582.1	30	4/10		Gray Sandy Gravelly Silt	10	18	6	11	34	31	24	7	14	A-4a				
577.1	36	15/27		Gray Silt	11	0	0	1	59	40	26	6	18	A-4b				
572.1	40	13/18		Gray Silt	12	0	1	0	56	43	25	5	23	A-4b				
567.1	46	9/10		Gray Silt	13	0	0	4	50	46	NP	NP	26	A-4b				
562.1	50	10/15		Gray Sandy Silt	14	4	0	17	67	12	NP	NP	23	A-4b				
557.1	56	8/10		Gray Silt	15	0	0	1	75	24	NP	NP	25	A-4b				
552.1	60	14/15		Gray Silty Sand	16	0	0	66	24	10	NP	NP	21	A-3a				
547.1	66	11/17		Gray Silt	17	0	0	5	76	19	NP	NP	25	A-4b				
542.1	70	15/19		Gray Silty Sand	18	0	0	64	27	9	28	5	22	A-4a				
537.1	76	12/15		Gray Silt	19	0	0	14	70	16	NP	NP	24	A-4b				
532.1	80	15/19		Gray Sandy Silt	20	0	0	31	59	10	NP	NP	19	A-4b				
527.1	84	50* (0.6')		Gray Silty Gravelly Sand	21	31	31	12	26	-	NP	NP	10	A-2-4				
526.3	86			*Refusal														

BOTTOM OF BORING

OHIO DEPARTMENT OF HIGHWAYS TESTING LABORATORY 1620 WEST BROAD STREET, COLUMBUS 23, OHIO			
STRUCTURE FOUNDATION INVESTIGATION BRIDGE NO. ERI-2-2082 UNDER BERLIN ROAD SEC. ERI-2-18.38			
BORING DATA			
TYPED BY S.A.J.	CHECKED BY R.C.	REVIEWED BY R.D.R.	DATE 4/3/68





29  
38  
4  
4

**OHIO STATE HIGHWAY TESTING LABORATORY**  
 1620 WEST BROAD ST. COLUMBUS 23, OHIO

**STRUCTURE FOUNDATION INVESTIGATION**  
 BRIDGE NO. ERI-2-2082  
 UNDER BERLIN ROAD  
 SEC. ERI-2-18.38

**DRIVE ROD PENETRATION RESISTANCE DATA**

PLOTTED BY R.C. CHECKED BY L.N.L. REVIEWED BY R.D.R. DATE 4/3/68

ENCLOSURE  
FEB 7 1968

**GEOLOGY OF THE SITE**  
THE STRUCTURE SITE IS LOCATED ON THE FLAT GLACIATED LAKE PLAIN, IN AN AREA WHERE DEEP GLACIAL LAKE DEPOSITS OVERLIE SHALE BEDROCK, OF DEVONIAN AGE.

**EXPLORATION**  
THE EXPLORATION CONSISTED OF TWO DRIVE-PRESS SAMPLE BORINGS, AND EIGHT DRIVE ROD PENETRATION TESTS, MADE BETWEEN MARCH 5 AND 22, 1968.

**INVESTIGATIONAL FINDINGS**  
BORINGS ENCOUNTERED UNSTRATIFIED LOOSE, WET SANDY SILTS, SANDS, AND GRAVELS WITH SOME SOFT CLAYS CONTAINING VARIOUS AMOUNTS OF ORGANIC MATERIAL AND WOOD FRAGMENTS TO APPROXIMATELY 30-FOOT DEPTH, ELEVATIONS 546 FEET; BELOW THIS, VERY DENSE, GENERALLY WET, SILTS, WITH SOME CLAY AND SAND. THE BORINGS WERE TERMINATED AT 56 AND 60-FOOT DEPTHS, ELEVATIONS 520 AND 515 FEET, AFTER PENETRATING IN EXCESS OF 28 FEET OF MATERIAL REQUIRING IN EXCESS OF 30 BLOWS PER FOOT IN THE STANDARD PENETRATION TEST.

ROD SOUNDINGS ENCOUNTERED GENERALLY LOW AND GRADUALLY INCREASING PENETRATION RESISTANCE WITH INCREASING DEPTH AND WERE TERMINATED UPON ENCOUNTER WITH RATHER ABRUPT REFUSAL OR NEAR REFUSAL TO PENETRATION AT 28 TO 33-FOOT DEPTHS, ELEVATIONS 546 TO 543 FEET, CONSIDERED TO BE IN VERY DENSE SILTS, AS REVEALED BY THE BORINGS.

NO FREE WATER WAS ENCOUNTERED IN ANY OF THE ROD SOUNDING HOLES.  
NO TEST PENETRATED TO BEDROCK SURFACE.

- 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
- Footings
- Footings on Pile
- Top of Rock

**LEGEND**

- Horizontal Bar on Boring Log Indicates the Depth the Sample Was Taken.
- Figures Beside the Boring Log in Profile Indicate the Number of Blows for Standard Penetration Test.  
X = Number of Blows for First 6 inches.  
Y = Number of Blows for Second 6 inches.
- 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.
- Indicates Free Water Elevation.
- ▽ Indicates Static Water Elevation.

**SYMBOLS OF ROCK TYPES**

- Coal
- Weathered Indurated Clay
- Indurated Clay
- Weathered Shale
- Shale

**LOG OF BORING**  
 Date Started 3-5-68 Sampler Type SS Dia. 1 3/8" Water Elev. \_\_\_\_\_  
 Date Completed 3-5-68 Casing Length 30' Dia. 3 1/2" Surface Elev. 575.8'  
 Boring No. B1 Station & Offset 1362+30, 64' Lt. (Rear Abutment)

Elev.	Depth	Std. Pen (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics							SHTL Class.		
							% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.		W.C.	
575.8	0															
570.8	2															
568.3	6	PS														
565.8	8	3/4			Brownish-Gray Silt and Clay	1	0	1	2	42	55	45	15	31	A-7-5	
563.3	10	PS														
560.8	12	1/1			Gray Sandy Silt, Slightly Organic	2	0	0	24	51	25	26	6	24	A-4b	
558.3	14	PS														
555.8	16	1/1			Gray Clay, Slightly Organic	3	0	1	14	54	31	50	24	44	A-7-6	
553.3	18	PS														
550.8	20	2/1			Gray Sandy Silt	4	0	0	39	41	20	NP	NP	30	A-4a	
548.3	22	PS														
545.8	24	8/14			Gray Silty Gravelly Sand	5	25	18	17	23	17	NP	NP	18	A-4a	
540.8	26	24/30			Gray Silt	6	6	2	4	69	19	NP	NP	20	A-4b	
535.8	28	35/*			Gray Silt	7	0	0	3	64	33	22	4	15	A-4b	
530.8	30	45/*			Gray Silt	8	0	1	9	55	35	22	6	13	A-4b	
525.8	32	18/22			Gray Clayey Silt	9	0	0	1	52	47	27	7	20	A-4b	
520.8	34	26/28			Gray Silt	10	0	0	1	75	24	NP	NP	21	A-4b	
515.8	36	21/23			Gray Silt	11	0	0	12	77	11	NP	NP	21	A-4b	
514.8	38	23/32			Gray Silty Sand	12	2	16	50	11	21	NP	NP	20	A-3a	

\*Refusal  
PS = Press Sample

**LOG OF BORING**  
 Date Started 3-19-68 Sampler Type SS Dia. 1 3/8" Water Elev. \_\_\_\_\_  
 Date Completed 3-22-68 Casing Length 27' Dia. 3 1/2" Surface Elev. 575.5'  
 Boring No. B-12 Station & Offset 1363+66, 64' Rt. (Forward Pier)

Elev.	Depth	Std. Pen (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics							SHTL Class.		
							% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.		W.C.	
575.5	0															
570.5	2															
569.0	4	PS														
565.5	6	3/4			Gray Silt and Clay, with Wood Fragments	1	4	1	14	40	41	33	13	27	A-6a	
564.0	8	PS														
560.5	10	1/1			Gray Silty Sand	2	0	3	59	16	22	NP	NP	24	A-4a	
559.0	12	PS														
555.5	14	1/1			Gray Silt, with Wood Fragments	3	0	0	8	59	33	NP	NP	23	A-4b	
554.0	16	PS														
550.5	18	3/4			Gray Silty Sandy Gravel	4	36	16	16	17	15	NP	NP	18	A-2-4	
549.0	20	PS														
545.5	22	30/*			Gray Gravelly Silt	5	12	4	6	41	37	23	6	14	A-4a	
540.5	24	50/*			Gray Silt	6	0	1	1	59	39	24	5	15	A-4b	
535.5	26	50* (0.7')			Gray Silt	7	11	0	5	42	42	24	6	18	A-4a	
530.5	28	50* (0.7')			Gray Silt	8	0	0	1	52	37	26	3	21	A-4b	
525.5	30	20/30			Gray Silt	9	0	0	0	75	25	NP	NP	22	A-4b	
520.5	32	21/24			Gray Silt	10	0	1	1	70	28	NP	NP	21	A-4b	
519.5	34	23/28			Gray Silt	11	0	0	1	50	39	23	4	21	A-4b	

\*Refusal  
PS = PRESS SAMPLE

**GENERAL INFORMATION**

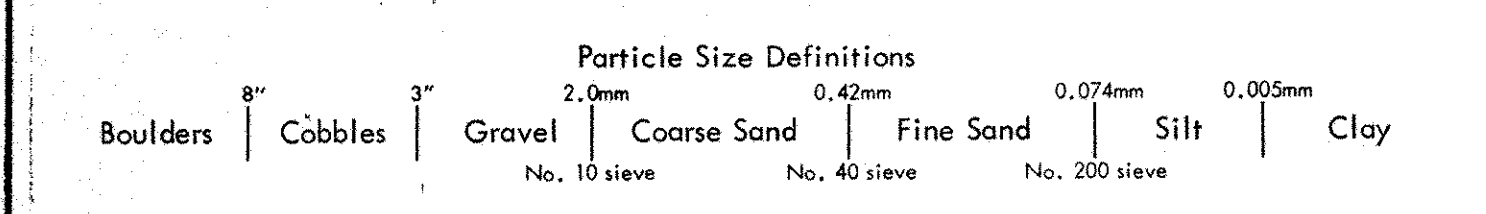
**Drive Rod Penetration Sounding Tests**  
Drive rod penetration resistance tests constitute driving a 1.315-inch diameter steel rod, with a 45° cone point, into the ground, using a 122-pound drop-hammer with a free fall of five feet. At one or two-foot depth intervals, a measurement is taken to determine 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 12 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 two 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.



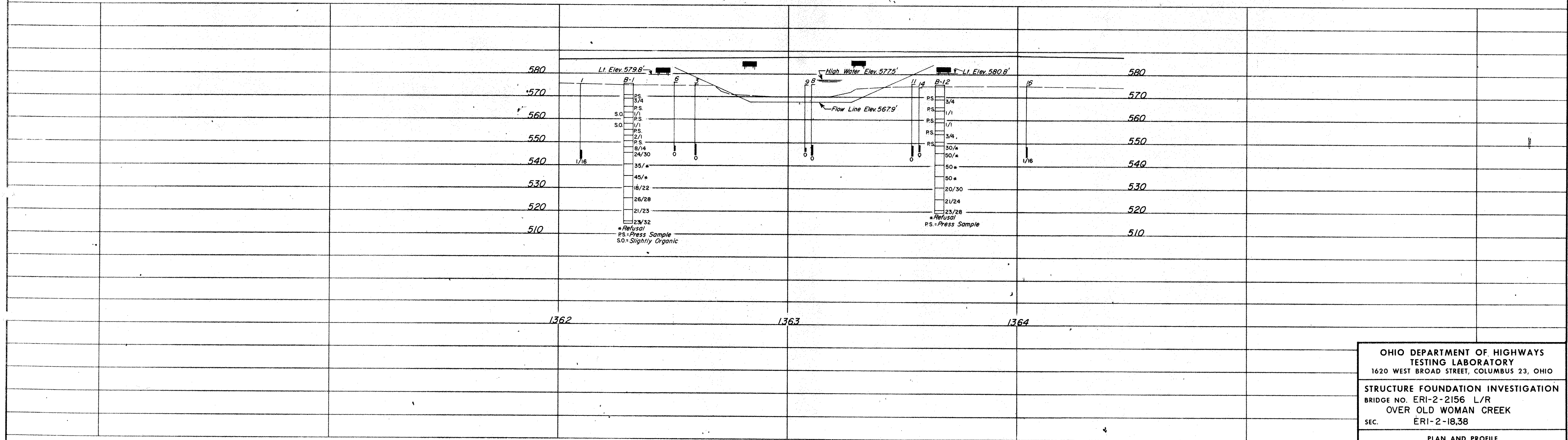
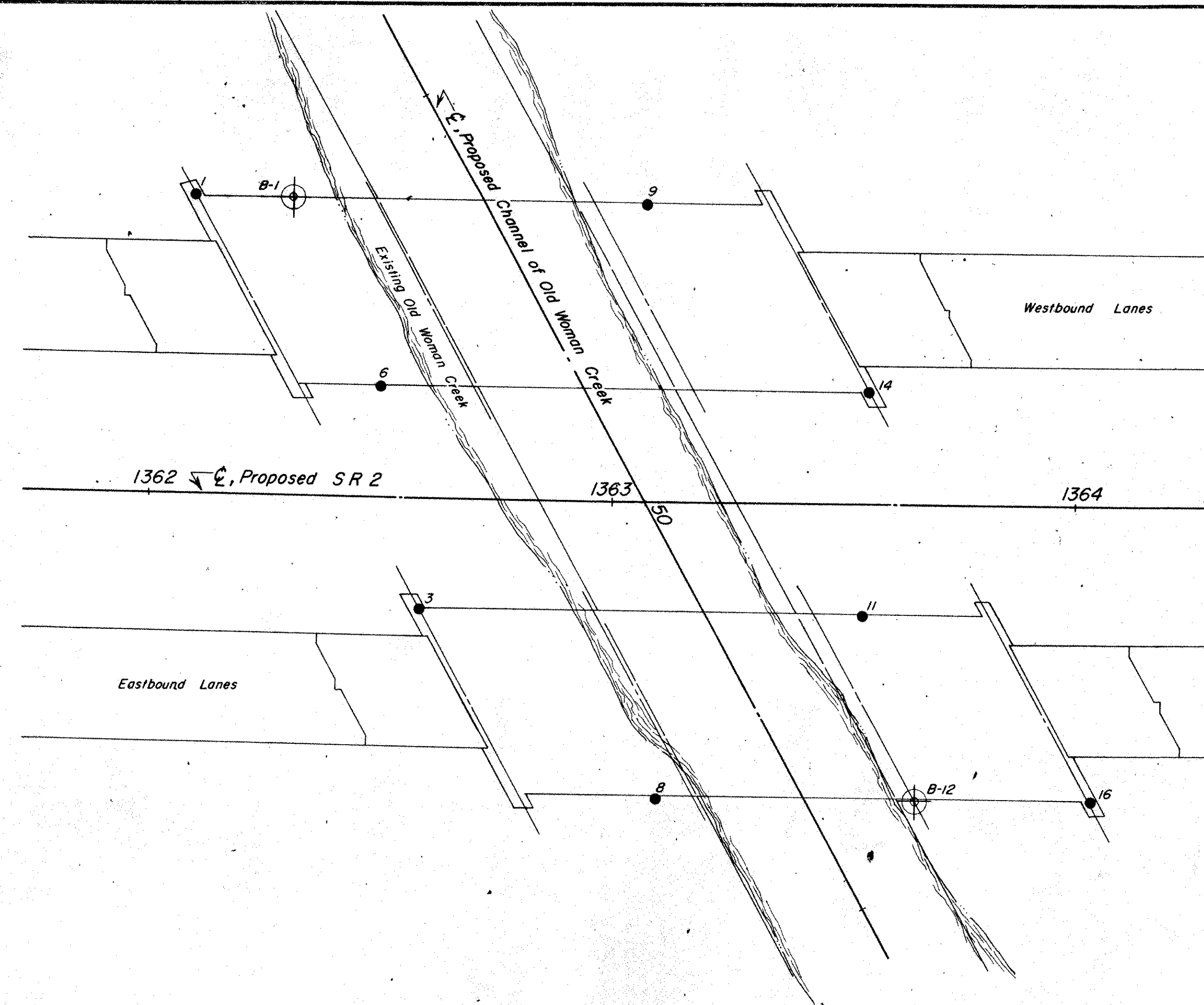
NOTE: Information shown by this subsurface investigation was obtained solely for the use in establishing design controls for the project. The State of Ohio does not guarantee the accuracy of this data and it is not to be construed as a part of the plans governing construction of the project.

OHIO DEPARTMENT OF HIGHWAYS  
TESTING LABORATORY  
1620 WEST BROAD STREET, COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION  
BRIDGE NO. ERI-2-2156 L/R  
OVER OLD WOMAN CREEK  
SEC. ERI-2-1838

CHECKED BY L.N.L.	REVIEWED BY R.D.R.	DATE 4/3/68
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REVISIONS  
FEB 7 1968



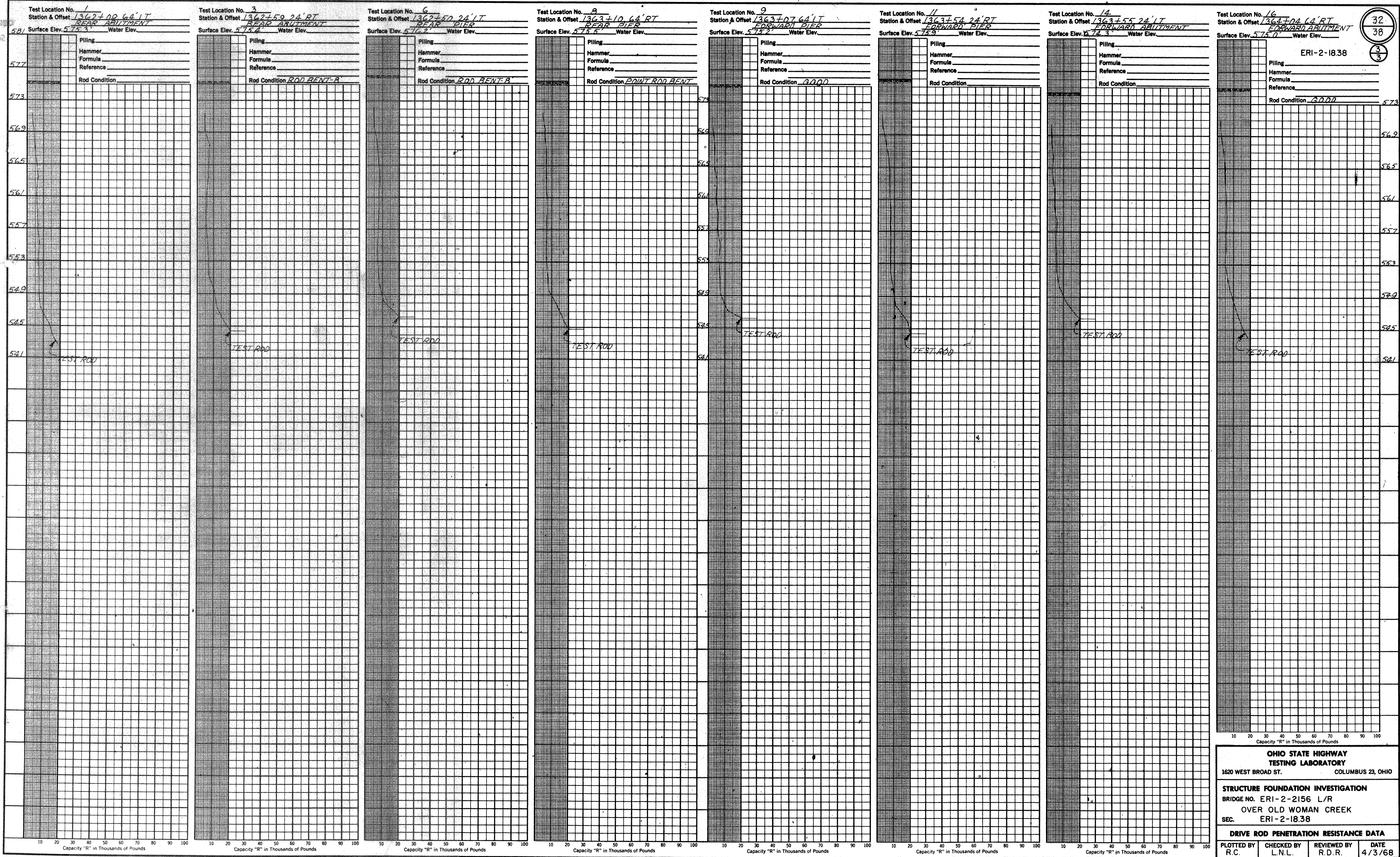
OHIO DEPARTMENT OF HIGHWAYS  
TESTING LABORATORY  
1620 WEST BROAD STREET, COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION  
BRIDGE NO. ERI-2-2156 L/R  
OVER OLD WOMAN CREEK  
SEC. ERI-2-18,38

PLAN AND PROFILE

DRAWN BY J.E.C.	CHECKED BY L.N.L.	REVIEWED BY R.D.R.	DATE 4/3/68
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SCALE: 1" = 20'



32  
38  
3  
3

Test Location No. 16  
Station & Offset 1364+04.64 RT  
Surface Elev. 575.0 Water Elev. \_\_\_\_\_  
Piling \_\_\_\_\_  
Hammer \_\_\_\_\_  
Formula \_\_\_\_\_  
Reference \_\_\_\_\_  
Rod Condition GOOD

OHIO STATE HIGHWAY  
TESTING LABORATORY  
1620 WEST BROAD ST. COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION  
BRIDGE NO. ERI-2-2156 L/R  
OVER OLD WOMAN CREEK  
SEC. ERI-2-18.38

DRIVE ROD PENETRATION RESISTANCE DATA

PLOTTED BY R.C. CHECKED BY L.N.L. REVIEWED BY R.D.R. DATE 4/3/68

**GEOLOGY OF THE SITE**

THE PROPOSED RETAINING WALL SITE IS LOCATED IN THE RELATIVELY FLAT GLACIATED LAKE PLAIN REGION, ON THE NARROW FLOODPLAIN OF OLD WOMAN CREEK, IN AN AREA WHERE EXTREMELY DEEP GLACIAL AND ALLUVIAL DEPOSITS OVERLIE SHALE BEDROCK, OF DEVONIAN AGE.

**EXPLORATION**

THE EXPLORATION CONSISTED OF TWO DRIVE SAMPLE BORINGS AND ONE DRIVE-PRESS SAMPLE BORING MADE BY MEANS OF A MECHANICALLY-POWERED HOLLOW STEM AUGER MOUNTED ON A MOBILE PLATFORM, PERFORMED BETWEEN FEBRUARY 24 AND MARCH 3, 1981.








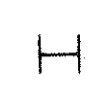
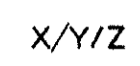




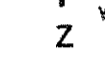
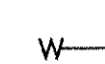

**INVESTIGATIONAL FINDINGS AND OBSERVATIONS**

THE BORINGS ENCOUNTERED INTERVALS OF EXTREMELY LOOSE TO EXTREMELY DENSE UNSTRATIFIED SILTS AND CLAYS MODIFIED WITH GRAVEL AND SAND THAT RAPIDLY INCREASE IN DENSITY WITH INCREASE IN DEPTH. ORGANIC MATERIAL AND MATERIAL BEARING A TRACE OF ORGANIC WAS ENCOUNTERED IN BORING B-1 AT 15 AND 20-FOOT DEPTH, ELEVATION 561 AND 556 FEET, RESPECTIVELY. THE BORINGS WERE TERMINATED AT 41 TO 46-FOOT DEPTH, ELEVATION 549 TO 534 FEET, AFTER PENETRATING IN EXCESS OF 16 FEET OF MATERIAL, REQUIRING IN EXCESS OF 30 BLOWS PER FOOT IN THE STANDARD PENETRATION TEST.











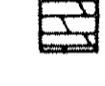



BEDROCK SURFACE WAS NOT ENCOUNTERED IN ANY OF THE TEST BORINGS PERFORMED.

FREE WATER WAS OBSERVED AND MEASURED IN BORING B-1 AT 5-FOOT DEPTH, ELEVATION 571 FEET, IN BORING B-2 AT 11-FOOT DEPTH, ELEVATION 579 FEET AND IN BORING B-3 AT 38-FOOT DEPTH, ELEVATION 545 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.
-  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.

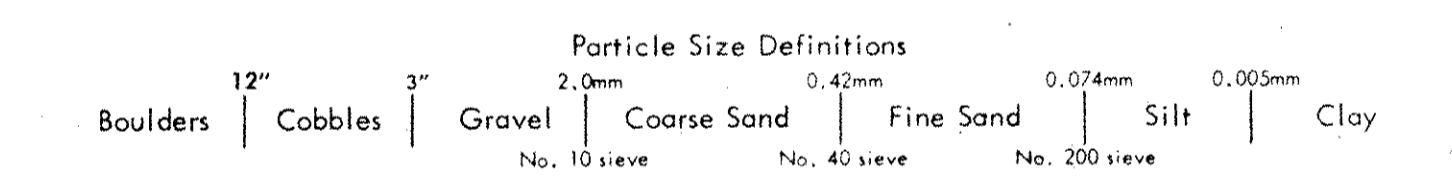
**Drive Sample Borings - Drive-Press Sample Borings**

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.

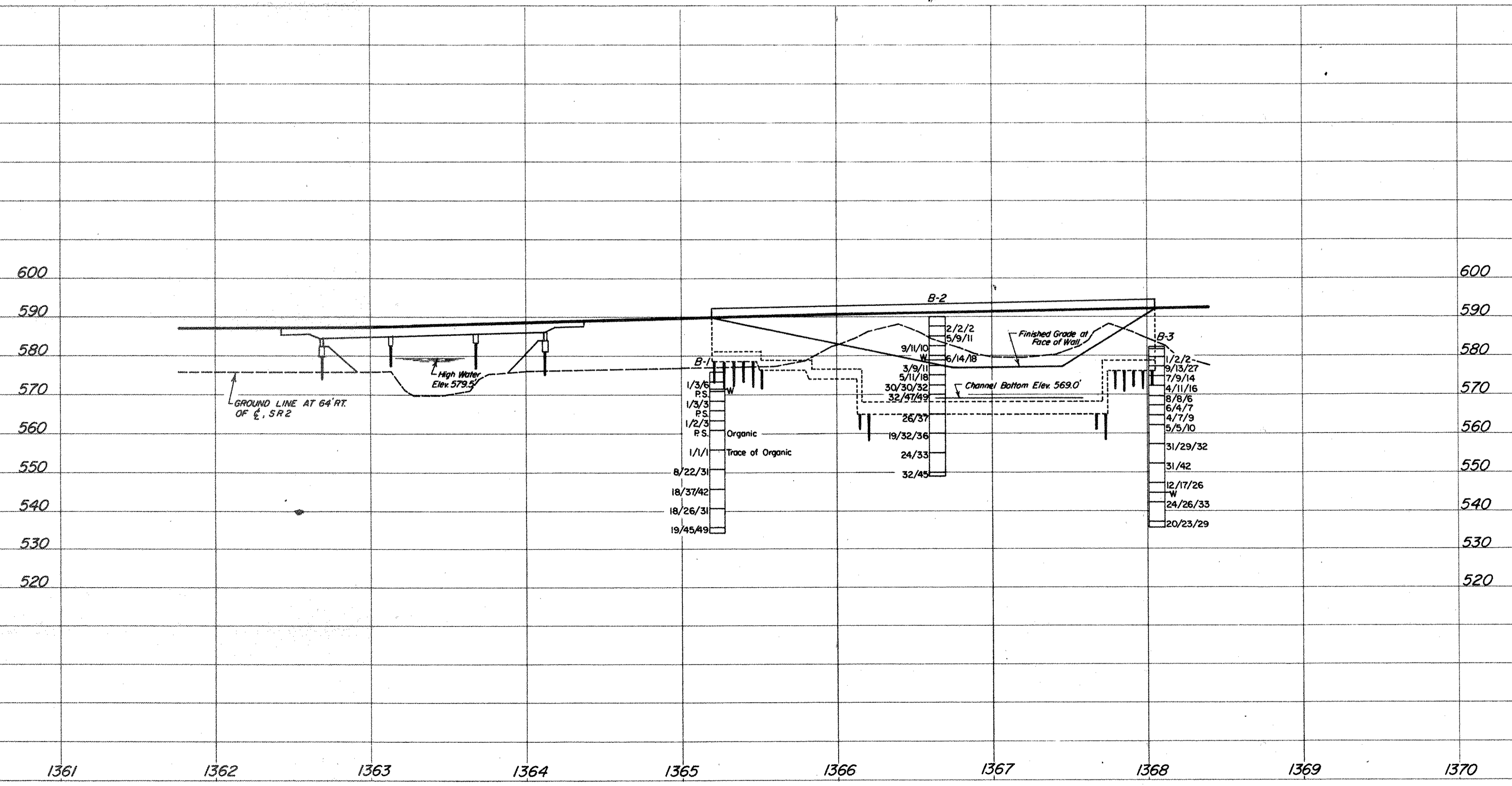
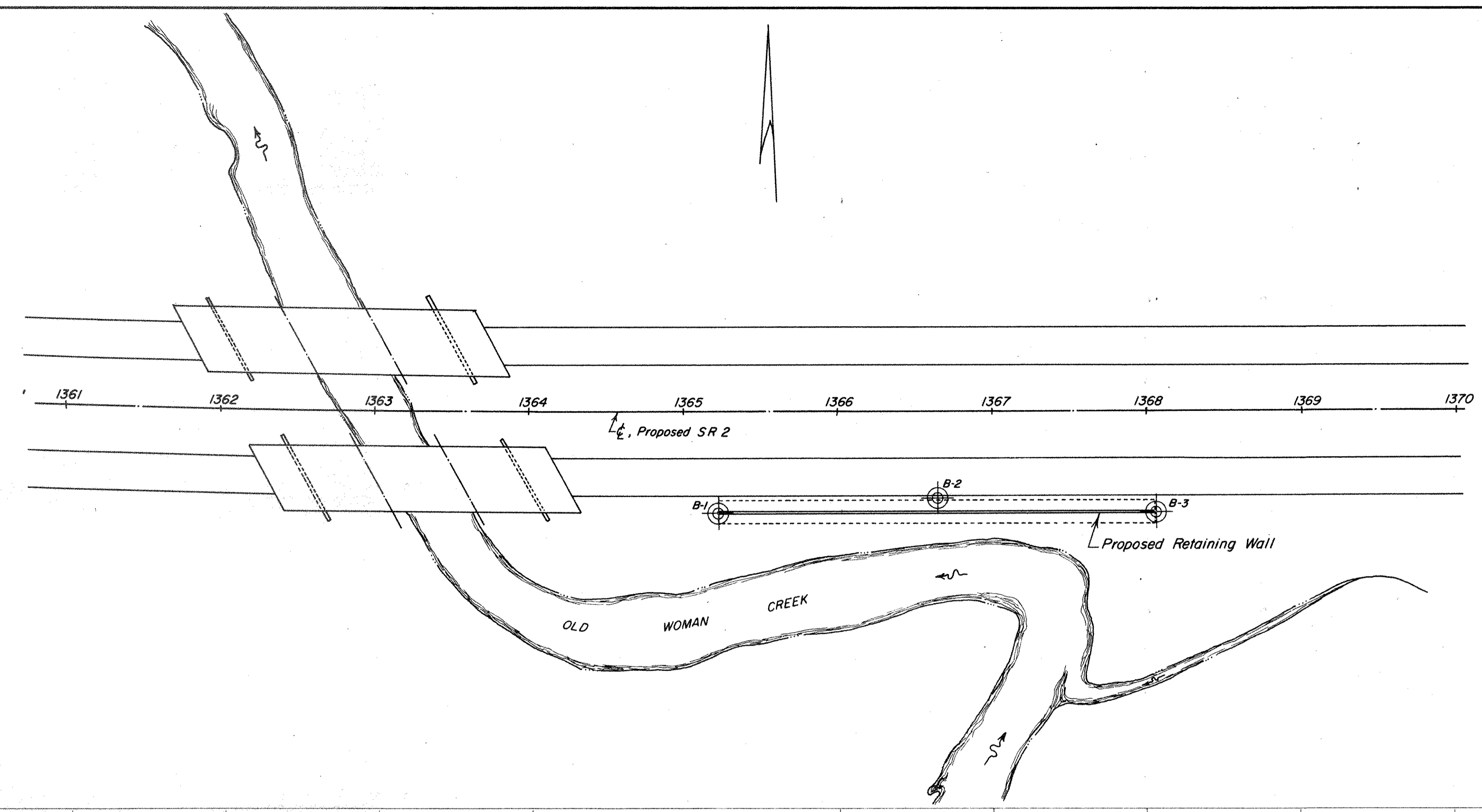
At depths where materials are bouldery or gravelly to the extent that the sampler can not be driven, a wash sample is procured for visual classification, in order to determine the general character of the material. These samples are not considered sufficiently representative to warrant laboratory testing.



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		
<b>STRUCTURE FOUNDATION INVESTIGATION</b>		
BRIDGE NO.	ERI-2-2156 SUPPLEMENT	
	RETAINING WALL	
SEC.	ERI-2-18.38	
CHECKED BY	REVIEWED BY	DATE
L. N. L.	R. D. R.	4/10/81



SCALE: HOR. = 1" = 50'  
VERT. = 1" = 20'

OHIO DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS - TESTING LABORATORY 1600 WEST BROAD STREET COLUMBUS, OHIO 43223			
STRUCTURE FOUNDATION INVESTIGATION BRIDGE NO. ERI-2-2156 SUPPLEMENT RETAINING WALL SEC. ERI-2-18.38			
PLAN AND PROFILE			
DRAWN BY L. N. L.	CHECKED BY L. N. L.	REVIEWED BY R. D. R.	DATE 4 /10/81



MICROFILMED  
FEB 7 1982

**GEOLOGY OF THE SITE**  
THE STRUCTURE SITE IS LOCATED ON THE FLAT GLACIATED LAKE PLAIN, IN AN AREA WHERE MODERATELY DEEP GLACIAL LAKE DEPOSITS OVERLIE SHALE BEDROCK, OF DEVONIAN AGE.

**EXPLORATION**  
THE EXPLORATION CONSISTED OF TWO DRIVE SAMPLE-CORE BORINGS AND FIVE DRIVE ROD PENETRATION TESTS, MADE BETWEEN MARCH 26 AND APRIL 8, 1968.

**INVESTIGATIONAL FINDINGS**  
BORINGS DISCLOSED THAT BEDROCK SURFACE, ENCOUNTERED AT 45-FOOT DEPTH, ELEVATIONS 571 AND 569 FEET, IS OVERLAIN BY WET, SOFT TO MEDIUM STIFF CLAYS AND VERY LOOSE TO DENSE SILTS. THE BORINGS WERE TERMINATED AT 55-FOOT DEPTH, ELEVATIONS 561 AND 559 FEET, AFTER PENETRATING 10 FEET BELOW BEDROCK SURFACE.

ROD SOUNDINGS ENCOUNTERED RAPID INCREASE IN PENETRATION RESISTANCE WITH INCREASE IN DEPTH AND WERE TERMINATED UPON ENCOUNTER WITH REFUSAL TO PENETRATION AT 41 TO 44-FOOT DEPTHS, ELEVATIONS 574 AND 573 FEET, CONSIDERED TO BE SLIGHTLY ABOVE BEDROCK SURFACE, AS REVEALED BY THE BORINGS.

NO FREE WATER WAS OBSERVED IN ANY OF THE ROD SOUNDING HOLES.

**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.
- 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.
- 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 Indurated Clay
- Indurated Clay
- Weathered Shale
- Shale
- Weathered Sandstone
- Sandstone

**LOG OF BORING**  
Date Started 3-26-68 Sampler Type SS Dia 1 3/8" Water Elev. \_\_\_\_\_  
Date Completed 3-27-68 Casing Length \_\_\_\_\_ Dia \_\_\_\_\_  
Boring No. B-3 Station & Offset 49+27, 25' Lt. (Rear Pier) Surface Elev. 616.0'

Elev.	Depth	Std. Pen (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics										SMTL Class.	
							% Agg.	% C.S.	% F.S.	% Silt	% Clay	LL	PI	W.C.				
616.0	0																	
611.0	5	3/4			Brownish-Gray Silt	1	0	0	2	59	39	24	5	29	A-4b			
608.5	8	5/6			Brownish-Gray Silt	2	0	0	2	70	28	NP	NP	27	A-4b			
606.0	10	3/6			Gray Silt	3	0	0	0	69	31	NP	NP	31	A-4b			
603.5	12	1/1			Gray Silt	4	0	0	1	64	35	NP	NP	33	A-4b			
601.0	14	3/5			Gray Silt	5	0	0	1	76	23	NP	NP	25	A-4b			
598.5	16	4/6			Gray Silt	6	0	0	1	73	26	NP	NP	27	A-4b			
596.0	18	6/7			Gray Silt	7	0	1	2	50	47	25	5	25	A-4b			
591.0	24	10/18			Gray Clayey Silt	8	0	0	0	54	46	26	7	22	A-4b			
586.0	30	5/8			Gray Silt and Clay	9	0	0	0	24	76	38	15	28	A-6a			
581.0	34	7/10			Gray Silt	10	0	0	2	55	43	NP	NP	23	A-4b			
576.0	40	50* (0.7')			Gray Sandy Silt	11	8	7	16	37	32	20	4	13	A-4a			
571.0	45				TOP OF ROCK													
46			4.3	0.7	Shale, dark-gray, hard, carbonaceous, fissile, broken and jointed. Core Loss 7%.													
561.0	54		5.0	0.0	BOTTOM OF BORING													

**LOG OF BORING**  
Date Started 4-4-68 Sampler Type SS Dia 1 3/8" Water Elev. \_\_\_\_\_  
Date Completed 4-5-68 Casing Length 45' Dia 3 1/2"  
Boring No. B-10 Station & Offset 51+22, 30' Rt. (Forward Abutment) Surface Elev. 614.3'

Elev.	Depth	Std. Pen (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics										SMTL Class.	
							% Agg.	% C.S.	% F.S.	% Silt	% Clay	LL	PI	W.C.				
614.3	0																	
609.3	5	2/3			Brownish-Gray Silt	1	0	0	2	63	35	26	6	27	A-4b			
606.8	8	2/4			Brownish-Gray Clayey Silt	2	0	0	1	51	48	27	7	29	A-4b			
604.3	10	3/4			Gray Silt	3	0	0	2	61	37	24	5	28	A-4b			
601.8	12	5/5			Gray Clayey Silt	4	0	0	1	60	39	27	7	26	A-4b			
599.3	14	6/6			Gray Silt	5	0	0	3	73	24	NP	NP	28	A-4b			
596.8	16	5/4			Gray Silt	6	0	0	1	66	33	NP	NP	27	A-4b			
594.3	20	3/3			Gray Clayey Silt	7	0	0	0	38	62	31	10	28	A-4a			
591.8	22	4/4			Brown Silt	8	0	0	1	58	41	24	5	23	A-4b			
589.3	24	1/1			Gray Silt and Clay	9	0	1	1	36	62	33	13	30	A-6a			
584.3	30	3/3			Gray Clayey Silt	10	0	0	1	44	55	28	9	34	A-4a			
579.3	34	4/9			Gray Silt	11	3	1	3	65	28	NP	NP	25	A-4b			
574.3	40	30/28			Gray Sandy Silt	12	14	7	11	36	32	22	5	13	A-4a			
569.3	46				TOP OF ROCK													
48			4.6	0.4	Shale, dark-gray, hard, carbonaceous, fissile, broken and jointed. Core Loss 4%.													
559.3	54		5.0	0.0	BOTTOM OF BORING													

**GENERAL INFORMATION**

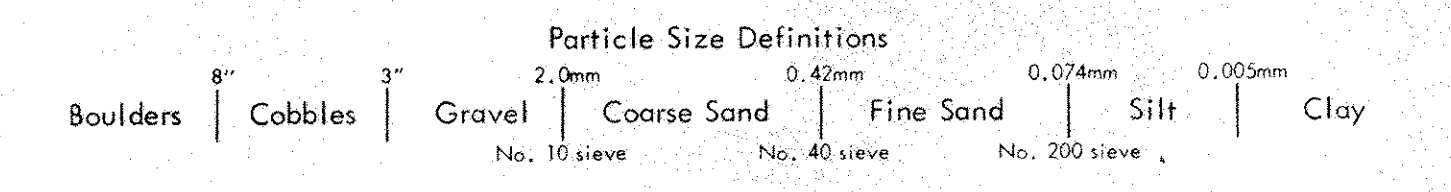
**Drive Rod Penetration Sounding Tests**  
Drive rod penetration resistance tests constitute driving a 1.315-inch diameter steel rod, with a 45° cone point, into the ground, using a 122-pound drop-hammer with a free fall of five feet. At one or two-foot depth intervals, a measurement is taken to determine 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 12 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 two 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.



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 HIGHWAYS  
TESTING LABORATORY**  
1620 WEST BROAD STREET, COLUMBUS 23, OHIO

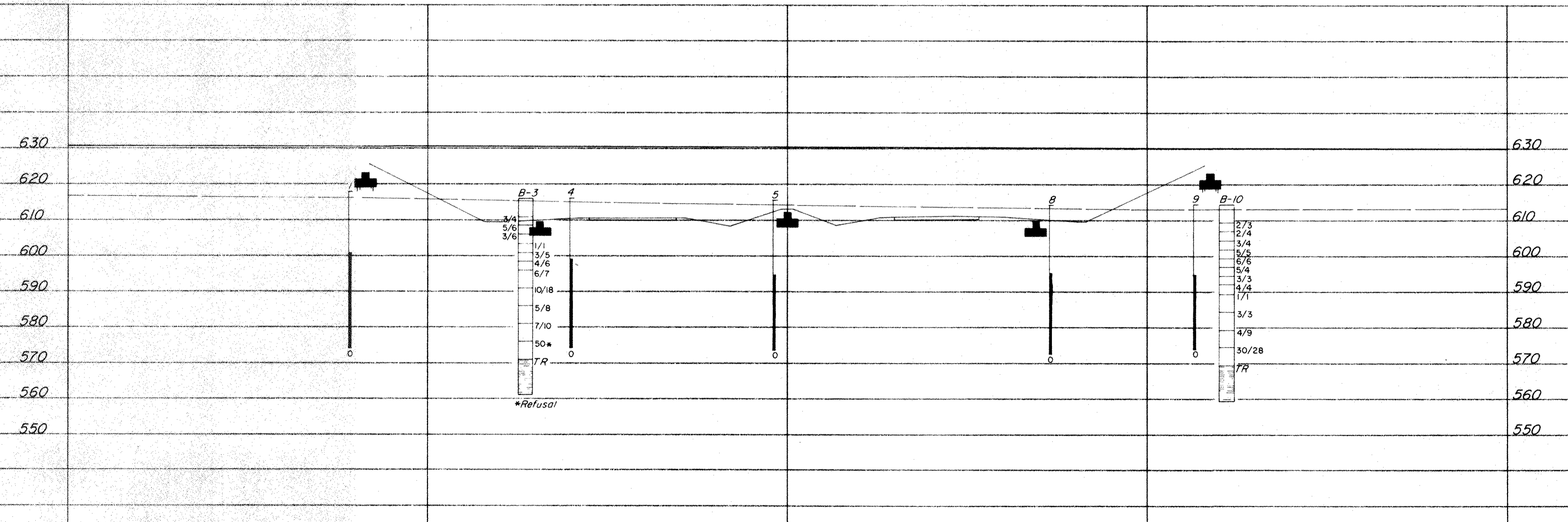
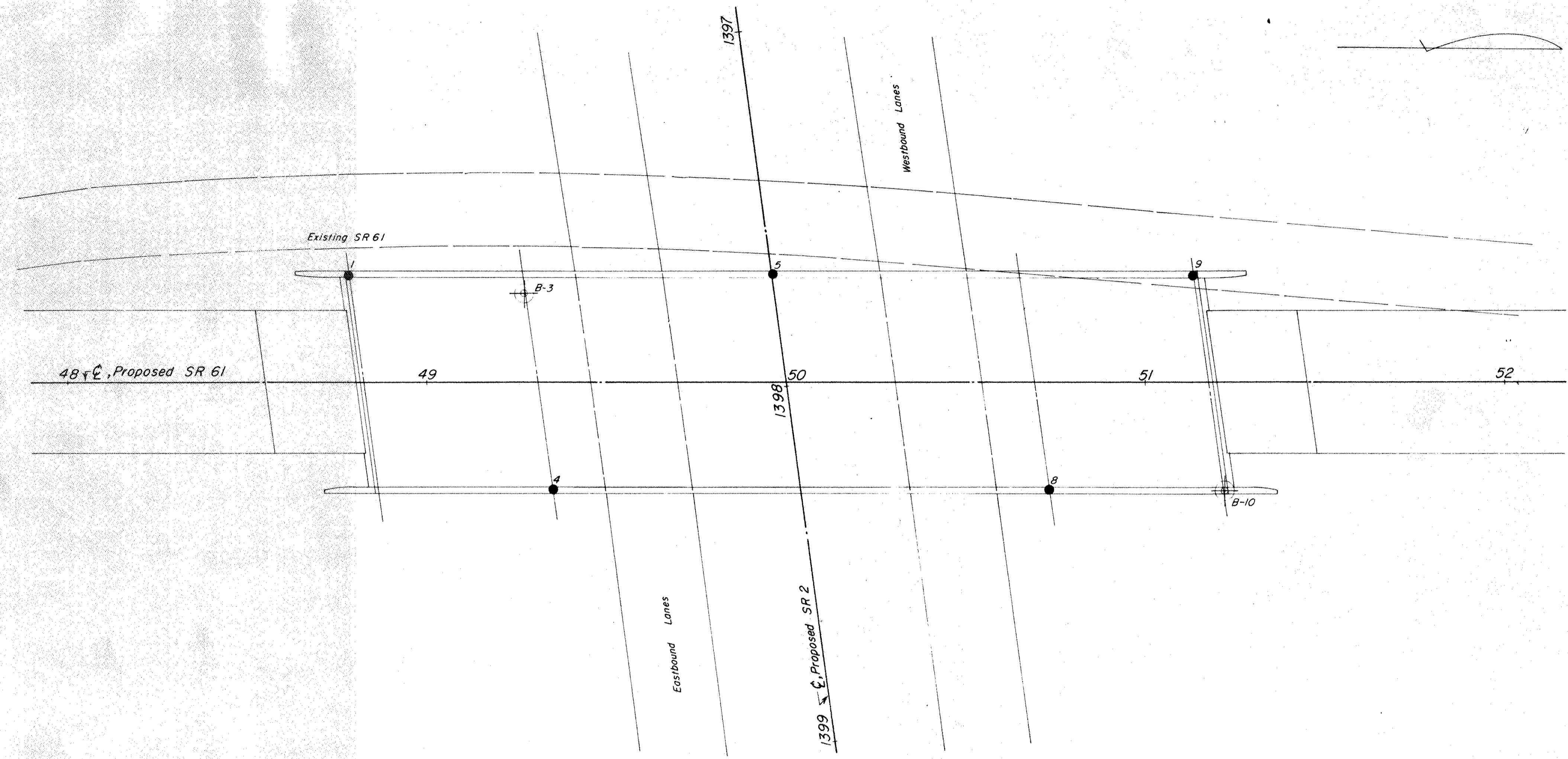
**STRUCTURE FOUNDATION INVESTIGATION**  
BRIDGE NO. ERI-2-2222  
UNDER SR 61  
SEC. ERI-2-1838

CHECKED BY L.N.L. REVIEWED BY R.D.R. DATE 4/26/68



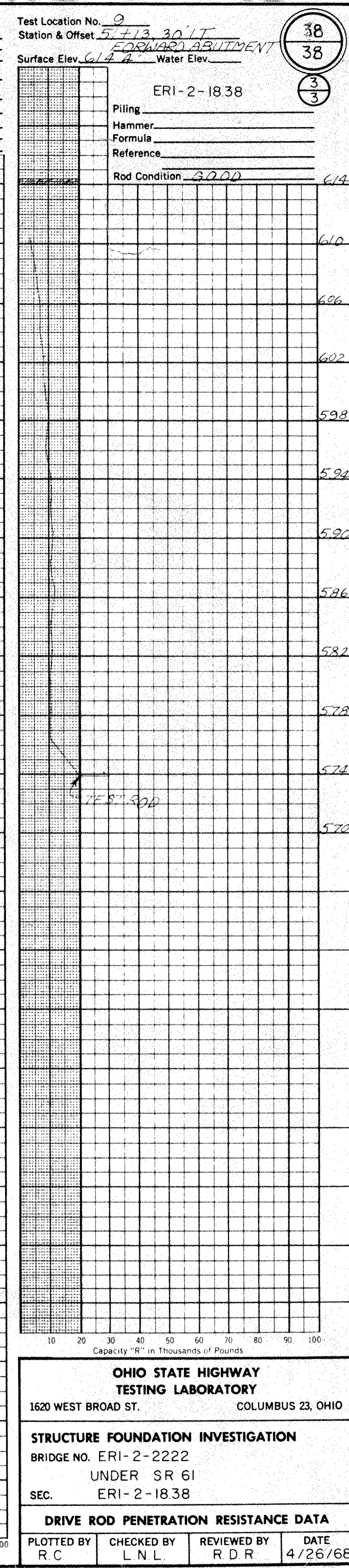
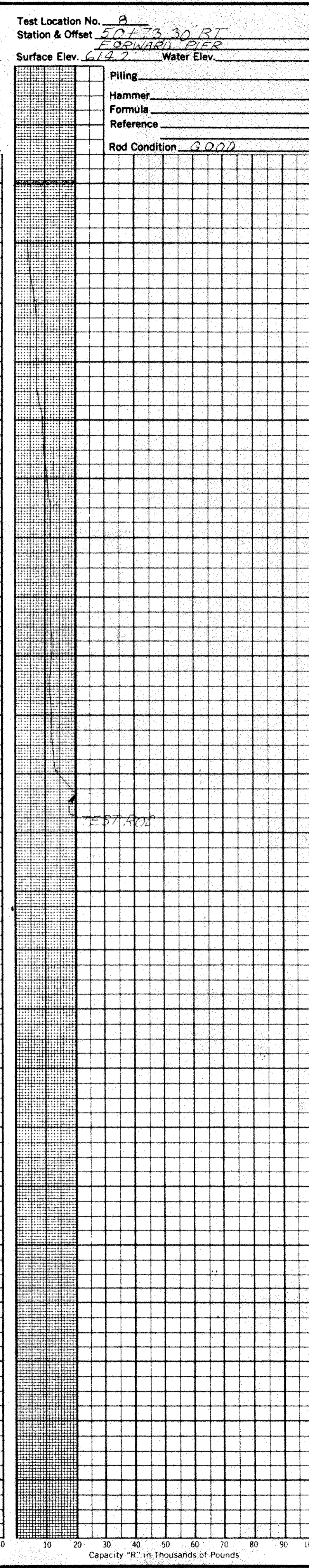
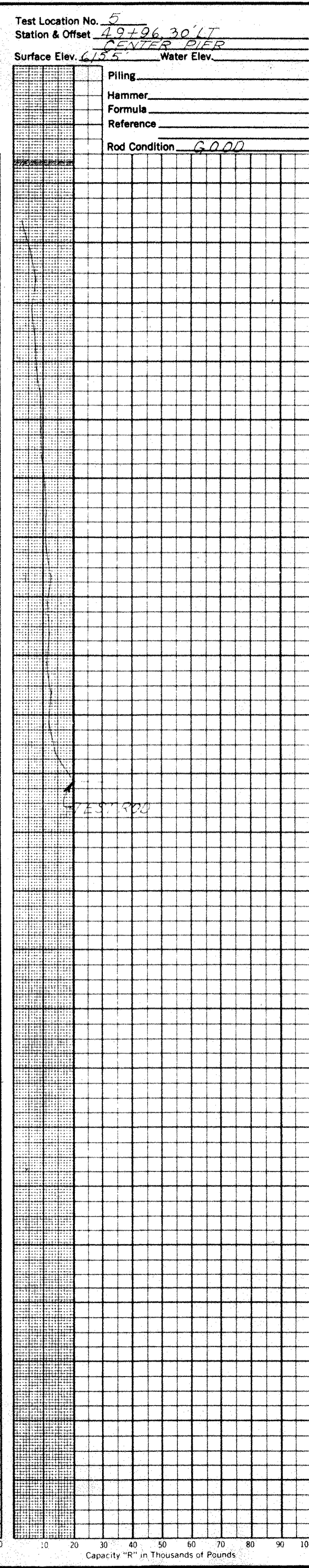
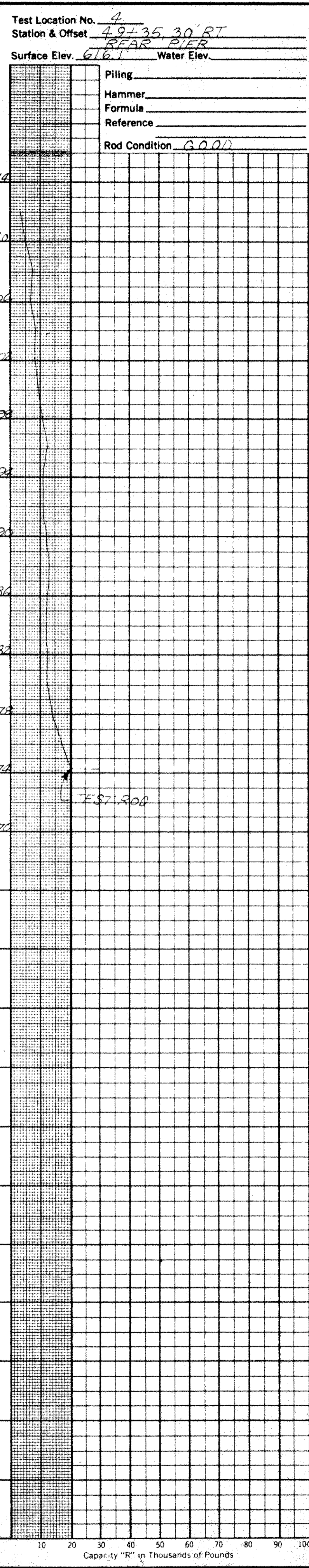
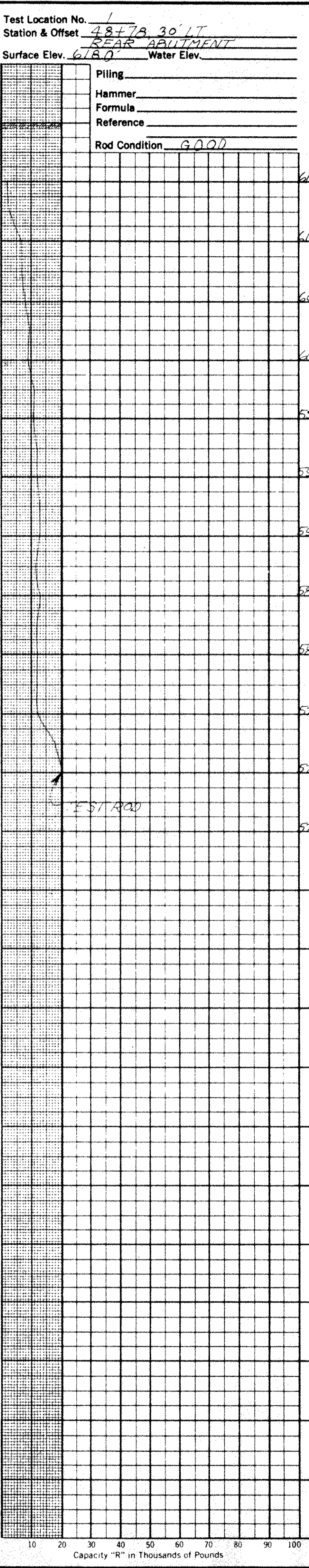
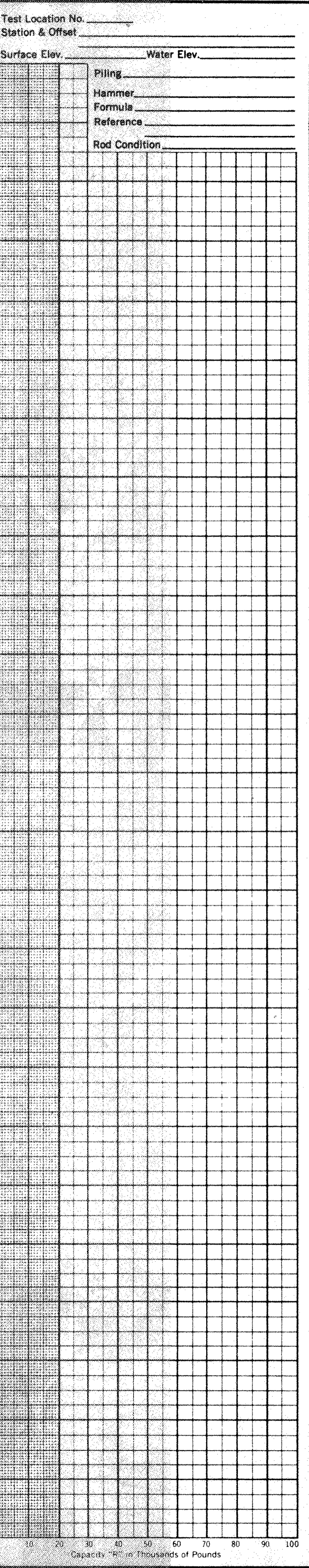
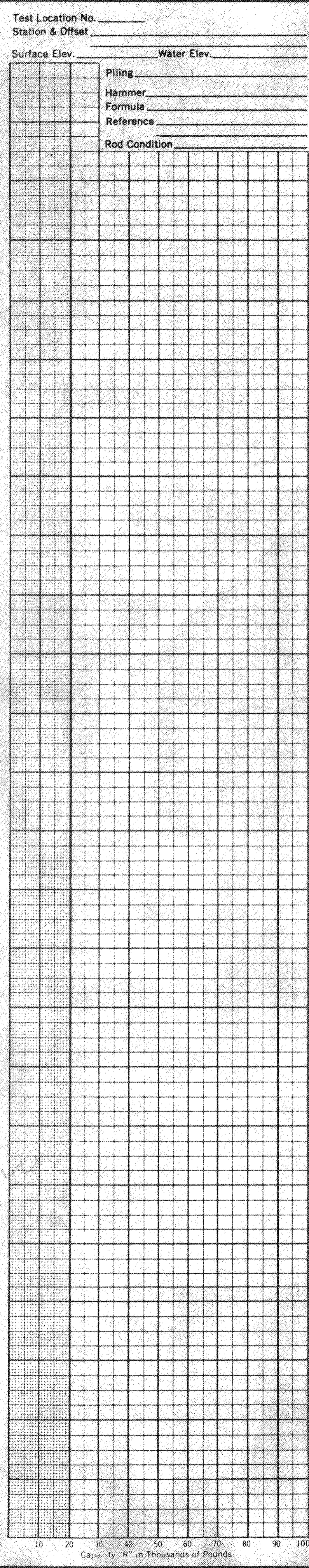
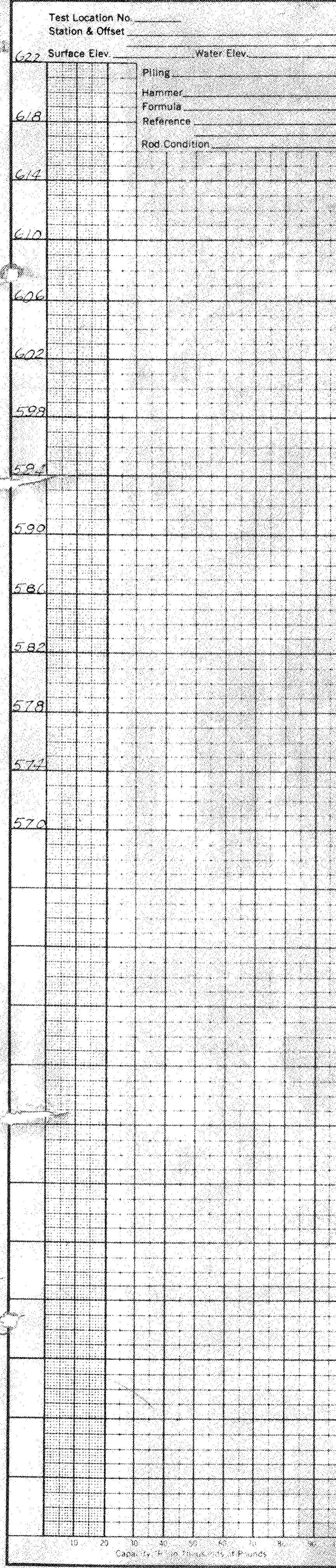
REPRODUCTION  
FEB 7 1962

57  
38  
2  
3  
ERI-2-18.38



OHIO DEPARTMENT OF HIGHWAYS TESTING LABORATORY 1620 WEST BROAD STREET, COLUMBUS 23, OHIO			
STRUCTURE FOUNDATION INVESTIGATION BRIDGE NO. ERI-2-2222 UNDER SR 61 SEC. ERI-2-18.38			
PLAN AND PROFILE			
DRAWN BY J.E.C.	CHECKED BY L.N.L.	REVIEWED BY R.D.R.	DATE 4/26/68

SCALE: 1" = 20'



38  
38  
3  
3

**OHIO STATE HIGHWAY TESTING LABORATORY**  
1620 WEST BROAD ST. COLUMBUS 23, OHIO

**STRUCTURE FOUNDATION INVESTIGATION**  
BRIDGE NO. ERI-2-2222  
UNDER SR 61  
SEC. ERI-2-1838

**DRIVE ROD PENETRATION RESISTANCE DATA**

PLOTTED BY R.C.	CHECKED BY L.N.L.	REVIEWED BY R.D.R.	DATE 4/26/68
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